ALLETE clean energy

October 22, 2018

RECEIVED
OCT 22 2018
NORTH DAKOTA
PUBLIC SERVICE COMMISSION

North Dakota Public Service Commission
Attn: Mr. Jerry Lein
Public Utilities Division
600 E Boulevard Ave, Dept. 408
Bismarck, ND 58505-0480

Subject: Clean Energy 1 Wind Project
Wind Turbine Road Shifts- Morton County
Case No. PU-11-662

Mr. Lein,

On August 29, 2012 the North Dakota Public Service Commission (PSC) approved a Certificate of Site Compatibility (Certificate) to ALLETE Clean Energy for the Clean Energy 1 Wind Project (Project). The Certificate was subsequently amended on September 6, 2018. ALLETE Clean Energy will be continuing Project construction throughout 2018.

During Project engineering, access road shifts in Morton County were needed to improve the Project's constructability. As a result, ALLETE Clean Energy is requesting PSC approval for access road shifts as shown on the attached Figure 1.

The Project Certification pursuant to Order Provision number 34 of the Certification Relating to Order Provisions -Wind Energy Conversion Facility Siting which is part of the Commission's Order of Continuing Suitability, dated August 29, 2012 can be found in Attachment A.

The North Dakota State Historic Preservation Office concurrence of "No Effect" can be found in Attachment B of this letter.

Project construction throughout 2018 in Morton County, ND will be in accordance with the attached engineering drawings Attachment C.

If any additional information is required by the PSC for approval please let me know.
Respectfully submitted,

Daniel McCourtney
ALLETE Clean Energy

DM:sr
cc. Wells McGiffert
John Hollingsworth
David Moeller (electronically)

63 PU-11-662 Filed 10/22/2018 Pages: 30
Supporting documents to request for approval of access road shifts
Allete Clean Energy, Inc.
Daniel McCourtney

Attachment A

STATE OF NORTH DAKOTA
PUBLIC SERVICE COMMISSION

ALLETE Clean Energy.
Clean Energy 1 Wind Project
Siting Application

Case No. PU- 11-662

CERTIFICATION OF JOHN HOLLINGSWORTH

STATE OF NORTH DAKOTA)
) ss.
COUNTY OF ADAMS)

John Hollingsworth being first duly sworn upon oath, states and alleges as follows:

I. I am Project Development Manager for the Clean Energy 1 Wind Energy Project ("Project"), which is owned by ALLETE Clean Energy (ACE). I am employed by ALLETE Clean Energy, and have the authority to bind ACE with respect to the certifications made herein.

2. I provide this Certification pursuant to Provision No. 34 of the Certification Relating to Order Provisions -Wind Energy Conversion Facility Siting ("Certification"), which is part of the Commission's Order of Continuing Suitability, dated August 29, 2012 ("Order") in the above-referenced docket.

3. Since issuance of the Order, Minor change to an access road has been made to improve constructability. A figure comparing the layout as approved by the Commission to the current Project layout is attached hereto as Figure1.

4. The Project layout complies with all requirements set forth in the Commission's Order.

5. No cultural resources were identified within the newly surveyed areas, and no cultural resources will be impacted by the layout modifications. The cultural resource reports have been reviewed by the North Dakota State Historical Society, and copies of their responses are attached as Exhibit B.

6. The Project layout modifications and associated construction activities will not affect any known exclusion or avoidance areas within the designated Project site.

7. The Project will comply with the Commission's Order, including applicable siting laws and rules.

FURTHER AFFIANT SAYETH NOT.

John Hollingsworth

Subscribed and sworn to before me
This 22nd day of October, 2018

Susan Romans

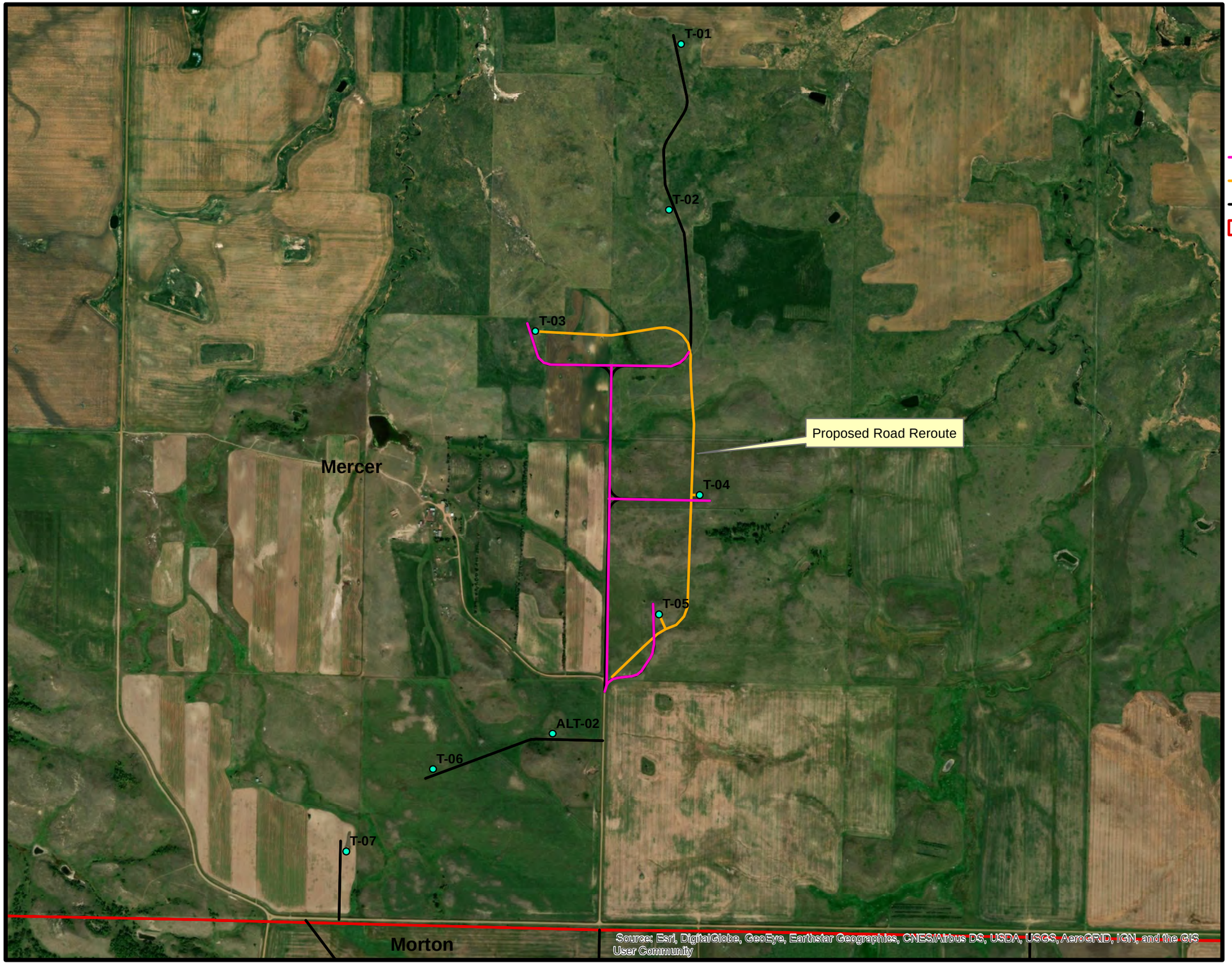
Notary Public

SUSAN ROMANS
NOTARY PUBLIC - MINNESOTA
My Commission Expires Jan. 31, 2020

Clean Energy 1 Proposed Road Reroutes

Figure 1

10/09/18



Legend

- Clean Energy 1 NDPSC permitted turbine layout
- NDPSC permitted road that will not be built
- Proposed Mercer County road reroutes
- Access roads permitted by NDPSC
- County

N
W E
S

0.5 Miles

ALLETE clean energy
AN ALLETE COMPANY

Attachment B

STATE HISTORICAL SOCIETY OF NORTH DAKOTA

Jack Dalrymple
Governor of North Dakota

North Dakota State Historical Board

Gereld Gerntholz
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Calvin Grinnell
New Town - Vice President

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State Treasurer

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Parks and Recreation Department

Francis Ziegler
Director
Department of Transportation

Merlan E. Paaverud, Jr.
Director

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July 9, 2012

Mr. Wade Burns
Beaver Creek Archaeology
301 1st St NE, Suite 201
Mandan ND 58554

NDSHPO REF.: 12-1216 PSC Case number PU 11-662 "ACE Wind Energy Center: A Class III Cultural Resource Inventory, Mercer and Morton Counties, North Dakota"

Dear Mr. Burns:

We reviewed NDSHPO REF.: 12-1216 PSC "ACE Wind Energy Center: A Class III Cultural Resource Inventory, Mercer and Morton Counties, North Dakota," and find the report acceptable.

We concur with *"No Historic Properties Affected"* and *"No Significant Sites Affected"* determinations provided that the recommendations provided on page 27 of the report are followed (enclosed). Also, the project is to be of the nature stated, and continue to take place in plotted locations in the report documentation, unless addendums are filed and approved by this office.

Thank you for the opportunity to review this project. If you have questions please contact either Paul Picha at ppicha@nd.gov or (701) 328-3574 or Susan Quinnell at squinnell@nd.gov or (701) 328-3576.

Sincerely,

Merlan E. Paaverud, Jr.
State Historic Preservation Officer (North Dakota)
and
Director, State Historical Society of North Dakota

CC: PSC

Conclusion and Recommendation

In November 2011 and March 2012, BCA conducted a Class III Cultural Resource Inventory of the proposed ACE Project.

During the field inventory, BCA archaeologists identified thirteen (13) previously unrecorded cultural resources. Resources included ten Native American Stone Cairns (32ME2421, 32MO1395, 32MO1396, 32MO1397, 32MO1398, 32MO1399, 32MO1400, 32MO1403, 32ME2422, 32ME2423), one Native American Stone Circle (32MO1401), one Native American Cultural Material (CM) Scatter (32MO1402). All sites have been recommended potentially eligible to the National Register of Historic Places (NRHP) by BCA. One Native American Isolated Find (32MOx543) was also found. Isolated finds are not eligible to the NRHP.

A total of nine architectural locations were looked at during the Inventory. These were selected for potentially containing eligible structures. No buildings were deemed to be potentially eligible to the NRHP (See table 6). One previously recorded architectural site (32MO189) is potentially eligible to the NRHP.

BCA recommends that all potentially eligible sites be avoided and flagged/staked off prior to construction. It is recommended that potentially eligible sites located close to linear project features be buffered 50 feet, and sites located close to turbine locations be buffered 100 feet, and that stakes/flags be placed along these buffer zones (see maps in Appendix C).

The APE crosses into previously recorded site lead 32MOx253. During the fieldwork, this site lead was not observed. BCA recommends that the site lead or ineligible site do not need to be avoided during construction as long as the Project is limited to the inventoried corridors outlined on the maps in Appendix C.

Attachment B

STATE HISTORICAL SOCIETY OF NORTH DAKOTA

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Governor of North Dakota

North Dakota State Historical Board

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Bismarck - President

H. Patrick Weir
Medora - Vice President

Steve C. Martens
Fargo - Secretary

Albert I. Berger
Grand Forks

Daniel Stenberg
Watford City

Sara Otte Coleman
Director
Tourism Division

Kelly Schmidt
State Treasurer

Alvin A. Jaeger
Secretary of State

Melissa Baker
Director
Parks and Recreation Department

Thomas Sorel
Director
Department of Transportation

Claudia J. Berg
Director

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October 4, 2018

Ms. Brittany Brooks
Principal Investigator
Beaver Creek Archaeology Inc.
1632 Capitol Way
Bismarck, ND 58501

ND SHPO Ref: 12-0189 ND Public Service Commission (PSC) "Addendum to the Clean Energy I Wind Farm: A Class III Intensive Cultural Resource Inventory in Morton and Mercer Counties, North Dakota"

Dear Ms. Brooks,

We reviewed ND SHPO Ref: 12-0189 ND Public Service Commission (PSC) "Addendum to the Clean Energy I Wind Farm: A Class III Intensive Cultural Resource Inventory in Morton and Mercer Counties, North Dakota," and find the report acceptable. Sites 32MO1397, 32MO1398, 32MO1399; 32MO1400, 32MO1403, 32ME2421, 32ME2422, and 32ME2423 should be avoided.

Thank you for the opportunity to review this addendum. We look forward to receipt and review of the Class I file search report. If you have questions please contact or Susan Quinnell at squinnell@nd.gov or (701) 328-3576.

Sincerely,

Claudia J. Berg
Director, State Historical Society of North Dakota

North Dakota Heritage Center • 612 East Boulevard Avenue, Bismarck, ND 58505-0830 • Phone: 701-328-2666 • Fax: 701-328-3710
Email: histsoc@nd.gov • Web site: history.nd.gov • TTY: 1-800-366-6888

Attachment C

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Civil Construction Plans

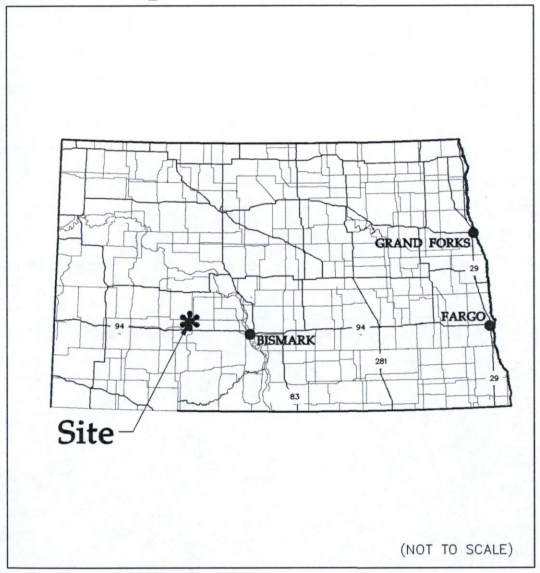
for

Wind Turbines, Access Roads, Drainage, and Erosion Control

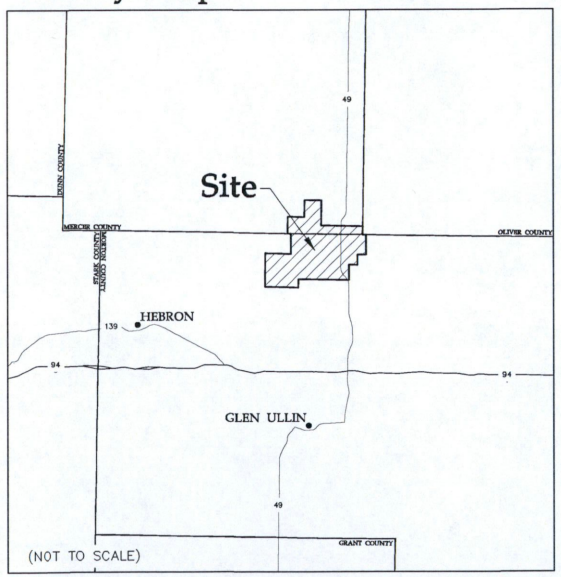
Glen Ullin Energy Center

Mercer and Morton Counties, North Dakota

State Map



Vicinity Map



Sheet List Table

Sheet Number	Sheet Title
1	COVER
2	OVERALL SITE PLAN
3	DELIVERY FLOW PLAN
4	CONSTRUCTION DETAILS
5	CONSTRUCTION DETAILS
6	CONSTRUCTION DETAILS
7	CONSTRUCTION DETAILS
8	CONSTRUCTION DETAILS
9	CONSTRUCTION DETAILS
10	CONSTRUCTION NOTES
11	CIVIL PLAN SET 3
12	CIVIL PLAN SET 1 2
13	CIVIL PLAN SET 6 7 ALT 2
14	CIVIL PLAN SET 4 5
15	CIVIL PLAN SET 1
16	CIVIL PLAN SET O&M & SUBSTATION
17	CIVIL PLAN SET 10 11 17
18	CIVIL PLAN SET 8 13 18 19
19	CIVIL PLAN SET 9 10 20
20	CIVIL PLAN SET 21 31 39 41 42
21	CIVIL PLAN SET 32 40 43
22	CIVIL PLAN SET ALT 1
23	CIVIL PLAN SET 14 15 24 25 26
24	CIVIL PLAN SET 16 28
25	CIVIL PLAN SET 29 30
26	CIVIL PLAN SET 35 36 37 38
27	CIVIL PLAN SET 22 27
28	CIVIL PLAN SET 23
29	CIVIL PLAN SET 4
30	CIVIL PLAN SET 33 34

DATA SET INFORMATION

BASE FILE	FILE NAME / NOTES	PROVIDER	DATE
AERIAL IMAGE	World_IMG_D_2018_03_03.jp2	ESRI	9/6/2017
LAND CONTROL	CE1_Project_Boundary_Current.shp	Wanzek	7/27/2017
TOPOGRAPHY	MKP_LIDAR.txt	NRCS North Dakota Lidar	1/1/2018
TURBINE ARRAY	20180926_GUEC_Renumbered_Coordinates.xlsx	Wanzek	9/27/2018
UNDERGROUND COLLECTION	Glen Ullin Energy Center Collection Layout_09.28.20	Wanzek	9/28/2018
STREAMS/WETLANDS	hydrography_NH5044_nd057_3612803_01.zip	NHD	6/2/2018
FEMA INFO	FEMA_RO_X.shp	FEMA	1/1/2018

Westwood

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Fax (952) 937-5822 Minnetonka, MN 55343
Toll Free (888) 937-5150 westwoodps.com

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Designed: DJP
Checked: DJP
Drawn: SNK
As-Built Drawing:

Revisions:

#	DATE	DESCRIPTION
A	08/22/18	30% CIVIL PLANS
B	09/19/18	30% CIVIL PLANS REVISED
C	09/26/18	ISSUED FOR PERMITTING
D	10/02/18	60% CIVIL PLANS

Prepared for:

WANZEK
a MasTec company

2028 2nd Avenue NW
West Fargo, ND 58078

Glen Ullin Energy Center

Mercer and Morton Counties, North Dakota

Cover

60% Completion
NOT FOR CONSTRUCTION

Date: 10/02/18
Sheet: 1 OF 30

0012658CV.dwg

Attachment C

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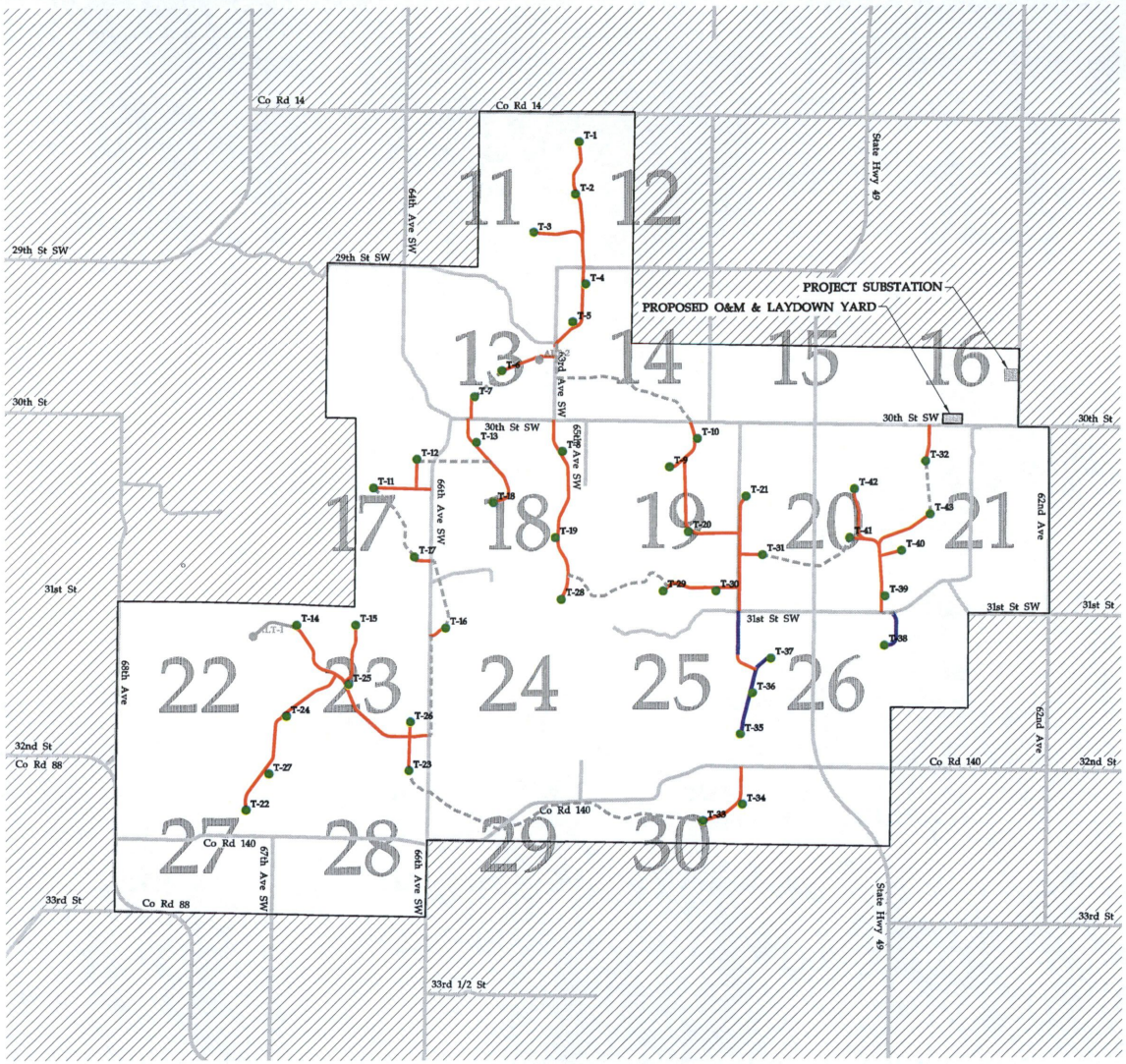

LEGEND:

- TURBINE LOCATION
- XXX TURBINE NUMBER
- ALTERNATE TURBINE LOCATION
- XXX ALTERNATE TURBINE NUMBER
- EXISTING PTC ACCESS ROAD
- PROPOSED ACCESS ROAD
- ALTERNATE PROPOSED ACCESS ROAD
- PROPOSED CRANE PATH
- EXISTING ROAD
- OUTSIDE OF PROJECT BOUNDARY
- XX SHEET NUMBER

ITEM	LENGTH
ACCESS ROAD	13.5 mi
CRANE PATH	7.6 mi
PTC ACCESS ROAD	1.1 mi

*ACCESS ROAD LENGTH INCLUDES SPUR ROADS

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WANZEK
a MasTec company

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West Fargo, ND 58078

0' 2000' 4000' 6000'

Glen Ullin Energy Center

Mercer and Morton Counties, North Dakota

Overall Site Plan

60% Completion
NOT FOR CONSTRUCTION

Date: 10/02/18
Sheet: 2 OF 30

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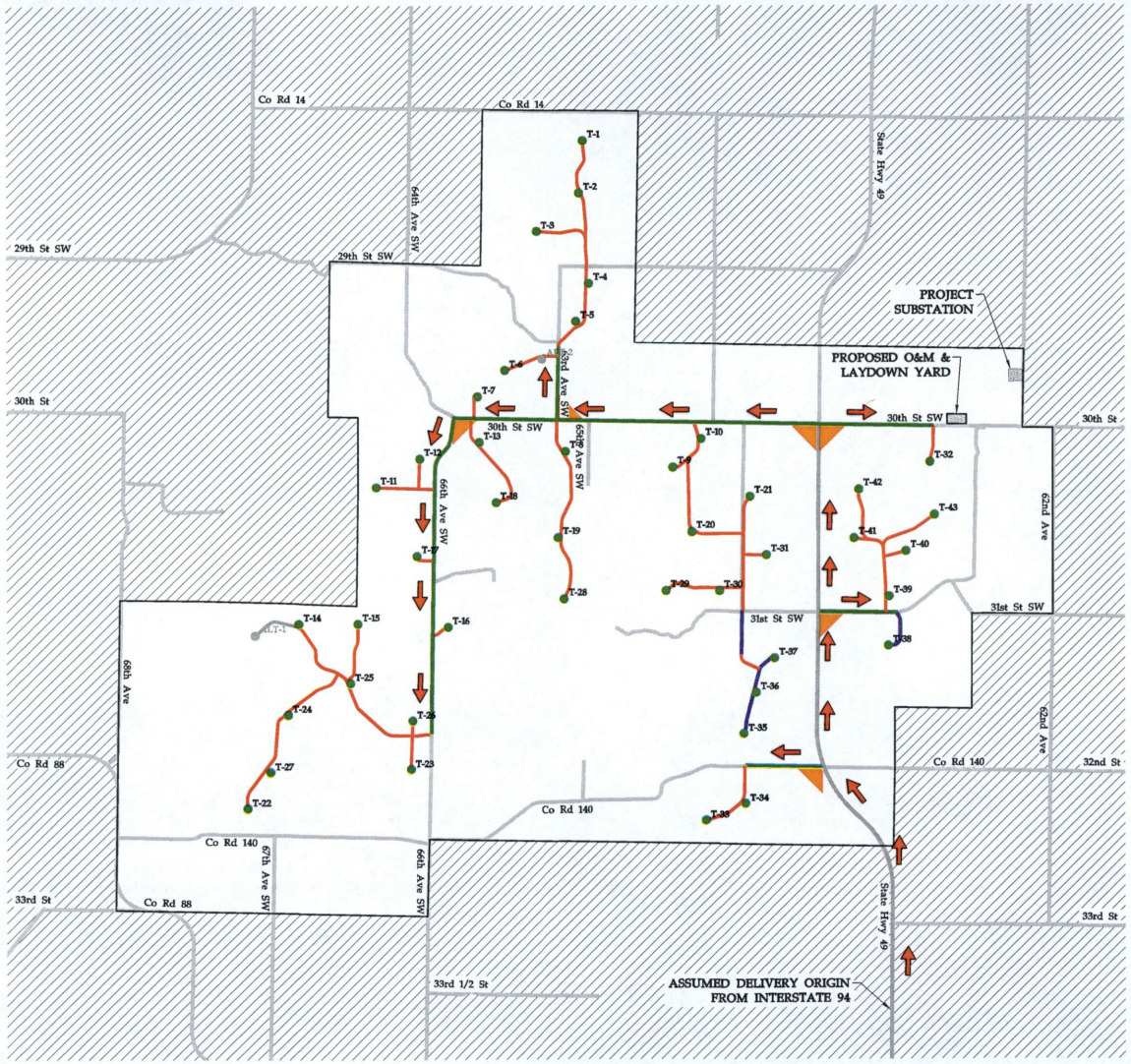

LEGEND:

- TURBINE LOCATION
- XXX TURBINE NUMBER
- ALTERNATE TURBINE LOCATION
- XXX ALTERNATE TURBINE NUMBER
- EXISTING PTC ACCESS ROAD
- PROPOSED ACCESS ROAD
- ALTERNATE PROPOSED ACCESS ROAD
- EXISTING ROAD
- OUTSIDE PROJECT BOUNDARY
- PAVED DELIVERY ROUTE
- GRAVEL DELIVERY ROUTE
- INTERSECTION IMPROVEMENTS
- DELIVERY ROUTE DIRECTION

ITEM	LENGTH
GRAVEL DELIVERY ROUTE	6.75 mi

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As-Built Drawing:

Revisions #	DATE	DESCRIPTION
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West Fargo, ND 58078

0' 2000' 4000' 6000'

Glen Ullin Energy Center

Mercer and Morton Counties, North Dakota

Delivery Flow Plan

60% Completion
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Date: 10/02/18
Sheet: 3 OF 30

00126560FP.dwg

Attachment C

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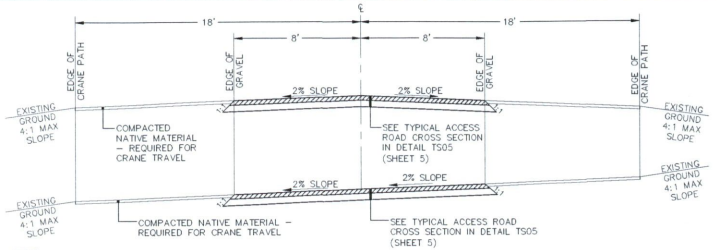
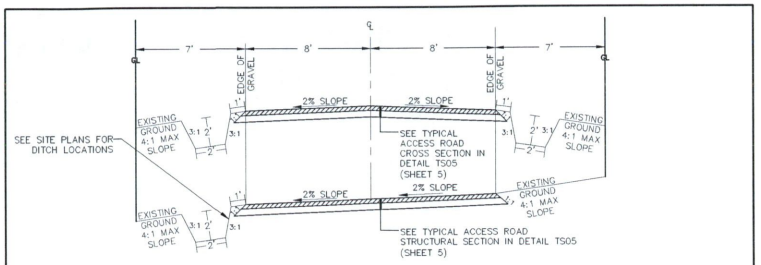


NOTES:

1. CONTRACTOR SHALL CONSTRUCT CROSS-SLOPE ROAD SECTION WHERE ACCESS ROADS ARE CONSTRUCTED ON A SIDE SLOPE, AND WHERE OTHERWISE NOTED ON PLANS, TO ENSURE THAT ROADS AND SHOULDERS REMAIN WELL DRAINED AT ALL TIMES.
2. MAXIMUM CROSS SLOPE FOR CRANE TRAVEL IS 2.0%
3. WHEN CRANE PATH IS NOT NEEDED, MATCH THE ACCESS ROAD DIRECTLY INTO EXISTING GROUND SURFACE
4. ROADS TO GENERALLY FOLLOW EXISTING CONTOURS EXCEPT IF GRADES EXCEED TURBINE DELIVERY VEHICLE CAPABILITIES, IF THIS OCCURS GENERAL CONTRACTOR MAY PROVIDE ASSIST VEHICLE OR MODIFY GRADE

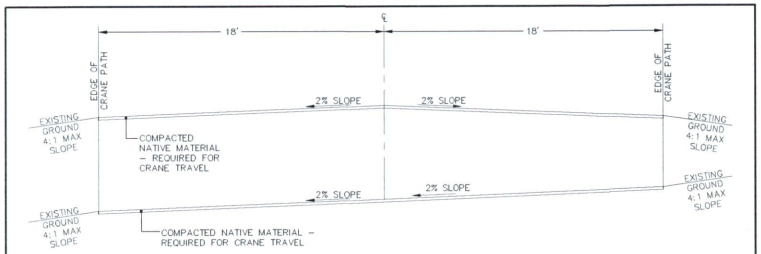
Westwood	TYPICAL TURBINE ACCESS ROAD AND CRANE PATH	LAST REVISED: 04/20/11 RD01-A



NOTES:

1. CONTRACTOR SHALL CONSTRUCT CROSS-SLOPE ROAD SECTION WHERE ACCESS ROADS ARE CONSTRUCTED ON A SIDE SLOPE, AND WHERE OTHERWISE NOTED ON PLANS, TO ENSURE THAT ROADS AND SHOULDERS REMAIN WELL DRAINED AT ALL TIMES.
2. ROADS TO GENERALLY FOLLOW EXISTING CONTOURS EXCEPT IF GRADES EXCEED TURBINE DELIVERY VEHICLE CAPABILITIES, IF THIS OCCURS GENERAL CONTRACTOR MAY PROVIDE ASSIST VEHICLE OR MODIFY GRADE

Westwood	TYPICAL TURBINE ACCESS ROAD SECTION	LAST REVISED: 3/19/12 RD01-B



NOTES:

1. CONTRACTOR SHALL CONSTRUCT CROSS-SLOPE WHERE CRANE PATHS ARE CONSTRUCTED ON A SIDE SLOPE, AND WHERE OTHERWISE NOTED ON PLANS, TO ENSURE THAT CRANE PATH REMAINS WELL DRAINED AT ALL TIMES.
2. MAXIMUM CROSS SLOPE FOR CRANE TRAVEL IS 2.0%

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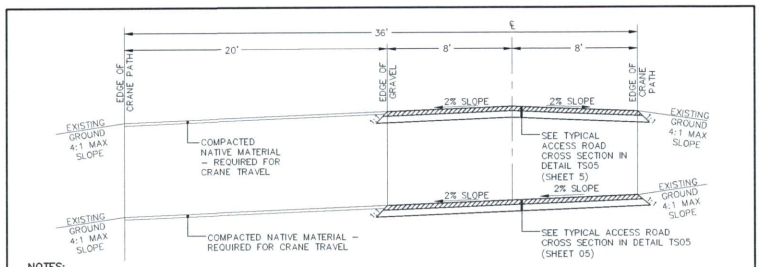
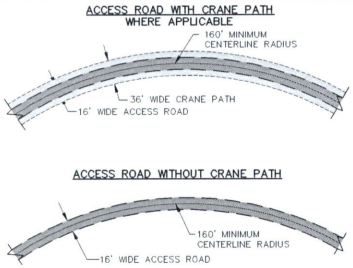


NOTES:

1. CONTRACTOR SHALL CONSTRUCT CROSS-SLOPE ROAD SECTION WHERE ACCESS ROADS ARE CONSTRUCTED ON A SIDE SLOPE, AND WHERE OTHERWISE NOTED ON PLANS, TO ENSURE THAT ROADS AND SHOULDERS REMAIN WELL DRAINED AT ALL TIMES.
2. MAXIMUM CROSS SLOPE FOR CRANE TRAVEL IS 2.0%
3. WHEN CRANE PATH IS NOT NEEDED, MATCH THE EDGE OF COMPACTED SHOULDER DIRECTLY INTO EXISTING GROUND SURFACE
4. ROADS TO GENERALLY FOLLOW EXISTING CONTOURS EXCEPT IF GRADES EXCEED TURBINE DELIVERY VEHICLE CAPABILITIES, IF THIS OCCURS GENERAL CONTRACTOR MAY PROVIDE ASSIST VEHICLE OR MODIFY GRADE

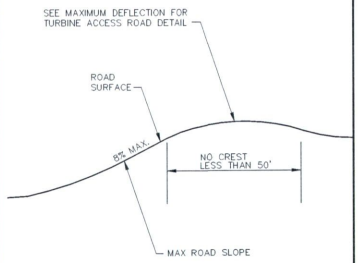
Westwood	TYPICAL TURBINE ACCESS ROAD AND OFFSET CRANE PATH	LAST REVISED: 04/20/11 RD01-D



NOTE:

1. SOME RADII MAY REQUIRE ADDITIONAL SOIL COMPACTION OR GRAVEL OUTSIDE OF THE WIDTH SHOWN ABOVE TO ACCOMMODATE TRACTORS OR TRAILERS TRACKING OFF THE ACCESS ROAD.

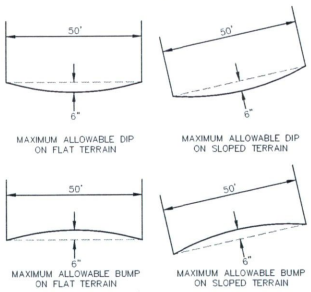
Westwood	MINIMUM RADIUS FOR TURBINE ACCESS ROAD	LAST REVISED: 04/20/11 RD02



NOTES:

1. ROAD SLOPE SHALL NOT EXCEED 8% WITHOUT OWNER APPROVAL

Westwood	MAXIMUM VERT. SLOPE FOR TURBINE ACCESS ROAD/CRANE TRAVEL PATH	LAST REVISED: 01/02/08 3/19/12 RD03



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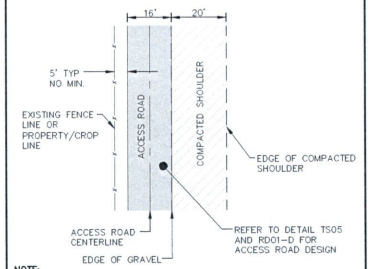

NOTE:

1. COMPACTED SHOULDER SHALL BE RETURNED TO NATIVE CONDITION FOLLOWING TURBINE GENERATOR CONSTRUCTION.
2. THE ACCESS ROAD MAY NEED TO BE CONSTRUCTED FARTHER FROM THE PROPERTY LINE IF OBSTRUCTIONS SUCH AS TREES FOLLOW THE PROPERTY LINE.

Westwood	TURBINE ACCESS ROAD ALONG FENCE/PROPERTY/CROP LINE	LAST REVISED: 3/19/12 RD05

Westwood

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Toll Free (888) 937-5150 westwoodps.com

Westwood Professional Services, Inc.

Designed: DJP
Checked: DJP
Drawn: SNK
As-Built Drawing:

Revisions

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A	08/22/18	30% CIVIL PLANS
B	09/19/18	30% CIVIL PLANS REVISED
C	09/26/18	ISSUED FOR PERMITTING
D	10/02/18	60% CIVIL PLANS

Prepared for:

WANZEK
a MasTec company

2028 2nd Avenue NW
West Fargo, ND 58078

Glen Ullin Energy Center

Mercer and Morton Counties, North Dakota

Construction Details

60% Completion
NOT FOR CONSTRUCTION

Date: 10/02/18
Sheet: 4 OF 30

0012656DTP.dwg

Attachment C

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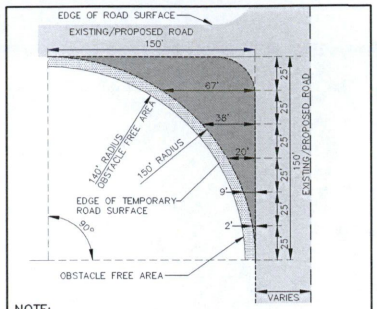
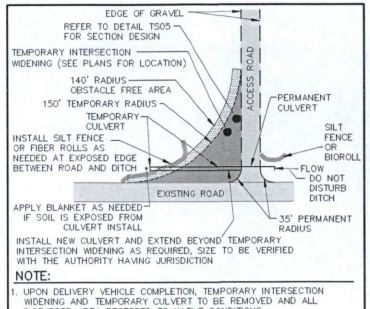


NOTE:

1. UPON DELIVERY VEHICLE COMPLETION, TEMPORARY INTERSECTION WIDENING TO BE REMOVED AND ALL DISTURBED AREA RESTORED.

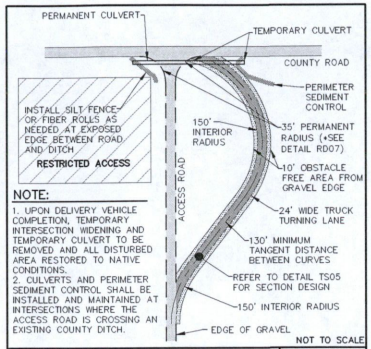
Westwood	INTERSECTION WIDENING DIMENSIONS	LAST REVISED: 3/19/12 RD06



NOTE:

1. UPON DELIVERY VEHICLE COMPLETION, TEMPORARY INTERSECTION WIDENING AND TEMPORARY CULVERT TO BE REMOVED AND ALL DISTURBED AREA RESTORED TO NATIVE CONDITIONS.
2. CULVERTS AND SILT FENCE SHALL BE INSTALLED AND MAINTAINED AT INTERSECTIONS WHERE THE ACCESS ROAD IS CROSSING AN EXISTING COUNTY DITCH.

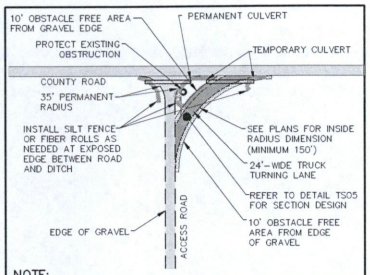
Westwood	TURBINE ACCESS ROAD TYPICAL INTERSECTION WIDENING	LAST REVISED: 3/19/12 RD07



NOTE:

1. UPON DELIVERY VEHICLE COMPLETION, TEMPORARY INTERSECTION WIDENING AND TEMPORARY CULVERT TO BE REMOVED AND ALL DISTURBED AREA RESTORED TO NATIVE CONDITIONS.
2. CULVERTS AND PERIMETER SEDIMENT CONTROL SHALL BE INSTALLED AND MAINTAINED AT INTERSECTIONS WHERE THE ACCESS ROAD IS CROSSING AN EXISTING COUNTY DITCH.

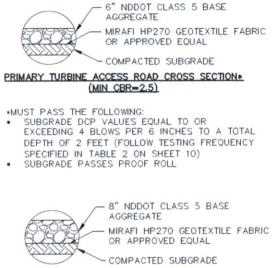
Westwood	TRUCK TRAFFIC TURNING LANE A	LAST REVISED: 11/18/14 RD08-A

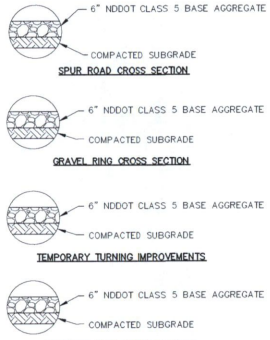


NOTE:

1. UPON DELIVERY VEHICLE COMPLETION, TEMPORARY INTERSECTION WIDENING AND TEMPORARY CULVERT TO BE REMOVED AND ALL DISTURBED AREA RESTORED TO NATIVE CONDITIONS.
2. CULVERTS AND SILT FENCE SHALL BE INSTALLED AND MAINTAINED AT INTERSECTIONS WHERE THE ACCESS ROAD IS CROSSING AN EXISTING COUNTY DITCH.

Westwood	TRUCK TRAFFIC TURNING LANE B	LAST REVISED: 3/19/12 RD08-B

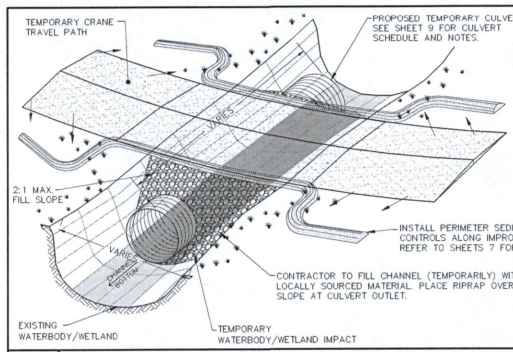




NOTE:

STRUCTURAL SECTIONS SHOWN ARE THE MINIMUM THICKNESS REQUIREMENTS DURING NORMAL FIELD CONDITIONS. THE SECTIONS MAY NEED TO BE INCREASED BASED ON ACTUAL FIELD CONDITIONS AT THE TIME OF CONSTRUCTION. CONDITIONS INCLUDE BUT ARE NOT LIMITED TO CONSTRUCTION DURING THE FREEZE/THAW CYCLE, UNUSUALLY WET PERIODS, OR IN LOW/WET AREAS. SEE SHEET 10 FOR TESTING REQUIREMENTS AND SPECIFICATIONS.

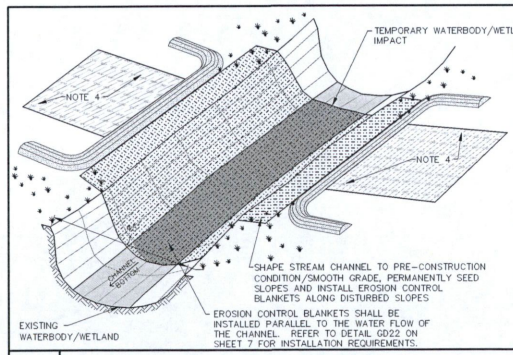
Westwood	TYPICAL STRUCTURAL CROSS SECTIONS	LAST REVISED: 10/02/18 TS05



NOTES:

1. DRAWING IS NOT TO SCALE.
2. CULVERT INSTALLATION SHALL CONFORM WITH MANUFACTURERS RECOMMENDATION FOR INSTALLATION WITH MINIMUM 12 INCH COVER.
3. TEMPORARY BRIDGING AND MATTING MAY BE SUBSTITUTED IN THE FIELD WITH APPROVAL FROM THE OWNER AND ENGINEER.
4. MINIMIZE DISTURBANCE TO THE STREAM/DITCH DURING CULVERT INSTALLATION/REMOVAL.
5. REFER TO THE PROJECT SWPPP FOR ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES.
6. CROWN TEMPORARY CRANE PATH TO PROMOTE LATERAL DRAINAGE FROM ROADWAY TOWARDS PERIMETER SEDIMENT CONTROLS.
7. SEE DETAIL RD09-2 FOR STREAM RESTORATION.

Westwood	TYPICAL TEMPORARY STREAM CROSSING WITH CULVERT – CRANE CROSSING	LAST REVISED: 11/20/17 RD09-1



NOTES:

1. DRAWING IS NOT TO SCALE.
2. UPON REMOVAL OF TEMPORARY STREAM CROSSING, THE DISTURBED AREA SHALL BE RESTORED TO PRE-CONSTRUCTION CONDITIONS. REFER TO THE GLEN ULLIN ENERGY CENTER WIND PROJECT SWPPP FOR RESTORATION AND SEEDING SPECIFICATIONS.
3. REMOVE RIP RAP, FILL MATERIAL AND SHAPE CHANNEL TO PRE-CONSTRUCTION CONDITION. PERMANENTLY SEED ALL DISTURBED SLOPES IN CONFORMANCE WITH THE GLEN ULLIN ENERGY CENTER WIND PROJECT SWPPP. INSTALL EROSION CONTROL BLANKETS, ADEQUATE FOR FLOW CONDITIONS, ON ALL DISTURBED SLOPES GREATER THAN 4:1, WHERE ANY FLOWS ARE CONCENTRATED AND WITHIN THE DITCHES WETTED PERIMETER.
4. DECOMPACT, REAPPLY TOPSOIL AND TILL DISTURBED AREA TO RESTORE TO PRE-CONSTRUCTION AGRICULTURAL CONDITION AND RESTORE ANY VEGETATED BUFFER THAT EXISTED PRE-CONSTRUCTION.
5. REMOVE WOOD MULCH BERM OR SILT FENCE ONCE FINAL STABILIZATION HAS OCCURRED WITH A MINIMUM OF 70% VEGETATION UPSTREAM OF SILT FENCE.

Westwood	TYPICAL TEMPORARY STREAM CROSSING RESTORATION	LAST REVISED: 3/19/12 RD09-2

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Designed: DJP
Checked: DJP
Drawn: SNK
As-Built Drawing:

Revisions:

#	DATE	DESCRIPTION
A	08/22/18	30% CIVIL PLANS
B	09/19/18	30% CIVIL PLANS REVISED
C	09/26/18	ISSUED FOR PERMITTING
D	10/02/18	60% CIVIL PLANS

Prepared for:

WANZEK
a MasTec company

2028 2nd Avenue NW
West Fargo, ND 58078

Glen Ullin Energy Center

Mercer and Morton Counties, North Dakota

Construction Details

60% Completion
NOT FOR CONSTRUCTION

Date: 10/02/18

Sheet: 5 OF 30

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Attachment C

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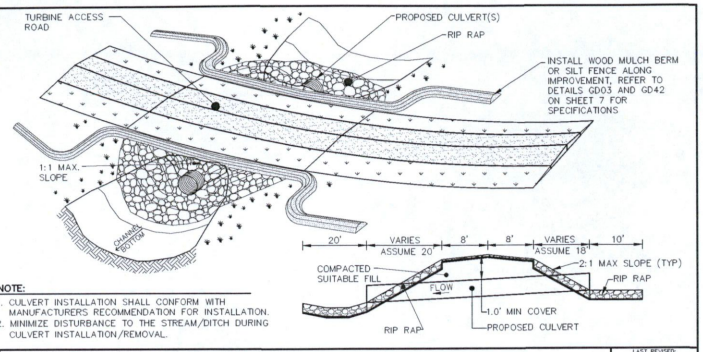
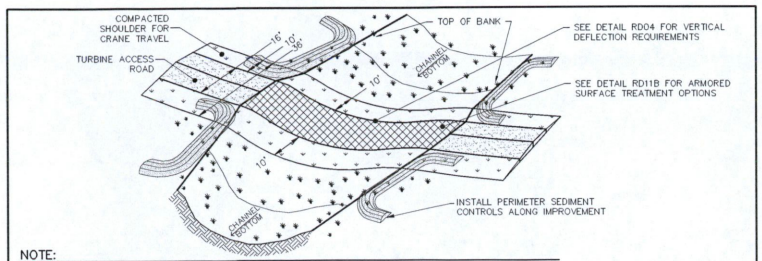


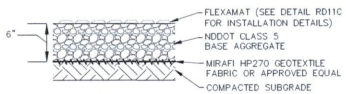
NOTE:
1. CULVERT INSTALLATION SHALL CONFORM WITH MANUFACTURERS RECOMMENDATION FOR INSTALLATION.
2. MINIMIZE DISTURBANCE TO THE STREAM/DITCH DURING CULVERT INSTALLATION/REMOVAL.

Westwood | TYPICAL PERMANENT TURBINE ACCESS ROAD STREAM CROSSING | LAST REVISED: 3/19/12 | RD10



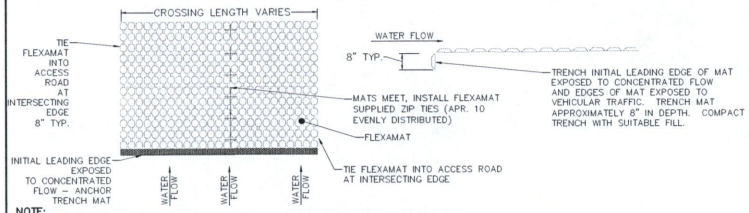
NOTE:
1. CHANNEL SIDE SLOPES MAY REQUIRE MODIFICATION TO CONSTRUCT THE ACCESS ROAD THROUGH THE CHANNEL THAT MEETS TURBINE COMPONENT DELIVERY REQUIREMENTS.
2. THE ACCESS ROAD SHALL CROSS THE CHANNEL AS CLOSE TO 90-DEGREES AS POSSIBLE.
3. THE FINISHED ACCESS ROAD SURFACE SHALL BE AT AN ELEVATION THAT ALLOWS WATER TO FLOW THROUGH THE CHANNEL UNIMPEDED AND WITHOUT PONDING UPSTREAM OF THE ROAD OR ON THE ROAD SURFACE.
4. ARMORED SURFACE TREATMENT OF THE ROAD SURFACE SHALL EXTEND THROUGH THE CHANNEL BOTTOM AND UP THE CHANNEL SIDE SLOPES TO THE OBSERVED TOP OF BANK OF THE CHANNEL.
5. REFER TO DETAIL RD11B FOR ARMORED SURFACE TREATMENT OPTIONS.

Westwood | PERMANENT TURBINE ACCESS ROAD LOW WATER CROSSING | LAST REVISED: 03/09/17 | RD11A



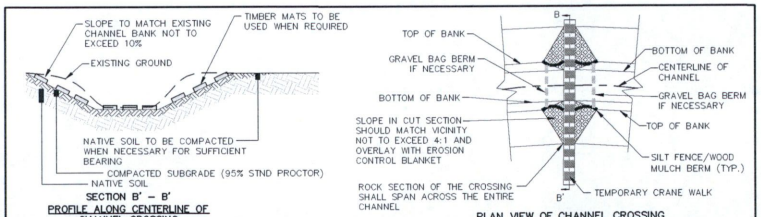
NOTE:
1. ARMORED SURFACE TREATMENT IS DESIGNED BASED OFF THE WATER VELOCITY FROM THE 25 YEAR/24 HOUR HYDRAULIC ANALYSIS.

Westwood | ARMORED SURFACE TREATMENT AT LOW WATER CROSSINGS | LAST REVISED: 11/20/17 | RD11B



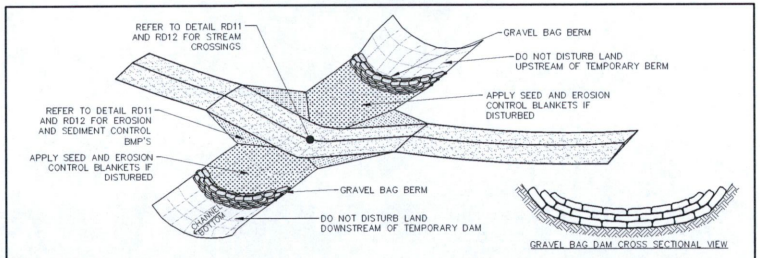
NOTE:
1. PREPARE THE SUB GRADE OF THE LOW WATER CROSSING SO THAT FLOW WILL BE DIRECTED TO THE CENTER OF THE CROSSING. ALL SUB GRADE SURFACES PREPARED FOR PLACEMENT OF MATS SHALL BE SMOOTH AND PROVIDE A FIRM UNYIELDING FOUNDATION FOR THE MATS.
2. THE INITIAL LEADING EDGE OF FLEXAMAT EXPOSED TO CONCENTRATED FLOWS AND EDGES OF MAT EXPOSED TO VEHICULAR TRAFFIC SHALL BE EMBEDDED VERTICALLY INTO THE SUB GRADE TO SERVE AS AN ANCHOR TRENCH. THE TRENCH SHALL BE FILLED AND COMPACTED WITH SUITABLE FILL.
3. FOR ADDITIONAL SECTIONS OF MAT, ABUT MATS TIGHTLY.
4. INSTALL FLEXAMAT SUPPLIED ZIP TIES (APPROXIMATELY 10 EVENLY SPACED) ALONG INTERSECTING FLEXAMAT SEAMS.

Westwood | TURBINE ACCESS ROAD LOW WATER CROSSING – FLEXAMAT | LAST REVISED: 03/07/17 | RD11C



NOTE:
1. CHANNEL SLOPES TO BE MODIFIED TEMPORARILY (NON JURISDICTIONAL WATERS/WETLANDS ONLY) DURING CONSTRUCTION TO ALLOW FOR CRANE CROSSING AND RESTORE TO ORIGINAL CONDITIONS UPON SITE RESTORATION.
2. ALL DISTURBED AREAS SHALL BE RESTORED TO EXISTING CONDITIONS.
2. CROSSINGS SHALL HAVE THE TOP-MOST SURFACE LAYER A MINIMUM OF 2.5 INCHES BELOW THE STREAM CHANNEL BOTTOM.
3. THE CRANE WALK SHALL CROSS THE DITCH AT 90° ANGLE.
4. THE TOP BED OF THE CHANNEL CROSSING SHALL CONFORM TO THE EXISTING DITCH CROSS SECTIONAL SLOPES.
5. COMPACTION MAY BE FIELD ADJUSTED TO ACHIEVE SUFFICIENT BEARING CAPACITIES AS ARE NECESSARY FOR ANTICIPATED ROAD USE AS FIELD DETERMINED BY THE CRANE SUPERINTENDENT.
6. GRAVEL BAG BERMS MAY BE NECESSARY IF FLOWS AND DRAINAGE AREAS REQUIRE. SEE DETAIL RD13 FOR GRAVEL BAG BERM INSTALLATION.

Westwood | STREAM/WATERBODY/DRAINAGE SWALE TIMBER MAT CRANE CROSSING | LAST REVISED: 11/20/17 | RD12



NOTE:
1. REFER TO DETAIL RD11 AND RD12 FOR STREAM CROSSINGS.
2. MINIMIZE DISTURBANCE TO THE STREAM/DITCH DURING GRAVEL BAG BERM INSTALLATION.
3. GRAVEL USED WITHIN THE BAGS SHALL BE PEA ROCK.
4. GRAVEL BAG BERMS SHALL SPAN LATERALLY ACROSS THE STREAM FROM TOP OF BANK TO TOP OF BANK.
5. UPON CRANE TRAVEL COMPLETION, REMOVE GRAVEL BAG BERM AND RESTORE TO ORIGINAL CONDITION.
6. GRAVEL BAG BERMS MAY BE NECESSARY IF FLOWS AND DRAINAGE AREAS REQUIRE.

Westwood | TEMPORARY GRAVEL BAG BERM AT DRAINAGE CROSSING LOCATIONS | LAST REVISED: 3/19/12 | RD13

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Westwood Professional Services, Inc.

Designed: DJP
Checked: DJP
Drawn: BNK
As-Built Drawing:

Revisions:

#	DATE	DESCRIPTION
A	08/22/18	30% CIVIL PLANS
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Prepared for:

WANZEK
a MasTec company

2028 2nd Avenue NW
West Fargo, ND 58078

Glen Ullin Energy Center

Mercer and Morton Counties, North Dakota

Construction Details

60% Completion
NOT FOR CONSTRUCTION

Date: 10/02/18
Sheet: 6 OF 30

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Attachment C

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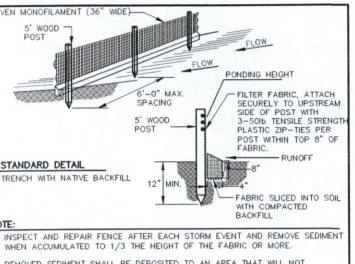


STANDARD DETAIL

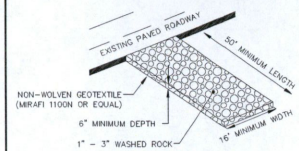
TRENCH WITH NATIVE BACKFILL

NOTE:

1. INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN ACCUMULATED TO 1/3 THE HEIGHT OF THE FABRIC OR MORE.
2. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.
3. SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.
4. ALL ENDS OF THE SILT FENCE SHALL BE WRAPPED UPSLOPE SO THE ELEVATION OF THE BOTTOM OF FABRIC IS HIGHER THAN "PONDING HEIGHT".

Westwood	SILT FENCE	LAST REVISED: 11/24/08 GD03

****ACCESS ROADS SHALL BE CONSTRUCTED FROM PUBLIC ROADS WHERE THE CONSTRUCTION DELIVERY TRAFFIC WILL TRAVEL ON THE CONSTRUCTED ACCESS ROAD. SEDIMENT TRACKING ONTO PUBLIC PAVED ROADS IS NOT ANTICIPATED. IF SEDIMENT TRACKING DOES OCCUR, THE SEDIMENT SHALL BE REMOVED AND A ROCK CONSTRUCTION ENTRANCE CONSTRUCTED****

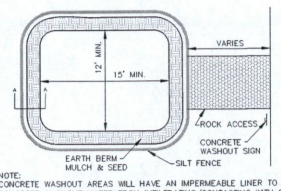


NOTE:

ROCK CONSTRUCTION ENTRANCE SHOULD BE A MINIMUM THICKNESS OF 1.0' AND CONTAIN MAXIMUM SIDE SLOPES OF 4:1. ROCK ENTRANCE SHOULD BE INSPECTED AND MAINTAINED REGULARLY. ROCK ENTRANCE LENGTH MAY NEED TO BE EXTENDED IN CLAY SOILS.

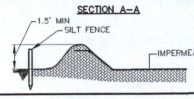
Westwood	ROCK CONSTRUCTION ENTRANCE	LAST REVISED: 11/24/08 GD05

AN APPROVED ALTERNATE MAY BE USED

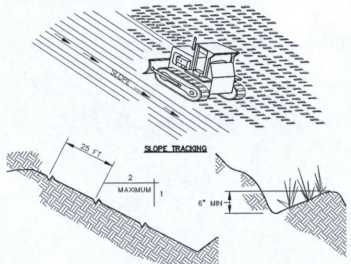


NOTE:
CONCRETE WASHOUT AREAS WILL HAVE AN IMPERMEABLE LINER TO PREVENT CONCRETE WASHOUT WATER FROM INFILTRATING/CONTACTING WITH SOIL. IMPERMEABLE LINER INCLUDES 10 MIL POLYLINER OR COMPACTED CLAY LINER. WASHOUT SYSTEMS CAN BE USED AS ALTERNATE WASHOUT AREAS.

SECTION A-A



Westwood	CONCRETE WASHOUT AREA	LAST REVISED: 11/24/08 GD08

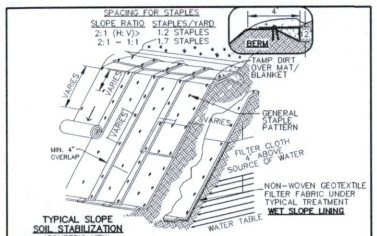


NOTE:

TEMPORARY CONTOUR FURROWS

1. GROOVES WILL CATCH SEED, FERTILIZER, MULCH, RAINFALL AND DECREASE RUNOFF RATE.
2. USE SLOPE TRACKING FOR SLOPES 4:1 AND 50 FEET LONG OR STEEPER/LONGER.
3. USE TEMPORARY CONTOUR FURROWS FOR SLOPES 3:1 AND 75 FEET LONG OR STEEPER/LONGER.

Westwood	SURFACE ROUGHENING FOR ALL SLOPES GREATER THAN 4:1	LAST REVISED: 03/03/08 GD09

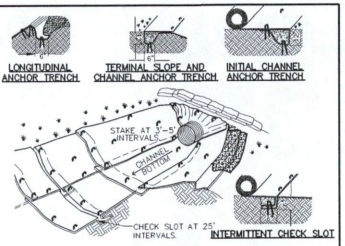


TYPICAL SLOPE SOIL STABILIZATION
ISOMETRIC VIEW

NOTE:

1. REFER TO THE PROJECT SWPPP FOR IMPLEMENTATION REQUIREMENTS.
2. MATS/BLANKETS SHOULD BE INSTALLED VERTICALLY DOWNSLOPE.
3. SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICK AND GRASS.
4. MATS/BLANKETS SHALL HAVE GOOD SOIL CONTACT.
5. LAY BLANKETS LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH THE SOIL.
6. DO NOT STRETCH.
7. BLANKET TYPE AND WEIGHT MUST BE CHOSEN BASED ON SITE CONDITIONS, TxDOT PERFORMANCE FACTORS AND MANUFACTURERS RECOMMENDATIONS.
8. STAPLE LENGTHS SHALL CONFORM TO MANUFACTURERS RECOMMENDATIONS.

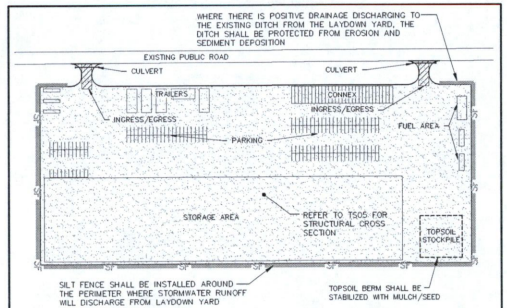
Westwood	TYPICAL SLOPE STABILIZATION – TEMPORARY EROSION BLANKETS TURF REINFORCEMENT MATS FOR SLOPES	LAST REVISED: 3/22/13 GD21



NOTE:

1. REFER TO THE PROJECT SWPPP FOR IMPLEMENTATION REQUIREMENTS.
2. CHECK SLOTS TO BE CONSTRUCTED PER MANUFACTURERS SPECIFICATIONS.
3. STAKING OR STAPLING LAYOUT PER MANUFACTURERS SPECIFICATIONS.
4. MINIMUM OF 3.5 STAPLES/YARD.
5. BLANKET TYPE AND WEIGHT MUST BE CHOSEN BASED ON SITE CONDITIONS AND MANUFACTURERS RECOMMENDATIONS.
6. STAPLE LENGTHS SHALL CONFORM TO MANUFACTURERS RECOMMENDATIONS.
7. EROSION CONTROL BLANKETS SHALL EXTEND TO THE EDGE OF THE DISTURBANCE LIMITS.

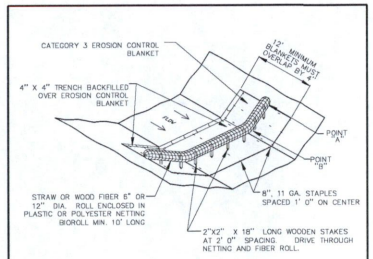
Westwood	TEMPORARY EROSION BLANKETS TURF REINFORCEMENT MATS FOR CHANNELS	LAST REVISED: 03/03/08 GD22



NOTE:

1. REFER TO PROJECT SWPP PLAN FOR SPECIFICATIONS OF EROSION AND SEDIMENT CONTROL.

Westwood	TYPICAL LAYDOWN/STAGING AREA EROSION AND SEDIMENT CONTROL	LAST REVISED: 10/15/18 GD30



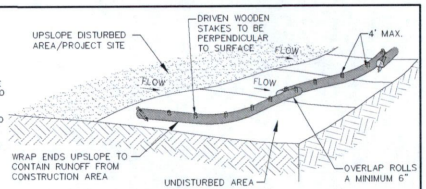
NOTE:

1. POINT "A" MUST BE HIGHER THAN POINT "B" TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS.

Westwood	TEMPORARY BIOROLL BLANKET SYSTEM (DITCH APPLICATION)	LAST REVISED: 03/03/08 GD23

NOTES:

1. FIBER ROLLS SHALL BE INSTALLED PRIOR TO UPSLOPE DISTURBANCE ACTIVITIES COMMENCE.
2. FIBER ROLLS SHALL BE PREFABRICATED AND MADE FROM WEED FREE RICE STRAW, FLAX, OR A SIMILAR AGRICULTURAL MATERIAL BOUND INTO A TIGHT TUBULAR ROLL BY NETTING. USE A 6" OR 12" DIA. ROLL.
3. TRENCHES SHALL BE CREATED ALONG THE SLOPE OF THE PERIMETER. THE TRENCH DEPTH SHOULD BE 1/4 TO 1/3 OF THE THICKNESS OF THE ROLL, AND THE WIDTH SHOULD EQUAL THE ROLL DIAMETER, IN ORDER TO PROVIDE AREA TO BACKFILL THE TRENCH.
4. STAKE FIBER ROLLS INTO THE TRENCH. DRIVE STAKES AT THE END OF EACH FIBER ROLL AND SPACED 4 FEET MAXIMUM ON CENTER. USE WOOD STAKES WITH NOMINAL CLASSIFICATION OF 0.75 IN BY 0.75 IN. AND A MINIMUM LENGTH OF 24 IN.
5. ROLLS SHALL BE INSTALLED PERPENDICULAR TO WATER MOVEMENT, AND PARALLEL TO THE SLOPE CONTOUR.
6. TURN THE ENDS OF THE FIBER ROLLS UP SLOPE TO PREVENT RUNOFF FROM GOING AROUND THE ROLL. THE UPSLOPE POINT SHOULD BE A MINIMUM 6" HIGHER IN ELEVATION THAN THE LOW POINT.
7. IF MORE THAN ONE FIBER ROLL IS PLACED IN A ROW, THE ROLLS SHOULD BE OVERLAPPED A MINIMUM OF 6 INCHES, NOT ABUTTED.
8. FIBER ROLLS ENCASED WITH PLASTIC NETTING ARE USED FOR A TEMPORARY APPLICATION ONLY AND SHOULD BE REMOVED FOLLOWING STABILIZATION. FIBER ROLLS USED IN A PERMANENT APPLICATION SHALL BE ENCASED WITH A BIODEGRADABLE MATERIAL AND MAY BE LEFT IN.
9. TEMPORARY INSTALLATIONS SHOULD ONLY BE REMOVED WHEN UP GRADIENT AREAS ARE STABILIZED PER GENERAL PERMIT REQUIREMENTS, AND/OR POLLUTANT SOURCES NO LONGER PRESENT A HAZARD. BUT, THEY SHOULD ALSO BE REMOVED BEFORE VEGETATION BECOMES TOO MATURE SO THAT THE REMOVAL PROCESS DOES NOT DISTURB MORE SOIL AND VEGETATION THAN IS NECESSARY
10. FIBER ROLLS MUST BE INSPECTED IN ACCORDANCE WITH GENERAL PERMIT REQUIREMENTS FOR THE ASSOCIATED PROJECT TYPE AND RISK LEVEL. IT IS RECOMMENDED THAT AT A MINIMUM, THE BMPS BE INSPECTED WEEKLY, PRIOR TO FORECASTED RAIN EVENTS, DAILY DURING EXTENDED RAIN EVENTS, AND AFTER THE CONCLUSION OF RAIN EVENTS.



SLOPE (H:V)	MAX SPACING FT
< 4:1	20
4:1 – 2:1	15
> 2:1	10

* A CLOSER SPACING IS MORE EFFECTIVE

12. REPAIR OR REPLACE SPLIT, TORN, UNRAVELING, OR SLUMPING FIBER ROLLS.
13. SEDIMENT THAT ACCUMULATES UPSLOPE OF THE BMP SHOULD BE PERIODICALLY REMOVED IN ORDER TO MAINTAIN BMP EFFECTIVENESS. SEDIMENT SHOULD BE REMOVED WHEN SEDIMENT ACCUMULATION REACHES ONE-THIRD THE DESIGNATED SEDIMENT STORAGE DEPTH.
14. RILLS OR GULLIES MAY BEGIN TO FORM FOLLOWING MAJOR STORM EVENTS WHERE RUNOFF HAS OVERTOPPED THE FIBER ROLLS. THESE RILLS OR GULLIES SHOULD BE PROMPTLY REPAIRED.

Westwood	TYPICAL FIBER ROLLS FOR PERIMETER CONTROL OF CONSTRUCTION AREA LIMIT	LAST REVISED: 09/09/13 GD42

Westwood

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Designed: DJP
Checked: DJP
Drawn: SNK
As-Built Drawing:

Revisions:

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D	10/02/18	60% CIVIL PLANS

Prepared for:

WANZEK
a MasTec company

2028 2nd Avenue NW
West Fargo, ND 58078

Glen Ullin Energy Center

Mercer and Morton Counties, North Dakota

Construction Details

60% Completion
NOT FOR CONSTRUCTION

Date: 10/02/18

Sheet: 7 OF 30

00128560TP.dwg

Attachment C

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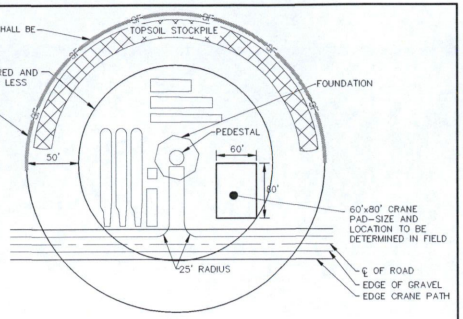
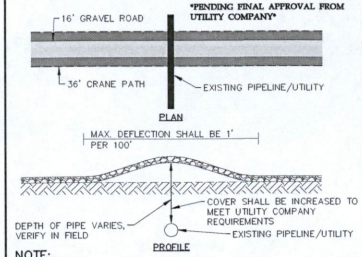


NOTE:

1. ACTUAL CRANE PAD LOCATION TO BE DETERMINED BY CONTRACTOR.
2. DISTANCE BETWEEN CENTER OF TURBINE AND EDGE OF GRAVEL ROAD VARIES BY TURBINE SITE
3. RADIUS TO BE CLEARED, GRUBBED, GRADED TO 2% MAX AND COMPACTED TO SUPPORT TURBINE MANUFACTURER'S BEARING CAPACITY AND AXLE LOADING REQUIREMENTS. RADIUS SHALL BE GRUBBED AND GRADED SO TURBINE SUPPLIER CAN UNLOAD AND DRIVE OUT.
4. CONTRACTOR TO MAINTAIN POSITIVE DRAINAGE AS DETERMINED IN THE FIELD AND ALL DRAINAGE SHALL BE DIRECTED AWAY FROM TURBINE FOUNDATION

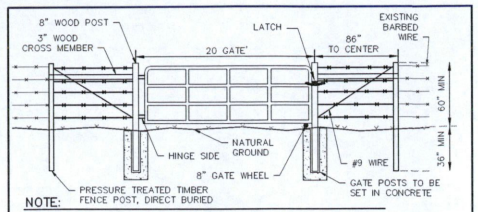
Westwood	TYPICAL WTG ERECTION AREA – PLAN VIEW	LAST REVISED: 11/30/17 TS01



NOTE:

1. CROSSING DETAIL FOR INFORMATION ONLY.
2. FINAL COVER TO BE DETERMINED BASED ON PIPE OWNER'S REQUIREMENTS.
3. LOCATION AND DEPTH OF EXISTING UTILITY SHALL BE FIELD VERIFIED BY EXISTING UTILITY OWNER/OPERATOR.

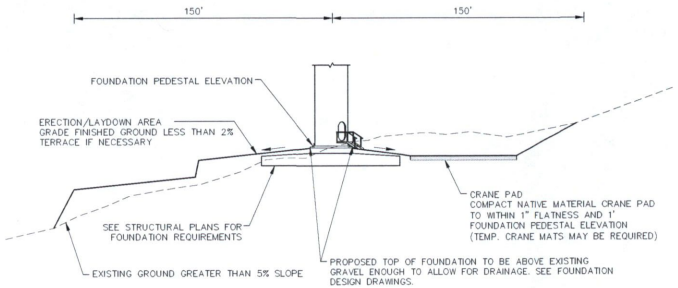
Westwood	EARTH COVER PROTECTION FOR UTILITY CROSSING	LAST REVISED: 11/24/08 UT01



NOTE:

1. H-BRACING SHALL BE CONSTRUCTED ON EACH END OF THE GATE.
2. GATES ARE ONLY REQUIRED TO CONTAIN LIVESTOCK.

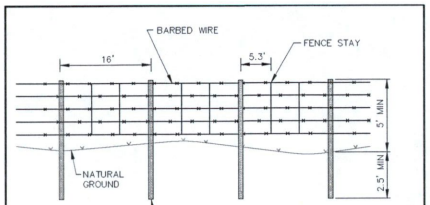
Westwood	TYPICAL SINGLE GATE	LAST REVISED: 06/08/09 GA04



NOTE:

1. RADIUS TO BE CLEARED, GRUBBED, GRADED TO 2% MAX AND COMPACTED TO SUPPORT TURBINE MANUFACTURER'S BEARING CAPACITY AND AXLE LOADING REQUIREMENTS.

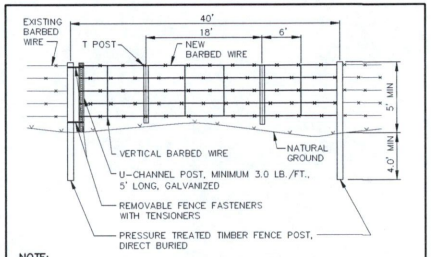
Westwood	TYPICAL WTG ERECTION AREA, EXISTING GROUND GREATER THAN 5% – PROFILE VIEW	LAST REVISED: 03/15/11 TS04



NOTE:

1. BARBED WIRE SHALL BE 3, 4, 5 OR 6 STRAND WIRE FENCE. MATCH EXISTING IF APPLICABLE.
2. ALL FENCES SHALL BE TIED BACK TO MAINTAIN TENSION ON EXISTING FENCE PRIOR TO CUTTING OF THE EXISTING FENCE.
3. CONTRACTOR SHALL VERIFY ELECTRIC FENCE CROSSING LOCATIONS PRIOR TO CONSTRUCTION AND REPLACE ANY DISTURBED ELECTRIC FENCE TO MATCH EXISTING CONDITIONS.

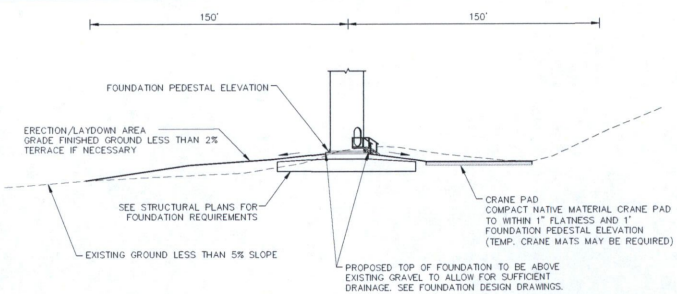
Westwood	PERMANENT FENCE	LAST REVISED: 05/14/09 FN02



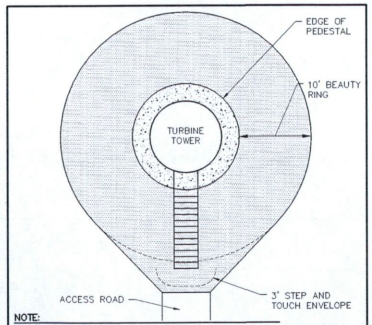
NOTE:

1. TO BE USED AT CROSS COUNTY CRANE PATH AND ELECTRICAL FENCE CROSSINGS.
2. ALL FITTINGS, HARDWARE AND OTHER APPURTENANCES SHALL BE FABRICATED AND FITTED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
3. BARBED WIRE SHALL MATCH EXISTING 4, 5, OR 6 WIRE FENCE.

Westwood	TEMPORARY FENCE CROSSING	LAST REVISED: 05/14/09 FN04



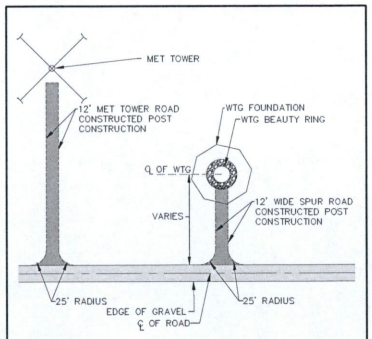
Westwood	TYPICAL WTG ERECTION AREA – PROFILE VIEW	LAST REVISED: 03/15/11 TS03



NOTE:

1. REFER TO DETAIL TS05 ON SHEET 5 FOR MATERIAL TYPE AND THICKNESS.

Westwood	BEAUTY RING DETAIL	LAST REVISED: 05/23/18 TS07



Westwood	TYPICAL SPUR AND MET TOWER ROAD	LAST REVISED: 11/30/17 TS06

Westwood

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Toll Free (888) 937-5150 westwoodps.com

Westwood Professional Services, Inc.

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Sheet: 8 OF 30

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Attachment C

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TURBINE COORDINATES
(HARN/NORTH DAKOTA STATE PLANE - SOUTH ZONE, US FOOT)

Turbine Number	Northing	Easting
T-1	491808.162609	1637973.452878
T-2	490011.074228	1637840.662097
T-3	488693.640309	1636393.597548
T-4	486917.257223	1638175.666035
T-5	485622.758764	1637734.668993
T-6	483941.535006	1635280.854503
T-7	483051.128518	1634339.339541
T-8	481190.183725	1637373.602488
T-9	480650.073611	1641025.537042
T-10	481609.605985	1641978.862074
T-11	479969.261275	1630852.115757
T-12	480935.885922	1632346.595934
T-13	481500.511555	1634398.635650
T-14	475312.137000	1628206.099996
T-15	475311.797426	1630223.040608
T-16	475203.628600	1633322.704077
T-17	477623.966818	1632255.975298
T-18	479451.460853	1634982.559716
T-19	478259.166684	1637131.319553
T-20	478447.933655	1641668.172032
T-21	479643.863523	1643639.889482
T-22	469003.889092	1626499.150508
T-23	470340.466505	1632044.029034
T-24	472208.751993	1627851.626139
T-25	473289.409860	1629973.147006
T-26	472001.562313	1632100.744736
T-27	470242.204802	1627262.749047
T-28	476162.947167	1637326.394596
T-29	476439.787262	1640794.674136
T-30	476435.104886	1642602.430366
T-31	477656.272065	1644197.043607
T-32	480814.859524	1649781.904563
T-33	468588.624685	1642139.450439
T-34	469155.650320	1643480.226748
T-35	471549.497705	1643424.474355
T-36	472961.679698	1643843.563078
T-37	474135.143740	1644473.913774
T-38	474554.106999	1648356.815784
T-39	476237.322002	1648384.231259
T-40	477780.694015	1648954.335379
T-41	478225.774313	1647187.320095
T-42	479882.493732	1647355.649288
T-43	479013.379367	1649934.586868
ALT-1	474923.590208	1626746.459981
ALT-2	484327.337459	1636579.155231

CULVERT AND LOW WATER CROSSING SCHEDULE
TO BE ADDED AT A LATER DATE

PUBLIC ROAD ENTRANCE CULVERTS SCHEDULE
TO BE ADDED AT A LATER DATE

Westwood

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ROAD DESIGN PARAMETERS

1. ACCESS ROADS HAVE BEEN DESIGNED TO ACCOMMODATE LIGHT DUTY TRUCKS (PICKUP TRUCKS AND MAINTENANCE VEHICLES) FOR LOW VOLUME USE IN NORMAL OPERATING CONDITIONS AS WELL AS HEAVY DUTY CONSTRUCTION TRAFFIC UNDER DRY CONDITIONS . THE ROAD DESIGN SPECIFIED IS NOT INTENDED FOR ALL WEATHER USE FOR HEAVY DUTY CONSTRUCTION LOADS.
2. ROAD MAINTENANCE CAN BE EXPECTED OVER THE LIFE OF THE PERMANENT FACILITY.

PRODUCTS

1. AGGREGATE BASE SHALL CONSIST OF NDDOT SPECIFICATION 302 AND 816 (AND IN CONFORMANCE WITH THE GRADATION TABLE 1). AGGREGATE MAY BE CRUSHER RUN UPON ENGINEERS APPROVAL. AGGREGATE GRADATIONS SHALL BE SUBMITTED TO ENGINEER FOR REVIEW.
2. ROAD SHOULDERS AND CRANE PADS SHALL CONSIST OF COMPACTED NATIVE SOILS.
3. CULVERTS: ACCESS ROAD CULVERTS SHALL MEET THE MINIMUM SPECIFICATIONS SET FORTH BY THE NORTH DAKOTA DEPARTMENT OF TRANSPORTATION AND/OR MERCER AND MORTON COUNTIES. ALL CULVERTS ARE PLANNED TO BE A MINIMUM 18" DIAMETER AND MANUFACTURED OF 16-GAGE CORRUGATED METAL PIPE WITH NO END TREATMENTS UNLESS NOTED OTHERWISE. ACTUAL SIZE WILL BE DETERMINED THROUGH HYDRAULIC ANALYSIS.
4. GEOTEXTILE FABRIC: MIRAFI HP270 OR APPROVED EQUAL.

EXECUTION

1. CLEARING AND GRUBBING
   A. THE CONTRACTOR SHALL BE REQUIRED TO GRUB ALL TREES, STUMPS, BRUSH, AND DEBRIS WITHIN THE GRADING AREAS SHOWN ON THE PLANS. GRUBBING INCLUDES REMOVAL OF ALL PLANT MATERIAL GREATER THAN 2" INCLUDING STUMPS, BRANCHES, ROOTS, ETC. TO A DEPTH BELOW THE FINAL SUBGRADE. THE CONTRACTOR IS TO REMOVE ONLY THOSE TREES WHICH ARE DESIGNATED BY THE OWNER'S REPRESENTATIVE FOR REMOVAL, AND SHALL EXERCISE EXTREME CARE AROUND EXISTING TREES TO BE SAVED.
2. TOPSOIL STRIPPING
   A. TOPSOIL, INCLUDING ROOTS LARGER THAN 2" AND LARGE ROOT MASSES, SHALL BE STRIPPED FROM ALL ROADWAY AND FOUNDATION AREAS UP TO 10". TOPSOIL SHALL NOT BE STRIPPED OUTSIDE OF THE DESIGNATED DISTURBANCE AREAS.
   B. ANY TOPSOIL THAT HAS BEEN STRIPPED SHALL BE STOCKPILED FOR POST CONSTRUCTION REVEGETATION. ALL TOPSOIL SHALL BE REDISTRIBUTED TO THE LAND OWNER'S PROPERTY OF WHERE IT ORIGINATED FROM.
3. EMBANKMENT CONSTRUCTION.
   A. EMBANKMENT CONSTRUCTION SHALL CONSIST OF THE PLACING OF SUITABLE FILL MATERIAL, AFTER TOPSOIL STRIPPING, ABOVE THE EXISTING GRADE. GENERALLY, EMBANKMENTS SHALL HAVE COMPACTED SUPPORT SLOPES OF FOUR FOOT HORIZONTAL TO ONE FOOT VERTICAL, WITH SOME LOCATIONS THROUGHOUT THE PROJECT WITH SLOPES OF TWO FEET HORIZONTAL TO ONE FOOT VERTICAL. THE MATERIAL FOR EMBANKMENT CONSTRUCTION SHALL BE OBTAINED FROM THE ACCESS ROAD/TURBINE EXCAVATION (SEE GEOTECHNICAL REPORT FOR RESTRICTIONS), OR ANY SUITABLE, APPROVED SOIL OBTAINED ONSITE/OFFSITE BY CONTRACTOR, AS DIRECTED OR APPROVED BY THE ENGINEER. THIS MATERIAL SHALL BE PLACED IN LIFTS NOT TO EXCEED 8".
   B. SIDE SLOPES GREATER THAN 4:1 WILL NOT BE PERMITTED, UNLESS OTHERWISE NOTED ON THE PLAN.
4. ACCESS ROAD CROSS SLOPES SHOWN IN THE PLANS ARE MEANT AS A GUIDE. ACCESS ROAD CROSS SLOPES SHALL NOT EXCEED 2%, CHECK WITH THE ENGINEER IF THE CROSS SLOPE FALLS OUTSIDE OF THIS RANGE.

STORM WATER DESIGN PARAMETERS

1. SEE SHEET 9 FOR CULVERT SIZING AND DESIGN PARAMETERS. CULVERTS HAVE BEEN DESIGNED TO A 25 YEAR/24 HOUR STORM EVENT. CULVERTS SHALL BE MINIMUM 18" CORRUGATED METAL PIPE OR HDPE. ALL TEMPORARY PORTIONS OF THE INSTALLED CULVERTS SHALL BE REMOVED UPON COMPLETION OF THE PROJECT.
2. IT IS EXPECTED THAT CULVERTS WILL BE OVERTOPPED DURING SOME STORMS AND MAINTENANCE WILL BE REQUIRED THROUGH THE LIFE OF THE PROJECT.
3. WHEN INSTALLING DRAINAGE CULVERTS THE CONTRACTOR SHALL USE JUDGMENT IN SETTING THE FLOW LINE ELEVATIONS AND CULVERT LONGITUDINAL SLOPE. TYPICALLY THE FLOW LINE ELEVATIONS AND LONGITUDINAL SLOPE OF THE CULVERT SHOULD MATCH THE NATURAL GROUND ELEVATIONS AND SLOPE TO ENSURE POSITIVE DRAINAGE. WHEN POSSIBLE, ALL CULVERTS SHOULD BE PLACED AT A MINIMUM 0.5% GRADE.
4. ANTICIPATED CULVERT CROSSINGS ARE SHOWN ON THE CONSTRUCTION PLAN, ADDITIONAL CULVERTS MAY NEED TO BE INSTALLED IN AREAS WHERE CONCENTRATED FLOW IS EXPECTED DUE TO CONSTRUCTION ACTIVITIES.
5. CONSTRUCTION DRAINAGE CROSSINGS TO MAINTAIN EXISTING FLOW CHARACTERISTICS OF THE FEATURES. FEATURES SHALL BE GRADED TO PRECONSTRUCTION CONTOURS.

TABLE 1: NDDOT CLASS 5 BASE AGGREGATE – LOCALLY SOURCED

SIEVE SIZE	PERCENT PASSING
1"	100
3/4"	90–100
NO. 4	35–70
NO. 30	16–40
NO. 200	4–10

MEET FOLLOWING REQUIREMENTS FOR NDDOT CLASS 5 BASE AGGREGATE:

AT LEAST 10 PERCENT BY WEIGHT OF THE AGGREGATE RETAINED ON THE NO. 4 SIEVE HAS AT LEAST ONE MECHANICALLY FRACTURED FACE FOR CLASS 5.

SHALE (MAX %) = 12.0%
L.A ABRASION (% MAX) = 50%

MAXIMUM PI = 10 – ((% PASSING NO. 40)/10)

GRADATION HAS BEEN OBTAINED FROM THE 2014 NORTH DAKOTA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATION BOOK, SECTION 816.02

TESTING:

1. TESTING SHALL BE PERFORMED BY A DESIGNATED INDEPENDENT TESTING AGENCY.
2. SUBMIT ONE SET OF TESTING AND INSPECTION RECORDS SPECIFIED TO THE CIVIL ENGINEER OF RECORD.

DEFINITIONS:

1. PROOF ROLLING:
   SHALL BE PERFORMED IN THE PRESENCE OF THE GEOTECHNICAL ENGINEER OR QUALIFIED GEOTECHNICAL REPRESENTATIVE USING A FULLY LOADED TANDEM AXLE DUMP TRUCK OR WATER TRUCK WITH A MINIMUM GROSS WEIGHT OF 25 TONS OR A FULLY LOADED BELLY DUMP WITH AN EQUIVALENT AXLE LOADING. PROOF-ROLLING ACCEPTANCE STANDARDS INCLUDE NO RUTTING GREATER THAN 1.5 INCHES, AND NO "PUMPING" OF THE SOIL BEHIND THE LOADED TRUCK.
2. SIEVE ANALYSIS:
   SHALL BE CONDUCTED IN ACCORDANCE WITH AASHTO T27
3. PROCTORS:
   SHALL BE DETERMINED IN ACCORDANCE WITH AASHTO T99
4. ATTERBERG LIMITS:
   SHALL BE DETERMINED IN ACCORDANCE WITH AASHTO T89 AND T90
5. MOISTURE DENSITY (NUCLEAR DENSITY):
   SHALL BE DONE IN ACCORDANCE WITH AASHTO T310
6. DYNAMIC CONE PENETROMETER (DCP) TESTING:
   SHALL BE DONE IN ACCORDANCE WITH ASTM D6951-03

REQUIREMENTS:

1. FILL MATERIAL:
   A. SOILS USED AS FILL MATERIAL SHALL BE TESTED FOR GRAIN SIZE ANALYSIS, MOISTURE CONTENT, ATTERBERG LIMITS ON FINES CONTENT, AND PROCTOR TESTS.
   B. IN ROADWAY CUT AREAS, OR WHERE EMBANKMENT CONSTRUCTION REQUIRES LESS THAN 12 INCHES OF FILL PLACEMENT, COMPACT TO A MINIMUM OF 95 PERCENT OF THE MATERIAL'S MAXIMUM STANDARD PROCTOR DRY DENSITY. THE SCARIFICATION DEPTH SHALL BE ADJUSTED SUCH THAT THE COMBINED THICKNESS OF THE EMBANKMENT FILL MATERIAL AND SCARIFICATION DEPTH SHALL BE 12 INCHES OR GREATER.
2. COMPACTED SUBGRADE:
   A. THE ENTIRE SUBGRADE SHALL BE PROOF-ROLLED PRIOR TO THE PLACEMENT OF THE AGGREGATE BASE TO IDENTIFY AREAS OF UNSTABLE SUBGRADE
   B. PERFORM A MINIMUM OF 3 DYNAMIC CONE PENETROMETER (DCP) TESTS PER ACCESS ROAD, OR ONE FOR EVERY 1,000 L.F. OF ROAD, WHICHEVER IS GREATER. ADDITIONAL DCP TESTING MAY BE REQUIRED IN AREAS OF FAILING PROOF ROLL. PRIMARY ACCESS ROAD CROSS SECTION REQUIRES A MINIMUM DCP OF 4 BLOWS PER 6" TO A TOTAL DEPTH OF 2' (MINIMUM CBR=2.5).
   C. IF EITHER THE PROOF ROLL OR DCP REQUIREMENTS CANNOT BE ACHIEVED THE FOLLOWING ALTERNATIVES MAY BE IMPLEMENTED:
      a. SCARIFY, DRY, AND RECOMPACT SUBGRADE AND PERFORM ADDITIONAL PROOF ROLL AND DCP.
      b. REMOVE UNSUITABLE MATERIAL AND REPLACE WITH 3 INCH MINUS CRUSHED AGGREGATE BASE.
   D. PROVIDE 3 MOISTURE DENSITY COMPACTION TESTS PER ACCESS ROAD, OR ONE FOR EVERY 1000 L.F. OF ROAD LENGTH, WHICHEVER IS GREATER. COMPACTED SUBGRADE MUST BE COMPACTED TO A MINIMUM OF 95% STANDARD PROCTOR.
3. AGGREGATE BASE:
   A. AGGREGATE BASE SHALL BE PROOF-ROLLED OVER THE ENTIRE LENGTH. IF PROOF ROLLING DETERMINES THAT THE ROAD IS UNSTABLE, ADDITIONAL AGGREGATE SHALL BE ADDED UNTIL THE UNSTABLE SECTION IS ABLE TO PASS A PROOF ROLL.
   B. PROVIDE 1 SIEVE ANALYSIS PER 2500 CY OF ROAD BASE PLACED AND LA ABRASION TEST.
   C. PROVIDE AT LEAST 1 DCP TEST PER 1000 LF OF ROAD.
4. CRANE PADS:
   A. MOISTURE DENSITY TESTING SHALL BE PERFORMED AT A MINIMUM OF 2 PER CRANE PAD. CRANE PADS MUST BE COMPACTED TO A MINIMUM OF 98% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY AT OF OPTIMUM MOISTURE CONTENT FOR GRANULAR SOILS AND AT –1 TO +2% OF OPTIMUM MOISTURE CONTENT FOR COHESIVE SOILS.
   B. ALL CRANE PADS MUST BE PROOF ROLLED PRIOR TO UTILIZATION.
   C. IF THE CRANE PAD CANNOT ACHIEVE PROOF-ROLL ACCEPTANCE AS DETERMINED BY THE GEOTECHNICAL ENGINEER, DCP TEST MAY BE USED. WHEN UTILIZED, DCP TESTING SHALL BE USED AT MINIMUM RATE OF 2 PER CRANE PAD AND ACHIEVE A MAXIMUM OF 24 MM/BLOW.
   D. AT THE CONTRACTOR'S DISCRETION, CRANE MATS MAY BE UTILIZED TO PROVIDE ADDITIONAL STABILITY.
5. CRANE PATHS / CRANE TRAVEL SHOULDERS
   A. CRANE PATHS AND CRANE TRAVEL SHOULDERS SHALL BE PROOF-ROLLED OVER THE ENTIRE LENGTH.
   B. WHERE REQUIRED TO SUPPORT CRANE TRAVEL AS DETERMINED BY THE CRANE SUPERINTENDENT, SCARIFY AND COMPACT EXISTING SOILS TO A DEPTH OF 6-INCHES AND TO A MINIMUM OF 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY AT OF OPTIMUM MOISTURE CONTENT FOR GRANULAR SOILS AND AT –1 TO +2% OF OPTIMUM MOISTURE CONTENT FOR COHESIVE SOILS.

TABLE 2: TESTING SCHEDULE SUMMARY

LOCATION	TEST	FREQUENCY
STRUCTURAL FILL	GRAIN SIZE ANALYSIS, MOISTURE CONTENT, ATTERBERG LIMITS ON FINES CONTENT, AND PROCTOR	1 PER MAJOR SOIL TYPE
COMPACTED SUBGRADE	PROOF-ROLL	ENTIRE LENGTH
	MOISTURE DENSITY TEST (NUCLEAR DENSITY)	1 PER 1000 FT OR MIN. 3 PER ROAD
	DCP	1 PER 1000 FT OR MIN. 3 PER ROAD
AGGREGATE BASE	PROOF-ROLL	ENTIRE AREA
	SIEVE ANALYSIS, LL, PL, AND LA ABRASION	1 PER 2,500 CY
	DCP	1 PER 1000 FT OR MIN. 3 PER ROAD
CRANE PAD COMPACTED SUBGRADE	PROOF-ROLL	ENTIRE AREA
	MOISTURE DENSITY TEST (NUCLEAR DENSITY)	2 PER PAD
	DCP (NOT REQUIRED UNLESS PROOF ROLL FAILS)	2 PER PAD
CRANE SHOULDERS	PROOF-ROLL	ENTIRE LENGTH

GENERAL NOTES:

1. THE GROUND SURFACE CONTOURS (AT TWO-FOOT VERTICAL INTERVALS) AND ELEVATIONS ARE BASED ON LIDAR DATA OBTAINED FROM THE STATE OF NORTH DAKOTA. THE ELEVATIONS AND CONTOURS BASED ON THE LIDAR DATA WERE PREPARED FROM AERIAL PHOTOGRAPHY DATA, AND NOT ACTUAL FIELD SURVEYING. AS SUCH, THE ACCURACY OF THE ELEVATIONS AND CONTOURS IS NOT AS HIGH AS INFORMATION GATHERED USING CONVENTIONAL FIELD SURVEYING PROCEDURES. THE CONTRACTOR MAY FIND THAT GROUND ELEVATIONS DETERMINED DURING FIELD STAKING WILL VARY FROM THE GROUND ELEVATIONS SHOWN ON THE DRAWINGS. IF MAJOR DISCREPANCIES ARE FOUND, THE OWNER AND ENGINEER SHALL BE NOTIFIED.
2. WHERE SECTION OR SUBSECTION MONUMENTS ARE ENCOUNTERED, THE OWNER SHALL BE NOTIFIED BEFORE SUCH MONUMENTS ARE REMOVED. THE CONTRACTOR SHALL PROTECT AND CAREFULLY PRESERVE ALL PROPERTY MARKERS AND MONUMENTS UNTIL THE OWNER, AN AUTHORIZED SURVEYOR OR AGENT HAS WITNESSED OR OTHERWISE REFERENCED THEIR LOCATION.
3. EFFORTS SHALL BE MADE TO MINIMIZE SOIL DISTURBANCE TO AREAS OUTSIDE OF THE ROAD GRADING LIMITS, CRANE PATHS, AND TURBINE SITES. TYPICAL DISTURBANCE SHALL BE LIMITED TO 10 LF FROM THE EDGE OF PROPOSED GRADING.
4. FINALIZE GRADING AROUND THE BASE OF TURBINES IN ACCORDANCE WITH DETAIL TS-03 AND TS-04.
5. GRADE ALL PROPOSED ROADS TO A MAXIMUM SLOPE OF 8%. IF 8% SLOPE CANNOT BE ACHIEVED, THE CONTRACTOR MAY UTILIZE ASSIST VEHICLES FOR THE PURPOSE OF DELIVERIES. GRADE ALL PROPOSED CRANE PATHS TO A MAXIMUM OF 8% UNLESS OTHERWISE NOTED IN PLAN SHEETS.
6. ANY FACILITIES REMOVED TO ALLOW FOR CONSTRUCTION (MAILBOXES, SIGNS, FENCES, ETC.) SHALL BE REPLACED BY THE CONTRACTOR IN A CONDITION AS GOOD AS EXISTING.
7. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING DRAINAGE THROUGHOUT THE CONSTRUCTION OF THIS PROJECT. CONSTRUCTION ACTIVITIES SHALL NOT BLOCK THE NATURAL OR MANMADE CREEKS OR DRAINAGE SWALES CAUSING RAINWATER TO POND. DEPENDING ON FIELD CONDITIONS, ADDITIONAL CULVERTS IN EXCESS OF THOSE ON THE PLANS MAY BE REQUIRED.
8. WHILE BUILDING THE ROADS AND EXCAVATING THE TURBINE FOUNDATIONS, EXCESS SOIL WILL RESULT. THE CONTRACTOR SHALL DISPOSE OF THIS EXCESS SOIL IN AN APPROVED MANNER. EXCESS TOPSOIL SHALL BE DISTRIBUTED INTO A THIN LAYER ON LAND IMMEDIATELY ADJACENT TO WHERE THE TOPSOIL ORIGINATED. ALL EXCESS TOPSOIL TO BE WASTED ONSITE. WHILE DOING SO THE CONTRACTOR SHALL AVOID CAUSING RIDGES OR MOUNDS THAT WOULD MAKE IT DIFFICULT FOR STORM WATER RUNOFF TO DRAIN. THE FINAL SURFACE OF THE DISTURBED TOPSOIL SHALL BE SMOOTH AND FOLLOW THE NATURAL CONTOUR OF THE LAND.
9. THE CONTRACTOR SHALL NOTIFY NORTH DAKOTA 811 AT LEAST 48 HOURS BEFORE EXCAVATION ACTIVITIES COMMENCE.
10. TEMPORARY INTERSECTION WIDENING SHALL, UPON COMPLETION OF ALL PROJECT CONSTRUCTION OR UPON NOTIFICATION OF THE ENGINEER, BE REMOVED AND THE AREA RESTORED TO ITS ORIGINAL LINES AND GRADES WITH TOPSOIL REPLACED, EXCEPT WHERE REQUESTED BY THE TOWNSHIP OR COUNTY TO PERMANENTLY REMAIN. DISTURBED AREAS OUTSIDE OF THE FINAL ROADWAY SHALL BE SEEDED AND MULCHED.
11. TURBINE SETBACKS ARE NOT IDENTIFIED ON THE CONSTRUCTION PLANS. IT SHALL BE THE RESPONSIBILITY OF THE OWNER AND CONTRACTOR TO ENSURE THAT ALL TURBINE SETBACKS MEET PROJECT REQUIREMENTS.
12. GEOTECHNICAL REPORTS WITH RECOMMENDATIONS HAVE NOT BEEN PROVIDED. ALL GRADING SHALL CONFORM TO THE GEOTECHNICAL ENGINEERING REPORT AND RECOMMENDATIONS.
13. FIELD SURVEY WETLAND INFORMATION HAS NOT BEEN PROVIDED. ALL WETLAND DELINEATIONS AND PERMITTING SHALL BE THE RESPONSIBILITY OF OTHERS AND BE COMPLETED PRIOR TO CONSTRUCTION COMMENCING. THE OWNER AND GENERAL CONTRACTOR SHALL VERIFY THAT ALL WETLAND PERMITS HAVE BEEN SUBMITTED AND APPROVED PRIOR TO CONSTRUCTION COMMENCING.
14. CULTURAL RESOURCE REPORTS HAS NOT BEEN PROVIDED. CULTURAL RESOURCE LOCATIONS ARE NOT SHOWN ON THE PLANS. INFORMATION WILL BE THE RESPONSIBILITY OF THE OWNER AND GENERAL CONTRACTOR. THE LOCATIONS OF CULTURAL RESOURCE SITES MAY BE CONFIDENTIAL AND PROTECTED BY STATE OR FEDERAL LAW. PUBLIC RELEASE OF SPECIFIC INFORMATION REGARDING THESE RESOURCES MAY BE RESTRICTED.
15. AN ENVIRONMENTAL ASSESSMENT HAS NOT BEEN PROVIDED. THE CONTRACTOR SHALL BE FAMILIAR WITH THE REPORT AND REVIEW ALL RECOMMENDATIONS.
16. ELECTRICAL INFORMATION SHOWN ON THE PLANS IS FOR REFERENCE ONLY. REFER TO ELECTRICAL CONSULTANT'S PLANS FOR SPECIFIC LOCATIONS AND CONSTRUCTION DETAILS FOR THE UNDERGROUND POWER COLLECTION SYSTEM AND SUBSTATION.
17. CRANE PATHS ARE SHOWN ON THE CONSTRUCTION PLANS. IF THE CONTRACTOR PROPOSES ALTERNATE CRANE PATHS, THEY SHALL ENSURE THAT WETLAND AND CULTURAL RESOURCE CORRIDORS ARE NOT DISTURBED. FINAL CRANE PATH ALIGNMENTS SHALL BE DETERMINED BY THE CONTRACTOR BASED ON FIELD CONDITIONS WITHIN THE WETLAND AND CULTURAL RESOURCE CORRIDORS, SPECIAL LANDOWNER AGREEMENTS AND THE PROJECT BOUNDARY.
18. EFFORTS SHALL BE MADE TO MINIMIZE SOIL DISTURBANCE TO AREAS OUTSIDE OF THE ROAD GRADING LIMITS, CRANE PATHS, AND TURBINE SITES. DISTURBANCE SHALL BE LIMITED TO 100 LF WIDTH FOR PROPOSED ACCESS ROADS AND 100 LF FOR CRANE PATHS, AND SHALL BE LIMITED TO A 200 LF RADIUS FOR PROPOSED WIND TURBINE GENERATORS. THE GRADING LIMITS SHALL BE CENTERED ON THE ROADWAYS AND WIND TURBINES. THE CONTRACTOR SHALL MAKE ALL EFFORTS TO KEEP ACTIVITIES WITHIN THE ERECTION AREAS SHOWN ON THE PLANS BUT IT IS UNDERSTOOD THAT SOME ACTIVITIES THAT WILL NOT REQUIRE GRADING OR SOIL DISTURBANCE MAY EXTEND BEYOND THE DEFINED LIMITS. DURING ERECTION OF THE ROTOR, TRUCKS AND/OR FORKLIFTS MAY EXTEND BEYOND THESE LIMITS. SEE DETAIL TS01 FOR TYPICAL ERECTION AREAS.
19. TRUCK TURNAROUNDS ARE NOT SHOWN ON THE PLANS. GENERAL CONTRACTOR TO COORDINATE AND ASSIST WITH TRUCK TURNAROUNDS WHERE NECESSARY.
20. AN ALTA SURVEY HAS NOT BEEN PROVIDED. CONTRACTOR AND OWNER ARE RESPONSIBLE FOR LOCATING ALL UTILITIES AND VERIFYING LOCATION OF CONSTRUCTION ACTIVITIES PRIOR TO COMMENCING WORK.
21. OFF SITE TEMPORARY INTERSECTION IMPROVEMENTS ARE NOT SHOWN ON THE PLANS.

STORMWATER POLLUTION PREVENTION PLAN (SWPPP):

1. THE CONTRACTOR SHALL PROVIDE EROSION CONTROL MEASURES AS PLANNED AND SPECIFIED FOLLOWING BEST MANAGEMENT PRACTICES AS OUTLINED BY THE NORTH DAKOTA DEPARTMENT OF HEALTH AND BEING IN CONFORMANCE WITH THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) GENERAL STORMWATER PERMIT.
2. REFER TO THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) FOR THE GLEN ULLIN ENERGY CENTER WIND PROJECT, PREPARED BY WESTWOOD PROFESSIONAL SERVICES, FOR EROSION CONTROL AND RESTORATION SPECIFICATIONS, SEDIMENT AND EROSION CONTROL PROCEDURES, LOCATIONS OF BMPs, DETAILS, AND INSPECTION INFORMATION.
3. ALL PASTURES AND DRAINAGE SWALES DISTURBED DURING CONSTRUCTION ACTIVITIES AND NOT COVERED BY ROAD SURFACING MATERIALS, SHALL BE SEEDED IN ACCORDANCE WITH THE SWPP PLAN.
4. TEMPORARY EROSION CONTROL SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE TEMPORARY EROSION CONTROL PLAN SHALL BE IN ACCORDANCE WITH THE NORTH DAKOTA DEPARTMENT OF HEALTH AND THE GLEN ULLIN ENERGY CENTER WIND PROJECT STORMWATER POLLUTION PREVENTION PLAN ON FILE.

PROJECT CONTACT INFORMATION:

TITLE	COMPANY	NAME	CONTACT NUMBER
OWNER (PRIMARY)	ALLETE CLEAN ENERGY	JOHN HOLLINGSWORTH	218-355-3249
PROJECT MANAGER	WESTWOOD	DANI FRANSSEN	952-906-7493
ENGINEER OF RECORD	WESTWOOD	ROB COPOULS	952-906-7470
CONTRACTOR	WANZEK	TEOCHEN CLOUD	701-433-5875
NDDOH			701-328-5150

Westwood

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Checked: DJP
Drawn: SNK
As-Built Drawing:

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Prepared for:

WANZEK
a MasTec company

2028 2nd Avenue NW
West Fargo, ND 58078

Glen Ullin Energy Center

Mercer and Morton Counties, North Dakota

Construction Notes

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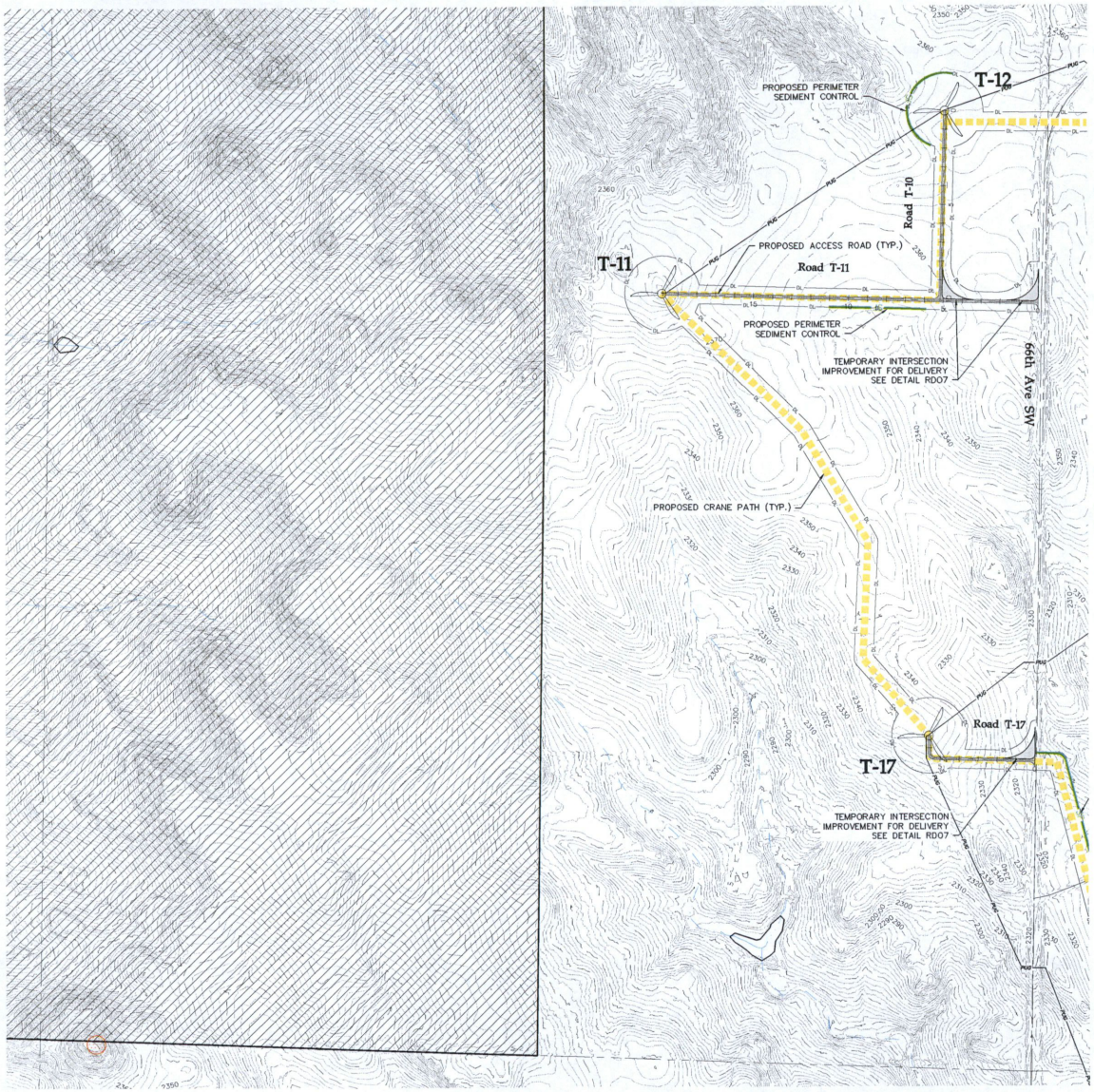

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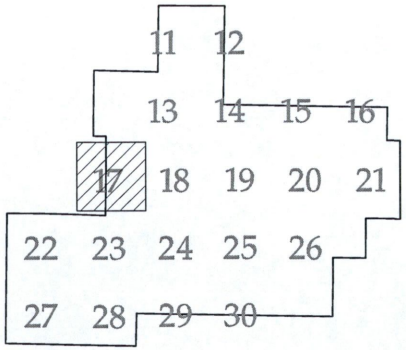

KEY MAP

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WANZEK
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Mercer and Morton Counties, North Dakota

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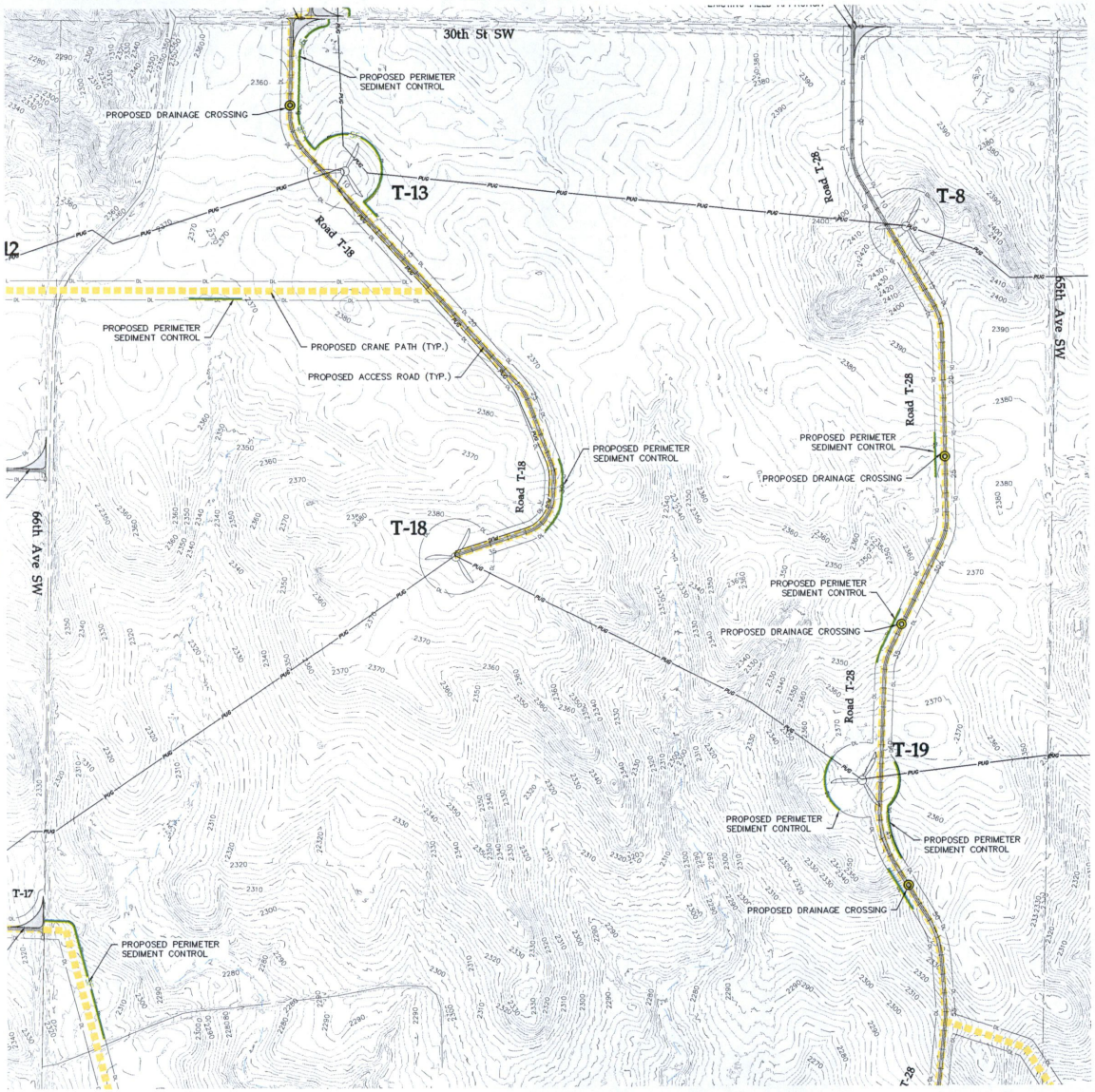

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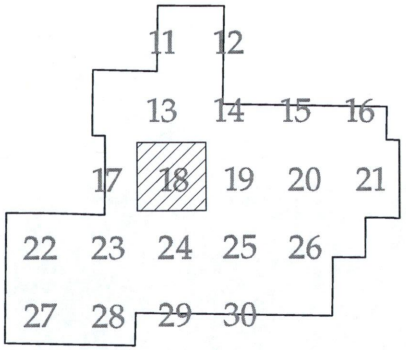

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As-Built Drawing:

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Prepared for:

WANZEK
a MasTec company

2028 2nd Avenue NW
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0' 300' 600' 900'

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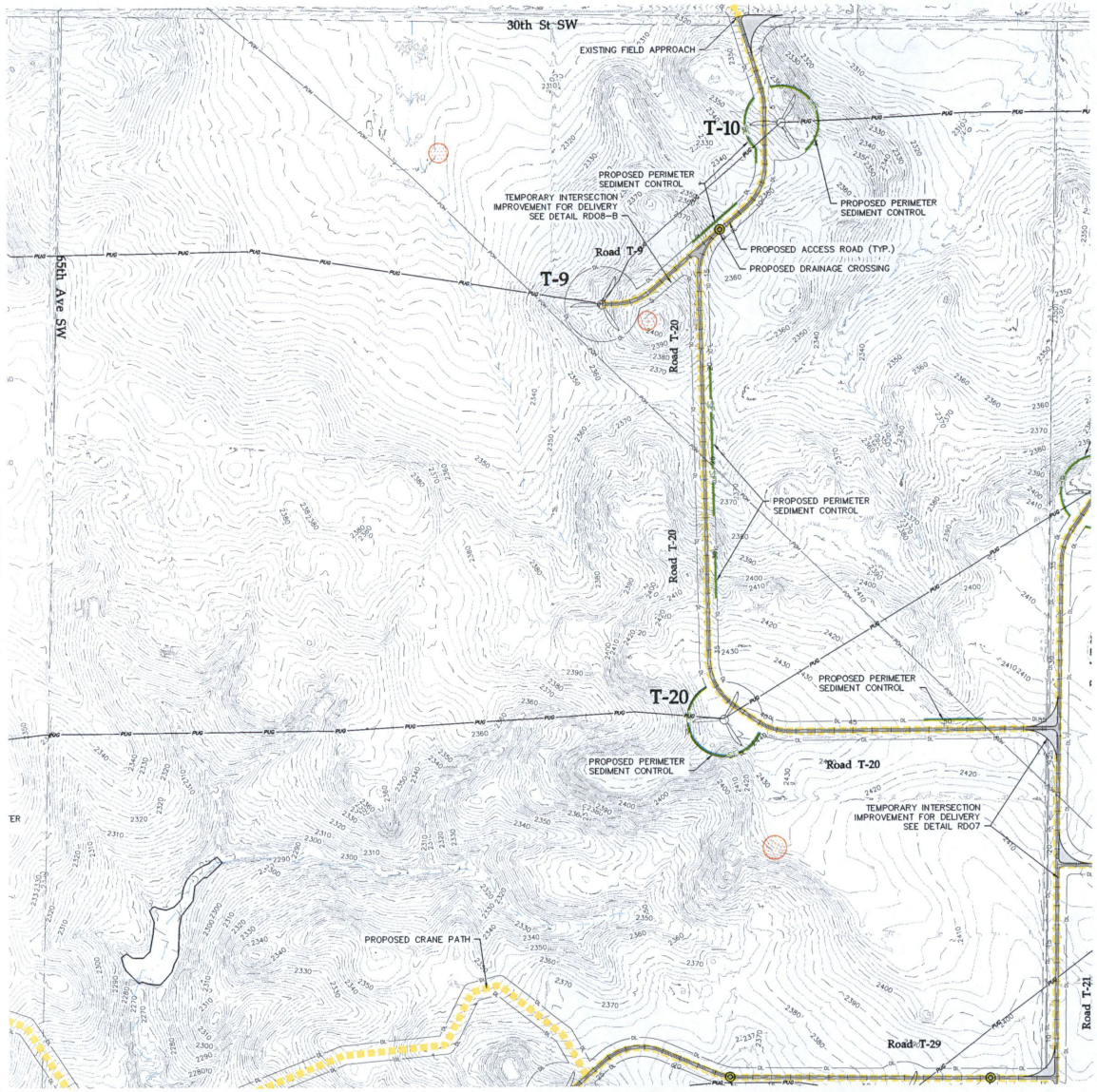

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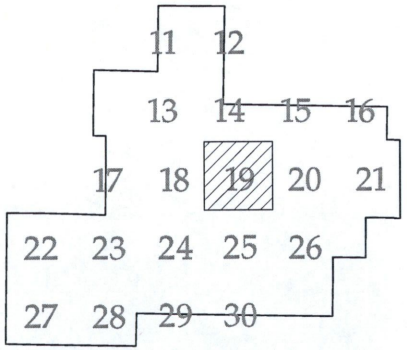

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0' 300' 600' 900'

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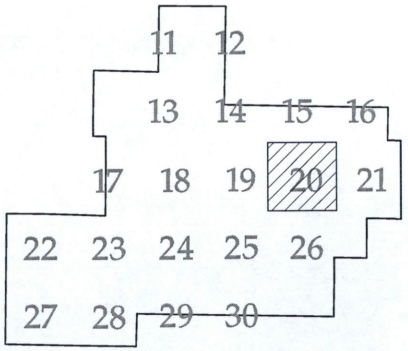

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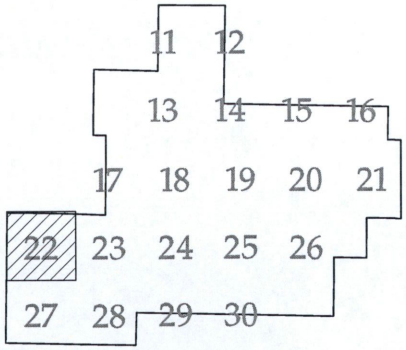

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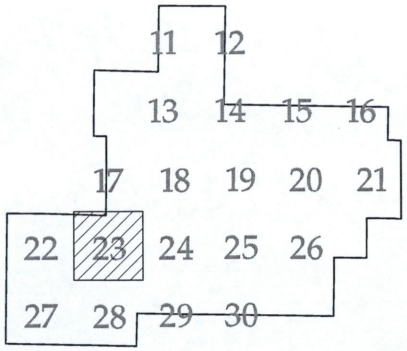

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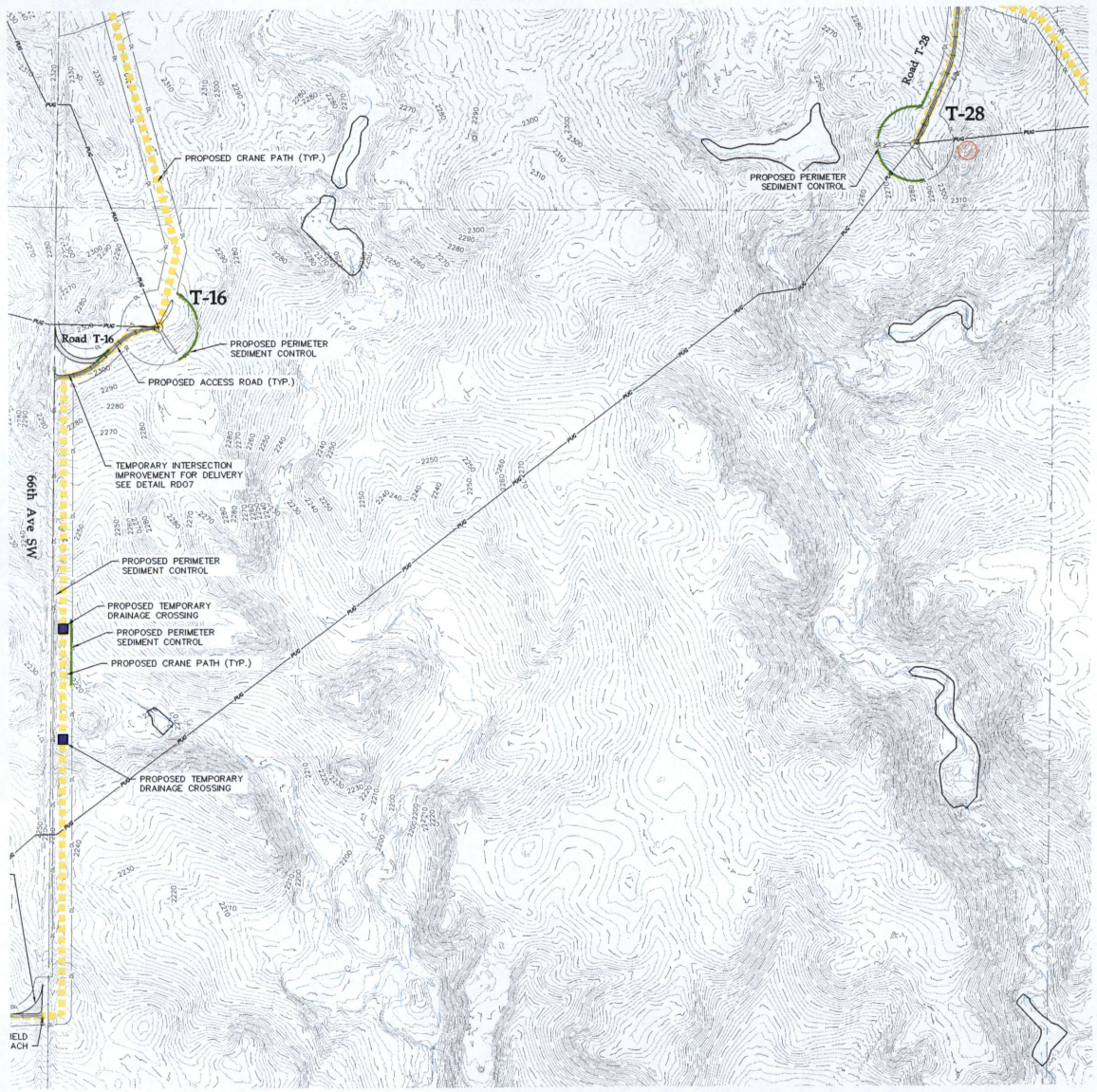

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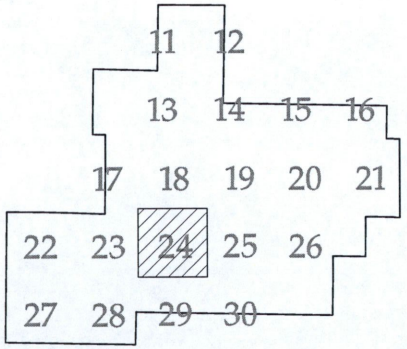

KEY MAP

Westwood

Phone (952) 937-5150 | 12701 Whitewater Drive, Suite #300
Fax (952) 937-5822 | Minnetonka, MN 55343
Toll Free (888) 937-5150 | westwoodps.com

Westwood Professional Services, Inc.

Designed: DJF
Checked: DJF
Drawn: SNK
As-Built Drawing:

Revisions

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Prepared for:

WANZEK
a MasTec company

2028 2nd Avenue NW
West Fargo, ND 58078

0' 300' 600' 900'

Glen Ullin Energy Center

Mercer and Morton Counties, North Dakota

Civil Plan Set 16 28

60% Completion
NOT FOR CONSTRUCTION

Date: 10/02/18
Sheet: 24 OF 30

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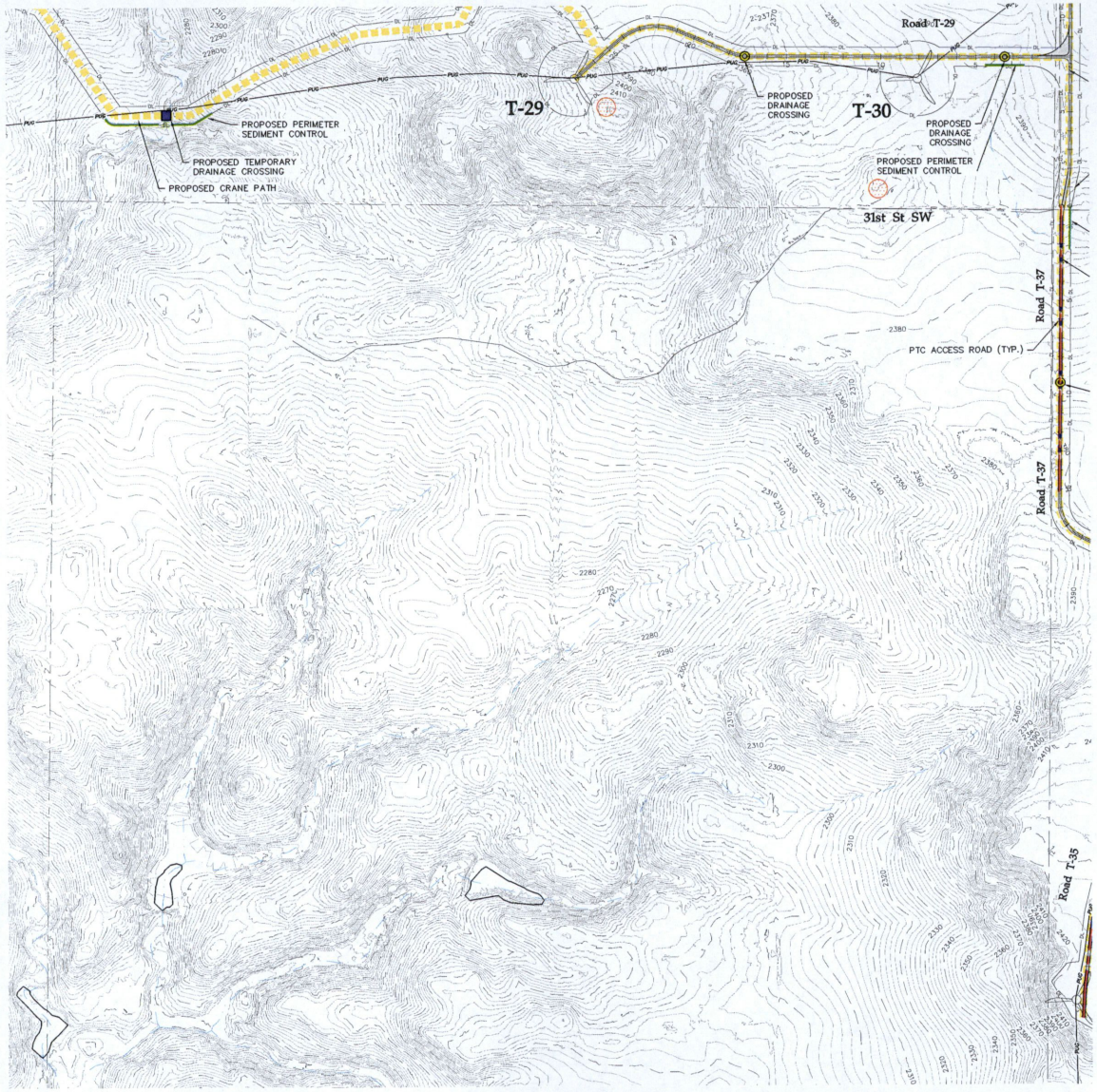

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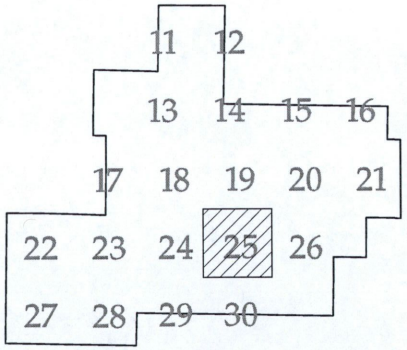

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Designed: DJP
Checked: DJP
Drawn: BNK
As-Built Drawing:

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Civil Plan Set 29 30

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Sheet: 25 OF 30

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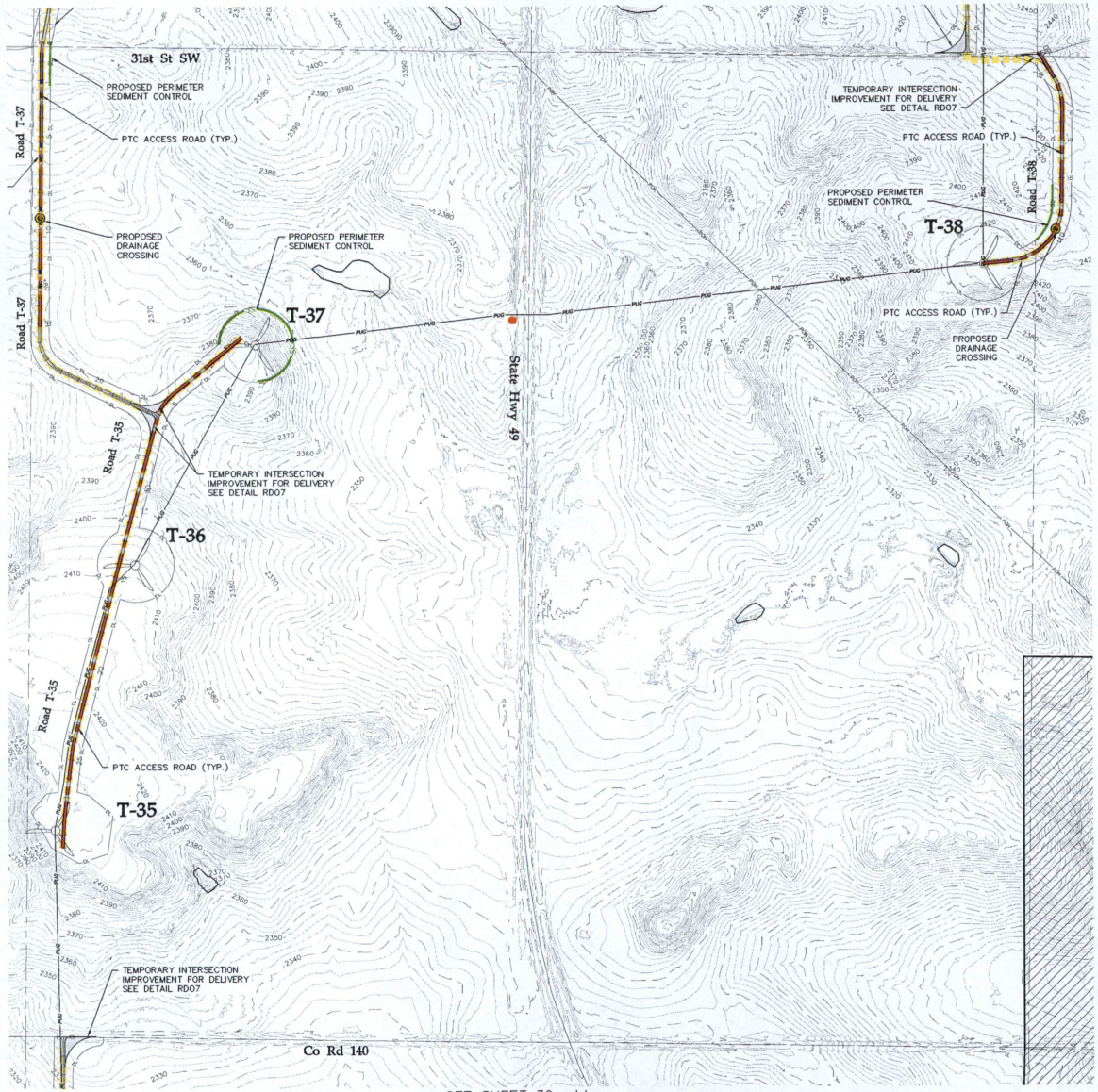

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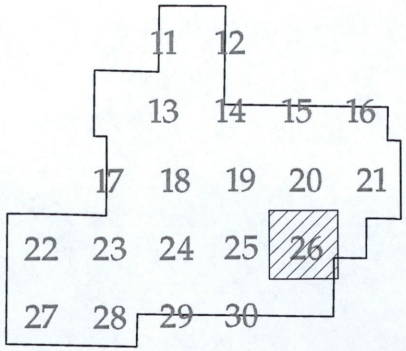

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Designed: DJP
Checked: DJP
Drawn: SNK
As-Built Drawing:

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0' 300' 600' 900'

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Civil Plan Set 35 36 37 38

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NOT FOR CONSTRUCTION

Date: 10/02/18
Sheet: 26 OF 30

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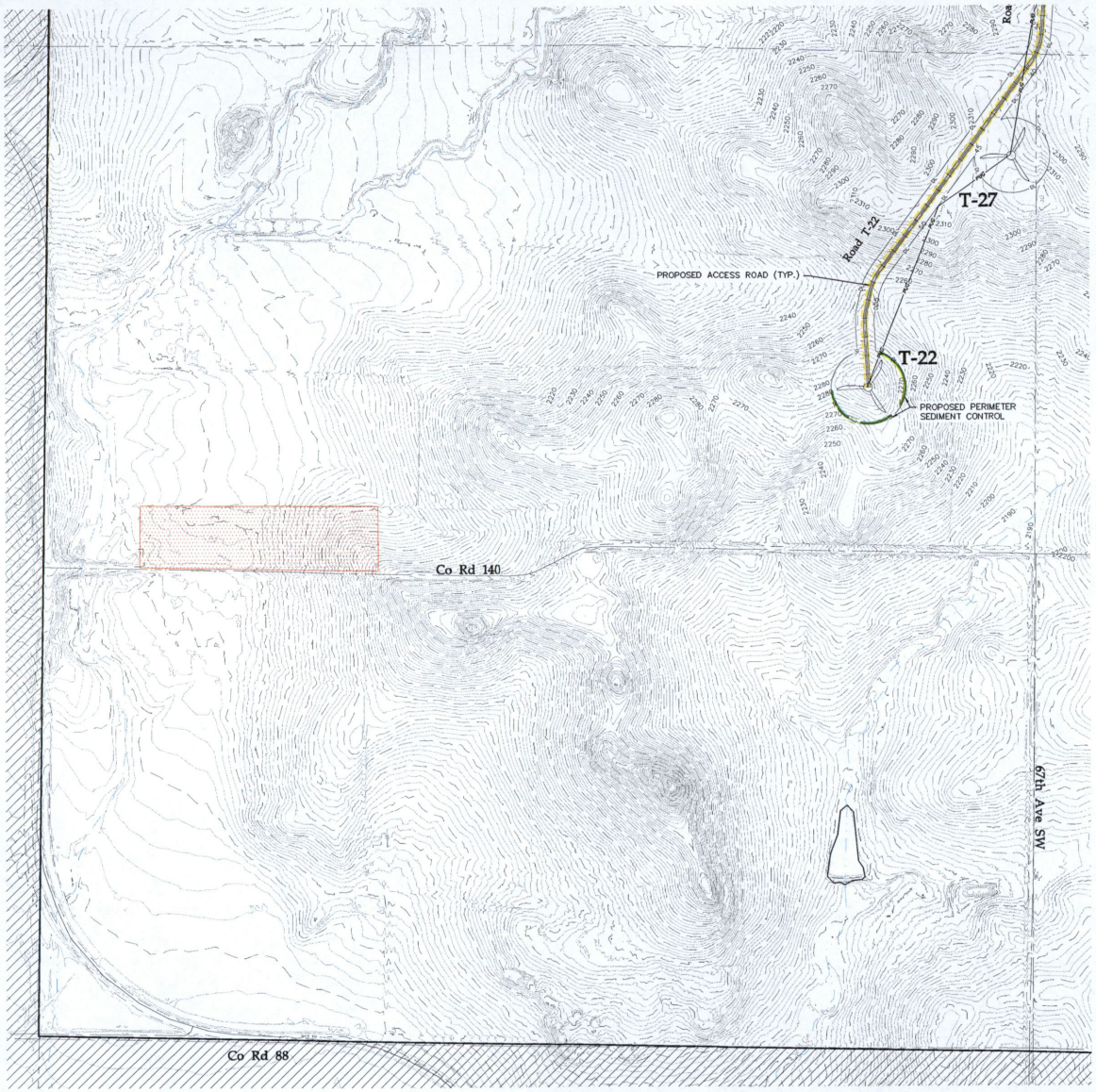

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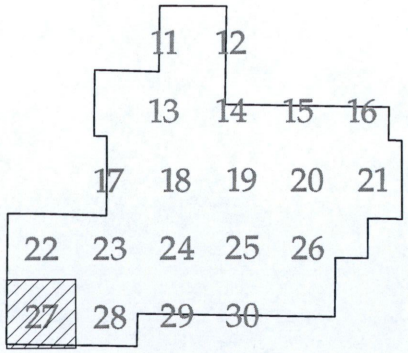

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Civil Plan Set 22 27

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Date: 10/02/18
Sheet: 27 OF 30

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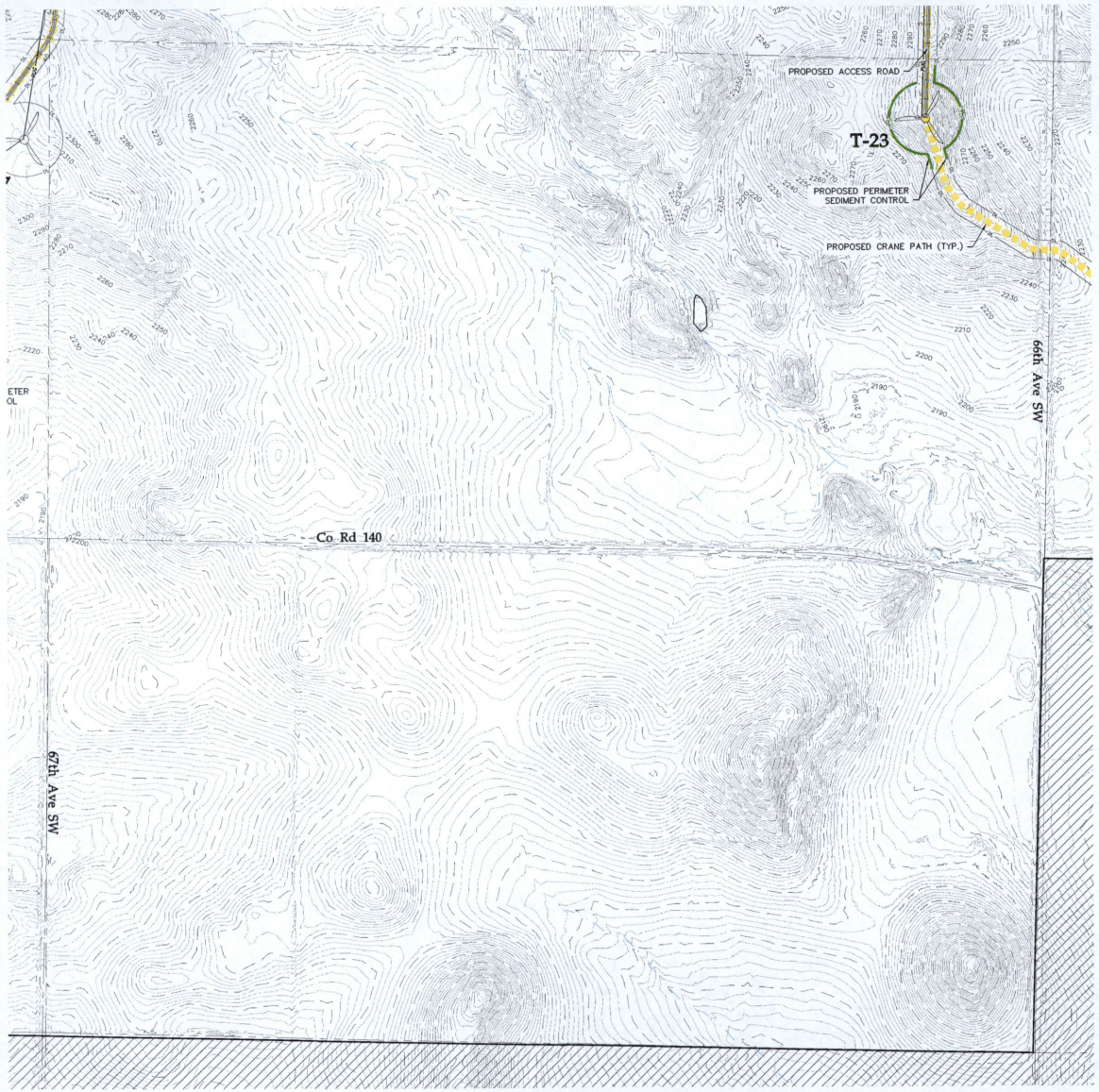

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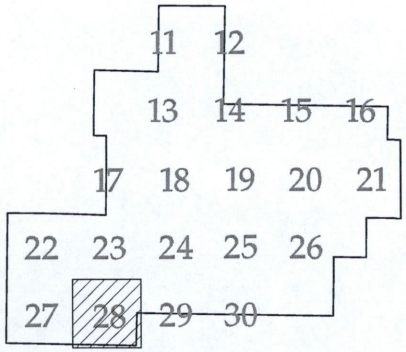

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Drawn: SNK
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WANZEK
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0' 300' 600' 900'

Glen Ullin Energy Center

Mercer and Morton Counties, North Dakota

Civil Plan Set 23

60% Completion
NOT FOR CONSTRUCTION

Date: 10/02/18
Sheet: 28 OF 30

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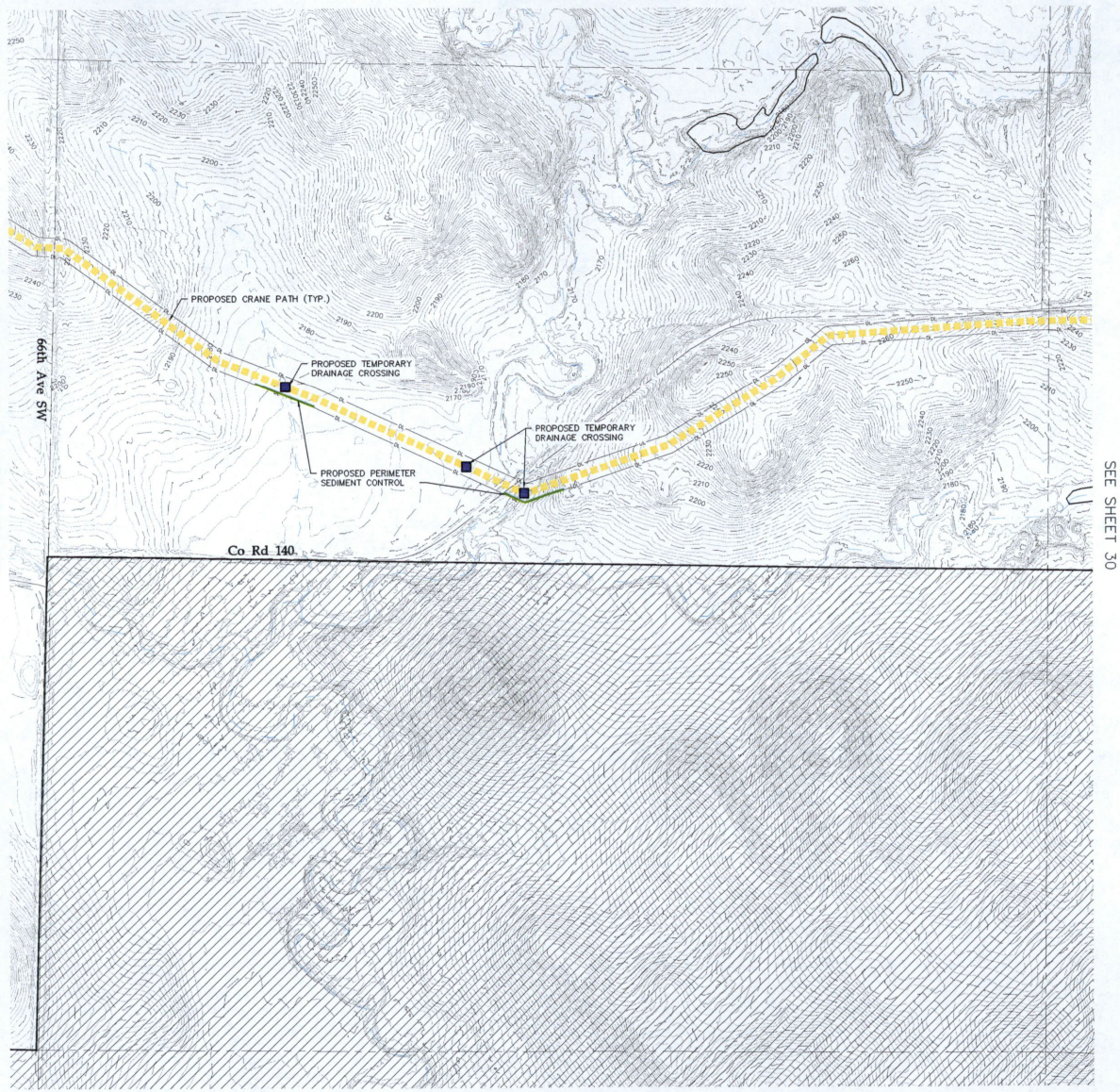

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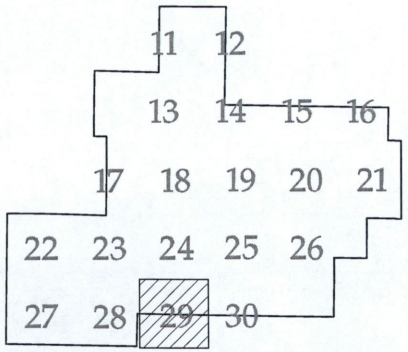

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Civil Plan Set 4

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Date: 10/02/18
Sheet: 29 OF 30

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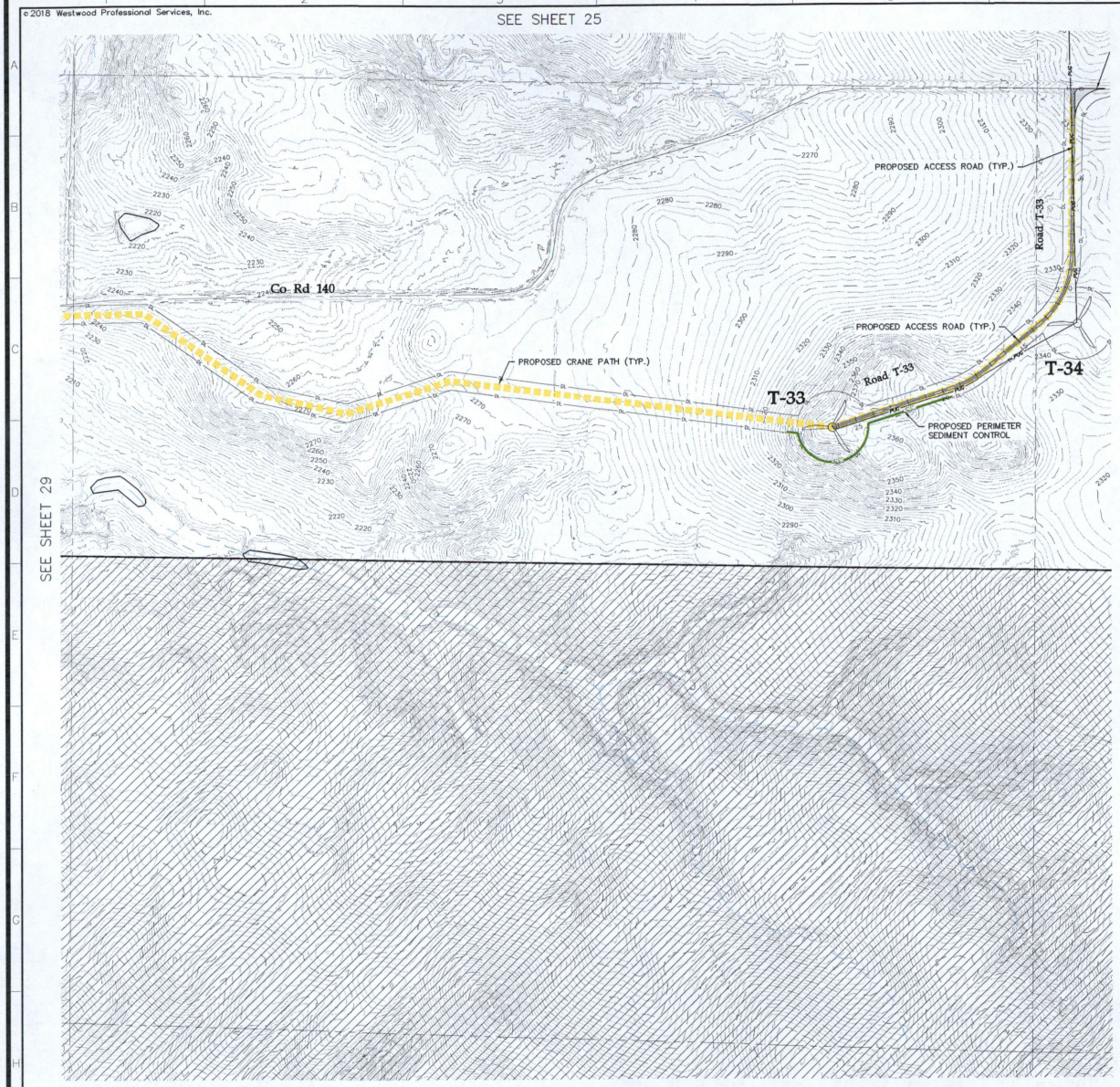

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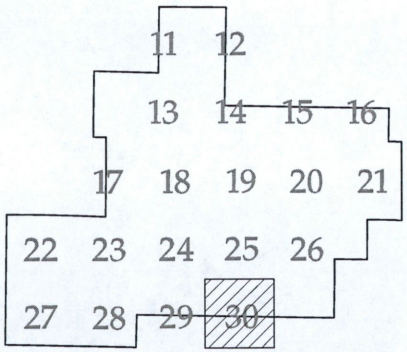

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