

**NDPSC FIELD CHECKLIST AND NOTES**
**OBSERVER: Andrew Vistad**

Project	Thunder Spirit	Project No.	PSC No. PU-11-601 (HEI #146077-006)
Date	7/25//2016	SITE VISIT	7/18/2016

**Site Visit Number and Observation Goals (i.e. 50% completed construction, as-built, reclamation etc.)**
**2<sup>nd</sup> site visit, as-built; post construction**
**Exclusion and Avoidance Areas / Siting and other Considerations for Visit**

Between turbine #19 and 2 <sup>nd</sup> street N, confirm restoration of impacted cultural site (accidental impact due to construction of a temp Tower)
Siting near cultural sites, verify outside of staked areas on 6, 10, 18, 19, 21, 30, 32, 40
Access road between #4 and #5: observe conditions around wetland area. Temporary impacts? Permanent impacts? Wetland restored? Erosion issues?
Access road between #30 and #40: observe conditions around wetland area. Temporary impacts? Permanent impacts? Wetland restored? Erosion issues?
Observe indications of seeding / restoration of disturbed areas. Do seeded areas appear to be germinating? Any bare spots? Cover crop?
Any erosion issues? Need for better erosion control areas?

**Timeline of Activity on Site**

Time	Activity
8:30 CDT	Arrive on site, Spoke with Darin Holzer.
9:00 CDT	Observation throughout project.
16:30 CDT	Left Site

**Photograph Log**

1	Tower 30. Facing East.	12	Tower 40. Facing North West.	23	Wetland between Tower 6 and 7. Facing North West.
2	Between Tower 30 and 31. Facing North.	13	Tower 40. Facing North West.	24	Between Tower 6 and 7. Facing South East.
3	Between Tower 30 and 40. Facing South East.	14	Tower 40. Facing South East.	25	Tower 10. Facing East.
4	Between Tower 30 and 40. Facing North East.	15	Tower 40 access road. Facing North East.	26	Tower 10. Facing North.
5	Tower 31. Facing North East.	16	Tower 7. Facing South West.	27	Tower 10. Facing South.
6	Tower 31. Facing West.	17	Tower 7. Facing South East.	28	Tower 10. Facing North West.
7	Tower 31. Facing West.	18	Tower 7. Facing East.	29	Tower 19. Facing West.
8	Tower 40. Facing East	19	Tower 8. Facing West.	30	Tower 18. Facing East.
9	Tower 40. Facing East.	20	Tower 8. Facing South.	31	Tower 21. Facing North West.
10	Tower 40. Facing North	21	Tower 8. Facing South West.	32	Tower 21. Facing East.
11	Tower 40. Facing North West.	22	Between Tower 6 and 7. Facing North West.		

**NOTES:**

Houston Engineering, Inc.



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8:30 CDT – Arrived on site and met with Darin Holzer and spoke about the background of the project. Most of the project is accessible from roads adjacent to the wind towers. Some of the tower are on active pasture land and gates are unlocked. Darin provided me with a map of the wind farm. MDU tower numbers differ from Houston Engineering documents, all tower numbers referenced below correlate with Houston Engineering maps.

9:00 CDT – There is vegetation covering the construction area around Tower 30. Construction adjacent to Tower 30 did not approach the cultural site. South of the Tower reclamation of the buried line between Tower 30 and 40 appears to have minimal vegetation and as a result some erosion is occurring. The bare area is pictured in pictures 3 and 4. Also along the buried line is a wetland crossing. The crossing was bored with no temporary or permanent impacts.

Up the channel there was another crossing of the wetland by a buried power line. The crossing pictured in picture 15 appears to have some temporary impacts. Between Towers 30 and 31 there is a culvert that is running under the road. The area around the culvert (picture 2) doesn't have any established vegetation and significant erosion is occurring. The culvert is about 66% filled with sediment and as a result does not have enough capacity to convey the storm water under the roadway.

Tower 31 construction of the roadway was in the vicinity of a cultural site but no impacts were observed. Vegetation in the area appears to be adequate. There are a few culverts under the roadway between Towers 30 and 40. One of these culverts appears to have some sediment loading. This culvert is pictured in picture 8. Along the access road there also appears to be some erosion of the aggregate surfacing (picture 14).

Tower 40 appears to have good vegetation establishment and didn't impact the adjacent cultural sites. Tower 7 had some vegetation establishment and some small bare areas. The soil here appears to have little SPGM which could be causing some of the vegetation issues.

A temporary access road was constructed through a wetland between Towers #4 and #5, and has since been restored. No permanent impacts were observed.

The grading at Tower 7 does not impact the cultural site to the south. The access road leading to Tower 8 has some erosion occurring. There is a culvert that is about 50% filled with sediment. The sediment loading does not appear to be causing overflowing of the roadway. Adjacent to the tower, grading was near the cultural site but no impacts were observed.

Between Towers 6 and 7 there was an underground cable installed. Half of the reclamation appears to be very rough with large piles of SPGM and minimal vegetation. Half way between the Towers there was a wetland crossing that was bored with no visible imprint from temporary impacts.

Tower 10 had grading adjacent to a cultural site. The grading was completed near the cultural site but did not impact the cultural site. The slope adjacent to the cultural site is somewhat steep and vegetation is having a hard time establishing. There is some rill erosion taking place on the slope that could lead to a larger problem and erode into the cultural site (picture 28). Other reclamation at Tower 10 appears to be vegetating adequately.

Towers 18 and 19 are adjacent to a large cultural area. There appears to be no impacts on the cultural area adjacent to Tower 18. Tower 19 has cropland covering the cultural area so impacts could not be observed. Reclamation adjacent to Tower 21 did not approach the cultural area and there were no impacts.

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Vegetation around Tower 21 is adequate with large amounts of what appears to be native vegetation / wild flowers.

With the exception of the areas mentioned above that were lacking vegetative cover, and/or contained erosion issues, the spring restoration activities are observable in the field and appear to be establishing successfully.

16:30 CDT – Left site.

**OBSERVERS's SIGNATURE: Andrew Vistad**