

North Bend Wind Project

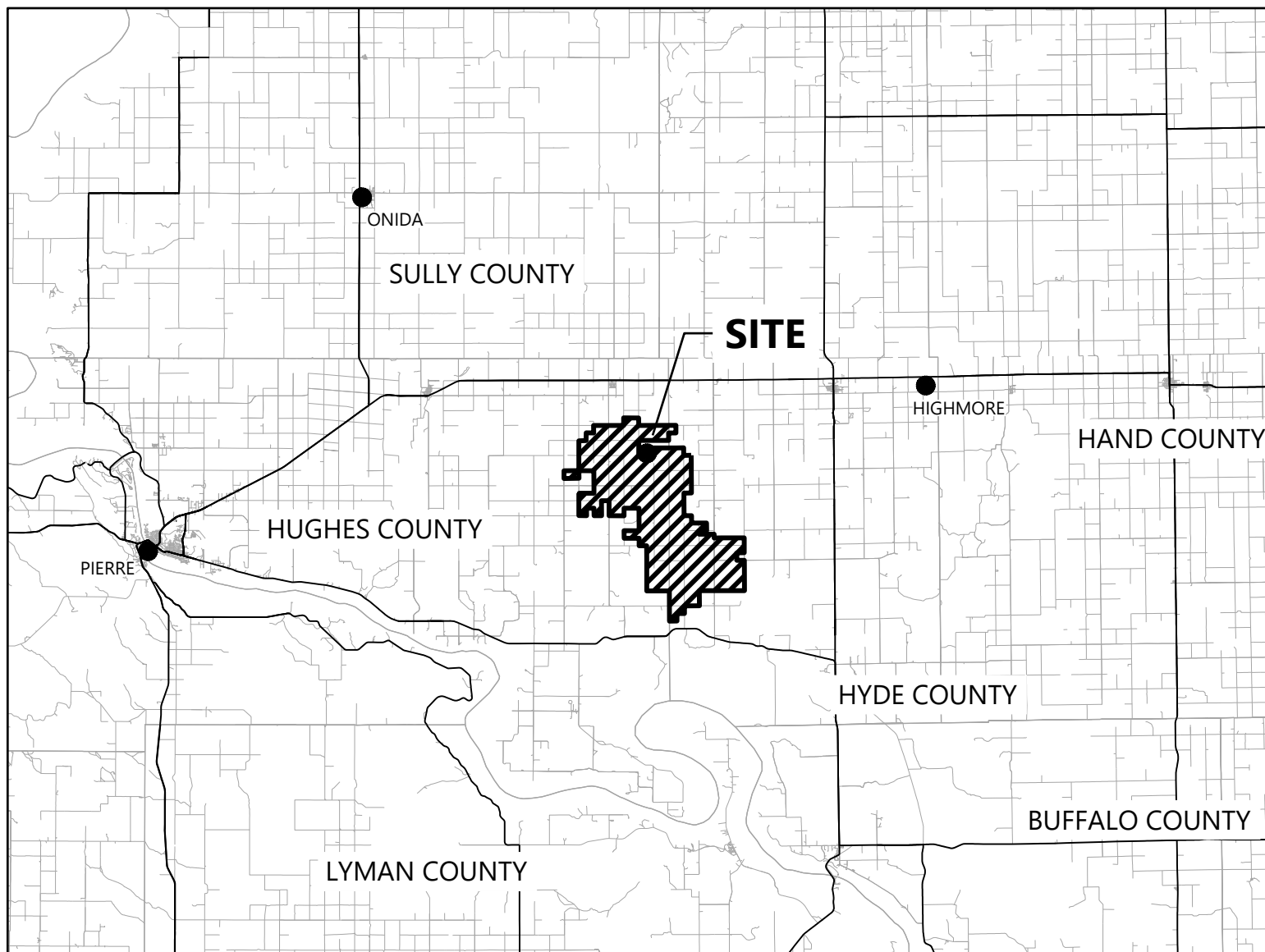
Hughes and Hyde Counties, South Dakota

ISSUED FOR RECORD

REGIONAL MAP



VICINITY MAP



DATA SET INFORMATION

BASE FILE	FILE NAME / NOTES	PROVIDER	DATE
AERIAL IMAGE	210123_Prelim_NorthBendWind	GeoTerra	6/16/2021
LAND CONTROL	0029705.00SURV	Westwood	06/15/2023
ALTA SURVEY	0029705.00SURV	Westwood	06/15/2023
TOPOGRAPHY	Geoterra_Surface_Points_2021-07-06.txt	GeoTerra	6/16/2021
TURBINE ARRAY	0029705.01V-RECO.dwg	Westwood	12/19/2023
UNDERGROUND COLLECTION	0029705.01V-RECO.dwg	Westwood and Wanzek	12/22/2023
OVERHEAD POWER	0029705.01V-RECO.dwg	Westwood and Wanzek	12/22/2023
STREAMS/WETLANDS	Wetlands USFWS.shp, Waterbodies NHD.shp, Streams NHD.shp, DelineatedWOTUS_20211005, DelineatedWOTUS_20220719, DelineatedWOTUS_20221101, SurveyArea_LOD_Delineation.shp 2023_Surveyed_Area.shp	Wanzek	11/18/2022 03/08/2023 06/05/2023
CULTURAL RESOURCES	Archaeological Site 100ft Boundary.shp, Site_Boundary_Avoidance_Areas_08172021.shp 2023_Surveyed_Area.shp	Wanzek	6/30/2021, 8/19/2021, 6/5/2023
BIOLOGICAL	NLEB Habitat Half Mile Buffer.shp	Wanzek	6/30/2021
FEMA INFO	FEMA 100 year Floodplain.shp	Wanzek	6/30/2021
TURBINE DELIVERY MANUAL	5.7 - Site_Roads_Crane_Pad_Spec_2.0-2.8-60Hz_2MW_EN_Doc-0001707_r07.pdf	Wanzek	7/27/2021
GRASSLANDS	Grassland Easements USFWS.shp	Wanzek	6/30/2021
GEOTECHNICAL REPORT	north-bend_geotechnical-report_final_rev1_certified	Wanzek	11/18/2022

CONTACT INFORMATION

PROJECT ROLE	CONTACT NAME	COMPANY	PHONE
Owner	Mary Kathryn Rountree	Engie	406-207-9567
Contractor	Taylor Carlson	Wanzek	218-255-4808
Site Design Lead Engineer	Travis Garvin	Westwood	920-284-4392
Senior Project Manager/EOR	Dani Nygren	Westwood	952-906-7493

RECORD DRAWINGS

INFORMATION SHOWN ON THESE PLANS CONFORMS TO CONSTRUCTION RECORDS. CIVIL REDLINES AND GPS PROVIDED BY WANZEK DECEMBER 2023 AND GPS PROVIDED BY WESTWOOD PROFESSIONAL SERVICES COMPLETED DECEMBER 2023.

Westwood

Phone (952) 937-5150 12701 Whitewater Drive, Suite #300
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Westwood Professional Services, Inc.

PREPARED FOR:



4850 32nd Avenue South
Fargo, ND 58104

REVISIONS:					
#	DATE	COMMENT	BY	CHK	APR
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North Bend Wind Project

Hughes and Hyde Counties,
South Dakota

Cover

ISSUED FOR RECORD

DATE: 01/03/2024

SHEET: 01

REV:

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Sheet List Table			
SHEET NUMBER	SHEET TITLE	RECORD NUMBER	RECORD DATE
01	Cover	0	1/3/2024
02	Sheet List Table	0	1/3/2024
03	Overall Site Plan	0	1/3/2024
04	Turbine Delivery Flow Plan	0	1/3/2024
05	Construction Details	0	1/3/2024
06	Construction Details	0	1/3/2024
07	Construction Details	0	1/3/2024
08	Construction Details	0	1/3/2024
09	Construction Details	0	1/3/2024
10	Construction Details	0	1/3/2024
11	Construction Details	0	1/3/2024
12	Construction Details	0	1/3/2024
13	Construction Details	0	1/3/2024
14	Construction Tables	0	1/3/2024
15	Construction Tables	0	1/3/2024
16	Construction Notes	0	1/3/2024
17	Construction Notes	0	1/3/2024
18	Site Plan C8, C9	0	1/3/2024
19	Site Plan E8	0	1/3/2024
20	Site Plan E7	0	1/3/2024
21	Site Plan C5, C7	0	1/3/2024
22	Site Plan C6	0	1/3/2024
23	Site Plan	0	1/3/2024
24	Site Plan E9	0	1/3/2024
25	Site Plan E5, E6	0	1/3/2024
26	Site Plan C3, C4, E4	0	1/3/2024
27	Site Plan C1, C2	0	1/3/2024
28	Site Plan F6, F7	0	1/3/2024
29	Site Plan F4, F5, PMM_T06	0	1/3/2024
30	Site Plan F2, F3	0	1/3/2024
31	Site Plan F1	0	1/3/2024
32	Site Plan E1, E2	0	1/3/2024
33	Site Plan E3, D8	0	1/3/2024
34	Site Plan	0	1/3/2024
35	Site Plan F8, F9	0	1/3/2024
36	Site Plan	0	1/3/2024
37	Site Plan D7	0	1/3/2024
38	Site Plan D6	0	1/3/2024
39	Site Plan	0	1/3/2024
40	Site Plan B9	0	1/3/2024
41	Site Plan D4, D5	0	1/3/2024
42	Site Plan B7, B8	0	1/3/2024
43	Site Plan B2	0	1/3/2024
44	Site Plan B3, B4	0	1/3/2024
45	Site Plan B5, B6	0	1/3/2024
46	Site Plan D3	0	1/3/2024
47	Site Plan D2	0	1/3/2024
48	Site Plan D1	0	1/3/2024
49	Site Plan B1	0	1/3/2024
50	Site Plan ADLS Tower	0	1/3/2024
51	Site Plan G9	0	1/3/2024
52	Site Plan	0	1/3/2024
53	Site Plan G3	0	1/3/2024
54	Site Plan G2	0	1/3/2024
55	Site Plan A2, A6	0	1/3/2024
56	Site Plan A3, A4, A5	0	1/3/2024
57	Site Plan G8	0	1/3/2024
58	Site Plan G5, G6, G7	0	1/3/2024
59	Site Plan G4	0	1/3/2024
60	Site Plan H2, H3	0	1/3/2024
61	Site Plan A1, G1, H1, I1, Substation	0	1/3/2024
62	Site Plan I5, I7	0	1/3/2024
63	Site Plan I2, I3, I4	0	1/3/2024
64	Site Plan I6, I8, I9	0	1/3/2024
65	Laydown Yard - Grading Plan	0	1/3/2024

Westwood

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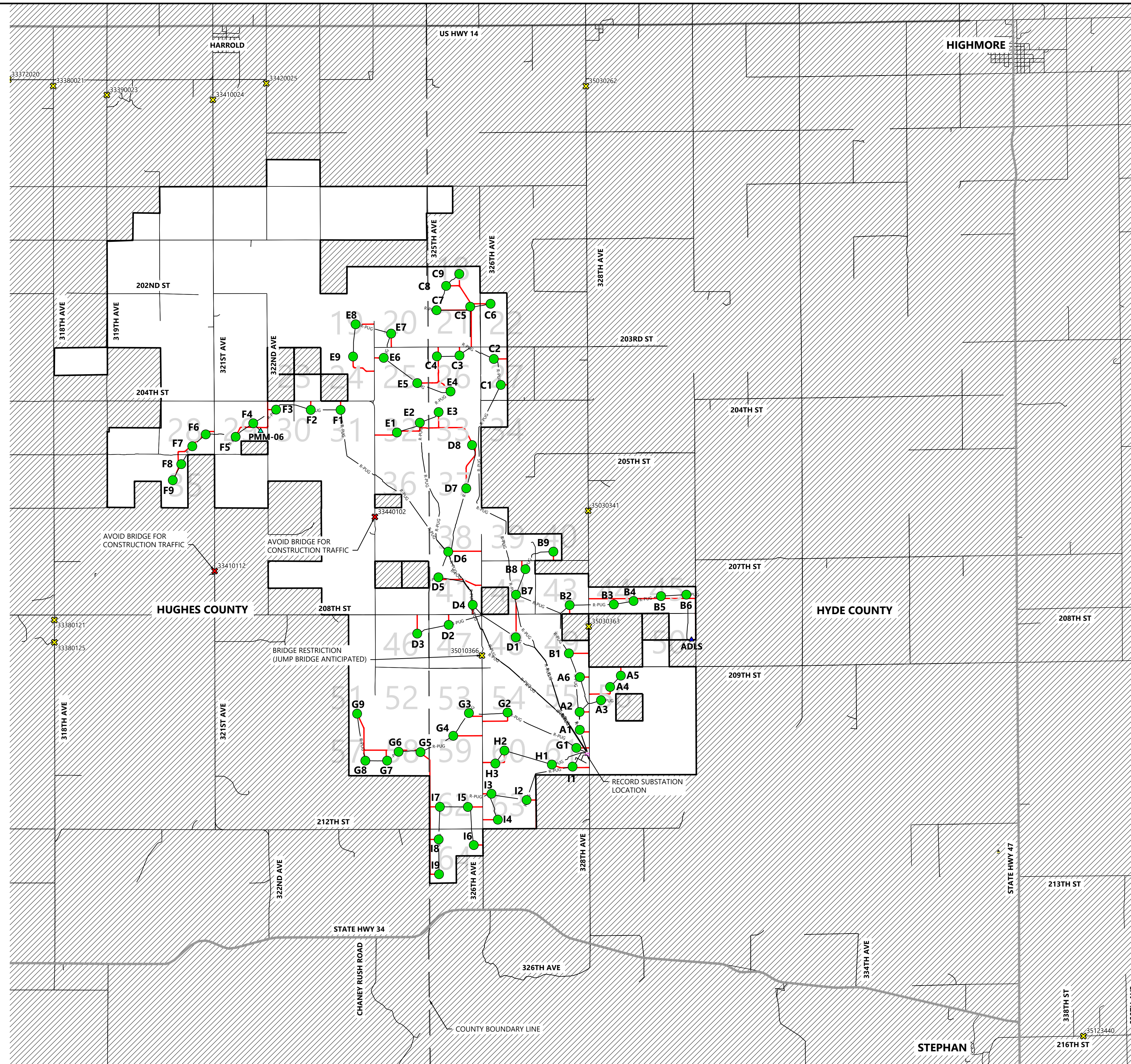
North Bend Wind Project

Hughes and Hyde Counties,
South Dakota

Sheet List Table

ISSUED FOR RECORD

DATE: 01/03/2024
SHEET: 02
REV: 0



LEGEND:

- | | |
|---|-------------------------------|
|  | PROJECT BOUNDARY |
|  | RECORD TURBINE LOCATION |
|  | RECORD TURBINE NUMBER |
|  | RECORD MET TOWER LOCATION |
|  | RECORD MET TOWER NAME |
|  | RECORD ADLS LOCATION |
|  | RECORD ADLS NAME |
|  | RECORD ACCESS ROAD |
|  | RECORD UNDERGROUND COLLECTION |
|  | RECORD OVERHEAD TRANSMISSION |
|  | EXISTING ROAD |
|  | EXISTING COUNTY BOUNDARY |
|  | EXISTING HIGHWAY |
|  | RECORD PROJECT FACILITIES |
|  | NBI ID |
|  | EXISTING NBI BRIDGE |
|  | NBI ID |
|  | EXISTING NBI BRIDGE TO AVOID |
|  | SHEET NUMBER |

ITEM	LENGTH
PROPOSED ACCESS ROADS	31.92 mi
PROPOSED ALTERNATE ACCESS ROADS	3.89 mi
PROPOSED CRANE PATH	21.47 mi*
PROPOSED ALTERNATE CRANE PATH	1.90 mi

* LENGTH OF CRANE PATH ONLY INCLUDES SEGMENTS THAT DO NOT FOLLOW ACCESS ROADS.

ITEM	LENGTH
RECORD ACCESS ROADS	31.84 mi*

* LENGTH OF RECORD ACCESS ROADS IS APPROXIMATE.



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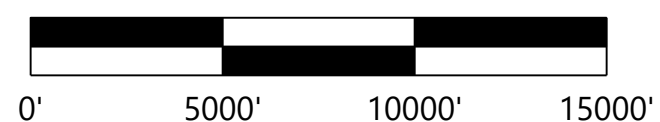
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North Bend Wind Project

Hughes and Hyde Counties,
South Dakota

Overall Site Plan

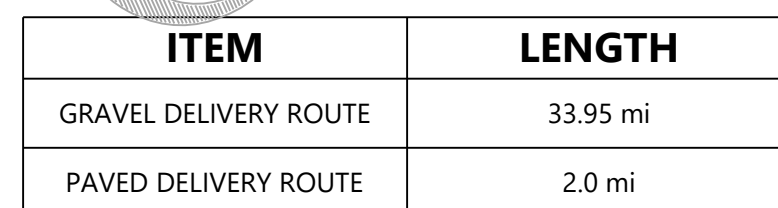
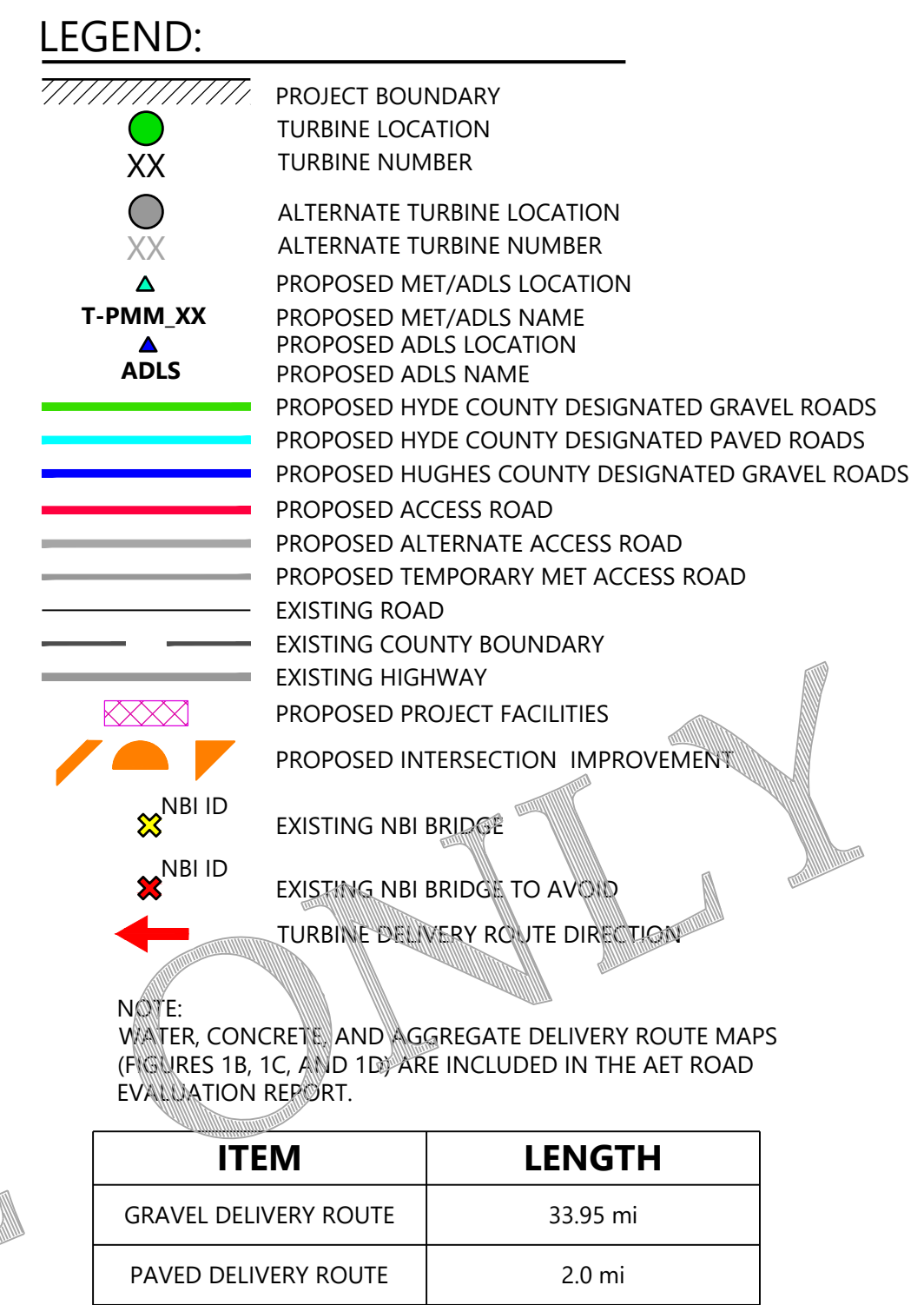
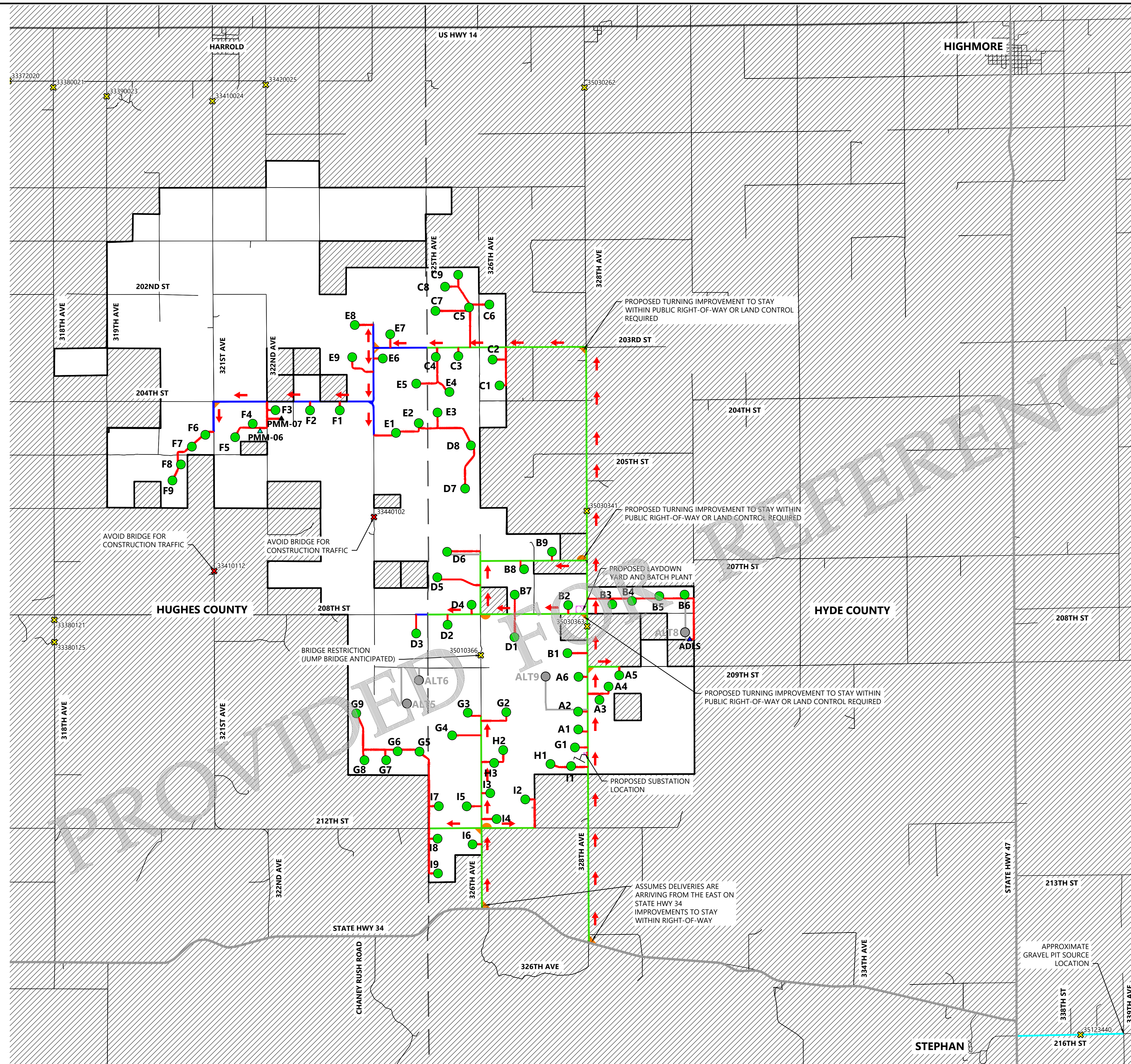
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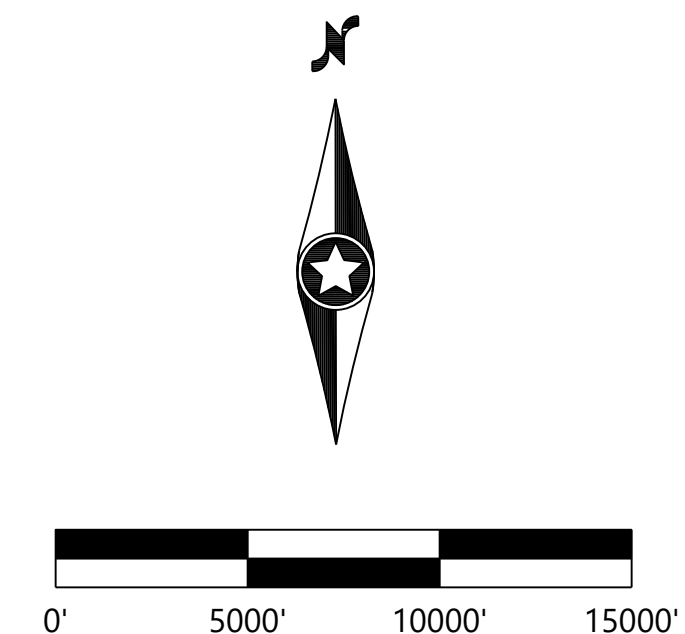
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North Bend Wind Project

Turbine Delivery Flow Plan

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North Bend Wind Project

Hughes and Hyde Counties,
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Construction Details

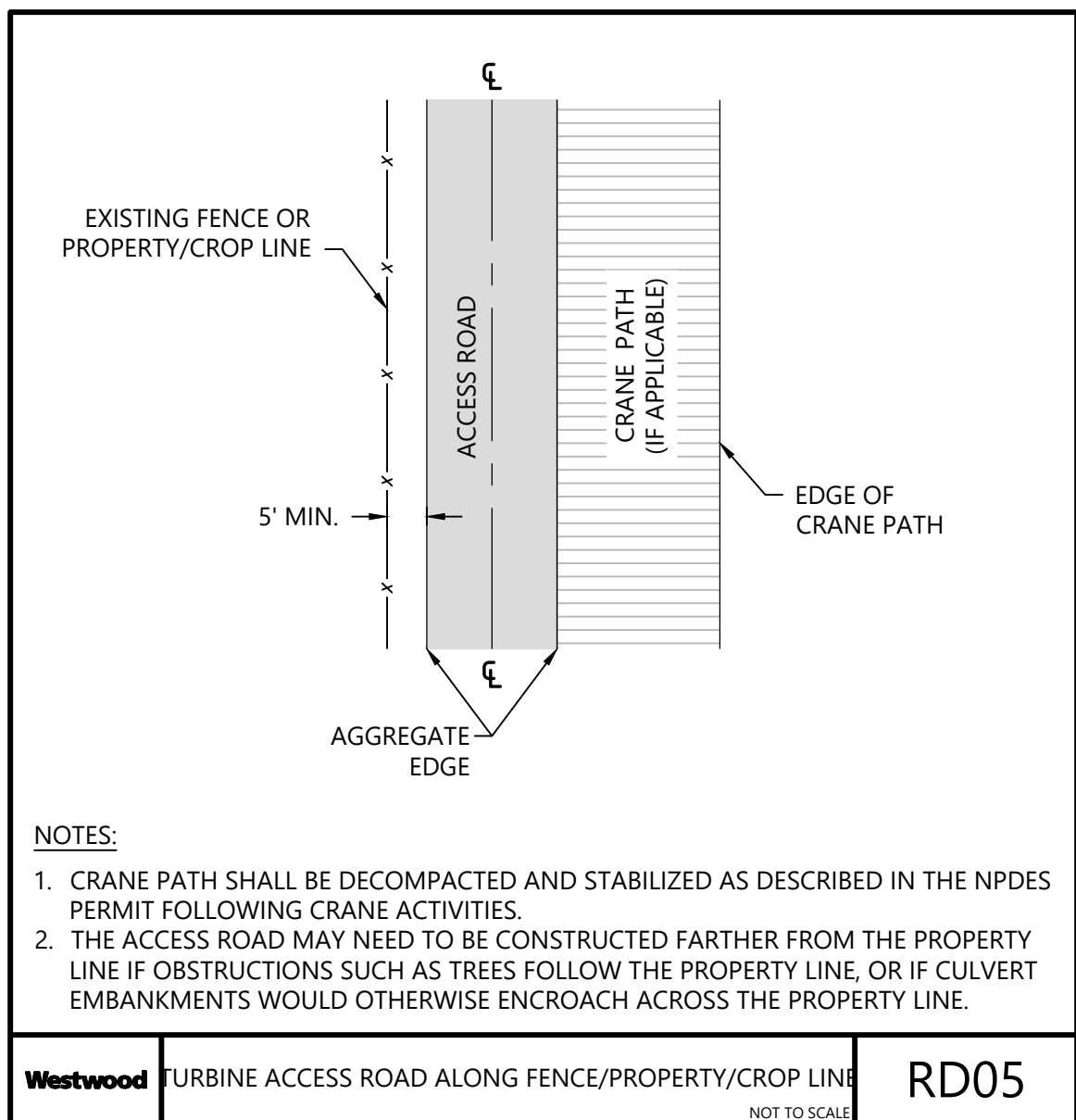
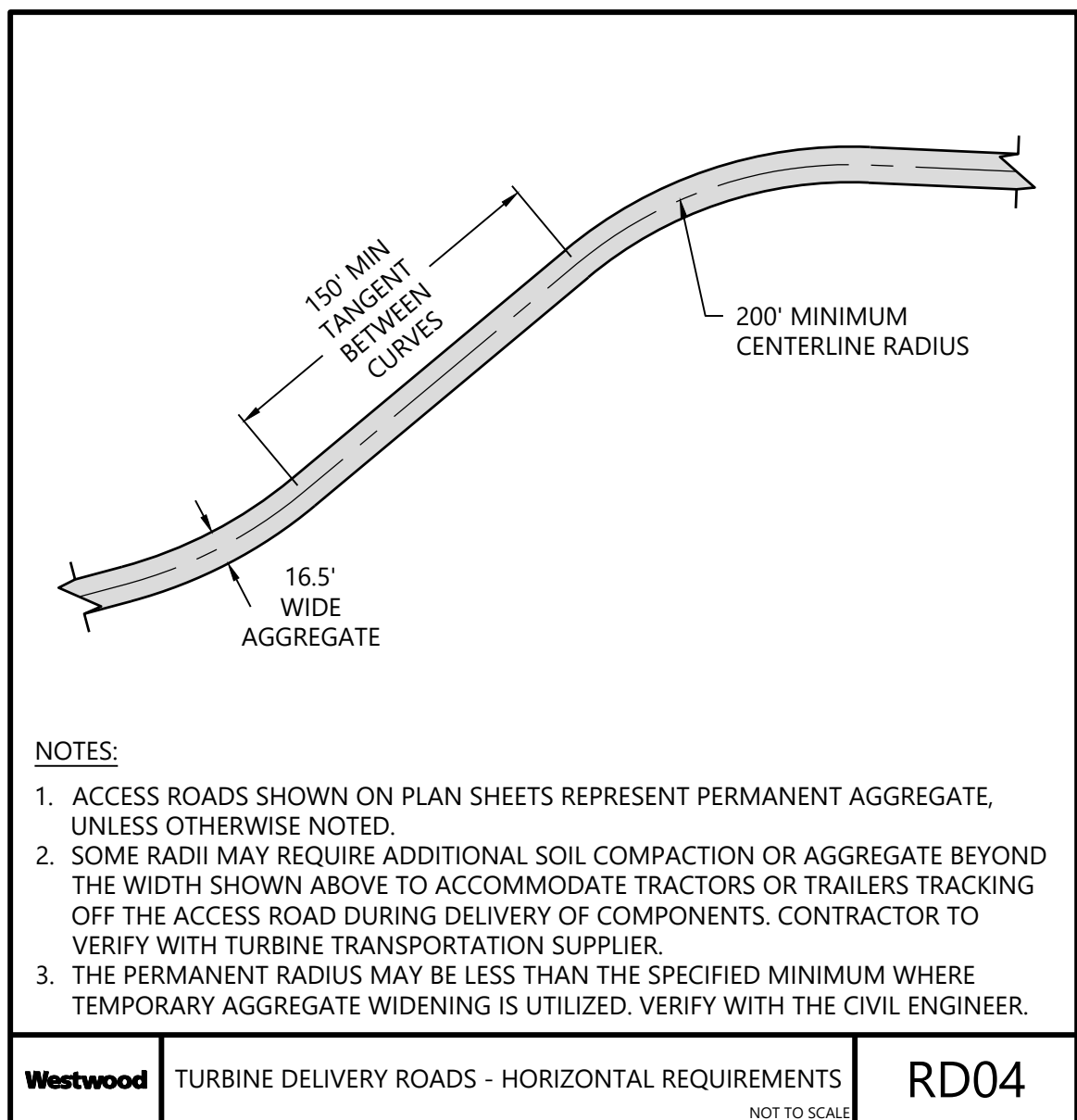
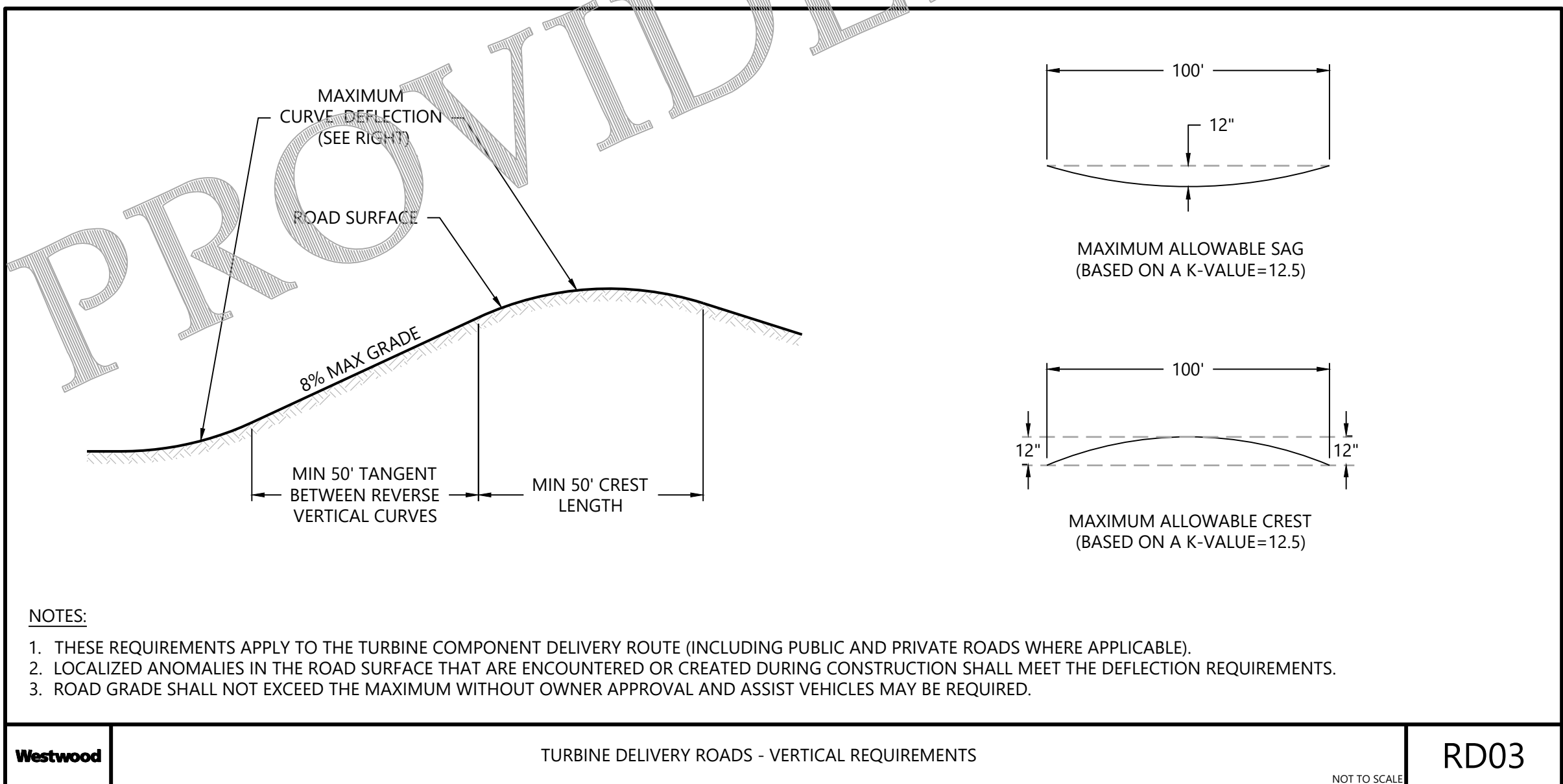
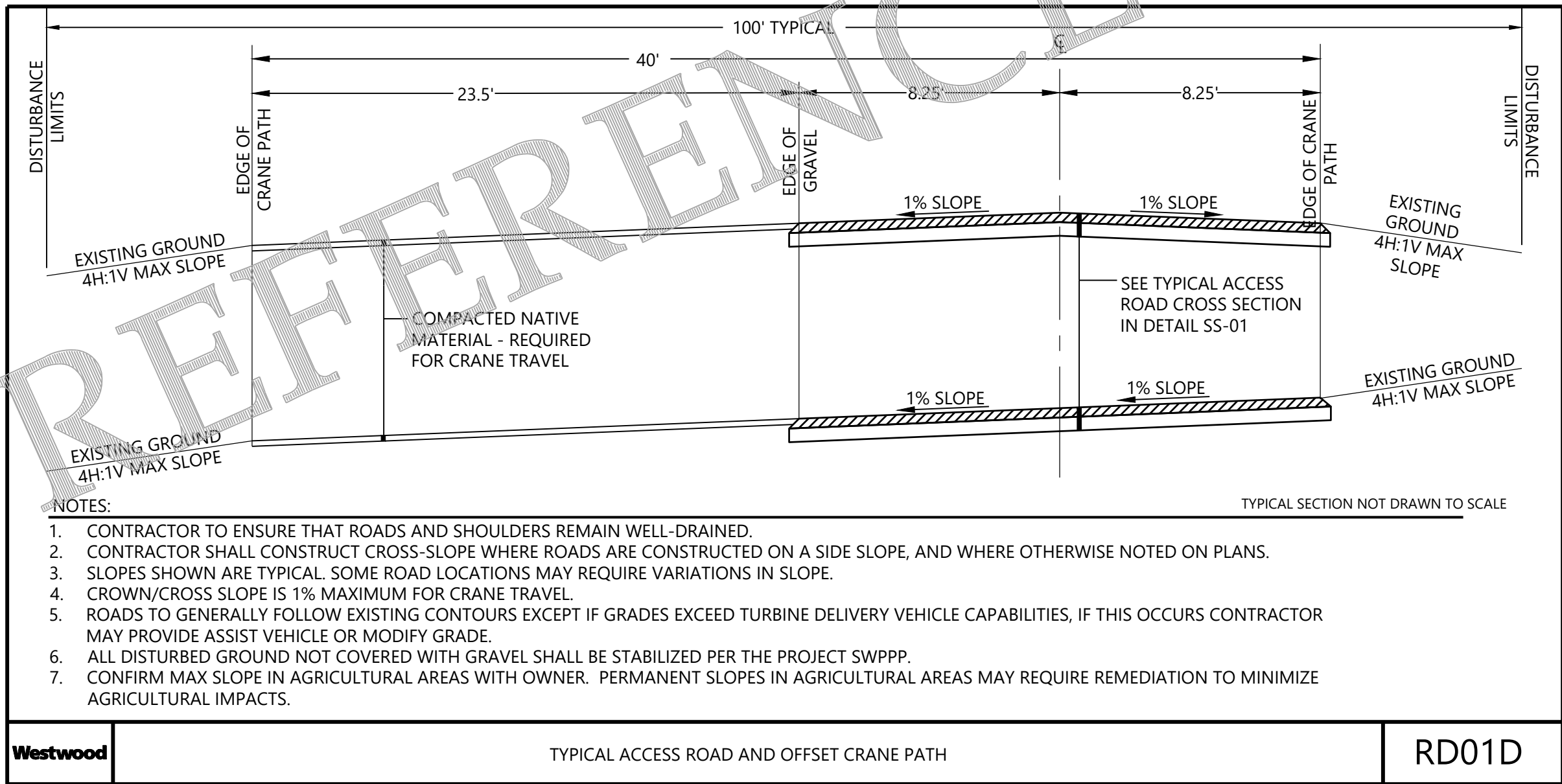
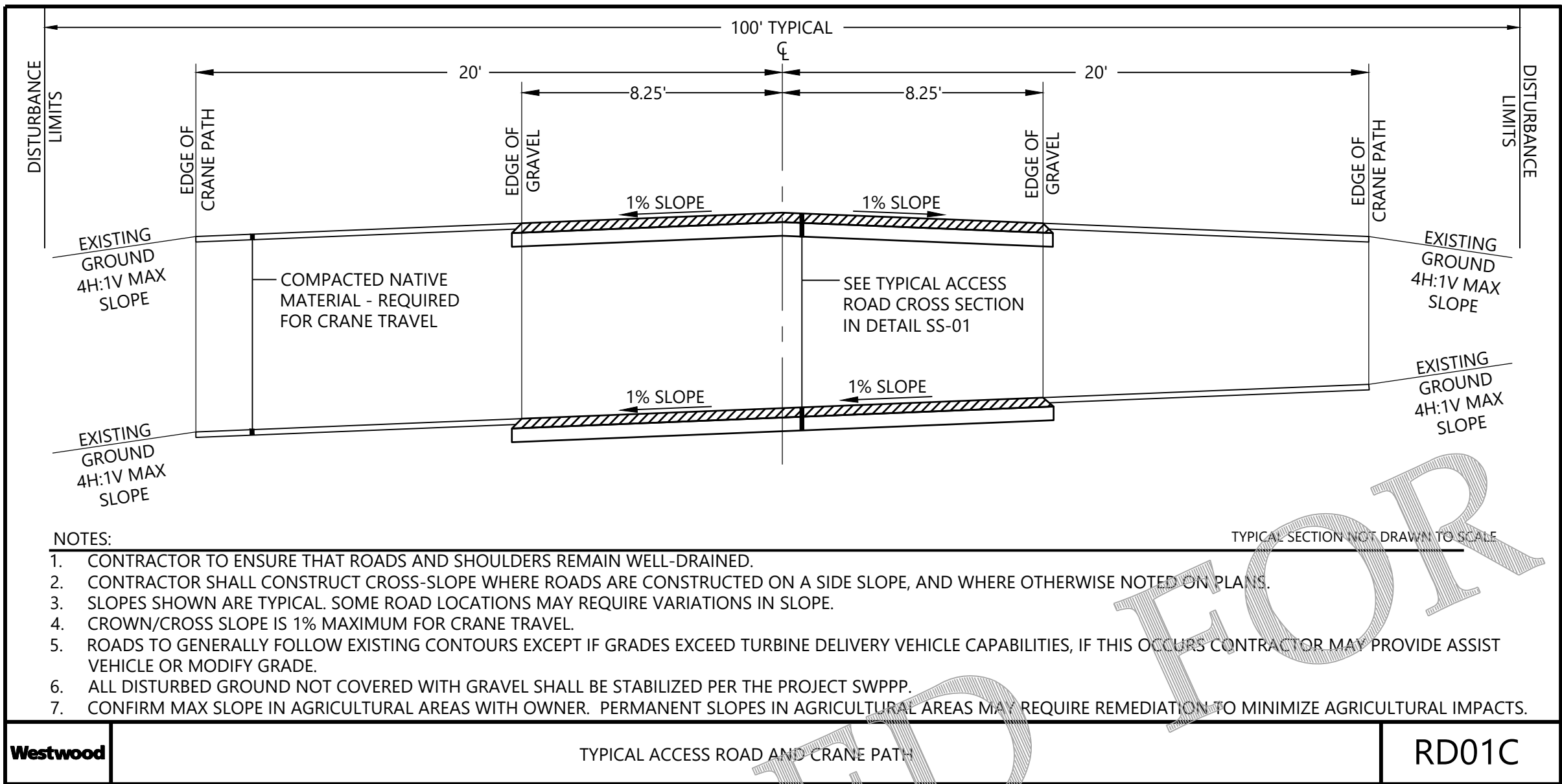
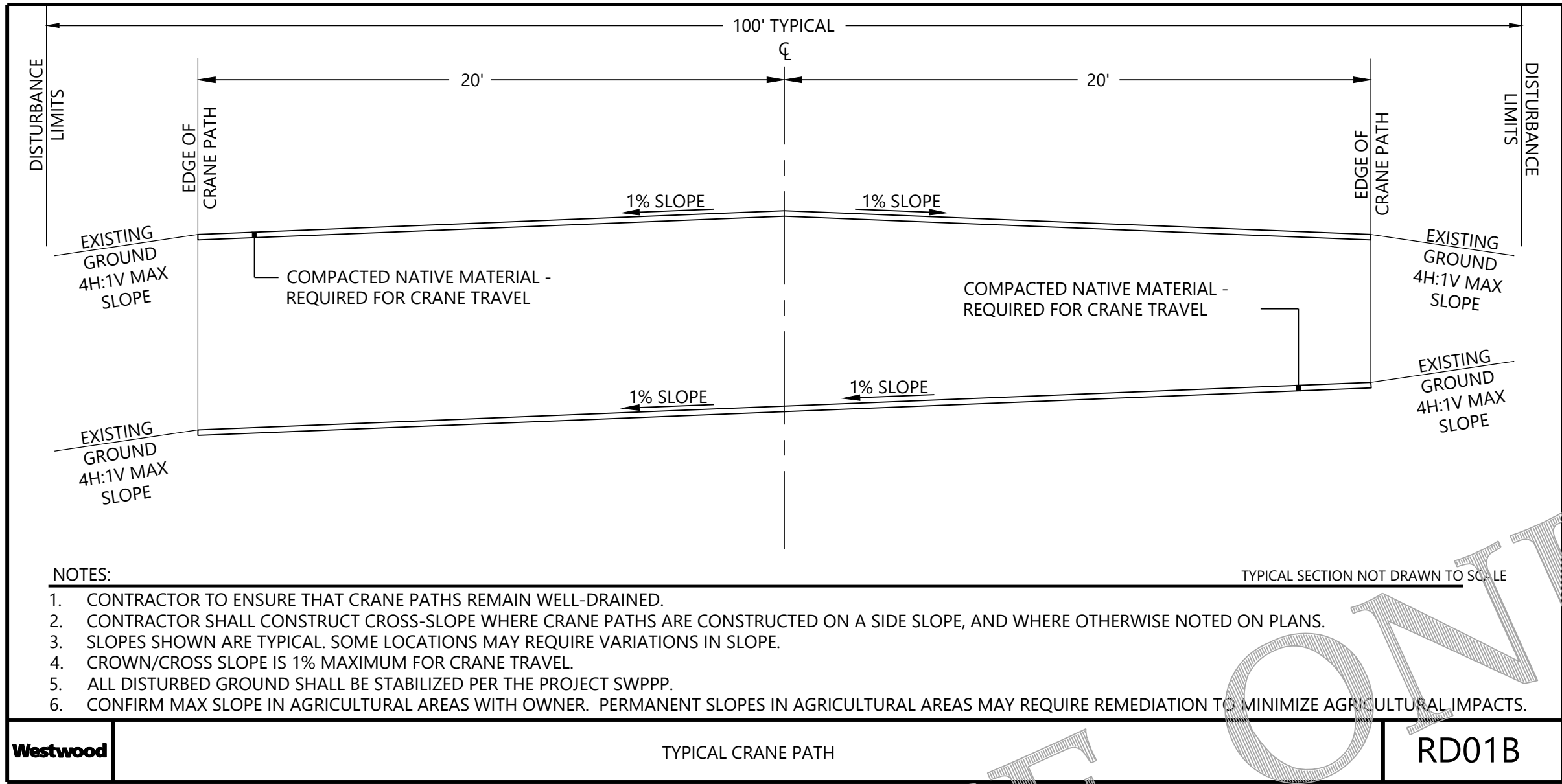
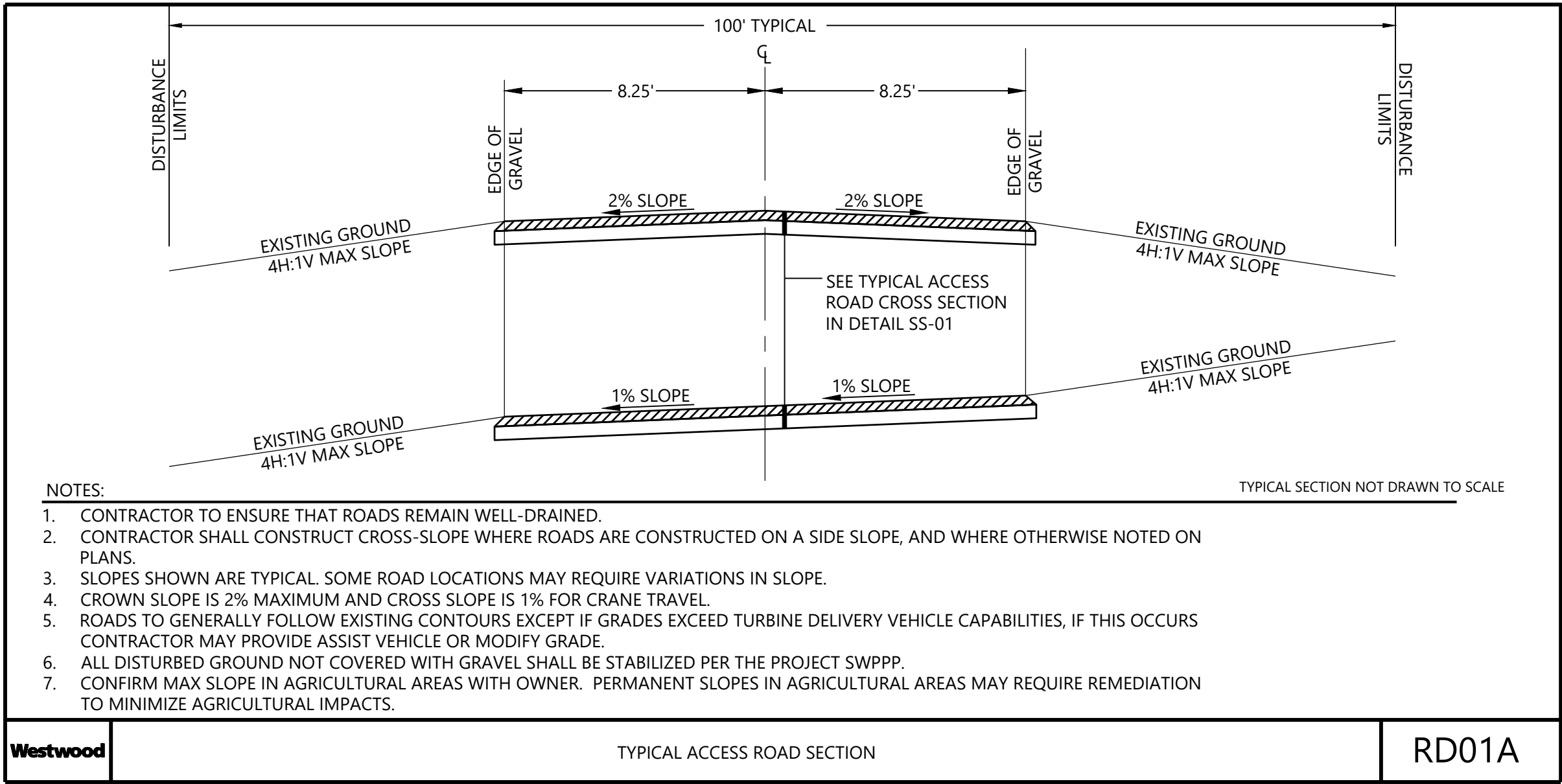
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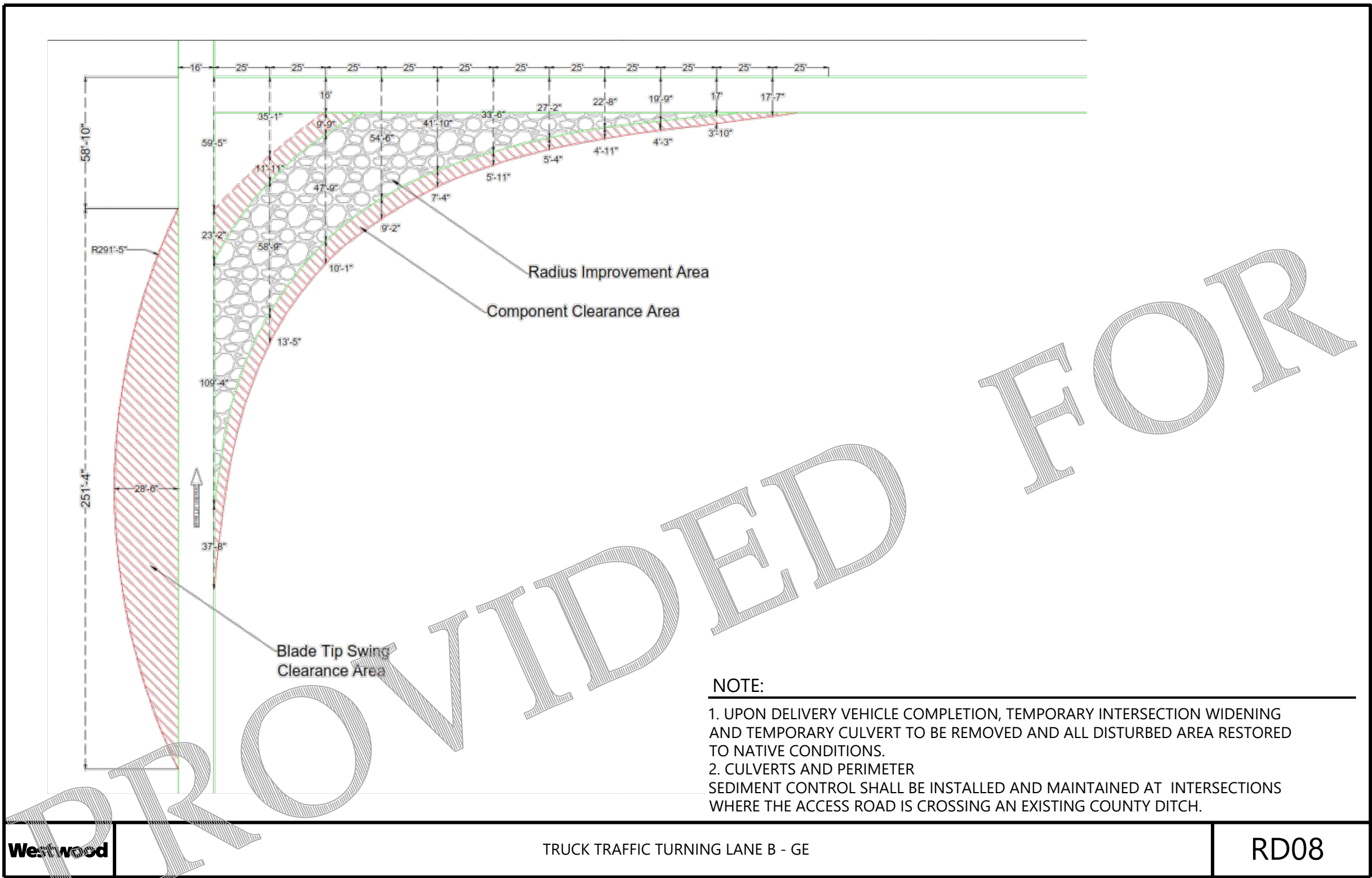
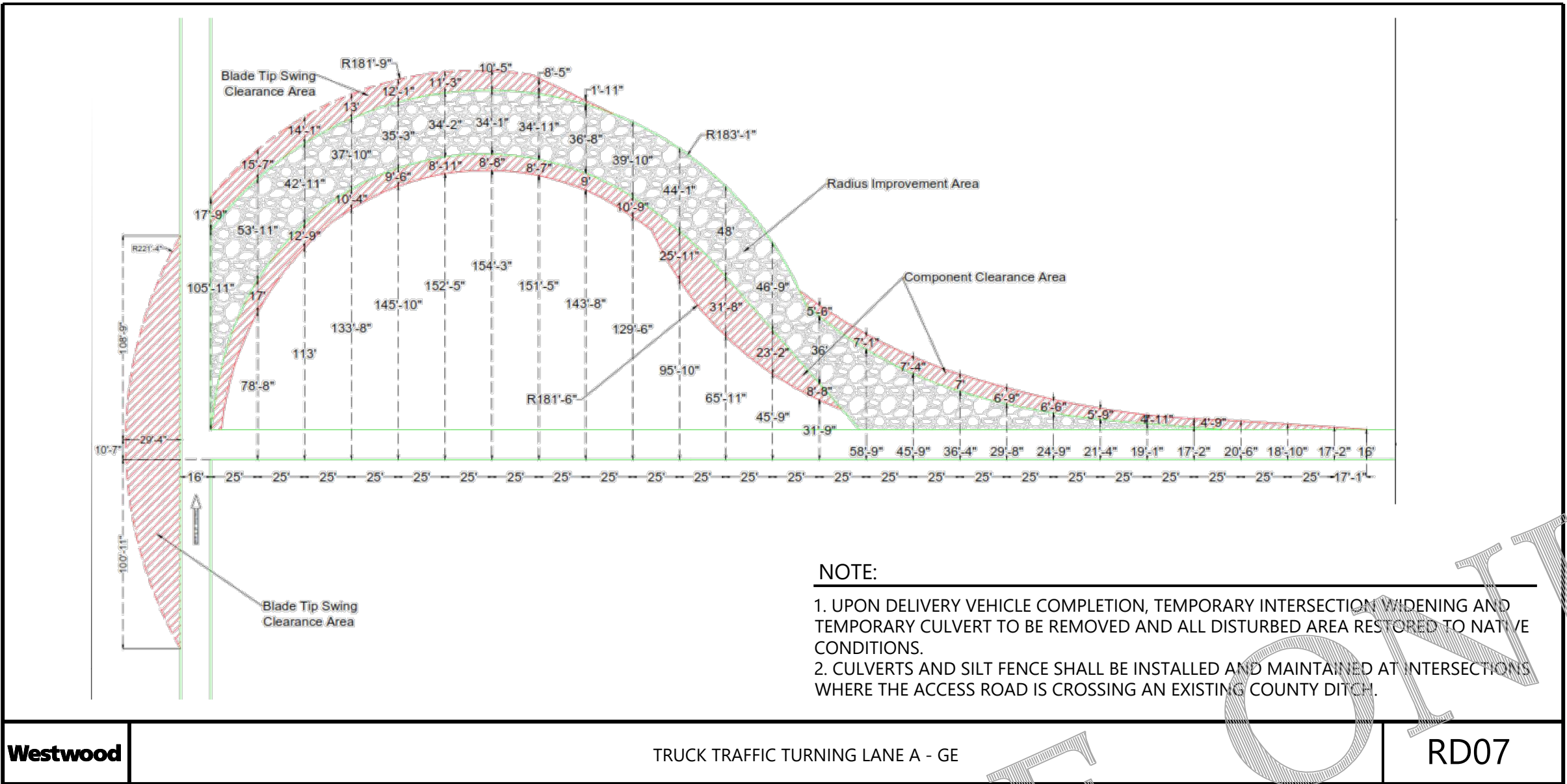
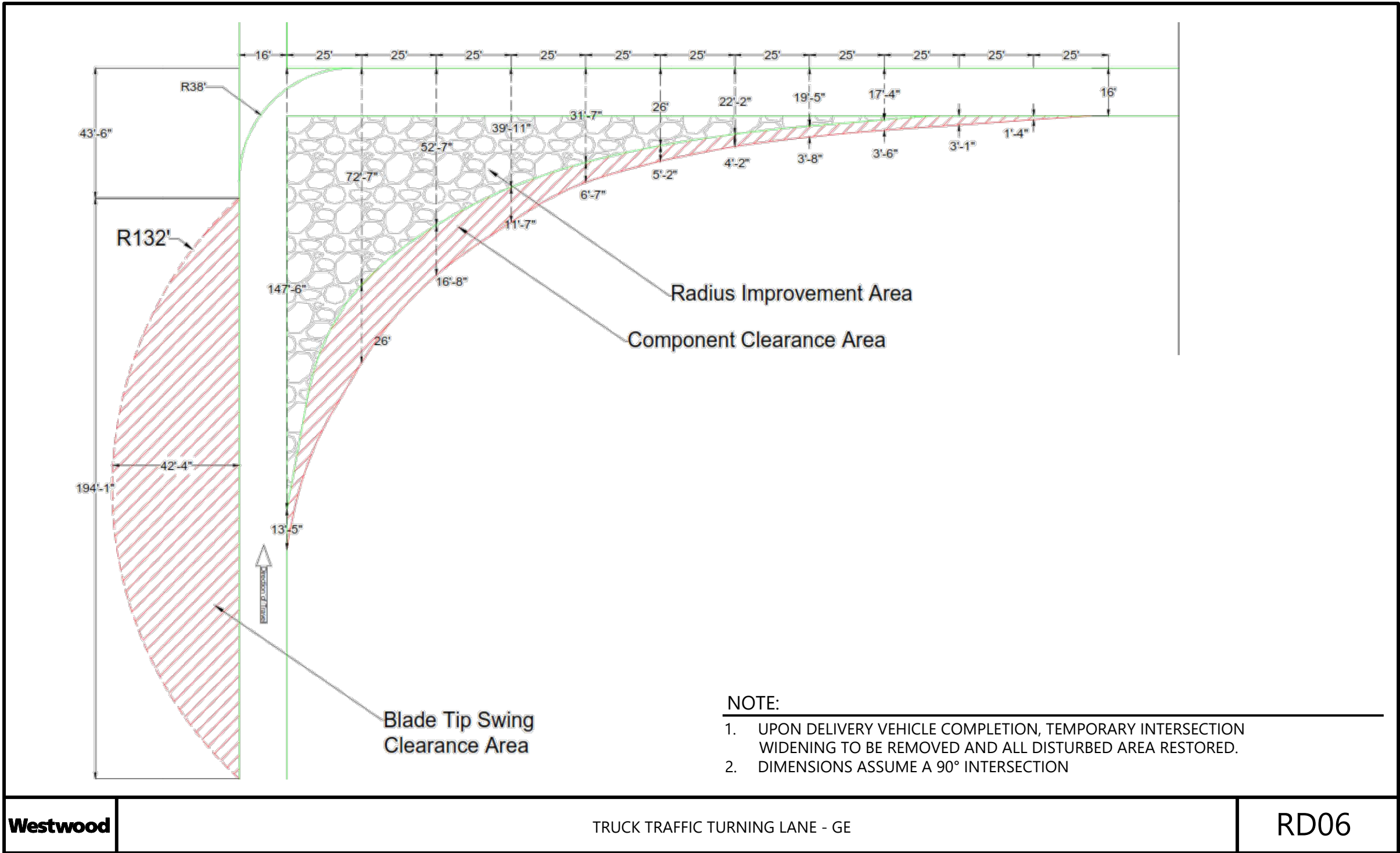
Construction Details

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North Bend Wind Project

Hughes and Hyde Counties,
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Construction Details

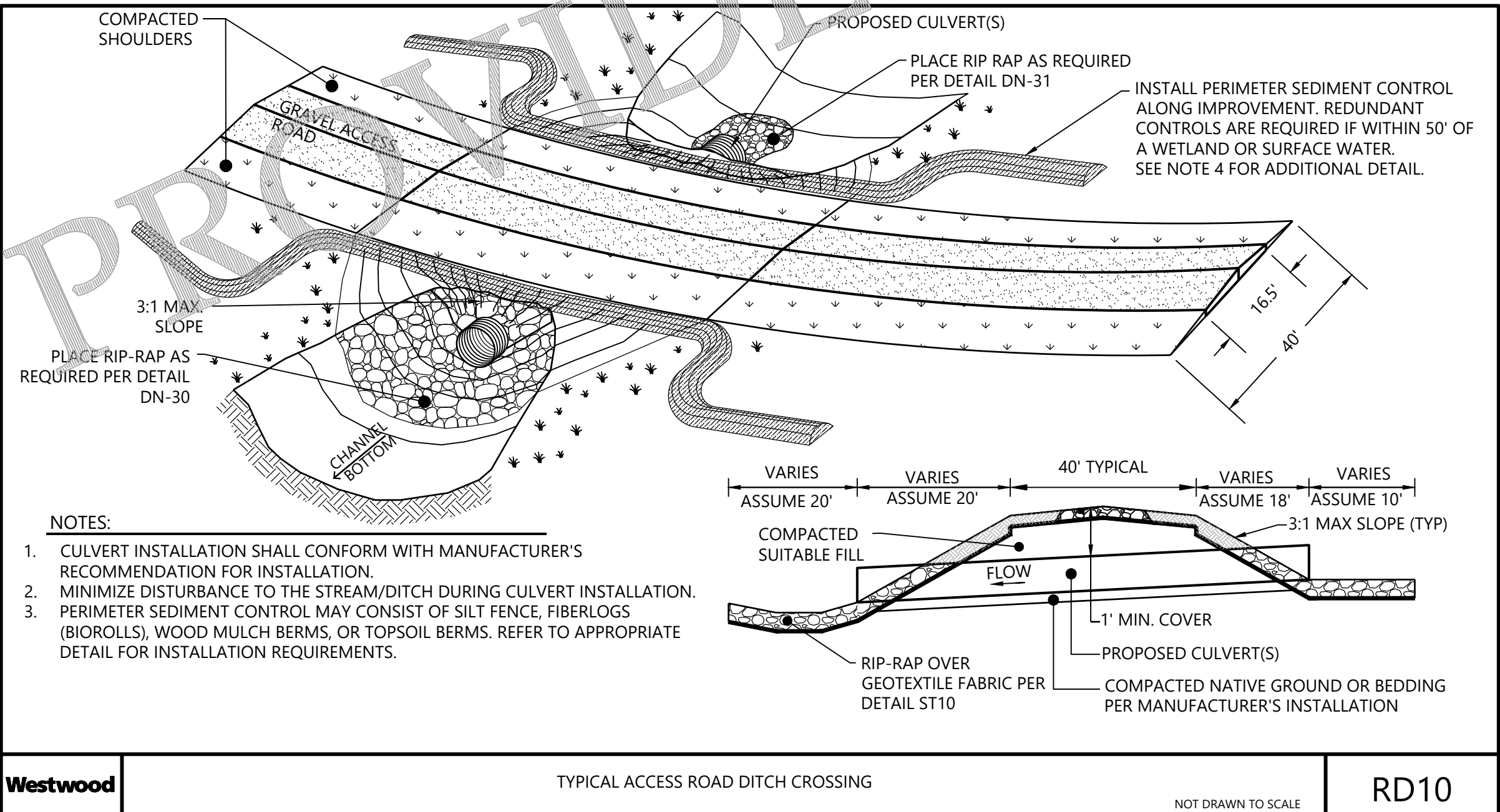
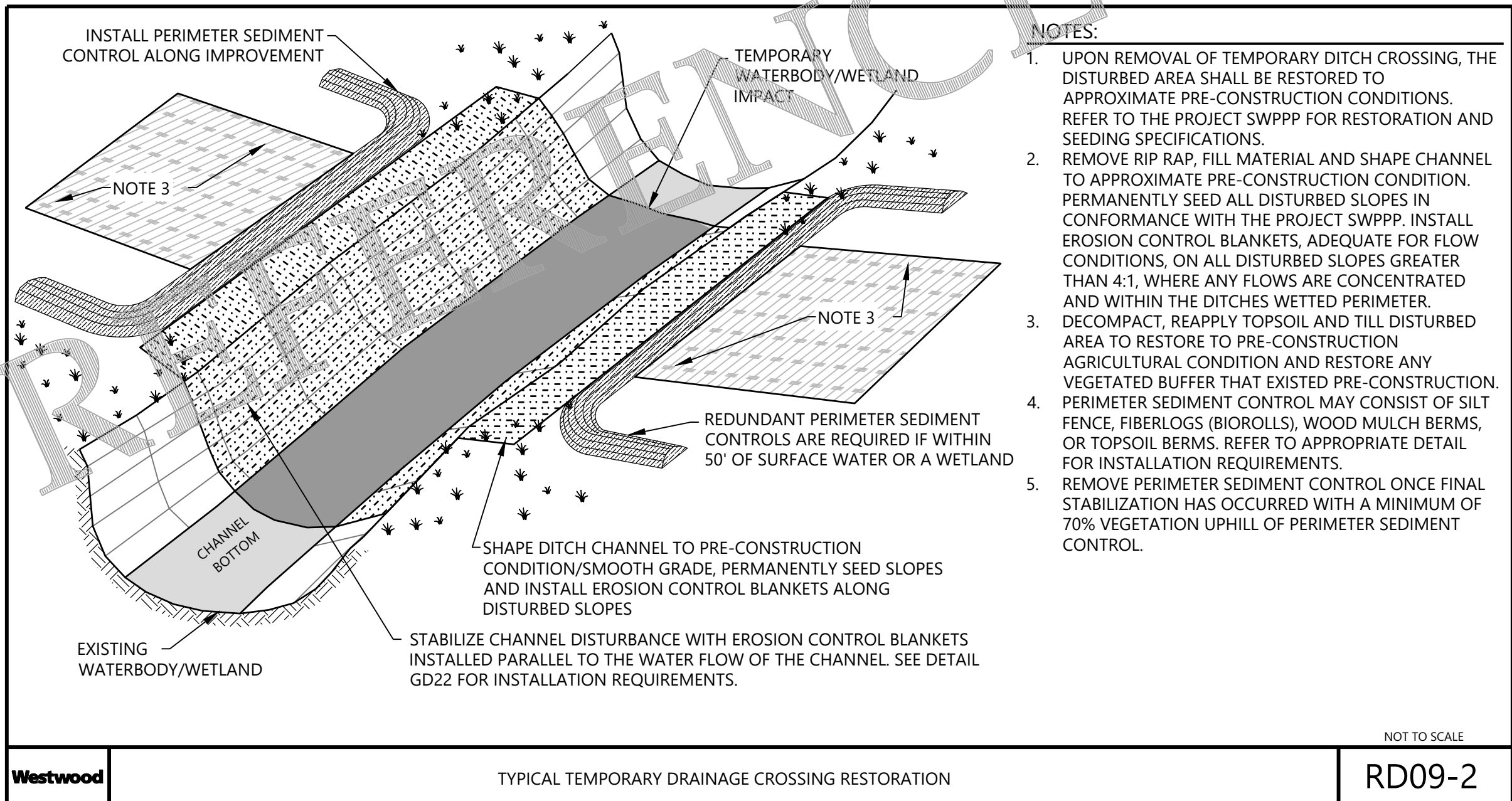
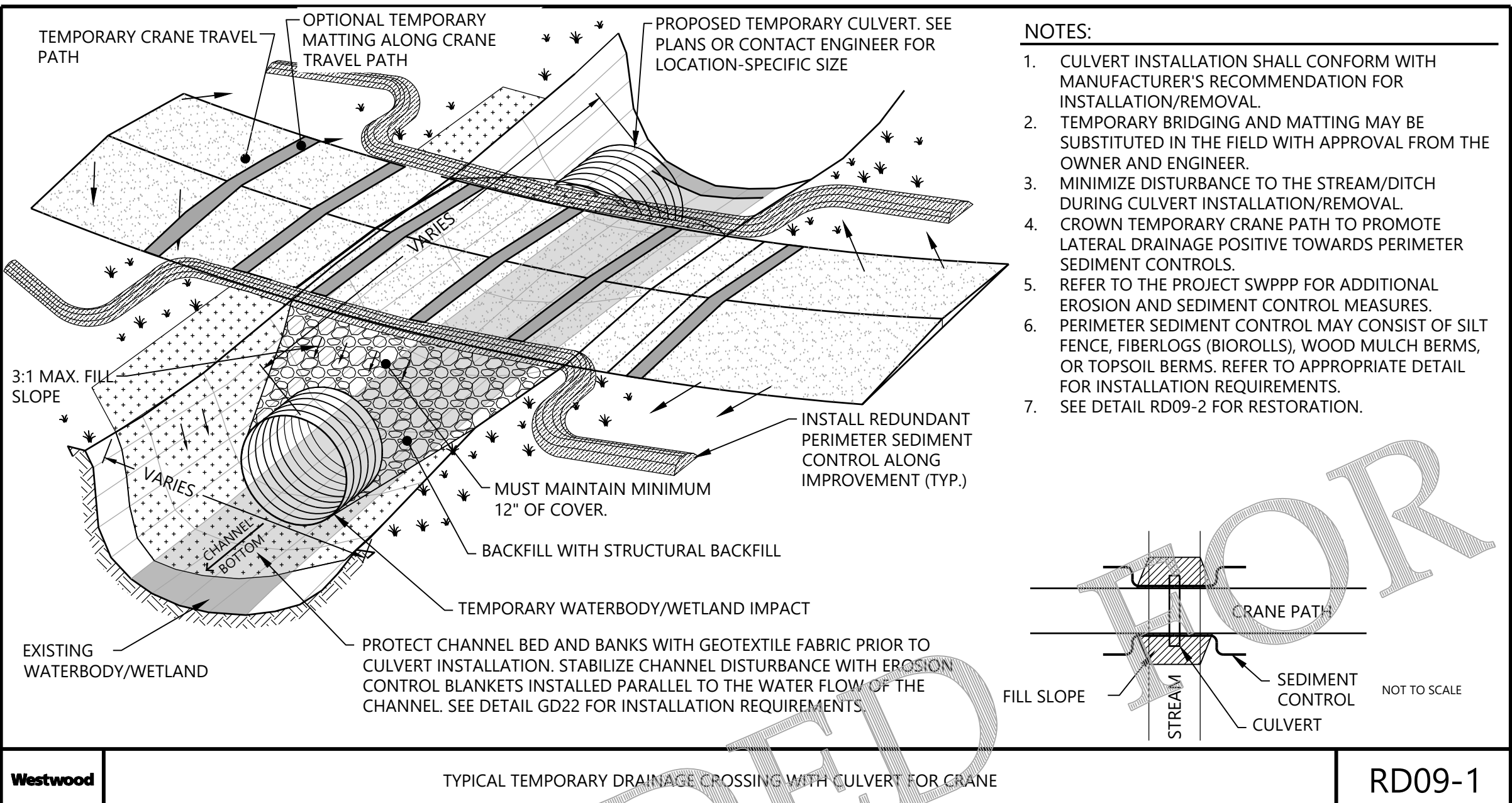
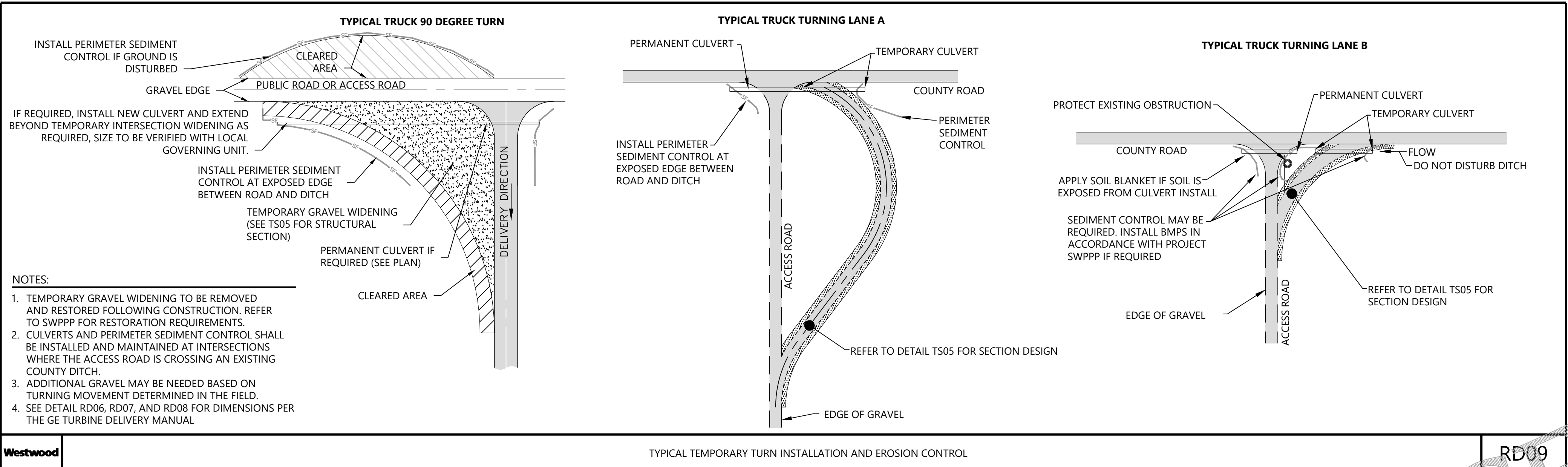
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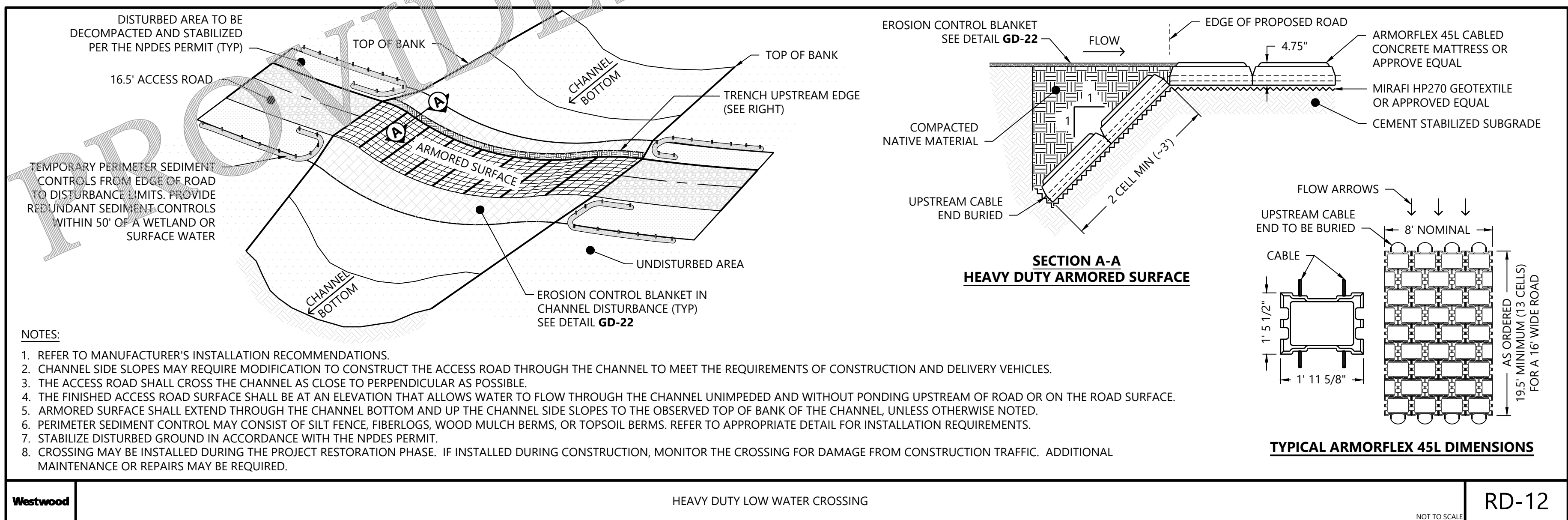
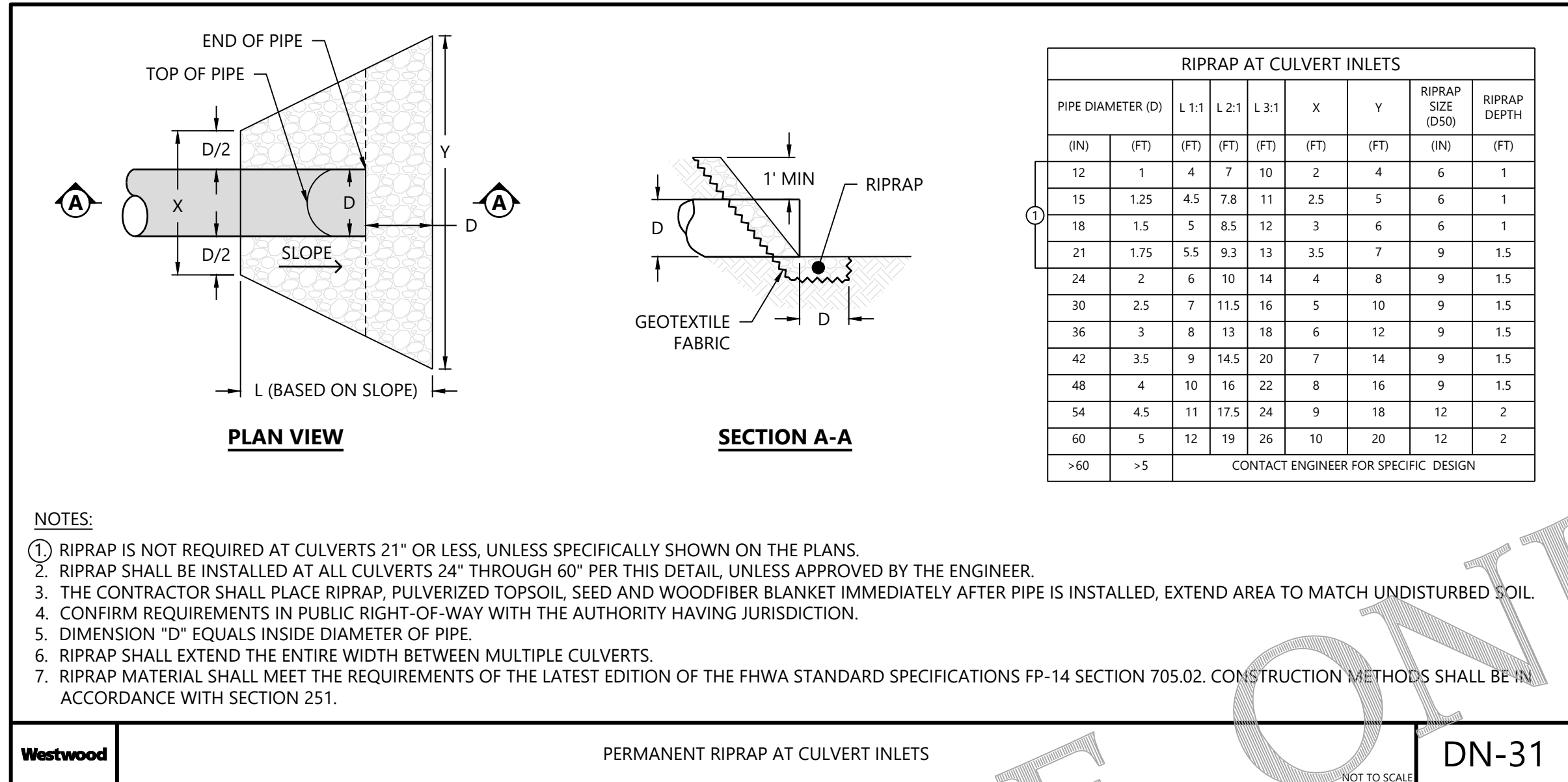
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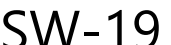
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WANZEK
a MasTec company 

SHEET: 09 0



NOTE - EROSION AND SEDIMENT CONTROL DETAIL PROVIDED ARE TO BE USED AT CONTRACTOR'S DISCRETION OR AS SPECIFIED IN THE PROJECT SWPPP. IT IS THE CONTRACTOR'S/OPERATOR'S RESPONSIBILITY TO MAINTAIN COMPLIANCE.

WOVEN MONOFILAMENT (36" WIDE)
5' STEEL T-POST OR WOOD POST
6'-0" MAX SPACING
PONDING HEIGHT
5' STEEL T-POST OR WOOD POST
FILTRE FABRIC, ATTACH SECURELY TO UPSTREAM SIDE OF POST WITH 3-50lb TENSILE STRENGTH PLASTIC ZIP-TIES PER POST WITHIN TOP 8" OF FABRIC
RUNOFF
12" MIN
8"
FABRIC SLICED INTO SOIL WITH COMPACTED BACKFILL
4"

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	ESC01
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VARIES
12' MIN
15' MIN
ROCK ACCESS
CONCRETE WASHOUT SIGN
SILT FENCE
EARTH BERM
MULCH & SEED
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 LAYER. WASHOUT SYSTEMS CAN BE USED AS ALTERNATE WASHOUT AREAS.
SECTION A-A
1.5' MIN
SILT FENCE
IMPERMEABLE LINER

Westwood	CONCRETE WASHOUT AREA	GD08
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NOTE - RECLAIM SEED MIXES ARE TO BE USED AS SPECIFIED IN THE PROJECT SWPPP. IT IS THE CONTRACTOR'S/OPERATOR'S RESPONSIBILITY TO MAINTAIN COMPLIANCE.

SLOPE TRACKING
25 FT
MAXIMUM
6' MIN
SLOPE
TEMPORARY CONTOUR FURROWS

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	GD09
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EROSION CONTROL BLANKET
4" X 4" TRENCH BACKFILLED OVER EROSION CONTROL BLANKET
12' MINIMUM BLANKETS MUST OVERLAP BY 4'
POINT "A"
POINT "B"
8", 11 GA. STAPLES SPACED 1' 0" ON CENTER
2"X2" X 18" LONG WOODEN STAKES AT 2' 0" SPACING. DRIVE THROUGH NETTING AND FIBER ROLL.
STRAW OR WOOD FIBER 6" OR 12" DIA. ROLL ENCLOSED IN PLASTIC OR POLYESTER NETTING BIOROLL MIN. 10' LONG

NOTE:
1. REFER TO THE NPDES PERMIT FOR IMPLEMENTATION REQUIREMENTS.
2. POINT "A" MUST BE HIGHER THAN POINT "B" TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS.
3. TYPE OF MATERIAL FOR EROSION CONTROL BLANKET IS SUBJECT TO FIELD CONDITIONS AND MANUFACTURERS RECOMMENDATION.

Westwood	TEMPORARY BIOROLL BLANKET SYSTEM (DITCH APPLICATION)	GD23
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CLASS I-IV RIP RAP
PLACE FILTER FABRIC UNDER ROCK (TYPE IV FABRIC)
VIEW LOOKING UPSTREAM
KEY STONE INTO THE DITCH BANKS AND EXTEND IT BEYOND THE ABUTMENTS A MINIMUM OF 18" TO PREVENT OVER FLOW AROUND DAM.
FLOW
KEY IN ENDS OF FILTER FABRIC MINIMUM OF 6"
5 ft
24"
SECTION A-A
TYPE IV FABRIC
"L" = THE DISTANCE SUCH THAT POINTS 'A' AND 'B' ARE OF EQUAL ELEVATION.
POINT 'A'
POINT 'B'
SPACING BETWEEN CHECK DAMS

Westwood	TEMPORARY ROCK CHECK DAM	GD18
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SPACING FOR STAPLES
SLOPE RATIO
2:1 (H:V) > 1.2 STAPLES/YARD
2:1 - 1:1 1.7 STAPLES/YARD
VARIES
VARIES
VARIES
VARIES
TAMP DIRT OVER MAT/BLANKET
BERM
GENERAL PATTERN
MIN. 4" OVERLAP
FILTER CLOTH UNDER 4" ABOVE SOURCE OF WATER
NON-WOVEN GEOTEXTILE FILTER FABRIC UNDER TYPICAL TREATMENT WET SLOPE LINING
WATER TABLE
TYPICAL SLOPE 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, WISDOT 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	GD21
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LONGITUDINAL ANCHOR TRENCH
TERMINAL SLOPE AND CHANNEL ANCHOR TRENCH
INITIAL CHANNEL ANCHOR TRENCH
STAKE AT 3' INTERVALS
CHANNEL BOTTOM
CHECK SLOT AT 25' INTERVALS
INTERMITTENT CHECK SLOT
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	GD22
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WOOD MULCH BERM SHALL BE USED WHERE NEEDED AS A FILTER MEDIA, OR WHERE EROSION CONTROL BLANKETS DO NOT PROVIDE ADEQUATE EROSION AND SEDIMENT CONTROL

MULCH BERM MUST BE PLACED ALONG SLOPE CONTOURS.
TURN BERM END UPSLOPE TO CREATE TEMPORARY BASIN
FLOW
KEY IN ENDS OF FILTER FABRIC MINIMUM OF 6"
3 ft
18"
SECTION A-A
NOTE:
1. REFER TO THE NPDES PERMIT FOR IMPLEMENTATION AND INSTALLATION REQUIREMENTS.
2. WOOD MULCH SHALL BE SHREDDED AND NOT CHIPPED.
3. MULCH SHALL BE COMPOSED OF CLEARED VEGETATION FROM THE PROJECT SITE.
4. THE WOOD MULCH BERM SHALL REMAIN IN PLACE THROUGHOUT CONSTRUCTION ACTIVITIES. THE BERM MAY REMAIN IN PLACE FOLLOWING FINAL STABILIZATION.
5. STAPLE LENGTHS SHALL CONFORM TO MANUFACTURERS RECOMMENDATIONS.
6. ROUTINELY INSPECT AND MAINTAIN BERM IN A FUNCTIONAL CONDITION AT ALL TIMES. INSTALL ADDITIONAL BERM MATERIAL AS DIRECTED. REMOVE SEDIMENT AFTER IT HAS REACHED 1/3 THE HEIGHT OF THE BERM.

Westwood	WOOD MULCH BERM	GD24
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NOTE:
1. FIBER ROLLS SHALL BE PREFABRICATED AND MADE FROM WOOD FREE RICE STRAW, FLAX, OR A SIMILAR AGRICULTURAL MATERIAL BOUND INTO A TIGHT TUBULAR ROLL BY NETTING.
2. 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.
3. PREPARE THE SLOPE BEFORE BEGINNING THE INSTALLATION.
4. DIG SHALLOW TRENCHES ACROSS THE SLOPE ON THE CONTOUR. 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.
5. ROLLS SHALL BE INSTALLED PERPENDICULAR TO WATER MOVEMENT, AND PARALLEL TO THE SLOPE CONTOUR.
6. START BUILDING TRENCHES AND INSTALLING ROLLS FROM THE BOTTOM OF THE SLOPE AND WORK UP.
7. TURN THE ENDS OF THE FIBER ROLLS UP SLOPE TO PREVENT RUNOFF FROM GOING AROUND THE ROLL.
8. IF MORE THAN ONE FIBER ROLL IS PLACED IN A ROW, THE ROLLS SHOULD BE OVERLAPPED, NOT ABUTTED.
9. 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 PLACE.
10. 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.
11. FIBER ROLLS MUST BE INSPECTED IN ACCORDANCE WITH GENERAL PERMIT REQUIREMENTS FOR THE ASSOCIATED PROJECT TYPE AND RISK LEVEL. IT IS RECOMMENDED THAT A MINIMUM, THE BMPs BE INSPECTED WEEKLY, PRIOR TO FORECASTED RAIN EVENTS, DAILY DURING EXTENDED RAIN EVENTS, AND AFTER THE CONCLUSION OF RAIN EVENTS.

Westwood	TYPICAL FIBER ROLLS	GD45
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NOTE:
1. FIBER ROLLS SHALL BE PREFABRICATED AND MADE FROM WOOD FREE RICE STRAW, FLAX, OR A SIMILAR AGRICULTURAL MATERIAL BOUND INTO A TIGHT TUBULAR ROLL BY NETTING.
2. 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.
3. PREPARE THE SLOPE BEFORE BEGINNING THE INSTALLATION.
4. DIG SHALLOW TRENCHES ACROSS THE SLOPE ON THE CONTOUR. 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.
5. ROLLS SHALL BE INSTALLED PERPENDICULAR TO WATER MOVEMENT, AND PARALLEL TO THE SLOPE CONTOUR.
6. START BUILDING TRENCHES AND INSTALLING ROLLS FROM THE BOTTOM OF THE SLOPE AND WORK UP.
7. TURN THE ENDS OF THE FIBER ROLLS UP SLOPE TO PREVENT RUNOFF FROM GOING AROUND THE ROLL.
8. IF MORE THAN ONE FIBER ROLL IS PLACED IN A ROW, THE ROLLS SHOULD BE OVERLAPPED, NOT ABUTTED.
9. 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 PLACE.
10. 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.
11. FIBER ROLLS MUST BE INSPECTED IN ACCORDANCE WITH GENERAL PERMIT REQUIREMENTS FOR THE ASSOCIATED PROJECT TYPE AND RISK LEVEL. IT IS RECOMMENDED THAT A MINIMUM, THE BMPs BE INSPECTED WEEKLY, PRIOR TO FORECASTED RAIN EVENTS, DAILY DURING EXTENDED RAIN EVENTS, AND AFTER THE CONCLUSION OF RAIN EVENTS.

Westwood	TYPICAL FIBER ROLLS	GD45
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APPLY BONDED FIBER MATRIX TO CUT/FILL SLOPE FOR STABILIZATION
ACCESS ROAD
FLOW
EXISTING GROUND
NOTE:
1. REFER TO THE NPDES PERMIT FOR IMPLEMENTATION AND SPECIFICATION REQUIREMENTS.
2. ALL BONDED FIBER MATRIX'S SHALL BE FROM AN APPROVED TxDOT PRODUCT.
3. APPLY BONDED FIBER MATRIX IN CONFORMANCE WITH TCEQ BEST MANAGEMENT PRACTICES AND MANUFACTURER'S RECOMMENDATIONS.
4. APPLY BONDED FIBER MATRIX TO EXPOSED SOILS FOR STABILIZATION MEASURES. EXPOSED SOILS MAY INCLUDE ROUGH GRADED AREAS, SOIL STOCKPILES, CUT/FILL SLOPES, ETC.
5. PREPARE SOIL SURFACES PRIOR TO APPLICATION BY ROUGHENING.
6. AVOID OVER SPRAY ONTO ROADS AND EXISTING VEGETATION.
7. APPLY FROM MULTIPLE DIRECTIONS TO ADEQUATELY COVER THE SOIL.
8. ALLOW ADEQUATE TIME FOR BONDED FIBER MATRIX TO DRY. BONDED FIBER MATRIX SHOULD NOT BE APPLIED IMMEDIATELY BEFORE, DURING OR IMMEDIATELY AFTER RAINFALL OR IF THE SOIL IS SATURATED.
9. APPLY SEED PRIOR TO BFM OR MIX SEED WITH BFM PRIOR TO APPLICATION.

Westwood	TYPICAL SLOPE STABILIZATION - BONDED FIBER MATRIX	GD46
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Westwood

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Westwood Professional Services, Inc.

PREPARED FOR:

WANZEK
a MasTec company

4850 32nd Avenue South
 Fargo, ND 58104

REVISIONS:				
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North Bend Wind Project

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South Dakota

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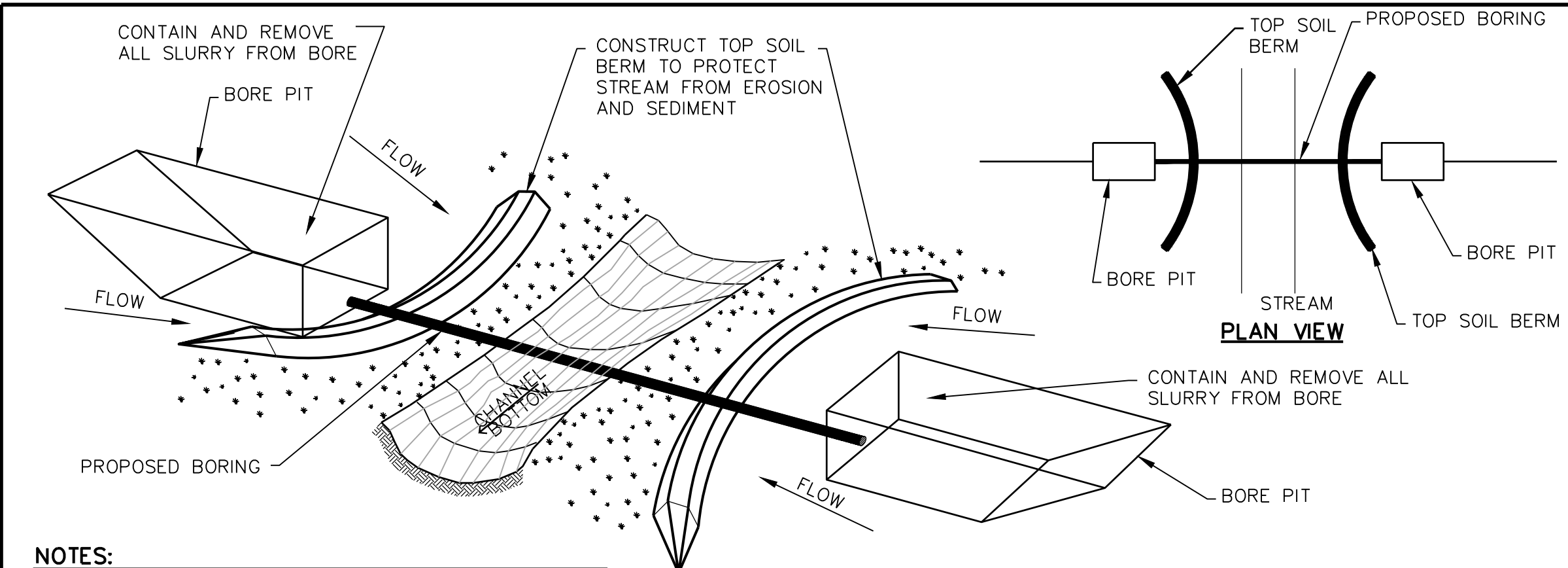
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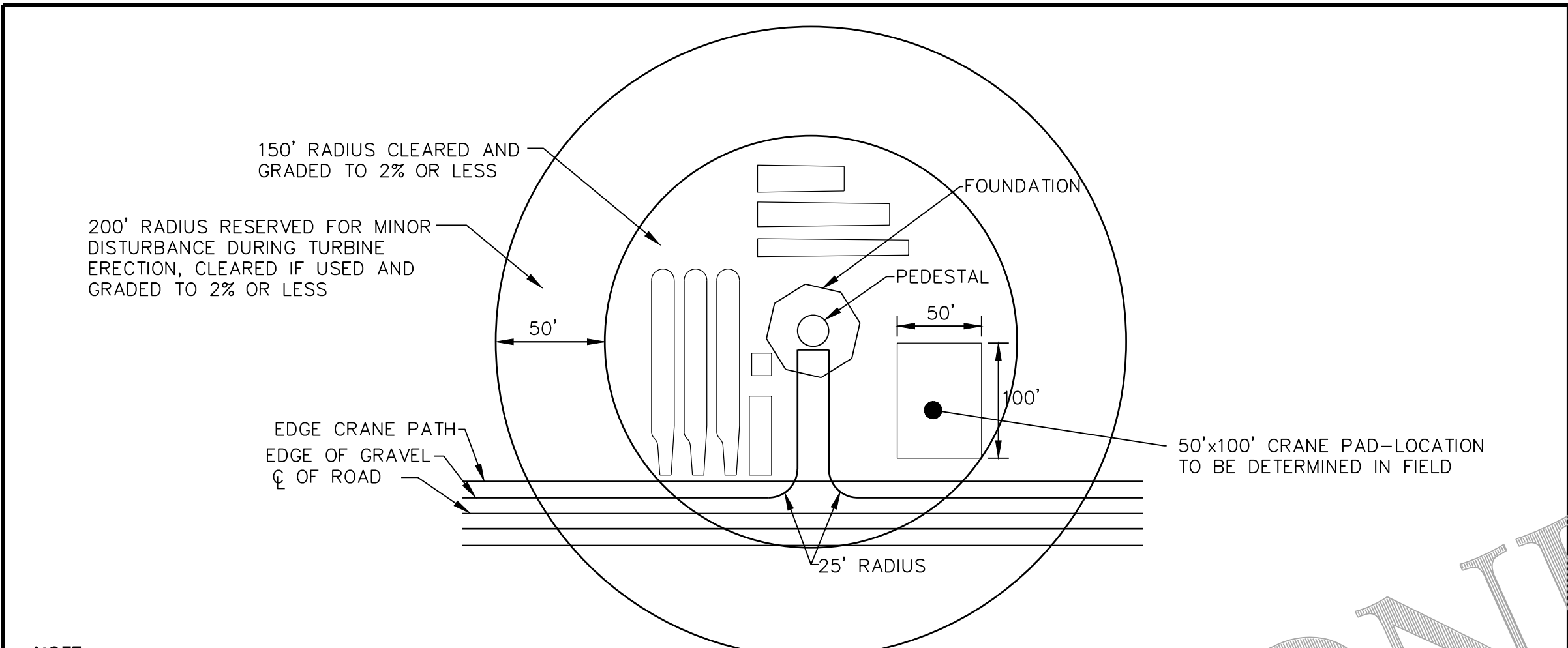
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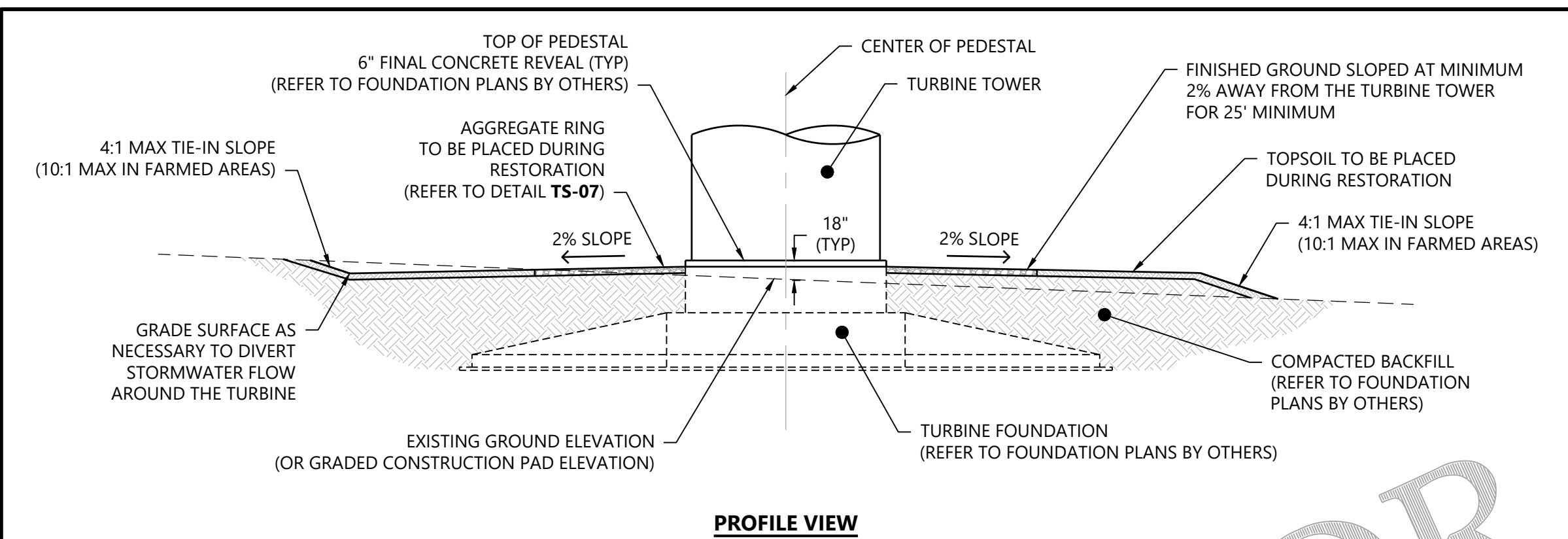
- NOTES:**
1. CONSTRUCT TOPSOIL BERM TO PROTECT EXISTING CHANNELS WHERE BORING WILL OCCUR FOR UNDERGROUND COLLECTION SYSTEM INSTALLATION.
 2. MINIMIZE DISTURBANCE TO THE STREAM DURING CONSTRUCTION.
 3. SILT FENCE MAY BE SUBSTITUTED FOR THE TOPSOIL BERM.
 4. UPON REMOVAL OF THE BORE PITS, THE DISTURBED AREAS SHALL BE RESTORED TO NATIVE CONDITIONS. REFER TO THE NPDES PERMIT.
 5. REFER TO ELECTRICAL DESIGN FOR BORE AND UNDERGROUND COLLECTION DETAILS.

Westwood TYPICAL UNDERGROUND COLLECTION SYSTEM STREAM CROSSING UT06



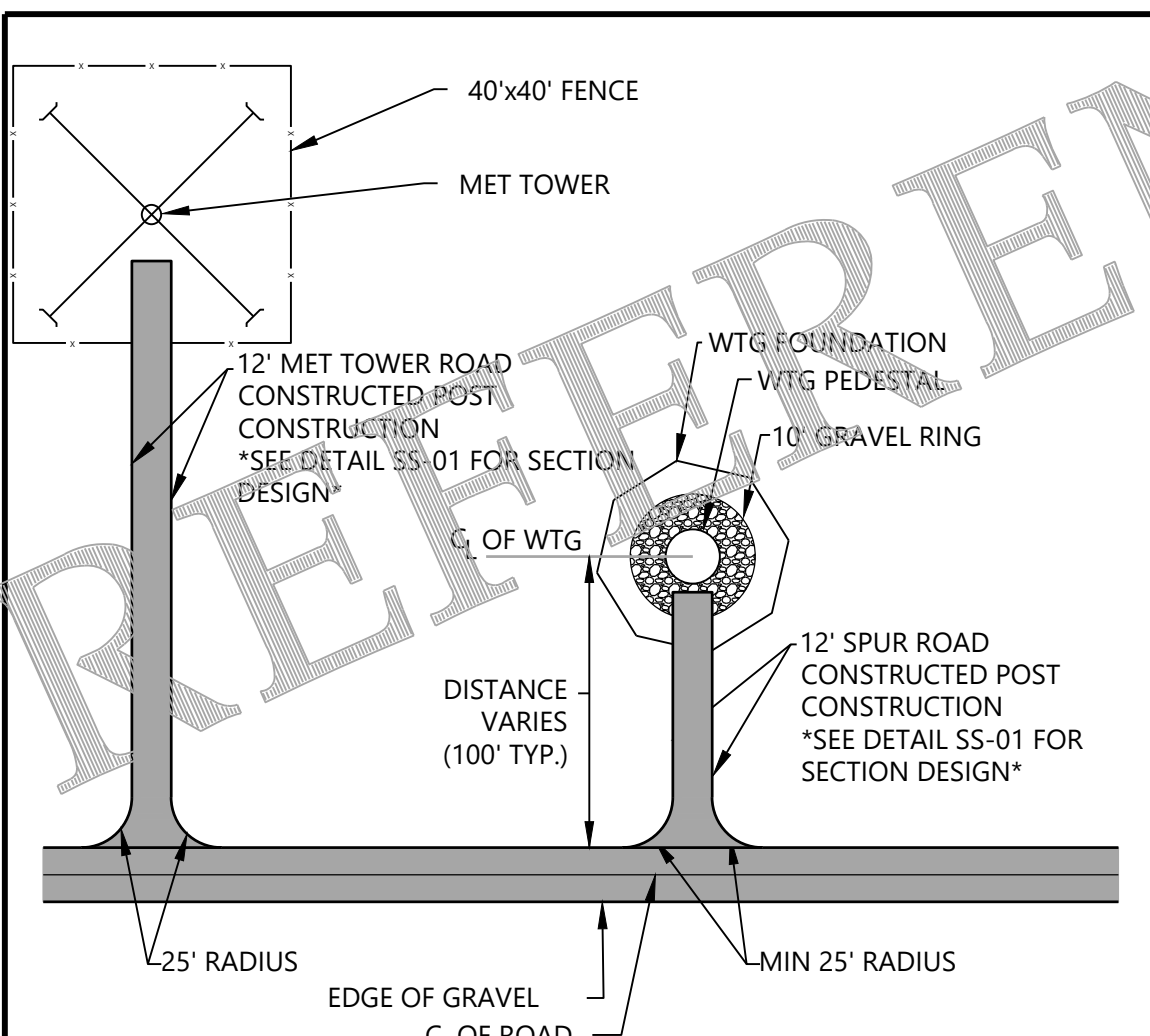
- NOTE:**
1. ACTUAL CRANE PAD LOCATION TO BE DETERMINED BY CONTRACTOR.
 2. DISTANCE BETWEEN CENTER OF TURBINE AND EDGE OF GRAVEL ROAD VARIES BY TURBINE SITE

Westwood TYPICAL WTG SITE - PLAN VIEW TS01

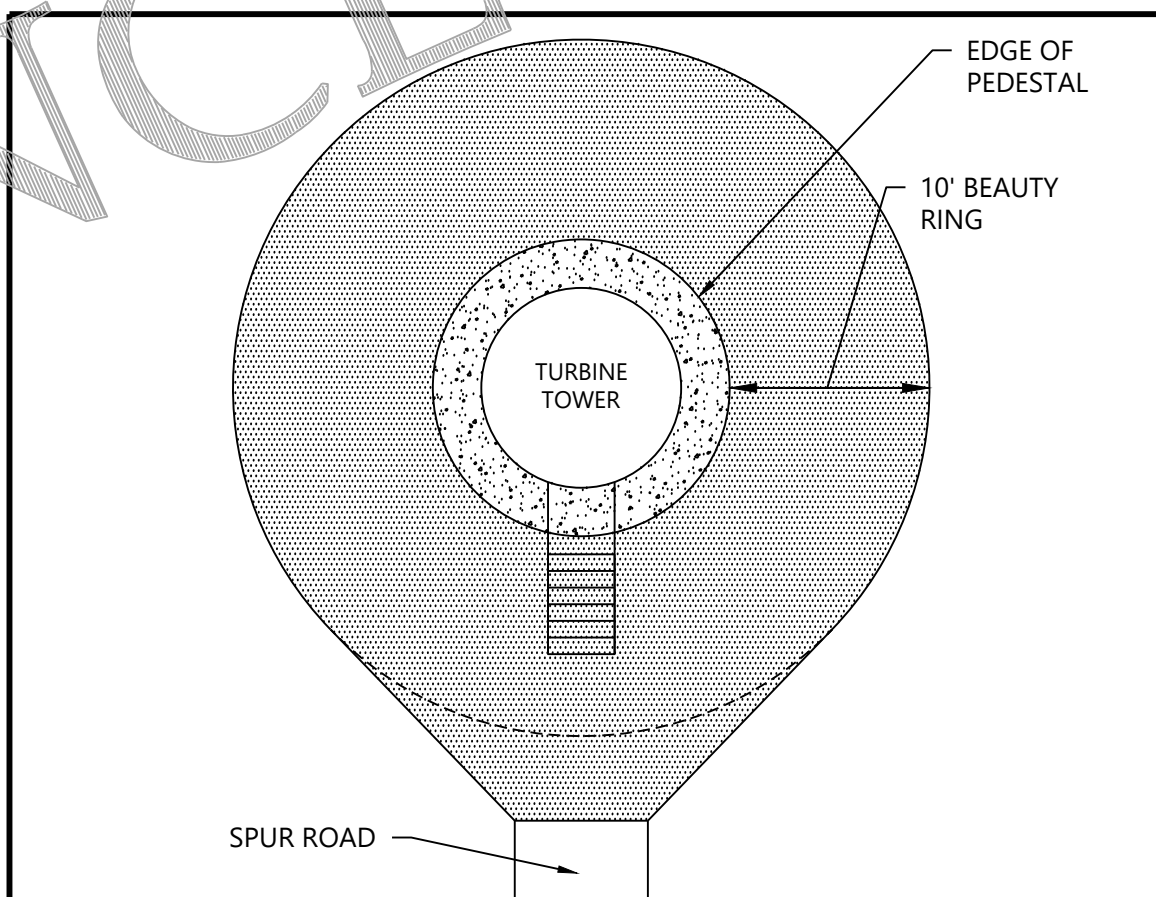


- NOTES:**
1. SET THE TOP OF FOUNDATION PEDESTAL ELEVATION, AT CENTER OF FOUNDATION, 18" (TYPICAL) ABOVE EXISTING GROUND ELEVATION OR GRADED CONSTRUCTION PAD ELEVATION. ADJUST 18" DIMENSION AS NEEDED TO (a) MAINTAIN 25' DIMENSION FINISHED GRADE AT 2% SLOPE, (b) ACCOMMODATE STEEPER CROSS SLOPES OF GRADED PAD ELEVATION, AND (c) BALANCE EARTHWORK AT TURBINE PAD.
 2. GRADE FINAL GROUND SURFACE AROUND THE BASE OF THE TURBINE TO A MINIMUM 2% SLOPE FOR 25' TO PROVIDE POSITIVE DRAINAGE AWAY FROM THE TURBINE.
 3. VERIFY GEOTECHNICAL AND STRUCTURAL PLAN REQUIREMENTS PRIOR TO EXCAVATING TURBINE FOUNDATION.

Westwood FINAL GRADED PAD - PROFILE TS02

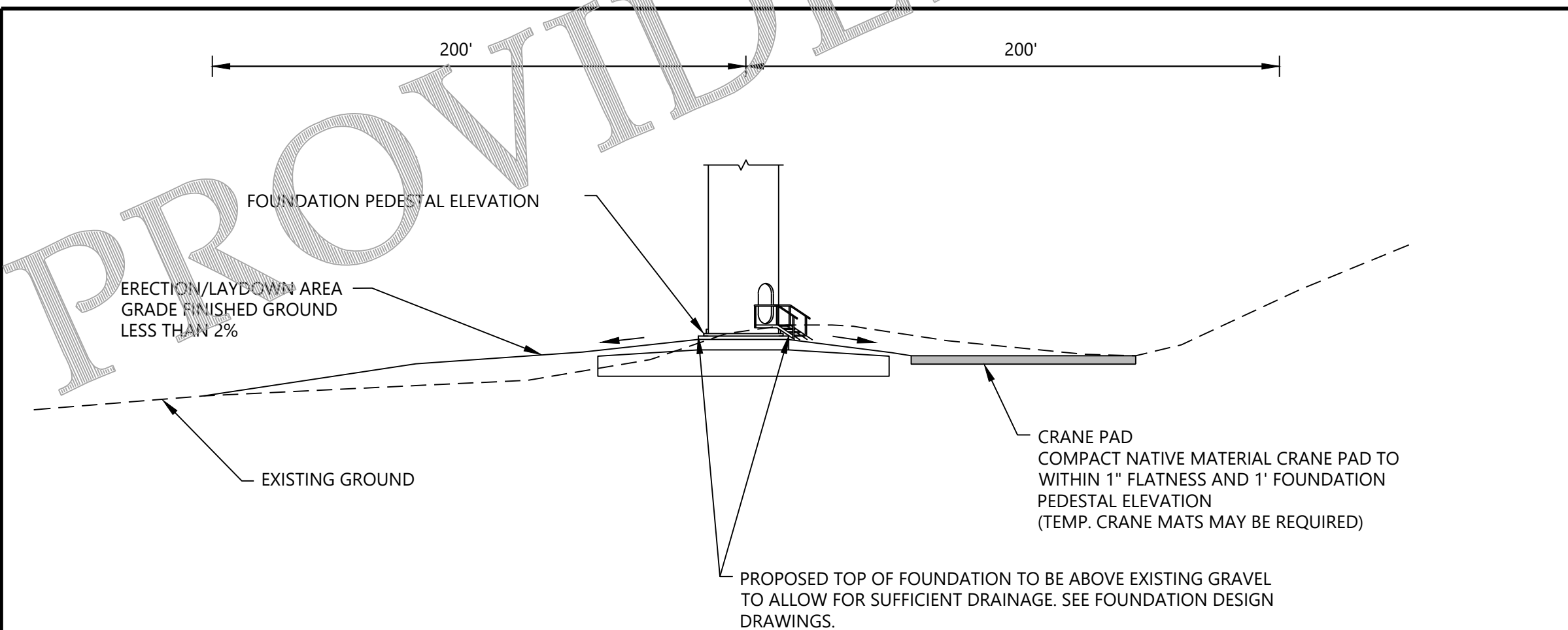


Westwood TYPICAL SPUR AND MET TOWER ROAD TS06

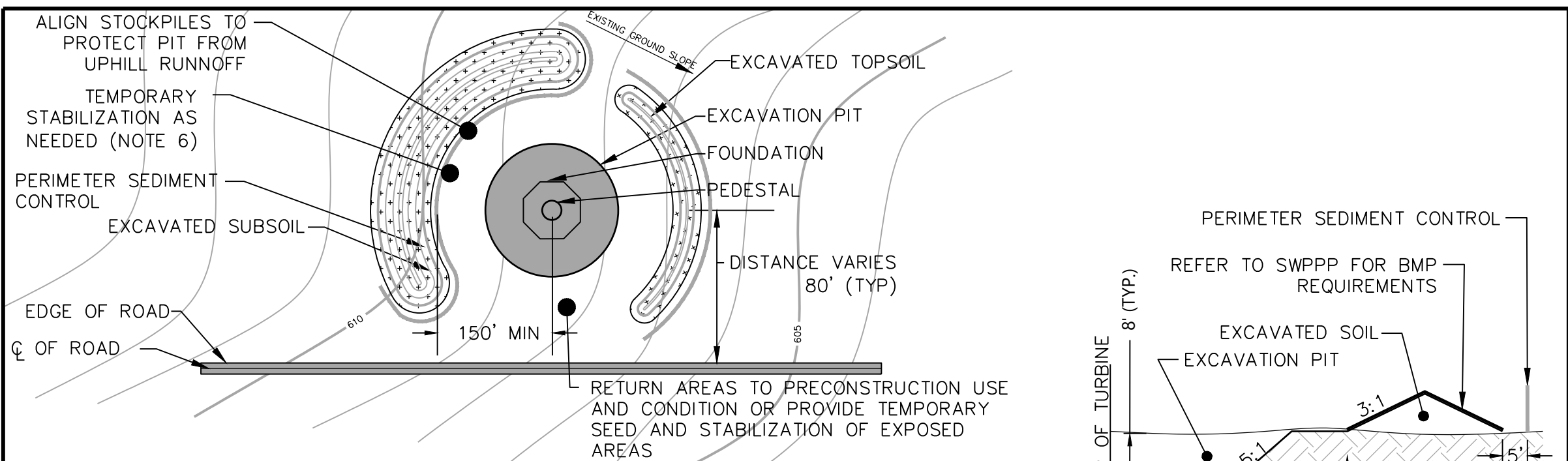


- NOTE:**
1. REFER TO DETAIL SS-01 FOR MATERIAL TYPE AND THICKNESS.
 2. STEP AND TOUCH REQUIREMENTS TO BE CONFIRMED BY ELECTRICAL ENGINEER.
 3. PAD MOUNT DIMENSIONS AND PLACEMENT UNKNOWN. REFER TO ELECTRICAL DESIGN AND ADJUST ROCK RING DIMENSIONS IF NECESSARY.

Westwood GRAVEL BEAUTY RING DETAIL TS07



Westwood TYPICAL WTG ERECTION AREA - PROFILE VIEW TS03



- NOTE:**
1. DISTANCE BETWEEN CENTER OF TURBINE AND EDGE OF GRAVEL ROAD VARIES BY TURBINE SITE.
 2. CONTRACTOR SHALL COORDINATE WITH LANDOWNER PRIOR TO CLEARING IN IRRIGATED LAND.
 3. STORE SOIL PILE OUTSIDE OF WATER CONVEYANCE AND PROTECTED WATER SOURCES.
 4. PILES SHOULD BE PLACED IN AREAS THAT WILL NOT IMPEDE UPCOMING CONSTRUCTION SCOPES.
 5. SOIL PILES INTENDED FOR STRUCTURAL BACKFILL SHOULD FOLLOW CIVIL GUIDELINES FOR COMPACTING USING OPTIMAL MOISTURE CONTENT (OMC) DURING EXCAVATION FOR COMPACTION OF MATERIAL.
 6. TEMPORARY STABILIZATION FOR TOPSOIL PILES UTILIZING TRACK WALKING, MULCH AND SEED APPLICATION OR BE TEMPORARILY STABILIZED USING A TACKIFIER OVER TRACKED SURFACES.
 7. SLOPE SOIL PILES TO 3:1 OR GREATER.
 8. TRACK WALK SURFACES PERPENDICULAR TO SLOPE USING TRACKED EQUIPMENT (SEE DETAIL SW-03).
 9. NOTIFY EOR IF TACKIFIER WILL BE UTILIZED FOR TEMPORARY STABILIZATION OVER TRACKED SURFACE OF THE PILE.
 10. INSTALL PERIMETER CONTROLS ON THE DOWN GRADIENT SIDES OF PILES TO PREVENT MIGRATION OF MATERIAL OUTSIDE OF PROJECT BOUNDARY (SEE DETAIL SOIL STOCKPILE PROTECTION SW-10).

Westwood TYPICAL FOUNDATION EXCAVATION GD43

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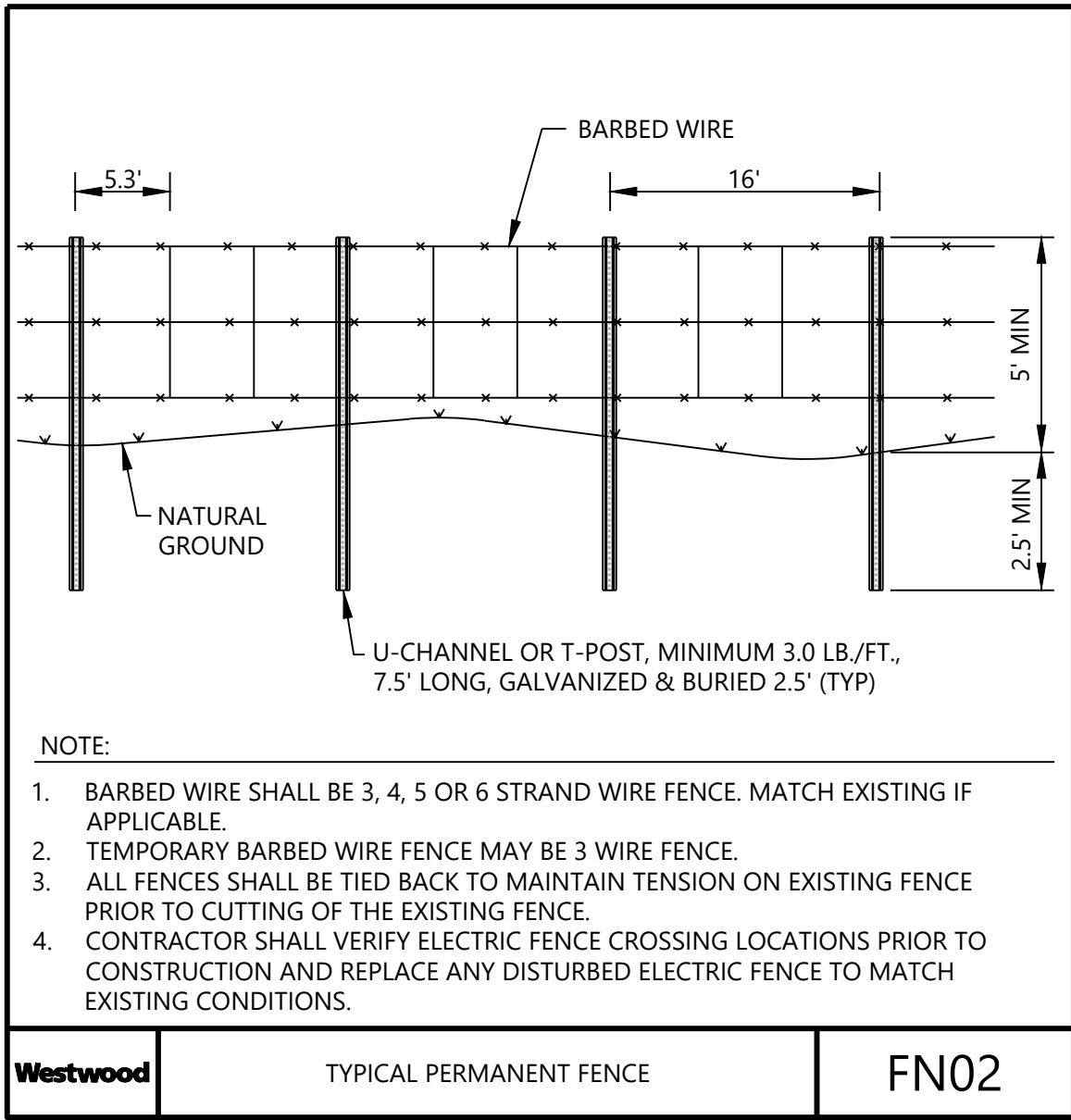
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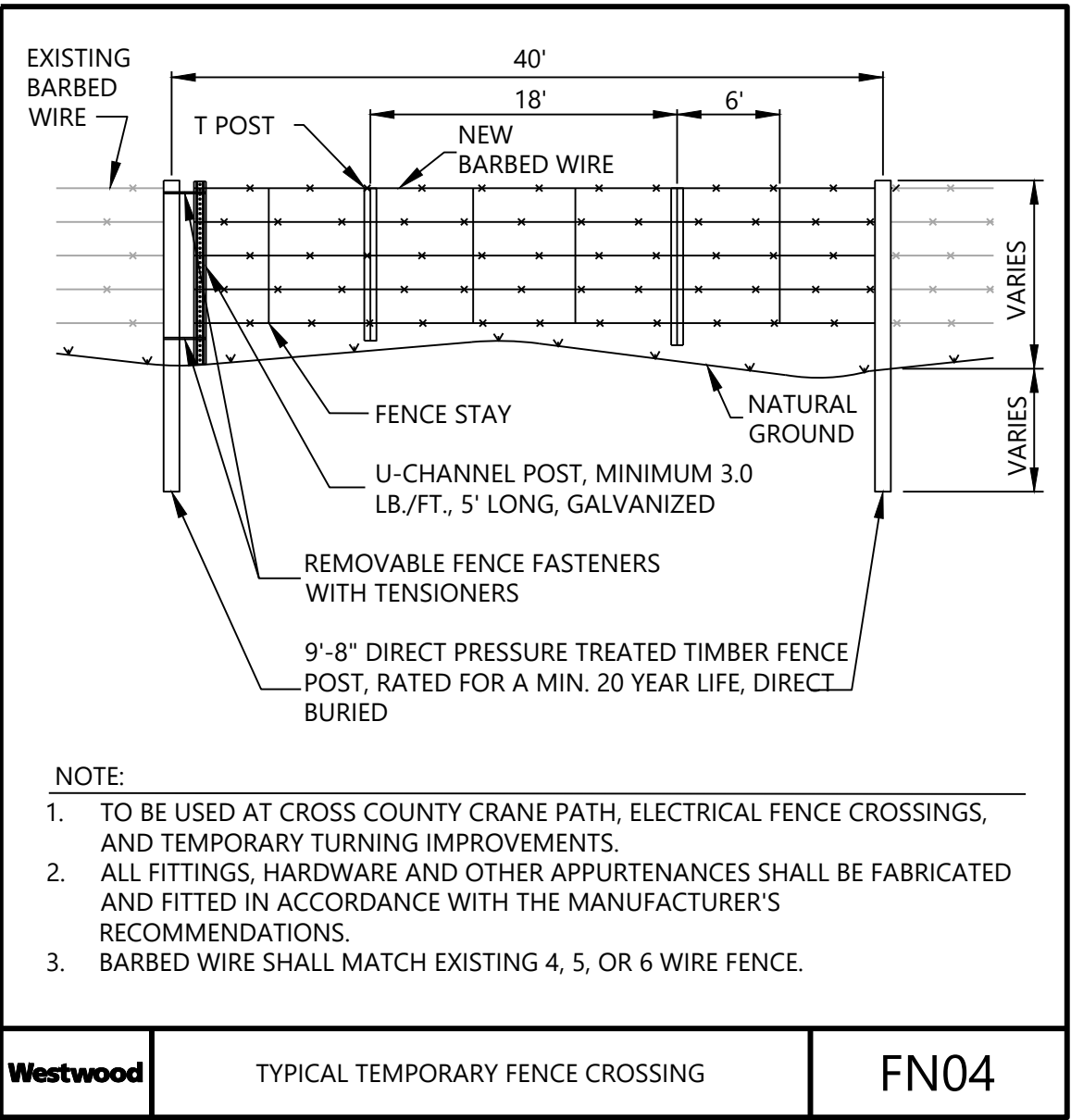


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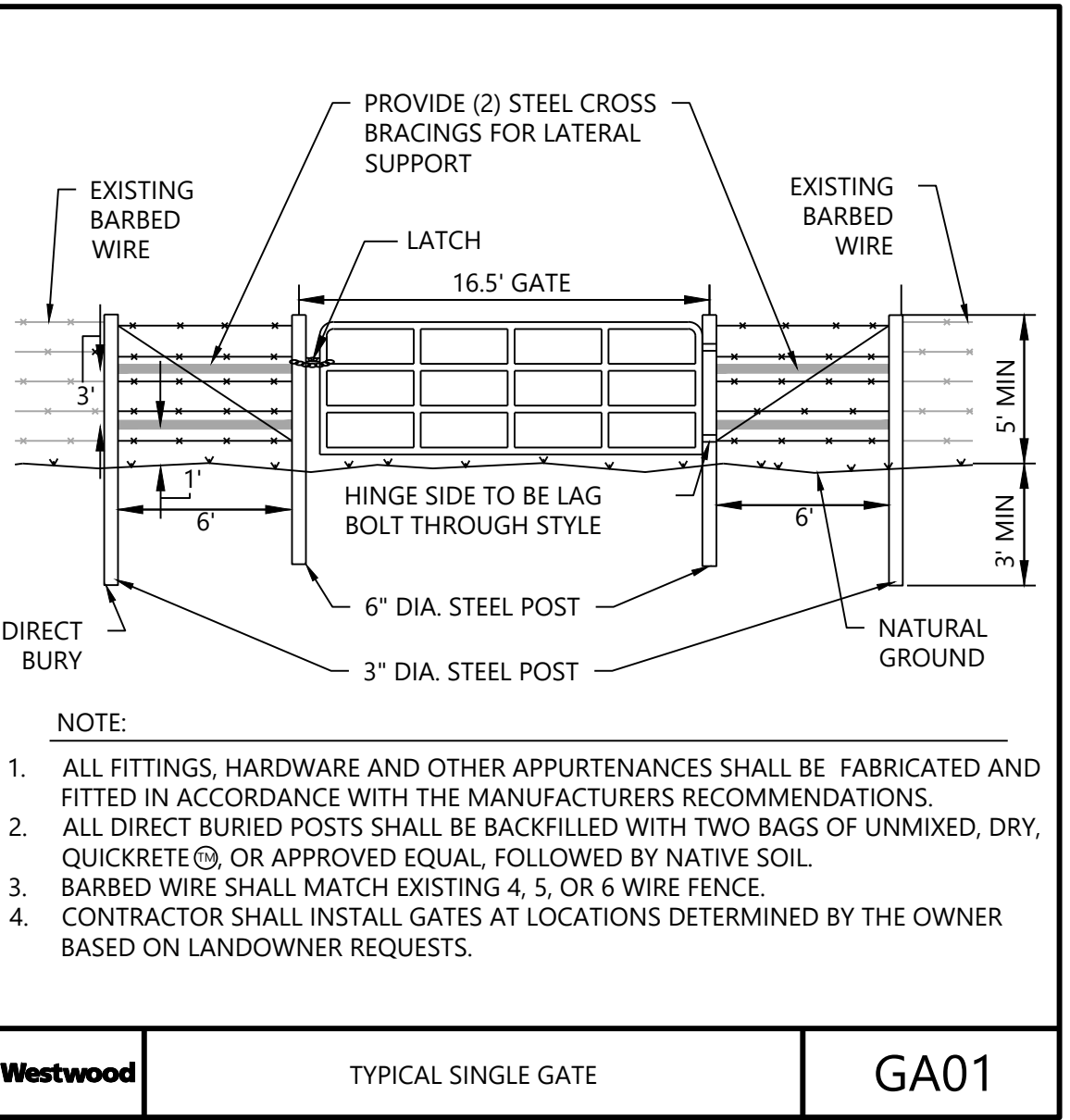
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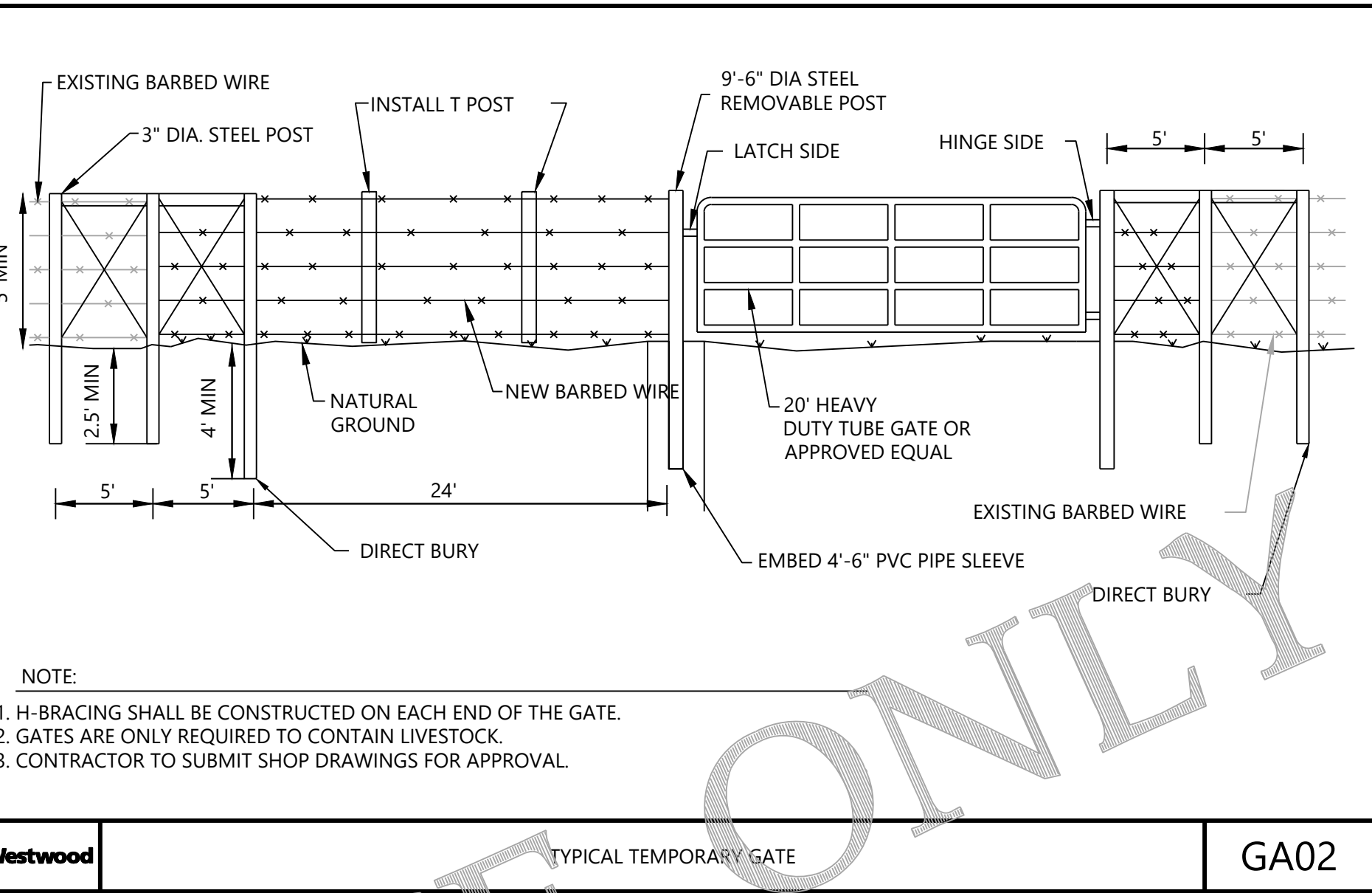
Westwood TYPICAL PERMANENT FENCE FN02



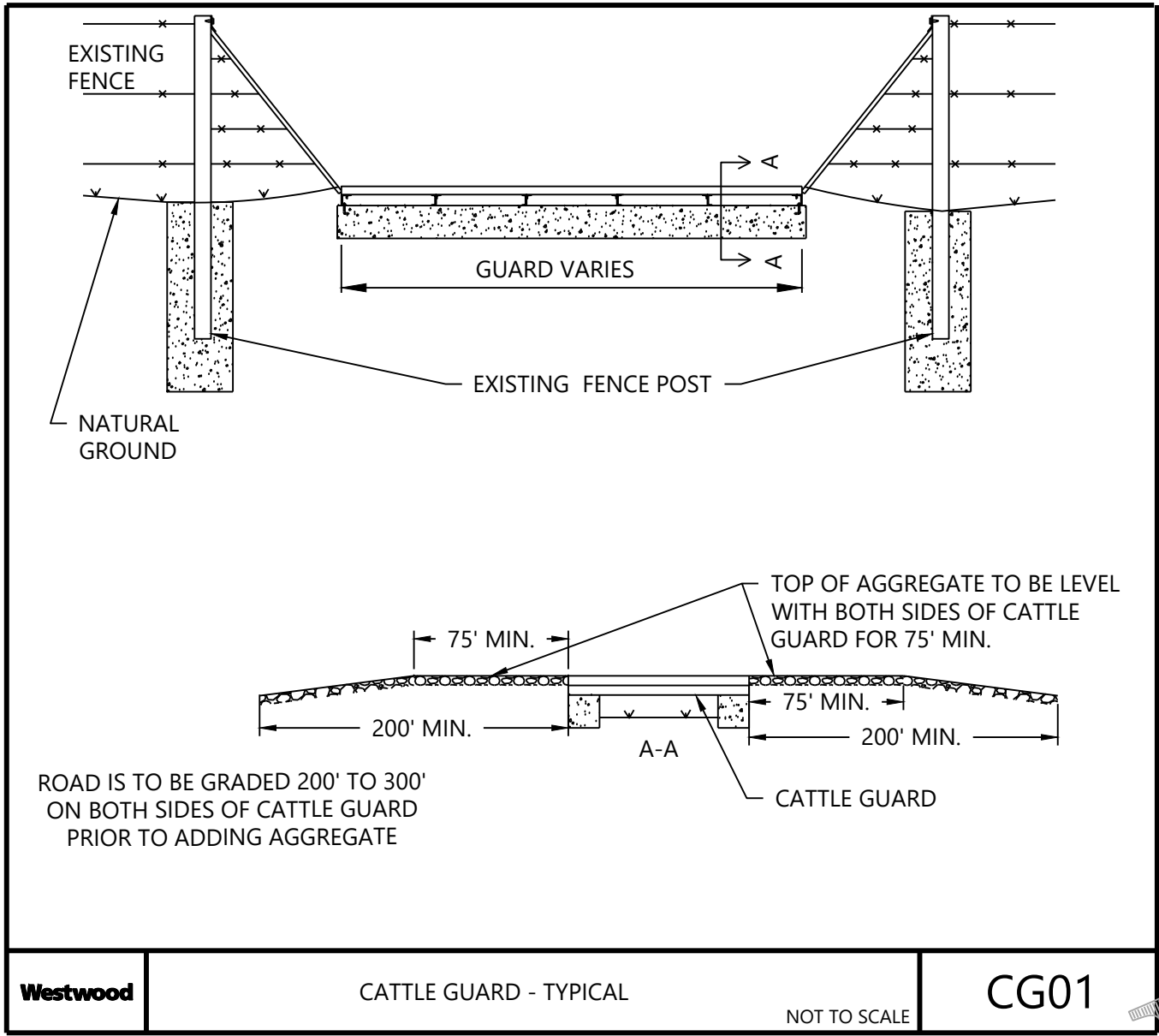
Westwood TYPICAL TEMPORARY FENCE CROSSING FN04



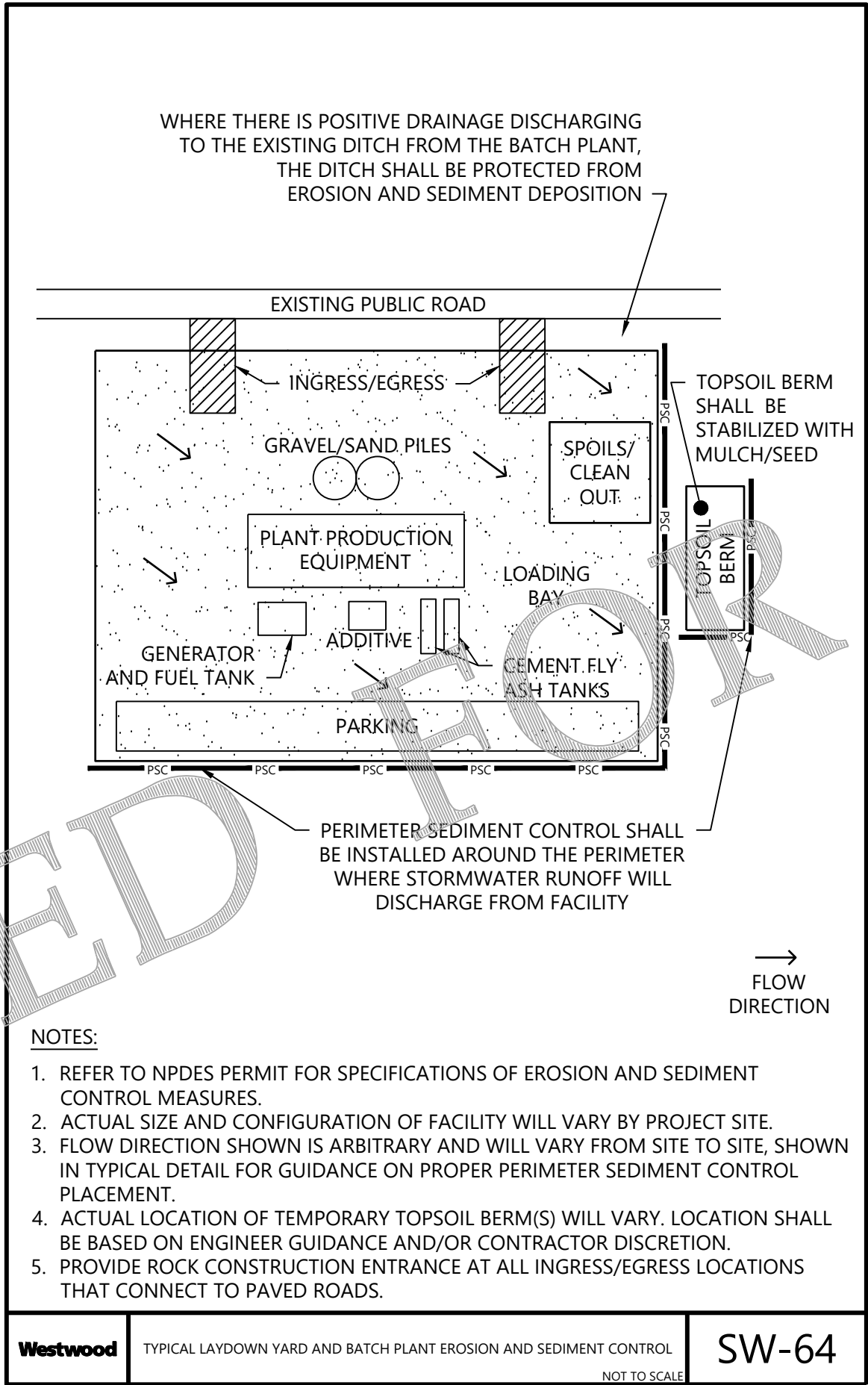
Westwood TYPICAL SINGLE GATE GA01



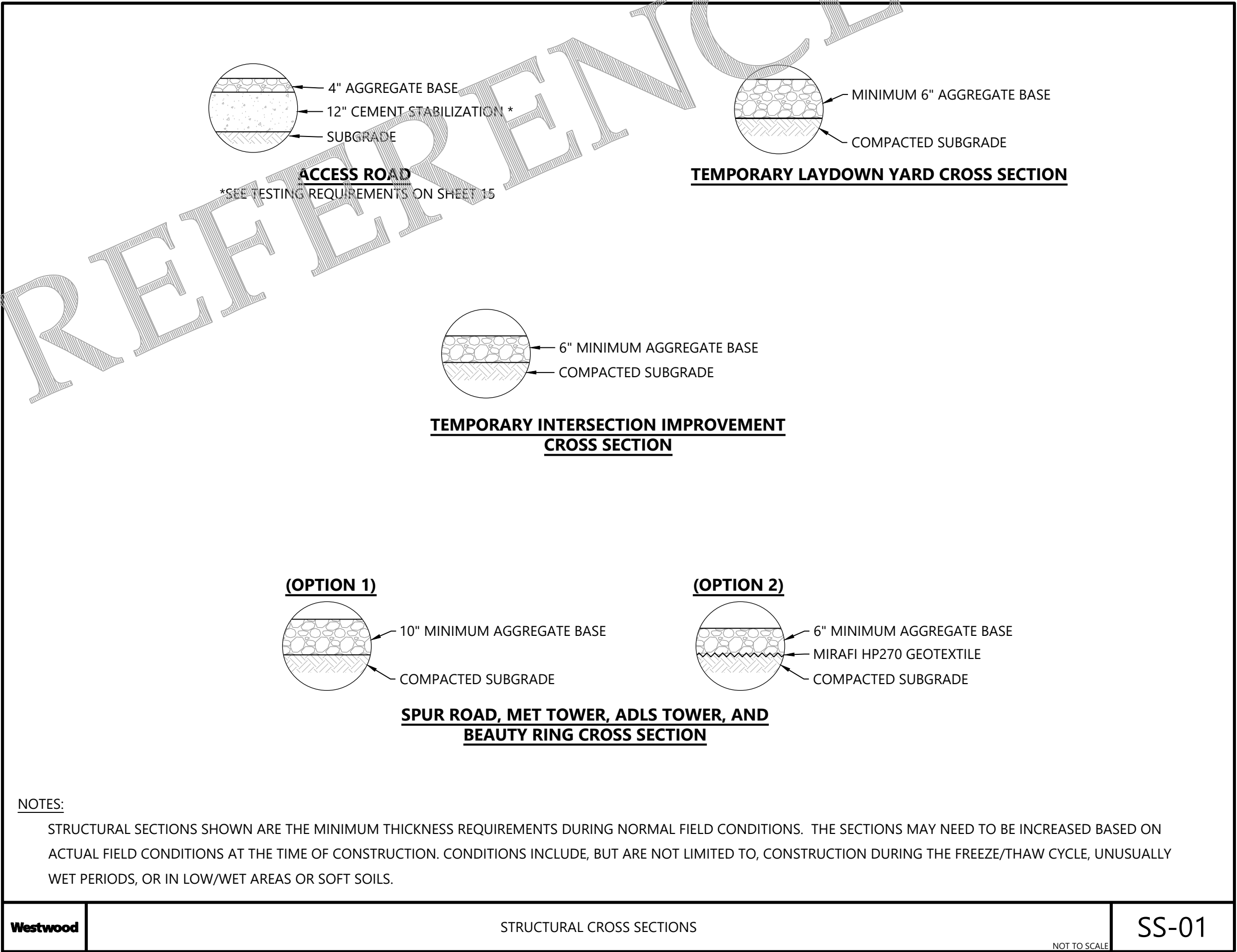
Westwood TYPICAL TEMPORARY GATE GA02



Westwood CATTLE GUARD - TYPICAL NOT TO SCALE CG01



Westwood TYPICAL LAYDOWN YARD AND BATCH PLANT EROSION AND SEDIMENT CONTROL NOT TO SCALE SW-64



Westwood STRUCTURAL CROSS SECTIONS NOT TO SCALE SS-01

North Bend Wind Project

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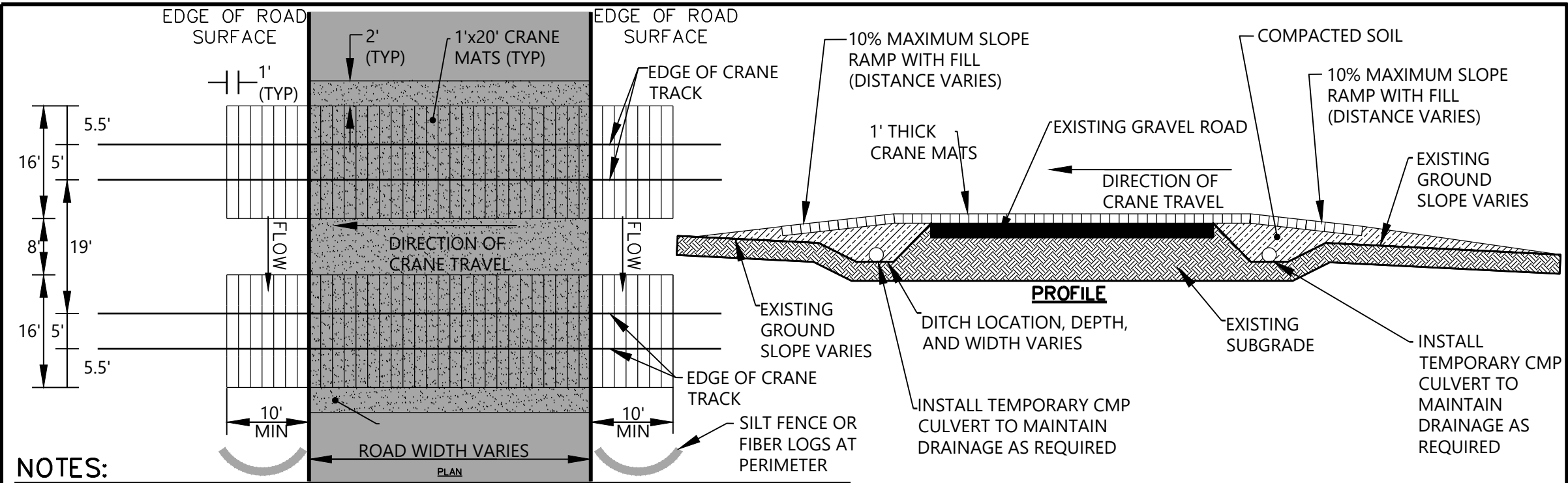
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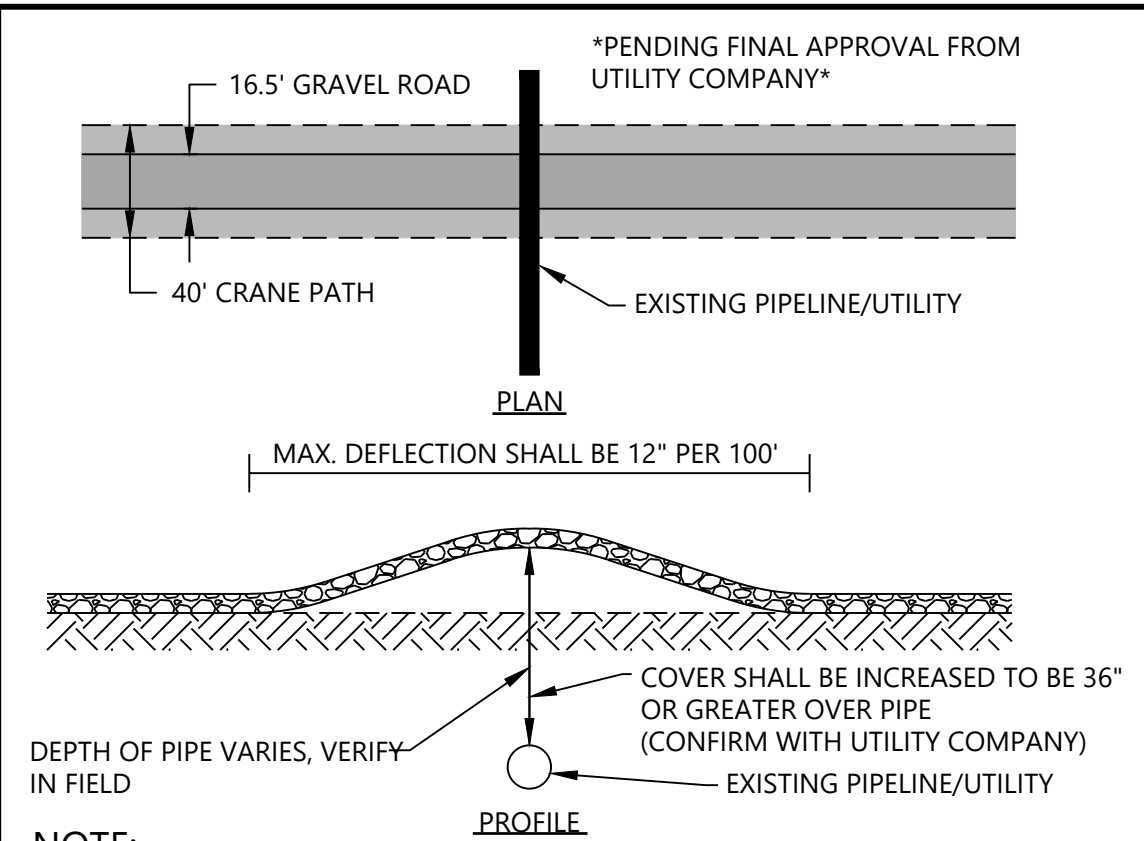
NOTES:

1. CRANE MATS MUST EXTEND A MINIMUM OF 10' FROM THE EDGE OF THE EXISTING ROAD SURFACE.
2. ALL DISTURBED AREA WITHIN THE COUNTY ROW TO BE RETURNED TO EXISTING CONDITIONS.
3. ALL DISTURBED AREA TO BE RESTORED ACCORDING TO THE NPDES PERMIT AND NARRATIVE.
4. THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY REPAIRS TO THE ROAD BASED ON DAMAGE CAUSED BY THE CRANE CROSSING.
5. PROVIDE TRAFFIC CONTROL PER THE MUTCD FOR TEMPORARY ROAD CLOSURES.
6. DIMENSIONS SHOWN ARE APPROXIMATE AND MAY CHANGE BASED ON ACTUAL CRANE UTILIZED BY CONTRACTOR.
7. ALTERNATIVE METHODS MAY BE USED FOLLOWING APPROVAL FROM OWNER.
8. CROSSING SHALL BE APPROVED BY THE LOCAL ROAD AUTHORITY PRIOR TO USE.
9. UPON REMOVAL OF CROSSING APPLY SEED AND EROSION CONTROL BLANKET TO FINAL GRADE TO RESTORE DITCHES AND SLOPES TO PRECONSTRUCTION CONDITION.

Westwood

TEMPORARY CRANE CROSSING FOR EXISTING ROADS

EP01



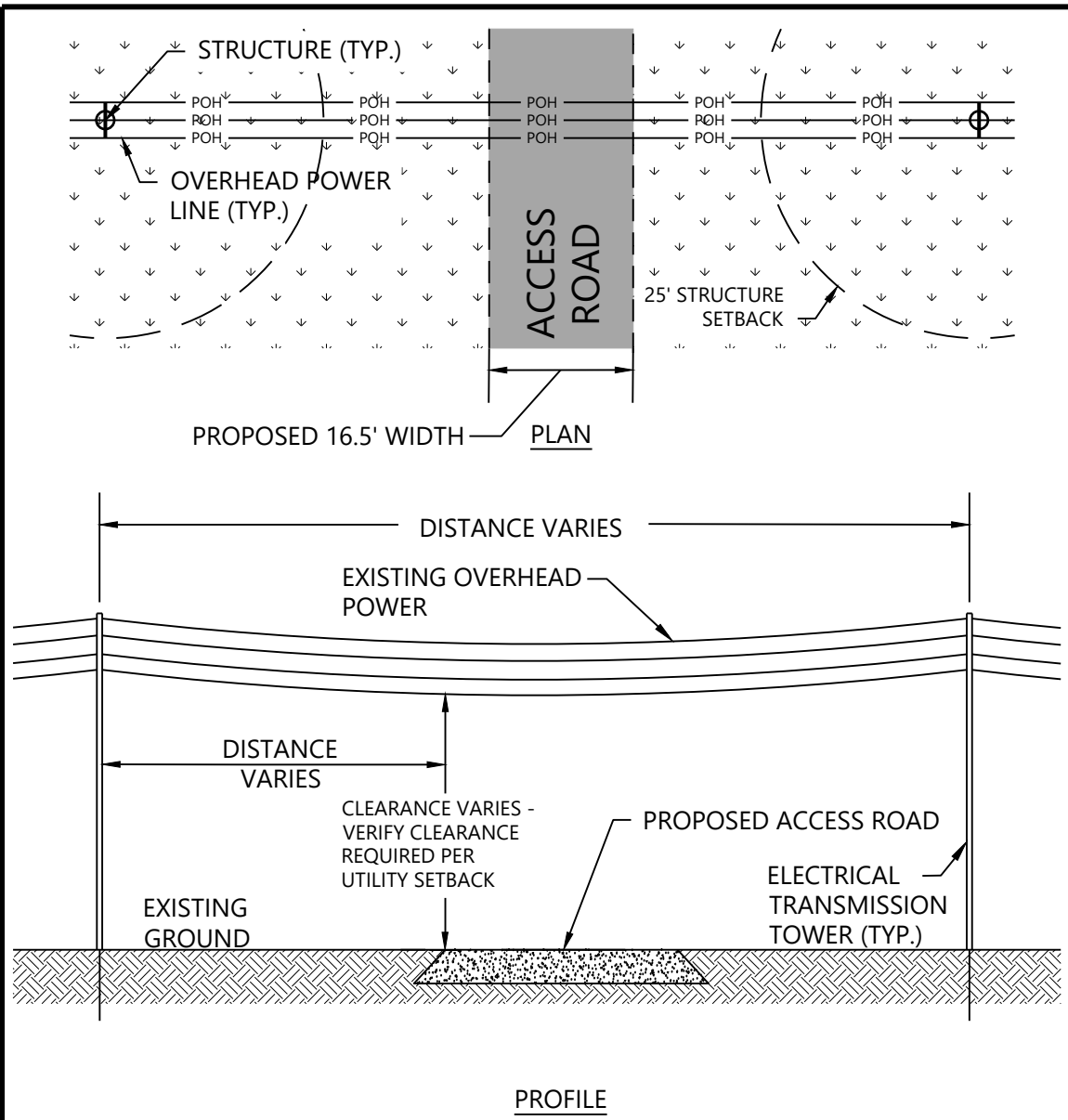
NOTE:

1. CONTACT THE STATE'S ONE-CALL SYSTEM AND BEFORE DIGGING.
2. CROSSINGS MUST BE MADE AS CLOSE TO 90° AS POSSIBLE
3. FINAL COVER TO BE DETERMINED BASED ON UTILITY COMPANY'S REQUIREMENTS
4. LOCATION AND DEPTH OF EXISTING UTILITY SHALL BE FIELD VERIFIED BY EXISTING UTILITY OWNER/OPERATOR.

Westwood

EARTH COVER PROTECTION FOR UTILITY AND
PIPELINE CROSSING

UT01



NOTE:

1. CONTACT THE STATE'S ON-CALL SYSTEM AND UTILITY COMPANY BEFORE DIGGING.
2. CROSSING OF UTILITY EASEMENT MUST BE MADE AT AS CLOSE TO 90° AS POSSIBLE.
3. MAINTAIN OSHA REQUIRED CLEARANCE FOR EQUIPMENT.
4. DISTURBED AREA WILL BE RESTORED TO EXISTING CONDITION.
5. TEMPORARY CRANE CROSSINGS TO ADHERE TO UTILITY SETBACKS. CONFIRM WITH UTILITY REQUIREMENTS.

Westwood

OVERHEAD POWER CROSSING
ACCESS ROAD CROSSING

UT03A

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North Bend Wind Record Turbine Coordinate List						
Turbine ID	Northing	Easting	Latitude	Longitude	UTM Zone	Elevation
T-A1	183458.4701	2071337.1037	N044.335858	W099.606978	14T	2047.19
T-A2	185227.2267	2071322.3810	N044.340710	W099.607002	14T	2037.36
T-A3	186383.2712	2073437.5510	N044.343853	W099.598895	14T	2031.10
T-A4	187698.2983	2074339.8047	N044.347447	W099.595422	14T	2053.42
T-A5	188814.9723	2075396.1948	N044.350496	W099.591362	14T	2039.31
T-A6	188669.8219	2071361.9120	N044.350152	W099.606787	14T	2029.70
T-B1	191011.9263	2070268.2042	N044.356591	W099.610924	14T	1991.61
T-B2	195776.3910	2070339.9469	N044.369659	W099.610563	14T	1981.99
T-B3	195848.2346	2074705.0523	N044.369797	W099.593869	14T	2005.97
T-B4	196186.8860	2076653.7551	N044.370699	W099.586411	14T	2012.03
T-B5	196662.8405	2079362.3601	N044.371966	W099.576044	14T	2025.41
T-B6	196808.8871	2081867.3898	N044.372330	W099.566461	14T	2031.96
T-B7	196804.5611	2065041.3293	N044.372547	W099.630806	14T	1976.16
T-B8	199327.4961	2065966.2187	N044.379456	W099.627225	14T	1961.11
T-B9	201056.3375	2068734.7464	N044.384163	W099.616605	14T	1973.77
T-C1	217524.4277	2063537.8696	N044.429399	W099.636200	14T	1977.54
T-C2	220085.4580	2062852.9000	N044.436433	W099.638778	14T	1986.08
T-C3	220426.2226	2059460.6165	N044.437408	W099.651759	14T	1974.87
T-C4	220342.9569	2057226.5113	N044.437206	W099.660314	14T	1986.85
T-C5	225251.1954	2060518.2646	N044.450630	W099.647630	14T	2012.73
T-C6	225536.4891	2062530.5496	N044.451388	W099.639919	14T	2007.54
T-C7	224904.9723	2057191.5567	N044.449720	W099.660374	14T	1997.74
T-C8	227302.0541	2058140.7775	N044.456284	W099.656701	14T	2023.32
T-C9	228483.9898	2059443.8265	N044.459510	W099.651691	14T	2006.92
T-D1	192595.8627	2065016.5836	N044.361003	W099.630974	14T	1979.32
T-D2	193824.8927	2058395.2621	N044.364454	W099.656270	14T	1956.14
T-D3	192962.4417	2055285.1103	N044.362124	W099.668176	14T	1930.84
T-D4	195804.9312	2060766.9231	N044.369858	W099.647169	14T	1959.71
T-D5	198520.7154	2057375.5206	N044.377347	W099.660094	14T	1935.26
T-D6	201049.3835	2058346.9152	N044.384271	W099.656338	14T	1951.45
T-D7	207313.1733	2060126.9388	N044.401432	W099.649426	14T	1952.97
T-D8	211582.5383	2060701.1532	N044.413136	W099.647158	14T	1970.54
T-E1	212826.1905	2053279.9279	N044.416632	W099.675538	14T	1960.68
T-E2	213790.6855	2055540.3227	N044.419252	W099.666872	14T	1977.23
T-E3	214843.0143	2057395.8047	N044.422118	W099.659754	14T	1973.00
T-E4	216879.9735	2058576.8310	N044.427691	W099.655201	14T	1979.74
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T-F1	215058.7204	2047715.7483	N044.422815	W099.696801	14T	1956.08
T-F2	215056.6422	2044769.6311	N044.422839	W099.708077	14T	1971.79
T-F3	215081.1478	2041345.4781	N044.422939	W099.721183	14T	1949.29
T-F4	213733.2638	2039090.7423	N044.419263	W099.729830	14T	1944.07
T-F5	212400.1695	2037348.1488	N044.415622	W099.736516	14T	1943.62
T-F6	212636.0770	2034398.1771	N044.416295	W099.747802	14T	1930.78
T-F7	211465.1130	2033067.4661	N044.413094	W099.752909	14T	1916.83
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T-F9	208112.2747	2031138.4401	N044.403914	W099.760329	14T	1898.48
T-G1	181674.1504	2071007.5667	N044.330969	W099.608271	14T	2065.04
T-G2	185170.0918	2064206.1241	N044.340645	W099.634201	14T	2020.79
T-G3	185117.8776	2060393.1706	N044.340548	W099.648776	14T	2019.97
T-G4	182869.1442	2058846.6295	N044.334398	W099.654723	14T	2029.16
T-G5	181261.3068	2055612.0418	N044.330025	W099.667110	14T	2004.33
T-G6	181298.7169	2053446.8911	N044.330152	W099.675383	14T	2009.47
T-G7	180417.5477	2052310.0196	N044.327747	W099.679741	14T	2008.03
T-G8	180412.4197	2050159.7443	N044.327756	W099.687958	14T	2005.93
T-G9	185054.8724	2049347.8488	N044.340499	W099.690992	14T	1954.31
T-H1	180035.3791	2068585.8267	N044.326505	W099.617555	14T	2082.39
T-H2	181414.2311	2063900.5460	N044.330347	W099.635434	14T	2075.66
T-H3	180136.1708	2063004.7939	N044.326852	W099.638879	14T	2076.89
T-I1	179827.3558	2070631.5754	N044.325908	W099.609741	14T	2085.87
T-I2	176528.8958	2066087.8532	N044.316919	W099.627161	14T	2100.82
T-I3	177148.7913	2062619.9369	N044.318662	W099.640400	14T	2084.01
T-I4	174588.0861	2063250.4432	N044.311631	W099.638035	14T	2082.11
T-I5	175844.2251	2060290.7856	N044.315112	W099.649320	14T	2049.38
T-I6	172079.8907	2060868.8551	N044.304780	W099.647175	14T	2034.78
T-I7	175858.2228	2057524.1509	N044.315183	W099.659890	14T	2054.46
T-I8	172638.7167	2057401.9563	N044.306353	W099.660408	14T	2048.70
T-I9	169200.8169	2057439.3274	N044.296923	W099.660321	14T	2026.78

COORDINATE SYSTEM: NSRS 2011 SOUTH DAKOTA STATE PLANES, NORTHERN ZONE, US FOOT

North Bend Wind Record Structure Coordinate List						
Structure ID	Northing	Easting	Latitude	Longitude	UTM Zone	Elevation
ADLS	192372.6399	2082371.7629	N044.360155	W099.564624	14T	2083.72
T-PMM_T06	212970.4225	2039815.5683	N044.417164	W099.727066	14T	1946.02

COORDINATE SYSTEM: NSRS 2011 SOUTH DAKOTA STATE PLANES, NORTHERN ZONE, US FOOT

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REVISIONS:						
#	DATE	COMMENT	BY	CHK	APR	
0	01/03/2024	RECORD DRAWINGS	PAR	TRG	TRG	

North Bend Wind Project

Hughes and Hyde Counties,
South Dakota

Construction Tables

ISSUED FOR RECORD

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Crossing ID	Designed Permanent Drainage Crossing Schedule				Location	Sheet Number	Public ROW	Installed Drainage Crossing
	25-year Peak Flow (cfs)	25-Year Culvert Diameter (in)	25-Year LWC Size	25-Year LWC Length (ft)				
DC-02	36.37	N/A	Standard Duty	145	Access Road G9	62	N/A	Standard Duty LWC
DC-06	104.06	2-42"; 3-36"	Standard Duty	140	Access Road H2	60	N/A	Standard Duty LWC
DC-09	39.01	N/A	Standard Duty	120	Access Road G9	62	N/A	Standard Duty LWC
DC-10	28.75	N/A	Standard Duty	110	Access Road G9	62	N/A	Standard Duty LWC
DC-14	102.15	2-42"	Heavy Duty	75	Access Road G9	57	N/A	2-40"
DC-24	388.04	5-48"	Heavy Duty	185	Access Road D5	41	N/A	5-48"
DC-25	59.42	2-36"	Standard Duty	85	Access Road D5	41	N/A	2-36"
DC-33	126.81	3-36"	Heavy Duty	150	Alternate ADLS Access Road	50	N/A	Crossing Not Installed
DC-34	29.04	1-36"; 2-24"; 4-18"	Standard Duty	110	Access Road A4	56	N/A	Standard Duty LWC
DC-36	25.93	N/A	Standard Duty	250	Access Road A2	55	N/A	Standard Duty LWC
DC-39	24.3	N/A	Standard Duty	150	Access Road G2	54	Un-Named ROW	Standard Duty LWC
DC-40	68.44	1-48"; 2-36"; 3-30"	Standard Duty	160	Access Road G2	54	Un-Named ROW	Standard Duty LWC
DC-42	82.55	2-36"	N/A	N/A	Access Road H1	61	N/A	2-36"
DC-48	23.97	1-30"; 2-24"; 4-18"	Standard Duty	125	Access Road F9	28	N/A	Standard Duty LWC
DC-49	77.67	2-36"; 3-30"	Standard Duty	150	Access Road F5	29	N/A	Standard Duty LWC
DC-51	229.28	3-48"; 4-42"; 6-36"	N/A	N/A	Access Road F5	29 & 30	322nd Avenue	Crossing Not Installed
DC-53	20.11	1-30"; 2-24"; 3-18"	Standard Duty	175	Access Road F1	31	N/A	Standard Duty LWC
DC-58	12.07	1-24"	N/A	N/A	Access Road E9	24	N/A	1-24"
DC-64	17.77	N/A	Standard Duty	100	Access Road C9	21	N/A	Standard Duty LWC
DC-70	23.11	3-18"	Standard Duty	145	Access Road C1	27	N/A	Standard Duty LWC
DC-71	153.61	3-42"	Heavy Duty	130	Access Road C2	27	N/A	3-40"
DC-72	28.68	2-24"; 4-18"	Standard Duty	110	Access Road C9	21	N/A	Standard Duty LWC
DC-74	55.7	2-36"	Standard Duty	65	Access Road C7	21	N/A	2-36"
DC-75	78.6	2-36"	Standard Duty	140	Access Road C7	21	N/A	2-36"
DC-78	11.08	1-18"	Standard Duty	125	Access Road C8	18	N/A	1-18"
DC-81	9.34	1-18"	Standard Duty	55	Access Road C9	18	N/A	1-18"
DC-89	21.97	1-30"; 2-24"; 3-18"	N/A	N/A	Access Road D7	33	N/A	Crossing Not Installed
DC-91	3.94	1-18"	Standard Duty	95	Access Road D7	37	N/A	1-24"
DC-92	42.42	3-24"	Standard Duty	145	Access Road B1	49	N/A	3-24"
DC-93	121.64	1-18"	Standard Duty	110	Access Road B1	49	N/A	1-18"
DC-96*	34.38	3-24"	N/A	N/A	Access Road I9	64	N/A	3-24"
DC-97*	45.63	2-36"; 3-30"; 3-24"	N/A	N/A	Access Road I9	64	N/A	Crossing Not Installed
DC-98	8.87	1-24"; 2-18"	Standard Duty	115	Access Road I9	64	N/A	Crossing Not Installed
DC-99*	15.47	1-24"; 2-18"	N/A	N/A	Access Road I9	64	N/A	Crossing Not Installed
DC-100*	35.3	1-36"; 2-30"; 3-24"	Standard Duty	N/A	Access Road I9	64	N/A	Standard Duty LWC
DC-101*	6.62	1-18"	Standard Duty	N/A	Access Road I9	64	N/A	Standard Duty LWC
DC-102*	89.61	3-36"; 4-30"; 6-24"; 12-18"	Standard Duty	N/A	Access Road I2	63	Un-Named ROW	Standard Duty LWC
DC-114	4.9	1-18"	Standard Duty	65	Access Road D7	32	N/A	1-18"
DC-117	2.97	1-18"	N/A	105	Access Road C9	21	N/A	Crossing Not Installed
DC-118	110.56	3-36"	Heavy Duty	280	ADLS Access Road	50	330th Avenue	3-36"
DC-119	13.93	1-24"; 2-18"	Standard Duty	30	Access Road D6	38	N/A	Crossing Not Installed
DC-120	7.88	1-24"	Standard Duty	45	Access Road D6	38	N/A	1-24"
DC-121	3.1	1-18"	Standard Duty	55	Access Road D6	38	N/A	Crossing Not Installed
DC-122	6.49	1-18"	Standard Duty	40	Access Road D6	38	N/A	Crossing Not Installed
DC-123		1-18"	Standard Duty	50	Access Road E8	19	N/A	Standard Duty LWC
DC-124		1-18"	Standard Duty		Access Road C9	18	N/A	1-18"
DC-125		1-18"	Standard Duty		Access Road D7	32	N/A	1-18"
DC-126		1-18"	Standard Duty		Access Road D7	33	N/A	1-18"
DC-127		1-18"	Standard Duty		Access Road D7	33	N/A	1-18"
DC-128		1-18"	Standard Duty		Access Road H3	60	N/A	1-18"

1. CULVERTS AND LOW WATER CROSSINGS ARE SIZED FOR A 25-YEAR 24 HOUR STORM EVENT. CONTRACTOR TO CHOOSE BETWEEN A CULVERT OR LOW WATER CROSSING FOR THE CHOSEN STORM EVENT.
2. EITHER LOW WATER CROSSING OR CULVERT IS ACCEPTABLE WHERE NOTED. BOTH ARE NOT REQUIRED. MULTIPLE SIZING OPTIONS ARE LISTED FOR THE CULVERT DESIGN.
3. SEE DETAIL RD10 FOR CULVERT INSTALLATION DETAIL AND RD11 AND RD12 FOR LOW WATER CROSSINGS.
4. CULVERT SIZE OPTIONS BASED ON HYDRAULIC MODELING PURPOSES AT THIS TIME AND FIELD FIT WILL NEED TO BE VERIFIED WHEN COMPARING SIZING OPTIONS.
5. *ROAD AREAS IDENTIFIED TO BE BUILT UP TO AVOID POTENTIAL STANDING WATER DURING WET CONDITIONS.
6. DRAINAGE CROSSINGS WITHOUT 25-YEAR 24 HOUR STORM FLOW RATES WERE ADDED DURING CONSTRUCTION BASED ON FIELD CONDITIONS.

TABLE 3: MINIMUM COVER FOR CMP CULVERTS					
DIAMETER OF PIPE (IN)	MINIMUM ALLOWABLE COVER (FT) FOR STEEL ROUND PIPE 2 2/3" X 1/2" CORRUGATIONS				
	16 GAGE	14 GAGE	12 GAGE	10 GAGE	8 GAGE
12	1.0	1.0			
15	1.0	1.0			
18	1.0	1.0			
24	1.5	1.0	1.0		
30	1.5	1.5	1.0		
36	2.0	1.5	1.0	1.0	
42	3.0	2.0	1.5	1.0	1.0
48	4.0	2.5	1.5	1.0	1.0
54		3.5	1.5	1.5	1.0
60			2.0	1.5	1.5
66			3.5	2.0	1.5
72				2.5	1.5
DIAMETER OF PIPE (IN)	MINIMUM ALLOWABLE COVER (FT) FOR STEEL ROUND PIPE 3" X 1" AND 5" X 1" CORRUGATIONS				
	16 GAGE	14 GAGE	12 GAGE	10 GAGE	8 GAGE
4	1.0	3.0	1.5	1.0	1.0
6	7.0	4.0	2.0	1.5	1.0
66		5.0	2.0	1.5	1.0
72		6.0	2.5	1.5	1.5
NOTES: 1. BASED ON LOADS FROM HS20, TYPICAL TURBINE COMPONENTS, TYPICAL RT AND CRAWLER ERECTION CRANES, AND TABLES PRESENTED IN THE CORRUGATED STEEL PIPE DESIGN MANUAL BY NCSPA. 2. SAFETY FACTOR = 2.0					

Crossing ID	Temporary Entrance Culvert Schedule		Location
	2-year Peak Flow (cfs)	2-Year Culvert Diameter (in)	
EC-01	n/a	1-18"	Laydown Yard/Batch Plant
EC-02	n/a	1-18"	Laydown Yard/Batch Plant
EC-03	n/a	1-18"	Laydown Yard/Batch Plant
EC-105	n/a	1-18"	Laydown Yard/Batch Plant

NOTE: CULVERTS HAVE MINIMUM DRAINAGE TO THEM AND ARE PROPOSED FOR NUISANCE FLOWS. FIELD-FIT CULVERTS SHOULD BE SURE TO COMPLY WITH ANY COUNTY OR STATE REGULATIONS FOR MINIMUM DITCH CULVERT DIAMETERS

Crossing ID	Designed Entrance Culvert Schedule		Location	Sheet Number	Public ROW	Installed Drainage Crossing
	25-year Peak Flow (cfs)	25-Year Culvert Diameter (in)				
EC-04	0.92	1-18"	ADLS Access Road	50	208th Street	Road Not Constructed
EC-05	2.17	1-18"	ADLS Access Road	50	208th Street	Road Not Constructed
EC-06	16.38	1-30"; 2-24"; 3-18"	Access Road B6	43	Holabird	Crossing Not Installed
EC-07	1.95	1-18"	Access Road B2	43	208th Street	1-18"
EC-09	2.62	1-18"	Access Road B7	42	208th Street	1-18"
EC-10	1.26	1-18"	Access Road D1	42	208th Street	1-18"
EC-14	3.22	1-18"	Access Road D2	41	208th Street	1-18"
EC-16	6.46	1-18"	Access Road G3	53	326th Avenue	Crossing Not Installed
EC-17	2.76	1-18"	Access Road G2	53	326th Avenue	Crossing Not Installed
EC-20	5.13	1-18"	Access Road H2	59	326th Avenue	Crossing Not Installed
EC-21	3.6	1-18"	Access Road I3	62	326th Avenue	Crossing Not Installed
EC-22	0.99	1-18"	Access Road I5	62	326th Avenue	1-18"
EC-23	4.44	1-18"	Access Road I4	62	326th Avenue	1-18"
EC-25	0.64	1-18"	Access Road I6	64	326th Avenue	1-18"
EC-28	12.34	1-24"	Access Road H1	61	Holabird	1-18"
EC-29	12.4	1-24"	Access Road G1	61	Holabird	1-18"
EC-30	1.69	1-18"	Access Road A1	61	Holabird	1-18"
EC-32	20.11	1-30"; 2-24"; 3-18"	Access Road A4	55	Holabird	1-18"
EC-33	1.33	1-18"	Access Road A5	56	209th Street	1-18"
EC-34	2.91	1-18"	Access Road B1	49	Holabird	1-18"
EC-35	0.77	1-18"	Access Road B9	40	207th Street	1-18"
EC-37	2.38	1-18"	Access Road B8	39	207th Street	1-18"
EC-39	1.27	1-18"	Access Road D5	41	326th Avenue	1-18"
EC-40	1.16	1-18"	Access Road D6	38	326th Avenue	Crossing Not Installed
EC-41	5.25	1-18"	Access Road D7	31	324th Avenue	Crossing Not Installed
EC-42	1.92	1-18"	Access Road F1	24	204th Street	1-18"
EC-44	2.83	1-18"	Access Road F2	23	203th Street	1-18"
EC-46	1.18	1-18"	Access Road F9	28	321st Avenue	1-18"
EC-47	2.72	1-18"	Access Road E9	24	324th Avenue	1-24"
EC-48	8.97	1-24"	Access Road E7	20	203rd Street	1-18"
EC-49	0.69	1-18"	Access Road E8	19	324th Avenue	1-18"
EC-50	11.28	1-24"	Access Road E5	21	203rd Street	1-24"
EC-51	1.17	1-18"	Access Road C3	21	203rd Street	1-18"
EC-53	1.03	1-18"	Access Road C1	22	203rd Street	Crossing Not Installed
EC-57	1.18	1-18"	Access Road G9	62	212th Street	Crossing Not Installed
EC-58	0.94	1-18"	Access Road I9	62	212th Street	Crossing Not Installed
EC-59	2.66	1-18"	Access Road I2	63	212th Street	Crossing Not Installed
EC-60	3.93	1-18"	Access Road A2	55	Holabird	1-18"
EC-104	15.36	1-24"	Access Road D3	46	208th Street	1-24"
EC-106	1.31	1-18"	Access Road F3	29	322nd Avenue	Crossing Not Installed
EC-108	7.47	1-18"	ADLS Access Road	45	330th Street	Crossing Not Installed
EC-109		1-18"	Access Road C9	21	203rd Street	1-18"

1. FIELD VERIFY ALL ENTRANCE CULVERTS.
2. MULTIPLE CULVERT SIZING OPTIONS ARE LISTED, CONTRACTOR TO CHOOSE BEST FIT BASED ON EXISTING DITCH GEOMETRY
3. CULVERT SIZING TO BE VERIFIED BY LOCAL JURISDICTION.

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North Bend Wind Project

Hughes and Hyde Counties,
South Dakota

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ROAD DESIGN PARAMETERS

1. THE ROAD HAS BEEN DESIGNED TO ACCOMMODATE LOADS DURING CONSTRUCTION AND LIGHT DUTY TRUCKS FOR LOW VOLUME USE IN NORMAL OPERATING CONDITIONS. THE ROAD DESIGN SPECIFIED IS NOT INTENDED FOR ALL WEATHER USE FOR HEAVY DUTY, HIGH VOLUME CONSTRUCTION LOADS.
2. ROAD MAINTENANCE CAN BE EXPECTED DURING CONSTRUCTION AND OVER THE LIFE OF THE PERMANENT FACILITY.

EARTHWORK

1. GENERAL
- a. THIS SECTION DESCRIBES WORK RELATED TO EARTHWORK AND MAY INCLUDE CLEARING AND GRUBBING, EXCAVATIONS, SUBGRADE, AGGREGATE PLACEMENT, GENERAL FILL, STABILIZATION, ANY ASSOCIATED INSPECTIONS AND TESTING OF EARTHWORK, AND ALL OTHER WORK NECESSARY TO COMPLETE EARTHWORK FOR THE PROJECT.
- b. THIS SECTION DOES NOT ADDRESS EARTHWORK ASSOCIATED WITH FOUNDATIONS, REFER TO STRUCTURAL DRAWINGS FOR FOUNDATION RELATED WORK.
2. SUBMITTALS
- a. THE FOLLOWING MATERIAL SUBMITTALS ARE REQUIRED FOR REVIEW BY THE CIVIL ENGINEER OF RECORD (EOR) PER SPECIFIC PRODUCT AND PRE-PLACEMENT:
- a.1. ON-SITE BORROW SOURCE
- a.2. IMPORTED FILL MATERIAL
- a.3. AGGREGATE
- a.4. RIPRAP
- a.5. GEOSYNTHETIC FABRIC
- a.6. CULVERTS
- a.7. LOW WATER CROSSINGS
- b. EROSION AND SEDIMENT CONTROL (BMP) PRODUCT SUBMITTALS ARE NOT REQUIRED. REFER TO THE NPDES PERMIT FOR INFORMATION.
- c. REFER TO TABLE 1 FOR REQUIRED TESTS FOR EACH SUBMITTAL.

3. MATERIALS

- a. STRUCTURAL FILL
- a.1. STRUCTURAL FILL MATERIAL SHALL CONSIST OF ON-SITE SAND, SILTY SAND, CLAYEY SAND, SANDY LEAN CLAY, OR LEAN CLAY WITH A LIQUID LIMIT LESS THAN 45 AND A PLASTICITY INDEX LESS THAN 25.
- a.2. STRUCTURAL FILL SHALL BE USED FOR MASS GRADING ASSOCIATED WITH EMBANKMENTS, TURBINE PADS (STAGGING AREAS), INTERSECTION IMPROVEMENTS, ACCESS ROADS, SPUR ROADS, MET TOWER ROADS, ADLS ROAD, AND LAYDOWN/BATCH PLANT.
- b. AGGREGATE MATERIAL
- b.1. AGGREGATE MATERIAL SHALL CONSIST OF SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION GRANULAR BRIDGE END BACKFILL (STANDARD SPECIFICATION FOR ROAD AND BRIDGES, SECTION 882.2, TABLE 1). AGGREGATE BASE AS REQUIRED SHALL HAVE THE FOLLOWING SPECIFICATIONS INCLUDING LIQUID LIMITS LESS THEN 25, PLASTICITY INDEX LESS THAN 6, LA ABRASION LESS THAN 40, AND MINIMUM OF 30% CRUSHED PARTICLES. SEE TABLE 2 FOR GRADATION.
- b.2. AGGREGATE MATERIAL SHALL BE USED FOR ACCESS ROADS, SPUR ROADS, MET TOWER ROADS, AGGREGATE RINGS, INTERSECTION IMPROVEMENTS, ADLS ROAD, AND LAYDOWN/BATCH PLANT.
- c. GEOTEXTILE
- c.1. ROAD APPLICATIONS
- c.1.1. GEOTEXTILE SHALL CONSIST OF MIRAFI HP 270 GEOTEXTILE FABRIC OR CIVIL ENGINEER APPROVED EQUAL.
- c.1.2. GEOTEXTILE SHALL BE USED FOR ACCESS ROADS AS REQUIRED PER CEMENT STABILIZATION REQUIREMENTS ON SHEET 15.
- c.2. DRAINAGE APPLICATIONS
- c.2.1. GEOTEXTILE SHALL CONSIST OF MIRAFI HP270 GEOTEXTILE FABRIC OR CIVIL ENGINEER APPROVED EQUAL FOR HEAVY DUTY LOW WATER CROSSINGS.
- c.2.2. GEOTEXTILE SHALL CONSIST OF MIRAFI 140N TO BE USED FOR RIPRAP AREAS AND AS SHOWN ON THE DRAWINGS.
- d. RIPRAP
- d.1. RIRRAP SHALL CONSIST OF ROCK THAT MEETS D50 REQUIREMENTS SPECIFIED IN THE PLANS. D50 SHALL BE MEASURED BY TAKING A REPRESENTATIVE SAMPLE OF THE RIPRAP MATERIAL AND MEASURING 100 STONES IN THE 3 GENERAL DIMENSIONS OF LENGTH, WIDTH, AND THICKNESS. THE AVERAGE INTERMEDIATE DIMENSION SHALL BE EQUAL TO THE D50 VALUE OR GREATER. INTERMEDIATE DIMENSION IS DEFINED AS THE LONGEST, STRAIGHT-LINE DISTANCE ACROSS THE ROCK THAT IS PERPENDICULAR TO THE LONGEST AXIS ON THE FACE OF THE ROCK WITH THE LARGEST PROJECTION PLANE. FOR THE IDEALIZED ROCK PARTICLE SHOWN IN FIGURE 1, THIS WOULD BE DIMENSION 'B'. REFERENCE FLH DESIGNATION T 521-13 "DETERMINING RIPRAP GRADATION BY WOLMAN COUNT" FOR FURTHER INFORMATION.

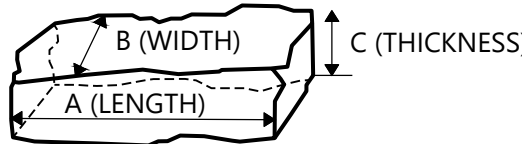


FIGURE 1 - ROCK PARTICLE DIMENSIONS

- d.2. RIPRAP SHALL BE USED FOR CULVERT ENDS, STILLING BASINS, DRAINAGE SWALES, PROTECTED ROAD CROSSINGS, AND AS SHOWN ON THE DRAWINGS.
- e. CULVERTS
- e.1. CULVERTS SHALL HAVE NO END TREATMENTS UNLESS OTHERWISE NOTED OR REQUIRED BY THE AUTHORITY HAVING JURISDICTION
- e.2. CULVERTS 48" AND SMALLER SHALL BE MINIMUM 16-GAGE CORRUGATED METAL PIPE.
- e.3. CULVERTS 54" AND LARGER SHALL BE MINIMUM 12-GAGE CORRUGATED METAL PIPE.
- e.4. CONFIRM CULVERT MATERIAL WITH MANUFACTURER RECOMMENDATIONS BASED ON GAGE, COVER, SIZE, AND ANTICIPATED LOADINGS.
4. CONSTRUCTION
- a. CLEARING AND GRUBBING
- a.1. THE CONTRACTOR SHALL BE REQUIRED TO REMOVE ALL TREES, STUMPS, BRUSH, AND DEBRIS WITHIN THE GRADING AREAS SHOWN ON THE PLANS. 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.
- b. EXCAVATIONS
- b.1. TOPSOIL ON NON-CEMENT STABILIZED AREAS SHALL BE STRIPPED FROM ALL ROADWAY AREAS (AT A MINIMUM DEPTH OF ±6 INCHES) (THROUGH THE ROOT ZONE). TOPSOIL SHALL NOT BE STRIPPED OUTSIDE OF THE DESIGNATED DISTURBANCE AREAS.
- b.2. ANY TOPSOIL THAT HAS BEEN STRIPPED SHALL BE RE-SPREAD OR STOCKPILED WITHIN GRADING AREAS AND/OR USED AS FILL OUTSIDE OF THE DISTURBANCE AREAS, AS DIRECTED BY THE CIVIL ENGINEER. ALL TOPSOIL SHALL BE REDISTRIBUTED TO THE LAND OWNER'S PROPERTY OF WHERE IT ORIGINATED FROM. SEEDING AND MULCHING TO BE UNDER THE DIRECTION OF THE PROPERTY OWNER.
- c. SUBGRADE
- c.1. SUBGRADE SOIL BELOW FILL SHALL BE COMPACTED AND PROOF-ROLLED IN ACCORDANCE WITH TABLE 1.
- c.2. FOR CEMENT STABILIZED SUBGRADES, REFER TO ACCESS ROAD CEMENT STABILIZATION SECTION ON SHEET ##.
- d. WHERE APPLICABLE, GEOTEXTILE FABRIC SHALL BE PLACED AFTER SUBGRADE TESTING REQUIREMENTS AS SPECIFIED IN TABLE 1. GEOTEXTILE FABRIC SHALL BE INSTALLED PER MANUFACTURE RECOMMENDATION.
- e. STRUCTURAL FILL
- e.1. FILL MAY BE PLACED ABOVE GRADE AFTER TOPSOIL STRIPPING AND SUBGRADE TESTING PER TABLE 1, IN LOOSE LIFTS NOT EXCEEDING 12 INCHES, AND COMPACTED IN ACCORDANCE WITH TABLE 1.
- e.2. SIDE SLOPES GREATER THAN 3:1 WILL NOT BE PERMITTED, UNLESS OTHERWISE NOTED ON THE PLAN.
- f. AGGREGATE PLACEMENT
- f.1. SUBSEQUENT TO THE SUBGRADE PREPARATION, THE AGGREGATE BASE SHALL BE PLACED, COMPACTED, AND TESTED TO THE SPECIFICATIONS IDENTIFIED IN TABLE 1.
- f.2. CLEAN ON-SITE SOILS OR APPROVED IMPORTED MATERIAL MAY BE USED AS FILL MATERIAL FOR GENERAL SITE GRADING IN NON-STRUCTURAL FILL LANDSCAPING AREAS. THIS MATERIAL SHALL BE PLACED IN LOOSE LIFTS NOT TO EXCEED 9 INCHES.
- g. SEEDING, MULCHING, AND STABILIZATION
- g.1. PRIOR TO FINAL STABILIZATION, TOPSOIL SHALL BE DISTRIBUTED OVER THE EXPOSED DISTURBED AREAS, EXCLUDING THE AGGREGATE DRIVING SURFACE.
- g.2. FOLLOWING ROUGH GRADING OPERATIONS, TOPSOIL CAN BE USED TO BRING THE GROUND ELEVATIONS UP TO THE DESIGNED FINISHED GRADE ELEVATIONS IN NON-STRUCTURAL AREAS.
- g.3. ALL DISTURBED AREAS SHALL HAVE TEMPORARY AND PERMANENT STABILIZATION MEASURES ESTABLISHED IN ACCORDANCE WITH THE NPDES PERMIT.

TABLE 1: MATERIAL TESTING SCHEDULE

	Location	Required Test	ASTM Standard	Frequency	Specified Criteria
Subgrade (Non-cement Stabilized)	Temporary Roads Temporary Intersection Improvements Laydown Yard/Batch Plant Turbine Pads (Staging Areas) Spur Roads Met Tower Roads ADLS Road	Proof Roll	N/A	Entire Length / Area	No rutting greater than 1.5" and no "pumping" of the soil beneath/behind the loaded truck. See testing requirements for additional information.
	Crane Walks ¹ Crane Pads ¹	EXCLUDED ¹	N/A	EXCLUDED ¹	EXCLUDED ¹
Structural Fill (for Mass Grading)	Source (On -Site Borrow) (Imported Fill) (Common Excavation)	Standard Proctor	ASTM D-698	1 per soil type/source as determined by independent testing agency	N/A
		Moisture Content	ASTM D-2216		LL < 45 and PI < 25
		Atterberg Limits	ASTM D-4318		
	Embankments Turbine Pads (Staging Areas) Intersection Improvements Access Roads Spur Roads Met Tower Roads Laydown/Batch Plant ADLS Road	Nuclear Density	ASTM D-6938	1 test per 5,000 SF per 1' lift.	95% of Standard Proctor Maximum Dry Density +/- 3% of Optimum Moisture Content
Aggregate Material	Quarry Testing (Pre-Placement)	Proof Roll	N/A	Entire Length / Area	No rutting greater than 1.5" and no "pumping" of the soil beneath/behind the loaded truck. See earthwork specifications for additional information.
		Grain Size Analysis	ASTM C-136	Per source from quarry. Sample from site every 5,000CY.	See Table 2
		Atterberg Limits	ASTM D-4318		See Table 2
		Los Angeles Abrasion	ASTM C-131		See Table 2
	Access Roads Spur Roads Met Tower Roads Aggregate Rings Intersection Improvements Laydown/Batch Plant ADLS Road	Proof Roll	N/A	Entire Length / Area	No rutting greater than 1.5" and no "pumping" of the soil beneath/behind the loaded truck. See earthwork specifications for additional information.
GENERAL FILL	Non-Structural Fill Landscaping Areas	N/A	N/A	N/A	N/A

¹ Structural design, recommendations, and testing for crane walks and crane pads is excluded from the engineering design contained within these plans. Refer to the geotechnical report, project specific crane walk/pad structural design (if available), geotechnical engineer, and/or contractor for specific information.

GENERAL NOTES

- CONSTRUCTION PLANS ARE BASED OFF THE COORDINATE SYSTEM SOUTH DAKOTA NORTHERN STATE PLANE, US INTERNATIONAL FOOT.
- SITE DRAINAGE INFRASTRUCTURE INCLUDING SWALES, ACCESS ROAD SWALE CROSSINGS, AND OUTLET FEATURES ARE SIZED FOR A 25 YEAR 24HR RAIN EVENT.
- THE ALTA SURVEY AND EXISTING PLANIMETRIC DATA IS FROM WESTWOOD PROFESSIONAL SERVICES DATED 10/26/2022.
- THE GROUND SURFACE CONTOURS (AT ONE-FOOT VERTICAL INTERVALS) AND ELEVATIONS IS BASED ON FLOWN LIDAR DATA.
- THE ELEVATIONS AND CONTOURS SHOWN ON THESE CONSTRUCTION DRAWINGS WERE PREPARED FROM A COMBINATION OF ACTUAL FIELD SURVEYING AND AERIAL PHOTOGRAPHY DATA. THE CONTRACTOR SHALL NOTIFY THE CIVIL ENGINEER WHEN THEY FIND THAT GROUND ELEVATIONS DETERMINED DURING FIELD STAKING VARY FROM THE GROUND ELEVATIONS SHOWN ON THE DRAWINGS FOR POTENTIAL DESIGN MODIFICATIONS.
- WHERE SECTION OR SUBSECTION MONUMENTS ARE ENCOUNTERED, THE OWNER SHALL BE NOTIFIED AND ARE NOT TO BE REMOVED WITHOUT PERMISSION FROM THE OWNER. 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.
- THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING DRAINAGE THROUGHOUT THE CONSTRUCTION OF THIS PROJECT. CONSTRUCTION ACTIVITIES SHALL NOT BLOCK THE NATURAL DRAINAGE SWALES CAUSING RAINWATER TO POND. IF CULVERTS ARE NEEDED, THE CIVIL ENGINEER MUST BE CONTACTED FOR APPROPRIATE SIZING OF STRUCTURE. WHEN INSTALLING DRAINAGE CROSSINGS, THE CONTRACTOR SHALL USE JUDGMENT IN SETTING THE FLOW LINE ELEVATIONS TO PROVIDE POSITIVE DRAINAGE. WHEN POSSIBLE, ALL CULVERTS SHOULD BE PLACED AT A MINIMUM 0.5% GRADE.
- ANY FACILITIES REMOVED TO ALLOW FOR CONSTRUCTION (MAILBOXES, SIGNS, FENCES, ETC.) SHALL BE REPLACED BY THE CONTRACTOR IN A CONDITION AS GOOD AS PRE-EXISTING UNLESS INDICATED FOR REMOVAL.
- THE CONTRACTOR SHALL NOTIFY SOUTH DAKOTA 811 AT LEAST 48 HOURS BEFORE EXCAVATION ACTIVITIES COMMENCE.
- ALL CONSTRUCTION PERFORMED SHALL CONFORM WITH THE CURRENT STANDARDS AND SPECIFICATION OF HYDE AND HUGHES COUNTIES. WHERE DISCREPANCIES EXIST BETWEEN THE PROJECT SPECIFICATIONS AND THE COUNTY SPECIFICATIONS OR STANDARD, THE CONTRACTOR SHALL ABIDE BY THE GREATER OR MORE RESTRICTIVE REQUIREMENTS.
- ELECTRONIC FILES ARE AVAILABLE FOR CONSTRUCTION OPERATIONS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND MAINTAINING TRAFFIC CONTROL DEVICES SUCH AS BARRICADES, WARNING SIGNS, DIRECTIONAL SIGNS, FLAGGERS, AND LIGHTS TO CONTROL THE MOVEMENT OF TRAFFIC WHERE NECESSARY. PLACEMENT OF THESE DEVICES SHALL BE APPROVED BY THE COUNTY/MUNICIPALITY AND CIVIL ENGINEER PRIOR TO PLACEMENT. TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE LATEST VERSION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
- TEMPORARY FEATURES SHALL, UPON COMPLETION OF ALL PROJECT CONSTRUCTION OR UPON NOTIFICATION OF THE CIVIL ENGINEER, BE REMOVED AND THE AREA RESTORED TO APPROXIMATELY ORIGINAL LINES AND GRADES WITH TOPSOIL REPLACED, EXCEPT WHERE REQUESTED BY THE TOWNSHIP OR COUNTY TO PERMANENTLY REMAIN.
- ELECTRICAL INFORMATION SHOWN ON THE PLANS IS FOR REFERENCE ONLY. REFER TO ELECTRICAL PLANS FOR SPECIFIC LOCATIONS AND CONSTRUCTION DETAILS.
- GEOTECHNICAL REPORTS WITH RECOMMENDATIONS HAVE BEEN PROVIDED BY THE OWNER.
- WETLAND INFORMATION HAS BEEN PROVIDED BY THE OWNER. ALL WETLAND DELINEATIONS AND PERMITTING SHALL BE THE RESPONSIBILITY OF OTHERS. THE OWNER AND CONTRACTOR SHALL VERIFY THAT ALL WETLAND PERMITS HAVE BEEN SUBMITTED AND APPROVED PRIOR TO CONSTRUCTION COMMENCING.
- CULTURAL RESOURCE INFORMATION HAS BEEN PROVIDED BY THE OWNER. THE CONTRACTOR SHALL BE FAMILIAR WITH THE INFORMATION/REPORT AND REVIEW ALL RECOMMENDATIONS.
- AN ENVIRONMENTAL ASSESSMENT HAS BEEN PROVIDED. THE CONTRACTOR SHALL BE FAMILIAR WITH THE INFORMATION/REPORT AND REVIEW ALL RECOMMENDATIONS.
- WILDLIFE REPORT(S) HAS BEEN PROVIDED. THE CONTRACTOR SHALL BE FAMILIAR WITH THE INFORMATION/REPORT(S) AND REVIEW ALL RECOMMENDATIONS.
- TURBINE SETBACKS ARE NOT IDENTIFIED ON THE CONSTRUCTION PLANS. IT SHALL BE THE RESPONSIBILITY OF THE OWNER AND CONTRACTOR TO ENSURE ALL TURBINE SETBACKS MEET PROJECT REQUIREMENTS.

EROSION AND SEDIMENT CONTROL / STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

- THE CONTRACTOR SHALL PROVIDE EROSION CONTROL MEASURES AS PLANNED AND SPECIFIED FOLLOWING BEST MANAGEMENT PRACTICES AS OUTLINED BY THE SOUTH DAKOTA DEPARTMENT OF NATURAL RESOURCES AND BEING IN CONFORMANCE WITH THE SOUTH DAKOTA POLLUTANT DISCHARGE ELIMINATION SYSTEM GENERAL STORMWATER PERMIT. SEE THE PROJECT SITE PLANS AND ASSOCIATED STORMWATER POLLUTION PREVENTION PLAN (SWPPP) FOR EROSION CONTROL AND RESTORATION LOCATIONS AND SPECIFICATIONS. UNLESS OTHERWISE NOTED OR MODIFIED IN THE SWPPP/HEREIN, ALL SECTIONS OF THE GENERAL CONDITIONS SHALL APPLY.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE SWPPP'S AVAILABILITY.
- ALL TOP-SOIL BERMS, FIBER ROLLS, AND OTHER EROSION CONTROL FEATURES SHALL BE IN-PLACE PRIOR TO ANY EXCAVATION/CONSTRUCTION AND SHALL BE MAINTAINED UNTIL VIABLE TURF OR GROUND COVER HAS BEEN ESTABLISHED.
- ALL DRAINAGE SWALES DISTURBED DURING CONSTRUCTION ACTIVITIES AND NOT COVERED BY ROAD SURFACING MATERIALS, SHALL BE STABILIZED IN ACCORDANCE WITH THE SWPPP PLAN.

TABLE 2: SDDOT SPECIFICATIONS 882.2 AGGREGATE BASE COURSE	
SIEVE SIZE	PERCENT PASSING
1"	100
3/4"	80-100
½"	68-91
#4	46-70
#8	34-58
#40	13-35
#200	3-12
LIQUID LIMIT (MAX) = 25 LA ABRASION (% MAX) = 40% *PLASTICITY INDEX = 0-10	

*NOTE: MODIFIED PI RANGE OF 0-10 NOT COMPLIANT WITH CONSTRUCTION NOTE 3.b.1 SDDOT SECTION 882.2 SPECIFICATION OF 0-6. ADDITIONAL RUTTING AND REQUIRED MAINTENANCE MAY RESULT FROM HIGHER PLASTICITY AGGREGATE SOURCE DUE TO CBR CORRELATION.

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0	01/03/2024	RECORD DRAWINGS	PAR	TRG	TRG

North Bend Wind
Project
Hughes and Hyde Counties,
South Dakota

Construction Notes

ISSUED FOR RECORD

DATE: 01/03/2024

SHEET: 16

REV:

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ACCESS ROAD CEMENT STABILIZATION

1. GENERAL
- a. THIS SECTION DESCRIBES WORK RELATED TO ACCESS ROAD SUBGRADE SOIL STABILIZED WITH PORTLAND CEMENT. THIS SECTION DOES NOT INCLUDE CEMENT STABILIZATION FOR OTHER PROJECT INFRASTRUCTURE, SUCH AS CRANE WALKS, CRANE PADS, LAYDOWN YARDS, OR SUBGRADE BELOW FOUNDATIONS, UNLESS SPECIFICALLY STATED IN THESE PLANS.

b. IT IS EXPECTED THAT AGGREGATE-SURFACED ACCESS ROADS WILL REQUIRE ONGOING MAINTENANCE DURING CONSTRUCTION AND OVER THE LIFE OF THE PERMANENT FACILITY TO KEEP THEM IN A SERVICEABLE CONDITION, REGARDLESS OF THE AGGREGATE THICKNESS AND SUBGRADE PREPARATION. IT IS NOT PRACTICAL TO DESIGN AN AGGREGATE SECTION OF ADEQUATE THICKNESS THAT PREVENTS ONGOING MAINTENANCE. RUTS, DEPRESSIONS, AND SOFT SUBGRADE SHOULD BE REPAIRED AS NEEDED TO FACILITATE TRAFFIC. THROUGHOUT THE OPERATIONAL LIFE OF THE PROJECT, ADDITIONAL AGGREGATE MAY BE PLACED IN RUTS AND DEPRESSIONS, OR THE ENTIRE AGGREGATE SECTION AND SOFT SUBGRADE MAY BE REMOVED AND REPLACED WITH A NEW AGGREGATE SECTION.
2. SUBMITTALS
- a. SUBMIT A QUALITY CONTROL PLAN TO ENGINEER FOR REVIEW ONLY, PRIOR TO CONSTRUCTION ACTIVITIES. THE PLAN SHOULD INCLUDE THE FOLLOWING ITEMS, AT A MINIMUM:

a.1. QUALIFICATIONS FOR EXPERIENCED PERSONNEL OVERSEEING STABILIZATION

a.2. REPRESENTATIVE MOISTURE-DENSITY RELATIONSHIP (PROCTOR) TESTS

a.3. STABILIZATION DEPTH AND WIDTH

a.4. CEMENT AND MOISTURE APPLICATION RATE MONITORING

a.5. TEMPERATURE MONITORING

a.6. MOISTURE/COMPACTION TESTS

a.7. DYNAMIC CONE PENETROMETER (DCP) TEST EQUIPMENT AND PROCEDURE

a.8. PROOF-ROLL VEHICLE TYPE AND WEIGHT

a.9. SURFACE MOISTURE CONTROL FOR CURING

a.10. CORRECTIVE ACTION PLAN IF SPECIFICATION IS NOT MET

b. SUBMIT A TEST STRIP CONSTRUCTION PLAN, INCLUDING THE FOLLOWING ITEMS, AT A MINIMUM:

b.1. TEST STRIP LOCATIONS AND LENGTHS

b.2. CEMENT APPLICATION RATES

b.3. QUALITY CONTROL PLAN
3. MATERIALS
- a. CEMENT: ANY TYPE OF PORTLAND CEMENT THAT COMPLIES WITH ASTM C595.

b. WATER: RELATIVELY CLEAN AND FREE FROM HARMFUL AMOUNTS OF ALKALIES, ACIDS, OR ORGANIC MATTER.

c. AGGREGATE: REFER TO CONSTRUCTION NOTES ON SHEET 16.

d. GEOTEXTILE: REFER TO CONSTRUCTION NOTES ON SHEET 16.
4. CONSTRUCTION
- a. TEST STRIPS

a.1. AT THE START OF ACCESS ROAD CONSTRUCTION, CONTRACTOR SHALL CONSTRUCT TEST STRIPS, EACH 300 LF, AT A MINIMUM OF THREE DIFFERENT CEMENT CONTENTS CHOSEN BY THE CONTRACTOR (FOR EXAMPLE 5%, 7%, AND 9%). TEST STRIPS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CONSTRUCTION SPECIFICATIONS WITHIN THIS SECTION.

a.2. STABILIZATION MAY PROCEED USING THE CEMENT APPLICATION RATE THAT PRODUCES PASSING INSPECTION AND TESTING RESULTS FOR THE TEST STRIP. DO NOT PROCEED WITH STABILIZATION IF THE INSPECTION AND TESTING REQUIREMENTS ARE NOT MET. CONSTRUCT ADDITIONAL TEST STRIPS WITH HIGHER CEMENT APPLICATION RATES UNTIL PASSING INSPECTION AND TESTING REQUIREMENTS.

b. PREPARATION

b.1. STRIP TOPSOIL TO A MINIMUM DEPTH OF 4 INCHES. STRIPPING DEPTH MAY NEED TO EXTEND DEEPER TO REMOVE ROOTS/ORGANICS AND ACHIEVE THE REQUIRED CEMENT STABILIZED SUBGRADE STRENGTH. ROOTS SMALLER THAN 1/2 INCH DIAMETER ARE ACCEPTABLE.

b.2. SHAPE SUBGRADE TO THE PROPER WIDTH AND GRADE.

b.3. THE CONSTRUCTION MATERIALS TESTING COMPANY SHALL EVALUATE SUBGRADE MATERIAL TO DETERMINE IF A REPRESENTATIVE MOISTURE-DENSITY RELATIONSHIP (PROCTOR) TEST EXISTS, AND IF NOT A NEW PROCTOR TEST SHALL BE PERFORMED.

b.4. DETERMINE THE IN-SITU MOISTURE CONTENT OF THE SUBGRADE SHORTLY BEFORE SPREADING CEMENT USING A NUCLEAR DENSITY GAUGE OR OTHER SUITABLE DEVICE. PERFORM ADDITIONAL MOISTURE CONTENT CHECKS IF WEATHER CONDITIONS OR SOIL CONDITIONS CHANGE. SEE BEST PRACTICES FOR SUBGRADE MOISTURE RECOMMENDATIONS.

b.5. DO NOT STABILIZE SUBGRADE THAT IS FROZEN. REFER TO BEST PRACTICES FOR ADDITIONAL TEMPERATURE RECOMMENDATIONS.

c. SPREADING CEMENT

c.1. APPLY CEMENT AT A RATE THAT ENSURES THE WEIGHT SPREAD IS WITHIN 10% OF THE DESIRED AMOUNT. FURNISH A SQUARE-YARD CLOTH, SCALES, WEIGHT TICKETS, AND/OR PERSONNEL TO CHECK THE SPREAD RATE OF CEMENT PLACED.

c.2. UNIFORMLY SPREAD CEMENT TO THE FULL WIDTH OF THE AREA TO BE COVERED.

c.3. CEMENT APPLICATION RATE MAY NEED TO BE ADJUSTED THROUGHOUT CONSTRUCTION TO ACHIEVE DESIRED RESULTS BASED ON FIELD CONDITIONS.

d. MIXING

d.1. BEGIN MIXING AS SOON AS PRACTICAL AFTER THE CEMENT IS SPREAD, AND CONTINUE UNTIL A HOMOGENEOUS AND UNIFORM MIXTURE IS PRODUCED TO THE DEPTH AND WIDTH SPECIFIED IN THE DESIGN DOCUMENTS.

d.2. MIX AT A SPEED THAT ENSURES A UNIFORM MIXTURE OF SOIL, CEMENT, AND WATER.

d.3. PULVERIZE SUBGRADE DURING MIXING PROCESS TO AVOID LARGE CLOUDS OF SOIL. REFER TO BEST PRACTICES FOR RECOMMENDATIONS.

d.4. APPLY WATER THROUGH A METERING DEVICE SUCH AS THE RECLAIMER TO UNIFORMLY DISTRIBUTE THE PROPER AMOUNT OF WATER. SEE BEST PRACTICES FOR SUBGRADE MOISTURE RECOMMENDATIONS.

d.5. IF STABILIZATION HALTS AND NEEDS TO BE RESUMED AT A LATER TIME, CONSTRUCTION JOINTS SHALL BE FORMED BY CUTTING BACK INTO THE COMPLETED WORK A MINIMUM OF 2 FEET.

e. COMPACTION AND FINISHING

e.1. BEGIN COMPACTION IMMEDIATELY AFTER SOIL, CEMENT, AND WATER HAVE BEEN MIXED, TYPICALLY WITHIN 45 MINUTES OF MIXING. COMPLETE COMPACTION WITHIN 2 HOURS.

e.2. COMPACT THE STABILIZED SUBGRADE TO THE SPECIFICATIONS PRESENTED IN **TABLE CS2** AND UNTIL NO EVIDENCE OF FURTHER COMPACTION IS OBSERVED.

e.3. COMPACTION SHALL BE PERFORMED WITH MULTIPLE PASSES OF A SHEEP FOOT OR TAMPING ROLLER (FOR FINE-GRAINED SOIL), AND FINISHED BY A SMOOTH DRUM ROLLER TO SET THE FINAL ROAD PROFILE.

e.4. PLACE AGGREGATE ON STABILIZED SUBGRADE AFTER PASSING THE PROOF-ROLL AND DCP TESTING SPECIFICATIONS IN THE INSPECTION AND TEST NOTES ON THIS SHEET. REFER TO ACCESS ROAD CROSS SECTION DETAILS IN THE CONSTRUCTION DETAILS FOR AGGREGATE THICKNESS AND WIDTH. AGGREGATE THICKNESS APPLIES TO THE BEGINNING OF CONSTRUCTION. ADDITIONAL AGGREGATE MAY BE REQUIRED AT THE END OF CONSTRUCTION DUE TO AGGREGATE LOSS FROM ROAD USE, IF REQUIRED BY OWNER SPECIFICATIONS.
5. INSPECTION AND TESTING
- a. REFER TO **TABLE CS1** AND **TABLE CS2** FOR TESTING SPECIFICATIONS.

b. ONCE THE MINIMUM REQUIRED CBR IS ACHIEVED AT OR BEFORE THE CORRESPONDING TIME PERIOD SHOWN IN **TABLE CS1**, BUT NO SOONER THAN 24 HOURS AFTER COMPACTION, THE CONTRACTOR MAY PROCEED WITH PROOF-ROLL TESTING. FUTURE DCP TESTING ON THAT SEGMENT OF SUBGRADE IS NOT REQUIRED.

c. IF DCP TESTING SPECIFICATIONS ARE NOT MET WITHIN 7 DAYS, ADDITIONAL TESTS MAY BE PERFORMED AT A LATER DATE (E.G., 14 DAYS). THE SECTION MAY BE RE-STABILIZED WITH ADDITIONAL CEMENT, OR ADDITIONAL AGGREGATE SURFACE AND/OR THE ADDITION OF GEOTEXTILE MAY BE REQUIRED. REFER TO **TABLE CS3** FOR ALTERNATE ACCESS ROAD SECTIONS, OR CONTACT ENGINEER FOR ADDITIONAL RECOMMENDATIONS. COMPLETE SUBGRADE FAILURE OR EXCESSIVE RUTTING MAY OCCUR IF NO REMEDIAL ACTION IS TAKEN.

d. PROOF-ROLLING SHALL BE PERFORMED PRIOR TO PLACING AGGREGATE AND IN THE PRESENCE OF A QUALIFIED GEOTECHNICAL REPRESENTATIVE. REFER TO **TABLE CS2** AND CONSTRUCTION NOTES ON SHEET 16 FOR PROOF-ROLL TESTING AND EQUIPMENT SPECIFICATIONS.

e. PROOF-ROLLING SHALL BE PERFORMED WITH A MINIMUM OF TWO PASSES BUT NOT WITHIN 12 INCHES OF THE EDGE OF THE STABILIZED SECTION.

f. IF PROOF-ROLLS FAIL, TEST THE FAILED AREA WITH DCP AND USE AN ALTERNATE ROAD SECTION ACCORDING TO **TABLE CS3**, OR CONTACT ENGINEER FOR RECOMMENDATIONS.

g. REFER TO THE CONSTRUCTION NOTES ON SHEET 16 FOR AGGREGATE PLACEMENT, INSPECTION, AND TESTING SPECIFICATIONS.

BEST PRACTICES FOR CEMENT STABILIZATION

- THE FOLLOWING RECOMMENDATIONS SHOULD BE CONSIDERED FOR BEST RESULTS:
- WELL BEFORE CONSTRUCTION BEGINS, LABORATORY TESTS MAY BE PERFORMED ON NATIVE SOIL SAMPLES MIXED WITH VARIOUS AMOUNTS OF CEMENT AND TESTED FOR CBR AND/OR UNCONFINED COMPRESSIVE STRENGTH AT SEVERAL DIFFERENT CURE TIMES TO ASSESS THE FEASIBILITY OF CEMENT STABILIZATION AND ESTIMATED CEMENT APPLICATION RATES FOR TEST STRIPS AND CONSTRUCTION. LABORATORY TESTS ARE ESPECIALLY RECOMMENDED IF HIGH PLASTICITY CLAY, WET, AND/OR ORGANIC SOIL IS ANTICIPATED.
 - IT IS NOT RECOMMENDED TO MIX SOIL AND CEMENT IF AIR TEMPERATURES ARE PROJECTED TO BE BELOW 40 DEGREES FOR THE NEXT 3 DAYS OR BELOW 32 DEGREES FOR THE NEXT 7 DAYS. CONSULT ENGINEER PRIOR TO MIXING IF COLD TEMPERATURES ARE EXPECTED.
 - PROVIDE SUFFICIENT EQUIPMENT IN GOOD WORKING CONDITION TO ALLOW FOR CONTINUOUS AND UNIFORM BLENDING AND COMPACTION OF THE SUBGRADE. DISKING IS NOT AN ADEQUATE BLENDING METHOD. OPERATE EQUIPMENT SO THAT IT DOES NOT DISPLACE CEMENT SPREAD ON SUBGRADE SURFACE.
 - SUBGRADE SOIL SHOULD BE MOISTURE CONDITIONED TO NEAR OPTIMUM MOISTURE CONTENT PRIOR TO SPREADING CEMENT. REFER TO **TABLE CS4** FOR MOISTURE CONTENT ADJUSTMENT RECOMMENDATIONS. CONTACT ENGINEER IF MOISTURE CONDITIONING TO NEAR OPTIMUM IS NOT FEASIBLE.
 - PULVERIZE SUBGRADE DURING MIXING PROCESS UNTIL 100 PERCENT OF THE MATERIAL PASSES THROUGH A 1.5 INCH SIEVE AND AT LEAST 80 PERCENT OF THE MATERIAL, EXCLUDING GRAVEL, PASSES THROUGH THE NO. 4 (4.75 MM) SIEVE.
 - THE SURFACE OF THE STABILIZED SUBGRADE SHOULD BE MAINTAINED FOR THE FIRST WEEK FOLLOWING STABILIZATION TO PREVENT MOISTURE LOSS AFTER SHAPING AND COMPACTING TO ENSURE THAT CEMENT CAN FULLY HYDRATE. INADEQUATE MOISTURE AVAILABILITY WILL LOWER THE LONG TERM STRENGTH.
 - STABILIZE SUBGRADE 1 TO 2 FEET WIDER THAN THE PROPOSED AGGREGATE SURFACE ROAD WIDTH TO PROVIDE ADEQUATE STRENGTH FOR THE FULL ROAD WIDTH.

TABLE CS1 - CEMENT STABILIZED SUBGRADE CRITERIA				
DAYS ELAPSED BETWEEN COMPACTION AND DCP TEST ⁽¹⁾	MINIMUM CBR	MINIMUM DCP (BLOWS/4")	MINIMUM UNCONFINED COMPRESSIVE STRENGTH ⁽²⁾ (PSI)	ALLOWABLE BEARING CAPACITY ⁽³⁾ (PSF)
3	20	9	90	5,500
7	30	13	135	7,900
14	40	17	180	10,200
28	50	21	225	12,500
NOTES: (1) DCP TESTS MAY BE PERFORMED SOONER BUT MUST MEET THE MINIMUM CBR/DCP TEST CRITERIA FOR THE NEXT TIME INCREMENT. (2) UNCONFINED COMPRESSIVE STRENGTH BASED ON CORRELATIONS TO CBR, FOR REFERENCE ONLY UNLESS STATED OTHERWISE IN THESE SPECIFICATIONS. (3) ALLOWABLE BEARING CAPACITY BELOW A TIRE AT THE SURFACE OF 4" OF GRAVEL LAYER, INCLUDES A SAFETY FACTOR OF 1.5 AND ASSUMES AN UNSTABILIZED SUBGRADE CBR OF 1.5.				

TABLE CS2 - CEMENT STABILIZED SUBGRADE TESTING SCHEDULE				
LOCATION	TEST	ASTM STANDARD	FREQUENCY	SPECIFIED CRITERIA
CEMENT STABILIZED SUBGRADE (BEFORE CEMENT STABILIZATION)	STANDARD PROCTOR	D6938	AS NEEDED	REPRESENTATIVE PROCTORS FOR ALL SUBGRADE MATERIAL ON SITE
	COMPACTION TEST W/ NUCLEAR DENSITY GAUGE	D6938	AS NEEDED (MIN. 1 PER ROAD PER DAY)	NEAR OPTIMUM MOISTURE CONTENT (SEE BEST PRACTICES) NO DENSITY CRITERIA
CEMENT STABILIZED SUBGRADE (TEST STRIPS)	COMPACTION TEST W/ NUCLEAR DENSITY GAUGE	D6938	1 PER 100 LF (MIN. 3 PER TEST STRIP)	95% OF MAXIMUM DRY DENSITY AND NEAR OPTIMUM (SEE BEST PRACTICES)
	DYNAMIC CONE PENETRATION (DCP)	D6951 (17.6 LB HAMMER)	3 PER 100 LF (TEST CENTERLINE AND 2' FROM EACH SHOULDER)	SEE TABLE CS1
	PROOF-ROLL	N/A	ENTIRE LENGTH	NO RUTTING GREATER THAN 3/4" AND NO PUMPING. SEE CONSTRUCTION NOTES FOR PROOF-ROLL EQUIPMENT.
CEMENT STABILIZED SUBGRADE (AFTER CEMENT STABILIZATION)	COMPACTION TEST W/ NUCLEAR DENSITY GAUGE	D6938	1 PER 500 LF UNTIL CONSISTENT PASSING RESULTS (MIN. 20 TESTS), THEN 1 PER 1,000 LF (MIN. 2 PER ROAD)	95% OF MAXIMUM DRY DENSITY AND NEAR OPTIMUM (SEE BEST PRACTICES)
	DYNAMIC CONE PENETRATION (DCP)	D6951 (17.6 LB HAMMER)	1 PER 500 LF IN EACH PASS OF THE RECLAIMER (MIN. 3 PER ROAD)	SEE TABLES CS1 AND CS3
	PROOF-ROLL	N/A	ENTIRE LENGTH	NO RUTTING GREATER THAN 3/4" AND NO PUMPING. SEE CONSTRUCTION NOTES FOR PROOF-ROLL EQUIPMENT.
AGGREGATE MATERIAL	REFER TO CONSTRUCTION NOTES ON SHEET 16			

TABLE CS3 - ALTERNATE ACCESS ROAD SECTIONS FOR LOCALIZED FAILED AREAS		
7 DAY DCP (BLOWS/4")	CBR	FINAL AGGREGATE THICKNESS (IN)
13	30	4
9 - 13	20 - 30	5
7 - 9	15 - 20	6
5 - 7	10 - 15	8*
< 5	CONTACT ENGINEER	
* OR 6 INCHES OF AGGREGATE OVER GEOTEXTILE		

TABLE CS4 - MOISTURE CONTENT ADJUSTMENTS	
MOISTURE CONTENT RELATIVE TO OPTIMUM	RECOMMENDED ADJUSTMENT
DRY	ADD WATER DURING MIXING TO INCREASE MOISTURE TO SLIGHTLY ABOVE OPTIMUM
NEAR (WITHIN ±2%)	NO OR SLIGHT MOISTURE ADJUSTMENTS NEEDED, PENDING PASSING DCP TEST RESULTS
WET	DRY SOIL TO NEAR OPTIMUM PRIOR TO MIXING CEMENT BY SCARIFYING OR PRE-MIXING WITH LIME, AND/OR INCREASE CEMENT CONTENT DURING MIXING

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North Bend Wind Project
Hughes and Hyde Counties,
South Dakota

Construction Notes

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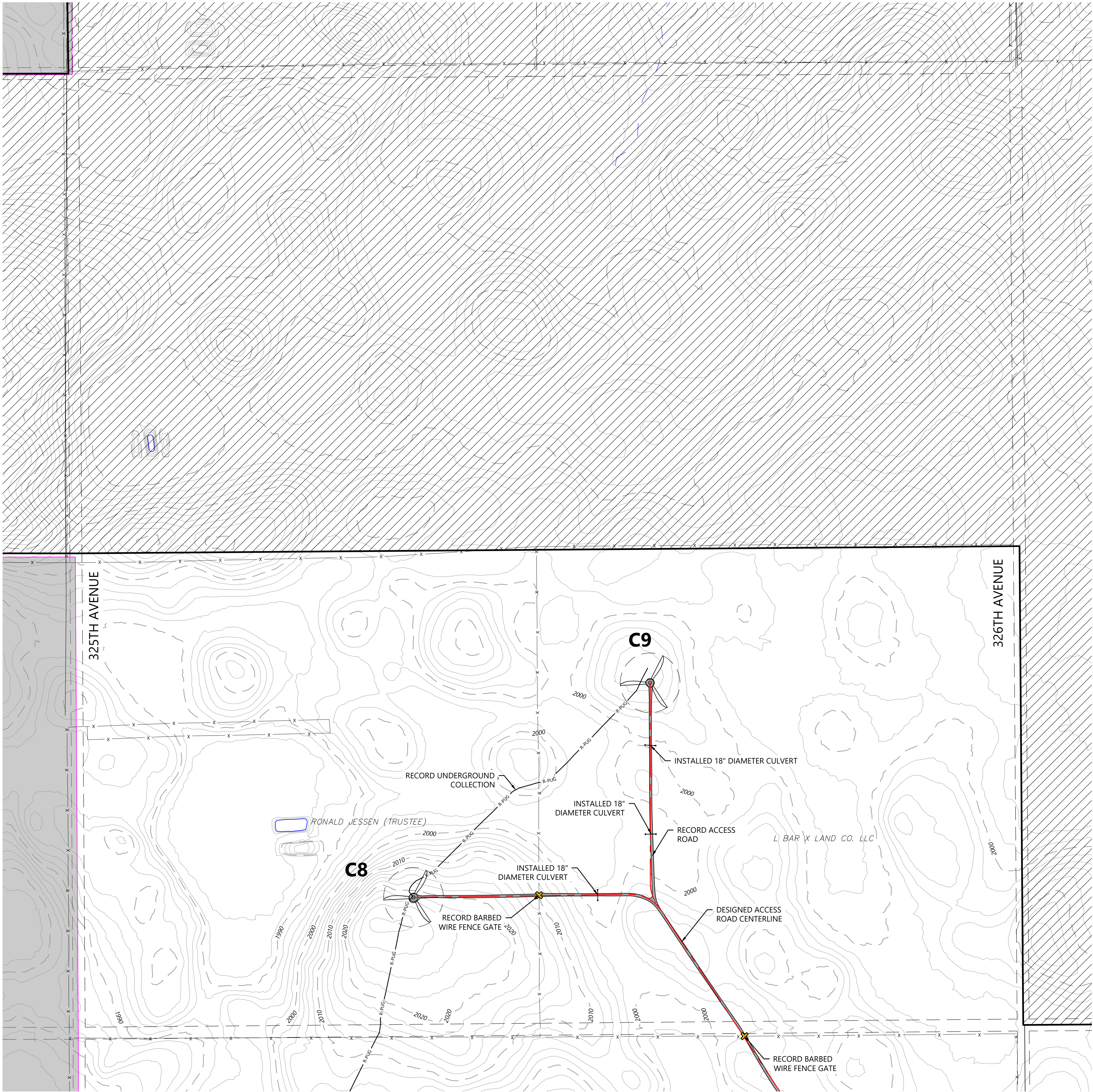
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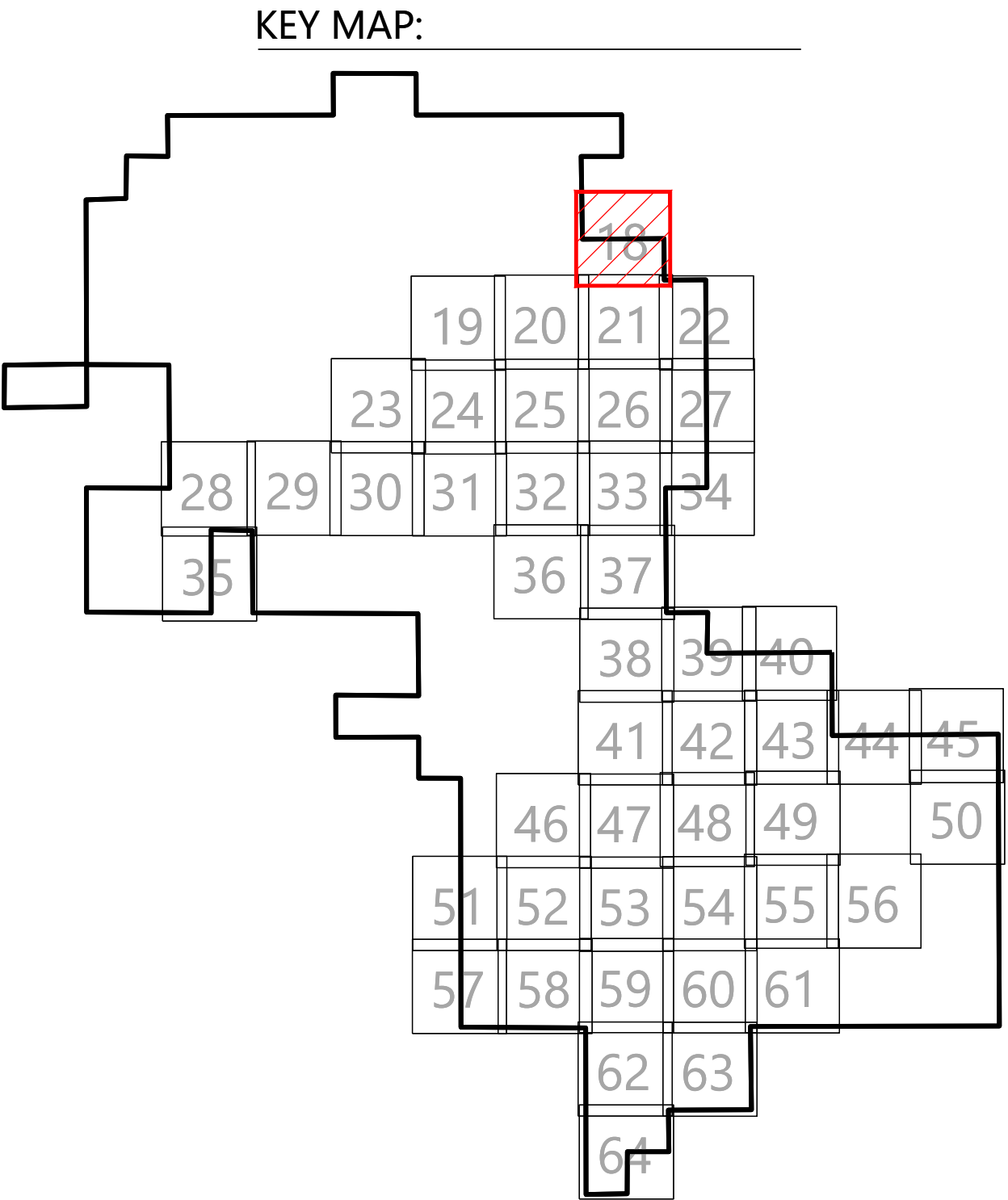
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- LEGEND:
- RECORD TURBINE LOCATION
 - RECORD MET TOWER LOCATION
 - RECORD ACCESS ROAD
 - DESIGNED ACCESS ROAD CENTERLINE
 - RECORD UNDERGROUND COLLECTION
 - RECORD OVERHEAD SUBSTATION TRANSMISSION
 - RECORD CULVERT
 - RECORD TURBINE CONCRETE PEDESTAL
 - RECORD GATE
 - RECORD SUBSTATION FENCE
 - RECORD DIRT ROAD
 - NON-PARTICIPATING LAND
 - SECTION LINES
 - RIGHT-OF-WAY LINES
 - EASEMENT LINES
 - EX. INDEX CONTOUR
 - EX. INTERVAL CONTOUR
 - EX. TREELINE
 - EX. PAVED ROAD
 - EX. GRAVEL ROAD
 - EX. FENCE
 - EX. CULVERT
 - EX. OVERHEAD POWER
 - EX. UNDERGROUND POWER
 - EX. FIBER OPTIC LINE
 - EX. GAS PIPELINE
 - EX. TELEPHONE LINE
 - EX. WATER LINE
 - EX. STREAM CHANNEL
 - EX. WATER BODY
 - EX. DELINEATED WETLAND
 - EX. AVOIDANCE AREA
 - EX. NLEB HABITAT HALF MILE BUFFER
 - EX. GRASSLANDS USFWS

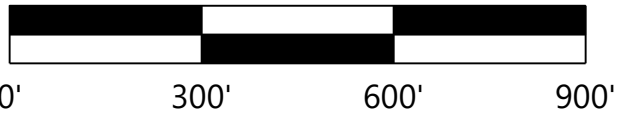


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North Bend Wind Project

Hughes and Hyde Counties,
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Site Plan C8 C9

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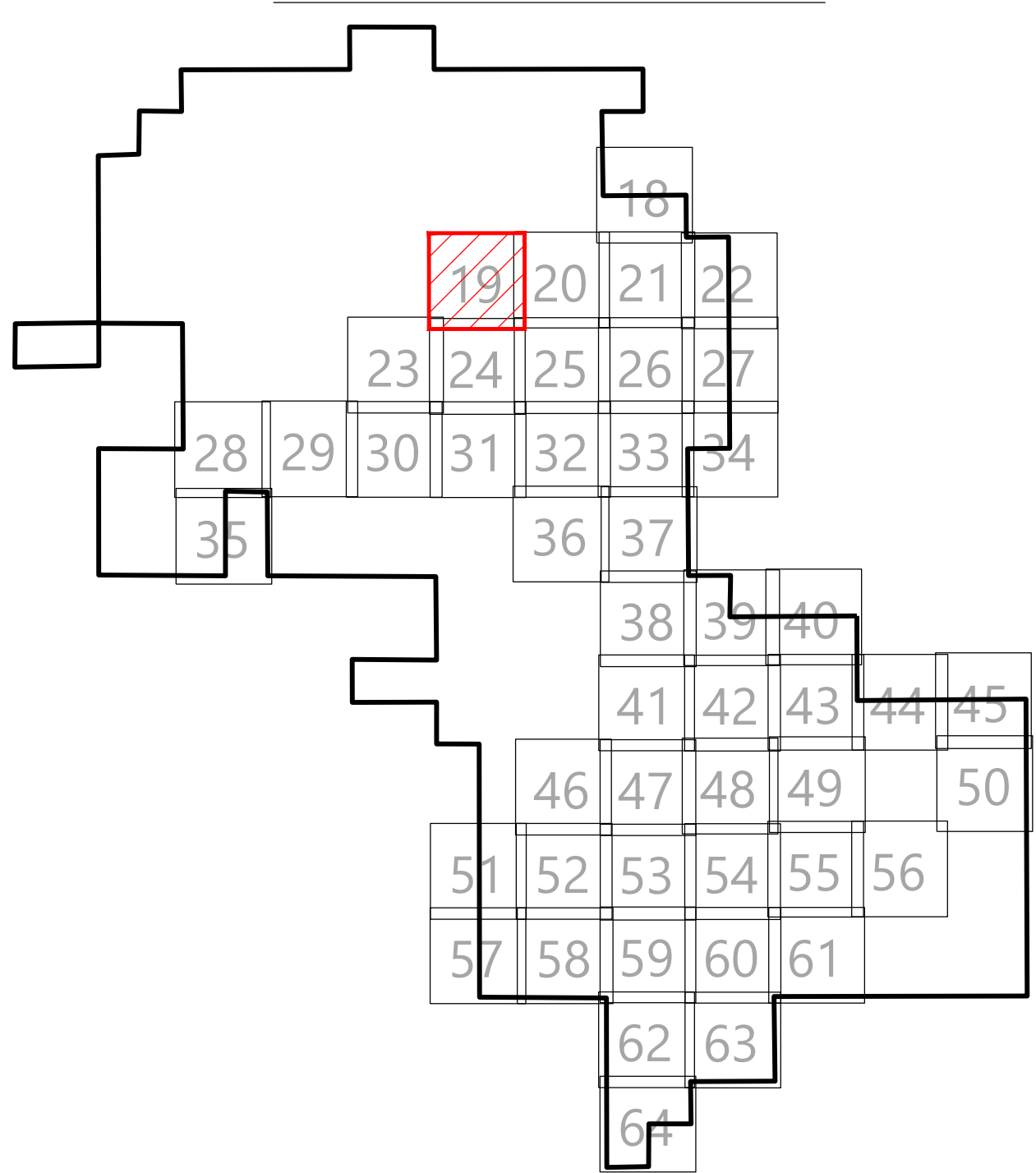
SEE SHEET 20

SEE SHEET 24

LEGEND:

- RECORD TURBINE LOCATION
- RECORD MET TOWER LOCATION
- RECORD ACCESS ROAD
- DESIGNED ACCESS ROAD CENTERLINE
- RECORD UNDERGROUND COLLECTION
- RECORD OVERHEAD SUBSTATION TRANSMISSION
- RECORD CULVERT
- RECORD TURBINE CONCRETE PEDESTAL
- RECORD GATE
- RECORD SUBSTATION FENCE
- RECORD DIRT ROAD
- NON-PARTICIPATING LAND
- SECTION LINES
- RIGHT-OF-WAY LINES
- EASEMENT LINES
- EX. INDEX CONTOUR
- EX. INTERVAL CONTOUR
- EX. TREE LINE
- EX. PAVED ROAD
- EX. GRAVEL ROAD
- EX. FENCE
- EX. CULVERT
- EX. OVERHEAD POWER
- EX. UNDERGROUND POWER
- EX. FIBER OPTIC LINE
- EX. GAS PIPELINE
- EX. TELEPHONE LINE
- EX. WATER LINE
- EX. STREAM CHANNEL
- EX. WATER BODY
- EX. DELINEATED WETLAND
- EX. AVOIDANCE AREA
- EX. NLEB HABITAT HALF MILE BUFFER
- EX. GRASSLANDS USFWS

KEY MAP:



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a MasTec company

4850 32nd Avenue South
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0' 300' 600' 900'

North Bend Wind Project

Hughes and Hyde Counties,
South Dakota

Site Plan E8

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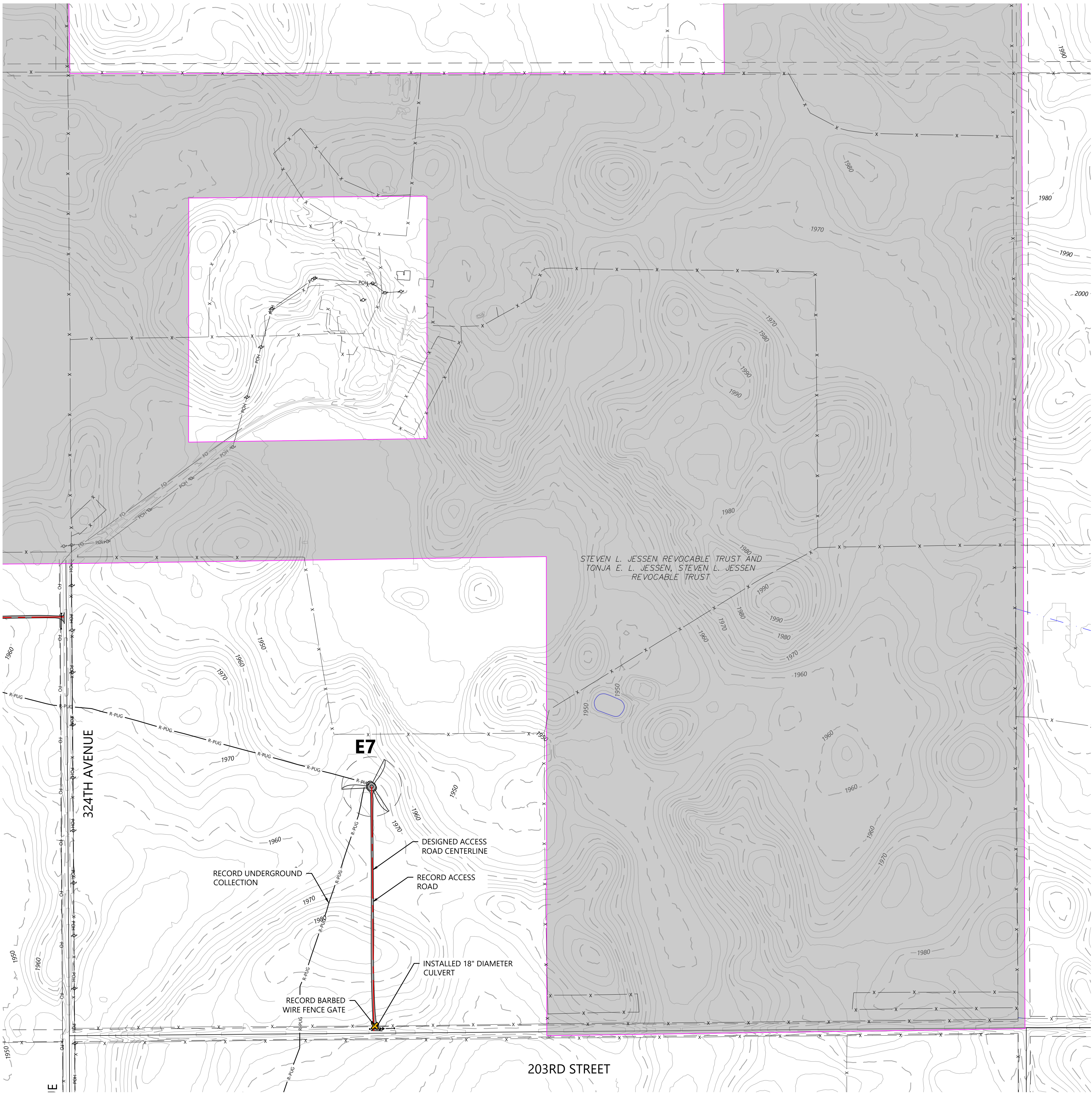
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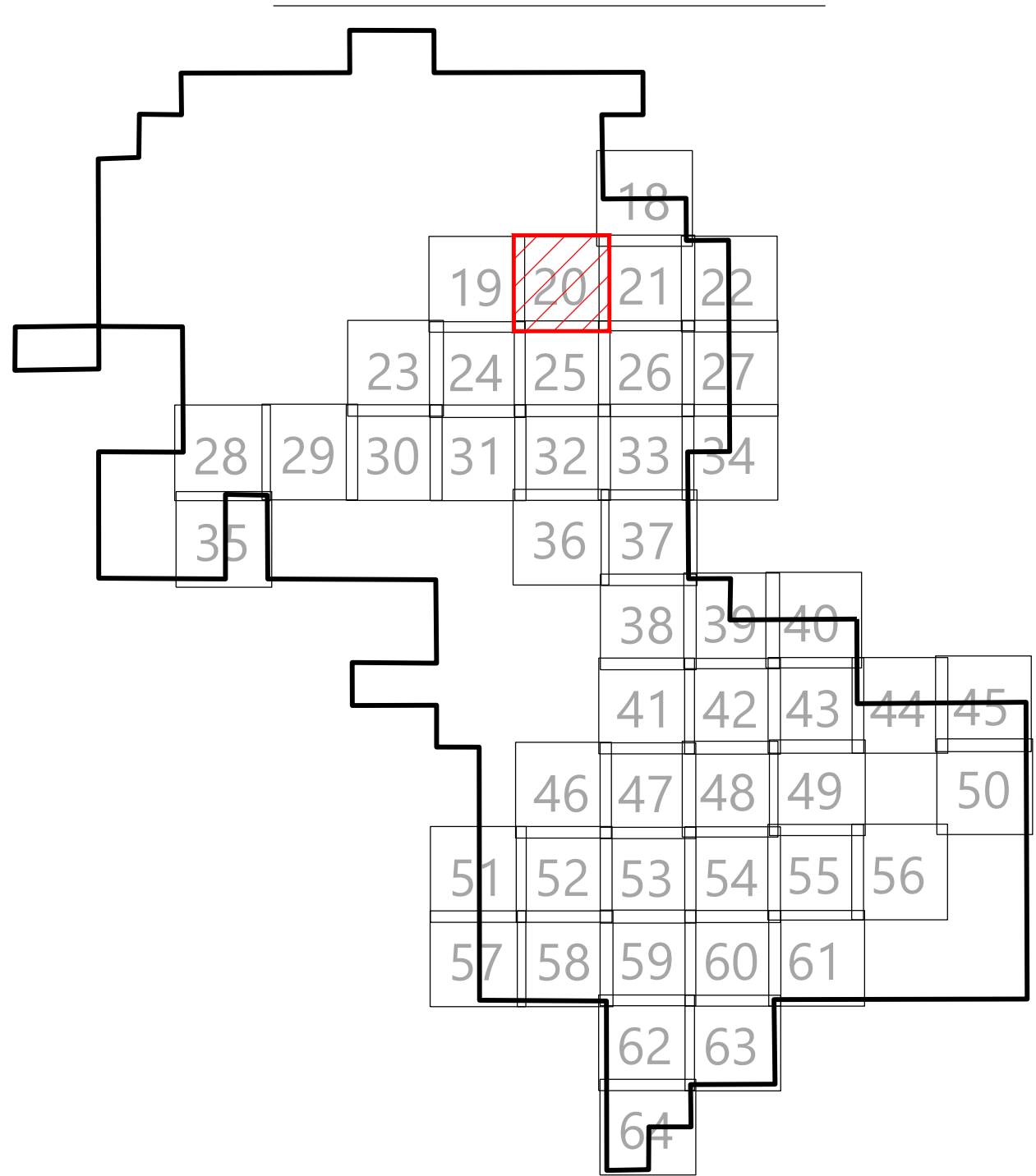
SEE SHEET 25

SEE SHEET 21

LEGEND:

- RECORD TURBINE LOCATION
- RECORD MET TOWER LOCATION
- RECORD ACCESS ROAD
- DESIGNED ACCESS ROAD CENTERLINE
- RECORD UNDERGROUND COLLECTION
- RECORD OVERHEAD
- SUBSTATION TRANSMISSION
- RECORD CULVERT
- RECORD TURBINE CONCRETE PEDESTAL
- RECORD GATE
- RECORD SUBSTATION FENCE
- RECORD DIRT ROAD
- NON-PARTICIPATING LAND
- SECTION LINES
- RIGHT-OF-WAY LINES
- EASEMENT LINES
- EX. INDEX CONTOUR
- EX. INTERVAL CONTOUR
- EX. TREELINE
- EX. PAVED ROAD
- EX. GRAVEL ROAD
- EX. FENCE
- EX. CULVERT
- EX. OVERHEAD POWER
- EX. UNDERGROUND POWER
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KEY MAP:



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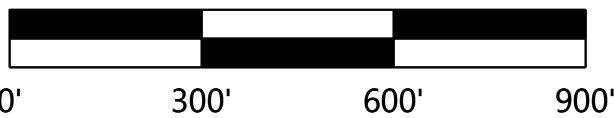
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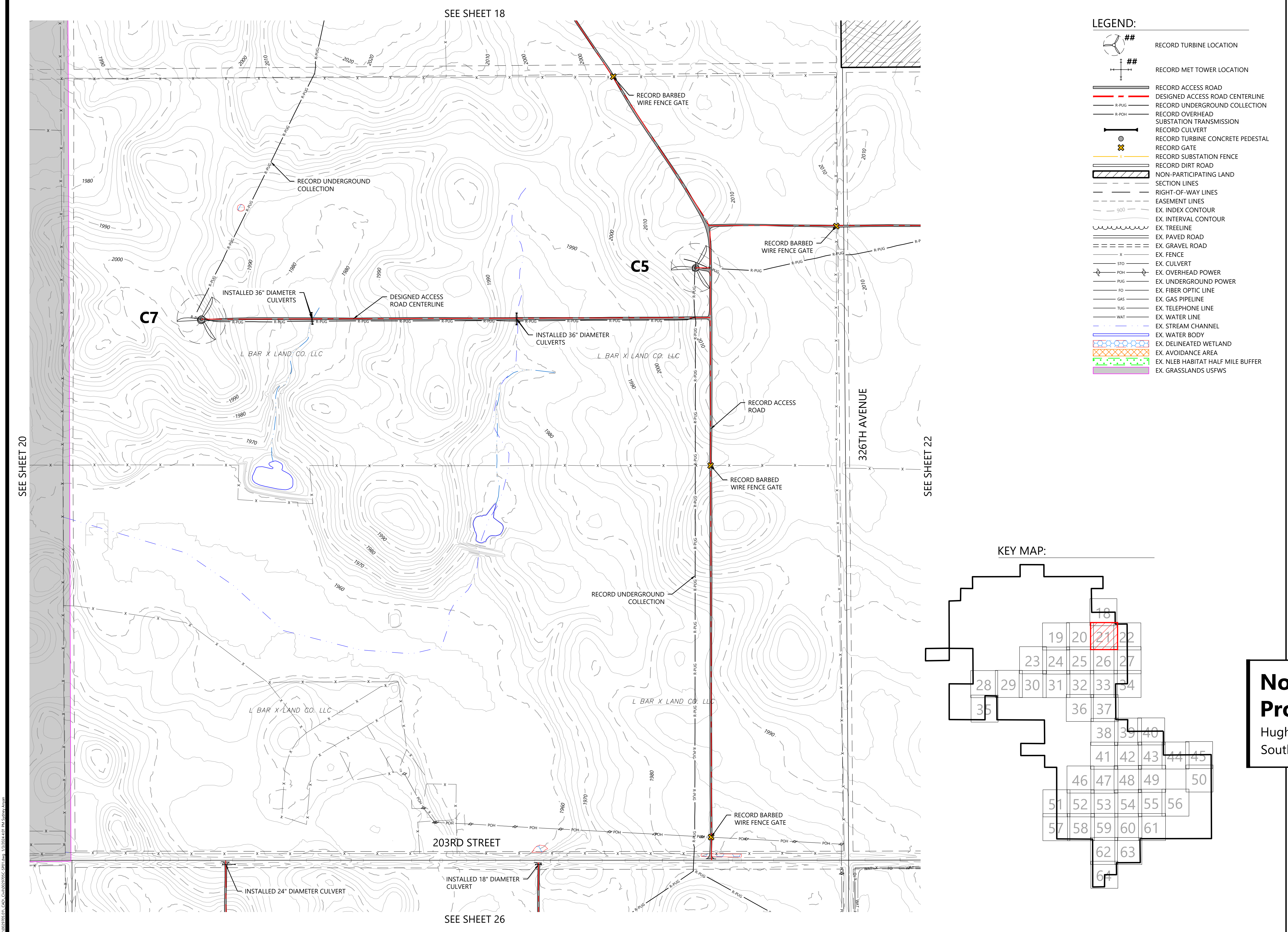
North Bend Wind
Project

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Site Plan E7

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0 01/03/2024 RECORD DRAWINGS PAR TRG TRG

0' 300' 600' 900'

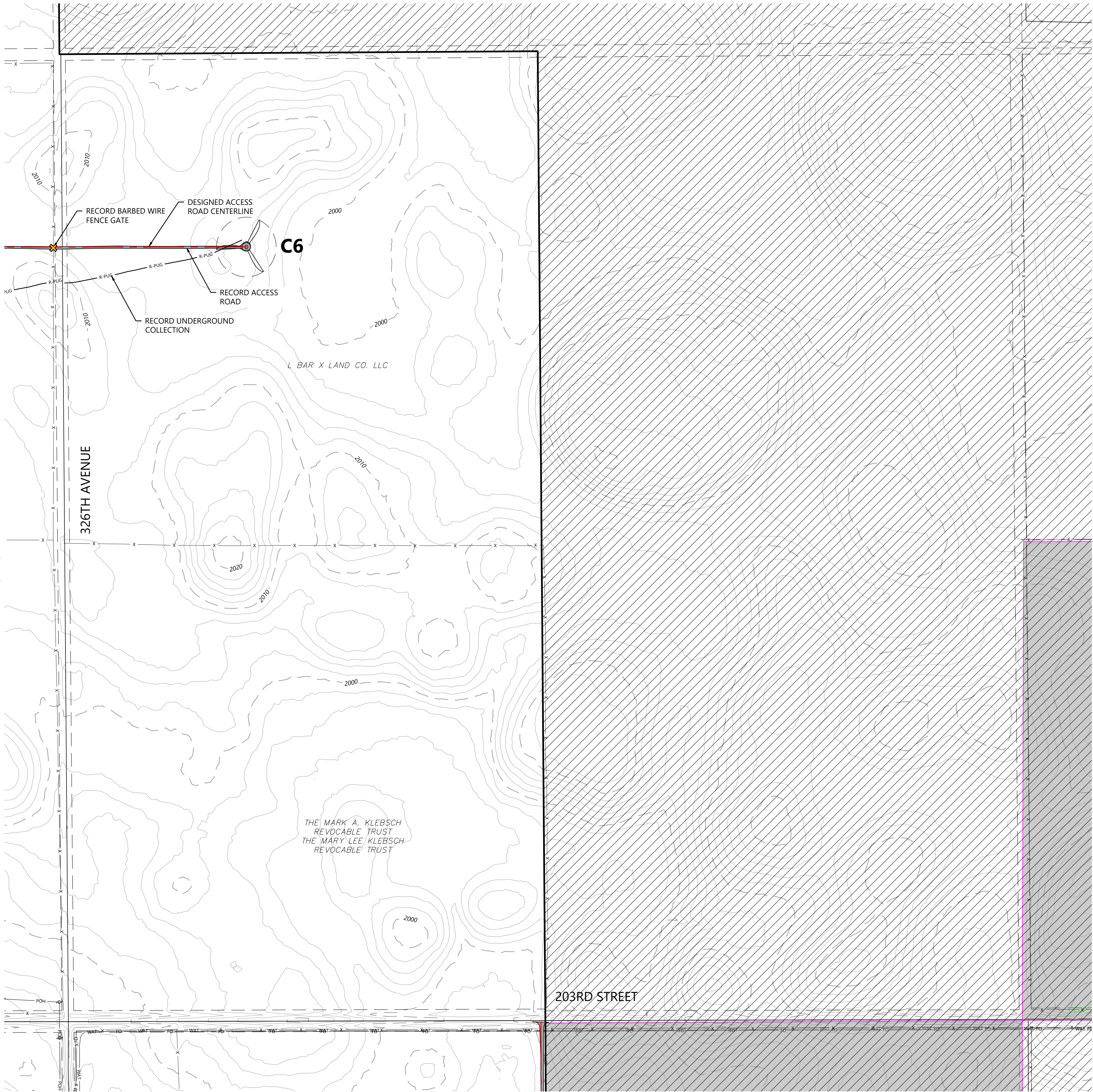
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Hughes and Hyde Counties,
South Dakota

Site Plan C5 C7

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DATE: 01/03/2024 REV: 0
SHEET: 21 0

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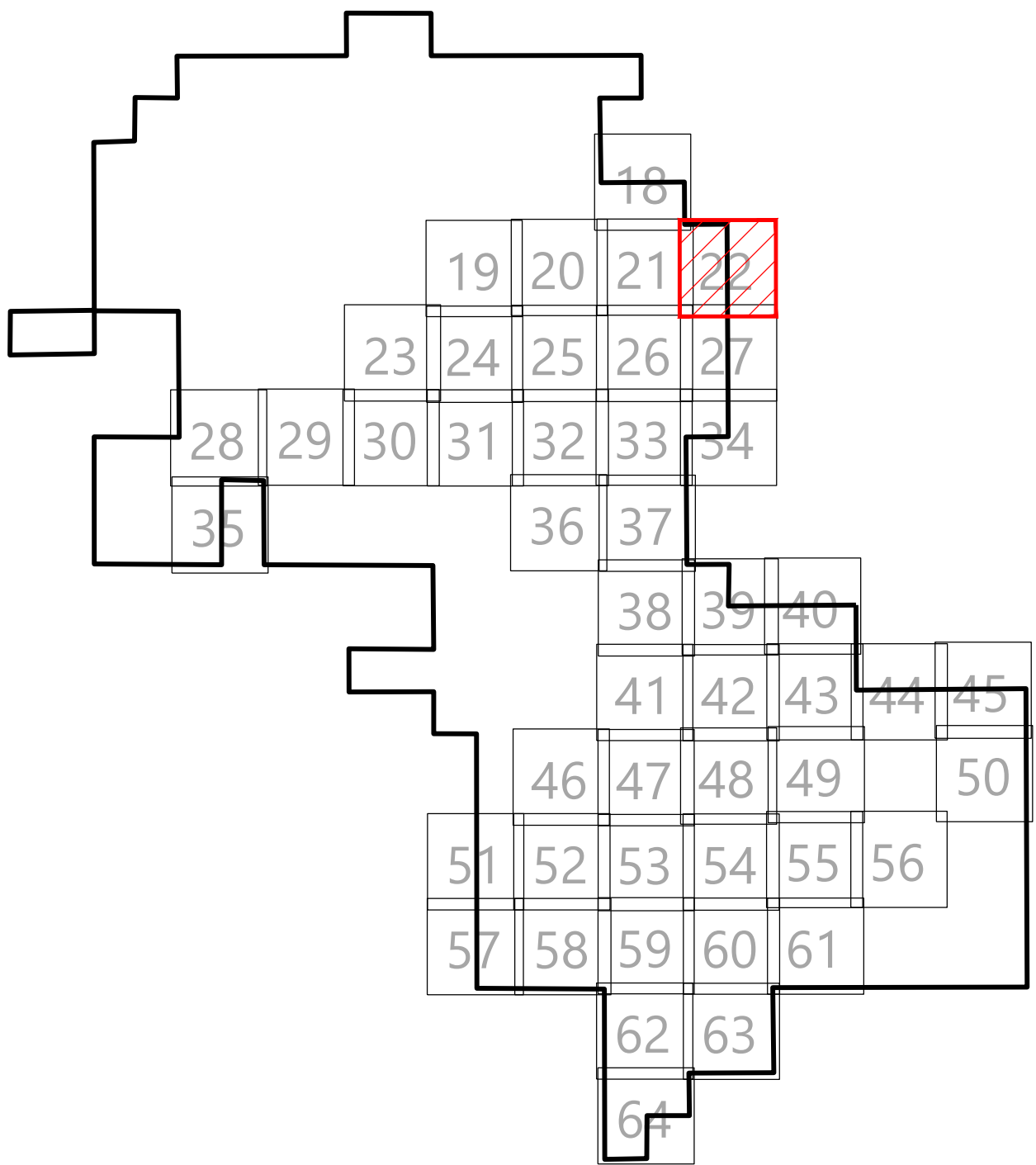


SEE SHEET 27

LEGEND:

- RECORD TURBINE LOCATION
- RECORD MET TOWER LOCATION
- RECORD ACCESS ROAD
- DESIGNED ACCESS ROAD CENTERLINE
- RECORD UNDERGROUND COLLECTION
- RECORD OVERHEAD SUBSTATION TRANSMISSION
- RECORD CULVERT
- RECORD TURBINE CONCRETE PEDESTAL
- RECORD GATE
- RECORD SUBSTATION FENCE
- RECORD DIRT ROAD
- NON-PARTICIPATING LAND
- SECTION LINES
- RIGHT-OF-WAY LINES
- EASEMENT LINES
- EX. INDEX CONTOUR
- EX. INTERVAL CONTOUR
- EX. TREELINE
- EX. PAVED ROAD
- EX. GRAVEL ROAD
- EX. FENCE
- EX. CULVERT
- EX. OVERHEAD POWER
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- EX. NLEB HABITAT HALF MILE BUFFER
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KEY MAP:



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0' 300' 600' 900'

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Hughes and Hyde Counties,
South Dakota

Site Plan C6

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DATE: 01/03/2024

SHEET: 22

REV:

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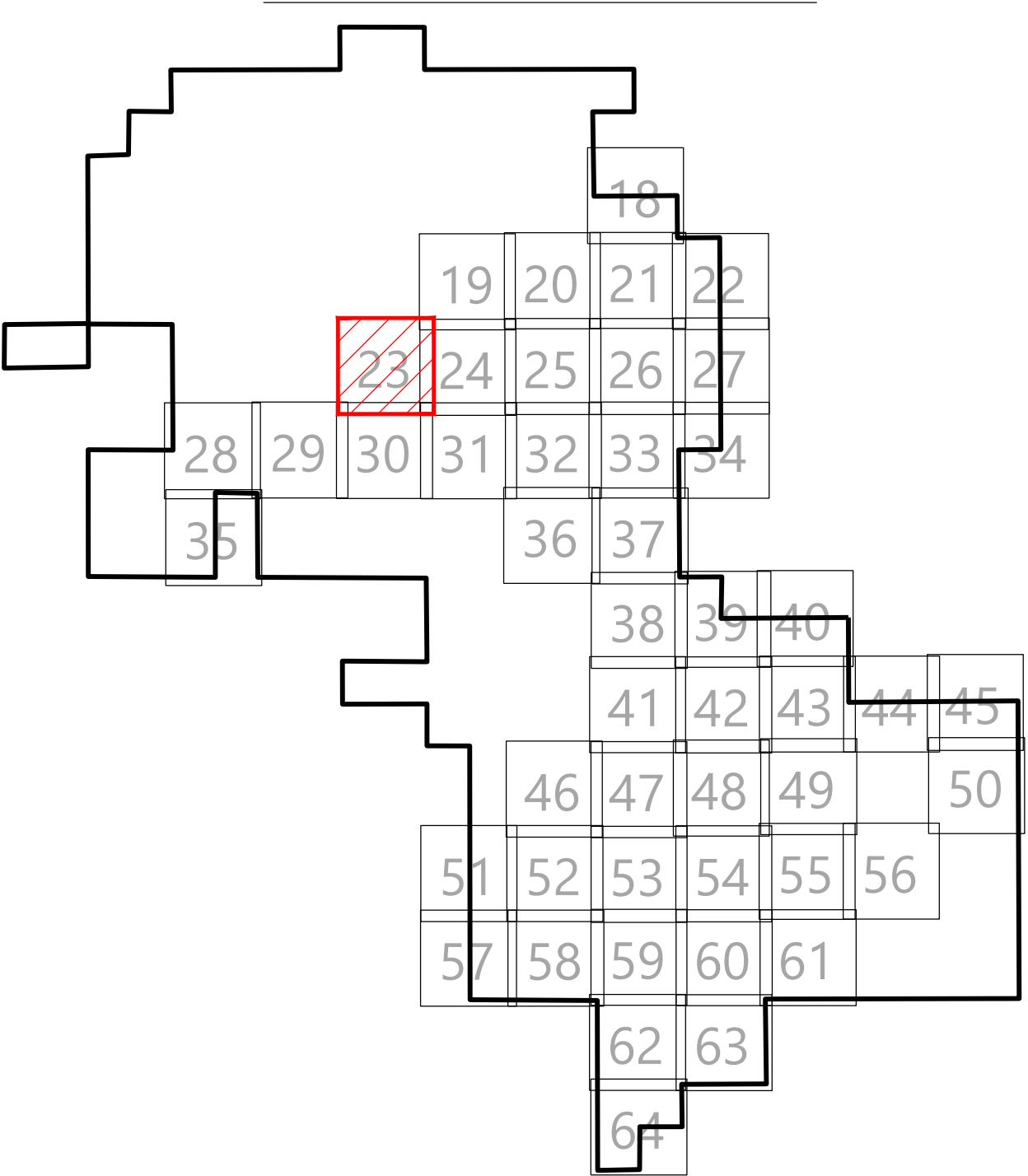
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LEGEND:

- ## RECORD TURBINE LOCATION
- ## RECORD MET TOWER LOCATION
- RECORD ACCESS ROAD
- DESIGNED ACCESS ROAD CENTERLINE
- R-PUG RECORD UNDERGROUND COLLECTION
- R-POH RECORD OVERHEAD SUBSTATION TRANSMISSION
- RECORD CULVERT
- RECORD TURBINE CONCRETE PEDESTAL
- RECORD GATE
- RECORD SUBSTATION FENCE
- RECORD DIRT ROAD
- NON-PARTICIPATING LAND
- SECTION LINES
- RIGHT-OF-WAY LINES
- EASEMENT LINES
- EX. INDEX CONTOUR
- EX. INTERVAL CONTOUR
- EX. TREELINE
- EX. PAVED ROAD
- EX. GRAVEL ROAD
- EX. FENCE
- EX. CULVERT
- EX. OVERHEAD POWER
- EX. UNDERGROUND POWER
- EX. FIBER OPTIC LINE
- EX. GAS PIPELINE
- EX. TELEPHONE LINE
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0' 300' 600' 900'

North Bend Wind Project

Hughes and Hyde Counties,
South Dakota

Site Plan

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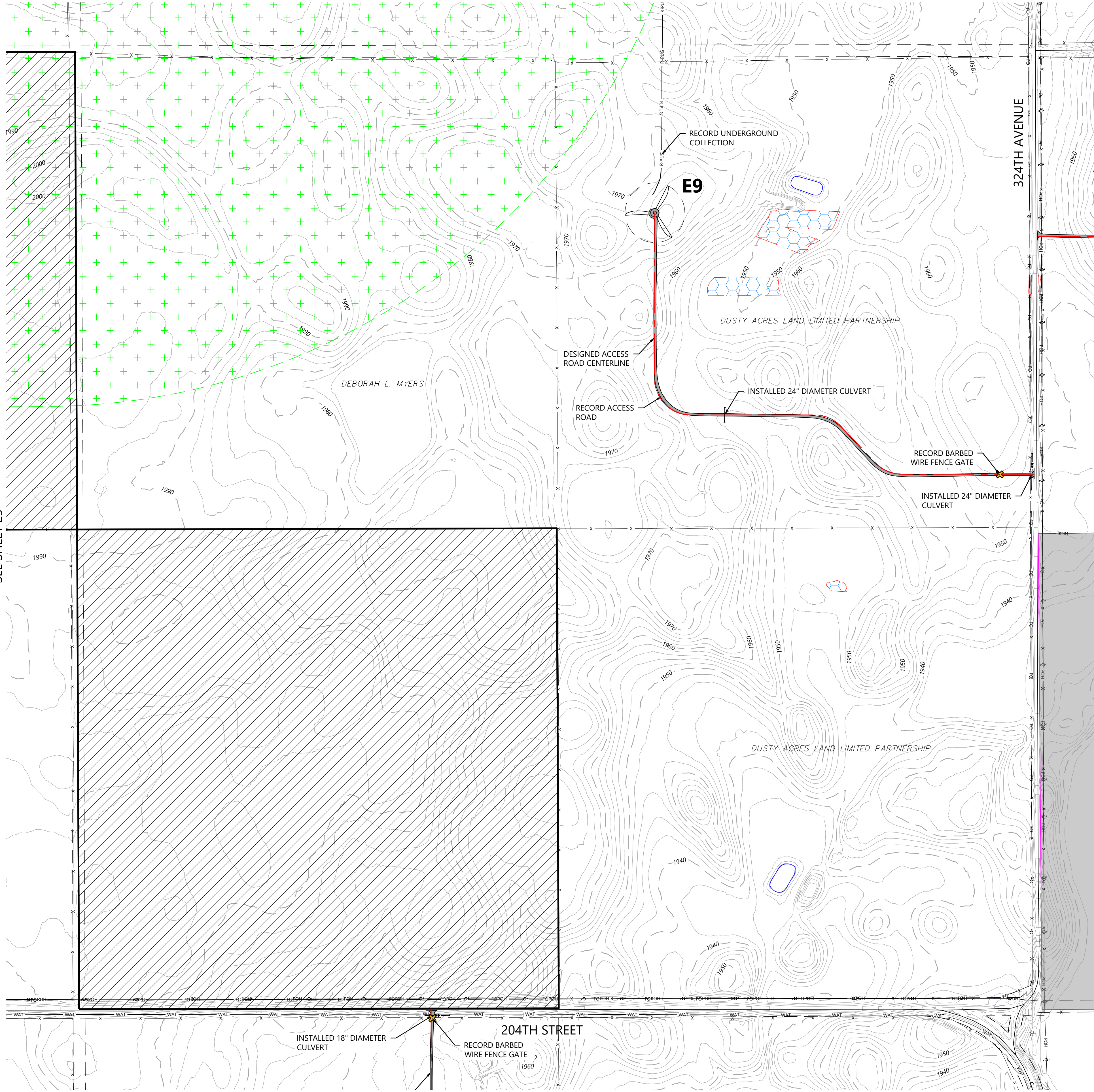
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SEE SHEET 19

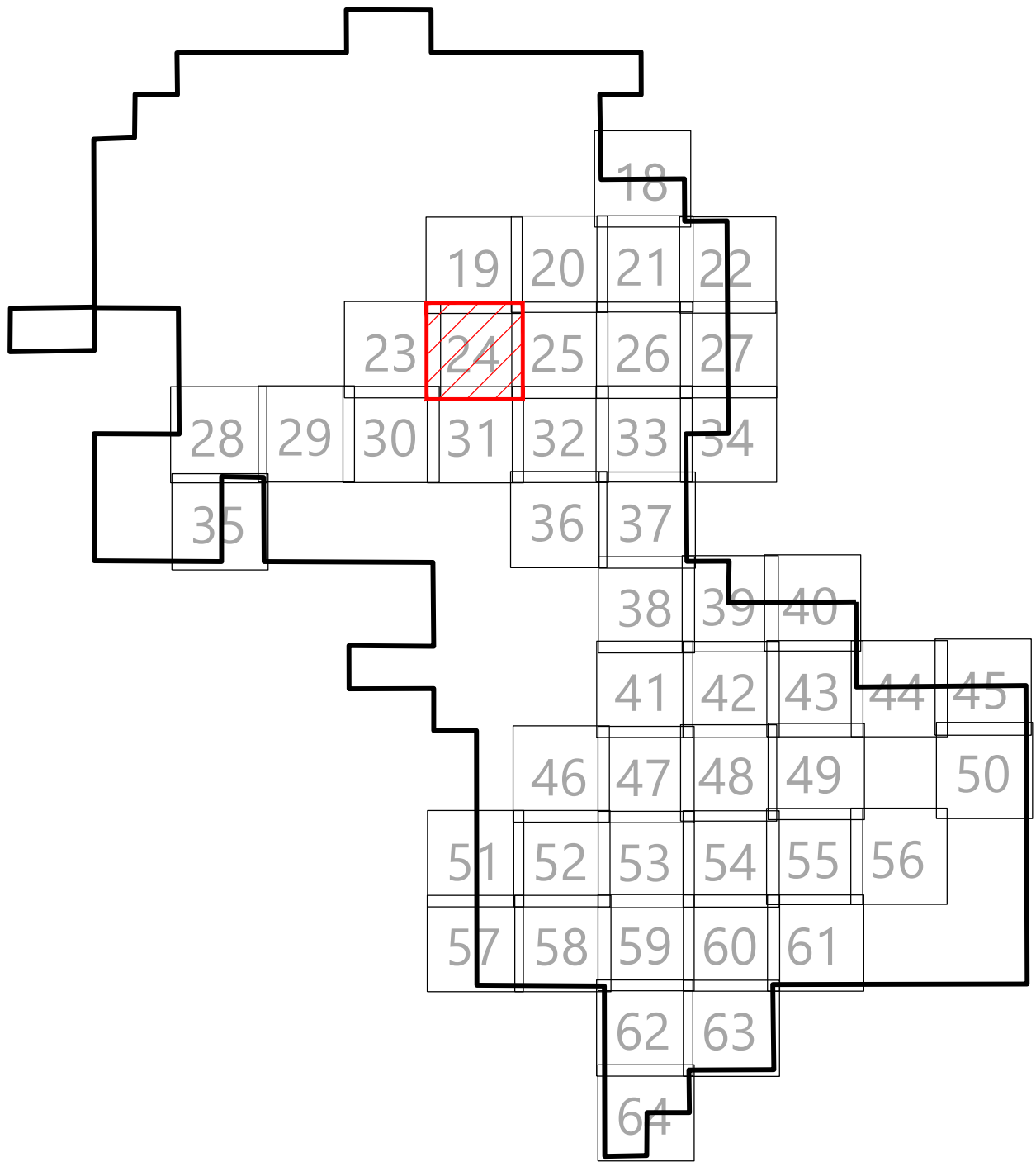


SEE SHEET 31

SEE SHEET 25

- LEGEND:
- RECORD TURBINE LOCATION
 - RECORD MET TOWER LOCATION
 - RECORD ACCESS ROAD
 - DESIGNED ACCESS ROAD CENTERLINE
 - RECORD UNDERGROUND COLLECTION
 - RECORD OVERHEAD SUBSTATION TRANSMISSION
 - RECORD CULVERT
 - RECORD TURBINE CONCRETE PEDESTAL
 - RECORD GATE
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 - EX. INDEX CONTOUR
 - EX. INTERVAL CONTOUR
 - EX. TREELINE
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 - EX. GRAVEL ROAD
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 - EX. OVERHEAD POWER
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0' 300' 600' 900'

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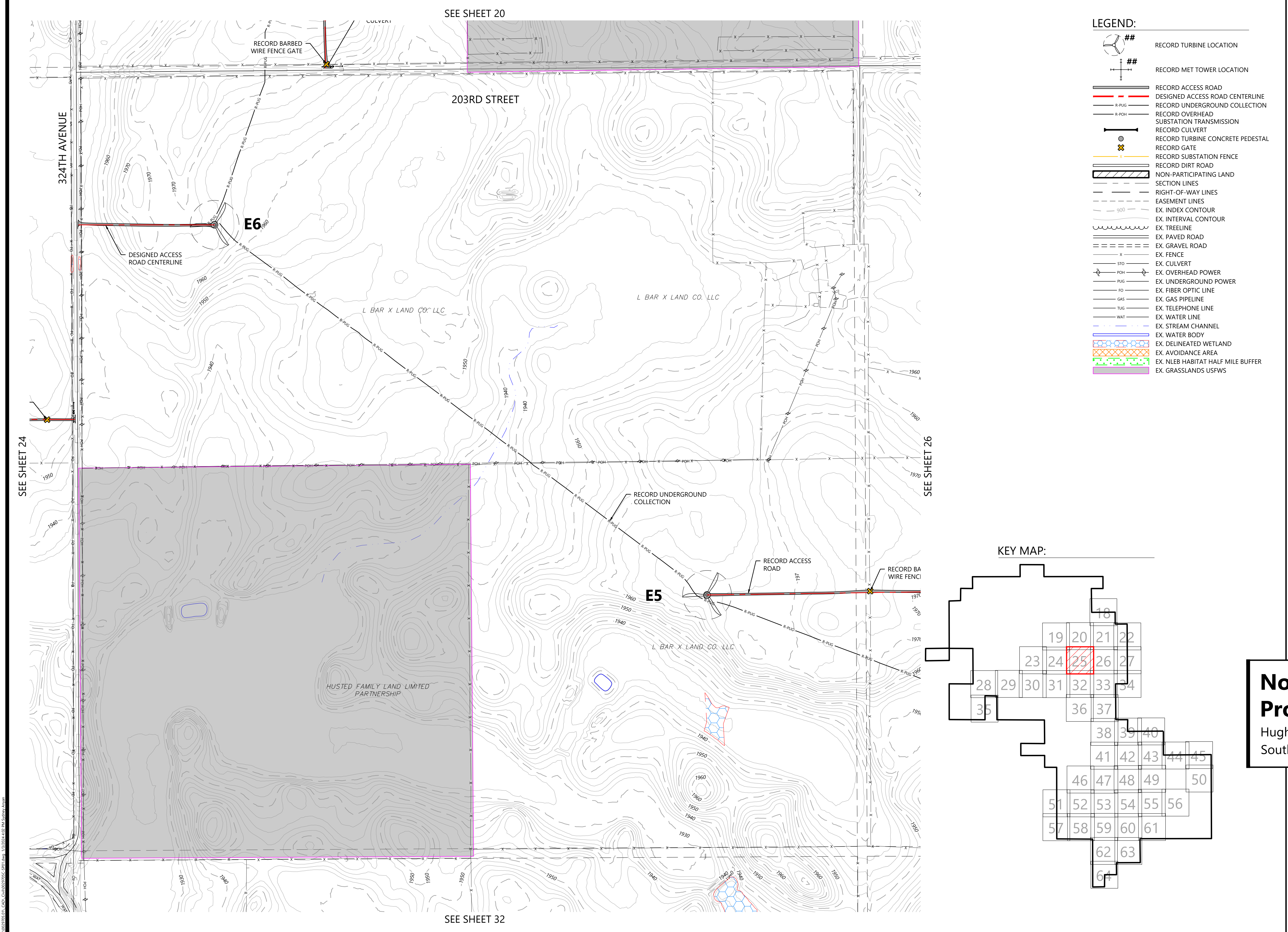
Site Plan E9

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DATE: 01/03/2024

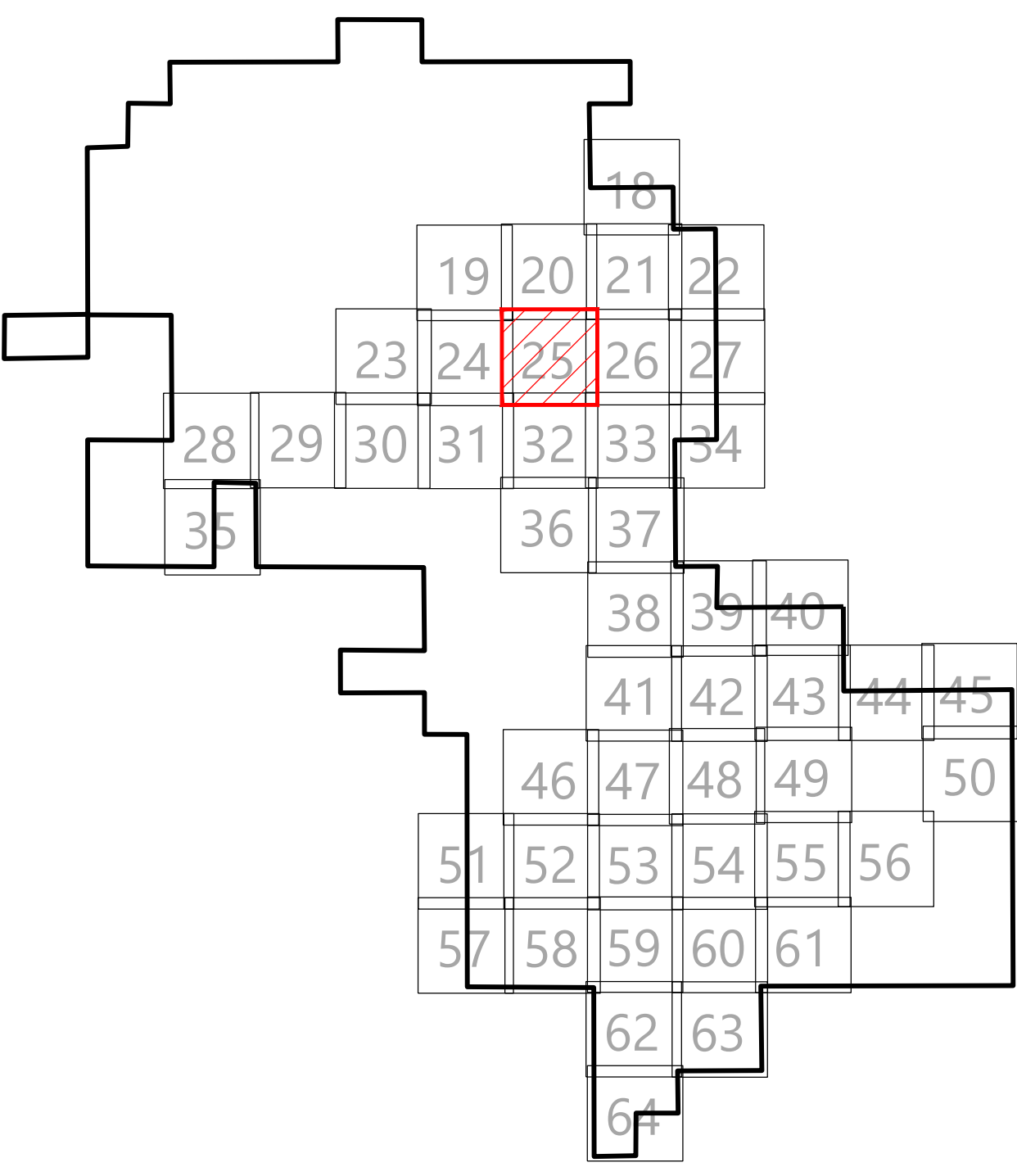
SHEET: 24

REV: 0



- LEGEND:**
- ## RECORD TURBINE LOCATION
 - ## RECORD MET TOWER LOCATION
 - RECORD ACCESS ROAD
 - DESIGNED ACCESS ROAD CENTERLINE
 - R-PUG RECORD UNDERGROUND COLLECTION
 - R-POH RECORD OVERHEAD SUBSTATION TRANSMISSION
 - RECORD CULVERT
 - RECORD TURBINE CONCRETE PEDESTAL
 - RECORD GATE
 - RECORD SUBSTATION FENCE
 - RECORD DIRT ROAD
 - NON-PARTICIPATING LAND
 - SECTION LINES
 - RIGHT-OF-WAY LINES
 - EASEMENT LINES
 - EX. INDEX CONTOUR
 - EX. INTERVAL CONTOUR
 - EX. TREELINE
 - EX. PAVED ROAD
 - EX. GRAVEL ROAD
 - EX. FENCE
 - EX. CULVERT
 - EX. OVERHEAD POWER
 - EX. UNDERGROUND POWER
 - EX. FIBER OPTIC LINE
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KEY MAP:



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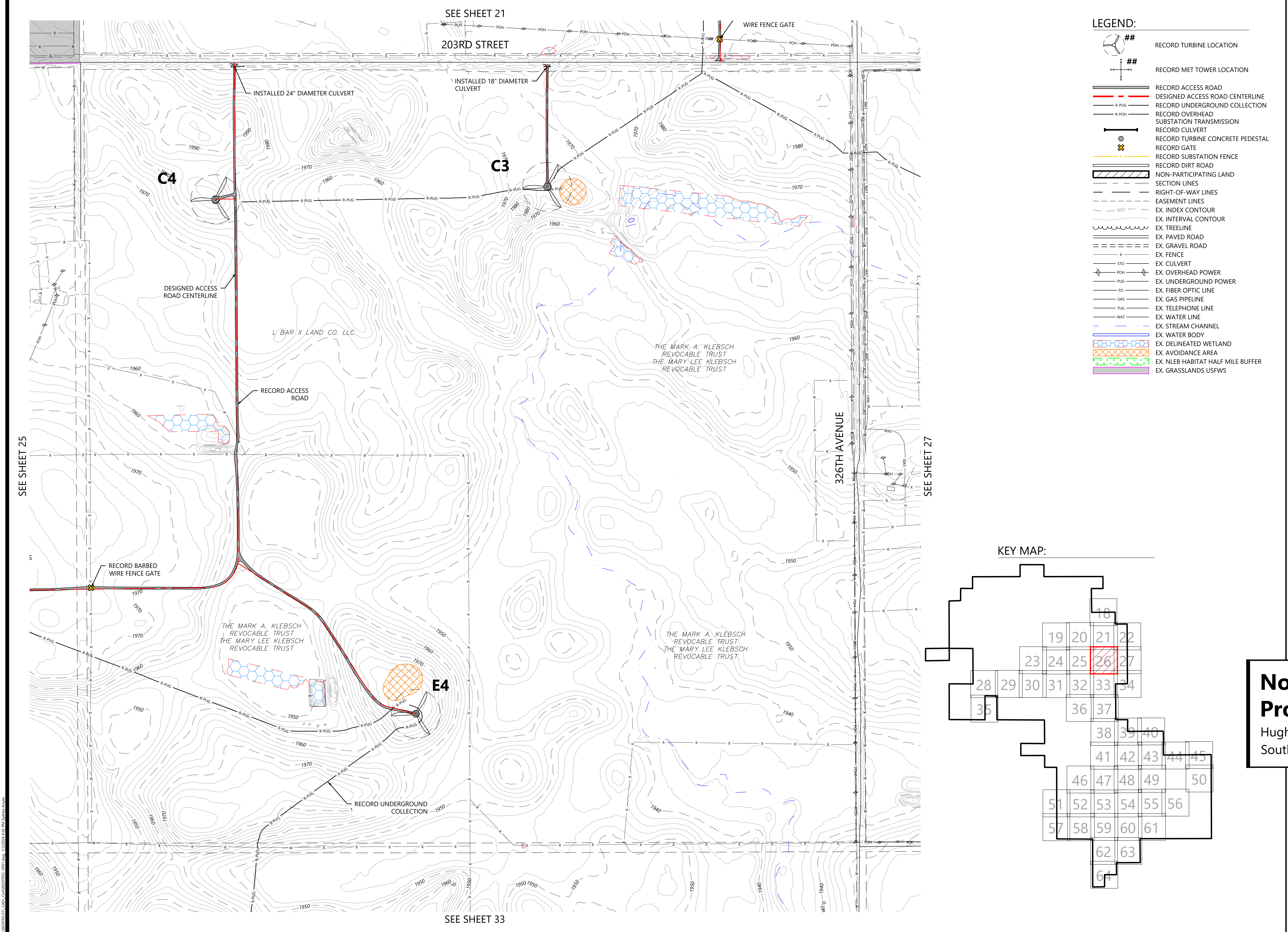
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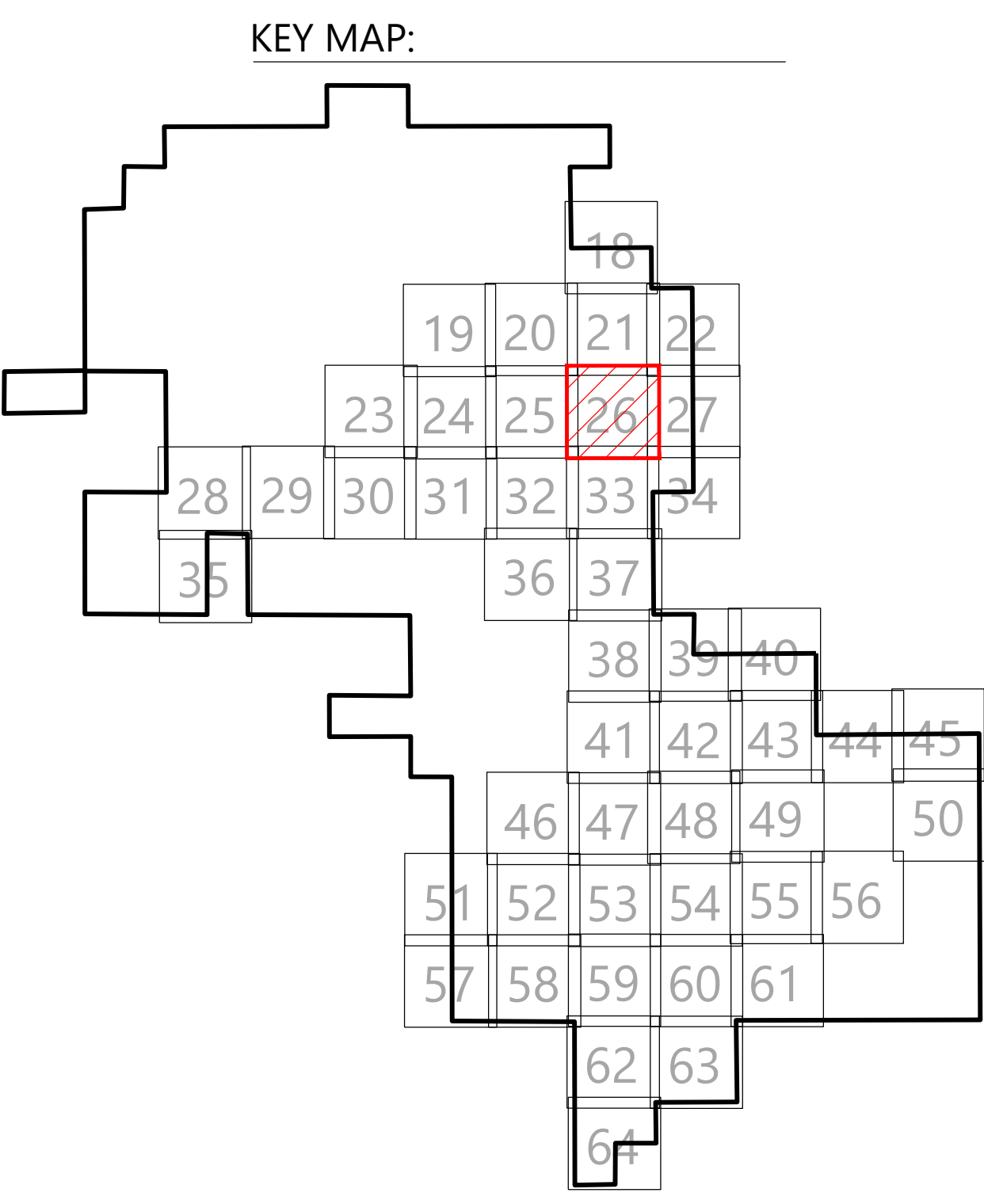
Site Plan E5 E6

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- LEGEND:**
- ## RECORD TURBINE LOCATION
 - ## RECORD MET TOWER LOCATION
 - RECORD ACCESS ROAD
 - DESIGNED ACCESS ROAD CENTERLINE
 - R-PUG RECORD UNDERGROUND COLLECTION
 - R-POH RECORD OVERHEAD
 - SUBSTATION TRANSMISSION
 - RECORD CULVERT
 - RECORD TURBINE CONCRETE PEDESTAL
 - RECORD GATE
 - RECORD SUBSTATION FENCE
 - RECORD DIRT ROAD
 - NON-PARTICIPATING LAND
 - SECTION LINES
 - RIGHT-OF-WAY LINES
 - EASEMENT LINES
 - EX. INDEX CONTOUR
 - EX. INTERVAL CONTOUR
 - EX. TREELINE
 - EX. PAVED ROAD
 - EX. GRAVEL ROAD
 - EX. FENCE
 - EX. CULVERT
 - EX. OVERHEAD POWER
 - EX. UNDERGROUND POWER
 - EX. FIBER OPTIC LINE
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0' 300' 600' 900'

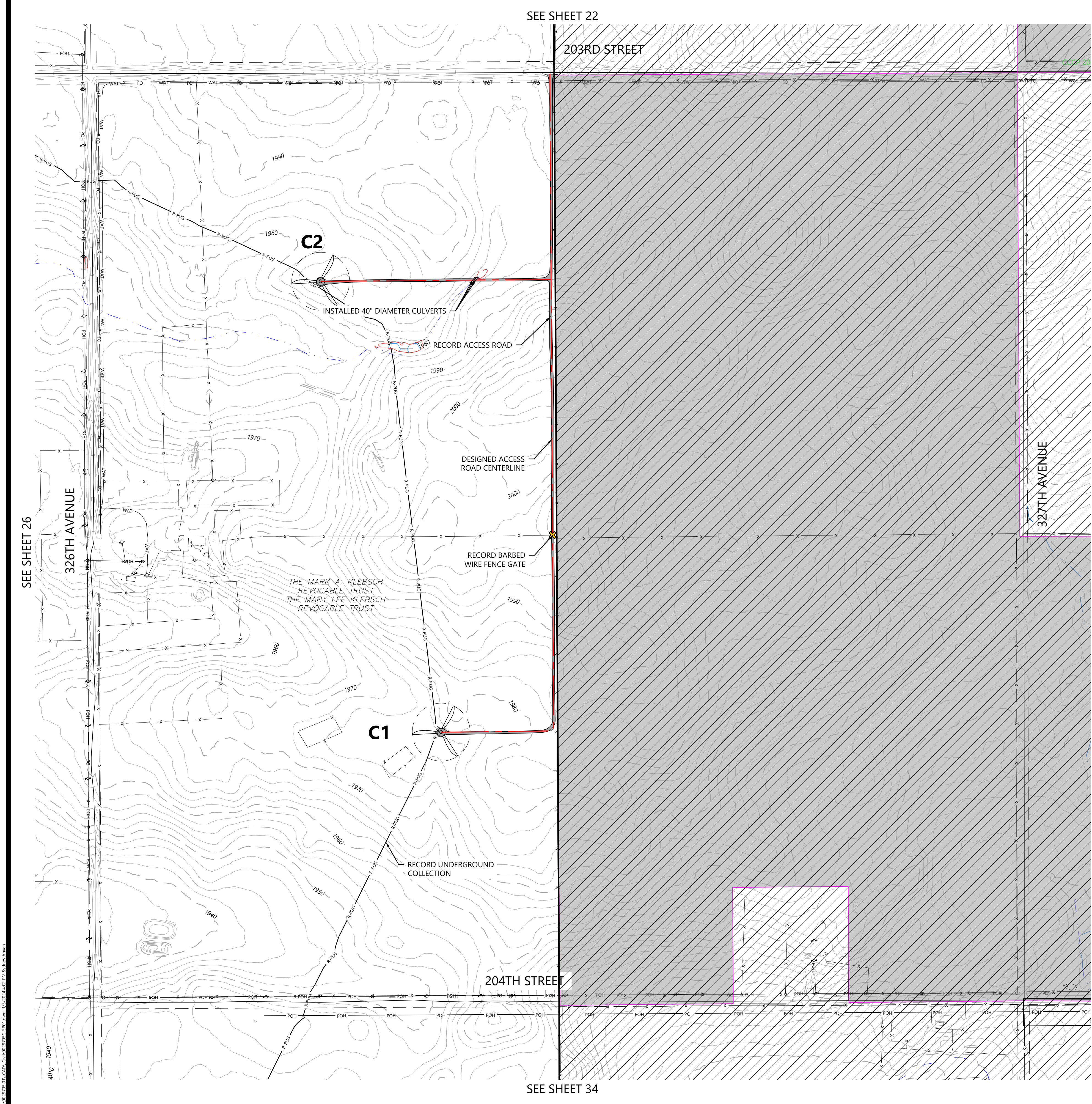
North Bend Wind Project
Hughes and Hyde Counties,
South Dakota

Site Plan C3 C4 E4

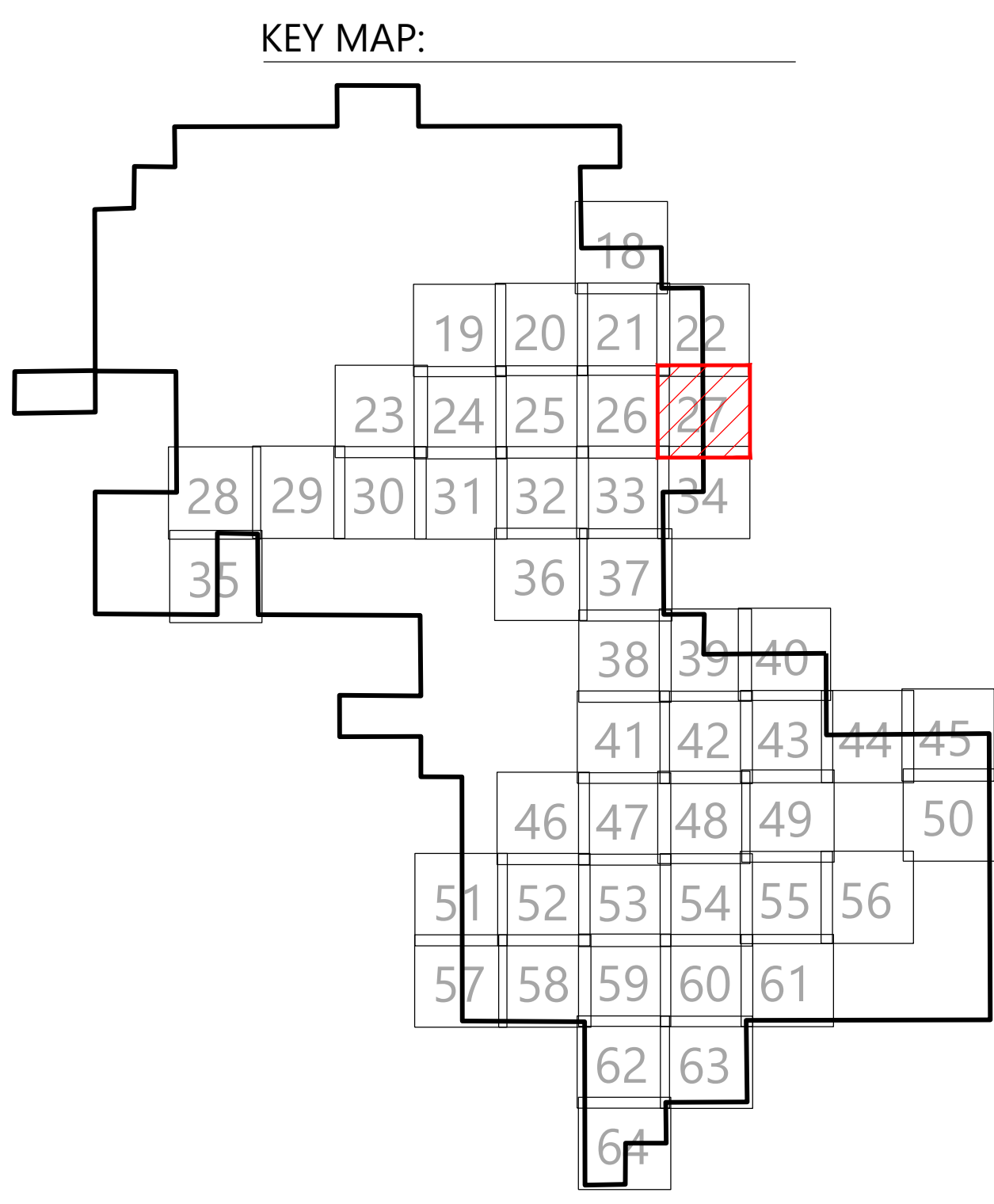
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REV: 0

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- LEGEND:**
- RECORD TURBINE LOCATION
 - RECORD MET TOWER LOCATION
 - RECORD ACCESS ROAD
 - DESIGNED ACCESS ROAD CENTERLINE
 - RECORD UNDERGROUND COLLECTION
 - RECORD OVERHEAD SUBSTATION TRANSMISSION
 - RECORD CULVERT
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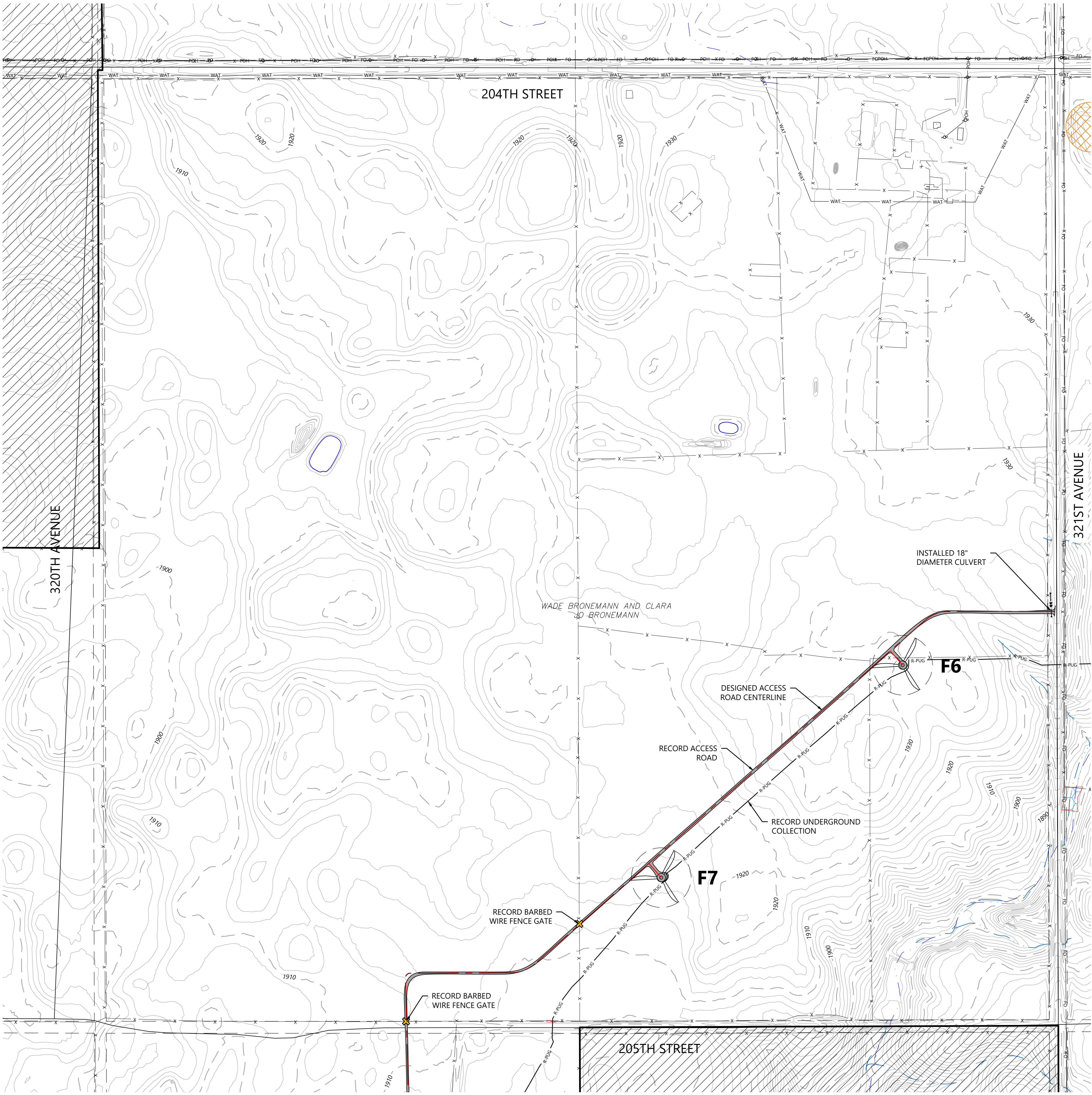
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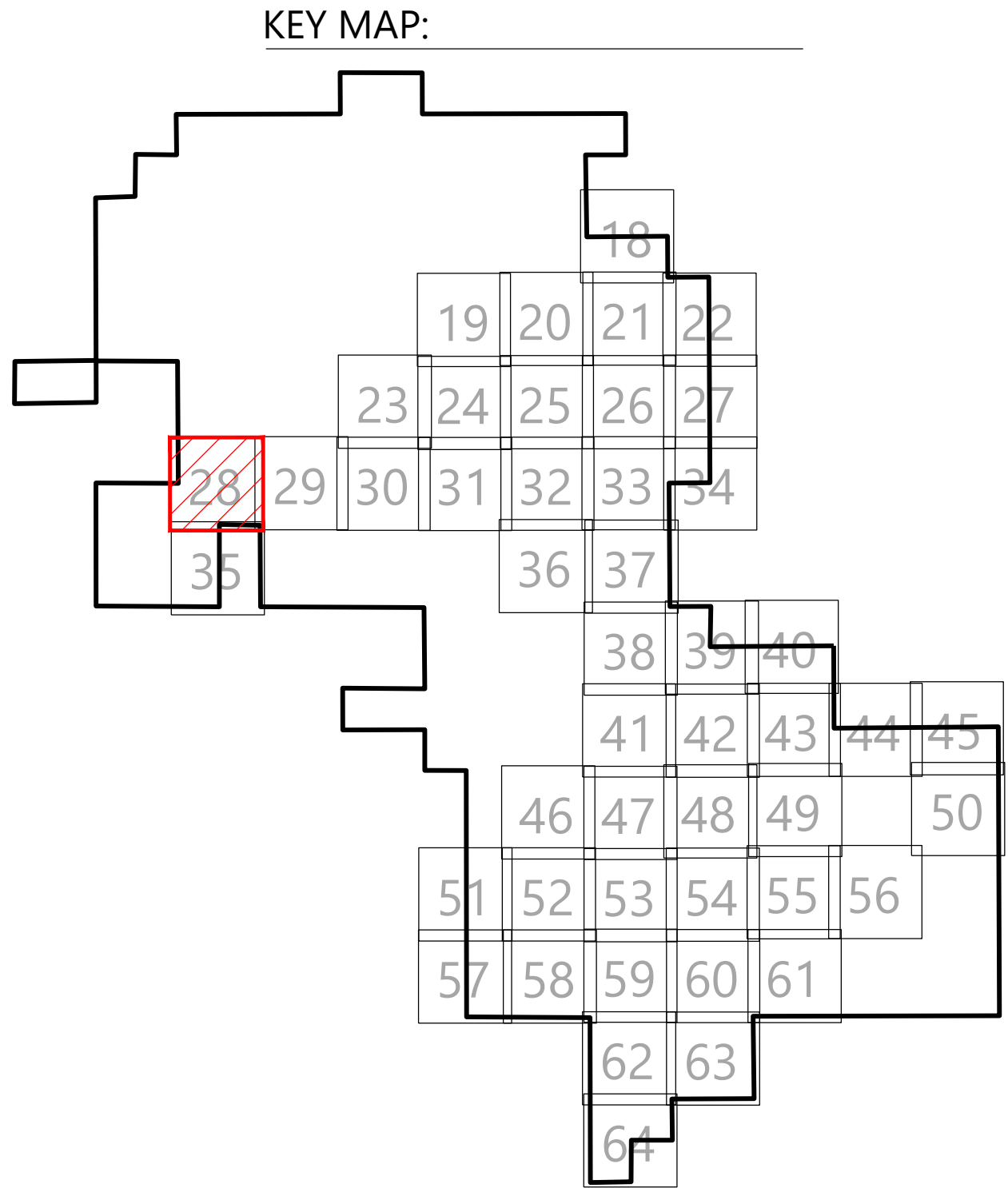
Site Plan C1 C2

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REV: 0



- LEGEND:
- RECORD TURBINE LOCATION
 - RECORD MET TOWER LOCATION
 - RECORD ACCESS ROAD
 - DESIGNED ACCESS ROAD CENTERLINE
 - RECORD UNDERGROUND COLLECTION
 - RECORD OVERHEAD SUBSTATION TRANSMISSION
 - RECORD CULVERT
 - RECORD TURBINE CONCRETE PEDESTAL
 - RECORD GATE
 - RECORD SUBSTATION FENCE
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 - EX. GRASSLANDS USFWS



Westwood

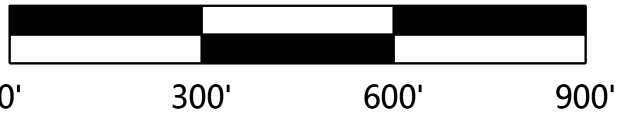
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North Bend Wind Project

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Site Plan F6 F7

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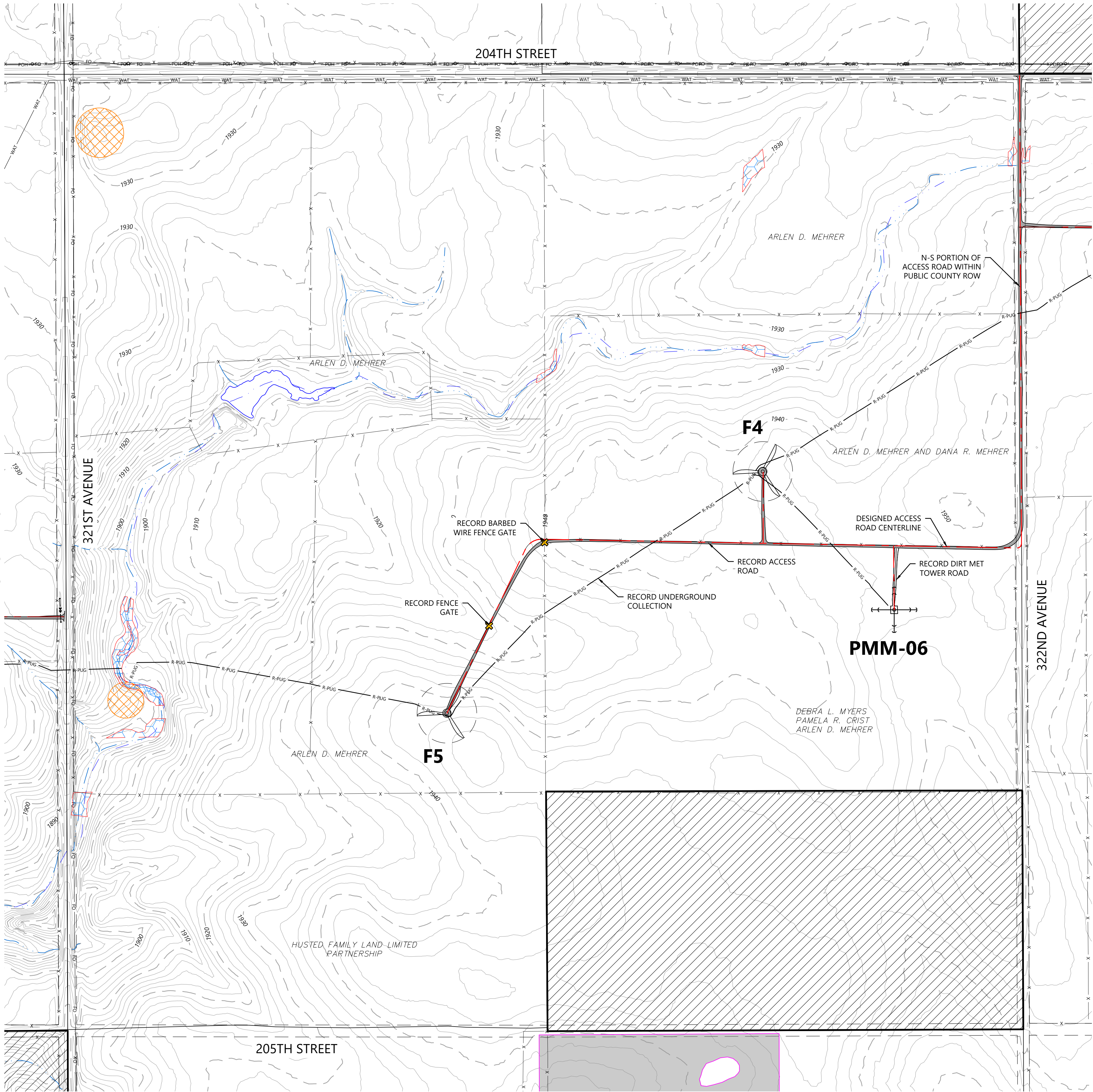
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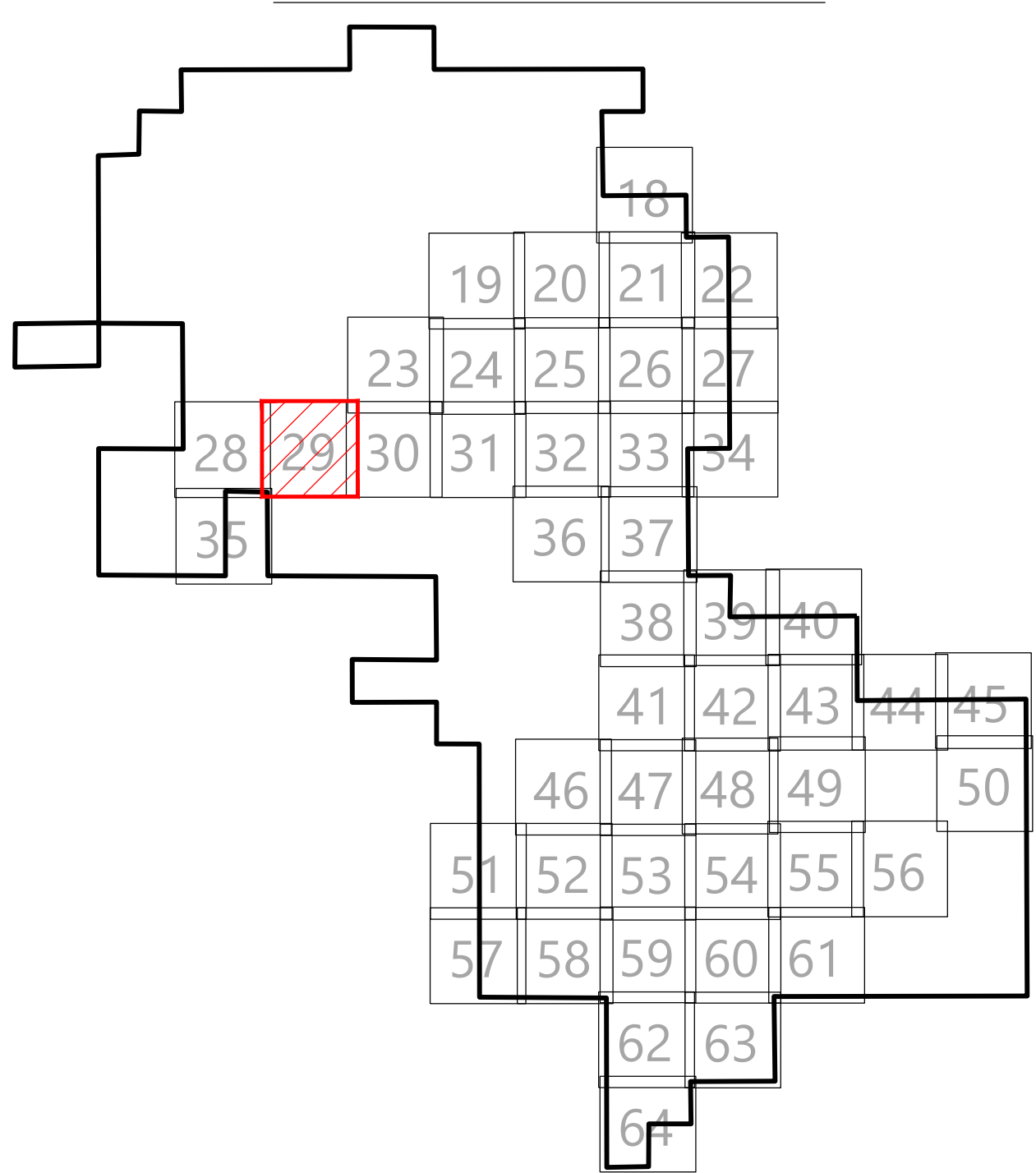
SEE SHEET 28



SEE SHEET 30

- LEGEND:**
- ## RECORD TURBINE LOCATION
 - ## RECORD MET TOWER LOCATION
 - RECORD ACCESS ROAD
 - DESIGNED ACCESS ROAD CENTERLINE
 - R-PUG RECORD UNDERGROUND COLLECTION
 - R-POH RECORD OVERHEAD
 - SUBSTATION TRANSMISSION
 - RECORD CULVERT
 - RECORD TURBINE CONCRETE PEDESTAL
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 - EX. NLEB HABITAT HALF MILE BUFFER
 - EX. GRASSLANDS USFWS

KEY MAP:



Westwood

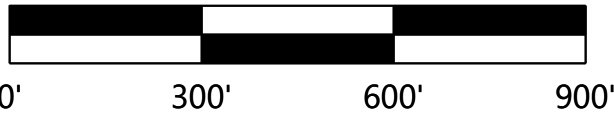
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South Dakota

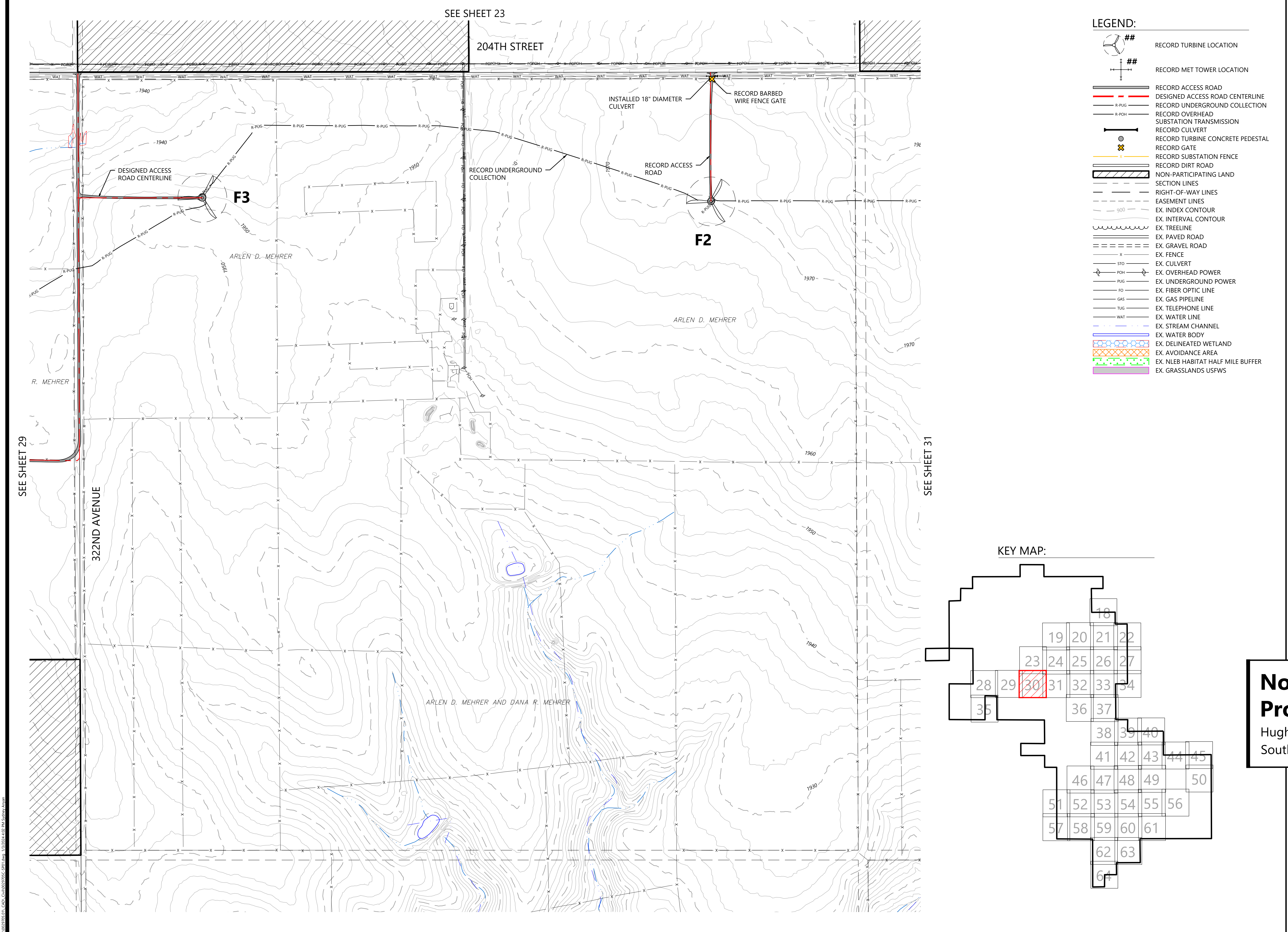
Site Plan F4 F5
PMM_06

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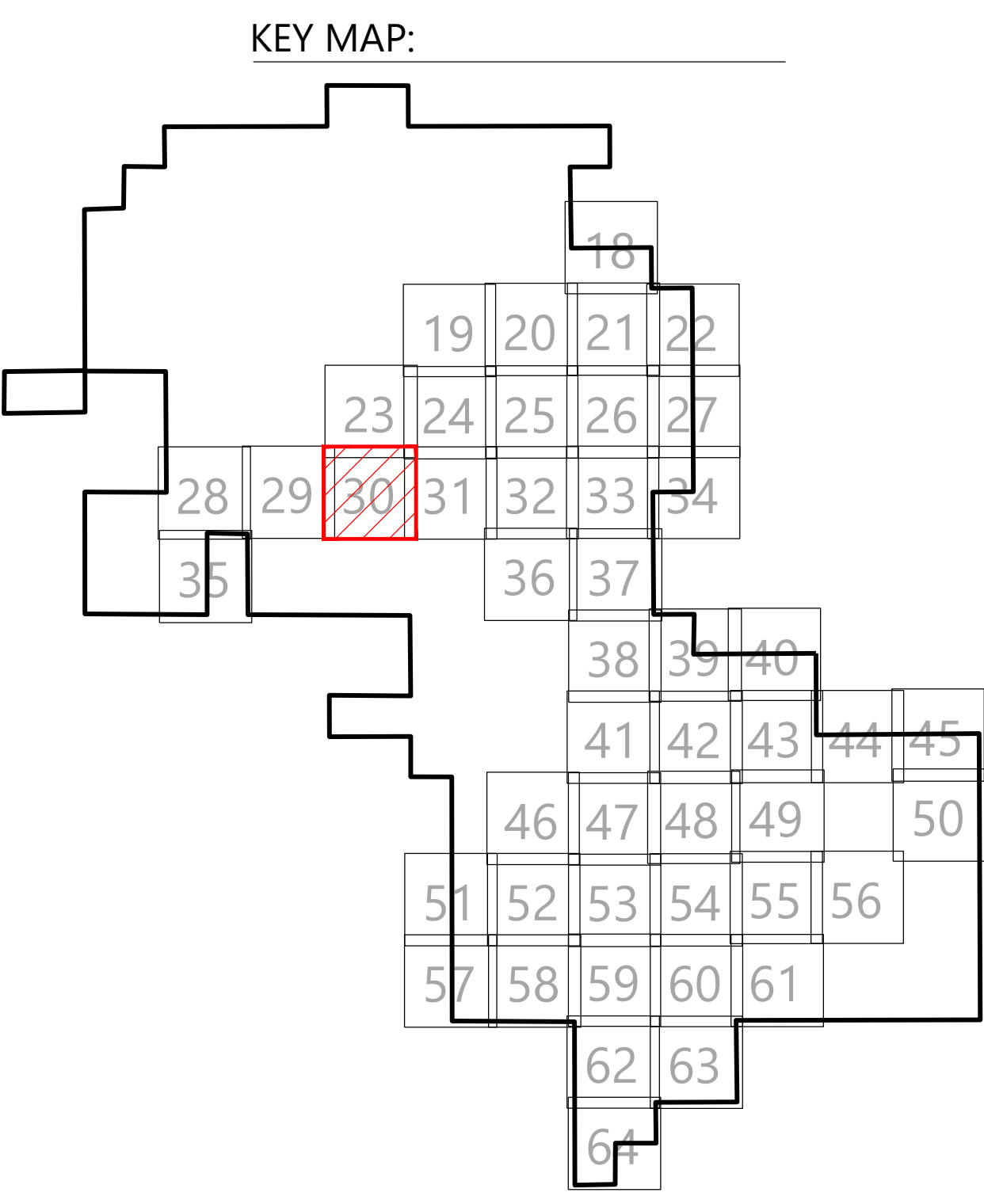
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SHEET: 29

REV:
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- LEGEND:**
- ## RECORD TURBINE LOCATION
 - ## RECORD MET TOWER LOCATION
 - RECORD ACCESS ROAD
 - DESIGNED ACCESS ROAD CENTERLINE
 - R-PUG- RECORD UNDERGROUND COLLECTION
 - R-POH- RECORD OVERHEAD SUBSTATION TRANSMISSION
 - RECORD CULVERT
 - RECORD TURBINE CONCRETE PEDESTAL
 - ✕ RECORD GATE
 - RECORD SUBSTATION FENCE
 - RECORD DIRT ROAD
 - NON-PARTICIPATING LAND
 - SECTION LINES
 - RIGHT-OF-WAY LINES
 - EASEMENT LINES
 - 900- EX. INDEX CONTOUR
 - 900- EX. INTERVAL CONTOUR
 - 900- EX. TREELINE
 - EX. PAVED ROAD
 - EX. GRAVEL ROAD
 - X- EX. FENCE
 - STO- EX. CULVERT
 - POH- EX. OVERHEAD POWER
 - PUG- EX. UNDERGROUND POWER
 - FO- EX. FIBER OPTIC LINE
 - GAS- EX. GAS PIPELINE
 - TUG- EX. TELEPHONE LINE
 - WAT- EX. WATER LINE
 - EX. STREAM CHANNEL
 - EX. WATER BODY
 - EX. DELINEATED WETLAND
 - EX. AVOIDANCE AREA
 - EX. NLEB HABITAT HALF MILE BUFFER
 - EX. GRASSLANDS USFWS



Westwood

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PREPARED FOR:

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a MasTec company

4850 32nd Avenue South
Fargo, ND 58104

REVISIONS:

#	DATE	COMMENT	BY	CHK	APR
0	01/03/2024	RECORD DRAWINGS	PAR	TRG	TRG

0' 300' 600' 900'

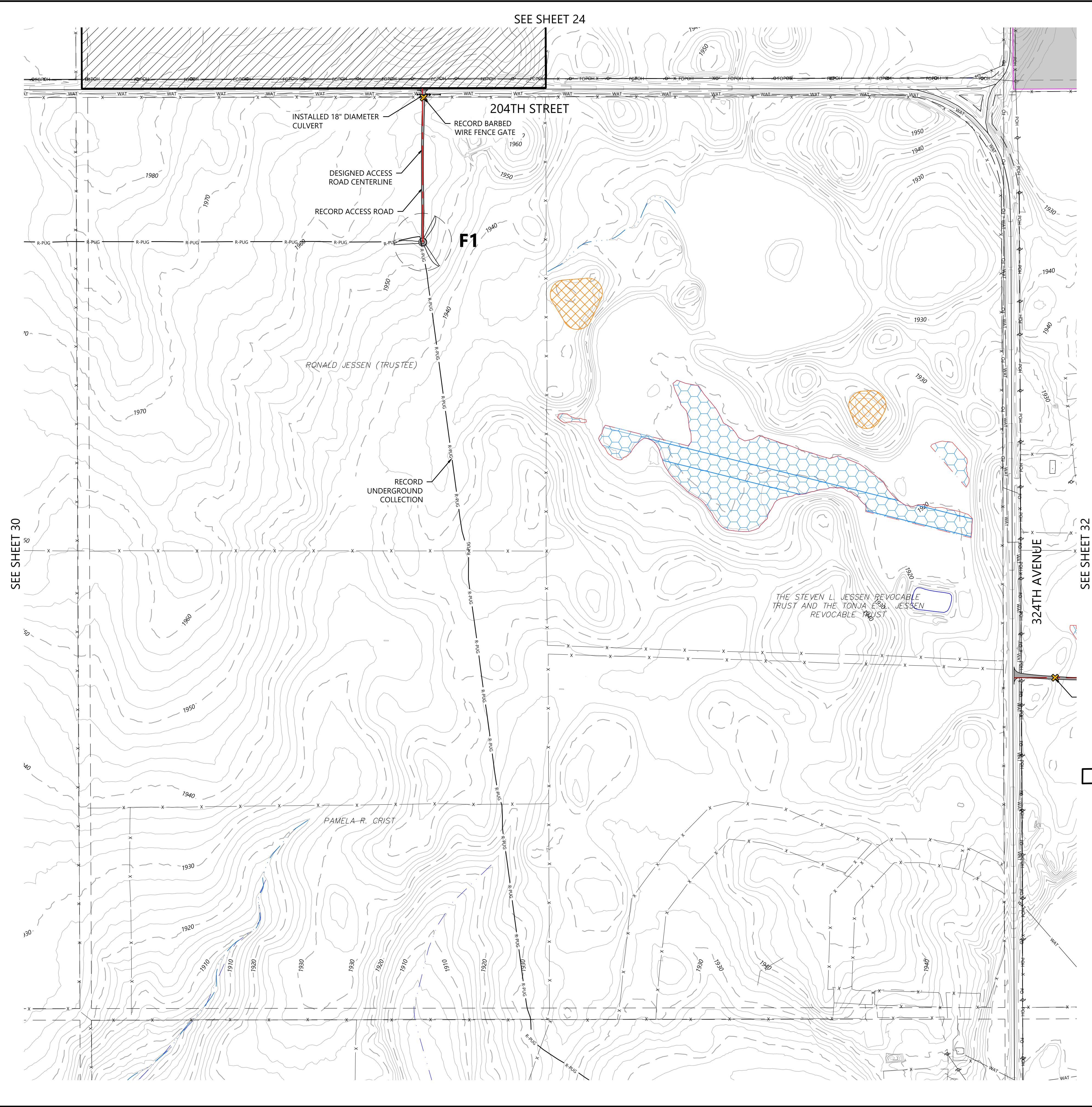
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Hughes and Hyde Counties,
South Dakota

Site Plan F2 F3

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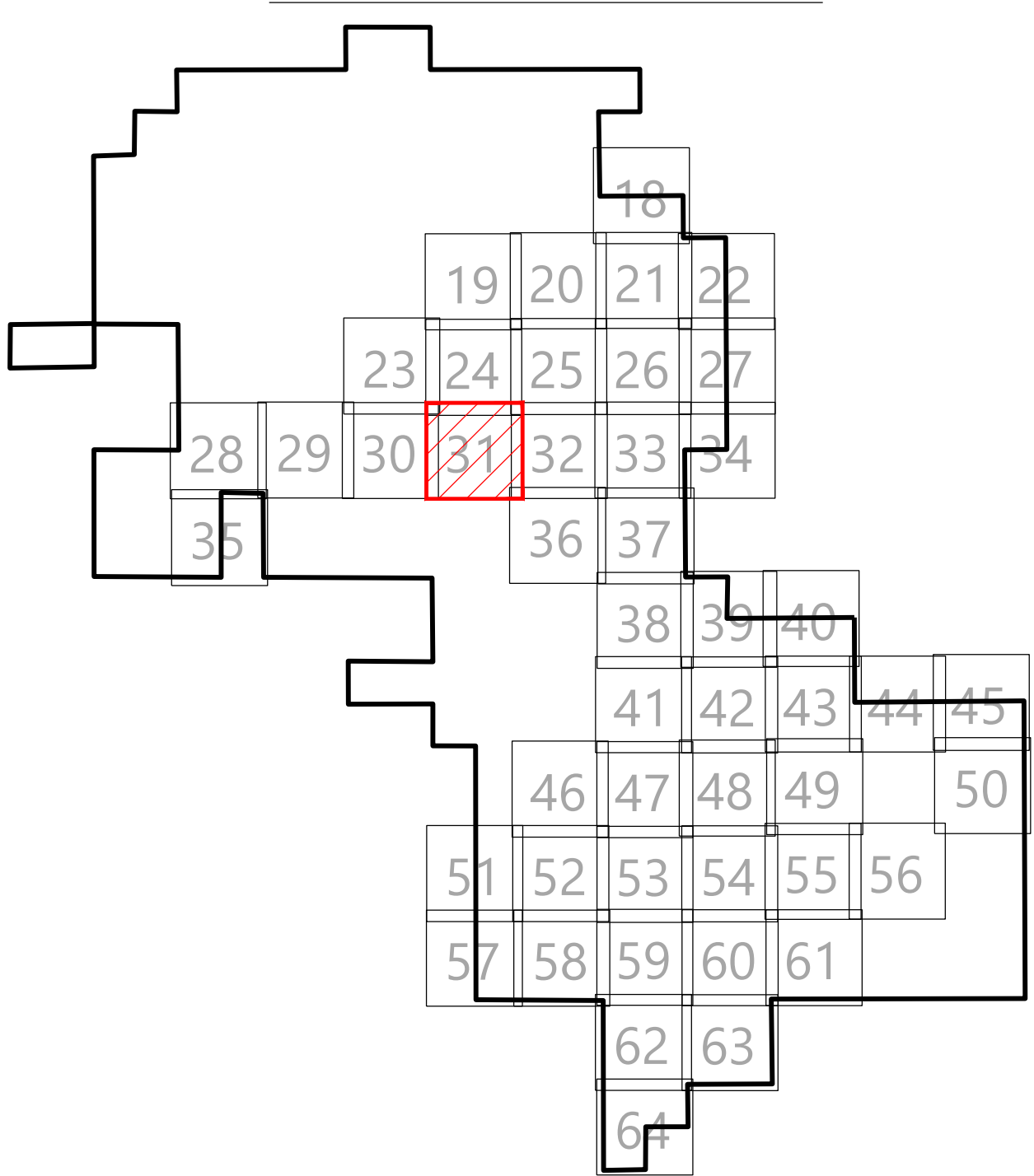
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- LEGEND:
- ## RECORD TURBINE LOCATION
 - ## RECORD MET TOWER LOCATION
 - RECORD ACCESS ROAD
 - DESIGNED ACCESS ROAD CENTERLINE
 - R-PUG RECORD UNDERGROUND COLLECTION
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 - EX. INDEX CONTOUR
 - EX. INTERVAL CONTOUR
 - EX. TREELINE
 - EX. PAVED ROAD
 - EX. GRAVEL ROAD
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KEY MAP:



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0' 300' 600' 900'

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South Dakota

Site Plan F1

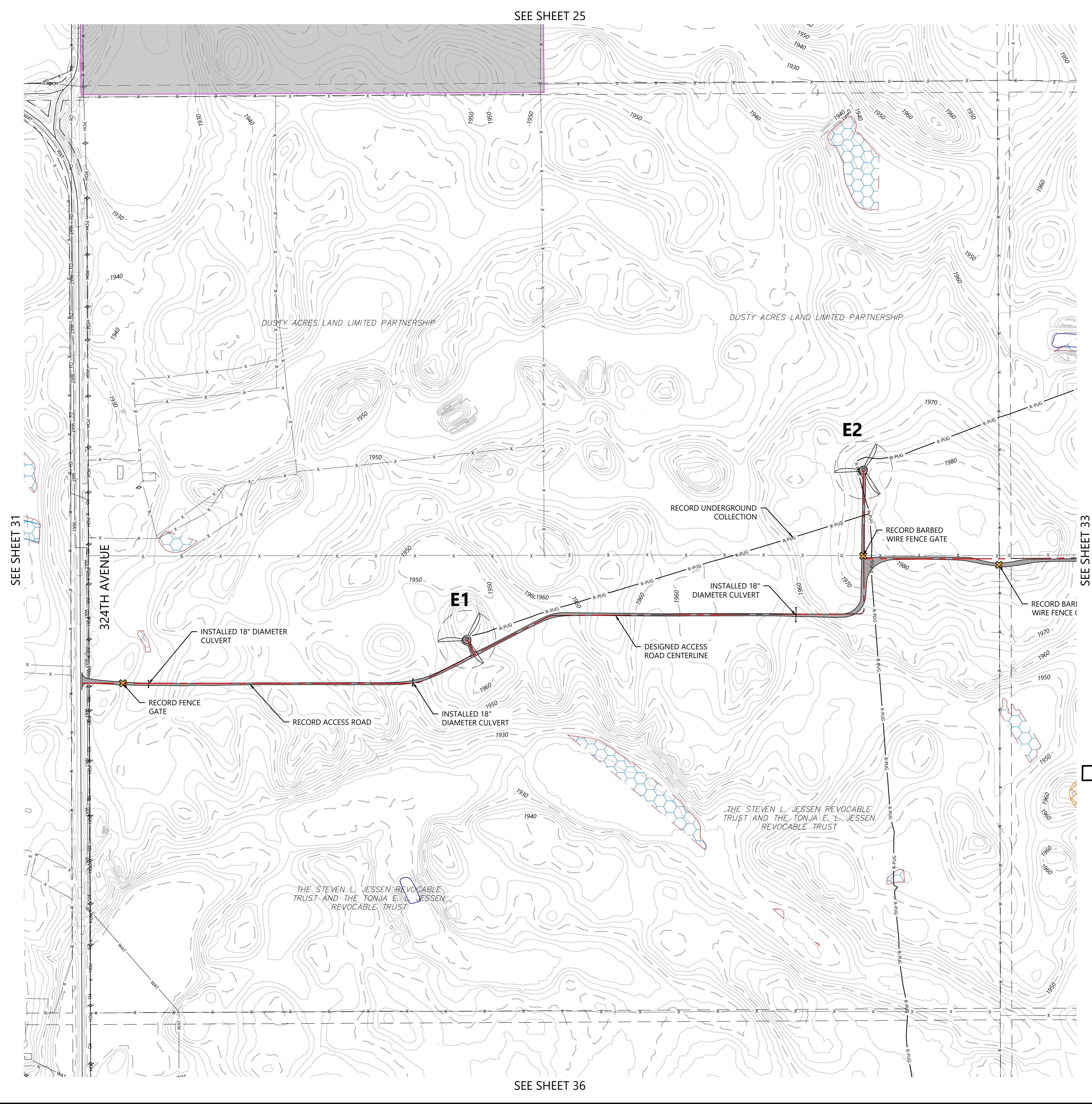
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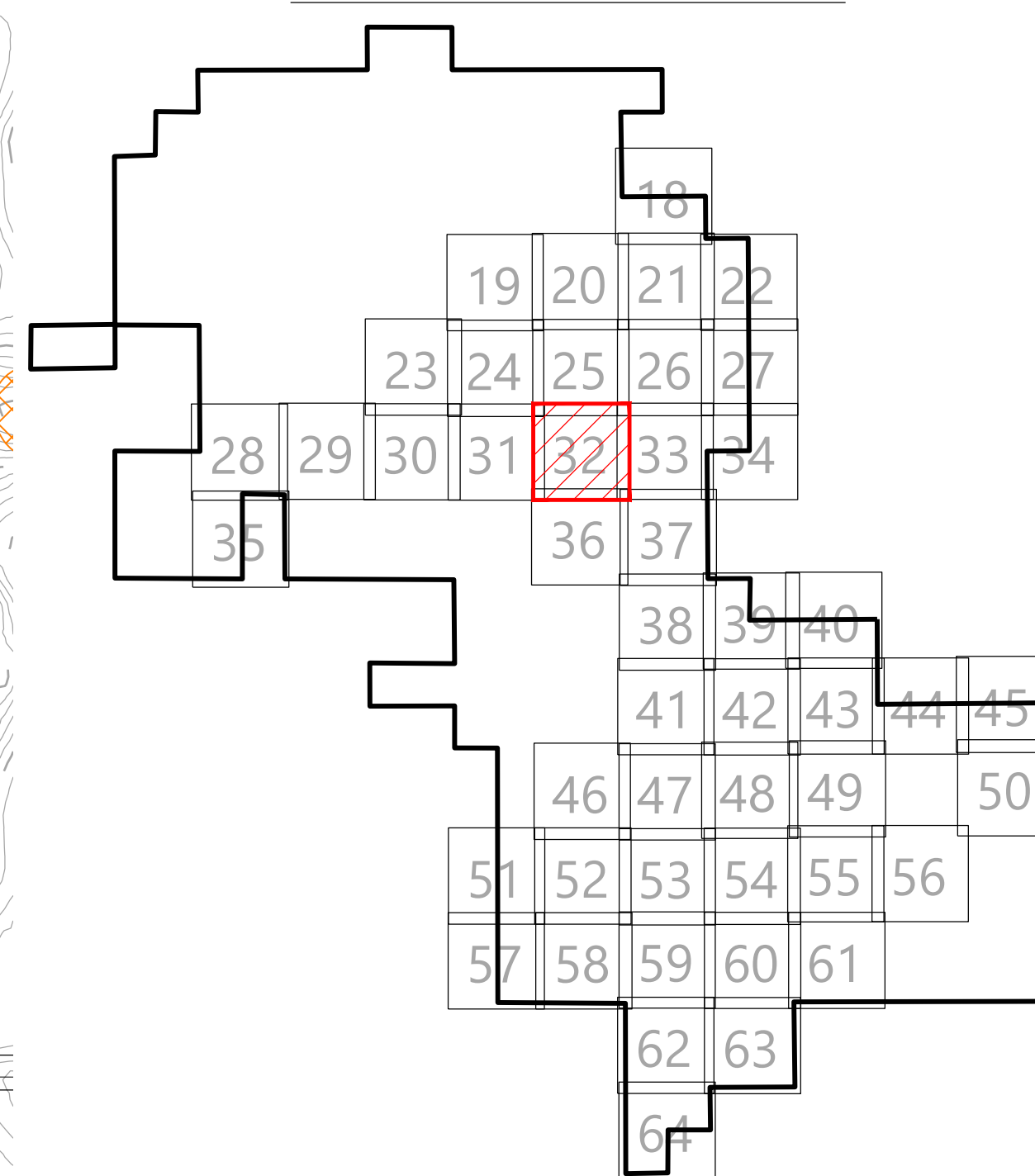
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- LEGEND:
- ## RECORD TURBINE LOCATION
 - ## RECORD MET TOWER LOCATION
 - RECORD ACCESS ROAD
 - DESIGNED ACCESS ROAD CENTERLINE
 - R-PUG RECORD UNDERGROUND COLLECTION
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 - EX. TREELINE
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0' 300' 600' 900'

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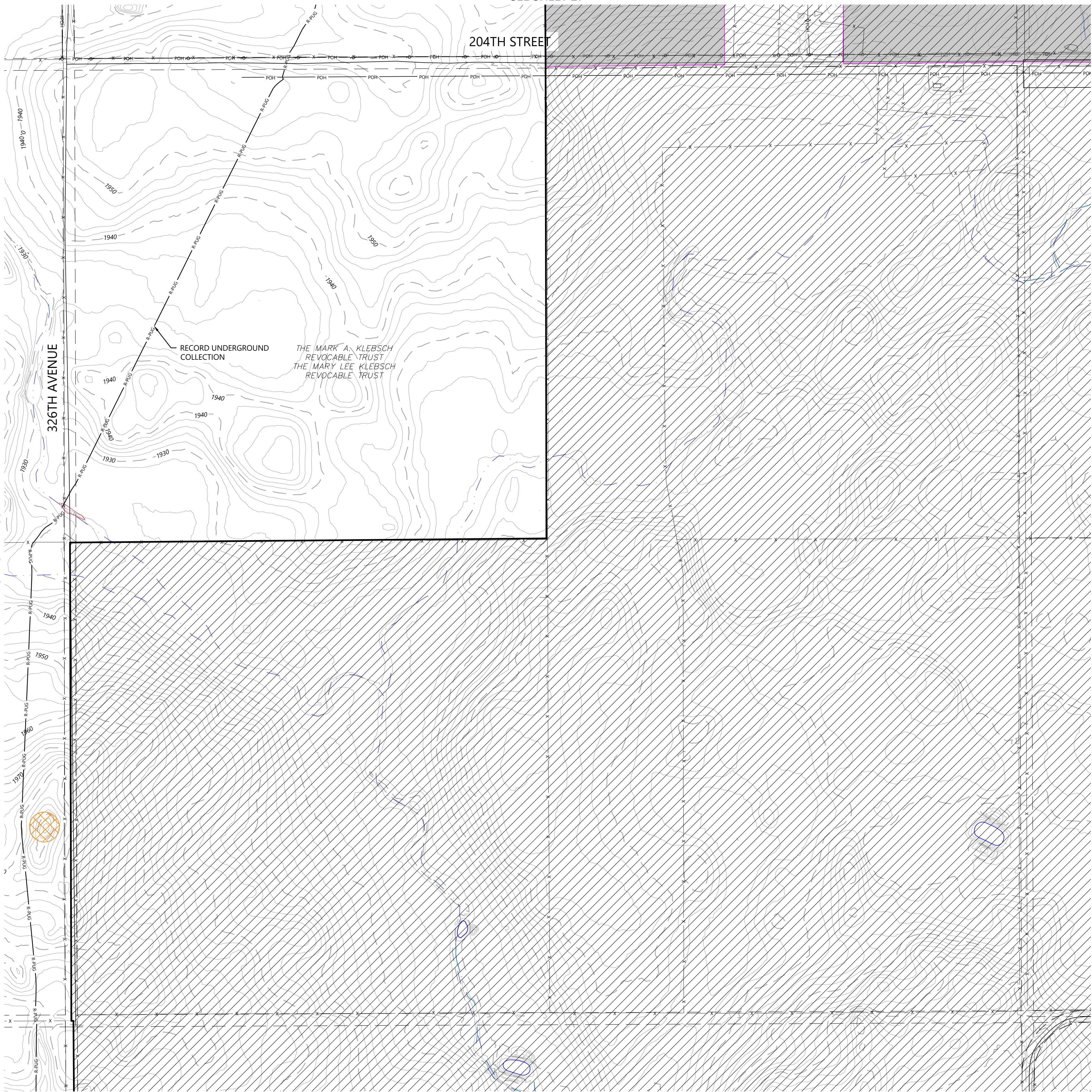
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SEE SHEET 33

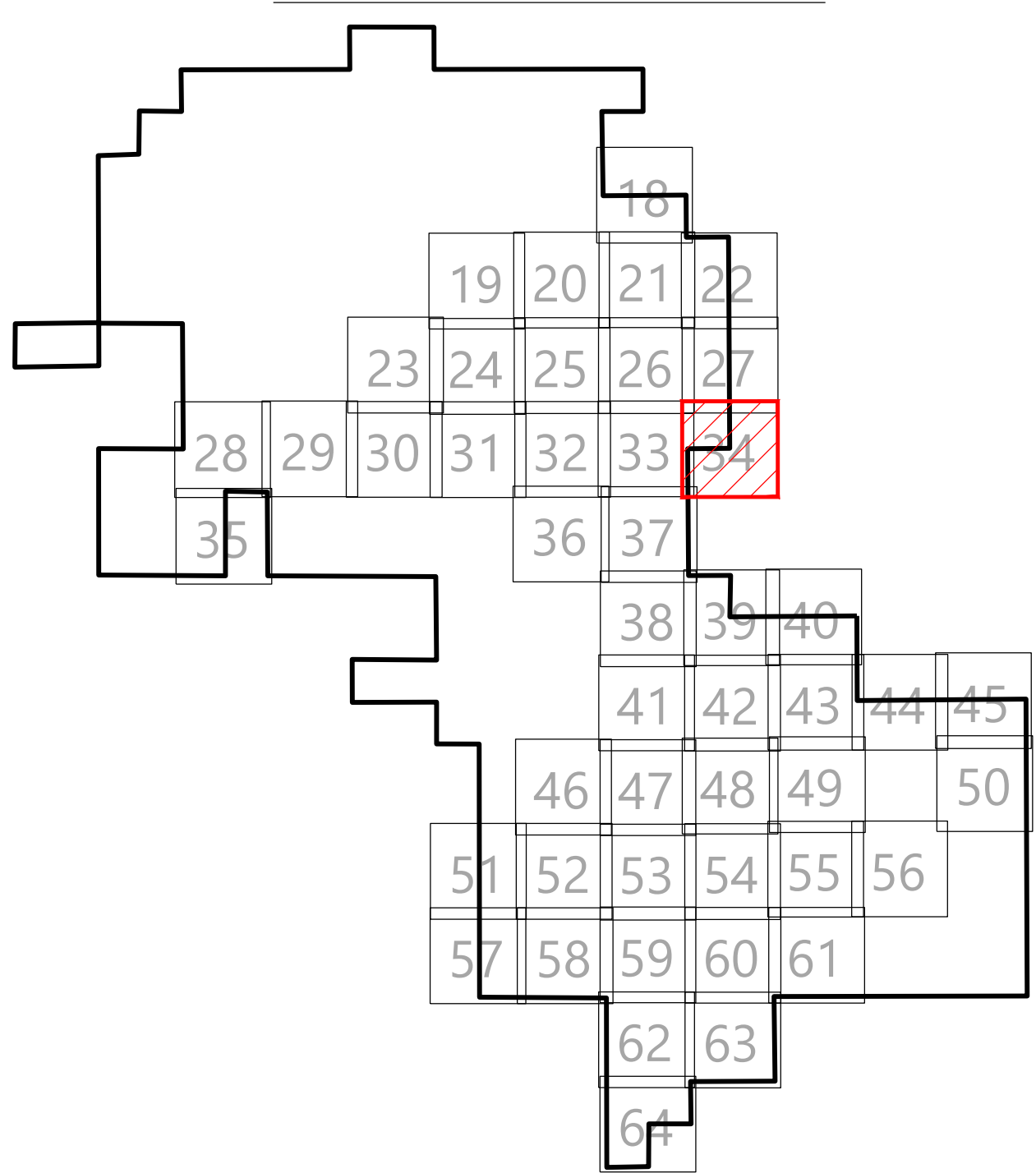
SEE SHEET 27



LEGEND:

- ## RECORD TURBINE LOCATION
- ## RECORD MET TOWER LOCATION
- RECORD ACCESS ROAD
- DESIGNED ACCESS ROAD CENTERLINE
- R-PUG RECORD UNDERGROUND COLLECTION
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- EASEMENT LINES
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- EX. INTERVAL CONTOUR
- EX. TREELINE
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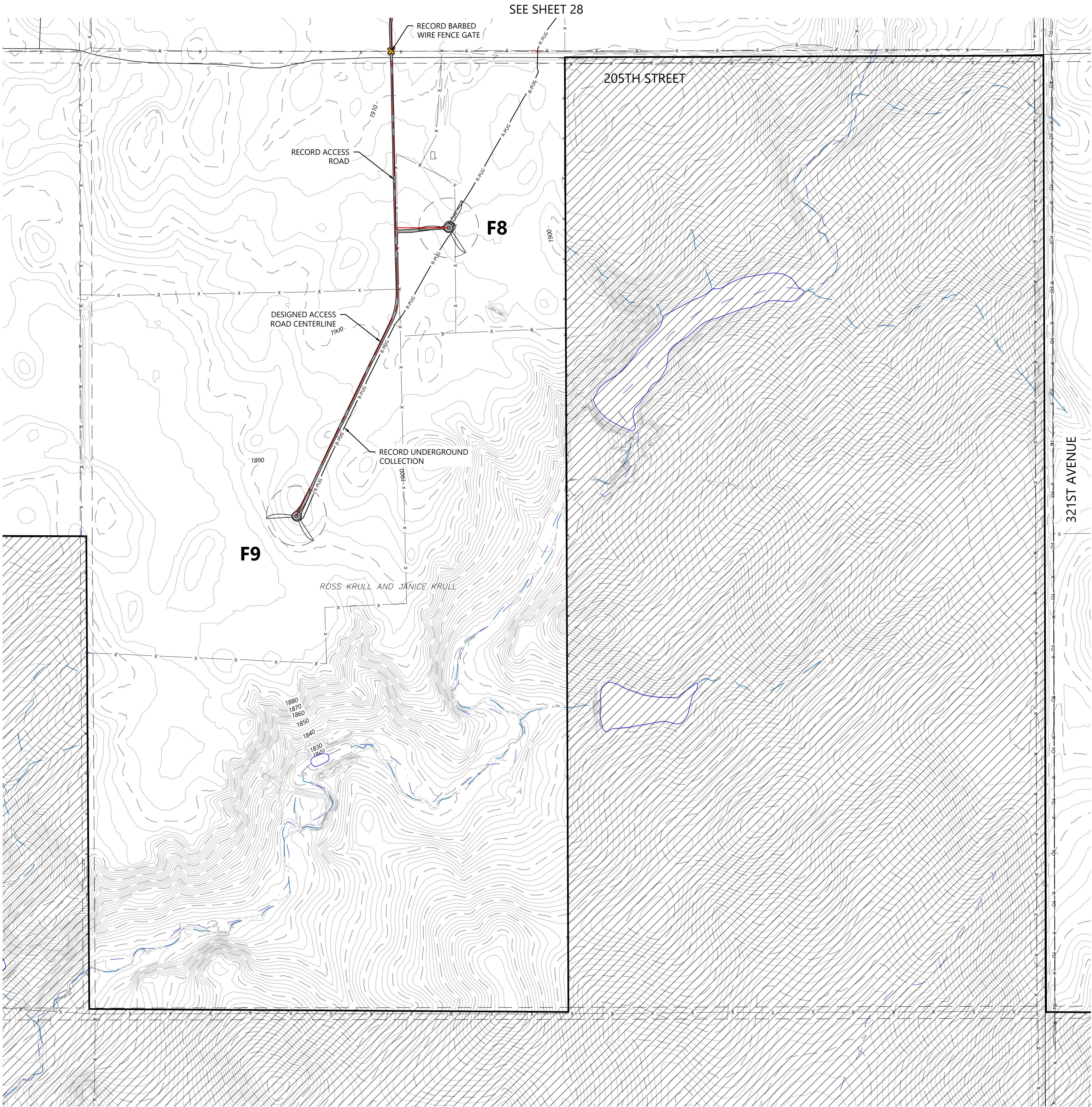
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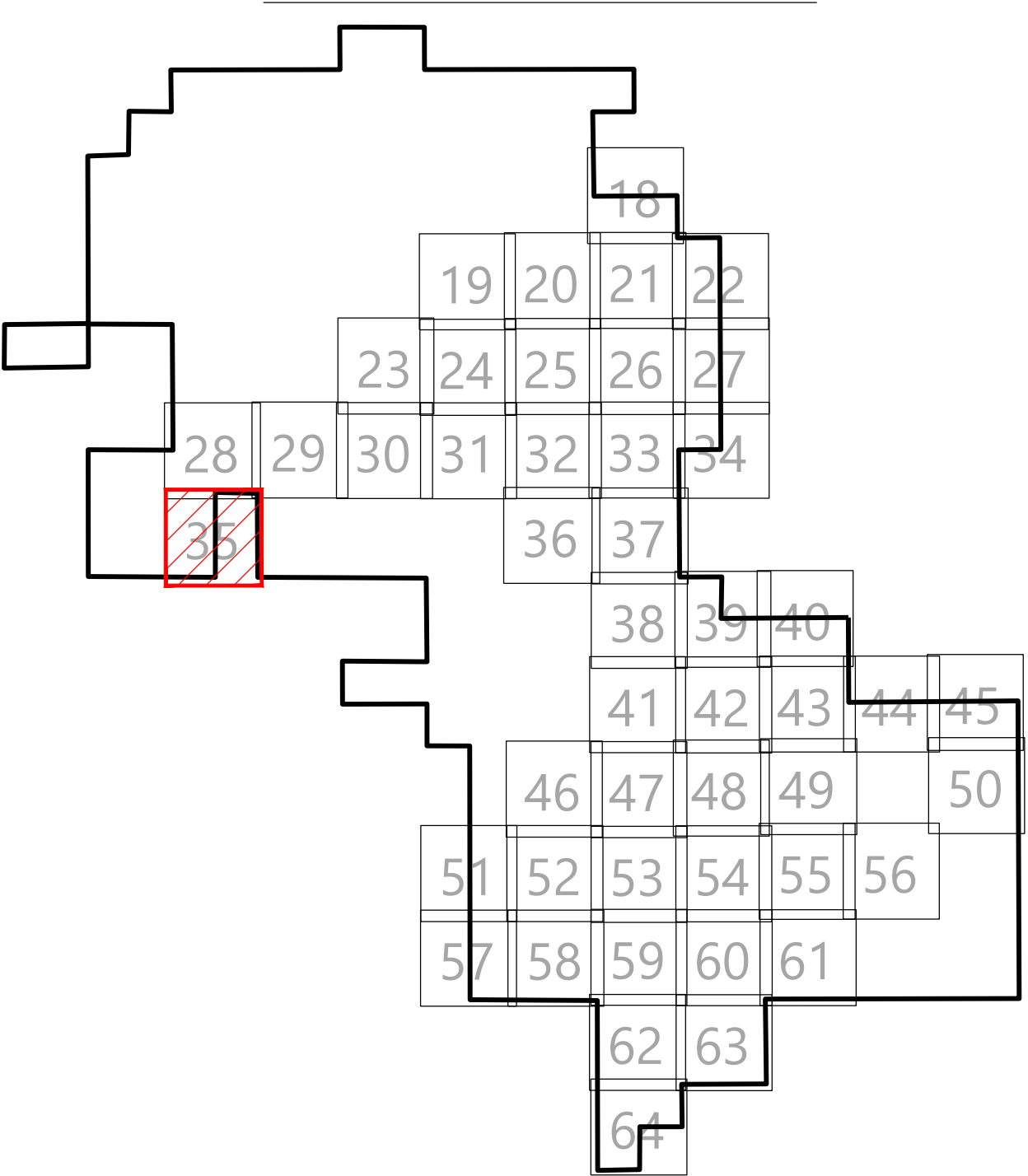
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LEGEND:

- RECORD TURBINE LOCATION
- RECORD MET TOWER LOCATION
- RECORD ACCESS ROAD
- DESIGNED ACCESS ROAD CENTERLINE
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South Dakota

Site Plan F8 F9

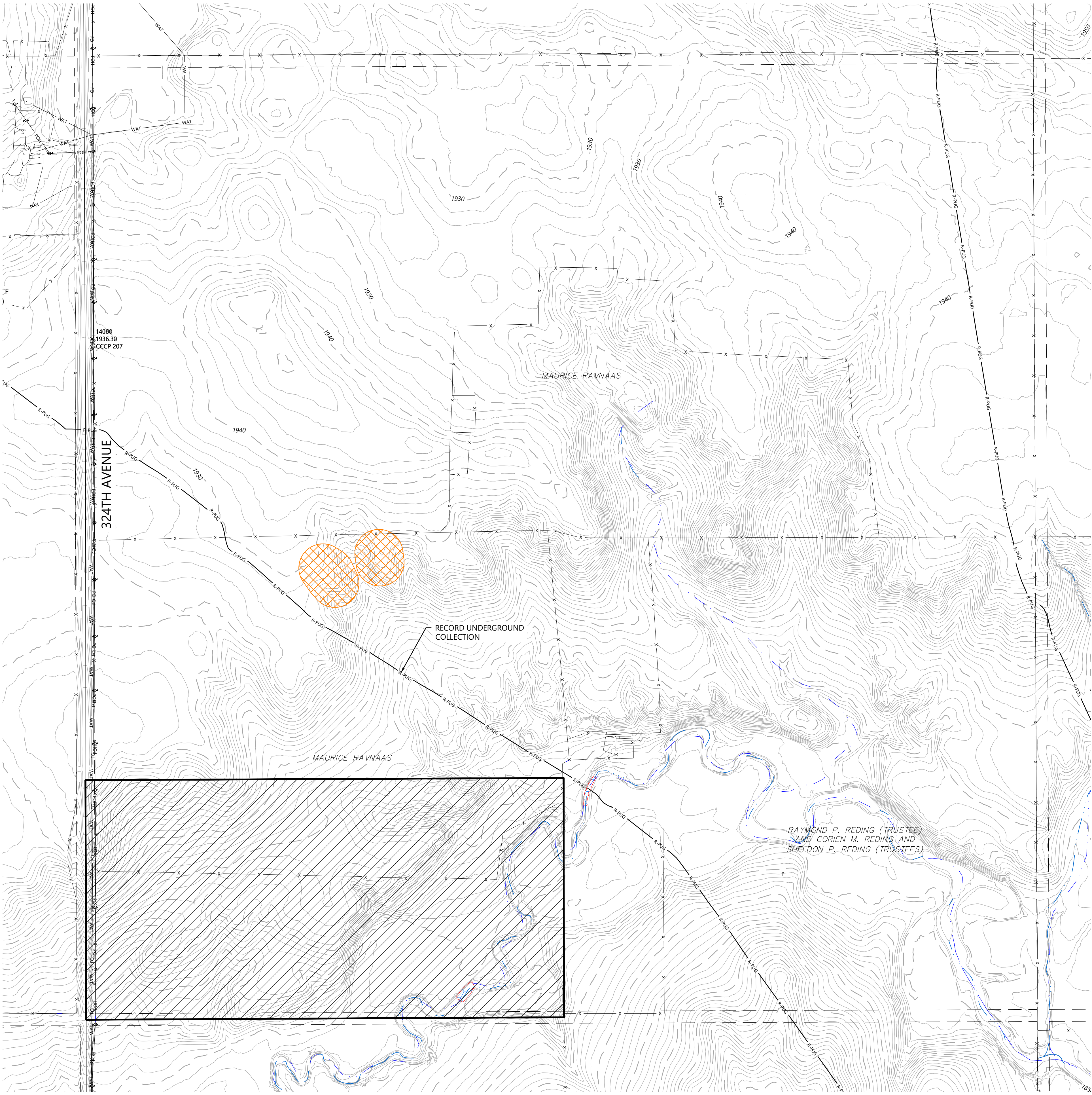
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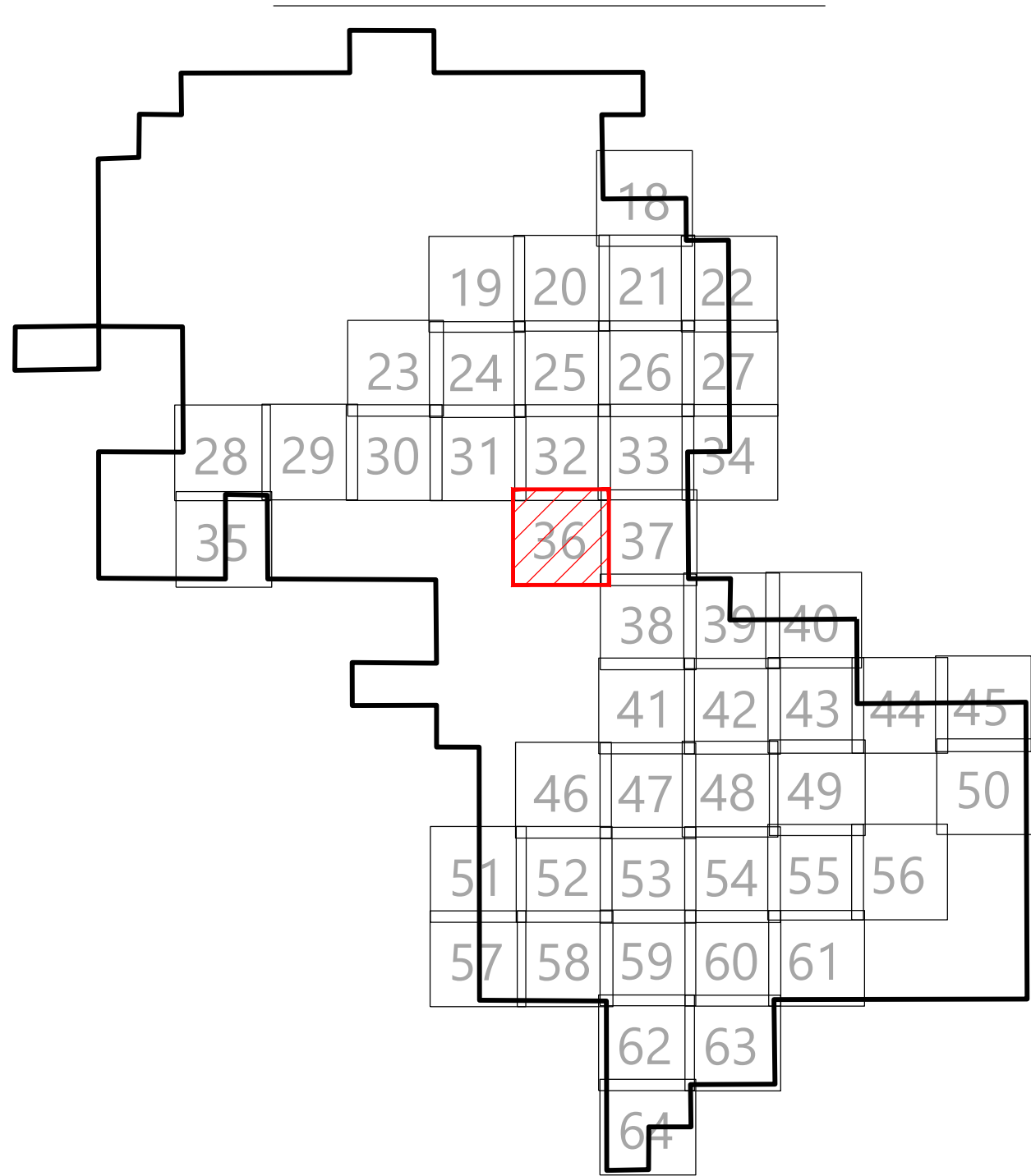
SEE SHEET 32

SEE SHEET 37

LEGEND:

- RECORD TURBINE LOCATION
- RECORD MET TOWER LOCATION
- RECORD ACCESS ROAD
- DESIGNED ACCESS ROAD CENTERLINE
- RECORD UNDERGROUND COLLECTION
- RECORD OVERHEAD COLLECTION
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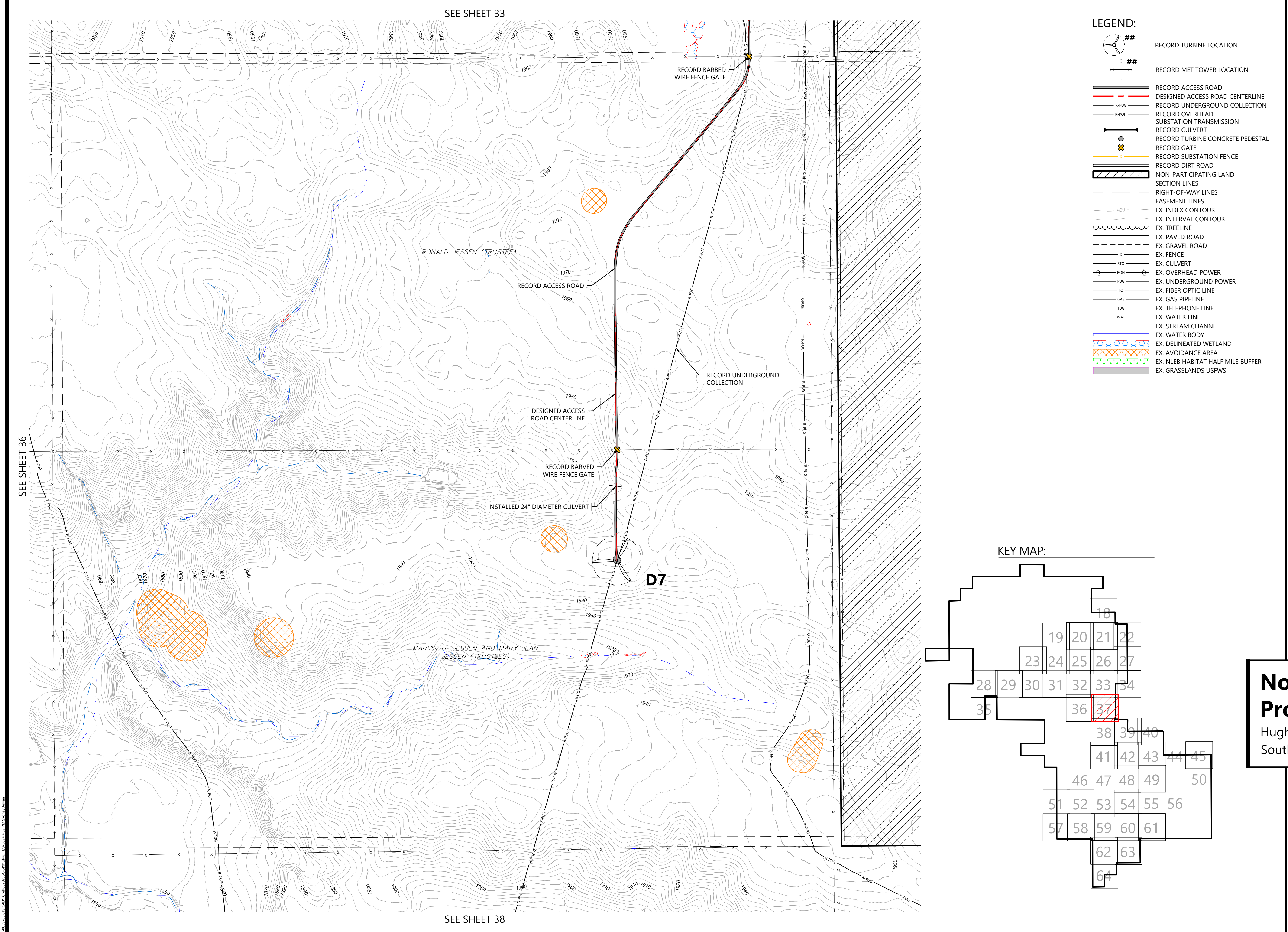
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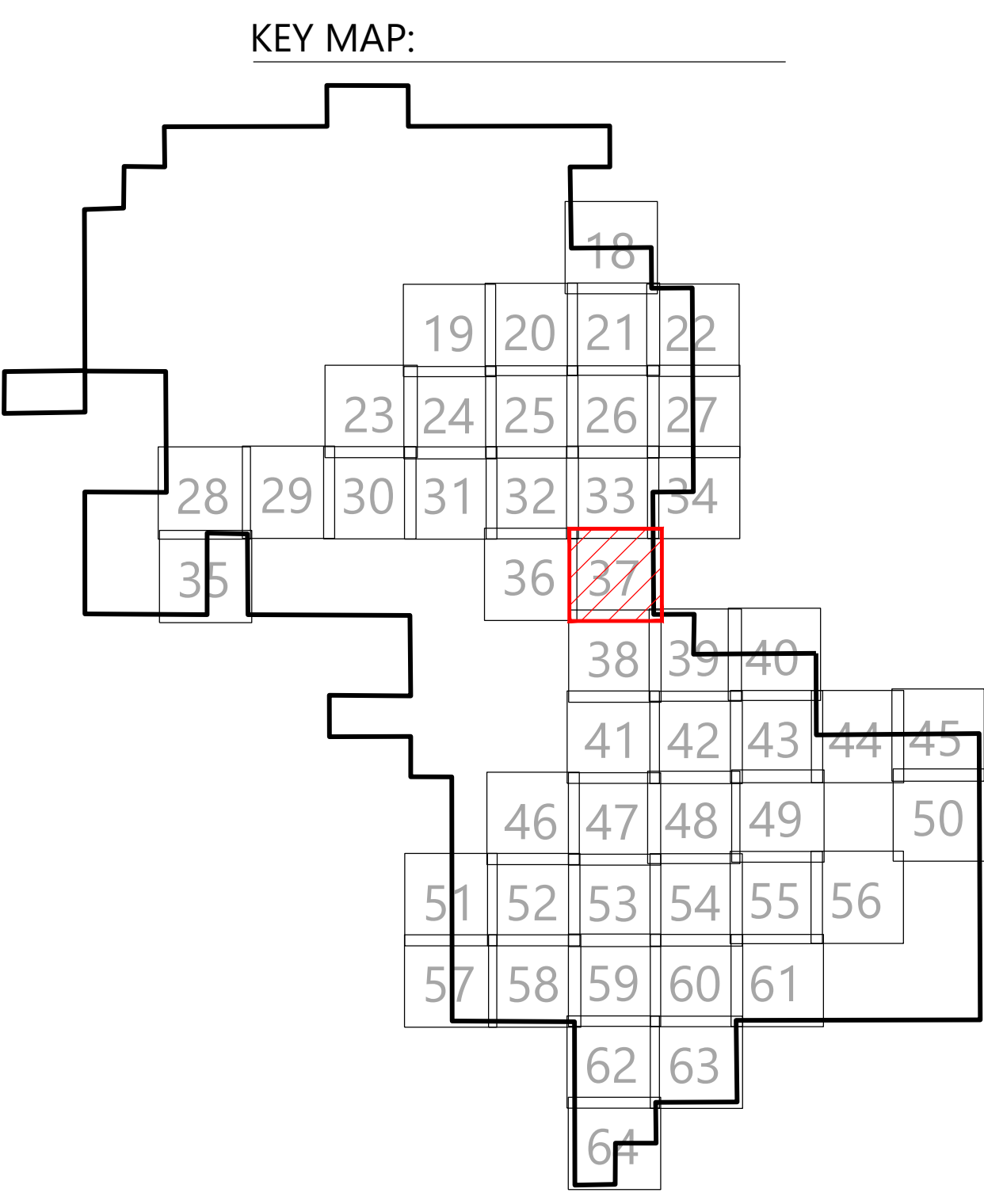
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- LEGEND:**
- RECORD TURBINE LOCATION
 - RECORD MET TOWER LOCATION
 - RECORD ACCESS ROAD
 - DESIGNED ACCESS ROAD CENTERLINE
 - RECORD UNDERGROUND COLLECTION
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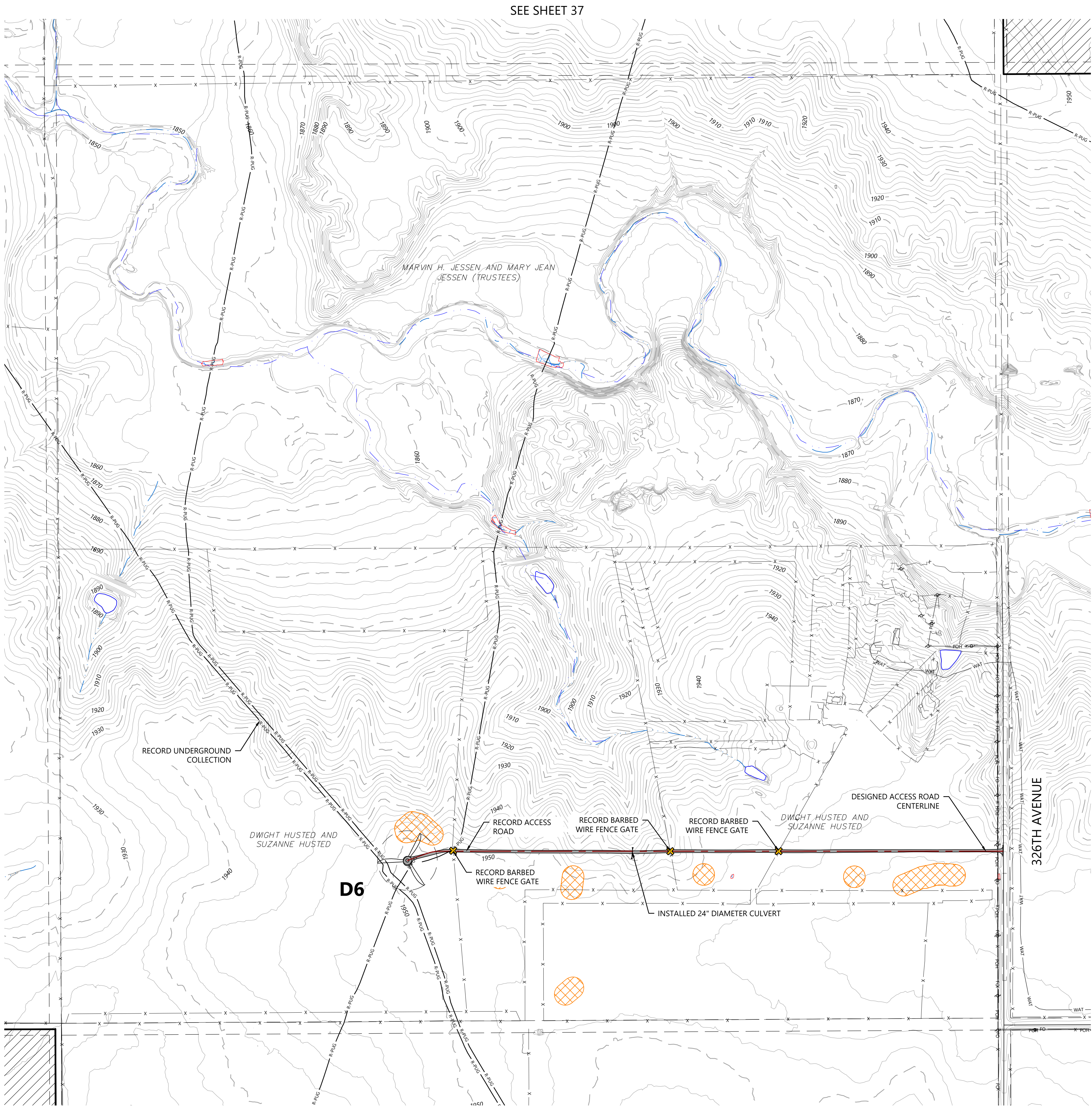
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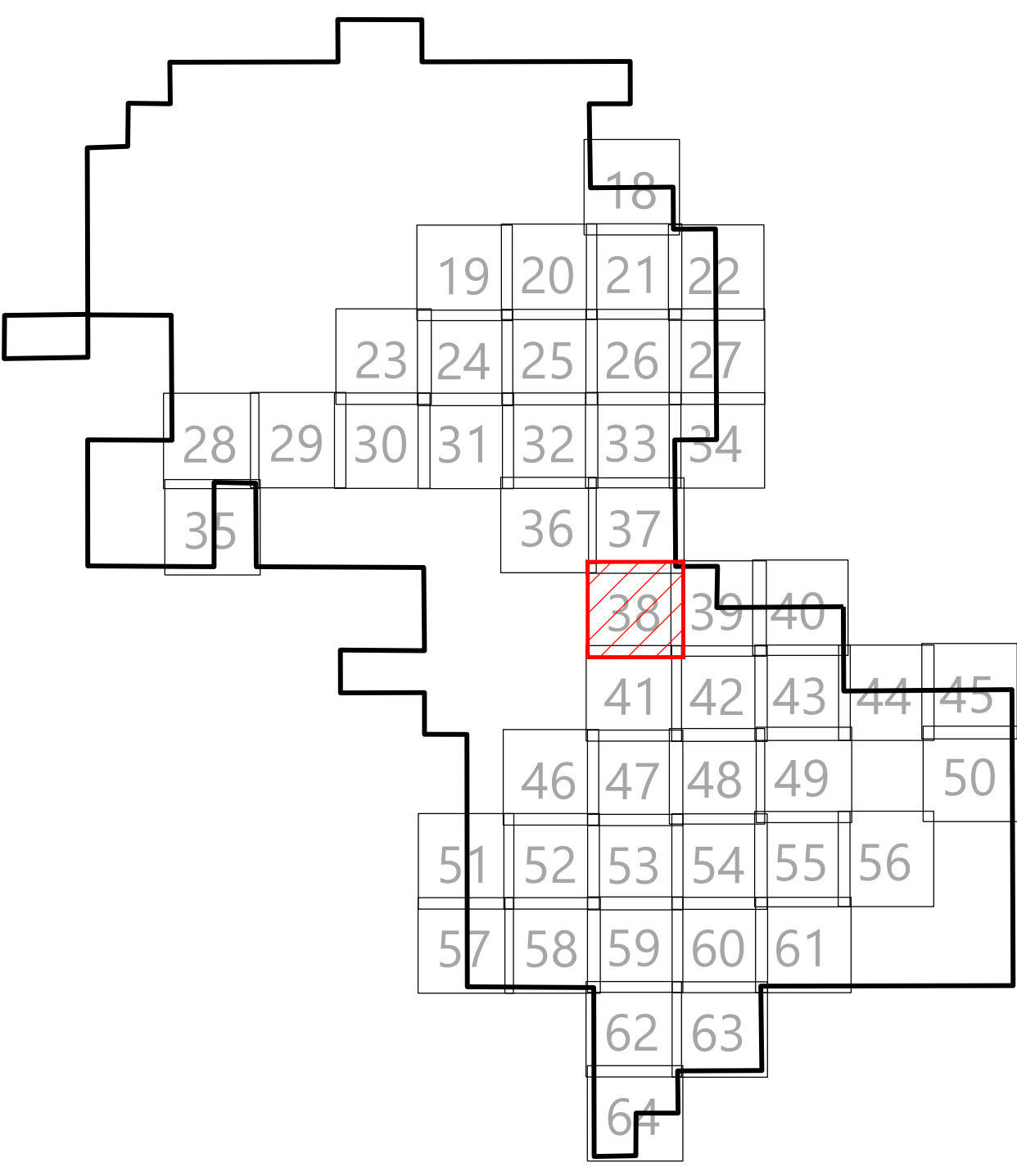
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- LEGEND:
- RECORD TURBINE LOCATION
 - RECORD MET TOWER LOCATION
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 - EX. AVOIDANCE AREA
 - EX. NLEB HABITAT HALF MILE BUFFER
 - EX. GRASSLANDS USFWS

SEE SHEET 39

KEY MAP:



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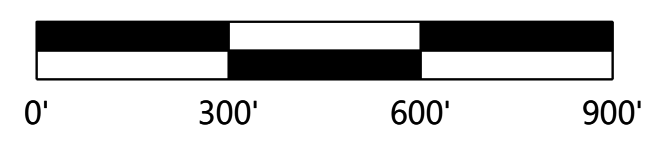
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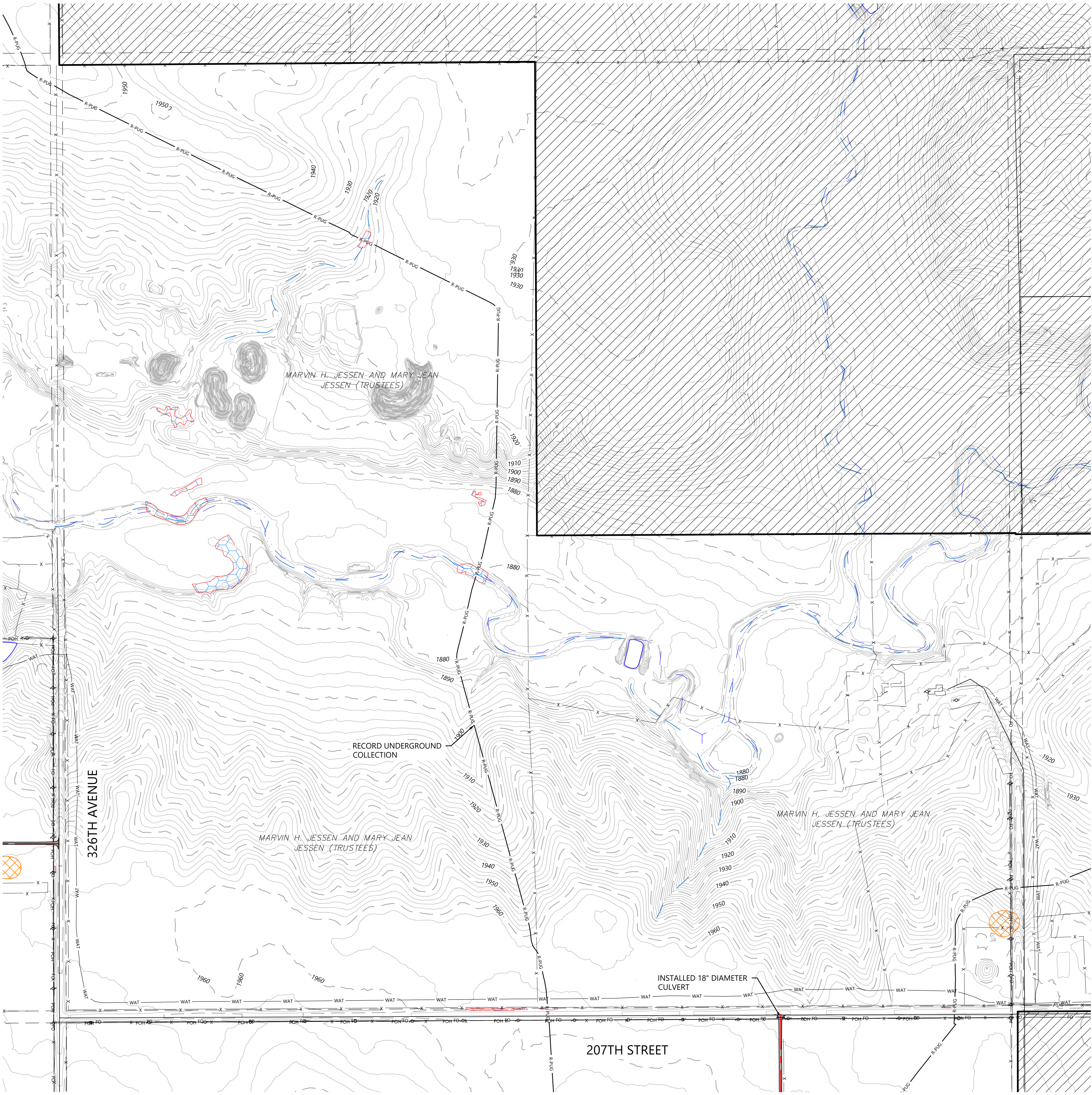
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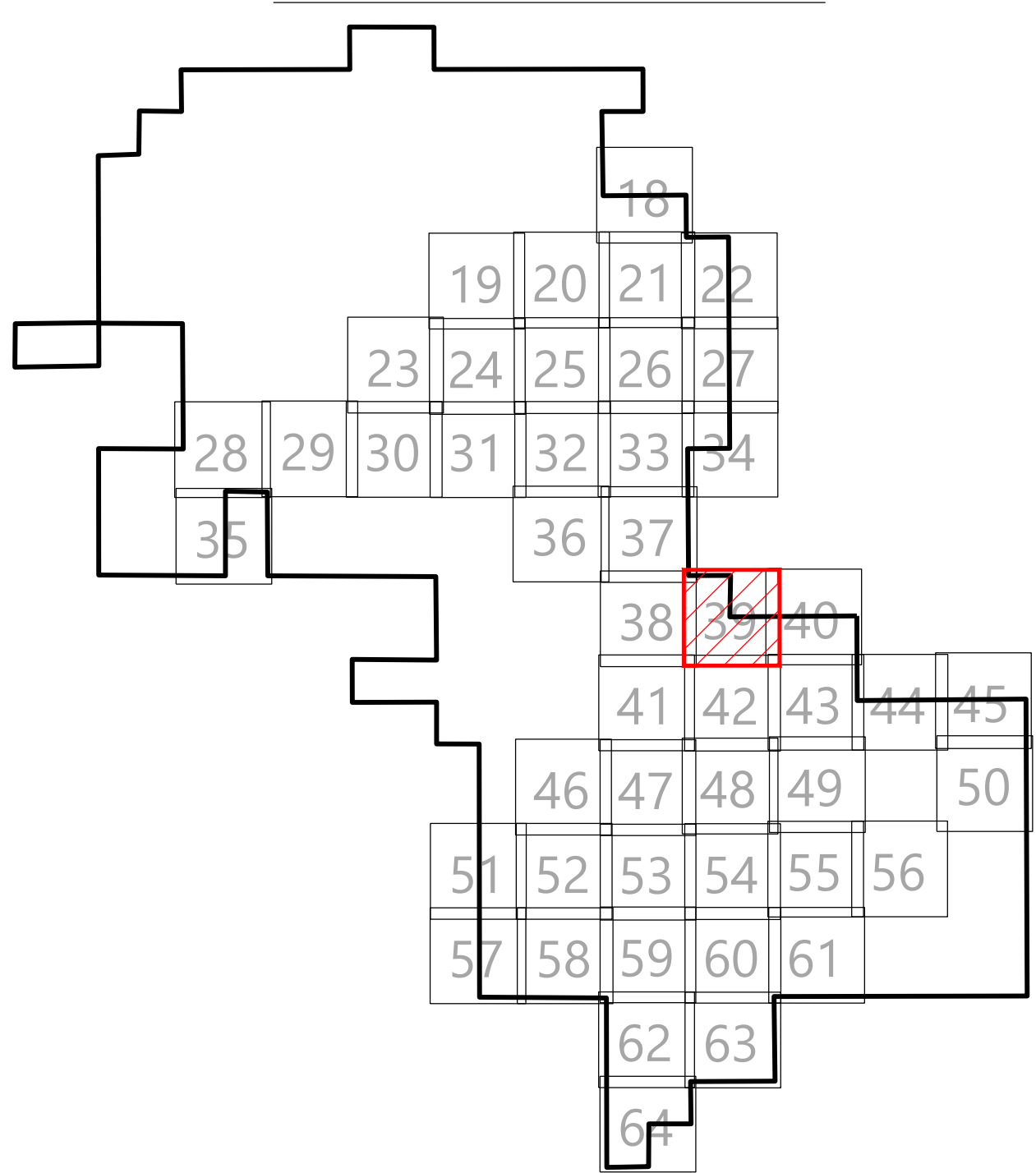
SEE SHEET 42

SEE SHEET 40

LEGEND:

- RECORD TURBINE LOCATION
- RECORD MET TOWER LOCATION
- RECORD ACCESS ROAD
- DESIGNED ACCESS ROAD CENTERLINE
- RECORD UNDERGROUND COLLECTION
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0' 300' 600' 900'

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South Dakota

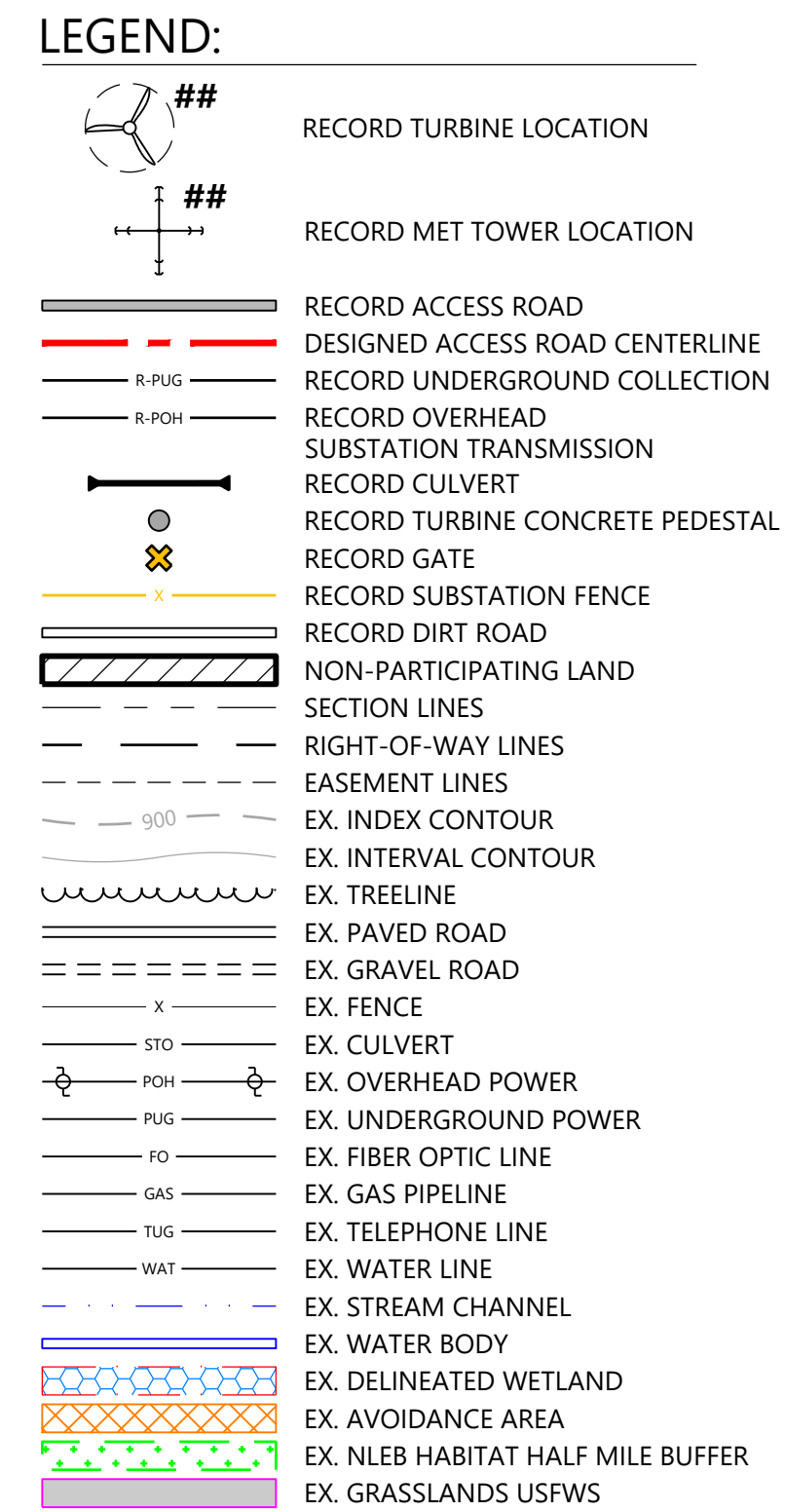
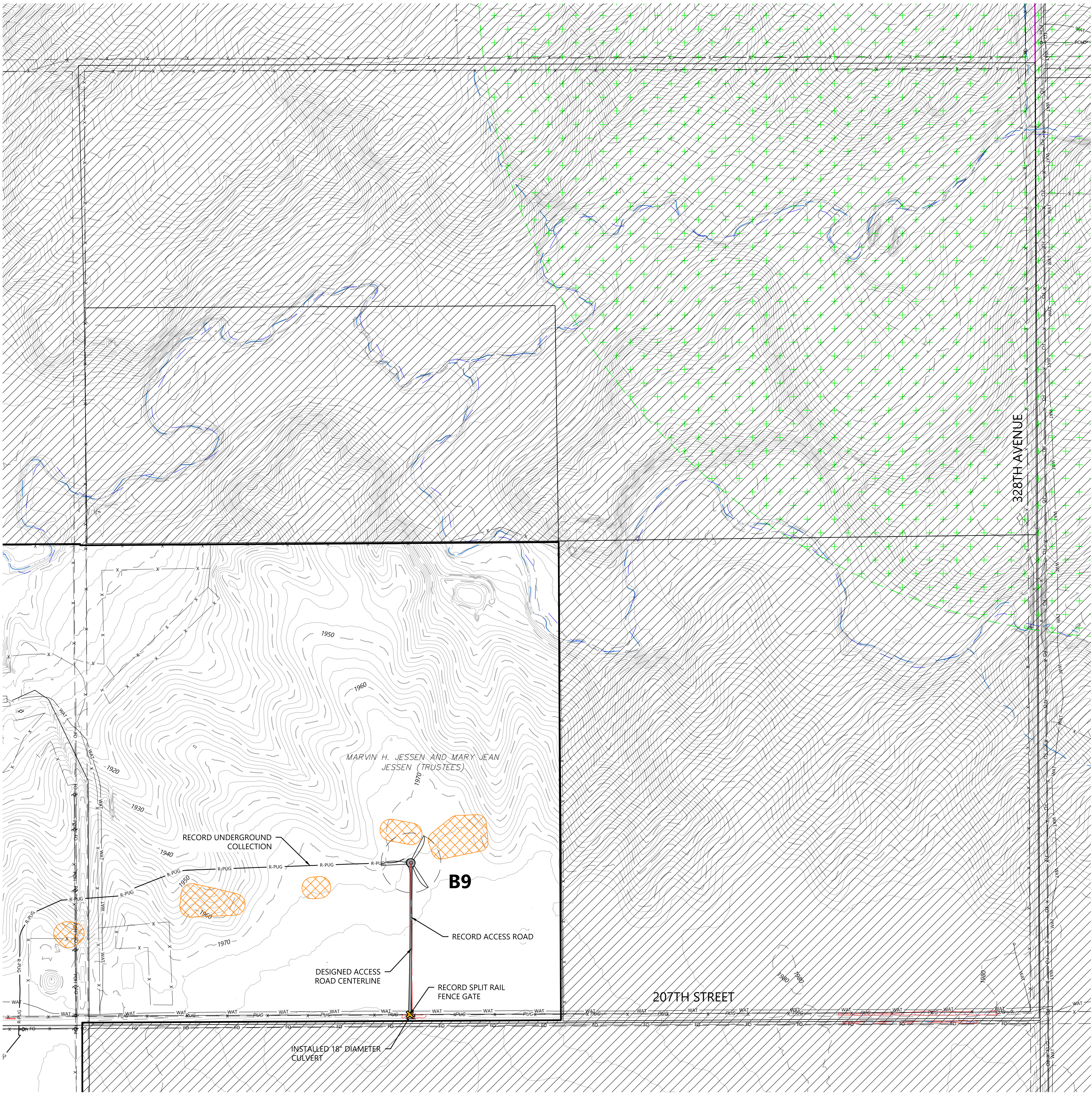
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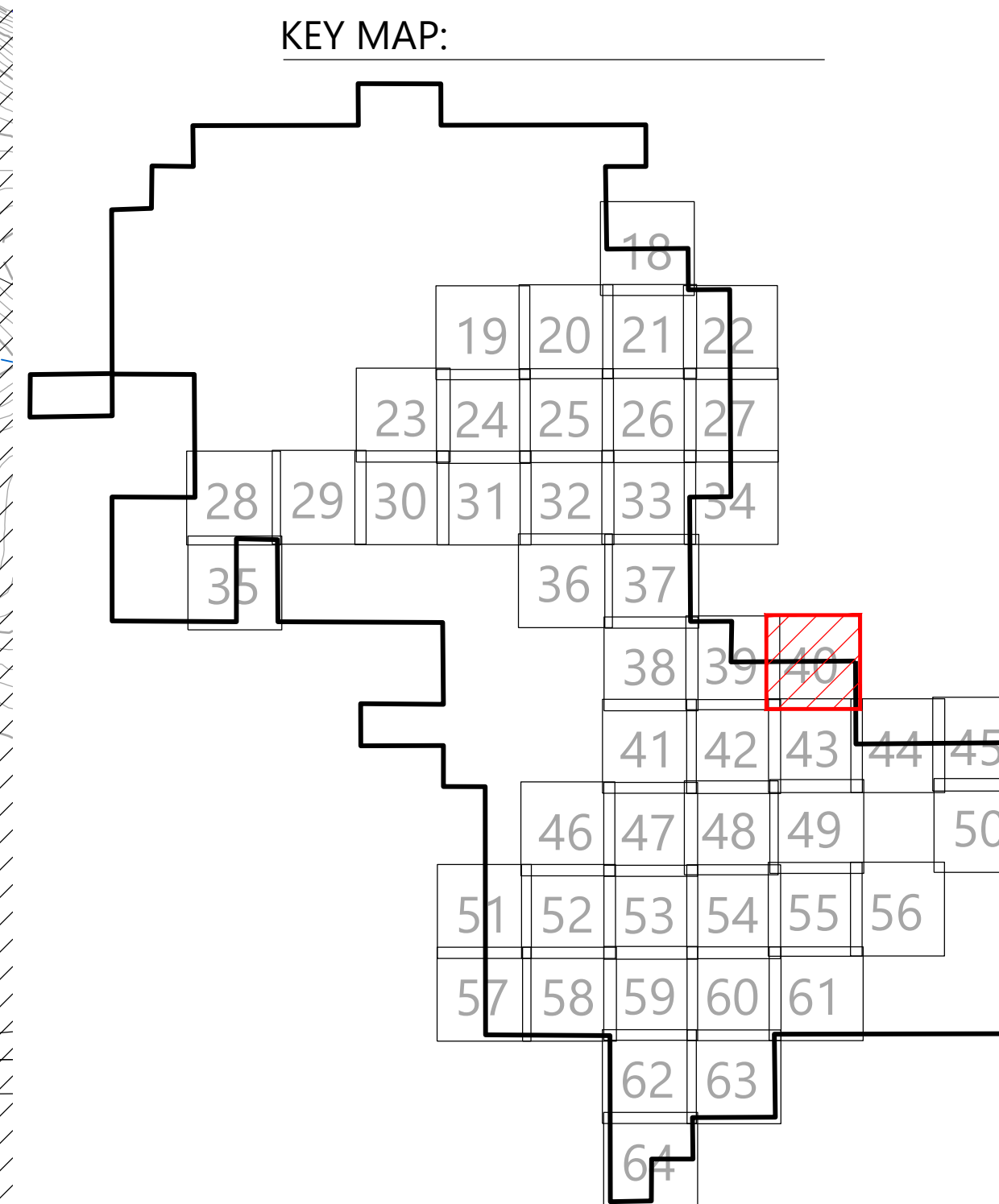
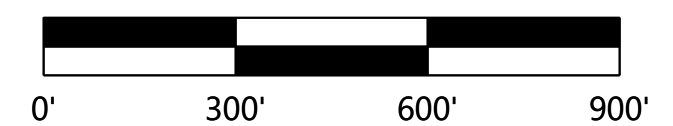


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REVISIONS:					
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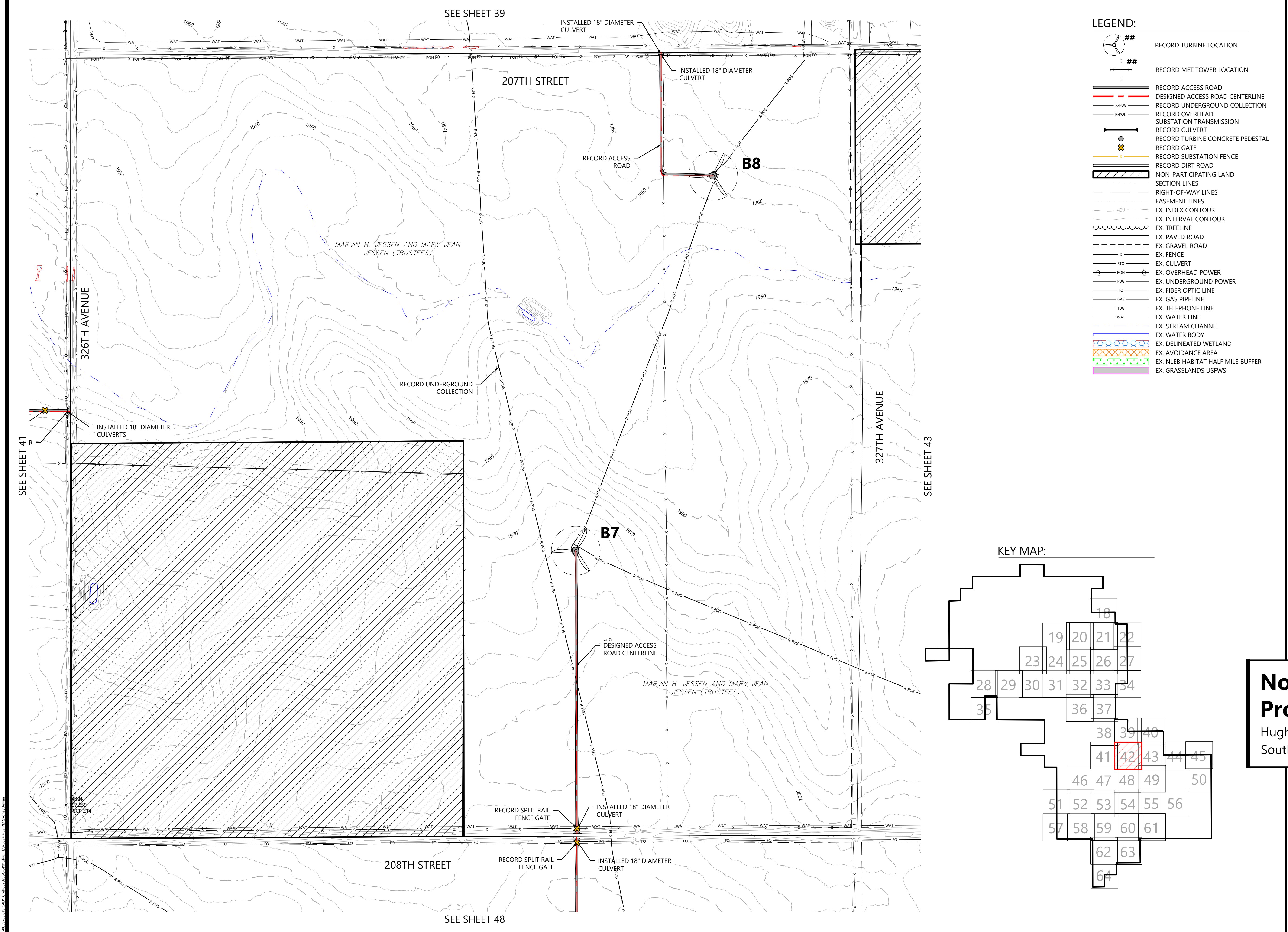
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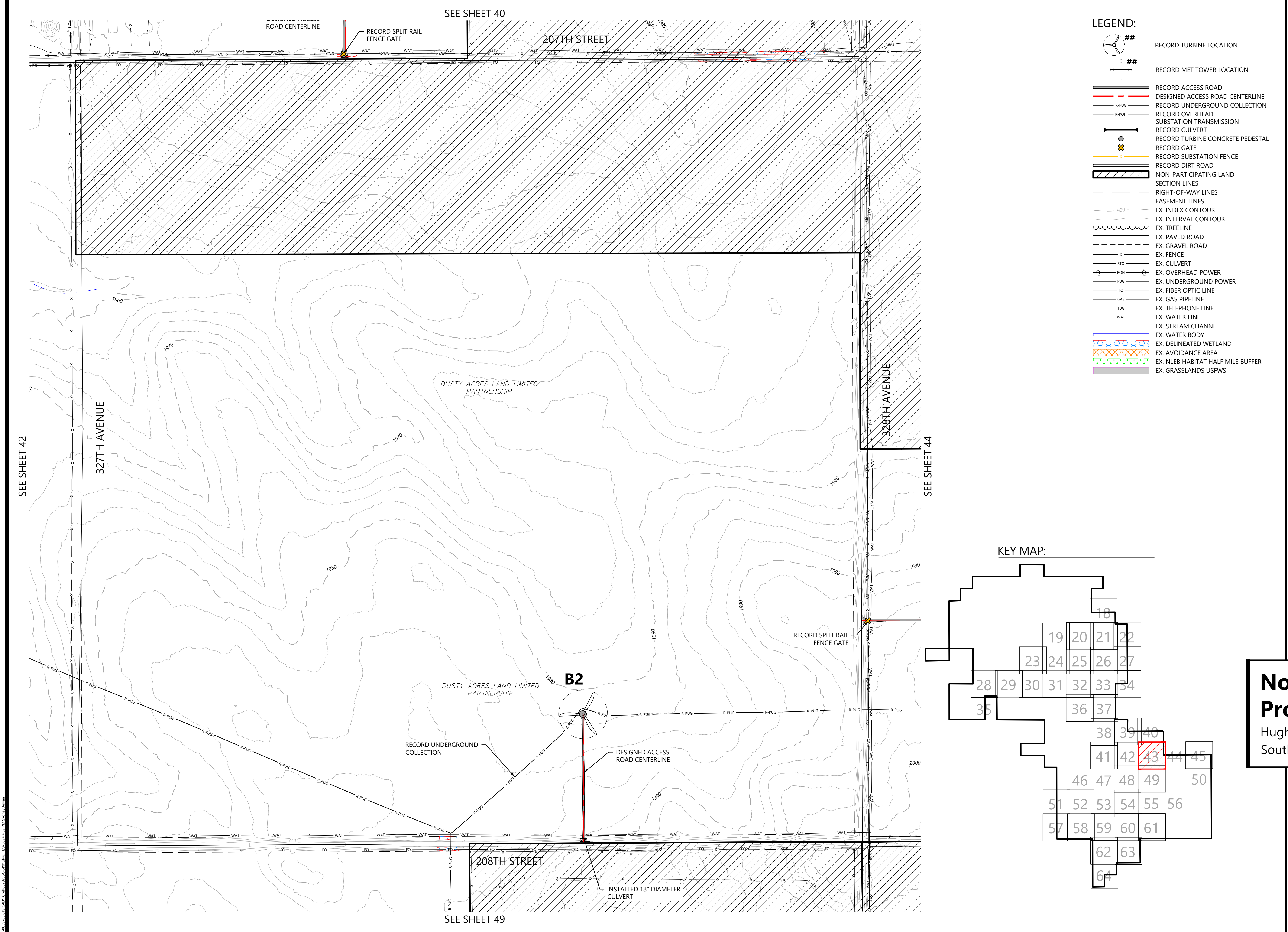
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Site Plan B7 B8

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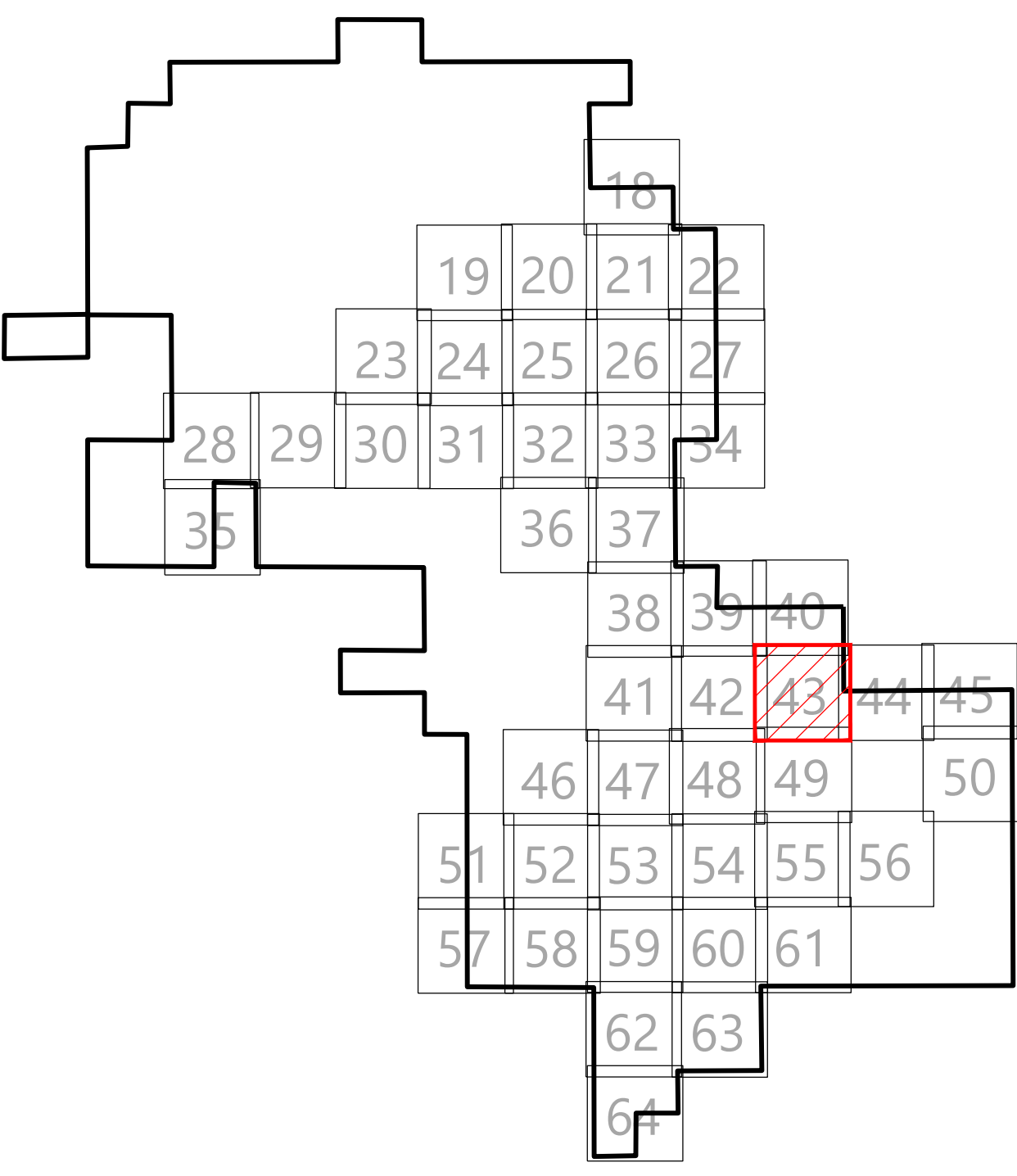
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- LEGEND:**
- ## RECORD TURBINE LOCATION
 - ## RECORD MET TOWER LOCATION
 - RECORD ACCESS ROAD
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 - RIGHT-OF-WAY LINES
 - EASEMENT LINES
 - 900 EX. INDEX CONTOUR
 - EX. INTERVAL CONTOUR
 - EX. TREELINE
 - EX. PAVED ROAD
 - EX. GRAVEL ROAD
 - EX. FENCE
 - EX. CULVERT
 - R-POH EX. OVERHEAD POWER
 - PUG EX. UNDERGROUND POWER
 - FO EX. FIBER OPTIC LINE
 - GAS EX. GAS PIPELINE
 - TUG EX. TELEPHONE LINE
 - WAT EX. WATER LINE
 - EX. STREAM CHANNEL
 - EX. WATER BODY
 - EX. DELINEATED WETLAND
 - EX. AVOIDANCE AREA
 - EX. NLEB HABITAT HALF MILE BUFFER
 - EX. GRASSLANDS USFWS

KEY MAP:



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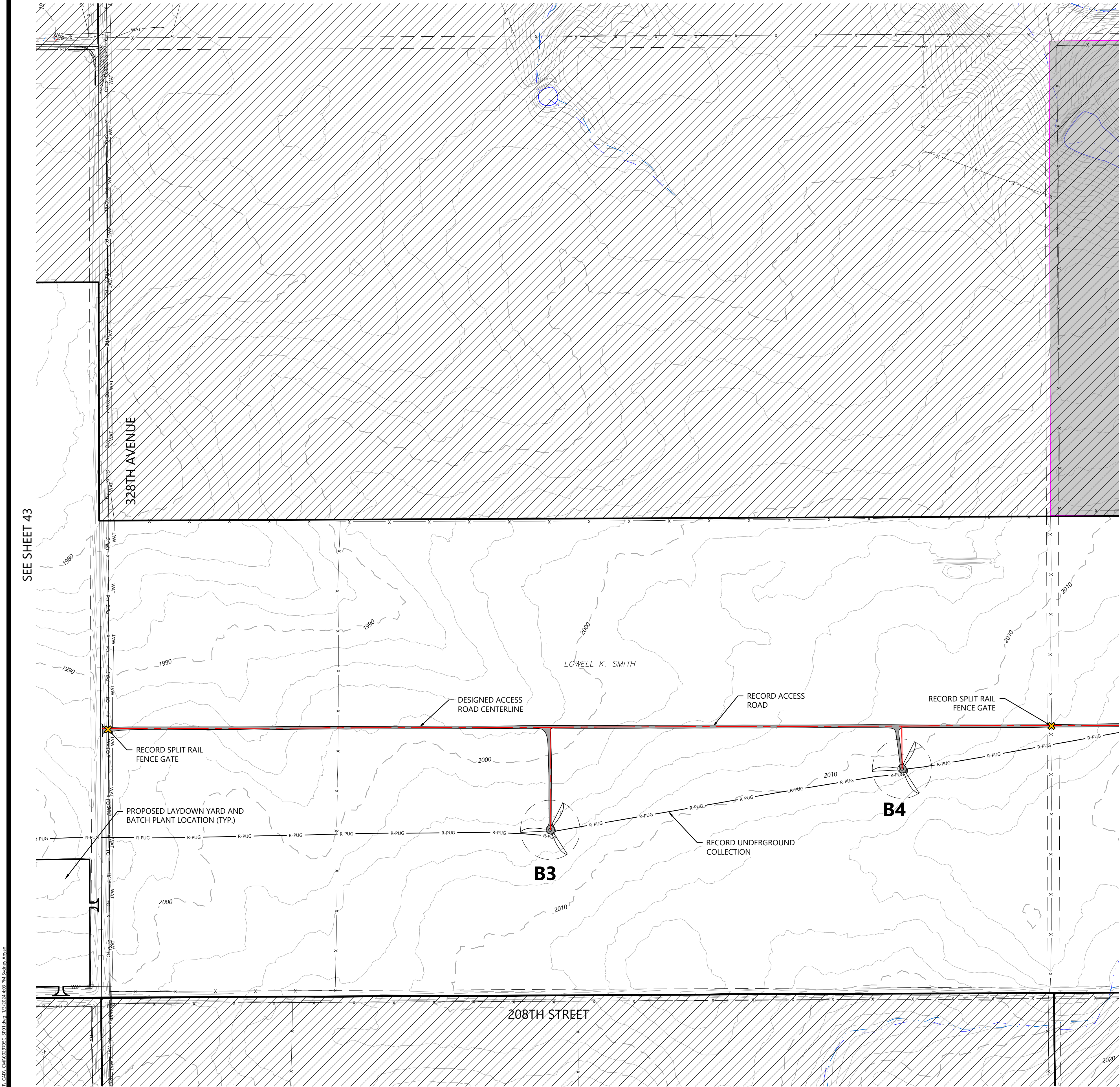
North Bend Wind Project

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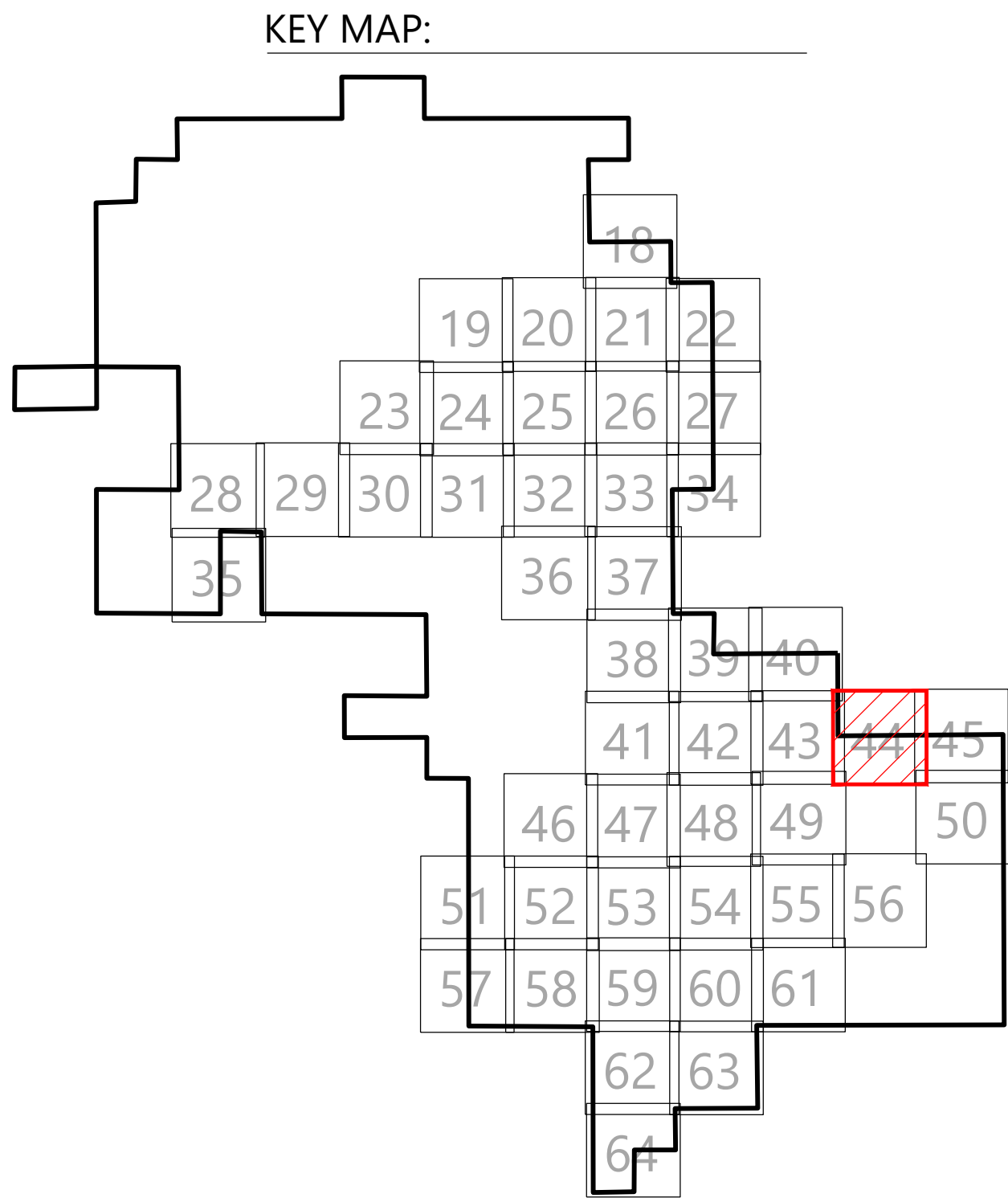
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SHEET:	43	0



- LEGEND:**
- RECORD TURBINE LOCATION
 - RECORD MET TOWER LOCATION
 - RECORD ACCESS ROAD
 - DESIGNED ACCESS ROAD CENTERLINE
 - RECORD UNDERGROUND COLLECTION
 - RECORD OVERHEAD SUBSTATION TRANSMISSION
 - RECORD CULVERT
 - RECORD TURBINE CONCRETE PEDESTAL
 - RECORD GATE
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0' 300' 600' 900'

North Bend Wind Project
Hughes and Hyde Counties,
South Dakota

Site Plan B3 B4

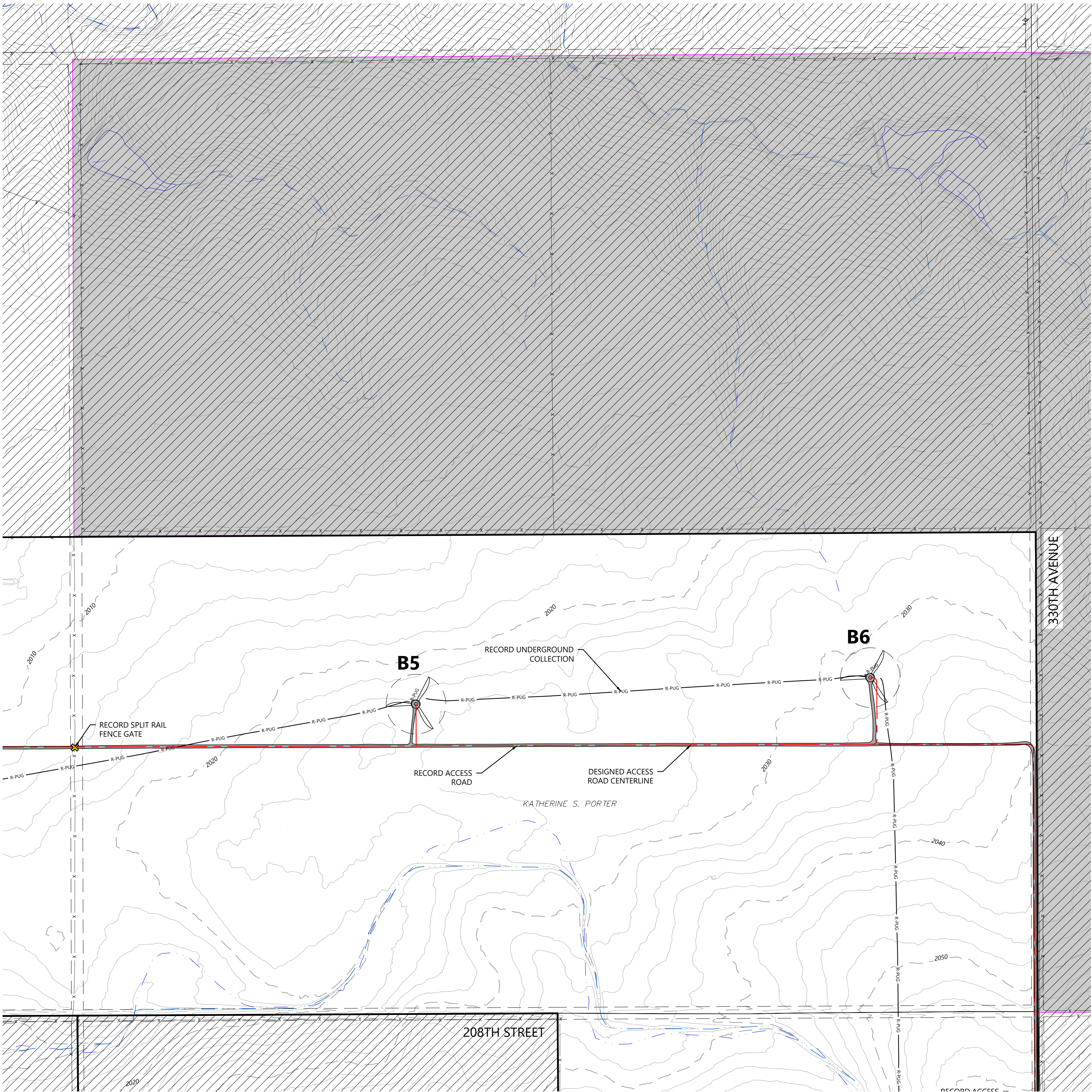
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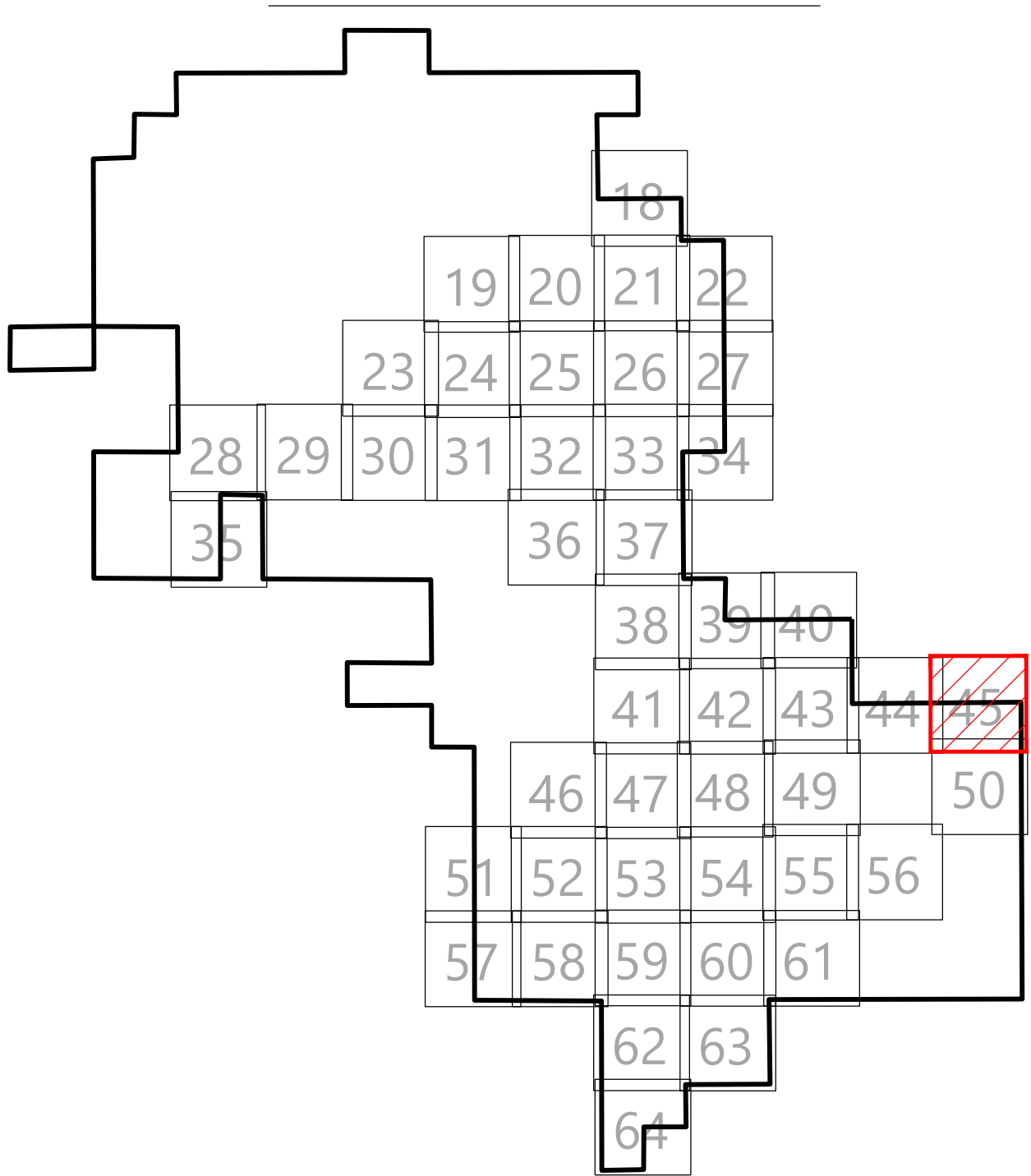


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LEGEND:

- RECORD TURBINE LOCATION
- RECORD MET TOWER LOCATION
- RECORD ACCESS ROAD
- DESIGNED ACCESS ROAD CENTERLINE
- RECORD UNDERGROUND COLLECTION
- RECORD OVERHEAD SUBSTATION TRANSMISSION
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- RECORD TURBINE CONCRETE PEDESTAL
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- EX. DELINEATED WETLAND
- EX. AVOIDANCE AREA
- EX. NLEB HABITAT HALF MILE BUFFER
- EX. GRASSLANDS USFWS

KEY MAP:



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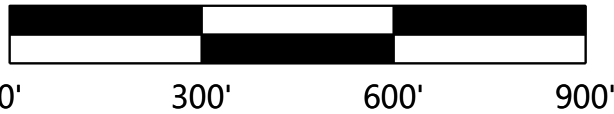
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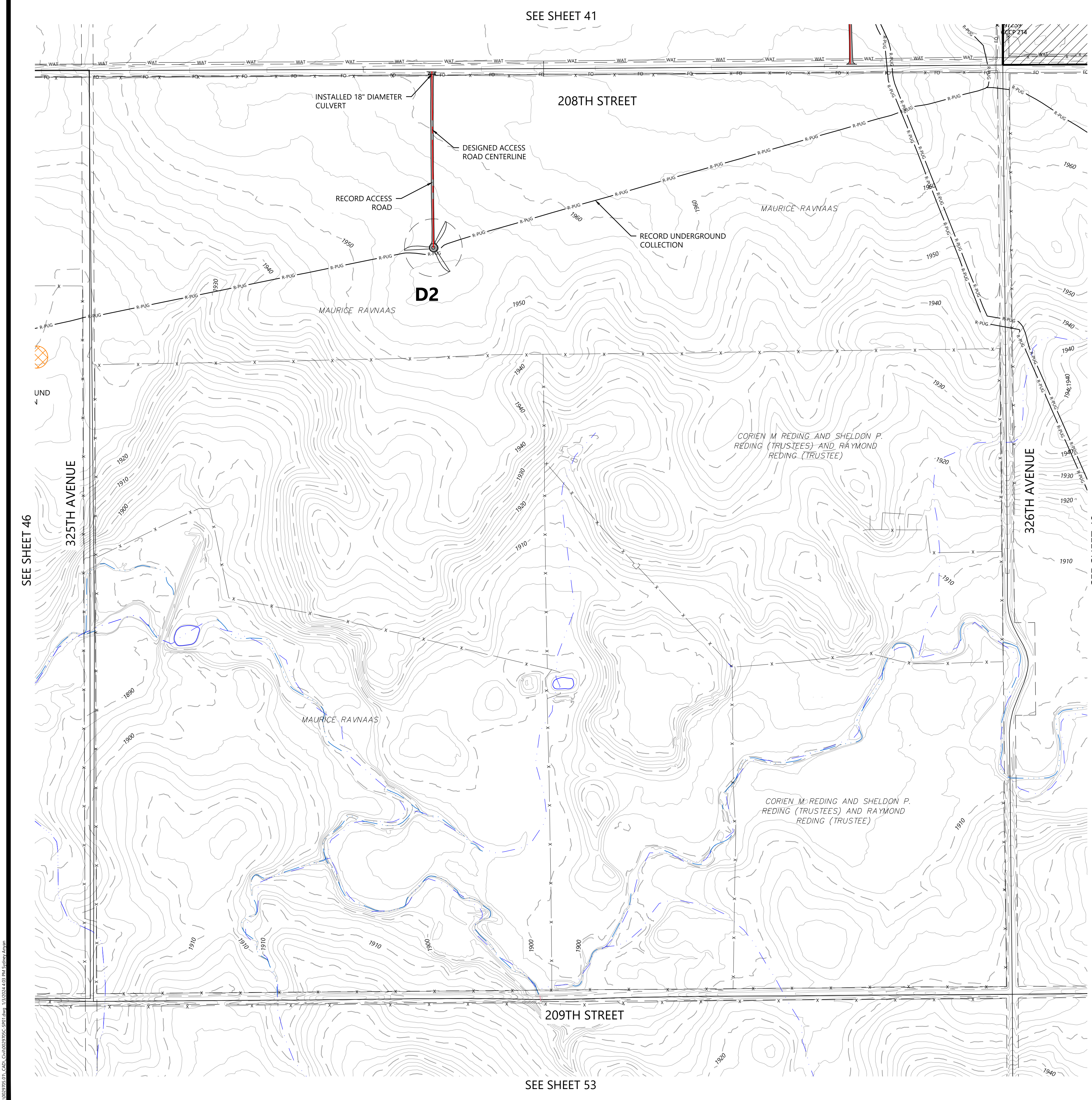
Site Plan B5 B6

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DATE: 01/03/2024

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- LEGEND:**
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 - RECORD MET TOWER LOCATION
 - RECORD ACCESS ROAD
 - DESIGNED ACCESS ROAD CENTERLINE
 - RECORD UNDERGROUND COLLECTION
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 - RECORD CULVERT
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North Bend Wind Project

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South Dakota

Site Plan D2

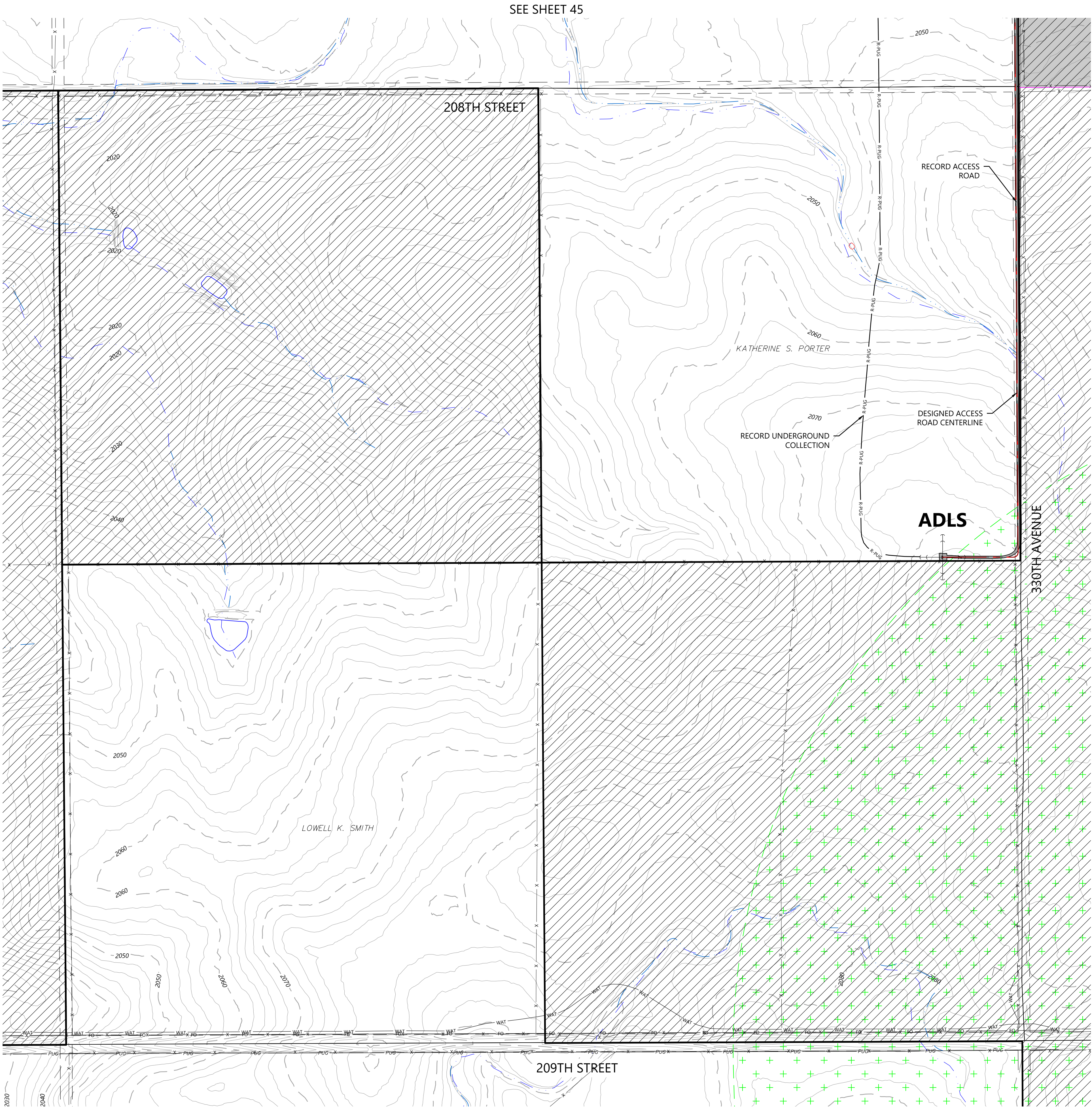
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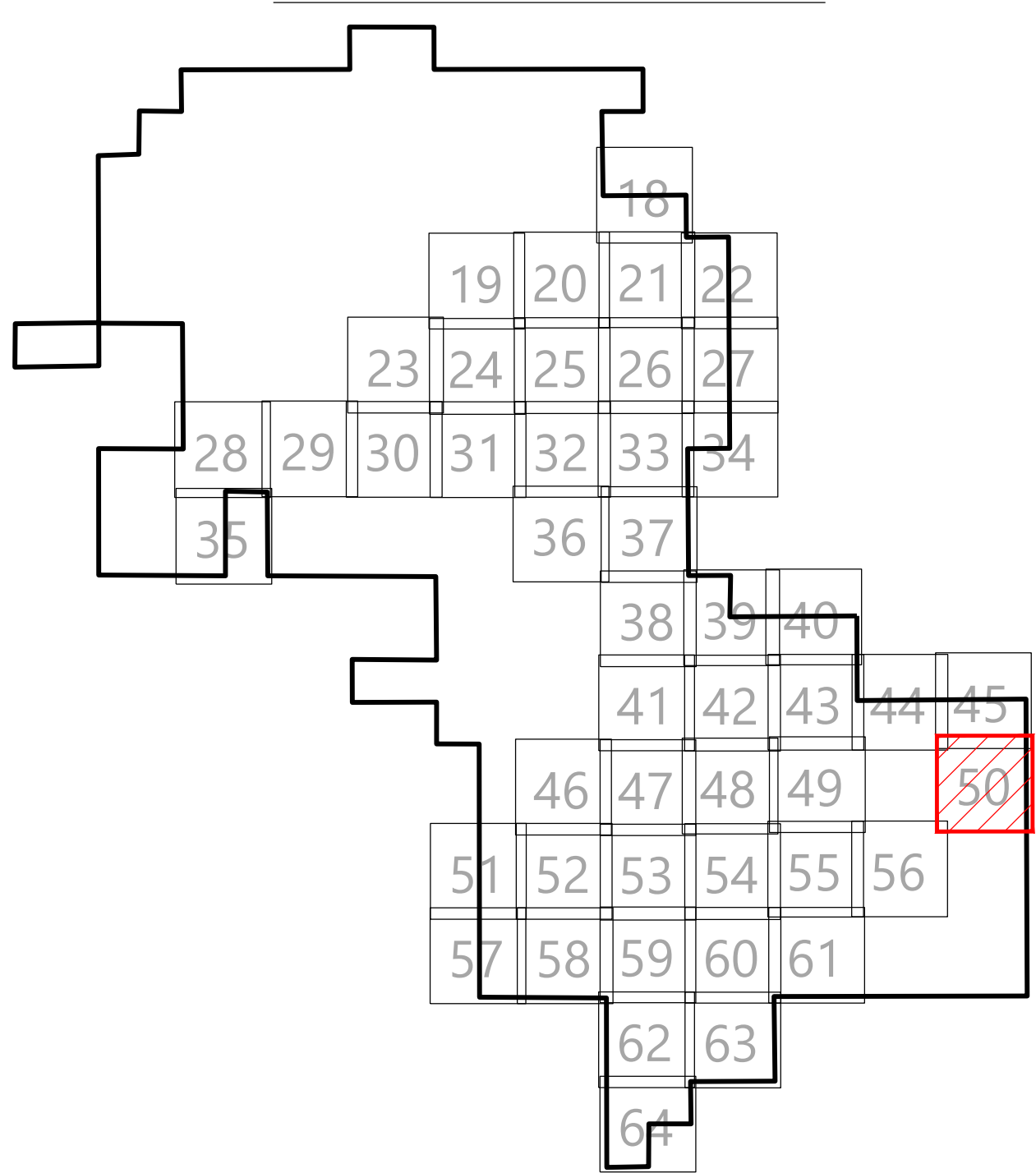
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LEGEND:

- RECORD TURBINE LOCATION
- RECORD MET TOWER LOCATION
- RECORD ACCESS ROAD
- DESIGNED ACCESS ROAD CENTERLINE
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- RECORD OVERHEAD
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KEY MAP:



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0' 300' 600' 900'

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South Dakota

Site Plan ADLS Tower

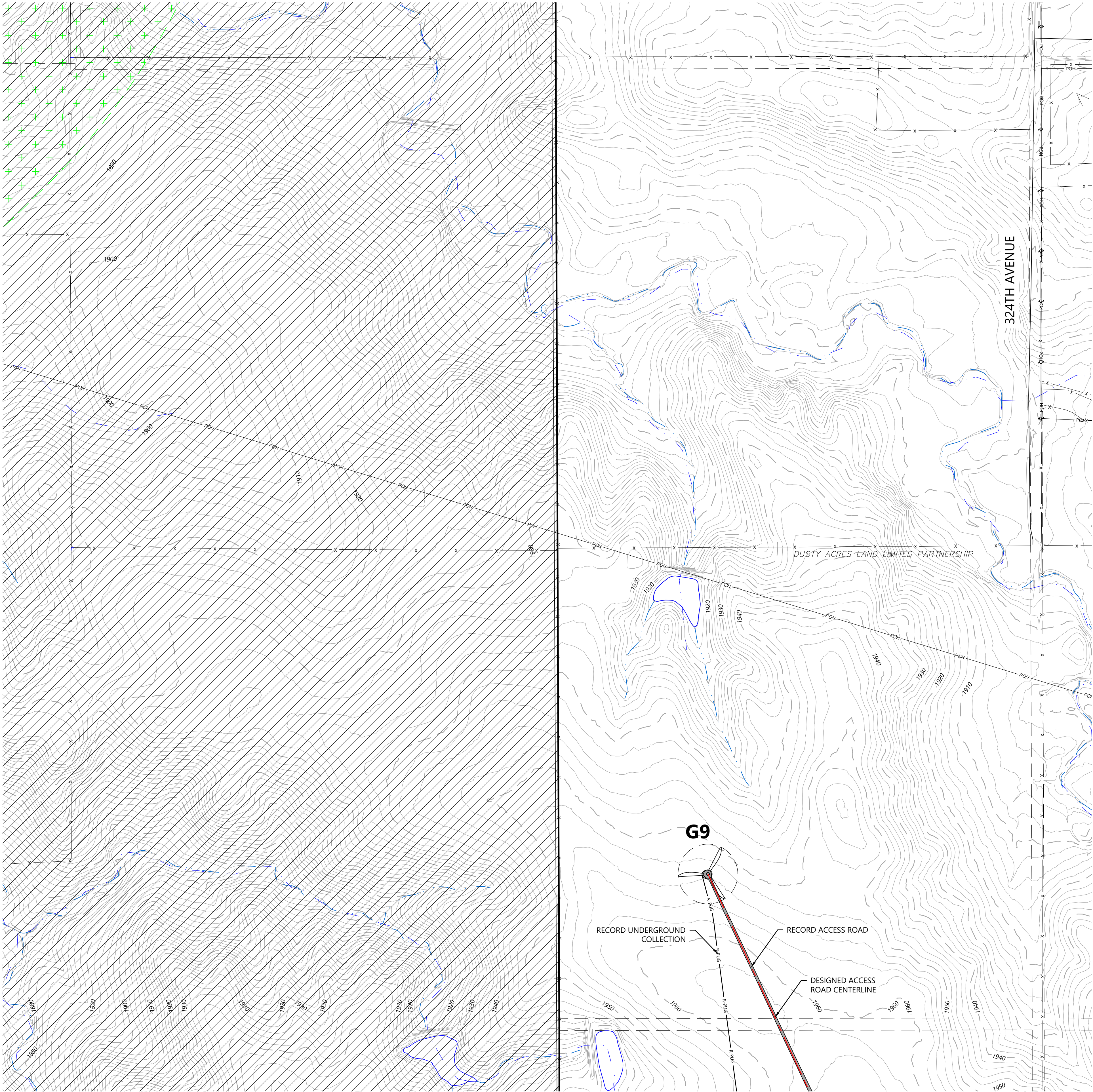
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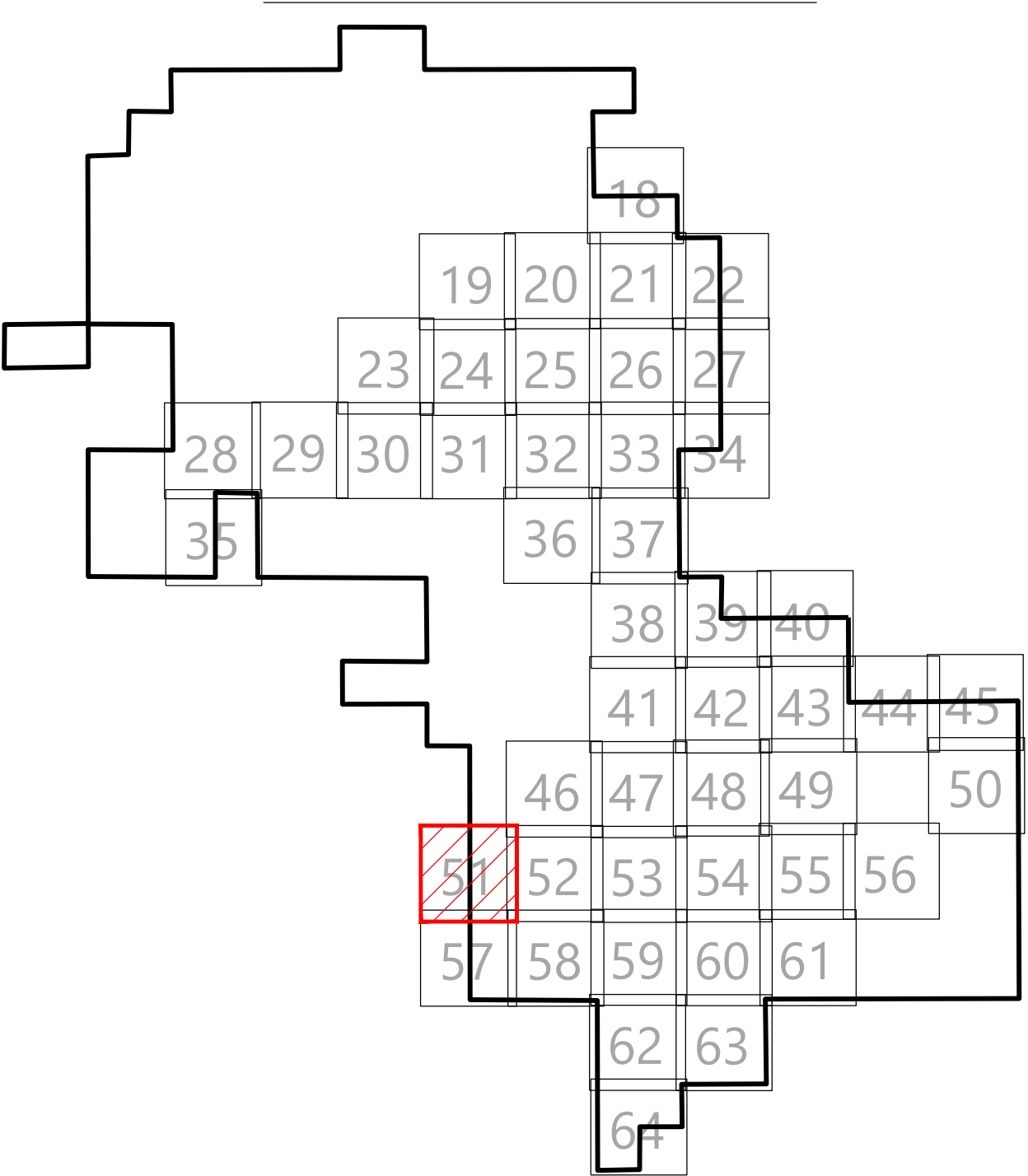
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LEGEND:

- RECORD TURBINE LOCATION
- RECORD MET TOWER LOCATION
- RECORD ACCESS ROAD
- DESIGNED ACCESS ROAD CENTERLINE
- RECORD UNDERGROUND COLLECTION
- RECORD OVERHEAD
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- RECORD CULVERT
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0' 300' 600' 900'

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South Dakota

Site Plan G9

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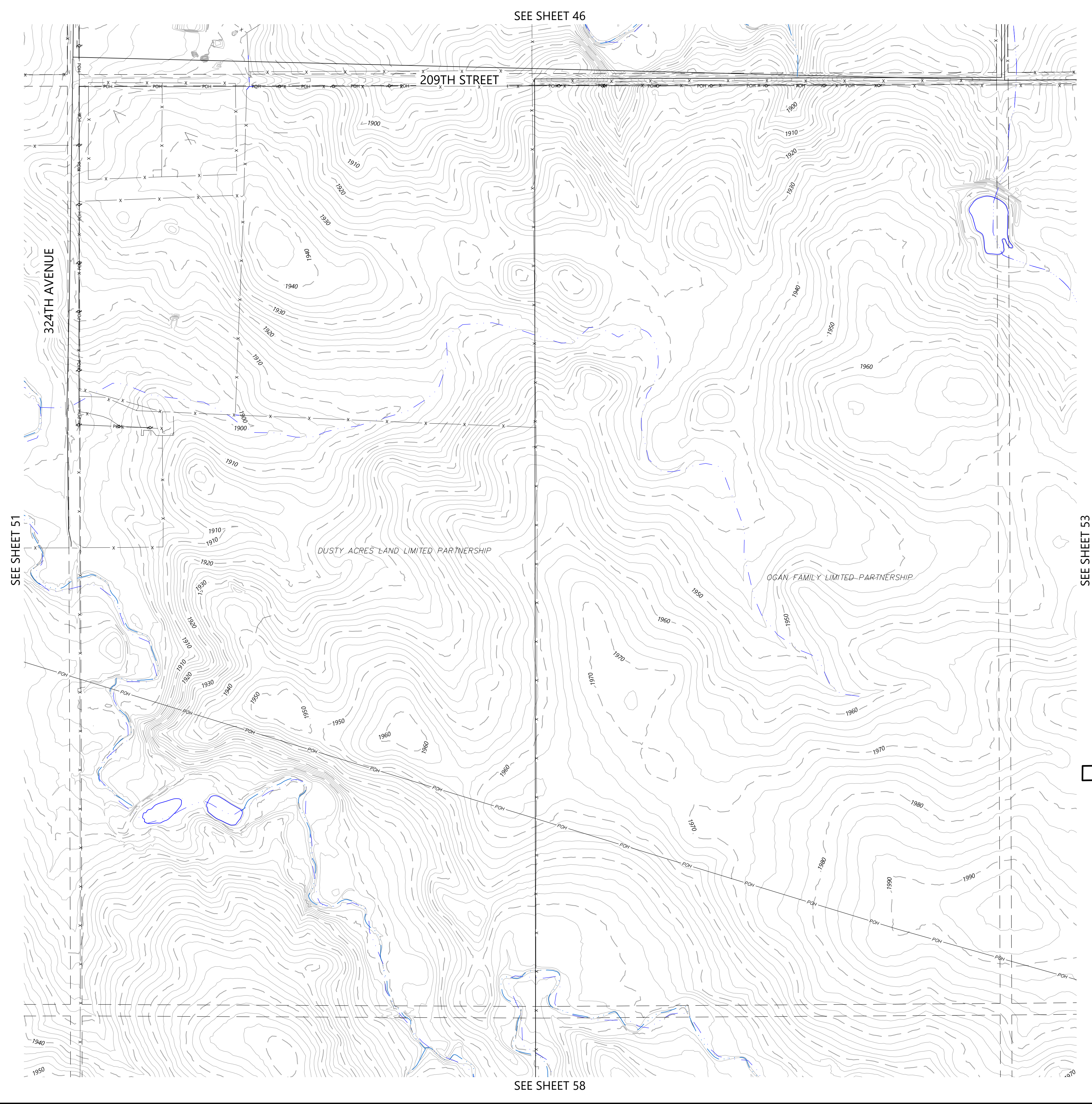
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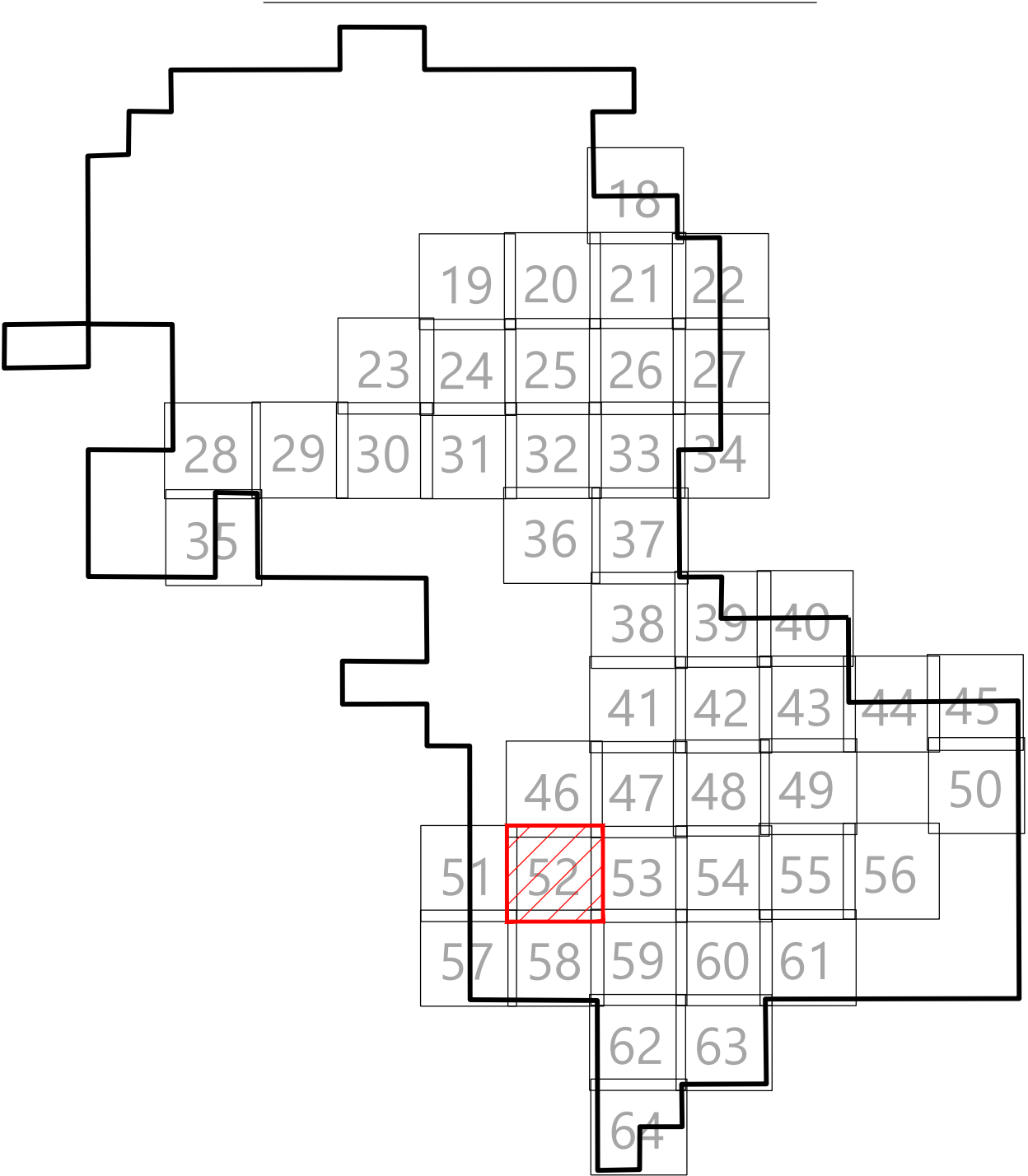
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LEGEND:

- ## RECORD TURBINE LOCATION
- ## RECORD MET TOWER LOCATION
- RECORD ACCESS ROAD
- DESIGNED ACCESS ROAD CENTERLINE
- R-PUG RECORD UNDERGROUND COLLECTION
- R-POH RECORD OVERHEAD SUBSTATION TRANSMISSION
- RECORD CULVERT
- RECORD TURBINE CONCRETE PEDESTAL
- RECORD GATE
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- EX. INDEX CONTOUR
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- EX. TREELINE
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KEY MAP:



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0' 300' 600' 900'

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Hughes and Hyde Counties,
South Dakota

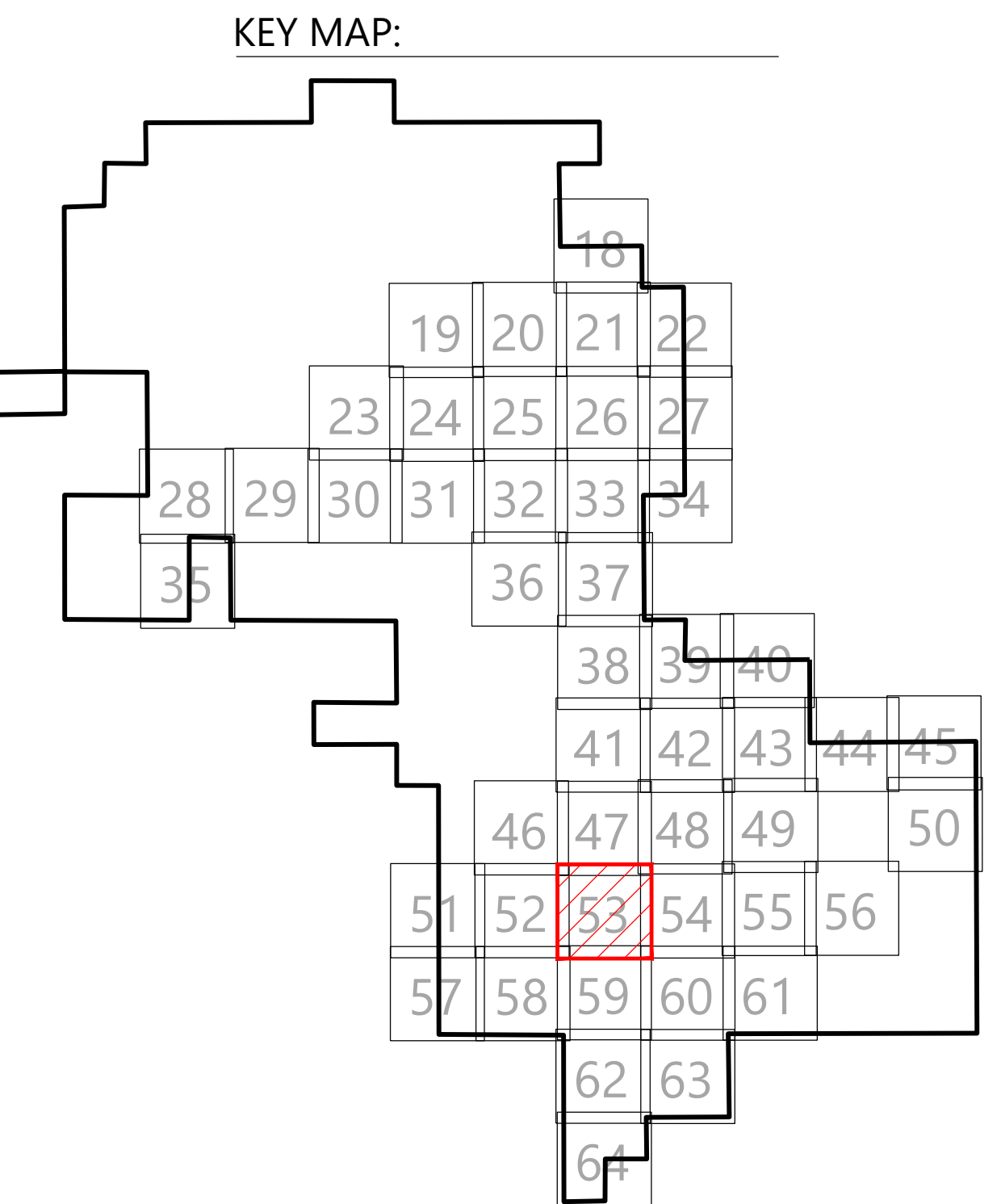
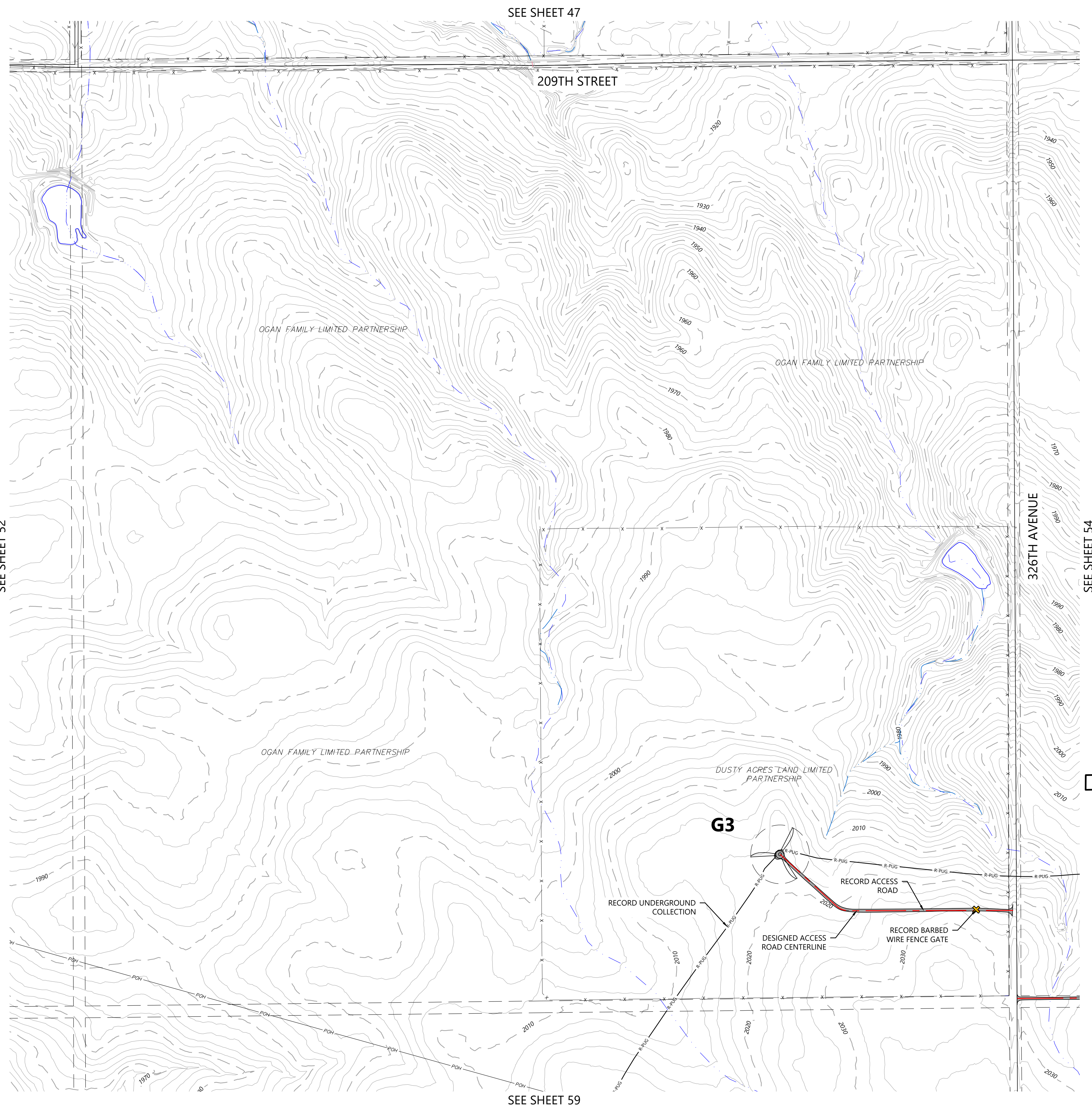
Site Plan

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LEGEND:	
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	RECORD MET TOWER LOCATION
	RECORD ACCESS ROAD
	DESIGNED ACCESS ROAD CENTERLINE
	RECORD UNDERGROUND COLLECTION
	RECORD OVERHEAD
	SUBSTATION TRANSMISSION
	RECORD CULVERT
	RECORD TURBINE CONCRETE PEDESTAL
	RECORD GATE
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0'

300'

600'

900'

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Sibley and Hyde Counties,
Dakota

Site Plan G3

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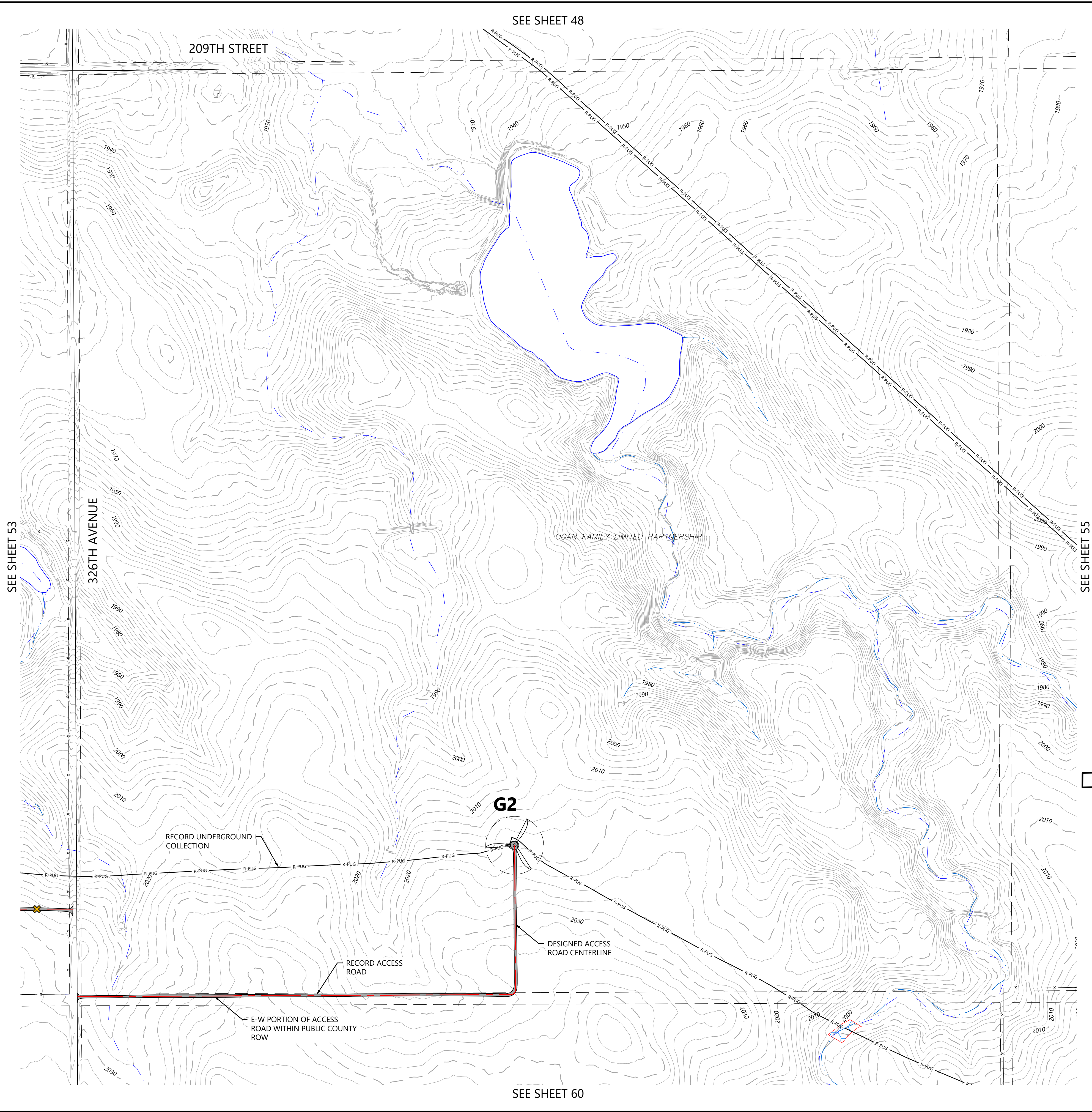
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Site Plan G2

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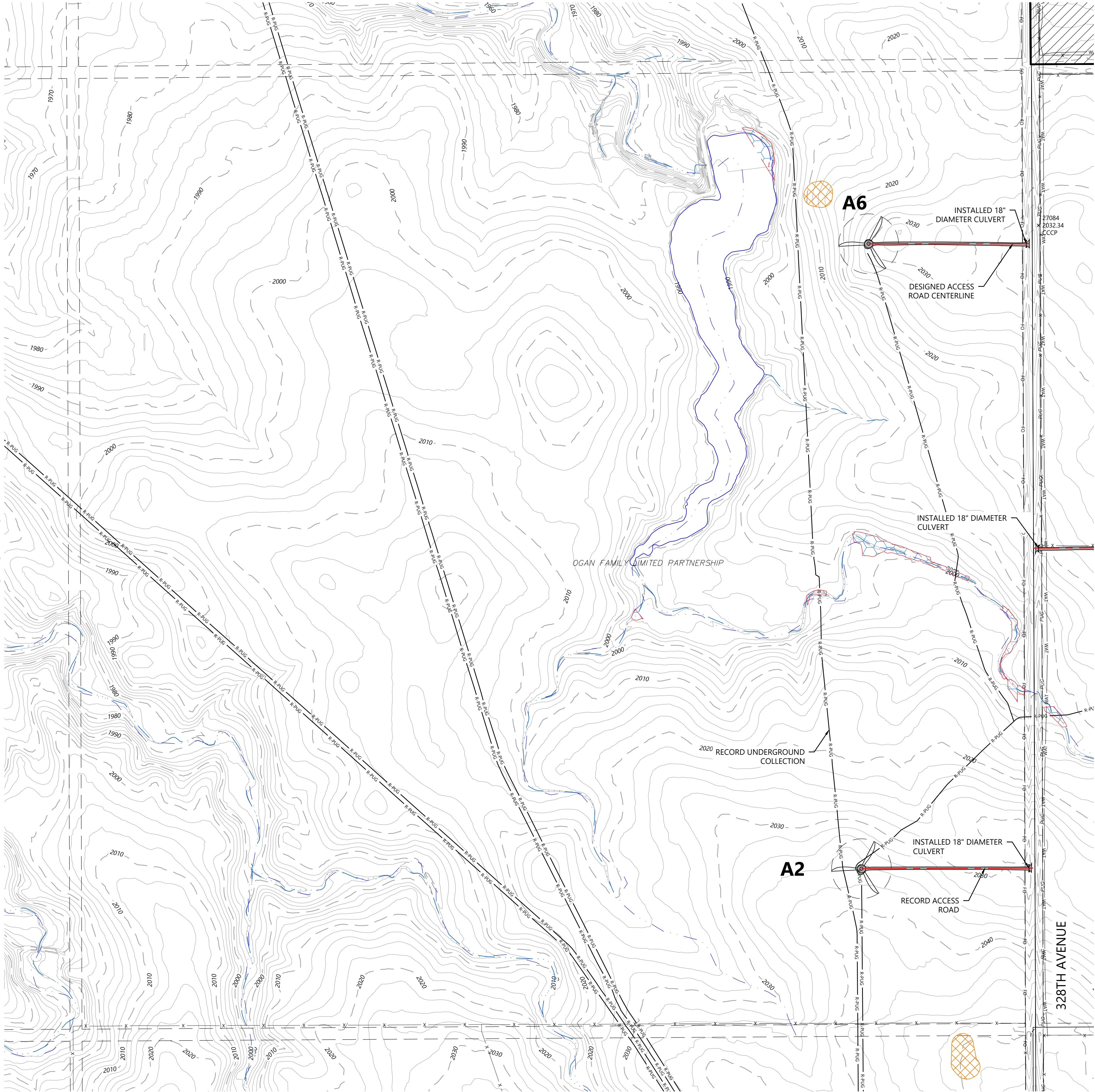
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SEE SHEET 49

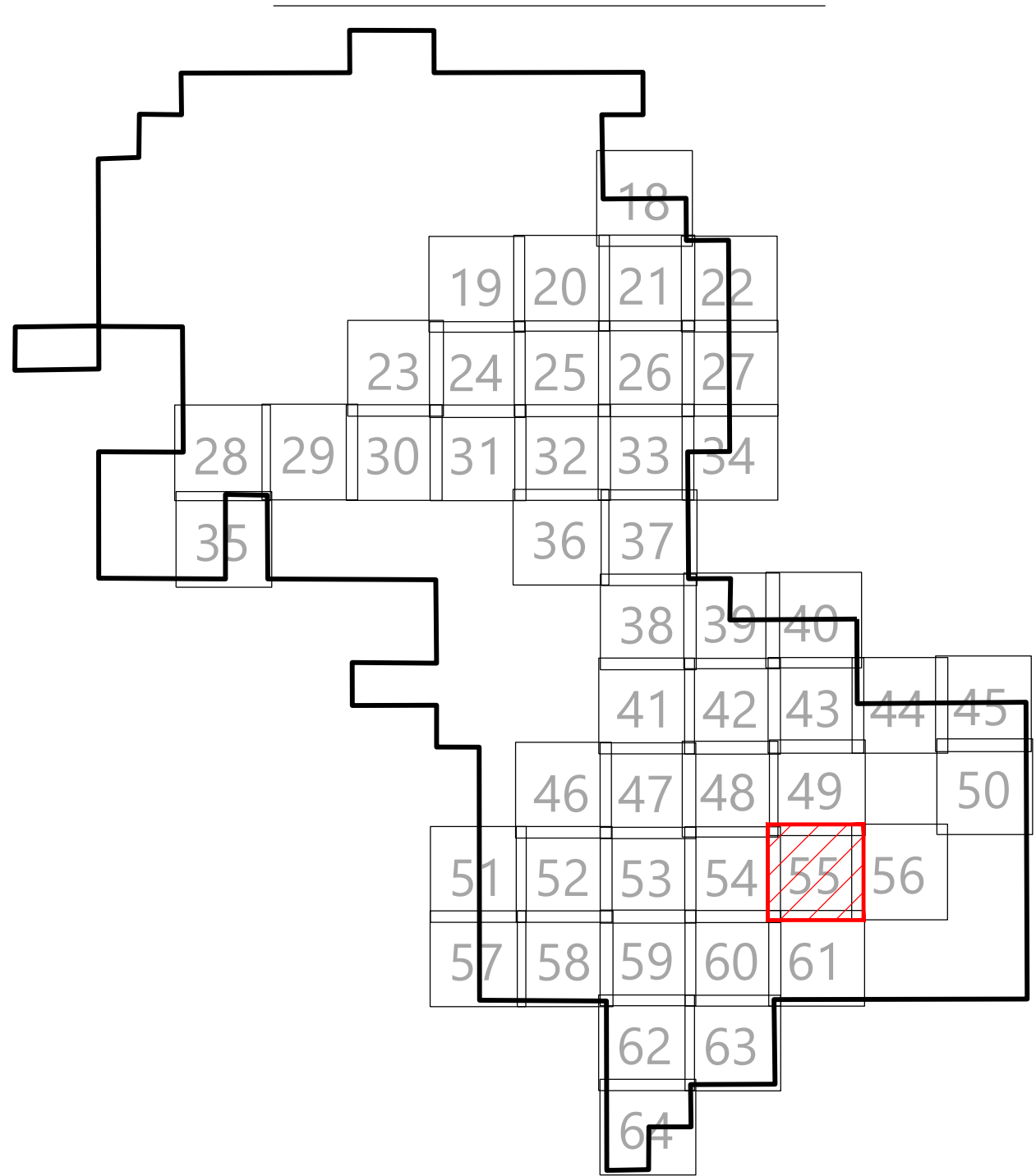
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LEGEND:

- ## RECORD TURBINE LOCATION
- ## RECORD MET TOWER LOCATION
- RECORD ACCESS ROAD
- DESIGNED ACCESS ROAD CENTERLINE
- R-PUG RECORD UNDERGROUND COLLECTION
- R-POH RECORD OVERHEAD COLLECTION
- RECORD SUBSTATION TRANSMISSION
- RECORD CULVERT
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KEY MAP:



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0	01/03/2024	RECORD DRAWINGS	PAR	TRG



0' 300' 600' 900'

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Hughes and Hyde Counties,
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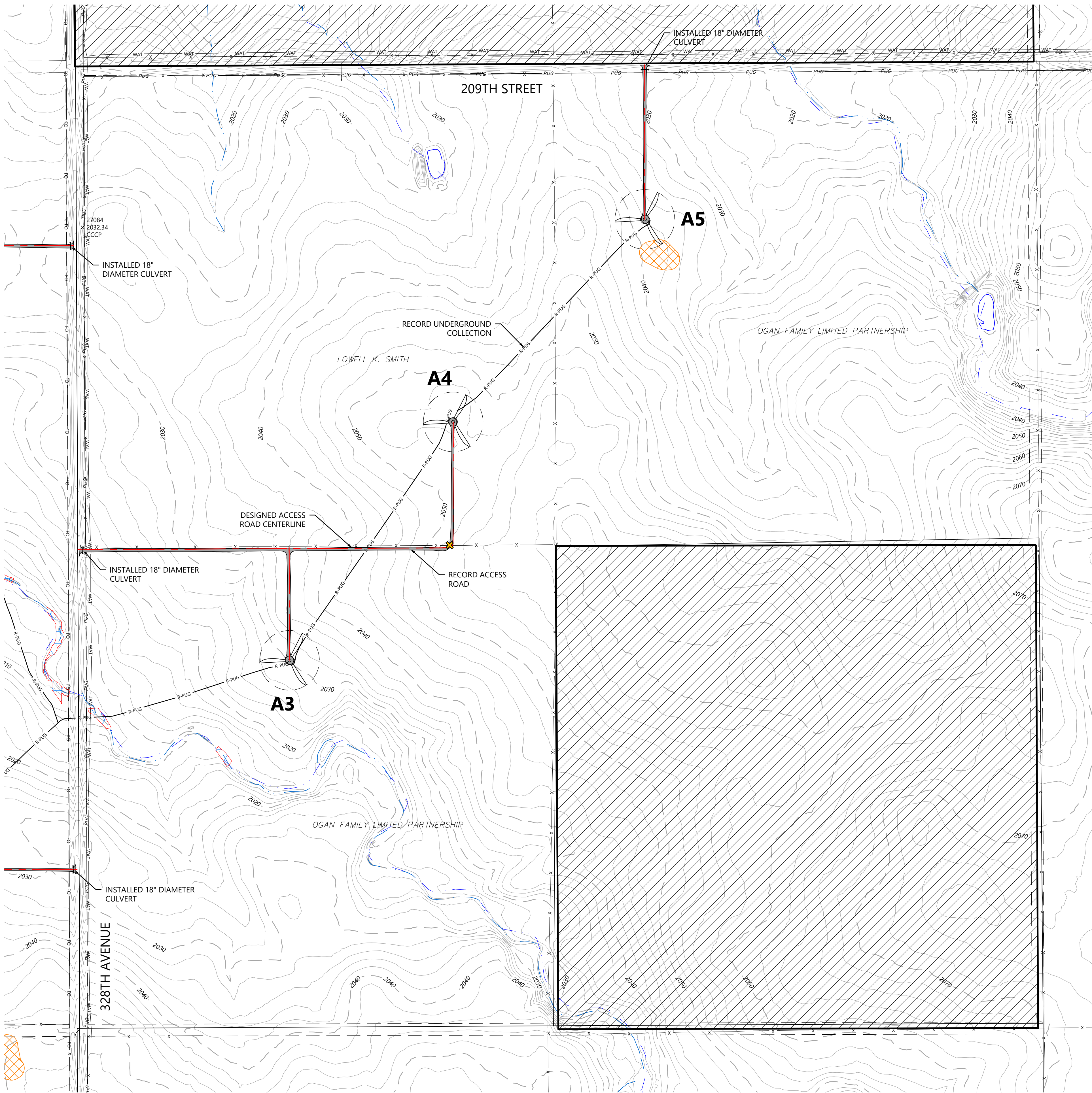
Site Plan A2 A6

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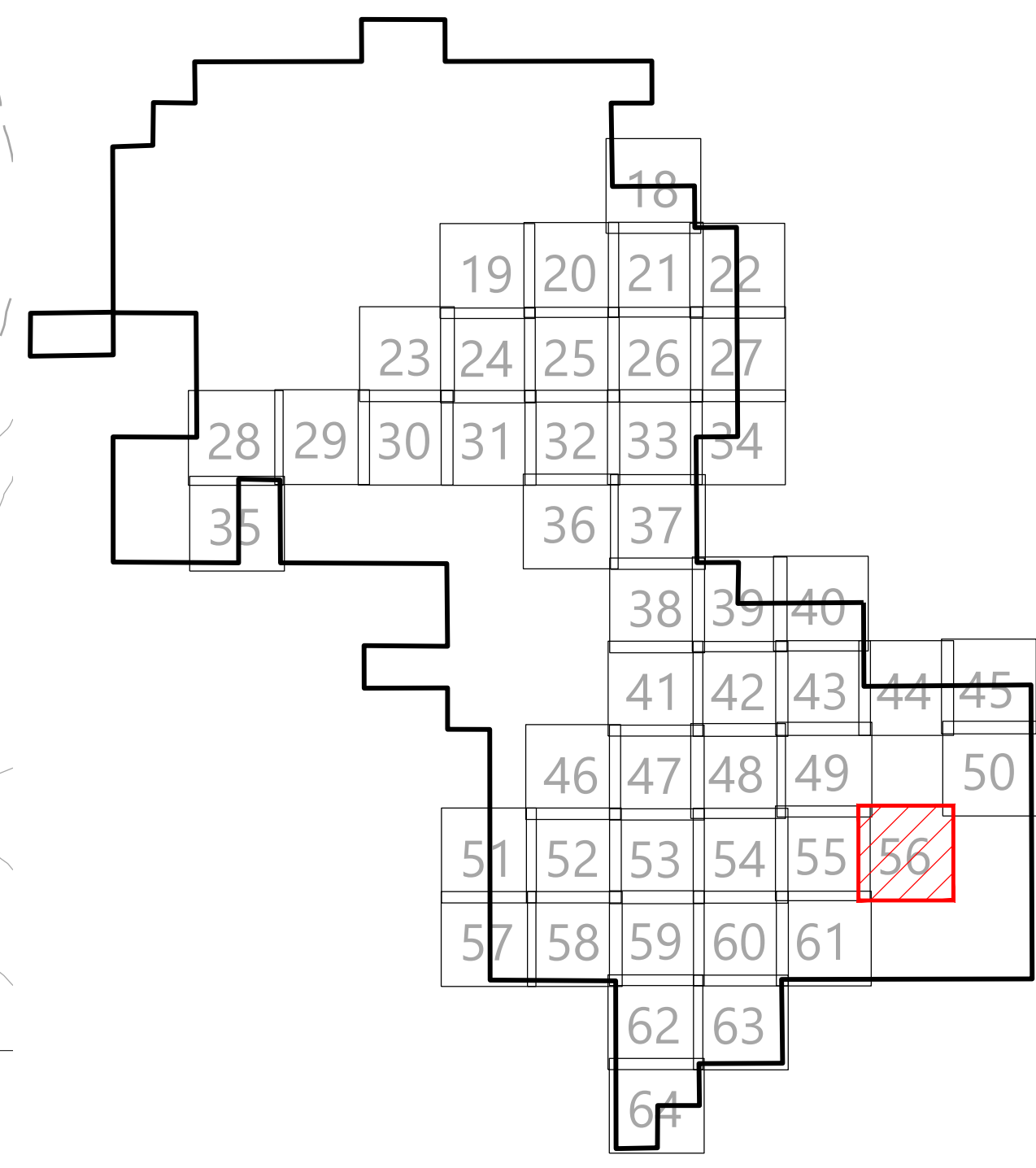
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LEGEND:

- ## RECORD TURBINE LOCATION
- ## RECORD MET TOWER LOCATION
- RECORD ACCESS ROAD
- DESIGNED ACCESS ROAD CENTERLINE
- R-PUG RECORD UNDERGROUND COLLECTION
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KEY MAP:



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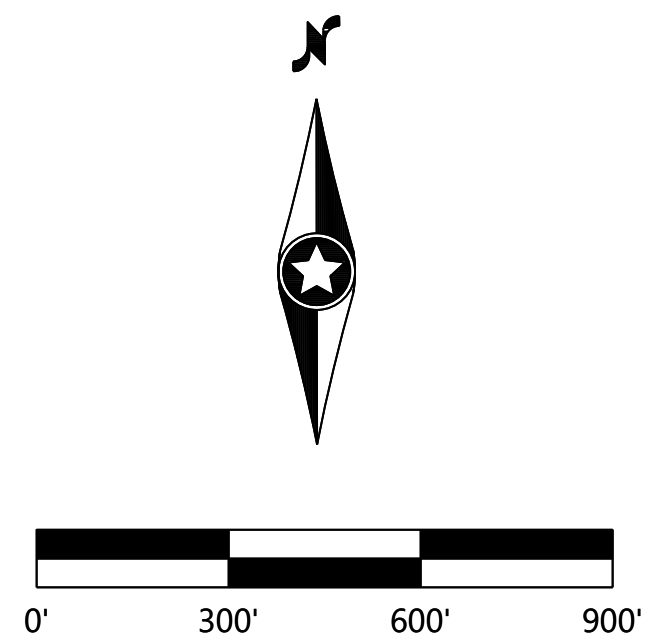
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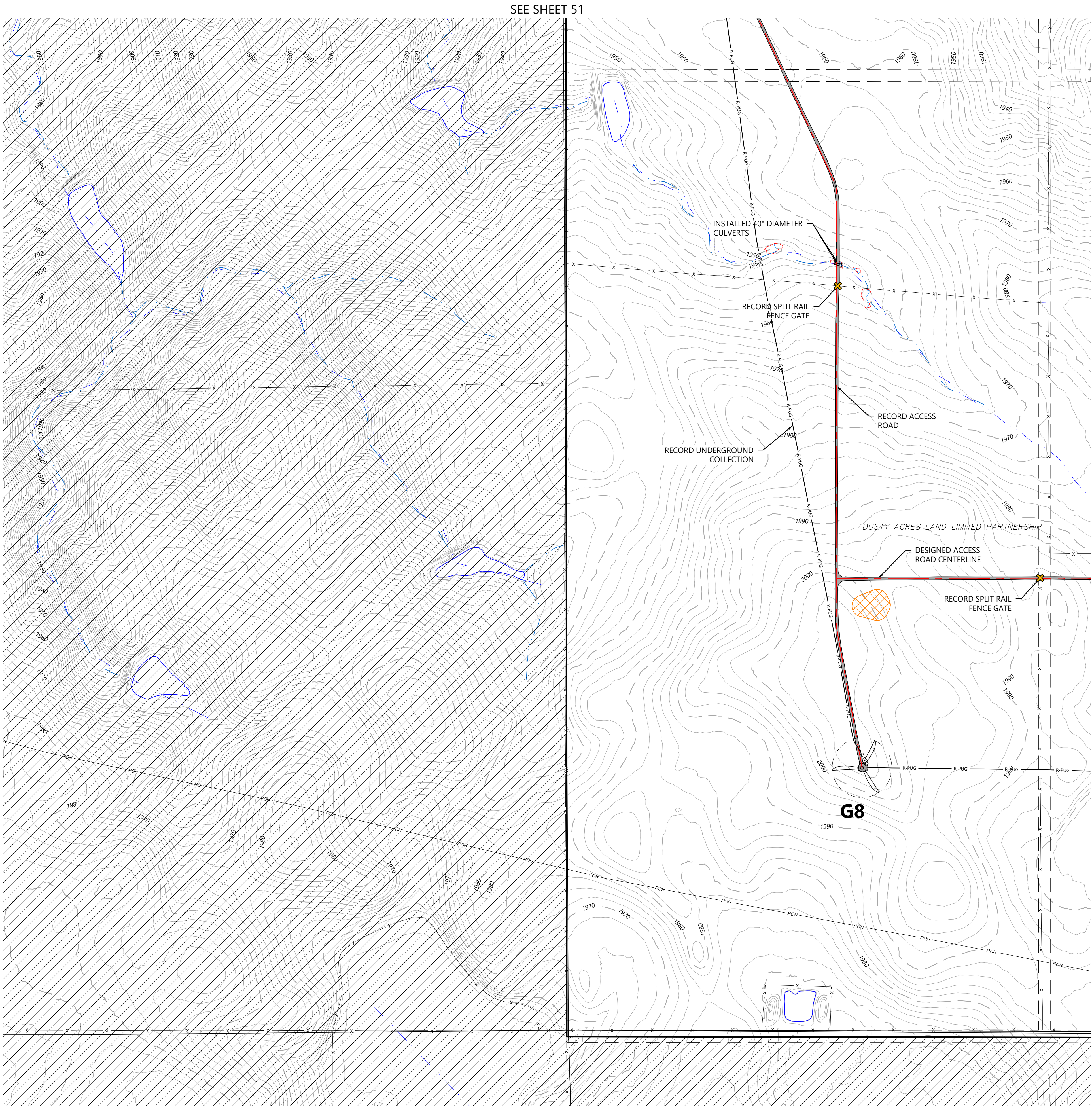
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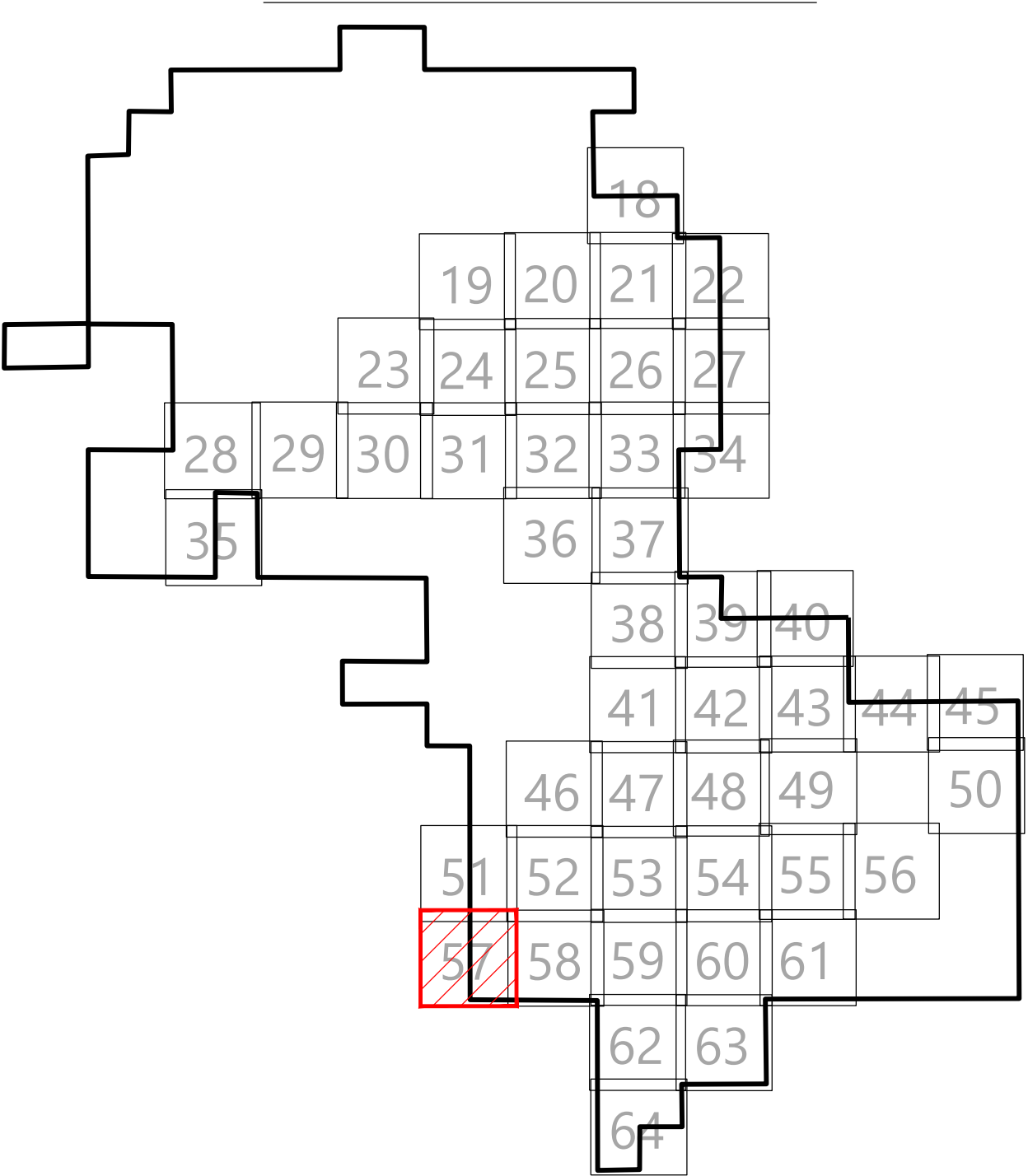
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LEGEND:

- ## RECORD TURBINE LOCATION
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- EX. CULVERT
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- EX. FIBER OPTIC LINE
- EX. GAS PIPELINE
- EX. TELEPHONE LINE
- EX. WATER LINE
- EX. STREAM CHANNEL
- EX. WATER BODY
- EX. DELINEATED WETLAND
- EX. AVOIDANCE AREA
- EX. NLEB HABITAT HALF MILE BUFFER
- EX. GRASSLANDS USFWS

KEY MAP:



Westwood

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Westwood Professional Services, Inc.

PREPARED FOR:

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a MasTec company

4850 32nd Avenue South
Fargo, ND 58104

REVISIONS:				
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0' 300' 600' 900'

North Bend Wind Project

Hughes and Hyde Counties,
South Dakota

Site Plan G8

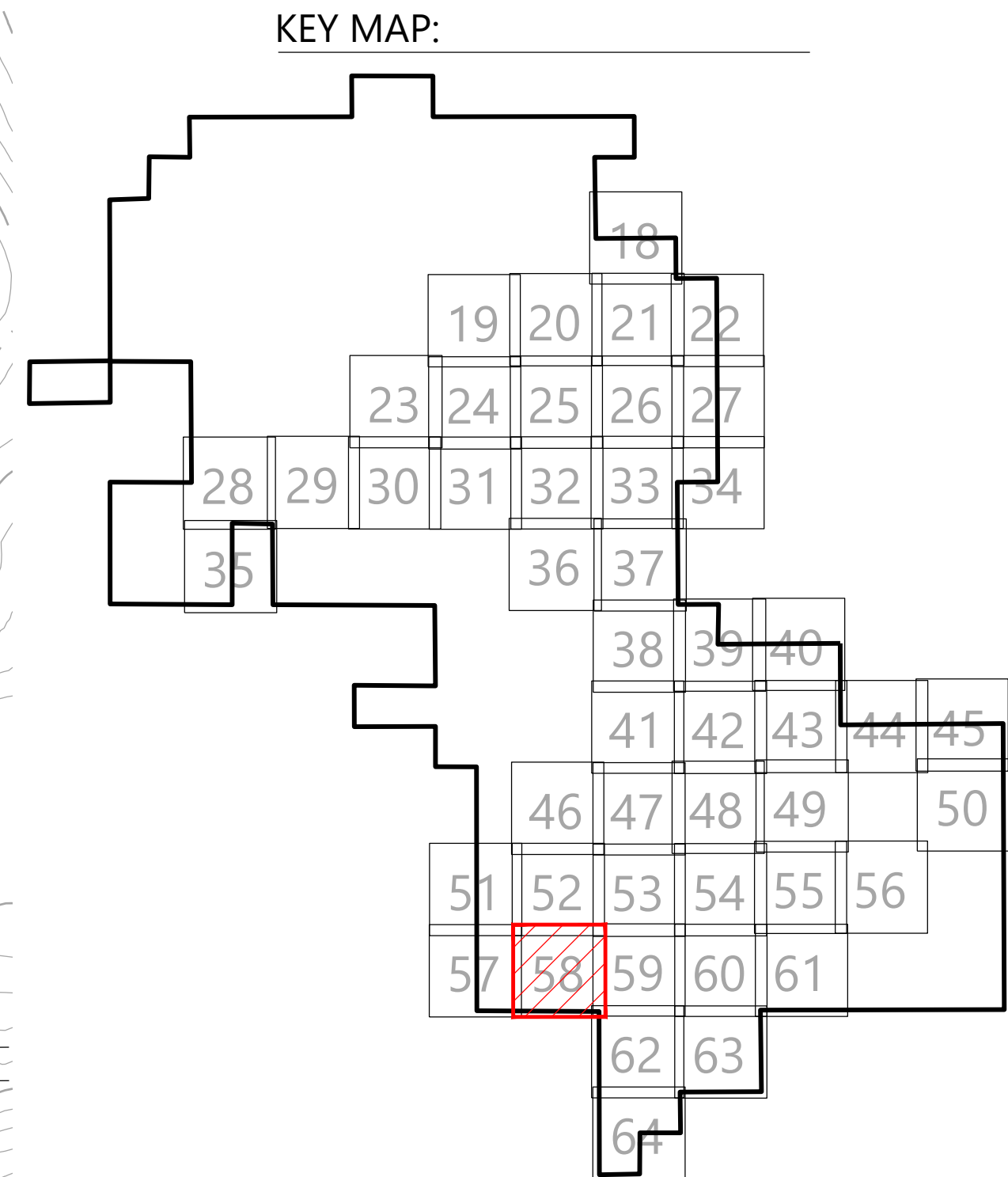
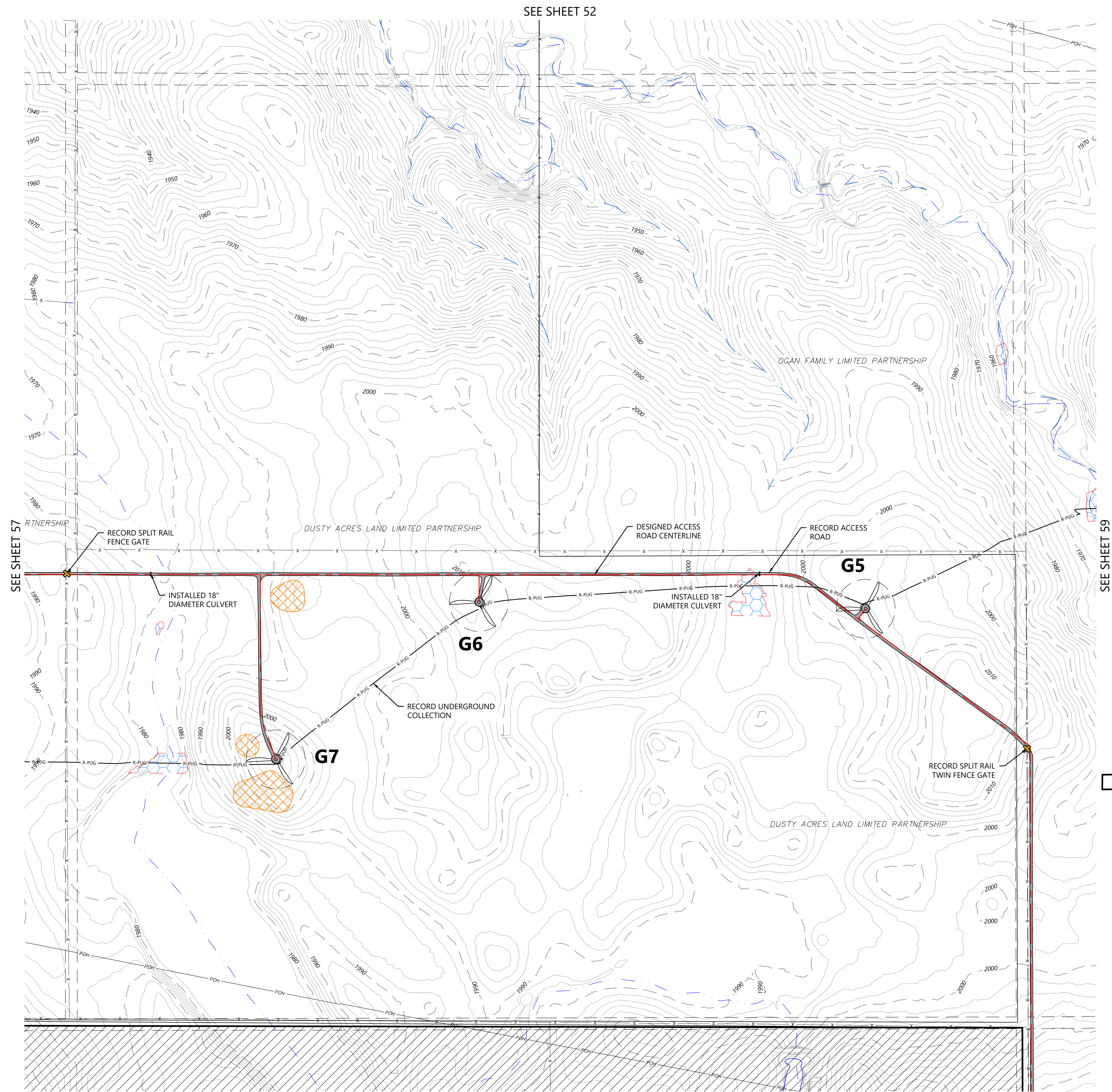
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- LEGEND:
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Hughes and Hyde Counties,
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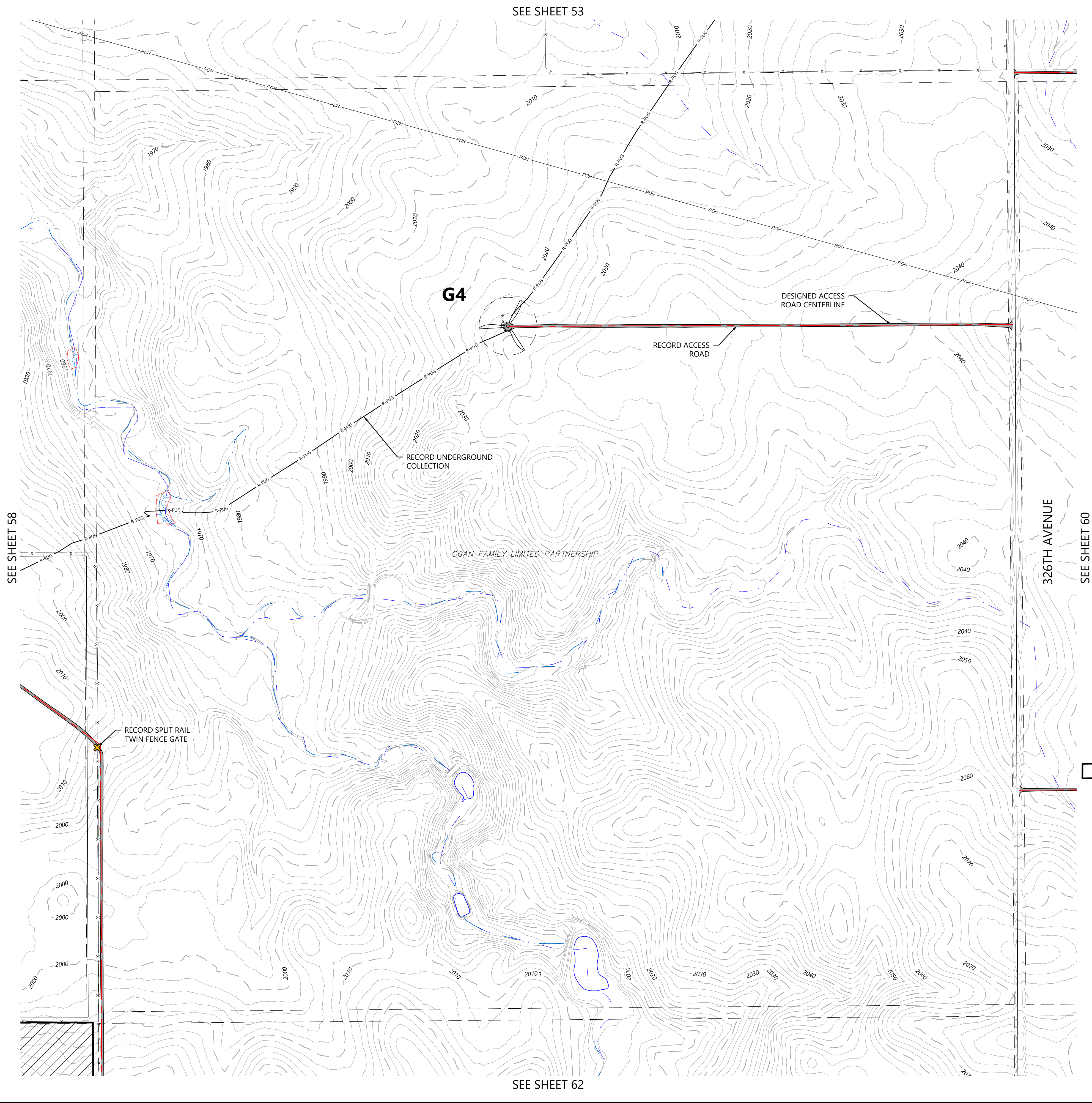
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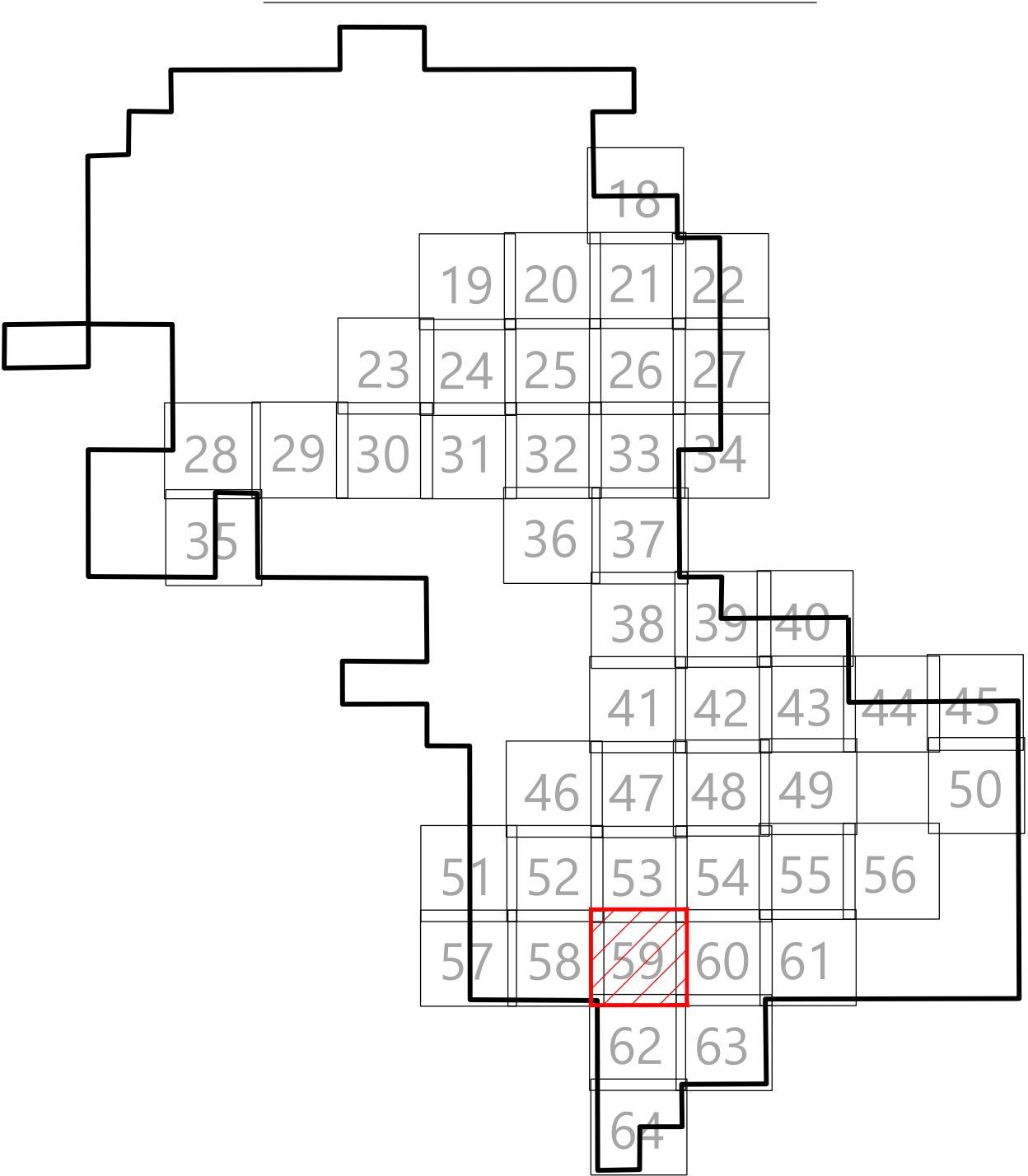
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KEY MAP:

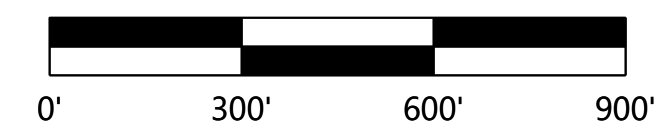


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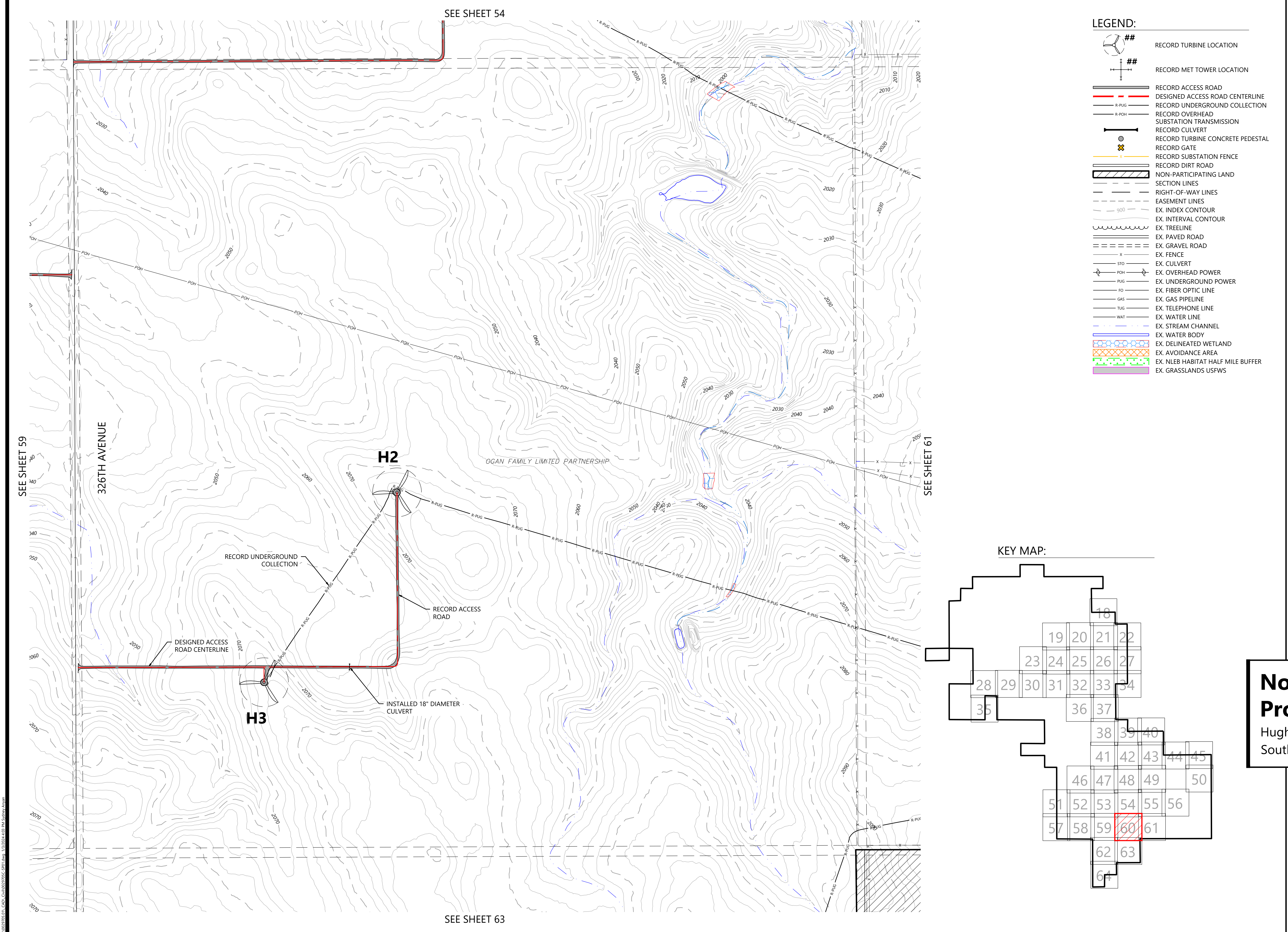
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Hughes and Hyde Counties,
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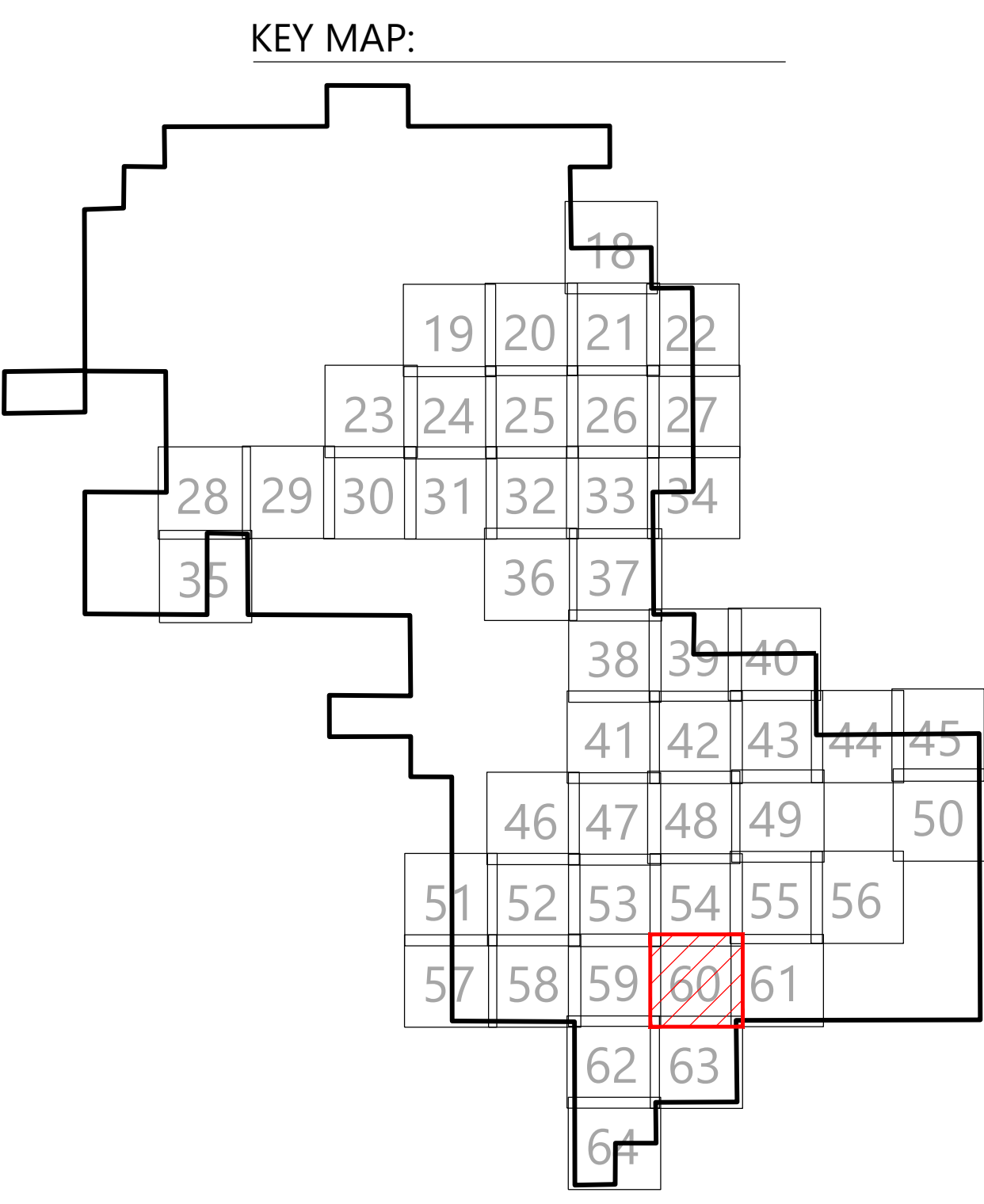
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- LEGEND:
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North Bend Wind Project
Hughes and Hyde Counties,
South Dakota

Site Plan H2 H3

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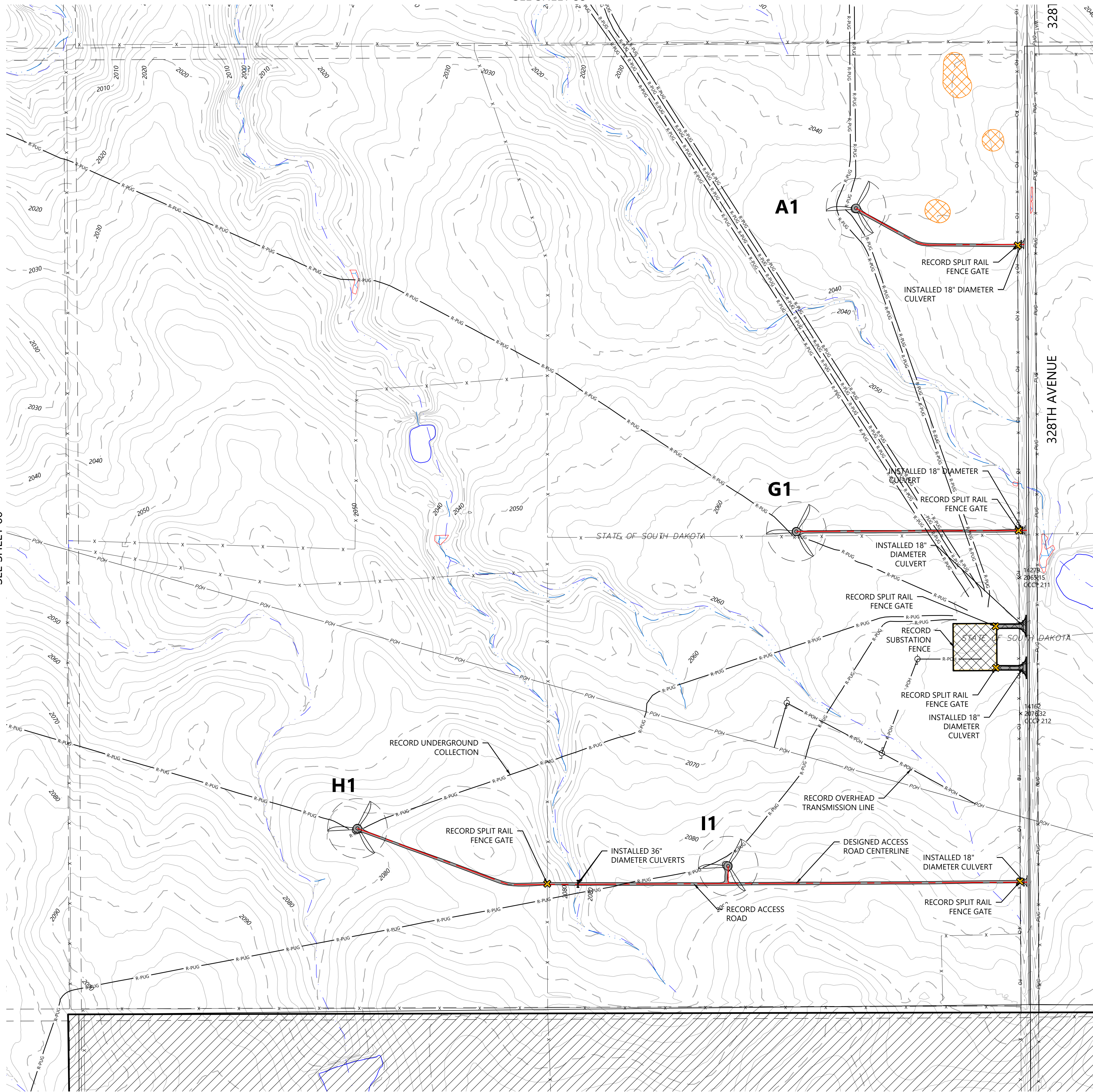
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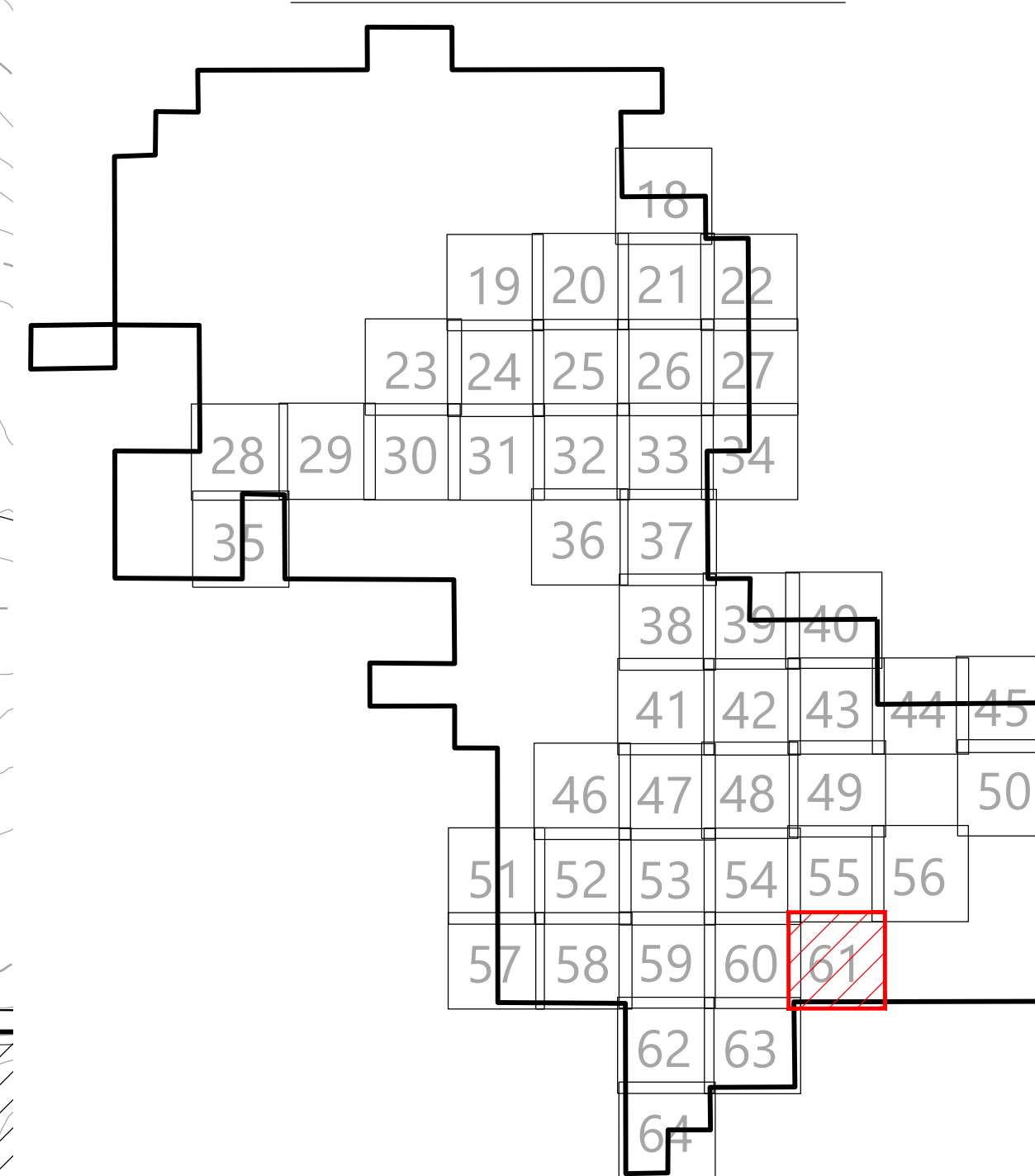
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LEGEND:

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KEY MAP:



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North Bend Wind Project

Hughes and Hyde Counties,
South Dakota

Site Plan A1 G1 H1 I1
Substation

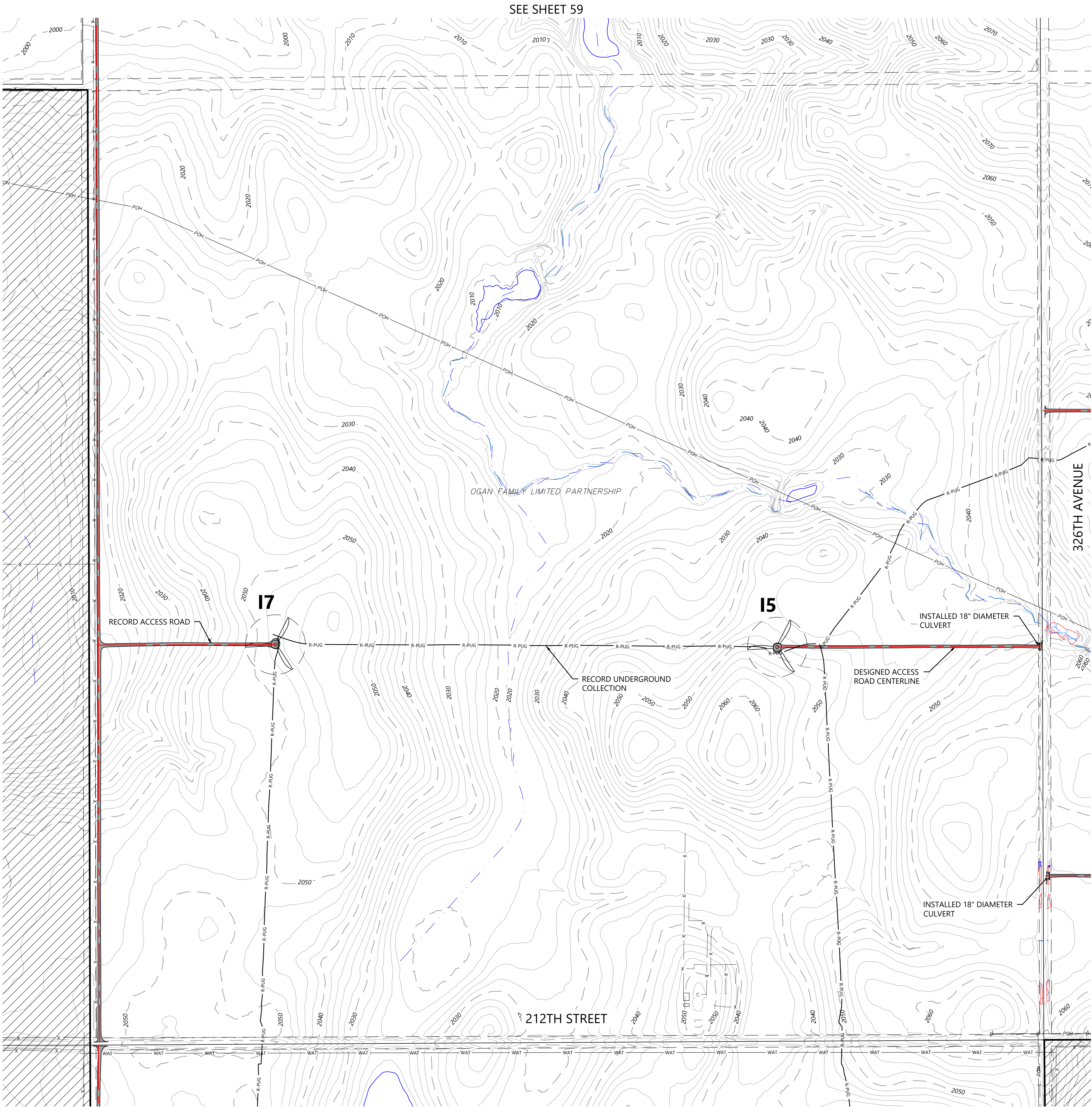
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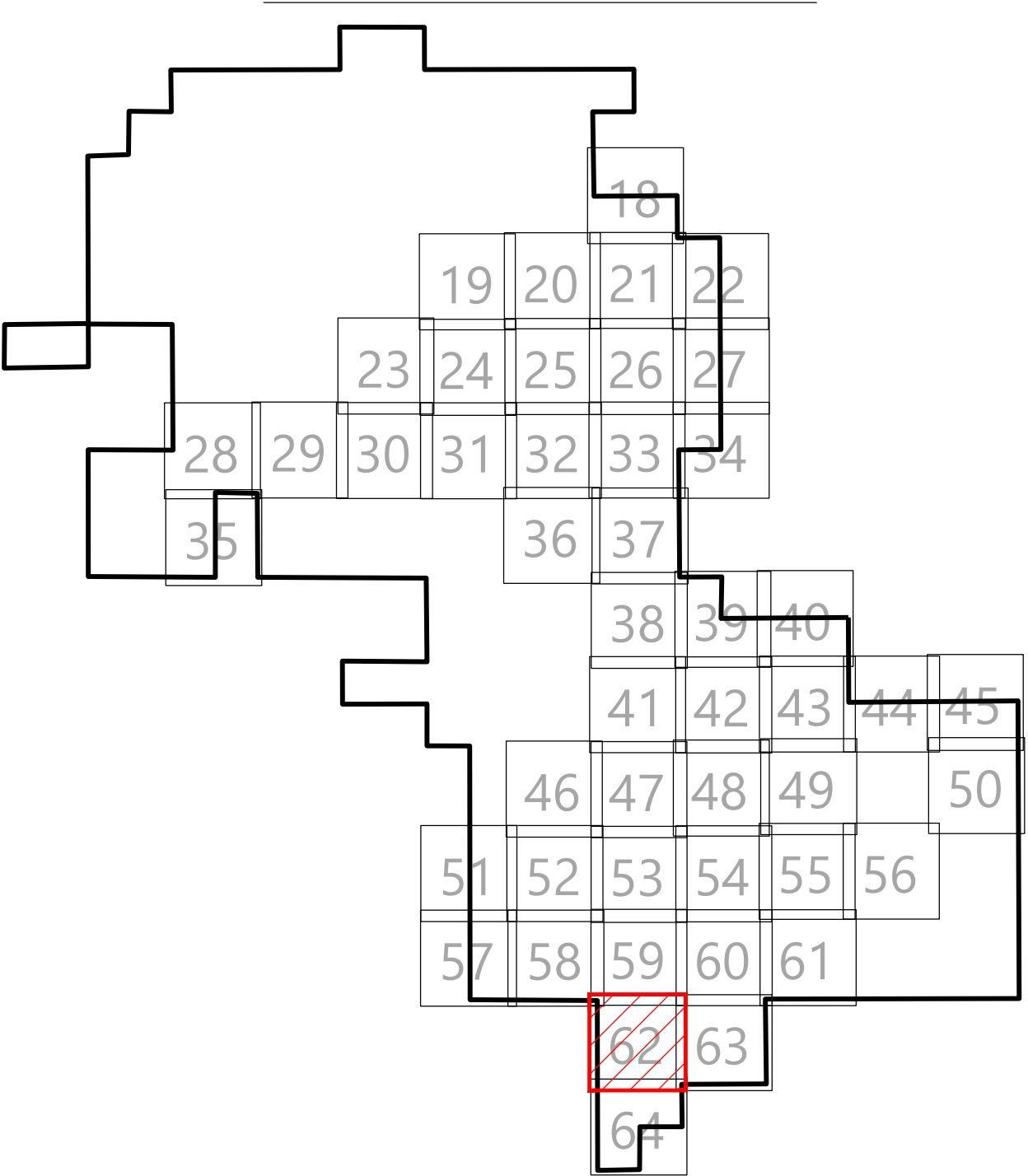
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Hughes and Hyde Counties,
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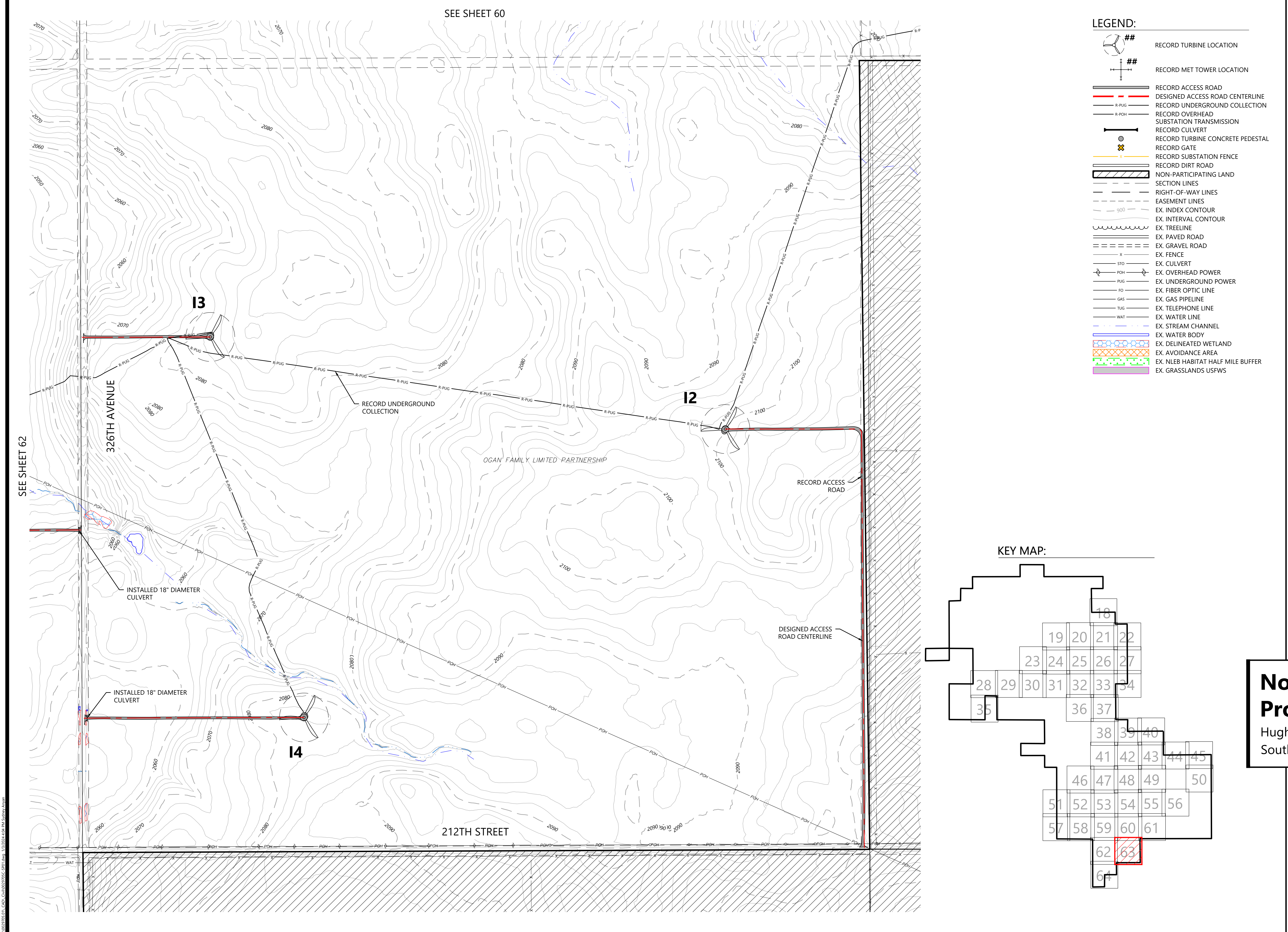
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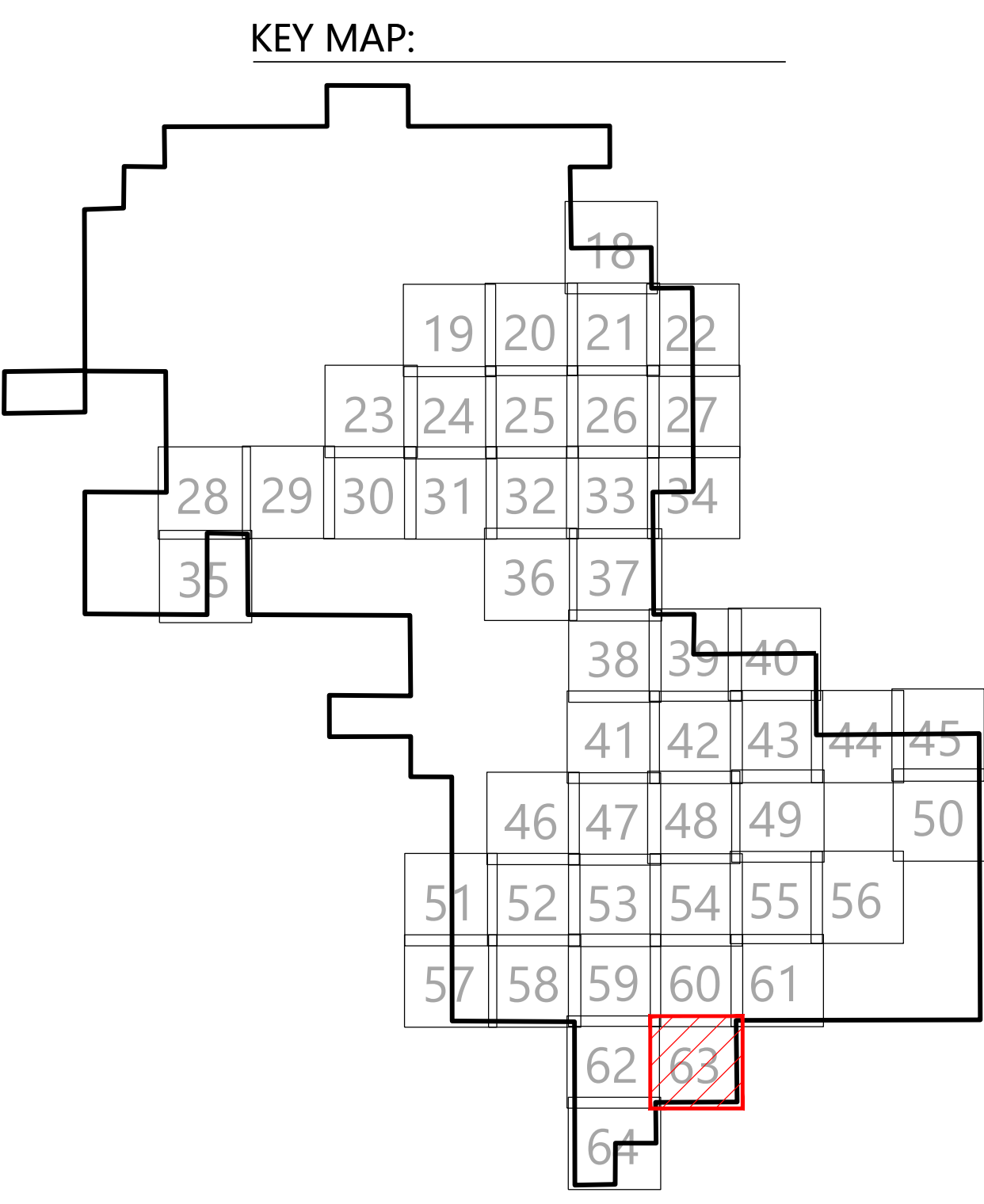
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North Bend Wind Project
Hughes and Hyde Counties,
South Dakota

Site Plan I2 I3 I4

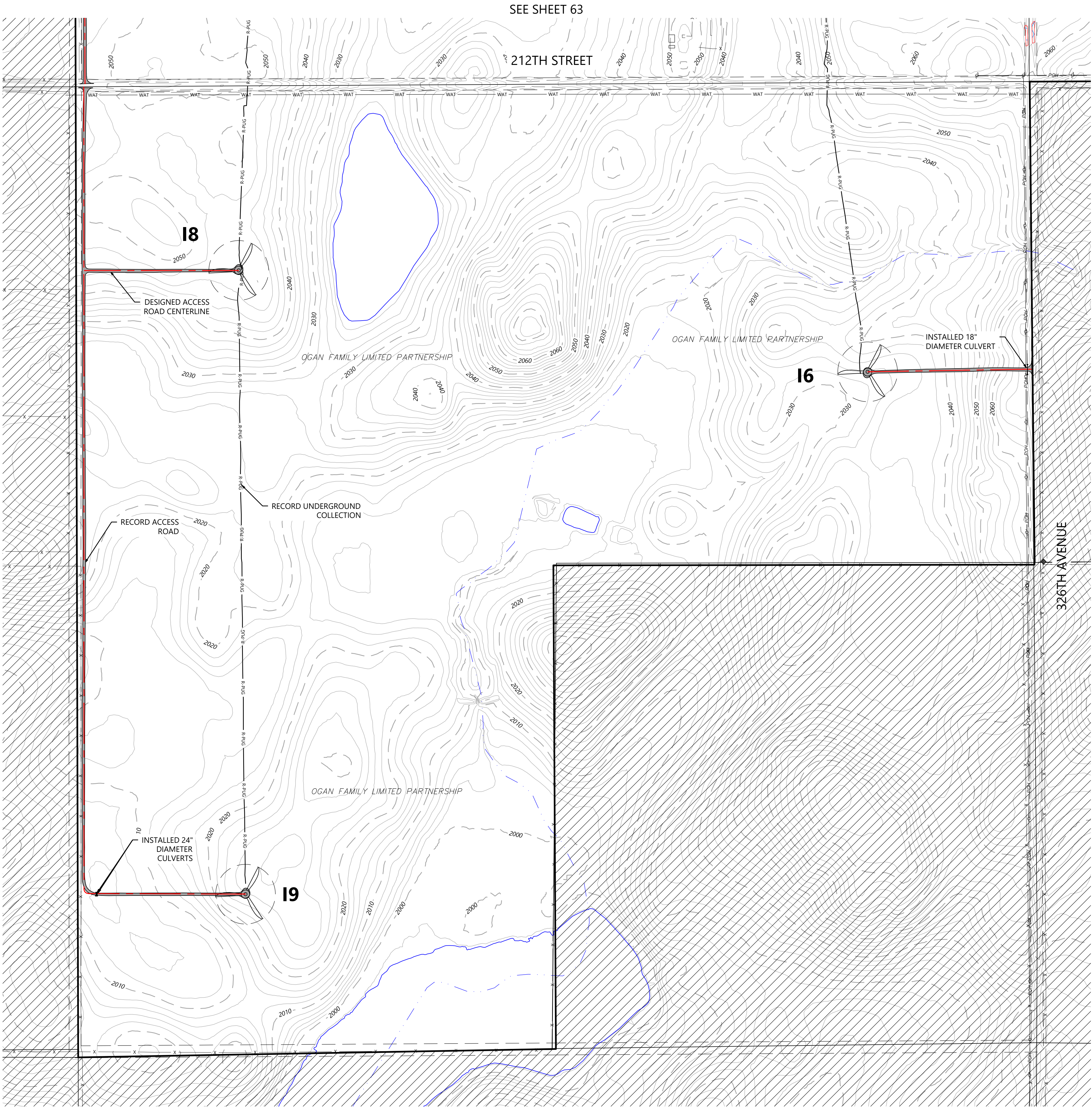
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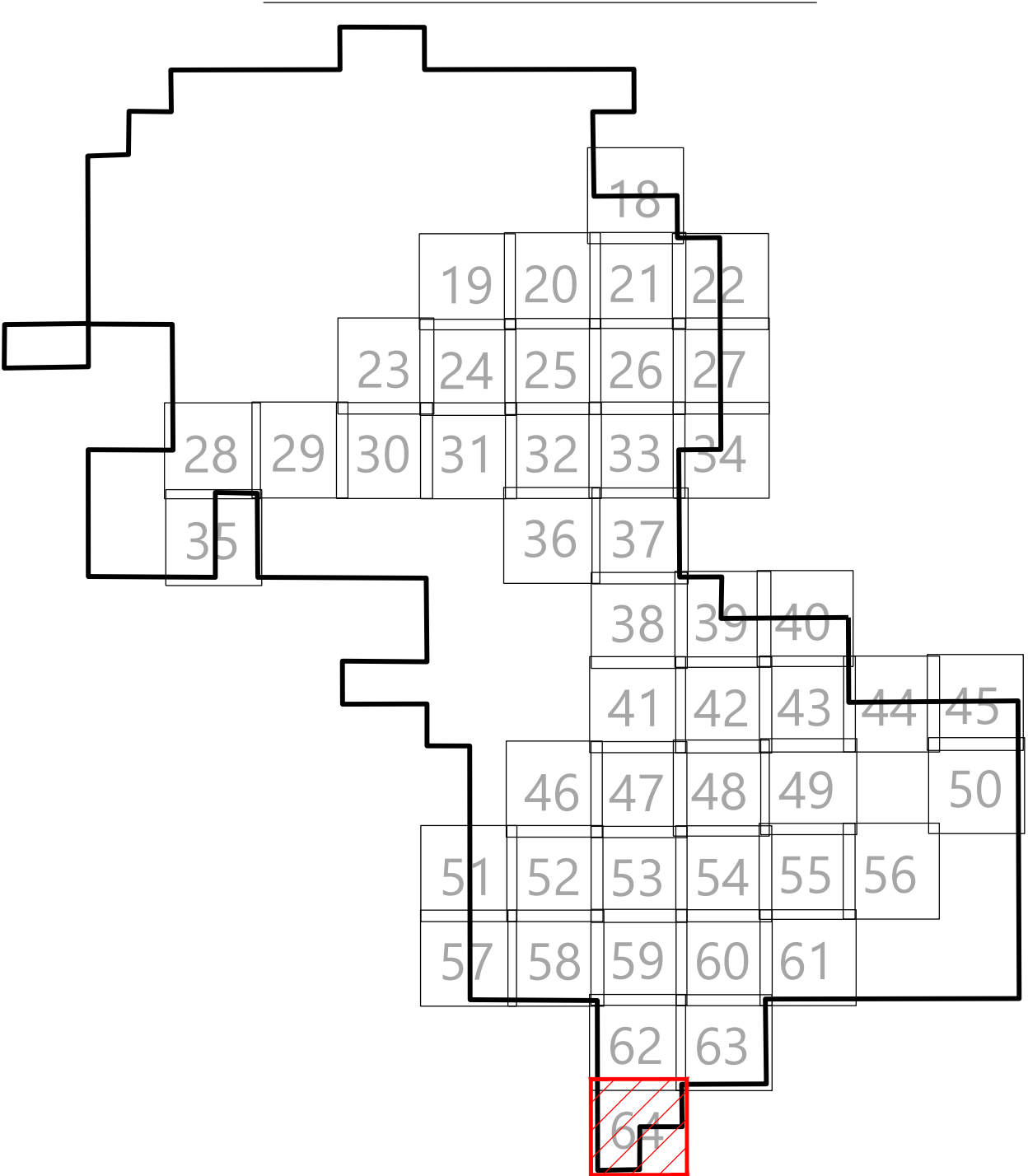
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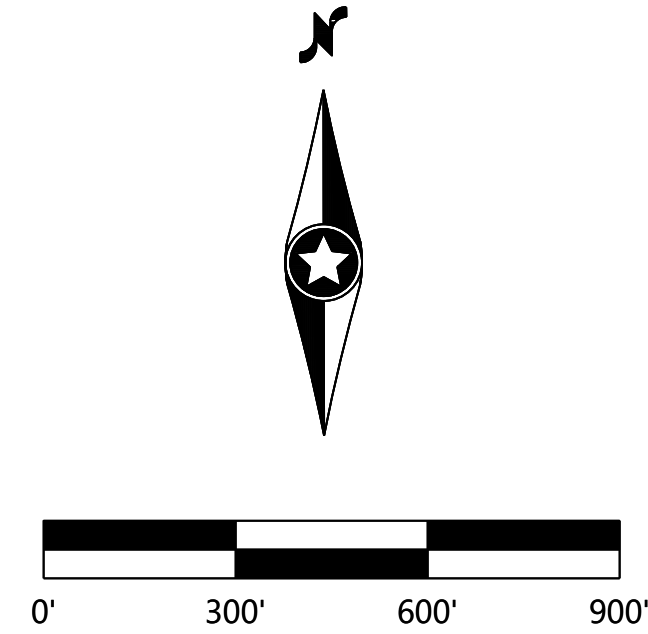
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Hughes and Hyde Counties,
South Dakota

Site Plan 16 18 19

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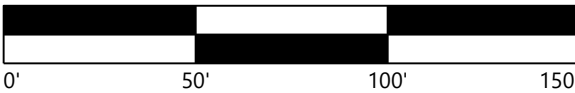
LEGEND:

- PROPOSED AGGREGATE SURFACE
- PROPOSED PERIMETER SEDIMENT CONTROL
- PROPOSED FIBER ROLL
- UNDERGROUND COLLECTION TO BE INSTALLED BY OTHERS
- PROPOSED CULVERT
- PROPOSED DISTURBANCE LIMIT
- NON-PARTICIPATING LAND
- SECTION LINES
- RIGHT-OF-WAY LINES
- PROPOSED INDEX CONTOUR
- PROPOSED INTERVAL CONTOUR
- EX. INDEX CONTOUR
- EX. INTERVAL CONTOUR
- EX. ROAD CENTERLINE
- EX. PARCEL LINE
- EX. FENCE
- EX. WATER LINE

6" MINIMUM AGGREGATE BASE
COMPACTED SUBGRADE
LAYDOWN YARD/BATCH PLANT
CROSS SECTION

GENERAL NOTES

- COORDINATES BASED UPON NSRS11.5D-SF, SOUTH DAKOTA STATE PLANE COORDINATE SYSTEM, NORTH ZONE, US FOOT.
- ALL CONSTRUCTION SHALL CONFORM TO LOCAL, STATE AND FEDERAL RULES INCLUDING THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT REQUIREMENTS. REFER TO THE STORM WATER MANAGEMENT PLAN PREPARED FOR THE PROJECT FOR DETAILS.
- THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO AVOID PROPERTY DAMAGE TO ADJACENT PROPERTIES DURING THE CONSTRUCTION PHASES OF THIS PROJECT. THE CONTRACTOR WILL BE HELD SOLELY RESPONSIBLE FOR ANY DAMAGES TO THE ADJACENT PROPERTIES OCCURRING DURING THE CONSTRUCTION PHASES OF THIS PROJECT.
- THE CONTRACTOR SHALL UNIFORMLY GRADE AREAS WITHIN LIMITS OF GRADING, INCLUDING ADJACENT TRANSITION AREAS. PROVIDE A SMOOTH FINISHED SURFACE WITH UNIFORM LEVELS OR SLOPES BETWEEN POINTS, WHERE ELEVATIONS ARE SHOWN, OR BETWEEN SUCH POINTS, AND EXISTING GRADES. AREAS THAT HAVE BEEN FINISH GRADED SHALL BE PROTECTED FROM SUBSEQUENT CONSTRUCTION OPERATIONS.
- ALL SLOPES SHALL BE GRADED TO 4:1 OR FLATTER, UNLESS OTHERWISE INDICATED ON THE PLAN. ALL SLOPES 4:1 OR GREATER, AND SWALES, SHALL BE SEEDED AND STABILIZED WITH FIBER BLANKET.
- SPOT ELEVATIONS AND PROPOSED CONTOURS INDICATE DESIGNED GRADE (TOP OF BASE AGGREGATE FOR AGGREGATE AREAS AND FINISHED GRADE OF DITCHES/GREEN AREAS).
- AFTER THE SITE GRADING IS COMPLETED, IF EXCESS SOIL MATERIAL EXISTS, THE CONTRACTOR SHALL DISPOSE OF ALL EXCESS SOIL MATERIAL IN A MANNER ACCEPTABLE TO THE OWNER AND THE REGULATING AGENCIES INVOLVED.
- TOPSOIL TO BE STOCKPILED WITHIN THE PARCEL AND RE-SPREAD IN A MANNER ACCEPTABLE TO THE OWNER AFTER CONSTRUCTION IS COMPLETED WITHOUT ADVERSELY AFFECTING THE DRAINAGE PATTERNS OF THE AREA.
- PROVIDE EROSION AND SEDIMENT CONTROL AT THE PERIMETER OF ALL TEMPORARY STOCKPILES. LOCATIONS TO BE DETERMINED BY SEQUENCE OF GRADING OPERATIONS.
- EROSION CONTROL MEASURES SHOWN SHALL BE USED AS NEEDED OR AS SPECIFIED IN THE PROJECT SWPPP. IT IS THE CONTRACTORS RESPONSIBILITY TO MAINTAIN COMPLIANCE. ALL DISTURBED AREAS NOT COVERED IN AGGREGATE SHALL BE STABILIZED AFTER COMPLETION OF GROUND DISTURBING ACTIVITIES.
- FENCING DESIGN BY OTHERS.
- IT IS THE OWNERS RESPONSIBILITY TO ENSURE THAT ALL CONDITIONAL USE PERMITS MEET THE REQUIREMENTS SET FORTH BY THE COUNTY.
- EXISTING TOPOGRAPHY USED FOR THE DESIGN IS LIDAR DATA, CONTRACTOR TO VERIFY EXISTING ELEVATIONS IN THE FIELD PRIOR TO CONSTRUCTION.
- GEOTECHNICAL ENGINEERING REPORT FOR NORTH BEND WIND PROJECT PROVIDED BY BARR ENGINEERING SECTION 3.2.1 STATES THE SITE HAS VARYING DEPTHS OF TOPSOIL FROM 8-18 INCHES.
- EARTHWORK DISTURBANCE NOT TO EXCEED 10 ACRES TO AVOID REQUIRING A SEDIMENT BASIN. CONSTRUCTION SEQUENCING OF GRADING ACTIVITIES AND STABILIZING WITH AGGREGATE PLACEMENT IN PHASES OF 10 ACRES OR LESS IS ASSUMED IN THIS PLAN TO AVOID A BASIN.



North Bend Wind Project

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Laydown Yard -
Grading Plan

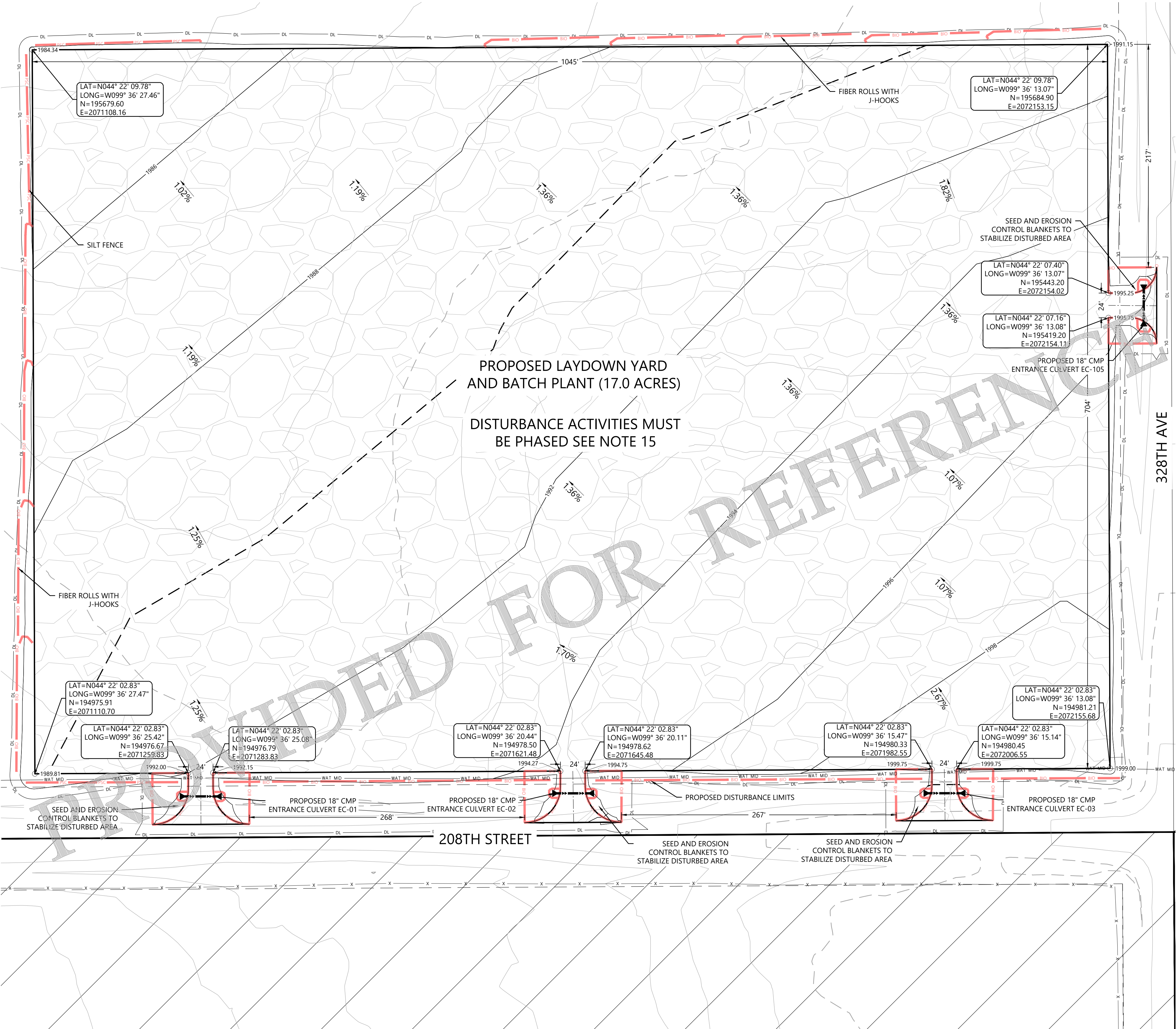
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LAYDOWN AND BATCH PLANT SITE
FOOTPRINTS

LAYDOWN AGGREGATE AREA = 741,956 SF±
GREEN SPACE = 14,724 SF±
TOTAL GRADED AREA = 756,679 SF±

EARTHWORK

FILL: STRIPPED TO DESIGNED GRADE (-)
= 14,384 CY
CUT: STRIPPED TO DESIGNED GRADE (+)
= 16,137 CY
TOPSOIL STRIPPED:
= 18,319 CY

TOTAL BALANCE
= 1,753 CY LONG

NOTES:

- ALL VOLUMES ARE "IN-PLACE" (BANK OR COMPACTED CUBIC YARD) ESTIMATES.
- NO SHRINK OR SWELL FACTORS ARE ASSUMED.
- TOPSOIL STRIPPING QUANTITIES ASSUMES 8 INCHES OF TOPSOIL THROUGHOUT GRADING PARAMETERS OF THE YARD.