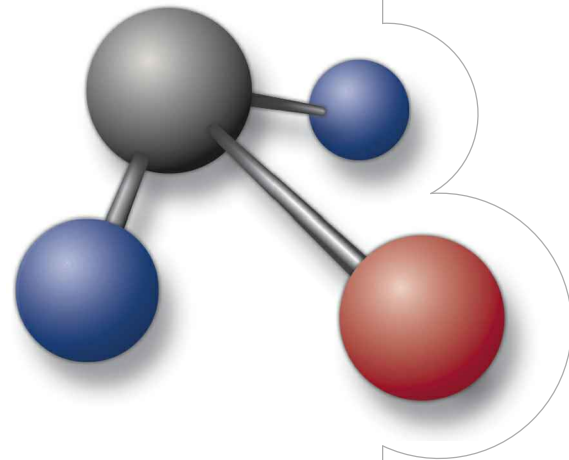


# THUNDER SPIRIT WIND ENERGY PROJECT

## WANZEK CONSTRUCTION, INC.



### SURVEY NOTES

- 1) HORIZONTAL DATUM: NORTH DAKOTA STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, NAD 83, GROUND, INTERNATIONAL FEET
- 2) VERTICAL DATUM: NAVD 88, GEOID 09

### GOVERNING SPECIFICATIONS

ALL CONSTRUCTION SHALL CONFORM TO THE FOLLOWING:

NORDEX TRANSPORT, ACCESS ROADS AND CRANE REQUIREMENTS, DOCUMENT #K0801\_011803\_EN, REVISION 6, DATED 2012-03-19.

GEOTECHNICAL ENGINEERING REPORT FOR THE THUNDER SPIRIT WIND PROJECT, SEPTEMBER 2014, PREPARED BY BARR ENGINEERING COMPANY

ADAMS COUNTY PERMIT SPECIFICATIONS

2014 NDDOT STANDARD SPECIFICATIONS

PREPARED FOR:  
**WANZEK CONSTRUCTION, INC.**

**ISSUED FOR CONSTRUCTION**

CONTACT: JEREMY SARGENT  
PHONE: 419.204.0209  
AE2S Project No.: P08157-2014-003

MAY, 2015

## **PROJECT DRAWINGS**

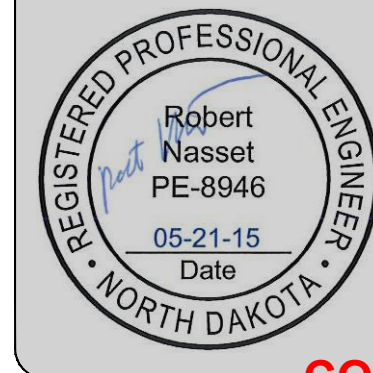
**Advanced Engineering and Environmental Services, Inc.**  
103 1st Avenue West, Suite 300 Dickinson, ND 58601  
(t) 701-225-9636 (f) 701-225-9616 www.ae2s.com

**ENGINEERING TEAM**

*CIVIL ENGINEER*  
Advanced Engineering and  
Environmental Services, Inc.

**CERTIFICATION**

*CIVIL ENGINEER*  
Advanced Engineering and  
Environmental Services, Inc.



Certification Of Individual  
Project Design Disciplines Are  
Included On Their Individual  
Drawings, Respectively.

**CONSTRUCTION**

**INDEX OF DRAWINGS**

SHEET NO.	DESCRIPTION
G1	COVER SHEET
G2	INDEX OF DRAWINGS
G3	LOCATION MAP
G4	GENERAL NOTES
C1	MASTER SITE PLAN
C2	TRANSPORTATION PLAN
C3	HIGHWAY 12 INTERSECTION
C4	ACCESS ROAD - TURBINE 1-3 - PLAN AND PROFILE
C5	ACCESS ROAD - TURBINE 4 - PLAN AND PROFILE
C6	ACCESS ROAD - TURBINE 5-6 - PLAN AND PROFILE
C7	ACCESS ROAD - TURBINE 7 - PLAN AND PROFILE
C8	ACCESS ROAD - TURBINE 8 - PLAN AND PROFILE
C9	ACCESS ROAD - TURBINE 9-10 - PLAN AND PROFILE
C10	ACCESS ROAD - TURBINE 9-10 - PROFILE
C11	ACCESS ROAD - TURBINE 11 - PLAN AND PROFILE
C12	ACCESS ROAD - TURBINE 12-13 - PLAN AND PROFILE
C13	ACCESS ROAD - TURBINE 14-15 - PLAN AND PROFILE
C14	ACCESS ROAD - TURBINE 16 - PLAN
C15	ACCESS ROAD - TURBINE 16 - PROFILE
C16	ACCESS ROAD - TURBINE 17-18 - PLAN
C17	ACCESS ROAD - TURBINE 17-18 - PROFILE
C18	ACCESS ROAD - TURBINE 19 - PLAN AND PROFILE
C19	ACCESS ROAD - TURBINE 19 - PLAN AND PROFILE
C20	ACCESS ROAD - TURBINE 20 - PLAN AND PROFILE
C21	ACCESS ROAD - TURBINE 21 - PLAN AND PROFILE
C22	ACCESS ROAD - TURBINE 22 - PLAN AND PROFILE
C23	ACCESS ROAD - TURBINE 23-25 - PLAN AND PROFILE
C24	ACCESS ROAD - TURBINE 24 - PLAN AND PROFILE
C25	ACCESS ROAD - TURBINE 26 - PLAN AND PROFILE
C26	ACCESS ROAD - TURBINE 27 - PLAN AND PROFILE
C27	ACCESS ROAD - TURBINE 28-29 - PLAN
C28	ACCESS ROAD - TURBINE 28-29 - PROFILE
C29	ACCESS ROAD - TURBINE 30-31 - PLAN AND PROFILE
C30	ACCESS ROAD - TURBINE 32 - PLAN AND PROFILE
C31	ACCESS ROAD - TURBINE 33-34 - PLAN AND PROFILE
C32	ACCESS ROAD - TURBINE 35-36 - PLAN AND PROFILE
C33	ACCESS ROAD - TURBINE 36 - PLAN
C34	ACCESS ROAD - TURBINE 36 - PROFILE
C35	ACCESS ROAD - TURBINE 37-38 - PLAN AND PROFILE
C36	ACCESS ROAD - TURBINE 39 - PLAN AND PROFILE
C37	ACCESS ROAD - TURBINE 40-41 - PLAN AND PROFILE
C38	ACCESS ROAD - TURBINE 42-43 - PLAN AND PROFILE
C39	TYPICAL ROADWAY DETAILS
C40	TYPICAL ROADWAY DETAILS
C41	CULVERT DETAILS
C42	DRAINAGE BASIN MASTER PLAN
C43	EROSION AND SEDIMENT CONTROL DETAILS
C44	EROSION AND SEDIMENT CONTROL DETAILS
C45	EROSION AND SEDIMENT CONTROL DETAILS



SYM	DATE	DESCRIPTION	APPR
7	05/21/15	Issued For Construction	BN
6	05/20/15	Issued For Construction	BN
5	05/13/15	Issued For Construction	BN
4	04/28/15	95% Review Set Issued	BN

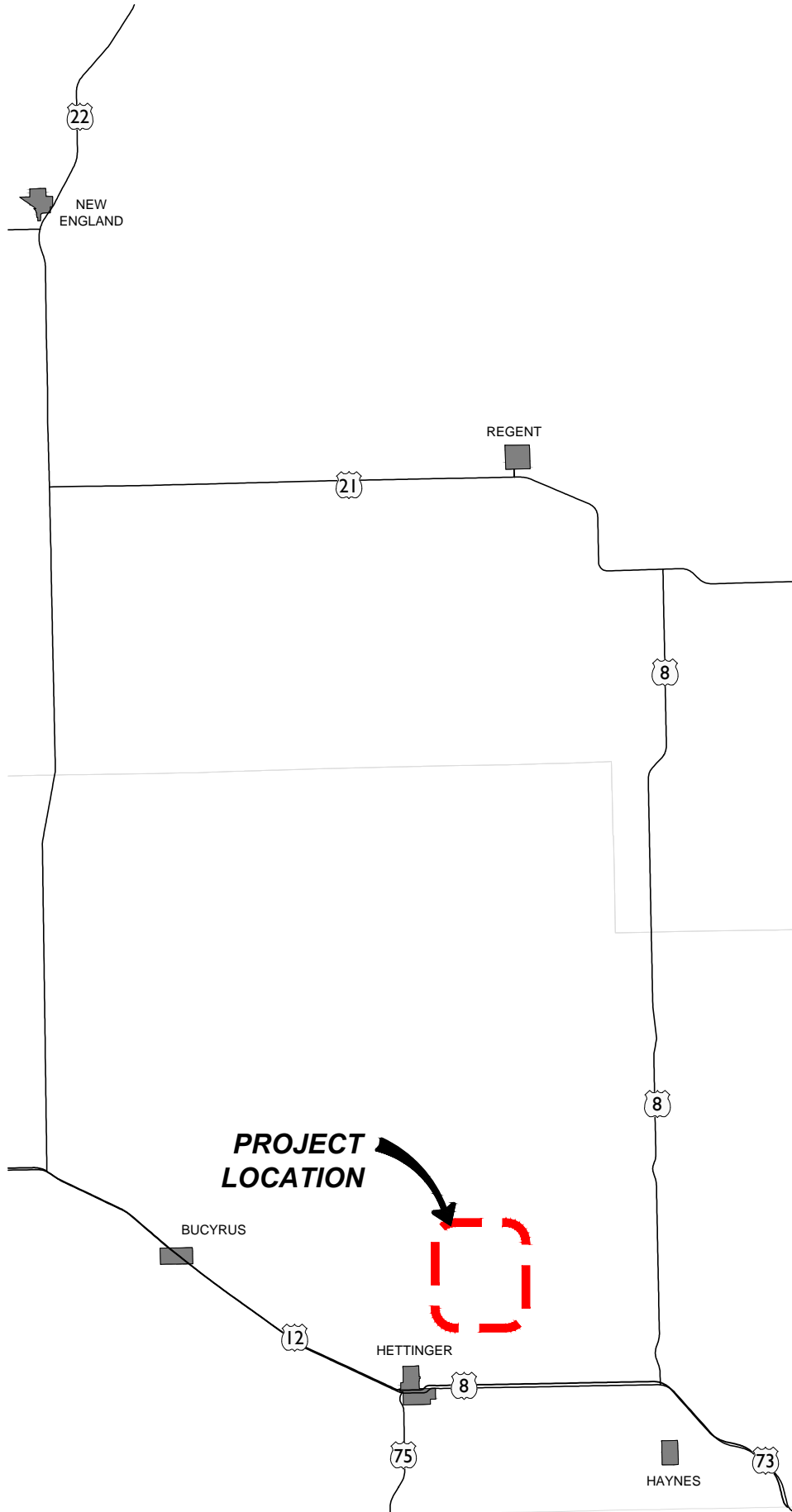


THUNDER SPIRIT WIND ENERGY PROJECT  
 WANZEK CONSTRUCTION, INC.  
 ADAMS COUNTY, NORTH DAKOTA

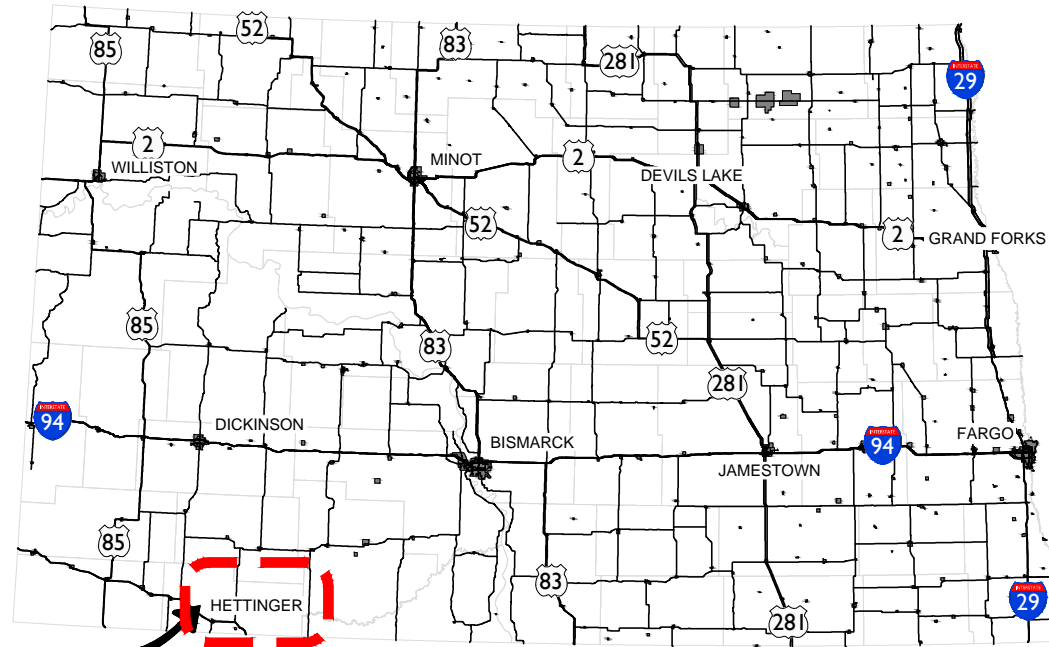
DRAWING TYPE	CONSTRUCTION
PREPARED BY	ALT
CHECKED / APPROVED	BN / BN
DATE	MAY 2015
PROJECT NUMBER	P08157-2014-003
SHEET	2 of 49
DRAWING	<b>G2</b>

Layout: LOCATION MAP  
 File: \\011.01\projects\Wanzer\08157-2014-003 TSWE Site Design\040 Final Design\Drawings\Civil\Sheet\G3-WAN WFT\LOCRTY MAP.dwg

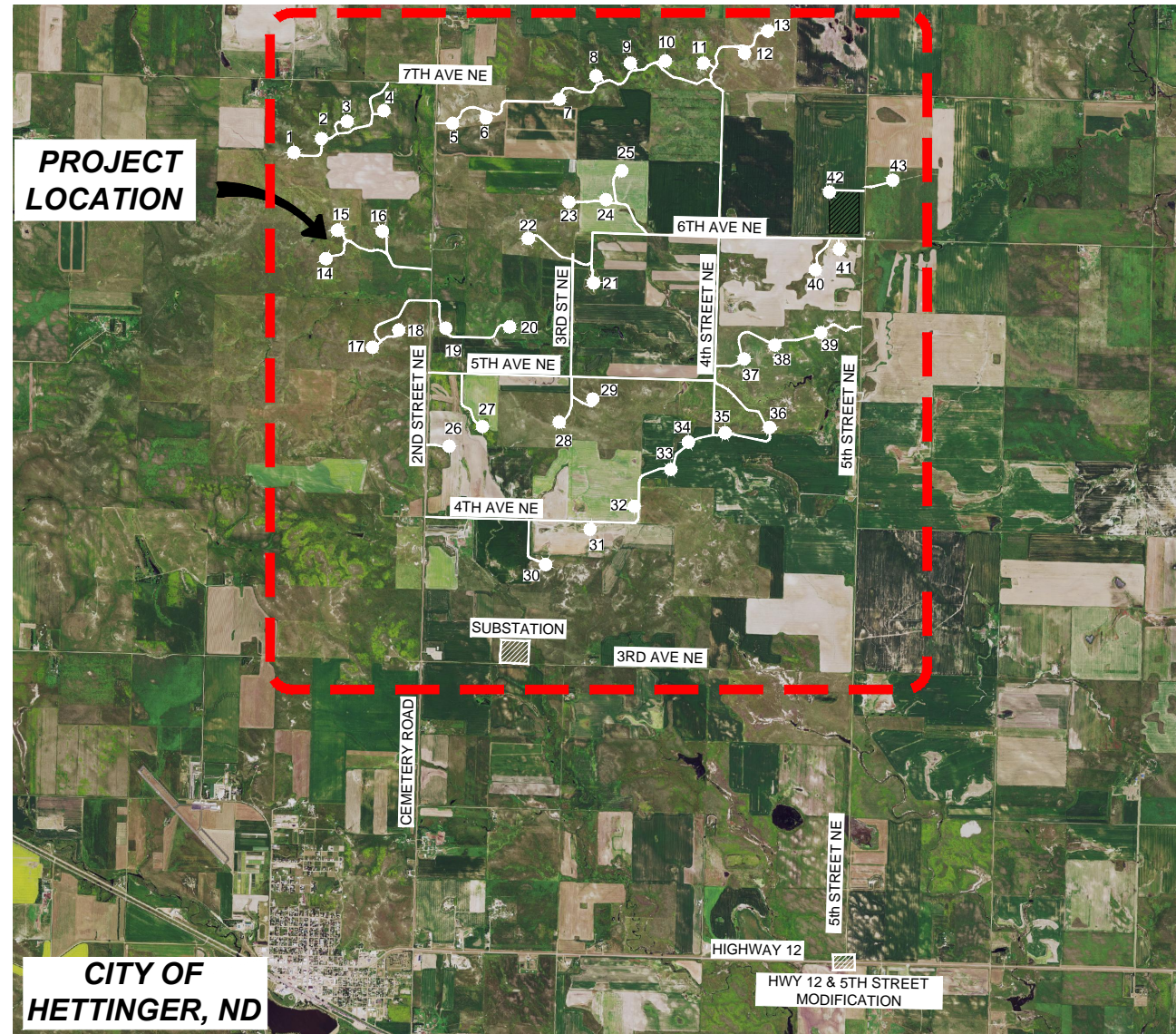
Plotted By: Amber Trout Date: Thursday, May 21, 2015  
 Last Saved By: Amber Trout Date: Thursday, May 21, 2015 2:30:03 PM



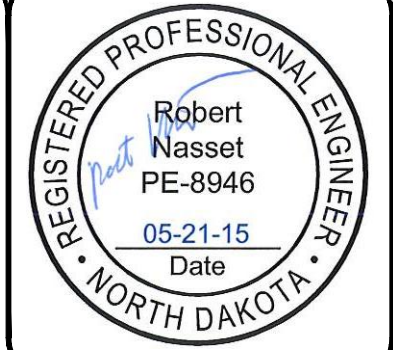
**2 VICINITY MAP**  
 G3 NOT TO SCALE



**1 LOCATION MAP**  
 G3 NOT TO SCALE



**3 PROJECT MAP**  
 G3 NOT TO SCALE



SYM	DATE	DESCRIPTION	APPR
7	05/24/15	Issued For Construction	BN
6	05/20/15	Issued For Construction	BN
5	05/13/15	Issued For Construction	BN
4	04/28/15	95% Review Set Issued	BN



THUNDER SPIRIT WIND ENERGY PROJECT  
 WANZEK CONSTRUCTION, INC.  
 ADAMS COUNTY, NORTH DAKOTA

DRAWING TYPE	CONSTRUCTION
PREPARED BY	ALT
CHECKED / APPROVED	BN / BN
DATE	MAY 2015
PROJECT NUMBER	P08157-2014-003
SHEET	3 of 49

DRAWING  
**G3**

**CONSTRUCTION**

Turbine Locations					
NO.	TURBINE NAME	NORTHING	EASTING	LATITUDE	LONGITUDE
1	TURBINE 1	159106.39	1424991.85	46.08	-102.64
2	TURBINE 2	159610.17	1426003.11	46.08	-102.64
3	TURBINE 3	160244.39	1426945.35	46.09	-102.63
4	TURBINE 4	160622.79	1428191.86	46.09	-102.63
5	TURBINE 5	160169.13	1430801.82	46.09	-102.62
6	TURBINE 6	160401.97	1431919.03	46.09	-102.61
7	TURBINE 7	161049.00	1434711.79	46.09	-102.60
8	TURBINE 8	161767.76	1436194.00	46.09	-102.60
9	TURBINE 9	162179.77	1437447.79	46.09	-102.59
10	TURBINE 10	162448.73	1438581.90	46.09	-102.59
11	TURBINE 11	162375.21	1439975.92	46.09	-102.58
12	TURBINE 12	162739.18	1441487.53	46.09	-102.58
13	TURBINE 13	163547.55	1442335.00	46.10	-102.57
14	TURBINE 14	155220.18	1426166.33	46.07	-102.64
15	TURBINE 15	156262.87	1426593.15	46.08	-102.64
16	TURBINE 16	156222.44	1428227.90	46.08	-102.63
17	TURBINE 17	151981.81	1427866.12	46.06	-102.63
18	TURBINE 18	152612.30	1428830.71	46.07	-102.63
19	TURBINE 19	152677.19	1430553.73	46.07	-102.62
20	TURBINE 20	152729.14	1432886.54	46.07	-102.61
21	TURBINE 21	154334.80	1435960.53	46.07	-102.60
22	TURBINE 22	156049.50	1433654.59	46.07	-102.61
23	TURBINE 23	157285.55	1435056.50	46.08	-102.60
24	TURBINE 24	157380.89	1436413.54	46.08	-102.60
25	TURBINE 25	158434.35	1436992.55	46.08	-102.59
26	TURBINE 26	148362.44	1430672.37	46.05	-102.62
27	TURBINE 27	149082.35	1431892.61	46.06	-102.61
28	TURBINE 28	149244.76	1434699.13	46.06	-102.60
29	TURBINE 29	150090.20	1435931.90	46.06	-102.60
30	TURBINE 30	144036.77	1434202.69	46.04	-102.60
31	TURBINE 31	145324.81	1435829.99	46.05	-102.60
32	TURBINE 32	146164.58	1437445.15	46.05	-102.59
33	TURBINE 33	147515.18	1438786.70	46.05	-102.59
34	TURBINE 34	148512.34	1439427.85	46.05	-102.58
35	TURBINE 35	148852.51	1440770.30	46.06	-102.58
36	TURBINE 36	149051.00	1442393.72	46.06	-102.57
37	TURBINE 37	151554.45	1441468.35	46.06	-102.58
38	TURBINE 38	152058.68	1442591.70	46.06	-102.57
39	TURBINE 39	152522.77	1444280.82	46.07	-102.57
40	TURBINE 40	154813.88	1444074.02	46.07	-102.57
41	TURBINE 41	155716.44	1444988.94	46.07	-102.56
42	TURBINE 42	157656.88	1444585.49	46.08	-102.56
43	TURBINE 43	158092.25	1446902.02	46.08	-102.56

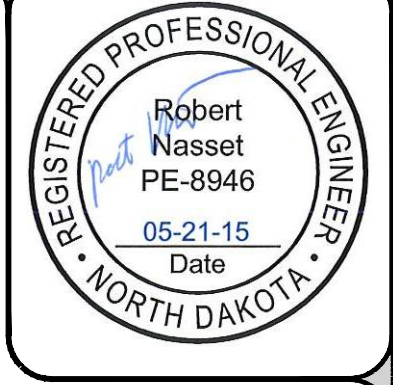
HORIZONTAL DATUM: NORTH DAKOTA STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, NAD 83, GROUND, INTERNATIONAL FEET

**GENERAL NOTES:**

- THESE NOTES APPLY TO THE ENTIRE PLAN SET EXCEPT AS INDICATED OTHERWISE. CONTRACTOR SHOULD NOTE THAT ADDITIONAL CONSTRUCTION NOTES ARE INCLUDED ON INDIVIDUAL DRAWINGS AND PROVIDED IN THE SPECIFICATIONS.
- THIS PLAN SET HAS A LIST OF GENERAL ABBREVIATIONS AND SYMBOLS AND MATERIALS LEGENDS LISTED ON IT. SOME SYMBOLS, MATERIALS, AND ABBREVIATIONS MAY NOT BE UTILIZED ON THIS SPECIFIC PROJECT.
- ALL CONTOURS, ELEVATIONS, AND COORDINATES FOR THE PROJECT ARE BASED ON NAD83 STATE PLANE COORDINATE SYSTEM (NDDOT GROUND COORDINATES), NORTH DAKOTA SOUTH ZONE AND NAVD-1988.
- THE ENGINEER WILL INITIALLY FURNISH AND SET CONSTRUCTION STAKES AND MARKS FOR ALIGNMENT AND PROJECT CONTROL. THESE STAKES AND MARKS WILL BE SET ONLY AT THE ONSET OF THE PROJECT AND SHALL CONSTITUTE THE FIELD CONTROL FOR THE CONTRACTOR'S USE IN ESTABLISHING ALL NECESSARY CONTROL TO PERFORM THE WORK. (BEFORE THE SURVEY CREW LEAVES THE SITE, THE CONTRACTOR SHALL DETERMINE THE MEANING OF ALL STAKES, MEASUREMENTS, AND MARKS). THE CONTRACTOR SHALL PRESERVE AND PROTECT ALL STAKES AND MARKS. THE OWNER AND ENGINEER ARE NOT RESPONSIBLE FOR STAKES AND MARKS DESTROYED OR DISTURBED.
- IN AREAS WHERE TOPSOIL IS PRESENT, CONTRACTOR SHALL SALVAGE EXISTING TOPSOIL TO FULL DEPTH FROM THE ENTIRE AREA TO BE DISTURBED AND WHERE EXCAVATED MATERIAL IS STOCKPILED (EXCLUDING TOPSOIL STOCKPILES). TOPSOIL SHALL BE FREE FROM VEGETATION, FOR REPLACEMENT DURING RESTORATION. THE TOPSOIL SHALL BE STRIPPED AND STOCKPILED PRIOR TO PIPELINE EXCAVATION PERFORMED BY BACKHOE. ANY CONTAMINATED TOPSOIL SHALL BE REPLACED.
- AS PART OF NPDES GENERAL STORMWATER PERMIT REQUIREMENTS, THE CONTRACTOR WILL BE RESPONSIBLE FOR REMOVING THE EROSION CONTROL AFTER VEGETATION HAS BEEN ESTABLISHED AND WHEN DIRECTED BY THE ENGINEER OR OWNER.
- CONTRACTOR SHALL BE RESPONSIBLE FOR DRAINAGE AND EROSION CONTROL DURING CONSTRUCTION AND AT PROJECT COMPLETION.
- COLOR IS USED ON THESE PLANS TO DESIGNATE VARIOUS SYMBOLS AND QUANTITIES. CONTRACTOR MUST ENSURE THAT PERSONNEL WORKING ON THIS PROJECT ARE IN POSSESSION OF COLORED PLANS ONLY.
- MISCELLANEOUS ITEMS SUCH AS MAILBOXES, ROAD SIGNS, FENCES, POLES, AND CULVERTS SHALL BE PROTECTED OR REMOVED AND REPLACED BY THE CONTRACTOR.
- GROUND WATER MAY BE ENCOUNTERED. PROVIDE AND MAINTAIN ADEQUATE DEWATERING EQUIPMENT TO REMOVE AND DISPOSE OF SURFACE AND GROUND WATER ENTERING THE TRENCH. COMPLY WITH ALL N.D. DEPARTMENT OF HEALTH REQUIREMENTS.
- ALL REFERENCES TO NDDOT STANDARD SPECIFICATIONS AND DETAILS ARE FOR THE 2014 EDITION.
- LOCATION OF INTERFACE OF PROPOSED ACCESS ROADS WITH EXISTING ROADS TO BE IMPROVED ARE APPROXIMATE.
- THE PLAN SET INCLUDES HORIZONTAL ALIGNMENTS THAT MEET THE TURBINE MANUFACTURER DELIVERY REQUIREMENTS. THE FINAL ALIGNMENT IS SUBJECT TO FIELD MODIFICATION AS NECESSARY TO OPTIMIZE EARTHWORK AND CONSTRUCTION, PROVIDED THAT ANY ALIGNMENT ADJUSTMENTS HAVE OWNER APPROVAL, AND MEET THE TURBINE MANUFACTURER DELIVERY REQUIREMENTS.
- THE PLAN SET INCLUDES VERTICAL ALIGNMENTS ILLUSTRATING PROPOSED VERTICAL CURVES AND LONGITUDINAL GRADE. THE VERTICAL ALIGNMENTS ARE FOR REFERENCE ONLY AND SUBJECT TO FIELD MODIFICATION AT THE DISCRETION OF THE CONSTRUCTION MANAGER WITH APPROVAL FROM THE OWNER. FINAL VERTICAL ALIGNMENTS NEED TO MEET THE TURBINE MANUFACTURER DELIVERY REQUIREMENTS FOR MAXIMUM GRADE, MAXIMUM BUMPS AND DIPS, AND MINIMUM VERTICAL CURVATURE.
- CULVERT LOCATIONS ARE SHOWN SYMBOLICALLY WITHIN THE PLAN SET AT THE INTERSECTION OF PLANNED ACCESS ROADS AND WATERSHEDS. FINAL EXACT CULVERT LOCATION SHALL BE FIELD VERIFIED TO MATCH WITH THE LOW POINT OF THE DRAINAGE WAY. FINAL CULVERT LENGTH AND INVERT ELEVATIONS SHALL BE DETERMINED BASED ON THE AMOUNT OF EMBANKMENT PLACED IN THE ROADWAY.
- MAINTAIN A MINIMUM OF 18" OF COVER AT ALL CULVERT LOCATIONS. IN AREAS WHERE PROPOSED GRADE DOES NOT INDICATE AVAILABLE COVER, CONTRACTOR SHALL EXCAVATE AND GRADE OUTLET AREA TO DAYLIGHT, OR BRING IN ADEQUATE FILL MATERIAL AS AVAILABLE, MAINTAINING MAXIMUM BUMPS AND DIPS AS SPECIFIED IN DETAIL 3/C40

**CONSTRUCTION NOTES:**

- ALL ROADWAY CONSTRUCTION SHALL CONFORM TO THE STANDARDS OUTLINED IN THE NORDEX TRANSPORT GUIDELINES AND PER THE RECOMMENDATIONS LISTED IN THE PROJECT GEOTECHNICAL REPORT SUBMITTED BY BARR ENGINEERING IN SEPTEMBER 2014. FOR CONSTRUCTION ACTIVITIES NOT COVERED BY THESE STANDARDS, THE 2014 NORTH DAKOTA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS SHALL APPLY.
- SITE PREPARATION FOR ROADWAYS SHOULD BE INITIATED BY REMOVING ALL SURFACE VEGETATION, ROOT ZONES, AND THE UPPER LAYER OF ORGANIC TOPSOIL AND OTHER UNSUITABLE MATERIALS. STRIPPING DEPTHS WILL VARY ACROSS THE SITE.
- AFTER TOPSOIL STRIPPING AND ROUGH GRADING ARE COMPLETE, THE EXPOSED SURFACE SHALL BE PROOF-ROLLED WITH A FULL LOADED TANDEM AXLE DUMP TRUCK HAVING A MINIMUM GROSS WEIGHT OF 25 TONS. FOR AREAS OF ANY OBSERVED SOIL PUMPING OR RUTS GREATER THAN 1", THE DEFICIENT MATERIALS SHOULD BE SUB-CUT AND REPLACED WITH SUITABLE FILL MATERIAL.
- COMPACTION OF FILL MATERIAL AND ROAD BASE SHOULD MEET A MINIMUM OF 95% OF LABORATORY MAXIMUM DRY DENSITY ACCORDING TO STANDARD PROCTOR AS DETERMINED BY ASTM D 698.
- IMPORTED FILL MATERIAL SPECIFICATIONS AND GRADATION SHALL BE SUBMITTED TO GEOTECHNICAL ENGINEER FOR APPROVAL.
- THE MAXIMUM LENGTH OF OPEN TRENCH AND UNRESTORED SURFACING SHALL BE 200 FEET, WHICHEVER IS LESS, UNLESS ADDITIONAL CREWS ARE PROVIDED FOR SEPARATE LOCATIONS. CONTRACTOR SHALL RESTORE SURFACES AS WORK PROGRESSES AND NOT WAIT UNTIL THE END OF THE PROJECT. PROPERTY OWNERS REQUESTS FOR FINAL SURFACE RESTORATION SHOULD BE ACCOMMODATED AS QUICKLY AS POSSIBLE. CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE WITHIN THE LIMITS OF RESTORATION WORK. CONTRACTOR SHALL REBUILD SURFACE SLOPES TO MATCH EXISTING CONDITIONS.
- ALL WORK DONE WITHIN THE HIGHWAY RIGHT-OF-WAY SHALL BE PERFORMED IN ACCORDANCE WITH NDDOT STANDARDS FOR CONSTRUCTION, SAFETY, PROTECTION OF THE PUBLIC, SIGNAGE, AND INSURANCE. CONTRACTOR SHALL BE RESPONSIBLE FOR SCHEDULING AND COORDINATING WORK WITH THE NDDOT'S DISTRICT ENGINEER. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND MEETING THE REQUIREMENTS OF ANY REQUIRED PERMITS INCLUDING THOSE REQUIRED BY NDDOT.
- ALL PROJECT AVOIDANCE AREAS WITHIN 500' OF CONSTRUCTION ACTIVITY WILL BE MARKED WITH A METAL POST WITH ROPE AND RIBBON. THE STAKES WILL BE SET AT A 25' OFFSET FROM THE ARCHEOLOGICAL BUFFER AREA.
- CONTRACTOR TO VERIFY OVERHEAD ELECTRIC LINE CLEARANCE AT ALL ACCESS ROAD CROSSINGS. CONTRACTOR TO COORDINATE WITH THE UTILITY COMPANY ON RELOCATION IF REQUIRED.

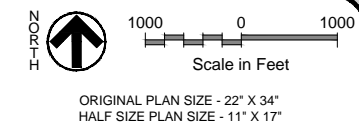
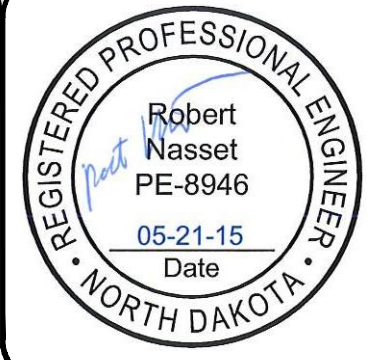
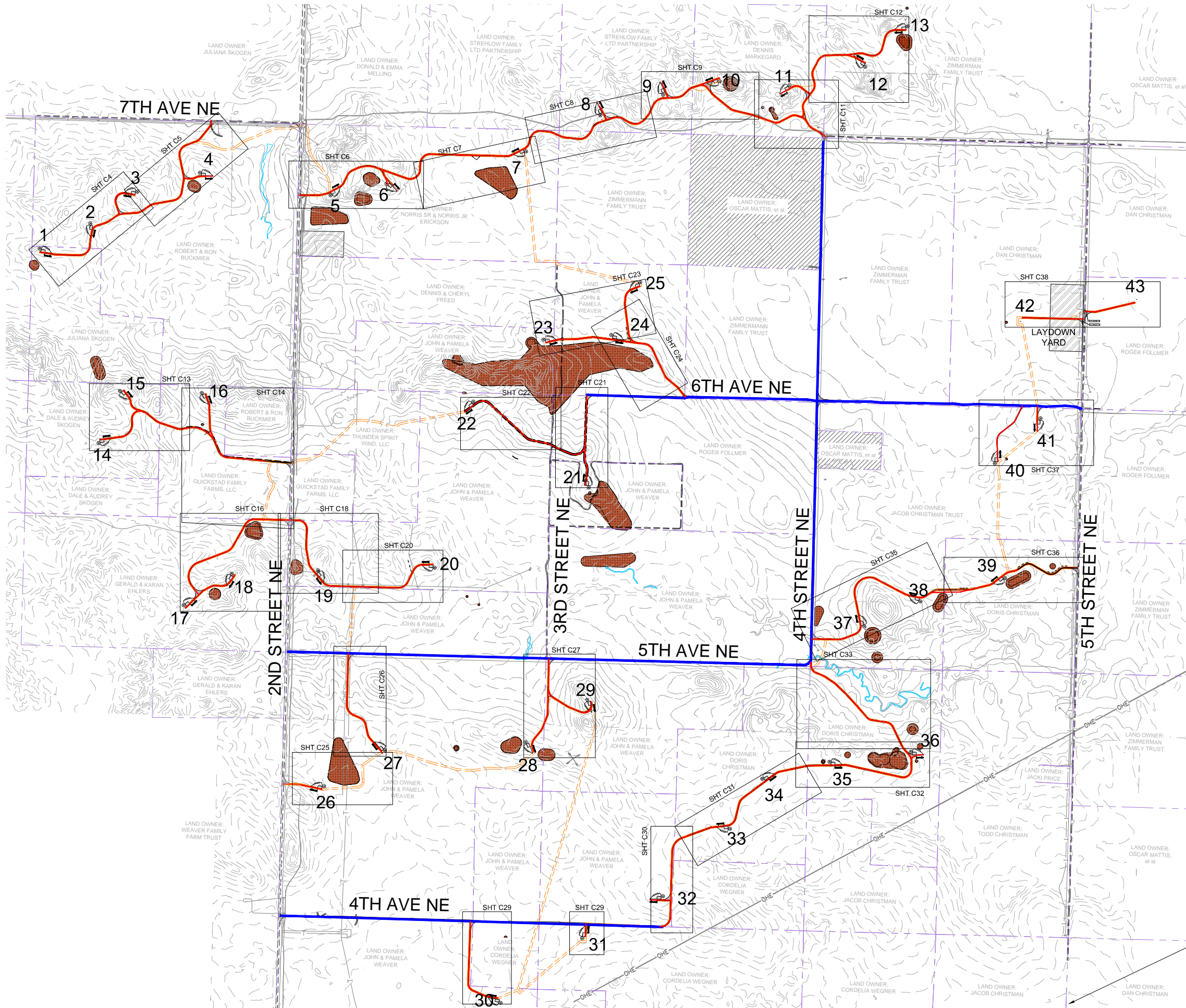


SY#	DATE	DESCRIPTION	APPR
7	05/24/15	Issued For Construction	BN
6	05/20/15	Issued For Construction	BN
5	05/13/15	Issued For Construction	BN
4	04/28/15	95% Review Set Issued	BN



THUNDER SPIRIT WIND ENERGY PROJECT  
 WANZEK CONSTRUCTION, INC.  
 ADAMS COUNTY, NORTH DAKOTA

---
DRAWING TYPE CONSTRUCTION
PREPARED BY ALT
CHECKED / APPROVED BN / BN
DATE MAY 2015
PROJECT NUMBER P08157-2014-003
---
SHEET 4 of 49
DRAWING <b>G4</b>



**LEGEND**

- LAND OWNER BOUNDARIES
- NON-PARTICIPATING OWNER
- EXISTING CONTOUR
- AVOIDANCE AREA
- EXISTING OH ELECTRICAL
- EXISTING WATER LINE
- EXISTING TELEPHONE LINE
- EXISTING WETLANDS
- PROPOSED CRANE WALK PATH ALONG ACCESS ROAD
- PROPOSED CRANE WALK PATH
- EXISTING PUBLIC ROADS TO BE IMPROVED
- PROPOSED ACCESS ROAD & SURFACING
- EXISTING PUBLIC ROADS
- EXISTING PUBLIC ROADS TO BE IMPROVED (SEE DTL 1/C41)

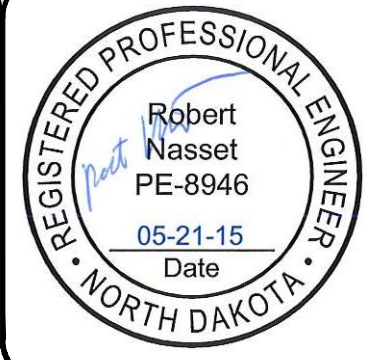
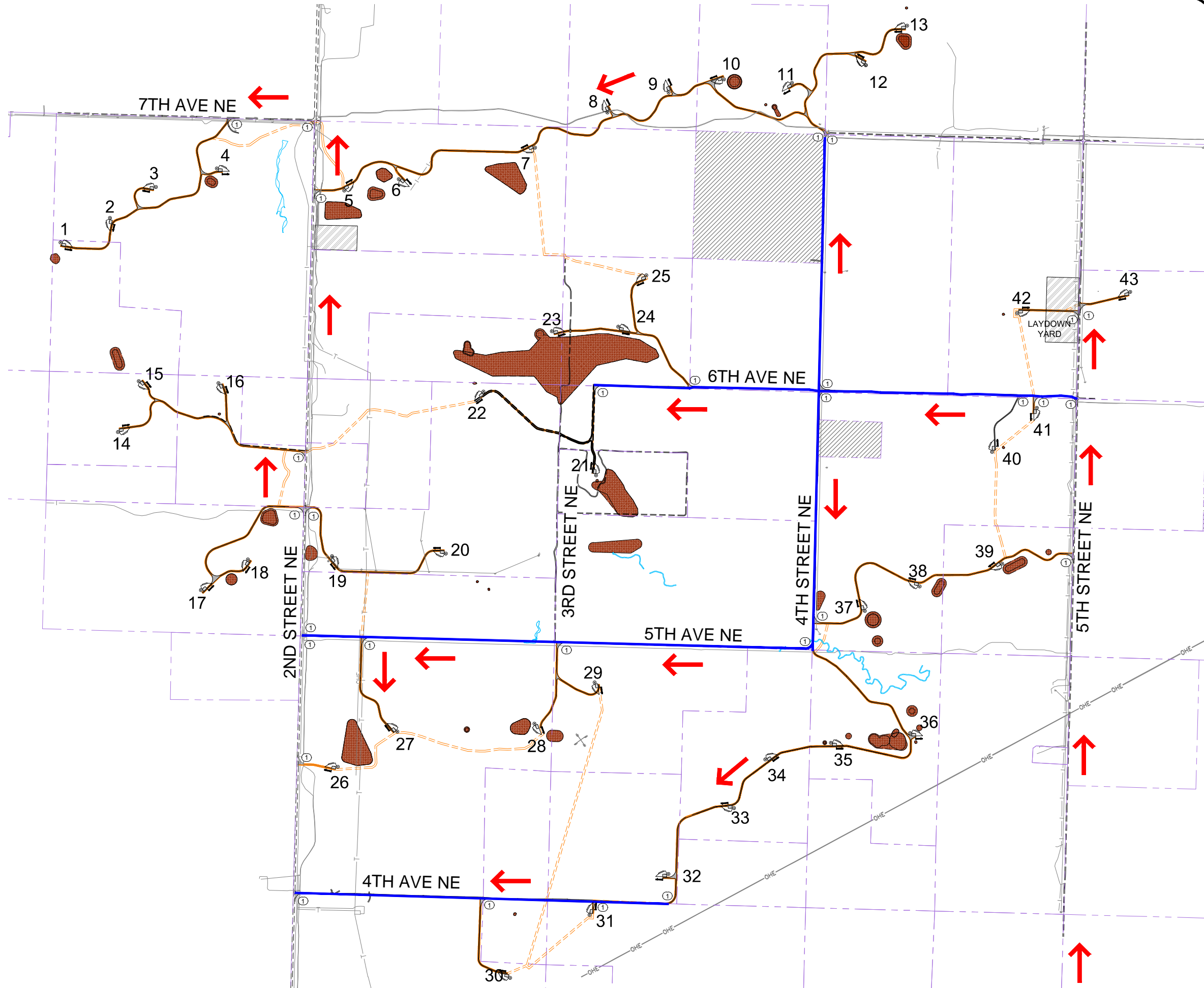
SEE SHT C3 FOR HIGHWAY 12 AND 5TH STREET NE INTERSECTION DETAIL.

SY#	DATE	DESCRIPTION	APP#
7	05/21/15	Issued For Construction	BN
6	05/20/15	Issued For Construction	BN
5	05/13/15	Issued For Construction	BN
4	04/28/15	95% Review Set Issued	BN

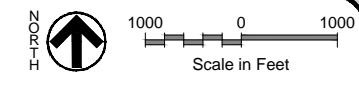


THUNDER SPIRIT WIND ENERGY PROJECT  
 WANZEK CONSTRUCTION, INC.  
 ADAMS COUNTY, NORTH DAKOTA

DRAWING TYPE	CONSTRUCTION
PREPARED BY	ALT
CHECKED / APPROVED	BN / BN
DATE	MAY 2015
PROJECT NUMBER	P08157-2014-003
SHEET	5 of 49
DRAWING	<b>C1</b>



ISYM	DATE	DESCRIPTION	APPR
7	05/21/15	Issued For Construction	BN
6	05/20/15	Issued For Construction	BN
5	05/13/15	Issued For Construction	BN
4	04/28/15	95% Review Set Issued	BN

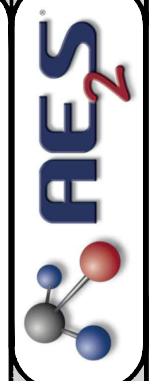


ORIGINAL PLAN SIZE - 22' X 34'  
 HALF SIZE PLAN SIZE - 11' X 17'

LEGEND

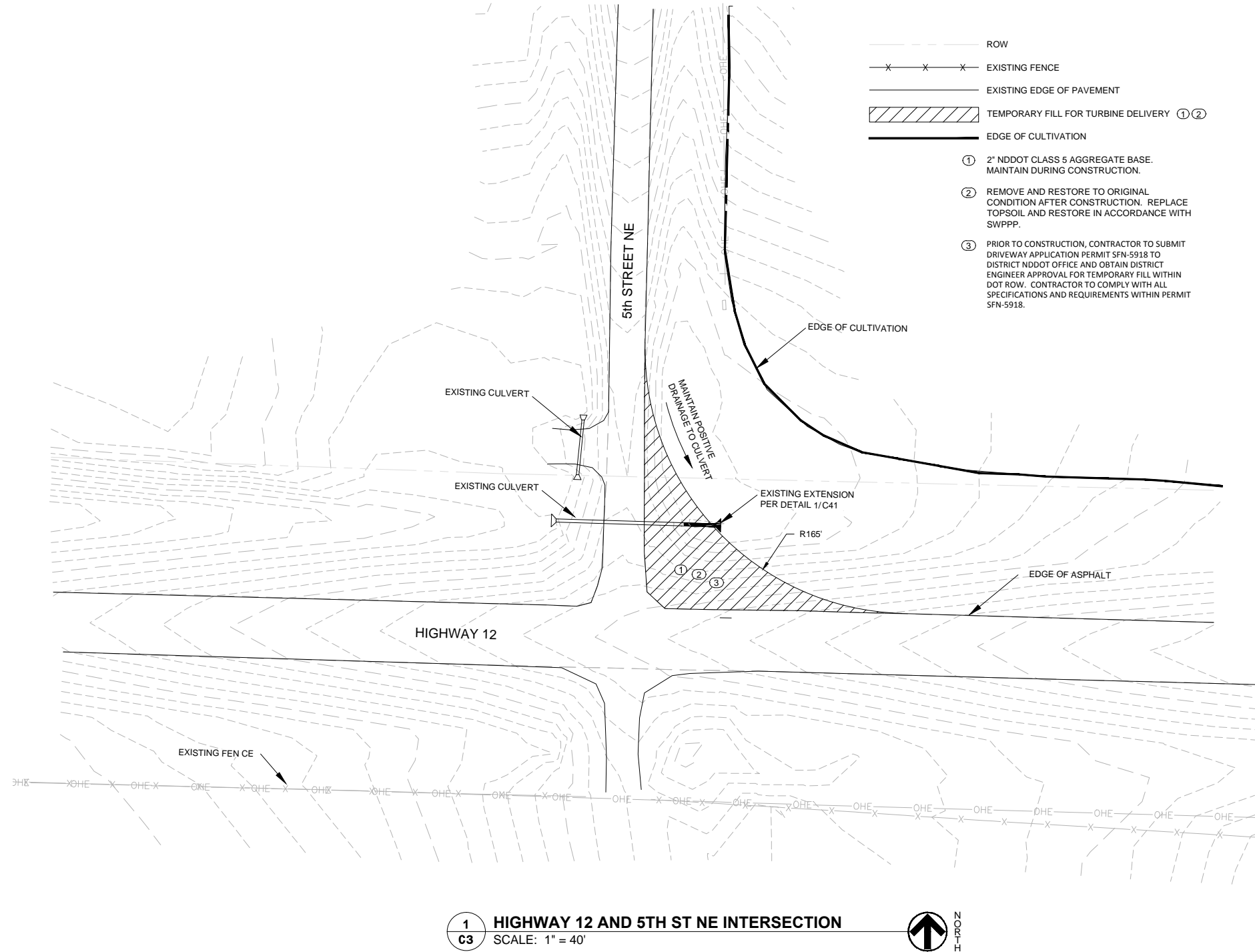
- LAND OWNER BOUNDARIES
- ▨ NON-PARTICIPATING OWNER
- - - EXISTING CONTOUR
- ▨ AVOIDANCE AREA
- OHE-OHE EXISTING OH ELECTRICAL
- I-I EXISTING WATER LINE
- T-T EXISTING TELEPHONE LINE
- ~~~ EXISTING WETLANDS
- ▨ PROPOSED CRANE WALK PATH ALONG ACCESS ROAD
- - - PROPOSED CRANE WALK PATH
- ▨ EXISTING PUBLIC ROADS TO BE IMPROVED
- ▨ PROPOSED ACCESS ROAD & SURFACING
- - - EXISTING PUBLIC ROADS

- EXISTING PUBLIC ROADS TO BE IMPROVED (SEE DTL 1/C41)
- ← ARROW INDICATING THE DIRECTION OF DELIVERY TRAFFIC
- ① PROVIDE MINIMUM TURBINE RADIUS AS SHOWN IN DETAIL 4/C40 FOR ALL COUNTY ROAD INTERSECTION MODIFICATIONS.

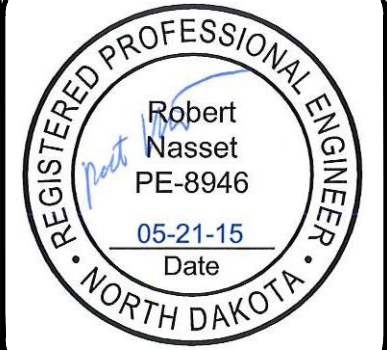


THUNDER SPIRIT WIND ENERGY PROJECT  
 WANZEK CONSTRUCTION, INC.  
 ADAMS COUNTY, NORTH DAKOTA  
 TRANSPORTATION PLAN

DRAWING TYPE	CONSTRUCTION
PREPARED BY	ALT
CHECKED / APPROVED	BN / BN
DATE	MAY 2015
PROJECT NUMBER	P08157-2014-003
SHEET	6 of 49
DRAWING	C2

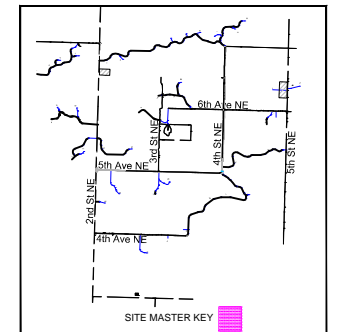


**1**  
**C3** HIGHWAY 12 AND 5TH ST NE INTERSECTION  
 SCALE: 1" = 40'



SYM	DATE	DESCRIPTION	APPR
7	05/21/15	Issued For Construction	BN
6	05/20/15	Issued For Construction	BN
5	05/13/15	Issued For Construction	BN
4	04/28/15	95% Review Set Issued	BN

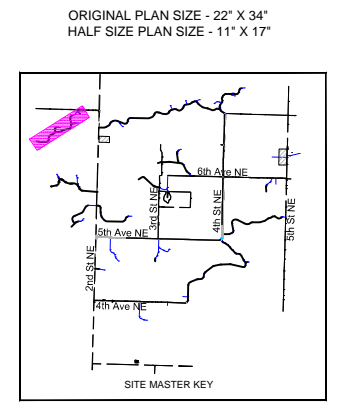
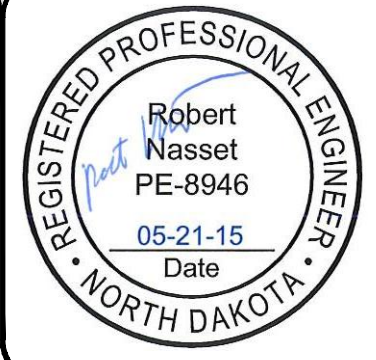
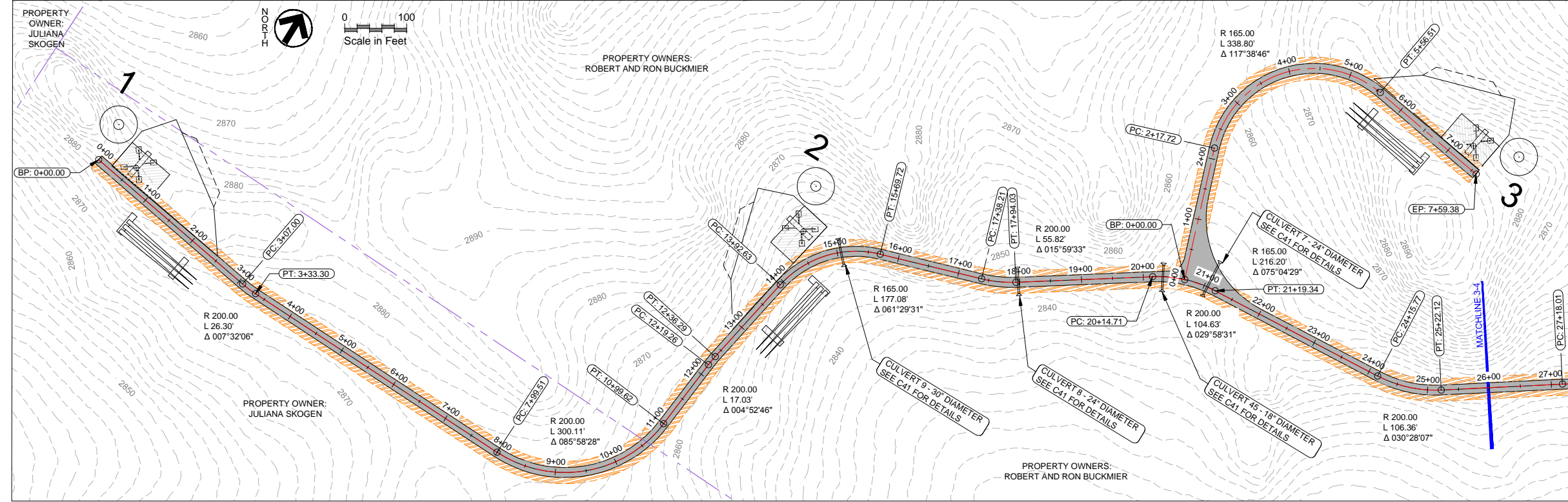
ORIGINAL PLAN SIZE - 22" X 34"  
 HALF SIZE PLAN SIZE - 11" X 17"



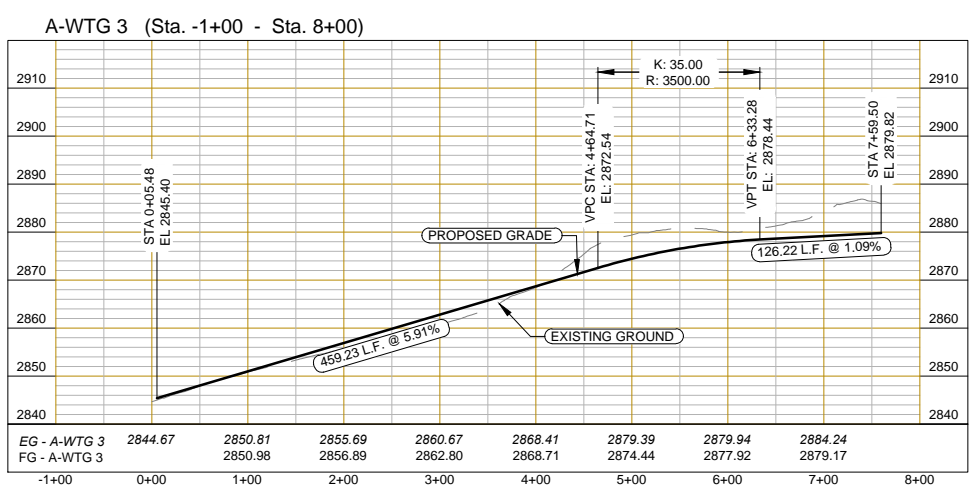
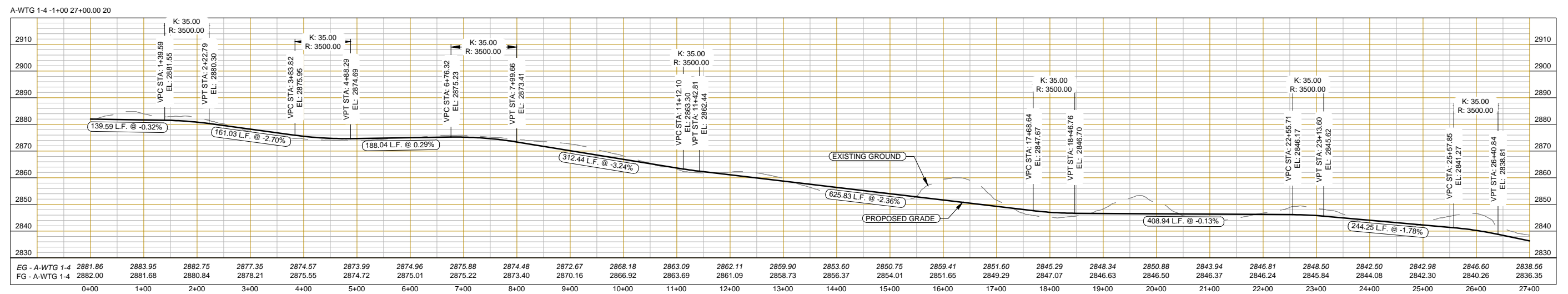
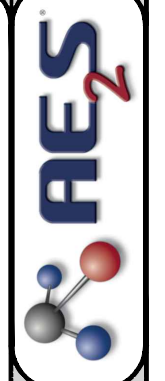
THUNDER SPIRIT WIND ENERGY PROJECT  
 WANZEK CONSTRUCTION, INC.  
 ADAMS COUNTY, NORTH DAKOTA  
 HIGHWAY 12 INTERSECTION

DRAWING TYPE	CONSTRUCTION
PREPARED BY	ALT
CHECKED / APPROVED	BN / BN
DATE	MAY 2015
PROJECT NUMBER	P08157-2014-003
SHEET	7 of 49
DRAWING	C3

Layout: ACCESS ROAD - TURBINE 1-3 - PLAN AND PROFILE  
 File: \\10.110.110\projects\wms\p8157-2014-003 TSWE Site Design\AutoCAD Drawings\Construction\Plan and Profiles 1-3.dwg



SY#	DATE	DESCRIPTION	APP#
7	05/21/15	Issued For Construction	BN
6	05/20/15	Issued For Construction	BN
5	05/13/15	Issued For Construction	BN
4	04/28/15	95% Review Set Issued	BN



**LEGEND**

- LAND OWNER BOUNDARIES
- NON-PARTICIPATING OWNER
- EXISTING CONTOUR
- AVOIDANCE AREA
- EXISTING OH ELECTRICAL
- EXISTING WATER LINE
- EXISTING TELEPHONE LINE
- EXISTING WETLANDS
- PROPOSED CRANE WALK PATH ALONG ACCESS ROAD
- PROPOSED CRANE WALK PATH
- EXISTING PUBLIC ROADS TO BE IMPROVED
- PROPOSED ACCESS ROAD & SURFACING
- EXISTING PUBLIC ROADS

Plotted By: Amber Trout Date: Thursday, May 21, 2015 11:05:52 AM  
 Last Saved By: Amber Trout Date: Wednesday, May 13, 2015 11:05:52 AM

THUNDER SPIRIT WIND ENERGY PROJECT  
 WANZEK CONSTRUCTION, INC.  
 ADAMS COUNTY, NORTH DAKOTA  
 ACCESS ROAD - TURBINE 1-3 - PLAN AND PROFILE

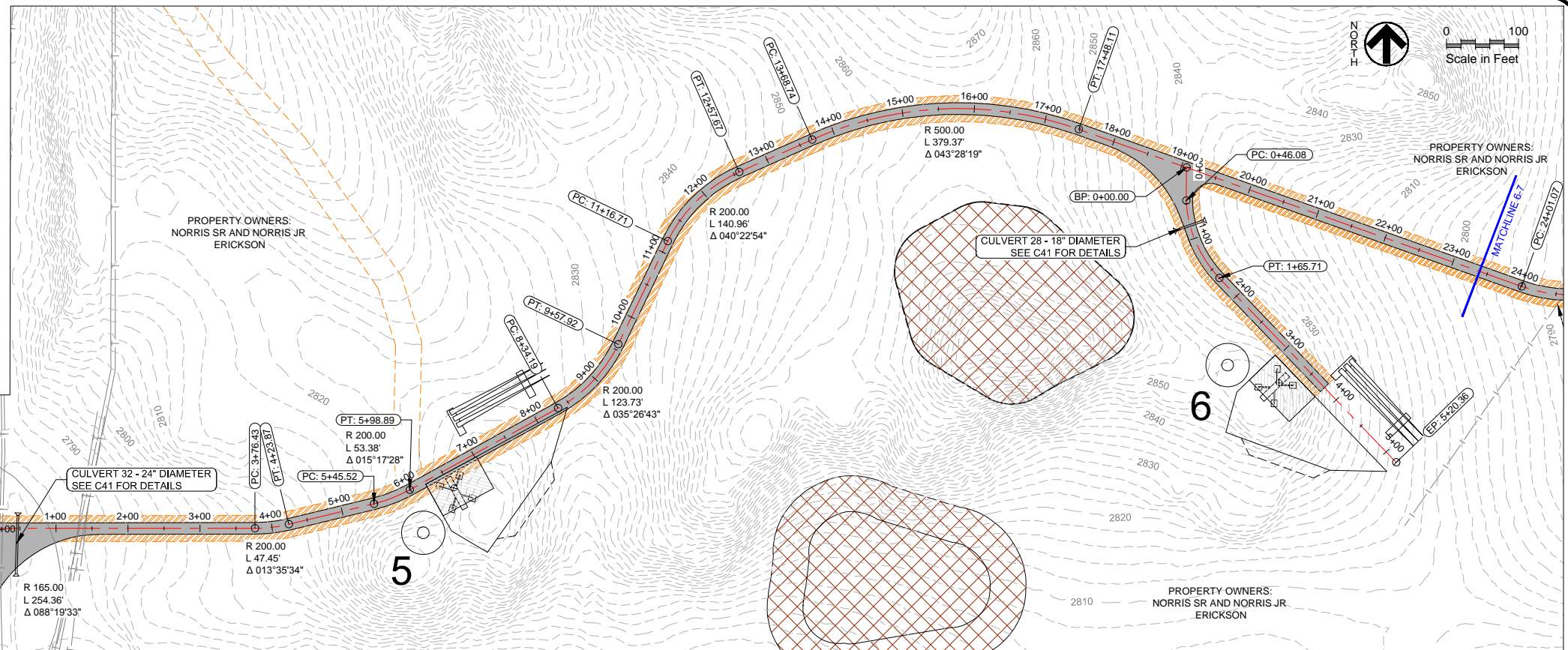
DRAWING TYPE	CONSTRUCTION
PREPARED BY	ALT
CHECKED / APPROVED	BN / BN
DATE	MAY 2015
PROJECT NUMBER	P08157-2014-003
SHEET	8 of 49
DRAWING	C4

Layout: ACCESS ROAD - TURBINE 5-6 - PLAN AND PROFILE  
 File: \\01.1.0\projects\Wind\8157-2014-003 TSENE Site Design\040 Final Design\040 Final Design.dwg (Last Saved: 05/21/2015 2:47:32 PM)

Plotted By: Amber Trout Date: Thursday, May 21, 2015  
 Last Saved By: Amber Trout Date: Thursday, May 21, 2015 2:47:32 PM

### LEGEND

- LAND OWNER BOUNDARIES
- NON-PARTICIPATING OWNER
- EXISTING CONTOUR
- AVOIDANCE AREA
- EXISTING OH ELECTRICAL
- EXISTING WATER LINE
- EXISTING TELEPHONE LINE
- EXISTING WETLANDS
- PROPOSED CRANE WALK PATH ALONG ACCESS ROAD
- PROPOSED CRANE WALK PATH
- EXISTING PUBLIC ROADS TO BE IMPROVED
- PROPOSED ACCESS ROAD & SURFACING
- EXISTING PUBLIC ROADS



**REGISTERED PROFESSIONAL ENGINEER**  
**Robert Nasset**  
**PE-8946**  
 Date 05-21-15  
**NORTH DAKOTA**

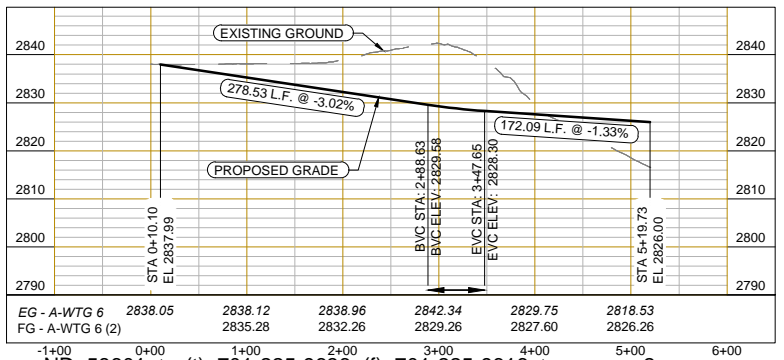
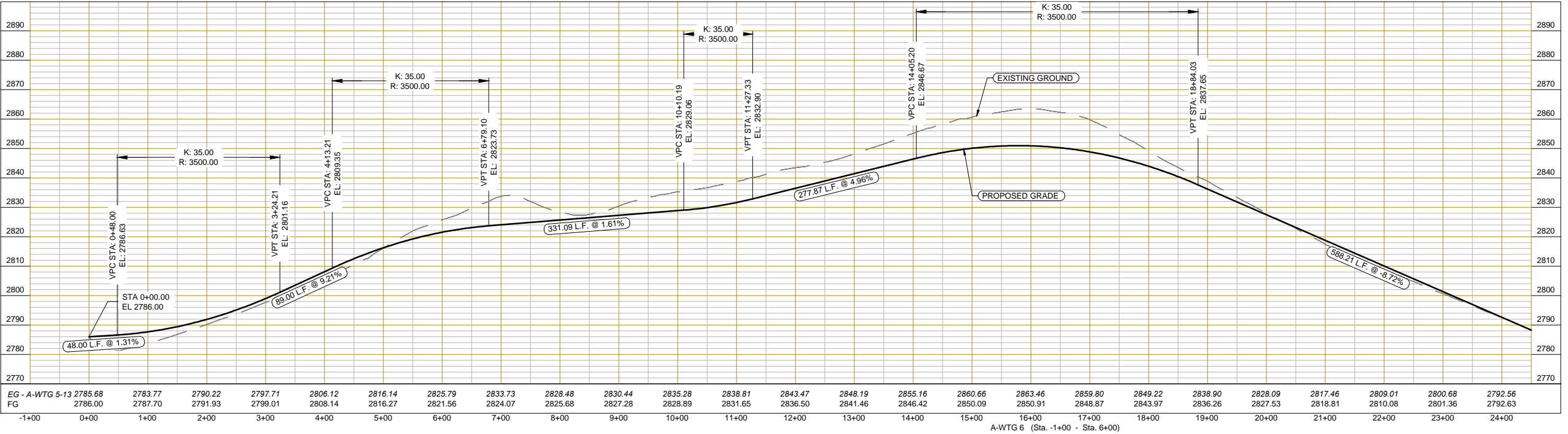
ORIGINAL PLAN SIZE - 22" X 34"  
 HALF SIZE PLAN SIZE - 11" X 17"

SITE MASTER KEY

SY#	DATE	DESCRIPTION	APP#
7	05/21/15	Issued For Construction	BN
6	05/20/15	Issued For Construction	BN
5	05/13/15	Issued For Construction	BN
4	04/28/15	95% Review Set Issued	BN

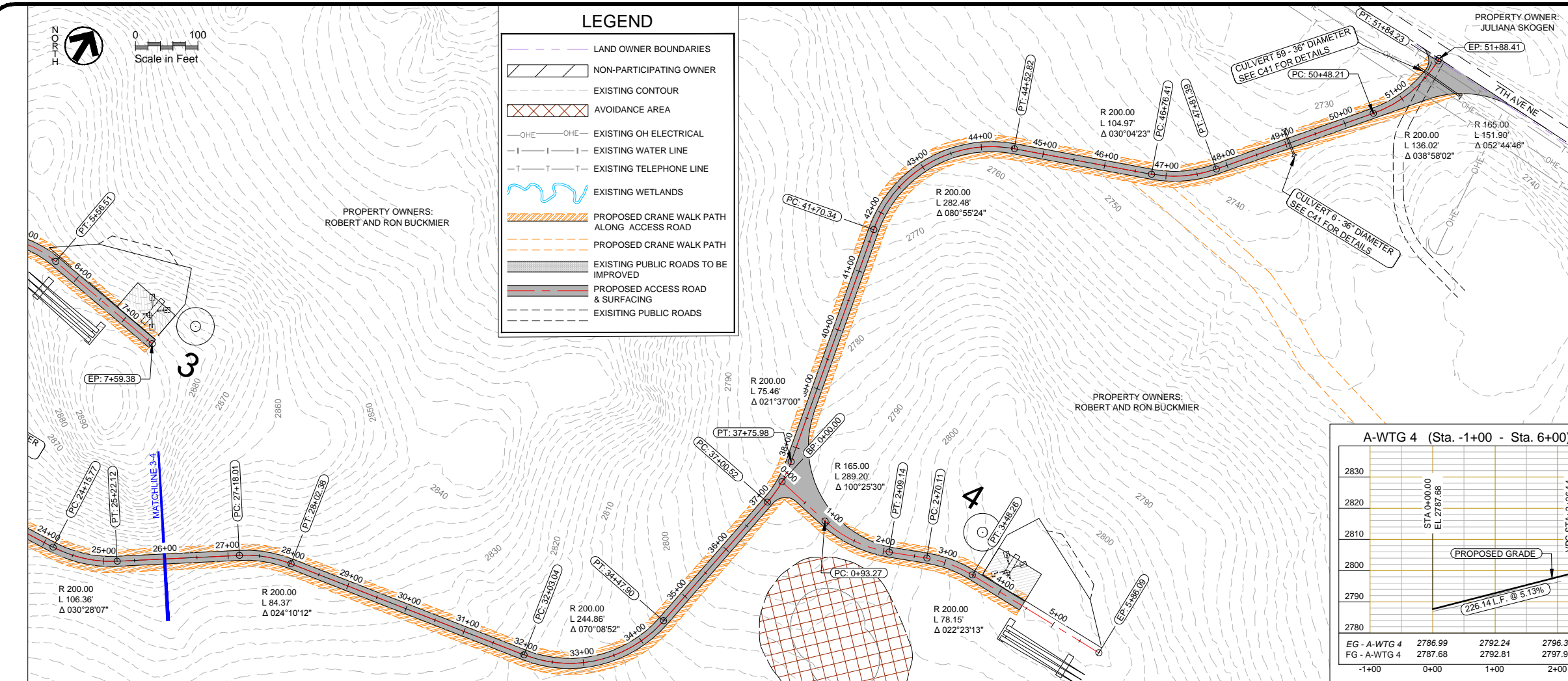


A-WTG 5-13 (Sta. -1+00 - Sta. 24+50)



**THUNDER SPIRIT WIND ENERGY PROJECT**  
**WANZEK CONSTRUCTION, INC.**  
 ADAMS COUNTY, NORTH DAKOTA  
 ACCESS ROAD - TURBINE 5-6 - PLAN AND PROFILE

DRAWING TYPE	CONSTRUCTION
PREPARED BY	ALT
CHECKED / APPROVED	BN / BN
DATE	MAY 2015
PROJECT NUMBER	P08157-2014-003
SHEET	10 of 49
DRAWING	<b>C6</b>



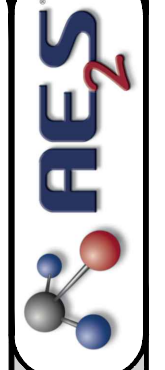
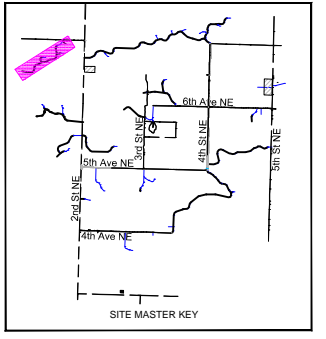
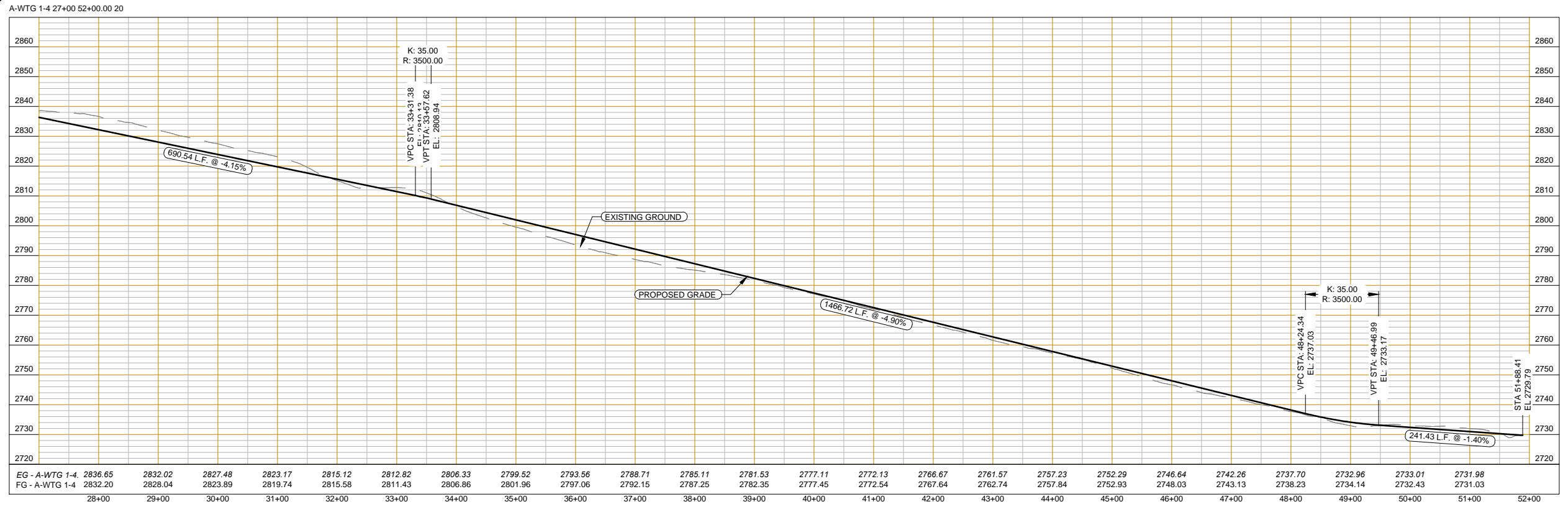
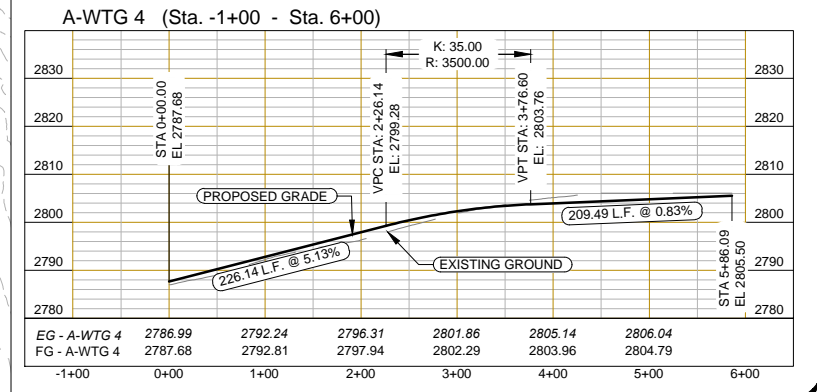
### LEGEND

- LAND OWNER BOUNDARIES
- NON-PARTICIPATING OWNER
- EXISTING CONTOUR
- AVOIDANCE AREA
- EXISTING OH ELECTRICAL
- EXISTING WATER LINE
- EXISTING TELEPHONE LINE
- EXISTING WETLANDS
- PROPOSED CRANE WALK PATH ALONG ACCESS ROAD
- PROPOSED CRANE WALK PATH
- EXISTING PUBLIC ROADS TO BE IMPROVED
- PROPOSED ACCESS ROAD & SURFACING
- EXISTING PUBLIC ROADS

**REGISTERED PROFESSIONAL ENGINEER**  
 Robert Nasset  
 PE-8946  
 05-21-15  
 Date  
 NORTH DAKOTA

SYM	DATE	DESCRIPTION	APPR
7	05/21/15	Issued For Construction	BN
6	05/20/15	Issued For Construction	BN
5	05/13/15	Issued For Construction	BN
4	04/28/15	95% Review Set Issued	BN

ORIGINAL PLAN SIZE - 22" X 34"  
 HALF SIZE PLAN SIZE - 11" X 17"



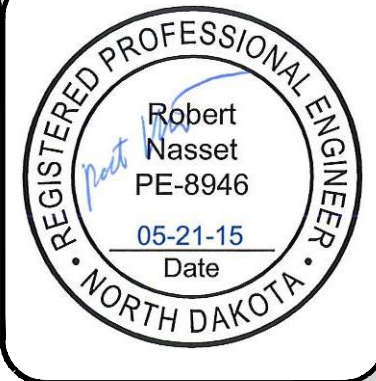
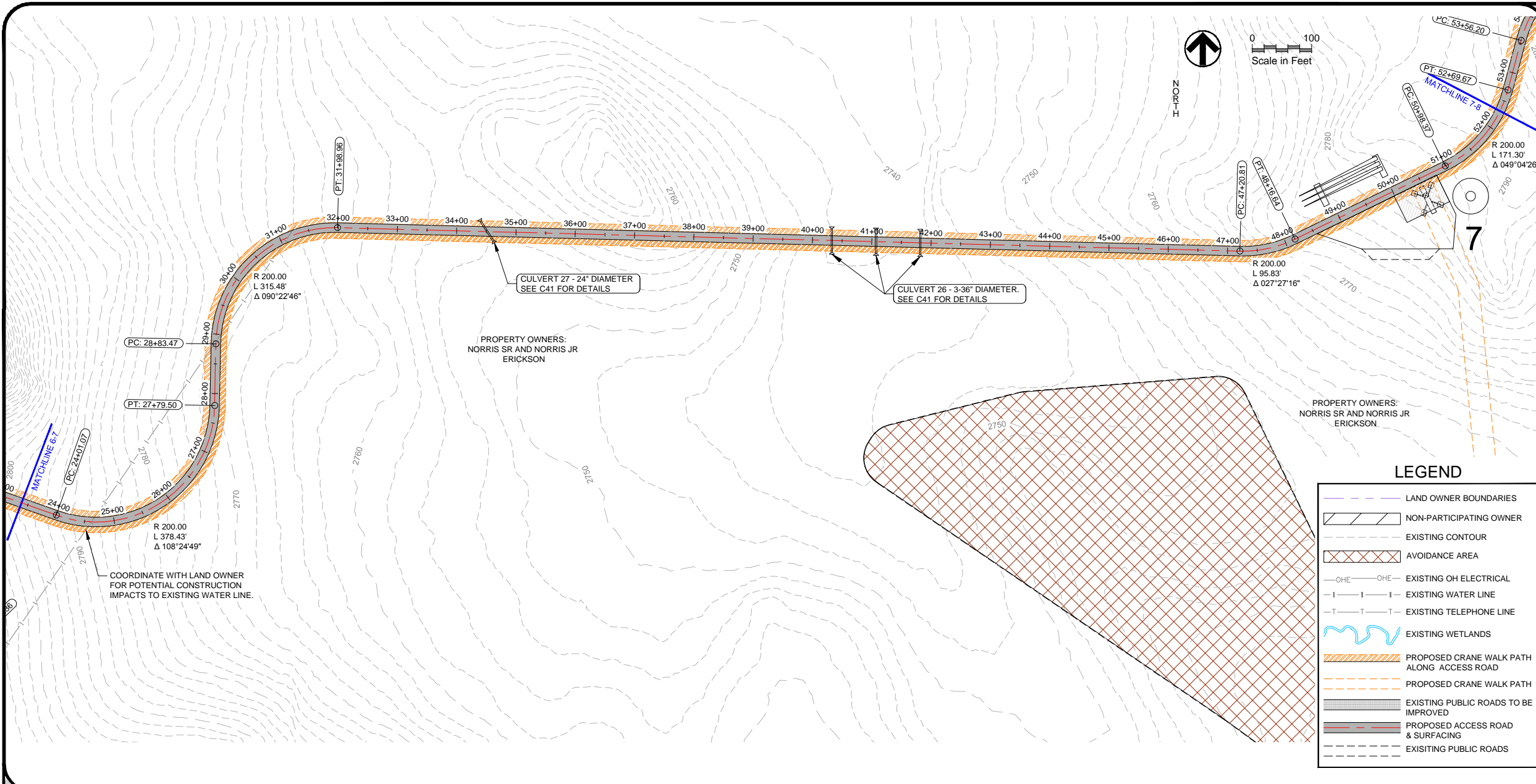
**THUNDER SPIRIT WIND ENERGY PROJECT**  
 WANZEK CONSTRUCTION, INC.  
 ADAMS COUNTY, NORTH DAKOTA  
 ACCESS ROAD - TURBINE 4 - PLAN AND PROFILE

DRAWING TYPE	CONSTRUCTION
PREPARED BY	ALT
CHECKED / APPROVED	BN / BN
DATE	MAY 2015
PROJECT NUMBER	08157-2014-003
SHEET	9 of 49
DRAWING	<b>C5</b>

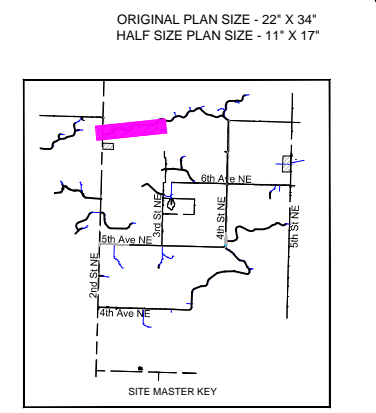
CONSTRUCTION

Layout: ACCESS ROAD - TURBINE 7 - PLAN AND PROFILE  
 File: \\011.0\projects\thunder\p8157-2014-003 TSE Site Design\040 Final Design\dwg\p8157-2014-003-040.dwg

Printed By: Amber Trout Date: Thursday, May 21, 2015  
 Last Saved By: Amber Trout Date: Thursday, May 21, 2015 2:47:32 PM

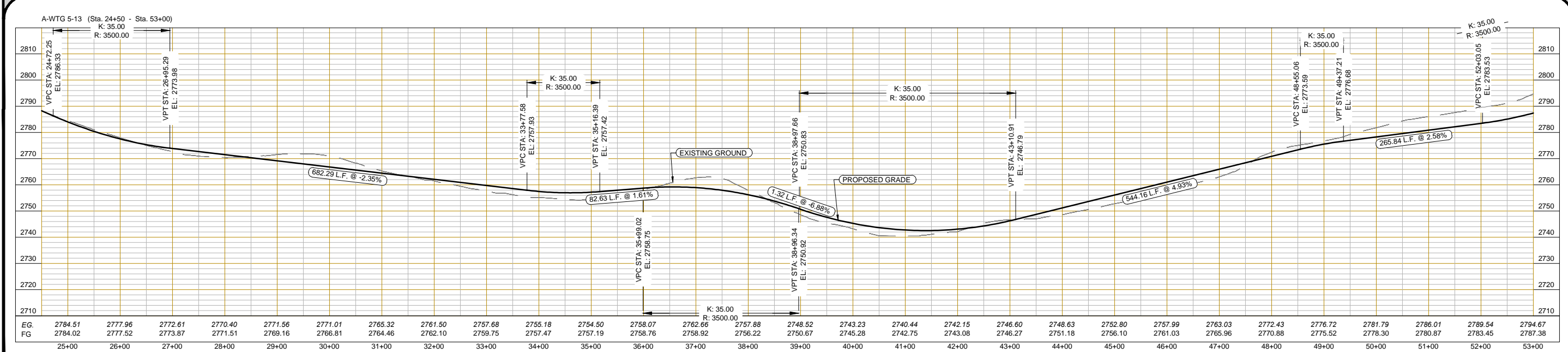


SY#	DATE	DESCRIPTION	APP#
7	05/21/15	Issued For Construction	BN
6	05/20/15	Issued For Construction	BN
5	05/13/15	Issued For Construction	BN
4	04/28/15	95% Review Set Issued	BN



**LEGEND**

- LAND OWNER BOUNDARIES
- NON-PARTICIPATING OWNER
- EXISTING CONTOUR
- AVOIDANCE AREA
- EXISTING OH ELECTRICAL
- EXISTING WATER LINE
- EXISTING TELEPHONE LINE
- EXISTING WETLANDS
- PROPOSED CRANE WALK PATH ALONG ACCESS ROAD
- PROPOSED CRANE WALK PATH
- EXISTING PUBLIC ROADS TO BE IMPROVED
- PROPOSED ACCESS ROAD & SURFACING
- EXISTING PUBLIC ROADS

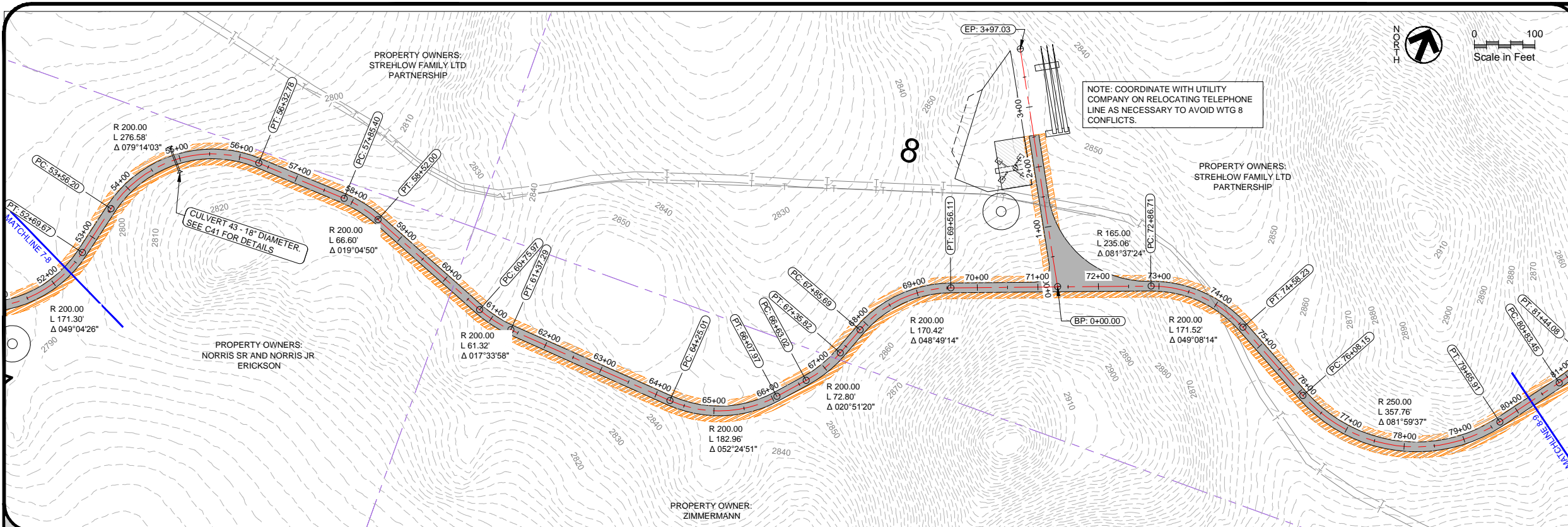


THUNDER SPIRIT WIND ENERGY PROJECT  
 WANZEK CONSTRUCTION, INC.  
 ADAMS COUNTY, NORTH DAKOTA

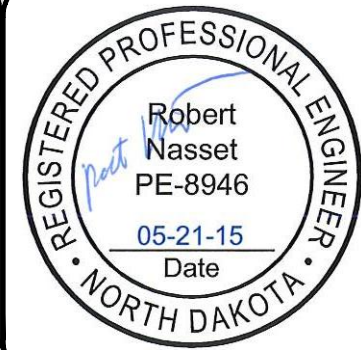
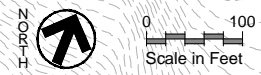
ACCESS ROAD - TURBINE 7 - PLAN AND PROFILE

DRAWING TYPE: CONSTRUCTION  
 PREPARED BY: ALT  
 CHECKED / APPROVED: BN / BN  
 DATE: MAY 2015  
 PROJECT NUMBER: P08157-2014-003  
 SHEET: 11 of 49  
 DRAWING: C7

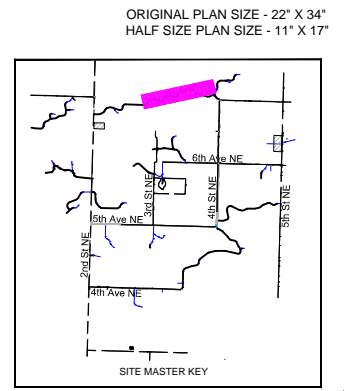
Layout: ACCESS ROAD - TURBINE 8 - PLAN AND PROFILE  
 File: \\01.1.0\projects\thunder\p8157-2014-003\TSE Site Design\dwg\AccessRoadPlan and Profile 8-13.dwg



NOTE: COORDINATE WITH UTILITY COMPANY ON RELOCATING TELEPHONE LINE AS NECESSARY TO AVOID WTG 8 CONFLICTS.

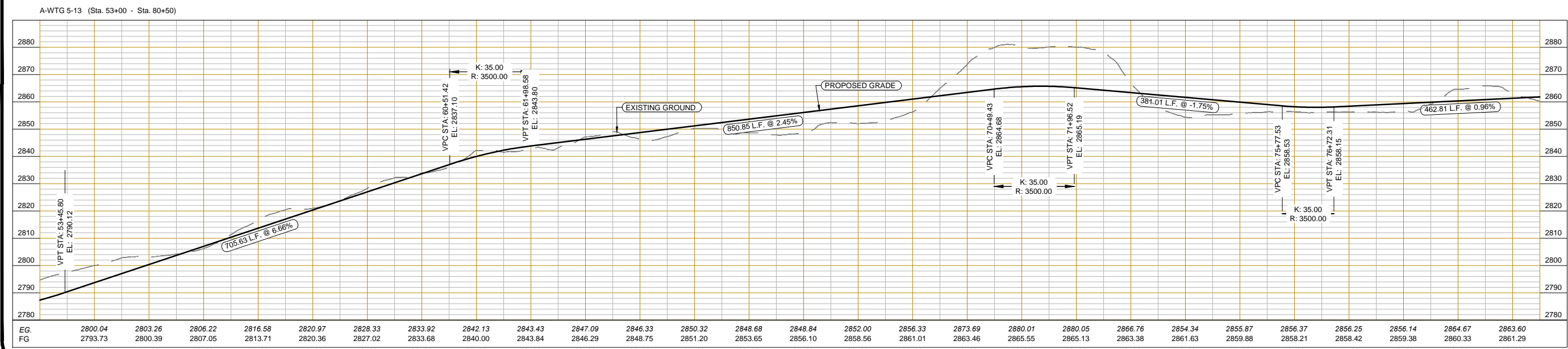
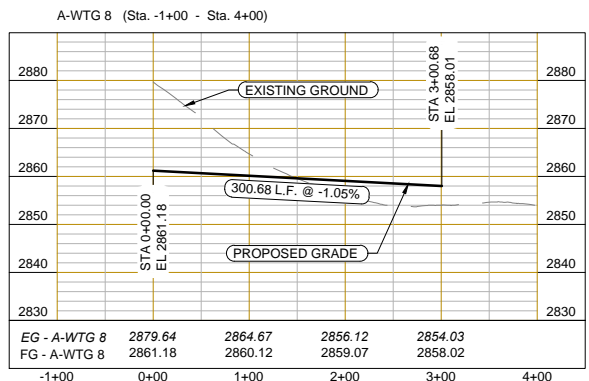


SY#	DATE	DESCRIPTION	APPR
7	05/21/15	Issued For Construction	BN
6	05/20/15	Issued For Construction	BN
5	05/13/15	Issued For Construction	BN
4	04/28/15	95% Review Set Issued	BN



LEGEND

- LAND OWNER BOUNDARIES
- NON-PARTICIPATING OWNER
- EXISTING CONTOUR
- AVOIDANCE AREA
- EXISTING OH ELECTRICAL
- EXISTING WATER LINE
- EXISTING TELEPHONE LINE
- EXISTING WETLANDS
- PROPOSED CRANE WALK PATH ALONG ACCESS ROAD
- PROPOSED CRANE WALK PATH
- EXISTING PUBLIC ROADS TO BE IMPROVED
- PROPOSED ACCESS ROAD & SURFACING
- EXISTING PUBLIC ROADS



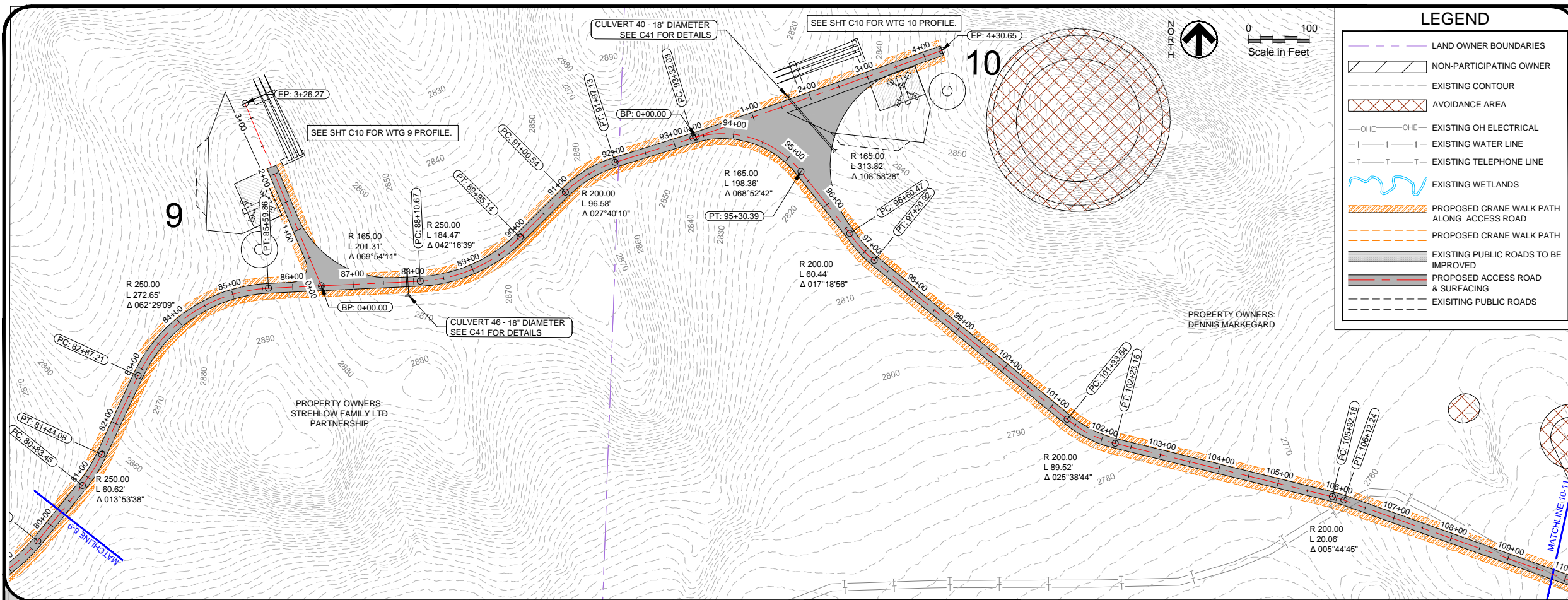
Printed By: Amber Trout Date: Thursday, May 21, 2015  
 Last Saved By: Amber Trout Date: Thursday, May 21, 2015 2:47:32 PM

**CONSTRUCTION**

THUNDER SPIRIT WIND ENERGY PROJECT  
 WANZEK CONSTRUCTION, INC.  
 ADAMS COUNTY, NORTH DAKOTA  
 ACCESS ROAD - TURBINE 8 - PLAN AND PROFILE

DRAWING TYPE	CONSTRUCTION
PREPARED BY	ALT
CHECKED / APPROVED	BN / BN
DATE	MAY 2015
PROJECT NUMBER	P08157-2014-003
SHEET	12 of 49
DRAWING	<b>C8</b>

Layout: ACCESS ROAD - TURBINE 9-10 - PLAN AND PROFILE  
 File: \\011.01\projects\Wind\8157-2014-003 TSENE Site Design\040 Final Design\dwg\040 AccessRoadPlan and Profile 9-10.dwg



**LEGEND**

- LAND OWNER BOUNDARIES
- NON-PARTICIPATING OWNER
- EXISTING CONTOUR
- AVOIDANCE AREA
- EXISTING OH ELECTRICAL
- EXISTING WATER LINE
- EXISTING TELEPHONE LINE
- EXISTING WETLANDS
- PROPOSED CRANE WALK PATH ALONG ACCESS ROAD
- PROPOSED CRANE WALK PATH
- EXISTING PUBLIC ROADS TO BE IMPROVED
- PROPOSED ACCESS ROAD & SURFACING
- EXISTING PUBLIC ROADS

**REGISTERED PROFESSIONAL ENGINEER**  
 Robert Nasset  
 PE-8946  
 05-21-15  
 Date

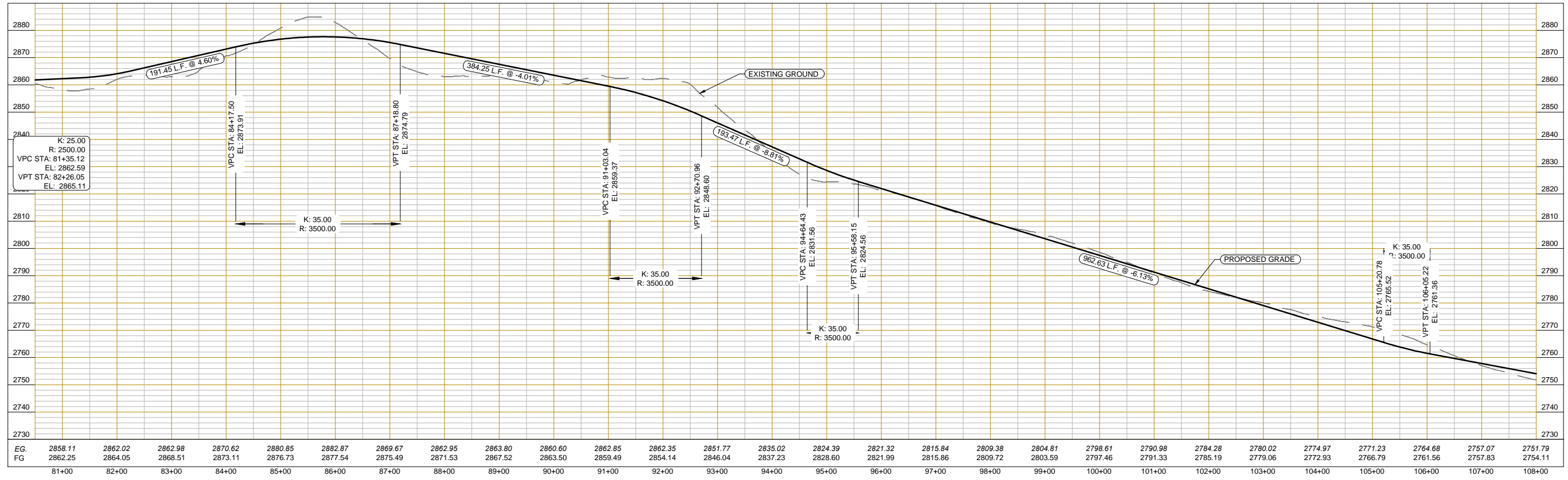
ORIGINAL PLAN SIZE - 22" X 34"  
 HALF SIZE PLAN SIZE - 11" X 17"

SITE MASTER KEY

SY#	DATE	DESCRIPTION	APP#
7	05/21/15	Issued For Construction	BN
6	05/20/15	Issued For Construction	BN
5	05/13/15	Issued For Construction	BN
4	04/28/15	95% Review Set Issued	BN

**AES**

A-WTG 5-13 (Sta. 80+50 - Sta. 108+00)



EG.	2858.11	2862.02	2862.98	2870.62	2880.85	2882.87	2889.67	2862.95	2863.80	2860.60	2862.85	2862.35	2851.77	2835.02	2824.39	2821.32	2815.84	2809.38	2804.81	2798.61	2790.98	2784.28	2780.02	2774.97	2771.23	2764.68	2757.07	2751.79
FG	2862.25	2864.05	2868.51	2873.11	2876.73	2877.54	2875.49	2871.53	2867.52	2863.50	2859.49	2854.14	2846.04	2837.23	2828.60	2821.99	2815.86	2809.72	2803.59	2797.46	2791.33	2785.19	2779.06	2772.93	2766.79	2761.56	2757.83	2754.11
	81+00	82+00	83+00	84+00	85+00	86+00	87+00	88+00	89+00	90+00	91+00	92+00	93+00	94+00	95+00	96+00	97+00	98+00	99+00	100+00	101+00	102+00	103+00	104+00	105+00	106+00	107+00	108+00

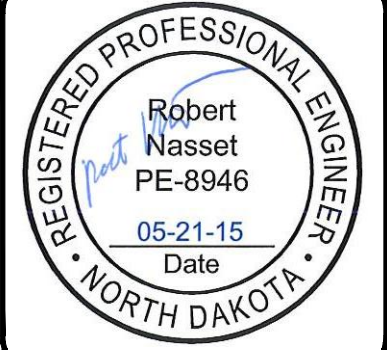
Plotted By: Amber Trout Date: Thursday, May 21, 2015  
 Last Saved By: Amber Trout Date: Thursday, May 21, 2015 2:47:32 PM

THUNDER SPIRIT WIND ENERGY PROJECT  
 WANZEK CONSTRUCTION, INC.  
 ADAMS COUNTY, NORTH DAKOTA  
 ACCESS ROAD - TURBINE 9-10 - PLAN AND PROFILE

DRAWING TYPE	CONSTRUCTION
PREPARED BY	ALT
CHECKED / APPROVED	BN / BN
DATE	MAY 2015
PROJECT NUMBER	P08157-2014-003
SHEET	13 OF 49

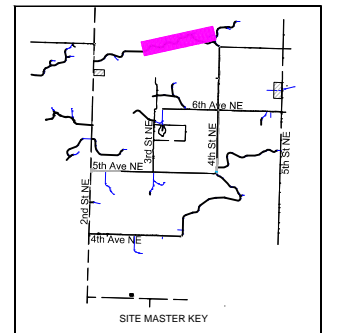
**C9**

**CONSTRUCTION**

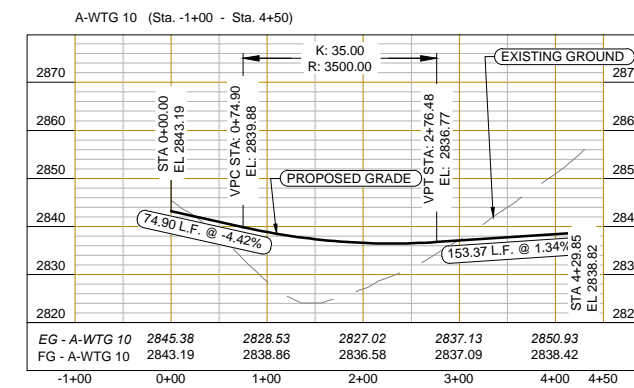
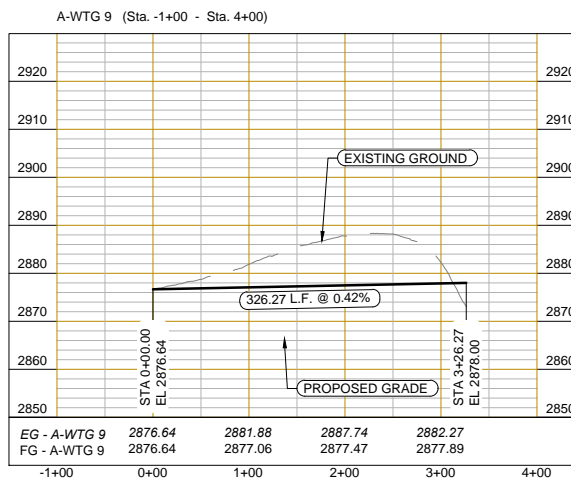


SYM	DATE	DESCRIPTION	APPR
7	05/21/15	Issued For Construction	BN
6	05/20/15	Issued For Construction	BN
5	05/13/15	Issued For Construction	BN
4	04/28/15	95% Review Set Issued	BN

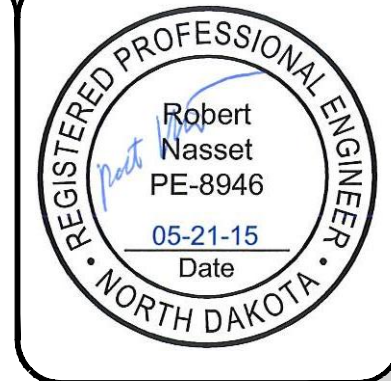
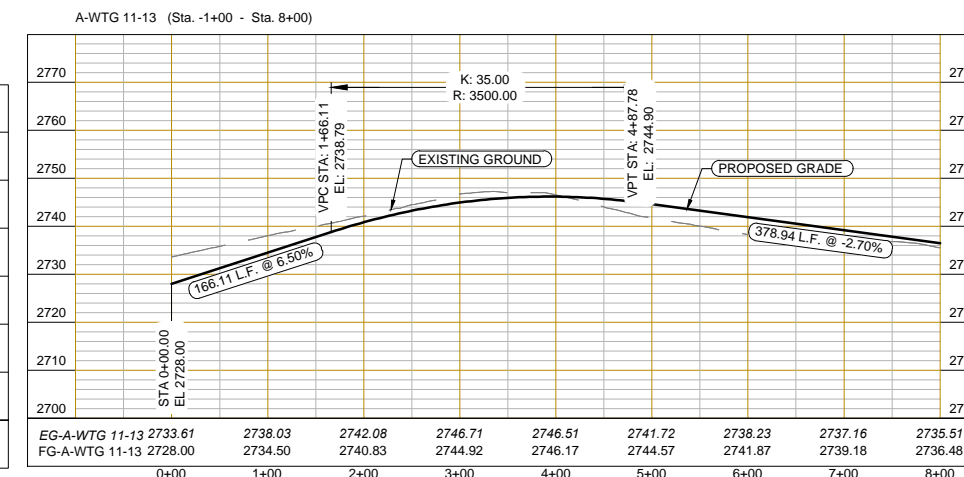
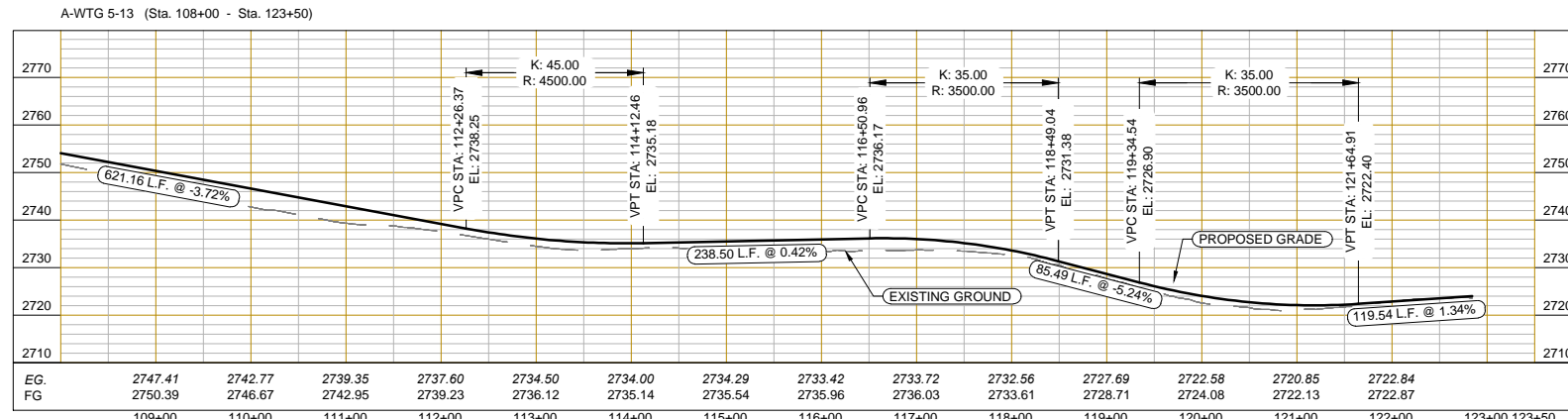
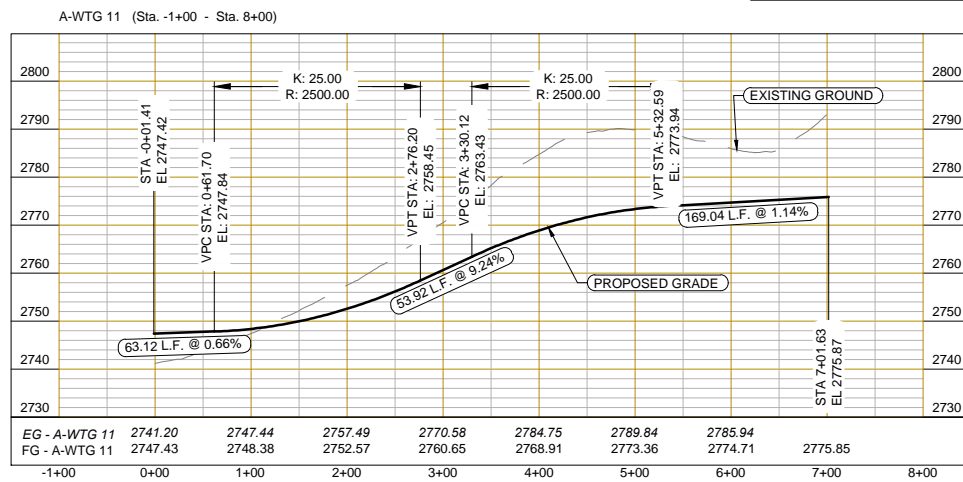
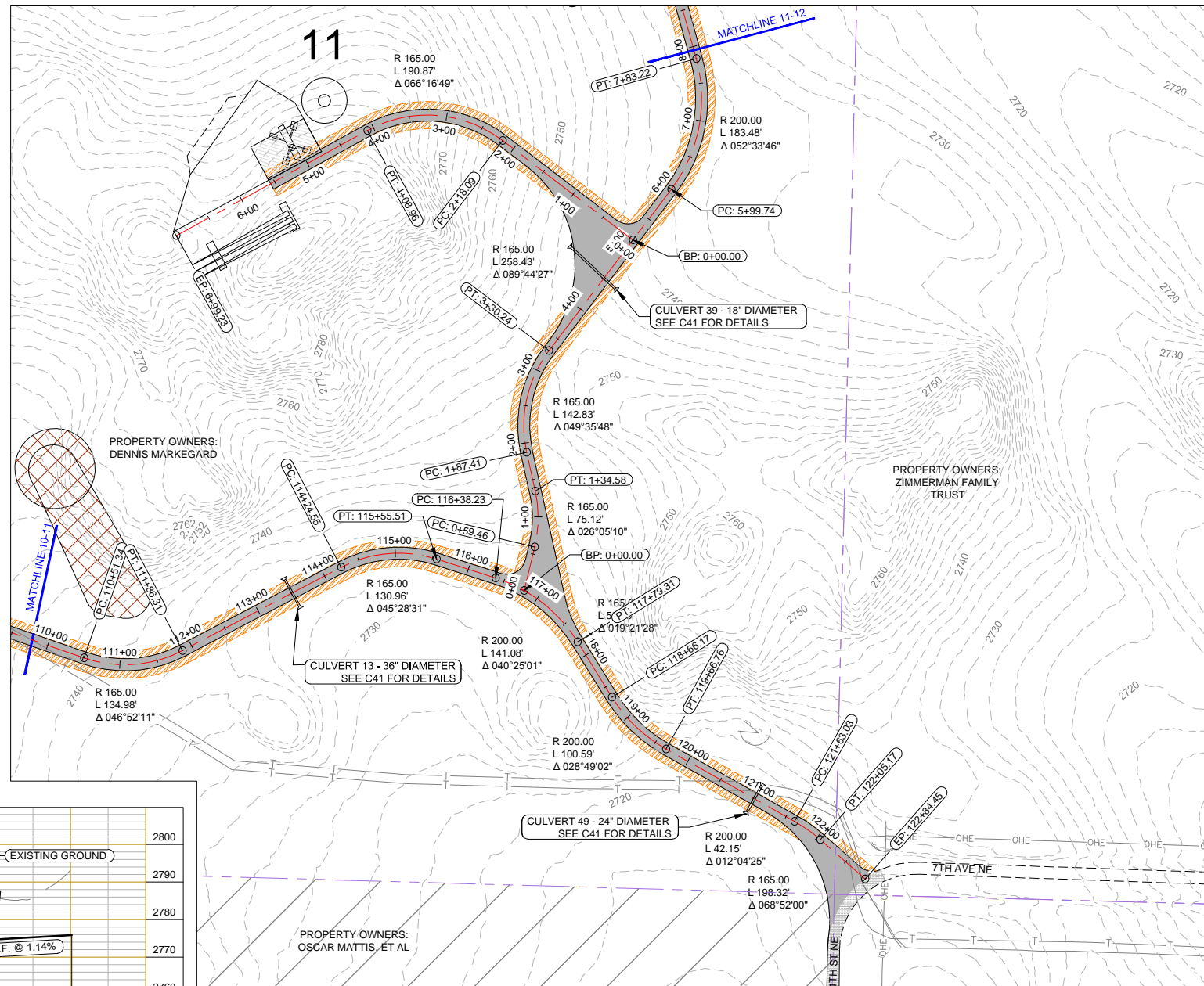
ORIGINAL PLAN SIZE - 22" X 34"  
 HALF SIZE PLAN SIZE - 11" X 17"



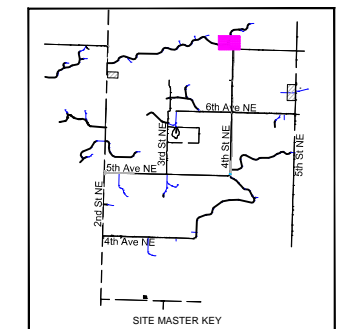
THUNDER SPIRIT WIND ENERGY PROJECT  
 WANZEK CONSTRUCTION, INC.  
 ADAMS COUNTY, NORTH DAKOTA  
 ACCESS ROAD - TURBINE 9-10 - PROFILE



DRAWING TYPE	CONSTRUCTION
PREPARED BY	ALT
CHECKED / APPROVED	BN / BN
DATE	MAY 2015
PROJECT NUMBER	P08157-2014-003
SHEET	14 of 49
DRAWING	C10



Scale in Feet  
 ORIGINAL PLAN SIZE - 22' X 34'  
 HALF SIZE PLAN SIZE - 11' X 17'



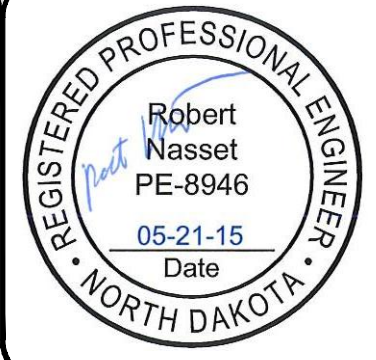
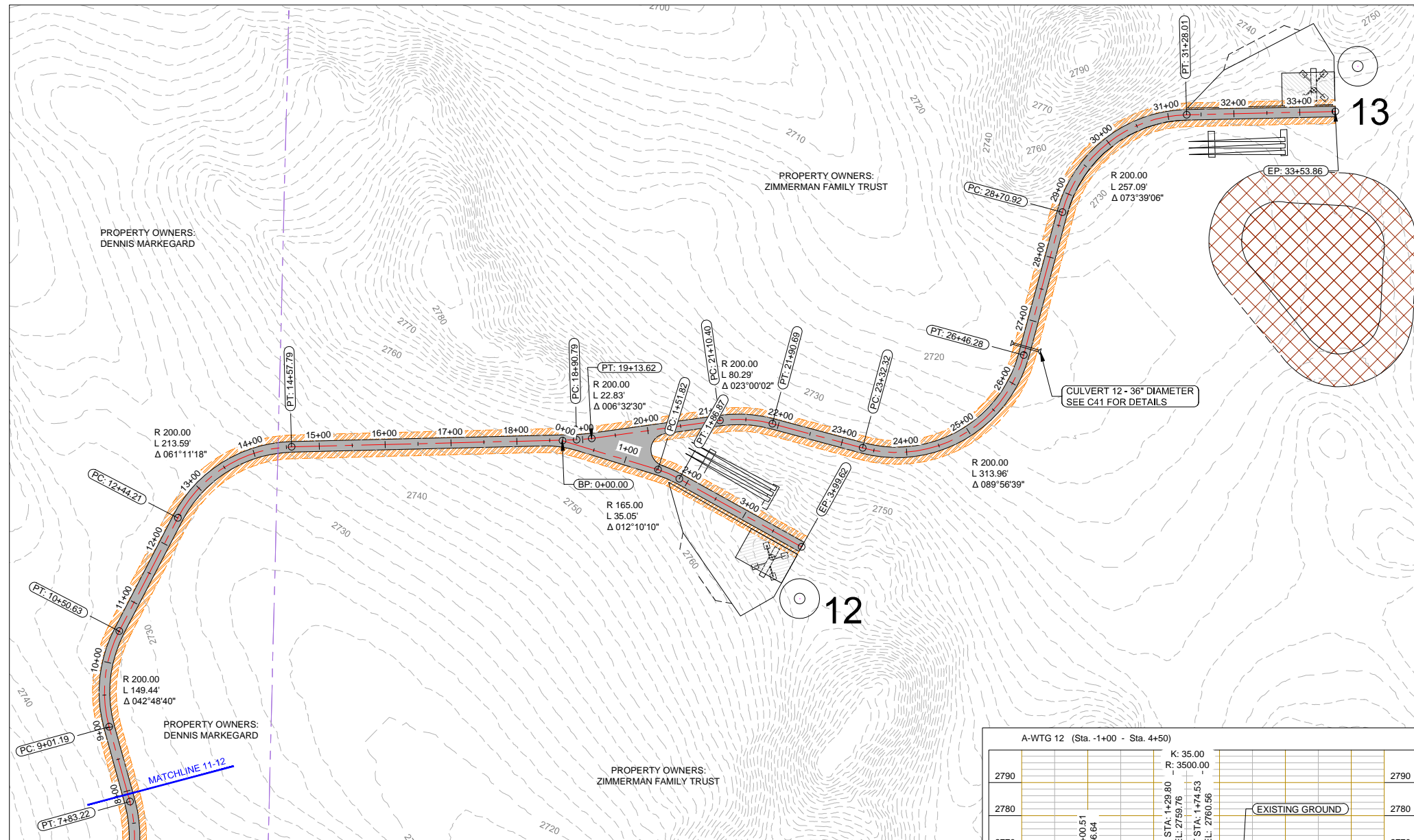
- LEGEND**
- LAND OWNER BOUNDARIES
  - NON-PARTICIPATING OWNER
  - EXISTING CONTOUR
  - AVOIDANCE AREA
  - EXISTING OH ELECTRICAL
  - EXISTING WATER LINE
  - EXISTING TELEPHONE LINE
  - EXISTING WETLANDS
  - PROPOSED CRANE WALK PATH ALONG ACCESS ROAD
  - PROPOSED CRANE WALK PATH
  - EXISTING PUBLIC ROADS TO BE IMPROVED
  - PROPOSED ACCESS ROAD & SURFACING
  - EXISTING PUBLIC ROADS

SYM	DATE	DESCRIPTION	APPR
7	05/21/15	Issued For Construction	BN
6	05/20/15	Issued For Construction	BN
5	05/13/15	Issued For Construction	BN
4	04/28/15	95% Review Set Issued	BN

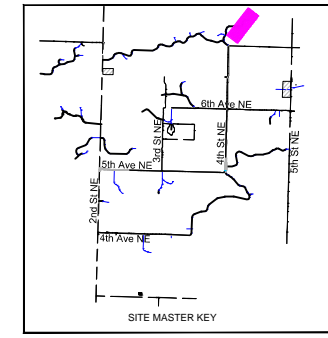
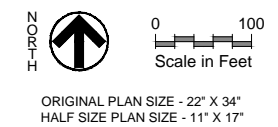


**THUNDER SPIRIT WIND ENERGY PROJECT**  
**WANZEK CONSTRUCTION, INC.**  
 ADAMS COUNTY, NORTH DAKOTA  
 ACCESS ROAD - TURBINE 11 - PLAN AND PROFILE

DRAWING TYPE	CONSTRUCTION
PREPARED BY	ALT
CHECKED / APPROVED	BN / BN
DATE	MAY 2015
PROJECT NUMBER	P08157-2014-003
SHEET	15 of 49
DRAWING	<b>C11</b>

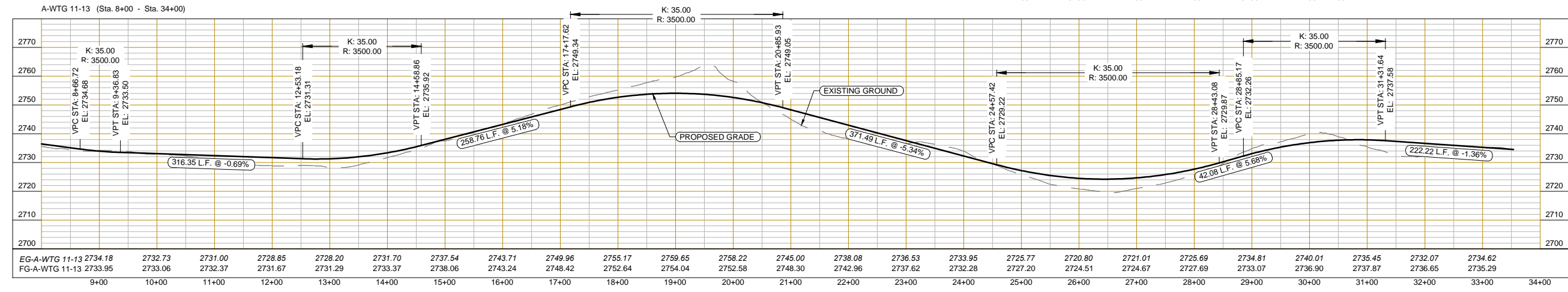
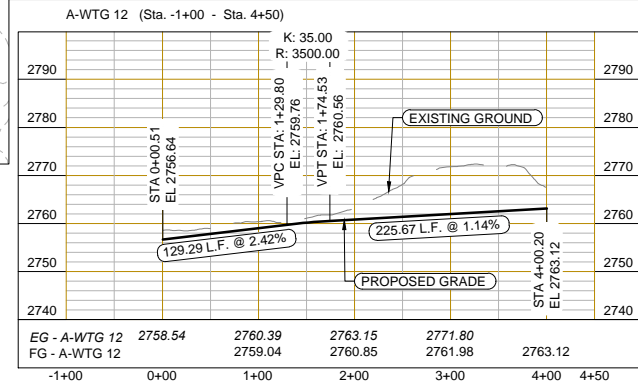


SY#	DATE	DESCRIPTION	APP#
7	05/21/15	Issued For Construction	BN
6	05/20/15	Issued For Construction	BN
5	05/13/15	Issued For Construction	BN
4	04/28/15	95% Review Set Issued	BN



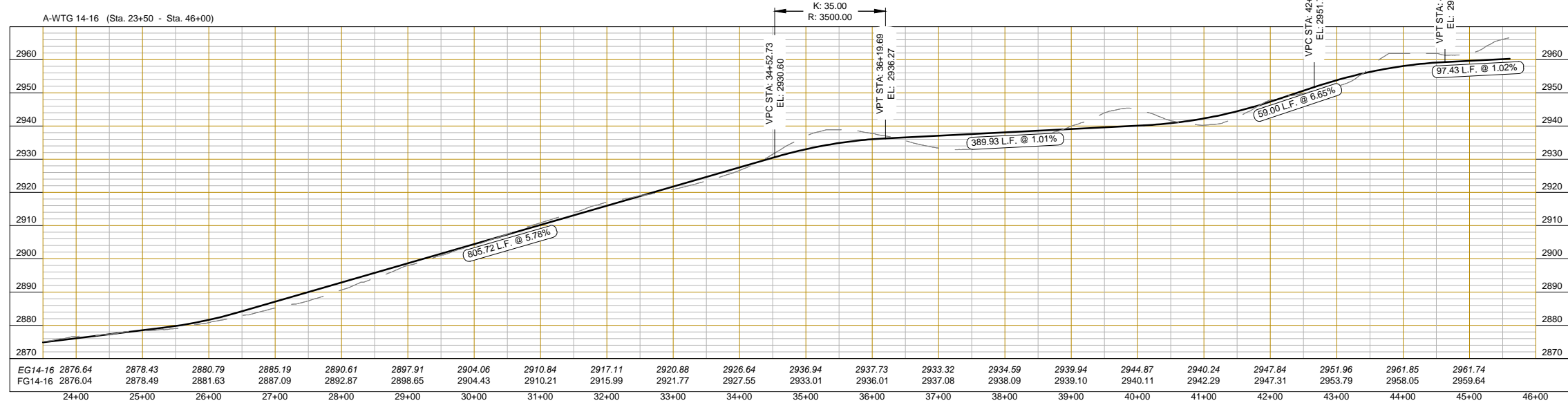
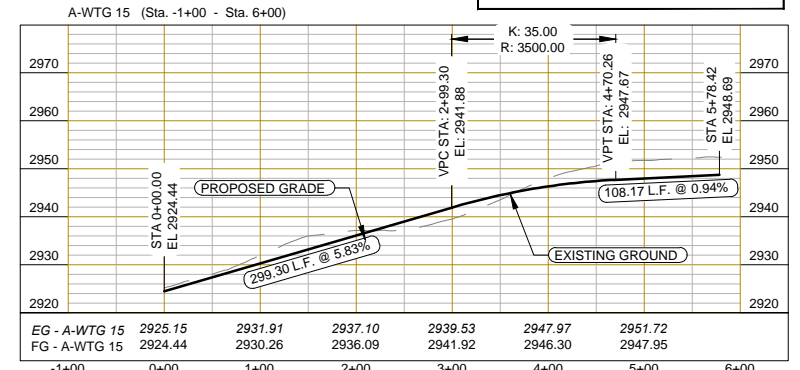
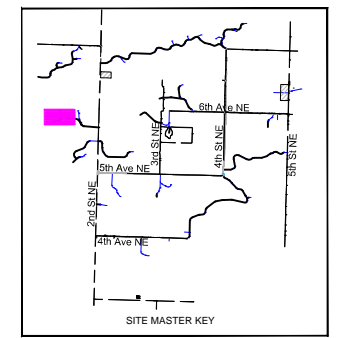
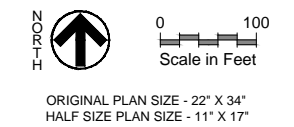
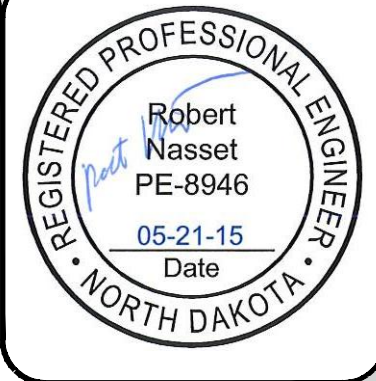
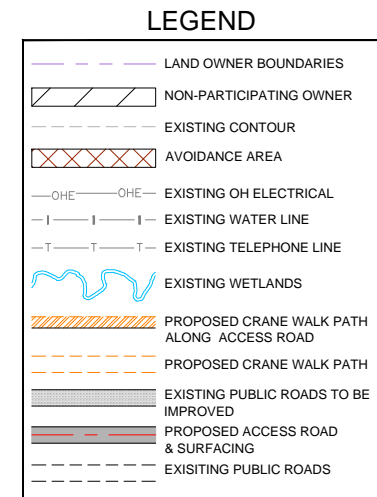
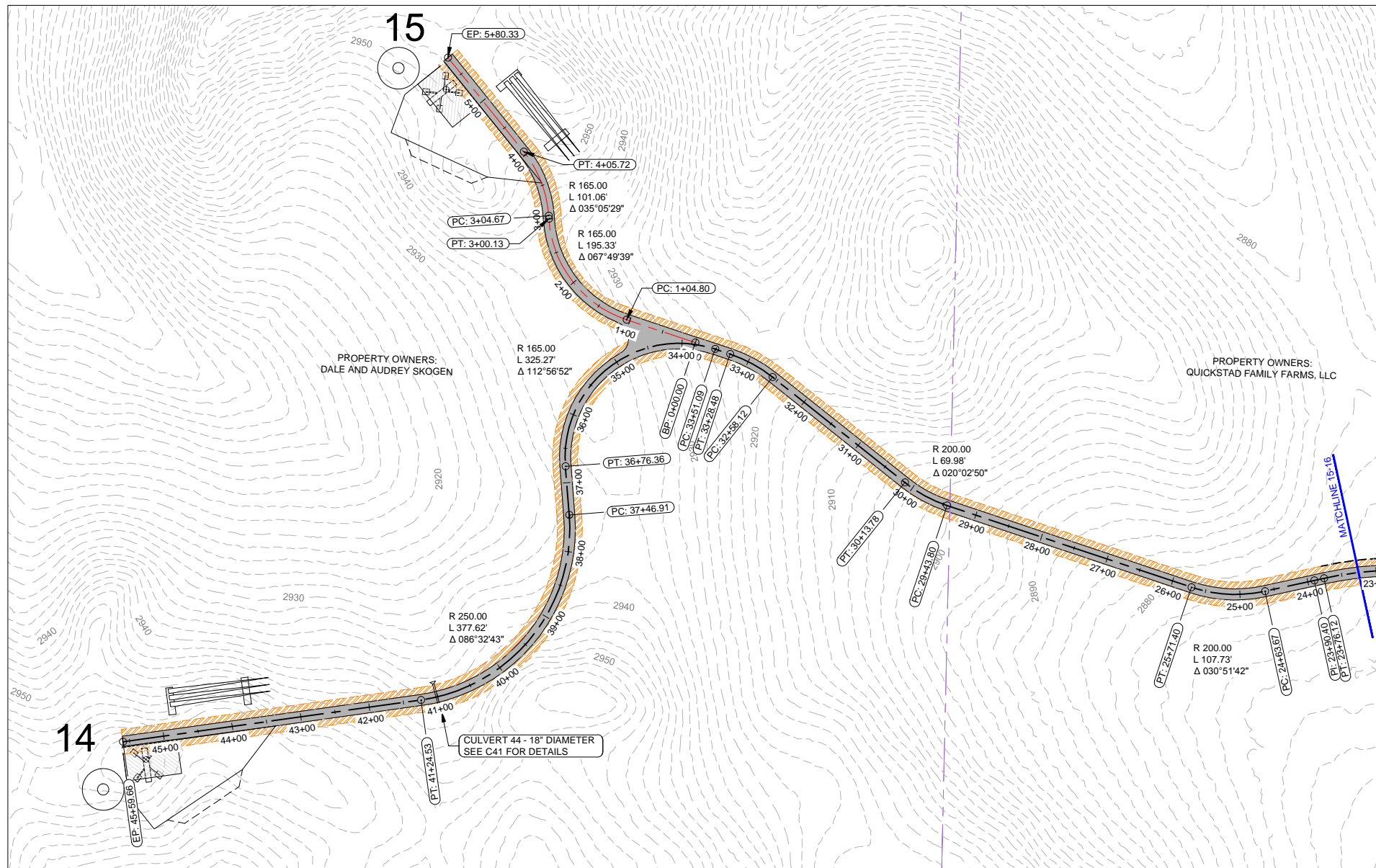
**LEGEND**

- LAND OWNER BOUNDARIES
- NON-PARTICIPATING OWNER
- EXISTING CONTOUR
- AVOIDANCE AREA
- EXISTING OH ELECTRICAL
- EXISTING WATER LINE
- EXISTING TELEPHONE LINE
- EXISTING WETLANDS
- PROPOSED CRANE WALK PATH ALONG ACCESS ROAD
- PROPOSED CRANE WALK PATH
- EXISTING PUBLIC ROADS TO BE IMPROVED
- PROPOSED ACCESS ROAD & SURFACING
- EXISTING PUBLIC ROADS



**THUNDER SPIRIT WIND ENERGY PROJECT**  
**WANZEK CONSTRUCTION, INC.**  
 ADAMS COUNTY, NORTH DAKOTA

---	DRAWING TYPE
CONSTRUCTION	CONSTRUCTION
ALT	PREPARED BY
BN / BN	CHECKED / APPROVED
MAY 2015	DATE
P08157-2014-003	PROJECT NUMBER
---	SHEET
16 of 49	SHEET
C12	DRAWING

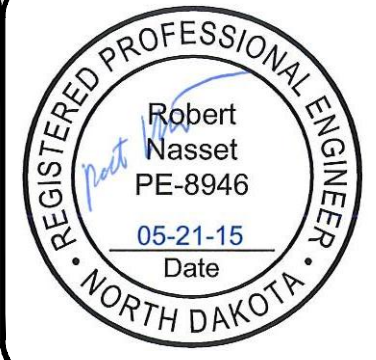
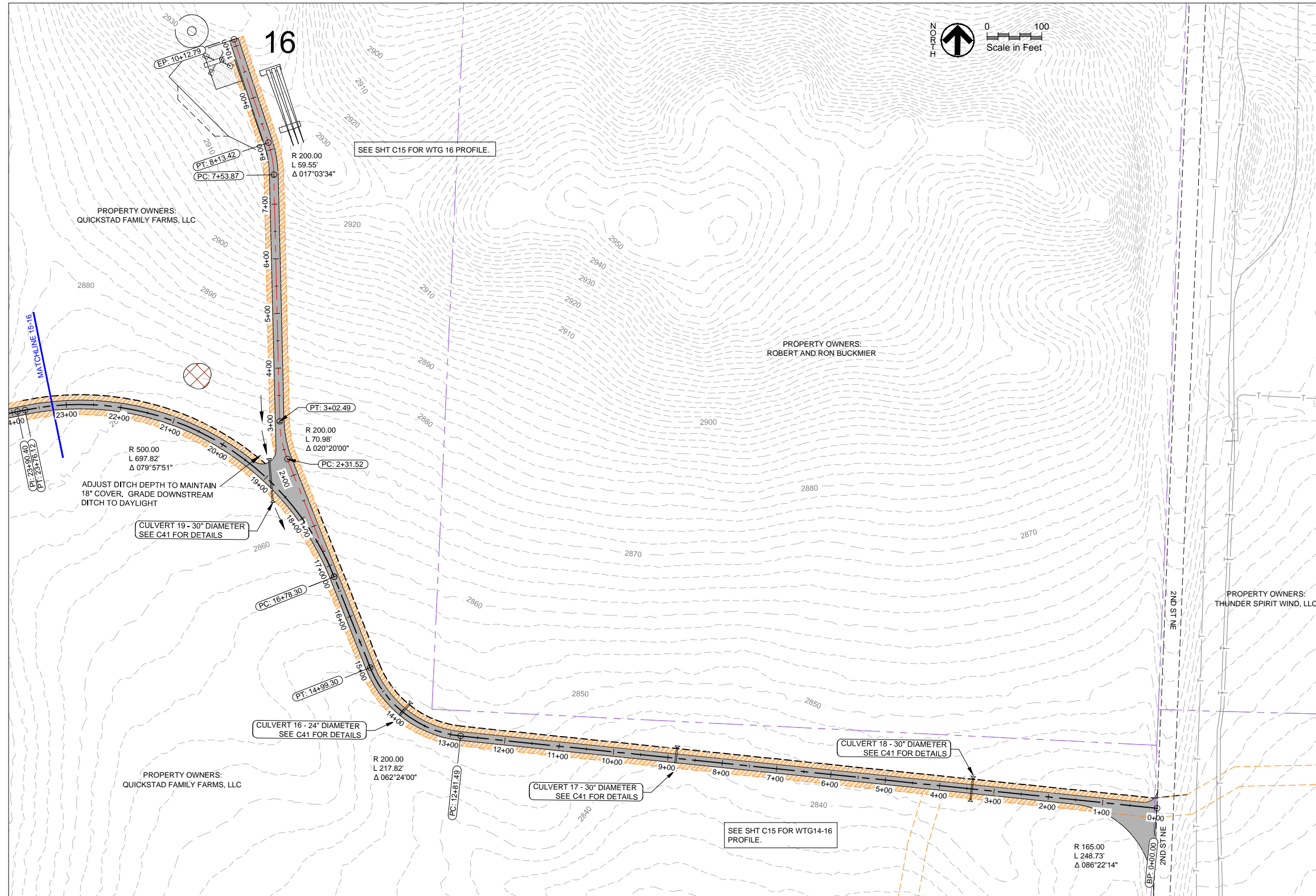


SYM	DATE	DESCRIPTION	APPR
1	05/21/15	Issued For Construction	BN
2	05/20/15	Issued For Construction	BN
3	05/13/15	Issued For Construction	BN
4	04/28/15	95% Review Set Issued	BN
5		95% Review Set Issued	APP



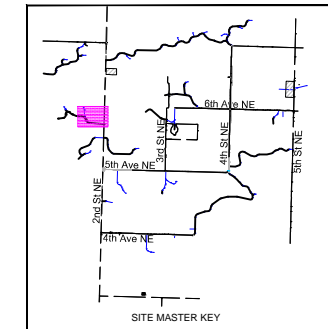
THUNDER SPIRIT WIND ENERGY PROJECT  
 WANZEK CONSTRUCTION, INC.  
 ADAMS COUNTY, NORTH DAKOTA  
 ACCESS ROAD - TURBINE 14-15 - PLAN AND PROFILE

DRAWING TYPE	CONSTRUCTION
PREPARED BY	ALT
CHECKED / APPROVED	BN / BN
DATE	MAY 2015
PROJECT NUMBER	P08157-2014-003
SHEET	17 of 49
DRAWING	<b>C13</b>



SY#	DATE	DESCRIPTION	APPR
7	05/21/15	Issued For Construction	BN
6	05/20/15	Issued For Construction	BN
5	05/13/15	Issued For Construction	BN
4	04/28/15	95% Review Set Issued	BN

ORIGINAL PLAN SIZE - 22" X 34"  
 HALF SIZE PLAN SIZE - 11" X 17"



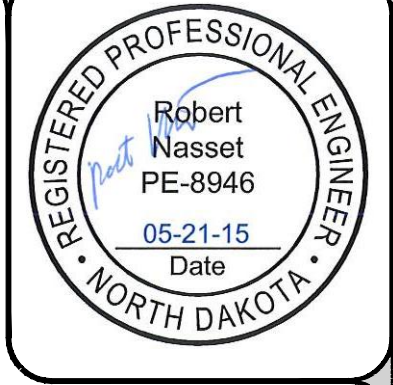
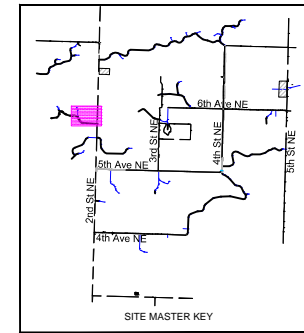
**LEGEND**

- LAND OWNER BOUNDARIES
- NON-PARTICIPATING OWNER
- EXISTING CONTOUR
- AVOIDANCE AREA
- EXISTING OH ELECTRICAL
- EXISTING WATER LINE
- EXISTING TELEPHONE LINE
- EXISTING WETLANDS
- PROPOSED CRANE WALK PATH ALONG ACCESS ROAD
- PROPOSED CRANE WALK PATH
- EXISTING PUBLIC ROADS TO BE IMPROVED
- PROPOSED ACCESS ROAD & SURFACING
- EXISTING PUBLIC ROADS



**THUNDER SPIRIT WIND ENERGY PROJECT**  
**WANZEK CONSTRUCTION, INC.**  
 ADAMS COUNTY, NORTH DAKOTA  
 ACCESS ROAD - TURBINE 16 - PLAN

DRAWING TYPE	CONSTRUCTION
PREPARED BY	ALT
CHECKED / APPROVED	BN / BN
DATE	MAY 2015
PROJECT NUMBER	P08157-2014-003
SHEET	18 of 49
DRAWING	<b>C14</b>



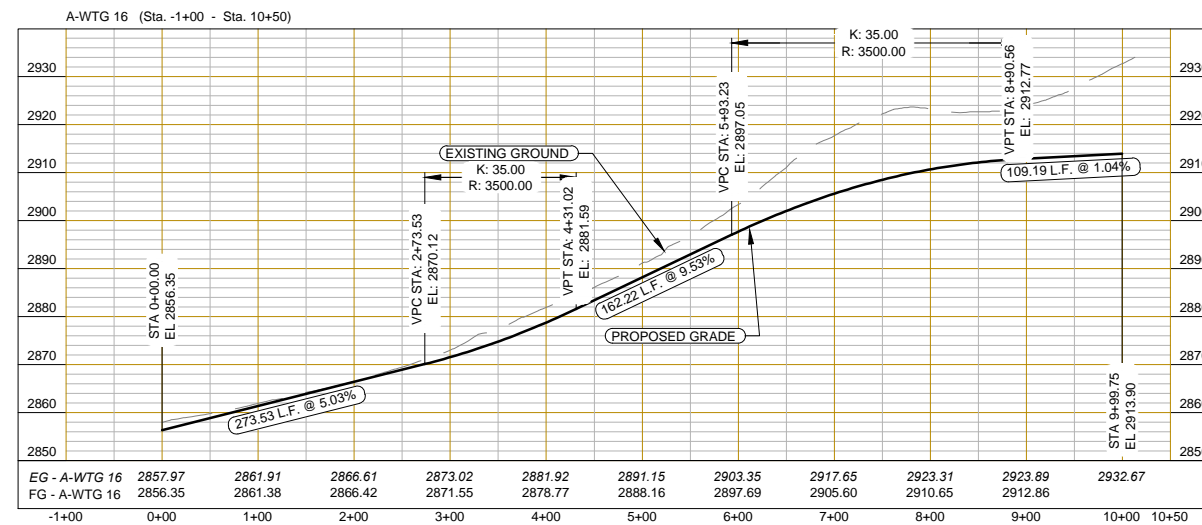
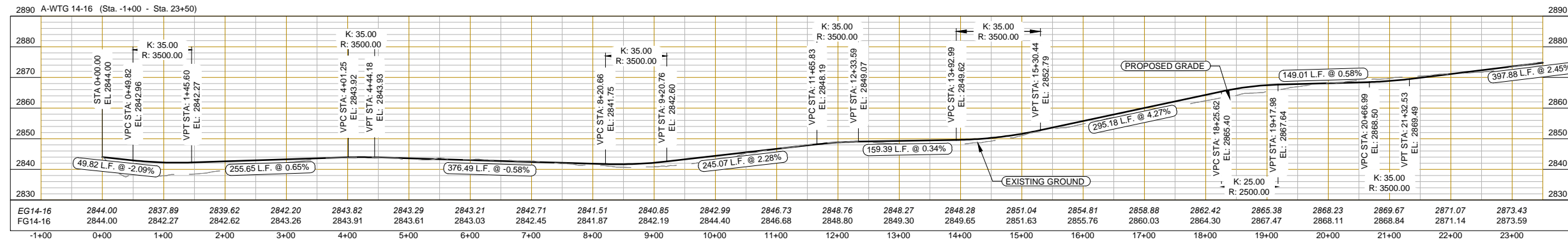
SYM	DATE	DESCRIPTION	APPR
7	05/21/15	Issued For Construction	BN
6	05/20/15	Issued For Construction	BN
5	05/13/15	Issued For Construction	BN
4	04/28/15	95% Review Set Issued	BN

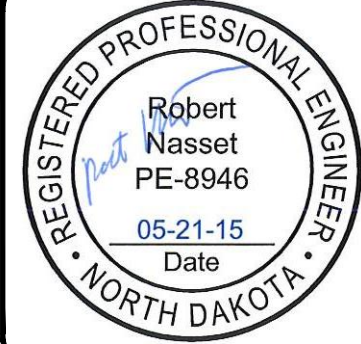
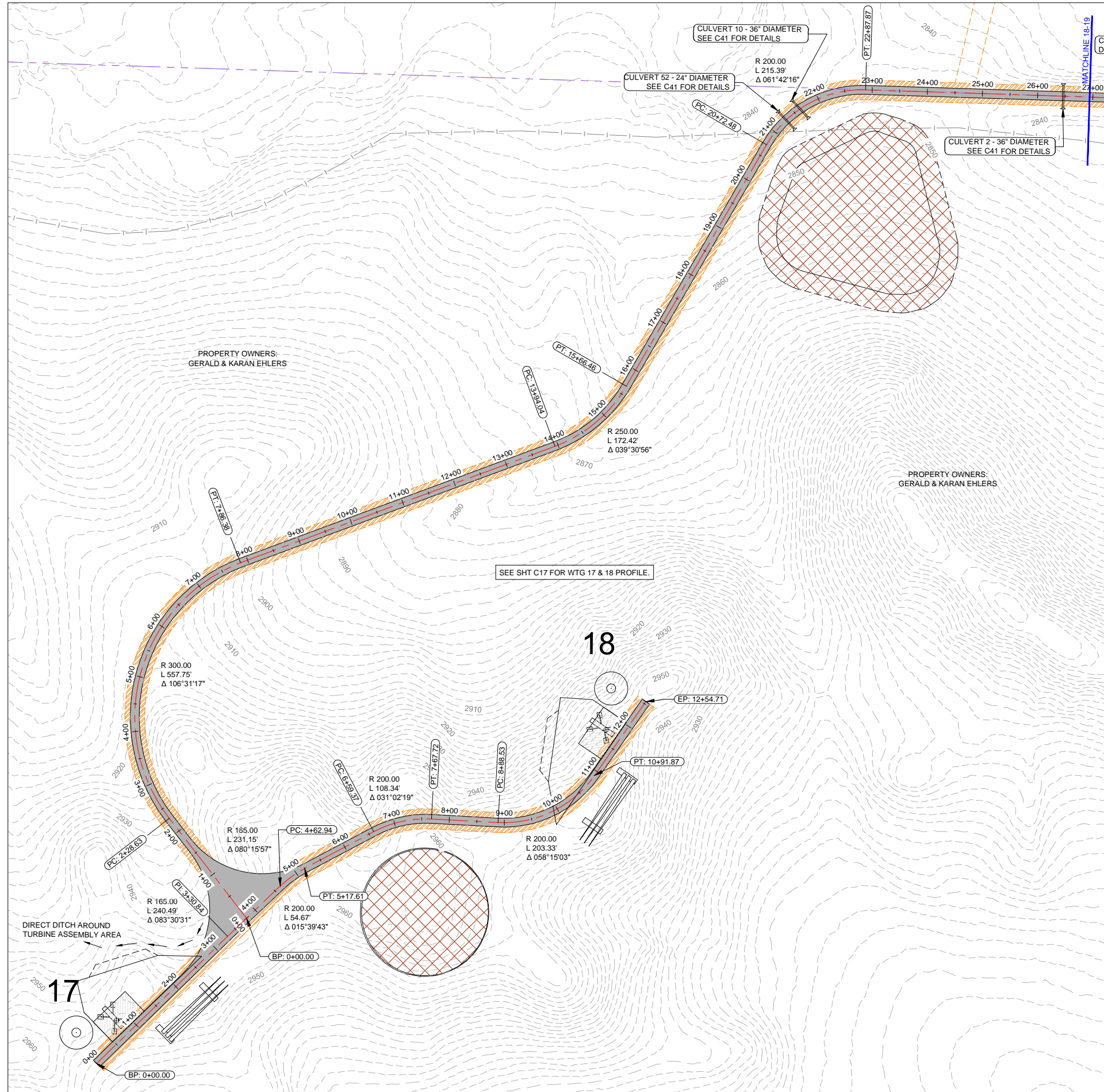
↑  
 I-POZ  
 Scale in Feet  
 0 100  
 ORIGINAL PLAN SIZE - 22' X 34'  
 HALF SIZE PLAN SIZE - 11' X 17'



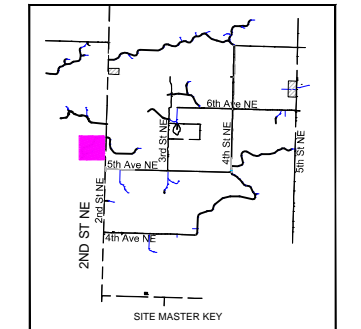
THUNDER SPIRIT WIND ENERGY PROJECT  
 WANZEK CONSTRUCTION, INC.  
 ADAMS COUNTY, NORTH DAKOTA  
 ACCESS ROAD - TURBINE 16 - PROFILE

DRAWING TYPE	CONSTRUCTION
PREPARED BY	ALT
CHECKED / APPROVED	BN / BN
DATE	MAY 2015
PROJECT NUMBER	P08157-2014-003
SHEET	19 of 49
DRAWING	C15





Scale in Feet  
 0 100  
 ORIGINAL PLAN SIZE - 22" X 34"  
 HALF SIZE PLAN SIZE - 11" X 17"



**LEGEND**

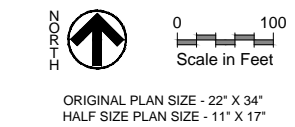
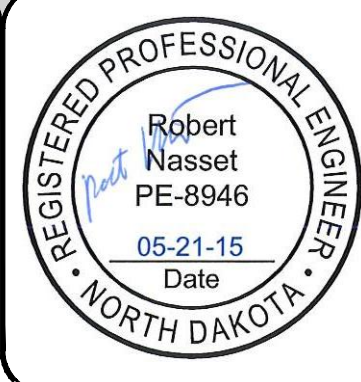
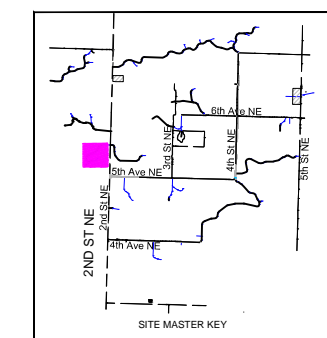
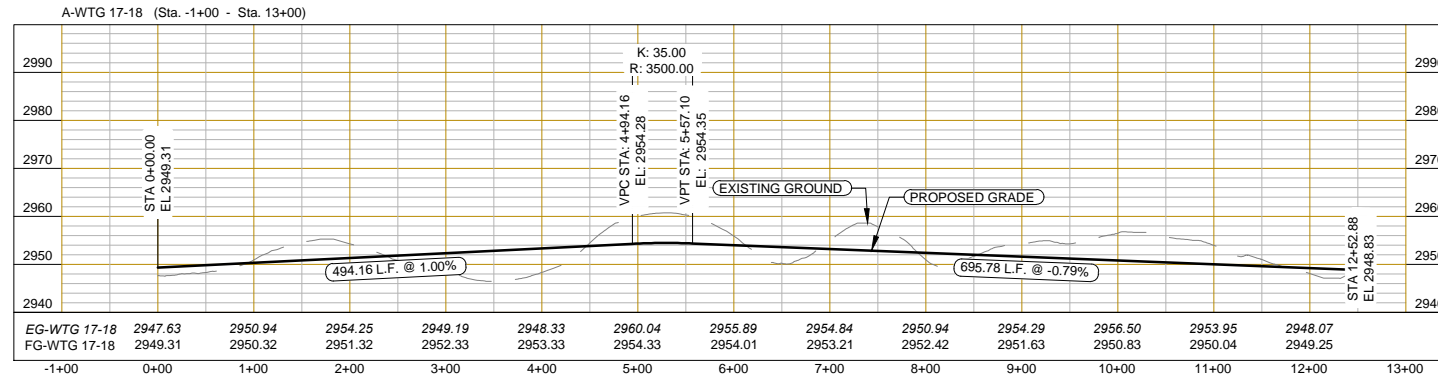
- LAND OWNER BOUNDARIES
- NON-PARTICIPATING OWNER
- EXISTING CONTOUR
- AVOIDANCE AREA
- EXISTING OH ELECTRICAL
- EXISTING WATER LINE
- EXISTING TELEPHONE LINE
- EXISTING WETLANDS
- PROPOSED CRANE WALK PATH ALONG ACCESS ROAD
- PROPOSED CRANE WALK PATH
- EXISTING PUBLIC ROADS TO BE IMPROVED
- PROPOSED ACCESS ROAD & SURFACING
- EXISTING PUBLIC ROADS

SYM	DATE	DESCRIPTION	APPR
7	05/21/15	Issued For Construction	BN
6	05/20/15	Issued For Construction	BN
5	05/13/15	Issued For Construction	BN
4	04/28/15	95% Review Set Issued	BN

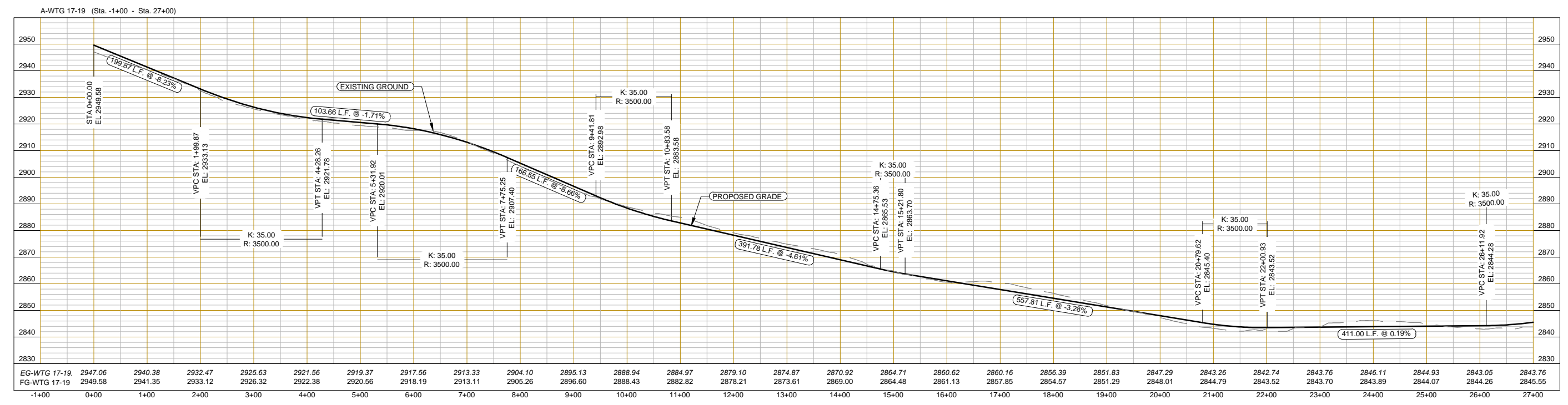


**THUNDER SPIRIT WIND ENERGY PROJECT**  
**WANZEK CONSTRUCTION, INC.**  
 ADAMS COUNTY, NORTH DAKOTA  
 ACCESS ROAD - TURBINE 17-18 - PLAN

DRAWING TYPE	CONSTRUCTION
PREPARED BY	ALT
CHECKED / APPROVED	BN / BN
DATE	MAY 2015
PROJECT NUMBER	P08157-2014-003
SHEET	20 of 49
DRAWING	C16

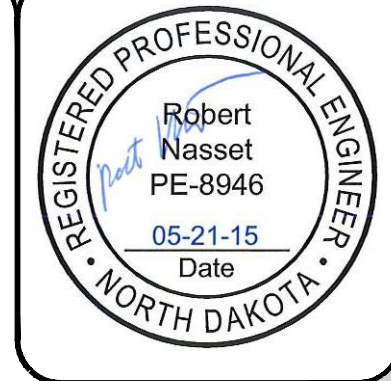
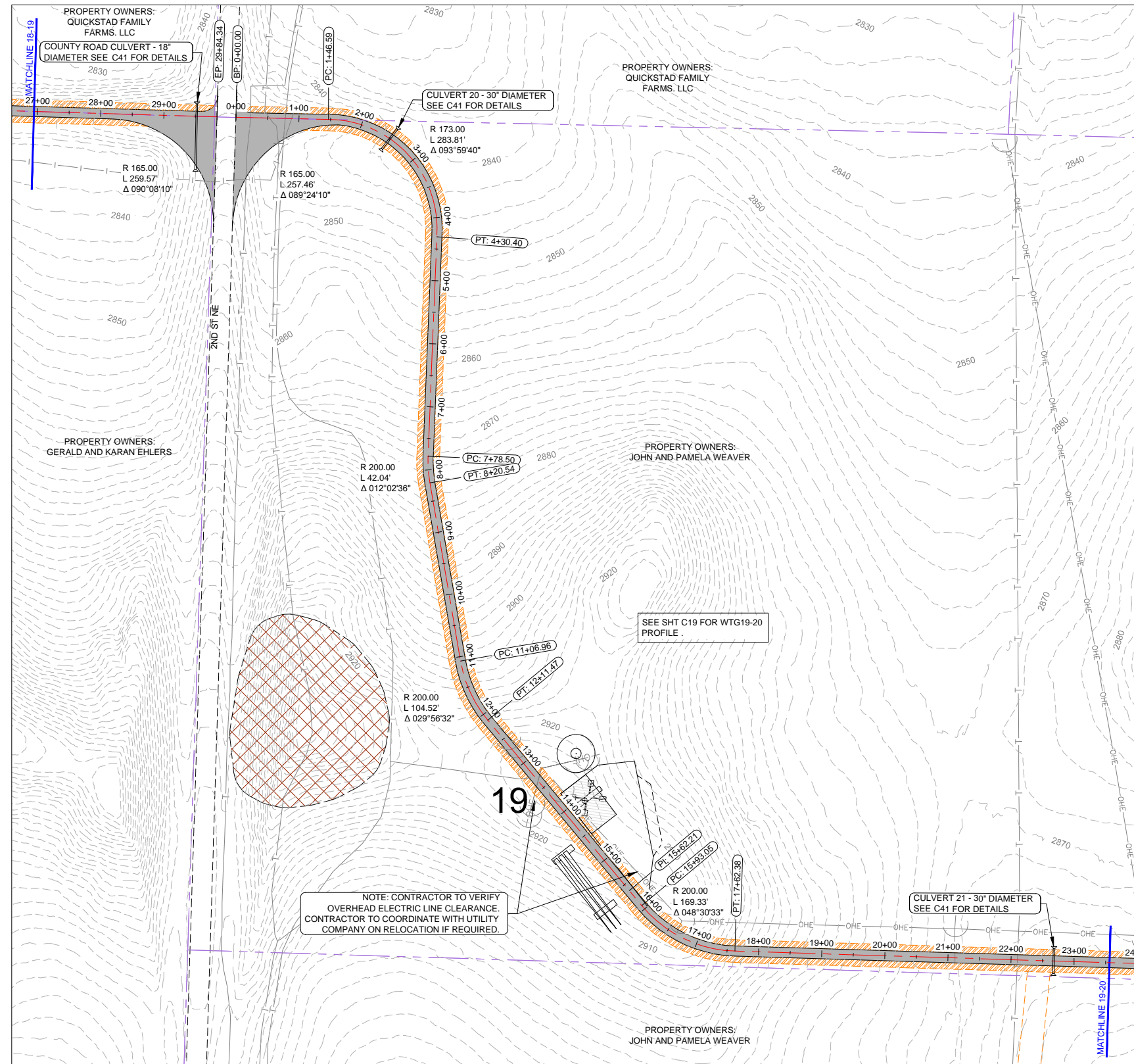


SYM	DATE	DESCRIPTION	APPR
7	05/21/15	Issued For Construction	BN
6	05/20/15	Issued For Construction	BN
5	05/13/15	Issued For Construction	BN
4	04/28/15	95% Review Set Issued	BN

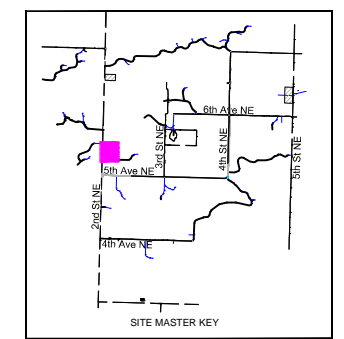


THUNDER SPIRIT WIND ENERGY PROJECT  
 WANZEK CONSTRUCTION, INC.  
 ADAMS COUNTY, NORTH DAKOTA  
 ACCESS ROAD - TURBINE 17-18 - PROFILE

DRAWING TYPE	CONSTRUCTION
PREPARED BY	ALT
CHECKED / APPROVED	BN / BN
DATE	MAY 2015
PROJECT NUMBER	P08157-2014-003
SHEET	21 of 49
DRAWING	C17



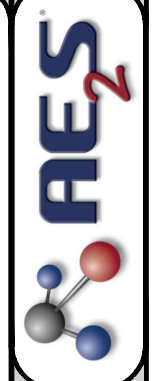
Scale in Feet  
 ORIGINAL PLAN SIZE - 22' X 34'  
 HALF SIZE PLAN SIZE - 11' X 17'



**LEGEND**

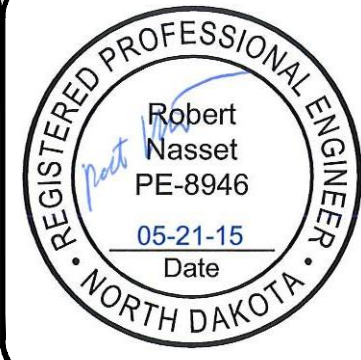
- LAND OWNER BOUNDARIES
- NON-PARTICIPATING OWNER
- EXISTING CONTOUR
- AVOIDANCE AREA
- EXISTING OH ELECTRICAL
- EXISTING WATER LINE
- EXISTING TELEPHONE LINE
- EXISTING WETLANDS
- PROPOSED CRANE WALK PATH ALONG ACCESS ROAD
- PROPOSED CRANE WALK PATH
- EXISTING PUBLIC ROADS TO BE IMPROVED
- PROPOSED ACCESS ROAD & SURFACING
- EXISTING PUBLIC ROADS

SYM	DATE	DESCRIPTION	APPR
7	05/21/15	Issued For Construction	BN
6	05/20/15	Issued For Construction	BN
5	05/13/15	Issued For Construction	BN
4	04/28/15	95% Review Set Issued	BN



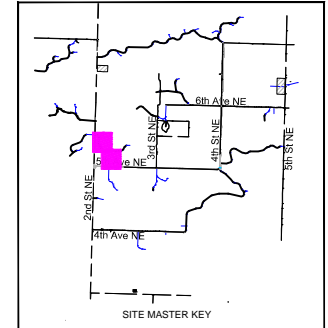
**THUNDER SPIRIT WIND ENERGY PROJECT**  
**WANZEK CONSTRUCTION, INC.**  
 ADAMS COUNTY, NORTH DAKOTA  
 ACCESS ROAD - TURBINE 19 - PLAN AND PROFILE

DRAWING TYPE	CONSTRUCTION
PREPARED BY	ALT
CHECKED / APPROVED	BN / BN
DATE	MAY 2015
PROJECT NUMBER	P08157-2014-003
SHEET	22 of 49
DRAWING	C18



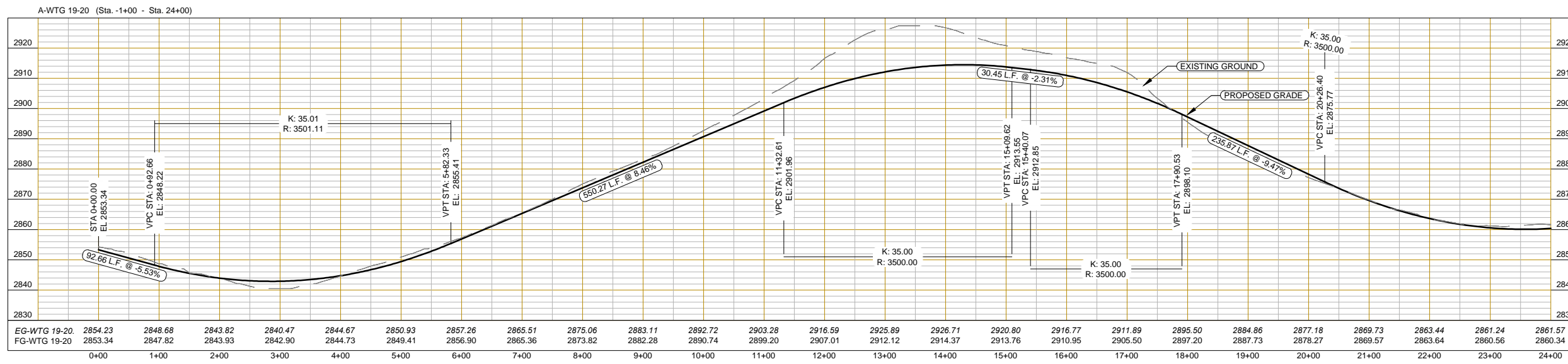
SYM	DATE	DESCRIPTION	APPR
7	05/21/15	Issued For Construction	BN
6	05/20/15	Issued For Construction	BN
5	05/13/15	Issued For Construction	BN
4	04/28/15	95% Review Set Issued	BN

ORIGINAL PLAN SIZE - 22" X 34"  
 HALF SIZE PLAN SIZE - 11" X 17"

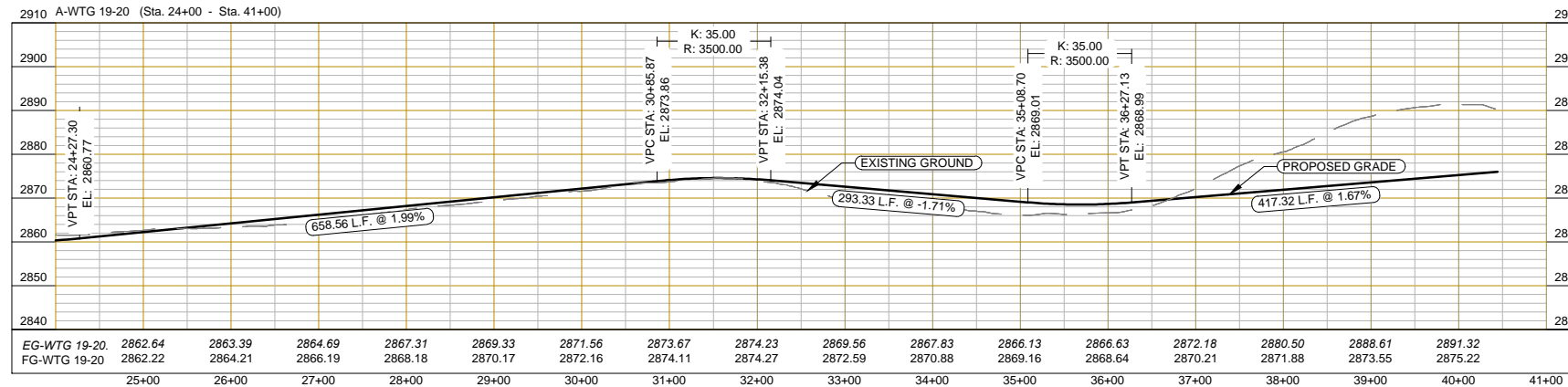
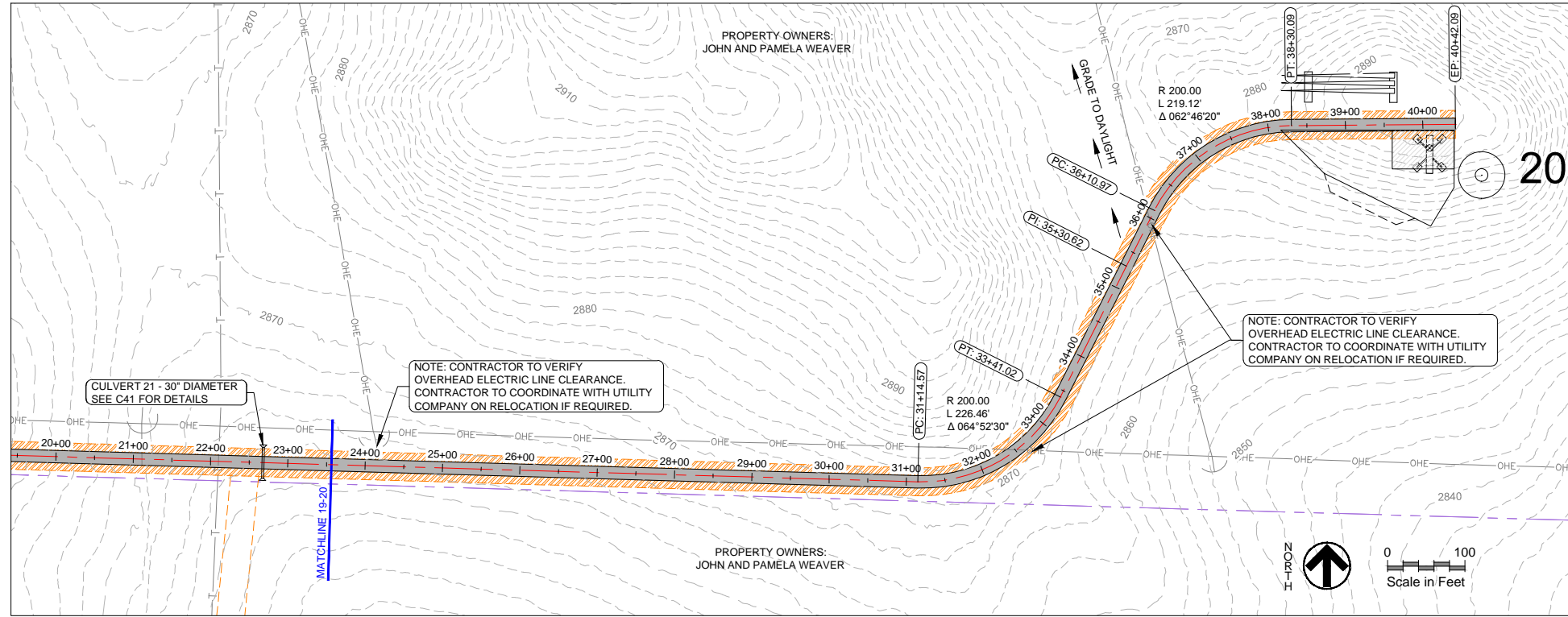


THUNDER SPIRIT WIND ENERGY PROJECT  
 WANAKE CONSTRUCTION, INC.  
 ADAMS COUNTY, NORTH DAKOTA  
 ACCESS ROAD - TURBINE 19 - PROFILE

DRAWING TYPE	CONSTRUCTION
PREPARED BY	ALT
CHECKED / APPROVED	BN / BN
DATE	MAY 2015
PROJECT NUMBER	08157-2014-003
SHEET	23 of 49
DRAWING	C19

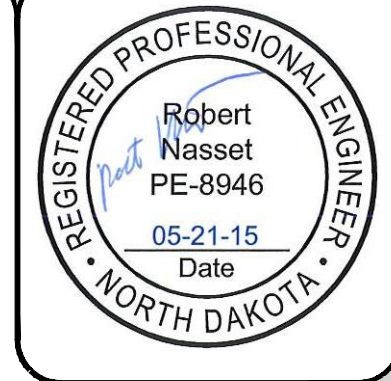


**CONSTRUCTION**

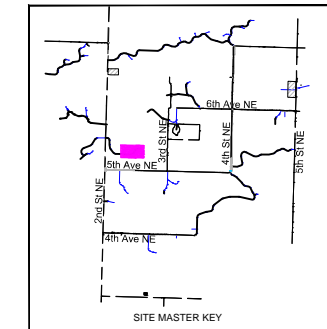


**LEGEND**

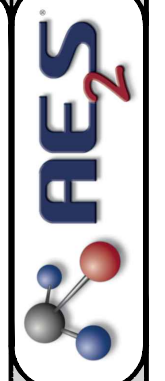
- LAND OWNER BOUNDARIES
- ▨ NON-PARTICIPATING OWNER
- - - EXISTING CONTOUR
- ▨ AVOIDANCE AREA
- OHE—OHE— EXISTING OH ELECTRICAL
- |-|- EXISTING WATER LINE
- T-T-T EXISTING TELEPHONE LINE
- ~~~ EXISTING WETLANDS
- ▨ PROPOSED CRANE WALK PATH ALONG ACCESS ROAD
- ▨ PROPOSED CRANE WALK PATH
- ▨ EXISTING PUBLIC ROADS TO BE IMPROVED
- ▨ PROPOSED ACCESS ROAD & SURFACING
- - - EXISTING PUBLIC ROADS



ORIGINAL PLAN SIZE - 22" X 34"  
 HALF SIZE PLAN SIZE - 11" X 17"



SY#	DATE	DESCRIPTION	APP#
7	05/21/15	Issued For Construction	BN
6	05/20/15	Issued For Construction	BN
5	05/13/15	Issued For Construction	BN
4	04/28/15	95% Review Set Issued	BN

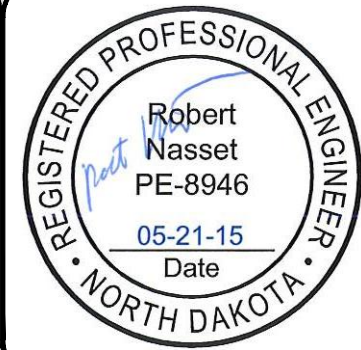
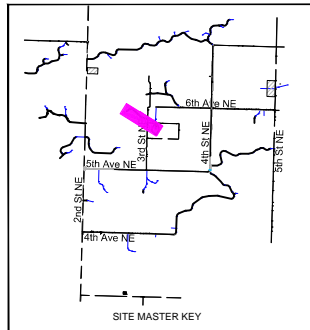
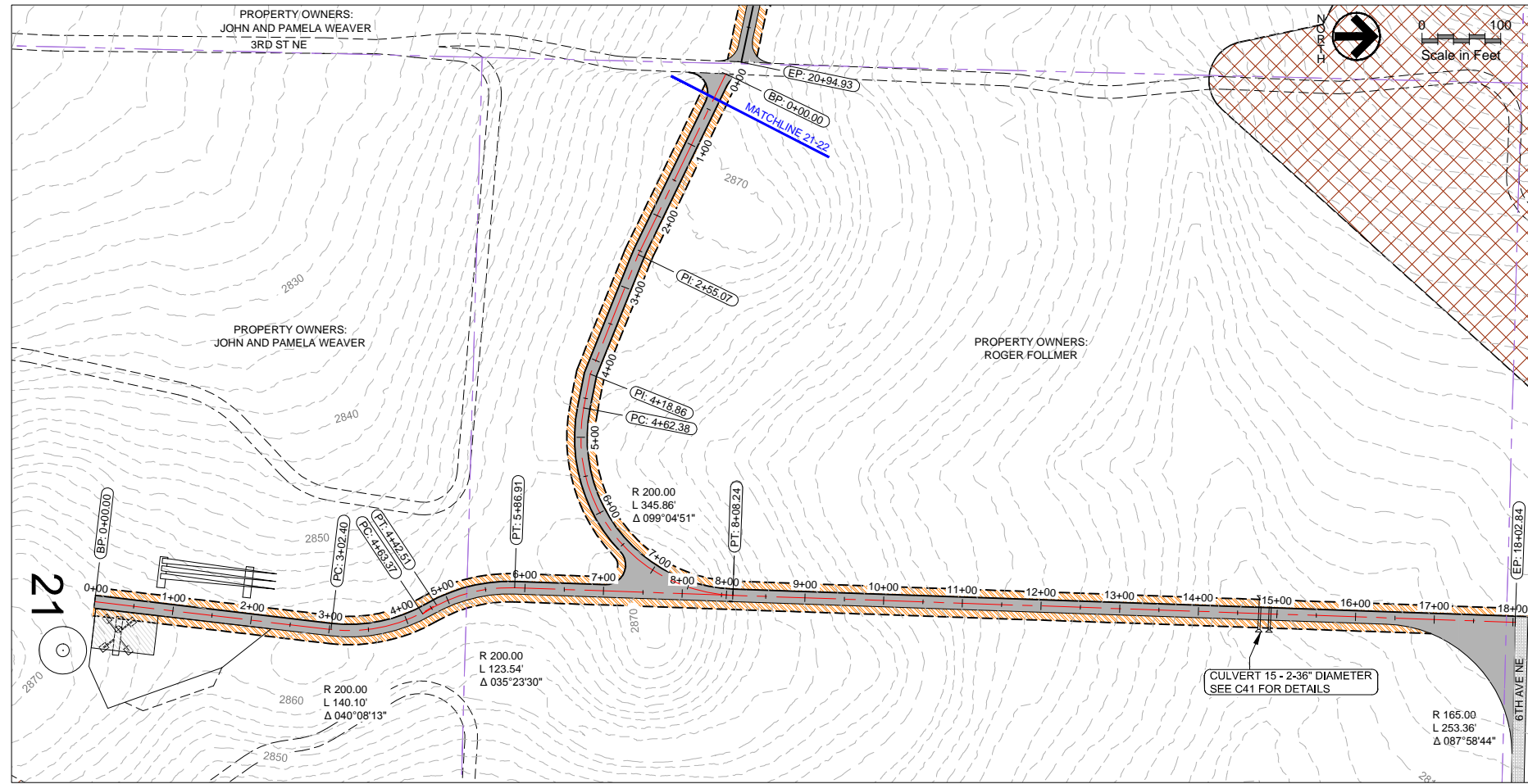


THUNDER SPIRIT WIND ENERGY PROJECT  
 WANZEK CONSTRUCTION, INC.  
 ADAMS COUNTY, NORTH DAKOTA  
 ACCESS ROAD - TURBINE 20 - PLAN AND PROFILE

DRAWING TYPE	CONSTRUCTION
PREPARED BY	ALT
CHECKED / APPROVED	BN / BN
DATE	MAY 2015
PROJECT NUMBER	P08157-2014-003
SHEET	24 of 49
DRAWING	C20

**LEGEND**

	LAND OWNER BOUNDARIES
	NON-PARTICIPATING OWNER
	EXISTING CONTOUR
	AVOIDANCE AREA
	EXISTING OH ELECTRICAL
	EXISTING WATER LINE
	EXISTING TELEPHONE LINE
	EXISTING WETLANDS
	PROPOSED CRANE WALK PATH ALONG ACCESS ROAD
	PROPOSED CRANE WALK PATH
	EXISTING PUBLIC ROADS TO BE IMPROVED
	PROPOSED ACCESS ROAD & SURFACING
	EXISTING PUBLIC ROADS

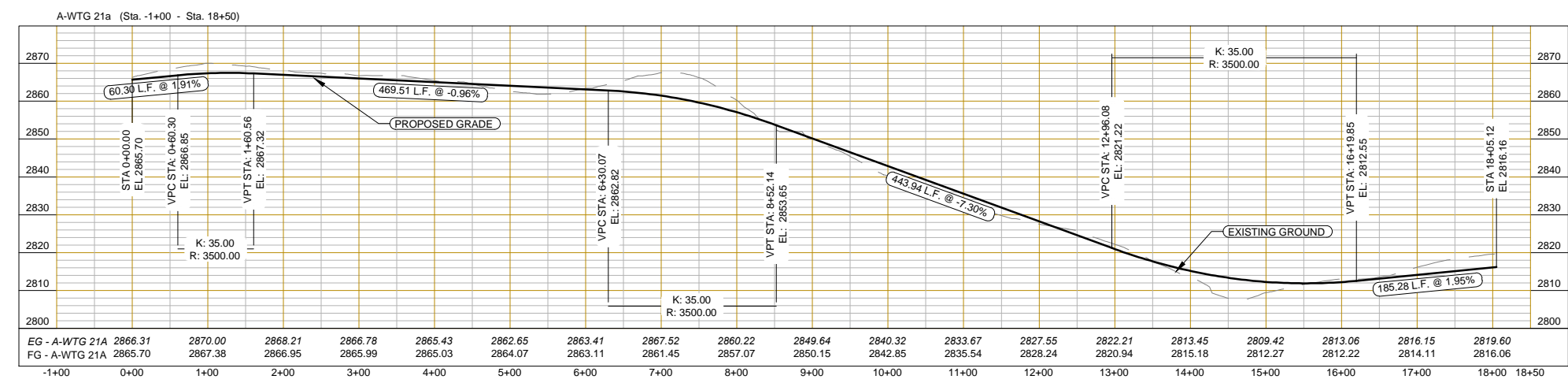
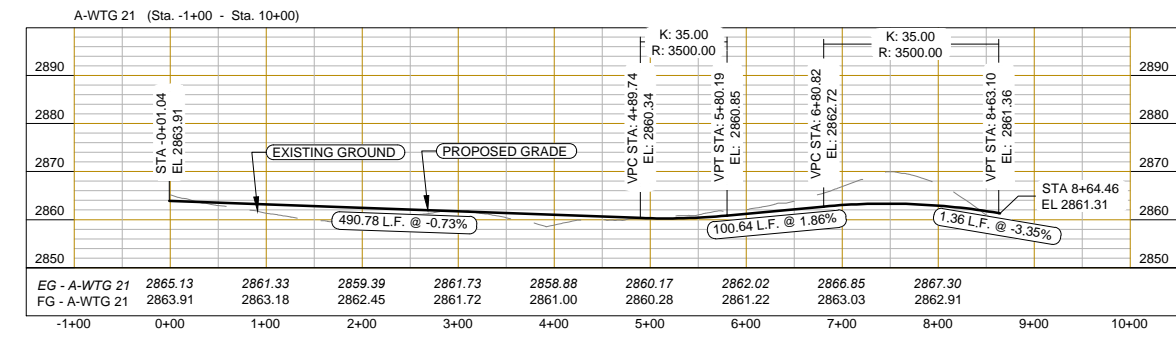


ORIGINAL PLAN SIZE - 22" X 34"  
 HALF SIZE PLAN SIZE - 11" X 17"

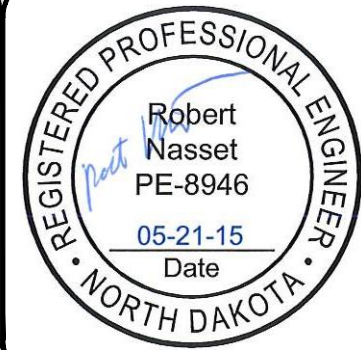
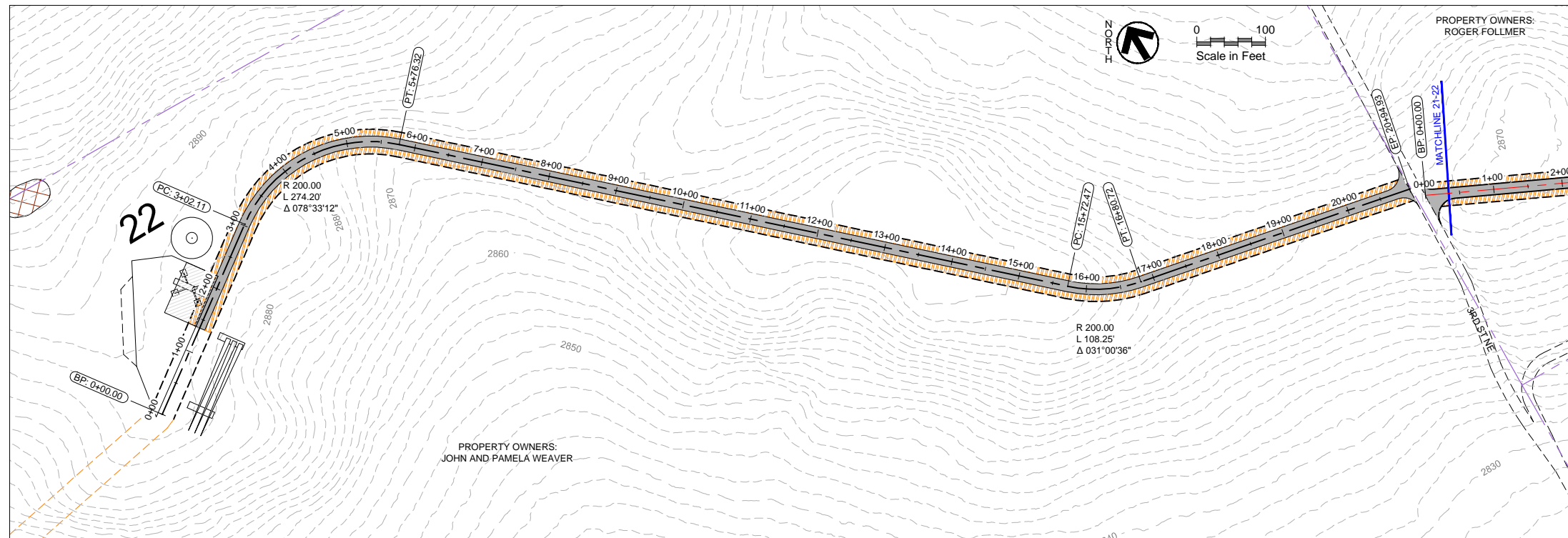
SYM	DATE	DESCRIPTION	APPR
7	05/21/15	Issued For Construction	BN
6	05/20/15	Issued For Construction	BN
5	05/13/15	Issued For Construction	BN
4	04/28/15	95% Review Set Issued	BN



**THUNDER SPIRIT WIND ENERGY PROJECT**  
 WANZEK CONSTRUCTION, INC.  
 ADAMS COUNTY, NORTH DAKOTA  
 ACCESS ROAD - TURBINE 21 - PLAN AND PROFILE

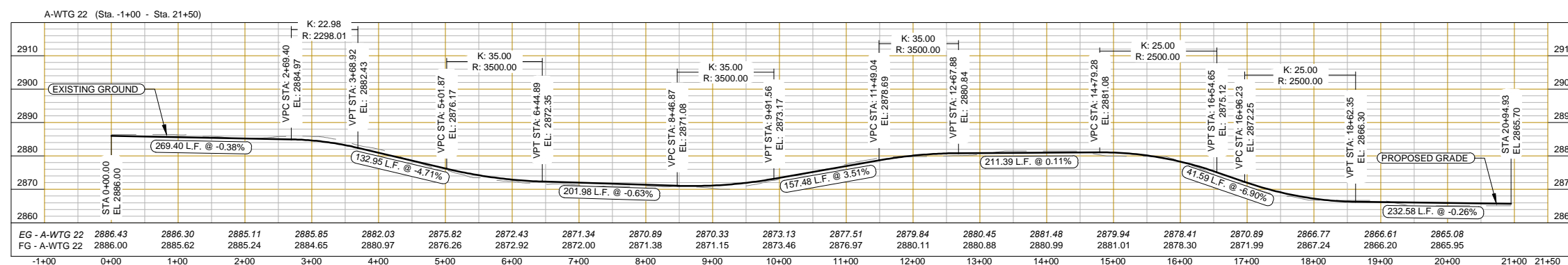
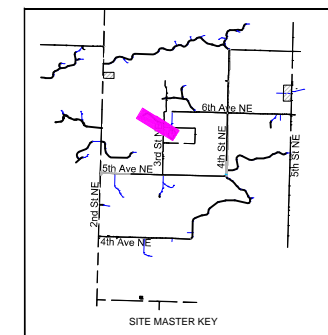


DRAWING TYPE	CONSTRUCTION
PREPARED BY	ALT
CHECKED / APPROVED	BN / BN
DATE	MAY 2015
PROJECT NUMBER	08157-2014-003
SHEET	25 OF 49
DRAWING	<b>C21</b>



SY#	DATE	DESCRIPTION	APP#
7	05/21/15	Issued For Construction	BN
6	05/20/15	Issued For Construction	BN
5	05/13/15	Issued For Construction	BN
4	04/28/15	95% Review Set Issued	BN

ORIGINAL PLAN SIZE - 22" X 34"  
 HALF SIZE PLAN SIZE - 11" X 17"



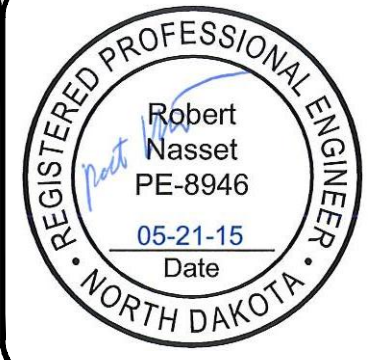
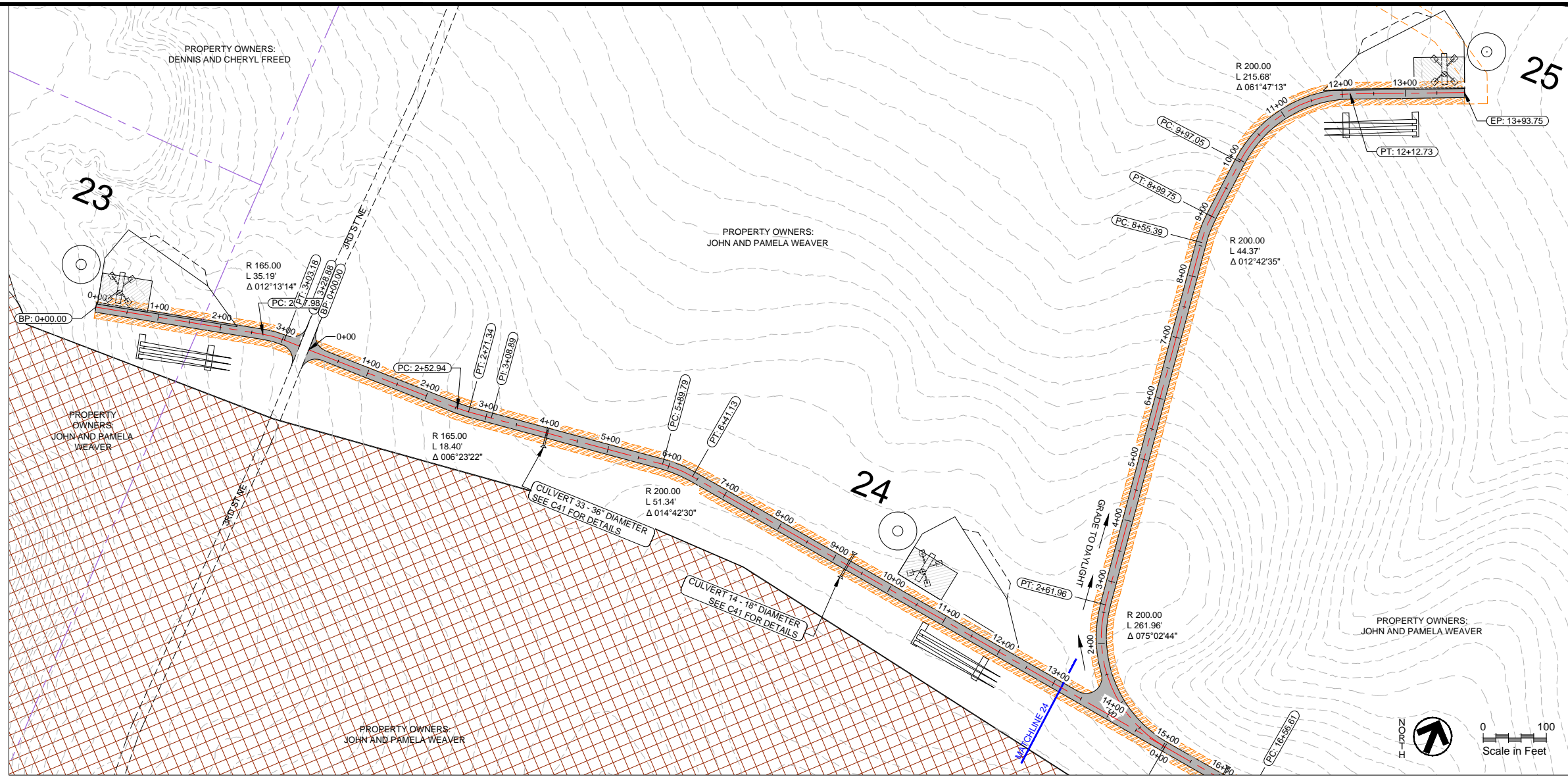
LEGEND

- LAND OWNER BOUNDARIES
- NON-PARTICIPATING OWNER
- EXISTING CONTOUR
- AVOIDANCE AREA
- EXISTING OH ELECTRICAL
- EXISTING WATER LINE
- EXISTING TELEPHONE LINE
- EXISTING WETLANDS
- PROPOSED CRANE WALK PATH ALONG ACCESS ROAD
- PROPOSED CRANE WALK PATH
- EXISTING PUBLIC ROADS TO BE IMPROVED
- PROPOSED ACCESS ROAD & SURFACING
- EXISTING PUBLIC ROADS

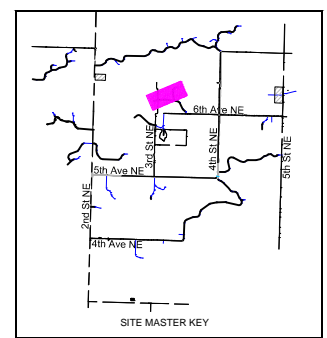
THUNDER SPIRIT WIND ENERGY PROJECT  
 WANAKEE CONSTRUCTION, INC.  
 ADAMS COUNTY, NORTH DAKOTA  
 ACCESS ROAD - TURBINE 22 - PLAN AND PROFILE

DRAWING TYPE	CONSTRUCTION
PREPARED BY	ALT
CHECKED / APPROVED	BN / BN
DATE	MAY 2015
PROJECT NUMBER	P08157-2014-003
SHEET	26 of 49
DRAWING	C22

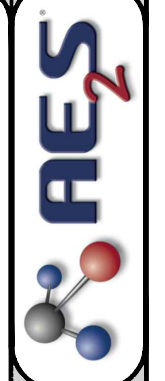
CONSTRUCTION



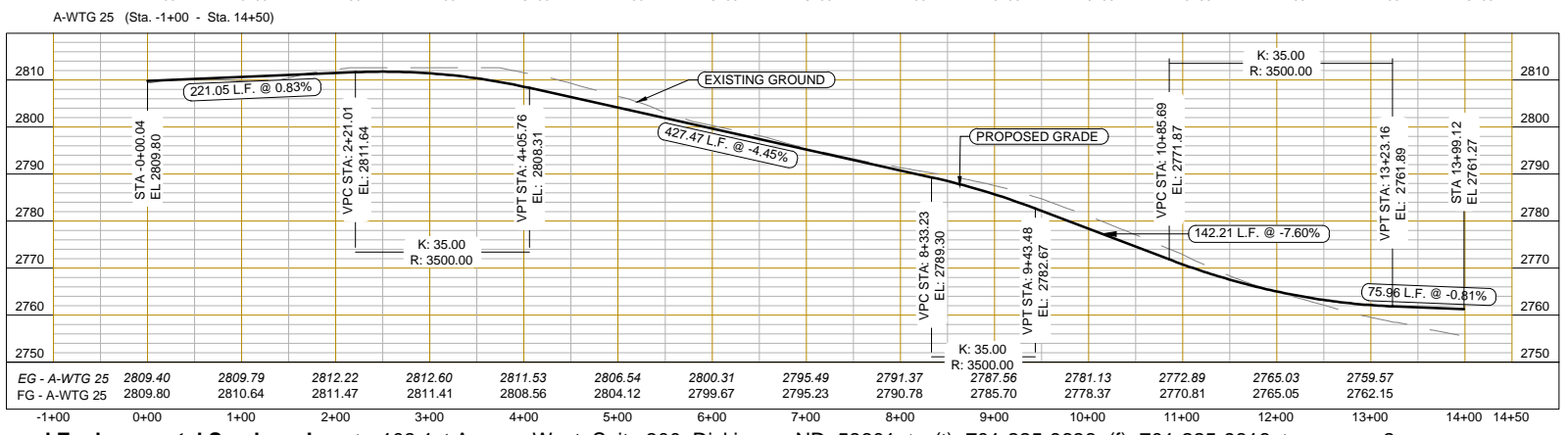
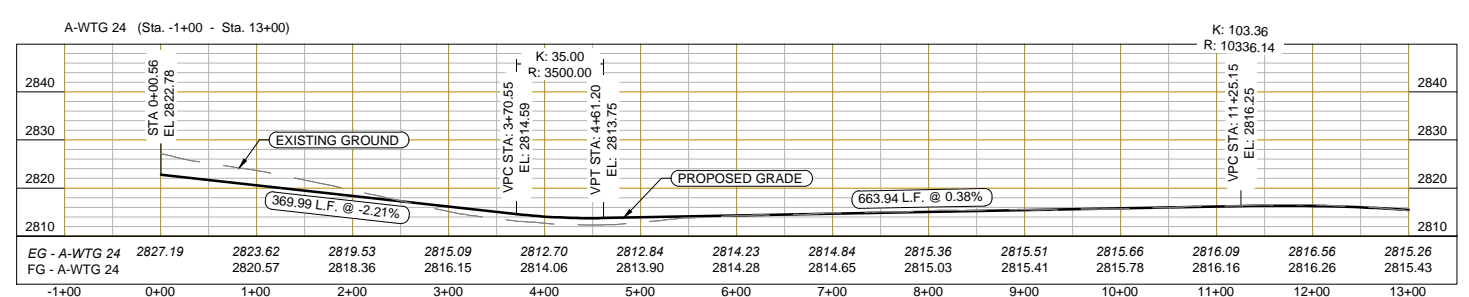
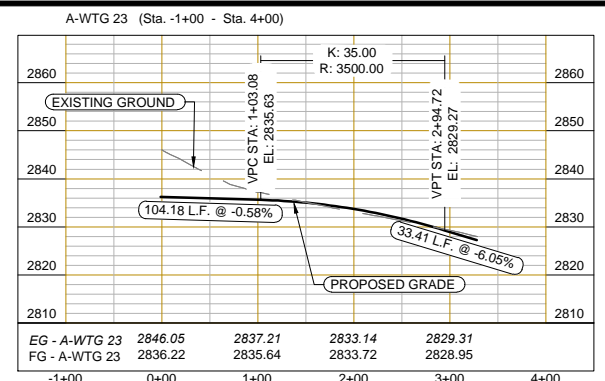
ORIGINAL PLAN SIZE - 22" X 34"  
 HALF SIZE PLAN SIZE - 11" X 17"



SY#	DATE	DESCRIPTION	APP#
7	05/21/15	Issued For Construction	BN
6	05/20/15	Issued For Construction	BN
5	05/13/15	Issued For Construction	BN
4	04/28/15	95% Review Set Issued	BN



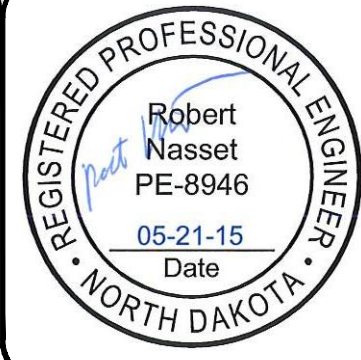
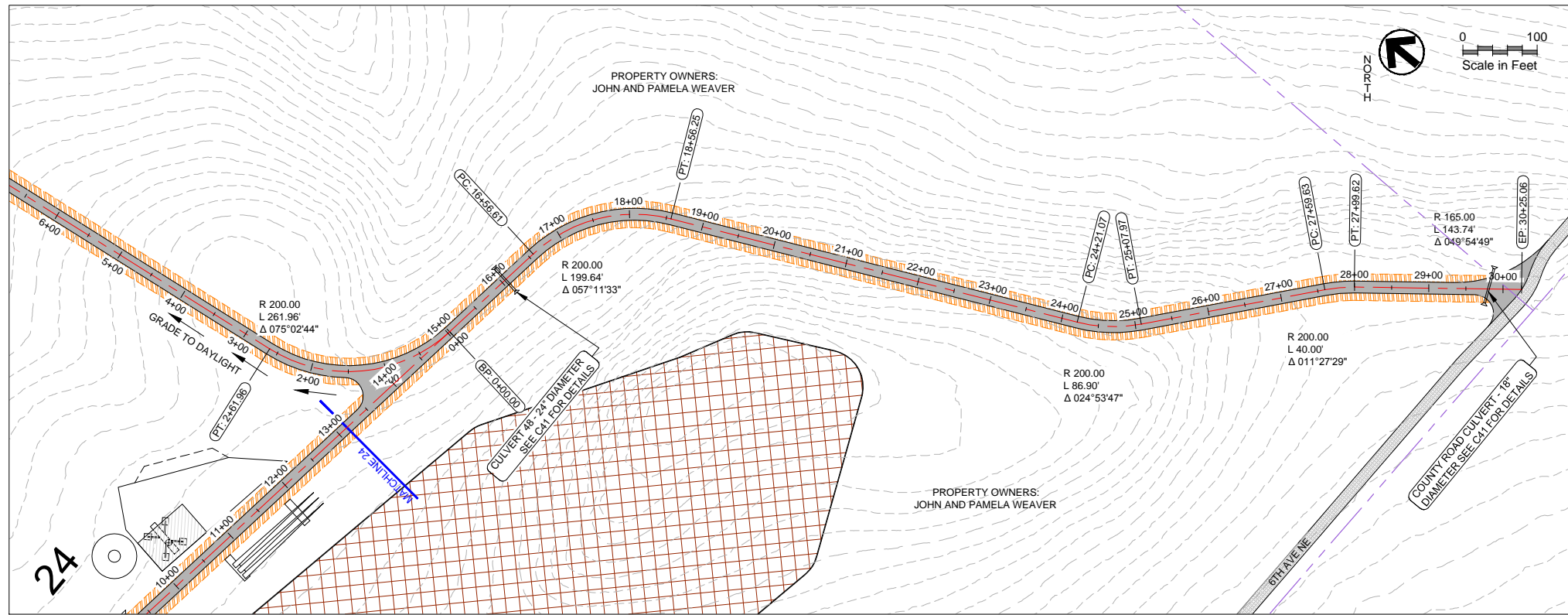
THUNDER SPIRIT WIND ENERGY PROJECT  
 WANAKEE CONSTRUCTION, INC.  
 ADAMS COUNTY, NORTH DAKOTA  
 ACCESS ROAD - TURBINE 23-25 - PLAN AND PROFILE



**LEGEND**

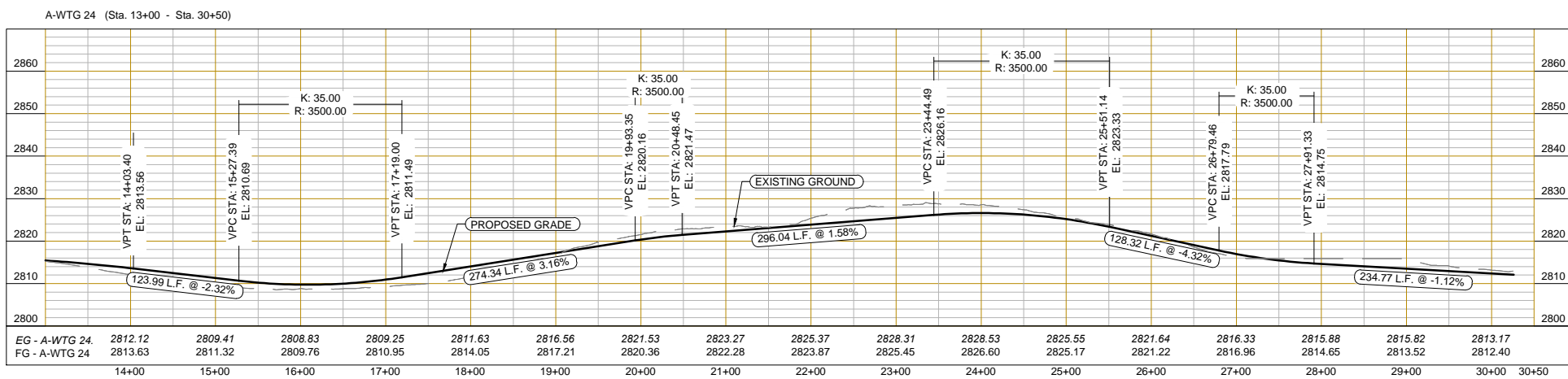
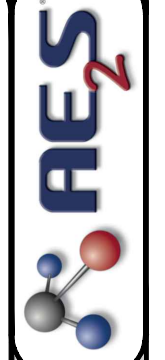
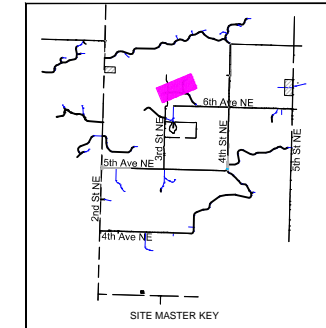
- LAND OWNER BOUNDARIES
- NON-PARTICIPATING OWNER
- EXISTING CONTOUR
- AVOIDANCE AREA
- EXISTING OH ELECTRICAL
- EXISTING WATER LINE
- EXISTING TELEPHONE LINE
- EXISTING WETLANDS
- PROPOSED CRANE WALK PATH ALONG ACCESS ROAD
- PROPOSED CRANE WALK PATH
- EXISTING PUBLIC ROADS TO BE IMPROVED
- PROPOSED ACCESS ROAD & SURFACING
- EXISTING PUBLIC ROADS

DRAWING TYPE	CONSTRUCTION
PREPARED BY	ALT
CHECKED / APPROVED	BN / BN
DATE	MAY 2015
PROJECT NUMBER	P08157-2014-003
SHEET	27 of 49
DRAWING	<b>C23</b>



SYM	DATE	DESCRIPTION	APPR
7	05/21/15	Issued For Construction	BN
6	05/20/15	Issued For Construction	BN
5	05/13/15	Issued For Construction	BN
4	04/28/15	95% Review Set Issued	BN

ORIGINAL PLAN SIZE - 22" X 34"  
 HALF SIZE PLAN SIZE - 11" X 17"



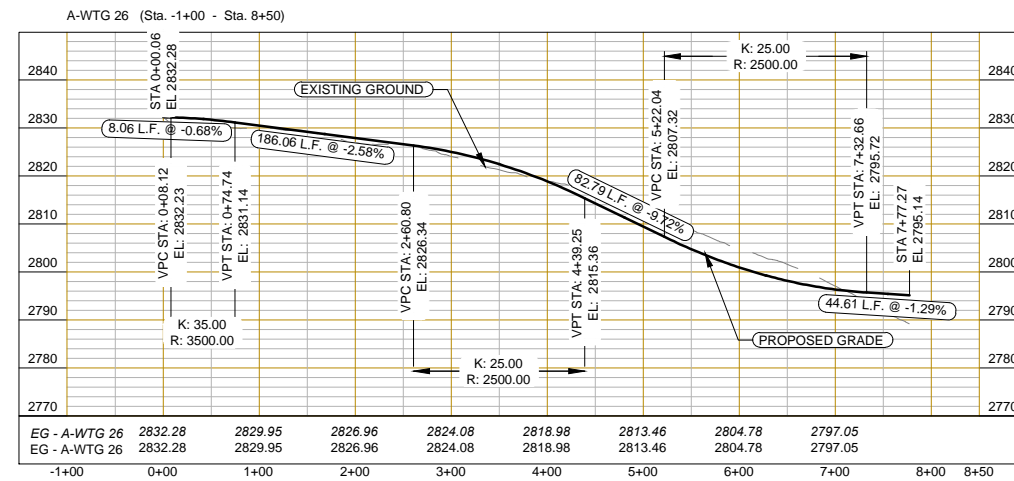
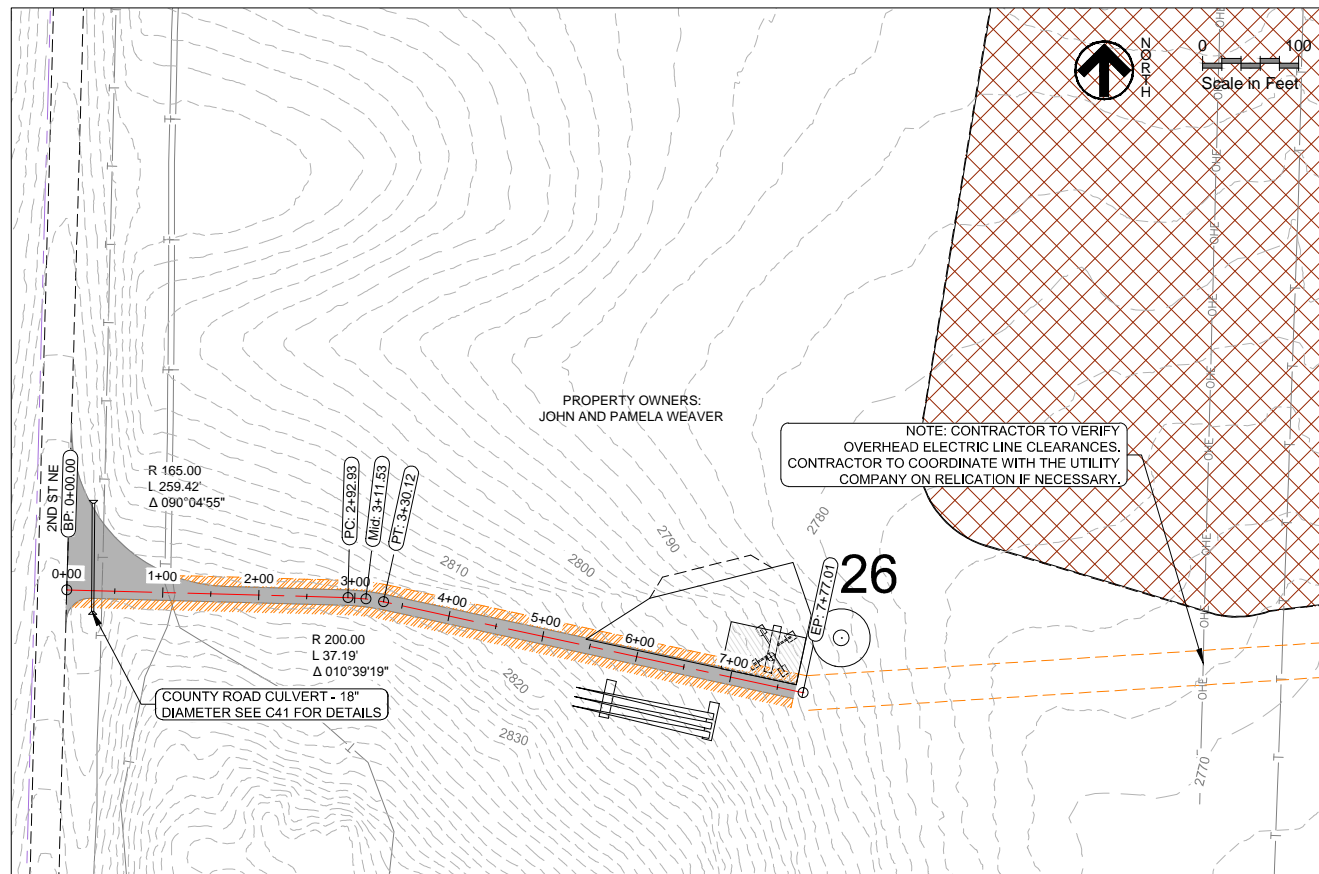
**LEGEND**

- LAND OWNER BOUNDARIES
- NON-PARTICIPATING OWNER
- EXISTING CONTOUR
- AVOIDANCE AREA
- EXISTING OH ELECTRICAL
- EXISTING WATER LINE
- EXISTING TELEPHONE LINE
- EXISTING WETLANDS
- PROPOSED CRANE WALK PATH ALONG ACCESS ROAD
- PROPOSED CRANE WALK PATH
- EXISTING PUBLIC ROADS TO BE IMPROVED
- PROPOSED ACCESS ROAD & SURFACING
- EXISTING PUBLIC ROADS

THUNDER SPIRIT WIND ENERGY PROJECT  
 WANZEK CONSTRUCTION, INC.  
 ADAMS COUNTY, NORTH DAKOTA  
 ACCESS ROAD - TURBINE 24 - PLAN AND PROFILE

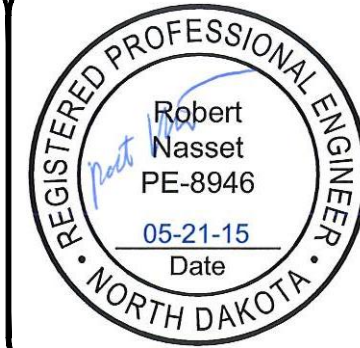
DRAWING TYPE	CONSTRUCTION
PREPARED BY	ALT
CHECKED / APPROVED	BN / BN
DATE	MAY 2015
PROJECT NUMBER	P08157-2014-003
SHEET	28 of 49
DRAWING	<b>C24</b>

**CONSTRUCTION**



**LEGEND**

- LAND OWNER BOUNDARIES
- NON-PARTICIPATING OWNER
- EXISTING CONTOUR
- AVOIDANCE AREA
- EXISTING OH ELECTRICAL
- EXISTING WATER LINE
- EXISTING TELEPHONE LINE
- EXISTING WETLANDS
- PROPOSED CRANE WALK PATH ALONG ACCESS ROAD
- PROPOSED CRANE WALK PATH
- EXISTING PUBLIC ROADS TO BE IMPROVED
- PROPOSED ACCESS ROAD & SURFACING
- EXISTING PUBLIC ROADS

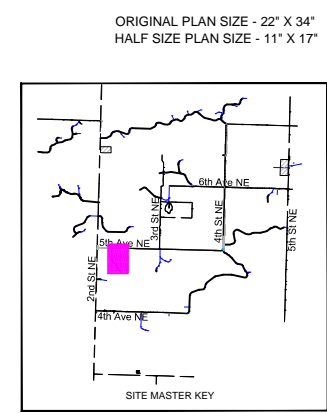
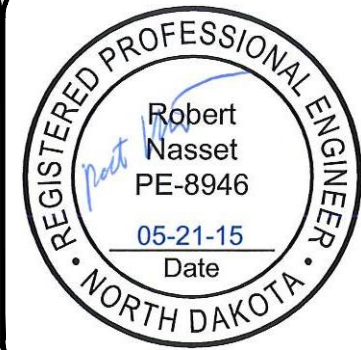
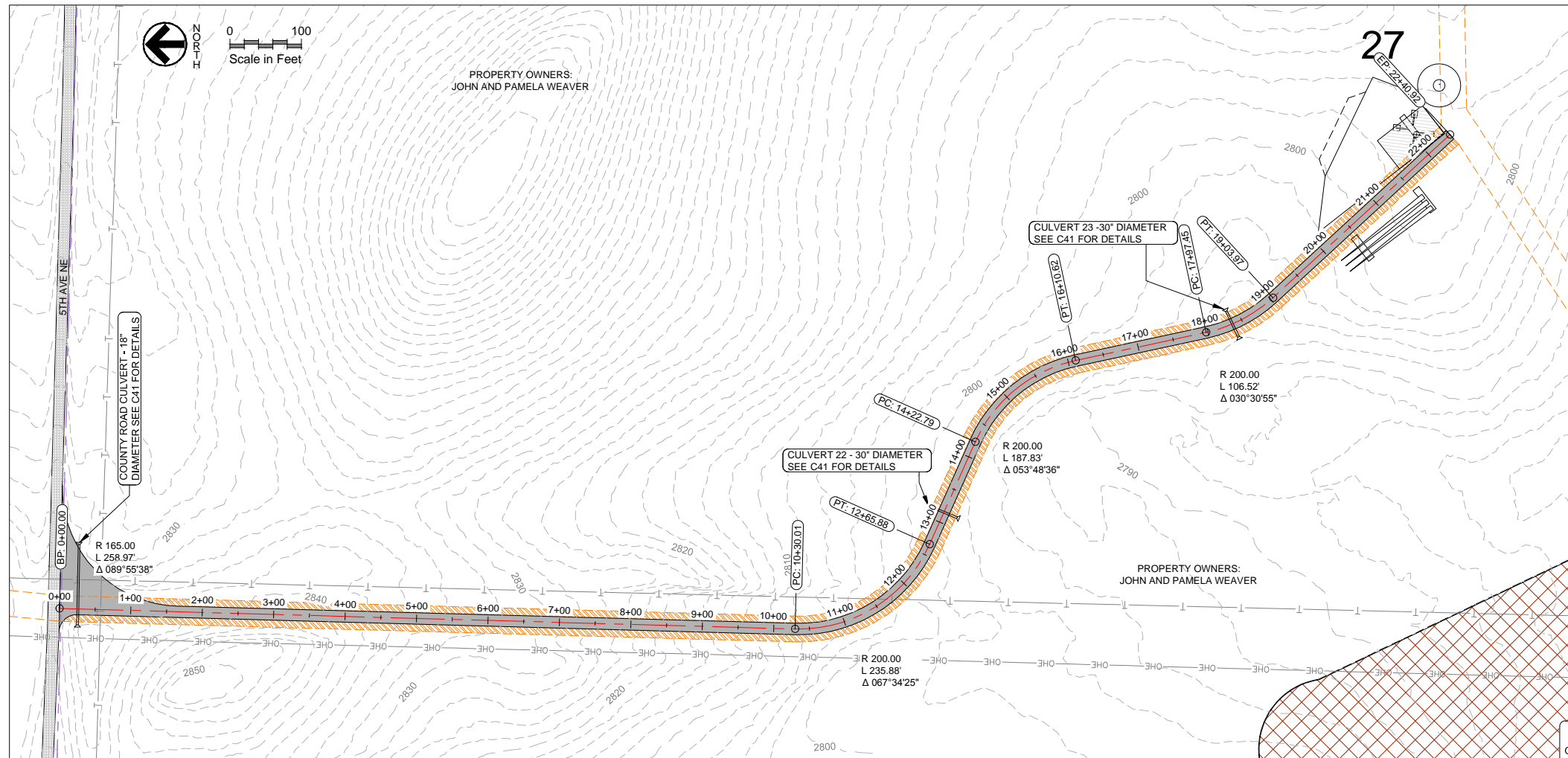


SYM	DATE	DESCRIPTION	APPR
7	05/21/15	Issued For Construction	BN
6	05/20/15	Issued For Construction	BN
5	05/13/15	Issued For Construction	BN
4	04/28/15	95% Review Set Issued	BN



THUNDER SPIRIT WIND ENERGY PROJECT  
 WANZEK CONSTRUCTION, INC.  
 ADAMS COUNTY, NORTH DAKOTA  
 ACCESS ROAD - TURBINE 26 - PLAN AND PROFILE

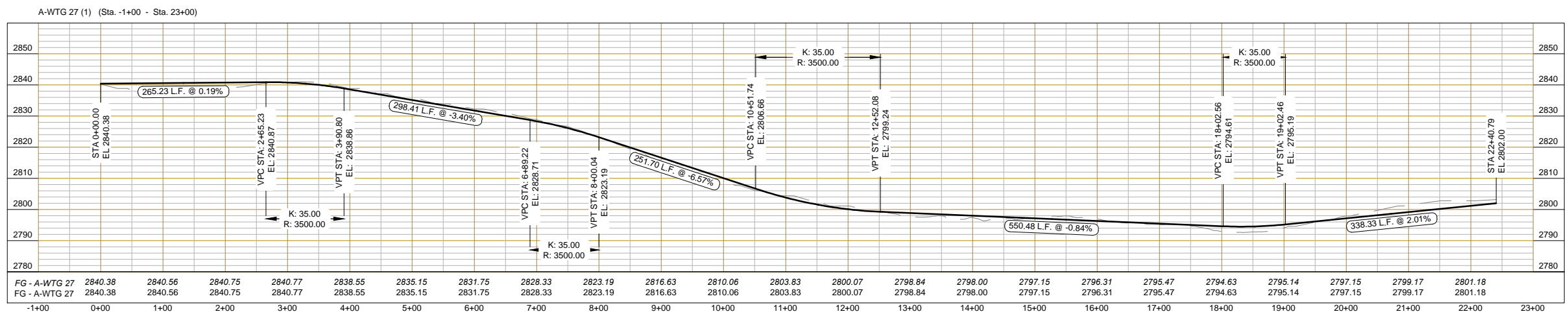
DRAWING TYPE	CONSTRUCTION
PREPARED BY	ALT
CHECKED / APPROVED	BN / BN
DATE	MAY 2015
PROJECT NUMBER	P08157-2014-003
SHEET	29 of 49
DRAWING	C25



SYM	DATE	DESCRIPTION	APPR
7	05/21/15	Issued For Construction	BN
6	05/20/15	Issued For Construction	BN
5	05/13/15	Issued For Construction	BN
4	04/28/15	95% Review Set Issued	BN



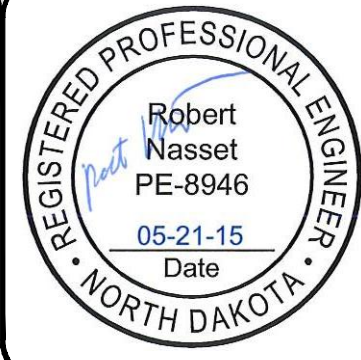
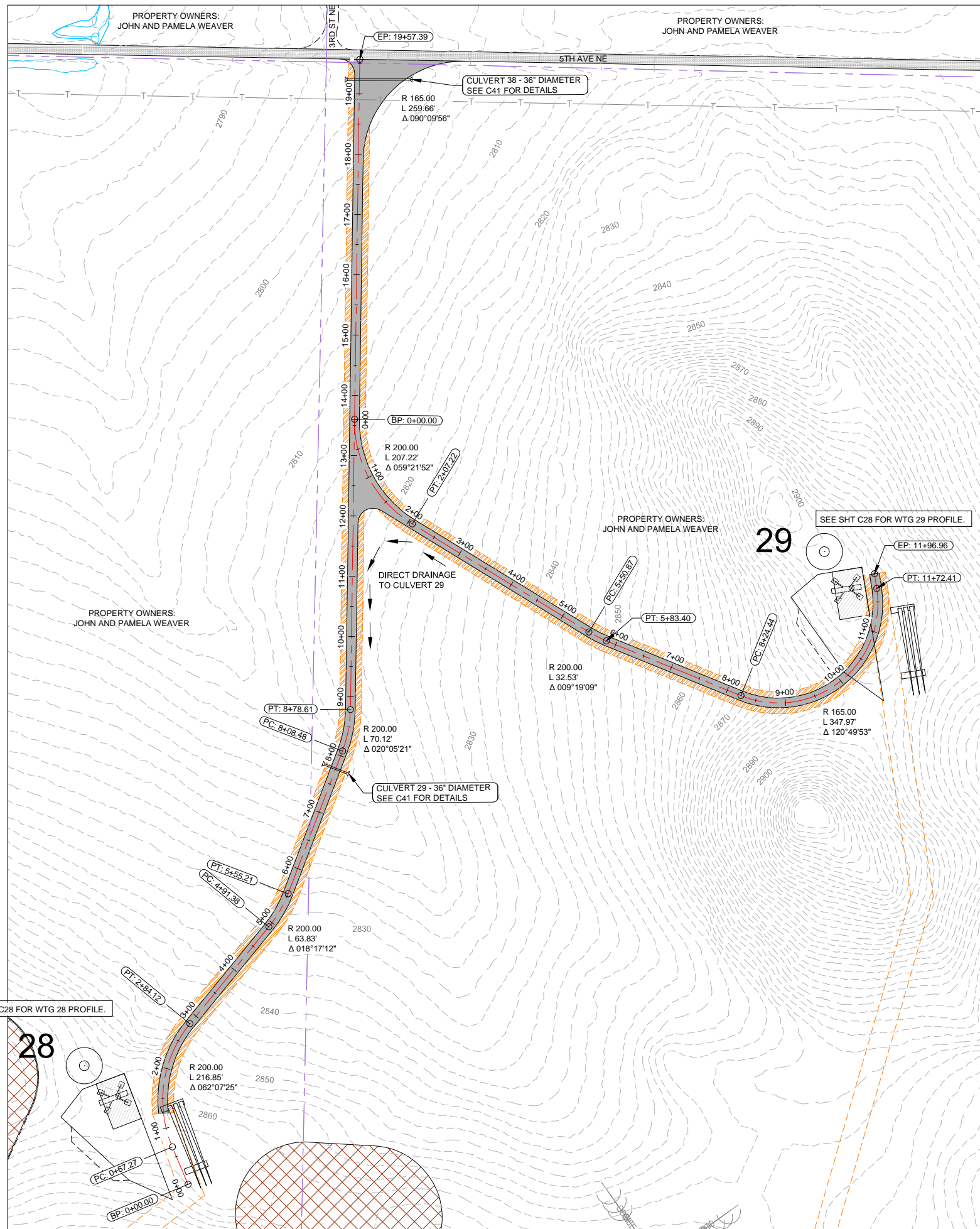
THUNDER SPIRIT WIND ENERGY PROJECT  
 WANZEK CONSTRUCTION, INC.  
 ADAMS COUNTY, NORTH DAKOTA  
 ACCESS ROAD - TURBINE 27 - PLAN AND PROFILE



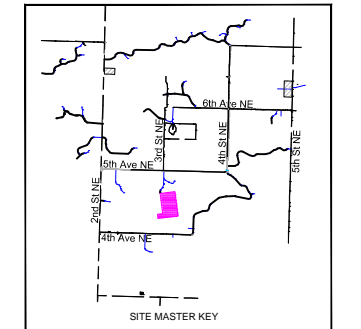
LEGEND

- LAND OWNER BOUNDARIES
- NON-PARTICIPATING OWNER
- EXISTING CONTOUR
- AVOIDANCE AREA
- EXISTING OH ELECTRICAL
- EXISTING WATER LINE
- EXISTING TELEPHONE LINE
- EXISTING WETLANDS
- PROPOSED CRANE WALK PATH ALONG ACCESS ROAD
- PROPOSED CRANE WALK PATH
- EXISTING PUBLIC ROADS TO BE IMPROVED
- PROPOSED ACCESS ROAD & SURFACING
- EXISTING PUBLIC ROADS

DRAWING TYPE	CONSTRUCTION
PREPARED BY	ALT
CHECKED / APPROVED	BN / BN
DATE	MAY 2015
PROJECT NUMBER	P08157-2014-003
SHEET	30 of 49
DRAWING	C26



Scale in Feet  
 0 100  
 ORIGINAL PLAN SIZE - 22' X 34'  
 HALF SIZE PLAN SIZE - 11' X 17'



**LEGEND**

- LAND OWNER BOUNDARIES
- NON-PARTICIPATING OWNER
- EXISTING CONTOUR
- XXXXX AVOIDANCE AREA
- OHE--- EXISTING OH ELECTRICAL
- |--- EXISTING WATER LINE
- T--- EXISTING TELEPHONE LINE
- EXISTING WETLANDS
- PROPOSED CRANE WALK PATH ALONG ACCESS ROAD
- PROPOSED CRANE WALK PATH
- EXISTING PUBLIC ROADS TO BE IMPROVED
- PROPOSED ACCESS ROAD & SURFACING
- EXISTING PUBLIC ROADS

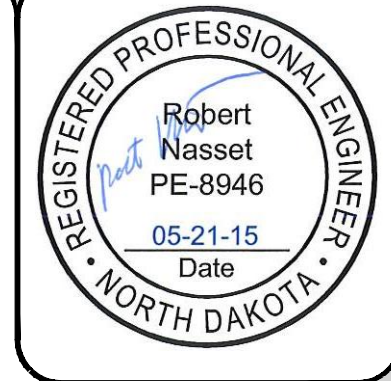
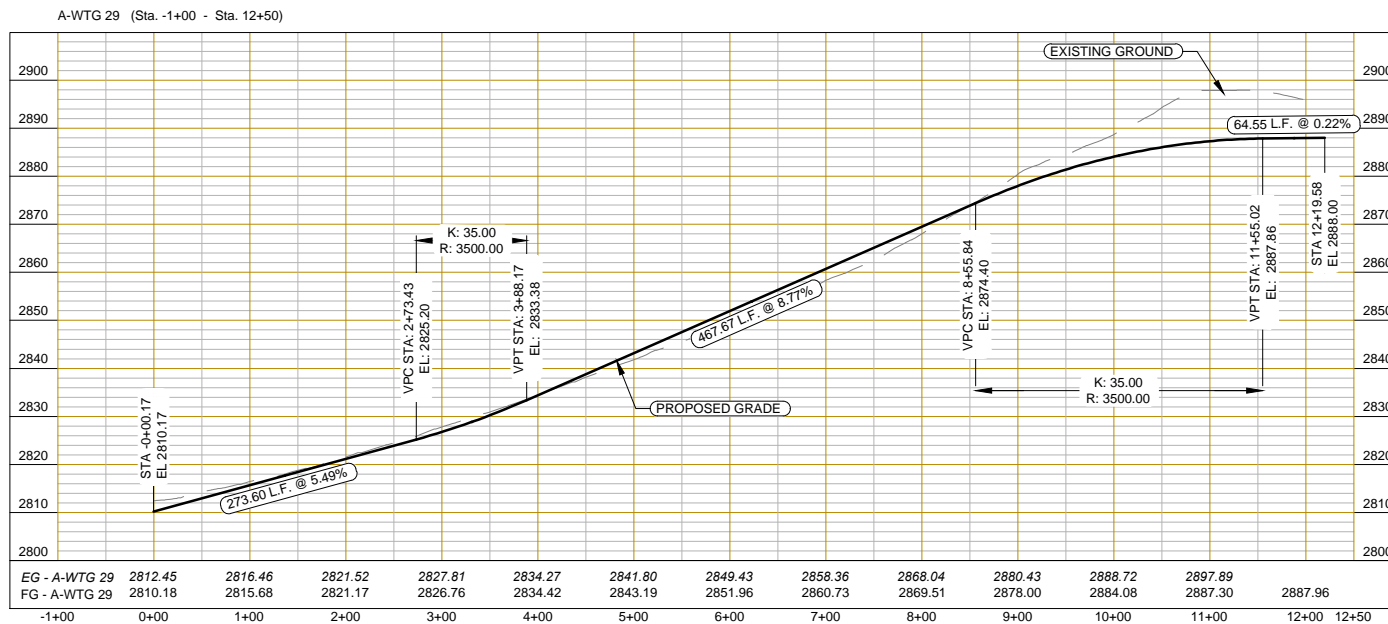
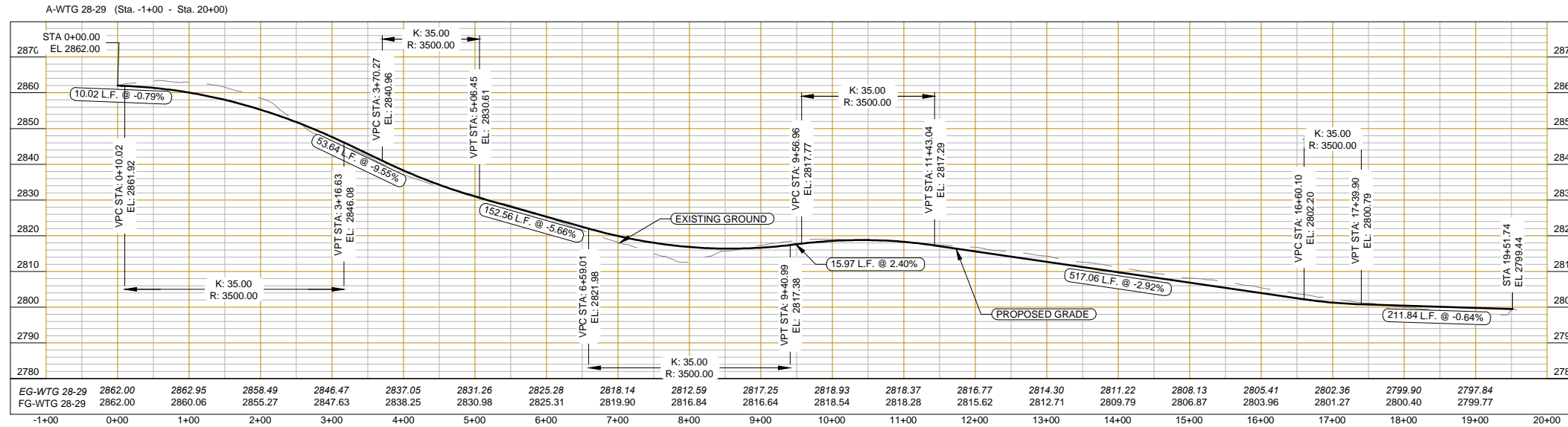
SYM	DATE	DESCRIPTION	APPR
7	05/21/15	Issued For Construction	BN
6	05/20/15	Issued For Construction	BN
5	05/13/15	Issued For Construction	BN
4	04/28/15	95% Review Set Issued	BN



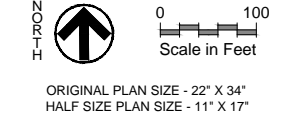
**THUNDER SPIRIT WIND ENERGY PROJECT**  
**WANZEK CONSTRUCTION, INC.**  
 ADAMS COUNTY, NORTH DAKOTA  
 ACCESS ROAD - TURBINE 28-29 - PLAN

DRAWING TYPE	CONSTRUCTION
PREPARED BY	ALT
CHECKED / APPROVED	BN / BN
DATE	MAY 2015
PROJECT NUMBER	P08157-2014-003
SHEET	31 of 49
DRAWING	<b>C27</b>

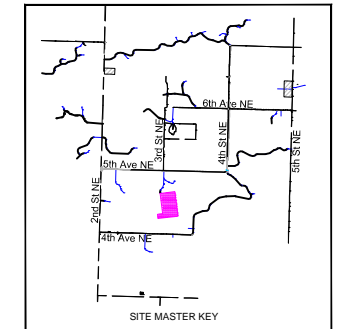
**CONSTRUCTION**



SYM	DATE	DESCRIPTION	APP
7	05/21/15	Issued For Construction	BN
6	05/20/15	Issued For Construction	BN
5	05/13/15	Issued For Construction	BN
4	04/28/15	95% Review Set Issued	BN



ORIGINAL PLAN SIZE - 22' X 34'  
 HALF SIZE PLAN SIZE - 11' X 17'



LEGEND

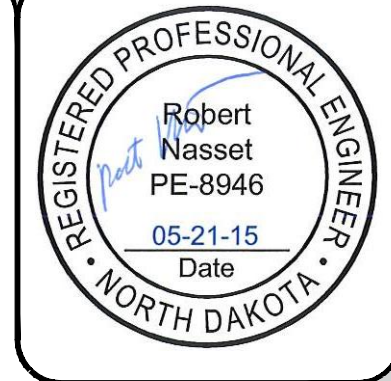
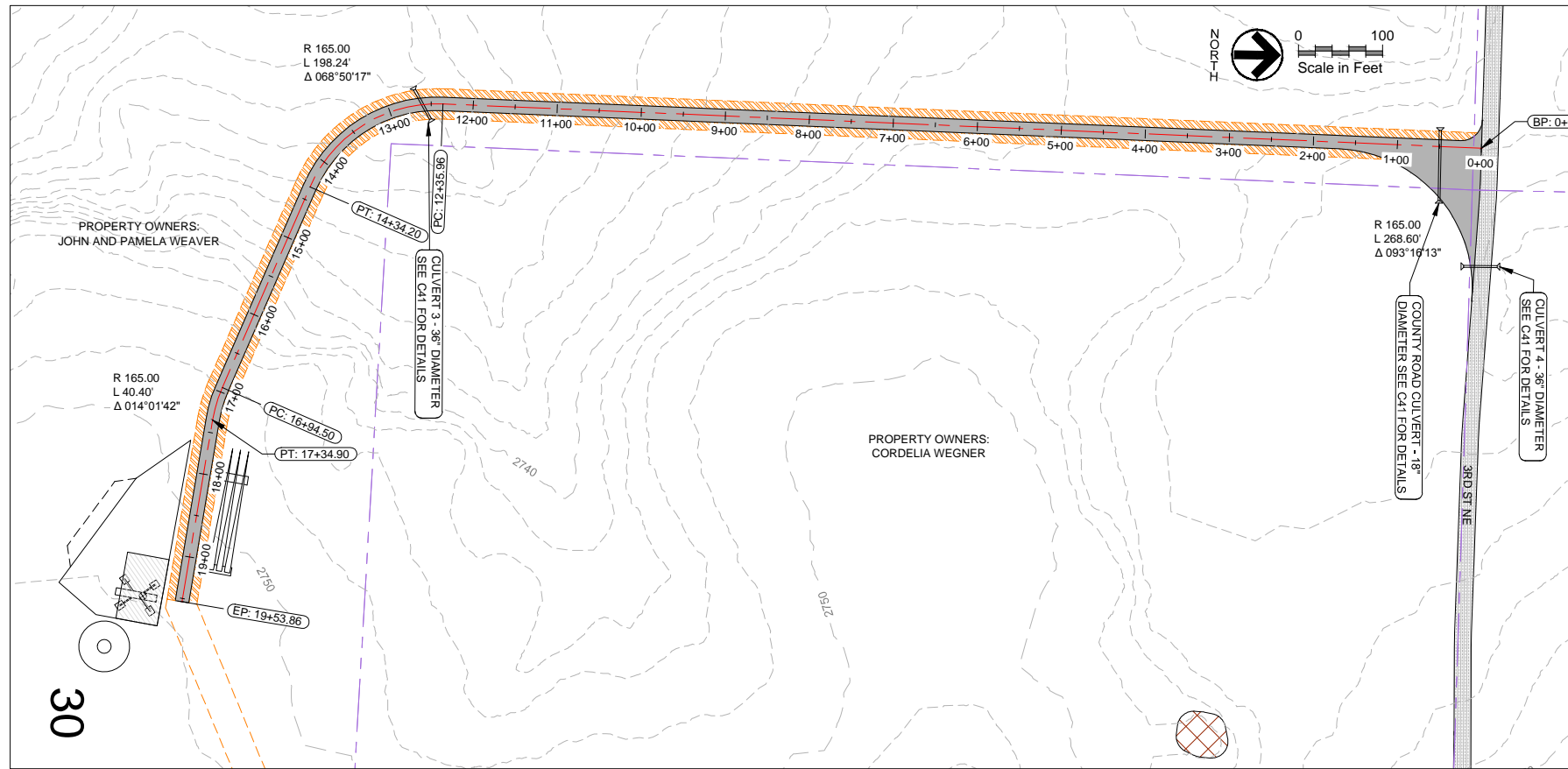
- LAND OWNER BOUNDARIES
- NON-PARTICIPATING OWNER
- EXISTING CONTOUR
- AVOIDANCE AREA
- EXISTING OH ELECTRICAL
- EXISTING WATER LINE
- EXISTING TELEPHONE LINE
- EXISTING WETLANDS
- PROPOSED CRANE WALK PATH ALONG ACCESS ROAD
- PROPOSED CRANE WALK PATH
- EXISTING PUBLIC ROADS TO BE IMPROVED
- PROPOSED ACCESS ROAD & SURFACING
- EXISTING PUBLIC ROADS



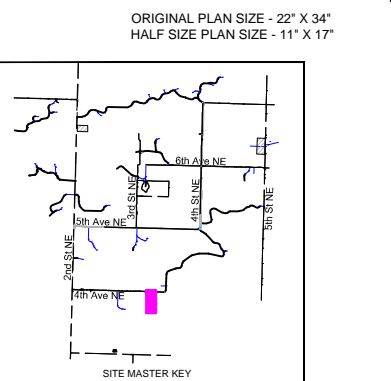
THUNDER SPIRIT WIND ENERGY PROJECT  
 WANZEK CONSTRUCTION, INC.  
 ADAMS COUNTY, NORTH DAKOTA  
 ACCESS ROAD - TURBINE 28-29 - PROFILE

DRAWING TYPE	CONSTRUCTION
PREPARED BY	ALT
CHECKED / APPROVED	BN / BN
DATE	MAY 2015
PROJECT NUMBER	P08157-2014-003
SHEET	32 of 49
DRAWING	C28

**CONSTRUCTION**



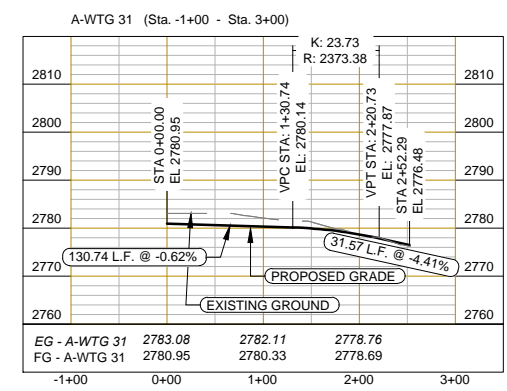
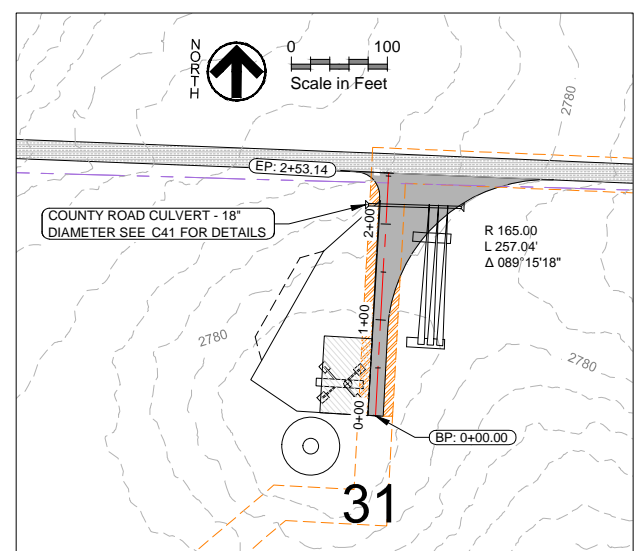
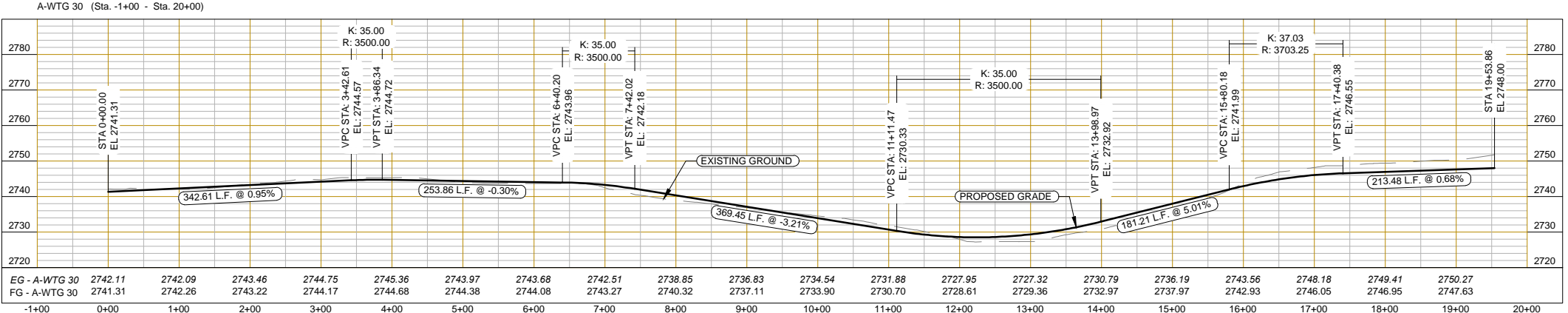
SY#	DATE	DESCRIPTION	APPR
7	05/21/15	Issued For Construction	BN
6	05/20/15	Issued For Construction	BN
5	05/13/15	Issued For Construction	BN
4	04/28/15	95% Review Set Issued	BN



ORIGINAL PLAN SIZE - 22" X 34"  
 HALF SIZE PLAN SIZE - 11" X 17"

**LEGEND**

- LAND OWNER BOUNDARIES
- ▨ NON-PARTICIPATING OWNER
- - - EXISTING CONTOUR
- ▨ AVOIDANCE AREA
- O—O— EXISTING OH ELECTRICAL
- |—|— EXISTING WATER LINE
- T—T— EXISTING TELEPHONE LINE
- ~ EXISTING WETLANDS
- ▨ PROPOSED CRANE WALK PATH ALONG ACCESS ROAD
- ▨ PROPOSED CRANE WALK PATH
- ▨ EXISTING PUBLIC ROADS TO BE IMPROVED
- ▨ PROPOSED ACCESS ROAD & SURFACING
- - - EXISTING PUBLIC ROADS



THUNDER SPIRIT WIND ENERGY PROJECT  
 WANAKE CONSTRUCTION, INC.  
 ADAMS COUNTY, NORTH DAKOTA

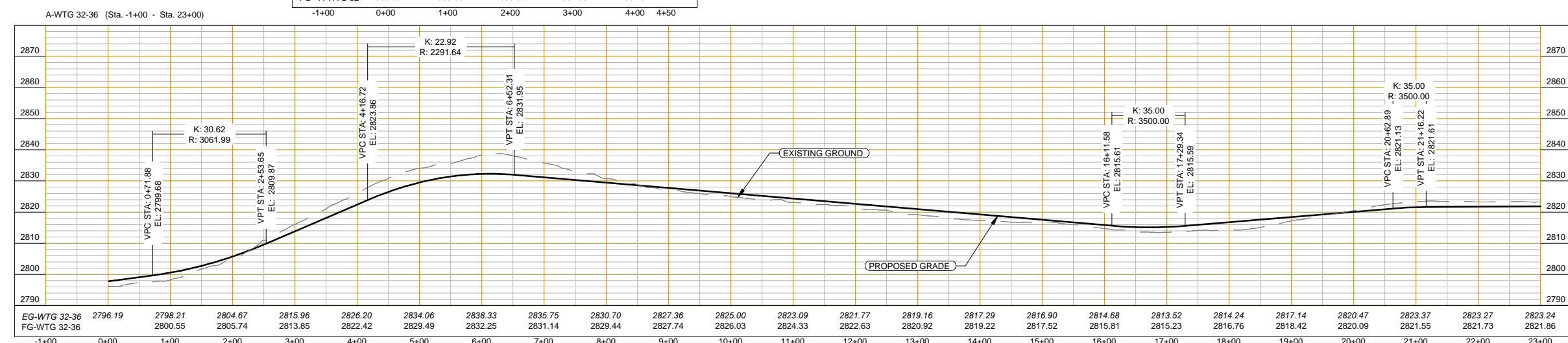
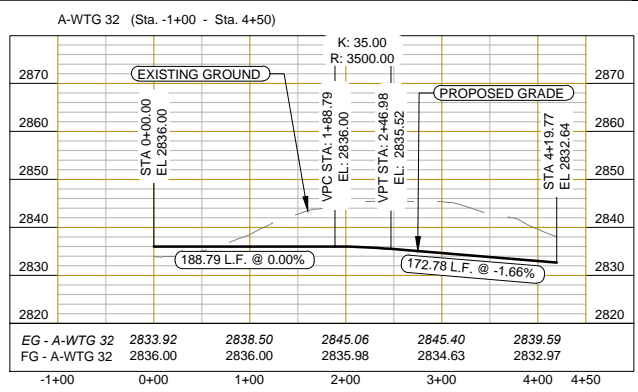
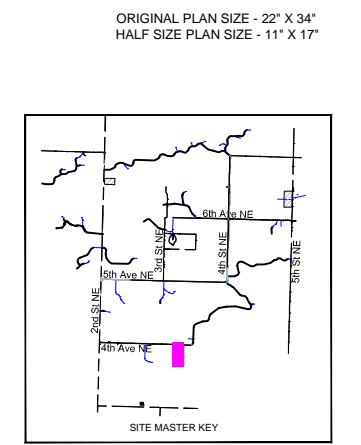
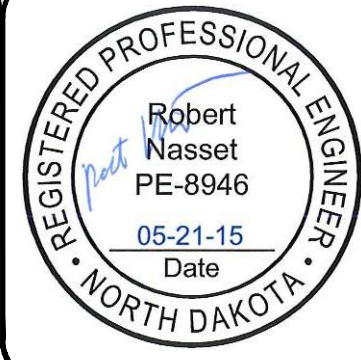
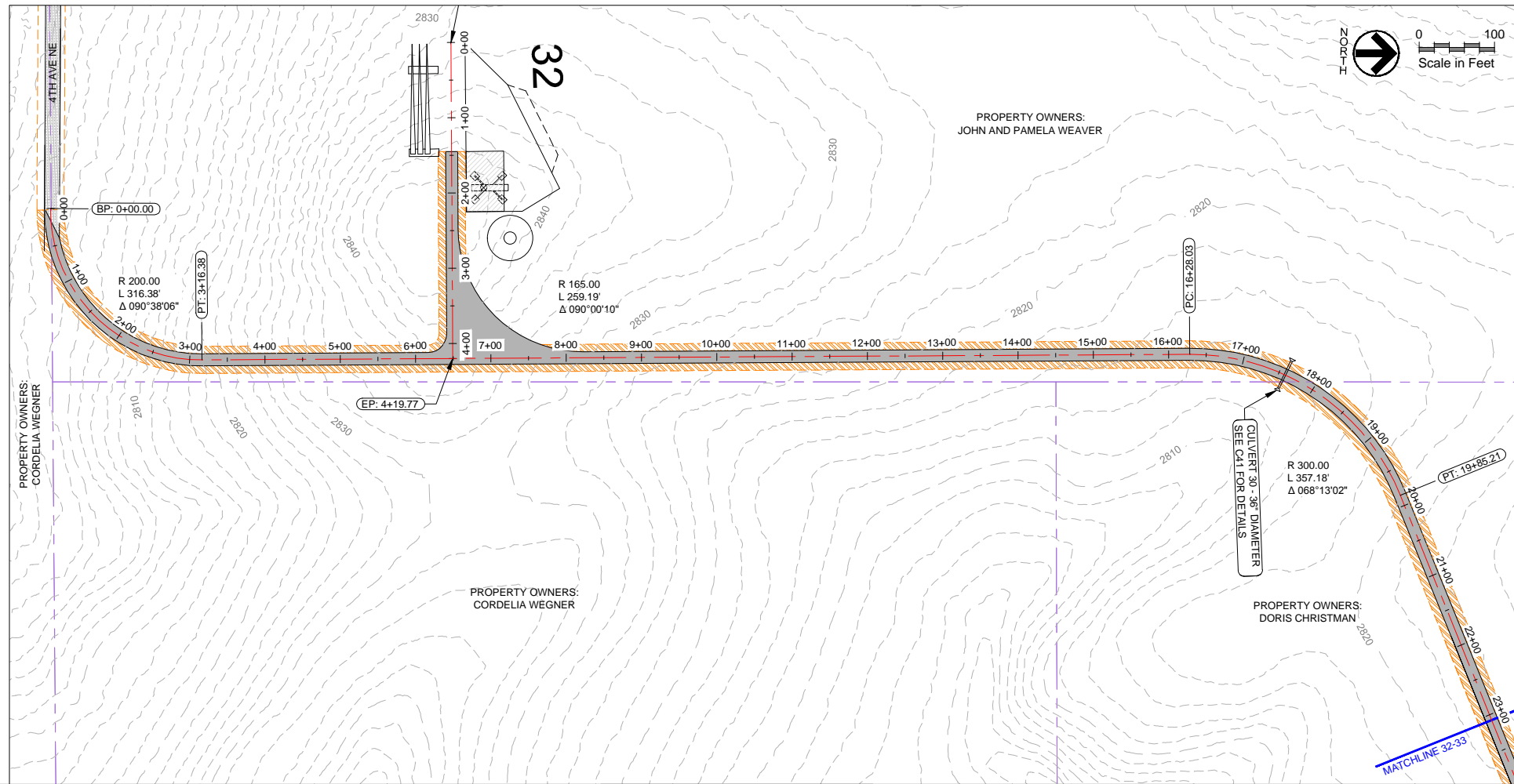
ACCESS ROAD - TURBINE 30-31 - PLAN AND PROFILE

DRAWING TYPE	CONSTRUCTION
PREPARED BY	ALT
CHECKED / APPROVED	BN / BN
DATE	MAY 2015
PROJECT NUMBER	P08157-2014-003
SHEET	33 of 49
DRAWING	C29

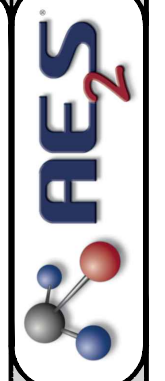
**CONSTRUCTION**

**LEGEND**

- LAND OWNER BOUNDARIES
- NON-PARTICIPATING OWNER
- EXISTING CONTOUR
- AVOIDANCE AREA
- EXISTING OH ELECTRICAL
- EXISTING WATER LINE
- EXISTING TELEPHONE LINE
- EXISTING WETLANDS
- PROPOSED CRANE WALK PATH ALONG ACCESS ROAD
- PROPOSED CRANE WALK PATH
- EXISTING PUBLIC ROADS TO BE IMPROVED
- PROPOSED ACCESS ROAD & SURFACING
- EXISTING PUBLIC ROADS



SY#	DATE	DESCRIPTION	APPR
7	05/21/15	Issued For Construction	BN
6	05/20/15	Issued For Construction	BN
5	05/13/15	Issued For Construction	BN
4	04/28/15	95% Review Set Issued	BN

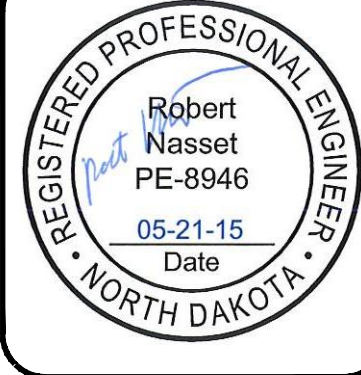
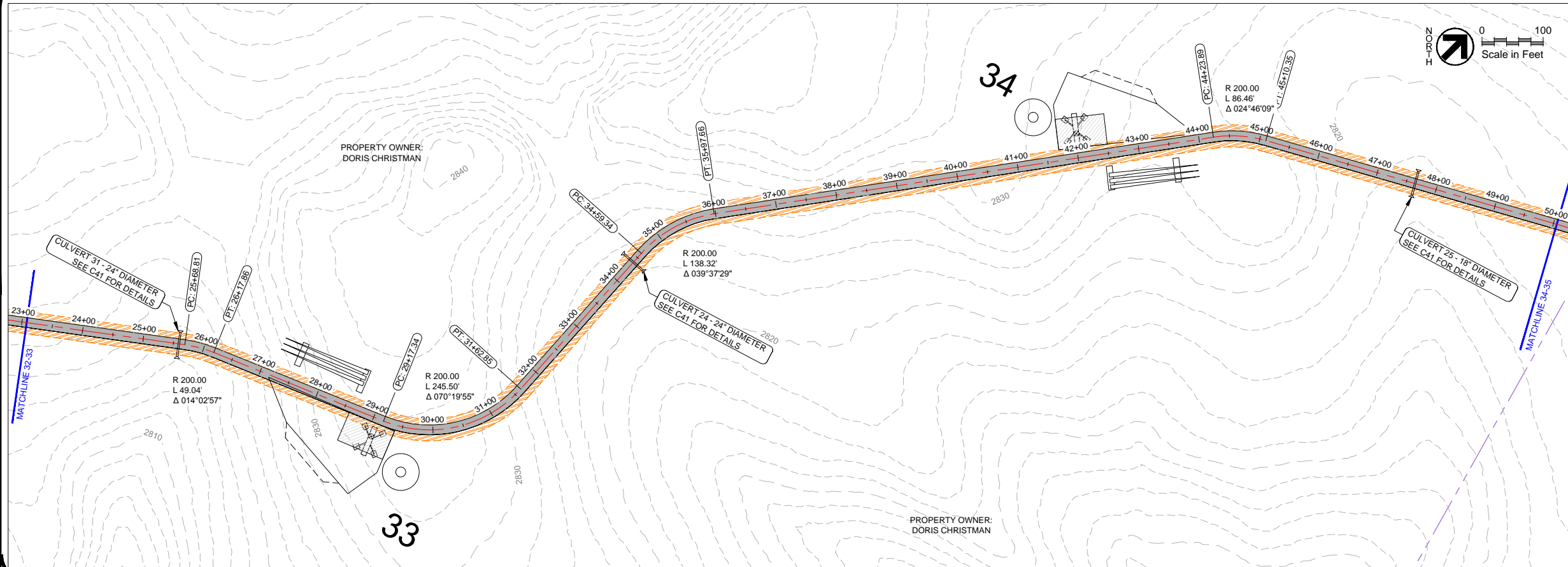


THUNDER SPIRIT WIND ENERGY PROJECT  
 WANZEK CONSTRUCTION, INC.  
 ADAMS COUNTY, NORTH DAKOTA  
 ACCESS ROAD - TURBINE 32 - PLAN AND PROFILE

DRAWING TYPE	CONSTRUCTION
PREPARED BY	ALT
CHECKED / APPROVED	BN / BN
DATE	MAY 2015
PROJECT NUMBER	P08157-2014-003
SHEET	34 of 49

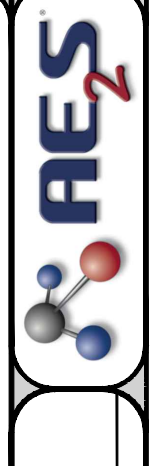
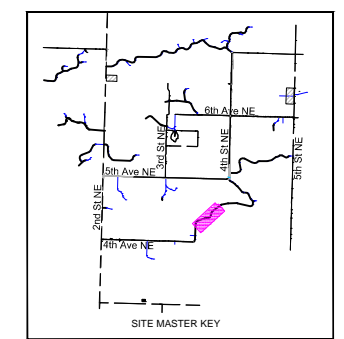
**C30**

Layout: ACCESS ROAD - TURBINE 33-34 - PLAN AND PROFILE  
 File: \\011.0.1\projects\Wanzen\08157-2014-003\TSEV Site Design\040 Final Design\Drawings\01 Civil\AccessPlan and Profile 33-34.dwg



SYM	DATE	DESCRIPTION	APPR
7	05/21/15	Issued For Construction	BN
6	05/20/15	Issued For Construction	BN
5	05/13/15	Issued For Construction	BN
4	04/28/15	95% Review Set Issued	BN

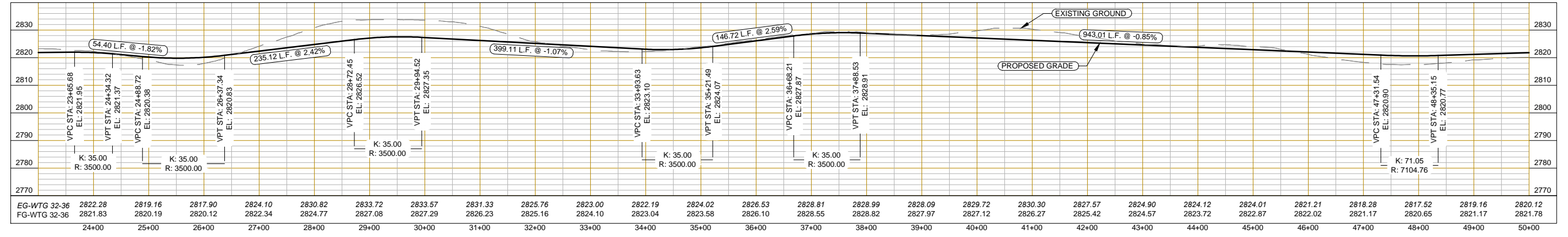
ORIGINAL PLAN SIZE - 22" X 34"  
 HALF SIZE PLAN SIZE - 11" X 17"



LEGEND

- LAND OWNER BOUNDARIES
- NON-PARTICIPATING OWNER
- EXISTING CONTOUR
- AVOIDANCE AREA
- EXISTING OH ELECTRICAL
- EXISTING WATER LINE
- EXISTING TELEPHONE LINE
- EXISTING WETLANDS
- PROPOSED CRANE WALK PATH ALONG ACCESS ROAD
- PROPOSED CRANE WALK PATH
- EXISTING PUBLIC ROADS TO BE IMPROVED
- PROPOSED ACCESS ROAD & SURFACING
- EXISTING PUBLIC ROADS

A-WTG 32-36 (Sta. 23+00 - Sta. 50+00)

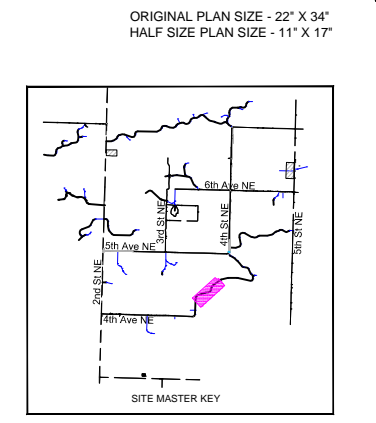
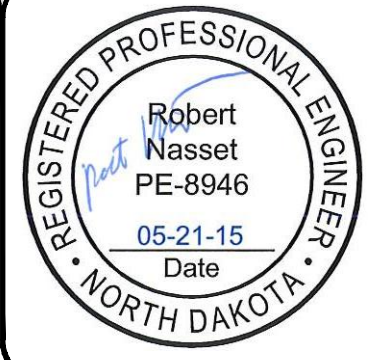
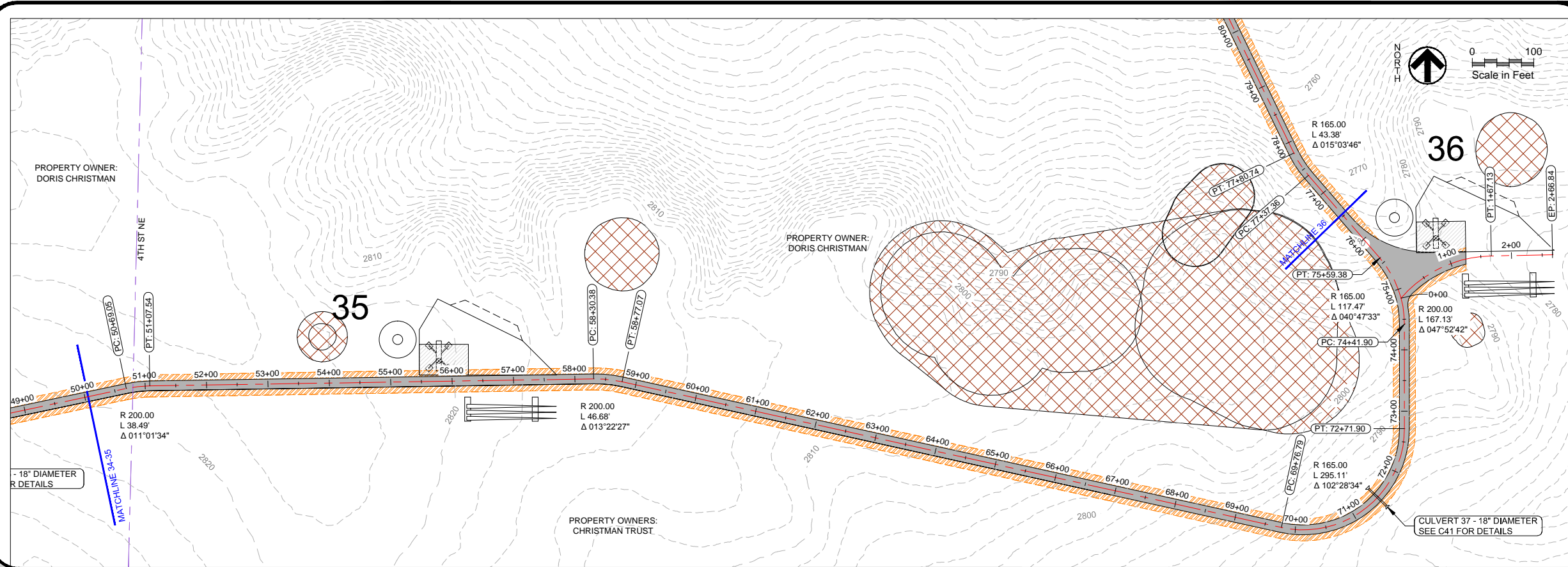


Printed By: Amber Trout Date: Thursday, May 21, 2015  
 Last Saved By: Amber Trout Date: Thursday, May 21, 2015 3:13:03 PM

THUNDER SPIRIT WIND ENERGY PROJECT  
 WANZEK CONSTRUCTION, INC.  
 ADAMS COUNTY, NORTH DAKOTA  
 ACCESS ROAD - TURBINE 33-34 - PLAN AND PROFILE

DRAWING TYPE	CONSTRUCTION
PREPARED BY	ALT
CHECKED / APPROVED	BN / BN
DATE	MAY 2015
PROJECT NUMBER	P08157-2014-003
SHEET	35 OF 49
DRAWING	C31

**CONSTRUCTION**

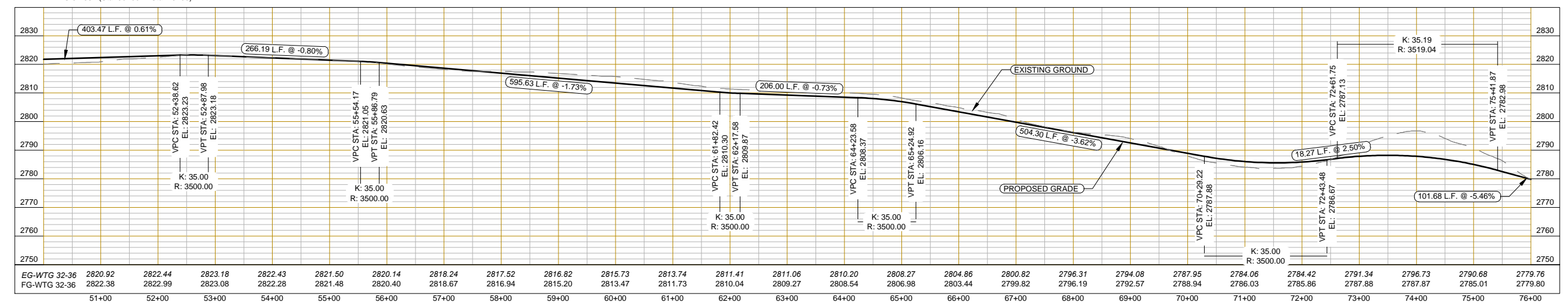


SY#	DATE	DESCRIPTION	APP#
7	05/21/15	Issued For Construction	BN
6	05/20/15	Issued For Construction	BN
5	05/13/15	Issued For Construction	BN
4	04/28/15	95% Review Set Issued	BN

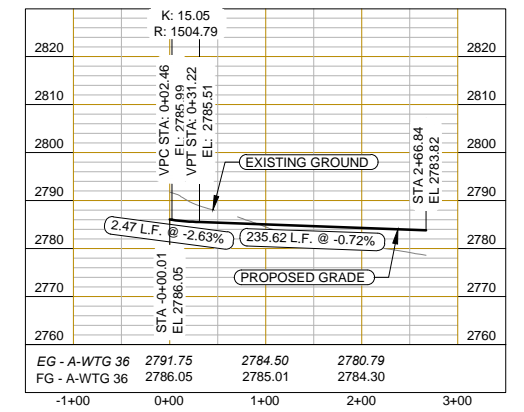
ORIGINAL PLAN SIZE - 22" X 34"  
 HALF SIZE PLAN SIZE - 11" X 17"



A-WTG 32-36 (Sta. 50+00 - Sta. 76+00)



A-WTG 36 (Sta. -1+00 - Sta. 3+00)



**LEGEND**

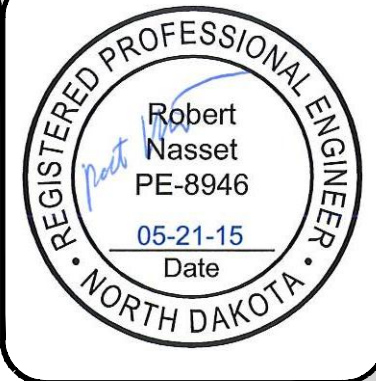
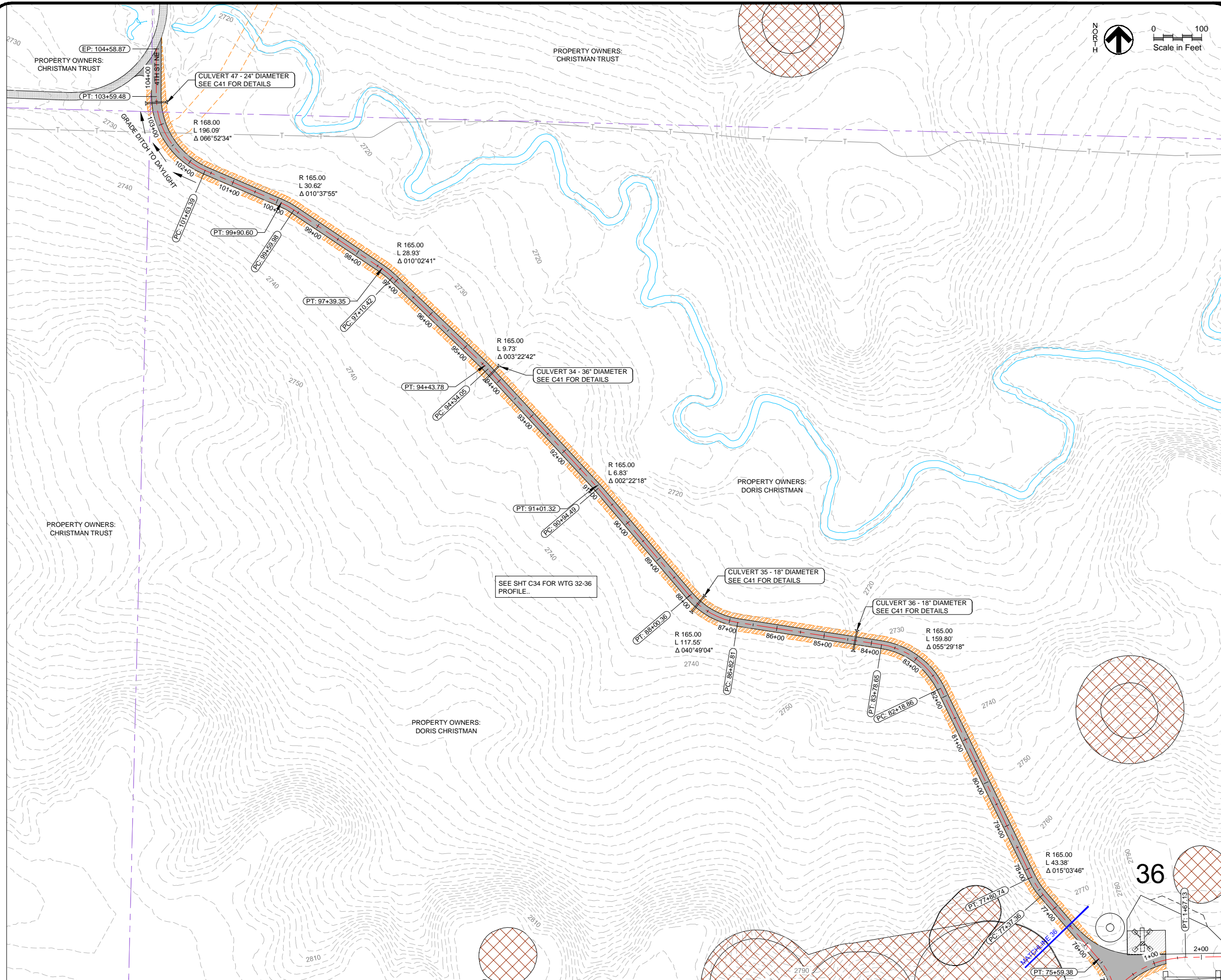
- LAND OWNER BOUNDARIES
- NON-PARTICIPATING OWNER
- EXISTING CONTOUR
- XXXXX AVOIDANCE AREA
- EXISTING OH ELECTRICAL
- EXISTING WATER LINE
- EXISTING TELEPHONE LINE
- EXISTING WETLANDS
- PROPOSED CRANE WALK PATH ALONG ACCESS ROAD
- PROPOSED CRANE WALK PATH
- EXISTING PUBLIC ROADS TO BE IMPROVED
- PROPOSED ACCESS ROAD & SURFACING
- EXISTING PUBLIC ROADS

THUNDER SPIRIT WIND ENERGY PROJECT  
 WANAKEE CONSTRUCTION, INC.  
 ADAMS COUNTY, NORTH DAKOTA  
 ACCESS ROAD - TURBINE 35-36 - PLAN AND PROFILE

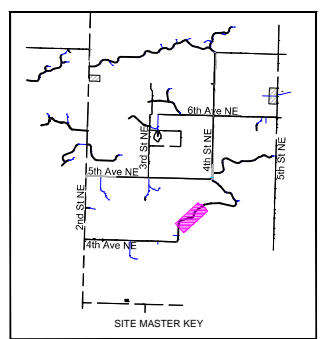
DRAWING TYPE	CONSTRUCTION
PREPARED BY	ALT
CHECKED / APPROVED	BN / BN
DATE	MAY 2015
PROJECT NUMBER	P08157-2014-003
SHEET	36 of 49
DRAWING	C32

Layout: ACCESS ROAD - TURBINE 36 - PLAN  
 File: \\10.11.0.1\projects\Wanzenk\08157-2014-003\_TSEVE\_Site Design\040 Final Design\Drawings\01 Civil\SitePlan and Profile.dwg

Plotted By: Amber Trout Date: Thursday, May 21, 2015  
 Last Saved By: Amber Trout Date: Thursday, May 21, 2015 3:13:03 PM



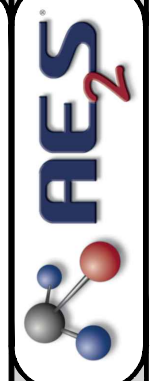
ORIGINAL PLAN SIZE - 22" X 34"  
 HALF SIZE PLAN SIZE - 11" X 17"



**LEGEND**

- LAND OWNER BOUNDARIES
- NON-PARTICIPATING OWNER
- EXISTING CONTOUR
- AVOIDANCE AREA
- EXISTING OH ELECTRICAL
- EXISTING WATER LINE
- EXISTING TELEPHONE LINE
- EXISTING WETLANDS
- PROPOSED CRANE WALK PATH ALONG ACCESS ROAD
- PROPOSED CRANE WALK PATH
- EXISTING PUBLIC ROADS TO BE IMPROVED
- PROPOSED ACCESS ROAD & SURFACING
- EXISTING PUBLIC ROADS

SY#	DATE	DESCRIPTION	APP#
7	05/21/15	Issued For Construction	BN
6	05/20/15	Issued For Construction	BN
5	05/13/15	Issued For Construction	BN
4	04/28/15	95% Review Set Issued	BN




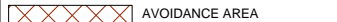





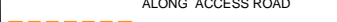
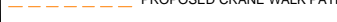
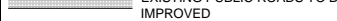



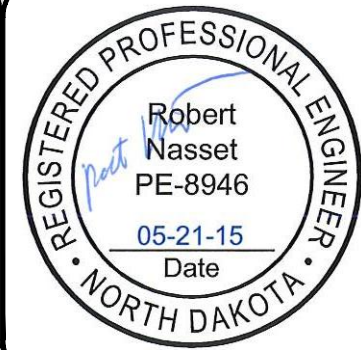
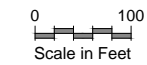
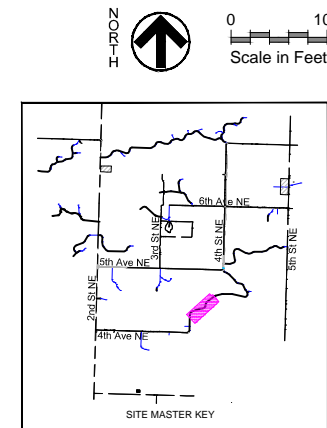
**THUNDER SPIRIT WIND ENERGY PROJECT**  
**WANZEK CONSTRUCTION, INC.**  
 ADAMS COUNTY, NORTH DAKOTA

DRAWING TYPE	CONSTRUCTION
PREPARED BY	ALT
CHECKED / APPROVED	BN / BN
DATE	MAY 2015
PROJECT NUMBER	P08157-2014-003
SHEET	37 of 49
DRAWING	<b>C33</b>

**CONSTRUCTION**

**LEGEND**

-  LAND OWNER BOUNDARIES
-  NON-PARTICIPATING OWNER
-  EXISTING CONTOUR
-  AVOIDANCE AREA
-  EXISTING OH ELECTRICAL
-  EXISTING WATER LINE
-  EXISTING TELEPHONE LINE
-  EXISTING WETLANDS
-  PROPOSED CRANE WALK PATH ALONG ACCESS ROAD
-  PROPOSED CRANE WALK PATH
-  EXISTING PUBLIC ROADS TO BE IMPROVED
-  PROPOSED ACCESS ROAD & SURFACING
-  EXISTING PUBLIC ROADS



ORIGINAL PLAN SIZE - 22" X 34"  
 HALF SIZE PLAN SIZE - 11" X 17"

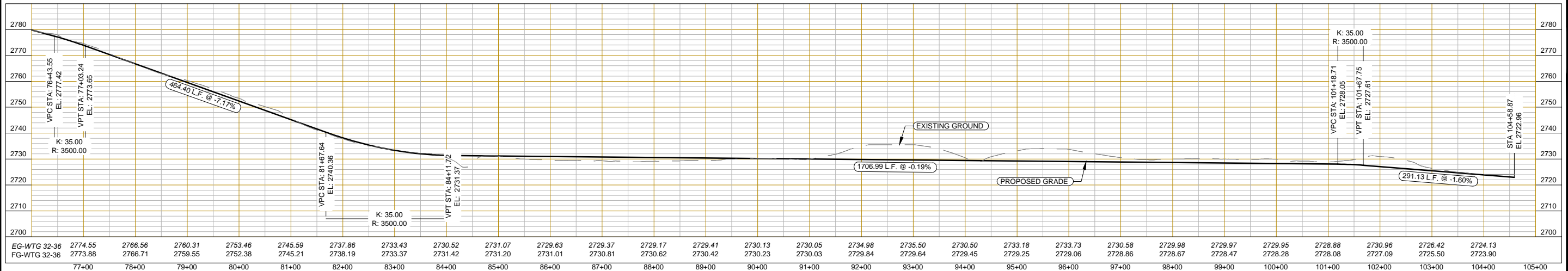
SY#	DATE	DESCRIPTION	APP#
7	05/21/15	Issued For Construction	BN
6	05/20/15	Issued For Construction	BN
5	05/13/15	Issued For Construction	BN
4	04/28/15	95% Review Set Issued	BN



**THUNDER SPIRIT WIND ENERGY PROJECT**  
 WANZEK CONSTRUCTION, INC.  
 ADAMS COUNTY, NORTH DAKOTA  
 ACCESS ROAD - TURBINE 36 - PROFILE

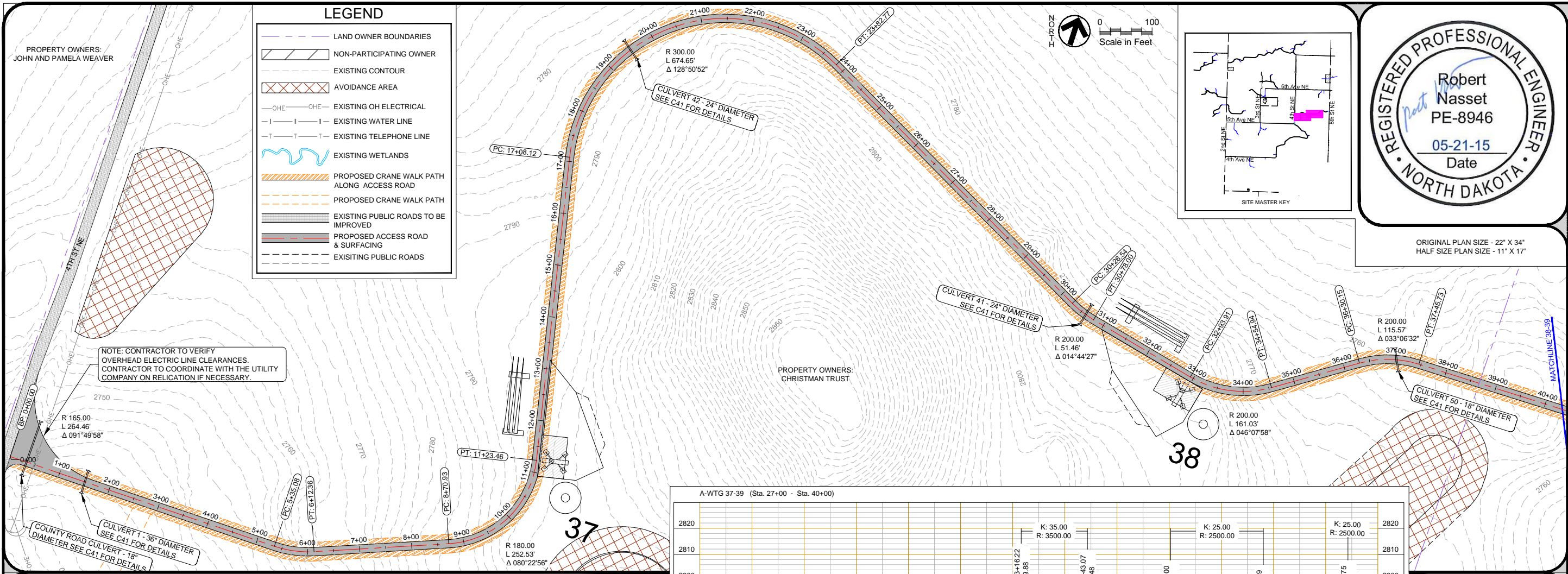
DRAWING TYPE	CONSTRUCTION
PREPARED BY	ALT
CHECKED / APPROVED	BN / BN
DATE	MAY 2015
PROJECT NUMBER	P08157-2014-003
SHEET	38 of 49
DRAWING	<b>C34</b>

A-WTG 32-36 (Sta. 76+00 - Sta. 105+00)



Layout: ACCESS ROAD - TURBINE 37-38 - PLAN AND PROFILE  
 File: \\011.10.1\projects\Wanzenk\08157-2014-003\_TSEVE\_Site Design\Drawings\040 Final Design\wg37-38-39\AccessRoadPlan.dwg

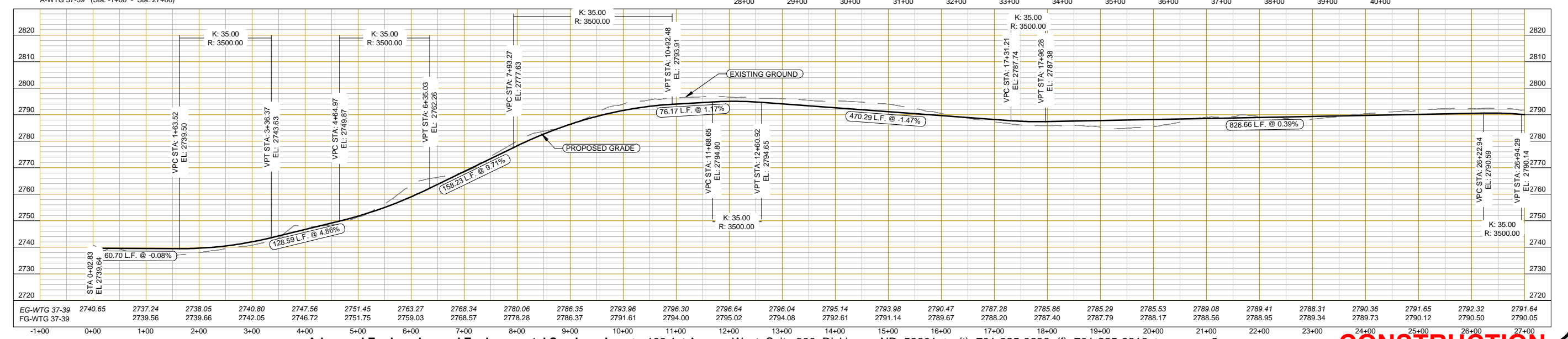
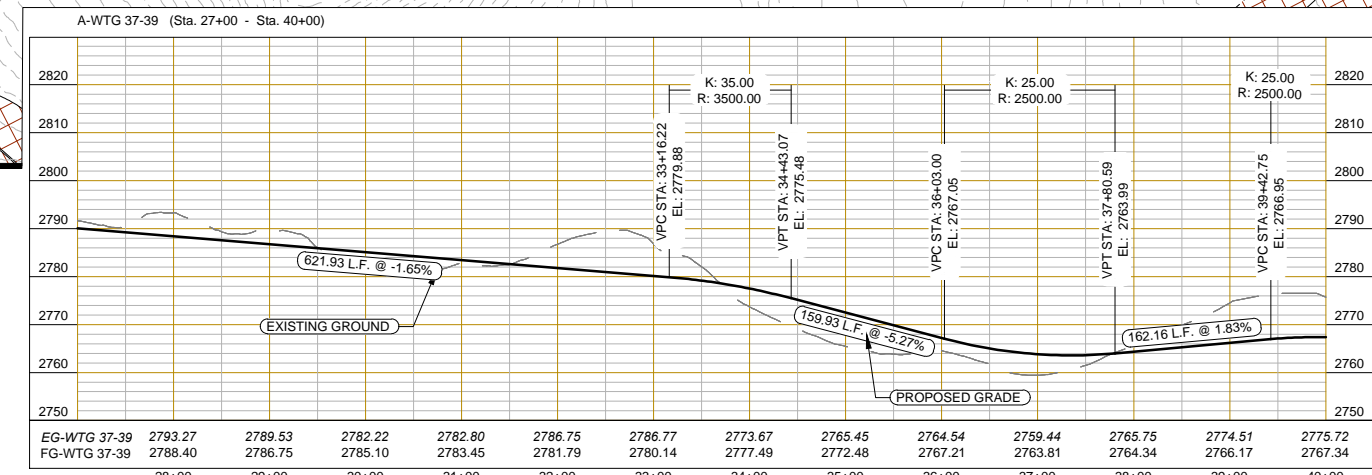
Printed By: Amber Trout Date: Thursday, May 21, 2015  
 Last Saved By: Amber Trout Date: Wednesday, May 13, 2015 15:29:30 PM



**REGISTERED PROFESSIONAL ENGINEER**  
 Robert Nasset  
 PE-8946  
 05-21-15 Date  
 NORTH DAKOTA

SYM	DATE	DESCRIPTION	APPR
7	05/21/15	Issued For Construction	BN
6	05/20/15	Issued For Construction	BN
5	05/13/15	Issued For Construction	BN
4	04/28/15	95% Review Set Issued	BN

ORIGINAL PLAN SIZE - 22" X 34"  
 HALF SIZE PLAN SIZE - 11" X 17"

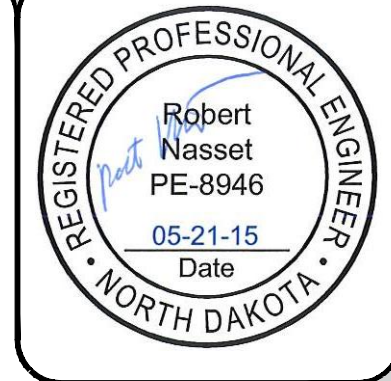
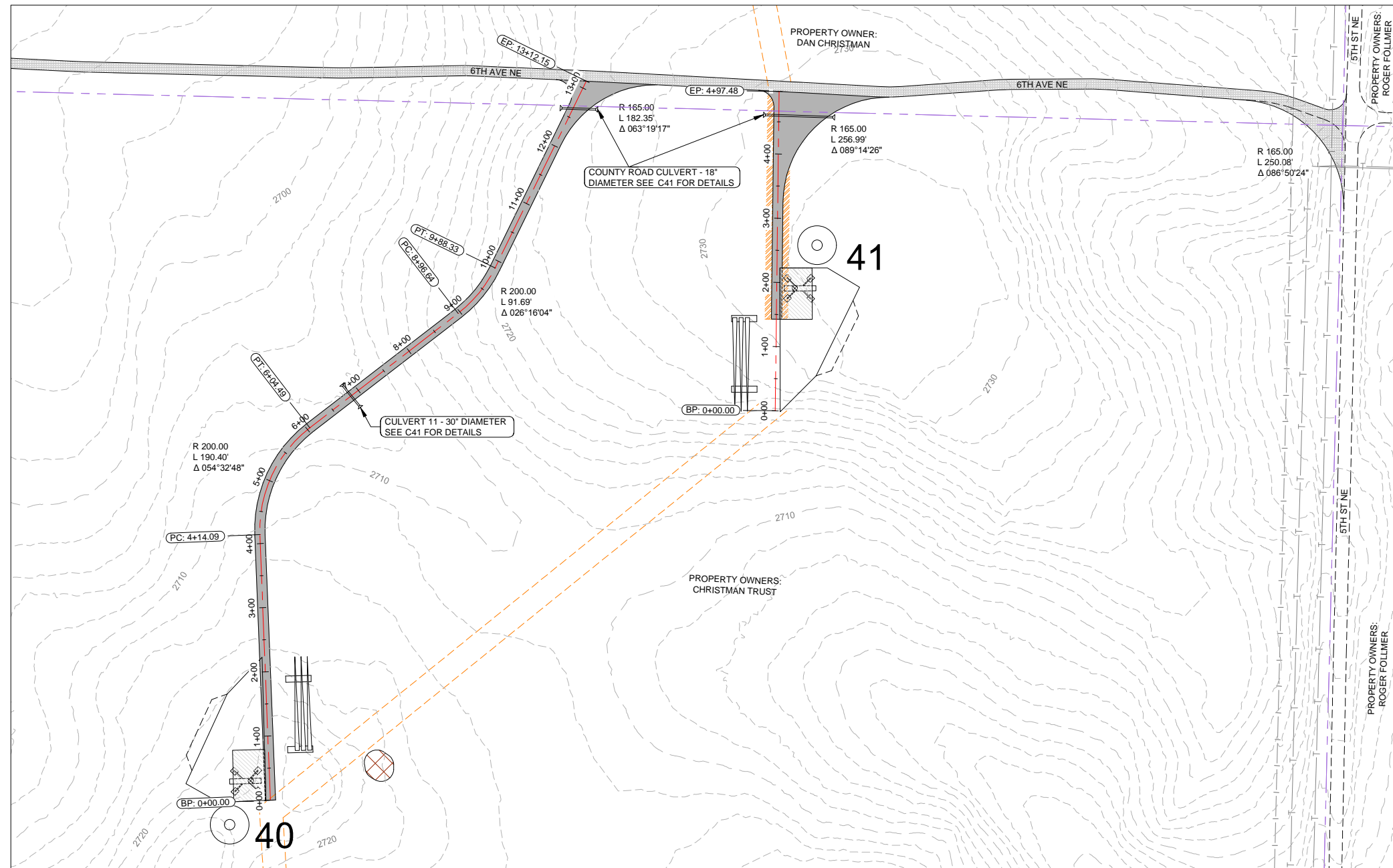


THUNDER SPIRIT WIND ENERGY PROJECT  
 WANZEK CONSTRUCTION, INC.  
 ADAMS COUNTY, NORTH DAKOTA  
 ACCESS ROAD - TURBINE 37-38 - PLAN AND PROFILE

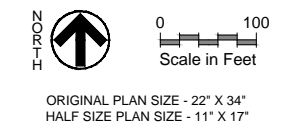
DRAWING TYPE: CONSTRUCTION  
 PREPARED BY: ALT  
 CHECKED / APPROVED: BN / BN  
 DATE: MAY 2015  
 PROJECT NUMBER: P08157-2014-003  
 SHEET: 39 of 49  
 DRAWING: C35

**CONSTRUCTION**

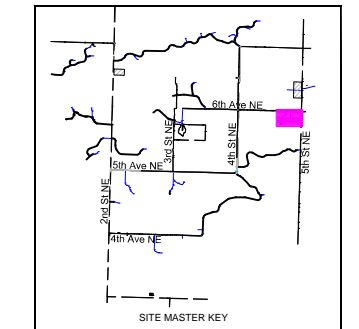




SYM	DATE	DESCRIPTION	APPR
7	05/21/15	Issued For Construction	BN
6	05/20/15	Issued For Construction	BN
5	05/13/15	Issued For Construction	BN
4	04/28/15	95% Review Set Issued	BN

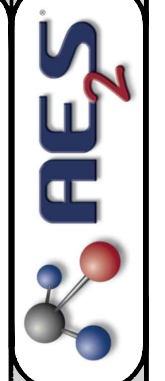
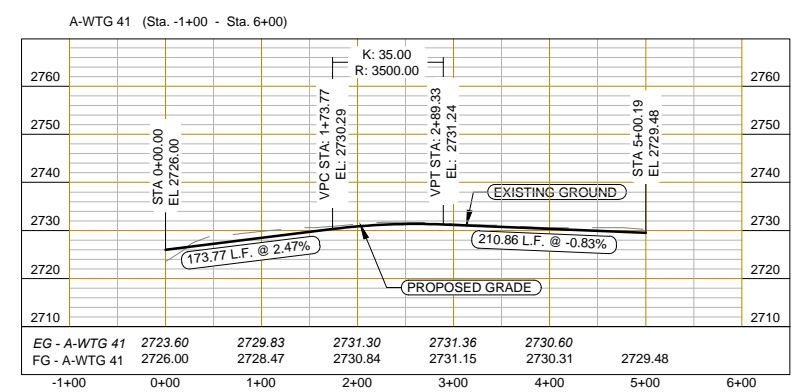
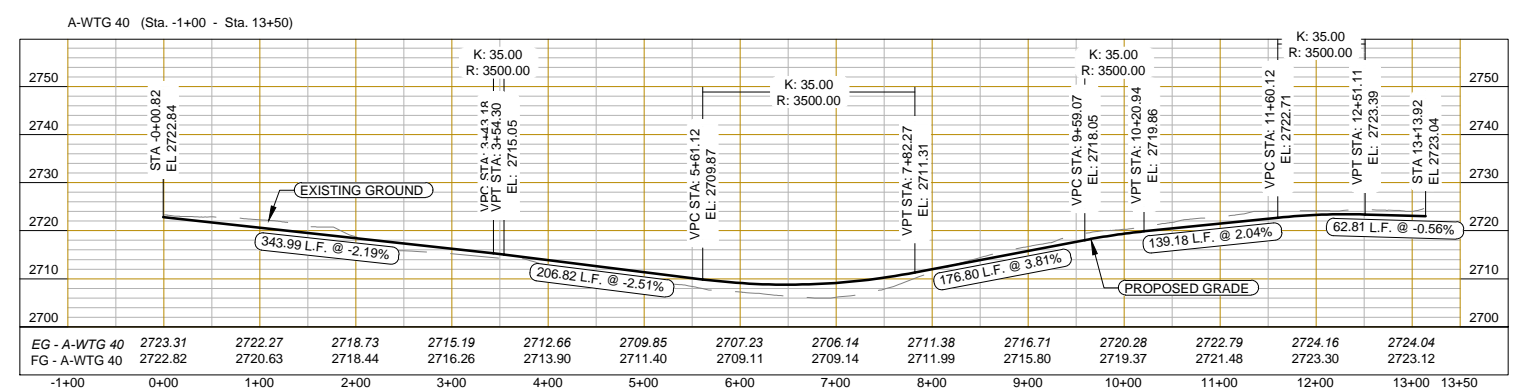


ORIGINAL PLAN SIZE - 22' X 34'  
 HALF SIZE PLAN SIZE - 11' X 17'



**LEGEND**

- LAND OWNER BOUNDARIES
- NON-PARTICIPATING OWNER
- EXISTING CONTOUR
- AVOIDANCE AREA
- EXISTING OH ELECTRICAL
- EXISTING WATER LINE
- EXISTING TELEPHONE LINE
- EXISTING WETLANDS
- PROPOSED CRANE WALK PATH ALONG ACCESS ROAD
- PROPOSED CRANE WALK PATH
- EXISTING PUBLIC ROADS TO BE IMPROVED
- PROPOSED ACCESS ROAD & SURFACING
- EXISTING PUBLIC ROADS



**THUNDER SPIRIT WIND ENERGY PROJECT**  
**WANZEK CONSTRUCTION, INC.**  
 ADAMS COUNTY, NORTH DAKOTA  
 ACCESS ROAD - TURBINE 40-41 - PLAN AND PROFILE

DRAWING TYPE  
**CONSTRUCTION**

PREPARED BY  
**ALT**

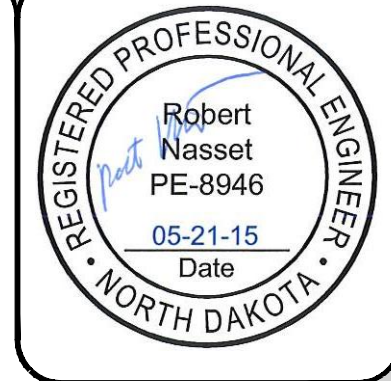
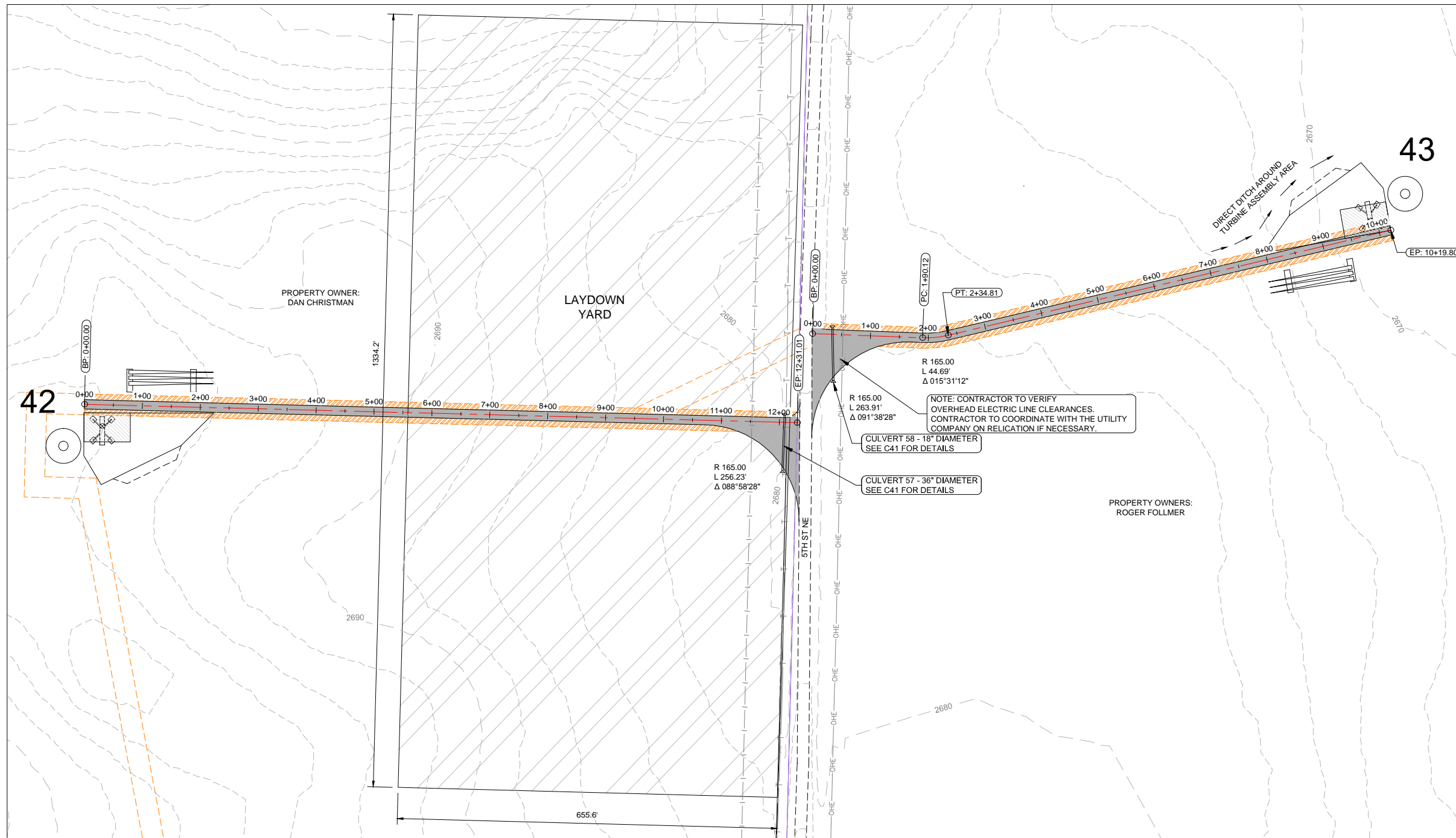
CHECKED / APPROVED  
 BN / BN

DATE  
**MAY 2015**

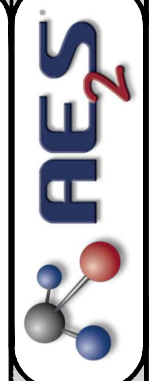
PROJECT NUMBER  
**P08157-2014-003**

SHEET  
**41 of 49**

DRAWING  
**C37**



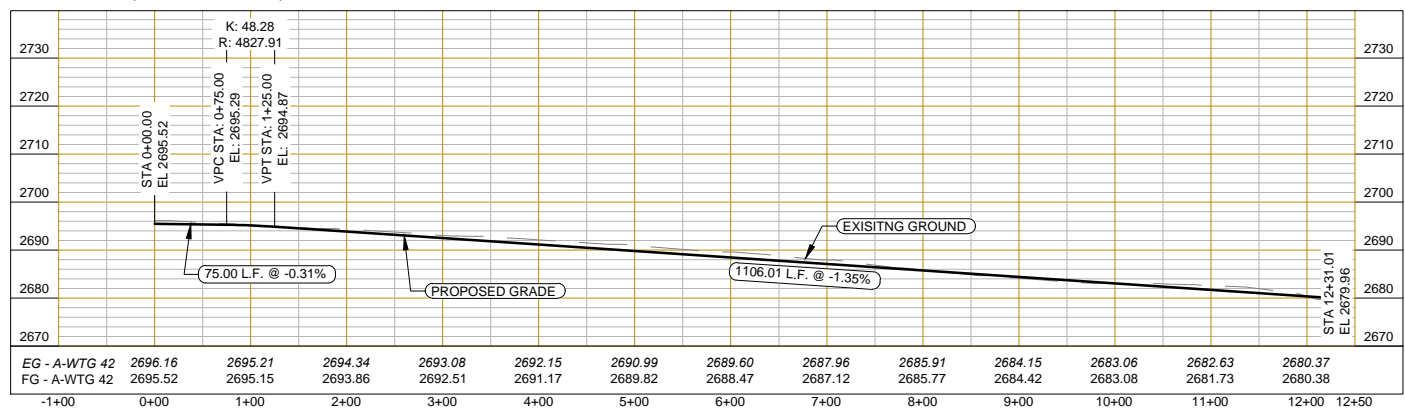
SYM	DATE	DESCRIPTION	APPR
7	05/21/15	Issued For Construction	BN
6	05/20/15	Issued For Construction	BN
5	05/13/15	Issued For Construction	BN
4	04/28/15	95% Review Set Issued	BN



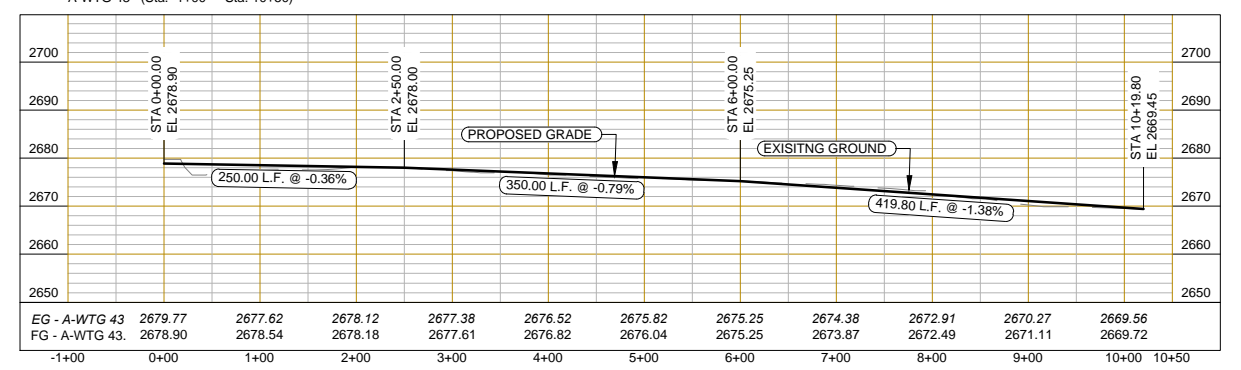
THUNDER SPIRIT WIND ENERGY PROJECT  
 WANZEK CONSTRUCTION, INC.  
 ADAMS COUNTY, NORTH DAKOTA

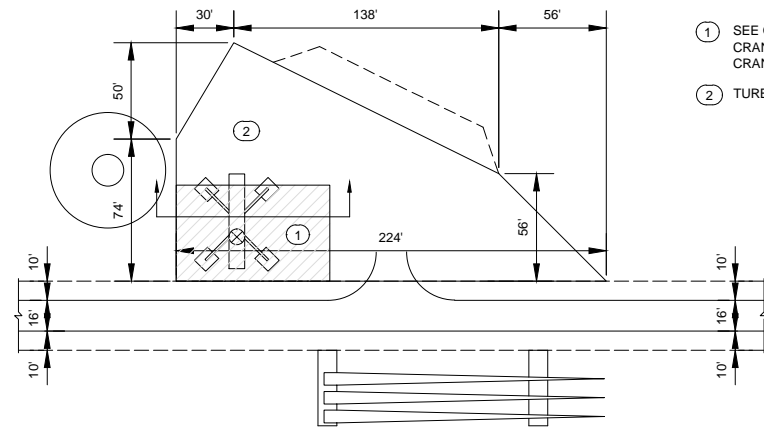
DRAWING TYPE	CONSTRUCTION
PREPARED BY	ALT
CHECKED / APPROVED	BN / BN
DATE	MAY 2015
PROJECT NUMBER	P08157-2014-003
SHEET	42 of 49
DRAWING	C38

A-WTG 42 (Sta. -1+00 - Sta. 12+50)



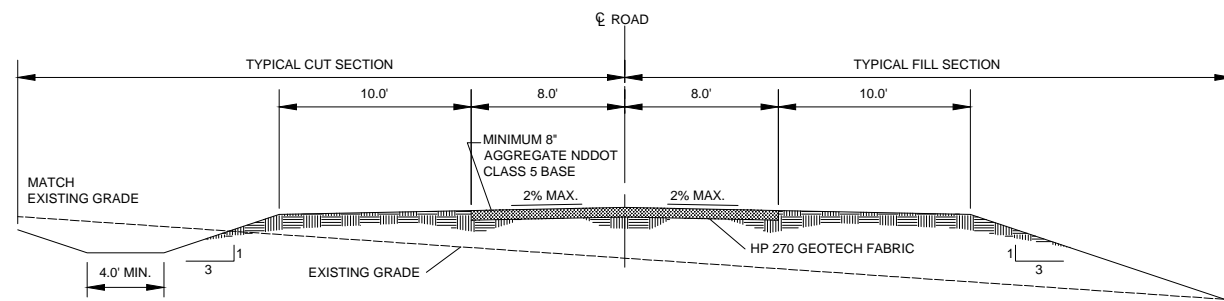
A-WTG 43 (Sta. -1+00 - Sta. 10+50)



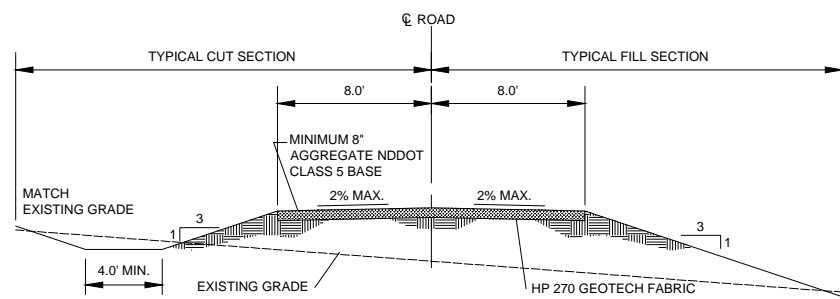


- ① SEE GEOTECHNICAL RECOMMENDATION FOR CRANE PAD CONSTRUCTION REQUIREMENTS. CRANE PAD 1% MAXIMUM GRADE.
- ② TURBINE LAYDOWN AREA - MAXIMUM 2% GRADE.

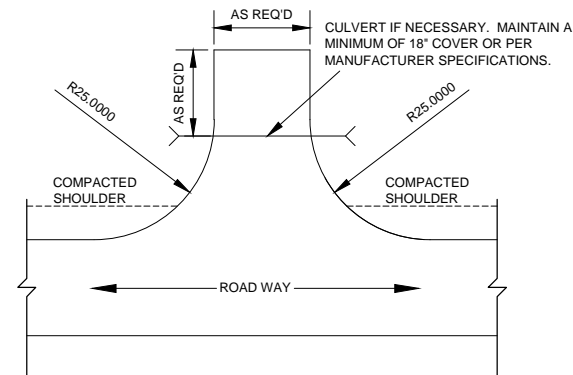
**1 TYPICAL WTG ASSEMBLY LAYOUT**  
C39 NOT TO SCALE



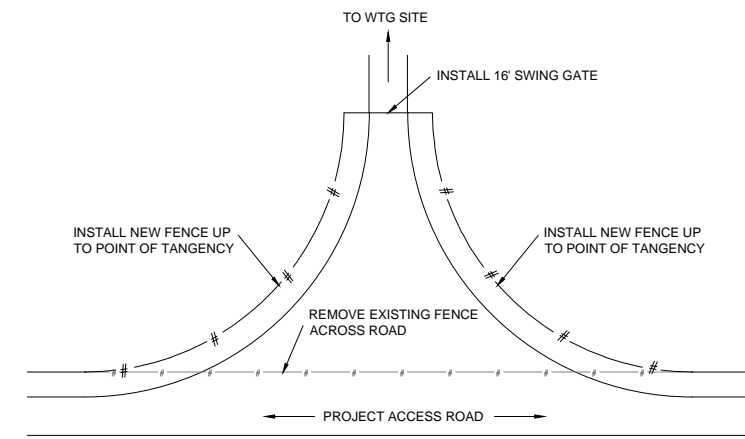
**2 WTG HAUL ROAD WITH CRANE SHOULDERS**  
C39 NOT TO SCALE



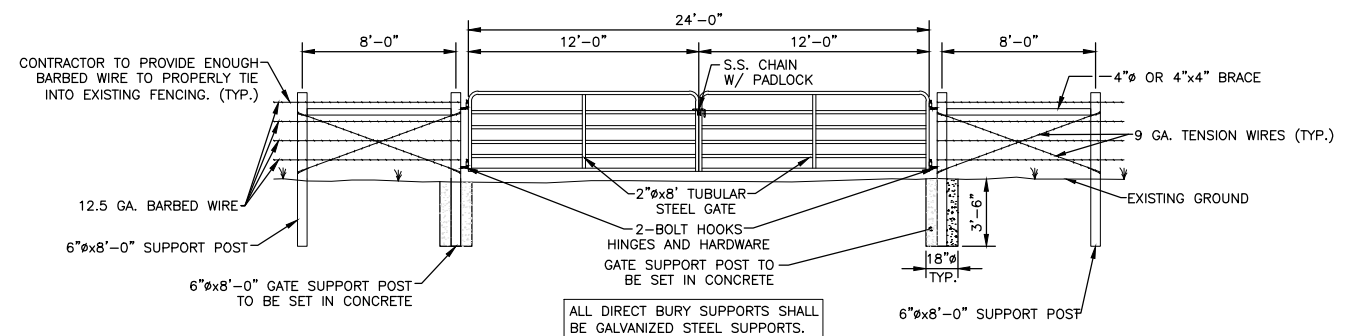
**3 WTG HAUL ROAD ONLY (NO CRANE)**  
C39 NOT TO SCALE



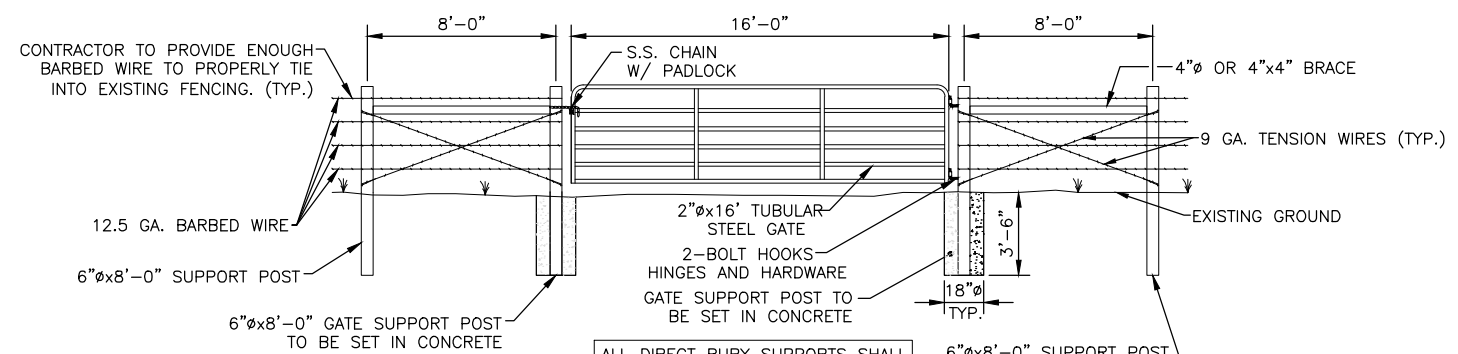
**4 TYPICAL APPROACH DETAIL**  
C39 NOT TO SCALE



**5 TYPICAL FENCE/GATE DETAIL FOR WTG ACCESS ROADS**  
C39 NOT TO SCALE



**6 24' FENCE/GATE DETAIL**  
C39 NOT TO SCALE



**7 16' FENCE/GATE DETAIL**  
C39 NOT TO SCALE

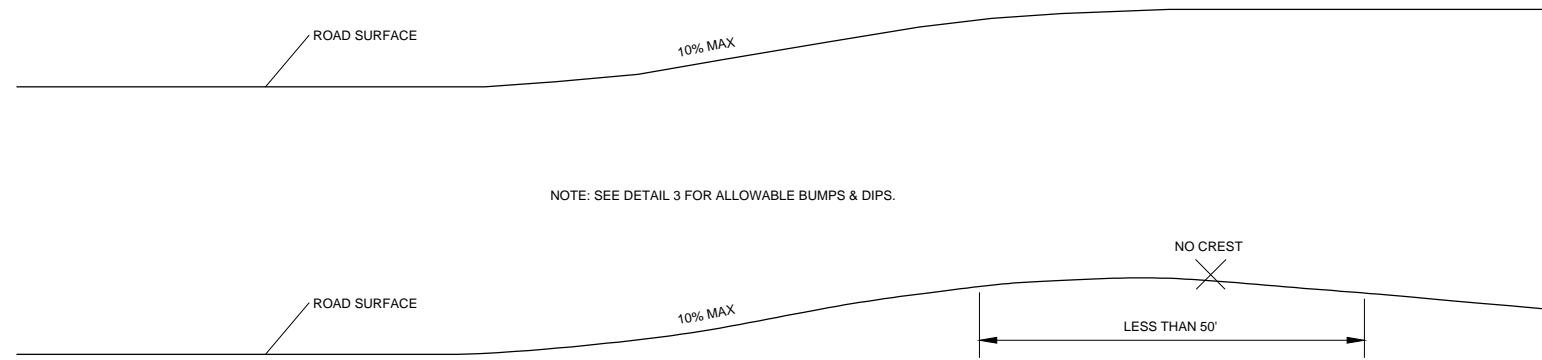


SYM	DATE	DESCRIPTION	APP
7	05/21/15	Issued For Construction	BN
6	05/20/15	Issued For Construction	BN
5	05/13/15	Issued For Construction	BN
4	04/28/15	95% Review Set Issued	BN

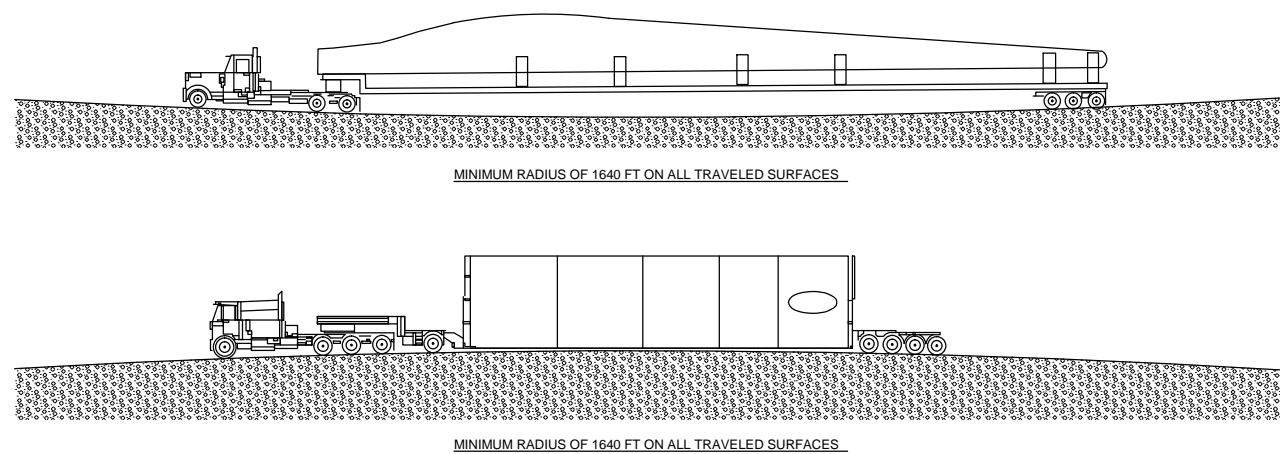


**THUNDER SPIRIT WIND ENERGY PROJECT**  
 WANZEK CONSTRUCTION, INC.  
 ADAMS COUNTY, NORTH DAKOTA  
 TYPICAL ROADWAY DETAILS 1

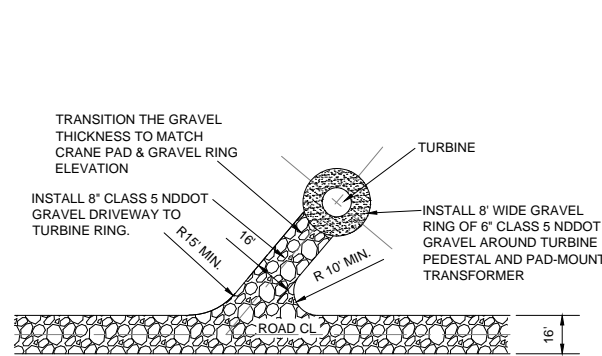
DRAWING TYPE	CONSTRUCTION
PREPARED BY	ALT
CHECKED / APPROVED	BN / BN
DATE	MAY 2015
PROJECT NUMBER	P08157-2014-003
SHEET	43 OF 49
DRAWING	C39



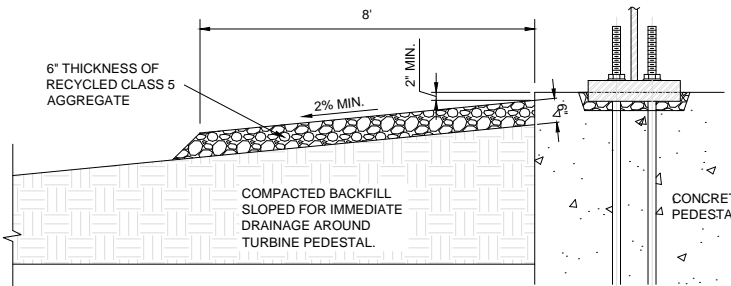
**1 ALLOWABLE VEHICLE GRADES**  
C40 NOT TO SCALE



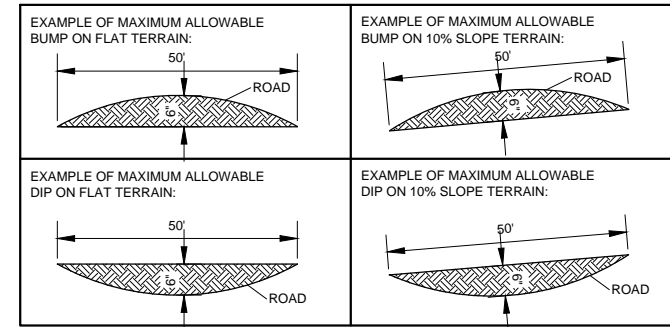
**2 TYPICAL VERTICAL RADIUS**  
C40 NOT TO SCALE



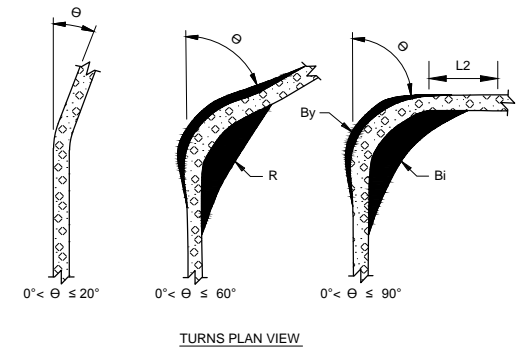
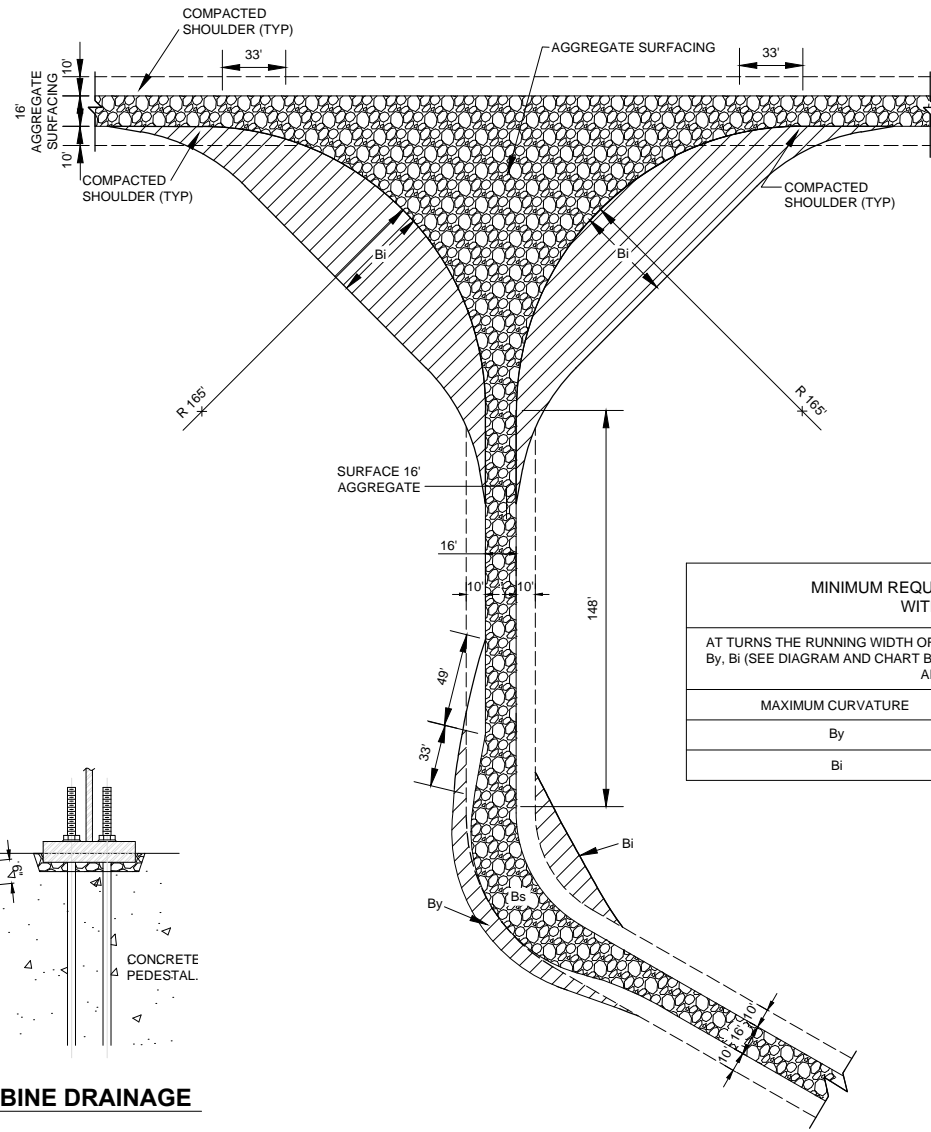
**6 TYPICAL GRAVEL AROUND TURBINE AFTER CONSTRUCTION**  
C40 NOT TO SCALE



**5 TYPICAL SOIL/GRAVEL PROFILE FOR TURBINE DRAINAGE**  
C40 NOT TO SCALE



**3 ALLOWABLE BUMPS & DIPS**  
C40 NOT TO SCALE

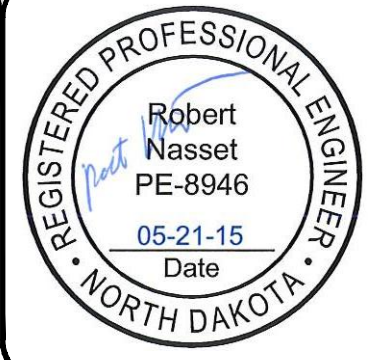


**MINIMUM REQUIREMENTS FOR CURVES AND INTERSECTIONS WITHIN COMPONENT DELIVERY ROADS**

AT TURNS THE RUNNING WIDTH OF ROAD (Bs) = 36 FEET. L2=49 FEET CURVE INSIDE TURNING RADIUS R=148' By, Bi (SEE DIAGRAM AND CHART BELOW) HATCHED AREAS REPRESENT AREAS THAT MUST BE CLEARED OF ANY OBSTRUCTIONS TO ALLOW OVERHANG

MAXIMUM CURVATURE	0° < θ ≤ 20°	20° < θ ≤ 60°	60° < θ ≤ 90°
By	0 FT	10 FT	13 FT
Bi	0 FT	36 FT	49 FT

**4 TYPICAL SURFACING FOR TURNS AND CURVE-CURVE SEPARATION DISTANCE**  
C40 NOT TO SCALE



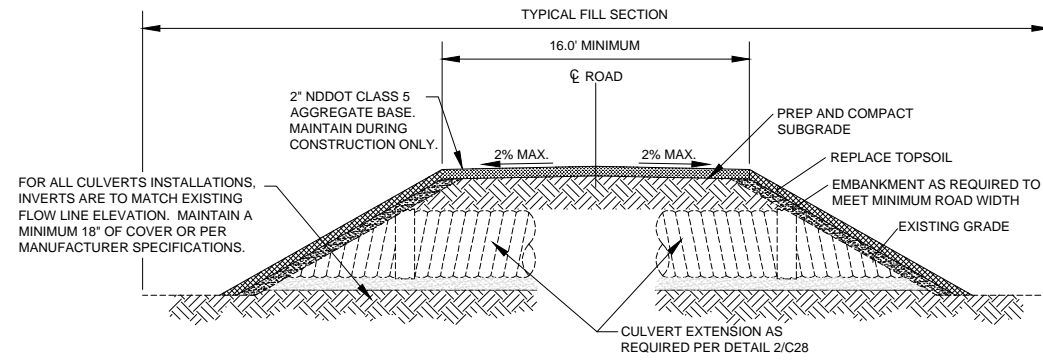
SYM	DATE	DESCRIPTION	APPR
7	05/21/15	Issued For Construction	BN
6	05/20/15	Issued For Construction	BN
5	05/13/15	Issued For Construction	BN
4	04/28/15	95% Review Set Issued	BN



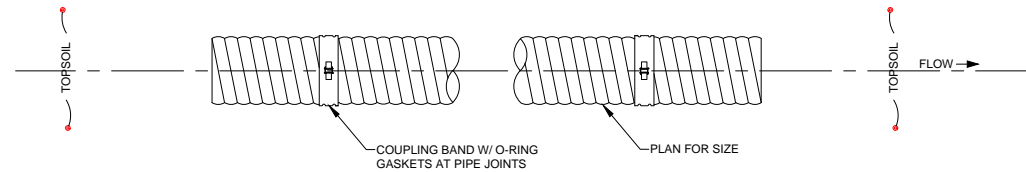
**THUNDER SPIRIT WIND ENERGY PROJECT**  
 WANZEK CONSTRUCTION, INC.  
 ADAMS COUNTY, NORTH DAKOTA

TYPICAL ROADWAY DETAILS 2

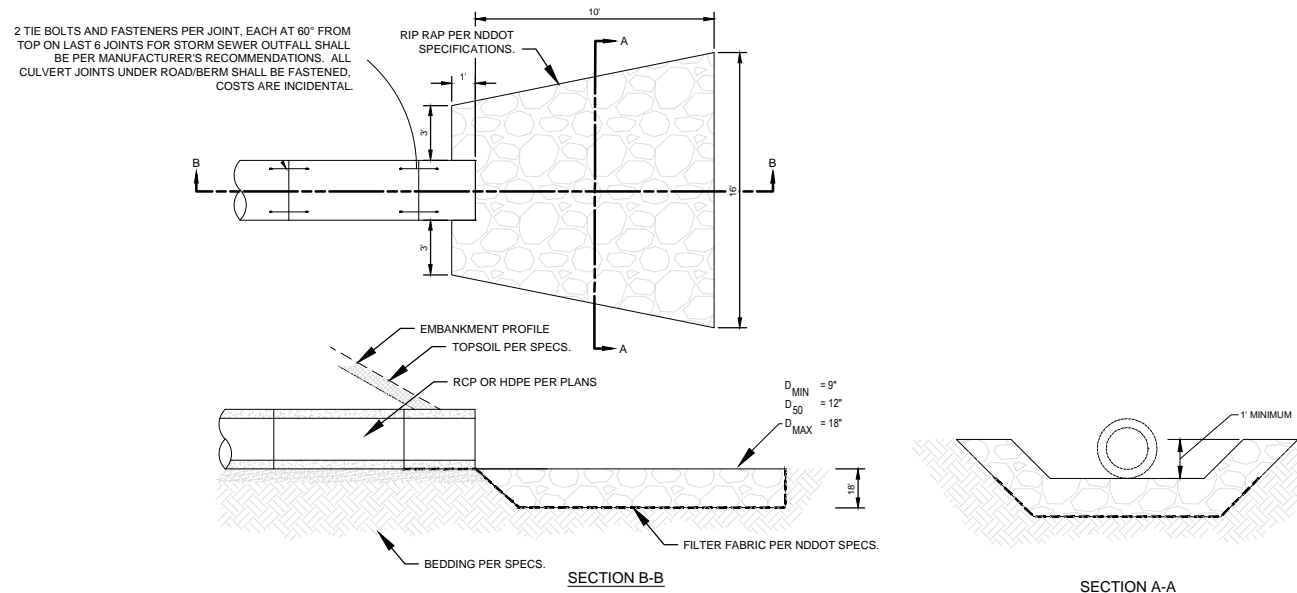
DRAWING TYPE	CONSTRUCTION
PREPARED BY	ALT
CHECKED / APPROVED	BN / BN
DATE	MAY 2015
PROJECT NUMBER	P08157-2014-003
SHEET	44 of 49
DRAWING	<b>C40</b>



**1 PUBLIC ROADWAY IMPROVEMENT SECTION**  
 C41 NOT TO SCALE



**2 CULVERT DETAIL**  
 C41 NOT TO SCALE



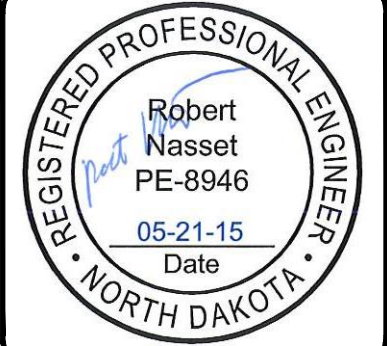
**3 RIPRAP OUTLET PROTECTION**  
 C41 NOT TO SCALE

Culvert and Basin ID	Hydrologic Soil Group (HSG) Classification	Basin Area (Acres)	Culvert Diameter (Inches)	Culvert Material	Comments
1	D	13.4	36	CHDPE	
2	D	13.9	36	CHDPE	
3	C	29.6	36	CHDPE	
4	D	33.9	36	CHDPE	
5	Not Used				
6	D	14.5	36	CHDPE	
7	D	3.8	24	CHDPE	
8	D	7.1	24	CHDPE	
9	D	9.5	30	CHDPE	
10	D	18.3	36	CHDPE	
11	D	10.6	30	CHDPE	
12	D	16.0	36	CHDPE	
13	C	21.3	36	CHDPE	
14	D	3.5	18	CHDPE	
15	D	53.5	(2) 36	CHDPE	2 - 36" Culverts
16	C	9.5	24	CHDPE	
17	C	13.1	30	CHDPE	
18	C	18.5	30	CHDPE	
19	C	10.2	30	CHDPE	
20	D	9.1	30	CHDPE	
21	C	12.9	30	CHDPE	
22	C	11.0	30	CHDPE	
23	C	13.3	30	CHDPE	
24	C	7.0	24	CHDPE	
25	B	9.9	18	CHDPE	
26	C	241.8	(3) 36	CHDPE	3 - 36" Culvert
27	D	4.8	24	CHDPE	
28	C	2.3	18	CHDPE	
29	C	22.3	36	CHDPE	
30	C	16.6	36	CHDPE	
31	C	5.1	24	CHDPE	
32	D	4.7	24	CHDPE	
33	D	12.5	36	CHDPE	
34	C	39.1	36	CHDPE	
35	A	18.1	18	CHDPE	
36	A	17.0	18	CHDPE	
37	D	4.8	24	CHDPE	
38	C	16.1	36	CHDPE	
39	C	1.7	18	CHDPE	
40	C	1.2	18	CHDPE	
41	C	6.0	24	CHDPE	
42	C	6.9	24	CHDPE	
43	C	0.9	18	CHDPE	
44	C	2.0	18	CHDPE	
45	D	2.2	18	CHDPE	
46	C	2.1	18	CHDPE	
47	C	5.5	24	CHDPE	
48	D	0.4	24	CHDPE	
49	D	5.2	24	CHDPE	
50	C	3.8	18	CHDPE	
51	Not Used				
52	C	4.3	24	CHDPE	
53	Not Used				
54	Not Used				
55	Not Used				
56	Not Used				
57	C	40.9	36	CHDPE	
58	A	16.8	18	CHDPE	
59	D	20.3	36	CHDPE	
60	D	2.1	18	CHDPE	

**4 CULVERT AND BASIN SUMMARY TABLE**  
 C41 NOT TO SCALE

CULVERT LOCATIONS ARE SHOWN SYMBOLICALLY WITHIN THE PLAN SET AT THE INTERSECTION OF PLANNED ACCESS ROADS AND WATERSHEDS. FINAL EXACT CULVERT LOCATION SHALL BE FIELD VERIFIED TO MATCH WITH THE LOW POINT OF THE DRAINAGE WAY. FINAL CULVERT LENGTH AND INVERT ELEVATIONS SHALL BE DETERMINED BASED ON THE AMOUNT OF EMBANKMENT PLACED IN THE ROADWAY. ALL CULVERTS ARE DESIGNED FOR THE 25 YEAR, 24 HOUR STORM EVENT.

MAINTAIN A MINIMUM OF 18" OF COVER AT ALL CULVERT LOCATIONS. IN AREAS WHERE PROPOSED GRADE DOES NOT INDICATE AVAILABLE COVER, CONTRACTOR SHALL EXCAVATE AND GRADE OUTLET AREA TO DAYLIGHT, OR BRING IN ADEQUATE FILL MATERIAL AS AVAILABLE, MAINTAINING MAXIMUM BUMPS AND DIPS AS SPECIFIED IN DETAIL 3/ C40



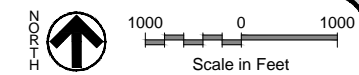
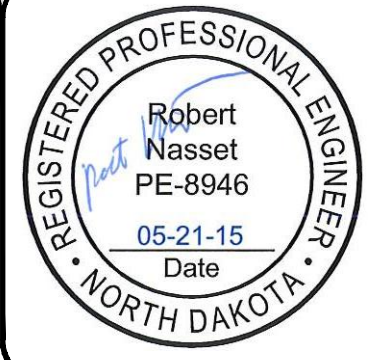
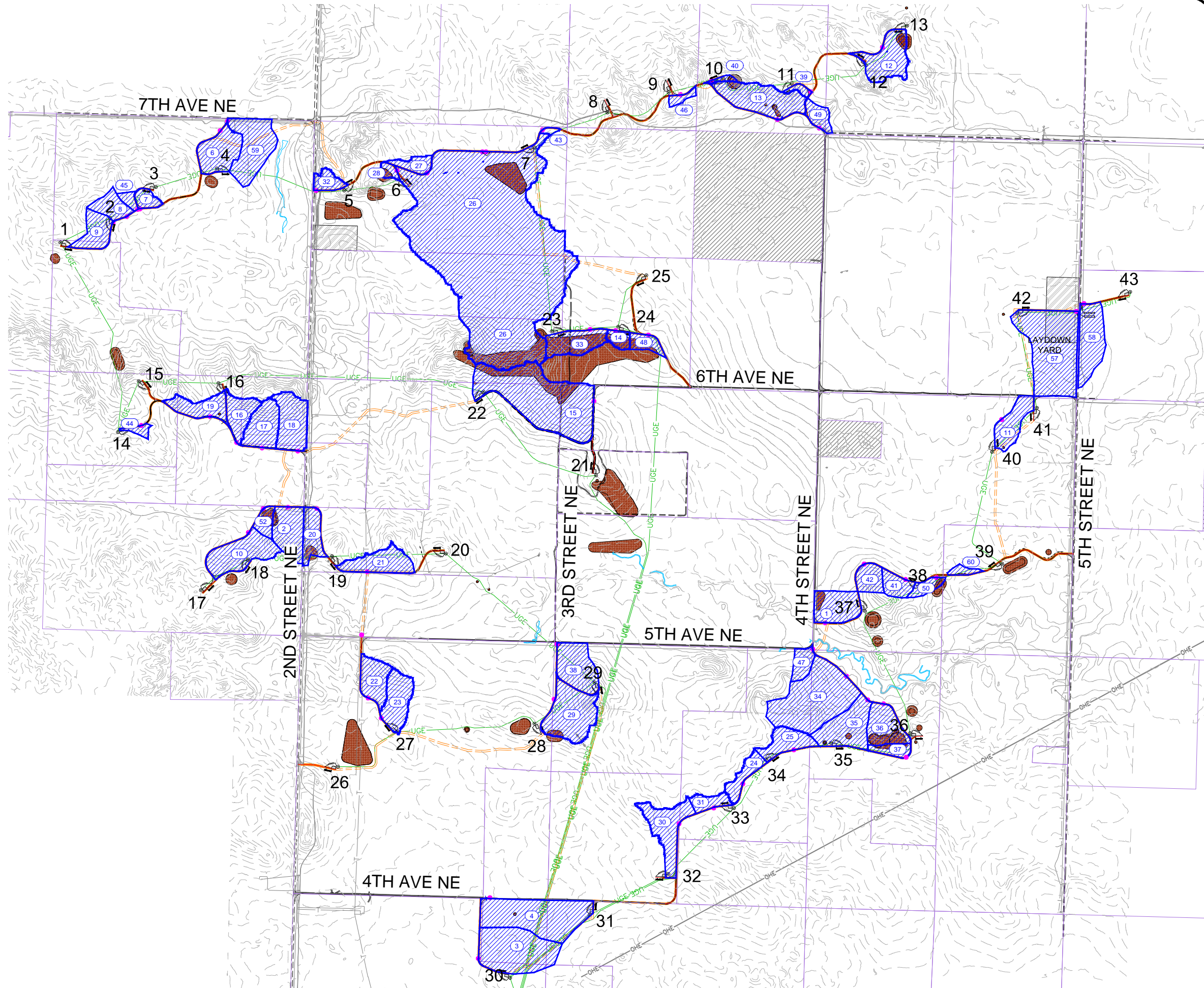
ISSN	DATE	DESCRIPTION	APPR
7	05/21/15	Issued For Construction	BN
6	05/20/15	Issued For Construction	BN
5	05/13/15	Issued For Construction	BN
4	04/28/15	95% Review Set Issued	BN



THUNDER SPIRIT WIND ENERGY PROJECT  
 WANZEK CONSTRUCTION, INC.  
 ADAMS COUNTY, NORTH DAKOTA  
 CULVERT DETAILS

DRAWING TYPE	CONSTRUCTION
PREPARED BY	ALT
CHECKED / APPROVED	BN / BN
DATE	MAY 2015
PROJECT NUMBER	P08157-2014-003
SHEET	45 OF 49
DRAWING	<b>C41</b>

Plotted By: Amber Trout Date: Thursday, May 21, 2015 5:05:38 PM  
 Last Saved By: Amber Trout Date: Wednesday, May 13, 2015 5:05:38 PM  
 Layer: DRAINAGE BASIN MASTER PLAN  
 File: \\011.01\projects\Wanakeh\08157-2014-003 TSVS Site Design\Drawings\Drawings\Construction\BainPlan.dwg



ORIGINAL PLAN SIZE - 22' X 34'  
 HALF SIZE PLAN SIZE - 11' X 17'

**LEGEND**

- LAND OWNER BOUNDARIES
- NON-PARTICIPATING OWNER
- EXISTING CONTOUR
- AVOIDANCE AREA
- EXISTING OH ELECTRICAL
- EXISTING WATER LINE
- EXISTING TELEPHONE LINE
- EXISTING WETLANDS
- PROPOSED CRANE WALK PATH ALONG ACCESS ROAD
- PROPOSED CRANE WALK PATH
- EXISTING PUBLIC ROADS TO BE IMPROVED
- PROPOSED ACCESS ROAD & SURFACING
- EXISTING PUBLIC ROADS
- WATERSHED BASIN AREA

SYM	DATE	DESCRIPTION	APPR
7	05/21/15	Issued For Construction	BN
6	05/20/15	Issued For Construction	BN
5	05/13/15	Issued For Construction	BN
4	04/28/15	95% Review Set Issued	BN

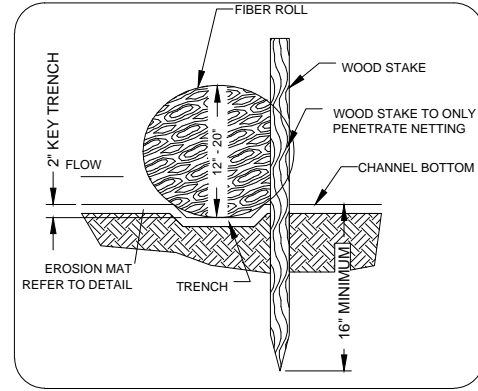


**THUNDER SPIRIT WIND ENERGY PROJECT**  
 WANAKE CONSTRUCTION, INC.  
 ADAMS COUNTY, NORTH DAKOTA  
 DRAINAGE BASIN MASTER PLAN

DRAWING TYPE	CONSTRUCTION
PREPARED BY	ALT
CHECKED / APPROVED	BN / BN
DATE	MAY 2015
PROJECT NUMBER	P08157-2014-003
SHEET	46 of 49
DRAWING	<b>C42</b>

**CONSTRUCTION**





**MATERIAL NOTES**

- DITCH CHECKS SHALL BE CONSTRUCTED OF APPROVED MATERIALS LISTED IN THE NORTH DAKOTA DOT STANDARD SPECIFICATIONS FOR FIBER ROLLS. SILT FENCE WITH STAKED HAY BALES BEHIND THE SILT FENCE TO SUPPORT THE FENCE MAY BE USED IN PLACE OF FIBER ROLLS.
- EROSION MAT SHALL BE SELECTED AND INSTALLED PER THE EROSION CONTROL MAT DETAILS.
- WOOD STAKES SHALL BE AIR OR KILN DRIED HICKORY OR OAK AND HAVE THE FOLLOWING MINIMUM DIMENSIONS:
  - A. FOR 12" FIBER ROLLS, 1.125" x 1.125" x 30".
  - B. FOR 20" FIBER ROLLS, 1.125" x 1.125" x 48".

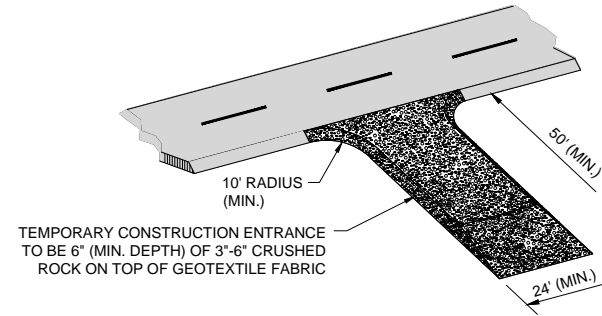
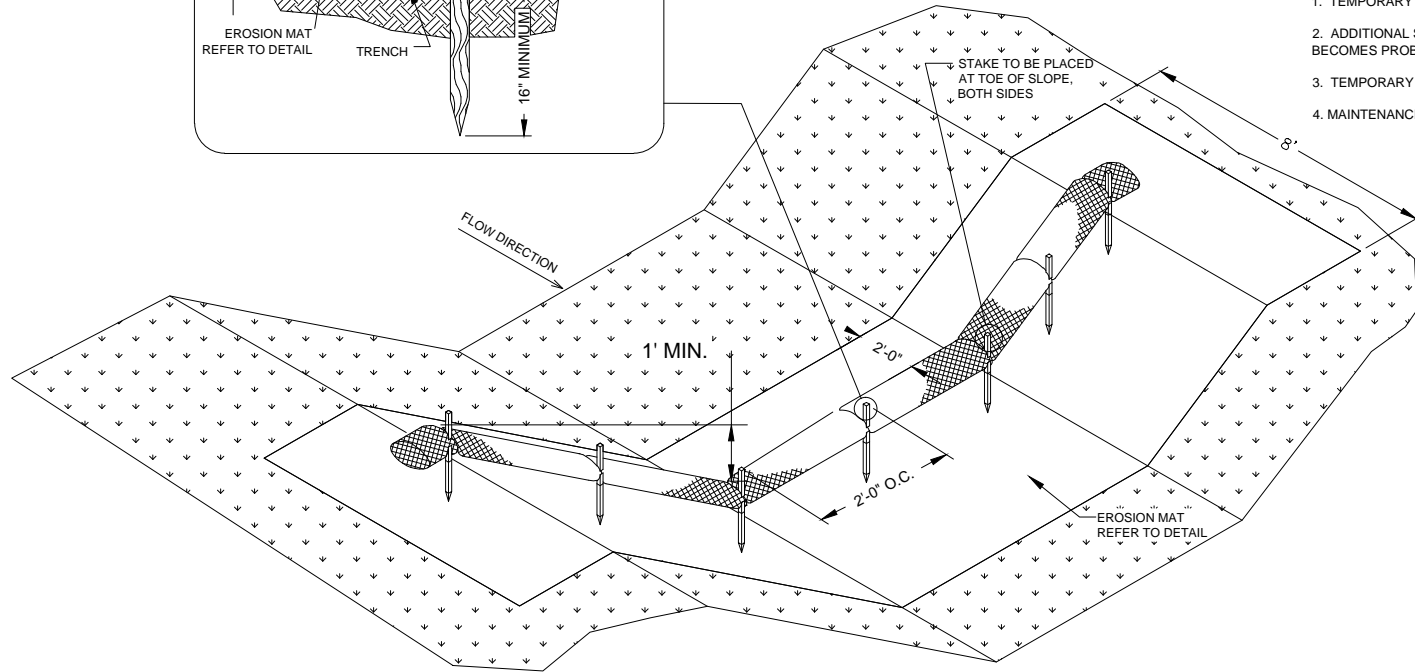
**INSTALLATION NOTES**

- INSTALLATION SHALL CONFORM TO THE DETAIL.
- PROPRIETARY FIBER ROLLS (OR EQUIVALENT DITCH CHECK) SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
- FIBER ROLL DITCH CHECKS SHALL BE INSTALLED SUCH THAT ENDS ARE HIGHER THAN THE CENTER, CREATING A STABLE OVERFLOW POINT. ENDS SHOULD BE A MINIMUM OF 6" HIGHER THAN THE EXPECTED DESIGN WATER LEVEL.
- FIBER ROLL DITCH CHECKS SHOULD BE INSTALLED SUCH THAT ADJOINING PROPERTY IS NOT NEGATIVELY IMPACTED.
- FIBER ROLL DITCH CHECKS SHOULD BE USED IN CONJUNCTION WITH OTHER PERMANENT RESTORATION PRACTICES.

**1 DITCH CHECK DETAIL**  
C44 NOT TO SCALE

**INSPECTION & MAINTENANCE NOTES**

- FIBER ROLL DITCH CHECKS SHALL BE INSPECTED CONSISTENT WITH THE SWPPP REQUIREMENTS.
- WHEN OBSERVING CONDITIONS OF FIBER ROLL DITCH CHECKS, PAY SPECIAL CONSIDERATION TO THE PRESENCE OF INDICATORS THAT WATER IS ERODING AROUND THE ENDS, UNDERCUTTING THE DITCH CHECK, OR SIGNIFICANT EROSION IS OCCURRING DOWNSTREAM OF THE DITCH CHECK. THESE ITEMS MAY INDICATE THE NEED FOR CLOSER SPACING ON DITCH CHECKS OR USE OF A DIFFERENT EROSION CONTROL MAT.
- SEDIMENT SHALL BE REMOVED FROM BEHIND THE FIBER ROLL DITCH CHECK WHEN IT REACHES ONE-HALF THE HEIGHT OF THE LOWEST ELEVATION OF THE FIBER ROLL.
- FIBER ROLLS SHALL BE REMOVED ONCE CHANNEL IS STABILIZED WITH VEGETATION.
- MAINTENANCE SHALL BE COMPLETED AS SOON AS POSSIBLE WITH CONSIDERATION FOR SITE CONDITIONS.



**MATERIAL NOTES**

- STONE SHALL BE HARD AND DURABLE, OF THE SIZES SHOWN IN THE DETAIL.

**INSTALLATION NOTES:**

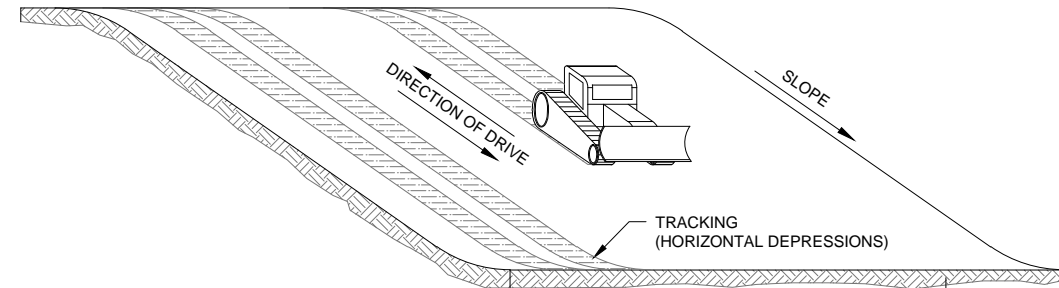
- TEMPORARY CONSTRUCTION ENTRANCES ARE SHOWN IN FIGURES 1.1 THROUGH 1.25 IN ALL POTENTIAL LOCATIONS OF EGRESS TO PUBLIC AND PRIVATE ROADS; HOWEVER, TEMPORARY CONSTRUCTION ENTRANCES ARE ONLY REQUIRED AT EXITS TO PAVED OR GRAVELED PUBLIC ROADS. ON GRAVEL ROADS WITH A LOW VOLUME OF CONSTRUCTION TRAFFIC, CONTRACTOR MAY ALSO MONITOR SEDIMENT TRACKING AND CLEAN GRAVEL STREETS ON AN AS NEEDED BASIS.

- CULVERTS UNDER THE TEMPORARY CONSTRUCTION ENTRANCE MAY BE NEEDED TO ALLOW ROADSIDE DITCH DRAINAGE TO FREELY DRAIN. MINIMUM CULVERT SIZE SHALL BE 18 INCHES, OR AS REQUIRED BY LOCAL PERMITS.

**INSPECTION AND MAINTENANCE NOTES:**

- TEMPORARY CONSTRUCTION ENTRANCE SHALL BE INSPECTED CONSISTENT WITH THE SWPPP REQUIREMENTS.
- ADDITIONAL STONE SHALL BE ADDED TO THE CONSTRUCTION ENTRANCE IF THE STONE VOIDS BECOME FILLED WITH SEDIMENT AND/OR TRACKING ON THE ROADWAY BECOMES PROBLEMATIC.
- TEMPORARY CONSTRUCTION ENTRANCES SHALL BE REMOVED ONCE TRAFFIC OPERATIONS CEASE.
- MAINTENANCE SHALL BE COMPLETED AS SOON AS POSSIBLE WITH CONSIDERATION FOR SITE CONDITIONS.

**3 TEMPORARY CONSTRUCTION ENTRANCE**  
C44 NOT TO SCALE

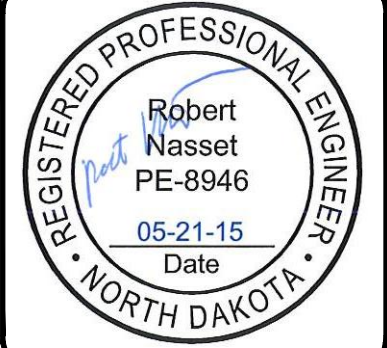


**DEFINITION:**

PROVIDE A ROUGH SOIL SURFACE WITH HORIZONTAL DEPRESSIONS CREATED BY OPERATING A TILLAGE OR OTHER SUITABLE IMPLEMENT ON THE CONTOUR, OR BY LEAVING SLOPES IN A ROUGHENED CONDITION BY NOT-FINE GRADING THEM.

- TO AID IN SEED BED PREPARATION AND ESTABLISHMENT OF VEGETATION COVER.
- TO REDUCE RUNOFF VELOCITY AND INCREASE INFILTRATION.
- TO REDUCE RUNOFF AND WIND EROSION AND PROVIDE FOR SEDIMENT TRAPPING.

**2 SURFACE ROUGHENING DETAIL**  
C44 NOT TO SCALE



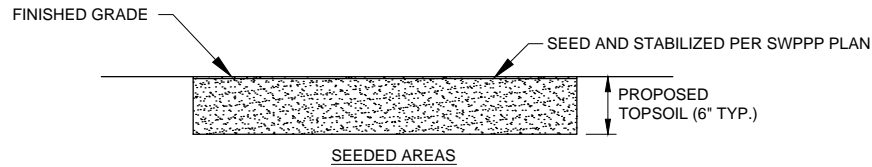
SYM	DATE	DESCRIPTION	APPR
7	05/21/15	Issued For Construction	BN
6	05/20/15	Issued For Construction	BN
5	05/13/15	Issued For Construction	BN
4	04/28/15	95% Review Set Issued	BN



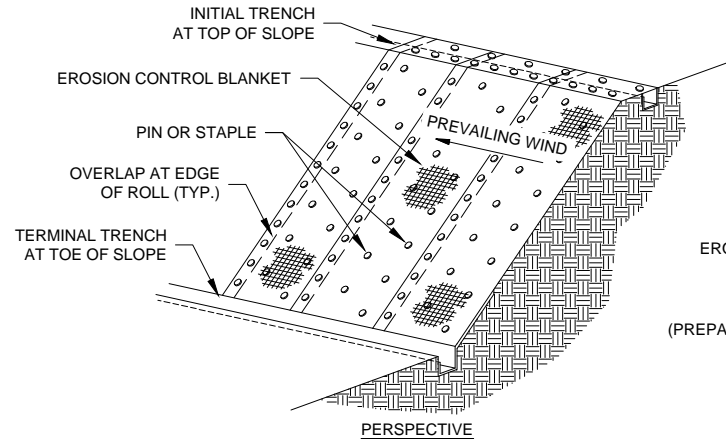
**THUNDER SPIRIT WIND ENERGY PROJECT**  
 WANZEK CONSTRUCTION, INC.  
 ADAMS COUNTY, NORTH DAKOTA  
 EROSION AND SEDIMENT CONTROL DETAILS

DRAWING TYPE	CONSTRUCTION
PREPARED BY	ALT
CHECKED / APPROVED	BN / BN
DATE	MAY 2015
PROJECT NUMBER	08157-2014-003
SHEET	48 of 49
DRAWING	<b>C44</b>

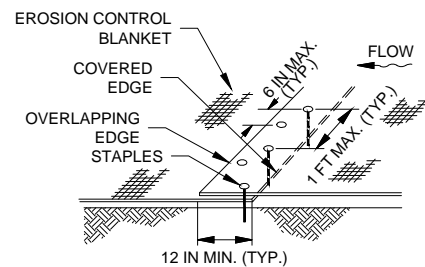
Plotted By: Amber Trout Date: Thursday, May 21, 2015  
 Last Saved By: Amber Trout Date: Tuesday, May 12, 2015 12:53:40 PM  
 File: \\10.11.01\projects\Wanack\08157-2014-003 TSWE Site Design\040 Final Design\Drawings\01 Civil\Sheet\ES-DET\ALS.dwg  
 Layout: ES-Details - 3  
 C:\Users\amtrout\Documents\AutoCAD\Drawings\01 Civil\Sheet\ES-DET\ALS.dwg



**5 SURFACE RESTORATION**  
SCALE: NONE

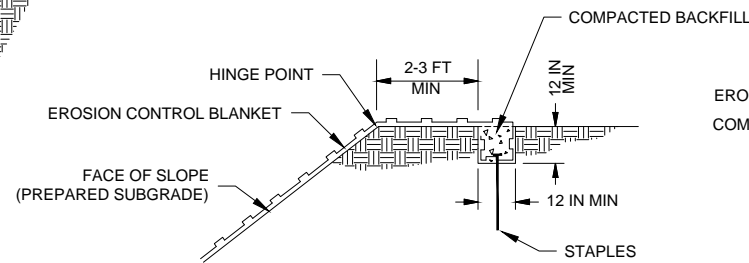


**FIGURE 1: OVERVIEW OF EROSION CONTROL BLANKET ON SLOPE**  
\*NOTE: FOR CLARITY, PERSPECTIVE VIEW DOES NOT SHOW ALL PINS

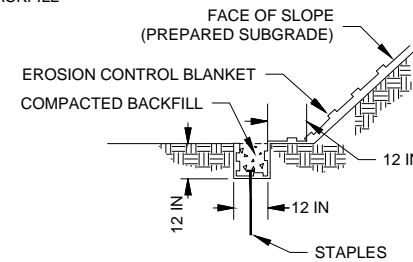


**FIGURE 5: EROSION CONTROL BLANKET OVERLAP AT ROLL END DETAIL**

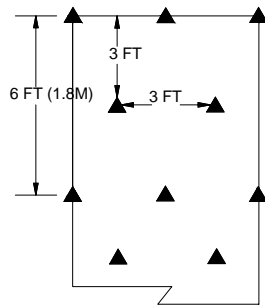
\*NOTE: EROSION CONTROL BLANKET EDGE SHINGLE/OVERLAP PLACEMENT DEPENDS ON DOWN SLOPE DIRECTION (I.E SHINGLE IN THE DIRECTION OF THE DOWN SLOPE)



**FIGURE 2: INITIAL TRENCH AT TOP OF SLOPE DETAIL**



**FIGURE 3: TERMINAL TRENCH AT TOE OF SLOPE DETAIL**



**FIGURE 6 B**  
1.5 STAPLES/YD<sup>2</sup>  
**FIGURE 6: PIN PATTERN DETAIL**

**EROSION CONTROL BLANKET GENERAL NOTES**

**APPLICATION**

- INSTALL EROSION CONTROL BLANKET ON ALL SEEDED AREAS SHOWN ON THE SWPP-RESTORATION PLAN.

**MATERIALS**

- EROSION CONTROL BLANKET SHALL BE CLASSIFIED AC NDDOT CATEGORY 2 AND MEET THE REQUIREMENTS OF NDDOT STANDARD SPECIFICATIONS (LATEST ADDITION).
- STAPLES SHALL MEET NDDOT STANDARD SPECIFICATIONS (LATEST ADDITION).

**SITE PREPARATION**

- GRADE AND COMPACT AREA OF EROSION CONTROL BLANKET INSTALLATION SPECIFIED ON PLANS. SUBGRADE SHALL BE UNIFORM AND SMOOTH. PREPARE TOPSOIL PER SPECIFICATIONS.
- PREPARE SEEDBED BY LOOSENING THE TOP 2-3 IN MINIMUM OF SOIL.
- INCORPORATE AMENDMENTS SUCH AS LIME AND FERTILIZER AND/OR WET THE SOIL, IF NEEDED.
- DO NOT MULCH AREAS WHERE MAT IS TO BE PLACED.

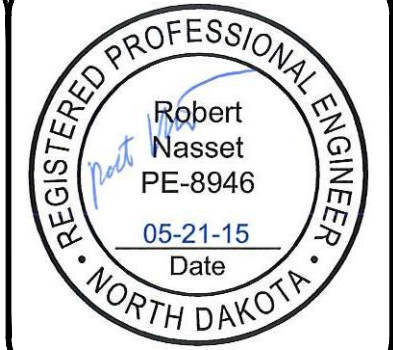
**SEEDING**

- APPLY SEED TO SOIL SURFACE BEFORE INSTALLING BLANKET. DISTURBED AREAS SHALL BE RESEED.
- CONSULT PROJECT PLANS AND/OR SPECIFICATIONS FOR SEED TYPES AND APPLICATION RATES.

**NON-CHANNEL INSTALLATION NOTES**

- FIGURE 1 SHOWS GENERAL INSTALLATION LAYOUT AND DETAILS FOR EROSION CONTROL BLANKET ON A SLOPE.
- EXCAVATE INITIAL TRENCH 12 INCHES WIDE X 12 INCHES DEEP MINIMUM 2-3 FT OVER CREST OF SLOPE (SEE FIGURE 2).
- BEGINNING AT THE DOWNSTREAM END OF PREVAILING WINDS, PLACE ROLL END INTO THE INITIAL TRENCH AND SECURE WITH STAPLES ON 12 INCH CENTERS (SEE FIGURE 2). POSITION ADJACENT ROLLS AND SECURE IN TRENCH IN SAME MANNER. BACKFILL AND COMPACT SOIL INTO TRENCH.
- UNROLL EROSION CONTROL BLANKET DOWN THE SLOPE OVER THE COMPACTED INITIAL TRENCH.
- CONTINUE INSTALLATION AS DESCRIBED ABOVE, OVERLAPPING ADJACENT ROLLS AS FOLLOWS:
  - ROLL EDGE OVERLAP: 6 INCH MINIMUM OVERLAP WITH UPSTREAM BLANKET ON TOP. SECURE WITH ONE ROW OF GROUND STAPLES ON 12 INCH CENTERS (SEE FIGURE 4).
  - ROLL END OVERLAP: 12 INCHES MINIMUM OVERLAP WITH UPSLOPE BLANKET ON TOP. SECURE WITH TWO ROWS OF STAPLES DEVICES STAGGERED 12 INCHES APART ON 12 INCH CENTERS (SEE FIGURE 5).
- STAPLE DENSITY SHALL BE A MINIMUM DENSITY SHOWN IN FIGURE 6, OR THE MANUFACTURE RECOMMENDATIONS, WHICHEVER IS MORE DENSE.
- EXCAVATE TERMINAL TRENCH 12 INCHES WIDE BY 12 INCHES DEEP MINIMUM 12 INCHES FROM THE TOE OF SLOPE (SEE FIGURE 3).
- STAPLE, BACKFILL AND COMPACT END OF BLANKET IN TERMINAL TRENCH (SEE FIGURE 3). TERMINAL TRENCH STAPLE SHOULD BE SPACED ON 12 INCH CENTERS (SEE FIGURE 3).

**1 SLOPE APPLICATION**  
NOT TO SCALE



SYM	DATE	DESCRIPTION	APPR
7	05/21/15	Issued For Construction	BN
6	05/20/15	Issued For Construction	BN
5	05/13/15	Issued For Construction	BN
4	04/28/15	95% Review Set Issued	BN



**THUNDER SPIRIT WIND ENERGY PROJECT**  
 WANZEK CONSTRUCTION, INC.  
 ADAMS COUNTY, NORTH DAKOTA  
 EROSION AND SEDIMENT CONTROL DETAILS

DRAWING TYPE	CONSTRUCTION
PREPARED BY	ALT
CHECKED / APPROVED	BN / BN
DATE	MAY 2015
PROJECT NUMBER	P08157-2014-003
SHEET	49 of 49
DRAWING	C45