Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6838-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-5
Location:	Tioga, ND
Latitude:	48-29-28.76N NAD 83
Longitude:	103-11-56.36W
Heights:	2293 feet site elevation (SE)
	660 feet above ground level (AGL)
	2953 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6838-OE.

Signature Control No: 370538107-385972366 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE

2018-WTE-6898-OE
2018-WTE-6900-OE
2018-WTE-6902-OE
2018-WTE-6904-OE
2018-WTE-6905-OE

2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE
2018-WTE-6910-OE
2018-WTE-6911-OE

2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE

2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE
2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6911-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE

2018-WTE-6915-OE
2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE

2018-WTE-6920-OE
2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE

2018-WTE-6925-OE
2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE
2018-WTE-6920-OE

2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

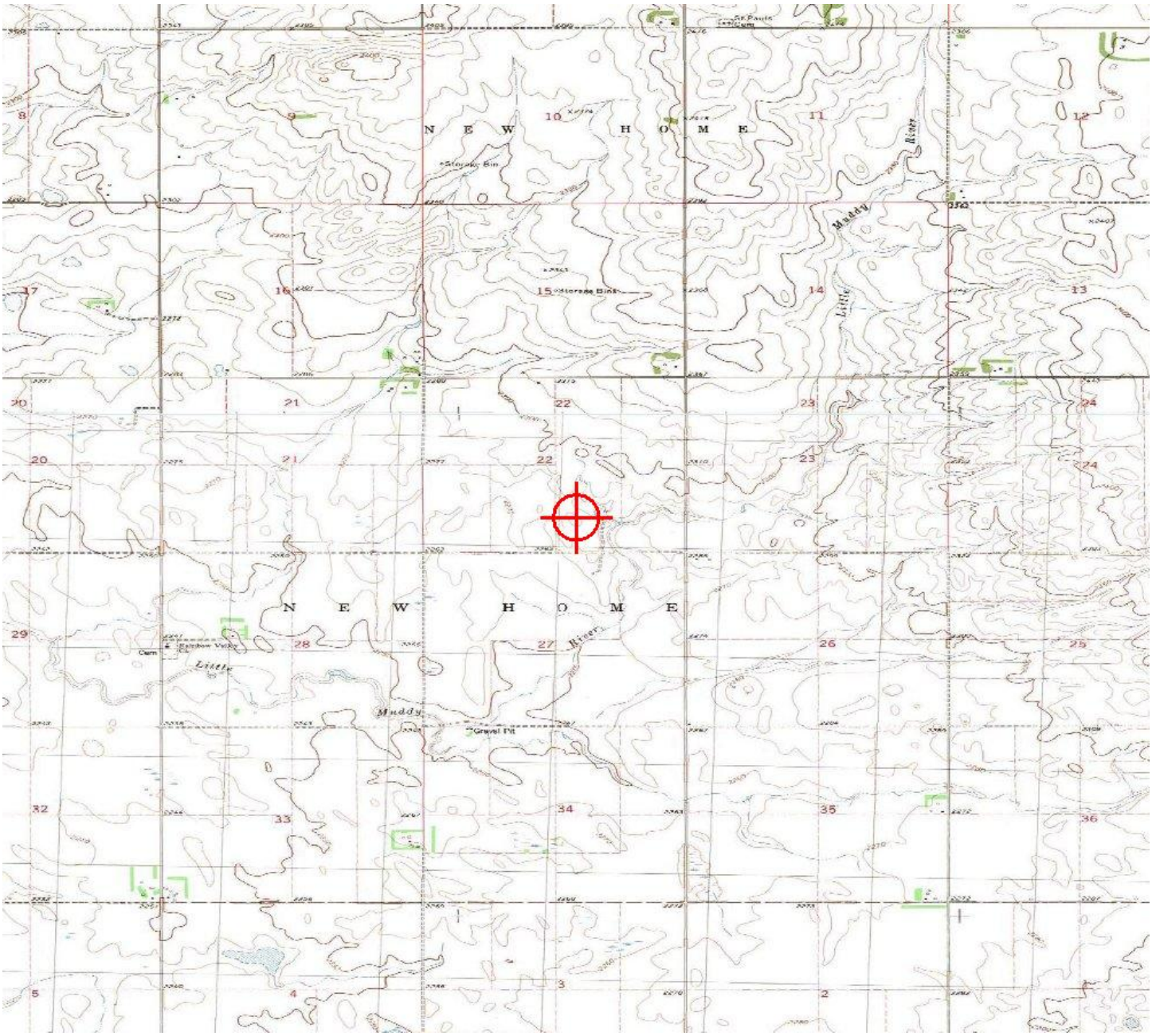
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6838-OE



Sectional Map for ASN 2018-WTE-6838-OE



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Issued Date: 09/25/2018

Leslie Strong
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16105 W 113th Street
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**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-8
Location:	Tioga, ND
Latitude:	48-26-33.20N NAD 83
Longitude:	103-05-24.61W
Heights:	2362 feet site elevation (SE)
	660 feet above ground level (AGL)
	3022 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
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NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

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This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

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If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6839-OE.

Signature Control No: 370538108-385972362 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
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Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

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2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE

2018-WTE-6898-OE
2018-WTE-6900-OE
2018-WTE-6902-OE
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2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE
2018-WTE-6910-OE
2018-WTE-6911-OE

2018-WTE-6912-OE
2018-WTE-6913-OE
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2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
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2018-WTE-6933-OE
2018-WTE-6938-OE
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2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
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The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

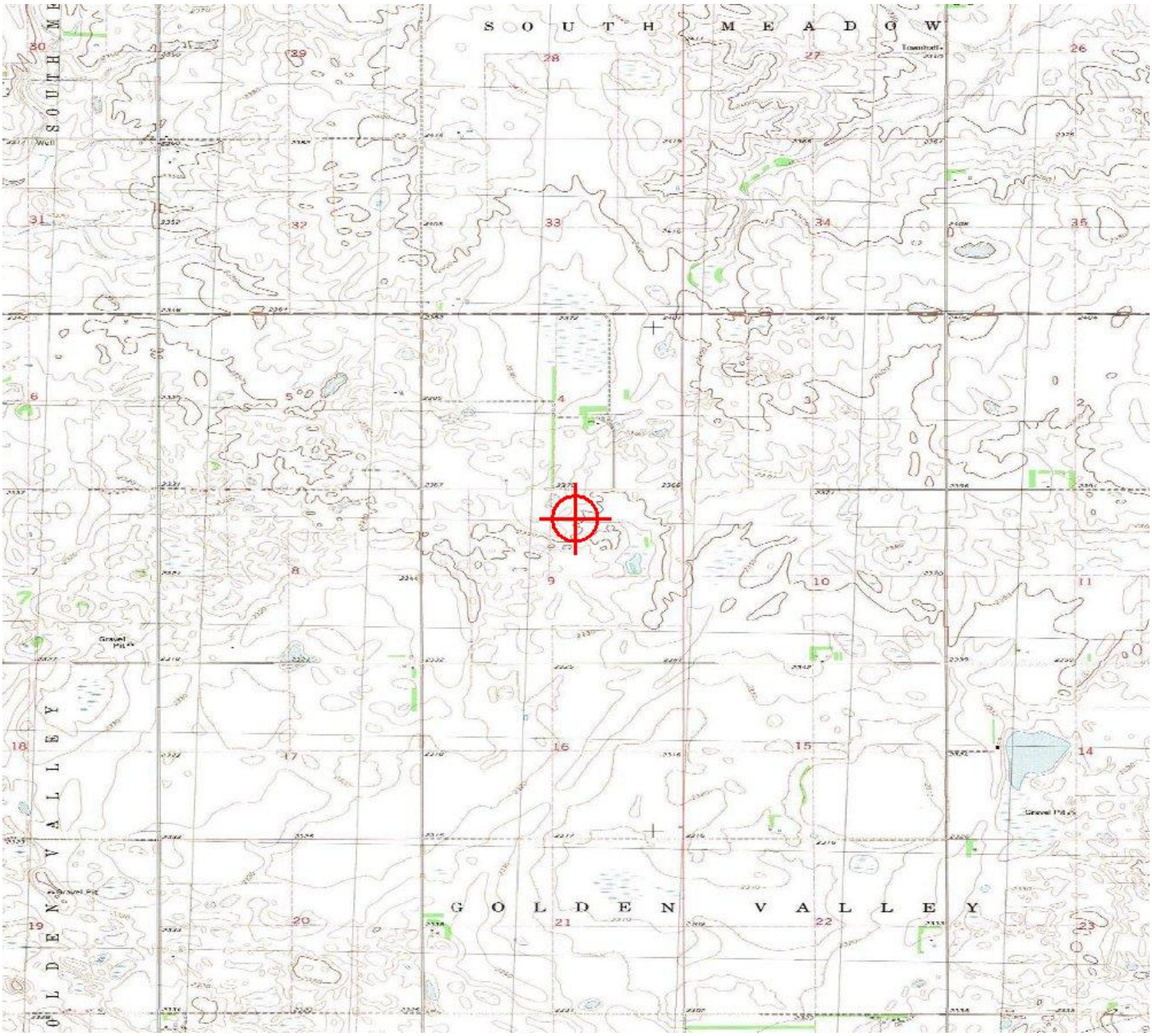
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

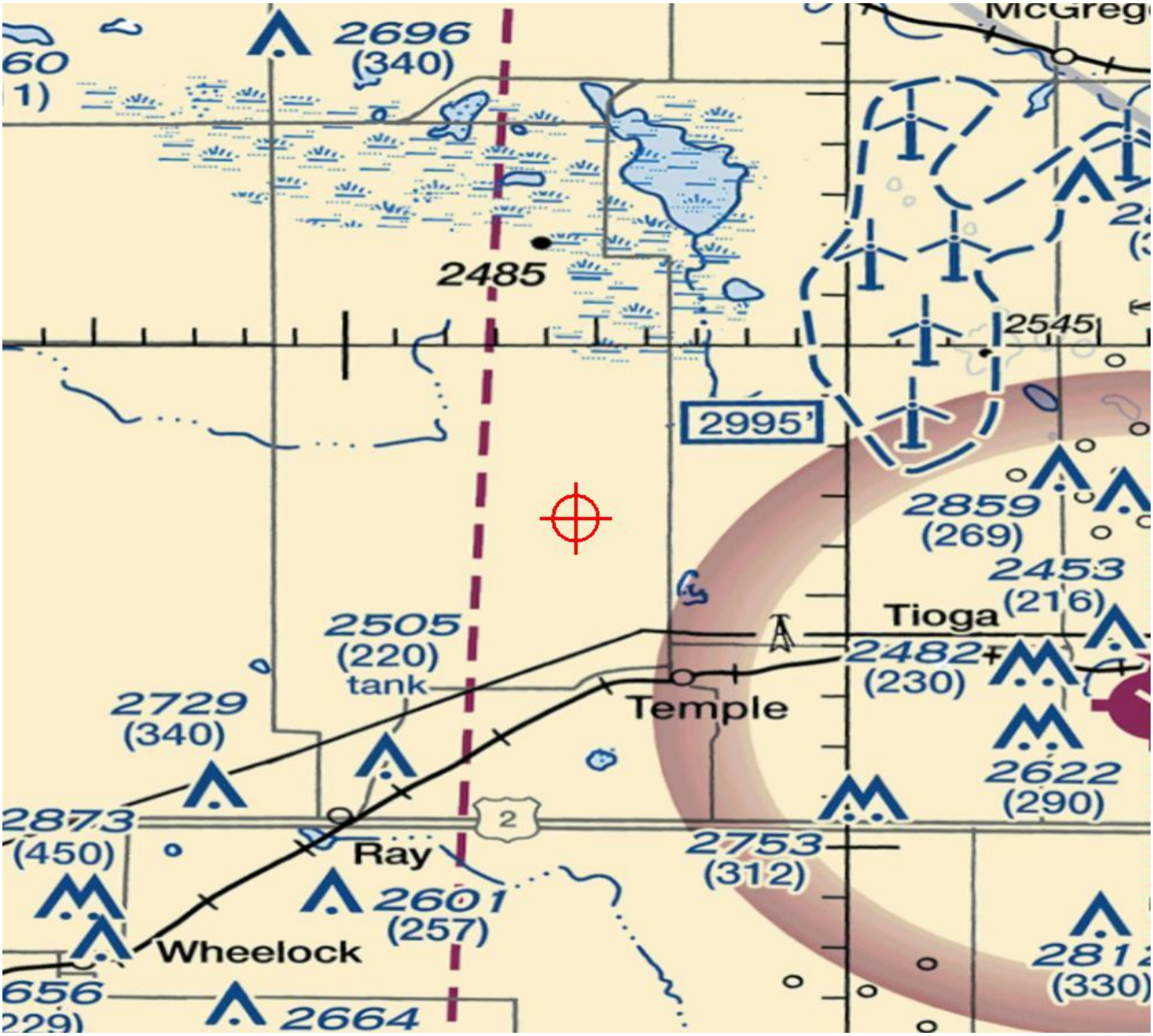
Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6839-OE



Sectional Map for ASN 2018-WTE-6839-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6840-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-9
Location:	Tioga, ND
Latitude:	48-26-57.06N NAD 83
Longitude:	103-04-34.83W
Heights:	2396 feet site elevation (SE)
	660 feet above ground level (AGL)
	3056 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6840-OE.

Signature Control No: 370538109-385972361 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
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The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

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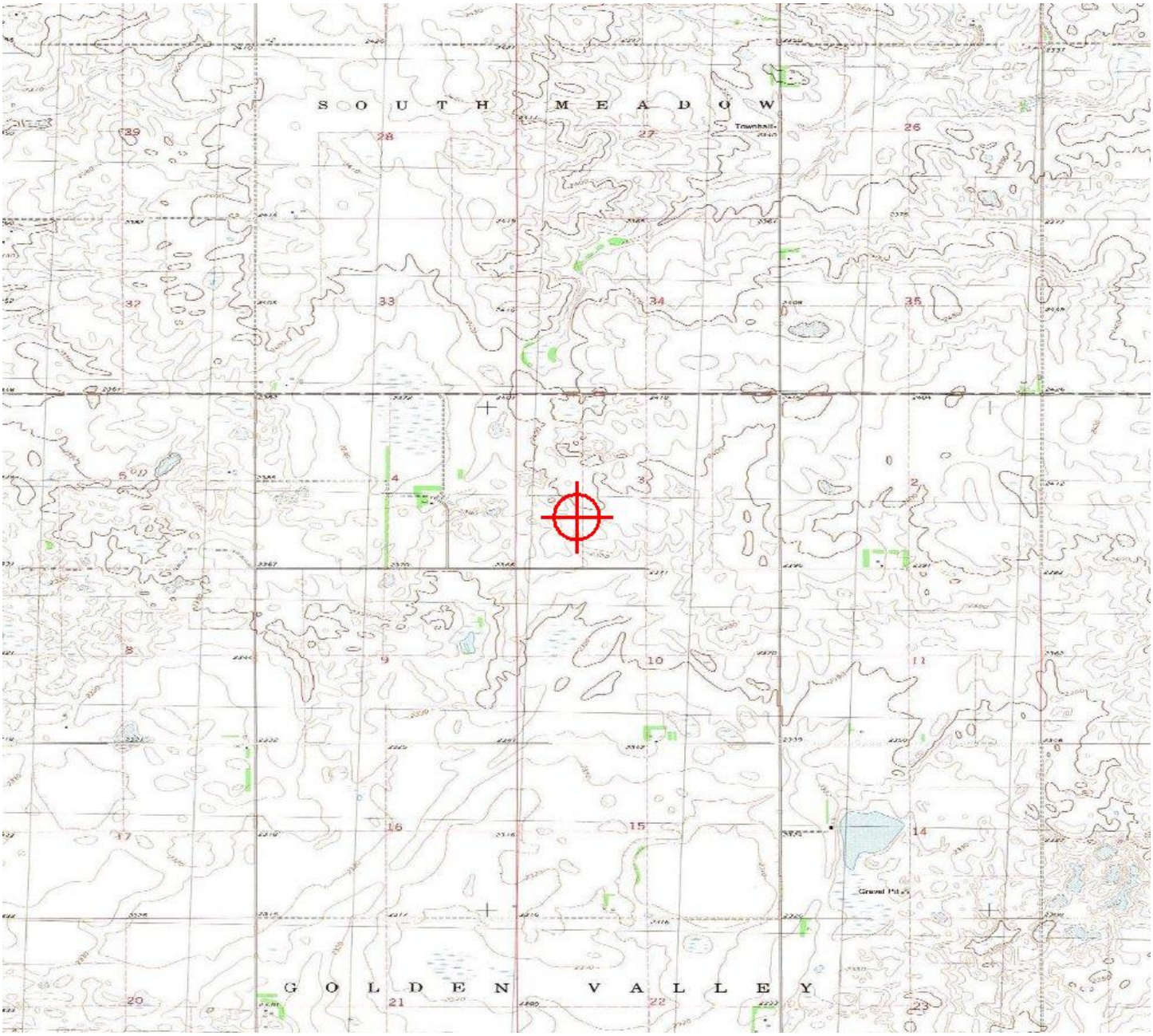
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Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6840-OE



Sectional Map for ASN 2018-WTE-6840-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6841-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-10
Location:	Tioga, ND
Latitude:	48-27-21.95N NAD 83
Longitude:	103-04-39.79W
Heights:	2411 feet site elevation (SE)
	660 feet above ground level (AGL)
	3071 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6841-OE.

Signature Control No: 370538110-385972368 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE

2018-WTE-6898-OE
2018-WTE-6900-OE
2018-WTE-6902-OE
2018-WTE-6904-OE
2018-WTE-6905-OE

2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE
2018-WTE-6910-OE
2018-WTE-6911-OE

2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE

2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE
2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6911-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE

2018-WTE-6915-OE
2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE

2018-WTE-6920-OE
2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE

2018-WTE-6925-OE
2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE
2018-WTE-6920-OE

2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

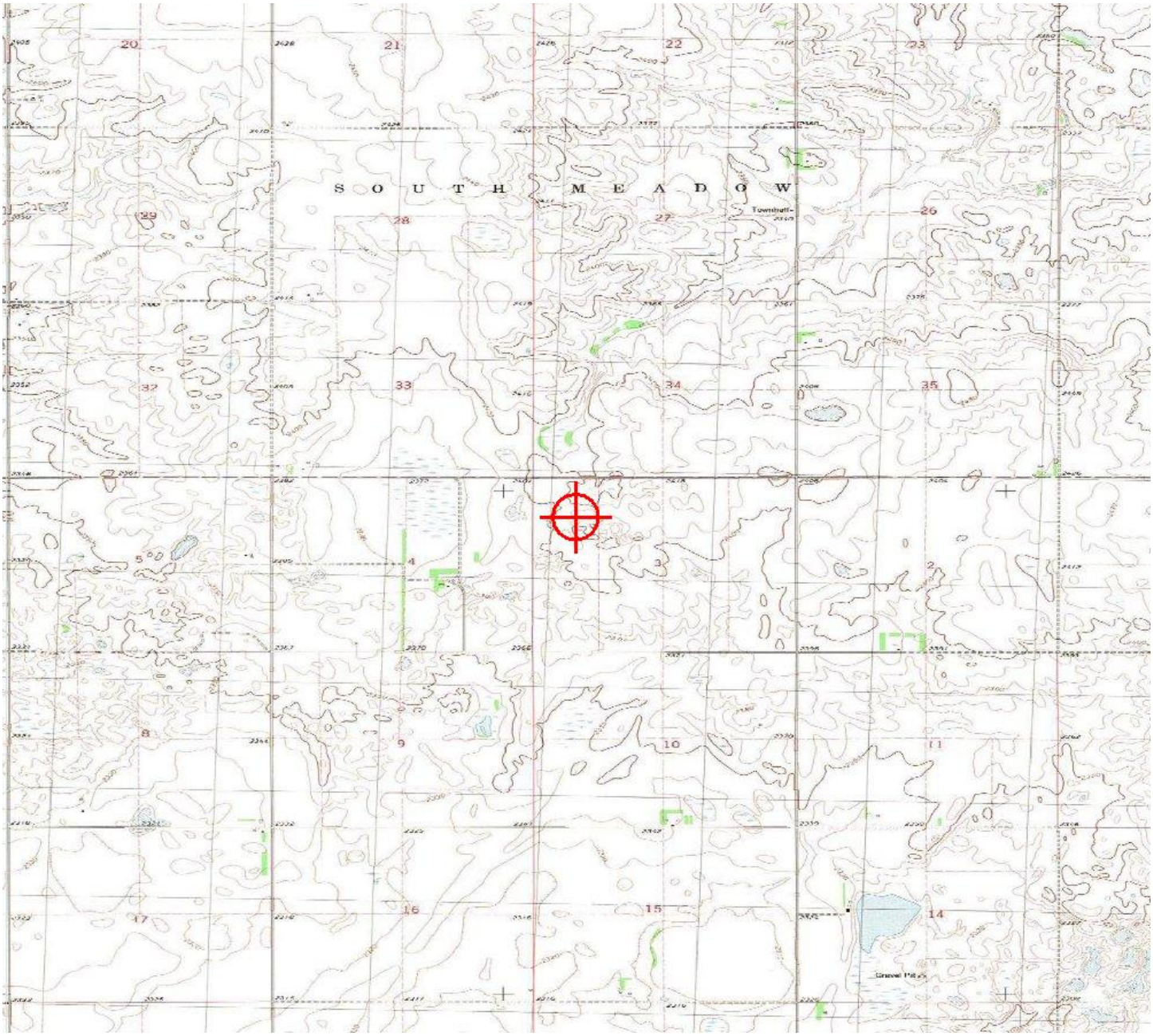
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6841-OE



Sectional Map for ASN 2018-WTE-6841-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6842-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-11
Location:	Tioga, ND
Latitude:	48-27-00.42N NAD 83
Longitude:	103-03-56.66W
Heights:	2392 feet site elevation (SE)
	660 feet above ground level (AGL)
	3052 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6842-OE.

Signature Control No: 370538111-385972360 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE

2018-WTE-6898-OE
2018-WTE-6900-OE
2018-WTE-6902-OE
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2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
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2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
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2018-WTE-6938-OE
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2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
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2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
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2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

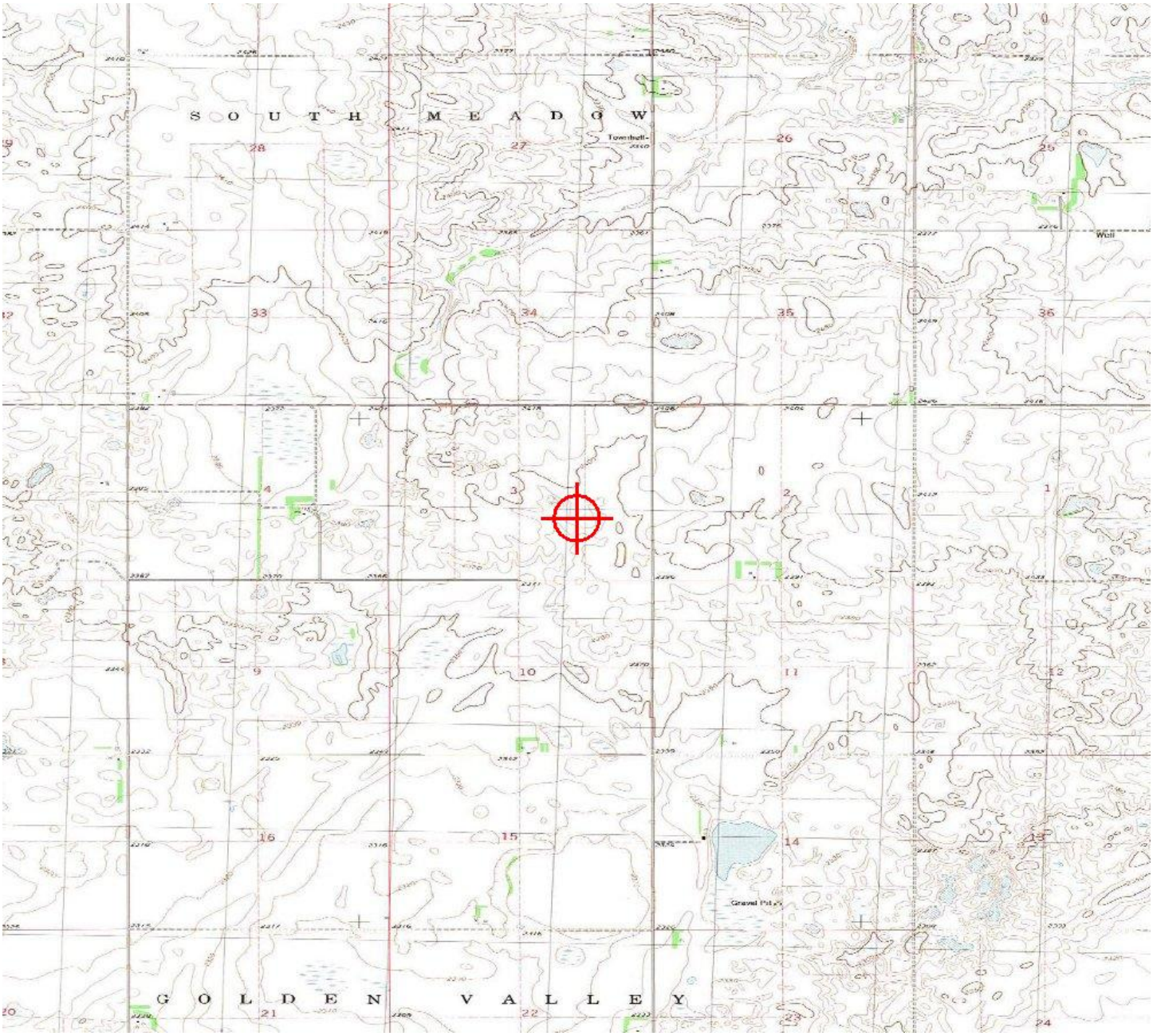
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6842-OE



Sectional Map for ASN 2018-WTE-6842-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6843-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-12
Location:	Tioga, ND
Latitude:	48-27-44.36N NAD 83
Longitude:	103-03-57.39W
Heights:	2422 feet site elevation (SE)
	660 feet above ground level (AGL)
	3082 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6843-OE.

Signature Control No: 370538122-385972370 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
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2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
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The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

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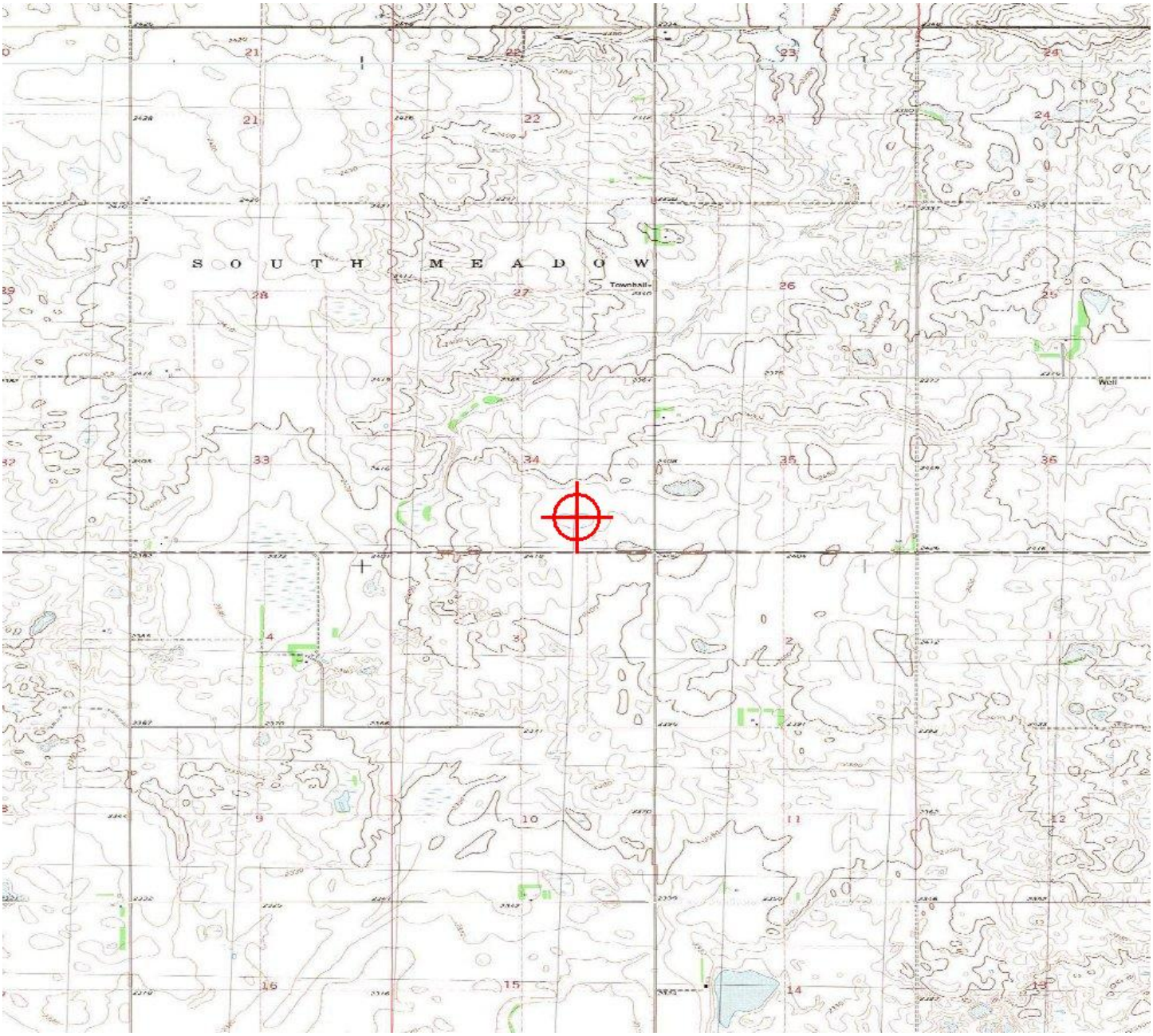
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Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6843-OE



Sectional Map for ASN 2018-WTE-6843-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6844-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-13
Location:	Tioga, ND
Latitude:	48-27-46.27N NAD 83
Longitude:	103-04-30.02W
Heights:	2412 feet site elevation (SE)
	660 feet above ground level (AGL)
	3072 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6844-OE.

Signature Control No: 370538123-385972364 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE

2018-WTE-6898-OE
2018-WTE-6900-OE
2018-WTE-6902-OE
2018-WTE-6904-OE
2018-WTE-6905-OE

2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE
2018-WTE-6910-OE
2018-WTE-6911-OE

2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE

2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE
2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6911-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE

2018-WTE-6915-OE
2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE

2018-WTE-6920-OE
2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE

2018-WTE-6925-OE
2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE
2018-WTE-6920-OE

2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

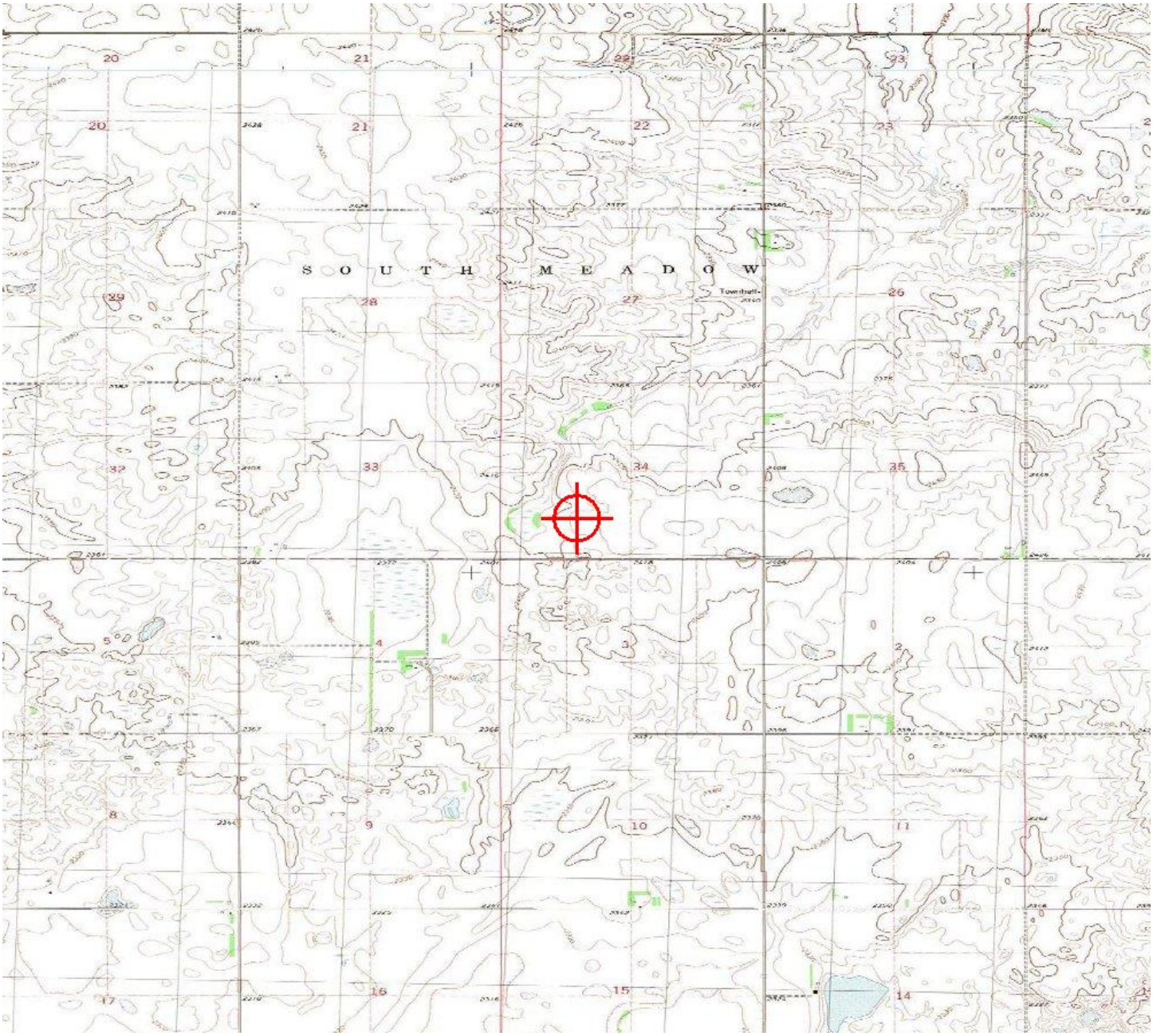
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

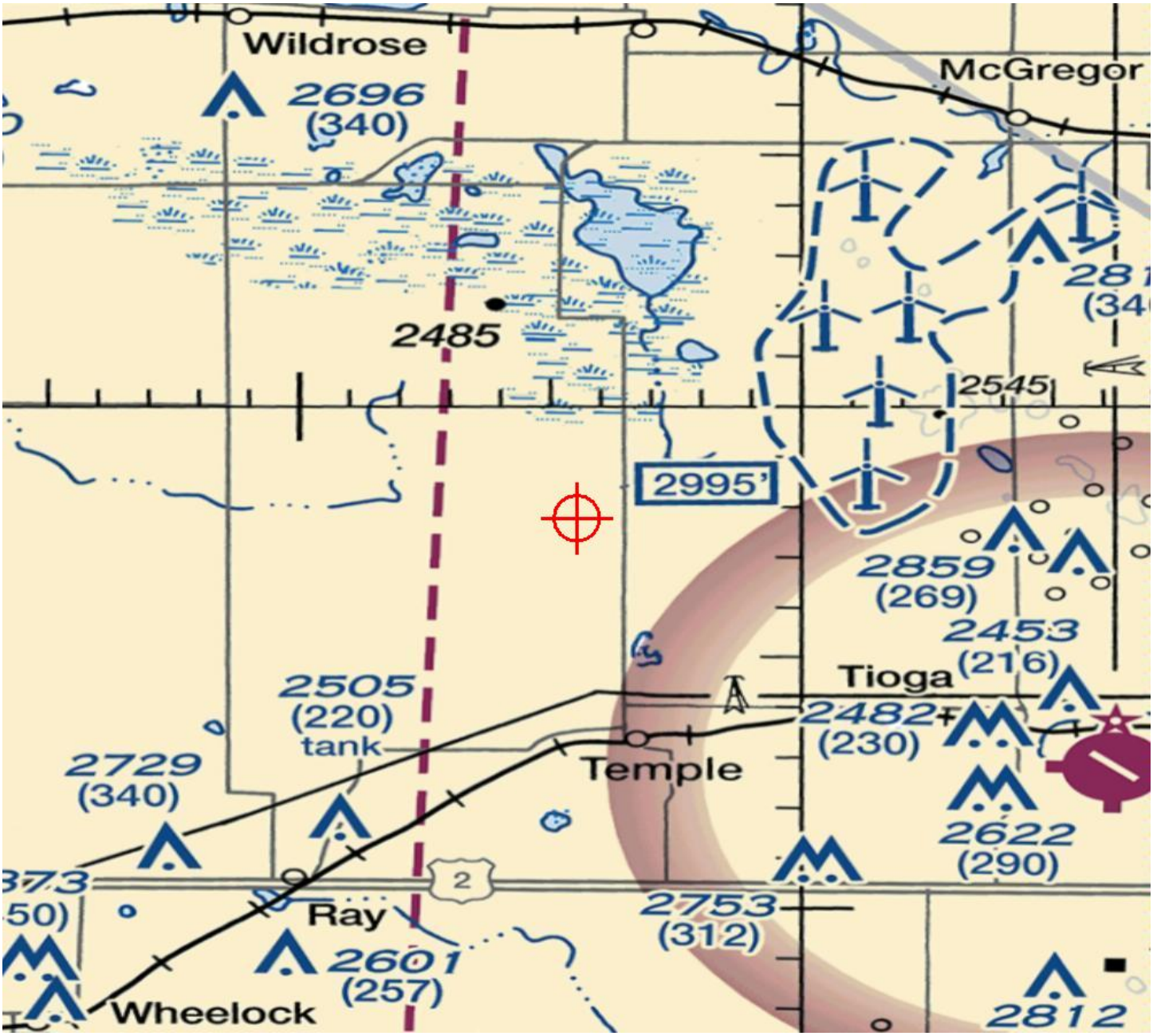
Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6844-OE



Sectional Map for ASN 2018-WTE-6844-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6845-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-14
Location:	Tioga, ND
Latitude:	48-28-14.35N NAD 83
Longitude:	103-03-13.17W
Heights:	2399 feet site elevation (SE)
	660 feet above ground level (AGL)
	3059 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6845-OE.

Signature Control No: 370538124-385972369 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
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2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE

2018-WTE-6898-OE
2018-WTE-6900-OE
2018-WTE-6902-OE
2018-WTE-6904-OE
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2018-WTE-6911-OE

2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
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2018-WTE-6889-OE
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2018-WTE-6902-OE
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2018-WTE-6904-OE
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2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
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2018-WTE-6888-OE

2018-WTE-6889-OE
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2018-WTE-6894-OE
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2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
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2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

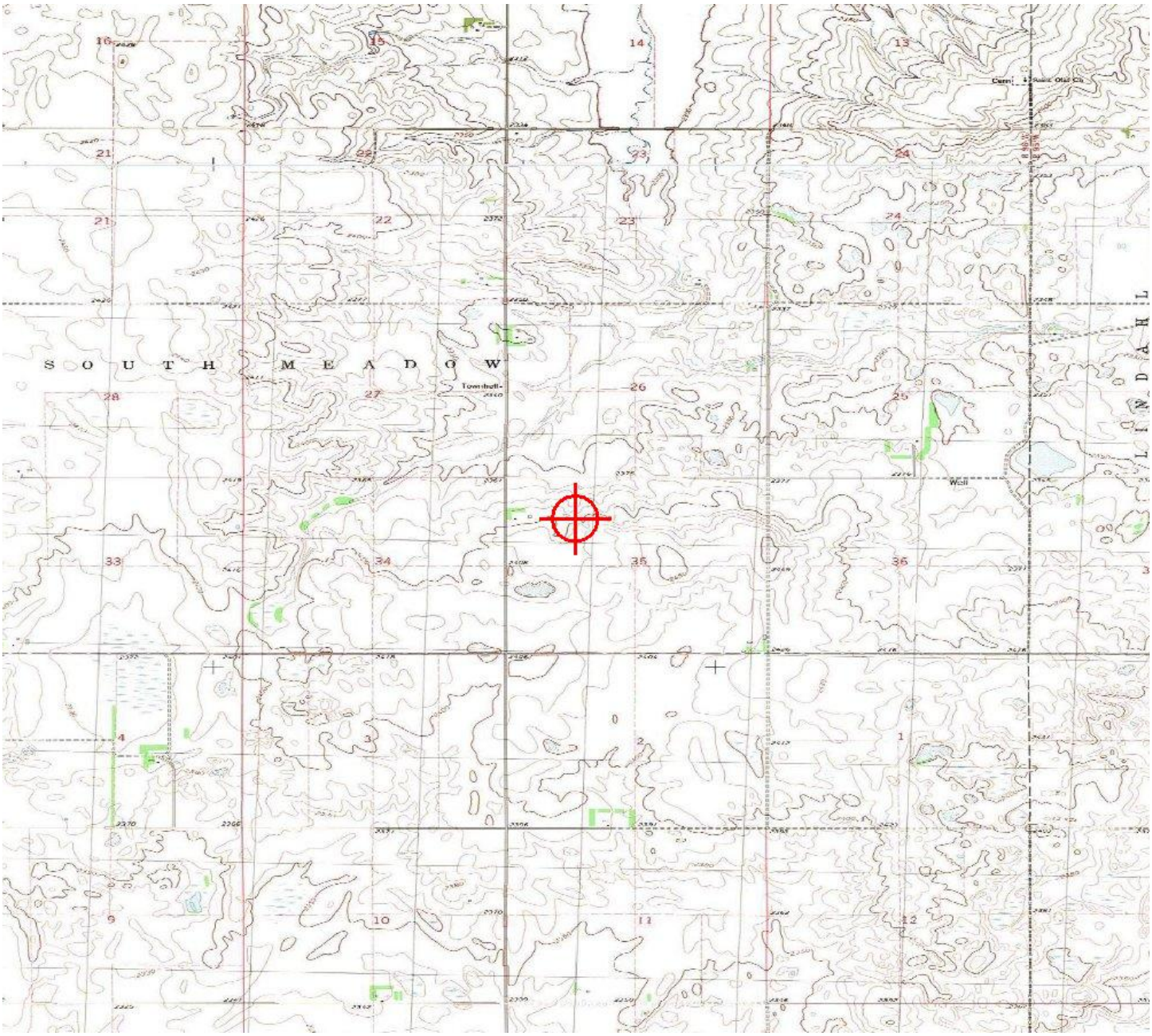
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6845-OE



Sectional Map for ASN 2018-WTE-6845-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6846-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-15
Location:	Tioga, ND
Latitude:	48-27-49.12N NAD 83
Longitude:	103-02-33.44W
Heights:	2414 feet site elevation (SE)
	660 feet above ground level (AGL)
	3074 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6846-OE.

Signature Control No: 370538125-385972363 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
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2018-WTE-6870-OE
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2018-WTE-6879-OE
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The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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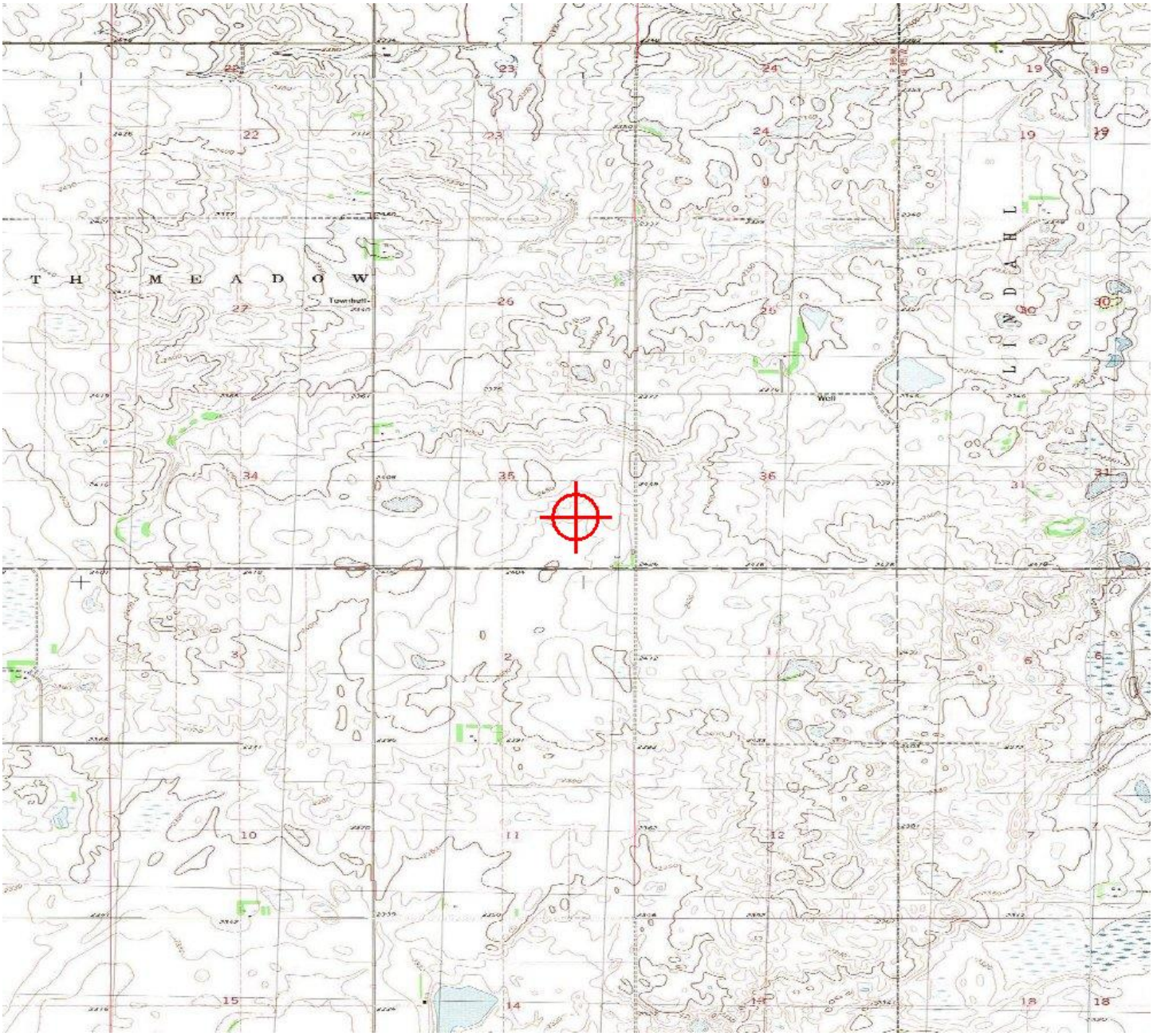
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

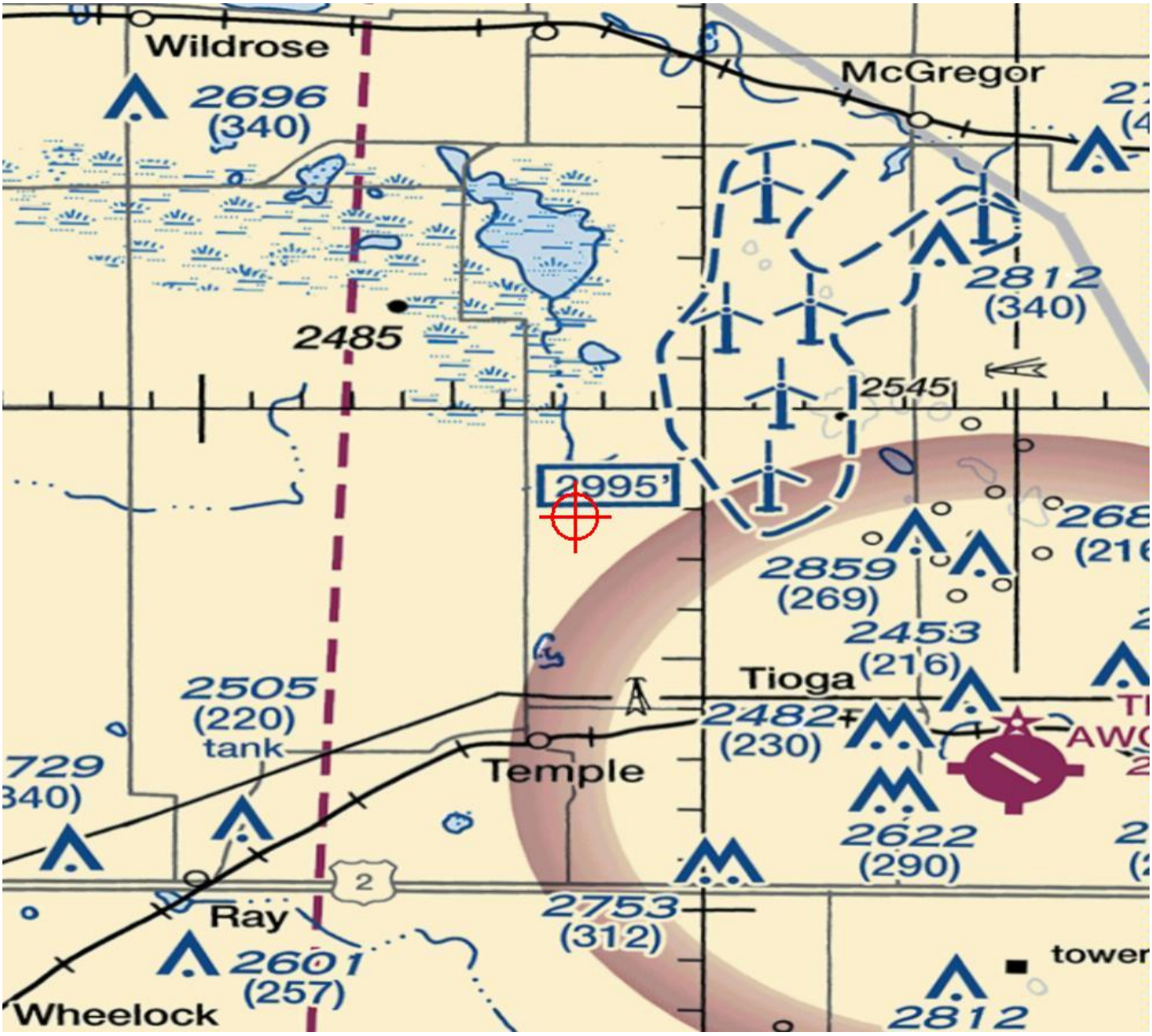
Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6846-OE



Sectional Map for ASN 2018-WTE-6846-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6847-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-16
Location:	Tioga, ND
Latitude:	48-28-11.26N NAD 83
Longitude:	103-02-27.87W
Heights:	2436 feet site elevation (SE)
	660 feet above ground level (AGL)
	3096 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6847-OE.

Signature Control No: 370538126-385972373 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE

2018-WTE-6898-OE
2018-WTE-6900-OE
2018-WTE-6902-OE
2018-WTE-6904-OE
2018-WTE-6905-OE

2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE
2018-WTE-6910-OE
2018-WTE-6911-OE

2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE

2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE
2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6911-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE

2018-WTE-6915-OE
2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE

2018-WTE-6920-OE
2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE

2018-WTE-6925-OE
2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE
2018-WTE-6920-OE

2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

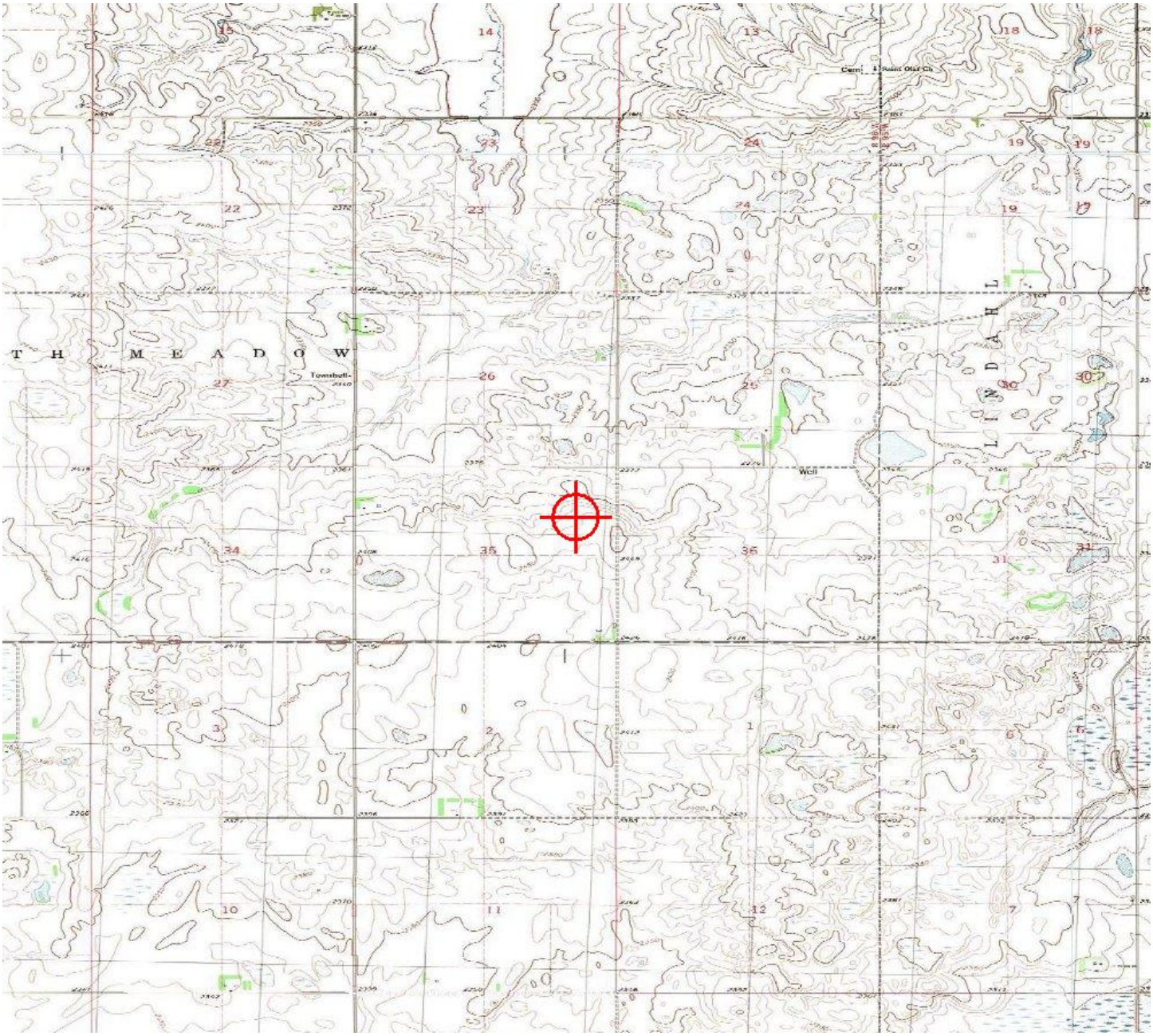
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

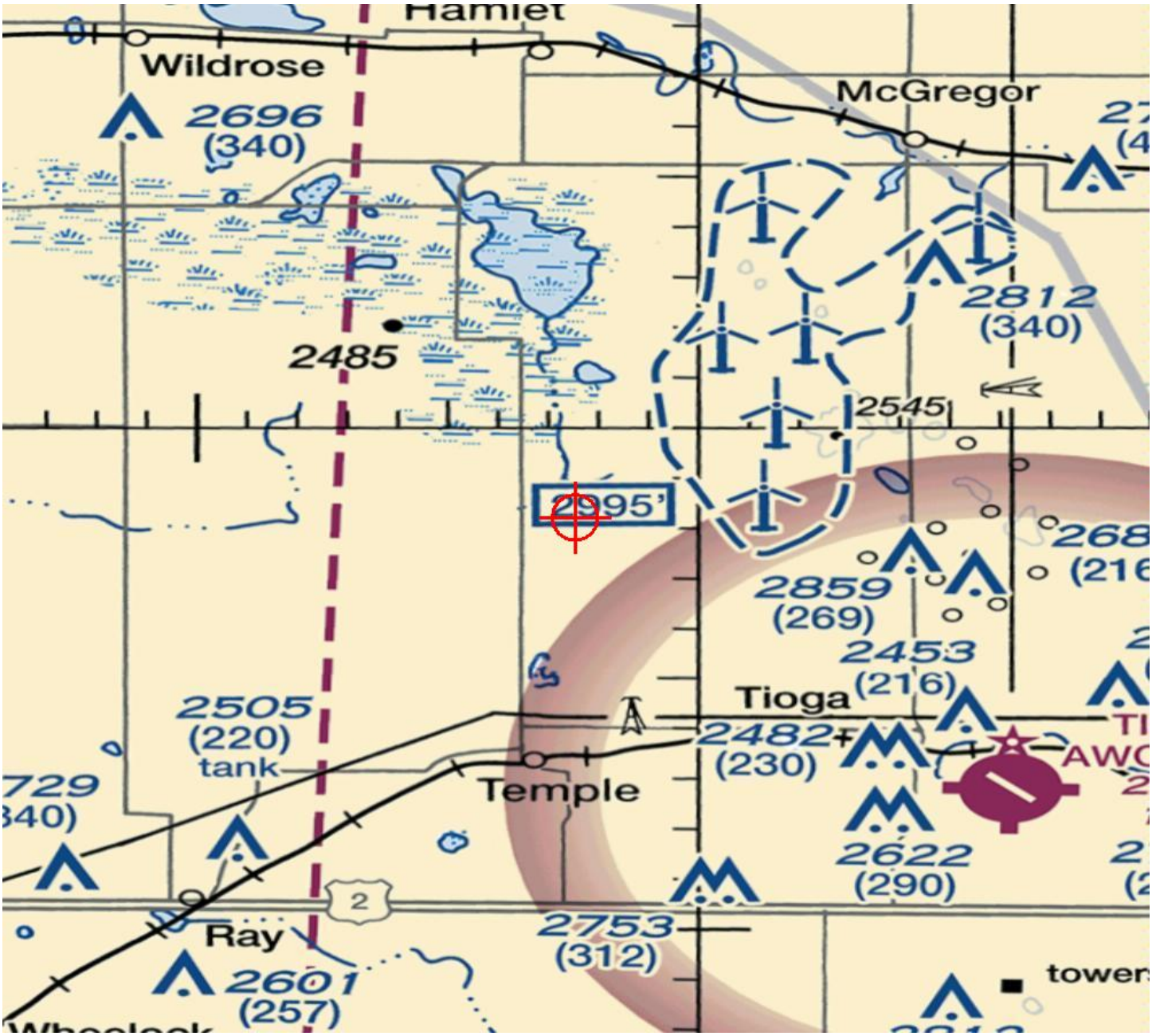
Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6847-OE



Sectional Map for ASN 2018-WTE-6847-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6848-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-17
Location:	Tioga, ND
Latitude:	48-28-11.79N NAD 83
Longitude:	103-01-55.52W
Heights:	2415 feet site elevation (SE)
	660 feet above ground level (AGL)
	3075 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

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used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6848-OE.

Signature Control No: 370538127-385972367 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
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2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
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2018-WTE-6879-OE
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2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
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2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
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2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
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2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

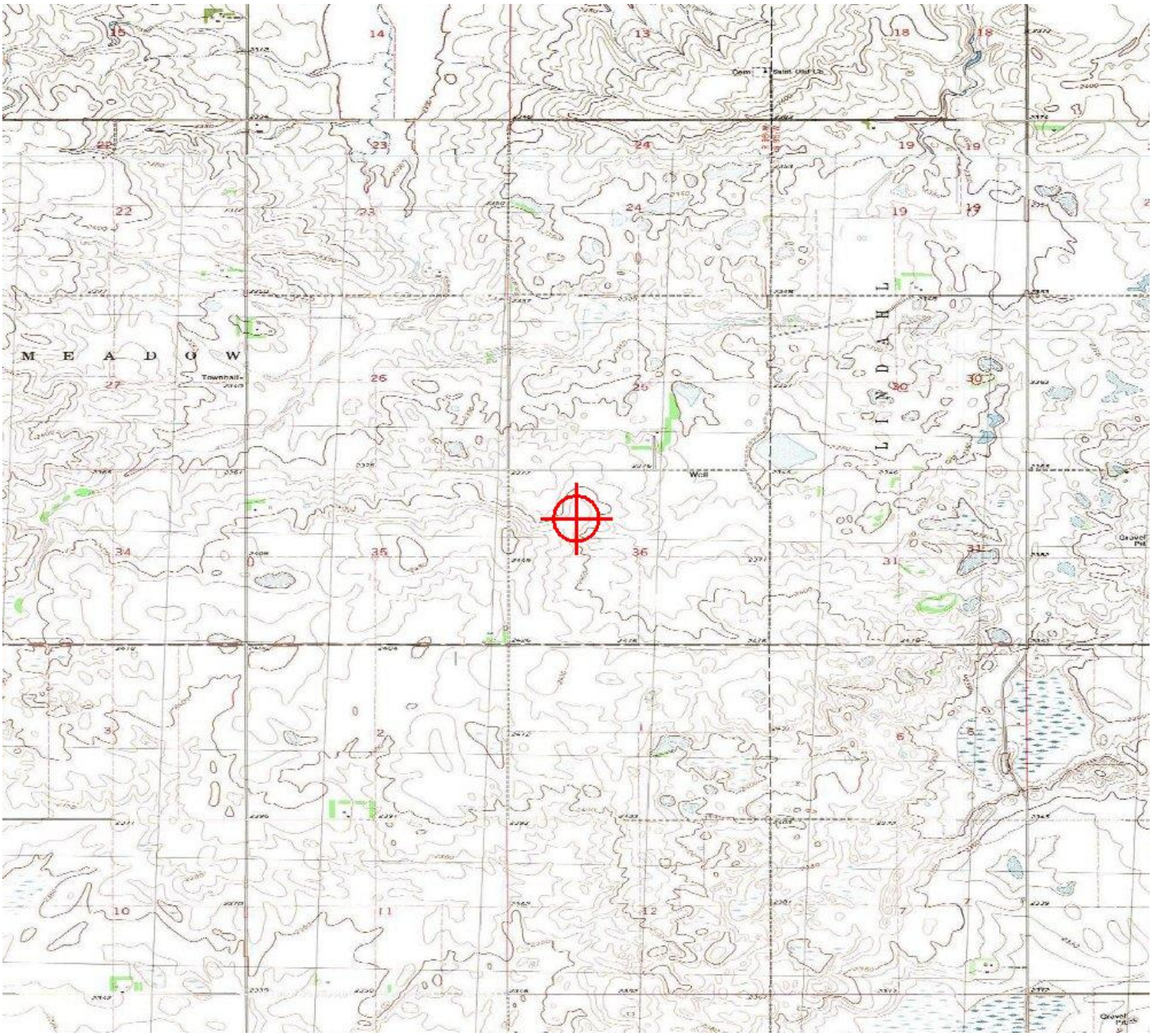
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6848-OE



Sectional Map for ASN 2018-WTE-6848-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6849-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-18
Location:	Tioga, ND
Latitude:	48-26-34.13N NAD 83
Longitude:	103-07-50.49W
Heights:	2331 feet site elevation (SE)
	660 feet above ground level (AGL)
	2991 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6849-OE.

Signature Control No: 370538128-385972377 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

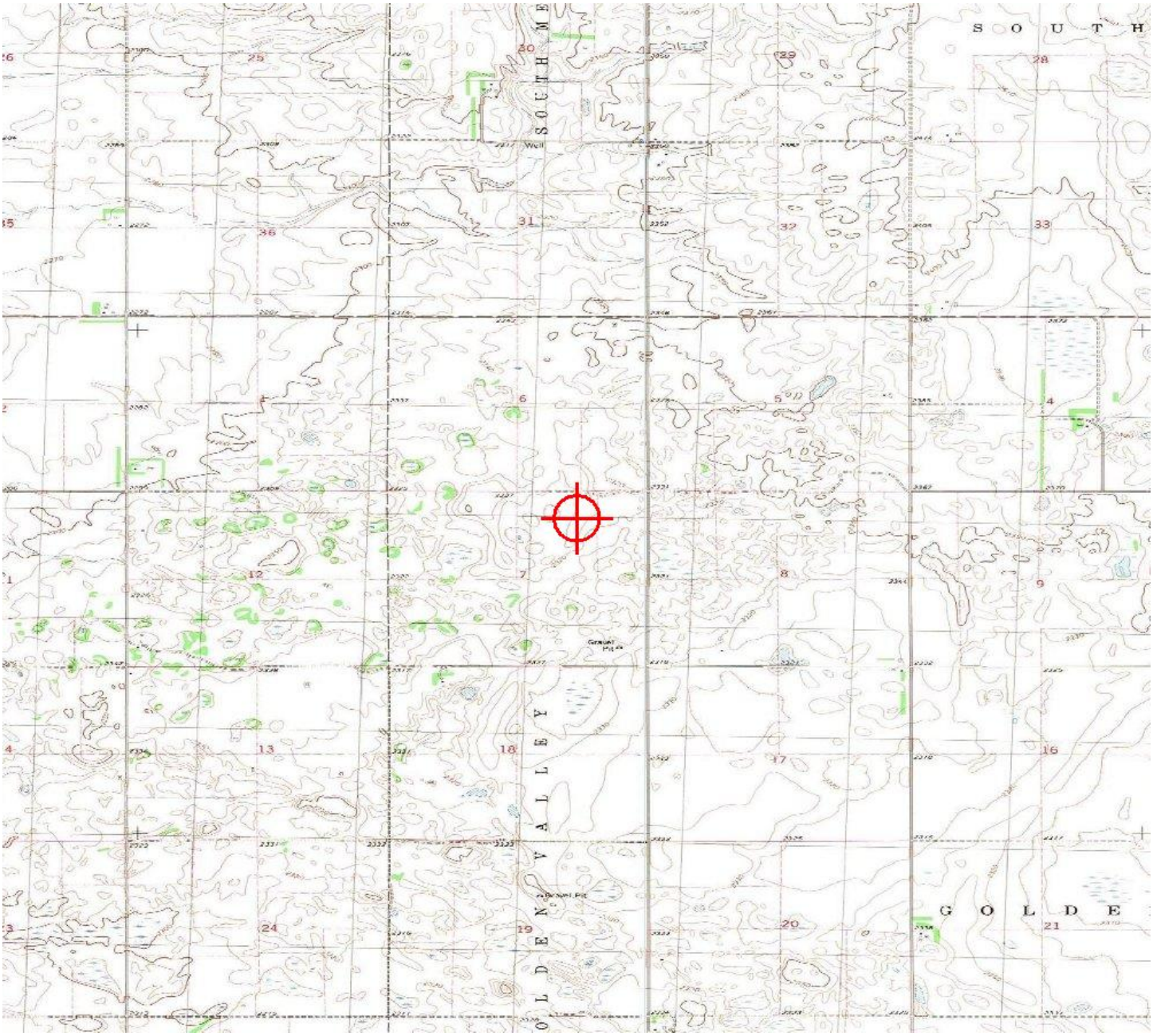
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

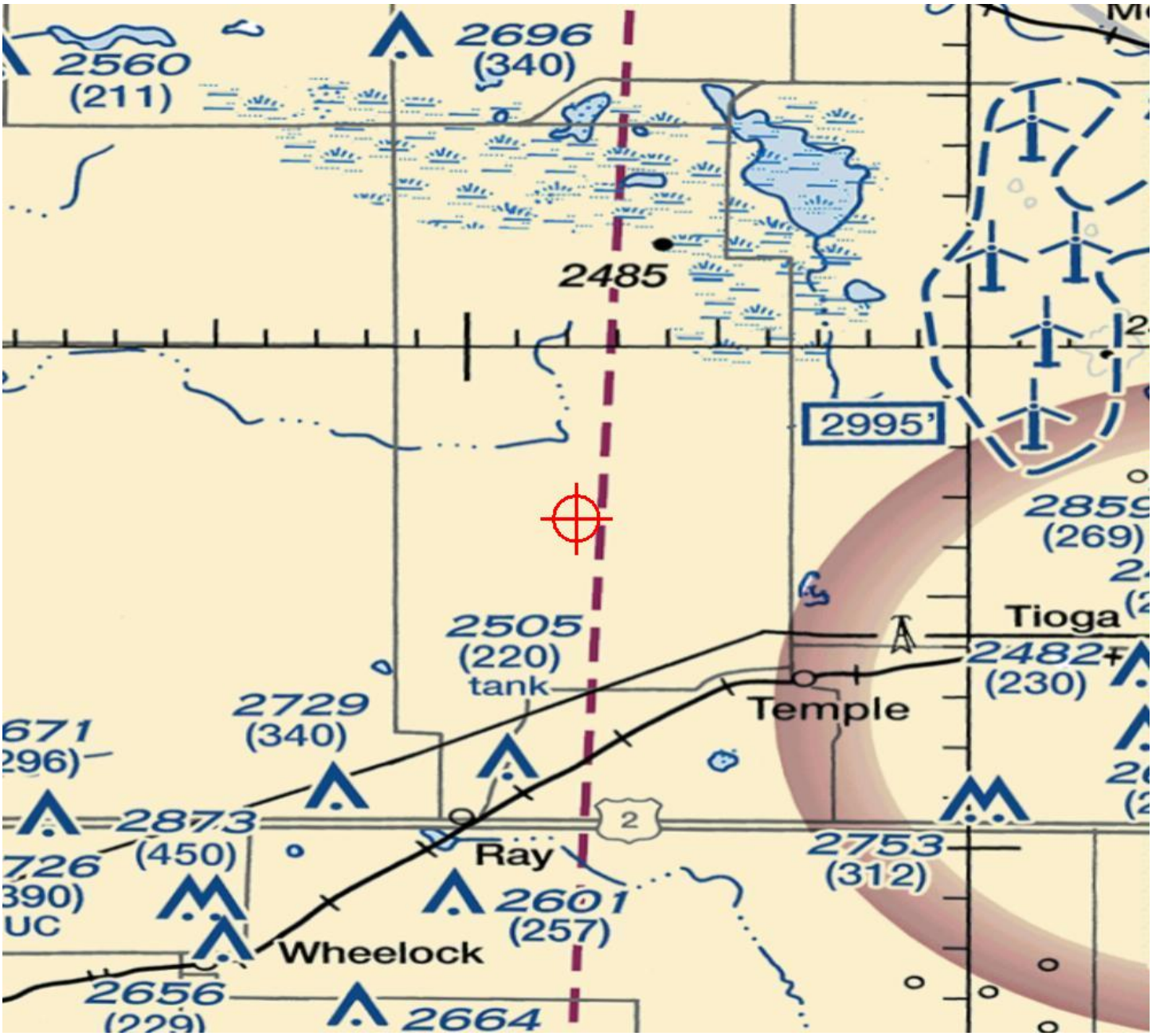
Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6849-OE



Sectional Map for ASN 2018-WTE-6849-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6850-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-19
Location:	Tioga, ND
Latitude:	48-26-33.21N NAD 83
Longitude:	103-05-53.60W
Heights:	2360 feet site elevation (SE)
	660 feet above ground level (AGL)
	3020 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6850-OE.

Signature Control No: 370538129-385972372 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE

2018-WTE-6898-OE
2018-WTE-6900-OE
2018-WTE-6902-OE
2018-WTE-6904-OE
2018-WTE-6905-OE

2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE
2018-WTE-6910-OE
2018-WTE-6911-OE

2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
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2018-WTE-6882-OE
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2018-WTE-6884-OE
2018-WTE-6885-OE
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2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE
2018-WTE-6893-OE

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2018-WTE-6916-OE
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2018-WTE-6921-OE
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2018-WTE-6923-OE
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2018-WTE-6925-OE
2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE
2018-WTE-6920-OE

2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

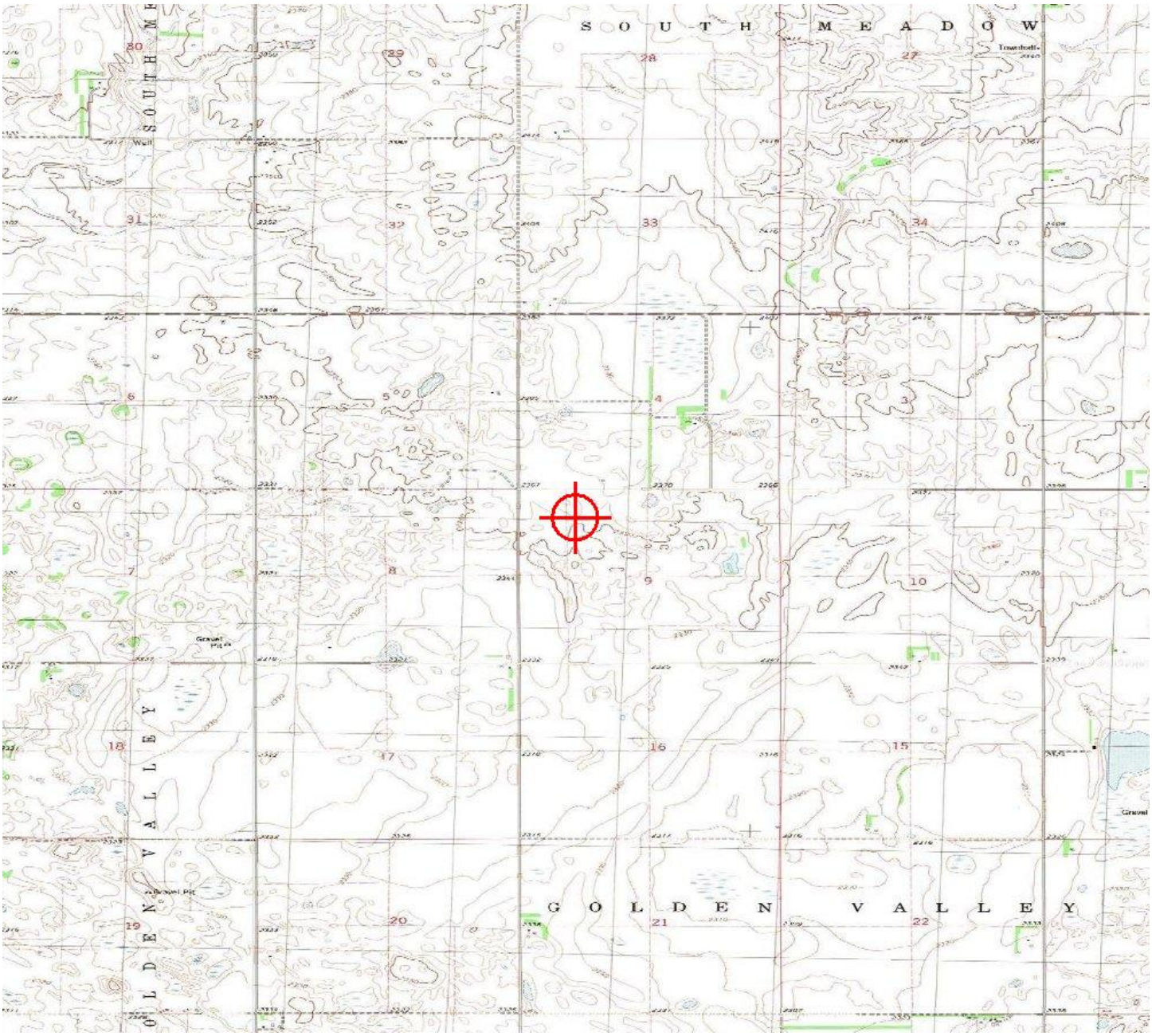
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Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

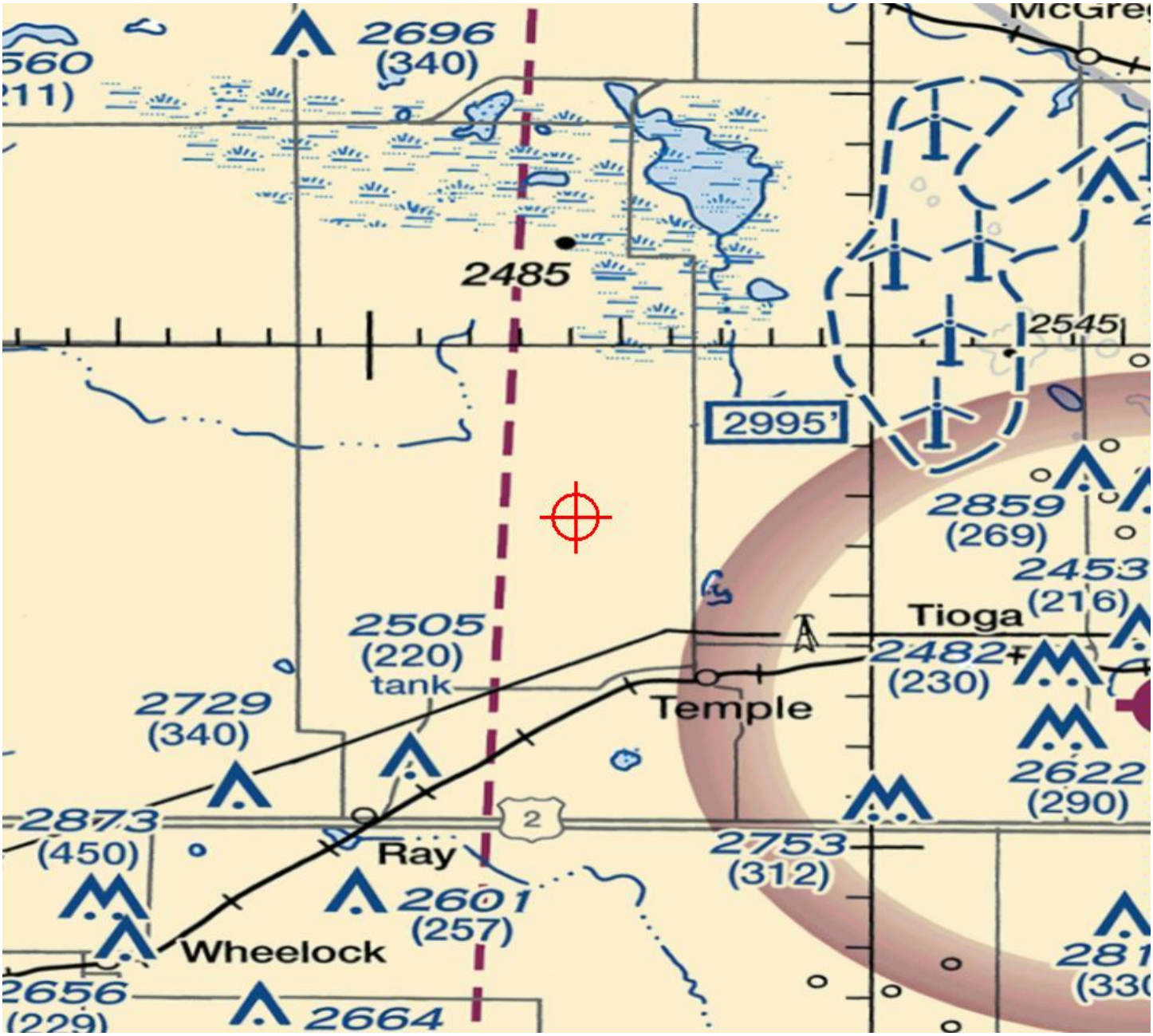
Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6850-OE



Sectional Map for ASN 2018-WTE-6850-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6851-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-20
Location:	Tioga, ND
Latitude:	48-27-21.84N NAD 83
Longitude:	103-08-17.62W
Heights:	2341 feet site elevation (SE)
	660 feet above ground level (AGL)
	3001 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

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This determination expires on 03/25/2020 unless:

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This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

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In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6851-OE.

Signature Control No: 370538130-385972375 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
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2018-WTE-6850-OE
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2018-WTE-6862-OE
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2018-WTE-6955-OE
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The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
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The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6938-OE
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2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

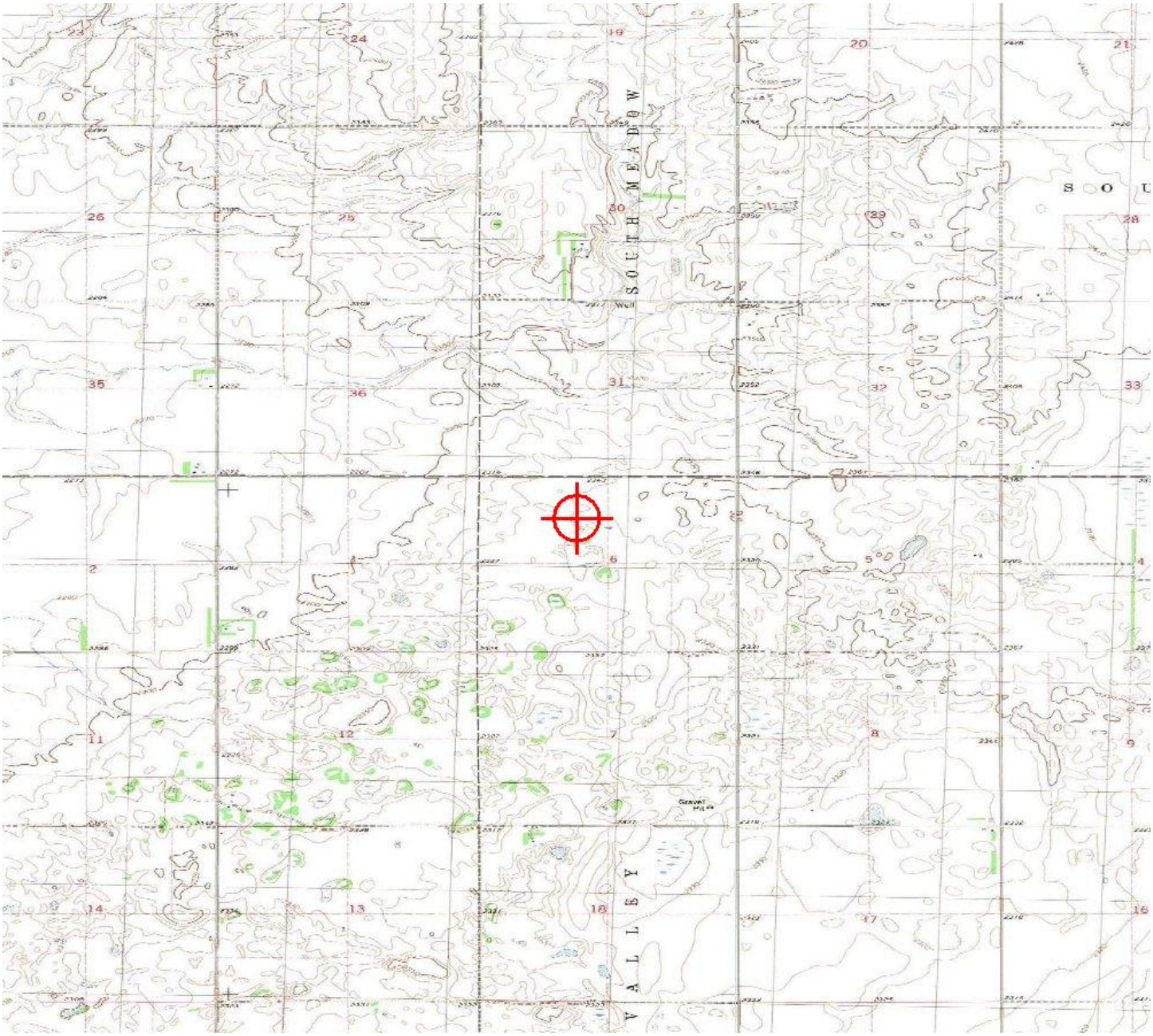
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6851-OE



Sectional Map for ASN 2018-WTE-6851-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6852-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-21
Location:	Tioga, ND
Latitude:	48-27-20.59N NAD 83
Longitude:	103-07-45.62W
Heights:	2351 feet site elevation (SE)
	660 feet above ground level (AGL)
	3011 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

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Signature Control No: 370538131-385972376 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

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2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE
2018-WTE-6920-OE

2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

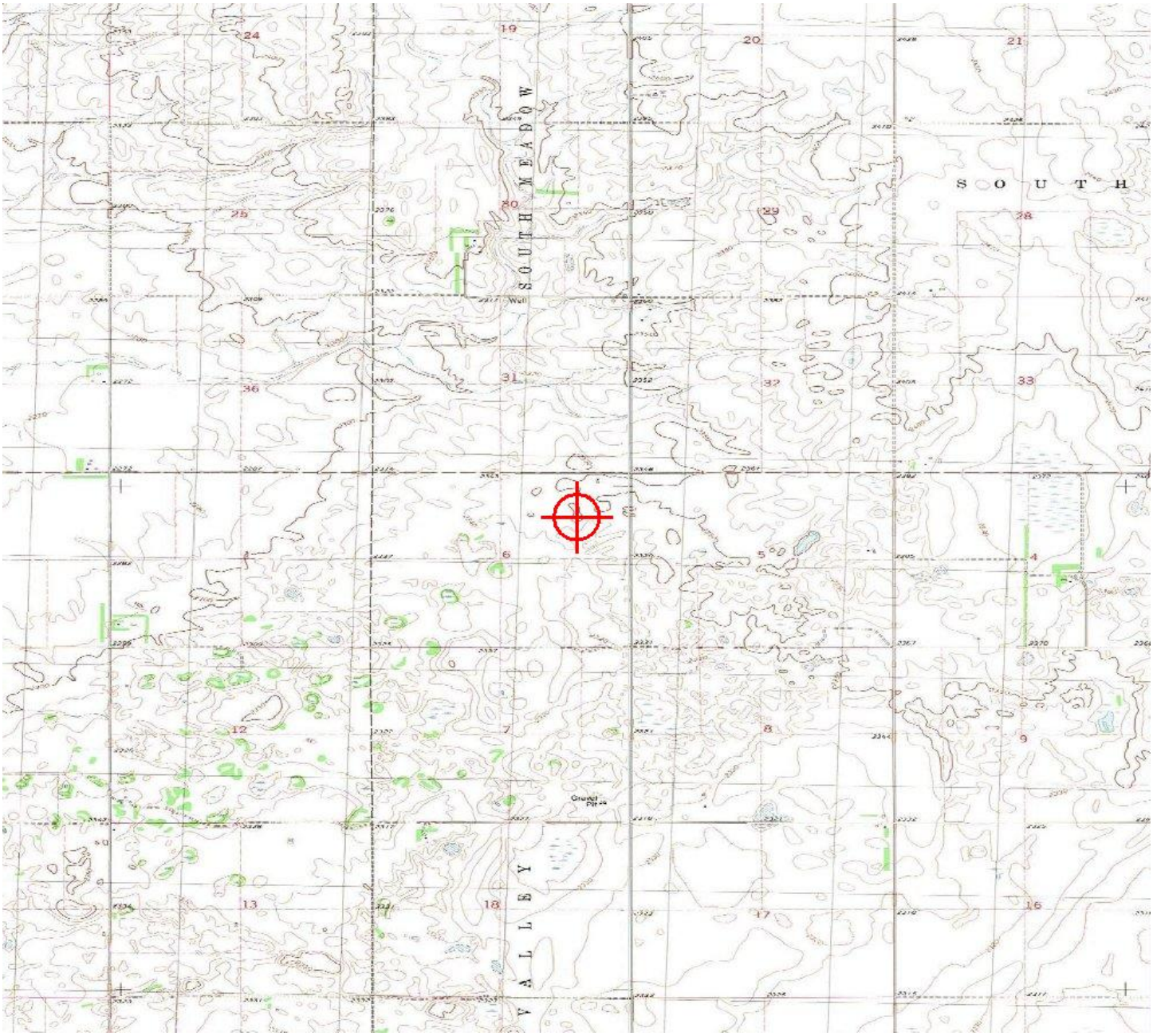
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

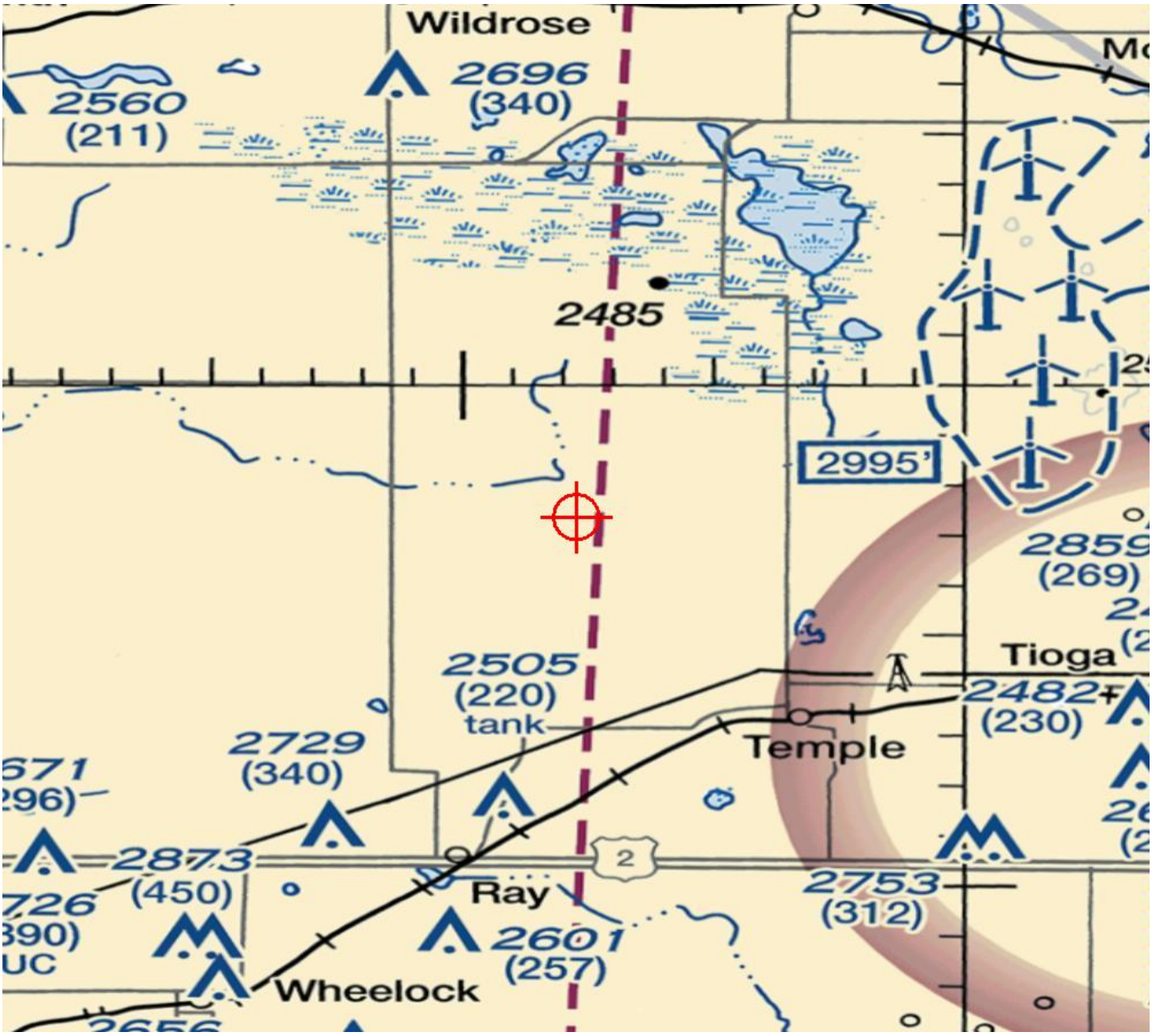
Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6852-OE



Sectional Map for ASN 2018-WTE-6852-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6853-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-22
Location:	Tioga, ND
Latitude:	48-27-18.93N NAD 83
Longitude:	103-06-23.32W
Heights:	2377 feet site elevation (SE)
	660 feet above ground level (AGL)
	3037 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6853-OE.

Signature Control No: 370538132-385972379 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE

2018-WTE-6898-OE
2018-WTE-6900-OE
2018-WTE-6902-OE
2018-WTE-6904-OE
2018-WTE-6905-OE

2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE
2018-WTE-6910-OE
2018-WTE-6911-OE

2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
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2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE
2018-WTE-6893-OE

2018-WTE-6894-OE
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2018-WTE-6898-OE

2018-WTE-6899-OE
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2018-WTE-6901-OE
2018-WTE-6902-OE
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2018-WTE-6904-OE
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2018-WTE-6924-OE

2018-WTE-6925-OE
2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE
2018-WTE-6920-OE

2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

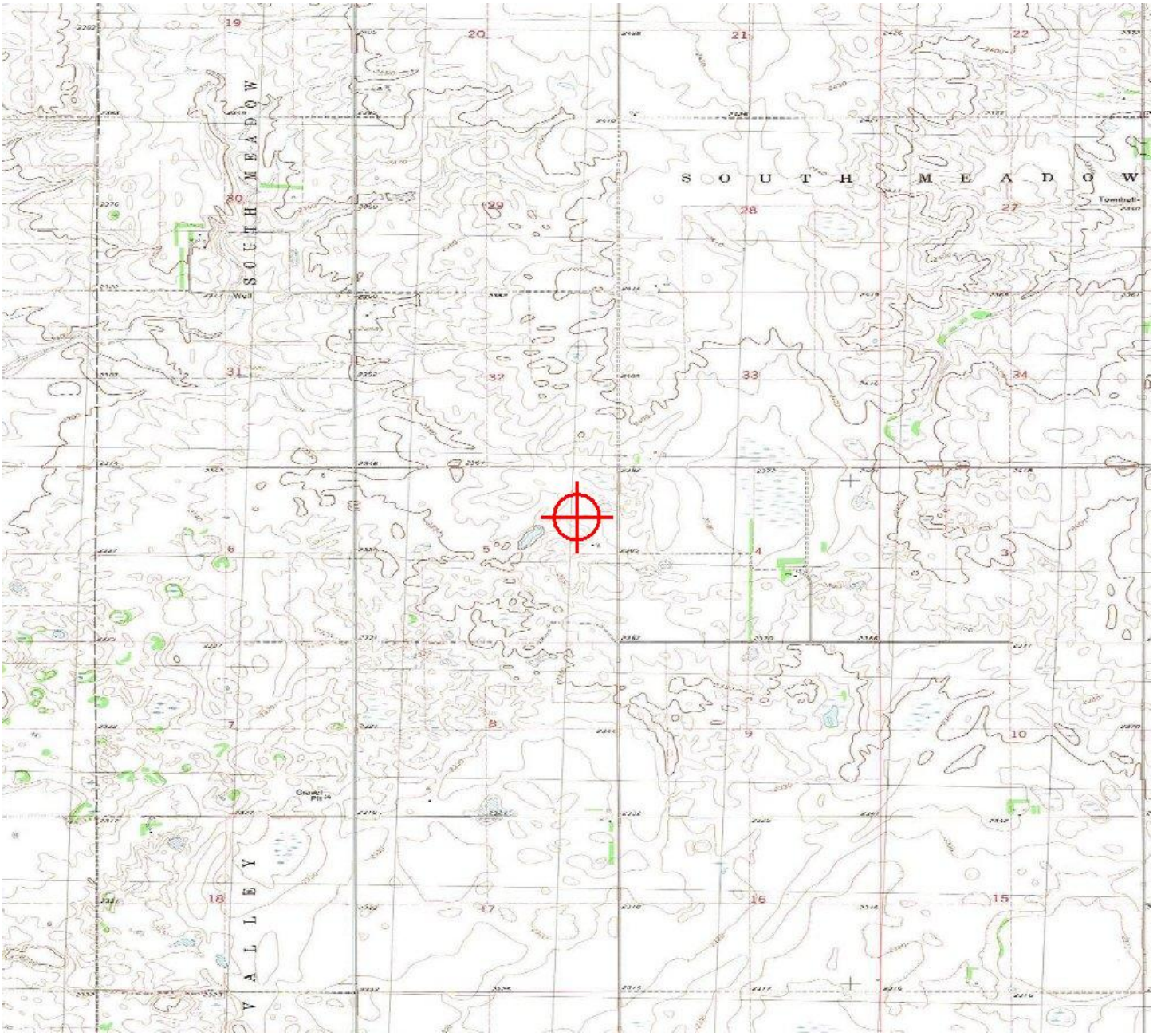
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6853-OE



Sectional Map for ASN 2018-WTE-6853-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6854-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-23
Location:	Tioga, ND
Latitude:	48-27-17.37N NAD 83
Longitude:	103-05-52.09W
Heights:	2391 feet site elevation (SE)
	660 feet above ground level (AGL)
	3051 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

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Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

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This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6854-OE.

Signature Control No: 370538133-385972378 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
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2018-WTE-6850-OE
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2018-WTE-6859-OE
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2018-WTE-6861-OE
2018-WTE-6862-OE
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The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
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2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

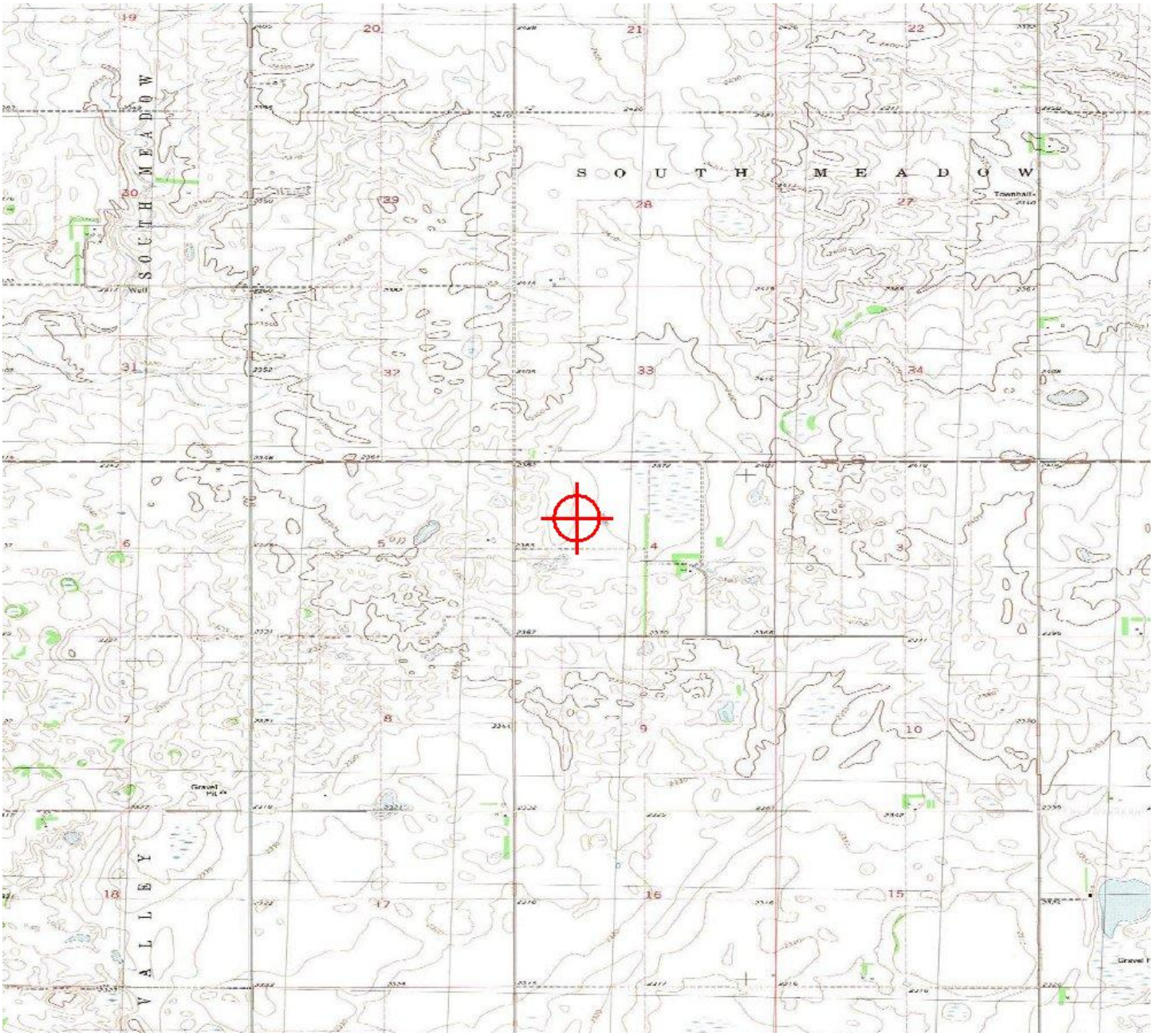
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6854-OE



Sectional Map for ASN 2018-WTE-6854-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6855-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-24
Location:	Tioga, ND
Latitude:	48-28-11.18N NAD 83
Longitude:	103-08-27.53W
Heights:	2301 feet site elevation (SE)
	660 feet above ground level (AGL)
	2961 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

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Signature Control No: 370538134-385972365 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

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The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
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2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
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2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

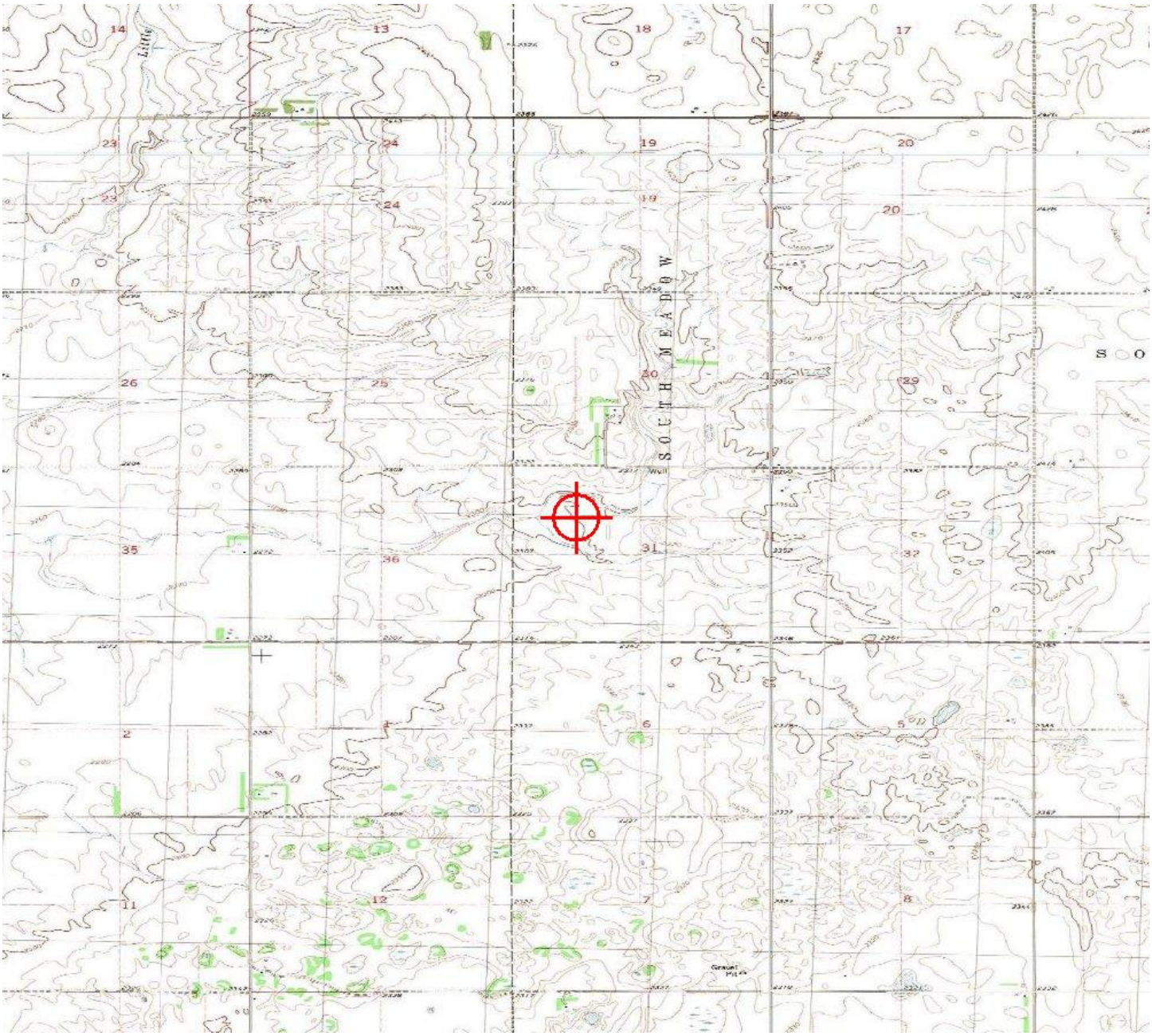
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

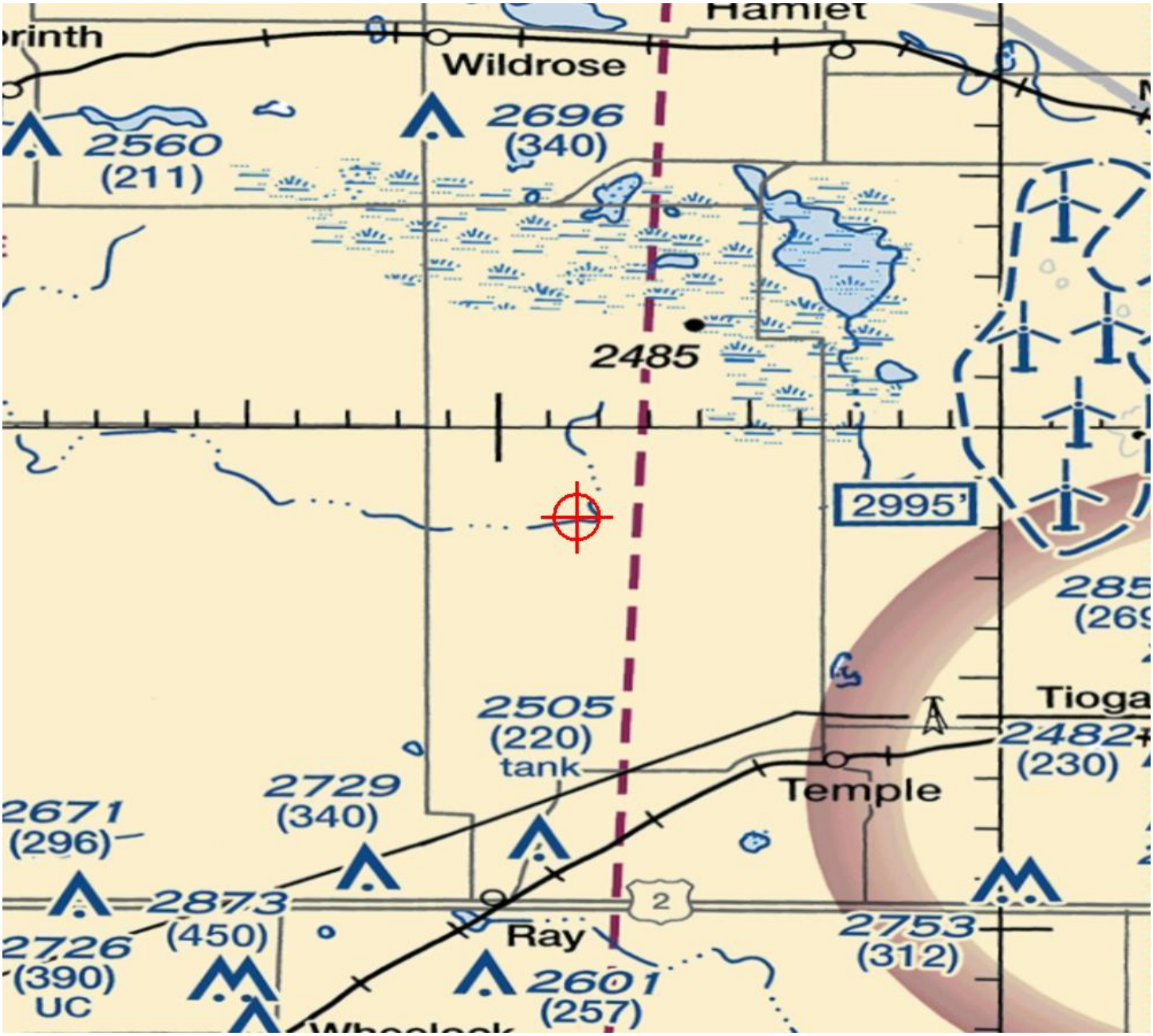
Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6855-OE



Sectional Map for ASN 2018-WTE-6855-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6856-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-25
Location:	Tioga, ND
Latitude:	48-28-10.73N NAD 83
Longitude:	103-07-44.95W
Heights:	2334 feet site elevation (SE)
	660 feet above ground level (AGL)
	2994 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6856-OE.

Signature Control No: 370538135-385972374 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
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2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
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2018-WTE-6854-OE

2018-WTE-6859-OE
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2018-WTE-6952-OE

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2018-WTE-6956-OE
2018-WTE-6969-OE

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The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

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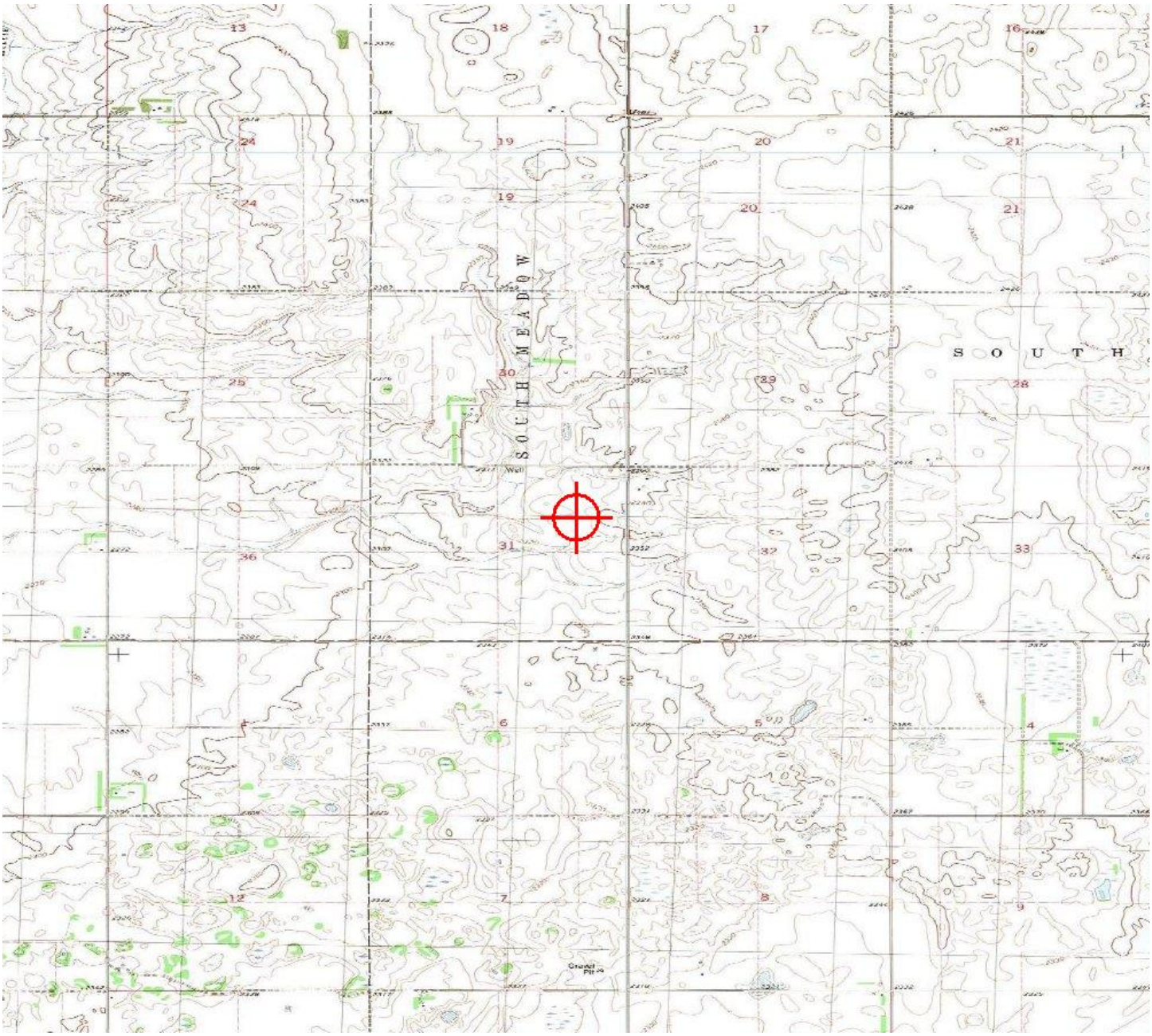
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Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6856-OE



Sectional Map for ASN 2018-WTE-6856-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6857-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-26
Location:	Tioga, ND
Latitude:	48-27-49.35N NAD 83
Longitude:	103-07-54.50W
Heights:	2330 feet site elevation (SE)
	660 feet above ground level (AGL)
	2990 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

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This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

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Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

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used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

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This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6857-OE.

Signature Control No: 370538136-385972371 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6846-OE
2018-WTE-6847-OE
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2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
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2018-WTE-6864-OE
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2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6841-OE
2018-WTE-6842-OE
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2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
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2018-WTE-6868-OE

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2018-WTE-6889-OE
2018-WTE-6890-OE
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2018-WTE-6892-OE

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2018-WTE-6898-OE

2018-WTE-6899-OE
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2018-WTE-6904-OE
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2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE
2018-WTE-6920-OE

2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

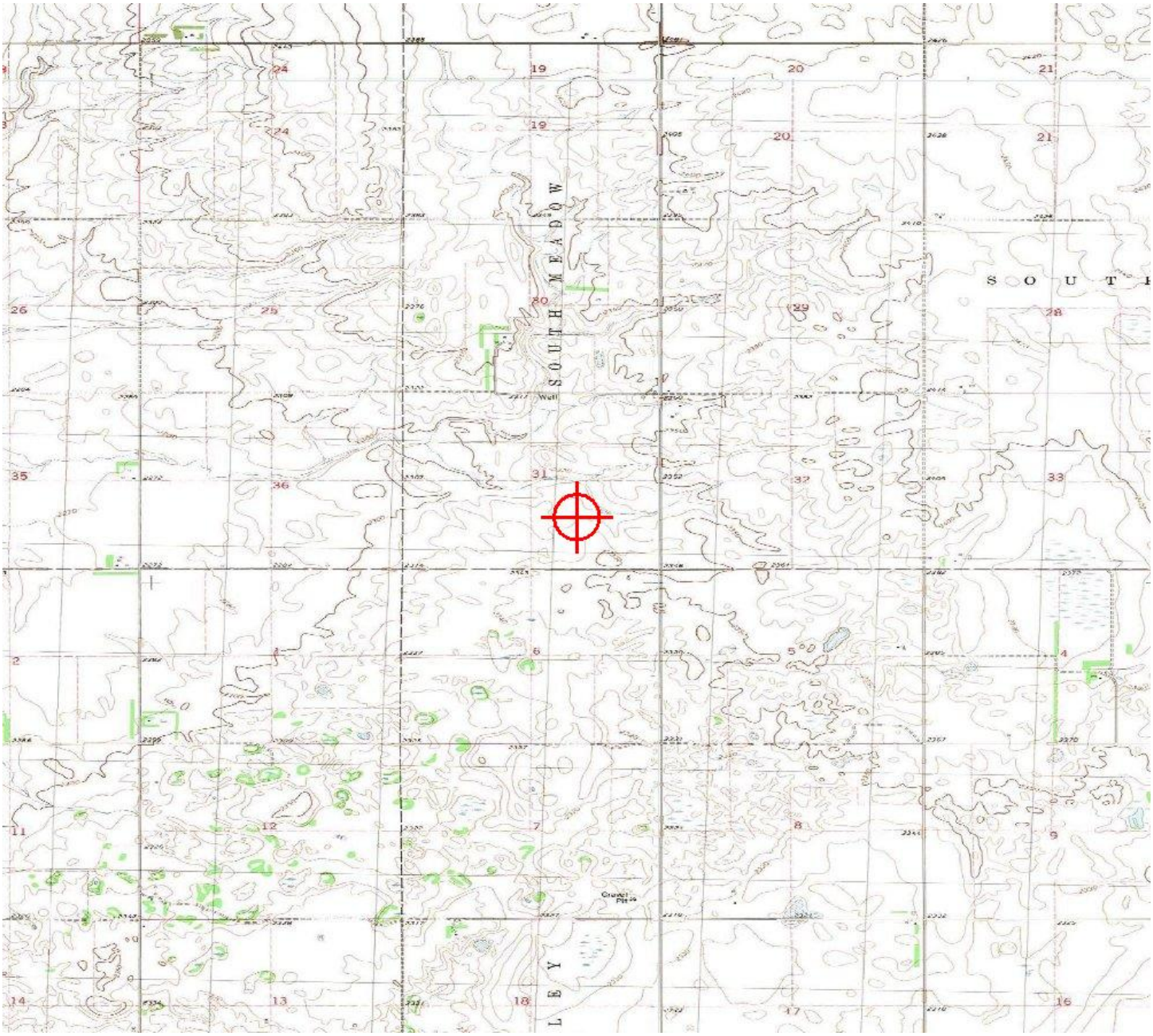
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

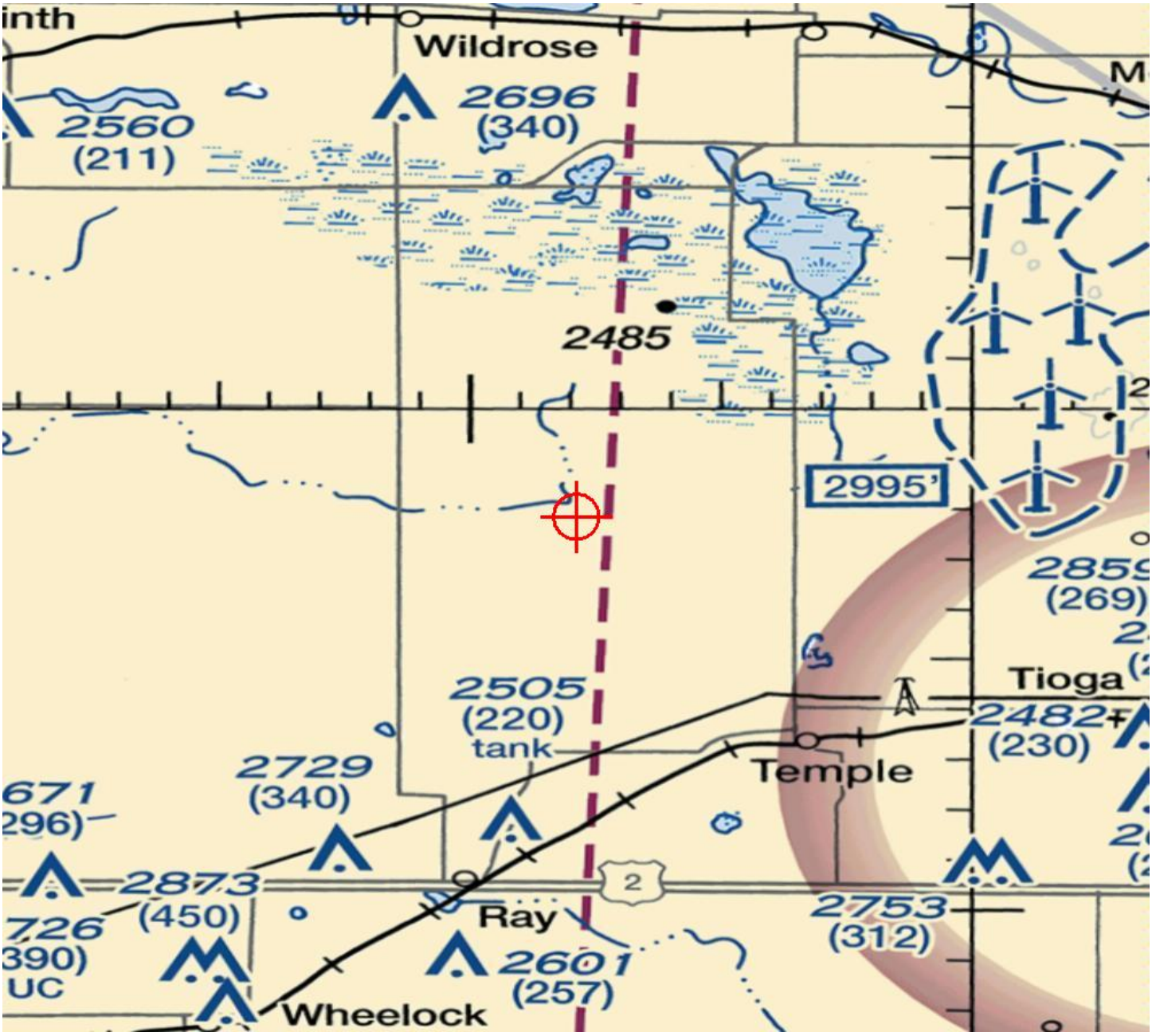
Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6857-OE



Sectional Map for ASN 2018-WTE-6857-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6858-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-28
Location:	Tioga, ND
Latitude:	48-29-35.94N NAD 83
Longitude:	103-03-04.57W
Heights:	2337 feet site elevation (SE)
	660 feet above ground level (AGL)
	2997 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

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Signature Control No: 370538137-385972396 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

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2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
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2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6911-OE
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2018-WTE-6915-OE
2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
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2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
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2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
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2018-WTE-6916-OE
2018-WTE-6917-OE
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2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

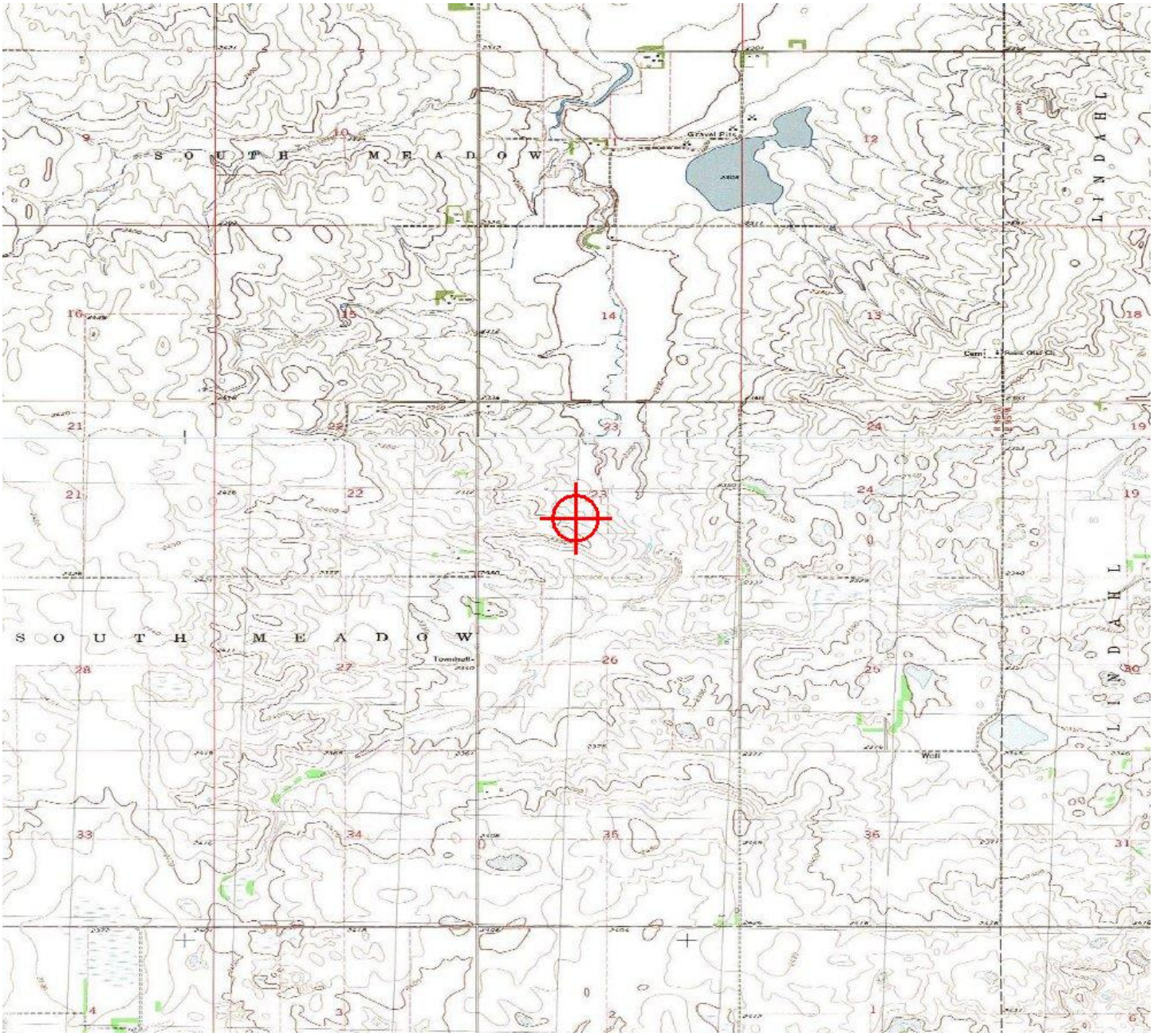
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

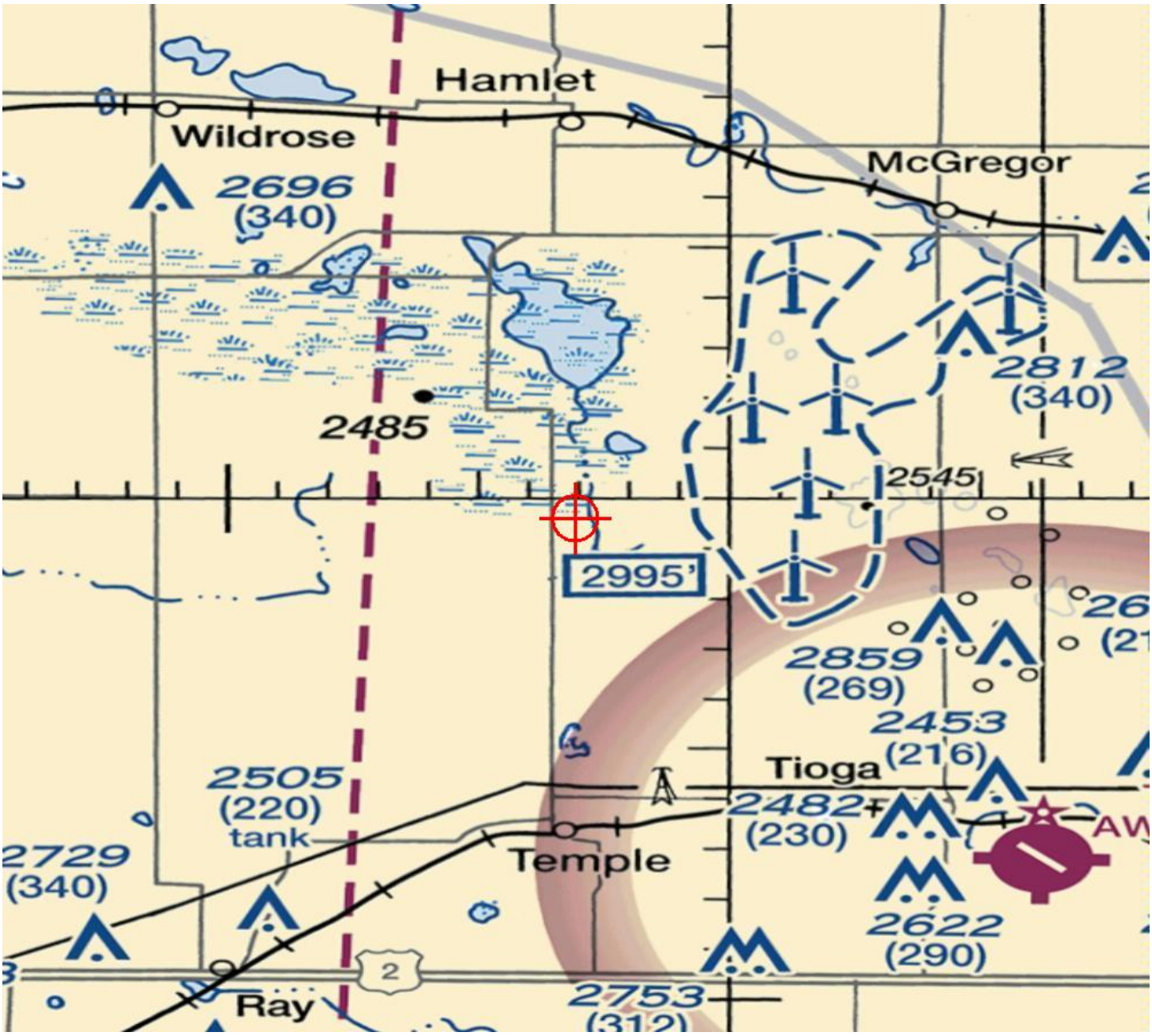
Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6858-OE



Sectional Map for ASN 2018-WTE-6858-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6859-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-34
Location:	Tioga, ND
Latitude:	48-29-08.02N NAD 83
Longitude:	103-09-31.30W
Heights:	2362 feet site elevation (SE)
	660 feet above ground level (AGL)
	3022 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6859-OE.

Signature Control No: 370538138-385972398 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

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2018-WTE-6882-OE
2018-WTE-6883-OE

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2018-WTE-6911-OE

2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
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2018-WTE-6869-OE
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2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

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2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

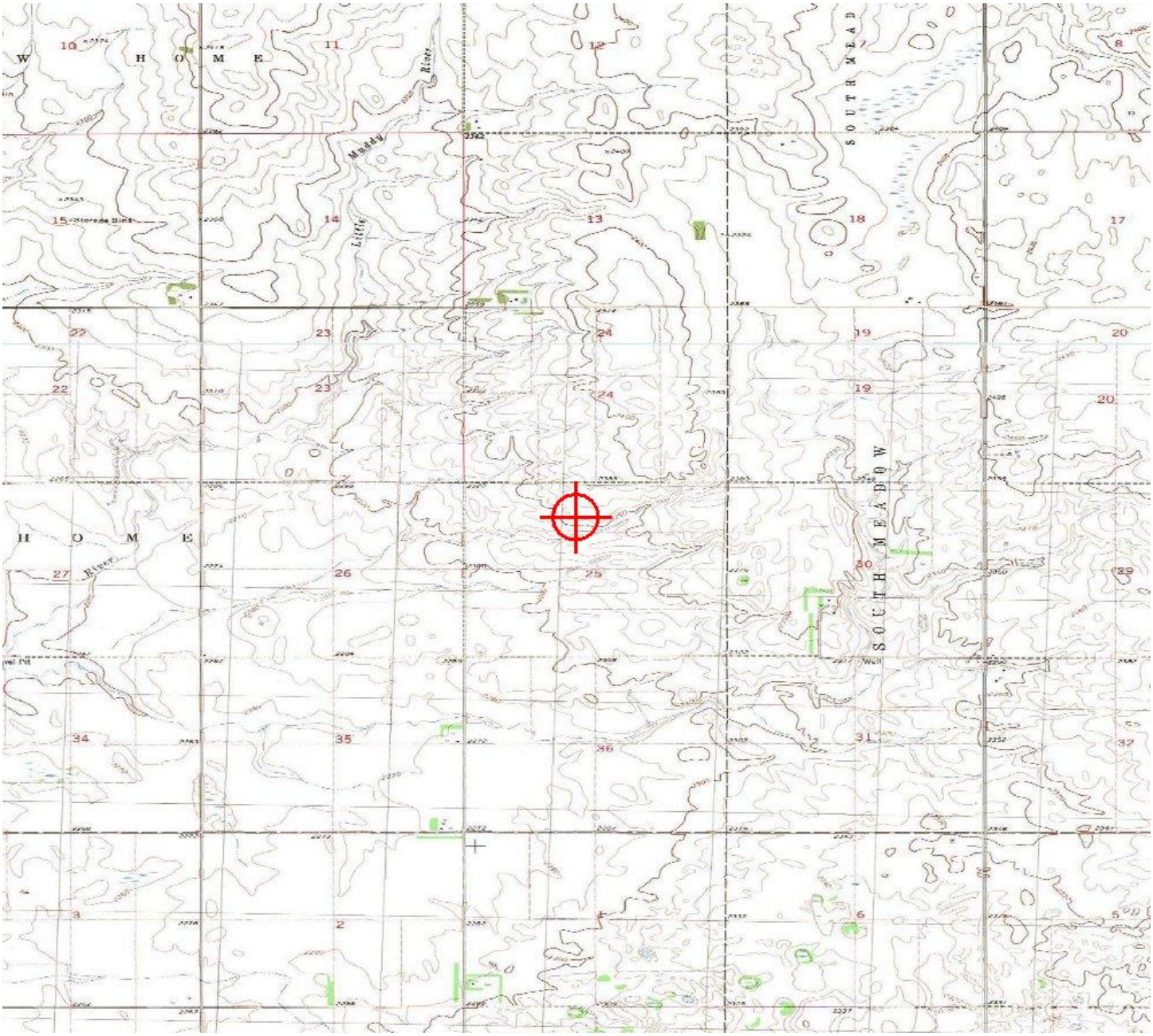
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6859-OE



Sectional Map for ASN 2018-WTE-6859-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6860-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-35
Location:	Tioga, ND
Latitude:	48-29-11.93N NAD 83
Longitude:	103-08-54.12W
Heights:	2392 feet site elevation (SE)
	660 feet above ground level (AGL)
	3052 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

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If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

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used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6860-OE.

Signature Control No: 370538139-385972401 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6845-OE
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2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
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2018-WTE-6867-OE
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2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
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2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

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2018-WTE-6874-OE
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2018-WTE-6877-OE

2018-WTE-6878-OE
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2018-WTE-6889-OE
2018-WTE-6890-OE
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2018-WTE-6925-OE
2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
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2018-WTE-6882-OE
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2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

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2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
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2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE
2018-WTE-6920-OE

2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

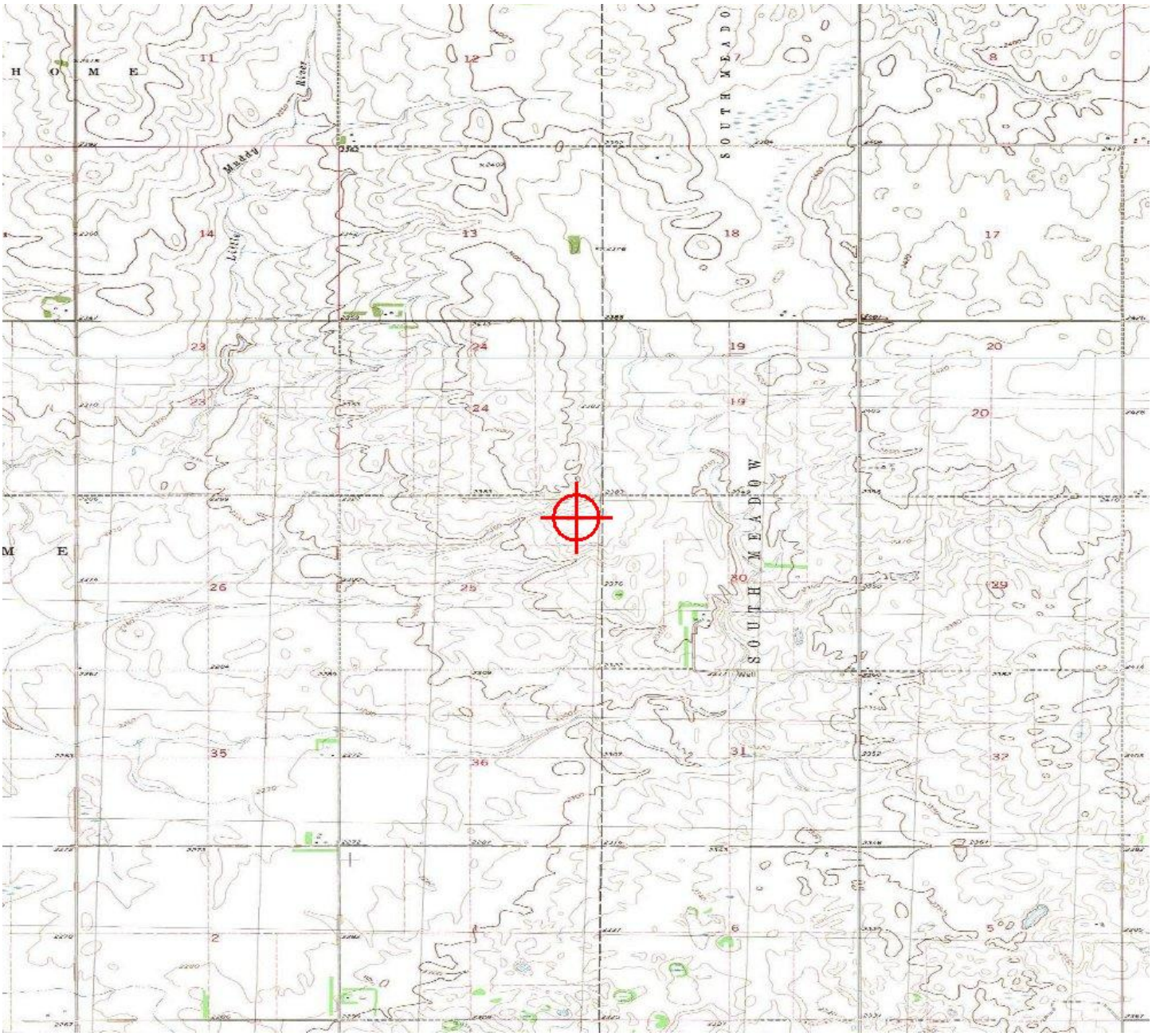
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

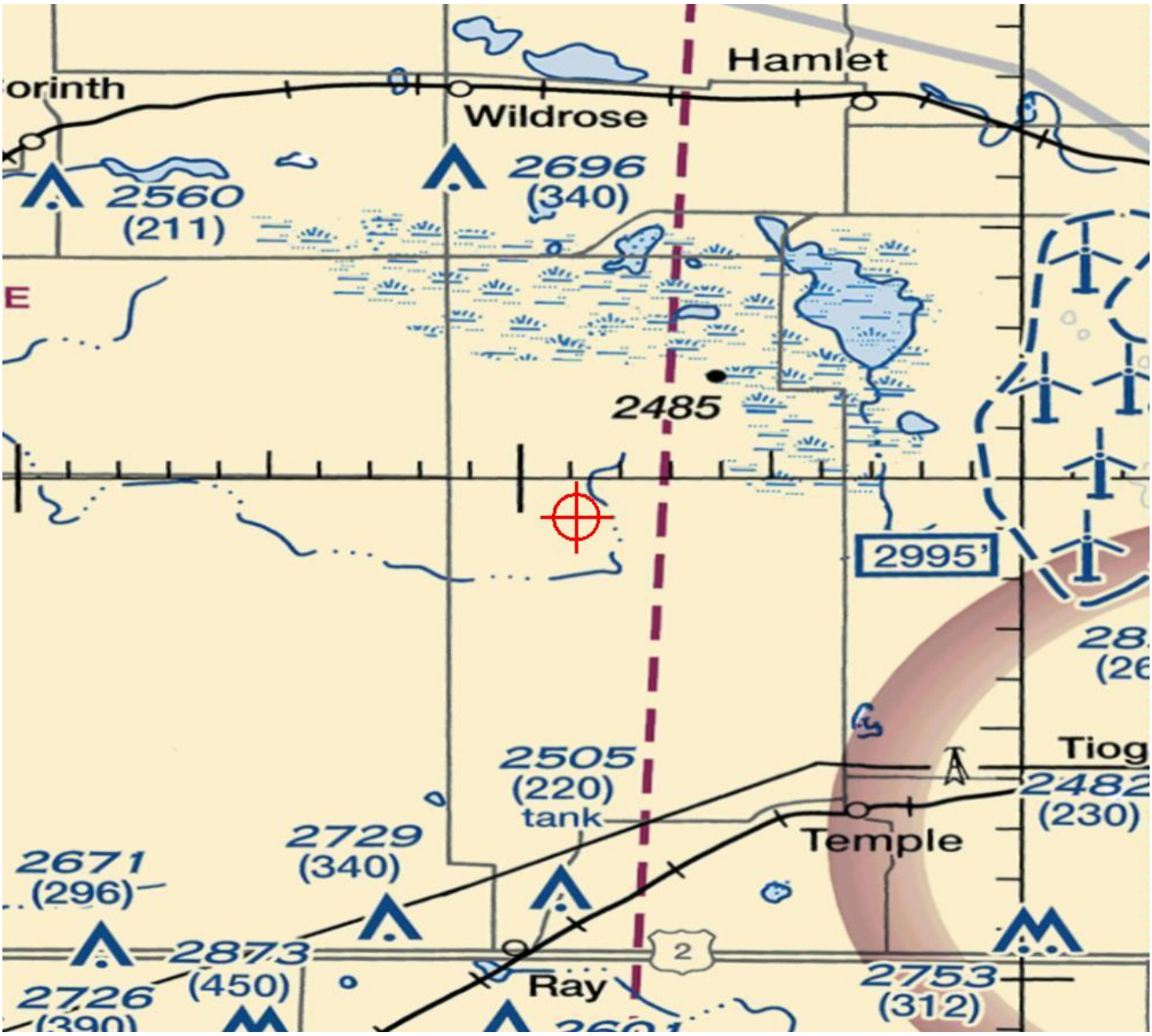
Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6860-OE



Sectional Map for ASN 2018-WTE-6860-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6861-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-37
Location:	Tioga, ND
Latitude:	48-29-39.62N NAD 83
Longitude:	103-07-16.93W
Heights:	2413 feet site elevation (SE)
	660 feet above ground level (AGL)
	3073 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

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If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6861-OE.

Signature Control No: 370538140-385972404 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

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Map(s)

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2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
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2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
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2018-WTE-6938-OE
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2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

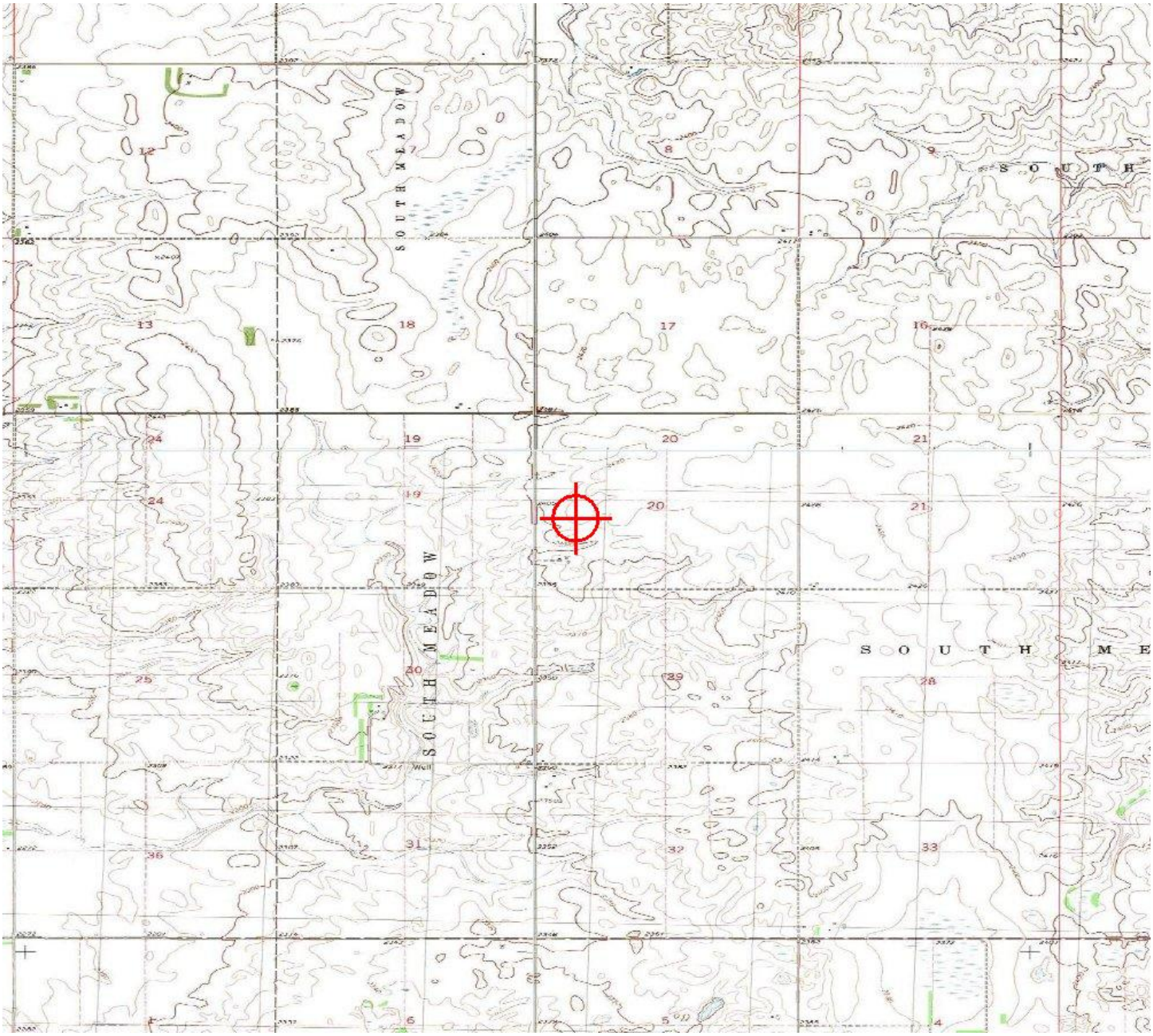
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

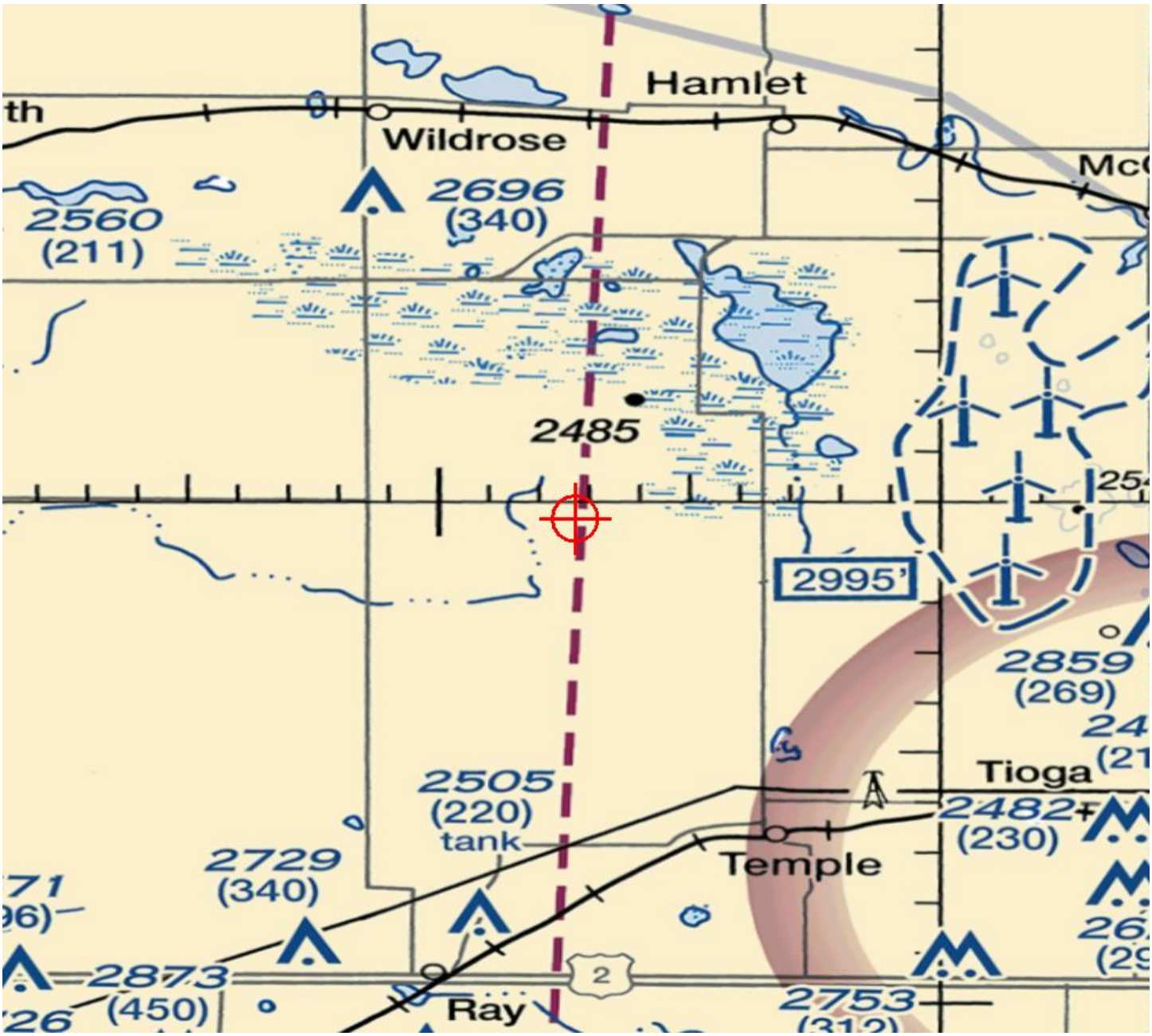
Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6861-OE



Sectional Map for ASN 2018-WTE-6861-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6862-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-38
Location:	Tioga, ND
Latitude:	48-29-52.06N NAD 83
Longitude:	103-06-58.59W
Heights:	2425 feet site elevation (SE)
	660 feet above ground level (AGL)
	3085 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6862-OE.

Signature Control No: 370538141-385972409 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
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2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
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2018-WTE-6844-OE
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2018-WTE-6859-OE
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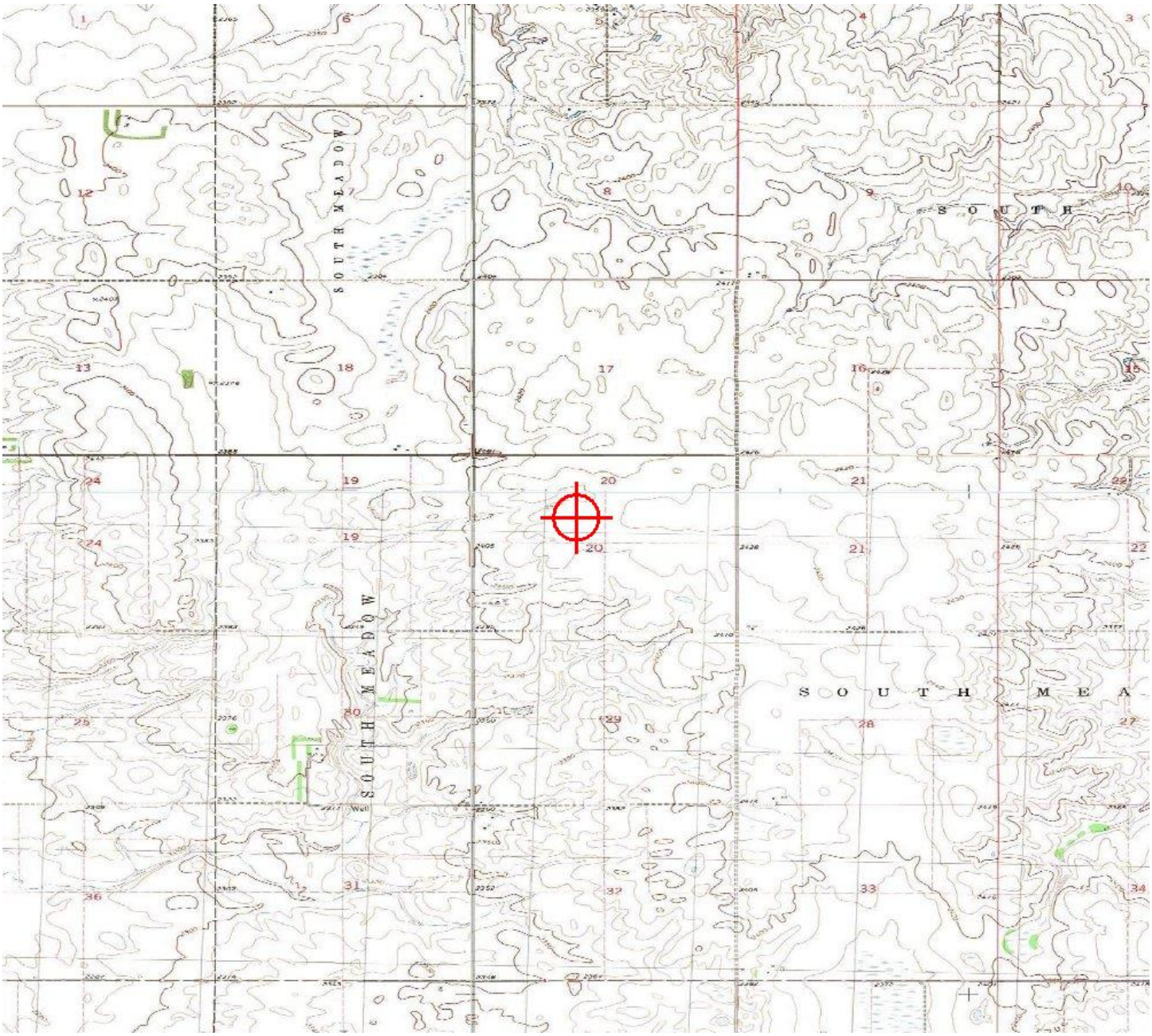
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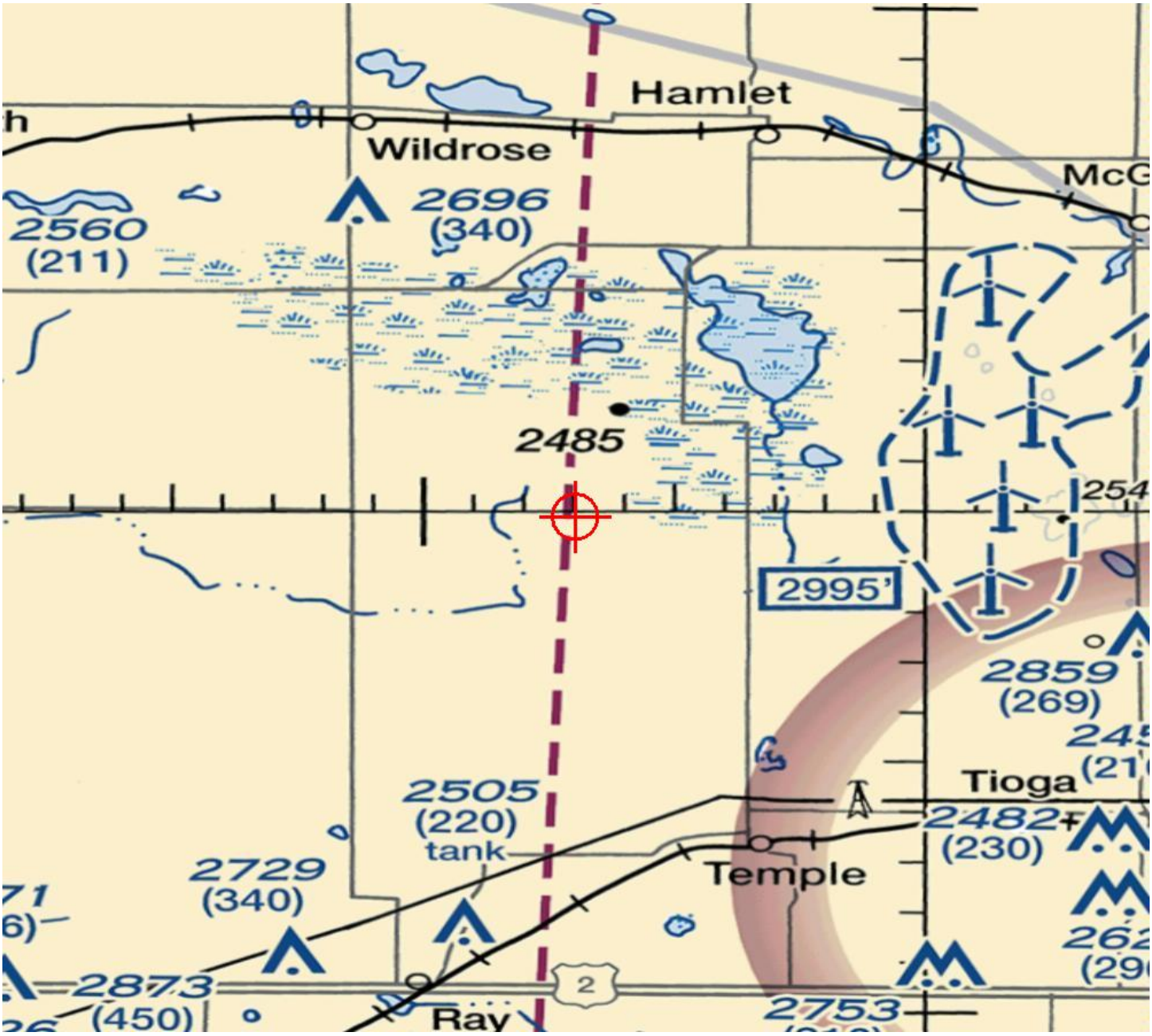
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TOPO Map for ASN 2018-WTE-6862-OE



Sectional Map for ASN 2018-WTE-6862-OE



Mail Processing Center
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Obstruction Evaluation Group
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Fort Worth, TX 76177

Aeronautical Study No.
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Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
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**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-39
Location:	Tioga, ND
Latitude:	48-29-52.24N NAD 83
Longitude:	103-06-32.53W
Heights:	2432 feet site elevation (SE)
	660 feet above ground level (AGL)
	3092 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6863-OE.

Signature Control No: 370538142-385972412 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE

2018-WTE-6898-OE
2018-WTE-6900-OE
2018-WTE-6902-OE
2018-WTE-6904-OE
2018-WTE-6905-OE

2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE
2018-WTE-6910-OE
2018-WTE-6911-OE

2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE

2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE
2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6911-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE

2018-WTE-6915-OE
2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE

2018-WTE-6920-OE
2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE

2018-WTE-6925-OE
2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE
2018-WTE-6920-OE

2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

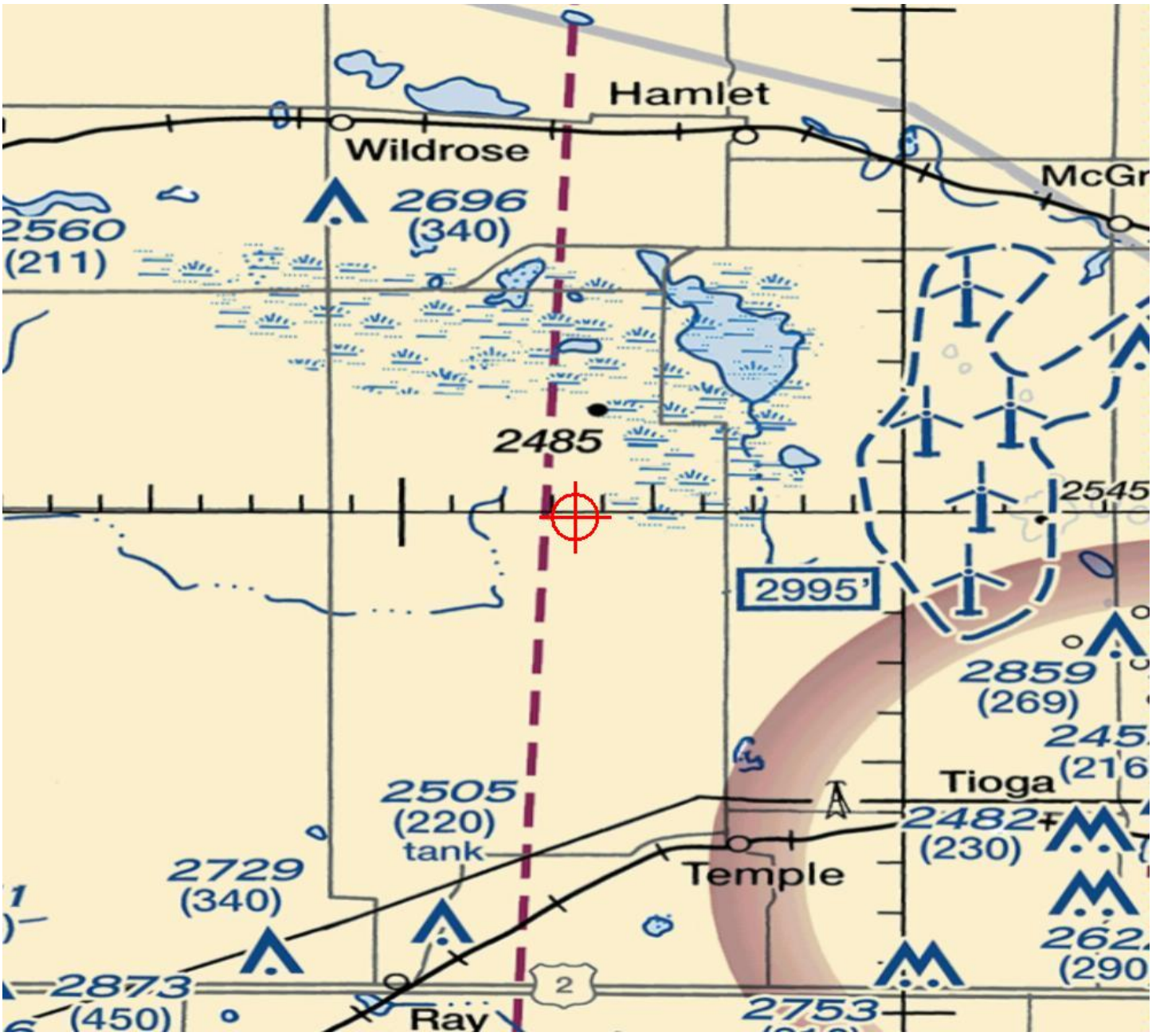
Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6863-OE



Sectional Map for ASN 2018-WTE-6863-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6864-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-40
Location:	Tioga, ND
Latitude:	48-30-27.31N NAD 83
Longitude:	103-05-52.23W
Heights:	2437 feet site elevation (SE)
	660 feet above ground level (AGL)
	3097 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

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(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

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If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6864-OE.

Signature Control No: 370538143-385972416 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
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CFR, Code of Federal Regulations
GPS, Global Positioning System
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RNAV, Area Navigation
RWY, Runway

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Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

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2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
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2018-WTE-6839-OE
2018-WTE-6840-OE
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2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
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2018-WTE-6870-OE
2018-WTE-6874-OE
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2018-WTE-6882-OE
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2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

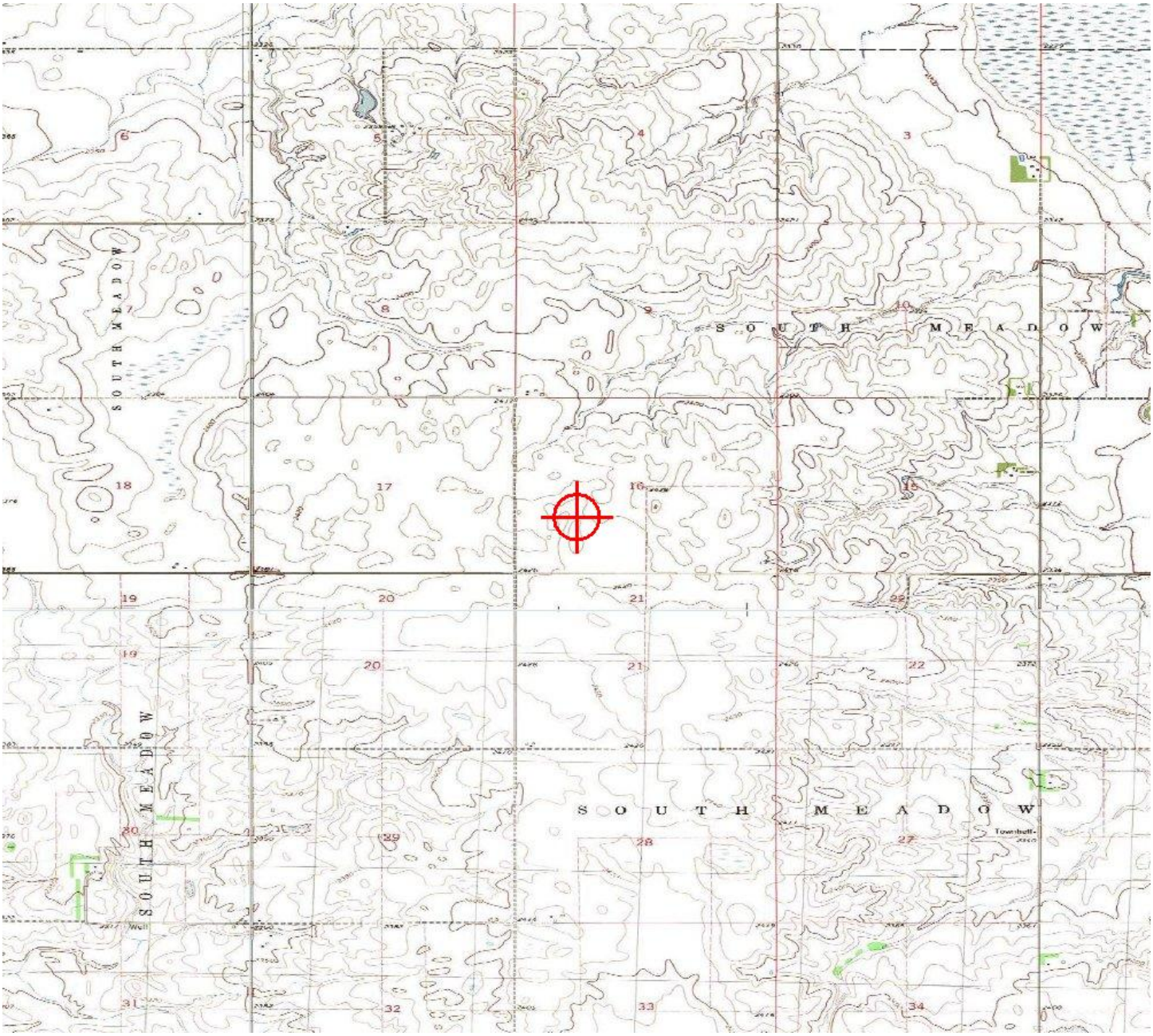
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6864-OE



Sectional Map for ASN 2018-WTE-6864-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6865-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-41
Location:	Tioga, ND
Latitude:	48-30-22.67N NAD 83
Longitude:	103-04-34.76W
Heights:	2387 feet site elevation (SE)
	660 feet above ground level (AGL)
	3047 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6865-OE.

Signature Control No: 370538144-385972419 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
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2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
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2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
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The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

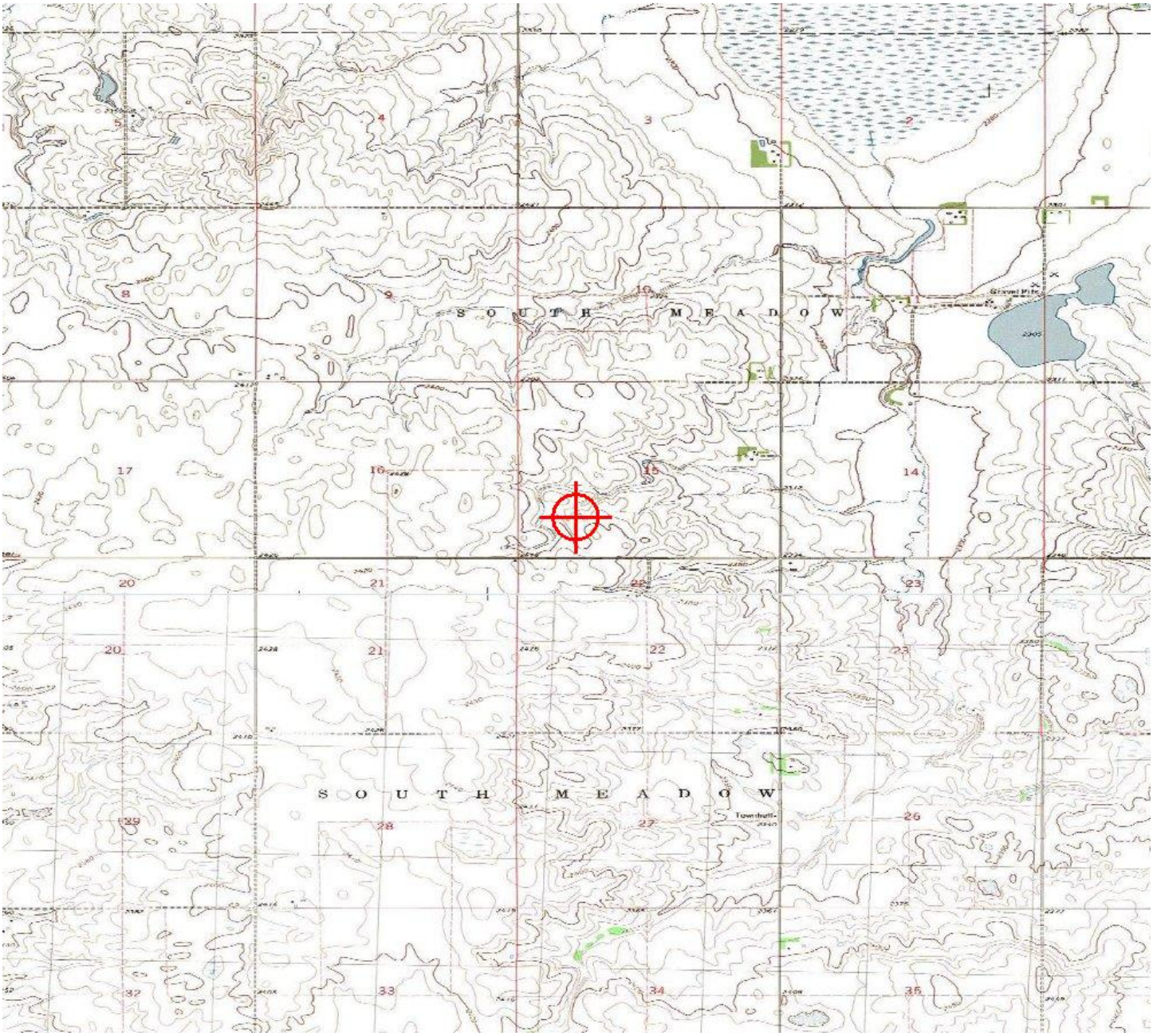
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6865-OE



Sectional Map for ASN 2018-WTE-6865-OE



Mail Processing Center
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Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6866-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-42
Location:	Tioga, ND
Latitude:	48-29-36.51N NAD 83
Longitude:	103-08-32.90W
Heights:	2364 feet site elevation (SE)
	660 feet above ground level (AGL)
	3024 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6866-OE.

Signature Control No: 370538145-385972421 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE

2018-WTE-6898-OE
2018-WTE-6900-OE
2018-WTE-6902-OE
2018-WTE-6904-OE
2018-WTE-6905-OE

2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE
2018-WTE-6910-OE
2018-WTE-6911-OE

2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE

2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE
2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6911-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE

2018-WTE-6915-OE
2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE

2018-WTE-6920-OE
2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE

2018-WTE-6925-OE
2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE
2018-WTE-6920-OE

2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

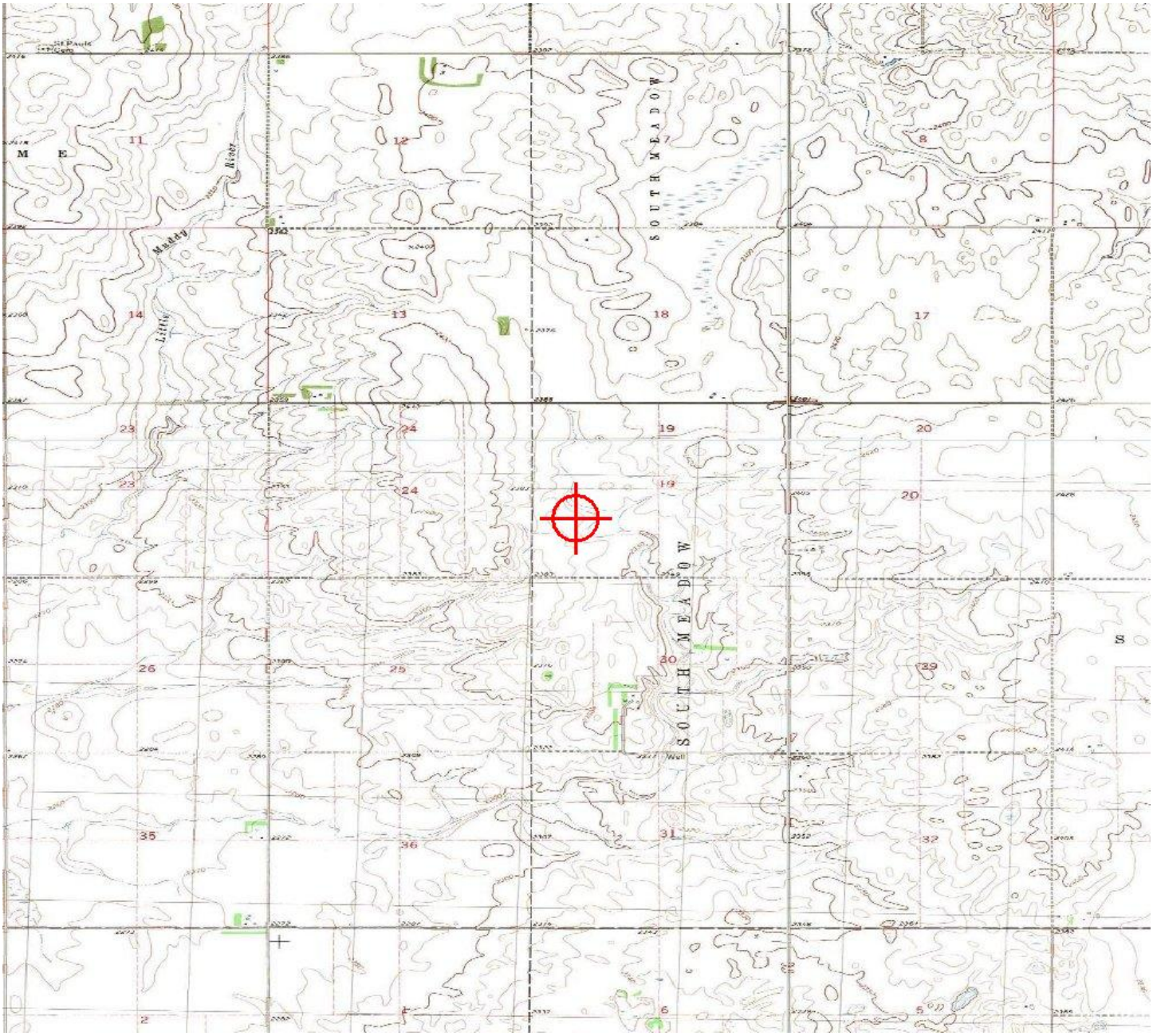
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

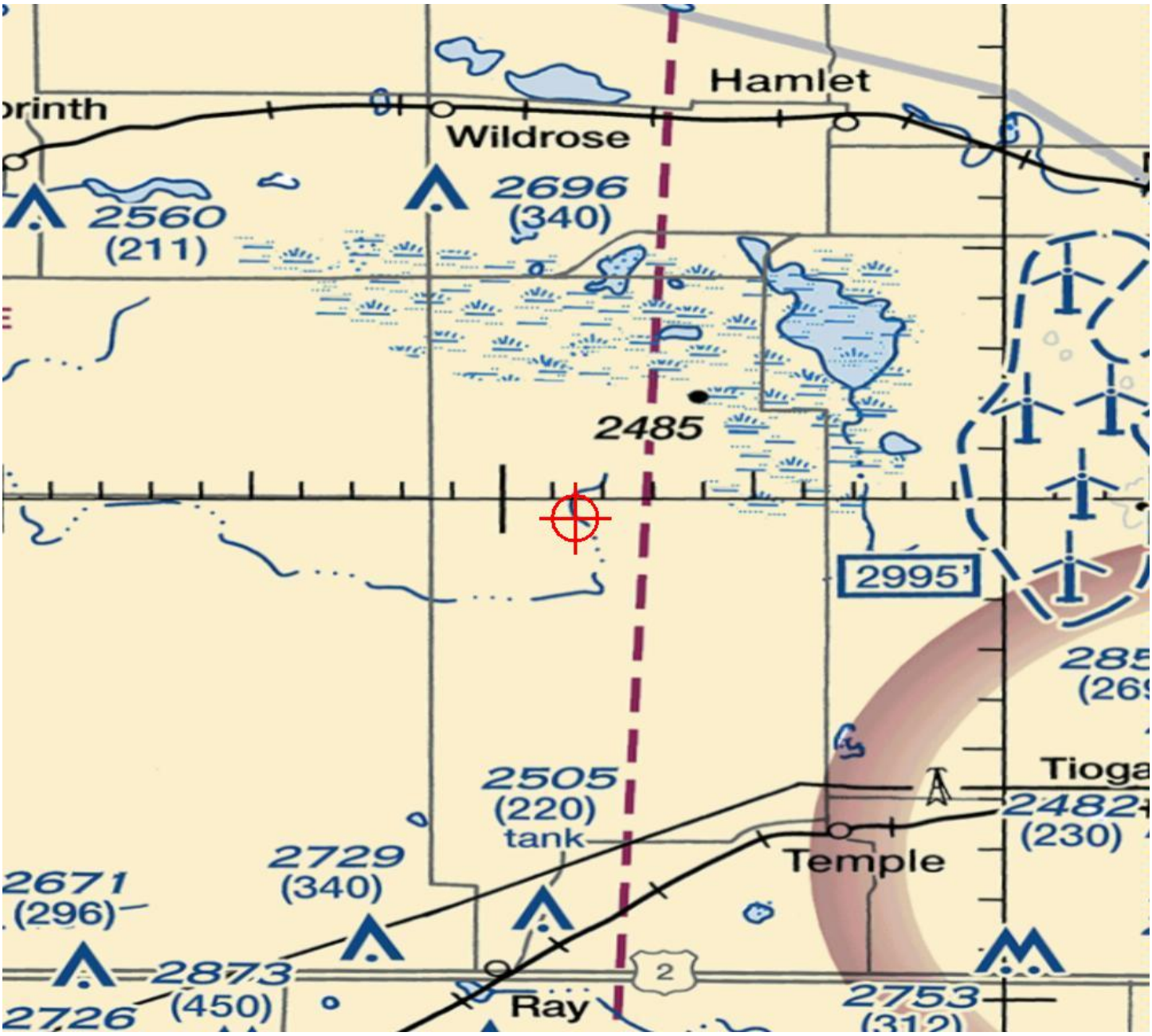
Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6866-OE



Sectional Map for ASN 2018-WTE-6866-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6867-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-43
Location:	Tioga, ND
Latitude:	48-29-58.73N NAD 83
Longitude:	103-08-13.30W
Heights:	2385 feet site elevation (SE)
	660 feet above ground level (AGL)
	3045 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

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used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6867-OE.

Signature Control No: 370538146-385972423 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
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AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
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Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
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2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
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2018-WTE-6889-OE
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2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

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2018-WTE-6903-OE

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2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

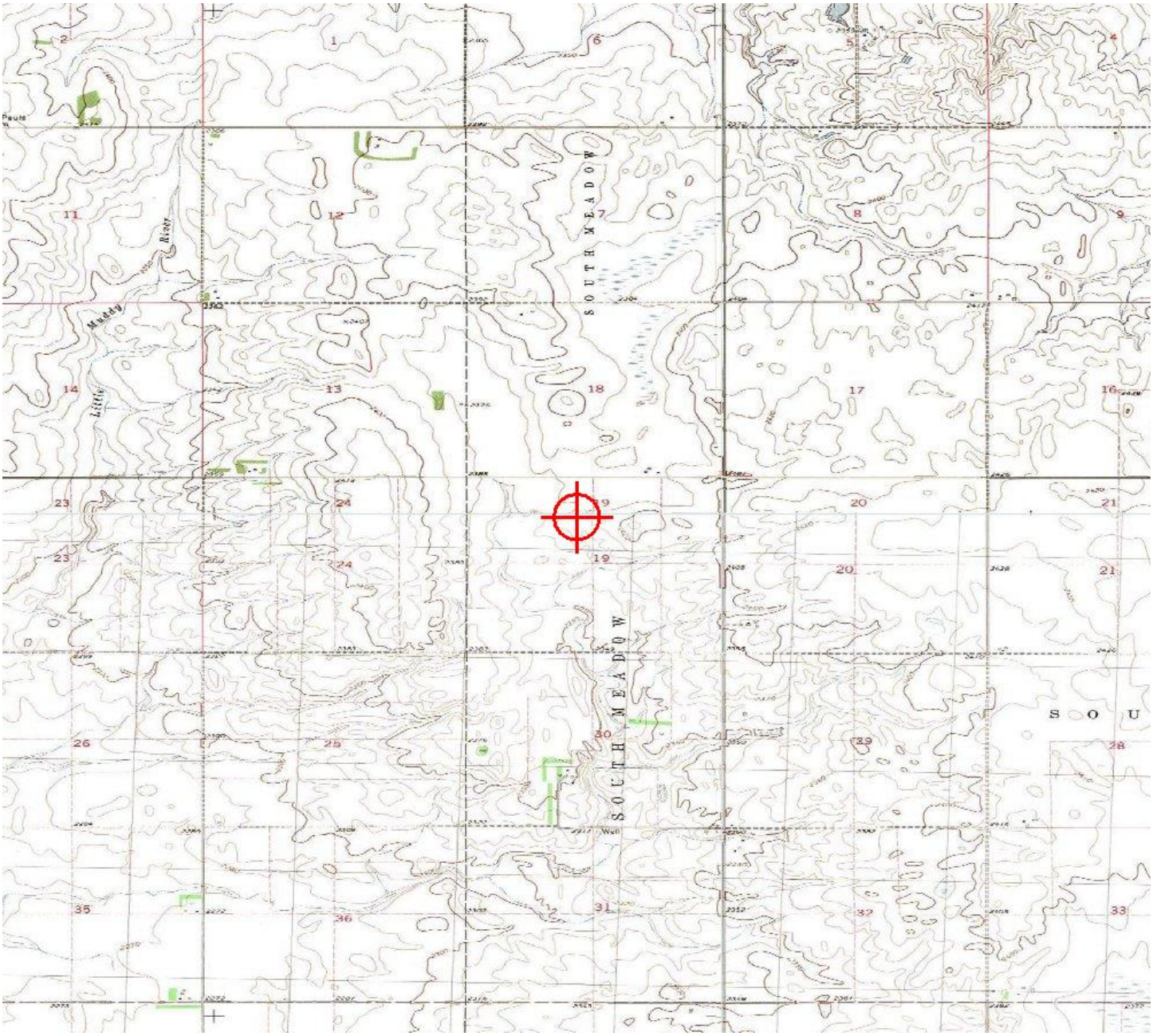
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6867-OE



Sectional Map for ASN 2018-WTE-6867-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6868-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-44
Location:	Tioga, ND
Latitude:	48-29-56.42N NAD 83
Longitude:	103-07-41.75W
Heights:	2401 feet site elevation (SE)
	660 feet above ground level (AGL)
	3061 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6868-OE.

Signature Control No: 370538149-385972425 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
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The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

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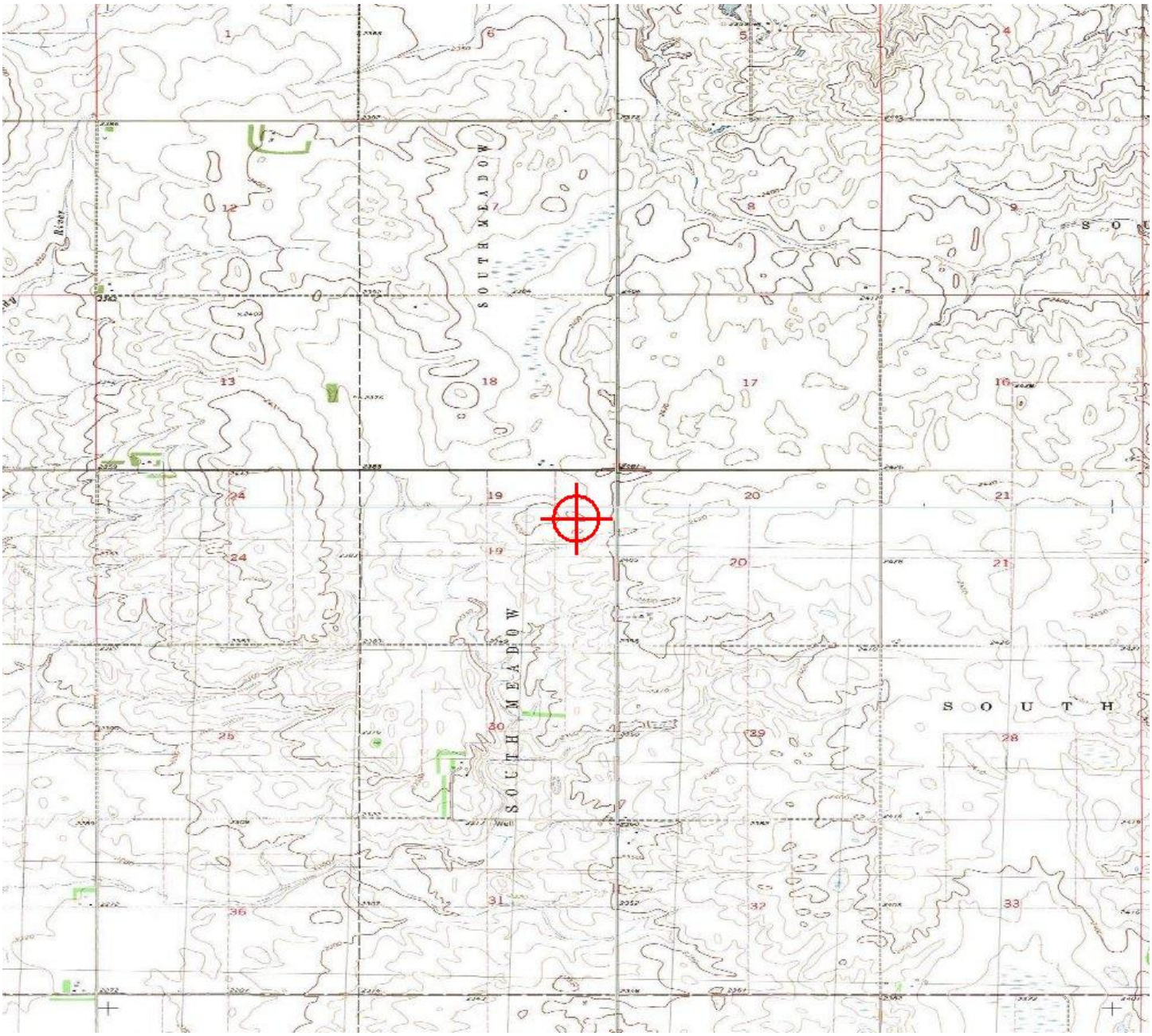
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Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

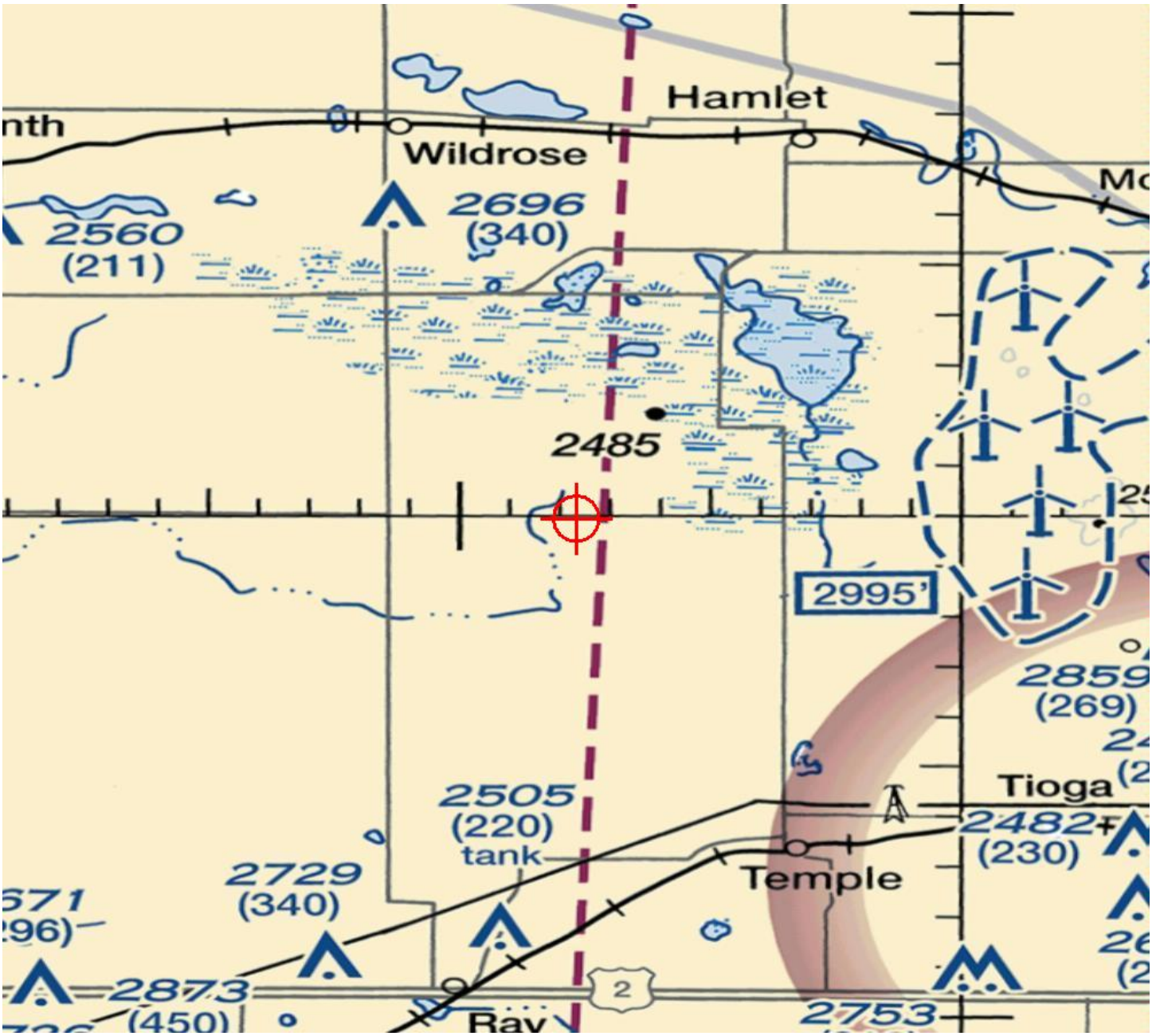
Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6868-OE



Sectional Map for ASN 2018-WTE-6868-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6869-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-45
Location:	Tioga, ND
Latitude:	48-29-41.80N NAD 83
Longitude:	103-09-44.34W
Heights:	2377 feet site elevation (SE)
	660 feet above ground level (AGL)
	3037 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6869-OE.

Signature Control No: 370538150-385972427 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE

2018-WTE-6898-OE
2018-WTE-6900-OE
2018-WTE-6902-OE
2018-WTE-6904-OE
2018-WTE-6905-OE

2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE
2018-WTE-6910-OE
2018-WTE-6911-OE

2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE

2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE
2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6911-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE

2018-WTE-6915-OE
2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE

2018-WTE-6920-OE
2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE

2018-WTE-6925-OE
2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE
2018-WTE-6920-OE

2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

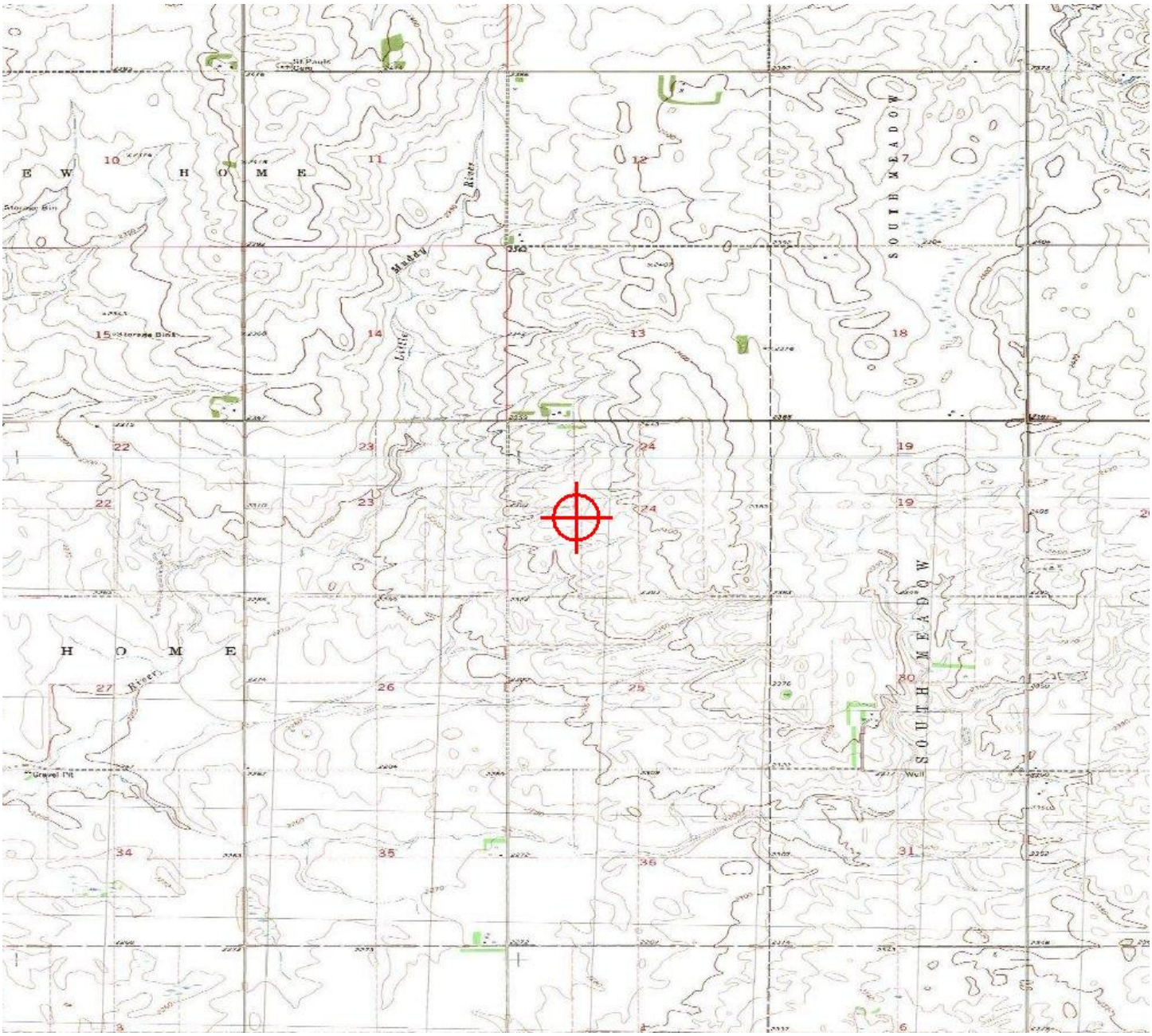
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6869-OE



Sectional Map for ASN 2018-WTE-6869-OE



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Obstruction Evaluation Group
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Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6870-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-46
Location:	Tioga, ND
Latitude:	48-29-52.78N NAD 83
Longitude:	103-09-27.81W
Heights:	2404 feet site elevation (SE)
	660 feet above ground level (AGL)
	3064 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

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Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6870-OE.

Signature Control No: 370538151-385972429 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE

2018-WTE-6898-OE
2018-WTE-6900-OE
2018-WTE-6902-OE
2018-WTE-6904-OE
2018-WTE-6905-OE

2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE
2018-WTE-6910-OE
2018-WTE-6911-OE

2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
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2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
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2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
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The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

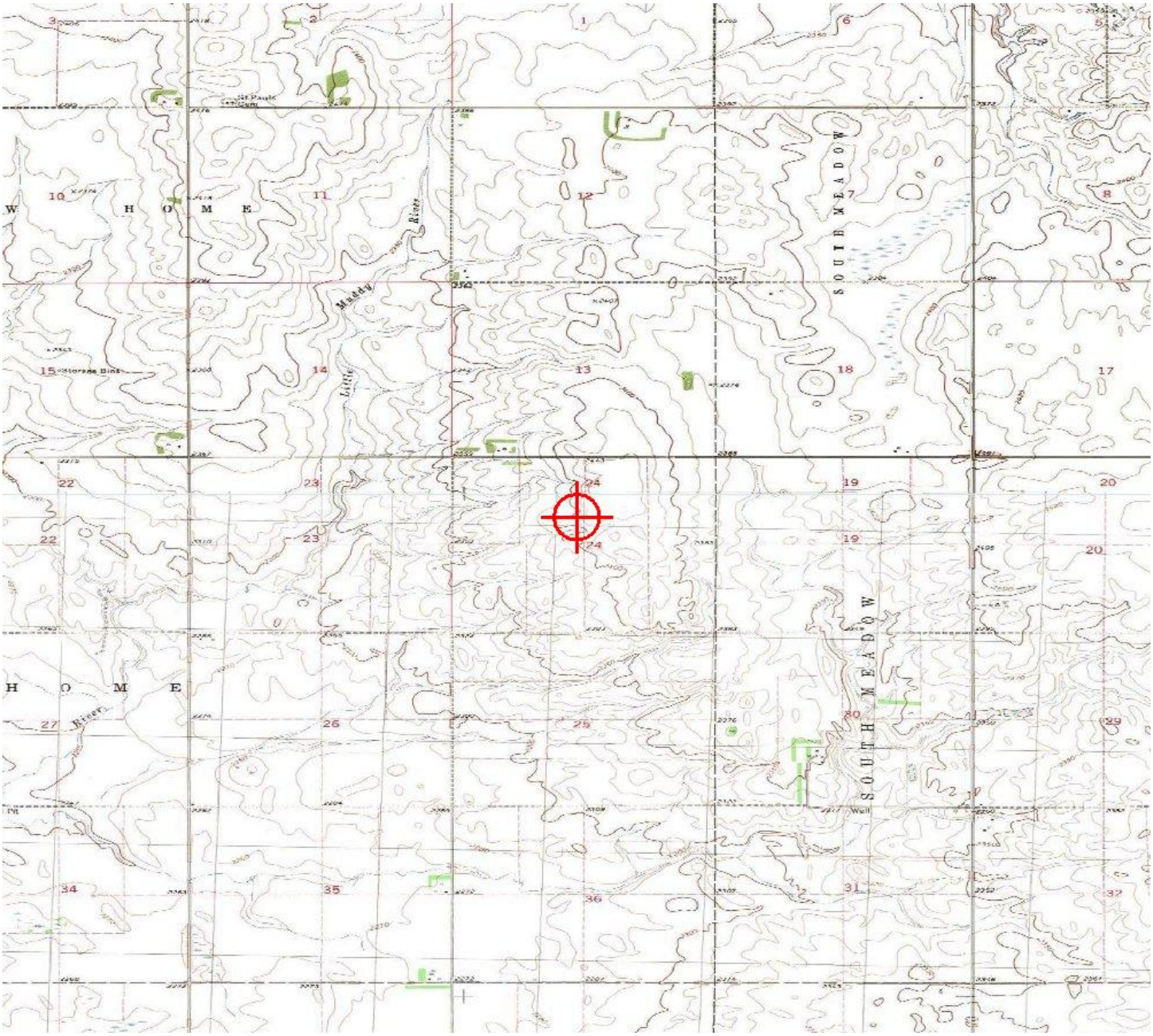
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

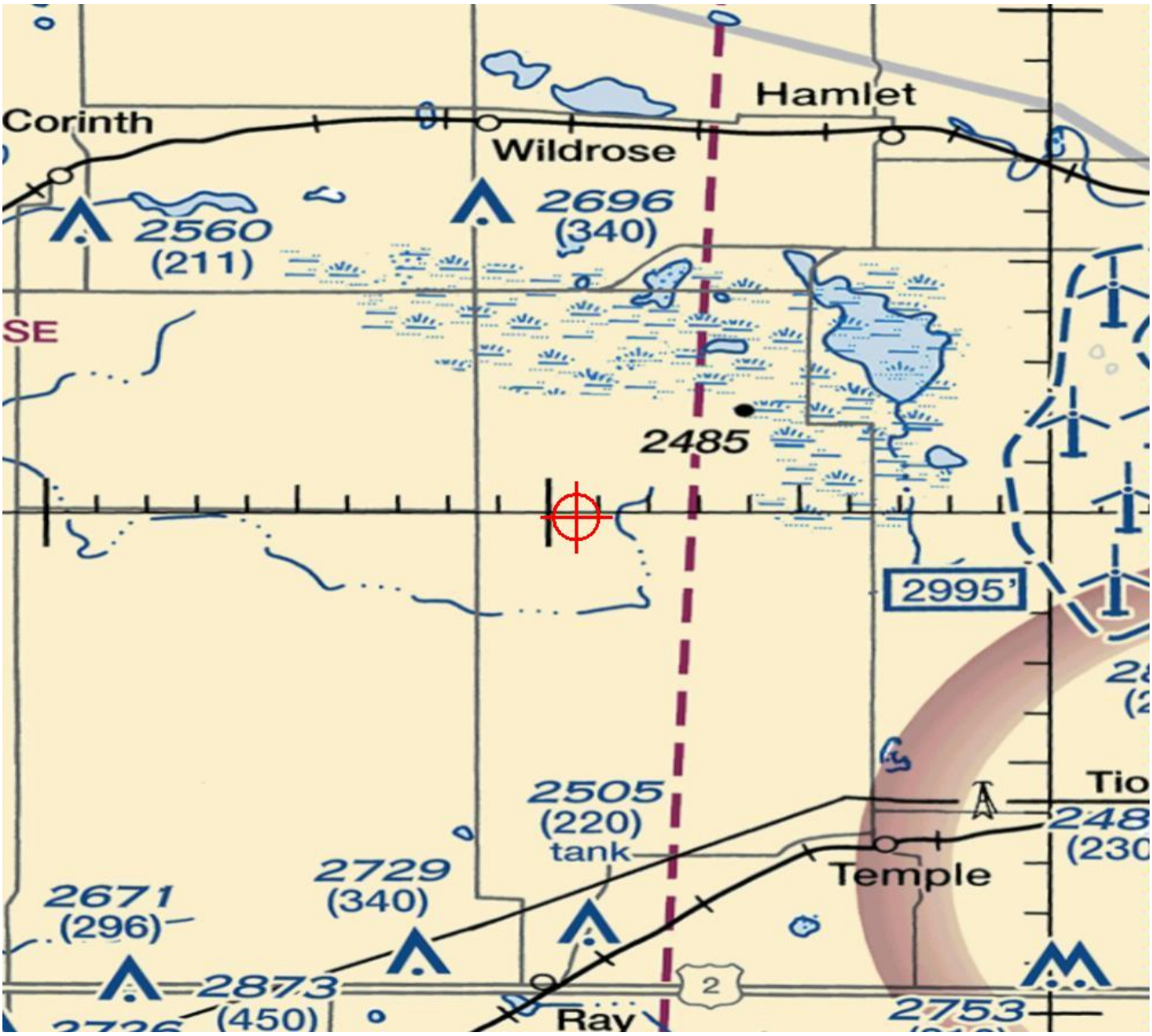
Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6870-OE



Sectional Map for ASN 2018-WTE-6870-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6871-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-47
Location:	Tioga, ND
Latitude:	48-29-26.99N NAD 83
Longitude:	103-10-12.69W
Heights:	2332 feet site elevation (SE)
	660 feet above ground level (AGL)
	2992 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6871-OE.

Signature Control No: 370538152-385972432 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
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2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
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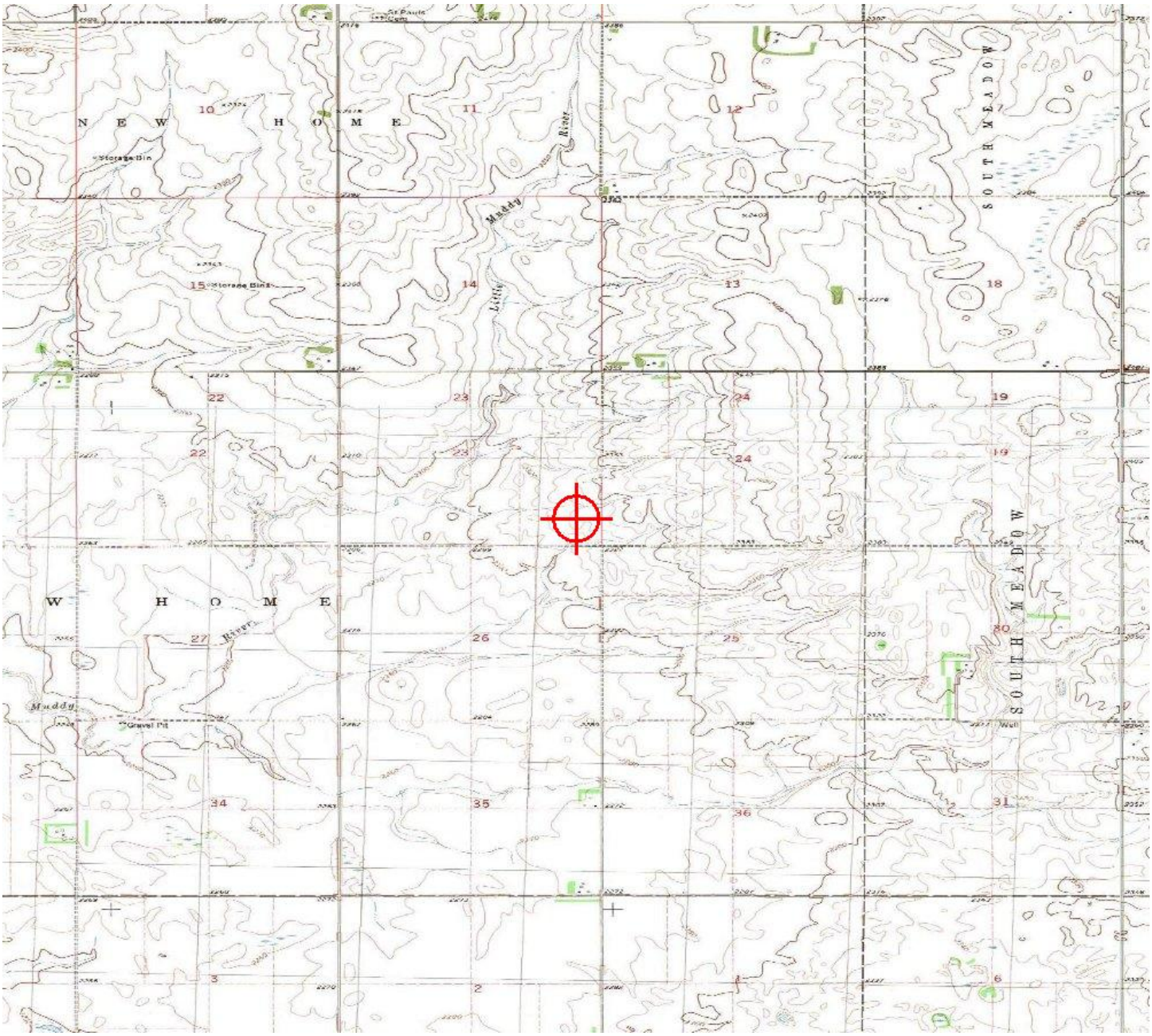
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6871-OE



Sectional Map for ASN 2018-WTE-6871-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6872-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-48
Location:	Tioga, ND
Latitude:	48-30-26.34N NAD 83
Longitude:	103-13-05.96W
Heights:	2304 feet site elevation (SE)
	660 feet above ground level (AGL)
	2964 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6872-OE.

Signature Control No: 370538153-385972433 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE

2018-WTE-6898-OE
2018-WTE-6900-OE
2018-WTE-6902-OE
2018-WTE-6904-OE
2018-WTE-6905-OE

2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE
2018-WTE-6910-OE
2018-WTE-6911-OE

2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE

2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE
2018-WTE-6893-OE

2018-WTE-6894-OE
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2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6911-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE

2018-WTE-6915-OE
2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE

2018-WTE-6920-OE
2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE

2018-WTE-6925-OE
2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE
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2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

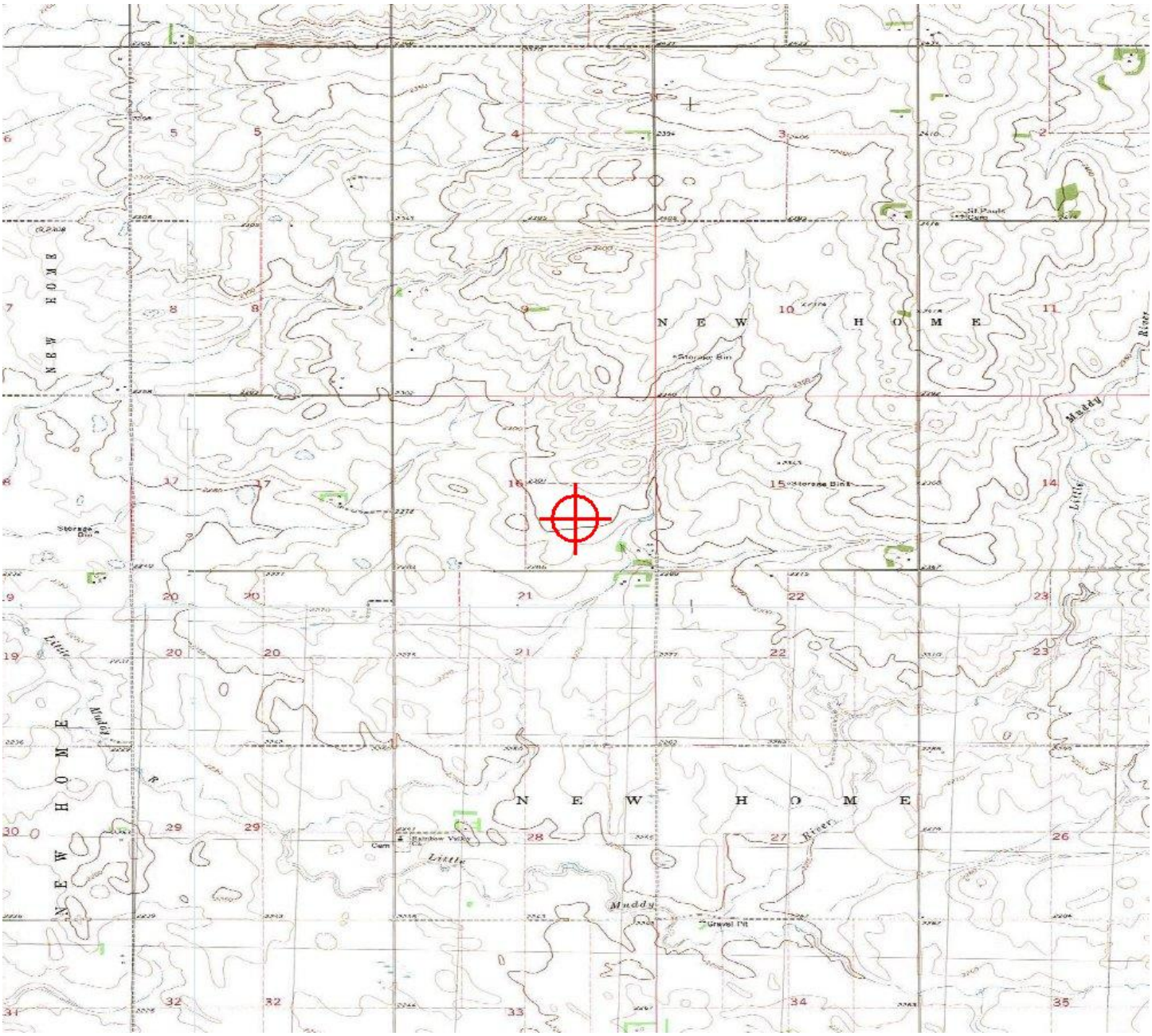
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

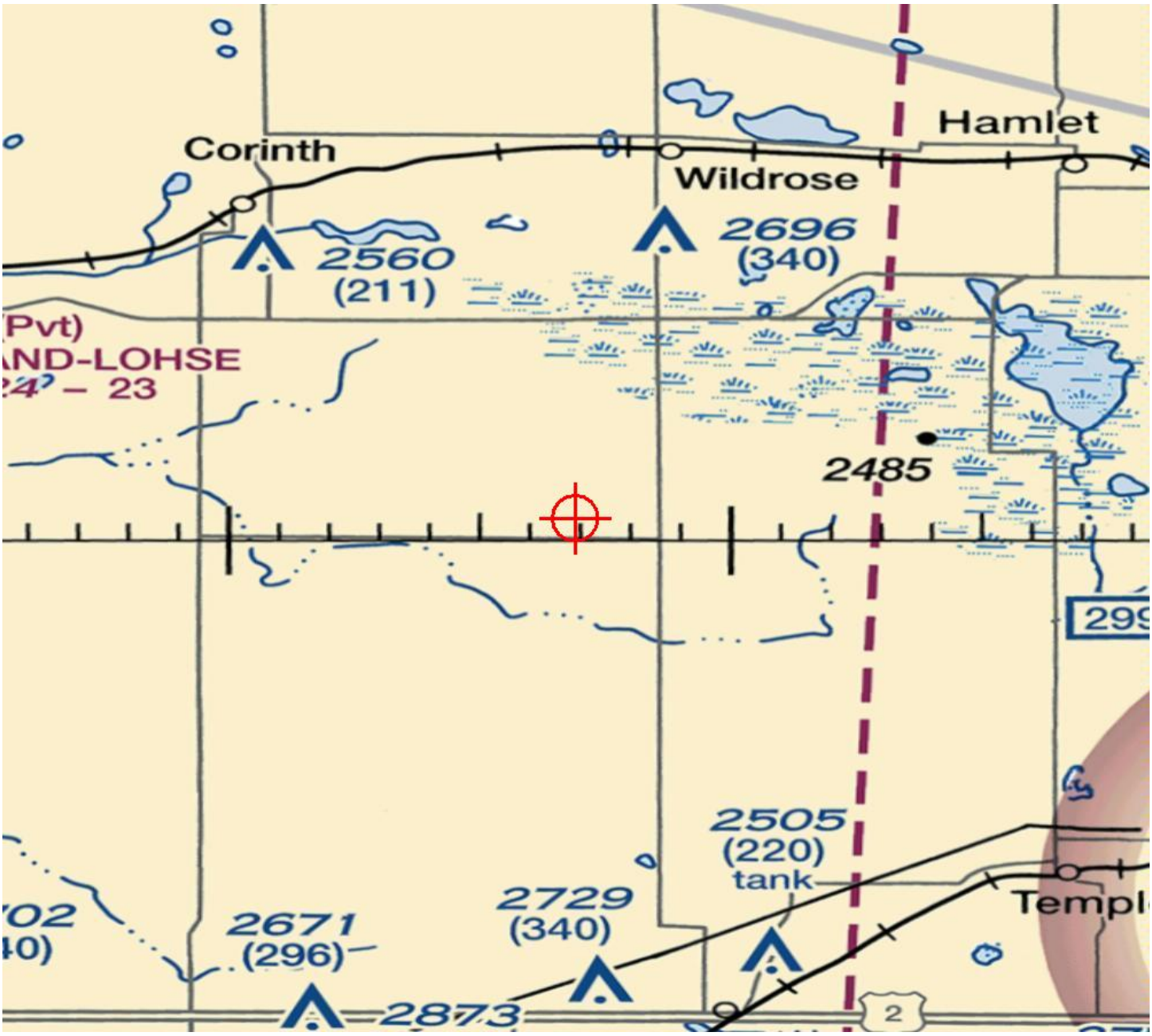
Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6872-OE



Sectional Map for ASN 2018-WTE-6872-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6873-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-49
Location:	Tioga, ND
Latitude:	48-30-33.00N NAD 83
Longitude:	103-12-30.79W
Heights:	2322 feet site elevation (SE)
	660 feet above ground level (AGL)
	2982 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

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This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

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Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

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used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6873-OE.

Signature Control No: 370538154-385972438 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
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2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
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2018-WTE-6850-OE
2018-WTE-6851-OE
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2018-WTE-6859-OE
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2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
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2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

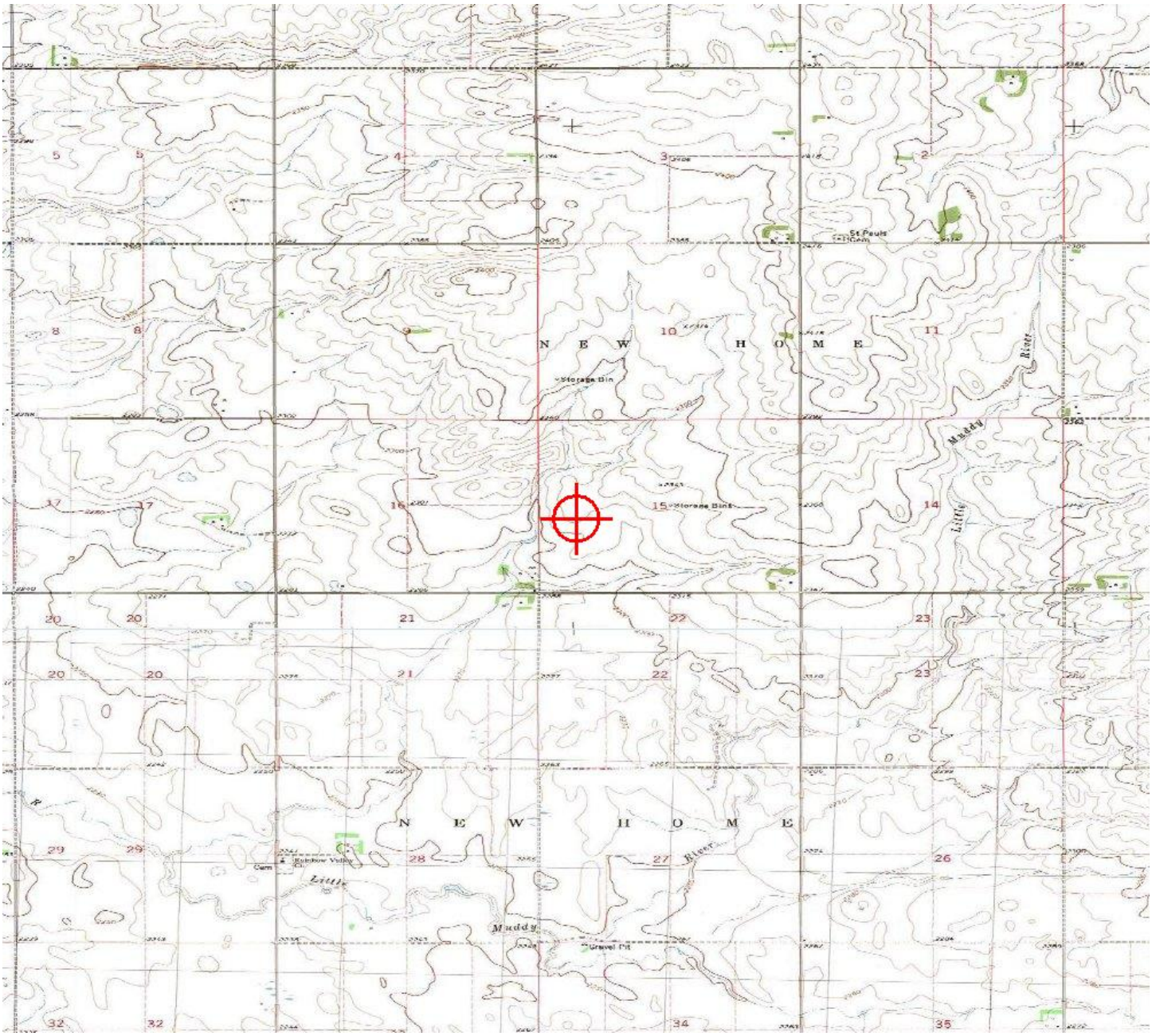
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

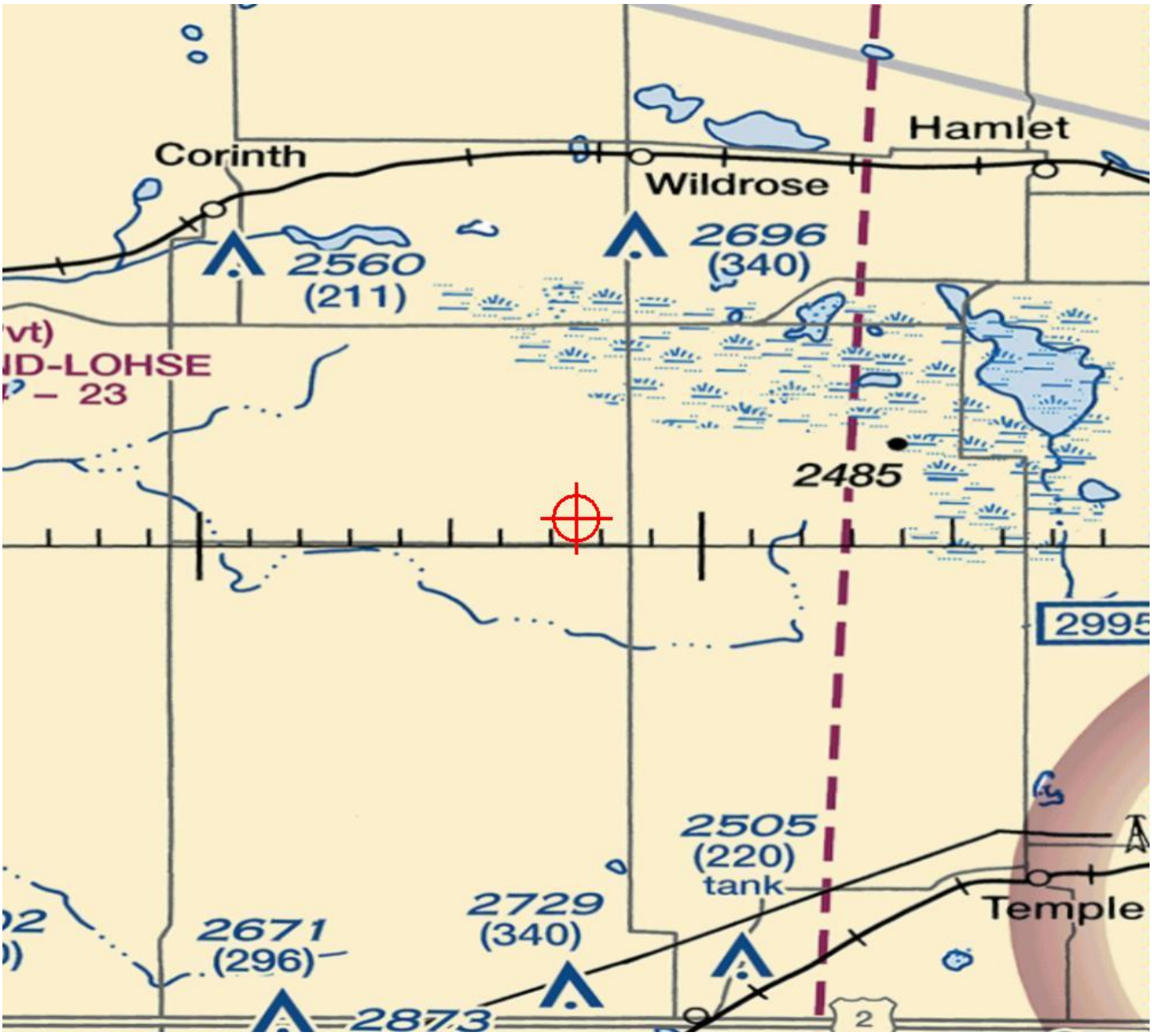
Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6873-OE



Sectional Map for ASN 2018-WTE-6873-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6874-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-50
Location:	Tioga, ND
Latitude:	48-31-10.92N NAD 83
Longitude:	103-12-59.23W
Heights:	2351 feet site elevation (SE)
	660 feet above ground level (AGL)
	3011 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6874-OE.

Signature Control No: 370538155-385972439 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
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2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

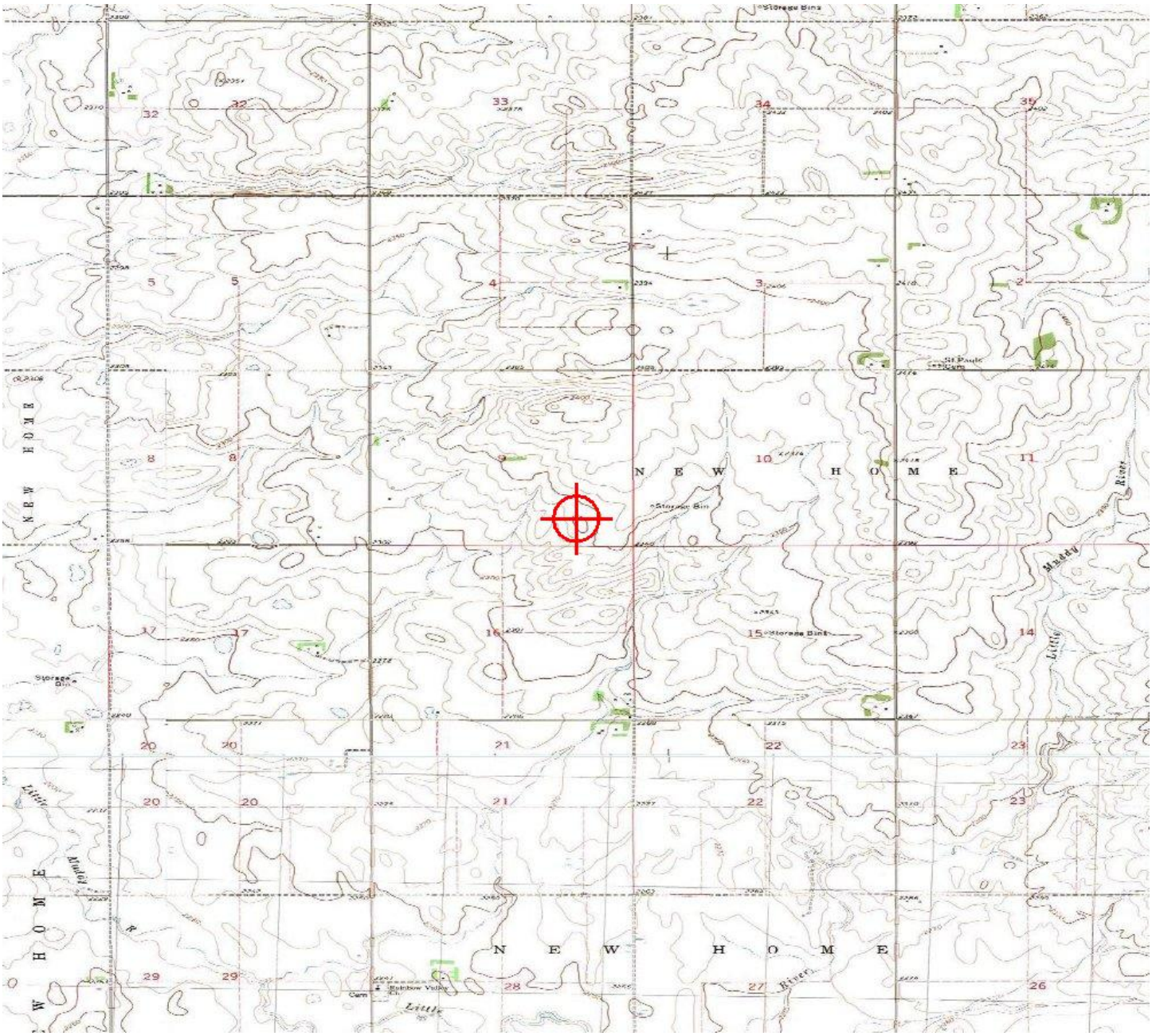
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6874-OE



Sectional Map for ASN 2018-WTE-6874-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6875-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-51
Location:	Tioga, ND
Latitude:	48-30-31.42N NAD 83
Longitude:	103-11-44.52W
Heights:	2349 feet site elevation (SE)
	660 feet above ground level (AGL)
	3009 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6875-OE.

Signature Control No: 370538156-385972440 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE

2018-WTE-6898-OE
2018-WTE-6900-OE
2018-WTE-6902-OE
2018-WTE-6904-OE
2018-WTE-6905-OE

2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE
2018-WTE-6910-OE
2018-WTE-6911-OE

2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE

2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE
2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6911-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE

2018-WTE-6915-OE
2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE

2018-WTE-6920-OE
2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE

2018-WTE-6925-OE
2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE
2018-WTE-6920-OE

2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

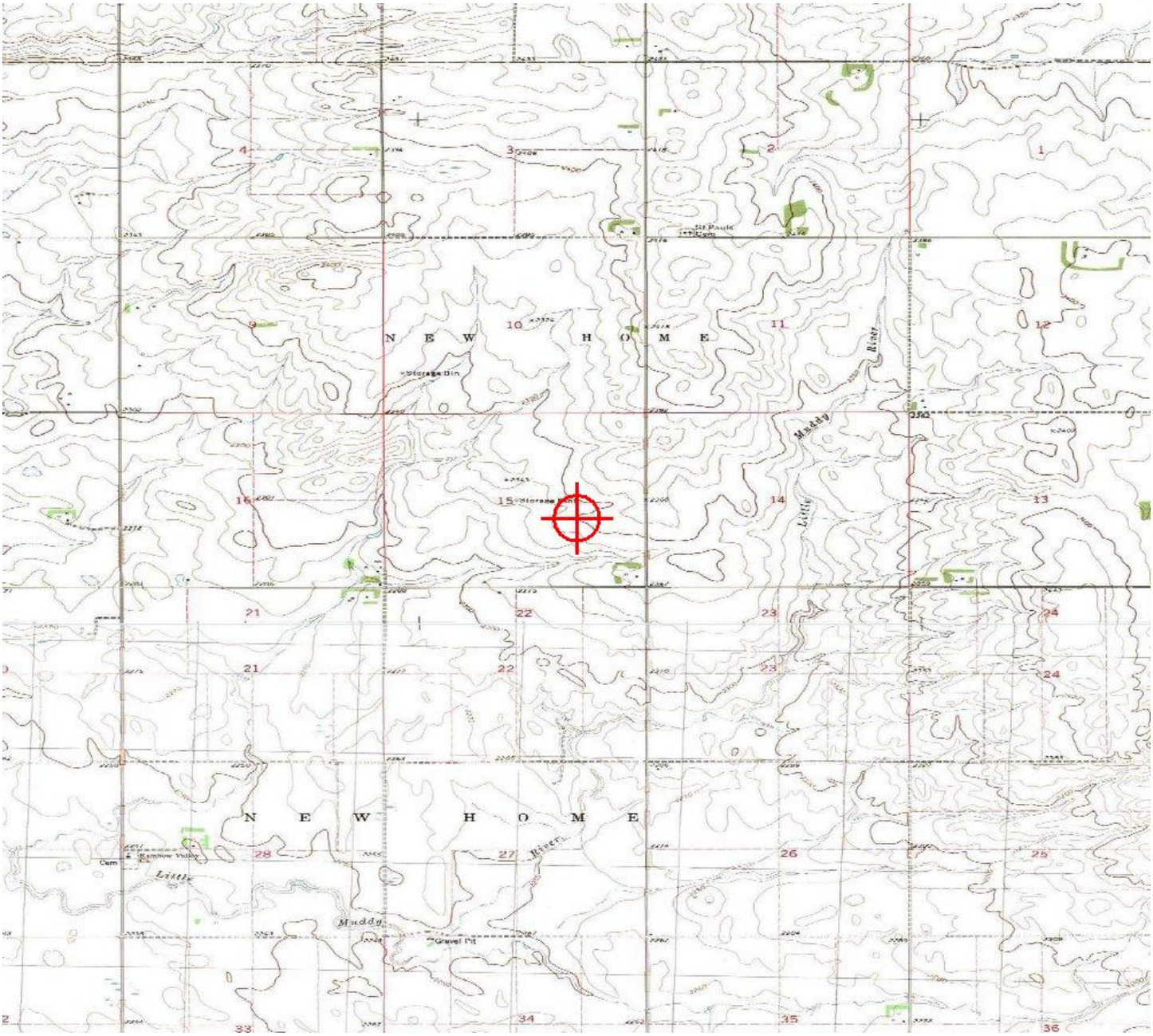
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

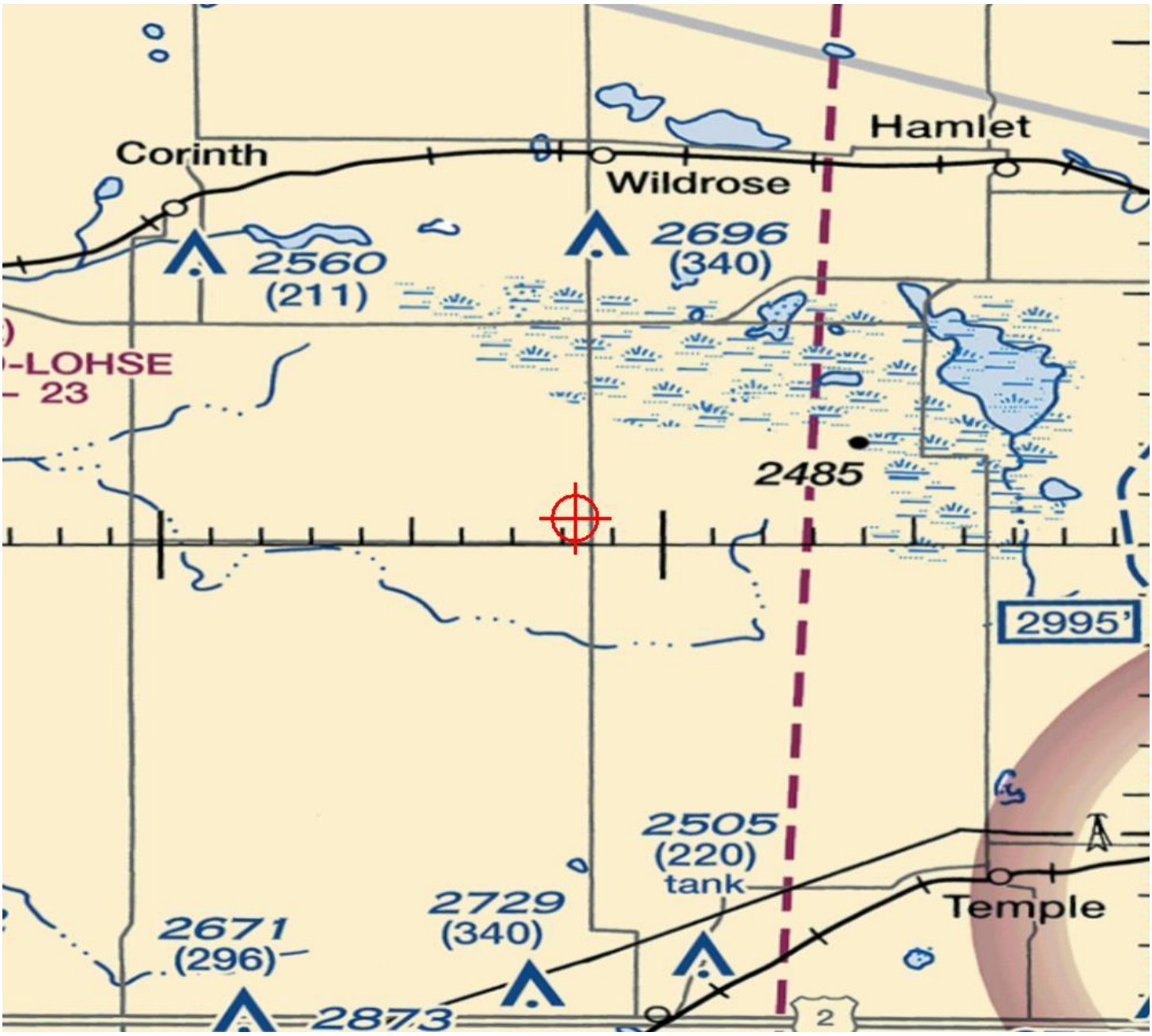
Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6875-OE



Sectional Map for ASN 2018-WTE-6875-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6876-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-52
Location:	Tioga, ND
Latitude:	48-30-34.90N NAD 83
Longitude:	103-13-39.60W
Heights:	2303 feet site elevation (SE)
	660 feet above ground level (AGL)
	2963 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

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__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
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NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

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This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

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In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

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If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6876-OE.

Signature Control No: 370538158-385972441 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

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The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

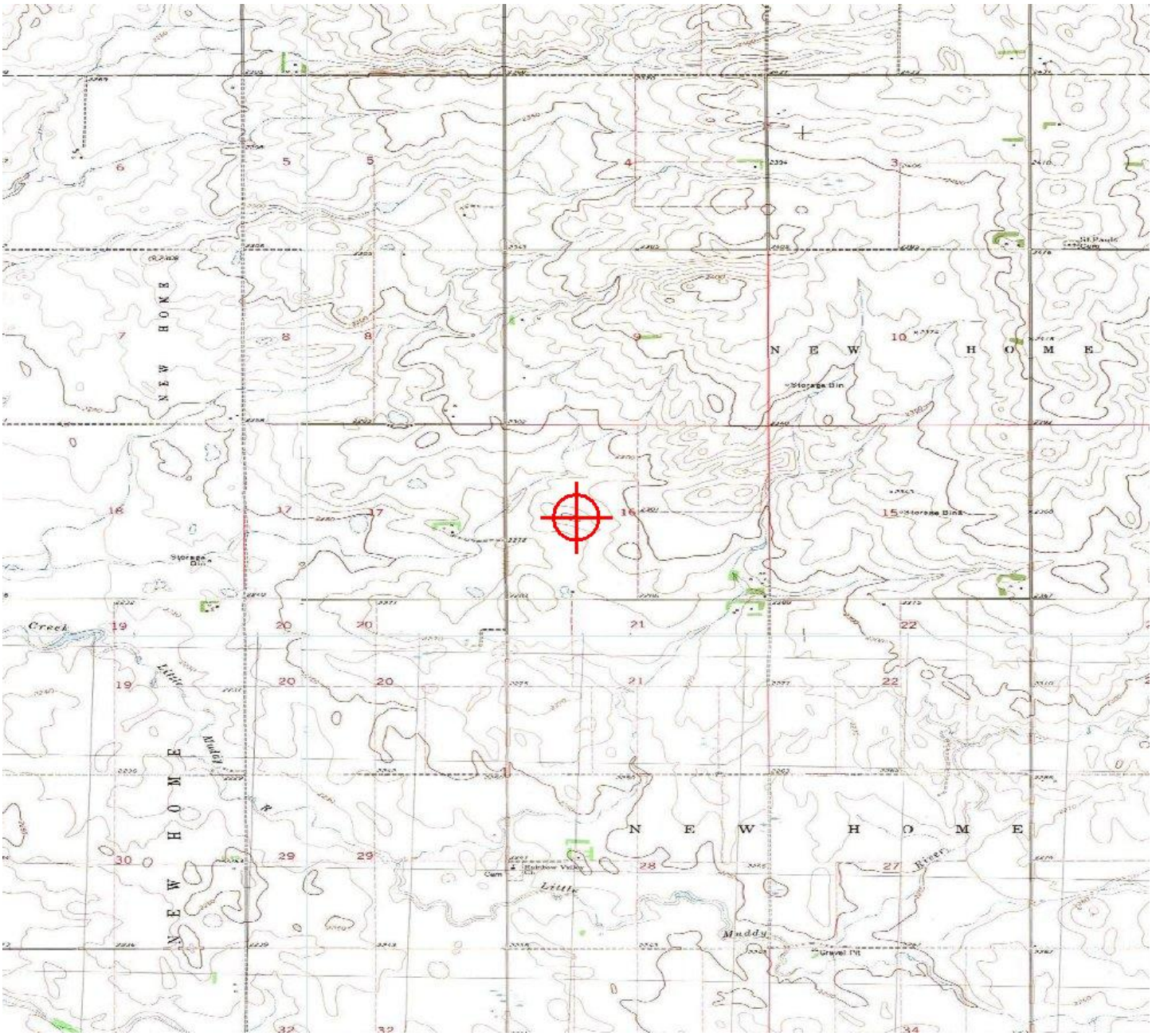
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

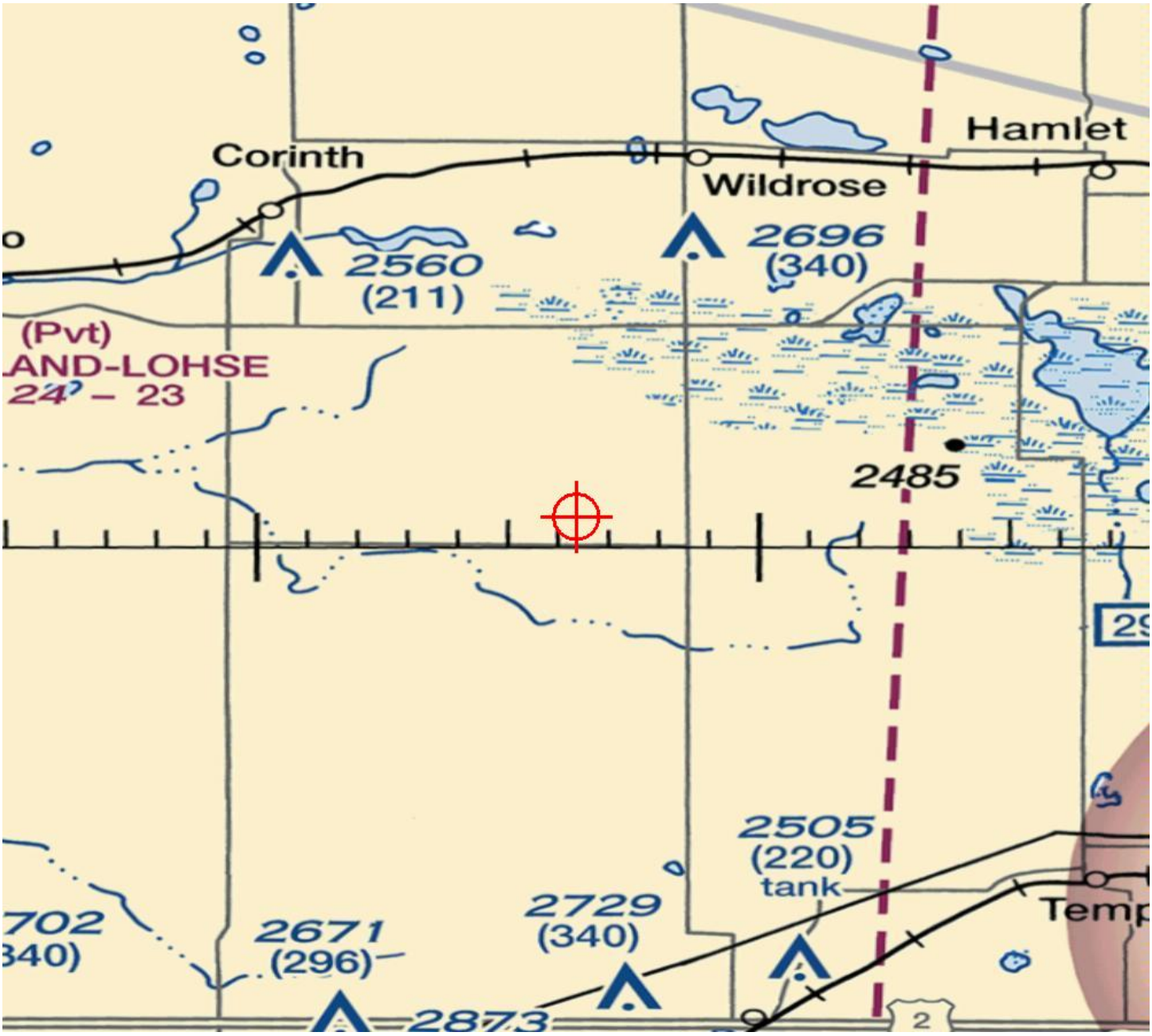
Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6876-OE



Sectional Map for ASN 2018-WTE-6876-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6877-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-53
Location:	Tioga, ND
Latitude:	48-30-43.12N NAD 83
Longitude:	103-11-04.48W
Heights:	2365 feet site elevation (SE)
	660 feet above ground level (AGL)
	3025 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6877-OE.

Signature Control No: 370538159-385972443 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

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2018-WTE-6919-OE
2018-WTE-6920-OE

2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

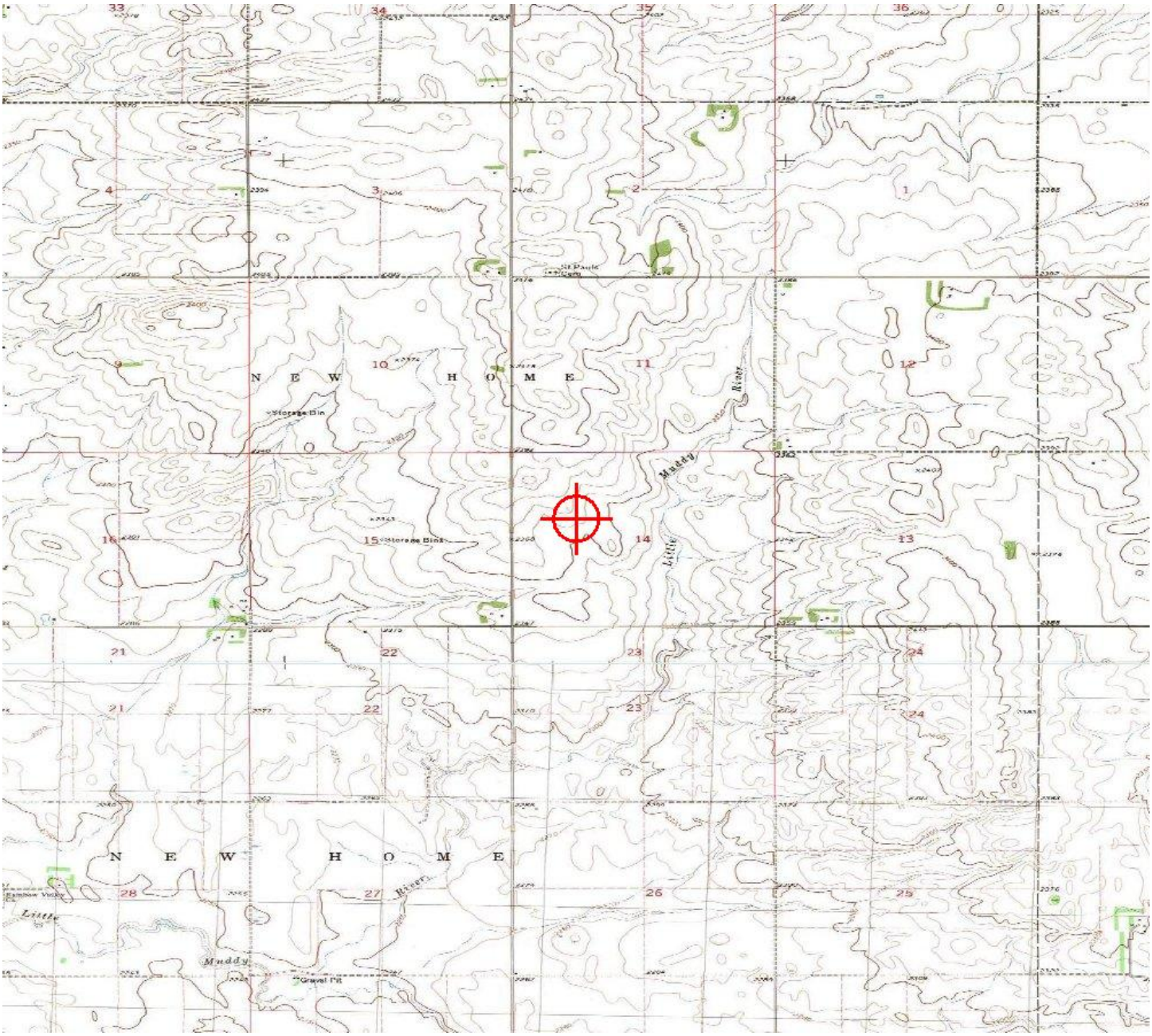
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

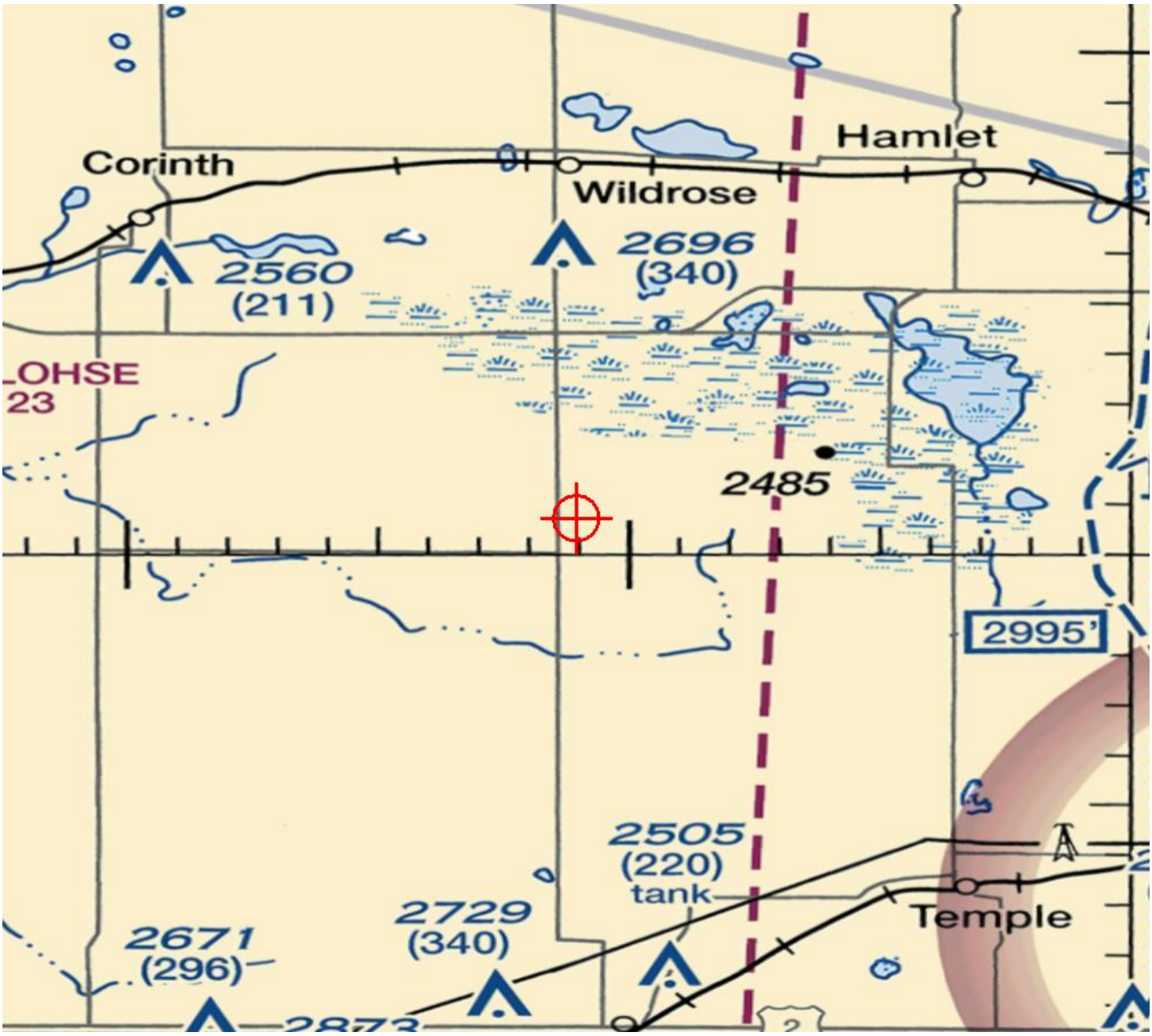
Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6877-OE



Sectional Map for ASN 2018-WTE-6877-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6878-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-54
Location:	Tioga, ND
Latitude:	48-30-54.35N NAD 83
Longitude:	103-10-28.78W
Heights:	2342 feet site elevation (SE)
	660 feet above ground level (AGL)
	3002 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6878-OE.

Signature Control No: 370538160-385972455 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE

2018-WTE-6898-OE
2018-WTE-6900-OE
2018-WTE-6902-OE
2018-WTE-6904-OE
2018-WTE-6905-OE

2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE
2018-WTE-6910-OE
2018-WTE-6911-OE

2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE

2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE
2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
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2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
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2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6911-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE

2018-WTE-6915-OE
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2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE

2018-WTE-6925-OE
2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE
2018-WTE-6920-OE

2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

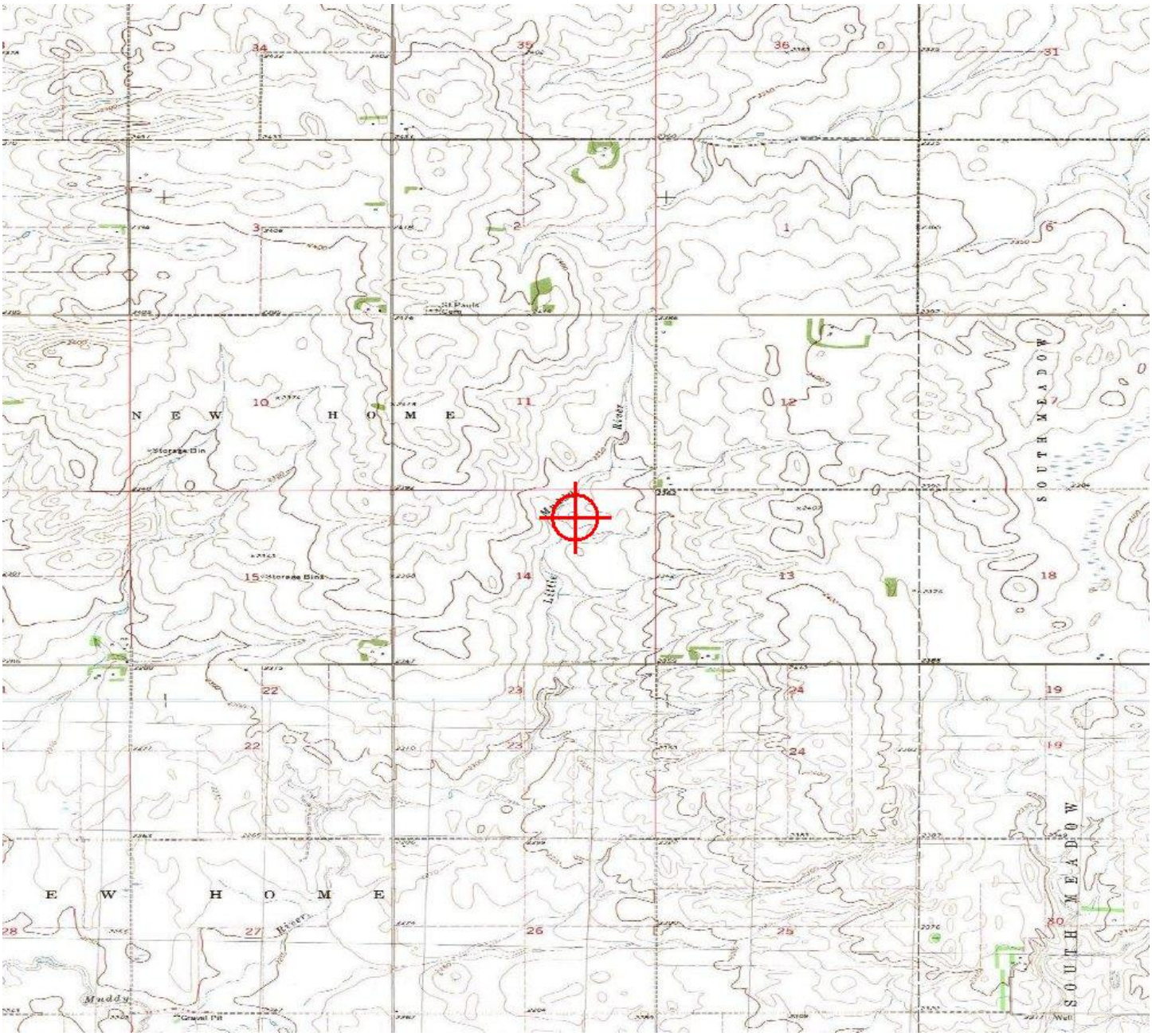
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6878-OE



Sectional Map for ASN 2018-WTE-6878-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6879-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-55
Location:	Tioga, ND
Latitude:	48-30-47.38N NAD 83
Longitude:	103-09-38.73W
Heights:	2393 feet site elevation (SE)
	660 feet above ground level (AGL)
	3053 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6879-OE.

Signature Control No: 370538161-385972456 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
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2018-WTE-6850-OE
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2018-WTE-6955-OE
2018-WTE-6956-OE

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2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6938-OE
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2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

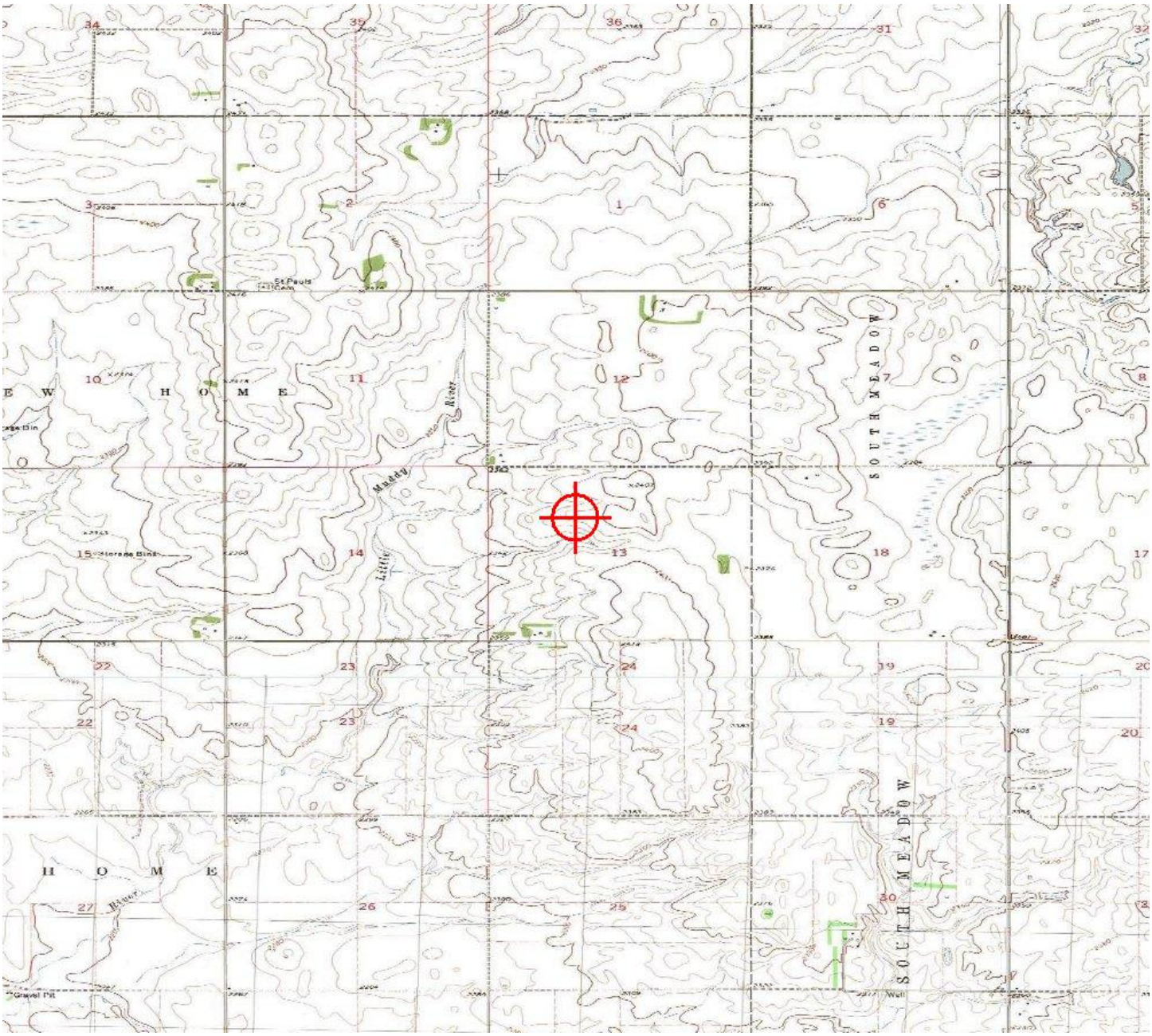
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6879-OE



Sectional Map for ASN 2018-WTE-6879-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6880-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-56
Location:	Tioga, ND
Latitude:	48-30-19.05N NAD 83
Longitude:	103-09-14.60W
Heights:	2415 feet site elevation (SE)
	660 feet above ground level (AGL)
	3075 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

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An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6880-OE.

Signature Control No: 370538164-385972460 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
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2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE
2018-WTE-6920-OE

2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

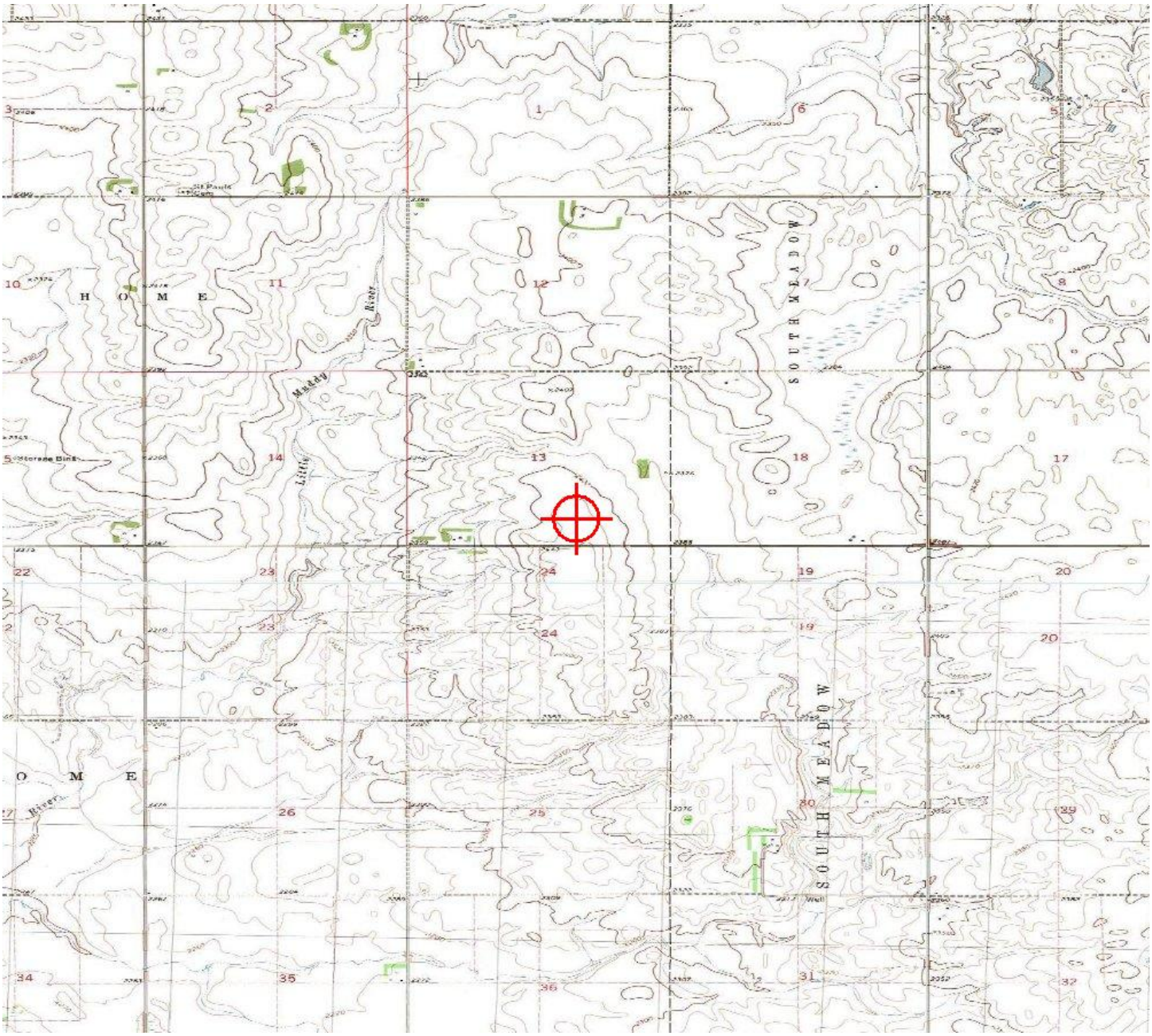
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6880-OE



Sectional Map for ASN 2018-WTE-6880-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6881-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-57
Location:	Tioga, ND
Latitude:	48-29-26.24N NAD 83
Longitude:	103-10-49.48W
Heights:	2301 feet site elevation (SE)
	660 feet above ground level (AGL)
	2961 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6881-OE.

Signature Control No: 370538165-385972461 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE

2018-WTE-6898-OE
2018-WTE-6900-OE
2018-WTE-6902-OE
2018-WTE-6904-OE
2018-WTE-6905-OE

2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE
2018-WTE-6910-OE
2018-WTE-6911-OE

2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE

2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE
2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
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2018-WTE-6899-OE
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2018-WTE-6904-OE
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2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE

2018-WTE-6925-OE
2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE
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2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

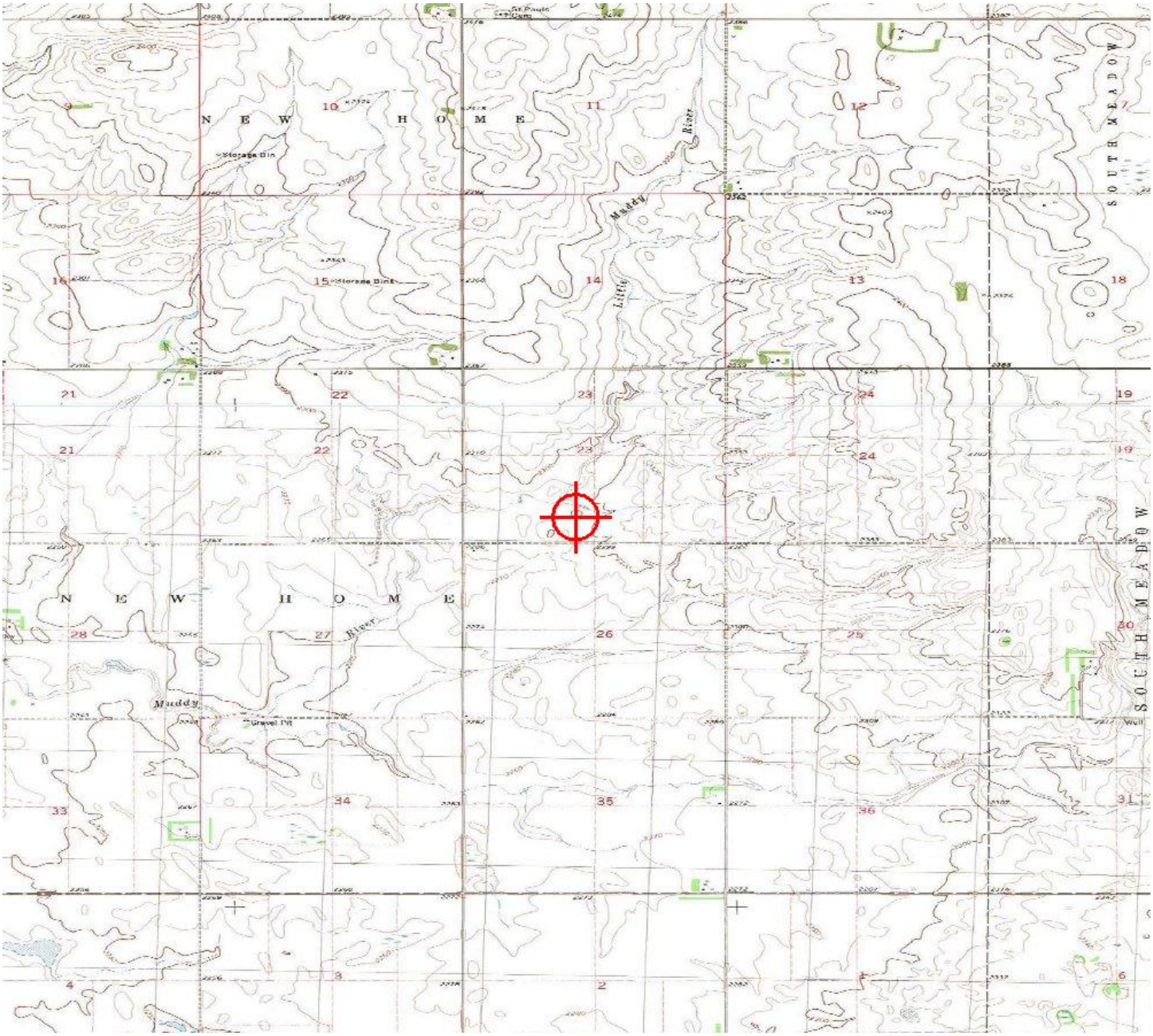
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6881-OE



Sectional Map for ASN 2018-WTE-6881-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6882-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-58
Location:	Tioga, ND
Latitude:	48-30-27.24N NAD 83
Longitude:	103-05-08.48W
Heights:	2433 feet site elevation (SE)
	660 feet above ground level (AGL)
	3093 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6882-OE.

Signature Control No: 370538167-385972465 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6850-OE
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The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

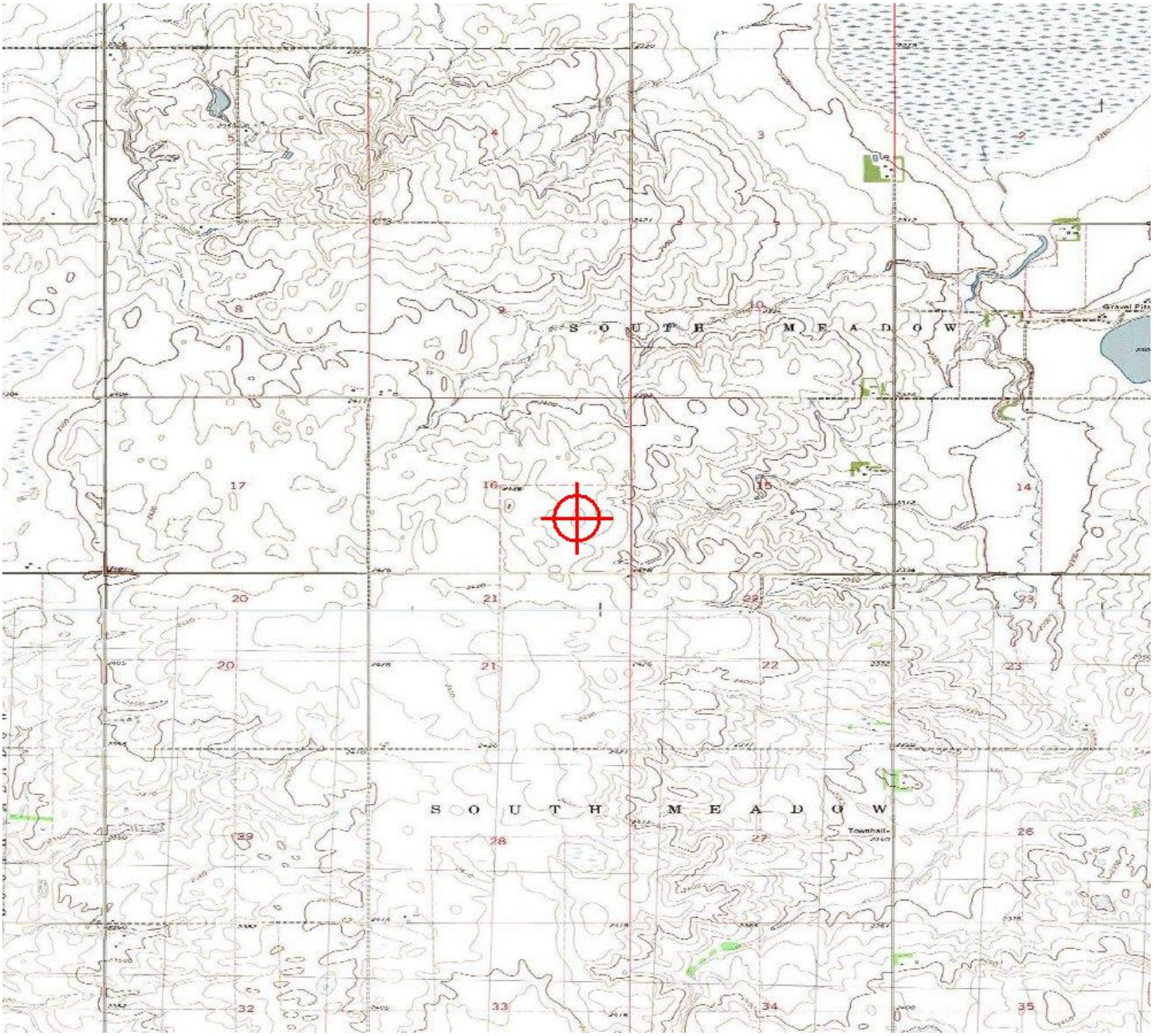
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6882-OE



Sectional Map for ASN 2018-WTE-6882-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6883-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-59
Location:	Tioga, ND
Latitude:	48-30-43.92N NAD 83
Longitude:	103-07-07.87W
Heights:	2419 feet site elevation (SE)
	660 feet above ground level (AGL)
	3079 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

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Signature Control No: 370538170-385972466 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

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2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
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2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE
2018-WTE-6920-OE

2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

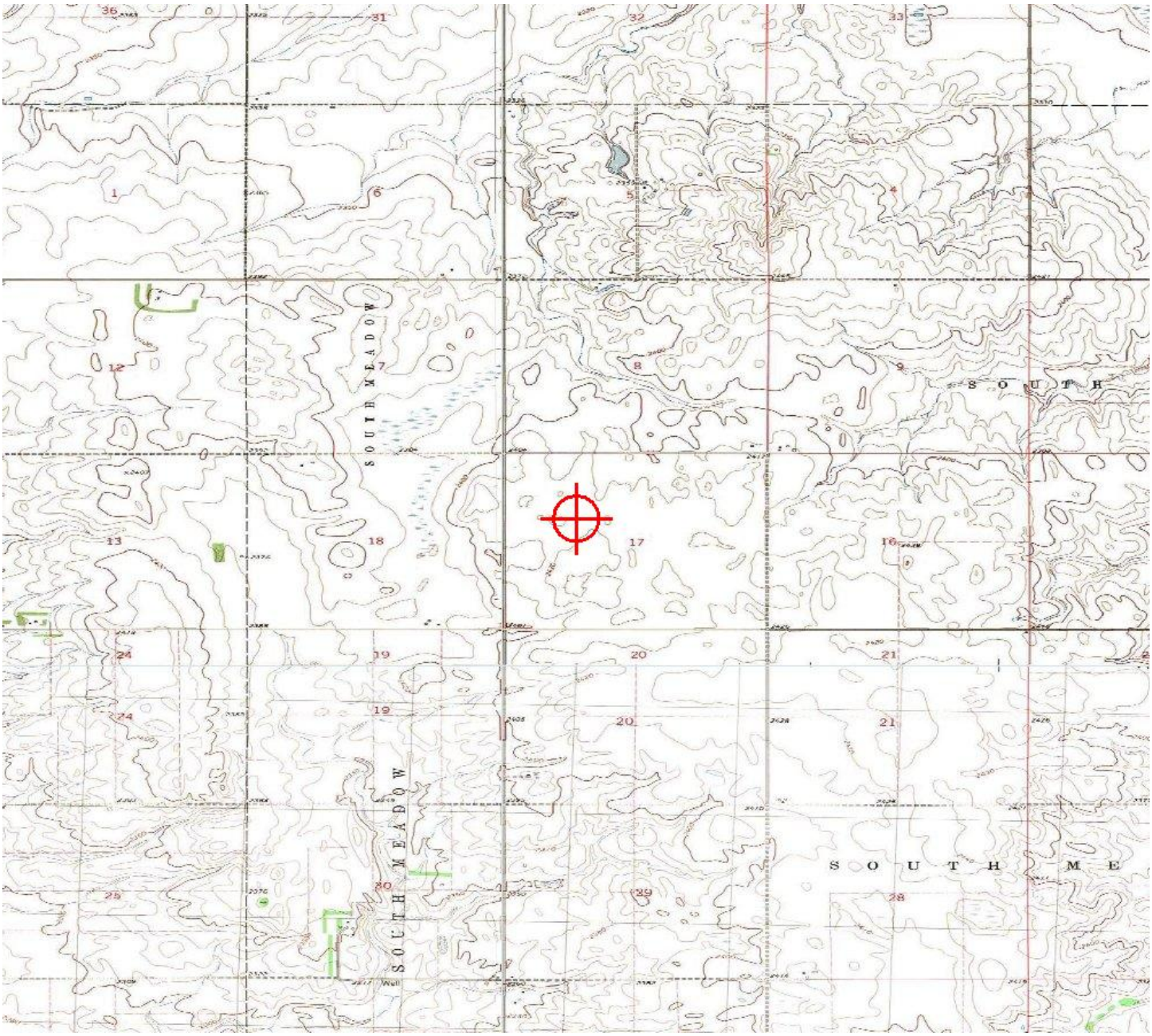
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6883-OE



Sectional Map for ASN 2018-WTE-6883-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6884-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-60
Location:	Tioga, ND
Latitude:	48-30-47.89N NAD 83
Longitude:	103-06-45.48W
Heights:	2420 feet site elevation (SE)
	660 feet above ground level (AGL)
	3080 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6884-OE.

Signature Control No: 370538172-385972469 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE

2018-WTE-6898-OE
2018-WTE-6900-OE
2018-WTE-6902-OE
2018-WTE-6904-OE
2018-WTE-6905-OE

2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE
2018-WTE-6910-OE
2018-WTE-6911-OE

2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE

2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE
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2018-WTE-6895-OE
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2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
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2018-WTE-6920-OE
2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE

2018-WTE-6925-OE
2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE
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2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

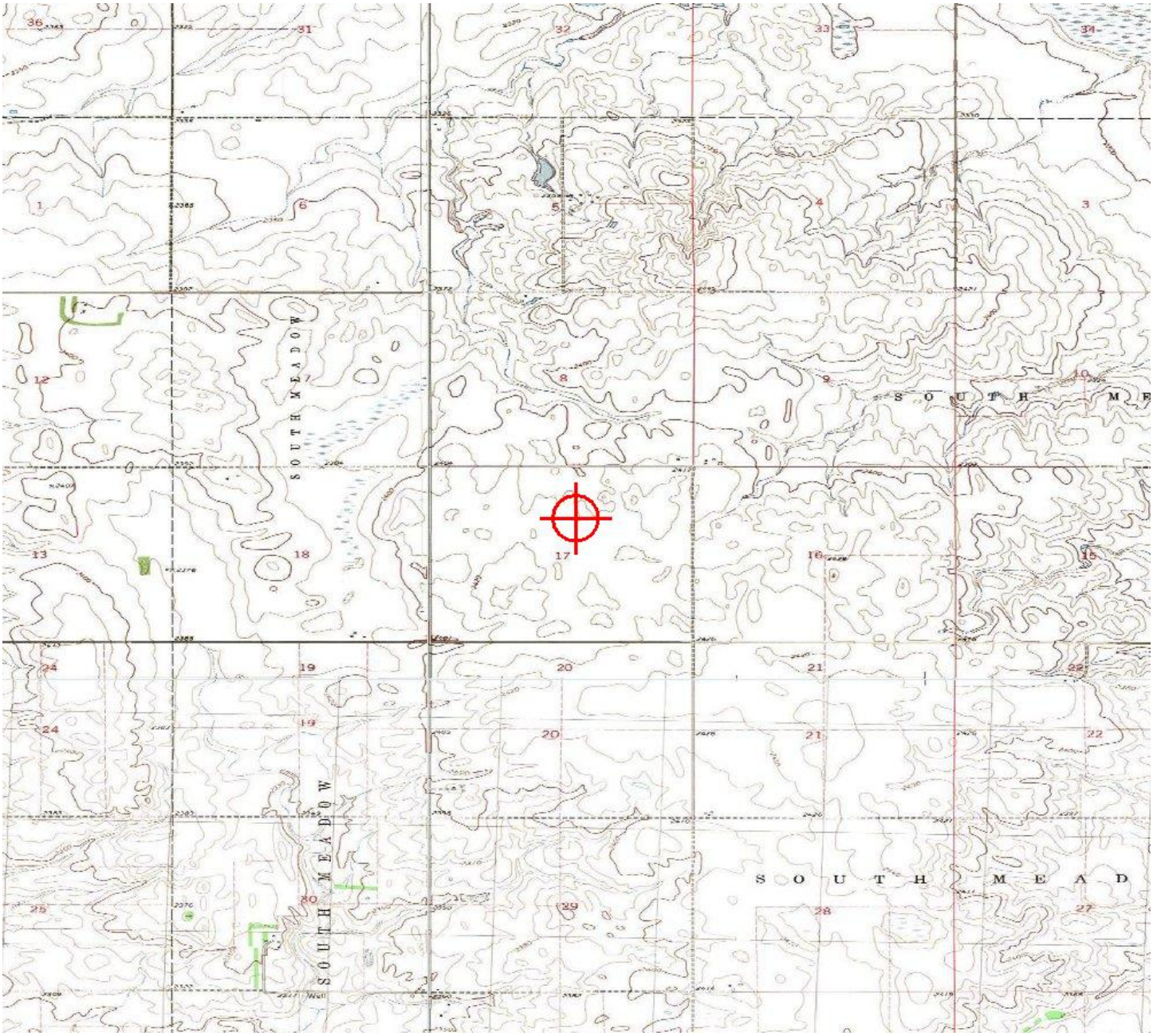
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6884-OE



Sectional Map for ASN 2018-WTE-6884-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6885-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-61
Location:	Tioga, ND
Latitude:	48-30-48.35N NAD 83
Longitude:	103-06-23.33W
Heights:	2422 feet site elevation (SE)
	660 feet above ground level (AGL)
	3082 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

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This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6885-OE.

Signature Control No: 370538173-385972473 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
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2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
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2018-WTE-6955-OE
2018-WTE-6956-OE

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2018-WTE-6842-OE
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2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
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2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

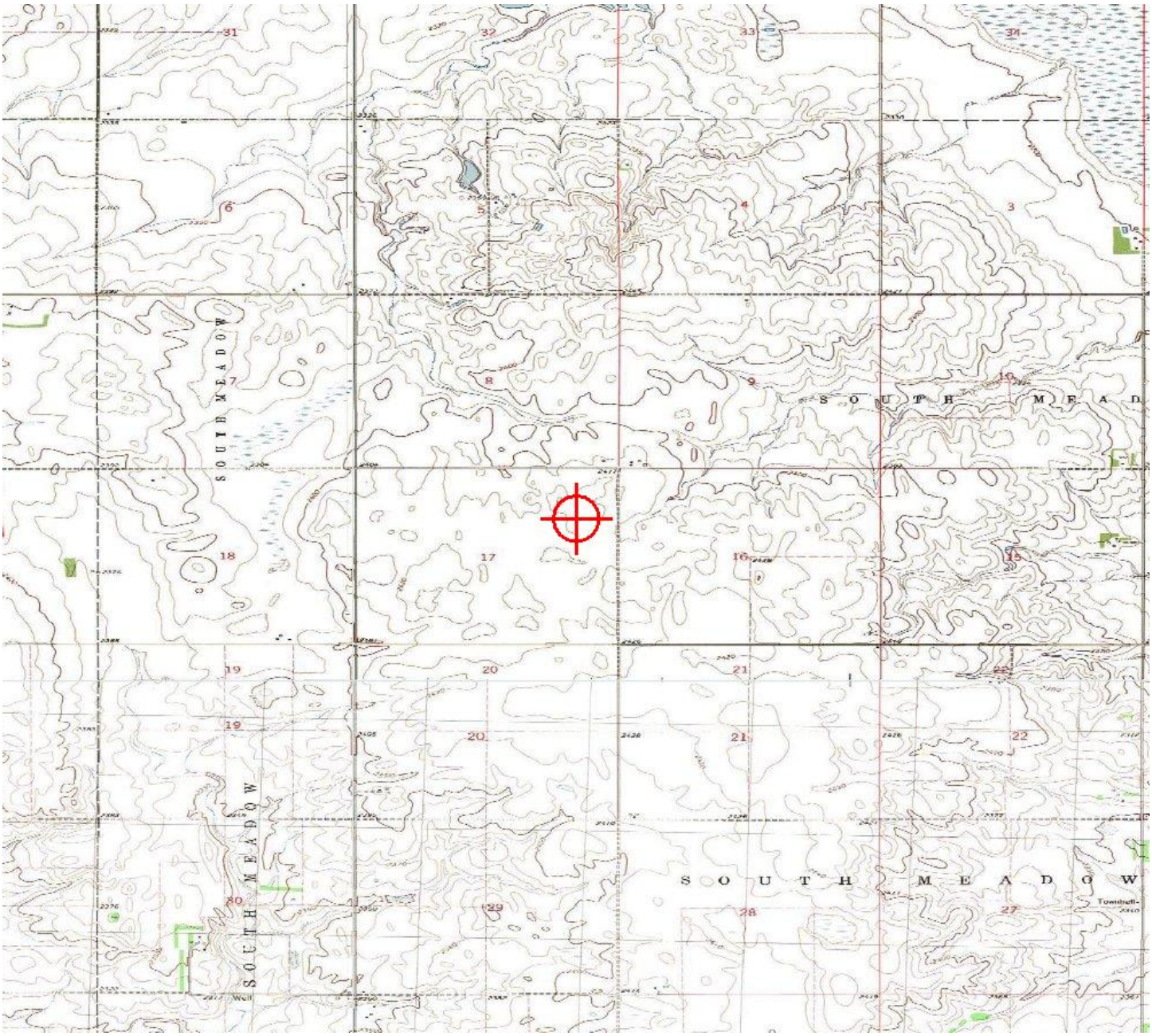
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6885-OE



Sectional Map for ASN 2018-WTE-6885-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6886-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-62
Location:	Tioga, ND
Latitude:	48-30-45.64N NAD 83
Longitude:	103-05-40.00W
Heights:	2432 feet site elevation (SE)
	660 feet above ground level (AGL)
	3092 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

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Signature Control No: 370538174-385972477 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

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The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE
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2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

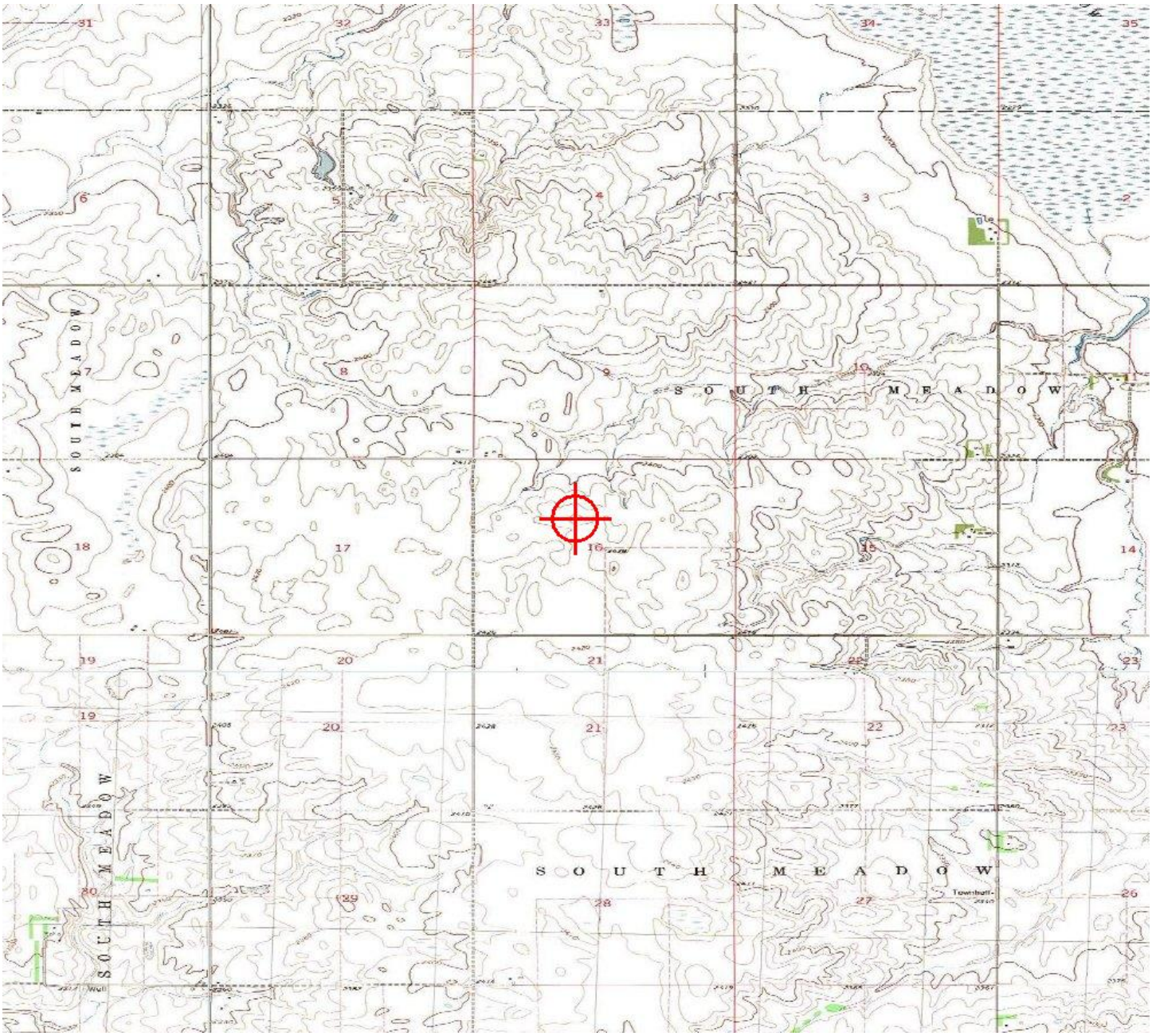
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6886-OE



Sectional Map for ASN 2018-WTE-6886-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6887-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-63
Location:	Tioga, ND
Latitude:	48-30-51.10N NAD 83
Longitude:	103-05-14.28W
Heights:	2423 feet site elevation (SE)
	660 feet above ground level (AGL)
	3083 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6887-OE.

Signature Control No: 370538175-385972481 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

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2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
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2018-WTE-6852-OE
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2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

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The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

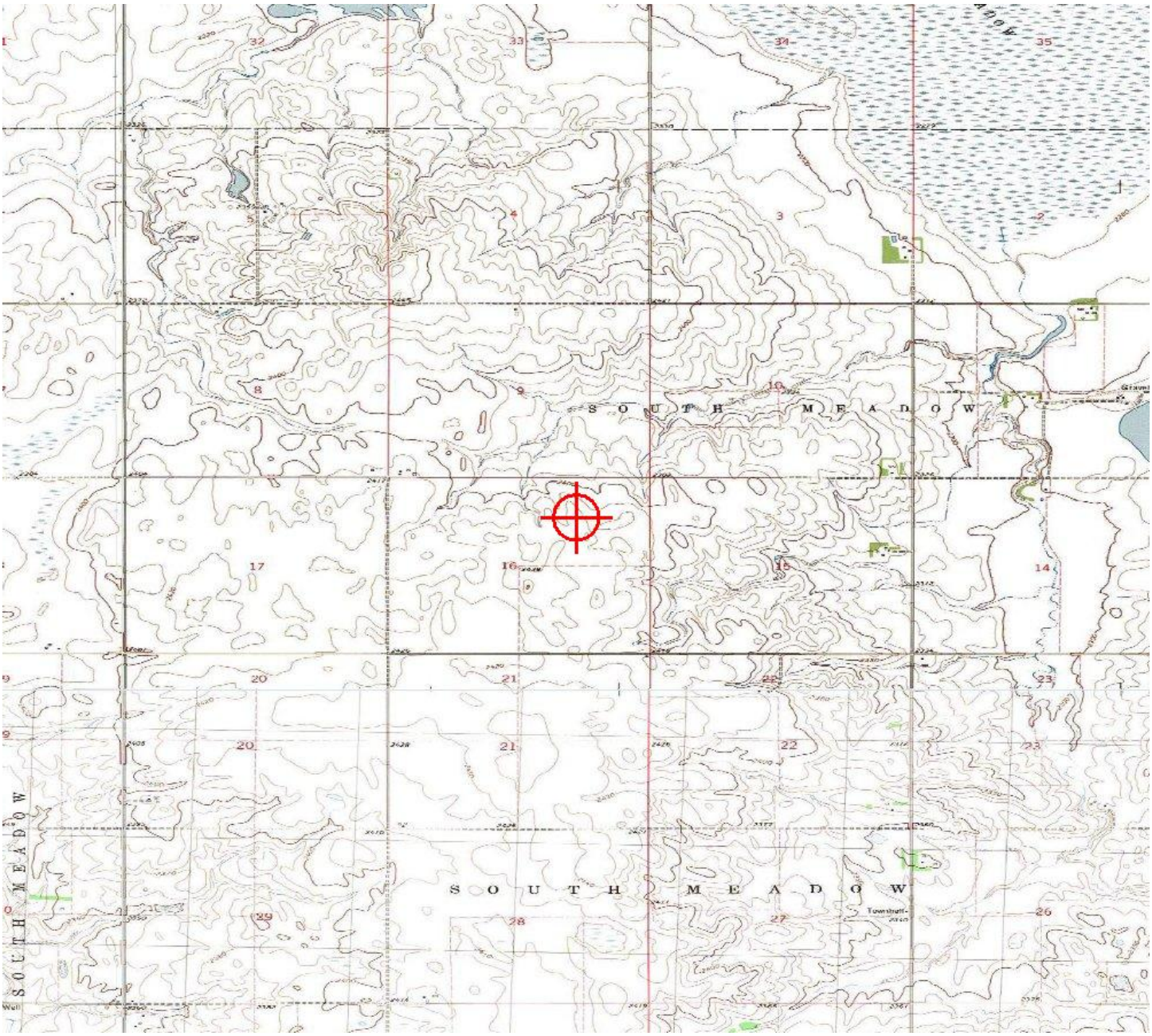
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Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6887-OE



Sectional Map for ASN 2018-WTE-6887-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6888-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-66
Location:	Tioga, ND
Latitude:	48-31-40.36N NAD 83
Longitude:	103-13-07.49W
Heights:	2396 feet site elevation (SE)
	660 feet above ground level (AGL)
	3056 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

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__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

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This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

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Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

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This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6888-OE.

Signature Control No: 370538176-385972483 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
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2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
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2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
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2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
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2018-WTE-6889-OE
2018-WTE-6890-OE
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2018-WTE-6903-OE

2018-WTE-6904-OE
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2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE
2018-WTE-6920-OE

2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

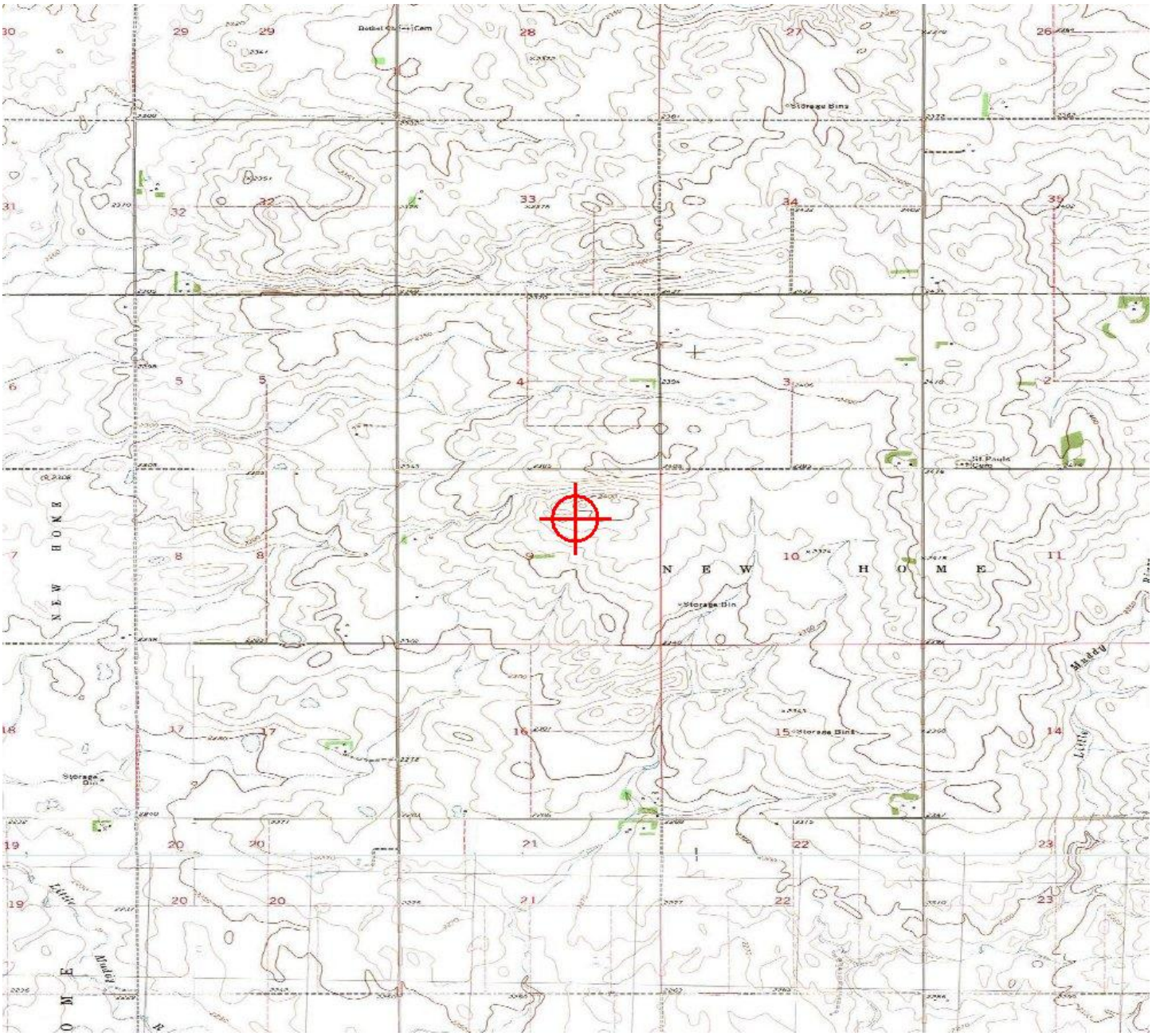
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

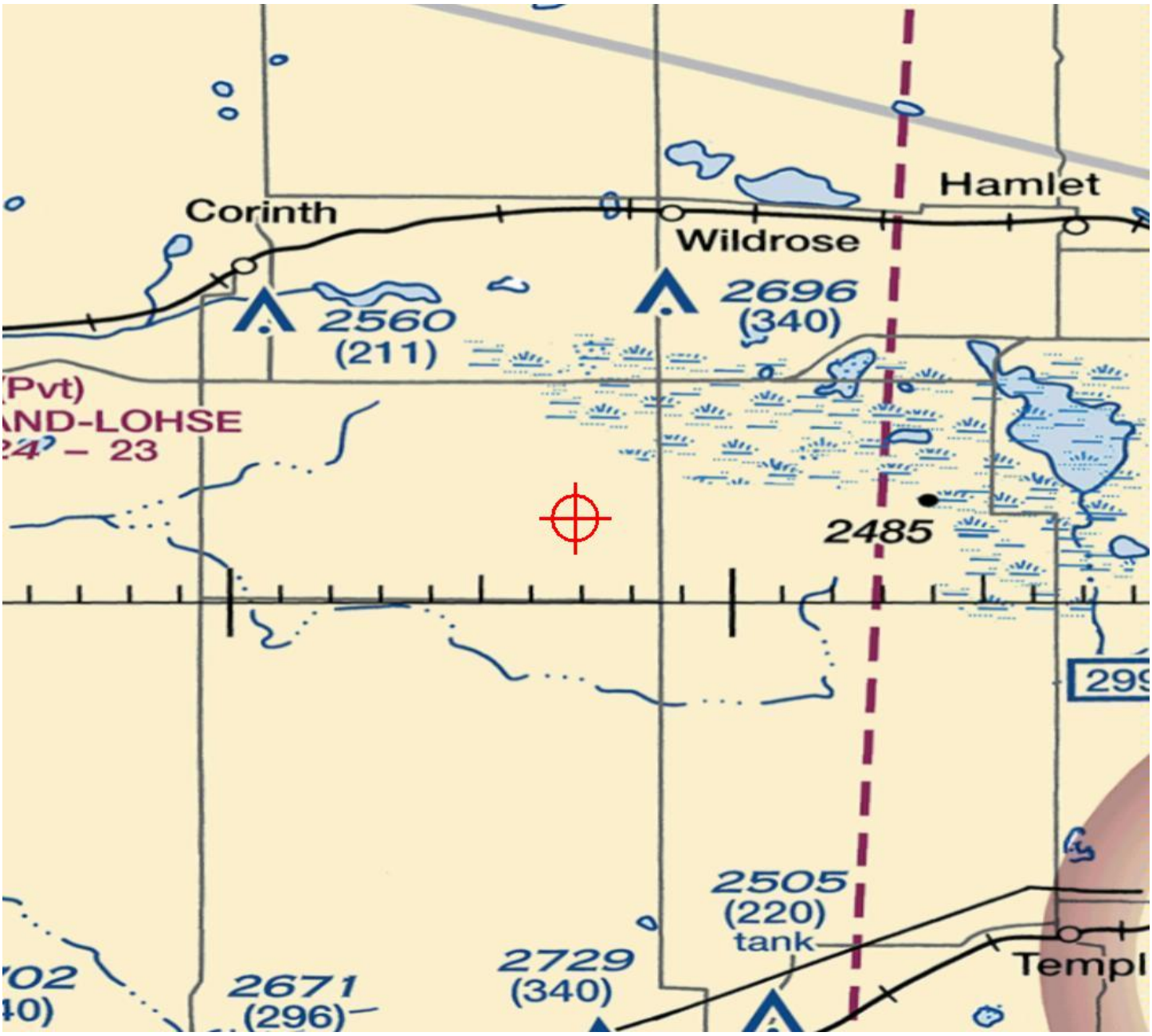
Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6888-OE



Sectional Map for ASN 2018-WTE-6888-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6889-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-67
Location:	Tioga, ND
Latitude:	48-31-40.17N NAD 83
Longitude:	103-12-46.81W
Heights:	2394 feet site elevation (SE)
	660 feet above ground level (AGL)
	3054 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

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Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

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If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6889-OE.

Signature Control No: 370538177-385972486 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

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CFR, Code of Federal Regulations
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2018-WTE-6924-OE

2018-WTE-6925-OE
2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE
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2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

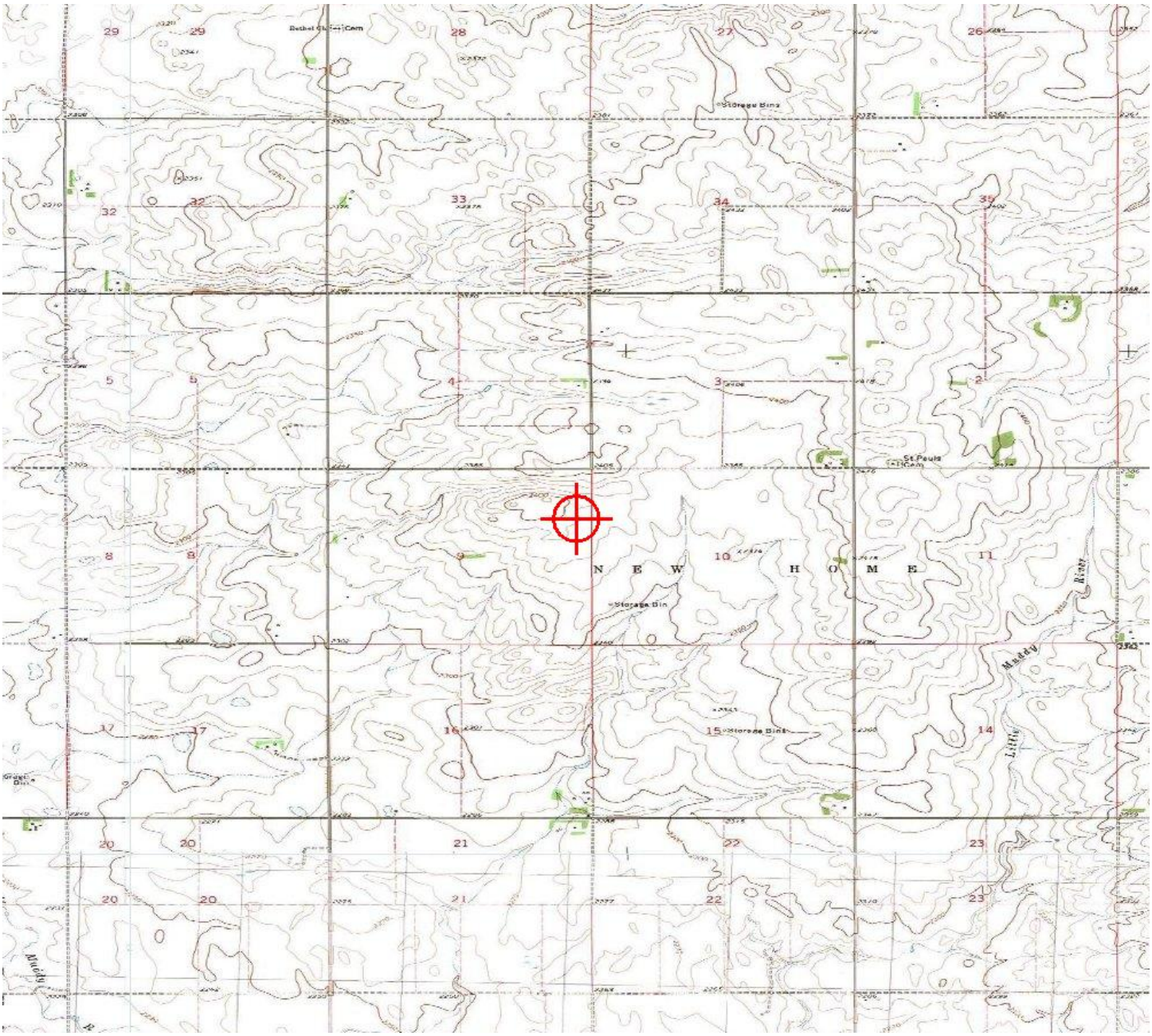
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

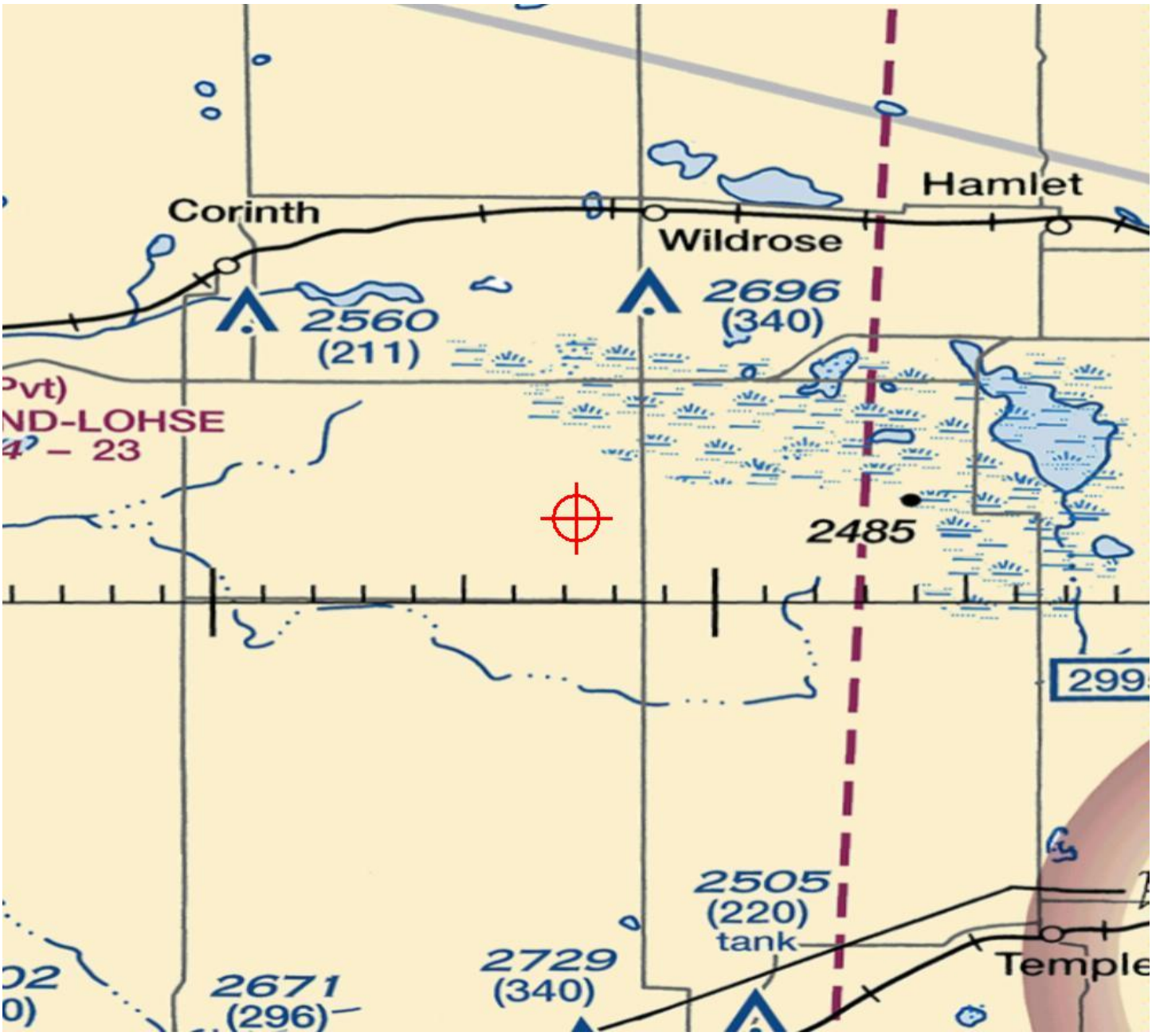
Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6889-OE



Sectional Map for ASN 2018-WTE-6889-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6890-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-68
Location:	Tioga, ND
Latitude:	48-31-39.44N NAD 83
Longitude:	103-12-18.79W
Heights:	2374 feet site elevation (SE)
	660 feet above ground level (AGL)
	3034 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6890-OE.

Signature Control No: 370538179-385972488 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
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2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
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The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

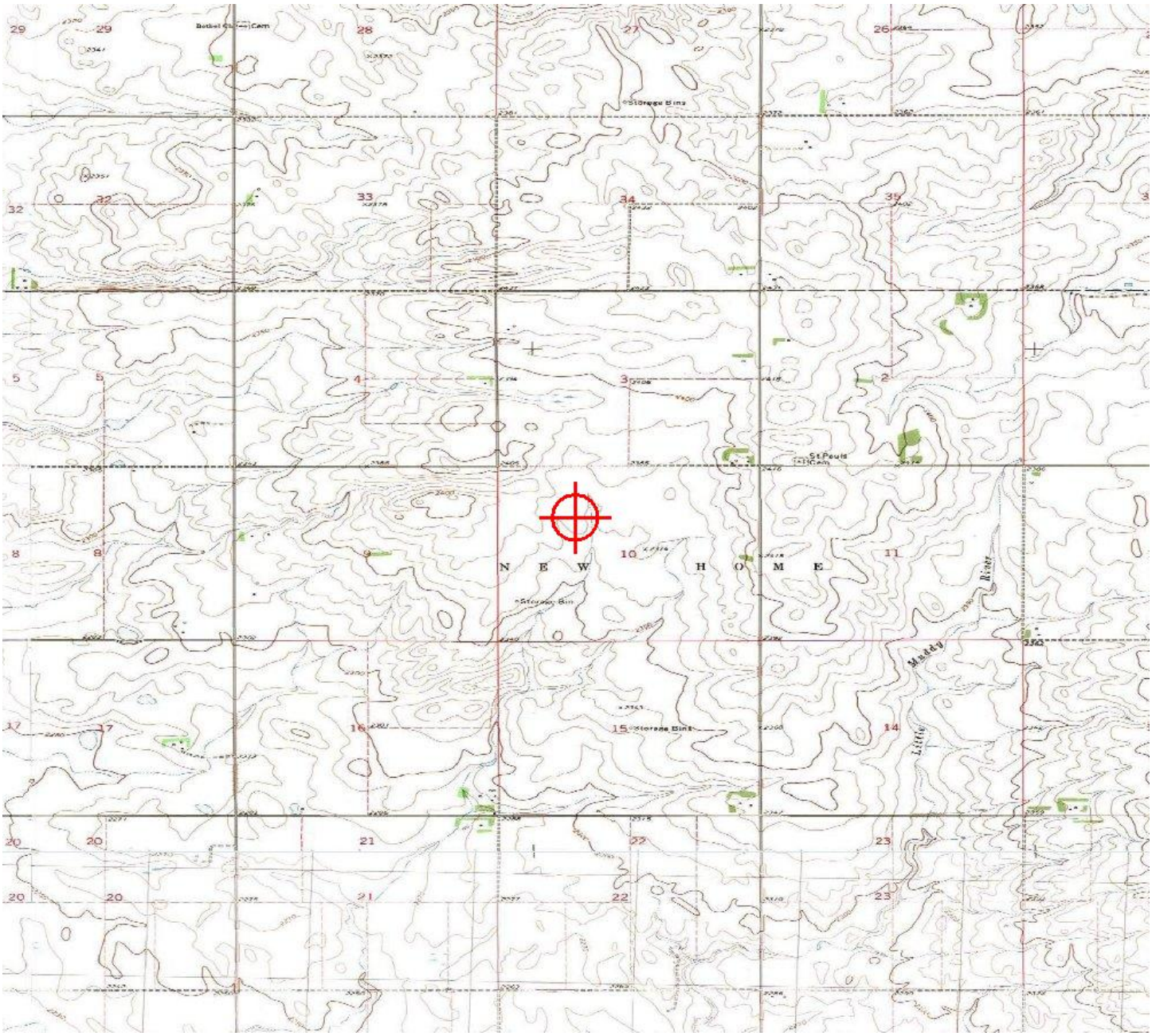
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6890-OE



Sectional Map for ASN 2018-WTE-6890-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6891-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-69
Location:	Tioga, ND
Latitude:	48-31-37.22N NAD 83
Longitude:	103-11-49.64W
Heights:	2375 feet site elevation (SE)
	660 feet above ground level (AGL)
	3035 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

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Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

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used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

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This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6891-OE.

Signature Control No: 370538181-385972490 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6859-OE
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2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
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2018-WTE-6875-OE
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2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

2018-WTE-6893-OE

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2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE
2018-WTE-6920-OE

2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

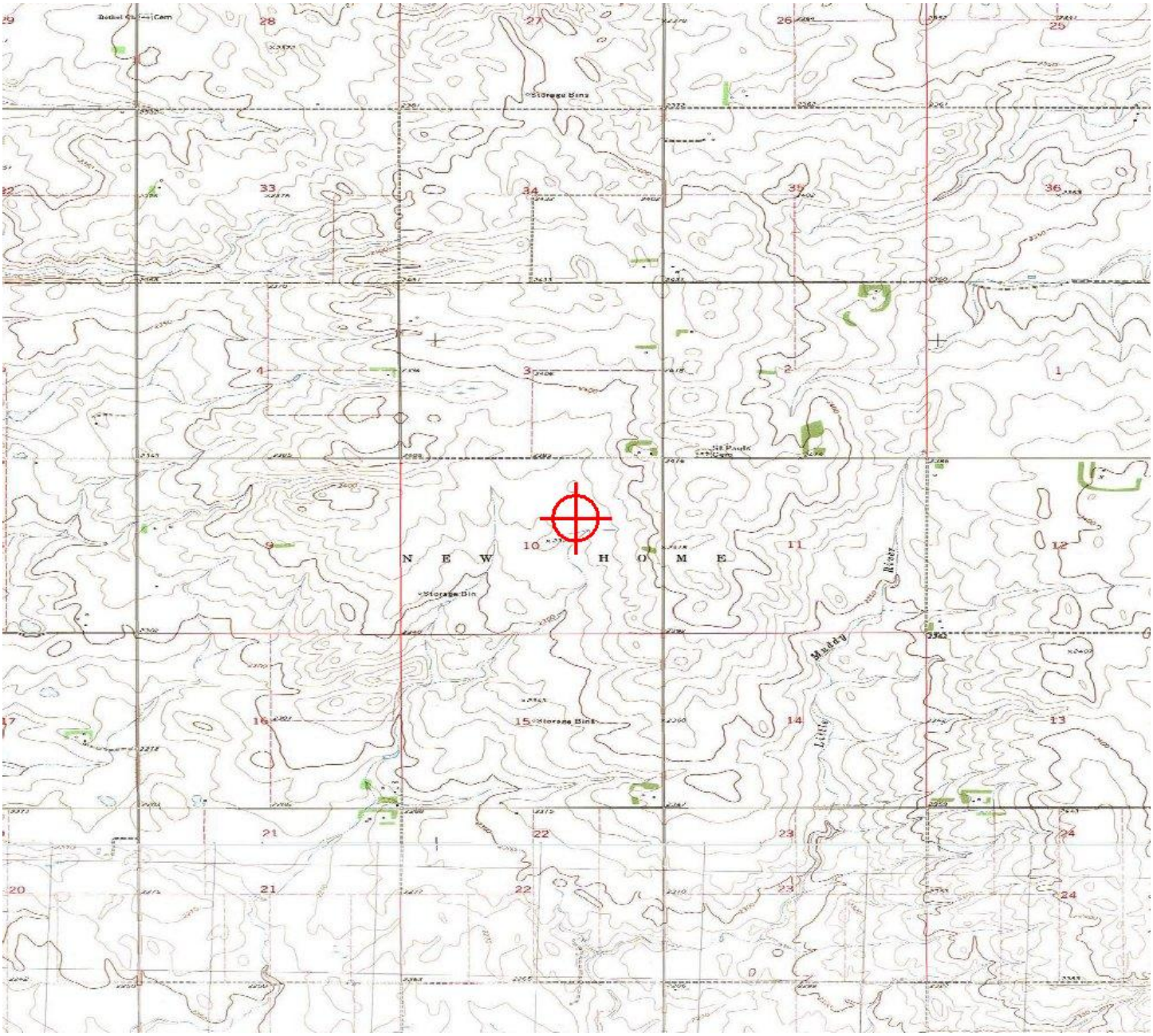
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

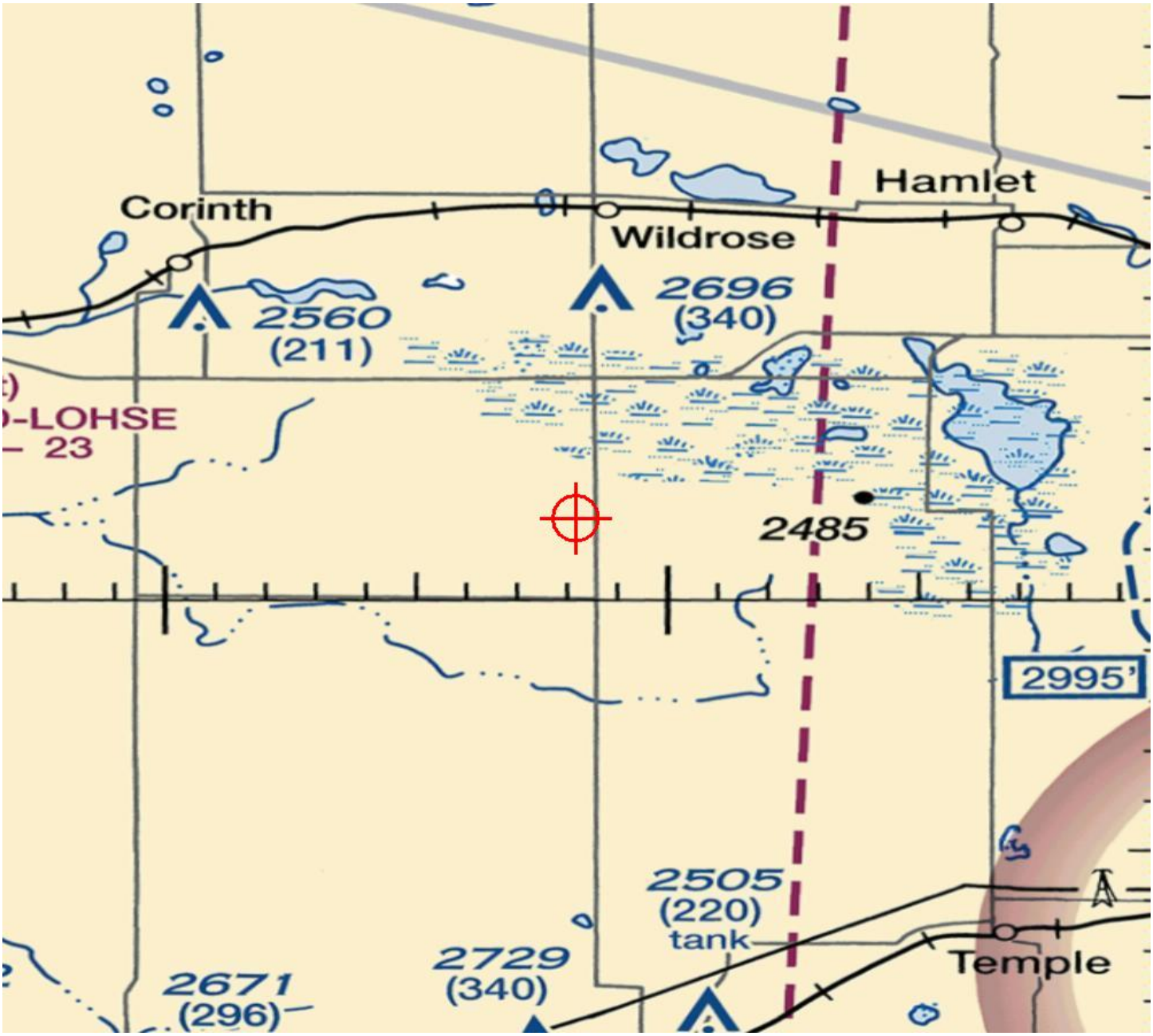
Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6891-OE



Sectional Map for ASN 2018-WTE-6891-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6892-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-70
Location:	Tioga, ND
Latitude:	48-31-15.93N NAD 83
Longitude:	103-11-07.49W
Heights:	2422 feet site elevation (SE)
	660 feet above ground level (AGL)
	3082 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

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Signature Control No: 370538182-385972492 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

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2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE

2018-WTE-6888-OE

2018-WTE-6889-OE
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2018-WTE-6891-OE
2018-WTE-6892-OE
2018-WTE-6893-OE

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2018-WTE-6897-OE
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2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
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2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
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2018-WTE-6916-OE
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2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

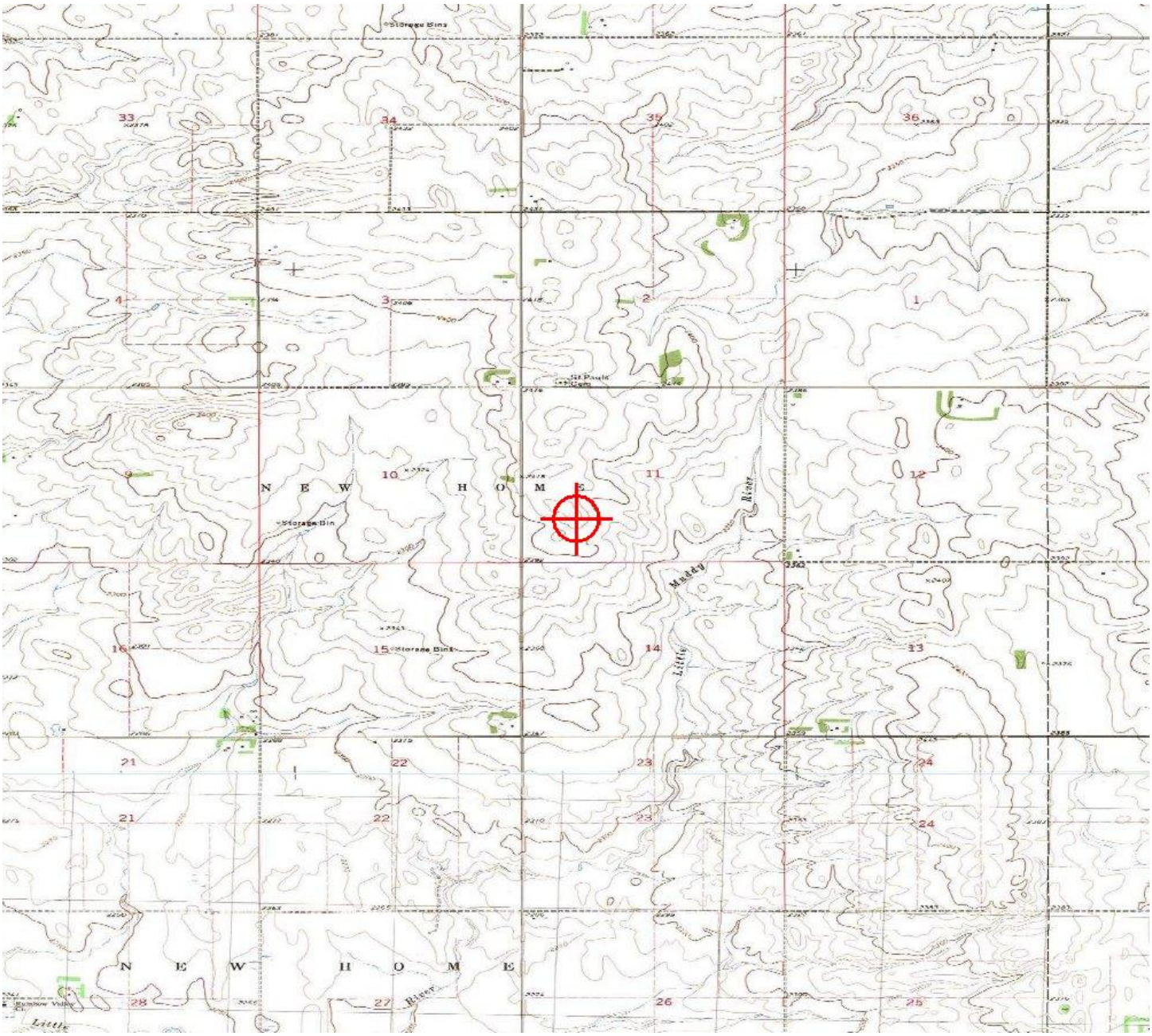
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6892-OE



Sectional Map for ASN 2018-WTE-6892-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6893-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-71
Location:	Tioga, ND
Latitude:	48-31-38.48N NAD 83
Longitude:	103-10-27.19W
Heights:	2379 feet site elevation (SE)
	660 feet above ground level (AGL)
	3039 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6893-OE.

Signature Control No: 370538183-385972495 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
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2018-WTE-6877-OE

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2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
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2018-WTE-6884-OE
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2018-WTE-6897-OE

2018-WTE-6898-OE
2018-WTE-6900-OE
2018-WTE-6902-OE
2018-WTE-6904-OE
2018-WTE-6905-OE

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2018-WTE-6910-OE
2018-WTE-6911-OE

2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
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2018-WTE-6874-OE
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2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
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2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

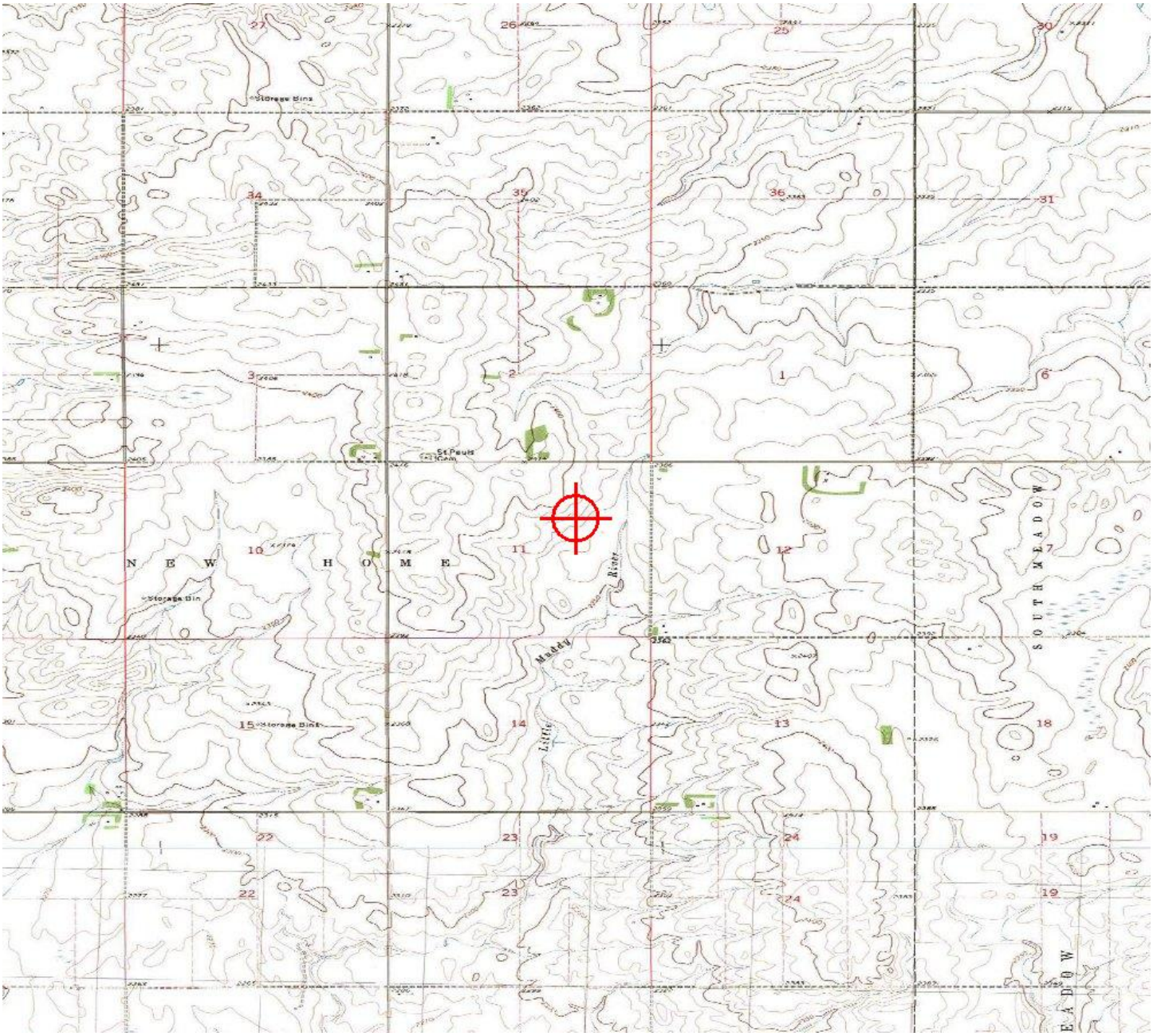
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6893-OE



Sectional Map for ASN 2018-WTE-6893-OE



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Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6894-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-72
Location:	Tioga, ND
Latitude:	48-31-34.86N NAD 83
Longitude:	103-09-46.87W
Heights:	2388 feet site elevation (SE)
	660 feet above ground level (AGL)
	3048 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6894-OE.

Signature Control No: 370538184-385972496 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

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2018-WTE-6885-OE
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2018-WTE-6889-OE
2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE

2018-WTE-6898-OE
2018-WTE-6900-OE
2018-WTE-6902-OE
2018-WTE-6904-OE
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2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
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2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
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2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
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2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE
2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
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2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
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2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE

2018-WTE-6915-OE
2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE

2018-WTE-6920-OE
2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE

2018-WTE-6925-OE
2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE
2018-WTE-6920-OE

2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

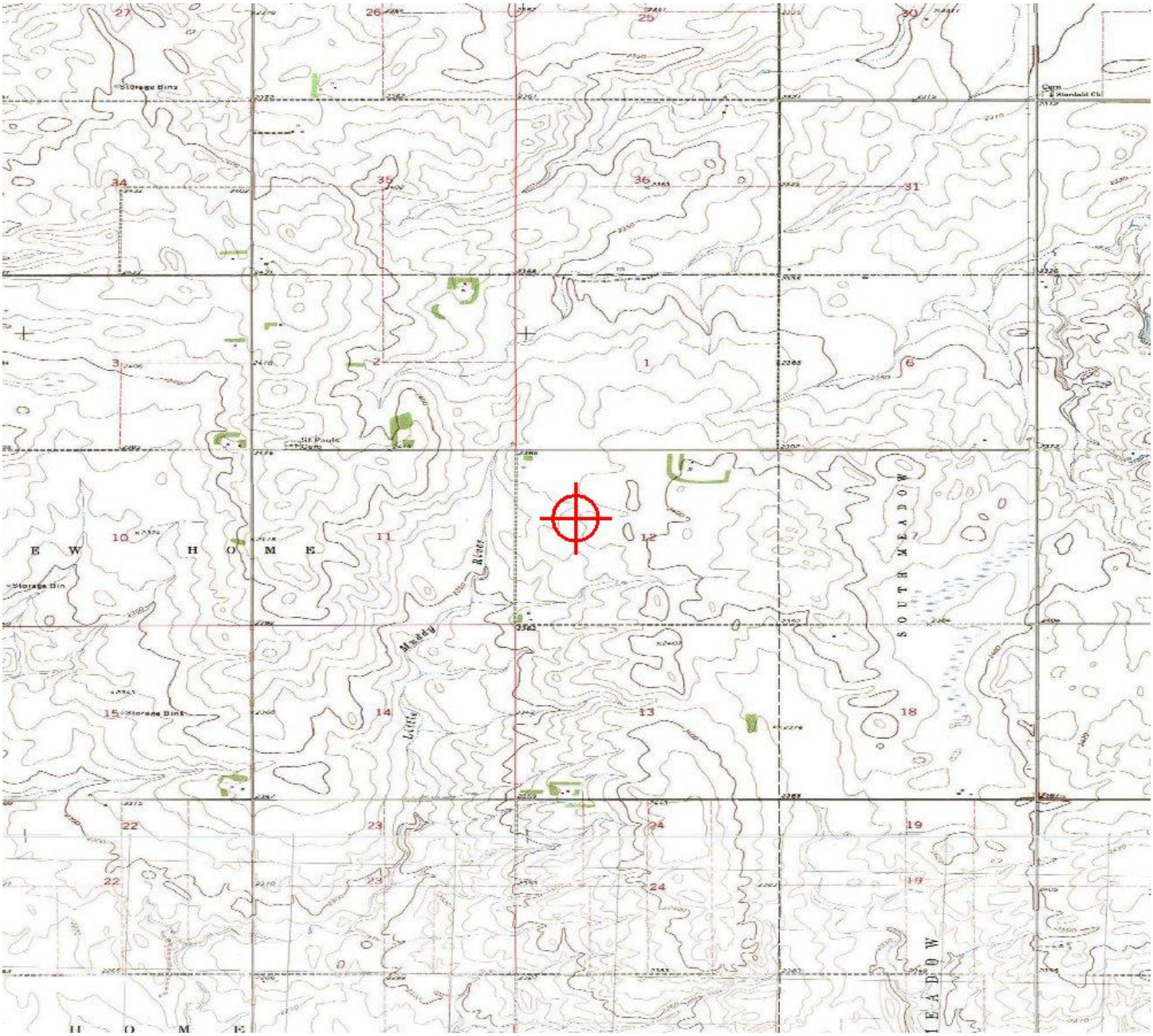
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6894-OE



Sectional Map for ASN 2018-WTE-6894-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6895-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-73
Location:	Tioga, ND
Latitude:	48-31-14.67N NAD 83
Longitude:	103-08-58.23W
Heights:	2411 feet site elevation (SE)
	660 feet above ground level (AGL)
	3071 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

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An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6895-OE.

Signature Control No: 370538188-385972498 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
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2018-WTE-6887-OE

2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE
2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
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2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6911-OE
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2018-WTE-6914-OE

2018-WTE-6915-OE
2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE

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2018-WTE-6925-OE
2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
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2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

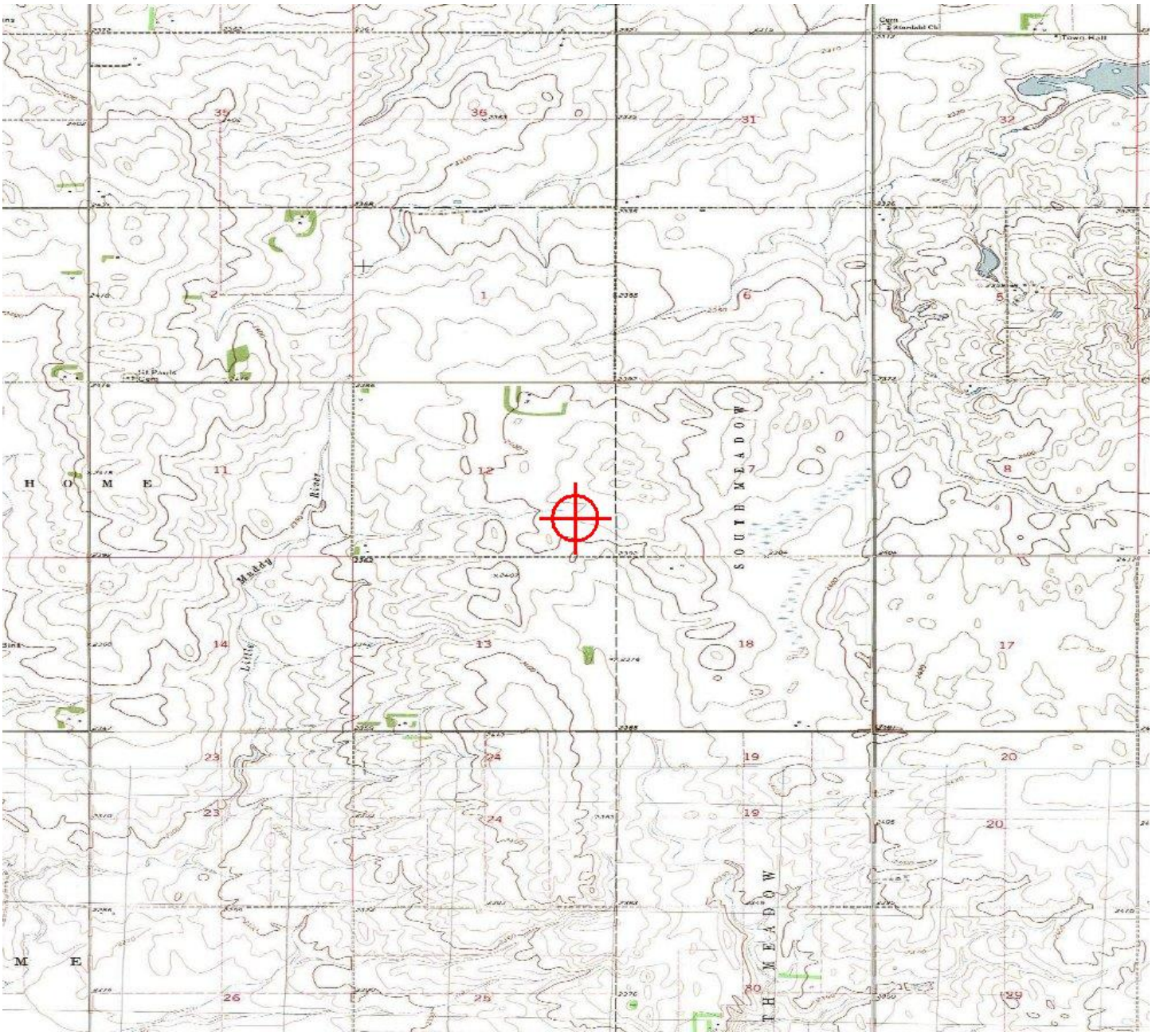
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

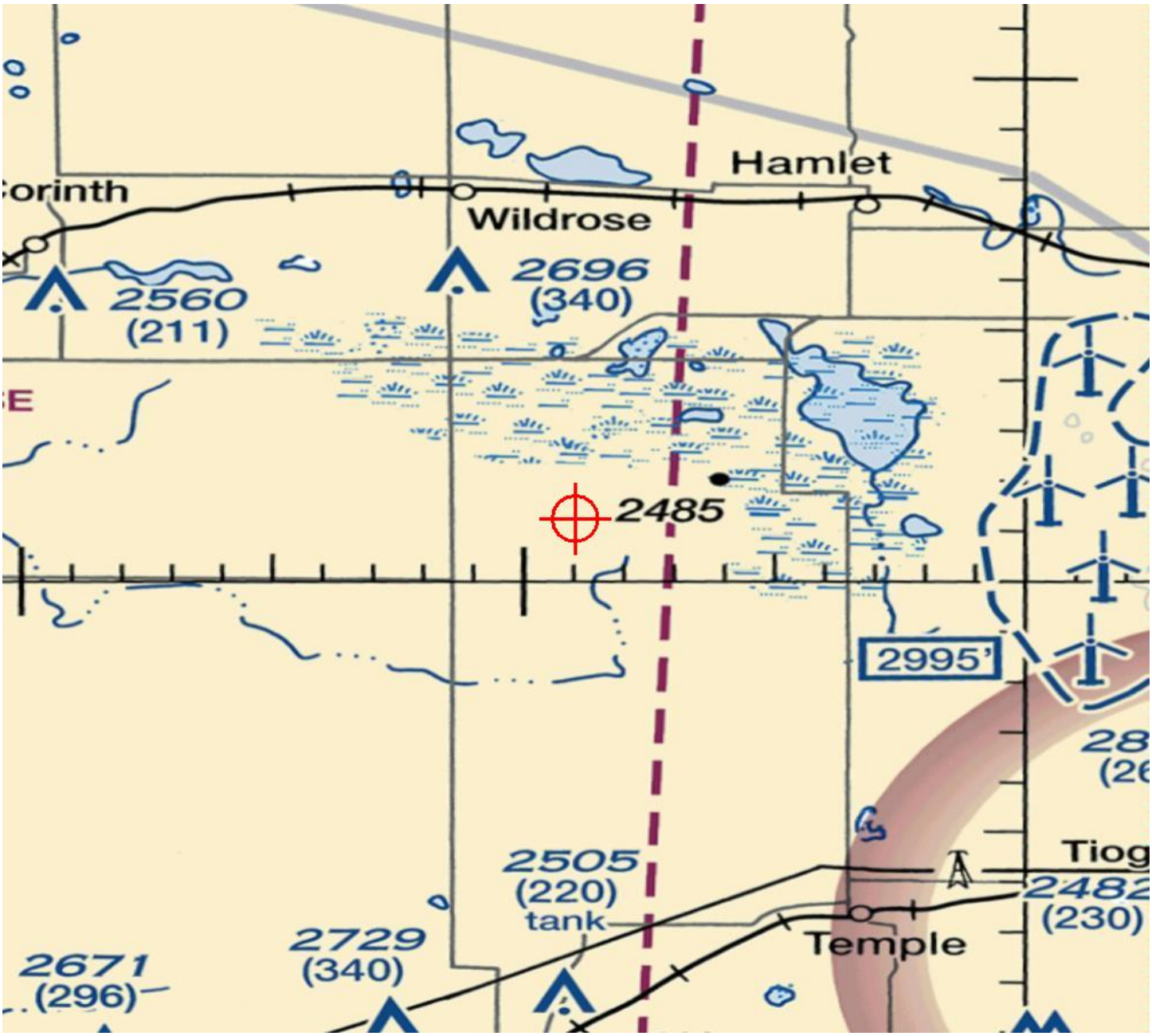
Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6895-OE



Sectional Map for ASN 2018-WTE-6895-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6896-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-74
Location:	Tioga, ND
Latitude:	48-30-55.04N NAD 83
Longitude:	103-09-19.69W
Heights:	2403 feet site elevation (SE)
	660 feet above ground level (AGL)
	3063 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6896-OE.

Signature Control No: 370538194-385972501 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
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2018-WTE-6904-OE
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2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
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2018-WTE-6930-OE
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2018-WTE-6933-OE
2018-WTE-6938-OE
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2018-WTE-6954-OE
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2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

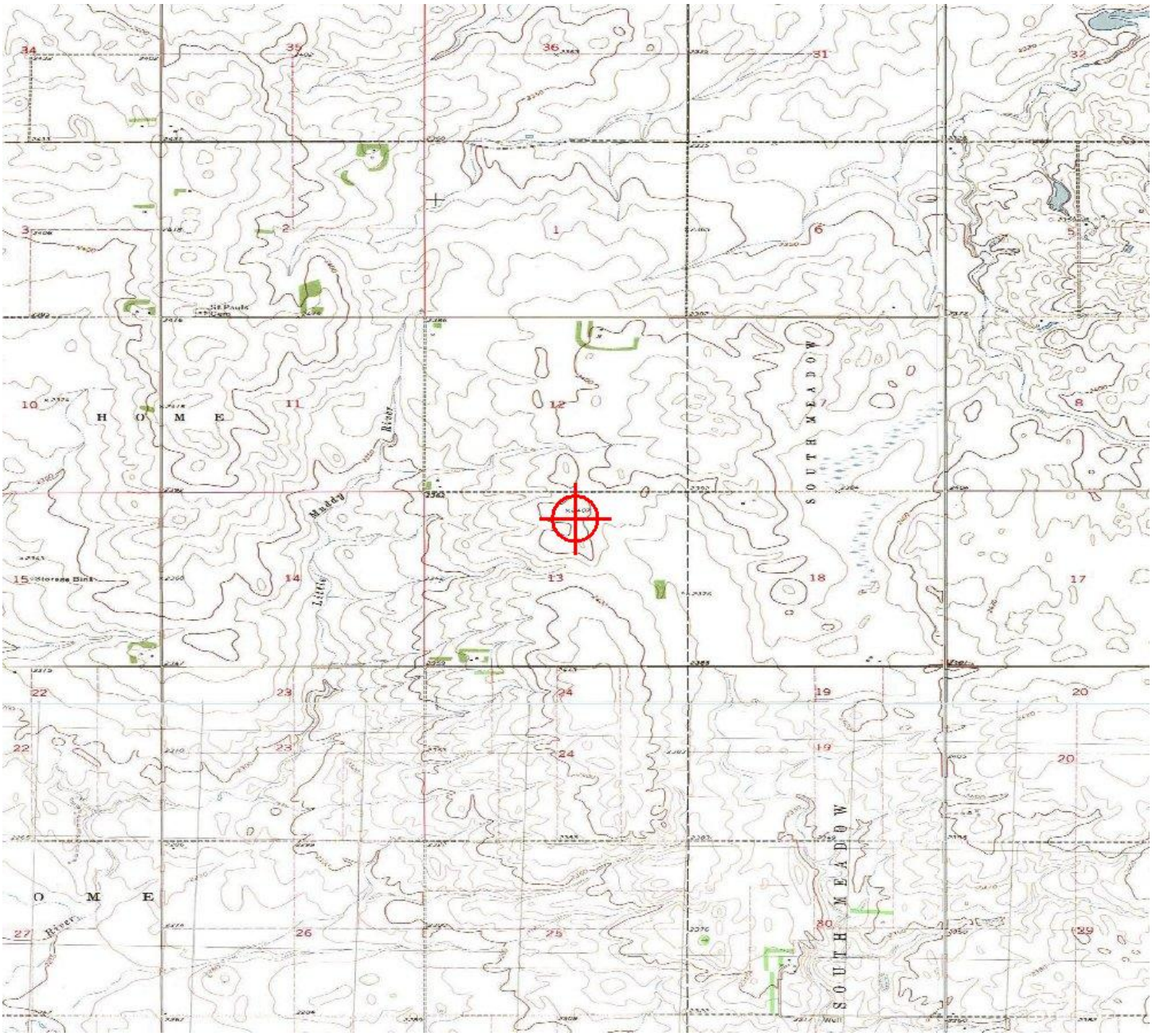
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6896-OE



Sectional Map for ASN 2018-WTE-6896-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6897-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-75
Location:	Tioga, ND
Latitude:	48-31-27.94N NAD 83
Longitude:	103-06-47.73W
Heights:	2404 feet site elevation (SE)
	660 feet above ground level (AGL)
	3064 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

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used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6897-OE.

Signature Control No: 370538198-385972510 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
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2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
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2018-WTE-6847-OE
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2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
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2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE
2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
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2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
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2018-WTE-6910-OE
2018-WTE-6911-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE

2018-WTE-6915-OE
2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE

2018-WTE-6920-OE
2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE

2018-WTE-6925-OE
2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE
2018-WTE-6920-OE

2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

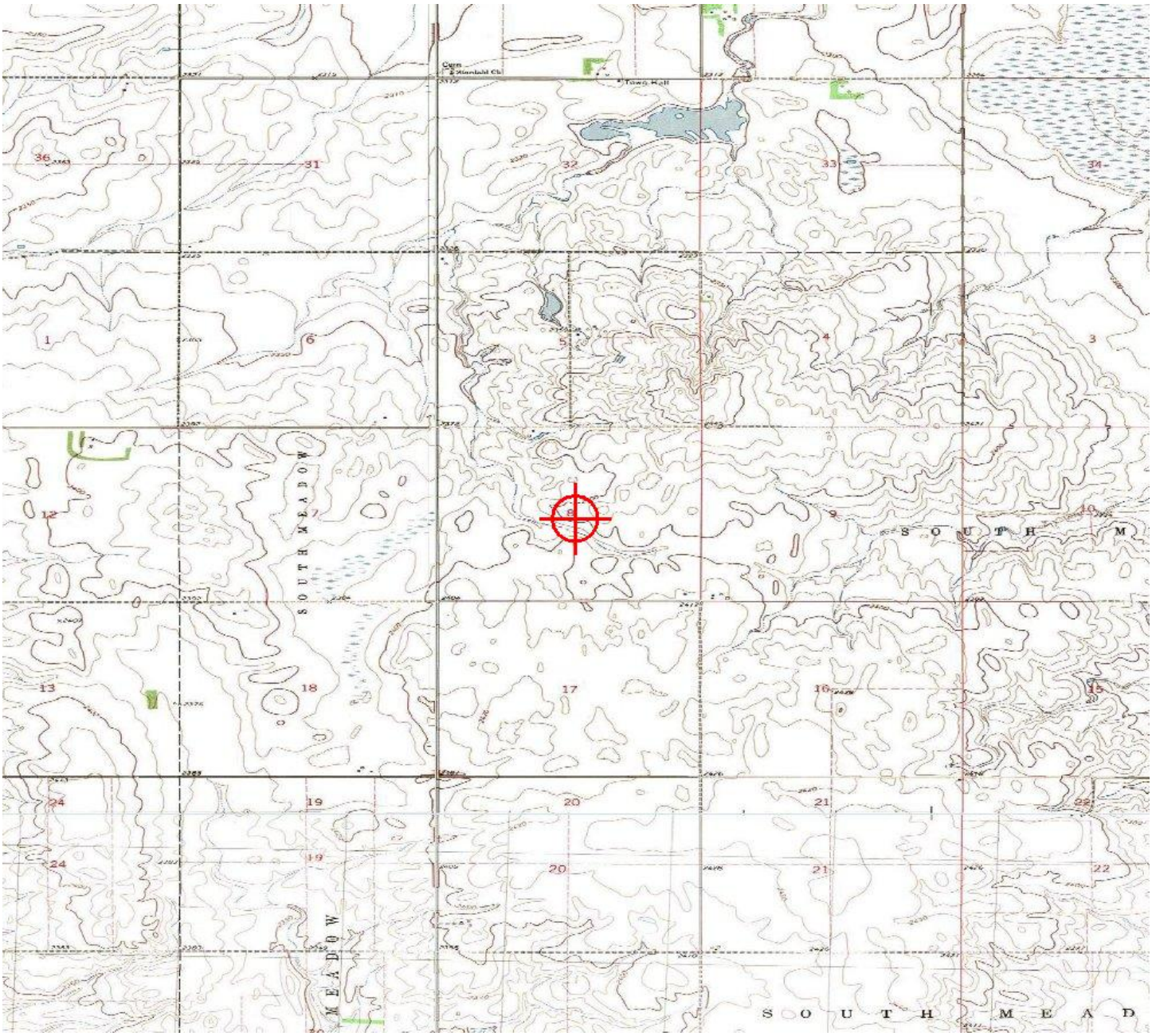
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6897-OE



Sectional Map for ASN 2018-WTE-6897-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6898-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-76
Location:	Tioga, ND
Latitude:	48-31-33.31N NAD 83
Longitude:	103-06-21.52W
Heights:	2420 feet site elevation (SE)
	660 feet above ground level (AGL)
	3080 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

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If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6898-OE.

Signature Control No: 370538199-385972513 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
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Map(s)

Abbreviations:
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AMSL, Above Mean Sea Level
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2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
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2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
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2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

2018-WTE-6893-OE

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2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

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2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6898-OE



Sectional Map for ASN 2018-WTE-6898-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6899-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-77
Location:	Tioga, ND
Latitude:	48-31-40.13N NAD 83
Longitude:	103-05-55.32W
Heights:	2421 feet site elevation (SE)
	660 feet above ground level (AGL)
	3081 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6899-OE.

Signature Control No: 370538200-385972514 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
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2018-WTE-6910-OE
2018-WTE-6911-OE

2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
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2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
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2018-WTE-6874-OE
2018-WTE-6875-OE
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2018-WTE-6938-OE
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2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
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2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

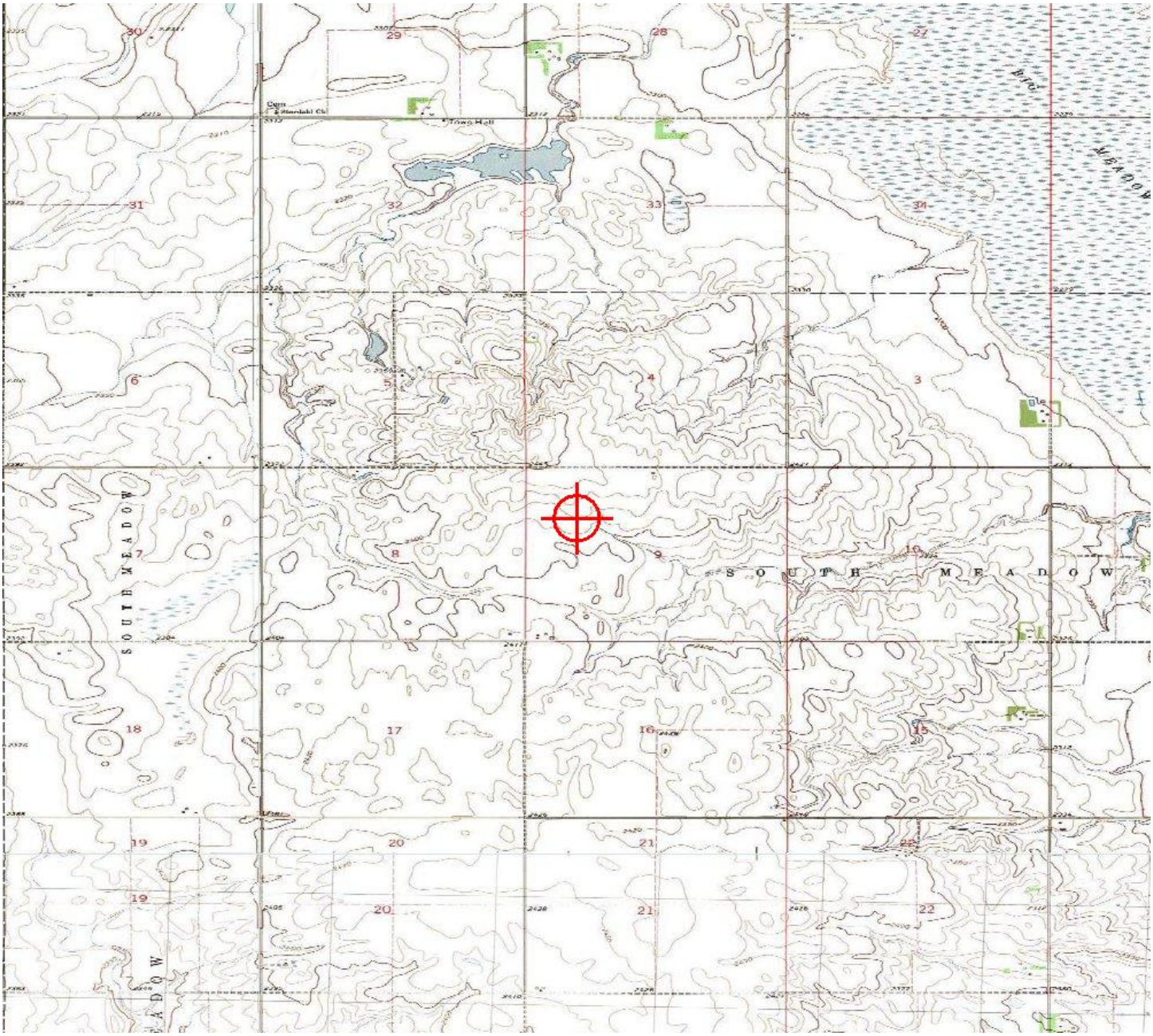
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

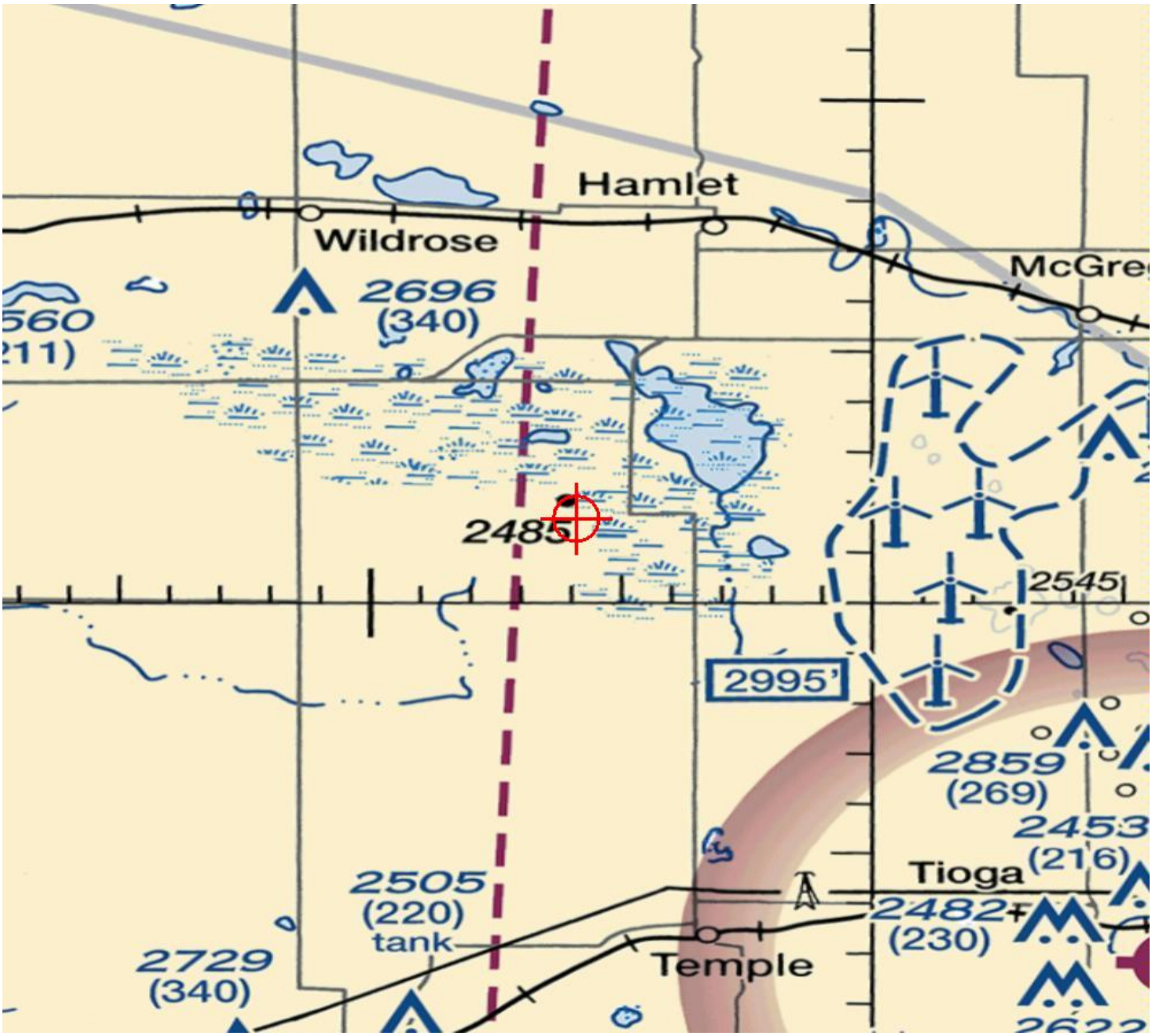
Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6899-OE



Sectional Map for ASN 2018-WTE-6899-OE



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10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6900-OE

Issued Date: 09/25/2018

Leslie Strong
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16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-78
Location:	Tioga, ND
Latitude:	48-32-06.30N NAD 83
Longitude:	103-06-37.14W
Heights:	2419 feet site elevation (SE)
	660 feet above ground level (AGL)
	3079 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6900-OE.

Signature Control No: 370538201-385972517 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE

2018-WTE-6898-OE
2018-WTE-6900-OE
2018-WTE-6902-OE
2018-WTE-6904-OE
2018-WTE-6905-OE

2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE
2018-WTE-6910-OE
2018-WTE-6911-OE

2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
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2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE
2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
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2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
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2018-WTE-6910-OE
2018-WTE-6911-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE

2018-WTE-6915-OE
2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE

2018-WTE-6920-OE
2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE

2018-WTE-6925-OE
2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE
2018-WTE-6920-OE

2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

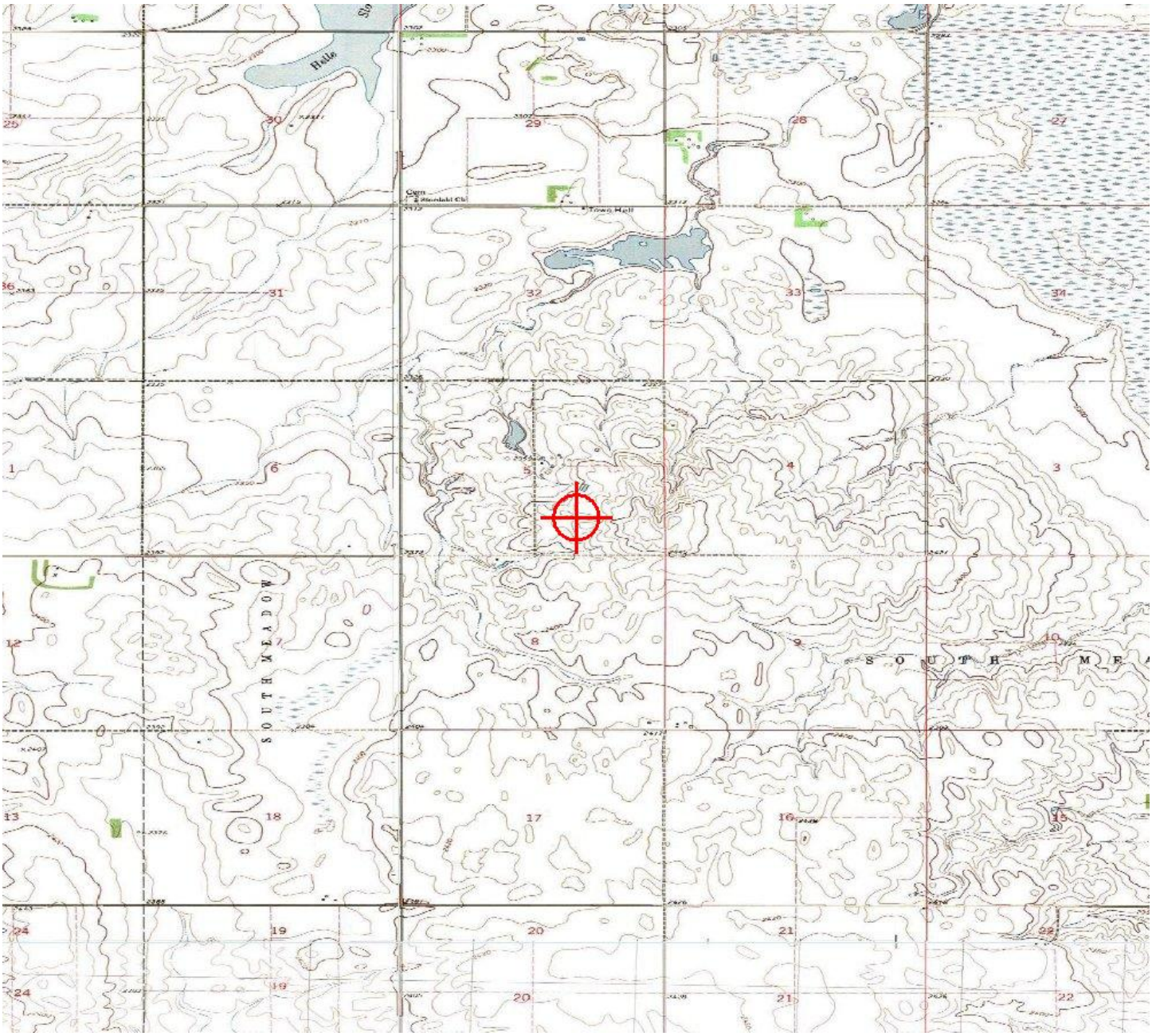
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6900-OE



Sectional Map for ASN 2018-WTE-6900-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6901-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-79
Location:	Tioga, ND
Latitude:	48-31-17.85N NAD 83
Longitude:	103-05-42.69W
Heights:	2401 feet site elevation (SE)
	660 feet above ground level (AGL)
	3061 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

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This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6901-OE.

Signature Control No: 370538205-385972518 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
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NM, Nautical Mile
RNAV, Area Navigation
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Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

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2018-WTE-6846-OE
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2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
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2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

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2018-WTE-6882-OE
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2018-WTE-6884-OE
2018-WTE-6885-OE
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2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

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2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
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2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6901-OE



Sectional Map for ASN 2018-WTE-6901-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6902-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-80
Location:	Tioga, ND
Latitude:	48-32-29.21N NAD 83
Longitude:	103-07-51.58W
Heights:	2345 feet site elevation (SE)
	660 feet above ground level (AGL)
	3005 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6902-OE.

Signature Control No: 370538207-385972523 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

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2018-WTE-6885-OE
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2018-WTE-6888-OE

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2018-WTE-6896-OE
2018-WTE-6897-OE

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2018-WTE-6900-OE
2018-WTE-6902-OE
2018-WTE-6904-OE
2018-WTE-6905-OE

2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE
2018-WTE-6910-OE
2018-WTE-6911-OE

2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
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2018-WTE-6880-OE
2018-WTE-6882-OE
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2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
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2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

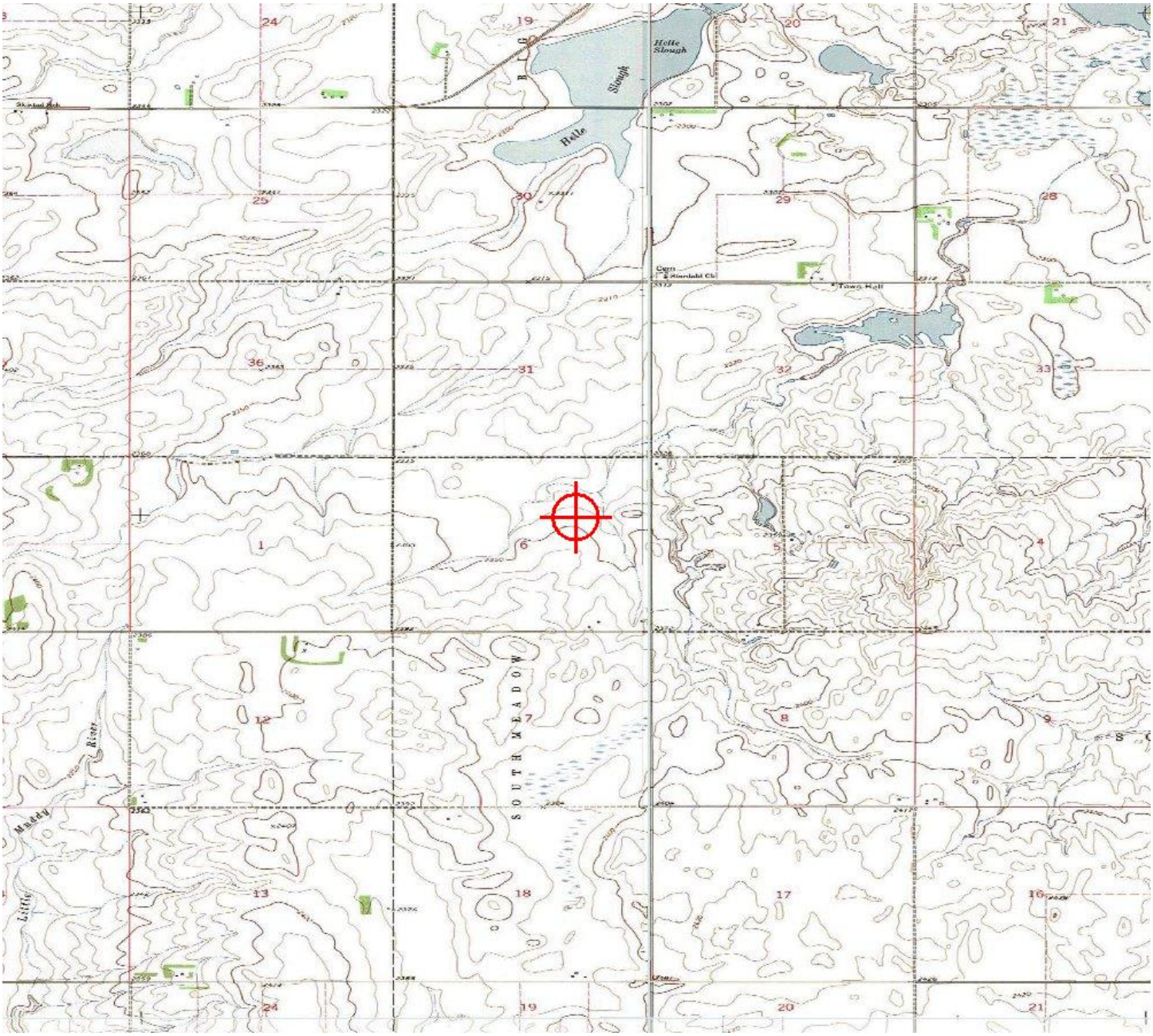
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6902-OE



Sectional Map for ASN 2018-WTE-6902-OE



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Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6903-OE

Issued Date: 09/25/2018

Leslie Strong
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16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-81
Location:	Tioga, ND
Latitude:	48-32-13.83N NAD 83
Longitude:	103-11-41.78W
Heights:	2399 feet site elevation (SE)
	660 feet above ground level (AGL)
	3059 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6903-OE.

Signature Control No: 370538210-385972524 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE

2018-WTE-6898-OE
2018-WTE-6900-OE
2018-WTE-6902-OE
2018-WTE-6904-OE
2018-WTE-6905-OE

2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE
2018-WTE-6910-OE
2018-WTE-6911-OE

2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
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2018-WTE-6847-OE
2018-WTE-6848-OE

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2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
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2018-WTE-6882-OE
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2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE
2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
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2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
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2018-WTE-6910-OE
2018-WTE-6911-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE

2018-WTE-6915-OE
2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE

2018-WTE-6920-OE
2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE

2018-WTE-6925-OE
2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE
2018-WTE-6920-OE

2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

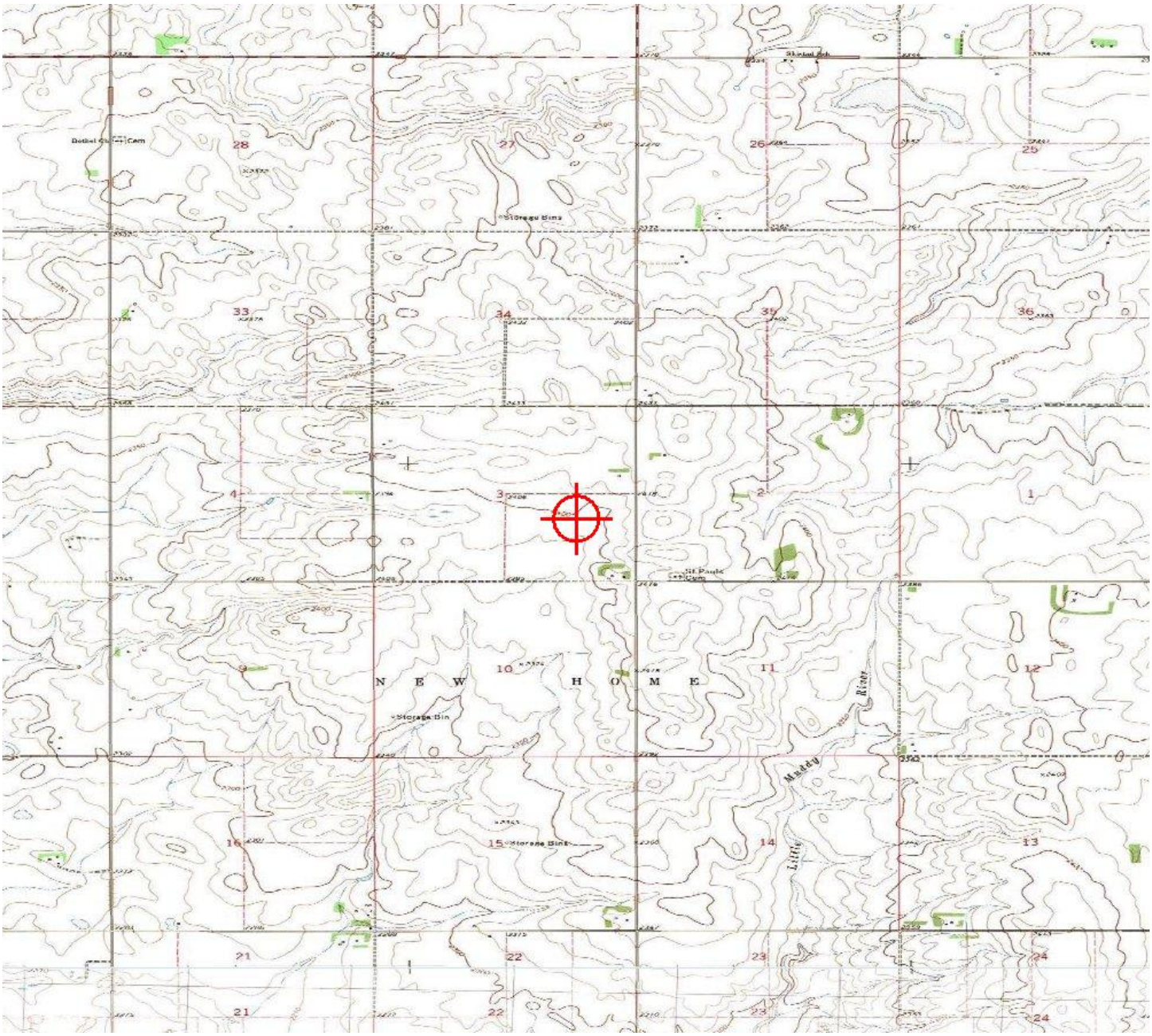
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6903-OE



Sectional Map for ASN 2018-WTE-6903-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6904-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-83
Location:	Tioga, ND
Latitude:	48-32-04.76N NAD 83
Longitude:	103-10-49.69W
Heights:	2400 feet site elevation (SE)
	660 feet above ground level (AGL)
	3060 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

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An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6904-OE.

Signature Control No: 370538211-385972527 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
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2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
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2018-WTE-6889-OE
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2018-WTE-6899-OE
2018-WTE-6900-OE
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2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
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2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
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2018-WTE-6910-OE
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2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

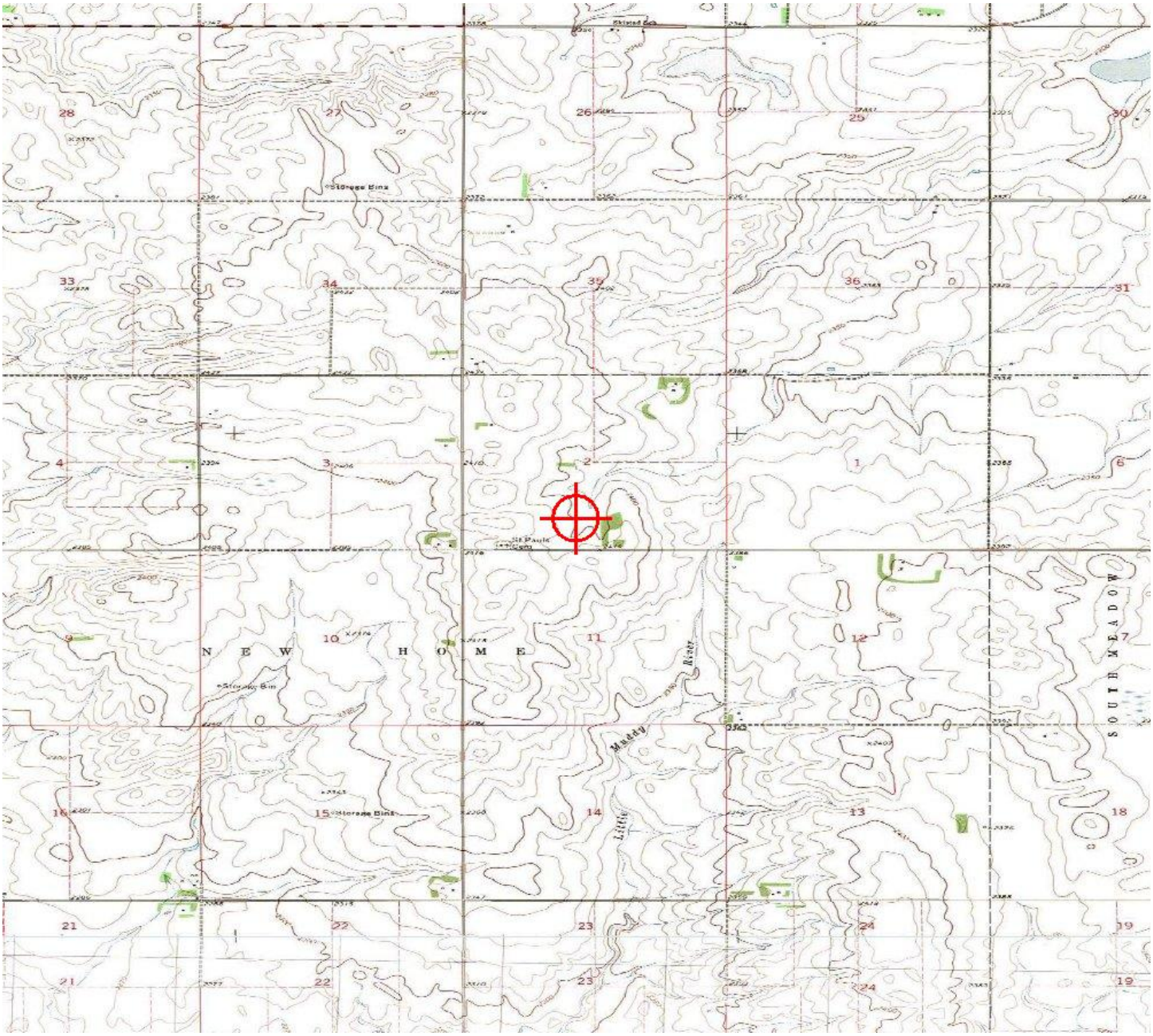
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6904-OE



Sectional Map for ASN 2018-WTE-6904-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6905-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-84
Location:	Tioga, ND
Latitude:	48-32-11.45N NAD 83
Longitude:	103-10-17.18W
Heights:	2378 feet site elevation (SE)
	660 feet above ground level (AGL)
	3038 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6905-OE.

Signature Control No: 370538212-385972535 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
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2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
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2018-WTE-6887-OE
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2018-WTE-6900-OE
2018-WTE-6902-OE
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2018-WTE-6907-OE
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2018-WTE-6910-OE
2018-WTE-6911-OE

2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
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2018-WTE-6864-OE
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2018-WTE-6869-OE
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2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
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2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

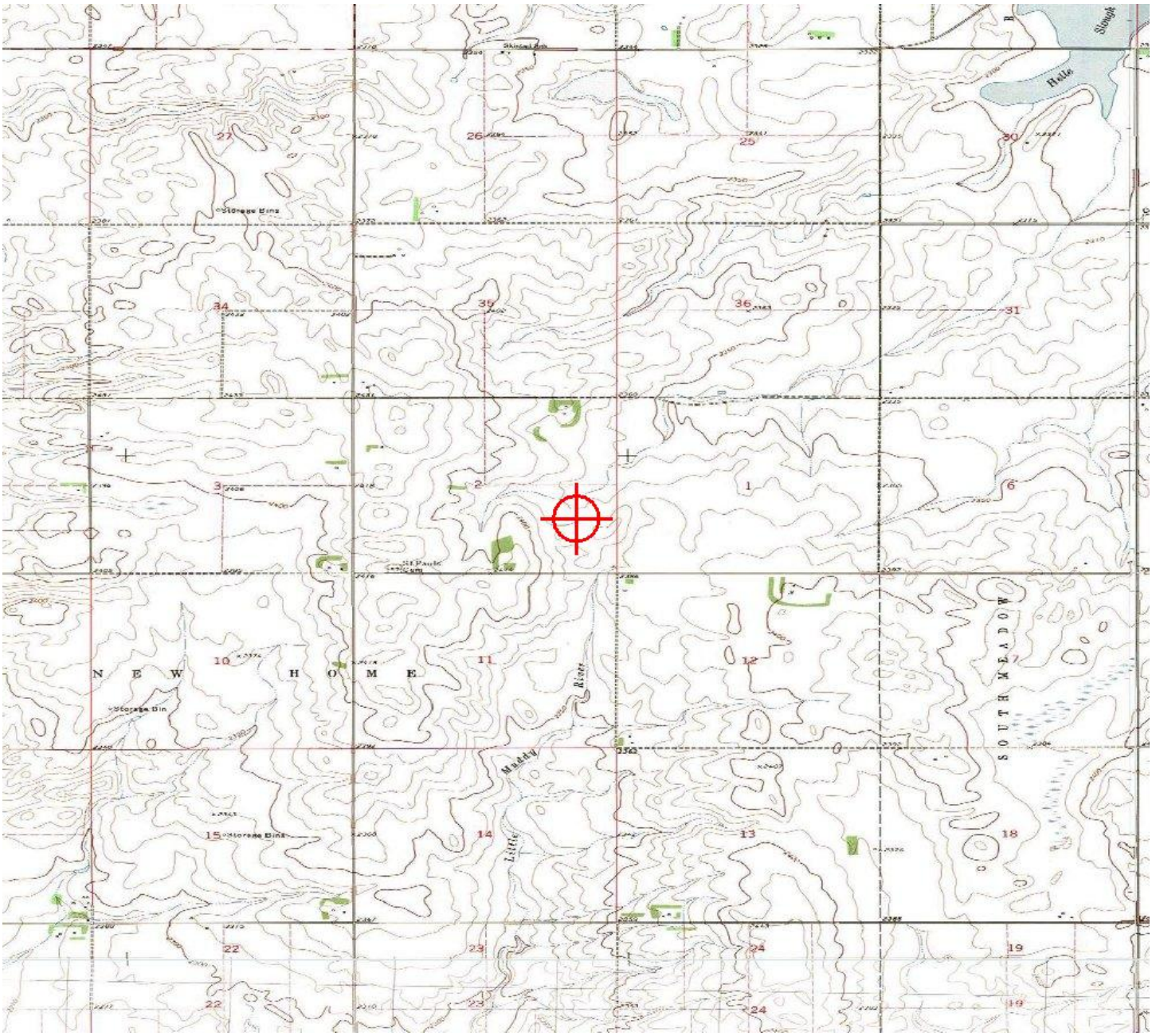
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6905-OE



Sectional Map for ASN 2018-WTE-6905-OE



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Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6906-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-85
Location:	Tioga, ND
Latitude:	48-32-13.94N NAD 83
Longitude:	103-09-47.48W
Heights:	2381 feet site elevation (SE)
	660 feet above ground level (AGL)
	3041 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6906-OE.

Signature Control No: 370538213-385972543 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
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2018-WTE-6889-OE
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2018-WTE-6895-OE
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2018-WTE-6910-OE
2018-WTE-6911-OE

2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

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2018-WTE-6885-OE
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2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE
2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
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2018-WTE-6910-OE
2018-WTE-6911-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE

2018-WTE-6915-OE
2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE

2018-WTE-6920-OE
2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE

2018-WTE-6925-OE
2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE
2018-WTE-6920-OE

2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

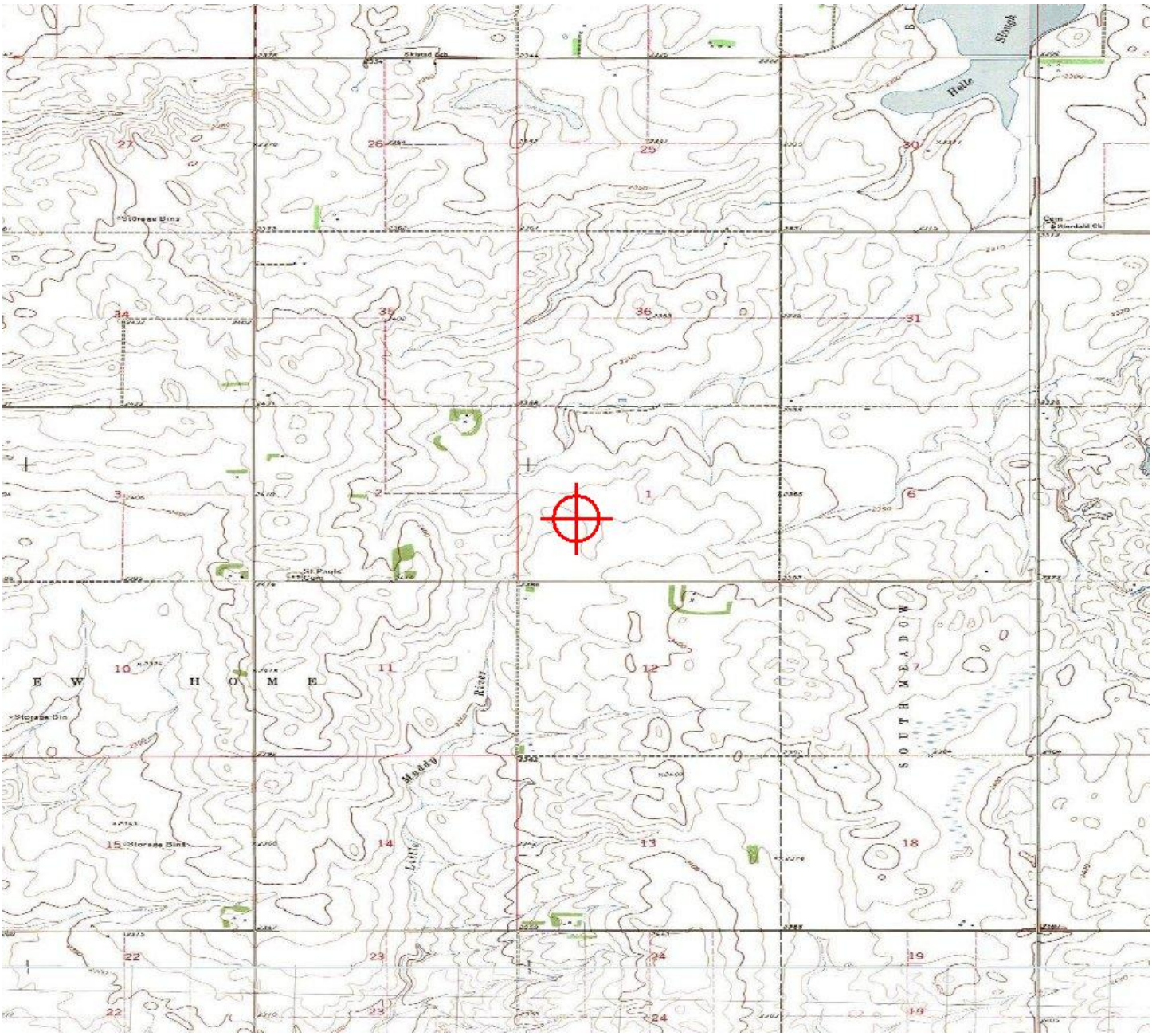
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6906-OE



Sectional Map for ASN 2018-WTE-6906-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6907-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-86
Location:	Tioga, ND
Latitude:	48-31-34.53N NAD 83
Longitude:	103-10-57.32W
Heights:	2406 feet site elevation (SE)
	660 feet above ground level (AGL)
	3066 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

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Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

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This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

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This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6907-OE.

Signature Control No: 370538218-385972545 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
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NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

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Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
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2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
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2018-WTE-6901-OE
2018-WTE-6902-OE
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2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

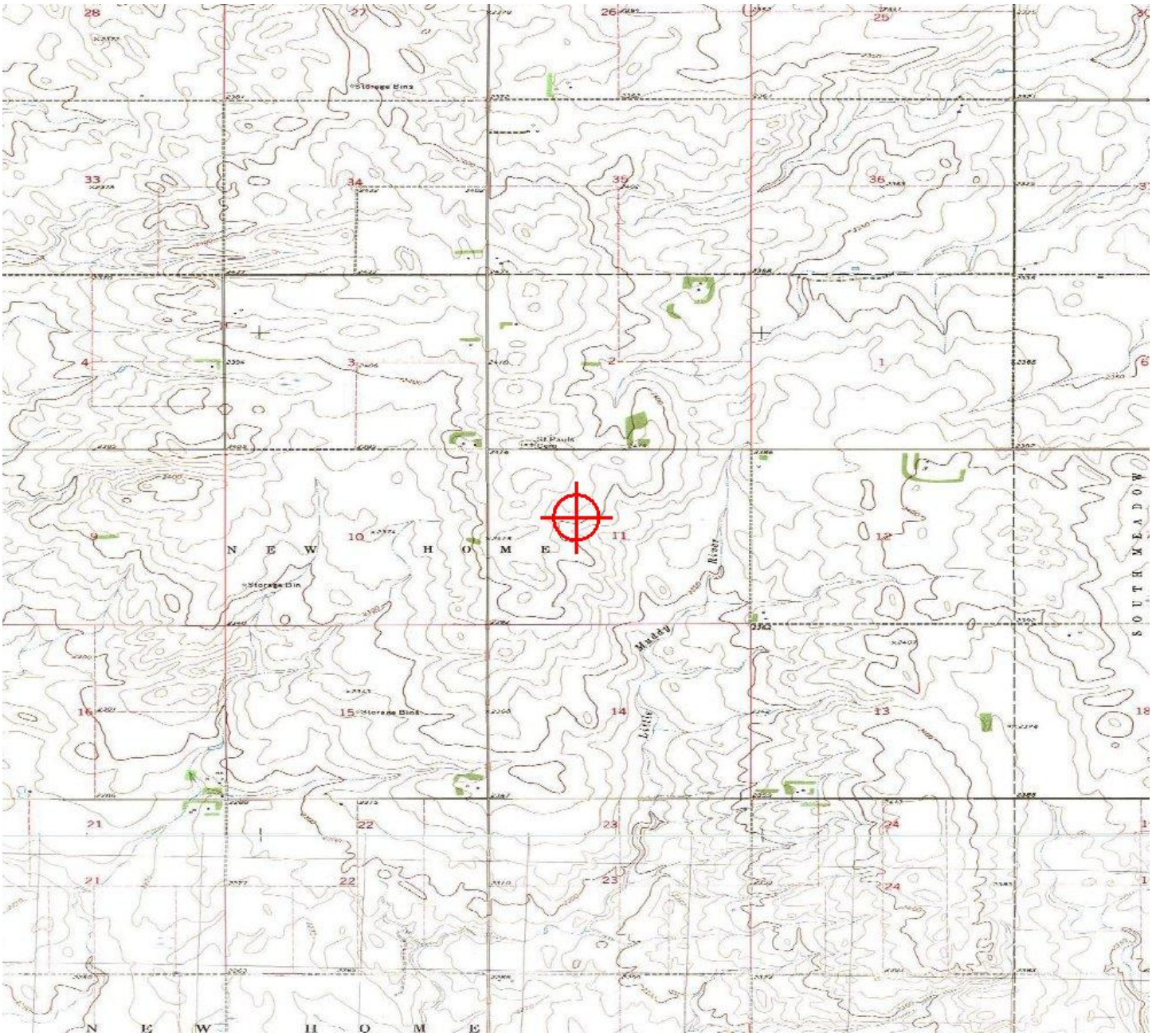
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

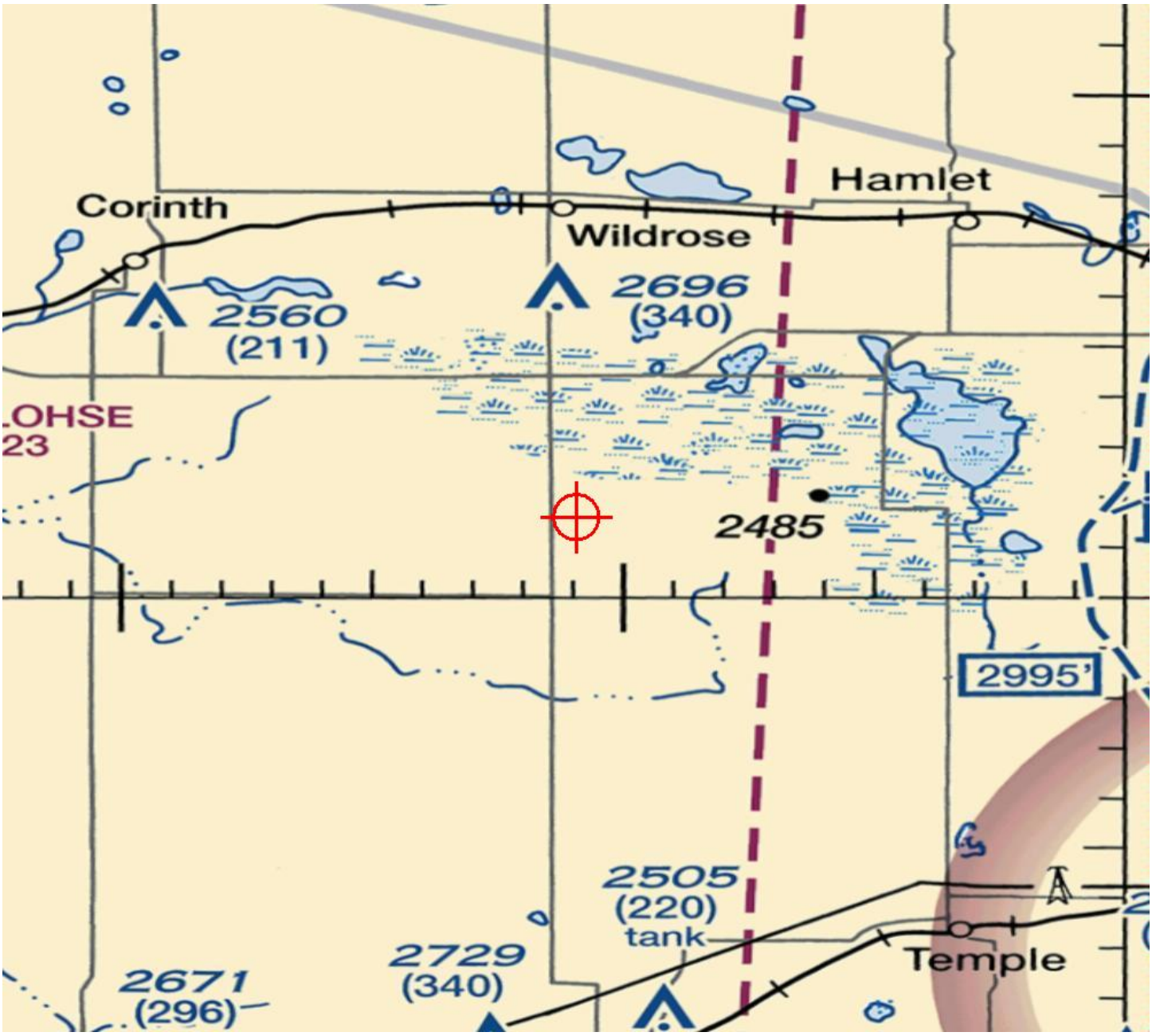
Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6907-OE



Sectional Map for ASN 2018-WTE-6907-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6908-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-87
Location:	Tioga, ND
Latitude:	48-32-39.46N NAD 83
Longitude:	103-08-59.97W
Heights:	2344 feet site elevation (SE)
	660 feet above ground level (AGL)
	3004 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6908-OE.

Signature Control No: 370538222-385972547 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
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2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

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2018-WTE-6859-OE
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The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

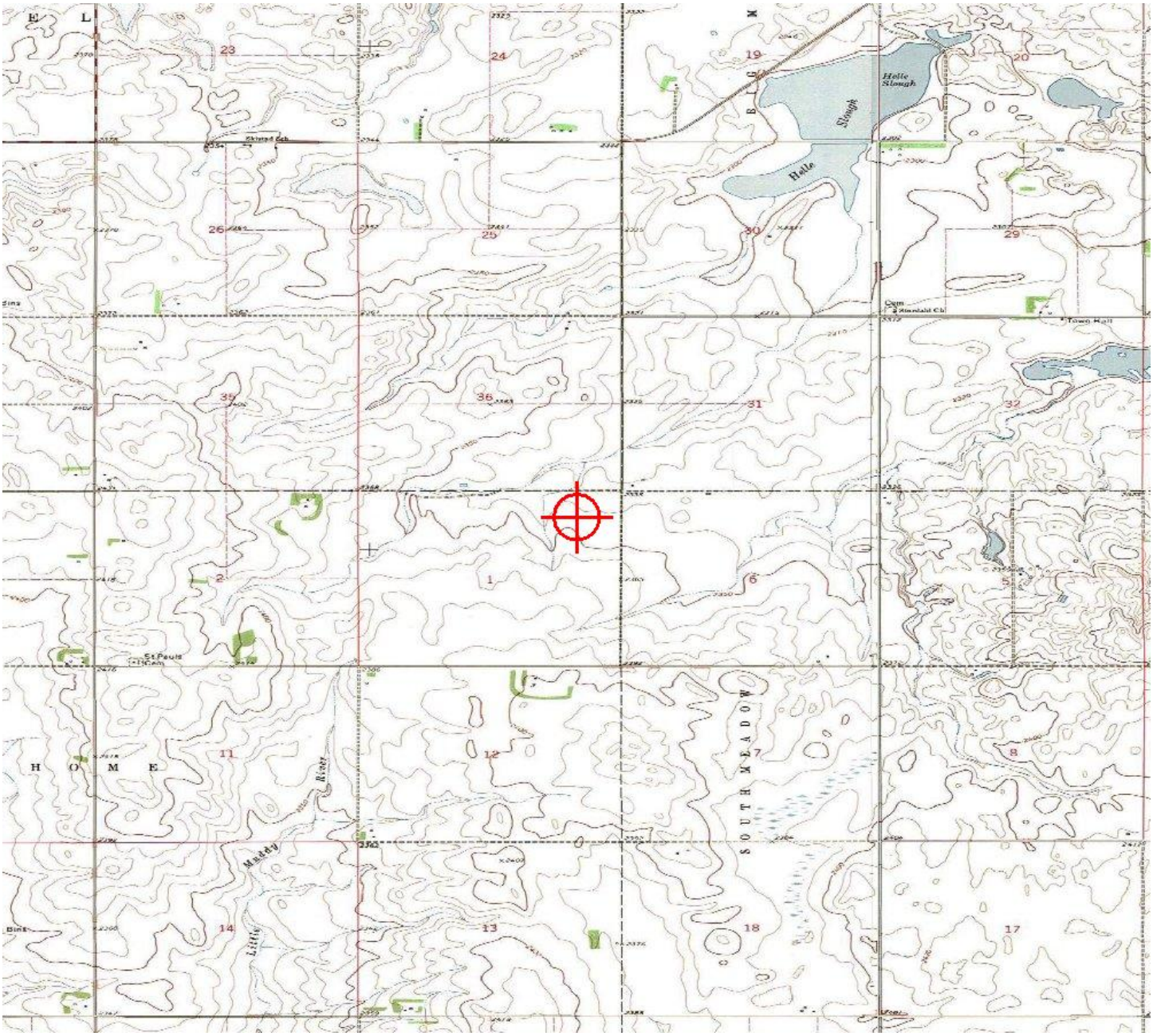
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Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6908-OE



Sectional Map for ASN 2018-WTE-6908-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6909-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-88
Location:	Tioga, ND
Latitude:	48-32-56.83N NAD 83
Longitude:	103-08-26.81W
Heights:	2331 feet site elevation (SE)
	660 feet above ground level (AGL)
	2991 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6909-OE.

Signature Control No: 370538224-385972549 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE

2018-WTE-6898-OE
2018-WTE-6900-OE
2018-WTE-6902-OE
2018-WTE-6904-OE
2018-WTE-6905-OE

2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE
2018-WTE-6910-OE
2018-WTE-6911-OE

2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE

2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE
2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6911-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE

2018-WTE-6915-OE
2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE

2018-WTE-6920-OE
2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE

2018-WTE-6925-OE
2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE
2018-WTE-6920-OE

2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

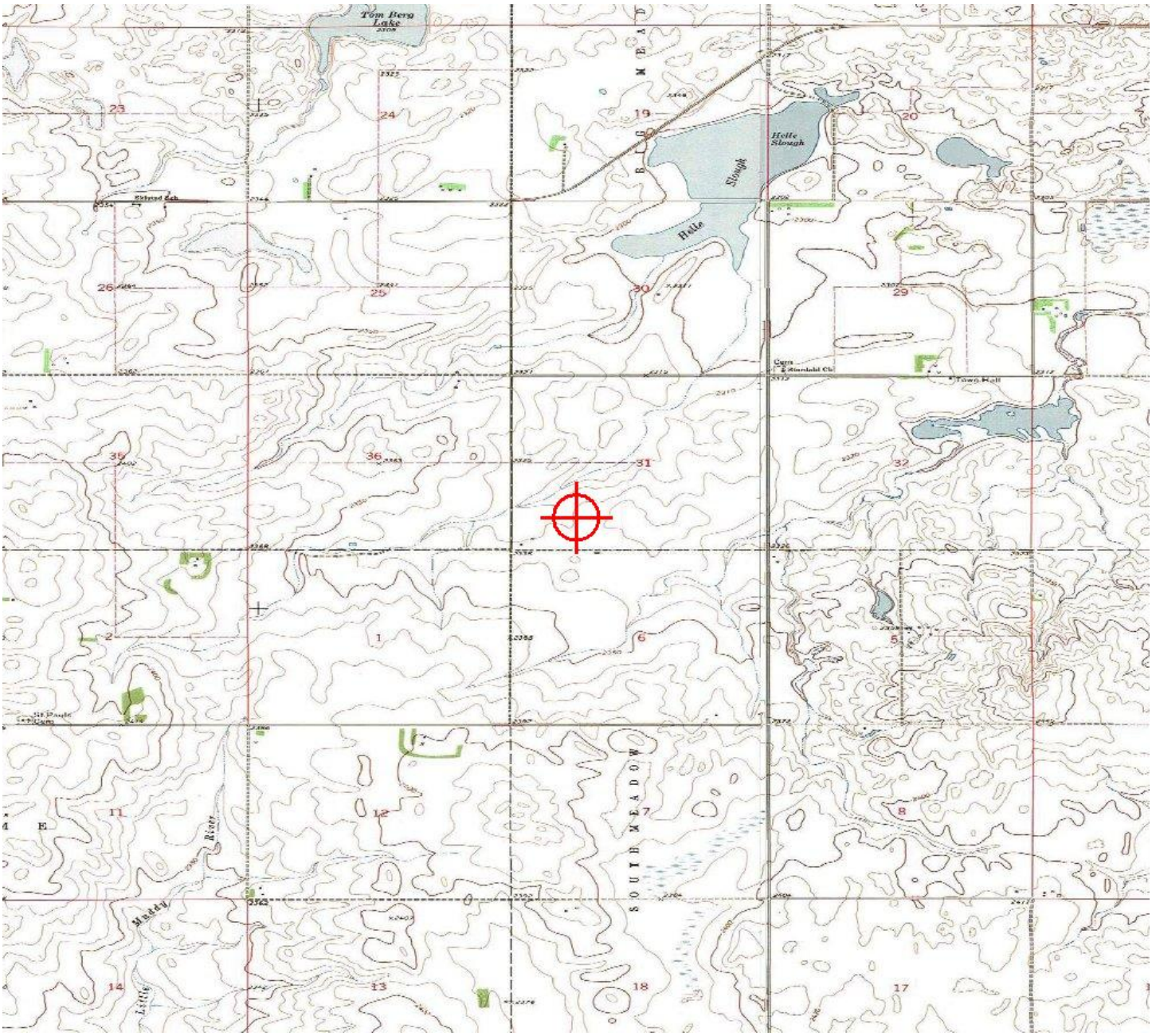
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

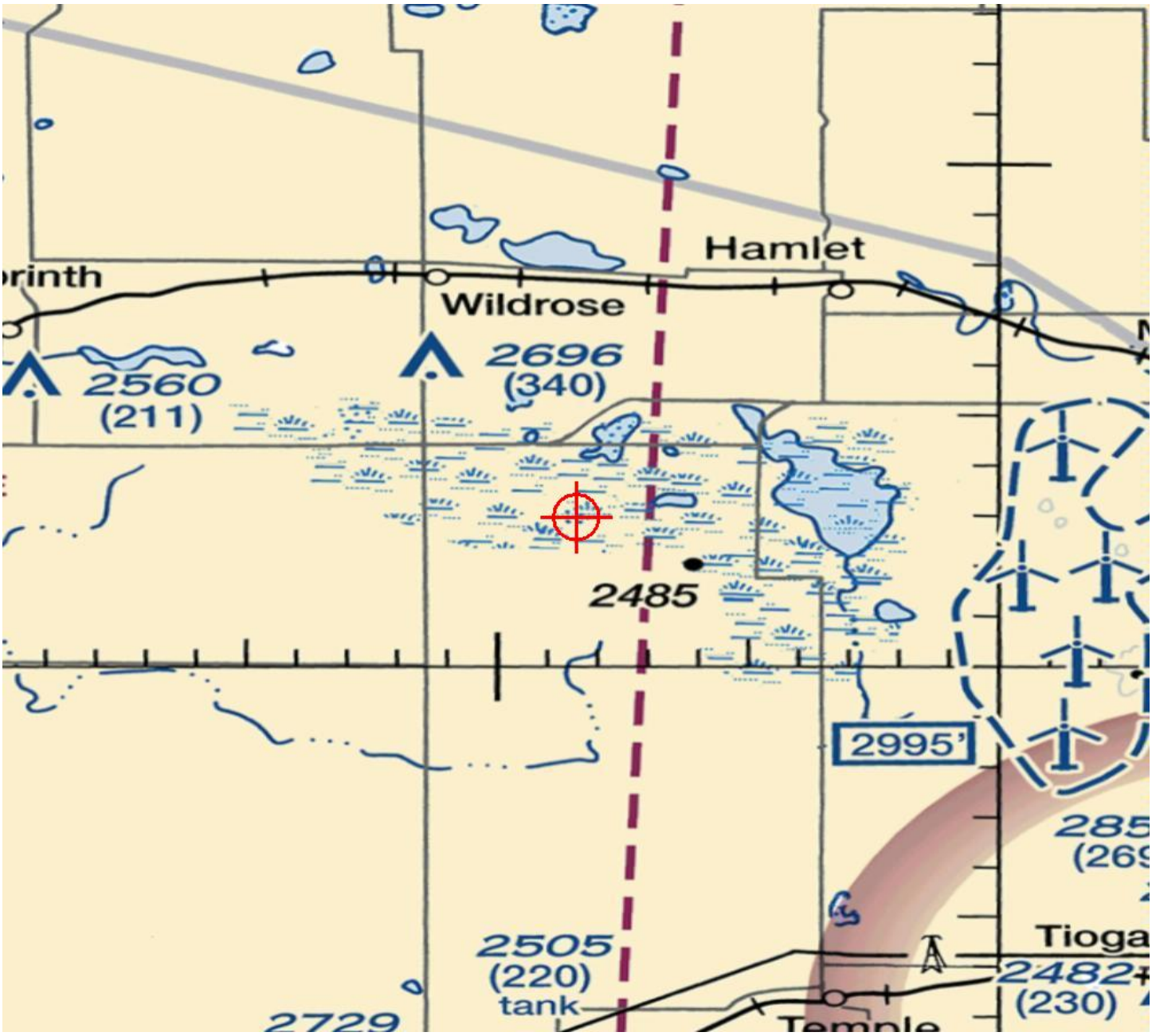
Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6909-OE



Sectional Map for ASN 2018-WTE-6909-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6910-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-89
Location:	Tioga, ND
Latitude:	48-32-57.59N NAD 83
Longitude:	103-07-51.06W
Heights:	2344 feet site elevation (SE)
	660 feet above ground level (AGL)
	3004 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

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__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

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This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

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used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6910-OE.

Signature Control No: 370538226-385972551 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
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AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
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Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

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The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
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2018-WTE-6931-OE
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2018-WTE-6952-OE
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2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE

2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
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2018-WTE-6899-OE
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2018-WTE-6902-OE
2018-WTE-6903-OE

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2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
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2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
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2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
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2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

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2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
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2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

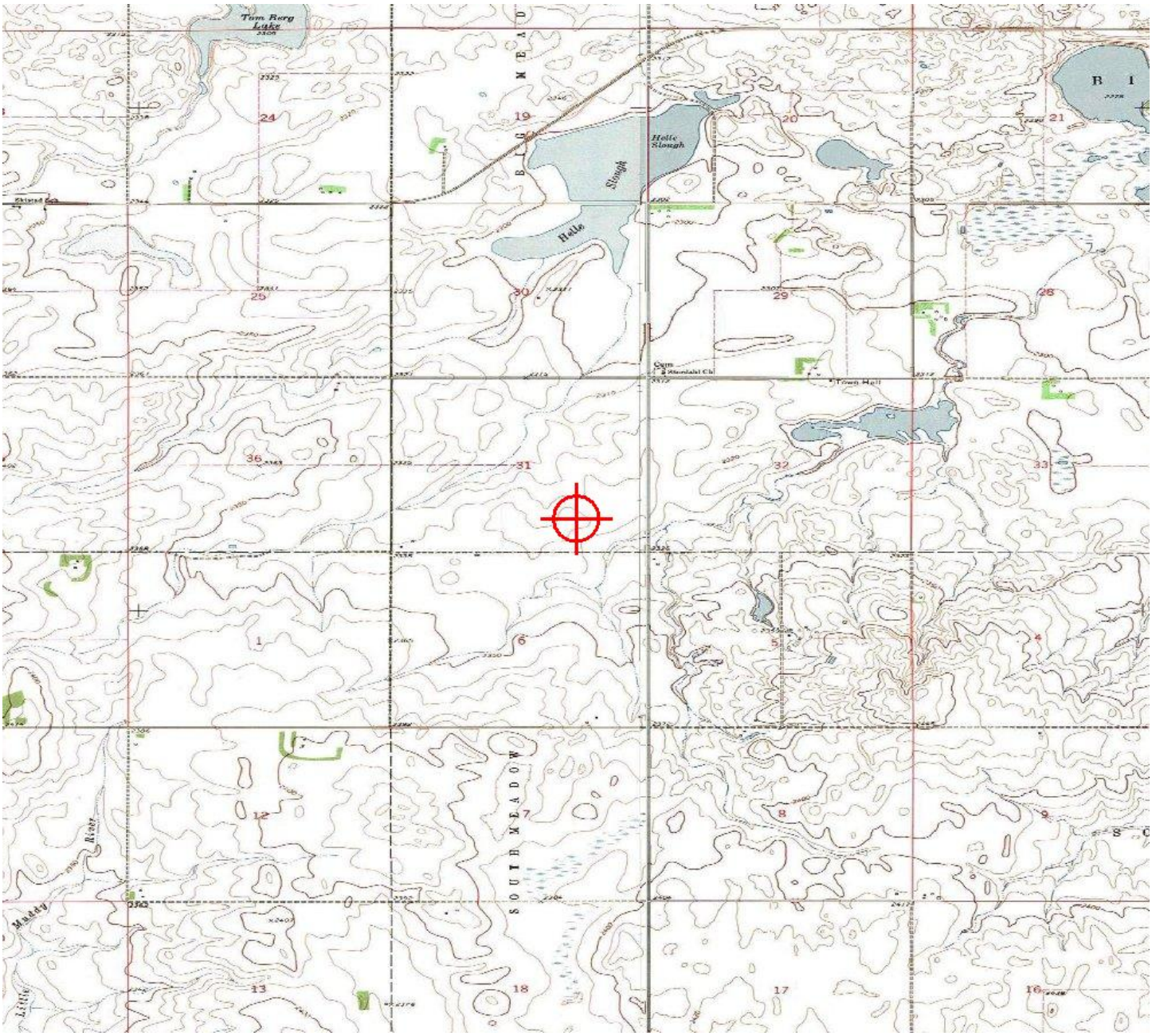
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6910-OE



Sectional Map for ASN 2018-WTE-6910-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6911-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-90
Location:	Tioga, ND
Latitude:	48-32-59.14N NAD 83
Longitude:	103-10-01.28W
Heights:	2383 feet site elevation (SE)
	660 feet above ground level (AGL)
	3043 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6911-OE.

Signature Control No: 370538227-385972554 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
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2018-WTE-6864-OE
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The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

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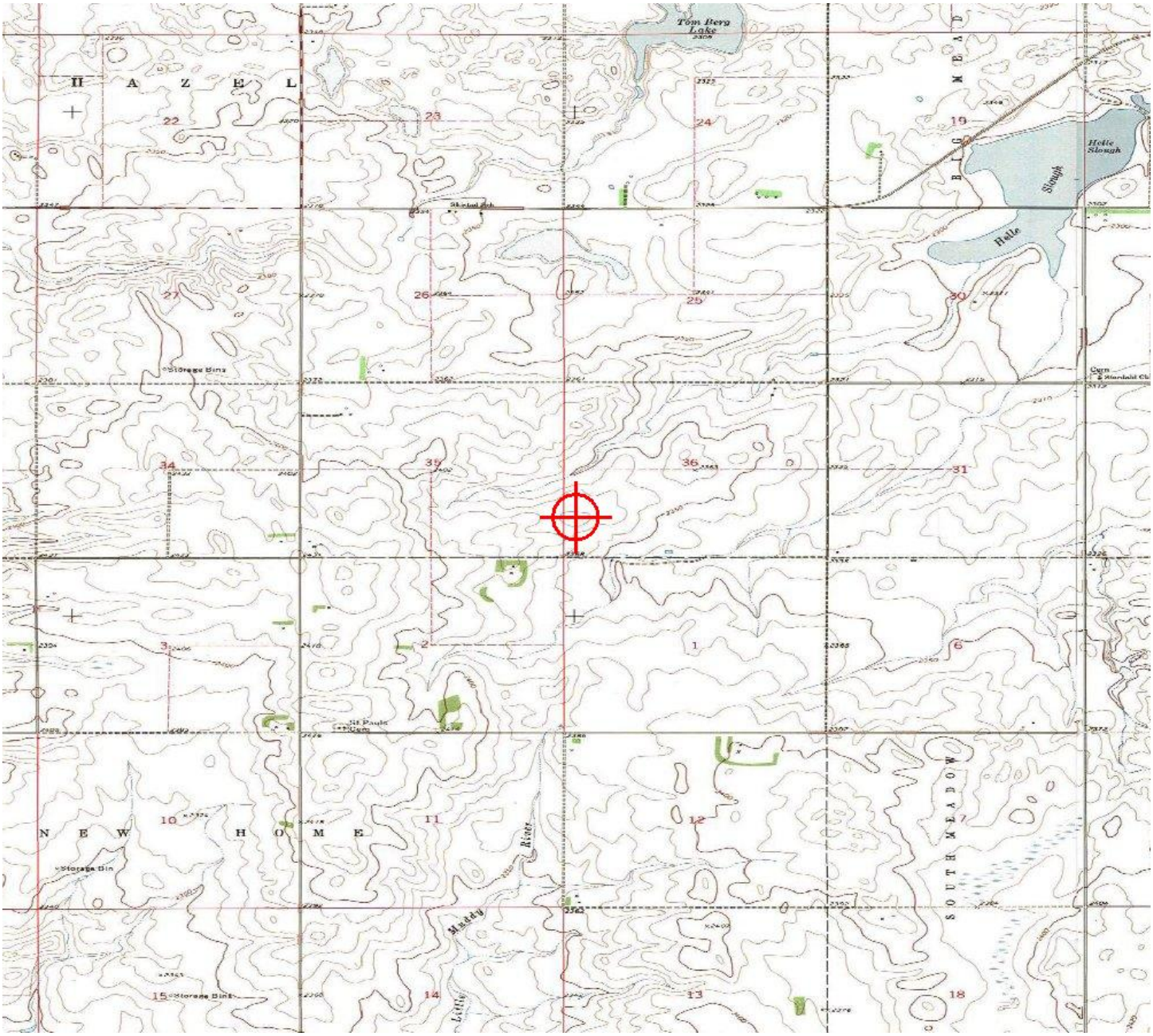
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6911-OE



Sectional Map for ASN 2018-WTE-6911-OE



Mail Processing Center
Federal Aviation Administration
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Obstruction Evaluation Group
10101 Hillwood Parkway
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Aeronautical Study No.
2018-WTE-6912-OE

Issued Date: 09/25/2018

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Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-91
Location:	Tioga, ND
Latitude:	48-33-12.23N NAD 83
Longitude:	103-09-30.89W
Heights:	2364 feet site elevation (SE)
	660 feet above ground level (AGL)
	3024 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6912-OE.

Signature Control No: 370538228-385972555 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE

2018-WTE-6898-OE
2018-WTE-6900-OE
2018-WTE-6902-OE
2018-WTE-6904-OE
2018-WTE-6905-OE

2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE
2018-WTE-6910-OE
2018-WTE-6911-OE

2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE

2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE
2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6911-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE

2018-WTE-6915-OE
2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE

2018-WTE-6920-OE
2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE

2018-WTE-6925-OE
2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE
2018-WTE-6920-OE

2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

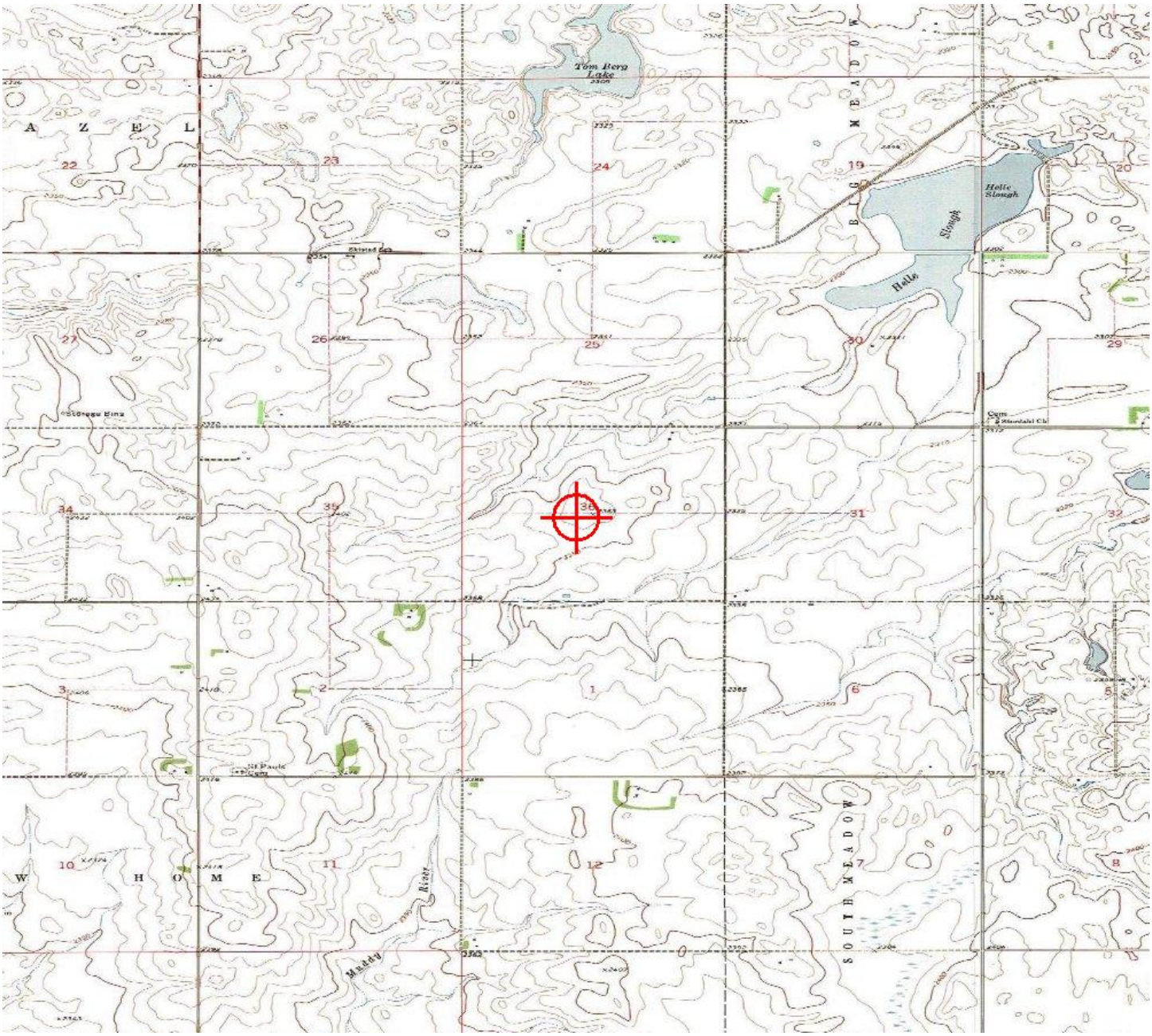
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6912-OE



Sectional Map for ASN 2018-WTE-6912-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6913-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-92
Location:	Tioga, ND
Latitude:	48-33-12.06N NAD 83
Longitude:	103-09-07.43W
Heights:	2349 feet site elevation (SE)
	660 feet above ground level (AGL)
	3009 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

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This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

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Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

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used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6913-OE.

Signature Control No: 370538231-385972558 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

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Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE

2018-WTE-6898-OE
2018-WTE-6900-OE
2018-WTE-6902-OE
2018-WTE-6904-OE
2018-WTE-6905-OE

2018-WTE-6906-OE
2018-WTE-6907-OE
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2018-WTE-6910-OE
2018-WTE-6911-OE

2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

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2018-WTE-6889-OE
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2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
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2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
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2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
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2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

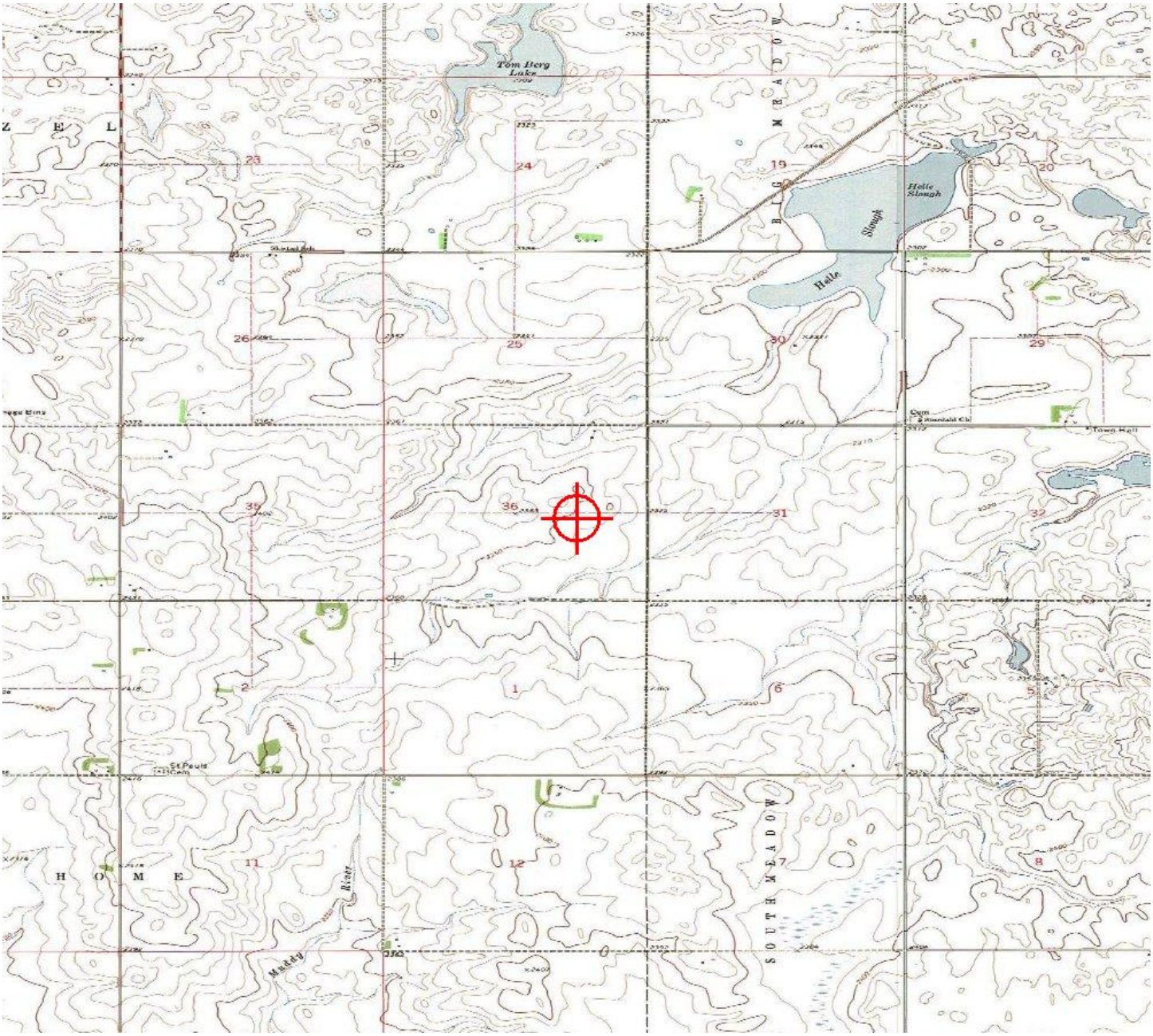
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6913-OE



Sectional Map for ASN 2018-WTE-6913-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6914-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-93
Location:	Tioga, ND
Latitude:	48-33-04.97N NAD 83
Longitude:	103-12-13.15W
Heights:	2422 feet site elevation (SE)
	660 feet above ground level (AGL)
	3082 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6914-OE.

Signature Control No: 370538232-385972559 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
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2018-WTE-6952-OE
2018-WTE-6954-OE
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2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

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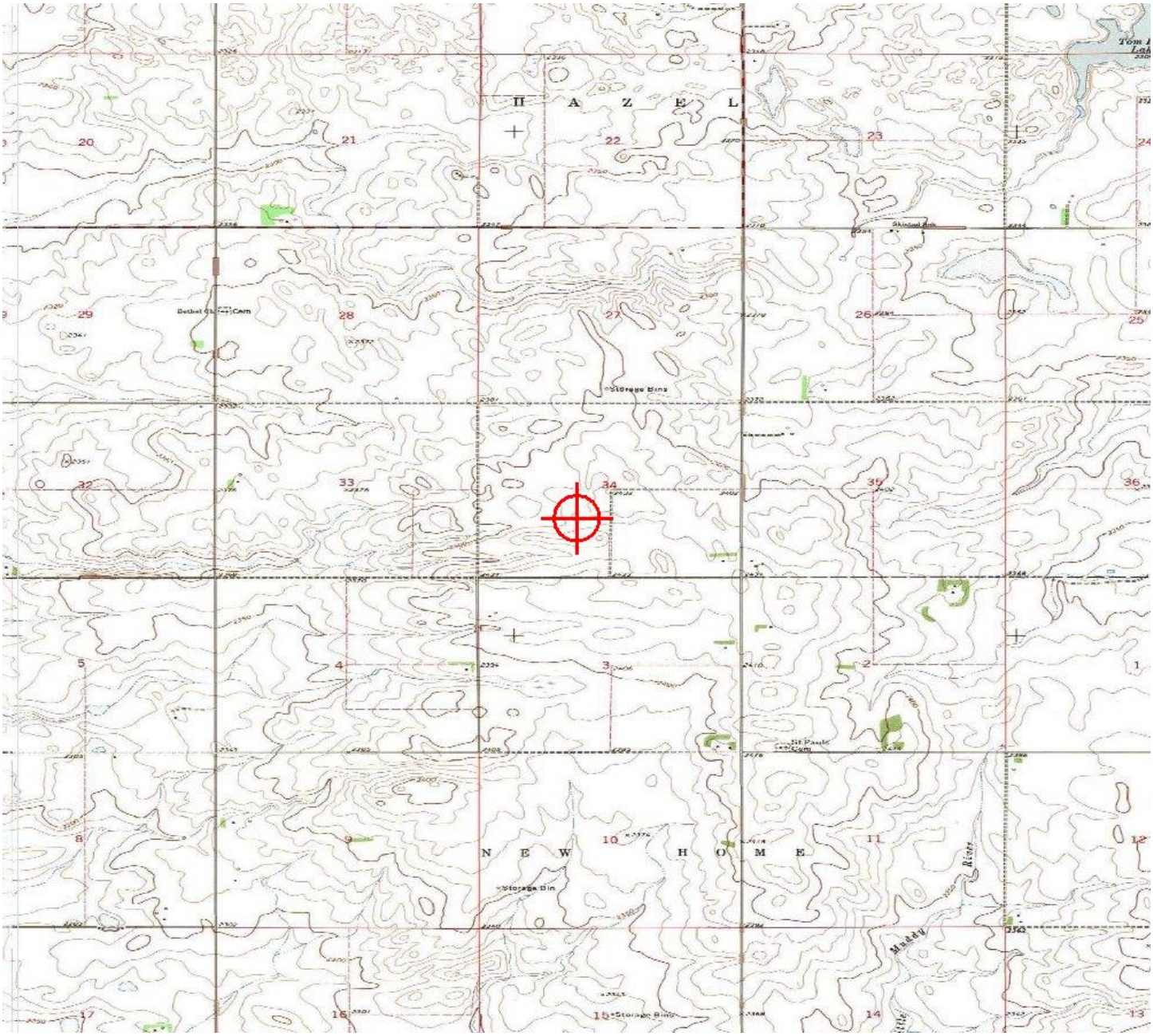
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6914-OE



Sectional Map for ASN 2018-WTE-6914-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
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Aeronautical Study No.
2018-WTE-6915-OE

Issued Date: 09/25/2018

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Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-94
Location:	Tioga, ND
Latitude:	48-33-05.01N NAD 83
Longitude:	103-11-39.97W
Heights:	2414 feet site elevation (SE)
	660 feet above ground level (AGL)
	3074 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6915-OE.

Signature Control No: 370538238-385972561 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE

2018-WTE-6898-OE
2018-WTE-6900-OE
2018-WTE-6902-OE
2018-WTE-6904-OE
2018-WTE-6905-OE

2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE
2018-WTE-6910-OE
2018-WTE-6911-OE

2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE

2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE
2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6911-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE

2018-WTE-6915-OE
2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE

2018-WTE-6920-OE
2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE

2018-WTE-6925-OE
2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE
2018-WTE-6920-OE

2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

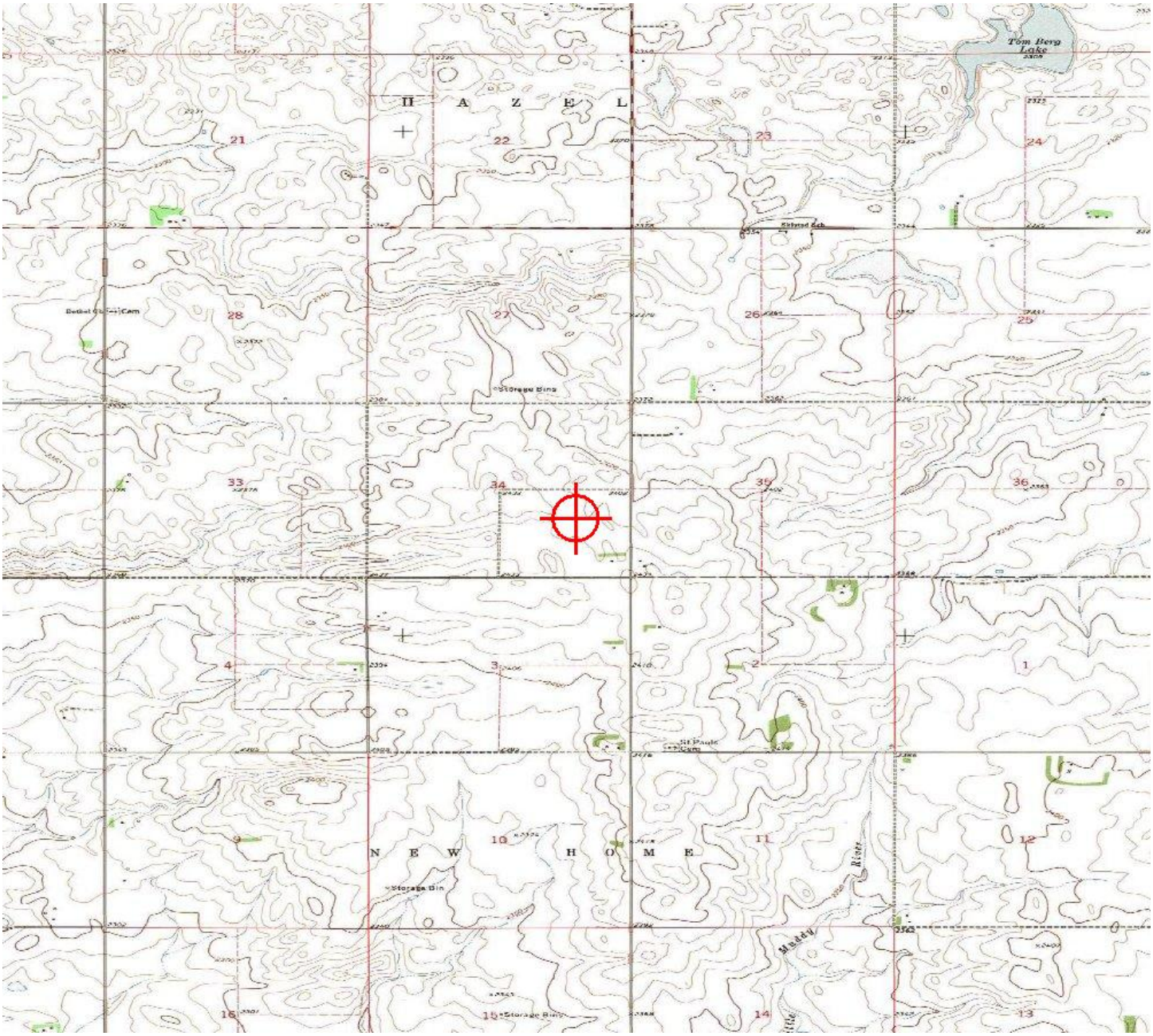
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6915-OE



Sectional Map for ASN 2018-WTE-6915-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6916-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-95
Location:	Tioga, ND
Latitude:	48-33-03.59N NAD 83
Longitude:	103-11-03.01W
Heights:	2423 feet site elevation (SE)
	660 feet above ground level (AGL)
	3083 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

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This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

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Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

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used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6916-OE.

Signature Control No: 370538246-385972563 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

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Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
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2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

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2018-WTE-6889-OE
2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
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2018-WTE-6906-OE
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2018-WTE-6952-OE
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2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
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2018-WTE-6882-OE
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2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE

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2018-WTE-6889-OE
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2018-WTE-6899-OE
2018-WTE-6900-OE
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2018-WTE-6902-OE
2018-WTE-6903-OE

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2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
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2018-WTE-6869-OE
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2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
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2018-WTE-6889-OE
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2018-WTE-6899-OE
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2018-WTE-6901-OE
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2018-WTE-6903-OE

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2018-WTE-6916-OE
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2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

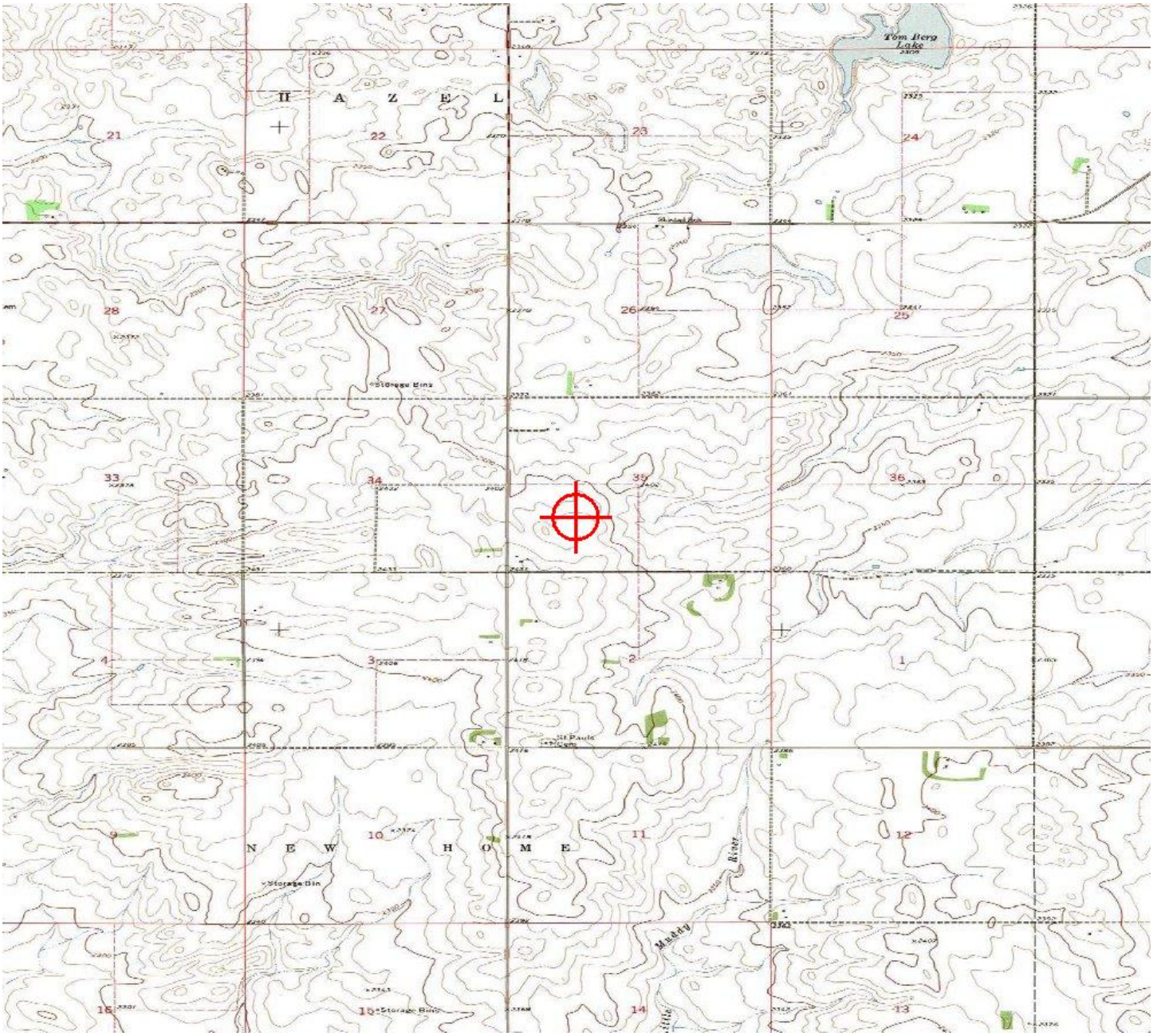
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6916-OE



Sectional Map for ASN 2018-WTE-6916-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6917-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-96
Location:	Tioga, ND
Latitude:	48-33-18.42N NAD 83
Longitude:	103-10-40.95W
Heights:	2403 feet site elevation (SE)
	660 feet above ground level (AGL)
	3063 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6917-OE.

Signature Control No: 370538254-385972572 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
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2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
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The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

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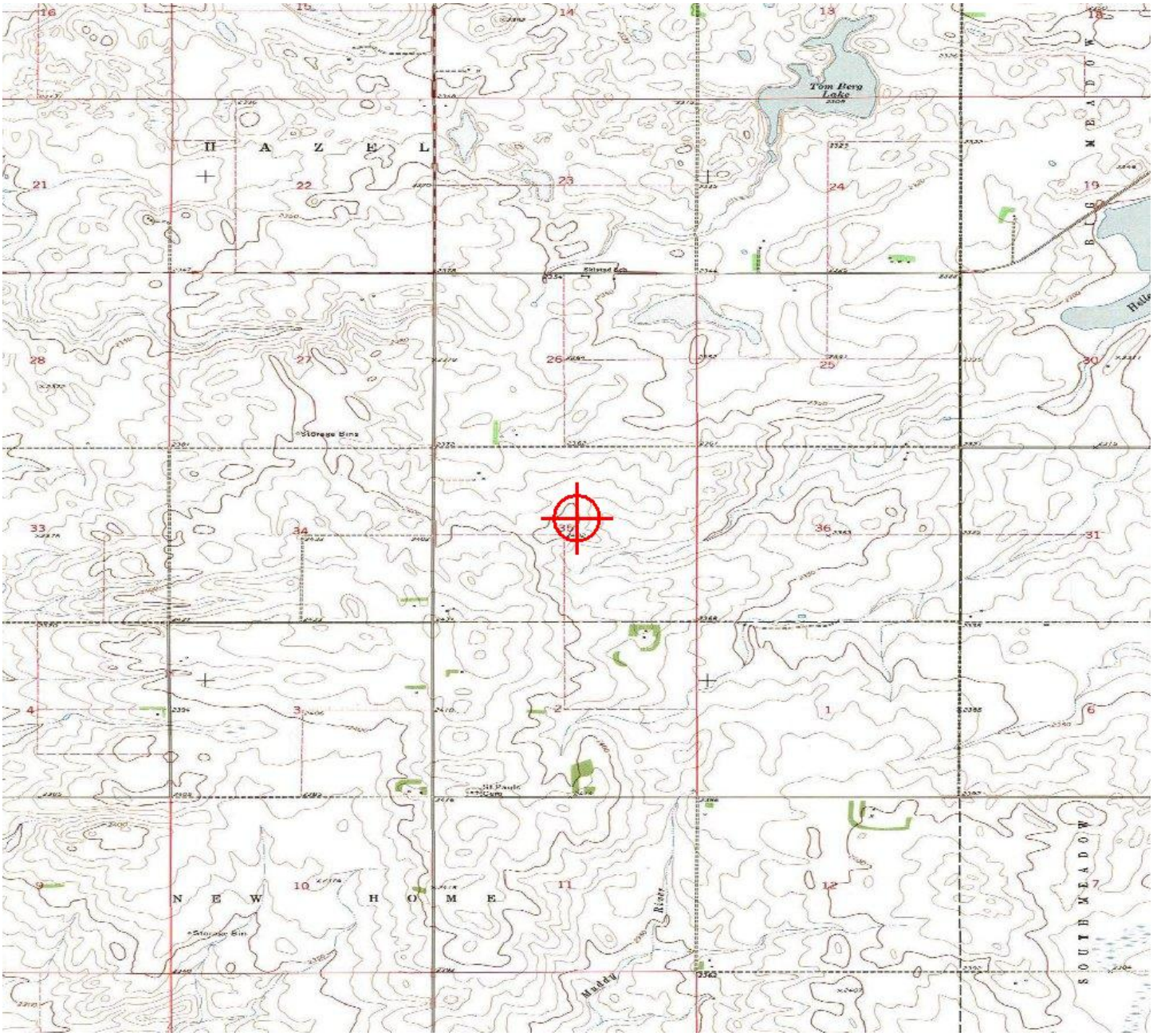
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6917-OE



Sectional Map for ASN 2018-WTE-6917-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
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Aeronautical Study No.
2018-WTE-6918-OE

Issued Date: 09/25/2018

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16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-97
Location:	Tioga, ND
Latitude:	48-33-32.15N NAD 83
Longitude:	103-09-58.74W
Heights:	2392 feet site elevation (SE)
	660 feet above ground level (AGL)
	3052 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6918-OE.

Signature Control No: 370538255-385972573 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE

2018-WTE-6898-OE
2018-WTE-6900-OE
2018-WTE-6902-OE
2018-WTE-6904-OE
2018-WTE-6905-OE

2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE
2018-WTE-6910-OE
2018-WTE-6911-OE

2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE

2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE
2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6911-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE

2018-WTE-6915-OE
2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE

2018-WTE-6920-OE
2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE

2018-WTE-6925-OE
2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE
2018-WTE-6920-OE

2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

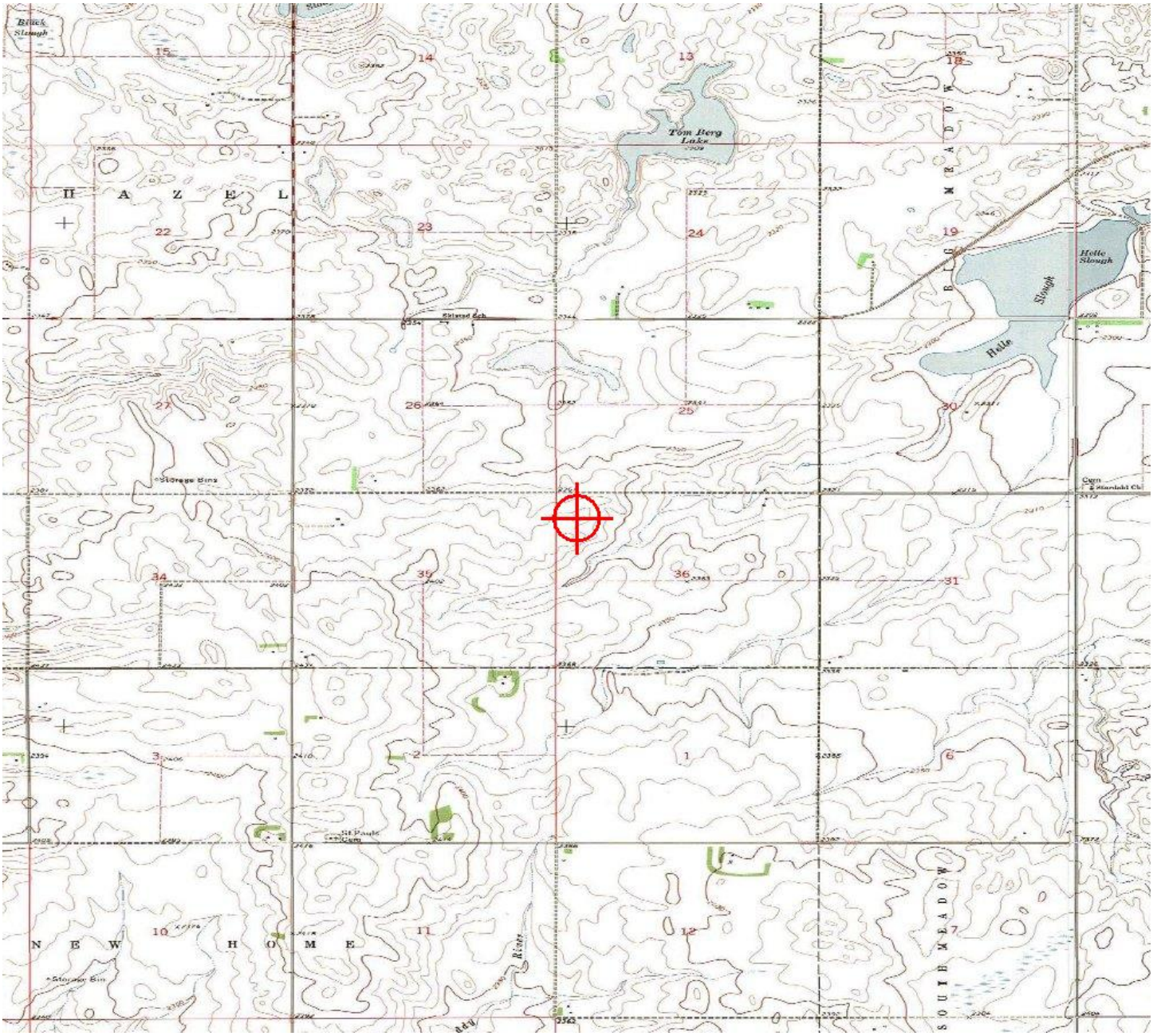
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6918-OE



Sectional Map for ASN 2018-WTE-6918-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6919-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-98
Location:	Tioga, ND
Latitude:	48-33-27.39N NAD 83
Longitude:	103-13-00.21W
Heights:	2382 feet site elevation (SE)
	660 feet above ground level (AGL)
	3042 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

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If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6919-OE.

Signature Control No: 370538256-385972575 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

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2018-WTE-6861-OE
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2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE

2018-WTE-6898-OE
2018-WTE-6900-OE
2018-WTE-6902-OE
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2018-WTE-6905-OE

2018-WTE-6906-OE
2018-WTE-6907-OE
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2018-WTE-6952-OE
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2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
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2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE

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2018-WTE-6889-OE
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2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
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2018-WTE-6904-OE
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2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
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2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
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2018-WTE-6889-OE
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2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

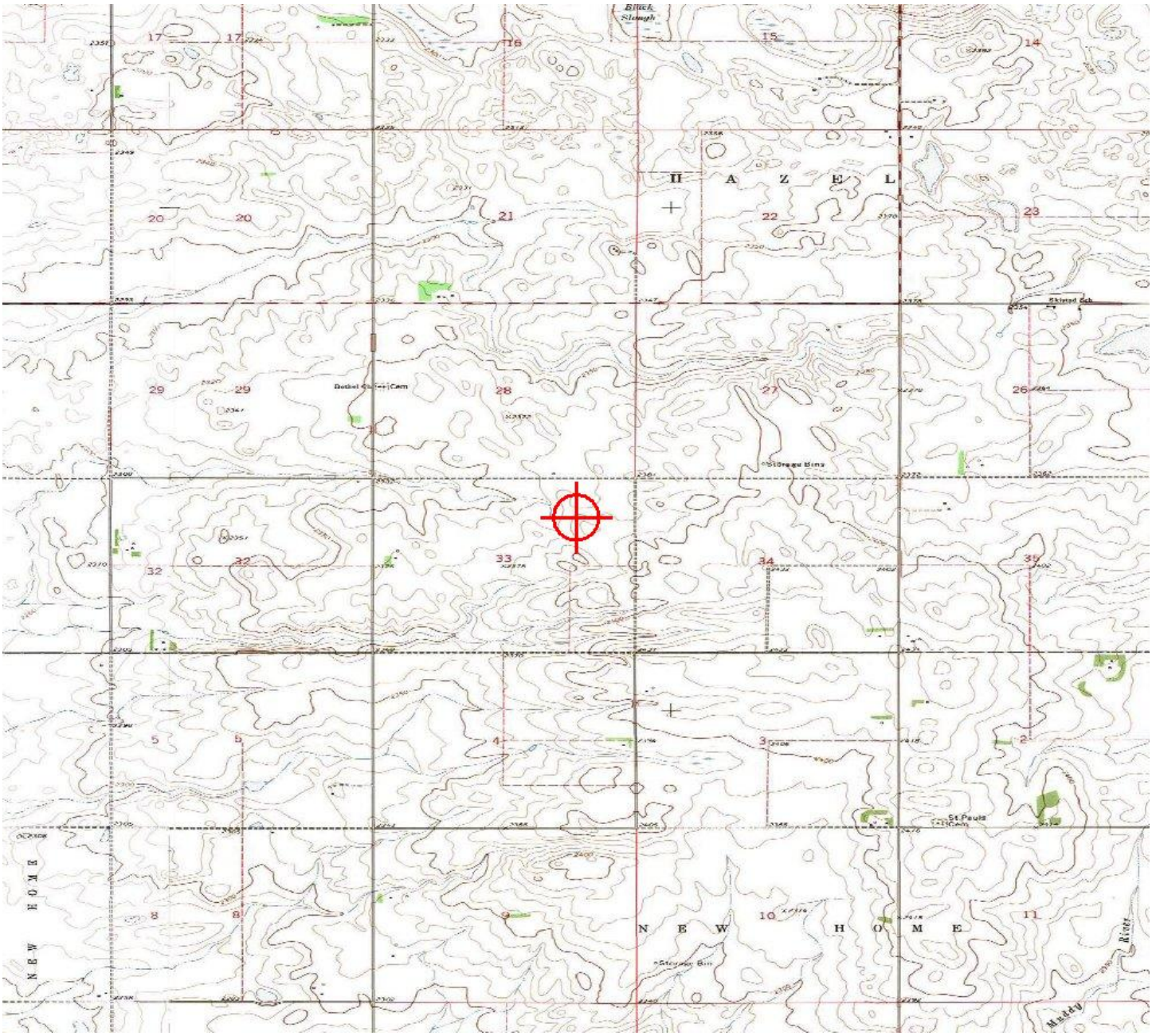
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6919-OE



Sectional Map for ASN 2018-WTE-6919-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6920-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-99
Location:	Tioga, ND
Latitude:	48-33-31.64N NAD 83
Longitude:	103-12-35.31W
Heights:	2401 feet site elevation (SE)
	660 feet above ground level (AGL)
	3061 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6920-OE.

Signature Control No: 370538258-385972577 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
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2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
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The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

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The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

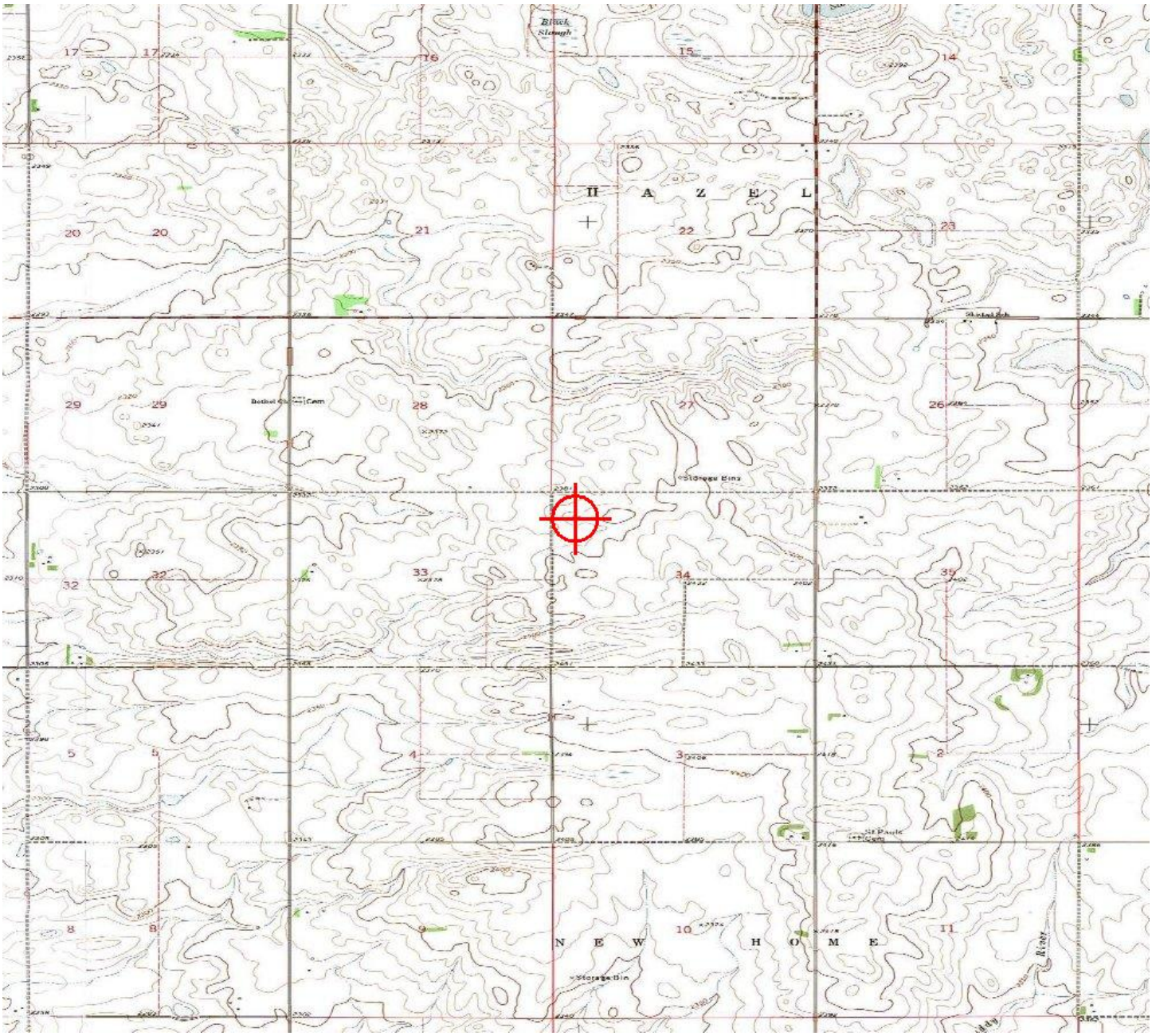
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Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

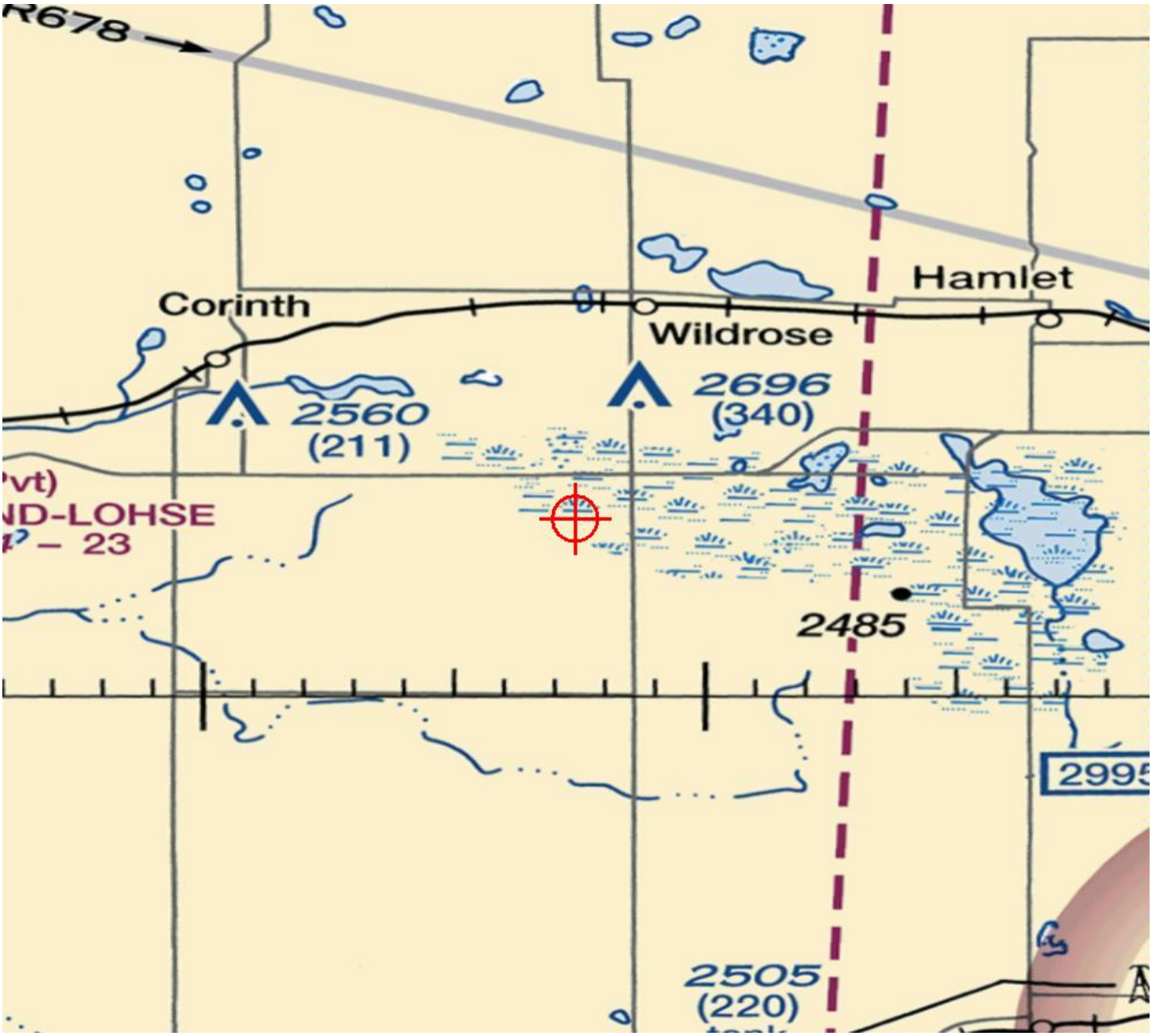
Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6920-OE



Sectional Map for ASN 2018-WTE-6920-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6921-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-100
Location:	Tioga, ND
Latitude:	48-33-27.88N NAD 83
Longitude:	103-12-07.62W
Heights:	2417 feet site elevation (SE)
	660 feet above ground level (AGL)
	3077 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6921-OE.

Signature Control No: 370538259-385972583 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE

2018-WTE-6898-OE
2018-WTE-6900-OE
2018-WTE-6902-OE
2018-WTE-6904-OE
2018-WTE-6905-OE

2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE
2018-WTE-6910-OE
2018-WTE-6911-OE

2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE

2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE
2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6911-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE

2018-WTE-6915-OE
2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE

2018-WTE-6920-OE
2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE

2018-WTE-6925-OE
2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE
2018-WTE-6920-OE

2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

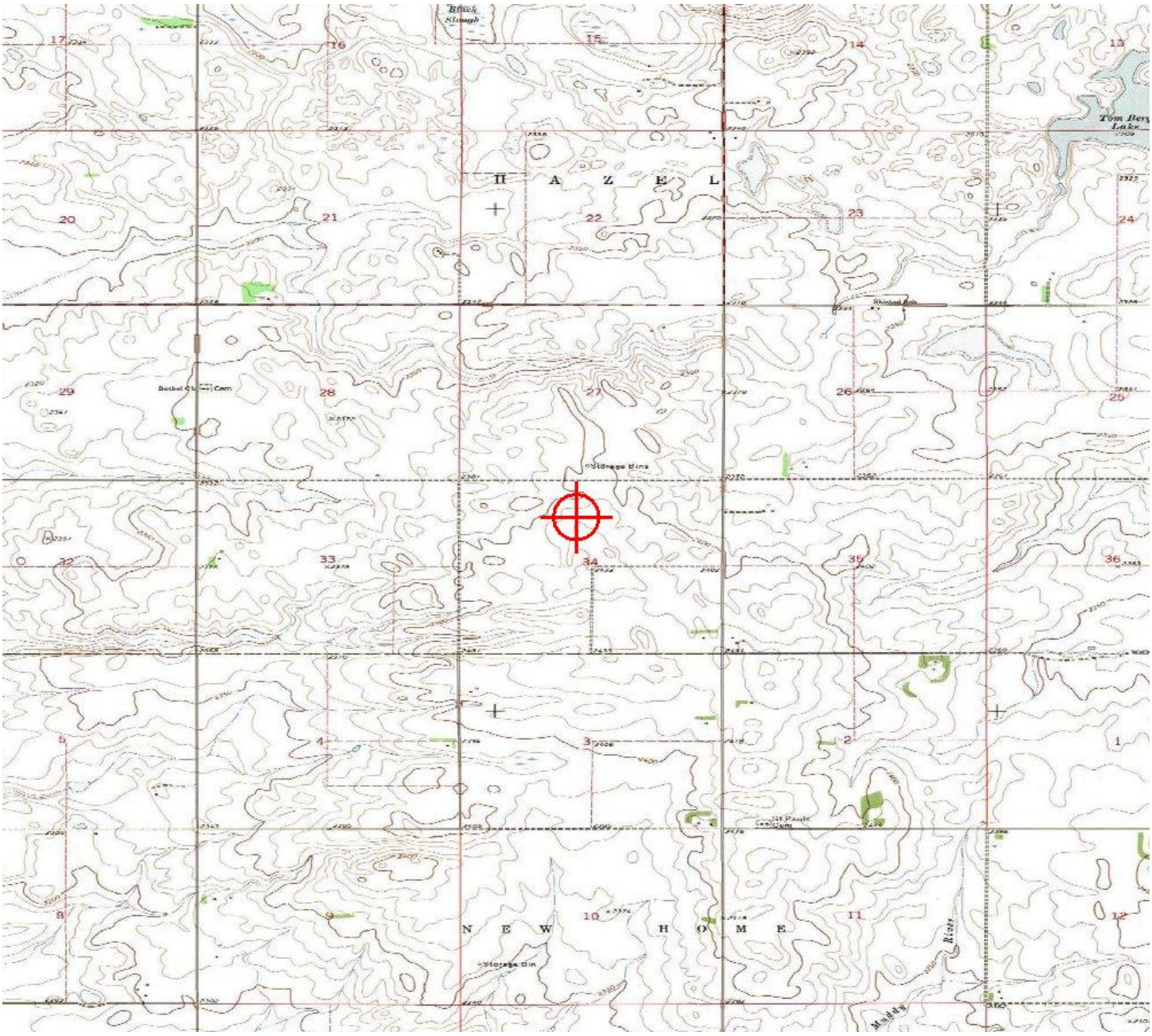
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

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Issued Date: 09/25/2018

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**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-105
Location:	Tioga, ND
Latitude:	48-34-03.35N NAD 83
Longitude:	103-12-09.98W
Heights:	2402 feet site elevation (SE)
	660 feet above ground level (AGL)
	3062 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
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NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

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used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

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This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6922-OE.

Signature Control No: 370538261-385972585 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
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AMSL, Above Mean Sea Level
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Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6861-OE
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2018-WTE-6867-OE
2018-WTE-6868-OE

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2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
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2018-WTE-6896-OE
2018-WTE-6897-OE

2018-WTE-6898-OE
2018-WTE-6900-OE
2018-WTE-6902-OE
2018-WTE-6904-OE
2018-WTE-6905-OE

2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE
2018-WTE-6910-OE
2018-WTE-6911-OE

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2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
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2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
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2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

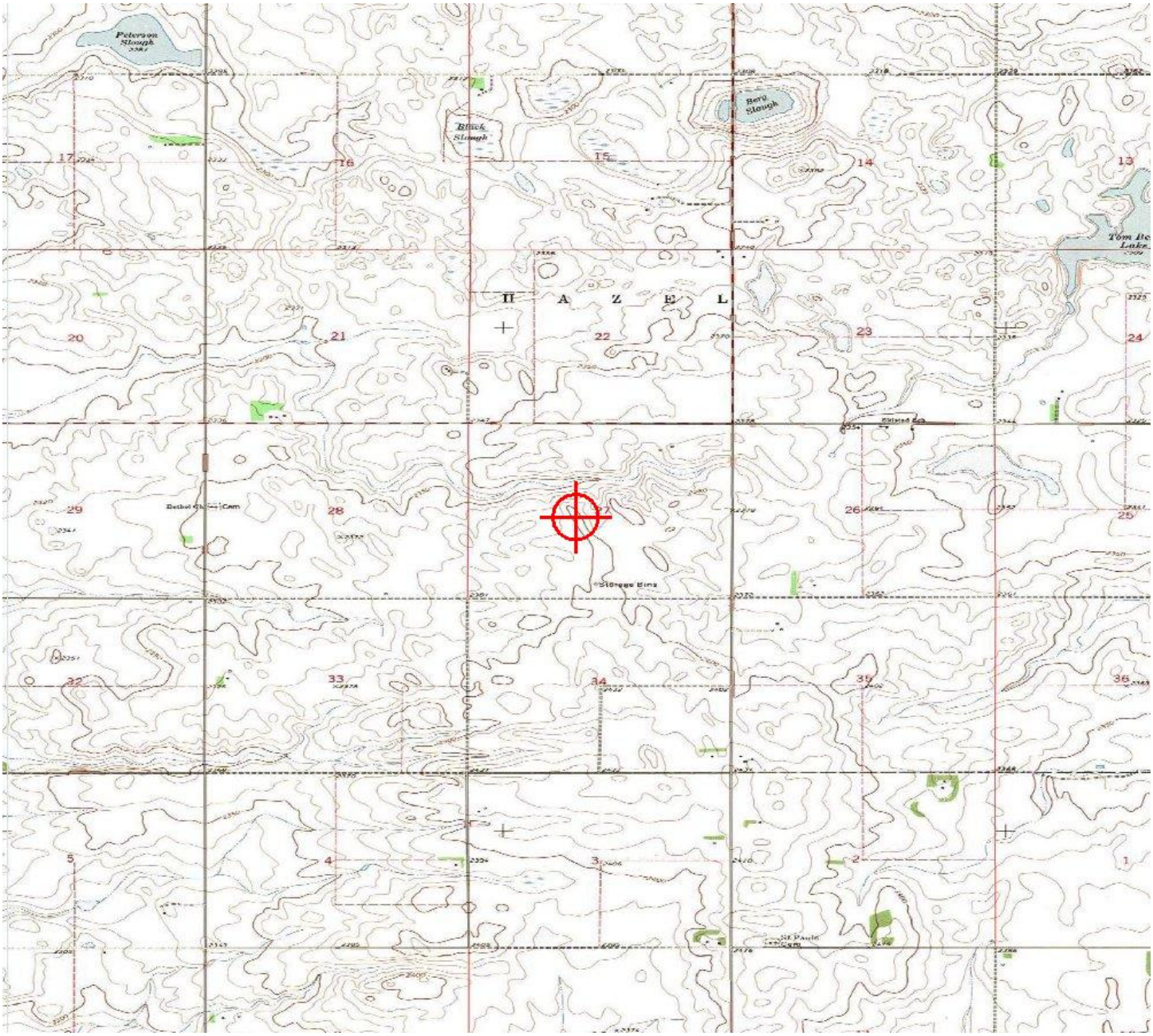
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6922-OE



Sectional Map for ASN 2018-WTE-6922-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6923-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-106
Location:	Tioga, ND
Latitude:	48-34-02.22N NAD 83
Longitude:	103-11-46.25W
Heights:	2392 feet site elevation (SE)
	660 feet above ground level (AGL)
	3052 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6923-OE.

Signature Control No: 370538262-385972591 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
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2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
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The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

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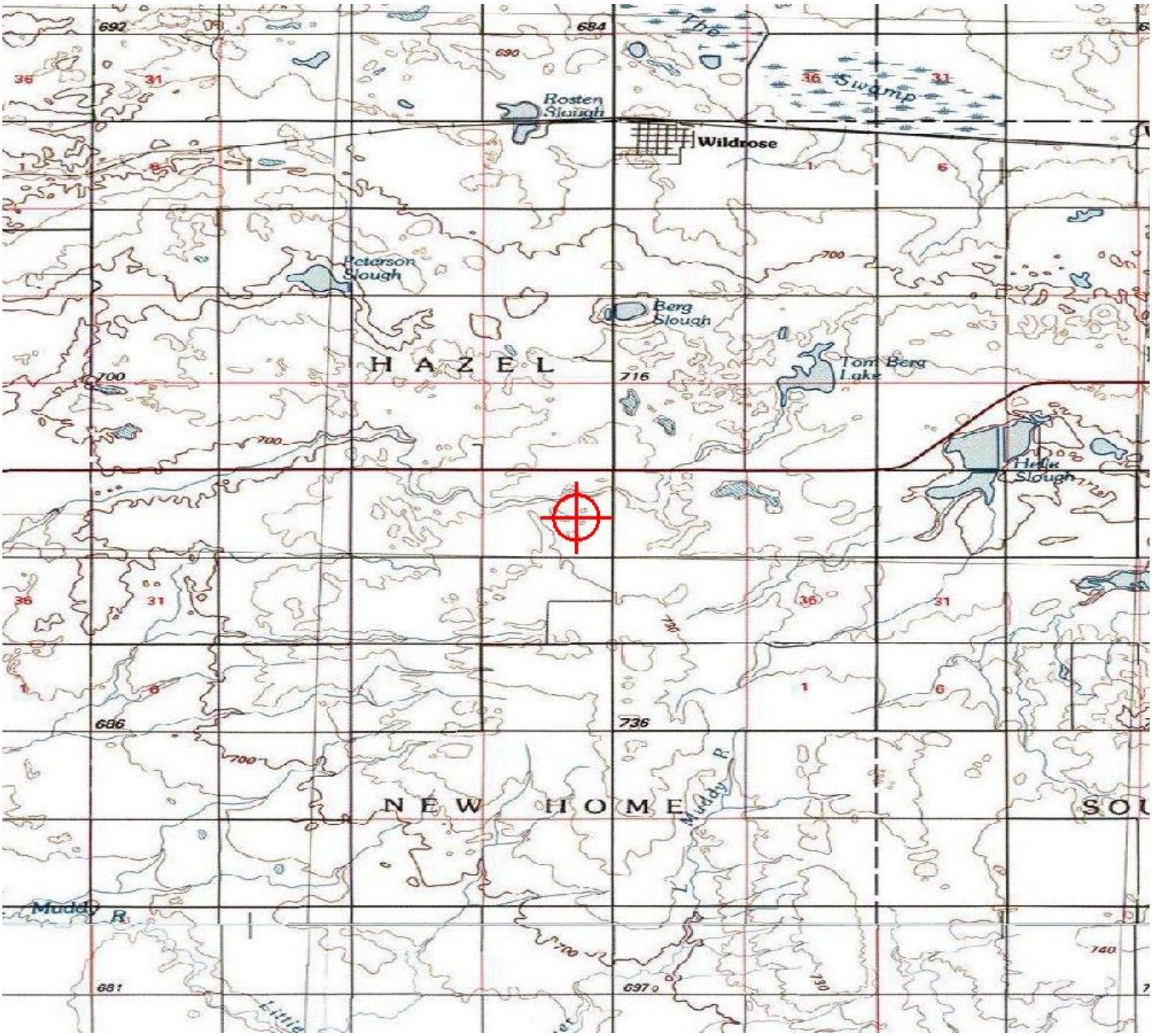
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Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

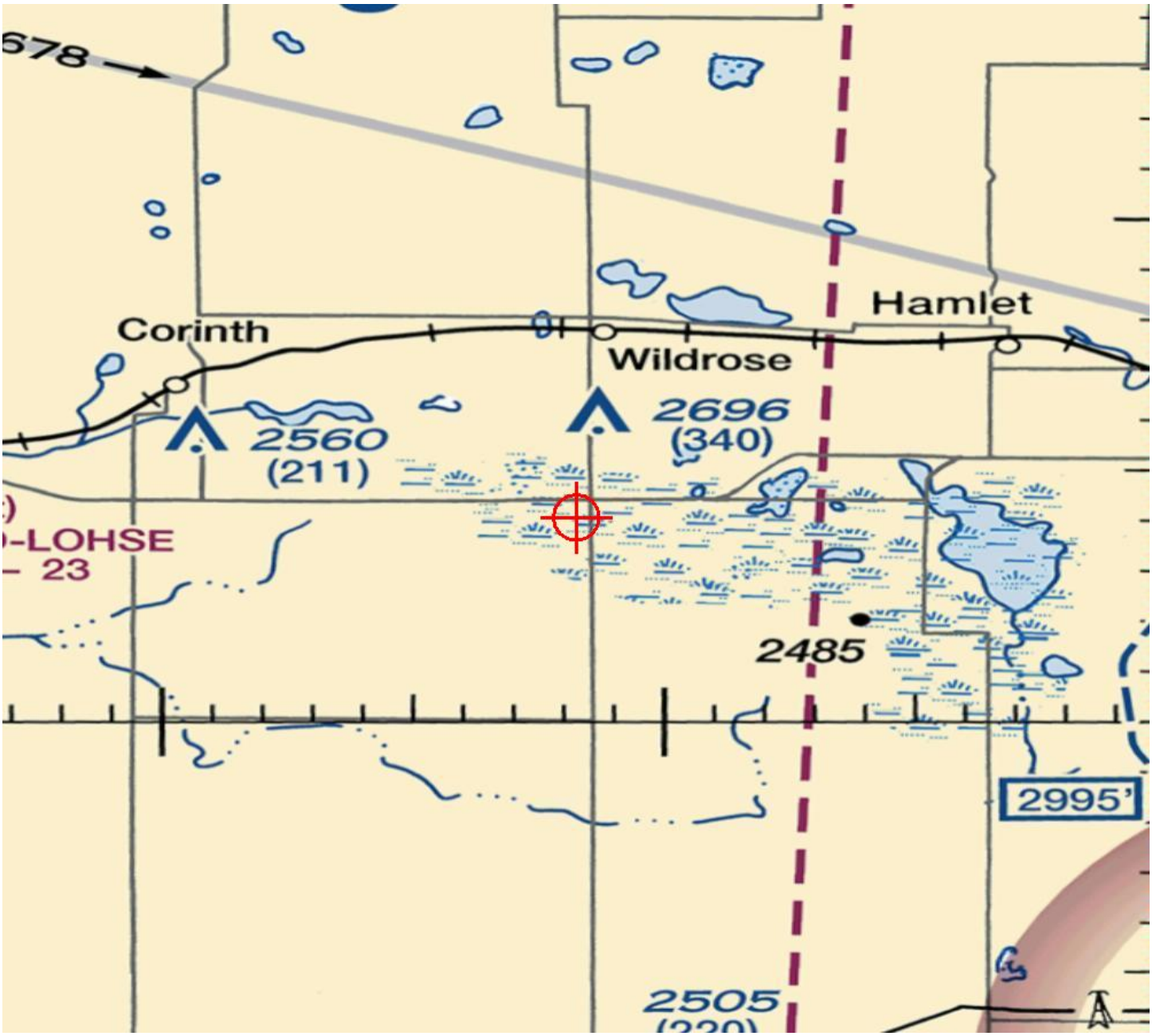
Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6923-OE



Sectional Map for ASN 2018-WTE-6923-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6924-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-107
Location:	Tioga, ND
Latitude:	48-34-00.26N NAD 83
Longitude:	103-10-24.03W
Heights:	2359 feet site elevation (SE)
	660 feet above ground level (AGL)
	3019 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6924-OE.

Signature Control No: 370538263-385972596 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE

2018-WTE-6898-OE
2018-WTE-6900-OE
2018-WTE-6902-OE
2018-WTE-6904-OE
2018-WTE-6905-OE

2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE
2018-WTE-6910-OE
2018-WTE-6911-OE

2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE

2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE
2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6911-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE

2018-WTE-6915-OE
2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE

2018-WTE-6920-OE
2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE

2018-WTE-6925-OE
2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE
2018-WTE-6920-OE

2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

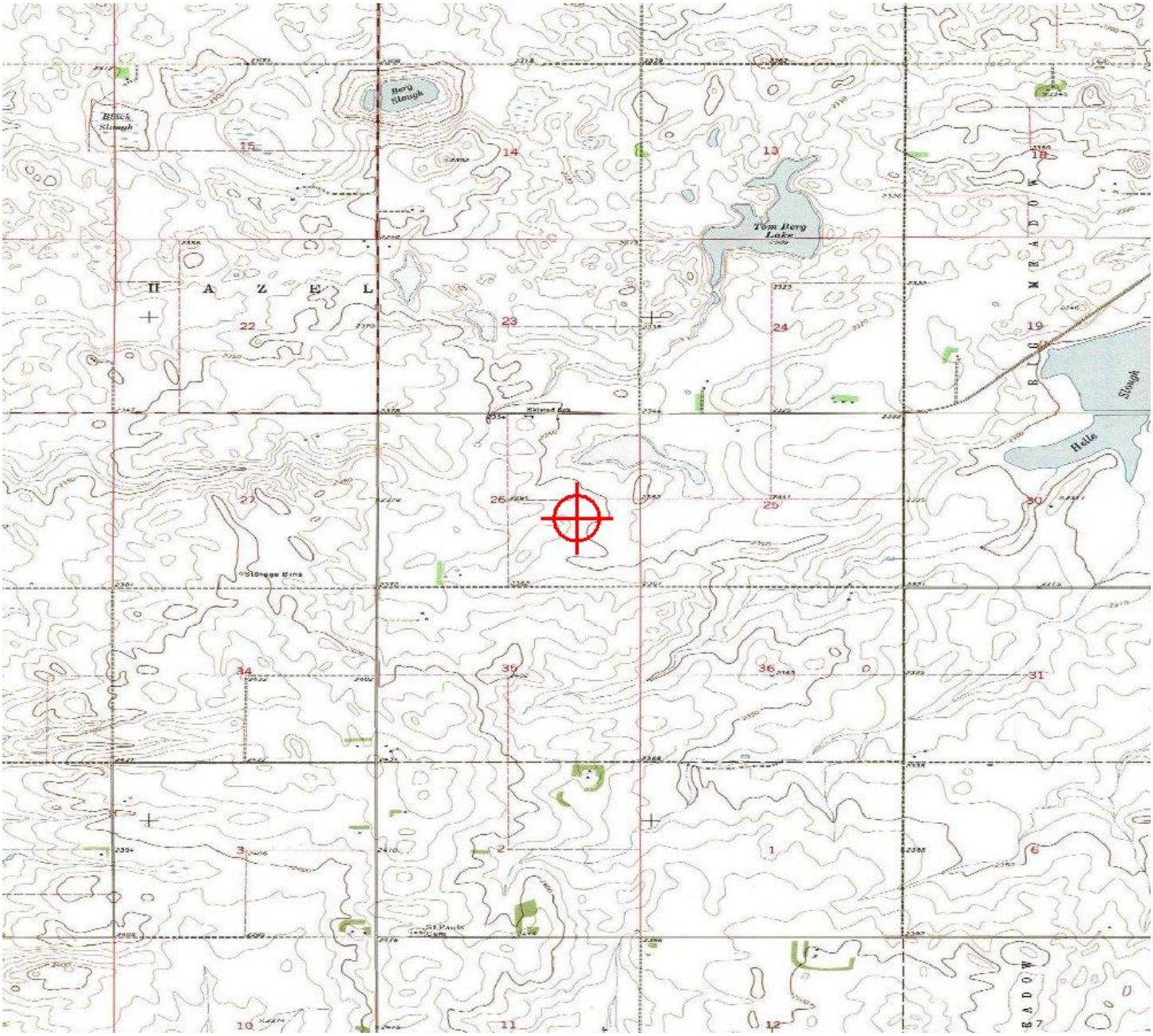
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6924-OE



Sectional Map for ASN 2018-WTE-6924-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6925-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-108
Location:	Tioga, ND
Latitude:	48-34-11.76N NAD 83
Longitude:	103-10-01.00W
Heights:	2351 feet site elevation (SE)
	660 feet above ground level (AGL)
	3011 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6925-OE.

Signature Control No: 370538267-385972597 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6894-OE
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2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
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2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
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2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
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2018-WTE-6869-OE
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2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

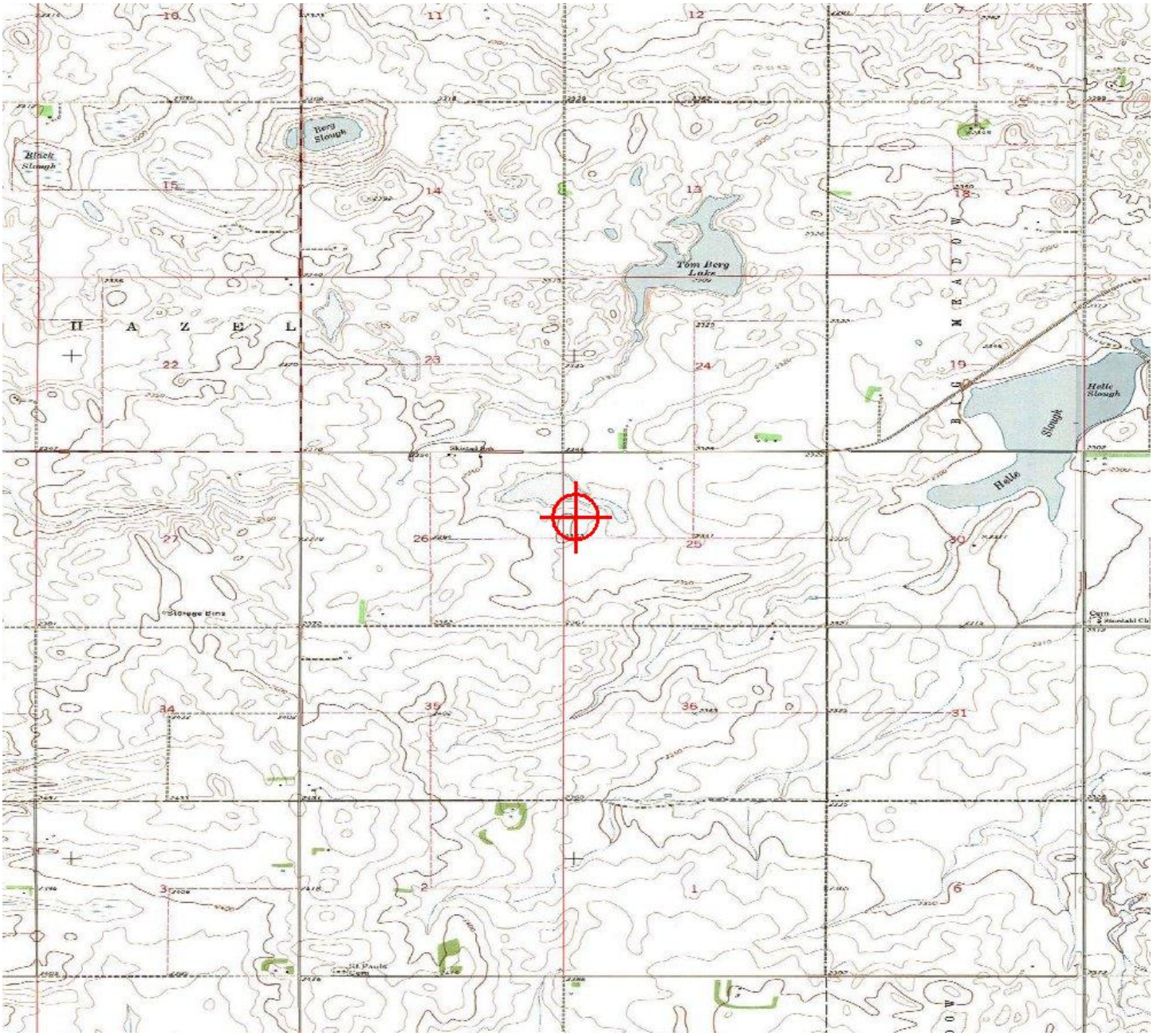
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6925-OE



Sectional Map for ASN 2018-WTE-6925-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6926-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-109
Location:	Tioga, ND
Latitude:	48-33-55.67N NAD 83
Longitude:	103-09-39.30W
Heights:	2348 feet site elevation (SE)
	660 feet above ground level (AGL)
	3008 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6926-OE.

Signature Control No: 370538272-385972598 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
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2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
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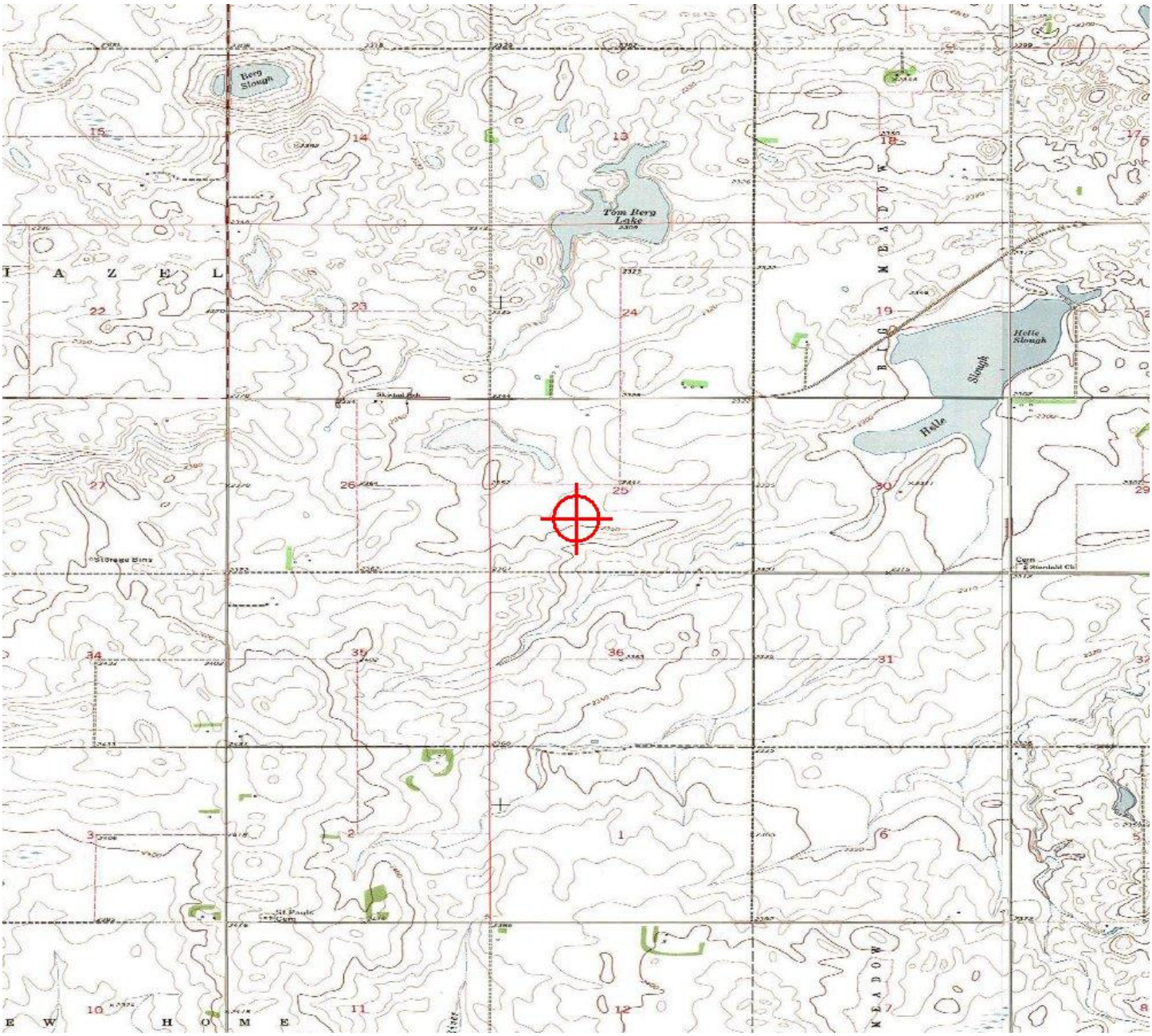
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6926-OE



Sectional Map for ASN 2018-WTE-6926-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6927-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-110
Location:	Tioga, ND
Latitude:	48-33-55.23N NAD 83
Longitude:	103-09-12.89W
Heights:	2349 feet site elevation (SE)
	660 feet above ground level (AGL)
	3009 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6927-OE.

Signature Control No: 370538284-385972602 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE

2018-WTE-6898-OE
2018-WTE-6900-OE
2018-WTE-6902-OE
2018-WTE-6904-OE
2018-WTE-6905-OE

2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE
2018-WTE-6910-OE
2018-WTE-6911-OE

2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE

2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE
2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6911-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE

2018-WTE-6915-OE
2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE

2018-WTE-6920-OE
2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE

2018-WTE-6925-OE
2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE
2018-WTE-6920-OE

2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

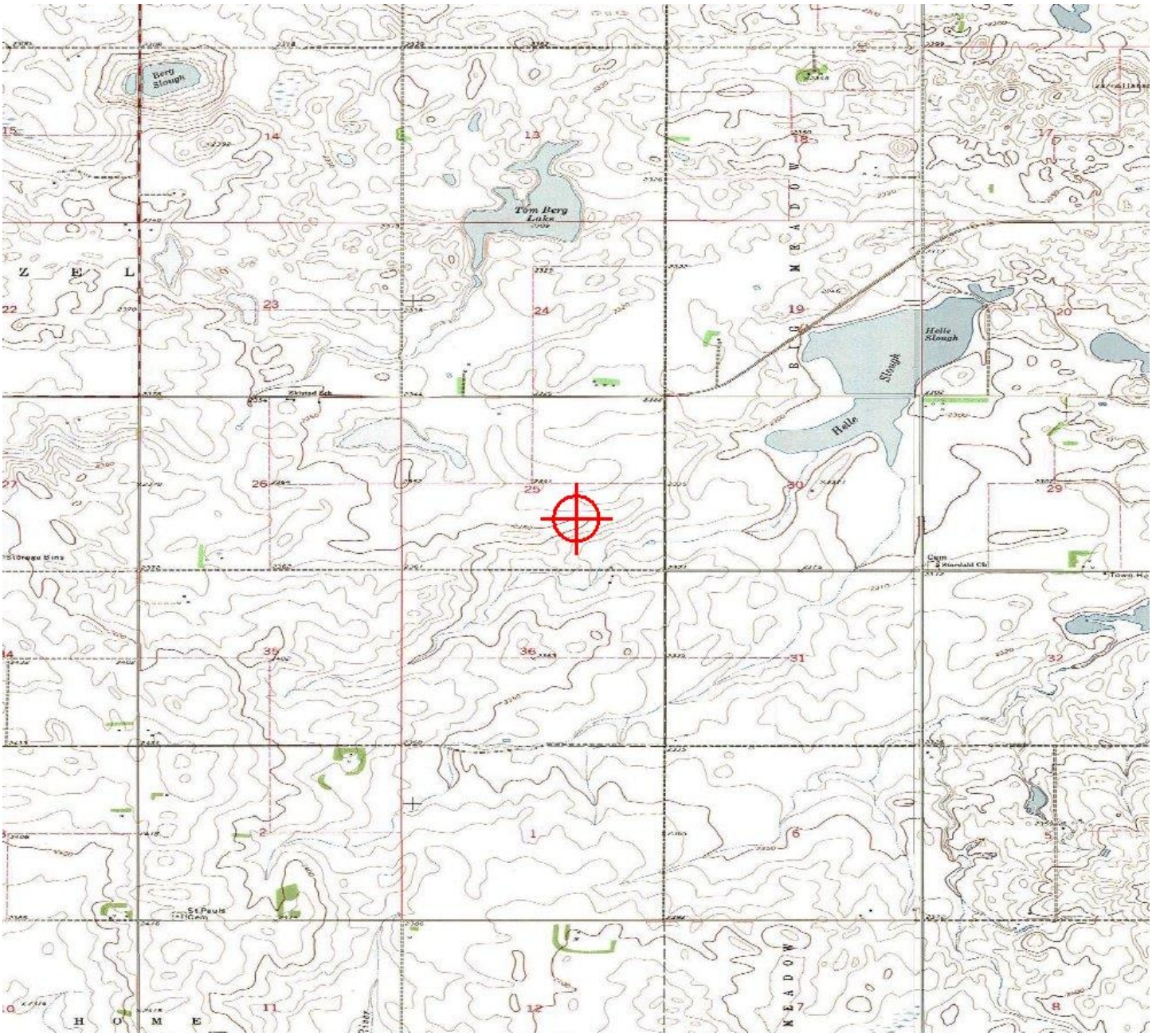
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6927-OE



Sectional Map for ASN 2018-WTE-6927-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6928-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-117
Location:	Tioga, ND
Latitude:	48-34-21.34N NAD 83
Longitude:	103-14-23.62W
Heights:	2336 feet site elevation (SE)
	660 feet above ground level (AGL)
	2996 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6928-OE.

Signature Control No: 370538291-385972608 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
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2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
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2018-WTE-6867-OE
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2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

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2018-WTE-6933-OE
2018-WTE-6938-OE
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2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
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2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
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2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

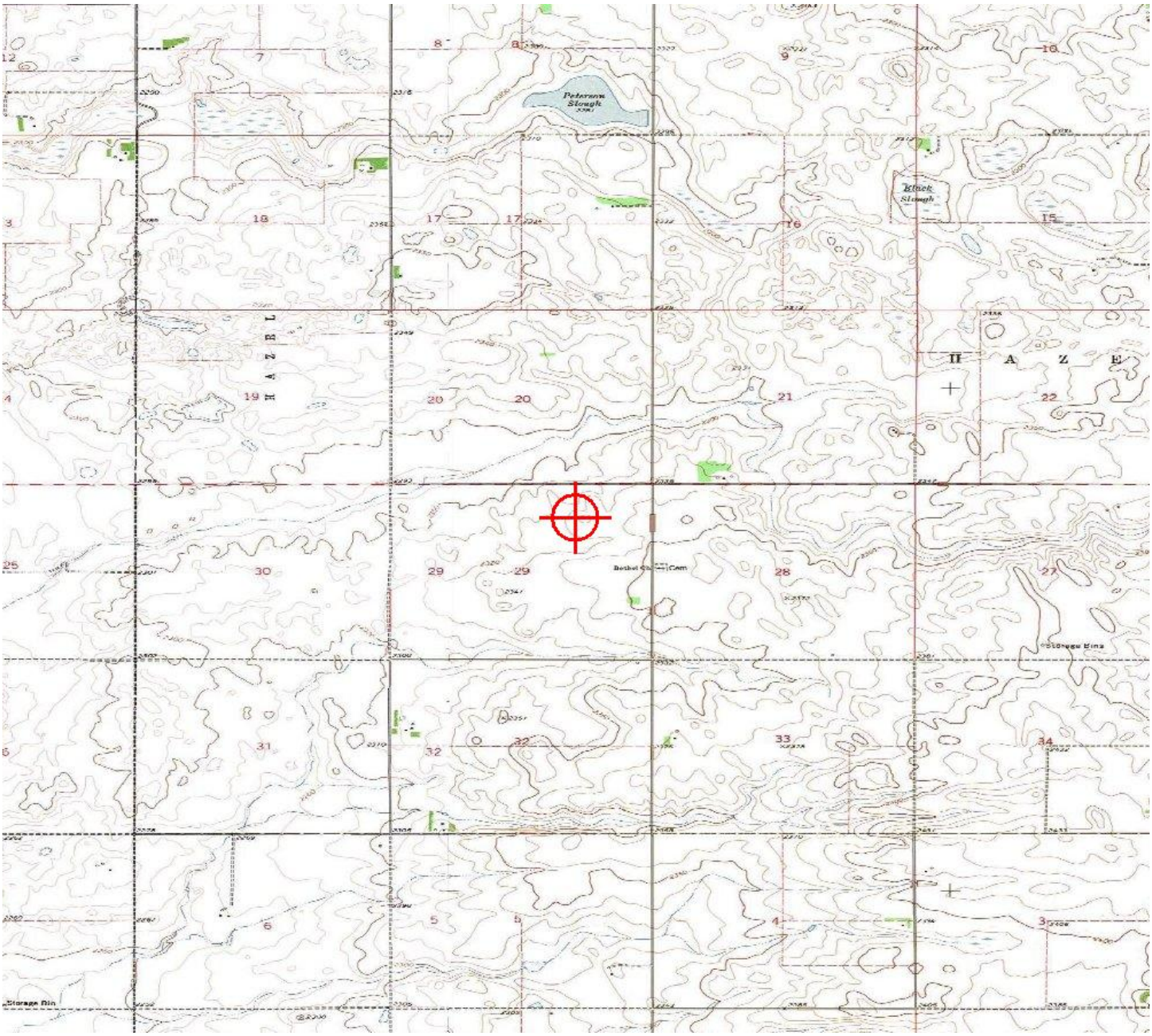
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

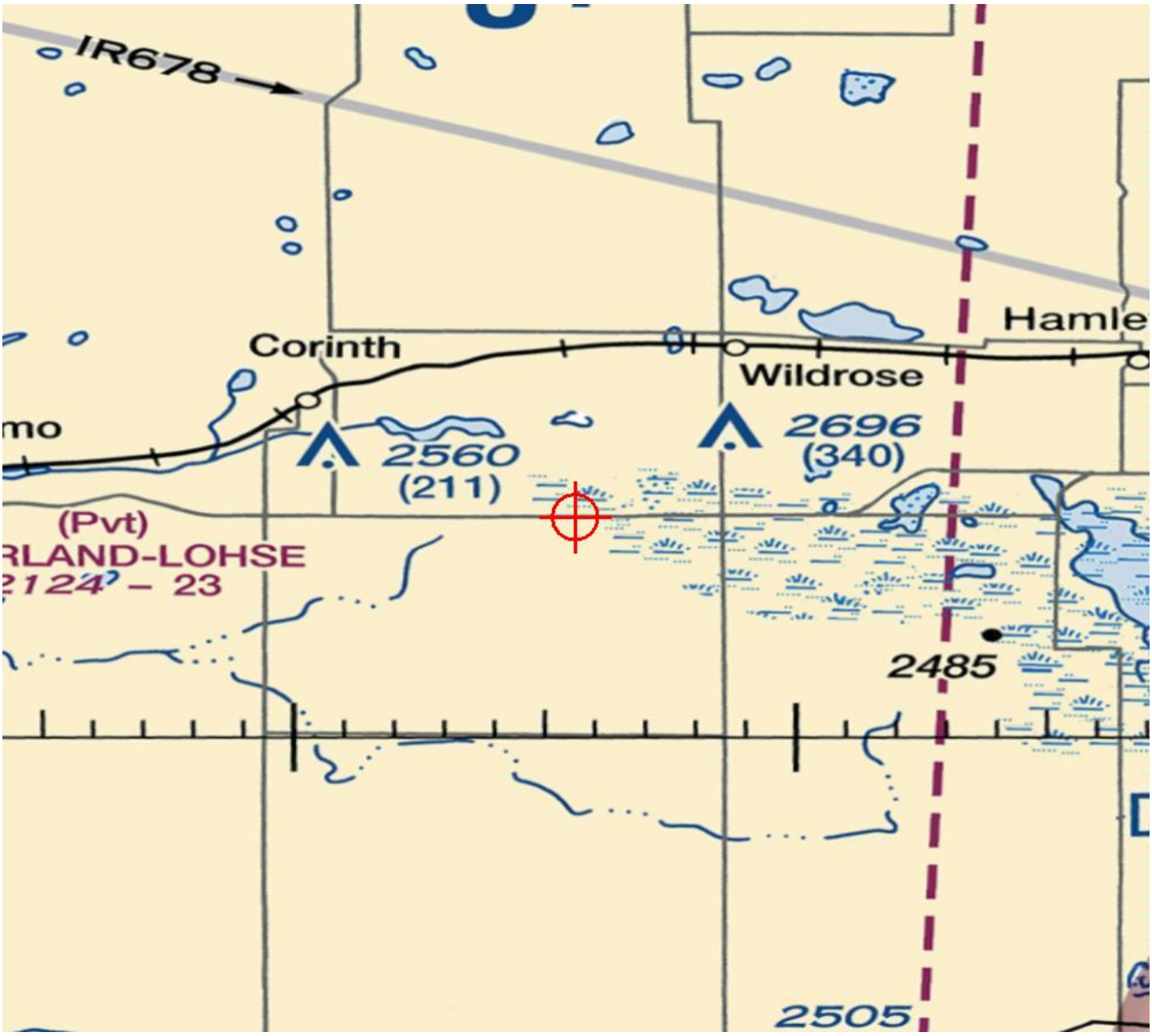
Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6928-OE



Sectional Map for ASN 2018-WTE-6928-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6929-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-118
Location:	Tioga, ND
Latitude:	48-34-53.83N NAD 83
Longitude:	103-12-59.58W
Heights:	2323 feet site elevation (SE)
	660 feet above ground level (AGL)
	2983 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6929-OE.

Signature Control No: 370538292-385972609 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
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2018-WTE-6859-OE
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The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

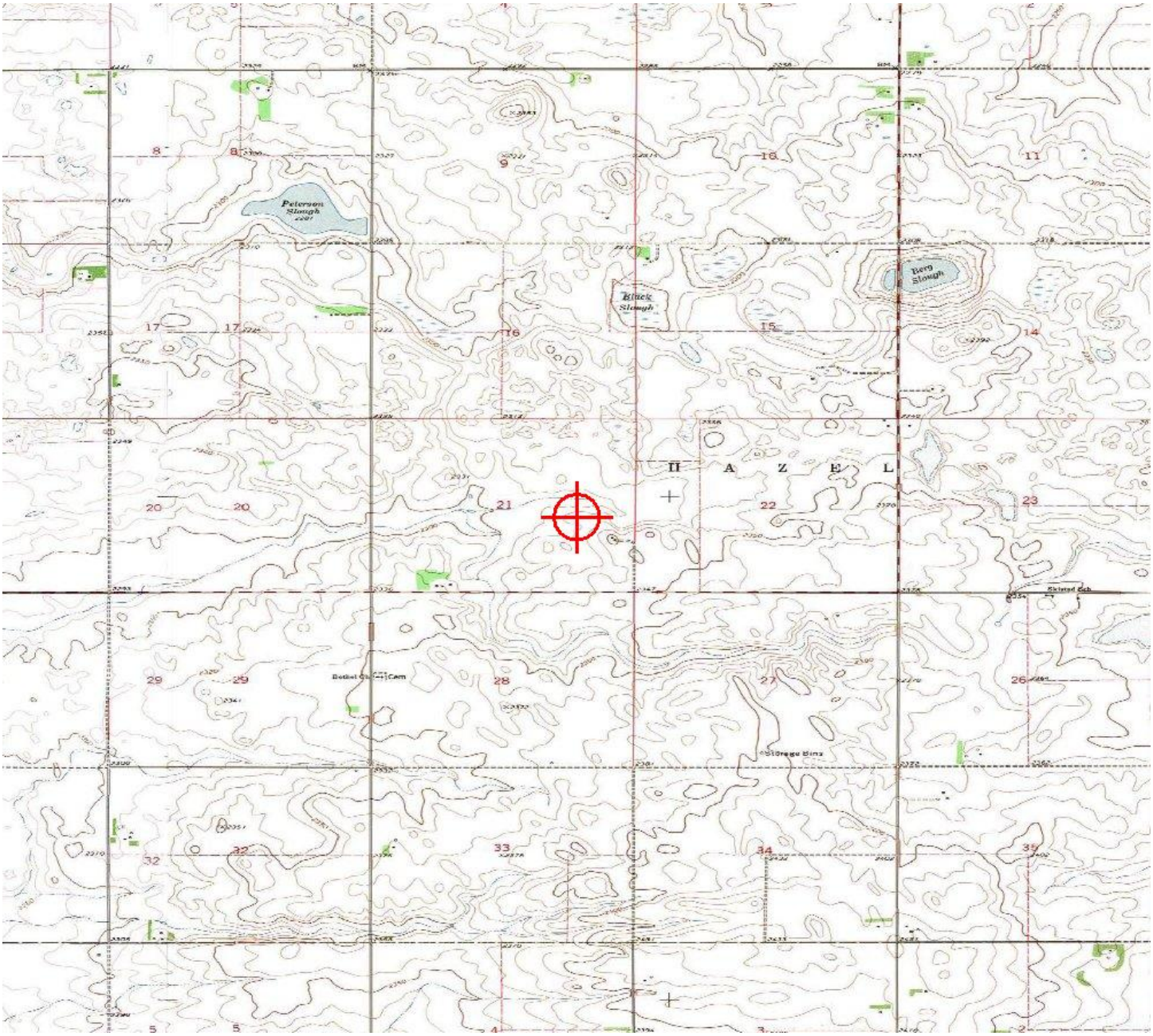
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6929-OE



Sectional Map for ASN 2018-WTE-6929-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6930-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-120
Location:	Tioga, ND
Latitude:	48-34-43.42N NAD 83
Longitude:	103-11-38.26W
Heights:	2373 feet site elevation (SE)
	660 feet above ground level (AGL)
	3033 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6930-OE.

Signature Control No: 370538293-385972611 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE

2018-WTE-6898-OE
2018-WTE-6900-OE
2018-WTE-6902-OE
2018-WTE-6904-OE
2018-WTE-6905-OE

2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE
2018-WTE-6910-OE
2018-WTE-6911-OE

2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE

2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE
2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6911-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE

2018-WTE-6915-OE
2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE

2018-WTE-6920-OE
2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE

2018-WTE-6925-OE
2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE
2018-WTE-6920-OE

2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

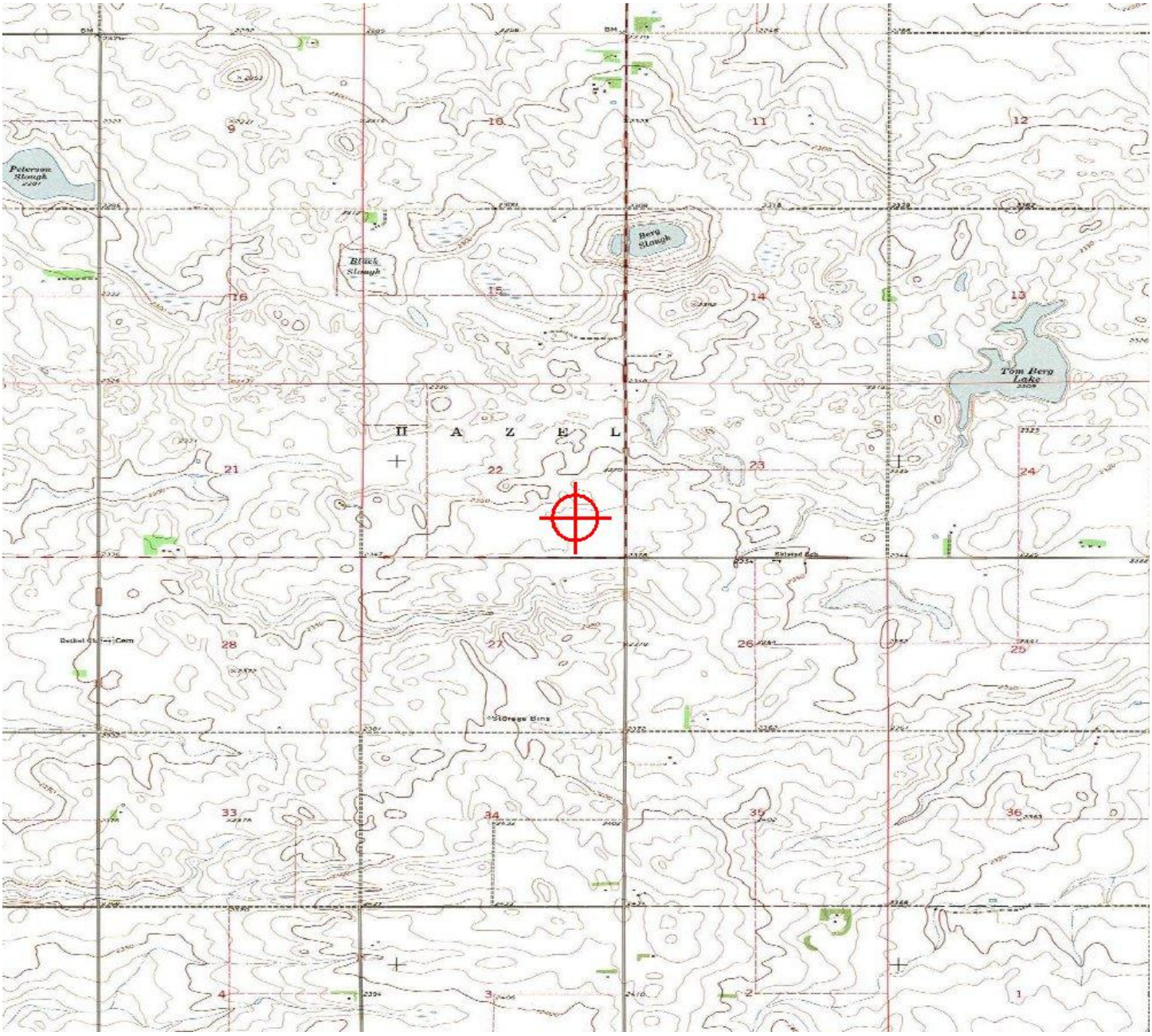
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6930-OE



Sectional Map for ASN 2018-WTE-6930-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6931-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-121
Location:	Tioga, ND
Latitude:	48-33-22.71N NAD 83
Longitude:	103-10-17.60W
Heights:	2393 feet site elevation (SE)
	660 feet above ground level (AGL)
	3053 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

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See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
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In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

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If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6931-OE.

Signature Control No: 370538294-385972615 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

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RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
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2018-WTE-6859-OE
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2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6843-OE

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2018-WTE-6938-OE
2018-WTE-6950-OE
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2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
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2018-WTE-6938-OE
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2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

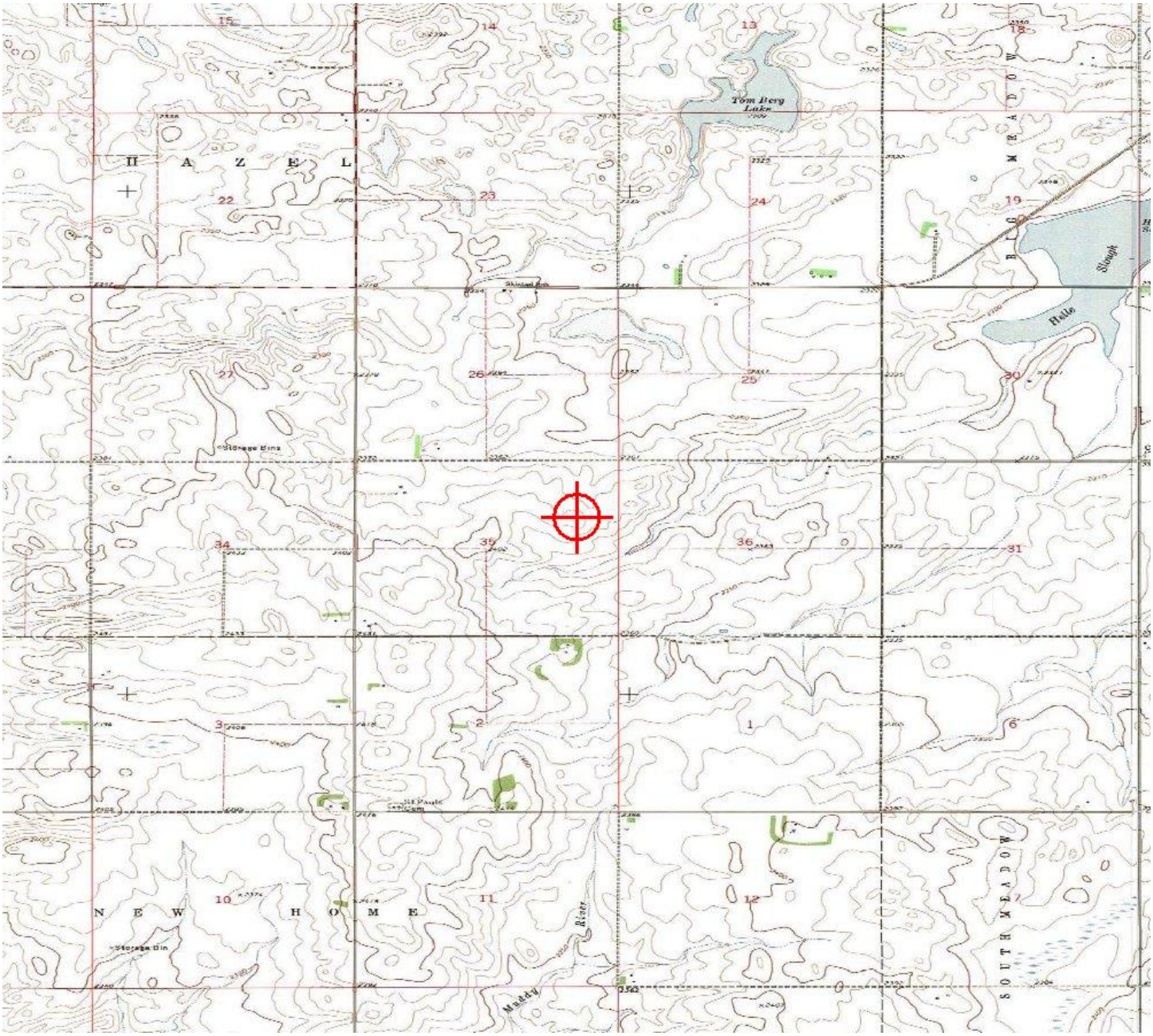
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6931-OE



Sectional Map for ASN 2018-WTE-6931-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6932-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-122
Location:	Tioga, ND
Latitude:	48-34-58.40N NAD 83
Longitude:	103-09-36.04W
Heights:	2331 feet site elevation (SE)
	660 feet above ground level (AGL)
	2991 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6932-OE.

Signature Control No: 370538295-385972617 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

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The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

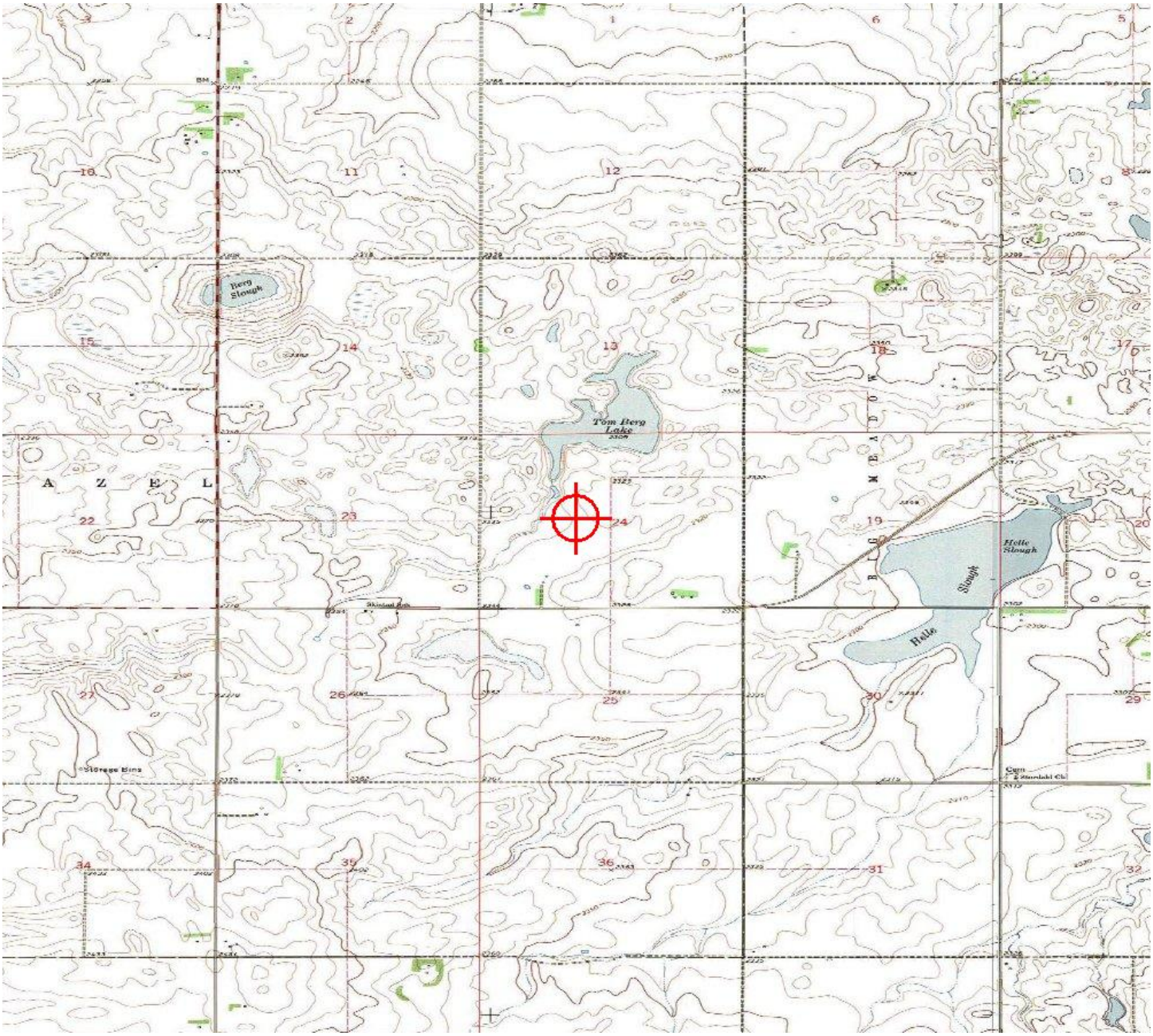
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6932-OE



Sectional Map for ASN 2018-WTE-6932-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6933-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-123
Location:	Tioga, ND
Latitude:	48-33-30.50N NAD 83
Longitude:	103-11-38.54W
Heights:	2394 feet site elevation (SE)
	660 feet above ground level (AGL)
	3054 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6933-OE.

Signature Control No: 370538296-385972620 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE

2018-WTE-6898-OE
2018-WTE-6900-OE
2018-WTE-6902-OE
2018-WTE-6904-OE
2018-WTE-6905-OE

2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE
2018-WTE-6910-OE
2018-WTE-6911-OE

2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE

2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE
2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6911-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE

2018-WTE-6915-OE
2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE

2018-WTE-6920-OE
2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE

2018-WTE-6925-OE
2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE
2018-WTE-6920-OE

2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

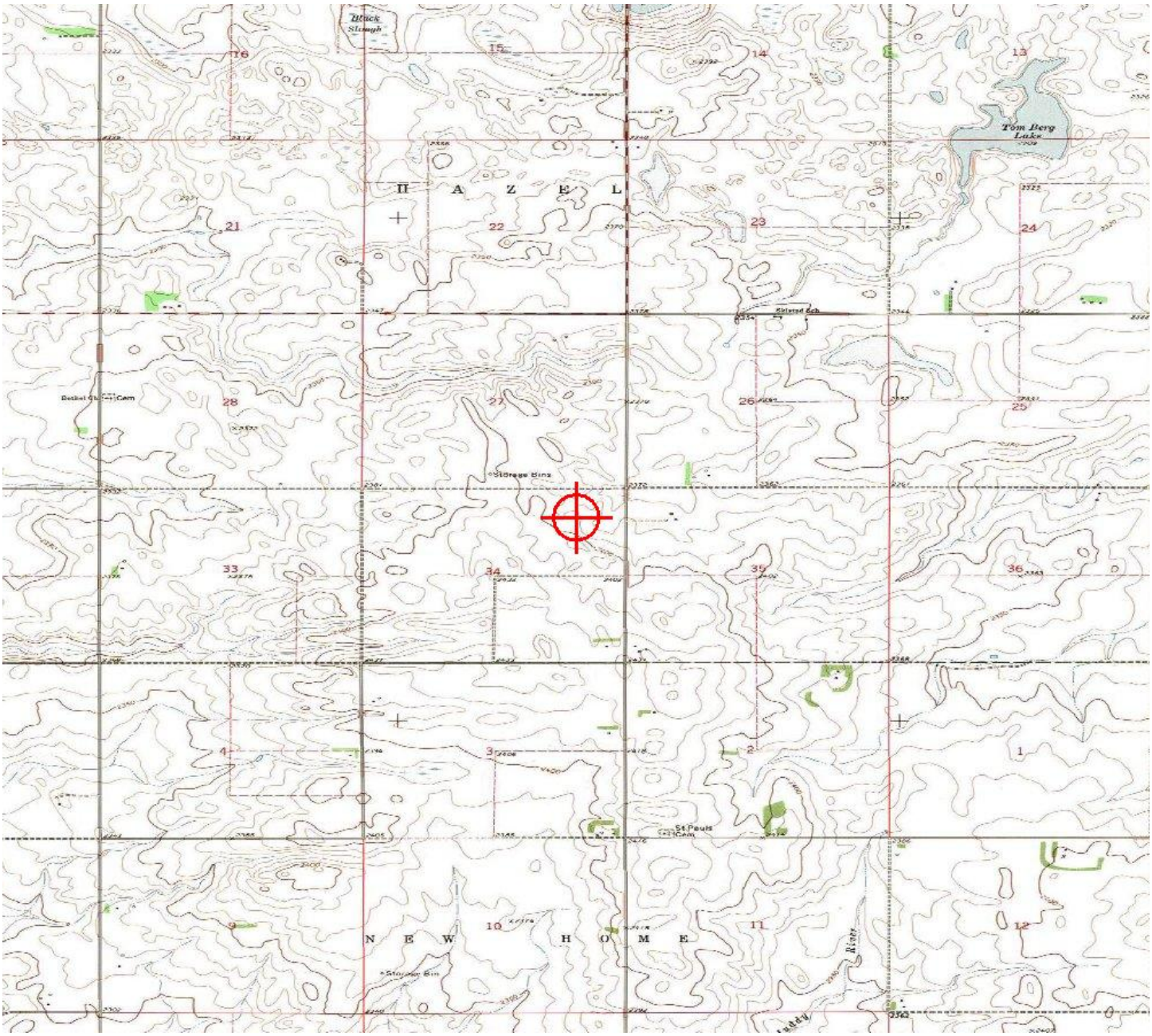
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

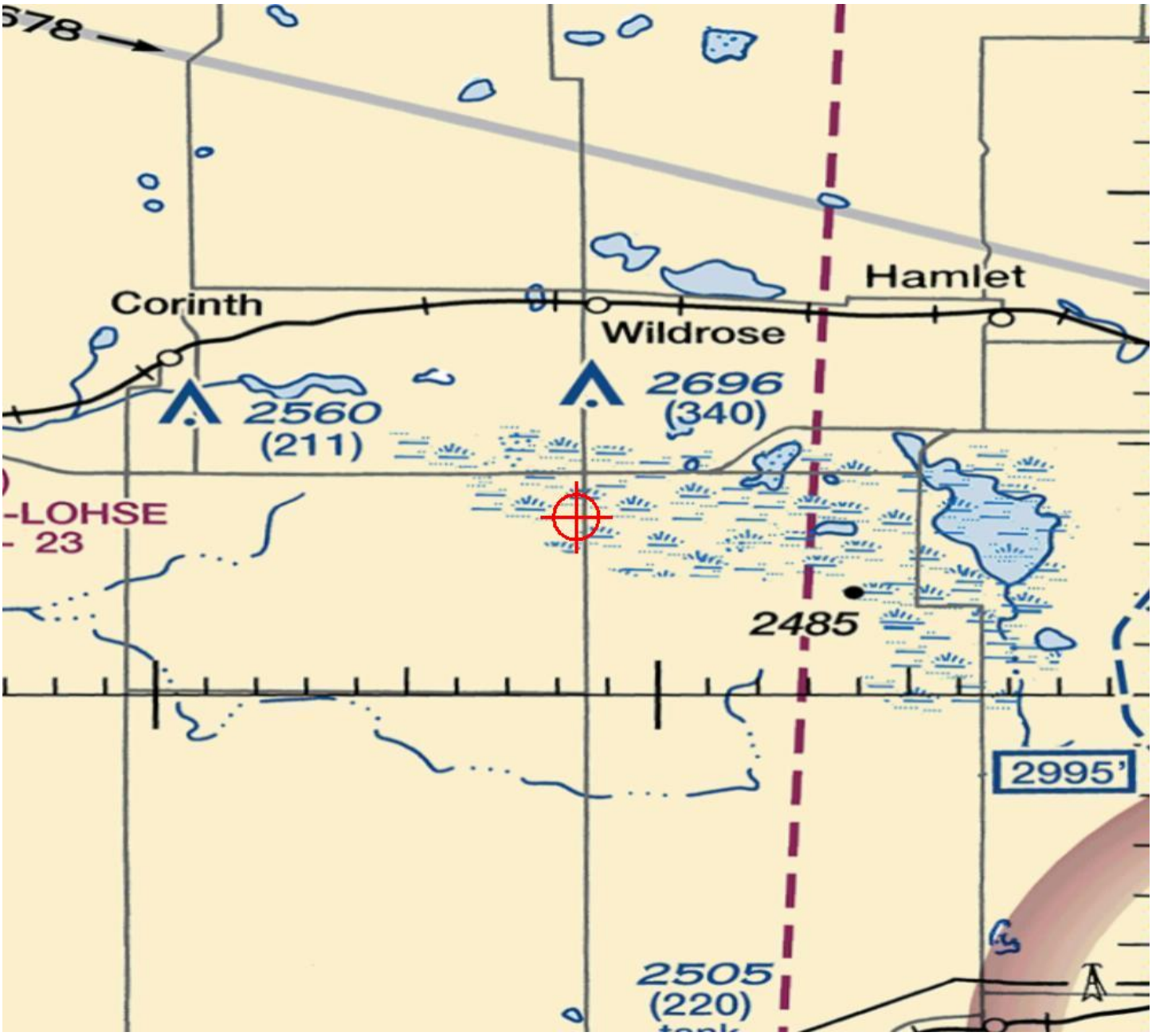
Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6933-OE



Sectional Map for ASN 2018-WTE-6933-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6934-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-124
Location:	Tioga, ND
Latitude:	48-34-56.32N NAD 83
Longitude:	103-09-07.94W
Heights:	2332 feet site elevation (SE)
	660 feet above ground level (AGL)
	2992 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

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__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
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NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

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This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

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In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6934-OE.

Signature Control No: 370538298-385972625 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
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2018-WTE-6853-OE
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2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

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2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6842-OE
2018-WTE-6843-OE

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2018-WTE-6938-OE
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2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6864-OE
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2018-WTE-6938-OE
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2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

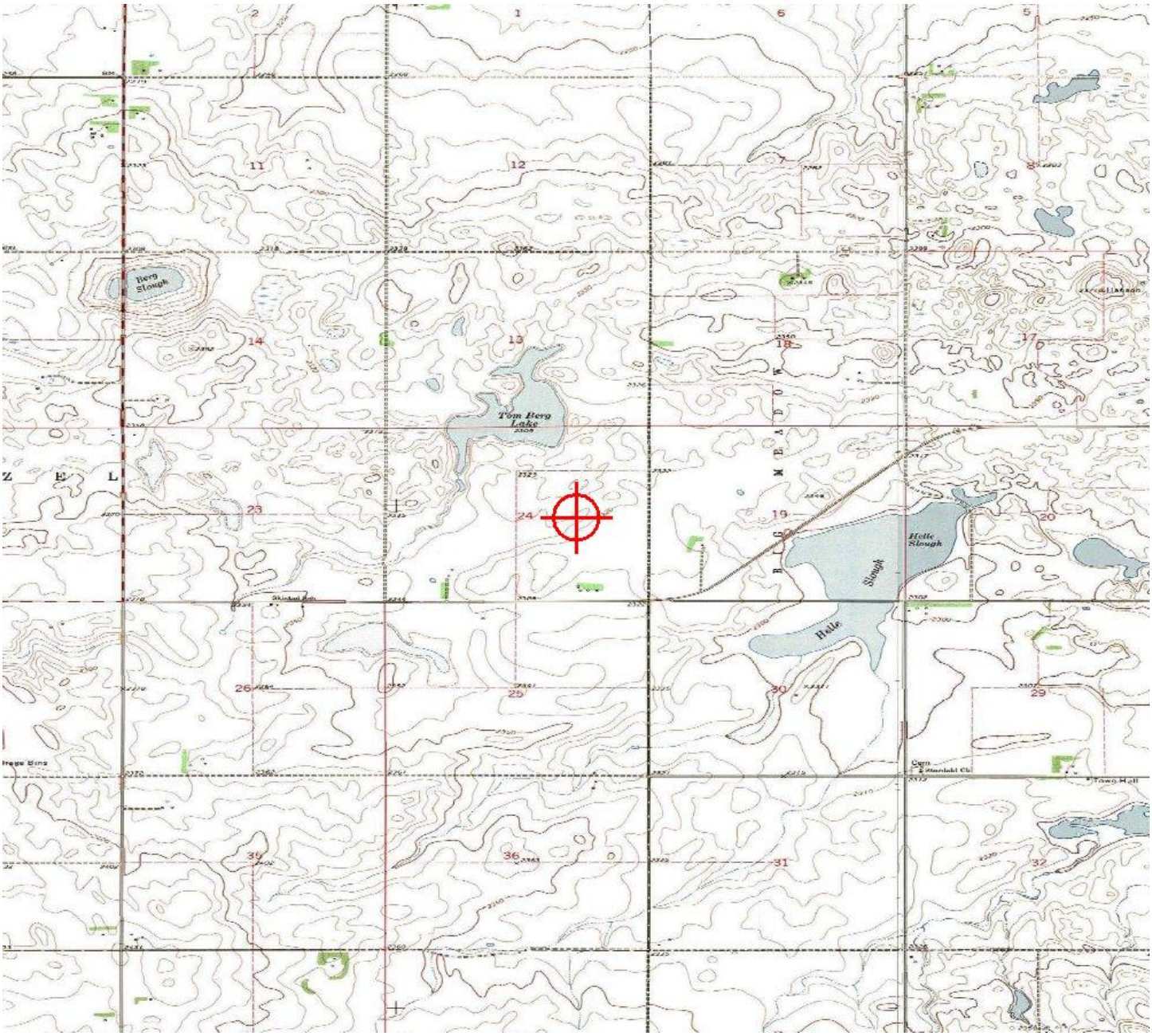
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6934-OE



Sectional Map for ASN 2018-WTE-6934-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6935-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-129
Location:	Tioga, ND
Latitude:	48-34-51.63N NAD 83
Longitude:	103-15-34.24W
Heights:	2321 feet site elevation (SE)
	660 feet above ground level (AGL)
	2981 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6935-OE.

Signature Control No: 370538299-385972626 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
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2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

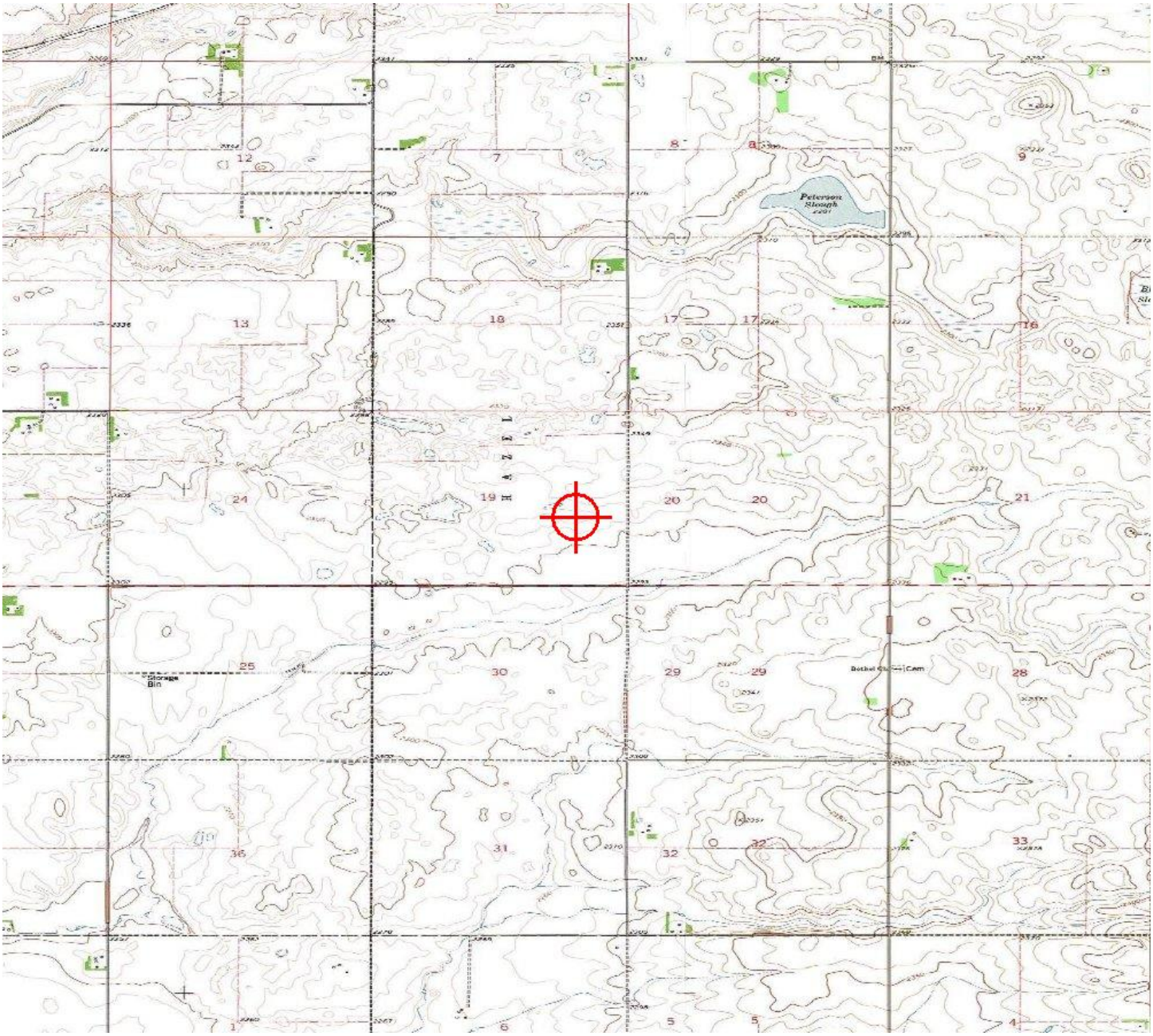
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6935-OE



Sectional Map for ASN 2018-WTE-6935-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6936-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-130
Location:	Tioga, ND
Latitude:	48-34-50.76N NAD 83
Longitude:	103-15-06.93W
Heights:	2307 feet site elevation (SE)
	660 feet above ground level (AGL)
	2967 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6936-OE.

Signature Control No: 370538300-385972627 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE

2018-WTE-6898-OE
2018-WTE-6900-OE
2018-WTE-6902-OE
2018-WTE-6904-OE
2018-WTE-6905-OE

2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE
2018-WTE-6910-OE
2018-WTE-6911-OE

2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE

2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE
2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6911-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE

2018-WTE-6915-OE
2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE

2018-WTE-6920-OE
2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE

2018-WTE-6925-OE
2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE
2018-WTE-6920-OE

2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

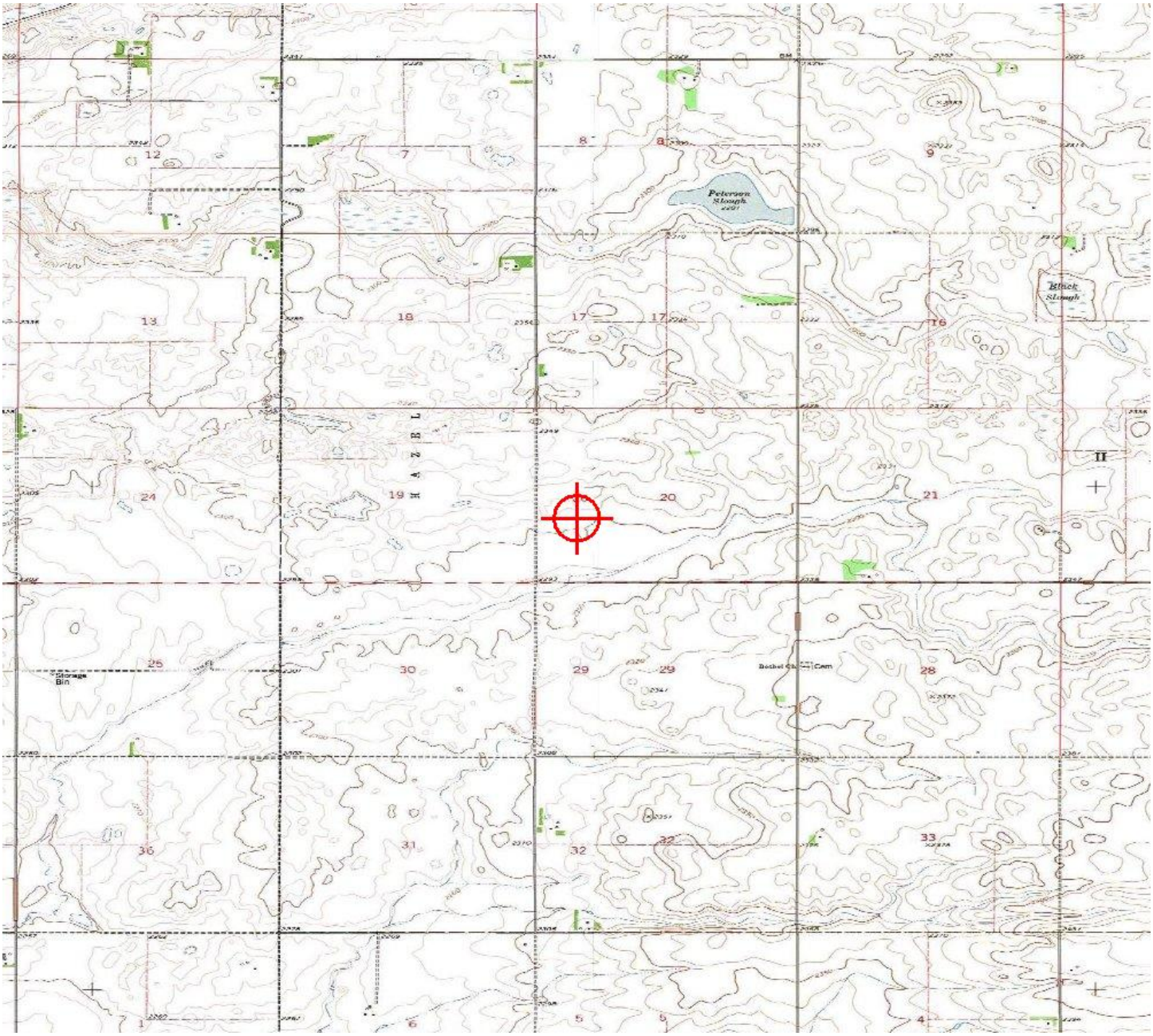
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6936-OE



Sectional Map for ASN 2018-WTE-6936-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6937-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-131
Location:	Tioga, ND
Latitude:	48-35-02.91N NAD 83
Longitude:	103-14-45.96W
Heights:	2333 feet site elevation (SE)
	660 feet above ground level (AGL)
	2993 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
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This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

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Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6937-OE.

Signature Control No: 370538301-385972632 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
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NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
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2018-WTE-6853-OE
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2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

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2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6842-OE
2018-WTE-6843-OE

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2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
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2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

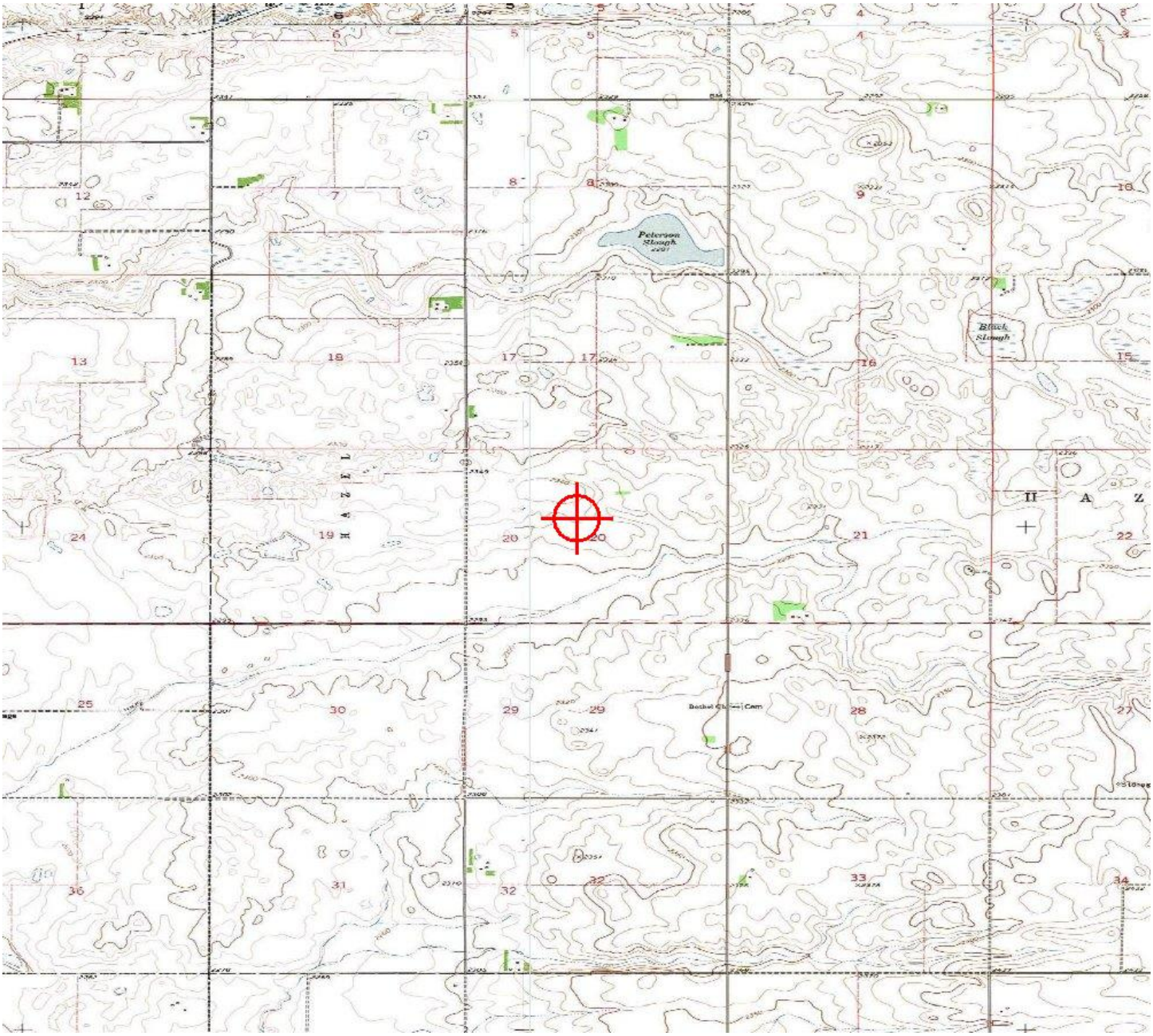
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6937-OE



Sectional Map for ASN 2018-WTE-6937-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6938-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-141
Location:	Tioga, ND
Latitude:	48-35-38.56N NAD 83
Longitude:	103-15-06.87W
Heights:	2353 feet site elevation (SE)
	660 feet above ground level (AGL)
	3013 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6938-OE.

Signature Control No: 370538304-385972633 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

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The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

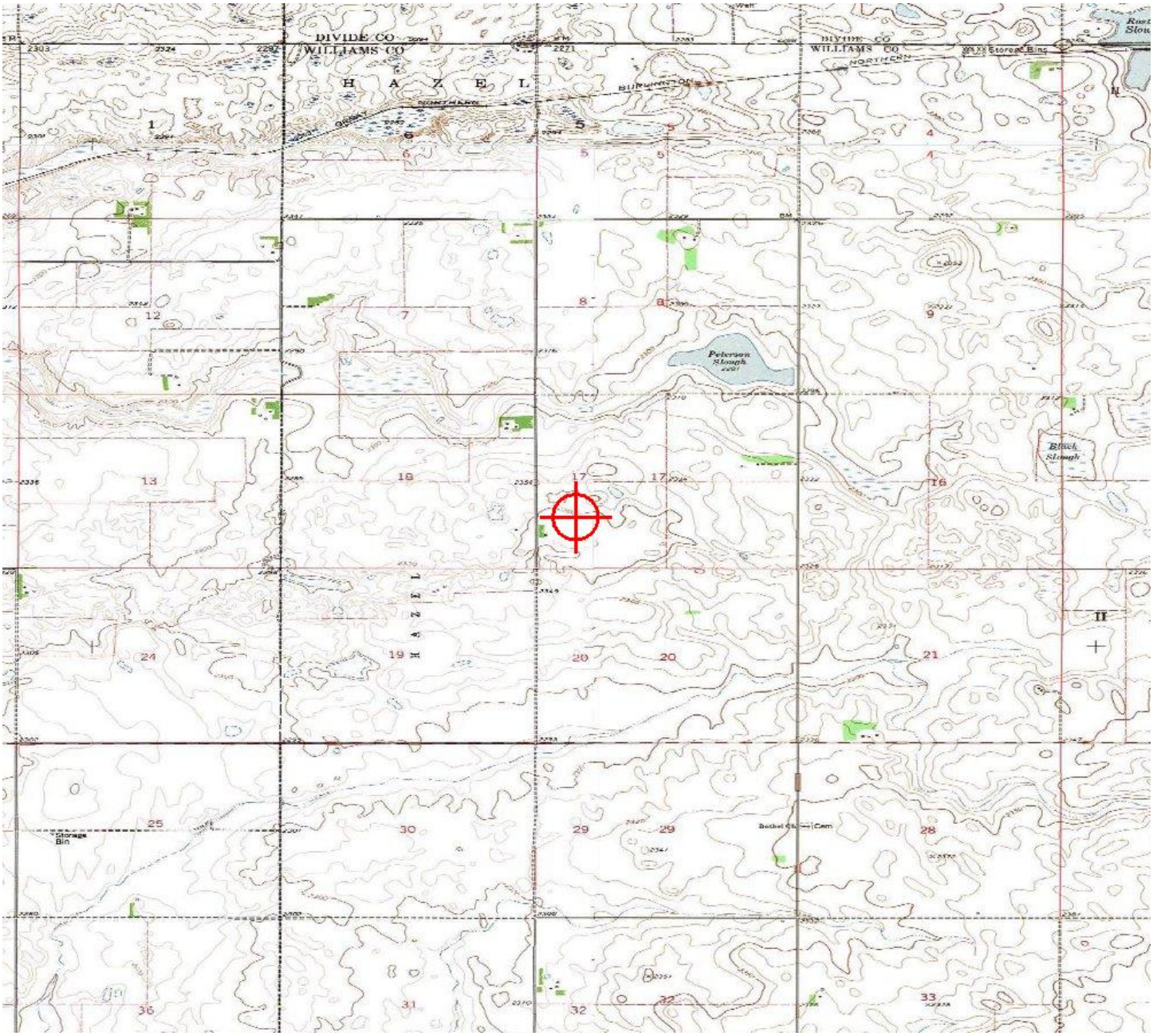
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6938-OE



Sectional Map for ASN 2018-WTE-6938-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6939-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-142
Location:	Tioga, ND
Latitude:	48-35-57.24N NAD 83
Longitude:	103-14-54.37W
Heights:	2340 feet site elevation (SE)
	660 feet above ground level (AGL)
	3000 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6939-OE.

Signature Control No: 370538305-385972635 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE

2018-WTE-6898-OE
2018-WTE-6900-OE
2018-WTE-6902-OE
2018-WTE-6904-OE
2018-WTE-6905-OE

2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE
2018-WTE-6910-OE
2018-WTE-6911-OE

2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE

2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE
2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6911-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE

2018-WTE-6915-OE
2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE

2018-WTE-6920-OE
2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE

2018-WTE-6925-OE
2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE
2018-WTE-6920-OE

2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

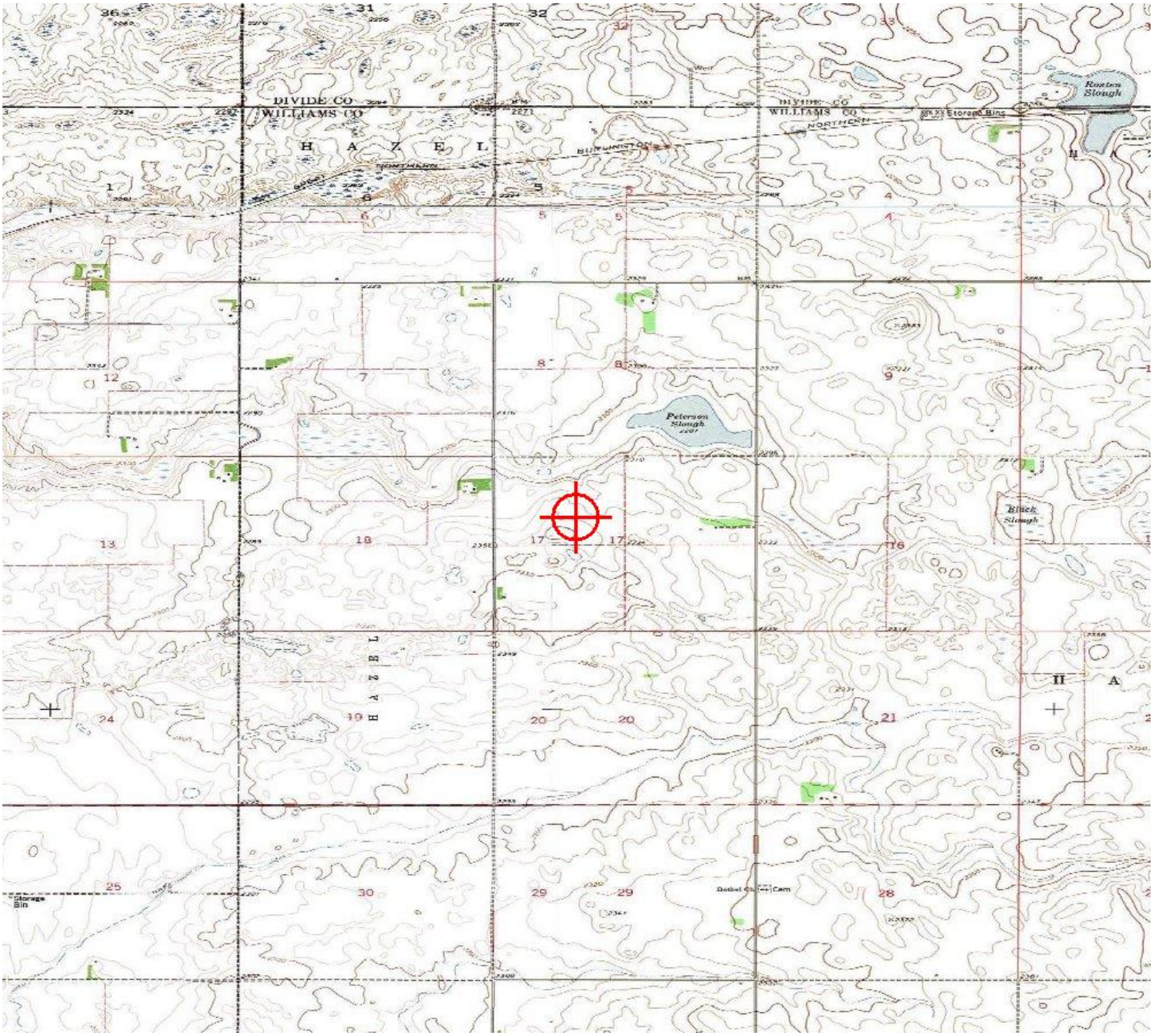
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6939-OE



Sectional Map for ASN 2018-WTE-6939-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6940-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-143
Location:	Tioga, ND
Latitude:	48-36-05.43N NAD 83
Longitude:	103-14-36.59W
Heights:	2326 feet site elevation (SE)
	660 feet above ground level (AGL)
	2986 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
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This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

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used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6940-OE.

Signature Control No: 370538306-385972637 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
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MSA, Minimum Safe Altitude
NEH, No Effect Height
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RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
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2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6938-OE
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2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

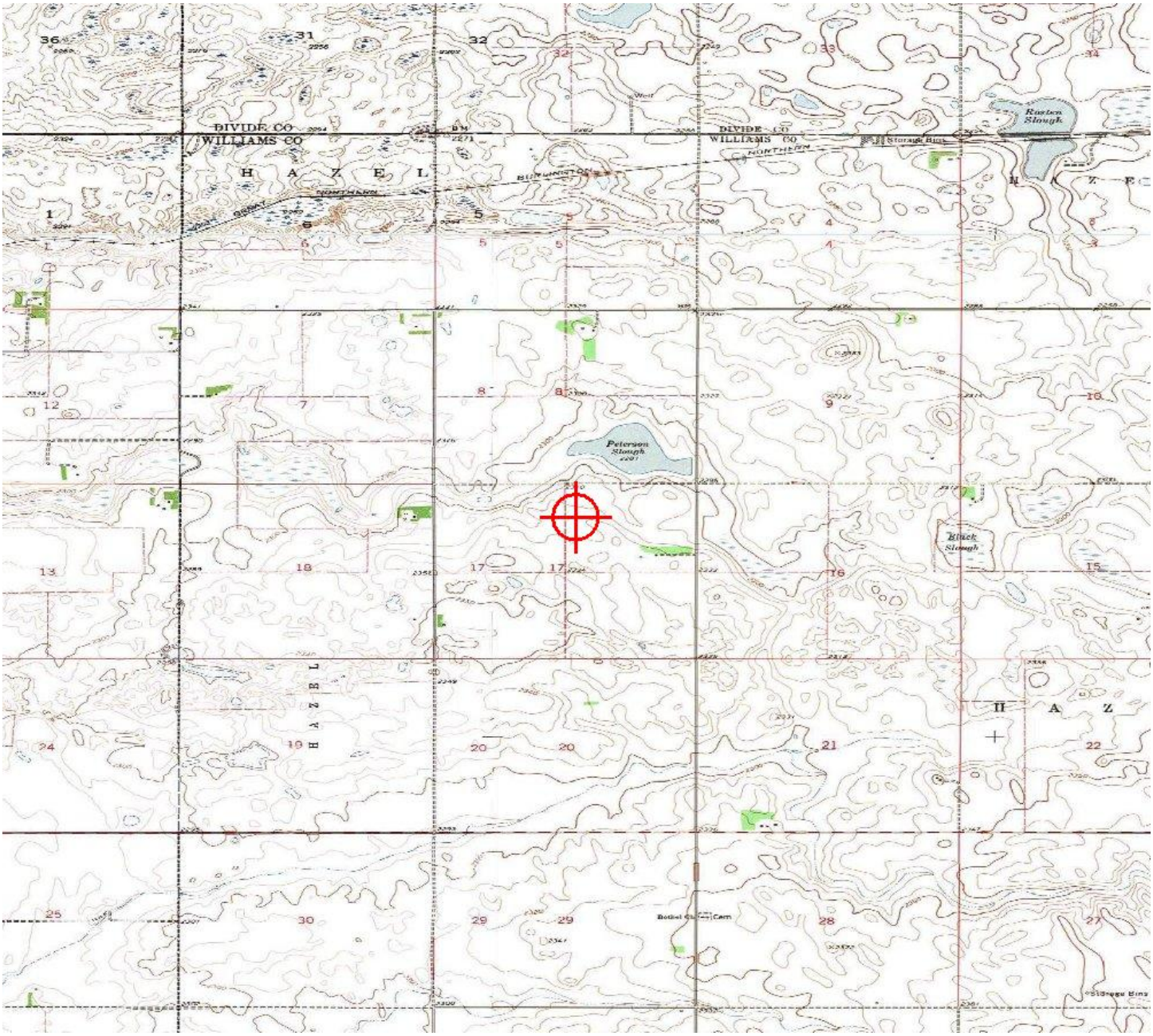
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6940-OE



Sectional Map for ASN 2018-WTE-6940-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6941-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-144
Location:	Tioga, ND
Latitude:	48-35-25.95N NAD 83
Longitude:	103-13-33.49W
Heights:	2333 feet site elevation (SE)
	660 feet above ground level (AGL)
	2993 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6941-OE.

Signature Control No: 370538310-385972639 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

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The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

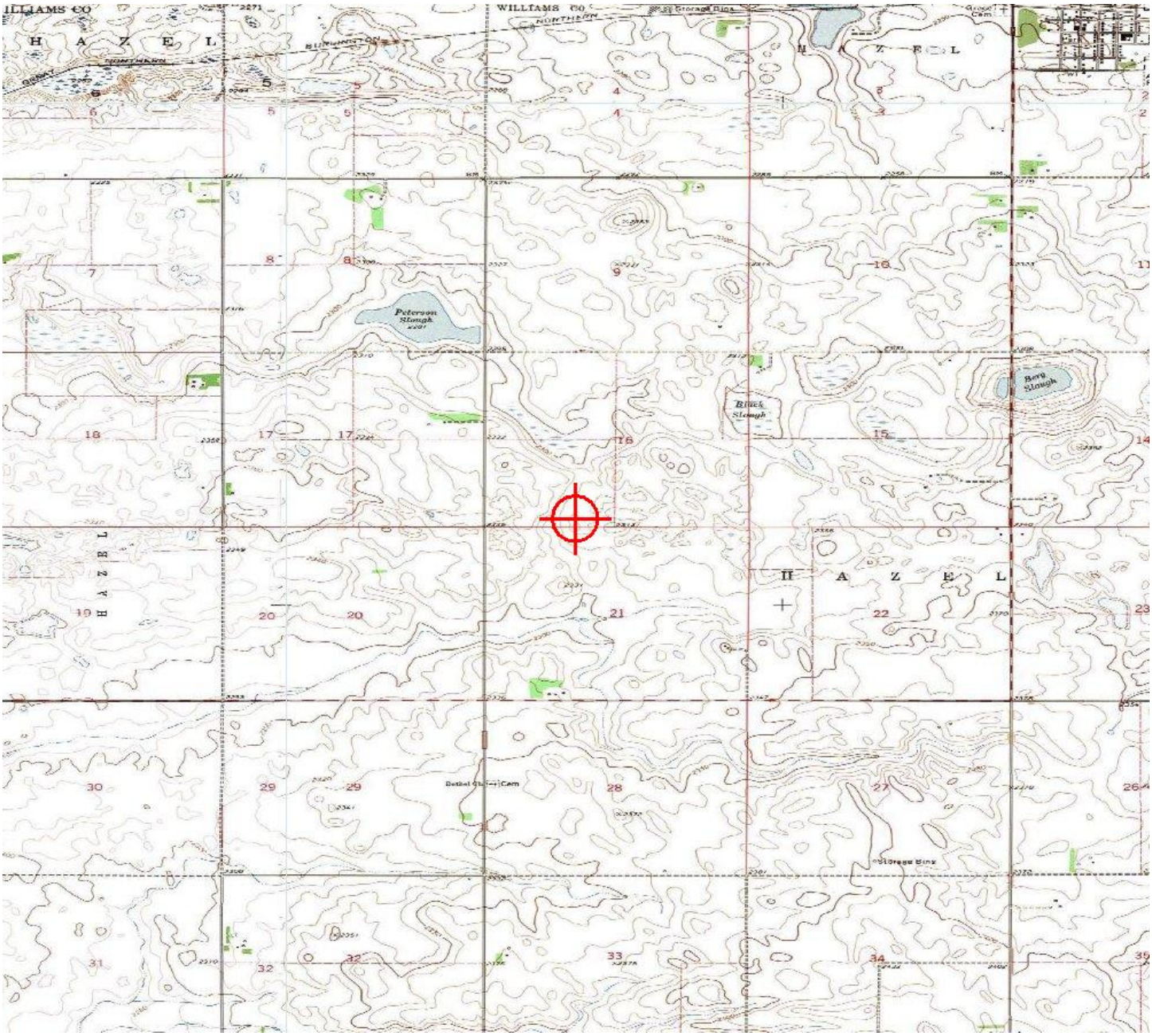
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6941-OE



Sectional Map for ASN 2018-WTE-6941-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6942-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-145
Location:	Tioga, ND
Latitude:	48-35-35.58N NAD 83
Longitude:	103-13-10.65W
Heights:	2333 feet site elevation (SE)
	660 feet above ground level (AGL)
	2993 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6942-OE.

Signature Control No: 370538311-385972643 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE

2018-WTE-6898-OE
2018-WTE-6900-OE
2018-WTE-6902-OE
2018-WTE-6904-OE
2018-WTE-6905-OE

2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE
2018-WTE-6910-OE
2018-WTE-6911-OE

2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE

2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE
2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6911-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE

2018-WTE-6915-OE
2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE

2018-WTE-6920-OE
2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE

2018-WTE-6925-OE
2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE
2018-WTE-6920-OE

2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

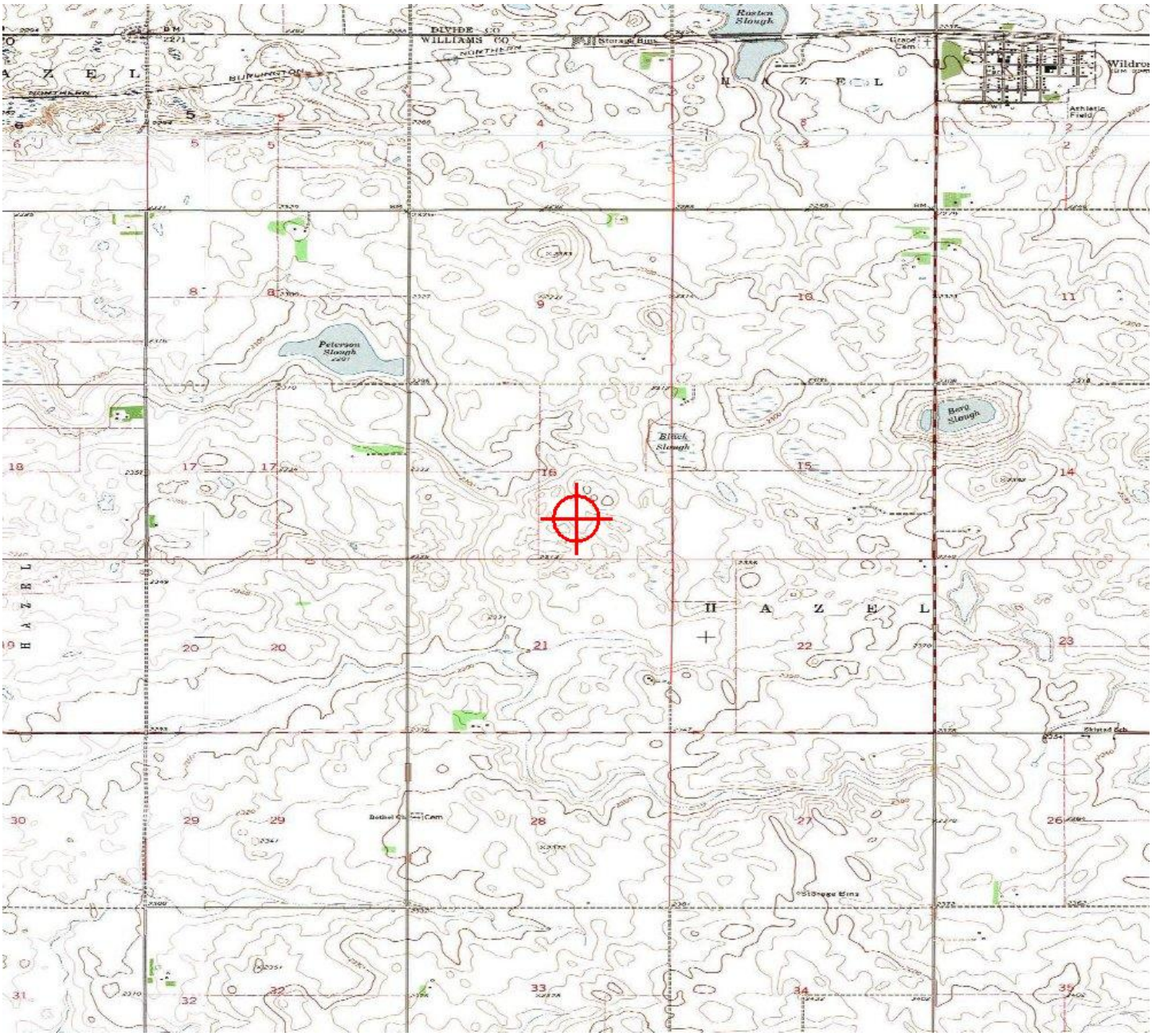
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6942-OE



Sectional Map for ASN 2018-WTE-6942-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6943-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-146
Location:	Tioga, ND
Latitude:	48-35-34.07N NAD 83
Longitude:	103-12-46.72W
Heights:	2340 feet site elevation (SE)
	660 feet above ground level (AGL)
	3000 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6943-OE.

Signature Control No: 370538312-385972652 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
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2018-WTE-6853-OE
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2018-WTE-6859-OE
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2018-WTE-6862-OE
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2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6842-OE
2018-WTE-6843-OE

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2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
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2018-WTE-6938-OE
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2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

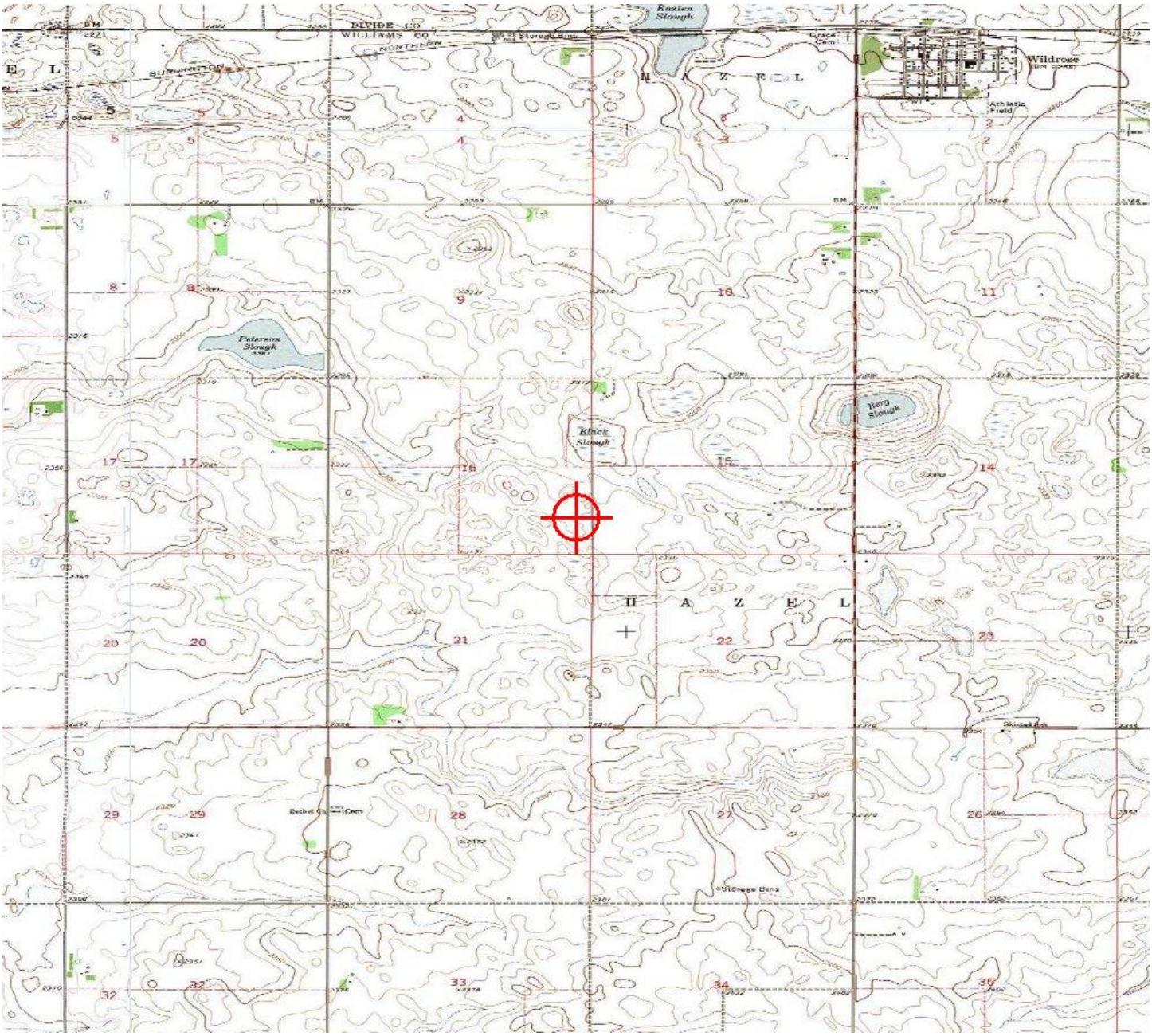
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6943-OE



Sectional Map for ASN 2018-WTE-6943-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6944-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-147
Location:	Tioga, ND
Latitude:	48-36-53.21N NAD 83
Longitude:	103-16-12.16W
Heights:	2333 feet site elevation (SE)
	660 feet above ground level (AGL)
	2993 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6944-OE.

Signature Control No: 370538313-385972655 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

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2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

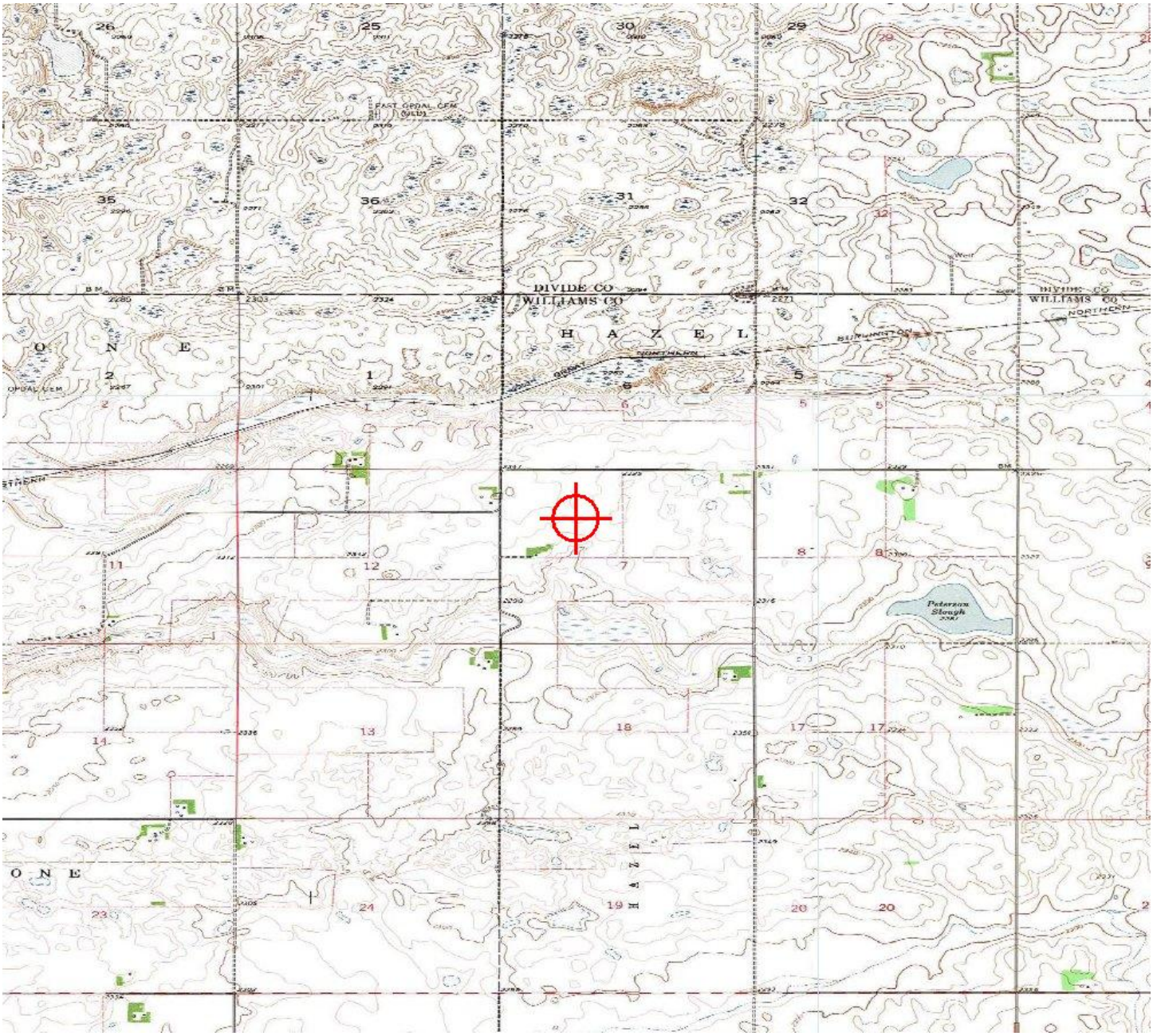
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

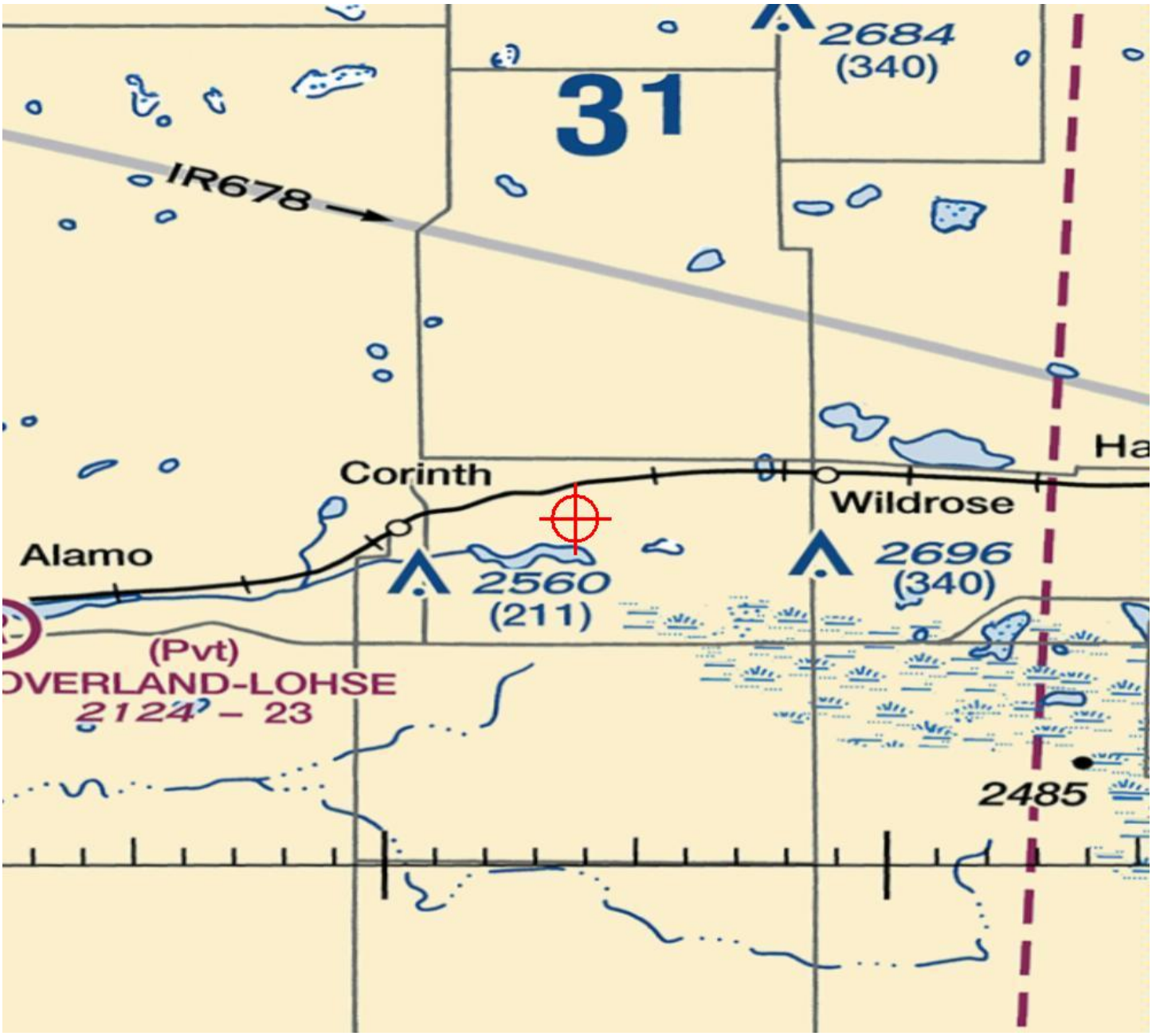
Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6944-OE



Sectional Map for ASN 2018-WTE-6944-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6945-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-148
Location:	Tioga, ND
Latitude:	48-36-53.77N NAD 83
Longitude:	103-15-52.26W
Heights:	2325 feet site elevation (SE)
	660 feet above ground level (AGL)
	2985 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6945-OE.

Signature Control No: 370538314-385972658 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE

2018-WTE-6898-OE
2018-WTE-6900-OE
2018-WTE-6902-OE
2018-WTE-6904-OE
2018-WTE-6905-OE

2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE
2018-WTE-6910-OE
2018-WTE-6911-OE

2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE

2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE
2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6911-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE

2018-WTE-6915-OE
2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE

2018-WTE-6920-OE
2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE

2018-WTE-6925-OE
2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE
2018-WTE-6920-OE

2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

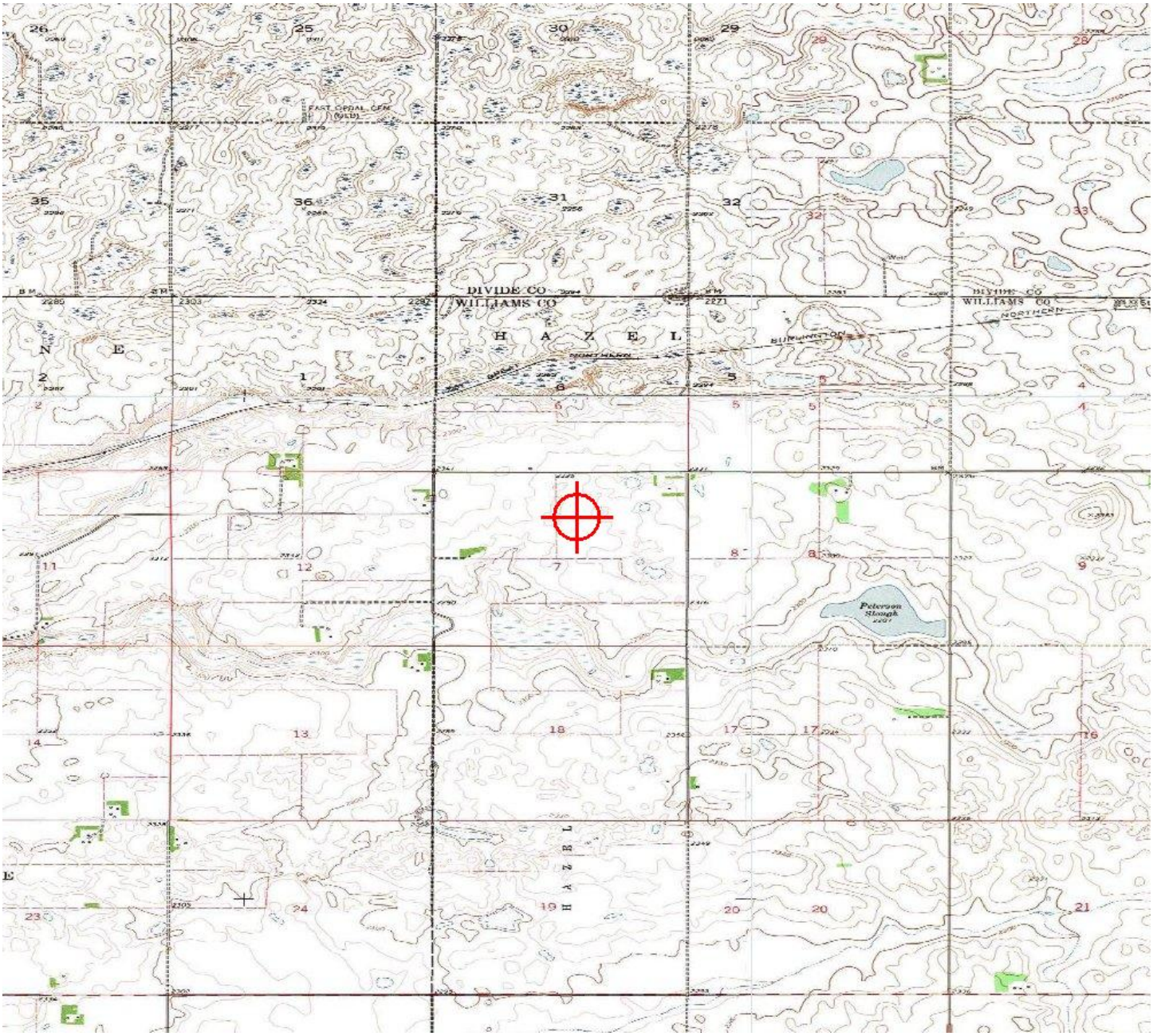
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6945-OE



Sectional Map for ASN 2018-WTE-6945-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6946-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-149
Location:	Tioga, ND
Latitude:	48-36-45.67N NAD 83
Longitude:	103-14-41.34W
Heights:	2309 feet site elevation (SE)
	660 feet above ground level (AGL)
	2969 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6946-OE.

Signature Control No: 370538316-385972660 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

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The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

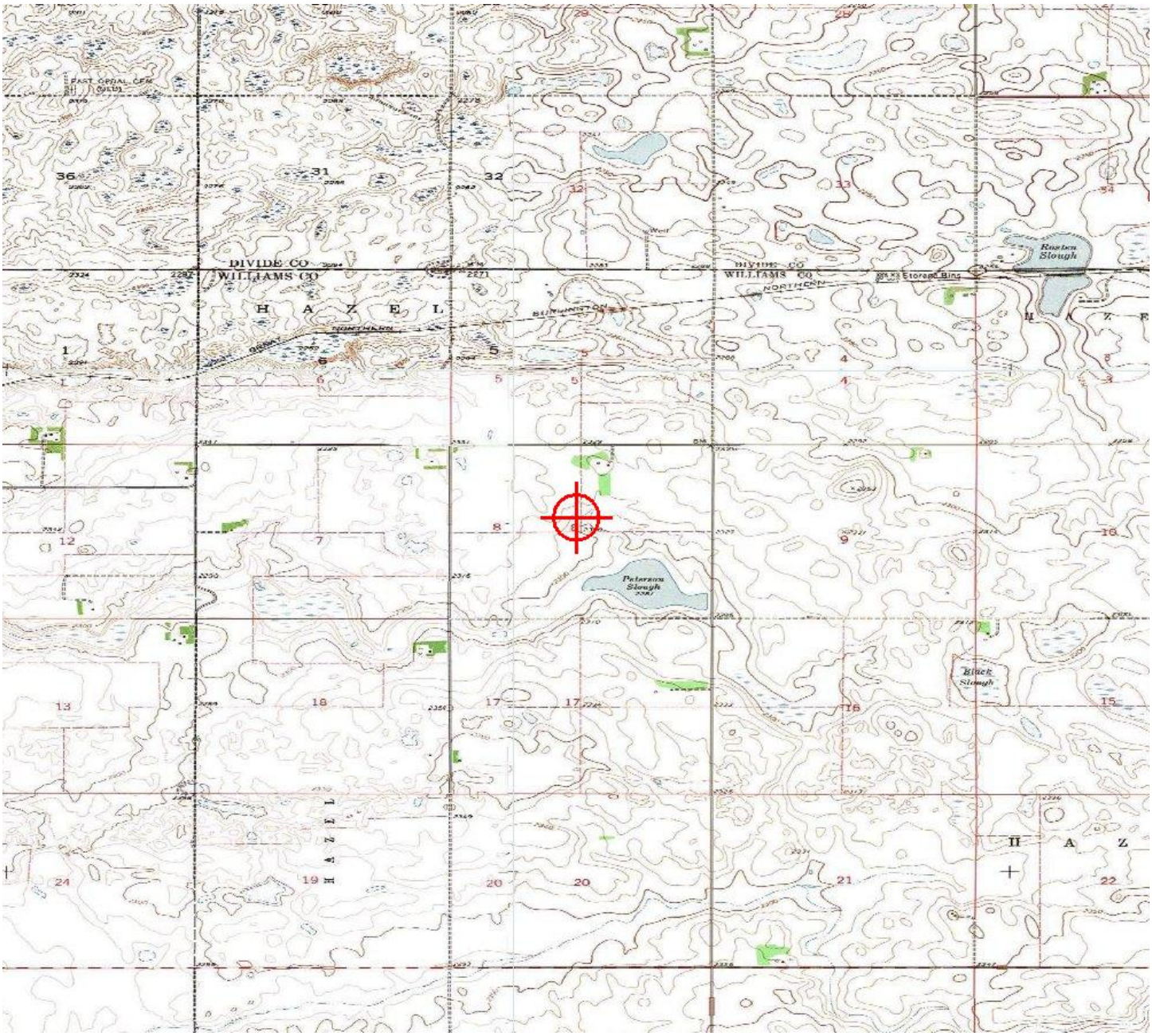
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

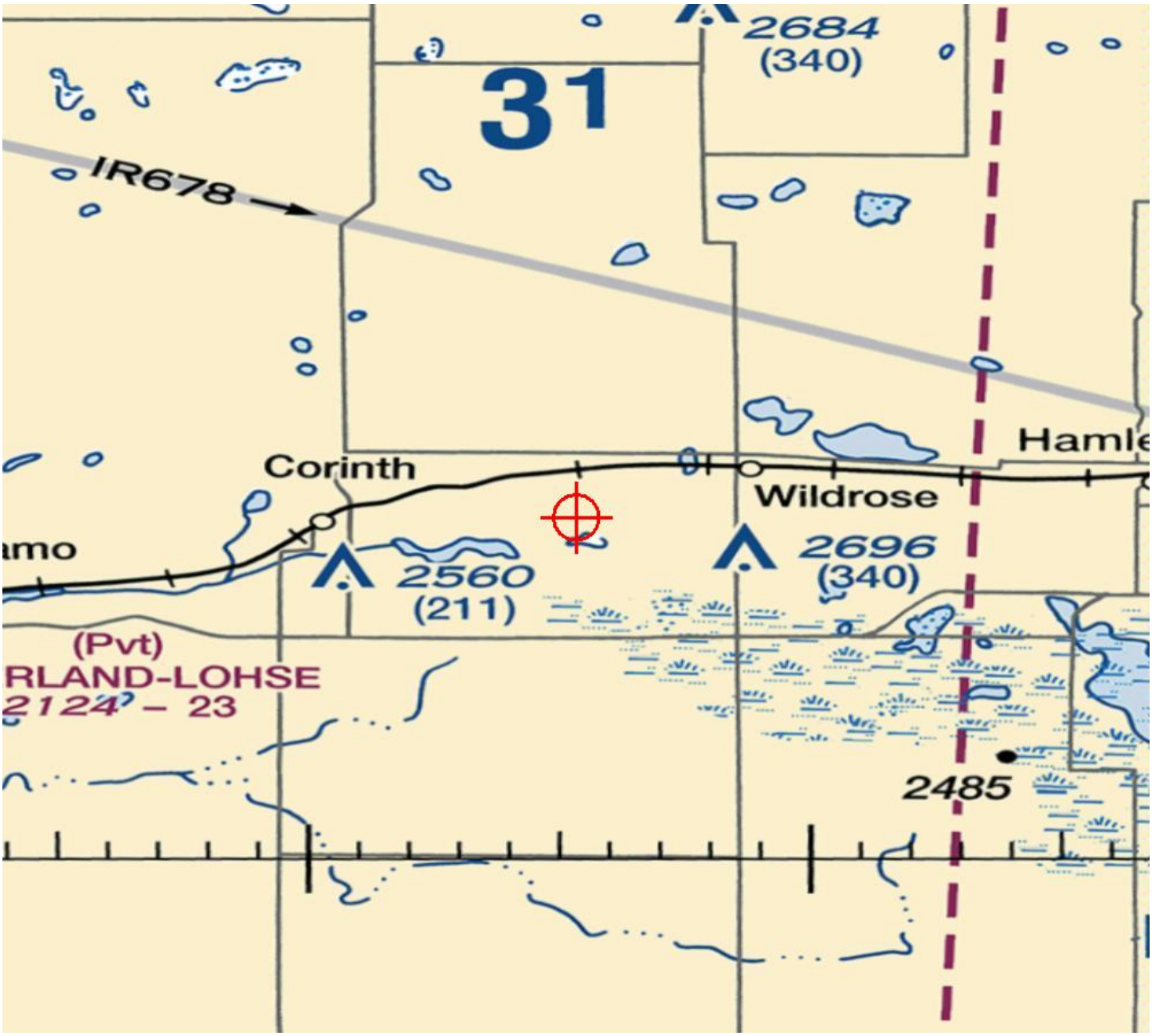
Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6946-OE



Sectional Map for ASN 2018-WTE-6946-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6947-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-150
Location:	Tioga, ND
Latitude:	48-36-51.23N NAD 83
Longitude:	103-15-05.64W
Heights:	2327 feet site elevation (SE)
	660 feet above ground level (AGL)
	2987 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6947-OE.

Signature Control No: 370538317-385972664 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

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2018-WTE-6918-OE
2018-WTE-6919-OE
2018-WTE-6920-OE

2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

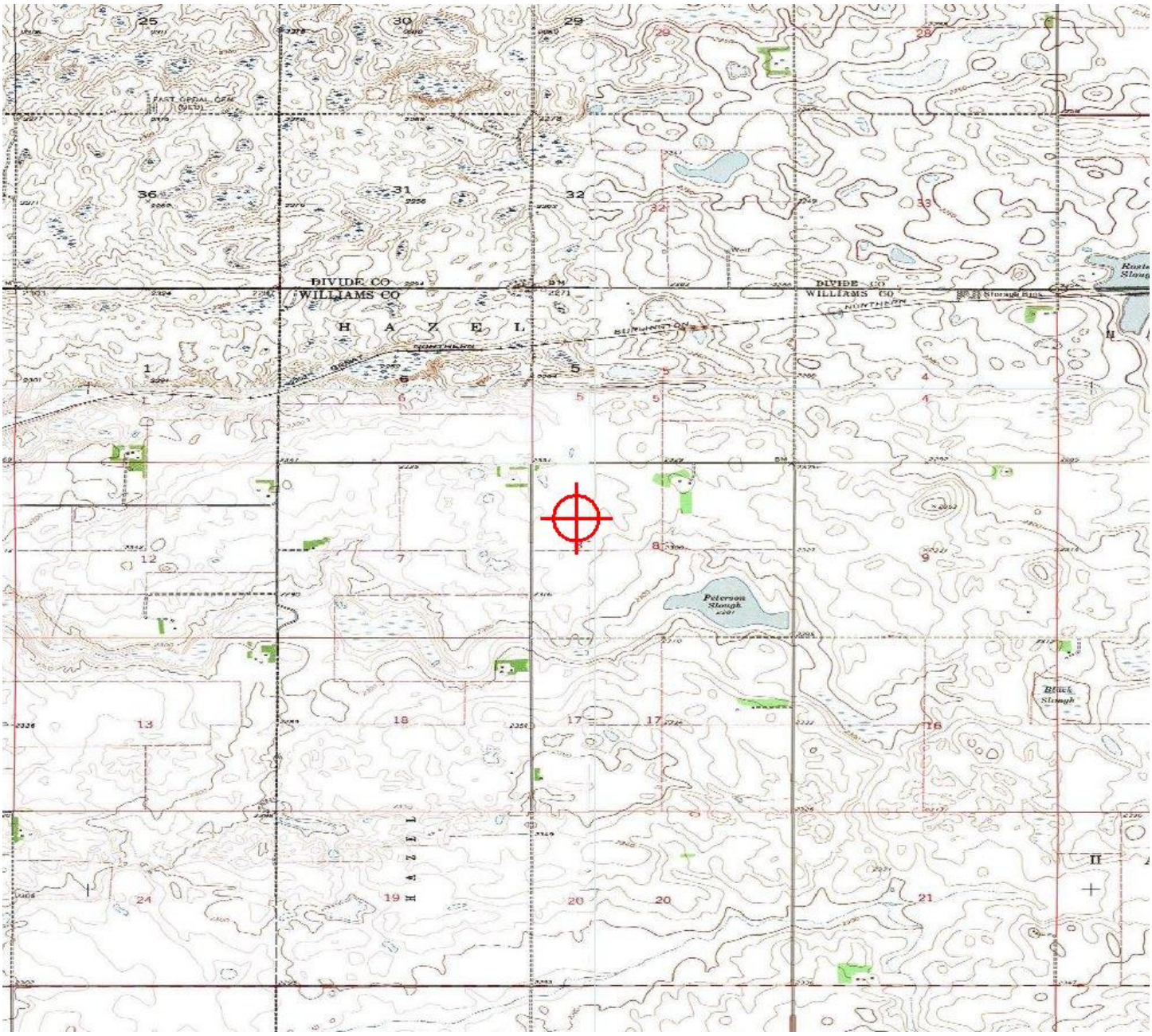
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6947-OE



Sectional Map for ASN 2018-WTE-6947-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6948-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-151
Location:	Tioga, ND
Latitude:	48-36-52.89N NAD 83
Longitude:	103-15-34.79W
Heights:	2334 feet site elevation (SE)
	660 feet above ground level (AGL)
	2994 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6948-OE.

Signature Control No: 370538321-385972667 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE

2018-WTE-6898-OE
2018-WTE-6900-OE
2018-WTE-6902-OE
2018-WTE-6904-OE
2018-WTE-6905-OE

2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE
2018-WTE-6910-OE
2018-WTE-6911-OE

2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE

2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE
2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6911-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE

2018-WTE-6915-OE
2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE

2018-WTE-6920-OE
2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE

2018-WTE-6925-OE
2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE
2018-WTE-6920-OE

2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

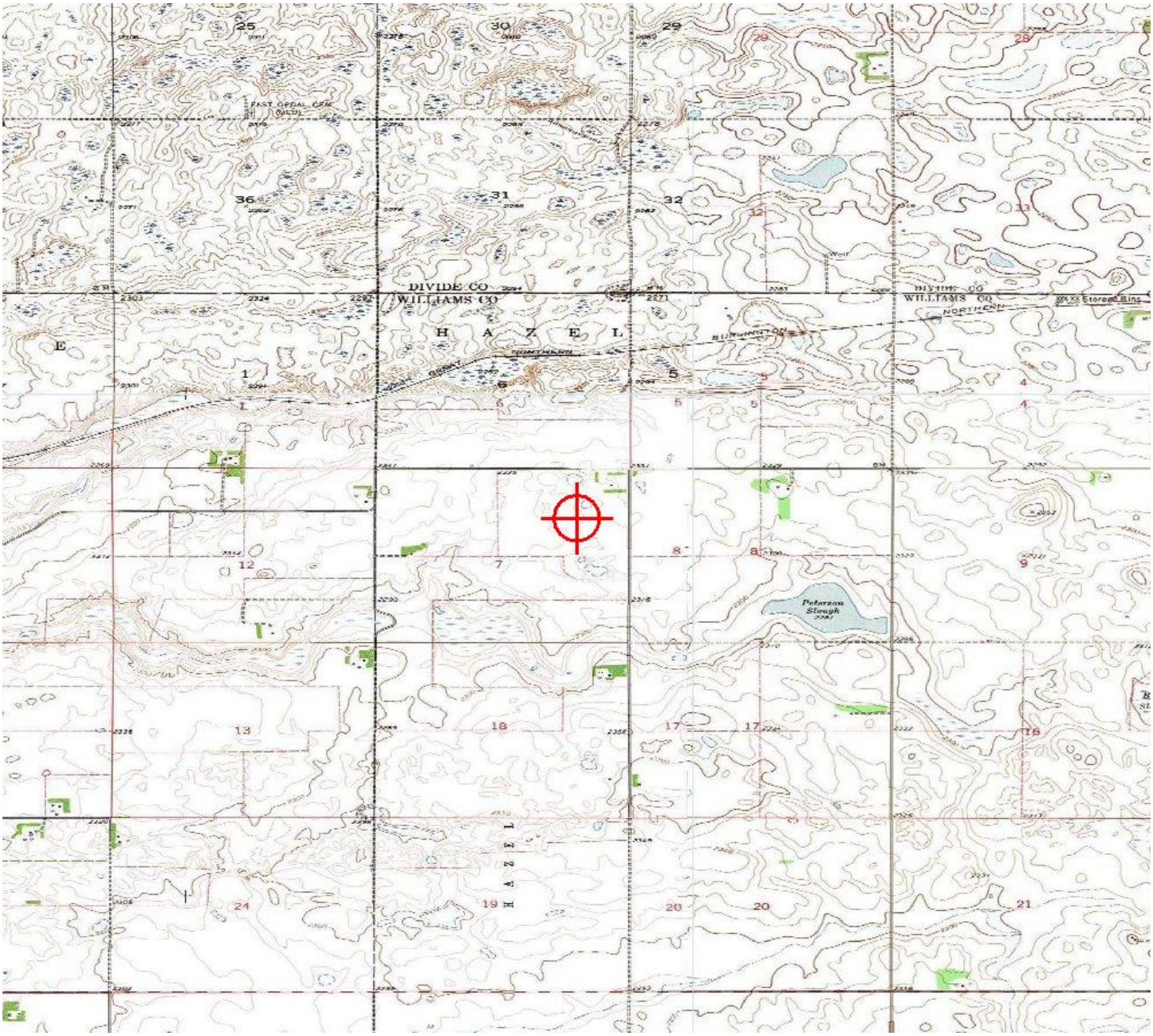
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6948-OE



Sectional Map for ASN 2018-WTE-6948-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6949-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-152
Location:	Tioga, ND
Latitude:	48-34-08.73N NAD 83
Longitude:	103-08-27.07W
Heights:	2308 feet site elevation (SE)
	660 feet above ground level (AGL)
	2968 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6949-OE.

Signature Control No: 370538322-385972668 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
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2018-WTE-6861-OE
2018-WTE-6862-OE
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2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6861-OE
2018-WTE-6862-OE
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2018-WTE-6864-OE
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2018-WTE-6938-OE
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2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

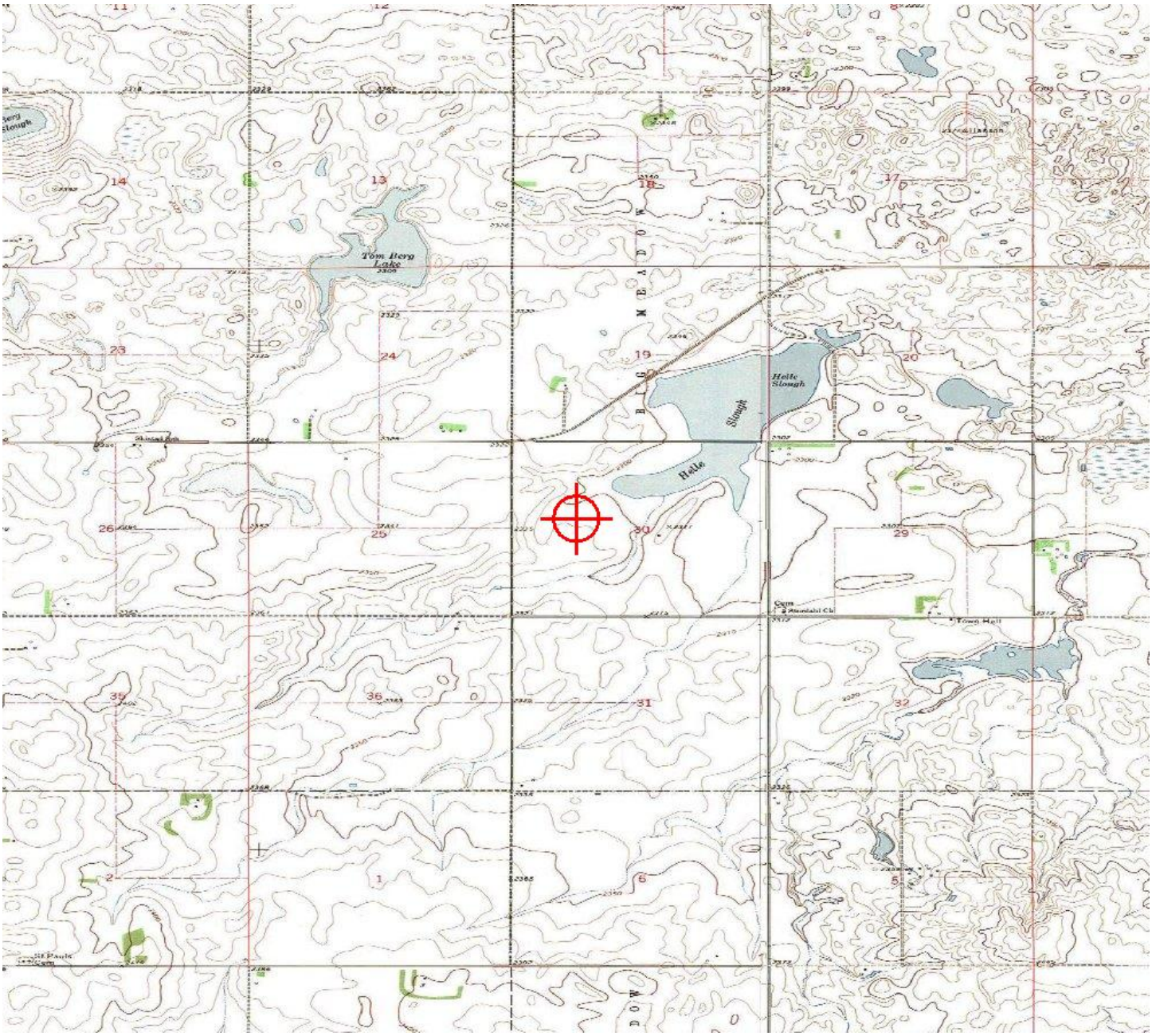
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6949-OE



Sectional Map for ASN 2018-WTE-6949-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6950-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-153
Location:	Tioga, ND
Latitude:	48-29-55.89N NAD 83
Longitude:	103-02-21.84W
Heights:	2344 feet site elevation (SE)
	660 feet above ground level (AGL)
	3004 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6950-OE.

Signature Control No: 370538323-385972670 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

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2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE
2018-WTE-6920-OE

2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

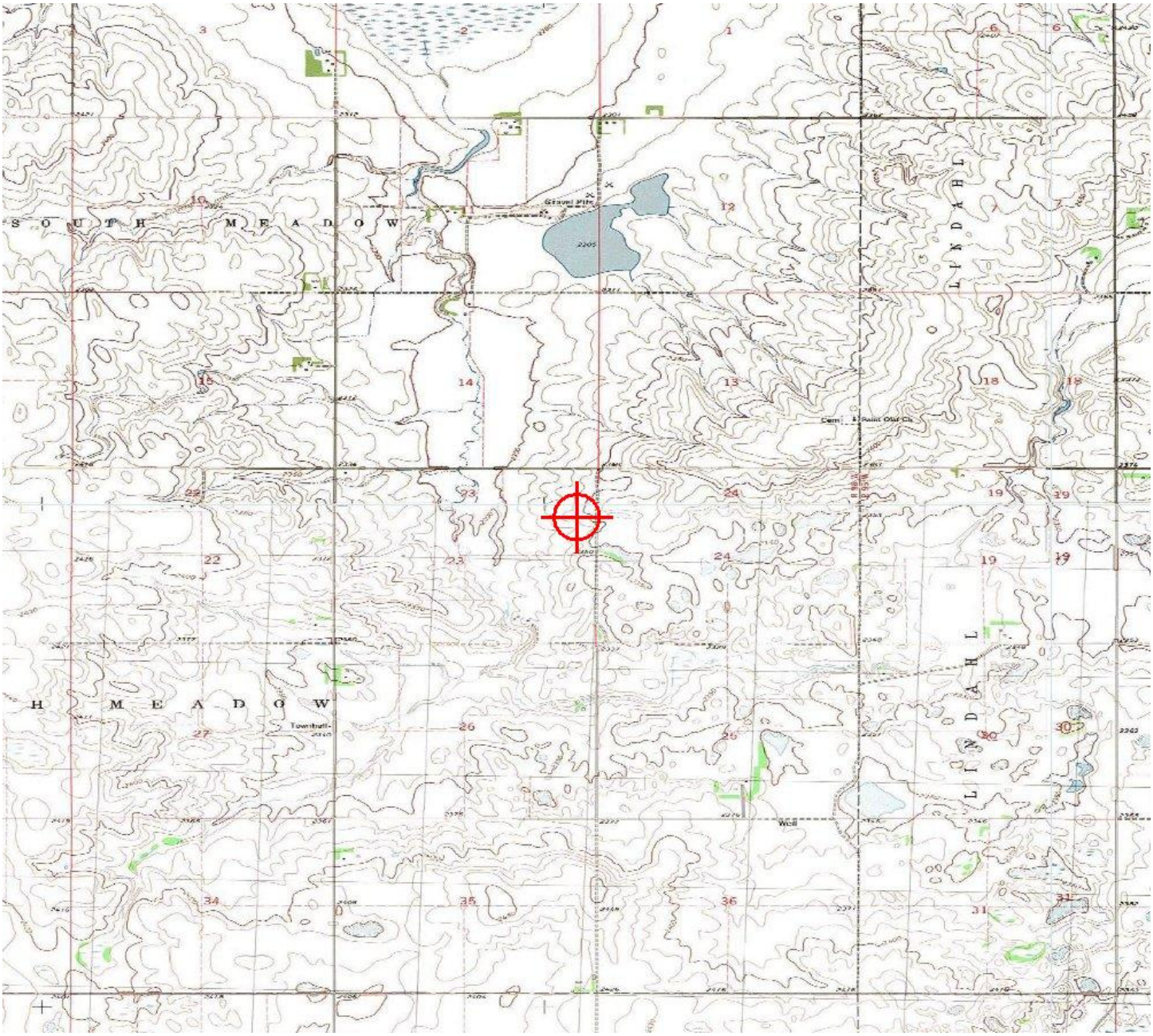
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

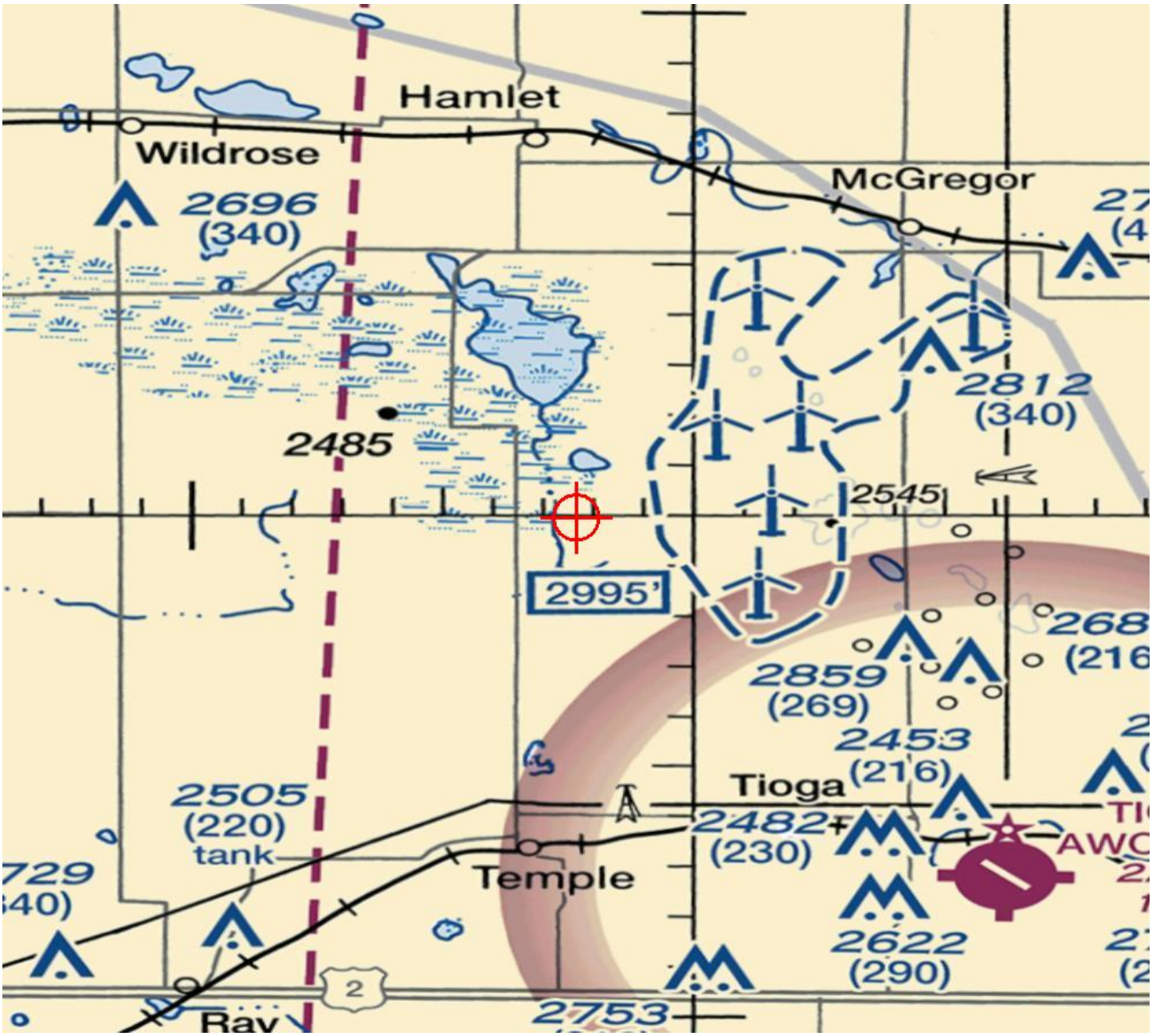
Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6950-OE



Sectional Map for ASN 2018-WTE-6950-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6951-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-154
Location:	Tioga, ND
Latitude:	48-30-02.05N NAD 83
Longitude:	103-01-50.93W
Heights:	2393 feet site elevation (SE)
	660 feet above ground level (AGL)
	3053 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6951-OE.

Signature Control No: 370538324-385972673 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE

2018-WTE-6898-OE
2018-WTE-6900-OE
2018-WTE-6902-OE
2018-WTE-6904-OE
2018-WTE-6905-OE

2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE
2018-WTE-6910-OE
2018-WTE-6911-OE

2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

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2018-WTE-6885-OE
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2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE
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2018-WTE-6925-OE
2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
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2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

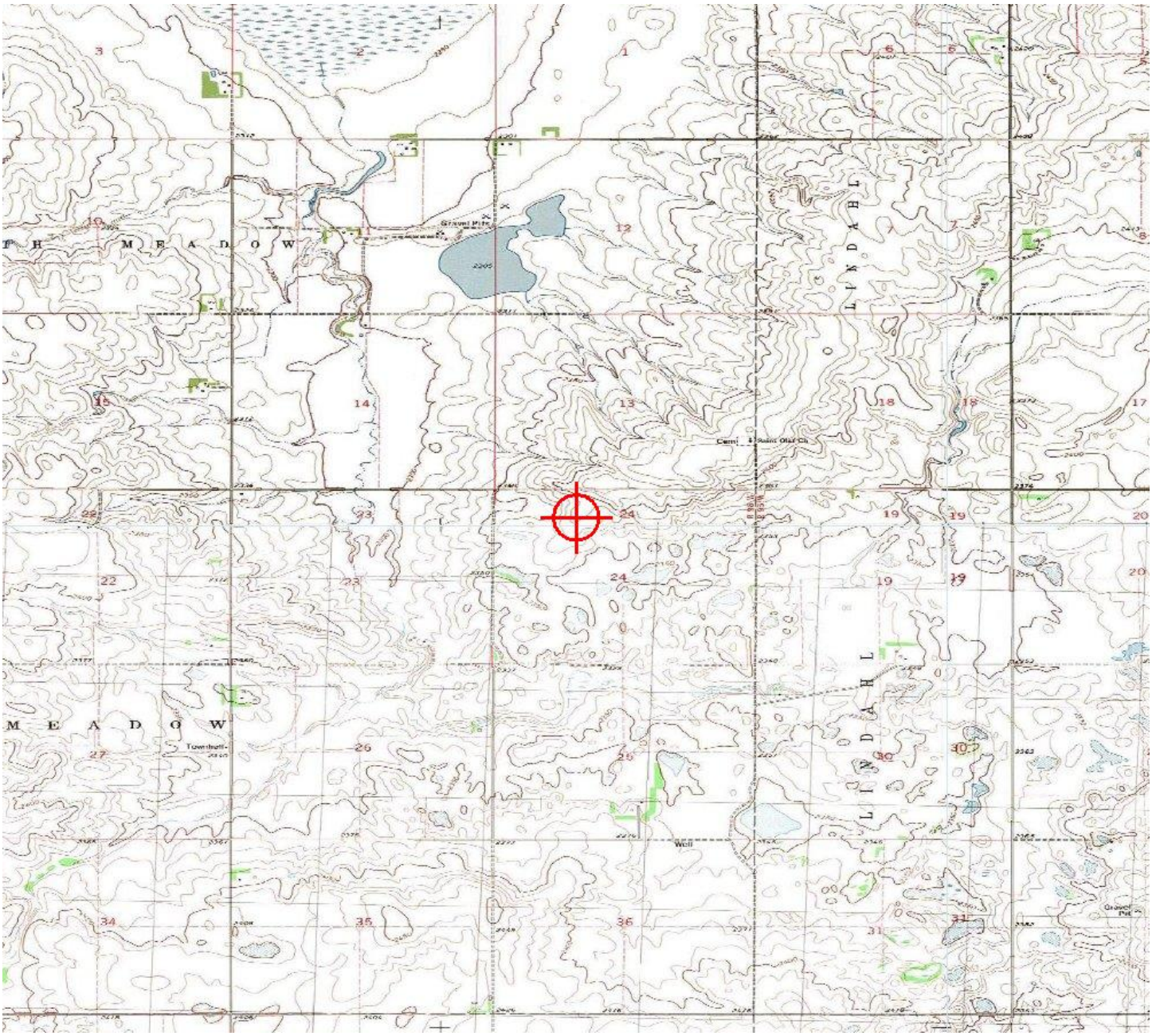
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

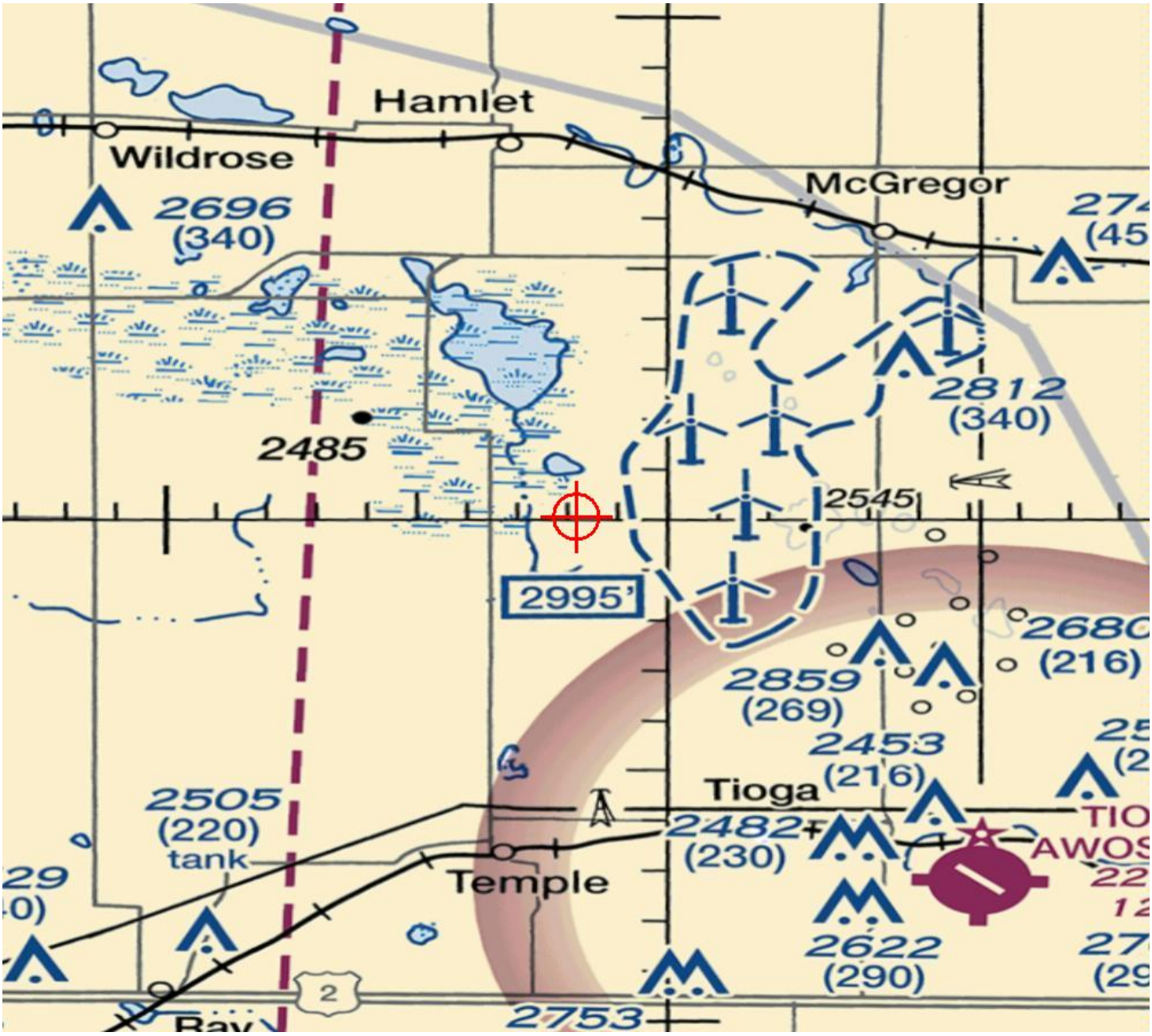
Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6951-OE



Sectional Map for ASN 2018-WTE-6951-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6952-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-155
Location:	Tioga, ND
Latitude:	48-30-02.50N NAD 83
Longitude:	103-01-26.36W
Heights:	2395 feet site elevation (SE)
	660 feet above ground level (AGL)
	3055 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

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Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6952-OE.

Signature Control No: 370538325-385972676 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
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2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
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2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
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2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
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2018-WTE-6910-OE
2018-WTE-6912-OE
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2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE
2018-WTE-6920-OE

2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

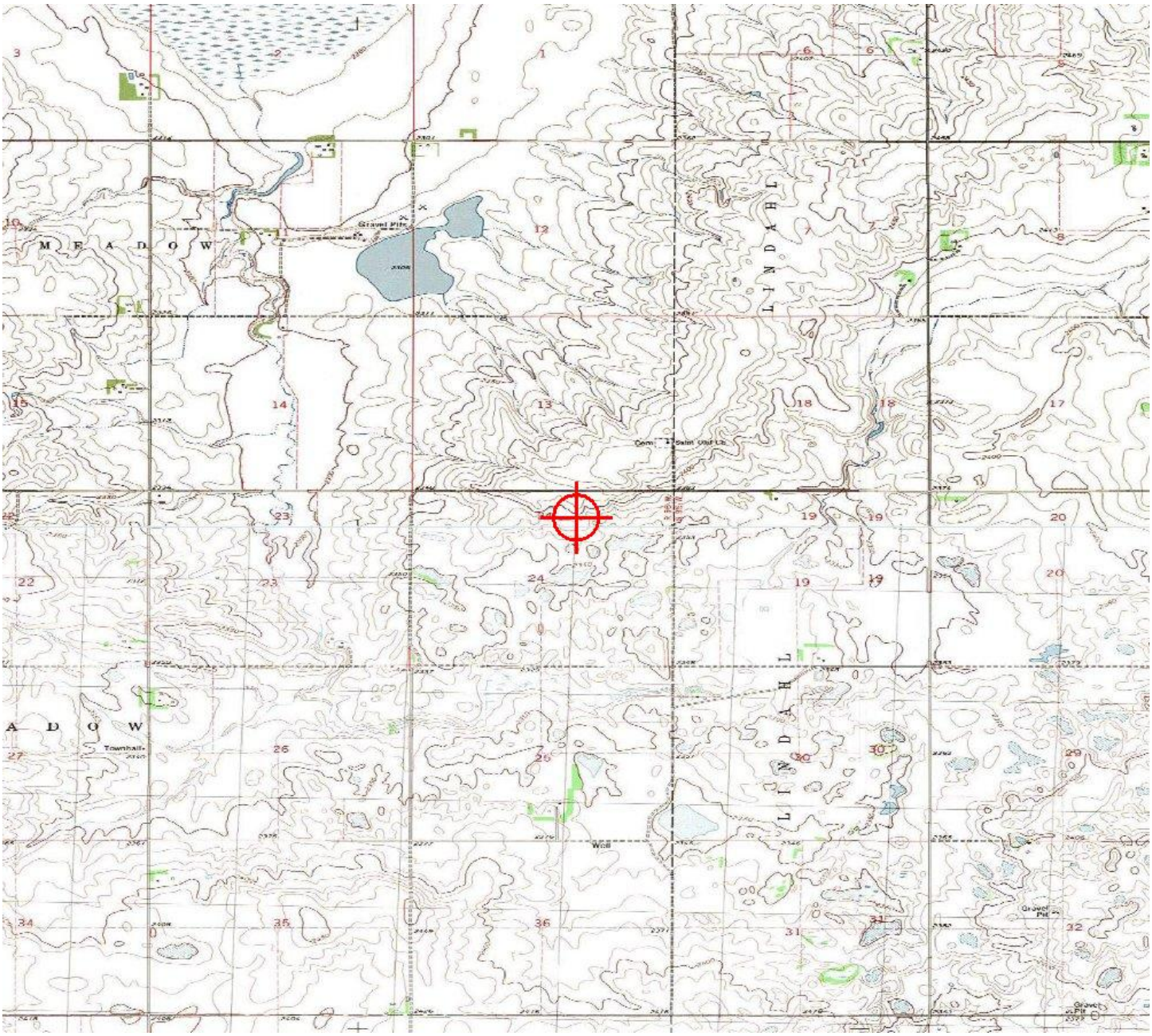
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

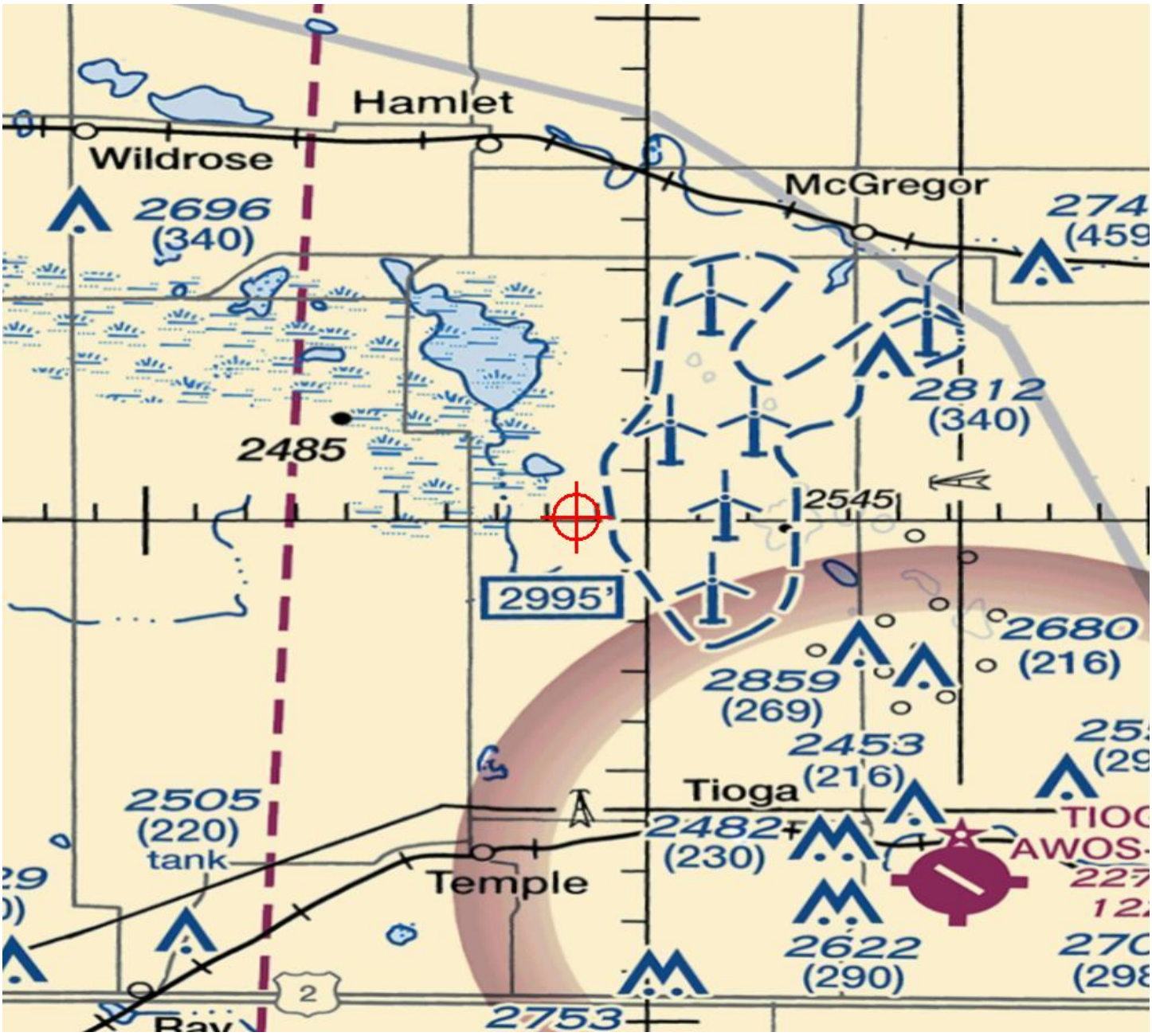
Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6952-OE



Sectional Map for ASN 2018-WTE-6952-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6953-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-156
Location:	Tioga, ND
Latitude:	48-28-56.89N NAD 83
Longitude:	103-02-57.67W
Heights:	2328 feet site elevation (SE)
	660 feet above ground level (AGL)
	2988 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

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An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6953-OE.

Signature Control No: 370538327-385972682 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

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AMSL, Above Mean Sea Level
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CFR, Code of Federal Regulations
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2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE
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2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
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2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

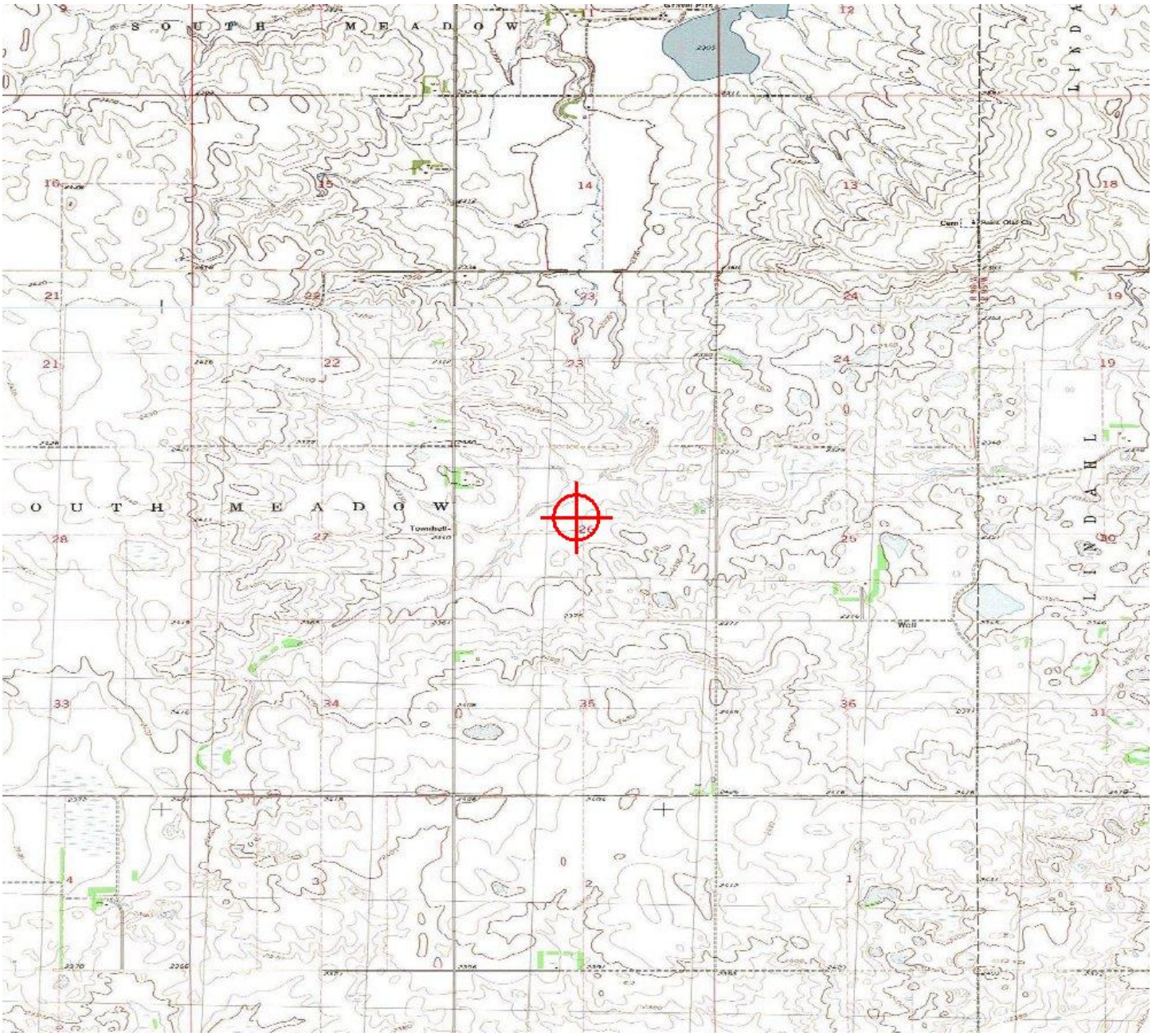
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

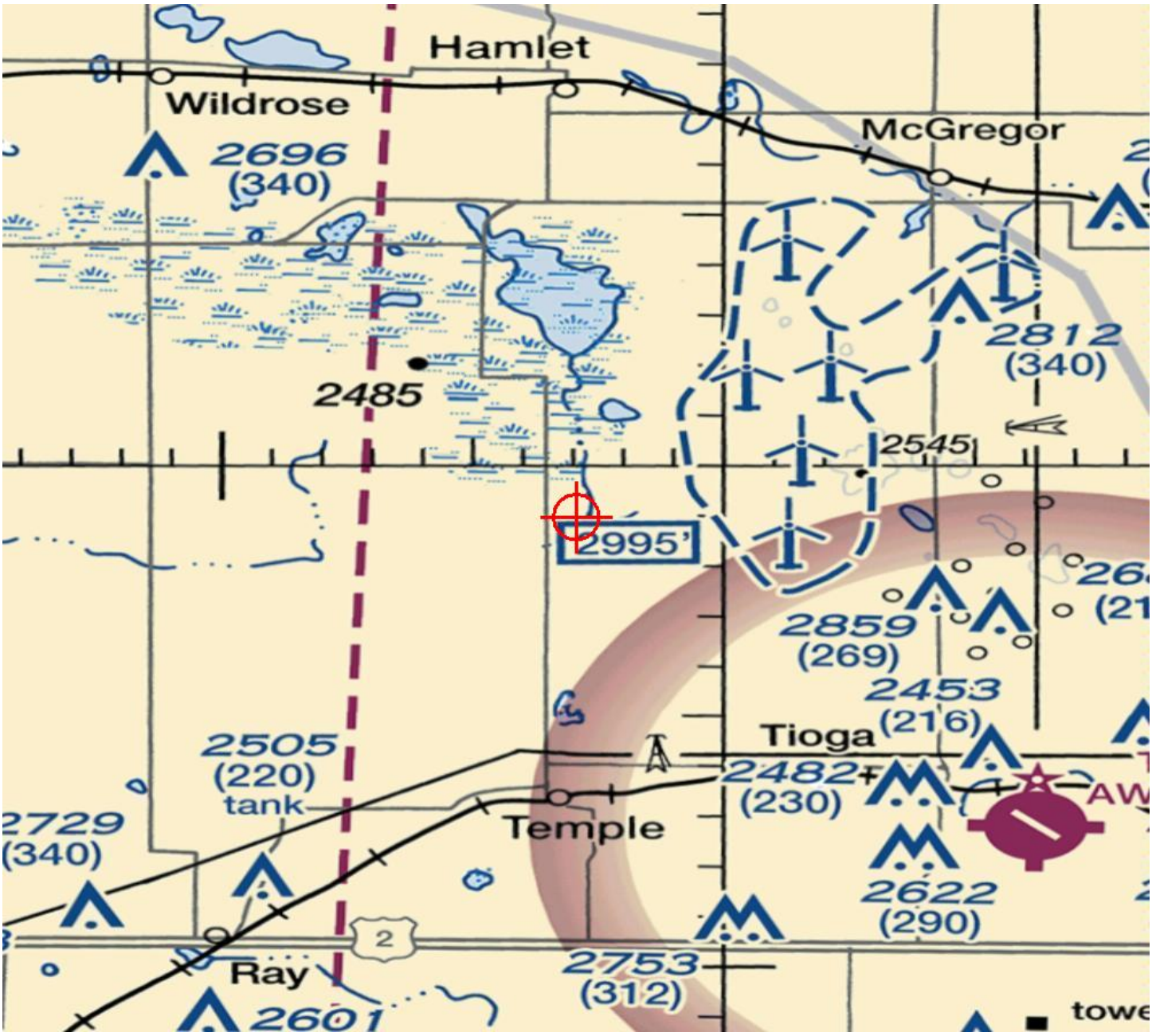
Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6953-OE



Sectional Map for ASN 2018-WTE-6953-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6954-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-157
Location:	Tioga, ND
Latitude:	48-28-51.64N NAD 83
Longitude:	103-02-32.76W
Heights:	2347 feet site elevation (SE)
	660 feet above ground level (AGL)
	3007 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6954-OE.

Signature Control No: 370538332-385972683 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
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2018-WTE-6913-OE
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2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
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2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
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The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

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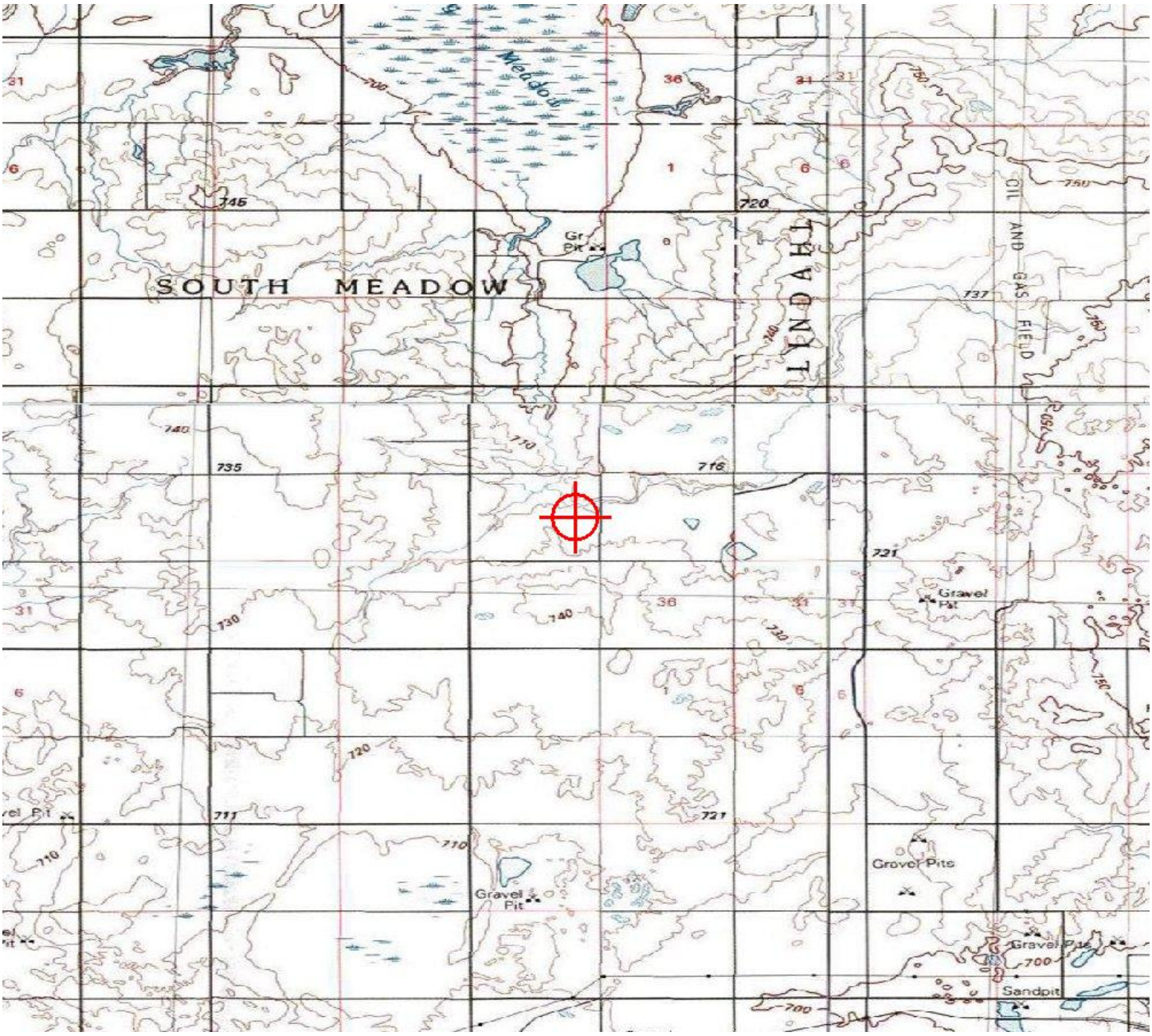
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

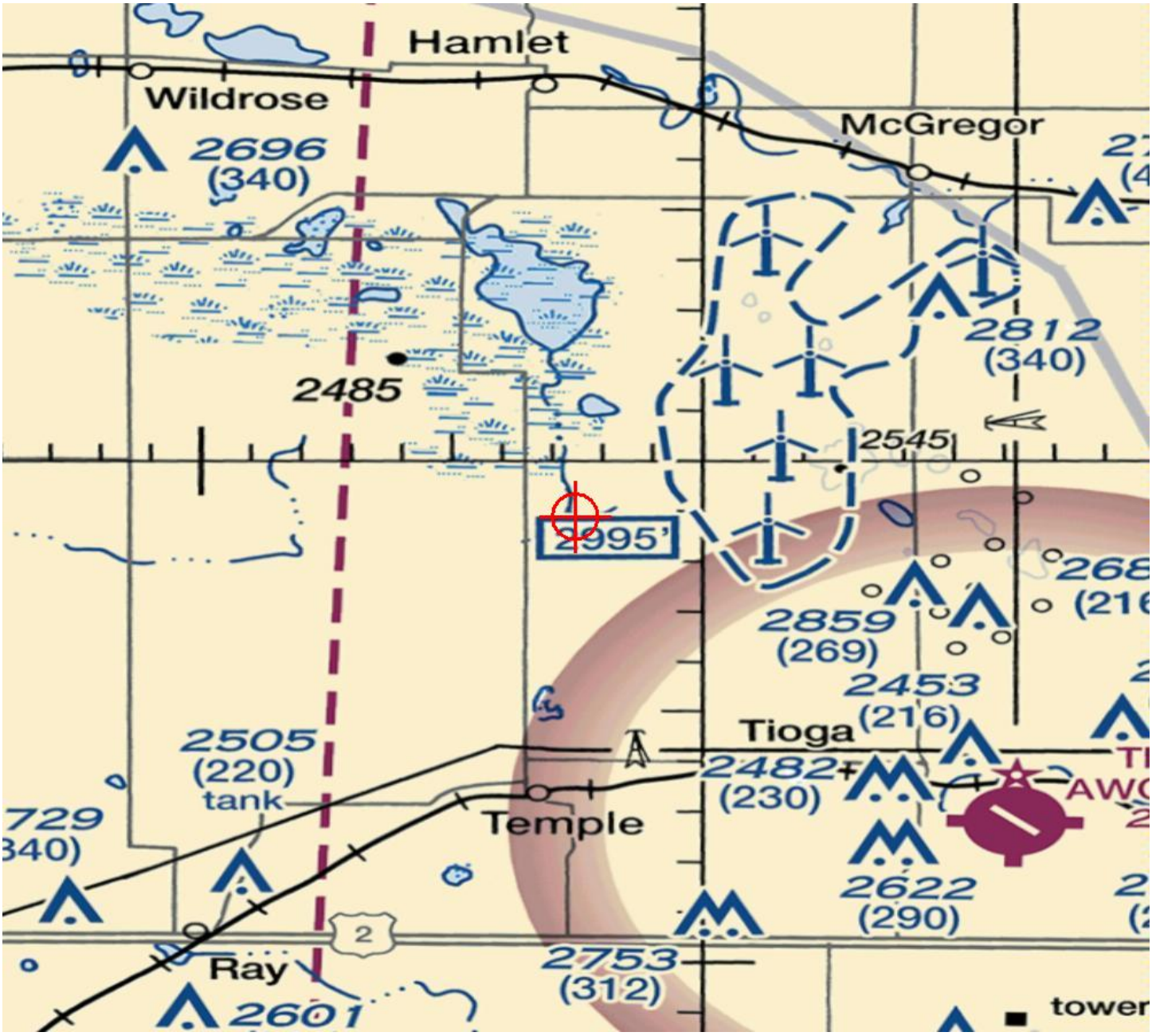
Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6954-OE



Sectional Map for ASN 2018-WTE-6954-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6955-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-158
Location:	Tioga, ND
Latitude:	48-28-54.46N NAD 83
Longitude:	103-01-52.74W
Heights:	2361 feet site elevation (SE)
	660 feet above ground level (AGL)
	3021 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

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__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

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Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6955-OE.

Signature Control No: 370538336-385972687 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6845-OE
2018-WTE-6846-OE
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2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
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2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
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2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

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2018-WTE-6925-OE
2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

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2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

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2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
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2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE
2018-WTE-6920-OE

2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

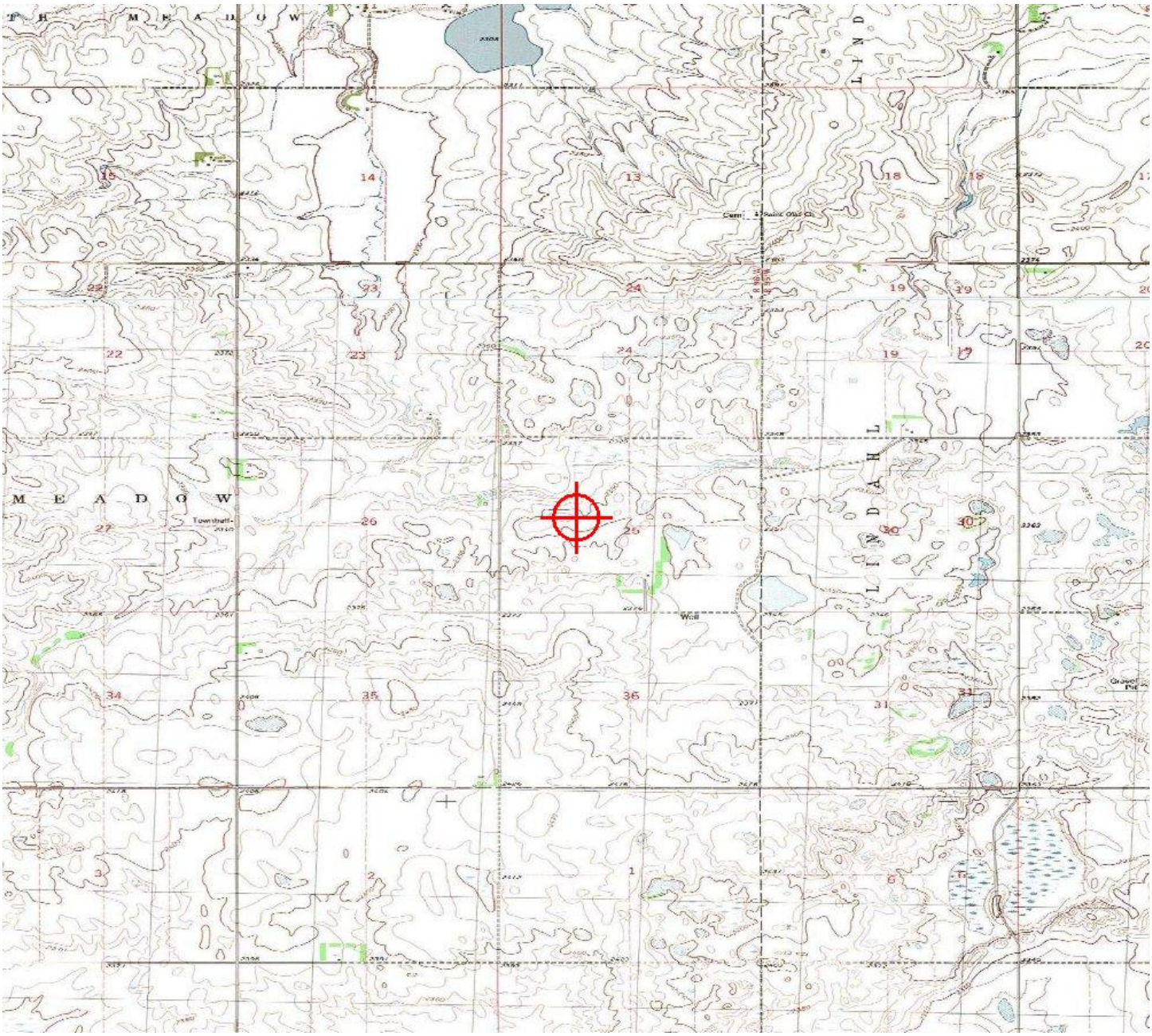
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

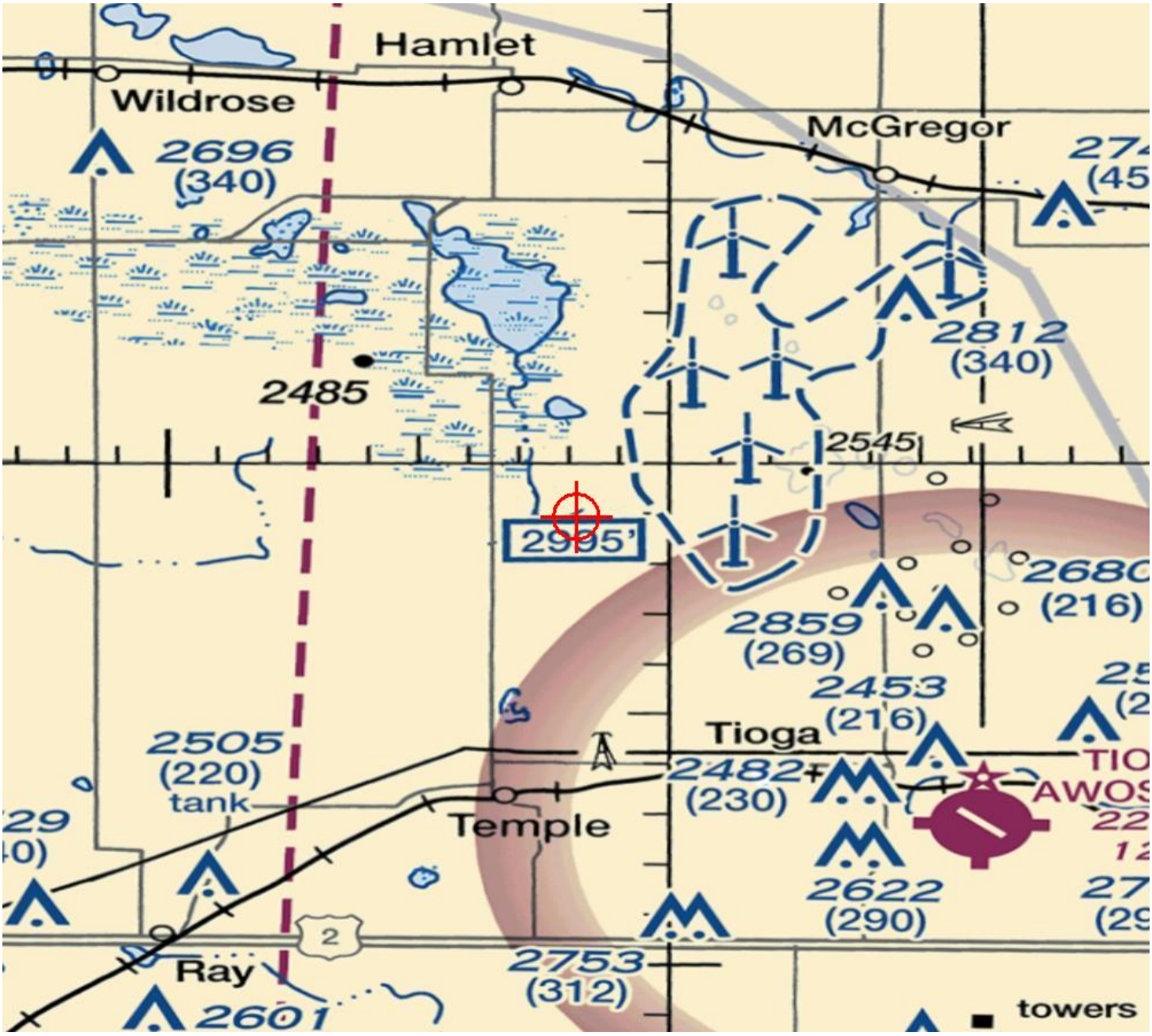
Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6955-OE



Sectional Map for ASN 2018-WTE-6955-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6956-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-159
Location:	Tioga, ND
Latitude:	48-28-58.83N NAD 83
Longitude:	103-01-21.00W
Heights:	2353 feet site elevation (SE)
	660 feet above ground level (AGL)
	3013 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

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If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6956-OE.

Signature Control No: 370538337-385972689 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
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Map(s)

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2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE

2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE
2018-WTE-6893-OE

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2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
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2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6911-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE

2018-WTE-6915-OE
2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE

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2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE

2018-WTE-6925-OE
2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
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2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

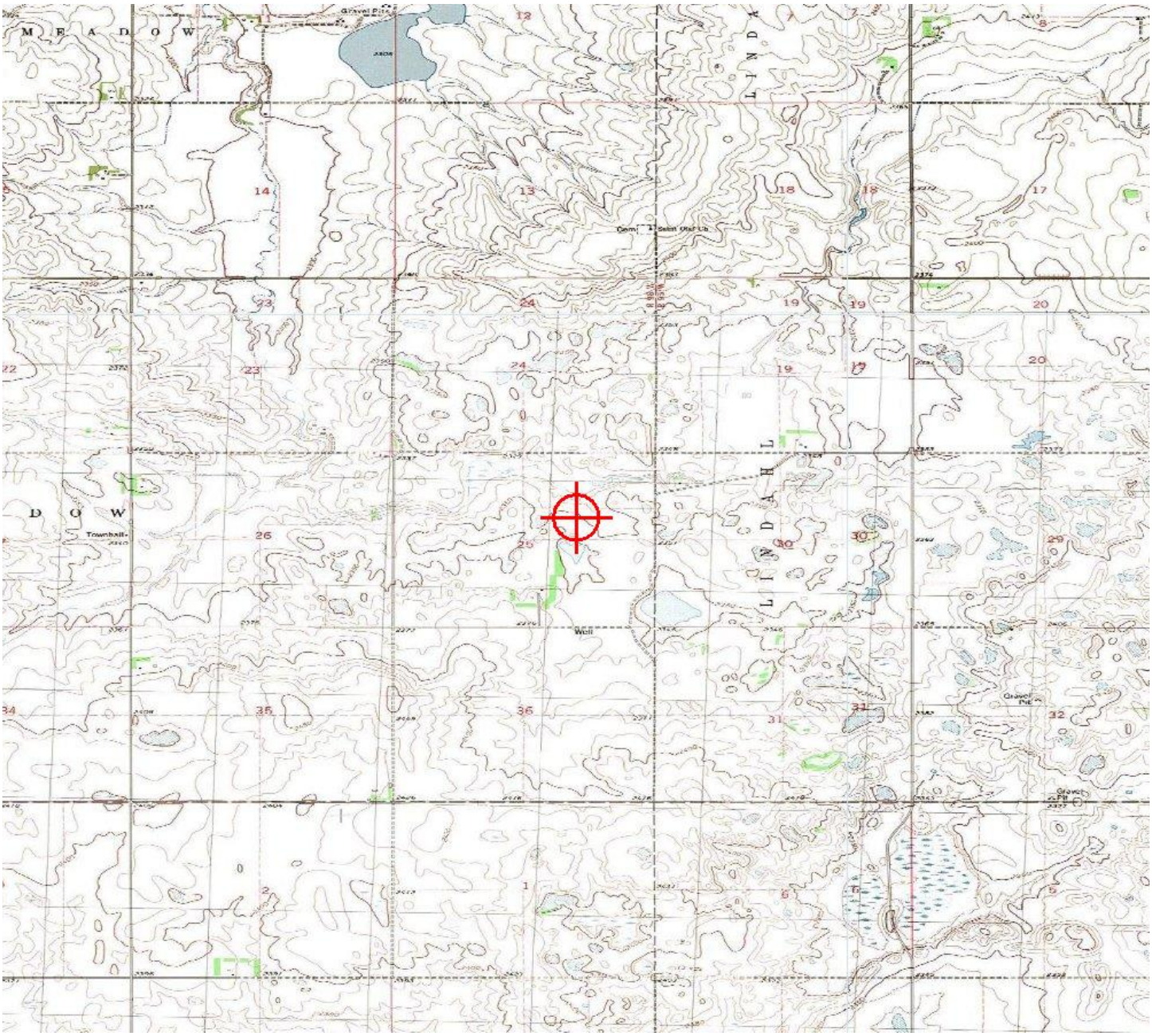
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

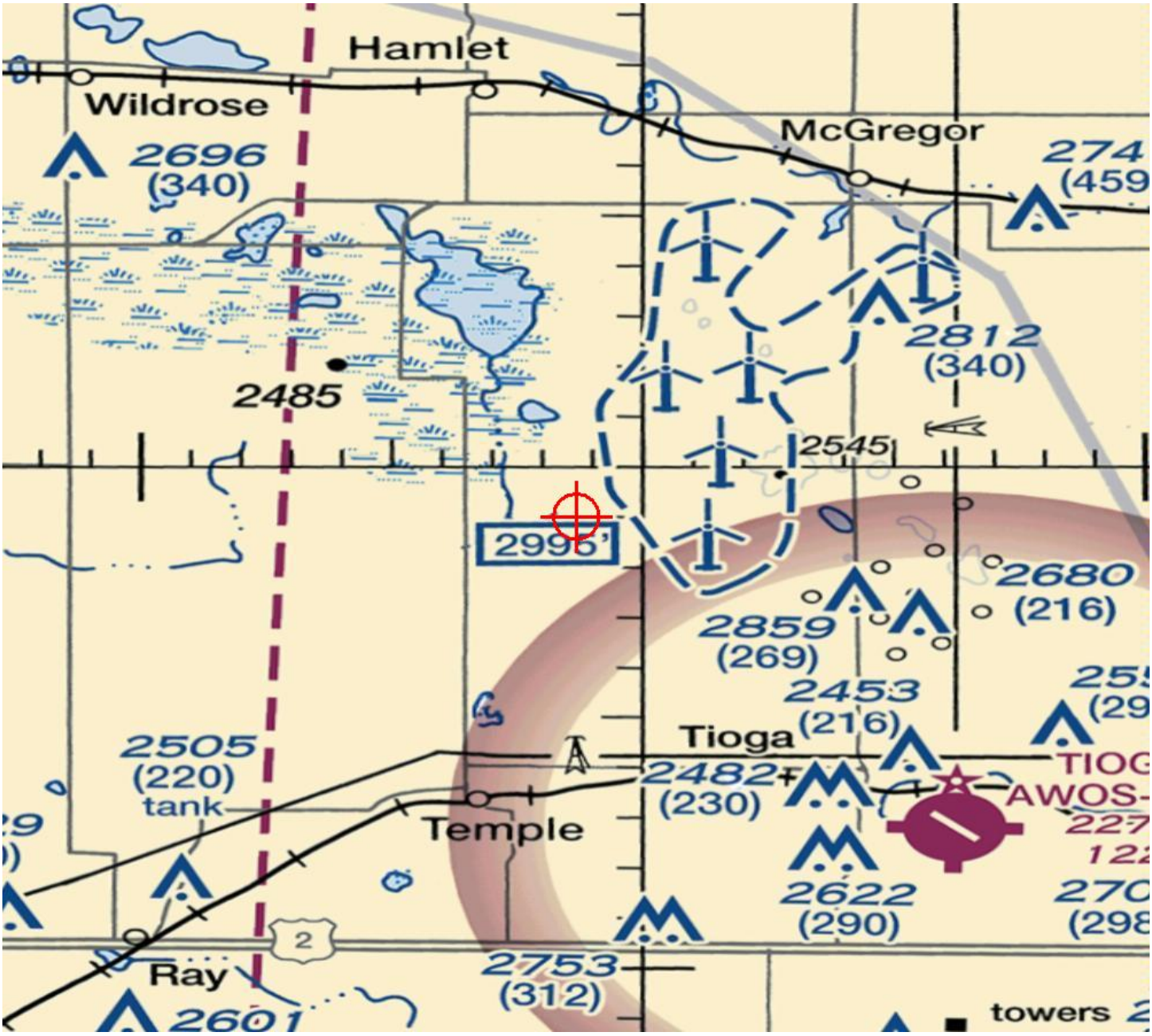
Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6956-OE



Sectional Map for ASN 2018-WTE-6956-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6957-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-160
Location:	Tioga, ND
Latitude:	48-26-03.75N NAD 83
Longitude:	103-06-31.36W
Heights:	2325 feet site elevation (SE)
	660 feet above ground level (AGL)
	2985 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6957-OE.

Signature Control No: 370538338-385972693 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
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2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
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2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
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2018-WTE-6933-OE
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2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

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2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

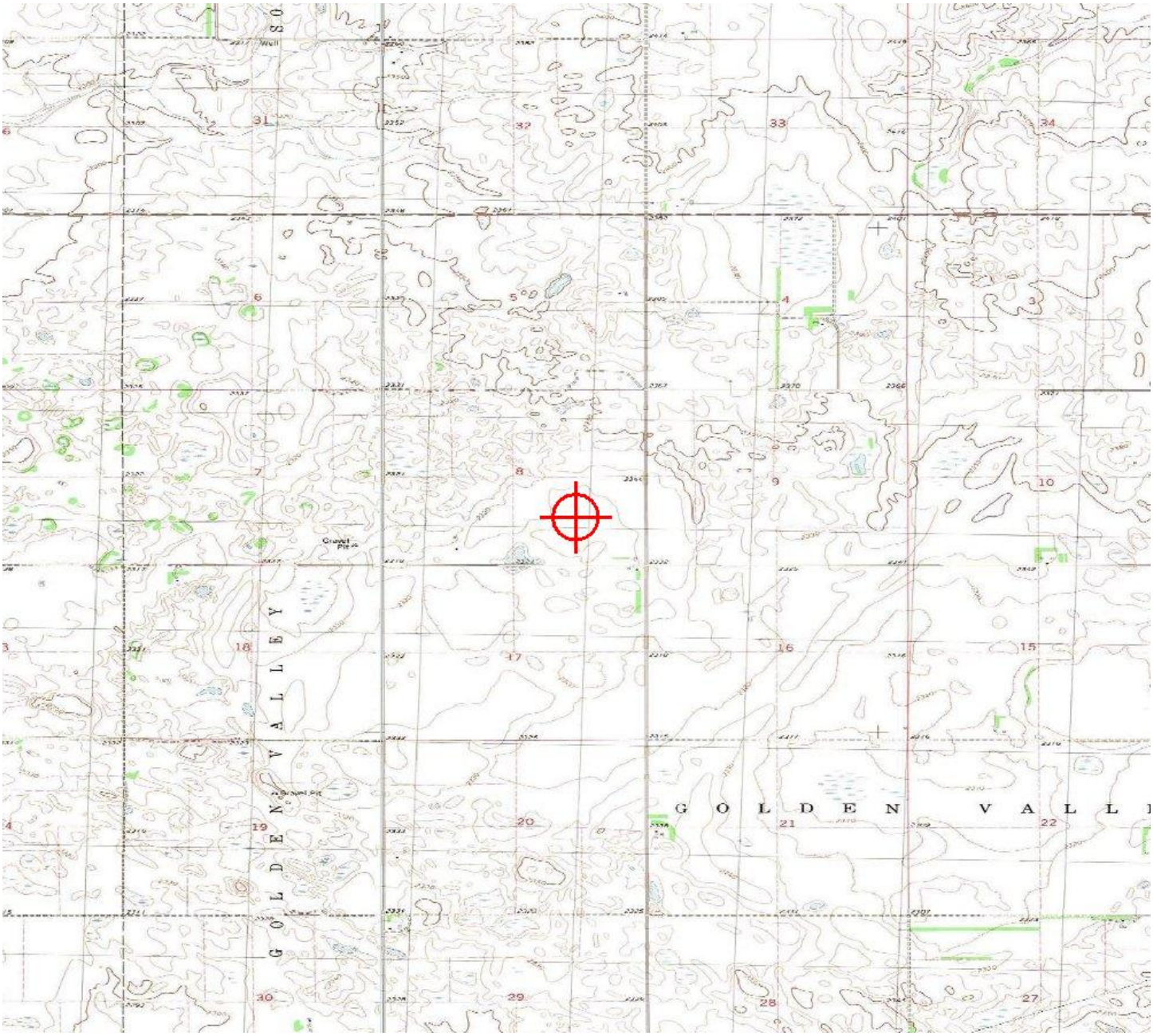
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6957-OE



Sectional Map for ASN 2018-WTE-6957-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6958-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-161
Location:	Tioga, ND
Latitude:	48-26-02.10N NAD 83
Longitude:	103-07-08.19W
Heights:	2324 feet site elevation (SE)
	660 feet above ground level (AGL)
	2984 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6958-OE.

Signature Control No: 370538339-385972696 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6894-OE
2018-WTE-6895-OE
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2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE

2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE
2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6911-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE

2018-WTE-6915-OE
2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE

2018-WTE-6920-OE
2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE

2018-WTE-6925-OE
2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE
2018-WTE-6920-OE

2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

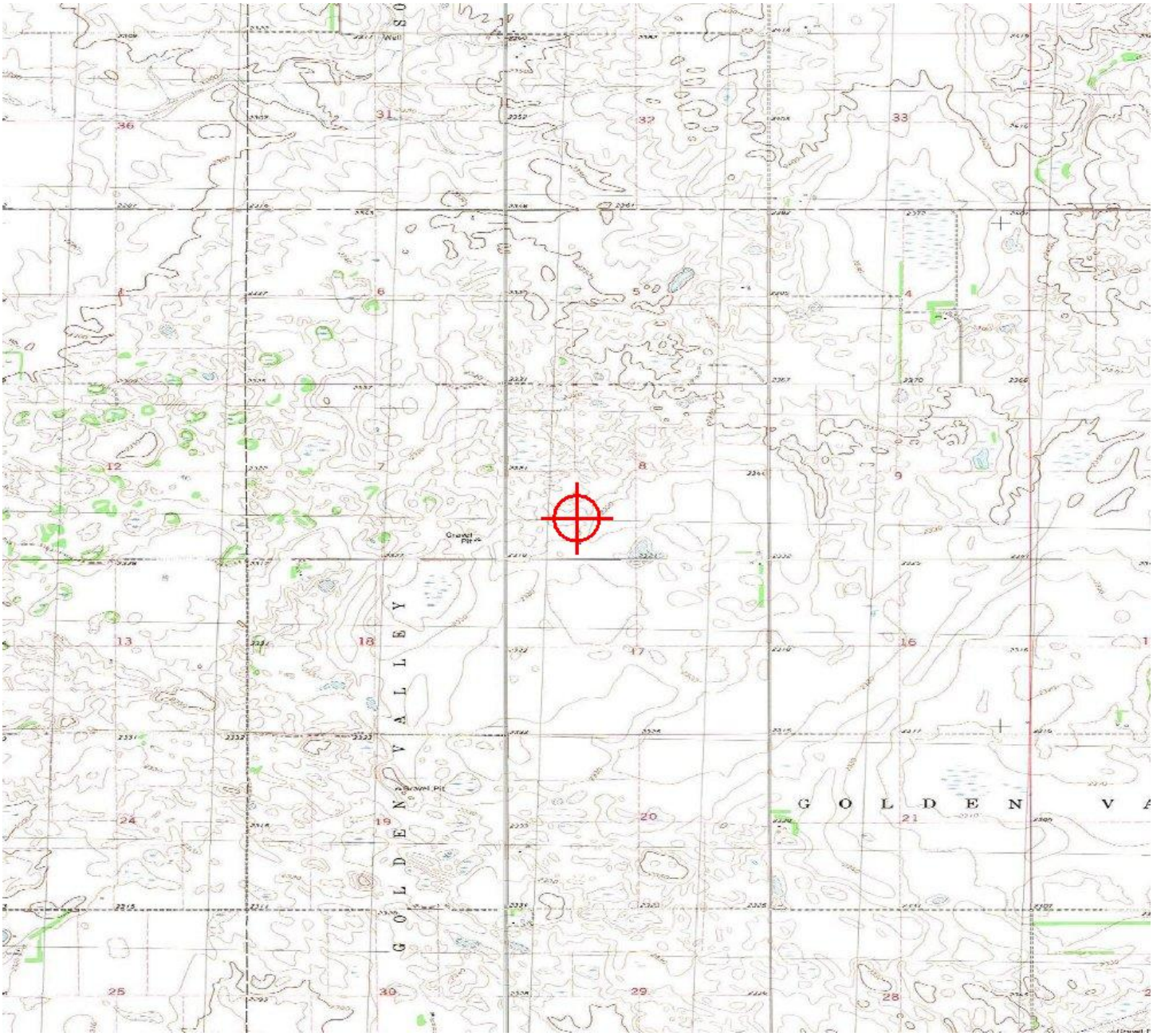
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

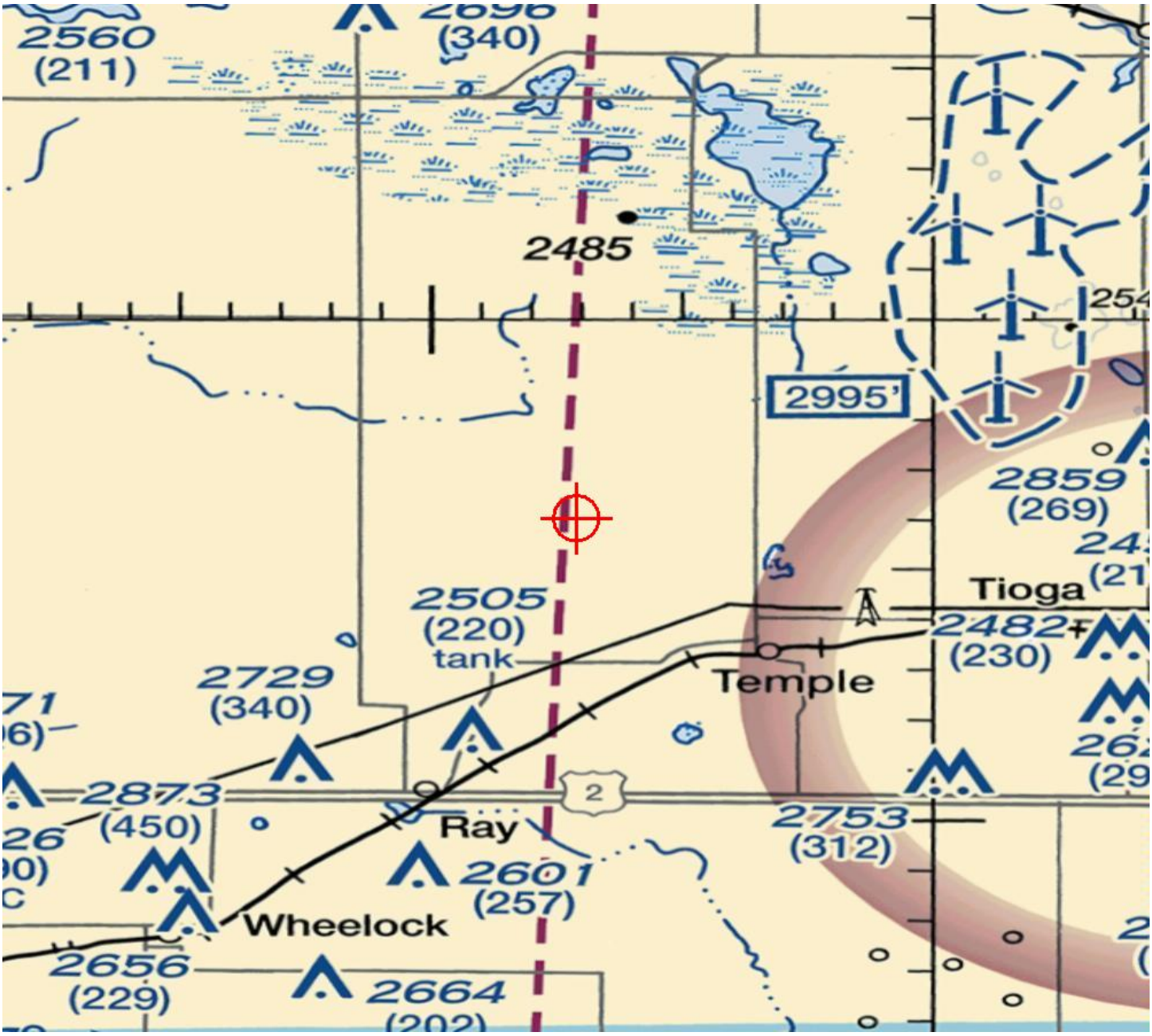
Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6958-OE



Sectional Map for ASN 2018-WTE-6958-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6959-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-162
Location:	Tioga, ND
Latitude:	48-25-14.08N NAD 83
Longitude:	103-08-23.84W
Heights:	2322 feet site elevation (SE)
	660 feet above ground level (AGL)
	2982 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

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__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

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This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

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used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

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An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6959-OE.

Signature Control No: 370538340-385972697 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
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CFR, Code of Federal Regulations
GPS, Global Positioning System
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2018-WTE-6841-OE
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2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6862-OE
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The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

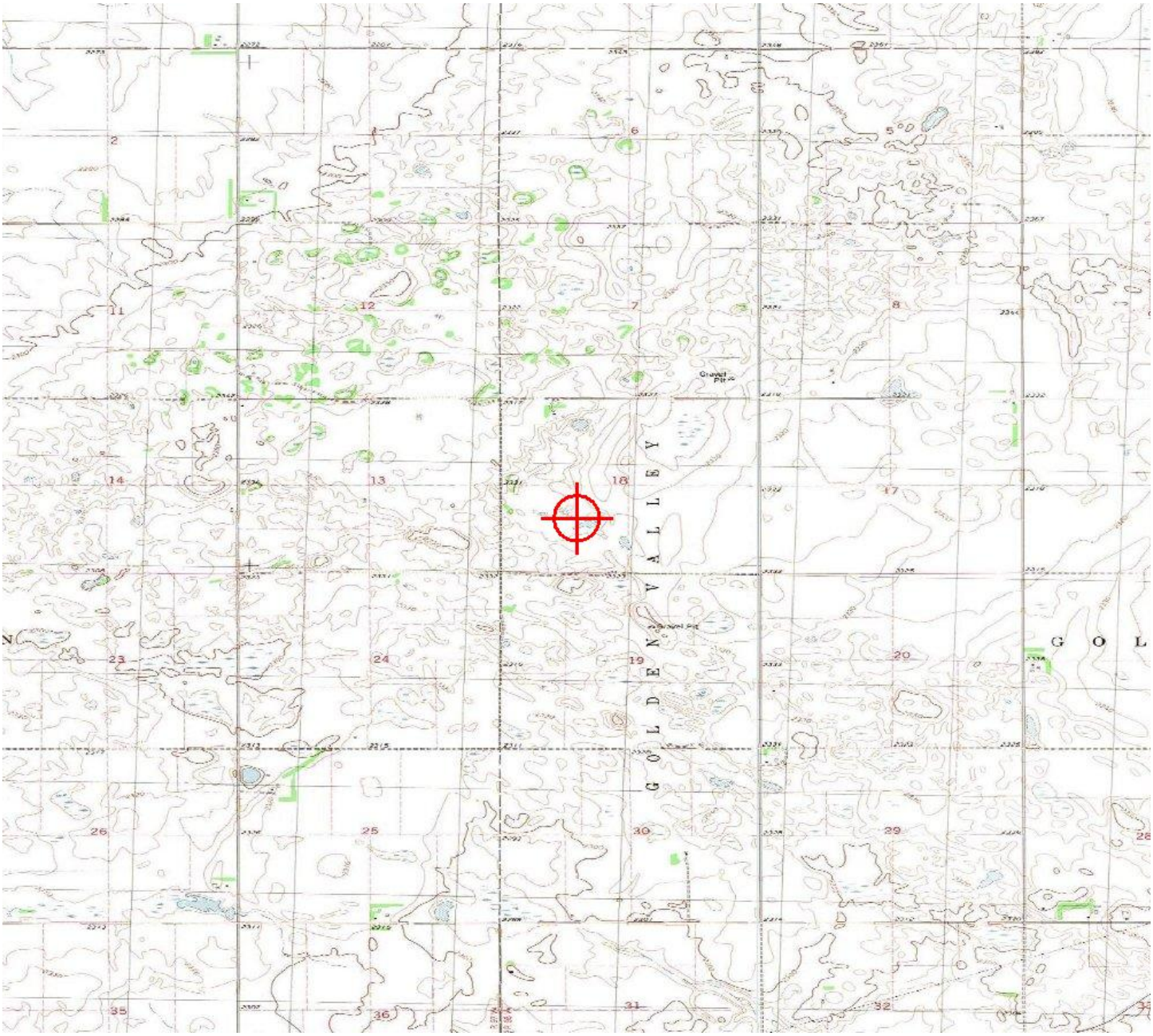
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

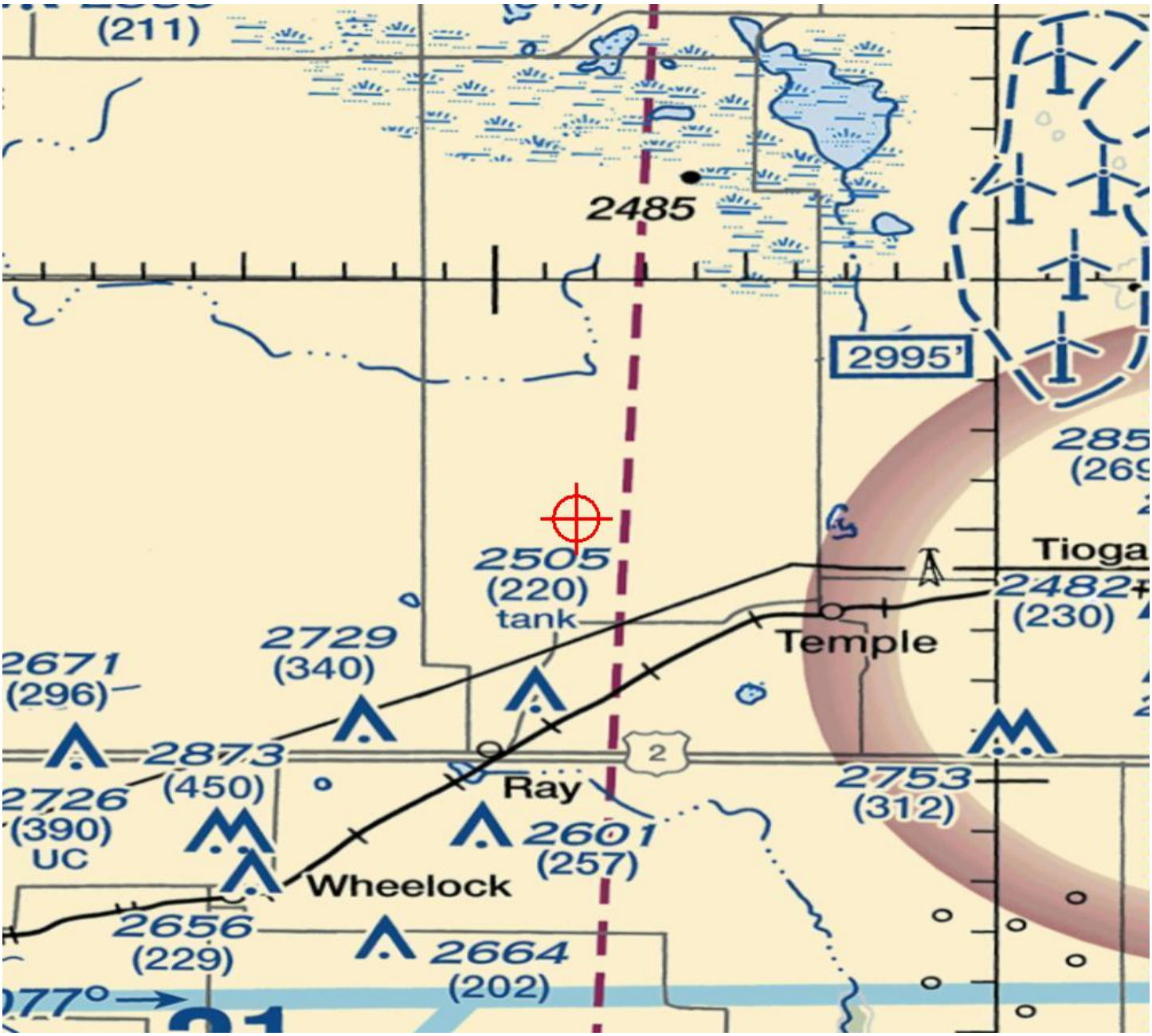
Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6959-OE



Sectional Map for ASN 2018-WTE-6959-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6960-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-163
Location:	Tioga, ND
Latitude:	48-25-44.02N NAD 83
Longitude:	103-09-32.11W
Heights:	2332 feet site elevation (SE)
	660 feet above ground level (AGL)
	2992 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6960-OE.

Signature Control No: 370538344-385972713 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
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2018-WTE-6859-OE
2018-WTE-6860-OE
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2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
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The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

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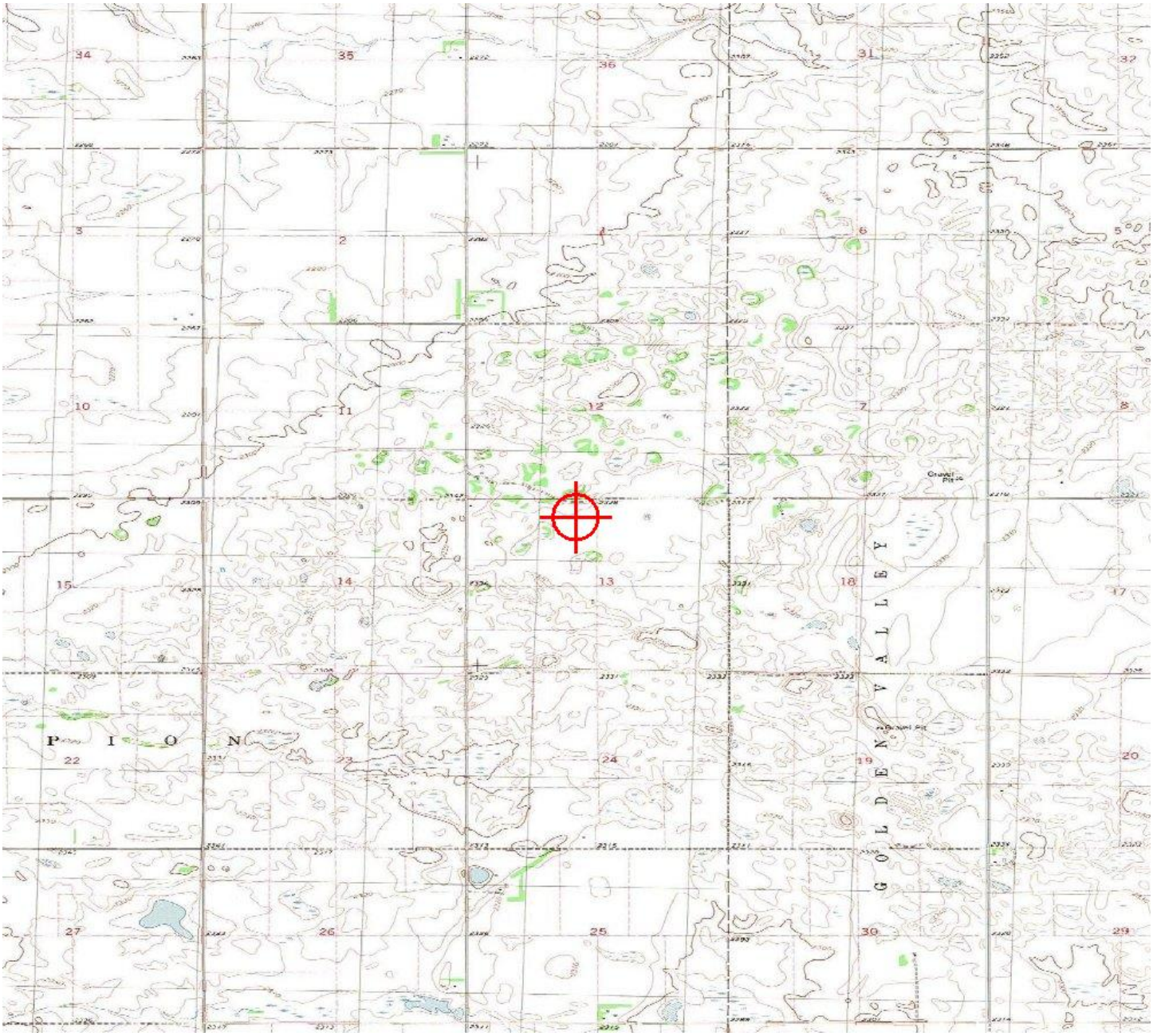
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Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6960-OE



Sectional Map for ASN 2018-WTE-6960-OE



Mail Processing Center
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Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6961-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-164
Location:	Tioga, ND
Latitude:	48-25-57.68N NAD 83
Longitude:	103-09-09.79W
Heights:	2329 feet site elevation (SE)
	660 feet above ground level (AGL)
	2989 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6961-OE.

Signature Control No: 370538345-385972715 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE

2018-WTE-6898-OE
2018-WTE-6900-OE
2018-WTE-6902-OE
2018-WTE-6904-OE
2018-WTE-6905-OE

2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE
2018-WTE-6910-OE
2018-WTE-6911-OE

2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE

2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE
2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6911-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE

2018-WTE-6915-OE
2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE

2018-WTE-6920-OE
2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE

2018-WTE-6925-OE
2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE
2018-WTE-6920-OE

2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

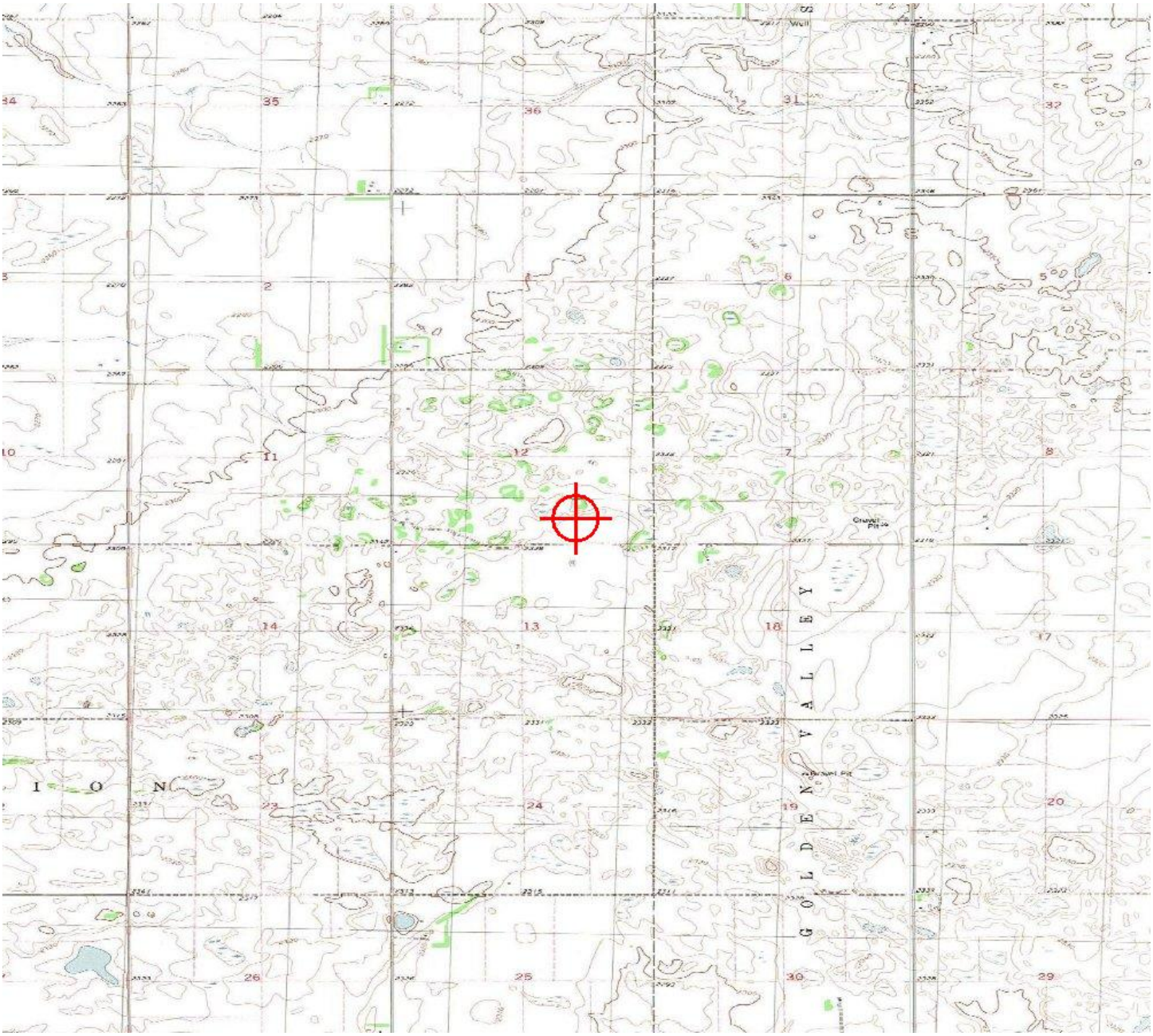
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6961-OE



Sectional Map for ASN 2018-WTE-6961-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

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2018-WTE-6962-OE

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**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-165
Location:	Tioga, ND
Latitude:	48-27-06.11N NAD 83
Longitude:	103-08-52.02W
Heights:	2331 feet site elevation (SE)
	660 feet above ground level (AGL)
	2991 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

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__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

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Signature Control No: 370538346-385972717 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

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Map(s)

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2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
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2018-WTE-6882-OE
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2018-WTE-6884-OE
2018-WTE-6885-OE
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2018-WTE-6889-OE
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2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
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2018-WTE-6908-OE

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2018-WTE-6930-OE
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2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

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2018-WTE-6889-OE
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2018-WTE-6899-OE
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2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

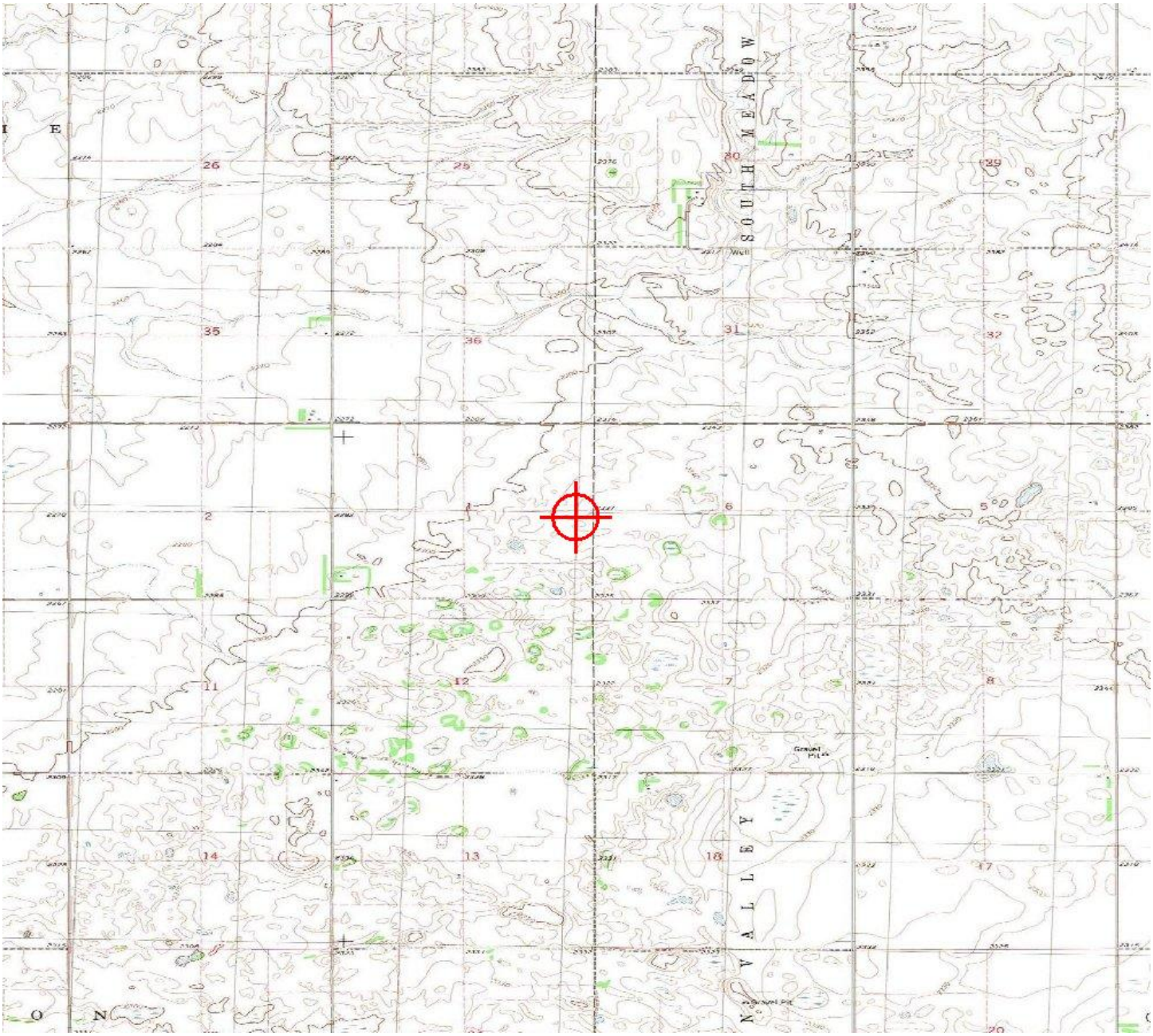
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6962-OE



Sectional Map for ASN 2018-WTE-6962-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6963-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-166
Location:	Tioga, ND
Latitude:	48-28-43.41N NAD 83
Longitude:	103-11-36.99W
Heights:	2260 feet site elevation (SE)
	660 feet above ground level (AGL)
	2920 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6963-OE.

Signature Control No: 370538347-385972720 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
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2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
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The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

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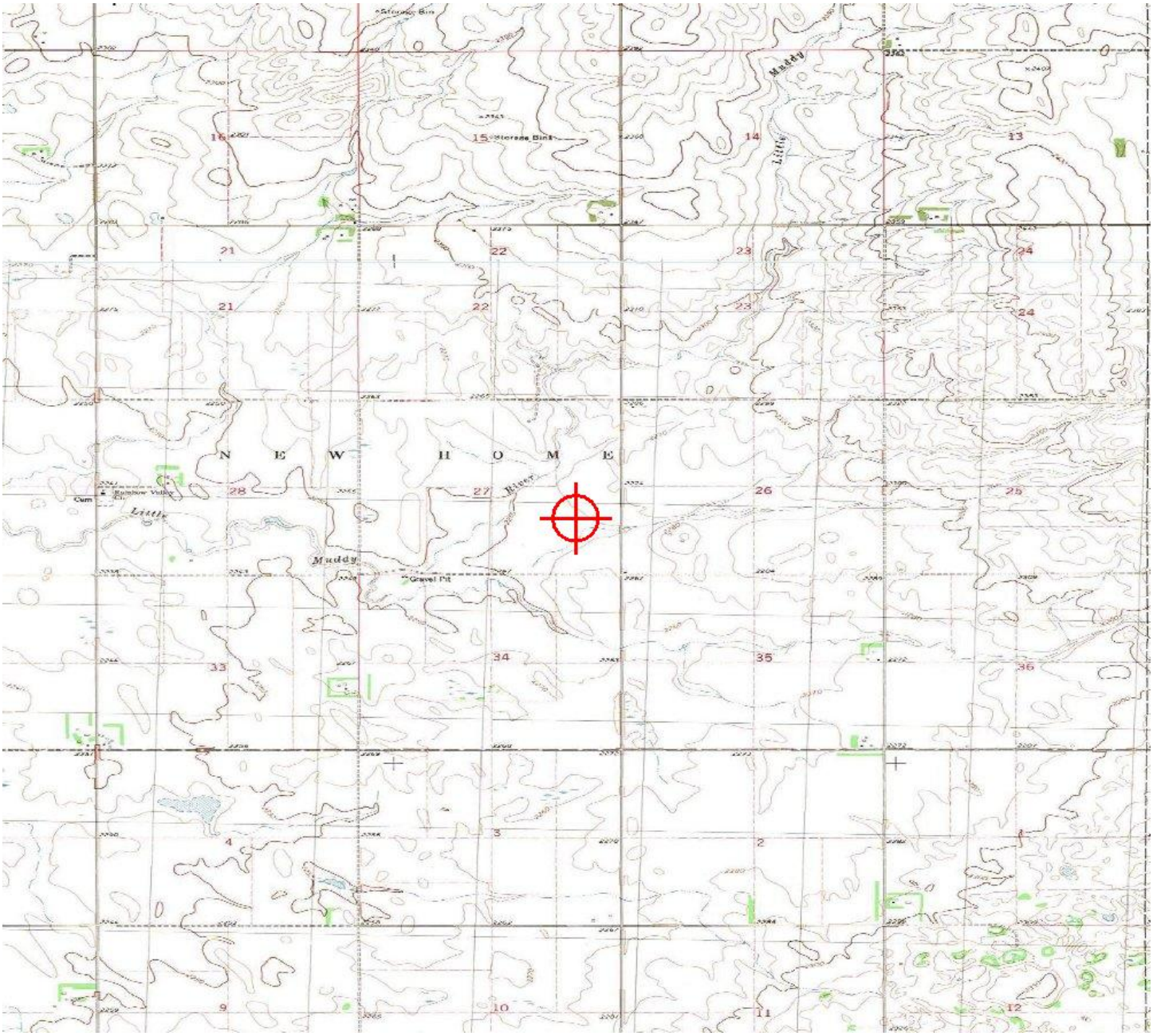
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6963-OE



Sectional Map for ASN 2018-WTE-6963-OE



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Aeronautical Study No.
2018-WTE-6964-OE

Issued Date: 09/25/2018

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Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-167
Location:	Tioga, ND
Latitude:	48-28-40.31N NAD 83
Longitude:	103-11-06.15W
Heights:	2284 feet site elevation (SE)
	660 feet above ground level (AGL)
	2944 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6964-OE.

Signature Control No: 370538348-385972726 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
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2018-WTE-6889-OE
2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE

2018-WTE-6898-OE
2018-WTE-6900-OE
2018-WTE-6902-OE
2018-WTE-6904-OE
2018-WTE-6905-OE

2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE
2018-WTE-6910-OE
2018-WTE-6911-OE

2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE

2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE
2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6911-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE

2018-WTE-6915-OE
2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE

2018-WTE-6920-OE
2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE

2018-WTE-6925-OE
2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE
2018-WTE-6920-OE

2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

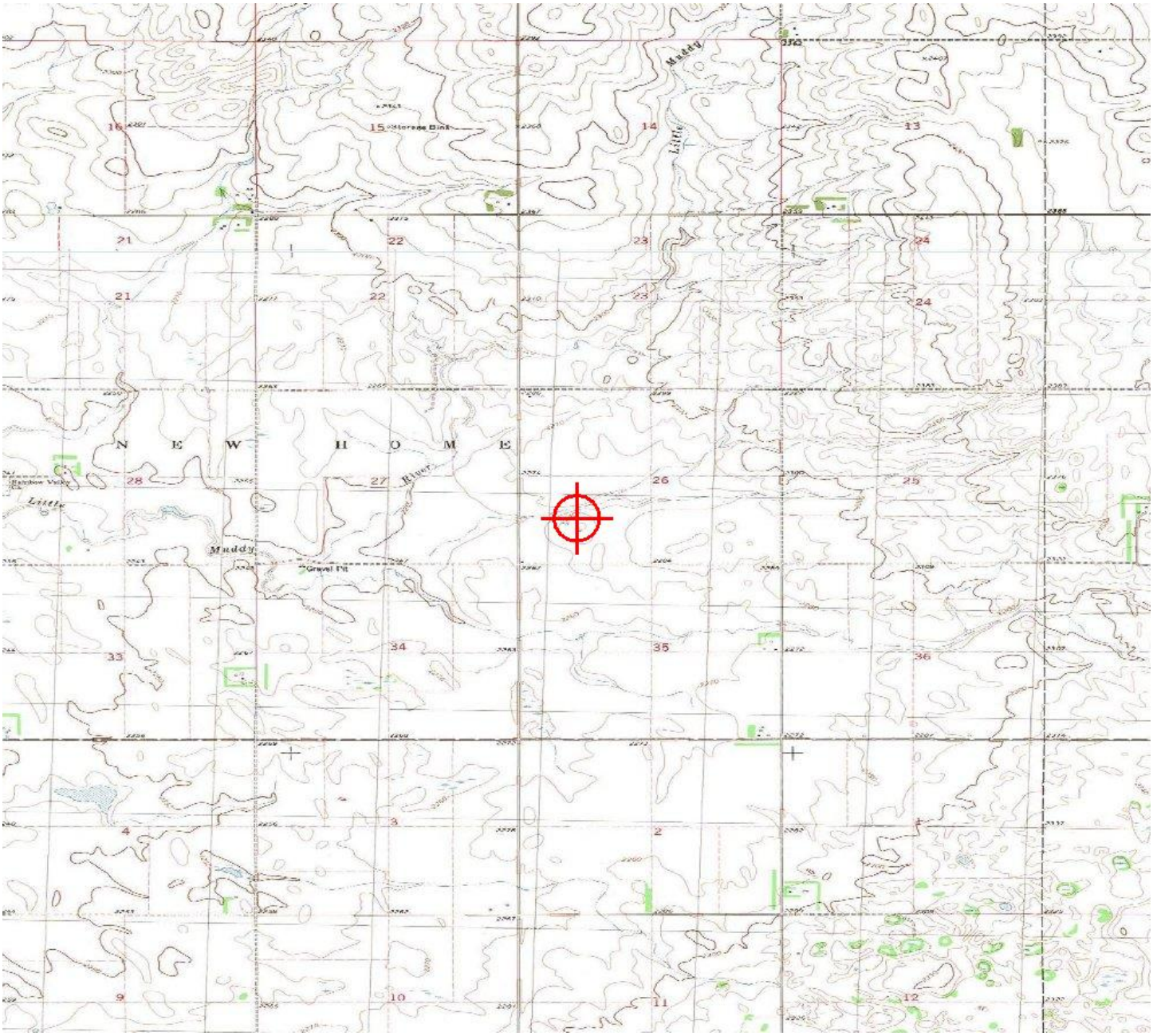
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

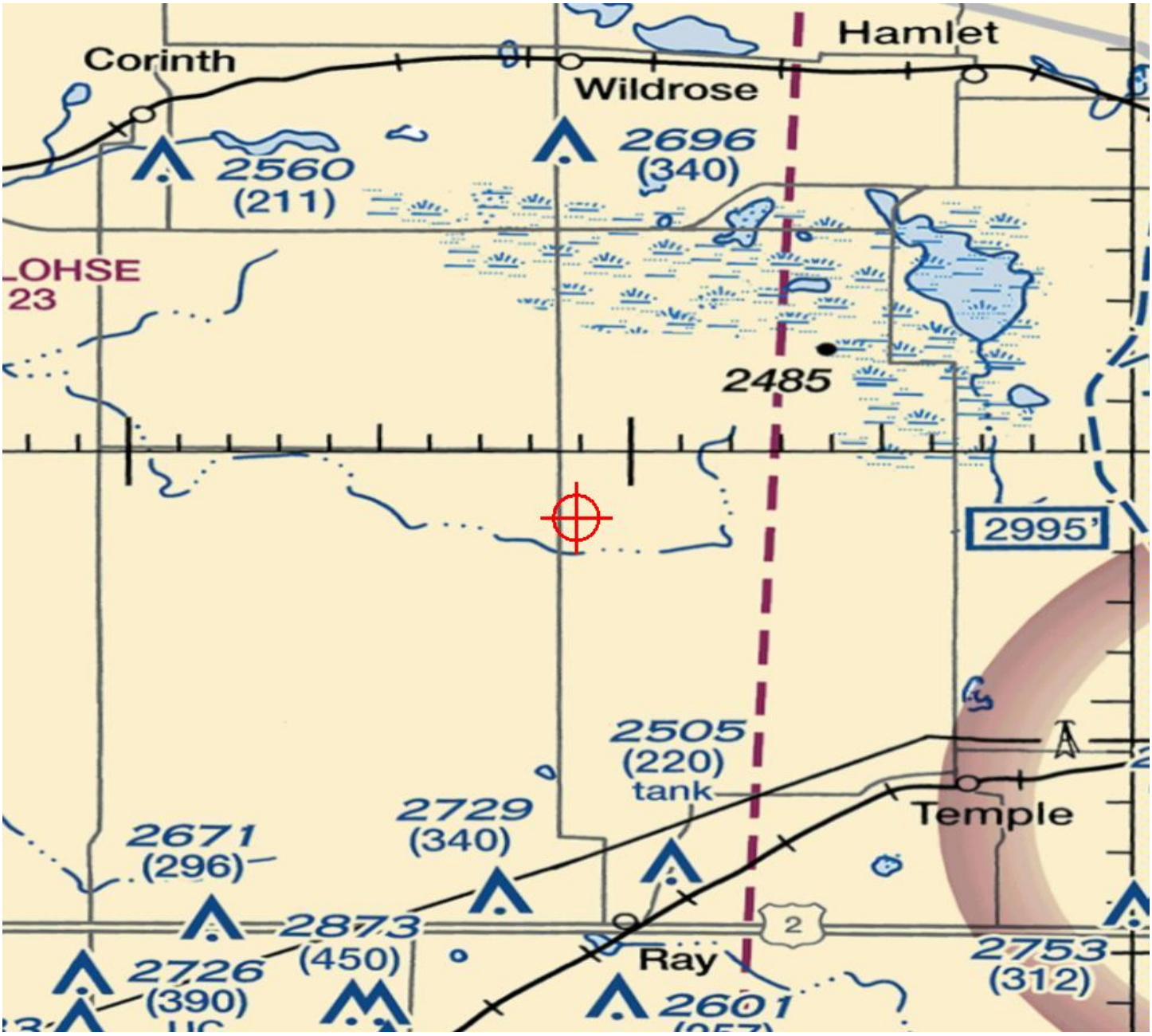
Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6964-OE



Sectional Map for ASN 2018-WTE-6964-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6965-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-168
Location:	Tioga, ND
Latitude:	48-28-45.97N NAD 83
Longitude:	103-12-32.21W
Heights:	2257 feet site elevation (SE)
	660 feet above ground level (AGL)
	2917 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

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__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

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Signature Control No: 370538349-385972728 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

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2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

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2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
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2018-WTE-6889-OE
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2018-WTE-6899-OE
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2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

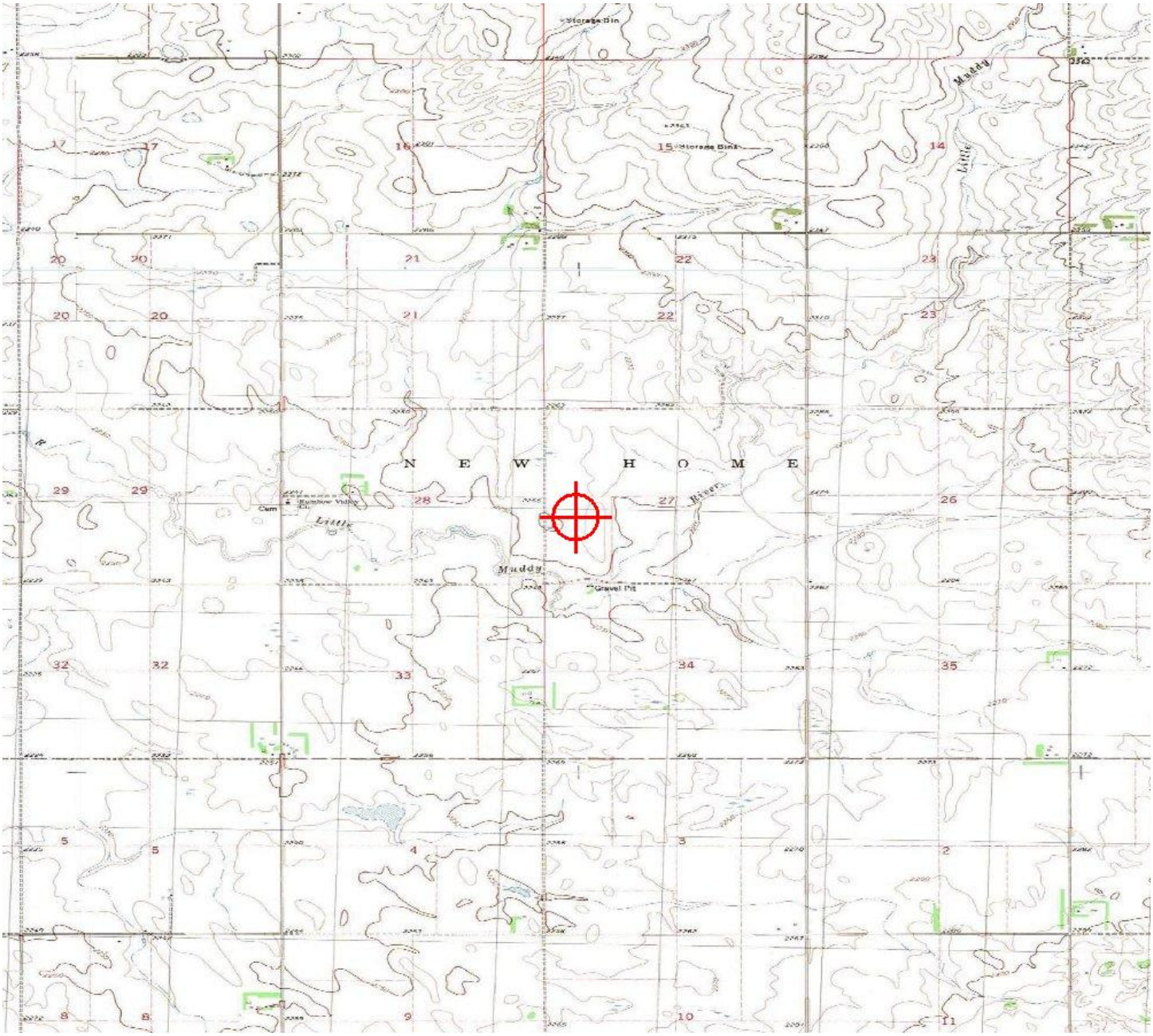
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6965-OE



Sectional Map for ASN 2018-WTE-6965-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6966-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-169
Location:	Tioga, ND
Latitude:	48-28-46.14N NAD 83
Longitude:	103-12-04.58W
Heights:	2250 feet site elevation (SE)
	660 feet above ground level (AGL)
	2910 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6966-OE.

Signature Control No: 370538350-385972734 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
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2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
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The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

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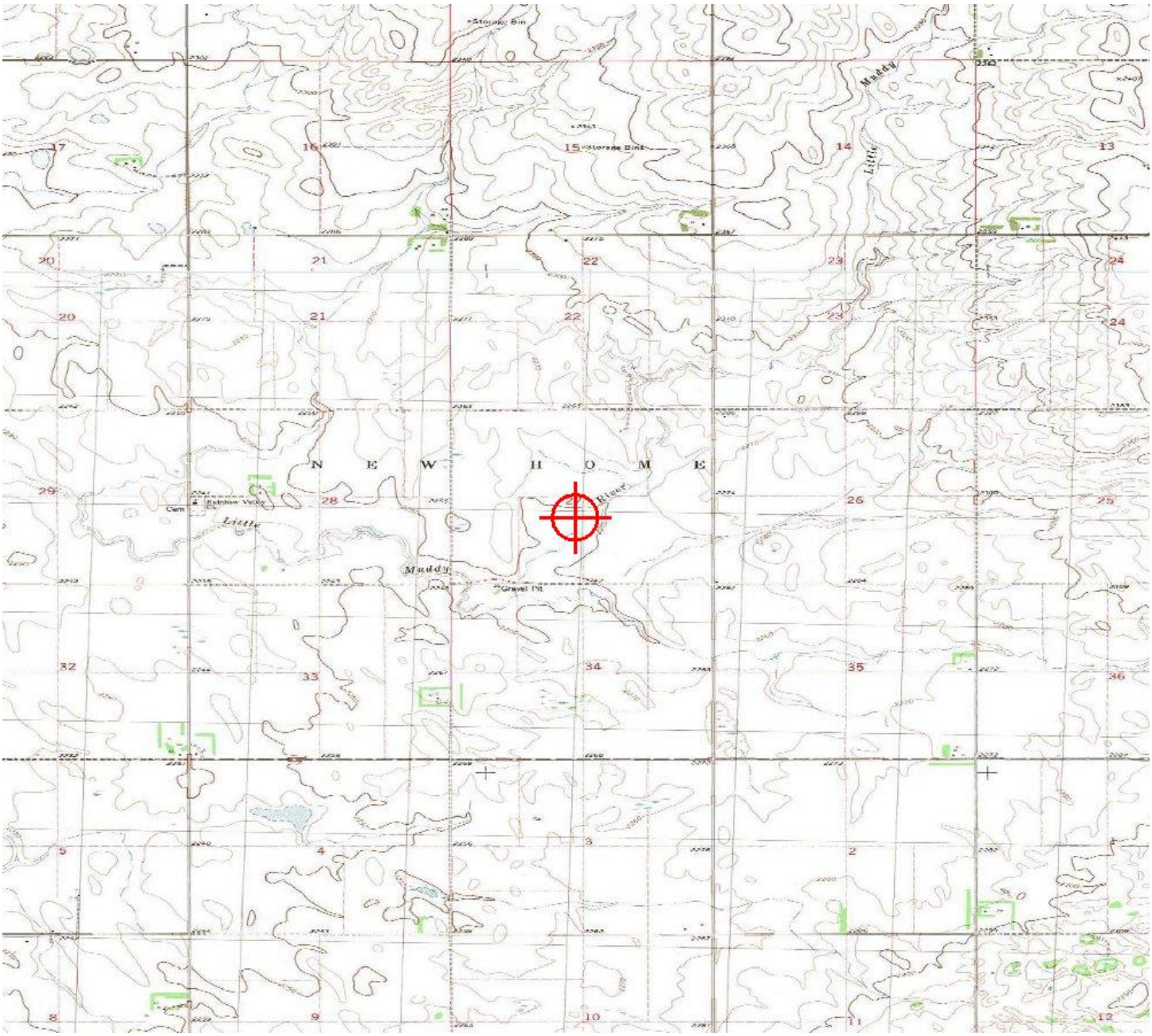
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Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

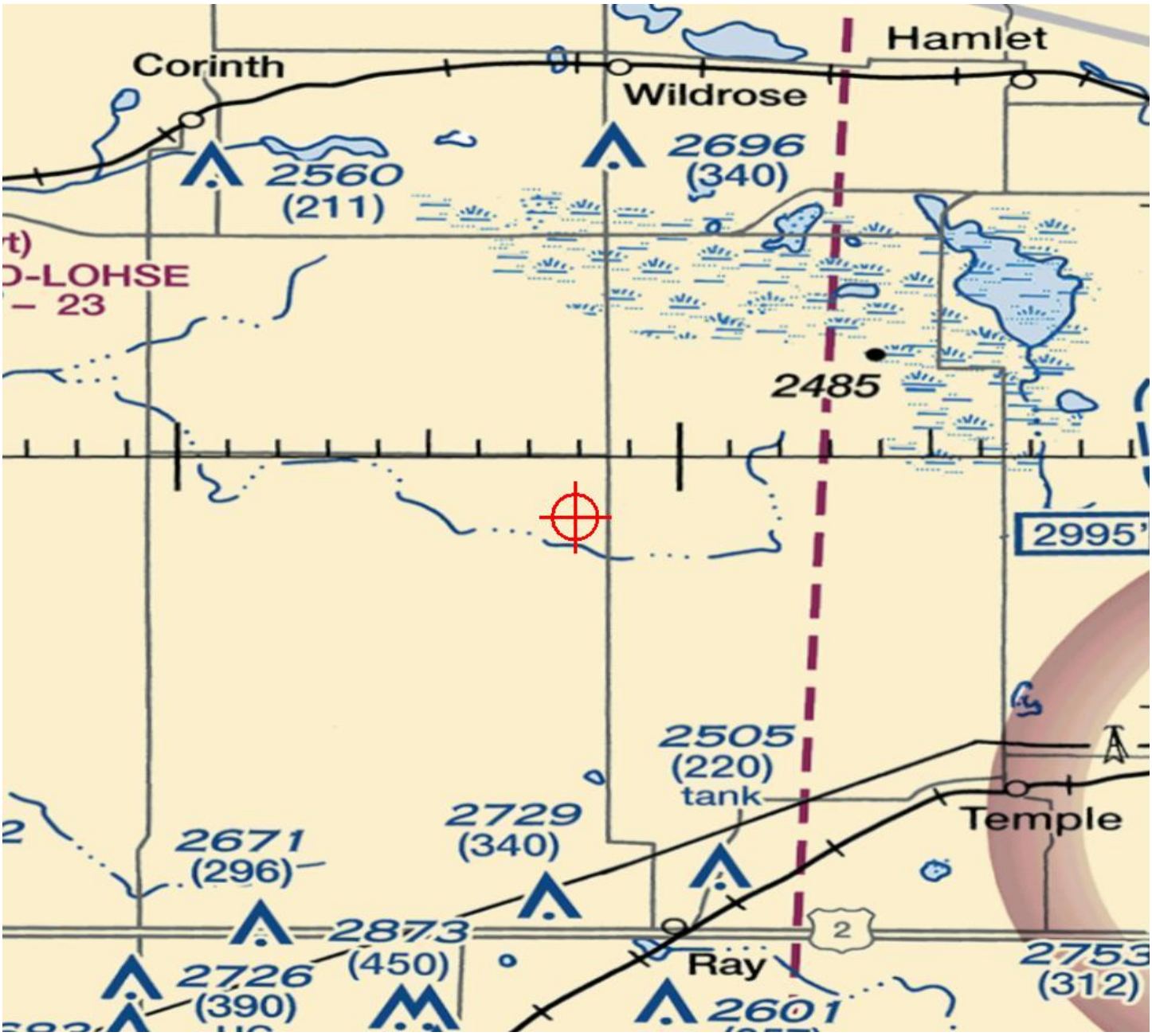
Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6966-OE



Sectional Map for ASN 2018-WTE-6966-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6967-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-170
Location:	Tioga, ND
Latitude:	48-28-40.56N NAD 83
Longitude:	103-13-24.82W
Heights:	2241 feet site elevation (SE)
	660 feet above ground level (AGL)
	2901 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6967-OE.

Signature Control No: 370538353-385972739 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE

2018-WTE-6898-OE
2018-WTE-6900-OE
2018-WTE-6902-OE
2018-WTE-6904-OE
2018-WTE-6905-OE

2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE
2018-WTE-6910-OE
2018-WTE-6911-OE

2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE

2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE
2018-WTE-6893-OE

2018-WTE-6894-OE
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2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
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2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
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2018-WTE-6913-OE
2018-WTE-6914-OE

2018-WTE-6915-OE
2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE

2018-WTE-6920-OE
2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE

2018-WTE-6925-OE
2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
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2018-WTE-6919-OE
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2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

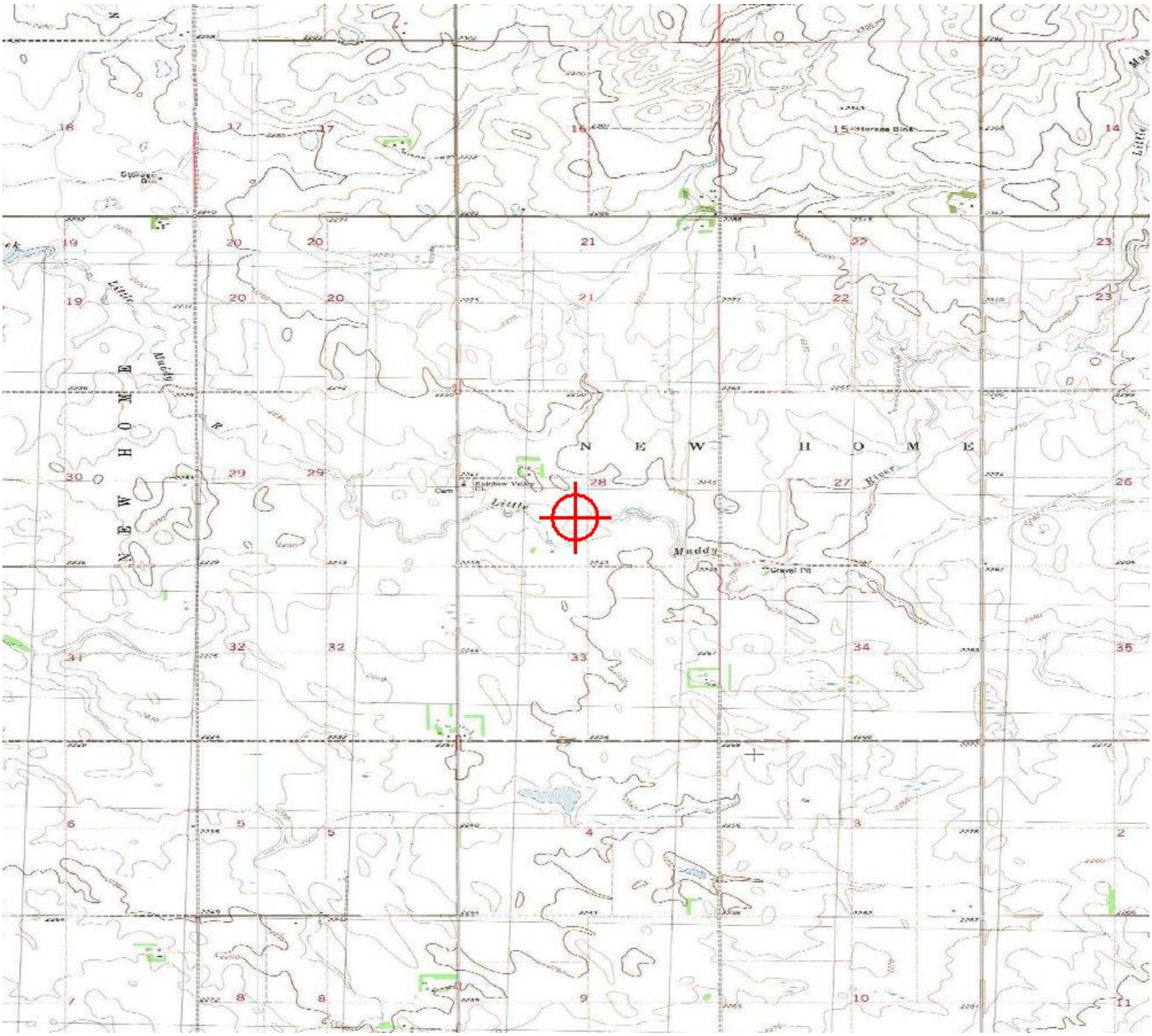
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

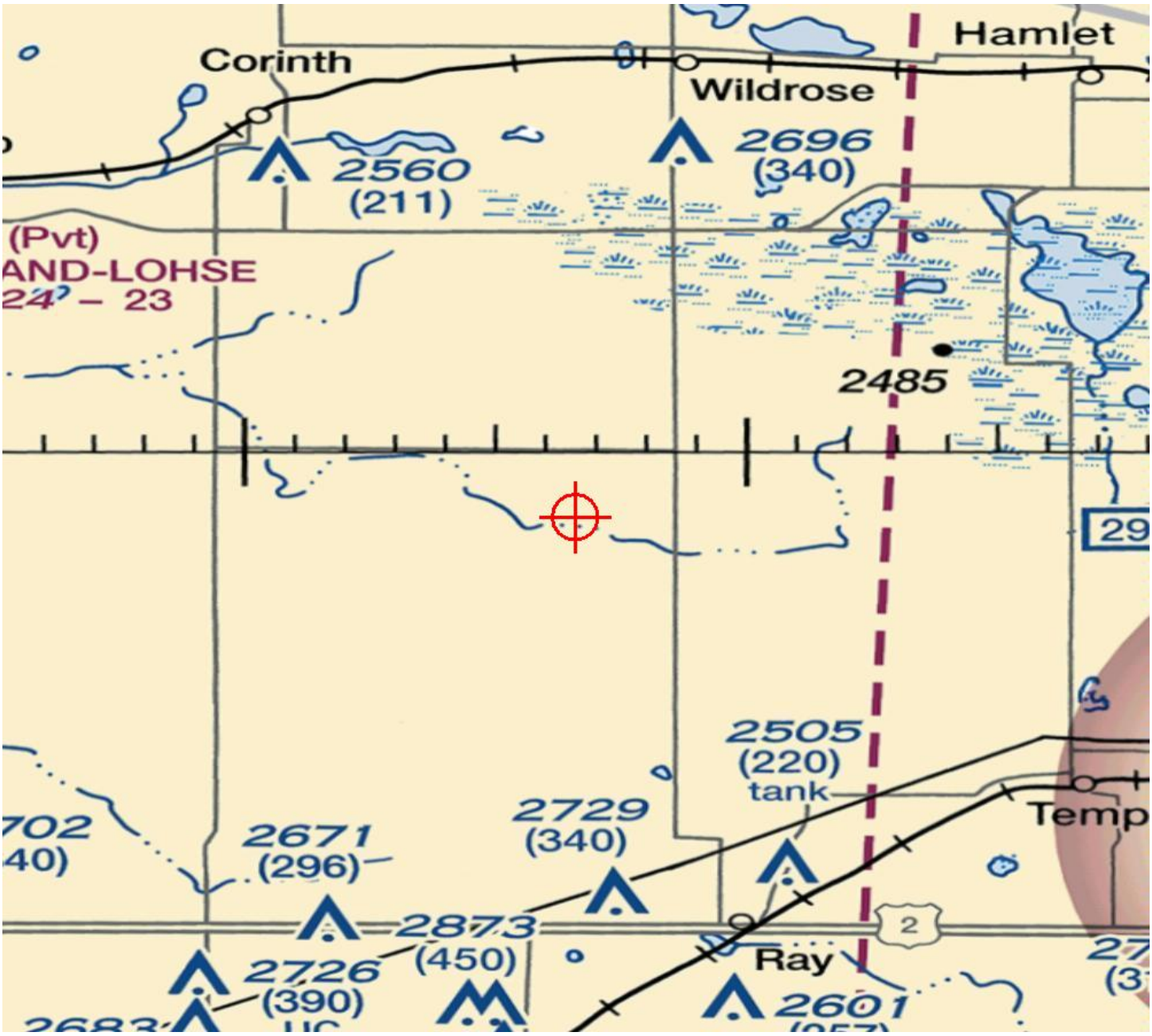
Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6967-OE



Sectional Map for ASN 2018-WTE-6967-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6968-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-171
Location:	Tioga, ND
Latitude:	48-28-47.08N NAD 83
Longitude:	103-13-02.71W
Heights:	2246 feet site elevation (SE)
	660 feet above ground level (AGL)
	2906 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

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Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

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used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6968-OE.

Signature Control No: 370538354-385972741 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
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RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

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The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
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2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
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2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
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2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

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2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
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2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

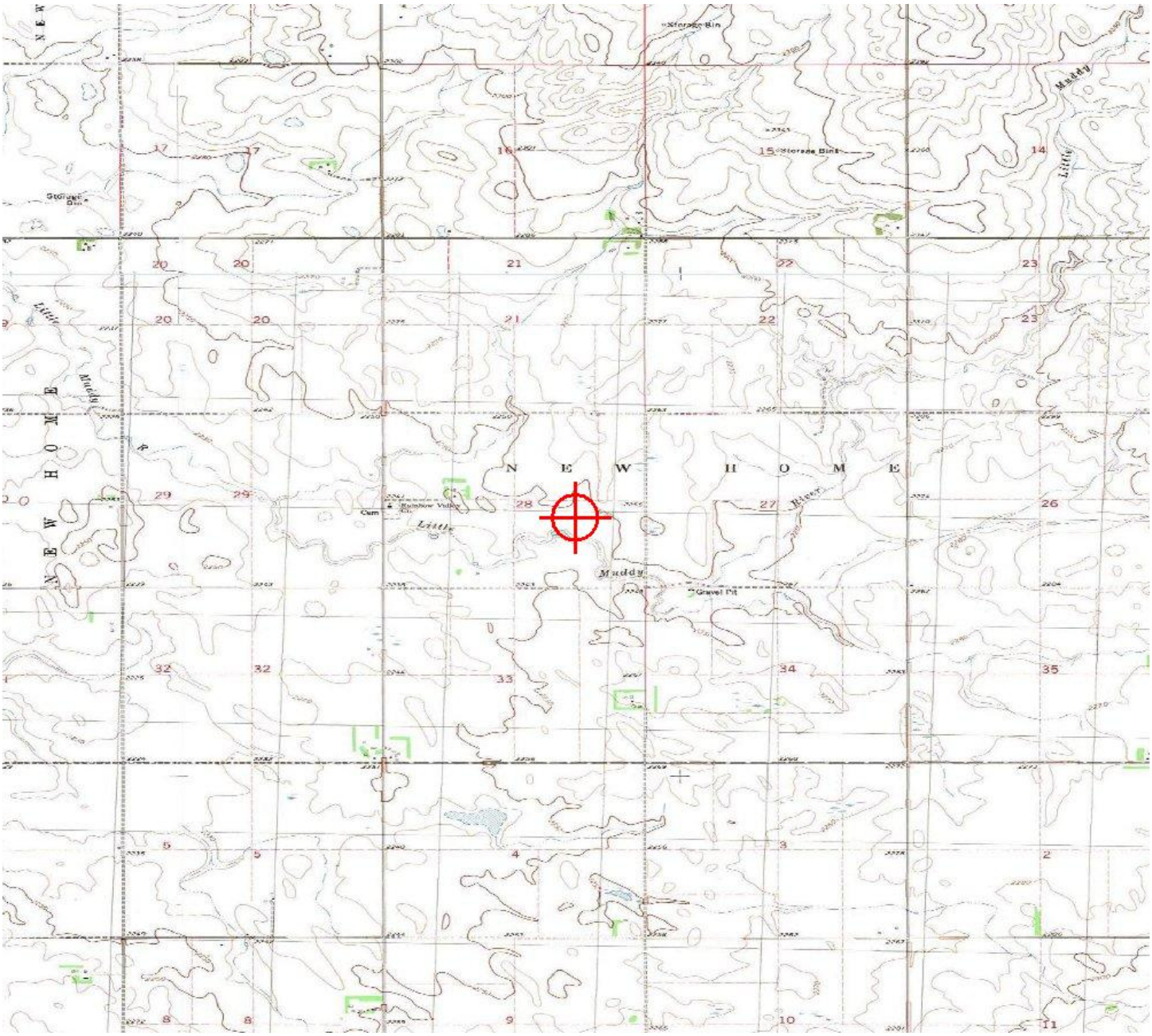
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

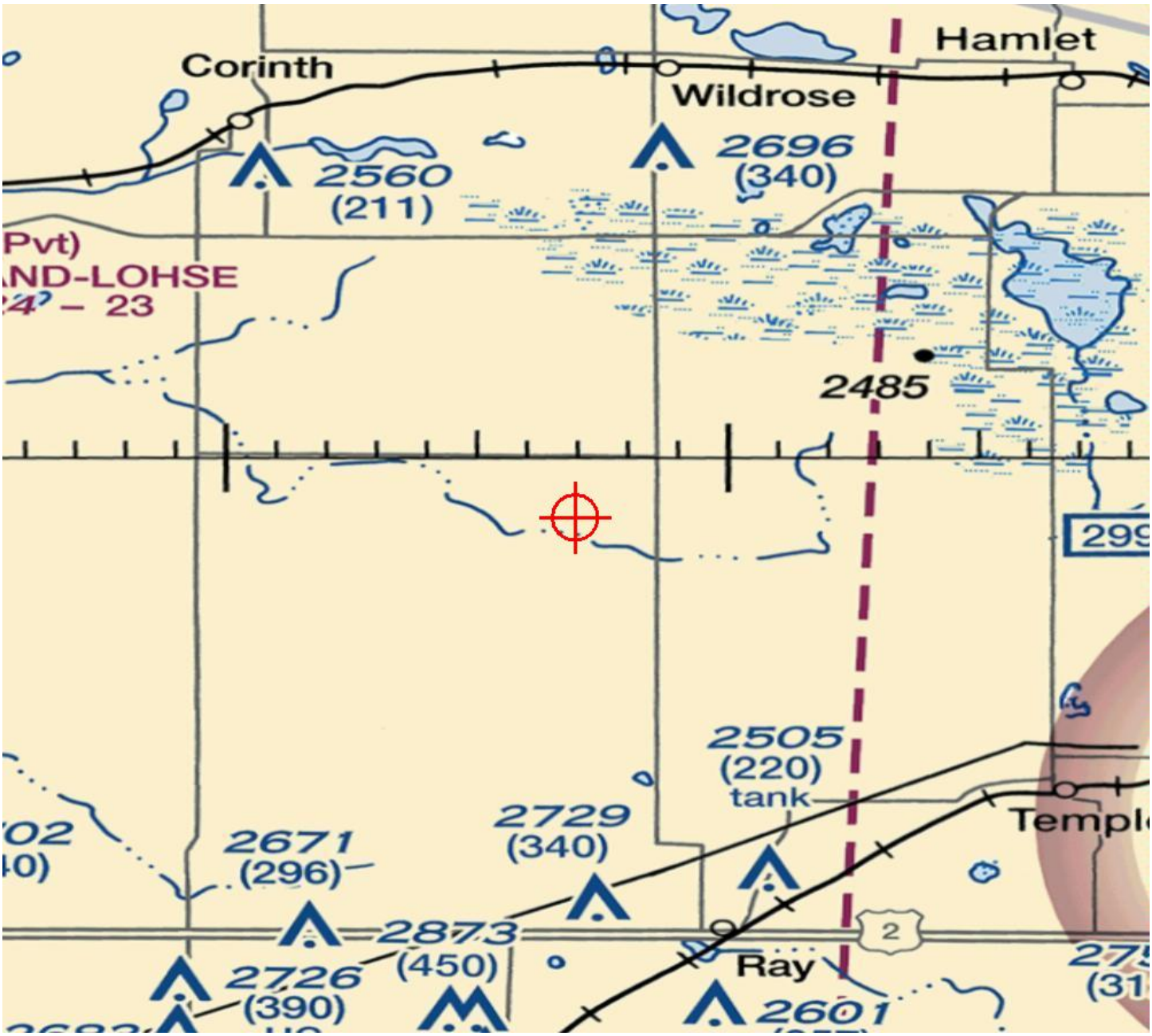
Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6968-OE



Sectional Map for ASN 2018-WTE-6968-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6969-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-172
Location:	Tioga, ND
Latitude:	48-35-10.05N NAD 83
Longitude:	103-12-28.64W
Heights:	2345 feet site elevation (SE)
	660 feet above ground level (AGL)
	3005 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6969-OE.

Signature Control No: 370538355-385972742 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
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The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

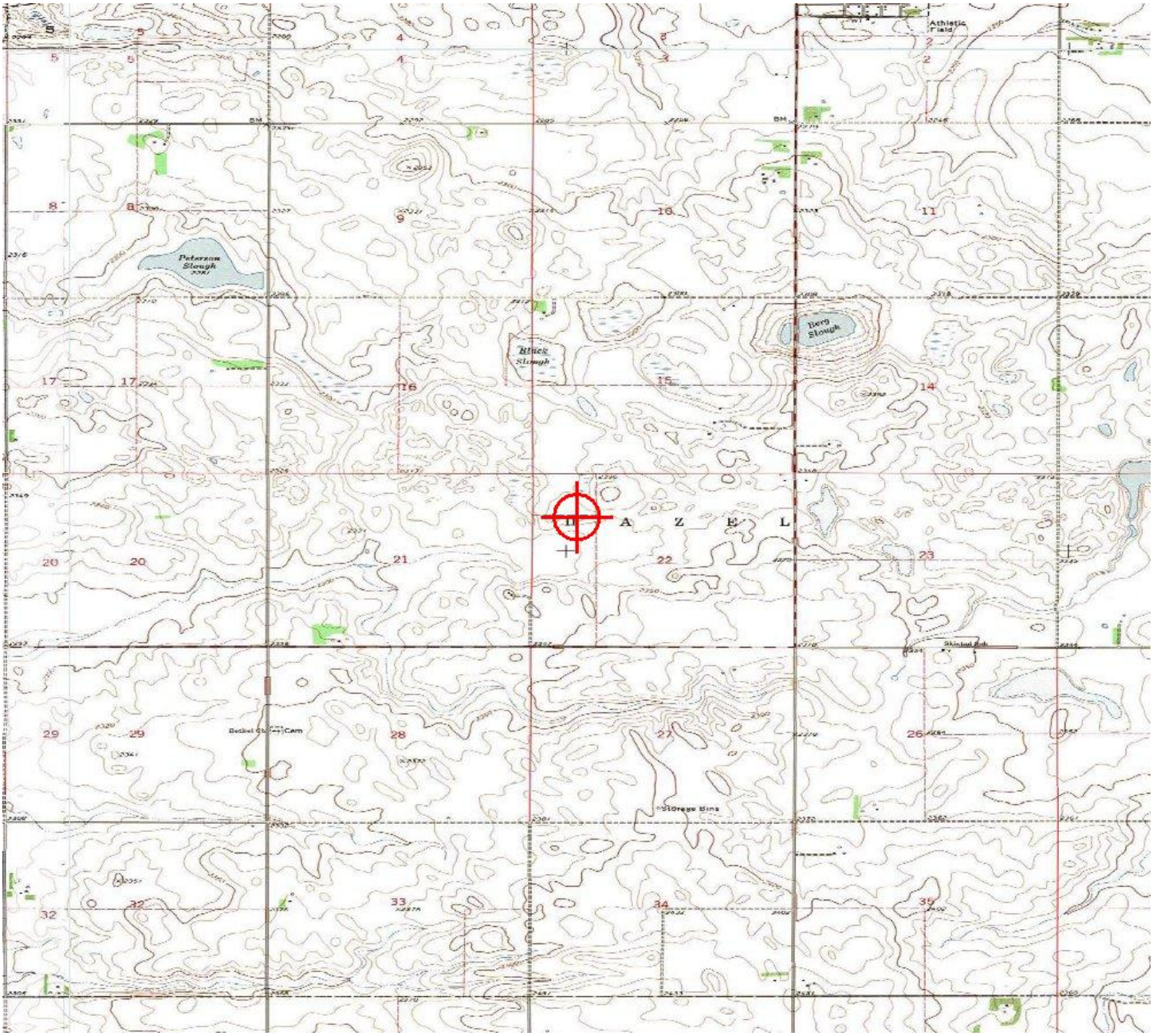
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6969-OE



Sectional Map for ASN 2018-WTE-6969-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6970-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-173
Location:	Tioga, ND
Latitude:	48-35-33.99N NAD 83
Longitude:	103-15-41.13W
Heights:	2332 feet site elevation (SE)
	660 feet above ground level (AGL)
	2992 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on November 04, 2018 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6970-OE.

Signature Control No: 370538356-385972746 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
CFR, Code of Federal Regulations
GPS, Global Positioning System
MSA, Minimum Safe Altitude
NEH, No Effect Height
NM, Nautical Mile
RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE

2018-WTE-6898-OE
2018-WTE-6900-OE
2018-WTE-6902-OE
2018-WTE-6904-OE
2018-WTE-6905-OE

2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE
2018-WTE-6910-OE
2018-WTE-6911-OE

2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE

2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE
2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6911-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE

2018-WTE-6915-OE
2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE

2018-WTE-6920-OE
2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE

2018-WTE-6925-OE
2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE
2018-WTE-6920-OE

2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

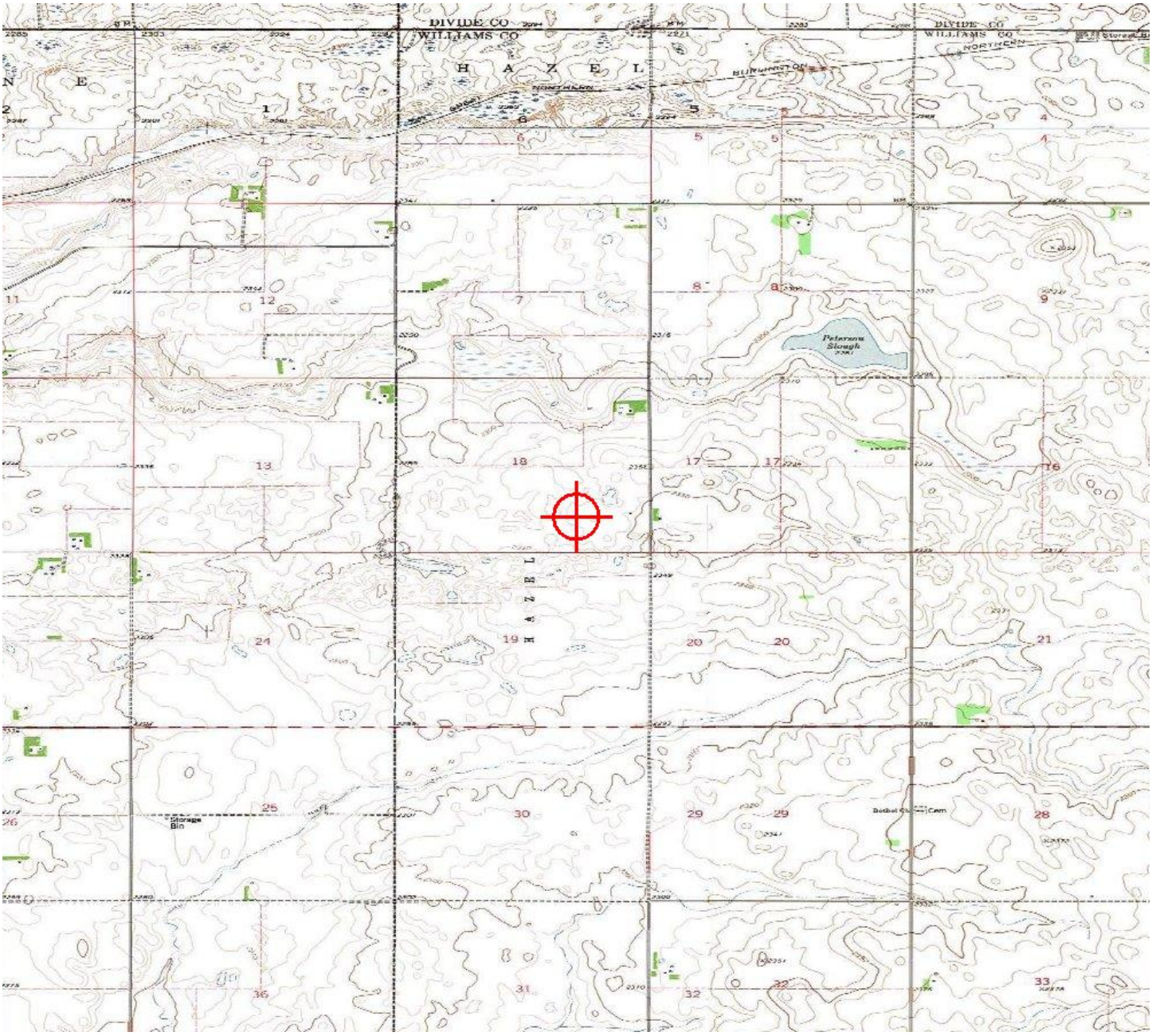
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6970-OE



Sectional Map for ASN 2018-WTE-6970-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-6971-OE

Issued Date: 09/25/2018

Leslie Strong
Aurora Wind Project, LLC
16105 W 113th Street
Suite 105
Lenexa, KS 66219

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T-174
Location:	Tioga, ND
Latitude:	48-35-35.09N NAD 83
Longitude:	103-16-13.29W
Heights:	2329 feet site elevation (SE)
	660 feet above ground level (AGL)
	2989 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 03/25/2020 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 25, 2018. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

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This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

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Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be

used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Brian Barnes, at (816) 329-2524, or brian.a.barnes@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6971-OE.

Signature Control No: 370538359-385972749 (DNH -WT)
Kent M. Wheeler
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

Abbreviations:
AGL, Above Ground Level
AMSL, Above Mean Sea Level
ASN, Aeronautical Study Number
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MSA, Minimum Safe Altitude
NEH, No Effect Height
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RNAV, Area Navigation
RWY, Runway

The proposed structures are part of a proposed wind farm that would be located approximately 7.61 - 20.48 NM northwest of the Airport Reference Point for the Tioga Municipal Airport (D60), Tioga, ND. The ASNs with coordinates, AGL heights, and AMSL heights are as shown on page one. They would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(1): by 161 feet; a height that exceeds 499 feet AGL.

Section 77.17(a)(3): A height that increases a minimum instrument flight altitude within a terminal area;

The following would increase the minimum altitude on the initial segment from FONIA to CAKDU of the D60 RNAV (GPS) RWY 12 from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE

2018-WTE-6898-OE
2018-WTE-6900-OE
2018-WTE-6902-OE
2018-WTE-6904-OE
2018-WTE-6905-OE

2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE
2018-WTE-6910-OE
2018-WTE-6911-OE

2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6918-OE
2018-WTE-6931-OE
2018-WTE-6950-OE

2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE

The following would increase the D60 RNAV (GPS) RWY 12/30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6839-OE
2018-WTE-6840-OE
2018-WTE-6841-OE
2018-WTE-6842-OE
2018-WTE-6843-OE

2018-WTE-6844-OE
2018-WTE-6845-OE
2018-WTE-6846-OE
2018-WTE-6847-OE
2018-WTE-6848-OE

2018-WTE-6850-OE
2018-WTE-6851-OE
2018-WTE-6852-OE
2018-WTE-6853-OE
2018-WTE-6854-OE

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE

2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE
2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6911-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE

2018-WTE-6915-OE
2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE

2018-WTE-6920-OE
2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE

2018-WTE-6925-OE
2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE

2018-WTE-6933-OE
2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE

2018-WTE-6954-OE
2018-WTE-6955-OE
2018-WTE-6956-OE
2018-WTE-6969-OE

The following would increase the Crosby Municipal Airport, Crosby, ND. (D50) RNAV (GPS) RWY 30 MSA from 4,000 feet AMSL to 4,100 feet AMSL. The NEH is 3,000 feet AMSL.

2018-WTE-6859-OE
2018-WTE-6860-OE
2018-WTE-6861-OE
2018-WTE-6862-OE
2018-WTE-6863-OE

2018-WTE-6864-OE
2018-WTE-6865-OE
2018-WTE-6866-OE
2018-WTE-6867-OE
2018-WTE-6868-OE

2018-WTE-6869-OE
2018-WTE-6870-OE
2018-WTE-6874-OE
2018-WTE-6875-OE
2018-WTE-6877-OE

2018-WTE-6878-OE
2018-WTE-6879-OE
2018-WTE-6880-OE
2018-WTE-6882-OE
2018-WTE-6883-OE

2018-WTE-6884-OE
2018-WTE-6885-OE
2018-WTE-6886-OE
2018-WTE-6887-OE
2018-WTE-6888-OE

2018-WTE-6889-OE
2018-WTE-6890-OE
2018-WTE-6891-OE
2018-WTE-6892-OE

2018-WTE-6893-OE

2018-WTE-6894-OE
2018-WTE-6895-OE
2018-WTE-6896-OE
2018-WTE-6897-OE
2018-WTE-6898-OE

2018-WTE-6899-OE
2018-WTE-6900-OE
2018-WTE-6901-OE
2018-WTE-6902-OE
2018-WTE-6903-OE

2018-WTE-6904-OE
2018-WTE-6905-OE
2018-WTE-6906-OE
2018-WTE-6907-OE
2018-WTE-6908-OE

2018-WTE-6910-OE
2018-WTE-6912-OE
2018-WTE-6913-OE
2018-WTE-6914-OE
2018-WTE-6915-OE

2018-WTE-6916-OE
2018-WTE-6917-OE
2018-WTE-6918-OE
2018-WTE-6919-OE
2018-WTE-6920-OE

2018-WTE-6921-OE
2018-WTE-6922-OE
2018-WTE-6923-OE
2018-WTE-6924-OE
2018-WTE-6925-OE

2018-WTE-6926-OE
2018-WTE-6927-OE
2018-WTE-6930-OE
2018-WTE-6931-OE
2018-WTE-6933-OE

2018-WTE-6938-OE
2018-WTE-6950-OE
2018-WTE-6951-OE
2018-WTE-6952-OE
2018-WTE-6954-OE

The proposal was circularized on August 08, 2018 under ASN 2018-WTE-6838-OE to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received as a result of the circularization.

Study for possible IFR effect disclosed that the proposed structures would have the adverse effect as described above on MSAs. An MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect and are not circulated to the public for comment. Study revealed the increase to the initial segment of the D60 RNAV (GPS) RWY 12 would not impact a significant number of operations. There would be no other effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on existing or proposed VFR arrival or departure operations. The proposals are beyond traffic pattern airspace. No information was received to indicate this proposed structure would be a problem for aircraft operating in any traffic pattern. Therefore, the proposal would not have an effect on VFR traffic pattern operations at D60 or any other known public use or military airports. At 660 feet AGL, the structures would penetrate altitudes commonly used for en route VFR flight, however no information was received to indicate they would be located within any known regularly used VFR routes. Therefore, they would not have a substantial adverse effect on en route VFR flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary

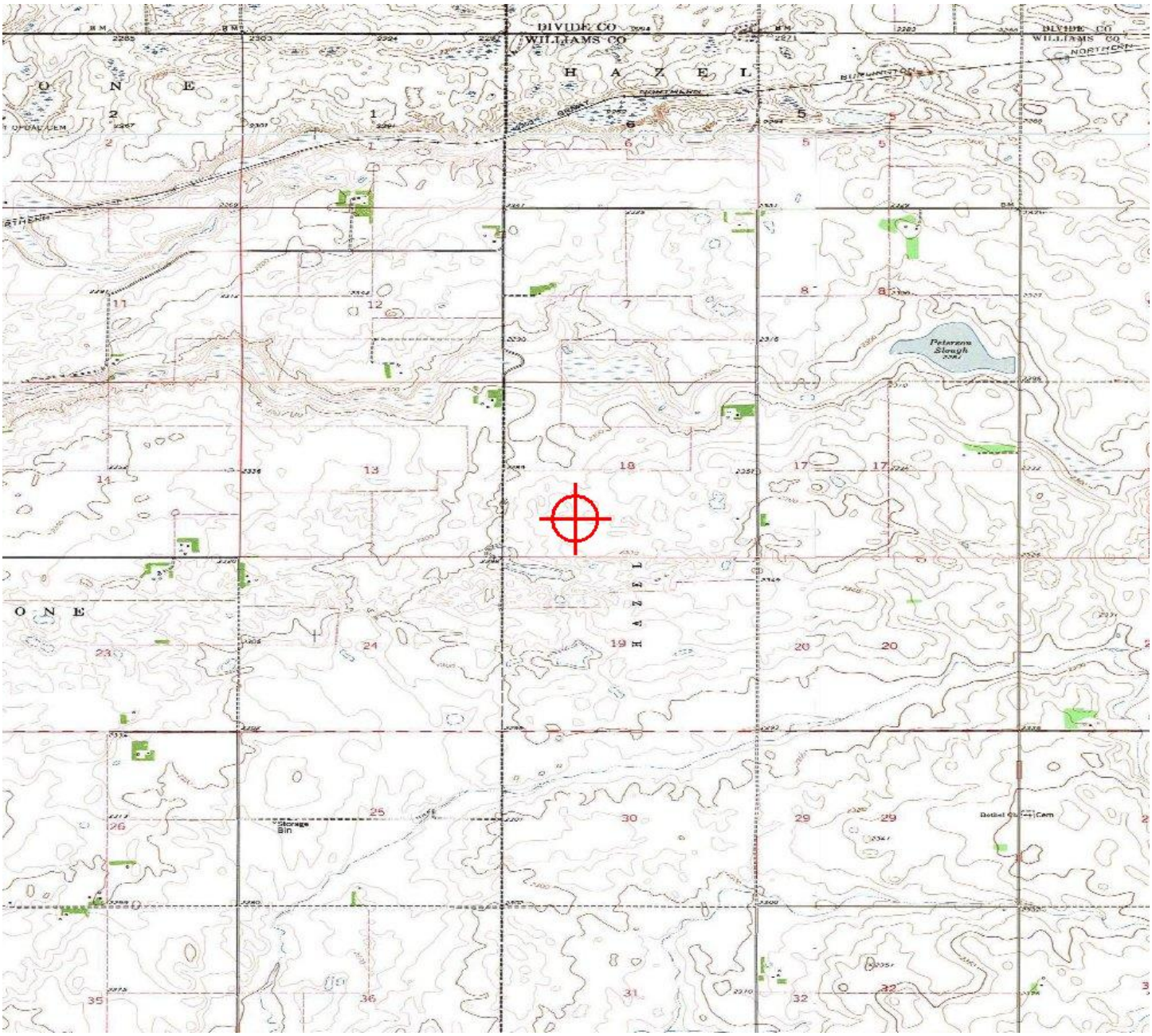
The cumulative impact of the structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the structure affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 full days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s) and/or altitude(s).

TOPO Map for ASN 2018-WTE-6971-OE



Sectional Map for ASN 2018-WTE-6971-OE

