Westwood

STORMWATER POLLUTION PREVENTION PLAN

Crocker Wind Project

Clark County, South Dakota

August 2018

Prepared For:

Crocker Wind Farm, LLC
7650 Edinborough Way, Ste. 725
Edina, MN 55435

Stormwater Pollution Prevention Plan (SWPPP) Narrative

Crocker Wind Project

Clark County, South Dakota

NPDES Permit Identification #: SDR10J175

Prepared for:

Crocker Wind Farm, LLC
7650 Edinborough Way, Ste. 725
Edina, MN 55435

Prepared by:

Westwood Professional Services, Inc.
12701 Whitewater Drive, Suite 300
Minnetonka, MN 55343
(952) 937-5150

Project Number: 0007880.03

August 14, 2018

TABLE OF CONTENTS

TABLES

ATTACHMENTS

Attachment A: SDR100000 General Permit for Stormwater Discharges Associated with Construction Activities
Attachment B: Permitting Documentation (NOI, Permit Card, Permit Letters, Blank NOT/MOD)
Attachment C: Soil Maps
Attachment D: Pre and Post Drainage Maps, Impaired Water Maps
Attachment E: Site Plans, Erosion and Sediment Control Plans, Details
Attachment F: Inspection and Maintenance Forms

1.0 INTRODUCTION AND PURPOSE

This SWPPP is prepared in accordance with the National Pollutant Discharge Elimination System (NPDES) regulations as established by the Clean Water Act and guided by the State of South Dakota. The South Dakota Department of Environment and Natural Resource's General Permit for Stormwater Discharges Associated with Construction Activity SDR100000 (Expired: March 31, 2023) provides the frame work of requirements for compliance to discharge stormwater from a construction site.

This SWPPP is for implementation by the Owner, as listed in Section 5.1 of this SWPPP, at the Crocker Wind Project, with the project location as defined in Section 4.0 of this SWPPP. This report shall be on the site at all times during construction.

The following are outlined in this site specific SWPPP:

- Control measures for stormwater pollution prevention during each phase of construction,
- Control measures for stormwater pollution prevention after construction,
- Sources of stormwater and non-stormwater pollution, and
- Inspection and maintenance procedures.

2.0 SWPPP CERTIFICATION STATEMENT

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Joe Ibrahim

Joe Ibrahim; Director – Construction

9/5/17

Date

3.0 SWPPP AMENDMENTS

This plan and the attachments must be amended to include additional requirements, or modified requirements, which take place during construction if one or more of the following occur.

1. There is a change in design, construction, operation, maintenance, weather, or seasonal conditions that significantly impacts the discharge of pollutants from the site to surface or groundwater.
2. Inspections or investigations by the site owner, Environmental Protection Agency, or South Dakota Department of Environment and Natural Resources officials indicate this plan is not effective in eliminating or significantly minimizing the discharge of pollutants.
3. This SWPPP is not achieving the general objectives of minimizing pollutants in stormwater discharges or if this plan is not consistent with the SDR100000 General Permit for Stormwater Discharges Associated with Construction Activities.
4. If the South Dakota Department of Environment and Natural Resources notifies the Owner (i.e. permittees) that additional requirements are needed, requirements are not being met for TMDL or other water quality standards, or that the SWPPP did not incorporate the necessary requirements.

3.1 SWPPP Amendment Log

The following table should be completed as necessary during construction to document changes and amendments to this document. Place the Amendment Number next to all application changes, redlines and information in the document to reference back to the changes summarized below. If an additional sheet is necessary attach the additional sheet to the SWPPP.

Table 1: Amendment Log

Amend #	Date	Reason, location and brief description of change or amendment	Requested by:	Prepared by:

3.2 SWPPP Amendment Certification

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system,

or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Amendment #:_____

_____	_____	_____
Signature	Printed Name and Title	Date

Amendment #:_____

_____	_____	_____
Signature	Printed Name and Title	Date

Amendment #:_____

_____	_____	_____
Signature	Printed Name and Title	Date

Amendment #:_____

_____	_____	_____
Signature	Printed Name and Title	Date

Amendment #:_____

_____	_____	_____
Signature	Printed Name and Title	Date

4.0 SITE INFORMATION

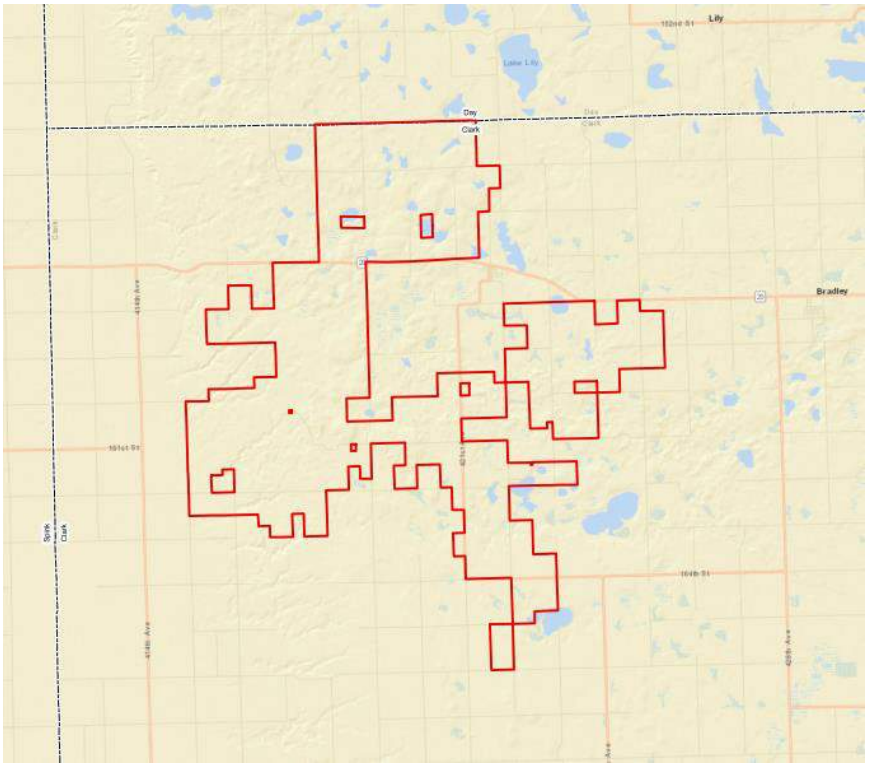
4.1 Site Location and Proximity Map

The Crocker Wind Project site is located in Clark County, South Dakota near the City of Crocker. The nearest intersection is Highway 20 and 418th Avenue. The site is bordered on the north by the Day County border, on the south by County Road 52, on the west by County Road 1, and on the east by 426th Avenue.

Table 2: Project Location

Section	Township	Range
23-27, 34-36	119N	59W
3-10, 15-19, 25-26, 30-31, 33-36	119N	58W
29-32	119N	57W
1-3, 10-15	118N	59W
1-12, 14-16, 21-23, 26, 34	118N	58W
Latitude and Longitude Points (Decimal)		
Latitude	45.070650°	
Longitude	-97.848439°	

Vicinity Map



4.2 Existing Conditions

The slope and terrain of the site generally consists of mild slopes. The project drains via overland flow into various unnamed tributaries and wetlands. These waterbodies ultimately drain into Mallard Slough, Reid Lake, Clark Center Church-Timber Creek, Turton Creek, and Sweetwater Lake.

4.2.1 Non-vegetative Cover

Prior to construction, non-vegetative cover on-site includes paved roadways, gravel roadways, and agricultural structures.

4.2.2 Vegetative Cover

Prior to construction, vegetative cover includes agricultural fields, grassland, and trees.

4.2.3 Land Use

Prior to construction, the site area was primarily used for agricultural production. At the time of SWPPP completion, a Phase 1 Environmental Site Assessment has not been conducted.

4.3 Soil Names and Types

Soils present on 2% or more of the site include: Barnes-Buse-Svea loams; Buse-Barnes loams; Forman-Buse-Aastad loams; Parnell silty clay loam; Renshaw-Sioux complex, coteau; and Southam silty clay loam. These soils belong to Hydrologic Soil Groups (HSGs) B, C, and C/D. Soils belonging to HSGs B and C have moderately low and moderately high runoff potential when wet, respectively. Soils belonging to dual HSG C/D have moderately high runoff potential when drained and high runoff potential when undrained. Soils present on less than 2% of the total site area were not included in the following tables but can be found in the comprehensive soils maps in Attachment C. Soils information summarized above and in the following tables is from the USDA Natural Resources Conservation Service Web Soil Survey (Accessed: 08/14/2018). Source: https://websoilsurvey.nrcs.usda.gov/app/.

4.3.1 Soil Erosivity

Table 3: Soil K Factors and Erosivity Hazards

Soil Name / Type	K Factor	Erosivity Hazard				Reason(s) for Erosivity Rating
		Slight	Moderate	Severe	Very Severe	
Barnes-Buse-Svea loams, 1-6%	0.28	X				Lack of slope
Barnes-Buse-Svea loams, 2-9%	0.28	X				Lack of slope
Buse-Barnes loams, 9-20%	0.24		X			Slope/erodibility
Forman-Buse-Aastad loams, 1-6%	0.20	X				Lack of slope
Forman-Buse-Aastad loams, 2-9%	0.28	X				Lack of slope
Parnell silty clay loam	0.24	X				Lack of slope
Renshaw-Sioux complex, coteau, 2-6%	0.28	X				Lack of slope
Renshaw-Sioux complex, 6-9%	0.28	X				Lack of slope
Southam silty clay loam, 0-1%	0.32	X				Lack of slope

4.3.2 Soil Particle Size

Table 4: Soil Particle Sizes

Soil Type	% Sand	% Silt	% Clay	% Site Area
Barnes-Buse-Svea loams, 1-6%	39.8	37.7	22.5	15.4
Barnes-Buse-Svea loams, 2-9%	39.8	37.7	22.5	14.7
Buse-Barnes loams, 9-20%	43.0	39.5	17.5	14.9
Forman-Buse-Aastad loams, 1-6%	38.1	36.4	25.5	8.9
Forman-Buse-Aastad loams, 2-9%	39.8	37.7	22.5	5.7
Parnell silty clay loam	18.7	47.8	33.5	3.2
Renshaw-Sioux complex, coteau, 2-6%	45.0	40.0	15.0	2.1
Renshaw-Sioux complex, 6-9%	45.0	40.0	15.0	3.1
Southam silty clay loam, 0-1%	7.0	64.0	29.0	4.3

5.0 PROJECT INFORMATION

5.1 Owner and Information

Owner Information
Crocker Wind Farm, LLC
Joe Ibrahim; Director – Construction
7650 Edinborough Way, Ste. 725, Edina, MN 55435
952-358-5681; joe@geronimoenergy.com

5.1.1 Owner Responsibilities

The owner responsibilities include:

- Developing a SWPPP prior to submitting the Notice of Intent (NOI);
- Submitting a complete and accurate NOI;
- Complying with all terms and conditions of the General Permit for Stormwater Discharges Associated with Construction Activities;
- Keeping the permit up to date (partial, whole, contractor, builders, etc.);
- Submitting the Notice of Termination (NOT) within thirty days of meeting requirement of final stabilization;
- Identifying who has long term operation and maintenance responsibility of the permanent stormwater controls;
- Developing a chain of responsibility with the operators to ensure NPDES and SWPPP compliance;
- Identifying trained personnel to oversee the SWPPP and conduct inspections;
- Identifying trained personnel to develop a SWPPP; and
- Identifying trained personnel to install and maintain best management practices.

5.2 Project Type and Proposed Conditions

5.2.1 Non-vegetative Cover

Post-construction, additional non-vegetative cover will include access roads, turbines, an O&M facility, a switchyard, and a substation.

5.2.2 Vegetative Cover

Vegetative cover will be restored to pre-construction conditions, including agricultural land use and vegetative row crops. Areas not returned to agricultural conditions or covered by non-vegetative cover will be restored with grass cover via seeding as detailed in this SWPPP.

5.2.3 Land Use

The proposed land use for the project includes wind energy infrastructure such as turbines, access roads, electrical collection and transmission, a temporary concrete batch plant and laydown yard, an O&M facility,

a switchyard, and a substation. Existing agricultural land uses will be restored and returned to pre-construction land use conditions where the permanent wind energy infrastructure is not constructed.

5.3 Pre and Post Project Estimates

Table 5: Project Area Estimates

Project Area	Disturbed Area	Existing Impervious Area	Post Construction Impervious Area
28,920 Acres	1,049 Acres	37 Acres	69.6 Acres

5.4 Construction Activity Description

Construction activity should include installation of up to 77 wind turbines. Construction of the wind turbines requires, but is not limited to, the installation of a substation, an operations and maintenance building, a switchyard, a temporary laydown yard and temporary concrete batch plant, underground electrical collection, overhead transmission, and 16-foot wide gravel access roads with temporary fifty foot wide disturbance due to temporary compacted shoulders (10 feet on each side) for truck transport of materials and crane walking paths. Minor construction activity will be necessary for some existing road and radii. The crane paths are specifically designed to follow access roads to limit disturbance of streams and other sensitive areas such as steep slopes and will be approximately 36 feet wide where located away from access roads. All temporary crane paths should be restored to preconstruction conditions after the use of the paths. The SWPPP shall be amended to show locations and disturbance areas as necessary should locations change during construction.

Project Activity Descriptions

NOTE: All sensitive areas shall be marked prior to start of earth disturbance activities. If any subsurface and/or surface drainage features are altered during construction, restore to pre-construction conditions and drainage patterns. Coordinate the work with the Landowner.

1. Access road construction activity and phasing should include:
    a. Redistributing topsoil along one or both sides of the road in a linear fashion;
    b. Temporarily stabilizing ditches (such as erosion control blanket) and applying perimeter sediment controls within the timeframes of the Construction General Permit (CGP);
    c. Compacting subgrade;
    d. Applying gravel base;
    e. Decompacting soils following turbine erection;
    f. Applying topsoil for non-aggregate areas during final grade;
    g. Applying final gravel cap to road;
    h. Maintaining pre-construction drainage patterns and runoff;
    i. Restoring any subsurface and/or surface drainage features to pre-construction conditions and drainage patterns if altered during construction; and
    j. Returning disturbed areas not part of the final road to pre-construction conditions.

2. Turning radius and temporary intersections construction activity and phasing should include:
    a. Stripping and stockpiling topsoil;
    b. Applying seed and erosion control blanket, turf reinforcement mat, mulch cover or similar methods for restoration to pre-construction conditions;

c. Installing culverts as necessary and according to the plan for the accesses;

d. Filling with native material to grade;

e. Applying gravel base;

f. Removing turning radius (removing gravel and fill soils) following turbine component delivery or turbine erection;

g. Removing any extra culvert lengths; and

h. Reapplying topsoil and final grade.

3. Turbine area construction activity and phasing should include:

a. Stripping and segregating topsoil and applying topsoil in a soil berm along with tracking and seeding around the downgrade perimeter of the turbine pad area;

b. Installing silt fence at the perimeter as necessary and as shown on the plans;

c. Excavating areas required for the foundation and stockpiling the subsoils;

d. Dewatering accumulated groundwater or stormwater via pump as necessary and ensuring discharged water does not contribute sedimentation to receiving waters;

e. Providing temporary stabilization measures (such as mulch, erosion control blanket, and turf reinforcement mat);

f. Temporarily covering the stockpiles with hydromulch or other temporary cover BMP for water and wind erosion protection;

g. Constructing concrete washout area or using a common concrete washout during concrete work for mud mat and foundation construction;

h. Grading crane pad for turbine erection;

i. Erecting the turbine;

j. Backfilling subsoils and topsoil with a rough grade; and

k. Returning disturbed areas not part of the final road to pre-construction conditions.

4. Temporary crane path construction activity and phasing should include:

a. Planning crane walks according to unique area conditions where crane walks will occur;

b. Installing downgrade perimeter controls, such as fiber logs or silt fence, to protect conveyances as field conditions dictate;

c. Walking cranes across waterways/conveyances during dry conditions when possible;

d. Providing timber mat crossings for grass waterway crossings, swale crossings, and other gradual conveyance crossings;

e. Providing temporary creek/waterway crossing BMPs according to details shown on plans and explained in this SWPPP narrative; and

f. Restoring all disturbed areas to pre-construction conditions following crane walk activity by tilling to agricultural condition or applying necessary mulch/erosion control blanket and seeding to areas for restoration to pre-construction condition.

5. Electrical underground construction activity and phasing should include:

a. Open trenching or plowing collection line across fields, repairing or restoring any drain tile encountered;

b. Segregating topsoil from subsoils unless otherwise agreed upon by the landowner;

c. Dewatering accumulated groundwater or stormwater via pump (if necessary) and dewatering bag, ensuring discharged water does not contribute sedimentation to receiving waters;

d. Using perimeter control, such as logs, silt fence, or rock checks, if open trenching or plowing through a waterway or conveyance; and

e. Applying seed with erosion control blanket or mulch to restore grass waterway to pre-construction conditions.

6. Laydown yard construction activity and phasing should include:

a. Providing stable accesses to area and installing culverts according to the plans;

b. Installing silt fence and other sediment controls as necessary and as detailed in the plans;

c. Stripping and stockpiling topsoil around the up-gradient perimeter of the laydown yard for a diversion of water or downgrade perimeter of the yard for runoff control;

d. Applying rock base to designed thickness;

e. Temporarily covering the stockpiles with hydromulch or weed-free straw/hay after seeding with temporary seed mix;

f. Providing necessary secondary containment, secure storage, and maintenance activities during operation;

g. Removing rock and decompacting and reapplying topsoil to the area after the laydown yard is no longer needed; and

h. Returning disturbed areas to pre-construction conditions, which may include applying seed and mulch cover for restoration.

7. Batch Plant construction activity and phasing information:

a. Providing stable accesses to area and installing culverts according to the plans;

b. Installing silt fence and other sediment controls as necessary and as detailed in the plans;

c. Stripping and stockpiling topsoil around the up-gradient perimeter of the batch plant for a diversion of water or downgrade perimeter of the plant for runoff control;

d. Applying rock base to designed thickness;

e. Temporarily covering the stockpiles with hydromulch or weed-free straw/hay after seeding with temporary seed mix;

f. Providing necessary secondary containment, secure storage, and maintenance activities during operation;

g. Providing a designated and contained concrete washout area as per detail and SWPPP specifications. Properly dispose of washout water or recycle as needed;

h. Sampling all discharges from concrete batch plant area;

i. Providing dust control and material control as required;

j. Removing rock and decompacting and reapplying topsoil to the area after the batch plant is no longer needed; and

k. Returning disturbed areas to pre-construction conditions, which may include applying seed and mulch cover for restoration.

8. Collector substation construction activity and phasing should include:

a. Providing stable accesses to area and installing culverts according to the plans;

b. Installing silt fence and other sediment controls as necessary and as detailed in the plans;

c. Stripping and stockpiling topsoil around the up-gradient perimeter for a diversion of water or downgrade perimeter of the substation for runoff control;

d. Applying rock base to designed thickness;

e. Temporarily covering the stockpiles with hydromulch or weed-free straw/hay after seeding with temporary seed mix;

f. Constructing a concrete washout area prior to starting concrete work;

g. Constructing electrical components and fencing; and

h. Returning disturbed areas not part of the final gravel pad to agricultural conditions or applying seed and mulch cover for restoration to pre-construction conditions.

9. Electrical Overhead construction activity and phasing information:

a. Accessing structure areas from public roads or through the established right-of-way;

b. Avoiding vehicle traffic through swales, waterways, and wetlands;

c. Selectively removing vegetation only as necessary to complete construction activity;

d. Stockpiling spoil piles or other soil/material out of the ditch areas and providing fiber logs for perimeter sediment control;

e. Dewatering to restore to existing vegetative conditions or using dewatering bags to control discharge of sediment if the structure foundation area accumulates water;

f. Backfilling material around the structure; and

g. Returning disturbed areas to pre-construction conditions and operational control of the farmer, which may include applying seed and mulch cover for restoration.

10. Operation and maintenance facility construction activity and phasing should include:

a. Providing stable accesses to area and installing culverts according to the plans;

b. Installing silt fence and other sediment controls as necessary and as detailed in the plans;

c. Stripping and stockpiling topsoil around the up-gradient perimeter for a diversion of water or downgrade perimeter of the area for runoff control;

d. Temporarily covering the stockpiles with hydromulch or weed-free straw/hay after seeding with temporary seed mix;

e. Constructing a concrete washout area prior to starting concrete work;

f. Completing concrete work and building construction;

g. Applying rock base to designed thickness;

h. Applying rock base for parking areas as designed; and

i. Providing seed with mulch or erosion control blanket following final grade.

11. Switchyard construction activity and phasing should include:

a. Providing stable accesses to area and installing culverts according to the plans;

b. Installing silt fence and other sediment controls as necessary and as detailed in the plans;

c. Stripping and stockpiling topsoil around the up-gradient perimeter for a diversion of water or downgrade perimeter of the substation for runoff control;

d. Applying rock base to designed thickness;

e. Temporarily covering the stockpiles with hydromulch or wood mulch after seeding with temporary seed mix;

f. Constructing a concrete washout area prior to starting concrete work;

g. Constructing electrical components and fencing; and

h. Returning disturbed areas not part of the final gravel pad to agricultural conditions or applying seed and mulch cover for restoration to pre-construction conditions.

5.5 Project Activity Schedule

Table 6: Project Schedule

Activity	Start Date	End Date
Overall Project	09/01/2018	12/31/2019
Access Roads		
Crane Paths / Turbine Erection		
Excavations / Foundations		
O&M Facility		
Substation		
Switchyard		
Underground Collection		
Overhead Transmission		
Laydown Yard / Batch Plant		

5.6 Project Phasing

The project will be completed in one phase with the contractor working concurrently and in sequence to start. Construction of access roads, a temporary laydown yard and batch plant, crane paths, wind turbines, an operations and maintenance (O&M) building, a substation, underground electrical collection, a switchyard, and overhead transmission will take place in this timeframe along with erosion/sediment control BMP installation. BMPs will be installed and maintained throughout the project as needed. Safety and site cleanliness will be emphasized throughout the entirety of the project, and site cleanup and restoration of disturbances will be ensured once construction is complete.

5.7 Project Contacts and Chain of Responsibility

Table 7: Project Contacts

Company*	Name or Position	Responsibility	Contact Number
		Site Development	
		Dirt Work / Grading / Turbine / Cranes / Excavation	
		Underground Electrical	
		Overhead Electrical	
		Switchyard	
		Substation	
		O&M Building	
		Laydown / Batch Plant	
		Project Environmental Contact	
		Routine SWPPP Inspections	
Westwood Professional Services	Aaron Mlynek, CPESC	SWPPP development	952-697-5710
		Restoration	
		BMP installation	
		BMP Maintenance	

6.0 ADDITIONAL SITE OR PROJECT CONSIDERATIONS

6.1 Chemical Treatments

At the time of SWPPP completion the use of chemical additives or polymers for purposes of sediment flocculation are not anticipated for this project. Should chemical treatment become necessary based upon inspection results, weather conditions or construction means and methods the table below must be updated to reflect the chemical used. **IMPORTANT: Prior approval from the SDDENR is necessary for any chemical additive for discharging stormwater.**

Table 8: Flocculation Plan Summary (Not Applicable)

Flocculation Chemical	Application Location	Primary Soil Types	Settling BMPs Used	Application Method	Receiving Water	Mfr Dosing Rate

6.2 Environmental Review Document

At the time of SWPPP completion, there are no known environmental review documents which apply to this project.

7.0 RECEIVING WATERS

The table below summarizes the immediate receiving waters from the site. Where necessary the receiving waters have been designated immediate (for the first surface water receiving drainage from the site) and ultimate (for the surface water receiving runoff from site after the immediate receiving waters). The receiving waters listed are located within a mile and receive water from the site discharge location(s).

The project drains via overland flow into various unnamed tributaries and wetlands. These waterbodies ultimately drain into Mallard Slough, Reid Lake, Clark Center Church-Timber Creek, Turton Creek, and Sweetwater Lake. Refer to Attachment D for drainage maps.

Table 9: Receiving Waters

Name of Waterbody	Immediate (I) or Ultimate (U)	Type (wetland, lake, stream, ditch)	Impaired? Y/N	MS4? Y/N
Unnamed Tributaries to HUC 101600050305	I	overland flow	N	N
Unnamed Tributaries to Town of Lily	I	overland flow	N	N
Unnamed Tributaries to Mallard Slough	I	overland flow	N	N
Unnamed Tributaries to Reid Lake	I	overland flow	N	N
Unnamed Tributaries to Clark Center Church-Timber Creek	I	overland flow	N	N
Unnamed Tributaries to Turton Creek	I	overland flow	N	N
Unnamed Tributaries to Sweetwater Lake	I	overland flow	N	N
Unnamed Wetlands	I	wetland	N	N
Mallard Slough	U	slough	N	N
Reid Lake	U	lake	Y*	N
Clark Center Church-Timber Creek	U	creek	N	N
Turton Creek	U	creek	N	N
Sweetwater Lake	U	lake	N	N

*Non-construction related parameter

7.1 Impaired Waters

There are no impaired (construction-related parameter) waterbodies which receive stormwater discharge within one mile of the site disturbed area according to the Construction Stormwater Impaired Water Search, South Dakota Department of Environment and Natural Resources website: http://denr.sd.gov/dfta/wp/tmdl.aspx (Accessed: 08/14/2018).

8.0 STORMWATER MANAGEMENT

8.1 Temporary Practices

There are no anticipated temporary stormwater management practices at the time of SWPPP completion due to no contiguous 10 acre drainage areas discharging to a common point or no contiguous 5 acre areas in impaired or special waters areas. The table below could be used by the inspector if temporary practices are needed based upon inspection results, construction methods, or climatic conditions.

8.1.1 Calculations

Calculations are not applicable to this project as there are no temporary stormwater management practices requiring calculations. If it is determined in the field that temporary sediment basins are required, the following table should be completed.

Table 10: Temporary Sediment Basin Calculations (Not Applicable)

Basin #	Storm Frequency	Rainfall Amount	Runoff Area	Runoff Volume	Capacity Needed
1	2 yr. / 24 hr.	2.10”	Acres	ac ft.	ac ft.
2	2 yr. / 24 hr.	2.10”	Acres	ac ft.	ac ft.
3	2 yr. / 24 hr.	2.10”	Acres	ac ft.	ac ft.

8.2 Permanent Practices

The analysis shows low water depths and velocities across the majority of the site with the exception of the lakes and prairie potholes scattered throughout the project boundary. During a 100-year storm, the flood depths across the majority of the project area are less than 0.5 feet with velocities less than 1 foot/second. FEMA has not completed a study to determine flood hazard for the selected location; therefore, a flood map has not been published at this time. Due to the flat landscape in the area, many prairie potholes store the water during flood events creating areas of localized flooding. These flows have a depth greater than 1 foot. These areas of the site should be avoided and any turbines located in these locations will need mitigation or to be relocated. Due to the steeper slopes adjacent to the streams, there are areas with erosion and velocity issues which should also be avoided.

Another issue to be noted is that the water levels in this area have been rising over the last 8 years based on the aerial imagery for the area. Rising water elevations cannot be ignored as it greatly affects the accuracy of the FLO-2D inputs from various years. For example, the IFSAR data from 2008 occurred under lower water elevations than currently exist on the site in 2016. This primarily affects the storage available in depressions and curve numbers (e.g. when row crop on C soils converts to wetland, the curve number increases from 85 to 98). This should be considered when placing roads and turbines throughout the project area. The rising water levels could have an effect on turbine placement or access roads near low areas if this trend continues. To further analyze the rising water levels, an analysis of a 100-year spring snowmelt was input into the FLO-2D model. These results show deeper water levels than the 100-year rainfall.

8.2.1 Calculations

Refer to the Preliminary Hydrology Study completed by Westwood Professional Services, dated 05/16/2018.

9.0 TEMPORARY BEST MANAGEMENT PRACTICES

9.1 Soil Management

After clearing and grubbing, the grading contractor will strip and stockpile topsoil material for reapplication on all future permanent pervious surface areas. During development, grading and utility construction the subsoils will be compacted as necessary for construction using typical excavation techniques. During final grade, reapplication of 4 to six inches of topsoil will be done by a wide-pad dozer and other equipment to minimize compaction of the topsoil material.

9.2 Natural Buffers and No-disturbance Areas

Natural Buffers

An undisturbed 50 foot buffer zone will be preserved for all surface waters on-site. The use of linear sediment controls will be installed upgradient to provide sediment control and delineate the 50 foot buffer. Refer to the site erosion and sediment control plans for the location of the buffer. The following activities are prohibited to take place within the buffer area:

- Placing stockpiles;
- Disturbing vegetation;
- Placing construction material; and
- Storing gas, oils, or other potentially polluting material.

In lieu of a 50 foot undisturbed buffer in areas where buffers are infeasible, the use of redundant sediment controls will be implemented. A combination of silt fence and/or fiber rolls will be installed prior to disturbance of up-gradient areas. The contractor will make a reasonable effort to start and finish work in the 50 foot area first so additional stabilization controls can be applied.

No-disturbance Areas

See engineering plans in Attachment E for applicable no-disturbance limits.

9.3 Erosion Prevention Practices

The following controls are anticipated to minimize soil loss from the construction site area. The controls should help to minimize soil from being transported from water and wind as well as aide in establishment of temporary and permanent vegetation. Prior to grading and during clearing and grubbing, the areas of vegetation preservation, buffers and other areas of no-disturbance should be flagged, staked or otherwise delineated.

Timing for disturbed areas and slopes

Temporary erosion prevention practices should be initiated immediately after construction activity disturbing soil in an area is temporarily or permanently ceased for a period of 14 days. The application of temporary erosion control management practices should be completed prior to the fourteenth day of temporarily or permanently ceasing construction activity in an area of the project.

Stockpile Management

- Locate the stockpiles and debris outside of any natural buffers established and away from any stormwater conveyances, drain inlets, and areas where stormwater flow is concentrated;
- Protect the stockpile debris from contact with stormwater run-on by using temporary sediment controls, berms, or other best management practices;
- Properly maintain and position stockpiles to minimize dust generation and wind transport of sediment; and
- Minimize stormwater runoff from the piles by properly positioning stockpiles and debris or installing effective sediment controls.

- Operators shall not place stockpiles in surface waters of the state.

Table 11: Erosion Controls

Potential BMPs	Construction Phase or Activity									Application Notes	
	Access Roads	Laydown Yard / Batch Plant	Crane Paths / Turbine Erection	Excavations / Foundations	O&M Building	Substation	UG Collection	OH Transmission	Switchyard		
Construction Phasing	**T**	**T**	**T**	**T**	**T**	**T**	**T**	**T**	**T**	Minimize soil disturbance, as feasible, per phase. Stake/flag areas that are to be left undisturbed.	
Buffer Strips	**T**	**T**	**T**	**T**	**T**	**T**	**T**	**T**	**T**	See Section 8.2 for more information.	
Surface Roughening	**T**	**T**	**T**	**T**	**T**	**T**	**T**	**T**	**T**	Use tracked equipment perpendicular to contour on steep slopes for temp/short term erosion control.	
Straw / Hay Mulch	**T/P**	**T/P**	**T/P**	**T/P**	**T/P**	**T/P**	**T/P**	**T/P**	**T/P**	Apply at two tons/acre. Disc anchor to soil. Weed Free mulch should be used.	
Dust Control	**T**	**T**	**T**	**T**	**T**	**T**	**T**	**T**	**T**	Contractor to apply water or dust palliatives.	
Erosion Control Blanket	**T/P**	**T/P**	**T/P**	**T/P**	**T/P**	**T/P**	**T/P**	**T/P**	**T/P**	Straw or wood fiber, double-sided netting blanket should be installed per manufacturer's recommendations.	
Hydroseed	**T/P**	**T/P**	**T/P**	**T/P**	**T/P**	**T/P**	**T/P**	**T/P**	**T/P**	Apply at a minimum of 1,800 pounds per acre from two directions to prevent shadowing. Could use in lieu of mulch.	
Timber Matting	**T**	**T**	**T**	**T**	**T**	**T**	**T**	**T**	**T**	Channel slopes to be modified temporarily during construction to allow for crane crossing. Restore to original conditions	
Temporary Seed Mix	**T**	**T**	**T**	**T**	**T**	**T**	**T**	**T**	**T**	Application Rate = See mix.	Prepare soil prior to seeding. Broadcast and rake seed into soil prior to mulch or blanket.
Permanent Seed Mix	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	**P**	Application Rate = See mix.	

T= Temporary BMPs which will be removed following construction completion and final stabilization.

P= Permanent BMPs which will provide vegetative/non-vegetative stabilization or will not be removed following completion of construction.

South Dakota Department of Transportation Type B Permanent Seed Mixture:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/Acre)
Western Wheatgrass	Arriba, Flintlock, Rodan, Rosana, Walsh	7
Switchgrass	Dacotah, Forestburg, Nebraska 28, Pathfinder, Summer, Sunburst, Trailblazer	3
Indiangrass	Holt, Tomahawk, Chief, Nebraska 54	3
Big Bluestem	Bison, Bonilla, Champ, Sunnyview, Rountree, Bonanza	3
Canada Wildrye	Mandan	2
	Total:	18

9.4 Sediment Control Practices

The following controls are anticipated to minimize sediment discharge, capture sediment in suspension and minimize sedimentation off site.

Table 12: Sediment Controls

Potential BMPs	Construction Phase or Activity									Application Notes
	Access Roads	Laydown Yard / Batch Plant	Crane Paths / Turbine Erection	Excavations / Foundations	O&M Building	Substation	UG Collection	OH Transmission	Switchyard	
Silt fence	**T**	**T**	**T**	**T**	**T**	**T**	**T**	**T**	**T**	Machine sliced install with wood posts at six foot spacing. Install perimeter silt fence prior to grading
Fiber rolls	**T**	**T**	**T**	**T**	**T**	**T**	**T**	**T**	**T**	Install on contour, minimum of six inch roll, wood or straw fiber. Trench in approximately 2 inches and secure with two inch posts every two feet on center.

T= Temporary BMPs which will be removed following construction completion and final stabilization.

P= Permanent BMPs which will provide vegetative/non-vegetative stabilization or will not be removed following completion of construction.

9.5 Run-on and Runoff Controls

The following controls are anticipated to minimize scour, transport water across or down steep slopes or critical areas, divert clean water, and / or provide temporary conveyances to maintain drainage.

Table 13: Run-on and Runoff Controls

Potential BMPs	Construction Phase or Activity									Application Notes
	Access Roads	Laydown Yard / Batch Plant	Crane Paths / Turbine Erection	Excavations / Foundations	O&M Building	Substation	UG Collection	OH Transmission	Switchyard	
Riprap Apron / Energy Dissipation	**T/P**	**T**	**T**		**T/P**	**T/P**				See detail in plans. Install within twenty-four hours of connection to surface waters.
Culvert Protection	**T/P**	**T/P**	**T**	**T/P**	**T/P**	**T/P**	**T**	**T**	**T**	See details in plan set. Install within twenty-four hours of installation of culverts.
Gravel Bag Berm	**T/P**	**T/P**	**T**	**T/P**	**T/P**	**T/P**	**T**	**T**	**T**	See detail in plans.
Low Water Crossing	**T/P**									See detail in plans.

T= Temporary BMPs which will be removed following construction completion and final stabilization.

P= Permanent BMPs which will provide vegetative/non-vegetative stabilization or will not be removed following completion of construction.

9.6 Tracking Controls

The following controls are anticipated to minimize or prevent sediment track-out from construction site exits to paved surfaces or to retrieve material tracked onto paved surfaces to minimize or prevent the material from being washed into surface waters or stormwater inlets.

Table 14: Tracking Controls

Potential BMPs	Construction Phase or Activity									Application Notes
	Access Roads	Laydown Yard / Batch Plant	Crane Paths / Turbine Erection	Excavations / Foundations	O&M Building	Substation	UG Collection	OH Transmission	Switchyard	
Rock Pad	**T**	**T**			**T**	**T**				See detail in plans. Install at all site exits prior to grading. Maintain for duration of project.
Gravel or Aggregate Road Base	**T /P**	**T**	**P**		**T /P**	**T /P**				See detail and notes in plans.
Street Scraping	**T**	**T**	**T**		**T**	**T**	**T**	**T**		Scrape large clumps/amounts of material with soft tracked or wheeled equipment prior to sweeping.
Street Sweeping	**T**	**T**	**T**		**T**	**T**	**T**	**T**		Sweep paved surfaces within twenty-four hours of discovery.

T= Temporary BMPs which will be removed following construction completion and final stabilization.

P= Permanent BMPs which will provide vegetative/non-vegetative stabilization or will not be removed following completion of construction.

9.7 Dewatering and Basin Draining Practices

Dewatering Accumulated Water (via pump, trench, temporary ditch or grade cuts)

Dewatering of turbid water (water that is visibly cloudy or brown in color) should be discharged via pump and hose or overland flow to a temporary sediment basin for pretreatment. The use of riprap apron (energy dissipation) should be used for the discharge location. If riprap is not used, an alternative form of energy dissipation should be used to prevent scour and re-suspension of soil at the discharge point of the hose. If discharge to a temporary sediment basin is not feasible, the use of dewatering dumpsters, dewatering bags or other prefabricated product should be used. The use of rock checks, erosion control blanket and sumps or traps may be considered for overland flow. After the use of BMPs, the water could be discharged through a vegetated buffer and energy dissipation. The discharge of water from the site should be visibly clear in appearance.

NOTE: the permittee may be required to obtain a Temporary Water Right. Contact the SDDENR at 605-773-3352 for more information. It is the operator and permittee responsibility to obtain necessary water rights.

The discharge of accumulated water should not:

- Contain oil, grease, a sheen, odor, or concrete washout;
- Adversely impact adjacent properties with water or sediment;
- Adversely impact waters of the state;
- Cause erosion of slopes and channels;
- Cause nuisance conditions; or
- Contribute to inundation of wetlands which negatively impact the wetlands.

9.8 Sampling Requirements

If the discharge observed contains suspended solids the following must be implemented:

- Installation of additional best management practices and update this SWPPP.
- Sample the dewatering discharge for total suspended solids on a daily basis until there is no longer a discharge of visible solids.
- Samples must be analyzed in accordance with 40 CFR, Part 136 which may require sending the samples to an off-site laboratory for analysis.
- If the sample results exceed 53 mg/L in any sample or measurement you must cease the dewatering discharge to surface waters of the state until the operator can demonstrate additional best management practices are sufficient to eliminate visible pollutants.
- Document sampling and results or any updates in this SWPPP.

10.0POLLUTION PREVENTION MANAGEMENT

10.1 Storage, Handling and Disposal of Construction Materials

Storage and Handling

- All products shall be kept in their original container, with original labels still attached, unless the container is not re-sealable.
- Storage of all diesel fuel, oil, hydraulic fluids, other petroleum products and other chemical and products must be within water-tight containers.
- Hazardous materials shall be returned to the hazardous material storage area at the end of each day and be contained within sealed containers and provide secondary containment as applicable. .
- An effort should be made to store only enough products to do the required job.
- The contractor shall provide tanks or barrels to collect liquid byproducts that pose a pollution hazard.
- The pollutants shall be removed from the site on a weekly basis and disposed of in accordance with federal, state and local regulations.
- All spills shall be cleaned up immediately after discovery, in accordance with the manufacture's recommended methods.
- Hazardous materials shall be properly stored to prevent vandalism or unauthorized access.
- Containment units shall be installed in accordance with federal, state, and local regulations.
- No hazardous material shall be stored within 200 feet of an identified critical area.
- If building materials, chemicals, or general refuse is being used, stored, disposed of, or otherwise managed inappropriately, the contractor shall correct such defects within twenty-four hours of detection or notification.

Disposal (Dumpsters)

- Locate dumpsters away from watercourses, streams, creeks and other surface waters or conveyances.
- Site inspector shall regularly observe for and report excess litter and solid waste and request pickup and retrieval of wastes.
- Wastes, litter, debris shall be deposited into dumpsters in a central location and / or in various satellite locations where work is active.
- Dumpsters should be supplied by and regularly maintained, emptied and removed by a waste management company.

10.2 Fueling and Maintenance of Equipment and Vehicles; Spill Response

- Routine maintenance of vehicles may occur in staging areas only if necessary.
- Where maintenance must occur on-site, the activity should occur in a defined area of the laydown yard or at a field site with adequate spill, leak, and drip protection.
- If fueling is done by mobile tank and dispenser, provide close supervision for the transfer of fuel, use drip pans, and make spill containment and cleanup materials readily available.
- If fueling is done via temporary tank, store the tank within a bermed, area and away from surface waters.
- Make Spill Kits with absorbent materials available on site for use in cleaning up small spills.
- In the event of a spill or discharge of hazardous material of reportable quantity, contact the South Dakota Notification Center (605-773-3296), the South Dakota After Hours Center (605-773-3231), If the hazardous condition involves the release of an EPA regulated material or an oil as defined by the EPA, the release may also need to be reported to the National Response Center. Federal Reporting is required within 15 minutes of event occurrence or discovery. Contact the National

Response Center at (800) 424-8802. The NRC is staffed twenty-four hours a day. For more information reference the following website: https://www.epa.gov/emergency-response/when-are-you-required-report-oil-spill-and-hazardous-substance-release.

Table 15: Reportable Spill Quantities

Material	Reportable Spill Quantities
Petroleum Material	25 Gallons
PCB Oil	1 Pound
Other Material	Quantity that causes odor, color, sheen, foam, or other obvious indicator of pollutants.

10.3 Vehicle and Equipment Washing

If necessary, the contractor shall develop a designated wash area with basin containment to prevent the untreated water from discharging from the site to surface waters. BMPs include, temporary basins, inspecting the vehicles and equipment for leaks prior to washing, and prohibiting washing activity until discovered leaks are repaired and maintenance is completed of the equipment or vehicle. The area shall be identified on the site plan. Contain the water, and pump from the site into a truck for proper disposal at a waste water facility. No engine degreasing may be done on site.

10.4 Concrete Washout and Other Washout

Mobile Concrete or Mortar Mixers

Implement the following BMPs with the use of mortar or concrete mixers.

- Store bags of concrete and mortar in dry storage.
- Position mixers a minimum of 100 feet from the nearest watercourse or conveyance.
- If mixers must be positioned closer than 100 feet from a conveyance, install a temporary berm to prevent runoff from the mixer from flowing into the conveyance.
- Use Tarpaulins or plastic sheeting as a liner to prevent concrete or mortar from contacting the soil.
- Use buckets to contain washout /rinse water when cleaning the mobile mixer.
- Dump buckets of washout water in a designated concrete washout area.

Concrete Washout

Implement the following BMPs implemented for concrete washout areas.

- Contain washout water from the tools, equipment, and the chutes of concrete trucks, mobile mixers, or other containers with concrete material, and do not allow it to be discharged into waters of the state or drain onto adjacent properties.
- Define the washout area with signage notifying the contactors of the location and use.
- The washout area should be a sufficient size to contain the expected washout material. 10’x10’x3’ area should suffice for most activities. Additionally: the washout area shall have a sign demarking the area as a washout.
- Multiple washout areas may be needed. Locations of the washouts should be shown on the construction plans by the contractor.
- When identifying the location of the concrete washout areas, include the date of install, date of last maintenance, and date of removal.
- Use thick poly sheeting to prevent contamination of the soil, and prevent infiltration of the washout material.

Once the material is hardened it can be disposed of in a dumpster. If the material is liquid or not hardened, vacuum the material up, haul it off site to properly disposed of or recycle at an approved facility. Some sites will not need the separate washout area if a truck chute washout is available from the concrete supplier.

Truck Chute Washout

Where available, all trucks with self-contained washout and water recycle systems must be used for every truck chute, tool, and equipment rinse and washout. Position the truck in a flat area, away from inlets and surface waters where feasible.

10.5 Portable Sanitary Facilities

- Locate facilities away from watercourses, streams, creeks, and other surface waters or conveyances.
- Place facilities upgradient of perimeter sediment controls, and not on paved or other impervious surfaces.
- Secure facilities to the soil with stakes or tether to other non-movable structure to prevent tipping from wind or other factors.
- Schedule routine and regular cleanout and maintenance of facility from a reliable company.

11.0 INSPECTION AND MAINTENANCE

Construction activity and all support activities must be inspected (using the inspection form found in Attachment F or an alternative form) within the parameters of the schedule below. The inspector shall be a person trained and familiar with the requirements of this SWPPP and the SDR100000 Permit. This person is delegated by the owner.

Scope of inspections* should include:

- Date and time of inspections;
- Inspector's name;
- Findings of the inspection;
- Locations of corrective actions needed;
- Corrective actions taken (date/time/ who);
- Date and amount of rainfall**
- Observed discharges Locations;
- Description of discharges with color, odor, floating, settled, solids, foam, or oil sheen;
- Photographs of discharges

Amendments from inspections need to be completed within seven days (see SWPPP section 3.1).

*All inspections should be documented within twenty-four hours after completing the field inspection, and available in paper or electronic form on site.

**Rainfall amounts should be taken from an onsite rain gauge. If a rain gauge is not feasible, the rain fall data should be observed from the following website:

https://forecast.weather.gov/MapClick.php?lat=45.093990000000076&lon=-97.63948999999997#.W23hMM5KjmE.

11.1 Inspection Schedule

Table 16: Inspection Schedule

If the site is:	Then an inspection is needed:	Notes and Information
Active	☐ Once every fourteen calendar days and within twenty-four hours of a rainfall ≥ 0.5", OR ☒ Once every seven calendar days	A rain gauge should be used or rain data should be taken from the link listed above.
Partial final stabilization	Once every month	Allowed in areas where work is completed and vegetation is established. Other/active areas must follow above.
Subject to Winter/Frozen Conditions	Once every month	Disturbed areas of the site have been temporarily or permanently stabilized. Resuming "active" inspection frequency is required no later than March 1st of each year.

11.2 Maintenance Schedule

Table 17: Maintenance Schedule

BMP	Observed Condition for Maintenance	Maintenance Interval
All non-functional BMPs	Sediment overtopping, under water, scoured ends, undermined, destroyed, non- functional as designed, etc.	Maintenance must be done by the end of the next work day or if the BMP requires replacement: it should be done within seven calendar days or prior to forecast rainfall, whichever is sooner. If sediment escapes the construction site: begin removing the offsite accumulations by the end of the same work day.
Vegetative Buffer	Silt covered, rill erosion observed or otherwise ineffective	Repair by the end of the next working day.
Stabilized Areas (temporary or permanently)	Rill erosion, gulley erosion is observed. Mulch washed away or erosion control blanket is undermined.	Repair and stabilize eroded areas and non-functional stabilization BMPs by the end of the same work day.
Perimeter Sediment Control (silt fence, fiber logs, berms, etc.)	½ full of sediment, flattened to ½ height, driven over, undermined, scoured, moved for access etc.	Maintenance of the BMP: by the end of the next work day or if replacement is required: complete replacement within seven days of discovery or notice or prior to forecast rainfall, whichever is soonest.
Inlet protection BMPs, conveyances, surface waters	Sediment deposition, sediment deltas and accumulation of sediment material.	Removal/cleanout of accumulated sediment and deltas to be removed within seven days. Stabilize as needed if soils are exposed during removal/cleanout.
Temp sed basins and traps; permanent sediment basins	Sediment deposition and accumulation to ½ of the storage volume.	Cleanout, remove accumulated sediment material within seven calendar days or prior to forecast rainfall, whichever is sooner.
Site exit locations, rock exit pads, other anti-tracking practices	Accumulated sediment in rock or other anti-tracking BMP, tracking of sediment from the site onto paved surfaces	Top dress rock, maintain rock exit or other anti-tracking controls, scrap paved surfaces, sweep paved surfaces by the end of the same work day.
Paved surfaces; adjacent streets	Tracked sediment and soil material from the site hauling or access	Sweep within the same work day of discovery; additional and/or more frequent sweeping may be needed to maintain public safety or prevent washing from forecast rains.

12.0 FINAL STABLIZATION

Final stabilization is achieved for the project when permanent erosion control BMPs are applied to the site. The permanent erosion control BMPs may be a combination of vegetative and no vegetative cover types. Additional requirements to achieving final stabilization include:

- All soil disturbing activity is complete;
- Permanent stormwater treatment system (if required) is constructed and accumulated sediment from construction activity has been removed;
- All temporary, synthetic BMPs have been removed from the site;
- In agricultural areas (as applicable), the construction activity area has been restored to the pre-construction agricultural use; and
- The vegetative cover for the site is at a density, with a uniform perennial cover of 70 percent of the expected final growth density.

12.1 Vegetative Cover / Permanent Erosion Control

Vegetative cover will be restored to pre-construction conditions, including agricultural land use and vegetative row crops. Areas not returned to agricultural conditions or covered by non-vegetative cover will be restored with grass cover via seeding as detailed in this SWPPP. Minimization of the presence of invasive species is required. The following seven weeds are declared to be noxious in South Dakota: Canada thistle, hoary cress, leafy spurge, perennial sow thistle, purple loosestrife, Russian knapweed, and salt cedar.

12.2 Non-vegetative Cover / Permanent Erosion Control

The planned permanent erosion control non-vegetative cover BMPs for this site include: access roads, turbines, an O&M facility, a switchyard, and a substation.

13.0 NOTICE OF TERMINATION

The project permit may be terminated in one of the following scenarios.

1. All construction activity is complete, temporary synthetic BMPs are removed, accumulated sediment from construction is removed, and final stabilization is completed with vegetative and/or non-vegetative cover. The Notice of Termination form from the South Dakota Department of Environment and Natural Resources should be completed within thirty days of meeting the conditions above. Upon midnight of the post marked date, the permit coverage is terminated unless otherwise notified by the SDDENR.
2. Within thirty days of selling or otherwise legally transferring ownership of the site in its entirety (including street sweeping and stormwater infrastructure) from the original owner to another party taking responsibility of ownership.
3. Where the project obtained permit coverage but never started construction activity due to cancellation or other reasons. Documentation should be sent to the SDDENR with the NOT form and is subject to SDDENR approval.

14.0 RECORD RETENTION

During construction: this report, amendments and attachments, inspections, and maintenance records should be kept on site during normal business hours. The records should be kept by the owner or operator listed on the permit application. The records should be in a mailbox, in a vehicle or in an on-site office trailer or model home.

Post Construction/Notice of Termination (NOT): the site owner must retain all the following records for a period of at least three years after the submittal of the NOT:

- The final SWPPP with all field notes/amendments;
- Other stormwater related permits in addition to the NPDES permit from SDDENR;
- Inspection and maintenance records;
- All permanent operation and maintenance agreements; and
- All required calculations for design of the temporary and permanent stormwater management systems.

Attachment A

South Dakota General Permit for Stormwater Discharges Associated with Construction Activities SDR100000

Permit Number: SDR100000

SOUTH DAKOTA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

General Permit Authorizing Stormwater Discharges Associated with Construction Activities Under the South Dakota Surface Water Discharge System

In compliance with the provisions of the South Dakota Water Pollution Control Act and the Administrative Rules of South Dakota (ARSD), Article 74:52, owners and operators of stormwater discharges from **construction activities**, located in the state of South Dakota are authorized to discharge in accordance with the conditions and requirements set forth herein.

This General Permit shall become effective on April 1, 2018.

General permit coverage for the [PERMITTEE] shall become effective [EFFECTIVE DATE].

This General Permit and the authorization to discharge shall expire at midnight, **March 31, 2023.**

Signed this **23rd** day of **March, 2018,**

Authorized Permitting Official

Steven M. Pirner
Secretary
Department of Environment and Natural Resources

Note: *This page will be replaced with a copy containing the assigned permit number once coverage has been authorized.*

TABLE OF CONTENTS

1.0 DEFINITIONS

ARSD – Administrative Rules of South Dakota.

Best Management Practices (**BMPs**) – the schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants from the construction site. BMPs also include treatment requirements, operating procedures, and practices to control construction site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Borrow Areas – the areas where materials are dug for use as fill, either onsite or offsite.

Commencement of Construction Activities – the initial disturbance of soils (or 'breaking ground') associated with clearing, grading, or excavating activities or other construction-related activities (e.g., stockpiling of fill material).

Construction Site – the land or water area where construction activities will occur and where control measures will be installed and maintained. The construction site includes construction support activities, which may be located at a different part of the property from where the primary construction activity will take place, or on a different piece of property altogether. The construction site is often a smaller subset of the lot or parcel within which the project is taking place.

Construction Site Washout – as used in this general permit, refers to any wash waters derived from the cleaning of construction trucks and/or equipment including, but not limited to, concrete, mortar, grout, stucco, form release oils, paints, curing compounds, and other construction materials.

Construction Support Activity – a construction-related activity that specifically supports the construction activity and can include activities associated with concrete or asphalt batch plants, equipment staging yards, materials storage areas, excavated material disposal areas, and borrow areas.

Construction Waste – discarded material including, but not limited to, packaging materials, scrap construction materials, masonry products, timber, steel, pipe, electrical cuttings, plastics, and Styrofoam.

Control Measures – as used in this general permit, refer to any best management practice or other method, including narrative effluent limits, used to minimize erosion and sedimentation, and thereby prevent or reduce the discharge of pollutants to surface waters of the state.

Corrective Action – as used in this general permit, refers to any action taken to (1) repair, modify, or replace any control measure used at the site; (2) clean up and dispose of spills, releases, or other deposits found on the site; or (3) remedy a permit violation.

Dewatering – the act of draining or pumping rain water, ground water, or surface waters from building foundations, vaults, trenches, and other areas of the construction site.

Discharge – the addition of any pollutant or combination of pollutants to surface waters of the state from any point source.

Earth-Disturbing Activities – as used in this general permit, means actions taken to alter the existing vegetation and/or underlying soil of a site.

Effective Operating Condition – as used in this general permit, means a control measure is kept in effective operating condition if it has been implemented and maintained in such a manner that it is working as designed to minimize pollutant discharges.

Final Stabilization – on areas not covered by permanent structures, means either (1) vegetation has been established that provides a uniform (e.g., evenly distributed, without large bare areas) perennial vegetative cover with a density of 70 percent of the natural background vegetative cover, (2) permanent non-vegetative stabilization methods have been implemented to provide effective cover for exposed portions of the site, or (3) disturbed portions of a construction site on land used for agricultural purposes must be returned to pre-construction agricultural use.

Historic Property – any building, structure, object, district, area, or site that is significant in the history, architecture, archaeology, paleontology, or culture of the state, its communities or the nation as stated in SDCL 1-19A-2.

Infeasible – as used in this general permit, means not technologically possible or not economically practicable and achievable in light of best industry practices.

Larger Common Plan of Development or Sale – a contiguous area where multiple separate and distinct land disturbing activities may be taking place at different times, on different schedules, but under one proposed plan. "One plan" is broadly defined as any announcement or piece of documentation (including a sign, public notice or hearing, sales pitch, advertisement, drawing, permit application, zoning request, computer design, etc.) or physical demarcation (including boundary signs, lot stakes, surveyor markings, etc.) indicating construction activities may occur on a specific plot.

Minimize – to reduce and/or eliminate to the extent achievable using control measures that are technologically available and economically achievable and practicable in light of best industry practices.

Municipal Separate Storm Sewer System – a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains) that is owned or operated by the state or a municipality and is designed or used for collecting or conveying stormwater. This definition does not include combined sewers or conveyances that are part of a publicly-owned treatment works, as defined by ARSD 74:52:01:01(36).

Municipality – a city, town, county, district, sanitary district, or other public body created by or under state law with jurisdiction over the disposal of sewage, industrial wastes, or other wastes.

Natural Buffer – as used in this general permit, means an area of undisturbed natural cover surrounding surface waters within which construction activities are restricted. Natural cover

includes the vegetation, exposed rock, or barren ground that exists prior to commencement of construction activities.

Nonpoint Source – a source of pollution that is not defined as a point source.

Non-Stormwater Discharges – discharges that do not originate from runoff events. They can include, but are not limited to, discharges of process water, air conditioner condensate, non-contact cooling water, vehicle wash water, sanitary wastes, construction washout water, paint wash water, irrigation water, or pipe testing water.

Notice of Intent or **NOI** – the form (electronic or paper) provided by the Secretary required for authorization of coverage under this general permit (Appendix A).

Notice of Termination or **NOT** – the form (electronic or paper) provided by the Secretary required for terminating coverage under this general permit (Appendix B).

Operator – as used in this general permit and in the context of stormwater discharges associated with construction activity means any party associated with a construction project that meets either of the following two criteria:

1. The party has operational control over construction plans and specifications, including the ability to make modifications to those plans and specifications; or
2. The party has day-to-day operational control of those activities at a project that are necessary to ensure compliance with the general permit conditions (e.g., they are authorized to direct workers at a site to carry out activities required by the general permit).

The operator, along with the owner, is responsible for ensuring compliance with all conditions of this general permit and with development and implementation of the stormwater pollution prevention plan.

Pesticide – any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pests, or any substance or mixture of substances intended for use as a plant regulator, defoliant, or desiccant.

Note: drugs used to control diseases of humans or animals (such as livestock and pets) are not considered pesticides; such drugs are regulated by the Food and Drug Administration. Fertilizers, nutrients, and other substances used to promote plant survival and health are not considered plant growth regulators and thus are not pesticides. Biological control agents, except for certain microorganisms, are exempted from regulation as pesticides under FIFRA. (Biological control agents include beneficial predators such as birds or ladybugs that eat insect pests, parasitic wasps, fish, etc.)

Point Source – any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, animal feeding operation, or vessel or other floating craft from which pollutants are or may be discharge. Construction sites disturbing one (1) or more acres are point sources. Therefore, any

water flowing off the construction site constitutes a discharge and must be covered by a Surface Water Discharge permit.

Pollutant-Generating Activities – at construction sites, as used in this general permit, means those activities that lead to or could lead to the generation of pollutants, either as a result of earth-disturbance or a related construction support activity. Some of the types of pollutants that are typically found at construction sites are:

1. Sediment;
2. Nutrients;
3. Heavy metals;
4. Pesticides and herbicides;
5. Oil and grease;
6. Bacteria and viruses;
7. Trash, debris, and solids;
8. Treatment polymers; and
9. Any other toxic chemicals.

Prohibited Discharges – as used in this general permit, means discharges that are not allowed under this general permit, see Section 2.3.

Qualified Local Program – a municipal program for stormwater discharges associated with construction sites that has been formally approved by SDDENR to act in lieu of the state program.

Regulated Substance – the compounds designated by the department under South Dakota Codified Law §§ 23A-27-25, 34A-1-39, 34A-6-1.3(17), 34A-11-9, 34A-12-1 to 34A-12-15, inclusive, 45-6B-70, 45-6C-45, 45-6D-60, and 45-9-68, including pesticides and fertilizers regulated by the Department of Agriculture; the hazardous substances designated by the federal Environmental Protection Agency pursuant to section 311 of the Federal Water Pollution Control Act and Clean Water Act (33 United States Code sections 1251 to 1387, inclusive), as amended to January 1, 2011; the toxic pollutants designated by Congress or the Federal Environmental Protection Agency pursuant to section 307 of the Toxic Substances Control Act (15 United States Code sections 2601 to 2671, inclusive), as amended to January 1, 2011; the hazardous substances designated by the Federal Environmental Protection Agency pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (42 United States code sections 9601 to 9675, inclusive), as amended to January 1, 2011; and petroleum, petroleum substances, oil, gasoline, kerosene, fuel oil, oil sludge, oil refuse, oil mixed with other wastes, crude oils, substances, or additives to be utilized in the refining or blending of crude petroleum or petroleum stock, and any other oil or petroleum substance. This term does not include sewage and sewage sludge.

Runoff Event – a precipitation event or snowmelt that results in a measurable amount of surface runoff.

SDDENR – the South Dakota Department of Environment and Natural Resources.

Secretary – the Secretary of the South Dakota Department of Environment and Natural Resources, or an authorized representative.

Section 303(d) List or 303(d) List – a list of South Dakota's water quality-limited surface waters requiring the development of Total Maximum Daily Loads (TMDLs) to comply with Section 303(d) Report is available on the SDDENR website. A link to a map of 303(d) listed waters, waters with approved TMDLs is available on the SDDENR stormwater webpage.

Stormwater – means, for the purpose of this general permit, stormwater runoff, snowmelt runoff, or surface runoff.

Stormwater Associated with Construction Activity – means a discharge of pollutants in stormwater to surface waters of the state from areas where construction site or construction support activities occur.

Stormwater Associated with Industrial Activity – means stormwater runoff, snow melt runoff, or surface runoff and drainage from industrial activities as defined in 40 C.F.R. Section 122.26(b)(14) (July 1, 2016).

Stormwater Pollution Prevention Plan or **SWPPP –** means a site-specific, written document that, among other things: 1) identifies potential sources of stormwater pollution at the construction site; 2) describes control measures to reduce or eliminate pollutants in stormwater discharges from the construction site; and 3) identifies procedures the owner or operator will implement to comply with the terms and conditions of this general permit. See Section 5.0 for details on the requirements for a SWPPP.

Surface Waters of the State – lakes, ponds, streams, rivers, wetlands, and any other body or accumulation of water on the land surface that is considered to be waters of the state, but not waste treatment systems, including treatment ponds, lagoons, leachate collection ponds, or stormwater retention ponds designed to meet the requirements of the federal Clean Water Act.

Surface Water Quality Standards – water quality standards adopted pursuant to South Dakota Codified Law §§ 34A-2-10 and 34A-2-11 or actual existing beneficial uses, whichever is higher, and effluent standards adopted pursuant to SDCL § 34A-2-13 or pursuant to the best professional judgment of the Secretary, whichever is applicable. If waters have more than one designated beneficial use and criteria are established for a parameter that is common to two or more uses, such as pH, the more restrictive criterion for the common parameter applies.

Temporary Stabilization – means a condition where exposed soils or disturbed areas are provided a temporary vegetative and/or non-vegetative protective cover to prevent erosion and sediment loss. Temporary stabilization may include temporary seeding, geotextiles, mulches, and other techniques to reduce or eliminate erosion until either final stabilization can be achieved or until further construction activities take place to re-disturb the area.

Total Maximum Daily Load or **TMDL** – means the sum of the individual wasteload allocations for point sources, load allocations for nonpoint sources, and natural background. TMDLs can be expressed in terms of mass per time, toxicity, or other appropriate measures.

Upset – an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limits because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

U.S. EPA – the United States Environmental Protection Agency.

Waters of the State – all waters within the jurisdiction of this state, including all streams, lakes, ponds, impounding reservoirs, marshes, watercourses, waterways, wells, springs, irrigation systems, drainage systems, and all other bodies or accumulations of water, surface and underground, natural or artificial, public or private, situated wholly or partly within or bordering upon the state.

Work Day – means, for the purpose of this general permit, a calendar day on which construction activities will take place.

2.0 COVERAGE UNDER THIS GENERAL PERMIT

2.1 Eligibility Requirements

This general permit shall apply to stormwater discharges from construction sites located within the state of South Dakota. Only those projects that meet all of the following eligibility requirements may be covered under this general permit:

1. You are the owner or operator of the construction project for which discharge will be covered under this general permit. The owner must obtain coverage under this general permit and all operators at the site must comply with the permit conditions.

2. Your project:

    a. Will disturb one (1) or more acres of land; or

    b. Will disturb less than one (1) acre of land but is part of a larger common plan of development or sale that will ultimately disturb one (1) or more acres of land; or

    c. Is less than one (1) acre, but has construction support activities required to be covered and the total area exceeds one (1) or more acres of land; or

    d. Has been designated by the Secretary or the United States Environmental Protection Agency (U.S. EPA) as needing a permit.

3. You have complied with all applicable requirements imposed by the applicable county, city, or other local government entities.

4. If your project will encroach, damage, or destroy a historic property included in the national register of historic places or the state register of historic places located in South Dakota, you must have approval from the South Dakota State Historic Preservation Office prior to submitting the Notice of Intent (NOI). You must attach an approval letter from the State Historic Preservation Office with the NOI.

2.2 Discharges Authorized

The following discharges shall be authorized under this general permit:

1. Stormwater discharges from projects detailed in Section 2.1.2.

2. Stormwater discharges from construction support activities provided:

    a. The support activity is directly related to the construction site required to have permit coverage;

    b. The support activity does not continue to operate beyond the completion of the construction activity at the project it supports. If the support activity continues past the initial permitted project, you must obtain a separate permit for those activities;

c. The support activity is included in the SWPPP as required by Section 5.0; and

d. Control measures are implemented for discharges from the support activity area.

3. Stormwater construction discharges combined with discharges from an industrial source, as long as:

   a. The industrial source is located on the same site as your construction activity; and

   b. You may not combine stormwater discharges from industrial and construction activities unless each source is covered by its own permit, or are not required to obtain permit coverage.

4. Discharges to waters for which there is a total maximum daily load (TMDL) allocation for sediment, suspended solids, and turbidity are covered only if you develop a SWPPP that is consistent with the assumptions, allocations, and requirements in the approved TMDL. If a specific numeric wasteload allocation has been established that would apply to discharges from construction activity, the permittee must incorporate that allocation into the SWPPP and implement necessary steps to meet that allocation.

2.3 Discharges Not Authorized

The following discharges are not authorized by this general permit:

1. **Post-Construction Discharges**. This general permit is not designed to address post-construction discharges after you have completed construction activities and achieved final stabilization at the site. Stormwater discharges associated with industrial activities must obtain coverage under a separate stormwater permit.

2. **Discharges Mixed with Non-Stormwater**. This general permit does not authorize discharges of non-stormwater.

3. **Discharges of Fill Material**. This general permit does not authorize you to discharge fill material into surface waters of the state. You are required to obtain a Section 404 federal Clean Water Act permit from the U.S. Army Corps of Engineers.

4. **Discharges Threatening Water Quality**. This general permit does not authorize your discharge from a construction site if the discharge will cause, or have the reasonable potential to cause or contribute to, violations of Surface Water Quality Standards. In such cases, the Secretary may deny you coverage under the general permit or require you to obtain an individual Surface Water Discharge permit.

5. **Discharges Threatening Endangered Species**. This general permit does not authorize your discharge from a construction site if the discharge will not ensure the protection of species that are federally-listed as endangered under the federal Endangered Species Act.

6. **Discharges of Regulated Substances**. This general permit does not authorize you to discharge regulated substances, hazardous substances, or oil resulting from onsite spills. You are subject to the federal reporting requirements of 40 CFR Part 110, Part 117, and Part 302 relating to spills or other releases of oils or hazardous substances. You must report spills in excess of the reportable quantities as required in Section 7.1.

2.4 Requesting Permit Coverage

To request coverage under this general permit, you must submit a complete and accurate Notice of Intent (NOI) (Appendix A) to SDDENR at least **15 calendar days** prior to the commencement of construction activities at the site. ***The NOI must be signed by the owner of the property where construction activities will occur.***

1. You must identify the person(s) responsible for day-to-day operations at the construction site, if different from the owner. A Contractor Authorization Form, included in Appendix C, must be submitted to SDDENR as soon as a contractor is identified if the contractor was not identified on the NOI.

2. You are not prohibited from submitting a late NOI. When you submit a late NOI, your authorization to discharge is only for discharges that occur after SDDENR grants coverage. SDDENR reserves the right to take appropriate enforcement action for any unpermitted discharges that may have occurred between the commencement of construction activities and the time authorization for your discharge is granted.

3. SDDENR will not process incomplete NOIs.

4. You must submit a completed and signed NOI to SDDENR by emailing the NOI to stormwater@state.sd.us, or mailing the NOI to SDDENR at the address in Section 7.3.

5. SDDENR will review each complete NOI and make a decision to grant or deny coverage or request additional information. You will receive an authorization letter from SDDENR if permit coverage is granted for your project.

6. Upon the effective date of this general permit, the Secretary will terminate the existing general permit.

    a. If you are authorized under the existing general permit and you have submitted the Notice of Intent for Reauthorization Form (found in Appendix E) prior to permit expiration date, your coverage will automatically continue under the new general permit. Once the new general permit is issued, you will receive an authorization letter from SDDENR notifying you of the continued coverage.

b. Projects covered under the existing general permit must be in compliance with the conditions in the new general permit by **October 1, 2018.** You must still maintain compliance with all requirements in the existing general permit during the grace period. SDDENR may grant additional time on a case by case basis if necessary. To obtain such an extension, you must request it from SDDENR in writing.

2.5 Transferring Permit Coverage

If a new owner purchases a construction site or a portion of the site covered under this general permit, you are responsible for notifying the new owner(s) of the general permit requirements and communicating the importance of achieving final stabilization on the site. You must transfer permit coverage to the new owner. Appendix D includes a form for transferring permit coverage for all or a portion of a project or development to a new owner.

2.6 Terminating Permit Coverage

Until the Secretary terminates your coverage under this general permit, you are required to comply with all conditions and effluent limits in this general permit. To terminate coverage, you are required to submit a complete and accurate Notice of Termination (NOT), found in Appendix B, and signed in accordance with Section 7.4. You must submit the NOT within **30 calendar days** of meeting any one of the following conditions.

1. You have completed all earth-disturbing activities at your site and, if applicable, all construction support activities covered by this general permit, and you have met all the following requirements:

    a. You have met the stabilization requirements listed in Section 3.19 and have reached final stabilization for any areas disturbed during construction and over which you had control during the construction activities;

    b. You have removed and properly disposed of all temporary construction materials, waste and waste handling devices, and have removed all equipment and vehicles that were used during construction, unless intended for long-term use on the site following termination of your general permit coverage;

    c. You have removed and properly disposed of all temporary control measures, including silt fence, and of which you installed and maintained during construction, except those that are intended for long-term use following termination of your general permit coverage; and

    d. You have removed all potential pollutants and pollutant-generating activities associated with construction.

2. You have obtained coverage under an individual or alternative general permit that addresses the discharges from the construction site.

2.7 Reporting Requirements

On October 22, 2015, the U.S. EPA published in the federal register a rule that has made electronic reporting of permit and compliance monitoring information mandatory for all National Pollution Discharge Elimination System (NPDES) permits. These are referred to as Surface Water Discharge (SWD) permits in South Dakota. The final rule became effective December 21, 2015.

Phase II of the final rule requires that authorized state NPDES programs begin electronically collecting, managing, and sharing construction stormwater permitting information by December 21, 2020. This includes general permit reports such as Notices of Intent (NOI), Notices of Termination (NOT), and all other remaining NPDES program reports. SDDENR is currently developing programs to meet this requirement and will notify facilities as they become available.

Electronic reporting will be required once SDDENR has fully developed an electronic reporting system. In the interim, all general permit reports must be submitted by email (stormwater@state.sd.us), or to the address listed in Section 7.3.

A hybrid approach will be available for owners/operators that do not expect to submit NOIs for multiple projects. This approach will provide users the ability to electronically submit the data for construction stormwater general permit reports without using the electronic signature verification process. Following electronic submittal of the reports, a hard copy of the Certification of Applicant with an original signature must be mailed to SDDENR.

2.8 Requiring an Individual Permit or an Alternative General Permit

SDDENR may either deny coverage or require you to apply for an individual Surface Water Discharge permit or an alternative general permit. In considering whether we deny coverage or require an alternative permit, the following will be taken into consideration:

1. You cannot comply with the conditions of this general permit;

2. There has been a change in the availability of demonstrated technologies or practices for the control or abatement of pollutants applicable to construction sites;

3. Effluent limitation guidelines are promulgated or revised for point sources covered by this general permit;

4. A water quality management plan is approved containing requirements applicable to your construction site;

5. Your discharge is a significant contributor of pollution to surface waters of the state or it presents a health hazard; or

6. You are discharging to an impaired water body and the best management practices are not sufficient to implement the assigned wasteload allocations in a Total Maximum Daily Load (TMDL) approved by the U.S. EPA.

2.9 Continuation of Coverage for Expired General Permit

If you wish to continue to be covered by this general permit after its expiration date, you must submit a Notice of Intent for Reauthorization (Appendix E). An expired general permit continues in full force and effect until a new general permit is issued. You will continue to have coverage under the current general permit until a new general permit is issued.

2.10 Requirement to Post Notice of Your General Permit Coverage

You must post a sign or other notice at a safe, publicly accessible location near the project site.

1. At a minimum, your notice must include the general permit tracking number (found on the cover page of your general permit and in the authorization letter) and a contact name and phone number for obtaining additional project information.

2. The notice must be located so that it is visible from the public road that is nearest to the active part of the construction site and must be readily viewed from a public right-of-way.

2.11 Property Rights

1. The Secretary's issuance of this general permit, adoption of design criteria, and approval of plans and specifications, does not convey any property rights of any sort, any exclusive privileges, any authorization to damage, injure or use any private property, any authority to invade personal rights, any authority to violate federal, state or local laws or regulations, or any taking, condemnation or use of eminent domain against any property owned by third parties.

2. The State does not warrant that your compliance with this general permit, design criteria, approved plans and specifications, and operation under this general permit, will not cause damage, injury or use of private property, an invasion of personal rights, or violation of federal, state or local laws or regulations. You are solely and severally liable for all damage, injury or use of private property, invasion of personal rights, infringement of federal, state or local laws and regulations, or taking or condemnation of property owned by third parties, that may result from actions taken under this general permit.

2.12 Reopener Provisions

SDDENR may reopen and modify this general permit to include appropriate conditions (following proper administrative procedures) if state or federal statutes or regulations change.

2.13 Severability

If any portion of the general permit is found to be void or is challenged, the remaining permit requirements shall remain valid and enforceable.

2.14 Permit Actions

This general permit may be modified, revoked and reissued, or terminated by the Secretary for cause. Any request for such changes does not stay any permit condition.

3.0 EFFLUENT LIMITS

You are required to comply with the following effluent limits for discharges from your construction site and/or from construction support activities representing the degree of effluent reduction attainable through the best practicable control technology currently available to minimize the pollutants present in the discharges. In order to achieve compliance with the conditions of this permit, you are required to address the following effluent limits by developing a Stormwater Pollution Prevention Plan (SWPPP) as required in Section 5.0. If you determine any of the following limits are infeasible, you must document your rationale in your SWPPP.

Stormwater discharges regulated under this general permit that may discharge to a surface water with an approved TMDL for sediment, total suspended solids, or turbidity must be consistent with the TMDL and any associated wasteload allocation (WLA) for construction or stormwater related discharges. In most cases compliance with this permit will be considered adequate, unless otherwise notified by the Secretary. The Secretary may require an individual permit, as referenced in Section 2.8, should compliance with this general permit be deemed insufficient to meet relevant WLAs.

3.1 Proper Operation and Maintenance

You must properly operate and maintain all sediment and erosion controls, best management practices, treatment systems, and any other control(s) used to achieve compliance with the conditions of this general permit in accordance with manufacturer's specifications, good engineering practices, and design specifications of the SWPPP.

3.2 Erosion and Sediment Control Requirements

1. You must design, install, and maintain effective erosion and sediment controls to minimize soil erosion and the discharge of pollutants during earth-disturbing activities. The stormwater controls must be designed to function properly and withstand a 2-year, 24-hour precipitation event. See Appendix F for instructions to determine your construction site's precipitation for a 2-year, 24-hour event.

2. You must account for the following factors when designing your erosion and sediment controls:

    a. The nature of resulting stormwater runoff and run-on at the construction site, including factors such as expected flow from impervious surfaces, slopes, and site drainage features. Controls must be able to control stormwater volume, velocity, and flow rates from a 2-year, 24-hour precipitation event across the construction site.

    b. Anticipated soil characteristics at the construction site, including soil type and range of particle sizes.

3.3 Installation Requirements

1. You must complete installation of down gradient erosion and sediment controls before any land disturbing activity takes place in order to control discharges.

2. You must install all other control measures planned for each phase of the project as described in your SWPPP as soon as conditions on the site allow.

3. You must install all control measures using good engineering practices and follow the manufacturer's specifications. Any departures from the manufacturer's specifications must reflect good engineering practices and must be explained in your SWPPP.

3.4 Perimeter Controls

You must have effective down gradient sediment controls, and controls for any side slope boundaries deemed appropriate for individual site conditions, to minimize pollutant discharges from the construction site.

3.5 Sediment Basins

If you use a sediment basin to control the discharge of sediment from the site, you must meet the requirements listed below.

1. Sediment basins must be designed, constructed, and operated in accordance with the requirements found in your local city or county drainage board.

2. Outlet structures must withdraw water from the surface of the sediment basin or impoundment to allow for proper sediment removal in the pond.

3. Erosion controls and velocity dissipation devices must be used to prevent erosion within the sediment basin as well as at inlets and outlets from the basin.

4. Sediment basins must be situated outside of surface waters and any natural buffers established under Section 3.10. The basins must be designed to avoid collecting water from wetlands and other water bodies.

3.6 Minimize Sediment Track-Out

You must minimize the track-out of sediment from the construction site where vehicles leave the site. To comply with this requirement, you must:

1. Restrict vehicle use to properly designated access points;

2. Use appropriate stabilization techniques at all construction site access point(s) so sediment removal occurs prior to vehicle exit.

3. Where sediment has been tracked out from your site onto offsite streets, other paved areas, and/or sidewalks, remove the deposited sediment by the end of the same work

day in which the track-out occurs. You must remove the track-out by sweeping, shoveling, or vacuuming these surfaces, or by using other similarly effective means of sediment removal. You are prohibited from hosing or sweeping tracked-out sediment into storm drain inlet, surface waters of the state, or any stormwater conveyance unless the conveyance is connected to a sediment basin, sediment trap, or similar effective control. You must obtain approval from the owner of the sediment traps before hosing or sweeping sediment into those controls.

3.7 Remove Offsite Accumulation

If sediment escapes the construction site, you must initiate removal of the offsite accumulations to minimize impacts by the end of the same work day. You must revise your SWPPP and implement controls to minimize further offsite accumulation.

3.8 Minimize Dust

You must minimize the generation of dust at the construction site to avoid pollutants from being deposited into surface waters of the state. This can be accomplished through the appropriate application of water or other dust suppression techniques.

3.9 Minimize Run-on

You must minimize run-on to your construction site.

3.10 Provide Natural Buffers

You must comply with the following requirements if disturbed portions of the construction site are within fifty (50) feet of 1) a lake assigned immersion recreation or limited contact recreational beneficial uses in ARSD 74:51:02:02 and listed in ARSD 74:51:02:04; or 2) a river or stream assigned any of the warmwater or coldwater fish life propagation beneficial uses in ARSD 74:51:03:02 and listed in ARSD 74:51:03:04 to 74:51:03:27, inclusive.

1. Provide and maintain a 50-foot undisturbed natural buffer.

    a. When the natural buffer between the disturbed area(s) and surface waters of the state is less than fifty (50) feet, you must provide a combination of undisturbed buffer and supplemental erosion and sediment controls that achieves the sediment load reduction equivalent to a 50-foot undisturbed natural buffer.

    b. When no undisturbed buffer can be provided between the disturbed area(s) and surface waters of the state, you must provide erosion and sediment controls that achieve the sediment load reduction equivalent to a 50-foot undisturbed natural buffer.

    c. Document in your SWPPP how any undisturbed natural buffer and the supplemented erosion and sediment controls achieve the sediment load reduction equivalent to a 50-foot undisturbed natural buffer.

2. Direct surface runoff to vegetated areas and maximize stormwater infiltration to reduce pollutant discharges.

3. Delineate and clearly mark all natural buffer areas with flags, tape, or other similar marking device. No construction or other activity should occur in the delineated buffer area.

4. **Exception.** You are not required to maintain a 50-foot undisturbed natural buffer or install additional controls if there is no discharge of stormwater to surface waters of the state through the area between your site and the surface waters. This includes situations where you have implemented control measures, such as a berm or other barrier, to prevent such discharges.

3.11 Preserve Topsoil

You must preserve native topsoil on your site, unless infeasible. Preserving topsoil is not required where the intended function of a specific area of the site dictates that the topsoil be disturbed or removed.

3.12 Minimize Steep Slope Disturbance

You must minimize the disturbance of slopes that are greater than a three horizontal to one vertical (3:1) slope, unless infeasible.

3.13 Protect Storm Drain Inlets

1. You must protect all storm drain inlets that receive stormwater flows from the construction site by using appropriate best management practices during construction to minimize the discharge of pollutants from the site.

2. You must maintain the inlet protection until you have permanently stabilized all sources that have the potential to discharge pollutants to the inlet. If local officials require you to remove the inlet controls during the winter, you must install alternative controls to prevent sediment from entering the storm drain inlet.

3.14 Erosive Velocity Control

1. You must use erosion controls and velocity dissipation devices where necessary along the length of stormwater conveyance channels and outlets to minimize erosion of the channel, adjacent stream bank, slope, and downstream waters.

2. You must provide energy dissipation BMPs prior to connecting pipe or culvert outlets to surface water.

3. You must control the stormwater discharges, including both peak flowrates and total stormwater volume, to minimize channel and streambank erosion and scour in the immediate vicinity of discharge points.

3.15 Minimize Soil Compaction

In areas of your site where final vegetative stabilization or infiltration will occur, you must either:

1. Restrict vehicle and equipment use in these locations to avoid soil compaction; or

2. Condition areas of compacted soil prior to seeding or planting to support vegetation growth.

3. **Exception.** You are not required to minimize soil compaction where the intended function of a specific area of the site dictates that soil be compacted.

3.16 Minimize Exposed Soil

You must schedule and sequence soil disturbing and stabilizing activities to minimize the amount and duration of soil exposure to erosion and sedimentation by wind, rain, surface runoff, and vehicle tracking. Consider factors such as high precipitation seasons when scheduling soil disturbing activities.

3.17 Protect Stockpiles

For any stockpiles or land clearing debris you must:

1. Locate the stockpiles and debris outside of any natural buffers established as required in Section 3.10 and away from any stormwater conveyances, drain inlets, and areas where stormwater flow is concentrated;

2. Protect the stockpiles debris from contact with stormwater run-on by using temporary sediment controls, berms, or other BMPs;

3. Properly maintain and position stockpiles to minimize dust generation and wind transport of sediment; and

4. Minimize stormwater runoff from the piles by properly positioning stockpiles and debris or installing effective sediment controls.

5. You are prohibited from placing stockpiles in surface waters of the state.

3.18 Stabilization Requirements

You are required to stabilize exposed portions of your site in accordance with the requirements of this section. You are responsible for implementing winter stabilization methods during frozen ground conditions if the site was not stabilized prior to the ground freezing.

1. **Deadline to Initiate Stabilization.** You must begin soil stabilization measures by the following work day whenever earth-disturbing activities have permanently or temporarily ceased on any portion of the site.

a. Earth-disturbing activities have permanently ceased when you complete clearing, grading, and excavation within any area of your site that will not include permanent structures.

b. Earth-disturbing activities have temporarily ceased when you cease clearing, grading, and excavation within any area for a period of at least **14 calendar days**, but will resume such activities in the future.

2. **Deadline to Complete Temporary Stabilization**. As soon as practicable, but no later than **14 calendar days** after initiating soil stabilization measures, you are required to have completed:

   a. All activities necessary to initially seed or plant the area to be stabilized for vegetative stabilization practices.

   b. The installation or application of all non-vegetative measures.

   c. As soon as practicable after seeding or planting, select, design, and install non-vegetative erosion controls (e.g., mulch or rolled erosion control products) to prevent erosion on the seeded or planted areas while vegetation establishes.

3. **Criteria for Final Stabilization**. To be considered as having reached final stabilization, you must meet the criteria below based on the type of cover you are using.

   a. **Vegetative Stabilization**. If you are seeding or planting vegetation to stabilize the site, you must meet the following requirements:

      i. Provide 70 percent or more of the density of coverage that was provided by vegetation prior to commencement of construction activities.

      ii. Provide perennial vegetative cover.

      iii. Minimize the presence of invasive species.

   b. **Non-Vegetative Stabilization**. If you are using non-vegetative controls for final stabilization at your site, the controls must provide effective cover to properly stabilize the exposed portions of your site.

   c. **Return to Pre-construction Agricultural Land Use.** For construction projects on land used for agricultural purposes, final stabilization may be accomplished by returning the disturbed land to its pre-construction agricultural use. Areas disturbed that were not previously used for agricultural purposes, such as buffer strips immediately next to surface waters and areas not being returned to pre-agricultural use must meet the final stabilization criteria listed in (a) and (b) above.

4. **Site Specific Stabilization Requirements**. If you are constructing in the specific areas listed below, you must complete the following stabilization requirements as soon as practicable, but no later than the deadlines listed below after initiating soil stabilization measures:

    a. Stream diversions or drainage ditches that divert water around or drain water from your construction site must be stabilized with appropriate controls prior to connection with any surface water.

    b. For stockpiles that will be unused for 14 or more days, provide cover or appropriate temporary stabilization consistent with Section 3.18.

3.19 Maintenance Requirements

1. **Effective operating condition.** You must ensure that all erosion and sediment controls remain in effective operating condition until final stabilization is complete. At a minimum, you must:

    a. Remove sediment from sedimentation basins when the design capacity has been reduced by 50% or more.

    b. Remove sediment from sediment controls before the deposit reaches 50% of the above-ground height of the control.

    c. Repair vegetative buffers if they become silt-covered, contain rills, or are otherwise rendered ineffective.

    d. You must repair and stabilize eroded areas by the end of the same work day they are identified. If repair is infeasible, you must implement alternative control measures.

    e. Clean inlet protection devices when sediment accumulates, or when the filter becomes clogged, or performance is compromised.

    f. Ensure that all controls remain in effective operating condition and are protected from activities that would reduce their effectiveness.

    g. All nonfunctional BMPs must be repaired, replaced, maintained or supplemented with functional BMPs. If a nonfunctioning BMP is supplemented, the nonfunctional BMP shall be removed.

2. **Deadline for maintenance.** If you find a problem or if your inspections identify that control measures are not operating effectively, you must make the necessary repairs or modifications as follows:

    a. If you discover a problem that does not require repair or replacement, you must initiate work to fix the problem on the same day. If the problem is identified at a time in the work day when it is too late to complete the corrective actions, you must initiate work to fix the problem on the following work day or before the next anticipated runoff event, whichever comes first.

    b. If you need to install new erosion or sediment controls or need to complete repairs, you must complete the work before the next anticipated runoff event or by no later than seven (7) calendar days from the time the problem is discovered, whichever comes first.

    c. You must modify your SWPPP within seven (7) calendar days of completing the work. The SWPPP must address any changes to the controls and must detail the necessary steps to prevent similar damage in the future.

3.20 Pollution Prevention Procedures

You must design, install, implement, and maintain effective pollution prevention measures to minimize the discharge of pollutants from the activities listed below. Spills must be reported as required in Section 7.1 of this general permit.

1. **Prohibited Discharges.** You are prohibited from discharging the following from your construction site:

    a. Wastewater from washout and cleanout of concrete, stucco, paint, form release oils, curing compounds, and other construction materials.

    b. Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance.

    c. Detergents, soaps, or solvents used in vehicle and equipment washing.

    d. Toxic or hazardous substances from a spill or other release.

    e. Waste, garbage, floatable debris, construction debris, and sanitary waste.

2. **Fueling and Maintenance of Equipment or Vehicles**. If you fuel or maintain equipment or vehicles at your site, you must minimize the discharge of spilled or leaked materials from the area where these activities take place.

3. **Washing of Equipment and Vehicles**. You must provide an effective means of minimizing the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other types of washing. The washing must be limited to a defined area of the site and must be properly disposed.

4. **Management of Construction Products, Chemicals, Materials, and Wastes**. You must properly store, handle, and dispose of any construction products and materials, chemicals, landscape materials, and wastes in order to minimize the exposure to stormwater. Products or wastes that are either not a source of contamination to stormwater or are designed to be exposed to stormwater are not held to this requirement. Requirements are as follows:

    a. You must cover or otherwise protect any materials that have the potential to leach pollutants in order to minimize contact with stormwater and prevent the discharge of pollutants.

    b. Clean up spills by the end of the same work day in which the spill occurred, using dry clean-up methods where possible, and dispose of used materials properly. Do not clean surfaces or spills by hosing the area down. Eliminate the source of the spill to prevent a discharge or continuation of an ongoing discharge.

    c. For registered pesticides and fertilizers, you must comply with all application and disposal requirements included on the label. Pesticides and fertilizers must be stored under cover or other effective means designed to minimize contact with stormwater. You must document any departures from the manufacturer's specifications for applying fertilizers and pesticides.

    d. Store all diesel fuel, oil, hydraulic fluids, other petroleum products, and other chemicals and products in water-tight container.

    e. Hazardous or toxic wastes that may be present at construction sites include, but are not limited to, paints, solvents, petroleum-based products, wood preservatives, additives, curing compounds, acids, and alkaline materials. For these materials and wastes, you must:

        i. Separate hazardous or toxic wastes and materials from construction and domestic waste.

        ii. Store hazardous or toxic wastes and materials in sealed containers and provide secondary containment as applicable. These containers must be constructed of suitable materials to prevent leakage and corrosion. These containers must be labeled in accordance with the applicable Resource Conservation and Recovery Act (RCRA) requirements and all other applicable federal, state, or local requirements.

        iii. Dispose of hazardous or toxic wastes in accordance with the manufacturer's recommended method of disposal and in compliance with federal, state, and local requirements.

f. You must provide effective containment for all liquid and solid wastes generated by washout operations including, but not limited to, concrete, stucco, paint, form release oils, curing compounds, and other construction materials related to the construction activity. For these materials and wastes, you must comply with the following requirements:

   i. Designate areas to be used for washout and cleanout activities. The containment must be designed so that it does not result in runoff from washout operations or during runoff events;

   ii. Install signs adjacent to each washout facility directing site personnel to use the proper facilities for concrete disposal and other washout wastes;

   iii. Direct all wash water into a leak-proof container or leak-proof pit;

   iv. Do not dump liquid wastes in the storm sewers; and,

   v. Clean up and properly dispose of any accumulated wastes in designated waste containers.

g. You must provide proper waste disposal receptacles of sufficient size and number to handle construction wastes including, but not limited to, packaging materials, scrap construction materials, masonry products, timber, pipe, and electrical cuttings, plastics, Styrofoam®, concrete, and other trash or building materials.

   i. For sanitary waste, you must position portable toilets so they are secure and will not be tipped or knocked over. You must properly remove and dispose of wastes from the portable toilets.

3.21 Construction Dewatering

You are prohibited from discharging from dewatering activities, including discharges from dewatering of trenches and excavation, unless the discharges are managed by the following controls:

1. You shall not discharge toxic pollutants in toxic amounts.

2. Your discharge shall not impart a visible film or sheen to the surface of the receiving water or adjoining shoreline.

3. Your discharge shall not contain visible pollutants. You must visually monitor the discharge for suspended solids. If you observe suspended solids in the discharge, you must implement the following requirements:

   a. You must install additional best management practices and update your stormwater pollution prevention plan to reduce the visible solids.

b. You must sample the dewatering discharge for total suspended solids on a daily basis until there is no longer a discharge of visible solids. The samples must be analyzed in accordance with Title 40 of the Code of Federal Regulations, Part 136. If the total suspended solids value exceeds 53 mg/L in any sample or measurement, you must cease the dewatering discharge to surface waters of the state until you can demonstrate the additional best management practices are sufficient to eliminate the visible pollutants. You must also document this in your stormwater pollution prevention plan (SWPPP).

4. You must use best management practices to minimize or prevent stream channel scouring or erosion caused by dewatering discharges.

5. You cannot add chemicals to the discharge without prior approval from SDDENR.

6. You must obtain a Temporary Water Right. Contact SDDENR Water Rights Program at (605) 773-3352 for more information and to obtain a temporary water right.

4.0 INSPECTION REQUIREMENTS

You are required to conduct site inspections to determine the effectiveness of your control measures and your compliance with the conditions of the general permit.

4.1 Person(s) Responsible for Inspecting the Site

The person(s) inspecting your site may be a member of your staff or a third party you hire to conduct the inspections. You are responsible for ensuring the person who conducts the inspection is knowledgeable in the principles and practice of erosion and sediment controls and pollution, possesses the skills to assess conditions at the site that could impact stormwater quality, and is able to assess the effectiveness of any control measures selected and installed to meet the requirements of the general permit.

4.2 Frequency of Inspections

At a minimum, you must conduct a site inspection at the following frequencies:

1. Once every 7 calendar days; or

2. Once every 14 calendar days **and** within 24 hours of precipitation that exceeds 0.25 inches or snowmelt that generates runoff. You must keep a properly maintained rain gauge on your site.

4.3 Reduction of Inspection Frequency

You may reduce your inspection frequency from the requirements above under the following circumstances. You must document the beginning and ending dates of these periods in your inspection records.

1. **Partial final stabilization.** You may reduce the frequency of inspections to once per month on any portion of your site where you have reached final stabilization. If construction activity resumes in this portion at a later date, you must increase the frequency as required in Section 4.2 above.

2. **Frozen conditions.** If you are suspending earth-disturbing activities due to frozen conditions and all disturbed areas of the site have been temporarily or permanently stabilized as required in Section 3.19, you shall conduct inspections at least once per month. You must resume weekly inspections by no later than March 1st of each year until your site is permanently stabilized and you have submitted a Notice of Termination (NOT) in accordance with Section 2.6.

4.4 Areas that Need to Be Inspected

During your site inspections you must, at a minimum, inspect the following areas:

1. All areas that have been cleared, graded, or excavated and have not yet reached final stabilization;

2. All sediment and erosion control measures and best management practices, including inlet protection;

3. Vegetated buffers;

4. Stockpiles, chemical and fuel storage, fertilizer and pesticide storage and other material, waste, borrow, and/or equipment storage and maintenance areas;

5. All areas where stormwater typically flows within the site, including drainage ways designed to divert, convey, and/or treat stormwater;

6. All points of discharge from the site including surface waters, drainage ditches, and conveyance systems; and,

7. All dewatering activities at the site.

8. **Exception.** You are not required to inspect areas that, at the time of the inspection, are unsafe for your inspection personnel. A detailed description of the situation must be documented in your inspection records explaining the reason the site conditions prevented the inspection.

4.5 Requirements for Inspections

During your site inspections you must, at a minimum:

1. Check whether all erosion and sediment controls and best management practices are implemented and functioning to minimize pollutant discharges. Determine if you need to replace, repair, or maintain any controls.

2. Check for spills, leaks, or other accumulation of pollutants on the site, or for the presence of conditions that could lead to spills, leaks, or other accumulations of pollutants on site. Determine if you need to install additional controls or take corrective actions to prevent the discharge of these pollutants.

3. Determine if site conditions have changed and if current controls are still effective in controlling pollutants from leaving your site. Identify any locations where new or modified control measures are necessary.

4. Check for signs of erosion, scour, and sediment deposits that have occurred on or off the construction site:

    a. Inspect the discharge points and, where applicable, the banks of any surface waters of the state flowing within your property boundaries or immediately adjacent to your property.

    b. Identify areas where you need to correct erosion and remove sediment.

c. Determine if you need controls to reduce the velocity of the discharge or prevent further erosion and sedimentation.

5. If a discharge is occurring during your inspection, you are required to:

   a. Identify all points of the property where there is a discharge;

   b. Observe and document the visual quality of the stormwater discharge and note the characteristics of the discharge, including color, odor, floating, settled, or suspended solids, foam, oil sheen, and other obvious indicators of stormwater pollutants; and

   c. Document whether your control measures are operating effectively. Describe any controls that are not clearly operating as intended or are in need of maintenance.

6. Identify all incidents of noncompliance that you observe.

7. Based on the results of your inspection, you must initiate corrective action(s) where needed.

4.6 Inspection Report

You must complete an inspection report in conjunction with each site inspection.

1. Each inspection report must be maintained in accordance with the requirements in Section 7.3 and must include the following information;

   a. Date and time of the inspection.

   b. Names and titles of the personnel conducting the inspection.

   c. Date and amount of most recent precipitation event, as well as if runoff was flowing onsite and/or offsite at the time of the inspection.

   d. A summary of your inspection findings, covering, at a minimum, the observations you made as required in Sections 4.4. and 4.5;

   e. Specific locations where maintenance, additional best management practices, cleanup, or corrective action is needed;

   f. The results of the total suspended solids levels in any dewatering discharge, as required by Section 3.21; and

   g. A summary of any corrective actions taken in response to the inspection findings, including any changes made to the SWPPP.

2. If you have determined it is unsafe to inspect a portion of your site, you must describe the reason(s) you found it to be unsafe and specify the locations that were not inspected.

3. If an inspection does not identify any incidents of noncompliance, you must include a statement in the report that the site is in compliance with the SWPPP and the general permit.

4. You must sign and certify each inspection report in accordance with the signatory requirements found in Section 7.4.

5.0 STORMWATER POLLUTION PREVENTION PLAN

You must develop a stormwater pollution prevention plan, also referred to as a "SWPPP," to be covered under this general permit. Stormwater management documents developed under other regulatory programs may be included or incorporated by reference in the SWPPP, or used in whole as a SWPPP if it meets the requirements of this section.

5.1 SWPPP Deadlines

1. You must develop the SWPPP **prior** to the submittal of the NOI.

   Note: If you were covered under the February 1, 2010, general permit and reauthorized under this general permit, you must update your SWPPP to comply with the conditions of this general permit by **October 1, 2018**.

2. You must implement and maintain the SWPPP for any construction activity requiring this general permit until final stabilization is reached.

5.2 TMDL

For projects that discharge stormwater to a water body listed as impaired under section 303(d) of the Federal Clean Water Act due to sediment, suspended solids, or turbidity, you must identify the water body and impairment in the SWPPP. Your SWPPP must describe and conform to any Wasteload Allocation (WLA) for the water body as required in Section 2.2.4

5.3 SWPPP Contents

You must develop your SWPPP to ensure compliance with the effluent limits in Section 3.0. Your SWPPP must include the following information, at a minimum.

1. **Personnel**. Your SWPPP must identify those person(s), by name or position, who are knowledgeable and experienced in the application of erosion and sediment control BMPs and who are responsible for the development and implementation of any portion of the SWPPP, for any later modifications to the SWPPP, and for compliance with the requirements of this general permit.

2. **Staff Training**. The SWPPP shall outline how employees and responsible parties shall be trained on the implementation of the SWPPP. Training must be provided at least annually, as new employees or responsible parties are hired, or as necessary to ensure compliance with the SWPPP and this general permit. Employees and responsible parties include individuals who are responsible for conducting inspections or for the design, installation, maintenance, or repair of stormwater controls.

3. **Description of Construction Activities**. Your SWPPP must include a narrative description of the nature of your construction activities, including the following:

a. A description of the overall project and type of construction activities to occur on the site and a description of the final completed project;

b. The total size of the project and total area expected to be disturbed by construction activities;

c. The maximum area expected to be disturbed at any one time;

d. Description of the existing vegetation at the site and an estimate of the percent of vegetative ground cover;

e. A description of the soil within the disturbed areas;

f. The name of the surface waters or municipal separate storm sewer system at or near the disturbed area that could potentially receive discharges from the project site;

g. Any construction support activity areas; and,

h. The intended sequence and estimated dates of construction activity for the following:

i. Implementation of BMPs, including when they will be operational and an explanation of how you will ensure the control measures are installed by the time each phase of earth-disturbing activity begins.

ii. Commencement and duration of earth-disturbing activities, including clearing and grubbing, mass grading, site preparation (i.e., excavating, cutting and filling), final grading, and creation of soil and vegetation stockpiles requiring stabilization.

iii. Cessation, temporary or permanent, of construction activities on the site or in designated portions of the site.

4. **Site Map.** You must include a legible site map depicting the following features and boundaries of the project:

a. Pre-construction site conditions, including existing vegetative and non-vegetative cover (e.g. – forest, pasture, pavement, structures, etc.);

b. Locations where earth-disturbing activities will occur, noting any phasing of construction activities;

c. Approximate slopes before and after major grading activities. Note areas with a slope greater than three horizontal to one vertical (3:1);

d. Topography of the site;

e. Drainage patterns of stormwater and authorized non-stormwater flows from the site property before and after major grading activities. Mark the flow direction with arrows on the map.

f. Locations and names, where appropriate, of all surface waters of the state that exist within or in the immediate vicinity of the site and could potentially receive discharges from the project site.

g. Locations of any surface water crossings, noting areas where work near waterbodies is necessary;

h. Location of any stormwater conveyances including, but not limited to, sediment ponds, ditches, pipes, swales, stormwater diversions, culverts, and ditch blocks;

i. Discharge locations, including locations of any storm drain inlets on or in the immediate vicinity of the site that could potentially receive discharges from the project site;

j. Locations where stormwater or allowable non-stormwater will be discharged to surface waters of the state on or in the immediate vicinity of the site.

k. Locations where sediment, soil, or other construction materials will be stockpiled;

l. Designated site access points;

m. Locations of structures and other impervious surfaces upon completion of construction;

n. Natural buffer boundaries and widths;

o. Locations of fueling activity, vehicle and equipment maintenance areas, designated wash water collection areas, lubricant and chemical storage, paint storage, material storage, staging areas, and debris collection areas;

p. Locations of all activities that could potentially generate pollutants at the site, such as dumpsters, chemical storage, construction site washout, portable toilets, or equipment storage.

q. Location and types of all sediment and erosions controls, velocity dissipation devices, post-construction controls, and all other BMPs used on the site.

r. Locations of construction support activities covered by this general permit.

5. **Description and Maintenance of Control Measures.** Your SWPPP must include a narrative description of the erosion and sediment control measures that will be implemented during construction at your site to meet the conditions of this general permit. For each control measure you must provide a narrative on the following:

a. A timeframe for the installation, maintenance, and removal (if necessary) of all selected BMPs for each phase of construction activity;

b. Your rationale for the selection of all BMPs, including calculations as necessary;

c. Whether selected BMPs are temporary or permanent;

d. A description of maintenance specifications and procedures;

e. A description of structural diversion practices intended to divert flows from exposed soils, store flows, or otherwise limit runoff and the discharge of pollutants from exposed areas of the site;

f. A description of the removal of any temporary stormwater conveyance; and

g. A description of the temporary and final stabilization of areas of exposed soil where construction activities have been completed or temporarily ceased. Your SWPPP must describe the specific vegetative and/or non-vegetative practices you will use to comply with the stabilization requirements in Section 3.19, along with the reasons for choosing each practice.

6. **Procedures for Inspections.** The SWPPP must describe the procedures you will follow for conducting site inspections and, where necessary, taking corrective actions. The following information must also be included in your SWPPP:

   a. Personnel responsible for conducting inspections;

   b. Required frequency of inspections;

   c. Rationale for reduction of inspection frequency; and,

   d. Any inspection checklists or other forms that you will use.

7. **Post Construction Stormwater Management.** You must identify stormwater management practices that will be installed during the construction process to control pollutants in stormwater discharges occurring after construction operations have been completed. Maintenance for onsite stormwater management features is the responsibility of the permittee until the NOT is submitted or the feature is accepted by the party responsible for long term maintenance. The following information must be included in your SWPPP:

   a. An explanation of the technical basis used to select the practices to control pollution where flows exceed pre-development levels;

   b. A description of structural stormwater management practices such as stormwater ponds, open vegetated swales, natural depressions to allow

infiltration of runoff onsite, and sequential systems that combine several practices or other post construction stormwater management features; and

c. The location of velocity and energy dissipation devices placed at discharge points and appropriate erosion protection for outfall channels and ditches.

8. **Pollution Prevention Procedures**

a. **Spill Prevention and Response Procedures**. Your SWPPP must describe the procedures you will follow to prevent and respond to spills and leaks, including:

i. Procedures for expeditiously stopping, containing, and cleaning up spills, leaks, and other releases. The SWPPP must identify the name or position of the employee(s) responsible for detection and response of spills and leaks;

ii. Procedures for notification of appropriate facility personnel, emergency response agencies, and regulatory agencies as required by Section 7.1; and,

iii. Ways to prevent reoccurrence of such releases and steps to prevent any such releases from contaminating stormwater runoff. The SWPPP shall be modified and changes implemented as appropriate.

b. **Waste Management Procedures**. The SWPPP must describe procedures for how you will handle and dispose of all wastes generated at your site, including, but not limited to, clearing and demolition debris, sediment removed from the site, construction and domestic waste, hazardous or toxic waste, and sanitary waste.

9. **Construction Site Pollutants**

a. You must include information in your SWPPP about all activities that could generate pollutants at your site. Examples of pollutant-generating activities include, but are not limited to: paving operations; concrete, paint, and stucco washout; solid waste storage and disposal; storage of fertilizers, pesticides, solvents, fuels, and soils. You must include in your SWPPP a description of the removal of construction equipment and vehicles and any cessation of any pollutant generating activities.

b. You must include an inventory of the pollutants and chemicals associated with your construction activity and consider where potential spills and leaks could occur.

c. If SDDENR approves the use of water treatment chemicals, your SWPPP must include:

i. A listing of all water treatment chemicals planned for use at the site and why these chemicals were selected;

ii. The proper dosage and method of application for all water treatment chemicals;

iii. All applicable Safety Data Sheets (SDS) for chemicals planned to be used;

iv. Schematic drawings of any controls or treatment system used for the application of the water treatment chemicals;

v. A description of how the chemicals will be stored;

vi. Copies of the applicable manufacturer's specifications regarding the use of the water treatment chemicals and chemical treatment systems;

vii. A description of the training that personnel who handle, apply, or store the chemicals have received or will receive prior to the use of water treatment chemicals and chemical treatment systems;

viii. A description of safe handling, spill prevention, and spill response procedures; and

ix. A copy of the approval letter from SDDENR, approving the use of the water treatment chemicals and/or chemical treatment system.

10. **Non-Stormwater Discharges.** You must identify in your SWPPP all sources of non-stormwater discharges.

11. **Infeasibility Documentation.** If you determine it is infeasible to comply with any of the requirements of this general permit, you must thoroughly document your rationale in your SWPPP.

5.4 SWPPP Certification

You must sign and date your SWPPP as required by Section 7.4.

5.5 Required SWPPP Modifications

1. **Conditions Requiring SWPPP Modification**. You must modify your SWPPP, including the site map(s), in response to any of the following conditions:

   a. When you have a new operator responsible for implementation of any part the SWPPP.

   b. When you make changes to your construction plans, sediment and erosion control measures, or any best management practices at your site that are no longer accurately reflected in your SWPPP. This includes changes made in response to corrective actions triggered by inspections.

c. To reflect areas on your site map where operational control has been transferred (including the date of the transfer) or has been covered under a new permit since initiating coverage under this general permit.

d. If inspections by site staff, local officials, SDDENR, or U.S. EPA determine that SWPPP modifications are necessary for compliance with this general permit.

e. To reflect any revisions to applicable federal, state, or local requirements that affect the control measures implemented at the site.

f. If approved by the Secretary, to reflect any changes in chemical water treatment systems or controls, including the use of a different water treatment chemical, different dosage rates, or different areas or methods of application.

2. **Deadlines for SWPPP Modification**. You must complete the required revisions to the SWPPP within 7 calendar days following any of the items listed above.

3. **Documentation of Modifications to the Plan**. You are required to maintain records showing the dates of all SWPPP modifications. The records must include the name of the person authorizing each change and a brief summary of all changes.

4. **Certification Requirements**. All modifications made to your SWPPP must be signed and certified as required in Section 7.4.

5. **Required Notice to Other Operators**. If there are multiple operators at the site, you must notify each operator that may be impacted by the change to the SWPPP within 24 hours.

6.0 SPECIAL CONDITIONS

6.1 Qualified Local Programs

1. To receive approval as a qualified local program, SDDENR will review the local requirements to ensure they comply with both state and federal requirements. SDDENR may authorize minor variations and alternative standards in lieu of the specific conditions of the general permit based upon the unique comprehensive control measures established in the qualifying local program. SDDENR will review each qualifying local program for recertification during the renewal of its municipal separate storm sewer system permit.

2. If a construction site is within the jurisdiction of a qualifying local program, the operator shall submit a Notice of Intent (NOI) to SDDENR to be covered under the general permit and comply with all requirements of the qualifying local program. Compliance with the qualifying local program requirements is deemed to be compliance with this general permit. A violation of qualifying local program requirements is also a violation of this general permit.

3. At this time only the City of Sioux Falls is meeting SDDENR's minimum requirements. If additional municipalities are approved as a Qualifying Local Program in the future, a modification to this general permit will be offered for public comment in the municipality's local newspaper.

7.0 REPORTING AND RECORDKEEPING REQUIREMENTS

7.1 Emergency Spill Notification

1. You must report a release or spill of a regulated substance (including petroleum and petroleum products) to SDDENR as soon as you become aware of it if any one of the following conditions exists:

    a. The release or spill threatens or is in a position to threaten waters of the state (surface water or ground water);

    b. The release or spill causes an immediate danger to human health or safety;

    c. The release or spill exceeds 25 gallons;

    d. The release or spill causes a sheen on surface water;

    e. The release or spill of any substance that exceeds the ground water quality standards of ARSD Chapter 74:54:01;

    f. The release or spill of any substance that exceeds the surface water quality standards of ARSD Chapter 74:51:01;

    g. The release or spill of any substance that harms or threatens to harm wildlife or aquatic life;

    h. The release or spill of crude oil in field activities under SDCL chapter 45-9 is greater than 1 barrel (42 gallons); or

    i. The release or spill is required to be reported according to Superfund Amendments and Reauthorization Act (SARA) Title III List of Lists, Consolidated List of Chemicals Subject to Reporting Under the Emergency Planning and Community Right to Know Act, US Environmental Protection Agency.

2. To report a release or spill, call SDDENR at 605-773-3296 during regular office hours (8 a.m. to 5 p.m. Central Standard Time). To report the release after hours, on weekends or holidays, call South Dakota Emergency Management at 605-773-3231. Reporting the release to SDDENR does not meet any obligation for reporting to other state, local, or federal agencies. Therefore, you must also contact local authorities to determine the local reporting requirements for releases. A written report of the unauthorized release of any regulated substance, including quantity discharged and the location of the discharge shall be sent to SDDENR within 14 days of the discharge.

7.2 Planned Changes

You must notify SDDENR as soon as possible of any planned physical alterations or additions to your site. Notice is required only when the alteration or addition could significantly change the nature or increase the quantity of pollutant discharged, or could result in noncompliance with permit conditions. This notification also applies to pollutants that are not addressed by the effluent limits in Section 3.0.

7.3 Records Contents & Retention

1. You must maintain onsite, or make readily available to SDDENR, the following documents:

    a. The SWPPP, including all certificates, reports, records, or other information required by this general permit.

    b. A copy of the Notice of Intent (NOI) submitted to SDDENR, along with any correspondence related to coverage under this general permit.

    c. A copy of the authorization letter you receive from SDDENR granting coverage under this general permit.

    d. A copy of this general permit.

2. You must retain copies of the SWPPP, your inspection records, all reports required by this general permit, and records of the date you used to complete the NOI and NOT for a period of at least three (3) years from the date you terminate your coverage under the general permit. SDDENR may extend the time period for retaining your records with a written notification to you.

3. You must submit all reports and documents required to be submitted to SDDENR by this general permit by email (stormwater@state.sd.us), or to the address below:

    SD Department of Environment and Natural Resources
    Surface Water Quality Program
    523 East Capitol
    Pierre, SD 57501

7.4 Signatory Requirements

1. All applications submitted to SDDENR under this general permit must be signed by either a principal executive officer or ranking elected official.

2. All reports required by the general permit and other information requested by SDDENR shall be signed by the person described in Paragraph 1 above or by a duly authorized representative of that person. A person is a duly authorized representative if:

   a. The authorization is made in writing by a person described in Paragraph 1 above and submitted to SDDENR; and

   b. The authorized representative must have responsibility for the overall operation of the site, such as the superintendent, or have overall responsibility for environmental matters. A duly authorized representative may be either a named individual or any individual occupying a named position.

3. If the authorization under Paragraph 2 above is no longer accurate, you must submit a new authorization to SDDENR.

4. You must include the following certification statement with all documents signed under this section:

   I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure qualified personal properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

7.5 Duty to Provide Information

1. You must provide, within a reasonable period of time, any information SDDENR requests to determine whether cause exists for modifying, revoking and reissuing, or terminating this general permit, or to determine compliance with the general permit.

2. You must provide to SDDENR, upon request, copies of the records required to be kept by this general permit.

3. You must make your SWPPP available to SDDENR, U.S. EPA, or your local storm sewer operator upon request.

4. If you become aware that you failed to submit any relevant facts or submitted incorrect information in your NOI, you must promptly submit such facts or information.

5. You must provide SDDENR with an updated point of contact including a mailing address.

7.6 Availability of Information

1. Except for data determined to be confidential under ARSD Section 74:52:02:17, all reports you prepare and submit in accordance with the terms of this general permit must be available for public inspection at the offices of SDDENR.

2. Your name and address, the NOI and NOT, your SWPPP, and your inspection records will not be considered confidential.

8.0 COMPLIANCE REQUIREMENTS

8.1 Duty to Comply

1. You must comply with all conditions of this general permit. Any permit noncompliance is a violation of the South Dakota Water Pollution Control Act and the federal Clean Water Act. A violation is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.

2. If you violate a condition of the general permit or make any false statement, representation, or certification, you may be subject to enforcement action under South Dakota Codified Law, Chapter 34A-2.

3. You are responsible for complying with all local ordinance and requirements. Local governments may have additional or more stringent requirements than those included in this general permit.

8.2 Duty to Mitigate

You must take all reasonable steps to minimize or prevent any discharge of pollutants in violation of this general permit if it has a reasonable likelihood of adversely affecting human health or the environment.

8.3 Need to Halt or Reduce Activity Not a Defense

It is not a defense for you in an enforcement action that it would have been necessary to halt or reduce your construction activity to maintain compliance with the conditions of the general permit.

8.4 Upset Conditions

1. An upset constitutes an affirmative defense to an action brought for noncompliance with technology-based permit effluent limits if the requirements of Paragraph 2 of this section are met. You will have an opportunity for a judicial determination on any claim of an upset only if SDDENR or U.S EPA bring an enforcement action for noncompliance with technology-based effluent limits.

2. If you wish to establish an affirmative defense of any upset, you must demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

    a. An upset occurred and you can identify the cause of the upset;

    b. You were properly operating the pollution controls at your site;

c. You notified SDDENR within 24 hours of becoming aware of the upset. To report a release or spill, call SDDENR at 605-773-3296 during regular office hours (8 a.m. to 5 p.m. Central Standard Time). To report the release after hours, on weekends or holidays, call South Dakota Emergency Management at 605-773-3231.

d. You complied with the mitigation measures required under Section 8.2.

3. In any enforcement proceeding, you have the burden of proof to establish and document that an upset occurred.

8.5 Removed Substances

Collected solids, sludge, grit, or other pollutants removed in the course of treatment shall be properly disposed of in a manner to prevent any pollutant from entering surface waters of the state or creating a health hazard.

8.6 Inspections and Entry

You must allow SDDENR, U.S. EPA, or the operator of a municipal separate storm sewer system receiving your discharges to:

1. Enter your construction site and enter areas where you keep the records required by the general permit;

2. Have access to and copy, at reasonable times, any records that you must keep under the conditions of the general permit;

3. Inspect, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated under this general permit; and

4. At reasonable times, sample or monitor any substances or parameters at any location for the purpose of ensuring permit compliance or as otherwise authorized by the South Dakota Water Pollution Control Act (SDCL 34A-2).

8.7 Oil and Hazardous Substance Liability

Nothing in this general permit shall relieve you from any responsibilities, liabilities, or penalties you may be subject to under Section 311 of the federal Clean Water Act.

8.8 Penalties for Violations of general permit Conditions

1. If you violate a condition of the general permit, you are in violation of the provisions of SDCL 34A-2-36 and subject to penalties under SDCL 34A-2-75. In addition to a jail sentence authorized by SDCL 22-6-2, you can be subject to a criminal fine not to exceed $10,000 per day per violation. You can also be subject to a civil penalty not to exceed $10,000 per day per violation, or for damages to the environment of this state.

2. Except as provided above in the Upset Conditions in Section 8.4, nothing in this general permit relieves you of the civil or criminal penalties for noncompliance.

8.9 Penalties for Falsification of Reports

1. If you knowingly make any false statement, representation, or certification in any record or other document submitted or required to be maintained under this general permit, you are in violation of the provisions of SDCL 34A-2-77 and subject to penalties under SDCL 34A-2-75.

2. If you falsify, tamper with, or knowingly render inaccurate any monitoring device or method required to be maintained under this general permit, you are in violation of the provisions of SDCL 34A-2-77 and is subject to penalties under SDCL 34A-2-75.

3. In addition to a jail sentence authorized by SDCL 22-6-2, you can be subject to a criminal fine not to exceed $10,000 per day per violation. You are also subject to a civil penalty not to exceed $10,000 per day per violation, or for damages to the environment of this state.

Appendix A

NOTICE OF INTENT (NOI) FORM

DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
NOTICE OF INTENT (NOI)
to Obtain Coverage Under the SWD General Permit for
Stormwater Discharges Associated with Construction Activities

Submit form to: SD Department of Environment and Natural Resources
Surface Water Quality Program
523 East Capitol Avenue
Pierre, South Dakota 57501
stormwater@state.sd.us
Telephone: 1-800-SDSTORM

ALL QUESTIONS MUST BE ANSWERED COMPLETELY FOR THIS FORM TO BE VALID

I. Site Owner Contact Information:

Company Name: _____

Primary Contact Person: _____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

Phone Number: _____ Email Address: _____

Type of Ownership: ☐ Private ☐ Federal ☐ State ☐ Other (Municipal, County, etc.)
(any type not listed previously)

II. Contractor Information:

Will any contractors be responsible for erosion and sediment control practices: ☐ Yes ☐ No

(A contractor certification form must be submitted for each contractor that will have day to day responsibility for erosion and sediment control practices. If these contractors have not been identified at the time this NOI is submitted, the contracotr certification form may be submitted after they have been identified, but before they being construction work.)

III. Engineering Firm Contact Information (if applicable):

Contact Person: _____

Contact's Email Address: _____

IV. Construction Project Information:

Project Name: _____

Physical Project Address or Description of Construction Site Location: _____

_____

City: _____ State: _____ Zip Code: _____

On-Site Contact Person: _____

Contact's Email Address: _____

Contact's Mailing Address: _____

City: _____ State: _____ Zip Code: _____

Phone Number: _____ County of Construction Site: _____

Latitude: _____ Longitude: _____ Source (GPS, Google, etc.): _____

Quarter(s): _____ Section(s): _____ Township(s): _____ Range(s): _____

FOR DENR USE ONLY

Permit Number: _____ Date Approved: _____ Approved by: _____

Construction Project Information (Continued):

Is this project on Tribal Lands? ☐ Yes ☐ No

Total area disturbed by the project (in acres): _____

Will this project encroach, damage, or destroy one of the historic sites identified at the following wesites:

http://history.sd.gov/Preservation/nationalregisterofhistoricplaces.aspx ☐ Yes ☐ No

http://www.nps.gov/nhl/find/statelists/sd/SD.pdf ☐ Yes ☐ No

V. Stormwater Pollution Prevent Plan (SWPPP):

Has the SWPPP been developed as required? ☐ Yes ☐ No

(The plan must be developed **before** the NOI is submitted. DENR will not issue coverage before this has been developed.)

VI. Receiving Waters:

Please list all possible waters that may receive a discharge from this site. If discharging to a Municipal Storm Sewer System, indicate which municipality and the ultimate receiving water.

_____

_____

VII. Nature of Discharge:

Please include a brief description of the construction project:

_____

_____

Will construction dewatering be required? ☐ Yes ☐ No If yes, please complete section IX also.

VIII. Construction Dates:

Project Start Date (MM/DD/YYYY): _____

Estimated Completion Date (MM/DD/YYYY): _____

IX. Dewatering Activities (Complete this section if you answered yes in VII):

Date dewatering will commence (MM/DD/YYYY): _____

Date dewatering will end (MM/DD/YYYY): _____

Total volume of dewatering (gallons): _____ Average flow rate (gallons per minute): _____

Source of water to be discharged: _____

Receiving water: _____

Brief description of water treatment processes to be employed, if any: _____

_____

Will the dewatering discharge contain anything other than uncontaminated groundwater and stormwater: ☐ Yes ☐ No

NOTE: If there will be dewatering activities, please place points of withdrawal and discharge on a topographic map, or other map if a topographic map is unavailable. This map should extend to one (1) square mile beyond the property boundaries of the facility and each of its discharge facilities, and those wells, springs, and other surface water bodies, drinking water wells, and surface water intake structures listed in public records, or otherwise known to the applicant in the map area.

X. Other Information

List other information you feel should be brought to the attention of the SDDENR regarding coverage under this general permit. Attach additional sheets if necessary.

_____

_____

_____

STATE OF SOUTH DAKOTA

BEFORE THE SECRETARY OF

THE DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

IN THE MATTER OF THE APPLICATION OF	**)**	
	)	**CERTIFICATION OF**
_____	**)**	
	)	**APPLICANT**
STATE OF _____	**)**	
	)	
COUNTY OF _____	**)**	

I, _____, the applicant in the above matter after being duly sworn upon oath hereby certify the following information in regard to this application:

I have read and understand South Dakota Codified Law Section 1-40-27 which provides:

"The secretary may reject an application for any permit filed pursuant to Titles 34A or 45, including any application by any concentrated swine feeding operation for authorization to operate under a general permit, upon making a specific finding that:

(1) The applicant is unsuited or unqualified to perform the obligations of a permit holder based upon a finding that the applicant, any officer, director, partner, or resident general manager of the facility for which application has been made:

(a) Has intentionally misrepresented a material fact in applying for a permit;

(b) Has been convicted of a felony or other crime involving moral turpitude;

(c) Has habitually and intentionally violated environmental laws of any state or the United States which have caused significant and material environmental damage;

(d) Has had any permit revoked under the environmental laws of any state or the United States; or

(e) Has otherwise demonstrated through clear and convincing evidence of previous actions that the applicant lacks the necessary good character and competency to reliably carry out the obligations imposed by law upon the permit holder; or

(2) The application substantially duplicates an application by the same applicant denied within the past five years which denial has not been reversed by a court of competent jurisdiction. Nothing in this subdivision may be construed to prohibit an applicant from submitting a new application for a permit previously denied, if the new application represents a good faith attempt by the applicant to correct the deficiencies that served as the basis for the denial in the original application.

All applications filed pursuant to Titles 34A and 45 shall include a certification, sworn to under oath and signed by the applicant, that he is not disqualified by reason of this section from obtaining a permit. In the absence of evidence to the contrary, that certification shall constitute a prima facie showing of the suitability and qualification of the applicant. If at any point in the application review, recommendation or hearing process, the secretary finds the applicant has intentionally made any material misrepresentation of fact in regard to this certification,

consideration of the application may be suspended and the application may be rejected as provided for under this section.

Applications rejected pursuant to this section constitute final agency action upon that application and may be appealed to circuit court as provided for under chapter 1-26."

I certify pursuant to 1-40-27, that as an applicant, officer, director, partner, or resident general manager of the activity or facility for which the application has been made that I; a) have not intentionally misrepresented a material fact in applying for a permit; b) have not been convicted of a felony or other crime of moral turpitude; c) have not habitually and intentionally violated environmental laws of any state or the United States which have caused significant and material environmental damage; (d) have not had any permit revoked under the environmental laws of any state or the United States; or e) have not otherwise demonstrated through clear and convincing evidence of previous actions that I lack the necessary good character and competency to reliably carry out the obligations imposed by law upon me. I also certify that this application does not substantially duplicate an application by the same applicant denied within the past five years which denial has not been reversed by a court of competent jurisdiction. Further;

"I declare and affirm under the penalties of perjury that this claim (petition, application, information) has been examined by me, and to the best of my knowledge and belief, is in all things true and correct."

Dated this _____ day of _____ , 20____ .

_____
Applicant (print)

_____
Applicant (signature)

Subscribed and sworn before me this _____ day of _____ , 20_____ .

_____
Notary Public (signature)

My commission expires: _____

(SEAL)

PLEASE ATTACH ANY ADDITIONAL INFORMATION NECESSARY TO DISCLOSE ALL FACTS AND DOCUMENTS PERTAINING TO SDCL 1-40-27 (1) (a) THROUGH (e). ALL VIOLATIONS MUST BE DISCLOSED, BUT WILL NOT AUTOMATICALLY RESULT IN THE REJECTION OF AN APPLICATION

Appendix B

NOTICE OF TERMINATION
(NOT) FORM

DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
NOTICE OF TERMINATION (NOT)
of Coverage Under the SWD General Permit for
Stormwater Discharges Associated with Construction Activities

This form is required to be submitted when a discharge permit is no longer required or necessary. Submission of this form shall in no way relieve the permittee of permit obligations required prior to submission of this form. Please submit this form to the following address:

Submit form to: SD Department of Environment and Natural Resources
Surface Water Quality Program
523 East Capitol Avenue
Pierre, South Dakota 57501
stormwater@state.sd.us
Telephone: 1-800-SDSTORM

I. Permit Number: _____

II. Primary Contact Information:

Company Name: _____

Primary Contact Person: _____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

Phone Number: _____ Email Address: _____

III. Mailing Address for Facility/Site Location:

Project Name: _____

Primary Contact Person: _____

Contact's Email Address: _____

Contact's Mailing Address: _____

City: _____ State: _____ Zip Code: _____

I certify under penalty of law that all stormwater discharges associated with construction activity from the identified facility that are authorized by a SWD general permit have been eliminated. I understand that by submitting the Notice of Termination, I am no longer authorized to discharge stormwater associated with construction activity under this general permit, and that discharging pollutants in stormwater associated with construction activity to waters of the state is unlawful under the federal Clean Water Act and the South Dakota Water Pollution Control Act if the discharge is not authorized by a SWD permit. I also understand that the submittal of this Notice of Termination does not release an operator from liability for any violations of this permit or the South Dakota Water Pollution Control Act. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

NOTE: Notice of Termination shall be signed by the authorized chief elective or executive officer of the applicant, or by the applicant, if an individual.

Name: _____ Title: _____

Signature: _____ Date: _____

FOR DENR USE ONLY

Permit Number: _____ Date Approved: _____ Letter Date: _____ Approved by: _____

Appendix C

CONTRACTOR AUTHORIZATION FORM

DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
CONTRACTOR AUTHORIZATION FORM

for Coverage Under the SWD General Permit for
Stormwater Discharges Associated with Construction Activities

This form is required to be submitted when a contractor will act as an operator and have day to day responsibility for erosion and sediment control measures. Submission of this form shall in no way relieve the permittee of permit obligations. Please submit this form to the following address:

Submit form to: SD Department of Environment and Natural Resources
Surface Water Quality Program
523 East Capitol Avenue
Pierre, South Dakota 57501
stormwater@state.sd.us
Telephone: 1-800-SDSTORM

ALL QUESTIONS MUST BE ANSWERED COMPLETELY FOR THIS FORM TO BE VALID

Project Name: _____ Permit Number (if available): _____

Project Site Legal Location: _____

Contractor Company Name: _____

Responsible Contact Person: _____

Contact's Email Address: _____

Contractor Mailing Address: _____

City: _____ State: _____ Zip Code: _____ Phone Number: _____

The contractor(s) responsible for the day to day operation of the construction site shall certify the following:

"I certify under penalty of law that I understand and will comply with the terms and conditions of the Surface Water Discharge General Permit for Stormwater Discharges Associated with Construction Activities for the project identified above."

South Dakota Codified Laws Section 1-40-27 provides:

"The secretary may reject an application for any permit filed pursuant to Titles 34A or 45, including any application by any concentrated swine feeding operation for authorization to operate under a general permit, upon making a specific finding that:

(1) The applicant is unsuited or unqualified to perform the obligations of a permit holder based upon a finding that the applicant, any officer, director, partner or resident general manager of the facility for which application has been made:

(a) Has intentionally misrepresented a material fact in applying for a permit;

(b) Has been convicted of a felony or other crime involving moral turpitude;

(c) Has habitually and intentionally violated environmental laws of any state or the United States which have caused significant and material environmental damage;

(d) Has had any permit revoked under the environmental laws of any state or the United States; or

FOR DENR USE ONLY

Permit Number: _____ Date Approved: _____ Approved by: _____

(e) Has otherwise demonstrated through clear and convincing evidence of previous actions that the applicant lacks the necessary good character and competency to reliably carry out the obligations imposed by law upon the permit holder; or

(2) The application substantially duplicates an application by the same applicant denied within the past five years which denial has not been reversed by a court of competent jurisdiction. Nothing in this subdivision may be construed to prohibit an applicant from submitting a new application for a permit previously denied, if the new application represents a good faith attempt by the applicant to correct the deficiencies that served as the basis for the denial in the original application.

All applications filed pursuant to Titles 34A and 45 shall include a certification, sworn to under oath and signed by the applicant, that he is not disqualified by reason of this section from obtaining a permit. In the absence of evidence to the contrary, that certification shall constitute a prima facie showing of the suitability and qualification of the applicant. If at any point in the application review, recommendation or hearing process, the secretary finds the applicant has intentionally made any material misrepresentation of fact in regard to this certification, consideration of the application may be suspended and the application may be rejected as provided for under this section.

Applications rejected pursuant to this section constitute final agency action upon that application and may be appealed to circuit court as provided for under chapter 1-26."

I certify pursuant to SDCL 1-40-27, that as an applicant, officer, partner, or resident general manager of the activity or facility for which the application has been made that I; a) have not intentionally misrepresented a material fact in applying for a permit; b) have not been convicted of a felony or other crime of moral turpitude; c) have not habitually and intentionally violated environmental laws of any state or the United States which have caused significant and material environmental damage; d) have not had any permit revoked under the environmental laws of any state or the United States; or e) have not otherwise demonstrated through clear and convincing evidence of previous actions that I lack the necessary good character and competency to reliably carry out the obligations imposed by law upon me. I also certify that this application does not substantially duplicate an application by the same applicant denied within the past five years which denial has not been reversed by a court of competent jurisdiction. Further;

"I declare and affirm under the penalties of perjury that this claim (petition, application, information) has been examined by me, and to the best of my knowledge and belief, is in all things true and correct."

Dated this _____ day of _____, 20____.

_____

Applicant (print)

_____

Applicant (signature)

Subscribed and sworn before me this _____ day of _____, 20____.

_____

Notary Public (signature)

My commission expires: _____

(SEAL)

PLEASE ATTACH A SHEET DISCLOSING ALL FACTS PERTAINING TO SDCL 1-40-27 (1) (a) THROUGH (e). ALL VIOLATIONS MUST BE DISCLOSED, BUT WILL NOT AUTOMATICALLY RESULT IN THE REJECTION OF AN APPLICATION.

Appendix D

TRANSFER OF PERMIT COVERAGE FORM

DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
TRANSFER OF PERMIT COVERAGE FORM

for Coverage Under the SWD General Permit for
Stormwater Discharges Associated with Construction Activities

This form is required to be submitted when ownership of a construction project or an individual lot in a larger common plan of development has been transferred to a different owner. Please submit this form to the following address:

Submit form to: SD Department of Environment and Natural Resources
Surface Water Quality Program
523 East Capitol Avenue
Pierre, South Dakota 57501
stormwater@state.sd.us
Telephone: 1-800-SDSTORM

Project Name: _____ Permit Number: _____

Site (Lot) Legal Location: _____

Site (Lot) Description: _____

Previous Owner's Name: _____

New Owner's Name: _____

New Owner's Mailing Information:

City: _____ State: _____ Zip Code: _____

Phone Number: _____ Email: _____

Stabilization measures implemented prior to transfer: _____

_____

Date transfer of property responsibility and liability becomes effective: _____

****NOTE: Any change in location, operation, and/or coverage area requires that the Stormwater Pollution Prevention Plan be updated and revised to reflect all changes.**

The site (lot) described about is covered under the General Permit for Stormwater Discharges Associated with Construction Activity. Temporary or permanent stabilization has been established on the site, which has now transferred ownership/responsibility as indicated above. The new owners, or operators, have been made aware of the importance of site stabilization in an effort to control pollutant runoff and/or sedimentation.

The new owner assumes responsibility for implementing best management practices to reduce or eliminate a discharge of pollutants to waters of the state. The new owner is aware that permit coverage for the site is required until all soil-disturbing activities at the site have been completed and one of the following conditions have been met:

- **all portions of the site not covered by pavement or permanent structures have a uniform perennial vegetative cover over at least 70% of the site; or**
- **equivalent permanent stabilization measure have been employed, such as the use of riprap, gabions, or geotextiles.**

New Owner/Operator Signature: _____

Date: _____

Previous Owner/Operator Signature: _____

Date: _____

FOR DENR USE ONLY

Permit Number: _____ Date Approved: _____ Approved by: _____

Appendix E

NOTICE OF INTENT
FOR
REAUTHORIZATION FORM

DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
NOTICE OF INTENT (NOI) for REAUTHORIZATION
of Coverage Under the SWD General Permit for
Stormwater Discharges Associated with Construction Activities

The following facility currently has coverage under the General Permit for Stormwater Discharges Associated with Construction Activities. ***This form must be submitted if you wish to continue coverage under the General Permit.*** Submission of this form shall in no way relieve the permittee of permit obligations required prior to submission of this form. Please submit this form to the following address:

Submit form to: SD Department of Environment and Natural Resources
Surface Water Quality Program
523 East Capitol Avenue
Pierre, South Dakota 57501
stormwater@state.sd.us
Telephone: 1-800-SDSTORM

Update information below as needed. Please print or type information.

I. Permit Number: _____

II. Owner Information:

Company Name: _____

Primary Contact Person: _____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

Phone Number: _____ Email Address: _____

III. Construction Project Information:

Project Name: _____

Project Description: _____

On-Site Contact Person: _____

Mailing Address: _____

City: _____ County: _____ State: _____ Zip Code: _____

Phone Number: _____ Total area disturbed by the project (in acres): _____

Project Start Date: _____ Estimated Completion Date: _____

IV. Signature of Applicant

By signing this form, you are requesting to continue permit coverage under the reissued General Permit. You are certifying you will comply with the new General Permit and update your Stormwater Pollution Prevention Plan if necessary to meet the reissued General Permit conditions.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including revocation of the permit and the possibility of fine and imprisonment for knowing violations. In addition, I certify that I am aware of the terms and conditions of the General Stormwater permit and I agree to comply with those requirements.

NOTE: The NOI for Reauthorization must be signed by the authorized chief elective or executive offier of the applicant, or by the applicant, if an individual project.

Name (print): _____ Title: _____

Signature: _____ Date: _____

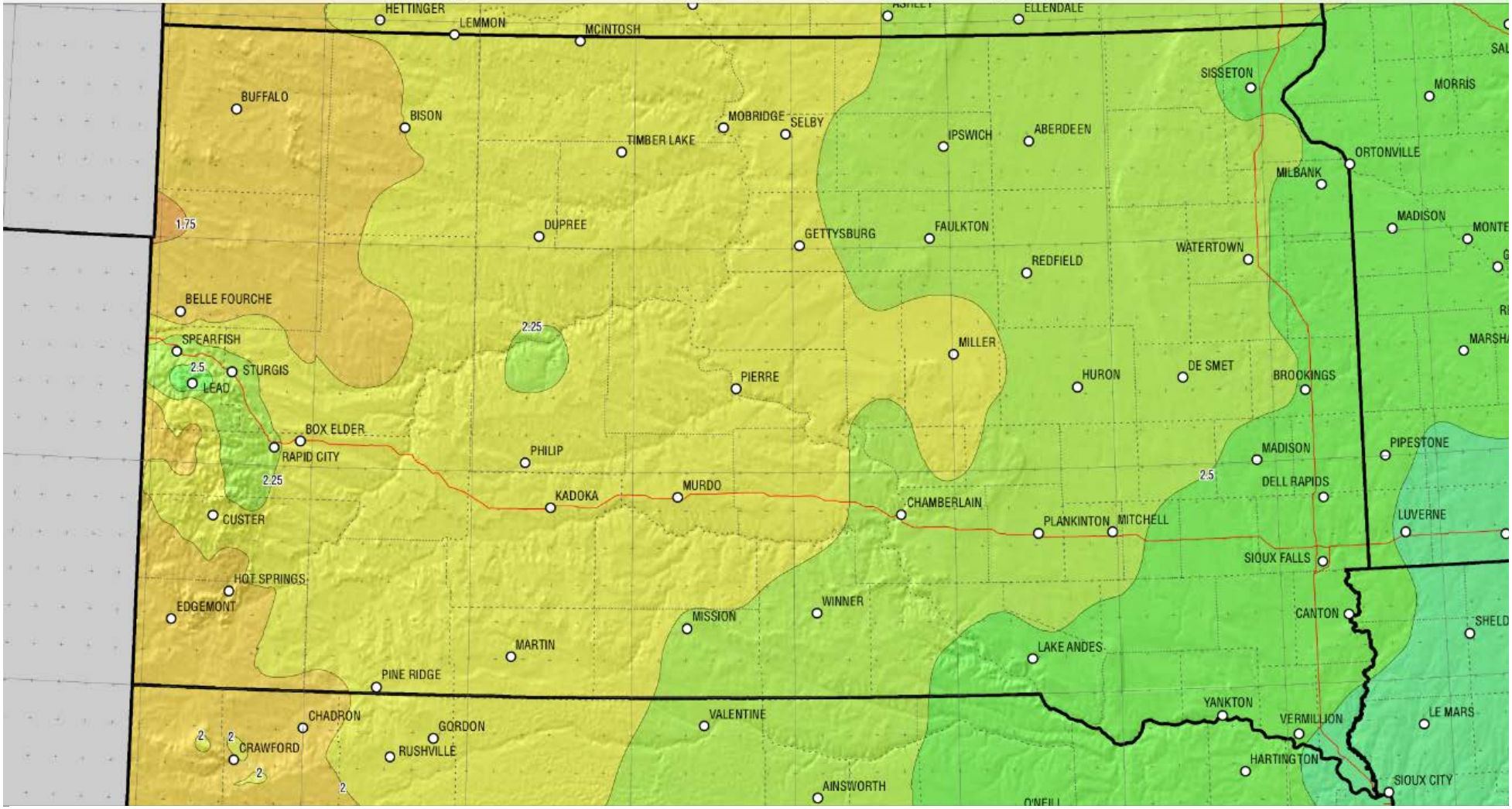
FOR DENR USE ONLY

Permit Number: _____ Date Reauthorized: _____ Approved by: _____

Appendix F

TWO YEAR, TWENTY-FOUR HOUR PRECIPITATION EVENT MAP

ftp://hdsc.nws.noaa.gov/pub/hdsc/data/mw/nd2y24h.pdf



NOAA Atlas 14, Volume 8, Version 2
Midwestern States

Prepared by U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL WEATHER SERVICE
OFFICE OF HYDROLOGIC DEVELOPMENT
HYDROMETEOROLOGICAL DESIGN STUDIES CENTER
April 2013

SOUTH DAKOTA

2-year 24-hour precipitation in inches

0.88 - 1.00	2.01 - 2.25	3.26 - 3.50	4.51 - 4.75
1.01 - 1.25	2.26 - 2.50	3.51 - 3.75	4.76 - 5.00
1.26 - 1.50	2.51 - 2.75	3.76 - 4.00	5.01 - 5.19
1.51 - 1.75	2.76 - 3.00	4.01 - 4.25	
1.76 - 2.00	3.01 - 3.25	4.26 - 4.50	

Legend based on entire Volume 8 project area

Attachment B

Permitting Documentation (NOI, Permit Card, Permit Letters, Blank NOT/MOD)

DEPARTMENT of ENVIRONMENT and NATURAL RESOURCES

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.denr.sd.gov

August 21, 2018

Chad Eken
Wanzek Construction, Inc
2028 2nd Avenue NW
West Fargo, SD 58078

Dear Chad Eken:

Thank you for submitting the Contractor Authorization form under the South Dakota General Permit for Stormwater Discharges Associated with Construction Activities. This letter grants you coverage under this general permit for the project listed below in Clark County, SD. This coverage does not relieve you from complying with other state and local requirements or from obtaining other required permits. As a contractor doing dirt work and/or responsible for erosion and sediment control at the site, you are a co-permittee and must comply with the conditions of the general permit.

You must maintain your site in compliance with the permit conditions. Refer to Section 3.0 for effluent limits and Section 4.0 for Storm Water Pollution Prevention Plan requirements. The Permit Number for this project is **SDR10J175**. Please refer to this number in all future correspondence.

Project Information (Please check to be certain this information is correct)**:**
Crocker Wind Project (PCN: N/A)
Section , Township , Range
Latitude 45.070650°; Longitude 97.848439°
Contractor Authorization Date: 08/21/2018

Thank you for preserving the natural resources of South Dakota. If you have any questions or need any guidance, please contact me at 1-800-SDSTORM (737-8676).

Sincerely,

Katie Luce
Program Assistant
Surface Water Quality Program

cc: Joe Ibrahim, Crocker Wind Farm, LLC, 7650 Edinborough Way Suite 725, Edina, MN 55435

Permit No.: SDR10J175
Project: Crocker Wind Project

SOUTH DAKOTA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

General Permit Authorizing Stormwater Discharges Associated with Construction Activities Under the South Dakota Surface Water Discharge System

In compliance with the provisions of the South Dakota Water Pollution Control Act and the Administrative Rules of South Dakota (ARSD), Article 74:52, owners and operators of stormwater discharges from **construction activities**, located in the state of South Dakota are authorized to discharge in accordance with the conditions and requirements set forth herein.

This General Permit shall become effective on April 1, 2018.

General Permit coverage for Wanzek Construction, Inc shall become effective on **08/21/2018.**

This General Permit and the authorization to discharge shall expire at midnight, **March 31, 2023**.

Signed this **23rd** day of **March, 2018,**

Authorized Permitting Official

Steven M. Pirner
Secretary
Department of Environment and Natural Resources

DEPARTMENT of ENVIRONMENT and NATURAL RESOURCES

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.denr.sd.gov

August 21, 2018

Joe Ibrahim
Crocker Wind Farm, LLC
7650 Edinborough Way Suite 725
Edina, MN 55435

Dear Joe Ibrahim:

Thank you for submitting your Notice of Intent for the South Dakota General Permit for Stormwater Discharges Associated with Construction Activities. This letter grants you coverage under this general permit for the project listed below in Clark County, SD. This coverage does not relieve you from complying with other state and local requirements or from obtaining other required permits. **All contractors who will be doing dirt work or who will be responsible for implementing sediment and erosion controls must submit a Contractor Authorization form identifying the contractor.** The contractor will then be considered a co-permittee and will also be responsible for complying with the general permit.

You must maintain your site in compliance with the permit conditions. Refer to Section 3.0 for effluent limits and Section 4.0 for Pollution Prevention Plan requirements. Your project's Permit Number is **SDR10J175**. Please refer to this number in all future correspondence.

Project Information (Please check to be certain this information is correct)**:**

Chad Eken – Project Site Contact Person
Crocker Wind Project (PCN: N/A)
Section , Township , Range
Latitude 45.070650°; Longitude 97.848439°
Effective Date: **August 21, 2018**

Thank you for preserving the natural resources of South Dakota. If you have any questions or need any guidance, please contact me at 1-800-SDSTORM (1-800-737-8676).

Sincerely,

Katie Luce
Stormwater Program Assistant
Surface Water Quality Program
stormwater@state.sd.us

cc:
Chad Eken, Hwy 20 & 418th Ave Intersection, Crocker, SD 57217

Permit No.: SDR10J175
Project: Crocker Wind Project

SOUTH DAKOTA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

General Permit Authorizing Stormwater Discharges Associated with Construction Activities Under the South Dakota Surface Water Discharge System

In compliance with the provisions of the South Dakota Water Pollution Control Act and the Administrative Rules of South Dakota (ARSD), Article 74:52, owners and operators of stormwater discharges from **construction activities**, located in the state of South Dakota are authorized to discharge in accordance with the conditions and requirements set forth herein.

This General Permit shall become effective on April 1, 2018.

General Permit coverage for Crocker Wind Farm, LLC shall become effective August 21, 2018.

This General Permit and the authorization to discharge shall expire at midnight, **March 31, 2023**.

Signed this **23rd** day of **March, 2018,**

Authorized Permitting Official

Steven M. Pirner
Secretary
Department of Environment and Natural Resources

DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
NOTICE OF INTENT (NOI)
to Obtain Coverage Under the SWD General Permit for
Stormwater Discharges Associated with Construction Activities

Submit form to: SD Department of Environment and Natural Resources
Surface Water Quality Program
523 East Capitol Avenue
Pierre, South Dakota 57501
stormwater@state.sd.us
Telephone: 1-800-SDSTORM

ALL QUESTIONS MUST BE ANSWERED COMPLETELY FOR THIS FORM TO BE VALID

I. Site Owner Contact Information:

Company Name: Crocker Wind Farm, LLC
Primary Contact Person: Joe Ibrahim
Mailing Address: 7650 Edinborough Way, Ste. 725
City: Edina State: MN Zip Code: 55435
Phone Number: 952-358-5681 Email Address: joe@geronimoenergy.com
Type of Ownership: [X] Private [ ] Federal [ ] State [ ] Other (Municipal, County, etc.)
(any type not listed previously)

II. Contractor Information:

Will any contractors be responsible for erosion and sediment control practices: [X] Yes [ ] No

(A contractor certification form must be submitted for each contractor that will have day to day responsibility for erosion and sediment control practices. If these contractors have not been identified at the time this NOI is submitted, the contracotr certification form may be submitted after they have been identified, but before they being construction work.)

III. Engineering Firm Contact Information (if applicable):

Contact Person: Dani Franssen
Contact's Email Address: danielle.franssen@westwoodps.com

IV. Construction Project Information:

Project Name: Crocker Wind Project
Physical Project Address or Description of Construction Site Location: Nearest intersection:
Highway 20 and 418th Avenue
City: Crocker State: SD Zip Code: 57217
On-Site Contact Person: Chad Eken
Contact's Email Address: ceken@wanzek.com
Contact's Mailing Address: 2028 2nd Avenue NW
City: West Fargo State: ND Zip Code: 58078
Phone Number: 701-212-5731 County of Construction Site: Clark
Latitude: 45.070650° Longitude: -97.848439° Source (GPS, Google, etc.): Google Earth
Quarter(s): ALL Section(s): See attached Township(s): See attached Range(s): See attached

FOR DENR USE ONLY

Permit Number: _____ Date Approved: _____ Approved by: _____

Construction Project Information (Continued):

Is this project on Tribal Lands? ☐ Yes ☒ No

Total area disturbed by the project (in acres): 1,049

Will this project encroach, damage, or destroy one of the historic sites identified at the following wesites:

http://history.sd.gov/Preservation/nationalregisterofhistoricplaces.aspx ☐ Yes ☒ No

http://www.nps.gov/nhl/find/statelists/sd/SD.pdf ☐ Yes ☒ No

V. Stormwater Pollution Prevent Plan (SWPPP):

Has the SWPPP been developed as required? ☒ Yes ☐ No

(The plan must be developed **before** the NOI is submitted. DENR will not issue coverage before this has been developed.)

VI. Receiving Waters:

Please list all possible waters that may receive a discharge from this site. If discharging to a Municipal Storm Sewer System, indicate which municipality and the ultimate receiving water.

See attached

VII. Nature of Discharge:

Please include a brief description of the construction project:

Construction of a wind energy facility including: access roads, turbines, O&M, substation, switch yard, underground electrical, batch plant, laydown yard, turning radius, & crane paths.

Will construction dewatering be required? ☐ Yes ☒ No If yes, please complete section IX also.

VIII. Construction Dates:

Project Start Date (MM/DD/YYYY): 09/01/2018

Estimated Completion Date (MM/DD/YYYY): 12/31/2019

IX. Dewatering Activities (Complete this section if you answered yes in VII):

Date dewatering will commence (MM/DD/YYYY): N/A

Date dewatering will end (MM/DD/YYYY): N/A

Total volume of dewatering (gallons): N/A Average flow rate (gallons per minute): N/A

Source of water to be discharged: N/A

Receiving water: N/A

Brief description of water treatment processes to be employed, if any: N/A

Will the dewatering discharge contain anything other than uncontaminated groundwater and stormwater: ☐ Yes ☐ No N/A

NOTE: If there will be dewatering activities, please place points of withdrawal and discharge on a topographic map, or other map if a topographic map is unavailable. This map should extend to one (1) square mile beyond the property boundaries of the facility and each of its discharge facilities, and those wells, springs, and other surface water bodies, drinking water wells, and surface water intake structures listed in public records, or otherwise known to the applicant in the map area.

X. Other Information

List other information you feel should be brought to the attention of the SDDENR regarding coverage under this general permit. Attach additional sheets if necessary.

STATE OF SOUTH DAKOTA

BEFORE THE SECRETARY OF

THE DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

IN THE MATTER OF THE APPLICATION OF Crocker Wind Project	)	**CERTIFICATION OF APPLICANT**
STATE OF South Dakota	)	
COUNTY OF Clark	)	

I, Joe Ibrahim, the applicant in the above matter after being duly sworn upon oath hereby certify the following information in regard to this application:

I have read and understand South Dakota Codified Law Section 1-40-27 which provides:

"The secretary may reject an application for any permit filed pursuant to Titles 34A or 45, including any application by any concentrated swine feeding operation for authorization to operate under a general permit, upon making a specific finding that:

(1) The applicant is unsuited or unqualified to perform the obligations of a permit holder based upon a finding that the applicant, any officer, director, partner, or resident general manager of the facility for which application has been made:

(a) Has intentionally misrepresented a material fact in applying for a permit;

(b) Has been convicted of a felony or other crime involving moral turpitude;

(c) Has habitually and intentionally violated environmental laws of any state or the United States which have caused significant and material environmental damage;

(d) Has had any permit revoked under the environmental laws of any state or the United States; or

(e) Has otherwise demonstrated through clear and convincing evidence of previous actions that the applicant lacks the necessary good character and competency to reliably carry out the obligations imposed by law upon the permit holder; or

(2) The application substantially duplicates an application by the same applicant denied within the past five years which denial has not been reversed by a court of competent jurisdiction. Nothing in this subdivision may be construed to prohibit an applicant from submitting a new application for a permit previously denied, if the new application represents a good faith attempt by the applicant to correct the deficiencies that served as the basis for the denial in the original application.

All applications filed pursuant to Titles 34A and 45 shall include a certification, sworn to under oath and signed by the applicant, that he is not disqualified by reason of this section from obtaining a permit. In the absence of evidence to the contrary, that certification shall constitute a prima facie showing of the suitability and qualification of the applicant. If at any point in the application review, recommendation or hearing process, the secretary finds the applicant has intentionally made any material misrepresentation of fact in regard to this certification,

consideration of the application may be suspended and the application may be rejected as provided for under this section.

Applications rejected pursuant to this section constitute final agency action upon that application and may be appealed to circuit court as provided for under chapter 1-26."

I certify pursuant to 1-40-27, that as an applicant, officer, director, partner, or resident general manager of the activity or facility for which the application has been made that I; a) have not intentionally misrepresented a material fact in applying for a permit; b) have not been convicted of a felony or other crime of moral turpitude; c) have not habitually and intentionally violated environmental laws of any state or the United States which have caused significant and material environmental damage; (d) have not had any permit revoked under the environmental laws of any state or the United States; or e) have not otherwise demonstrated through clear and convincing evidence of previous actions that I lack the necessary good character and competency to reliably carry out the obligations imposed by law upon me. I also certify that this application does not substantially duplicate an application by the same applicant denied within the past five years which denial has not been reversed by a court of competent jurisdiction. Further;

"I declare and affirm under the penalties of perjury that this claim (petition, application, information) has been examined by me, and to the best of my knowledge and belief, is in all things true and correct."

Dated this 17 day of August, 2018.

Joe Ibrahim

Applicant (print)

Applicant (signature)

Subscribed and sworn before me this 17 day of August, 2018.

Notary Public (signature)

My commission expires: 1-31-23

KYLE R. OSTGARD
Notary Public
State of Minnesota
My Commission Expires
January 31, 2023

(SEAL)

PLEASE ATTACH ANY ADDITIONAL INFORMATION NECESSARY TO DISCLOSE ALL FACTS AND DOCUMENTS PERTAINING TO SDCL 1-40-27 (1) (a) THROUGH (e). ALL VIOLATIONS MUST BE DISCLOSED, BUT WILL NOT AUTOMATICALLY RESULT IN THE REJECTION OF AN APPLICATION

Crocker Wind Project Notice of Intent Addendum

Section IV. Construction Project Information

Section	Township	Range
23-27, 34-36	119N	59W
3-10, 15-19, 25-26, 30-31, 33-36	119N	58W
29-32	119N	57W
1-3, 10-15	118N	59W
1-12, 14-16, 21-23, 26, 34	118N	58W

Section VI. Receiving Waters

Name of Waterbody	Immediate (I) or Ultimate (U)	Type (wetland, lake, stream, ditch)	Impaired? Y/N	MS4? Y/N
Unnamed Tributaries to HUC 101600050305	I	overland flow	N	N
Unnamed Tributaries to Town of Lily	I	overland flow	N	N
Unnamed Tributaries to Mallard Slough	I	overland flow	N	N
Unnamed Tributaries to Reid Lake	I	overland flow	N	N
Unnamed Tributaries to Clark Center Church-Timber Creek	I	overland flow	N	N
Unnamed Tributaries to Turton Creek	I	overland flow	N	N
Unnamed Tributaries to Sweetwater Lake	I	overland flow	N	N
Unnamed Wetlands	I	wetland	N	N
Mallard Slough	U	slough	N	N
Reid Lake	U	lake	Y*	N
Clark Center Church-Timber Creek	U	creek	N	N
Turton Creek	U	creek	N	N
Sweetwater Lake	U	lake	N	N

*Non-construction related parameter

DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
CONTRACTOR AUTHORIZATION FORM

for Coverage Under the SWD General Permit for
Stormwater Discharges Associated with Construction Activities

This form is required to be submitted when a contractor will act as an operator and have day to day responsibility for erosion and sediment control measures. Submission of this form shall in no way relieve the permittee of permit obligations. Please submit this form to the following address:

Submit form to: SD Department of Environment and Natural Resources
Surface Water Quality Program
523 East Capitol Avenue
Pierre, South Dakota 57501
stormwater@state.sd.us
Telephone: 1-800-SDSTORM

ALL QUESTIONS MUST BE ANSWERED COMPLETELY FOR THIS FORM TO BE VALID

Project Name: Crocker Wind Project Permit Number (if available): _____

Project Site Legal Location: Nearest intersection: Highway 20 and 418th Avenue

Contractor Company Name: Wanzek Construction, Inc.

Responsible Contact Person: Chad Eken

Contact's Email Address: ceken@wanzek.com

Contractor Mailing Address: 2028 2nd Avenue NW

City: West Fargo State: ND Zip Code: 58078 Phone Number: 701-212-5731

The contractor(s) responsible for the day to day operation of the construction site shall certify the following:

"I certify under penalty of law that I understand and will comply with the terms and conditions of the Surface Water Discharge General Permit for Stormwater Discharges Associated with Construction Activities for the project identified above."

South Dakota Codified Laws Section 1-40-27 provides:

"The secretary may reject an application for any permit filed pursuant to Titles 34A or 45, including any application by any concentrated swine feeding operation for authorization to operate under a general permit, upon making a specific finding that:

(1) The applicant is unsuited or unqualified to perform the obligations of a permit holder based upon a finding that the applicant, any officer, director, partner or resident general manager of the facility for which application has been made:

(a) Has intentionally misrepresented a material fact in applying for a permit;

(b) Has been convicted of a felony or other crime involving moral turpitude;

(c) Has habitually and intentionally violated environmental laws of any state or the United States which have caused significant and material environmental damage;

(d) Has had any permit revoked under the environmental laws of any state or the United States; or

FOR DENR USE ONLY

Permit Number: _____ Date Approved: _____ Approved by: _____

(e) Has otherwise demonstrated through clear and convincing evidence of previous actions that the applicant lacks the necessary good character and competency to reliably carry out the obligations imposed by law upon the permit holder; or

(2) The application substantially duplicates an application by the same applicant denied within the past five years which denial has not been reversed by a court of competent jurisdiction. Nothing in this subdivision may be construed to prohibit an applicant from submitting a new application for a permit previously denied, if the new application represents a good faith attempt by the applicant to correct the deficiencies that served as the basis for the denial in the original application.

All applications filed pursuant to Titles 34A and 45 shall include a certification, sworn to under oath and signed by the applicant, that he is not disqualified by reason of this section from obtaining a permit. In the absence of evidence to the contrary, that certification shall constitute a prima facie showing of the suitability and qualification of the applicant. If at any point in the application review, recommendation or hearing process, the secretary finds the applicant has intentionally made any material misrepresentation of fact in regard to this certification, consideration of the application may be suspended and the application may be rejected as provided for under this section.

Applications rejected pursuant to this section constitute final agency action upon that application and may be appealed to circuit court as provided for under chapter 1-26."

I certify pursuant to SDCL 1-40-27, that as an applicant, officer, partner, or resident general manager of the activity or facility for which the application has been made that I; a) have not intentionally misrepresented a material fact in applying for a permit; b) have not been convicted of a felony or other crime of moral turpitude; c) have not habitually and intentionally violated environmental laws of any state or the United States which have caused significant and material environmental damage; d) have not had any permit revoked under the environmental laws of any state or the United States; or e) have not otherwise demonstrated through clear and convincing evidence of previous actions that I lack the necessary good character and competency to reliably carry out the obligations imposed by law upon me. I also certify that this application does not substantially duplicate an application by the same applicant denied within the past five years which denial has not been reversed by a court of competent jurisdiction. Further;

"I declare and affirm under the penalties of perjury that this claim (petition, application, information) has been examined by me, and to the best of my knowledge and belief, is in all things true and correct."

Dated this 17 day of August, 20 18.

Chad Eken

Applicant (print)

Applicant (signature)

Subscribed and sworn before me this 17 day of August, 20 18.

Notary Public (signature)

My commission expires: 11-4-22

KARI L. MOHS
Notary Public
State of North Dakota
My Commission Expires Nov. 4, 2022

PLEASE ATTACH A SHEET DISCLOSING ALL FACTS PERTAINING TO SDCL 1-40-27 (1) (a) THROUGH (e). ALL VIOLATIONS MUST BE DISCLOSED, BUT WILL NOT AUTOMATICALLY RESULT IN THE REJECTION OF AN APPLICATION.

Delegation of Authority

I, Chris Fox, hereby designate the person or specifically described position below to be a duly authorized representative for the purpose of overseeing compliance with environmental requirements, including the Construction General Permit (CGP), at the Crocker Wind Project (construction site). The designee is authorized to sign any reports, stormwater pollution prevention plans, Notice of Intent and all other documents required by the permit.

Name of Person(s) or Position(s)	Chad Eken, Construction Account Executive
Company:	Wanzek Construction, Inc.
Address:	2028 2nd Avenue NW
City, State, Zip Code	West Fargo, ND 58078
Phone Number:	701-212-5731

By signing this authorization, I confirm that I meet the requirements to make such a designation as set forth in Section 7.4 of the South Dakota Department of Environment and Natural Resources General Permit Authorizing Stormwater Discharges Associated with Construction Activities (SDR100000), and that the designee above meets the definition of a "duly authorized representative" as set forth in Section 7.4. 2(a-b).

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure qualified personal properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Name:	Chris Fox,
Company:	Wanzek Construction, Inc.
Title:	Director – Construction
Signature:	
Phone Number	512-289-0254
Date:	08/15/2018

DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
NOTICE OF TERMINATION (NOT)
of Coverage Under the SWD General Permit for
Stormwater Discharges Associated with Construction Activities

This form is required to be submitted when a discharge permit is no longer required or necessary. Submission of this form shall in no way relieve the permittee of permit obligations required prior to submission of this form. Please submit this form to the following address:

Submit form to: SD Department of Environment and Natural Resources
Surface Water Quality Program
523 East Capitol Avenue
Pierre, South Dakota 57501
stormwater@state.sd.us
Telephone: 1-800-SDSTORM

I. Permit Number: _____

II. Primary Contact Information:

Company Name: _____

Primary Contact Person: _____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

Phone Number: _____ Email Address: _____

III. Mailing Address for Facility/Site Location:

Project Name: _____

Primary Contact Person: _____

Contact's Email Address: _____

Contact's Mailing Address: _____

City: _____ State: _____ Zip Code: _____

I certify under penalty of law that all stormwater discharges associated with construction activity from the identified facility that are authorized by a SWD general permit have been eliminated. I understand that by submitting the Notice of Termination, I am no longer authorized to discharge stormwater associated with construction activity under this general permit, and that discharging pollutants in stormwater associated with construction activity to waters of the state is unlawful under the federal Clean Water Act and the South Dakota Water Pollution Control Act if the discharge is not authorized by a SWD permit. I also understand that the submittal of this Notice of Termination does not release an operator from liability for any violations of this permit or the South Dakota Water Pollution Control Act. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

NOTE: Notice of Termination shall be signed by the authorized chief elective or executive officer of the applicant, or by the applicant, if an individual.

Name: _____ Title: _____

Signature: _____ Date: _____

FOR DENR USE ONLY

Permit Number: _____ Date Approved: _____ Letter Date: _____ Approved by: _____

DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
TRANSFER OF PERMIT COVERAGE FORM

for Coverage Under the SWD General Permit for
Stormwater Discharges Associated with Construction Activities

This form is required to be submitted when ownership of a construction project or an individual lot in a larger common plan of development has been transferred to a different owner. Please submit this form to the following address:

Submit form to: SD Department of Environment and Natural Resources
Surface Water Quality Program
523 East Capitol Avenue
Pierre, South Dakota 57501
stormwater@state.sd.us
Telephone: 1-800-SDSTORM

Project Name: _____ Permit Number: _____

Site (Lot) Legal Location: _____

Site (Lot) Description: _____

Previous Owner's Name: _____

New Owner's Name: _____

New Owner's Mailing Information:

City: _____ State: _____ Zip Code: _____

Phone Number: _____ Email: _____

Stabilization measures implemented prior to transfer: _____

_____

Date transfer of property responsibility and liability becomes effective: _____

****NOTE: Any change in location, operation, and/or coverage area requires that the Stormwater Pollution Prevention Plan be updated and revised to reflect all changes.**

The site (lot) described about is covered under the General Permit for Stormwater Discharges Associated with Construction Activity. Temporary or permanent stabilization has been established on the site, which has now transferred ownership/responsibility as indicated above. The new owners, or operators, have been made aware of the importance of site stabilization in an effort to control pollutant runoff and/or sedimentation.

The new owner assumes responsibility for implementing best management practices to reduce or eliminate a discharge of pollutants to waters of the state. The new owner is aware that permit coverage for the site is required until all soil-disturbing activities at the site have been completed and one of the following conditions have been met:

- **all portions of the site not covered by pavement or permanent structures have a uniform perennial vegetative cover over at least 70% of the site; or**
- **equivalent permanent stabilization measure have been employed, such as the use of riprap, gabions, or geotextiles.**

New Owner/Operator Signature: _____

Date: _____

Previous Owner/Operator Signature: _____

Date: _____

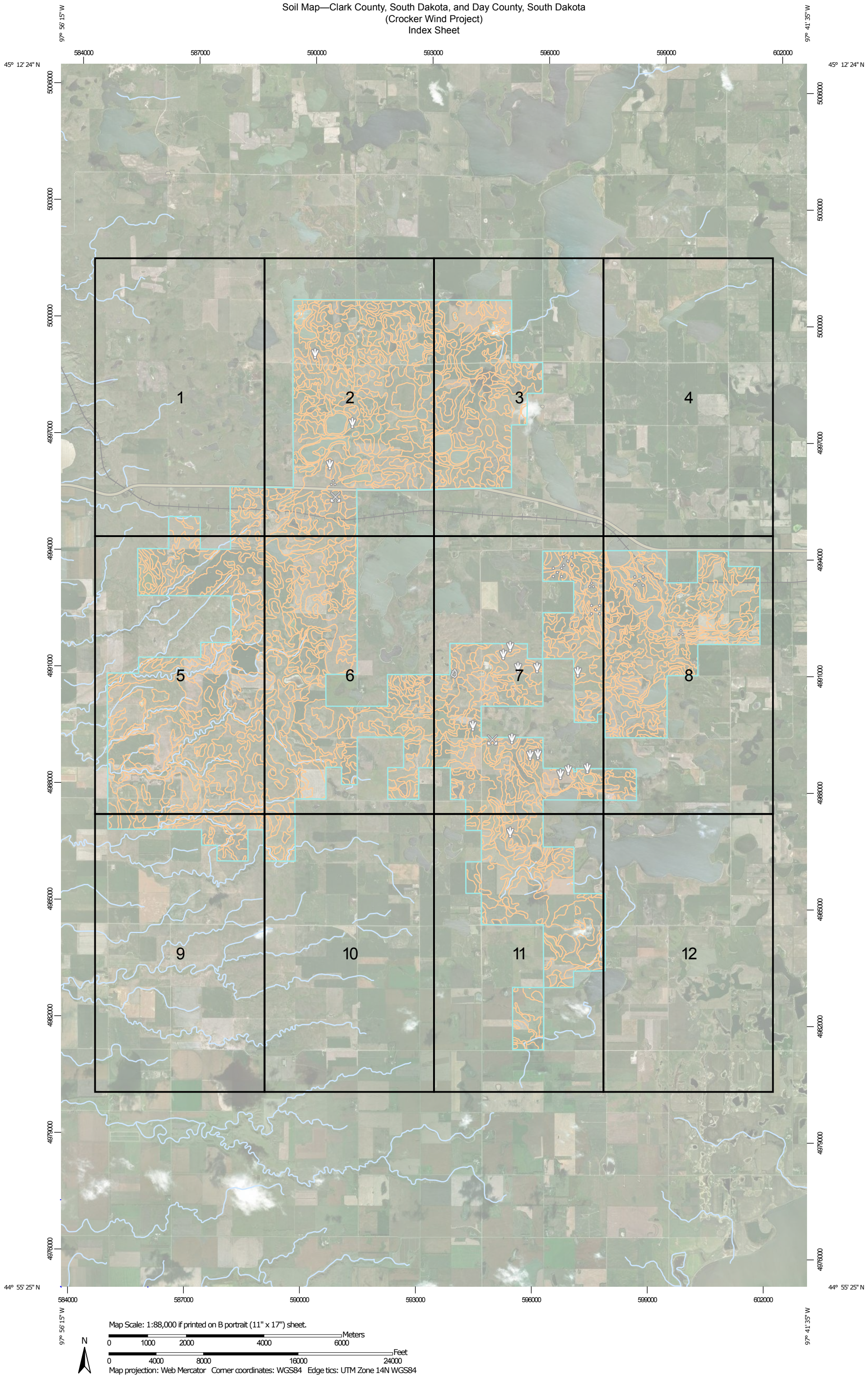
FOR DENR USE ONLY

Permit Number: _____ Date Approved: _____ Approved by: _____

Attachment C

Soil Maps

Soil Map—Clark County, South Dakota, and Day County, South Dakota
(Crocker Wind Project)
Index Sheet



Map Scale: 1:88,000 if printed on B portrait (11" x 17") sheet.

N

Meters
0 1000 2000 4000 6000

Feet
0 4000 8000 16000 24000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84

Soil Map—Clark County, South Dakota, and Day County, South Dakota
(Crocker Wind Project)
Map sheet 1 of 12

Map Scale: 1:20,000 if printed on B portrait (11" x 17") sheet.

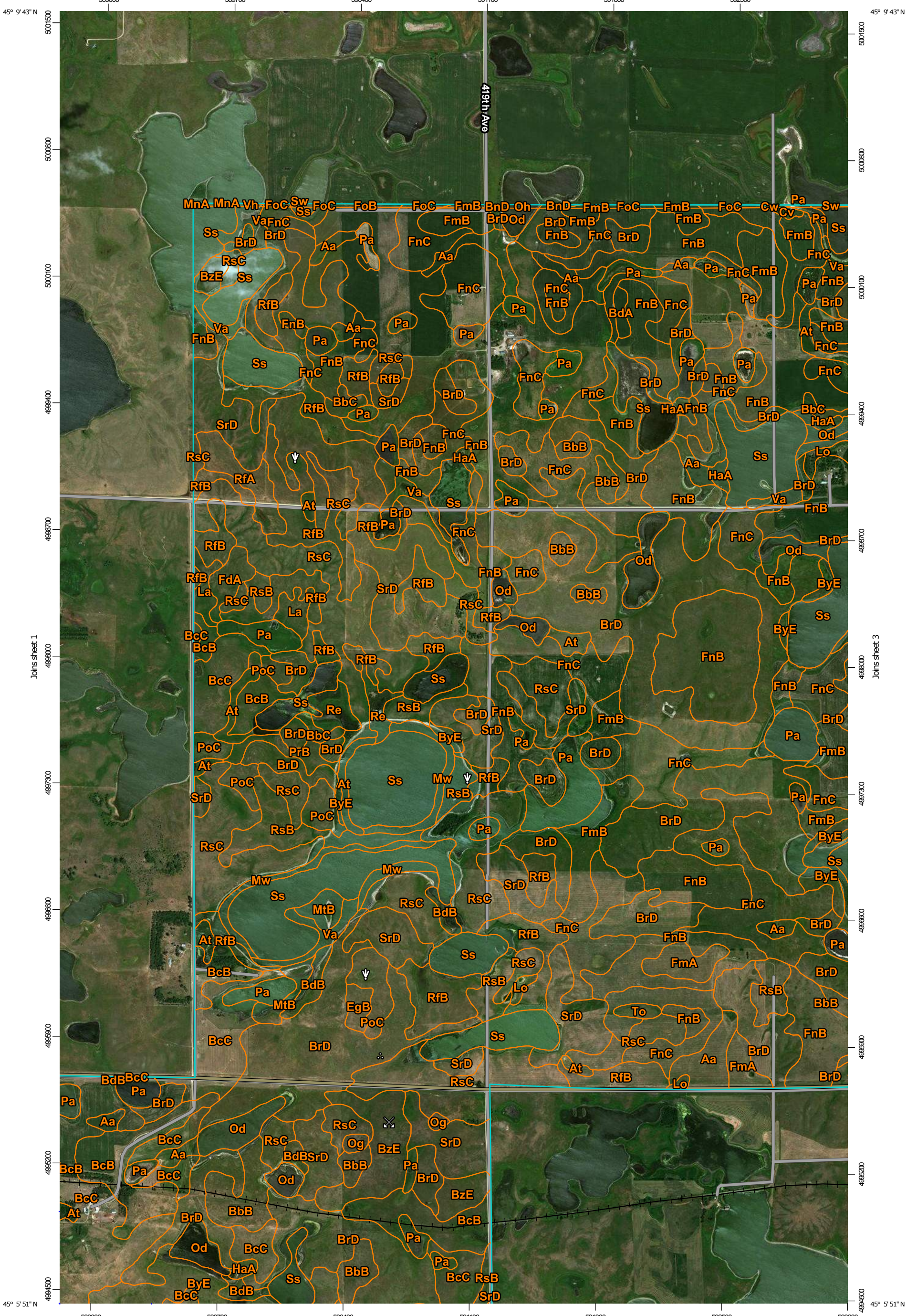
Meters: 0 250 500 1000 1500

Feet: 0 500 1000 2000 3000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84

Map Sheet Location

Soil Map—Clark County, South Dakota, and Day County, South Dakota
(Crocker Wind Project)
Map sheet 2 of 12

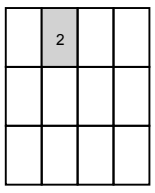


Map Scale: 1:20,000 if printed on B portrait (11" x 17") sheet.

Meters: 0 250 500 1000 1500

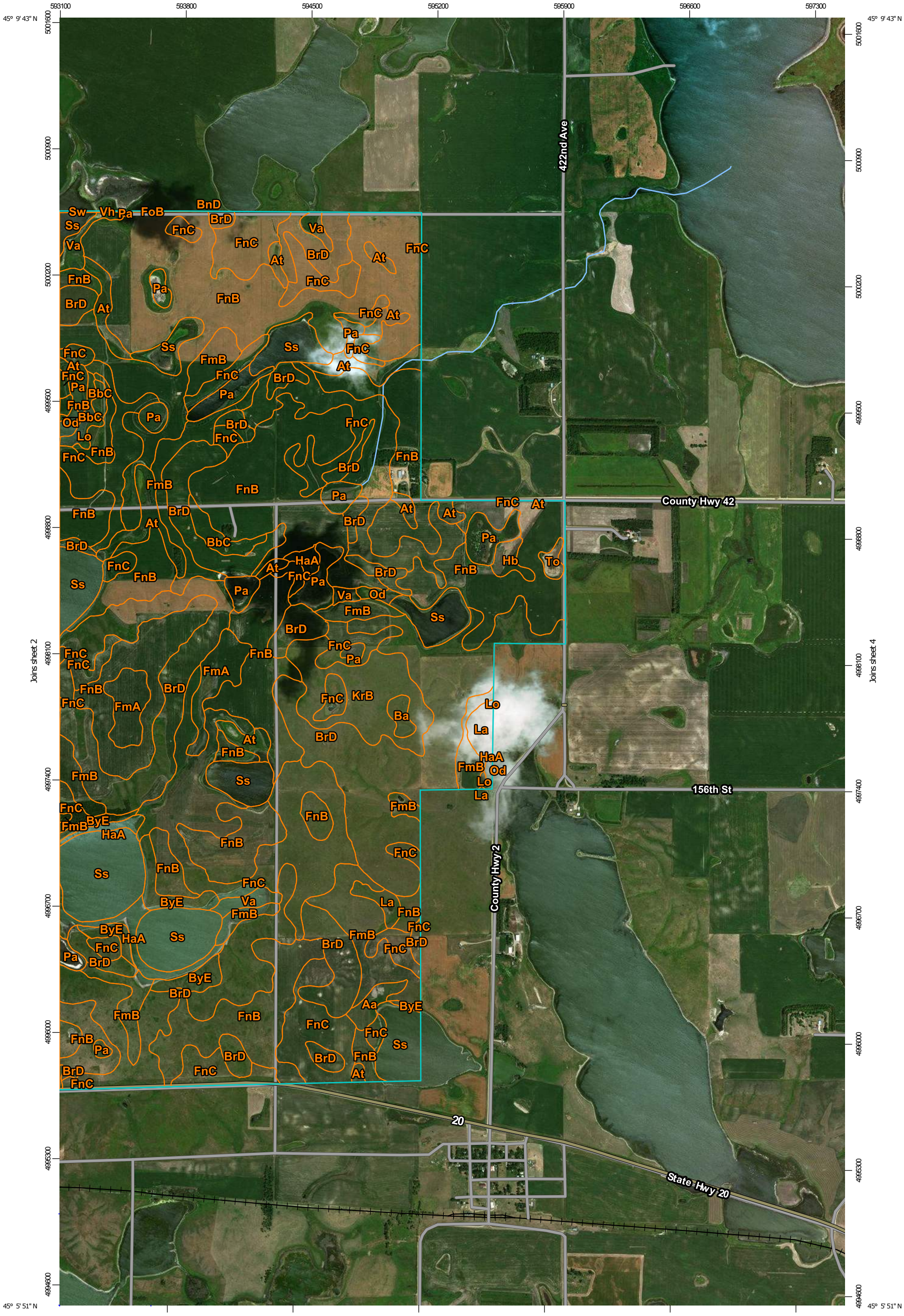
Feet: 0 500 1000 2000 3000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84



Map Sheet Location

Soil Map—Clark County, South Dakota, and Day County, South Dakota
(Crocker Wind Project)
Map sheet 3 of 12



Map Scale: 1:20,000 if printed on B portrait (11" x 17") sheet.

Meters: 0 250 500 1000 1500

Feet: 0 500 1000 2000 3000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84

Map Sheet Location

Soil Map—Clark County, South Dakota, and Day County, South Dakota
(Crocker Wind Project)
Map sheet 4 of 12

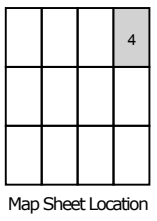
Map Scale: 1:20,000 if printed on B portrait (11" x 17") sheet.

Meters
0 250 500 1000 1500

Feet
0 500 1000 2000 3000

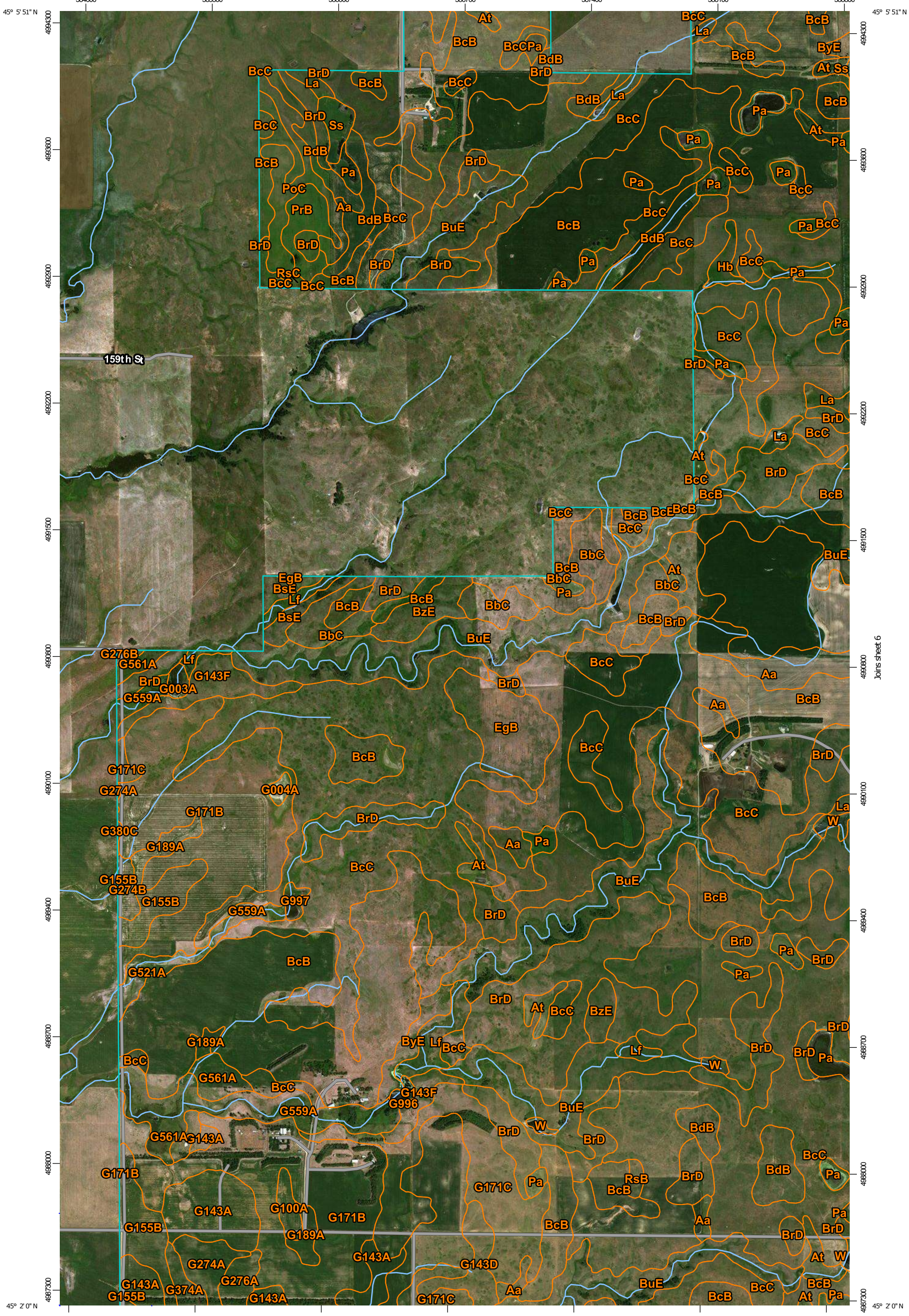
N

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84



Map Sheet Location

Soil Map—Clark County, South Dakota, and Day County, South Dakota
(Crocker Wind Project)
Map sheet 5 of 12
Joins sheet 1



Soil Map—Clark County, South Dakota, and Day County, South Dakota
(Crocker Wind Project)
Map sheet 6 of 12
Joins sheet 2

Joins sheet 1 | Joins sheet 3 | Joins sheet 5 | Joins sheet 7 | Joins sheet 9 | Joins sheet 10 | Joins sheet 11

97° 52' 15" W | 97° 48' 55" W | 45° 5' 51" N | 45° 2' 0" N

589000 | 589700 | 590400 | 591100 | 591800 | 592500 | 593200

4994400 | 4993700 | 4993000 | 4992300 | 4991600 | 4990900 | 4990200 | 4989500 | 4988800 | 4988100 | 4987400

159th St | 162nd St | 49th Ave

Map Scale: 1:20,000 if printed on B portrait (11" x 17") sheet.

N

Meters: 0 250 500 1000 1500

Feet: 0 500 1000 2000 3000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84

Map Sheet Location: 6

Soil Map—Clark County, South Dakota, and Day County, South Dakota
(Crocker Wind Project)
Map sheet 7 of 12
Joins sheet 3

Joins sheet 2 | Joins sheet 4 | Joins sheet 6 | Joins sheet 8 | Joins sheet 10 | Joins sheet 11 | Joins sheet 12

97° 48' 55" W | 97° 45' 35" W | 45° 5' 51" N | 45° 2' 0" N

593400 | 594100 | 594800 | 595500 | 596200 | 596900 | 597600

4994500 | 4993800 | 4993100 | 4992400 | 4991700 | 4991000 | 4990300 | 4989600 | 4988900 | 4988200 | 4987500

County Hwy 2
158th St
159th St

Map Scale: 1:20,000 if printed on B portrait (11" x 17") sheet.

Meters: 0 250 500 1000 1500

Feet: 0 500 1000 2000 3000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84

Map Sheet Location: 7

Soil Map—Clark County, South Dakota, and Day County, South Dakota
(Crocker Wind Project)
Map sheet 8 of 12
Joins sheet 4

Joins sheet 3

97° 45' 35" W

97° 42' 15" W

45° 5' 51" N

45° 2' 0" N

597700 598400 599100 599800 600500 601200 601900

4994500 4993800 4993100 4992400 4991700 4991000 4990300 4989600 4988900 4988200 4987500

State Hwy 20

160th St

161st St

162nd St

County Hwy 3

Joins sheet 7

Joins sheet 11

Joins sheet 12

Map Scale: 1:20,000 if printed on B portrait (11" x 17") sheet.

Meters 0 250 500 1000 1500

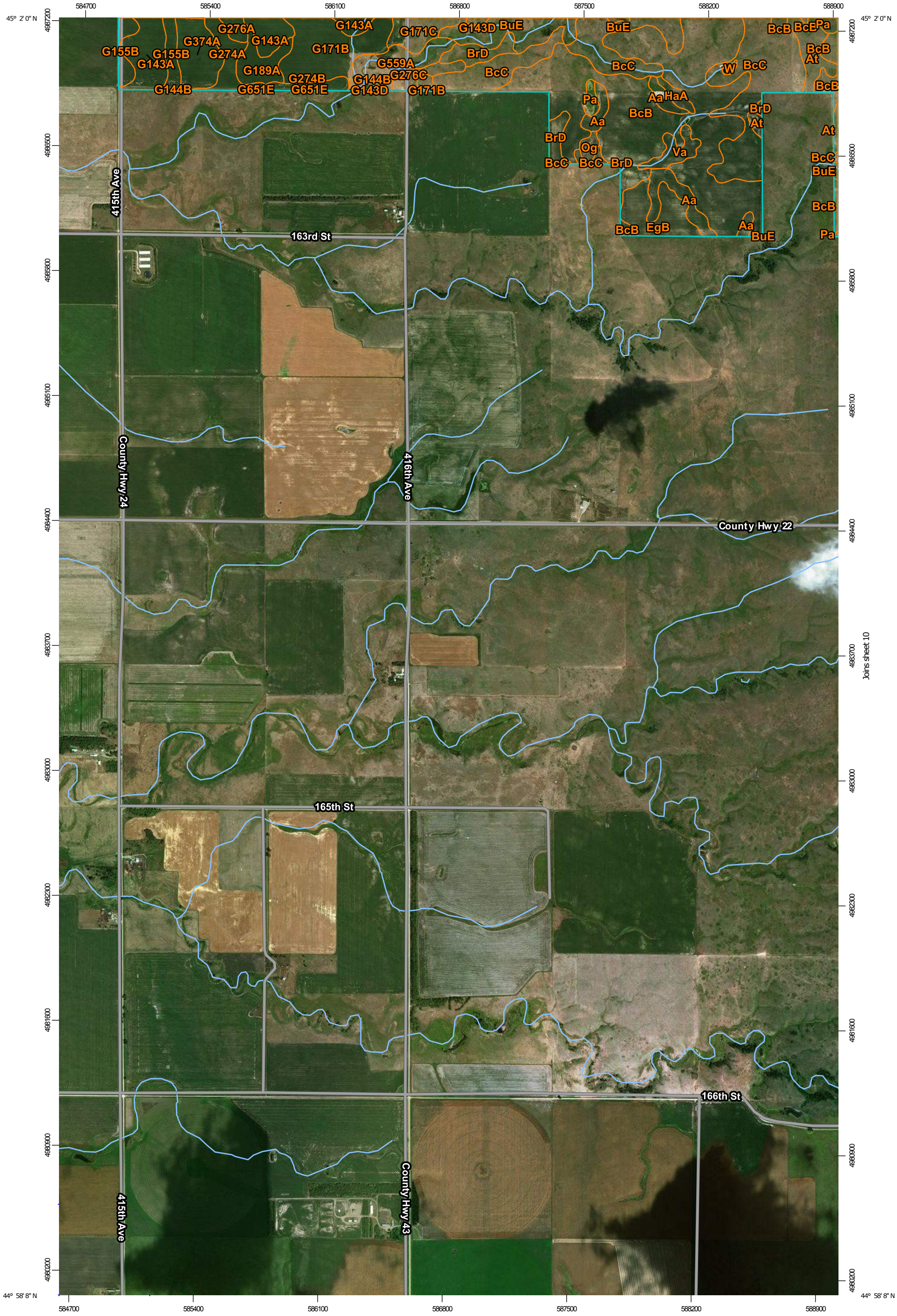
Feet 0 500 1000 2000 3000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84

N

Map Sheet Location

8



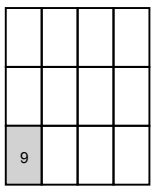
Map Scale: 1:20,000 if printed on B portrait (11" x 17") sheet.

N

Meters
0 250 500 1000 1500

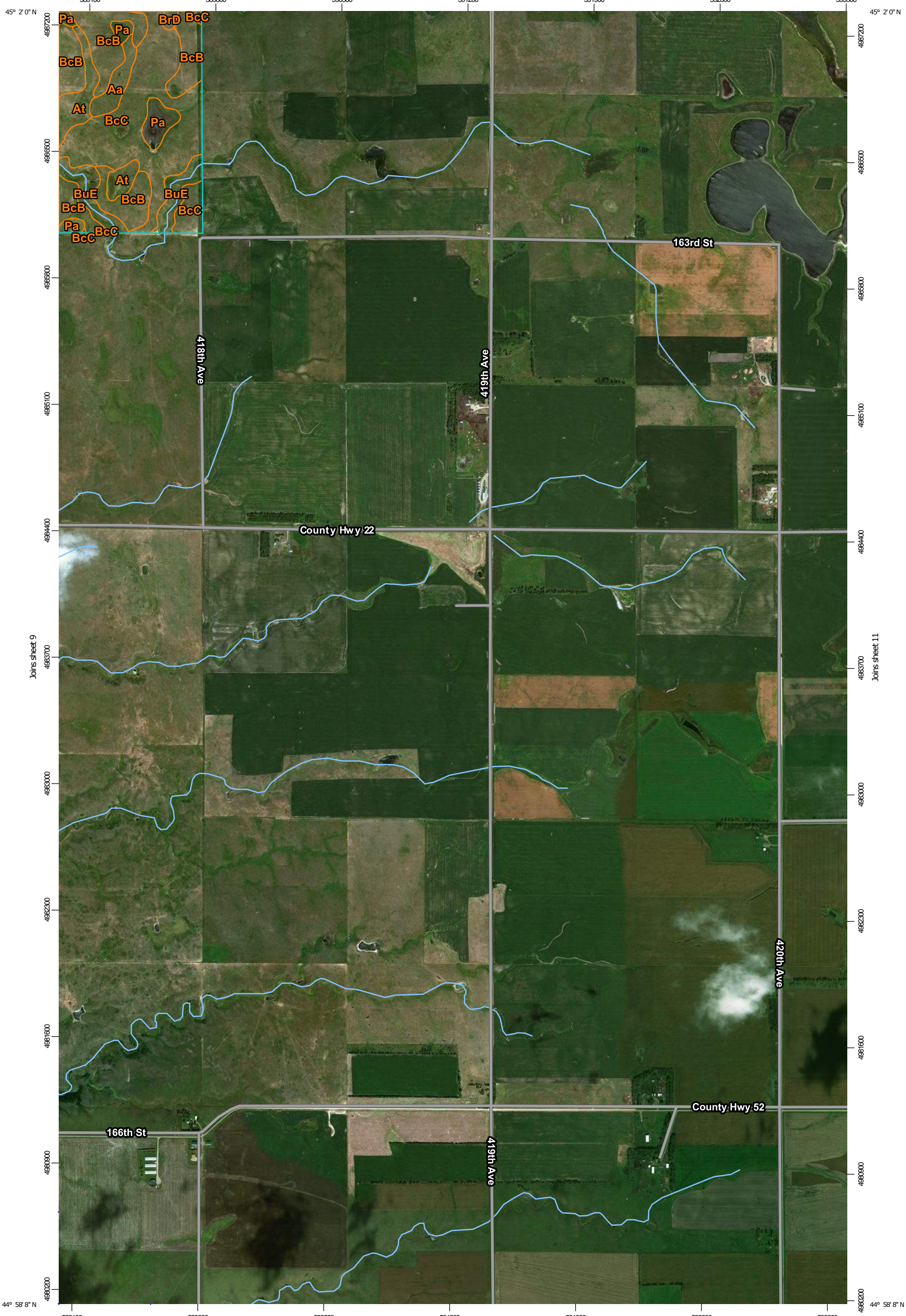
Feet
0 500 1000 2000 3000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84



Map Sheet Location

Joins sheet 6
Joins sheet 5
Joins sheet 7
Joins sheet 9
Joins sheet 11



Map Scale: 1:20,000 if printed on B portrait (11" x 17") sheet.

N

Meters: 0 250 500 1000 1500

Feet: 0 500 1000 2000 3000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84

Map Sheet Location

Soil Map—Clark County, South Dakota, and Day County, South Dakota
(Crocker Wind Project)
Map sheet 11 of 12
Joins sheet 7

Joins sheet 6 | Joins sheet 8 | Joins sheet 10 | Joins sheet 12

97° 48' 55" W | 97° 45' 35" W | 45° 2' 0" N | 44° 58' 8" N

593500 | 594200 | 594900 | 595600 | 596300 | 597000 | 597700

4987300 | 4986600 | 4985900 | 4985200 | 4984500 | 4983800 | 4983100 | 4982400 | 4981700 | 4981000 | 4980300

County Hwy 22
165th St
County Hwy 2
County Hwy 52
422nd Ave

Map Scale: 1:20,000 if printed on B portrait (11" x 17") sheet.

Meters: 0 250 500 1000 1500

Feet: 0 500 1000 2000 3000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84

Map Sheet Location: 11

Soil Map—Clark County, South Dakota, and Day County, South Dakota
(Crocker Wind Project)
Map sheet 12 of 12

Joins sheet 8
Joins sheet 7
Joins sheet 11

97° 45' 35" W
97° 42' 15" W
45° 2' 0" N
44° 58' 8" N
597800
598500
599200
599900
600600
601300
602000
4987400
4986700
4986000
4985300
4984600
4983900
4983200
4982500
4981800
4981100
4980400

Od
EgB
MaC
EgA
EgB
BdB
Re
RfA
FdA
Ss
RfB
W
FdA

163rd St
County Hwy 22
423rd Ave
County Hwy 3
165th St
425th Ave
County Hwy 52
County Hwy 6

Map Scale: 1:20,000 if printed on B portrait (11" x 17") sheet.

Meters
0 250 500 1000 1500

Feet
0 500 1000 2000 3000

N

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84

Map Sheet Location
12

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Clark County, South Dakota
Survey Area Data: Version 19, Oct 6, 2017

Soil Survey Area: Day County, South Dakota
Survey Area Data: Version 23, Oct 6, 2017

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 7, 2015—Feb 24, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Aa	Aastad loam	210.7	0.7%
At	Aastad-Tonka complex	453.7	1.5%
Ba	Badger-Tonka silty clay loams, coteau, 0 to 1 percent slopes	20.9	0.1%
BbB	Barnes-Buse loams, 2 to 6 percent slopes	183.6	0.6%
BbC	Barnes-Buse loams, 6 to 9 percent slopes	141.5	0.5%
BcB	Barnes-Buse-Svea loams, 1 to 6 percent slopes	4,529.9	15.4%
BcC	Barnes-Buse-Svea loams, 2 to 9 percent slopes	4,308.7	14.7%
BdA	Barnes-Svea loams, 0 to 2 percent slopes	235.9	0.8%
BdB	Barnes-Svea loams, 1 to 6 percent slopes	420.0	1.4%
BrD	Buse-Barnes loams, 9 to 20 percent slopes	4,370.3	14.9%
BsE	Buse-Barnes loams, 9 to 40 percent slopes, very stony	83.3	0.3%
BuE	Buse-La Prairie, channeled-Barnes loams, 0 to 40 percent slopes	515.4	1.8%
ByE	Buse-Langhei complex, 15 to 40 percent slopes	299.4	1.0%
BzE	Buse-Sioux complex, 9 to 40 percent slopes	512.2	1.7%
Cv	Cubden-Badger silty clay loams, coteau, 0 to 2 percent slopes	1.9	0.0%
Cw	Cubden-Tonka silty clay loams, coteau, 0 to 2 percent slopes	31.3	0.1%
EgA	Egeland-Embden complex, 0 to 2 percent slopes	40.6	0.1%
EgB	Egeland-Embden complex, 2 to 6 percent slopes	171.3	0.6%
FdA	Fordville loam, coteau, 0 to 2 percent slopes	89.1	0.3%
FmA	Forman-Aastad loams, 0 to 3 percent slopes	80.5	0.3%
FmB	Forman-Aastad loams, 1 to 6 percent slopes	275.2	0.9%
FnB	Forman-Buse-Aastad loams, 1 to 6 percent slopes	2,597.3	8.9%

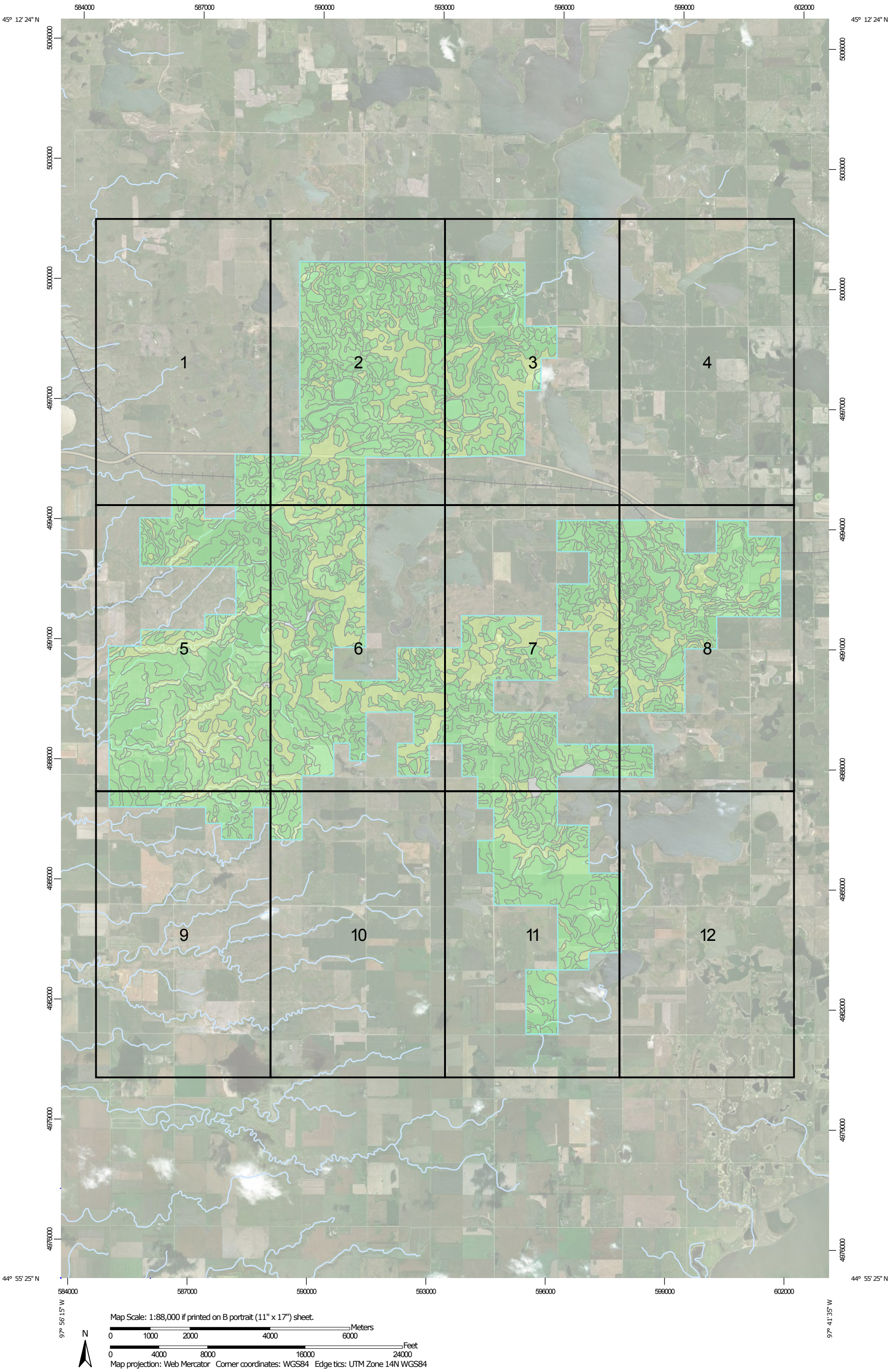
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
FnC	Forman-Buse-Aastad loams, 2 to 9 percent slopes	1,671.8	5.7%
G003A	Parnell silty clay loam, 0 to 1 percent slopes	4.5	0.0%
G004A	Southam silty clay loam, 0 to 1 percent slopes	3.7	0.0%
G100A	Hamerly-Tonka complex, 0 to 3 percent slopes	8.9	0.0%
G143A	Barnes-Svea loams, 0 to 3 percent slopes	113.2	0.4%
G143D	Barnes-Buse-Langhei loams, 9 to 15 percent slopes	23.8	0.1%
G143F	Buse-Barnes loams, 15 to 35 percent slopes	41.7	0.1%
G144B	Barnes-Buse loams, 3 to 6 percent slopes	1.7	0.0%
G155B	Barnes-Svea loams, 0 to 6 percent slopes	68.3	0.2%
G171B	Barnes-Buse-Svea loams, 0 to 6 percent slopes	482.9	1.6%
G171C	Barnes-Buse-Svea loams, 1 to 9 percent slopes	139.8	0.5%
G189A	Aastad loam, 0 to 3 percent slopes, drainageway	35.6	0.1%
G274A	Renshaw-Fordville loams, 0 to 2 percent slopes	32.2	0.1%
G274B	Renshaw-Fordville loams, 2 to 6 percent slopes	14.2	0.0%
G276A	Renshaw-Sioux complex, 0 to 2 percent slopes	15.2	0.1%
G276B	Renshaw-Sioux complex, 2 to 6 percent slopes	0.3	0.0%
G276C	Renshaw-Sioux complex, 6 to 9 percent slopes	7.5	0.0%
G374A	Egeland-Embden complex, 0 to 2 percent slopes	29.5	0.1%
G380C	Maddock-Egeland sandy loams, 6 to 9 percent slopes	0.6	0.0%
G521A	Lowe loam, 0 to 1 percent slopes, occasionally flooded	14.9	0.1%
G559A	La Prairie-Fairdale loams, channeled, 0 to 2 percent slopes, frequently flooded	106.1	0.4%
G561A	La Prairie loam, 0 to 2 percent slopes, occasionally flooded	25.7	0.1%
G651E	Udarents loamy, abandoned gravel pits, 0 to 25 percent slopes	0.3	0.0%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
G996	Water	3.4	0.0%
G997	Water, intermittent	4.7	0.0%
HaA	Hamerly loam, 0 to 2 percent slopes	117.8	0.4%
Hb	Hamerly-Tonka complex	126.2	0.4%
HmA	Hetland silty clay loam, 0 to 2 percent slopes	0.4	0.0%
KrB	Kranzburg-Buse-Waubay complex, 1 to 6 percent slopes	217.6	0.7%
La	La Prairie loam	234.8	0.8%
Lf	La Prairie-Fairdale loams, channeled	50.8	0.2%
Lo	Lowe loam	84.8	0.3%
MaC	Maddock-Egeland sandy loams, 6 to 9 percent slopes	56.4	0.2%
MtB	Minnewasta sandy loam, 2 to 6 percent slopes	18.8	0.1%
Mw	Minnewaukan loamy sand	40.9	0.1%
Od	Oldham silty clay loam	289.8	1.0%
Og	Orthents, gravelly	33.3	0.1%
Pa	Parnell silty clay loam	934.3	3.2%
Pm	Playmoor silty clay loam	21.3	0.1%
PoC	Poinsett-Rusklyn silty clay loams, 6 to 9 percent slopes	137.1	0.5%
PrB	Poinsett-Rusklyn-Waubay silty clay loams, 1 to 6 percent slopes	230.2	0.8%
PwA	Poinsett-Waubay silty clay loams, 0 to 2 percent slopes	15.5	0.1%
PwB	Poinsett-Waubay silty clay loams, 1 to 6 percent slopes	17.0	0.1%
Re	Rauville silty clay loam	29.2	0.1%
RfA	Renshaw-Fordville loams, coteau, 0 to 2 percent slopes	276.0	0.9%
RfB	Renshaw-Fordville loams, coteau, 2 to 6 percent slopes	523.6	1.8%
RsB	Renshaw-Sioux complex, coteau, 2 to 6 percent slopes	607.9	2.1%
RsC	Renshaw-Sioux complex, 6 to 9 percent slopes	904.6	3.1%
SrD	Sioux-Renshaw complex, coteau, 9 to 15 percent slopes	424.1	1.4%
Ss	Southam silty clay loam, 0 to 1 percent slopes	1,267.3	4.3%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
To	Tonka silty clay loam, 0 to 1 percent slopes	45.5	0.2%
Va	Vallers-Hamerly loams	89.7	0.3%
W	Water	105.6	0.4%
Wa	Waubay silty clay loam, 0 to 2 percent slopes	6.8	0.0%
Subtotals for Soil Survey Area		**29,330.8**	**99.9%**
Totals for Area of Interest		**29,347.9**	**100.0%**

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BnD	Buse-Barnes loams, 9 to 20 percent slopes	1.1	0.0%
Cw	Cubden-Badger silty clay loams, coteau, 0 to 2 percent slopes	0.5	0.0%
FmB	Forman-Aastad loams, 1 to 6 percent slopes	3.2	0.0%
FoB	Forman-Buse-Aastad loams, 1 to 6 percent slopes	2.2	0.0%
FoC	Forman-Buse-Aastad loams, 2 to 9 percent slopes	5.1	0.0%
MnA	Minnewasta sandy loam, 0 to 2 percent slopes	0.1	0.0%
Oh	Oldham silty clay loam	1.0	0.0%
Pa	Parnell silty clay loam	0.5	0.0%
Sw	Southam silty clay loam, 0 to 1 percent slopes	2.6	0.0%
Vh	Vallers-Hamerly loams	0.8	0.0%
Subtotals for Soil Survey Area		**17.1**	**0.1%**
Totals for Area of Interest		**29,347.9**	**100.0%**

Erosion Hazard (Off-Road, Off-Trail)—Clark County, South Dakota, and Day County, South Dakota
(Crocker Wind Project)
Index Sheet



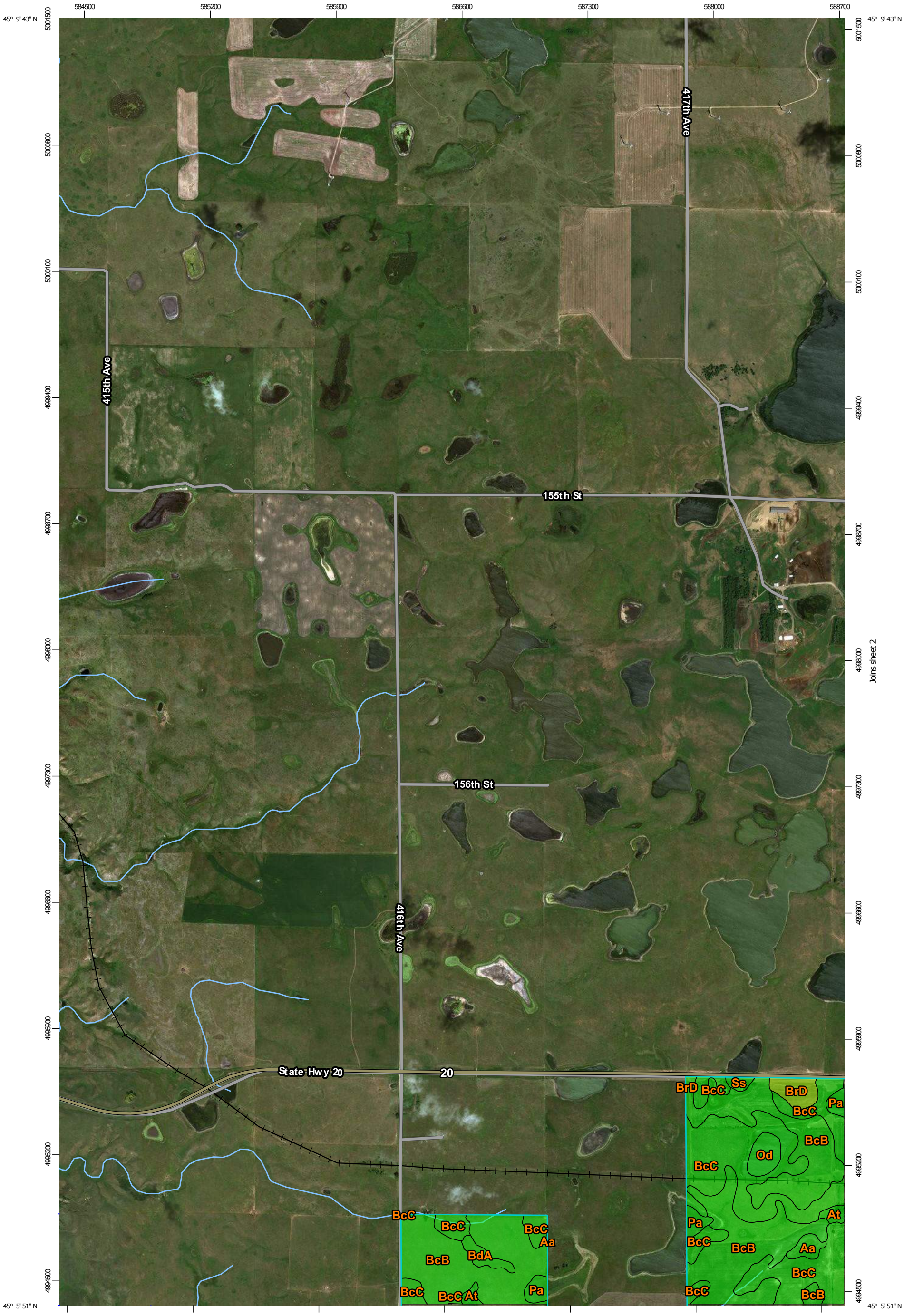
Map Scale: 1:88,000 if printed on B portrait (11" x 17") sheet.

N

Meters
0 1000 2000 4000 6000

Feet
0 4000 8000 16000 24000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84



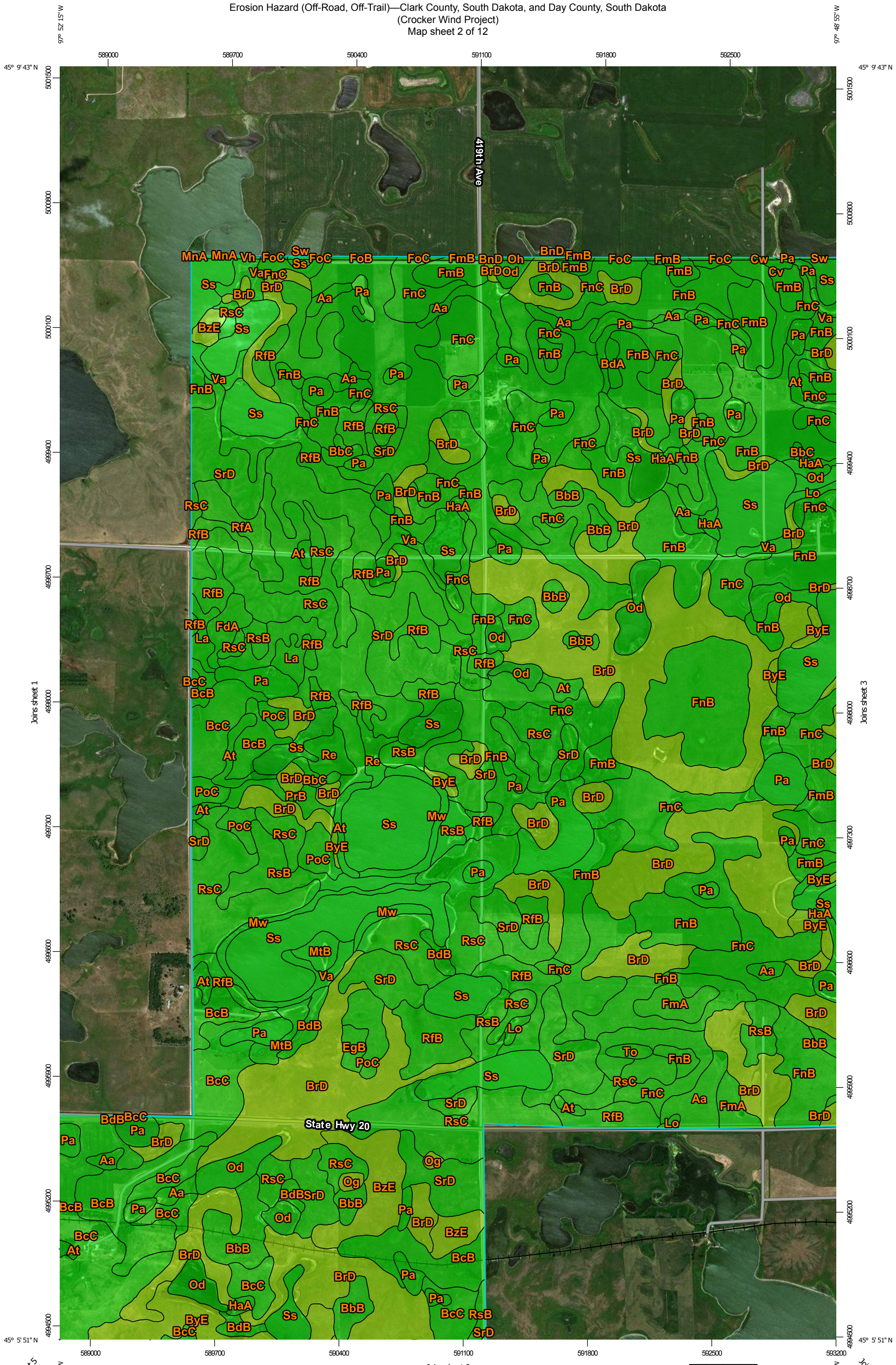
Map Scale: 1:20,000 if printed on B portrait (11" x 17") sheet.

Meters: 0 250 500 1000 1500

Feet: 0 500 1000 2000 3000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84

Map Sheet Location



Map Scale: 1:20,000 if printed on B portrait (11" x 17") sheet.

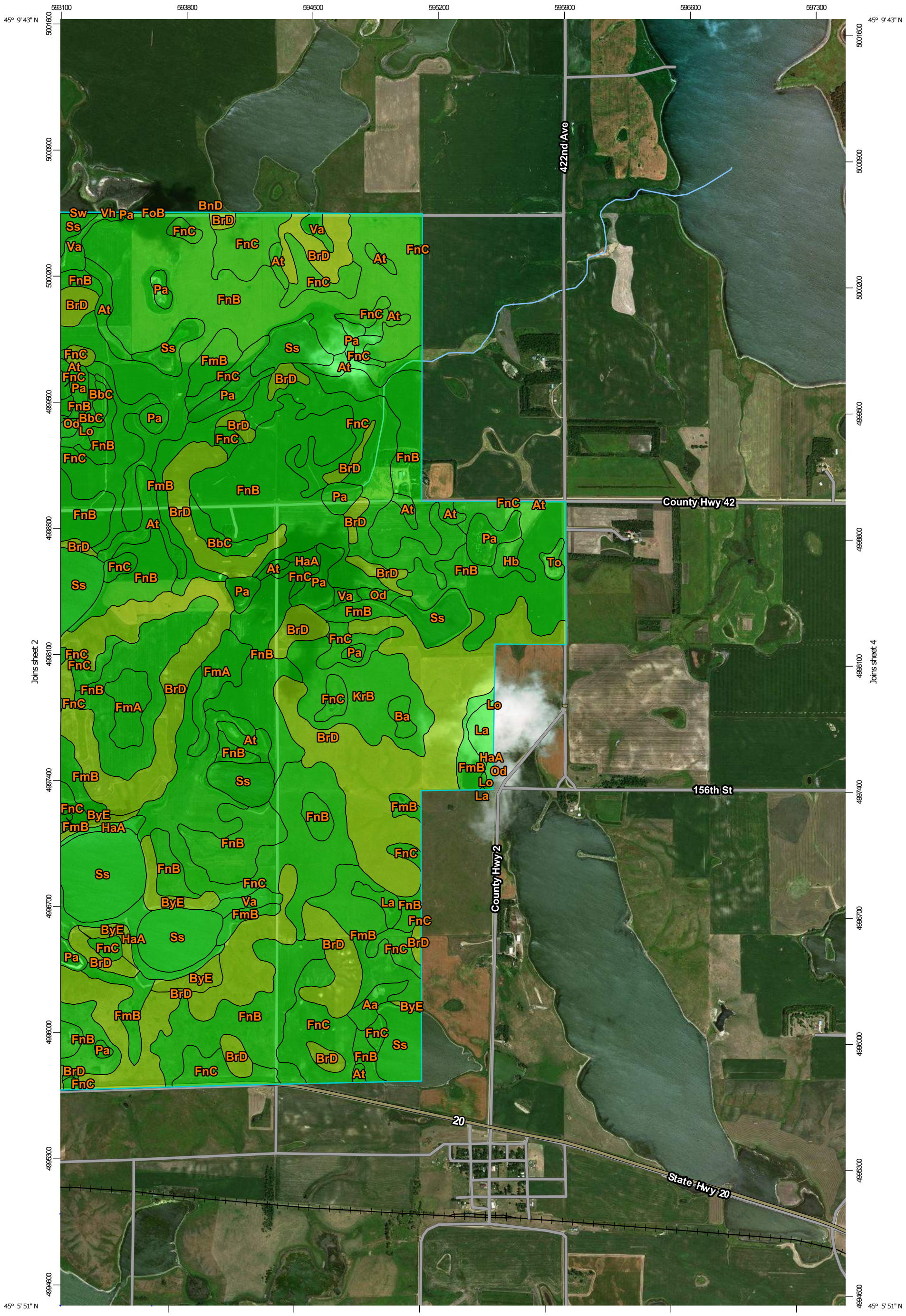
N

Meters: 0 250 500 1000 1500

Feet: 0 500 1000 2000 3000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84

Map Sheet Location



Map Scale: 1:20,000 if printed on B portrait (11" x 17") sheet.

Meters: 0 250 500 1000 1500

Feet: 0 500 1000 2000 3000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84

Map Sheet Location: 3

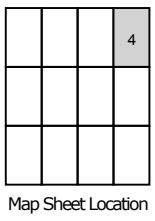
Map Scale: 1:20,000 if printed on B portrait (11" x 17") sheet.

Meters: 0 250 500 1000 1500

Feet: 0 500 1000 2000 3000

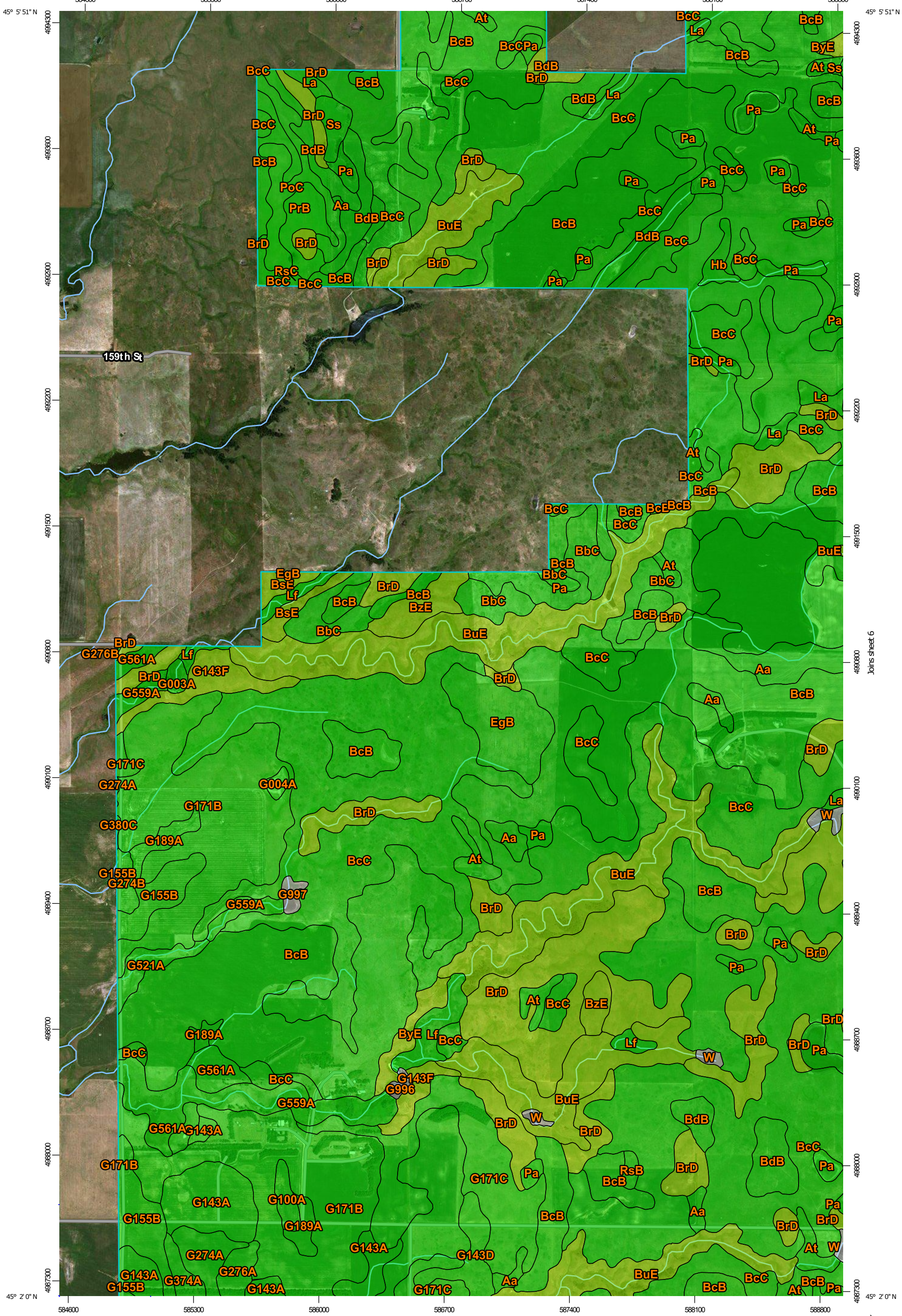
N

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84



Map Sheet Location

Erosion Hazard (Off-Road, Off-Trail)—Clark County, South Dakota, and Day County, South Dakota
(Crocker Wind Project)
Map sheet 5 of 12
Joins sheet 1



Map Scale: 1:20,000 if printed on B portrait (11" x 17") sheet.
Meters 0 250 500 1000 1500
Feet 0 500 1000 2000 3000
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84

Map Sheet Location

Joins sheet 1
Joins sheet 2
Joins sheet 3
Joins sheet 5
Joins sheet 7
Joins sheet 9
Joins sheet 10
Joins sheet 11

97° 52' 15" W
97° 48' 55" W
45° 5' 51" N
45° 2' 0" N
589000
589700
590400
591100
591800
592500
593200
4994400
4993700
4993000
4992300
4991600
4990900
4990200
4989500
4988800
4988100
4987400

159th St
162nd St

Map Scale: 1:20,000 if printed on B portrait (11" x 17") sheet.
Meters: 0 250 500 1000 1500
Feet: 0 500 1000 2000 3000
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84

Map Sheet Location: 6

Joins sheet 2
Joins sheet 3
Joins sheet 4
Joins sheet 6
Joins sheet 8
Joins sheet 10
Joins sheet 11
Joins sheet 12

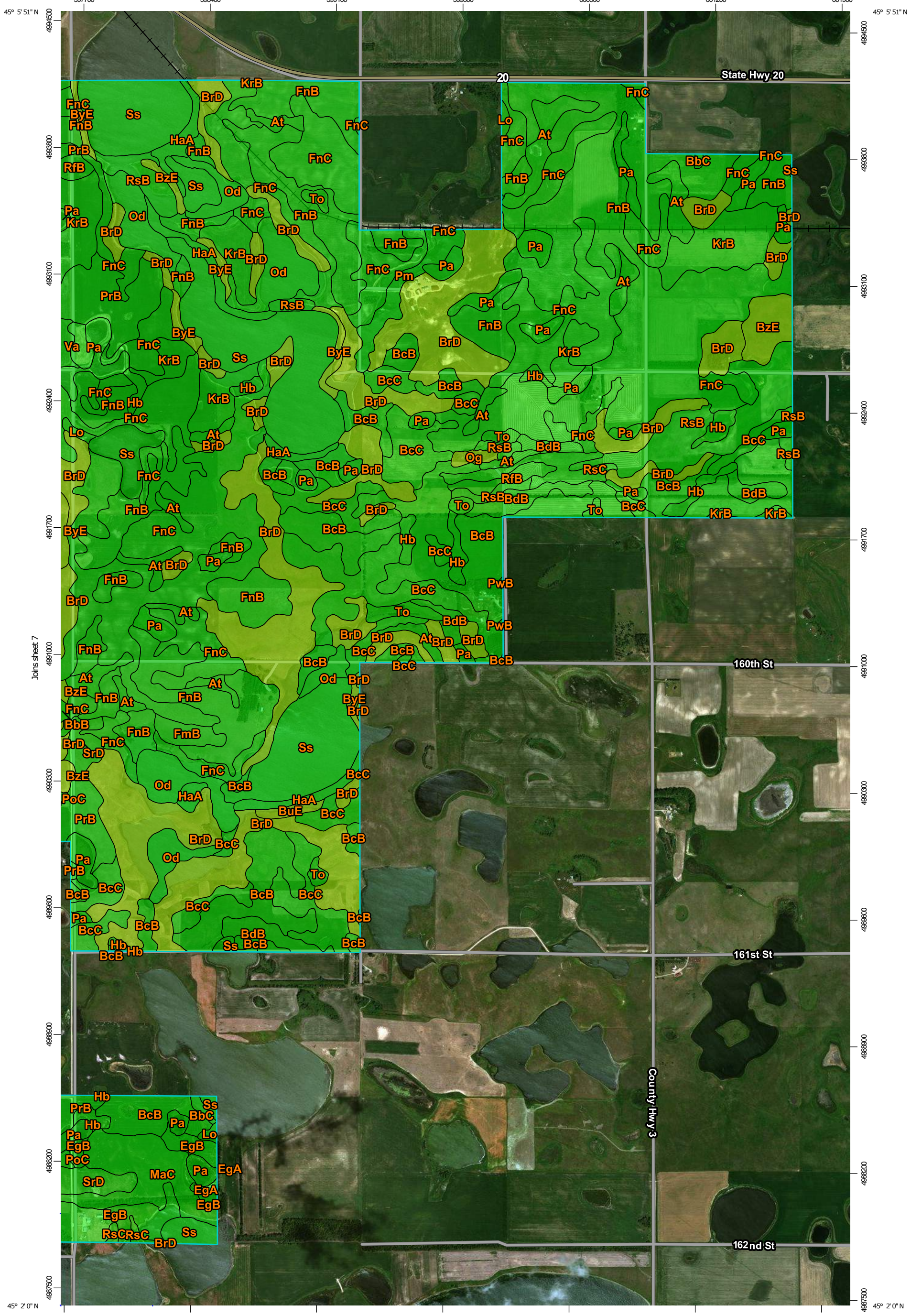
97° 48' 55" W
97° 45' 35" W
45° 5' 51" N
45° 2' 0" N
593400
594100
594800
595500
596200
596900
597600
4993800
4993100
4992400
4991700
4991000
4990300
4989600
4988900
4988200
4987500
4994500

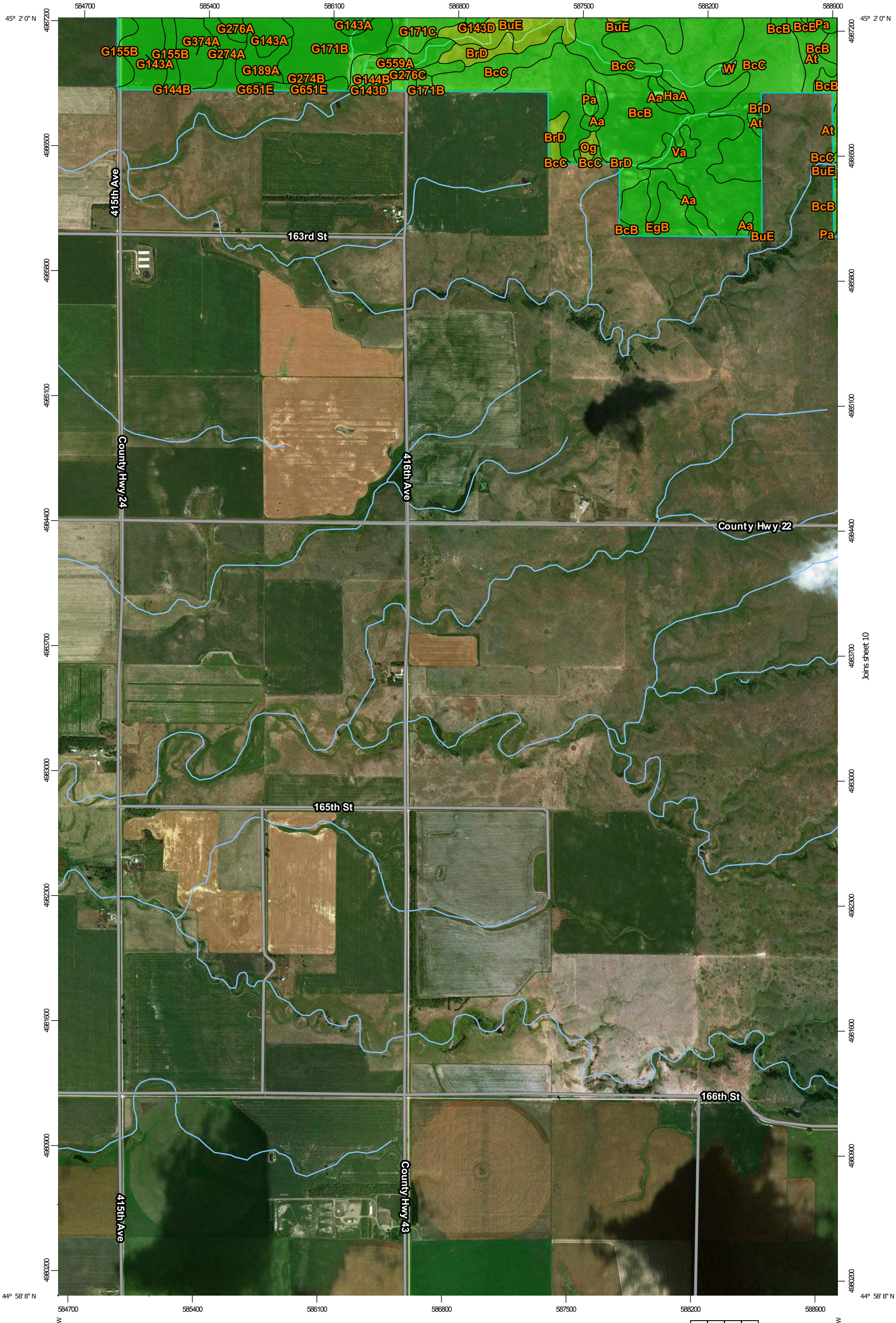
County Hwy 2
158th St
159th St

Map Scale: 1:20,000 if printed on B portrait (11" x 17") sheet.
N
0 250 500 1000 1500 Meters
0 500 1000 2000 3000 Feet
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84

Map Sheet Location
7

Joins sheet 4
Joins sheet 3
Joins sheet 7
Joins sheet 11
Joins sheet 12





Joins sheet 6

Joins sheet 10

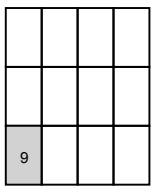
Map Scale: 1:20,000 if printed on B portrait (11" x 17") sheet.

Meters: 0 250 500 1000 1500

Feet: 0 500 1000 2000 3000

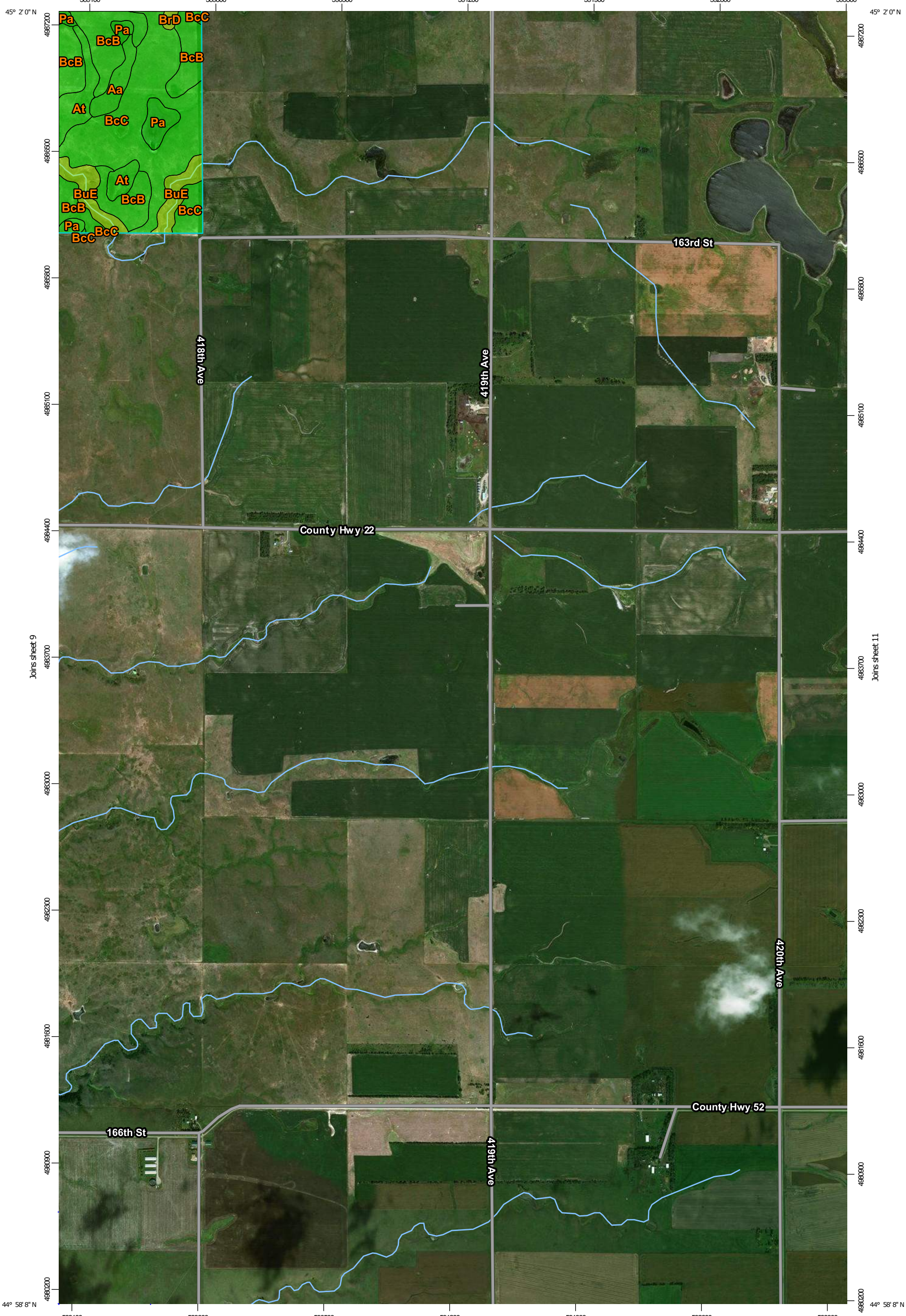
N

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84



Map Sheet Location

Joins sheet 6
Joins sheet 5
Joins sheet 7
Joins sheet 9
Joins sheet 11

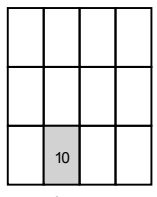


Map Scale: 1:20,000 if printed on B portrait (11" x 17") sheet.

Meters: 0 250 500 1000 1500

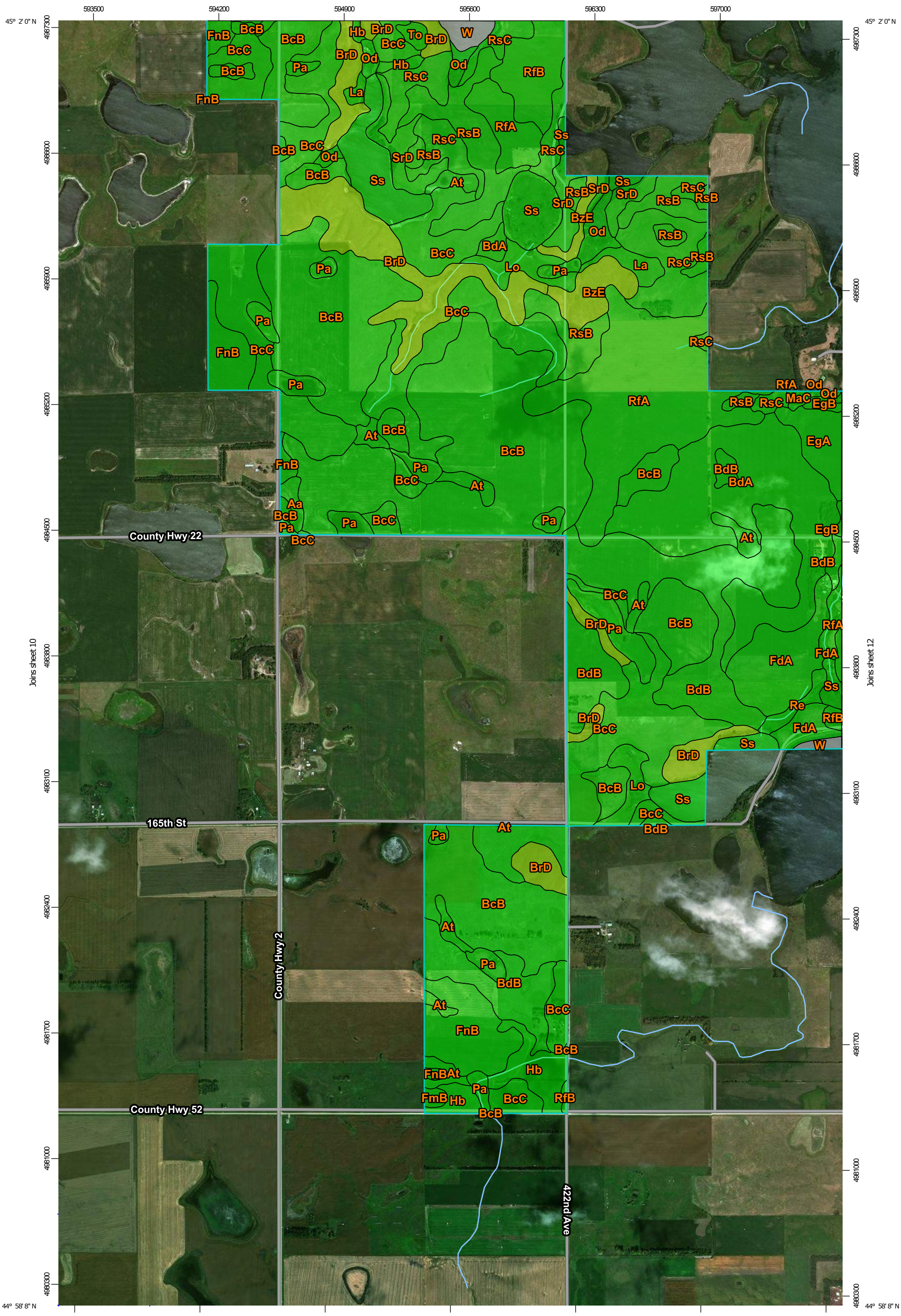
Feet: 0 500 1000 2000 3000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84



Map Sheet Location

Joins sheet 7
Joins sheet 6
Joins sheet 8
Joins sheet 10
Joins sheet 12



Joins sheet 7
Joins sheet 8
Joins sheet 11

Map Scale: 1:20,000 if printed on B portrait (11" x 17") sheet.

Meters: 0 250 500 1000 1500

Feet: 0 500 1000 2000 3000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84

Map Sheet Location: 12

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- Very severe
- Severe
- Moderate
- Slight
- Not rated or not available

Soil Rating Lines
- Very severe
- Severe
- Moderate
- Slight
- Not rated or not available

Soil Rating Points
- Very severe
- Severe
- Moderate
- Slight
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Clark County, South Dakota
Survey Area Data: Version 19, Oct 6, 2017

Soil Survey Area: Day County, South Dakota
Survey Area Data: Version 23, Oct 6, 2017

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 7, 2015—Feb 24, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Erosion Hazard (Off-Road, Off-Trail)

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
Aa	Aastad loam	Slight	Aastad (90%)		210.7	0.7%
			Forman (5%)			
			Hamerly (3%)			
			Fordville (1%)			
			Parnell, undrained (1%)			
At	Aastad-Tonka complex	Slight	Aastad (65%)		453.7	1.5%
			Tonka, undrained (25%)			
			Forman (5%)			
			Parnell, undrained (3%)			
			Vallers, undrained (2%)			
Ba	Badger-Tonka silty clay loams, coteau, 0 to 1 percent slopes	Slight	Badger (60%)		20.9	0.1%
			Tonka, undrained (30%)			
			Badger, poorly drained (3%)			
			Mckranz (2%)			
			Hamerly (2%)			
			Cubden (2%)			
			Parnell, undrained (1%)			
BbB	Barnes-Buse loams, 2 to 6 percent slopes	Slight	Barnes (55%)		183.6	0.6%
			Buse (35%)			
			Svea (7%)			
			Tonka, undrained (2%)			
			Renshaw (1%)			
BbC	Barnes-Buse loams, 6 to 9 percent slopes	Slight	Barnes (55%)		141.5	0.5%
			Buse (35%)			

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
			Kranzburg (7%)			
			Parnell, undrained (3%)			
BcB	Barnes-Buse-Svea loams, 1 to 6 percent slopes	Slight	Barnes (40%)		4,529.9	15.4%
			Buse (30%)			
			Svea (20%)			
			Parnell, undrained (7%)			
			Renshaw (3%)			
BcC	Barnes-Buse-Svea loams, 2 to 9 percent slopes	Slight	Barnes (40%)		4,308.7	14.7%
			Buse (35%)			
			Svea (15%)			
			Tonka, undrained (7%)			
			Renshaw (3%)			
BdA	Barnes-Svea loams, 0 to 2 percent slopes	Slight	Barnes (50%)		235.9	0.8%
			Svea (40%)			
			Badger (5%)			
			Parnell, undrained (3%)			
			Vallers, undrained (2%)			
BdB	Barnes-Svea loams, 1 to 6 percent slopes	Slight	Barnes (65%)		420.0	1.4%
			Svea (25%)			
			Buse (3%)			
			Badger (3%)			
			Vallers, undrained (2%)			
			Parnell, undrained (2%)			
BrD	Buse-Barnes loams, 9 to 20 percent slopes	Moderate	Buse (50%)	Slope/erodibility (0.50)	4,370.3	14.9%
BsE	Buse-Barnes loams, 9 to 40 percent slopes, very stony	Moderate	Buse, stony (50%)	Slope/erodibility (0.50)	83.3	0.3%
			Barnes, stony (40%)	Slope/erodibility (0.50)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
BuE	Buse-La Prairie, channeled-Barnes loams, 0 to 40 percent slopes	Moderate	Buse (35%)	Slope/erodibility (0.50)	515.4	1.8%
			Barnes (25%)	Slope/erodibility (0.50)		
			Sioux (2%)	Slope/erodibility (0.50)		
ByE	Buse-Langhei complex, 15 to 40 percent slopes	Moderate	Buse (55%)	Slope/erodibility (0.50)	299.4	1.0%
			Langhei (35%)	Slope/erodibility (0.50)		
			Barnes (2%)	Slope/erodibility (0.50)		
			Sioux (1%)	Slope/erodibility (0.50)		
BzE	Buse-Sioux complex, 9 to 40 percent slopes	Moderate	Buse (55%)	Slope/erodibility (0.50)	512.2	1.7%
			Sioux (35%)	Slope/erodibility (0.50)		
			Barnes (5%)	Slope/erodibility (0.50)		
Cv	Cubden-Badger silty clay loams, coteau, 0 to 2 percent slopes	Slight	Cubden (50%)		1.9	0.0%
			Badger (40%)			
			Waubay (4%)			
			Badger, poorly drained (2%)			
			Cubden, moderately saline (2%)			
			Poinsett (1%)			
			Tonka, undrained (1%)			
Cw	Cubden-Tonka silty clay loams, coteau, 0 to 2 percent slopes	Slight	Cubden (55%)		31.3	0.1%
			Tonka, undrained (35%)			
			Badger (3%)			
			Waubay (2%)			
			Parnell (2%)			
			Cubden, moderately saline (2%)			
			Badger, poorly drained (1%)			
EgA	Egeland-Embden	Slight	Embden (45%)		40.6	0.1%

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
	complex, 0 to 2 percent slopes		Egeland (45%)			
			Poinsett (3%)			
			Fordville (3%)			
			Renshaw (3%)			
			Marysland, undrained (1%)			
EgB	Egeland-Embden complex, 2 to 6 percent slopes	Slight	Egeland (50%)		171.3	0.6%
			Embden (40%)			
			Renshaw (3%)			
			Poinsett (3%)			
			Fordville (3%)			
			Marysland, undrained (1%)			
FdA	Fordville loam, coteau, 0 to 2 percent slopes	Slight	Fordville (90%)		89.1	0.3%
			Renshaw (5%)			
			Divide, occasionally flooded (3%)			
			Spottswood, occasionally flooded (2%)			
FmA	Forman-Aastad loams, 0 to 3 percent slopes	Slight	Forman (65%)		80.5	0.3%
			Aastad (25%)			
			Cresbard (5%)			
			Tonka, undrained (3%)			
			Buse (2%)			
FmB	Forman-Aastad loams, 1 to 6 percent slopes	Slight	Forman (65%)		275.2	0.9%
			Aastad (25%)			
			Buse (4%)			
			Tonka, undrained (3%)			
			Cresbard (3%)			
FnB	Forman-Buse-Aastad loams, 1 to 6 percent slopes	Slight	Forman (35%)		2,597.3	8.9%
			Buse (25%)			
			Aastad (25%)			
			Cavour (6%)			
			Cresbard (5%)			

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
			Tonka, undrained (4%)			
FnC	Forman-Buse-Aastad loams, 2 to 9 percent slopes	Slight	Forman (40%)		1,671.8	5.7%
			Buse (35%)			
			Aastad (15%)			
			Cresbard (6%)			
			Tonka, undrained (4%)			
G003A	Parnell silty clay loam, 0 to 1 percent slopes	Slight	Parnell (64%)		4.5	0.0%
			Vallers (10%)			
			Vallers, moderately saline (9%)			
			Southam (6%)			
			Tonka (5%)			
			Ferney (3%)			
			Hamerly (3%)			
G004A	Southam silty clay loam, 0 to 1 percent slopes	Slight	Southam (68%)		3.7	0.0%
			Vallers, moderately saline (9%)			
			Arveson (8%)			
			Parnell (4%)			
			Mauvais (3%)			
			Manfred (3%)			
G100A	Hamerly-Tonka complex, 0 to 3 percent slopes	Slight	Hamerly (42%)		8.9	0.0%
			Tonka (28%)			
			Vallers, moderately saline (7%)			
			Wyard (7%)			
			Balaton (5%)			
			Parnell (5%)			
			Barnes (3%)			
			Cavour (3%)			
G143A	Barnes-Svea loams, 0 to 3 percent slopes	Slight	Barnes (39%)		113.2	0.4%
			Svea (38%)			
			Hamerly (9%)			
			Renshaw (3%)			

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
			Cresbard (3%)			
			Parnell (3%)			
			Tonka (3%)			
			Buse (2%)			
G143D	Barnes-Buse-Langhei loams, 9 to 15 percent slopes	Slight	Barnes (31%)		23.8	0.1%
			Buse (24%)			
			Langhei (15%)			
			Svea (12%)			
			Langhei, very stony (6%)			
			Lanona (3%)			
			Tonka (3%)			
			Parnell (3%)			
			Sioux (3%)			
G143F	Buse-Barnes loams, 15 to 35 percent slopes	Moderate	Buse (34%)	Slope/erodibility (0.50)	41.7	0.1%
			Barnes (29%)	Slope/erodibility (0.50)		
			Langhei (9%)	Slope/erodibility (0.50)		
			Langhei, very stony (6%)	Slope/erodibility (0.50)		
			Sioux (3%)	Slope/erodibility (0.50)		
G144B	Barnes-Buse loams, 3 to 6 percent slopes	Slight	Barnes (28%)		1.7	0.0%
			Buse (27%)			
			Svea (14%)			
			Balaton (14%)			
			Tonka (5%)			
			Langhei (4%)			
			Parnell (3%)			
			Cresbard (3%)			
			Renshaw (2%)			
G155B	Barnes-Svea loams, 0 to 6 percent slopes	Slight	Barnes (60%)		68.3	0.2%
			Svea (25%)			
			Cresbard (3%)			
			Buse (3%)			
			Egeland (3%)			
			Hamerly (3%)			

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
			Tonka (3%)			
G171B	Barnes-Buse-Svea loams, 0 to 6 percent slopes	Slight	Barnes (40%)		482.9	1.6%
			Buse (29%)			
			Svea (20%)			
			Parnell (7%)			
			Renshaw (3%)			
			Cresbard (1%)			
G171C	Barnes-Buse-Svea loams, 1 to 9 percent slopes	Slight	Barnes (44%)		139.8	0.5%
			Buse (26%)			
			Svea (15%)			
			Cresbard (7%)			
			Tonka (7%)			
			Renshaw (1%)			
G189A	Aastad loam, 0 to 3 percent slopes, drainageway	Slight	Aastad, drainageway (88%)		35.6	0.1%
			Forman (7%)			
			Hamerly (2%)			
			Tonka (1%)			
			Parnell (1%)			
			Fordville (1%)			
G274A	Renshaw-Fordville loams, 0 to 2 percent slopes	Slight	Renshaw (55%)		32.2	0.1%
			Fordville (32%)			
			Divide (4%)			
			Sioux (3%)			
			Marysland, occasionally flooded (2%)			
			Egeland, gravelly substratum (2%)			
			Spottswood, moderately well drained (2%)			
G274B	Renshaw-Fordville loams, 2 to 6 percent slopes	Slight	Renshaw (62%)		14.2	0.0%
			Fordville (24%)			
			Sioux (5%)			
			Divide (3%)			

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
			Egeland, gravelly substratum (2%)			
			Marysland, occasionally flooded (2%)			
			Spottswood, moderately well drained (2%)			
G276A	Renshaw-Sioux complex, 0 to 2 percent slopes	Slight	Renshaw (40%)		15.2	0.1%
			Sioux (22%)			
			Fordville (10%)			
			Arvilla (8%)			
			Osakis (7%)			
			Warsing (6%)			
			Divide (4%)			
			Marysland (3%)			
G276B	Renshaw-Sioux complex, 2 to 6 percent slopes	Slight	Renshaw (36%)		0.3	0.0%
			Sioux (20%)			
			Fordville (10%)			
			Sioux (10%)			
			Osakis (7%)			
			Warsing (6%)			
			Divide (4%)			
			Arvilla (4%)			
			Marysland (3%)			
G276C	Renshaw-Sioux complex, 6 to 9 percent slopes	Slight	Renshaw (53%)		7.5	0.0%
			Sioux (37%)			
			Egeland (4%)			
			Divide (3%)			
			Fordville (2%)			
			Marysland (1%)			
G374A	Egeland-Embden complex, 0 to 2 percent slopes	Slight	Egeland (49%)		29.5	0.1%
			Embden (40%)			
			Fordville (6%)			
			Renshaw (3%)			
			Marysland, occasionally flooded (2%)			

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
G380C	Maddock-Egeland sandy loams, 6 to 9 percent slopes	Slight	Maddock (56%)		0.6	0.0%
			Egeland (34%)			
			Fordville (4%)			
			Renshaw (3%)			
			Marysland (1%)			
			Sioux (1%)			
			Barnes (1%)			
G521A	Lowe loam, 0 to 1 percent slopes, occasionally flooded	Slight	Lowe, occasionally flooded (77%)		14.9	0.1%
			Lowe, moderately saline, occasionally flooded (9%)			
			Lowe, very poorly drained, frequently flooded (8%)			
			Moritz, occasionally flooded (4%)			
			La Prairie, occasionally flooded (2%)			
G559A	La Prairie-Fairdale loams, channeled, 0 to 2 percent slopes, frequently flooded	Slight	La Prairie, channeled, frequently flooded (60%)		106.1	0.4%
			Fairdale, channeled (22%)			
			Fluvaquents, channeled, frequently flooded (8%)			
			Barnes (3%)			
			Embden (3%)			
			Spottswood (2%)			
			Lowe, frequently flooded (2%)			
G561A	La Prairie loam, 0 to 2 percent slopes, occasionally flooded	Slight	La Prairie, occasionally flooded (73%)		25.7	0.1%
			Velva, moist, occasionally flooded (10%)			

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
			Fluvaquents, channeled, frequently flooded (5%)			
			Lowe, occasionally flooded (4%)			
			Rauville, frequently flooded (4%)			
			Fairdale, occasionally flooded (2%)			
			Ranslo, occasionally flooded (2%)			
G651E	Udarents loamy, abandoned gravel pits, 0 to 25 percent slopes	Slight	Udarents, loamy, abandoned gravel pits (74%)		0.3	0.0%
			Sioux (7%)			
			Renshaw (3%)			
			Binford (3%)			
G996	Water	Not rated	Water (100%)		3.4	0.0%
G997	Water, intermittent	Not rated	Water, intermittent (80%)		4.7	0.0%
HaA	Hamerly loam, 0 to 2 percent slopes	Slight	Hamerly (90%)		117.8	0.4%
			Aastad (4%)			
			Vallers, undrained (3%)			
			Parnell, undrained (3%)			
Hb	Hamerly-Tonka complex	Slight	Hamerly (60%)		126.2	0.4%
			Tonka, undrained (25%)			
			Barnes (3%)			
			Vallers, undrained (3%)			
			Aastad (3%)			
			Forman (3%)			

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
			Parnell, undrained (3%)			
HmA	Hetland silty clay loam, 0 to 2 percent slopes	Slight	Hetland (85%)		0.4	0.0%
			Poinsett (7%)			
			Tonka, undrained (3%)			
			Cubden (3%)			
			Waubay (2%)			
KrB	Kranzburg-Buse-Waubay complex, 1 to 6 percent slopes	Slight	Kranzburg (40%)		217.6	0.7%
			Buse (25%)			
			Waubay (25%)			
			Cubden (7%)			
			Tonka, undrained (3%)			
La	La Prairie loam	Slight	La Prairie (90%)		234.8	0.8%
			Holmquist (3%)			
			Ranslo (3%)			
			Playmoor (2%)			
			Moritz (2%)			
Lf	La Prairie-Fairdale loams, channeled	Slight	La Prairie (65%)		50.8	0.2%
			Fairdale, channeled (25%)			
			Embden (3%)			
			Barnes (3%)			
			Spottswood (2%)			
			Lowe (2%)			
Lo	Lowe loam	Slight	Lowe (90%)		84.8	0.3%
			Moritz (3%)			
			Divide (3%)			
			Marysland, undrained (2%)			
			Rauville (2%)			
MaC	Maddock-Egeland sandy loams, 6 to 9 percent slopes	Slight	Maddock (60%)		56.4	0.2%
			Egeland (30%)			
			Fordville (3%)			
			Barnes (2%)			

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
			Rusklyn (2%)			
			Renshaw (2%)			
			Marysland, undrained (1%)			
MtB	Minnewasta sandy loam, 2 to 6 percent slopes	Slight	Minnewasta (90%)		18.8	0.1%
			Maddock (5%)			
			Sioux (5%)			
Mw	Minnewaukan loamy sand	Slight	Minnewaukan (90%)		40.9	0.1%
			Minnewasta (2%)			
			Southam (2%)			
			Oldham (2%)			
			Mauvais (2%)			
			Colvin (2%)			
Od	Oldham silty clay loam	Slight	Oldham (90%)		289.8	1.0%
			Colvin (6%)			
			Mauvais (1%)			
			Southam (1%)			
			Playmoor (1%)			
			Vallers, undrained (1%)			
Og	Orthents, gravelly	Moderate	Orthents, gravelly (90%)	Slope/erodibility (0.50)	33.3	0.1%
Pa	Parnell silty clay loam	Slight	Parnell, undrained (95%)		934.3	3.2%
			Colvin (1%)			
			Hamerly (1%)			
			Tonka, undrained (1%)			
			Cubden (1%)			
			Vallers, undrained (1%)			
Pm	Playmoor silty clay loam	Slight	Playmoor (90%)		21.3	0.1%
			Ludden (3%)			
			Lamoure (3%)			
			Ranslo (2%)			

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
			La Prairie (2%)			
PoC	Poinsett-Rusklyn silty clay loams, 6 to 9 percent slopes	Slight	Poinsett (45%)		137.1	0.5%
			Rusklyn (40%)			
			Waubay (9%)			
			Egeland (3%)			
			Tonka, undrained (3%)			
PrB	Poinsett-Rusklyn-Waubay silty clay loams, 1 to 6 percent slopes	Slight	Poinsett (45%)		230.2	0.8%
			Rusklyn (25%)			
			Waubay (20%)			
			Badger (5%)			
			Cubden (3%)			
			Tonka, undrained (2%)			
PwA	Poinsett-Waubay silty clay loams, 0 to 2 percent slopes	Slight	Poinsett (60%)		15.5	0.1%
			Waubay (30%)			
			Cubden (4%)			
			Tonka, undrained (4%)			
			Rusklyn (2%)			
PwB	Poinsett-Waubay silty clay loams, 1 to 6 percent slopes	Slight	Poinsett (65%)		17.0	0.1%
			Waubay (25%)			
			Buse (6%)			
			Cubden (2%)			
			Tonka, undrained (2%)			
Re	Rauville silty clay loam	Slight	Rauville (85%)		29.2	0.1%
			Marysland, undrained (7%)			
			Lowe (5%)			
			Divide (3%)			
RfA	Renshaw-Fordville loams, coteau, 0 to 2 percent slopes	Slight	Renshaw (55%)		276.0	0.9%
			Fordville (35%)			
			Sioux (5%)			
			Divide, occasionally flooded (3%)			

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
			Spottswood, occasionally flooded (2%)			
RfB	Renshaw-Fordville loams, coteau, 2 to 6 percent slopes	Slight	Renshaw (60%)		523.6	1.8%
			Fordville (30%)			
			Sioux (6%)			
			Divide, occasionally flooded (2%)			
			Spottswood, occasionally flooded (2%)			
RsB	Renshaw-Sioux complex, coteau, 2 to 6 percent slopes	Slight	Renshaw (60%)		607.9	2.1%
			Sioux (30%)			
			Fordville (7%)			
			Spottswood, occasionally flooded (3%)			
RsC	Renshaw-Sioux complex, 6 to 9 percent slopes	Slight	Renshaw (50%)		904.6	3.1%
			Sioux (40%)			
			Fordville (7%)			
			Spottswood, occasionally flooded (3%)			
SrD	Sioux-Renshaw complex, coteau, 9 to 15 percent slopes	Slight	Sioux (50%)		424.1	1.4%
			Renshaw (35%)			
			Everts (5%)			
			Fordville (5%)			
			Spottswood, occasionally flooded (3%)			
			Egeland (2%)			
Ss	Southam silty clay loam, 0 to 1 percent slopes	Slight	Southam (90%)		1,267.3	4.3%
			Vallers (6%)			
			Hamerly (4%)			
To	Tonka silty clay loam, 0 to 1 percent slopes	Slight	Tonka, undrained (90%)		45.5	0.2%
			Cubden (5%)			
			Vallers (2%)			
			Hamerly (2%)			
			Parnell (1%)			

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
Va	Vallers-Hamerly loams	Slight	Vallers, undrained (50%)		89.7	0.3%
			Hamerly (40%)			
			Aastad (4%)			
			Parnell, undrained (3%)			
			Divide (3%)			
W	Water	Not rated	Water (100%)		105.6	0.4%
Wa	Waubay silty clay loam, 0 to 2 percent slopes	Slight	Waubay (90%)		6.8	0.0%
			Poinsett (4%)			
			Badger (2%)			
			Cubden (2%)			
			Tonka, undrained (2%)			
Subtotals for Soil Survey Area					**29,330.8**	**99.9%**
Totals for Area of Interest					**29,347.9**	**100.0%**

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
BnD	Buse-Barnes loams, 9 to 20 percent slopes	Moderate	Buse (50%)	Slope/erodibility (0.50)	1.1	0.0%
Cw	Cubden-Badger silty clay loams, coteau, 0 to 2 percent slopes	Slight	Cubden (50%)		0.5	0.0%
			Badger (40%)			
			Waubay (4%)			
			Badger, poorly drained (2%)			
			Cubden, moderately saline (2%)			
			Poinsett (1%)			
			Tonka, undrained (1%)			
FmB	Forman-Aastad loams, 1 to 6 percent slopes	Slight	Forman (55%)		3.2	0.0%
			Aastad (35%)			
			Buse (6%)			
			Parnell (4%)			
FoB	Forman-Buse-Aastad loams,	Slight	Forman (40%)		2.2	0.0%

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
	1 to 6 percent slopes		Buse (30%)			
			Aastad (20%)			
			Kranzburg (6%)			
			Parnell (2%)			
			La Prairie (2%)			
FoC	Forman-Buse-Aastad loams, 2 to 9 percent slopes	Slight	Forman (40%)		5.1	0.0%
			Buse (30%)			
			Aastad (20%)			
			Hamerly (5%)			
			Parnell (3%)			
			La Prairie (2%)			
MnA	Minnewasta sandy loam, 0 to 2 percent slopes	Slight	Minnewasta (80%)		0.1	0.0%
			Sioux (10%)			
			Minnewaukan (10%)			
Oh	Oldham silty clay loam	Slight	Oldham (90%)		1.0	0.0%
			Vallers (4%)			
			Southam (3%)			
			Hamerly (3%)			
Pa	Parnell silty clay loam	Slight	Parnell (85%)		0.5	0.0%
			Vallers (5%)			
			Hamerly (5%)			
			Cubden (5%)			
Sw	Southam silty clay loam, 0 to 1 percent slopes	Slight	Southam (90%)		2.6	0.0%
			Vallers (6%)			
			Hamerly (4%)			
Vh	Vallers-Hamerly loams	Slight	Vallers (60%)		0.8	0.0%
			Hamerly (30%)			
			Oldham (4%)			
			Parnell (4%)			
			Aastad (2%)			
Subtotals for Soil Survey Area					**17.1**	**0.1%**
Totals for Area of Interest					**29,347.9**	**100.0%**

Rating	Acres in AOI	Percent of AOI
Slight	23,377.6	79.7%
Moderate	5,856.7	20.0%

Rating	Acres in AOI	Percent of AOI
Null or Not Rated	113.6	0.4%
Totals for Area of Interest	**29,347.9**	**100.0%**

Description

The ratings in this interpretation indicate the hazard of soil loss from off-road and off-trail areas after disturbance activities that expose the soil surface. The ratings are based on slope and soil erosion factor K. The soil loss is caused by sheet or rill erosion in off-road or off-trail areas where 50 to 75 percent of the surface has been exposed by logging, grazing, mining, or other kinds of disturbance.

The ratings are both verbal and numerical. The hazard is described as "slight," "moderate," "severe," or "very severe." A rating of "slight" indicates that erosion is unlikely under ordinary climatic conditions; "moderate" indicates that some erosion is likely and that erosion-control measures may be needed; "severe" indicates that erosion is very likely and that erosion-control measures, including revegetation of bare areas, are advised; and "very severe" indicates that significant erosion is expected, loss of soil productivity and off-site damage are likely, and erosion-control measures are costly and generally impractical.

Numerical ratings indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the specified aspect of forestland management (1.00) and the point at which the soil feature is not a limitation (0.00).

The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the equivalent report from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

RUSLE2 Related Attributes

This report summarizes those soil attributes used by the Revised Universal Soil Loss Equation Version 2 (RUSLE2) for the map units in the selected area. The report includes the map unit symbol, the component name, and the percent of the component in the map unit. Soil property data for each map unit component include the hydrologic soil group, erosion factors Kf for the surface horizon, erosion factor T, and the representative percentage of sand, silt, and clay in the mineral surface horizon. Missing surface data may indicate the presence of an organic surface layer. .

Report—RUSLE2 Related Attributes

Soil properties and interpretations for erosion runoff calculations. The surface mineral horizon properties are displayed. Organic surface horizons are not displayed.

RUSLE2 Related Attributes–Clark County, South Dakota								
Map symbol and soil name	Pct. of map unit	Slope length (ft)	Hydrologic group	Kf	T factor	Representative value		
						% Sand	% Silt	% Clay
Aa—Aastad loam								
Aastad	90	—	C	.20	5	38.1	36.4	25.5
At—Aastad-Tonka complex								
Aastad	65	—	C	.20	5	38.1	36.4	25.5
Tonka, undrained	25	—	C/D	.17	5	19.2	47.8	33.0
Ba—Badger-Tonka silty clay loams, coteau, 0 to 1 percent slopes								
Badger	60	200	C/D	.32	5	7.0	64.0	29.0
Tonka, undrained	30	—	C/D	.28	5	7.0	64.0	29.0
BbB—Barnes-Buse loams, 2 to 6 percent slopes								
Barnes	55	—	C	.24	5	43.0	39.5	17.5
Buse	35	—	C	.28	5	39.8	37.7	22.5
BbC—Barnes-Buse loams, 6 to 9 percent slopes								
Barnes	55	—	C	.24	5	43.0	39.5	17.5
Buse	35	—	C	.28	5	39.8	37.7	22.5
BcB—Barnes-Buse-Svea loams, 1 to 6 percent slopes								
Barnes	40	—	C	.24	5	43.0	39.5	17.5
Buse	30	—	C	.28	5	39.8	37.7	22.5
Svea	20	—	B	.20	5	41.1	36.9	22.0

RUSLE2 Related Attributes–Clark County, South Dakota								
Map symbol and soil name	Pct. of map unit	Slope length (ft)	Hydrologic group	Kf	T factor	Representative value		
						% Sand	% Silt	% Clay
BcC—Barnes-Buse-Svea loams, 2 to 9 percent slopes								
Barnes	40	—	C	.24	5	43.0	39.5	17.5
Buse	35	—	C	.28	5	39.8	37.7	22.5
Svea	15	—	B	.20	5	41.1	36.9	22.0
BdA—Barnes-Svea loams, 0 to 2 percent slopes								
Barnes	50	—	C	.24	5	43.0	39.5	17.5
Svea	40	—	B	.20	5	41.1	36.9	22.0
BdB—Barnes-Svea loams, 1 to 6 percent slopes								
Barnes	65	—	C	.24	5	43.0	39.5	17.5
Svea	25	—	B	.20	5	41.1	36.9	22.0
BrD—Buse-Barnes loams, 9 to 20 percent slopes								
Buse	50	—	C	.28	5	39.8	37.7	22.5
Barnes	40	—	C	.24	5	43.0	39.5	17.5
BsE—Buse-Barnes loams, 9 to 40 percent slopes, very stony								
Buse, stony	50	—	C	.28	5	39.8	37.7	22.5
Barnes, stony	40	—	C	.24	5	43.0	39.5	17.5
BuE—Buse-La Prairie, channeled-Barnes loams, 0 to 40 percent slopes								
Buse	35	—	C	.28	5	39.8	37.7	22.5
La Prairie	30	—	B	.20	5	39.8	37.7	22.5
Barnes	25	—	C	.24	5	43.0	39.5	17.5
ByE—Buse-Langhei complex, 15 to 40 percent slopes								
Buse	55	—	C	.28	5	39.8	37.7	22.5
Langhei	35	—	C	.24	5	35.3	33.2	31.5
BzE—Buse-Sioux complex, 9 to 40 percent slopes								
Buse	55	—	C	.28	5	39.8	37.7	22.5
Sioux	35	—	A	.15	2	65.9	19.1	15.0
Cv—Cubden-Badger silty clay loams, coteau, 0 to 2 percent slopes								
Cubden	50	200	C/D	.32	5	7.0	64.0	29.0
Badger	40	—	C/D	.32	5	7.0	64.0	29.0

RUSLE2 Related Attributes–Clark County, South Dakota								
Map symbol and soil name	Pct. of map unit	Slope length (ft)	Hydrologic group	Kf	T factor	Representative value		
						% Sand	% Silt	% Clay
Cw—Cubden-Tonka silty clay loams, coteau, 0 to 2 percent slopes								
Cubden	55	197	C/D	.32	5	7.0	64.0	29.0
Tonka, undrained	35	197	C/D	.28	5	7.0	64.0	29.0
EgA—Egeland-Embden complex, 0 to 2 percent slopes								
Egeland	45	—	A	.15	5	66.8	19.2	14.0
Embden	45	—	A	.15	5	66.1	19.9	14.0
EgB—Egeland-Embden complex, 2 to 6 percent slopes								
Egeland	50	—	A	.15	5	66.8	19.2	14.0
Embden	40	—	A	.15	5	66.1	19.9	14.0
FdA—Fordville loam, coteau, 0 to 2 percent slopes								
Fordville	90	200	B	.17	3	42.0	37.0	21.0
FmA—Forman-Aastad loams, 0 to 3 percent slopes								
Forman	65	—	C	.20	5	39.8	37.7	22.5
Aastad	25	—	C	.20	5	38.1	36.4	25.5
FmB—Forman-Aastad loams, 1 to 6 percent slopes								
Forman	65	—	C	.20	5	39.8	37.7	22.5
Aastad	25	—	C	.20	5	38.1	36.4	25.5
FnB—Forman-Buse-Aastad loams, 1 to 6 percent slopes								
Forman	35	—	C	.20	5	39.8	37.7	22.5
Aastad	25	—	C	.20	5	38.1	36.4	25.5
Buse	25	—	C	.28	5	39.8	37.7	22.5
FnC—Forman-Buse-Aastad loams, 2 to 9 percent slopes								
Forman	40	—	C	.20	5	39.8	37.7	22.5
Buse	35	—	C	.28	5	39.8	37.7	22.5
Aastad	15	—	C	.20	5	38.1	36.4	25.5
G003A—Parnell silty clay loam, 0 to 1 percent slopes								
Parnell	64	98	C/D	.24	5	17.0	49.0	34.0
G004A—Southam silty clay loam, 0 to 1 percent slopes								
Southam	68	164	C/D	.28	5	15.0	51.0	34.0

RUSLE2 Related Attributes–Clark County, South Dakota								
Map symbol and soil name	Pct. of map unit	Slope length (ft)	Hydrologic group	Kf	T factor	Representative value		
						% Sand	% Silt	% Clay
G100A—Hamerly-Tonka complex, 0 to 3 percent slopes								
Hamerly	42	138	C	.20	5	40.0	37.0	23.0
Tonka	28	75	C/D	.32	5	24.0	53.0	23.0
G143A—Barnes-Svea loams, 0 to 3 percent slopes								
Barnes	39	138	B	.24	5	40.0	37.0	23.0
Svea	38	138	B	.24	5	39.0	38.0	23.0
G143D—Barnes-Buse-Langhei loams, 9 to 15 percent slopes								
Barnes	31	98	B	.24	5	40.0	37.0	23.0
Buse	24	75	B	.24	5	40.0	37.0	23.0
Langhei	15	89	B	.28	5	40.0	37.0	23.0
G143F—Buse-Barnes loams, 15 to 35 percent slopes								
Buse	34	—	B	.24	5	39.5	37.5	23.0
Barnes	29	—	B	.20	5	39.5	37.5	23.0
G144B—Barnes-Buse loams, 3 to 6 percent slopes								
Barnes	28	98	B	.24	5	40.0	37.0	23.0
Buse	27	66	B	.24	5	40.0	37.0	23.0
G155B—Barnes-Svea loams, 0 to 6 percent slopes								
Barnes	60	177	B	.24	5	40.0	37.0	23.0
Svea	25	197	B	.24	5	39.0	38.0	23.0
G171B—Barnes-Buse-Svea loams, 0 to 6 percent slopes								
Barnes	40	98	B	.24	5	40.0	37.0	23.0
Buse	29	66	B	.24	5	40.0	37.0	23.0
Svea	20	98	B	.24	5	39.0	38.0	23.0
G171C—Barnes-Buse-Svea loams, 1 to 9 percent slopes								
Barnes	44	98	B	.24	5	40.0	37.0	23.0
Buse	26	75	B	.24	5	40.0	37.0	23.0
Svea	15	75	B	.24	5	39.0	38.0	23.0
G189A—Aastad loam, 0 to 3 percent slopes, drainageway								
Aastad, drainageway	88	200	C	.24	5	39.0	37.0	24.0

RUSLE2 Related Attributes–Clark County, South Dakota								
Map symbol and soil name	Pct. of map unit	Slope length (ft)	Hydrologic group	Kf	T factor	Representative value		
						% Sand	% Silt	% Clay
G274A—Renshaw-Fordville loams, 0 to 2 percent slopes								
Renshaw	55	—	B	.28	2	50.0	32.0	18.0
Fordville	32	—	B	.28	3	39.5	41.5	19.0
G274B—Renshaw-Fordville loams, 2 to 6 percent slopes								
Renshaw	62	—	B	.28	2	50.0	32.0	18.0
Fordville	24	—	B	.24	3	39.5	40.5	20.0
G276A—Renshaw-Sioux complex, 0 to 2 percent slopes								
Renshaw	40	—	B	.28	2	50.0	32.0	18.0
Sioux	22	—	A	.10	2	67.4	19.6	13.0
G276B—Renshaw-Sioux complex, 2 to 6 percent slopes								
Renshaw	36	—	B	.28	2	50.0	32.0	18.0
Sioux	20	—	A	.10	2	67.4	19.6	13.0
G276C—Renshaw-Sioux complex, 6 to 9 percent slopes								
Renshaw	53	—	B	.28	2	50.0	32.0	18.0
Sioux	37	—	A	.10	2	67.4	19.6	13.0
G374A—Egeland-Embden complex, 0 to 2 percent slopes								
Egeland	49	—	A	.15	3	66.8	19.2	14.0
Embden	40	—	A	.10	5	69.6	16.4	14.0
G380C—Maddock-Egeland sandy loams, 6 to 9 percent slopes								
Maddock	56	—	A	.17	5	66.9	23.1	10.0
Egeland	34	—	A	.15	3	66.8	19.2	14.0
G521A—Lowe loam, 0 to 1 percent slopes, occasionally flooded								
Lowe, occasionally flooded	77	—	B/D	.20	5	39.5	37.5	23.0
G559A—La Prairie-Fairdale loams, channeled, 0 to 2 percent slopes, frequently flooded								
La Prairie, channeled, frequently flooded	60	—	B	.24	5	39.5	37.5	23.0
Fairdale, channeled	22	—	B	.24	5	39.5	37.5	23.0

RUSLE2 Related Attributes–Clark County, South Dakota								
Map symbol and soil name	Pct. of map unit	Slope length (ft)	Hydrologic group	Kf	T factor	Representative value		
						% Sand	% Silt	% Clay
G561A—La Prairie loam, 0 to 2 percent slopes, occasionally flooded								
La Prairie, occasionally flooded	73	151	B	.24	5	37.0	40.0	23.0
G651E—Udarents loamy, abandoned gravel pits, 0 to 25 percent slopes								
Udarents, loamy, abandoned gravel pits	74	—	C	.28	5	39.5	37.5	23.0
HaA—Hamerly loam, 0 to 2 percent slopes								
Hamerly	90	—	C	.20	5	39.8	37.7	22.5
Hb—Hamerly-Tonka complex								
Hamerly	60	—	C	.20	5	39.8	37.7	22.5
Tonka, undrained	25	—	C/D	.17	5	19.2	47.8	33.0
HmA—Hetland silty clay loam, 0 to 2 percent slopes								
Hetland	85	197	C	.32	5	7.0	64.0	29.0
KrB—Kranzburg-Buse-Waubay complex, 1 to 6 percent slopes								
Kranzburg	40	—	C	.28	5	9.1	65.9	25.0
Buse	25	—	C	.28	5	39.8	37.7	22.5
Waubay	25	—	B	.24	5	6.9	62.1	31.0
La—La Prairie loam								
La Prairie	90	—	B	.20	5	39.8	37.7	22.5
Lf—La Prairie-Fairdale loams, channeled								
La Prairie	65	—	B	.20	5	39.8	37.7	22.5
Fairdale, channeled	25	—	B	.20	5	39.8	37.7	22.5
Lo—Lowe loam								
Lowe	90	—	B/D	.20	5	38.1	36.4	25.5
MaC—Maddock-Egeland sandy loams, 6 to 9 percent slopes								
Maddock	60	—	A	.15	5	66.6	23.4	10.0
Egeland	30	—	A	.15	5	66.8	19.2	14.0
MtB—Minnewasta sandy loam, 2 to 6 percent slopes								
Minnewasta	90	—	D	.17	5	66.8	19.2	14.0

RUSLE2 Related Attributes–Clark County, South Dakota								
Map symbol and soil name	Pct. of map unit	Slope length (ft)	Hydrologic group	Kf	T factor	Representative value		
						% Sand	% Silt	% Clay
Mw—Minnewaukan loamy sand								
Minnewaukan	90	—	A	.02	5	85.3	9.2	5.5
Od—Oldham silty clay loam								
Oldham	90	—	C/D	.20	5	7.6	54.9	37.5
Og—Orthents, gravelly								
Orthents, gravelly	90	—	A	.28	5	44.3	40.7	15.0
Pa—Parnell silty clay loam								
Parnell, undrained	95	—	C/D	.24	5	18.7	47.8	33.5
Pm—Playmoor silty clay loam								
Playmoor	90	—	B/D	.24	5	6.9	62.6	30.5
PoC—Poinsett-Rusklyn silty clay loams, 6 to 9 percent slopes								
Poinsett	45	—	B	.28	5	7.1	64.4	28.5
Rusklyn	40	—	B	.28	5	6.9	62.1	31.0
PrB—Poinsett-Rusklyn-Waubay silty clay loams, 1 to 6 percent slopes								
Poinsett	45	197	C	.32	5	7.0	64.0	29.0
Rusklyn	25	197	C	.32	5	7.0	64.0	29.0
Waubay	20	197	C	.28	5	7.0	64.0	29.0
PwA—Poinsett-Waubay silty clay loams, 0 to 2 percent slopes								
Poinsett	60	197	C	.32	5	7.0	64.0	29.0
Waubay	30	197	C	.28	5	7.0	64.0	29.0
PwB—Poinsett-Waubay silty clay loams, 1 to 6 percent slopes								
Poinsett	65	180	C	.32	5	7.0	64.0	29.0
Waubay	25	180	C	.28	5	7.0	64.0	29.0
Re—Rauville silty clay loam								
Rauville	85	—	B/D	.24	5	6.9	62.1	31.0
RfA—Renshaw-Fordville loams, coteau, 0 to 2 percent slopes								
Renshaw	55	200	B	.20	2	42.0	37.0	21.0
Fordville	35	—	B	.17	3	42.0	37.0	21.0

RUSLE2 Related Attributes–Clark County, South Dakota								
Map symbol and soil name	Pct. of map unit	Slope length (ft)	Hydrologic group	Kf	T factor	Representative value		
						% Sand	% Silt	% Clay
RfB—Renshaw-Fordville loams, coteau, 2 to 6 percent slopes								
Renshaw	60	180	B	.20	2	42.0	37.0	21.0
Fordville	30	—	B	.17	3	42.0	37.0	21.0
RsB—Renshaw-Sioux complex, coteau, 2 to 6 percent slopes								
Renshaw	60	180	B	.20	2	42.0	37.0	21.0
Sioux	30	—	B	.28	2	45.0	40.0	15.0
RsC—Renshaw-Sioux complex, 6 to 9 percent slopes								
Renshaw	50	141	B	.20	2	42.0	37.0	21.0
Sioux	40	141	B	.28	2	45.0	40.0	15.0
SrD—Sioux-Renshaw complex, coteau, 9 to 15 percent slopes								
Sioux	50	89	B	.28	2	45.0	40.0	15.0
Renshaw	35	—	B	.20	2	42.0	37.0	21.0
Ss—Southam silty clay loam, 0 to 1 percent slopes								
Southam	90	200	C/D	.32	5	7.0	64.0	29.0
To—Tonka silty clay loam, 0 to 1 percent slopes								
Tonka, undrained	90	200	C/D	.28	5	7.0	64.0	29.0
Va—Vallers-Hamerly loams								
Vallers, undrained	50	—	C/D	.24	5	39.8	37.7	22.5
Hamerly	40	—	C	.20	5	39.8	37.7	22.5
Wa—Waubay silty clay loam, 0 to 2 percent slopes								
Waubay	90	197	C	.28	5	7.0	64.0	29.0

RUSLE2 Related Attributes–Day County, South Dakota								
Map symbol and soil name	Pct. of map unit	Slope length (ft)	Hydrologic group	Kf	T factor	Representative value		
						% Sand	% Silt	% Clay
BnD—Buse-Barnes loams, 9 to 20 percent slopes								
Buse	50	—	C	.28	5	39.8	37.7	22.5
Barnes	40	—	C	.24	5	43.0	39.5	17.5

RUSLE2 Related Attributes–Day County, South Dakota								
Map symbol and soil name	Pct. of map unit	Slope length (ft)	Hydrologic group	Kf	T factor	Representative value		
						% Sand	% Silt	% Clay
Cw—Cubden-Badger silty clay loams, coteau, 0 to 2 percent slopes								
Cubden	50	200	C/D	.32	5	7.0	64.0	29.0
Badger	40	—	C/D	.32	5	7.0	64.0	29.0
FmB—Forman-Aastad loams, 1 to 6 percent slopes								
Forman	55	—	C	.24	5	39.8	37.7	22.5
Aastad	35	—	C	.20	5	38.1	36.4	25.5
FoB—Forman-Buse-Aastad loams, 1 to 6 percent slopes								
Forman	40	—	C	.24	5	39.8	37.7	22.5
Buse	30	—	C	.28	5	39.8	37.7	22.5
Aastad	20	—	C	.20	5	38.1	36.4	25.5
FoC—Forman-Buse-Aastad loams, 2 to 9 percent slopes								
Forman	40	—	C	.24	5	39.8	37.7	22.5
Buse	30	—	C	.28	5	39.8	37.7	22.5
Aastad	20	—	C	.20	5	38.1	36.4	25.5
MnA—Minnewasta sandy loam, 0 to 2 percent slopes								
Minnewasta	80	—	D	.17	5	66.8	19.2	14.0
Oh—Oldham silty clay loam								
Oldham	90	—	C/D	.20	5	7.6	54.9	37.5
Pa—Parnell silty clay loam								
Parnell	85	—	C/D	.28	5	18.7	47.8	33.5
Sw—Southam silty clay loam, 0 to 1 percent slopes								
Southam	90	200	C/D	.32	5	7.0	64.0	29.0
Vh—Vallers-Hamerly loams								
Vallers	60	—	C/D	.24	5	39.8	37.7	22.5
Hamerly	30	—	C	.20	5	39.8	37.7	22.5

Data Source Information

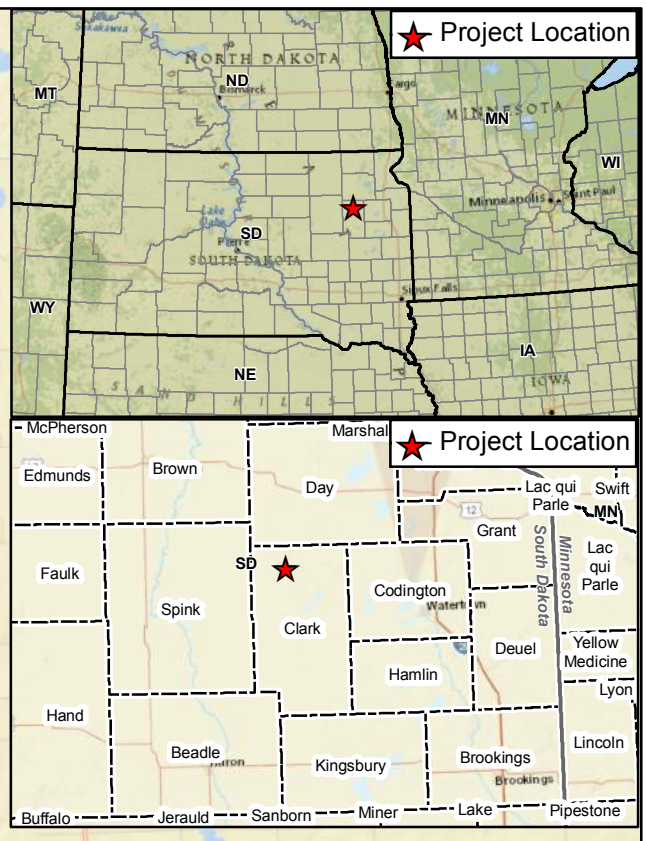
Soil Survey Area: Clark County, South Dakota
Survey Area Data: Version 19, Oct 6, 2017

Soil Survey Area: Day County, South Dakota
Survey Area Data: Version 23, Oct 6, 2017

Attachment D

Pre and Post Drainage Maps, Impaired Water Maps

Map Document: N:\0007880.03\GIS\SWPPP Exhibits\2018-08-13_Crocker_Ex1_SWPPPVicinityMap.mxd MJHildreth 8/13/2018 12:39:07 PM



Data Source(s): Westwood (2018)
ESRI NAIP Basemap Imagery (Accessed 2018),
USGS (2018).

Legend

Project Boundary

County Boundary

Westwood
Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.

N

0 Mile 2

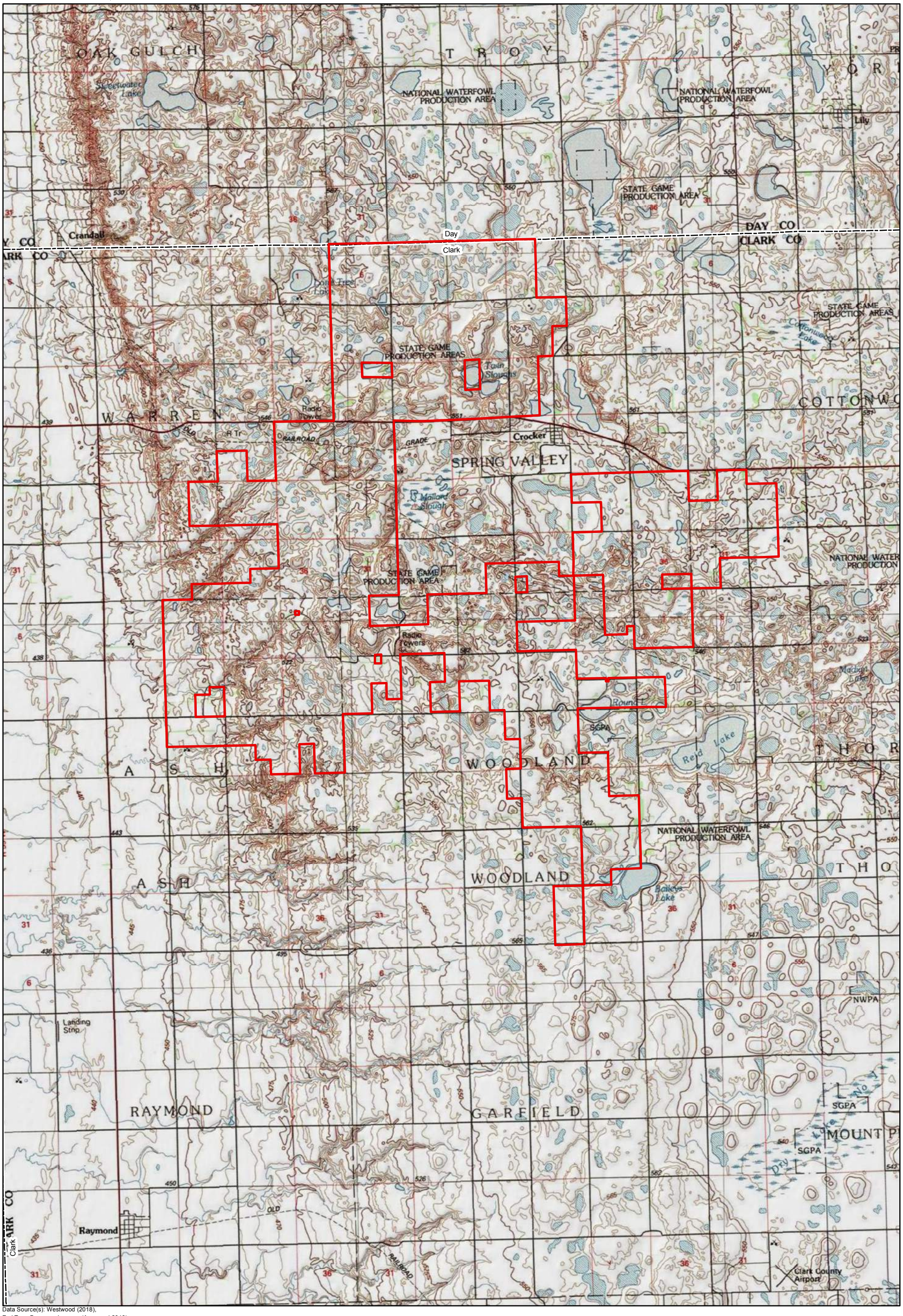
Crocker Wind Project

Clark County, South Dakota

Vicinity Map

August 13, 2018

Map Document: N:\0007880.03\GIS\SWPPP Exhibits\2018-08-13_Crocker_Ex2_SWPPPUSGSTopoMap.mxd MJHildreth 8/13/2018 1:01:03 PM



Data Source(s): Westwood (2018), Esri Topo Basemap Imagery (Accessed 2016), USGS (2016).

Legend

Project Boundary

County Boundary

Westwood
Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.

N

0 1.5 Mile

Crocker Wind Project

Clark County, South Dakota

USGS Topographic Map

August 13, 2018

Map Document: N:\0007880.03\GIS\SWPPP Exhibits\2018-08-13_Crocker_Ex3_SWPPPDrainageMap.mxd MJHildreth 8/13/2018 2:39:25 PM

Discharge ID	Latitude	Longitude
1	45.094537	-97.886082
2	45.091500	-97.890841
3	45.088303	-97.882432
4	45.072764	-97.877631
5	45.071322	-97.869054
6	45.059204	-97.918866
7	45.058684	-97.884033
8	45.056682	-97.881871
9	45.045654	-97.883975
10	45.034757	-97.872657
11	45.031315	-97.887789
12	45.029726	-97.905391

Name: 101600050304
HUC12: 101600050304
Drains To: 101600050305

Name: Town of Lily
HUC12: 101600050303
Drains To: 101600050305

Name: Sweetwater Lake
HUC12: 101600060203
Drains To: 101600060206

Name: Mallard Slough
HUC12: 101600060204
Drains To: Closed Basin

Name: Reid Lake
HUC12: 101702010401
Drains To: Closed Basin

Name: Turton Creek
HUC12: 101600060205
Drains To: 101600060206

Name: Clark Center Church-Timber Creek
HUC12: 101600060301
Drains To: 101600060303

Day
Clark

Data Source(s): Westwood (2018)
ESRI NAIP Basemap Imagery (Accessed 2018),
USGS (2018).

Legend

- Project Boundary
- County Boundary
- HUC 12 Boundary
- Wetlands
- O&M
- Substation
- Switchyard
- Laydown Yard
- NHD Flowline
- Access Road
- Crane Path
- Turbine Array
- Discharge Location

Westwood
Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.

Crocker Wind Project

Clark County, South Dakota

N

0 1.5 Mile

Drainage Map

August 13, 2018

Attachment E

Site Plans, Erosion and Sediment Control Plans, Details

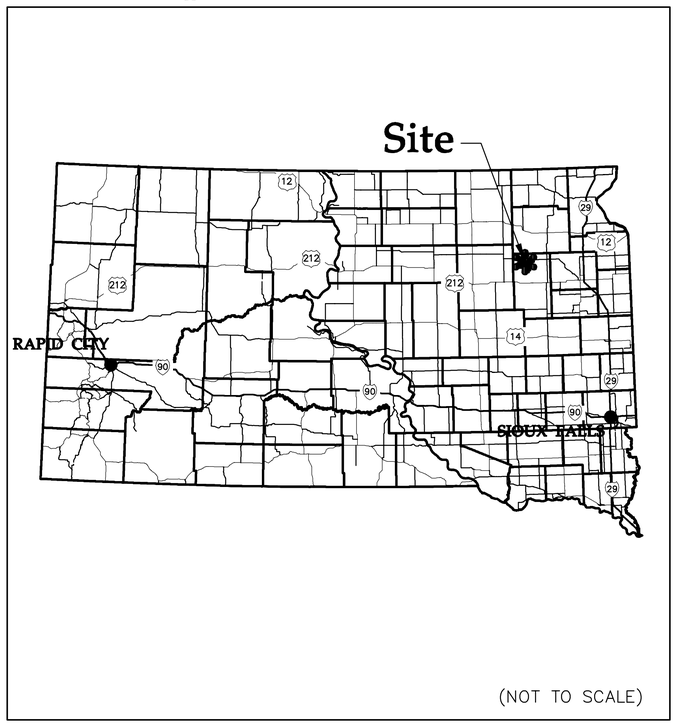
60% Civil Construction Plans

for

Wind Turbines, Access Roads, Drainage, and Erosion Control

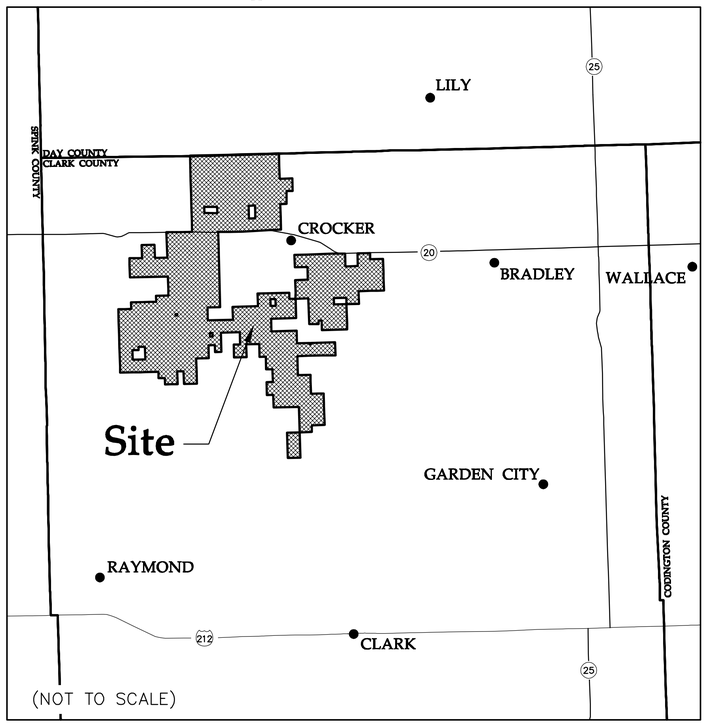
Crocker Wind Farm
Clark County, South Dakota

State Map



(NOT TO SCALE)

Vicinity Map



(NOT TO SCALE)

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	Site Plan T-204 T-205 T-215 T-216 T-218
12	Site Plan T-220 – T-222
13	Site Plan T-182 T-223 T-224
14	Site Plan T-206 T-207
15	Site Plan T-196 – T-199 T-230
16	Site Plan T-181 T-184 – T-186 ALT-187
17	Site Plan T-178 – T180
18	Site Plan T-210 – T-212
19	Site Plan T-189 – T-192 T-194
20	Site Plan T-166 T-177
21	Site Plan
22	Site Plan T-93 T-94 T-158
23	Site Plan T-1 – T-4 T-77 T-155
24	Site Plan T-95 T-96
25	Site Plan T-89 – T-92
26	Site Plan T-12
27	Site Plan T-7
28	Site Plan T-19
29	Site Plan T-13 – T-17 T-20 T-21
30	Site Plan T-69 T-71
31	Site Plan T-86 – T-88
32	Site Plan T-23 T-25 T-28
33	Site Plan T-52
34	Site Plan T-51
35	Site Plan ALT-72 ALT-99 ALT-100
36	Site Plan T-102
37	Site Plan T-53 T-101
38	Site Plan T-54 T-55 T-213 T-214

DATA SET INFORMATION			
BASE FILE	**FILE NAME / NOTES**	**PROVIDER**	**DATE**
AERIAL IMAGE	20160627_Crocker_Aerial_WorldImagery.jp2	Public	6/27/2016
LAND CONTROL	Crocker_Signed_WIND_10282016.shp	Geronimo	10/28/2016
TOPOGRAPHY	3meter_data_full.xyz	Public	9/1/2016
TURBINE ARRAY	CR_Layout_20180620.shp	Geronimo	6/22/2018
UNDERGROUND COLLECTION	20180521_CR_Collection_AllFeeders.shp	Westwood	5/21/2018
STREAMS/WETLANDS	Crocker_Wetland_071118.shp	Geronimo	8/2/2018
CULTURAL RESOURCES	Crocker_CRMAvoidance_053118.shp	Geronimo	6/4/2018

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:

#	DATE	DESCRIPTION
A	8/13/18	60% CIVIL PLANS

Prepared for:

WANZEK
a MasTec company

2028 2nd Avenue NW
West Fargo, ND 58078

Crocker Wind Farm

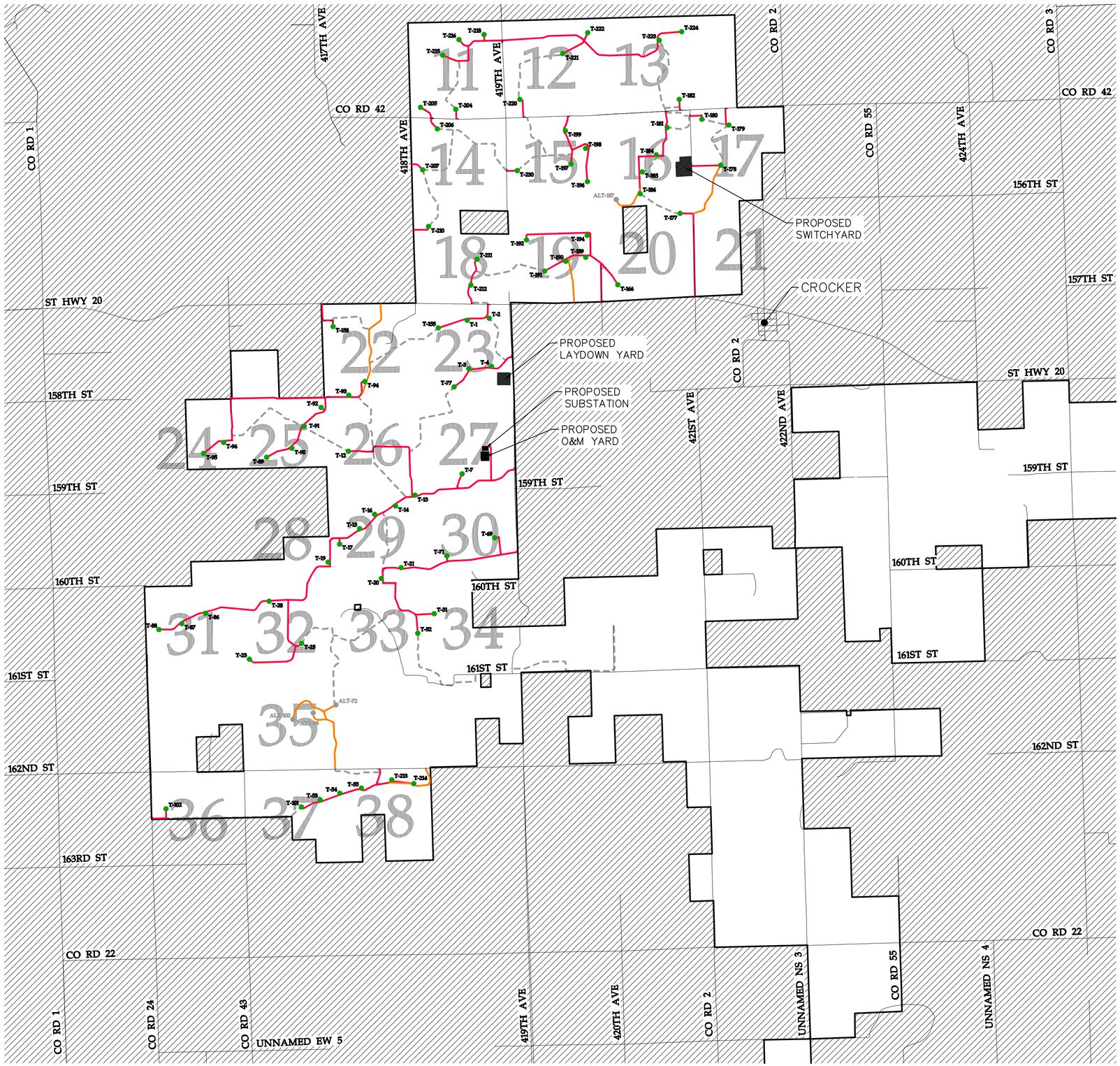
Clark County, South Dakota

Cover

60% COMPLETE NOT FOR CONSTRUCTION

Date: 8/13/18
Sheet: 1 OF 39

0007880CV01.dwg



LEGEND:

- PROPOSED TURBINE LOCATION
- T-XX PROPOSED TURBINE NUMBER
- PROPOSED ALTERNATE TURBINE LOCATION
- T-XX PROPOSED ALTERNATE TURBINE NUMBER
- PROPOSED ACCESS ROAD
- PROPOSED ALTERNATE ACCESS ROAD
- PROPOSED CRANE PATH
- EXISTING ROAD
- PROJECT BOUNDARY
- # SHEET NUMBER

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:

#	DATE	DESCRIPTION
A	8/13/18	60% CIVIL PLANS

Prepared for:

WANZEK a MasTec company

2028 2nd Avenue NW
West Fargo, ND 58078

N

0' 3000' 6000' 9000'

Crocker Wind Farm

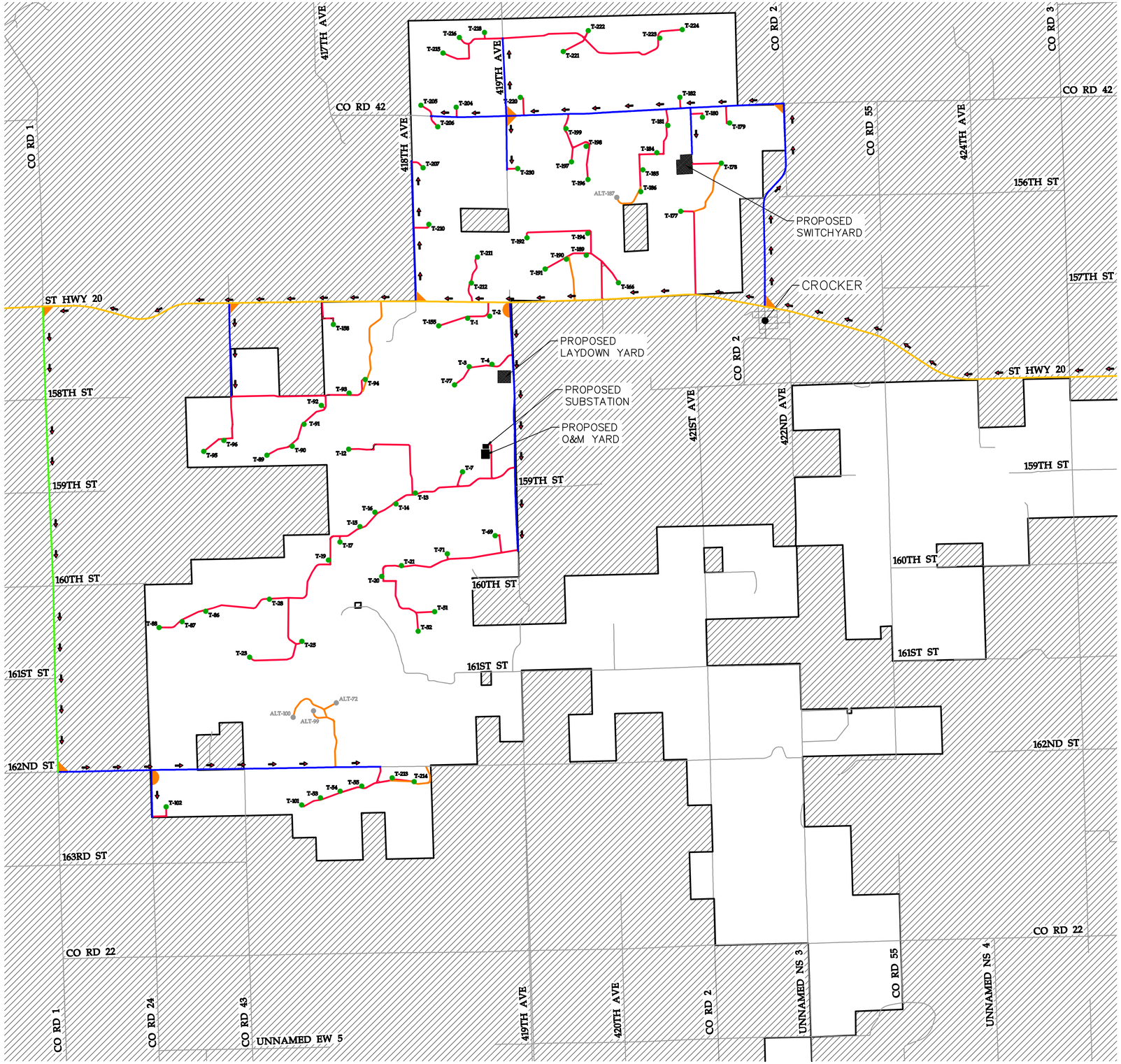
Clark County, South Dakota

Overall Site Plan

60% COMPLETE
NOT FOR CONSTRUCTION

Date: 8/13/18
Sheet: 2 OF 39

00078800A01.dwg



LEGEND:

- PROPOSED TURBINE LOCATION
- T-XX PROPOSED TURBINE NUMBER
- PROPOSED ALTERNATE TURBINE LOCATION
- ALT-XX PROPOSED ALTERNATE TURBINE NUMBER
- PROPOSED ACCESS ROAD
- PROPOSED ALTERNATE ACCESS ROAD
- EXISTING ROAD
- STATE HIGHWAY
- PROJECT BOUNDARY
- GRAVEL DELIVERY ROUTE
- or INTERSECTION IMPROVEMENTS
- TURBINE DELIVERY ROUTE DIRECTION

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:

#	DATE	DESCRIPTION
A	8/13/18	60% CIVIL PLANS

Prepared for:

WANZEK a MasTec company

2028 2nd Avenue NW
West Fargo, ND 58078

N

0' 3000' 6000' 9000'

Crocker Wind Farm

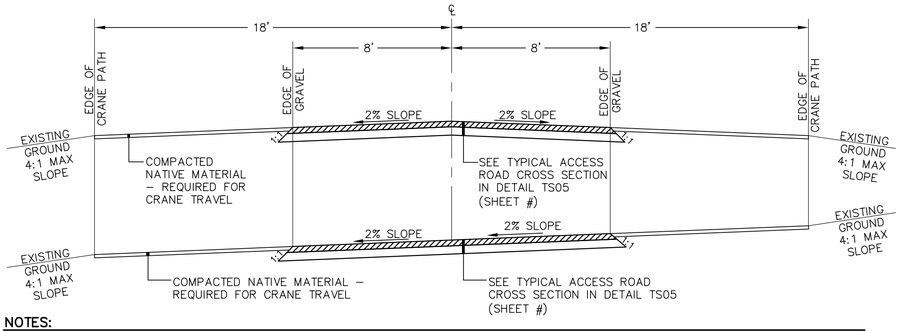
Clark County, South Dakota

Delivery Flow Plan

60% COMPLETE
NOT FOR CONSTRUCTION

Date: 8/13/18
Sheet: 3 OF 39

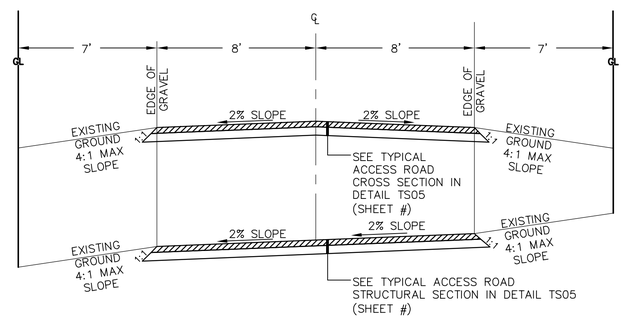
0007880DFP01.dwg



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

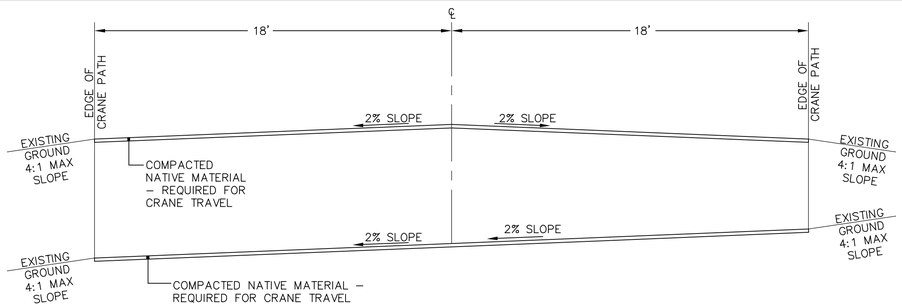
Westwood	TYPICAL TURBINE ACCESS ROAD AND CRANE PATH	LAST REVISED: 04/20/11 RD01–A



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

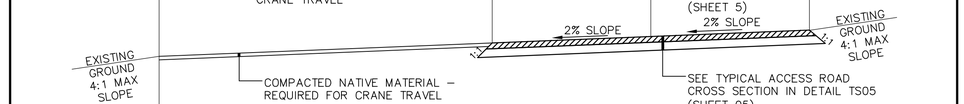
Westwood	TYPICAL TURBINE ACCESS ROAD SECTION	LAST REVISED: 3/19/12 RD01–B



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%.

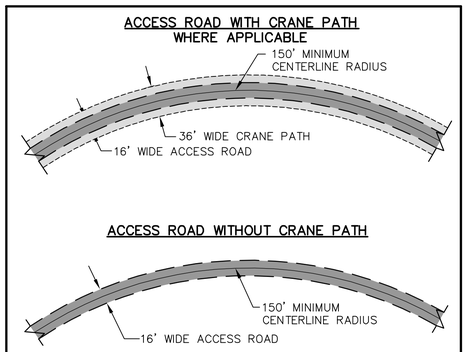
Westwood	TYPICAL CRANE PATH	LAST REVISED: 04/20/11 RD01–C



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

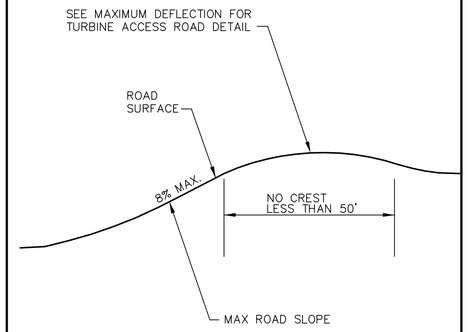
Westwood	TYPICAL TURBINE ACCESS ROAD AND OFFSET CRANE PATH	LAST REVISED: 04/29/11 RD01–D



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.

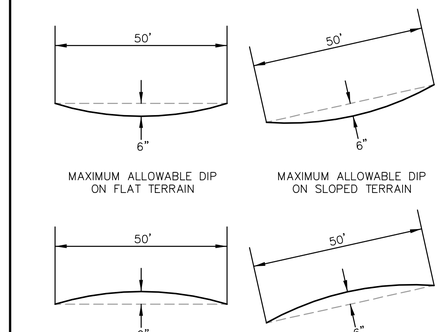
Westwood	MINIMUM RADIUS FOR TURBINE ACCESS ROAD	LAST REVISED: 04/20/11 RD02



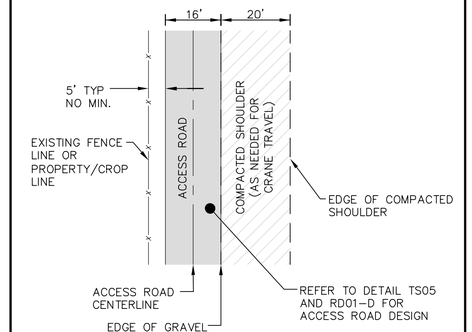
NOTES:

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

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



Westwood	MAXIMUM DEFLECTION FOR TURBINE ACCESS ROAD	LAST REVISED: 01/02/08 RD04



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

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:

#	DATE	DESCRIPTION
A	8/13/18	60% CIVIL PLANS

Prepared for:

WANZEK
a MasTec company

2028 2nd Avenue NW
West Fargo, ND 58078

Crocker Wind Farm

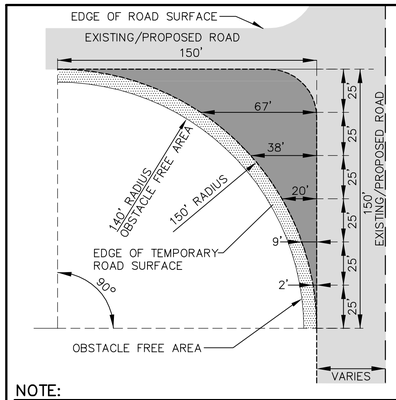
Clark County, South Dakota

Construction Details

60% COMPLETE
NOT FOR CONSTRUCTION

Date: 8/13/18
Sheet: 4 OF 39

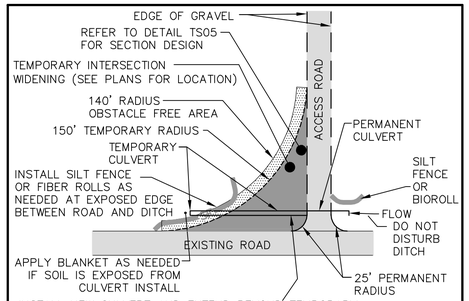
0007880DTP.dwg



NOTE:

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

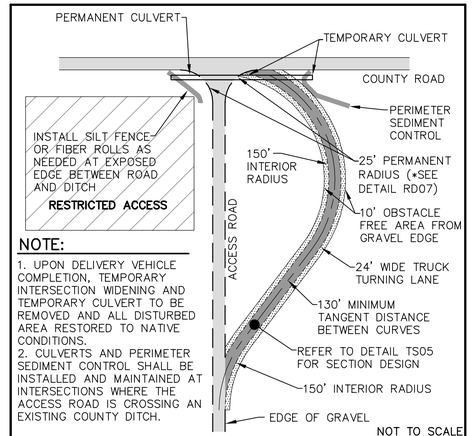
Westwood	INTERSECTION WIDENING DIMENSIONS	LAST REVISED: 3/19/12
		RD06



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.

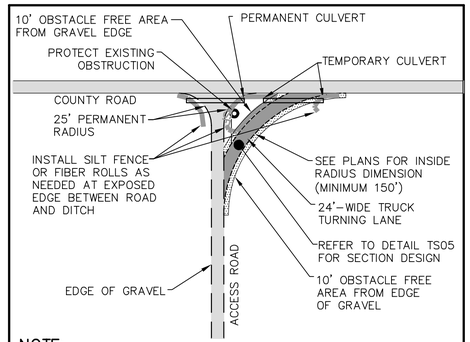
Westwood	TURBINE ACCESS ROAD TYPICAL INTERSECTION WIDENING	LAST REVISED: 3/19/12
		RD07



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.

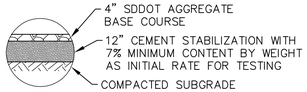
Westwood	TRUCK TRAFFIC TURNING LANE A	LAST REVISED: 11/18/14
		RD08–A



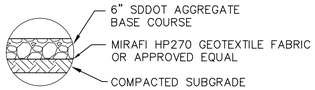
NOTE:

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.

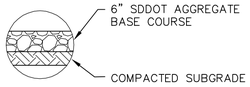
Westwood	TRUCK TRAFFIC TURNING LANE B	LAST REVISED: 3/19/12
		RD08–B



TURBINE ACCESS ROAD CROSS SECTION



SPUR ROAD CROSS SECTION



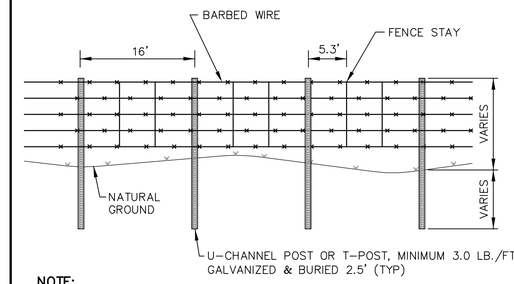
TEMPORARY TURNING IMPROVEMENTS

GRAVEL RING CROSS SECTION

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.

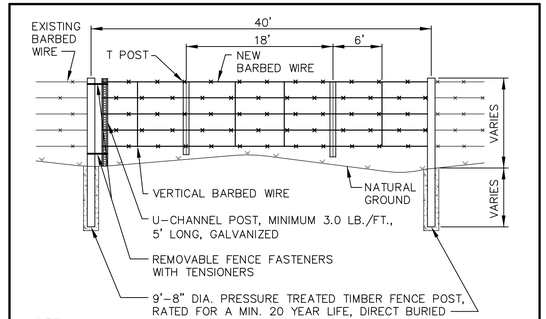
Westwood	TYPICAL STRUCTURAL CROSS SECTIONS	LAST REVISED: 06/02/09
		TS05



NOTE:

1. MATCH EXISTING BARBED WIRE WHICH MAY BE 3, 4, 5 OR 6 STRAND WIRE FENCE.
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.

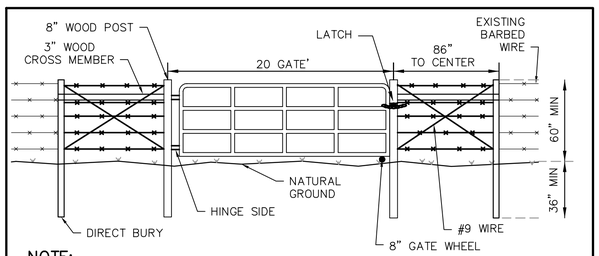
Westwood	PERMANENT FENCE	LAST REVISED: 05/14/09
		FN02



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. ALL DIRECT BURIED POSTS SHALL BE BACKFILLED WITH TWO BAGS OF UNMIXED, NO WATER ADDED, QUICKRETE®, OR APPROVED EQUAL, FOLLOWED BY NATIVE SOIL.
4. BARBED WIRE SHALL MATCH EXISTING 4, 5, OR 6 WIRE FENCE.

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



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: 04/08/09
		GA04

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:

#	DATE	DESCRIPTION
A	8/13/18	60% CIVIL PLANS

Prepared for:

WANZEK a MasTec company

2028 2nd Avenue NW
West Fargo, ND 58078

Crocker Wind Farm

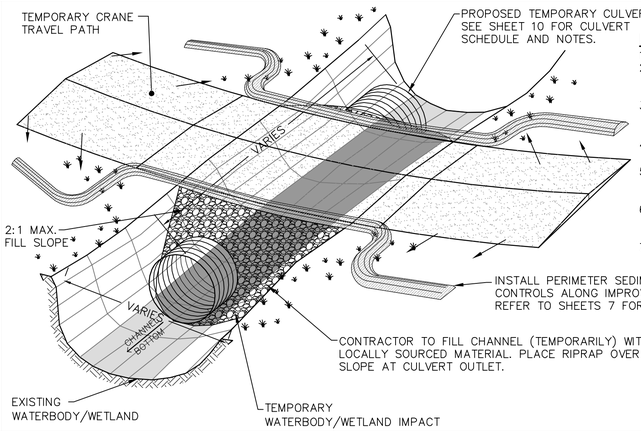
Clark County, South Dakota

Construction Details

60% COMPLETE
NOT FOR CONSTRUCTION

Date: 8/13/18
Sheet: 5 OF 39

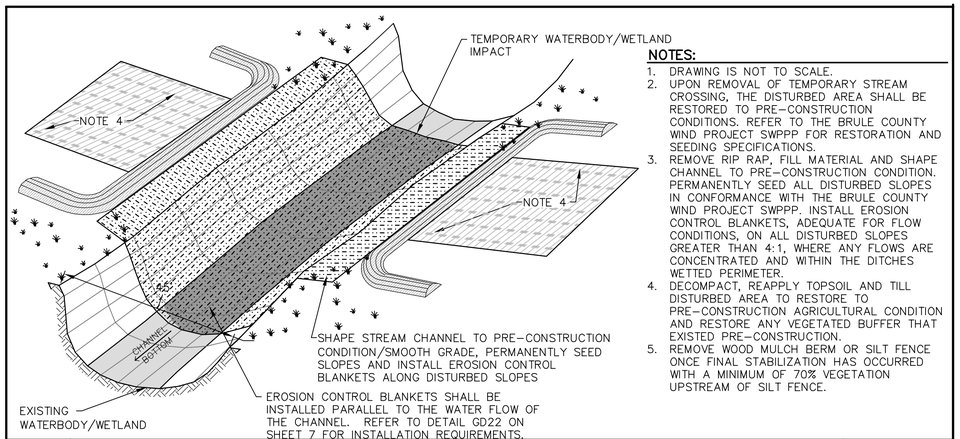
0007880DTP.dwg



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.

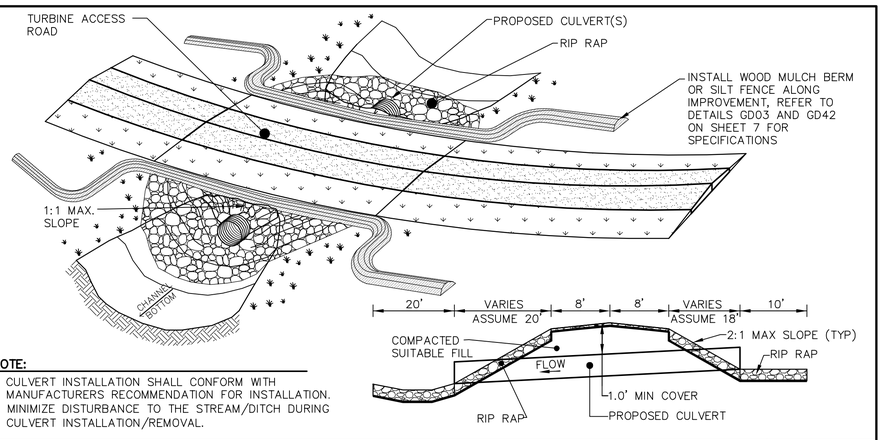
Westwood	TYPICAL TEMPORARY STREAM CROSSING WITH CULVERT – CRANE CROSSING	LAST REVISED: 11/30/17 RD09–1



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 BRULE COUNTY 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 BRULE COUNTY 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.

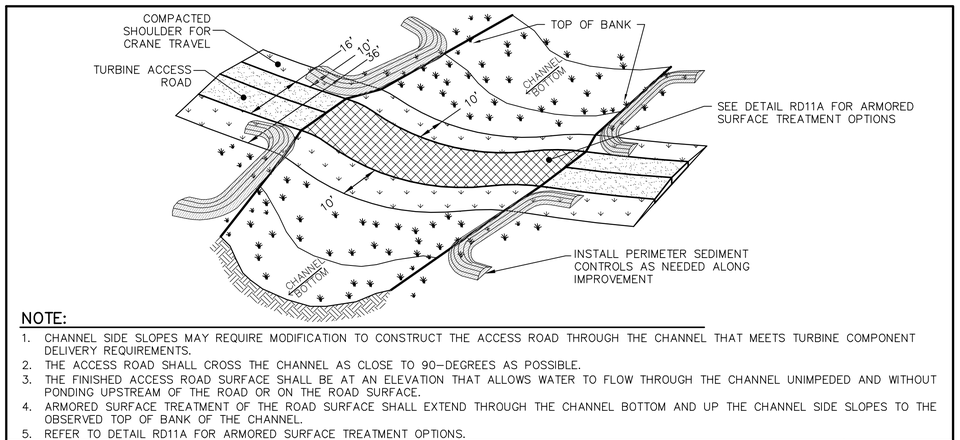
Westwood	TYPICAL TEMPORARY STREAM CROSSING RESTORATION	LAST REVISED: 3/19/12 RD09–2



NOTE:

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

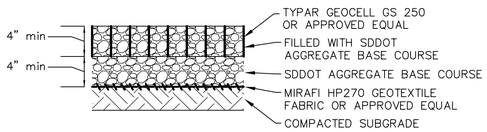
Westwood	TYPICAL PERMANENT TURBINE ACCESS ROAD STREAM CROSSING	LAST REVISED: 3/19/12 RD10



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 RD11A FOR ARMORED SURFACE TREATMENT OPTIONS.

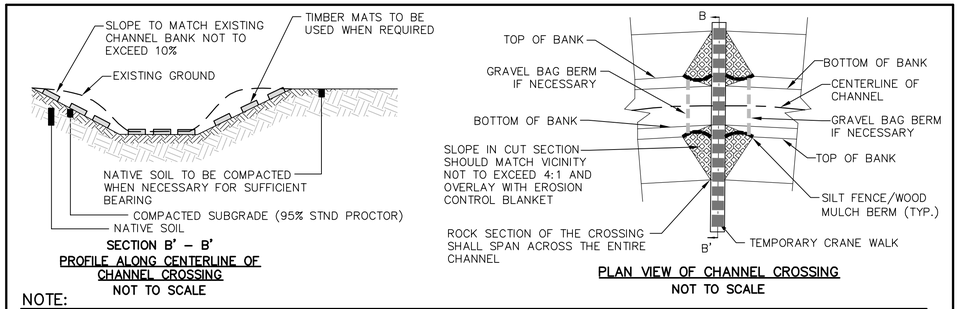
Westwood	PERMANENT TURBINE ACCESS ROAD LOW WATER CROSSING	LAST REVISED: 03/09/17 RD11



NOTE:

1. ARMORED SURFACE TREATMENT OPTIONS ARE DESIGNED BASED OFF THE WATER VELOCITY FROM THE 10 YEAR HYDRAULIC ANALYSIS.

Westwood	ARMORED SURFACE TREATMENTS AT LOW WATER CROSSINGS	LAST REVISED: 11/30/17 RD11A



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: 11/30/17 RD12

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:

#	DATE	DESCRIPTION
A	8/13/18	60% CIVIL PLANS

Prepared for:

WANZEK
a MasTec company

2028 2nd Avenue NW
West Fargo, ND 58078

Crocker Wind Farm

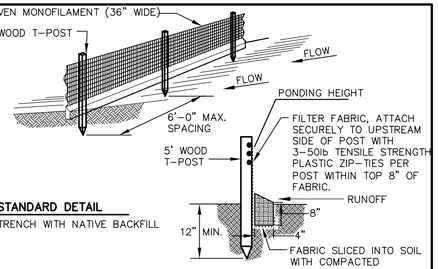
Clark County, South Dakota

Construction Details

60% COMPLETE
NOT FOR CONSTRUCTION

Date: 8/13/18
Sheet: 6 OF 39

0007880DTP.dwg



STANDARD DETAIL

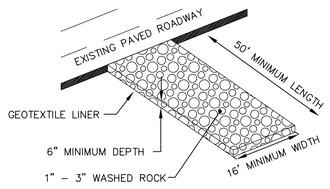
TRENCH WITH NATIVE BACKFILL

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****

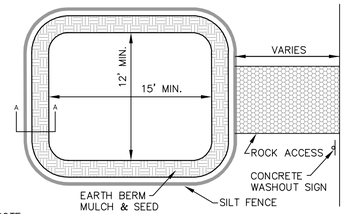


NOTE:

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.

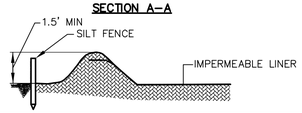
Westwood	ROCK CONSTRUCTION ENTRANCE	LAST REVISED: 11/24/08
		GD05

AN APPROVED ALTERNATE MAY BE USED

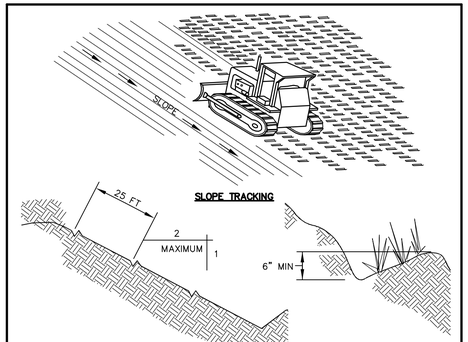


NOTE:
CONCRETE WASHOUT AREAS WILL HAVE AN IMPERMEABLE LINER TO PREVENT CONCRETE WASHOUT WATER FROM INFILTRATING/CONTACTING WITH SOIL. IMPERMEABLE LINER INCLUDES 10 MIL POLYLINER OR COMPACTED CLAY LINER. WASHOUT SYSTEMS CAN BE USED AS ALTERNATE WASHOUT AREAS.

SECTION A-A



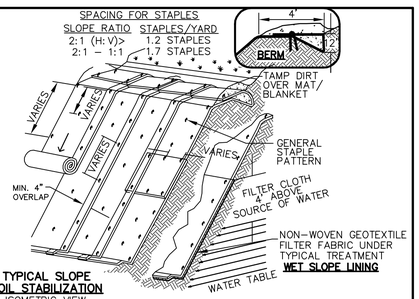
Westwood	CONCRETE WASHOUT AREA	LAST REVISED: 11/24/08
		GD08



NOTE:

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



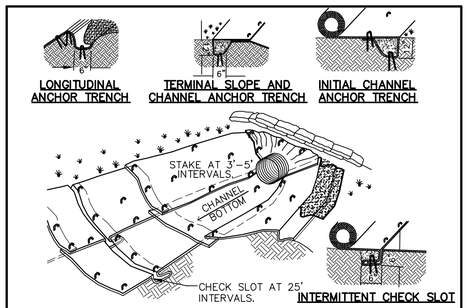
TYPICAL SLOPE SOIL STABILIZATION

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.

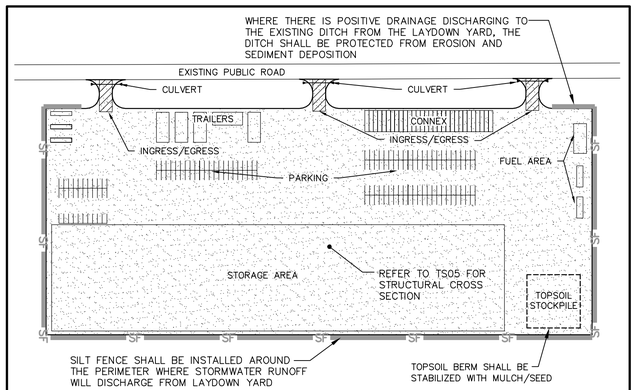
Westwood	TYPICAL SLOPE STABILIZATION - TEMPORARY EROSION BLANKETS TURF REINFORCEMENT MATS FOR SLOPES	LAST REVISED: 5/22/13
		GD21



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.

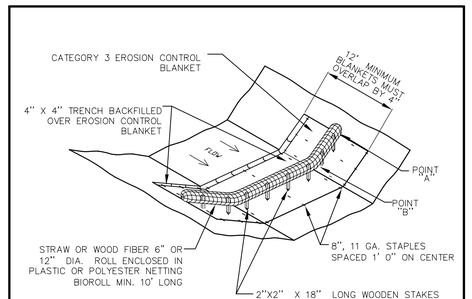
Westwood	TEMPORARY EROSION BLANKETS TURF REINFORCEMENT MATS FOR CHANNELS	LAST REVISED: 03/03/08
		GD22



NOTE:

1. REFER TO PROJECT SWPP PLAN FOR SPECIFICATIONS OF EROSION AND SEDIMENT CONTROL.
2. LAYDOWN YARD DESIGN SUBJECT TO CONTRACTOR NEEDS

Westwood	TYPICAL LAYDOWN/STAGING AREA EROSION AND SEDIMENT CONTROL	LAST REVISED: 01/15/16
		GD30



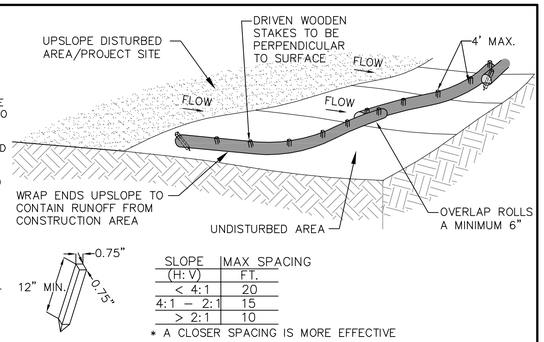
NOTE:

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.

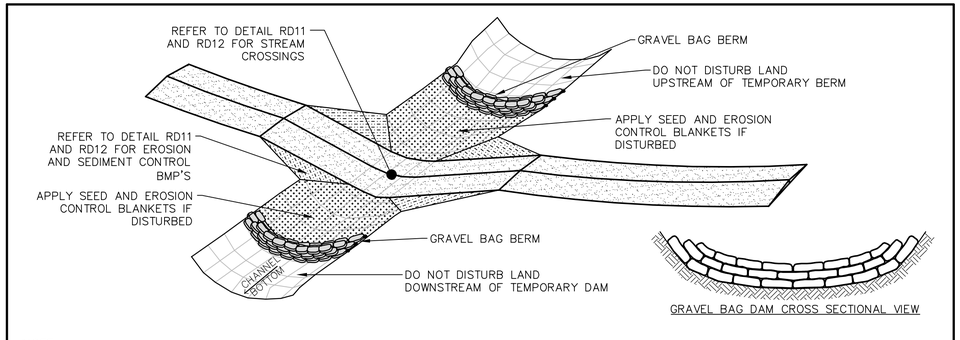


SLOPE (H:V)	MAX SPACING FT.
< 4:1	20
4:1 - 2:1	15
> 2:1	10

* 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



GRAVEL BAG DAM CROSS SECTIONAL VIEW

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

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:

#	DATE	DESCRIPTION
A	8/13/18	60% CIVIL PLANS

Prepared for:

WANZEK
a MasTec company

2028 2nd Avenue NW
West Fargo, ND 58078

Crocker Wind Farm

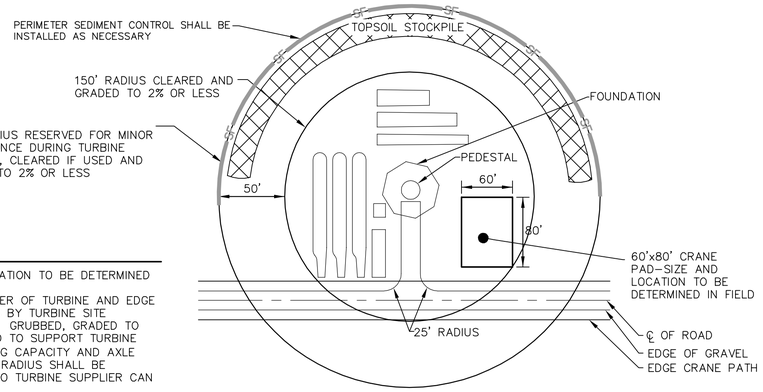
Clark County, South Dakota

Construction Details

60% COMPLETE NOT FOR CONSTRUCTION

Date: 8/13/18
Sheet: 7 OF 39

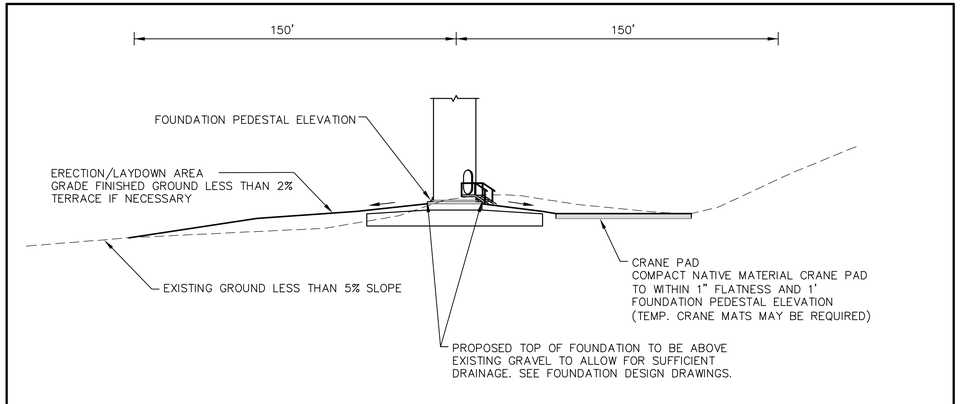
0007880DTP.dwg



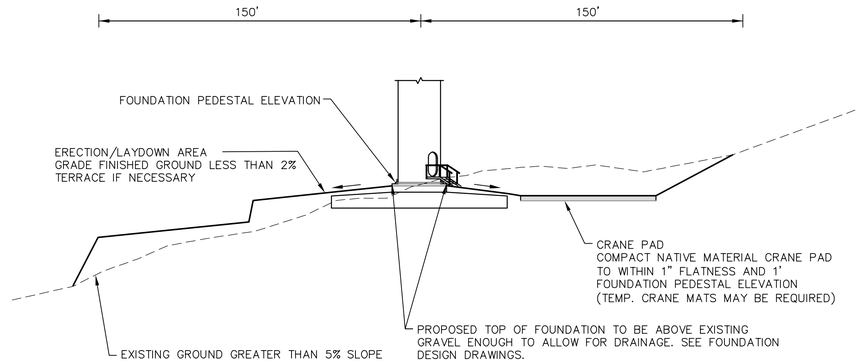
NOTE:

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

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



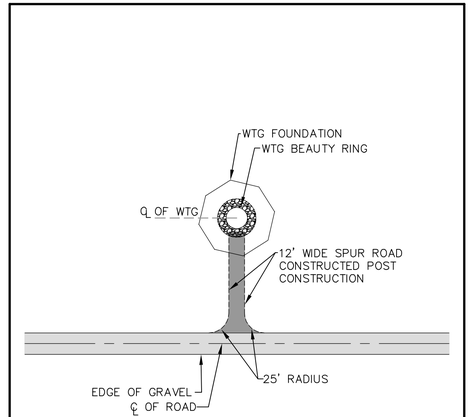
Westwood	TYPICAL WTG ERECTION AREA – PROFILE VIEW	LAST REVISED: 03/15/11
		TS03



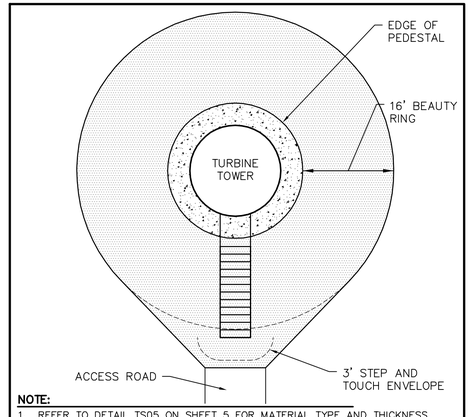
NOTE:

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



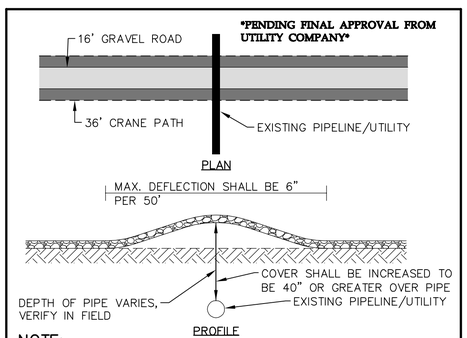
Westwood	TYPICAL SPUR ROAD	LAST REVISED: 11/30/17
		TS06



NOTE:

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

Westwood	BEAUTY RING DETAIL	LAST REVISED: 06/23/15
		TS07



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

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:

#	DATE	DESCRIPTION
A	8/13/18	60% CIVIL PLANS

Prepared for:

WANZEK
a MasTec company

2028 2nd Avenue NW
West Fargo, ND 58078

Crocker Wind Farm

Clark County, South Dakota

Construction Details

60% COMPLETE
NOT FOR CONSTRUCTION

Date: 8/13/18
Sheet: 8 OF 39

0007880DTP.dwg

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

LOW WATER CROSSING SCHEDULE
(TO BE ADDED AT A FUTURE DATE)

PUBLIC ROAD ENTRANCE CULVERTS
(TO BE ADDED AT A FUTURE DATE)

CEMENT STABILIZATION - PROCEDURE

THE SPECIFICATIONS BELOW ARE GENERAL RECOMMENDATIONS/GUIDELINES FOR CEMENT STABILIZATION OF SUBGRADES FOR THE PROJECT. ACTUAL FIELD CONDITIONS MAY ALTER APPLICATION RATE. CONSULT GEOTECHNICAL ENGINEER FOR FURTHER RECOMMENDATIONS.

1. STRIP THE TOP ±4 INCHES OF TOPSOIL (THROUGH THE ROOT ZONE) FROM THE AREA TO BE STABILIZED. ROOTS SMALLER THAN 1/4" DIAMETER ARE CONSIDERED INSIGNIFICANT.
2. PERFORM A PROCTOR (ASTM D 698) TEST TO DETERMINE THE OPTIMUM MOISTURE CONTENT IF THE MATERIAL TO BE STABILIZED DOES NOT MATCH A PREVIOUSLY PERFORMED PROCTOR.
3. DETERMINE THE IN-SITU MOISTURE CONTENT USING A NUCLEAR DENSITY GAUGE (OR EQUIVALENT MOISTURE CONTENT TEST) IMMEDIATELY IN FRONT OF THE RECLAIMER, PRIOR TO INCORPORATION OF THE CEMENT.
   - 3.1. THE CONTRACTOR WILL BE ADVISED OF IN-SITU MOISTURE CONTENT, AND MOISTURE ADJUSTMENTS SHOULD BE MADE IF IN-SITU MOISTURE IS LESS THAN OPTIMUM MOISTURE CONTENT AS DETERMINED BY THE PROCTOR (ASTM D 698).
4. DURING INITIAL CONSTRUCTION, TEST AREAS/FIRST ROAD USING 7% TARGET CEMENT CONTENT BY WEIGHT.
   - 4.1. FIELD RESULTS WILL DICTATE THE ACTUAL CEMENT APPLICATION RATE BASED ON IN-SITU MOISTURE CONTENT AND SOIL STRENGTH.
   - 4.2. DO NOT CONTINUE TO STABILIZE THE SUBGRADE IF THE PERFORMANCE REQUIREMENTS (DCP CRITERIA OUTLINED BELOW) ARE NOT MET. CONSULT THE ENGINEER FOR RECOMMENDATIONS.
   - 4.3. ADDITIONAL CEMENT MAY BE REQUIRED WHEN WETTER SOIL IS ENCOUNTERED.
5. SOIL AND CEMENT BLENDING:
   - 5.1. COMPLETELY BLEND SUBGRADE SOIL WITH THE APPROPRIATE AMOUNT OF CEMENT BY WEIGHT.
   - 5.2. THE USE OF A RECLAIMER IS AN ADEQUATE BLENDING METHOD. DISCING IS NOT AN ADEQUATE BLENDING METHOD.
   - 5.3. ADHERE TO PROJECT STABILIZATION DEPTH/WIDTH REQUIREMENTS:
     - 5.1.1. 12" DEPTH COMPACTED STABILIZED SUBGRADE
     - 5.1.2. 16' WIDTH STABILIZED SUBGRADE
6. COMPACTION:
   - 6.1. A ROLLING PATTERN WILL BE ESTABLISHED USING A NUCLEAR DENSITY GAUGE DURING COMPACTION.
     - 6.1.1. COMPACTION WILL BE PERFORMED UNTIL THE STABILIZED MATERIAL REACHES THE "BREAK POINT" AFTER WHICH ADDITIONAL PASSES WITH A ROLLER RESULTS IN A LOSS OF DENSITY AS MEASURED BY A NUCLEAR DENSITY GAUGE.
     - 6.1.2. COMPACTION IS TYPICALLY ACHIEVED BY MULTIPLE PASSES OF A PADFOOT ROLLER UNTIL THE ROLLER "WALKS" OUT OF THE RECLAIMED MATERIAL (SPACE IS VISIBLE BETWEEN THE DRUM AND THE RECLAIMED MATERIAL). THIS IS FOLLOWED BY BLADING AND SHAPING THE RECLAIMED MATERIAL TO FINAL PROFILE AND CROSS SECTION, REMOVING HIGH AND LOW POINTS. SMOOTH DRUM OR RUBBER TIRE ROLLERS ARE THEN USED TO FINISH ROLLING (THIS IS WHEN THE DENSITY TESTS ARE PERFORMED) UNTIL THE DENSITY OF THE MATERIAL REACHES THE "BREAK POINT."
     - 6.1.3. THE NUMBER OF PASSES AND EQUIPMENT USED TO REACH THE "BREAK POINT" IS CONSIDERED THE ROLLING PATTERN.
     - 6.1.4. A NEW ROLLING PATTERN MAY NEED TO BE ESTABLISHED IF THE PERFORMANCE REQUIREMENTS ARE NOT BEING MET. THIS MAY BE DUE TO CHANGES IN THE MOISTURE CONTENT, THE SOIL TYPE, OR THE CEMENT RATE.
   - 6.2. THE TARGET DENSITY IS 98% OF THE MAXIMUM DENSITY DETERMINED FROM THE ROLLING PATTERN.
     - 6.2.1. DENSITY TESTS SHALL BE TAKEN AT THE RATE OF 1 TEST PER 500 LF IN EACH PASS OF THE RECLAIMER TO CONFIRM THE DENSITY IS MATCHING THE TARGET. ONCE THE ROLLING PATTERN HAS BEEN CONFIRMED IT IS RECOMMENDED THAT TESTING CONTINUE AT 1 TEST PER 1,000 LF IN EACH PASS OF THE RECLAIMER.
     - 6.2.2. IF IT IS NOT POSSIBLE TO ATTAIN THE TARGET DENSITY, AND ADDITIONAL COMPACTION DOES NOT IMPROVE THE DENSITY, A NEW ROLLING PATTERN SHOULD BE ESTABLISHED.
   - 6.3. THE AIR TEMPERATURE SHALL BE ABOVE 40 DEGREES (F) DURING THE CEMENT STABILIZATION PROCESS. MIXING CEMENT INTO FROZEN GROUND IS NOT ACCEPTABLE.
7. THE STABILIZED MATERIAL SHALL BE CONTINUOUSLY WET CURED FOR A MINIMUM OF 24 HOURS (WET CURED IS IDENTIFIED VISUALLY AS SURFACE DAMP).
8. SUBGRADE DCP TESTING AND ACCEPTANCE:
   - 8.1. PERFORM SUBGRADE STRENGTH TESTING BY DYNAMIC CONE PENETROMETER (DCP) PER ASTM D 6951/6951M NO SOONER THAN 24 HOURS AFTER FINAL COMPACTION.
   - 8.2. DCP TESTING FREQUENCY SHALL BE WITH A RANDOM SPACING AND A MINIMUM OF 1 TEST PER 500 LF IN EACH PASS OF THE RECLAIMER. A MINIMUM OF 3 TESTS PER ROAD IS REQUIRED.
   - 8.3. THE CBR OF THE STABILIZED SUBGRADE SHOULD BE CALCULATED IN 3" INCREMENTS THROUGH THE ENTIRE DEPTH OF THE STABILIZED LAYER.
   - 8.4. THE MINIMUM REQUIRED CBR PRIOR TO PROOF-ROLLING IS PROVIDED IN THE TABLE BELOW:

TIME ELAPSED BETWEEN FINAL COMPACTION AND DCP TEST	REQUIRED MINIMUM CBR	MINIMUM DCP (BLOWS PER 6")
24 – 48 HOURS	20	15
3 – 7 DAYS	30	21
28 DAYS	50	33

   - 8.5. ONCE THE MINIMUM REQUIRED CBR IS ACHIEVED AT ANY CORRESPONDING TIME PERIOD, THE SUBGRADE IS CONSIDERED ADEQUATE AND THE CONTRACTOR MAY PROCEED WITH PROOF-ROLL TESTING. FUTURE DCP TESTING ON THAT SEGMENT OF SUBGRADE IS NOT REQUIRED.
   - 8.6. IF TESTING DOES NOT INDICATE A CBR OF 30 WITHIN 7 DAYS, ADDITIONAL GRAVEL SURFACING OR RE-STABILIZATION MAY BE REQUIRED AND A NEW ROLLING PATTERN OR ADDITIONAL CEMENT MAY BE REQUIRED FOR FUTURE SUBGRADE STABILIZATION AREAS. CONTACT THE ENGINEER FOR RECOMMENDATIONS.
9. SUBGRADE PROOF-ROLL TESTING AND ACCEPTANCE:
   - 9.1. ONCE THE REQUIRED DCP VALUE HAS BEEN OBTAINED BUT PRIOR TO PLACING AGGREGATE, THE SUBGRADE SHALL BE PROOF-ROLLED. REFER TO THE PROJECT TESTING REQUIREMENTS FOR PROOF-ROLL DEFINITION.
   - 9.2. PROOF-ROLLING SHOULD BE PERFORMED WITH ONE PASS DOWN THE CENTER AND NOT BE PERFORMED WITHIN 12 INCHES OF THE EDGE OF THE STABILIZED SECTION.
   - 9.3. IF PROOF-ROLLING FAILS, RE-STABILIZATION MAY BE REQUIRED AND A NEW ROLLING PATTERN OR ADDITIONAL CEMENT MAY BE REQUIRED FOR FUTURE SUBGRADE STABILIZATION AREAS. CONTACT THE ENGINEER FOR RECOMMENDATIONS.
10. AGGREGATE PLACEMENT:
    - 10.1. SURFACE AGGREGATE SHALL BE PLACED OVER THE STABILIZED SUBGRADE FOLLOWING PASSING PROOF-ROLL TESTS.
    - 10.2. THE AGGREGATE SURFACING IS INTENDED TO PROTECT THE SUBGRADE FROM WATER BEING PUMPED INTO THE SUBGRADE AND TO PROVIDE A TRACTION COURSE. WESTWOOD RECOMMENDS A MINIMUM OF 4 INCHES OF AGGREGATE INITIALLY PLACED OVER STABILIZED SUBGRADE. MAINTENANCE IS REQUIRED THROUGHOUT CONSTRUCTION AND MAY REQUIRE THE PLACEMENT OF ADDITIONAL AGGREGATE.
    - 10.3. REFER TO THE TESTING SCHEDULE FOR AGGREGATE PLACEMENT CRITERIA.

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:

#	DATE	DESCRIPTION
A	8/13/18	60% CIVIL PLANS

Prepared for:

WANZEK a MasTec company
2028 2nd Avenue NW
West Fargo, ND 58078

Crocker Wind Farm

Clark County, South Dakota

Construction Details

60% COMPLETE
NOT FOR CONSTRUCTION

Date: 8/13/18
Sheet: 9 OF 39

0007880DTP.dwg

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.
3. ACCESS ROADS HAVE BEEN DESIGNED IN ACCORDANCE TO GE SITE ROADS AND CRANE HARD STANDINGS SPECIFICATION.

PRODUCTS

1. AGGREGATE BASE SHALL CONSIST OF SDDOT AGGREGATE BASE COURSE (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 SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION AND/OR BRULE COUNTY. ALL CULVERTS ARE PLANNED TO BE A MINIMUM 18" DIAMETER AND MANUFACTURED OF 16-GAGE CORRUGATED METAL PIPE OR HDPE 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
1. 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 MAY RANGE FROM 1% – 4%, CHECK WITH THE ENGINEER IF THE CROSS SLOPE FALLS OUTSIDE OF THIS RANGE. ACCESS ROADS BEING UTILIZED FOR CRANE TRAVEL SHOULD HAVE A MAX CROSS SLOPE OF 2%.

STORM WATER DESIGN PARAMETERS

1. SEE SHEET 9 FOR CULVERT SIZING AND DESIGN PARAMETERS. CULVERTS SHALL BE MINIMUM 18" CORRUGATED METAL PIPE. 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.

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 (SPUR ROADS):
   A. THE ENTIRE SUBGRADE SHALL BE PROOF-ROLLED PRIOR TO THE PLACEMENT OF THE AGGREGATE BASE TO IDENTIFY AREAS OF UNSTABLE SUBGRADE
3. COMPACTED SUBGRADE (CEMENT STABILIZED):
   A. SEE CEMENT STABILIZATION PROCEDURE NOTE 6 FOR PROOF ROLL AND MOISTURE DENSITY REQUIREMENTS.
   B. SEE CEMENT STABILIZATION PROCEDURE NOTE 8 FOR DCP REQUIREMENTS.
4. 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 (PROJECT MAX OF 20) PER 2500 CY OF ROAD BASE PLACED.
5. CRANE PADS:
   A. ALL CRANE PADS MUST BE PROOF ROLLED PRIOR TO UTILIZATION.
   B. 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.
   C. AT THE CONTRACTOR'S DISCRETION, CRANE MATS MAY BE UTILIZED TO PROVIDE ADDITIONAL STABILITY.
6. 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.

GENERAL NOTES:

1. THE GROUND SURFACE CONTOURS (AT TWO-FOOT VERTICAL INTERVALS) AND ELEVATIONS ARE BASED ON A 3 METER DTM FROM THE USGS NATIONAL ELEVATION DATASET (NED). THE CONTOURS SHOWN ARE NOT BASED ON A DTM THAT SUPPORTS A TWO-FOOT VERTICAL INTERVAL. AS SUCH, THE ACCURACY OF THE ELEVATIONS AND CONTOURS IS NOT AS HIGH AS INFORMATION GATHERED USING CONVENTIONAL FIELD SURVEYING PROCEDURES. THE CONTRACTOR WILL FIND THAT GROUND ELEVATIONS DETERMINED DURING FIELD STAKING WILL VARY FROM THE GROUND ELEVATIONS SHOWN ON THE DRAWINGS. WHERE 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.
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 SOUTH 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 BEEN PREPARED BY THE OWNER. ALL GRADING SHALL CONFORM TO THE GEOTECHNICAL ENGINEERING REPORT AND RECOMMENDATIONS.
13. FIELD SURVEY WETLAND INFORMATION HAS BEEN PROVIDED IN THE ALTA SURVEY BY THE OWNER. 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 HAVE BEEN PROVIDED BY THE OWNER. 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 150 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 BEEN PROVIDED BY THE OWNER. 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. CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATIONS AND CONSTRUCTION REQUIREMENTS.

STORMWATER POLLUTION PREVENTION PLAN (SWPPP):

12. THE CONTRACTOR SHALL PROVIDE EROSION CONTROL MEASURES AS PLANNED AND SPECIFIED FOLLOWING BEST MANAGEMENT PRACTICES AS OUTLINED BY THE SOUTH DAKOTA DEPARTMENT OF HEALTH AND BEING IN CONFORMANCE WITH THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) GENERAL STORMWATER PERMIT.
13. REFER TO THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) FOR THE CROCKER WIND FARM, PREPARED BY WESTWOOD PROFESSIONAL SERVICES, FOR EROSION CONTROL AND RESTORATION SPECIFICATIONS, SEDIMENT AND EROSION CONTROL PROCEDURES, LOCATIONS OF BMPs, DETAILS, AND INSPECTION INFORMATION.
14. 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.
15. TEMPORARY EROSION CONTROL SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE TEMPORARY EROSION CONTROL PLAN SHALL BE IN ACCORDANCE WITH THE SOUTH DAKOTA DEPARTMENT OF HEALTH AND THE CROCKER WIND FARM STORMWATER POLLUTION PREVENTION PLAN ON FILE.

TABLE 1: SDDOT AGGREGATE BASE COURSE – LOCALLY SOURCED

SIEVE SIZE	PERCENT PASSING
1"	100
3/4"	80-100
1/2"	68-91
NO. 4	46-70
NO. 8	34-58
NO. 40	13-35
NO. 200	3-12

MEET FOLLOWING REQUIREMENTS PER 882.2

LIQUID LIMIT (MAX) = 25
PLASTICITY INDEX = 0-6
L.A ABRASION (% MAX) = 40%

GRADATION HAS BEEN OBTAINED FROM THE 2015 SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATION BOOK.

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 (NON-CEMENT STABILIZED, SPUR ROADS)	PROOF-ROLL	ENTIRE LENGTH
COMPACTED SUBGRADE (CEMENT STABILIZED) NOTE: SEE ABOVE FOR INITIAL TESTING REQUIREMENTS	PROCTOR	1 PER 2 ACRES, MINIMUM 1 PER MAJOR SOIL TYPE
	MOISTURE DENSITY TEST (NUCLEAR DENSITY)	1 PER 1000 LF IN EACH PASS OF THE RECLAIMER, A MIN. 3 PER ROAD
	DCP TEST	1 PER 500 LF IN EACH PASS OF THE RECLAIMER, A MIN. 3 PER ROAD
	PROOF-ROLL (AFTER PASSING DCP TESTS)	ENTIRE LENGTH
AGGREGATE BASE	PROOF-ROLL	ENTIRE AREA
	SIEVE ANALYSIS, LL, PL, AND LA ABRASION	1 PER 2,500 CY
CRANE PAD COMPACTED SUBGRADE	PROOF-ROLL	ENTIRE AREA
	DCP (NOT REQUIRED UNLESS PROOF ROLL FAILS)	2 PER PAD
CRANE SHOULDERS	PROOF-ROLL	ENTIRE LENGTH

PROJECT CONTACT INFORMATION:

TITLE	COMPANY	NAME	CONTACT NUMBER
OWNER	GERONIMO		
PROJECT MANAGER	WESTWOOD PROFESSIONAL SERVICES	DAN BECKMANN	952-906-7424
ENGINEER OF RECORD	WESTWOOD PROFESSIONAL SERVICES	DAN BECKMANN	952-906-7424
CONTRACTOR	WANZEK	ROBERT MONLEY	701-433-5847

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:

#	DATE	DESCRIPTION
A	8/13/18	60% CIVIL PLANS

Prepared for:

WANZEK
a MasTec company

2028 2nd Avenue NW
West Fargo, ND 58078

Crocker Wind Farm

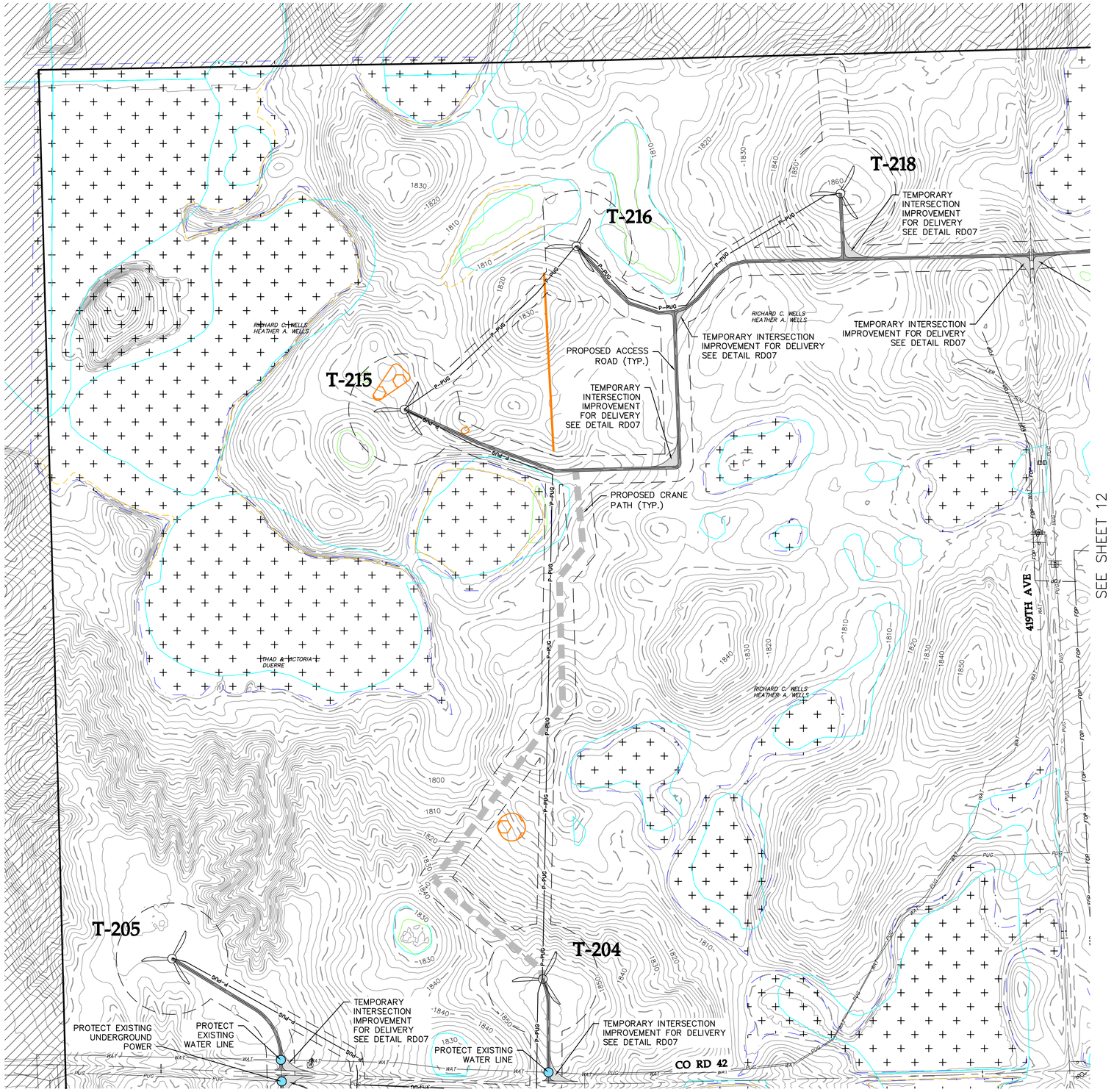
Clark County, South Dakota

Construction Notes

60% COMPLETE
NOT FOR CONSTRUCTION

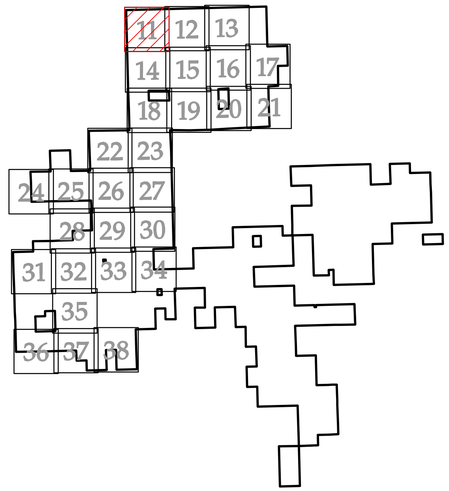
Date: 8/13/18
Sheet: 10 OF 39

0007880DTP.dwg

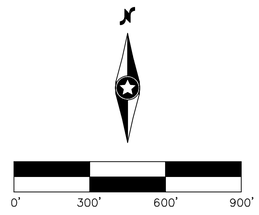


LEGEND:

- PROPOSED TURBINE LOCATION
- T-XX — PROPOSED TURBINE NUMBER
- PROPOSED ALTERNATE TURBINE LOCATION
- ALT-XX — PROPOSED ALTERNATE TURBINE NUMBER
- PROPOSED ACCESS ROAD
- PROPOSED ALTERNATE ACCESS ROAD
- PROPOSED CRANE PATH
- SURVEY CORRIDOR
- P-PUG — PROPOSED COLLECTION LINE
- 980 — EXISTING 10' CONTOURS
- EXISTING 2' CONTOURS
- EXISTING ROAD
- POH — EXISTING OVERHEAD POWER
- PUG — EXISTING UNDERGROUND POWER
- TUG — EXISTING UNDERGROUND TELEPHONE
- WAT — EXISTING WATER LINE
- FOP — EXISTING FIBER OPTIC LINE
- X — EXISTING FENCE
- EXISTING PARCEL LINES
- EXISTING WATERWAY
- DELINEATED WETLAND
- USFWS PROTECTED BASINS
- SKIPPER HABITAT
- WATERFOWL EASEMENT
- CRM AVOIDANCE BUFFER
- DESKTOP DELINEATED WETLAND
- MICROWAVE BEAM PATH
- PROJECT BOUNDARY
- PROPOSED UTILITY CROSSING
- PROPOSED FENCE CROSSING



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:

#	DATE	DESCRIPTION
A	8/13/18	60% CIVIL PLANS

Prepared for:

WANZEK a MasTec company

2028 2nd Avenue NW
West Fargo, ND 58078

Crocker Wind Farm

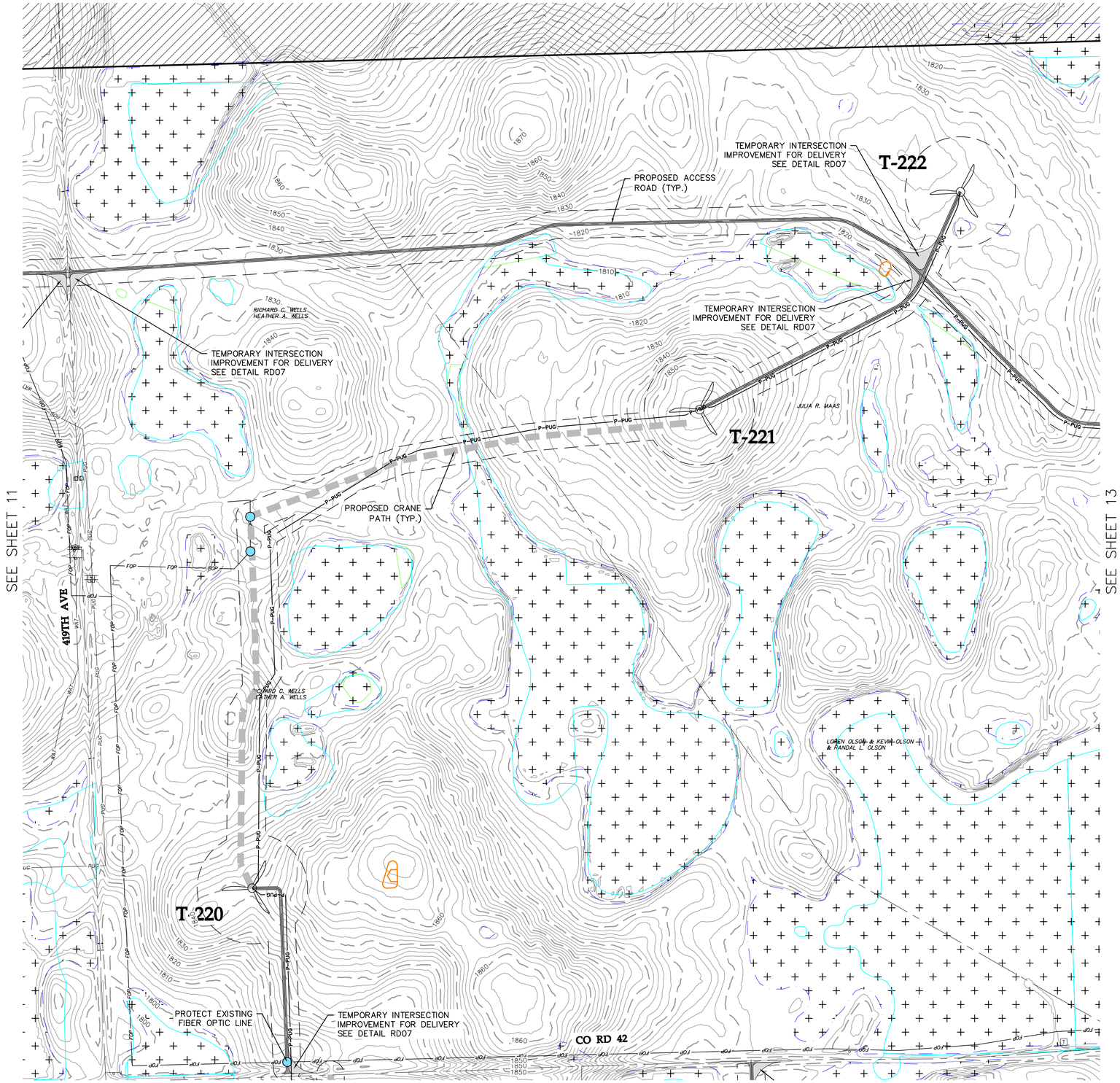
Clark County, South Dakota

Site Plan T-204 T-205
T-215 T-216 T-218

60% COMPLETE
NOT FOR CONSTRUCTION

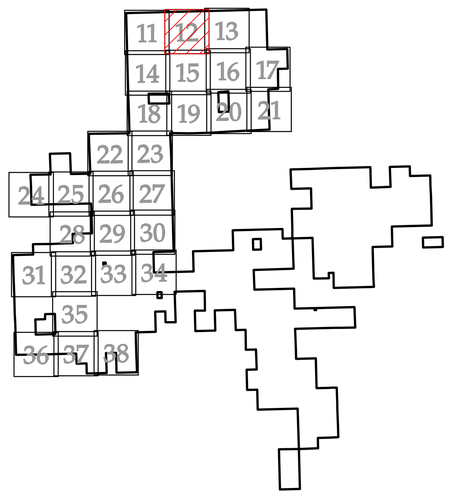
Date: 8/13/18
Sheet: 11 OF 39

0007880SP01.dwg



LEGEND:

- PROPOSED TURBINE LOCATION
- T-XX — PROPOSED TURBINE NUMBER
- PROPOSED ALTERNATE TURBINE LOCATION
- ALT-XX — PROPOSED ALTERNATE TURBINE NUMBER
- PROPOSED ACCESS ROAD
- PROPOSED ALTERNATE ACCESS ROAD
- PROPOSED CRANE PATH
- SURVEY CORRIDOR
- P-PUG — PROPOSED COLLECTION LINE
- 980 — EXISTING 10' CONTOURS
- EXISTING 2' CONTOURS
- EXISTING ROAD
- POH — EXISTING OVERHEAD POWER
- PUG — EXISTING UNDERGROUND POWER
- TUG — EXISTING UNDERGROUND TELEPHONE
- WAT — EXISTING WATER LINE
- FOP — EXISTING FIBER OPTIC LINE
- X — EXISTING FENCE
- EXISTING PARCEL LINES
- EXISTING WATERWAY
- DELINEATED WETLAND
- USFWS PROTECTED BASINS
- SKIPPER HABITAT
- WATERFOWL EASEMENT
- CRM AVOIDANCE BUFFER
- DESKTOP DELINEATED WETLAND
- MICROWAVE BEAM PATH
- PROJECT BOUNDARY
- PROPOSED UTILITY CROSSING
- PROPOSED FENCE CROSSING



KEY MAP

0' 300' 600' 900'

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:

#	DATE	DESCRIPTION
A	8/13/18	60% CIVIL PLANS

Prepared for:

WANZEK a MasTec company

2028 2nd Avenue NW
West Fargo, ND 58078

Crocker Wind Farm

Clark County, South Dakota

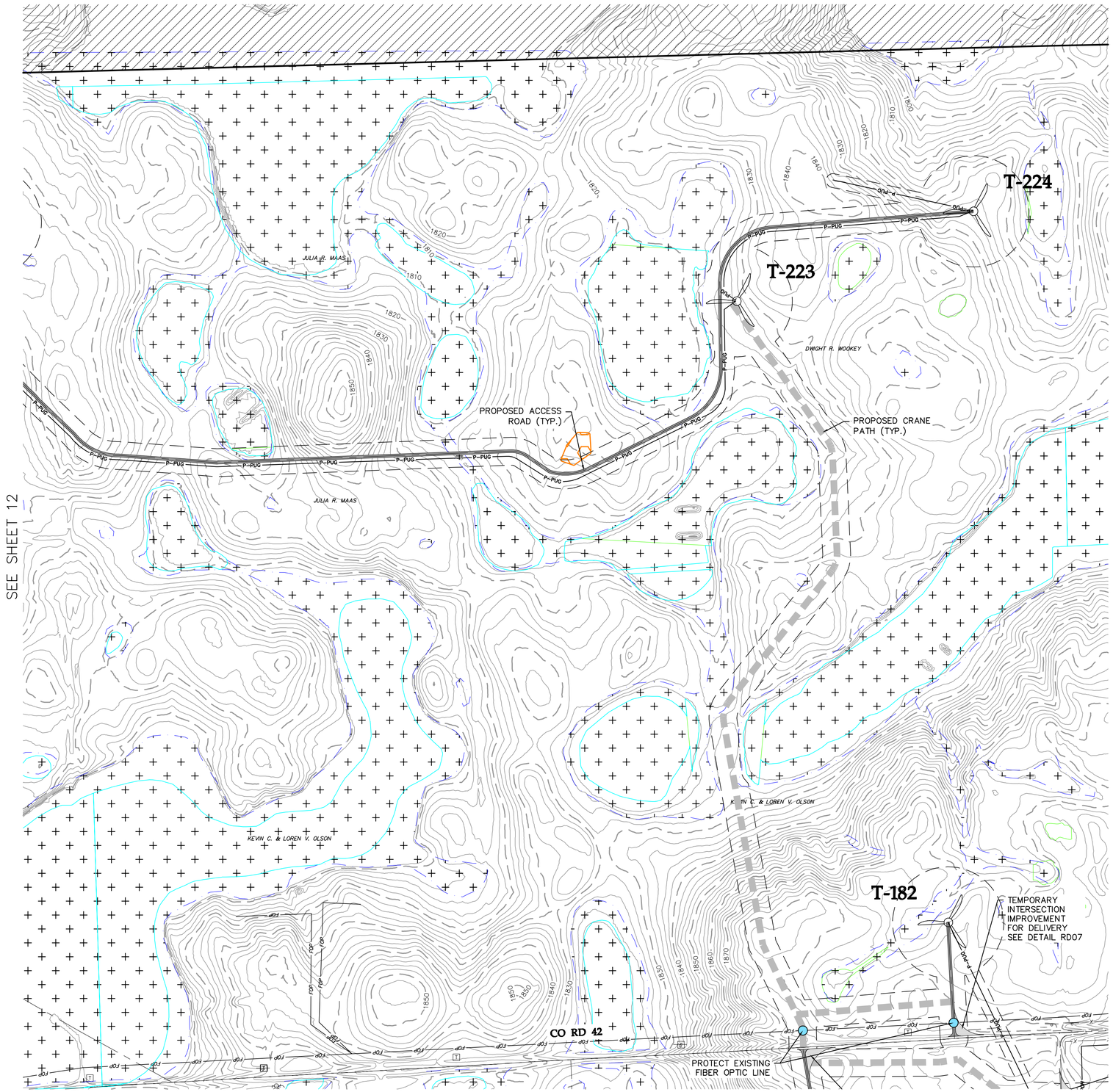
Site Plan T-220 - T-222

60% COMPLETE NOT FOR CONSTRUCTION

Date: 8/13/18

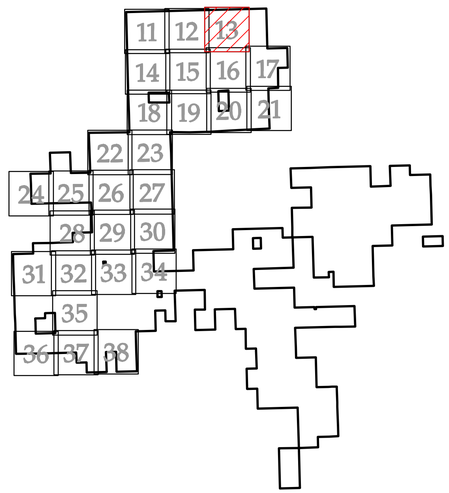
Sheet: 12 OF 39

0007880SP01.dwg

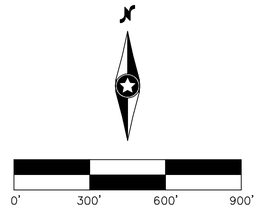


LEGEND:

- PROPOSED TURBINE LOCATION
- T-XX — PROPOSED TURBINE NUMBER
- PROPOSED ALTERNATE TURBINE LOCATION
- ALT-XX — PROPOSED ALTERNATE TURBINE NUMBER
- PROPOSED ACCESS ROAD
- PROPOSED ALTERNATE ACCESS ROAD
- PROPOSED CRANE PATH
- SURVEY CORRIDOR
- P-PUG — PROPOSED COLLECTION LINE
- 980 — EXISTING 10' CONTOURS
- EXISTING 2' CONTOURS
- EXISTING ROAD
- POH — EXISTING OVERHEAD POWER
- PUG — EXISTING UNDERGROUND POWER
- TUG — EXISTING UNDERGROUND TELEPHONE
- WAT — EXISTING WATER LINE
- FOP — EXISTING FIBER OPTIC LINE
- X — EXISTING FENCE
- EXISTING PARCEL LINES
- EXISTING WATERWAY
- DELINEATED WETLAND
- USFWS PROTECTED BASINS
- SKIPPER HABITAT
- WATERFOWL EASEMENT
- CRM AVOIDANCE BUFFER
- DESKTOP DELINEATED WETLAND
- MICROWAVE BEAM PATH
- PROJECT BOUNDARY
- PROPOSED UTILITY CROSSING
- PROPOSED FENCE CROSSING



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:

#	DATE	DESCRIPTION
A	8/13/18	60% CIVIL PLANS

Prepared for:

WANZEK a MasTec company

2028 2nd Avenue NW
West Fargo, ND 58078

Crocker Wind Farm

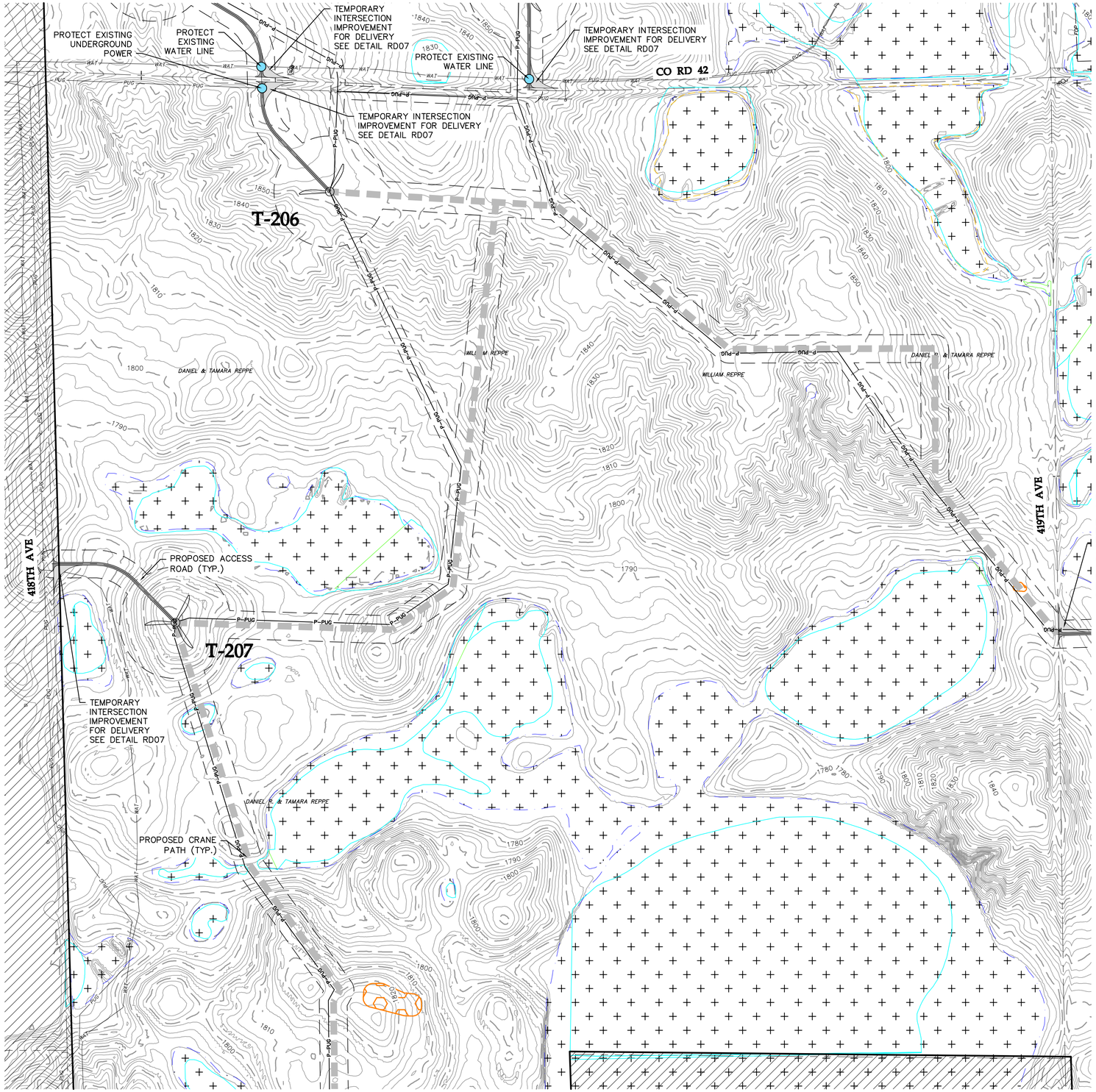
Clark County, South Dakota

Site Plan T-182 T-223 T-224

60% COMPLETE
NOT FOR CONSTRUCTION

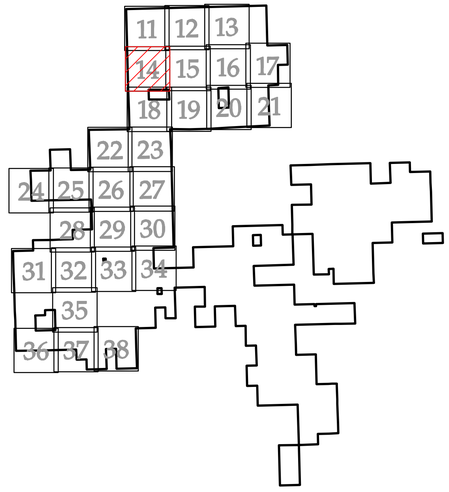
Date: 8/13/18
Sheet: 13 OF 39

0007880SP01.dwg

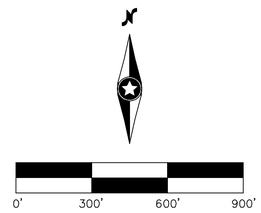


LEGEND:

- PROPOSED TURBINE LOCATION
- T-XX — PROPOSED TURBINE NUMBER
- PROPOSED ALTERNATE TURBINE LOCATION
- ALT-XX — PROPOSED ALTERNATE TURBINE NUMBER
- PROPOSED ACCESS ROAD
- PROPOSED ALTERNATE ACCESS ROAD
- PROPOSED CRANE PATH
- SURVEY CORRIDOR
- P-PUG — PROPOSED COLLECTION LINE
- 980 — EXISTING 10' CONTOURS
- EXISTING 2' CONTOURS
- EXISTING ROAD
- POH — EXISTING OVERHEAD POWER
- PUG — EXISTING UNDERGROUND POWER
- TUG — EXISTING UNDERGROUND TELEPHONE
- WAT — EXISTING WATER LINE
- FOP — EXISTING FIBER OPTIC LINE
- X — X — EXISTING FENCE
- EXISTING PARCEL LINES
- EXISTING WATERWAY
- DELINEATED WETLAND
- USFWS PROTECTED BASINS
- SKIPPER HABITAT
- WATERFOWL EASEMENT
- CRM AVOIDANCE BUFFER
- DESKTOP DELINEATED WETLAND
- MICROWAVE BEAM PATH
- PROJECT BOUNDARY
- PROPOSED UTILITY CROSSING
- PROPOSED FENCE CROSSING



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:

#	DATE	DESCRIPTION
A	8/13/18	60% CIVIL PLANS

Prepared for:

WANZEK a MasTec company

2028 2nd Avenue NW
West Fargo, ND 58078

Crocker Wind Farm

Clark County, South Dakota

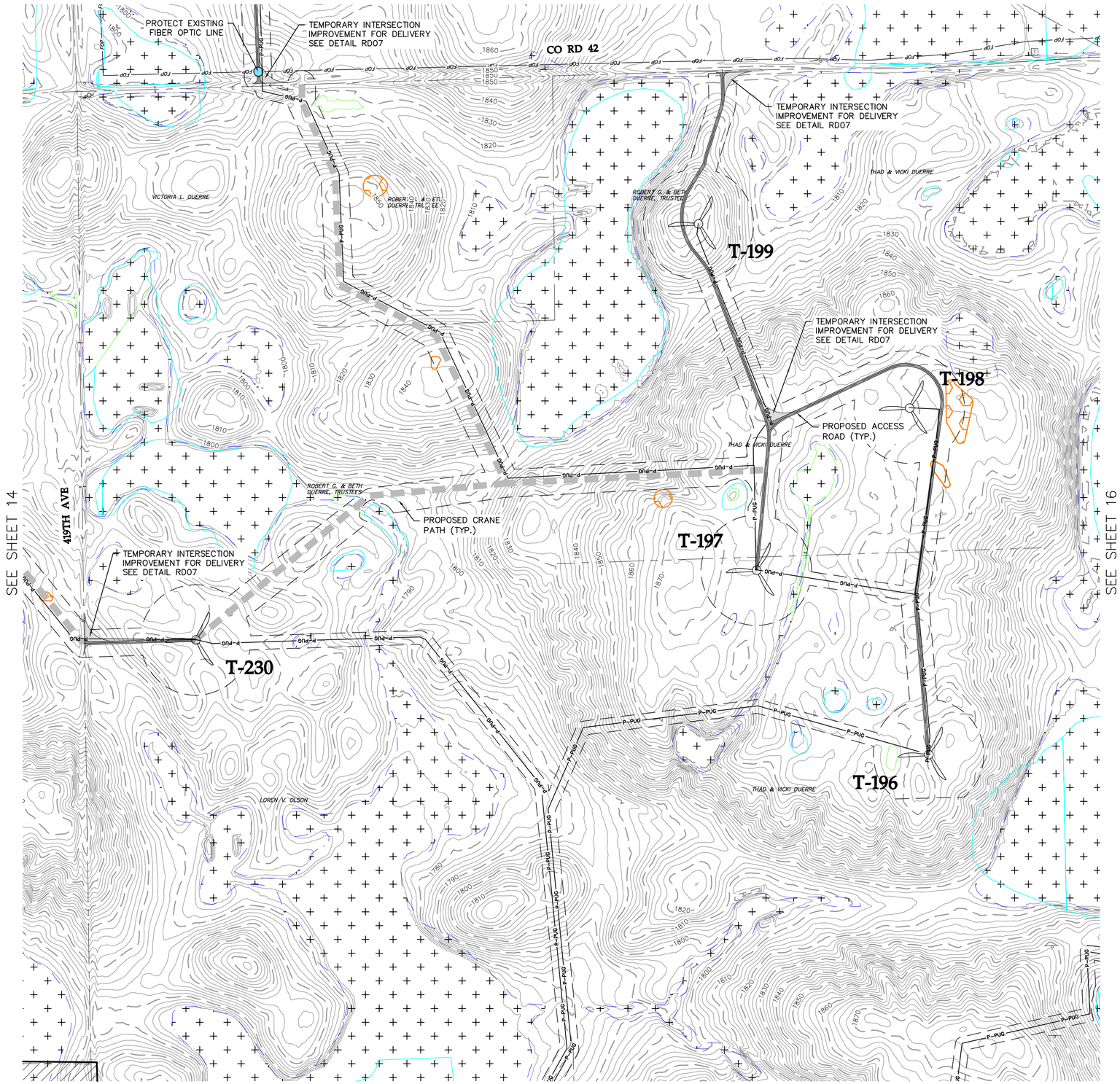
Site Plan T-206 T-207

60% COMPLETE
NOT FOR CONSTRUCTION

Date: 8/13/18
Sheet: 14 OF 39

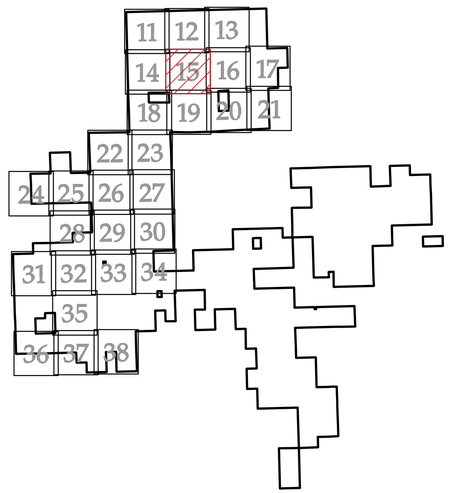
0007880SP01.dwg

SEE SHEET 12

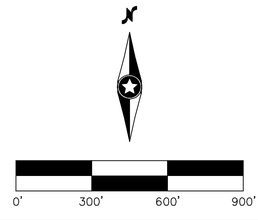


LEGEND:

- PROPOSED TURBINE LOCATION
- T-XX — PROPOSED TURBINE NUMBER
- PROPOSED ALTERNATE TURBINE LOCATION
- ALT-XX — PROPOSED ALTERNATE TURBINE NUMBER
- PROPOSED ACCESS ROAD
- PROPOSED ALTERNATE ACCESS ROAD
- PROPOSED CRANE PATH
- SURVEY CORRIDOR
- P-PUG — PROPOSED COLLECTION LINE
- 980 — EXISTING 10' CONTOURS
- EXISTING 2' CONTOURS
- EXISTING ROAD
- POH — EXISTING OVERHEAD POWER
- PUG — EXISTING UNDERGROUND POWER
- TUG — EXISTING UNDERGROUND TELEPHONE
- WAT — EXISTING WATER LINE
- FOP — EXISTING FIBER OPTIC LINE
- X — EXISTING FENCE
- EXISTING PARCEL LINES
- EXISTING WATERWAY
- DELINEATED WETLAND
- USFWS PROTECTED BASINS
- SKIPPER HABITAT
- WATERFOWL EASEMENT
- CRM AVOIDANCE BUFFER
- DESKTOP DELINEATED WETLAND
- MICROWAVE BEAM PATH
- PROJECT BOUNDARY
- PROPOSED UTILITY CROSSING
- PROPOSED FENCE CROSSING



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:

#	DATE	DESCRIPTION
A	8/13/18	60% CIVIL PLANS

Prepared for:

WANZEK a MasTec company

2028 2nd Avenue NW
West Fargo, ND 58078

Crocker Wind Farm

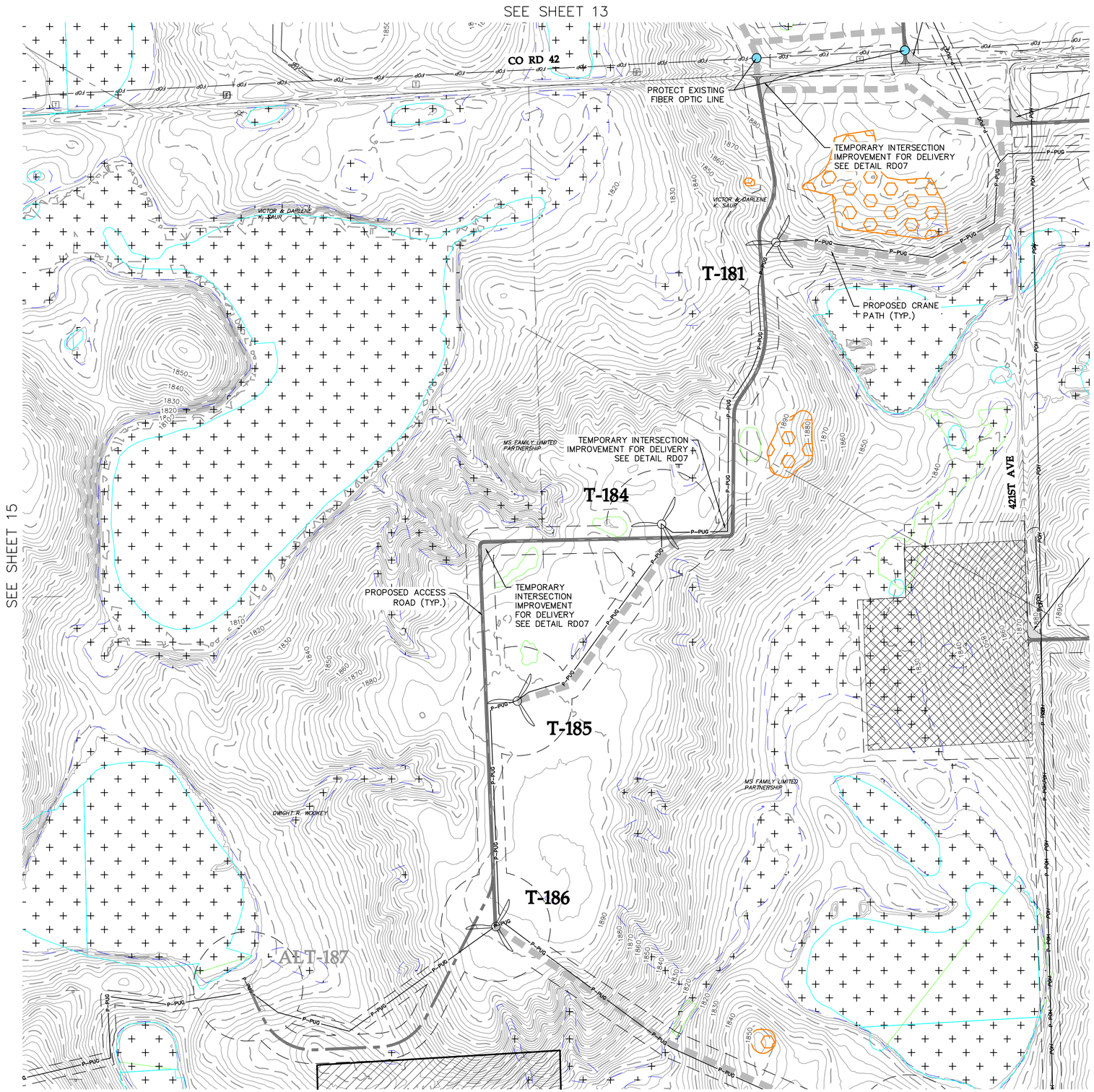
Clark County, South Dakota

Site Plan T-196 - T-199
T-230

60% COMPLETE
NOT FOR CONSTRUCTION

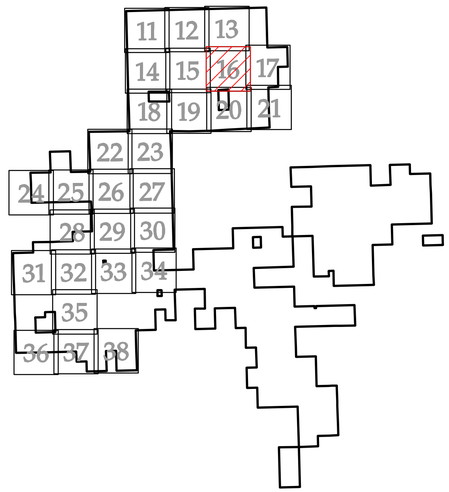
Date: 8/13/18
Sheet: 15 OF 39

0007880SP01.dwg



LEGEND:

- PROPOSED TURBINE LOCATION
- T-XX — PROPOSED TURBINE NUMBER
- PROPOSED ALTERNATE TURBINE LOCATION
- ALT-XX — PROPOSED ALTERNATE TURBINE NUMBER
- PROPOSED ACCESS ROAD
- PROPOSED ALTERNATE ACCESS ROAD
- PROPOSED CRANE PATH
- SURVEY CORRIDOR
- P-PUG — PROPOSED COLLECTION LINE
- 980 — EXISTING 10' CONTOURS
- EXISTING 2' CONTOURS
- EXISTING ROAD
- POH — EXISTING OVERHEAD POWER
- PUG — EXISTING UNDERGROUND POWER
- TUG — EXISTING UNDERGROUND TELEPHONE
- WAT — EXISTING WATER LINE
- FOP — EXISTING FIBER OPTIC LINE
- X — EXISTING FENCE
- EXISTING PARCEL LINES
- EXISTING WATERWAY
- DELINEATED WETLAND
- USFWS PROTECTED BASINS
- SKIPPER HABITAT
- WATERFOWL EASEMENT
- CRM AVOIDANCE BUFFER
- DESKTOP DELINEATED WETLAND
- MICROWAVE BEAM PATH
- PROJECT BOUNDARY
- PROPOSED UTILITY CROSSING
- PROPOSED FENCE CROSSING



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:

#	DATE	DESCRIPTION
A	8/13/18	60% CIVIL PLANS

Prepared for:

WANZEK a MasTec company

2028 2nd Avenue NW
West Fargo, ND 58078

0' 300' 600' 900'

Crocker Wind Farm

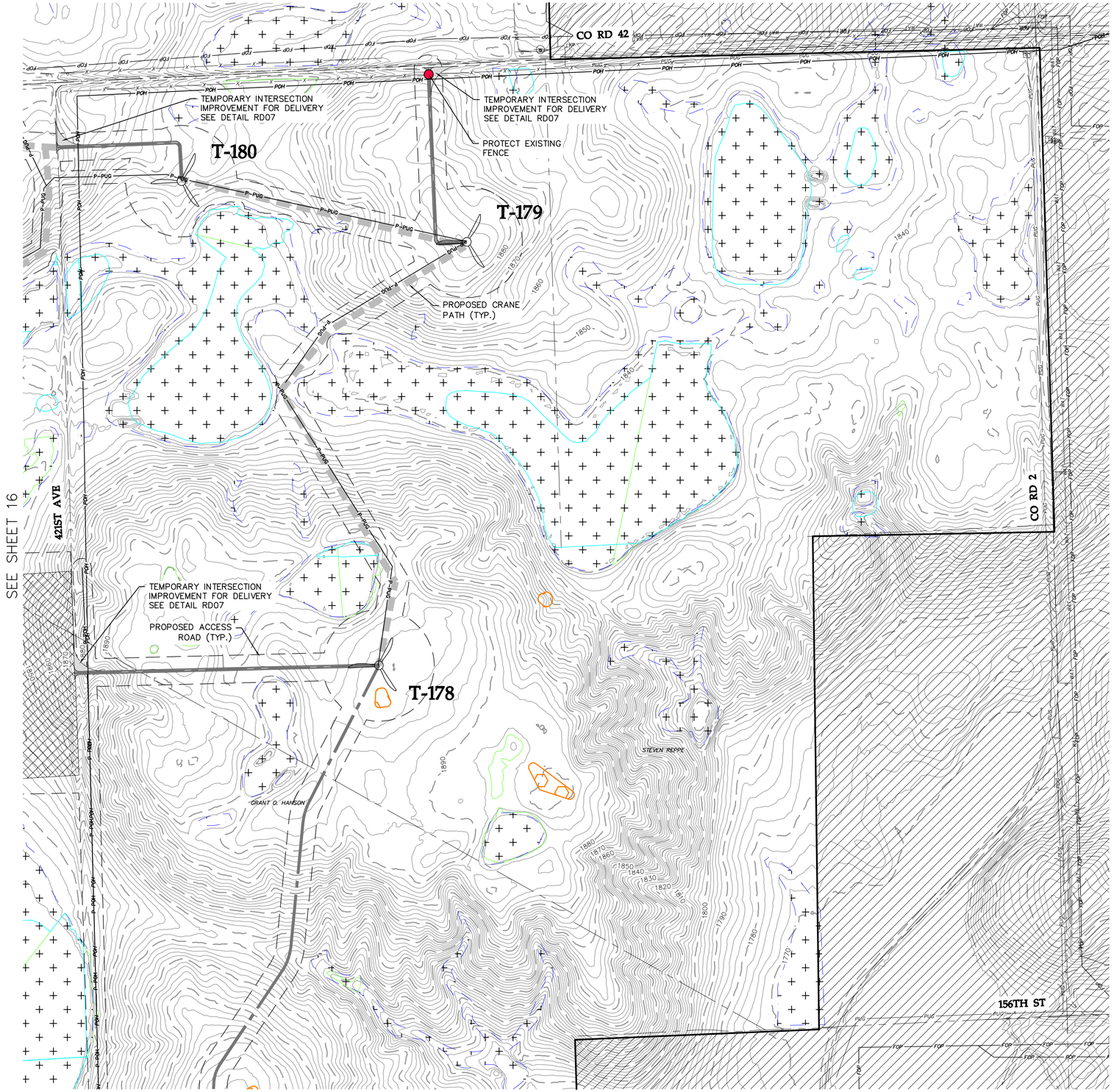
Clark County, South Dakota

Site Plan T-181 T-184 - T-186 ALT-187

60% COMPLETE
NOT FOR CONSTRUCTION

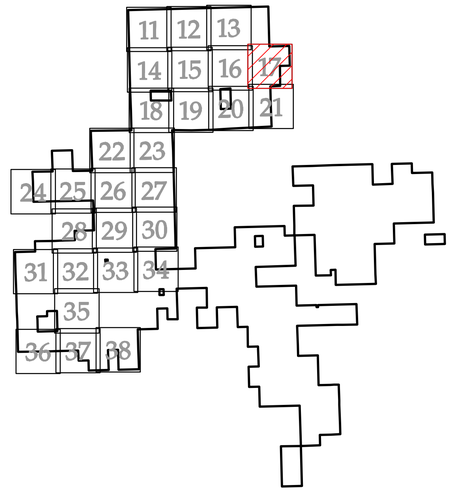
Date: 8/13/18
Sheet: 16 OF 39

0007880SP01.dwg



LEGEND:

- PROPOSED TURBINE LOCATION
- T-XX — PROPOSED TURBINE NUMBER
- PROPOSED ALTERNATE TURBINE LOCATION
- ALT-XX — PROPOSED ALTERNATE TURBINE NUMBER
- PROPOSED ACCESS ROAD
- PROPOSED ALTERNATE ACCESS ROAD
- PROPOSED CRANE PATH
- SURVEY CORRIDOR
- P-PUG — PROPOSED COLLECTION LINE
- 980 — EXISTING 10' CONTOURS
- EXISTING 2' CONTOURS
- EXISTING ROAD
- POH — EXISTING OVERHEAD POWER
- PUG — EXISTING UNDERGROUND POWER
- TUG — EXISTING UNDERGROUND TELEPHONE
- WAT — EXISTING WATER LINE
- FOP — EXISTING FIBER OPTIC LINE
- X — X — EXISTING FENCE
- EXISTING PARCEL LINES
- EXISTING WATERWAY
- DELINEATED WETLAND
- USFWS PROTECTED BASINS
- SKIPPER HABITAT
- WATERFOWL EASEMENT
- CRM AVOIDANCE BUFFER
- DESKTOP DELINEATED WETLAND
- MICROWAVE BEAM PATH
- PROJECT BOUNDARY
- PROPOSED UTILITY CROSSING
- PROPOSED FENCE CROSSING



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:

#	DATE	DESCRIPTION
A	8/13/18	60% CIVIL PLANS

Prepared for:

WANZEK a MasTec company

2028 2nd Avenue NW
West Fargo, ND 58078

0' 300' 600' 900'

Crocker Wind Farm

Clark County, South Dakota

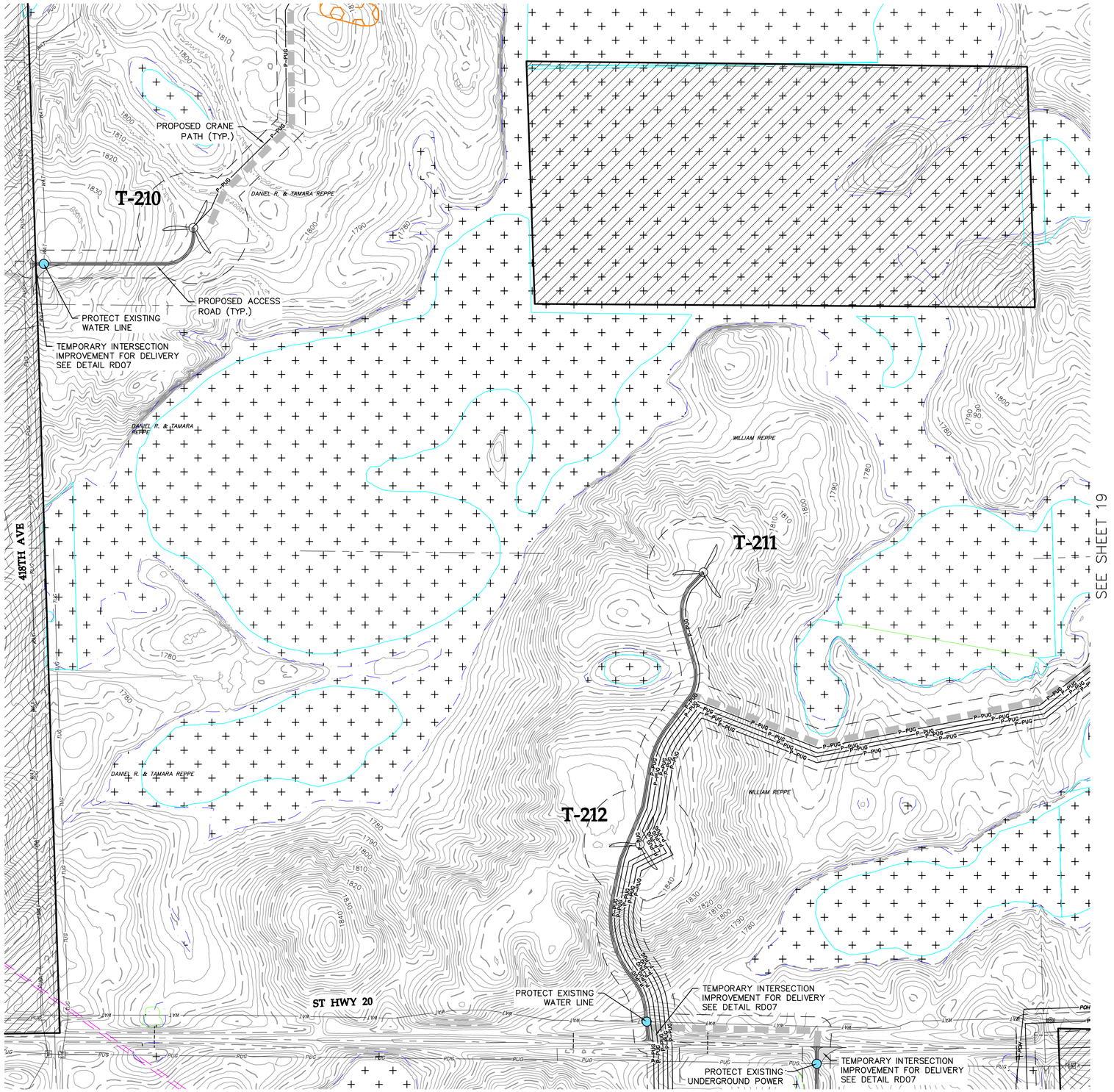
Site Plan T-178 - T180

60% COMPLETE
NOT FOR CONSTRUCTION

Date: 8/13/18
Sheet: 17 OF 39

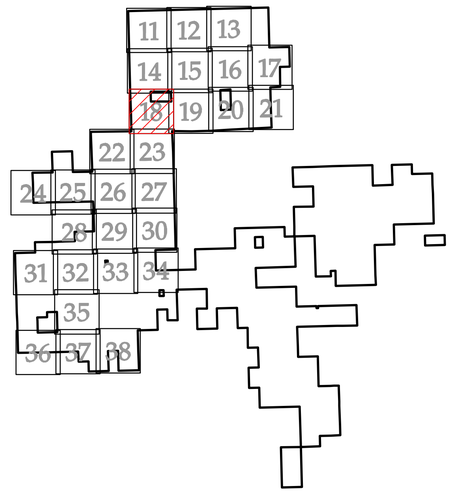
0007880SP01.dwg

SEE SHEET 14



LEGEND:

- PROPOSED TURBINE LOCATION
- T-XX — PROPOSED TURBINE NUMBER
- PROPOSED ALTERNATE TURBINE LOCATION
- ALT-XX — PROPOSED ALTERNATE TURBINE NUMBER
- PROPOSED ACCESS ROAD
- PROPOSED ALTERNATE ACCESS ROAD
- PROPOSED CRANE PATH
- SURVEY CORRIDOR
- P-PUG — PROPOSED COLLECTION LINE
- 980 — EXISTING 10' CONTOURS
- EXISTING 2' CONTOURS
- EXISTING ROAD
- POH — EXISTING OVERHEAD POWER
- PUG — EXISTING UNDERGROUND POWER
- TUG — EXISTING UNDERGROUND TELEPHONE
- WAT — EXISTING WATER LINE
- FOP — EXISTING FIBER OPTIC LINE
- X — X — EXISTING FENCE
- EXISTING PARCEL LINES
- EXISTING WATERWAY
- DELINEATED WETLAND
- USFWS PROTECTED BASINS
- SKIPPER HABITAT
- WATERFOWL EASEMENT
- CRM AVOIDANCE BUFFER
- DESKTOP DELINEATED WETLAND
- MICROWAVE BEAM PATH
- PROJECT BOUNDARY
- PROPOSED UTILITY CROSSING
- PROPOSED FENCE CROSSING



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:

#	DATE	DESCRIPTION
A	8/13/18	60% CIVIL PLANS

Prepared for:

WANZEK a MasTec company

2028 2nd Avenue NW
West Fargo, ND 58078

0' 300' 600' 900'

Crocker Wind Farm

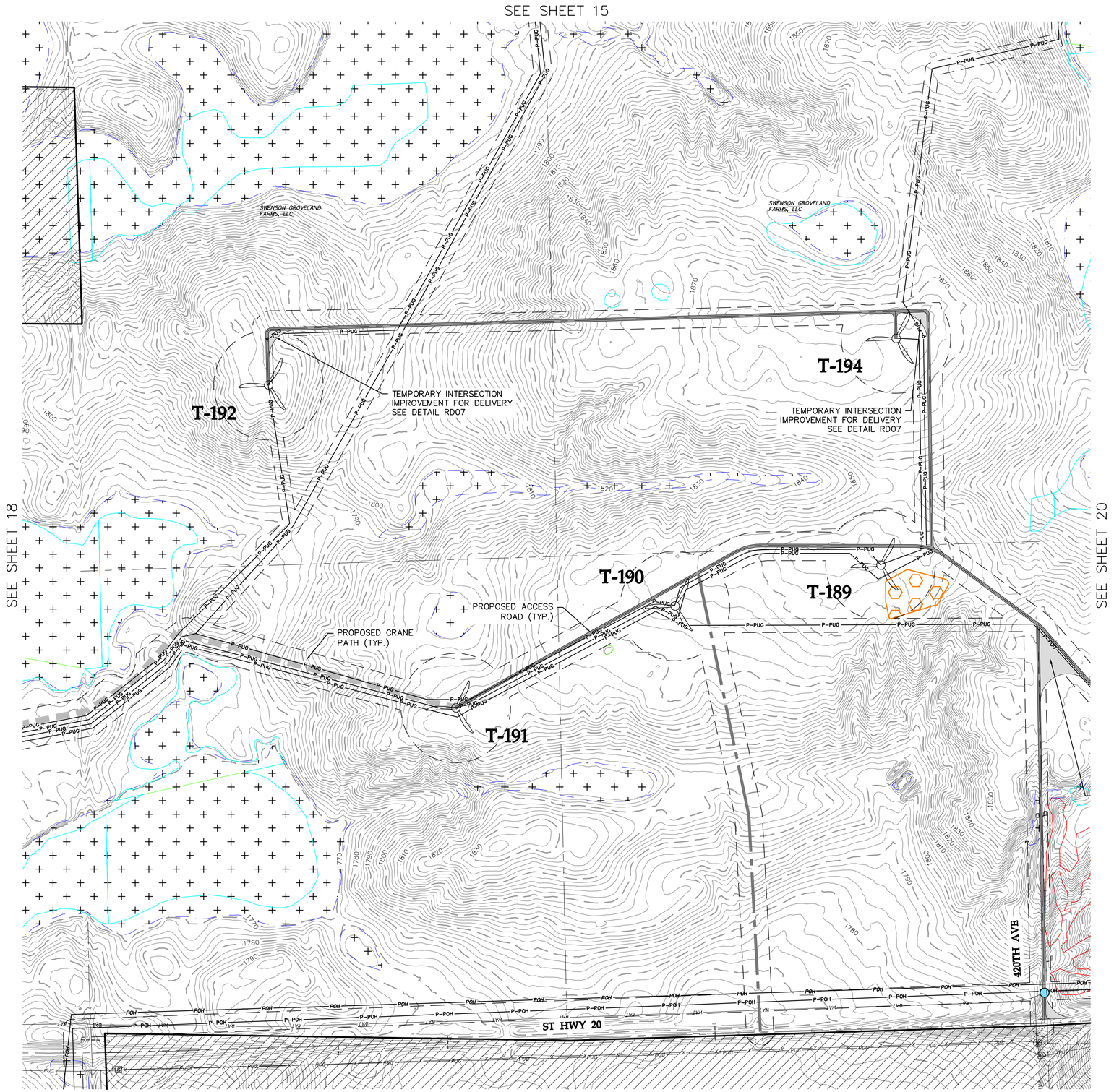
Clark County, South Dakota

Site Plan T-210 - T-212

60% COMPLETE
NOT FOR CONSTRUCTION

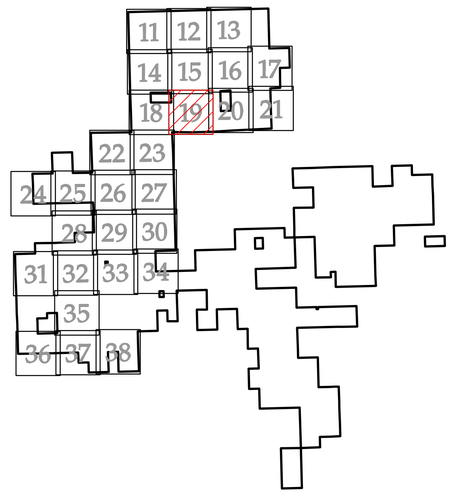
Date: 8/13/18
Sheet: 18 OF 39

0007880SP01.dwg



LEGEND:

- PROPOSED TURBINE LOCATION
- T-XX — PROPOSED TURBINE NUMBER
- PROPOSED ALTERNATE TURBINE LOCATION
- ALT-XX — PROPOSED ALTERNATE TURBINE NUMBER
- PROPOSED ACCESS ROAD
- PROPOSED ALTERNATE ACCESS ROAD
- PROPOSED CRANE PATH
- SURVEY CORRIDOR
- P-PUG — PROPOSED COLLECTION LINE
- 980 — EXISTING 10' CONTOURS
- EXISTING 2' CONTOURS
- EXISTING ROAD
- POH — EXISTING OVERHEAD POWER
- PUG — EXISTING UNDERGROUND POWER
- TUG — EXISTING UNDERGROUND TELEPHONE
- WAT — EXISTING WATER LINE
- FOP — EXISTING FIBER OPTIC LINE
- X — EXISTING FENCE
- EXISTING PARCEL LINES
- EXISTING WATERWAY
- DELINEATED WETLAND
- USFWS PROTECTED BASINS
- SKIPPER HABITAT
- WATERFOWL EASEMENT
- CRM AVOIDANCE BUFFER
- DESKTOP DELINEATED WETLAND
- MICROWAVE BEAM PATH
- PROJECT BOUNDARY
- PROPOSED UTILITY CROSSING
- PROPOSED FENCE CROSSING



KEY MAP

0' 300' 600' 900'

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:

#	DATE	DESCRIPTION
A	8/13/18	60% CIVIL PLANS

Prepared for:

WANZEK a MasTec company

2028 2nd Avenue NW
West Fargo, ND 58078

Crocker Wind Farm

Clark County, South Dakota

Site Plan T-189 - T-192 T-194

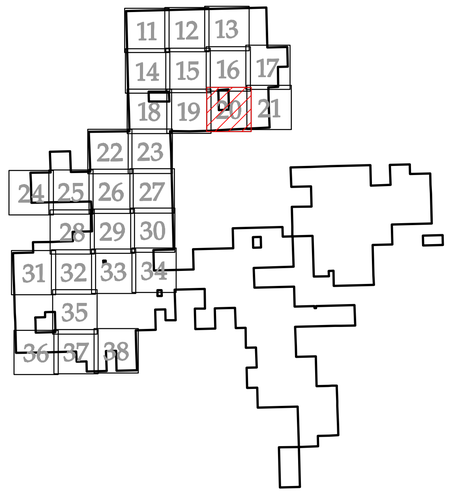
60% COMPLETE
NOT FOR CONSTRUCTION

Date: 8/13/18
Sheet: 19 OF 39

0007880SP01.dwg

LEGEND:

- PROPOSED TURBINE LOCATION
- T-XX — PROPOSED TURBINE NUMBER
- PROPOSED ALTERNATE TURBINE LOCATION
- ALT-XX — PROPOSED ALTERNATE TURBINE NUMBER
- PROPOSED ACCESS ROAD
- PROPOSED ALTERNATE ACCESS ROAD
- PROPOSED CRANE PATH
- SURVEY CORRIDOR
- P-PUG — PROPOSED COLLECTION LINE
- 980 — EXISTING 10' CONTOURS
- EXISTING 2' CONTOURS
- EXISTING ROAD
- POH — EXISTING OVERHEAD POWER
- PUG — EXISTING UNDERGROUND POWER
- TUG — EXISTING UNDERGROUND TELEPHONE
- WAT — EXISTING WATER LINE
- FOP — EXISTING FIBER OPTIC LINE
- X — EXISTING FENCE
- EXISTING PARCEL LINES
- EXISTING WATERWAY
- DELINEATED WETLAND
- USFWS PROTECTED BASINS
- SKIPPER HABITAT
- WATERFOWL EASEMENT
- CRM AVOIDANCE BUFFER
- DESKTOP DELINEATED WETLAND
- MICROWAVE BEAM PATH
- PROJECT BOUNDARY
- PROPOSED UTILITY CROSSING
- PROPOSED FENCE CROSSING



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:

#	DATE	DESCRIPTION
A	8/13/18	60% CIVIL PLANS

Prepared for:

WANZEK a MasTec company

2028 2nd Avenue NW
West Fargo, ND 58078

0' 300' 600' 900'

Crocker Wind Farm

Clark County, South Dakota

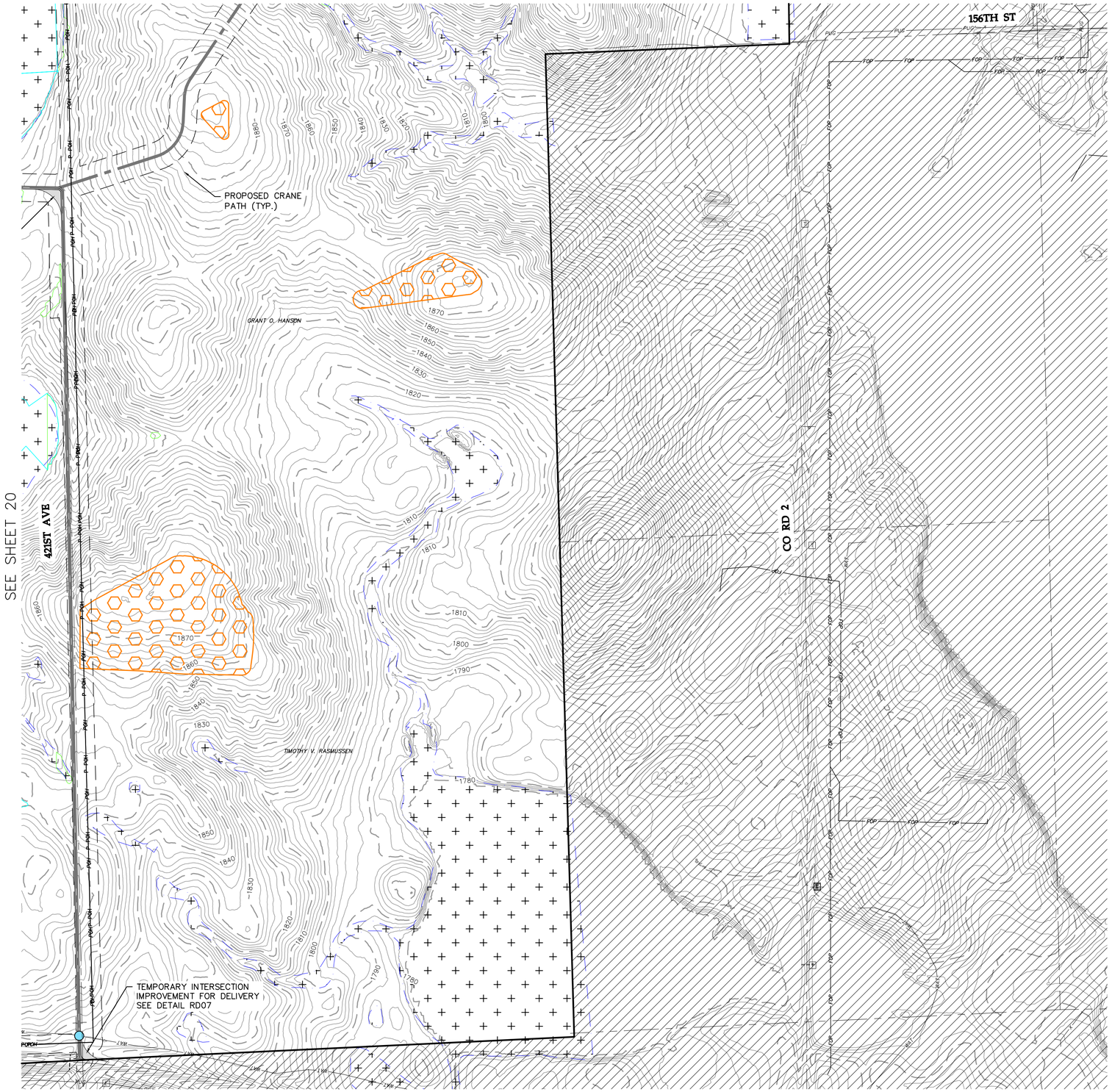
Site Plan T-166 T-177

60% COMPLETE
NOT FOR CONSTRUCTION

Date: 8/13/18
Sheet: 20 OF 39

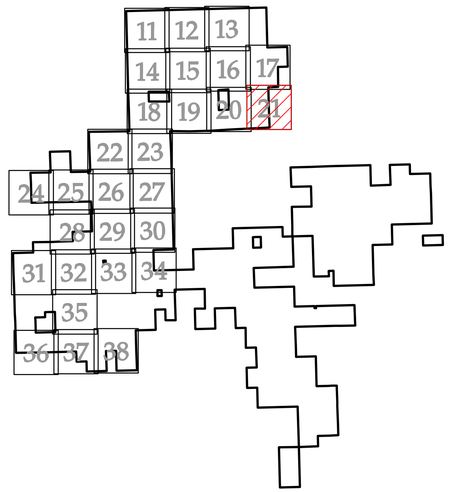
0007880SP01.dwg

SEE SHEET 17

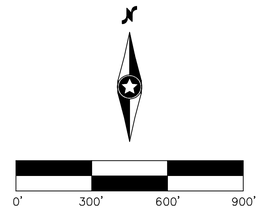


LEGEND:

- PROPOSED TURBINE LOCATION
- T-XX — PROPOSED TURBINE NUMBER
- PROPOSED ALTERNATE TURBINE LOCATION
- ALT-XX — PROPOSED ALTERNATE TURBINE NUMBER
- PROPOSED ACCESS ROAD
- PROPOSED ALTERNATE ACCESS ROAD
- PROPOSED CRANE PATH
- SURVEY CORRIDOR
- P-PUG — PROPOSED COLLECTION LINE
- 980 — EXISTING 10' CONTOURS
- EXISTING 2' CONTOURS
- EXISTING ROAD
- POH — EXISTING OVERHEAD POWER
- PUG — EXISTING UNDERGROUND POWER
- TUG — EXISTING UNDERGROUND TELEPHONE
- WAT — EXISTING WATER LINE
- FOP — EXISTING FIBER OPTIC LINE
- X — X — EXISTING FENCE
- EXISTING PARCEL LINES
- EXISTING WATERWAY
- DELINEATED WETLAND
- USFWS PROTECTED BASINS
- SKIPPER HABITAT
- WATERFOWL EASEMENT
- CRM AVOIDANCE BUFFER
- DESKTOP DELINEATED WETLAND
- MICROWAVE BEAM PATH
- PROJECT BOUNDARY
- PROPOSED UTILITY CROSSING
- PROPOSED FENCE CROSSING



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:

#	DATE	DESCRIPTION
A	8/13/18	60% CIVIL PLANS

Prepared for:

WANZEK a MasTec company

2028 2nd Avenue NW
West Fargo, ND 58078

Crocker Wind Farm

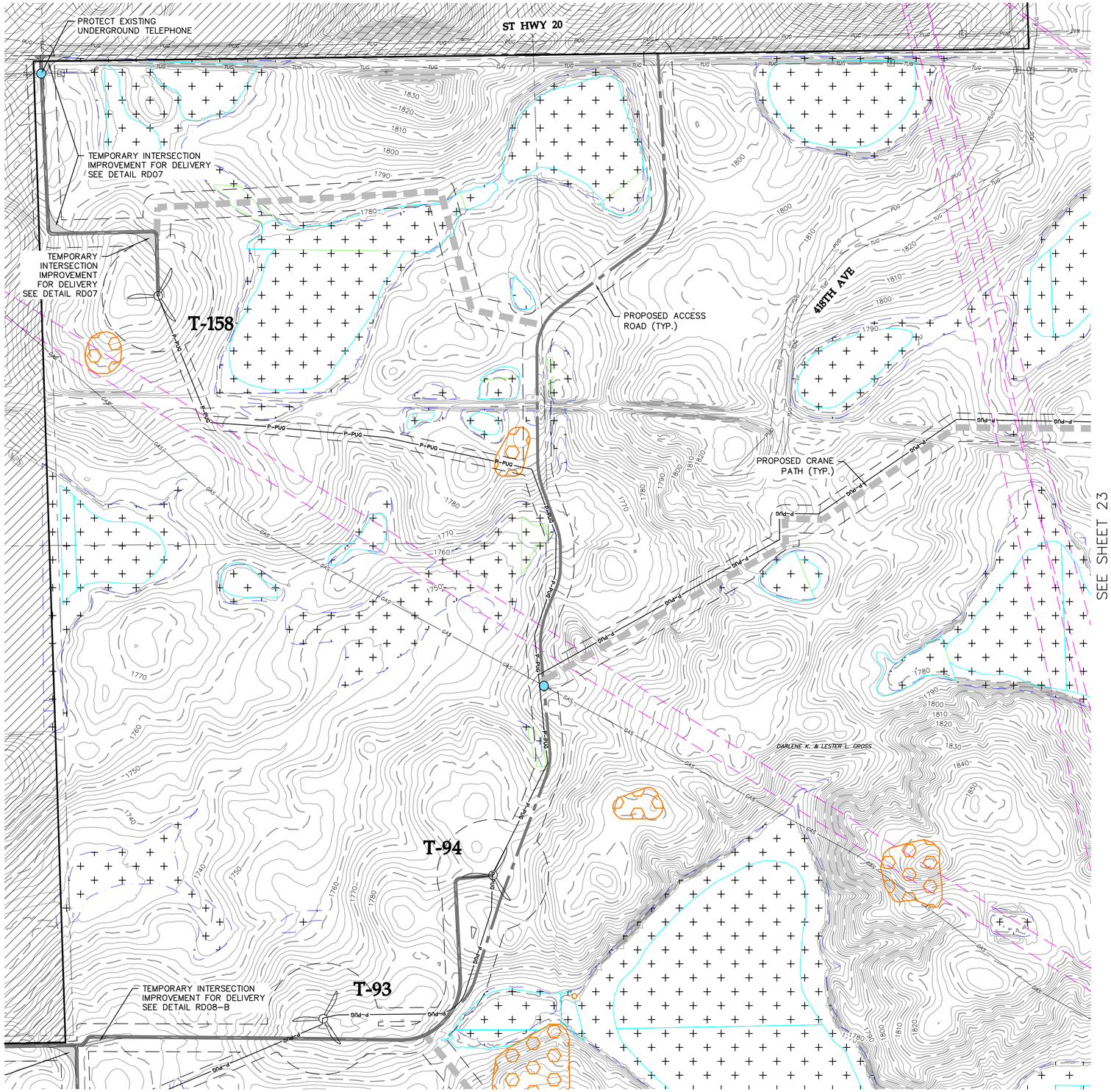
Clark County, South Dakota

Site Plan

60% COMPLETE
NOT FOR CONSTRUCTION

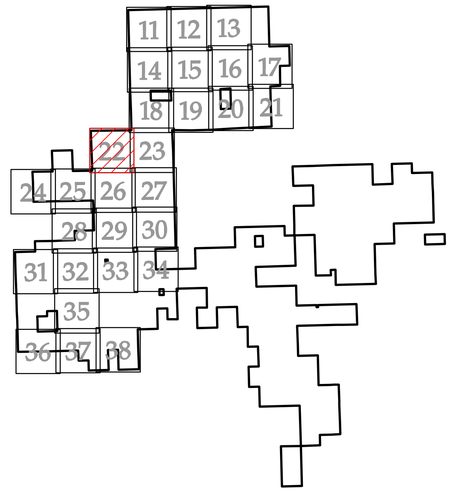
Date: 8/13/18
Sheet: 21 OF 39

0007880SP01.dwg



LEGEND:

- PROPOSED TURBINE LOCATION
- T-XX — PROPOSED TURBINE NUMBER
- PROPOSED ALTERNATE TURBINE LOCATION
- ALT-XX — PROPOSED ALTERNATE TURBINE NUMBER
- PROPOSED ACCESS ROAD
- PROPOSED ALTERNATE ACCESS ROAD
- PROPOSED CRANE PATH
- SURVEY CORRIDOR
- P-PUG — PROPOSED COLLECTION LINE
- 980 — EXISTING 10' CONTOURS
- EXISTING 2' CONTOURS
- EXISTING ROAD
- POH — EXISTING OVERHEAD POWER
- PUG — EXISTING UNDERGROUND POWER
- TUG — EXISTING UNDERGROUND TELEPHONE
- WAT — EXISTING WATER LINE
- FOP — EXISTING FIBER OPTIC LINE
- X — X — EXISTING FENCE
- EXISTING PARCEL LINES
- EXISTING WATERWAY
- DELINEATED WETLAND
- USFWS PROTECTED BASINS
- SKIPPER HABITAT
- WATERFOWL EASEMENT
- CRM AVOIDANCE BUFFER
- DESKTOP DELINEATED WETLAND
- MICROWAVE BEAM PATH
- PROJECT BOUNDARY
- PROPOSED UTILITY CROSSING
- PROPOSED FENCE CROSSING



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:

#	DATE	DESCRIPTION
A	8/13/18	60% CIVIL PLANS

Prepared for:

WANZEK
a MasTec company

2028 2nd Avenue NW
West Fargo, ND 58078

0' 300' 600' 900'

Crocker Wind Farm

Clark County, South Dakota

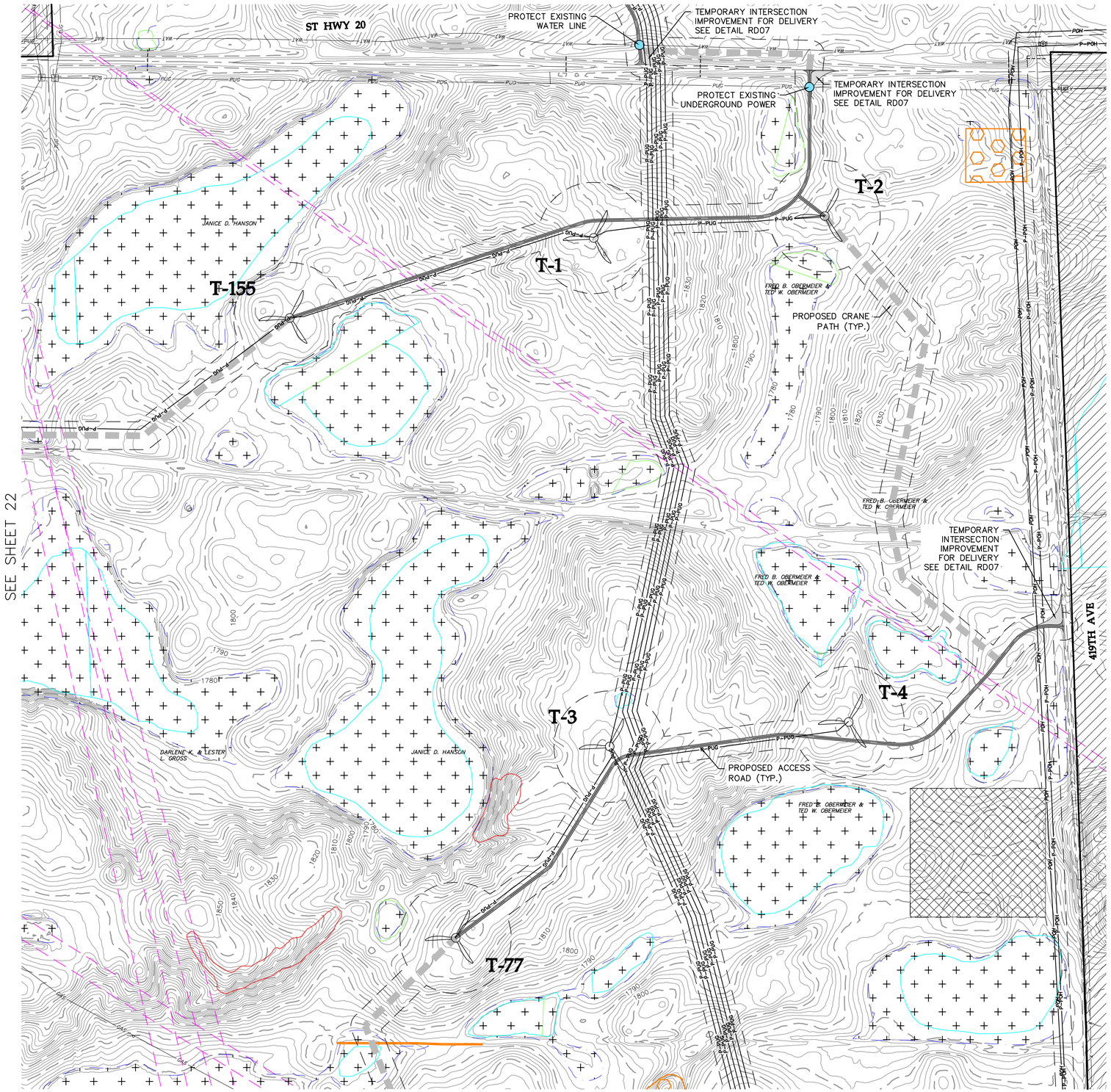
Site Plan T-93 T-94 T-158

60% COMPLETE
NOT FOR CONSTRUCTION

Date: 8/13/18
Sheet: 22 OF 39

0007880SP01.dwg

SEE SHEET 18

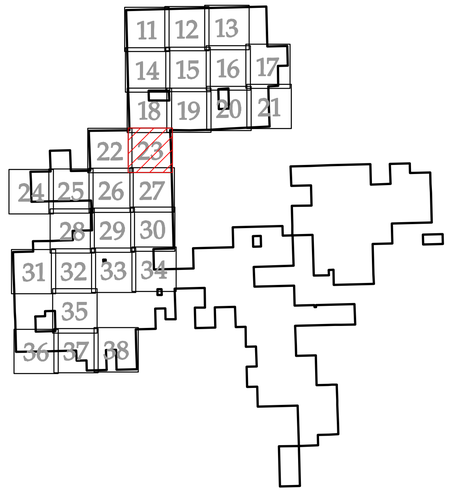


SEE SHEET 22

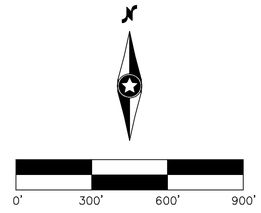
SEE SHEET 27

LEGEND:

- PROPOSED TURBINE LOCATION
- T-XX — PROPOSED TURBINE NUMBER
- PROPOSED ALTERNATE TURBINE LOCATION
- ALT-XX — PROPOSED ALTERNATE TURBINE NUMBER
- PROPOSED ACCESS ROAD
- PROPOSED ALTERNATE ACCESS ROAD
- PROPOSED CRANE PATH
- SURVEY CORRIDOR
- P-PUG — PROPOSED COLLECTION LINE
- 980 — EXISTING 10' CONTOURS
- EXISTING 2' CONTOURS
- EXISTING ROAD
- POH — EXISTING OVERHEAD POWER
- PUG — EXISTING UNDERGROUND POWER
- TUG — EXISTING UNDERGROUND TELEPHONE
- WAT — EXISTING WATER LINE
- FOP — EXISTING FIBER OPTIC LINE
- X — X — EXISTING FENCE
- EXISTING PARCEL LINES
- EXISTING WATERWAY
- DELINEATED WETLAND
- USFWS PROTECTED BASINS
- SKIPPER HABITAT
- WATERFOWL EASEMENT
- CRM AVOIDANCE BUFFER
- DESKTOP DELINEATED WETLAND
- MICROWAVE BEAM PATH
- PROJECT BOUNDARY
- PROPOSED UTILITY CROSSING
- PROPOSED FENCE CROSSING



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:

#	DATE	DESCRIPTION
A	8/13/18	60% CIVIL PLANS

Prepared for:

WANZEK a MasTec company

2028 2nd Avenue NW
West Fargo, ND 58078

Crocker Wind Farm

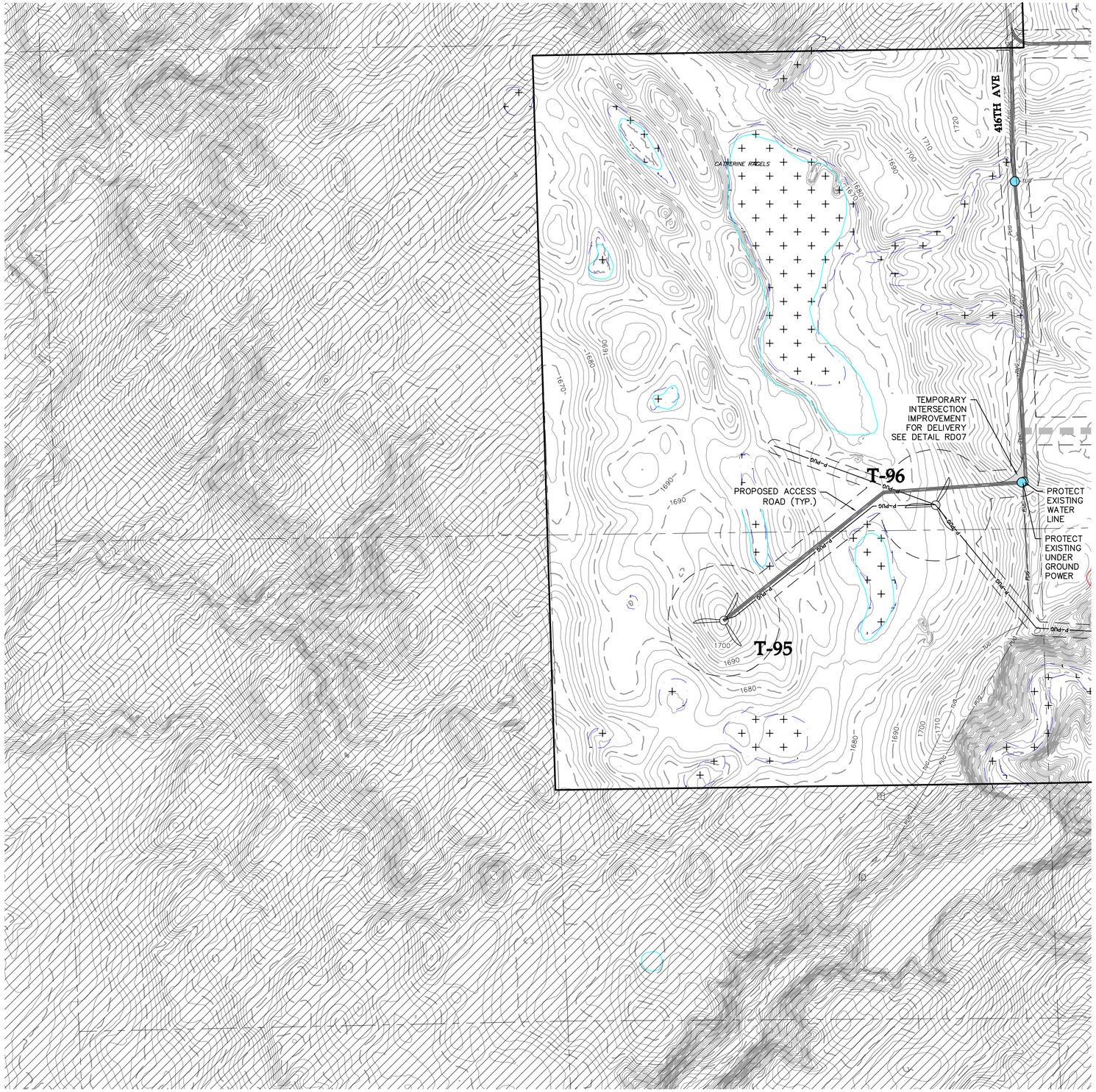
Clark County, South Dakota

Site Plan T-1 - T-4
T-77 T-155

60% COMPLETE
NOT FOR CONSTRUCTION

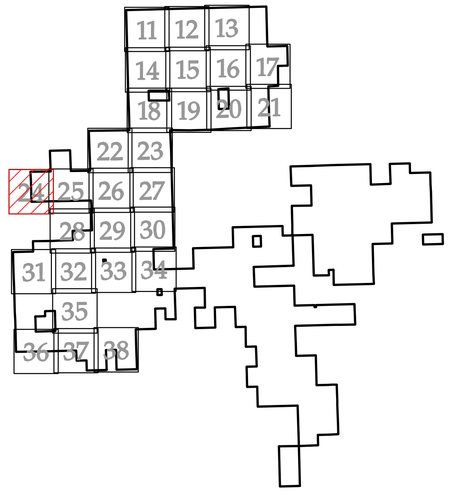
Date: 8/13/18
Sheet: 23 OF 39

0007880SP01.dwg

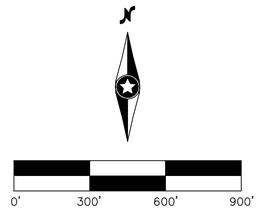


LEGEND:

- PROPOSED TURBINE LOCATION
- T-XX — PROPOSED TURBINE NUMBER
- PROPOSED ALTERNATE TURBINE LOCATION
- ALT-XX — PROPOSED ALTERNATE TURBINE NUMBER
- PROPOSED ACCESS ROAD
- PROPOSED ALTERNATE ACCESS ROAD
- PROPOSED CRANE PATH
- SURVEY CORRIDOR
- P-PUG — PROPOSED COLLECTION LINE
- 980 — EXISTING 10' CONTOURS
- EXISTING 2' CONTOURS
- EXISTING ROAD
- POH — EXISTING OVERHEAD POWER
- PUG — EXISTING UNDERGROUND POWER
- TUG — EXISTING UNDERGROUND TELEPHONE
- WAT — EXISTING WATER LINE
- FOP — EXISTING FIBER OPTIC LINE
- X — X — EXISTING FENCE
- EXISTING PARCEL LINES
- EXISTING WATERWAY
- DELINEATED WETLAND
- USFWS PROTECTED BASINS
- SKIPPER HABITAT
- WATERFOWL EASEMENT
- CRM AVOIDANCE BUFFER
- DESKTOP DELINEATED WETLAND
- MICROWAVE BEAM PATH
- PROJECT BOUNDARY
- PROPOSED UTILITY CROSSING
- PROPOSED FENCE CROSSING



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:

#	DATE	DESCRIPTION
A	8/13/18	60% CIVIL PLANS

Prepared for:

WANZEK a MasTec company

2028 2nd Avenue NW
West Fargo, ND 58078

Crocker Wind Farm

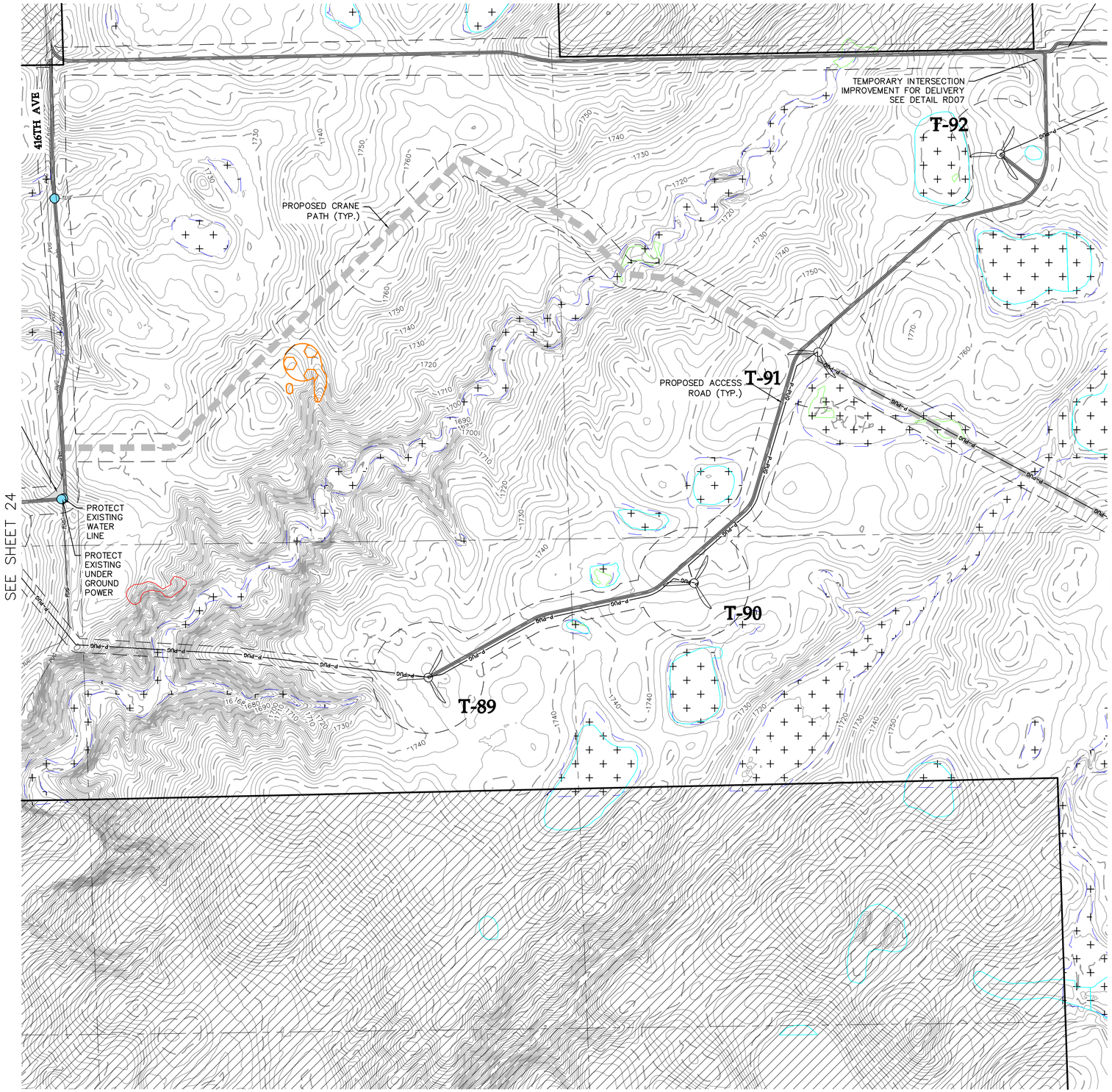
Clark County, South Dakota

Site Plan T-95 T-96

60% COMPLETE
NOT FOR CONSTRUCTION

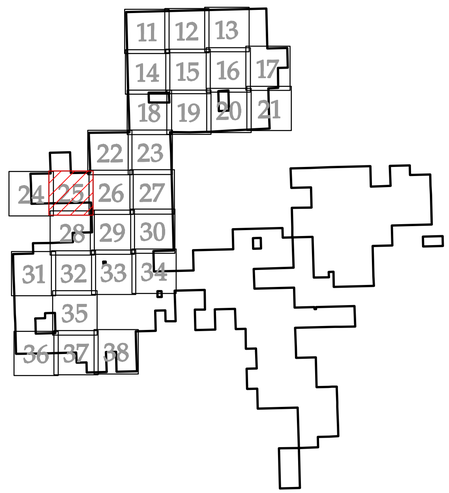
Date: 8/13/18
Sheet: 24 OF 39

0007880SP01.dwg

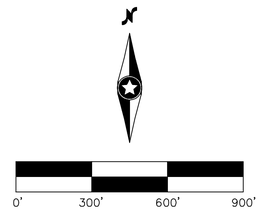


LEGEND:

- PROPOSED TURBINE LOCATION
- T-XX — PROPOSED TURBINE NUMBER
- PROPOSED ALTERNATE TURBINE LOCATION
- ALT-XX — PROPOSED ALTERNATE TURBINE NUMBER
- PROPOSED ACCESS ROAD
- PROPOSED ALTERNATE ACCESS ROAD
- PROPOSED CRANE PATH
- SURVEY CORRIDOR
- P-PUG — PROPOSED COLLECTION LINE
- 980 — EXISTING 10' CONTOURS
- EXISTING 2' CONTOURS
- EXISTING ROAD
- POH — EXISTING OVERHEAD POWER
- PUG — EXISTING UNDERGROUND POWER
- TUG — EXISTING UNDERGROUND TELEPHONE
- WAT — EXISTING WATER LINE
- FOP — EXISTING FIBER OPTIC LINE
- X — EXISTING FENCE
- EXISTING PARCEL LINES
- EXISTING WATERWAY
- DELINEATED WETLAND
- USFWS PROTECTED BASINS
- SKIPPER HABITAT
- WATERFOWL EASEMENT
- CRM AVOIDANCE BUFFER
- DESKTOP DELINEATED WETLAND
- MICROWAVE BEAM PATH
- PROJECT BOUNDARY
- PROPOSED UTILITY CROSSING
- PROPOSED FENCE CROSSING



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:

#	DATE	DESCRIPTION
A	8/13/18	60% CIVIL PLANS

Prepared for:

WANZEK a MasTec company

2028 2nd Avenue NW
West Fargo, ND 58078

Crocker Wind Farm

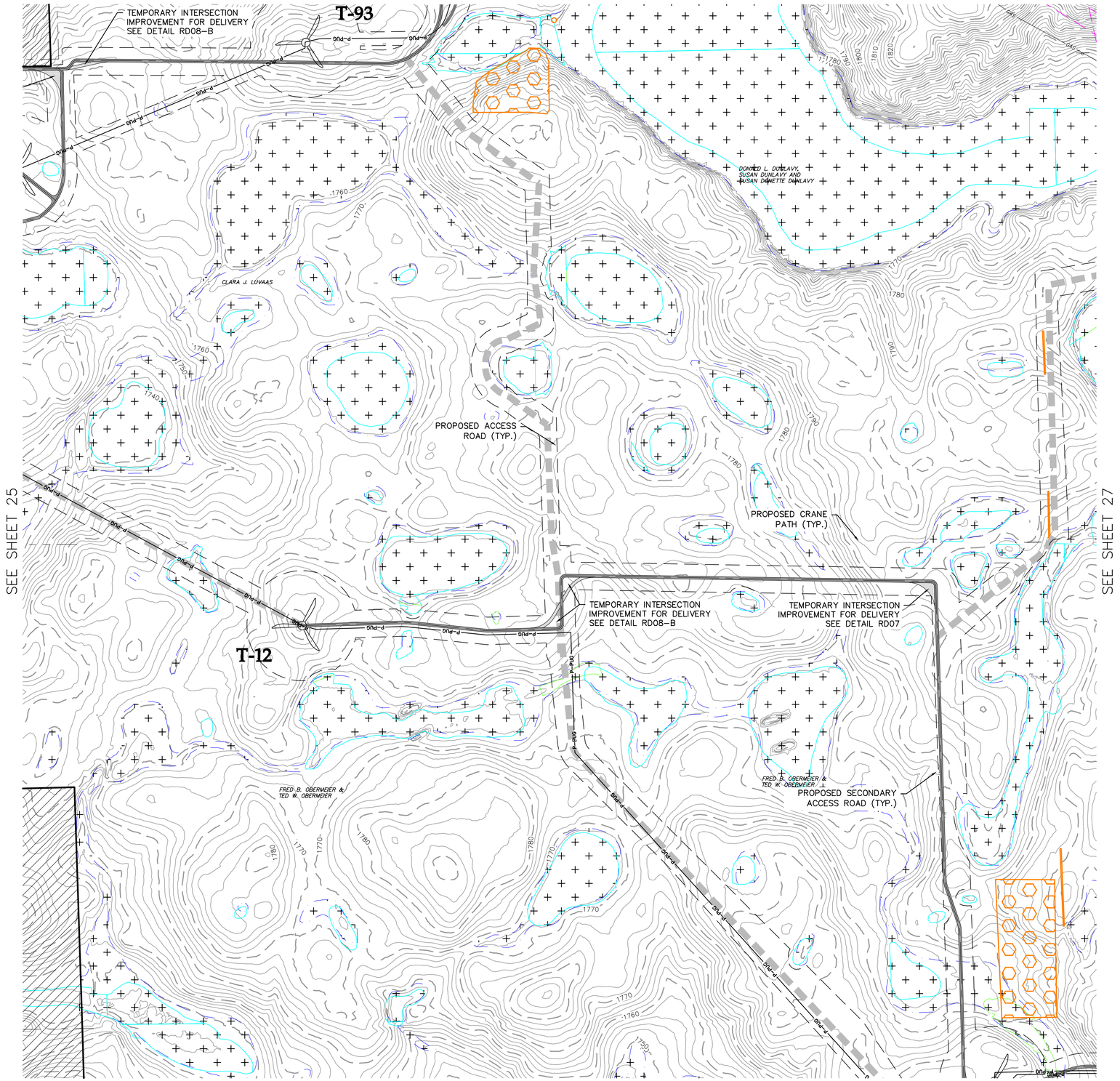
Clark County, South Dakota

Site Plan T-89 - T-92

60% COMPLETE
NOT FOR CONSTRUCTION

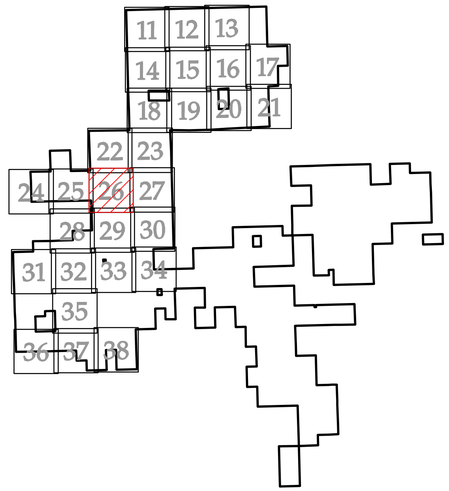
Date: 8/13/18
Sheet: 25 OF 39

0007880SP01.dwg

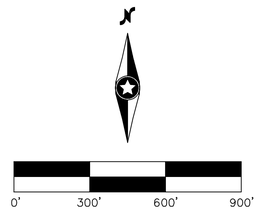


LEGEND:

- PROPOSED TURBINE LOCATION
- T-XX — PROPOSED TURBINE NUMBER
- PROPOSED ALTERNATE TURBINE LOCATION
- ALT-XX — PROPOSED ALTERNATE TURBINE NUMBER
- PROPOSED ACCESS ROAD
- PROPOSED ALTERNATE ACCESS ROAD
- PROPOSED CRANE PATH
- SURVEY CORRIDOR
- P–PUG — PROPOSED COLLECTION LINE
- 980 — EXISTING 10' CONTOURS
- EXISTING 2' CONTOURS
- EXISTING ROAD
- POH — EXISTING OVERHEAD POWER
- PUG — EXISTING UNDERGROUND POWER
- TUG — EXISTING UNDERGROUND TELEPHONE
- WAT — EXISTING WATER LINE
- FOP — EXISTING FIBER OPTIC LINE
- X — X — EXISTING FENCE
- EXISTING PARCEL LINES
- EXISTING WATERWAY
- DELINEATED WETLAND
- USFWS PROTECTED BASINS
- SKIPPER HABITAT
- WATERFOWL EASEMENT
- CRM AVOIDANCE BUFFER
- DESKTOP DELINEATED WETLAND
- MICROWAVE BEAM PATH
- PROJECT BOUNDARY
- PROPOSED UTILITY CROSSING
- PROPOSED FENCE CROSSING



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:

#	DATE	DESCRIPTION
A	8/13/18	60% CIVIL PLANS

Prepared for:

WANZEK a MasTec company

2028 2nd Avenue NW
West Fargo, ND 58078

Crocker Wind Farm

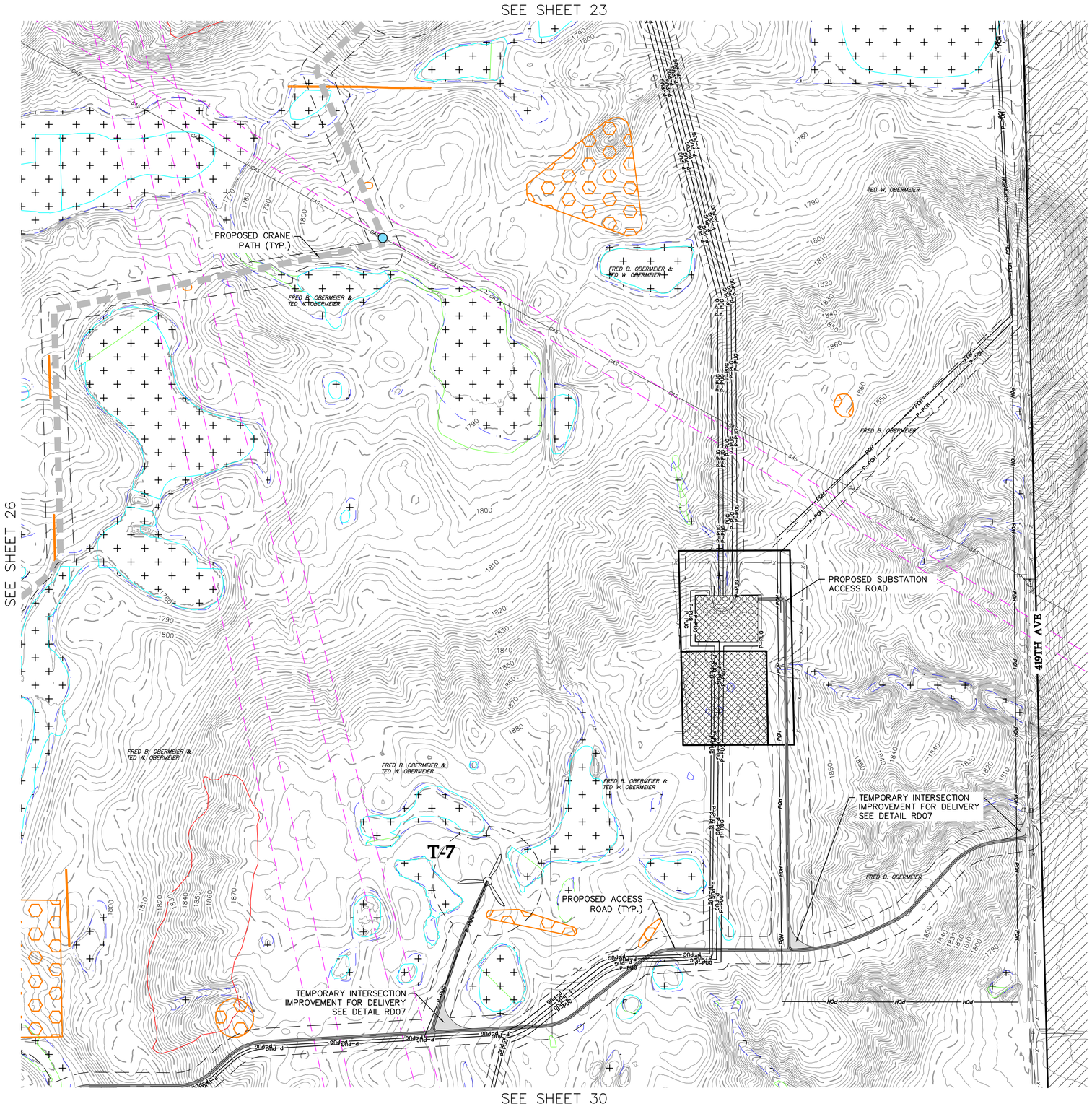
Clark County, South Dakota

Site Plan T-12

60% COMPLETE
NOT FOR CONSTRUCTION

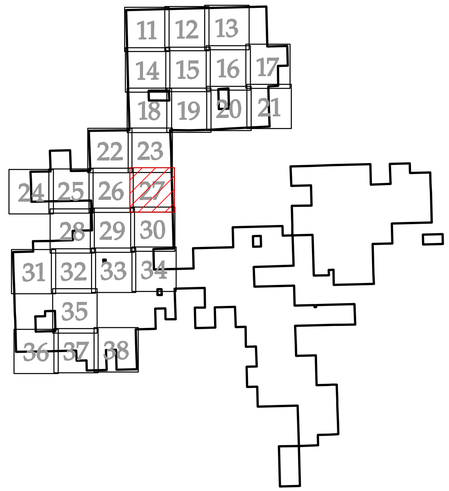
Date: 8/13/18
Sheet: 26 OF 39

0007880SP01.dwg

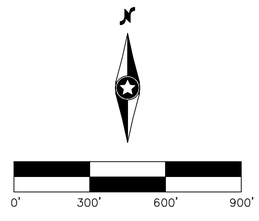


LEGEND:

- PROPOSED TURBINE LOCATION
- T-XX — PROPOSED TURBINE NUMBER
- PROPOSED ALTERNATE TURBINE LOCATION
- ALT-XX — PROPOSED ALTERNATE TURBINE NUMBER
- PROPOSED ACCESS ROAD
- PROPOSED ALTERNATE ACCESS ROAD
- PROPOSED CRANE PATH
- SURVEY CORRIDOR
- P-PUG — PROPOSED COLLECTION LINE
- 980 — EXISTING 10' CONTOURS
- EXISTING 2' CONTOURS
- EXISTING ROAD
- POH — EXISTING OVERHEAD POWER
- PUG — EXISTING UNDERGROUND POWER
- TUG — EXISTING UNDERGROUND TELEPHONE
- WAT — EXISTING WATER LINE
- FOP — EXISTING FIBER OPTIC LINE
- EXISTING FENCE
- EXISTING PARCEL LINES
- EXISTING WATERWAY
- DELINEATED WETLAND
- USFWS PROTECTED BASINS
- SKIPPER HABITAT
- WATERFOWL EASEMENT
- CRM AVOIDANCE BUFFER
- DESKTOP DELINEATED WETLAND
- MICROWAVE BEAM PATH
- PROJECT BOUNDARY
- PROPOSED UTILITY CROSSING
- PROPOSED FENCE CROSSING



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:

#	DATE	DESCRIPTION
A	8/13/18	60% CIVIL PLANS

Prepared for:

WANZEK a MasTec company

2028 2nd Avenue NW
West Fargo, ND 58078

Crocker Wind Farm

Clark County, South Dakota

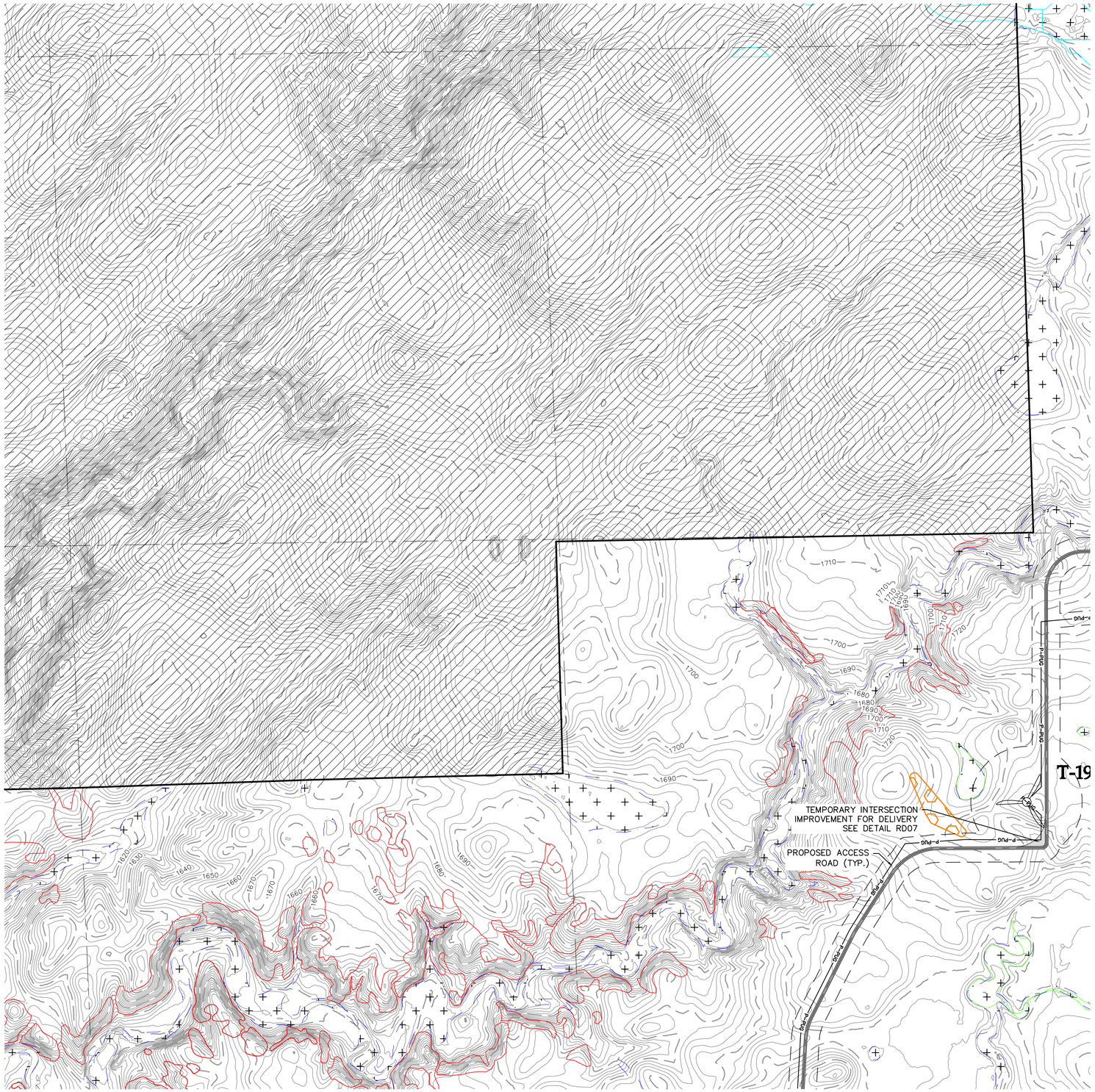
Site Plan T-7

60% COMPLETE
NOT FOR CONSTRUCTION

Date: 8/13/18
Sheet: 27 OF 39

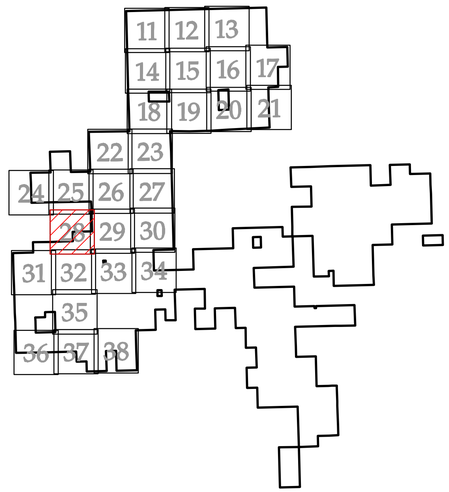
0007880SP01.dwg

SEE SHEET 25

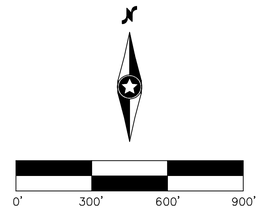


LEGEND:

- PROPOSED TURBINE LOCATION
- T-XX — PROPOSED TURBINE NUMBER
- PROPOSED ALTERNATE TURBINE LOCATION
- ALT-XX — PROPOSED ALTERNATE TURBINE NUMBER
- PROPOSED ACCESS ROAD
- PROPOSED ALTERNATE ACCESS ROAD
- PROPOSED CRANE PATH
- SURVEY CORRIDOR
- P-PUG — PROPOSED COLLECTION LINE
- 980 — EXISTING 10' CONTOURS
- EXISTING 2' CONTOURS
- EXISTING ROAD
- POH — EXISTING OVERHEAD POWER
- PUG — EXISTING UNDERGROUND POWER
- TUG — EXISTING UNDERGROUND TELEPHONE
- WAT — EXISTING WATER LINE
- FOP — EXISTING FIBER OPTIC LINE
- X — EXISTING FENCE
- EXISTING PARCEL LINES
- EXISTING WATERWAY
- DELINEATED WETLAND
- USFWS PROTECTED BASINS
- SKIPPER HABITAT
- WATERFOWL EASEMENT
- CRM AVOIDANCE BUFFER
- DESKTOP DELINEATED WETLAND
- MICROWAVE BEAM PATH
- PROJECT BOUNDARY
- PROPOSED UTILITY CROSSING
- PROPOSED FENCE CROSSING



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:

#	DATE	DESCRIPTION
A	8/13/18	60% CIVIL PLANS

Prepared for:

WANZEK a MasTec company

2028 2nd Avenue NW
West Fargo, ND 58078

Crocker Wind Farm

Clark County, South Dakota

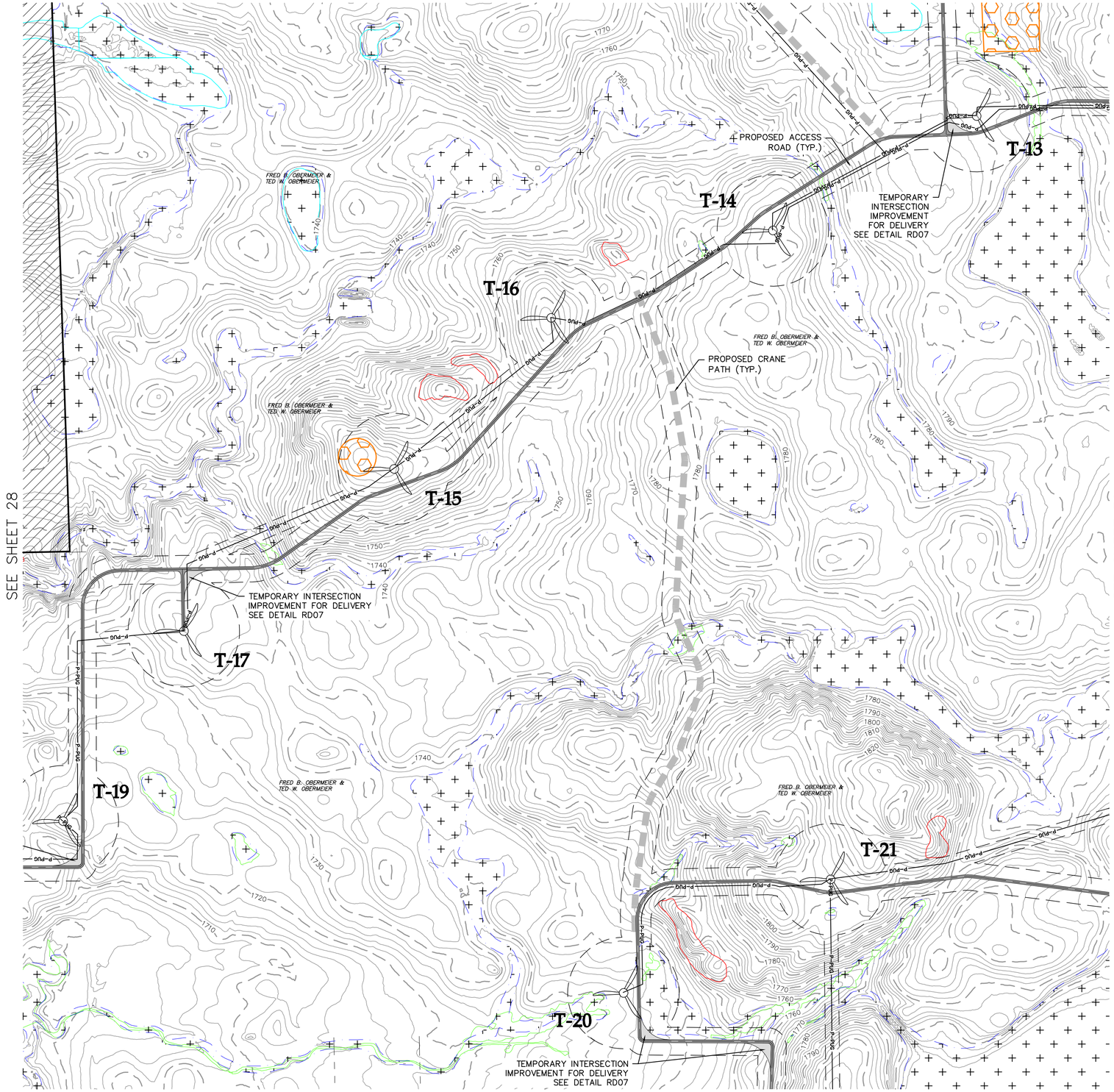
Site Plan T-19

60% COMPLETE
NOT FOR CONSTRUCTION

Date: 8/13/18
Sheet: 28 OF 39

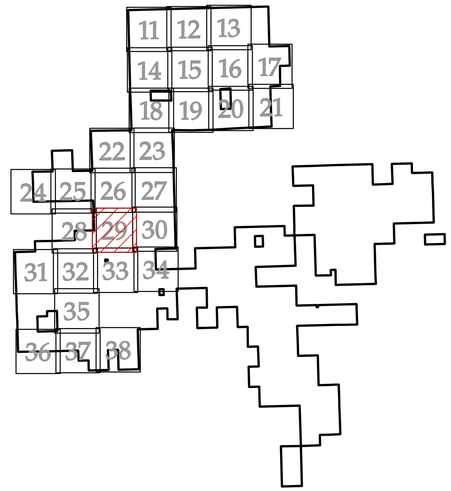
0007880SP01.dwg

SEE SHEET 26

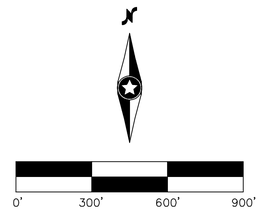


LEGEND:

- PROPOSED TURBINE LOCATION
- T-XX — PROPOSED TURBINE NUMBER
- PROPOSED ALTERNATE TURBINE LOCATION
- ALT-XX — PROPOSED ALTERNATE TURBINE NUMBER
- PROPOSED ACCESS ROAD
- PROPOSED ALTERNATE ACCESS ROAD
- PROPOSED CRANE PATH
- SURVEY CORRIDOR
- P-PUG — PROPOSED COLLECTION LINE
- 980 — EXISTING 10' CONTOURS
- EXISTING 2' CONTOURS
- EXISTING ROAD
- POH — EXISTING OVERHEAD POWER
- PUG — EXISTING UNDERGROUND POWER
- TUG — EXISTING UNDERGROUND TELEPHONE
- WAT — EXISTING WATER LINE
- FOP — EXISTING FIBER OPTIC LINE
- X — X — EXISTING FENCE
- EXISTING PARCEL LINES
- EXISTING WATERWAY
- DELINEATED WETLAND
- USFWS PROTECTED BASINS
- SKIPPER HABITAT
- WATERFOWL EASEMENT
- CRM AVOIDANCE BUFFER
- DESKTOP DELINEATED WETLAND
- MICROWAVE BEAM PATH
- PROJECT BOUNDARY
- PROPOSED UTILITY CROSSING
- PROPOSED FENCE CROSSING



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:

#	DATE	DESCRIPTION
A	8/13/18	60% CIVIL PLANS

Prepared for:

WANZEK a MasTec company

2028 2nd Avenue NW
West Fargo, ND 58078

Crocker Wind Farm

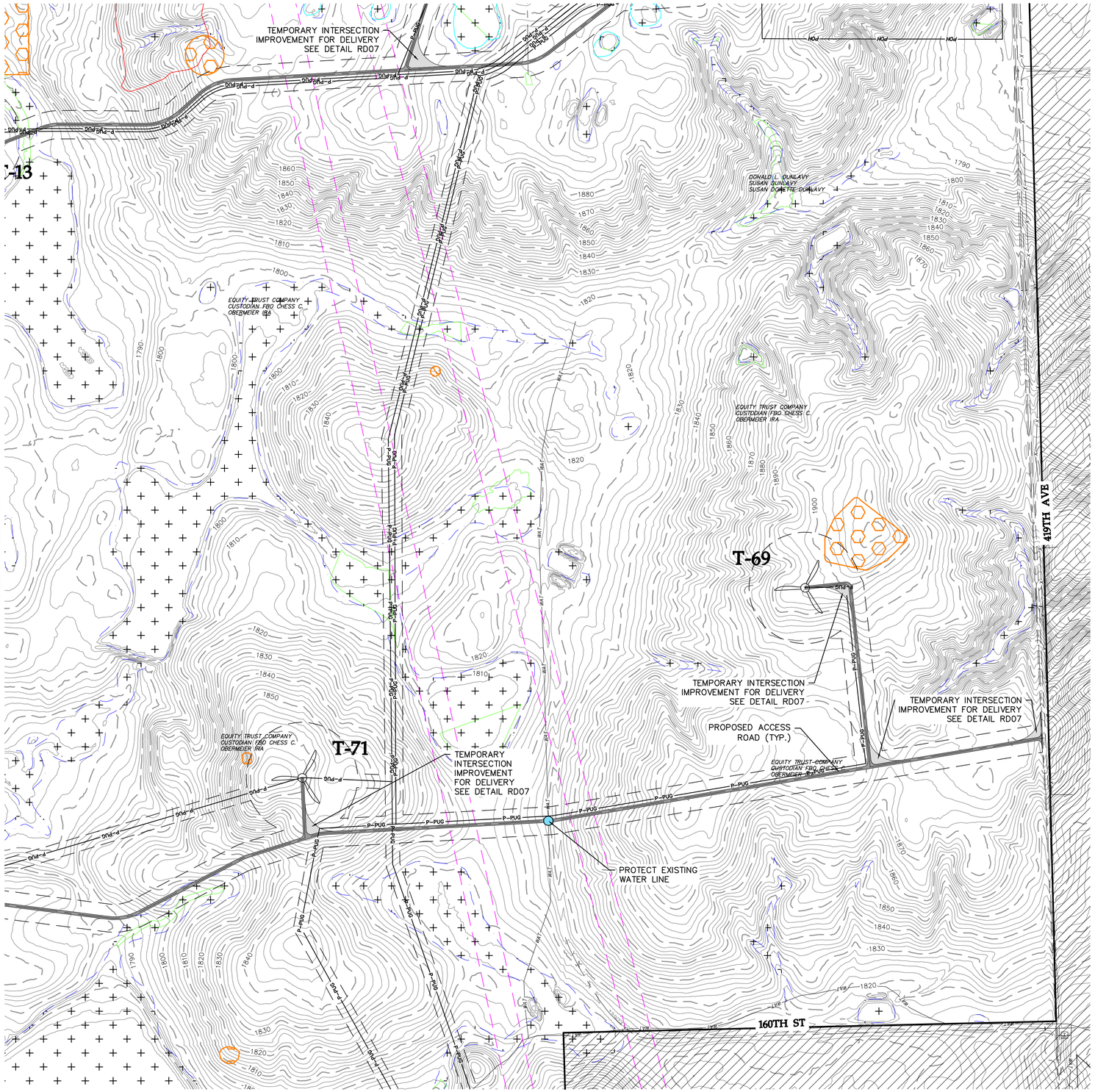
Clark County, South Dakota

Site Plan T-13 - T-17
T-20 T-21

60% COMPLETE
NOT FOR CONSTRUCTION

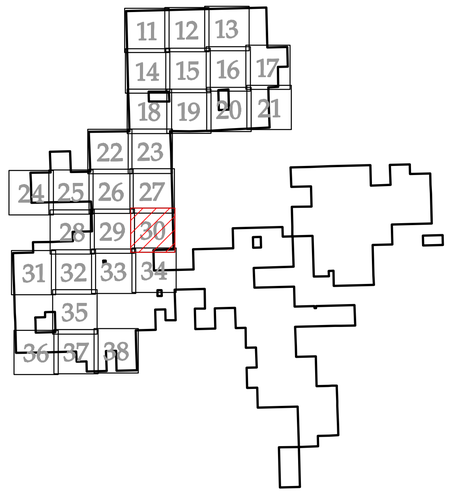
Date: 8/13/18
Sheet: 29 OF 39

0007880SP01.dwg



LEGEND:

- PROPOSED TURBINE LOCATION
- T-XX — PROPOSED TURBINE NUMBER
- PROPOSED ALTERNATE TURBINE LOCATION
- ALT-XX — PROPOSED ALTERNATE TURBINE NUMBER
- PROPOSED ACCESS ROAD
- PROPOSED ALTERNATE ACCESS ROAD
- PROPOSED CRANE PATH
- SURVEY CORRIDOR
- P-PUG — PROPOSED COLLECTION LINE
- 980 — EXISTING 10' CONTOURS
- EXISTING 2' CONTOURS
- EXISTING ROAD
- POH — EXISTING OVERHEAD POWER
- PUG — EXISTING UNDERGROUND POWER
- TUG — EXISTING UNDERGROUND TELEPHONE
- WAT — EXISTING WATER LINE
- FOP — EXISTING FIBER OPTIC LINE
- EXISTING FENCE
- EXISTING PARCEL LINES
- EXISTING WATERWAY
- DELINEATED WETLAND
- USFWS PROTECTED BASINS
- SKIPPER HABITAT
- WATERFOWL EASEMENT
- CRM AVOIDANCE BUFFER
- DESKTOP DELINEATED WETLAND
- MICROWAVE BEAM PATH
- PROJECT BOUNDARY
- PROPOSED UTILITY CROSSING
- PROPOSED FENCE CROSSING



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:

#	DATE	DESCRIPTION
A	8/13/18	60% CIVIL PLANS

Prepared for:

WANZEK a MasTec company

2028 2nd Avenue NW
West Fargo, ND 58078

0' 300' 600' 900'

Crocker Wind Farm

Clark County, South Dakota

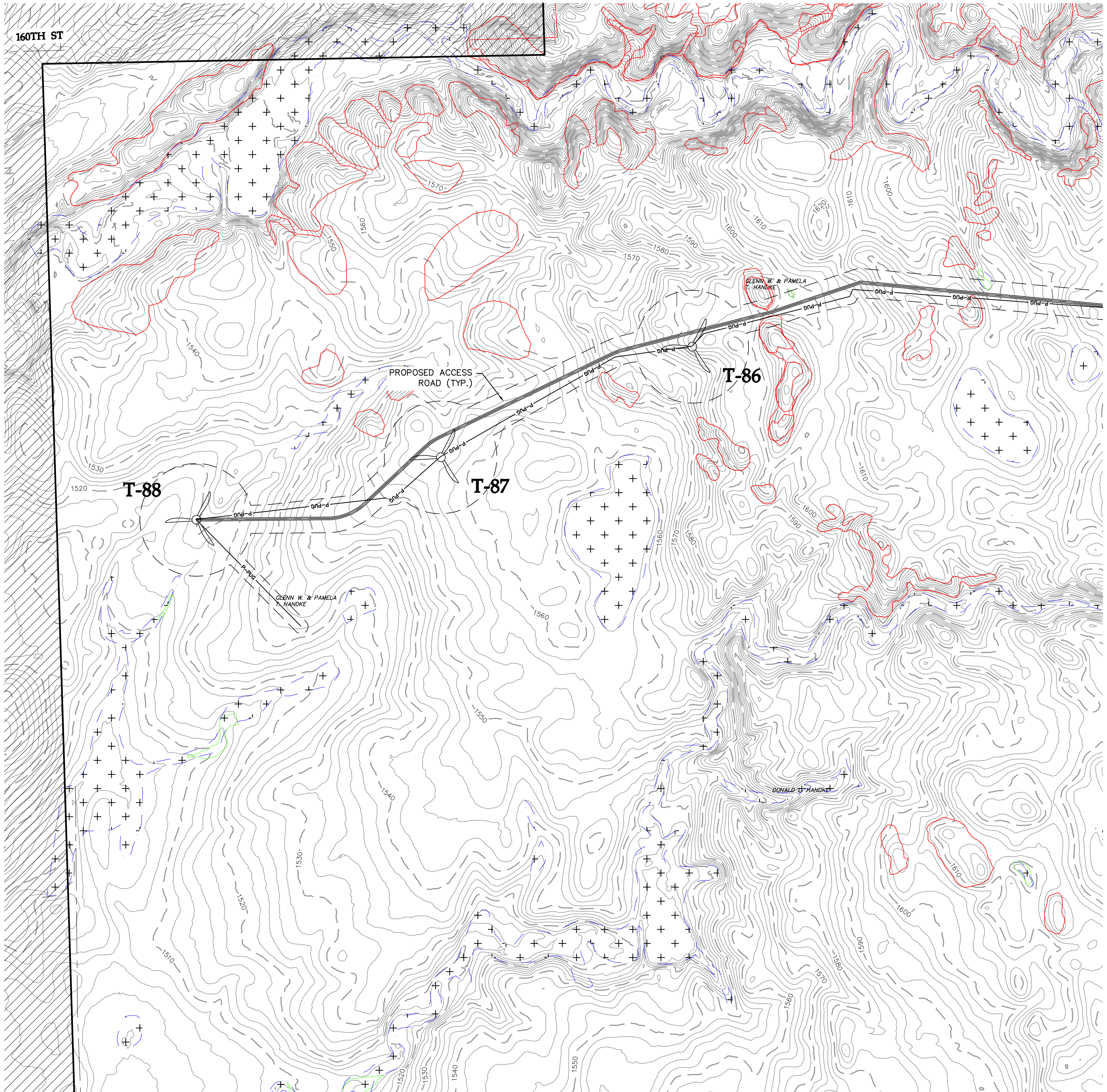
Site Plan T-69 T-71

60% COMPLETE
NOT FOR CONSTRUCTION

Date: 8/13/18

Sheet: 30 OF 39

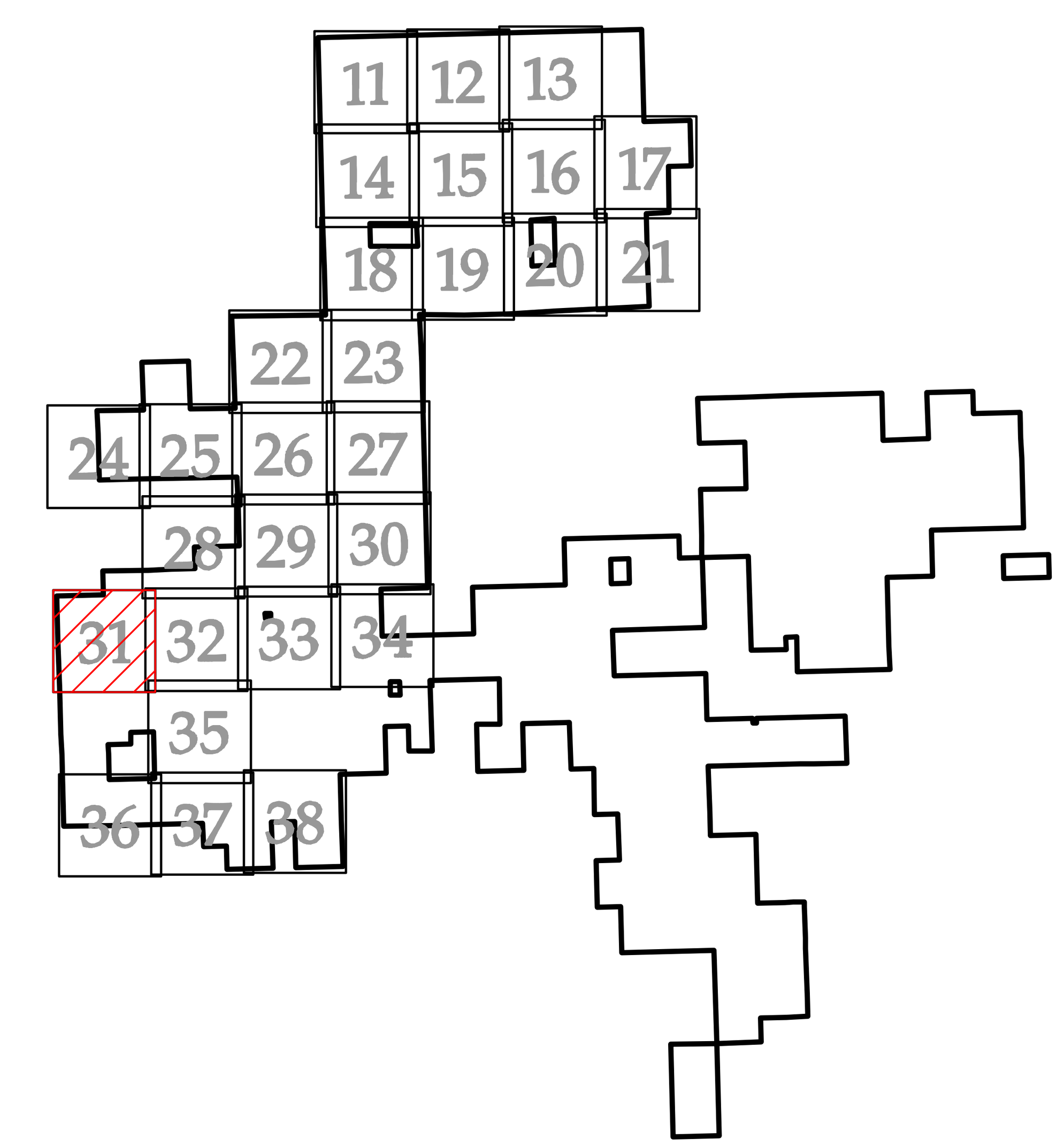
0007880SP01.dwg



SEE SHEET 32

LEGEND:

- PROPOSED TURBINE LOCATION
- T-XX — PROPOSED TURBINE NUMBER
- PROPOSED ALTERNATE TURBINE LOCATION
- ALT-XX — PROPOSED ALTERNATE TURBINE NUMBER
- PROPOSED ACCESS ROAD
- PROPOSED ALTERNATE ACCESS ROAD
- PROPOSED CRANE PATH
- SURVEY CORRIDOR
- P-PUG — PROPOSED COLLECTION LINE
- 980 — EXISTING 10' CONTOURS
- EXISTING 2' CONTOURS
- EXISTING ROAD
- POH — EXISTING OVERHEAD POWER
- PUG — EXISTING UNDERGROUND POWER
- TUG — EXISTING UNDERGROUND TELEPHONE
- WAT — EXISTING WATER LINE
- FOP — EXISTING FIBER OPTIC LINE
- X — EXISTING FENCE
- EXISTING PARCEL LINES
- EXISTING WATERWAY
- DELINEATED WETLAND
- USFWS PROTECTED BASINS
- SKIPPER HABITAT
- WATERFOWL EASEMENT
- CRM AVOIDANCE BUFFER
- DESKTOP DELINEATED WETLAND
- MICROWAVE BEAM PATH
- PROJECT BOUNDARY
- PROPOSED UTILITY CROSSING
- PROPOSED FENCE CROSSING



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:

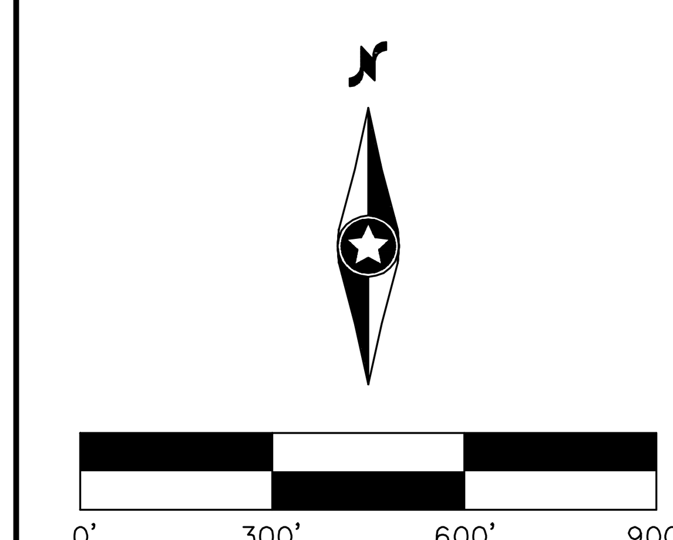
Revisions:

#	DATE	DESCRIPTION
A	8/13/18	60% CIVIL PLANS

Prepared for:

WANZEK
a MasTec company

2028 2nd Avenue NW
West Fargo, ND 58078



Crocker Wind Farm

Clark County, South Dakota

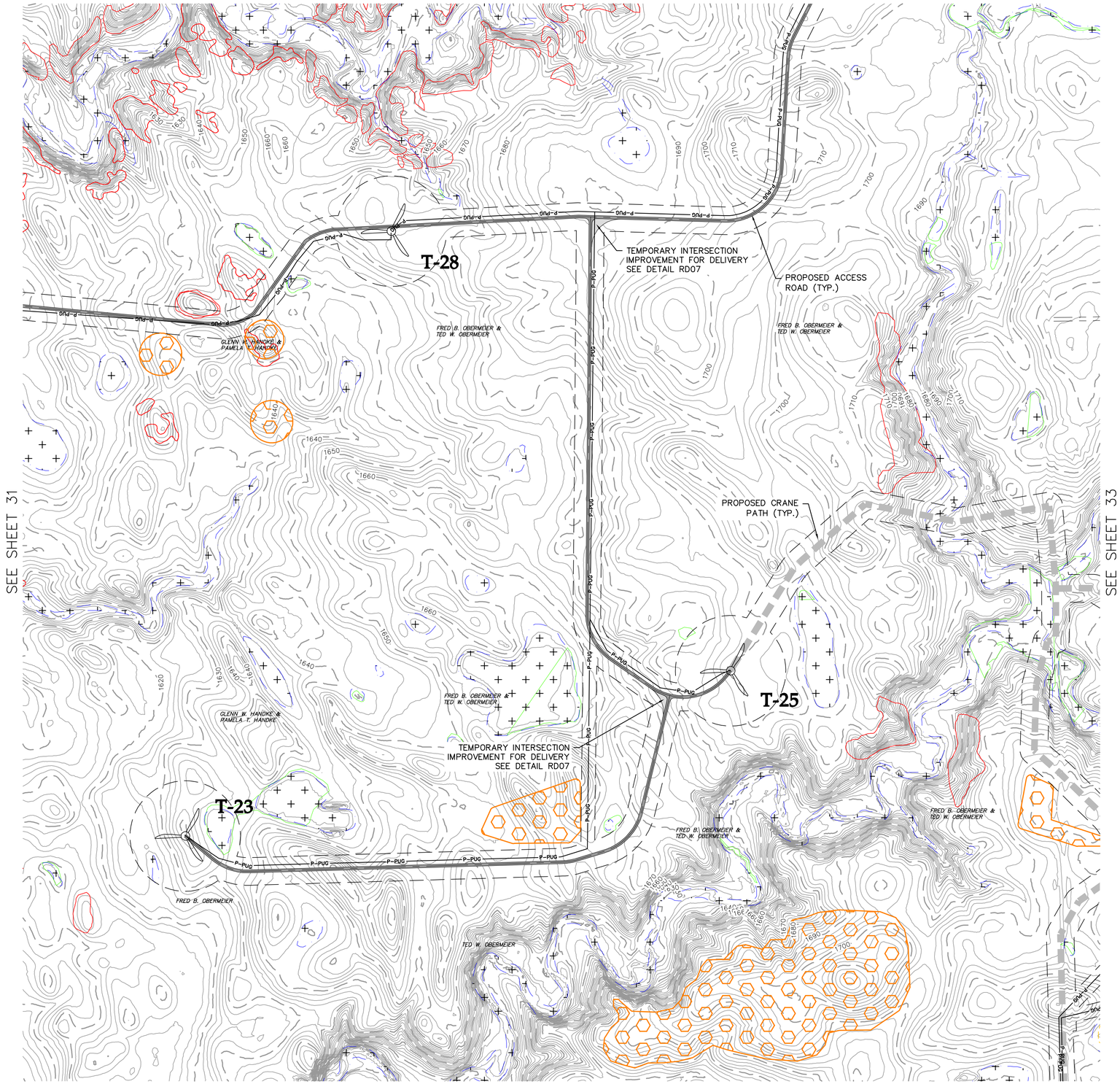
Site Plan T-86 - T-88

60% COMPLETE
NOT FOR CONSTRUCTION

Date: 8/13/18

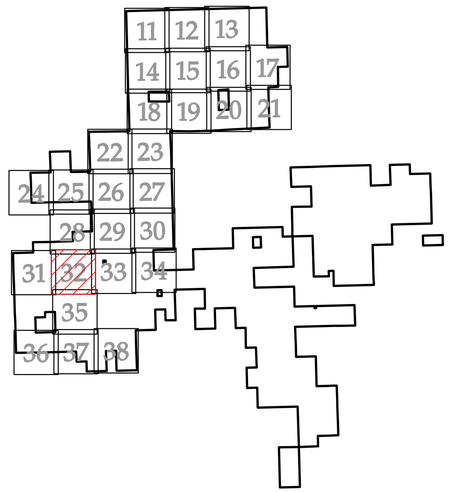
Sheet: 31 OF 39

0007880SP01.dwg

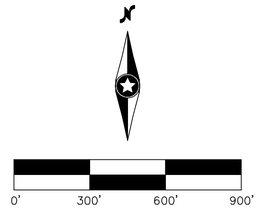


LEGEND:

- PROPOSED TURBINE LOCATION
- T-XX — PROPOSED TURBINE NUMBER
- PROPOSED ALTERNATE TURBINE LOCATION
- ALT-XX — PROPOSED ALTERNATE TURBINE NUMBER
- PROPOSED ACCESS ROAD
- PROPOSED ALTERNATE ACCESS ROAD
- PROPOSED CRANE PATH
- SURVEY CORRIDOR
- P-PUG — PROPOSED COLLECTION LINE
- 980 — EXISTING 10' CONTOURS
- EXISTING 2' CONTOURS
- EXISTING ROAD
- POH — EXISTING OVERHEAD POWER
- PUG — EXISTING UNDERGROUND POWER
- TUG — EXISTING UNDERGROUND TELEPHONE
- WAT — EXISTING WATER LINE
- FOP — EXISTING FIBER OPTIC LINE
- X — EXISTING FENCE
- EXISTING PARCEL LINES
- EXISTING WATERWAY
- DELINEATED WETLAND
- USFWS PROTECTED BASINS
- SKIPPER HABITAT
- WATERFOWL EASEMENT
- CRM AVOIDANCE BUFFER
- DESKTOP DELINEATED WETLAND
- MICROWAVE BEAM PATH
- PROJECT BOUNDARY
- PROPOSED UTILITY CROSSING
- PROPOSED FENCE CROSSING



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:

#	DATE	DESCRIPTION
A	8/13/18	60% CIVIL PLANS

Prepared for:

WANZEK a MasTec company

2028 2nd Avenue NW
West Fargo, ND 58078

Crocker Wind Farm

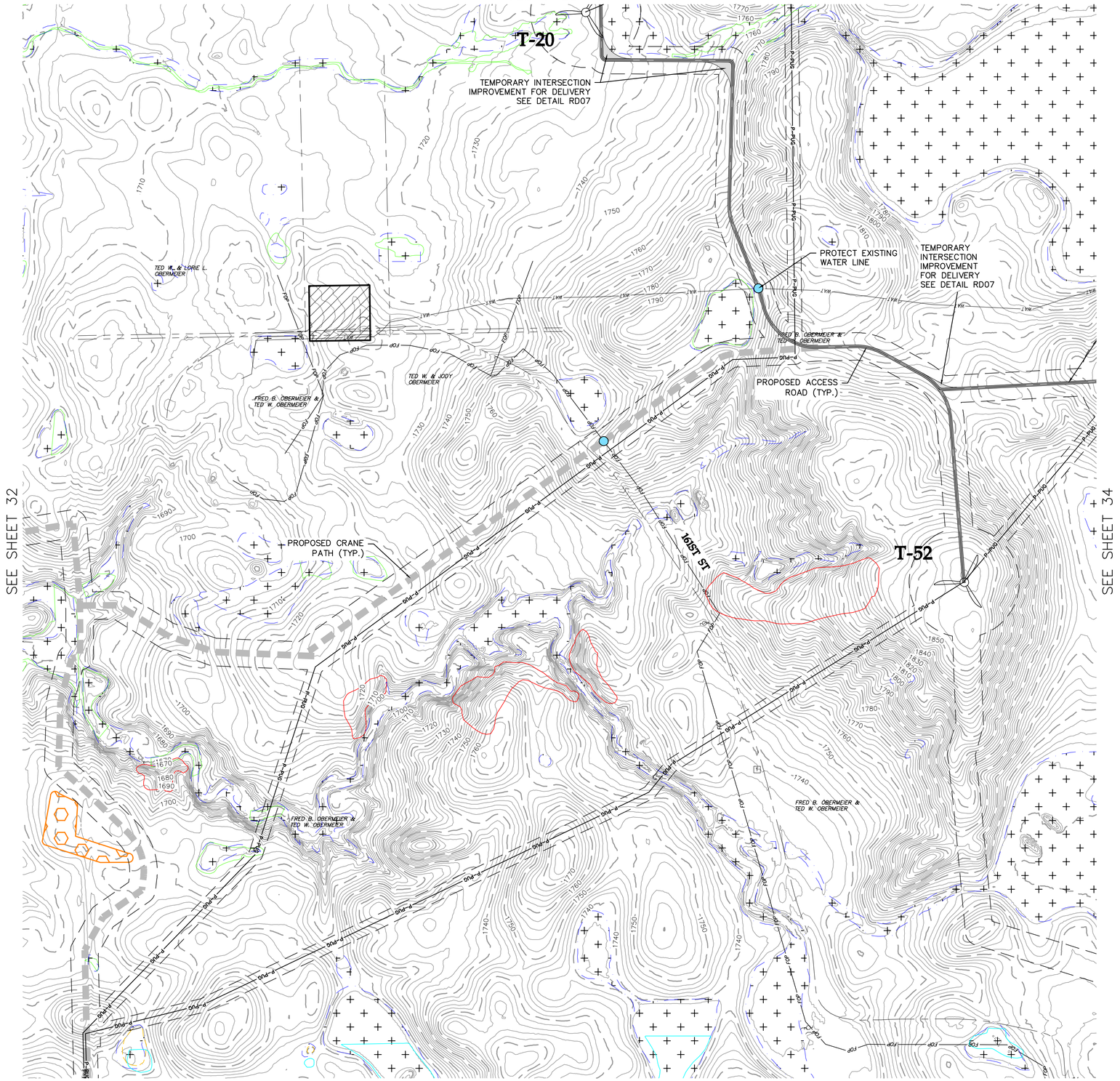
Clark County, South Dakota

Site Plan T-23 T-25 T-28

60% COMPLETE
NOT FOR CONSTRUCTION

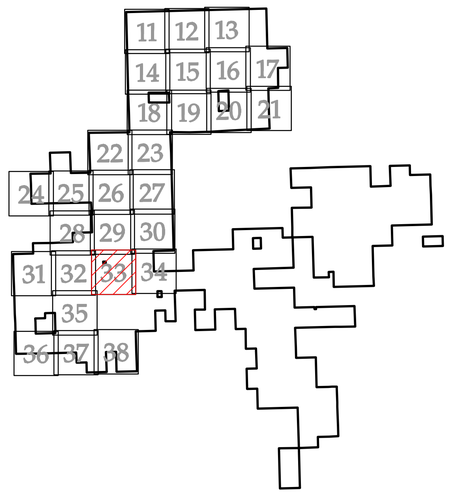
Date: 8/13/18
Sheet: 32 OF 39

0007880SP01.dwg

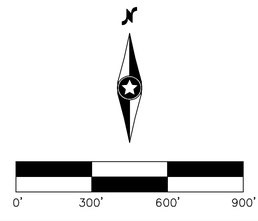


LEGEND:

- PROPOSED TURBINE LOCATION
- T-XX — PROPOSED TURBINE NUMBER
- PROPOSED ALTERNATE TURBINE LOCATION
- ALT-XX — PROPOSED ALTERNATE TURBINE NUMBER
- PROPOSED ACCESS ROAD
- PROPOSED ALTERNATE ACCESS ROAD
- PROPOSED CRANE PATH
- SURVEY CORRIDOR
- P-PUG — PROPOSED COLLECTION LINE
- 980 — EXISTING 10' CONTOURS
- EXISTING 2' CONTOURS
- EXISTING ROAD
- POH — EXISTING OVERHEAD POWER
- PUG — EXISTING UNDERGROUND POWER
- TUG — EXISTING UNDERGROUND TELEPHONE
- WAT — EXISTING WATER LINE
- FOP — EXISTING FIBER OPTIC LINE
- X — X — EXISTING FENCE
- EXISTING PARCEL LINES
- EXISTING WATERWAY
- DELINEATED WETLAND
- USFWS PROTECTED BASINS
- SKIPPER HABITAT
- WATERFOWL EASEMENT
- CRM AVOIDANCE BUFFER
- DESKTOP DELINEATED WETLAND
- MICROWAVE BEAM PATH
- PROJECT BOUNDARY
- PROPOSED UTILITY CROSSING
- PROPOSED FENCE CROSSING



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:

#	DATE	DESCRIPTION
A	8/13/18	60% CIVIL PLANS

Prepared for:

WANZEK a MasTec company

2028 2nd Avenue NW
West Fargo, ND 58078

Crocker Wind Farm

Clark County, South Dakota

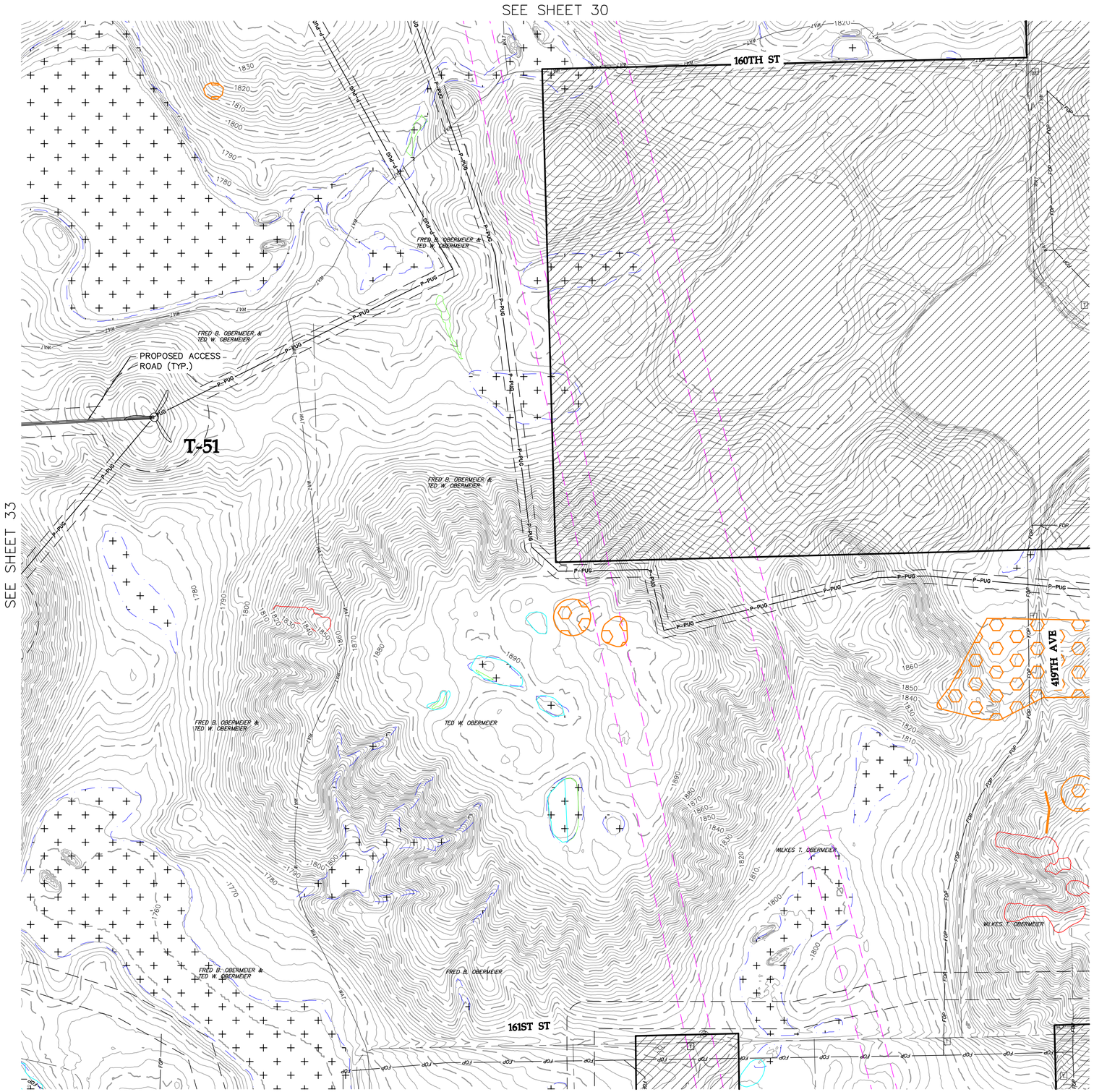
Site Plan T-52

60% COMPLETE
NOT FOR CONSTRUCTION

Date: 8/13/18

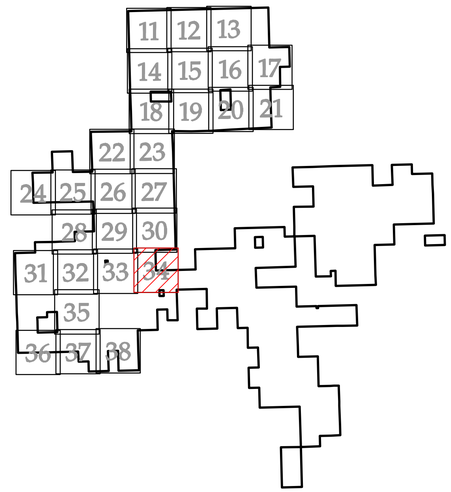
Sheet: 33 OF 39

0007880SP01.dwg

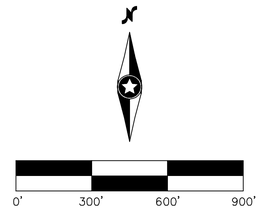


LEGEND:

- PROPOSED TURBINE LOCATION
- T-XX — PROPOSED TURBINE NUMBER
- PROPOSED ALTERNATE TURBINE LOCATION
- ALT-XX — PROPOSED ALTERNATE TURBINE NUMBER
- PROPOSED ACCESS ROAD
- PROPOSED ALTERNATE ACCESS ROAD
- PROPOSED CRANE PATH
- SURVEY CORRIDOR
- P-PUG — PROPOSED COLLECTION LINE
- 980 — EXISTING 10' CONTOURS
- EXISTING 2' CONTOURS
- EXISTING ROAD
- POH — EXISTING OVERHEAD POWER
- PUG — EXISTING UNDERGROUND POWER
- TUG — EXISTING UNDERGROUND TELEPHONE
- WAT — EXISTING WATER LINE
- FOP — EXISTING FIBER OPTIC LINE
- X — X — EXISTING FENCE
- EXISTING PARCEL LINES
- EXISTING WATERWAY
- DELINEATED WETLAND
- USFWS PROTECTED BASINS
- SKIPPER HABITAT
- WATERFOWL EASEMENT
- CRM AVOIDANCE BUFFER
- DESKTOP DELINEATED WETLAND
- MICROWAVE BEAM PATH
- PROJECT BOUNDARY
- PROPOSED UTILITY CROSSING
- PROPOSED FENCE CROSSING



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:

#	DATE	DESCRIPTION
A	8/13/18	60% CIVIL PLANS

Prepared for:

WANZEK a MasTec company

2028 2nd Avenue NW
West Fargo, ND 58078

Crocker Wind Farm

Clark County, South Dakota

Site Plan T-51

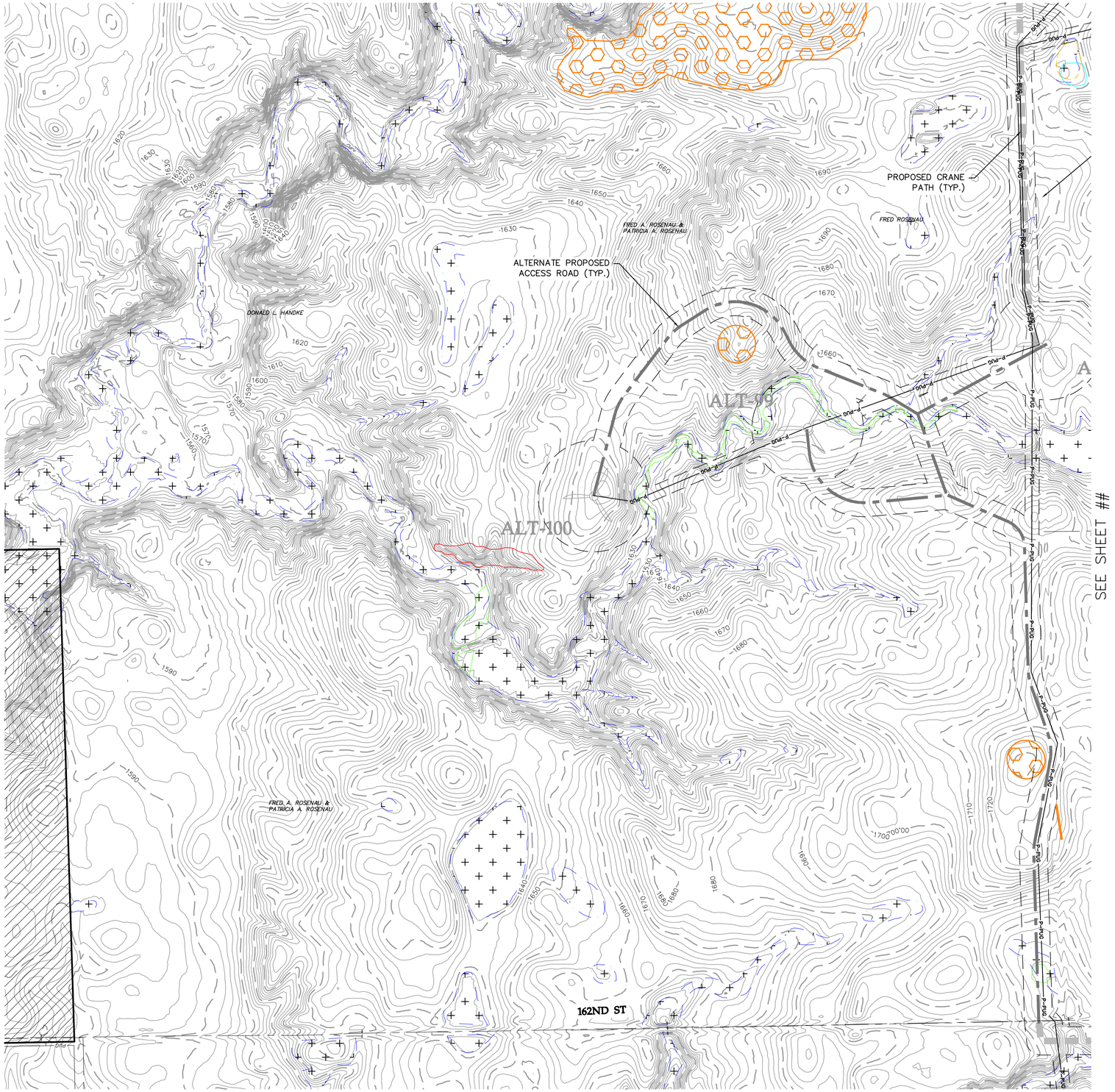
60% COMPLETE
NOT FOR CONSTRUCTION

Date: 8/13/18

Sheet: 34 OF 39

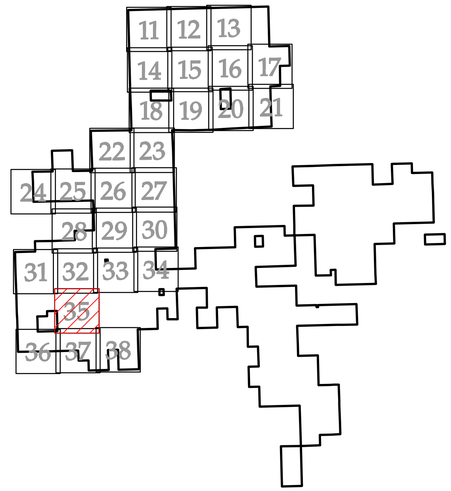
0007880SP01.dwg

SEE SHEET 32

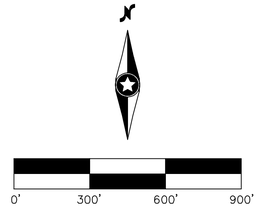


LEGEND:

- PROPOSED TURBINE LOCATION
- T-XX — PROPOSED TURBINE NUMBER
- PROPOSED ALTERNATE TURBINE LOCATION
- ALT-XX — PROPOSED ALTERNATE TURBINE NUMBER
- PROPOSED ACCESS ROAD
- PROPOSED ALTERNATE ACCESS ROAD
- PROPOSED CRANE PATH
- SURVEY CORRIDOR
- P-PUG — PROPOSED COLLECTION LINE
- 980 — EXISTING 10' CONTOURS
- EXISTING 2' CONTOURS
- EXISTING ROAD
- POH — EXISTING OVERHEAD POWER
- PUG — EXISTING UNDERGROUND POWER
- TUG — EXISTING UNDERGROUND TELEPHONE
- WAT — EXISTING WATER LINE
- FOP — EXISTING FIBER OPTIC LINE
- X — X — EXISTING FENCE
- EXISTING PARCEL LINES
- EXISTING WATERWAY
- DELINEATED WETLAND
- USFWS PROTECTED BASINS
- SKIPPER HABITAT
- WATERFOWL EASEMENT
- CRM AVOIDANCE BUFFER
- DESKTOP DELINEATED WETLAND
- MICROWAVE BEAM PATH
- PROJECT BOUNDARY
- PROPOSED UTILITY CROSSING
- PROPOSED FENCE CROSSING



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:

#	DATE	DESCRIPTION
A	8/13/18	60% CIVIL PLANS

Prepared for:

WANZEK a MasTec company

2028 2nd Avenue NW
West Fargo, ND 58078

Crocker Wind Farm

Clark County, South Dakota

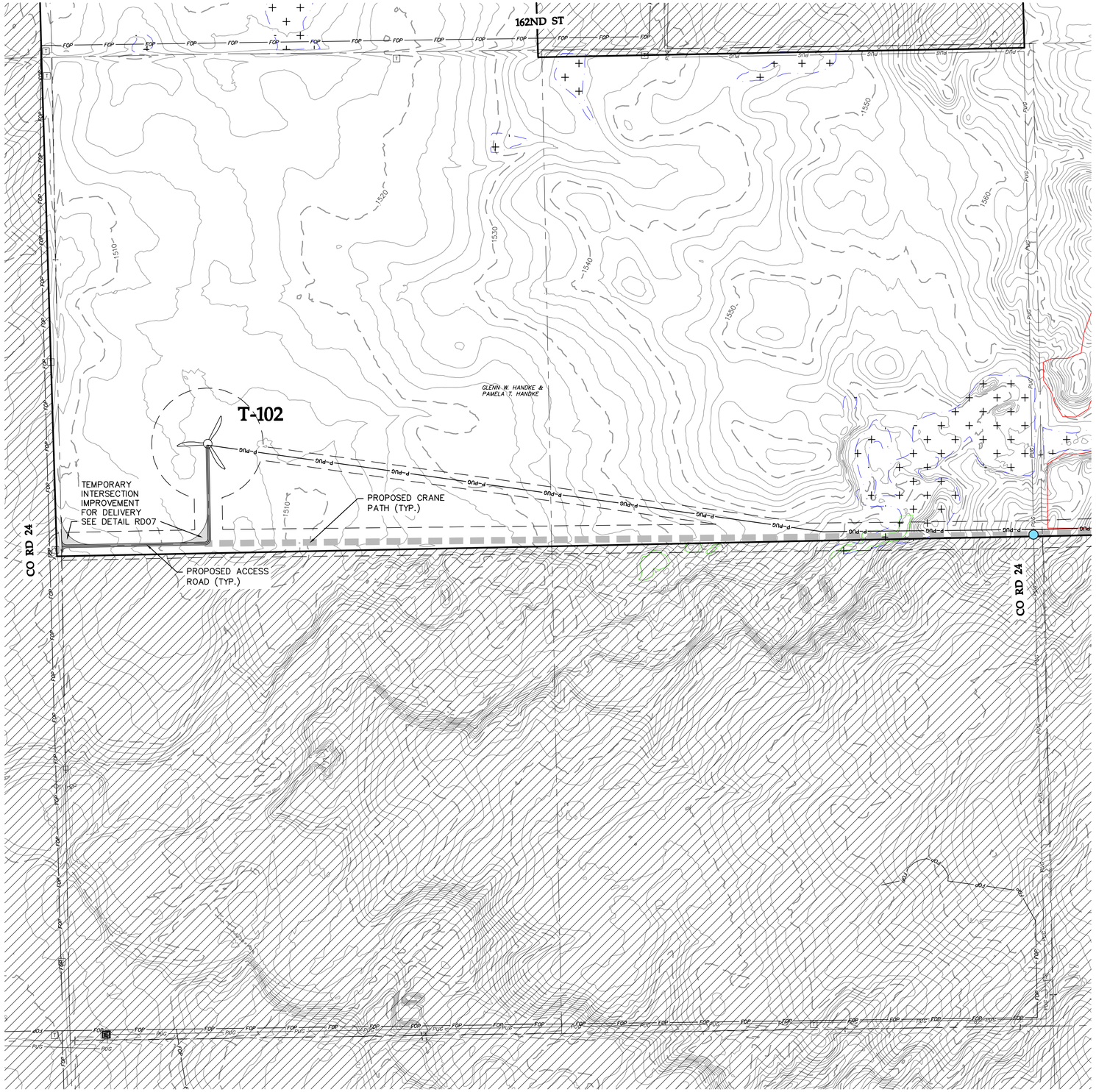
Site Plan ALT-72
ALT-99 ALT-100

60% COMPLETE
NOT FOR CONSTRUCTION

Date: 8/13/18

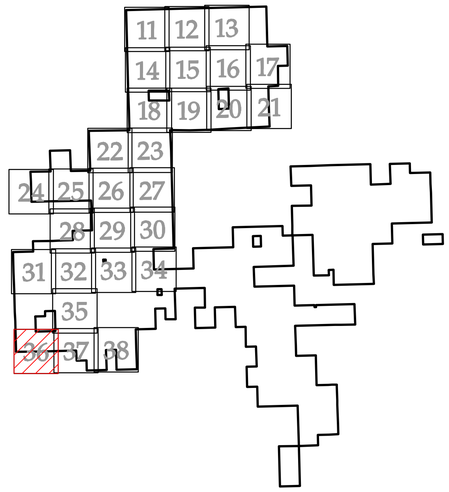
Sheet: 35 OF 39

0007880SP01.dwg



LEGEND:

- PROPOSED TURBINE LOCATION
- T-XX — PROPOSED TURBINE NUMBER
- PROPOSED ALTERNATE TURBINE LOCATION
- ALT-XX — PROPOSED ALTERNATE TURBINE NUMBER
- PROPOSED ACCESS ROAD
- PROPOSED ALTERNATE ACCESS ROAD
- PROPOSED CRANE PATH
- SURVEY CORRIDOR
- P-PUG — PROPOSED COLLECTION LINE
- 980 — EXISTING 10' CONTOURS
- EXISTING 2' CONTOURS
- EXISTING ROAD
- POH — EXISTING OVERHEAD POWER
- PUG — EXISTING UNDERGROUND POWER
- TUG — EXISTING UNDERGROUND TELEPHONE
- WAT — EXISTING WATER LINE
- FOP — EXISTING FIBER OPTIC LINE
- X — EXISTING FENCE
- EXISTING PARCEL LINES
- EXISTING WATERWAY
- DELINEATED WETLAND
- USFWS PROTECTED BASINS
- SKIPPER HABITAT
- WATERFOWL EASEMENT
- CRM AVOIDANCE BUFFER
- DESKTOP DELINEATED WETLAND
- MICROWAVE BEAM PATH
- PROJECT BOUNDARY
- PROPOSED UTILITY CROSSING
- PROPOSED FENCE CROSSING



KEY MAP

0' 300' 600' 900'

Crocker Wind Farm

Clark County, South Dakota

Site Plan T-102

60% COMPLETE
NOT FOR CONSTRUCTION

Date: 8/13/18

Sheet: 36 OF 39

0007880SP01.dwg

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:

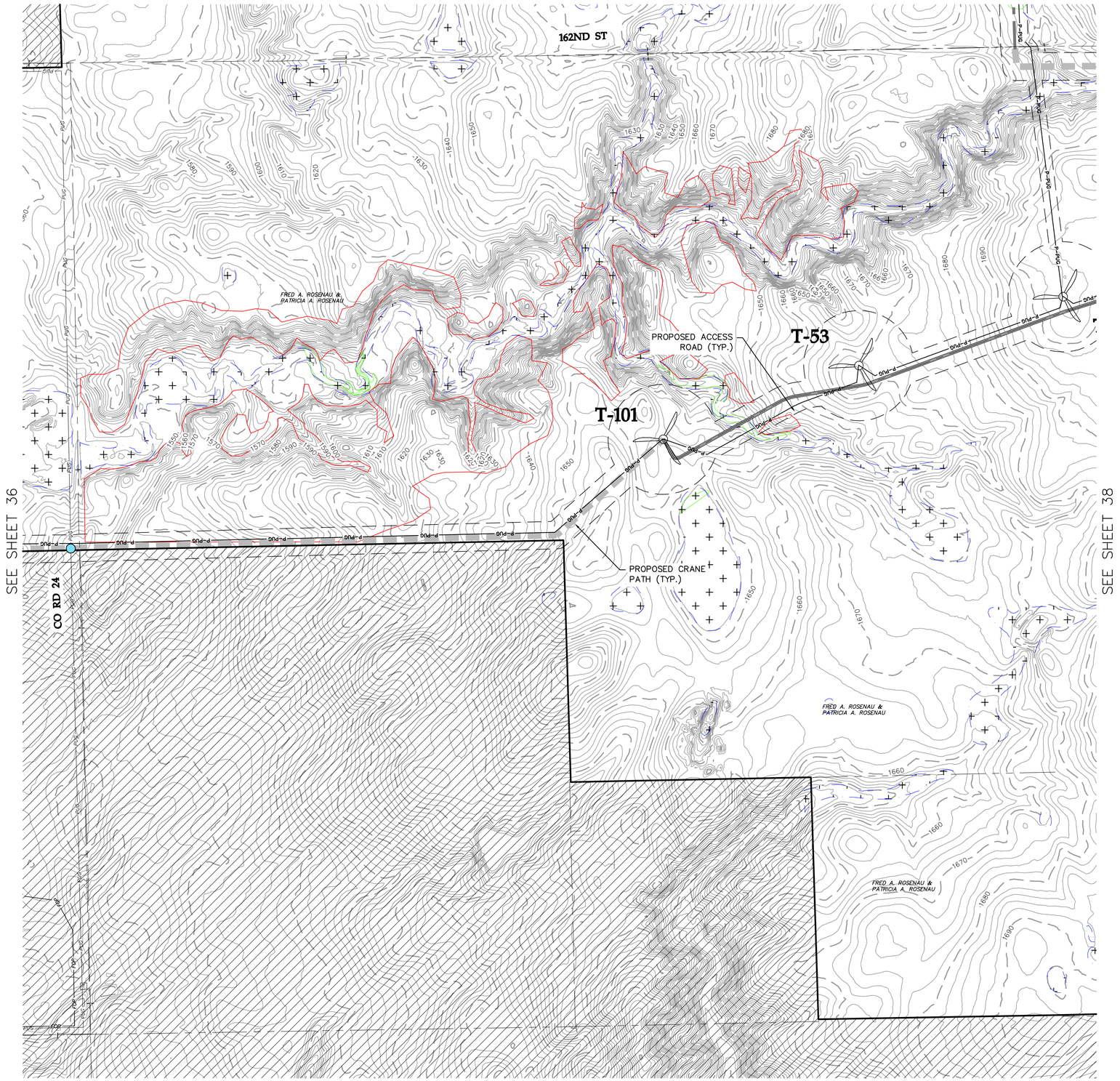
Revisions:

#	DATE	DESCRIPTION
A	8/13/18	60% CIVIL PLANS

Prepared for:

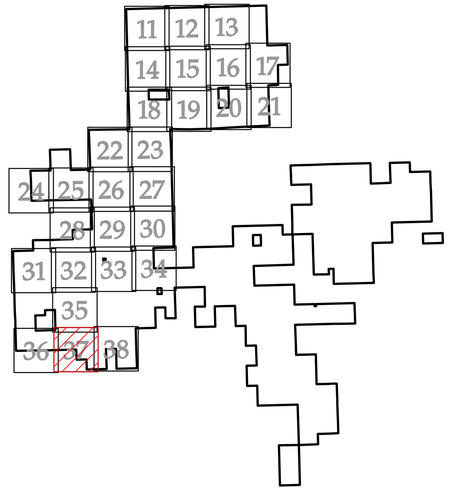
WANZEK a MasTec company

2028 2nd Avenue NW
West Fargo, ND 58078

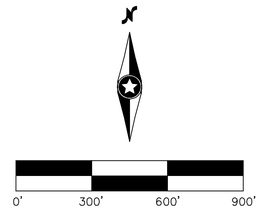


LEGEND:

- PROPOSED TURBINE LOCATION
- T-XX — PROPOSED TURBINE NUMBER
- PROPOSED ALTERNATE TURBINE LOCATION
- ALT-XX — PROPOSED ALTERNATE TURBINE NUMBER
- PROPOSED ACCESS ROAD
- PROPOSED ALTERNATE ACCESS ROAD
- PROPOSED CRANE PATH
- SURVEY CORRIDOR
- P-PUG — PROPOSED COLLECTION LINE
- 980 — EXISTING 10' CONTOURS
- EXISTING 2' CONTOURS
- EXISTING ROAD
- POH — EXISTING OVERHEAD POWER
- PUG — EXISTING UNDERGROUND POWER
- TUG — EXISTING UNDERGROUND TELEPHONE
- WAT — EXISTING WATER LINE
- FOP — EXISTING FIBER OPTIC LINE
- X — X — EXISTING FENCE
- EXISTING PARCEL LINES
- EXISTING WATERWAY
- DELINEATED WETLAND
- USFWS PROTECTED BASINS
- SKIPPER HABITAT
- WATERFOWL EASEMENT
- CRM AVOIDANCE BUFFER
- DESKTOP DELINEATED WETLAND
- MICROWAVE BEAM PATH
- PROJECT BOUNDARY
- PROPOSED UTILITY CROSSING
- PROPOSED FENCE CROSSING



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:

#	DATE	DESCRIPTION
A	8/13/18	60% CIVIL PLANS

Prepared for:

WANZEK a MasTec company

2028 2nd Avenue NW
West Fargo, ND 58078

Crocker Wind Farm

Clark County, South Dakota

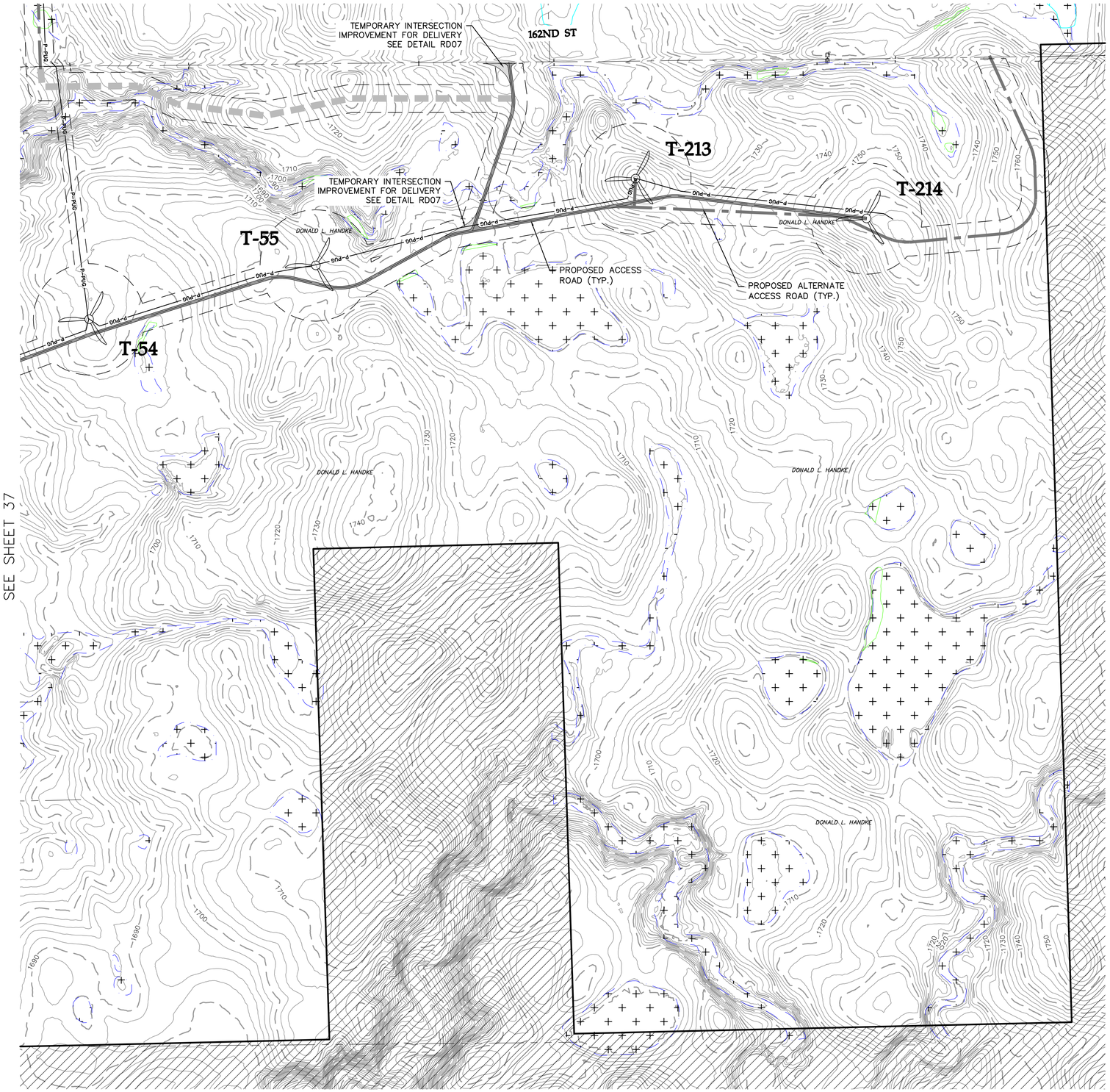
Site Plan T-53 T-101

60% COMPLETE
NOT FOR CONSTRUCTION

Date: 8/13/18

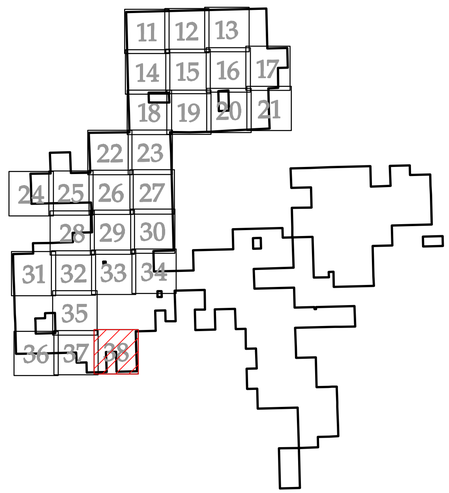
Sheet: 37 OF 39

0007880SP01.dwg

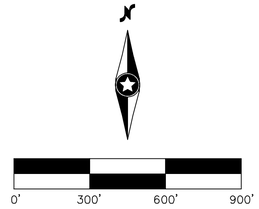


LEGEND:

- PROPOSED TURBINE LOCATION
- T-XX — PROPOSED TURBINE NUMBER
- PROPOSED ALTERNATE TURBINE LOCATION
- ALT-XX — PROPOSED ALTERNATE TURBINE NUMBER
- PROPOSED ACCESS ROAD
- PROPOSED ALTERNATE ACCESS ROAD
- PROPOSED CRANE PATH
- SURVEY CORRIDOR
- P-PUG — PROPOSED COLLECTION LINE
- 980 — EXISTING 10' CONTOURS
- EXISTING 2' CONTOURS
- EXISTING ROAD
- POH — EXISTING OVERHEAD POWER
- PUG — EXISTING UNDERGROUND POWER
- TUG — EXISTING UNDERGROUND TELEPHONE
- WAT — EXISTING WATER LINE
- FOP — EXISTING FIBER OPTIC LINE
- X — X — EXISTING FENCE
- EXISTING PARCEL LINES
- EXISTING WATERWAY
- DELINEATED WETLAND
- USFWS PROTECTED BASINS
- SKIPPER HABITAT
- WATERFOWL EASEMENT
- CRM AVOIDANCE BUFFER
- DESKTOP DELINEATED WETLAND
- MICROWAVE BEAM PATH
- PROJECT BOUNDARY
- PROPOSED UTILITY CROSSING
- PROPOSED FENCE CROSSING



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:

#	DATE	DESCRIPTION
A	8/13/18	60% CIVIL PLANS

Prepared for:

WANZEK a MasTec company

2028 2nd Avenue NW
West Fargo, ND 58078

Crocker Wind Farm

Clark County, South Dakota

Site Plan T-54 T-55 T-213 T-214

60% COMPLETE NOT FOR CONSTRUCTION

Date: 8/13/18
Sheet: 38 OF 39

0007880SP01.dwg

Attachment F

Inspection and Maintenance Forms

Stormwater Construction Site Inspection Report

General Information

Project Name:	
Location:	
Date of Inspection:	Start/End Time:
Inspector's Name:	
Inspector's Title:	
Inspector's Contact Information:	
Describe present phase of construction:	
Type of Inspection: ☐ Regular ☐ Pre-storm event ☐ During storm event ☐ Post-storm event	

Weather Information

Has there been a storm event since the last inspection? ☐Yes ☐No
If yes, provide:
Storm Start Date & Time: Storm Duration (hrs): Approximate Amount of Precipitation (in):

Weather at time of this inspection?
☐ Clear ☐Cloudy ☐ Rain ☐ Sleet ☐ Fog ☐ Snowing ☐ High Winds
☐ Other: Temperature:

Have any discharges occurred since the last inspection? ☐Yes ☐No
If yes, describe:

Are there any discharges at the time of inspection? ☐Yes ☐No
If yes, describe:

Certification Statement

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Signature of Inspector *Printed Name and Title* *Date*

Overall Site Issues

Below are some general site issues that should be assessed during inspections. Customize this list as needed for conditions at your site.

BMP/activity	Implemented?	Maintenance Required?	Corrective Action Needed and Notes
1. All inactive slopes and disturbed areas have been stabilized.	☐Yes ☐No	☐Yes ☐No	
2. Are natural resource areas (e.g., streams, wetlands, mature trees, etc.) protected with barriers or similar BMPs?	☐Yes ☐No	☐Yes ☐No	
3. Are all sanitary waste recepticles placed in secondary containment and free of leaks?	☐Yes ☐No	☐Yes ☐No	
4. Are perimeter controls and sediment barriers adequately installed (keyed into substrate) and maintained?	☐Yes ☐No	☐Yes ☐No	
5. Are discharge points and receiving waters free of any sediment deposits?	☐Yes ☐No	☐Yes ☐No	
6. Are storm drain inlets properly protected?	☐Yes ☐No	☐Yes ☐No	
7. Is the construction exit preventing sediment from being tracked into the street?	☐Yes ☐No	☐Yes ☐No	
8. Is trash/litter from work areas collected and placed in covered dumpsters?	☐Yes ☐No	☐Yes ☐No	
9. Are washout facilities (e.g., paint, stucco, concrete) available, clearly marked, and maintained?	☐Yes ☐No	☐Yes ☐No	
10. Are vehicle and equipment fueling, cleaning, and maintenance areas free of spills, leaks, or any other deleterious material?	☐Yes ☐No	☐Yes ☐No	
11. Are materials that are potential stormwater contaminants stored inside or under cover?	☐Yes ☐No	☐Yes ☐No	
12. Are non-stormwater discharges (e.g., wash water, dewatering) properly controlled?	☐Yes ☐No	☐Yes ☐No	
13. (Other)	☐Yes ☐No	☐Yes ☐No	