

DESIGN DATA - ND 23B (RP 925.629 - RP 927)				
Traffic	Average Daily			
Current 2015	Pass: 3,655	Trucks: 2,055	Total: 5,710	
Forecast 2040	Pass: 6,725	Trucks: 2,405	Total: 9,130	
Clear Zone Distance: 32 LF (4:1)		Design Speed: 55 mph		
Minimum Sight Dist. for Stopping: 495 ft		Bridges: HL-93		
Sight Dist. for No Passing Zone: 900 ft				
Pavement Design Life 20 (years)				
Design Accumulated One-way ESALs: 6,222,482				
DESIGN DATA - ND 23B (RP 927 - RP 927.261)				
Traffic	Average Daily			
Current 2015	Pass: 2,070	Trucks: 1,115	Total: 3,185	
Forecast 2040	Pass: 3,925	Trucks: 2,115	Total: 6,040	
Clear Zone Distance: 32 LF (4:1)		Design Speed: 55 mph		
Minimum Sight Dist. for Stopping: 495 ft		Bridges: NA		
Sight Dist. for No Passing Zone: 900 ft				
Pavement Design Life 20 (years)				
Design Accumulated One-way ESALs: 6,222,482				
DESIGN DATA - ND 23 (RP 48.684 - RP 49.247)				
Traffic	Average Daily			
Current 2015	Pass: 5,015	Trucks: 2,705	Total: 7,720	
Forecast 2040	Pass: 11,045	Trucks: 5,945	Total: 16,990	
Clear Zone Distance: 24 LF (4:1)		Design Speed: 45 mph		
Minimum Sight Dist. for Stopping: 360 ft		Bridges: NA		
Sight Dist. for No Passing Zone: 700 ft				
Pavement Design Life 20 (years)				
Design Accumulated One-way ESALs: 6,222,482				
DESIGN DATA - ND 1804 (RP 248.248 - RP 248.537)				
Traffic	Average Daily			
Current 2015	Pass: 2,330	Trucks: 1,255	Total: 3,585	
Forecast 2040	Pass: 4,325	Trucks: 2,325	Total: 6,650	
Clear Zone Distance: 32 LF (4:1)		Design Speed: 55 mph		
Minimum Sight Dist. for Stopping: 495 ft		Bridges: NA		
Sight Dist. for No Passing Zone: 900 ft				
Pavement Design Life 20 (years)				
Design Accumulated One-way ESALs: 6,222,482				

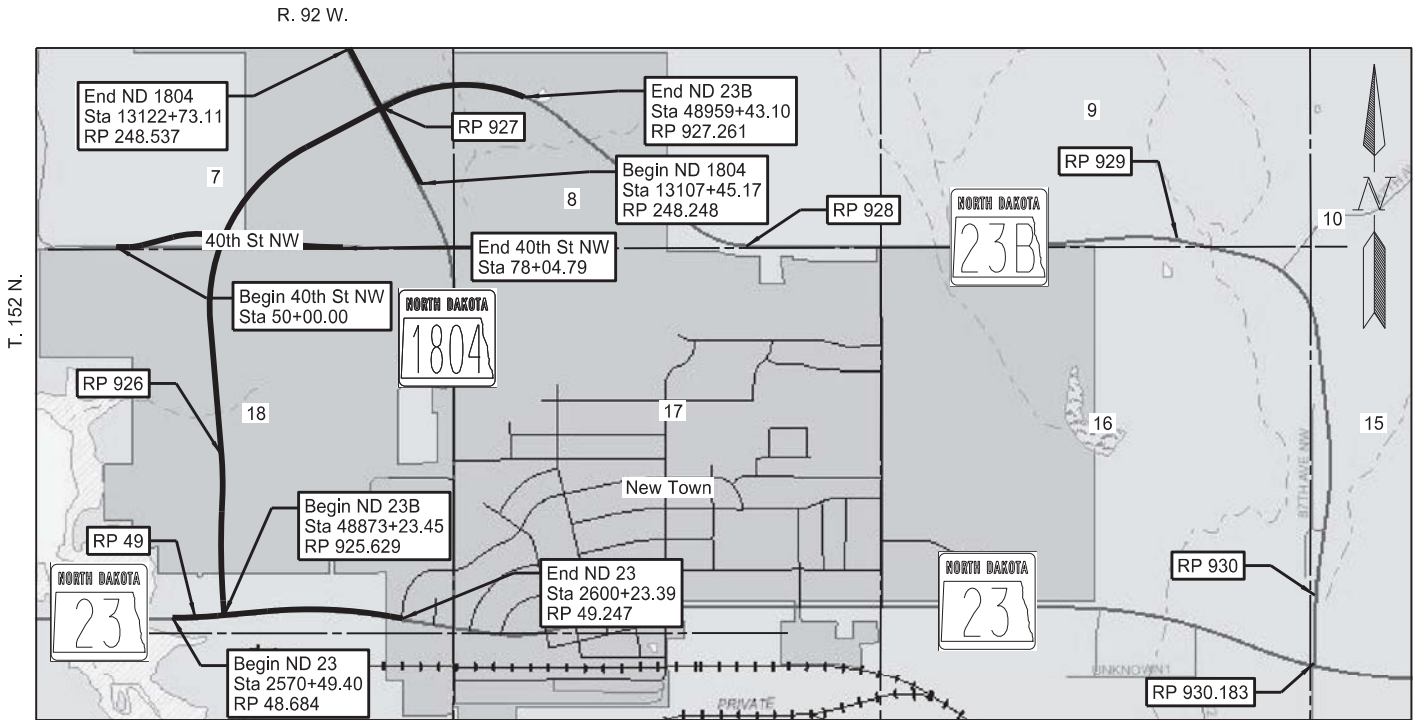
JOB #40
NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION
AC-NH-SOIB-7-023(041)925

Mountrail County
New Town Northwest Route
Grading, Aggregate Base, HMA, Concrete
Structures, Landscaping, Lighting, Traffic Signals, and Incidentals

	STATE	PROJECT NO.	PCN	SECTION NO.	SHEET NO.
	ND	AC-NH-SOIB-7-023(041)925	19862	1	1

GOVERNING SPECIFICATIONS:
2014 Standard Specifications adopted by the North Dakota
Department of Transportation and the Supplemental Specifications
effective on the date the project is advertised.

AC-NH-SOIB-7-023(041)925	NET MILES	GROSS MILES
ND 23B	1.632	1.632
ND 23	0.563	0.563
ND 1804	0.289	0.289
40th St NW	0.531	0.531
Total	3.015	3.015



Legal Description
T. 152 N. R. 92 W. - Sec 7, 8, 9, 10, 15, 16, 17, 18

Reference Points

49	2587+20.00
926	48892+80.00
927	48945+60.00
928	48998+40.00
929	49051+20.00
930	49104+00.00

DESIGNERS

Taylor Olson, PE

Matt Lange, PE

Matthew Isley, PE

Josh Loegering, PE

Chris Horner, PE

Chris Nelson, PE

Brady Haussler

Stephen Joersz

Joe Morrisette

Seth DeMontigny

STATE COUNTY MAP

DISTRICT REVIEW

Joel M. Wilt /s/

WILLISTON DISTRICT

APPROVED DATE 09/05/17

Robert Fode /s/

OFFICE OF PROJECT DEVELOPMENT
ND DEPARTMENT OF TRANSPORTATION

I hereby certify that the attached plans were prepared by me or under my direct supervision and that I am a duly registered professional engineer under the laws of the state of ND.

APPROVED DATE 08/28/17

Jessica R Karls /s/

KADRMAS, LEE & JACKSON, INC

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Registration Number PE- 8408 ,

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TABLE OF CONTENTS

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	AC-NH-SOIB-7-023(041)925	2	1

PLAN SECTIONS

Section	Page(s)	Description
1	1	Title Sheet
2	1 - 2	Table of Contents
4	1 - 5	Scope of Work
6	1 - 8	Notes
6	9	Environmental Notes
8	1	Quantities
10	1 - 3	Basis of Estimate
11	1 - 12	Data Tables
20	1 - 13	General Details
30	1 - 9	Typical Sections
40	1 - 9	Removals
50	1 - 2	Inlet and Manhole Summary
51	1 - 2	Allowable Pipe List
55	1	Drainage Layouts
60	1 - 20	Plan & Profile
70	1 - 2	Contours
75	1 - 4	Wetland Impacts
76	1 - 17	Temporary Erosion Control
77	1 - 11	Permanent Erosion Control
80	1 - 6	Fencing Layouts
81	1 - 9	Survey Coordinate and Curve Data
82	1 - 13	Survey Data Layouts
90	1 - 7	Paving Layouts
100	1 - 35	Work Zone Traffic Control
110	1 - 25	Signing
120	1 - 8	Pavement Marking
140	1 - 8	Lighting
150	1 - 10	Signals
170	1 - 9	Bridges and Box Culverts
195	1 - 8	Fort Berthold Rural Waterline
199	1 - 18	Golf Course Plans
200	1 - 191	Cross Sections

SPECIAL PROVISIONS

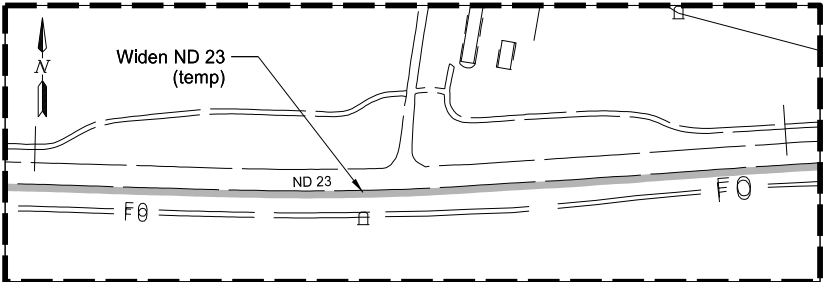
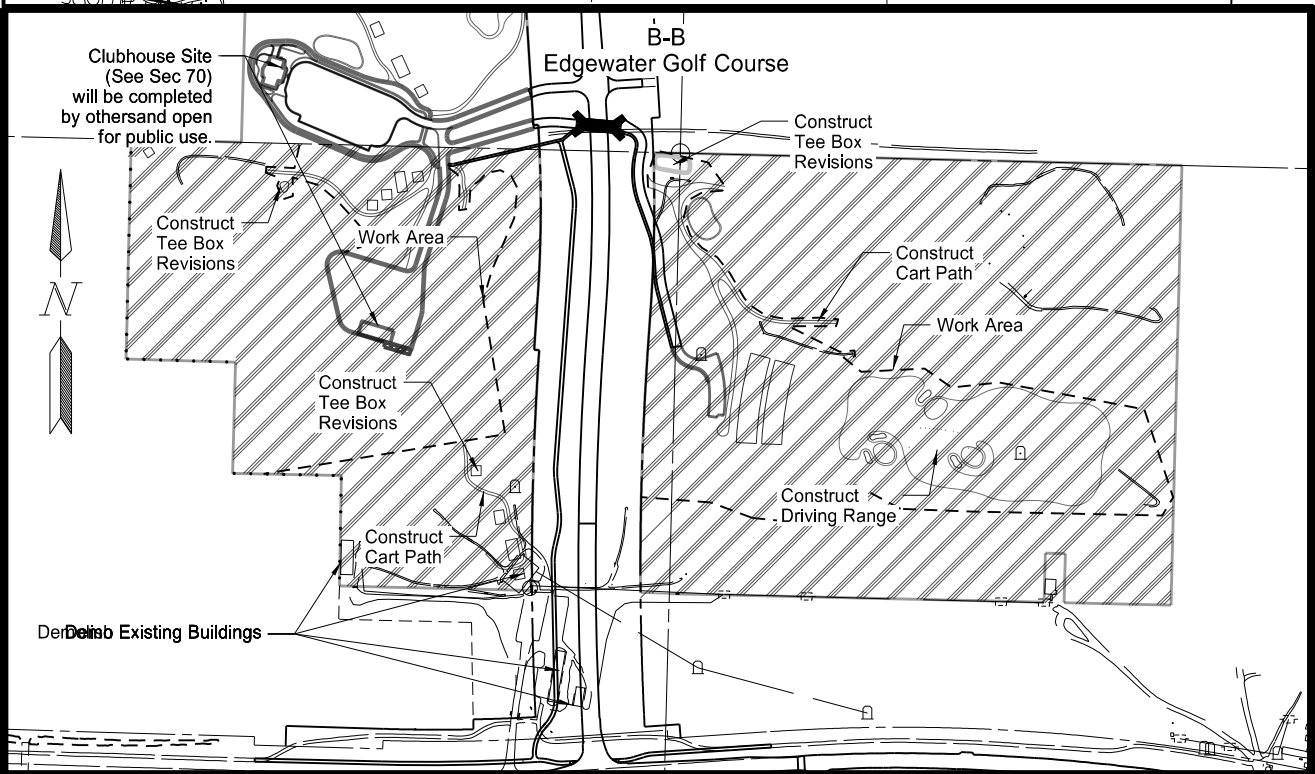
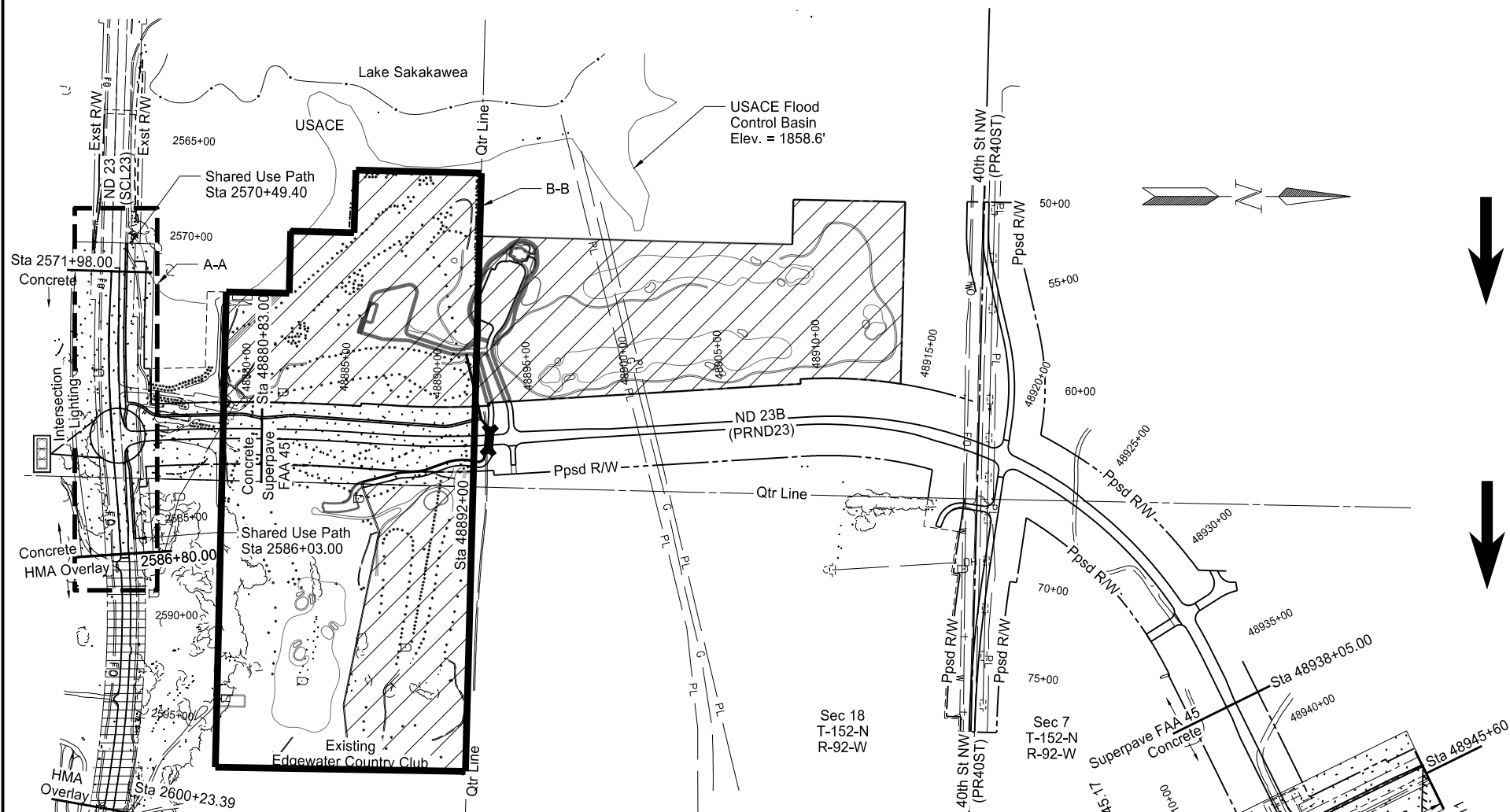
Number	Description
SP 003(14)	Temporary Erosion and Sediment Best Management Practices
SP 466(14)	Tribal Employment Rights Ordinance (TERO)
SP 505(14)	Golf Course
SP 509(14)	Biologist
SP 510(14)	Migratory Birds
SP 511(14)	Machinery Hygiene
SP 513(14)	Construction Monitoring and Discovery Plan
SP 514(14)	Flexible Pavement Surface Tolerance
SP 515(14)	Removal of Buildings
SP 516(14)	Spill Prevention and Emergency Response
SP 5187(14)	Permits and Environmental Considerations
SP 557(14)	Fort Berthold Rural Waterline

TABLE OF CONTENTS
LIST OF STANDARD DRAWINGS

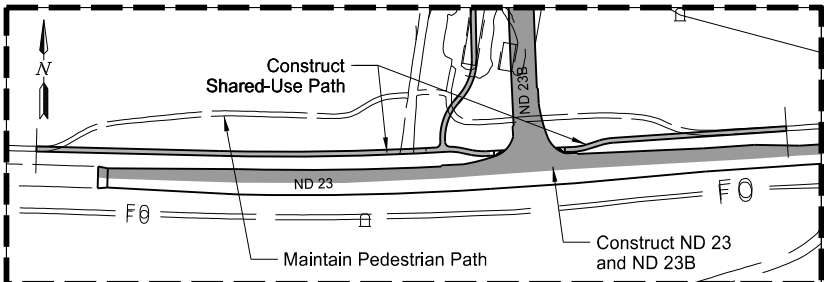
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	AC-NH-SOIB-7-023(041)925	2	2

Number	Description	Number	Description
D-101-1, 2, 3	NDDOT Abbreviations	D-754-80	Light Standard, Signal Standard, And Span Wire Mounted Sign Assembly Detail
D-101-10	NDDOT Utility Company and Organization Abbreviations	D-754-83	Object Markers - Culverts
D-101-20, 21	Line Styles	D-754-86	911 Sign Support Information And Sign Details
D-101-30, 31, 32	Symbols	D-754-87	Sign Punching, Stringer And Support Location Details For Street Name Signs And 911 Signs
D-203-6	Standard 90 Degree Flared Intersections-(Center Left Turn Lane on Major Road)	D-760-3	Rumble Strips Undivided Highways (Shoulders 4' Or Greater)
D-203-7	Recovery Approaches At T-Intersections	D-762-1	Pavement Marking Message Details
D-203-8	Standard Rural Approaches	D-762-4	Pavement Marking
D-255-2	Erosion And Siltation Control - Erosion Control Blanket Installation	D-762-5	Pavement Marking for Standard 90 Degree Flared Intersection-(No Center Left Turn Lane on Major Road)
D-256-1	Erosion And Siltation Controls	D-762-6	Pavement Marking for Standard 90 Degree Flared Intersection-(Center Left turn Lane on Major Road)
D-260-1	Erosion And Siltation Controls - Silt Fence	D-762-11	Short-Term Pavement Marking
D-261-1	Erosion Control - Fiber Roll Placement Details	D-770-1	Concrete Foundations (Traffic Signals & Highway Lighting)
D-550-2	Longitudinal Joint Details	D-770-2	Feed Points (Roadway Lighting)
D-550-3	Transverse Contraction Joint Details	D-770-2A	Combination Feed Point Details
D-550-5	Transverse Construction Joint	D-770-3	Pull Box Details
D-704-7	Breakaway Systems For Construction Zone Signs - Perforated Tube	D-770-4	Lighting And Signal Details
D-704-8	Breakaway Systems For Construction Zone Signs - U-Channel Post	D-770-5	Light Standard Details
D-704-9, 10,11	Construction Sign Details - Terminal And Guide Signs	D-772-1	Feed Point - Traffic Signals
D-704-12	Shoulder Closure Tapers	D-772-2	Traffic Signal Standards
D-704-13	Barricade And Channelizing Device Details	D-772-3	Traffic Signal Standards (Mast Arm Type)
D-704-14	Construction Sign Punching And Mounting Details	D-772-4	Traffic Signal Head Mounting
D-704-27	Traffic Control Plan For Moving Operations		
D-706-1	Bituminous Laboratory		
D-708-6	Erosion And Siltation Controls - Median Or Ditch Inlet Protection		
D-714-1	Reinforced Concrete Pipe Culverts And End Sections (Round Pipe)		
D-714-4	Round Corrugated Steel Pipe Culverts And End Sections		
D-714-22	Concrete Pipe Or Precast Concrete Box Culvert Ties		
D-714-25	Transverse Mainline Pipe Installation Detail for Pipes More Than 4 Feet Below Top of the Proposed Subgrade		
D-714-26	Transverse Mainline Pipe Installation Detail for Pipes 4 Feet or Less Below Top of the Proposed Subgrade		
D-714-27	Pipe Installation Detail for Longitudinal Mainline Pipe or Pipe Not Under the Roadway		
D-714-28	Transverse Mainline Pipe Installation Detail for Pipes Installed in New Embankment Areas		
D-720-1	Standard Monuments And Right Of Way Markers		
D-722-5	Manhole Details		
D-752-1	Standard Barbed Wire Fence		
D-754-19	(Conventional Use) Reference Markers		
D-754-21	Reflectorized Delineators		
D-754-22C	Approach Delineation		
D-754-23	Perforated Tube Assembly Details		
D-754-24, 25	Mounting Details Perforated Tube		
D-754-26, 27, 28, 29, 32, 34, 37	Sign Punching, Stringer And Support Location Details Regulatory, Warning, And Guide Signs		
D-754-46	Bike Route Signs-Punching, Stringer and Support Location Details for Regulatory, Warning and Guide Signs		
D-754-49	Sign Punching, Stringer And Support Location Details For Variable Length Signs		
D-754-51, 58	Sign Punching, Stringer And Support Location Details - Route Marker Signs		

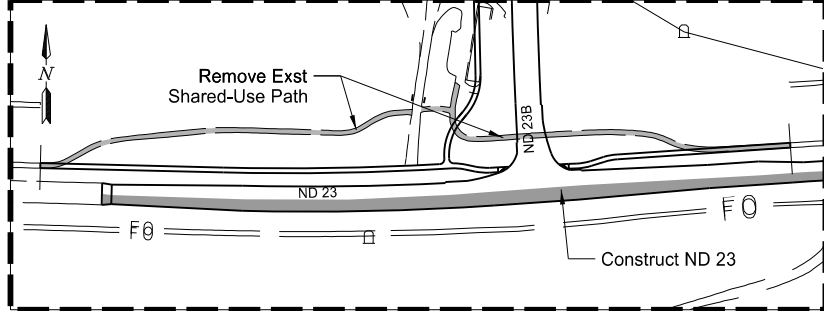
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	AC-NH-SOIB-7-023(041)925	4	3



ND 23 Phase A: Construct Temporary Widening (Sta 2571+70 to Sta 2587+43)



ND 23 Phase B: Construct ND 23B & ND 23 and the Shared-Use Path (Sta 2570+49 to Sta 2586+03)



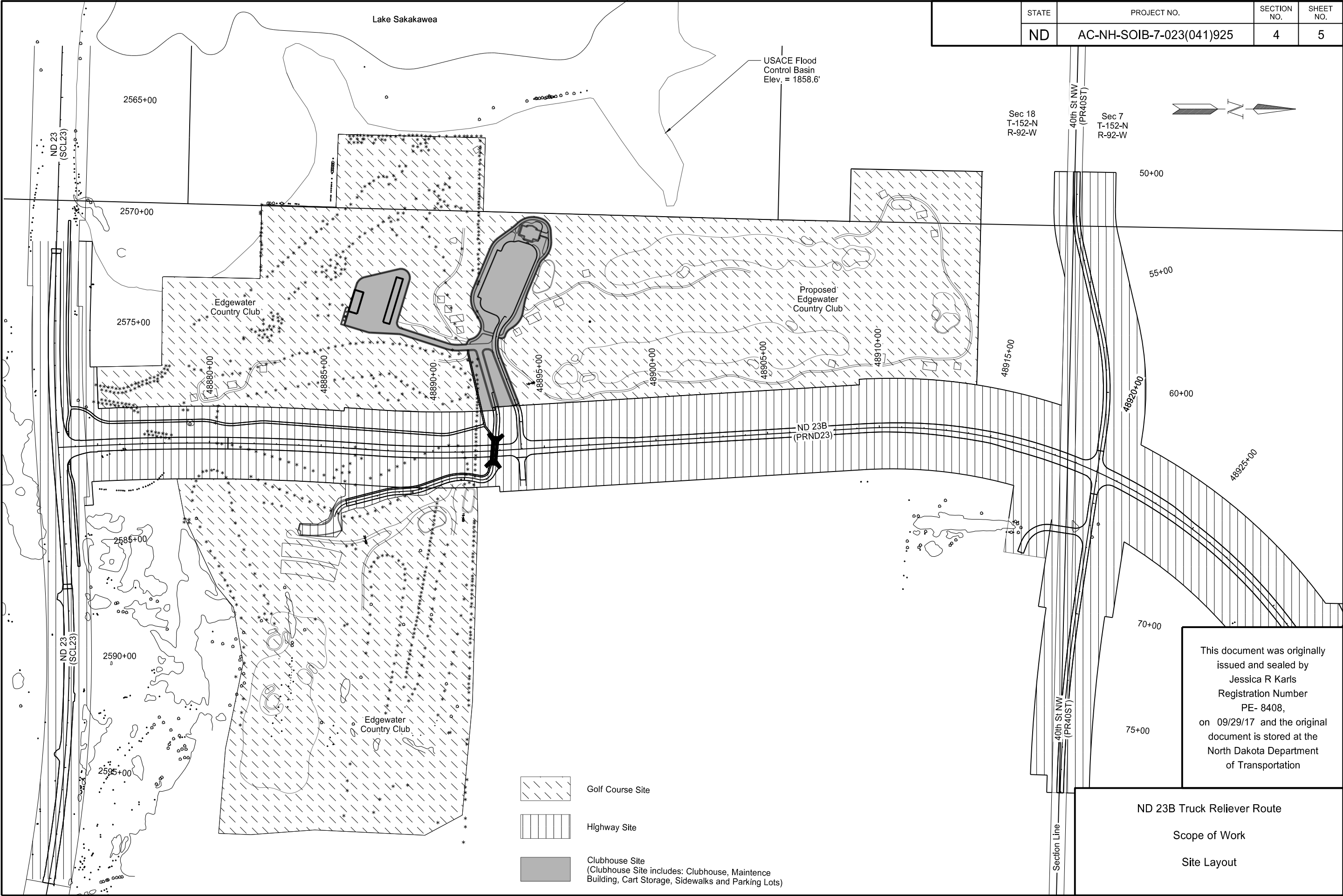
ND 23 Phase C: Remove Existing Shared-Use Path & Minor Grading (Sta 2570+49 to Sta 2586+03)

- Phase 1: Highway Work Area
- Phase 2: Golf Course Work Area (Driving Range to be completed by 8/5/2019)
- Phase 3: Highway Work Area
- Golf Course Open for play

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ND 23B Truck Reliever Route
Scope of Work
Phase 2/Phase 3

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	AC-NH-SOIB-7-023(041)925	4	5



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	AC-NH-SOIB-7-023(041)925	6	1

NOTES

GENERAL NOTES

- 100-P01 COORDINATION OF PROJECTS: Project SOIB-7-023(056)925, PCN 21942 is in the vicinity of this project is under contract during the 2018-2019 construction season. The project consists of the clubhouse, cart storage, maintenance building and associated work. Construct the temporary access road and provide access at all times.
- 100-P02 LAKE SAKAKAWEA FLOOD CONTROL BASIN: Do not impact any areas below an elevation of 1,858.6 feet.
- 100-P03 LIMITED ACCESS: There are areas within this project that will not be available for the Contractor to access until a later date.
 - Property owned by USACE along ND 23B from Sta. 48874+48 to Sta. 48878+79 and ND 23 from Sta. 2571+40 to Sta. 2583+34 ND 23. Anticipated access December 31, 2018.
 - Edgewater Country Club (existing) from Sta. 48878+79 to Sta. 48892+00 until Edgewater Country Club is moved to the new Clubhouse and play has started on the three holes constructed in Phase 1 with the exception of the grading required for Project SOIB-7-023(056)925, PCN 21942. Anticipated access June 1, 2019.
 - ND 23B from Sta. 48918+75 to 48937+14. Anticipated access February 1, 2018

The Engineer will notify the Contractor if areas become available prior to the dates listed.

105-110 PAVEMENT SWEEPING: Sweep paved areas that were used by construction traffic before opening these areas to public traffic.

Sweep all newly constructed pavement no more than 24 hours before a scheduled final inspection.

Use a vacuum or pick-up type sweeper to perform this work.
- 105-200 UTILITY COORDINATION: A utility coordination meeting is required.

105-P01 UTILITY RELOCATION: Coordinate and phase grading work with Mountrail- Williams Electric Cooperative (MWE). They will be relocating the existing overhead line to the north along the proposed right of way for 40 Street NW. It is anticipated that they will need assistance with grading the site prior to relocating the utility poles and will require approximately a month to complete the work. Work will be started in the spring of 2018. Contact MWE 14 business day prior to beginning work in the area. If work is not completed by the time roadway construction progresses to that location coordinate with MWE to work around the poles and complete final grading after the utility has been relocated. Include all cost for grading work in the contract unit price for “Common Excavation – Type A.”

107-100 LAWS TO BE OBSERVED: All or a portion of this project lies within the exterior boundaries of an Indian Reservation. Review laws and ordinances pertaining to the work contained within the boundaries of the reservation.

107-P01 MAINTAINING TRAFFIC –DROP-OFFS: If, at the end of the work-day, drop-offs greater than 2 inches and less than 18 inches or slopes steeper than 4:1 exist between the edge of a traffic lane and the outside edge of the proposed roadway, perform one of the following actions:
 - Construct a traversable wedge in the area of the drop-off or steep slope; or
 - Close the lane adjacent to the drop-off or steep slope and provide 24-hour flagging or pilot car operations.

When constructing a wedge, construct a wedge composed of aggregate or earthen materials with a 4:1 or flatter slope along the entire length of the area. Compact materials using Type C compaction, as specified in 203.04 E.4, “Compaction Control Type C”.

Install stackable vertical panels that meet the requirements of Section 704.03 H, “Stackable Vertical Panels”, along the edge of the driving lane closest to the wedge.
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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	AC-NH-SOIB-7-023(041)925	6	2

NOTES

The Engineer will measure stackable vertical panels as specified in Section 704.05, "Method of Measurement" and will pay for panels as specified in Section 704.06, "Basis of Payment".

The Engineer will not measure material used to construct the wedge. Include the cost of materials, equipment, labor, and incidentals required for this operation in the price bid for aggregate pay items.

If a 4:1 or flatter wedge is not installed, provide 24 hour flagging or pilot car operations and associated traffic control at no additional cost to the Department.

The requirements of Section 704.04 O, "Traffic Control for Uneven Pavement" apply to drop-offs created by milling or the placement of hot mix asphalt.

107-P02 GOLF COURSE ACCESS: Provide and maintain access to Edgewater Country Club until the project is complete. A quantity of 1,000 linear feet of safety fence has been provided to be used along the driving range, as well as, 500 linear feet to use as needed. The safety fence is to be used to delineate areas not open to the public. Coordinate with the Engineer and Edgewater Country Club to maintain access.

107-P03 GRAVEL PIT ACCESS: Provide and maintain access to the gravel pit located between Sta. 48918+75 to Sta. 48937+14 on ND 23B. A quantity of 1,200 linear feet of safety fence has been provided to delineate access. Coordinate with the Engineer and Eagle Rock Timber (gravel pit) to maintain access 7 business days prior to modifying access.
Contact Information for Eagle Rock Timber:
Rick Gokey
Phone Number: (208) 529-4925
Email: rgokey@eaglerocktimber.com

108-100 WEEKLY PLANNING & REPORTING MEETING: A weekly planning and reporting meeting is required.

108-500 TERO COORDINATION: Invite the Tribal TERO Office to the Preconstruction Conference.

108-P01 LIQUIDATED DAMAGES FOR FAILURE TO MEET REQUIRED MILESTONE DATES: The following daily rates will be assessed to the Contractor to cover additional project costs, inconvenience to the public, as well as, additional expenses to the Contractor for Project SOIB-7-023(056)925, PCN 21942.

- \$15,000 per calendar day for failure to complete Phase 1a (refer to plan note 108-P02) by May 19, 2018.
- \$5,000 per calendar day for failure to complete the items below by the dates listed.
 - August 4, 2018
 - Phase 1b (refer to plan note 108-P02)

- November 17, 2018
 - Phase 1c (refer to plan note 108-P02)
- August 3, 2019
 - Phase 2a (refer to plan note 108-P02)

With the exception of the grass maturation as specified in SP 505(14), the Contractor will be assessed \$5,000 per calendar day for failure to meet the final completion date of October 12, 2019.

108-P02 PROJECT PHASING: The traffic control details, as indicated in Section 100, have been developed on the basis that this project will be constructed in three phases. Multiple construction phases may be constructed concurrently, with approval of the Engineer. Refer to Section 4 for an overview of construction phasing.

- Phase 1:
- Phase 1a
 - Grade the proposed clubhouse site within 6 inches of the finished surface (refer to plan note 203-P02 and Section 70).
 - Complete the temporary construction access road for the clubhouse site. Maintain access to the proposed clubhouse site (refer to Section 100).
 - Phase 1b
 - Complete the golf course north of the existing golf course including holes 7, 8 and 9, cart paths and the practice putting green (refer to SP 505(14) and Section 199).
 - Phase 1c
 - Complete the construction for 40th St NW temporary roadway, maintain traffic on existing 40th St NW until the temporary roadway has been built. Relocate the waterline.
 - Complete the construction of 40th St NW while maintaining traffic on the temporary roadway, remove temporary roadway once 40th St NW has been completed.
 - Complete construction of ND 23B from Sta. 48892+00 to Sta. 48945+60. The top 2" of HMA will be placed after phase 2 has been completed. Remove the temporary construction access road. Maintain traffic on ND 23B to the clubhouse project. Install the Box Culvert and construct road to driving range and sidewalk within the highway site (See Section 4, Sheet 5).

Edgewater Country Club will move to their new location upon the completion of the new clubhouse, constructed by others in 2018-2019.

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NOTES

Phase 2:

- Phase 2a
 - Complete the golf course features within the existing golf course (refer to SP 505(14) and Section 199).
- Phase 2b
 - Demolish existing buildings once Edgewater Country Club has been moved to their new location.
 - Maintain access and playability for pedestrians and golfers. Coordinate with the Engineer and Edgewater Country Club.
 - Remove and/or reset misc. golf course items as needed.
 - Complete construction of ND 1804 (Sta. 13107+45 to Sta. 13122+73)
 - Complete construction of ND 23B east of ND 1804 (Sta. 48945+60 to Sta. 48959+43)
 - Complete construction of ND 23 and shared use path. Maintain pedestrian access. (Sta. 2570+49 to Sta. 2586+80)
 - Complete construction of the shared use path to the proposed clubhouse.
 - Complete construction of ND 23B including final lift of HMA.

Phase 3:

- Overlay ND 23 from Sta. 2586+25 to Sta. 2600+23.39

203-385 AVERAGE HAUL: No average haul has been computed for this project.

203-P01 COMMON EXCAVATION-TYPE A: Excess excavation is to become property of the contractor. Include the cost to remove excess excavation from the project in the unit price bid for "Common Excavation-Type A".

203-P02 COMPACTION CONTROL: Compact all fill areas within Golf Course Site (See Section 4, Sheet 5) as Compaction Control Type C as specified in Section 203.04 E4.

203-P03 TOPSOIL DEPTH: Strip topsoil to its full depth except for the area within golf course site (see Section 4, Sheet 5). For estimated topsoil depths refer to Section 10.

203-P04 GOLF COURSE TOPSOIL: Remove topsoil within the golf course site to a depth of 6 inches. Spread topsoil uniformly throughout the golf course site (see Section 4, Sheet 5) as specified in Section 199 and/or SP 505(14). Quantities for topsoil within the golf course site are not included in the "Topsoil" bid item. Include the cost to strip, place and grade topsoil in the unit price for "Golf Course".

251-P01 SEEDING CLASS III:
Seed all disturbed areas along the proposed or existing golf course with Class III Seeding. The seed mix and application shall be as follows:

9 lbs/acre	Blue Grama Grass (Bouteloua gracilis)
3 lbs/acre	Buffalo Grass
1 lbs/acre	Little Bluestem (Andropogon scoparius)
1 lbs/acre	Side Oats Grama (Bouteloua curtipendla)
1 lbs/acre	June Grass

302-110 BASE COURSE: Trim base course as specified in Section 302.04 C.1, "Surface Tolerance Type B."

430-100 HMA LONGITUDINAL JOINTS: Construct the joints within the final lift of pavement as detailed within this note.

Place a longitudinal joint at the centerline of the roadway.

Construct each lane and the adjoining shoulder using a single pass or a hot seam.

A hot seam is defined as follows:

- Constructed using two pavers simultaneously;
- No more than 300 feet between pavers; and
- Roll the seam between paver passes in a manner such that the seam is not visible

704-255 TRAFFIC CONTROL FOR SHOULDER DROP-OFF: If the shoulder and adjacent driving lane are not even at the end of the day, the following criteria will apply:

Place the following sign assembly at the locations listed below.

Sign Assembly: Sign No. W8-9a-48 "Shoulder Drop Off" and supplemental plate Sign No. W20-52-54 to identify the distance.

Locations:

- In advance of the drop off;
- Spaced at each mile from the advance sign; and
- At major intersections (CMC routes, state and US highways, and Interstate Ramps).

If the difference in elevation between the shoulder and the driving lane is 2" or greater, construct a slough on the driving lane that is 4:1 or flatter.

If the difference in elevation between the shoulder and driving lane is less than 2", no slough is required.

Sign assemblies will be measured and paid for according to Section 704 "Temporary Traffic Control".

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NOTES

704-P01 TRAFFIC CONTROL: Traffic control device quantities are based on the list below. Provide additional devices at no additional cost to the Department.

- 1. Standard D-704-15; layout A;
- 2. Standard D-704-20, layout G;
- 3. Standard D-704-22, layouts K and L;
- 4. Standard D-704-26, layouts EE and FF.

706-P01 AGGREGATE LABORATORY: Supply an Aggregate Laboratory with a printer/copy machine. Include the cost in the contract unit price for "Aggregate Laboratory".

706-P02 FIELD OFFICE: Provide a field office, which meets the following requirements:

- 1. Minimum total area of 440 square feet
- 2. Indoor bathroom facilities and supplies with weekly cleaning services
- 3. Hookups for heat, electricity, internet, sewer, and potable water.
- 4. Minimum cabinet space of 32 cubic feet
- 5. Minimum counter space of 40 square feet
- 6. A heating and cooling system that is capable of maintaining the temperature between 65°F and 78°F year around.
- 7. Lighting with a minimum of 110 foot-candles
- 8. Have a 15 cubic foot or larger refrigerator and a microwave
- 9. Have 3 desks and 3 desk chairs, 3 extra chairs, one drawer file cabinet with at least two drawers, one table minimum of 2.5' x 5'
- 10. Be wired for DSL Broadband internet capabilities. The internet shall have a Wi-Fi router and the capabilities of hard wiring to a computer.
- 11. Have a photocopy machine with scanning capabilities that is capable of 11" x 17" photocopies and toner to last the duration of the project. The Engineer will be responsible to furnish the paper. A separate table or cabinet to support the copier.
- 12. Handicap and wheelchair accessible

Place the field office as close to project as possible. Pay all rental fees, cleaning service, heating and electricity costs, internet service, sewer service, and water service. Make the field office available for occupancy one week before the start of the project. The Engineer will approve the location and the condition of the office. Do not remove the field office until the Engineer releases the field office. All requirements of the Field Office are subject to approval by the Engineer. Include all costs for the field office in the bid price for "Field Office".

714-P01 STORM DRAINS AND CULVERTS: Tie all concrete pipe joints with pipe ties per Standard Detail D-714-22.

Reinforced concrete pipe storm drain joints shall be bell and spigot with rubber gaskets. Reinforced concrete pipe culverts shall be tongue and groove joint sealed with butyl mastic and wrapped joints. Spiral rib pipe storm drain and culvert joints shall include rubber gaskets.

No field cutting of spiral rib pipe shall be allowed. Attach metal end sections to the ends of spiral rib pipe by standard metal bands or as approved by the engineer.

722-P01 ADJUST MANHOLE: This bid item provides for the adjustment of various existing castings to the proper grade. A maximum of six rings will be allowed. "Adjust Manhole" includes adjustments that can be made by adding or removing adjusting rings. Bid items "Adjust Manhole" and "Manhole Repair" may interchange based on field findings. Include all labor, materials, and equipment necessary to complete the in the price bid for "Adjust Manhole".

722-P02 MANHOLE REPAIR: This bid item provides for the adjustment and modification to bring existing manholes to grade. "Manhole Repair" includes adjustments that require major reconstruction, beyond adding or removing adjusting rings. Bid items "Adjust Manhole" and "Manhole Repair" may interchange based on field findings. Include all labor, materials and equipment necessary to complete the modification to the existing manhole in the unit price for "Sanitary Manhole Repair".

752-P01 FENCE BARBED WIRE 3 STRAND-STEEL POST: Install the 3 strand barbed wire fence in accordance with standard drawing D-752-1. Maintain the wire distance, shown in Standard Drawing D-752-1, from the top of the post to the top wire and from the ground to the bottom wire. Evenly space the third wire in between the top and bottom wires.

752-P02 FENCE POST: Use wood posts for fence adjacent to Edgewater Country Club.

752-P03 CORNER ASSEMBLY BARBED WIRE: Corner assemblies for smooth wire fence will be paid for as "Corner Assembly Barbed Wire".

754-P01 SIGN SUPPORT STRIP: Place one red reflectorized strip (2.25"x5') on the sign support Assembly 1 (see Standard Drawing D-754-26). Place the strip on the sign face side. Include all labor, materials and equipment necessary to install the reflective strip in the price bid for "Steel Galv Post Telescoping Perforated Tube".

970-P01 BENCH: Remove and reset benches shown in Section 60.

Existing Location	Material
Sta. 2575+30 (ND 23)	Concrete
Sta. 48875+38 (ND 23B)	Concrete
Sta. 2579+49 (ND 23)	Wood

Include all labor, materials and equipment in the price bid for "Bench".

990-P01 PIPE CLEANOUT: Remove all silt and/or debris in centerline culverts designated to be extended. Include the cost in price bid for "Pipe Cleanout".

This document was originally issued and sealed by Jessica R Karls Registration Number PE-8408, on 09/13/17 and the original document is stored at the North Dakota Department of Transportation

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	AC-NH-SOIB-7-023(041)925	6	5

NOTES

SECTION 140

- 770-P01 BREAKAWAY LIGHTING STANDARDS 12FT MA 40FT MT HT. Refer to standard drawing D-770-5. Provide light standards that have a davit type mast arm and have factory installed internal vibration dampeners. Provide all light standards with a transformer type base and ensure bases are installed on a concrete foundation. Breakaway type base is required. Duct seal all conduit stubs in the concrete foundation. Install hand holes so that they face opposite the side towards the curb or roadway edge. Provide and apply an anti-corrosion compound to all anchor bolts and nuts. Anchor bolt spacing to accommodate poles shall be verified in the field prior to construction. Provide and install a spare conduit sweep in foundations with only one conduit run shown to them or as shown on the plans.
- 770-P02 CONDUIT: Seal all conduits with duct seal at the feed point cabinet and at the light standard foundations and pull box. Conduit types may be either schedule 40 PVC or HDPE conduit with a wall thickness equivalent to schedule 40 (Refer to NDDOT specification 895.02 for more details). HDPE conduit to be UL listed and be the color red.
- 770-P03 LED LUMINAIRES: The standard luminaire to be of the light emitting diode (LED) type designed for roadway lighting where specified in the contract documents. The led luminaire to be as follows: American Electric Lighting, Autobahn Series, Model ATB2-80BLEDE10-MVOLT-R2-3K-BL-NR or Eaton Streetworks, Navion series, NAV-AF-05-E-U-T2-10K-7030-K-AP or an approved equivalent. Luminaires shall have a standard grey powder-coat, corrosion resistant finish. Fixtures are to be mounted at an angle of 0° to horizontal, unless otherwise noted in the pole schedule.
- 770-P04 UNDERPASS LIGHT UNIT CEILING MTD-50 WATT: The standard luminaire to be of the light emitting diode (LED) type designed for roadway lighting where specified in the contract documents. The led luminaire to be as follows: GE Lighting, Evolve Series, Model ECB-B-O-F-5-40-1-A-GRY or Eaton Streetworks, Concise series, CONC-F01-LED-E1-WQ-AP-SM or an approved equivalent. Luminaires shall have a standard grey powder-coat, corrosion resistant finish. Light fixtures shall be surface mounted on the underpass ceiling. Coordinate the locations of conduit, boxes and luminaires with the installation of the underpass. All conduit embedded within the concrete of the underpass or exposed shall be galvanized rigid steel. Provide corrosion wrap tape on GRS conduit where in direct contact with concrete or installed underground.
- 770-P05 ACHITECTURAL LED LUMINAIRE: The standard luminaire to be of the light emitting diode (LED) type designed for roadway lighting where specified in the contract documents. The led luminaire to be as follows: American Electric Lighting, Autobahn Series, Model DSX1-60C-700-40K-T3M-MVOLT-DBLXD. Luminaires shall have a standard black powder-coat, corrosion resistant finish. Fixtures are to be mounted at an angle of 0° to horizontal, unless otherwise noted in the pole schedule.

- 770-P06 ARCHITECTURAL LT STD 30FT MT HT. Refer to standard drawing D-770-5. Provide light standards that have factory installed internal vibration dampeners. Provide all light standards with an anchor type base and ensure bases are installed on a concrete foundation. Non-breakaway type base is required. Duct seal all conduit stubs in the concrete foundation. Install hand holes so that they face opposite the side towards the curb or roadway edge. Provide and apply an anti-corrosion compound to all anchor bolts and nuts. Anchor bolt spacing to accommodate poles shall be verified in the field prior to construction. Provide and install a spare conduit sweep in foundations with only one conduit run shown to them or as shown on the plans. Light standard shall be manufacturers standard black finish.
- 770-P07 MODIFY EXISTING FEED POINT. Connect the proposed underpass lighting and architectural lighting circuit to the existing feed point at a new 50A 2 pole breaker where shown in the plans. The lights shall be controller by a new contactor and photoeye lighting control circuit.
- Provide a new 20A single pole breaker for the service outlet connection. Provide any additional mounting provisions as required to mount new conduits, boxes and controls as described.

This document was originally issued and sealed by Christopher Horner Registration Number PE-5949, on 08/30/17 and the original document is stored at the North Dakota Department of Transportation

NOTES

SECTION 150

- 772-P01 TRAFFIC SIGNALS SYSTEM: The price bid “Traffic Signal System – Site 1” includes all labor and equipment necessary for each signal system to be fully operational as shown in the plans upon construction completion. This includes, but is not limited to, the installation of the following features where applicable; traffic signal standards and foundation, vehicular heads, video detection system, traffic signal controller and all ancillary controller hardware (conflict monitor, load switch, flasher, etc.), controller cabinet and foundation, feed point and all cable, conduit, junction boxes and appurtenances to install the traffic signal completely.
- Traffic Signal System – Site 1 is to include a new controller cabinet and components included with an Econolite controller, video detection monitor, Bus Interface Unit and power supply; battery back-up, conflict monitor and load switches and solid state flasher. All other equipment for Traffic Signal System – Site 1 shall be new including conduits, conductors, emergency preemption, Autoscope Vision video cameras and other equipment as necessary for a fully functional signal system.
- 772-P02 TRAFFIC SIGNAL STANDARDS BASE: Provide “T” transformer base type standards for all traffic signal standards. Include all costs for labor, materials and equipment necessary for furnishing and installing this item in the price bid for “Traffic Signal System – Site 1”.
- 772-P03 SIGNAL STANDARD PAINT COLOR: Paint all traffic signal system components in accordance with the following:
Transformer base - yellow
Mast arm - yellow
Signal head mounting hardware - yellow
Shaft - yellow
Signal housing - yellow
Pedestrian pushbutton post - yellow
Pedestrian pushbutton housing – yellow
Luminaire mounted on signal standard – galvanized
The color yellow shall be #13538 of Federal Standard No. 595.
- 772-P04 SIGNAL MOUNTING HEIGHT: All signals mounted above the roadway are to have a mounting height between 20.5’ and 21.5’ from the roadway to the bottom of the signal assembly (including backplates).
- 772-P05 NEMA ATC CONTROLLER: Provide an Econolite ATC Cobalt G NEMA controller. Construct the concrete foundation as shown on standard drawing D-770-1. Include all costs for labor, materials and equipment required to install the new controller in the price bid for “Traffic Signal System – Site 1”. This includes but is not limited to the cabinet, detector amplifiers (furnished and installed), other ancillary signal components (such as load switches, conflict monitors, etc.), concrete foundation, and controller cabinet components connected as required to make the new controllers equipment operational with the proposed signal equipment. This also includes any

programming and data entry (i.e. signal timing plans) necessary to provide a fully functional traffic signal controller.

- 772-P06 EMERGENCY VEHICLE PREEMPTION: Provide emergency vehicle preemption system from Opticom for compatibility with other EVPs in New Town, as well as, LED indicator lamps. Provide the equipment necessary for the emergency vehicle preemption system to be fully operational. Notify the City of New Town fire chief when the EVP systems are tested and operable. Include costs, labor, materials and equipment necessary for furnishing and installing this item in the price bid for “Traffic Signal System – Site 1”.
- 772-P07 VIDEO DETECTION SYSTEM: Install a video detection system using Autoscope Vision Video Detection Equipment. Include Autoscope Vision cameras with an Vision camera system and 1 spare camera. Include one spare interface panel and one spare video detection processor. All cable connections, camera aiming and system set-up, including programming detection zones and verification of reliable operation shall be provided by the Contractor. The location of cameras in the plans are for reference only. Install Cable and cameras.
- Provide all labor and equipment necessary for the video detection system to be fully operational. Include costs, labor, materials and equipment necessary for furnishing and installing this item in the price bid for “Traffic Signal System – Site 1”
- 772-P08 CONDUIT: Install conduit at the location shown on the plans.
- Seal all conduit with duct seal at the controller cabinet, traffic signal standard foundations and pull boxes. Install one spare 2” conduit sweep in each traffic signal standard base and two spare 2” conduit sweeps in the controller foundation. Cap the spare conduits with an oil-tight plug with wing nut and labeled as to which direction they face.

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NOTES

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	AC-NH-SOIB-7-023(041)925	6	7

772-P09 BATTERY BACK-UP: Equip each traffic controller with an “on-line” type Uninterruptible Power Supply (UPS) that provides power conditioning in both normal and backup mode. Size it to provide backup power to the system for a minimum of 2 hours in full signalized operation and a minimum of 8 hours in flash operation. Provide the UPS with aux contacts to put the system into flash operation. Incorporate full power management and diagnostic function into the UPS.

Provide the UPS with features to automatically provide battery back-up power to the controller system with no interruption when the electric utility power supply de-energizes. Provide a UPS that operates such that it does not provide power to the de-energized incoming electric utility service conductors.

Install the UPS in a temperature and humidity controlled environment. Install the UPS directly to the outside of the signal controller cabinet. Extend the controller cabinet pad mount foundation to provide a minimum of 3” of clearance from the outside edge of the cabinets to the outside edge of the foundation on any side, even if the battery back-up cabinet is mounted on the controller cabinet and not the foundation. Include all costs for materials, labor and equipment necessary to furnish and install the battery back-up in the price bid for “Traffic Signal System – Site 1.”

772-P10 LABEL ALL FIELD CABLES: Approve labeling materials with the City of New Town. Labels must be readable without moving the cables. Label field cables installed with the cable designations:

TYPE	LABEL	LABEL LOCATION
Communication cable	Comm./address of other end	Within 12" of conduit
Pedestrian push button	Phase/location (i.e. NW, SW, etc.)	Within 6" of terminals
Video detection cable	Approach Detection (i.e. NW, SW, etc.)	Within 6" of terminals
Control cable	Cable number & location (i.e. NW, SW, etc.)	Within 12" of conduit
Opticom cable	Pre-empt number/location (i.e. NW, SW, etc.)	Within 6" of terminal

Use a heat-shrink labeling system. Do not strip back from the connection more than 12 to 18 inches. This work is not a separate pay item and include costs in the price bid for “Traffic Signal System – Site 1”.

772-P11 CONTROLLER CABINET WIRING DIAGRAM: Label the following items on the cabinet wiring diagram, in addition to information required by NDDOT Standard Specification.

A. The camera number (i.e., D2-1) from the plan shall be labeled on the detector panel drawing adjacent to the point for termination.

- B. The field wire terminals for the vehicle/pedestrian head control cables shall be labeled with the phase number and direction (i.e., Ø2, SB).
- C. The field wire terminal for the pre-empt indicator lamps shall be labeled with the pre-empt number and direction (i.e., P.E. #1, NB).
- D. The field wire terminals for the pedestrian push-button cables shall be labeled with the phase number (i.e., Ø8 PED).
- E. Provide an intersection diagram on cabinet door showing phasing of intersection and camera numbering and detection zone numbering
- F. Provide a CAD drawing file of the as-built cabinet wiring diagram.

772-P12 ACCESSIBLE PEDESTRIAN SIGNALS (APS) PUSHBUTTON AND SIGN: Meet the requirements of accessible pedestrian signal (APS) pushbuttons and include the features, installation procedures and be compliant with the following:

- A. Features:
 - 1. Rapid tick WALK indication, no more than 2–5dBA above ambient sound
 - 2. Vibrotactile WALK indication
 - 3. Speaker and vibrotactile indication located at pushbutton
 - 4. Pushbutton locator tone
 - 5. Tactile arrow on each device aligned in direction of travel on the crosswalk
- B. Installation Procedures
 - 1. APS should be reachable from the level landing of the curb ramp for the crossing or from a level surface with an accessible path to the ramp (MUTCD Section 4E.08 and Proposed and Draft PROWAG).
 - 2. APS should be within 5 feet of the crosswalk line furthest from the center of the intersection and within 10 feet of the curb (MUTCD Section 4E.08).
 - 3. Tactile arrow shall be aligned with parallel to the direction of travel on the crosswalk (MUTCD Section 4E.12, P1).
 - 4. Pushbutton required to be located within reach range for wheelchair users (Proposed PROWAG, R406).
- C. Code Compliance:
 - 1. Functionality: MUTCD 2009 - 4E
 - 2. Temperature and Humidity: NEMA TS 2
 - 3. Transient Voltage Protection: NEMA TS 2
 - 4. Transient Suppression: IEC 61000-4-4, IEC 61000-4-5
 - 5. Electronic Noise: FCC Title 47, Part 15, Class A
 - 6. Mechanical Shock and Vibration: NEMA TS 2
 - 7. EN4 PBS Enclosure: NEMA 250 - Type 4X
 - 8. Electrical Reliability: NEMA TS 4

Supply an additional pushbutton unit at each site. The cost for the accessible pedestrian signals pushbutton and sign is not be bid separately but included in the item “Traffic Signal System – Site 1”.

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	AC-NH-SOIB-7-023(041)925	6	8

NOTES

772-P13 SIGNAL STANDARD CONDUCTORS: Install one cable from the signal transformer base to each traffic signal head. Daisy chaining from head to head is not allowed.

772-P14 FEED POINT-COMBO LIGHTING & SIGNAL-PAD MOUNT: Install the feed point at the location indicated in the plans. Provide underground incoming electrical service. See standard drawings D-770-2 and D-770-2A along with Section 140 for details.

Coordinate with the Utility for the incoming electrical service. The utility shall be responsible for providing service connections and conductors from the utility transformer to the meter socket located on the feed point cabinet. The utility shall be responsible for any boring or trenching required up to the meter. Provide and install a 200 amp meter socket, with stud type connectors, and mount on the side of the feed point cabinet. Provide and install a 2” conduit sweep in the concrete foundation for the service conductors to the meter socket from a point 24” below grade. Provide rigid steel for all exposed conduit. Any cost imposed by the utility shall be coordinated by the Contractor and paid for by the NDDOT.

Orient the feed point as shown on the plans and as directed by the field Engineer. Provide a type III feed point as shown and according to the standard details. Provide a permanent etched label for the exterior feed point cabinet and for the contactors inside the cabinet. Construct the feed point cabinet with a minimum 12 gauge steel. Provide an enclosure with a NEMA 3R rating. Provide doors that are gasketed and capable of utilizing a padlock. Provide all the necessary breakers as shown in the detail and panel schedule. Install the photo cell facing north and design the photo cell to recess into the cabinet. Provide a hand-off-auto test switch to override the photocell control. Duct seal all conduit stubs in concrete foundation. Include all costs associated with the materials, labor, coordination, utility fees, and equipment necessary to furnish and install the feed point and electrical service in the price bid for “Traffic Signal System – Site 1”

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ENVIRONMENTAL NOTES

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	AC-NH-SOIB-7-023(041)925	6	9

ENVIRONMENTAL NOTES (EN): The North Dakota Department of Transportation and the Federal Highway Administration have made environmental commitments to secure approval of this project. The following environmental notes are requirements to comply with these commitments:

EN-1 SPILL PREVENTION CONTROL AND COUNTERMEASURE (SPCC) PLAN: The Contractor will comply with the EPA SPCC Rule and complete an SPCC Plan if oil of any kind or in any form is stored on site in capacities that trigger compliance with SPCC regulations (i.e., cumulative above ground storage capacity greater than 1,320 gallons or a completely buried storage capacity greater than 42,000 gallons).

EN-2 AVOIDANCE OF WETLANDS AND OTHER WATERS: Known wetlands and other waters, and permanent impacts to these resources are incorporated into the plans for this project. Avoid all wetlands and other waters (i.e., do not fill, excavate or work within [permanent or temporary]), except where impacts are incorporated into the plans for this project.

EN-3 WHOOPING CRANE

The project is located within the migration corridor of the endangered whooping crane. The migration periods of the whooping crane are April 1st to May 15th and September 10th to October 31st.

Stop all construction activities and notify the Engineer immediately in the event a whooping crane is identified within one mile of the project location. The Engineer will then coordinate with US Fish and Wildlife Service (USFWS), the Federal Highway Administration and North Dakota Department of Transportation (NDDOT) Environmental and Transportation Services Division. Do not resume work within the avoidance area until the Engineer has confirmed that the bird has left the area.

Above ground utility line conflicts are anticipated to be resolved prior to start of construction; however, if any additional impacts are required, contact the NDDOT Utility Engineer to coordinate with the utility company. Bird diverters will be installed by the utility company on overhead utility lines that are shifted due to the proposed action.

EN-4 BALD AND GOLDEN EAGLE

The project is located within suitable nesting habitat for bald and golden eagles. In the event any bald or golden eagle nests are identified within 0.5-mile of the project location, stop all construction activities and notify the Engineer immediately. The Engineer will then coordinate with USFWS and NDDOT. Do not resume work within the avoidance area until the Engineer has confirmed whether any measures necessary to minimize harm to bald and/or golden eagles are required.

NOTIFICATIONS TO BE FILED BY CONTRACTOR:

EN-5 FEDERAL AVIATION ADMINISTRATION (FAA) NOTIFICATION: Notification is required for work within 3 nautical miles of the airport. FAA Notice of Proposed Construction or Alteration Form 7460-1 was submitted on 06/12/2017 for permanent structures and temporary construction equipment up to 50 feet above ground level (Study numbers 2017-AGL-10199-OE through 2017-AGL-10232-OE); FAA issued a Determination of No Hazard to Air Navigation for Temporary Structure on 06/27/2017, which expires on 12/27/2018. Complete the FAA Notice of Proposed Construction or Alteration Form 7460-1 for any temporary equipment that is taller than disclosed during the initial filing at least 45 days before the start date of operating such equipment. Complete a Supplemental Notice (7460-2) – Extension Request no later than 15 days prior to the expiration date (12/27/2018) for any construction activities occurring after the expiration date. Complete and submit the FAA Notice of Actual Construction or Alteration Form 7460-2 (Part 2) within 5 days of construction of individual light poles and traffic signals (Study numbers 2017-AGL-10199-OE through 2017-AGL-10221-OE, and 2017-AGL-10230-OE through 2017-AGL-10232-OE). All forms available online at <http://oeaaa.faa.gov>.

EN-6 NORTH DAKOTA DEPARTMENT OF HEALTH (NDDH) ASBESTOS NOTIFICATION: Notification is required for building demolition. Complete SFN 17987 Asbestos Notification of Demolition and Renovation form and submit to NDDH at least 10 days prior to beginning demolition in accordance with Section 33-15-13-02 of the North Dakota Administrative Code. See Asbestos Survey Report dated June 2017, prepared by KLJ.

PERMITS TO BE ACQUIRED BY CONTRACTOR (IN ADDITION TO NDDOT STANDARD SPECIFICATIONS):

EN-7 CITY OF NEW TOWN DEMOLITION PERMIT: A permit is required for building demolition. Complete Demolition Application and obtain approval from the City of New Town.

EN-8 STORMWATER POLLUTION PREVENTATION PLAN: Two permits will be required for this project. One for the Golf Course Site and Clubhouse Site and one for the Highway Site (refer to Section 4).

Estimate of Quantities

SPEC	CODE	ITEM DESCRIPTION	UNIT	TOTAL
103	0100	CONTRACT BOND	L SUM	1
103	0200	ESCROW OF BID DOCUMENTATION	L SUM	1
201	0330	CLEARING & GRUBBING	L SUM	1
201	0380	REMOVAL OF TREES 18IN	EA	244
201	0390	REMOVAL OF TREES 30IN	EA	22
202	0136	REMOVAL OF PAVEMENT	TON	12,579
202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES	LF	257
202	0279	REMOVAL OF BUILDINGS-SITE 3	L SUM	1
202	0281	REMOVAL OF BUILDINGS-SITE 1	L SUM	1
202	0282	REMOVAL OF BUILDINGS-SITE 2	L SUM	1
202	0312	REMOVE EXISTING FENCE	LF	8,853
203	0101	COMMON EXCAVATION-TYPE A	CY	676,176
203	0109	TOPSOIL	CY	54,701
203	0140	BORROW-EXCAVATION	CY	38,957
210	0050	BOX CULVERT EXCAVATION	EA	1
210	0210	FOUNDATION FILL	CY	2,441
210	0405	FOUNDATION PREPARATION-BOX CULVERT	EA	1
216	0100	WATER	M GAL	8,048
230	0165	SUBGRADE PREPARATION-TYPE A-12IN	STA	70.20
251	0200	SEEDING CLASS II	ACRE	45.32
251	0300	SEEDING CLASS III	ACRE	21.39
251	2000	TEMPORARY COVER CROP	ACRE	65
253	0101	STRAW MULCH	ACRE	110.32
253	0201	HYDRAULIC MULCH	ACRE	21.39
253	0301	BONDED FIBER MATRIX	ACRE	66.27
255	0103	ECB TYPE 3	SY	833
256	0300	RIPRAP GRADE III	CY	95
256	0600	RIPRAP-SALVAGED	CY	62
260	0200	SILT FENCE SUPPORTED	LF	5,834
260	0201	REMOVE SILT FENCE SUPPORTED	LF	5,834
261	0112	FIBER ROLLS 12IN	LF	53,061
261	0113	REMOVE FIBER ROLLS 12IN	LF	33,753
261	0120	FIBER ROLLS 20IN	LF	15,392
261	0121	REMOVE FIBER ROLLS 20IN	LF	7,872
302	0120	AGGREGATE BASE COURSE CL 5	TON	50,014
302	0356	AGGREGATE SURFACE COURSE CL 13	TON	10,554
401	0050	TACK COAT	GAL	7,234
401	0060	PRIME COAT	GAL	12,473
401	0160	BLOTTER MATERIAL CL 44	TON	214
411	0105	MILLING PAVEMENT SURFACE	SY	103
430	0045	SUPERPAVE FAA 45	TON	15,719
430	1000	CORED SAMPLE	EA	82
430	5803	PG 58S-28 ASPHALT CEMENT	TON	392
430	5818	PG 58H-34 ASPHALT CEMENT	TON	552
550	0302	8.5IN NON-REINF CONCRETE PVMT CL AE-DOWELED	SY	21,241
602	1131	CLASS AE-3 CONCRETE-BOX CULVERT	CY	296.7
612	0114	REINFORCING STEEL-GRADE 60-BOX CULVERT	LBS	63,116
702	0100	MOBILIZATION	L SUM	1
704	0100	FLAGGING	MHR	3,590
704	1000	TRAFFIC CONTROL SIGNS	UNIT	4,735
704	1052	TYPE III BARRICADE	EA	37
704	1060	DELINEATOR DRUMS	EA	328
704	1067	TUBULAR MARKERS	EA	153
704	1080	STACKABLE VERTICAL PANELS	EA	106
704	1086	SEQUENCING ARROW PANEL-TYPE B	EA	1
704	1185	PILOT CAR	HR	120
704	1500	OBLITERATION OF PAVEMENT MARKING	SF	8,941
706	0400	FIELD OFFICE	EA	1
706	0500	AGGREGATE LABORATORY	EA	1
706	0550	BITUMINOUS LABORATORY	EA	1

SPEC	CODE	ITEM DESCRIPTION	UNIT	TOTAL
706	0600	CONTRACTOR'S LABORATORY	EA	1
709	0100	GEOSYNTHETIC MATERIAL TYPE G	SY	321
709	0151	GEOSYNTHETIC MATERIAL TYPE R1	SY	5,347
709	0155	GEOSYNTHETIC MATERIAL TYPE RR	SY	257
714	4099	PIPE CONDUIT 18IN-APPROACH	LF	372
714	4106	PIPE CONDUIT 24IN-APPROACH	LF	254
714	4110	PIPE CONDUIT 30IN	LF	518
714	4113	PIPE CONDUIT 30IN-APPROACH	LF	122
714	4115	PIPE CONDUIT 36IN	LF	312
714	4120	PIPE CONDUIT 42IN	LF	1,086
714	5015	PIPE CORR STEEL .064IN 18IN	LF	64
714	5041	PIPE CORR STEEL .064IN 30IN POLYMERIC COATED	LF	14
714	5051	PIPE CORR STEEL .064IN 42IN POLYMERIC COATED	LF	76
714	5056	PIPE CORR STEEL .064IN 48IN POLYMERIC COATED	LF	6
714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES	EA	6
720	0110	RIGHT OF WAY MARKERS	EA	82
720	0125	ALIGNMENT MONUMENTS	EA	30
720	0130	IRON PIN R/W MONUMENTS	EA	68
720	0135	IRON PIN REFERENCE MONUMENTS	EA	14
722	0120	MANHOLE 72IN	EA	1
722	1120	MANHOLE RISER 72IN	LF	10.8
722	3300	SANITARY MANHOLE REPAIR	EA	3
722	4010	INLET CATCH BASIN 6IN BEEHIVE	EA	1
722	6140	ADJUST GATE VALVE BOX	EA	4
722	6200	ADJUST MANHOLE	EA	1
724	0427	ADJUST HYDRANT	EA	1
724	0891	WATERMAIN MODIFICATIONS	L SUM	1
744	0050	INSULATION BOARD	CF	234
750	0115	SIDEWALK CONCRETE 4IN	SY	564
750	0140	SIDEWALK CONCRETE 6IN	SY	105
750	2115	DETECTABLE WARNING PANELS	SF	50
752	0110	FENCE BARBED WIRE 3 STRAND-STEEL POST	LF	1,488
752	0201	FENCE SMOOTH WIRE 4 STRAND	LF	9,566
752	0911	TEMPORARY SAFETY FENCE	LF	2,938
752	0993	FENCE TERMINAL	EA	4
752	2100	VEHICLE GATE	EA	3
752	2120	REMOVE VEHICLE GATE	EA	2
752	3140	CORNER ASSEMBLY BARBED WIRE	EA	28
752	4100	DOUBLE BRACE ASSEMBLY BARBED WIRE	EA	1
754	0110	FLAT SHEET FOR SIGNS-TYPE XI REFL SHEETING	SF	388
754	0112	FLAT SHEET FOR SIGNS-TYPE IV REFL SHEETING	SF	546
754	0206	STEEL GALV POSTS-TELESCOPING PERFORATED TUBE	LF	1,438
754	0563	REFERENCE MARKER-TYPE C	EA	6
754	0805	OBJECT MARKERS - CULVERTS	EA	28
762	0112	EPOXY PVMT MK MESSAGE	SF	960
762	0113	EPOXY PVMT MK 4IN LINE	LF	60,456
762	0114	EPOXY PVMT MK 6IN LINE	LF	240
762	0115	EPOXY PVMT MK 8IN LINE	LF	8,842
762	0117	EPOXY PVMT MK 24IN LINE	LF	240
762	0420	SHORT TERM 4IN LINE-TYPE R	LF	30,480
770	0003	LIGHTING SYSTEM A	EA	1
770	0004	LIGHTING SYSTEM B	EA	1
770	0005	LIGHTING SYSTEM C	EA	1
772	9811	TRAFFIC SIGNAL SYSTEM - SITE 1	EA	1
902	0400	MACHINE HYGIENE	L SUM	1
920	1241	BIOLOGIST	L SUM	1
970	0300	BENCH	EA	3
970	0700	GOLF COURSE	L SUM	1
990	0400	PIPE CLEANOUT	EA	4

ND 23B Truck Reliever Route

Estimate of Quantities

ND 23B Mainline																			
Spec	Code	Description	Unit	Thickness (INCH)	Sta 48880+83.00 to Sta 48885+94.94			Sta 48885+94.94 to Sta 48893+43.19			Sta 48893+43.19 to Sta 48899+62.00			Sta 48899+62.00 to Sta 48907+22.00			Sta 48910+22.00 to Sta 48916+32.00		
					Typical 2			Typical 3			Transition From Typical 3 to Typical 5			Typical 5			Transition From Typical 5 to Typical 6		
					Crosssectional Area (SF) or Width (LF)	Subtotal	Average Qty/Sta	Crosssectional Area (SF) or Width (LF)	Subtotal	Average Qty/Sta	Surface Area (SY)	Subtotal	Average Qty/Sta	Crosssectional Area (SF) or Width (LF)	Subtotal	Average Qty/Sta	Surface Area (SY)	Subtotal	Average Qty/Sta
302	0120	Aggregate Base Course CL 5 (1.875 Ton/CY)	TON	18	95.47	3393.99	662.97	94.23	4896.56	654.40	3890.43	3647.28	589.40	77.47	5702.45	537.97	3711.69	3479.71	570.44
401	0050	Tack Coat (0.05 GAL/SY) (3 Applications)	GAL	-	55.00	469.28	91.67	55.00	685.90	91.67	3598.55	539.78	87.23	43.00	759.67	71.67	3372.83	505.92	82.94
401	0060	Prime Coat (0.35 GAL/SY)	GAL	-	57.00	1134.80	221.67	57.00	1658.62	221.67	3676.92	1286.92	207.97	45.00	1855.00	175.00	3463.64	1212.28	198.73
401	0160	Blotter Material CL 44 (12 LBS/SY)	TON	-	57.00	19.45	3.80	57.00	28.43	3.80	3676.92	22.06	3.57	45.00	31.80	3.00	3463.64	20.78	3.41
430	0045	Superpave FAA 45 (2.0 Ton/CY)	TON	7	31.82	1206.63	235.70	31.71	1757.80	234.92	3676.92	1429.91	231.07	24.82	1948.77	183.85	3463.64	1346.97	220.82
430	5803	PG 58S-28 Asphalt Cement (6% AC)	TON	3	14.00	31.86	6.22	13.93	46.33	6.19	3598.55	35.99	5.82	11.00	51.83	4.89	3372.83	33.73	5.53
430	5818	PG 58H-34 Asphalt Cement (6% AC)	TON	4	17.82	40.54	7.92	17.78	59.14	7.90	3618.06	48.24	7.80	13.82	65.10	6.14	3395.43	45.27	7.42
Spec	Code	Description	Unit	Thickness (INCH)	Sta 48916+32.00 to Sta 48920+03.40			Sta 48920+03.40 to Sta 48923+74.00			Sta 48923+74.00 to Sta 48926+54.00			Sta 48926+54.00 to Sta 48932+04.80			Sta 48932+04.80 to Sta 48933+45.72		
					Typical 6			Typical 7			Transition From Typical 7 to Typical 8			Typical 8			Transition From Typical 8 to Typical 9		
					Crosssectional Area (SF) or Width (LF)	Subtotal	Average Qty/Sta	Crosssectional Area (SF) or Width (LF)	Subtotal	Average Qty/Sta	Surface Area (SY)	Subtotal	Average Qty/Sta	Crosssectional Area (SF) or Width (LF)	Subtotal	Average Qty/Sta	Surface Area (SY)	Subtotal	Average Qty/Sta
302	0120	Aggregate Base Course CL 5 (1.875 Ton/CY)	TON	18	106.56	2748.38	740.00	106.56	2742.46	740.00	1855.47	1739.50	621.25	94.56	3616.95	656.67	936.66	878.12	623.13
401	0050	Tack Coat (0.05 GAL/SY) (3 Applications)	GAL	-	63.00	389.97	105.00	63.00	389.13	105.00	1699.78	254.97	91.06	55.00	504.90	91.67	927.08	139.06	98.68
401	0060	Prime Coat (0.35 GAL/SY)	GAL	-	65.00	938.82	252.78	65.00	936.79	252.78	1741.51	609.53	217.69	57.00	1220.94	221.67	929.80	325.43	230.93
401	0160	Blotter Material CL 44 (12 LBS/SY)	TON	-	65.00	16.09	4.33	65.00	16.06	4.33	1741.51	10.45	3.73	57.00	20.93	3.80	929.80	5.58	3.96
430	0045	Superpave FAA 45 (2.0 Ton/CY)	TON	7	36.41	1001.65	269.69	36.41	999.49	269.69	1741.51	677.25	241.88	31.74	1295.08	235.13	929.80	361.59	256.59
430	5803	PG 58S-28 Asphalt Cement (6% AC)	TON	3	15.95	26.33	7.09	15.95	26.27	7.09	1699.78	17.00	6.07	13.95	34.15	6.20	927.08	9.27	6.58
430	5818	PG 58H-34 Asphalt Cement (6% AC)	TON	4	20.46	33.77	9.09	20.46	33.70	9.09	1710.16	22.80	8.14	17.79	43.56	7.91	927.77	12.37	8.78
Spec	Code	Description	Unit	Thickness (INCH)	Sta 48933+45.72 to Sta 48936+69.00			Sta 48936+69.00 to Sta 48938+05.00			Total						Water 25 MGal/Mile for Dust Palliat 20 Gal/Ton for Aggregates 10 Gal/CY for Embankment		
					Typical 9			Transition From Typical 9 to Typical 11											
					Crosssectional Area (SF) or Width (LF)	Subtotal	Average Qty/Sta	Surface Area (SY)	Subtotal	Average Qty/Sta									
302	0120	Aggregate Base Course CL 5 (1.875 Ton/CY)	TON	18	106.56	2392.29	740.00	929.99	871.86	641.08	36110								
401	0050	Tack Coat (0.05 GAL/SY) (3 Applications)	GAL	-	63.00	339.44	105.00	854.36	128.15	94.23	5107								
401	0060	Prime Coat (0.35 GAL/SY)	GAL	-	65.00	817.18	252.78	874.63	306.12	225.09	12303								
401	0160	Blotter Material CL 44 (12 LBS/SY)	TON	-	65.00	14.01	4.33	874.63	5.25	3.86	211								
430	0045	Superpave FAA 45 (2.0 Ton/CY)	TON	7	36.41	871.87	269.69	874.63	340.13	250.10	13238								
430	5803	PG 58S-28 Asphalt Cement (6% AC)	TON	3	15.95	22.92	7.09	854.36	8.54	6.28	345								
430	5818	PG 58H-34 Asphalt Cement (6% AC)	TON	4	20.46	29.40	9.09	859.41	11.46	8.43	446								
Pavement Removal Aggregate Base Course @ 1 Concrete @ 2 Ton/CY HMA @ 2 Ton/CY																			

ND 23B Widening							
Spec	Code	Description	Unit	Thickness (INCH)	Sta 48956+08.85 to Sta 48959+43.06		
					Surface Area (SY)	Subtotal	Average Qty/Sta
302	0120	Aggregate Base Course CL 5 (1.875 Ton/CY)	TON	18	553.43	518.84	155.24
401	0050	Tack Coat (0.05 GAL/SY) (3 Applications)	GAL	-	459.36	68.90	20.62
401	0060	Prime Coat (0.35 GAL/SY)	GAL	-	484.56	169.60	50.75
401	0160	Blotter Material CL 44 (12 LBS/SY)	TON	-	484.56	2.91	0.87
430	0045	Superpave FAA 45 (2.0 Ton/CY)	TON	7	484.56	188.44	56.38
430	5803	PG 58S-28 Asphalt Cement (6% AC)	TON	3	459.36	4.59	1.37
430	5818	PG 58H-34 Asphalt Cement (6% AC)	TON	4	465.63	6.21	1.86

Quantity Breakdown Summary					
Spec	Code	Description	Unit	Depth	12' Lane Qty/Sta
302	0120	Aggregate Base Course CL 5 (1.875 Ton/CY)	TON	18"	125.00
401	0050	Tack Coat (0.05 GAL/SY Residual)	GAL	-	6.67
401	0060	Prime Coat (0.35 GAL/SY)	GAL	-	46.67
401	0160	Blotter Material CL 44 (12 LBS/SY)	TON	-	0.80
430	0045	Superpave FAA 45 (2.0 Ton/CY)	TON	7"	51.85
430	5803	PG 58S-28 Asphalt Cement (6% AC)	TON	3"	1.33

ND 23										
Spec	Code	Description	Unit	Thickness (INCH)	Sta 2571+78.00 to Sta 2571+98.00			Sta 2586+80.00 to Sta 2600+23.38		
					Surface Area (SY)	Subtotal	Average Qty/Sta	Surface Area (SY)	Subtotal	Average Qty/Sta
401	0050	Tack Coat (0.05 GAL/SY) (1 Application) (0.15 GAL/SY on Milled Pavement)	GAL	-	102.74	15.41	77.05	7553.50	1133.03	84.34
411	0105	Milling Pavement Surface	SY	-	11.42	102.74	513.68	-	-	-
430	0045	Superpave FAA 45 (2.0 Ton/CY)	TON	2.5	102.74	14.27	71.34	7553.50	1049.10	78.09
430	5818	PG 58H-34 Asphalt Cement (6% AC)	TON	2.5	102.74	0.86	4.28	7553.50	62.95	4.69

40th St NW										
Spec	Code	Description	Unit	Thickness (INCH)	Sta 50+00.00 to Sta 62+43.48			Sta 64+58.74 to Sta 78+04.79		
					Surface Area (SY)	Subtotal	Average Qty/Sta	Surface Area (SY)	Subtotal	Average Qty/Sta
302	0356	Aggregate Surface Course CL 13 (1.875 Ton/CY)	TON	6	4492.39	1403.87	111.11	4771.78	1491.18	110.78

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Taylor D. Olson
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of Transportation

ND 23B Truck Reliever Route

Basis of Estimate

Shared Use Path

Spec	Code	Description	Unit	Thickness (INCH)	Sta 0+00.00 to Sta 18+76.21			Sta 2570+49.43 to Sta 2579+90.65			Sta 2581+47.07 to Sta 2586+03.76			Total
					Surface Area (SY)	Subtotal	Average Qty/Sta	Surface Area (SY)	Subtotal	Average Qty/Sta	Surface Area (SY)	Subtotal	Average Qty/Sta	
302	0120	Aggregate Base Course CL 5 (1.875 Ton/CY)	TON	6	2507.41	783.57	41.76	1256.82	392.75	41.73	1256.82	392.75	41.73	1570
401	0050	Tack Coat (0.05 GAL/SY) (1 Application)	GAL	-	2092.96	313.94	16.73	1050.04	157.51	16.73	1050.04	157.51	16.73	629
430	0045	Superpave FAA 45 (2.0 Ton/CY)	TON	3	2089.84	348.31	18.56	1040.91	173.48	18.43	1040.91	173.48	18.43	696
430	5803	PG 58S-28 Asphalt Cement (6% AC)	TON	3	2092.96	20.93	1.12	1050.04	10.50	1.12	1050.04	10.50	1.12	42

Road to Driving Range

Spec	Code	Description	Unit	Thickness (INCH)	Sta 10+66.06 to Sta 12+07.69			Sta 13+17.07 to Sta 20+42.01			Sta 10+69.40 to Sta 11+95.23			Sta 11+95.23 to Sta 13+47.55			Sta 13+47.55 to Sta 20+42.01			Total
					Surface Area (SY)	Subtotal	Average Qty/Sta	Surface Area (SY)	Subtotal	Average Qty/Sta	Surface Area (SY)	Subtotal	Average Qty/Sta	Surface Area (SY)	Subtotal	Average Qty/Sta	Surface Area (SY)	Subtotal	Average Qty/Sta	
302	0120	Aggregate Base Course CL 5 (1.875 Ton/CY)	TON	6	-	-	-	-	-	-	126.59	26.37	20.96	45.43	9.47	6.21	573.09	119.39	17.19	156
302	0356	Aggregate Surface Course CL 13 (1.875 Ton/CY)	TON	6	421.75	131.80	93.06	2186.27	683.21	94.24	-	-	-	-	-	-	-	-	-	816
750	0115	Sidewalk Concrete 4IN	SY	4	-	-	-	-	-	-	81.39	81.39	64.68	-	-	-	448.99	448.99	64.65	531
750	0140	Sidewalk Concrete 6IN	SY	6	-	-	-	-	-	-	-	-	-	104.01	104.01	68.28	-	-	-	105

Alignment Monuments

Alignment	Northing	Easting	Station	Offset	Description	Point No.	Alignment Monument
PRND23	363902.31	1477733.37	48873+23.45	0.00	POT	6010	X
	364082.19	1477724.64	48875+03.54	0.00	PC	6011	X
	364626.30	1477698.23	48880+47.69	-15.75	PI	6012	X
	365169.83	1477734.78	48885+91.83	0.00	PT	6013	X
	365329.47	1477745.51	48887+51.83	0.00	PC	6014	X
	365597.90	1477763.57	48890+20.51	8.61	PI	6015	X
	365776.84	1477751.72	48891+99.46	0.00	QTR SEC CROSSING	6016	X
	365866.44	1477747.22	48892+89.18	0.00	PT	6017	X
	367497.39	1477647.96	48909+23.14	0.00	PC	6018	X
	368416.38	1477787.89	48918+59.72	0.00	SEC LINE CROSSING	6019	X
	368962.68	1477558.77	48922+18.94	-443.14	PI	6020	X
	368932.92	1478067.60	48924+48.87	0.00	QTR SEC CROSSING	6021	X
	369612.98	1478874.89	48935+14.73	0.00	PT	6022	X
	370076.02	1479812.00	48945+60.00	0.00	POT	6023	X
	363886.54	1477098.83	2574+31.75	0.00	PC	6030	X
	363878.29	1477376.55	2577+09.38	6.73	PI	6031	X
SCL23	363896.95	1477653.76	2579+87.00	0.00	PT	6032	X
	363916.64	1477946.28	2582+80.17	0.00	QTR SEC CROSSING	6033	X
	363938.37	1478269.13	2586+03.76	0.00	PC	6034	X
	368458.07	1476500.71	50+00.00	0.00	POT	6040	X
PR40ST	368455.24	1476663.68	51+63.00	0.00	PC	6041	X
	368453.87	1476742.99	52+41.92	4.87	PI	6042	X
	368471.81	1476820.26	53+20.85	0.00	PT	6043	X
	368560.73	1477203.19	57+13.96	0.00	PC	6044	X
	368612.31	1477425.30	59+39.25	-21.65	PI	6045	X
	368578.13	1477650.74	61+64.54	0.00	PT	6046	X
	368516.20	1478059.22	65+77.69	0.00	QTR SEC CROSSING	6047	X
	368453.94	1478469.82	69+92.98	0.00	PC	6048	X
	368393.02	1478871.67	73+98.89	12.73	PI	6049	X
	368382.78	1479277.97	78+04.79	0.00	PT	6050	X
720 0125 Alignment Monuments						Total =	30

754 0563 Reference Marker-Type C

Reference Point	Station	Quantity (EA)
926	48892+80.00	1
927	48945+60.00	1
928	48998+40.00	1
929	49051+20.00	1
930	49104+00.00	1
49	2587+20.00	1
754 0563 Reference Marker - Type C		Total = 6

430 1000 Cored Sample

Sta	to	Sta	Specification Section	A	B	C	D	Quantity (D x 2)	Quantity (1 per mile)	Unit
				Distance (Ft)/2000	Lanes	Lifts	Sublots (A x B x C)			
ND 23B Mainline										
48880+83.00	to	48938+05.00	430.04 I.2.b(1), "General"	3	3	4	36	72	N/A	EA
			430.04 I.2.b(2), "Pavement Thickness Determination Cores"	-	-	-	-	N/A	2	EA
ND 23B Widening										
48956+08.85	to	48959+43.10	430.04 I.2.b(1), "General"	0.25	1	4	1	2	N/A	EA
			430.04 I.2.b(2), "Pavement Thickness Determination Cores"	-	-	-	-	N/A	1	EA
ND 23 HMA Overlay										
2586+80.00	to	2600+23.38	430.04 I.2.b(1), "General"	1	2	1	2	4	N/A	EA
			430.04 I.2.b(2), "Pavement Thickness Determination Cores"	-	-	-	-	N/A	1	EA
						Totals		78	4	EA
						430 1000 Cored Sample		82		

230 0165 Subgrade Preparation - Type A - 12 IN

Location			Quantity (STA)
Sta	to	Sta	
ND 23B (PRND23)			
48873+23	to	48873+58	0.3
48874+02	to	48878+31	4.3
48914+04	to	48915+68	1.6
48916+05	to	48920+81	4.8
48921+22	to	48938+86	17.6
48939+22	to	48939+63	0.4
48945+03	to	48945+44	0.4
40th St NW (PR40ST)			
50+00	to	65+19	15.2
76+73	to	78+05	1.3
ND 23 (SCL23)			
2571+98	to	2586+80	14.8
Road to Driving Range (PR_GOLFDR)			
11+91	to	21+27	9.4
230 0165 Subgrade Preparation - Type A - 12IN Total =			70.2

754 0805 Object Markers - Culverts

Station	Alignment	Quantity		
		Offset		Total
		Lt	Rt	EA
48882+30	PRND23	1	1	2
48893+96	PRND23	-	2	2
48898+15	PRND23	1	1	2
48911+00	PRND23	1	1	2
48922+00	PRND23	1	1	2
48932+75	PRND23	2	2	4
48943+25	PRND23	1	1	2
48960+08	EX23B	1	-	1
48960+10	EX23B	1	-	1
48956+07	EX23B	1	-	1
48959+22	EX23B	1	-	1
2578+95	SCL23	2	-	2
13115+75	SCL1804	1	1	2
74+75	PR40ST	1	1	2
13+61	PR_GOLFDR	1	1	2
754 0805 Object Markers - Culverts				Total = 28

*Topsoil Depths

Begin Station	End Station	Topsoil Depth (IN)
48873+23	48899+67	6
48899+67	48924+75	12
48924+75	48945+60	0

*Topsoil depths measured from $\varnothing$ of the alignment

Removal of Buildings

Spec-Code	Site	Description	Size
202-0279	Site 3	Clubhouse	65' x 97'
202-0281	Site 1	Maintenance Shed	37' x 103'
202-0282	Site 2	Cart Shed	26' x 155'
		Cart Shed	26' x 57'

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Taylor D. Olson
Registration Number
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ND 23B Truck Reliever Route

Basis of Estimate

Iron Pin R/W Monuments										Iron Pin R/W Monuments									
Alignment	Northing	Easting	Station	Offset	Description	Point No.	Include Iron Pin R/W Monument	Include R/W Marker	Include Iron Pin Reference Monument	Alignment	Northing	Easting	Station	Offset	Description	Point No.	Include Iron Pin R/W Monument	Include R/W Marker	Include Iron Pin Reference Monument
PRND23	364052.92	1477886.25	48874+66.47	160.00	PPSD R/W	6100	X	X		SCL1804	370552.68	1479420.92	13121+09.59	-140.00	PPSD R/W	6160	X	X	
	364089.95	1477884.45	48875+03.54	160.00	PC	6101	X	X			370559.32	1479434.38	13121+09.59	-125.00	PPSD R/W	6161	X	X	
	364065.12	1477373.04	48875+03.54	-352.01	PC	6200	X		X		370728.00	1479351.22	13122+97.66	-125.00	PPSD R/W	6162	X	X	
	364081.64	1477559.47	48875+10.87	-165.00	PPSD R/W	6102	X	X			370750.11	1479396.06	13122+97.66	-75.00	PPSD R/W	6163	X	X	
	365181.91	1477555.18	48885+91.83	-180.00	PPSD R/W	6103	X	X		PR40ST	368633.04	1476503.74	50+00.00	-175.00	PPSD R/W	6170	X	X	
	365180.90	1477570.15	48885+91.83	-165.00	PT	6104	X	X			368482.11	1476501.12	50+00.00	-24.05	PPSD R/W	6171	X	X	
	365159.09	1477894.42	48885+91.83	160.00	PT	6105	X	X			368416.12	1476499.98	50+00.00	41.95	PPSD R/W	6172	X	X	
	365341.55	1477565.92	48887+51.83	-180.00	PC	6106	X	X			368358.08	1476498.98	50+00.00	100.00	PPSD R/W	6173	X	X	
	365318.73	1477905.15	48887+51.83	160.00	PC	6107	X	X			368630.22	1476666.71	51+63.00	-175.00	PC	6174	X	X	
	365769.74	1477571.86	48891+99.46	-180.00	QTR SEC CROSSING	6201	X		X		368355.26	1476661.95	51+63.00	100.00	PC	6175	X	X	
	365783.15	1477911.59	48891+99.46	160.00	QTR SEC CROSSING	6202	X		X		368642.28	1476780.68	53+20.85	-175.00	PT	6176	X	X	
	365854.59	1477552.58	48892+89.18	-195.00	PPSD R/W	6108	X	X			368374.40	1476842.88	53+20.85	100.00	PT	6177	X	X	
	365855.50	1477567.55	48892+89.18	-180.00	PT	6109	X	X			368404.14	1476970.95	54+52.33	100.00	PPSD R/W	6178	X	X	
	365876.16	1477906.93	48892+89.18	160.00	PT	6110	X	X			368731.20	1477163.61	57+13.96	-175.00	PC	6179	X	X	
	365877.68	1477931.88	48892+89.18	185.00	PPSD R/W	6111	X	X			368397.27	1477241.15	57+13.96	167.81	PC	6230	X		X
	367484.02	1477428.36	48909+23.14	-220.00	PPSD R/W	6112	X	X			368751.15	1477676.97	61+64.54	-175.00	PT	6180	X	X	
	367485.54	1477453.32	48909+23.14	-195.00	PC	6113	X	X			369366.38	1478188.12	65+77.69	-859.90	QTR SEC CROSSING	6231	X		X
	367508.63	1477832.61	48909+23.14	185.00	PC	6114	X	X			368160.26	1478005.26	65+77.69	360.00	QTR SEC CROSSING	6232	X		X
	367442.10	1476721.95	48909+23.90	-927.65	PPSD R/W	6115	X	X			368617.08	1478494.56	69+92.98	-165.00	PPSD R/W	6181	X	X	
	367447.98	1476487.02	48909+37.05	-1161.86	PPSD R/W	6116	X	X			368582.47	1478489.31	69+92.98	-130.00	PC	6182	X	X	
	368034.06	1476499.18	48913+21.32	-1168.74	PPSD R/W	6117	X	X			368320.47	1478449.59	69+92.98	135.00	PC	6183	X	X	
	368010.15	1477453.53	48914+03.13	-220.00	PPSD R/W	6118	X	X			368285.86	1478444.34	69+92.98	170.00	PPSD R/W	6184	X	X	
	368165.68	1477900.56	48916+47.29	185.00	SEC LINE CORNER	6203	X		X		368325.22	1479198.71	77+27.72	60.00	PPSD R/W	6186	X	X	
	368175.72	1477903.33	48916+58.64	185.00	PPSD R/W	6119	X	X			368250.26	1479196.35	77+28.13	135.00	PPSD R/W	6185	X	X	
	368294.14	1477515.93	48916+67.73	-220.00	SEC LINE CORNER	6204	X		X		368322.80	1479276.39	78+04.72	60.00	PPSD R/W	6190	X	X	
	368153.35	1478050.89	48916+79.95	333.05	PPSD R/W	6120	X	X			368345.33	1479276.96	78+04.73	37.47	PT	6189	X	X	
	368389.54	1477545.09	48917+58.46	-220.00	PPSD R/W	6122	X	X			368411.31	1479278.65	78+04.75	-28.53	PT	6188	X	X	
	368344.82	1478055.51	48918+91.85	275.39	PPSD R/W	6121	X	X			368512.74	1479281.24	78+04.79	-130.00	PPSD R/W	6187	X	X	
	368756.87	1477634.85	48920+94.63	-278.00	SEC LINE CORNER	6205	X		X	720 0110 Right of Way Markers				Total =				82	
	368744.36	1477721.76	48921+20.49	-195.00	PPSD R/W	6123	X	X		720 0130 Iron Pin R/W Monuments				Total =				68	
	368668.51	1478155.34	48922+68.71	220.00	PPSD R/W	6124	X	X		720 0135 Iron Pin Reference Monuments				Total =				14	
	368646.57	1478300.05	48923+36.20	354.08	SEC LINE CORNER	6206	X		X										
	369047.74	1477909.98	48924+48.87	-195.00	QTR SEC CROSSING	6207	X		X										
	368803.38	1478245.41	48924+48.87	220.00	QTR SEC CROSSING	6208	X		X										
	369570.17	1478430.45	48931+29.20	-195.00	PPSD R/W	6125	X	X											
	369716.84	1478433.91	48932+07.71	-312.76	PPSD R/W	6126	X	X											
	369781.39	1478570.88	48933+39.80	-293.49	PPSD R/W	6127	X	X											
	369738.30	1478693.69	48934+16.43	-195.00	PPSD R/W	6128	X	X											
	369787.81	1478788.51	48935+14.73	-195.00	PPSD R/W	6129	X	X											
	369751.94	1478806.22	48935+14.73	-155.00	PT	6130	X	X											
	369415.74	1478972.34	48935+14.73	220.00	PT	6131	X	X											
	369411.26	1478974.56	48935+14.73	225.00	PPSD R/W	6132	X	X											
	370153.03	1479617.96	48944+20.15	-155.00	PPSD R/W	6133	X	X											
	369840.99	1479844.27	48944+84.81	225.00	PPSD R/W	6134	X	X											
SCL23	363995.15	1476810.66	2571+40.48	-100.00	PPSD R/W	6150	X	X											
	364055.12	1476812.44	2571+40.48	-160.00	PPSD R/W	6151	X	X											
	364046.47	1477103.58	2574+31.75	-160.00	PC	6152	X	X											
	364044.99	1477373.42	2577+09.37	-160.00	PPSD R/W	6153	X	X											
	364074.99	1477372.86	2577+09.38	-190.00	PPSD R/W	6154	X	X											
	364056.32	1477936.87	2582+80.17	-140.00	QTR SEC CROSSING	6220	X		X										
	363816.87	1477952.99	2582+80.17	100.00	QTR SEC CROSSING	6221	X		X										
	364059.97	1477991.01	2583+34.43	-140.00	PPSD R/W	6155	X	X											
364020.06	1477993.70	2583+34.43	-100.00	PPSD R/W	6156	X	X												
364038.15	1478262.42	2586+03.76	-100.00	PC	6157	X	X												

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ND 23B Truck Reliever Route

Basis of Estimate

LOCATION	EARTHWORK SUMMARY				TOPSOIL SUMMARY	TOPSOIL SUMMARY
	203 0101 COMMON EXCAVATION- TYPE A	Embankment ^{1,2}	Excess Excavation	203 0140 BORROW EXCAVATION	203 109 TOPSOIL	GOLF COURSE TOPSOIL
	A	B	C=A-B	D=B-A		
	(CY)	(CY)	(CY)	(CY)	(CY)	(CY)
Phase 1 ND23B/40th St NW/Access Road						
Sta 50+00 to Sta 78+04.79 (40th St NW Phase A: Temporary Roadway)	41,616	12,931	28,685	-	7,509	-
Sta 50+00 to Sta 78+04.79 (40th St NW Phase B: Proposed 40th St NW)	45,907 ⁸	21,278	24,629 ⁸	-	1,882	-
Sta 50+00 to Sta 78+04.79 (40th St NW Phase C: Remove Temp Roadway)	13,893	7,116	6,777	-	998	-
Sta. 10+00 to Sta. 38+17 (Construction Access Road)	8,264	37,743 ⁴	-29,479	-	4,794	-
Sta. 48892+00 to Sta. 48945+60 (ND 23B)	333,413 ³	301,422	31,991	-	25,448	-
Phase 1 Roadway Grading Subtotals	443,093	380,490	62,603	-	40,631	-
Sta. 48892+00 to Sta. 48914+00 Golf Course Grading	22,001	123,561 ⁴	-101,560	-	-	43,505 ⁷
Phase 1 Edgewater Country Club Subtotals	22,001	123,561	-101,560	-	-	43,505 ⁷
Phase 1 Totals	465,094	504,051	-	38,957	40,631	43,505 ⁷
Phase 2 (North) ND1804/ND23B						
Sta. 13107+45.17 to Sta. 13122+73.11 (ND 1804)	1,290	1,248	42 ⁵	-	586	-
Sta. 48945+60 to Sta. 48959+43.10 (ND 23B)	729	3,001	-	2,272	1,078	-
Phase 2 (North) Totals	2,019	4,249	42 ⁵	2,272	1,664	-
Phase 2 (South) ND 23/ND23B						
Sta. 2570+49.46 to Sta. 2586+05 (ND 23 Phase A: Temp Widening)	51	171 ⁴	-120	-	200	-
Sta. 2570+49.46 to Sta. 2586+05 (ND 23 Phase B: Construct Shared-Use Path)	792	5,150 ⁴	-4,358	-	1,354	-
Sta. 2570+49.46 to Sta. 2586+05 (ND 23 Phase C: Remove Shared Use Path)	6,813	12	6,801	-	1,846	-
Sta. 48873+23.45 to Sta. 48892+26 (ND 23B)	44,215	92,438 ⁴	-48,223	-	7,827	-
Sta. 10+65.83 to Sta. 20+40.58 (Driving Range Road)	18,019	5,534	12,485	-	1,179	-
Phase 2 (South) Roadway Subtotals	69,890	103,305	-33,415	-	12,406	-
Sta. 48875+00 to Sta. 48892+26 Golf Course Grading	141,192	53,583	87,609	-	-	17,114 ⁷
Phase 2 Edgewater Country Club Subtotals	141,192	53,583	87,609	-	-	17,114 ⁷
Phase 2 (South) Totals	211,082	156,888	54,194	-	12,406	17,114 ⁷
Grand Totals	676,176	660,939	54,194	38,957	54,701	60,619

Notes:

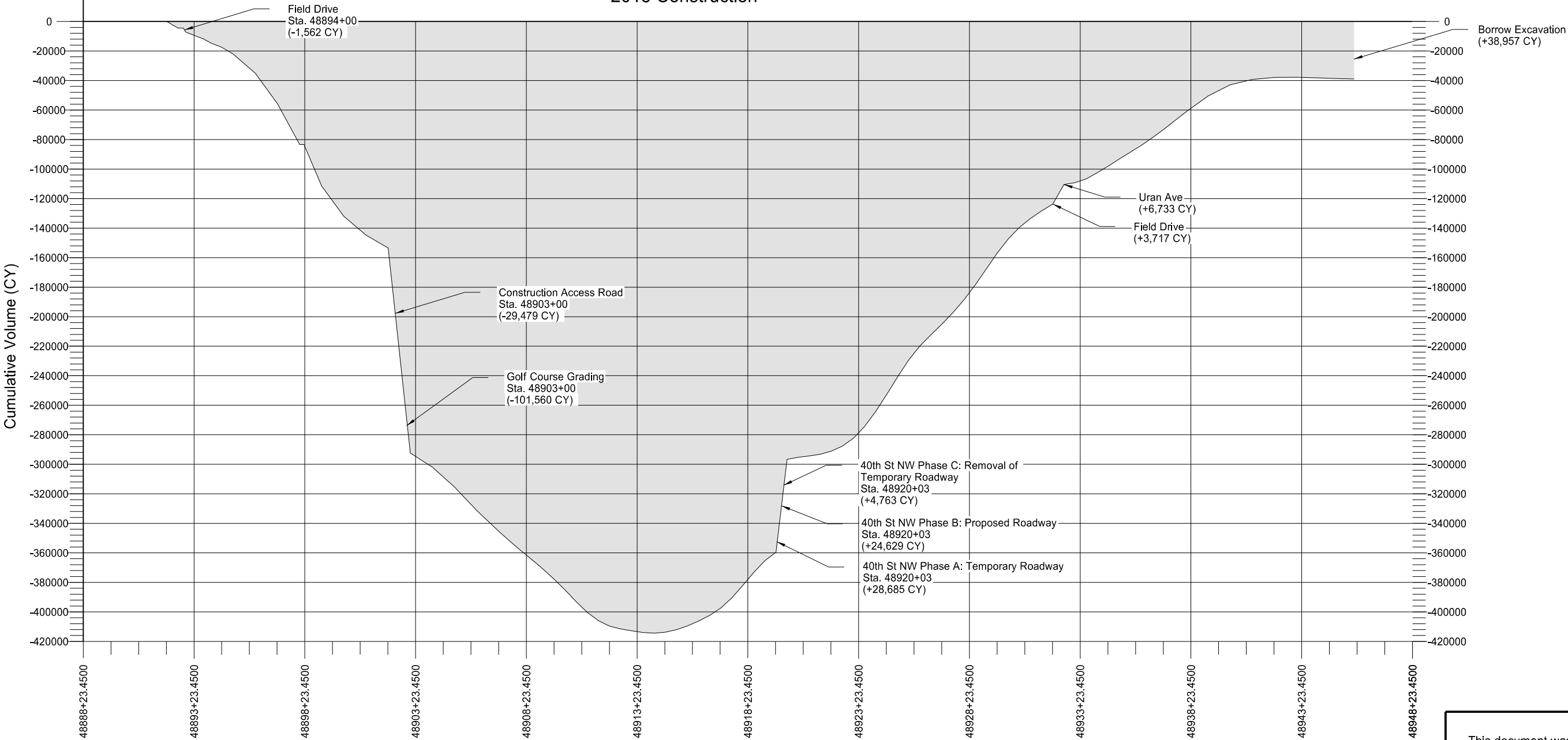
1. Additional 25% volume included for shrinkage.
2. Compact all fill areas within the Golf Course Site as Compaction Control Type C. See Section 4 Sheet 5.
3. Includes earthwork required to remove the Construction Access Road.
4. Obtain material needed to construct the embankment from excess excavation.
5. Waste excess material on the inslopes.
6. The aggregate surfacing from temporary roadways has been included in embankment quantities for removal. Include the cost to remove aggregate base from temporary roadways in the bid price for "Common Excavation-Type A".
7. Include the cost to strip, remove and replace topsoil in the pay limits of Edgewater Country Club in the bid price for "Golf Course". This quantity does not include specialty topsoil for the root zone.
8. Includes 2625 CY to remove existing 40th St NW.

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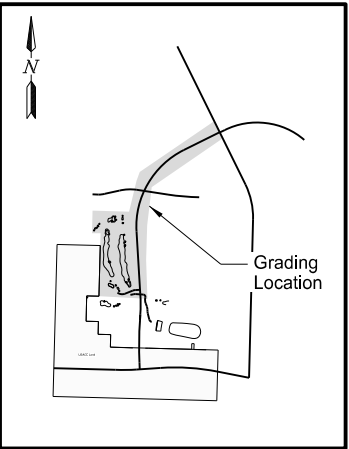
ND 23B Truck Reliever Route
Earthwork Summary

ND 23B Phase 1 Mass Haul Diagram
2018 Construction

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	AC-NH-SOIB-7-023(041)925	11	2



EMBANKMENT =	504,051.00
EXCAVATION =	465,094.00
BORROW=	38,957.00



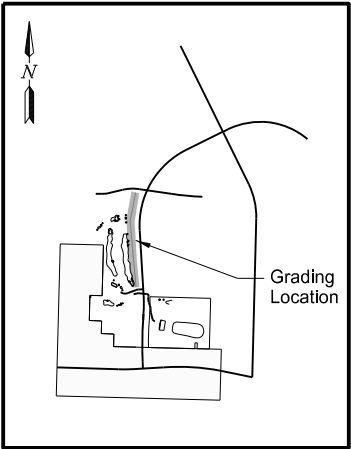
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ND 23B Truck Reliever Route
Mass Haul Diagram
Phase 1
2018 Construction

Construction Access Road

Table 1 of 1

STATION	END AREA (SF)		ADJUSTED VOLUME (CY)		
	EXC	FILL	EXC	FILL	MASS
10+00.00	5.43	5.33	29479	0	29479
11+00.00	0.00	158.43	10	379	29110
12+00.00	0.00	448.37	0	1405	27705
13+00.00	0.00	915.02	0	3156	24549
14+00.00	0.00	1680.30	0	6008	18542
14+49.00	0.00	1539.48	0	0	18542
15+00.00	0.00	1228.97	0	6734	11807
16+00.00	0.00	181.72	0	3266	8542
17+00.00	0.00	101.11	0	655	7887
18+00.00	0.00	140.13	0	558	7329
19+00.00	0.00	197.36	0	781	6547
20+00.00	0.00	93.13	0	672	5875
21+00.00	0.00	92.57	0	430	5445
22+00.00	0.00	264.70	0	827	4618
23+00.00	0.00	276.61	0	1253	3365
24+00.00	0.00	184.13	0	1067	2298
25+00.00	0.00	201.79	0	893	1405
26+00.00	0.00	158.13	0	833	572
26+19.05					0
27+00.00	0.00	462.31	0	1436	-864
28+00.00	0.00	503.35	0	2235	-3100
29+00.00	0.00	381.38	0	2048	-5148
30+00.00	0.00	342.39	0	1675	-6823
31+00.00	8.54	114.09	16	1057	-7864
32+00.00	114.08	2.77	227	271	-7907
33+00.00	110.02	3.86	415	15	-7508
34+00.00	222.58	12.84	616	39	-6930
35+00.00	921.02	2.83	2118	36	-4849
36+00.00	1054.18	2.11	3658	11	-1202
36+48.31	292.60	0.00	1205	2	0



ND 23B Phase 1

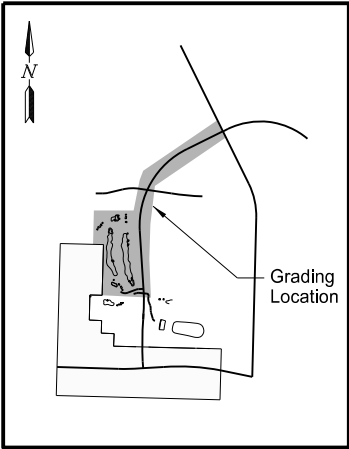
Table 1 of 2

STATION	END AREA (SF)		ADJUSTED VOLUME (CY)		ADDED VOLUME (CY)		MASS
	EXC	FILL	EXC	FILL	EXC	FILL	
48892+00.00	80.77	1885.92	0	0	0	0	0
48892+50.00	0.00	1931.26	75	4418	0	0	-4343
48892+50.90	0.00	1930.31	0	80	0	0	-4424
48892+75.00	0.00	1480.64	0	0	0	0	-4424
48892+85.34	171.88	1515.49	110	2747	0	0	-7061
48893+00.00	380.70	1644.12	150	1072	0	0	-7983
48893+50.00	26.49	1216.67	377	3311	0	0	-10917
48893+65.70	2.09	1034.80	8	818	0	0	-11727
48894+00.00	0.00	665.82	1	1350	0	1562	-14638
48894+46.06	414.19	2176.07	353	3030	0	0	-17315
48895+00.00	661.26	2535.54	1074	5883	0	0	-22124
48896+00.00	147.30	3710.68	1497	14459	0	0	-35085
48897+00.00	154.37	5432.10	559	21164	0	0	-55691
48898+00.00	276.68	6868.62	798	28474	0	0	-83366
48899+00.00	307.06	5750.46	1081	29211	0	0	-111496
48900+00.00	134.23	3469.64	817	21343	0	0	-132022
48901+00.00	0.00	2132.45	249	12968	0	0	-144741
48902+00.00	0.00	1654.43	0	8766	0	0	-153507
48903+00.00	0.00	1732.15	0	7839	0	131039	-292385
48904+00.00	0.00	2383.26	0	9526	0	0	-301911
48905+00.00	0.00	3499.01	0	13616	0	0	-315528
48906+00.00	0.00	3312.87	0	15768	0	0	-331296
48907+00.00	25.20	2865.55	47	14302	0	0	-345551
48907+25.44	0.00	2868.33	12	3377	0	0	-348916
48907+50.00	0.00	2875.25	0	3265	0	0	-352181
48908+00.00	9.90	2675.15	9	6424	0	0	-358596
48908+05.79	15.74	2671.56	3	717	0	0	-359310
48908+50.00	21.07	2695.15	30	5492	0	0	-364772
48908+75.00	38.86	2765.78	28	3160	0	0	-367905
48908+86.15	59.57	2786.48	20	1433	0	0	-369317
48909+00.00	41.16	2841.34	26	1804	0	0	-371096
48909+50.00	0.00	3135.53	38	6918	0	0	-377975
48909+81.81	0.01	3255.73	0	4706	0	0	-382682
48910+00.00	2.92	3310.20	1	2765	0	0	-385445
48910+22.00	4.08	3460.58	3	3448	0	0	-388891
48910+25.00	3.54	3461.58	0	481	0	0	-389371
48910+50.00	0.00	3351.17	2	3943	0	0	-393312
48911+00.00	49.61	2914.87	46	7252	0	0	-400518
48911+50.00	267.63	2123.81	294	5832	0	0	-406056
48912+00.00	381.52	1500.17	601	4194	0	0	-409650
48912+50.00	734.06	1034.45	1033	2934	0	0	-411550
48913+00.00	35.22	673.68	712	1977	0	0	-412815
48913+50.00	3.61	373.31	36	1212	0	0	-413991
48914+00.00	171.71	98.54	162	546	0	0	-414375
48914+50.00	611.28	0.39	725	114	0	0	-413764
48915+00.00	1248.30	16.80	1722	20	0	0	-412062
48915+50.00	1706.30	98.68	2736	134	0	0	-409460
48916+00.00	1909.61	59.89	3348	184	0	0	-406295
48916+50.00	2358.21	35.34	3952	110	0	0	-402454
48917+00.00	3119.59	63.39	5072	114	0	0	-397496
48917+50.00	4419.05	77.01	6980	163	0	0	-390679
48918+00.00	5289.59	237.19	8989	364	0	0	-382053
48918+50.00	4856.23	270.07	9394	587	0	0	-373246
48919+00.00	4069.86	1.66	8265	314	0	0	-365295
48919+50.00	2101.33	0.00	5714	2	0	0	-359583
48920+00.00	936.74	0.00	2813	0	60091	0	-296679
48920+50.00	601.91	5.45	1425	6	0	0	-295261
48921+00.00	575.23	120.17	1090	145	0	0	-294316
48921+50.00	810.24	41.88	1283	188	0	0	-293221
48922+00.00	1478.10	4.53	2119	54	0	0	-291156
48922+50.00	2252.91	0.99	3455	6	0	0	-287707
48923+00.00	3536.58	0.93	5361	2	0	0	-282349
48923+50.00	4974.74	0.66	7881	2	0	0	-274470

ND 23B Phase 1

Table 2 of 2

STATION	END AREA (SF)		ADJUSTED VOLUME (CY)		ADDED VOLUME (CY)		MASS
	EXC	FILL	EXC	FILL	EXC	FILL	
48924+00.00	5950.32	0.96	10116	2	0	0	-264356
48924+50.00	6555.71	0.30	11580	1	0	0	-252778
48925+00.00	6557.28	0.52	12142	1	0	0	-240637
48925+50.00	5771.50	0.00	11416	1	0	0	-229222
48926+00.00	4345.95	0.00	9368	0	0	0	-219854
48926+50.00	3887.48	0.00	7624	0	0	0	-212231
48927+00.00	3993.68	0.00	7297	0	0	0	-204933
48927+50.00	4472.93	0.00	7839	0	0	0	-197094
48928+00.00	4891.58	0.00	8671	0	0	0	-188423
48928+50.00	5811.18	0.00	9910	0	0	0	-178513
48929+00.00	6033.11	0.00	10967	0	0	0	-167546
48929+50.00	5629.35	0.00	10799	0	0	0	-156747
48930+00.00	4726.87	0.00	9589	0	0	0	-147158
48930+50.00	3650.97	0.00	7757	0	0	0	-139401
48931+00.00	2847.96	0.00	6018	0	0	0	-133384
48931+50.00	2659.84	0.00	5100	0	0	0	-128284
48932+00.00	2352.02	0.00	4641	0	0	0	-123643
48932+50.00	612.56	0.00	2745	0	10450	0	-110449
48933+00.00	699.85	0.00	1215	0	0	0	-109233
48933+50.00	2065.32	0.00	2560	0	0	0	-106673
48934+00.00	2403.13	0.00	4137	0	0	0	-102536
48934+50.00	2557.50	0.00	4593	0	0	0	-97942
48934+56.06	2606.33	0.00	580	0	0	0	-97363
48935+00.00	2588.76	0.00	4227	0	0	0	-93136
48935+50.00	2383.88	0.00	4604	0	0	0	-88531
48935+51.72	2360.91	0.00	151	0	0	0	-88380
48936+00.00	2743.84	0.00	4564	0	0	0	-83816
48936+32.08	2731.49	0.00	3253	0	0	0	-80563
48936+50.00	2860.80	0.00	1856	0	0	0	-78708
48937+00.00	3156.24	0.00	5571	0	0	0	-73136
48937+12.43	3279.41	0.00	1481	0	0	0	-71655
48938+00.00	3081.32	0.20	10315	0	0	0	-61340
48939+00.00	2763.17	21.85	10823	51	0	0	-50568
48940+00.00	1426.21	43.67	7758	152	0	0	-42962
48941+00.00	665.59	51.65	3874	221	0	0	-39309
48942+00.00	402.84	185.54	1979	549	0	0	-37879
48943+00.00	312.57	335.86	1325	1207	0	0	-37761
48943+25.00	302.89	361.73	285	404	0	0	-37880
48944+00.00	282.60	298.97	813	1147	0	0	-38214
48945+00.00	108.91	242.29	725	1253	0	0	-38742
48945+60.00	0.00	0.00	121	337	0	0	-38957



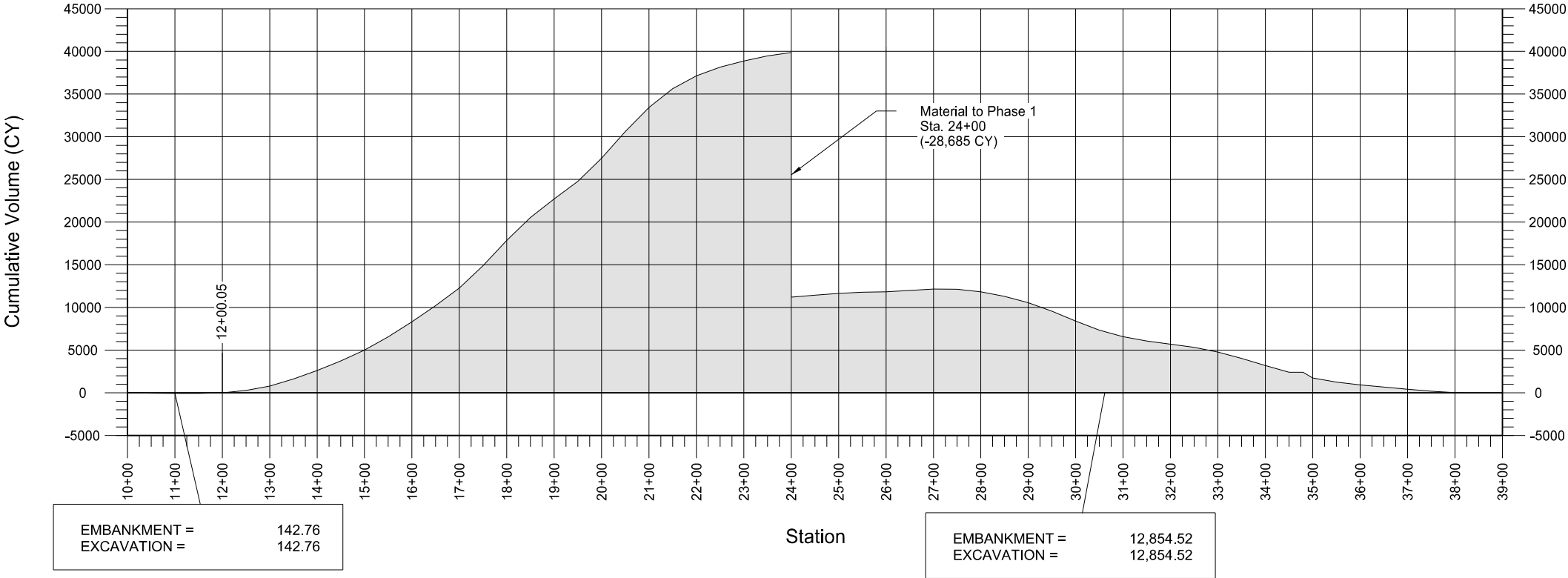
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ND 23B Truck Reliever Route

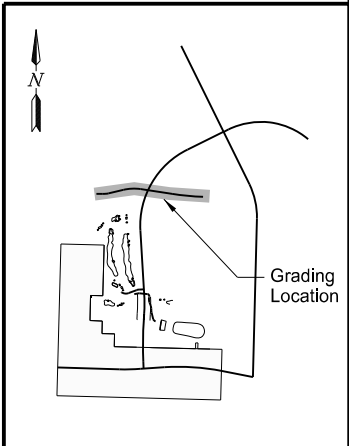
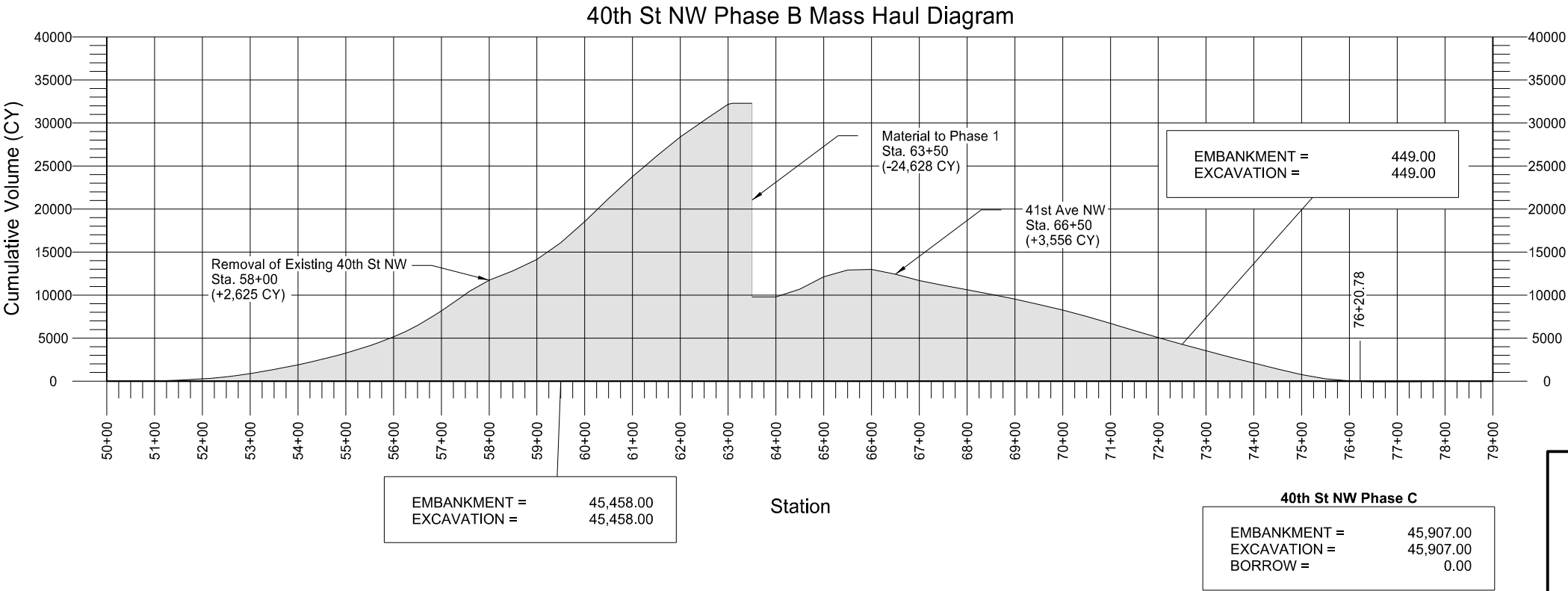
Earthwork Summary

Phase 1
2018 Construction

Temporary Roadway Phase A Mass Haul Diagram

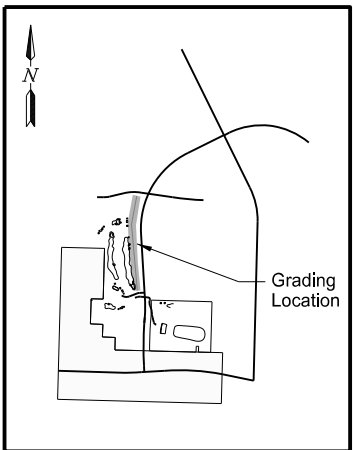
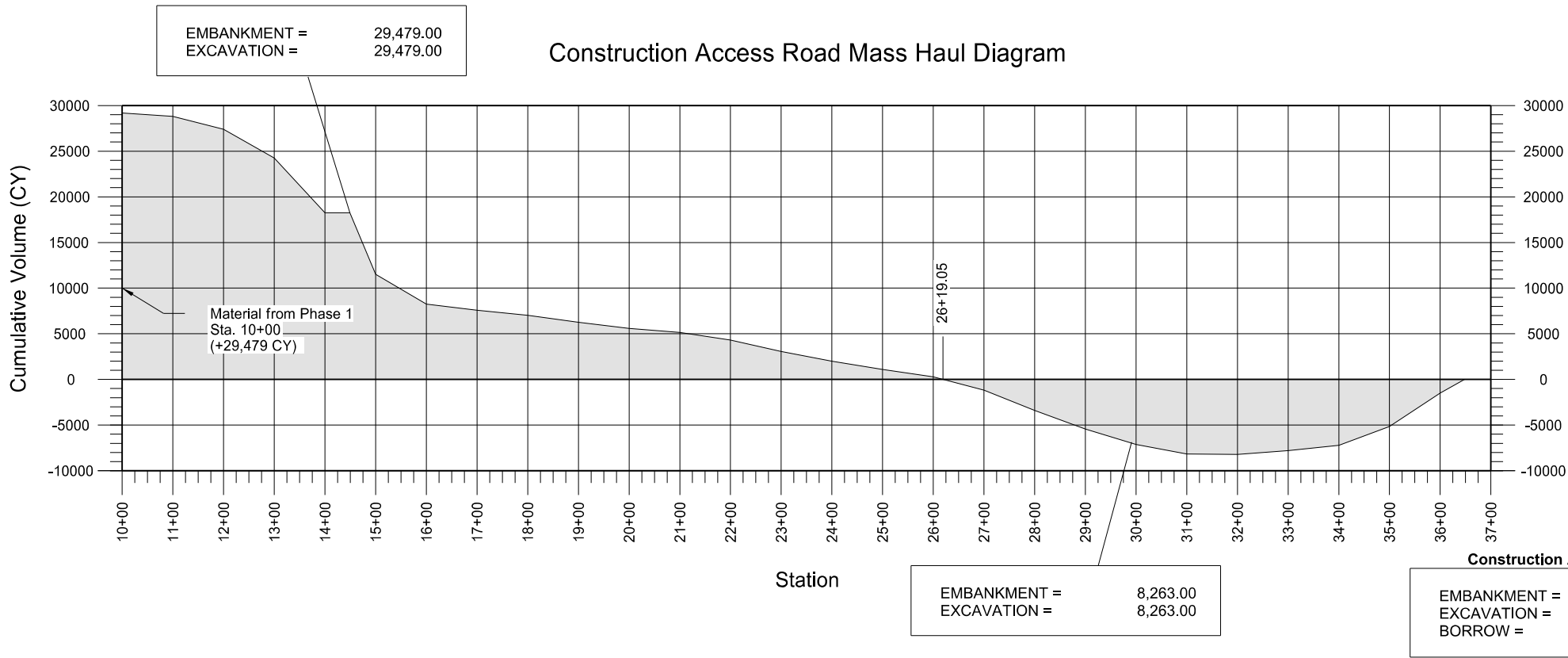
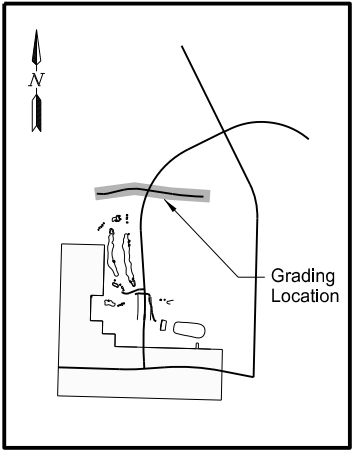
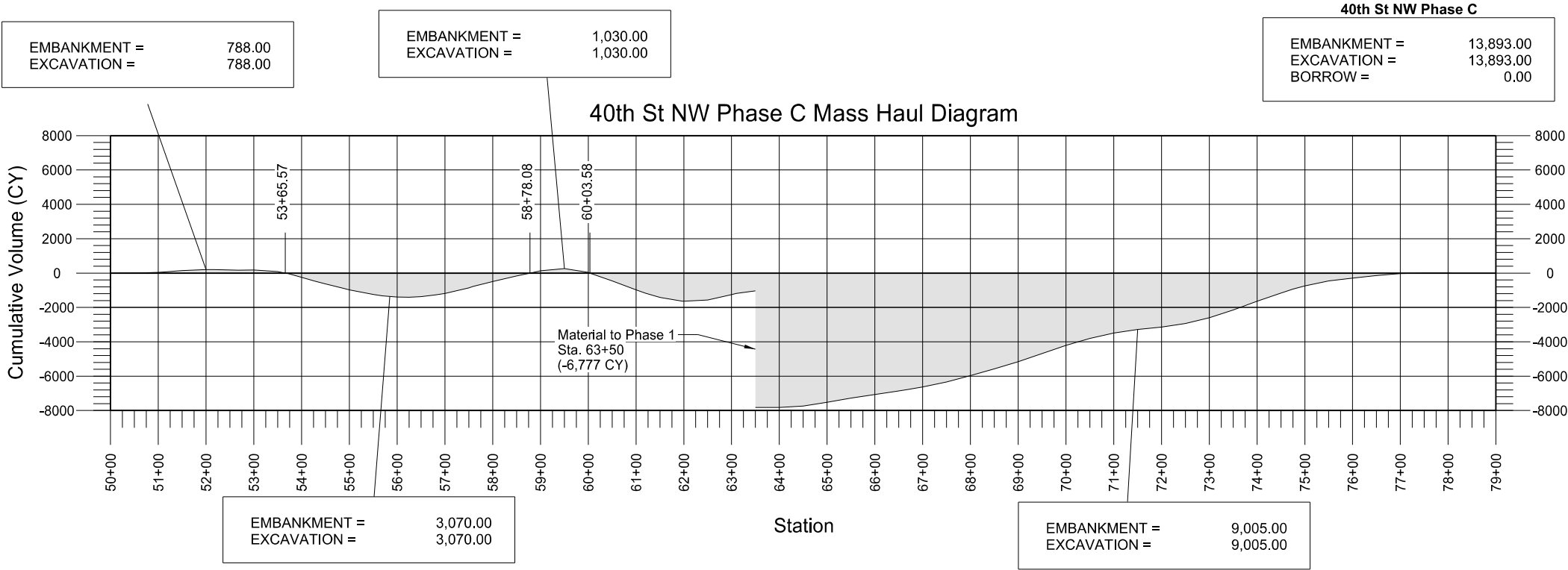


Temporary Roadway	
EMBANKMENT =	12,997.28
EXCAVATION =	12,997.28
WASTE =	0.00



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ND 23B Truck Reliever Route
Mass Haul Diagram
Phase 1
2018 Construction



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ND 23B Truck Reliever Route
Mass Haul Diagram
Phase 1
2018 Construction

Temporary Roadway Phase A

Table 1 of 2

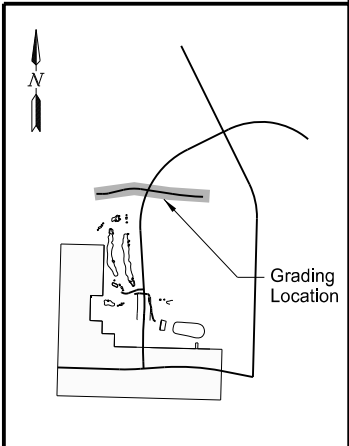
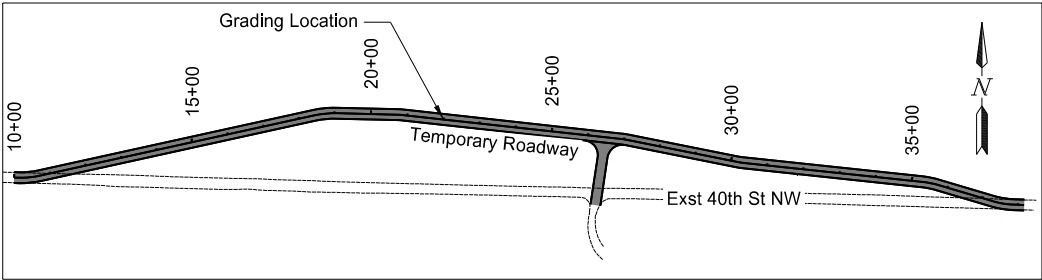
STATION	END AREA (SF)		ADJUSTED VOLUME (CY)		
	EXC	FILL	EXC	FILL	MASS
10+00	0.00	36.99	0	0	0
10+50	1.72	10.72	2	55	-54
11+00	7.91	14.64	9	29	-74
11+50	23.82	15.86	29	35	-80
12+00	86.99	3.93	103	23	0
12+00					0
12+50	211.28	3.97	276	9	267
13+00	369.40	3.09	538	8	796
13+50	518.73	3.08	822	7	1611
14+00	577.18	3.06	1015	7	2619
14+50	626.40	3.12	1114	7	3726
15+00	760.93	3.27	1285	7	5004
15+50	915.93	3.37	1553	8	6548
16+00	997.97	3.65	1772	8	8312
16+50	1066.54	4.13	1912	9	10215
17+00	1167.01	3.97	2068	9	12274
17+50	1659.39	3.37	2617	8	14882
18+00	1551.99	2.47	2974	7	17849
18+50	1349.21	2.68	2686	6	20529
19+00	1015.86	3.21	2190	7	22712
19+50	1224.40	2.91	2074	7	24780
20+00	1697.93	3.33	2706	7	27478
20+50	1691.99	3.33	3139	8	30609
21+00	1376.18	3.41	2841	8	33443
21+50	992.01	3.57	2193	8	35627
22+00	661.81	3.56	1531	8	37150
22+50	438.06	3.63	1018	8	38160
23+00	356.32	4.07	736	9	38887
23+50	287.76	4.65	596	10	39473
24+00	163.18	5.14	418	11	11194

Temporary Roadway Phase A

Table 2 of 2

STATION	END AREA (SF)		ADJUSTED VOLUME (CY)		
	EXC	FILL	EXC	FILL	MASS
24+50	120.28	6.63	262	14	11443
25+00	107.72	4.71	211	13	11641
25+50	44.11	2.24	141	8	11774
26+00	44.57	12.64	82	17	11839
26+50	157.51	19.10	187	37	11989
27+00	110.65	47.17	248	77	12161
27+50	38.73	101.51	138	172	12127
28+00	1.06	192.99	37	341	11823
28+50	0.00	257.27	1	521	11303
29+00	0.00	387.63	0	746	10556
29+50	0.00	481.01	0	1005	9551
30+00	0.00	507.85	0	1145	8406
30+50	0.00	411.15	0	1064	7343
31+00	0.00	261.03	0	778	6565
31+50	10.26	180.57	10	511	6063
32+00	14.34	148.19	23	381	5705
32+50	5.00	198.50	18	401	5322
33+00	0.00	288.46	5	564	4763
33+50	0.00	355.50	0	745	4018
34+00	0.00	353.15	0	820	3197
34+50	0.00	322.15	0	782	2416
34+79	0.00	299.20	0	0	2416
35+00	0.00	261.75	0	676	1740
35+50	0.00	166.80	0	496	1244
36+00	12.59	118.03	12	330	926
36+50	7.81	122.44	19	278	667
37+00	0.00	99.73	7	257	417
37+50	0.00	98.44	0	229	187
38+00	0.00	47.12	0	168	19
38+17	0.00	0.00	0	19	0

40th St NW Phase A: Construct Temporary Roadway



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ND 23B Truck Reliever Route

Earthwork Summary

40th St NW Phase A: Temporary Roadway
2018 Construction

40th St NW Phase B

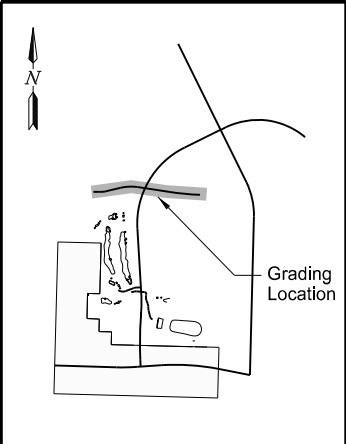
Table 1 of 2

STATION	END AREA (SF)		ADJUSTED VOLUME (CY)		ADDED VOLUME (CY)		MASS
	EXC	FILL	EXC	FILL	EXC	FILL	
50+00.00	22.73	5.66	0	0	0	0	0
50+00.33							0
50+50.00	29.23	33.75	48	45	0	0	3
50+54.56							0
50+56.33	29.58	40.24	7	11	0	0	-1
51+00.00	42.04	17.77	58	59	0	0	-2
51+01.55							0
51+12.33	45.86	1.83	20	6	0	0	13
51+50.00	64.45	2.40	77	4	0	0	86
52+00.00	91.40	0.35	144	3	0	0	227
52+16.33	107.91	0.35	60	0	0	0	287
52+50.00	168.58	0.37	172	1	0	0	459
52+67.52	195.22	0.38	118	0	0	0	577
53+00.00	239.16	0.38	261	1	0	0	837
53+50.00	277.46	0.35	478	1	0	0	1315
53+71.52	290.93	0.35	227	0	0	0	1541
54+00.00	318.70	0.22	322	0	0	0	1862
54+27.52	341.06	0.51	336	0	0	0	2198
54+50.00	364.84	0.51	294	1	0	0	2491
54+83.52	404.43	0.59	478	1	0	0	2968
55+00.00	423.19	0.55	253	0	0	0	3220
55+50.00	498.08	0.74	853	2	0	0	4072
55+69.07	543.14	0.33	368	0	0	0	4439
56+00.00	620.15	0.25	666	0	0	0	5105
56+25.07	703.22	0.21	614	0	0	0	5719
56+50.00	835.12	0.21	710	0	0	0	6429
56+81.07	929.84	0.20	1016	0	0	0	7444
57+00.00	974.26	0.26	667	0	0	0	8111
57+50.00	1106.05	0.27	1926	1	0	0	10037
57+58.40	1065.21	0.26	338	0	0	0	10374
58+00.00	633.93	0.27	1309	1	2625	0	14308
58+50.00	538.78	0.62	1086	1	0	0	15393
59+00.00	887.25	0.56	1320	1	0	0	16712
59+50.00	1205.22	0.50	1937	1	0	0	18648
60+00.00	1445.56	0.20	2454	1	0	0	21102
60+50.00	1465.46	0.26	2695	1	0	0	23797
61+00.00	1290.72	0.32	2552	1	0	0	26348
61+20.10	1269.85	0.33	953	0	0	0	27301
61+50.00	1243.28	0.36	1392	0	0	0	28692

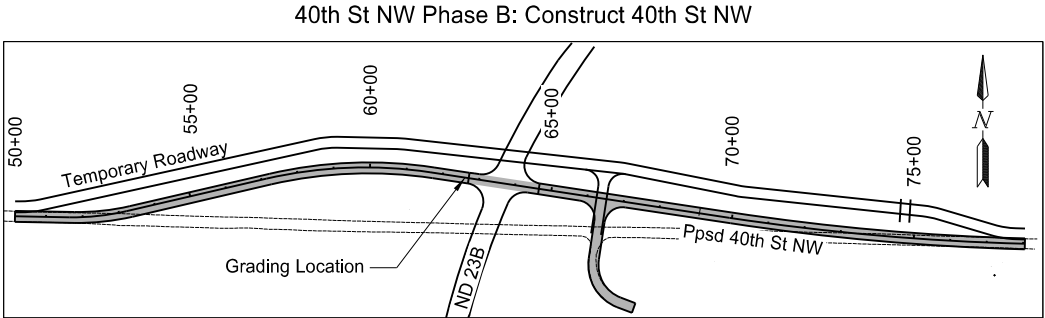
40th St NW Phase B

Table 2 of 2

STATION	END AREA (SF)		ADJUSTED VOLUME (CY)		ADDED VOLUME (CY)		MASS
	EXC	FILL	EXC	FILL	EXC	FILL	
61+97.43	1201.20	0.00	2147	0	0	0	30838
62+00.00	1192.36	0.00	114	0	0	0	30952
62+50.00	1188.22	0.00	2204	0	0	0	33157
62+53.43	1190.85	0.00	151	0	0	0	33308
63+00.00	655.34	0.00	1592	0	0	0	34900
63+09.43	0.00	0.00	114	0	0	0	35014
63+50.00	0.00	0.00	0	0	0	24628	10386
64+00.00	0.00	0.00	0	0	0	0	10386
64+50.00	993.83	2.80	920	3	0	0	11303
65+00.00	602.07	19.05	1478	25	0	0	12756
65+50.00	400.17	152.66	928	199	0	0	13485
66+00.00	186.35	338.92	543	569	0	0	13459
66+50.00	44.55	476.48	214	944	3556	0	16285
67+00.00	168.52	509.69	197	1141	0	0	15341
67+50.00	246.98	506.14	385	1176	0	0	14550
68+00.00	252.27	547.71	462	1220	0	0	13792
68+50.00	235.10	512.60	451	1227	0	0	13016
69+00.00	198.08	520.76	401	1196	0	0	12221
69+50.00	141.39	486.40	314	1166	0	0	11370
70+00.00	86.27	458.75	211	1094	0	0	10487
70+50.00	43.86	460.06	120	1063	0	0	9544
71+00.00	25.24	475.64	64	1083	0	0	8525
71+50.00	16.17	468.46	38	1093	0	0	7471
72+00.00	9.09	444.10	23	1056	0	0	6438
72+50.00	4.54	418.47	13	998	0	0	5452
73+00.00	6.63	400.72	10	948	0	0	4514
73+50.00	0.35	386.66	6	911	0	0	3610
74+00.00	0.21	377.96	1	885	0	0	2725
74+50.00	0.21	366.48	0	862	0	0	1864
74+75.00	0.21	349.12	0	414	0	0	1450
75+00.00	0.21	324.10	0	390	0	0	1060
75+50.00	7.20	219.86	7	630	0	0	438
76+00.00	41.73	119.99	45	393	0	0	90
76+20.78							0
76+50.00	61.38	71.72	95	222	0	0	-37
77+00.00	50.91	46.39	104	137	0	0	-69
77+50.00	47.47	4.25	91	59	0	0	-37
78+00.00	22.18	18.76	64	27	0	0	1
78+04.79	19.72	19.26	4	4	0	0	0



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ND 23B Truck Reliever Route

Earthwork Summary

40th St NW Phase B: Proposed 40th St NW 2018 Construction

40th St NW Phase C

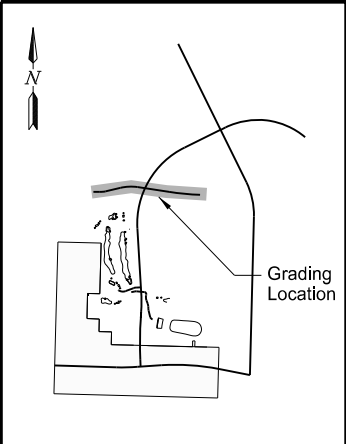
Table 1 of 2

STATION	END AREA (SF)		ADJUSTED VOLUME (CY)		ADDED VOLUME		MASS
	EXC	FILL	EXC	FILL	EXC	FILL	
50+00.00	0.00	4.71	0	0	0	0	0
50+00.33	0.00	4.70	0	0	0	0	0
50+02.49							0
50+50.00	7.67	0.00	7	5	0	0	2
50+56.33	11.71	0.00	2	0	0	0	4
51+00.00	38.20	0.20	40	0	0	0	44
51+12.33	46.37	0.00	19	0	0	0	63
51+50.00	68.98	4.18	80	4	0	0	140
52+00.00	70.50	51.76	129	65	0	0	204
52+16.33	71.59	64.84	43	44	0	0	203
52+50.00	81.24	87.70	95	119	0	0	180
52+67.52	91.18	89.85	56	72	0	0	164
53+00.00	120.51	64.17	127	116	0	0	175
53+50.00	84.71	174.00	190	276	0	0	90
53+65.57							0
53+71.52	79.01	205.53	65	189	0	0	-34
54+00.00	71.92	237.00	80	292	0	0	-246
54+27.52	74.25	230.46	74	298	0	0	-470
54+50.00	78.24	212.31	63	230	0	0	-637
54+83.52	83.52	212.87	100	330	0	0	-866
55+00.00	87.23	207.22	52	160	0	0	-974
55+50.00	98.84	175.54	172	443	0	0	-1245
55+69.07	103.88	157.20	72	147	0	0	-1320
56+00.00	124.23	128.25	131	204	0	0	-1394
56+25.07	144.39	105.70	125	136	0	0	-1405
56+50.00	168.58	85.63	144	110	0	0	-1371
56+81.07	187.65	63.58	205	107	0	0	-1273
57+00.00	199.87	51.91	136	51	0	0	-1188
57+50.00	265.79	34.35	431	100	0	0	-857
57+58.40	270.09	34.90	83	13	0	0	-787
58+00.00	240.25	71.90	393	103	0	0	-497
58+50.00	280.01	63.80	482	157	0	0	-172
58+78.08							0
59+00.00	231.45	80.98	474	168	0	0	134
59+50.00	149.48	110.84	353	222	0	0	265
60+00.00	69.45	262.87	203	433	0	0	35
60+03.58							0
60+50.00	60.39	263.56	120	609	0	0	-454
61+00.00	50.02	277.05	102	626	0	0	-978
61+20.10	53.86	240.12	39	241	0	0	-1179

40th St NW Phase C

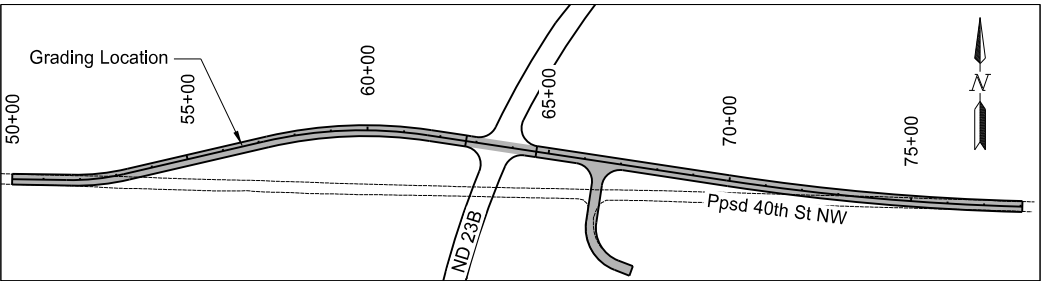
Table 2 of 2

STATION	END AREA (SF)		ADJUSTED VOLUME (CY)		ADDED VOLUME		MASS
	EXC	FILL	EXC	FILL	EXC	FILL	
61+50.00	59.55	200.32	63	305	0	0	-1422
61+97.43	91.90	113.40	133	344	0	0	-1633
62+00.00	94.28	109.11	9	13	0	0	-1637
62+50.00	152.60	26.38	229	157	0	0	-1566
62+53.43	155.67	22.53	20	4	0	0	-1550
63+00.00	212.48	0.00	318	24	0	0	-1257
63+09.43	192.01	0.00	71	0	0	0	-1186
63+50.00	0.00	0.00	144	0	0	6777	-7819
64+00.00	0.00	0.00	0	0	0	0	-7819
64+50.00	91.96	0.73	85	1	0	0	-7735
65+00.00	143.64	0.12	218	1	0	0	-7518
65+50.00	116.43	0.66	241	1	0	0	-7278
66+00.00	116.79	3.19	216	4	0	0	-7066
66+50.00	119.01	9.15	218	14	0	0	-6862
67+00.00							-6632
67+50.00	179.27	0.00	298	1	0	0	-6335
68+00.00	217.48	0.00	367	0	0	0	-5967
68+50.00	208.88	0.00	395	0	0	0	-5573
69+00.00	237.75	0.00	414	0	0	0	-5159
69+50.00	273.70	0.00	474	0	0	0	-4686
70+00.00	243.76	0.00	479	0	0	0	-4206
70+50.00	196.72	0.00	408	0	0	0	-3799
71+00.00	139.60	0.14	311	0	0	0	-3487
71+50.00	106.45	20.93	228	24	0	0	-3284
72+00.00	103.50	22.35	194	50	0	0	-3140
72+50.00	152.24	6.88	237	34	0	0	-2937
73+00.00	220.74	0.00	345	8	0	0	-2599
73+50.00	270.36	0.00	455	0	0	0	-2145
74+00.00	272.66	0.00	503	0	0	0	-1642
74+50.00	249.06	0.00	483	0	0	0	-1159
74+75.00	230.90	0.00	222	0	0	0	-936
75+00.00	189.84	0.00	195	0	0	0	-742
75+50.00	118.78	0.64	286	1	0	0	-457
76+00.00	86.44	19.34	190	23	0	0	-290
76+50.00	100.43	1.11	173	24	0	0	-140
77+00.00	18.90	0.00	110	1	0	0	-31
77+50.00	4.66	0.00	22	0	0	0	-9
78+00.00	4.56	0.00	9	0	0	0	-1
78+04.79	4.56	0.00	1	0	0	0	0



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40th Ave Phase C: Remove Temporary Roadway & Minor Grading



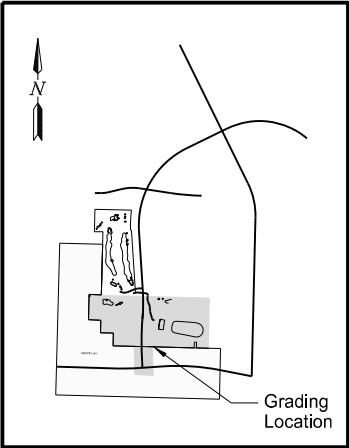
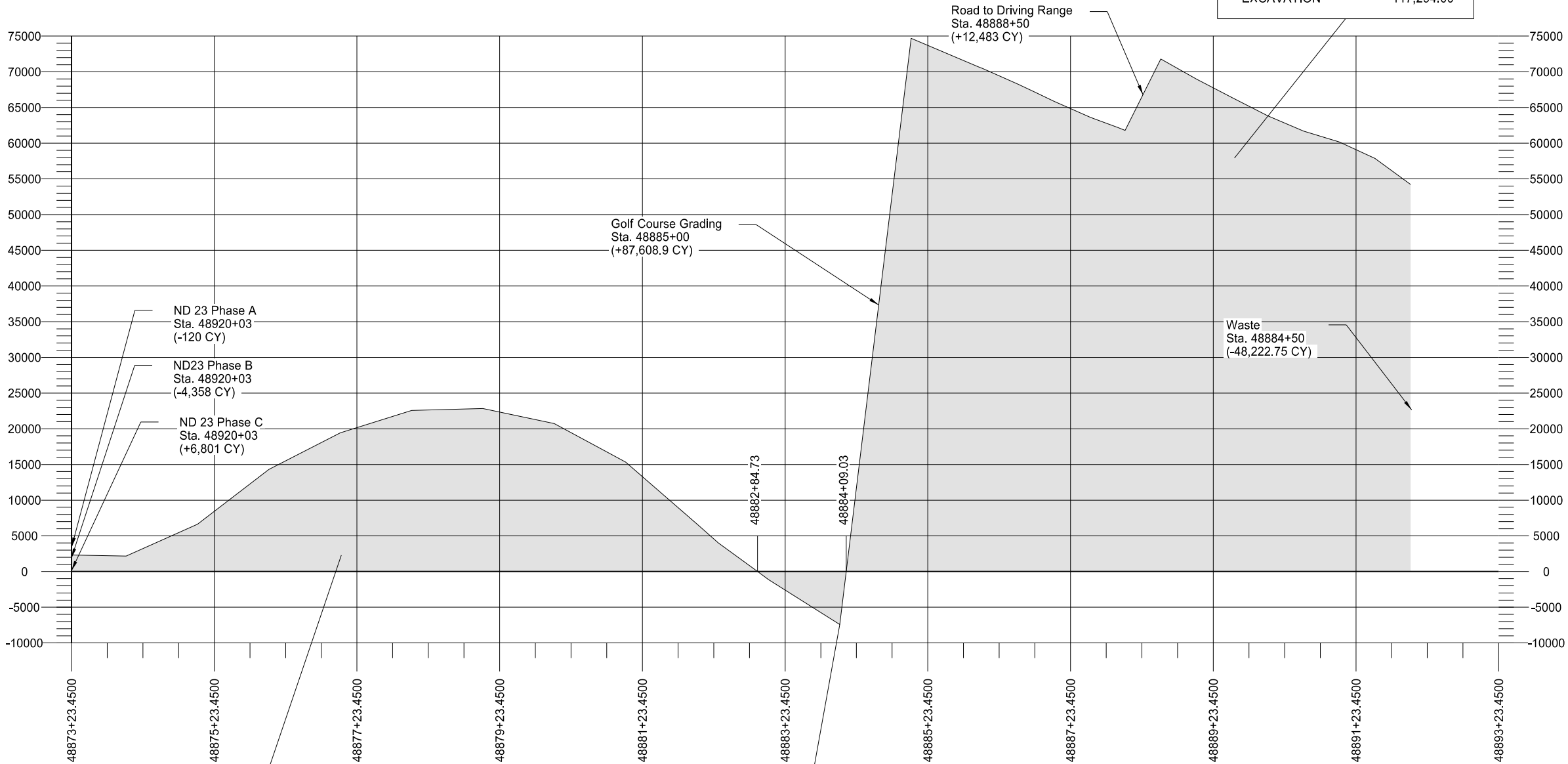
ND 23B Truck Reliever Route

Earthwork Summary

40th St NW Phase C: Remove Temporary Roadway
2018 Construction

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	AC-NH-SOIB-7-023(041)925	11	9

ND 23B Phase 2 Mass Haul Diagram
2019 Construction



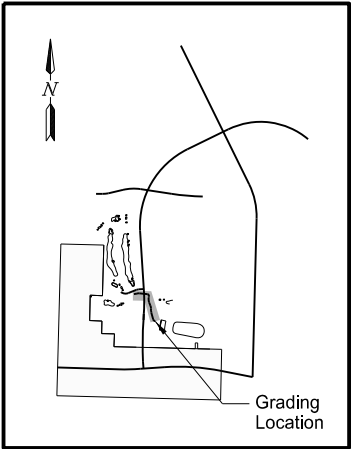
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ND 23B Truck Reliever Route
Mass Haul Diagram
Phase 2
2019 Construction

Driving Range Road

Table 1 of 1

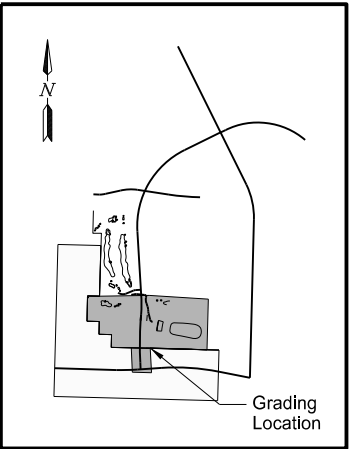
STATION	END AREA (SF)		ADJUSTED VOLUME (CY)		
	EXC	FILL	EXC	FILL	MASS
10+00.00	0.00	324.47	0	0	0
10+02.06	0.00	282.89	0	0	0
10+50.00	0.00	979.12	0	1509	-1509
11+00.00	0.00	814.52	0	2076	-3585
11+50.00	0.00	414.40	0	1422	-5007
12+00.00	0.22	21.17	0	504	-5511
12+50.00	0.00	0.00	0	25	-5535
13+00.00	0.00	0.00	0	0	-5535
13+50.00	214.12	0.00	198	0	-5337
13+61.20	318.08	0.00	0	0	-5337
14+00.00	321.81	0.00	496	0	-4841
14+50.00	338.96	0.00	612	0	-4229
15+00.00	317.65	0.00	608	0	-3621
15+50.00	390.77	0.00	656	0	-2965
16+00.00	482.54	0.00	809	0	-2157
16+50.00	657.66	0.00	1056	0	-1101
16+98.17					0
17+00.00	576.41	0.00	1143	0	42
17+50.00	694.24	0.00	1177	0	1218
18+00.00	831.38	0.00	1413	0	2631
18+50.00	747.47	0.00	1462	0	4093
19+00.00	796.67	0.00	1430	0	5523
19+50.00	834.69	0.00	1511	0	7033
20+00.00	804.29	0.00	1518	0	8551
20+40.00	874.50	0.00	1244	0	9794
20+50.00	748.09	0.00	300	0	10095
21+00.00	637.18	0.00	1283	0	11378
21+50.00	494.63	0.00	1048	0	12425
21+56.27	0.00	0.00	57	0	12483



ND 23B Phase 2

Table 1 of 1

STATION	END AREA (SF)		ADJUSTED VOLUME (CY)		ADDED VOLUME (CY)		MASS
	EXC	FILL	EXC	FILL	EXC	FILL	
48873+23.45	0.00	0.00	0	0	6801	4478	2324
48874+00.00	110.29	179.01	156	317	0	2180	2163
48875+00.00	2530.94	0.00	4891	414	0	2181	6640
48876+00.00	1601.97	0.00	7654	0	0	2182	14293
48877+00.00	1168.82	0.24	5131	1	0	2183	19424
48878+00.00	540.19	12.27	3165	29	0	2184	22560
48879+00.00	157.95	430.74	1293	1026	0	2185	22827
48880+00.00	22.57	623.84	334	2441	0	2186	20720
48881+00.00	0.00	1722.30	42	5431	0	2187	15331
48882+00.00	73.65	2080.10	136	8802	0	2188	6666
48882+30.00	182.15	1947.62	142	2797	0	2189	4011
48882+84.73						2190	0
48883+00.00	575.01	1823.85	982	6111	0	2191	-1119
48884+00.00	759.17	1964.69	2471	8770	0	2192	-7418
48884+09.03						2193	0
48885+00.00	965.10	1787.87	3193	8686	87609	2194	74697
48885+94.94	1064.35	1670.22	3568	7600	0	2195	70666
48886+00.00	1062.00	1692.94	199	394	0	2196	70471
48886+50.00	884.67	1759.58	1802	3996	0	2197	68278
48886+75.30	879.52	1706.35	827	2030	0	2198	67074
48887+00.00	715.25	1649.42	729	1919	0	2199	65885
48887+50.00	808.68	1478.12	1411	3620	0	2200	63676
48887+55.66	798.18	1434.40	168	382	0	2201	63463
48887+90.10	716.88	1393.02	966	2254	0	2202	62175
48888+00.00	703.44	1449.94	260	652	0	2203	61784
48888+50.00	460.18	1607.42	1077	3539	12483	2204	71806
48889+00.00	437.04	1558.82	831	3665	0	2205	68972
48889+50.00	543.01	1466.82	907	3502	0	2206	66378
48890+00.00	258.08	1375.75	742	3290	0	2207	63829
48890+50.00	215.05	845.46	438	2571	0	2208	61697
48891+00.00	158.66	770.01	346	1870	0	2209	60173
48891+50.00	68.60	1399.53	210	2511	0	2210	57872
48892+00.00	80.77	1870.10	138	3784	0	2211	54226



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ND 23B Truck Reliever Route

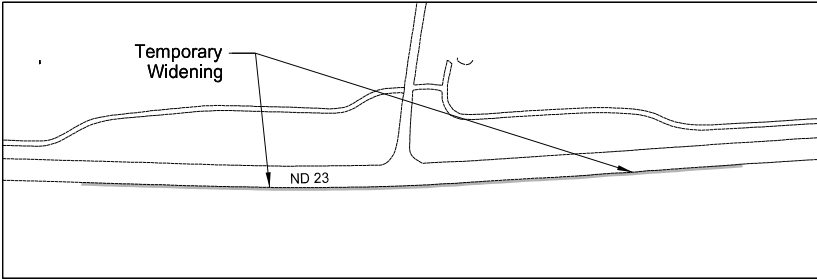
Earthwork Summary

Phase 2
2019 Construction

ND 23 Phase A: Temporary Widening

Table 1 of 1

STATION	END AREA (SF)		ADJUSTED VOLUME (CY)		
	EXC	FILL	EXC	FILL	MASS
2571+87.21	0.52	2.88	0	0	0
2572+00.00	0.79	2.19	0	2	-1
2573+00.00	0.96	0.22	3	6	-4
2574+00.00	1.09	0.21	4	1	-1
2574+12.83					0
2575+00.00	2.24	0.06	6	1	5
2576+00.00	2.18	0.04	8	0	13
2577+00.00	0.26	0.88	5	2	15
2578+00.00	2.31	0.07	5	2	18
2579+00.00	0.93	1.64	6	4	20
2580+00.00	0.74	4.63	3	15	8
2580+27.11					0
2581+00.00	0.25	9.46	2	33	-22
2582+00.00	0.32	4.72	1	33	-54
2583+00.00	0.37	2.50	1	17	-70
2584+00.00	0.77	1.53	2	9	-77
2585+00.00	0.00	5.33	1	16	-91
2586+00.00	0.71	4.08	1	22	-112
2587+00.00	0.42	0.27	2	10	-120
2587+09.91	0.29	0.00	0	0	-120

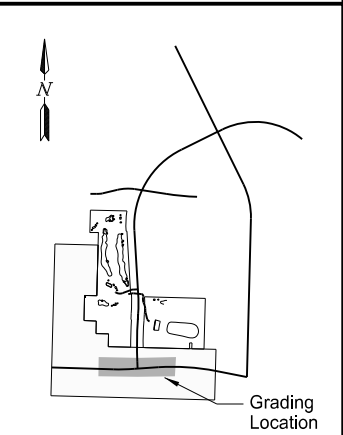


ND 23 Phase A: Construct Temporary Widening

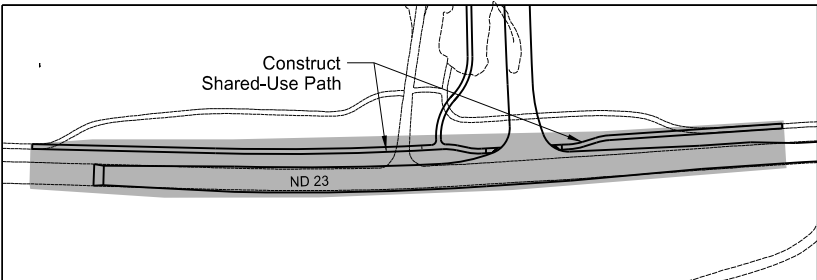
ND 23 Phase C: Remove Shared Use Path

Table 1 of 1

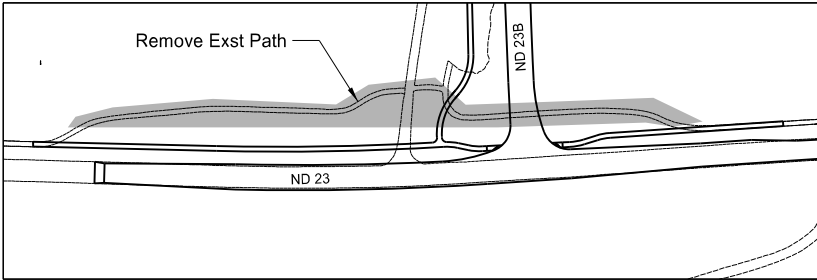
STATION	END AREA (SF)		ADJUSTED VOLUME (CY)		
	EXC	FILL	EXC	FILL	MASS
2573+00.00	78.34	0.00	244	0	347
2574+00.00	185.36	0.00	488	0	835
2574+68.00	122.06	0.00	387	0	1222
2575+00.00	106.60	0.00	136	0	1358
2576+00.00	195.55	0.00	560	0	1917
2577+00.00	252.20	0.00	829	0	2746
2578+00.00	380.43	0.00	1172	0	3918
2578+96.24	242.39	0.00	1110	0	5028
2579+00.00	115.14	0.00	25	0	5053
2580+00.00	10.77	0.69	233	2	5284
2581+00.00	0.00	0.00	20	2	5303
2581+62.24	40.83	3.71	47	5	5344
2582+00.00	341.29	0.00	267	3	5608
2583+00.00	145.76	0.00	902	0	6510
2584+00.00	8.73	0.00	286	0	6796
2584+31.00	0.00	0.00	5	0	6801



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ND 23 Phase B: Construct ND23 & Shared-Use Path



ND 23 Phase C: Remove Existing Shared-Use Path & Grading

ND 23B Truck Reliever Route

Earthwork Summary

Phase 2
2019 Construction

*ND 23B Phase 2

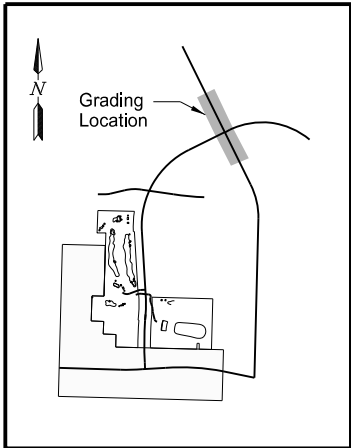
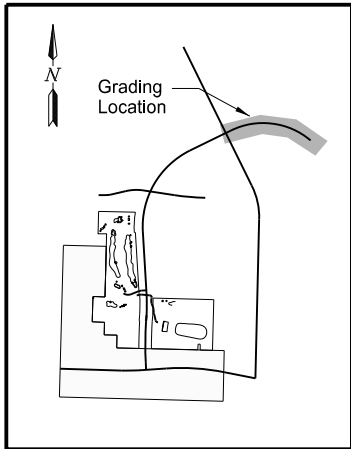
Table 1 of 1

STATION	END AREA (SF)		ADJUSTED VOLUME (CY)		
	EXC	FILL	EXC	FILL	MASS
48946+50.00	7.02	51.04	10	39	-31
48947+00.00	3.39	64.25	10	107	-128
48947+50.00	3.11	98.91	6	151	-273
48948+00.00	2.87	116.36	6	199	-467
48948+06.83	3.42	148.13	0	0	-467
48948+50.00	2.75	96.87	5	197	-659
48949+00.00	2.74	95.87	5	178	-833
48949+50.00	2.15	84.56	5	167	-995
48950+00.00	2.56	88.94	4	161	-1151
48950+50.00	2.90	85.74	5	162	-1308
48951+00.00	2.97	78.45	5	152	-1455
48951+50.00	2.83	86.33	5	153	-1602
48952+00.00	2.84	81.75	5	156	-1752
48952+50.00	2.77	75.84	5	146	-1893
48952+81.03	3.20	85.45	0	0	-1893
48953+00.00	6.24	45.08	8	112	-1997
48953+50.00	67.02	21.41	68	62	-1990
48954+00.00	52.17	20.70	110	39	-1919
48954+50.00	7.56	3.47	55	22	-1886
48955+00.00	92.86	1.03	93	4	-1797
48955+50.00	5.32	50.97	91	48	-1754
48956+00.00	4.41	88.10	9	129	-1874
48956+06.87	6.60	98.93	0	0	-1874
48956+50.00	18.57	66.53	21	143	-1996
48957+00.00	17.49	56.92	33	114	-2077
48957+50.00	17.88	45.16	33	95	-2139
48958+00.00	17.69	42.88	33	82	-2187
48958+50.00	17.31	41.21	32	78	-2233
48959+00.00	18.14	30.42	33	66	-2266
48959+21.62	18.02	30.63	0	0	-2266
48959+42.75	17.85	12.84	28	34	-2272

*ND 1804

Table 1 of 1

STATION	END AREA (SF)		ADJUSTED VOLUME (CY)		
	EXC	FILL	EXC	FILL	MASS
13107+50	2.53	3.58	0	0	0
13108+00	2.55	5.42	5	10	-5
13109+00	3.24	13.71	11	44	-38
13110+00	4.09	4.84	14	43	-67
13110+56	4.71	3.51	9	11	-69
13113+30	6.76	2.13	0	0	-69
13113+94	8.60	21.25	18	35	-86
13115+54	0.00	0.00	25	79	-140
13115+74	0.00	0.00	0	0	-140
13116+00	17.02	0.39	8	0	-132
13117+00	76.55	27.92	173	66	-25
13117+31	0.00	0.00	0	0	-25
13118+00	53.66	42.50	241	163	53
13118+53	0.00	0.00	0	0	53
13119+00	12.64	53.82	123	223	-47
13120+00	37.28	43.43	92	225	-180
13121+00	79.69	37.95	217	188	-151
13122+00	47.83	17.79	236	129	-44
13122+36	0.00	0.00	0	0	-44
13122+70	41.53	1.31	117	31	42



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ND 23B Truck Reliever Route
Earthwork Summary
Phase 2
2019 Construction

*Widening of turn lanes not included on the Mass Haul for ND 23B

ND 23B = Design Speed: 55mph

PRND23_1

P.C. Station	48875+03.54
P.I. Station	48880+48.30
Delta	= 06° 37' 35" (RT)
Degree	= 00° 36' 32"
Tangent	= 544.75
Length	= 1,088.29
Radius	= 9,410.00
External	= 15.76
P.T. Station	48885+91.83
Back	= N 02° 46' 44" W
Ahead	= N 03° 50' 51" E
Chord Bearing	= N 32° 32' 03" E
Proposed Superelevation	= NC

40th St NW = Design Speed: 40mph Vertical/45mph Horizontal

PR40ST_1

P.C. Station	51+63.00
P.I. Station	52+42.32
Delta	= 14° 03' 55" (LT)
Degree	= 08° 54' 39"
Tangent	= 79.32
Length	= 157.85
Radius	= 643.00
External	= 4.87
P.T. Station	53+20.85
Back	= S 89° 00' 28" E
Ahead	= N 76° 55' 37" E
Chord Bearing	= N 83° 57' 35" E
Proposed Superelevation	= 6.0%

Station		Left Slope	Right Slope
50+00.33	PC - 162.7'	-2.1	-2.1
50+56.33	PC - 106.7'	-2.1	0.0
51+12.33	PC - 50.7'	-2.1	2.1
51+63.00	PC		
52+16.33	PC + 53.3'	-6.0	6.0
52+67.52	PT - 53.3'	-6.0	6.0
53+20.85	PT		
53+71.52	PT + 50.7'	-2.1	2.1
54+27.52	PT + 106.7'	-2.1	0.0
54+83.52	PT + 162.7'	-2.1	-2.1

PRND23_2

P.C. Station	48887+51.83
P.I. Station	48890+20.87
Delta	= 07° 19' 49" (LT)
Degree	= 01° 21' 51"
Tangent	= 269.04
Length	= 537.34
Radius	= 4,200.00
External	= 8.61
P.T. Station	48892+89.18
Back	= N 03° 50' 51" E
Ahead	= N 03° 28' 59" W
Chord Bearing	= N 00° 10' 56" E
Proposed Superelevation	= 3.0%

Station		Left Slope	Right Slope
48885+94.94	PC - 156.9'	-2.1	-2.1
48886+75.30	PC - 76.5'	-2.1	0.0
48887+51.83	PC		
48887+55.66	PC + 3.8'	-2.1	2.1
48887+90.10	PC + 38.3'	-3.0	3.0
48892+50.90	PT - 38.3'	-3.0	3.0
48892+85.34	PT - 3.8'	-2.1	2.1
48892+89.18	PT		
48893+65.70	PT + 76.5'	-2.1	0.0
48894+46.06	PT + 156.9'	-2.1	-2.1

PR40ST_2

P.C. Station	57+13.96
P.I. Station	59+41.98
Delta	= 21° 41' 39" (RT)
Degree	= 04° 48' 53"
Tangent	= 228.02
Length	= 450.57
Radius	= 1,190.00
External	= 21.65
P.T. Station	61+64.54
Back	= N 76° 55' 37" E
Ahead	= S 81° 22' 44" E
Chord Bearing	= N 87° 46' 27" E
Proposed Superelevation	= 5.0%

Station		Left Slope	Right Slope
55+69.07	PC - 144.9'	-2.1	-2.1
56+25.07	PC - 88.9'	0.0	-2.1
56+81.07	PC - 32.9'	2.1	-2.1
57+13.96	PC		
57+58.40	PC + 44.4'	5.0	-5.0
61+20.10	PT - 44.4'	5.0	-5.0
61+64.54	PT		
61+97.43	PT + 32.9'	2.1	-2.1
62+53.43	PT + 88.9'	0.0	-2.1
63+09.43	PT + 144.9'	-2.1	-2.1

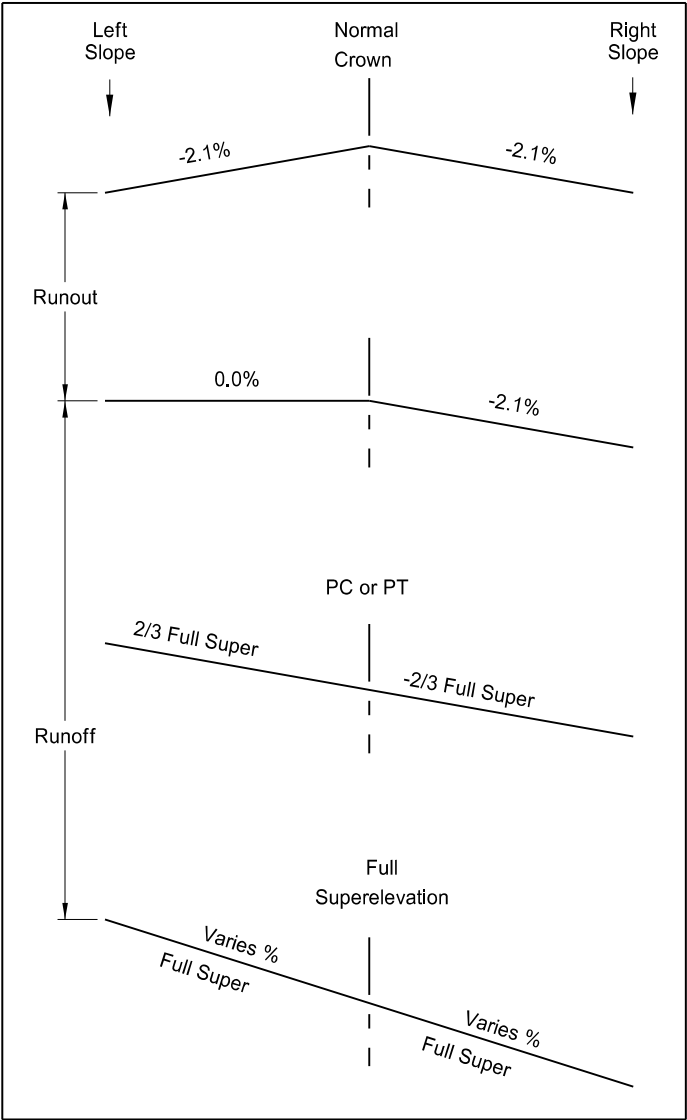
PRND23_3

P.C. Station	48909+23.14
P.I. Station	48923+91.15
Delta	= 67° 11' 19" (RT)
Degree	= 02° 35' 33"
Tangent	= 1,468.01
Length	= 2,591.59
Radius	= 2,210.00
External	= 443.14
P.T. Station	48935+14.73
Back	= N 03° 28' 59" W
Ahead	= N 63° 42' 21" E
Chord Bearing	= N 30° 06' 41" E
Proposed Superelevation	= 4.6%

Station		Left Slope	Right Slope
48907+25.44	PC - 197.7'	-2.1	-2.1
48908+05.79	PC - 117.3'	0.0	-2.1
48908+86.15	PC - 37.0'	2.1	-2.1
48909+23.14	PC		
48909+81.81	PC + 58.7'	4.6	-4.6
48934+56.06	PT - 58.7'	4.6	-4.6
48935+14.73	PT		
48935+51.72	PT + 37.0'	2.1	-2.1
48936+32.08	PT + 117.3'	0.0	-2.1
48937+12.43	PT + 197.7'	-2.1	-2.1

PR40ST_3

P.C. Station	69+92.98
P.I. Station	73+99.42
Delta	= 07° 10' 41" (LT)
Degree	= 00° 53' 03"
Tangent	= 406.43
Length	= 811.81
Radius	= 6,480.00
External	= 12.73
P.T. Station	78+04.79
Back	= S 81° 22' 44" E
Ahead	= S 88° 33' 24" E
Chord Bearing	= S 84° 58' 04" E
Proposed Superelevation	= NC



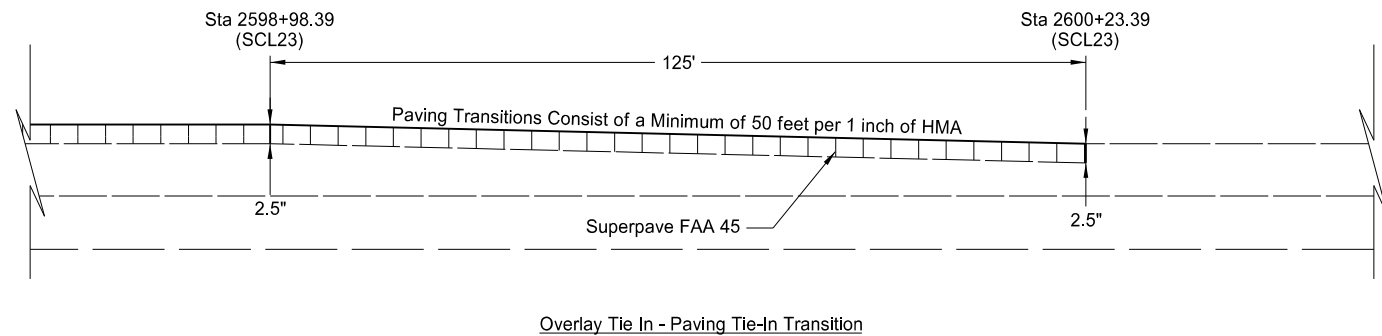
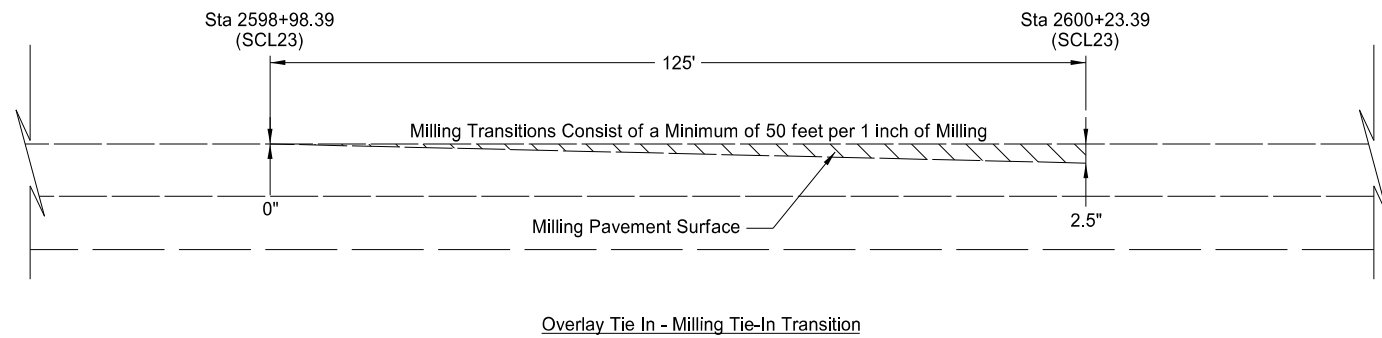
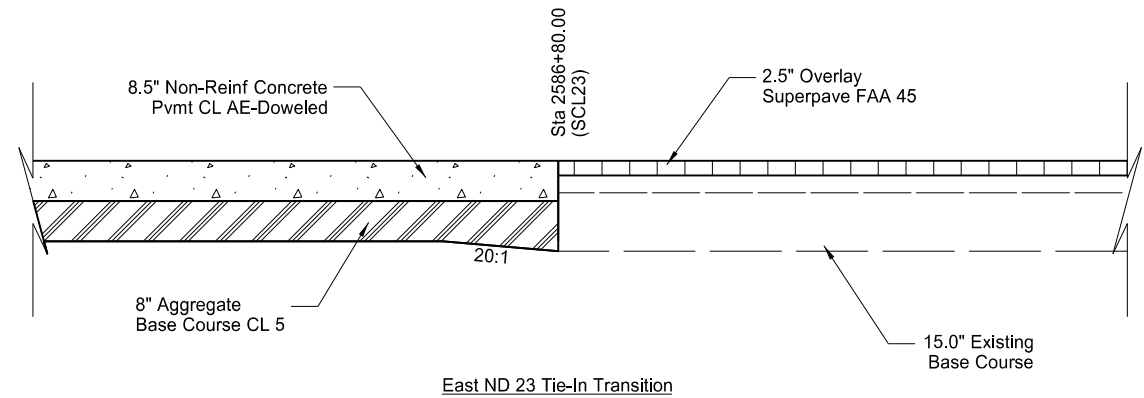
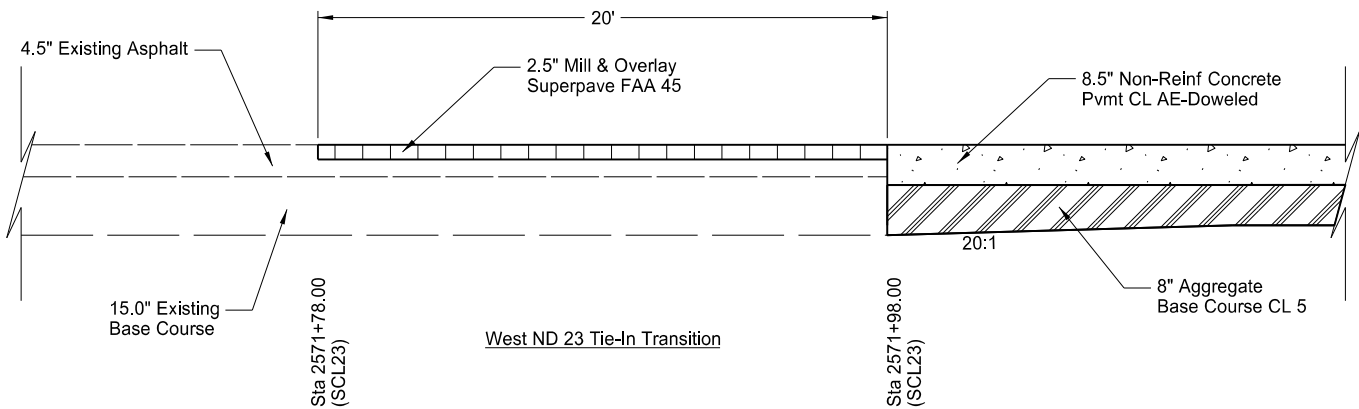
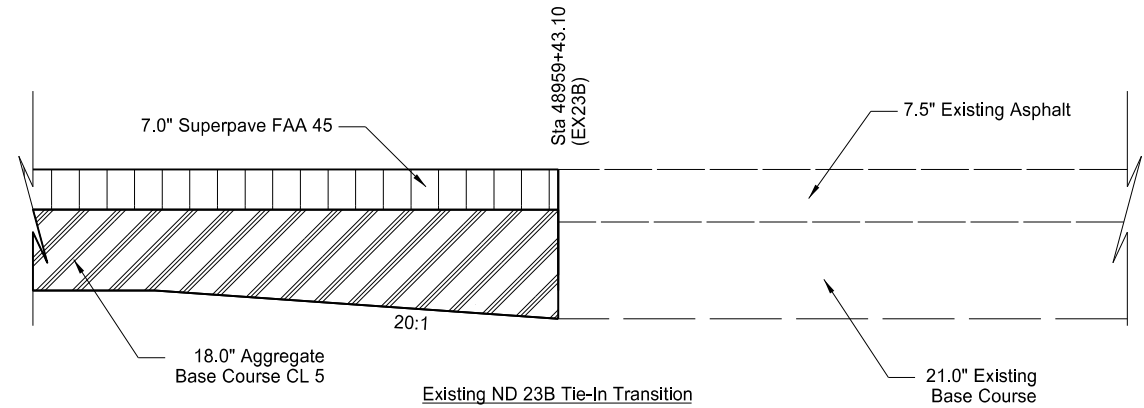
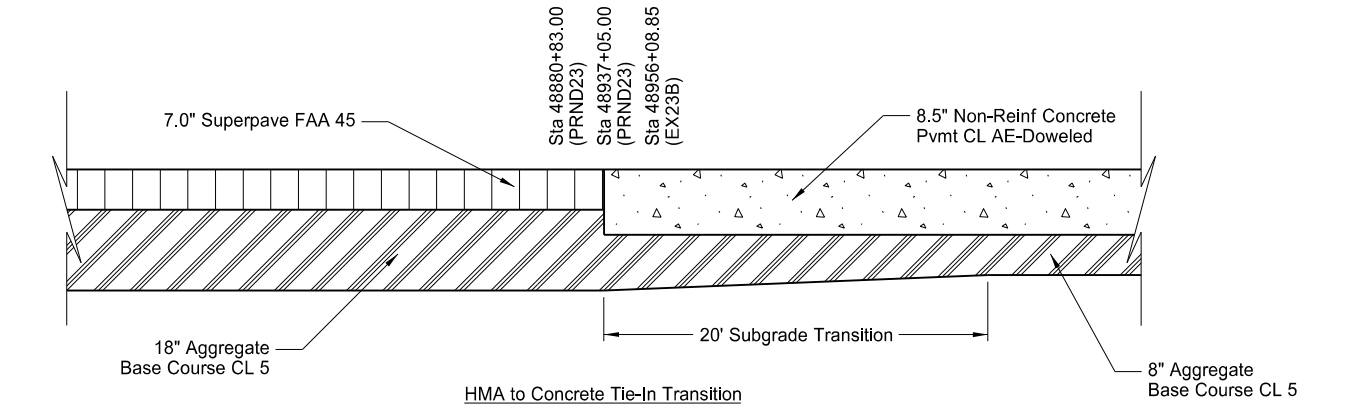
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ND 23B Truck Reliever Route

Superelevation Tables

Note: Calculations based on AASHTO method five.

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	AC-NH-SOIB-7-023(041)925	20	2

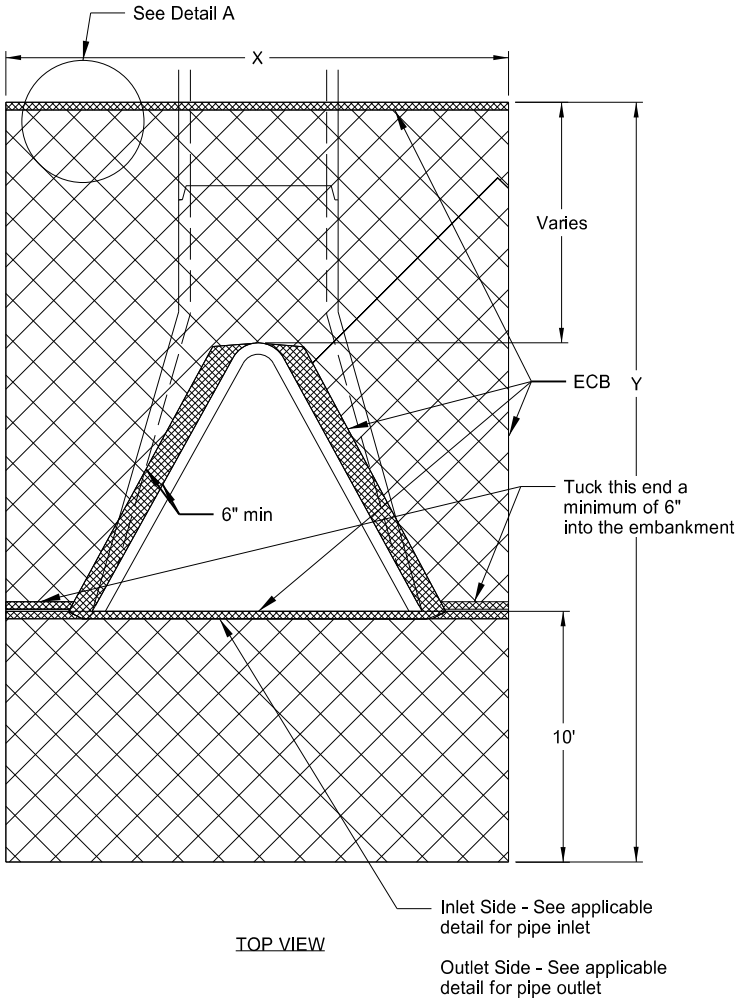


- Notes:
1. Drawing not to scale
 2. Refer to Sec 10 for Milling Pavement Surface Quantities

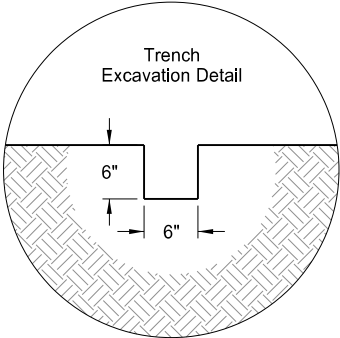
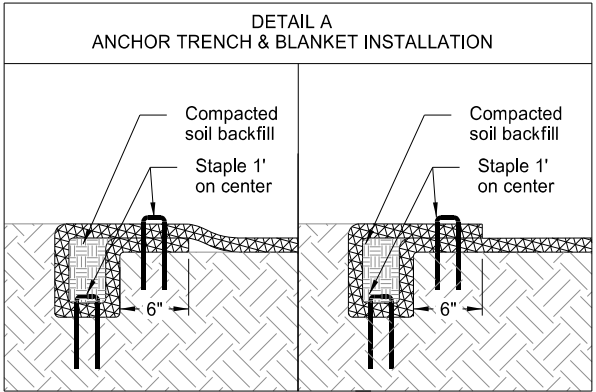
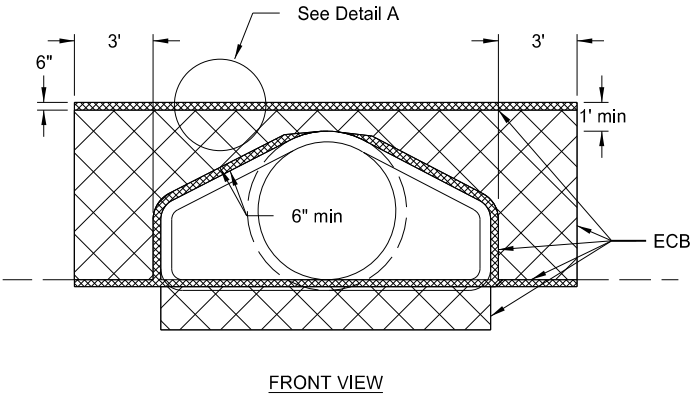
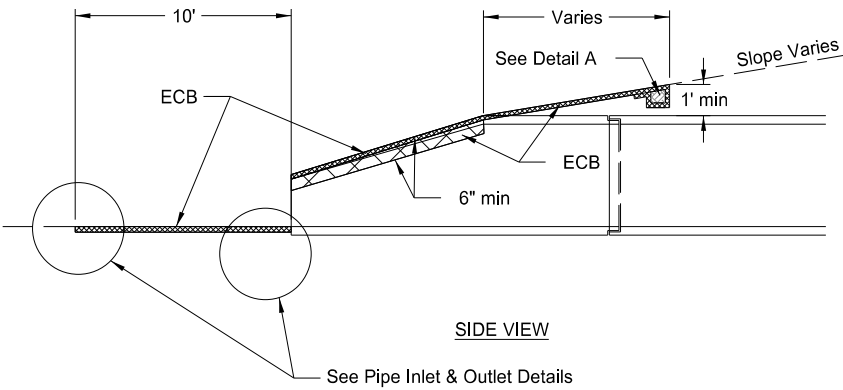
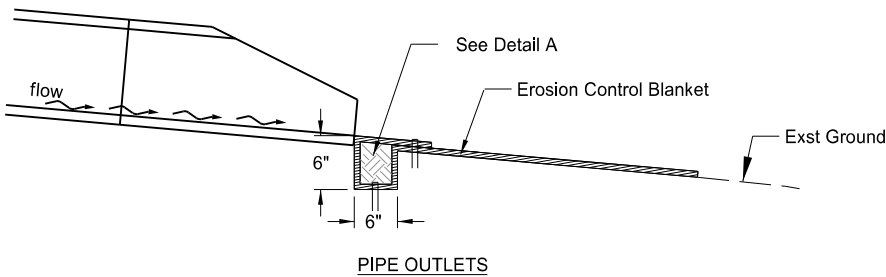
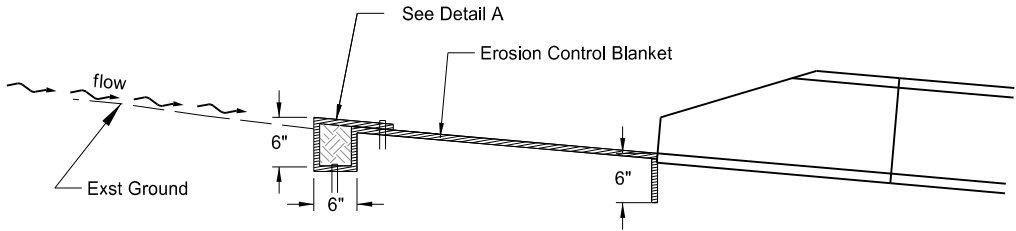
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ND 23B Truck Reliever Route
Project Tie-In Transitions

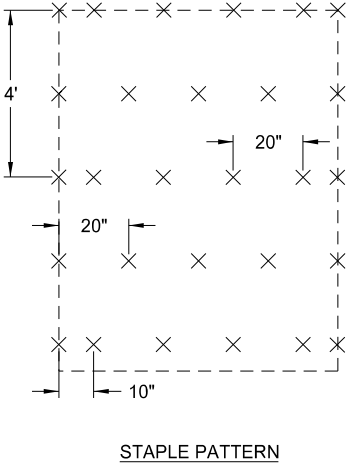
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	ND	AC-NH-SOIB-7-023(041)925	20	3



NOTE: Tuck the ECB a minimum of 6" into the embankment (against the flared end section) around the opening of the flared end section.



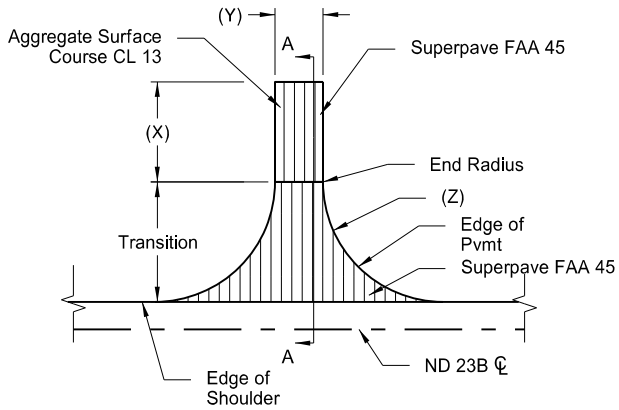
Location of Surface Area to be Protected		Pipe Diam	Description	No.	X	Y	Unit Quantity	Total Quantity
Station	Offset	(In)			(ft)	(ft)	(SY)	(SY)
48882+30	Lt/Rt	30	CL	2	11.6	18.5	22	44
48893+95	Rt	30	Approach	2	11.6	22.5	27	54
48897+64	Lt	42	Golf Course	1	13.3	19.2	25	25
48898+17	Lt/Rt	42	CL	2	13.3	19.2	25	50
48898+31	Lt	42	Golf Course	1	13.3	19.2	25	25
48911+00	Lt	30	CL	1	11.6	18.5	22	22
48922+00	Lt/Rt	30	CL	2	11.6	18.5	22	44
48932+75	Lt	24	Approach	2	10.5	21.6	24	48
48932+75	Rt	24	Approach	2	10.5	21.6	24	48
48943+25	Lt/Rt	36	CL	2	12.7	19.2	24	48
48947+63	Lt	30	CL	1	11.6	18.5	22	22
48952+51	Lt	48	CL	1	13.8	20	27	27
48955+92	Lt	42	CL	1	13.3	19.2	25	25
48959+22	Lt	30	CL	1	11.6	18.5	22	22
2578+95	Lt	24	Sidewalk	2	10.5	27.6	20	40
13115+74	Lt	42	CL	1	13.3	19.2	25	25
74+75	Lt	36	CL	1	12.7	19.2	24	24
3+22	Lt/Rt	18	Approach	2	9.5	20.7	22	44
10+02	Lt/Rt	18	Approach	2	9.5	20.7	22	44
13+61	Lt	18	Approach	1	9.5	20.7	22	22
20+40	Lt/Rt	18	Approach	2	9.5	20.7	22	44
34+80	Lt/Rt	18	40th St NW Temporary Roadway	2	9.5	16.7	19	38
14+48	Lt/Rt	36	Temporary Access Road	2	12.7	19.2	24	48
255 0103 ECB Type 3							Total =	833



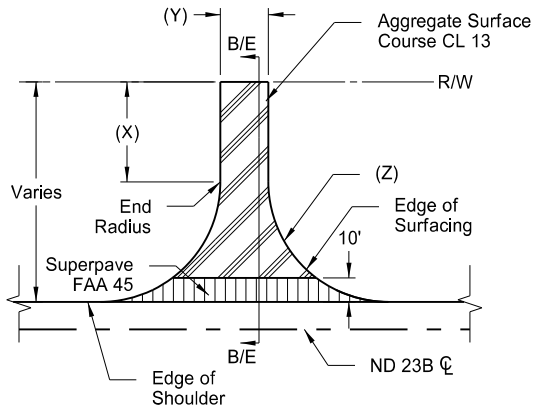
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ND 23B Truck Reliever Route
Erosion Control at Culvert Flared End Sections

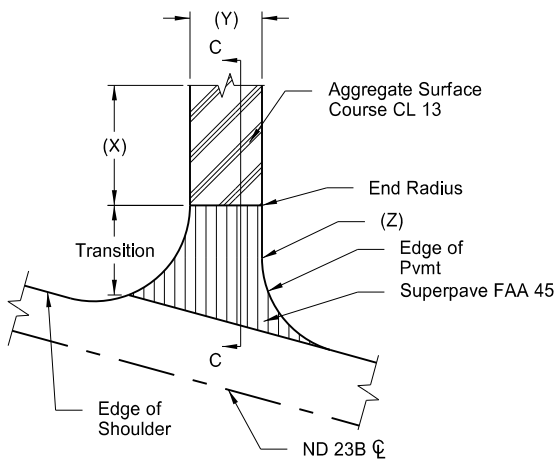
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	AC-NH-SOIB-7-023(041)925	20	4



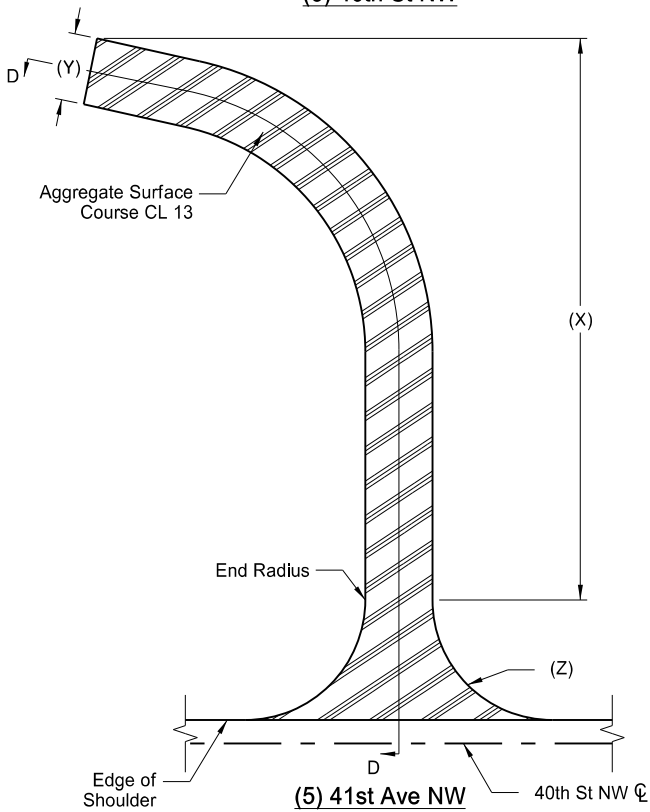
(1) Edgewater Country Club



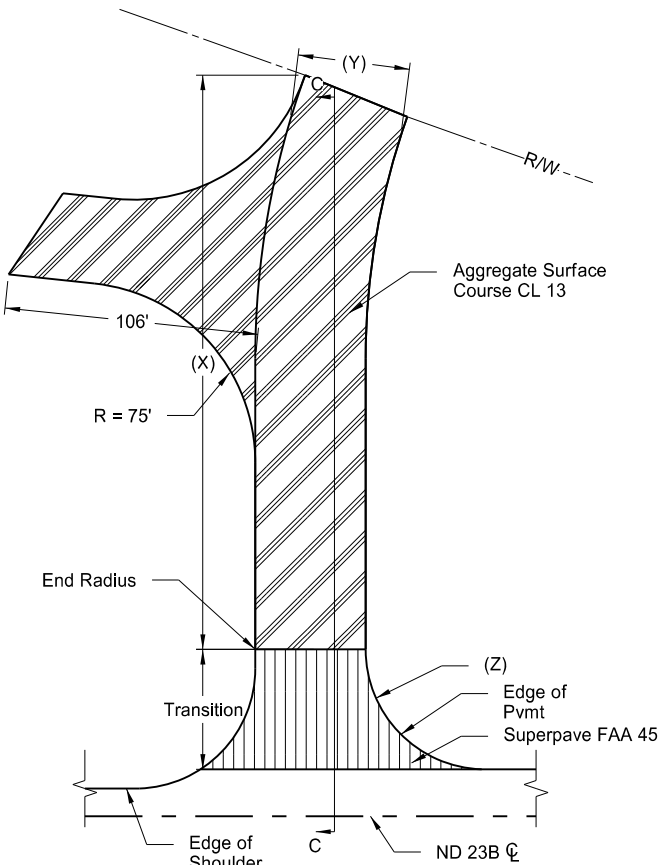
(2) Field Drive



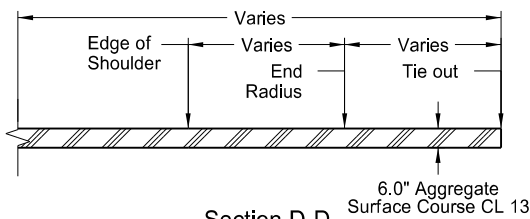
(3) 40th St NW



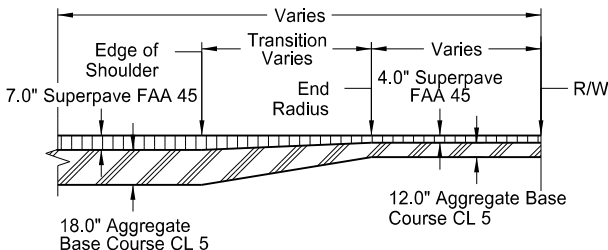
(5) 41st Ave NW



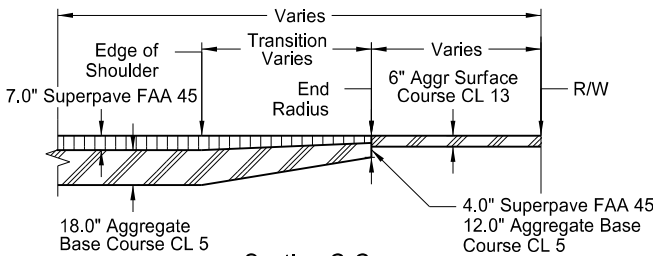
(4) Uran Ave



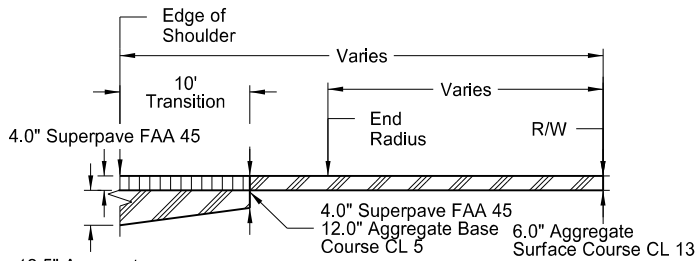
Section D-D
(Not to Scale)



Section A-A
(Not to Scale)



Section C-C
(Not to Scale)



Section E-E
(Not to Scale)

Approach Details

Station	Offset (Lt/Rt)	Approach Type	Tie-Out Length (X)	Roadway Width (Y)	Radius (Z)	302 0120 Aggregate Base Course CL 5	302 0356 Aggregate Base Course CL 13	401 0050 Tack Coat	430 0045 Superpave FAA 45	430 5818 PG 58H-34 Asphalt Cement	Description
48893+95	Lt	1	130	26	40	403	-	85	141	9	Edgewater Country Club
48893+95	Rt	2	119	24	40	76	132	14	27	2	Field Drive
48920+03	Lt	3	-	30	50	264	-	47	95	6	40th St NW
48920+03	Rt	3	-	30	50	286	-	51	103	7	40th St NW
48932+75	Lt	4	239	46	50	291	551	53	107	7	Uran Ave
48932+75	Rt	2	153	46	40	92	306	17	34	2	Field Drive
48955+29	Lt	2	32	20	40	66	56	13	25	2	Field Drive
66+37	Rt	5	234	28	50	-	400	-	-	-	41st Ave NW

Notes:

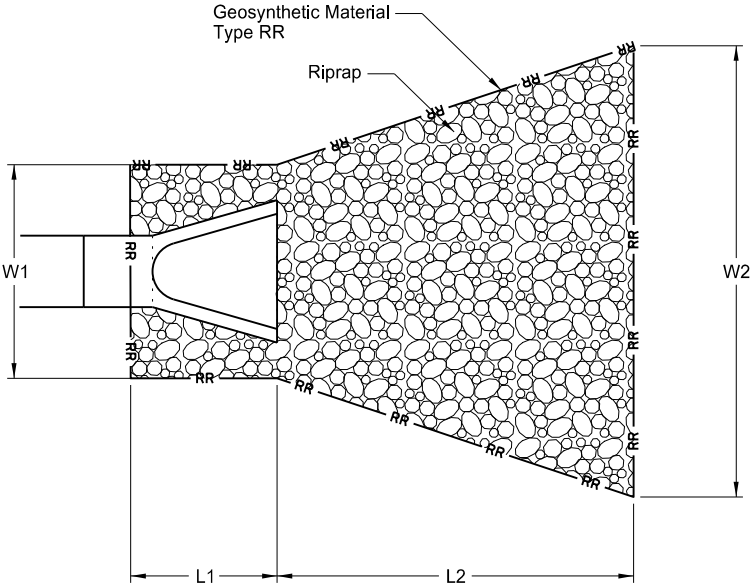
- Refer to Standard Drawing D-203-8, and to Section 200 Cross Sections for grading details.
- Match into existing approach width.
- Approach slough rate will be 4:1

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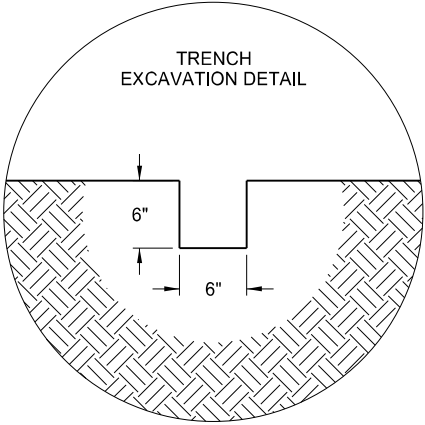
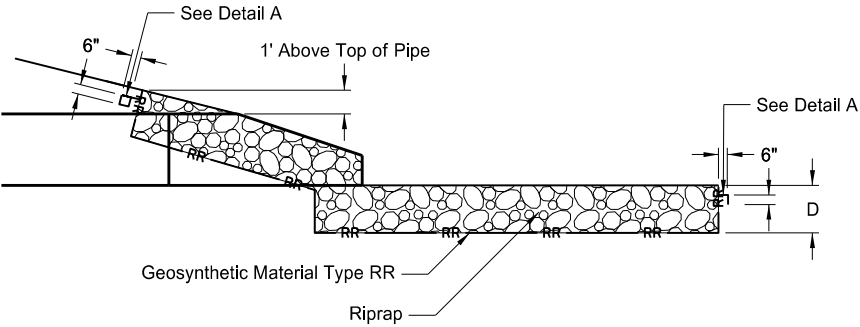
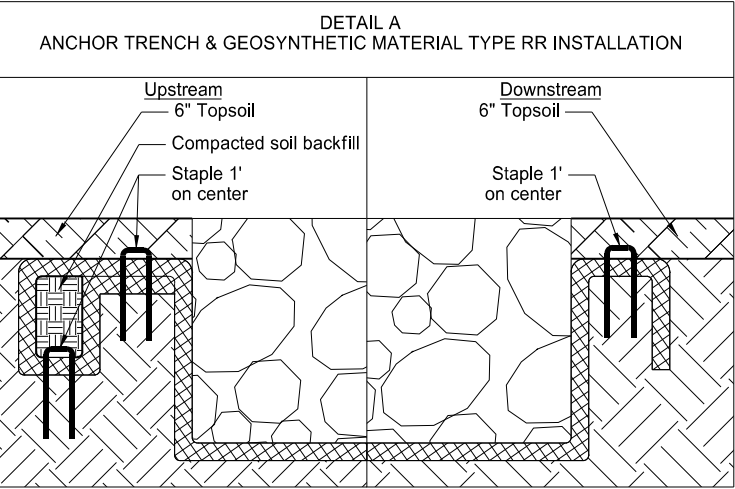
ND 23B Truck Reliever Route

Approach Details

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	AC-NH-SOIB-7-023(041)925	20	5



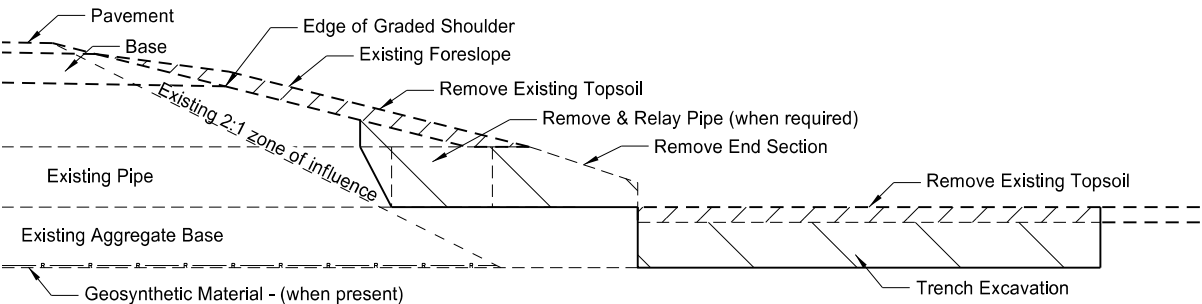
Riprap and Geosynthetic Material - Type RR Placement												
Station	Offset	Type	Culvert Diameter (IN)	L1 (FT)	L2 (FT)	W1 (FT)	W2 (FT)	D (IN)	Riprap Grade	Riprap (CY)	Salvage Material Available (CY)	Geosynthetic Material Type RR (SY)
48911+00	Rt	CL	30	8.5	20.0	7.5	20.8	36.0	III	39	-	68
13115+80	Rt	CL	42	9.3	25.0	10.5	27.2	36.0	III	63	62	100
74+75	Rt	CL	36	9.3	24.0	9.0	25.0	36.0	III	55	-	89
256 0300 Riprap Grade III										Total	95	-
709 0155 Geosynthetic Material Type RR										Total	-	257



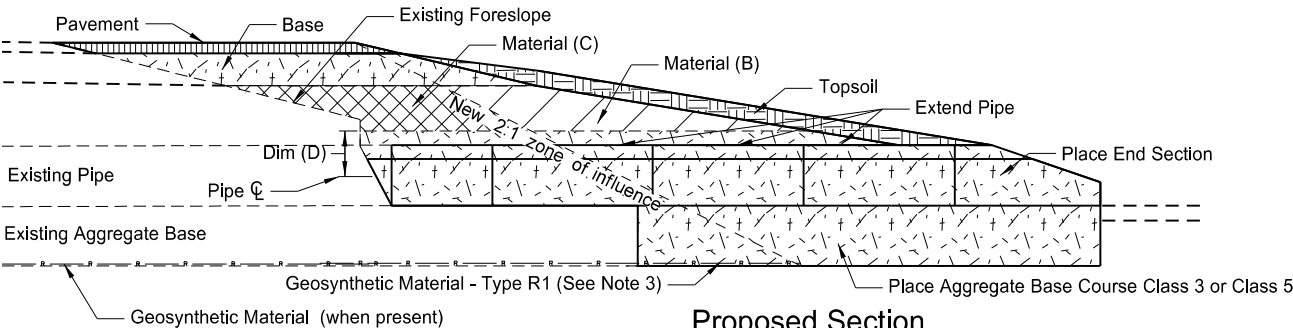
Notes:
1. Refer to Section 40 for existing riprap salvage material locations and quantity.

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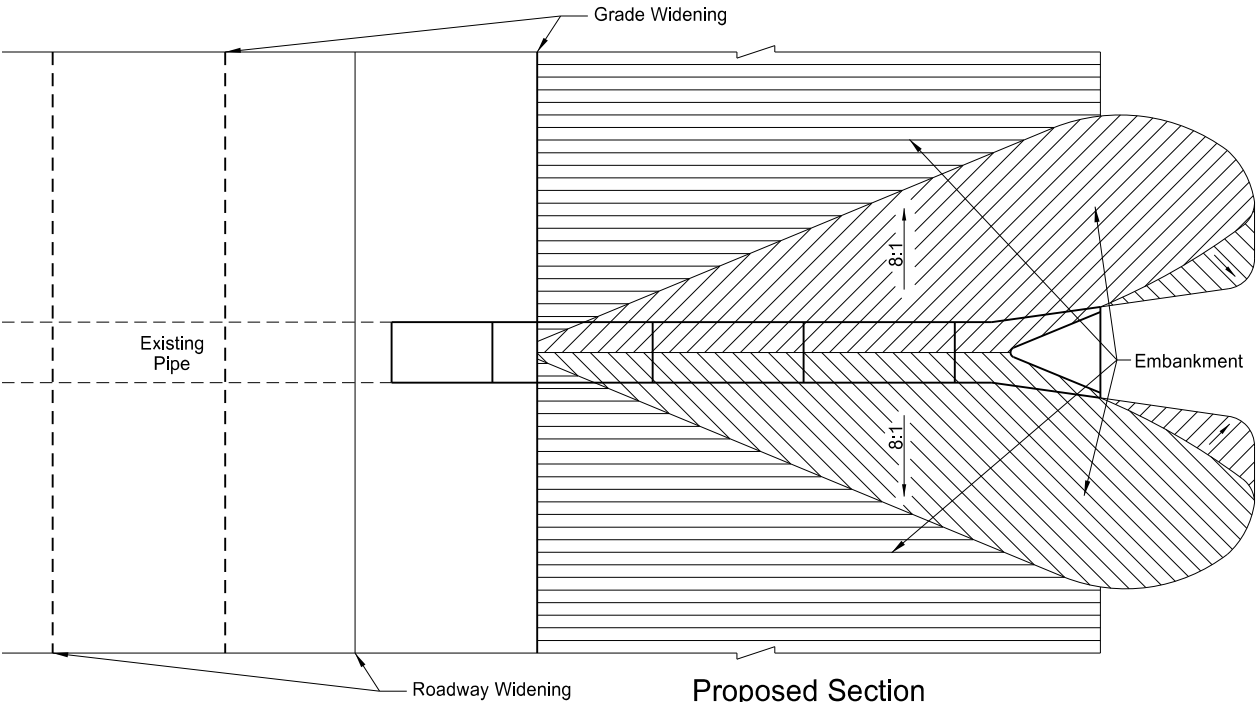
ND 23B Truck Reliever Route
Riprap Detail



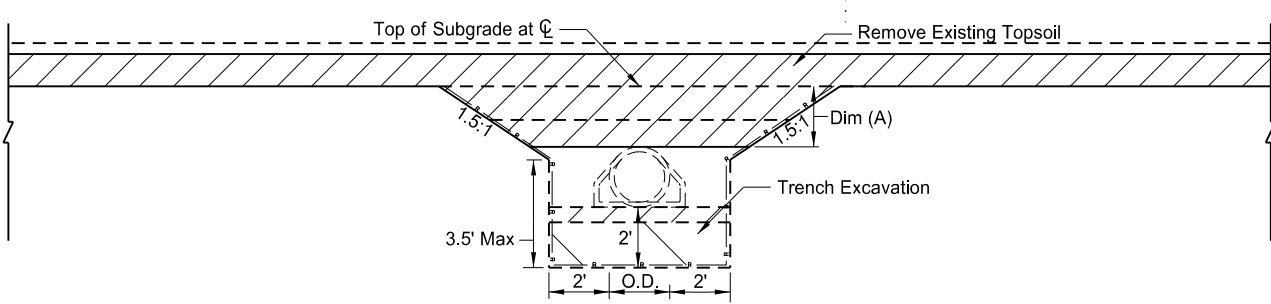
Removal Section
Cross Section View



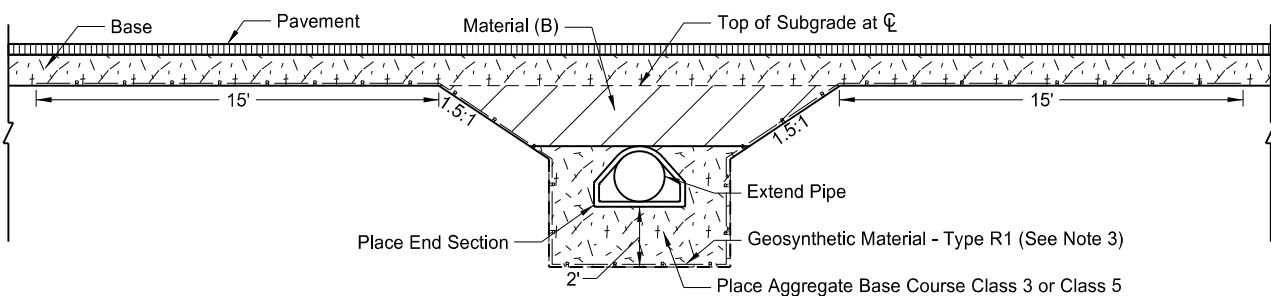
Proposed Section
Cross Section View



Proposed Section
Plan View



Removal Detail
Side View



Backfill Detail

Side View (Topsoil not shown)

Pipe Materials	Dim (A) <= 4 Feet		Backfill Dimension
	Material (B)	Material (C)	Dim (D)
Concrete	Embank or Aggr	Aggregate	0.5 O.D.
Metal and Plastic	Embank or Aggr	Aggregate	0.5 O.D.

Pipe Materials	Dim (A) > 4 Feet		Backfill Dimension
	Material (B)	Material (C)	Dim (D)
Concrete	Embankment	Embankment	0.5 O.D.
Metal and Plastic	Embankment	Embankment	0.5 O.D. + 1 Foot

NOTES:

- Embankment may be either Borrow Excavation (Compaction Control - Type A) or Common Excavation - Type A
- Aggregate may be either Class 3 or Class 5 Aggregate Base Course.
- When Reinforcing Fabric is provided in the plans at pipe extensions, expose the edge of the existing fabric and connect the new fabric. This may require the removal and resetting of additional sections of pipe. Reinforcing Fabric is not required outside the 2:1 zone of influence.

*Included in Pipe Pay Item

- Pipe
- Trench excavation
- Aggregate Base Course Class 3 or Class 5

Pay Items

- Pipe*
- Remove & Relay Pipe - All Types & Sizes (when required)
- Remove & Reset End Section or Remove End Section and Place New End Section
- Geosynthetic Material - Type R1
- Borrow Excavation (Compaction Control Type A) or Common Excavation-Type A
- Topsoil
- Seeding
- Mulching

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ND 23B Truck Reliever Route

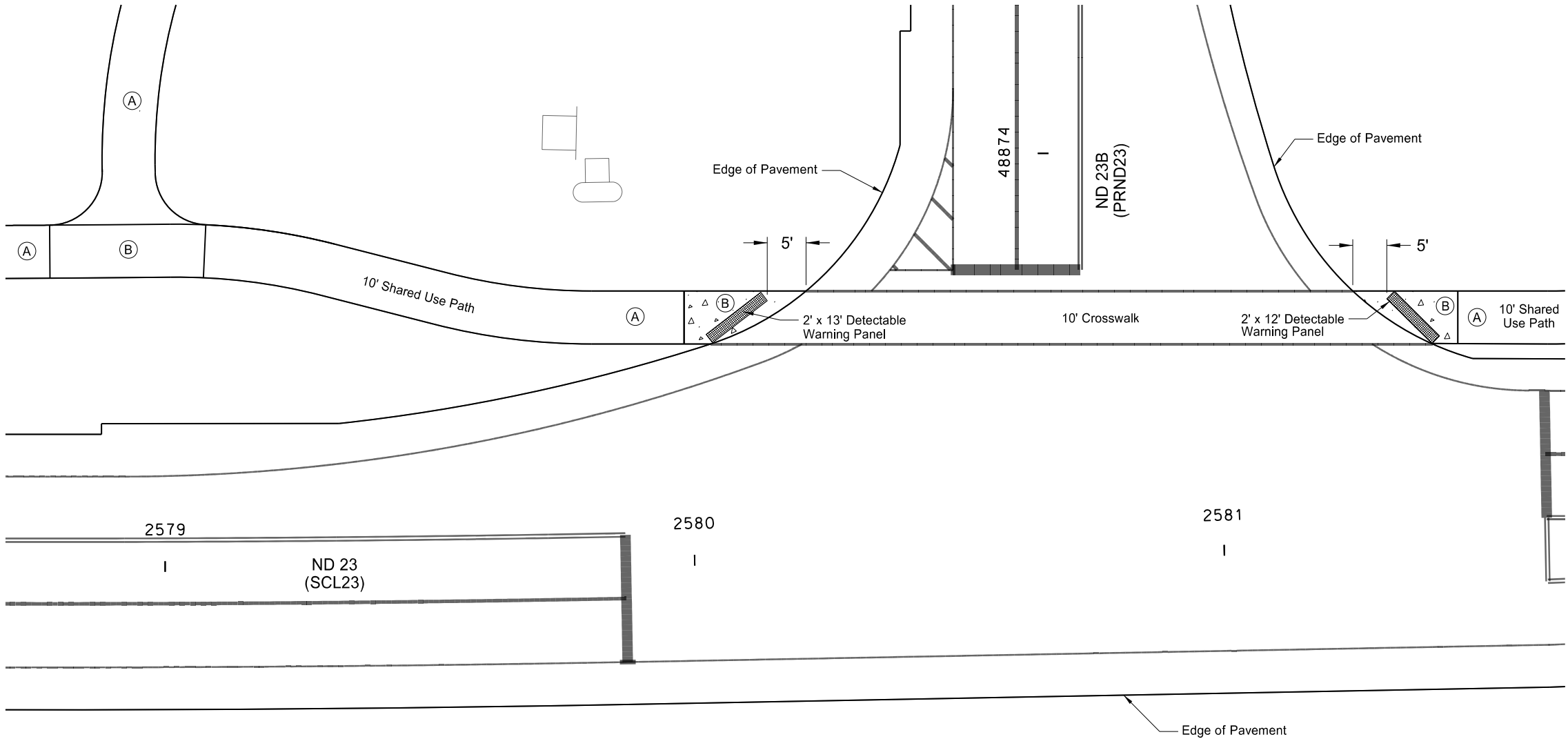
Mainline ϕ Pipe Extension Detail

Pipe Extension Locations

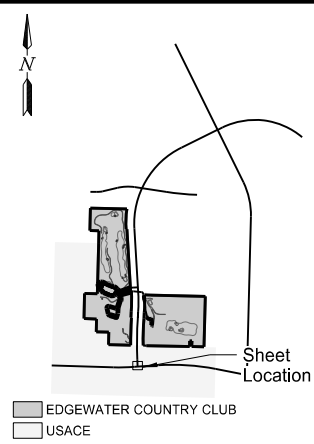
Station	Offset	Diameter (IN)	Material
48947+63	Lt	30	CSP
48952+51	Lt	48	CSP
48955+92	Lt	42	CSP
13115+74	Lt	42	CSP
13115+74	Rt	42	CSP

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	AC-NH-SOIB-7-023(041)925	20	8

SPEC	CODE	BID ITEM	QTY	UNIT
750	0115	SIDEWALK CONCRETE 4IN		
		Sta 2579+98.77 Lt to Sta 2580+21.97 Lt	18	SY
		Sta 2581+25.18 Lt to Sta 2581+45.01 Lt	15	SY
750	2115	DETECTABLE WARNING PANELS		
		Sta 2579+90.65 Lt to Sta 2580+21.88 Lt	26	SF
		Sta 2581+25.08 Lt to Sta 2581+47.07 Lt	24	SF



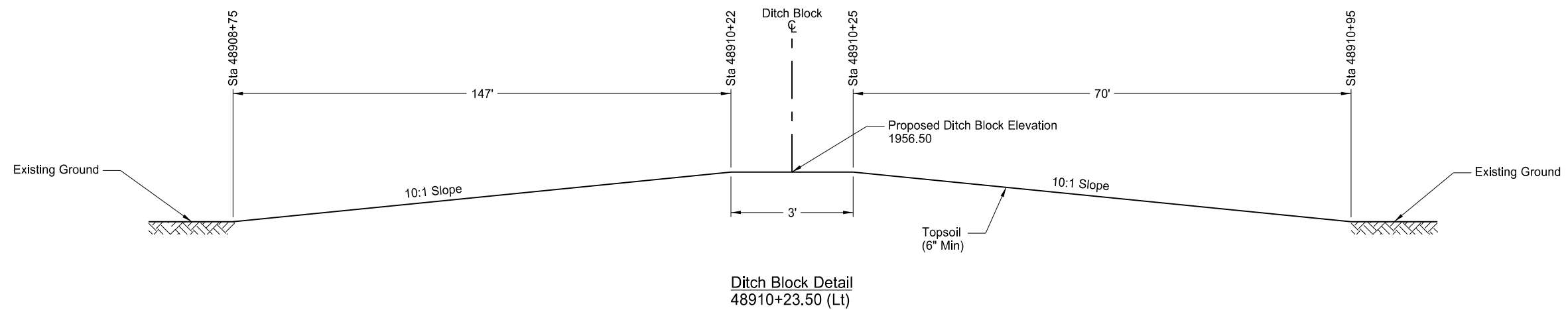
- (A) 10' Shared Use Path
50:1 Maximum Cross Slope
5% Maximum Running Slope
- (B) Landing
50:1 Maximum Longitudinal Slope
50:1 Maximum Cross Slope
- Notes:
1. Dimension shown may vary from actual. Adjust if maximum slopes cannot be met with dimensions shown.
 2. See standard drawing D-750-3 for details.
 3. See Section 82 for shared use path coordinate information.



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ND 23B Truck Reliever Route
ADA Ramp Details
ND 23/ ND 23B

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	AC-NH-SOIB-7-023(041)925	20	9



- Notes:
1. Include the cost of labor, equipment, and materials to construct the ditch block in the bid price for "Common Excavation - Type A"
 2. Refer to Sec 200 for additional details

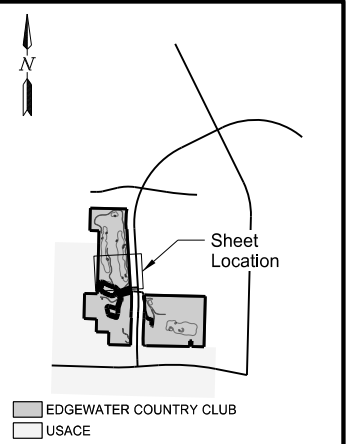
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ND 23B Truck Reliever Route
Ditch Block Detail

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	AC-NH-SOIB-7-023(041)925	20	10

SPEC	CODE	BID ITEM	QTY	UNIT
714	4120	PIPE CONDUIT 42IN		
		Sta 48897+89.9~198.6' Lt to MH1	356	LF
		MH1 to 48899+09.9~944.1' Lt	430	LF
722	0120	MANHOLE 72IN		
		MH1	1	EA
722	1120	MANHOLE RISER 72IN		
		MH1	10.8	LF

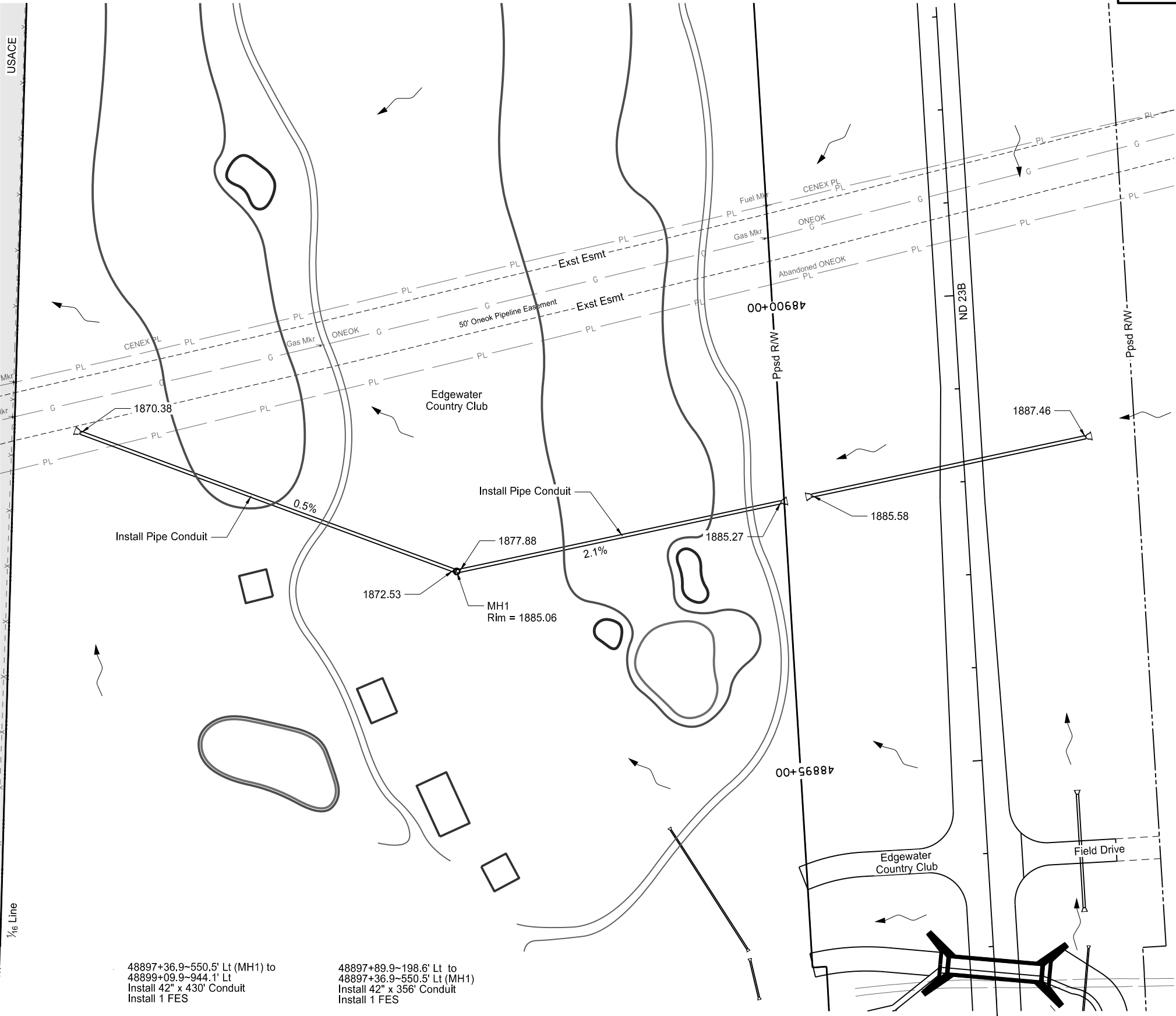
Note:
Refer to Sec 60
for more details



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ND 23B Truck Reliever Route
Edgewater Golf Course Culvert Detail

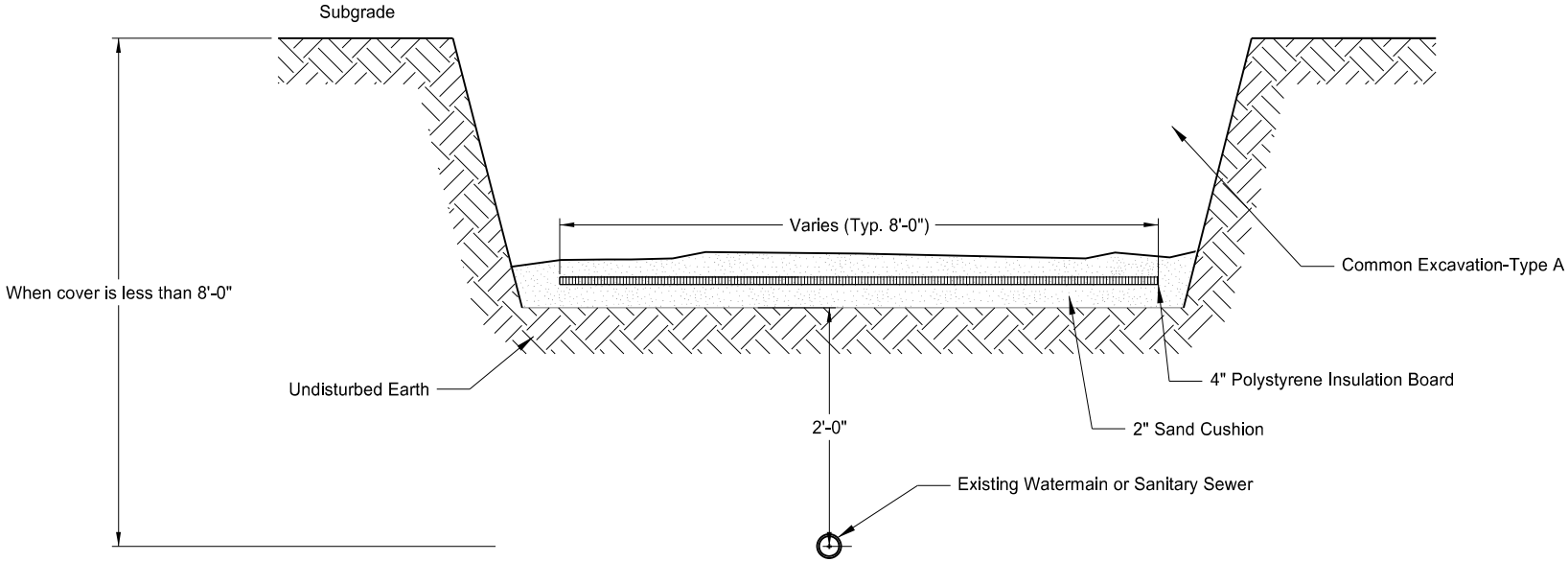


48897+36.9~550.5' Lt (MH1) to
48899+09.9~944.1' Lt
Install 42" x 430' Conduit
Install 1 FES

48897+89.9~198.6' Lt to
48897+36.9~550.5' Lt (MH1)
Install 42" x 356' Conduit
Install 1 FES

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	AC-NH-SOIB-7-023(041)925	20	11

Insulation Board					
Begin Station	Begin Offset	End Station	End Offset	CF	Alignment
48943+52.9	43.0' Lt	48943+53.5	91.0' Lt	192	PRND23
13115+67.1	74.3' Rt	13115+78.0	53.2' Rt	42	SCL1804
744 0050 Insulation Board				Total =	234



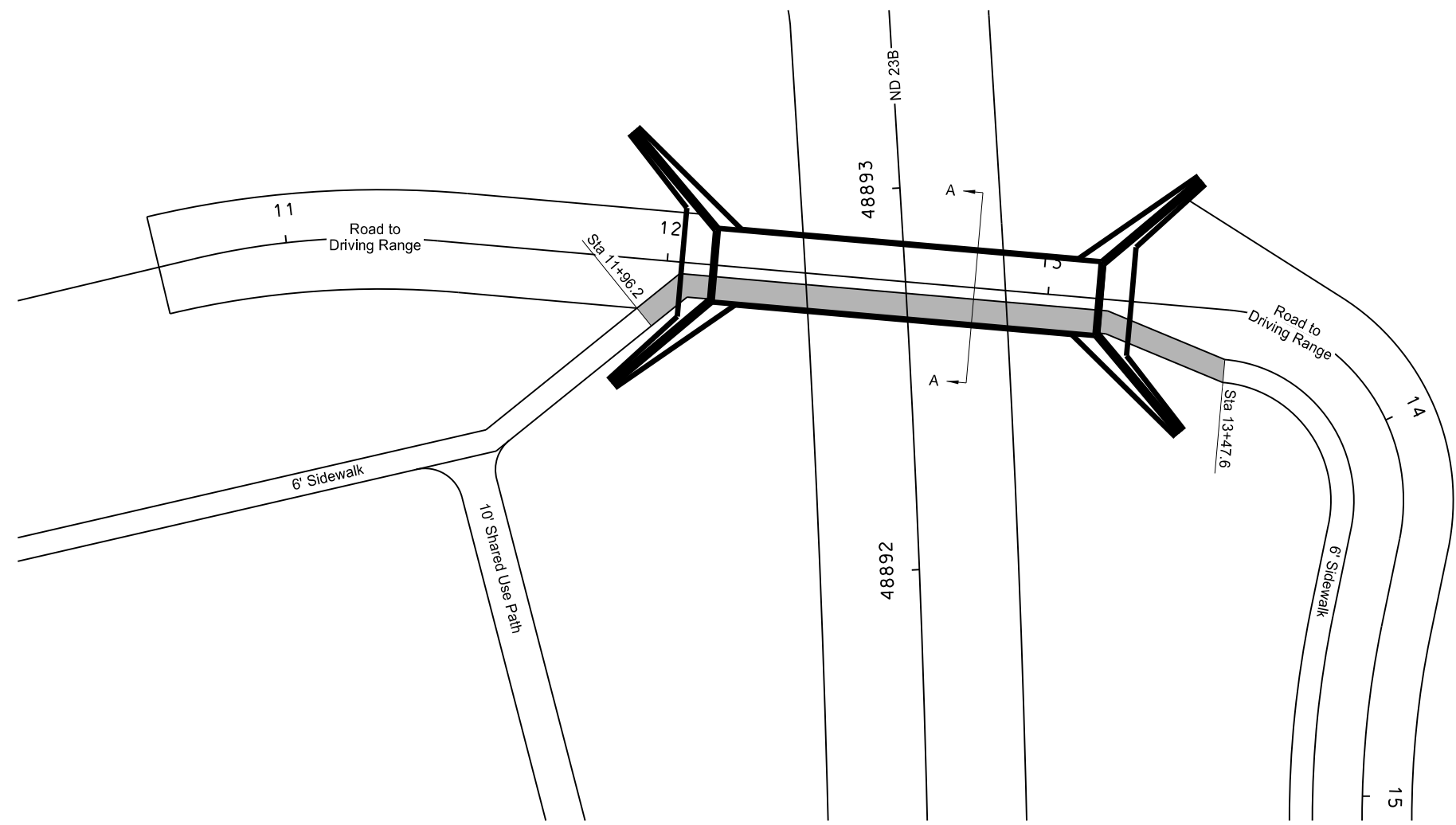
Insulation Detail - Existing Watermain or Sanitary Sewer

Note:
1. Refer to Sec 60 for placement locations

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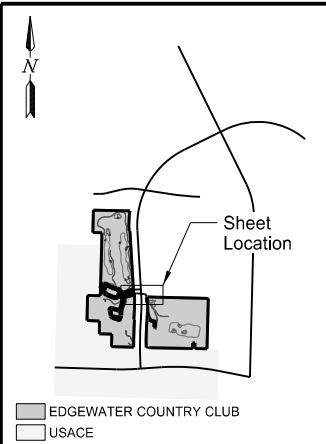
ND 23B Truck Reliever Route
Insulation Board Detail

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	AC-NH-SOIB-7-023(041)925	20	12

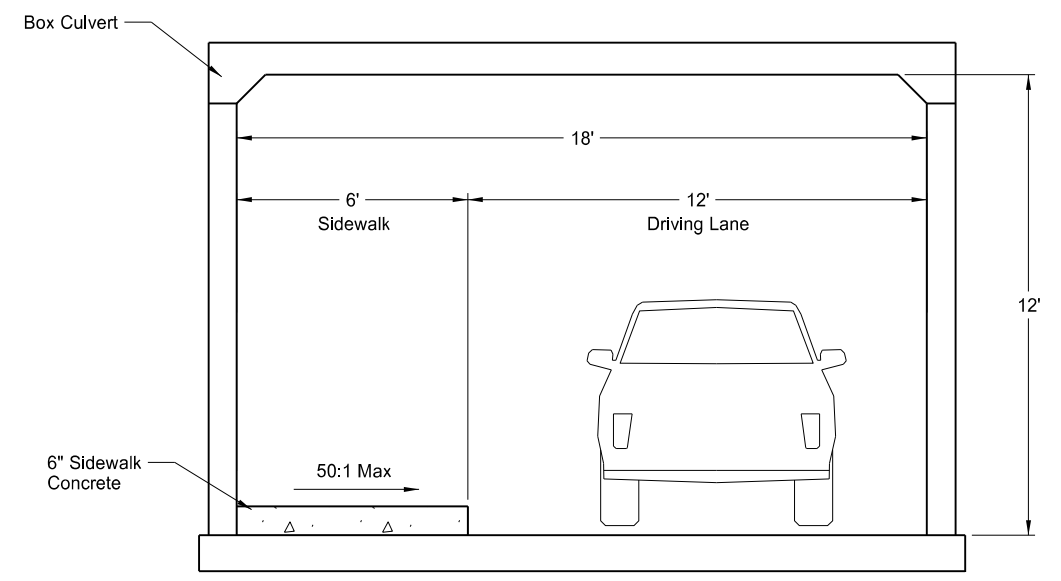


6" Sidewalk Concrete

- Notes:
1. Sidewalk running slope cannot exceed 20:1
 2. Ramp must begin and end before reaching box culvert
 3. Sidewalk must be 6" above Driving Lane through box culvert
 4. Sidewalk cross slope cannot exceed 50:1
 5. See Sec 170 for box culvert details



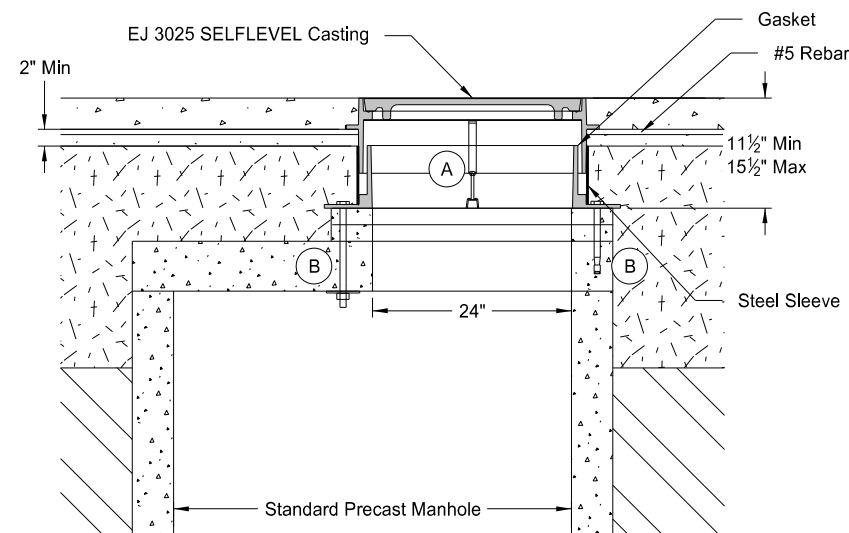
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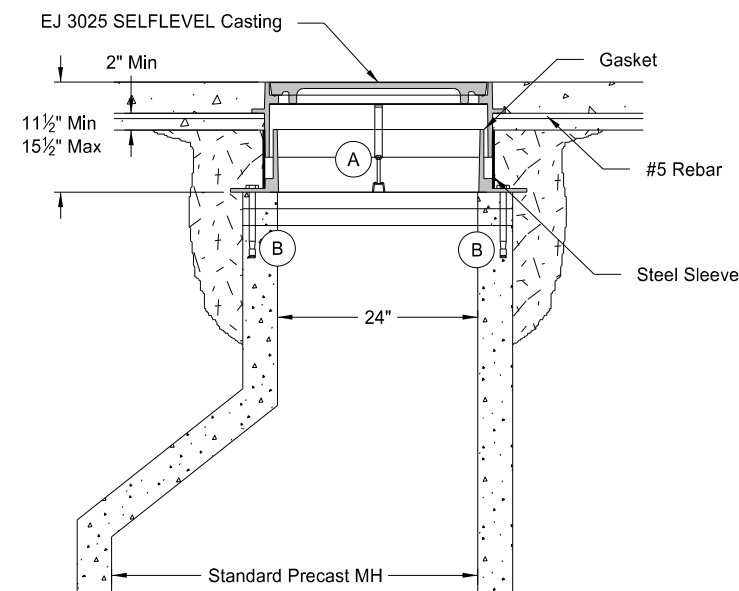
Section A-A

ND 23B Truck Reliever Route
Box Culvert Detail

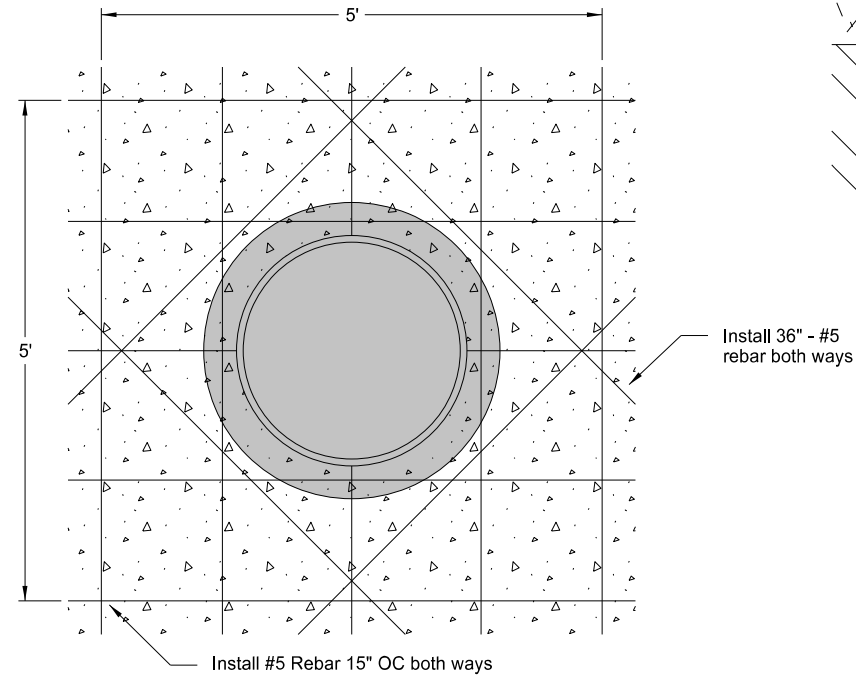
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	AC-NH-SOIB-7-023(041)925	20	13



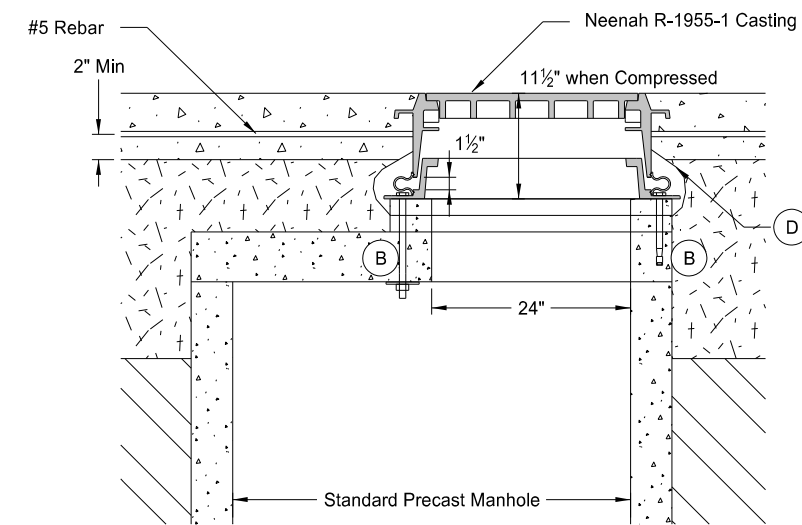
ELEVATION VIEW OF CONNECTION TO
STANDARD PRECAST MANHOLE - TYPICAL



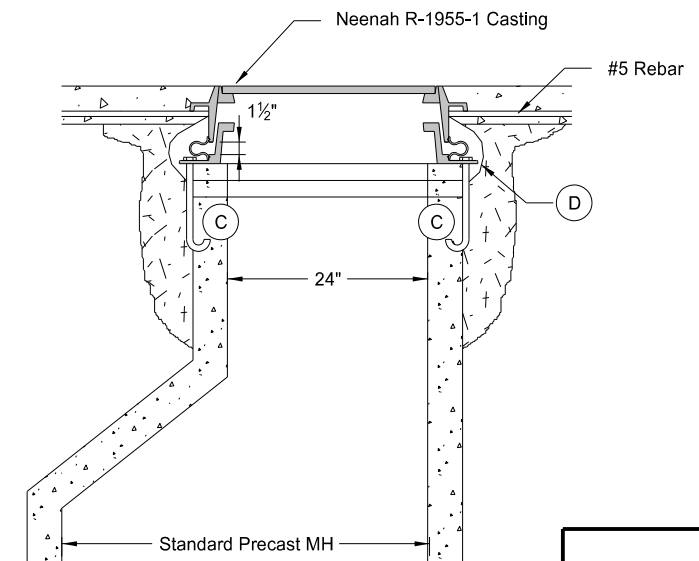
ELEVATION VIEW OF CONNECTION TO
CONICAL MANHOLE - TYPICAL



REBAR LAYOUT

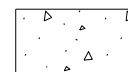


ELEVATION VIEW OF CONNECTION TO
STANDARD PRECAST MANHOLE - TYPICAL

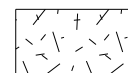


ELEVATION VIEW OF CONNECTION TO
CONICAL MANHOLE - TYPICAL

Key



Portland Cement Concrete Pavement



Granular Backfill

Notes:

1. Bed frame in mortar, install precast two-inch rings, and plaster inside and out with mortar.
2. When installing an existing box out, drill 20" - #5 rebar into existing pavement 6" deep - 15" OC.
3. The length of anchor bolts varies with the number of adjusting rings.
4. Include installation costs at existing locations in the unit price bid for " SANITARY MANHOLE REPAIR."

(A)

(3) 6" full thread adjusting bolt and bracket (To be removed after concrete cures.)

(B)

Provide 3/4" diameter stainless steel bolts, nut assemblies, and 1/2"x4"x4" plates to extend through the manhole cover, or provide anchor bolts to extend a minimum of 4" into the MH cover. Provide 4 bolts per casting.

(C)

Provide 3/4" diameter stainless steel bolts with nuts to extend 5" below the adjusting rings. Provide 4 bolts per casting.

(D)

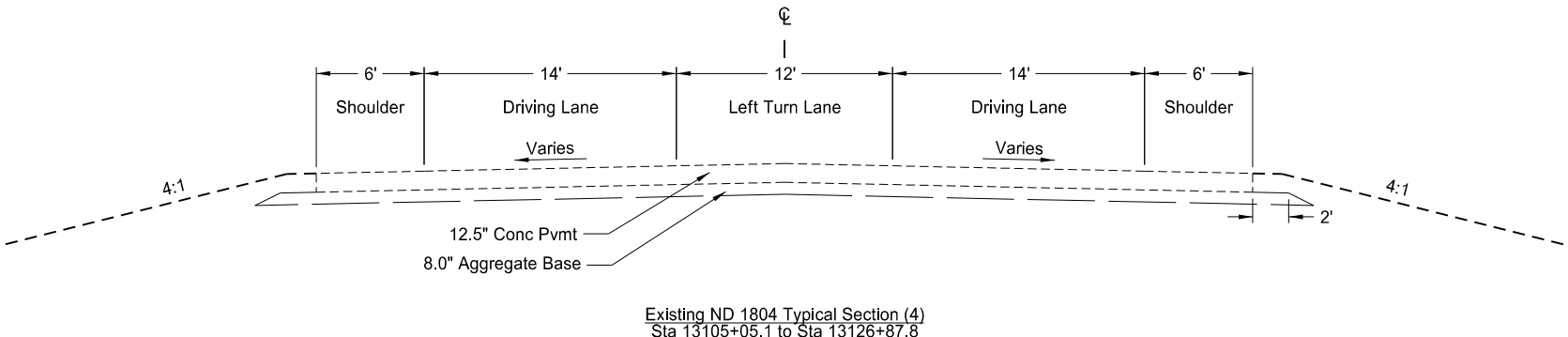
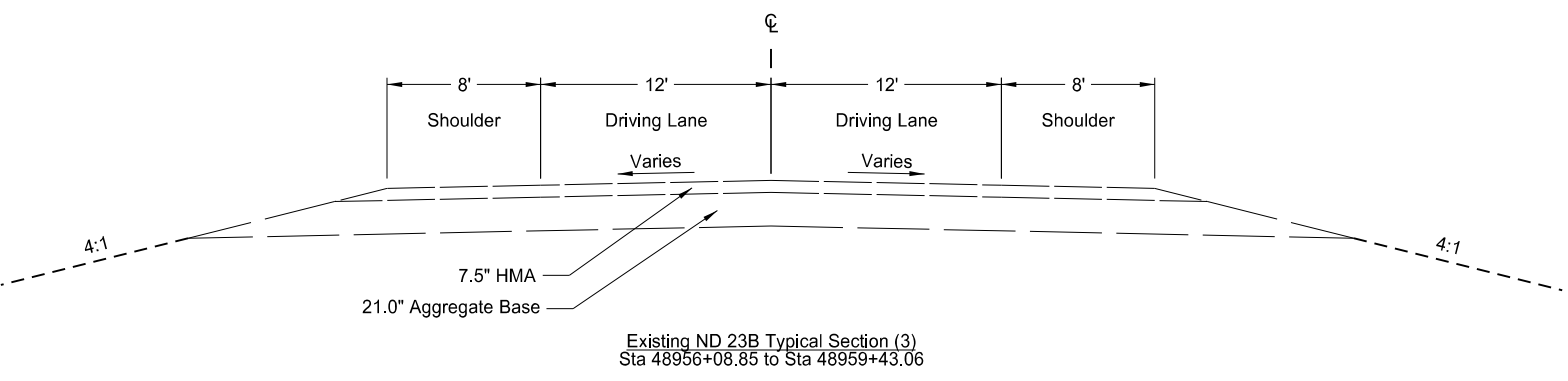
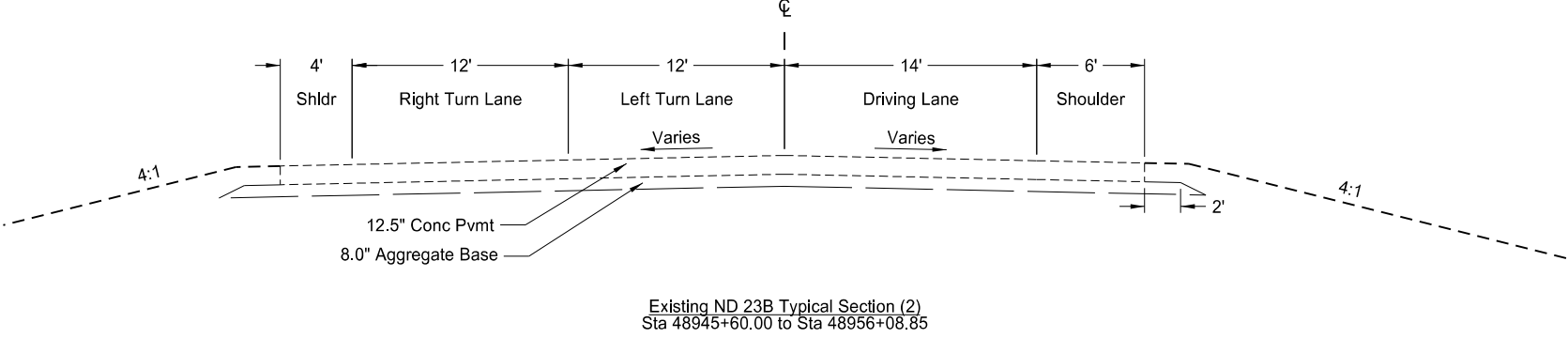
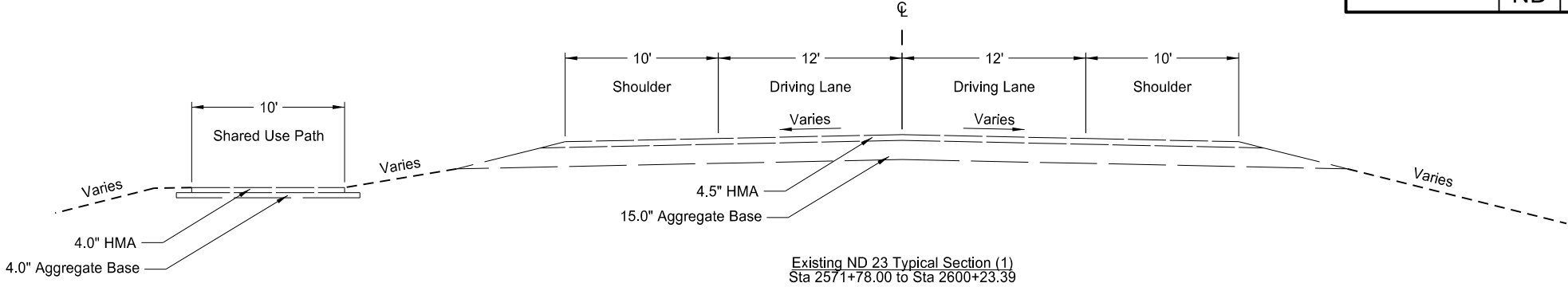
Wrap and tape 6 mil polyethelene on casting above the rubber gasket and tape to adjusting rings below the gasket.

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ND 23B Truck Reliever Route

Floating Manhole Detail

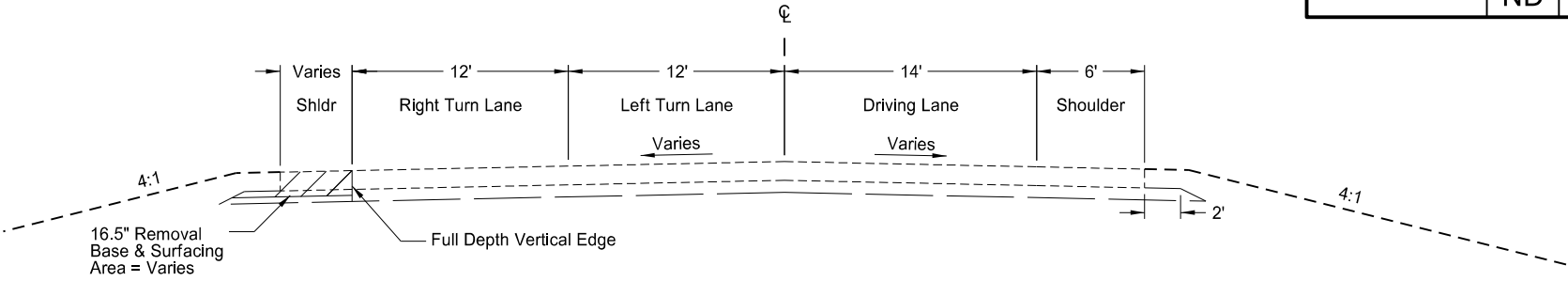
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	AC-NH-SOIB-7-023(041)925	30	1



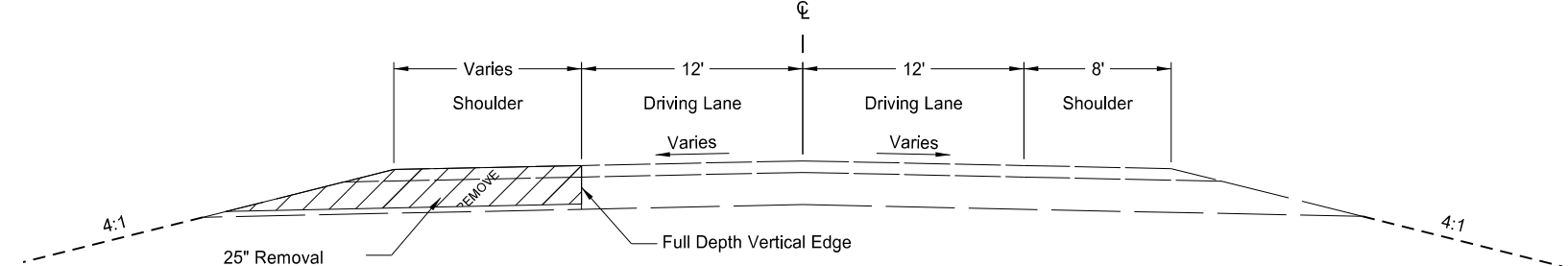
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ND 23B Truck Reliever Route
Existing Typical Sections
ND 23/ ND 23B/ ND 1804

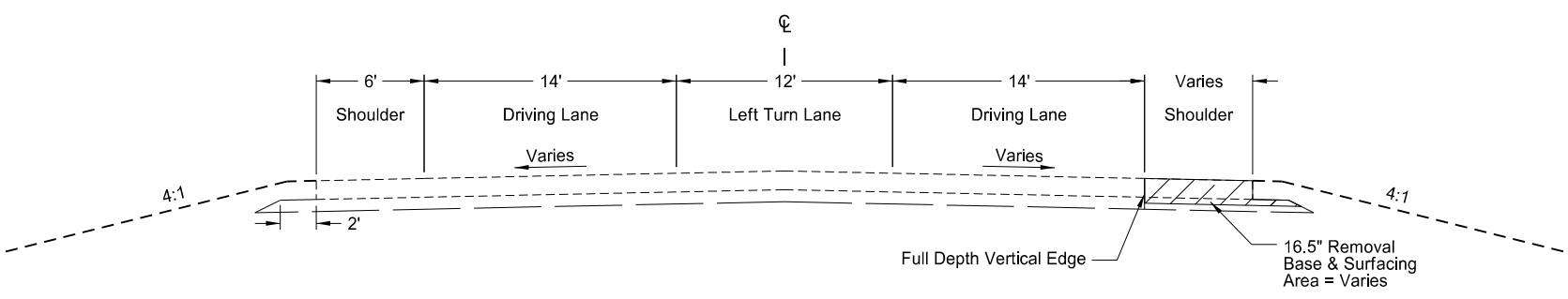
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	AC-NH-SOIB-7-023(041)925	30	2



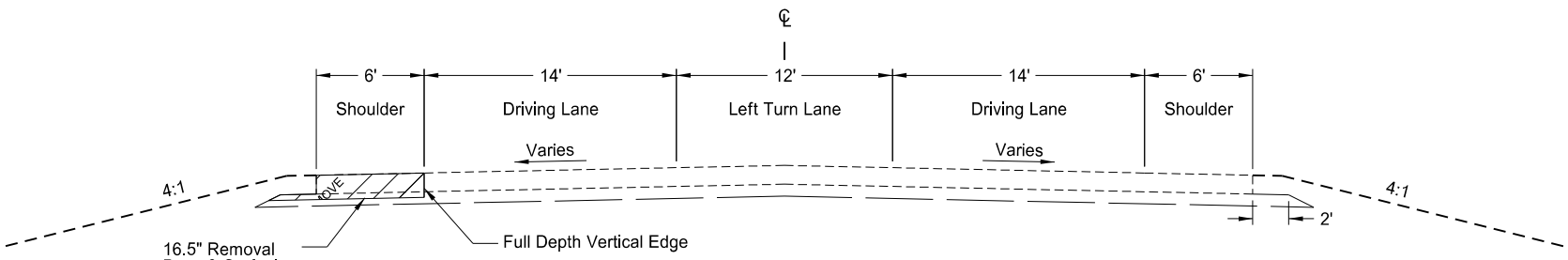
ND 23B Removal Typical Section (1)
Sta 48945+60.00 to Sta 48956+08.85



ND 23B Removal Typical Section (2)
Sta 48956+08.85 to Sta 48959+43.10



ND 1804 Removal Typical Section (3)
Sta 13107+45.17 to Sta 13110+60.17
Sta 13115+27.16 to Sta 13116+88.16

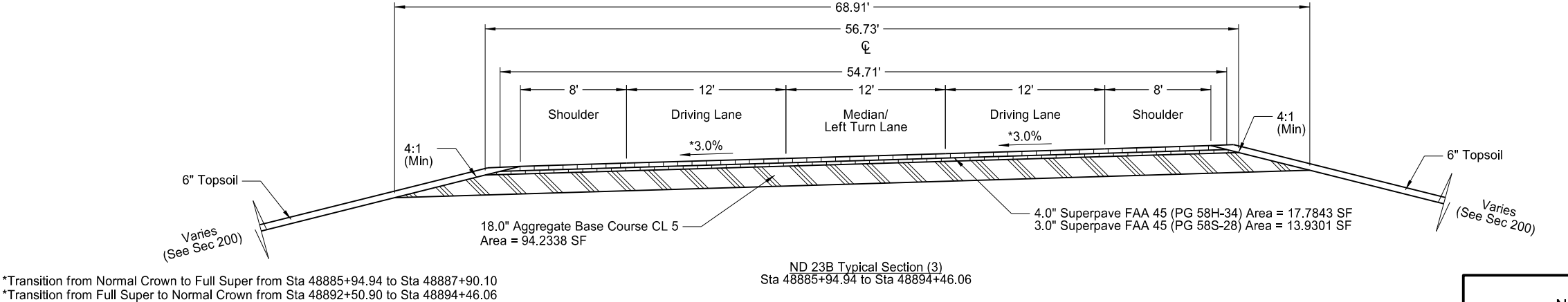
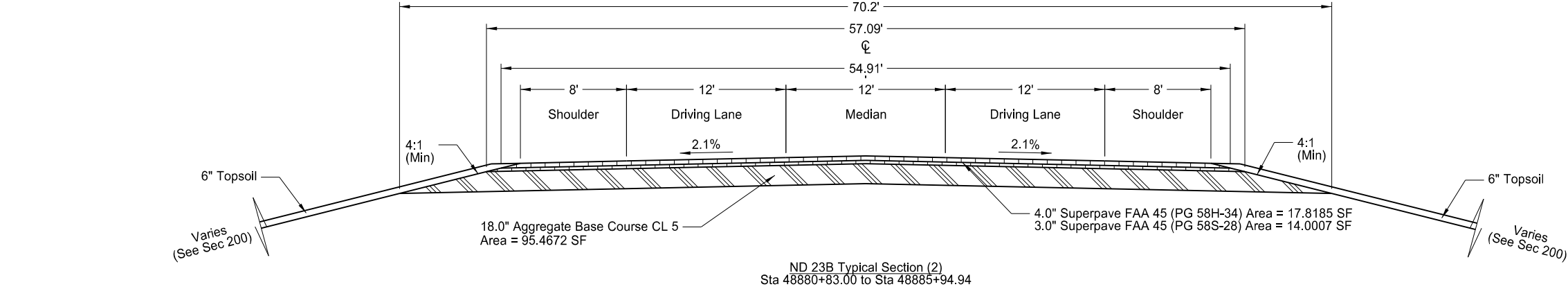
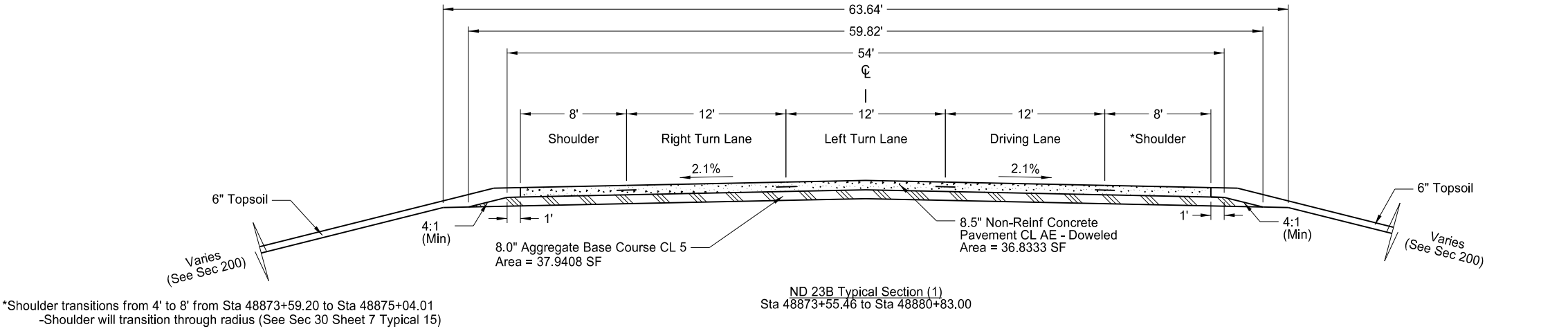


ND 1804 Removal Typical Section (4)
Sta 13113+30.13 to Sta 13122+73.11

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ND 23B Truck Reliever Route
Removal Typical Sections
ND 23B / ND 1804

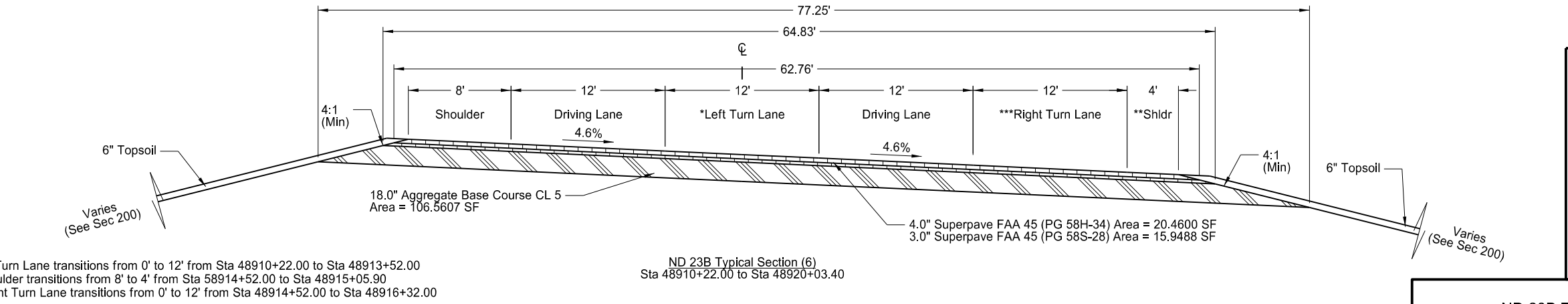
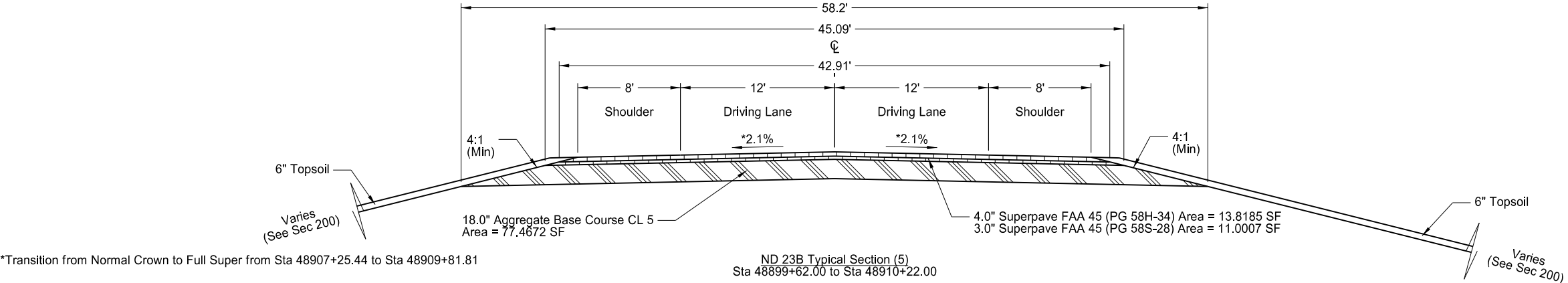
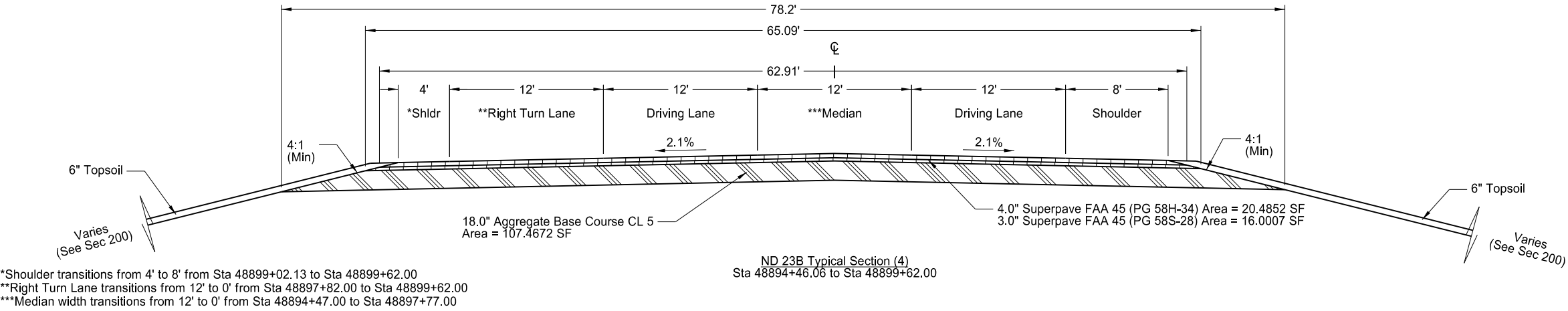
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	AC-NH-SOIB-7-023(041)925	30	3



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ND 23B Truck Reliever Route
Proposed Typical Sections
ND 23B

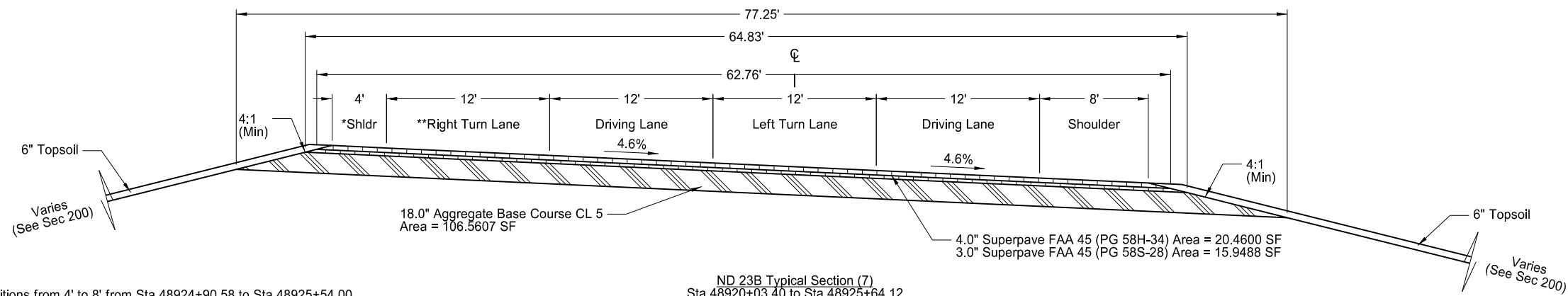
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	AC-NH-SOIB-7-023(041)925	30	4



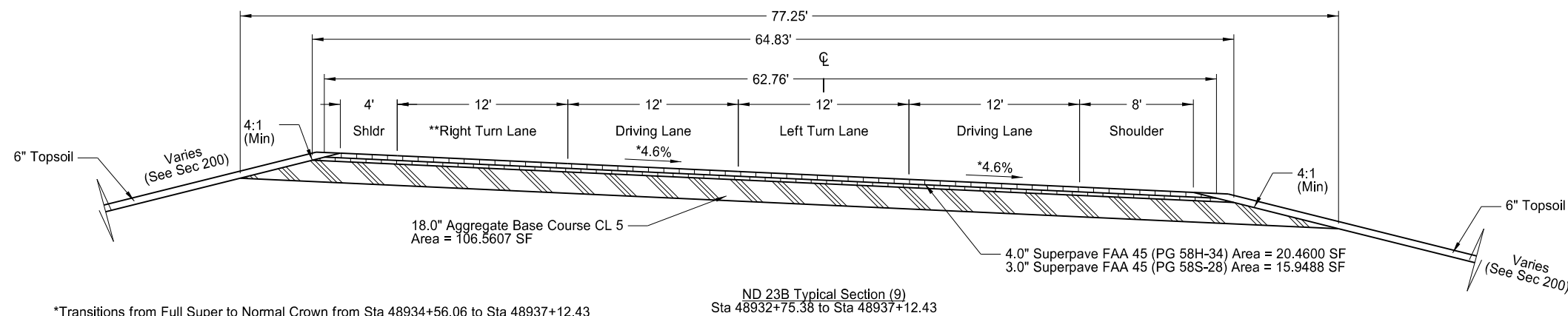
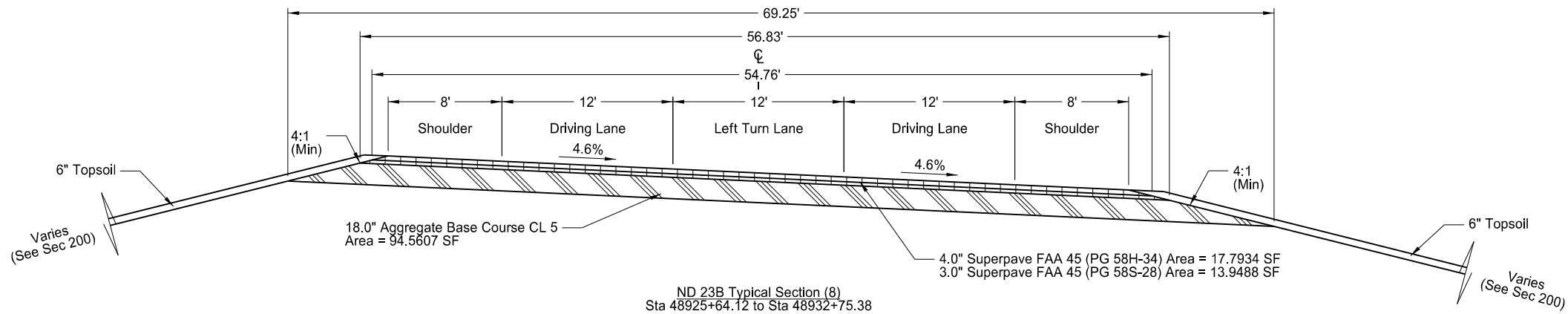
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ND 23B Truck Reliever Route
Proposed Typical Sections
ND 23B

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	AC-NH-SOIB-7-023(041)925	30	5



*Shoulder transitions from 4' to 8' from Sta 48924+90.58 to Sta 48925+54.00
**Right Turn Lane transitions from 12' to 0' from Sta 48923+74.00 to Sta 48925+54.00

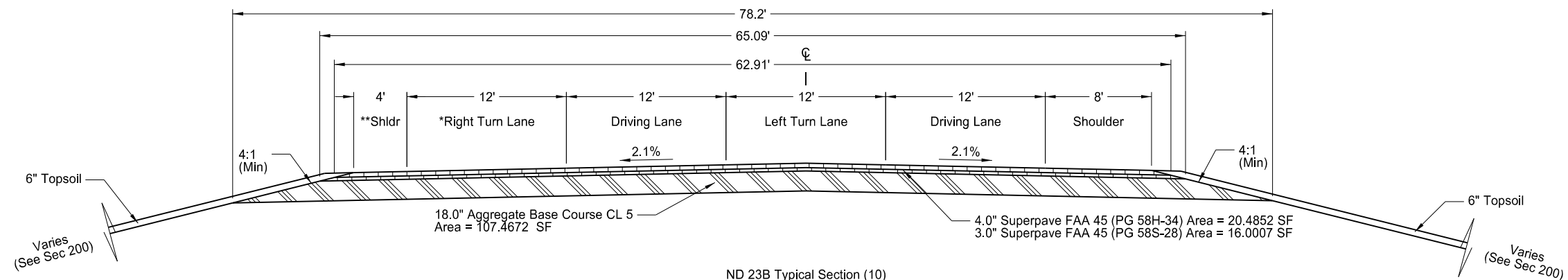


*Transitions from Full Super to Normal Crown from Sta 48934+56.06 to Sta 48937+12.43
**Right Turn Lane transitions from 12' to 0' from Sta 48936+69.00 to Sta 48938+49.00

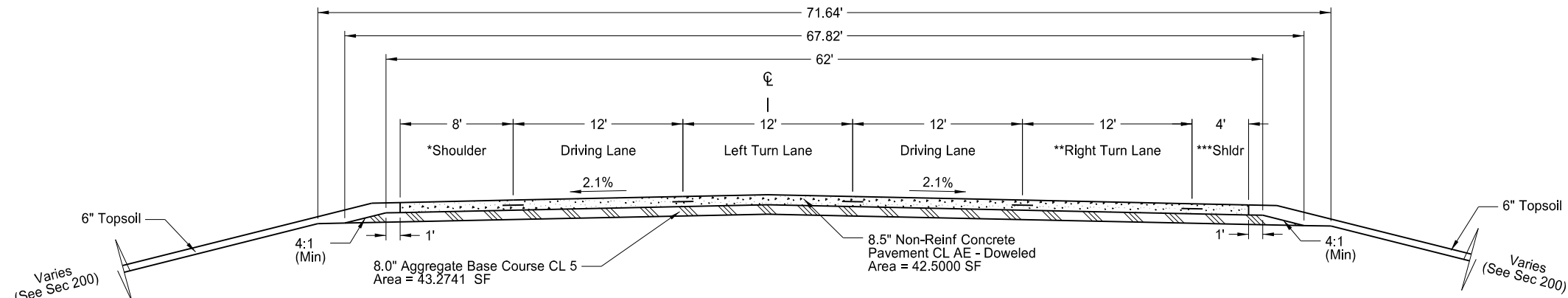
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ND 23B Truck Reliever Route
Proposed Typical Sections
ND 23B

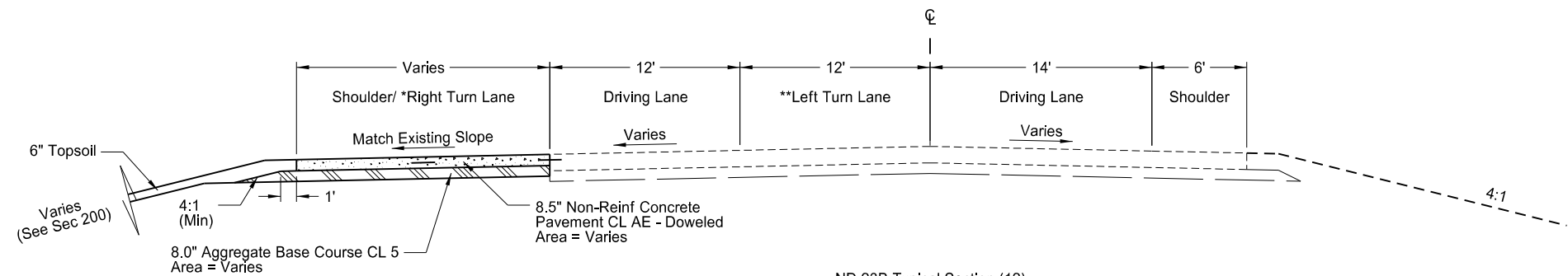
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	AC-NH-SOIB-7-023(041)925	30	6



*Right Turn Lane transitions from 12' to 0' from Sta 48936+69.00 to Sta 48938+49.00
**Shoulder transitions from 4' to 8' from Sta 48937+89.13 to Sta 48938+49.00



*Shoulder transitions from 4' to 8' from Sta 48937+89.13 to Sta 48938+49.00
*Shoulder transitions from 8' to 4' from Sta 48943+81.28 to Sta 48945+26.08
-Shoulder will transition through radius
**Right Turn Lane transitions from 0' to 12' from Sta 48938+05.00 to Sta 48939+85.00
***Shoulder transitions from 8' to 4' from Sta 48938+05.00 to Sta 48938+64.87
***Shoulder transitions from 4' to 6' from Sta 48944+69.00 to Sta 48945+33.90
-Shoulder will transition through radius

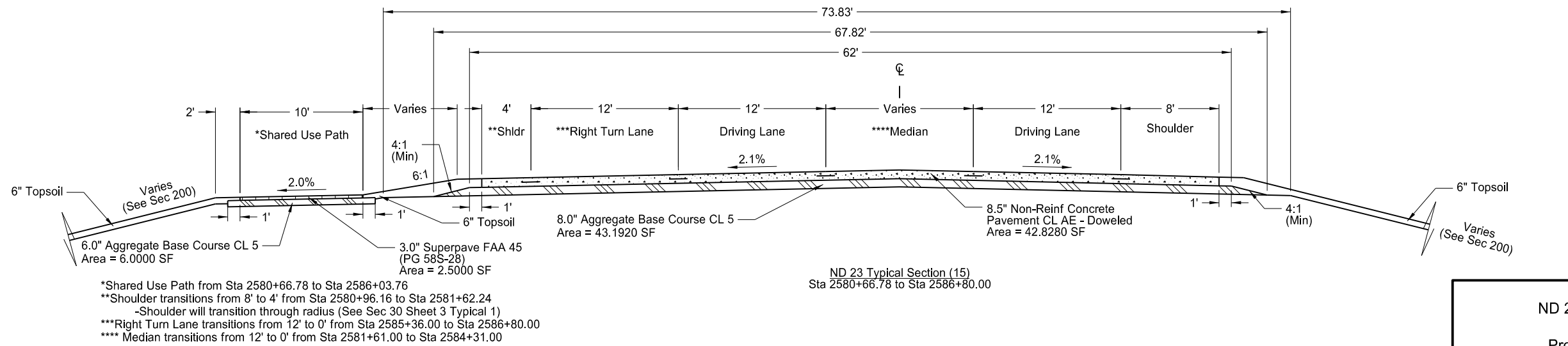
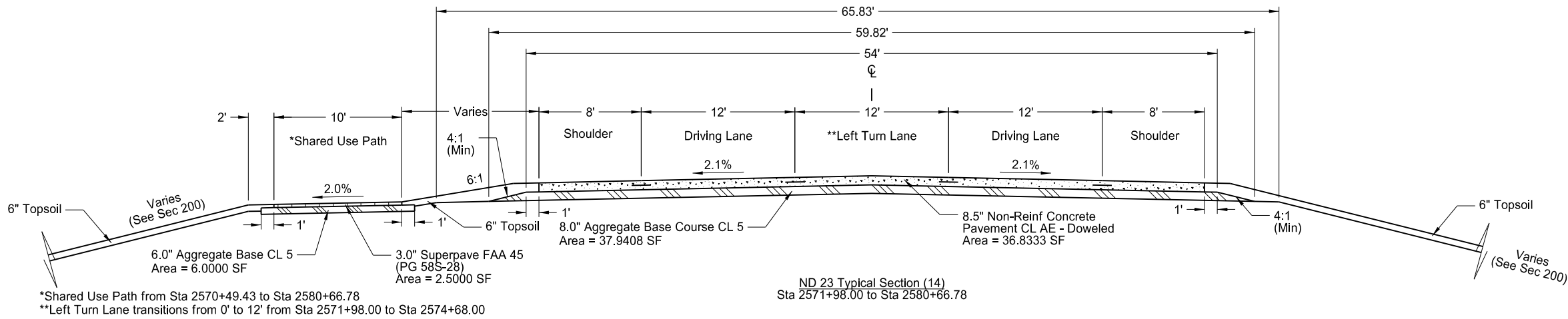
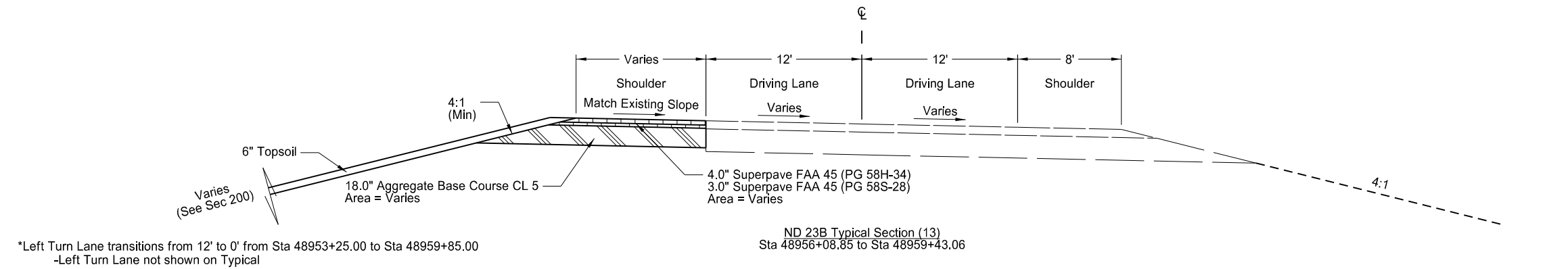


*Right Turn Lane transitions from 12' to 0' from Sta 48951+45 to Sta 48953+25.00
**Left Turn Lane transitions from 12' to 0' from Sta 48953+25.00 to Sta 48959+85.00

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ND 23B Truck Reliever Route
Proposed Typical Sections
ND 23B

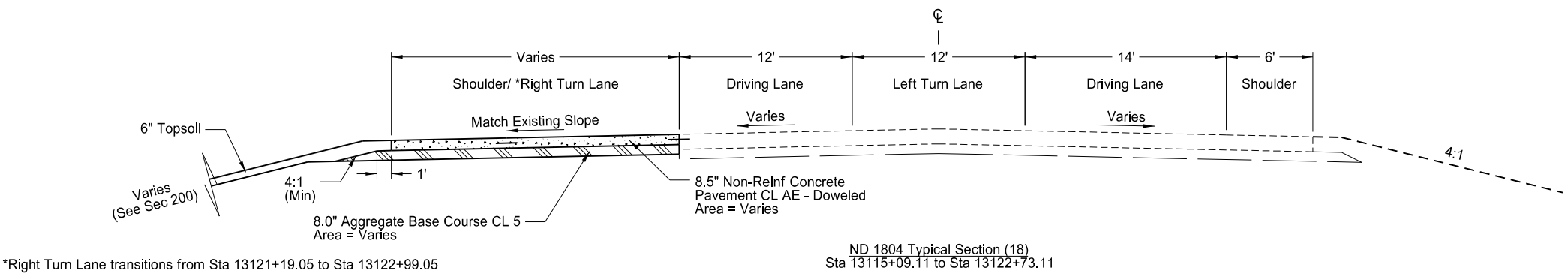
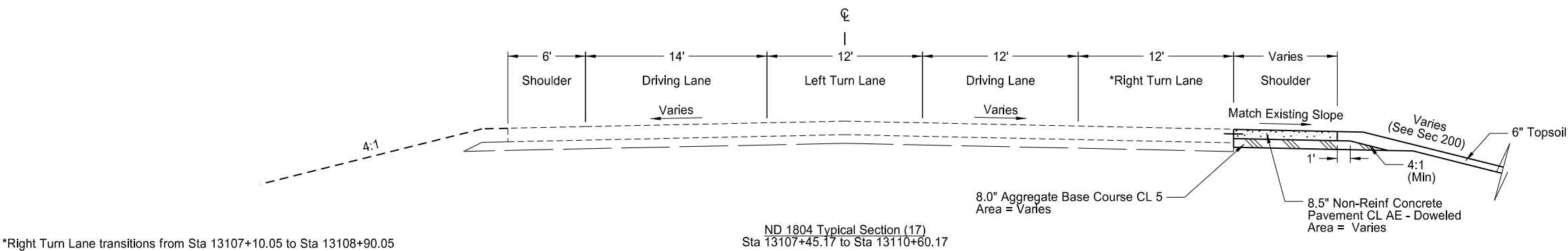
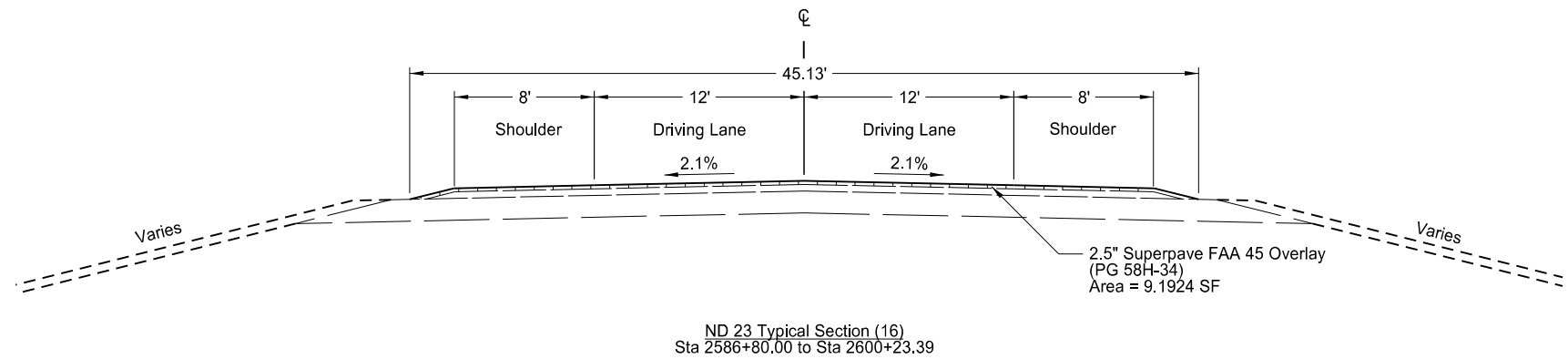
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	AC-NH-SOIB-7-023(041)925	30	7



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ND 23B Truck Reliever Route
Proposed Typical Sections
ND 23/ ND 23B

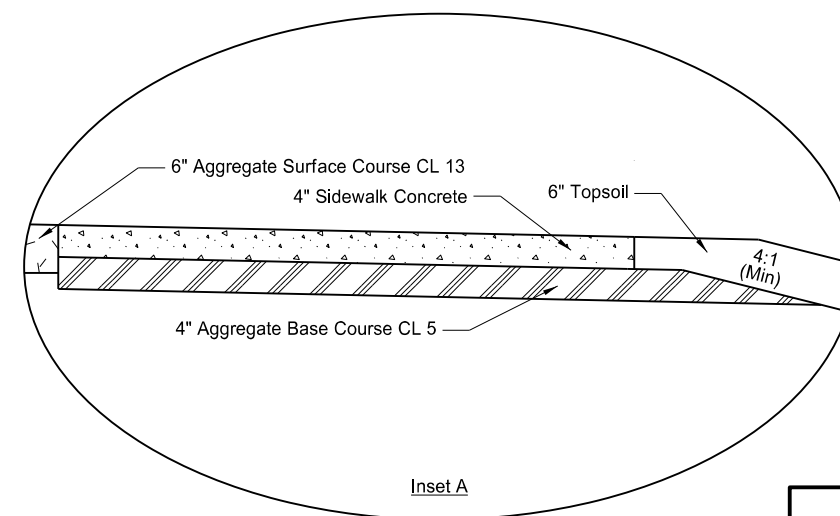
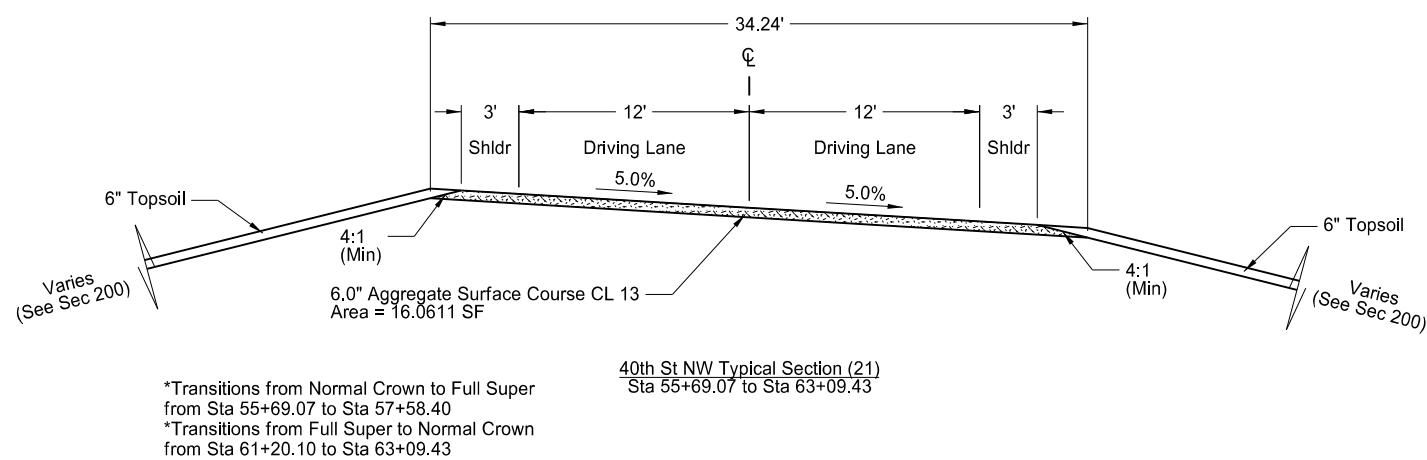
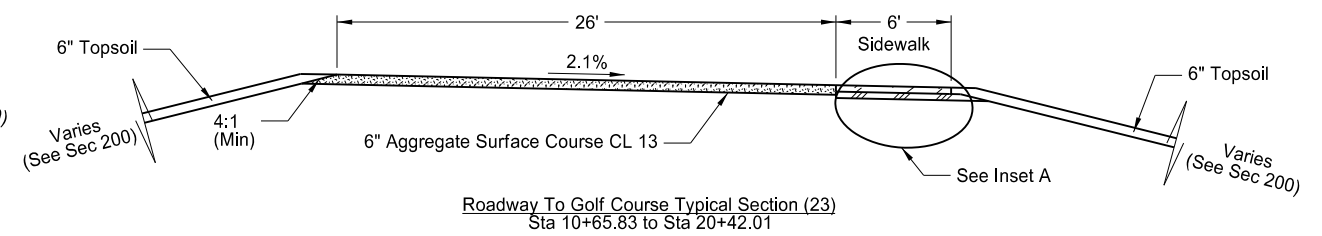
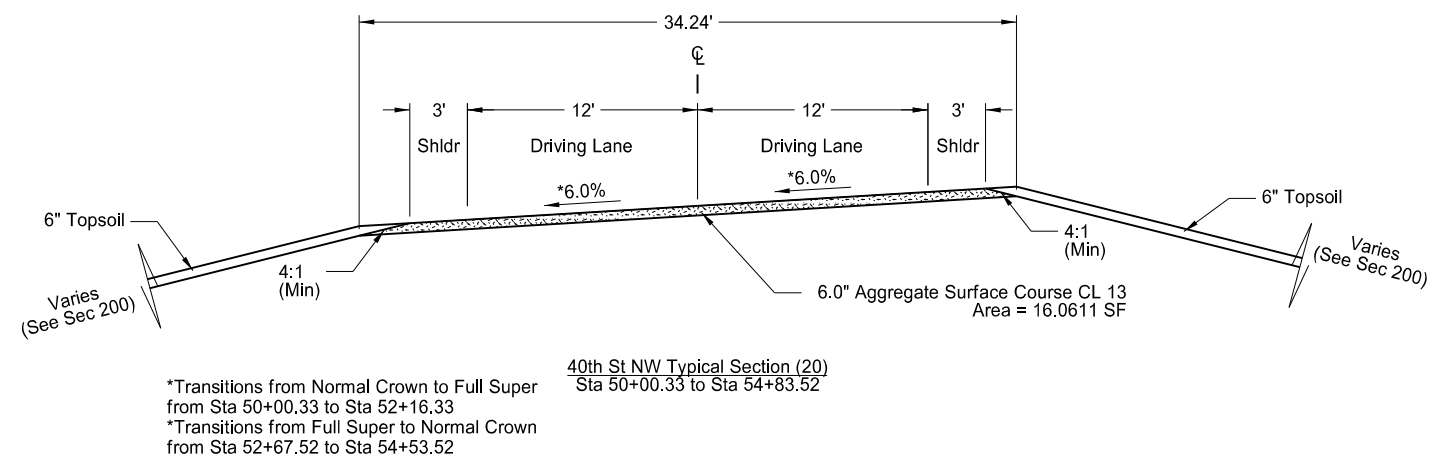
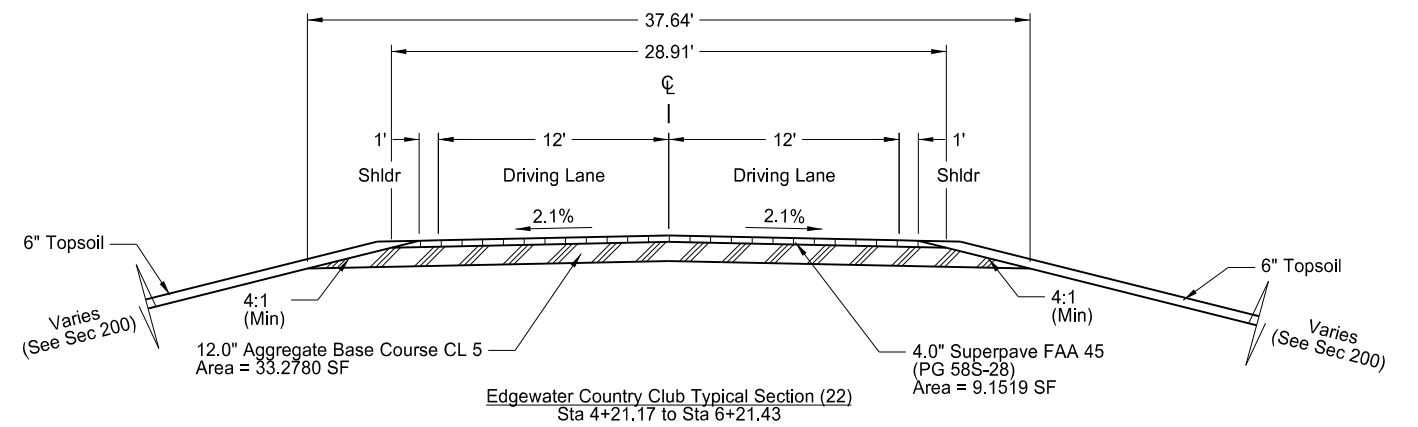
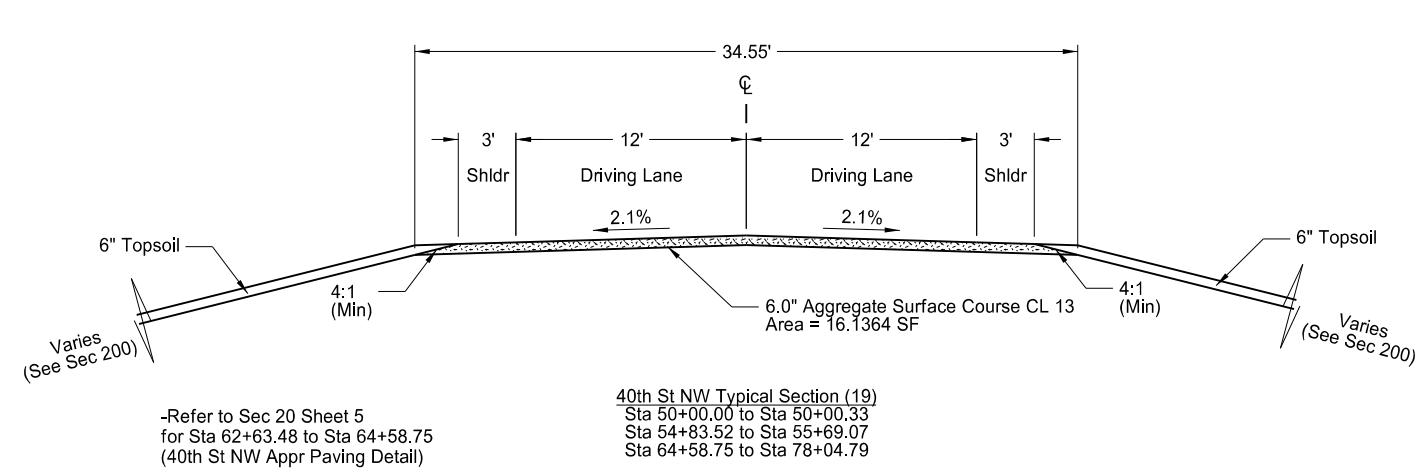
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	AC-NH-SOIB-7-023(041)925	30	8



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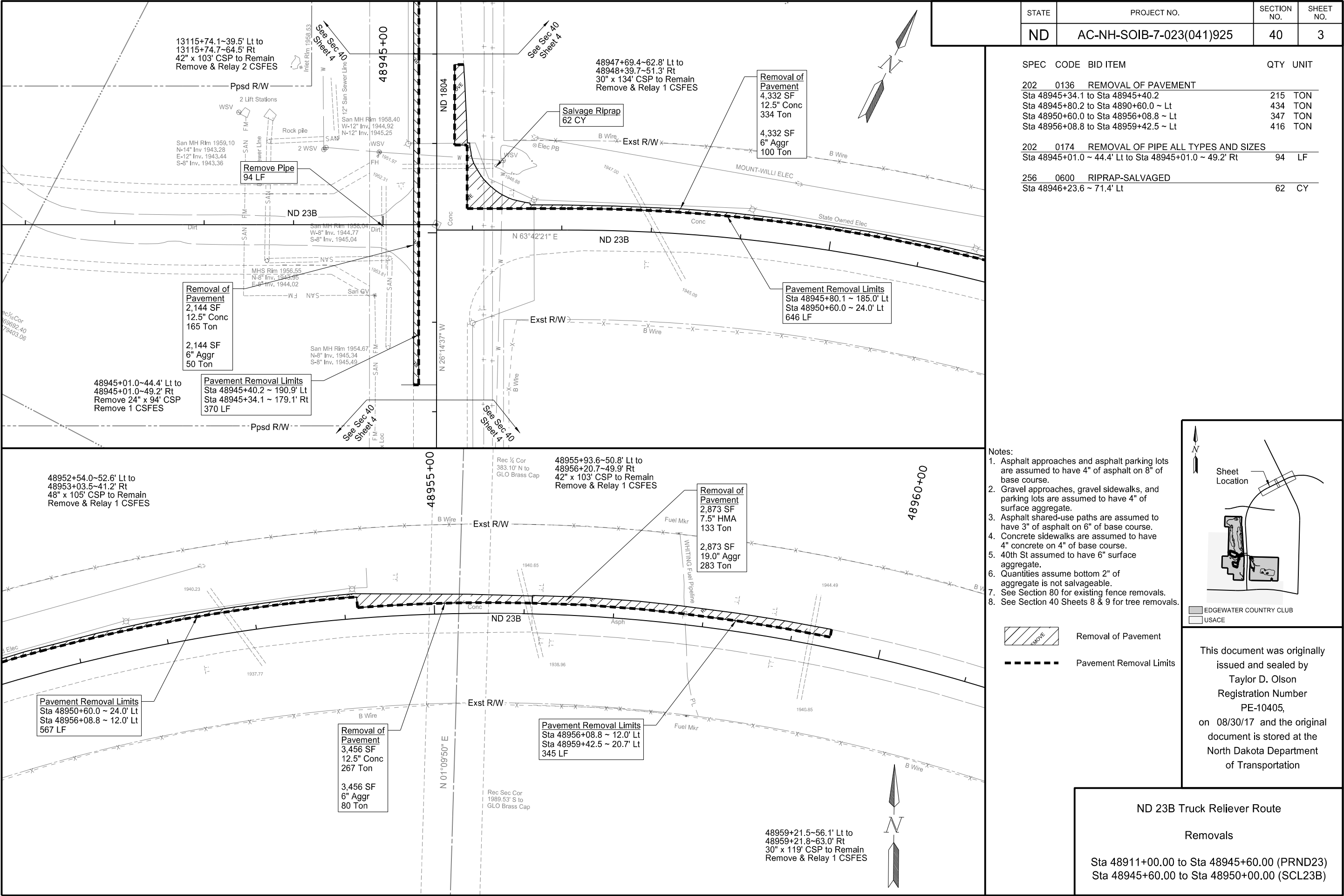
ND 23B Truck Reliever Route
Proposed Typical Sections
ND 23/ ND 1804

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	AC-NH-SOIB-7-023(041)925	30	9



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ND 23B Truck Reliever Route
Proposed Typical Sections
40th St NW/ Edgewater Golf Course



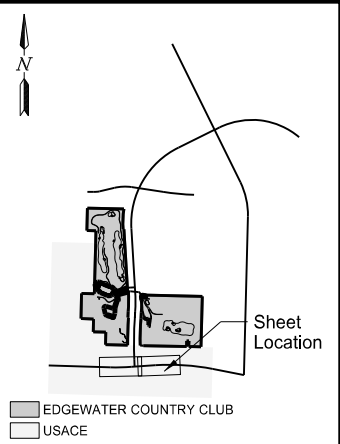


STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	AC-NH-SOIB-7-023(041)925	40	5

SPEC	CODE	BID ITEM	QTY	UNIT
202	0136	REMOVAL OF PAVEMENT		
		Sta 2570+50.0 to Sta 2578+25.1 ~ Lt	237	TON
		Sta 2571+98.0 to Sta 2579+50.0	3,229	TON
		Sta 2578+18.8 to Sta 2578+37.0 ~ Lt	126	TON
		Sta 2578+44.1 to Sta 2579+50.0 ~ Lt	64	TON
		Sta 2579+50.0 to Sta 2586+80.0	3,117	TON
		Sta 2579+50.0 to Sta 2586+05.0 ~ Lt	203	TON
202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES		
		Sta 2571+10.4 ~ 88.3' Lt to Sta 2571+64.8 ~ 87.6' Lt	54	LF
		Sta 2578+56.5 ~ 188.6' Lt to Sta 2578+54.1 ~ 162.6' Lt	26	LF
		Sta 2583+35.5 ~ 75.8' Lt to Sta 2583+72.7 ~ 95.4' Lt	42	LF

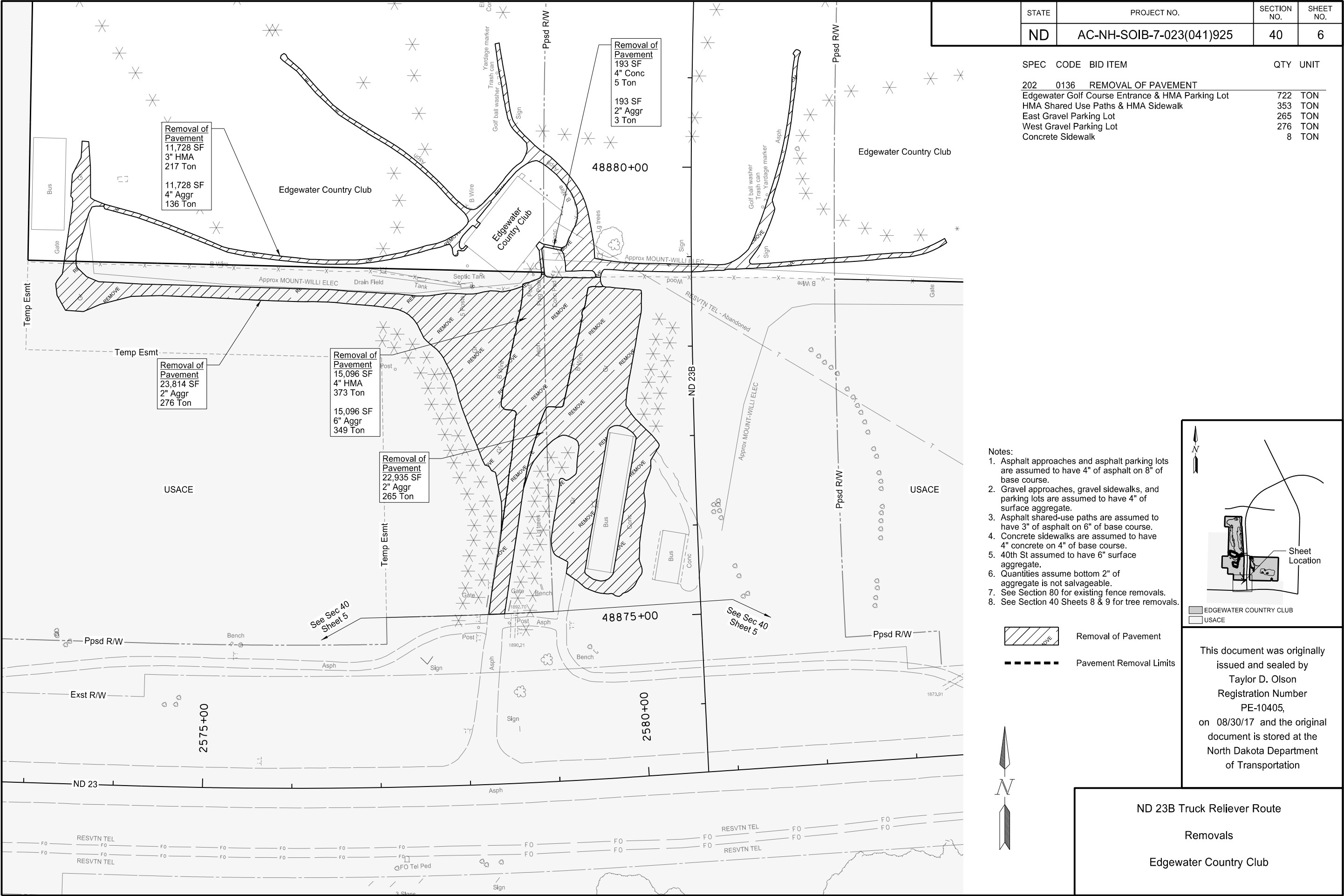
- Notes:
- Asphalt approaches and asphalt parking lots are assumed to have 4" of asphalt on 8" of base course.
 - Gravel approaches, gravel sidewalks, and parking lots are assumed to have 4" of surface aggregate.
 - Asphalt shared-use paths are assumed to have 3" of asphalt on 6" of base course.
 - Concrete sidewalks are assumed to have 4" concrete on 4" of base course.
 - 40th St assumed to have 6" surface aggregate.
 - Quantities assume bottom 2" of aggregate is not salvageable.
 - See Section 80 for existing fence removals.
 - See Section 40 Sheets 8 & 9 for tree removals.

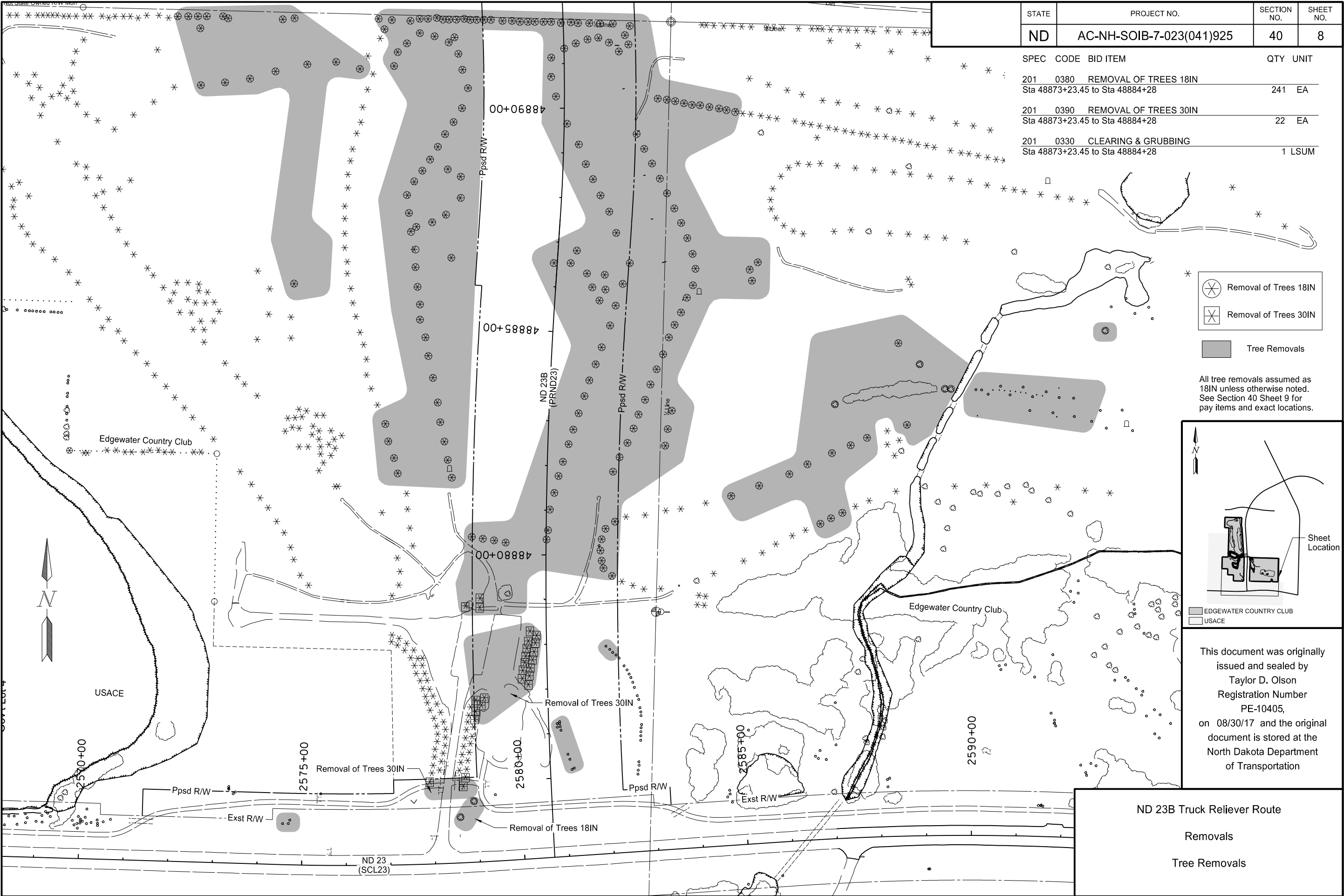
- Legend:
- Removal of Pavement
 - Pavement Removal Limits



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ND 23B Truck Reliever Route
Removals
Sta 2570+00.00 to Sta 2590+00.00
(SCL23)





	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	AC-NH-SOIB-7-023(041)925	40	9

201-0390 REMOVAL OF TREES 30IN				
Station	Offset (ft)	Lt/Rt	Alignment	
48874+92	196.4	Lt	PRND23	
48875+06	271.2	Lt	PRND23	
48875+13	190.8	Lt	PRND23	
48876+38	164.9	Lt	PRND23	
48876+56	162.2	Lt	PRND23	
48876+69	149.0	Lt	PRND23	
48876+80	160.9	Lt	PRND23	
48876+85	141.9	Lt	PRND23	
48877+12	42.0	Lt	PRND23	
48877+25	55.7	Lt	PRND23	
48877+31	39.8	Lt	PRND23	
48877+43	54.3	Lt	PRND23	
48877+48	37.1	Lt	PRND23	
48877+61	49.6	Lt	PRND23	
48877+66	31.7	Lt	PRND23	
48877+75	46.8	Lt	PRND23	
48877+84	28.2	Lt	PRND23	
48877+92	44.0	Lt	PRND23	
48878+04	25.1	Lt	PRND23	
48878+08	40.6	Lt	PRND23	
48878+21	21.6	Lt	PRND23	
48878+31	36.7	Lt	PRND23	

201-0380 REMOVAL OF TREES 18IN				
Station	Offset (ft)	Lt/Rt	Alignment	
48878+84	148.1	Lt	PRND23	
48879+04	147.5	Lt	PRND23	
48879+53	148.1	Rt	PRND23	
48879+71	128.4	Rt	PRND23	
48879+88	124.6	Rt	PRND23	
48880+11	121.6	Rt	PRND23	
48880+27	90.3	Lt	PRND23	
48880+31	115.4	Lt	PRND23	
48880+34	1.0	Rt	PRND23	
48880+36	141.7	Lt	PRND23	
48880+36	124.3	Rt	PRND23	
48880+39	166.4	Lt	PRND23	
48880+55	3.8	Rt	PRND23	
48880+60	132.9	Rt	PRND23	
48880+77	153.7	Rt	PRND23	
48880+76	614.7	Rt	PRND23	
48880+90	635	Rt	PRND23	
48881+02	8.1	Rt	PRND23	
48881+05	662.8	Rt	PRND23	
48881+38	416.0	Rt	PRND23	
48881+40	16.8	Rt	PRND23	
48881+61	481.2	Rt	PRND23	
48881+67	209.0	Lt	PRND23	
48881+70	321.3	Lt	PRND23	
48881+77	25.9	Rt	PRND23	
48881+83	547.8	Rt	PRND23	
48881+90	147.3	Rt	PRND23	
48882+05	592.4	Rt	PRND23	
48882+08	218.8	Lt	PRND23	
48882+09	334.1	Lt	PRND23	
48882+10	35.0	Rt	PRND23	
48882+23	160.9	Rt	PRND23	
48882+37	643.3	Rt	PRND23	
48882+39	274.3	Rt	PRND23	
48882+43	348.3	Lt	PRND23	
48882+44	184	Rt	PRND23	
48882+45	222	Lt	PRND23	
48882+49	46.1	Rt	PRND23	
48882+66	681.1	Rt	PRND23	
48882+76	359.5	Lt	PRND23	
48882+76	201.7	Rt	PRND23	
48882+83	808.0	Rt	PRND23	
48882+83	55.4	Rt	PRND23	
48882+84	717.0	Rt	PRND23	
48882+84	275.6	Rt	PRND23	
48882+87	231.5	Lt	PRND23	
48883+06	369.8	Lt	PRND23	
48883+06	794.0	Rt	PRND23	
48883+07	209.3	Rt	PRND23	
48883+15	282.5	Rt	PRND23	
48883+19	802.4	Rt	PRND23	
48883+19	65.8	Rt	PRND23	
48883+28	815.3	Rt	PRND23	
48883+29	244.1	Lt	PRND23	
48883+45	222.5	Rt	PRND23	
48883+51	958	Rt	PRND23	
48883+59	77.5	Rt	PRND23	
48883+64	639.0	Rt	PRND23	
48883+74	663.6	Rt	PRND23	
48883+77	716.6	Rt	PRND23	
48883+80	255.6	Lt	PRND23	
48883+80	673.3	Rt	PRND23	
48883+81	234.4	Rt	PRND23	
48883+86	684.3	Rt	PRND23	
48883+88	699.8	Rt	PRND23	
48883+90	761.2	Rt	PRND23	
48883+92	706.4	Rt	PRND23	

201-0380 REMOVAL OF TREES 18IN				
48883+95	785.8	Rt	PRND23	
48883+95	87.2	Rt	PRND23	
48883+97	732.9	Rt	PRND23	
48884+01	799.9	Rt	PRND23	
48884+02	837.7	Rt	PRND23	
48884+04	725.1	Rt	PRND23	
48884+05	748.0	Rt	PRND23	
48884+06	766.0	Rt	PRND23	
48884+09	810.2	Rt	PRND23	
48884+09	851.0	Rt	PRND23	
48884+11	246.4	Rt	PRND23	
48884+11	774.4	Rt	PRND23	
48884+14	784.3	Rt	PRND23	
48884+15	869.2	Rt	PRND23	
48884+15	881.5	Rt	PRND23	
48884+16	818.9	Rt	PRND23	
48884+16	855.9	Rt	PRND23	
48884+17	894.7	Rt	PRND23	
48884+18	792.4	Rt	PRND23	
48884+18	831.0	Rt	PRND23	
48884+19	798.9	Rt	PRND23	
48884+20	844.3	Rt	PRND23	
48884+28	269.0	Lt	PRND23	
48884+32	99.6	Rt	PRND23	
48884+54	256.9	Rt	PRND23	
48884+67	276.7	Lt	PRND23	
48884+67	830.7	Rt	PRND23	
48884+70	110.7	Rt	PRND23	
48884+84	821.8	Rt	PRND23	
48884+91	266.3	Rt	PRND23	
48885+02	285.5	Lt	PRND23	
48885+16	777.4	Rt	PRND23	
48885+21	126.8	Rt	PRND23	
48885+32	271.3	Rt	PRND23	
48885+36	291.5	Lt	PRND23	
48885+56	578.3	Lt	PRND23	
48885+61	283.9	Rt	PRND23	
48885+67	136.6	Rt	PRND23	
48885+76	99.8	Rt	PRND23	
48885+76	299.9	Lt	PRND23	
48885+96	294.3	Rt	PRND23	
48886+02	111.1	Rt	PRND23	
48886+05	81.6	Rt	PRND23	
48886+16	306.6	Lt	PRND23	
48886+17	148.8	Rt	PRND23	
48886+24	306.2	Rt	PRND23	
48886+34	107.5	Rt	PRND23	
48886+34	68.0	Rt	PRND23	
48886+44	229.7	Lt	PRND23	
48886+47	436.2	Rt	PRND23	
48886+48	315.2	Rt	PRND23	
48886+53	7.1	Lt	PRND23	
48886+55	30.1	Rt	PRND23	
48886+57	542.1	Lt	PRND23	
48886+57	317.9	Lt	PRND23	
48886+64	161.8	Rt	PRND23	
48886+69	431.5	Rt	PRND23	
48886+81	311.6	Rt	PRND23	
48886+83	605.7	Lt	PRND23	
48886+84	41.9	Rt	PRND23	
48886+87	448.8	Rt	PRND23	
48886+97	325.2	Lt	PRND23	
48886+99	606.7	Lt	PRND23	
48887+05	597.8	Lt	PRND23	
48887+08	312.8	Lt	PRND23	
48887+18	293.0	Rt	PRND23	
48887+22	592.9	Lt	PRND23	
48887+23	605.2	Lt	PRND23	

201-0380 REMOVAL OF TREES 18IN				
48887+23	281.5	Lt	PRND23	
48887+29	127.2	Rt	PRND23	
48887+29	127.2	Rt	PRND23	
48887+35	334.9	Lt	PRND23	
48887+38	596.9	Lt	PRND23	
48887+42	250.7	Lt	PRND23	
48887+55	599.4	Lt	PRND23	
48887+55	275.4	Rt	PRND23	
48887+75	108.5	Rt	PRND23	
48887+78	597.8	Lt	PRND23	
48887+78	337.7	Lt	PRND23	
48887+82	222.3	Lt	PRND23	
48887+86	255.7	Rt	PRND23	
48887+97	599.4	Lt	PRND23	
48888+09	87.2	Rt	PRND23	
48888+10	320.5	Lt	PRND23	
48888+20	598.4	Lt	PRND23	
48888+22	234.9	Rt	PRND23	
48888+30	592.2	Lt	PRND23	
48888+35	224.7	Lt	PRND23	
48888+41	309.2	Lt	PRND23	
48888+44	68.4	Rt	PRND23	
48888+53	217.5	Rt	PRND23	
48888+53	251.8	Lt	PRND23	
48888+57	588.4	Lt	PRND23	
48888+70	291.2	Lt	PRND23	
48888+77	50.9	Rt	PRND23	
48888+83	198.6	Rt	PRND23	
48888+91	588.7	Lt	PRND23	
48889+02	272.9	Lt	PRND23	
48889+14	180.1	Rt	PRND23	
48889+20	32.7	Rt	PRND23	
48889+21	589.3	Lt	PRND23	
48889+30	263.2	Lt	PRND23	
48889+44	580.5	Lt	PRND23	
48889+45	162.4	Rt	PRND23	
48889+60	243.2	Lt	PRND23	
48889+65	6.4	Rt	PRND23	
48889+72	578.9	Lt	PRND23	
48889+89	224.8	Lt	PRND23	
48889+95	384.2	Rt	PRND23	
48890+00	366.9	Rt	PRND23	
48890+01	344.7	Rt	PRND23	
48890+02	326.3	Rt	PRND23	
48890+06	305.8	Rt	PRND23	
48890+09	573.3	Lt	PRND23	
48890+09	288.4	Rt	PRND23	
48890+13	270.1	Rt	PRND23	
48890+16	583.3	Lt	PRND23	
48890+16	251.7	Rt	PRND23	
48890+18	233.4	Rt	PRND23	
48890+22	213.0	Rt	PRND23	
48890+27	19.1	Lt	PRND23	
48890+39	213.0	Lt	PRND23	
48890+40	572.8	Lt	PRND23	
48890+46	582.3	Lt	PRND23	
48890+56	806.8	Lt	PRND23	
48890+59	579.7	Lt	PRND23	
48890+63	567.7	Lt	PRND23	
48890+64	756.4	Lt	PRND23	
48890+72	29.9	Lt	PRND23	
48890+73	699.3	Lt	PRND23	
48890+81	574.1	Lt	PRND23	
48890+81	221.0	Lt	PRND23	
48890+93	637.9	Lt	PRND23	
48890+95	445.3	Lt	PRND23	
48891+03	375.5	Lt	PRND23	
48891+12	506.6	Lt	PRND23	

201-0380 REMOVAL OF TREES 18IN				
48891+13	28.2	Lt	PRND23	
48891+15	565.0	Lt	PRND23	
48891+18	231.3	Lt	PRND23	
48891+24	123.1	Rt	PRND23	
48891+30	365.5	Lt	PRND23	
48891+34	0.8	Rt	PRND23	
48891+39	144.3	Rt	PRND23	
48891+44	27.0	Rt	PRND23	
48891+45	102.2	Rt	PRND23	
48891+48	247.1	Lt	PRND23	
48891+53	53.5	Rt	PRND23	
48891+54	78.1	Rt	PRND23	
48891+55	344.1	Lt	PRND23	
48891+59	137.5	Rt	PRND23	
48891+61	235.5	Lt	PRND23	
48891+66	283.4	Lt	PRND23	
48891+72	314.0	Lt	PRND23	
48891+79	148.0	Rt	PRND23	
48891+84	111.0	Rt	PRND23	
48891+86	82.7	Rt	PRND23	
48891+88	58.4	Rt	PRND23	
48891+89	33.2	Rt	PRND23	
48891+91	388.9	Lt	PRND23	
48891+91	5.2	Lt	PRND23	
48891+92	17.6	Rt	PRND23	
48891+95	26.3	Lt	PRND23	
48891+95	44.1	Lt	PRND23	
48891+96	78.2	Lt	PRND23	
48891+97	63.3	Lt	PRND23	
48891+97	96.6	Lt	PRND23	
48892+00	113.6	Lt	PRND23	
48892+01	135.5	Lt	PRND23	
48892+05	160.9	Lt	PRND23	
48892+06	176.3	Lt	PRND23	
48892+06	192.9	Lt	PRND23	
48892+07	207.5	Lt	PRND23	
48892+07	262.4	Lt	PRND23	
48892+08	237.4	Lt	PRND23	
48892+08	279.5	Lt	PRND23	
48892+09	220.5	Lt	PRND23	
48892+09	254.4	Lt	PRND23	
48892+10	300.6	Lt	PRND23	
48892+12	803.2	Lt	PRND23	
48892+12	321.8	Lt	PRND23	
48892+14	343.4	Lt	PRND23	
48892+16	384.8	Lt	PRND23	
48892+18	409.8	Lt	PRND23	
48892+28	599.1	Lt	PRND23	
48892+31	668.2	Lt	PRND23	
48892+32	719.0	Lt	PRND23	
48892+32	644.2	Lt	PRND23	
48892+32	625	Lt	PRND23	
48892+33	655.1	Lt	PRND23	
48892+34	683.9	Lt	PRND23	
48892+35	705.0	Lt	PRND23	
48892+36	692.7	Lt	PRND23	
48892+38	757.9	Lt	PRND23	
48892+39	744.1	Lt	PRND23	
48892+41	729.2	Lt	PRND23	
48892+42	772.2	Lt	PRND23	
48892+44	789.9	Lt	PRND23	
48892+46	804.7	Lt	PRND23	
48892+47	825.6	Lt	PRND23	
48892+50	850.1	Lt	PRND23	

HYDRAULIC DATA FOR AC-NH-SOIB-7-023(041)925 (A)

BEGIN STATION	BEGIN OFFSET	END STATION	END OFFSET	EXISTING PIPE	PROPOSED PIPE SIZE (IN)	DRAINAGE AREA (ACRES)	25-YEAR DATA				100-YEAR DATA	
							DESIGN DISCHARGE (CFS)	DESIGN HEADWATER (FT)	DESIGN VELOCITY (FPS)	DESIGN STAGE (NAVD 88)	100-YEAR DISCHARGE (CFS)	100-YEAR STAGE (NAVD 88)
48882+30.0	114.5' Lt	48882+30.0	93.5' Rt	-	30 (B)	7.03	18	2.16	9.08	1895.43	29	1896.33
48898+39.7	131.9' Rt	48897+95.0	164.7' Lt	-	42	77.35	66	4.22	9.59	1891.68	107	1894.68
48911+00.0	89.4' Lt	48911+00.0	94.5' Rt	-	30	4.26	28	2.96	11.66	1953.96	45	1955.97
48922+00.0	65.2' Lt	48922+00.0	60.8' Rt	-	30	27.46	28	2.97	9.22	1984.68	45	1986.69
48943+25.0	50.7' Lt	48943+25.0	57.3' Rt	24" x 93' CSP	36	40.83	44	3.69	8.08	1956.46	71	1958.80
74+75.0	28.7' Lt	74+75.0	45.2' Rt	18" x 40' CSP	36	52.93	37	3.03	16.02	1963.51	58	1965.06

(A) Hydraulic data provided is for smooth-walled type conduits
(B) Culvert diameter given at this location is the NDDOT Policy minimum diameter and exceeds hydraulic requirements.

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ND 23B Truck Reliever Route

Hydraulic Data

Adjust Gate Valve Box

Station	Offset	Exst Elev	Ppsd Elev
48944+33.8	84.0' Lt	1958.18	1952.23
48944+36.2	86.2' Lt	1958.23	1952.63
48944+95.8	81.2' Lt	1952.94	1953.29
48946+34.4	77.8' Lt	1949.37	1952.98

Sanitary Manhole Repair

Station	Offset	Exst Elev	Ppsd Elev
48943+70.1	40.2' Rt	1952.30	1959.23
48943+72.3	93.2' Lt	1958.61	1955.20
48944+48.3	96.6' Lt	1958.01	1954.81

Adjust Manholes

Station	Offset	Exst Elev	Ppsd Elev
48945+07.8	37.5' Rt	1957.42	1958.84

Adjust Hydrant

Station	Offset	Exst Elev	Ppsd Elev
48944+94.2	76.6' Lt	1952.95	1956.50

Inlet and Manhole Summary

MH NO. 1 72 IN
STA. 48897+36.9 ~ 550.5' Lt
RIM ELEV. 1885.06
BASE ELEV. 1872.16
INVERT ELEV. 1872.53
RISER (72IN) 10.8 FT
 42 IN CONDUIT W 1872.53
 42 IN CONDUIT E 1877.88

INLET NO. 1
TYPE. INLET CATCH BASIN
 6IN BEEHIVE
STA. 14+63.7 ~ 32.4' Rt
GRATE ELEV. 1909.34
BASE ELEV. 1904.50
INVERT ELEV. 1906.05
"H" DIST. 4.0 FT
 18 IN CONDUIT N 1906.05

Note:
1. Refer to Sec 55 Sheet 1
for quantities pertaining to
existing utilities.

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ND 23B Truck Reliever Route

Inlet and Manhole Summary

Centerline Culverts															
BEGIN STATION	BEGIN OFFSET	END STATION	END OFFSET	PIPE INSTALLATION			ALLOWABLE MATERIAL	REQUIRED DIAMETER	STEEL PIPE COATINGS	STEEL PIPE CORRUGATIONS OR SPIRAL RIBS	MINIMUM THICKNESS	R1 FABRIC PAY ITEM	END SECTION		APPLICABLE BACKFILL DETAIL
				(IN)	(BID ITEM)	(LF)							BEGIN (EA)	END (EA)	
Centerline Culvert Installations															
ND 23B															
48882+30.0	114.5' Lt	48882+30.0	93.5' Rt	30	Pipe Conduit	208	Reinforced Conrete Pipe - Class III (Barrel Length = 206 LF)	30				1078	FES	FES	D-714-28
							Spiral Rib Steel Pipe	30	P	3/4, 1	0.064				
							Corrugated Steel Pipe	30	P	2	0.064				
48898+39.7	131.9' Rt	48897+95.0	164.7' Lt	42	Pipe Conduit	300	Spiral Rib Steel Pipe	42	P	3/4	0.064	1867	FES	-	D-714-28
							Spiral Rib Steel Pipe	42	P	1	0.079				
							Corrugated Steel Pipe	48	P	2, 3, 5	0.064				
							Corrugated Steel Pipe	48	A	2, 3, 5	0.138				
							Corrugated Steel Pipe	48	Z	2, 3, 5	0.168				
48911+00.0	89.4' Lt	48911+00.0	94.5' Rt	30	Pipe Conduit	184	Reinforced Conrete Pipe - Class III (Barrel Length = 182 LF)	30				946	FES	FES	D-714-28
							Spiral Rib Steel Pipe	30	P	3/4, 1	0.064				
							Corrugated Steel Pipe	36	P	2	0.064				
							Corrugated Steel Pipe	36	A	2	0.138				
48922+00.0	65.2' Lt	48922+00.0	60.8' Rt	30	Pipe Conduit	126	Reinforced Conrete Pipe - Class III (Barrel Length = 124 LF)	30				464	FES	FES	D-714-25
							Spiral Rib Steel Pipe	30	P	3/4, 1	0.064				
							Corrugated Steel Pipe	30	P	2	0.064				
48943+25.0	50.7' Lt	48943+25.0	57.3' Rt	36	Pipe Conduit	108	Reinforced Conrete Pipe - Class III (Barrel Length = 104 LF)	36				549	FES	FES	D-714-28
							Spiral Rib Steel Pipe	36	P	3/4, 1	0.064				
							Corrugated Steel Pipe	42	P	2	0.064				
							Corrugated Steel Pipe	42	A	2	0.138				
							Corrugated Steel Pipe	42	Z	2	0.168				
40th St NW															
74+75.0	28.7' Lt	74+75.0	45.2' Rt	36	Pipe Conduit	74	Reinforced Conrete Pipe - Class III (Barrel Length = 70 LF)	36				355	FES	FES	D-714-27
							Spiral Rib Steel Pipe	36	P	3/4, 1	0.064				
							Corrugated Steel Pipe	36	A, P	2	0.064				
							High-Density Polyethylene	36							
							Polypropylene Pipe (AASHTO M330, Type S)	36							
Edgewater Country Club Culvert Installations															
48897+89.9	198.6' Lt	MH1	42	Pipe Conduit	356	Reinforced Conrete Pipe - Class III (Barrel Length = 354 LF)	42					-	-	-	D-714-27
						Spiral Rib Steel Pipe	42	P	3/4, 1	0.064					
						Corrugated Steel Pipe	48	P	2, 3, 5	0.064					
						Corrugated Steel Pipe	48	A	2, 3, 5	0.138					
						Corrugated Steel Pipe	48	Z	2, 3, 5	0.168					
						High-Density Polyethylene	42								
						Polypropylene Pipe (AASHTO M330, Type S)	42								
MH1	48899+09.9	944.1' Lt	42	Pipe Conduit	430	Reinforced Conrete Pipe - Class III (Barrel Length = 428 LF)	42					-	-	FES	D-714-27
						Spiral Rib Steel Pipe	42	P	3/4, 1	0.064					
						Corrugated Steel Pipe	48	P	2, 3, 5	0.064					
						Corrugated Steel Pipe	48	A	2, 3, 5	0.138					
						Corrugated Steel Pipe	48	Z	2, 3, 5	0.168					
						High-Density Polyethylene	42								
						Polypropylene Pipe (AASHTO M330, Type S)	42								
Culvert Extensions															
ND 23B															
48947+69.4	62.8' Lt	48947+62.5	74.8' Lt	30	Pipe Corr Steel (Extension)	14	Corrugated Steel Pipe	30	P	2	0.064	9	-	Remove & Relay	Sec 20 Sheet 8
48952+54.0	52.6' Lt	48952+51.3	57.9' Lt	48	Pipe Corr Steel (Extension)	6	Corrugated Steel Pipe	48	P	2, 3, 5	0.064	0	-	Remove & Relay	Sec 20 Sheet 8
48955+93.5	50.8' Lt	48955+91.6	58.5' Lt	42	Pipe Corr Steel (Extension)	8	Corrugated Steel Pipe	42	P	2	0.064	2	-	Remove & Relay	Sec 20 Sheet 8
ND 1804															
13115+74.1	39.5' Lt	13115+73.9	82.4' Lt	42	Pipe Corr Steel (Extension)	44	Corrugated Steel Pipe	42	P	2	0.064	50	-	Remove & Relay	Sec 20 Sheet 8
13115+74.7	64.5' Rt	13115+80.2	88.5' Rt	42	Pipe Corr Steel (Extension)	24	Corrugated Steel Pipe	42	P	2	0.064	27	-	Remove & Relay	Sec 20 Sheet 8

Coatings: Z = Zinc
A = Aluminum
P = Polymeric (over Zinc or Aluminum)

Corr 2 = 2-2/3"x1/2"
3 = 3"x1"
5 = 5"x1"

Spiral Ribs: 3/4 = 3/4"x3/4"@7-1/2"
1 = 3/4"x1"@11-1/2"

(*) The price bid for "Pipe Conduit" bid items includes end sections. Pipe Extensions shall pay for end sections separately.
FES = Flared End Section
TES = Traversable End Section

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ND 23B Truck Reliever Route

Allowable Pipe List

Centerline Culverts

Approach Culverts

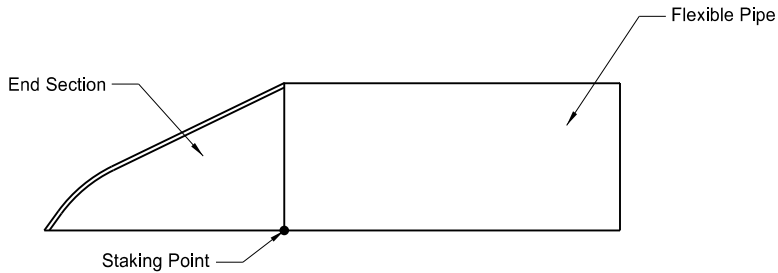
BEGIN STATION	BEGIN OFFSET	END STATION	END OFFSET	(IN)	PIPE INSTALLATION PAY ITEM (BID ITEM)	(LF)	ALLOWABLE MATERIAL	REQUIRED DIAMETER (IN)	STEEL PIPE COATINGS (TYPE)	STEEL PIPE CORRUGATIONS OR SPIRAL RIBS	MINIMUM THICKNESS (IN)	END SECTION		APPLICABLE BACKFILL DETAIL
ND 23B														
48893+35.6	100.0' Rt	48894+57.6	100.0' Rt	30	Pipe Conduit - Approach	122	Reinforced Conrete Pipe - Class III (Barrel Length = 120 LF)	30				FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	30	Z, A, P	3/4, 1	0.064			
							Corrugated Steel Pipe	30	Z, A, P	2	0.064			
							High-Density Polyethylene	30						
							Polypropylene Pipe (AASHTO M330, Type S)	30						
48932+18.5	71.6' Rt	48933+28.0	71.4' Rt	24	Pipe Conduit - Approach	106	Reinforced Conrete Pipe - Class III (Barrel Length = 102 LF)	24				FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	A, P	3/4, 1	0.064			
							Corrugated Steel Pipe	24	Z, A, P	2	0.064			
							High-Density Polyethylene	24						
							Polypropylene Pipe (AASHTO M330, Type S)	24						
48932+29.8	68.9' Lt	48933+30.6	69.1' Lt	24	Pipe Conduit - Approach	104	Reinforced Conrete Pipe - Class III (Barrel Length = 100 LF)	24				FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	A, P	3/4, 1	0.064			
							Corrugated Steel Pipe	24	Z, A, P	2	0.064			
							High-Density Polyethylene	24						
							Polypropylene Pipe (AASHTO M330, Type S)	24						
ND 23														
2578+74.1	97.0' Lt	2579+18.9	96.9' Lt	24	Pipe Conduit - Approach	44	Reinforced Conrete Pipe - Class III (Barrel Length = 40 LF)	24				FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	A, P	3/4, 1	0.064			
							Corrugated Steel Pipe	24	Z, A, P	2	0.064			
							High-Density Polyethylene	24						
							Polypropylene Pipe (AASHTO M330, Type S)	24						
Edgewater Country Club														
10+02.0	20.4' Lt	10+02.0	19.6' Rt	18	Pipe Conduit - Approach	40	Reinforced Conrete Pipe - Class III (Barrel Length = 34 LF)	18				FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	18	Z, A, P	3/4, 1	0.064			
							Corrugated Steel Pipe	18	Z, A, P	2	0.064			
							High-Density Polyethylene	18						
							Polypropylene Pipe (AASHTO M330, Type S)	18						
13+55.7	32.3' Lt	Inlet 1	18	Pipe Conduit - Approach	116	Reinforced Conrete Pipe - Class III (Barrel Length = 110 LF)	18				FES	-	Specification 714.04 A	
						Spiral Rib Steel Pipe	18	Z, A, P	3/4, 1	0.064				
						Corrugated Steel Pipe	18	Z, A, P	2	0.064				
						High-Density Polyethylene	18							
						Polypropylene Pipe (AASHTO M330, Type S)	18							
20+40.0	29.5' Lt	20+40.0	34.5' Rt	18	Pipe Conduit - Approach	64	Reinforced Conrete Pipe - Class III (Barrel Length = 58 LF)	18				FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	18	Z, A, P	3/4, 1	0.064			
							Corrugated Steel Pipe	18	Z, A, P	2	0.064			
							High-Density Polyethylene	18						
							Polypropylene Pipe (AASHTO M330, Type S)	18						
3+07.3	100.1' Lt	3+37.4	48.8' Rt	18	Pipe Conduit - Approach	152	Reinforced Conrete Pipe - Class III (Barrel Length = 146 LF)	18				FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	18	Z, A, P	3/4, 1	0.064			
							Corrugated Steel Pipe	18	Z, A, P	2	0.064			
							High-Density Polyethylene	18						
							Polypropylene Pipe (AASHTO M330, Type S)	18						
40th St NW Temporary Roadway														
34+81.2	36.8' Rt	34+78.3	27.1' Lt	18	Pipe Corr Steel (Extension)	64	Corrugated Steel Pipe	18	P	2	0.064	-	Remove & Relay	D-203-8
Temporary Access Road														
14+48.0	72.4' Lt	14+48.0	57.9' Rt	36	Pipe Conduit	130	Reinforced Conrete Pipe - Class III (Barrel Length = 126 LF)	36				FES	FES	D-203-8
							Spiral Rib Steel Pipe	36	Z, A, P	3/4, 1	0.064			
							Corrugated Steel Pipe	36	Z, A, P	2	0.064			
							High-Density Polyethylene	36						
							Polypropylene Pipe (AASHTO M330, Type S)	36						

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A = Aluminum
P = Polymeric (over Zinc or Aluminum)

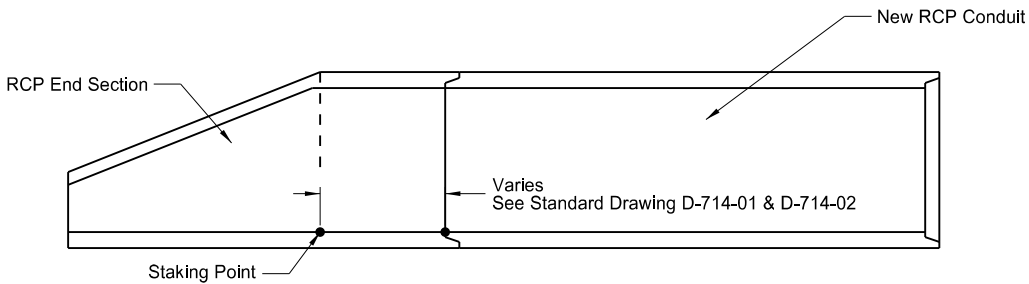
Corr **2** = 2-2/3"x1/2"
3 = 3"x1"
5 = 5"x1"

Spiral Ribs: **3/4** = 3/4"x3/4"@7-1/2"
1 = 3/4"x1"@11-1/2"

(*) The price bid for "Pipe Conduit" bid items includes end sections. Pipe Extensions shall pay for end sections separately.
FES = Flared End Section
TES = Traversable End Section



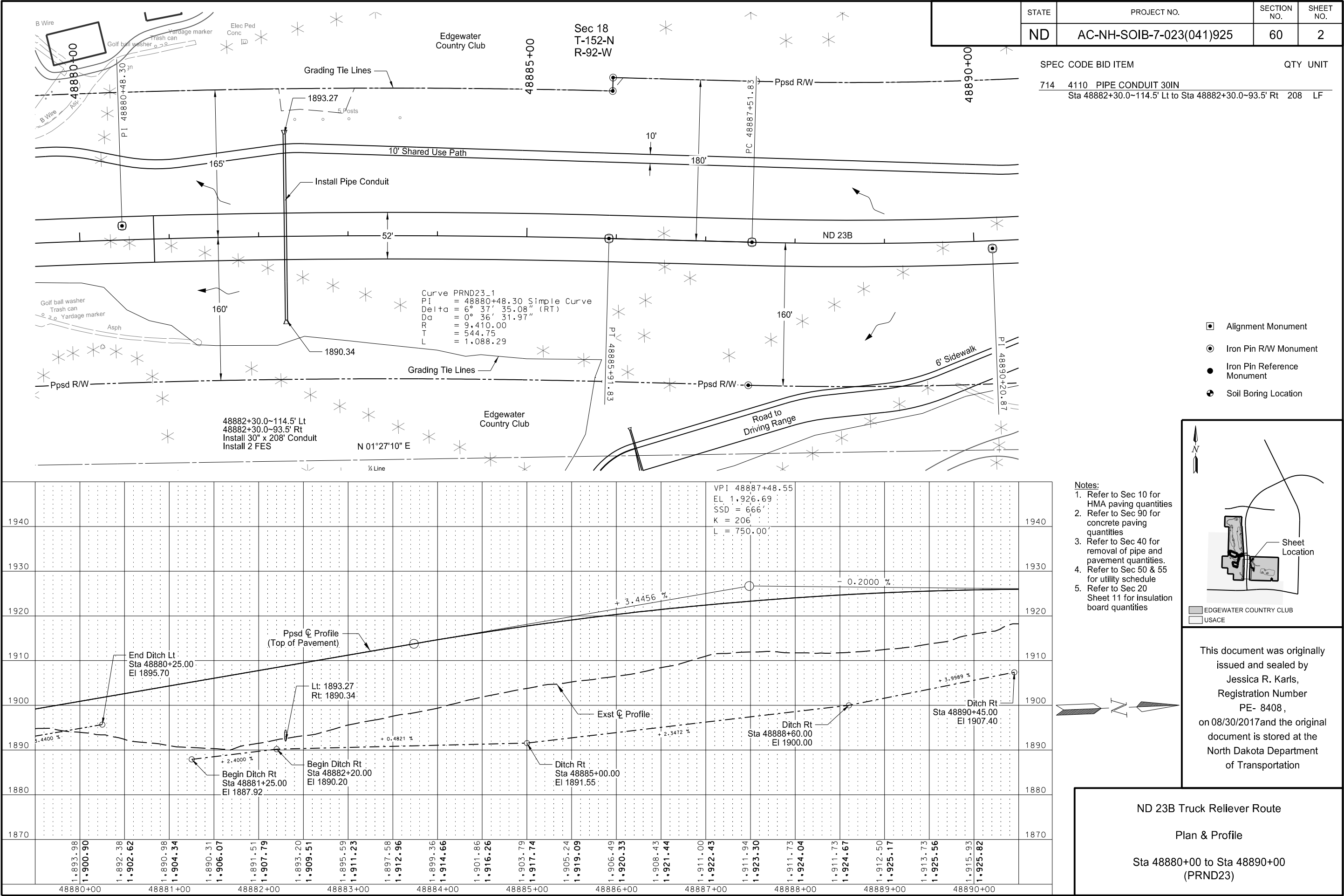
New Conduit / CSP Extensions for Existing Pipe

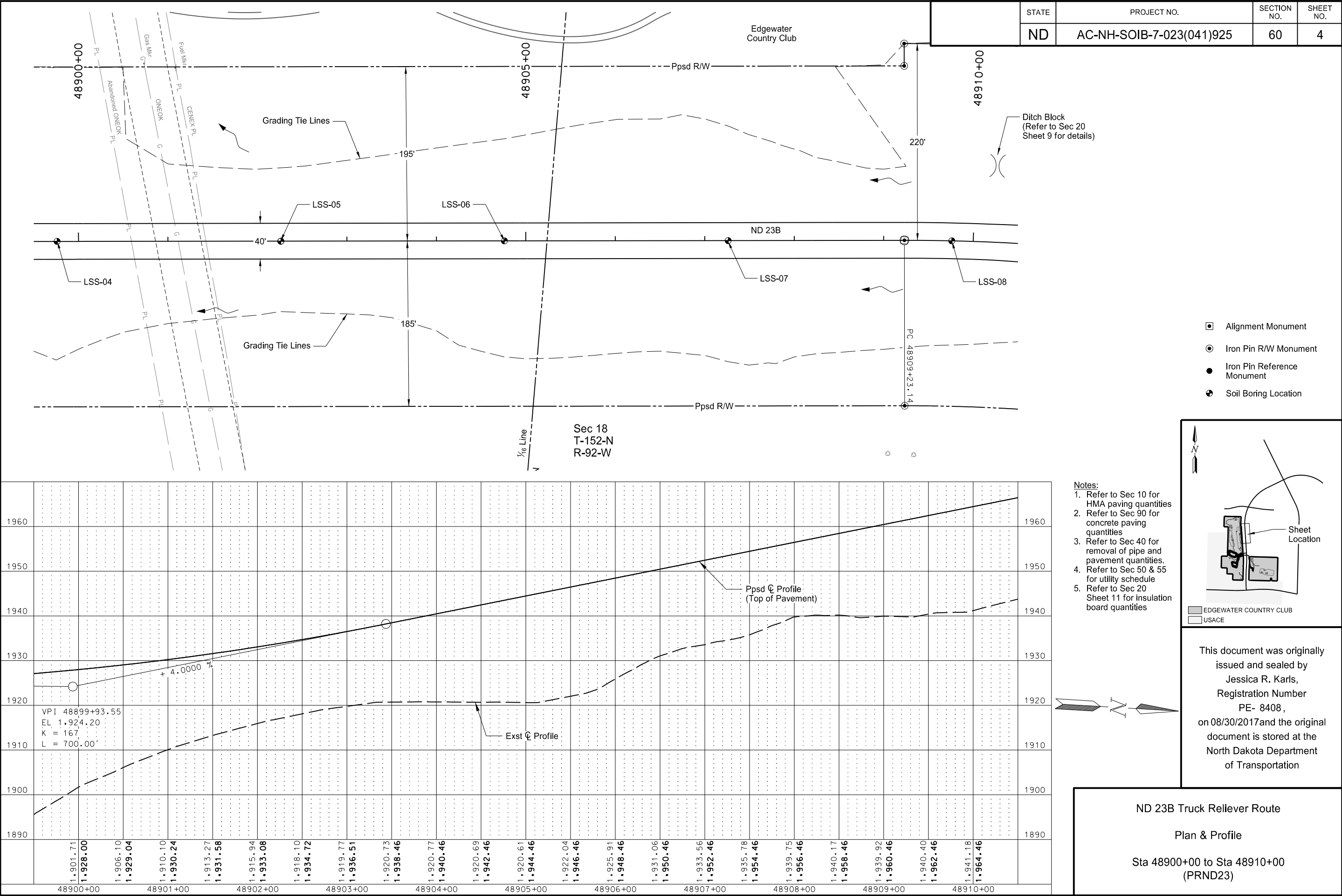


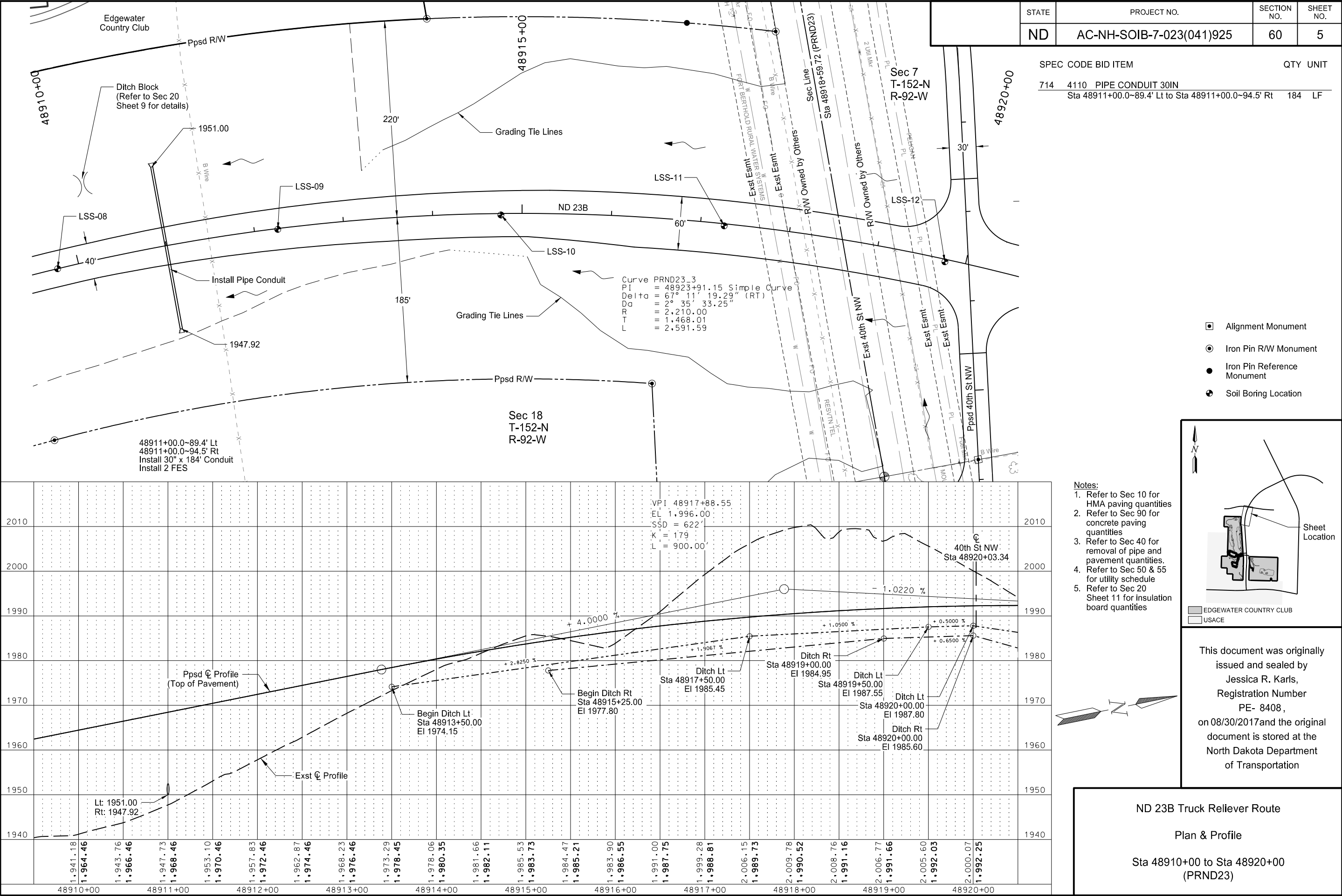
New Conduit

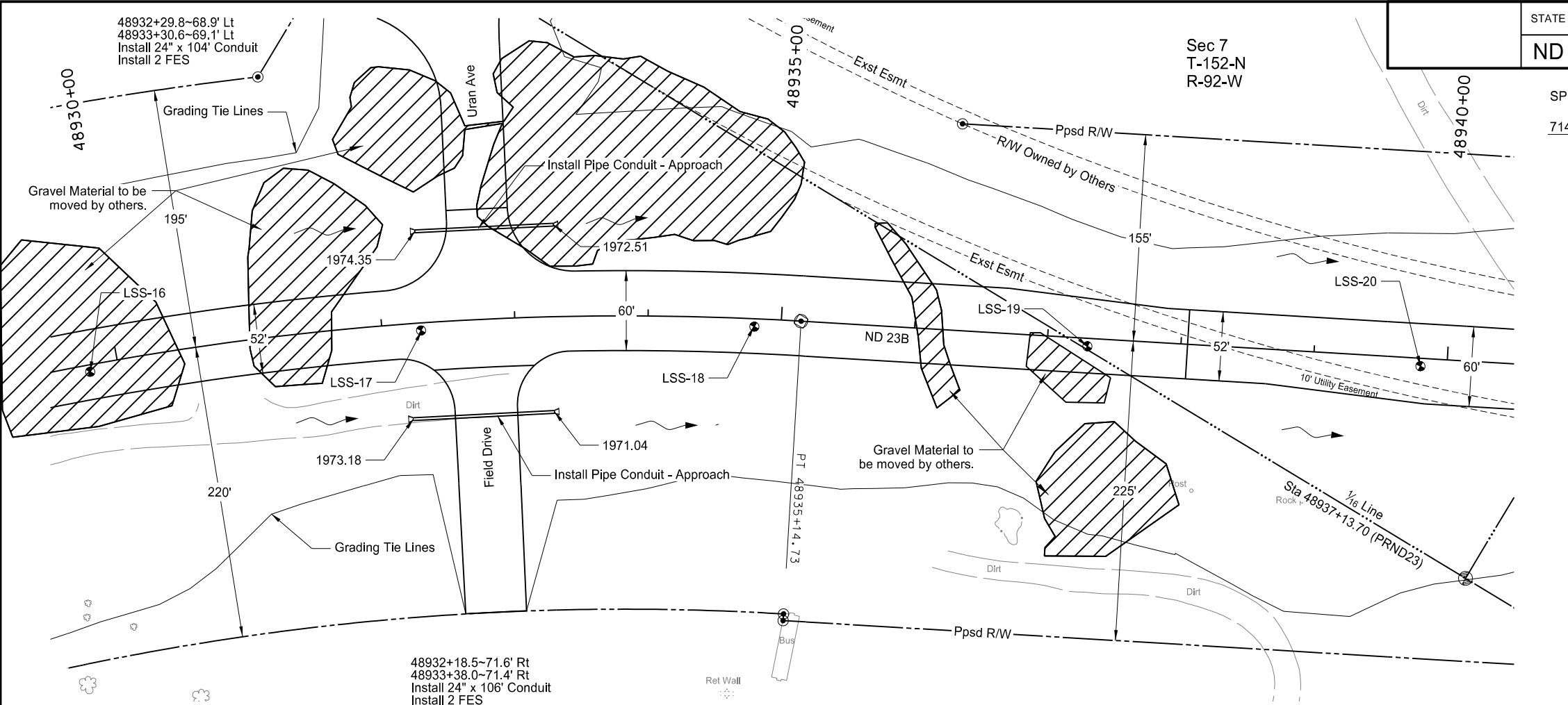
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ND 23B Truck Reliever Route
Allowable Pipe List
Approach Culverts





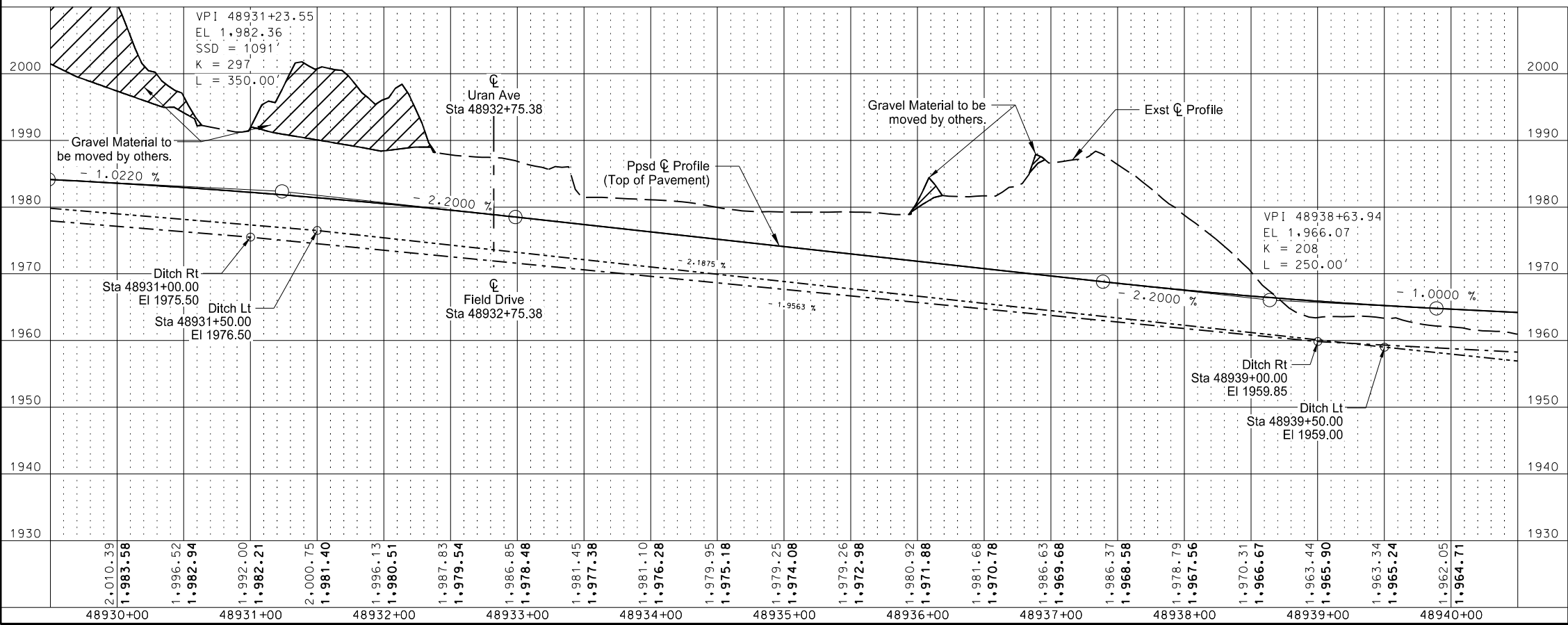




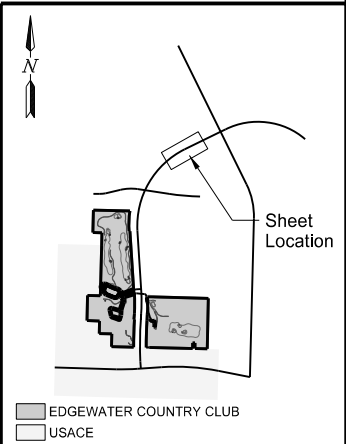
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	AC-NH-SOIB-7-023(041)925	60	7

SPEC	CODE	BID ITEM	QTY	UNIT
714	4106	PIPE CONDUIT 24IN-APPROACH		
		Sta 48932+18.5~71.6' Rt to Sta 48933+28.0~71.4' Rt	106	LF
		Sta 48932+29.8~68.9' Lt to Sta 48933+30.6~69.1' Lt	104	LF

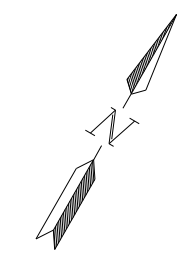
- Alignment Monument
- Iron Pin R/W Monument
- Iron Pin Reference Monument
- Soil Boring Location



- Notes:
- Refer to Sec 10 for HMA paving quantities
 - Refer to Sec 90 for concrete paving quantities
 - Refer to Sec 40 for removal of pipe and pavement quantities.
 - Refer to Sec 50 & 55 for utility schedule
 - Refer to Sec 20 Sheet 11 for insulation board quantities



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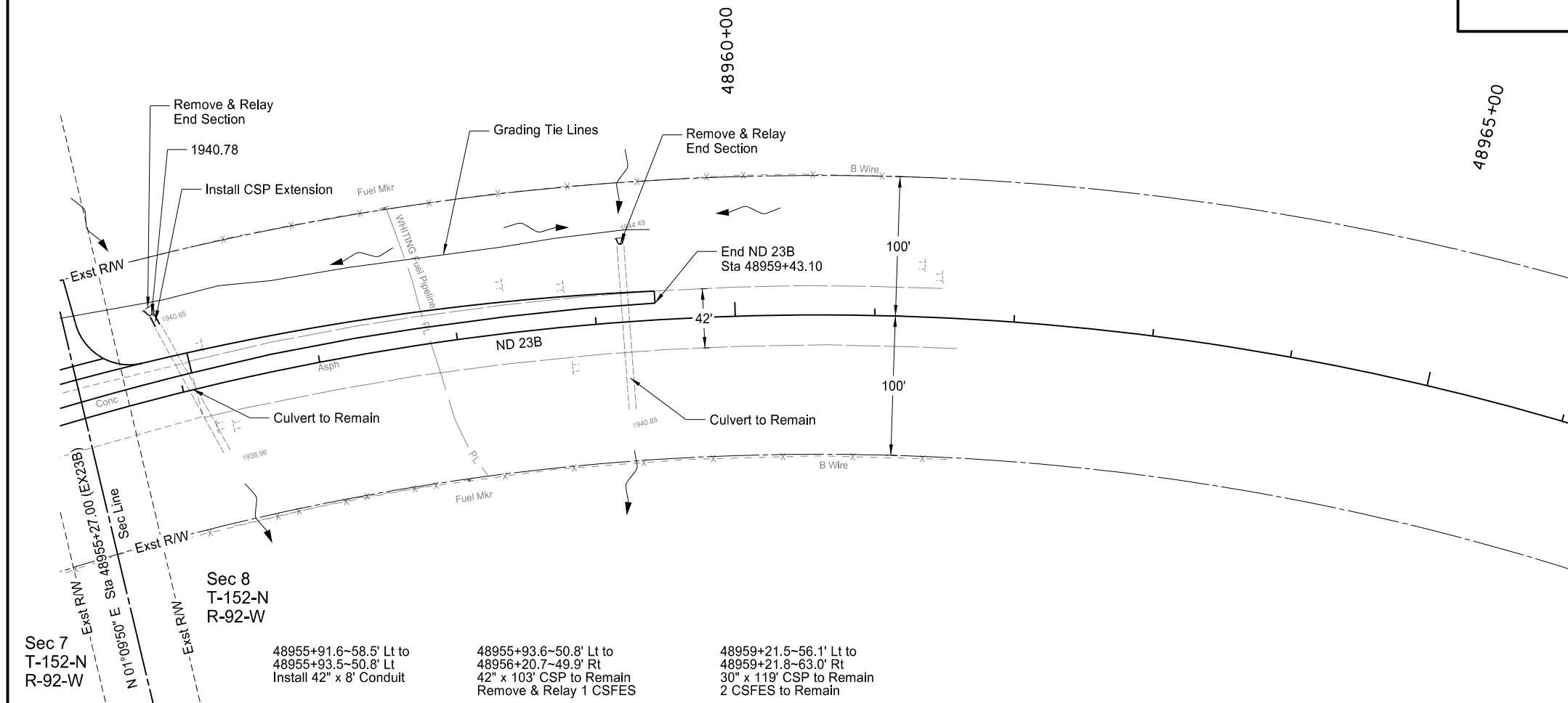
ND 23B Truck Reliever Route

Plan & Profile

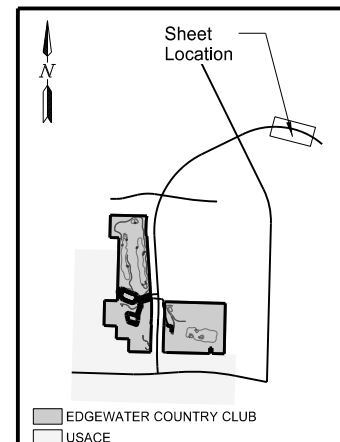
Sta 48930+00 to Sta 48940+00 (PRND23)

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	AC-NH-SOIB-7-023(041)925	60	10

SPEC	CODE	BID ITEM	QTY	UNIT
714	5051	PIPE CORR STEEL .064IN 42IN POLYMERIC COATED		
		Sta 48955+93.5~50.8' Lt to Sta 48955+91.6~58.5' Lt	8	LF
714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES		
		Sta 48955+91.6~58.5' Lt	1	EA
		Sta 48959+21.5~58.1' Lt	1	EA
990	0400	PIPE CLEANOUT		
		Sta 48956+06.9	1	EA



- ☐ Alignment Monument
- ☒ Iron Pin R/W Monument
- ☐ Iron Pin Reference Monument
- ☐ Soil Boring Location



Notes:

1. Refer to Sec 10 for HMA paving quantities
2. Refer to Sec 90 for concrete paving quantities
3. Refer to Sec 40 for removal of pipe and pavement quantities.
4. Refer to Sec 50 & 55 for utility schedule
5. Refer to Sec 20 Sheet 11 for insulation board quantities

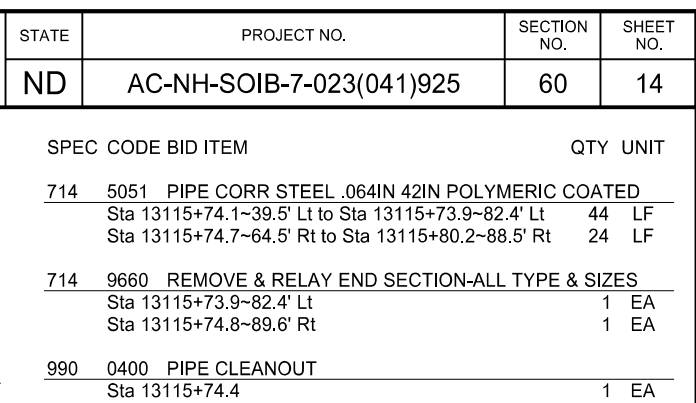


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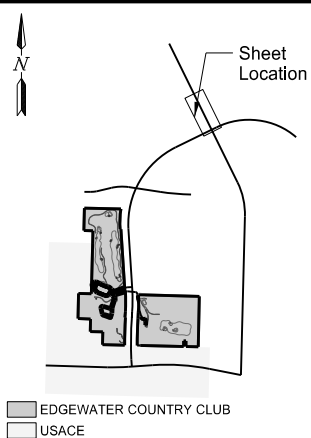
ND 23B Truck Reliever Route

Plan & Profile

Sta 48955+00 to Sta 48965+00
(EX23B)



-  Alignment Monument
-  Iron Pin R/W Monument
-  Iron Pin Reference Monument
-  Soil Boring Location



Notes:

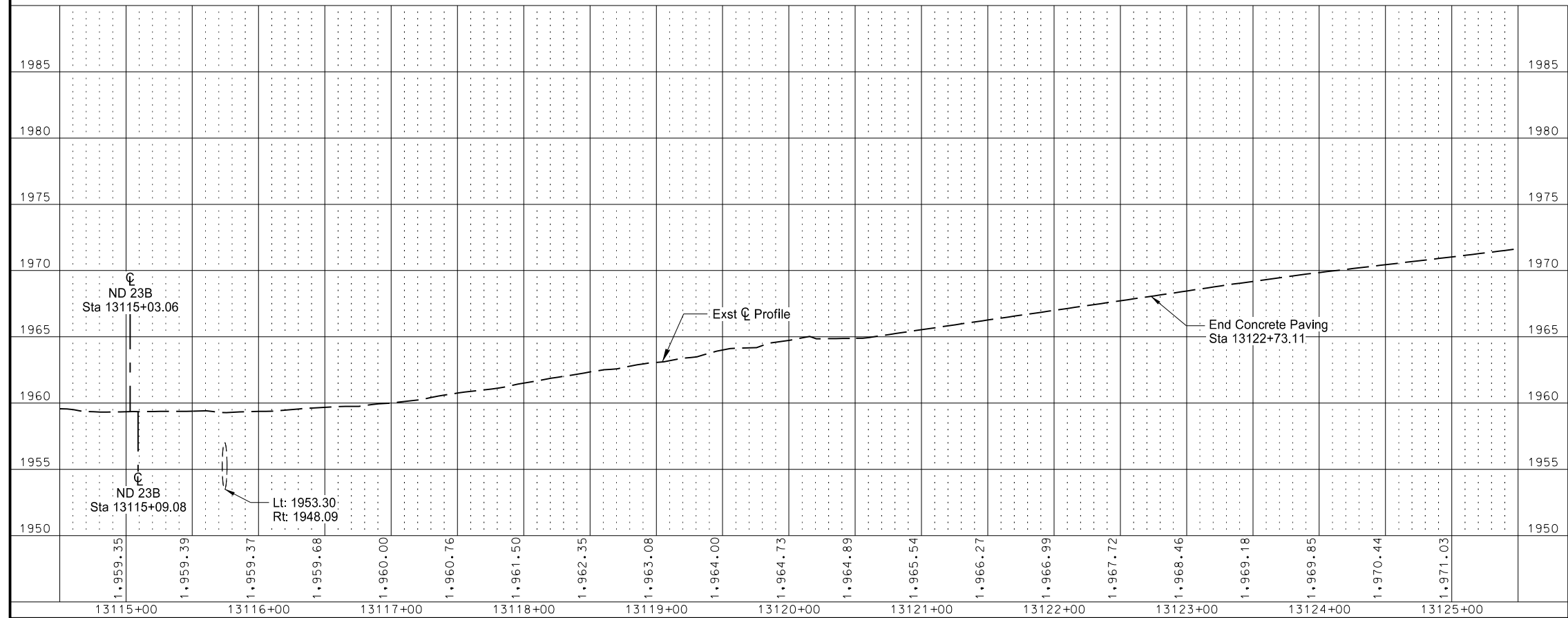
1. Refer to Sec 10 for HMA paving quantities
2. Refer to Sec 90 for concrete paving quantities
3. Refer to Sec 40 for removal of pipe and pavement quantities.
4. Refer to Sec 50 & 55 for utility schedule
5. Refer to Sec 20 Sheet 11 for insulation board quantities

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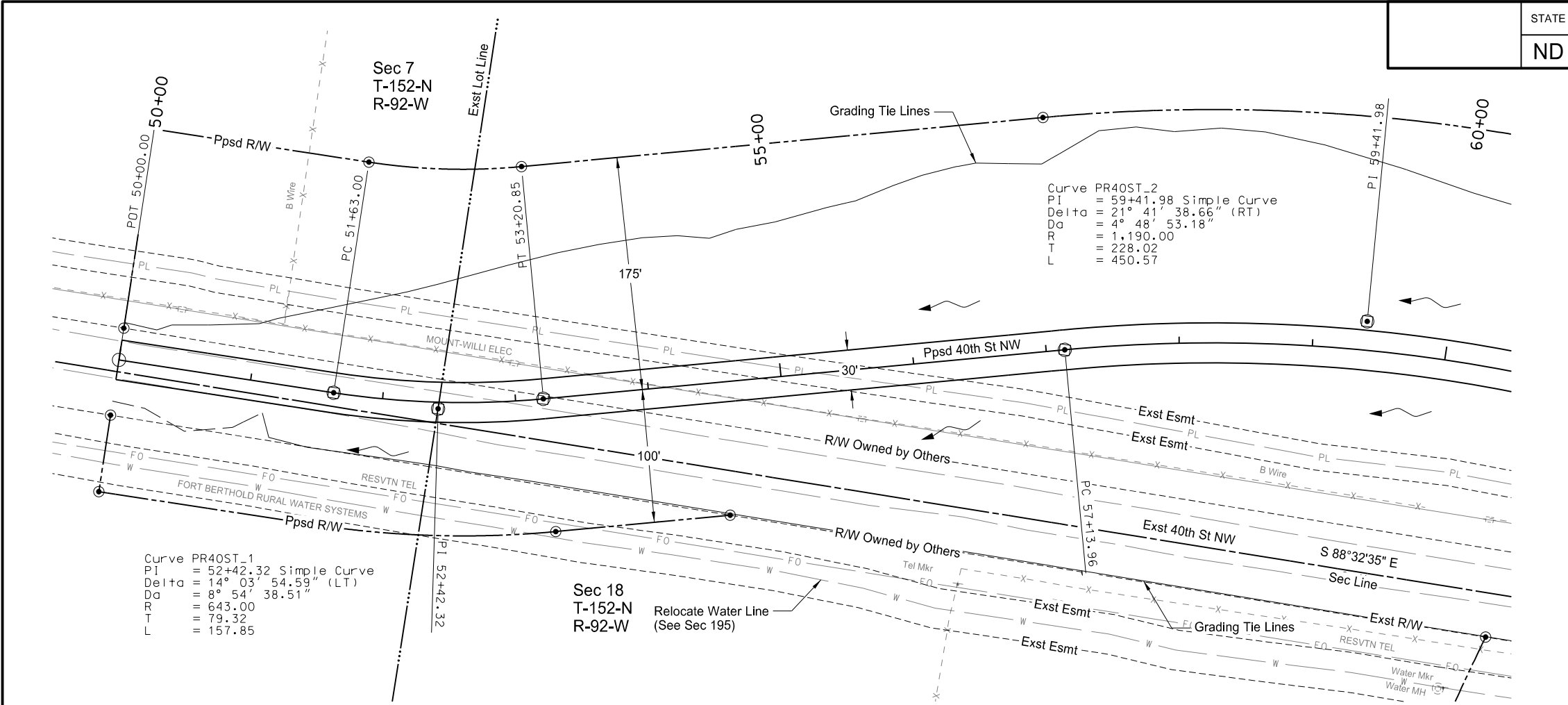
ND 23B Truck Reliever Route

Plan & Profile

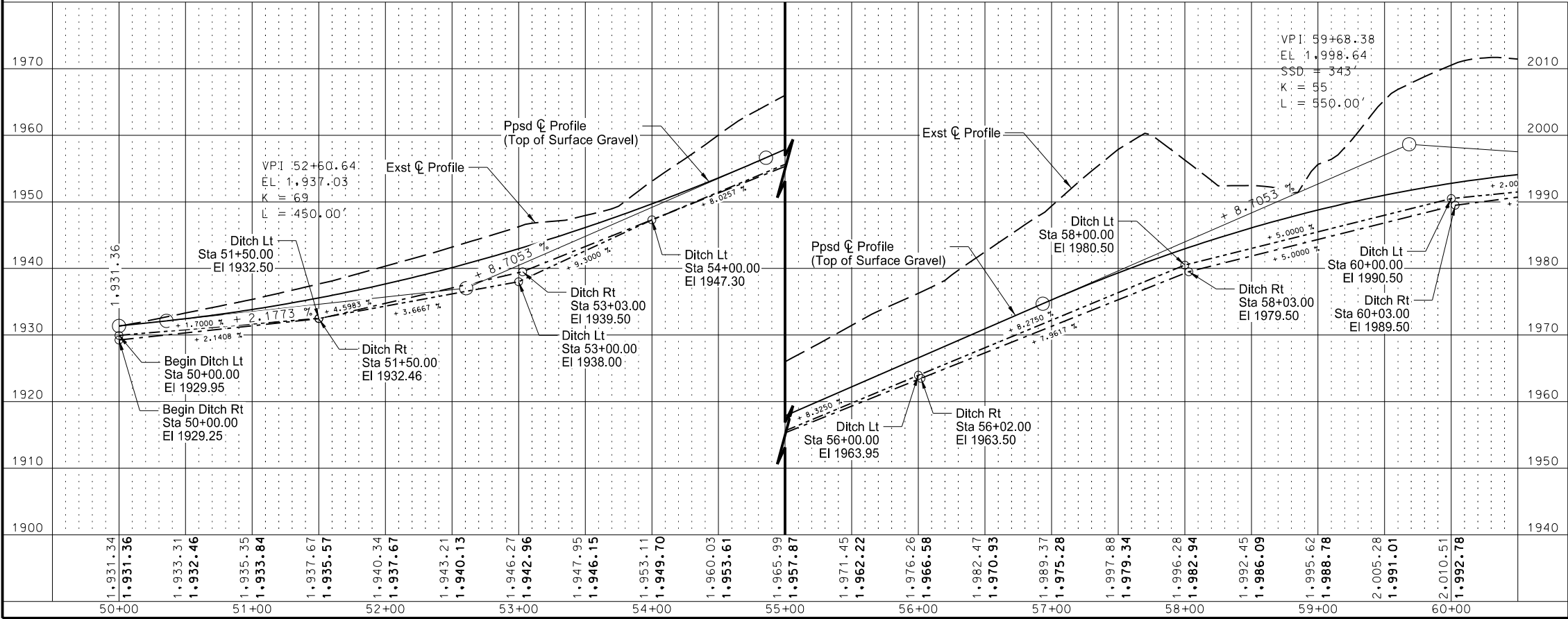
Sta 13115+00 to Sta 13125+00
(SCL1804)



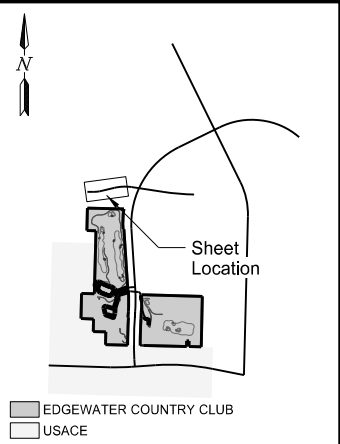
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	AC-NH-SOIB-7-023(041)925	60	15



- Alignment Monument
- Iron Pin R/W Monument
- Iron Pin Reference Monument
- Soil Boring Location



- Notes:
- Refer to Sec 10 for HMA paving quantities
 - Refer to Sec 90 for concrete paving quantities
 - Refer to Sec 40 for removal of pipe and pavement quantities.
 - Refer to Sec 50 & 55 for utility schedule
 - Refer to Sec 20 Sheet 11 for insulation board quantities

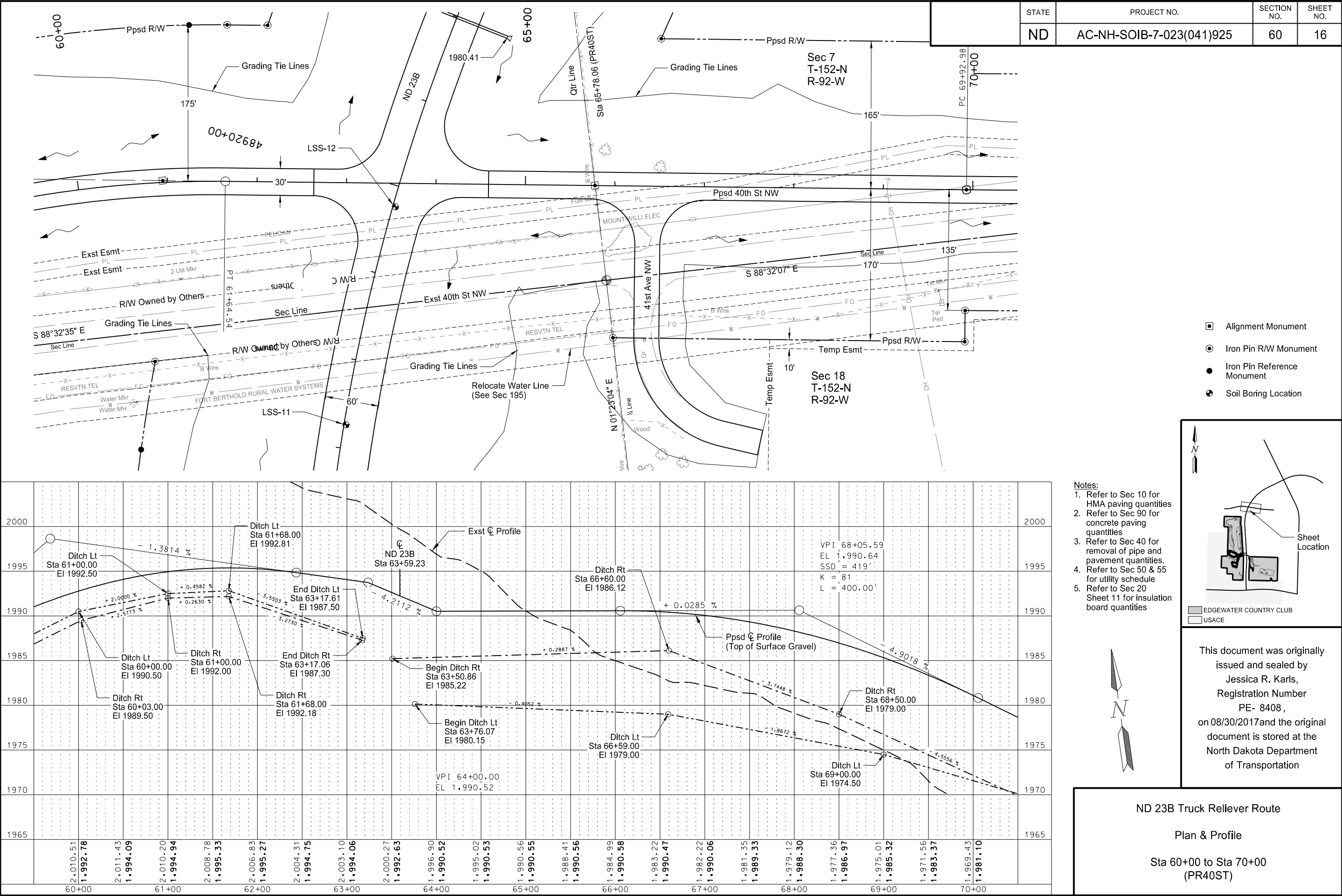


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ND 23B Truck Reliever Route

Plan & Profile

Sta 50+00 to Sta 60+00
(PR40ST)

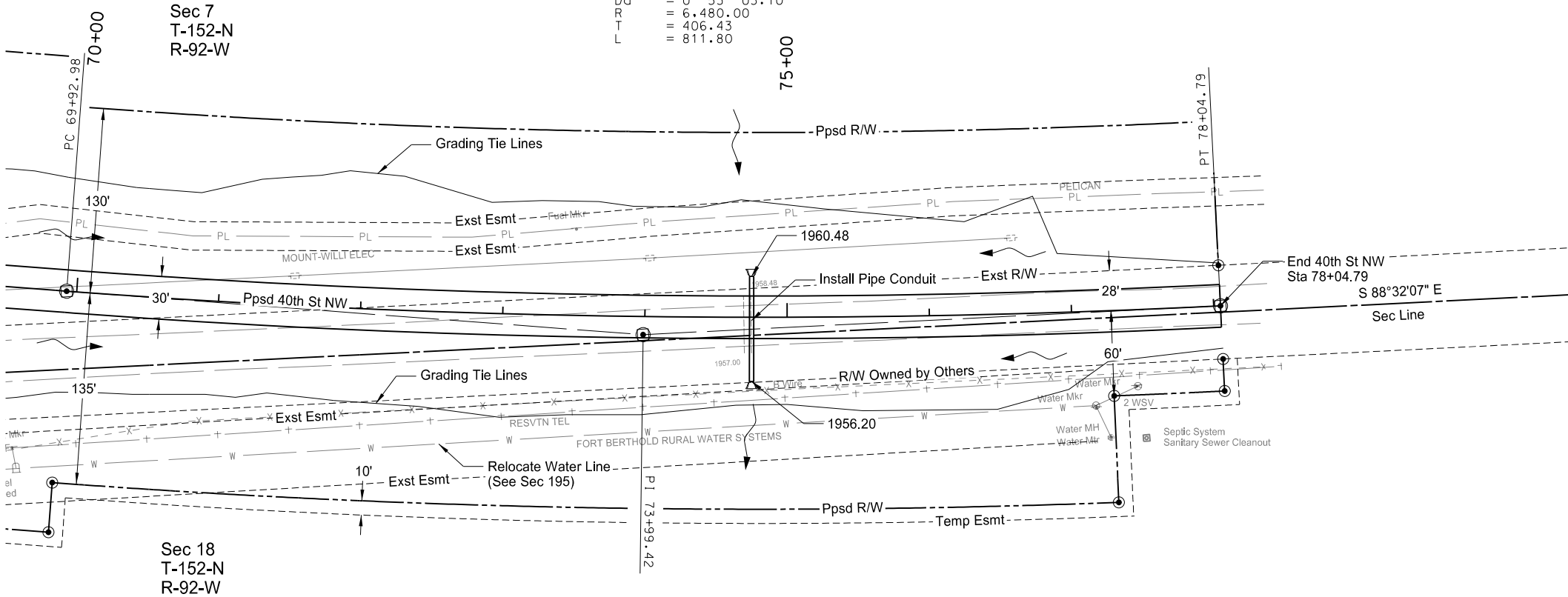


STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	AC-NH-SOIB-7-023(041)925	60	17

SPEC CODE BID ITEM QTY UNIT

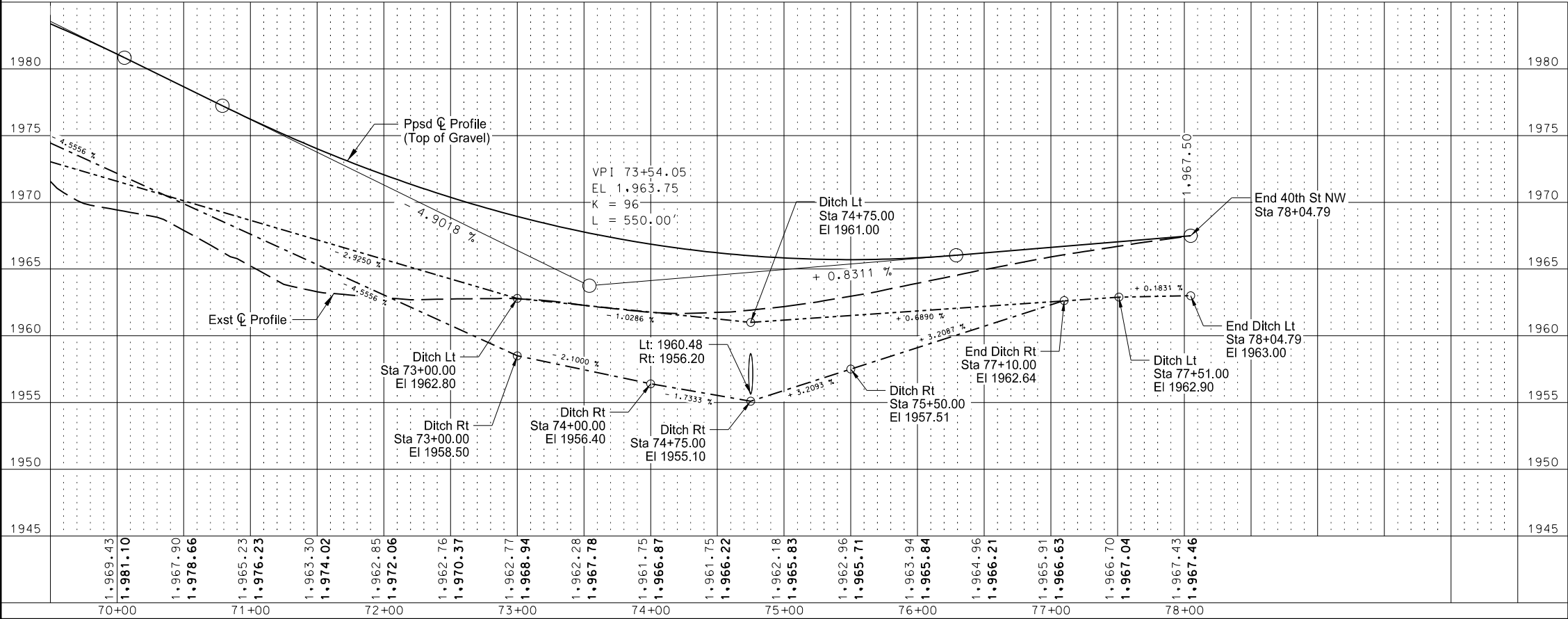
714	4115	PIPE CONDUIT 36IN	
Sta 74+75.0~28.7' Lt to Sta 74+75.0~45.2' Rt			74 LF

Curve PR40ST_3
PI = 73+99.42 Simple Curve
Delta = 7° 10' 40.54" (LT)
Da = 0° 53' 03.10" (LT)
R = 6.480.00
T = 406.43
L = 811.80

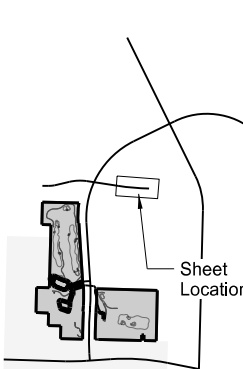


- Alignment Monument
- Iron Pin R/W Monument
- Iron Pin Reference Monument
- Soil Boring Location

74+75.0~28.7' Lt to
74+75.0~45.2' Rt
Install 36" x 74' Conduit
Install 2 FES



- Notes:
- Refer to Sec 10 for HMA paving quantities
 - Refer to Sec 90 for concrete paving quantities
 - Refer to Sec 40 for removal of pipe and pavement quantities.
 - Refer to Sec 50 & 55 for utility schedule
 - Refer to Sec 20 Sheet 11 for insulation board quantities



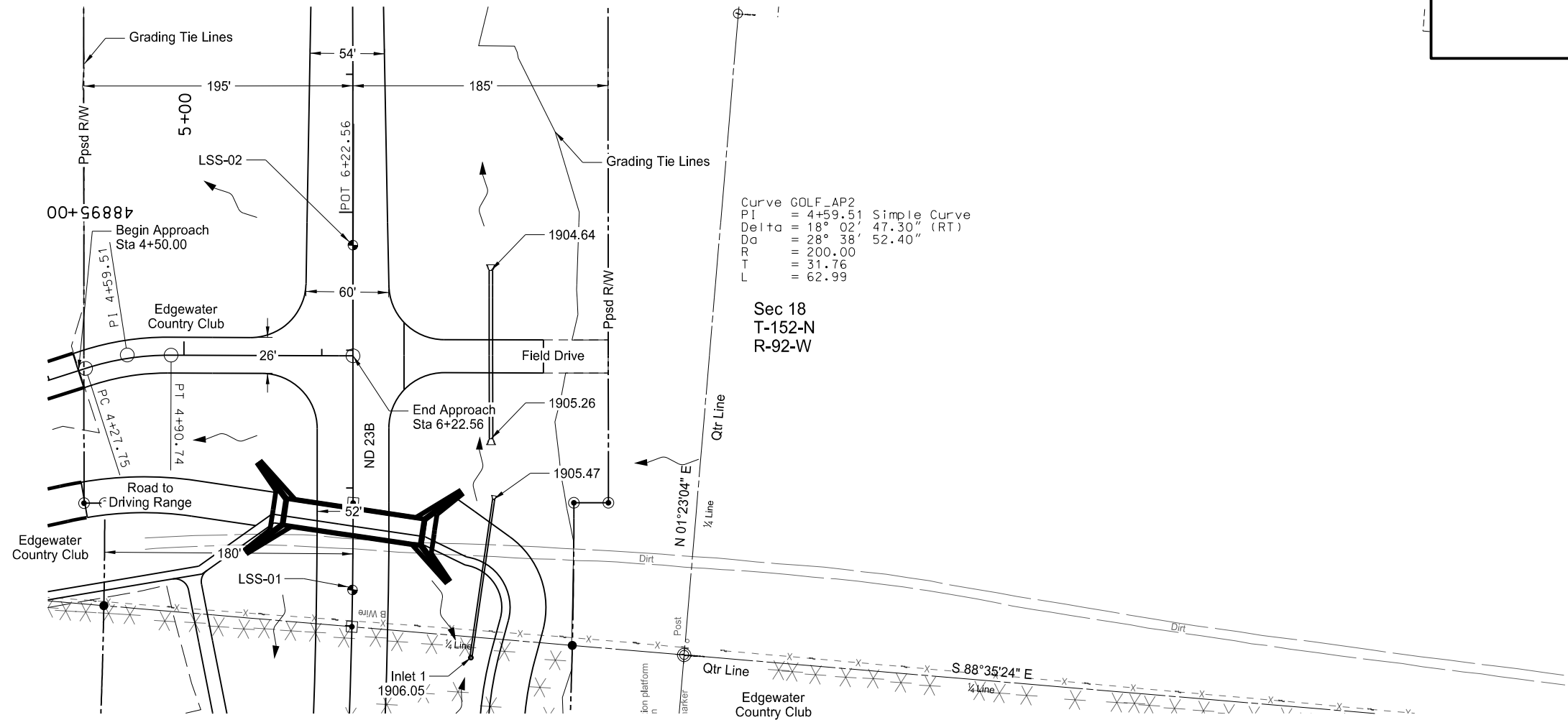
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ND 23B Truck Reliever Route

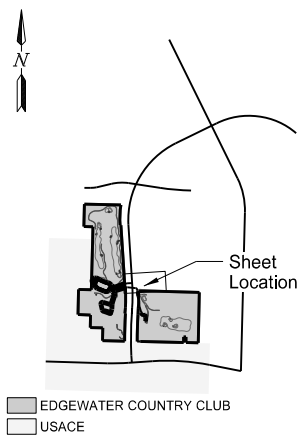
Plan & Profile

Sta 70+00 to Sta 78+04.79
(PR40ST)

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	AC-NH-SOIB-7-023(041)925	60	18



- Alignment Monument
- Iron Pin R/W Monument
- Iron Pin Reference Monument
- Soil Boring Location



- Notes:
- Refer to Sec 10 for HMA paving quantities
 - Refer to Sec 90 for concrete paving quantities
 - Refer to Sec 40 for removal of pipe and pavement quantities.
 - Refer to Sec 50 & 55 for utility schedule
 - Refer to Sec 20 Sheet 11 for insulation board quantities

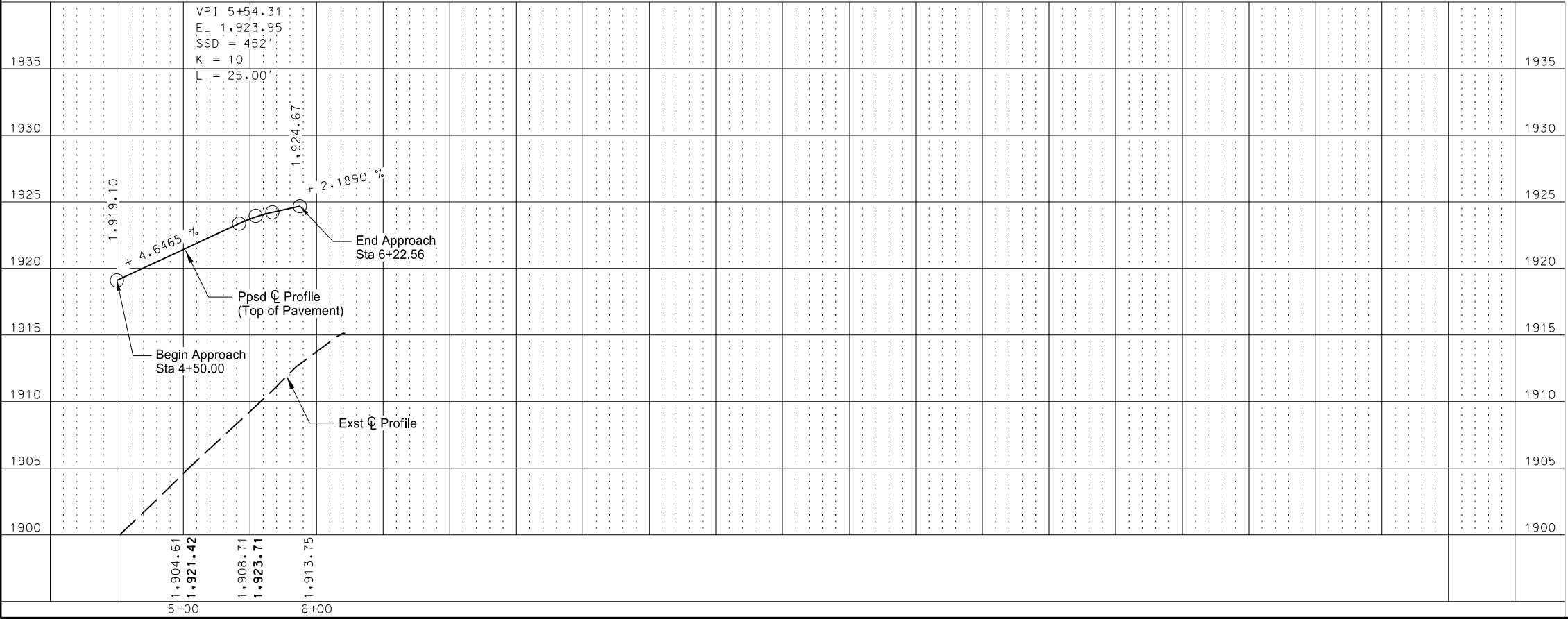


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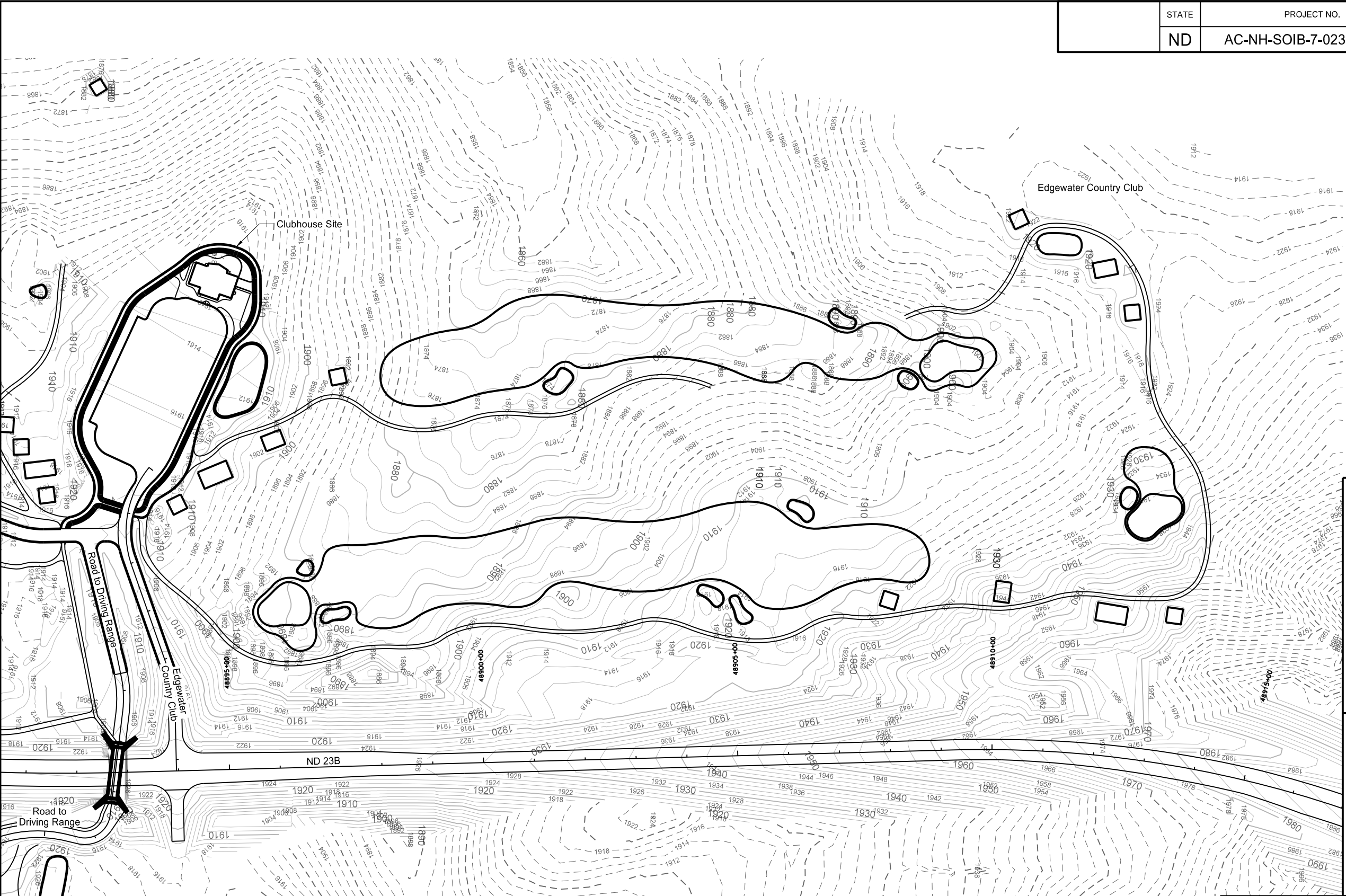
ND 23B Truck Reliever Route

Plan & Profile

Sta 4+50.00 to Sta 6+21.43
(PR_GOLFAP)



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	AC-NH-SOIB-7-023(041)925	70	1



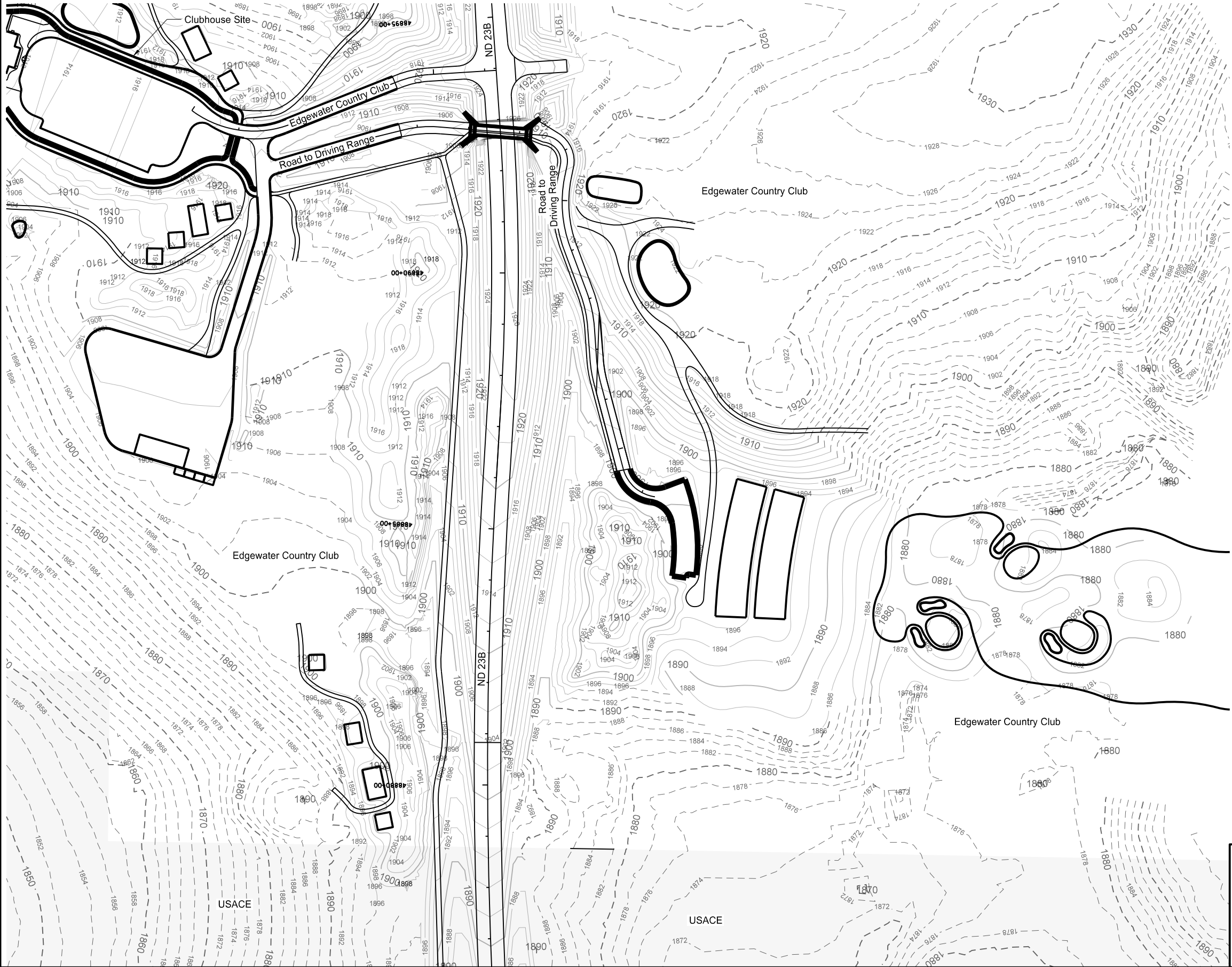
Sheet Location

EDGEMOUNT COUNTRY CLUB
USACE

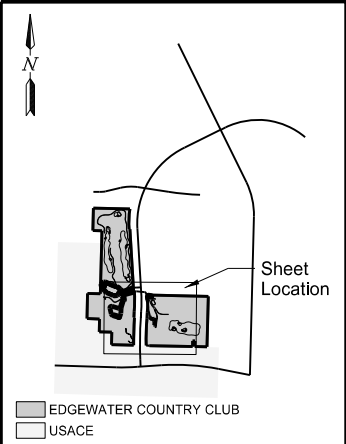
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ND 23B Truck Reliever Route
Contours
Phase 1

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	AC-NH-SOIB-7-023(041)925	70	2



- Legend
- Proposed Minor Contour
 - Proposed Major Contour
 - Existing Minor Contour
 - Existing Major Contour



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ND 23B Truck Reliever Route
Contours
Phase 2

Wetland Impact Table											
Wetland Number	Location	Feature	USACE Jurisdictional ¹	Wetland Impacts Acre(s)		Wetland Mitigation					
						Mitigation Required		USACE/11990 Bank		11990 Bank	
				Temp.	Perm.	EO 11990	USACE	Location	Acre(s)	Location	Acre(s)
2h	Sec 13, T152N, R93W	Natural	Yes	-	-	-	-	-	-	-	-
2k	Sec 18, T152N, R92W	Natural	Yes	-	-	-	-	-	-	-	-
3a	Sec 18, T152N, R92W	Natural	Yes	-	-	-	-	-	-	-	-
3b	Sec 18, T152N, R92W	Natural	Yes	-	-	-	-	-	-	-	-
3d	Sec 18, T152N, R92W	Natural	Yes	-	-	-	-	-	-	-	-
3g	Sec 18, T152N, R92W	Artificial	Yes	-	-	-	-	-	-	-	-
3h	Sec 18, T152N, R92W	Artificial	Yes	-	0.03	No	No	-	-	-	-
3i	Sec 18, T152N, R92W	Artificial	Yes	-	0.02	No	No	-	-	-	-
3j	Sec 18, T152N, R92W	Artificial	Yes	-	0.05	No	No	-	-	-	-
3k	Sec 18, T152N, R92W	Artificial	Yes	-	0.03	No	No	-	-	-	-
3l	Sec 18, T152N, R92W	Artificial	Yes	-	-	-	-	-	-	-	-
3m	Sec 18, T152N, R92W	Artificial	Yes	-	-	-	-	-	-	-	-
4	Sec 18, T152N, R92W	Natural	Yes	-	-	-	-	-	-	-	-
5	Sec 18, T152N, R92W	Artificial	No	-	-	-	-	-	-	-	-
6	Sec 7, T152N, R92W	Artificial	No	-	0.03	No	No	-	-	-	-
7	Sec 7, T152N, R92W	Artificial	No	-	-	-	-	-	-	-	-
8a	Sec. 8, T152N, R92W	Artificial	Yes	-	-	-	-	-	-	-	-
8b	Sec. 8, T152N, R92W	Artificial	Yes	-	0.01	No	No	-	-	-	-
9a	Sec. 8, T152N, R92W	Artificial	Yes	-	-	-	-	-	-	-	-
9b	Sec. 8, T152N, R92W	Natural	Yes	0.01	-	-	-	-	-	-	-
Totals				0.01	0.17					0	0

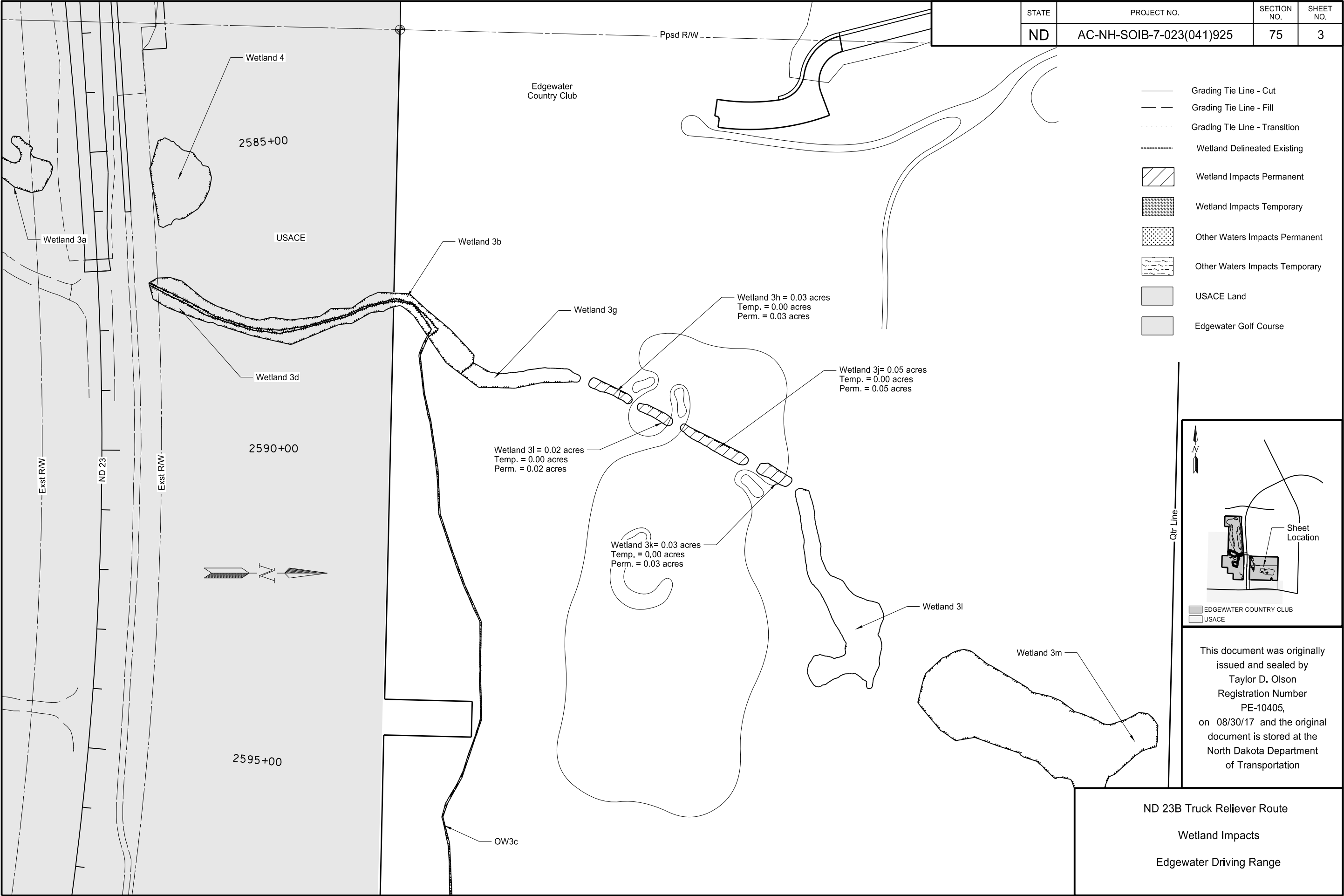
Other Waters Impact Table												
Other Waters Number	Location	Type	Size		Feature	USACE Jurisdictional ¹	Impacts to Other Waters				Other Water Mitigation	
											Mitigation Required	
			Acre(s)	Linear Feet			Acre(s)		Linear Feet		EO 11990	USACE
OW2j	Sec. 13, T152N, R93W & Sec 18, T152N, R92W	Lake	107.74	N/A	Natural	Yes	-	-	-	-	-	-
OW2l	Sec 18, T152N, R92W	Lake	1.21	N/A	Natural	Yes	-	-	-	-	-	-
OW3c	Sec 18, T152N, R92W	Stream	0.20	3,176	Natural	Yes	-	-	-	-	-	-
OW3e	Sec 17, T152N, R92W	Ditch	0.03	381	Created	Yes	-	-	-	-	-	-
OW3f	Sec 17, T152N, R92W	Stream	0.02	101	Natural	Yes	-	-	-	-	-	-
OW10	Sec 18, T152N, R92W	Stream	0.01	124	Natural	Yes	-	-	-	-	-	-
			118.08	3,782			0	0	0	0		

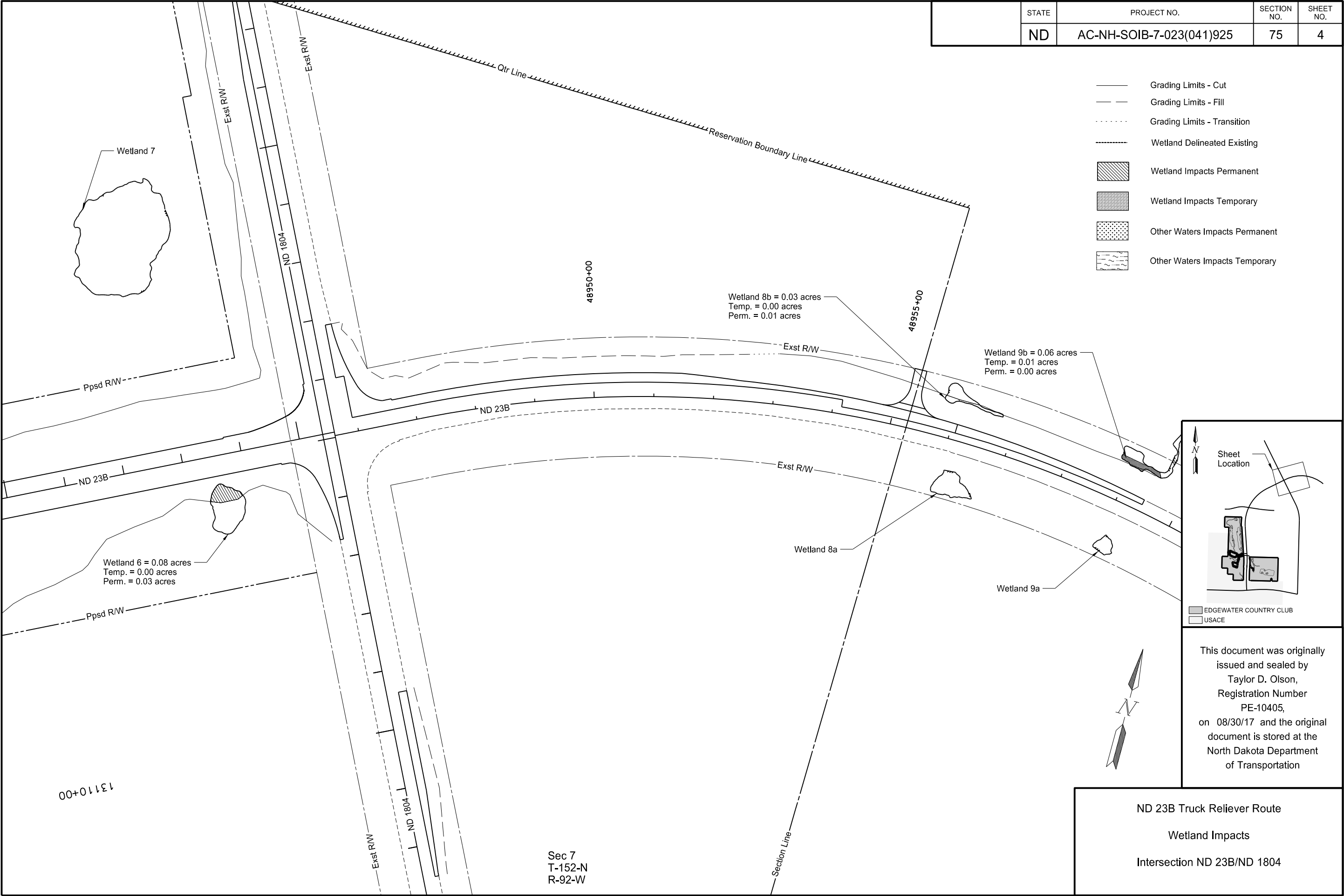
¹ A wetland Jurisdictional Determination was issued by the USACE on 1/27/2017; NWO-2015-02027-BIS.

Impact Summary Table			
Permanent Impact Summary		Temporary Impacts and Additional Information	
Wetland Type	Total (Acres)	Wetland Type	Total (Acres/Linear Feet)
Natural/JD	-	Temporary JD	-
Natural/Non-JD	-	Non-JD Temporary	-
Artificial/JD	0.14	Permanent JD > 0.10	0.13
Artificial /Non-JD	0.03	Permanent OW	-
Total	0.17	Temporary OW	-

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ND 23B Truck Reliever Route
Wetlands Mitigation and Environmental





STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	AC-NH-SOIB-7-023(041)925	75	4

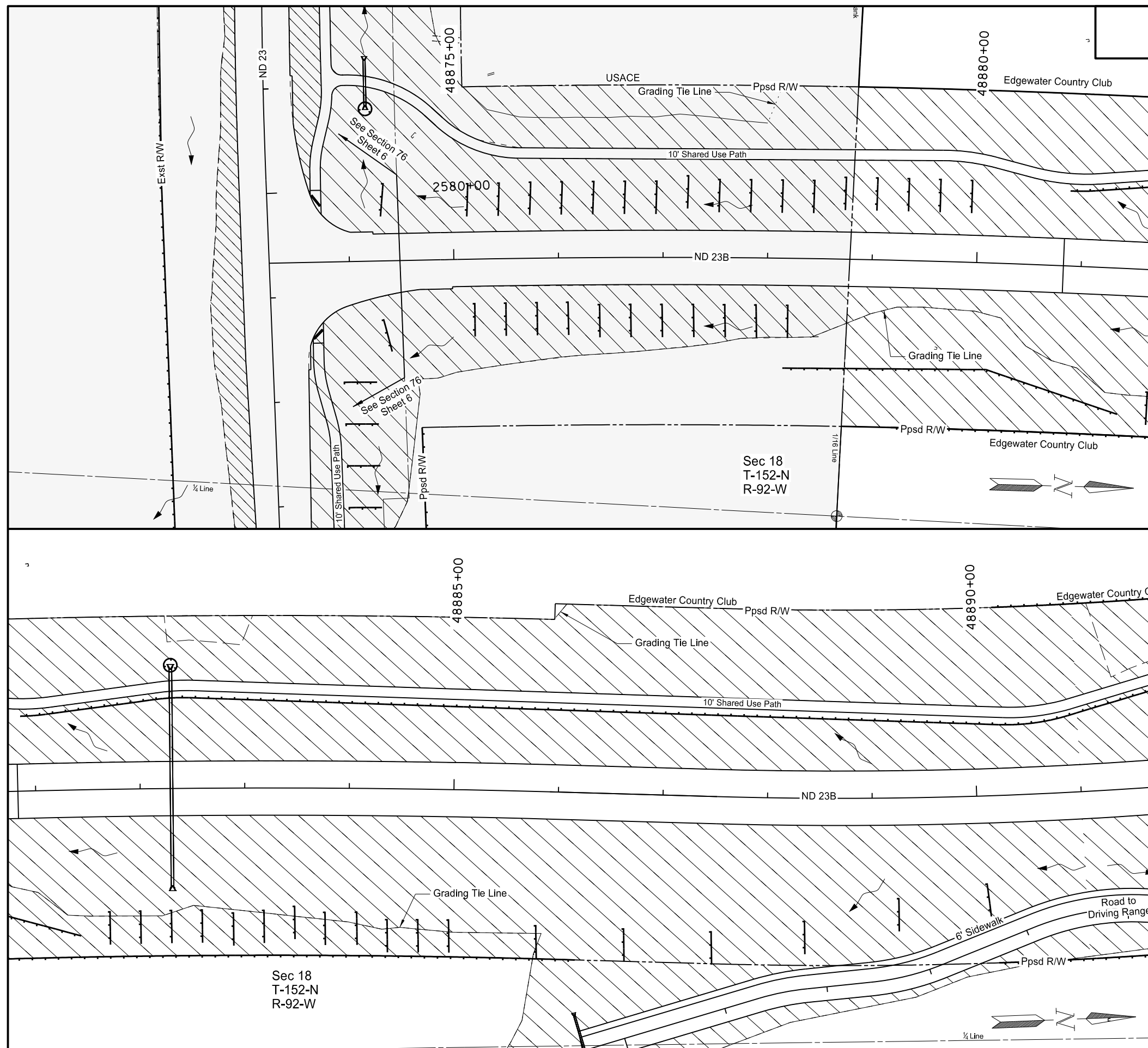
- Grading Limits - Cut
- Grading Limits - Fill
- Grading Limits - Transition
- Wetland Delineated Existing
- Wetland Impacts Permanent
- Wetland Impacts Temporary
- Other Waters Impacts Permanent
- Other Waters Impacts Temporary

Sheet Location

EDGEWATER COUNTRY CLUB
USACE

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ND 23B Truck Reliever Route
Wetland Impacts
Intersection ND 23B/ND 1804

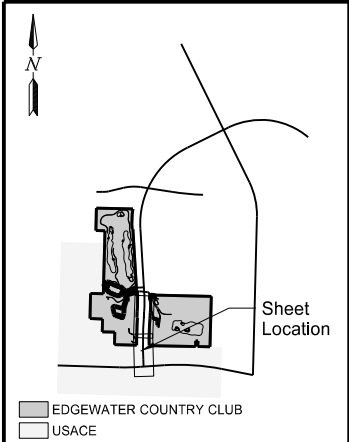


STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	AC-NH-SOIB-7-023(041)925	76	1

SPEC	CODE	BID ITEM	QTY	UNIT
253	0301	BONDED FIBER MATRIX		
Sta 48873+23.45		to Sta 48891+00 Rt	5.46	ACRE
Sta 48873+23.45		to Sta 48891+00 Lt	5.13	ACRE
261	0112	FIBER ROLLS 12IN		
Sta 48873+23.45		to Sta 48891+00 Rt	2,030	LF
Sta 48873+23.45		to Sta 48891+00 Lt	1,673	LF
261	0113	REMOVE FIBER ROLLS 12IN		
Sta 48873+23.45		to Sta 48891+00 Rt	2,030	LF
Sta 48873+23.45		to Sta 48891+00 Lt	1,673	LF

Slope Fiber Roll Spacing		
Grade	Fiber Roll Diameter	
	12"	20"
4:1	60'	80'
3:1	45'	60'

Ditch Fiber Roll Spacing		
Ditch Grade	Fiber Roll Diameter	
	12"	20"
1%	85'	140'
2%	40'	70'
3%	30'	45'
4%	20'	35'
5%	15'	30'

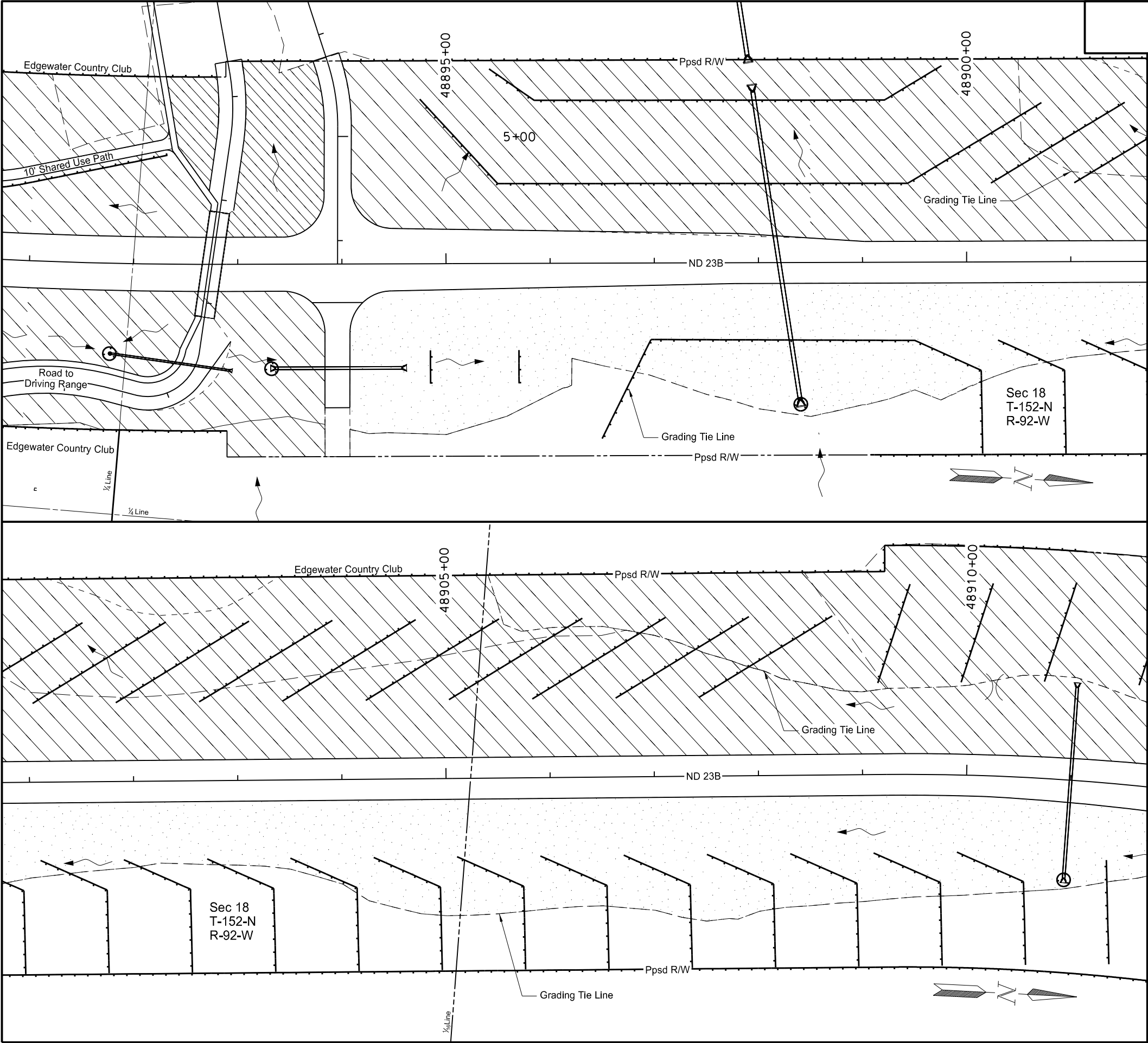


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ND 23B Truck Reliever Route

Temporary Erosion Control

Sta 48873+23.45 to Sta 48891+00
(PRND23)



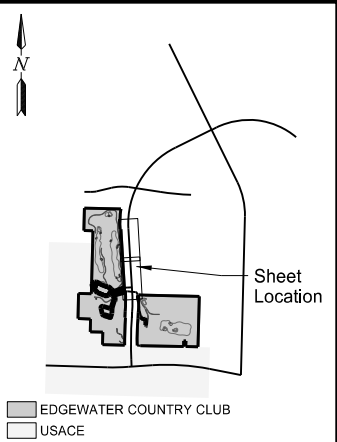
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	AC-NH-SOIB-7-023(041)925	76	2

SPEC	CODE	BID ITEM	QTY	UNIT
251	2000	TEMPORARY COVER CROP		
Sta 48891+00 to Sta 48911+00 Rt			6.39	ACRE
253	0101	STRAW MULCH		
Sta 48891+00 to Sta 48911+00 Rt			6.39	ACRE
253	0301	BONDED FIBER MATRIX		
Sta 48891+00 to Sta 48911+00 Rt			0.80	ACRE
Sta 48891+00 to Sta 48911+00 Lt			7.69	ACRE
261	0112	FIBER ROLLS 12IN		
Sta 48891+00 to Sta 48911+00 Rt			1,558	LF
Sta 48891+00 to Sta 48911+00 Lt			2,109	LF
261	0113	REMOVE FIBER ROLLS 12IN		
Sta 48891+00 to Sta 48911+00 Rt			1,558	LF
Sta 48891+00 to Sta 48911+00 Lt			2,109	LF
261	0120	FIBER ROLLS 20IN		
Sta 48891+00 to Sta 48911+00 Rt			2,459	LF
Sta 48891+00 to Sta 48911+00 Lt			2,907	LF
261	0121	REMOVE FIBER ROLLS 20IN		
Sta 48891+00 to Sta 48911+00 Rt			2,459	LF
Sta 48891+00 to Sta 48911+00 Lt			2,907	LF

Slope Fiber Roll Spacing		
Grade	Fiber Roll Diameter	
	12"	20"
4:1	60'	80'
3:1	45'	60'

Ditch Fiber Roll Spacing		
Ditch Grade	Fiber Roll Diameter	
	12"	20"
1%	85'	140'
2%	40'	70'
3%	30'	45'
4%	20'	35'
5%	15'	30'

- Fiber Roll
- Wetland Delineated Exst
- Silt Fence
- Temporary Cover Crop & Straw Mulch
- Bonded Fiber Matrix



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ND 23B Truck Reliever Route
Temporary Erosion Control
Sta 48891+00 to Sta 48911+00
(PRND23)



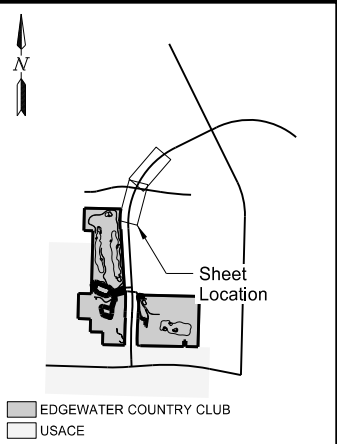
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	AC-NH-SOIB-7-023(041)925	76	3

SPEC	CODE	BID ITEM	QTY	UNIT
251	2000	TEMPORARY COVER CROP		
		Sta 48911+00 to Sta 48931+00 Rt (2 applications)	14.70	ACRE
		Sta 48911+00 to Sta 48931+00 Lt (2 applications)	13.80	ACRE
253	0101	STRAW MULCH		
		Sta 48911+00 to Sta 48931+00 Rt (2 applications)	14.70	ACRE
		Sta 48911+00 to Sta 48931+00 Lt (2 applications)	13.80	ACRE
253	0301	BONDED FIBER MATRIX		
		Sta 48911+00 to Sta 48931+00 Lt	1.44	ACRE
261	0112	FIBER ROLLS 12IN		
		Sta 48911+00 to Sta 48931+00 Rt	1,054	LF
		Sta 48911+00 to Sta 48931+00 Lt	1,160	LF
261	0113	REMOVE FIBER ROLLS 12IN		
		Sta 48911+00 to Sta 48931+00 Rt	1,054	LF
		Sta 48911+00 to Sta 48931+00 Lt	1,160	LF
261	0120	FIBER ROLLS 20IN		
		Sta 48911+00 to Sta 48931+00 Rt	450	LF
		Sta 48911+00 to Sta 48931+00 Lt	390	LF
261	0121	REMOVE FIBER ROLLS 20IN		
		Sta 48911+00 to Sta 48931+00 Rt	450	LF
		Sta 48911+00 to Sta 48931+00 Lt	390	LF

Slope Fiber Roll Spacing		
Grade	Fiber Roll Diameter	
	12"	20"
4:1	60'	80'
3:1	45'	60'

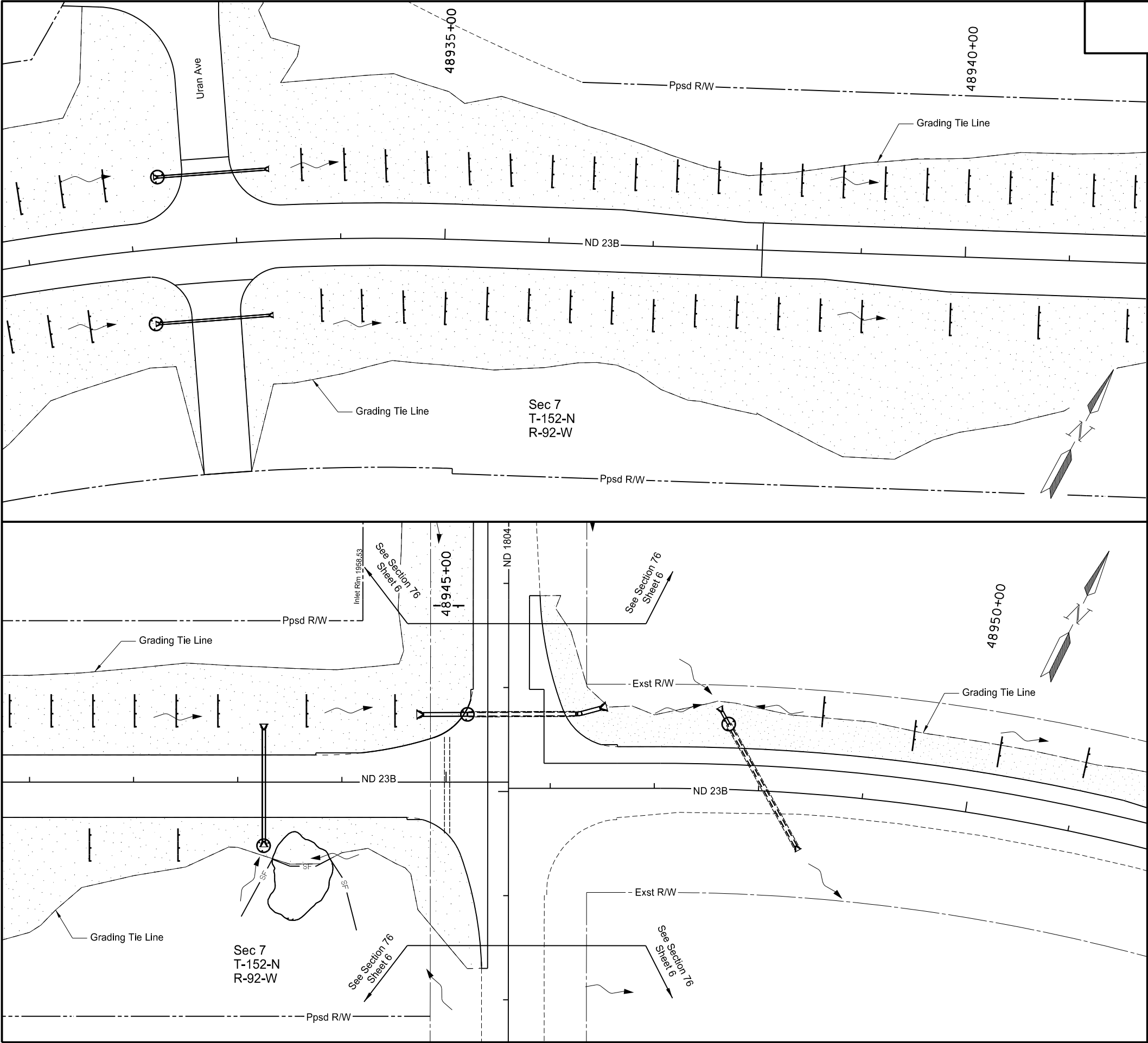
Ditch Fiber Roll Spacing		
Ditch Grade	Fiber Roll Diameter	
	12"	20"
1%	85'	140'
2%	40'	70'
3%	30'	45'
4%	20'	35'
5%	15'	30'

- Fiber Roll
- Wetland Delineated Exst
- Silt Fence
- Temporary Cover Crop & Straw Mulch
- Bonded Fiber Matrix



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ND 23B Truck Reliever Route
Temporary Erosion Control
Sta 48911+00 to Sta 48931+00
(PRND23)



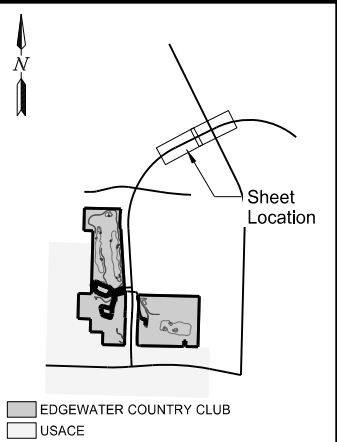
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	AC-NH-SOIB-7-023(041)925	76	4

SPEC	CODE	BID ITEM	QTY	UNIT
251	2000	TEMPORARY COVER CROP		
		Sta 48931+00 to Sta 48945+60 Rt (2 applications)	12.36	ACRE
		Sta 48931+00 to Sta 48945+60 Lt (2 applications)	9.72	ACRE
253	0101	STRAW MULCH		
		Sta 48931+00 to Sta 48945+60 Rt (2 applications)	12.36	ACRE
		Sta 48931+00 to Sta 48945+60 Lt (2 applications)	9.72	ACRE
260	0200	SILT FENCE SUPPORTED		
		Sta 48931+00 to Sta 48945+60 Rt	198	LF
260	0201	REMOVE SILT FENCE SUPPORTED		
		Sta 48931+00 to Sta 48945+60 Rt	198	LF
261	0112	FIBER ROLLS 12IN		
		Sta 48931+00 to Sta 48945+60 Rt	720	LF
		Sta 48931+00 to Sta 48945+60 Lt	936	LF
261	0113	REMOVE FIBER ROLLS 12IN		
		Sta 48931+00 to Sta 48945+60 Rt	720	LF
		Sta 48931+00 to Sta 48945+60 Lt	936	LF

Slope Fiber Roll Spacing		
Grade	Fiber Roll Diameter	
	12"	20"
4:1	60'	80'
3:1	45'	60'

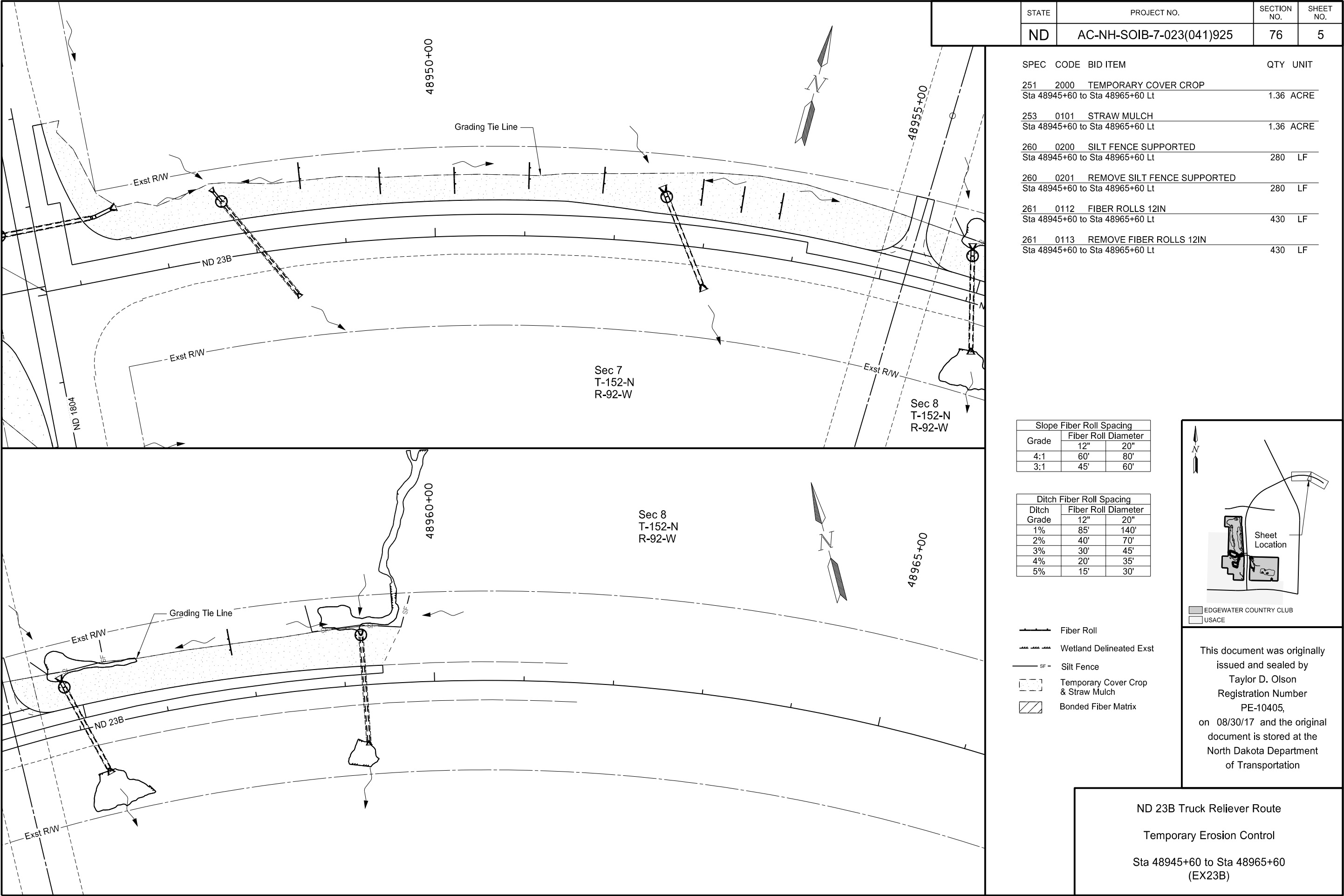
Ditch Fiber Roll Spacing		
Ditch Grade	Fiber Roll Diameter	
	12"	20"
1%	85'	140'
2%	40'	70'
3%	30'	45'
4%	20'	35'
5%	15'	30'

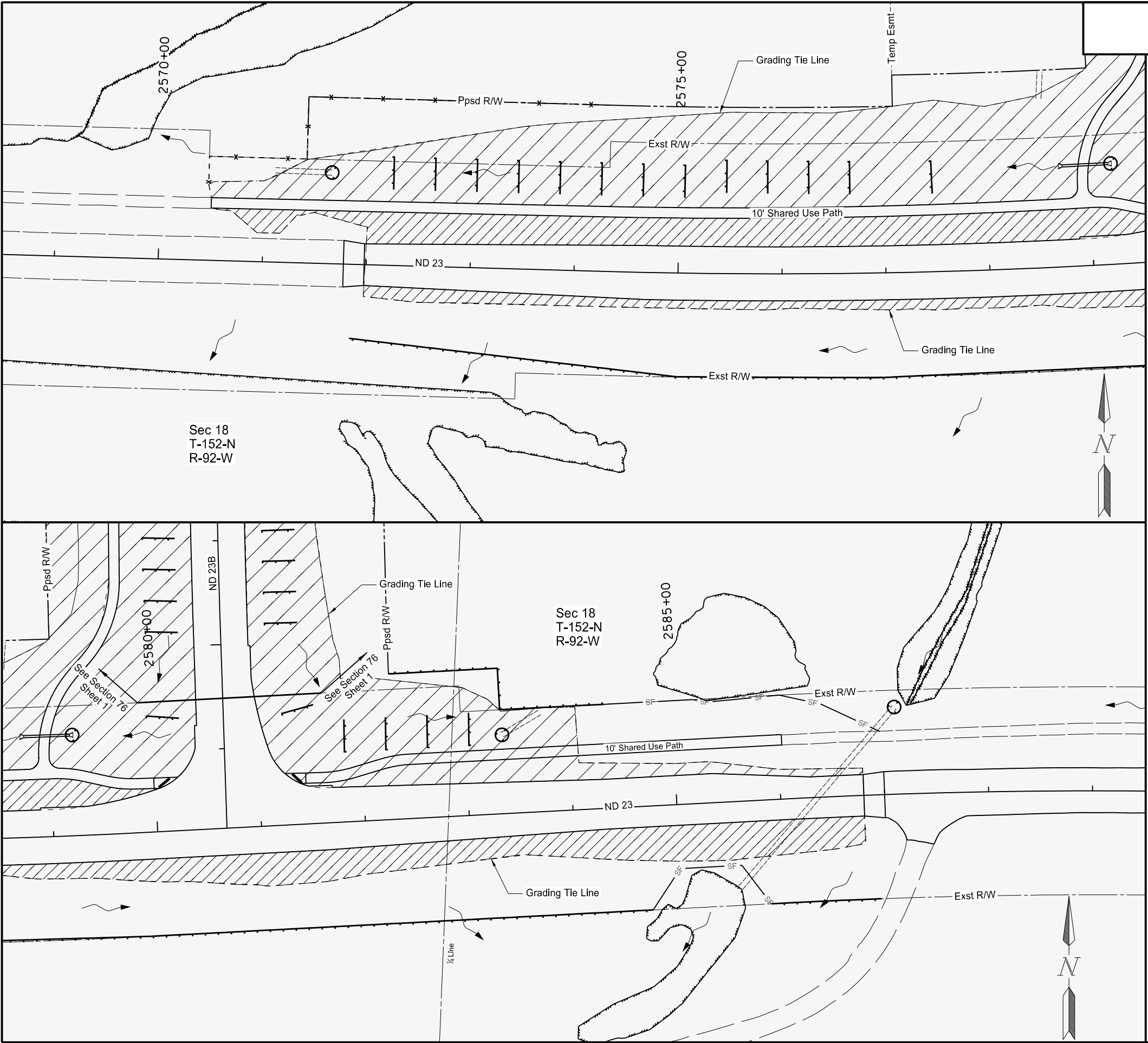
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- Silt Fence
- Temporary Cover Crop & Straw Mulch
- Bonded Fiber Matrix



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ND 23B Truck Reliever Route
Temporary Erosion Control
Sta 48931+00 to Sta 48945+60
(PRND23)





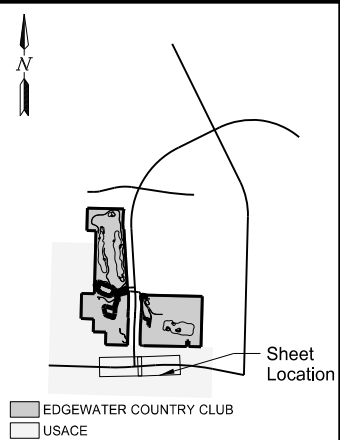
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	AC-NH-SOIB-7-023(041)925	76	6

SPEC	CODE	BID ITEM	QTY	UNIT
251	2000	TEMPORARY COVER CROP		
Sta 2569+00 to Sta 2589+00 Rt			0.78	ACRE
Sta 2569+00 to Sta 2589+00 Lt			2.93	ACRE
253	0101	STRAW MULCH		
Sta 2569+00 to Sta 2589+00 Rt			0.78	ACRE
Sta 2569+00 to Sta 2589+00 Lt			2.93	ACRE
260	0200	SILT FENCE SUPPORTED		
Sta 2569+00 to Sta 2589+00 Rt			154	LF
Sta 2569+00 to Sta 2589+00 Lt			236	LF
260	0201	REMOVE SILT FENCE SUPPORTED		
Sta 2569+00 to Sta 2589+00 Rt			154	LF
Sta 2569+00 to Sta 2589+00 Lt			236	LF
261	0112	FIBER ROLLS 12IN		
Sta 2569+00 to Sta 2589+00 Rt			1,403	LF
Sta 2569+00 to Sta 2589+00 Lt			1,550	LF
261	0113	REMOVE FIBER ROLLS 12IN		
Sta 2569+00 to Sta 2589+00 Rt			1,403	LF
Sta 2569+00 to Sta 2589+00 Lt			1,550	LF

Slope Fiber Roll Spacing		
Grade	Fiber Roll Diameter	
	12"	20"
4:1	60'	80'
3:1	45'	60'

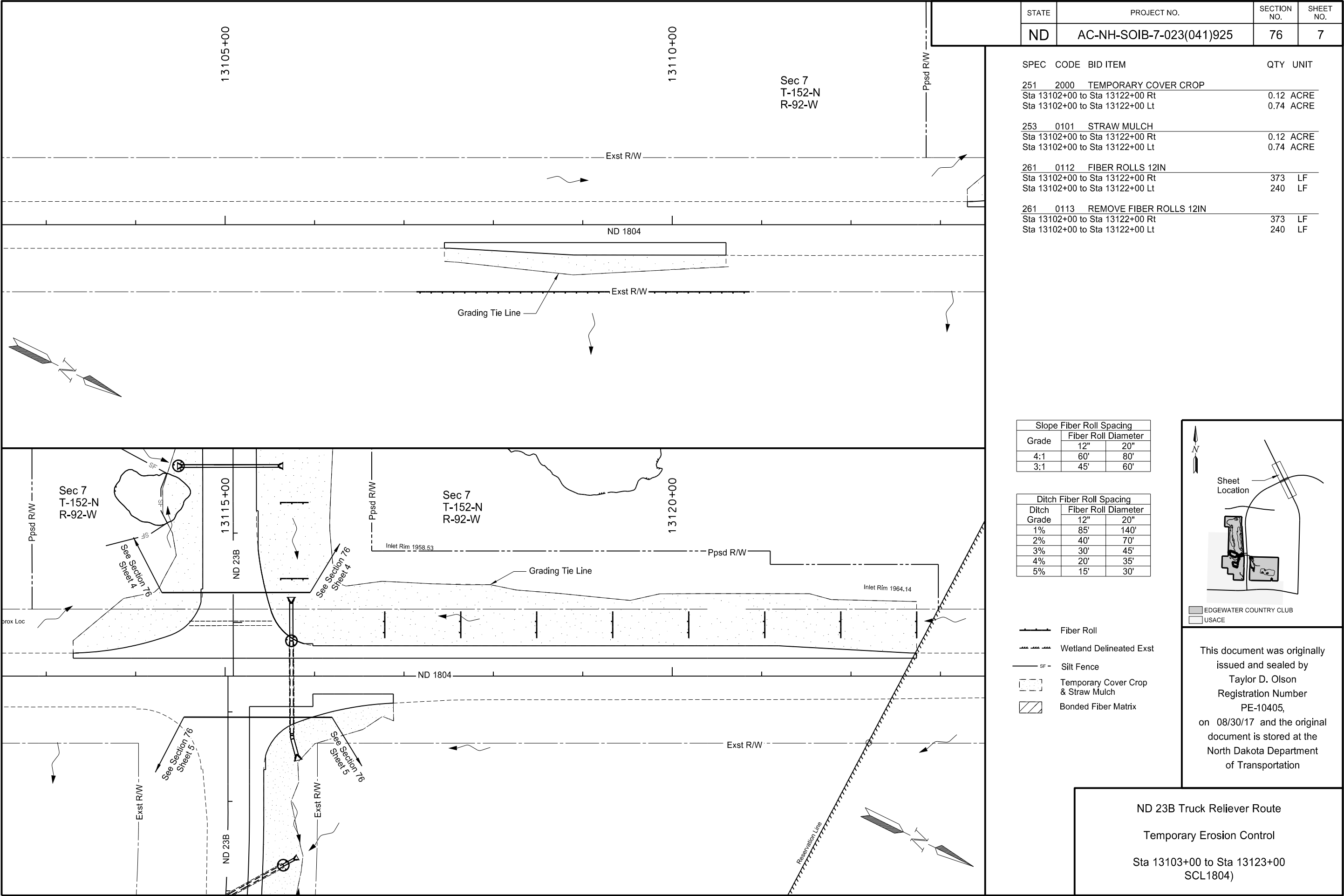
Ditch Fiber Roll Spacing		
Ditch Grade	Fiber Roll Diameter	
	12"	20"
1%	85'	140'
2%	40'	70'
3%	30'	45'
4%	20'	35'
5%	15'	30'

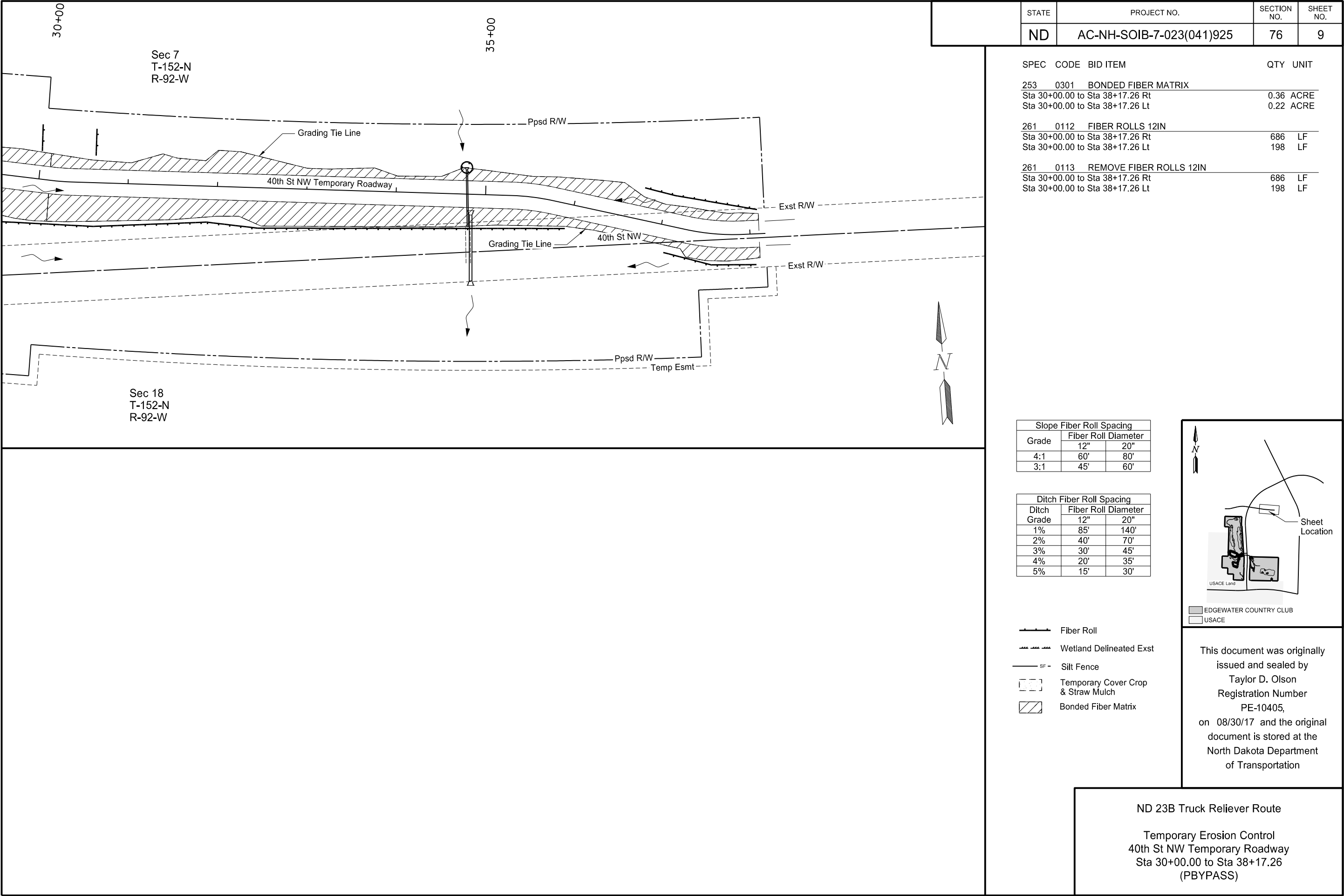
- Fiber Roll
- Wetland Delineated Exst
- Silt Fence
- Temporary Cover Crop & Straw Mulch
- Bonded Fiber Matrix

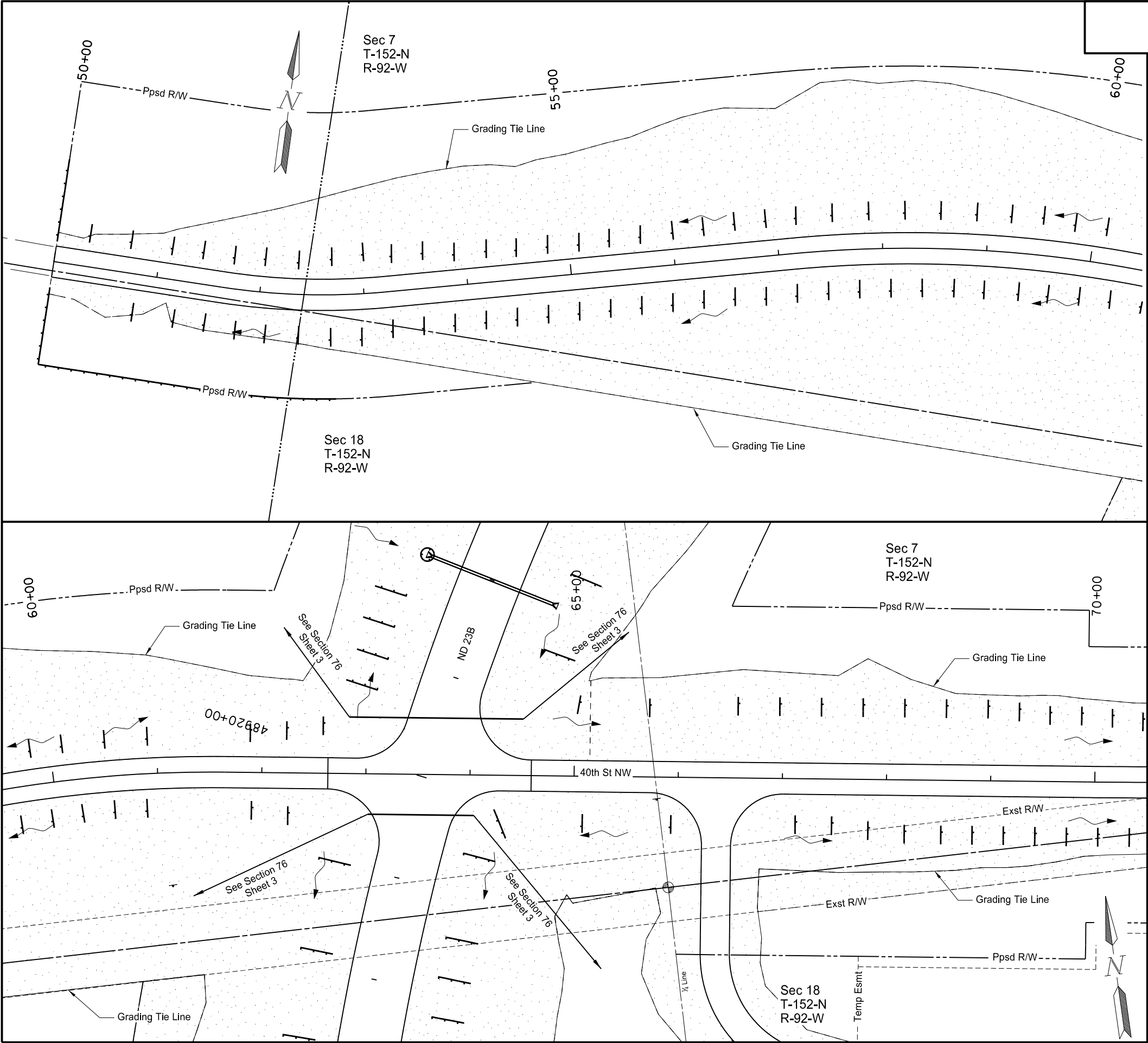


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ND 23B Truck Reliever Route
Temporary Erosion Control
Sta 2569+00 to Sta 2589+00
(SCL23)







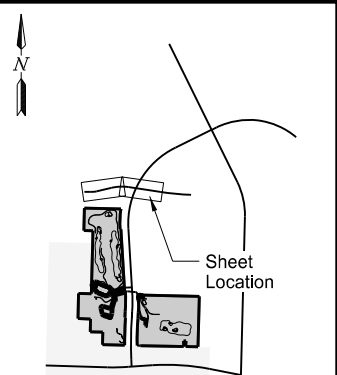
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	AC-NH-SOIB-7-023(041)925	76	10

SPEC	CODE	BID ITEM	QTY	UNIT
253	0301	BONDED FIBER MATRIX		
		Sta 50+00.00 to Sta 70+00.00 Rt	3.98	ACRE
		Sta 50+00.00 to Sta 70+00.00 Lt	3.55	ACRE
261	0112	FIBER ROLLS 12IN		
		Sta 50+00.00 to Sta 70+00.00 Rt	598	LF
		Sta 50+00.00 to Sta 70+00.00 Lt	458	LF
261	0113	REMOVE FIBER ROLLS 12IN		
		Sta 50+00.00 to Sta 70+00.00 Rt	598	LF
		Sta 50+00.00 to Sta 70+00.00 Lt	458	LF
261	0120	FIBER ROLLS 20IN		
		Sta 50+00.00 to Sta 70+00.00 Rt	612	LF
		Sta 50+00.00 to Sta 70+00.00 Lt	504	LF
261	0121	REMOVE FIBER ROLLS 20IN		
		Sta 50+00.00 to Sta 70+00.00 Rt	612	LF
		Sta 50+00.00 to Sta 70+00.00 Lt	504	LF

Slope Fiber Roll Spacing		
Grade	Fiber Roll Diameter	
	12"	20"
4:1	60'	80'
3:1	45'	60'

Ditch Fiber Roll Spacing		
Ditch Grade	Fiber Roll Diameter	
	12"	20"
1%	85'	140'
2%	40'	70'
3%	30'	45'
4%	20'	35'
5%	15'	30'

- Fiber Roll
- Wetland Delineated Exst
- Silt Fence
- Temporary Cover Crop & Straw Mulch
- Bonded Fiber Matrix



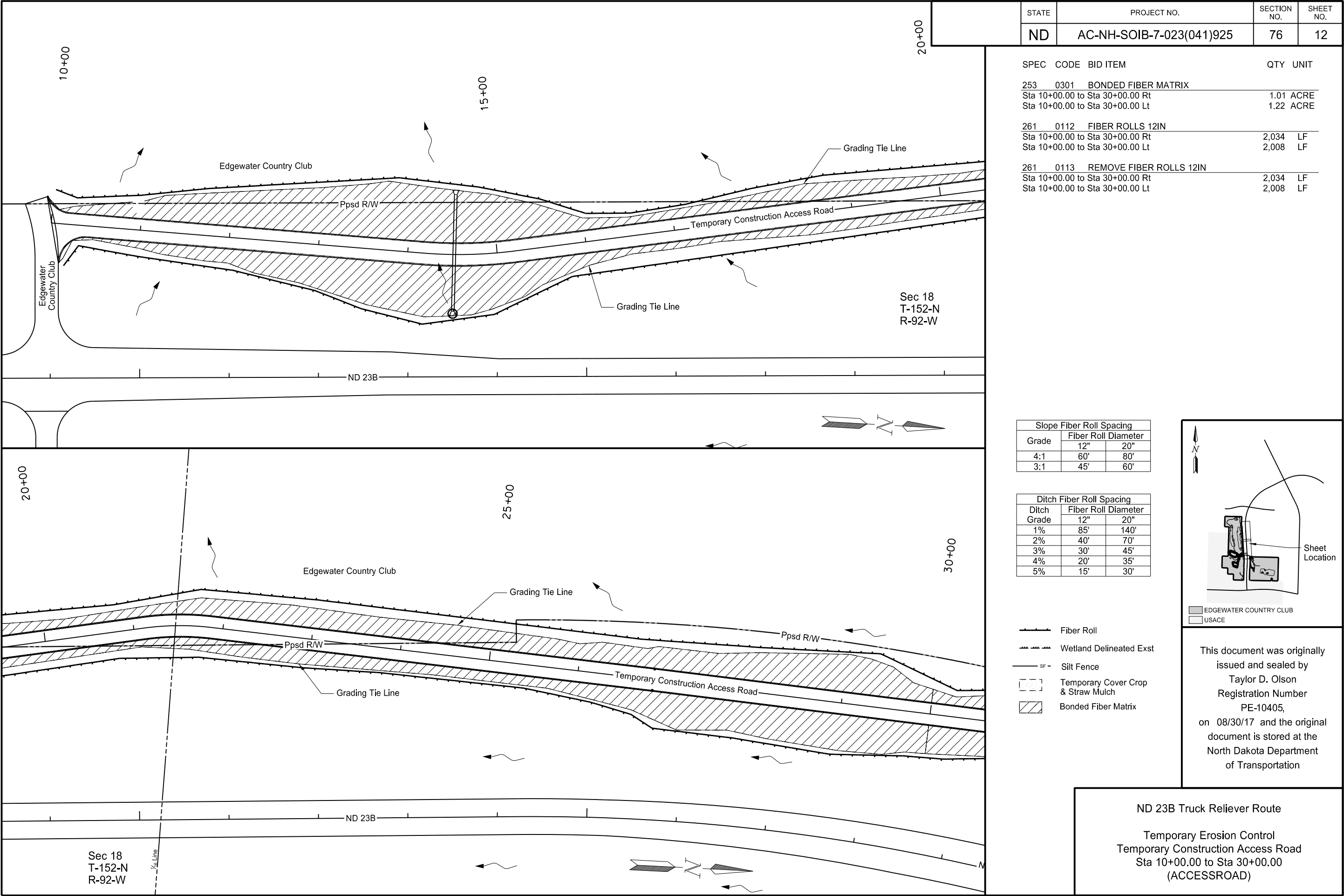
EDGEWATER COUNTRY CLUB
USACE

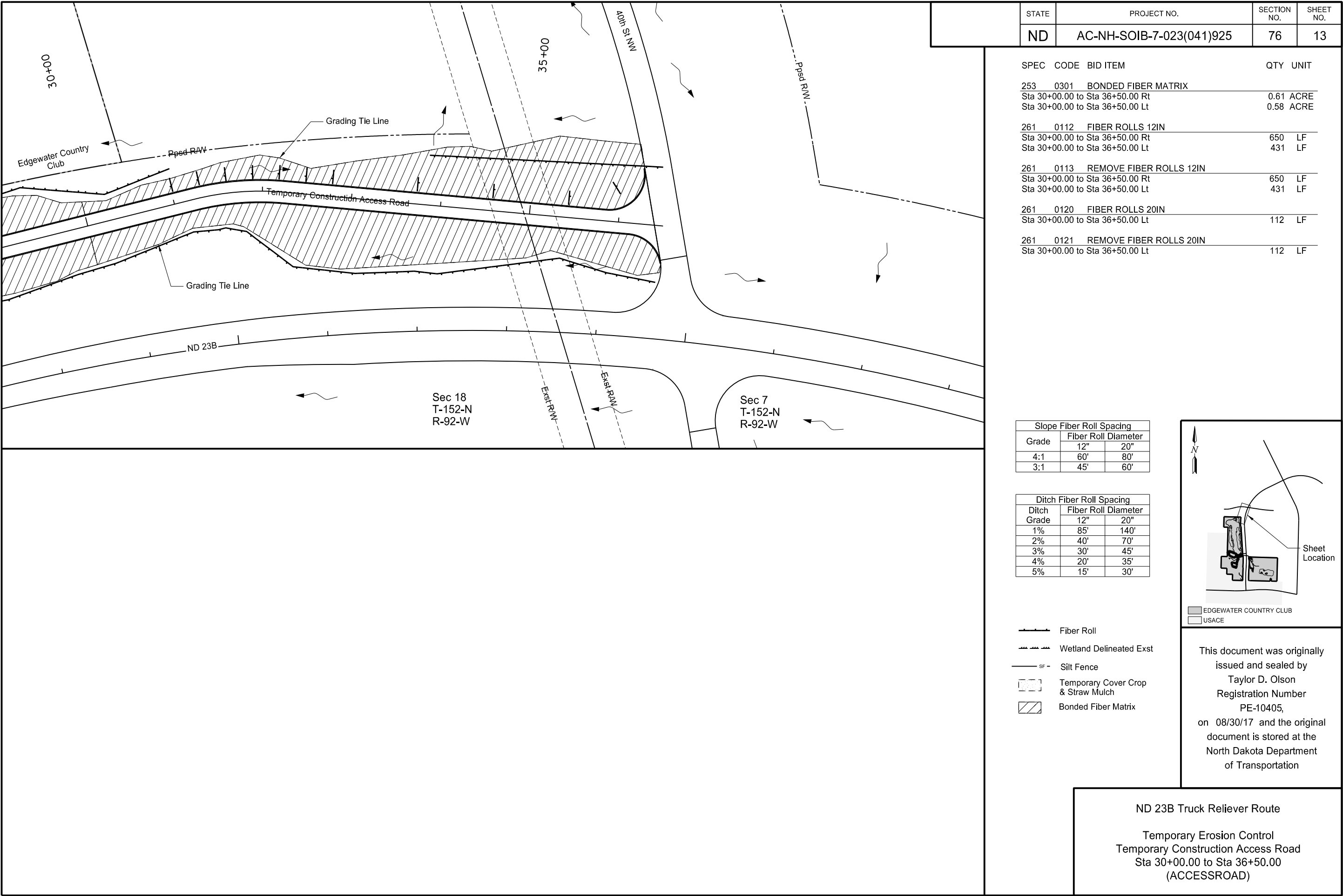
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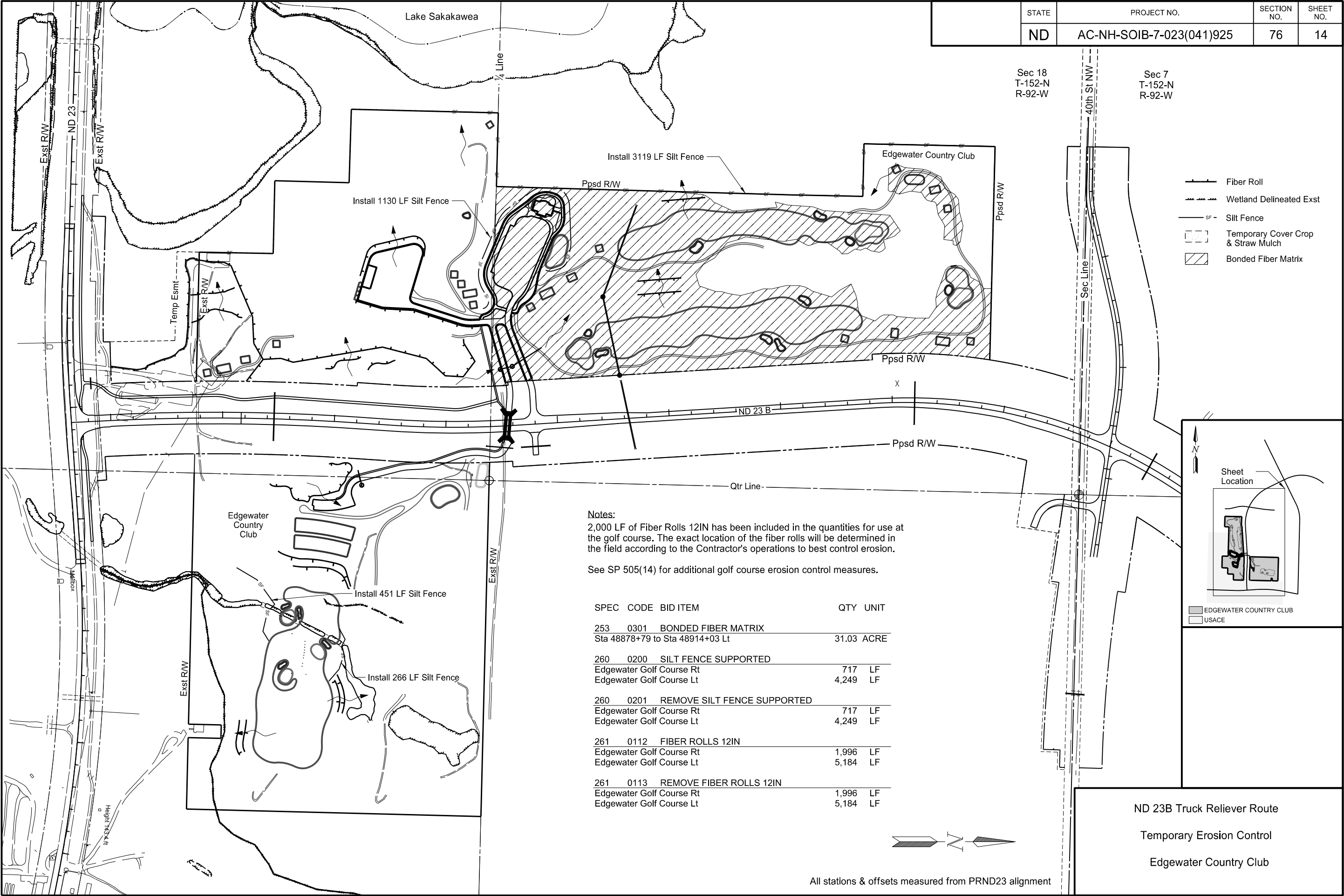
ND 23B Truck Reliever Route

Temporary Erosion Control

Sta 50+00.00 to Sta 70+00.00
(PR40ST)







STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	AC-NH-SOIB-7-023(041)925	76	14

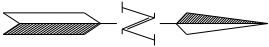
Sec 18
T-152-N
R-92-W

Sec 7
T-152-N
R-92-W

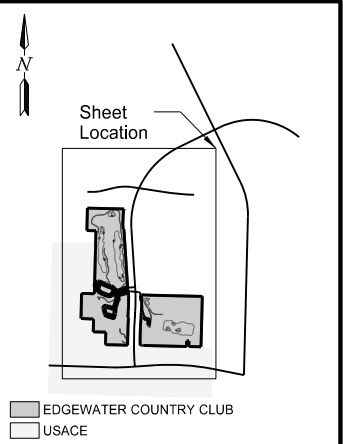
- Fiber Roll
- Wetland Delineated Exst
- Silt Fence
- Temporary Cover Crop & Straw Mulch
- Bonded Fiber Matrix

Notes:
2,000 LF of Fiber Rolls 12IN has been included in the quantities for use at the golf course. The exact location of the fiber rolls will be determined in the field according to the Contractor's operations to best control erosion.
See SP 505(14) for additional golf course erosion control measures.

SPEC	CODE	BID ITEM	QTY	UNIT
253	0301	BONDED FIBER MATRIX		
Sta 48878+79 to Sta 48914+03 Lt			31.03	ACRE
260	0200	SILT FENCE SUPPORTED		
Edgewater Golf Course Rt			717	LF
Edgewater Golf Course Lt			4,249	LF
260	0201	REMOVE SILT FENCE SUPPORTED		
Edgewater Golf Course Rt			717	LF
Edgewater Golf Course Lt			4,249	LF
261	0112	FIBER ROLLS 12IN		
Edgewater Golf Course Rt			1,996	LF
Edgewater Golf Course Lt			5,184	LF
261	0113	REMOVE FIBER ROLLS 12IN		
Edgewater Golf Course Rt			1,996	LF
Edgewater Golf Course Lt			5,184	LF



All stations & offsets measured from PRND23 alignment



ND 23B Truck Reliever Route
Temporary Erosion Control
Edgewater Country Club

Ditch Fiber Rolls			
Alignment	Station	Fiber Rolls 12"	
		Left	Right
ND 23B	48875+14	32	
ND 23B	48875+19		32
ND 23B	48875+44	32	
ND 23B	48875+49		32
ND 23B	48875+74	32	
ND 23B	48875+79		32
ND 23B	48876+04	32	
ND 23B	48876+09		32
ND 23B	48876+34	32	
ND 23B	48876+39		32
ND 23B	48876+64	32	
ND 23B	48876+69		32
ND 23B	48876+94	32	
ND 23B	48876+99		32
ND 23B	48877+24	32	
ND 23B	48877+30		32
ND 23B	48877+54	32	
ND 23B	48877+60		32
ND 23B	48877+84	32	
ND 23B	48877+90		32
ND 23B	48878+14	32	
ND 23B	48878+20		32
ND 23B	48878+44	32	
ND 23B	48878+74	32	
ND 23B	48879+04	32	
ND 23B	48879+34	32	
ND 23B	48879+64	32	
ND 23B	48879+94	32	
ND 23B	48881+69		32
ND 23B	48881+99		32
ND 23B	48882+29		32
ND 23B	48882+59		32
ND 23B	48882+89		32
ND 23B	48883+18		32
ND 23B	48883+48		32
ND 23B	48883+78		32
ND 23B	48884+08		32
ND 23B	48884+38		32
ND 23B	48884+68		32
ND 23B	48884+98		32
ND 23B	48885+82		32
ND 23B	48886+67		32
ND 23B	48887+50		32
ND 23B	48888+37		32
ND 23B	48889+24		32
ND 23B	48890+09		32
ND 23B	48894+85		32
ND 23B	48895+70		32
ND 23B	48913+71	32	
ND 23B	48914+01	32	
ND 23B	48914+31	32	
ND 23B	48914+61	32	
ND 23B	48914+92	32	
ND 23B	48915+22	32	
ND 23B	48915+37		32
ND 23B	48915+52	32	

Ditch Fiber Rolls			
Alignment	Station	Fiber Rolls 12"	
		Left	Right
ND 23B	48915+75		32
ND 23B	48915+82	32	
ND 23B	48916+15		32
ND 23B	48916+42	32	
ND 23B	48916+55		32
ND 23B	48916+72	32	
ND 23B	48916+95		32
ND 23B	48917+03	32	
ND 23B	48917+35		32
ND 23B	48917+33	32	
ND 23B	48917+75		32
ND 23B	48918+15		32
ND 23B	48918+16	32	
ND 23B	48918+55		32
ND 23B	48919+01	32	
ND 23B	48919+39		32
ND 23B	48920+66	32	
ND 23B	48920+96	32	
ND 23B	48921+25	32	
ND 23B	48921+55		32
ND 23B	48921+56	32	
ND 23B	48922+34		32
ND 23B	48922+62	32	
ND 23B	48923+07		32
ND 23B	48923+46	32	
ND 23B	48923+93		32
ND 23B	48924+31	32	
ND 23B	48924+79		32
ND 23B	48925+15	32	
ND 23B	48925+64		32
ND 23B	48926+00	32	
ND 23B	48926+50		32
ND 23B	48927+00	32	
ND 23B	48927+40	32	
ND 23B	48927+50		32
ND 23B	48927+80	32	
ND 23B	48927+90		32
ND 23B	48928+20	32	
ND 23B	48928+30		32
ND 23B	48928+60	32	
ND 23B	48928+70		32
ND 23B	48929+00	32	
ND 23B	48929+10		32
ND 23B	48929+39	32	
ND 23B	48929+50		32
ND 23B	48929+79	32	
ND 23B	48929+90		32
ND 23B	48930+19	32	
ND 23B	48930+30		32
ND 23B	48930+57	32	
ND 23B	48930+70		32
ND 23B	48930+99	32	
ND 23B	48931+10		32
ND 23B	48931+40	32	
ND 23B	48931+50		32
ND 23B	48931+80	32	

Ditch Fiber Rolls			
Alignment	Station	Fiber Rolls 12"	
		Left	Right
ND 23B	48933+65	32	
ND 23B	48933+80		32
ND 23B	48934+04	32	
ND 23B	48934+20		32
ND 23B	48934+43	32	
ND 23B	48934+61		32
ND 23B	48934+82	32	
ND 23B	48935+02		32
ND 23B	48935+21	32	
ND 23B	48935+43		32
ND 23B	48935+61	32	
ND 23B	48935+83		32
ND 23B	48936+01	32	
ND 23B	48936+23		32
ND 23B	48936+41	32	
ND 23B	48936+63		32
ND 23B	48936+81	32	
ND 23B	48937+03		32
ND 23B	48937+21	32	
ND 23B	48937+43		32
ND 23B	48937+61	32	
ND 23B	48937+83		32
ND 23B	48938+01	32	
ND 23B	48938+23		32
ND 23B	48938+41	32	
ND 23B	48938+63		32
ND 23B	48938+81	32	
ND 23B	48939+03		32
ND 23B	48939+21	32	
ND 23B	48939+61	32	
ND 23B	48939+88		32
ND 23B	48940+01	32	
ND 23B	48940+41	32	
ND 23B	48940+73		32
ND 23B	48940+81	32	
ND 23B	48941+21	32	
ND 23B	48941+58		32
ND 23B	48941+61	32	
ND 23B	48942+01	32	
ND 23B	48942+43		32
ND 23B	48942+41	32	
ND 23B	48942+81	32	
ND 23B	48943+66	32	
ND 23B	48944+51	32	
ND 23B	48948+56	30	
ND 23B	48949+42	30	
ND 23B	48950+23	30	
ND 23B	48951+04	30	
ND 23B	48951+85	30	
ND 23B	48952+92	30	
ND 23B	48953+37	30	
ND 23B	48953+79	30	
ND 23B	48957+79	30	
ND 23	2572+24	32	
ND 23	2572+64	32	
ND 23	2573+04	32	

Ditch Fiber Rolls			
Alignment	Station	Fiber Rolls 12"	
		Left	Right
ND 23	2573+44	32	
ND 23	2573+84	32	
ND 23	2574+24	32	
ND 23	2574+65	32	
ND 23	2575+06	32	
ND 23	2575+46	32	
ND 23	2575+86	32	
ND 23	2576+26	32	
ND 23	2576+66	32	
ND 23	2577+06	32	
ND 23	2577+46	32	
ND 23	2578+32	32	
ND 23	2580+10	32	
ND 23	2581+40	32	
ND 23	2581+84	32	
ND 23	2582+24	32	
ND 23	2582+64	32	
ND 23	2583+04	32	
ND 1804	13116+78	30	
ND 1804	13117+63	30	
ND 1804	13118+48	30	
ND 1804	13119+33	30	
ND 1804	13120+18	30	
ND 1804	13121+03	30	
ND 1804	13121+88	30	
ND 1804	13122+73	30	
40th St NW	50+31	18	
40th St NW	50+71	18	
40th St NW	50+82		18
40th St NW	51+11	18	
40th St NW	51+22		18
40th St NW	51+52		18
40th St NW	59+22	18	
40th St NW	59+34		18
40th St NW	59+52	18	
40th St NW	59+63		18
40th St NW	59+82	18	
40th St NW	59+94		18
40th St NW	60+12	18	
40th St NW	60+25		18
40th St NW	60+52	18	
40th St NW	60+56		18
40th St NW	60+88		18
40th St NW	60+92	18	
40th St NW	61+90		18
40th St NW	62+25		18
40th St NW	64+29		18
40th St NW	65+04	18	
40th St NW	65+08		18
40th St NW	65+72	18	
40th St NW	65+93		18
40th St NW	66+57	18	
40th St NW	66+97	18	
40th St NW	67+37	18	
40th St NW	67+77	18	
40th St NW	68+17	18	

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ND 23B Truck Reliever Route

Temporary Erosion Control

Quantity Summary

Ditch Fiber Rolls			
Alignment	Station	Fiber Rolls 12"	
		Left	Right
40th St NW	68+57	18	
40th St NW	68+97	18	
40th St NW	69+27	18	
40th St NW	69+56	18	
40th St NW	69+87	18	
40th St NW	70+17	18	
40th St NW	70+46	18	
40th St NW	70+76	18	
40th St NW	71+06	18	
40th St NW	71+36	18	
40th St NW	71+66	18	
40th St NW	71+96	18	
40th St NW	72+26	18	
40th St NW	72+56	18	
40th St NW	72+86	18	
40th St NW	73+16	18	
40th St NW	73+33		18
40th St NW	73+46	18	
40th St NW	73+63		18
40th St NW	73+76	18	
40th St NW	73+93		18
40th St NW	74+06	18	
40th St NW	74+23		18
40th St NW	75+20		18
40th St NW	75+30	18	
40th St NW	75+49		18
40th St NW	75+75	18	
40th St NW	75+79		18
40th St NW	76+08		18
40th St NW	76+21	18	
40th St NW	76+38		18
40th St NW	76+66	18	
40th St NW	76+69		18
40th St NW	76+97		18
40th St NW	77+11	18	
40th St NW	77+27		18
40th St NW	77+57	18	18
40th St NW	77+87		18
40th St NW	78+02	18	
40th St Temp Road	10+48	10	
40th St Temp Road	10+80	10	
40th St Temp Road	11+09	10	
40th St Temp Road	11+39	10	
40th St Temp Road	11+69	10	
40th St Temp Road	11+99	10	
40th St Temp Road	19+44	10	
40th St Temp Road	20+29	10	
40th St Temp Road	21+13	10	
40th St Temp Road	22+55	10	
40th St Temp Road	22+75	10	
40th St Temp Road	22+95	10	
40th St Temp Road	23+15	10	
40th St Temp Road	23+35	10	
40th St Temp Road	23+55	10	
40th St Temp Road	23+75	10	
40th St Temp Road	23+95	10	

Ditch Fiber Rolls			
Alignment	Station	Fiber Rolls 12"	
		Left	Right
40th St Temp Road	24+15	10	
40th St Temp Road	24+35	10	
40th St Temp Road	24+55	10	
40th St Temp Road	24+75	10	
40th St Temp Road	24+95	10	
40th St Temp Road	25+80	10	
40th St Temp Road	26+65	10	
40th St Temp Road	27+50	10	
40th St Temp Road	28+35	10	
40th St Temp Road	29+39	30	
40th St Temp Road	29+99	30	
40th St Temp Road	30+63	30	
Access Road	33+73	16	
Access Road	34+58	16	
Access Road	35+43	16	
Access Road	36+28	16	

Ditch Fiber Rolls			
Alignment	Station	Fiber Rolls 20"	
		Left	Right
40th St NW	51+41	18	
40th St NW	51+72	18	
40th St NW	51+81		18
40th St NW	52+03	18	
40th St NW	52+08		18
40th St NW	52+36	18	
40th St NW	52+38		18
40th St NW	52+68		18
40th St NW	52+70	18	
40th St NW	52+96		18
40th St NW	53+02	18	
40th St NW	53+25		18
40th St NW	53+30	18	
40th St NW	53+55		18
40th St NW	53+60	18	
40th St NW	53+85		18
40th St NW	53+90	18	
40th St NW	54+15		18
40th St NW	54+21	18	
40th St NW	54+45	18	18
40th St NW	54+50	18	
40th St NW	54+75		18
40th St NW	54+80	18	
40th St NW	55+05		18
40th St NW	55+10	18	
40th St NW	55+35		18
40th St NW	55+40	18	
40th St NW	55+65		18
40th St NW	55+70	18	
40th St NW	55+95		18
40th St NW	56+01	18	
40th St NW	56+25		18
40th St NW	56+30	18	
40th St NW	56+55		18
40th St NW	56+61	18	
40th St NW	56+84		18
40th St NW	56+91	18	
40th St NW	57+14		18
40th St NW	57+20	18	
40th St NW	57+45		18
40th St NW	57+54	18	
40th St NW	57+76		18
40th St NW	57+88	18	
40th St NW	58+07		18
40th St NW	58+22	18	
40th St NW	58+38		18
40th St NW	58+55	18	
40th St NW	58+70		18
40th St NW	58+89	18	
40th St NW	59+00		18
40th St NW	61+89	18	
40th St NW	62+24	18	
40th St NW	62+59	18	
40th St NW	67+13		18
40th St NW	67+48		18
40th St NW	67+83		18

Ditch Fiber Rolls			
Alignment	Station	Fiber Rolls 20"	
		Left	Right
40th St NW	68+18		18
40th St NW	68+53		18
40th St NW	68+83		18
40th St NW	69+13		18
40th St NW	69+43		18
40th St NW	69+73		18
40th St NW	70+03		18
40th St NW	70+33		18
40th St NW	70+63		18
40th St NW	70+93		18
40th St NW	71+23		18
40th St NW	71+53		18
40th St NW	71+83		18
40th St NW	72+13		18
40th St NW	72+43		18
40th St NW	72+73		18
40th St NW	73+03		18
40th St Temp Road	12+29	10	
40th St Temp Road	12+59	10	
40th St Temp Road	12+89	10	
40th St Temp Road	13+19	10	
40th St Temp Road	13+49	10	
40th St Temp Road	13+79	10	
40th St Temp Road	14+09	10	
40th St Temp Road	14+39	10	
40th St Temp Road	14+69	10	
40th St Temp Road	14+99	10	
40th St Temp Road	15+29	10	
40th St Temp Road	15+59	10	
40th St Temp Road	15+89	10	
40th St Temp Road	16+19	10	
40th St Temp Road	16+49	10	
40th St Temp Road	16+79	10	
40th St Temp Road	17+09	10	
40th St Temp Road	17+39	10	
40th St Temp Road	17+69	10	
40th St Temp Road	17+99	10	
40th St Temp Road	18+29	10	
40th St Temp Road	18+58	10	
40th St Temp Road	18+85	10	
40th St Temp Road	19+14	10	
Access Road	31+02	16	
Access Road	31+32	16	
Access Road	31+61	16	
Access Road	31+89	16	
Access Road	32+18	16	
Access Road	32+48	16	

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ND 23B Truck Reliever Route
Temporary Erosion Control
Quantity Summary

Pipe End Section Fiber Rolls			
Alignment	Station	Fiber Rolls 12"	
		Left	Right
ND 23B	48882+30	40	
ND 23B	48893+39		40
ND 23B	48898+50		40
ND 23B	48911+00		40
ND 23B	48922+00	40	
ND 23B	48932+15		40
ND 23B	48932+30	40	
ND 23B	48943+25		40
ND 23B	48945+21	40	
ND 23B	48947+69	40	
ND 23B	48952+54	40	
ND 23B	48955+94	40	
ND 23B	48959+22	40	
ND 23	2571+65	40	
ND 23	2579+22	40	
ND 23	2583+35	40	
ND 23	2587+12	40	
40th St NW	74+71	40	
40th St Temp Road	34+78	40	
Access Road	14+50		40

R/W Fiber Rolls			
Alignment	Station to Station	Fiber Rolls 12"	
		Left	Right
ND 23B	48879+00 to 48886+20		700
ND 23B	48890+16 to 48892+89		284
ND 23B	48890+21 to 48892+23	194	
ND 23B	48892+29 to 48892+80	49	
ND 23B	48893+04 to 48893+73	69	
ND 23B	48894+00 to 48911+00	1700	
ND 23B	48899+07 to 48916+80		1839
ND 23	2570+46 to 2574+32	473	
ND 23	2572+91 to 2584+72		1258
ND 23	2582+29 to 2584+35	331	
ND 23	2585+86 to 2586+93		115
ND 1804	13107+14 to 13110+87		373
40th St NW	50+00 to 53+00		300
40th St NW	73+24 to 76+31		337
40th St Temp Road	10+00 to 10+00	85	56

Silt Fence			
Alignment	Station to Station	Silt Fence	
		Left	Right
ND 23B	48943+03 to 48944+15		199
ND 23B	48955+65 to 48956+42	67	
ND 23B	48958+64 to 48959+76	167	
ND 23	2584+35 to 2586+57	237	
ND 23	2584+72 to 2585+86		154

Slope Fiber Rolls			
Alignment	Station to Station	Fiber Rolls 12"	
		Left	Right
ND 23B	48878+16 to 48881+41		327
ND 23B	48880+87 to 48892+31	1145	
40th St Temp Road	13+44 to 14+41		100
40th St Temp Road	14+38 to 15+84		150
40th St Temp Road	15+32 to 17+75		250
40th St Temp Road	16+08 to 23+34	753	
40th St Temp Road	16+62 to 26+13		1089
40th St Temp Road	26+77 to 35+95		1045
40th St Temp Road	36+73 to 38+09	128	
40th St Temp Road	37+09 to 38+06		106
Access Road	10+02 to 31+04	2114	
Access Road	10+18 to 36+47		2664
Access Road	33+83 to 36+44	262	

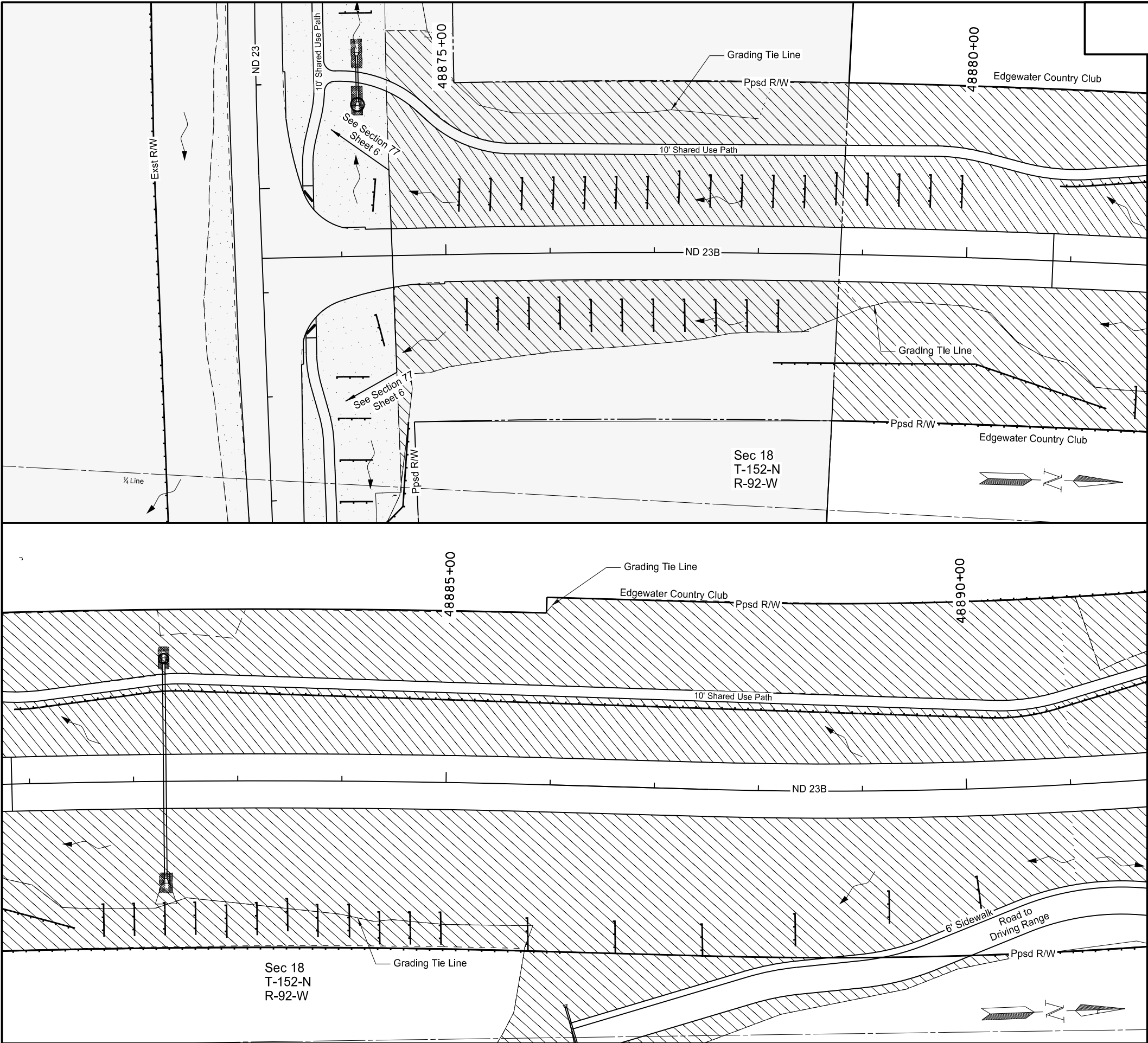
Slope Fiber Rolls			
Alignment	Station to Station	Fiber Rolls 20"	
		Left	Right
ND 23B	48894+75 to 48900+72	655	
ND 23B	48895+42 to 48899+76	453	
ND 23B	48896+49 to 48900+15		510
ND 23B	48900+24 to 48901+52	150	
ND 23B	48900+30 to 48900+95		150
ND 23B	48901+04 to 48902+32	150	
ND 23B	48901+10 to 48901+75		150
ND 23B	48901+84 to 48903+12	150	
ND 23B	48901+90 to 48902+55		150
ND 23B	48902+64 to 48903+92	150	
ND 23B	48902+70 to 48903+35		150
ND 23B	48903+44 to 48904+72	150	
ND 23B	48903+50 to 48904+15		150
ND 23B	48904+24 to 48905+52	150	
ND 23B	48904+30 to 48904+95		150
ND 23B	48905+04 to 48906+32	150	
ND 23B	48905+10 to 48905+75		150
ND 23B	48905+84 to 48907+12	150	
ND 23B	48905+90 to 48906+55		150
ND 23B	48906+64 to 48907+92	150	
ND 23B	48906+70 to 48907+35		150
ND 23B	48907+44 to 48908+72	150	
ND 23B	48907+50 to 48908+15		150
ND 23B	48908+30 to 48908+95		150
ND 23B	48909+10 to 48909+80		150
ND 23B	48909+15 to 48909+45	100	
ND 23B	48909+92 to 48910+67		150
ND 23B	48909+93 to 48910+19	100	
ND 23B	48910+69 to 48910+93	100	
ND 23B	48911+41 to 48911+53		100
ND 23B	48911+57 to 48911+76	100	
ND 23B	48912+13 to 48912+30		110
ND 23B	48912+37 to 48912+60	140	
ND 23B	48912+84 to 48913+07		120
ND 23B	48913+24 to 48913+43	150	
ND 23B	48913+55 to 48913+82		120

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ND 23B Truck Reliever Route

Temporary Erosion Control

Quantity Summary



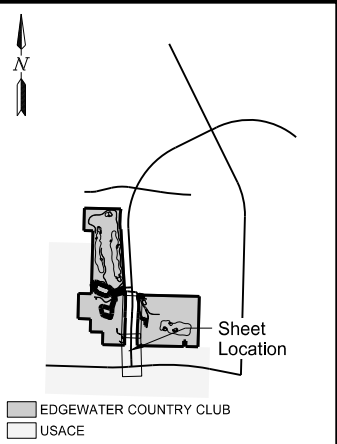
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	AC-NH-SOIB-7-023(041)925	77	1

SPEC	CODE	BID ITEM	QTY	UNIT
251	0300	SEEDING CLASS III		
Sta 48873+23.45 to Sta 48891+00 RT			4.65	ACRE
Sta 48873+23.45 to Sta 48891+00 LT			4.93	ACRE
253	0201	HYDRAULIC MULCH		
Sta 48873+23.45 to Sta 48891+00 RT			4.65	ACRE
Sta 48873+23.45 to Sta 48891+00 LT			4.93	ACRE
261	0112	FIBER ROLLS 12IN		
Sta 48873+23.45 to Sta 48891+00 RT			2,030	LF
Sta 48873+23.45 to Sta 48891+00 LT			1,673	LF

Slope Fiber Roll Spacing		
Grade	Fiber Roll Diameter	
	12"	20"
4:1	60'	80'
3:1	45'	60'

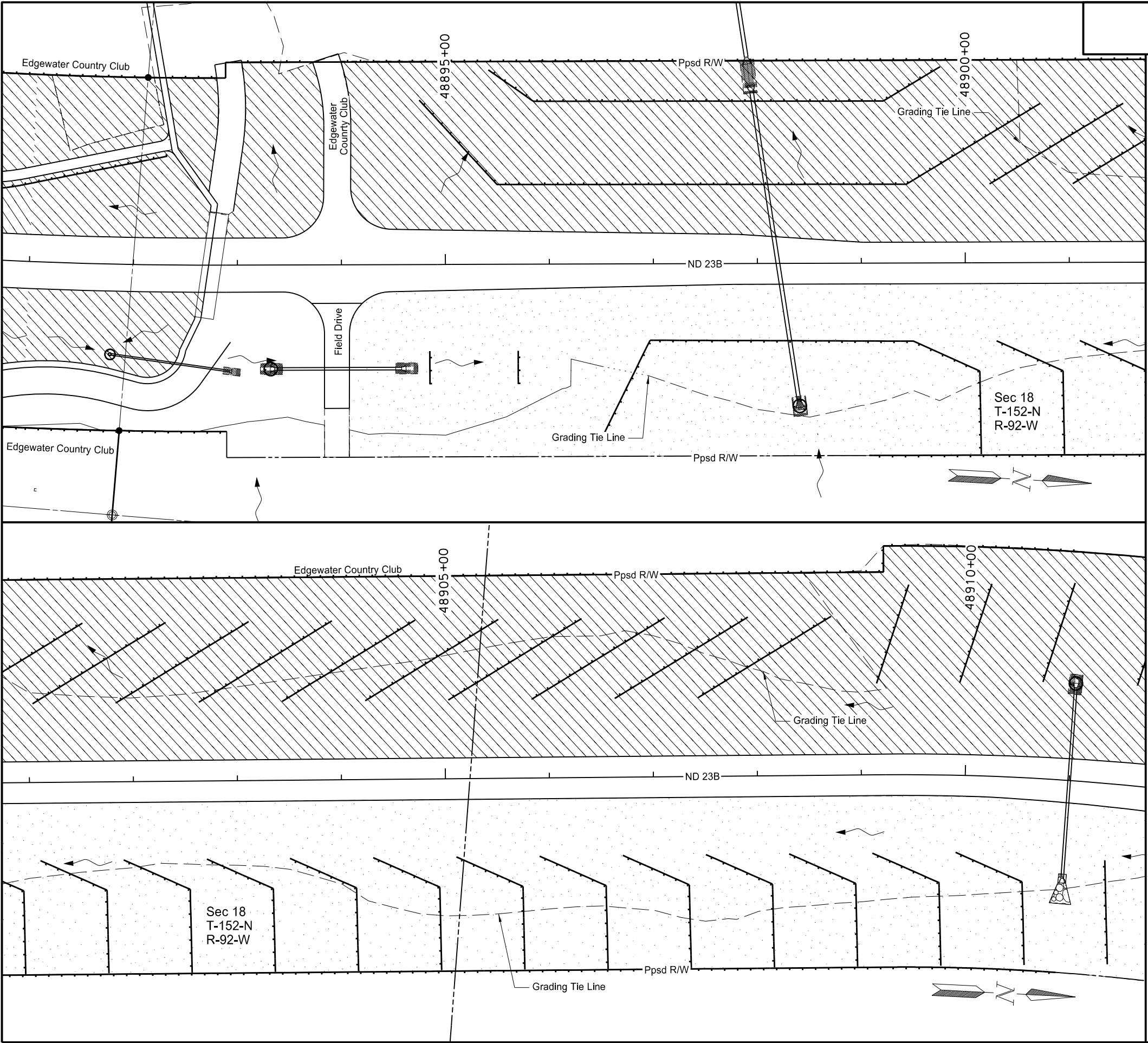
Ditch Fiber Roll Spacing		
Ditch Grade	Fiber Roll Diameter	
	12"	20"
1%	85'	140'
2%	40'	70'
3%	30'	45'
4%	20'	35'
5%	15'	30'

- Fiber Roll
- Wetland Delineated Exst
- Seeding CL II & Hydraulic Mulch
- Seeding CL III & Hydraulic Mulch
- Erosion Control Blanket (See Sec 20 Sheet 3)
- Riprap (See Sec 20 Sheet 5)



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ND 23B Truck Reliever Route
Permanent Erosion Control
Sta 48873+23.45 to Sta 48891+00
(PRND23)



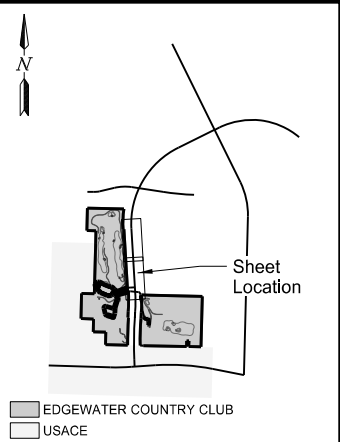
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	AC-NH-SOIB-7-023(041)925	77	2

SPEC	CODE	BID ITEM	QTY	UNIT
251	0200	SEEDING CLASS II		
Sta 48891+00 to Sta 48911+00 RT			6.39	ACRE
251	0300	SEEDING CLASS III		
Sta 48891+00 to Sta 48911+00 RT			0.80	ACRE
Sta 48891+00 to Sta 48911+00 LT			7.69	ACRE
253	0101	STRAW MULCH		
Sta 48891+00 to Sta 48911+00 RT			6.39	ACRE
253	0201	HYDRAULIC MULCH		
Sta 48891+00 to Sta 48911+00 RT			0.80	ACRE
Sta 48891+00 to Sta 48911+00 LT			7.69	ACRE
261	0112	FIBER ROLLS 12IN		
Sta 48891+00 to Sta 48911+00 RT			1,558	LF
Sta 48891+00 to Sta 48911+00 LT			2,109	LF
261	0120	FIBER ROLLS 20IN		
Sta 48891+00 to Sta 48911+00 RT			2,459	LF
Sta 48891+00 to Sta 48911+00 LT			2,907	LF

Slope Fiber Roll Spacing		
Grade	Fiber Roll Diameter	
	12"	20"
4:1	60'	80'
3:1	45'	60'

Ditch Fiber Roll Spacing		
Ditch Grade	Fiber Roll Diameter	
	12"	20"
1%	85'	140'
2%	40'	70'
3%	30'	45'
4%	20'	35'
5%	15'	30'

- Fiber Roll
- Wetland Delineated Exst
- Seeding CL II & Straw Mulch
- Seeding CL III & Hydraulic Mulch
- Erosion Control Blanket (See Sec 20 Sheet 3)
- Riprap (See Sec 20 Sheet 5)



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ND 23B Truck Reliever Route
Permanent Erosion Control
Sta 48891+00 to Sta 48911+00
(PRND23)



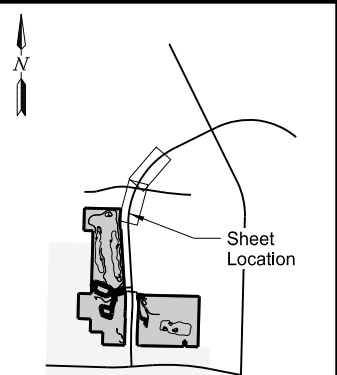
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	AC-NH-SOIB-7-023(041)925	77	3

SPEC	CODE	BID ITEM	QTY	UNIT
251	0200	SEEDING CLASS II		
Sta 48911+00 to Sta 48931+00 RT			5.47	ACRE
Sta 48911+00 to Sta 48931+00 LT			6.90	ACRE
251	0300	SEEDING CLASS III		
Sta 48911+00 to Sta 48931+00 RT			1.88	ACRE
Sta 48911+00 to Sta 48931+00 LT			1.44	ACRE
253	0101	STRAW MULCH		
Sta 48911+00 to Sta 48931+00 RT			5.47	ACRE
Sta 48911+00 to Sta 48931+00 LT			6.90	ACRE
253	0201	HYDRAULIC MULCH		
Sta 48911+00 to Sta 48931+00 RT			1.88	ACRE
Sta 48911+00 to Sta 48931+00 LT			1.44	ACRE
261	0112	FIBER ROLLS 12IN		
Sta 48911+00 to Sta 48931+00 RT			1,054	LF
Sta 48911+00 to Sta 48931+00 LT			1,160	LF
261	0120	FIBER ROLLS 20IN		
Sta 48911+00 to Sta 48931+00 RT			450	LF
Sta 48911+00 to Sta 48931+00 LT			390	LF

Slope Fiber Roll Spacing		
Grade	Fiber Roll Diameter	
	12"	20"
4:1	60'	80'
3:1	45'	60'

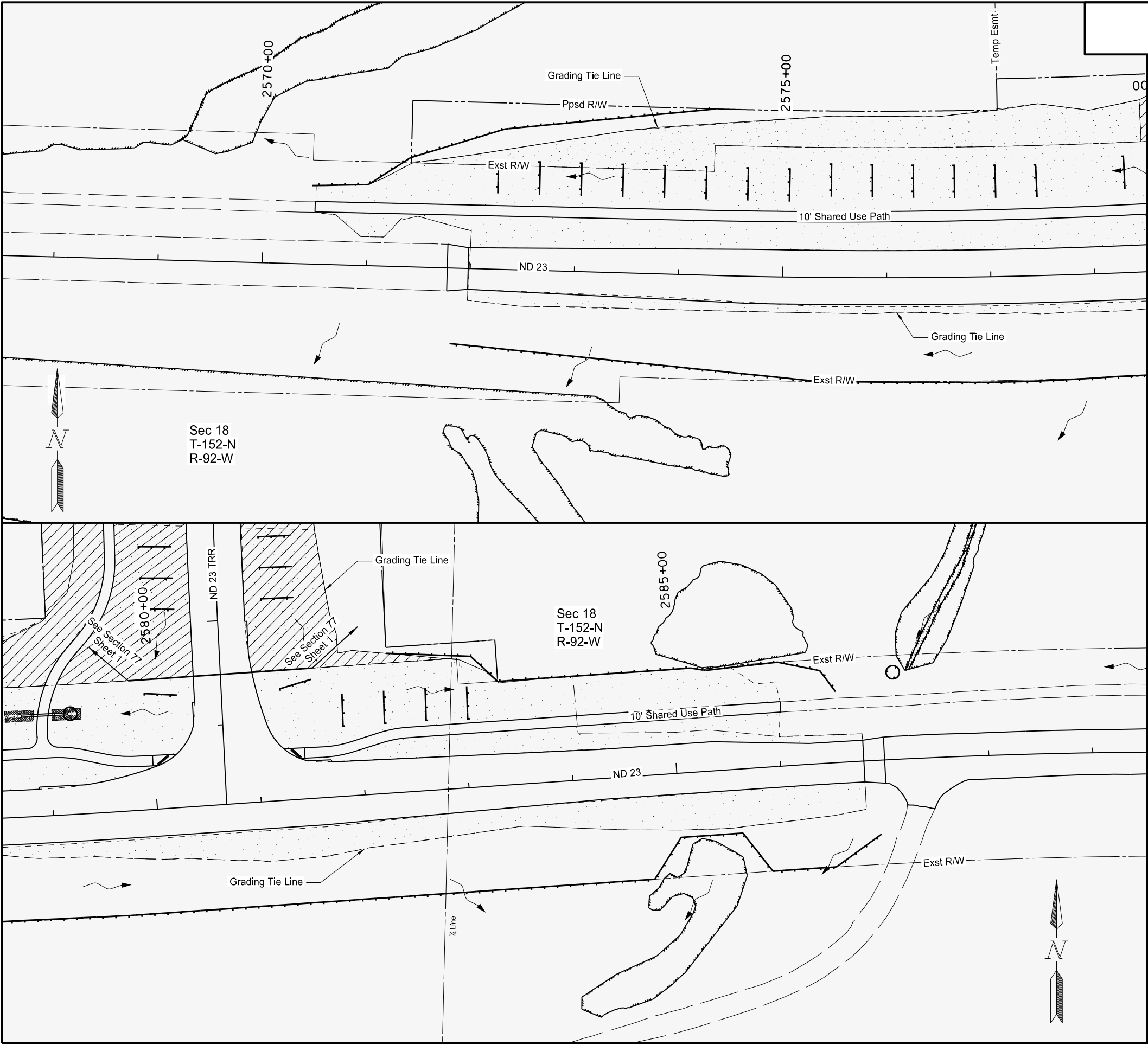
Ditch Fiber Roll Spacing		
Ditch Grade	Fiber Roll Diameter	
	12"	20"
1%	85'	140'
2%	40'	70'
3%	30'	45'
4%	20'	35'
5%	15'	30'

- Fiber Roll
- Wetland Delineated Exst
- Seeding CL II & Straw Mulch
- Seeding CL III & Hydraulic Mulch
- Erosion Control Blanket (See Sec 20 Sheet 3)
- Riprap (See Sec 20 Sheet 5)



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ND 23B Truck Reliever Route
Permanent Erosion Control
Sta 48911+00 to Sta 48931+00 (PRND23)



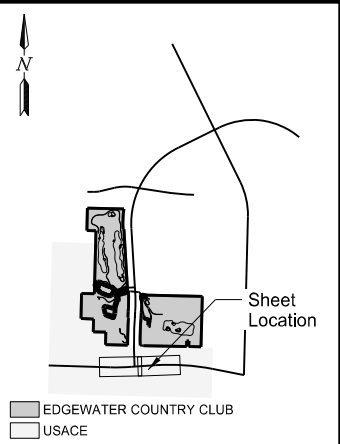
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	AC-NH-SOIB-7-023(041)925	77	6

SPEC	CODE	BID ITEM	QTY	UNIT
251	0200	SEEDING CLASS II		
Sta 2569+00 to Sta 2589+00 RT			0.78	ACRE
Sta 2569+00 to Sta 2589+00 LT			2.93	ACRE
253	0101	STRAW MULCH		
Sta 2569+00 to Sta 2589+00 RT			0.78	ACRE
Sta 2569+00 to Sta 2589+00 LT			2.93	ACRE
261	0112	FIBER ROLLS 12IN		
Sta 2569+00 to Sta 2589+00 RT			1,403	LF
Sta 2569+00 to Sta 2589+00 LT			1,550	LF

Slope Fiber Roll Spacing		
Grade	Fiber Roll Diameter	
	12"	20"
4:1	60'	80'
3:1	45'	60'

Ditch Fiber Roll Spacing		
Ditch Grade	Fiber Roll Diameter	
	12"	20"
1%	85'	140'
2%	40'	70'
3%	30'	45'
4%	20'	35'
5%	15'	30'

- Fiber Roll
- Wetland Delineated Exst
- Seeding CL II & Straw Mulch
- Seeding CL III & Hydraulic Mulch
- Erosion Control Blanket (See Sec 20 Sheet 3)
- Riprap (See Sec 20 Sheet 5)



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ND 23B Truck Reliever Route

Permanent Erosion Control

Sta 2569+00 to Sta 2589+00
(SCL23)

Ditch Fiber Rolls			
Alignment	Station	Fiber Rolls 12"	
		Left	Right
ND 23B	48875+14	32	
ND 23B	48875+19		32
ND 23B	48875+44	32	
ND 23B	48875+49		32
ND 23B	48875+74	32	
ND 23B	48875+79		32
ND 23B	48876+04	32	
ND 23B	48876+09		32
ND 23B	48876+34	32	
ND 23B	48876+39		32
ND 23B	48876+64	32	
ND 23B	48876+69		32
ND 23B	48876+94	32	
ND 23B	48876+99		32
ND 23B	48877+24	32	
ND 23B	48877+30		32
ND 23B	48877+54	32	
ND 23B	48877+60		32
ND 23B	48877+84	32	
ND 23B	48877+90		32
ND 23B	48878+14	32	
ND 23B	48878+20		32
ND 23B	48878+44	32	
ND 23B	48878+74	32	
ND 23B	48879+04	32	
ND 23B	48879+34	32	
ND 23B	48879+64	32	
ND 23B	48879+94	32	
ND 23B	48881+69		32
ND 23B	48881+99		32
ND 23B	48882+29		32
ND 23B	48882+59		32
ND 23B	48882+89		32
ND 23B	48883+18		32
ND 23B	48883+48		32
ND 23B	48883+78		32
ND 23B	48884+08		32
ND 23B	48884+38		32
ND 23B	48884+68		32
ND 23B	48884+98		32
ND 23B	48885+82		32
ND 23B	48886+67		32
ND 23B	48887+50		32
ND 23B	48888+37		32
ND 23B	48889+24		32
ND 23B	48890+09		32
ND 23B	48894+85		32
ND 23B	48895+70		32
ND 23B	48913+71	32	
ND 23B	48914+01	32	
ND 23B	48914+31	32	
ND 23B	48914+61	32	
ND 23B	48914+92	32	
ND 23B	48915+22	32	
ND 23B	48915+37		32
ND 23B	48915+52	32	

Ditch Fiber Rolls			
Alignment	Station	Fiber Rolls 12"	
		Left	Right
ND 23B	48915+75		32
ND 23B	48915+82	32	
ND 23B	48916+15		32
ND 23B	48916+42		32
ND 23B	48916+55		32
ND 23B	48916+72	32	
ND 23B	48916+95		32
ND 23B	48917+03	32	
ND 23B	48917+35		32
ND 23B	48917+33	32	
ND 23B	48917+75		32
ND 23B	48918+15		32
ND 23B	48918+16	32	
ND 23B	48918+55		32
ND 23B	48919+01	32	
ND 23B	48919+39		32
ND 23B	48920+66	32	
ND 23B	48920+96	32	
ND 23B	48921+25	32	
ND 23B	48921+55		32
ND 23B	48921+56	32	
ND 23B	48922+34		32
ND 23B	48922+62	32	
ND 23B	48923+07		32
ND 23B	48923+46	32	
ND 23B	48923+93		32
ND 23B	48924+31	32	
ND 23B	48924+79		32
ND 23B	48925+15	32	
ND 23B	48925+64		32
ND 23B	48926+00	32	
ND 23B	48926+50		32
ND 23B	48927+00	32	
ND 23B	48927+40	32	
ND 23B	48927+50		32
ND 23B	48927+80	32	
ND 23B	48927+90		32
ND 23B	48928+20	32	
ND 23B	48928+30		32
ND 23B	48928+60	32	
ND 23B	48928+70		32
ND 23B	48929+00	32	
ND 23B	48929+10		32
ND 23B	48929+39	32	
ND 23B	48929+50		32
ND 23B	48929+79	32	
ND 23B	48929+90		32
ND 23B	48930+19	32	
ND 23B	48930+30		32
ND 23B	48930+57	32	
ND 23B	48930+70		32
ND 23B	48930+99	32	
ND 23B	48931+10		32
ND 23B	48931+40	32	
ND 23B	48931+50		32
ND 23B	48931+80	32	

Ditch Fiber Rolls			
Alignment	Station	Fiber Rolls 12"	
		Left	Right
ND 23B	48933+65	32	
ND 23B	48933+80		32
ND 23B	48934+04	32	
ND 23B	48934+20		32
ND 23B	48934+43	32	
ND 23B	48934+61		32
ND 23B	48934+82	32	
ND 23B	48935+02		32
ND 23B	48935+21	32	
ND 23B	48935+43		32
ND 23B	48935+61	32	
ND 23B	48935+83		32
ND 23B	48936+01	32	
ND 23B	48936+23		32
ND 23B	48936+41	32	
ND 23B	48936+63		32
ND 23B	48936+81	32	
ND 23B	48937+03		32
ND 23B	48937+21	32	
ND 23B	48937+43		32
ND 23B	48937+61	32	
ND 23B	48937+83		32
ND 23B	48938+01	32	
ND 23B	48938+23		32
ND 23B	48938+41	32	
ND 23B	48938+63		32
ND 23B	48938+81	32	
ND 23B	48939+03		32
ND 23B	48939+21	32	
ND 23B	48939+61	32	
ND 23B	48939+88		32
ND 23B	48940+01	32	
ND 23B	48940+41	32	
ND 23B	48940+73		32
ND 23B	48940+81	32	
ND 23B	48941+21	32	
ND 23B	48941+58		32
ND 23B	48941+61	32	
ND 23B	48942+01	32	
ND 23B	48942+43		32
ND 23B	48942+41	32	
ND 23B	48942+81	32	
ND 23B	48943+66	32	
ND 23B	48948+56	30	
ND 23B	48949+42	30	
ND 23B	48950+23	30	
ND 23B	48951+04	30	
ND 23B	48951+85	30	
ND 23B	48952+92	30	
ND 23B	48953+37	30	
ND 23B	48953+79	30	
ND 23B	48957+79	30	
ND 23	2572+24	32	
ND 23	2572+64	32	
ND 23	2573+04	32	
ND 23	2573+44	32	

Ditch Fiber Rolls			
Alignment	Station	Fiber Rolls 12"	
		Left	Right
ND 23	2573+84	32	
ND 23	2574+24	32	
ND 23	2574+65	32	
ND 23	2575+06	32	
ND 23	2575+46	32	
ND 23	2575+86	32	
ND 23	2576+26	32	
ND 23	2576+66	32	
ND 23	2577+06	32	
ND 23	2577+46	32	
ND 23	2578+32	32	
ND 23	2580+10	32	
ND 23	2581+40	32	
ND 23	2581+84	32	
ND 23	2582+24	32	
ND 23	2582+64	32	
ND 23	2583+04	32	
ND 1804	13116+78	30	
ND 1804	13117+63	30	
ND 1804	13118+48	30	
ND 1804	13119+33	30	
ND 1804	13120+18	30	
ND 1804	13121+03	30	
ND 1804	13121+88	30	
ND 1804	13122+73	30	
40th St NW	50+31	18	
40th St NW	50+71	18	
40th St NW	50+82		18
40th St NW	51+11	18	
40th St NW	51+22		18
40th St NW	51+52		18
40th St NW	59+22	18	
40th St NW	59+34		18
40th St NW	59+52	18	
40th St NW	59+63		18
40th St NW	59+82	18	
40th St NW	59+94		18
40th St NW	60+12	18	
40th St NW	60+25		18
40th St NW	60+52	18	
40th St NW	60+56		18
40th St NW	60+88		18
40th St NW	60+92	18	
40th St NW	61+90		18
40th St NW	62+25		18
40th St NW	64+29		18
40th St NW	65+04	18	
40th St NW	65+08		18
40th St NW	65+72	18	
40th St NW	65+93		18
40th St NW	66+57	18	
40th St NW	66+97	18	
40th St NW	67+37	18	
40th St NW	67+77	18	
40th St NW	68+17	18	
40th St NW	68+57	18	

Ditch Fiber Rolls			
Alignment	Station	Fiber Rolls 12"	
		Left	Right
40th St NW	68+97	18	
40th St NW	69+27	18	
40th St NW	69+56	18	
40th St NW	69+87	18	
40th St NW	70+17	18	
40th St NW	70+46	18	
40th St NW	70+76	18	
40th St NW	71+06	18	
40th St NW	71+36	18	
40th St NW	71+66	18	
40th St NW	71+96	18	
40th St NW	72+26	18	
40th St NW	72+56	18	
40th St NW	72+86	18	
40th St NW	73+16	18	
40th St NW	73+33		18
40th St NW	73+46	18	
40th St NW	73+63		18
40th St NW	73+76	18	
40th St NW	73+93		18
40th St NW	74+06	18	
40th St NW	74+23		18
40th St NW	75+20		18
40th St NW	75+30	18	
40th St NW	75+49		18
40th St NW	75+75	18	
40th St NW	75+79		18
40th St NW	76+08		18
40th St NW	76+21	18	
40th St NW	76+38		18
40th St NW	76+66	18	
40th St NW	76+69		18
40th St NW	76+97		18
40th St NW	77+11	18	
40th St NW	77+27		18
40th St NW	77+57	18	
40th St NW	77+87		18
40th St NW	78+02	18	

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ND 23B Truck Reliever Route

Permanent Erosion Control

Quantity Summary

Ditch Fiber Rolls			
Alignment	Station	Fiber Rolls 20"	
		Left	Right
40th St NW	51+41	18	
40th St NW	51+72	18	
40th St NW	51+81		18
40th St NW	52+03	18	
40th St NW	52+08		18
40th St NW	52+36	18	
40th St NW	52+38		18
40th St NW	52+68		18
40th St NW	52+70	18	
40th St NW	52+96		18
40th St NW	53+02	18	
40th St NW	53+25		18
40th St NW	53+30	18	
40th St NW	53+55		18
40th St NW	53+60	18	
40th St NW	53+85		18
40th St NW	53+90	18	
40th St NW	54+15		18
40th St NW	54+21	18	
40th St NW	54+45	18	18
40th St NW	54+50	18	
40th St NW	54+75		18
40th St NW	54+80	18	
40th St NW	55+05		18
40th St NW	55+10	18	
40th St NW	55+35		18
40th St NW	55+40	18	
40th St NW	55+65		18
40th St NW	55+70	18	
40th St NW	55+95		18
40th St NW	56+01	18	
40th St NW	56+25		18
40th St NW	56+30	18	
40th St NW	56+55		18
40th St NW	56+61	18	
40th St NW	56+84		18
40th St NW	56+91	18	
40th St NW	57+14		18
40th St NW	57+20	18	
40th St NW	57+45		18
40th St NW	57+54	18	
40th St NW	57+76		18
40th St NW	57+88	18	
40th St NW	58+07		18
40th St NW	58+22	18	
40th St NW	58+38		18
40th St NW	58+55	18	
40th St NW	58+70		18
40th St NW	58+89	18	
40th St NW	59+00		18
40th St NW	61+89	18	
40th St NW	62+24	18	
40th St NW	62+59	18	
40th St NW	67+13		18
40th St NW	67+48		18
40th St NW	67+83		18

Ditch Fiber Rolls			
Alignment	Station	Fiber Rolls 20"	
		Left	Right
40th St NW	68+18		18
40th St NW	68+53		18
40th St NW	68+83		18
40th St NW	69+13		18
40th St NW	69+43		18
40th St NW	69+73		18
40th St NW	70+03		18
40th St NW	70+33		18
40th St NW	70+63		18
40th St NW	70+93		18
40th St NW	71+23		18
40th St NW	71+53		18
40th St NW	71+83		18
40th St NW	72+13		18
40th St NW	72+43		18
40th St NW	72+73		18
40th St NW	73+03		18

Pipe End Section Fiber Rolls			
Alignment	Station	Fiber Rolls 12"	
		Left	Right
ND 23B	48882+30	40	
ND 23B	48891+79		40
ND 23B	48893+39		40
ND 23B	48898+50		40
ND 23B	48911+00		40
ND 23B	48922+00	40	
ND 23B	48932+15		40
ND 23B	48932+30	40	
ND 23B	48943+25		40
ND 23B	48944+65	40	
ND 23B	48947+61	40	
ND 23B	48952+47	40	
ND 23B	48955+90	40	
ND 23B	48959+21	40	
ND 23	2579+22	40	
ND 23	2587+12	40	
40th St NW	74+75	40	

R/W Fiber Rolls			
Alignment	Station to Station	Fiber Rolls 12"	
		Left	Right
ND 23B	48874+66 to 48886+20		1135
ND 23B	48890+16 to 48892+89		284
ND 23B	48890+21 to 48892+23	194	
ND 23B	48892+29 to 48892+80	49	
ND 23B	48893+04 to 48893+73	69	
ND 23B	48894+00 to 48917+58	2467	
ND 23B	48899+07 to 48916+80		1839
ND 23	2570+46 to 2574+32	473	
ND 23	2572+91 to 2584+72		1258
ND 23	2582+29 to 2584+35	331	
ND 23	2585+86 to 2586+93		115
ND 1804	13107+14 to 13110+87		373
40th St NW	50+00 to 50+00	80	
40th St NW	50+00 to 60+73		1126
40th St NW	73+24 to 76+31		337

Slope Fiber Rolls			
Alignment	Station to Station	Fiber Rolls 12"	
		Left	Right
ND 23B	48878+16 to 48881+41		327
ND 23B	48880+87 to 48892+31	1145	

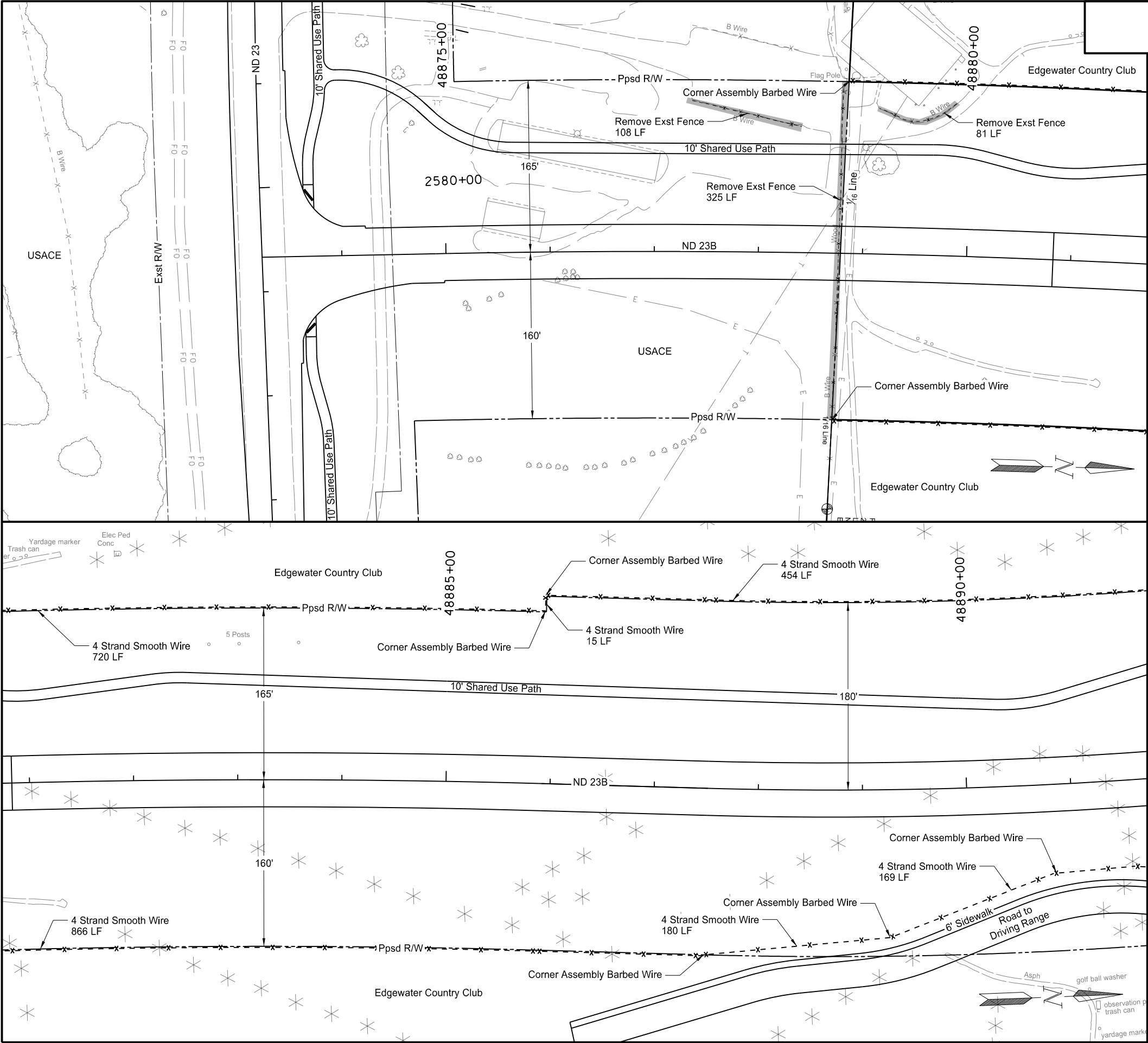
Slope Fiber Rolls			
Alignment	Station to Station	Fiber Rolls 20"	
		Left	Right
ND 23B	48894+75 to 48900+72	655	
ND 23B	48895+42 to 48899+76	453	
ND 23B	48896+49 to 48900+15		510
ND 23B	48900+24 to 48901+52	150	
ND 23B	48900+30 to 48900+95		150
ND 23B	48901+04 to 48902+32	150	
ND 23B	48901+10 to 48901+75		150
ND 23B	48901+84 to 48903+12	150	
ND 23B	48901+90 to 48902+55		150
ND 23B	48902+64 to 48903+92	150	
ND 23B	48902+70 to 48903+35		150
ND 23B	48903+44 to 48904+72	150	
ND 23B	48903+50 to 48904+15		150
ND 23B	48904+24 to 48905+52	150	
ND 23B	48904+30 to 48904+95		150
ND 23B	48905+04 to 48906+32	150	
ND 23B	48905+10 to 48905+75		150
ND 23B	48905+84 to 48907+12	150	
ND 23B	48905+90 to 48906+55		150
ND 23B	48906+64 to 48907+92	150	
ND 23B	48906+70 to 48907+35		150
ND 23B	48907+44 to 48908+72	150	
ND 23B	48907+50 to 48908+15		150
ND 23B	48908+30 to 48908+95		150
ND 23B	48909+10 to 48909+80		150
ND 23B	48909+15 to 48909+45	100	
ND 23B	48909+92 to 48910+67		150
ND 23B	48909+93 to 48910+19	100	
ND 23B	48910+69 to 48910+93	100	
ND 23B	48911+41 to 48911+53		100
ND 23B	48911+57 to 48911+76	100	
ND 23B	48912+13 to 48912+30		110
ND 23B	48912+37 to 48912+60	140	
ND 23B	48912+84 to 48913+07		120
ND 23B	48913+24 to 48913+43	150	
ND 23B	48913+55 to 48913+82		120

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ND 23B Truck Reliever Route

Permanent Erosion Control

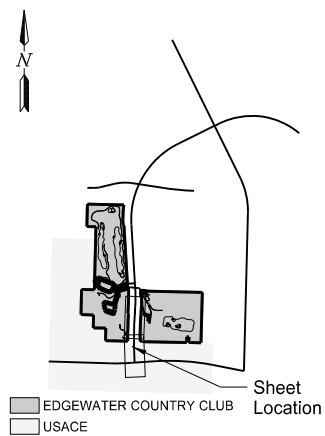
Quantity Summary



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	AC-NH-SOIB-7-023(041)925	80	1

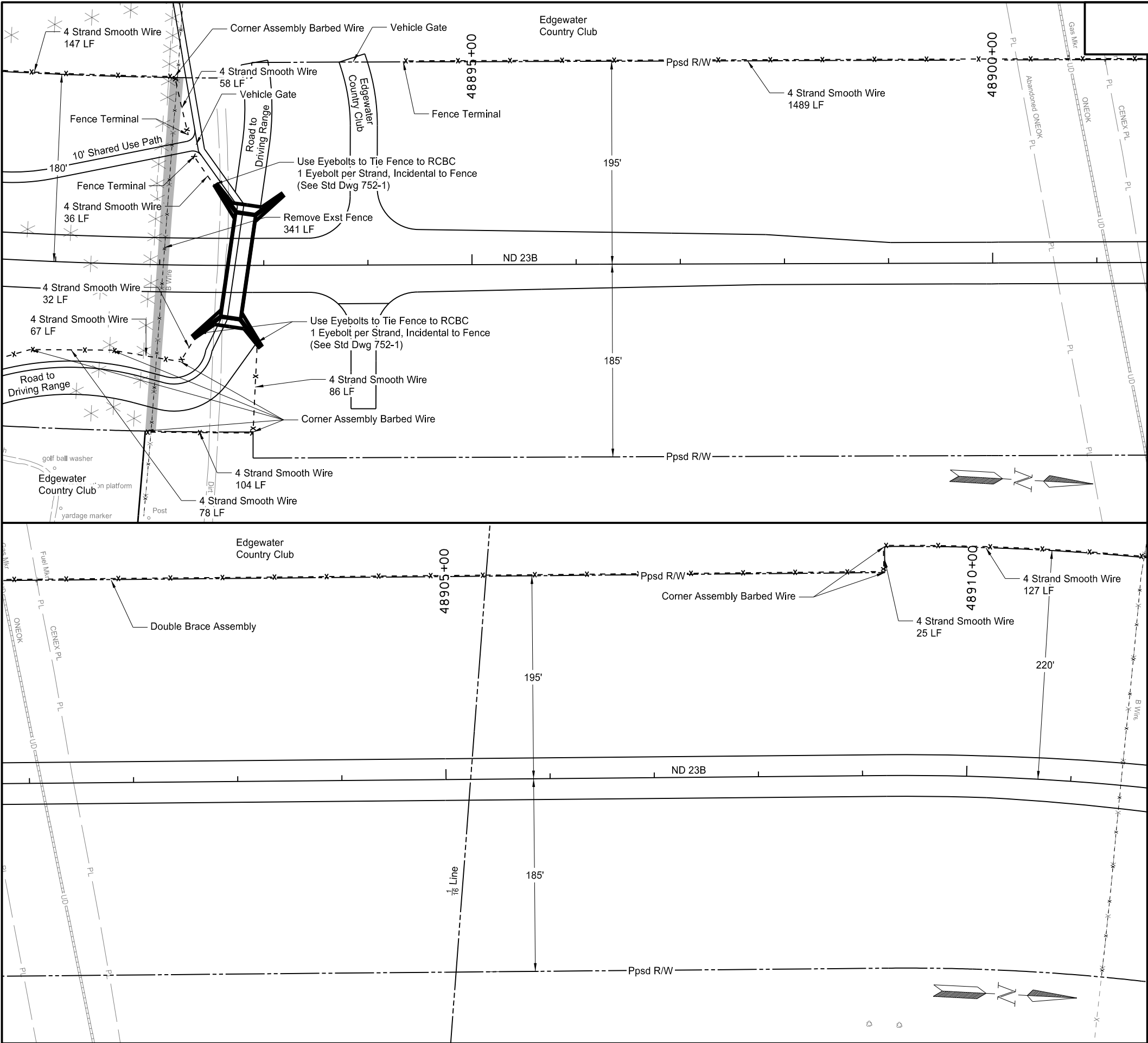
SPEC CODE	BID ITEM	QTY	UNIT
202	0312 REMOVE EXISTING FENCE		
	Sta 48877+36-145' Lt to Sta 48878+40-121' Lt	108	LF
	Sta 48878+83-164' Lt to Sta 48878+73-160' Rt	325	LF
	Sta 48879+14-140' Lt to Sta 48879+86-147' Lt	81	LF
752	0201 FENCE SMOOTH WIRE 4 STRAND		
	Sta 48878+73-161' Rt to Sta 48887+52-161' Rt	866	LF
	Sta 48878+85-166' Lt to Sta 48885+92-166' Lt	719	LF
	Sta 48885+92-166' Lt to Sta 48885+92-181' Lt	15	LF
	Sta 48885+92-181' Lt to Sta 48890+59-181' Lt	454	LF
	Sta 48887+52-161' Rt to Sta 48889+25-143' Rt	180	LF
	Sta 48889+25-143' Rt to Sta 48890+80-85' Rt	169	LF
752	3140 CORNER ASSEMBLY BARBED WIRE		
	Sta 48878+85-166' Lt	1	EA
	Sta 48878+73-161' Rt	1	EA
	Sta 48885+92-166' Lt	1	EA
	Sta 48885+92-181' Lt	1	EA
	Sta 48887+52-161' Rt	1	EA
	Sta 48889+25-143' Rt	1	EA

Notes:
1. Place fence 1' inside the edge of the Right-of-Way.



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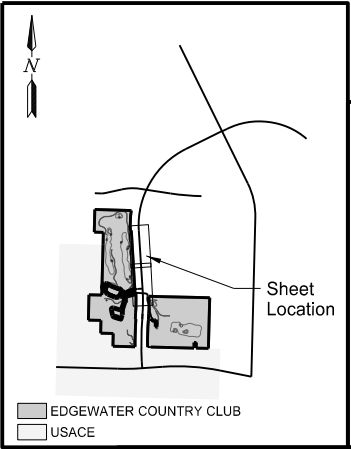
ND 23B Truck Reliever Route
Fencing Layout
Sta 48873+23.45 to Sta 48891+00
(PRND23)



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	AC-NH-SOIB-7-023(041)925	80	2

SPEC CODE	BID ITEM	QTY	UNIT
202	0312 REMOVE EXISTING FENCE		
	Sta 48892+15-180' Lt to Sta 48891+95-160' Rt	341	LF
752	0201 FENCE SMOOTH WIRE 4 STRAND		
	Sta 48890+80-85' Rt to Sta 48891+56-83' Rt	78	LF
	Sta 48891+56-83' Rt to Sta 48892+21-93' Rt	67	LF
	Sta 48892+21-93' Rt to Sta 48892+37-66' Rt	32	LF
	Sta 48891+89-160' Rt to Sta 48892+89-160' Rt	104	LF
	Sta 48892+89-160' Rt to Sta 48892+94-74' Rt	86	LF
	Sta 48890+59-181' Lt to Sta 48892+12-181' Lt	147	LF
	Sta 48892+12-181' Lt to Sta 48892+26-125' Lt	58	LF
	Sta 48892+31-106' Lt to Sta 48892+52-77' Lt	36	LF
	Sta 48894+35-196' Lt to Sta 48909+23-196' Lt	1,489	LF
	Sta 48909+23-196' Lt to Sta 48909+23-221' Lt	25	LF
	Sta 48909+23-221' Lt to Sta 48910+39-221' Lt	127	LF
752	0993 FENCE TERMINAL		
	Sta 48892+26-125' Lt	1	EA
	Sta 48892+31-106' Lt	1	EA
	Sta 48894+35-196' Lt	1	EA
752	2100 VEHICLE GATE		
	Sta 48892+35 Lt	1	EA
	Sta 48894+10 Lt	1	EA
752	3140 CORNER ASSEMBLY BARBED WIRE		
	Sta 48890+80-85' Rt	1	EA
	Sta 48891+56-83' Rt	1	EA
	Sta 48891+89-160' Rt	1	EA
	Sta 48892+12-181' Lt	1	EA
	Sta 48892+21-93' Rt	1	EA
	Sta 48892+90-160' Rt	1	EA
	Sta 48909+23-196' Lt	1	EA
	Sta 48909+23-221' Lt	1	EA
752	4100 DOUBLE BRACE ASSEMBLY BARBED WIRE		
	Sta 48901+79-196' Lt	1	EA

Notes:
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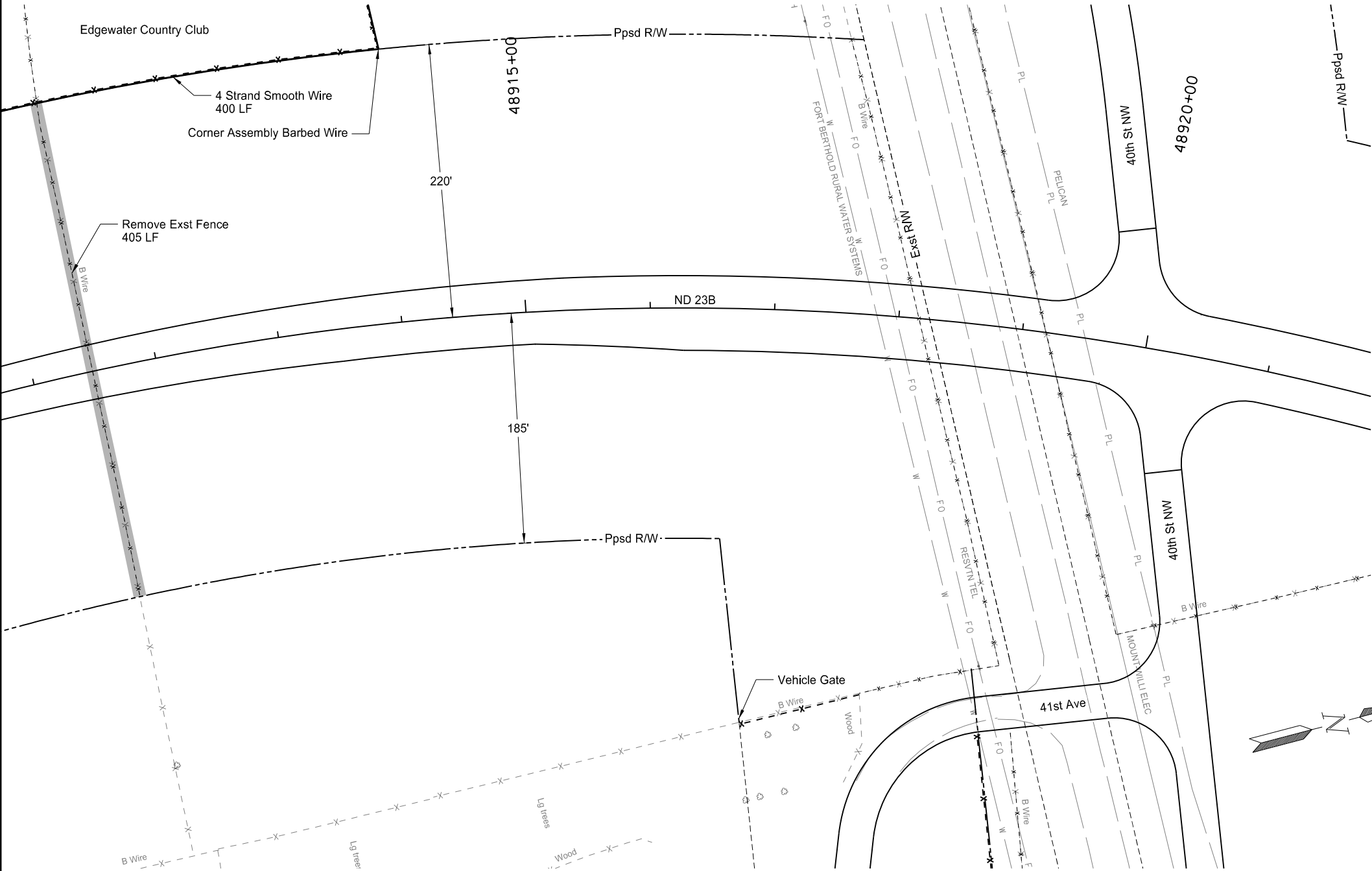
ND 23B Truck Reliever Route

Fencing Layout

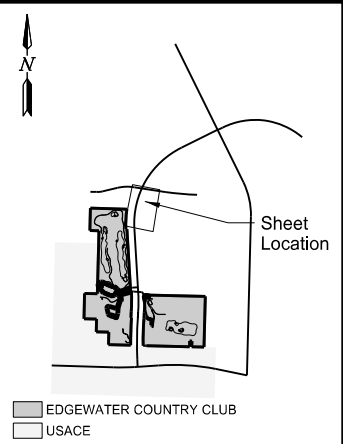
Sta 48891+00 to Sta 48911+00
(PRND23)

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	AC-NH-SOIB-7-023(041)925	80	3

SPEC CODE	BID ITEM	QTY	UNIT
202 0312	REMOVE EXISTING FENCE		
	Sta 48911+50-220' Lt to Sta 48911+47-185' Rt	405	LF
752 0201	FENCE SMOOTH WIRE 4 STRAND		
	Sta 48910+39-221' Lt to Sta 48914+03-221' Lt	400	LF
752 2100	VEHICLE GATE		
	Sta 48916+80-333' Rt	1	EA
752 3140	CORNER ASSEMBLY BARBED WIRE		
	Sta 48914+03-221' Lt	1	EA
	Sta 48916+80-333' Rt	1	EA

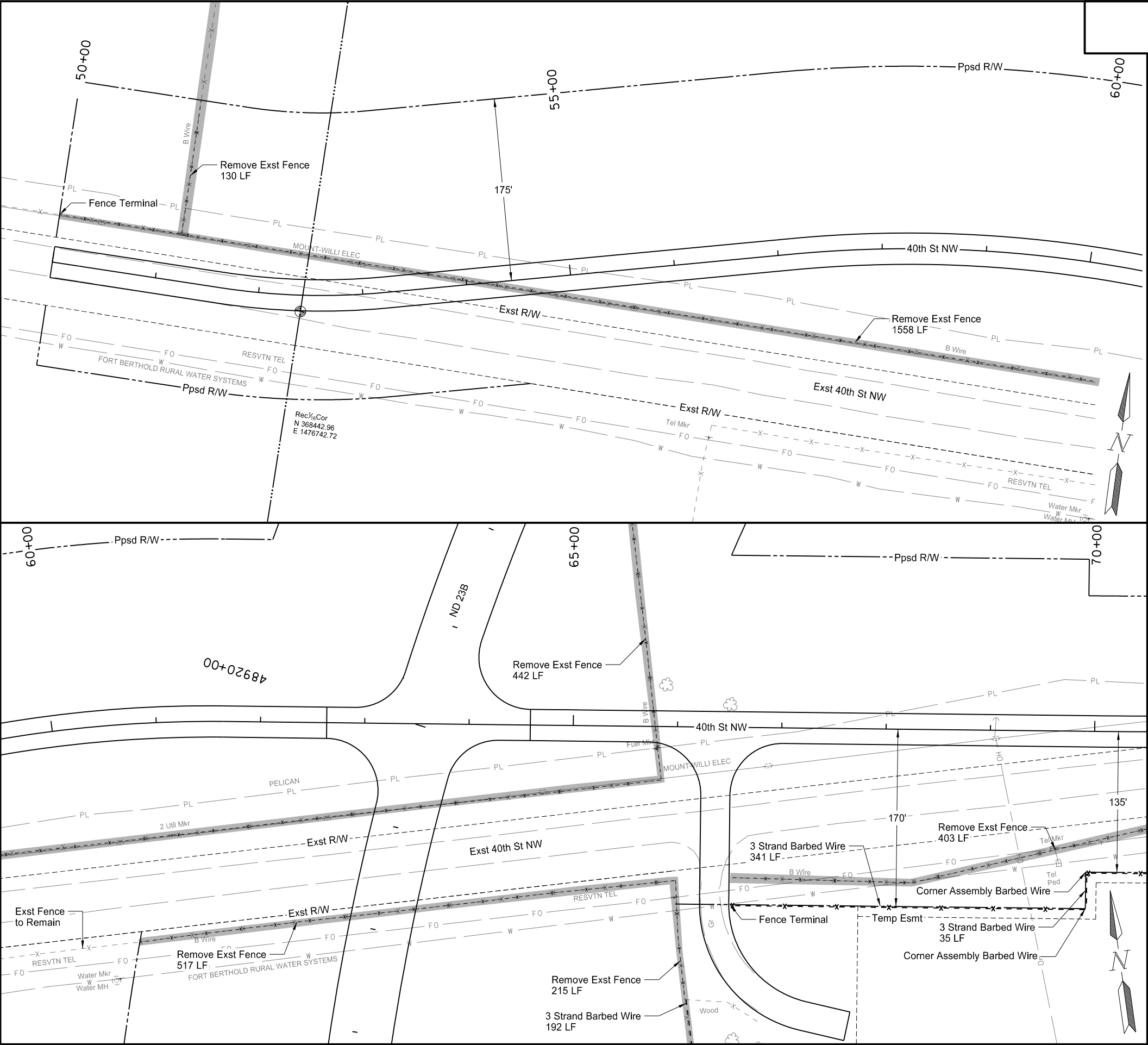


Notes:
1. Place fence 1' inside the edge of the Right-of-Way.



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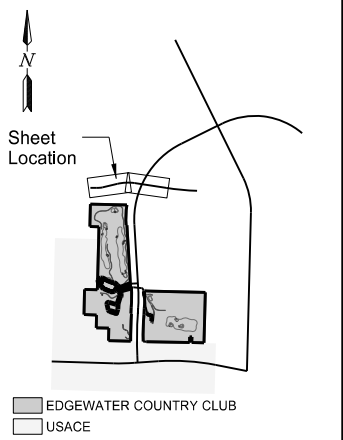
ND 23B Truck Reliever Route
Fencing Layout
Sta 48911+00 to Sta 48921+00
(PRND23)



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	AC-NH-SOIB-7-023(041)925	80	4

SPEC CODE	BID ITEM	QTY	UNIT
202	0312 REMOVE EXISTING FENCE		
	Sta 50+00-46' Lt to Sta 65+85-51' Rt	1,558	LF
	Sta 51+18-46' Lt to Sta 51+18-175' Lt	130	LF
	Sta 60+70-209' Rt to Sta 66+00-148' Rt	517	LF
	Sta 65+30-388' Lt to Sta 65+85-51' Lt	442	LF
	Sta 66+00-148' Rt to Sta 66+10-262' Rt	215	LF
	Sta 66+54-144' Rt to Sta 70+50-93' Rt	403	LF
752	0110 FENCE BARBED WIRE 3 STRAND-STEEL POST		
	Sta 66+00-171' Rt to Sta 66+24-361' Rt	192	LF
	Sta 66+52-171' Rt to Sta 69+93-136' Rt	341	LF
	Sta 69+93-136' Rt to Sta 69+93-171' Rt	35	LF
752	0993 FENCE TERMINAL		
	Sta 66+10-262' Rt	1	EA
	Sta 66+52-171' Rt	1	EA
752	3140 CORNER ASSEMBLY BARBED WIRE		
	Sta 69+93-136' Rt	1	EA
	Sta 69+93-171' Rt	1	EA

Notes:
1. Place fence 1' inside the edge of the Right-of-Way.



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ND 23B Truck Reliever Route
Fencing Layout
Sta 50+00.00 to Sta 70+00.00
(PR40ST)

PRELIMINARY SURVEY COORDINATE AND CURVE DATA - ND HWY 23 Truck Reliever Route, New Town												STATE	PROJECT NO.		SECTION NO.	SHEET NO.
										ND	AC-NH-SOIB-7-023(041)925		81	1		
HORIZONTAL ALIGNMENT				CURVE DATA		US PUBLIC LAND SURVEY DATA				SURVEY CONTROL POINTS						
PNT	STATION	NORTHING	EASTING	ARC DEFINITION		DESC.	SEC-TWP-RGE	NORTHING	EASTING	PNT	NORTHING	EASTING	ELEV	STATION	OFFSET	
ND 23 (Chain: SCL23)				CUR SCL23-1	CUR SCL23-2	S 1/4 Cor Sec 13 T-152-N R-93-W		363261.76	1472838.75	CONTROL POINT DESCRIPTION						
Begin	2558+26.42	363934.21	1475494.21	PI STA = 2577+09.59	PI STA = 2593+60.47	N 1/4 Cor Sec 13 T-152-N R-93-W		368530.86	1472978.68	Primary Control						
PC	2574+31.75	363886.54	1477098.83	Delta = 5° 33' 09" LT	Delta = 15° 02' 50" RT	SE Cor Sec 13 T-152-N R-93-W		363194.99	1475474.75							
PI CUR SCL23-1	2577+09.59	363878.29	1477376.55	Da = 1° 00' 00"	Da = 1° 00' 00"	NE Cor Sec 13 T-152-N R-93-W		368471.68	1475613.67							
PT	2579+87.00	363896.95	1477653.76	R = 5729.58'	R = 5729.58'	S 1/4 Cor Sec 18 T-152-N R-92-W		363125.85	1477926.22	1½" Alum. Cap marked "KLJ 101"						
POT 1/4 Line	2580+80.17	363916.64	1477946.28	T = 277.84'	T = 756.71'	N 1/4 Cor Sec 18 T-152-N R-92-W		368409.53	1478057.08	GPS98	362640.15	1467762.99	2143.23	N/A	N/A	
Station equation ND 23 (SCL23) at (PRND23B)				L = 555.25'	L = 1504.71'	SE Cor Sec 18 T-152-N R-92-W		363064.38	1480564.41	1½" Alum. Cap marked "KLJ 102"						
ND 23	2280+66.78	363903.08	1477744.89			NE Cor Sec 18 T-152-N R-92-W		368342.06	1480695.88	Secondary Control						
ND 23B	48873+23.55	363903.08	1477744.89			W CI Cor Sec 7 T-152-N R-92-W		370849.10	1475680.18							
PC	2586+03.76	363938.37	1478269.13			E CI Cor Sec 7 T-152-N R-92-W		370714.19	1480744.07							
PI CUR SCL23-2	2593+60.47	363989.19	1479024.13			N CI Cor Sec 7 T-152-N R-92-W		370784.51	1478104.80	5/8" Rebar						
PT	2601+08.47	363842.26	1479766.44			E 1/4 Cor Sec 18 T-152-N R-92-W		365705.96	1480630.24	RTK94	368169.07	1474089.67	1932.92	N/A	N/A	
End	2609+37.59	363681.27	1480579.78			Center Sec 18 T-152-N R-92-W		365770.86	1477993.30	2" Alum. cap marked "NDDOT LS 3047"						
Station equation ND 23 (SCL23) at ND 1804 (SCL1804)						W 1/16 Cor Sec 18/19 T-152-N R-92-W		363163.02	1476608.23							
ND 23	2609+37.59	363681.27	1480579.78			W 1/16 Cor Sec 7/18 T-152-N R-92-W		368442.96	1476742.72							
ND 1804	13049+25.60	363681.27	1480579.78			S 1/16 Cor Sec 7 T-152-N R-92-W		369725.68	1478083.53							
						SE 1/16 Cor Sec 7 T-152-N R-92-W		369692.40	1479403.06							
ND 1804 (Chain: SCL1804)				CUR SCL1804-1		E 1/16 Cor of the Reservation Boundary										
Begin	13049+25.60	363681.27	1480579.78	PI STA = 13095+31.81		Sec 7 T-152-N R-92-W		370749.35	1479424.44							
PC	13090+61.40	367815.79	1480682.77	Delta = 27° 40' 14" LT		SW 1/16 Cor of Sec 7 T-152-N R-92-W		369758.67	1476766.28							
PI CUR SCL1804-1	13095+31.81	368286.05	1480694.48	Da = 2° 59' 59"		NW 1/16 Cor of Sec 18 T-152-N R-92-W		367121.48	1476715.30							
PT	13099+83.86	368707.97	1480486.47	R = 1910.08'		W 1/16 Cor Sec 18 T-152-N R-92-W		36503.40	1476678.42							
Station equation ND 1804 (SCL1804) at (EX23B)				T = 470.41'												
ND 1804	13115+03.13	370070.64	1479814.66	L = 922.46'												
ND 23B	48945+60.00	370070.64	1479814.66													
End	13140+05.82	372315.36	1478708.00													
ND 23B (Chain: EX23B)				CUR EX23B-1												
Station equation ND 23B (EX23B) at (SCL1804)				PI STA = 48959+56.10												
ND 1804	13115+03.13	370070.64	1479814.66	Delta = 66° 41' 23" RT						All coordinates and measurements on this document derived from the International Foot definition.		This document was originally issued and sealed by Carl P. Olson Registration Number LS- 4687, on 08/30/17 and the original document is stored at the North Dakota Department of Transportation				
ND 23B	48945+60.00	370070.64	1479814.66	Da = 3° 00' 56"												
End	13140+05.82	372315.36	1478708.00	R = 1900.00'												
Begin	48945+60.00	370070.64	1479814.66	T = 1250.20'		☐ Assumed Coordinates				INITIALIZING BENCH MARK NDGPS Stations (OPUS)						
PC	48947+05.89	370135.27	1479945.46	L = 2211.52'		☒ All coordinates on this sheet are Mountrail County ground coordinates. They are derived from the NAD83(2011) reference frame; North Dakota North Zone Combination Factor (cf) = 0.9998350				☒ NAVD-88						
PI CUR EX23B-1	48959+56.10	370689.08	1481066.31							☐ NGVD-29						
End PT	48969+17.42	369878.87	1482018.45		NOTES: Sheet 1 of 2 Date Survey Completed 06/20/2017					☐ GEOID 09	☐					
										☒ GEOID 12A						

[illegible]

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	AC-NH-SOIB-7-023(041)925	81	3

ND 23B

Beginning chain EX23B description

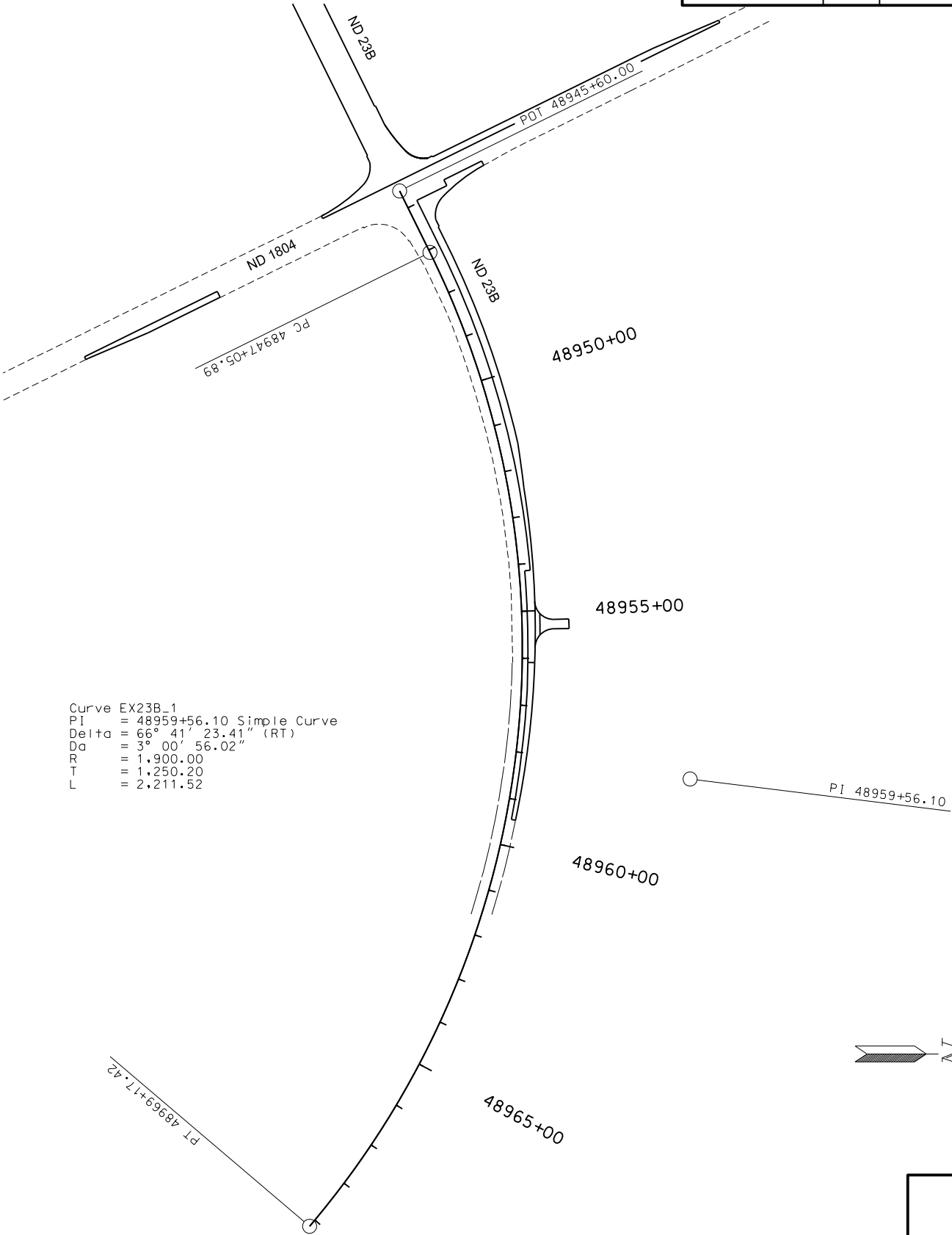
Point 846 N 370,070.6377 E 1,479,814.6625 Sta 48945+60.00

Course from 846 to PC EX23B 1 N 63° 42' 20.76" E Dist 145.8935

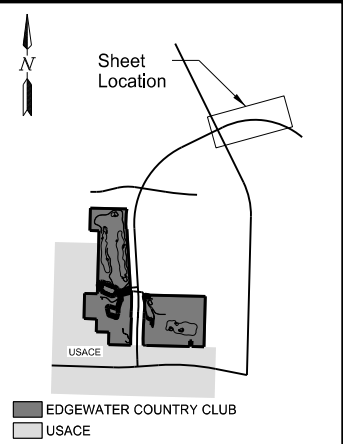
Curve Data

Curve EX23B 1
P.I. Station 48959+56.10 N 370,689.0817 E 1,481,066.3059
Delta = 66° 41' 23.41" (RT)
Degree = 3° 00' 56.02"
Tangent = 1,250.2025
Length = 2,211.5231
Radius = 1,900.0038
External = 374.4238
Long Chord= 2,088.7801
Mid. Ord. = 312.7849
P.C. Station 48947+05.89 N 370,135.2657 E 1,479,945.4605
P.T. Station 48969+17.42 N 369,878.8736 E 1,482,018.4453
C.C. N 368,431.8534 E 1,480,787.1261
Back = N 63° 42' 20.76" E
Ahead = S 49° 36' 15.84" E
Chord Bear = S 82° 56' 57.54" E

Ending chain EX23B description



Curve EX23B_1
PI = 48959+56.10 Simple Curve
Delta = 66° 41' 23.41" (RT)
Da = 3° 00' 56.02"
R = 1,900.00
T = 1,250.20
L = 2,211.52

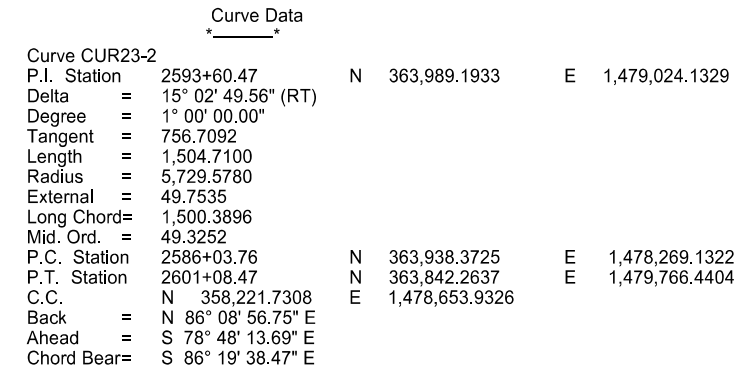


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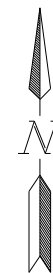
ND 23B Truck Reliever Route

Alignment Data

ND 23B
(EX23B)



Ending chain SCL23 description

ND 23
(SCL23)

40th St NW

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	AC-NH-SOIB-7-023(041)925	81	5

Beginning chain PR40ST description

Point 790 N 368,458.0662 E 1,476,500.7081 Sta 50+00.00
Course from 790 to PC PR40ST 1 S 89° 00' 27.98" E Dist 163.0000

Curve Data

Curve PR40ST 1
P.I. Station 52+42.32 N 368,453.8700 E 1,476,742.9934
Delta = 14° 03' 54.59" (LT)
Degree = 8° 54' 38.51"
Tangent = 79.3217
Length = 157.8458
Radius = 643.0000
External = 4.8742
Long Chord= 157.4498
Mid. Ord. = 4.8375
P.C. Station 51+63.00 N 368,455.2436 E 1,476,663.6837
P.T. Station 53+20.85 N 368,471.8119 E 1,476,820.2593
C.C. N 369,098.1472 E 1,476,674.8184
Back = S 89° 00' 27.98" E
Ahead = N 76° 55' 37.43" E
Chord Bear= N 83° 57' 34.73" E

Course from PT PR40ST 1 to PC PR40ST 2 N 76° 55' 37.43" E Dist 393.1182

Curve Data

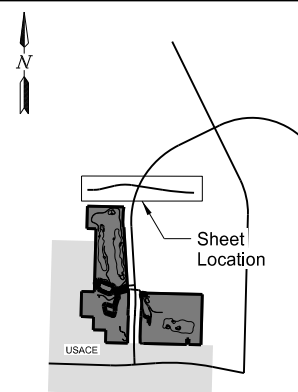
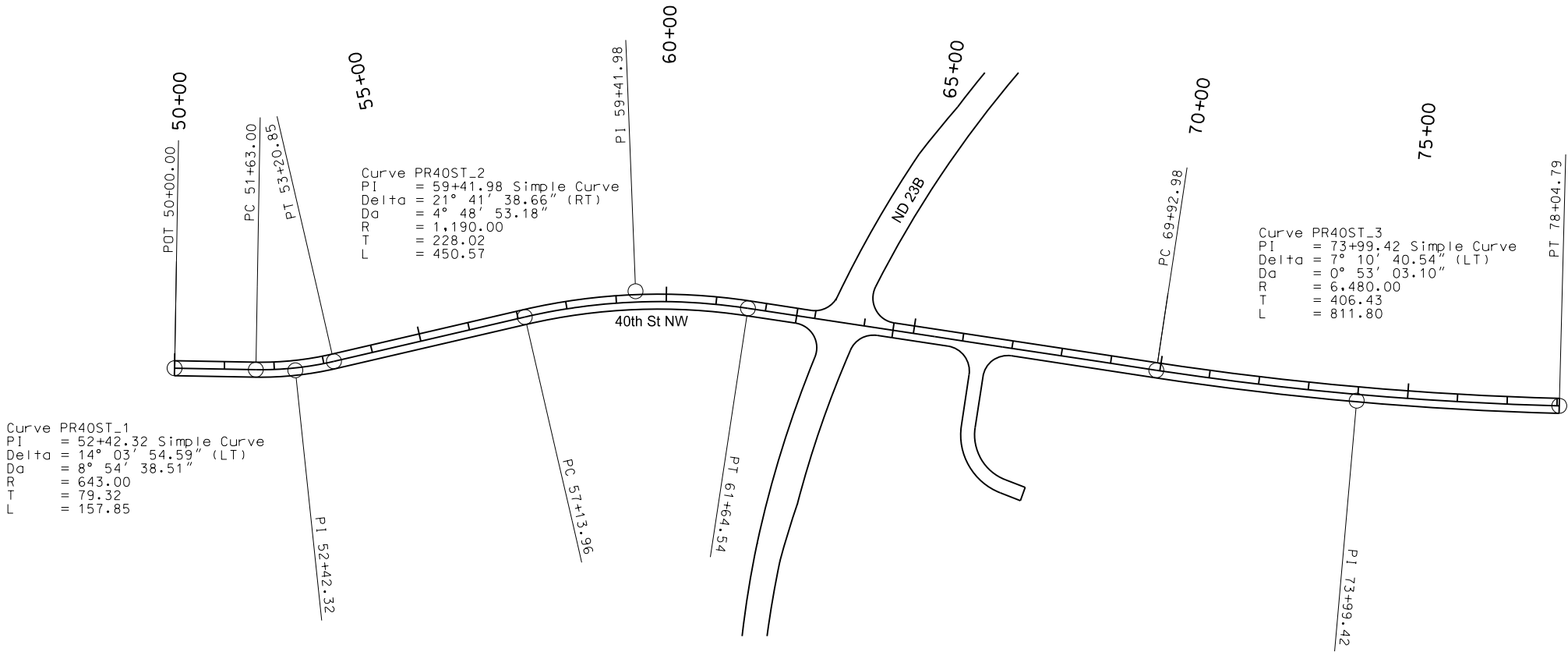
Curve PR40ST 2
P.I. Station 59+41.98 N 368,612.3072 E 1,477,425.2968
Delta = 21° 41' 38.66" (RT)
Degree = 4° 48' 53.18"
Tangent = 228.0173
Length = 450.5732
Radius = 1,190.0000
External = 21.6484
Long Chord= 447.8866
Mid. Ord. = 21.2616
P.C. Station 57+13.96 N 368,560.7317 E 1,477,203.1890
P.T. Station 61+64.54 N 368,578.1274 E 1,477,650.7377
C.C. N 367,401.5731 E 1,477,472.3566
Back = N 76° 55' 37.43" E
Ahead = S 81° 22' 43.91" E
Chord Bear= N 87° 46' 26.76" E

Course from PT PR40ST 2 to PC PR40ST 3 S 81° 22' 43.91" E Dist 828.4466

Curve Data

Curve PR40ST 3
P.I. Station 73+99.42 N 368,393.0187 E 1,478,871.6656
Delta = 7° 10' 40.54" (LT)
Degree = 0° 53' 03.10"
Tangent = 406.4340
Length = 811.8046
Radius = 6,480.0000
External = 12.7335
Long Chord= 811.2739
Mid. Ord. = 12.7086
P.C. Station 69+92.98 N 368,453.9432 E 1,478,469.8238
P.T. Station 78+04.79 N 368,382.7823 E 1,479,277.9707
C.C. N 374,860.7267 E 1,479,441.1763
Back = S 81° 22' 43.91" E
Ahead = S 88° 33' 24.45" E
Chord Bear= S 84° 58' 04.18" E

Ending chain PR40ST description



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ND 23B Truck Reliever Route

Alignment Data

40th St NW
(PR40ST)

Road to Driving Range

Beginning chain PR GOLFDR description

Point 849 N 365,841.2084 E 1,477,488.4666 Sta 10+00.00

Course from 849 to PC PR GOLFDR 1 N 76° 34' 58.53" E Dist 75.4648

Curve Data

Curve PR GOLFDR 1
P.I. Station 11+07.89 N 365,866.2425 E 1,477,593.4103
Delta = 18° 25' 01.47" (RT)
Degree = 28° 38' 52.40"
Tangent = 32.4235
Length = 64.2877
Radius = 200.0000
External = 2.6112
Long Chord= 64.0113
Mid. Ord. = 2.5775
P.C. Station 10+75.46 N 365,858.7190 E 1,477,561.8717
P.T. Station 11+39.75 N 365,863.4166 E 1,477,625.7104
C.C. N 365,664.1777 E 1,477,608.2793
Back = N 76° 34' 58.53" E
Ahead = S 85° 00' 00.00" E
Chord Bear= N 85° 47' 29.27" E

Course from PT PR GOLFDR 1 to PC PR GOLFDR 2 S 85° 00' 00.00" E Dist 207.8001

Curve Data

Curve PR GOLFDR 2
P.I. Station 14+03.69 N 365,840.4131 E 1,477,888.6416
Delta = 96° 37' 00.84" (RT)
Degree = 114° 35' 29.61"
Tangent = 56.1354
Length = 84.3142
Radius = 50.0000
External = 25.1744
Long Chord= 74.6736
Mid. Ord. = 16.7440
P.C. Station 13+47.55 N 365,845.3056 E 1,477,832.7198
P.T. Station 14+31.87 N 365,785.4276 E 1,477,877.3378
C.C. N 365,795.4959 E 1,477,828.3620
Back = S 85° 00' 00.00" E
Ahead = S 11° 37' 00.84" W
Chord Bear= S 36° 41' 29.58" E

Course from PT PR GOLFDR 2 to PC PR GOLFDR 3 S 11° 37' 00.86" W Dist 23.3284

Curve Data

Curve PR GOLFDR 3
P.I. Station 15+25.61 N 365,693.6077 E 1,477,858.4616
Delta = 31° 27' 33.84" (LT)
Degree = 22° 55' 05.92"
Tangent = 70.4117
Length = 137.2675
Radius = 250.0000
External = 9.7264
Long Chord= 135.5497
Mid. Ord. = 9.3622
P.C. Station 14+55.20 N 365,762.5771 E 1,477,872.6402
P.T. Station 15+92.46 N 365,627.3764 E 1,477,882.3619
C.C. N 365,712.2353 E 1,478,117.5192
Back = S 11° 37' 00.84" W
Ahead = S 19° 50' 33.00" E
Chord Bear= S 4° 06' 46.08" E

Course from PT PR GOLFDR 3 to PC PR GOLFDR 4 S 19° 50' 33.00" E Dist 94.4016

Curve Data

Curve PR GOLFDR 4
P.I. Station 17+22.59 N 365,504.9789 E 1,477,926.5303
Delta = 16° 15' 48.14" (RT)
Degree = 22° 55' 05.92"
Tangent = 35.7213
Length = 70.9623
Radius = 250.0000
External = 2.5391
Long Chord= 70.7244
Mid. Ord. = 2.5136
P.C. Station 16+86.86 N 365,538.5795 E 1,477,914.4052
P.T. Station 17+57.83 N 365,469.3273 E 1,477,928.7602
C.C. N 365,453.7205 E 1,477,679.2478
Back = S 19° 50' 33.00" E
Ahead = S 3° 34' 44.86" E
Chord Bear= S 11° 42' 38.93" E

Course from PT PR GOLFDR 4 to PC PR GOLFDR 5 S 3° 34' 44.86" E Dist 60.7812

Curve Data

Curve PR GOLFDR 5
P.I. Station 18+42.19 N 365,385.1303 E 1,477,934.0267
Delta = 10° 46' 35.59" (LT)
Degree = 22° 55' 05.92"
Tangent = 23.5803
Length = 47.0216
Radius = 250.0000
External = 1.1096
Long Chord= 46.9523
Mid. Ord. = 1.1047
P.C. Station 18+18.61 N 365,408.6647 E 1,477,932.5546
P.T. Station 18+65.63 N 365,362.2863 E 1,477,939.8732
C.C. N 365,424.2714 E 1,478,182.0670
Back = S 3° 34' 44.86" E
Ahead = S 14° 21' 20.45" E
Chord Bear= S 8° 58' 02.66" E

Course from PT PR GOLFDR 5 to PC PR GOLFDR 6 S 14° 21' 20.45" E Dist 174.9464

Curve Data

Curve PR GOLFDR 6
P.I. Station 20+89.68 N 365,145.3533 E 1,477,995.8755
Delta = 67° 14' 25.99" (LT)
Degree = 77° 35' 20.10"
Tangent = 49.1004
Length = 86.6626
Radius = 73.8453
External = 14.8338
Long Chord= 81.7743
Mid. Ord. = 12.3524
P.C. Station 20+40.58 N 365,192.8025 E 1,477,983.2495
P.T. Station 21+27.24 N 365,138.6398 E 1,478,044.5147
C.C. N 365,211.7916 E 1,478,054.6116
Back = S 14° 54' 02.87" E
Ahead = S 82° 08' 28.86" E
Chord Bear= S 48° 31' 15.86" E

Ending chain PR GOLFDR description

Curve PR_GOLFDR_1
PI = 11+07.89 Simple Curve
Delta = 18° 25' 01.47" (RT)
Da = 28° 38' 52.40"
R = 200.00
T = 32.42
L = 64.29

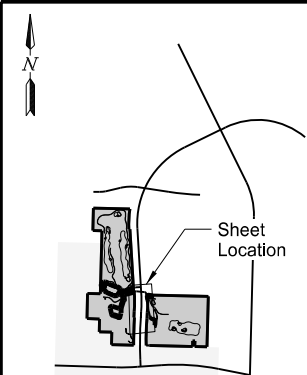
Curve PR_GOLFDR_3
PI = 15+25.61 Simple Curve
Delta = 31° 27' 33.84" (LT)
Da = 22° 55' 05.92"
R = 250.00
T = 70.41
L = 137.27

Curve PR_GOLFDR_4
PI = 17+22.59 Simple Curve
Delta = 16° 15' 48.14" (RT)
Da = 22° 55' 05.92"
R = 250.00
T = 35.72
L = 70.96

Curve PR_GOLFDR_2
PI = 14+03.69 Simple Curve
Delta = 96° 37' 00.84" (RT)
Da = 114° 35' 29.61"
R = 50.00
T = 56.14
L = 84.31

Curve PR_GOLFDR_5
PI = 18+42.19 Simple Curve
Delta = 10° 46' 35.59" (LT)
Da = 22° 55' 05.92"
R = 250.00
T = 23.58
L = 47.02

Curve PR_GOLFDR_6
PI = 20+89.68 Simple Curve
Delta = 67° 14' 25.99" (LT)
Da = 77° 35' 20.10"
R = 73.85
T = 49.10
L = 86.66

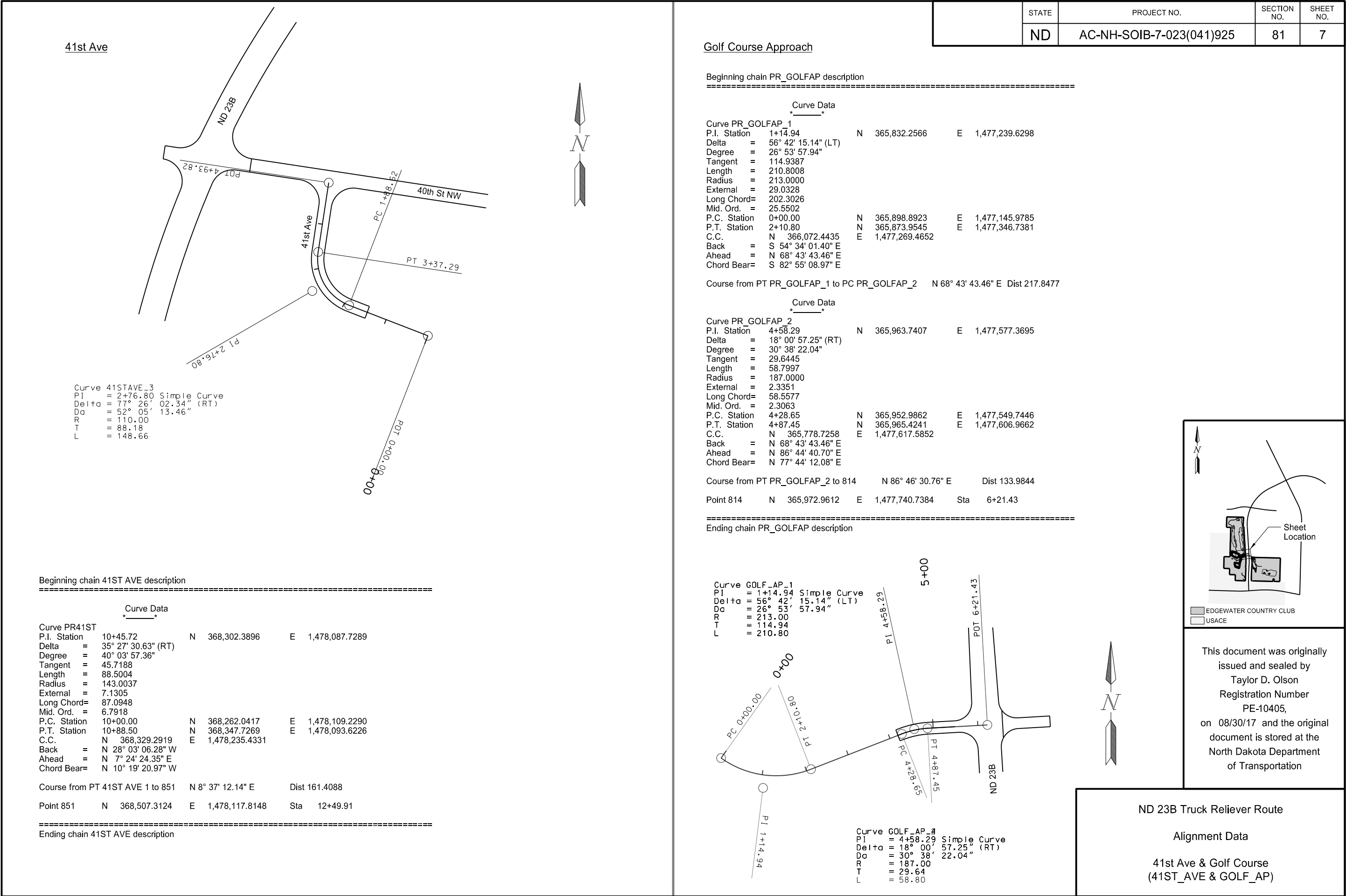


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ND 23B Truck Reliever Route

Alignment Data

Driving Range (PR GOLFDR)



Shared-Use Path

Beginning chain 23TRRPATH description
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Point 864 N 363,956.9137 E 1,477,556.9454 Sta 0+00.00

Course from 864 to PC 23TRRPATH_1 N 3° 18' 25.75" W Dist 11.2736

Curve Data

Curve 23TRRPATH_1
P.I. Station 0+57.71 N 364,014.5257 E 1,477,553.6163
Delta = 43° 58' 31.94" (RT)
Degree = 49° 49' 20.70"
Tangent = 46.4345
Length = 88.2646
Radius = 115.0000
External = 9.0208
Long Chord= 86.1140
Mid. Ord. = 8.3647
P.C. Station 0+11.27 N 363,968.1685 E 1,477,556.2950
P.T. Station 0+99.54 N 364,049.7459 E 1,477,583.8767
C.C. N 363,974.8027
Back = N 3° 18' 25.75" W
Ahead = N 40° 40' 06.19" E
Chord Bear= N 18° 40' 50.22" E

Course from PT 23TRRPATH_1 to PC 23TRRPATH_2 N 40° 40' 06.19" E Dist 14.6744

Curve Data

Curve 23TRRPATH_2
P.I. Station 1+58.30 N 364,094.3139 E 1,477,622.1684
Delta = 41° 56' 51.54" (LT)
Degree = 49° 49' 20.70"
Tangent = 44.0841
Length = 84.1943
Radius = 115.0000
External = 8.1601
Long Chord= 82.3265
Mid. Ord. = 7.6194
P.C. Station 1+14.21 N 364,060.8764 E 1,477,593.4397
P.T. Station 1+98.41 N 364,138.3870 E 1,477,621.1842
C.C. N 364,135.8196
Back = N 40° 40' 06.19" E
Ahead = N 1° 16' 45.35" W
Chord Bear= N 19° 41' 40.42" E

Course from PT 23TRRPATH_2 to PC 23TRRPATH_3 N 1° 16' 45.35" W Dist 405.5475

Curve Data

Curve 23TRRPATH_3
P.I. Station 6+29.57 N 364,569.4456 E 1,477,611.5582
Delta = 14° 35' 55.72" (RT)
Degree = 28° 38' 52.40"
Tangent = 25.6185
Length = 50.9595
Radius = 200.0000
External = 1.6341
Long Chord= 50.8217
Mid. Ord. = 1.6208
P.C. Station 6+03.95 N 364,543.8335 E 1,477,612.1302
P.T. Station 6+54.91 N 364,594.3749 E 1,477,617.4602
C.C. N 364,548.2986
Back = N 1° 16' 45.35" W
Ahead = N 13° 19' 10.37" E
Chord Bear= N 6° 01' 12.51" E

Course from PT 23TRRPATH_3 to PC 23TRRPATH_4 N 13° 19' 10.37" E Dist 36.1369

Curve Data

Curve 23TRRPATH_4
P.I. Station 7+24.14 N 364,661.7361 E 1,477,633.4080
Delta = 18° 47' 12.96" (LT)
Degree = 28° 38' 52.40"
Tangent = 33.0864
Length = 65.5788
Radius = 200.0000
External = 2.7183
Long Chord= 65.2854
Mid. Ord. = 2.6818
P.C. Station 6+91.05 N 364,629.5398 E 1,477,625.7855
P.T. Station 7+56.63 N 364,694.6719 E 1,477,630.2556
C.C. N 364,675.6161
Back = N 13° 19' 10.37" E
Ahead = N 5° 28' 02.59" W
Chord Bear= N 3° 55' 33.89" E

Course from PT 23TRRPATH_4 to PC 23TRRPATH_5 N 5° 28' 02.59" W Dist 105.9489

Curve Data

Curve 23TRRPATH_5
P.I. Station 8+79.39 N 364,816.8775 E 1,477,618.5587
Delta = 9° 36' 42.37" (RT)
Degree = 28° 38' 52.40"
Tangent = 16.8152
Length = 33.5514
Radius = 200.0000
External = 0.7056
Long Chord= 33.5121
Mid. Ord. = 0.7031
P.C. Station 8+62.58 N 364,800.1388 E 1,477,620.1609
P.T. Station 8+96.13 N 364,833.6487 E 1,477,619.7740
C.C. N 364,819.1946
Back = N 5° 28' 02.59" W
Ahead = N 4° 08' 39.78" E
Chord Bear= N 0° 39' 41.40" W

Course from PT 23TRRPATH_5 to PC 23TRRPATH_6 N 4° 08' 39.78" E Dist 773.9874

Curve Data

Curve 23TRRPATH_6
P.I. Station 17+03.01 N 365,638.4168 E 1,477,678.0871
Delta = 18° 40' 39.99" (LT)
Degree = 28° 38' 52.40"
Tangent = 32.8907
Length = 65.1977
Radius = 200.0000
External = 2.6864
Long Chord= 64.9094
Mid. Ord. = 2.6508
P.C. Station 16+70.12 N 365,605.6122 E 1,477,675.7101
P.T. Station 17+35.32 N 365,670.2550 E 1,477,669.8334
C.C. N 365,620.0662
Back = N 4° 08' 39.78" E
Ahead = N 14° 32' 00.21" W
Chord Bear= N 5° 11' 40.22" W

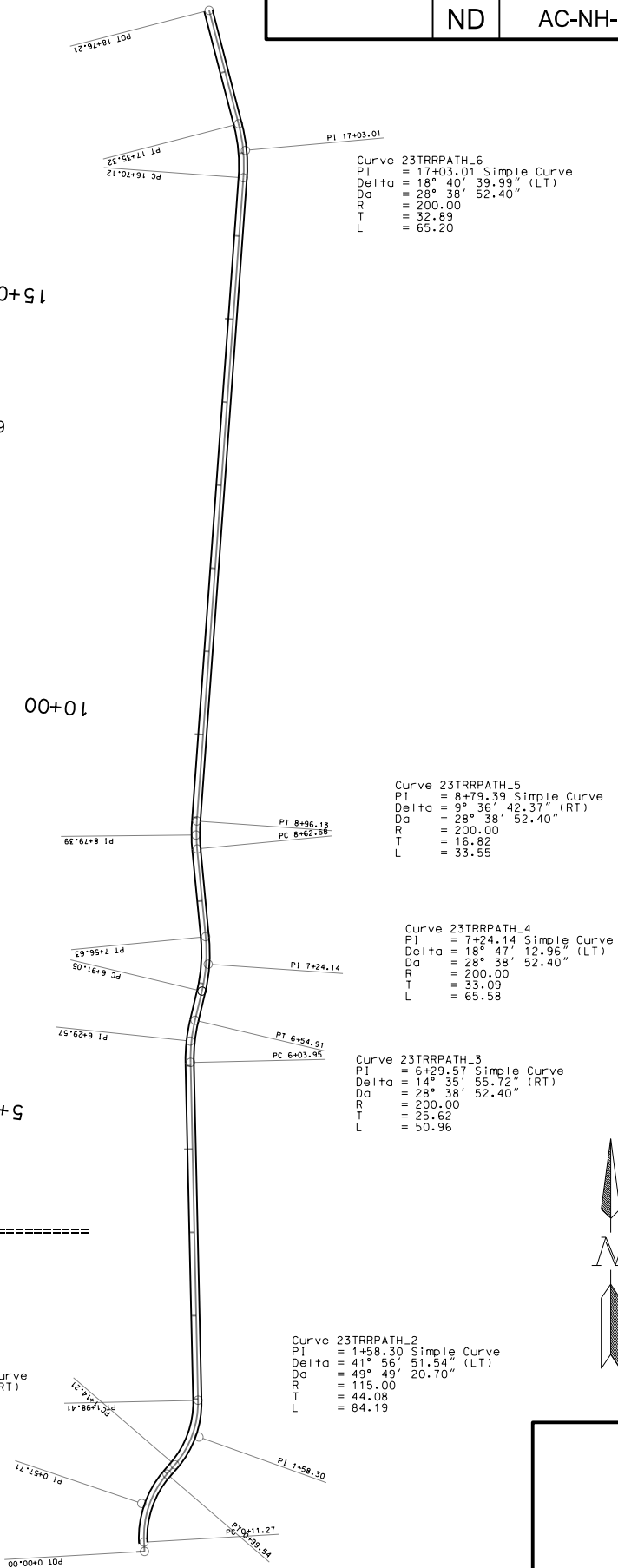
Course from PT 23TRRPATH_6 to 865 N 14° 32' 00.21" W Dist 140.8958

Point 865 N 365,806.6424 E 1,477,634.4764 Sta 18+76.21

=====

Ending chain 23TRRPATH description

Curve 23TRRPATH_1
PI = 0+57.71 Simple Curve
Delta = 43° 58' 31.94" (RT)
Da = 49° 49' 20.70"
R = 115.00
T = 46.43
L = 88.26



Sheet Location

EDGEWATER COUNTRY CLUB

USACE

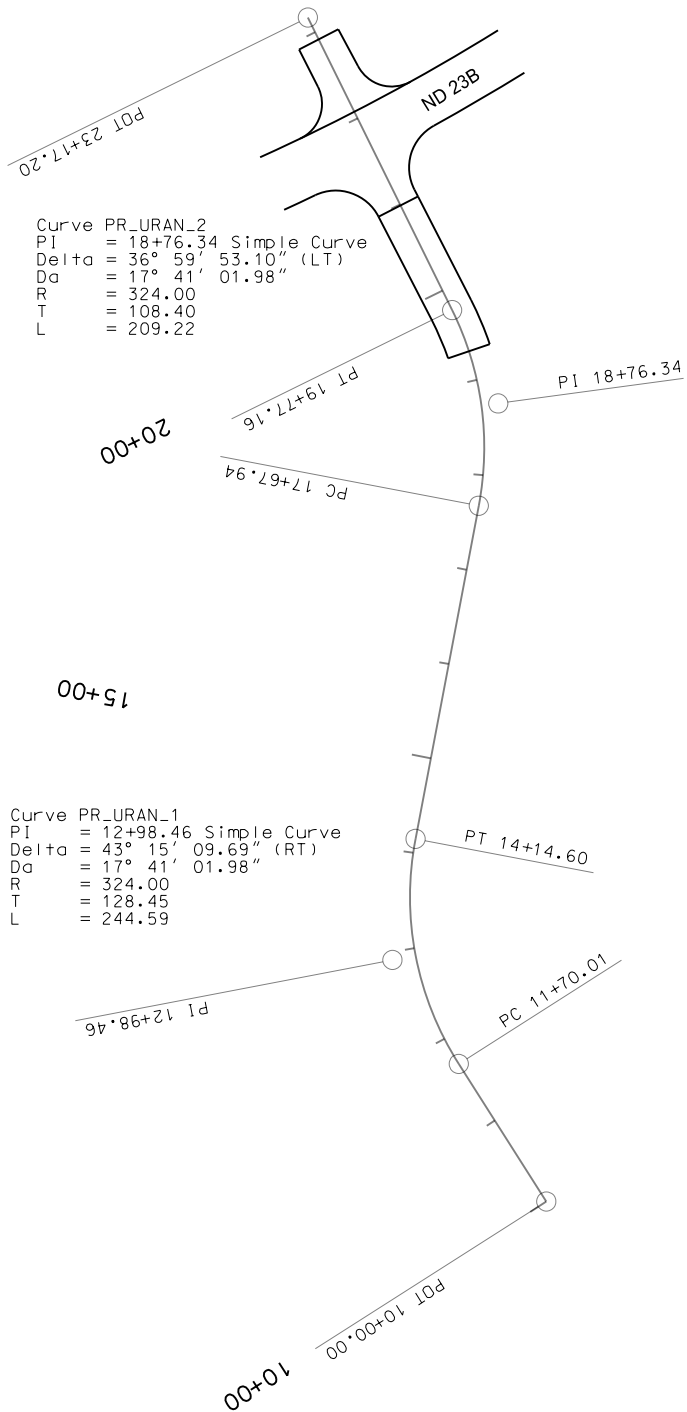
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ND 23B Truck Reliever Route

Alignment Data

Shared-Use path (23TRRPATH)

Uran Drive



Curve PR_URAN_2
P.I. = 18+76.34 Simple Curve
Delta = 36° 59' 53.10" (LT)
Da = 17° 41' 01.98"
R = 324.00
T = 108.40
L = 209.22

Curve PR_URAN_1
P.I. = 12+98.46 Simple Curve
Delta = 43° 15' 09.69" (RT)
Da = 17° 41' 01.98"
R = 324.00
T = 128.45
L = 244.59

Beginning chain PR_URAN description

Point 858 N 369,524.2299 E 1,478,648.1921 Sta 10+00.00
Course from 858 to PC PR_URAN_1 N 32° 29' 58.03" W Dist 170.0094

Curve Data

Curve PR_URAN_1
P.I. Station 12+98.46 N 369,775.9521 E 1,478,487.8308
Delta = 43° 15' 09.69" (RT)
Degree = 17° 41' 01.98"
Tangent = 128.4530
Length = 244.5882
Radius = 324.0000
External = 24.5343
Long Chord = 238.8217
Mid. Ord. = 22.8073
P.C. Station 11+70.01 N 369,667.6153 E 1,478,556.8475
P.T. Station 14+14.60 N 369,902.1495 E 1,478,511.7975
C.C. N 369,841.6977 E 1,478,830.1080
Back = N 32° 29' 58.03" W
Ahead = N 10° 45' 11.65" E
Chord Bear = N 10° 52' 23.19" W

Course from PT PR_URAN_1 to PC PR_URAN_2 N 10° 45' 11.65" E Dist 353.3434

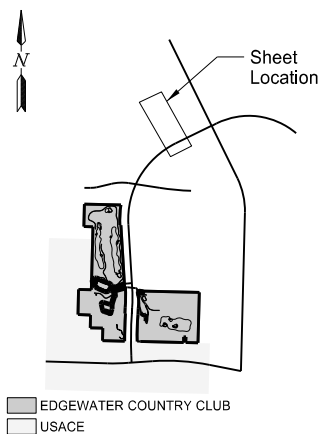
Curve Data

Curve PR_URAN_2
P.I. Station 18+76.34 N 370,355.7874 E 1,478,597.9499
Delta = 36° 59' 53.10" (LT)
Degree = 17° 41' 01.98"
Tangent = 108.4029
Length = 209.2192
Radius = 324.0000
External = 17.6536
Long Chord = 205.6031
Mid. Ord. = 16.7414
P.C. Station 17+67.94 N 370,249.2881 E 1,478,577.7241
P.T. Station 19+77.16 N 370,453.0153 E 1,478,550.0133
C.C. N 370,309.7399 E 1,478,259.4136
Back = N 10° 45' 11.65" E
Ahead = N 26° 14' 41.44" W
Chord Bear = N 7° 44' 44.90" W

Course from PT PR_URAN_2 to 859 N 26° 14' 41.44" W Dist 340.0390

Point 859 N 370,758.0005 E 1,478,399.6453 Sta 23+17.20

Ending chain PR_URAN description



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ND 23B Truck Reliever Route

Alignment Data

Uran Drive
(PR_URAN)