RP 55.429 to RP 58.439				
Traffic	Average Daily			Max Hr.
Current 2011	Pass: 575	Trucks: 85	Total: 660	75
Forecast 2031	Pass: 635	Trucks: 95	Total: 730	80
Clear Zone Distance: N/A		Design Speed: 65 MPH		
Minimum Sight Dist. for Stopping: 645 FT		Bridges: N/A		
Sight Dist. for No Passing Zone: 1,100 FT				
Pavement Design Life 20 (years)				
Design Accumulated One-way Flexible ESALs: 287,152				

RP 58.439 to RP 77.962				
Traffic	Average Daily			Max Hr.
Current 2011	Pass: 290	Trucks: 45	Total: 335	40
Forecast 2031	Pass: 320	Trucks: 50	Total: 370	50
Clear Zone Distance: N/A		Design Speed: 65 MPH		
Minimum Sight Dist. for Stopping: 645 FT		Bridges: N/A		
Sight Dist. for No Passing Zone: 1,100 FT				
Pavement Design Life 20 (years)				
Design Accumulated One-way Flexible ESALs: 153,148				

JOB# 9
NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

SS-3-017(023)055

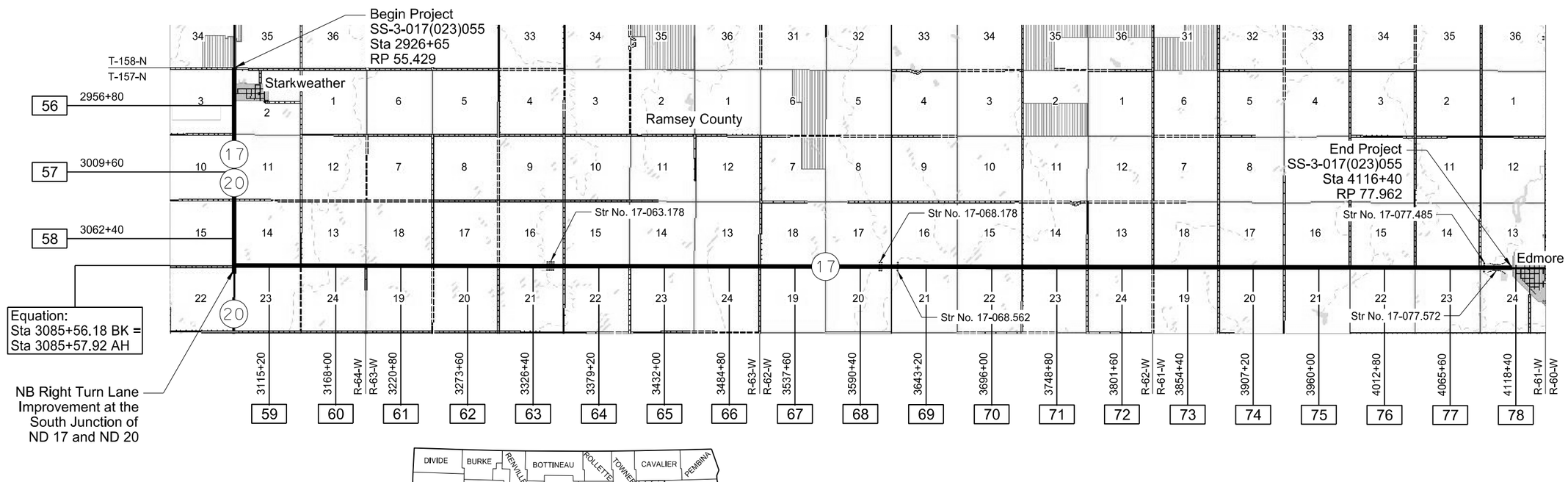
FHWA Partial Involvement
Ramsey County
Starkweather S to Edmore

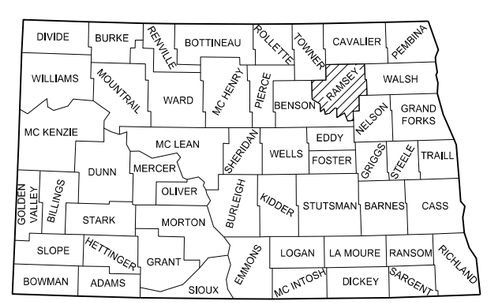
Hot Bituminous Pavement Overlay
With Widening, Pipe Extension & Replacement,
Turn Lane Improvement, and Incidentals

STATE	PROJECT NO.	PCN	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	18112	1	1

GOVERNING SPECIFICATIONS:
Standard Specifications adopted by the North Dakota Department of Transportation October 2008; Standard Drawings currently in effect; and other Contract Provisions submitted herein.

PROJECT NUMBER \ DESCRIPTION	NET MILES	GROSS MILES
SS-3-017(023)055	22.533	22.533





STATE COUNTY MAP

DESIGNERS

Steven L. Strack

Brian T. Pattengale

APPROVED DATE 12/13/13

for Derek D Pfeifer /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 December 11, 2013

Adam R. Walker /s/
HOUSTON ENGINEERING, INC.

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SP 1010(08)	Temporary Erosion and Sediment Best Management Practices
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SP 1275(08)	Weather Limitations for Hot Bituminous Mix
SP 1334(08)	Permits and Environmental Considerations

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D-704-24	Shoulder Closures and Bridge Painting Layouts
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D-714-22	Concrete Pipe Ties
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D-714-28	Transverse Mainline Pipe Excavation and Installation Detail for Pipes Installed In New Embankment
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D-754-23	Perforated Tube Assembly Details
D-754-24A	Breakaway Coupler System for Perforated Tubes

LIST OF STANDARD DRAWINGS

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D-754-27, 29	Sign Punching, Stringer & Support Location Details Reg, Warn, & Guide Signs
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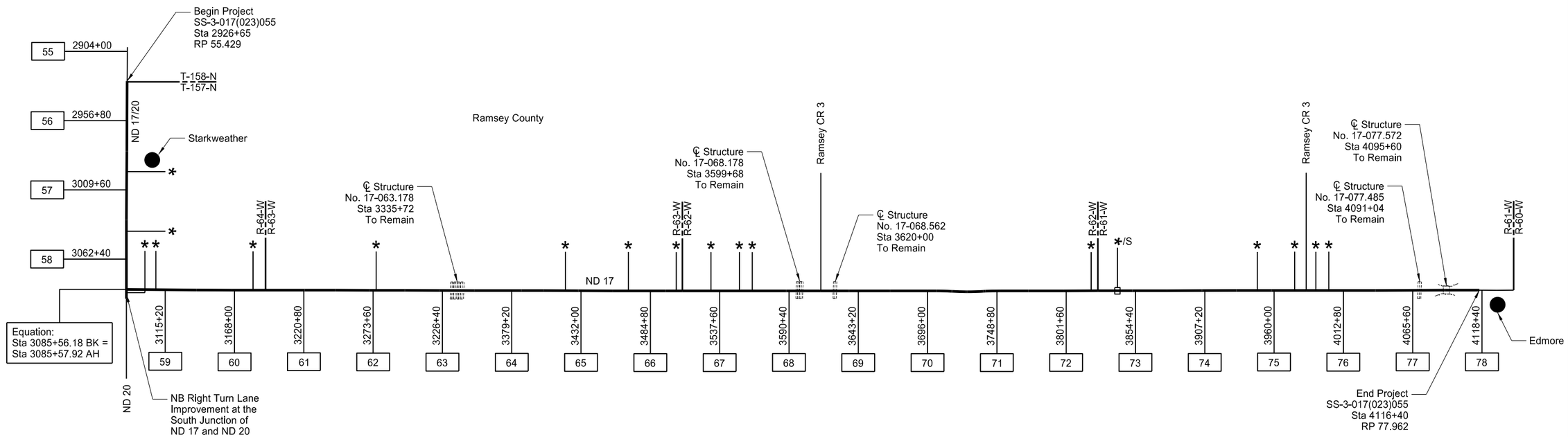
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	4	1



2" HBP Overlay
-RP 55.429 to 77.962
Widening (2' Width Both Sides of Roadway)
-RP 55.429 to 58.439
Project Length = 22.533 Miles

*/S Full Depth Subcut w/ Pipe Replacement
Full Depth Subcut Length = 400 Feet
(1 Location)

* Replace/Extend Centerline Pipe (17 Locations)

N

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Scope of Work

Starkweather S to Edmore - ND 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	6	1

NOTES

100-P01 **WORK SCHEDULE:** In order to minimize interference with traffic operations, a detailed schedule shall be agreed to prior to beginning work, between the engineer, utility companies and the contractor and subcontractors, if any.

102-P01 **TIED PROJECTS:** Projects SS-RSS-3-020(106)129 and SS-3-017(026)053 are tied to this project.

105-P01 **COORDINATION OF WORK:** It shall be the contractor's responsibility to coordinate activities, including but not limited to, haul routes, access, scheduling, and traffic control delineation with the contractors working on other projects in the area.

107-P01 **UTILITY COORDINATION:** The Contractor shall arrange a post bid utility coordination meeting with affected utilities, NDDOT Devils Lake District Office, and the NDDOT Project Engineer. The meeting shall be held no later than (2) weeks after the NDDOT Contract has been signed. The Contractor shall provide for this meeting an agenda, tentative construction schedule, and publish minutes for the meeting within 7 days of the meeting.

107-P02 **HAUL ROADS:** The contractor shall contact the appropriate State, County, Township, City or Political Subdivision official(s) to determine if the proposed haul road has local load restrictions or is designated as a "No Haul Route" prior to preparing a bid for this project. Paved roads off the state system will not be designated as haul roads by the NDDOT. If the contractor chooses to use a paved road off the state system for this project, the contractor shall be responsible for all costs of the inspection, maintenance, restoration, and release of the haul road. The entire haul cycle, loaded and empty, will be considered for haul routes.

107-P03 **HAUL ROAD RESTORATION:** Any gravel or water needed for haul road restoration will be paid for under the NDDOT Price Schedule for Miscellaneous Items (PS-1). All gravel needed for haul road restoration will be CL-13 aggregate, accept under Section 302 of the Standard Specifications.

200-010 **SHRINKAGE:** 25% additional volume is included for shrinkage in earth embankment.

202-P01 **PAVEMENT REMOVAL:** All bituminous pavement and aggregate base removed from the existing roadway has been deducted from the excavation quantity.

All bituminous pavement and aggregate base removed shall become property of the contractor and be disposed of outside of the highway right of way at an approved location.

202-P02 **SAW CUTS:** At pipe installation or subcut locations, a full depth transverse saw cut shall be used at the beginning and end of each pavement removal area. Sawing shall be paid as "Saw Bituminous Surfacing-Full Depth". Any intermediate saw cuts performed to aid in the removal of pavement shall not be paid for separately. The saw cut shall not be made through any section line approaches, private drives, or field drives.

202-P03 **REMOVAL OF PIPE:** All costs to remove bituminous pavement and aggregate base in pipe replacement areas shall not be bid separately but included in the price bid for "Removal of Pipe All Types and Sizes".

203-P01 **COMPACTION AND DENSITY CONTROL:** Compaction and density controls shall be in accordance with Section 203.02 G of the Standard Specifications AASHTO-180.

203-P02 **TOPSOIL:** The existing topsoil shall be removed and salvaged in disturbed areas. The removal of topsoil quantity is based upon a 6" depth. The topsoil shall be removed to its full depth and stockpiled. Topsoil shall be spread evenly over the areas to be seeded. Hauling topsoil for spreading will be incidental to this item.

203-P03 **BORROW-EXCAVATION:** Borrow material shall be placed in embankment locations as specified in Section 203.02 F of the Standard Specifications.

All borrow required shall be obtained by the Contractor from a source outside of the highway right of way.

203-P04 **EXCAVATION:** Excavation from subcut and culvert replacement areas shall become the property of the contractor and be disposed of off the highway right of way at an approved location.

203-P05 **HAUL:** No average haul has been computed for this project.

302-P01 **AGGREGATE BASE COURSE CL 5:** Aggregate Base Course CL 5 will be used where aggregate is required on the project. Salvaged Base Course shall not be substituted for Aggregate Base Course CL 5.

400-P01 **HOT BITUMINOUS PATCHES OVER PIPE CONDUIT:** The surface of the roadway shall be brought up to the grade as soon as the pipe has been installed. The contractor may elect to pave the area immediately after pipe installation. The new pavement shall be placed so as to match the existing pavement and so as to provide a satisfactory surface profile.

If the contractor decides to wait and pave the patch areas on a different day, the contractor shall bring the grade up with Aggregate Base Course CL 5 to match existing pavement. Prime and blotter material shall be applied to the aggregate surface. Maintenance of the patch areas shall be provided by the prime or sub-contractor.

If either of the following conditions exists, the contractor shall prime and blotter the patches before beginning any work at other pipe replacement or subcut locations:

1. 10 patches (includes pipe replacement and subcut areas) require prime and blotter. Contractor may be working on one additional pipe replacement or subcut.

2. Prime and blotter has not been applied to a patch within two weeks or a time period approved by the engineer in the field.

Prior to surfacing the patch area with HBP, 2" of aggregate with prime and blotter material shall be removed. The removed material shall become the property of the contractor and be disposed of outside the highway right of way at an approved location. All costs for removing 2" of aggregate with prime and blotter material and disposing material outside the highway right of way shall be included in the price bid for "Superpave FAA 42".

401-P01 **BLOTTER MATERIAL CL 44:** Blotter material is not a pay item. All costs to obtain and apply will be included in the price bid for "MC70 or 250 Liquid Asphalt". Approximate rate of application for blotter is 15 lbs/SY. The estimated quantity is approximately 80 tons.

401-P02 **FOG COAT:** The final lift of pavement shall receive a fog seal with SS1H or CSS1H emulsified asphalt. MS1 shall NOT be used as a fog seal. After final rolling, the fog seal shall be applied to the pavement. Bituminous material shall be a minimum of 125 degrees F when applied. Blotter sand may be necessary to correct an over application of emulsion. The blotter material shall be applied with equipment as specified in Section 151.06 of the Standard Specifications or as approved by the engineer. The blotter will not be a separate pay item, and all costs for providing and placing blotter sand shall be included in the price bid for "SS1H or CSS1H or MS1 Emulsified Asphalt".

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NOTES

410-P01 **HOT BITUMINOUS PAVEMENT**: The final mix design shall be Contractor-developed mix design as per NDDOT Standard Specification 410.04.A.2 and shall be submitted to the Devils Lake District 10 days prior to the beginning of production.

410-P02 **HOT BITUMINOUS PAVEMENT:** Areas requiring a 4 inch thickness of bituminous surfacing shall be placed in 2 lifts; the Contractor shall not pave the second lift within a 12 hour time period. Areas requiring a 2 inch thickness of bituminous surfacing shall be placed in 1 lift. The final lift in all areas shall be 2 inches placed continuously. All lifts shall be paver laid.

410-P03 **HOT BITUMINOUS PAVEMENT:** The hot bituminous pavement in overlay areas from Sta 2926+65 to Sta 3085+56.18 BK = Sta 3085+57.92 AH shall be paver laid in one lift. The contractor shall be required to spread hot bituminous mix ahead of the paving operation to level rutting or rough areas designated by the engineer. The leveling course shall be compacted with a pneumatic roller prior to placement of the overlay. The additional hot bituminous mix and asphalt cement required for leveling shall be measured and paid for at the contract unit price for "Superpave FAA 42" and "PG 58-28 Asphalt Cement". The quantity of hot bituminous mix used for the leveling course will reduce the quantity of hot bituminous mix available for the lift thickness. This shall be considered full payment for all materials, equipment, and labor to perform this additional work.

410-P04 **HOT BITUMINOUS PAVEMENT:** Approximately 100 tons/lane mile in overlay areas from Sta 3085+56.18 BK = Sta 3085+57.92 AH to Sta 4116+40 shall be used for tight blading before the overlay is applied. The tight blading shall be performed with a single pass. The pass will tight blade mix across the driving lane. The material shall then be compacted with a pneumatic roller prior to placement of the overlay. The quantity of hot bituminous mixed used for tight blading will be in addition to the quantity of Superpave FAA 42 for the first lift thickness. Payment for the tight blading work shall be paid at Contract Unit Price for “SS1H or CSS1H or MS1 Emulsified Asphalt”, “Superpave FAA 42”, and “PG 58-28 Asphalt Cement”.

If the tight blading is not paved immediately, a tack coat shall be applied. The hot bituminous pavement shall be placed and accepted according to NDDOT Standard Specifications (Section 410).

410-P05 **SUPERPAVE PROPERTIES:** The following aggregate and mix design properties are required:

Test	Criteria	Reference
Coarse Aggregate Angularity	75% min	NDDOT Field Sampling/Testing Manual
Fine Aggregate Angularity	42% min	AASHTO T 304
Gyratory Effort, # Gyrations	N_{ini} = 7, N_{des} = 75, N_{max} = 115	AASHTO TR 35
Voids Filled with Asphalt	65-78%	AASHTO M 323, T 166
%G_{mm} @ N_{ini}	89% max	AASHTO M 323, T 166

410-P06 **CONTRACTOR CORING:** Immediately after the cores have been cut, the Contractor shall fill the core holes as follows:

- Remove any free standing water;
- Tack the hole as specified in Section 401;
- Place the same type of bituminous material; and
- Compact each lift with hand tamper.

If the core hole is 2 inches or greater, fill the core hole with the same type of bituminous material in a minimum of two lifts.

410-P07 **SHOULDER PAVING:** The contractor shall be required to spread hot bituminous mix ahead of the paving operation to bring the shoulders of Proposed Typical #1, shown on Sheet 30-2, up to the existing pavement surface. This shoulder paving shall be compacted with a pneumatic roller prior to placement of the overlay. The additional hot bituminous mix and asphalt cement required for leveling shall be measured and paid for at the contract unit price for "Superpave FAA 42" and "PG 58-28 Asphalt Cement".

411-P01 **TEMPORARY BITUMINOUS MATERIAL WEDGES:** The contractor shall place temporary bituminous material wedges at any location that has been milled on the project to allow smooth passage of vehicles at these milled locations. Bituminous material wedges shall be placed at these milled areas prior to the traffic being allowed back on the milled roadway section. All costs associated with labor, materials, and equipment for the installation and removal of the bituminous material wedges shall be included in the price bid for “Milling Pavement Surface”.

704-016 **TRAFFIC CONTROL SUPERVISOR:** Traffic control supervisor shall be provided on this project.

704-P01 **PORTABLE SIGNS:** The portable signs that move along with the progress of construction, such as signs for uneven pavement (W8-11-48, W20-52-54, and R4-1-48) and signs for centerline rumble strip installation (a minimum of two sets of D-704-15, Layout Type A) for projects SS-RSS-3-020(106)129, SS-3-017(026)053, and SS-3-017(023)055 will be paid for once on project SS-RSS-3-020(106)129.

704-P02 **TRAFFIC CONTROL FOR UNEVEN PAVEMENT:** The contractor has the option of making the paving lanes even at the end of each day’s paving operations or signing for the uneven pavement and providing the following devices: Install “Uneven Lanes” signs (Sign No. W8-11-48) and supplemental plate (Sign No. W20-52-54), identifying the distance, on the right shoulder (both directions) in advance of the beginning of the uneven pavement and at major intersections. A major intersection shall be defined as a CMC, state, U.S. highway, or Interstate ramp. Install “Do Not Pass” signs (Sign No. R4-1-48) on the right shoulder (both directions) between the uneven lanes sign and the beginning of the uneven pavement and at major intersections. Install tubular markers spaced at two times the posted speed limit on the centerline where uneven pavement exists.

These traffic control devices shall be left in place until the lanes are even. These signs and tubular markers are included in the “Traffic Control Devices List” for project SS-RSS-3-020(106)129 and will be measured and paid for once at the contract unit price for each device. No extra compensation will be allowed for relocation due to work progression.

704-P03 **TRAFFIC CONTROL FOR CENTERLINE RUMBLE STRIP INSTALLATION:** For cutting in centerline rumble strips, the Contractor shall provide traffic control as described below: Two sets of signs for D-704-15, layout Type A is a minimum. The work zone shall be limited to 3 miles in length. However, the signs for the next 3 mile work zone shall be set ahead of the current work zone in the direction the operation is moving. Once the Contractor gets to that point, the original set of signs shall be removed and reset ahead in the next 3 miles. This traffic control requires a minimum of 2 flaggers at all times. Signs cannot be moved by the flaggers. The cost of moving the signs shall not be paid for separately but included in the price bid for traffic control signs for project SS-RSS-3-020(106)129. Additional signing shall be at the Contractor’s expense, unless specifically requested by the Engineer.

704-P04 **TRAFFIC CONTROL FOR PAVEMENT DROP OFF:** After the bituminous shoulder is removed, there will be a pavement drop off area adjacent to the lane, as indicated in the typical sections. This area shall not have a drop off greater than 2 inches at the end of the working day. If a drop off exceeds 2 inches, the Contractor will be required to provide a safe and traversable inslope. A safe and traversable inslope is defined as having a cross slope of 4:1 or flatter. The reshaping of the aggregate or embankment for this operation shall not be paid for separately but shall be included in the price bid for aggregate or embankment items.

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704-P05 **TRAFFIC CONTROL:** The traffic control devices list has been developed using the layouts shown in the plans and the following layouts shown on the Standard Drawings.

1. D-704-2, Coring of hot bituminous pavement.
2. D-704-5, Contractor sign as applicable.
3. D-704-7, 8, 9, 10, 11, 13, and 14 as applicable.
4. D-704-15, Layout A: For saw cuts, pavement removal, culvert installations, subcuts, and placement of aggregate base when a one lane closure is needed to carry out these operations. In addition, it will also be used for temporary roadway closure during the lane paving operations.
5. D-705-15, Layout B: For culvert installations and subcuts.
6. D-704-20, Layout G: For all construction operations. Signs W3-5-48 and R2-1-48 are to be moved as the work area moves through the construction zone and should be placed a minimum of 500 feet in advance of flagging signs.
7. D-704-22, Type K and Type L: For construction trucks entering from an aggregate source or a contractor jobsite and trucks hauling material.
8. D-704-24, Type R: For shoulder closures. Delineator drums shall be used in-place of the cones as shown on the Standard Drawing. One shoulder closure has been provided. A quantity of 65 delineator drums has been provided for the 1 mile work area.
9. D-704-26, Type CC, EE, FF, and GG for paving operations.
10. D-704-27, Pavement marking operations.
11. D-704-30, Windrow marking.
12. D-704-56, Rumble strips.

Traffic control quantities for uneven pavement have been developed based on a 6 mile limitation of paving operations. The required traffic control signs and devices are included in the "Traffic Control Devices List" and will be measured and paid for at the Contract Unit Price for each device. Additional devices required to accommodate the Contractor's operation shall be the Contractor's responsibility. The Contractor shall relocate the flaggers and portable signs with the movement of the paving operations to minimize the delay time for the traveling public.

704-P06 **STACKABLE VERTICAL PANEL:** Stackable vertical panels made of a hollow, low density polyethylene orange plastic panel which is held in an upright position by a molded rubber base shall be provided.

The panel shall be a minimum of 43 inches high with a minimum bottom dimension of 15 inches x 9 inches. The panel shall be held down with a molded rubber base. The minimum weight of the panel shall be 4 pounds. The minimum weight of the molded rubber base shall be 30 pounds.

The reflective sheeting shall have a minimum width of 8 inches and length of 36 inches. The reflective sheeting shall be as specified for vertical panels and shall have 6" wide stripes sloping downward at an angle of 45 degrees in the direction of vehicular traffic is to pass. The reflective sheeting shall be on both sides of the Stackable Vertical Panels. The Stackable Vertical Panels shall meet the requirements of NCHRP Report 350 as a Category II Traffic Control Device.

The Item "Stackable Vertical Panel" shall be measured by the number of each installed. The quantities measured will be paid for at the contract price and shall be full compensation of labor, equipment, materials, relocation and removal necessary to complete the installation.

704-P07 **GRINDING RUMBLE STRIPS:** All costs for the use of additional vehicles beyond those shown in Standard Drawing D-704-56 shall be paid for at the Contractor's expense. A truck mounted attenuator shall be included in the traffic control operation. Traffic control devices will be moved multiple times during grinding of centerline rumble strips. No additional payment will be made for movement of traffic control devices.

706-P01 **FIELD LABORATORY TYPE B:** A concrete pad sufficient to run a proctor on shall accompany the Type B laboratory and be set up directly adjacent to the building and be included in the cost of the laboratory.

The laboratory shall be wired for DSL Broadband internet capabilities. The internet shall have a wireless Wi-Fi router and also contain the capabilities of hard wiring to a computer. The cost of installation and monthly fee for the internet will be included in the cost of the laboratory.

706-P02 **FIELD LABORATORY TYPE C:** Both Type C Laboratories shall be wired for DSL Broadband internet capabilities. The internet shall have a wireless Wi-Fi router and also contain the capabilities of hard wiring to a computer. The cost of installation and monthly fee for the internet will be included in the cost of the laboratory.

706-P03 **FIELD LABORATORY TYPE C:** The Quality Assurance laboratory shall have forced air ovens capable of maintaining 300° F.

708-P01 **MULCHING:** All excavation and embankment areas shall be stabilized with straw mulch after the completion of the Type B-CL II permanent seeding operation. Additional mulching may be required to meet the requirements of the NDPDES Construction General Permit.

708-P02 **EROSION CONTROL:** Erosion control has been provided for placement prior to stripping the topsoil or as indicated by the engineer. Locations are shown in the erosion control plan. An additional 200 LF of temporary 12" Fiber Rolls and 200 LF of permanent 12" Fiber Rolls have been provided to be used at the Engineer's discretion.

714-P01 **CENTERLINE PIPE REPLACEMENT:** The Contractor shall have a minimum of one lane of traffic open to public travel during the centerline pipe replacement work. If the contractor is unable to complete the centerline pipe replacement work at each location within one working day, the area shall be made traversable for two lanes of traffic with 4:1 slopes or flatter and there shall be no drop-offs greater than 2 inches or be flagged 24 hours per day. The costs to provide flaggers outside of working hours shall be at the Contractor's expense. To maintain traffic, a fifteen foot wide driving surface shall be provided with the use of flaggers, or a thirty foot wide driving surface with the use of traffic control devices (D-704-15 Type B).

Minimum cover depths over the pipe shall be maintained whenever traffic is allowed over the pipe. Minimum cover depths can be obtained from the North Dakota Department of Transportation Design Manual Section V-05 Appendix A.

All costs to provide surfacing removal for excess excavation to maintain traffic shall not be bid separately but included in the price bid for "Removal of Pipe All Types and Sizes". Excess excavation is any excavation 24" below the proposed profile and outside the trench excavation limits. All costs to remove this excess excavation in order to maintain traffic and replace in accordance with AASHTO T 180 shall not be bid separately but included in the price bid for "Pipe Conduit_IN".

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NOTES

If the Contractor elects to use rock for stabilization, the gradation shall be approved by the Engineer. The cost to dewater, install stabilization rock, install pipe and end sections, and all other work shall be included in the price bid for “Pipe Conduit_IN”.

714-P02 **COFFERDAMS:** Cofferdams may be required to construct the centerline pipes. Upon completion of the pipe installation, the earthen material that was used for the cofferdam shall be removed and shall be considered waste material. Waste material shall be hauled to an approved site in accordance with Section 107.04 of the Standard Specifications. The Contractor shall be responsible for obtaining any permits required if constructing the cofferdams causes impacts beyond the impact area shown in Section 75 of the plans. All costs associated with completing the above described work shall be included in the price bid for “Pipe Conduit_IN.”

714-P03 **TIED RCP:** All RCP (if used) including end sections, shall be installed with tied joints. See Standard Drawing D-714-22 for fastener and tie bolt details. The cost of providing and installing tie bolts and fasteners shall be included in the price bid for “Pipe Conduit_IN”, “Pipe Conc Reinf 24IN CL III”, “Pipe Conc Reinf Arch 65IN x 40” CL II”, “End Sect-Traversable Reinf. Conc. 24IN”, “Remove & Relay Pipe-All Types & Sizes”, and “Remove & Relay End Section-All Type & Sizes”.

754-P01 **SIGNS:** Signs to be salvaged at Sta 2944+20 Rt and Sta 2950+95 Lt shall be returned to the City of Starkweather. All costs to remove and deliver signs shall not be paid for separately but included in the price bid for “Flat Sheet For Signs-Type XI Refl Sheeting”.

754-P02 **SIGNS:** Signs to be salvaged at Sta 3977+12 Rt and Sta 4114+33 Rt shall be returned to the City of Edmore. All costs to remove and deliver signs shall not be paid for separately but included in the price bid for “Flat Sheet For Signs-Type XI Refl Sheeting”.

762-P01 **SHORT TERM PAVEMENT MARKINGS:** Quantities for 2 applications of short term centerline pavement markings have been included in the plans. Additional applications required to accommodate the contractor’s operation shall be at the contractor’s expense.

894-100 **RETROREFLECTIVE SHEETING:** Type IV retroreflective sheeting shall meet ASTM D 4956, Type IV. Type XI retroreflective sheeting shall meet ASTM D 4596, Type XI.

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ENVIRONMENTAL COMMITMENTS

ENVIRONMENTAL COMMITMENTS: The North Dakota Department of Transportation and the Federal Highway Administration have made environmental commitments to various agencies and the public to secure approval of this project and projects SS-RSS-3-020(106)129 and SS-3-017(026)053, which are tied to this project. The environmental commitments are as follows:

COMMITMENT NO. 1: Unavoidable impacts to wetlands will be mitigated onsite as part of project SS-RSS-3-020(106)129. Approximately 0.014 natural/jurisdictional, 0.001 natural/non-jurisdictional, 0.015 artificial/jurisdictional, and 0.00 artificial/non-jurisdictional acres of wetlands will be impacted permanently, and 2.33 acres will be impacted temporarily.

Wetland Number	Location	Cowardin Classification	Wetland Type	Wetland Size (Acres)	Wetland Feature	USACE Jurisdictional Wetlands*	Wetland Impacts (Acres)		Wetland Mitigation		
									Mitigation Required		Location
							Temp.	Perm.	11990	USACE	
01	T157N, R64W, Section 3	PEMA	Ditch	5.48	Artificial	X	0.00	0.00	N	N	
02	T157N, R64W, Section 2	PEMA	Ditch	0.04	Artificial	X	0.00	0.00	N	N	
03	T157N, R64W, Section 2	PEMA	Basin	0.13	Natural	X	0.00	0.00	N	N	
04	T157N, R64W, Section 2	PEMA	Basin	0.13	Natural	X	0.00	0.00	N	N	
06	T157N, R64W, Section 23	PEMA	Ditch	35.87	Artificial	X	0.24	0.003	N	N	
07	T157N, R64W, Section 23	PEMA	Ditch	6.23	Artificial	X	0.12	0.001	N	N	
08	T157N, R64W, Section 13	PEMC	Ditch	7.35	Artificial	X	0.00	0.00	N	N	
09	T157N, R64W, Section 13	PEMAd	Ditch	3.00	Artificial	X	0.16	0.001	N	N	
10	T157N, R64W, Section 13	PEMA	Ditch	2.25	Artificial	X	0.00	0.00	N	N	
11	T157N, R63W, Section 18	PEMC	Basin	20.47	Natural	X	0.00	0.00	N	N	
12	T157N, R63W, Section 18	PEMC	Basin	26.70	Natural	X	0.00	0.00	N	N	
13	T157N, R63W, Section 20	PEMAd	Ditch	9.16	Artificial	X	0.06	0.001	N	N	
14	T157N, R63W, Section 17	PEMA	Basin	0.38	Natural	N/A	0.00	0.00	N	N	
15	T157N, R63W, Section 21	PEMCd	Basin	6.37	Natural	X	0.00	0.00	N	N	
16	T157N, R63W, Section 21	PEMCd	Ditch	0.17	Artificial	X	0.00	0.00	N	N	
17	T157N, R63W, Section 16	PEMA	Ditch	1.29	Artificial	N/A	0.00	0.00	N	N	
18	T157N, R63W, Section 15	PEMC	Basin	7.38	Natural	N/A	0.00	0.00	N	N	
19	T157N, R63W, Section 15	PEMC	Basin	0.24	Natural	X	0.00	0.00	N	N	
20	T157N, R63W, Section 15	PEMCd	Basin	1.70	Natural	X	0.00	0.00	N	N	

ACTION TAKEN/REQUIRED: All natural wetlands (natural/jurisdictional less than 0.10 acres and natural/non-jurisdictional regardless of size) will be mitigated onsite as part of project SS-RSS-3-020(106)129. All artificial/jurisdictional wetlands less than 0.10 acres, artificial/non-jurisdictional, and temporary impacts do not require mitigation. Therefore, 0.02 acres will be mitigated onsite as part of project SS-RSS-3-020(106)129 at a 2:1 ratio.

PERMITS REQUIRED:

- Section 404 Permit (US Army Corps of Engineers)

Wetland Number	Location	Cowardin Classification	Wetland Type	Wetland Size (Acres)	Wetland Feature	USACE Jurisdictional Wetlands*	Wetland Impacts (Acres)		Wetland Mitigation		
									Mitigation Required		Location
							Temp.	Perm.	11990	USACE	
21	T157N, R63W, Section 14	PEMAd	Ditch	5.26	Artificial	X	0.03	0.001	N	N	
22	T157N, R63W, Section 14	PEMAd	Ditch	115.07	Artificial	X	0.12	0.005	N	N	
23	T157N, R62W, Section 19	PEMCd	Ditch	14.34	Artificial	X	0.24	0.002	N	N	
24	T157N, R62W, Section 18	PEMAd	Ditch	0.16	Artificial	N/A	0.00	0.00	N	N	
25	T157N, R62W, Section 19	PEMCd	Basin	1.48	Natural	X	0.11	0.001	Y	N	SS-RSS-3-020(106)129
26	T157N, R62W, Section 19	PEMCd	Basin	3.54	Natural	X	0.07	0.00	N	N	
27	T157N, R62W, Section 17	PEMAd	Basin	0.24	Natural	N/A	0.00	0.00	N	N	
28	T157N, R62W, Section 20	PEMAd	Ditch	12.32	Artificial	X	0.00	0.00	N	N	
29	T157N, R62W, Section 16	PEMAd	Ditch	4.53	Artificial	X	0.00	0.00	N	N	
30	T157N, R62W, Section 16	PEMCd	Ditch	45.76	Artificial	X	0.00	0.00	N	N	
31	T157N, R62W, Section 15	PEMC	Basin	26.49	Natural	N/A	0.00	0.00	N	N	
32	T157N, R62W, Section 14	PEMC	Basin	55.65	Natural	N/A	0.00	0.00	N	N	
33	T157N, R62W, Section 14	PEMA	Ditch	0.30	Artificial	N/A	0.00	0.00	N	N	
34	T157N, R62W, Section 24	PEMC	Basin	79.80	Natural	N/A	0.11	0.001	Y	N	SS-RSS-3-020(106)129
35	T157N, R61W, Section 18	PEMF	Basin	81.72	Natural	X	0.39	0.001	Y	N	SS-RSS-3-020(106)129
36	T157N, R61W, Section 18	PEMC	Basin	21.48	Natural	X	0.00	0.00	N	N	
37	T157N, R61W, Section 17	PEMAd	Ditch	11.85	Artificial	X	0.00	0.00	N	N	
38	T157N, R61W, Section 17	PEMA	Ditch	0.59	Artificial	N/A	0.00	0.00	N	N	
39	T157N, R61W, Section 21	PEMCd	Basin	29.66	Natural	X	0.21	0.002	Y	N	SS-RSS-3-020(106)129

ENVIRONMENTAL COMMITMENTS

Wetland Number	Location	Cowardin Classification	Wetland Type	Wetland Size (Acres)	Wetland Feature	USACE Jurisdictional Wetlands*	Wetland Impacts (Acres)		Wetland Mitigation		
									Mitigation Required		Location
							Temp.	Perm.	11990	USACE	
40	T157N, R61W, Section 21	PEMAd	Ditch	3.76	Artificial	X	0.19	0.001	N	N	
41	T157N, R61W, Section 22	PEMCd	Basin	17.66	Natural	X	0.28	0.01	Y	N	SS-RSS-3-020(106)129
42	T157N, R61W, Section 15	PEMA	Ditch	0.43	Artificial	N/A	0.00	0.00	N	N	
43	T157N, R61W, Section 22	PEMA	Basin	0.64	Natural	N/A	0.00	0.00	N	N	
44	T157N, R61W, Section 15	PEMA	Ditch	0.09	Artificial	N/A	0.00	0.00	N	N	
45	T157N, R61W, Section 14	PEMF	Basin	10.79	Natural	N/A	0.00	0.00	N	N	
46	T157N, R61W, Section 14	PEMAd	Ditch	2.07	Artificial	X	0.00	0.00	N	N	
47	T157N, R61W, Section 24	PEMC	Stream	7.53	Natural	X	0.00	0.00	N	N	
48	T157N, R61W, Section 13	PEMA	Ditch	0.04	Artificial	N/A	0.00	0.00	N	N	
49	T157N, R61W, Section 24	PEMA	Ditch	0.07	Artificial	N/A	0.00	0.00	N	N	
50	T157N, R61W, Section 24	PEMA	Basin	0.25	Natural	N/A	0.00	0.00	N	N	
51	T157N, R61W, Section 24	PEMA	Ditch	0.03	Artificial	N/A	0.00	0.00	N	N	
52	T157N, R61W, Section 23	PEMA	Ditch	0.57	Artificial	X	0.00	0.00	N	N	
53	T157N, R61W, Section 23	PEMA	Ditch	0.11	Artificial	N/A	0.00	0.00	N	N	
54	T157N, R61W, Section 23	PEMA	Ditch	0.29	Artificial	N/A	0.00	0.00	N	N	
55	T157N, R61W, Section 22	PEMA	Ditch	0.77	Artificial	N/A	0.00	0.00	N	N	
56	T157N, R61W, Section 22	PEMA	Ditch	0.31	Artificial	N/A	0.00	0.00	N	N	
57	T157N, R61W, Section 20	PEMA	Ditch	0.39	Artificial	N/A	0.00	0.00	N	N	
58	T157N, R61W, Section 19	PEMA	Ditch	0.66	Artificial	X	0.00	0.00	N	N	
59	T157N, R62W, Section 21	PEMA	Basin	2.07	Natural	N/A	0.00	0.00	N	N	
60	T157N, R63W, Section 23	PEMA	Ditch	1.61	Artificial	N/A	0.00	0.00	N	N	
61	T157N, R63W, Section 23	PEMAd	Ditch	0.12	Artificial	N/A	0.00	0.00	N	N	
62	T157N, R63W, Section 23	PEMA	Ditch	0.36	Artificial	N/A	0.00	0.00	N	N	
63	T157N, R63W, Section 23	PEMA	Basin	0.49	Natural	N/A	0.00	0.00	N	N	
64	T157N, R63W, Section 22	PEMC	Basin	0.35	Natural	X	0.00	0.00	N	N	
65	T157N, R63W, Section 21	PEMA	Ditch	1.48	Artificial	X	0.00	0.00	N	N	
66	T157N, R63W, Section 20	PEMA	Ditch	0.15	Artificial	X	0.00	0.00	N	N	
67	T157N, R63W, Section 20	PEMC	Ditch	0.37	Artificial	X	0.00	0.00	N	N	
68	T157N, R63W, Section 19	PEMA	Ditch	1.12	Artificial	X	0.00	0.00	N	N	
69	T157N, R64W, Section 24	PEMC	Basin	1.12	Natural	N/A	0.00	0.00	N	N	
70	T157N, R64W, Section 23	PEMA	Ditch	0.08	Artificial	N/A	0.00	0.00	N	N	
71	T157N, R64W, Section 10	PEMC	Basin	0.03	Natural	X	0.00	0.00	N	N	
130	T157N, R64W, Section 3	PEMA	Basin	0.10	Natural	N/A	0.00	0.00	N	N	
Totals				**700.49**			**2.33**	**0.030**			

*A wetland Jurisdictional Determination was issued by the USACE on Dec. 7, 2011; NWO-2011-02362-BIS

Total Permanent Impact Summary		Additional Impact Info for 404 Permit	
Wetland Type	**Total (Acres)**	**Wetland Type**	**Total (Acres/Lf)**
Natural/Non-JD	0.001	Permanent JD ≥ 0.10	0.00
Artificial/Non-JD	0.00	Temporary JD	2.22
Natural/JD	0.014	POW	0.00
Artificial/JD	0.015		
Totals	0.03		

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	8	1

SPEC	CODE	ITEM DESCRIPTION	UNIT	SS-3-017(023)055 MAINLINE	TOTAL
103	0100	CONTRACT BOND	L SUM	0.50	0.50
202	0136	REMOVAL OF PAVEMENT	TON	2,155	2,155
202	0153	SAW BITUMINOUS SURFACING-FULL DEPTH	LF	2,241	2,241
202	0169	REMOVAL OF END SECTION-ALL TYPES AND SIZES	EA	1	1
202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES	LF	1,134	1,134
203	0109	TOPSOIL	CY	4,477	4,477
203	0138	COMMON EXCAVATION-SUBCUT	CY	1,635	1,635
203	0140	BORROW-EXCAVATION	CY	1,183	1,183
216	0100	WATER	MGAL	267	267
230	0125	SHOULDER PREPARATION	MILE	6.020	6.020
302	0120	AGGREGATE BASE COURSE CL 5	TON	12,721	12,721
401	0100	MC70 OR 250 LIQUID ASPHALT	GAL	2,549	2,549
401	0150	SS1H OR CSS1H OR MS1 EMULSIFIED ASPHALT	GAL	42,615	42,615
410	0212	SUPERPAVE FAA 42	TON	55,066	55,066
410	0445	PG 58-28 ASPHALT CEMENT	TON	3,359	3,359
410	0910	CORED SAMPLE	EA	238	238
411	0105	MILLING PAVEMENT SURFACE	SY	2,319	2,319
702	0100	MOBILIZATION	L SUM	0.50	0.50
704	0100	FLAGGING	MHR	2,200	2,200
704	1000	TRAFFIC CONTROL SIGNS	UNIT	4,663	4,663
704	1052	TYPE III BARRICADES	EACH	6	6
704	1060	DELINEATOR DRUMS	EA	65	65
704	1080	STACKABLE VERTICAL PANELS	EA	100	100
704	1185	PILOT CAR	HR	1,000	1,000
706	0200	FIELD LABORATORY-TYPE B	EA	0.50	0.50
706	0300	FIELD LABORATORY-TYPE C	EA	1	1
708	1030	RIPRAP-LOOSE ROCK	TON	102	102
708	1325	SILT FENCE SUPPORTED	LF	7,453	7,453
708	1335	REMOVAL SILT FENCE SUPPORTED	LF	7,453	7,453
708	1375	FLOTATION SILT CURTAIN	LF	1,024	1,024
708	1376	REMOVAL FLOTATION SILT CURTAIN	LF	1,024	1,024
708	1430	FIBER ROLLS 12IN	LF	10,221	10,221
708	1431	REMOVAL FIBER ROLLS 12IN	LF	1,345	1,345
708	1460	FIBER ROLLS 20IN	LF	680	680
708	1461	REMOVAL FIBER ROLLS 20IN	LF	340	340
708	2240	SEEDING-TYPE B-CL II	ACRE	5.55	5.55
708	2260	SEEDING-TYPE B-CL IV	ACRE	5.55	5.55
708	5500	MULCHING	ACRE	11.10	11.10

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	8	2

SPEC	CODE	ITEM DESCRIPTION	UNIT	SS-3-017(023)055 MAINLINE	TOTAL
709	0600	GEOTEXTILE FABRIC-TYPE RR	SY	77	77
709	0701	GEOTEXTILE FABRIC-TYPE R1	SY	10,799	10,799
714	0615	PIPE CONC REINF 24IN CL III	LF	22	22
714	2030	PIPE CONC REINF ARCH 65IN X 40IN CL II	LF	16	16
714	3023	END SECT-TRAVERSABLE REINF. CONC. 24IN	EA	1	1
714	4110	PIPE CONDUIT 30IN	LF	338	338
714	4115	PIPE CONDUIT 36IN	LF	170	170
714	4120	PIPE CONDUIT 42IN	LF	230	230
714	4125	PIPE CONDUIT 48IN	LF	156	156
714	4130	PIPE CONDUIT 54IN	LF	228	228
714	4135	PIPE CONDUIT 60IN	LF	152	152
714	4140	PIPE CONDUIT 66IN	LF	76	76
714	9659	REMOVE & RELAY PIPE-ALL TYPES & SIZES	LF	214	214
714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES	EA	6	6
754	0110	FLAT SHEET FOR SIGNS-TYPE XI REFL SHEETING	SF	58	58
754	0112	FLAT SHEET FOR SIGNS-TYPE IV REFL SHEETING	SF	178	178
754	0206	STEEL GALV POSTS-TELESCOPING PERFORATED TUBE	LF	527	527
754	0562	REFERENCE MARKER-TYPE B	EA	22	22
754	0592	RESET SIGN PANEL	EA	5	5
754	0803	OBJECT MARKERS-TYPE III	EA	20	20
754	0805	OBJECT MARKERS-CULVERTS	EA	39	39
760	0005	RUMBLE STRIPS-ASPHALT SHOULDER	MILE	45.066	45.066
760	0007	RUMBLE STRIPS-ASPHALT CENTERLINE	MILE	22.533	22.533
760	0009	RUMBLE STRIPS-INTERSECTION	EA	1	1
762	0103	PVMT MK PAINTED-MESSAGE	SF	48	48
762	0430	SHORT TERM 4IN LINE-TYPE NR	LF	99,001	99,001
762	1104	PVMT MK PAINTED 4IN LINE	LF	290,505	290,505
762	1108	PVMT MK PAINTED 8IN LINE	LF	610	610
762	1124	PVMT MK PAINTED 24IN LINE	LF	155	155

BASIS OF ESTIMATE

Coring
Sta 2926+65 (RP 55.429) to Sta 4116+40 (RP 77.962) = 118,973 LF

Density Cores
118,973 LF/2,000 LF *1 Lift *2 Lanes = 119 Sublots
119 Sublots *2 Cores/Sublot = 238 Cores

Rumble Strips
Asphalt Shoulder
22.533 mile x 2 = 45.066 Mile

Asphalt Centerline
22.533 mile = 22.533 Mile

Saw Slotted Rumble Strips
Westbound Lane of ND 17 at the South Junction of ND 17 and ND 20
(See Standard Drawing D-760-5)

Water
Water for compaction:

- 20 Gal/Ton for Aggregate Base Course CL 5 x 12,721 Ton = 255 MGal
- 10 Gal/CY for Borrow x 1,183 CY = 12 MGal

Topsoil
Topsoil shall be placed at a 6 inch depth from the edge of the disturbed area to the edge of the pavement.

Seeding Class II and Class IV and Mulching
Class II and Class IV seeding and mulching shall be placed from the edge of the disturbed area to the edge of the pavement.

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BASIS OF ESTIMATE

Short Term 4 IN Line – Type NR **Total = 99,001 LF**

22.533 mile (10' Line, 30' Skip) x 1,320 LF/Mile
- 1,320 LF/Mile for 10' Line, 30' Skip x 1 Lift (29,744 LF)
- 1,320 LF/Mile for 10' Line, 30' Skip for rumble strip (29,744 LF)

0.180 mile (10' Line, 30' Skip) x 1,320 LF/Mile
- 1,320 LF/Mile for 10' Line, 30' Skip for ND 20 x 1 Lift (238 LF)

0.019 mile (10' Line, 30' Skip) x 1,320 LF/Mile
- 1,320 LF/Mile for 10' Line, 30' Skip for Ramsey CR 3 Northbound x 1 Lift (25 LF)

No Passing Zones
- 645 LF Northbound Barrier Line x 1 Lift (645 LF)
- 820 LF Southbound Barrier Line x 1 Lift (820 LF)
- 8,955 LF Eastbound Barrier Line x 1 Lift (8,955 LF)
- 8,580 LF Westbound Barrier Line x 1 Lift (8,580 LF)
- 1,250 LF Crossroad Barrier Line x 1 Lift (1,250 LF)
- 645 LF Northbound Barrier Line for rumble strip (645 LF)
- 820 LF Southbound Barrier Line for rumble strip (820 LF)
- 8,955 LF Eastbound Barrier Line for rumble strip (8,955 LF)
- 8,580 LF Westbound Barrier Line for rumble strip (8,580 LF)

Pvmt MK Painted 4 IN Line **Total = 290,505 LF**

22.533 mile (Edge Line) x 5,280 LF/Mile x 2
- 5,280 LF/Mile for Edge Line x 2 Lines (237,948 LF)
- 950 LF added to ND 20 x 2 Lines (1,900 LF)
- 100 LF added to Ramsey CR 3 x 4 Lines (400 LF)

22.533 mile (10' Line, 30' Skip) x 1,320 LF/Mile
- 1,320 LF/Mile for 10' Line, 30' Skip (29,744 LF)

0.180 mile (10' Line, 30' Skip) x 1,320 LF/Mile
- 1,320 LF/Mile for 10' Line, 30' Skip for ND 20 (238 LF)

0.019 mile (10' Line, 30' Skip) x 1,320 LF/Mile
- 1,320 LF/Mile for 10' Line, 30' Skip for Ramsey CR 3 Northbound (25 LF)

No Passing Zones
- 645 LF Northbound Barrier Line (645 LF)
- 820 LF Southbound Barrier Line (820 LF)
- 8,955 LF Eastbound Barrier Line (8,955 LF)
- 8,580 LF Westbound Barrier Line (8,580 LF)
- 1,250 LF Crossroad Barrier Line (1,250 LF)

Pvmt MK Painted 8 IN Line **Total = 610 LF**

Channel Line at Intersection
- 610 LF at Junction ND 20 South

Pvmt MK Painted 24 IN Line **Total = 155 LF**

Stop Bar at Intersection
- ND 17 (65 LF)
- Ramsey CR 3 (2 x 45 LF)

Pvmt MK Painted - Message **Total = 48 LF**

Turn lanes
- Right Arrow Symbol (3 @ 16 SF Each)

No Passing Zones – Northbound **(Total = 645 LF)**
- Barrier Line 2927+50 to Sta 2933+95 (645 LF)

No Passing Zones – Southbound **(Total = 820 LF)**
- Barrier Line Sta 2926+65 to Sta 2926+95 (30 LF)
- Barrier Line Sta 3077+42 to Sta 3085+32 (790 LF)

No Passing Zones – Eastbound **(Total = 8,955 LF)**
- Barrier Line Sta 3085+85 to Sta 3087+75 (190 LF)
- Barrier Line Sta 3375+80 to Sta 3385+85 (1,005 LF)
- Barrier Line Sta 3481+20 to Sta 3494+35 (1,315 LF)
- Barrier Line Sta 3625+20 to Sta 3635+45 (1,025 LF)
- Barrier Line Sta 3847+70 to Sta 3854+70 (700 LF)
- Barrier Line Sta 3875+55 to Sta 3883+20 (765 LF)
- Barrier Line Sta 3916+10 to Sta 3927+45 (1,135 LF)
- Barrier Line Sta 3950+60 to Sta 3959+80 (920 LF)
- Barrier Line Sta 4022+10 to Sta 4033+30 (1,120 LF)
- Barrier Line Sta 4106+65 to Sta 4114+45 (780 LF)

No Passing Zones – Westbound **(Total = 8,580 LF)**
- Barrier Line Sta 3085+85 to Sta 3100+30 (1,445 LF)
- Barrier Line Sta 3389+05 to Sta 3399+55 (1,050 LF)
- Barrier Line Sta 3499+70 to Sta 3509+40 (970 LF)
- Barrier Line Sta 3643+20 to Sta 3652+70 (950 LF)
- Barrier Line Sta 3862+50 to Sta 3868+20 (570 LF)
- Barrier Line Sta 3890+45 to Sta 3900+25 (980 LF)
- Barrier Line Sta 3931+60 to Sta 3940+60 (900 LF)
- Barrier Line Sta 3962+80 to Sta 3968+65 (585 LF)
- Barrier Line Sta 4038+95 to Sta 4050+25 (1,130 LF)

No Passing Zones – Crossroads **(Total = 1,250 LF)**
- 950 LF added to ND 20 x 1 Line – Northbound (950 LF)
- 100 LF added to Ramsey CR 3 x 1 Line – Northbound (100 LF)
- 100 LF added to Ramsey CR 3 x 2 Lines – Southbound (200 LF)

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	10	3

BASIS OF ESTIMATE

		Stations					
		Sta 2926+65 to Sta 4116+40 except milling/overlay transitions, subcuts, culvert replacement, and turn lane improvement locations.					
		Sta 2926+65 to Sta 3085+56.18 BK = Sta 3085+57.92 AH Stations = 157.3			Sta 3085+56.18 BK = Sta 3085+57.92 AH to Sta 4116+40 Stations = 1,007.2		
Material	Unit	Width (FT)	Area (SF)	Quantity Per Station	Width (FT)	Area (SF)	Quantity Per Station
SS1H or CSS1H or MS1 Emulsified Asphalt @ 0.05 Gal/SY*	Gal	34	-	18.89	34	-	18.89
SS1H or CSS1H Emulsified Asphalt @0.05 Gal/SY (Fog Coat)	Gal	28	-	15.56	30	-	16.67
Hot Bituminous Pavement Superpave @ 2 Ton/CY (Shoulders)	Ton	-	1.14 | 1.14	16.9	-	-	-
Hot Bituminous Pavement Superpave @ 2 Ton/CY (Tight Blading)	Ton	-	-	-	-	-	3.79
Hot Bituminous Pavement Superpave @ 2 Ton/CY (2" Depth)	Ton	-	4.77	35.3	-	5.33	39.5
PG 58-28 Asphalt Cement @ 6.1%	Ton	-	-	3.2	-	-	2.6

* SS1H or CSS1H or MS1 Emulsified Asphalt shall be applied to the existing pavement prior to the placement of HBP for shoulders and tight blading.

		Culvert Replacement					
		At locations for culvert replacement					
		Sta 2926+65 to Sta 3085+56.18 BK = Sta 3085+57.92 AH Stations = 1.6			Sta 3085+56.18 BK = Sta 3085+57.92 AH to Sta 4116+40 Stations = 15.6		
Material	Unit	Width (FT)	Area (SF)	Quantity Per Station	Width (FT)	Area (SF)	Quantity Per Station
Aggregate Base Course CL 5 @ 1.875 Ton/CY	Ton	-	45.48	315.8	-	46.39	322.2
MC70 of 250 Liquid Asphalt @0.25 Gal/SY	Gal	30.9	-	85.8	34	-	94.4
Blotter Material CL 44 @ 15 lbs/SY (Not A Pay Item)	Ton	30.9	-	2.58	34	-	2.83
SS1H or CSS1H or MS1 Emulsified Asphalt @ 0.05 Gal/SY (1st Lift)	Gal	29.5	-	16.39	32	-	17.78
SS1H or CSS1H Emulsified Asphalt @0.05 Gal/SY (Fog Coat)	Gal	28	-	15.56	30	-	16.67
Hot Bituminous Pavement Superpave @ 2 Ton/CY (1st Lift - 2" Depth)	Ton	-	5.03	37.3	-	5.50	40.7
Hot Bituminous Pavement Superpave @ 2 Ton/CY (2nd Lift - 2" Depth)	Ton	-	4.79	35.5	-	5.17	38.3
PG 58-28 Asphalt Cement @ 6.1%	Ton	-	-	4.5	-	-	4.8

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	10	4

BASIS OF ESTIMATE

	Subcuts	
	Includes materials for all pavement; designation shows location of full depth subcut. Total stations for pavement and base = 5.0	
	Locations (Stations)	3838+65 to 3842+65
	Length =	400
Material	Unit	Quantity Per Location
Common Excavation - Subcut	CY	1,635
Removal of Pavement	Ton	1,488
Reinforcement Fabric - Type R1	SY	3,025
Aggregate Base Course CL 5 @ 1.875 Ton/CY	Ton	3,840
MC70 of 250 Liquid Asphalt @ 0.25 Gal/SY	Gal	472
Blotter Material CL 44 @ 15 lbs/SY (Not A Pay Item)	Ton	14.2
SS1H or CSS1H or MS1 Emulsified Asphalt @ 0.05 Gal/SY (1st Lift)	Gal	88.9
SS1H or CSS1H Emulsified Asphalt @0.05 Gal/SY (Fog Coat)	Gal	83.3
Hot Bituminous Pavement Superpave @ 2 Ton/CY (1st Lift - 2" Depth)	Ton	203.7
Hot Bituminous Pavement Superpave @ 2 Ton/CY (2nd Lift - 2" Depth)	Ton	191.5
PG 58-28 Asphalt Cement @ 6.1%	Ton	24.1

		Milling/Overlay Transitions			
		South Junction of ND 17 & ND 20	Ramsey CR 3	Structure No. 17-077.572	End Project
Material	Unit	Quantity Per Location	Quantity Per Location	Quantity Per Location	Quantity Per Location
Milling Pavement Surfacing	SY	290	1,030	666	333
SS1H or CSS1H or MS1 Emulsified Asphalt @ 0.05 Gal/SY	Gal	14.4	51.4	33.3	16.7
SS1H or CSS1H Emulsified Asphalt @0.05 Gal/SY (Fog Coat)	Gal	14.4	51.4	33.3	16.7
Hot Bituminous Pavement Superpave @ 2 Ton/CY	Ton	32.1	114.3	74.1	37.1
PG 58-28 Asphalt Cement @ 6.1%	Ton	2.0	7.0	4.5	2.3

		Turn Lane Improvement
Material	Unit	Quantity Per Location
Removal of Pavement	Ton	667
Aggregate Base Course CL 5 @ 1.875 Ton/CY	Ton	1,693
MC70 of 250 Liquid Asphalt @ 0.25 Gal/SY	Gal	467
Blotter Material CL 44 @ 15 lbs/SY (Not A Pay Item)	Ton	14.0
SS1H or CSS1H or MS1 Emulsified Asphalt @ 0.05 Gal/SY (1st Lift)	Gal	89.4
SS1H or CSS1H Emulsified Asphalt @0.05 Gal/SY (Fog Coat)	Gal	85.4
Hot Bituminous Pavement Superpave @ 2 Ton/CY (1st Lift - 2" Depth)	Ton	203.2
Hot Bituminous Pavement Superpave @ 2 Ton/CY (2nd Lift - 2" Depth)	Ton	194.4
PG 58-28 Asphalt Cement @ 6.1%	Ton	24.3

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Object Markers - Culverts Location Summary		
RP	Station	Location
56.737	2995+73	Lt & Rt
57.598	3041+19	Lt & Rt
58.448	3086+04	Rt
58.865	3108+09	Lt & Rt
60.267	3182+10	Lt & Rt
62.043	3275+89	Lt & Rt
64.774	3420+07	Lt & Rt
65.682	3468+03	Lt & Rt
66.374	3504+57	Lt & Rt
66.875	3531+00	Lt & Rt
67.284	3552+62	Lt & Rt
67.471	3562+48	Lt & Rt
72.361	3820+64	Lt & Rt
72.738	3840+57	Lt & Rt
74.758	3947+21	Lt & Rt
75.298	3975+74	Lt & Rt
75.598	3991+60	Lt & Rt
75.606	3991+98	Lt & Rt
75.791	4001+75	Lt & Rt
75.793	4001+87	Lt & Rt
Total		39

Note:
Refer to Standard Drawing D-754-83 for Object Markers - Culverts details.

Earthwork Summary

Location	Common Excavation Type A (CY) Pay Item	Common Excavation - Subcut (CY) Pay Item	Embankment (CY)	Borrow - Embankment (CY) Pay Item
	A	B	C	D=C-A
Mainline	0	1,635	0	0
Right Turn Lane Improvement	0	0	1,183	1,183
Totals	**0**	**1,635**	**1,183**	**1,183**

Notes:
1. This computation report is not a balance sheet. The Contractor shall calculate its own balance of materials.
2. An additional volume of 25% to allow for shrinkage is included in all embankment volumes.

Topsoil Summary

Location	Topsoil Stripping (CY)	Topsoil Placement (CY)
Mainline	4,017	4,017
Right Turn Lane Improvement	460	460
Totals	**4,477**	**4,477**

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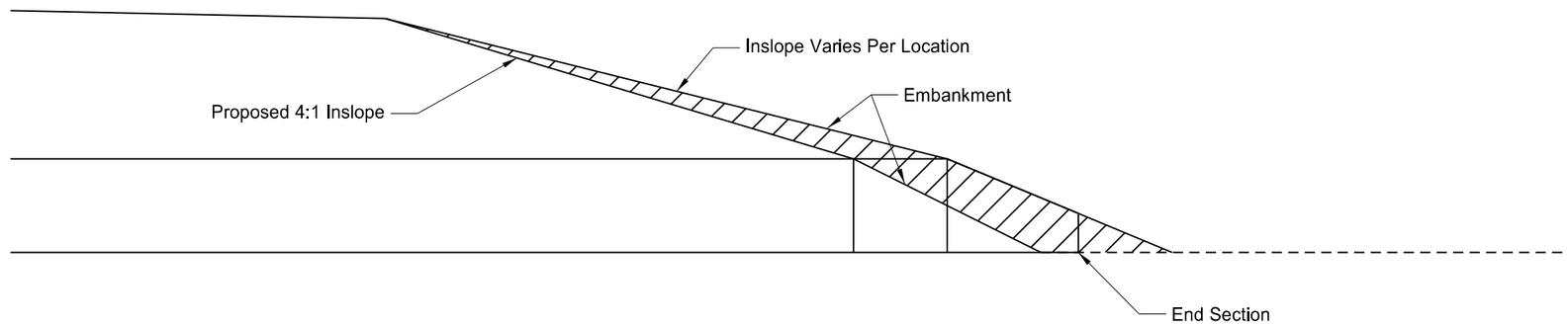
Data Tables
Earthwork and Topsoil Summary

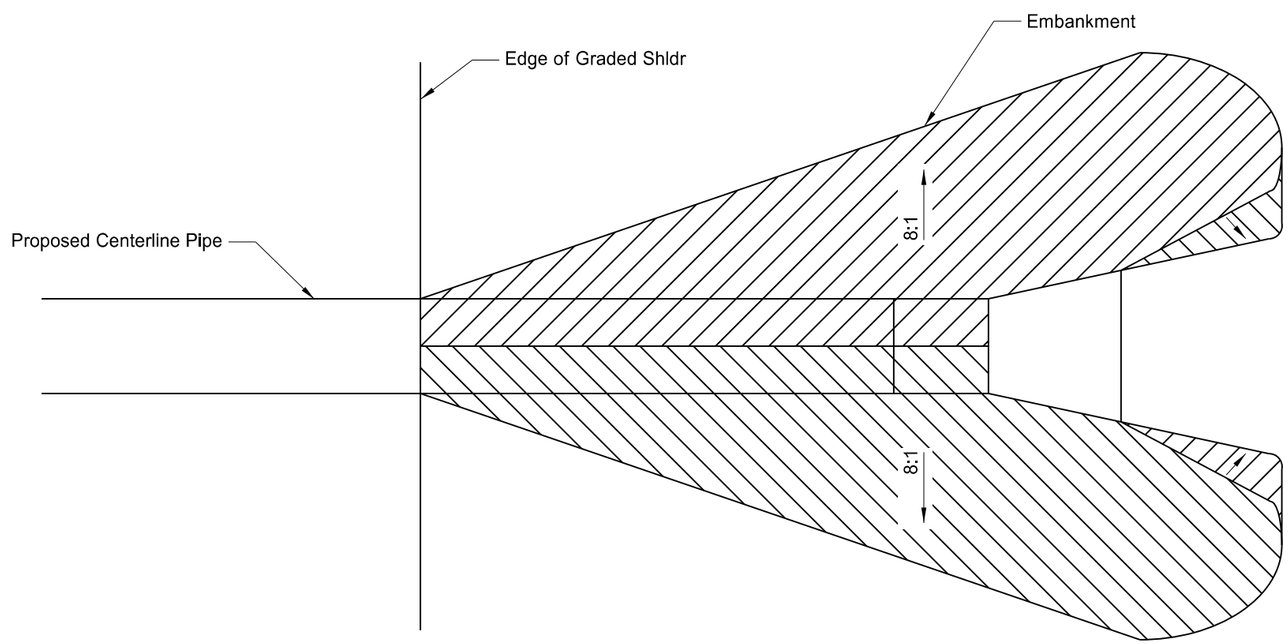
Starweather S to Edmore - ND 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	20	1



Section

Locations
Sta 3275+89
Sta 3420+07
Sta 3468+03
Sta 3504+57
Sta 3531+00
Sta 3552+62
Sta 3820+64
Sta 3840+57
Sta 3991+60
Sta 3991+70
Sta 3991+83
Sta 3991+98



Plan View

Note:
Additional embankment shall be included in the price bid for "Pipe Conduit_IN", and "Pipe Conc Reinf Arch 65IN x 40IN CL II".

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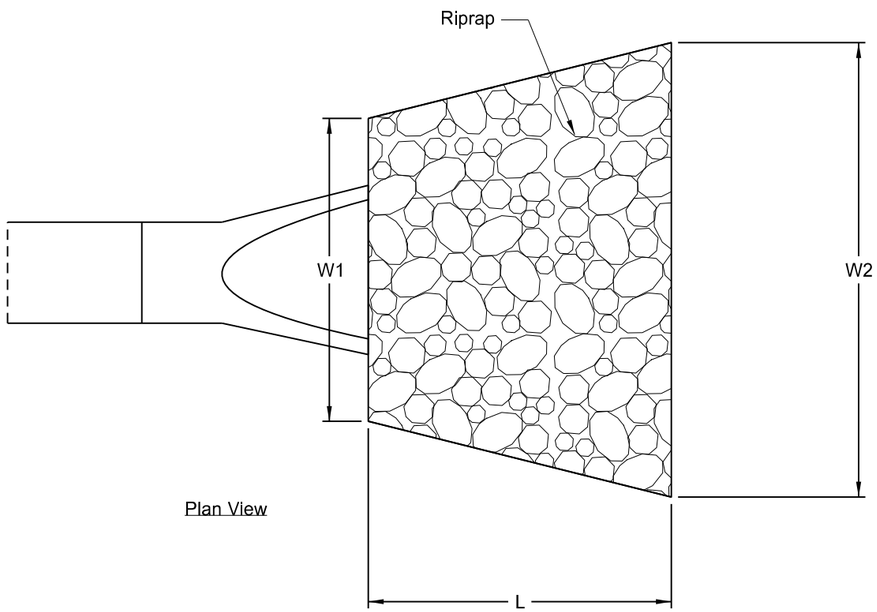
Additional Embankment at Centerline Pipe Extended to Clear Zone

Starkweather S to Edmore - ND 17

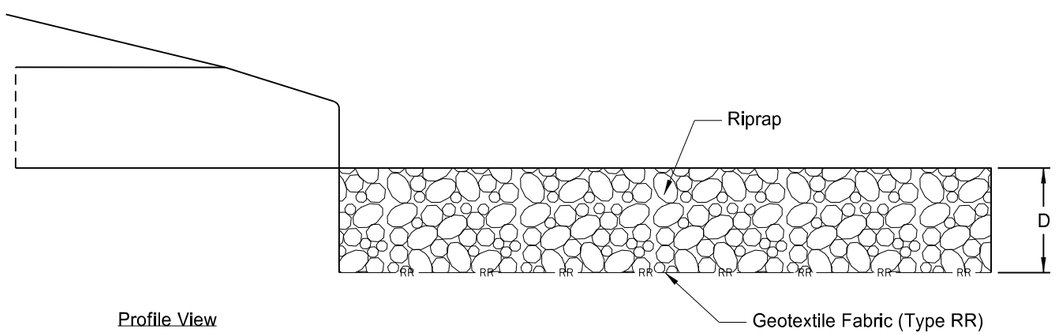
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	20	2



Plan View

Pipe Diameter (IN)	L (FT)	W1 (FT)	W2 (FT)	Riprap Depth, D (IN)
30	10	7	17	24
42	10	8.5	18.5	24
48	10	9	19	24
60	10	10	20	24

Pipe Diameter (IN)	RR Fabric (SY)	Riprap (TON)
30	13.3	17.8
42	15.0	20.0
48	15.6	20.7
60	16.7	22.2



Profile View

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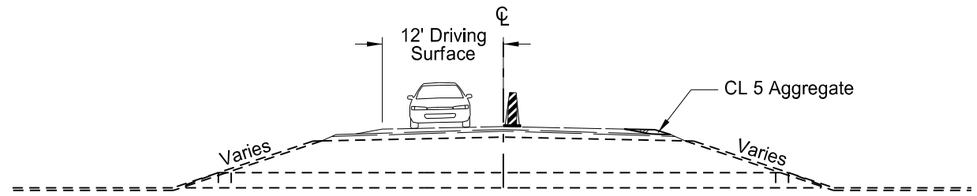
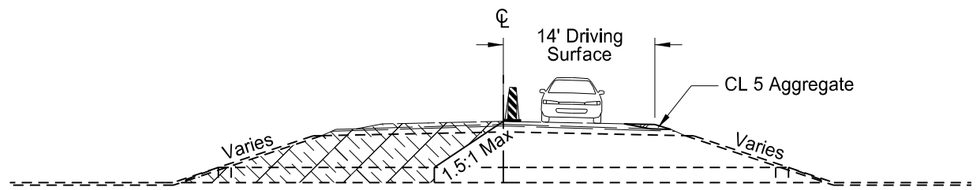
Riprap Detail
Culvert End Sections

Starkweather S to Edmore - ND 17

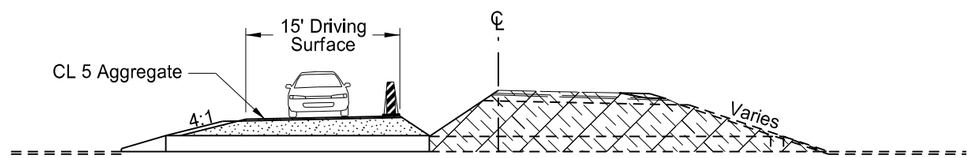
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	20	3



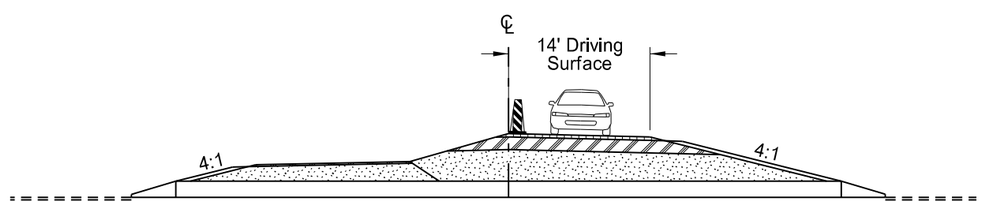
Phase I
Install 14' wide temporary driving surface on right side.



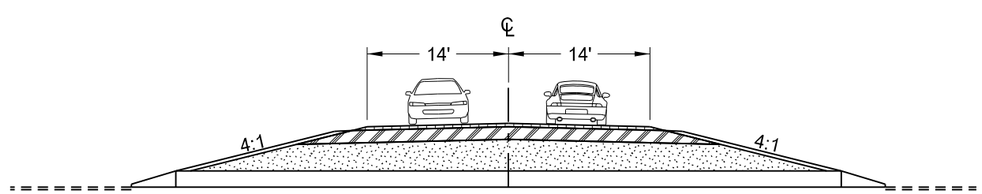
Phase II
Excavate left side.
Install left pipe section and backfill with Approved Material.
Install 15' wide temporary driving surface on left side.



Phase III
Excavate right side.
Install right pipe section and backfill with Approved Material.
Install Aggregate Base Course CL 5 and Hot Bit Pvmt on right side.



Phase IV
Backfill remaining Approved material on left side.
Install Aggregate Base Course CL 5 and Hot Bit Pvmt on left side.



Phase V

Notes:
1. CL 5 Aggregate to be placed in Phase I will only be required at Sta 2995+73 and Sta 3041+19.
2. Use Standard Drawing D-704-15 Type A for Work Zone Traffic Control.
3. Stackable Vertical Panels shall be spaced at 25 LF
4. 1.5:1 Max inslope shall only be allowed during hours of construction.
5. During non-working hours, refer to Note 714-P01.

Detail Applies to Pipes at:
Sta 2995+73
Sta 3041+19
Sta 3108+09
Sta 3182+10
Sta 3275+89
Sta 3420+07
Sta 3468+03
Sta 3504+57
Sta 3531+00
Sta 3552+62
Sta 3562+48
Sta 3820+64
Sta 3840+57
Sta 3947+21
Sta 3975+74
Sta 3991+83
Sta 3991+98
Sta 4001+87

Excavation
Temporary Fill Material
Pipe Backfill Material
Aggregate Base Course CL 5
Hot Bit Pvmt
Stackable Vertical Panels

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Pipe Installation Phasing Detail

Starkweather S to Edmore - ND 17

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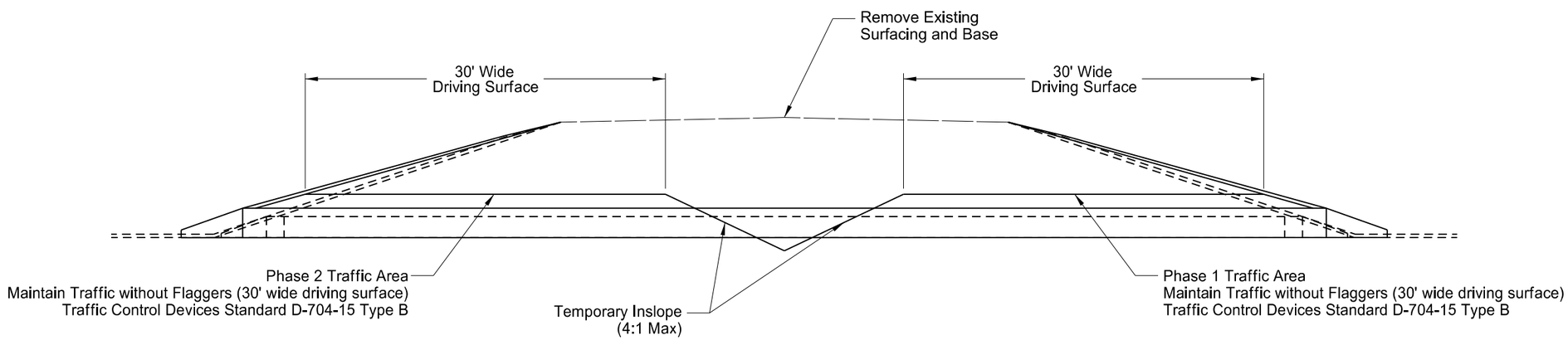
ND	SS-3-017(023)055	20	4

Detail Applies to Pipes at:
Sta 3991+60
Sta 3991+70
Sta 4001+75



Traffic Control Without Flaggers

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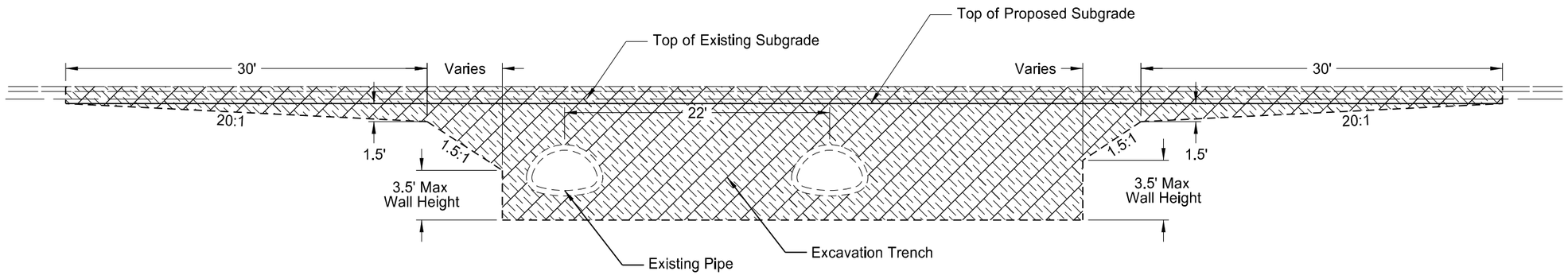
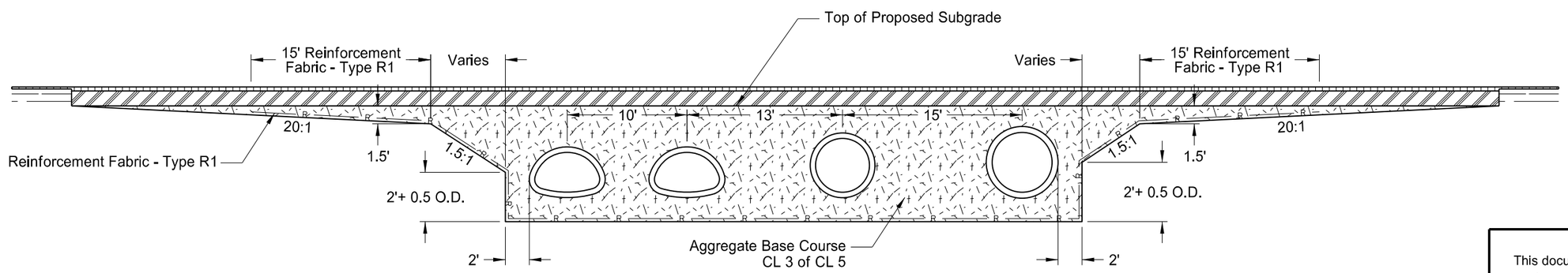
Pipe Installation Phasing Detail

Starkweather S to Edmore - ND 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	20	5



EXCAVATION DETAIL - PROFILE VIEW



INSTALLATION DETAIL - PROFILE VIEW

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Pay Items
1) Pipe*
2) Reinforcement Fabric-Type R1
3) Remove & Relay Pipe-All Types & Sizes
4) Remove & Relay End Section-All Type & Sizes

*Included in Pipe Pay Item
1) Pipe
2) Trench Excavation
3) Aggregate Base Course CL 3 or CL 5
4) Common Excavation - Type A

Excavation

Hot Bit Pvmt

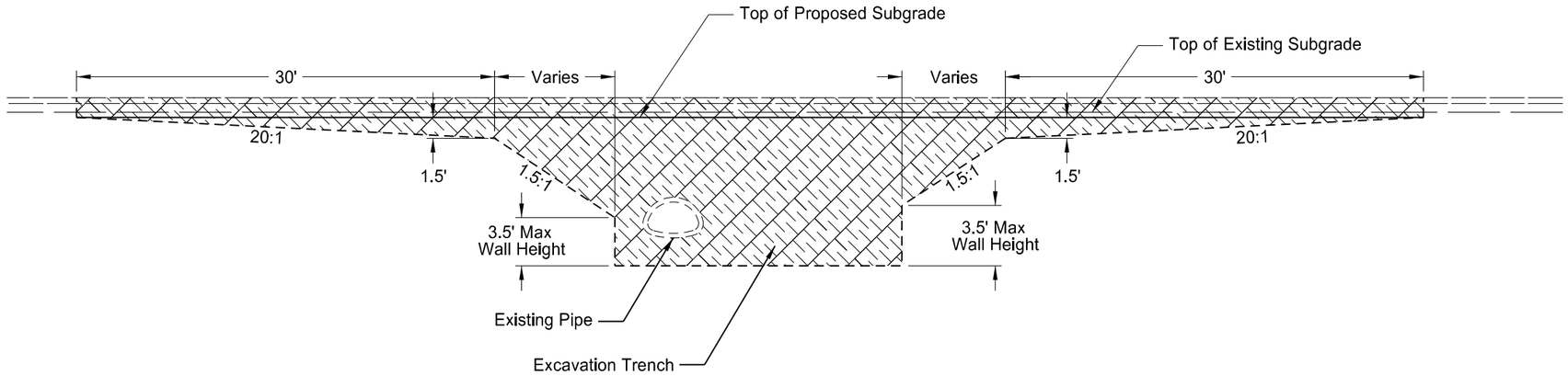
Aggregate Base Course CL 5

Aggregate Base Course CL 3 or CL 5

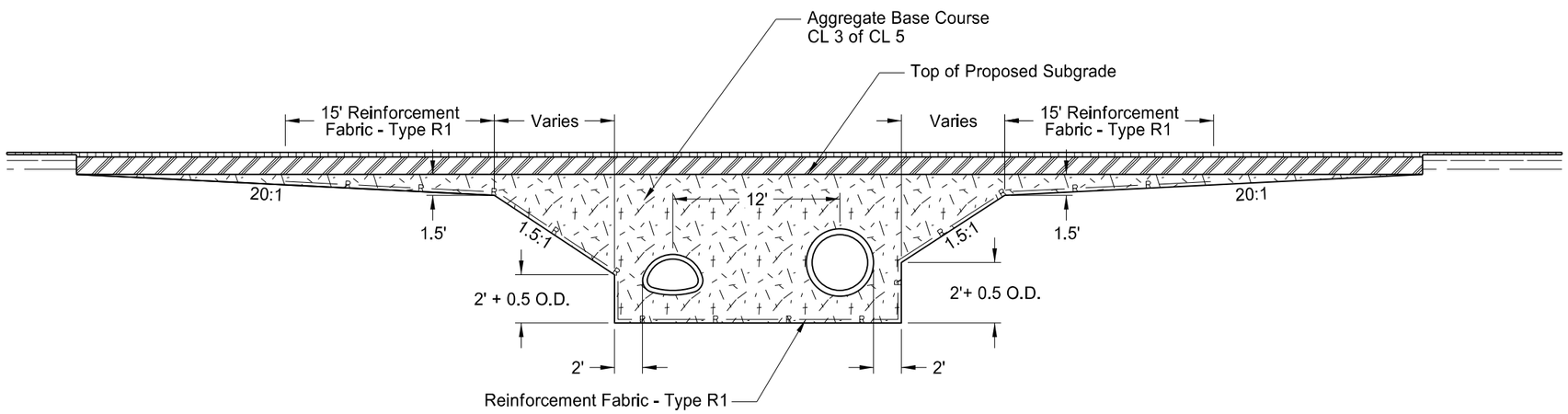
Proposed Backfill for Multiple Pipe Installations
Sta 3991+60 to Sta 3991+98

Starkweather S to Edmore - ND 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	20	6



EXCAVATION DETAIL - PROFILE VIEW



INSTALLATION DETAIL - PROFILE VIEW

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Pay Items
1) Pipe*
2) Reinforcement Fabric-Type R1
3) Remove & Relay Pipe-All Types & Sizes
4) Remove & Relay End Section-All Type & Sizes

*Included in Pipe Pay Item
1) Pipe
2) Trench Excavation
3) Aggregate Base Course CL 3 or CL 5
4) Common Excavation - Type A

Excavation

Hot Bit Pvmt

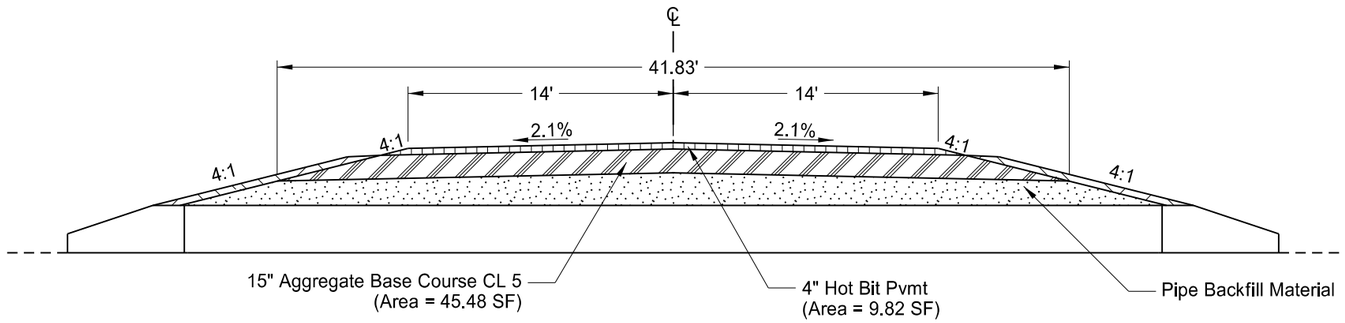
Aggregate Base Course CL 5

Aggregate Base Course CL 3 or CL 5

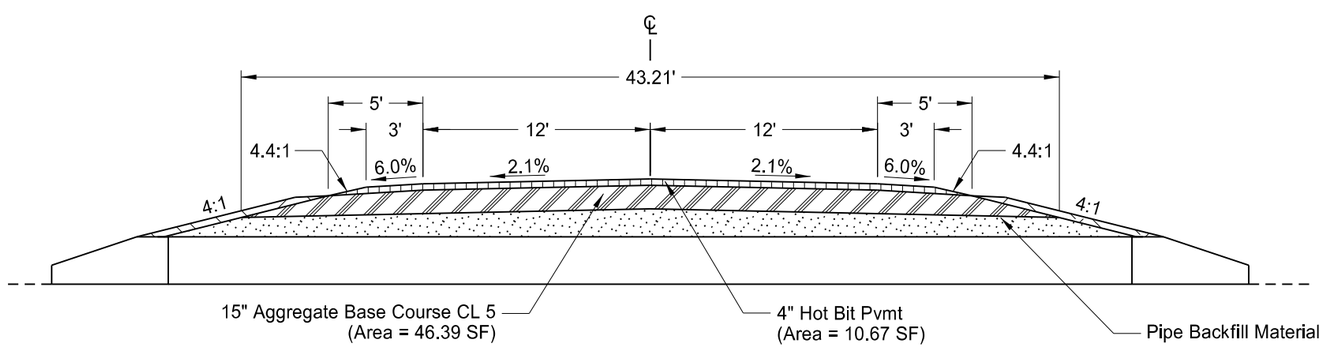
Proposed Backfill for Multiple Pipe Installations
Sta 4001+75 to Sta 4001+87

Starkweather S to Edmore - ND 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	20	7



Proposed Section at Culvert Replacement Locations
RP 55.429 to RP 58.439
Sta 2926+65 to
Sta 3085+56.18 BK = Sta 3085+57.92 AH



Proposed Section at Culvert Replacement Locations
RP 58.439 to RP 77.962
Sta 3085+56.18 BK = Sta 3085+57.92 AH
to Sta 4116+40

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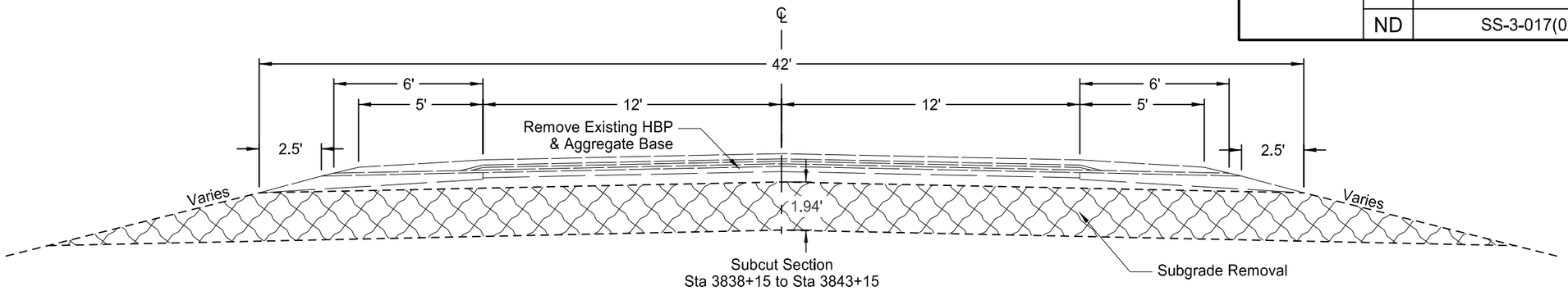
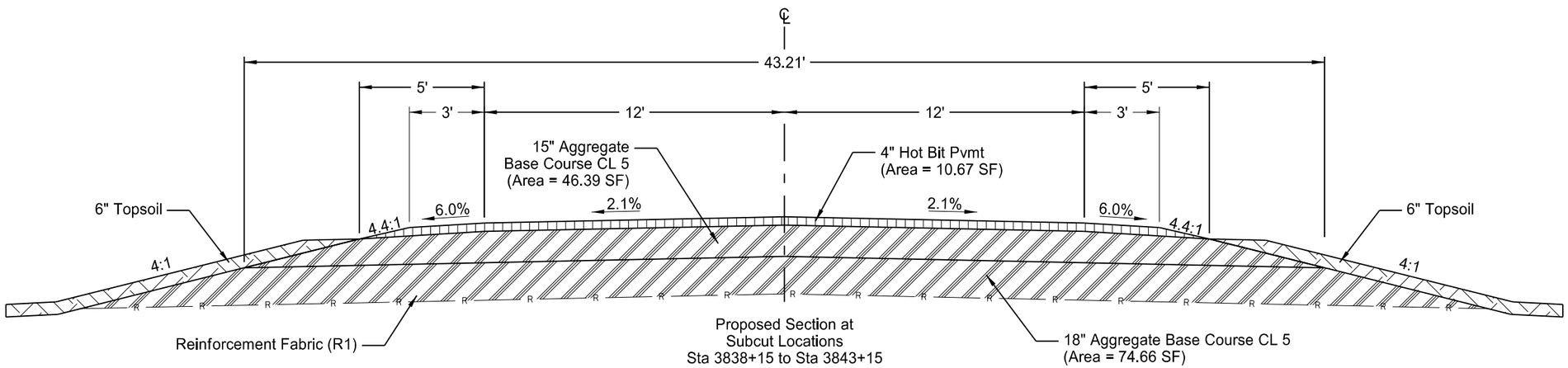
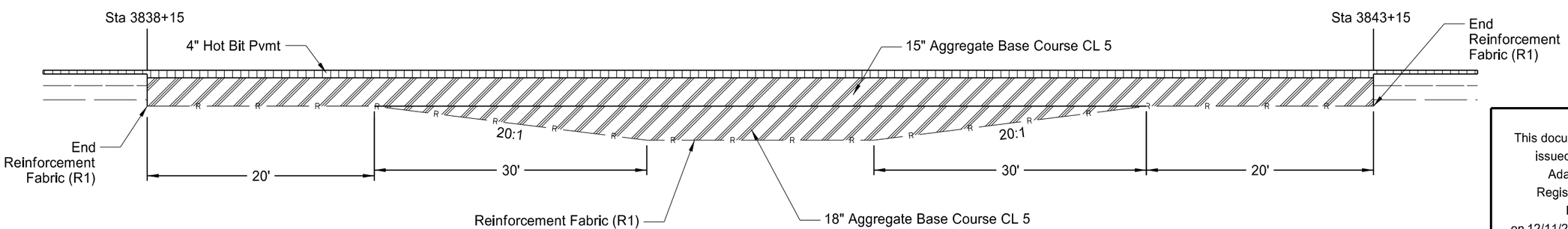
Culvert Replacement Details

Starkweather S to Edmore - Hwy 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	20	8







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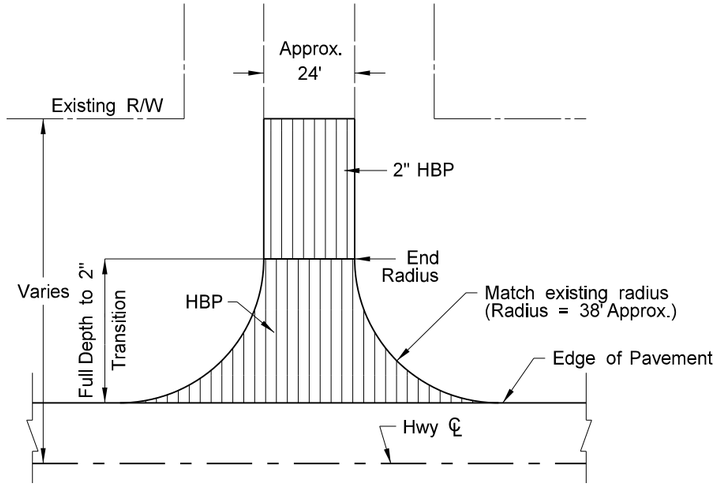
Location of Full Depth of Subcut	Depth of Subcut Below Proposed Base at Centerline	Subcut Quantities		
		Common Excavation - Subcut (CY)	Removal of Pavement (Ton)	Reinforcement Fabric - Type R1 (SY)
Sta 3838+65 to Sta 3842+65	18"	1,635	1,488	3,025

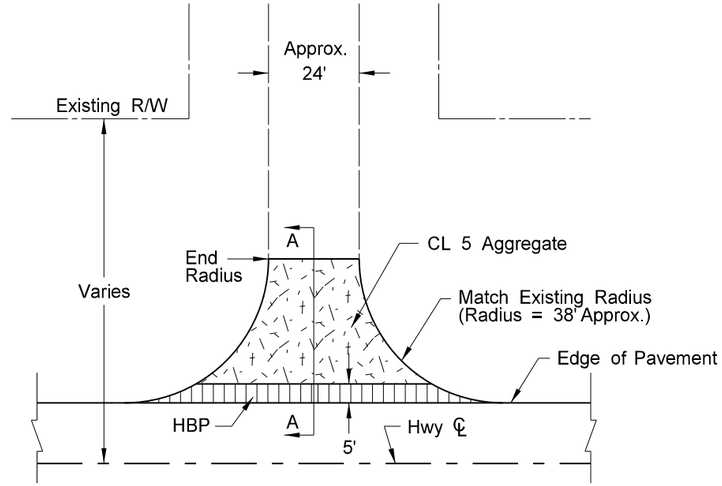
Typical Subcut Details

Starkweather S to Edmore - ND 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	20	9



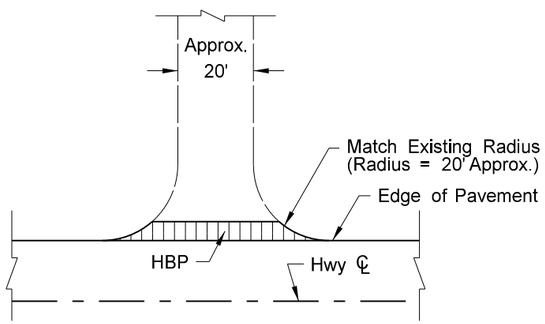
(1) Paved Section Line, County Road, or Street Approach



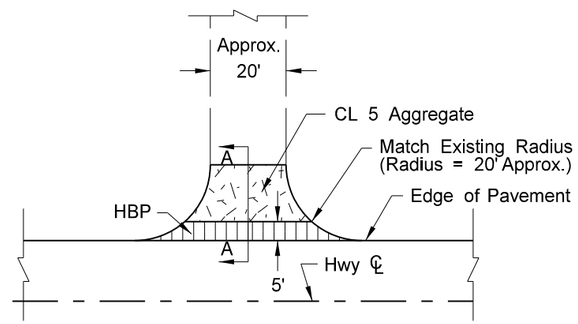
(2) Gravel Section Line, County Road, or Street Approach

Notes:

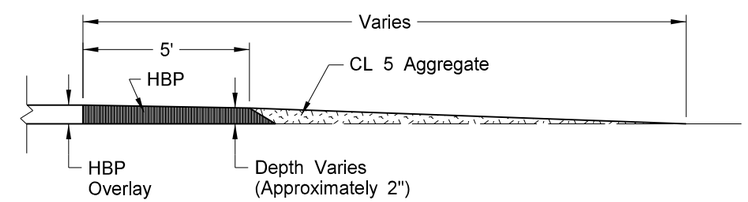
1. A longer HBP wedge may be needed if an existing elevation difference between the mainline and the approach exists. Actual HBP paving and CL 5 Aggregate locations may vary in the field for situations, as approved by the Engineer.
2. Quantity totals have been included in the bid items of the "Estimate of Quantities" of the plans.



(3) Paved Private Drive Approach



(4) Gravel Private Drive or Field Drive Approach



Section A-A

BASIS OF ESTIMATE		(1)	(2)	(3)	(4)	
ITEM	UNIT	Paved Section Line	Gravel Section Line	Paved Private Drive	Gravel Field/ Private Drive	TOTALS
Number of Locations	#	1	30	1	112	144
CL 5 Aggregate	TON	N/A	20.1	N/A	9.4	1,656
Tack Coat	GAL	14.6	2.1	1.2	1.2	213
Superpave	TON	48.8	8.0	5.0	5.0	854
Asphalt Cement	TON	3.1	0.5	0.3	0.3	52

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Approach Paving Details

Starkweather S to Edmore - ND 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	20	10

Approach Locations														
RP	Station	Location	Type	Notes	RP	Station	Location	Type	Notes	RP	Station	Location	Type	Notes
55.441	2927+26	Lt	Gravel Section Line	72nd St NE	63.461	3350+76	Lt	Gravel Section Line	87th Ave NE	71.281	3763+64	Rt	Field Drive	
55.441	2927+26	Rt	Gravel Section Line	72nd St NE	63.461	3350+76	Rt	Gravel Section Line	87th Ave NE	71.333	3766+38	Lt	Field Drive	
55.544	2932+70	Rt	Field Drive		63.961	3377+15	Rt	Field Drive		71.458	3773+00	Lt	Gravel Section Line	95th Ave NE
55.810	2946+79	Rt	Gravel Private Drive		63.961	3377+16	Lt	Field Drive		71.459	3773+01	Rt	Gravel Section Line	95th Ave NE
55.815	2947+04	Lt	Paved Street	Main St	64.460	3403+51	Lt	Field Drive		71.716	3786+63	Rt	Field Drive	
55.959	2954+62	Rt	Field Drive		64.460	3403+51	Rt	Gravel Section Line	88th Ave NE	71.718	3786+70	Lt	Field Drive	
56.440	2980+05	Rt	Gravel Section Line	71st St NE	64.652	3413+65	Lt	Field Drive		72.209	3812+61	Lt	Field Drive	
56.441	2980+06	Lt	Field Drive		64.722	3417+31	Rt	Field Drive		72.457	3825+75	Lt	Gravel Section Line	96th Ave NE
56.466	2981+40	Rt	Field Drive		64.918	3427+66	Rt	Field Drive		72.457	3825+75	Rt	Gravel Section Line	96th Ave NE
56.966	3007+81	Lt	Field Drive		64.962	3429+97	Lt	Field Drive		72.834	3845+63	Lt	Field Drive	
57.025	3010+93	Rt	Field Drive		65.115	3438+05	Rt	Field Drive		73.045	3856+75	Lt	Gravel Private Drive	
57.434	3032+53	Rt	Gravel Section Line	70th St NE	65.157	3440+31	Rt	Field Drive		73.046	3856+81	Rt	Field Drive	
57.435	3032+57	Lt	Gravel Section Line	70th St NE	65.460	3456+28	Lt	Field Drive		73.272	3868+74	Lt	Field Drive	
57.681	3045+56	Rt	Field Drive		65.461	3456+33	Rt	Field Drive		73.272	3868+74	Rt	Field Drive	
58.418	3084+46	Rt	Field Drive		65.760	3472+12	Rt	Field Drive		73.457	3878+54	Rt	Gravel Section Line	97th Ave NE
58.439	3085+56	Rt	Gravel Section Line	69th St NE	65.940	3481+65	Rt	Gravel Private Drive		73.458	3878+57	Lt	Gravel Section Line	97th Ave NE
58.458	3086+57	Rt	Field Drive		65.965	3482+96	Lt	Field Drive		73.605	3886+37	Lt	Field Drive	
58.458	3086+57	Lt	Field Drive		66.209	3495+81	Rt	Field Drive		73.606	3886+40	Rt	Field Drive	
58.628	3095+55	Lt	Field Drive		66.209	3495+84	Lt	Field Drive		74.163	3915+79	Rt	Field Drive	
58.628	3095+55	Rt	Field Drive		66.462	3509+17	Rt	Gravel Section Line	90th Ave NE	74.253	3920+55	Lt	Gravel Private Drive	
58.947	3112+40	Lt	Field Drive		66.462	3509+18	Lt	Gravel Section Line	90th Ave NE	74.253	3920+58	Rt	Field Drive	
59.064	3118+57	Lt	Field Drive		66.663	3519+78	Lt	Field Drive		74.459	3931+43	Rt	Gravel Section Line	98th Ave NE
59.160	3123+63	Rt	Field Drive		66.663	3519+78	Rt	Field Drive		74.459	3931+43	Lt	Gravel Section Line	98th Ave NE
59.161	3123+69	Lt	Field Drive		67.162	3546+15	Lt	Field Drive		74.973	3958+58	Lt	Gravel Private Drive	
59.447	3138+82	Lt	Gravel Section Line	83rd Ave NE	67.162	3546+15	Rt	Field Drive		75.012	3960+64	Rt	Gravel Private Drive	
59.448	3138+84	Rt	Field Drive		67.458	3561+79	Rt	Field Drive		75.428	3982+60	Rt	Paved Private Drive	
59.906	3163+03	Rt	Field Drive		67.458	3561+80	Lt	Field Drive		75.464	3984+49	Lt	Gravel Section Line	Ramsey CR 4
59.955	3165+62	Lt	Gravel Private Drive		67.780	3578+77	Rt	Field Drive		75.464	3984+49	Rt	Gravel Section Line	Ramsey CR 4
60.132	3174+99	Rt	Field Drive		67.793	3579+46	Lt	Field Drive		75.783	4001+34	Lt	Field Drive	
60.448	3191+67	Lt	Field Drive		68.083	3594+78	Lt	Field Drive		75.860	4005+40	Rt	Field Drive	
60.448	3191+68	Rt	Gravel Section Line	84th Ave NE	68.083	3594+78	Rt	Field Drive		75.922	4008+70	Rt	Field Drive	
60.665	3203+10	Lt	Field Drive		68.341	3608+39	Lt	Field Drive		75.951	4010+21	Lt	Field Drive	
60.665	3203+10	Rt	Field Drive		68.460	3614+68	Lt	Paved Section Line	Ramsey CR 3	76.198	4023+28	Lt	Field Drive	
60.958	3218+58	Rt	Gravel Private Drive		68.460	3614+68	Rt	Paved Section Line	Ramsey CR 3	76.199	4023+33	Rt	Gravel Private Drive	
60.958	3218+58	Lt	Field Drive		68.705	3627+65	Rt	Field Drive		76.462	4037+18	Lt	Gravel Section Line	100th Ave NE
61.289	3236+08	Rt	Field Drive		68.892	3637+49	Lt	Field Drive		76.462	4037+19	Rt	Field Drive	
61.290	3236+11	Lt	Gravel Private Drive		68.892	3637+49	Rt	Field Drive		76.554	4042+04	Rt	Field Drive	
61.456	3244+90	Lt	Gravel Section Line	85th Ave NE	69.461	3667+54	Rt	Field Drive		76.884	4059+48	Lt	Gravel Private Drive	
61.457	3244+91	Rt	Field Drive		69.461	3667+56	Lt	Field Drive		77.185	4075+38	Lt	Field Drive	
61.743	3260+03	Rt	Field Drive		69.954	3693+58	Lt	Field Drive		77.375	4085+39	Rt	Gravel Private Drive	
61.745	3260+11	Lt	Field Drive		69.955	3693+65	Rt	Field Drive		77.433	4088+44	Rt	Gravel Private Drive	
61.943	3270+60	Lt	Field Drive		70.168	3704+86	Rt	Field Drive		77.464	4090+08	Lt	Gravel Section Line	101st Ave NE
62.458	3297+78	Lt	Gravel Section Line	86th Ave NE	70.458	3720+19	Rt	Gravel Section Line	94th Ave NE	77.507	4092+35	Lt	Field Drive	
62.458	3297+80	Rt	Gravel Section Line	86th Ave NE	70.459	3720+21	Lt	Gravel Section Line	94th Ave NE	77.509	4092+49	Rt	Field Drive	
62.536	3301+91	Lt	Field Drive		70.553	3725+22	Lt	Gravel Private Drive		77.644	4099+60	Lt	Field Drive	
62.536	3301+91	Rt	Gravel Private Drive		70.553	3725+22	Rt	Field Drive		77.644	4099+61	Rt	Field Drive	
62.895	3320+87	Rt	Field Drive		70.608	3728+08	Lt	Gravel Private Drive		77.847	4110+31	Rt	Gravel Private Drive	
62.959	3324+23	Lt	Field Drive		70.714	3733+68	Lt	Field Drive		77.905	4113+40	Lt	Gravel Private Drive	
63.234	3338+76	Lt	Field Drive		71.026	3750+19	Lt	Field Drive						

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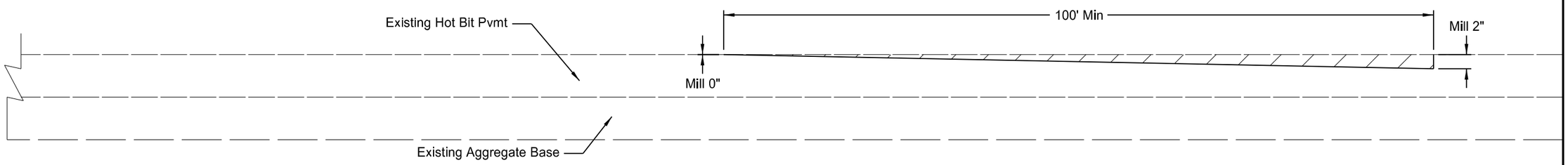
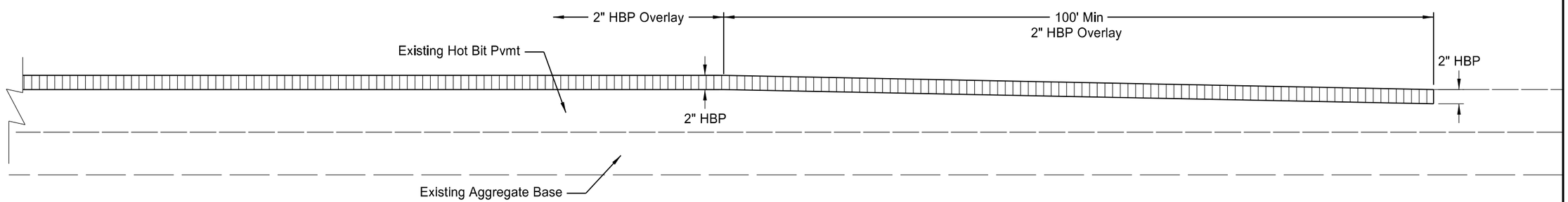
Approach Locations

Starkweather S to Edmore - ND 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	20	11



Proposed Milling Transition



Proposed Paving Transition

Milling Transitions							
Location	Begin Station	Depth (IN)	End Station	Depth (IN)	Length (FT)	Width (FT)	Milling Pavement Surface (SY)
South Junction of ND 17 & ND 20	See Section 80 Plan Sheets						290
Ramsey CR 3	See Section 80 Plan Sheets						1,030
Structure No. 17-077.572	4094+35	0	4095+35	2	100	30	333
Structure No. 17-077.572	4095+80	2	4096+80	0	100	30	333
End Project	4115+40	0	4116+40	2	100	30	333
						Total	2,319 SY

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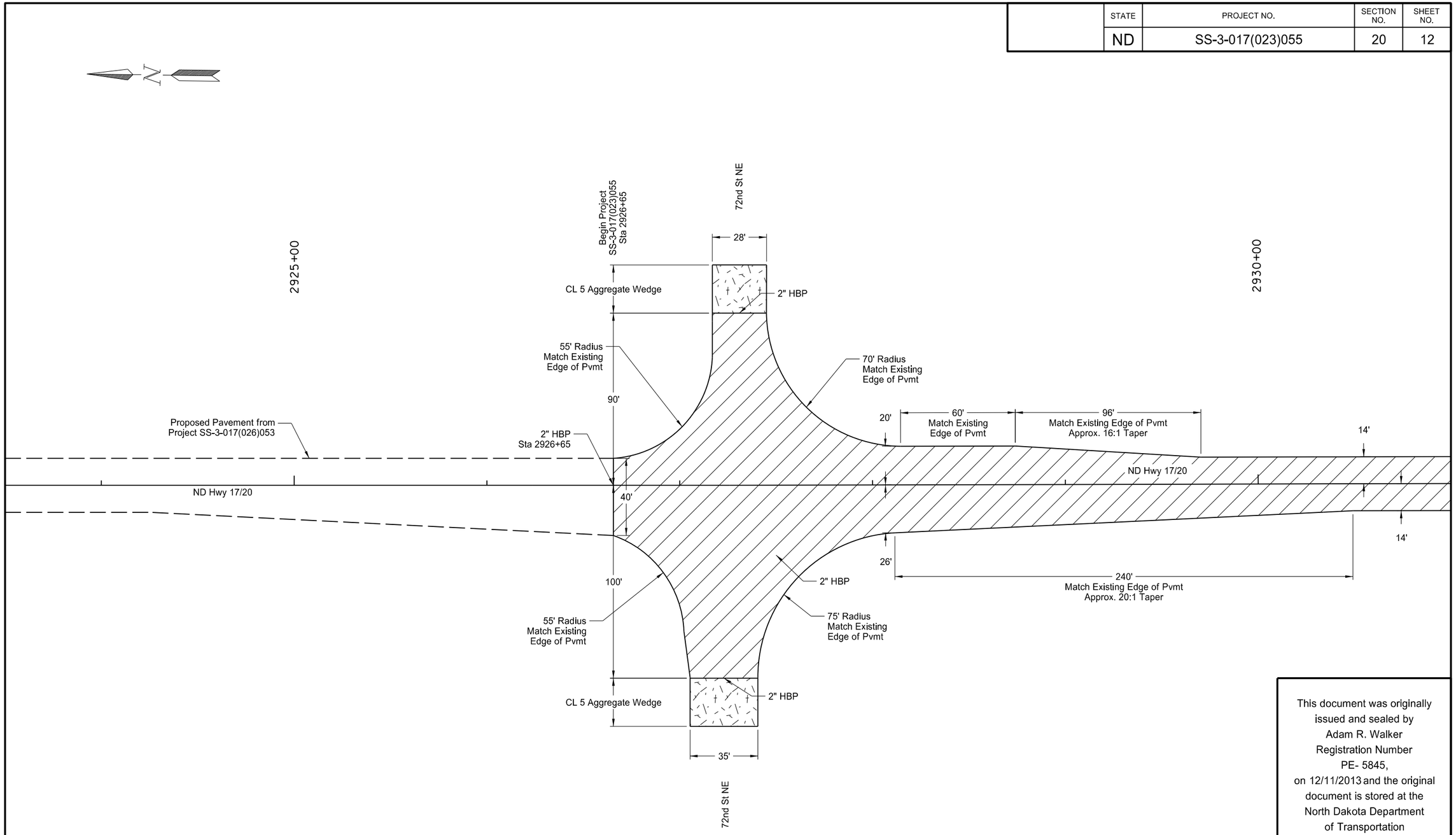
Milling Transitions

Starkweather S to Edmore - ND 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	20	12



2" HBP Overlay

CL 5 Aggregate Wedge

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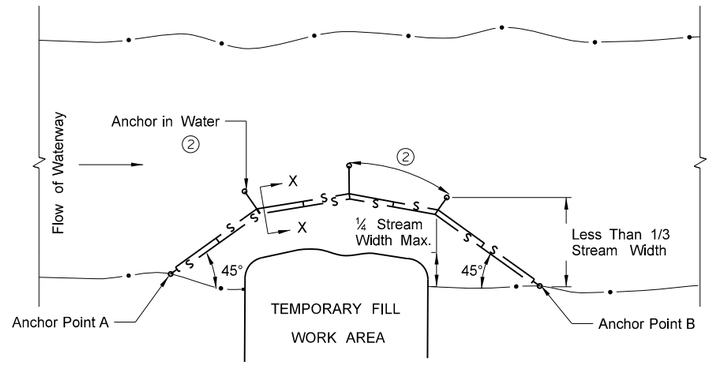
Begin Project
Paving Transition Detail

Starkweather S to Edmore - ND 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	20	13



PLAN VIEW

FLOTATION SILT CURTAIN - TYPE WORK AREA

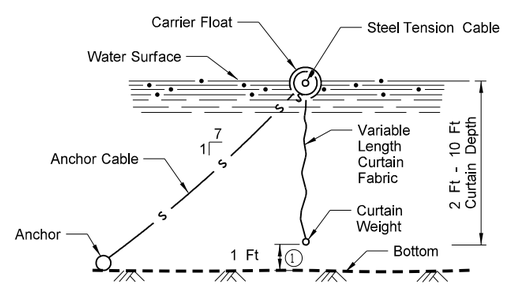
FOR CONTAINING OVERFLOWS FROM WEIRS, STANDPIPES, SETTLING PONDS

DESIGN GUIDELINES:
WHEN TEMPORARY FILL ENCROACHES LESS THAN 1/4 OF THE WIDTH OF STREAM.
MAXIMUM WATER VELOCITY: 5 FT./SEC.
MAXIMUM WATER DEPTH: 11 FT.

Notes:

① Curtain 1 FT from Bottom

② Anchors Shall be Installed per Manufacturer's Recommendations



SECTION X-X
FLOTATION SILT CURTAINS

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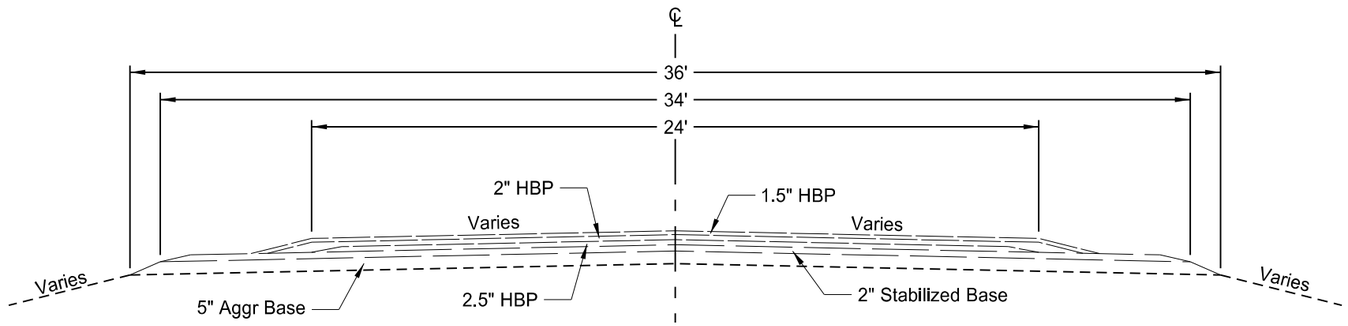
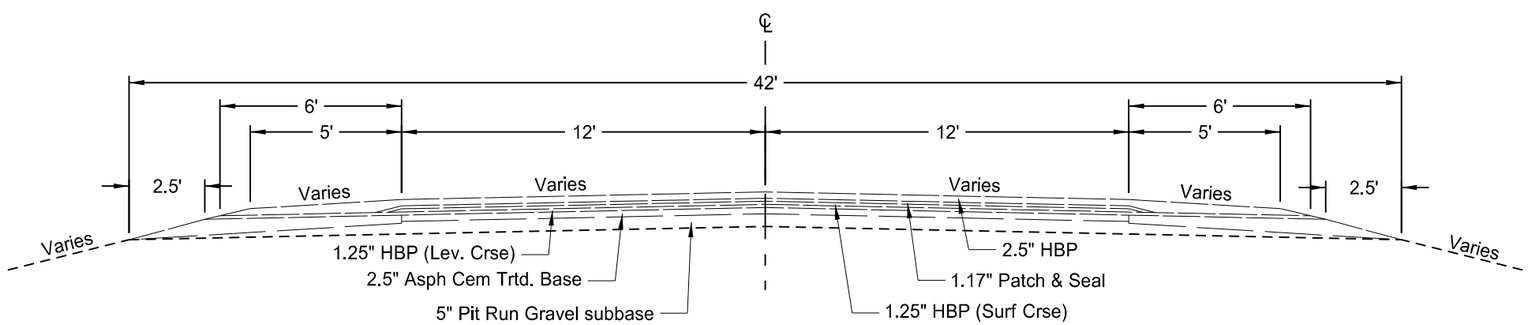
Temporary Erosion Control
Flotation Silt Curtain

Starkweather S to Edmore - ND 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	30	1



Existing Typical Section #1
RP 55.429 to RP 58.439
Sta 2926+65 to
Sta 3085+56.18 BK = Sta 3085+57.92 AH



Existing Typical Section #2
RP 58.439 to RP 77.962
Sta 3085+56.18 BK = Sta 3085+57.92 AH
to Sta 4116+40

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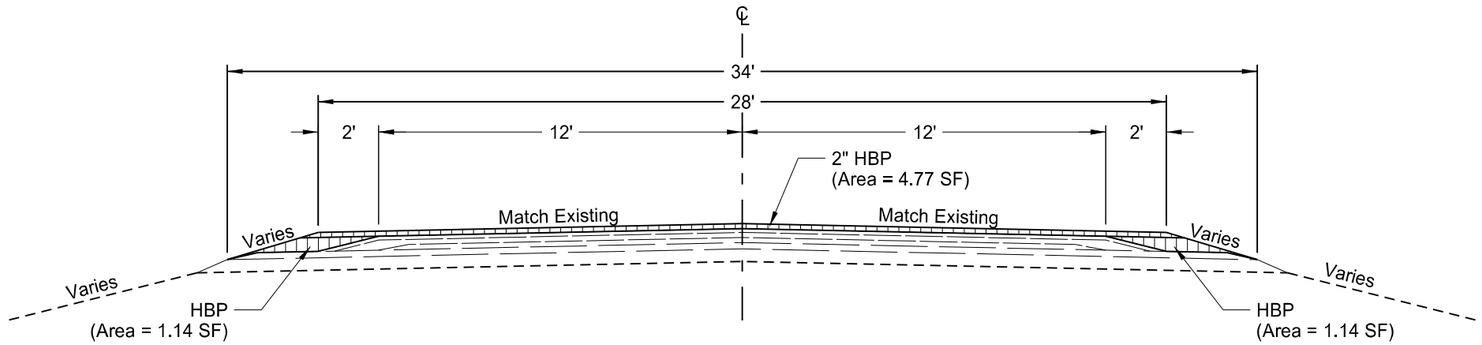
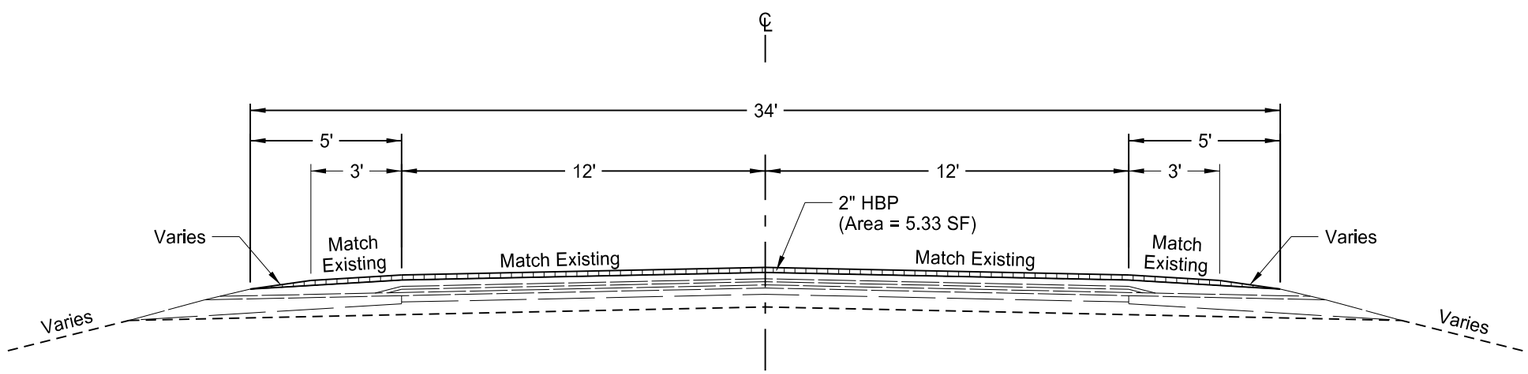
Existing Typical Section

Starkweather S to Edmore - ND 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	30	2



Proposed Typical Section #1
RP 55.429 to RP 58.439
Sta 2926+65 to
Sta 3085+56.18 BK = Sta 3085+57.92 AH



Proposed Typical Section #2
RP 58.439 to RP 77.962
Sta 3085+56.18 BK = Sta 3085+57.92 AH
to Sta 4116+40

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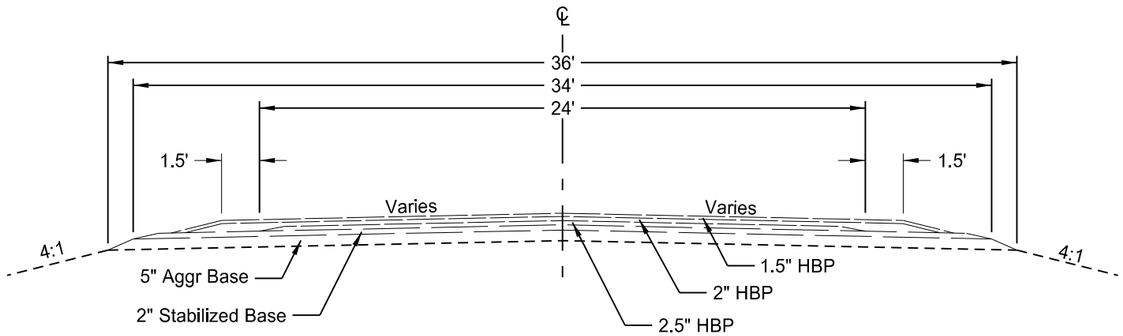
Proposed Typical Section

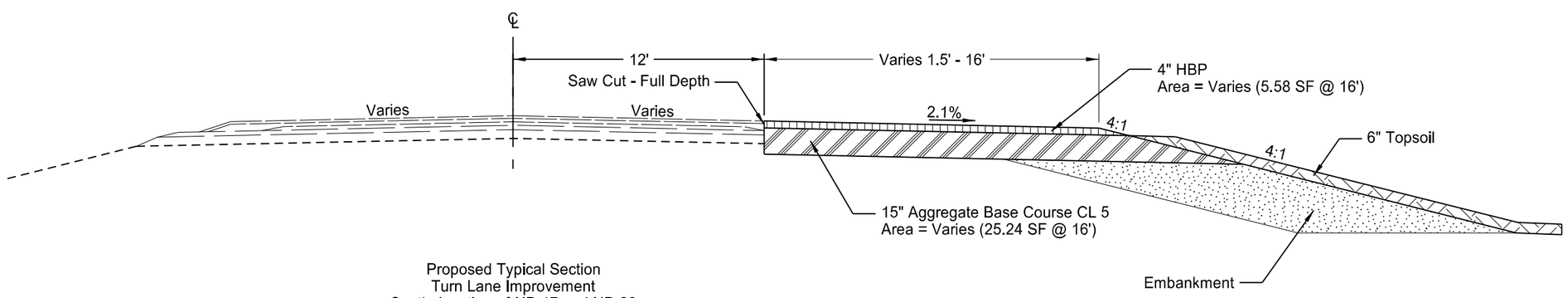
Starkweather S to Edmore - ND 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	30	3



Existing Typical Section
Turn Lane Improvement
South Junction of ND 17 and ND 20
(Looking North)

Note:
Top of asphalt elevation shall match adjacent lane.



Proposed Typical Section
Turn Lane Improvement
South Junction of ND 17 and ND 20
(Looking North)

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Typical Section
Turn Lane Improvement

Starkweather S to Edmore - ND 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	50	1

Hydraulic Data For SS-3-017(023)055 (A)										
Begin Station	End Station	Existing Pipe	Proposed Pipe Size	Drainage Area	25 Year Design Data				100-Year Data	
					Discharge	Headwater	Velocity	U/S Stage	Discharge	U/S Stage
				(Acres)	(cfs)	(Ft.)	(fps)	(Ft.)	(cfs)	(Ft.)
2995+73	2995+73	24" x 64' RCP	30"	174.60	37.17	3.92	10.66	1487.89	66.49	1490.91
3041+19	3041+19	24" x 52' RCP	30"	293.30	44.00	5.04	9.65	1480.23	77.58	1481.01
3108+09	3108+09	24" x 78' RCP	30"	364.68	42.42	4.17	9.43	1479.79	76.50	1486.89
3182+10	3182+10	24" x 90' RCP	36"	602.97	47.78	3.70	8.45	1484.11	88.54	1487.40
3275+89	3275+89	44" x 27" x 78' RCPA	60"	5036.15	218.16	5.78	14.82	1488.18	401.29	1491.58
3420+07	3420+07	24" x 74' RCP	42"	454.95	56.53	2.96	10.06	1493.88	100.30	1495.32
3468+03	3468+03	24" x 72' RCP	48"	1885.29	122.17	5.77	11.03	1496.37	222.18	1498.37
3504+57	3504+57	24" x 84' RCP	42"	555.23	55.03	3.54	8.16	1501.27	99.58	1503.35
3531+00	3531+00	24" x 78' RCP	42"	292.86	47.96	5.00	4.98	1501.62	83.68	1503.66
3552+62	3552+62	24" x 82' RCP	54"	1449.10	88.62	3.39	9.75	1505.07	163.91	1507.93
3562+48	3562+48	24" x 70' RCP	30"	216.94	30.32	3.24	7.72	1505.28	54.54	1508.61
3820+64	3820+64	24" x 84' RCP	54"	2008.81	119.67	5.04	9.86	1211.20	219.31	1514.68
3840+57	3840+57	24" x 74' RCP	66"	5006.65	212.06	7.23	9.08	1510.84	391.22	1512.44
3947+21	3947+21	24" x 84' RCP	36"	394.30	43.31	3.49	8.02	1511.97	78.40	1514.55
3975+74	3975+74	24" x 70' RCP	30"	147.36	28.76	2.87	7.52	1509.16	50.42	1511.23
3991+60	3991+60	65" x 40" x 64' RCPA	Existing	35015.20	724.04	7.67	9.08	1513.22	1353.16	1514.10
3991+70	3991+70	65" x 40" x 64' RCPA	Existing			7.43	8.29			
3991+83	3991+83	New	54"			7.51	9.53			
3991+98	3991+98	New	60"			7.51	9.43			
4001+75	4001+75	44" x 27" x 82' RCPA	Existing			6.95	7.54			
4001+87	4001+87	New	48"			6.95	12.65			

(A) Hydraulic data provided is for smooth-walled (Manning's n=0.012) type conduits.

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Culvert Hydraulic Data

Starkweather S to Edmore - ND 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	51	1

RP	Begin Station / Location	Begin Offset	Begin Pipe Invert	End Station / Location	End Offset	End Pipe Invert	Length	Pipe Conduit Pay Size	Allowable Material	Required Diameter	Minimum Thickness	R1 Fabric (Pay Item)	End Sections Begin	End Sections End	Applicable Backfill Detail	Approx. Depth of Flow Line Below Finished Grade
							LF	In		In	In	SY	EA	EA		LF
56.737	2995+73	30' LT	1483.97	2995+73	32' RT	1483.13	62	30	Reinforced Concrete Pipe - CL II **(Barrel Length = 60 LF)**	30		297	Y-Traversable (4:1) (A)	Y-Traversable (4:1) (A)	D-714-26	7.46
									Polymeric Coated Steel (2-2/3" x 1/2")	36	0.064					
									Polymeric Coated Steel (Spiral Rib)	36	0.064					
57.598	3041+19	26' LT	1475.19	3041+19	26' RT	1475.08	52	30	Reinforced Concrete Pipe - CL III **(Barrel Length = 50 LF)**	30		219	Y-Traversable (4:1) (A)	Y-Traversable (4:1) (A)	D-714-26	6.04
									Polymeric Coated Steel (2-2/3" x 1/2")	36	0.064					
									Polymeric Coated Steel (Spiral Rib)	36	0.064					
58.446	3085+83	288' RT		3086+05	288' RT	1476.75	22	24	Reinforced Concrete Pipe - CL III **(Barrel Length = 20 LF)**	24		115	N	Y-Traversable (4:1)	D-714-28	5.80
58.865	3108+09	38' LT	1475.62	3108+09	40' RT	1475.37	78	30	Reinforced Concrete Pipe - CL II **(Barrel Length = 74 LF)**	30		231	Y-Flared (A)	Y-Flared (A)	D-714-25	8.65
									Polymeric Coated Steel (2-2/3" x 1/2")	36	0.064					
									Aluminum Coated Corrugated Steel (Type 2)	36	0.064					
60.267	3182+10	44' LT	1480.41	3182+10	44' RT	1480.26	88	36	Reinforced Concrete Pipe - CL II **(Barrel Length = 82 LF)**	36		316	Y-Flared (A)	Y-Flared (A)	D-714-25	10.46
									Polymeric Coated Steel (2-2/3" x 1/2")	36	0.064					
									Aluminum Coated Corrugated Steel (Type 2)	36	0.064					
62.043	3275+89	38' LT	1482.40	3275+89	38' RT	1481.48	76	60	Reinforced Concrete Pipe - CL III **(Barrel Length = 70 LF)**	60		427	Y-Flared (A)	Y-Flared (A)	D-714-26	8.93
64.774	3420+07	38' LT	1490.93	3420+07	38' RT	1490.29	76	42	Reinforced Concrete Pipe - CL III **(Barrel Length = 70 LF)**	42		404	Y-Flared (A)	Y-Flared (A)	D-714-26	8.29
									Polymeric Coated Steel (2-2/3" x 1/2")	42	0.064					
									Polymeric Coated Steel (Spiral Rib)	42	0.064					
									Aluminum Coated Corrugated Steel (Type 2)	42	0.168					
65.682	3468+03	38' LT	1490.60	3468+03	38' RT	1490.47	76	48	Reinforced Concrete Pipe - CL III **(Barrel Length = 72 LF)**	48		398	Y-Flared (A)	Y-Flared (A)	D-714-26	7.87
66.374	3504+57	39' LT	1497.73	3504+57	39' RT	1497.43	78	42	Reinforced Concrete Pipe - CL II **(Barrel Length = 72 LF)**	42		435	Y-Flared (A)	Y-Flared (A)	D-714-26	9.11
									Polymeric Coated Steel (2-2/3" x 1/2")	42	0.064					
									Polymeric Coated Steel (Spiral Rib)	42	0.064					
									Aluminum Coated Corrugated Steel (Type 2)	42	0.168					
66.875	3531+00	38' LT	1496.62	3531+00	38' RT	1496.21	76	42	Reinforced Concrete Pipe - CL II **(Barrel Length = 70 LF)**	42		417	Y-Flared (A)	Y-Flared (A)	D-714-26	8.88
									Polymeric Coated Steel (2-2/3" x 1/2")	42	0.064					
									Polymeric Coated Steel (Spiral Rib)	42	0.064					
									Aluminum Coated Corrugated Steel (Type 2)	42	0.168					
67.284	3552+62	38' LT	1501.68	3552+62	38' RT	1501.28	76	54	Reinforced Concrete Pipe - CL III **(Barrel Length = 70 LF)**	54		421	Y-Flared (A)	Y-Flared (A)	D-714-26	8.78
									Polymeric Coated Steel (2-2/3" x 1/2")	54	0.079					
									Polymeric Coated Steel (Spiral Rib)	54	0.079					
									Aluminum Coated Corrugated Steel (Type 2)	54	0.168					
67.471	3562+48	34' LT	1501.85	3562+48	36' RT	1502.04	70	30	Reinforced Concrete Pipe - CL III **(Barrel Length = 68 LF)**	30		340	Y-Traversable (4:1) (A)	Y-Traversable (4:1) (A)	D-714-26	7.19
									Polymeric Coated Steel (2-2/3" x 1/2")	30	0.064					
									Polymeric Coated Steel (Spiral Rib)	30	0.064					

(A) Not paid for seperately, to be included in the price bid for Pipe Conduit.

Notes:
1. Finished grade shall be considered the top of the proposed 2 inch overlay for centerline pipes. Depth taken at the centerline of the roadway.
2. For pipe extensions, "Begin Offset" refers to the opening of the existing pipe barrel, "End Offset" refers to the opening of the end section.

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Allowable Pipe List

Starkweather S to Edmore - ND 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	51	2

RP	Begin Station / Location	Begin Offset	Begin Pipe Invert	End Station / Location	End Offset	End Pipe Invert	Length	Pipe Conduit Pay Size	Allowable Material	Required Diameter	Minimum Thickness	R1 Fabric (Pay Item)	End Sections Begin	End Sections End	Applicable Backfill Detail	Approx. Depth of Flow Line Below Finished Grade
							LF	In		In	In	SY	EA	EA		LF
72.361	3820+64	38' LT	1506.16	3820+64	38' RT	1505.99	76	54	Reinforced Concrete Pipe - CL II **(Barrel Length = 70 LF)**	54		439	Y-Flared (A)	Y-Flared (A)	D-714-26	9.62
									Polymeric Coated Steel (2-2/3" x 1/2")	60	0.109					
									Polymeric Coated Steel (Spiral Rib)	60	0.079					
									Aluminum Coated Corrugated Steel (Type 2)	60	0.168					
72.738	3840+57	38' LT	1503.76	3840+57	38' RT	1503.66	76	66	Reinforced Concrete Pipe - CL III **(Barrel Length = 70 LF)**	66		433	Y-Flared (A)	Y-Flared (A)	D-714-26	9.08
74.758	3947+21	41' LT	1508.48	3947+21	41' RT	1508.44	82	36	Reinforced Concrete Pipe - CL II **(Barrel Length = 76 LF)**	36		268	Y-Flared (A)	Y-Flared (A)	D-714-25	9.44
									Polymeric Coated Steel (2-2/3" x 1/2")	36	0.064					
									Polymeric Coated Steel (Spiral Rib)	36	0.064					
75.298	3975+74	39' LT	1506.29	3975+74	37' RT	1505.91	76	30	Reinforced Concrete Pipe - CL II **(Barrel Length = 72 LF)**	30		221	Y-Flared (A)	Y-Traversable (4:1) (A)	D-714-25	8.46
									Polymeric Coated Steel (2-2/3" x 1/2")	30	0.064					
									Polymeric Coated Steel (Spiral Rib)	30	0.064					
75.598 (B)	3991+60	33' LT		3991+60	40' LT	1505.55	4	65W x 40H Arch	Reinforced Concrete Pipe - CL II (**Barrel Length = 4 LF**)	65W x 40H		240	N	Y - Remove & Relay	Section 20 Sheet 5	8.82
75.598 (B)	3991+60	33' RT		3991+60	40' RT	1505.46	4	65W x 40H Arch	Reinforced Concrete Pipe - CL II (**Barrel Length = 4 LF**)	65W x 40H		240	N	Y - Remove & Relay	Section 20 Sheet 5	8.82
75.603 (C)	3991+70	33' LT		3991+70	40' LT	1505.79	4	65W x 40H Arch	Reinforced Concrete Pipe - CL II (**Barrel Length = 4 LF**)	65W x 40H		240	N	Y - Remove & Relay	Section 20 Sheet 5	8.86
75.603 (C)	3991+70	33' RT		3991+70	40' RT	1505.13	4	65W x 40H Arch	Reinforced Concrete Pipe - CL II (**Barrel Length = 4 LF**)	65W x 40H		240	N	Y - Remove & Relay	Section 20 Sheet 5	8.86
75.605	3991+83	38' LT	1505.71	3991+83	38' RT	1505.19	76	54	Reinforced Concrete Pipe - CL III **(Barrel Length = 70 LF)**	54		428	Y-Flared (A)	Y-Flared (A)	Section 20 Sheet 5	8.87
									Polymeric Coated Steel (2-2/3" x 1/2")	60	0.109					
									Polymeric Coated Steel (Spiral Rib)	60	0.079					
									Aluminum Coated Corrugated Steel (Type 2)	60	0.168					
75.608	3991+98	38' LT	1505.71	3991+98	38' RT	1505.19	76	60	Reinforced Concrete Pipe - CL III **(Barrel Length = 70 LF)**	60		442	Y-Flared (A)	Y-Flared (A)	Section 20 Sheet 5	8.87
									Polymeric Coated Steel (2-2/3" x 1/2")	60	0.109					
									Polymeric Coated Steel (Spiral Rib)	60	0.079					
									Aluminum Coated Corrugated Steel (Type 2)	60	0.168					
75.791 (D)	4001+75	43' LT	1506.27	4001+75	45' RT	1505.57			Existing Pipe 44W x 27H RCPA			281	Y - Remove & Relay	Y - Remove & Relay	Section 20 Sheet 6	9.87
75.793	4001+87	39' LT	1506.27	4001+87	41' RT	1505.57	80	48	Reinforced Concrete Pipe - CL III **(Barrel Length = 76 LF)**	48		282	Y-Flared (A)	Y-Flared (A)	Section 20 Sheet 6	9.87
									Polymeric Coated Steel (2-2/3" x 1/2")	60	0.109					
									Polymeric Coated Steel (Spiral Rib)	60	0.079					
									Aluminum Coated Corrugated Steel (Type 2)	60	0.168					

(A) Not paid for seperately, to be included in the price bid for Pipe Conduit.

(B) The full length of existing pipe shall be removed and relayed.
The pipe shall be extended 4 LF at each end. Also, the end sections shall be removed and relayed.

(C) The full length of existing pipe shall be removed and relayed.
The pipe shall be extended 4 LF at each end. Also, the end sections shall be removed and relayed.
Pipe shall be relocated from Sta 3991+82 to Sta 3991+70.

(D) The full length of existing pipe shall be removed and relayed.
Also, the end sections shall be removed and relayed.

Notes:
1. Finished grade shall be considered the top of the proposed 2 inch overlay for centerline pipes.
Depth taken at the centerline of the roadway.

2. For pipe extensions, "Begin Offset" refers to the opening of the existing pipe barrel,
"End Offset" refers to the opening of the end section.

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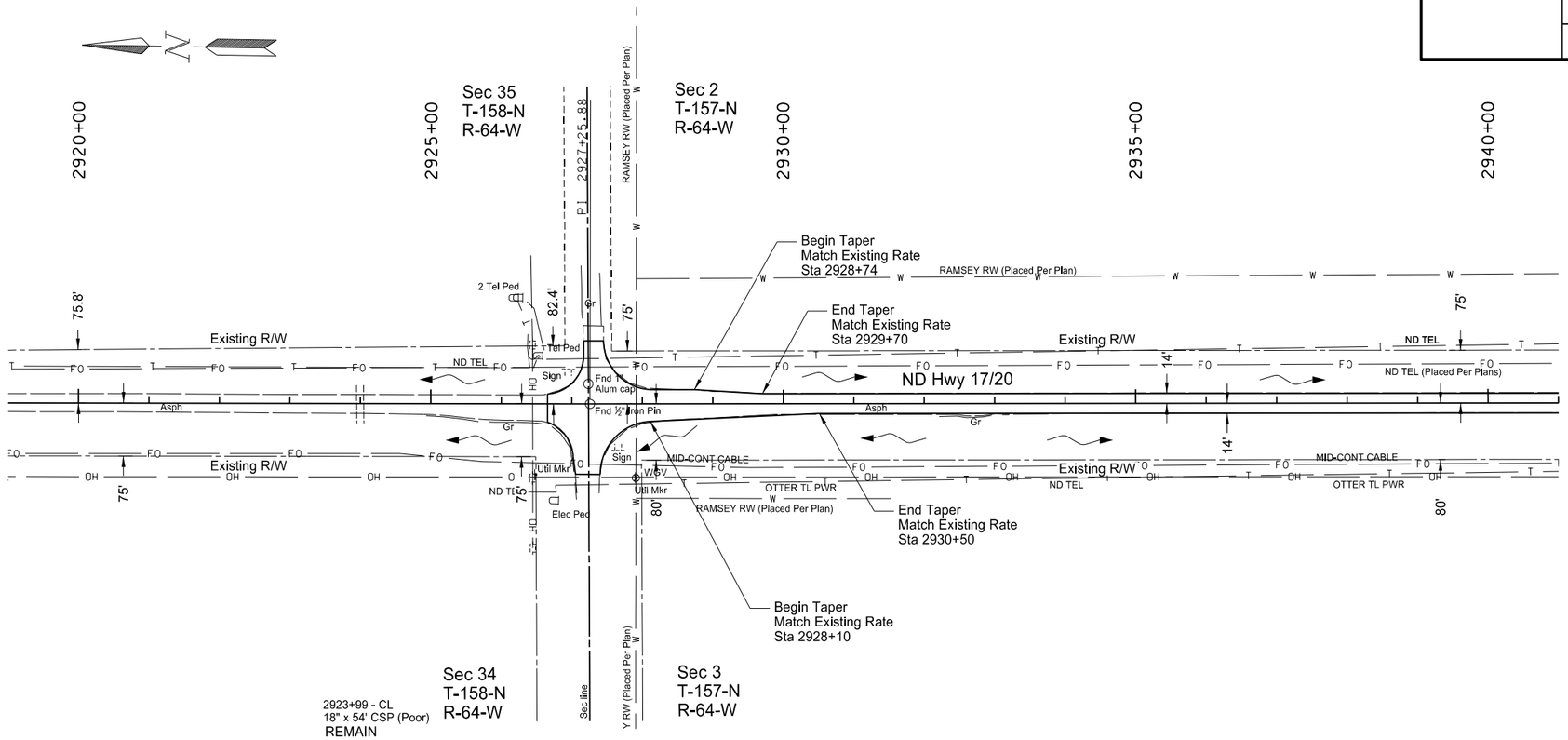
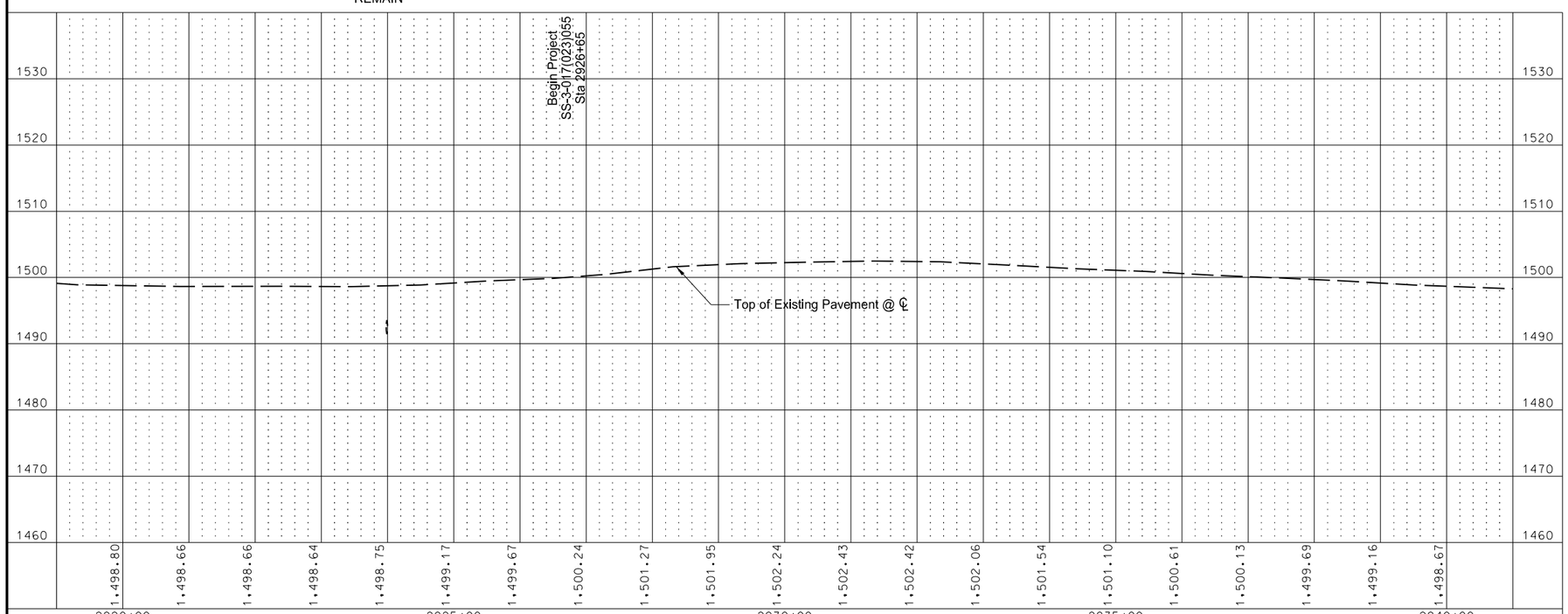
Allowable Pipe List

Starkweather S to Edmore - ND 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	1



Note: R/W limits are approximate, based on existing plans.



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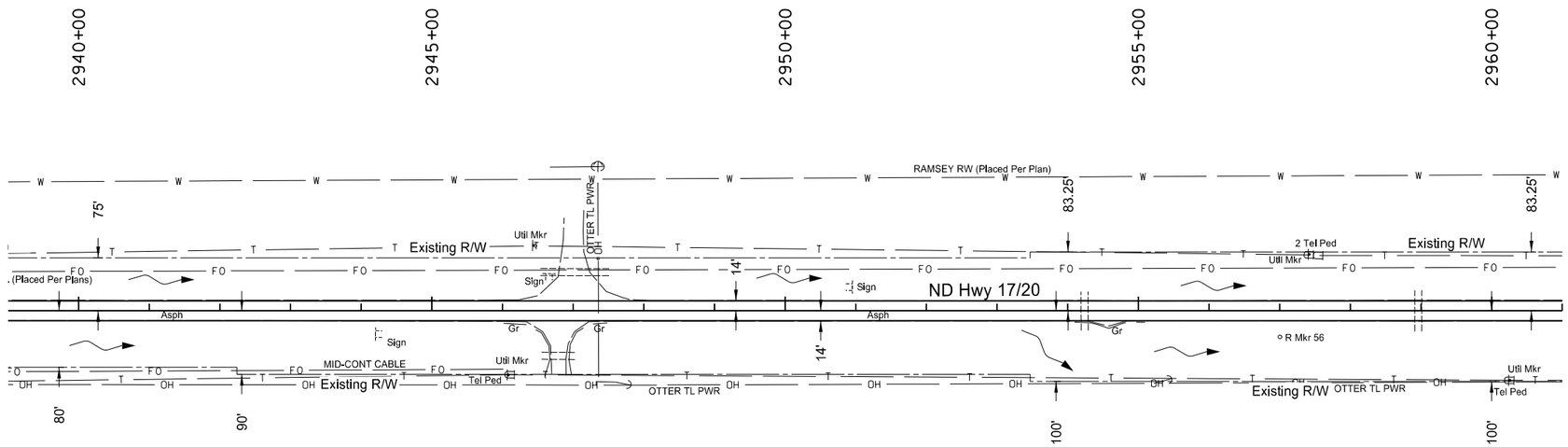
Plan & Profile

Starkweather S to Edmore - ND 17
Sta 2926+65 to Sta 2940+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	2



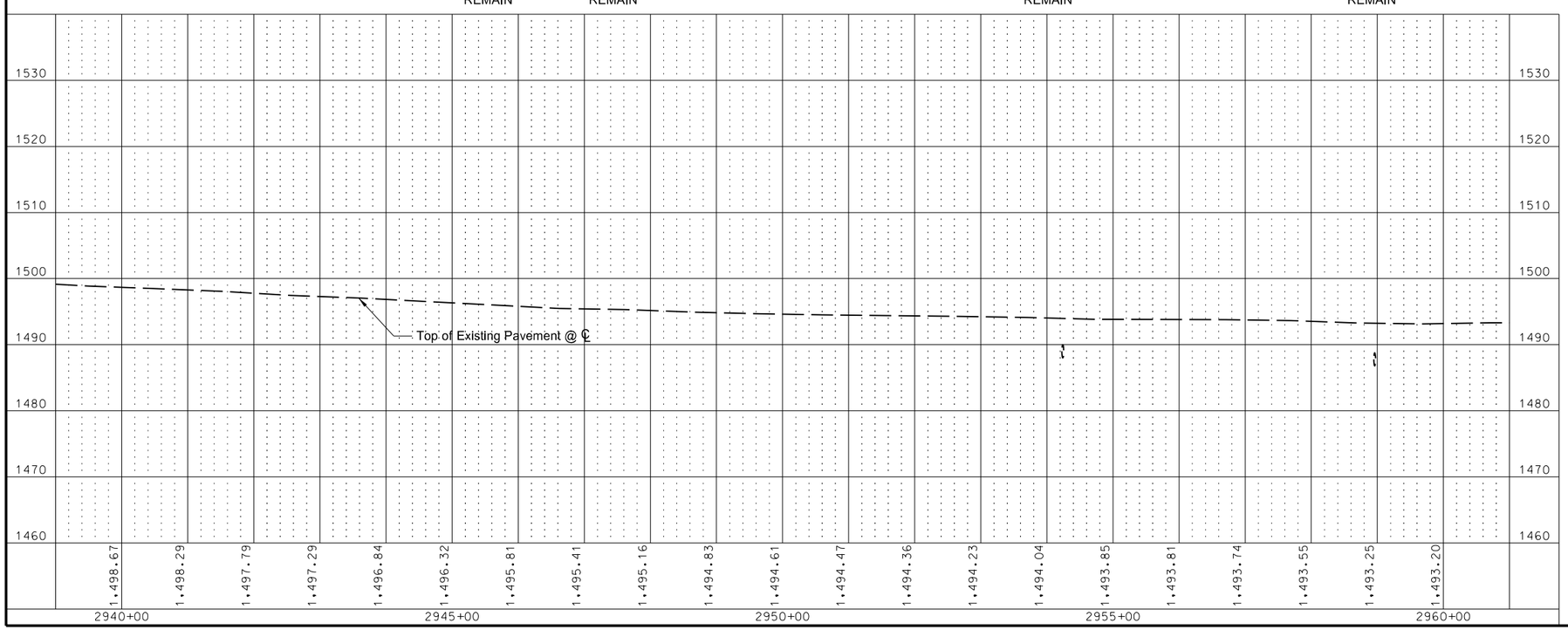
2947+04 - 39' Lt
18" x 100' CSP (Poor)
2 CSES
REMAIN

2946+78 - 80' Rt
18" x 47' CSP (Poor)
REMAIN

2954+24 - CL
24" x 54' RCP (Good)
2 RCES
REMAIN

2958+96 - CL
24" x 58' RCP (Good)
2 RCES
REMAIN

Note: R/W limits are approximate, based on existing plans.



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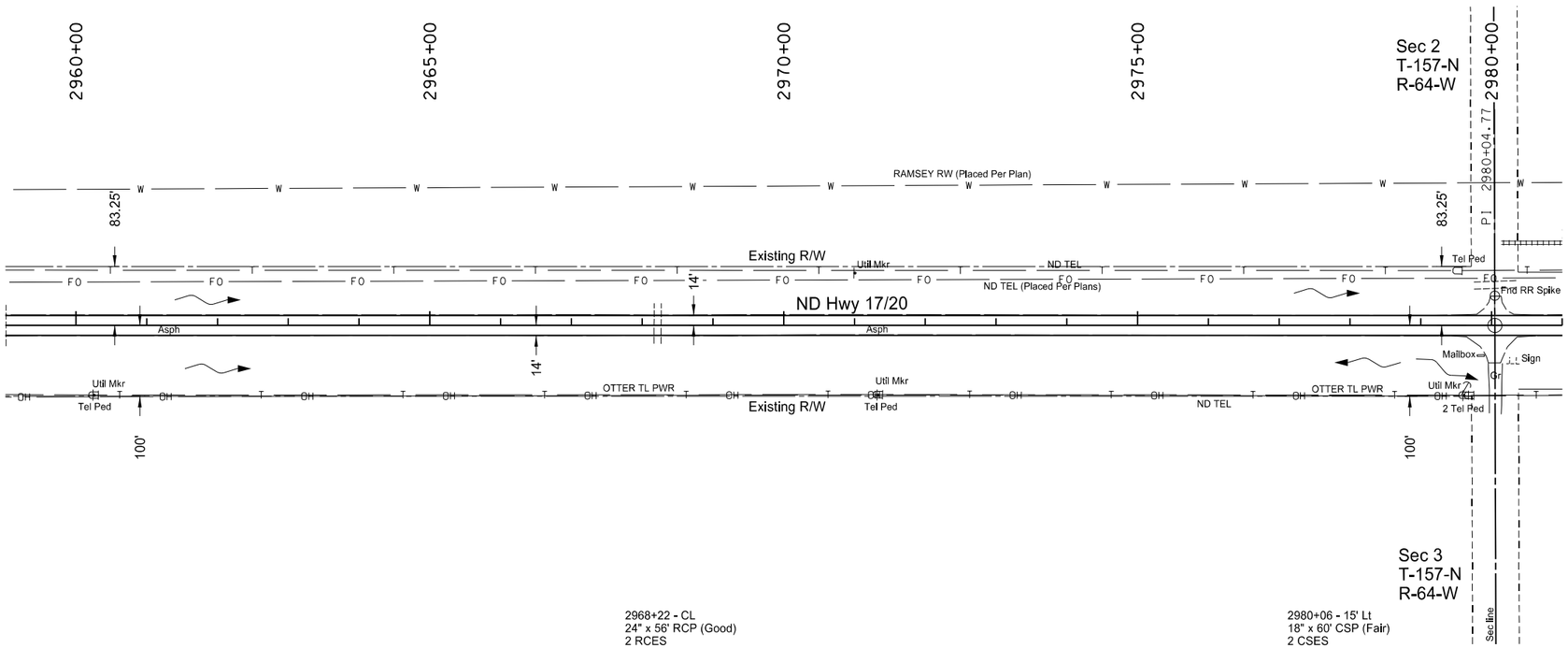
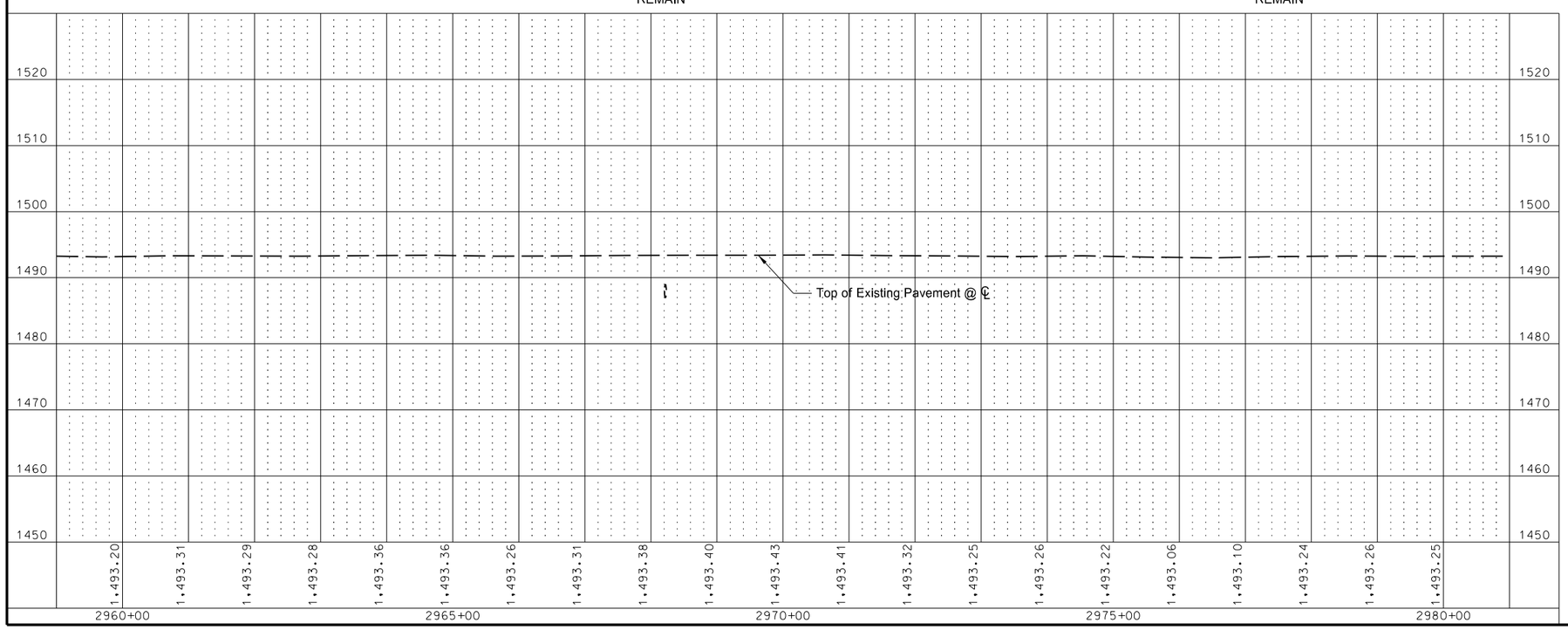
Starkweather S to Edmore - ND 17
Sta 2940+00 to Sta 2960+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	3





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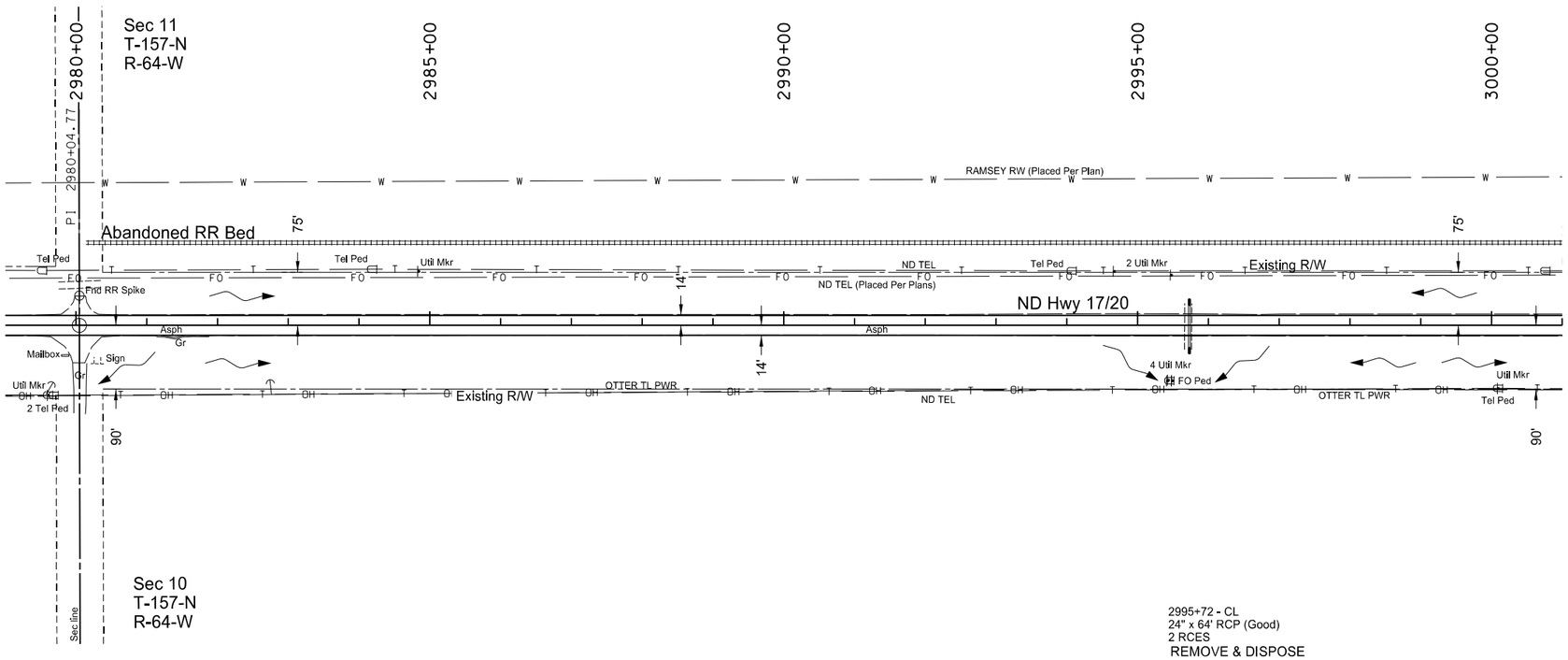
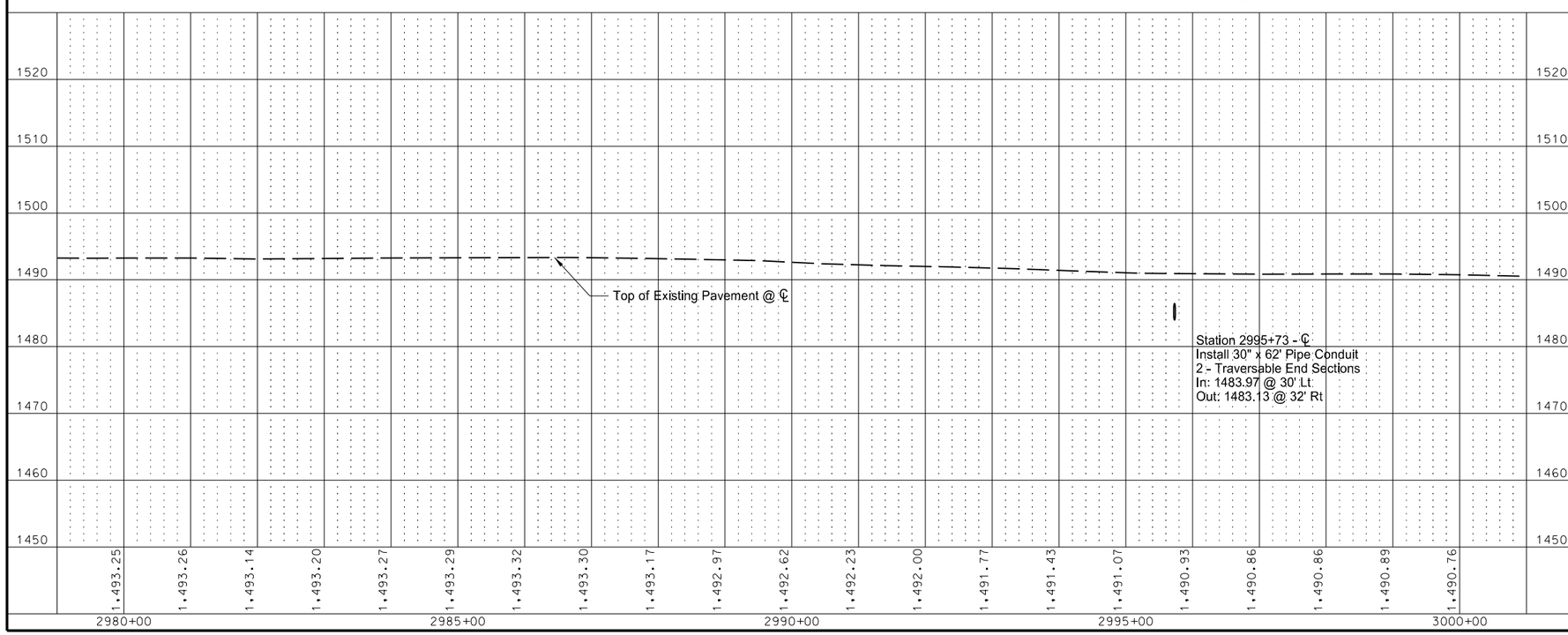
Starkweather S to Edmore - ND 17
Sta 2960+00 to Sta 2980+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	4

Item	Description	Quantity	Unit
202-0174	REMOVAL OF PIPE ALL TYPES AND SIZES Sta 2995+72 ℄	64	LF
714-4110	PIPE CONDUIT 30IN Sta 2995+73 ℄	62	LF



Note: R/W limits are approximate, based on existing plans.



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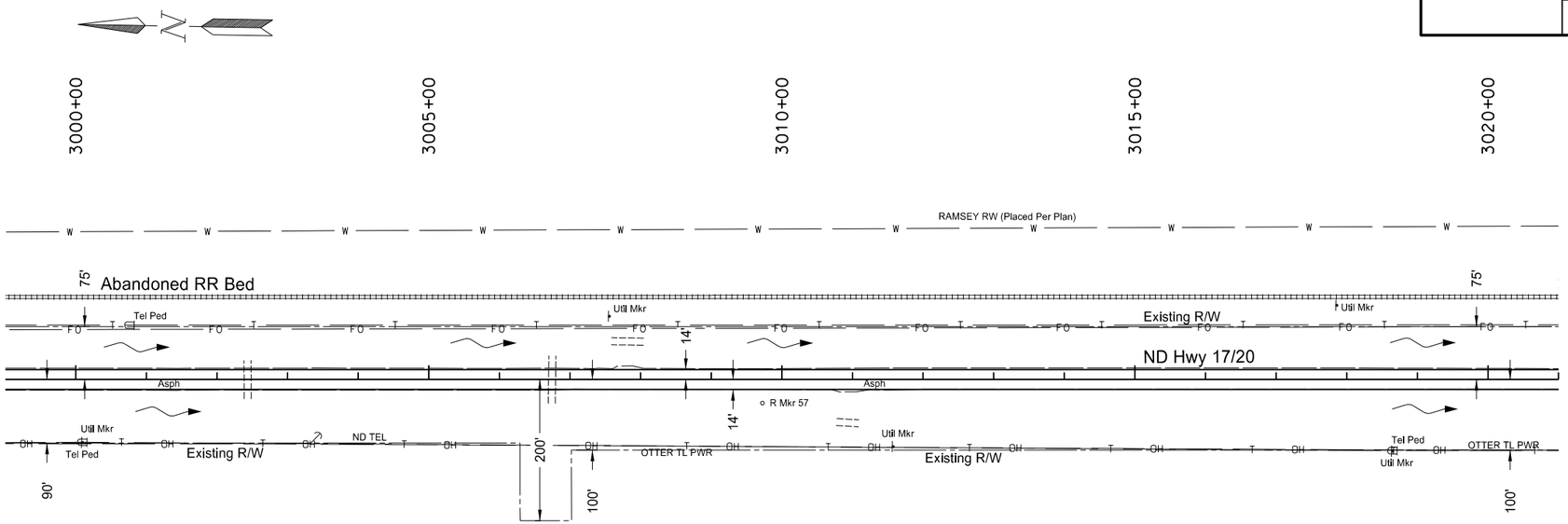
Starkweather S to Edmore - ND 17
Sta 2980+00 to Sta 3000+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	5

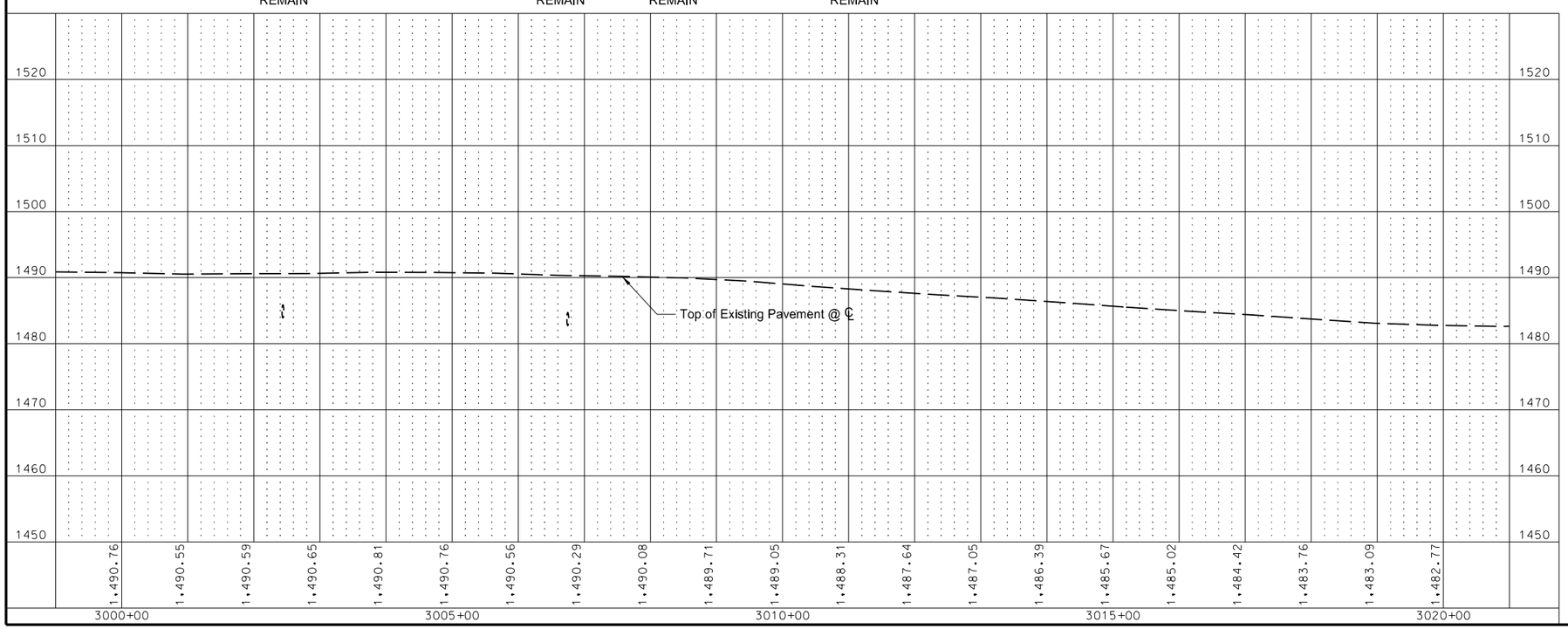


3002+44 - CL
24" x 54' RCP (Good)
2 RCES
REMAIN

3006+75 - CL
24" x 66' RCP (Good)
2 RCES
REMAIN

3007+81 - 34' Lt
18" x 45' CSP (Good)
2 CSES
REMAIN

3010+94 - 79' Rt
24" x 31' RCP (Good)
2 CSES
REMAIN



Note: R/W limits are approximate, based on existing plans.

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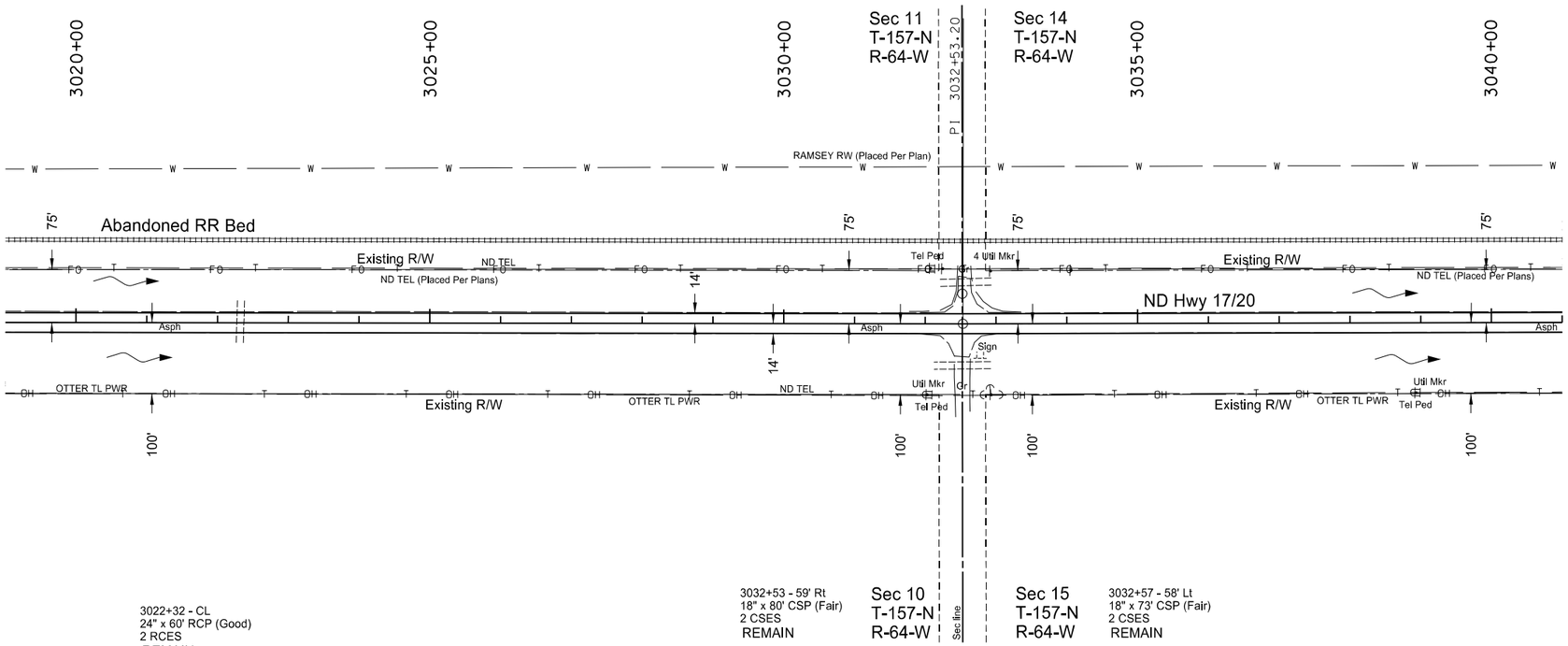
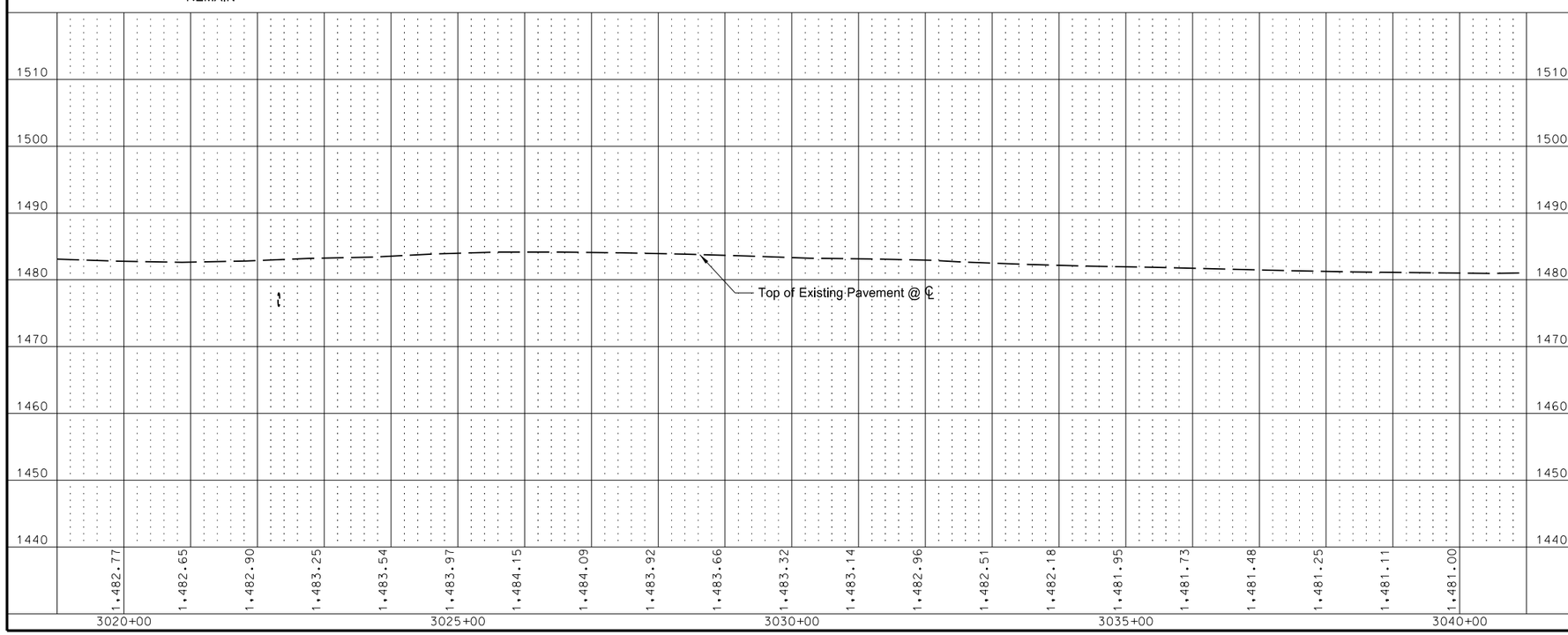
Starkweather S to Edmore - ND 17
Sta 3000+00 to Sta 3020+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	6



Note: R/W limits are approximate, based on existing plans.



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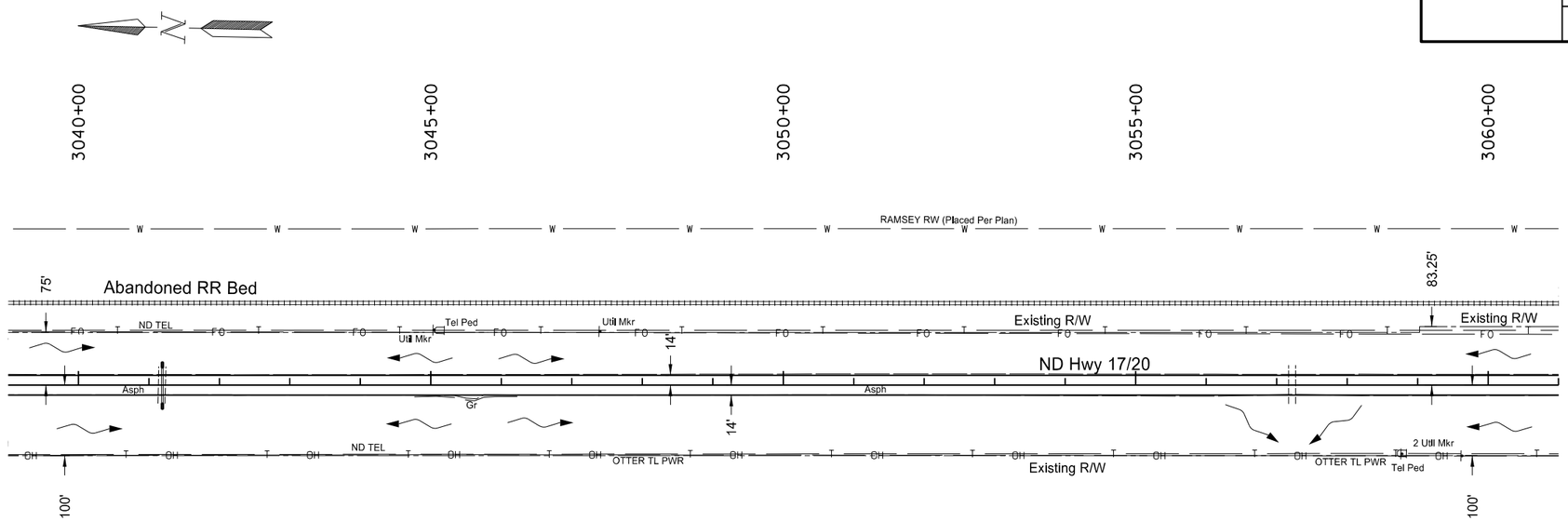
Starkweather S to Edmore - ND 17
Sta 3020+00 to Sta 3040+00

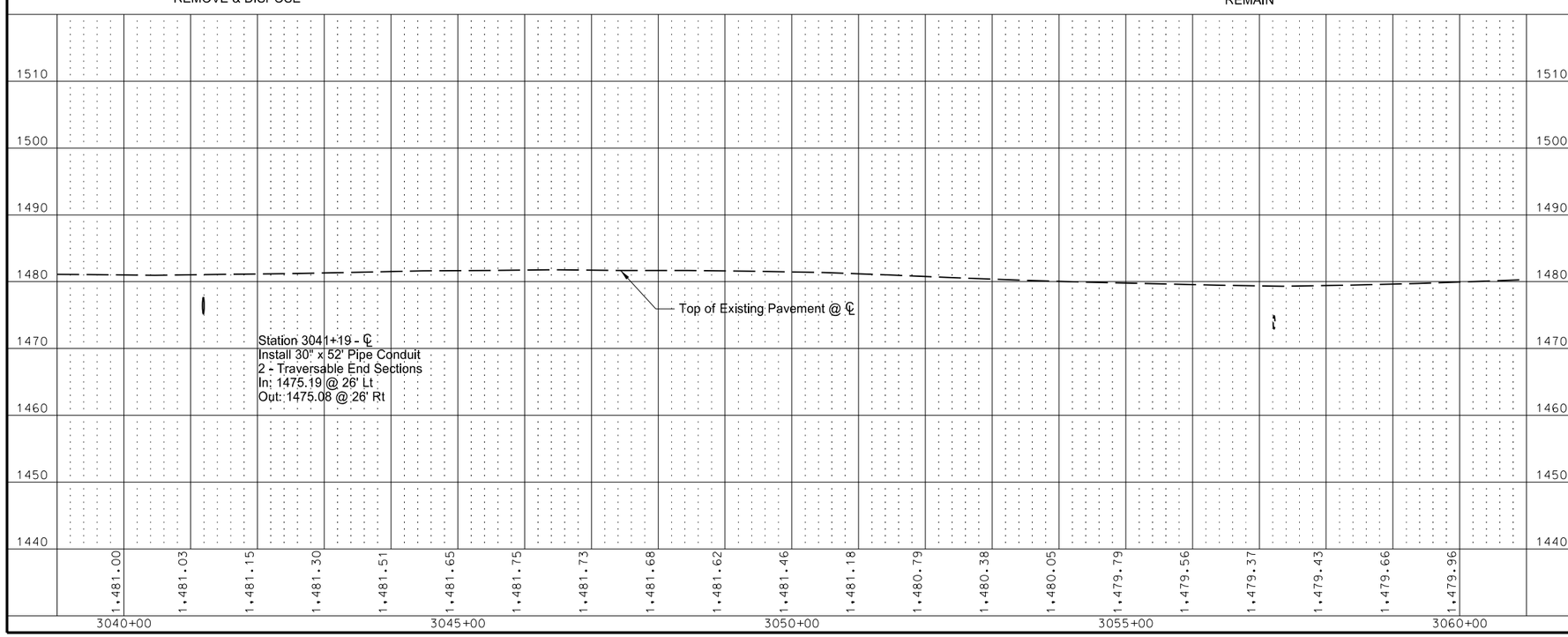
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	7

Item	Description	Quantity	Unit
202-0174	REMOVAL OF PIPE ALL TYPES AND SIZES Sta 3041+19 ℄	52	LF
714-4110	PIPE CONDUIT 30IN Sta 3041+19 ℄	52	LF



3041+19 - CL
24" x 52' RCP (Good)
2 RCES
REMOVE & DISPOSE

3057+22 - CL
24" x 54' RCP (Good)
2 RCES
REMAIN



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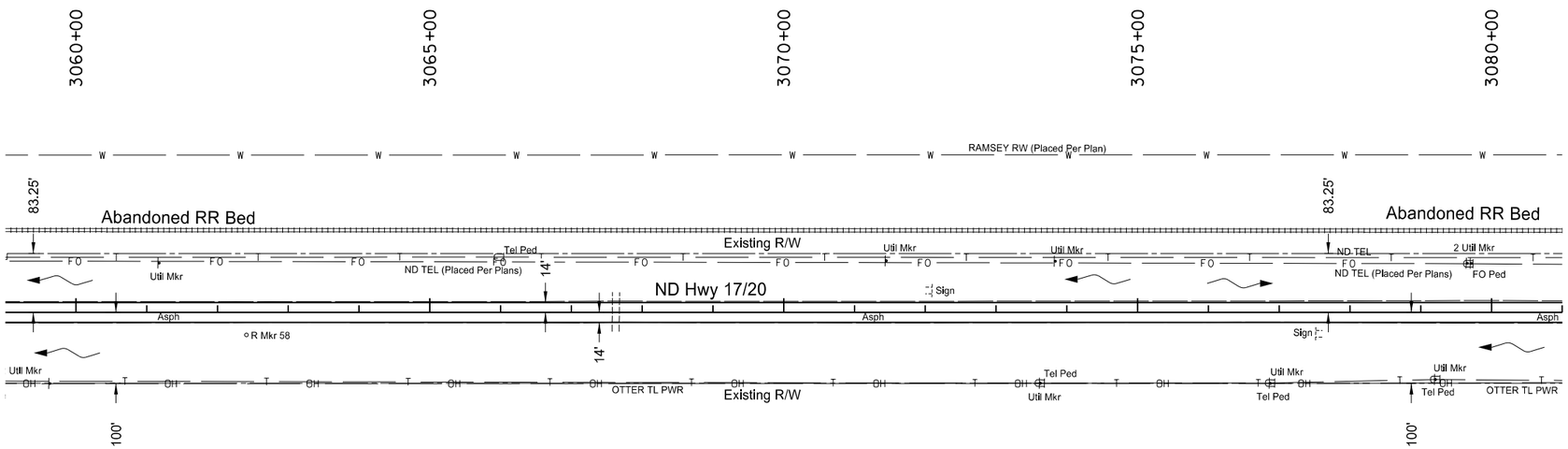
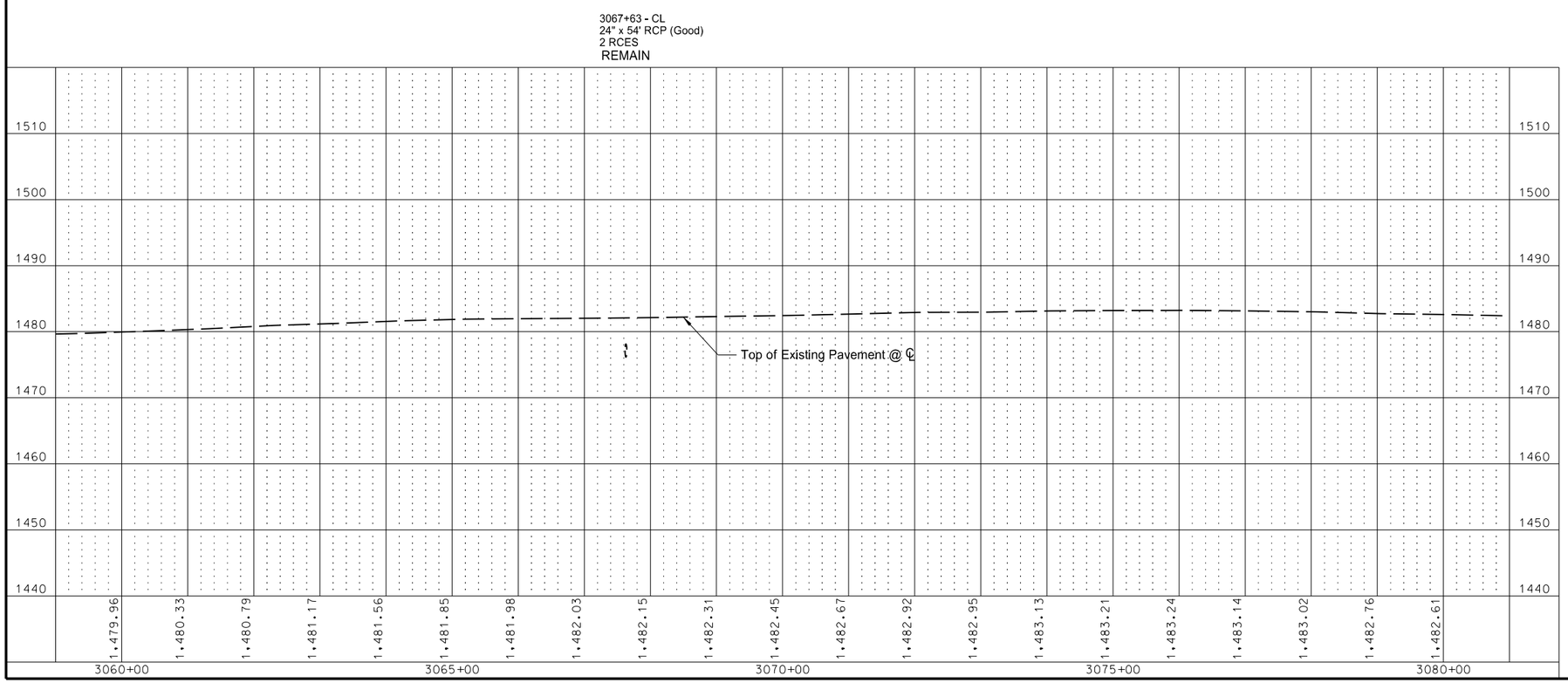
Starkweather S to Edmore - ND 17
Sta 3040+00 to Sta 3060+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	8





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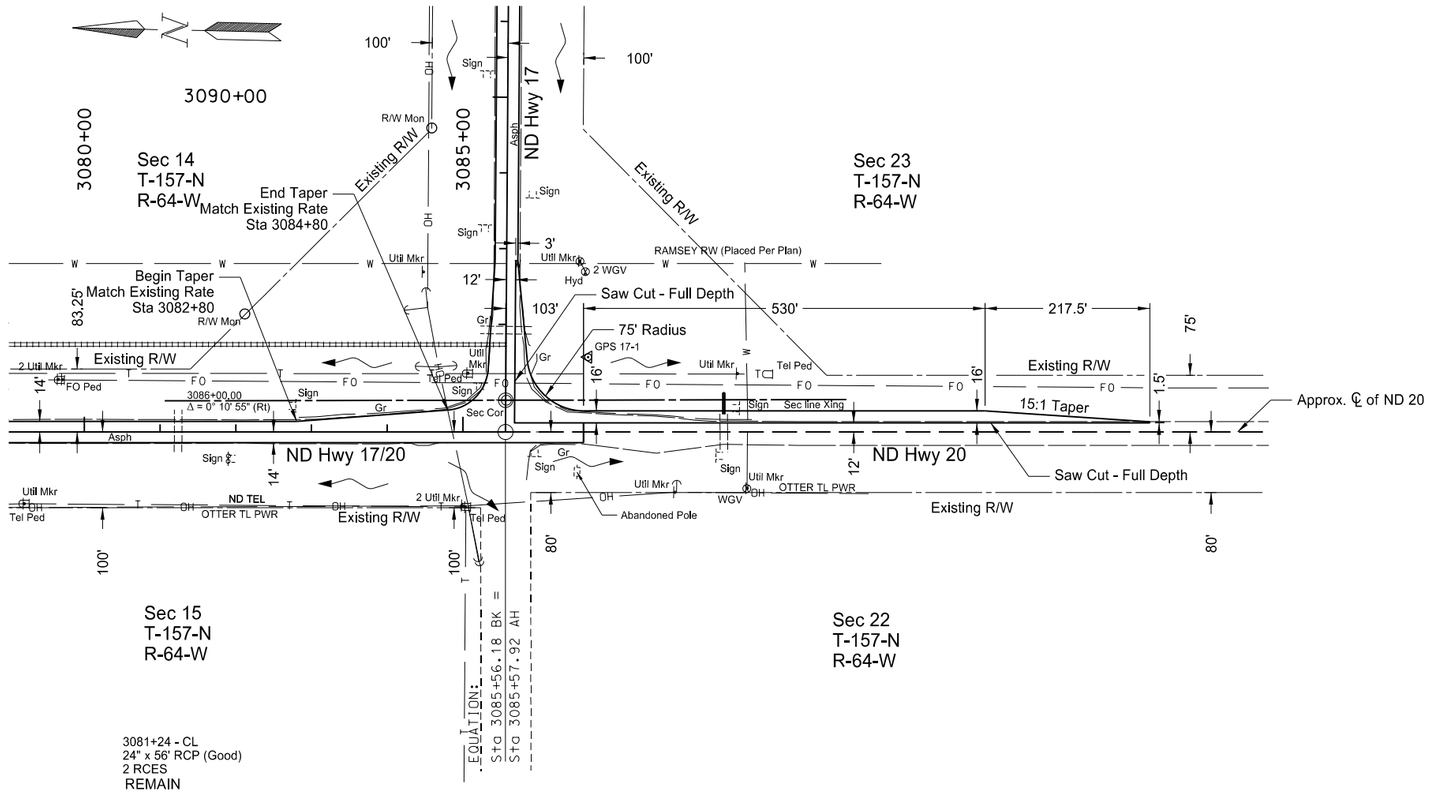
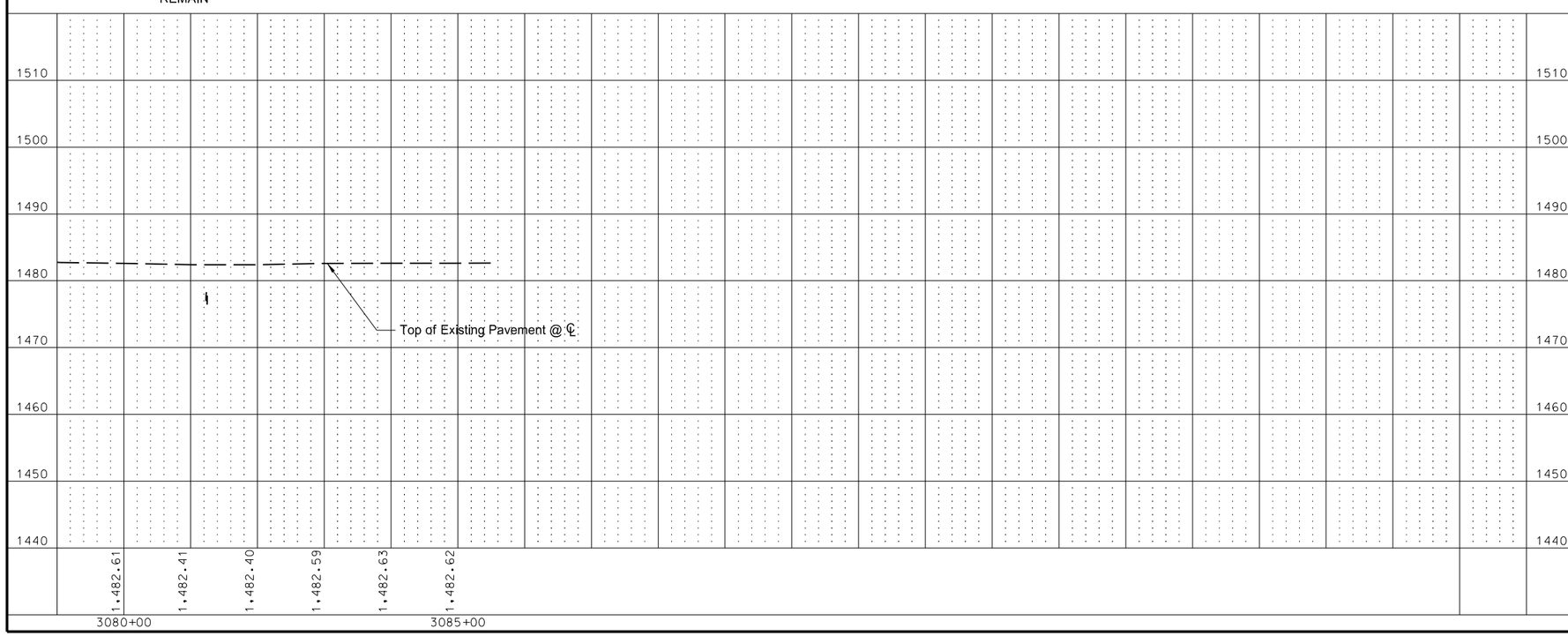
Starkweather S to Edmore - ND 17
Sta 3060+00 to Sta 3080+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	9

Item	Description	Quantity	Unit
202-0153	SAW BITUMINOUS SURFACING - FULL DEPTH Sta 3085+70 - 12' Rt to Sta 3085+70 - 850' Rt	840	LF





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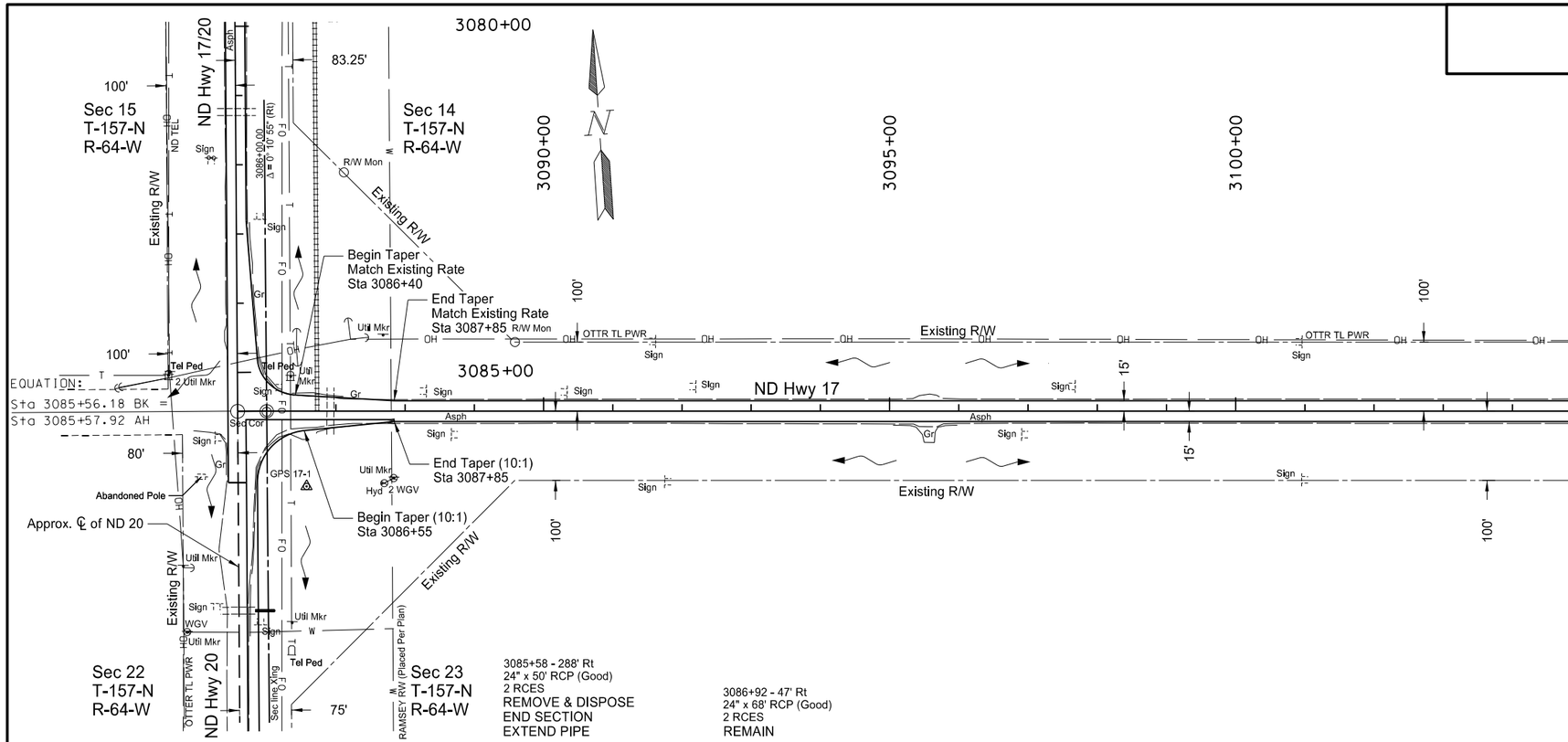
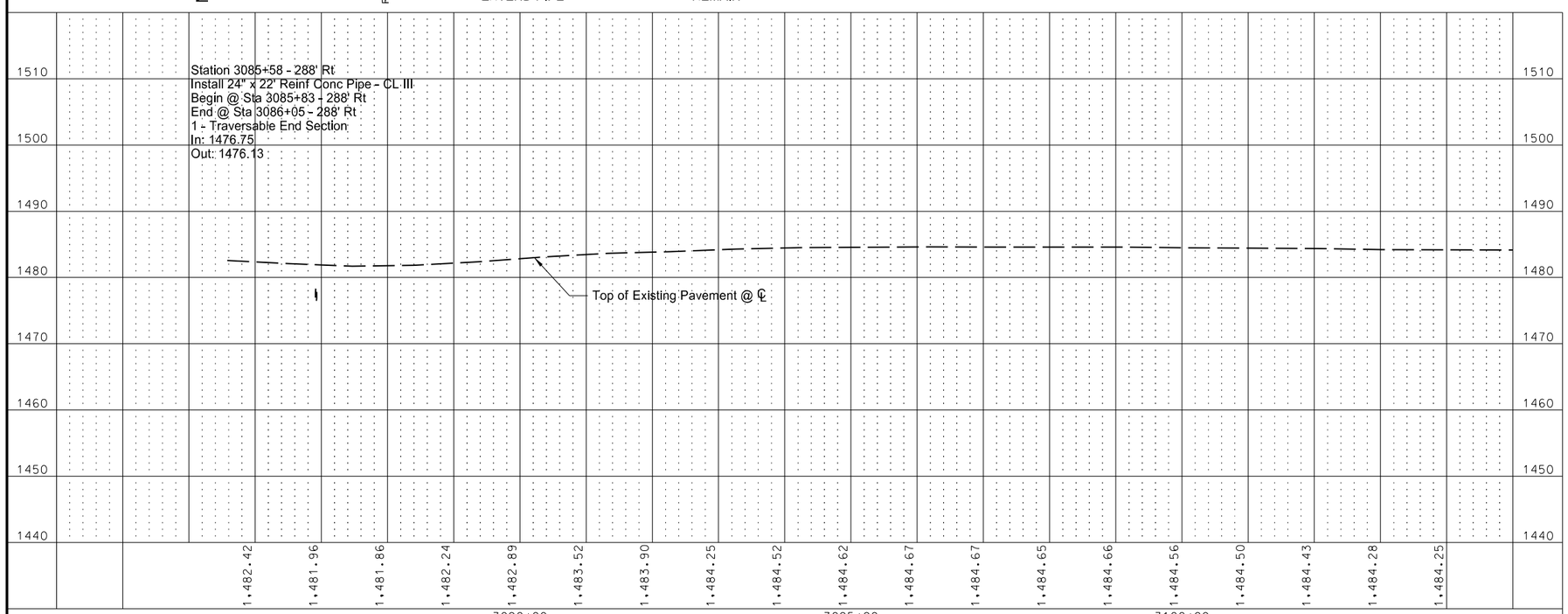
Plan & Profile

Starkweather S to Edmore - ND 17
Sta 3080+00 to
Sta 3085+56.18 BK = Sta 3085+57.92 AH

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	10

Item	Description	Quantity	Unit
202-0153	SAW BITUMINOUS SURFACING - FULL DEPTH Sta 3085+70 - 12' Rt to Sta 3087+85 - 12' Rt	217	LF
202-0169	REMOVAL OF END SECTION-ALL TYPES AND SIZES Sta 3085+58 Rt	1	EA
714-0615	PIPE CONC REINF 24IN CL III Sta 3085+58 Rt	22	LF
714-3023	END SECT-TRAVERSABLE REINF. CONC. 24IN Sta 3085+58 Rt	1	EA





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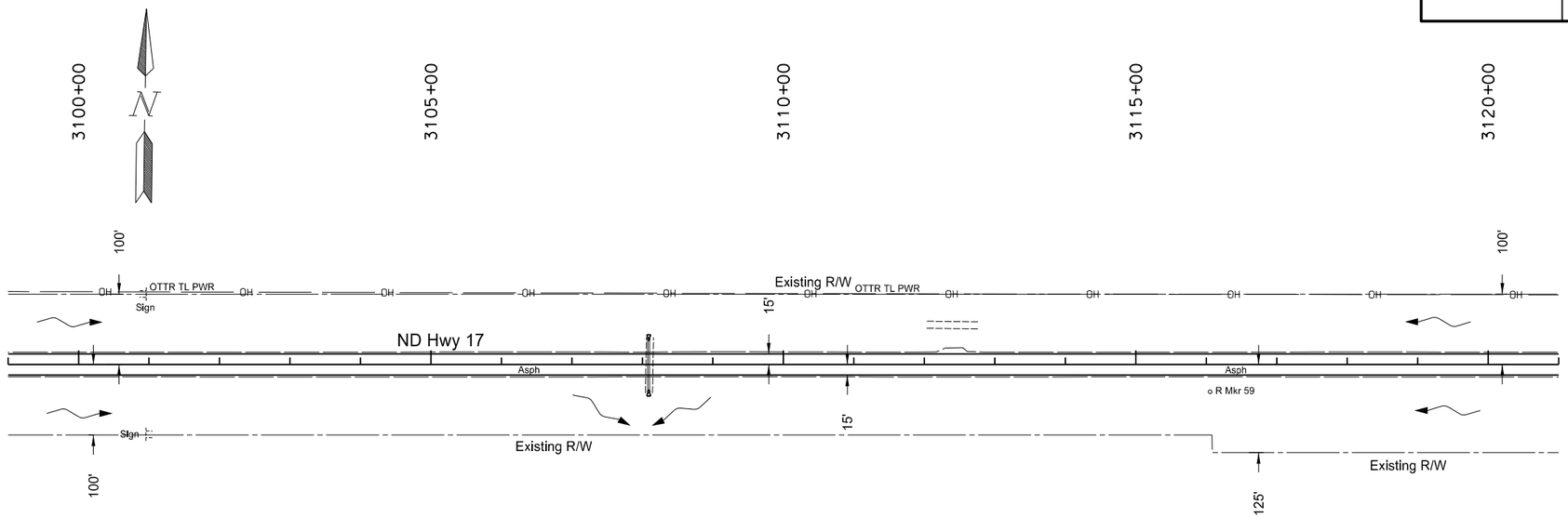
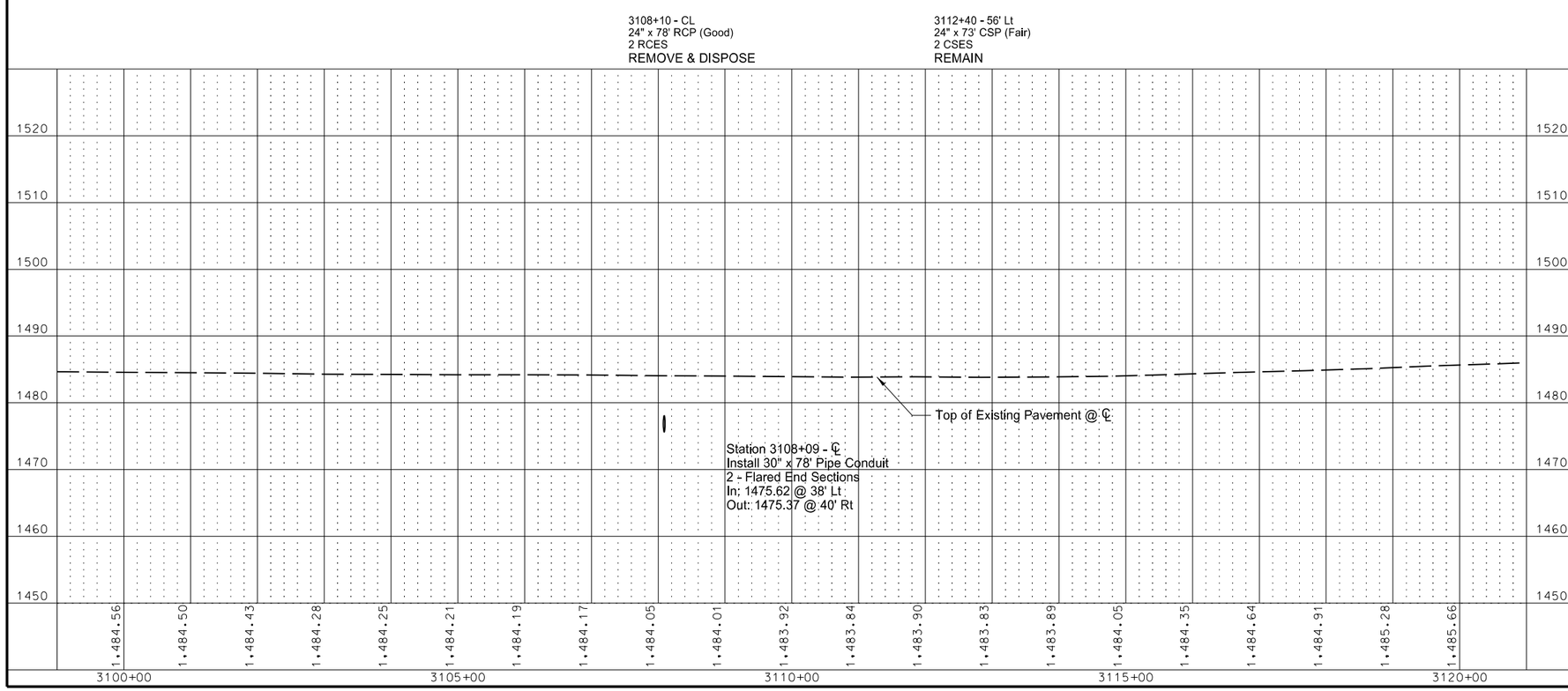
Plan & Profile

Starkweather S to Edmore - ND 17
Sta 3085+56.18 BK = Sta 3085+57.92 AH
to Sta 3100+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	11

Item	Description	Quantity	Unit
202-0174	REMOVAL OF PIPE ALL TYPES AND SIZES Sta 3108+10 ℄	78	LF
714-4110	PIPE CONDUIT 30IN Sta 3108+09 ℄	78	LF





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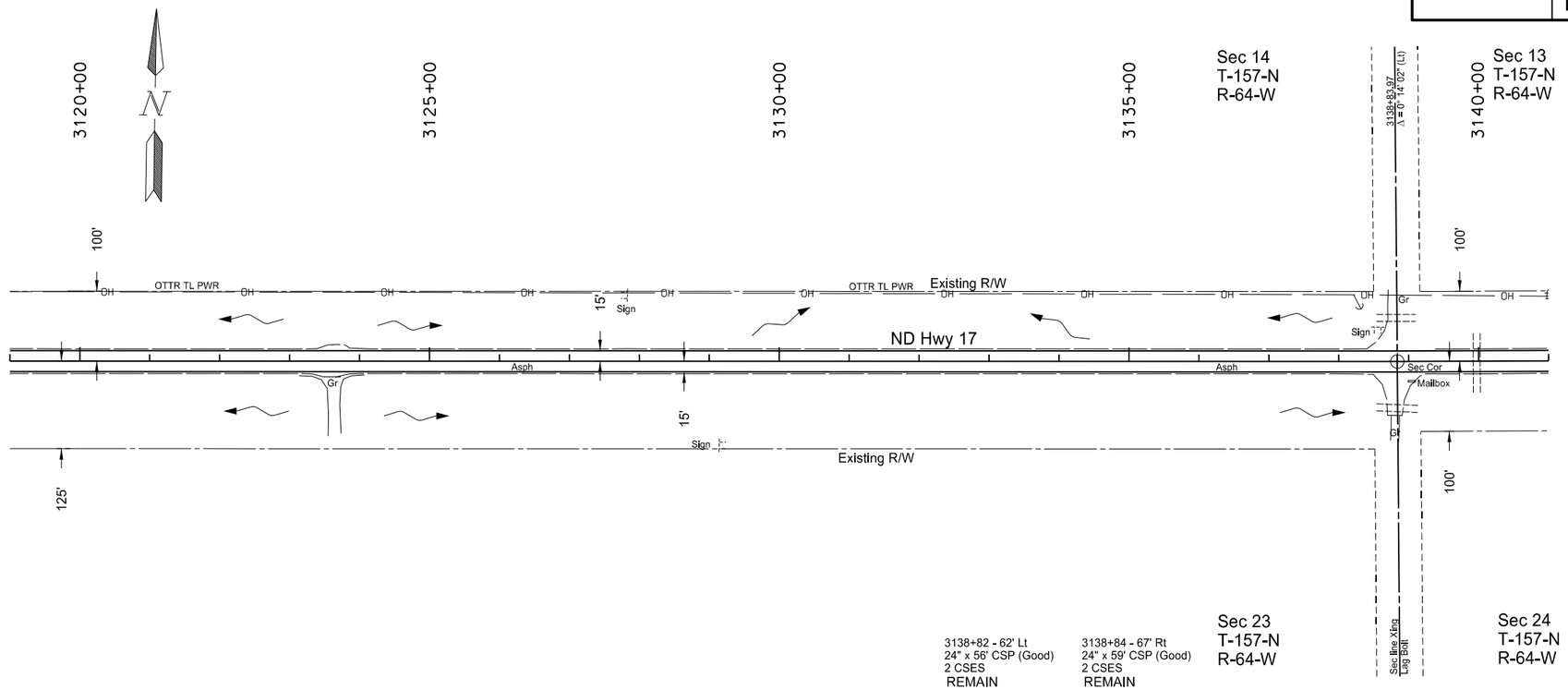
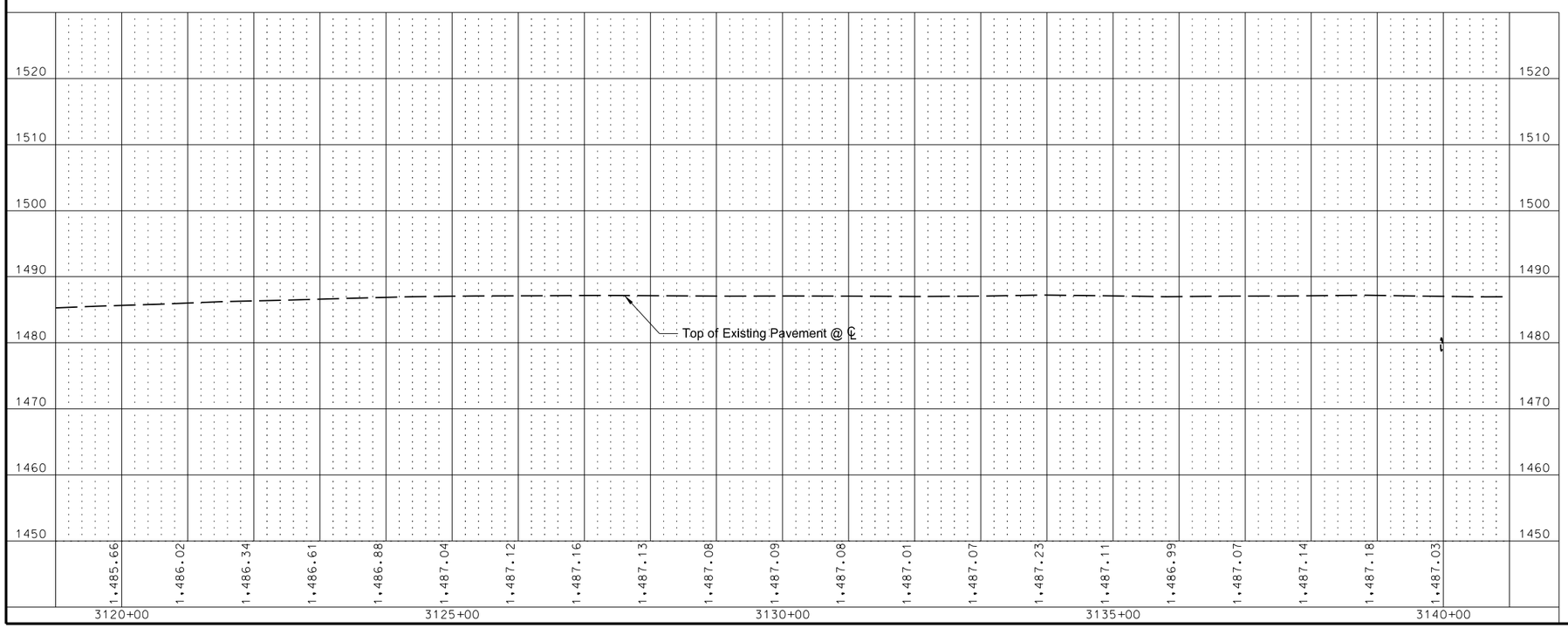
Plan & Profile

Starkweather S to Edmore - ND 17
Sta 3100+00 to Sta 3120+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	12



Note: R/W limits are approximate, based on existing plans.



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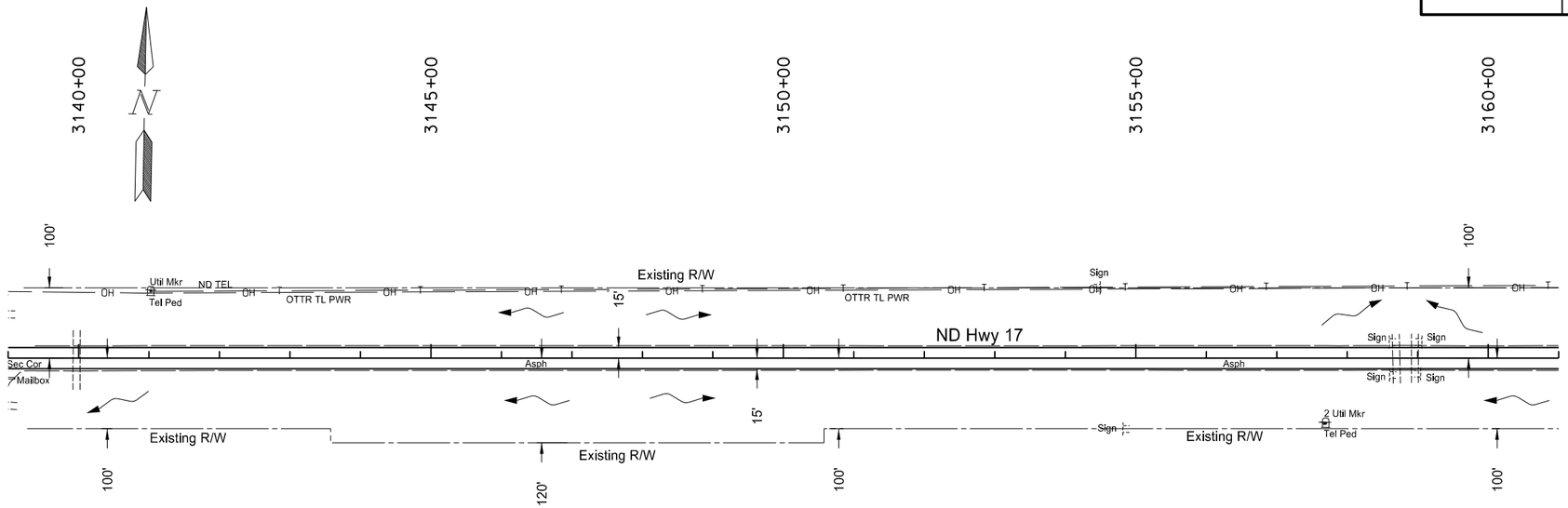
Starkweather S to Edmore - ND 17
Sta 3120+00 to Sta 3140+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	13

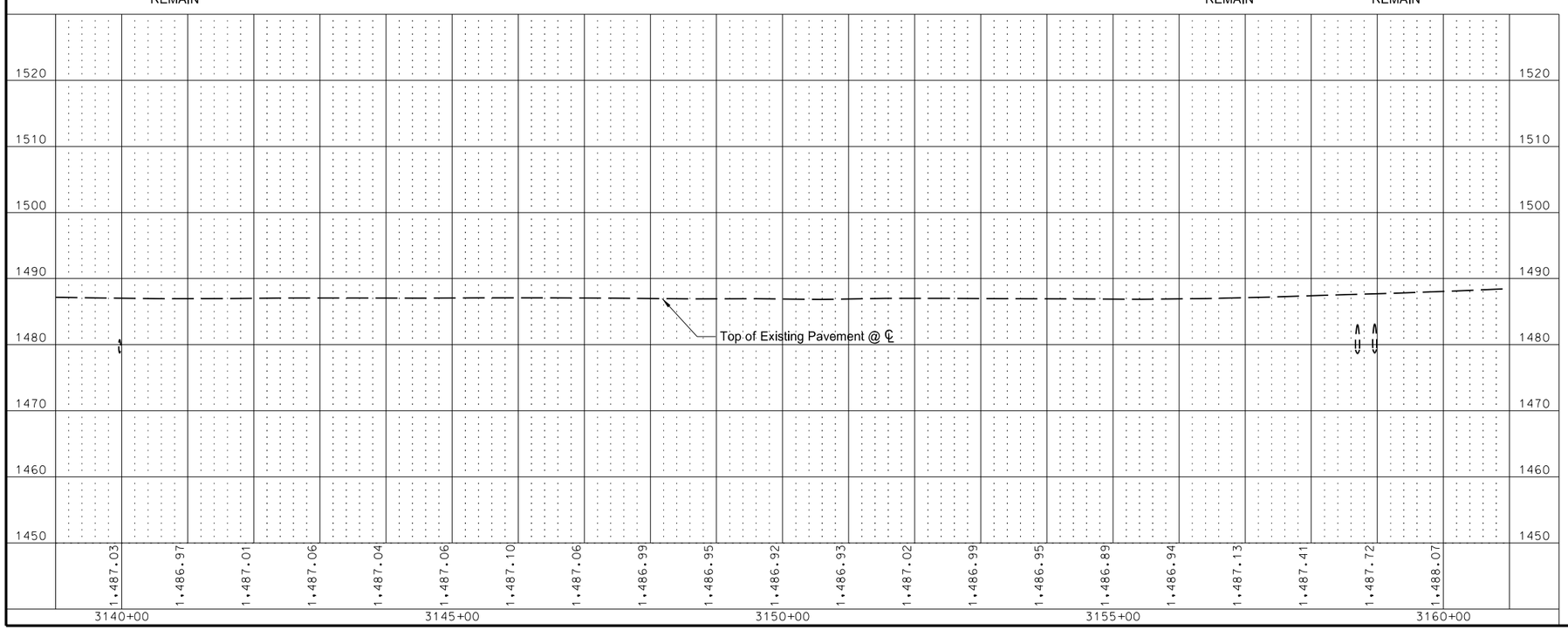


3139+97 - CL
24" x 84' RCP (Good)
2 RCES
REMAIN

3158+70 - CL
57" x 68" x 70' CSPA (Good)
REMAIN

3158+96 - CL
57" x 68" x 70' CSPA (Good)
REMAIN

Note: R/W limits are approximate, based on existing plans.



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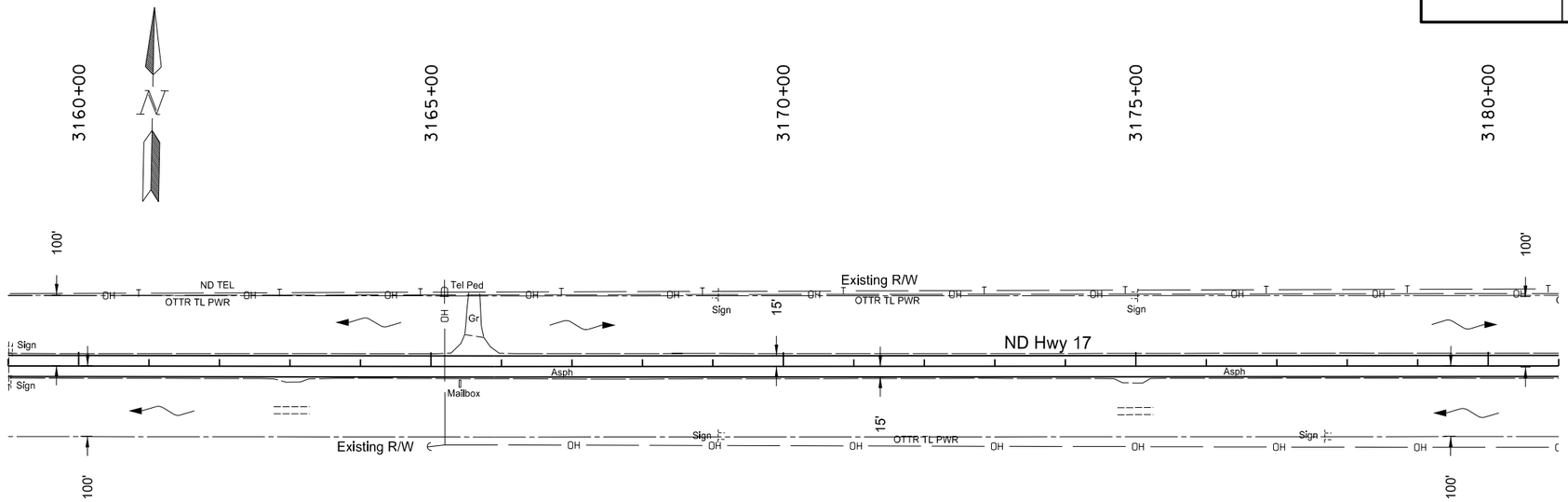
Plan & Profile

Starkweather S to Edmore - ND 17
Sta 3140+00 to Sta 3160+00

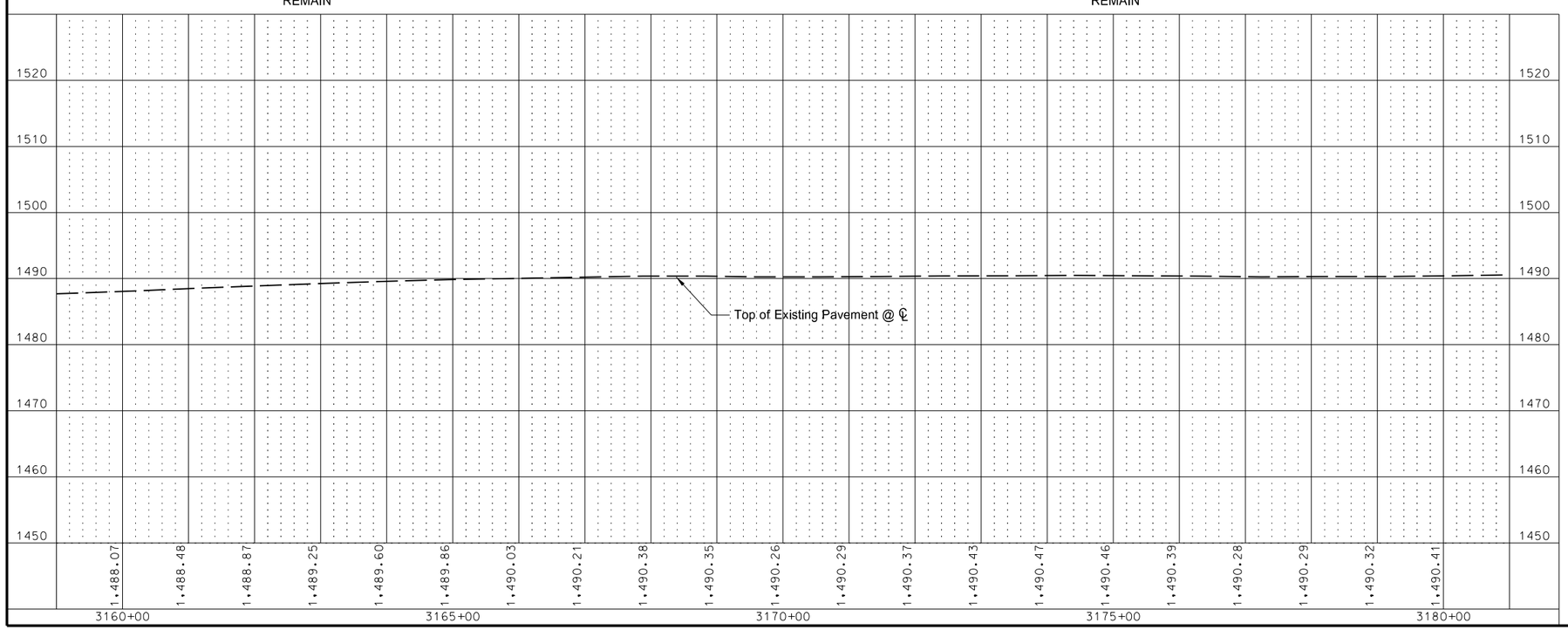
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	14



3163+02 - 62' Rt
24" x 50' CSP (Good)
2 CSES
REMAIN

3175+00 - 64' Rt
24" x 50' CSP (Fair)
2 CSES
REMAIN

Note: R/W limits are approximate, based on existing plans.



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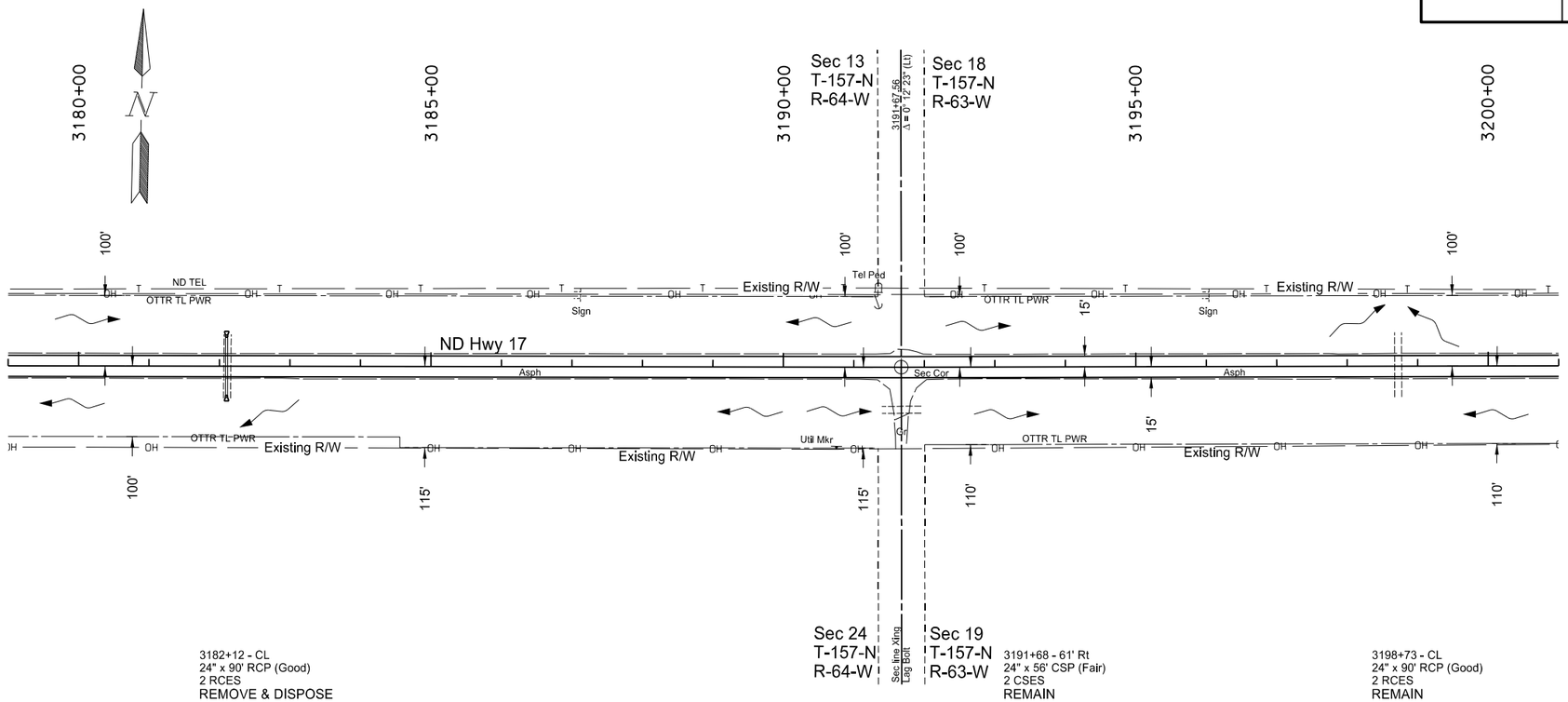
Plan & Profile

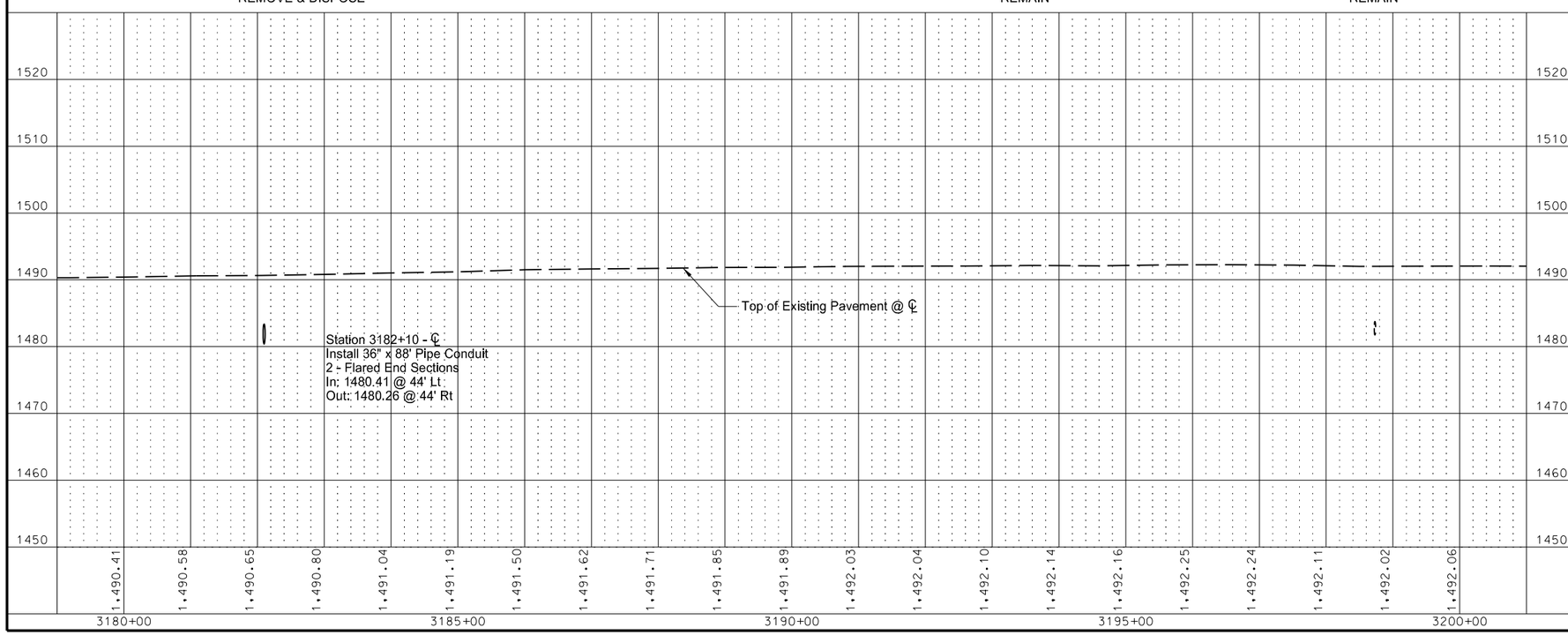
Starkweather S to Edmore - ND 17
Sta 3160+00 to Sta 3180+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	15

Item	Description	Quantity	Unit
202-0174	REMOVAL OF PIPE ALL TYPES AND SIZES Sta 3182+12 ℄	90	LF
714-4115	PIPE CONDUIT 36IN Sta 3182+10 ℄	88	LF



Note: R/W limits are approximate, based on existing plans.



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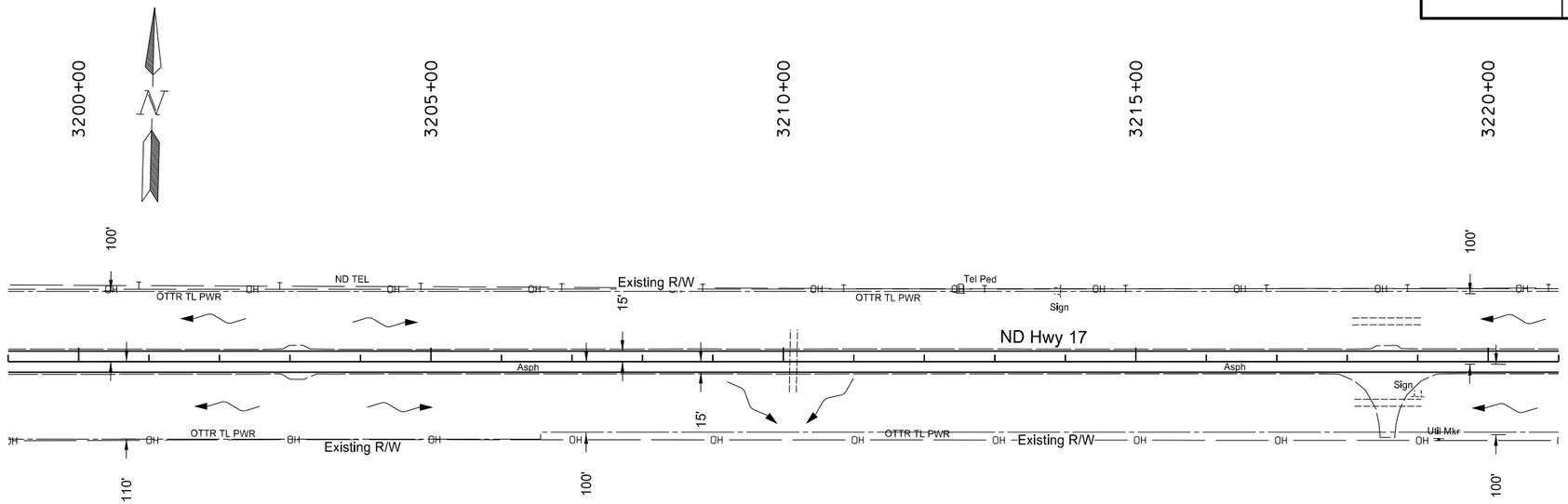
Plan & Profile

Starkweather S to Edmore - ND 17
Sta 3180+00 to Sta 3200+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	16

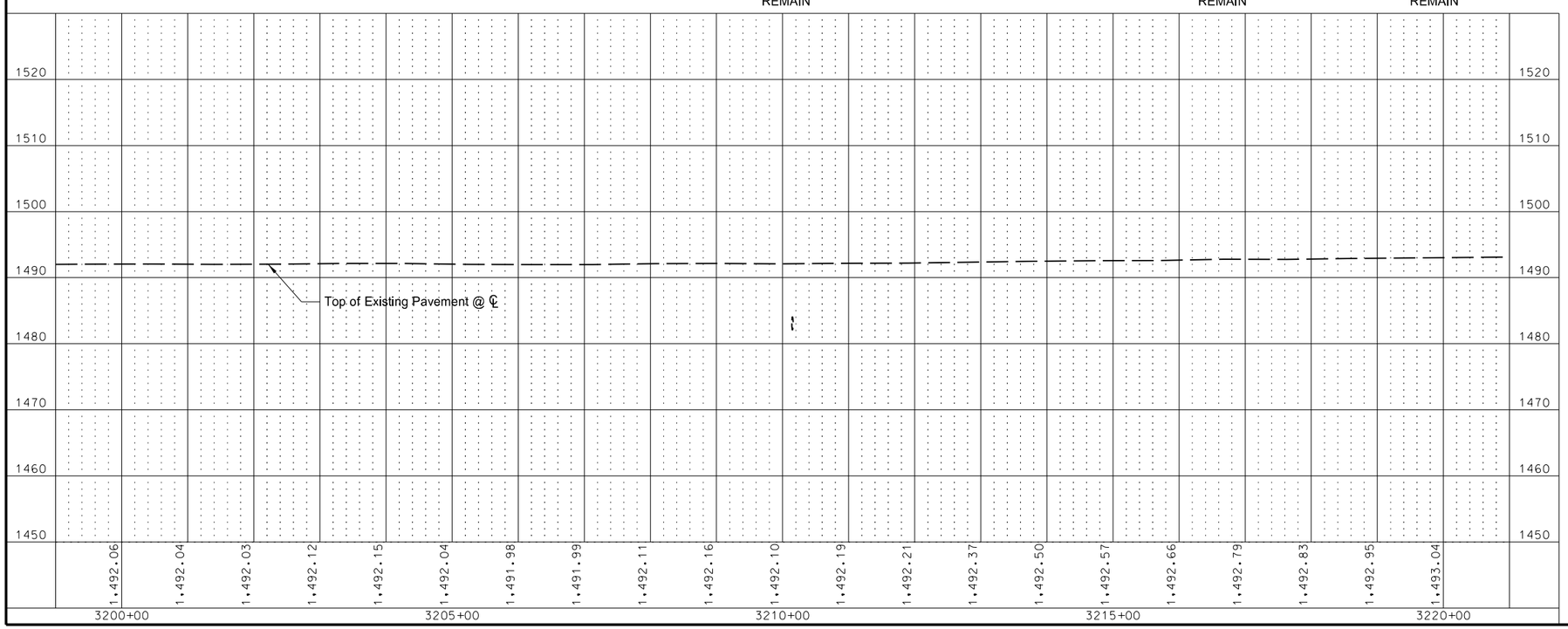


3210+15 - CL
24" x 88' RCP (Good)
2 RCES
REMAIN

3218+57 - 57' Lt
24" x 100' CSP (W end Fair, E end Good)
2 CSES
REMAIN

3218+58 - 59' Rt
24" x 95' CSP (Poor)
2 CSES
REMAIN

Note: R/W limits are approximate, based on existing plans.



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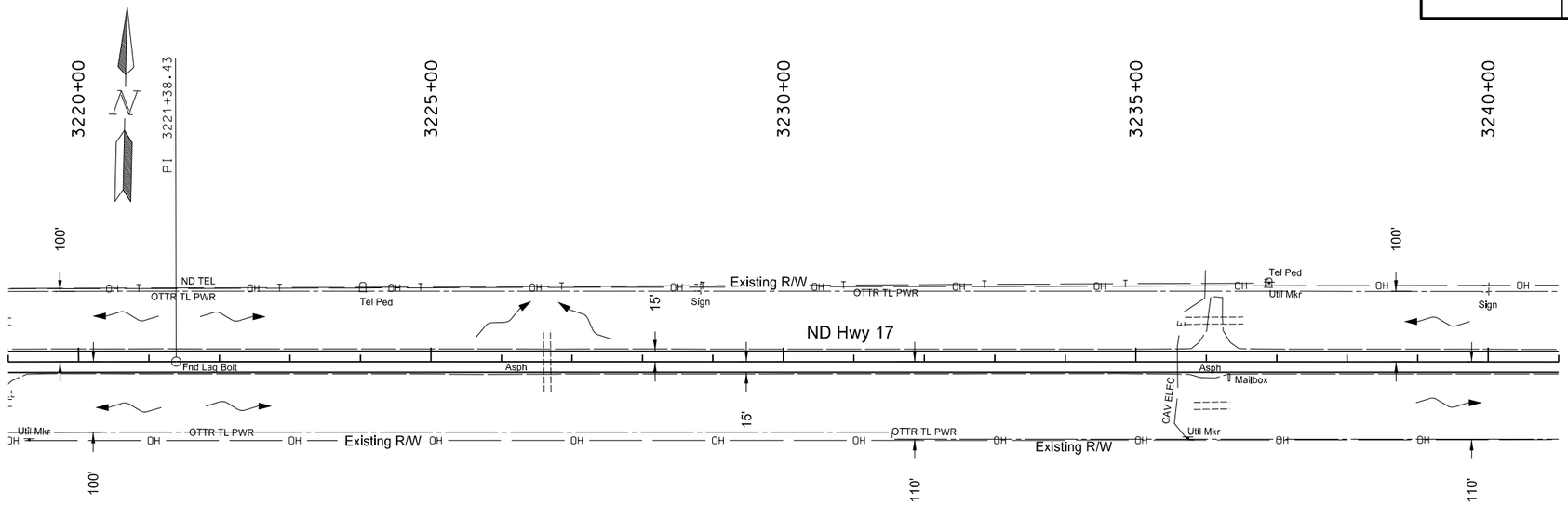
Starkweather S to Edmore - ND 17
Sta 3200+00 to Sta 3220+00

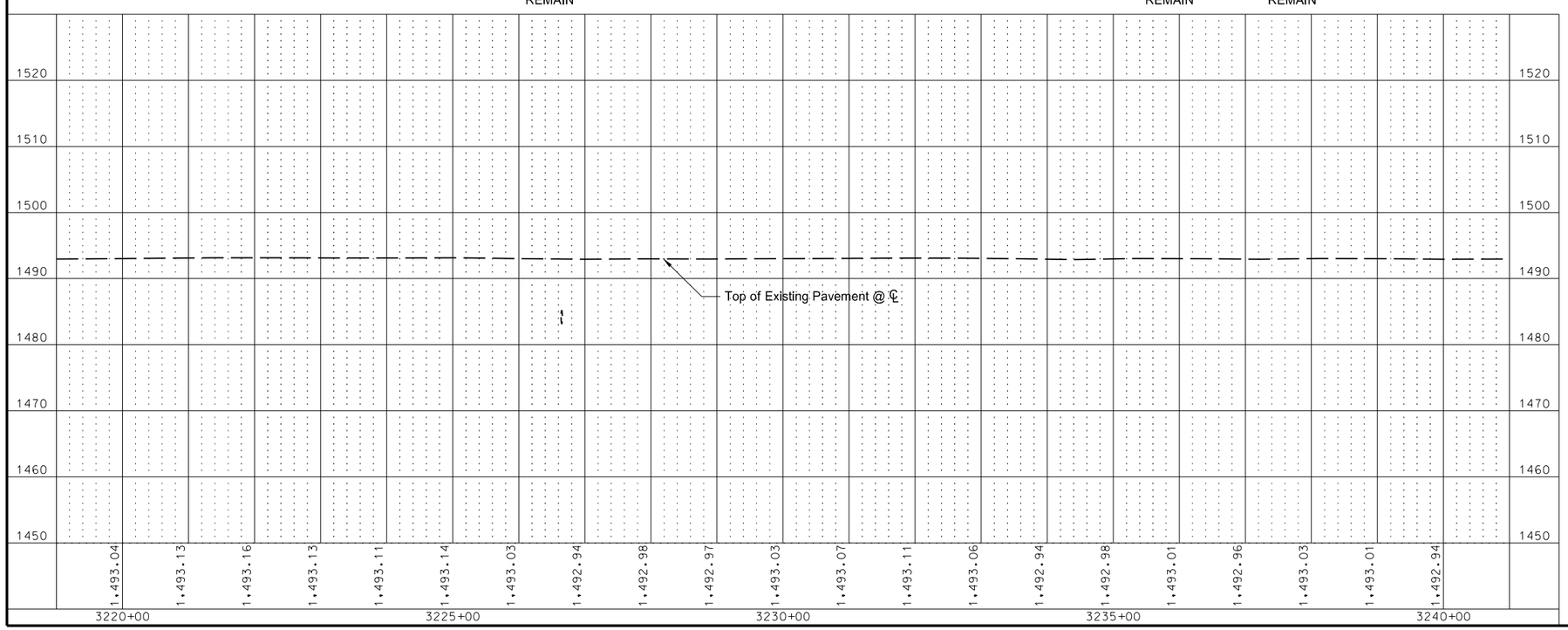
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	17



3226+65 - CL
24" x 88' RCP (Good)
2 RCES
REMAIN

3236+07 - 63' Rt
18" x 50' CSP (Fair)
2 CSES
REMAIN

3236+11 - 58' Lt
18" x 82' CSP (Fair)
2 CSES
REMAIN



Note: R/W limits are approximate, based on existing plans.

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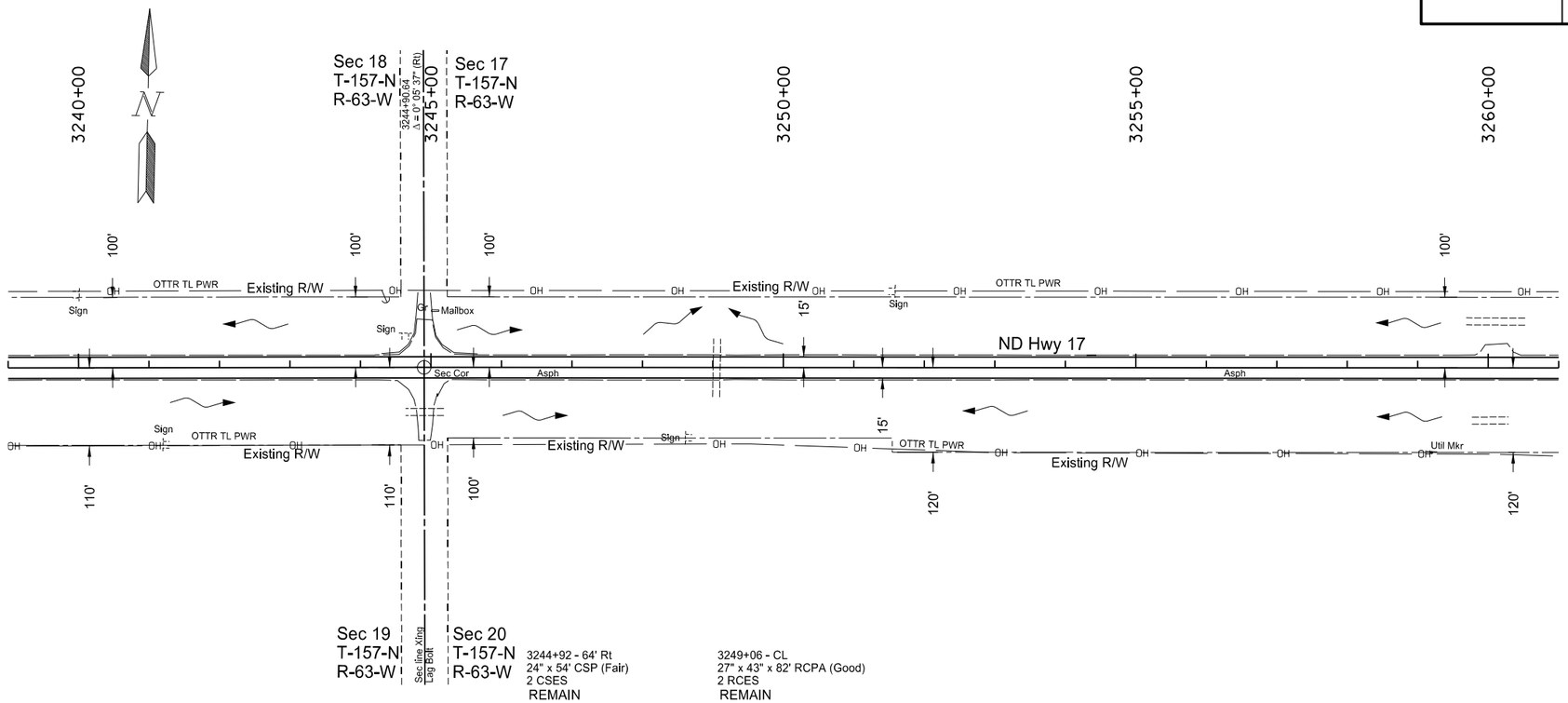
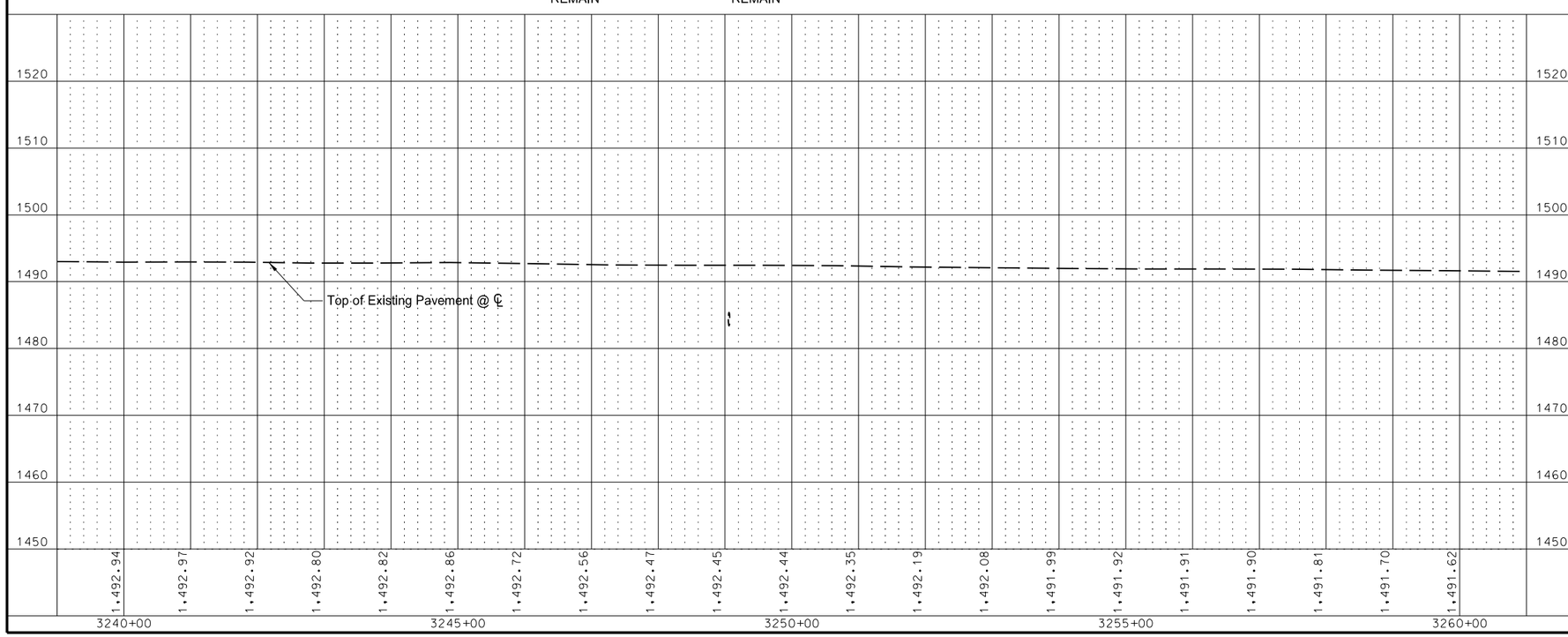
Starkweather S to Edmore - ND 17
Sta 3220+00 to Sta 3240+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	18





Note: R/W limits are approximate, based on existing plans.

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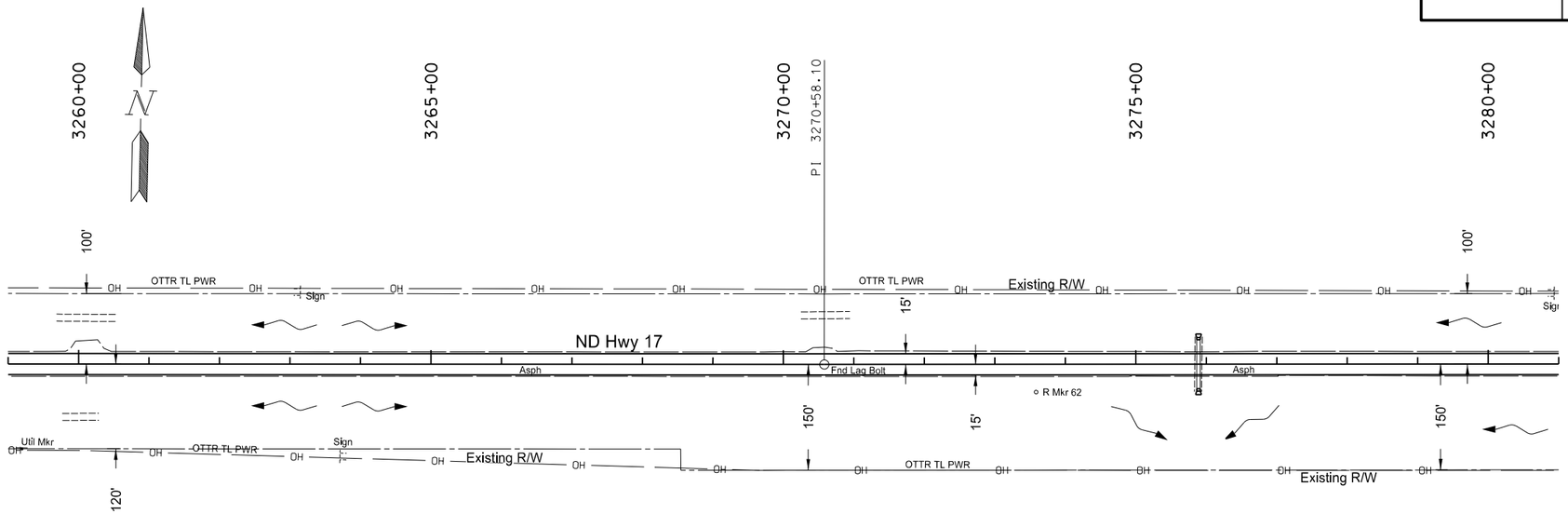
Plan & Profile

Starkweather S to Edmore - ND 17
Sta 3240+00 to Sta 3260+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	19

Item	Description	Quantity	Unit
202-0174	REMOVAL OF PIPE ALL TYPES AND SIZES Sta 3275+89 ℄	78	LF
714-4135	PIPE CONDUIT 60IN Sta 3275+89 ℄	76	LF



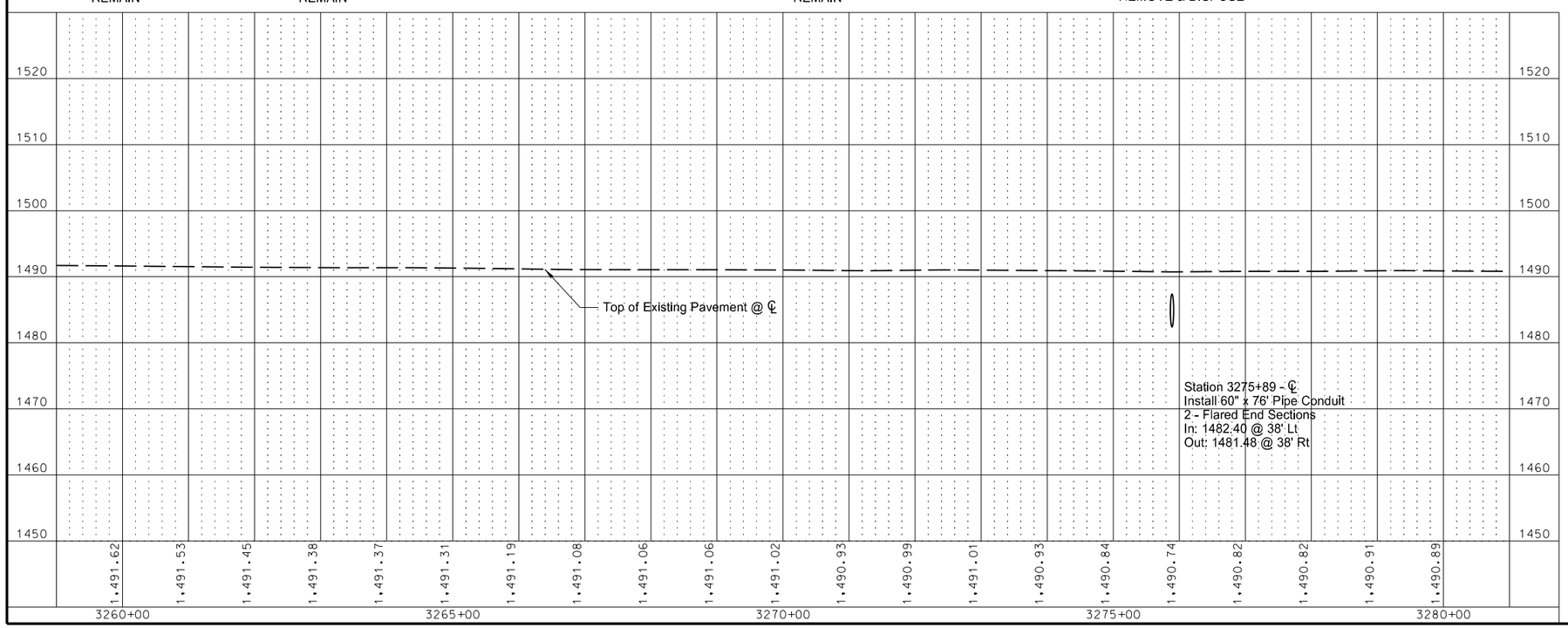
3260+03 - 75' Rt
24" x 51' CSP (W end Fair, E end Good)
2 CSES
REMAIN

3260+11 - 65' Lt
24" x 83' CSP (W end Poor, E end Fair)
2 CSES
REMAIN

3270+60 - 70' Lt
24" x 69' CSP (Poor)
1 CSES (W end)
REMAIN

3275+89 - CL
27" x 43" x 78' RCPA (Good)
2 RCES
REMOVE & DISPOSE

Note: R/W limits are approximate, based on existing plans.



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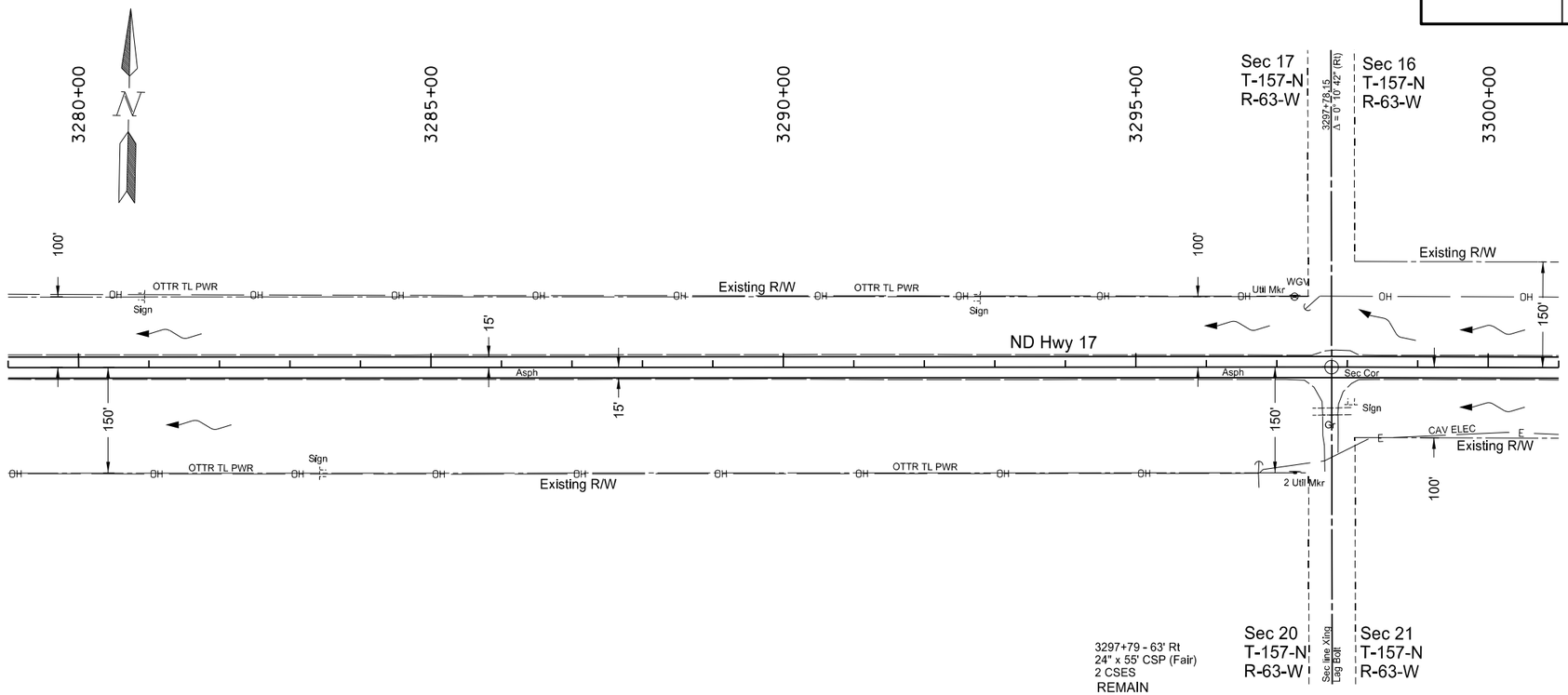
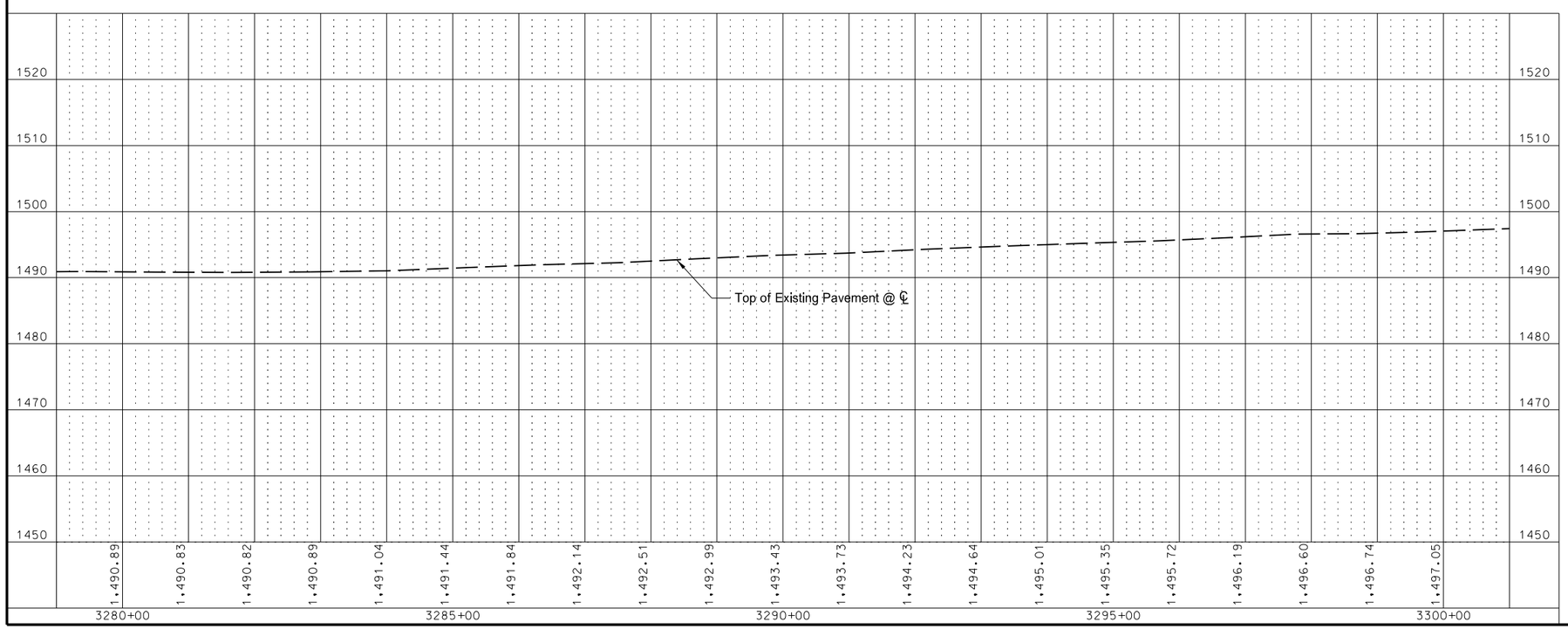
Starkweather S to Edmore - ND 17
Sta 3260+00 to Sta 3280+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	20



Note: R/W limits are approximate, based on existing plans.



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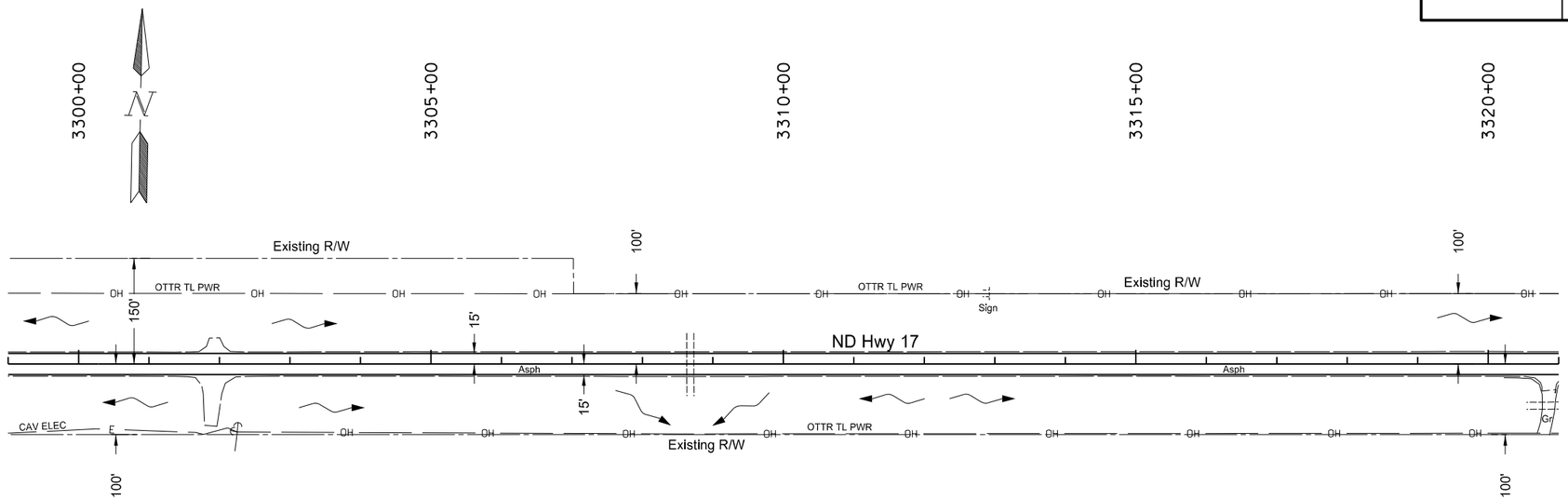
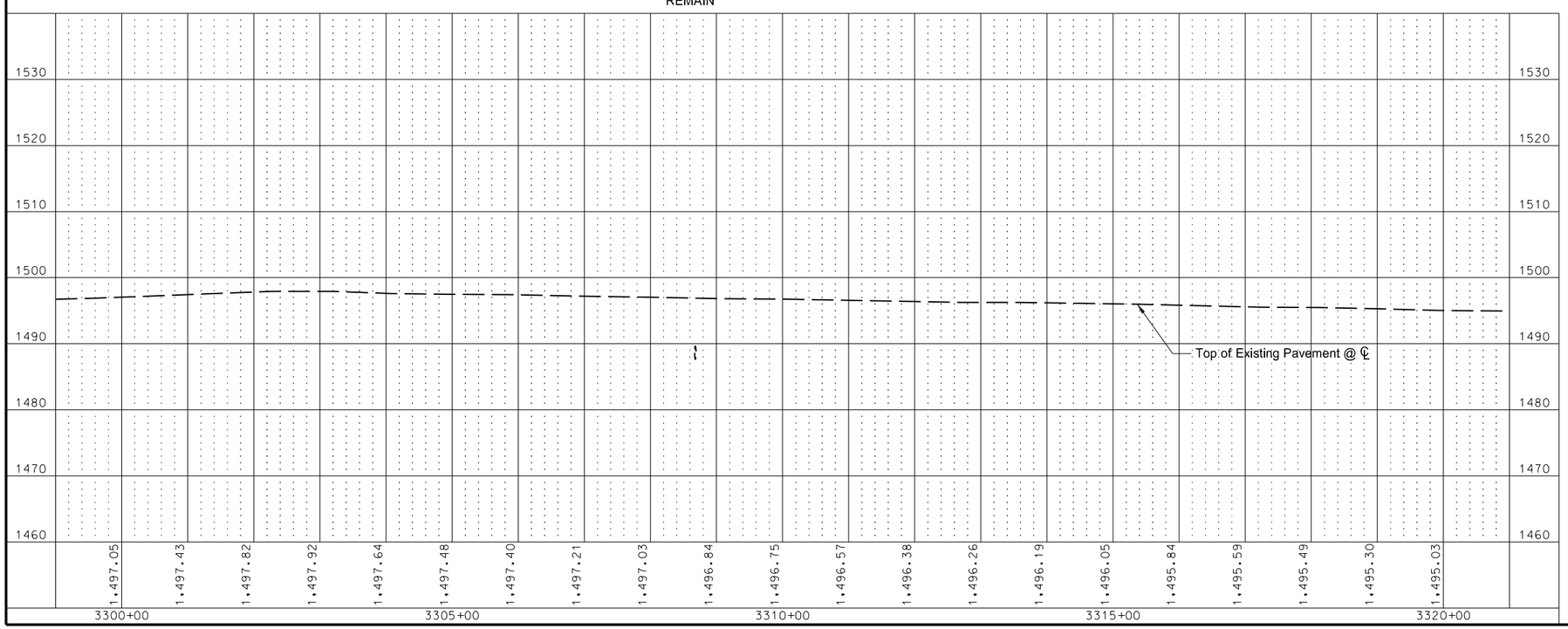
Starkweather S to Edmore - ND 17
Sta 3280+00 to Sta 3300+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	21



3308+68 - CL
24" x 88' RCP (Good)
2 RCES
REMAIN



Note: R/W limits are approximate, based on existing plans.

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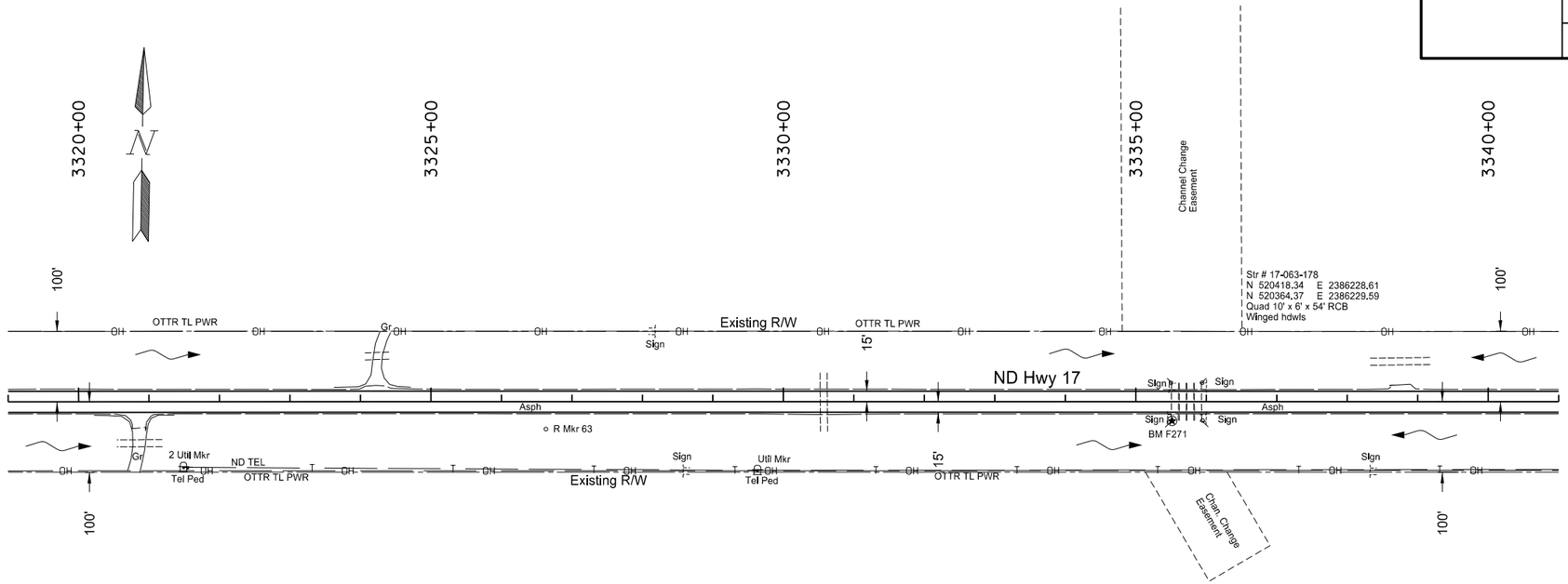
Starkweather S to Edmore - ND 17
Sta 3300+00 to Sta 3320+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	22



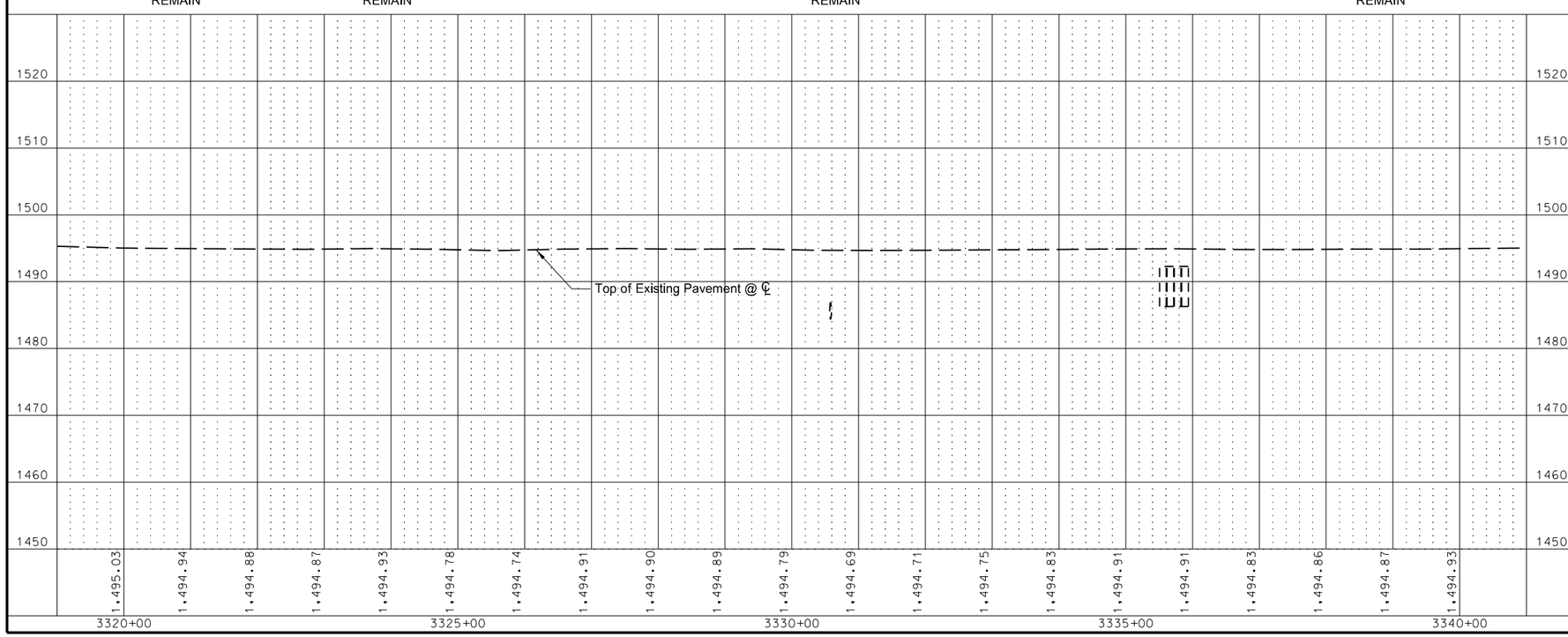
3320+87 - 59' Rt
24" x 64' CSP (W end Good, E end Fair)
2 CSES
REMAIN

3324+24 - 65' Lt
24" x 34' CSP (Good)
2 CSES
REMAIN

3330+58 - CL
30" x 82' RCP (Good)
REMAIN

3338+76 - 57' Lt
18" x 87' CSP (Good)
2 CSES
REMAIN

Note: R/W limits are approximate, based on existing plans.



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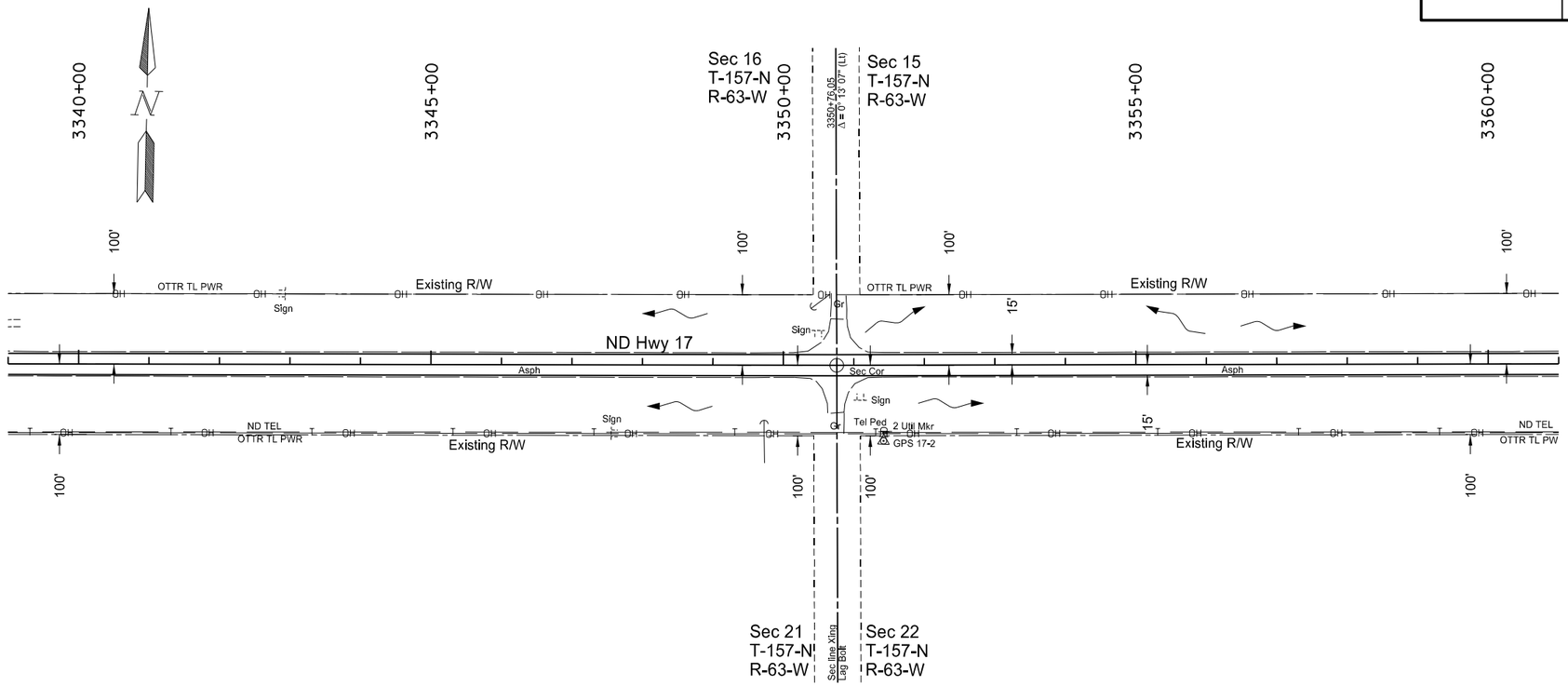
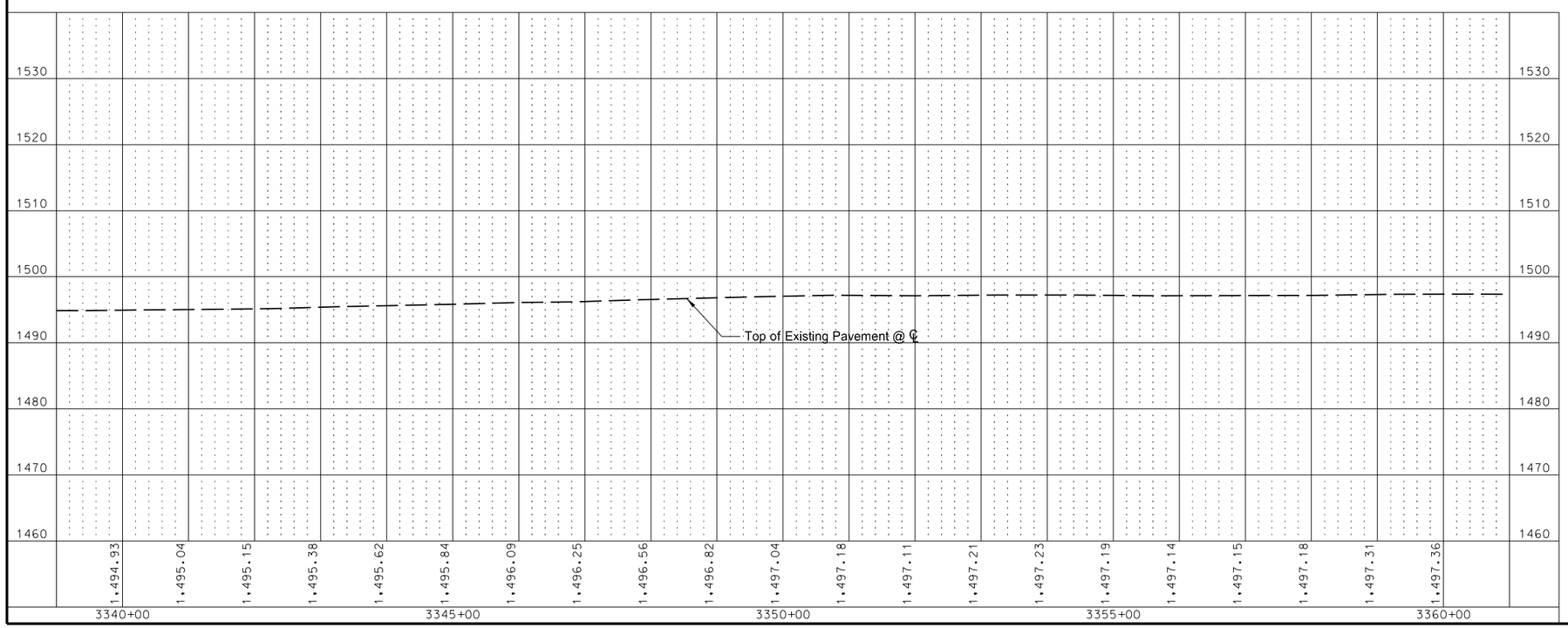
Starkweather S to Edmore - ND 17
Sta 3320+00 to Sta 3340+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	23





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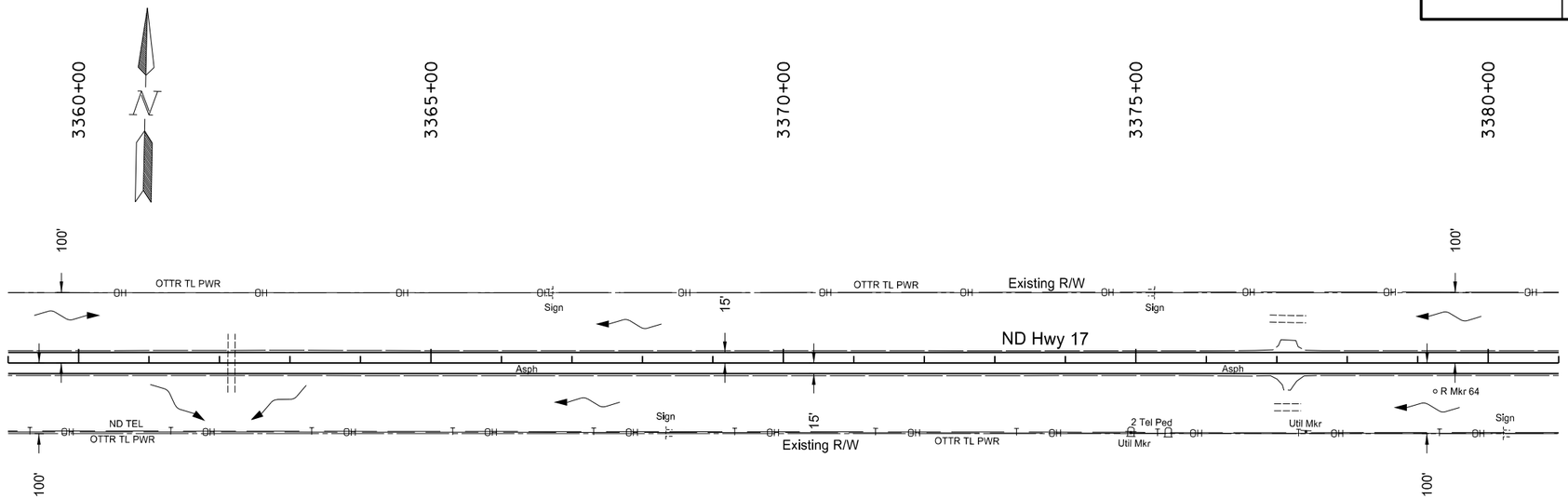
Starkweather S to Edmore - ND 17
Sta 3340+00 to Sta 3360+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	24

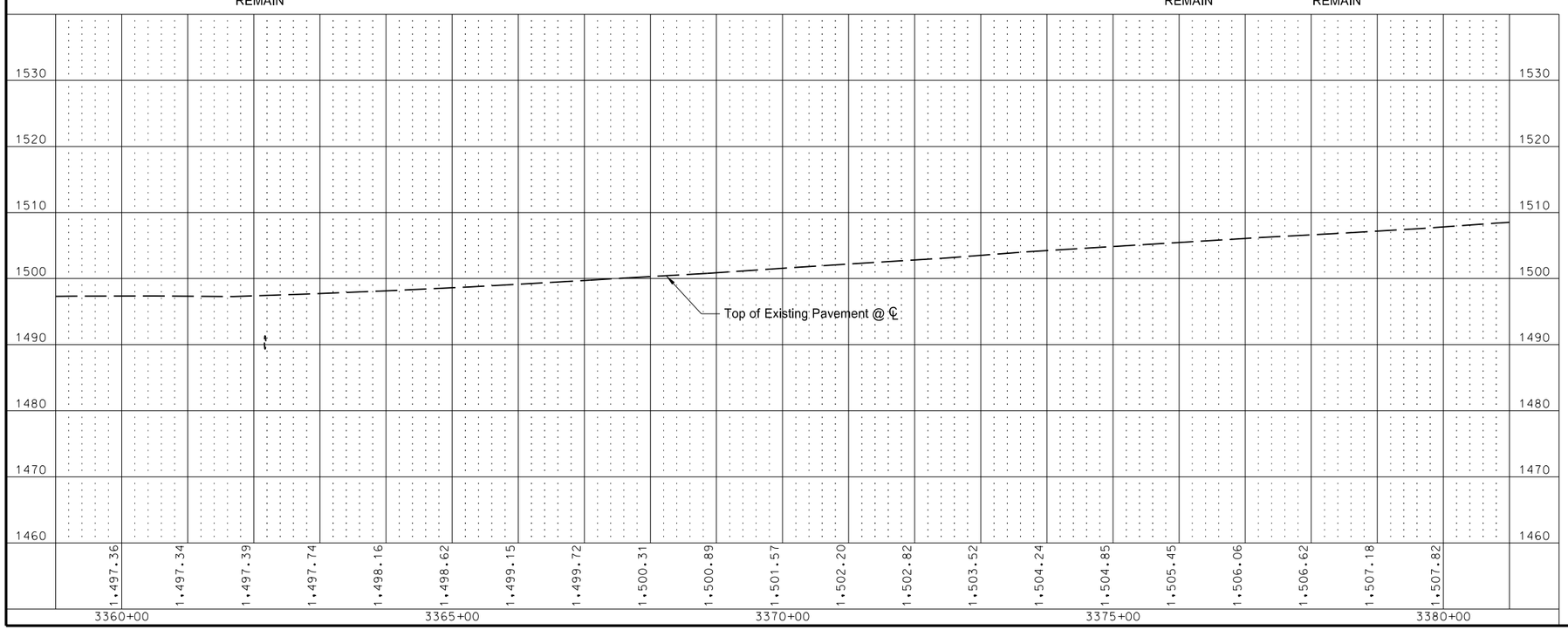


3362+17 - CL
18" x 83' CSP (Good)
REMAIN

3377+16 - 62' Lt
24" x 51' CSP (Good)
2 CSES
REMAIN

3377+16 - 63' Rt
24" x 38' CSP (W end Good, E end Fair)
1 CSES (W end Good)
1 CSES (E end Poor)
REMAIN

Note: R/W limits are approximate, based on existing plans.



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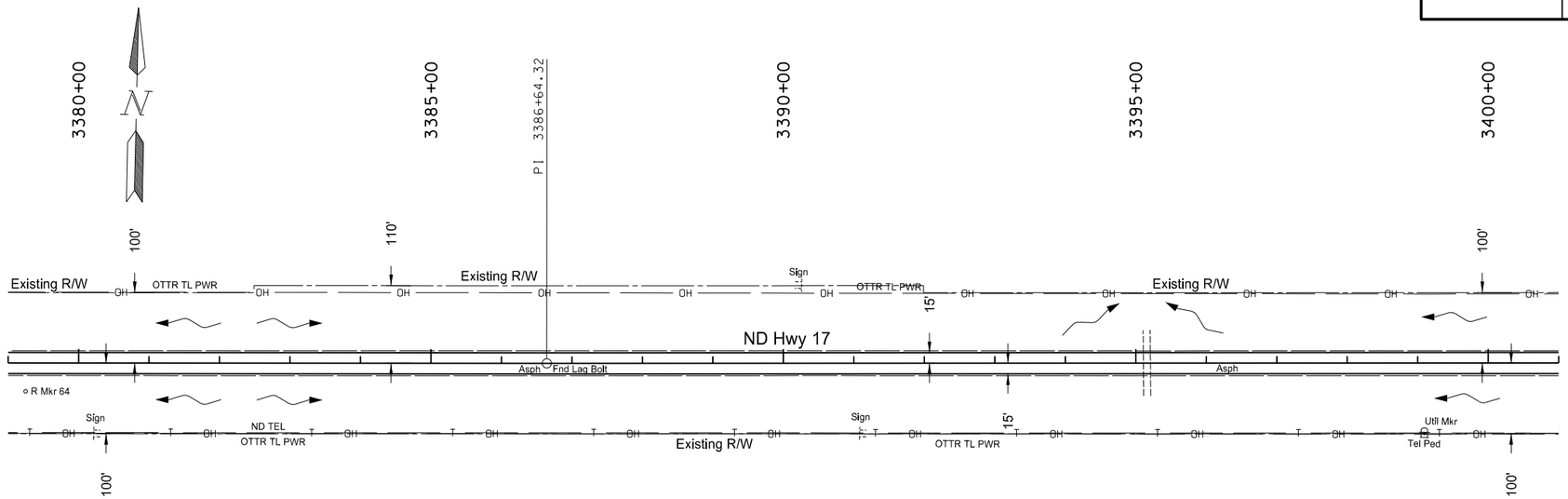
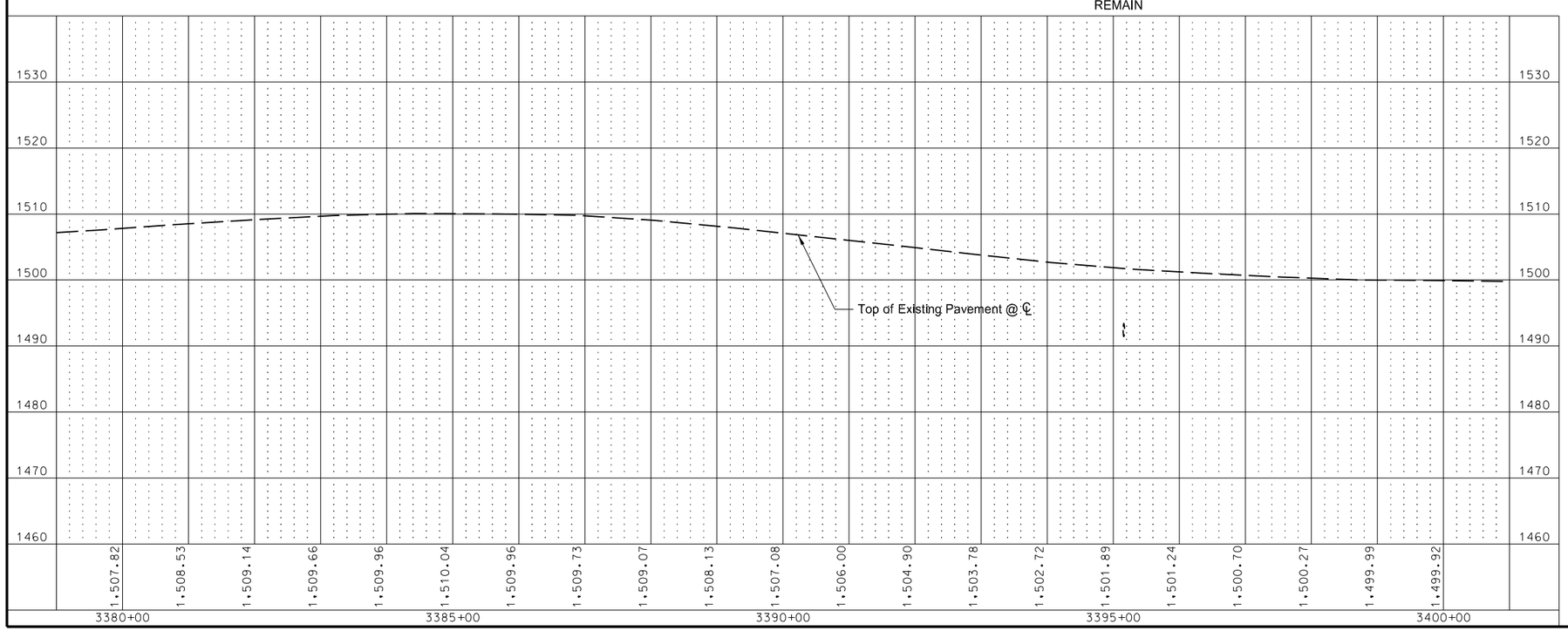
Starkweather S to Edmore - ND 17
Sta 3360+00 to Sta 3380+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	25



3395+16 - CL
24" x 92' RCP (Good)
2 RCES
REMAIN



Note: R/W limits are approximate, based on existing plans.

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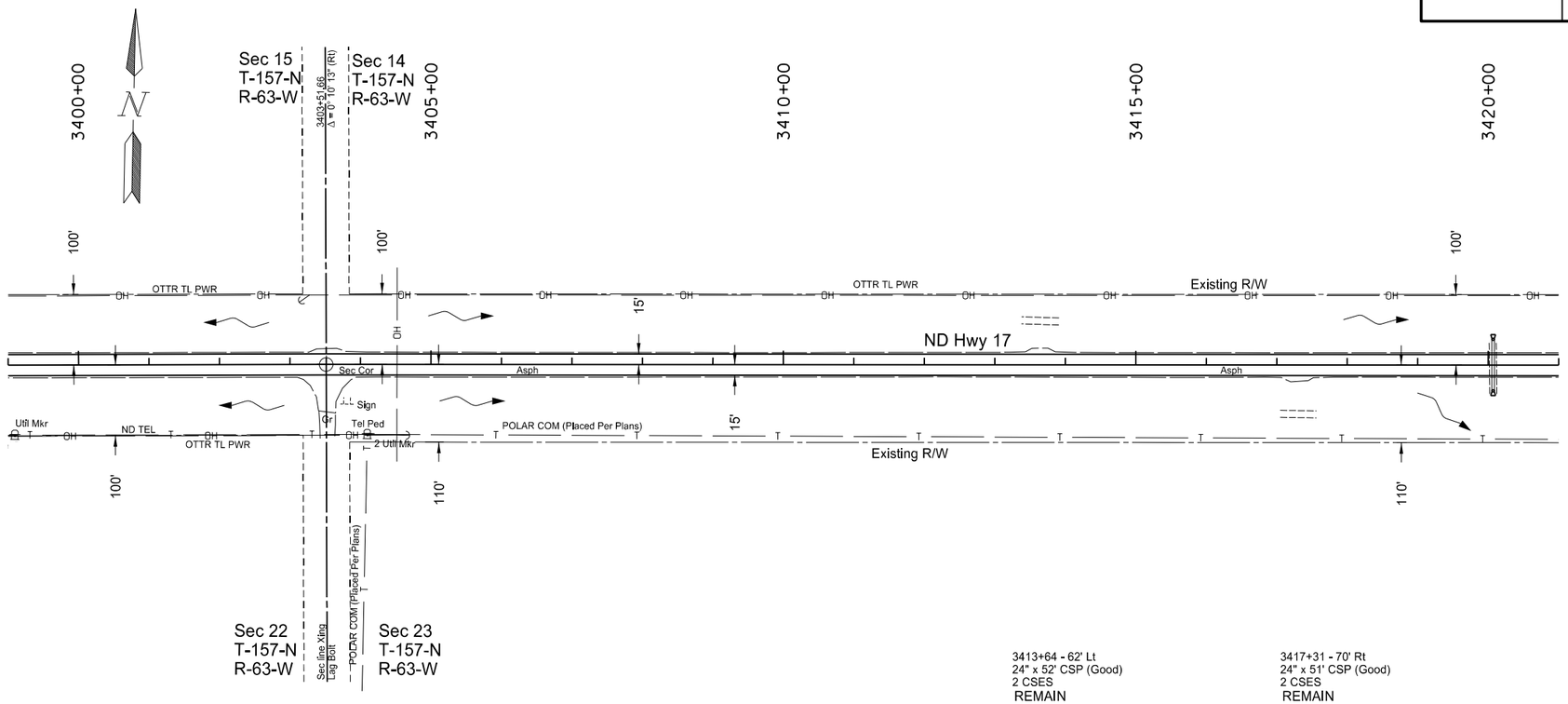
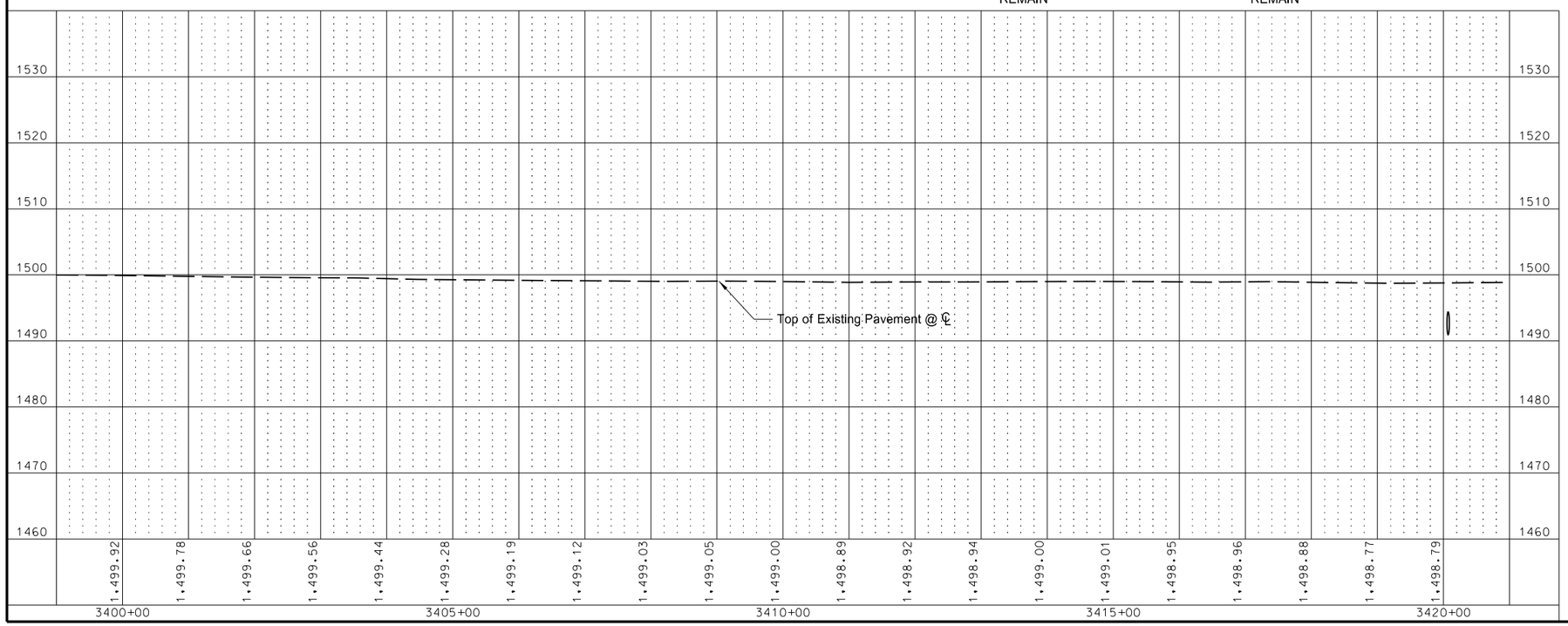
Starkweather S to Edmore - ND 17
Sta 3380+00 to Sta 3400+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	26





Note: R/W limits are approximate, based on existing plans.

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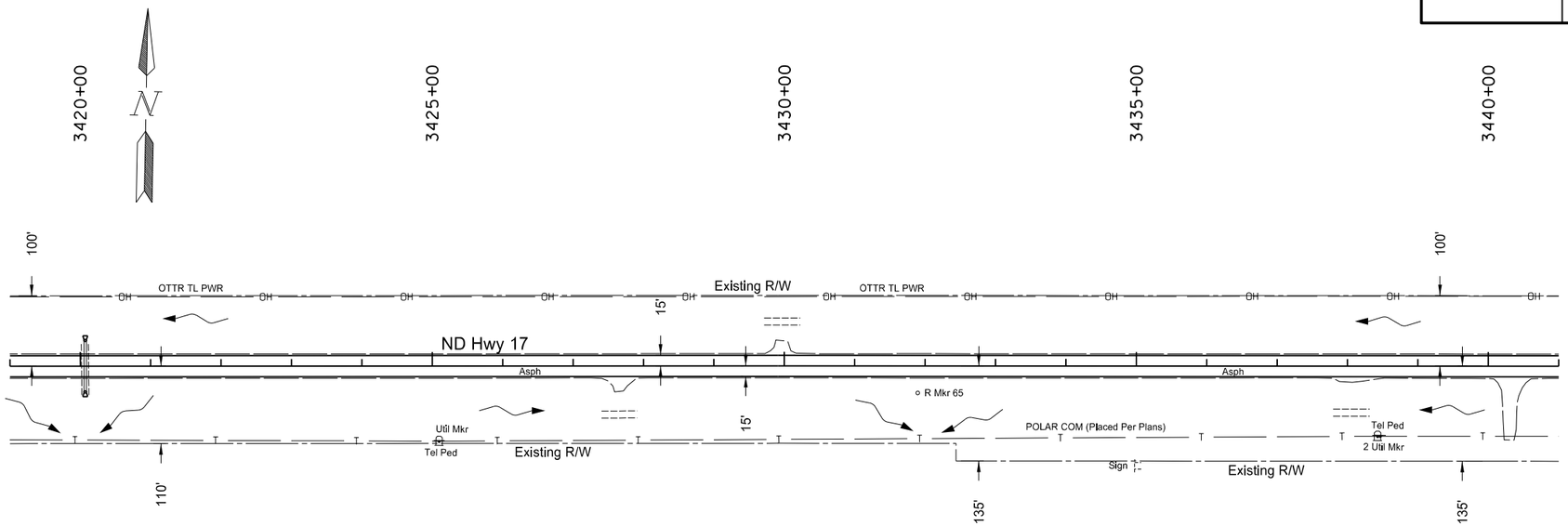
Plan & Profile

Starkweather S to Edmore - ND 17
Sta 3400+00 to Sta 3420+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	27

Item	Description	Quantity	Unit
202-0174	REMOVAL OF PIPE ALL TYPES AND SIZES Sta 3420+07 ℄	74	LF
714-4120	PIPE CONDUIT 42IN Sta 3420+07 ℄	76	LF



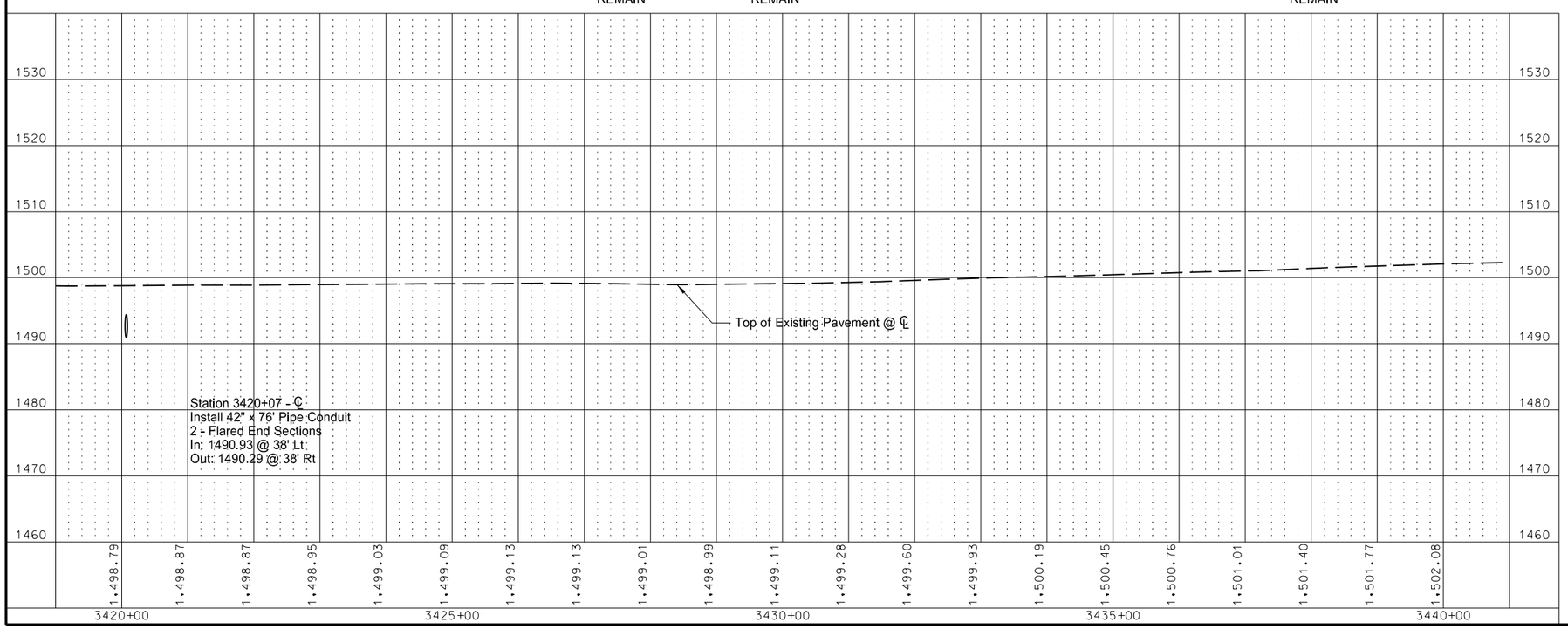
3420+07 - CL
24" x 74' RCP (Good)
2 RCES
REMOVE & DISPOSE

3427+66 - 69' Rt
18" x 50' CSP (Fair)
2 CSES
REMAIN

3429+97 - 63' Lt
18" x 51' CSP (Fair)
2 CSES
REMAIN

3438+06 - 66' Rt
18" x 51' CSP (Poor)
2 CSES
REMAIN

Note: R/W limits are approximate, based on existing plans.



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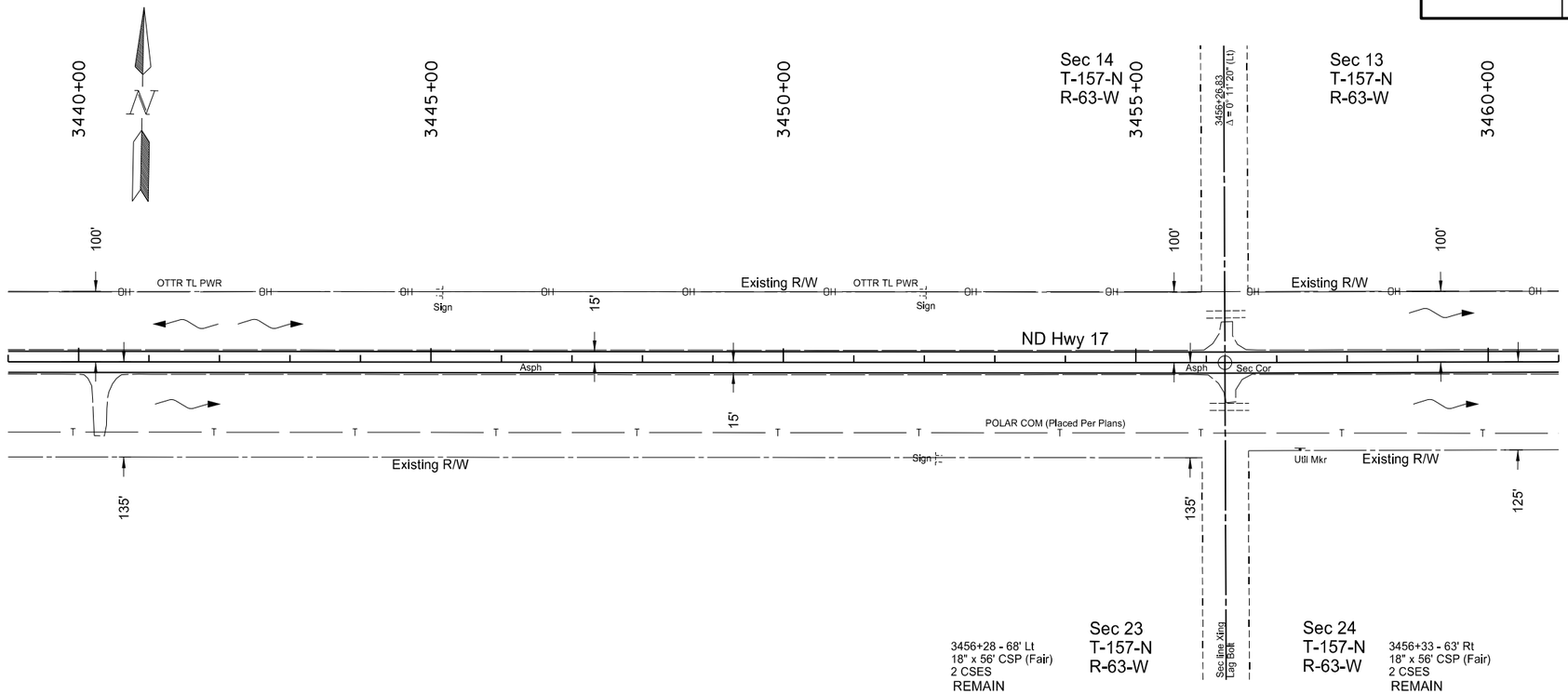
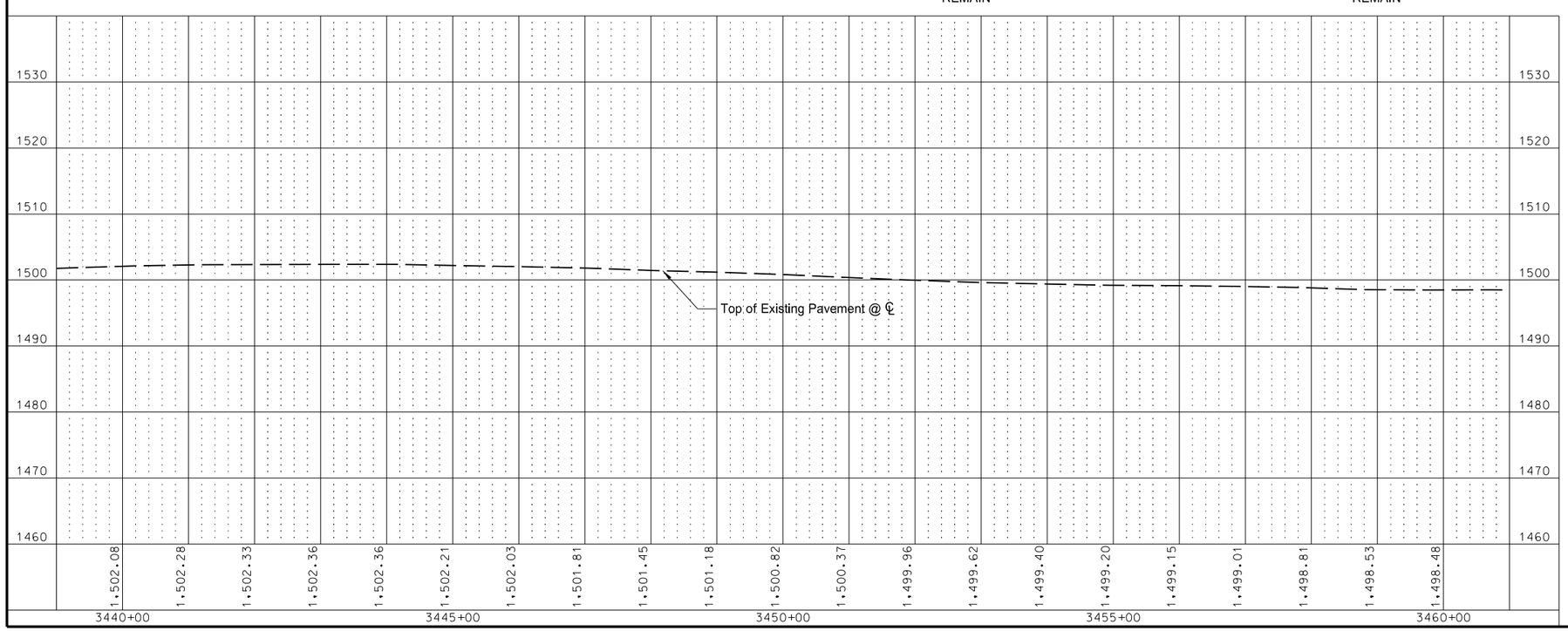
Starkweather S to Edmore - ND 17
Sta 3420+00 to Sta 3440+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	28





Note: R/W limits are approximate, based on existing plans.

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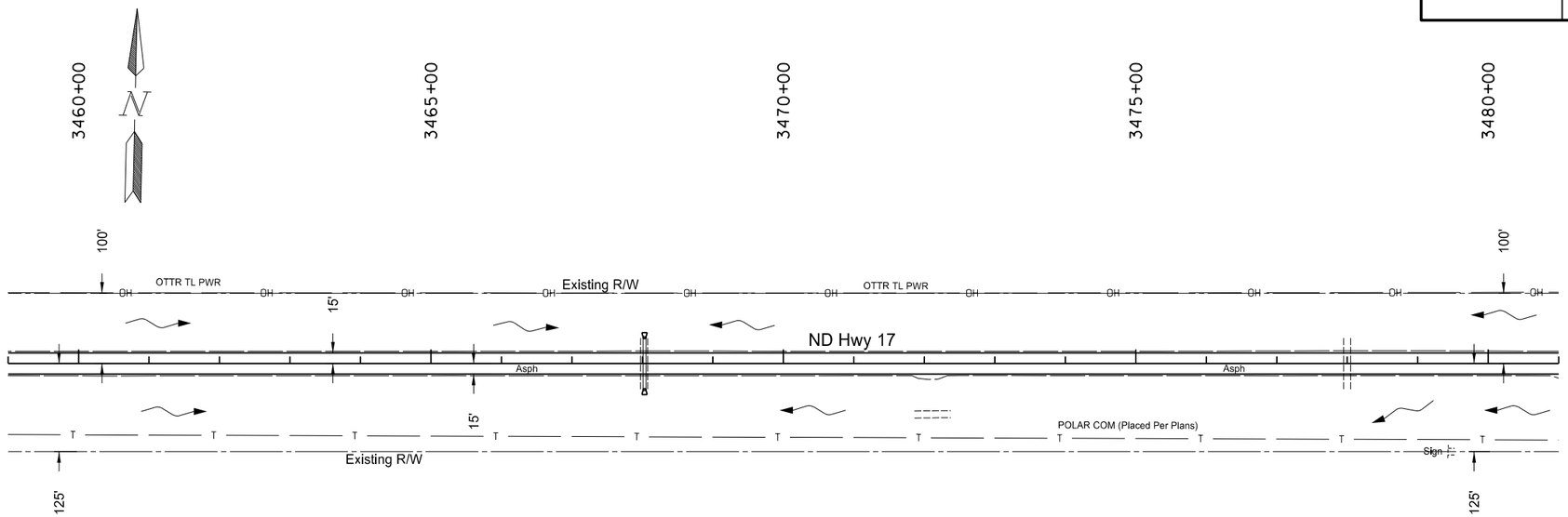
Plan & Profile

Starkweather S to Edmore - ND 17
Sta 3440+00 to Sta 3460+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	29

Item	Description	Quantity	Unit
202-0174	REMOVAL OF PIPE ALL TYPES AND SIZES Sta 3468+03 ℄	72	LF
714-4125	PIPE CONDUIT 48IN Sta 3468+03 ℄	76	LF

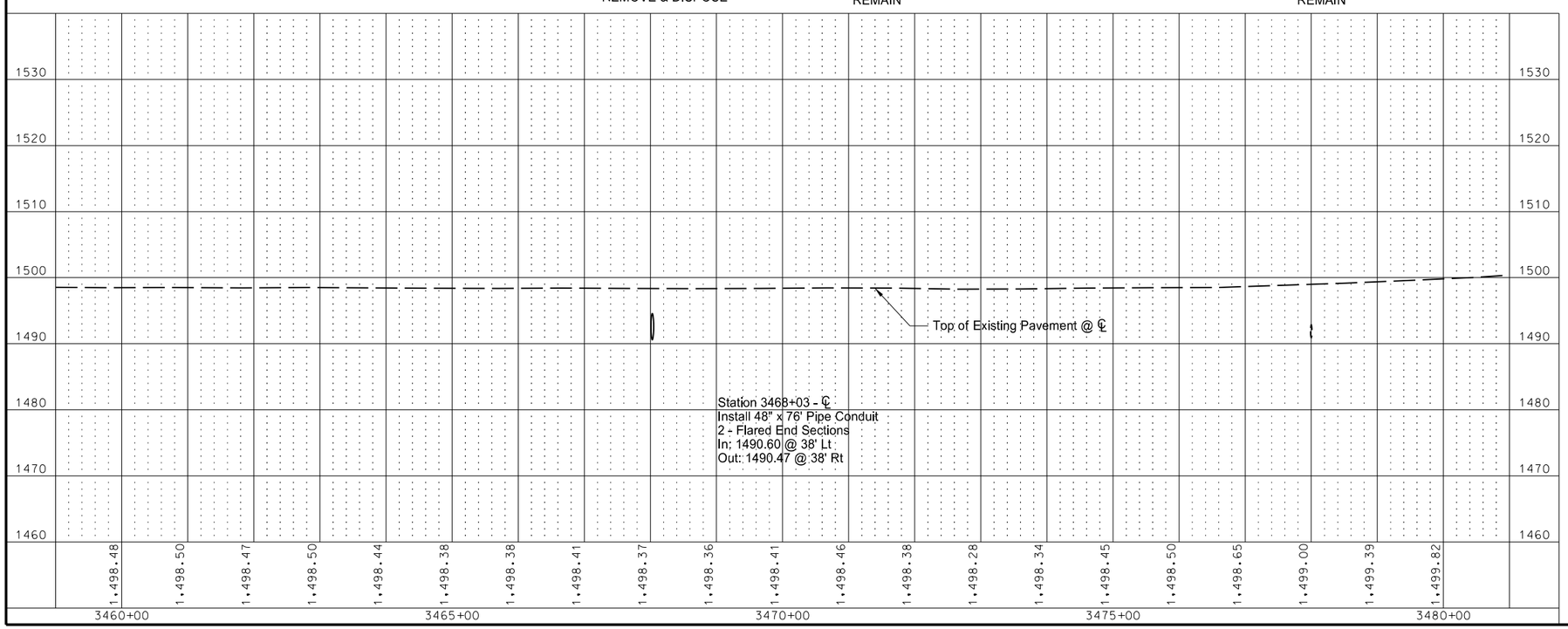


3468+03 - CL
24" x 72' RCP (Good)
2 RCES
REMOVE & DISPOSE

3472+12 - 72' Rt
18" x 51' CSP (Fair)
2 CSES
REMAIN

3478+00 - CL
24" x 72' RCP (Good)
2 RCES
REMAIN

Note: R/W limits are approximate, based on existing plans.



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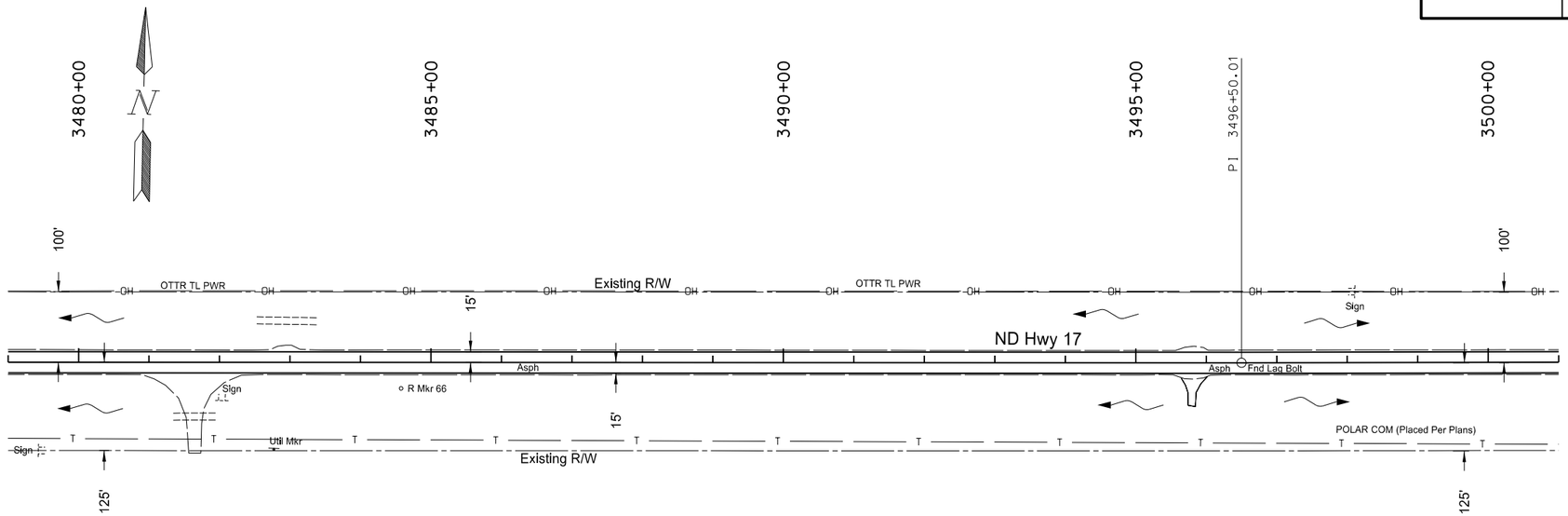
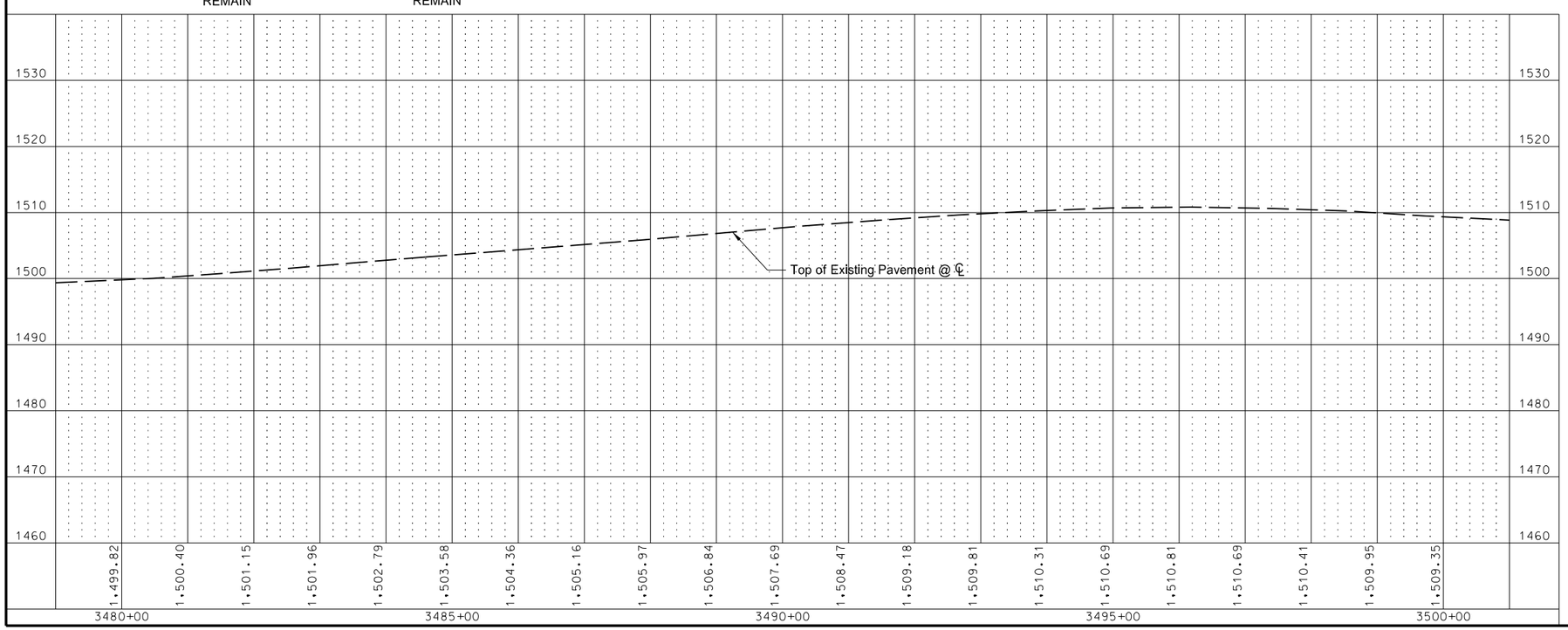
Starkweather S to Edmore - ND 17
Sta 3460+00 to Sta 3480+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	30



3481+66 - 77' Rt
18" x 61' CSP (W end Fair, E end Good)
1 CSES (W end Poor)
1 CSES (E end Good)
REMAIN

3482+97 - 59' Lt
18" x 87' CSP (Fair)
2 CSES
REMAIN



Note: R/W limits are approximate, based on existing plans.

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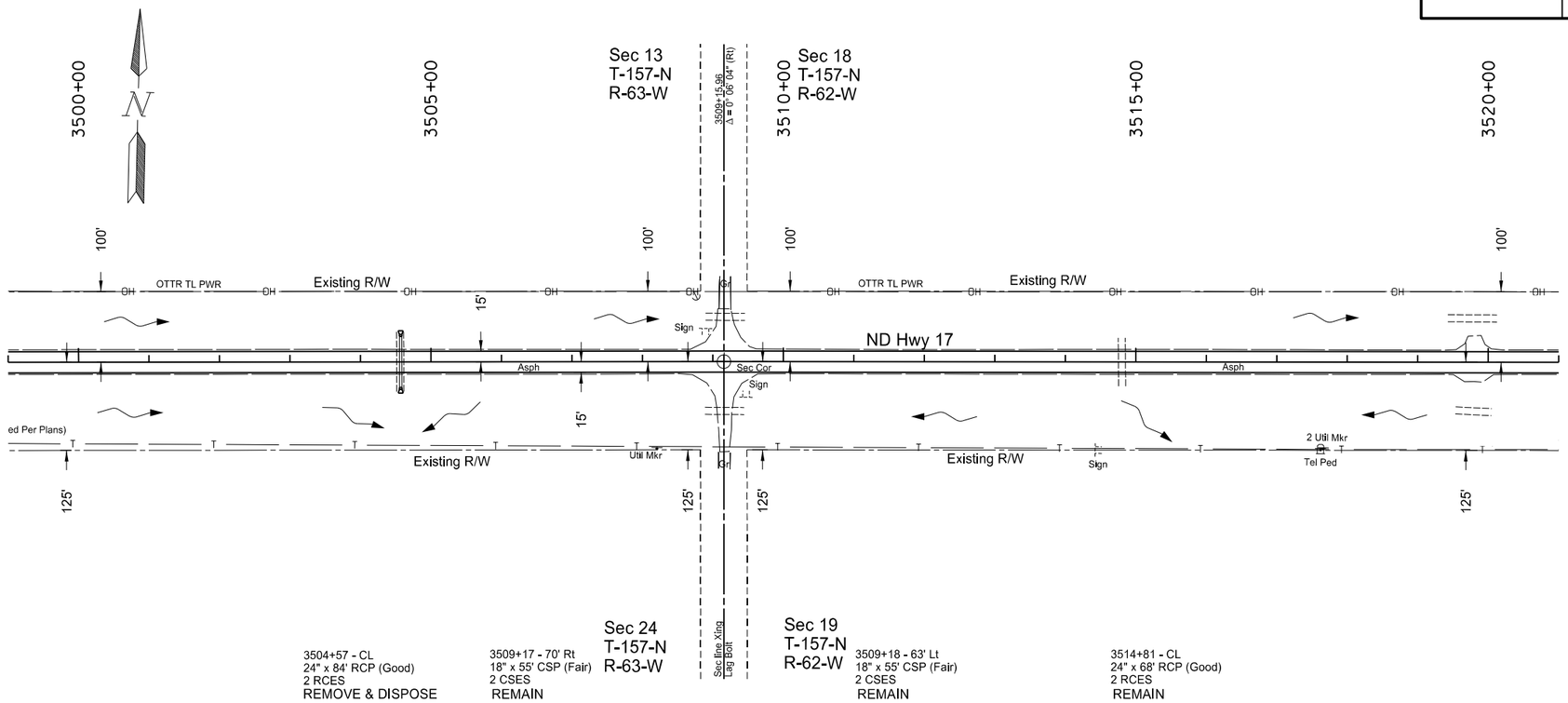
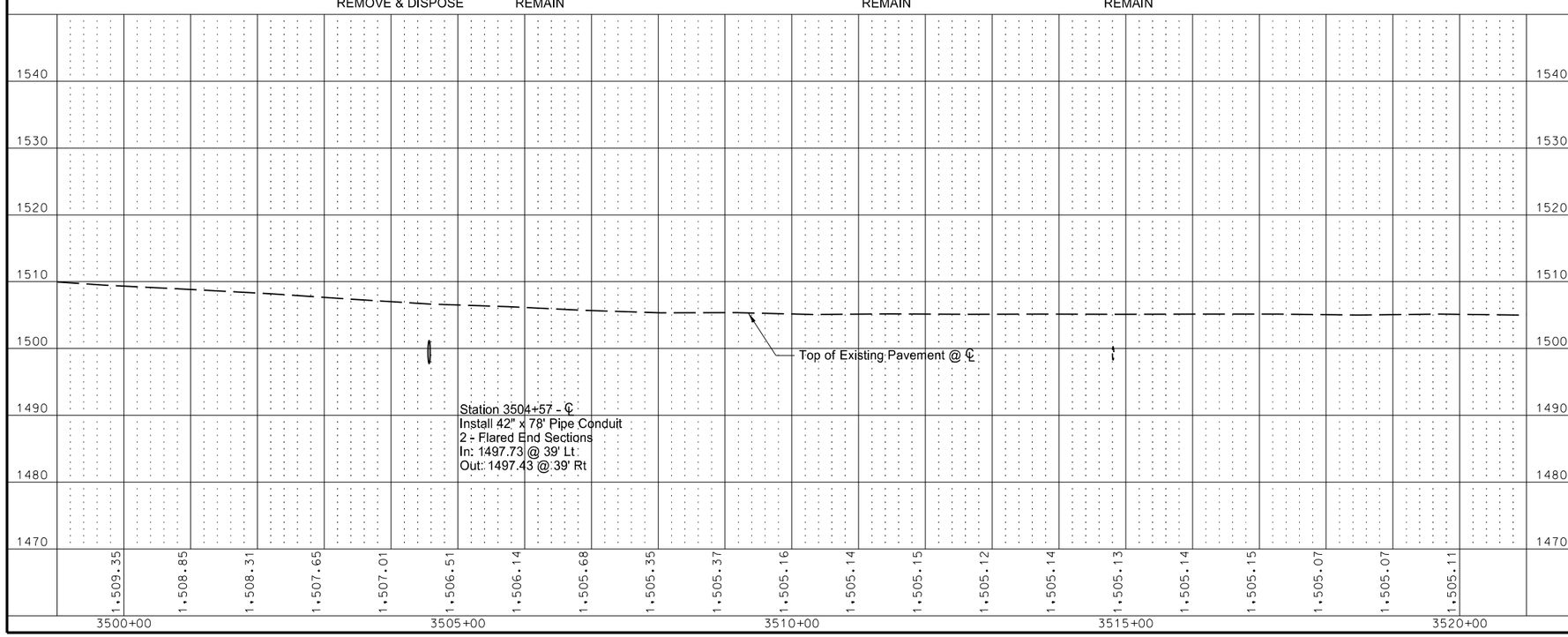
Starkweather S to Edmore - ND 17
Sta 3480+00 to Sta 3500+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	31

Item	Description	Quantity	Unit
202-0174	REMOVAL OF PIPE ALL TYPES AND SIZES Sta 3504+57 ℄	84	LF
714-4120	PIPE CONDUIT 42IN Sta 3504+57 ℄	78	LF



Note: R/W limits are approximate, based on existing plans.



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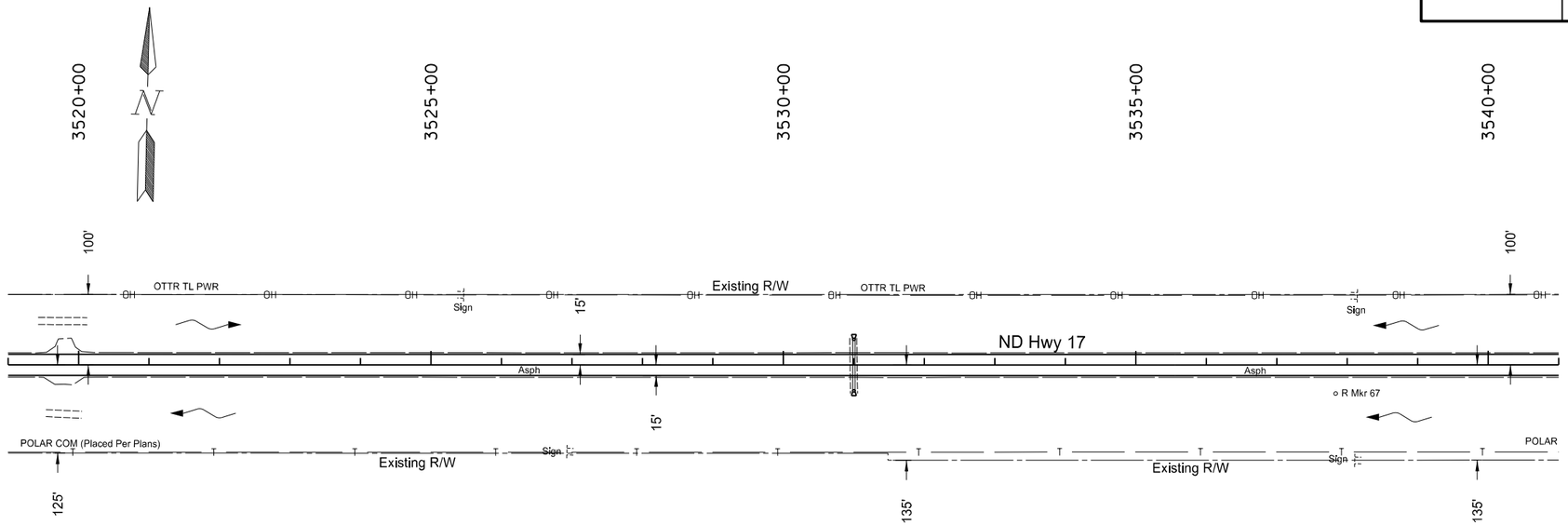
Starkweather S to Edmore - ND 17
Sta 3500+00 to Sta 3520+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	32

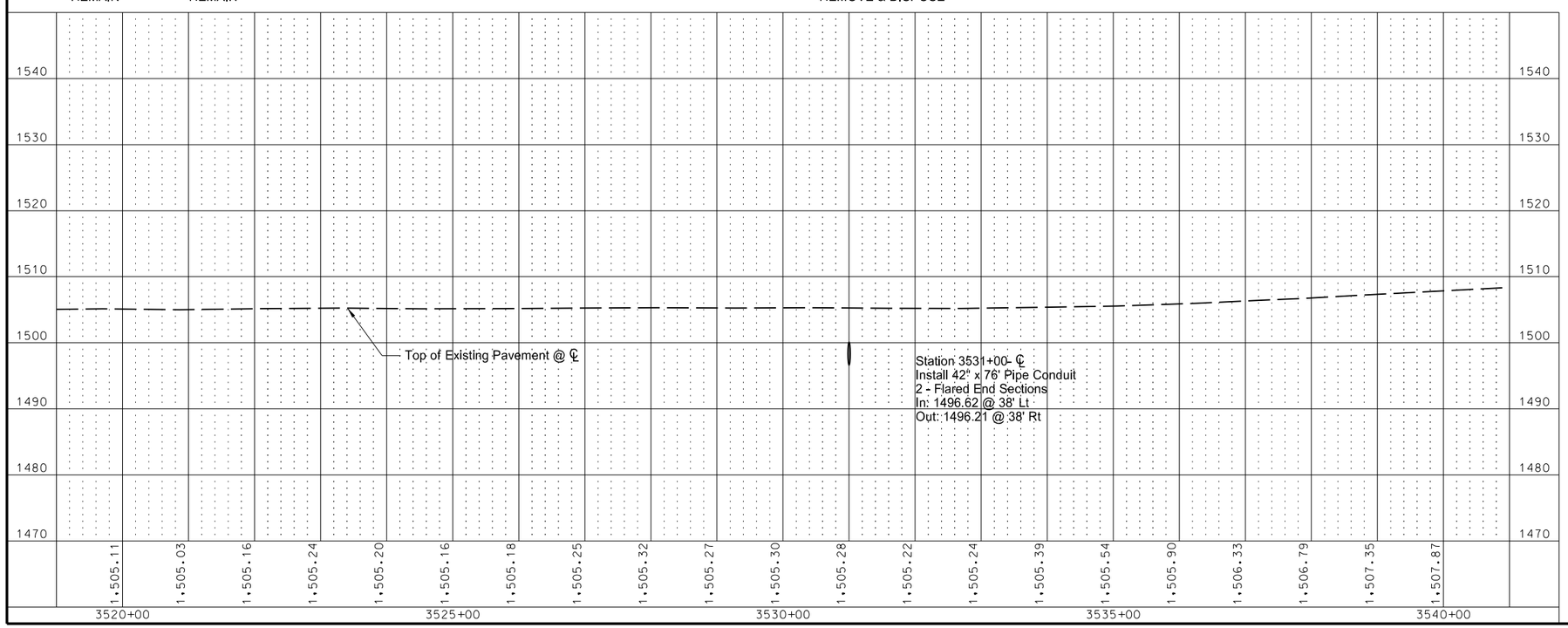
Item	Description	Quantity	Unit
202-0174	REMOVAL OF PIPE ALL TYPES AND SIZES Sta 3531+00 ℄	78	LF
714-4120	PIPE CONDUIT 42IN Sta 3531+00 ℄	76	LF



3519+78 - 62' Lt
18" x 69' CSP (Fair)
2 CSES
REMAIN

3519+80 - 70' Rt
18" x 51' CSP (Fair)
2 CSES
REMAIN

3531+00 - CL
24" x 78' RCP (Fair)
2 RCES (Good)
REMOVE & DISPOSE



Note: R/W limits are approximate, based on existing plans.

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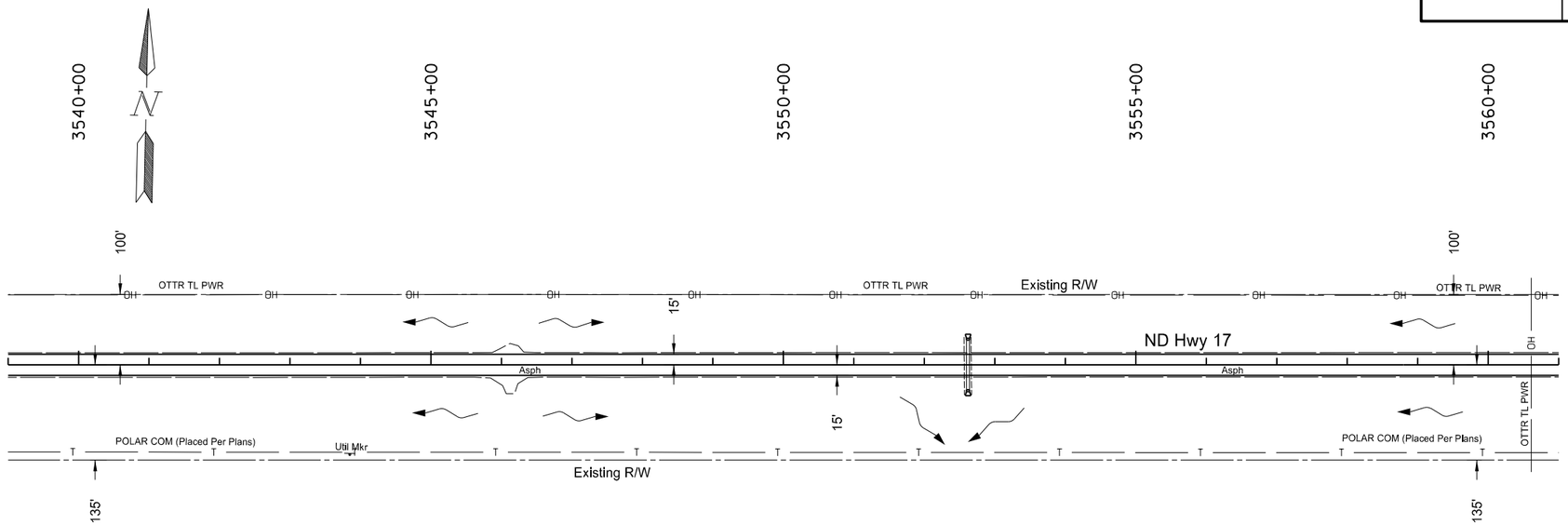
Plan & Profile

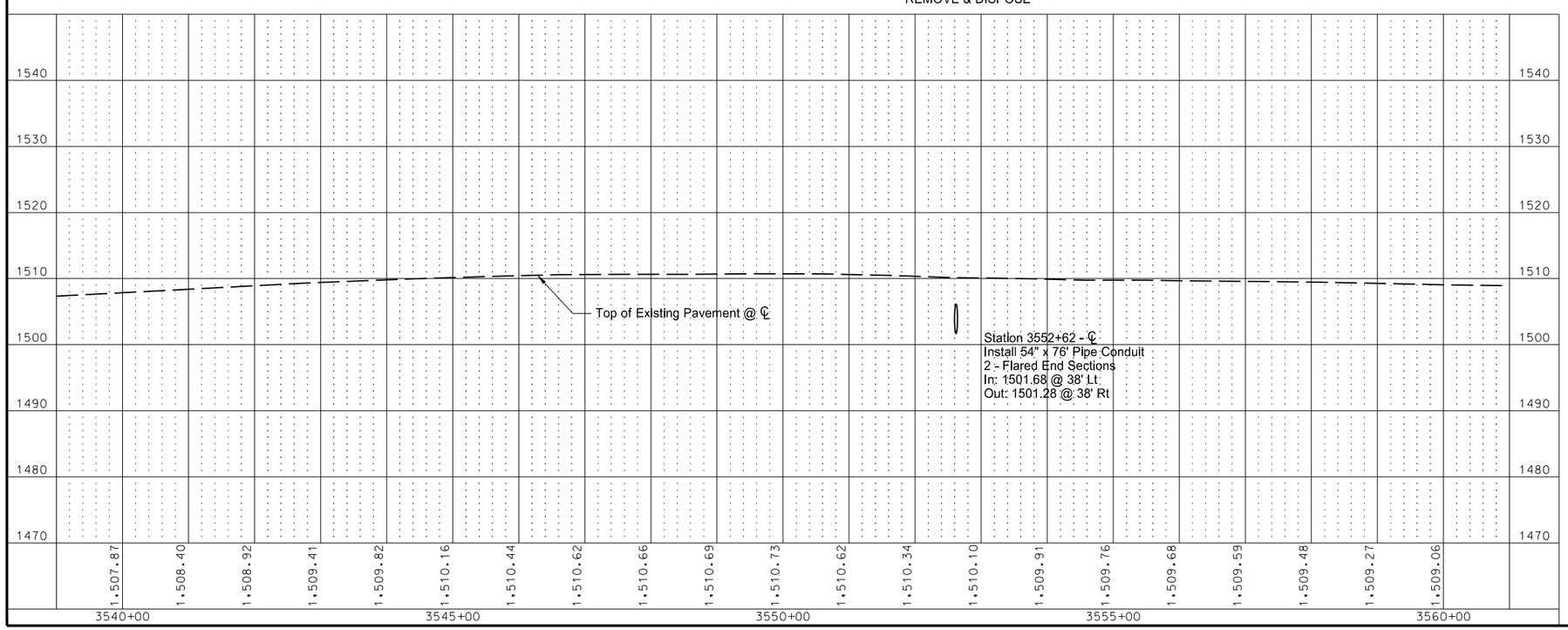
Starkweather S to Edmore - ND 17
Sta 3520+00 to Sta 3540+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	33

Item	Description	Quantity	Unit
202-0174	REMOVAL OF PIPE ALL TYPES AND SIZES Sta 3552+62 ℄	82	LF
714-4130	PIPE CONDUIT 54IN Sta 3552+62 ℄	76	LF



3552+62 - CL
24" x 82' RCP (Good)
2 RCES
REMOVE & DISPOSE



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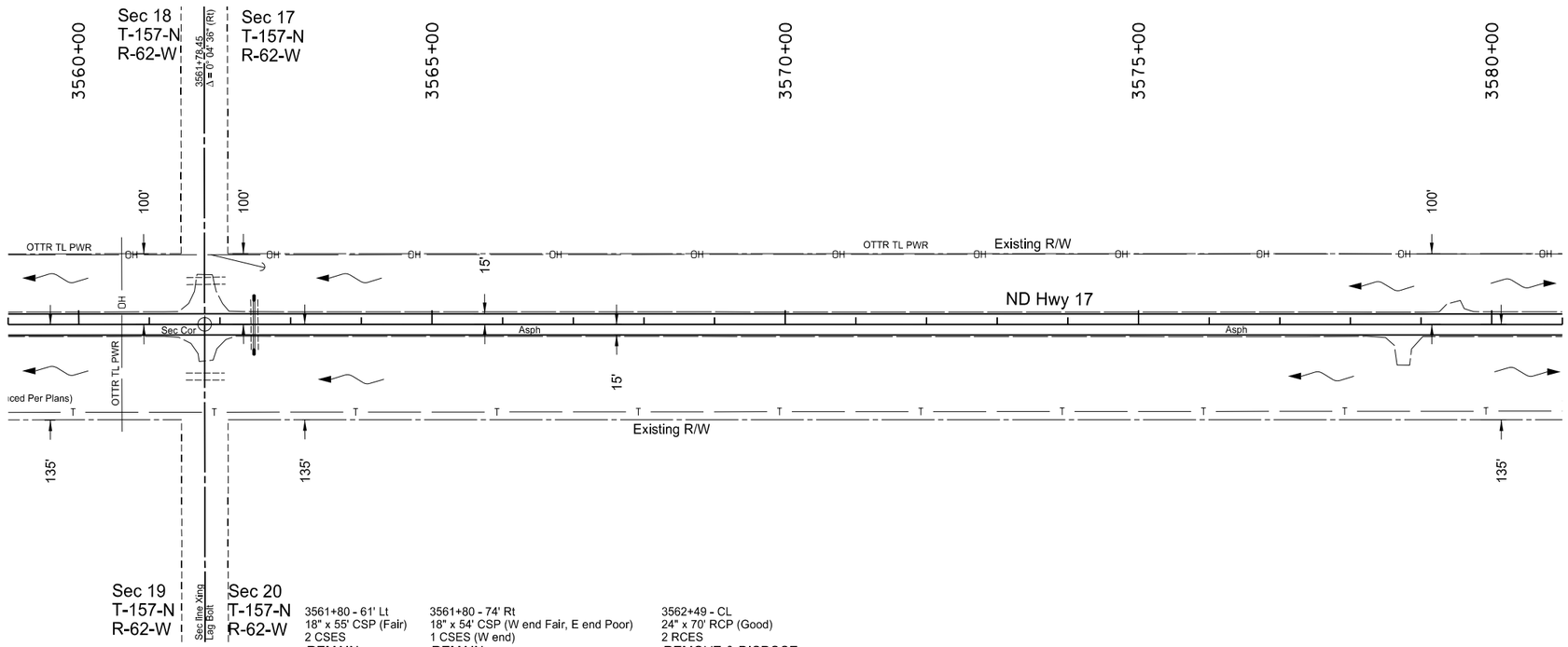
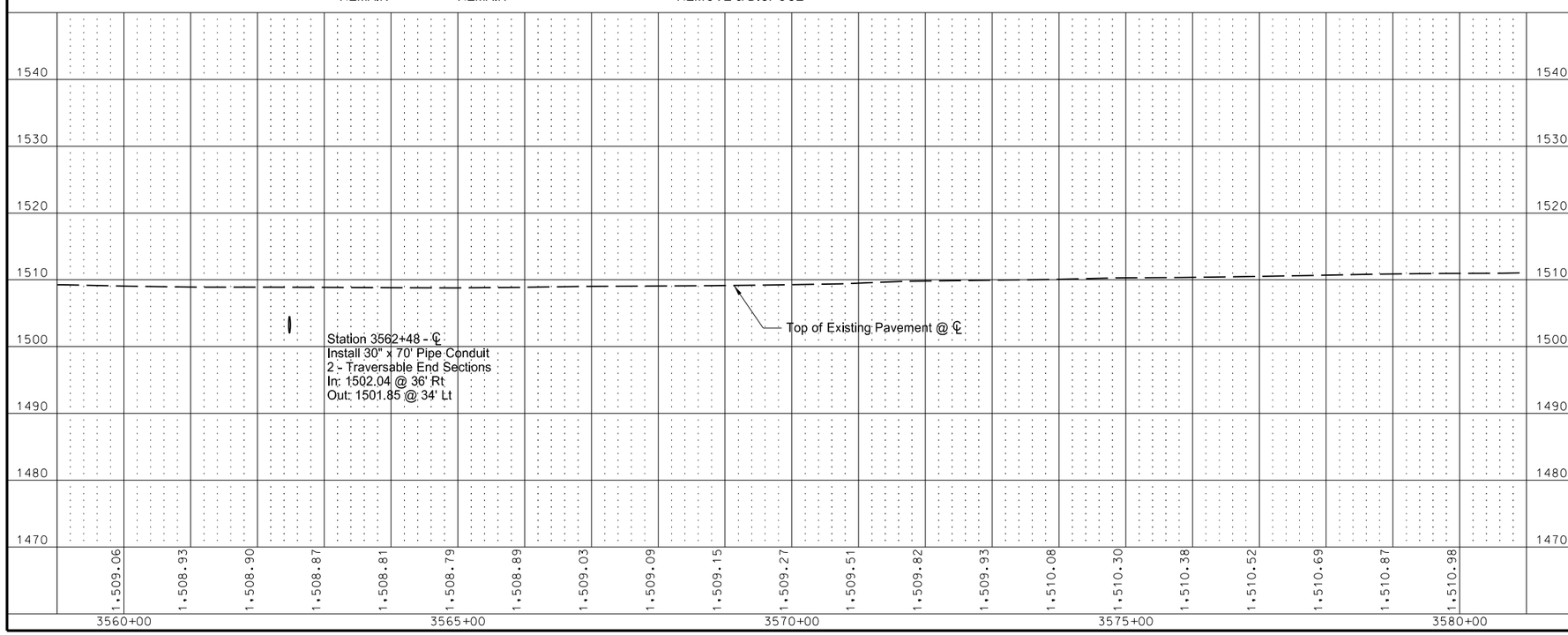
Starkweather S to Edmore - ND 17
Sta 3540+00 to Sta 3560+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	34

Item	Description	Quantity	Unit
202-0174	REMOVAL OF PIPE ALL TYPES AND SIZES Sta 3562+49 ℄	70	LF
714-4110	PIPE CONDUIT 30IN Sta 3562+48 ℄	70	LF



Note: R/W limits are approximate, based on existing plans.



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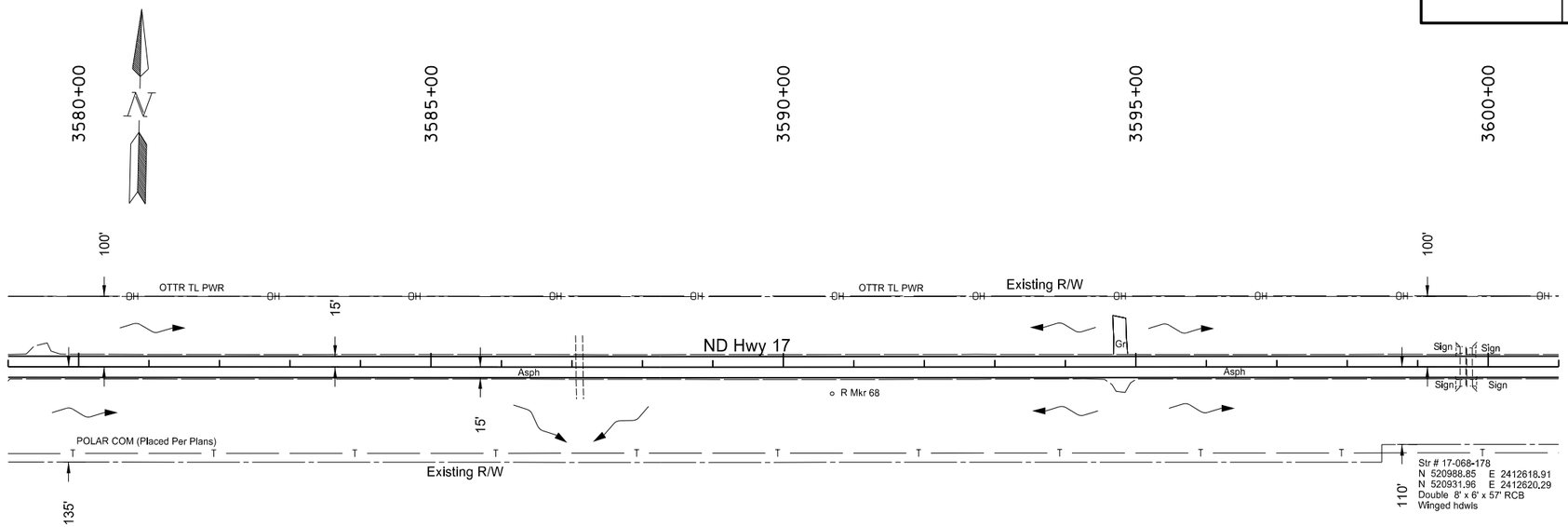
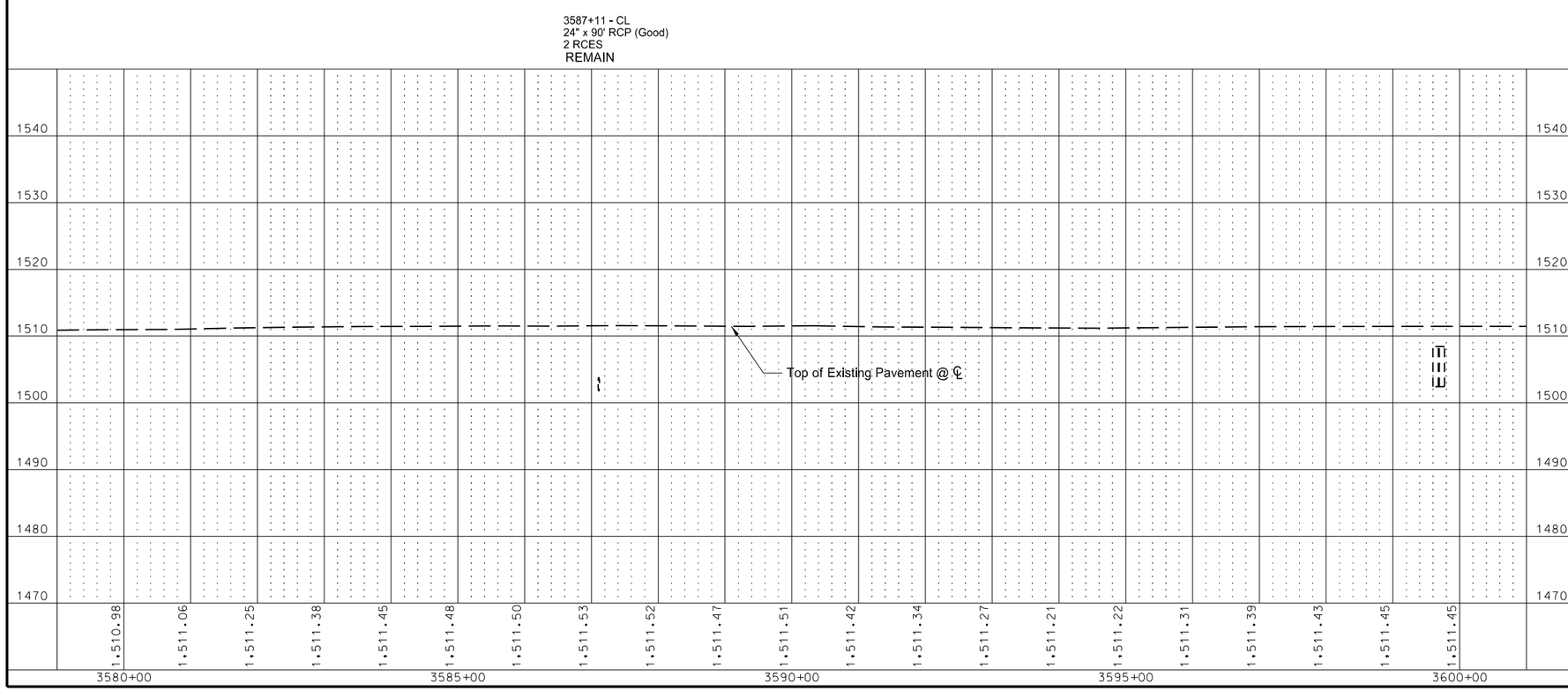
Plan & Profile

Starkweather S to Edmore - ND 17
Sta 3560+00 to Sta 3580+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	35





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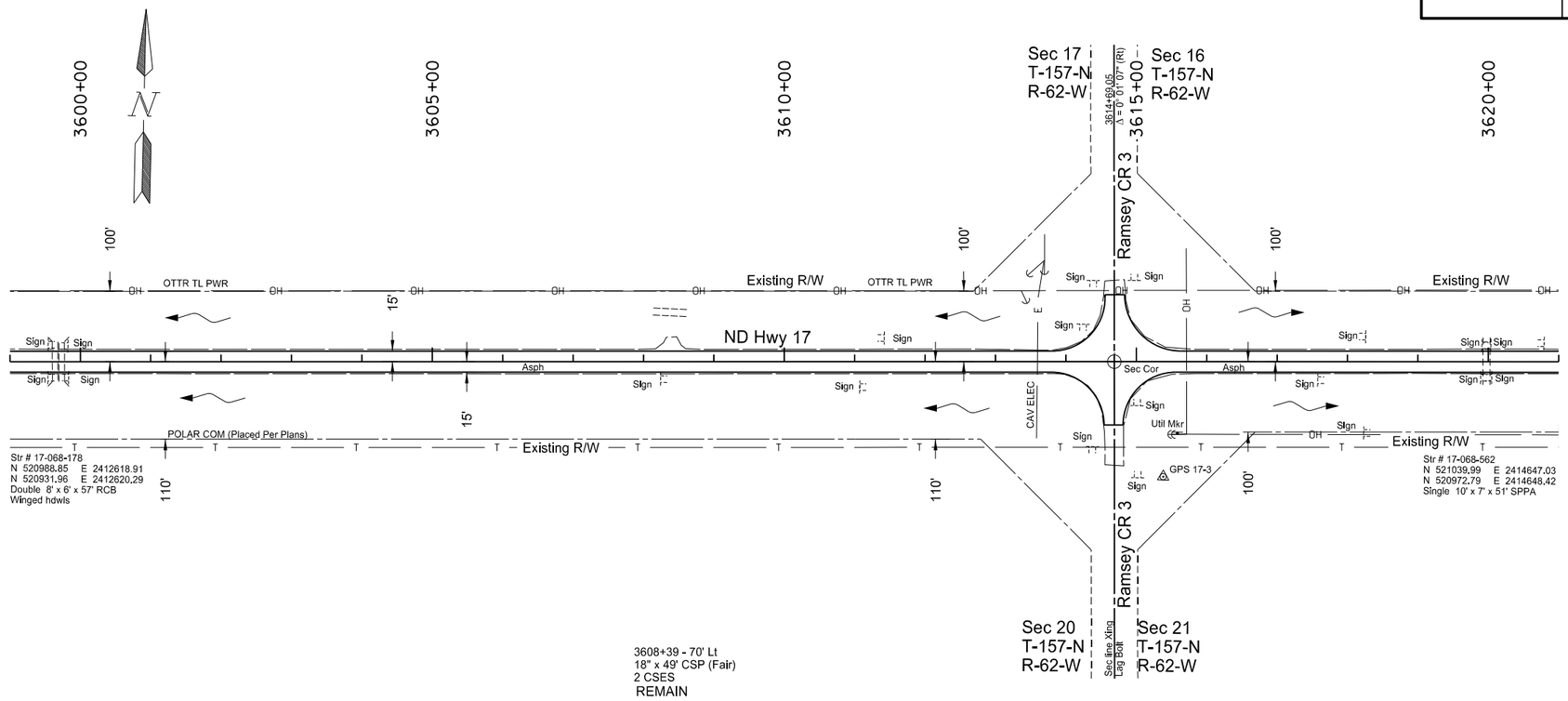
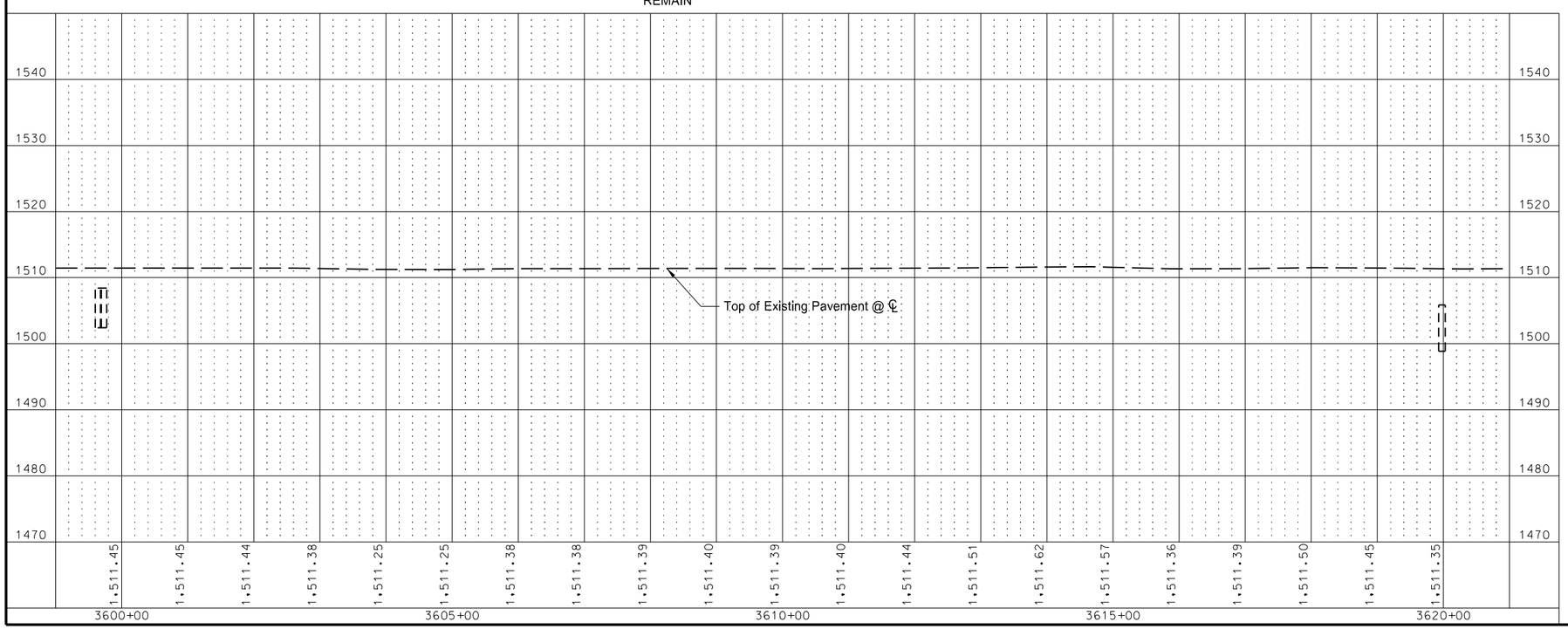
Starkweather S to Edmore - ND 17
Sta 3580+00 to Sta 3600+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	36





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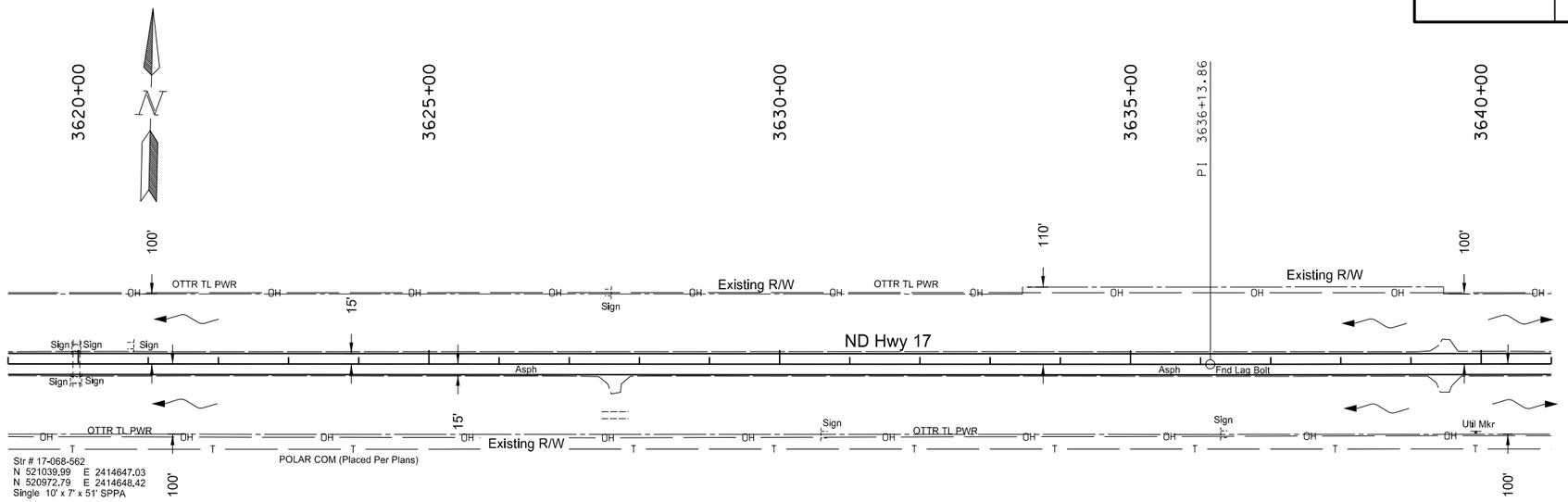
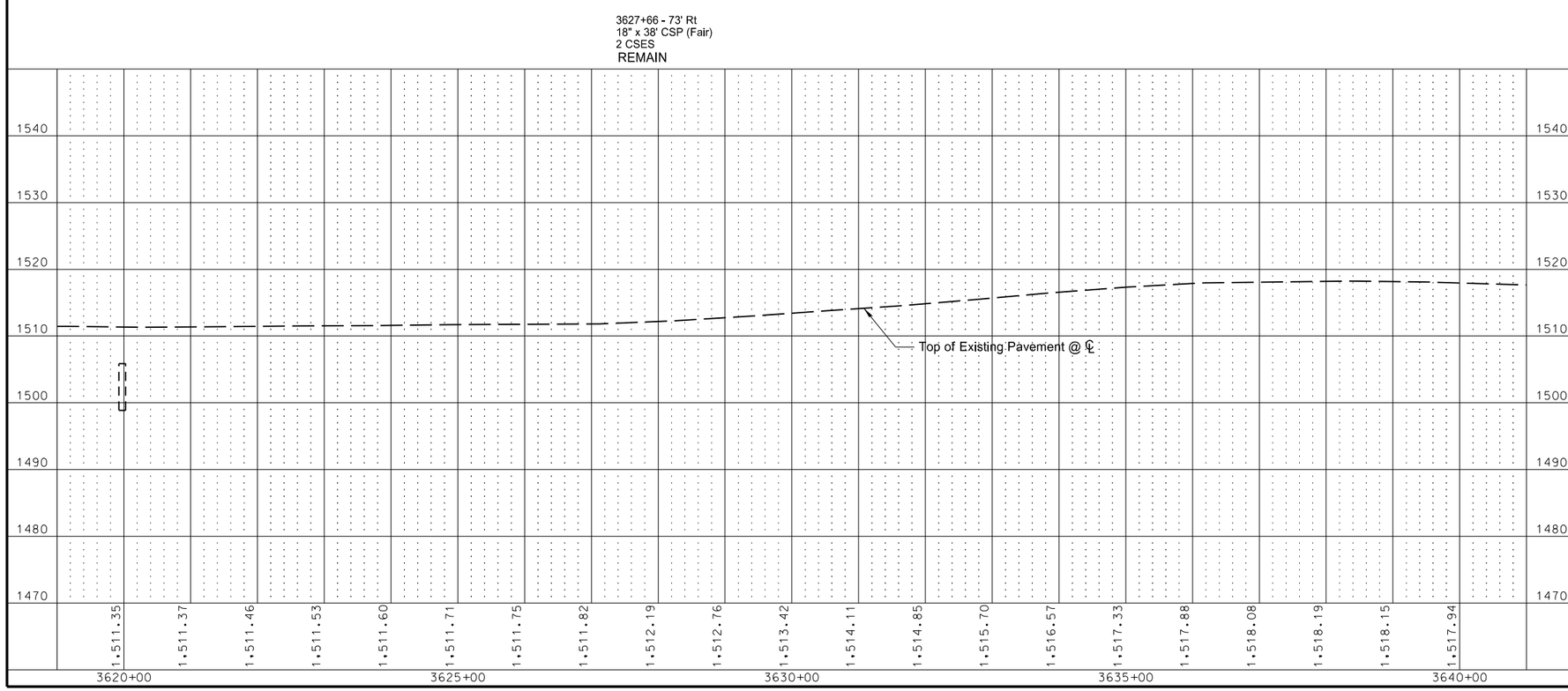
Starkweather S to Edmore - ND 17
Sta 3600+00 to Sta 3620+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	37





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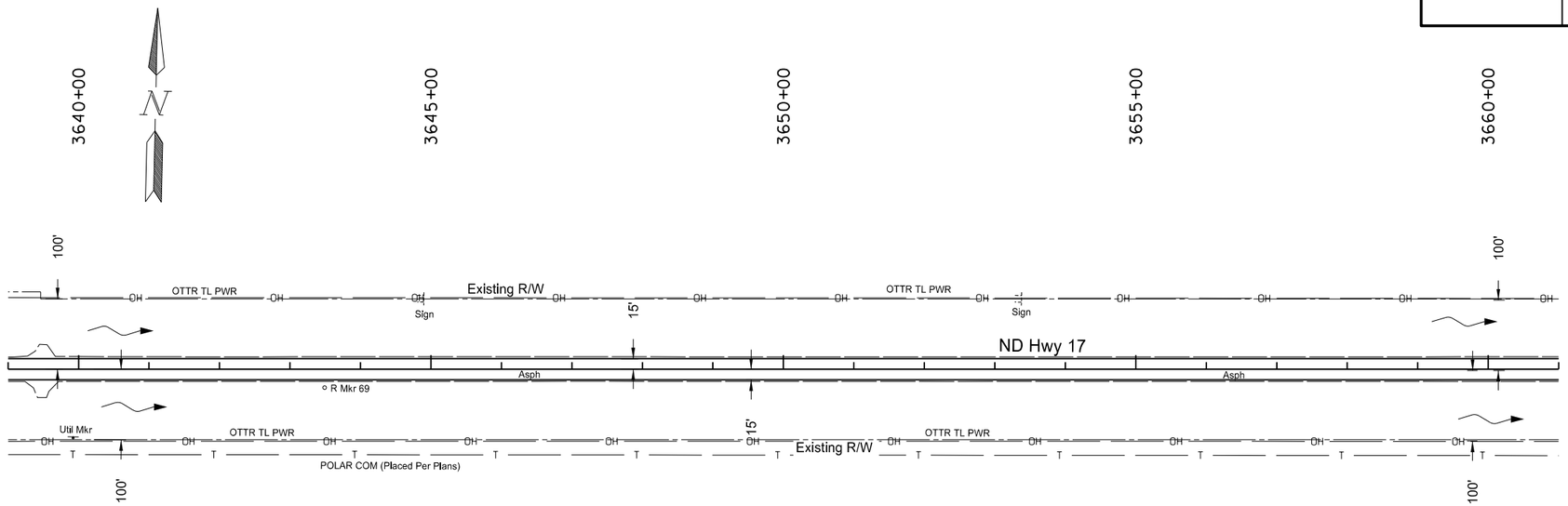
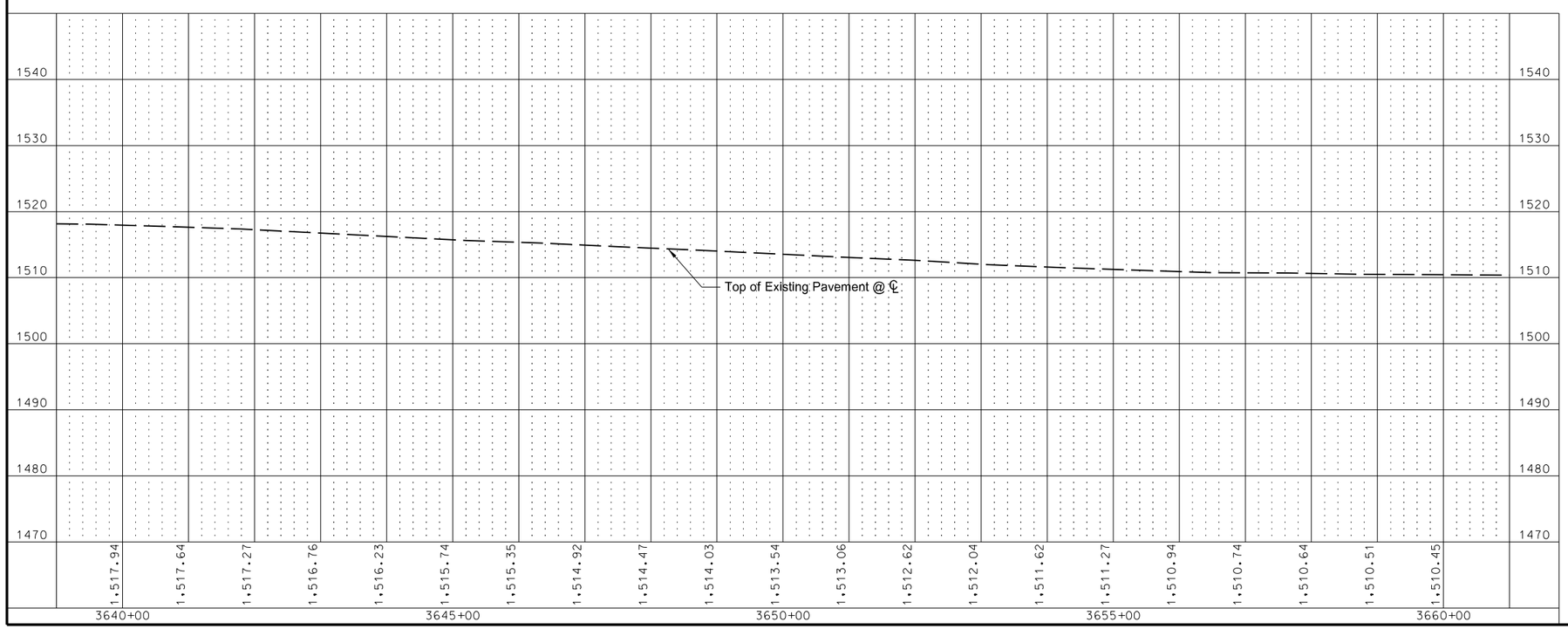
Plan & Profile

Starkweather S to Edmore - ND 17
Sta 3620+00 to Sta 3640+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	38





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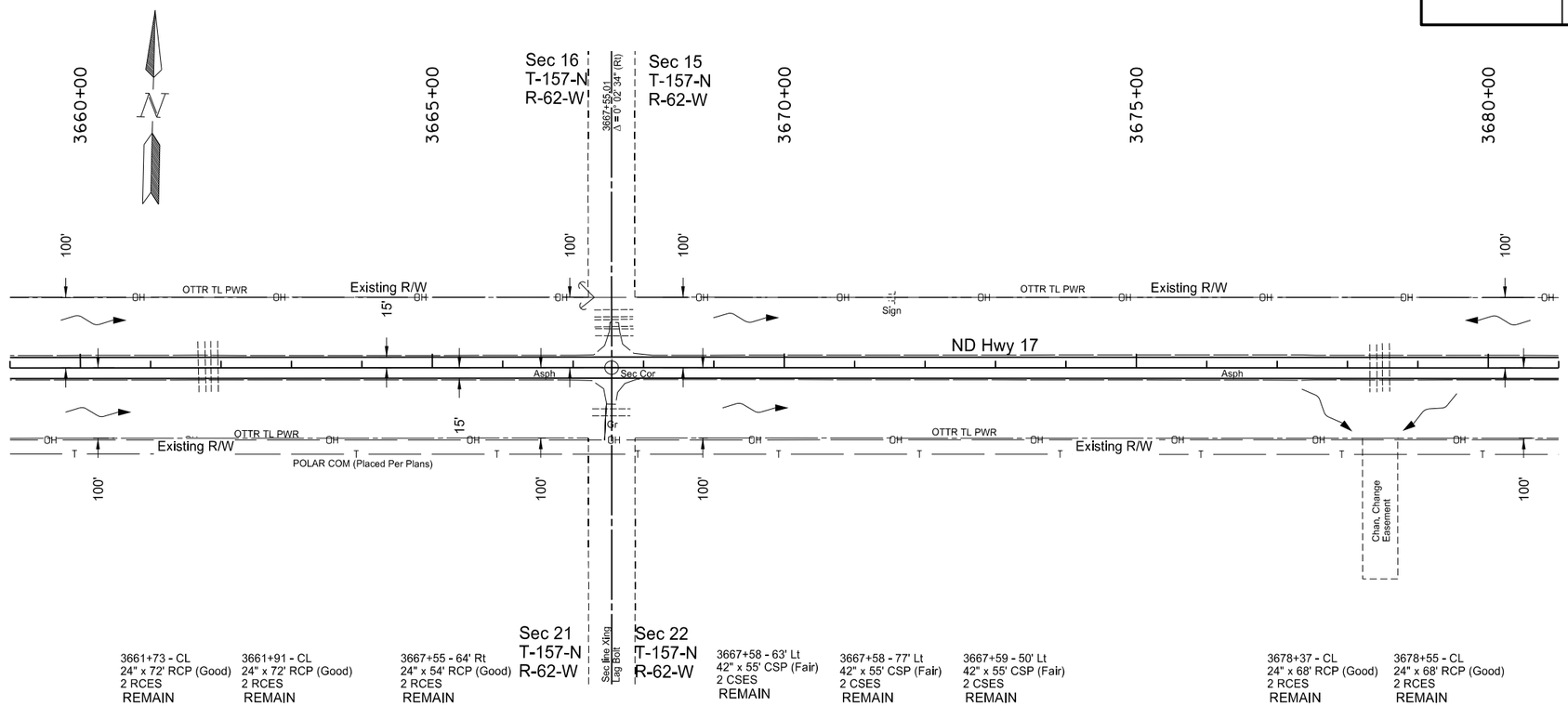
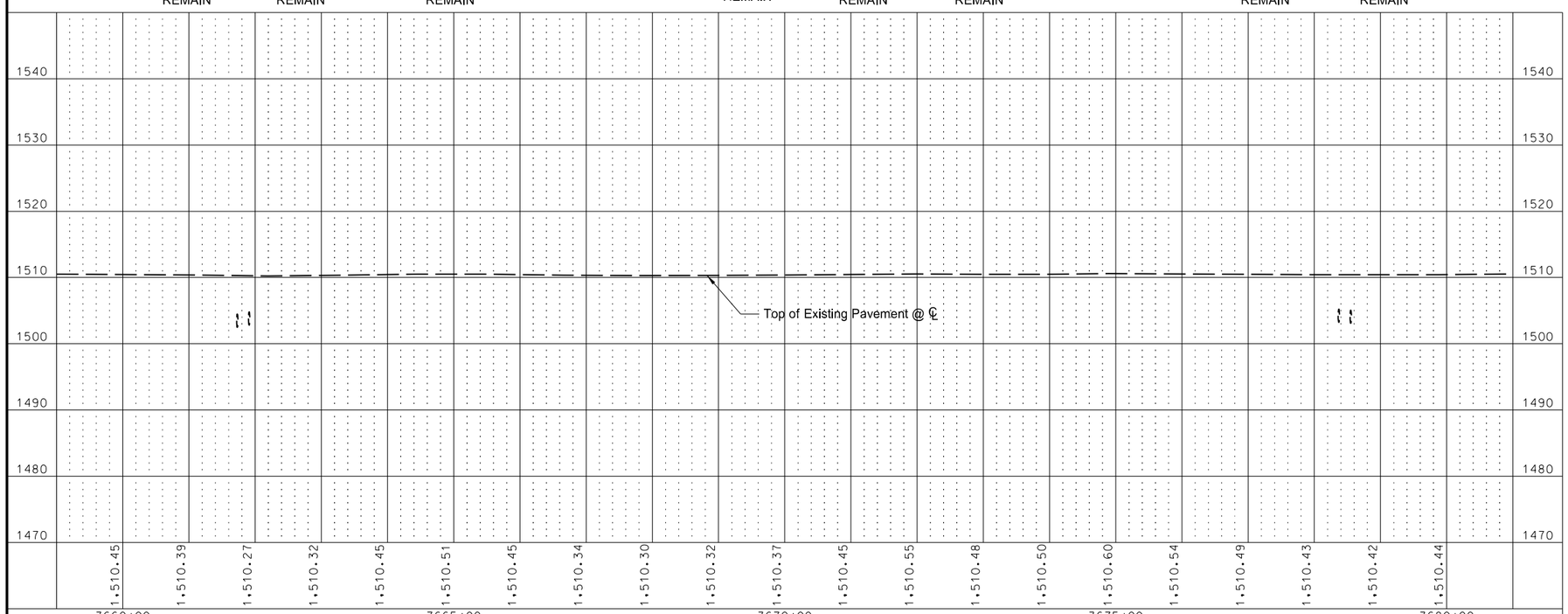
Starkweather S to Edmore - ND 17
Sta 3640+00 to Sta 3660+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	39





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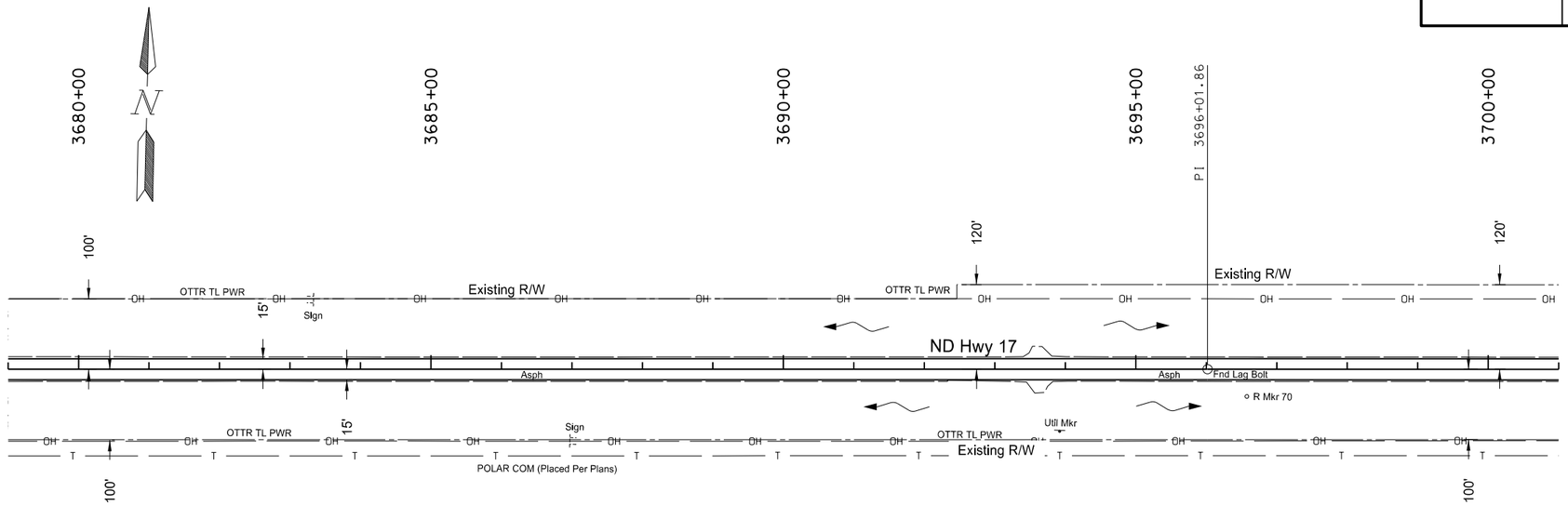
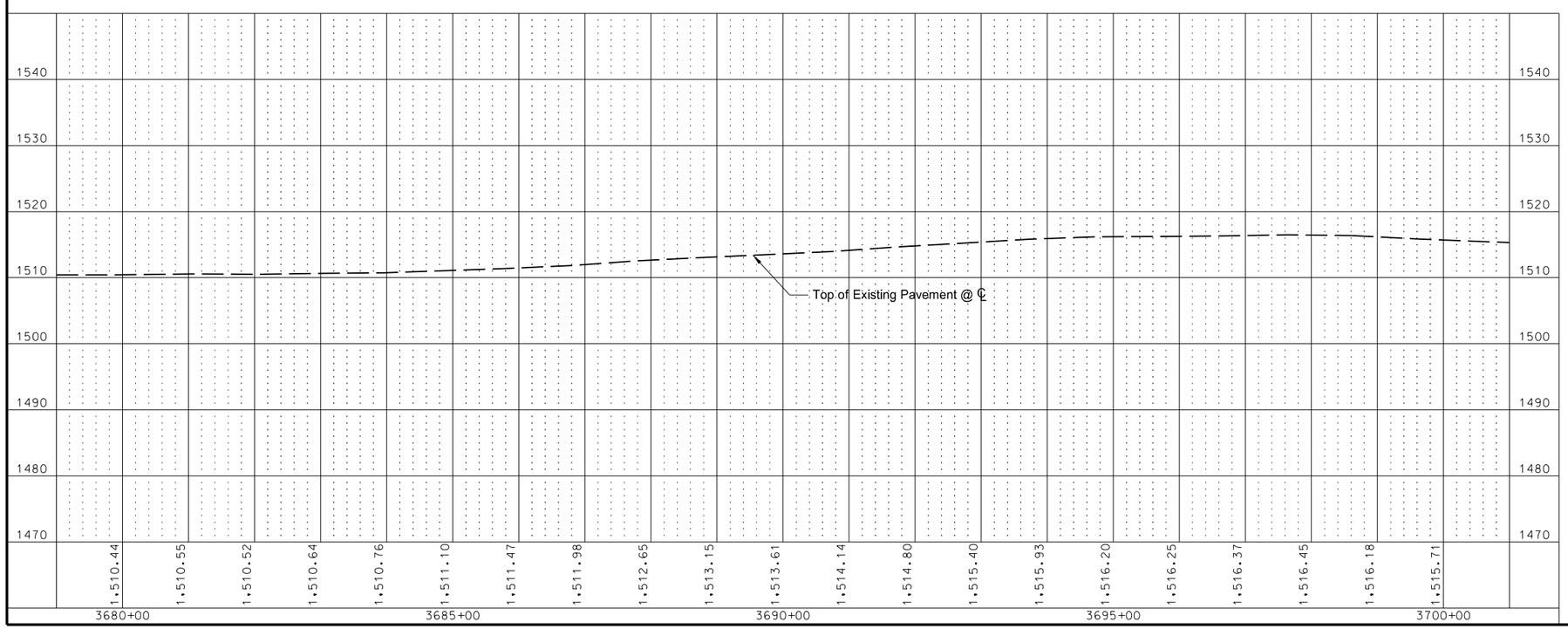
Starkweather S to Edmore - ND 17
Sta 3660+00 to Sta 3680+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	40





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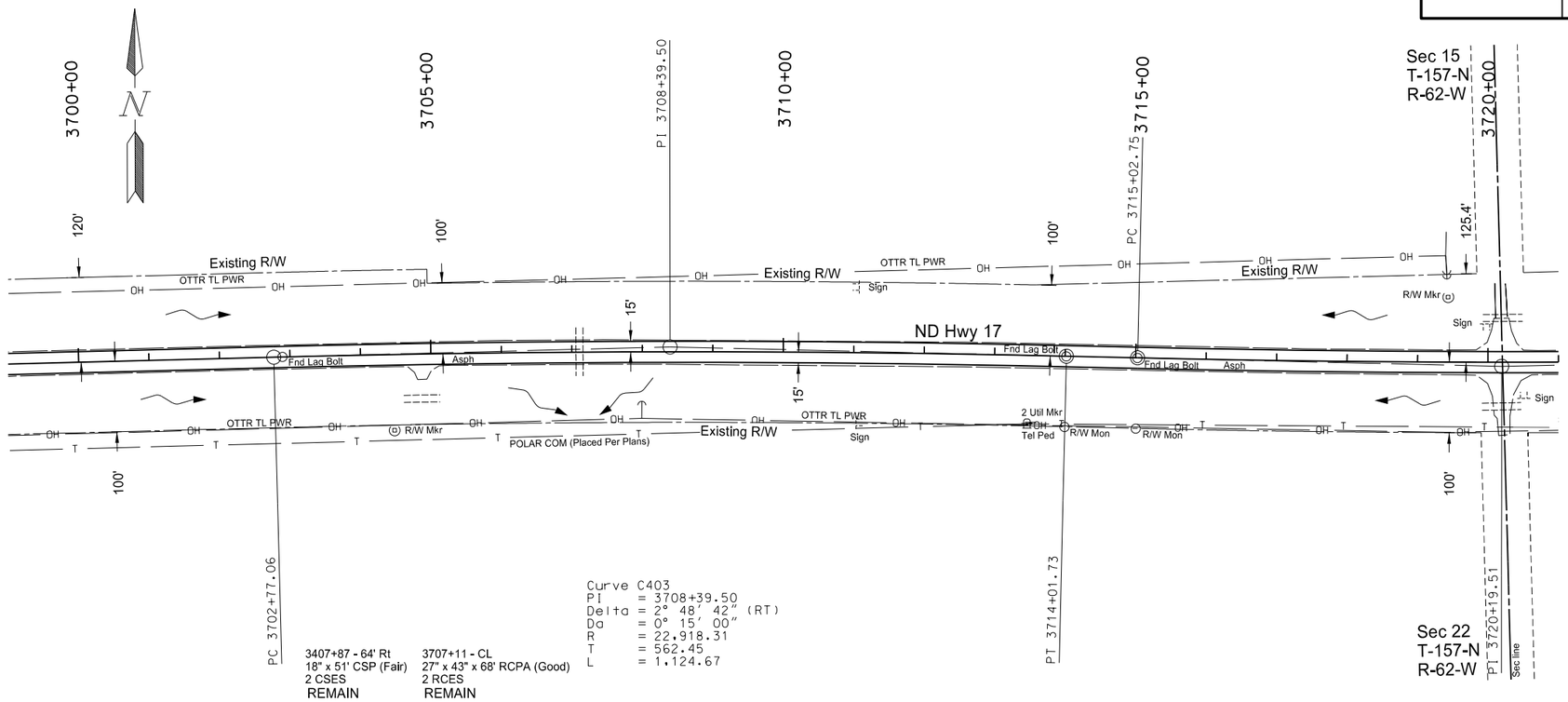
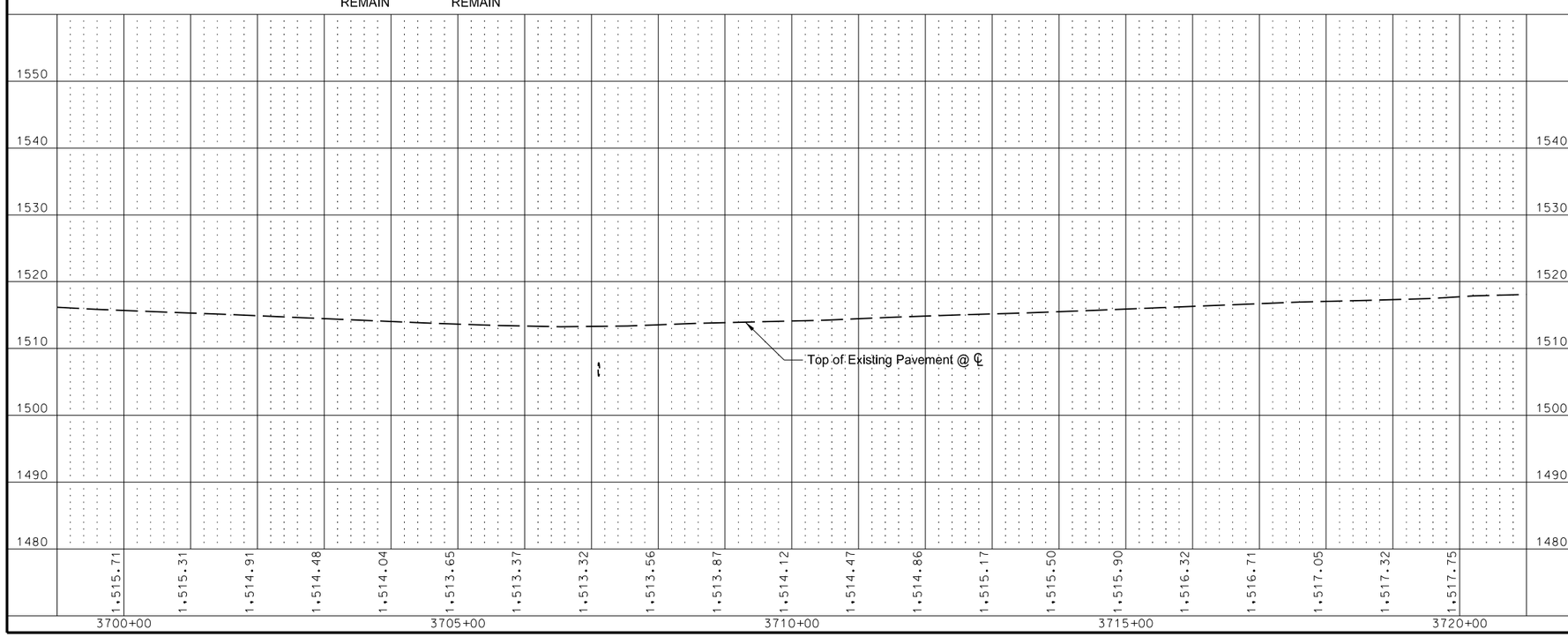
Starkweather S to Edmore - ND 17
Sta 3680+00 to Sta 3700+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	41



Curve C403
PI = 3708+39.50
Delta = 2° 48' 42" (RT)
Da = 0° 15' 00"
R = 22,918.31
T = 562.45
L = 1,124.67



Note: R/W limits are approximate, based on existing plans.

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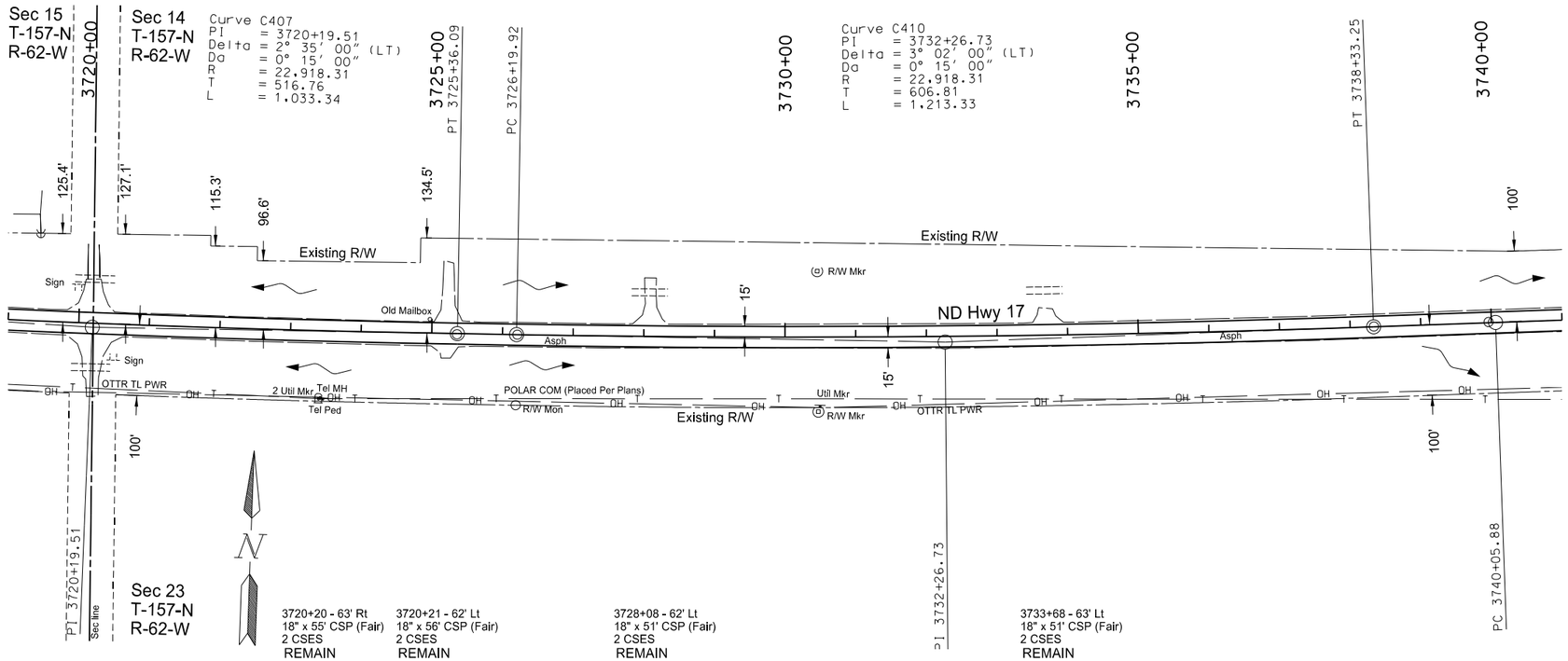
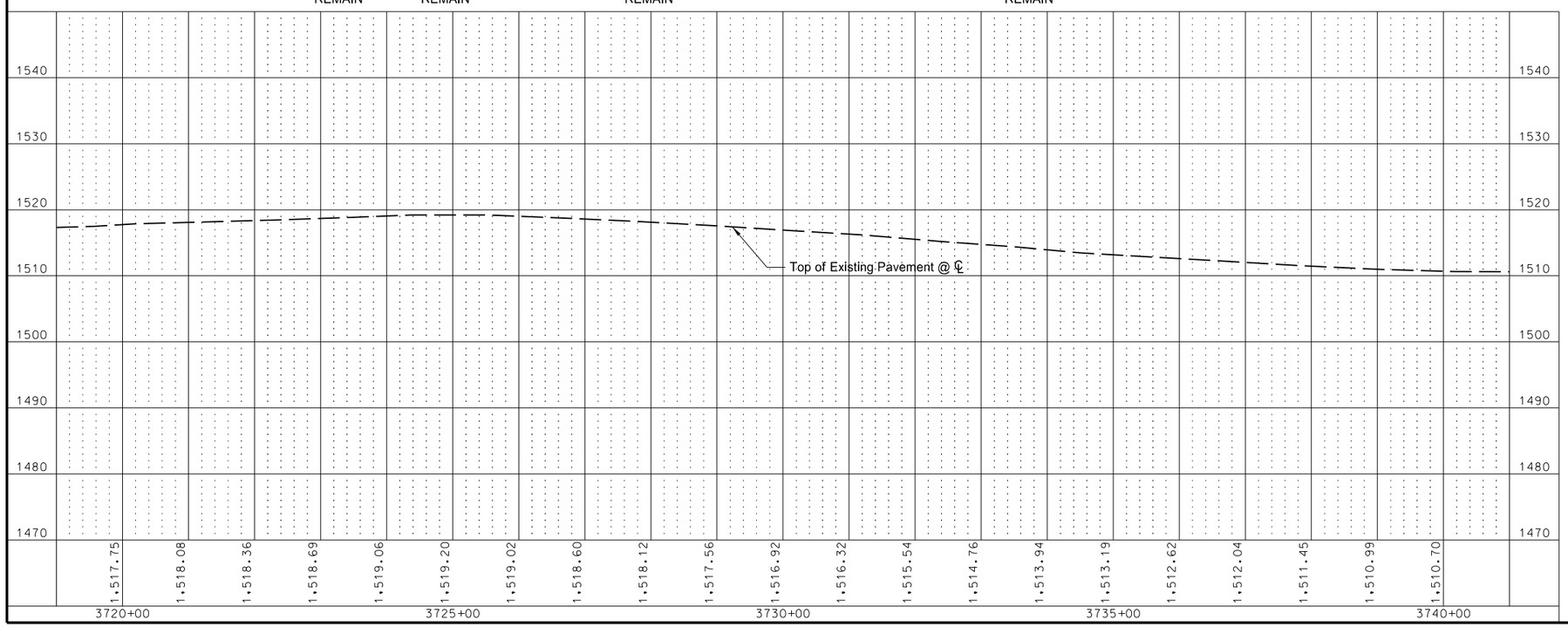
Starkweather S to Edmore - ND 17
Sta 3700+00 to Sta 3720+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	42



Note: R/W limits are approximate, based on existing plans.



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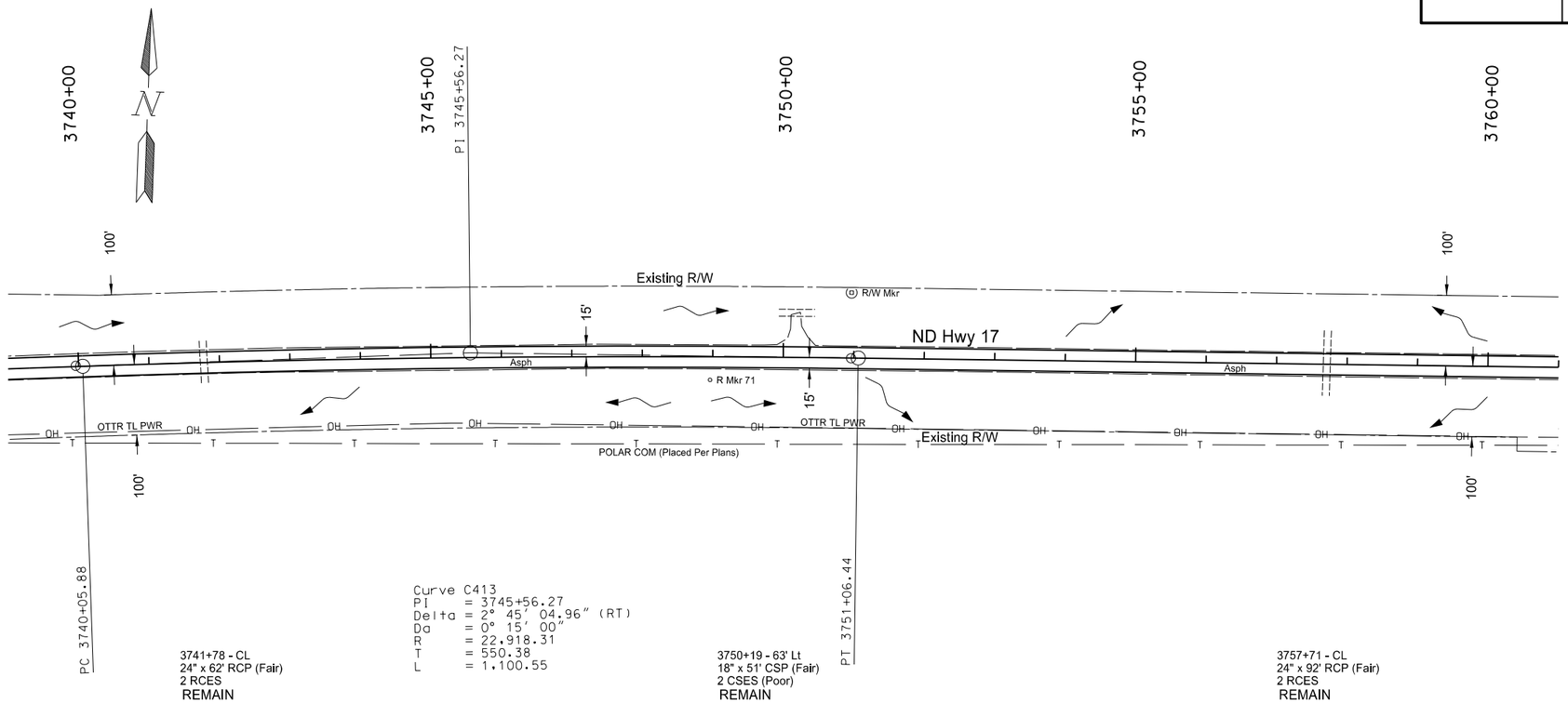
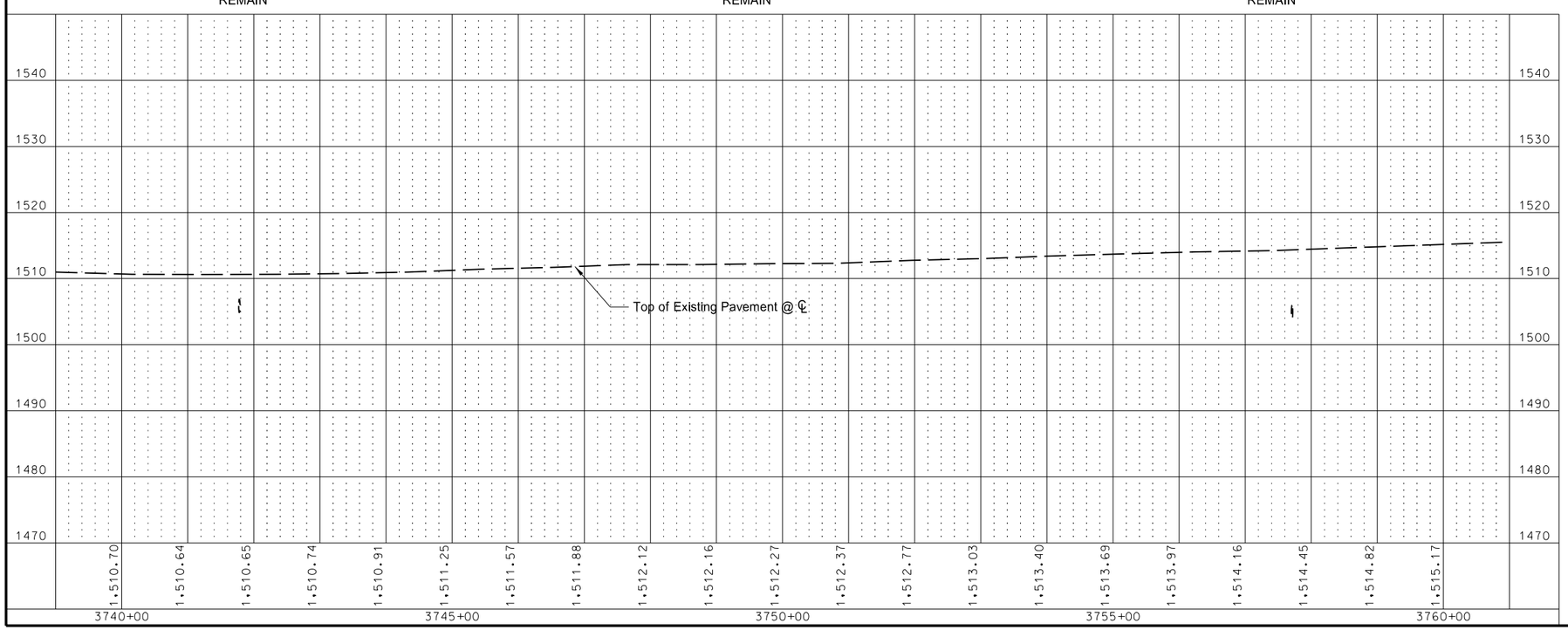
Starkweather S to Edmore - ND 17
Sta 3720+00 to Sta 3740+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	43



Note: R/W limits are approximate, based on existing plans.



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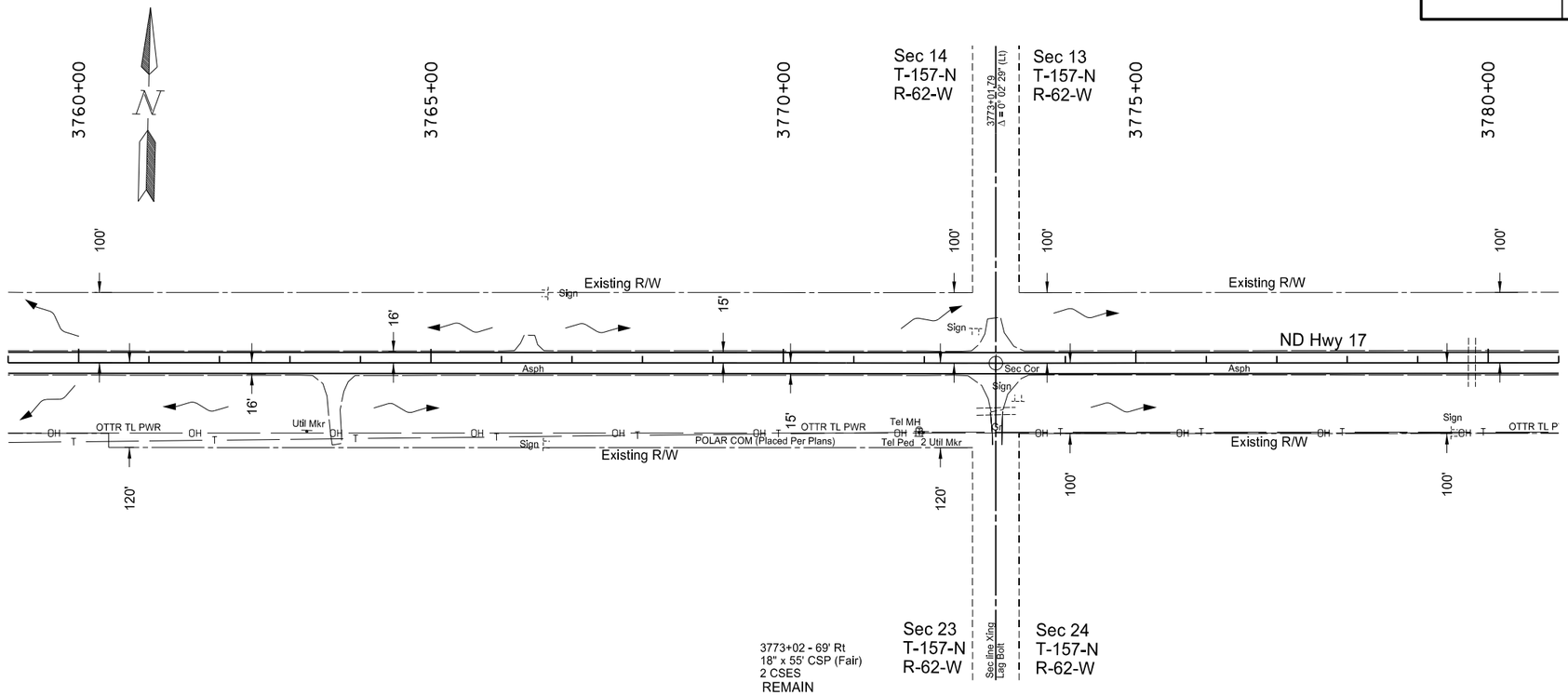
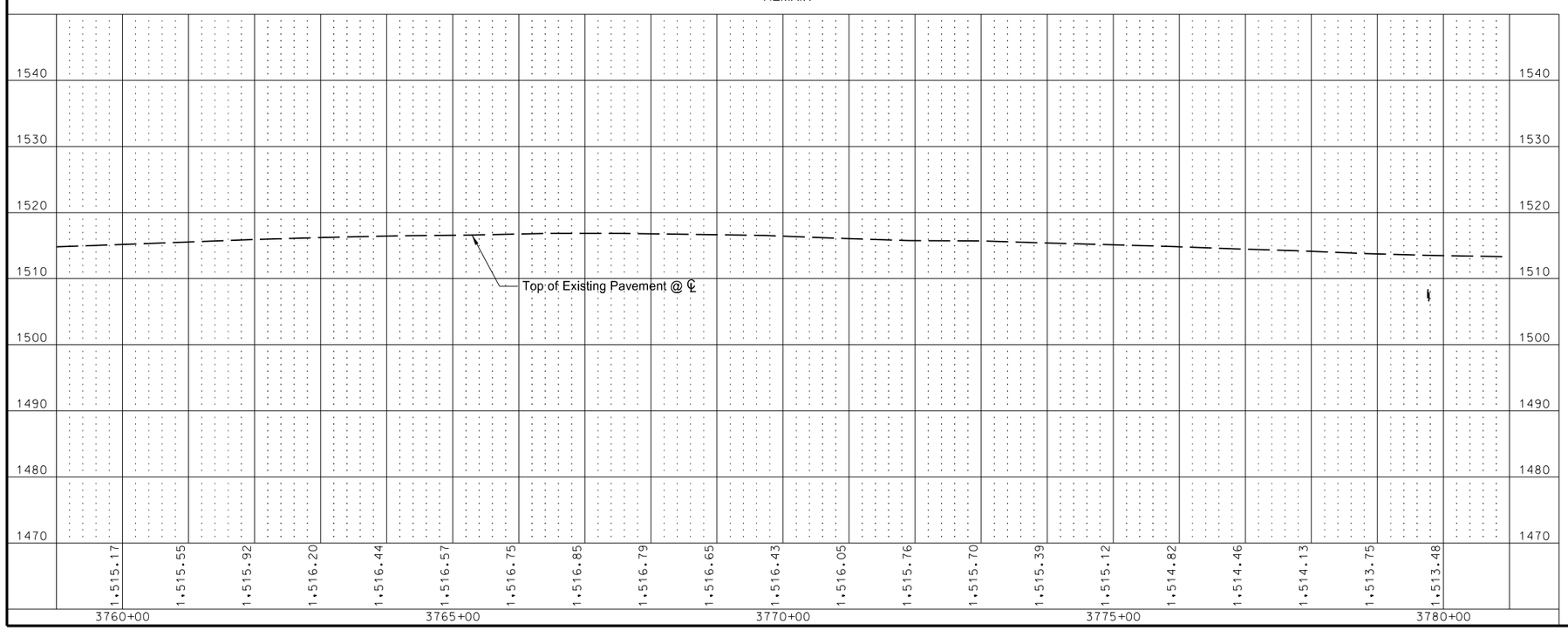
Plan & Profile

Starkweather S to Edmore - ND 17
Sta 3740+00 to Sta 3760+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	44





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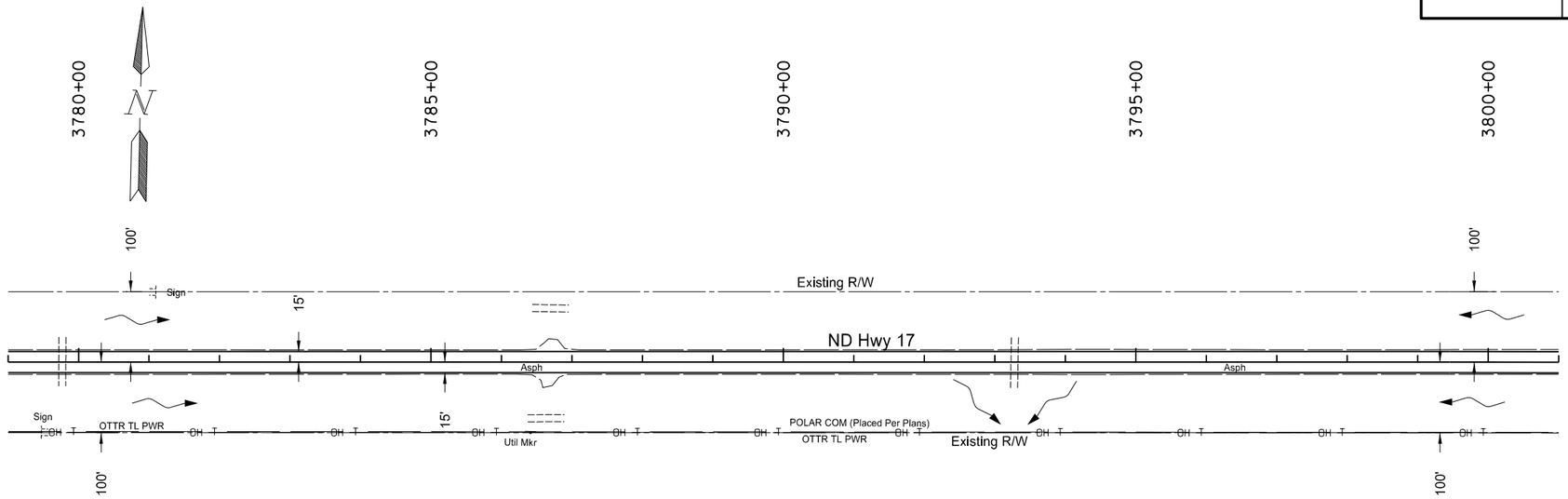
Plan & Profile

Starkweather S to Edmore - ND 17
Sta 3760+00 to Sta 3780+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	45

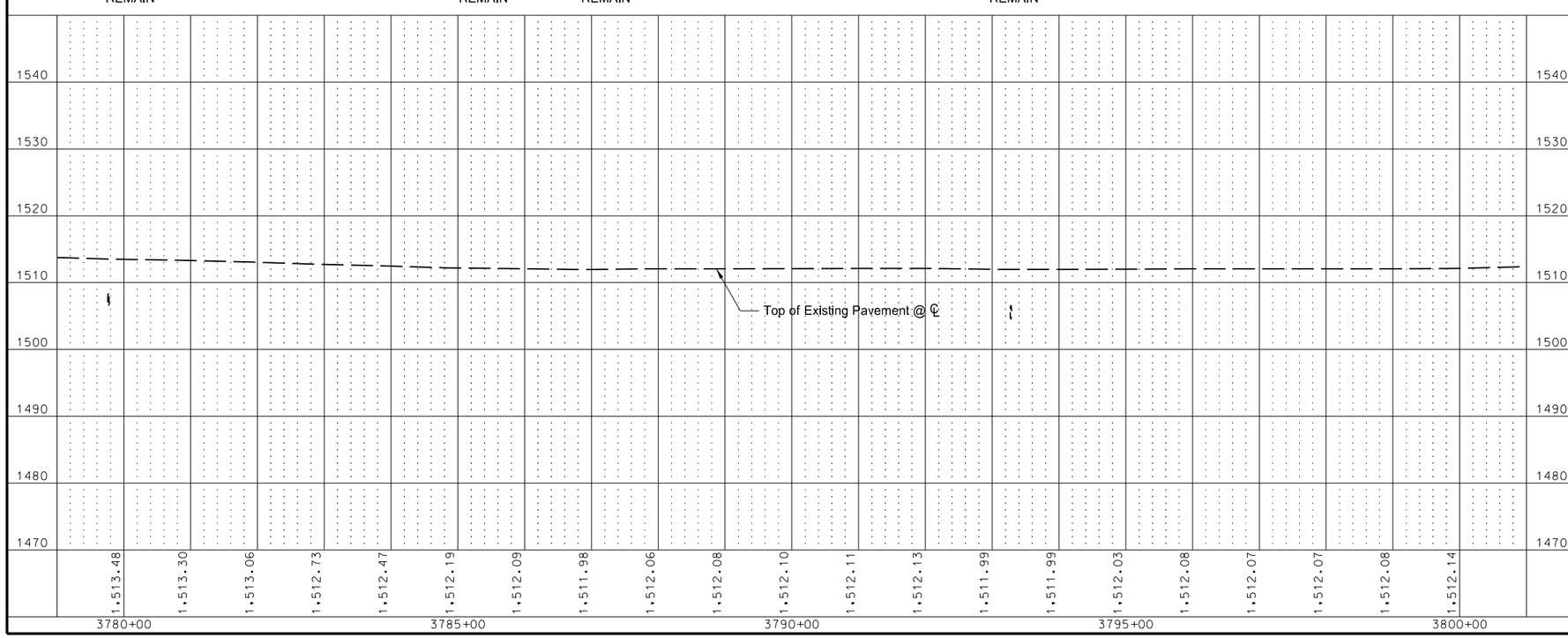


3779+77 - CL
24" x 70' RCP (Good)
2 RCES
REMAIN

3786+64 - 80' Rt
18" x 52' CSP (Fair)
1 CSES (W end Poor)
1 CSES (E end Fair)
REMAIN

3786+70 - 76' Lt
18" x 51' CSP (Fair)
2 CSES
REMAIN

3793+28 - CL
24" x 70' RCP (Good)
2 RCES
REMAIN



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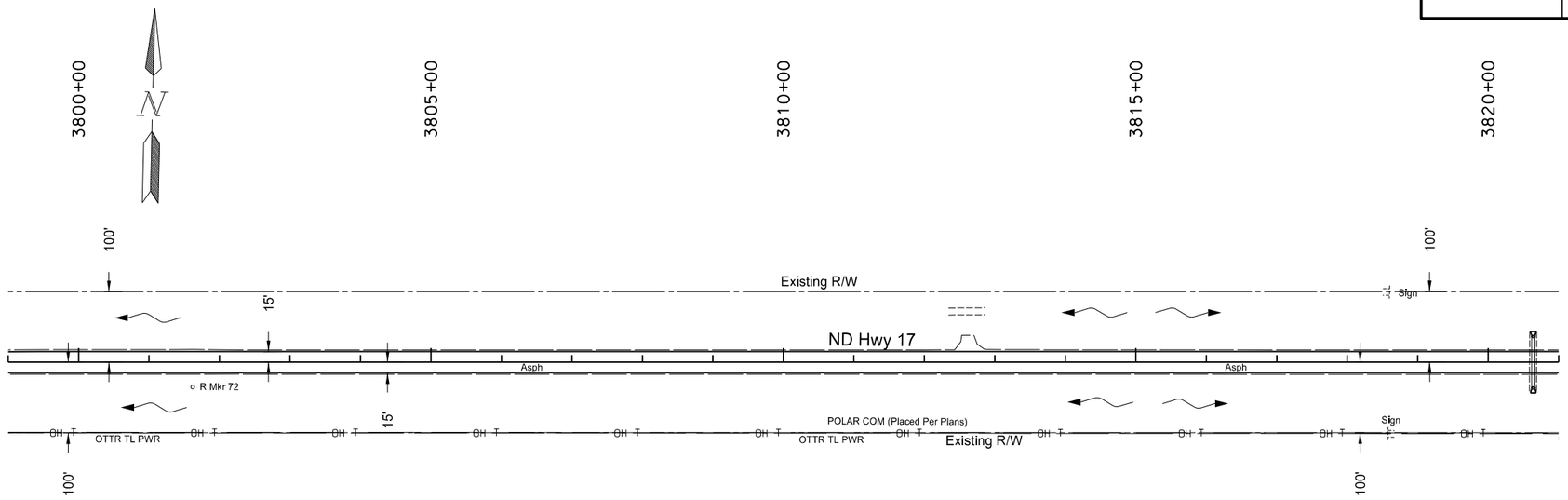
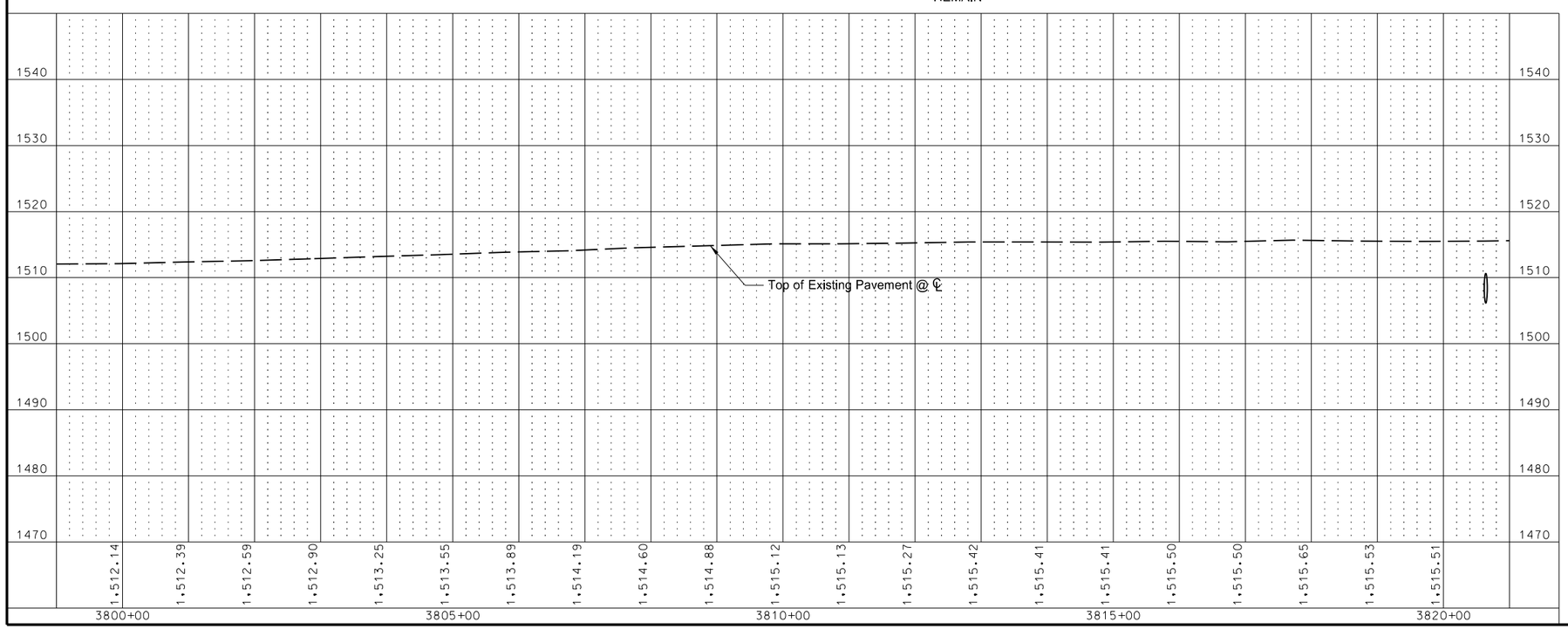
Plan & Profile

Starkweather S to Edmore - ND 17
Sta 3780+00 to Sta 3800+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	46



3812+61 - 72' Lt
18" x 52' CSP (Fair)
2 CSES (Plugged)
REMAIN



Note: R/W limits are approximate, based on existing plans.

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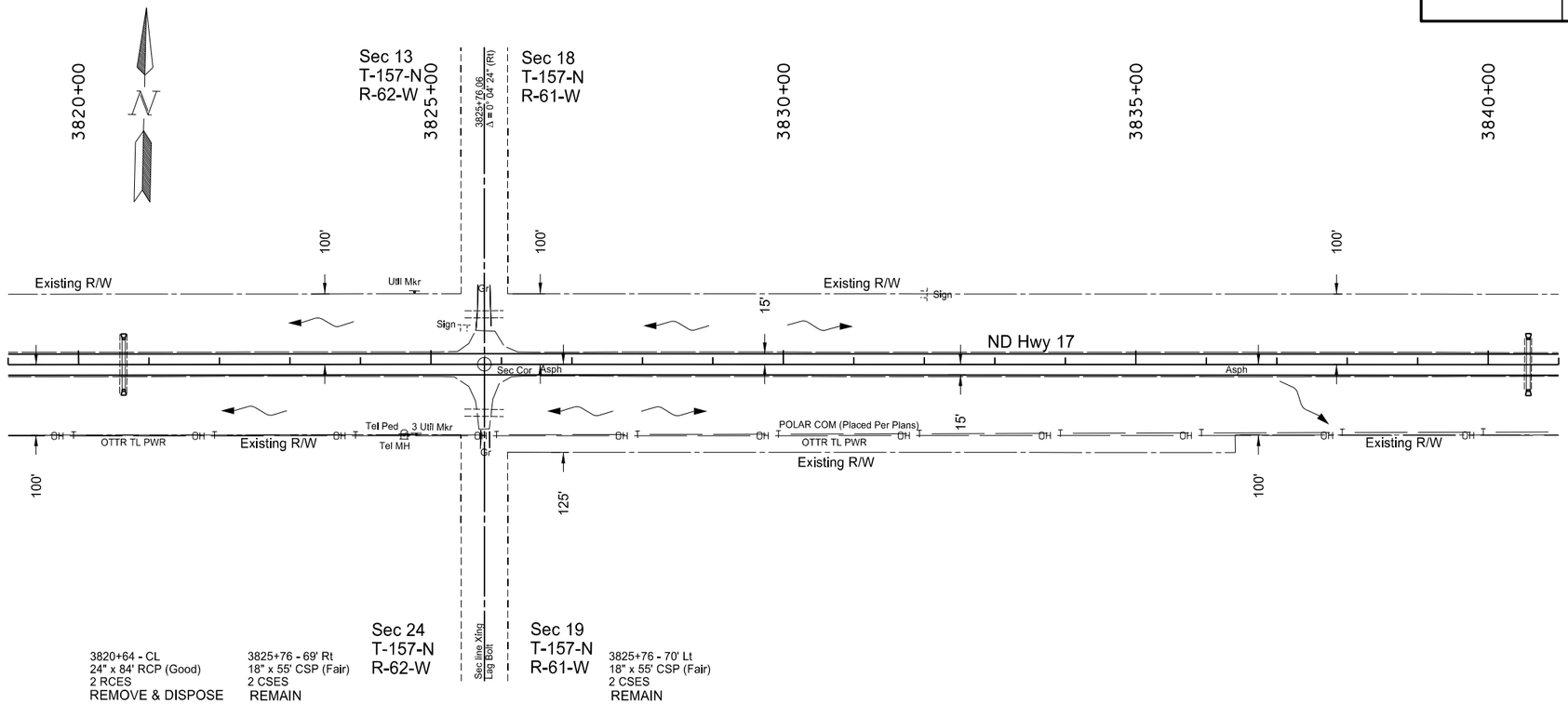
Plan & Profile

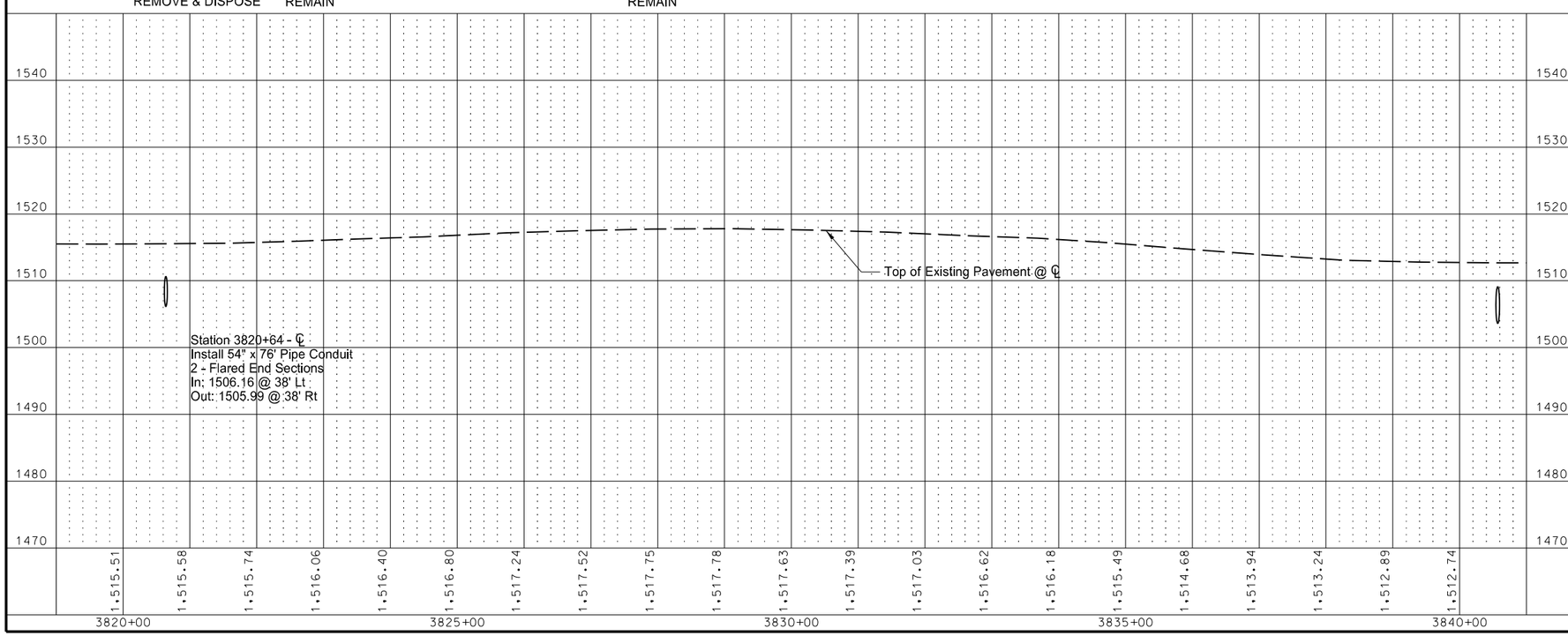
Starkweather S to Edmore - ND 17
Sta 3800+00 to Sta 3820+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	47

Item	Description	Quantity	Unit
202-0174	REMOVAL OF PIPE ALL TYPES AND SIZES Sta 3820+64 ℄	84	LF
714-4130	PIPE CONDUIT 54IN Sta 3820+64 ℄	76	LF



Note: R/W limits are approximate, based on existing plans.



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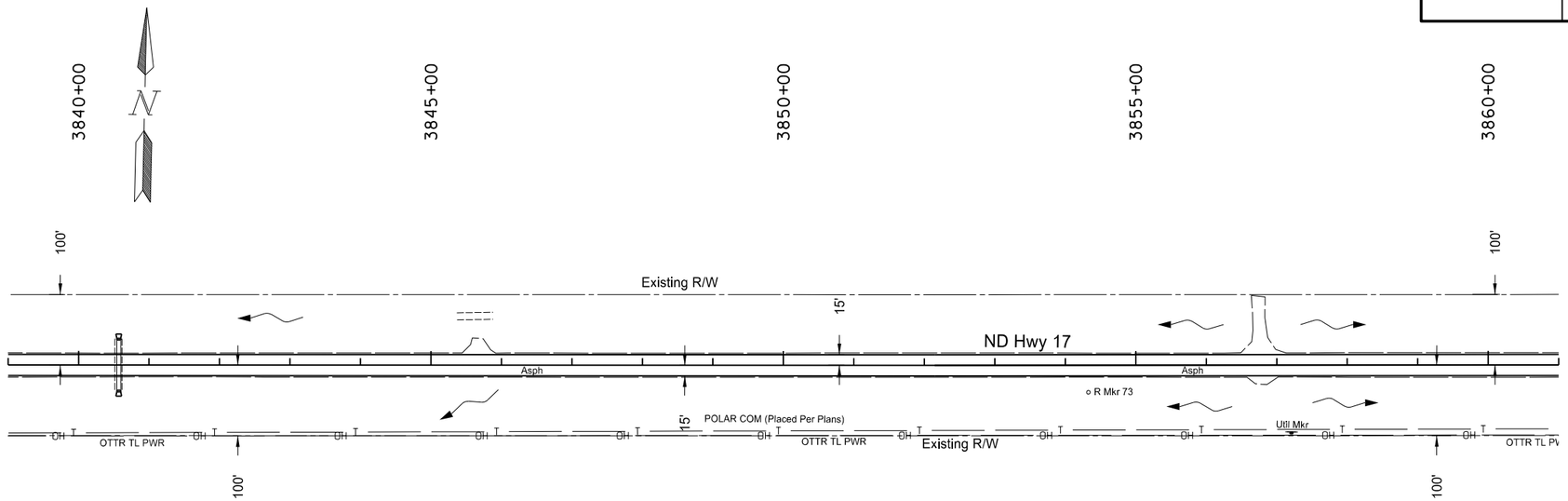
Plan & Profile

Starkweather S to Edmore - ND 17
Sta 3820+00 to Sta 3840+00

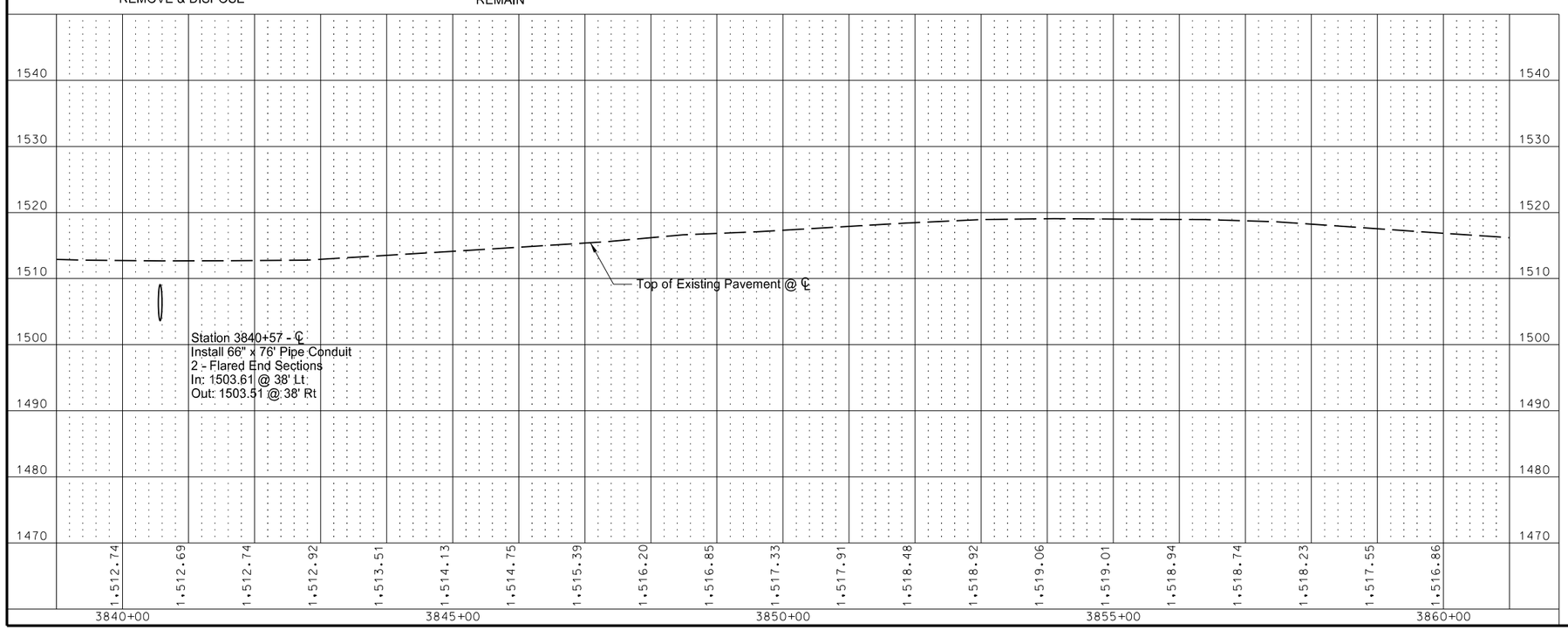
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	48

Item	Description	Quantity	Unit
202-0174	REMOVAL OF PIPE ALL TYPES AND SIZES Sta 3840+57 ℄	74	LF
714-4140	PIPE CONDUIT 66IN Sta 3840+57 ℄	76	LF



3840+57 - CL
24" x 74' RCP (Good)
2 RCES
REMOVE & DISPOSE

3845+63 - 69' Lt
18" x 51' CSP (Fair)
2 CSES
REMAIN



Note: R/W limits are approximate, based on existing plans.

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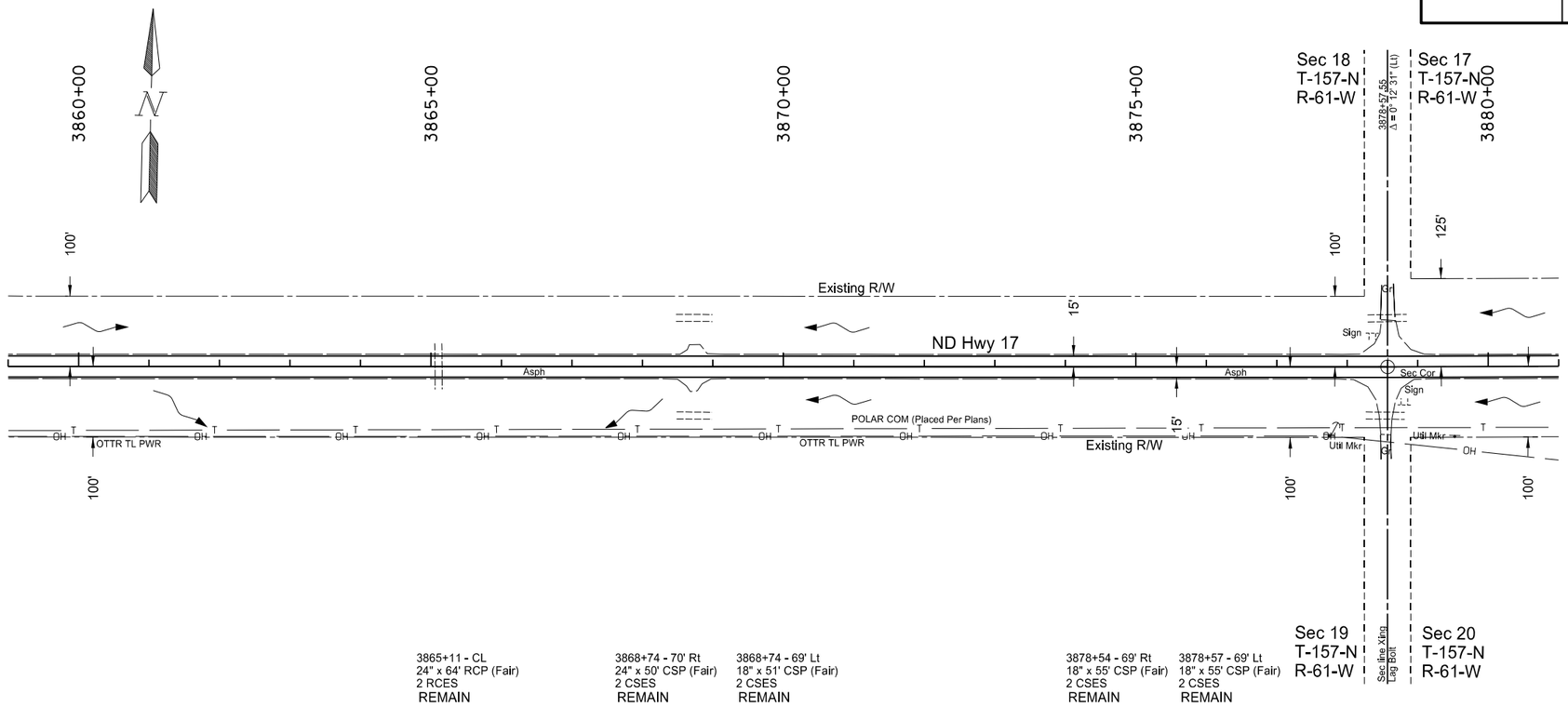
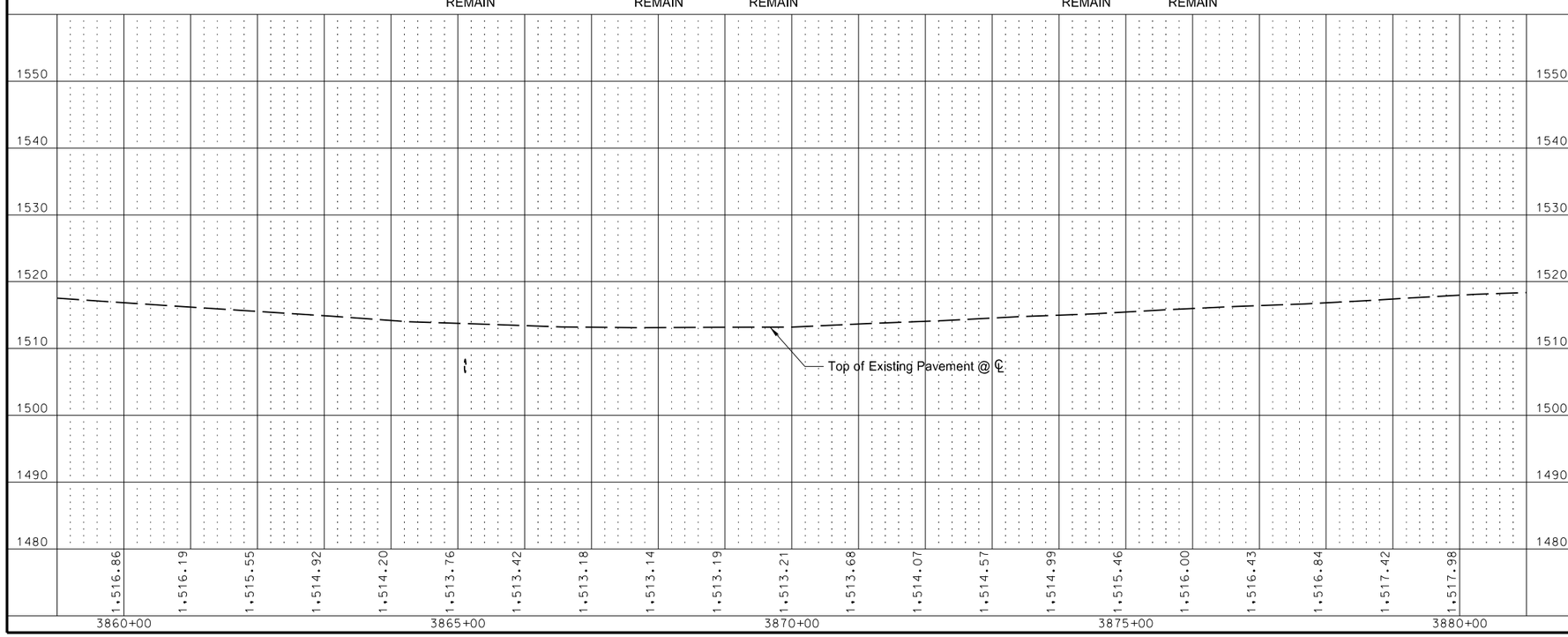
Plan & Profile

Starkweather S to Edmore - ND 17
Sta 3840+00 to Sta 3860+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	49





Note: R/W limits are approximate, based on existing plans.

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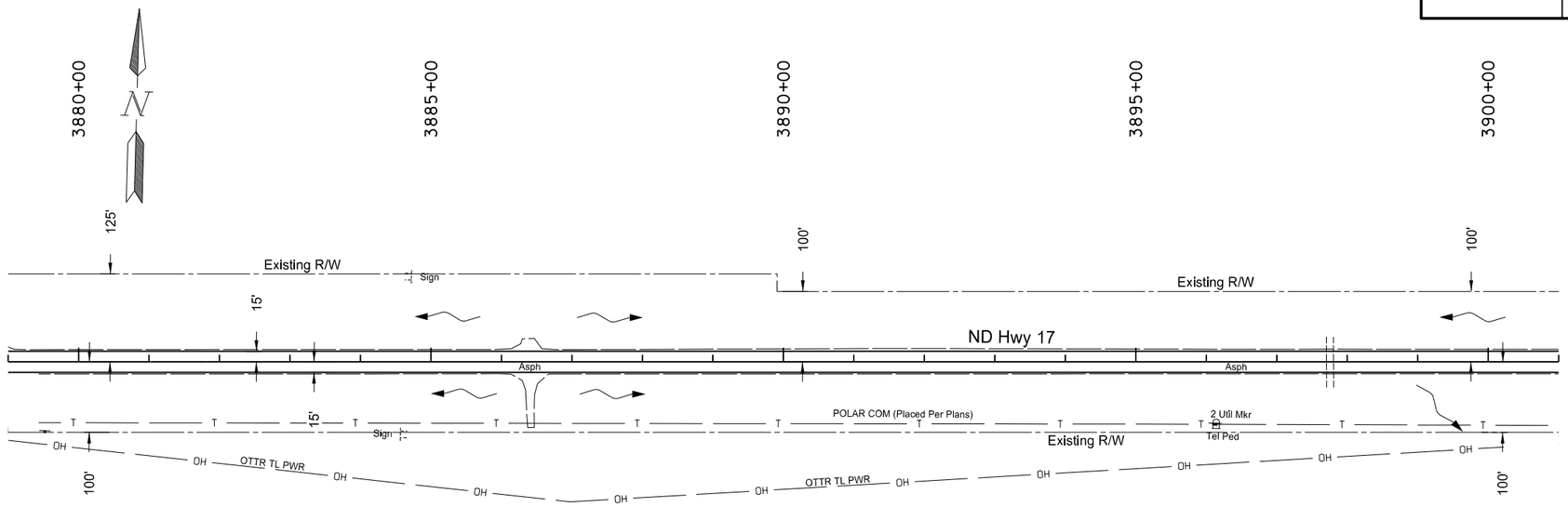
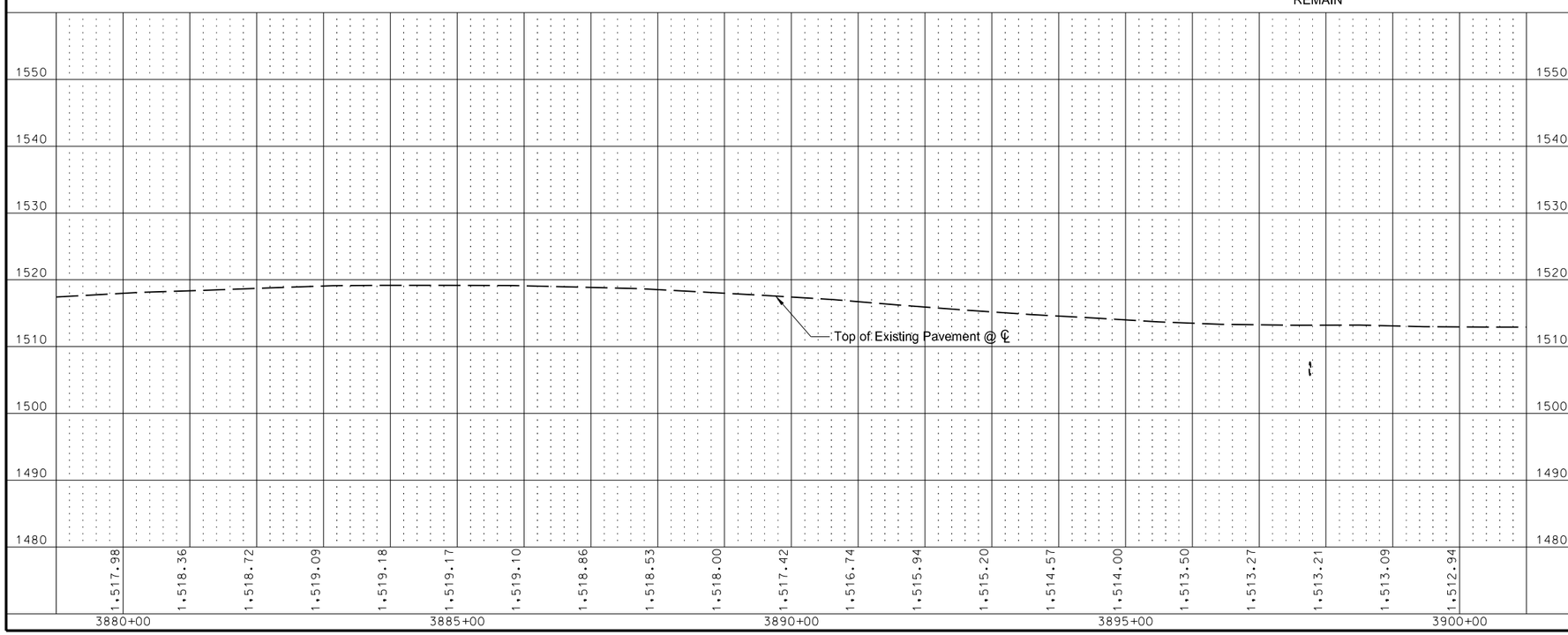
Plan & Profile

Starkweather S to Edmore - ND 17
Sta 3860+00 to Sta 3880+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	50



3897+76 - CL
24" x 70' RCP (Good)
2 RCES
REMAIN



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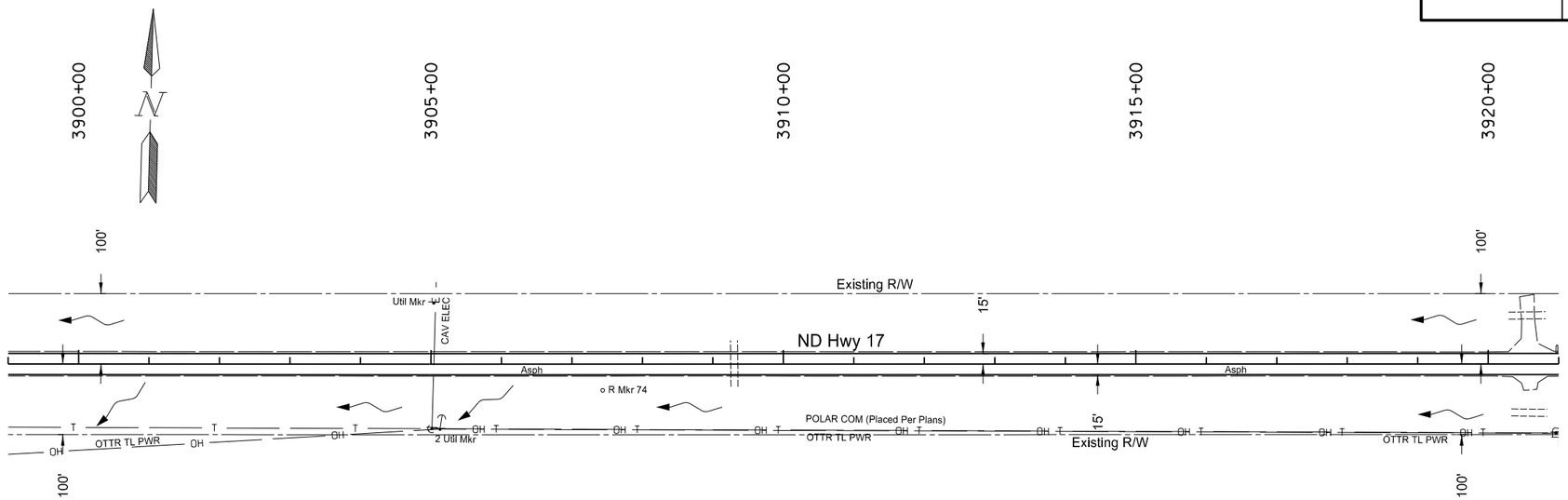
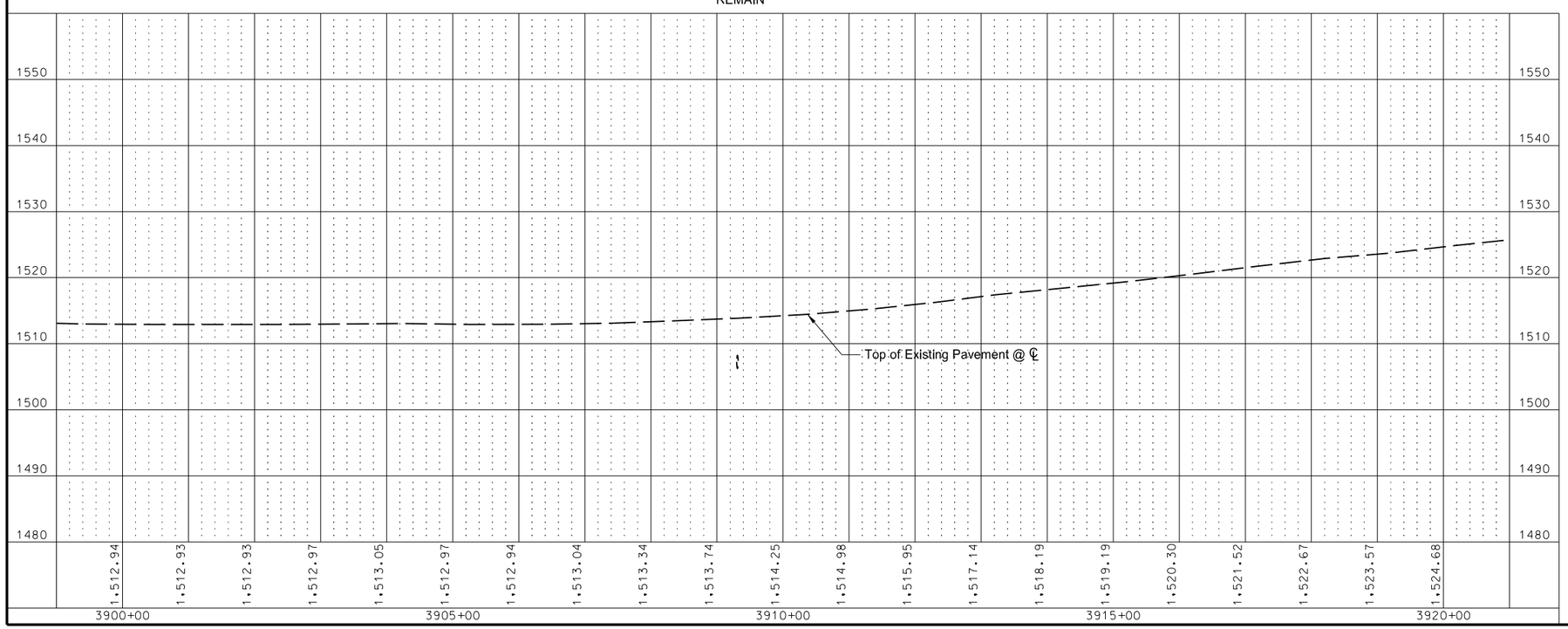
Plan & Profile

Starkweather S to Edmore - ND 17
Sta 3880+00 to Sta 3900+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	51



3909+31 - CL
24" x 64' RCP (Good)
2 RCES
REMAIN



Note: R/W limits are approximate, based on existing plans.

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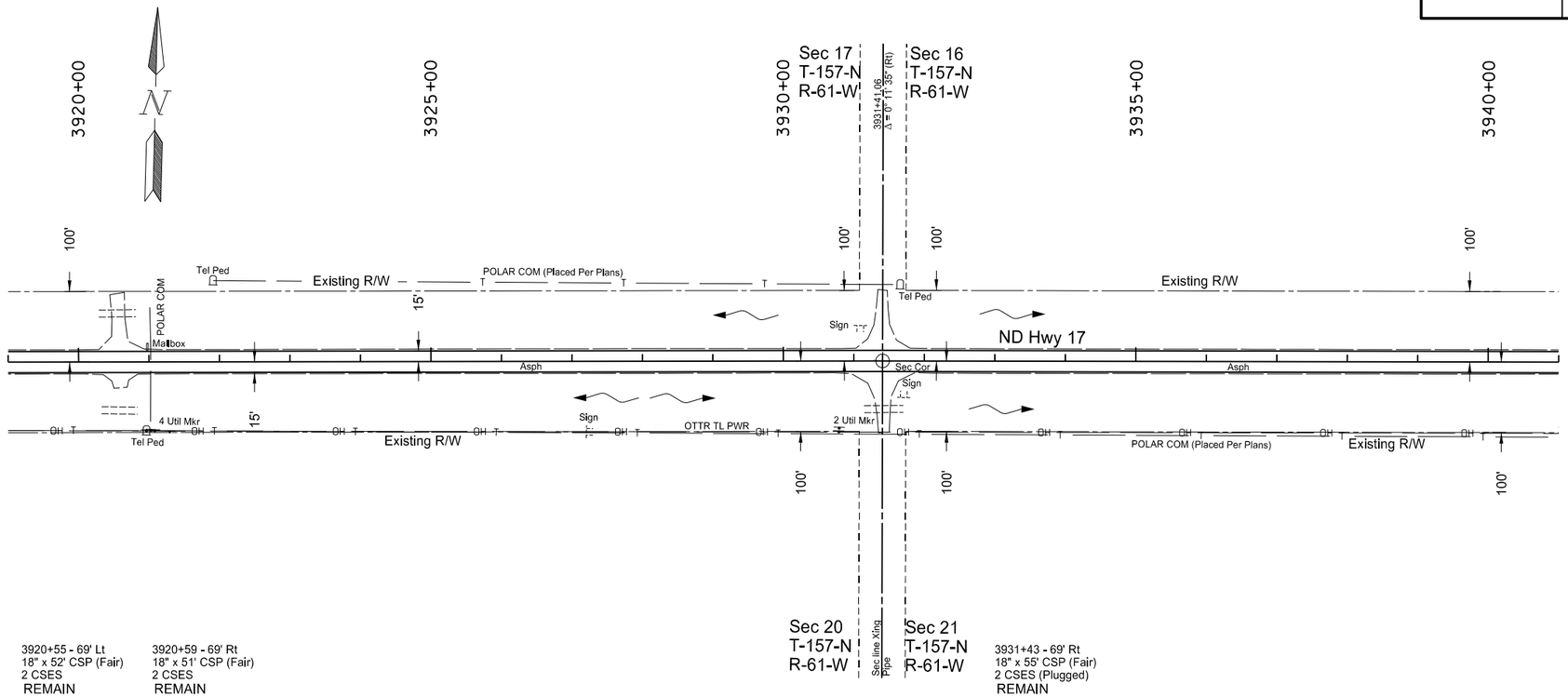
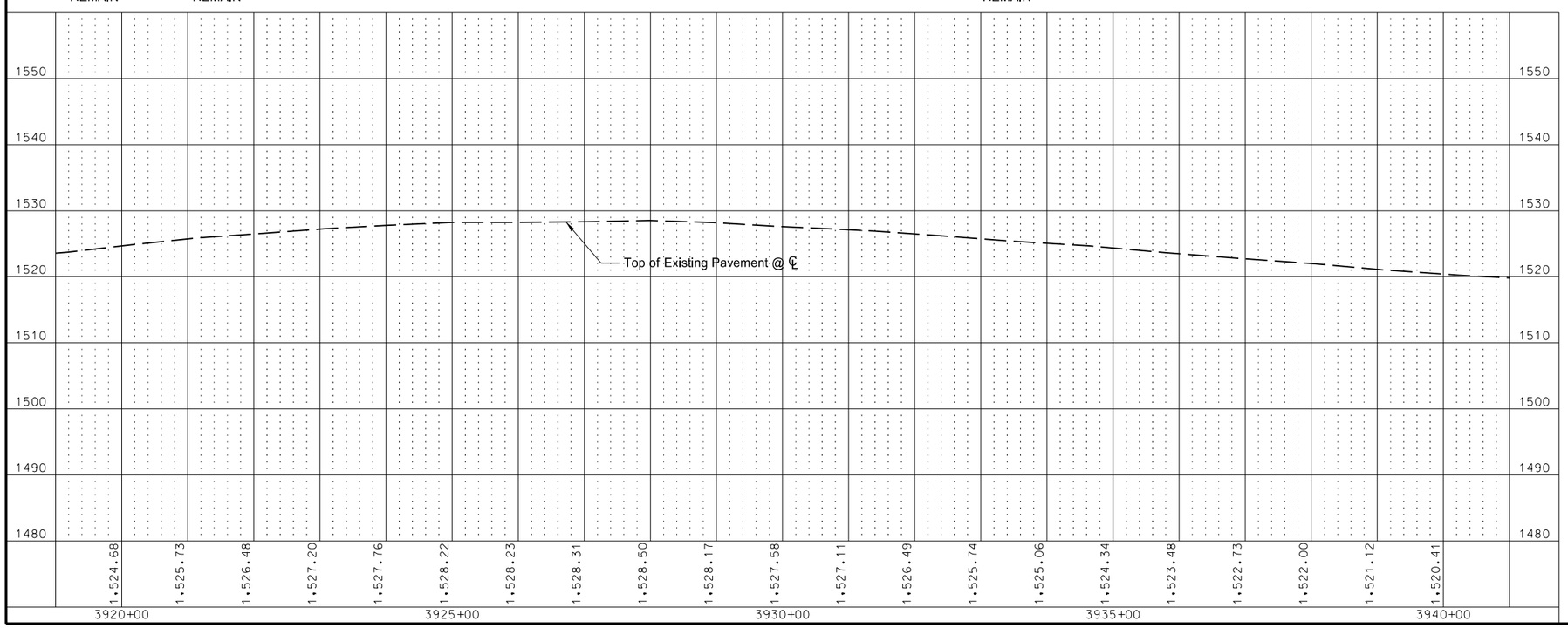
Plan & Profile

Starkweather S to Edmore - ND 17
Sta 3900+00 to Sta 3920+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	52



Note: R/W limits are approximate, based on existing plans.



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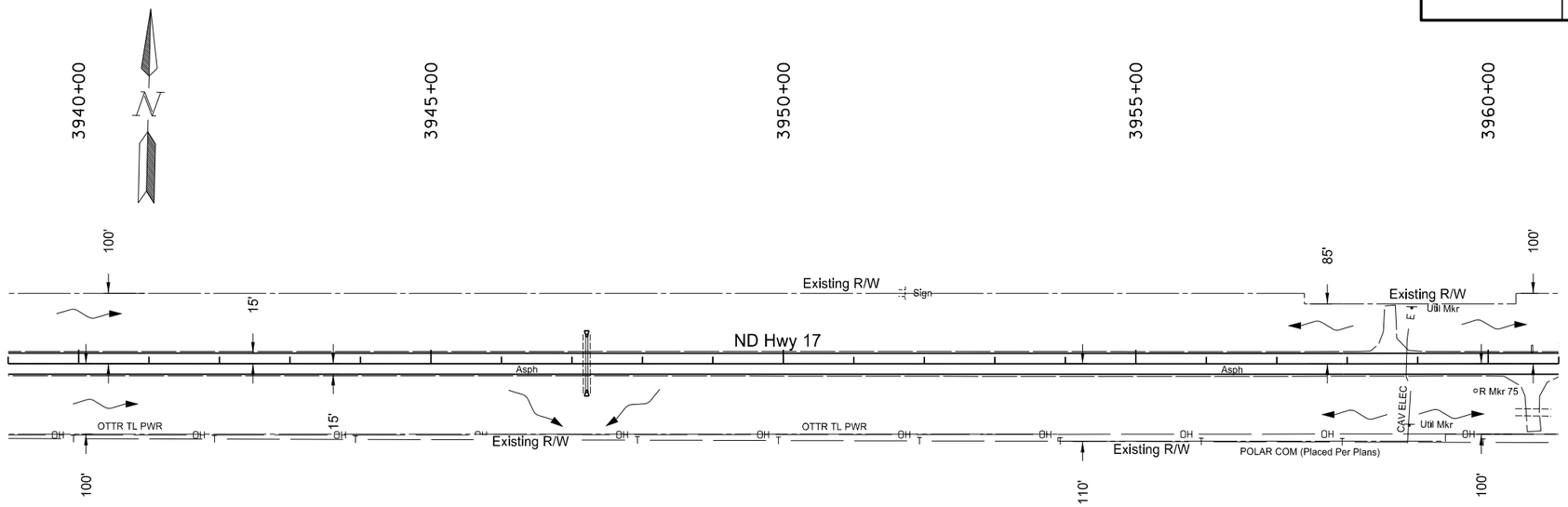
Plan & Profile

Starkweather S to Edmore - ND 17
Sta 3920+00 to Sta 3940+00

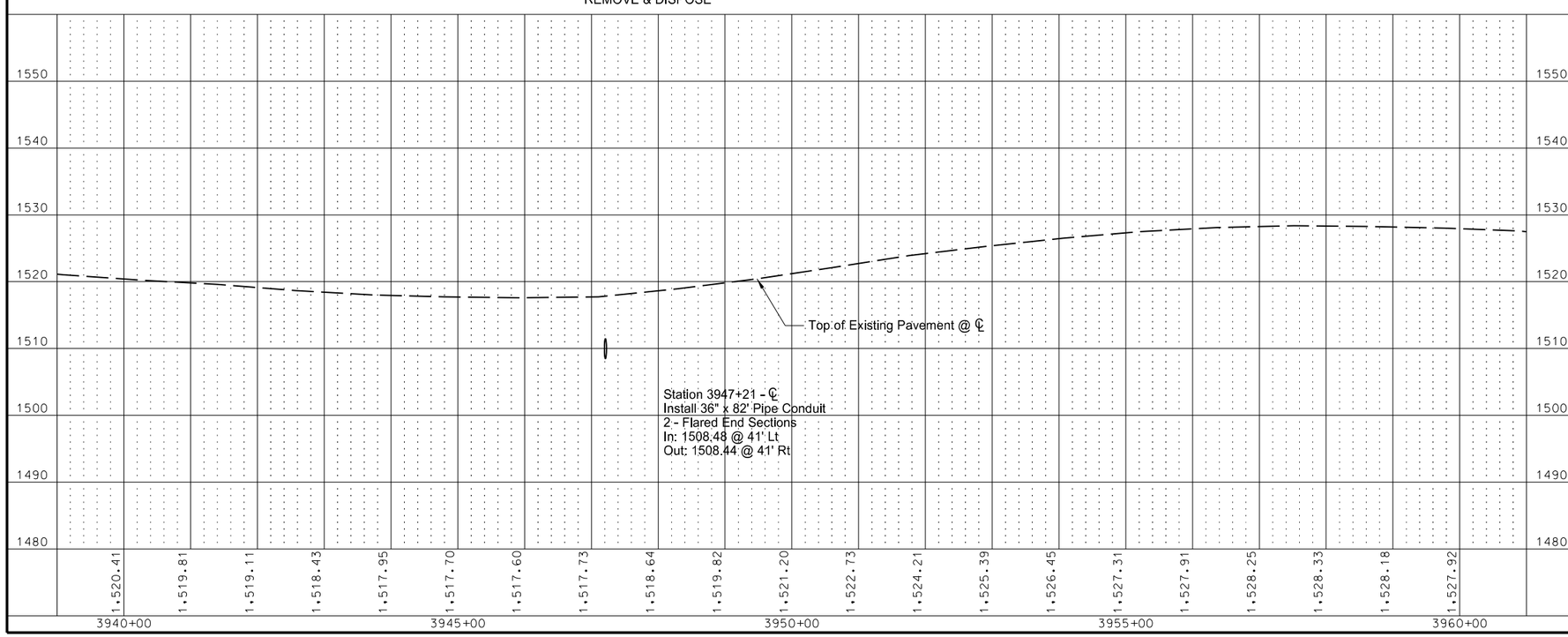
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	53

Item	Description	Quantity	Unit
202-0174	REMOVAL OF PIPE ALL TYPES AND SIZES Sta 3947+21 ℄	84	LF
714-4115	PIPE CONDUIT 36IN Sta 3947+21 ℄	82	LF



3947+21 - CL
24" x 84' RCP (Good)
2 RCES
REMOVE & DISPOSE

Note: R/W limits are approximate, based on existing plans.



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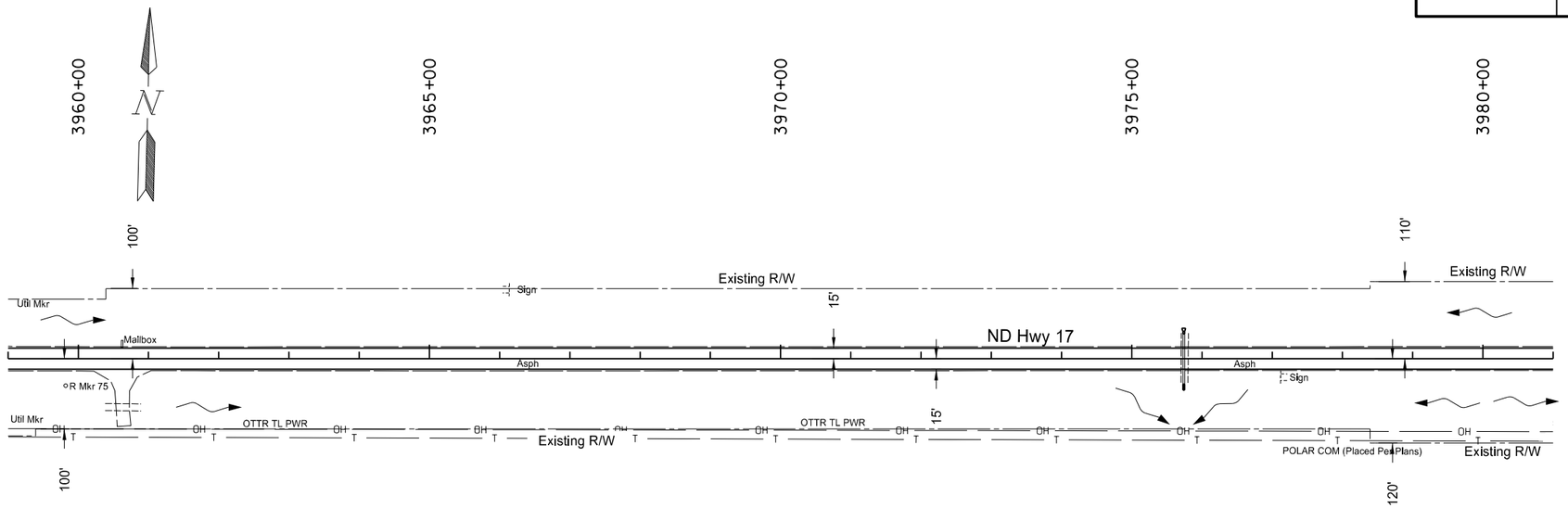
Plan & Profile

Starkweather S to Edmore - ND 17
Sta 3940+00 to Sta 3960+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	54

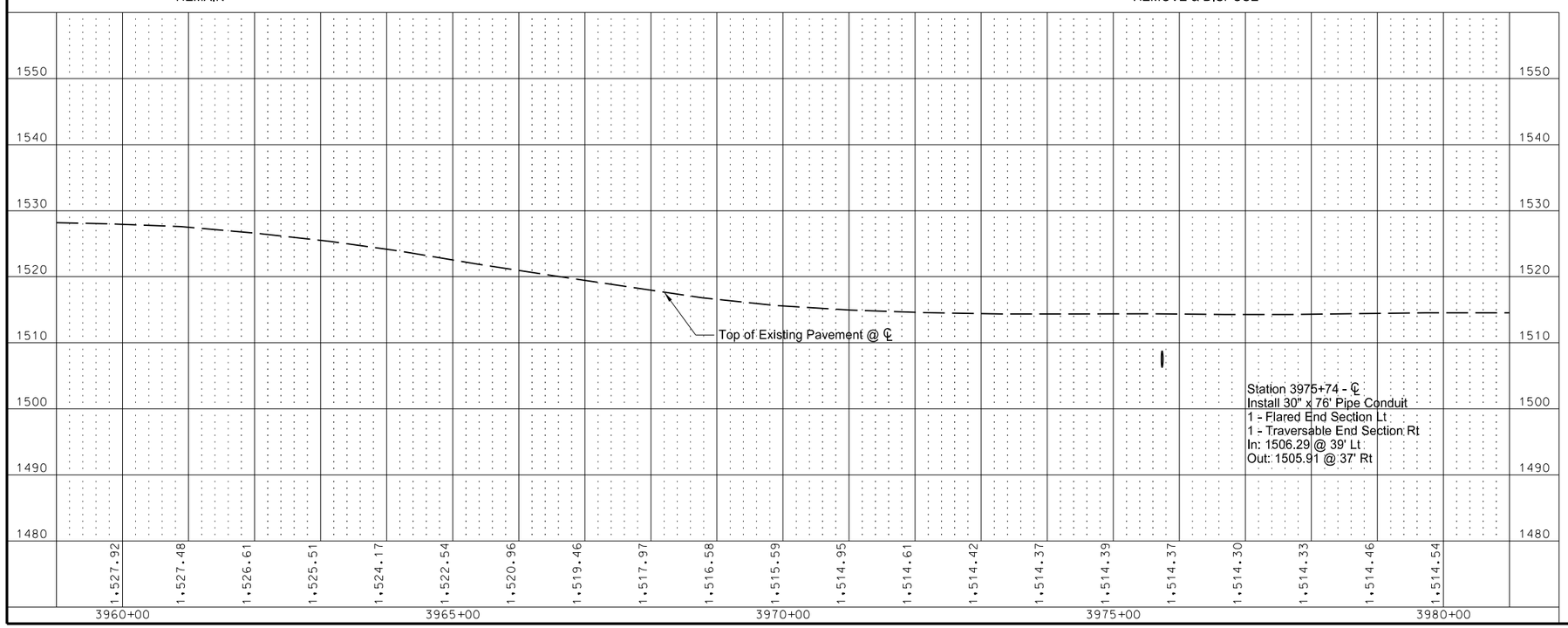
Item	Description	Quantity	Unit
202-0174	REMOVAL OF PIPE ALL TYPES AND SIZES Sta 3975+76 ℄	70	LF
714-4110	PIPE CONDUIT 30IN Sta 3975+74 ℄	76	LF



3960+64 - 69' Rt
18" x 51' CSP (Fair)
2 CSES
REMAIN

3975+76 - CL
24" x 70' RCP (Good)
2 RCES
REMOVE & DISPOSE

Note: R/W limits are approximate, based on existing plans.



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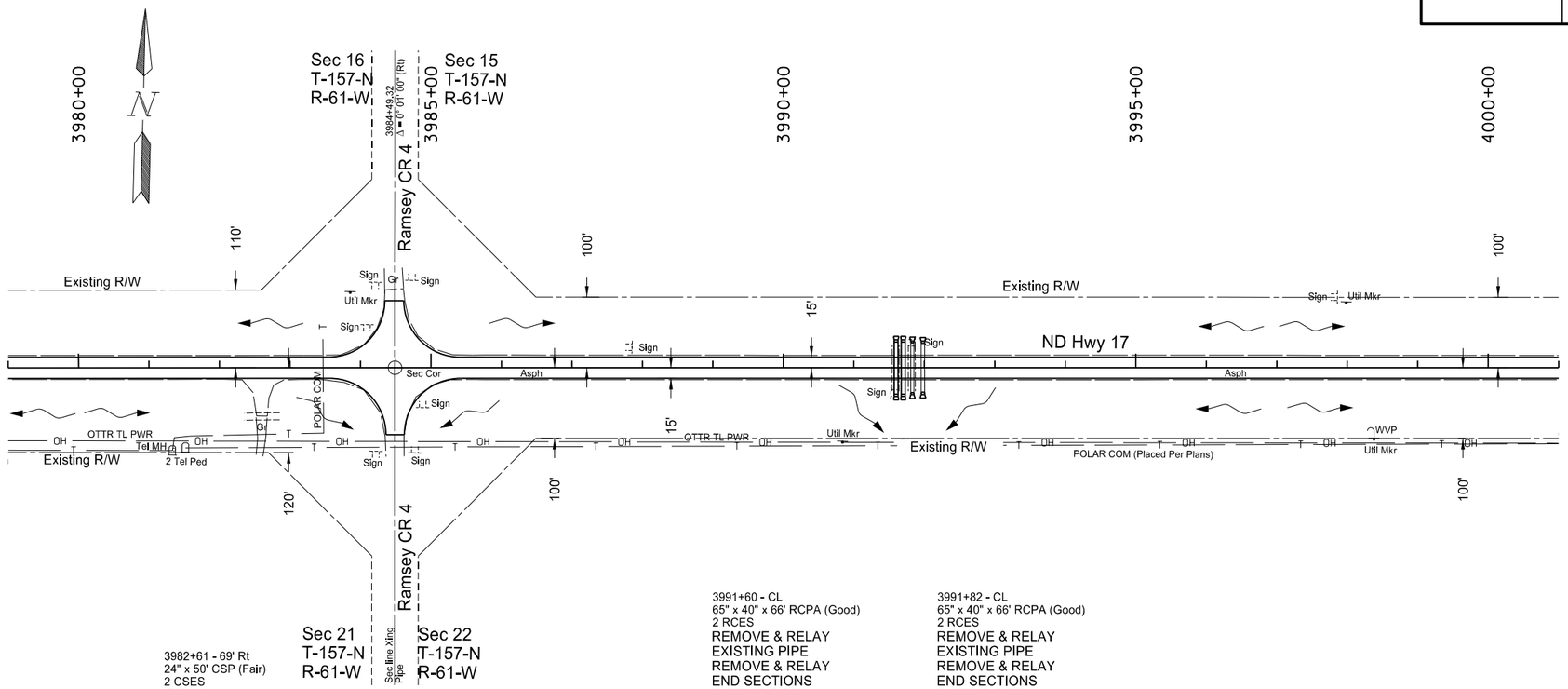
Plan & Profile

Starkweather S to Edmore - ND 17
Sta 3960+00 to Sta 3980+00

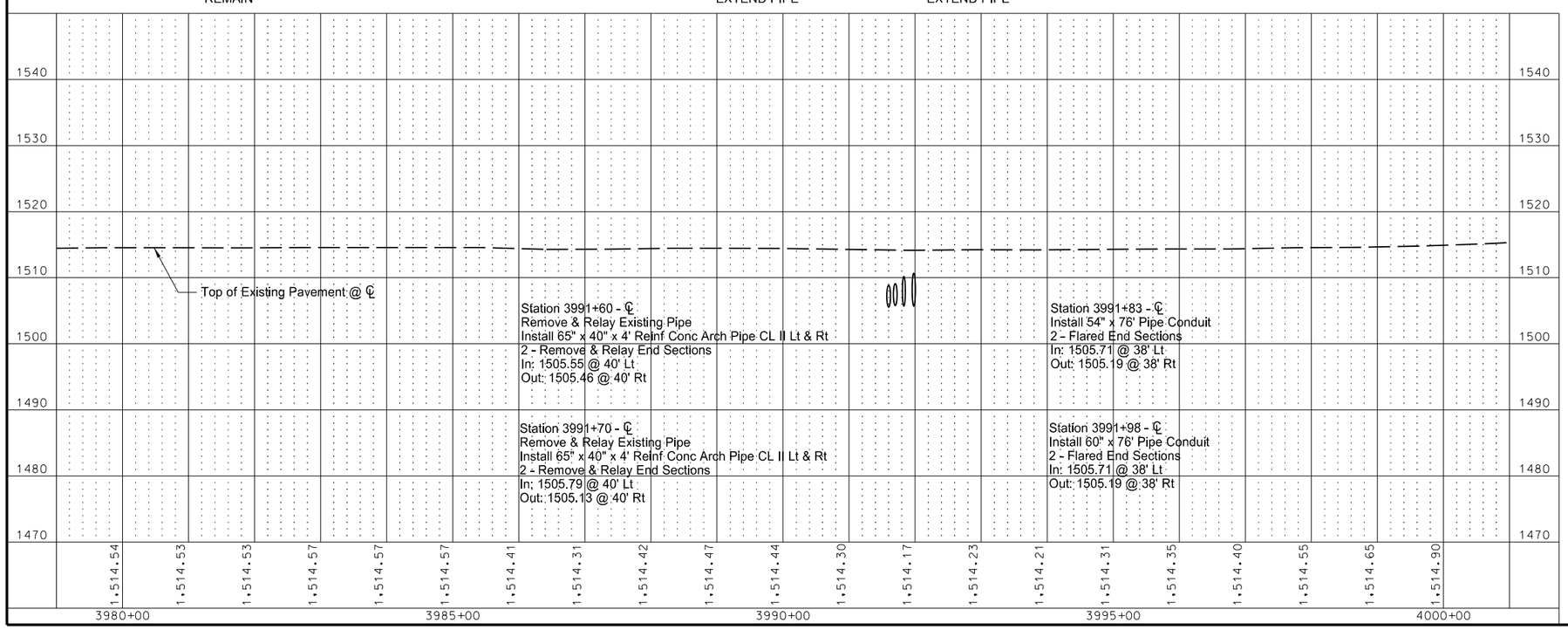
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	55



Item	Description	Quantity	Unit
714-2030	PIPE CONC REINF ARCH 65IN X 40IN CL II		
	Sta 3991+60 ℄	8	LF
	Sta 3991+70 ℄	8	LF
714-4130	PIPE CONDUIT 54IN		
	Sta 3991+83 ℄	76	LF
714-4135	PIPE CONDUIT 60IN		
	Sta 3991+98 ℄	76	LF
714-9659	REMOVE & RELAY PIPE-ALL TYPES & SIZES		
	Sta 3991+60 ℄	66	LF
	Sta 3991+70 ℄	66	LF
714-9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES		
	Sta 3991+60 ℄	2	EA
	Sta 3991+70 ℄	2	EA

Note: R/W limits are approximate, based on existing plans.

Existing pipe at Sta 3991+82 shall be relocated to Sta 3991+70.



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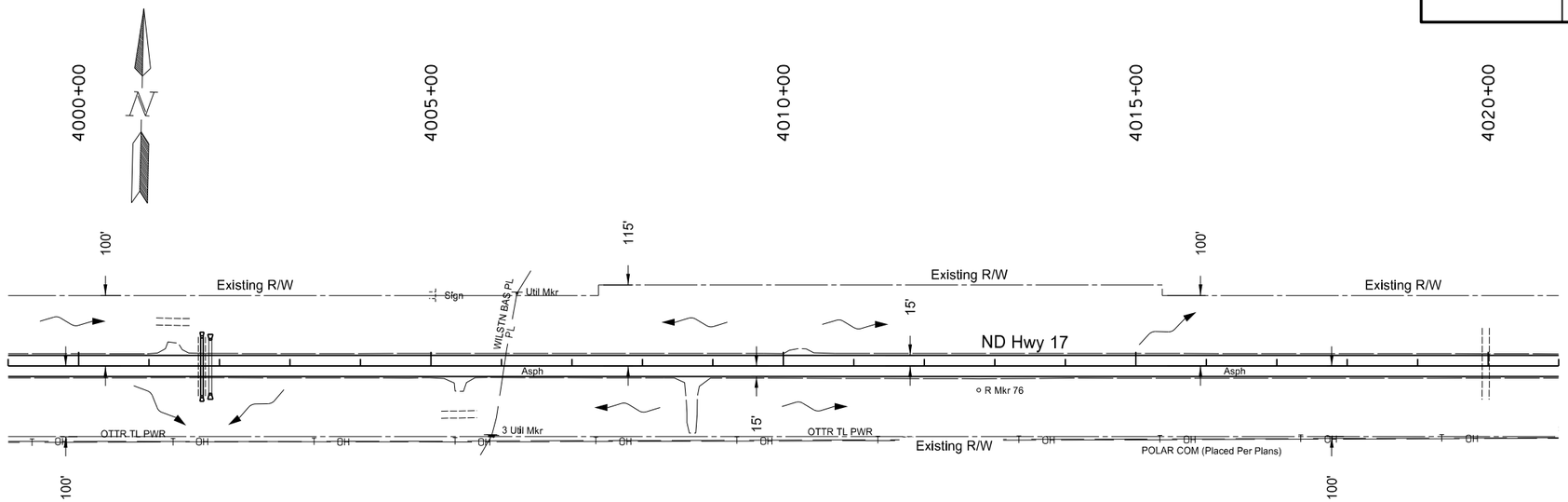
Plan & Profile

Starkweather S to Edmore - ND 17
Sta 3980+00 to Sta 4000+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	56

Item	Description	Quantity	Unit
714-4125	PIPE CONDUIT 48IN Sta 4001+87 ℄	80	LF
714-9659	REMOVE & RELAY PIPE-ALL TYPES & SIZES Sta 4001+75 ℄	82	LF
714-9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES Sta 4001+75 ℄	2	EA



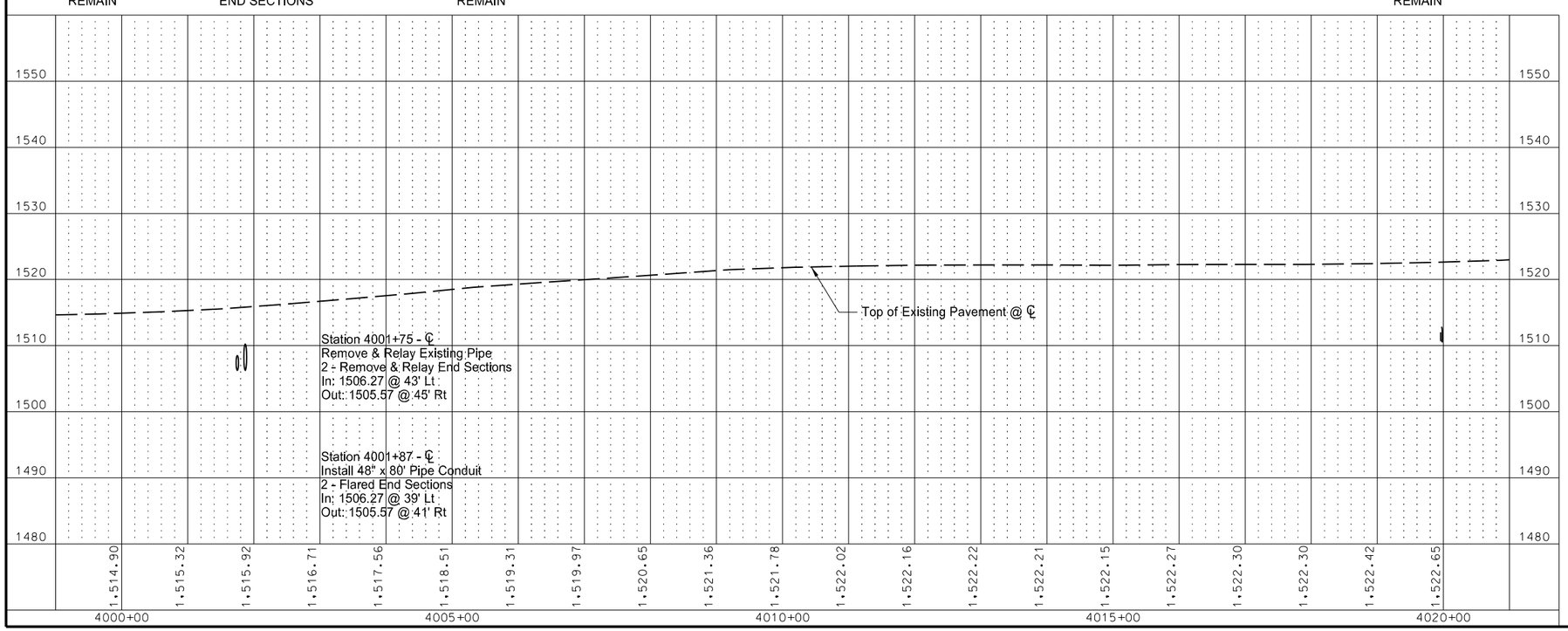
4001+34 - CL
24" x 48' CSP (Poor)
2 CSES
REMAIN

4001+75 - CL
44" x 27" x 82' RCPA (Good)
2 RCES
REMOVE & RELAY
EXISTING PIPE
REMOVE & RELAY
END SECTIONS

4005+40 - 69' Rt
18" x 50' CSP (Fair)
2 CSES
REMAIN

4019+97 - CL
32" x 100' RCP (Good)
2 RCES
REMAIN

Note: R/W limits are approximate, based on existing plans.



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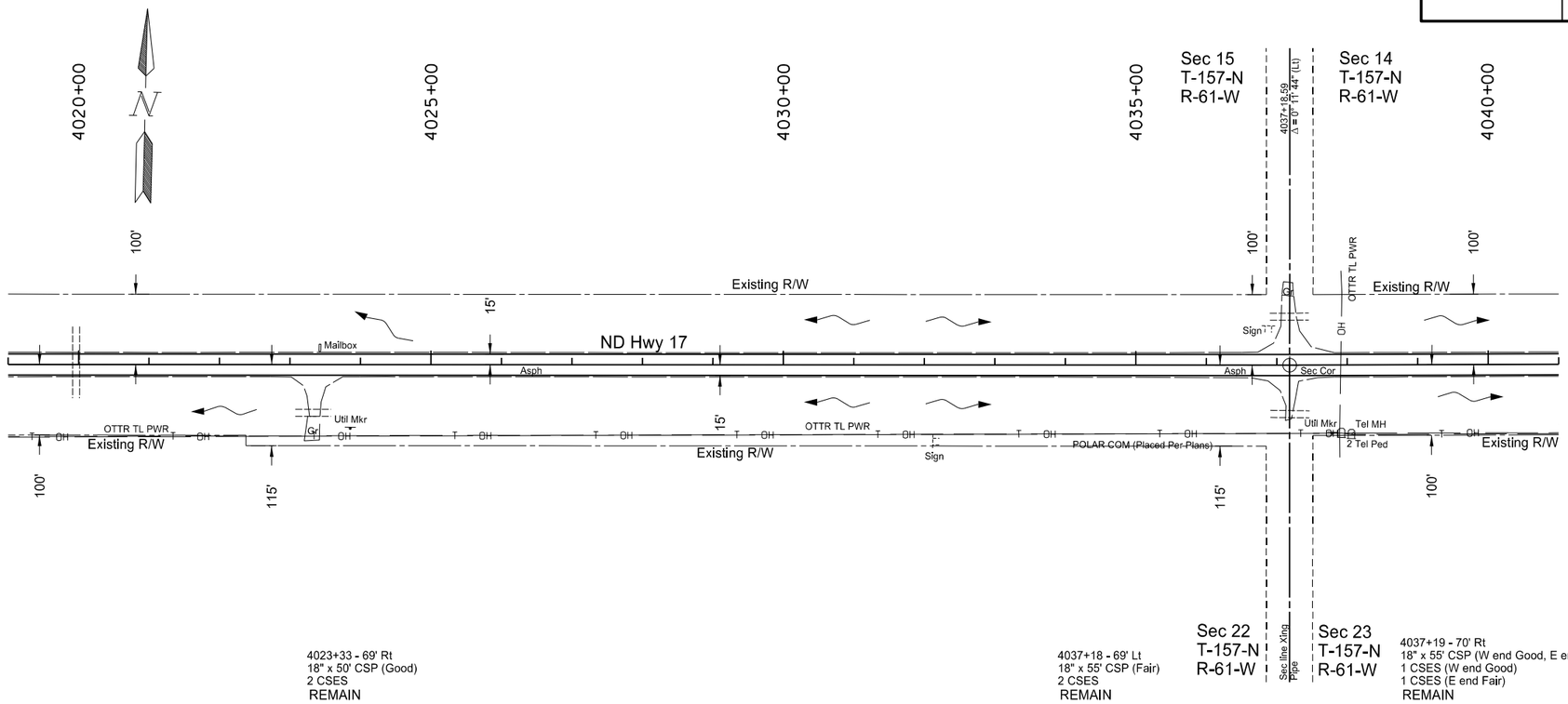
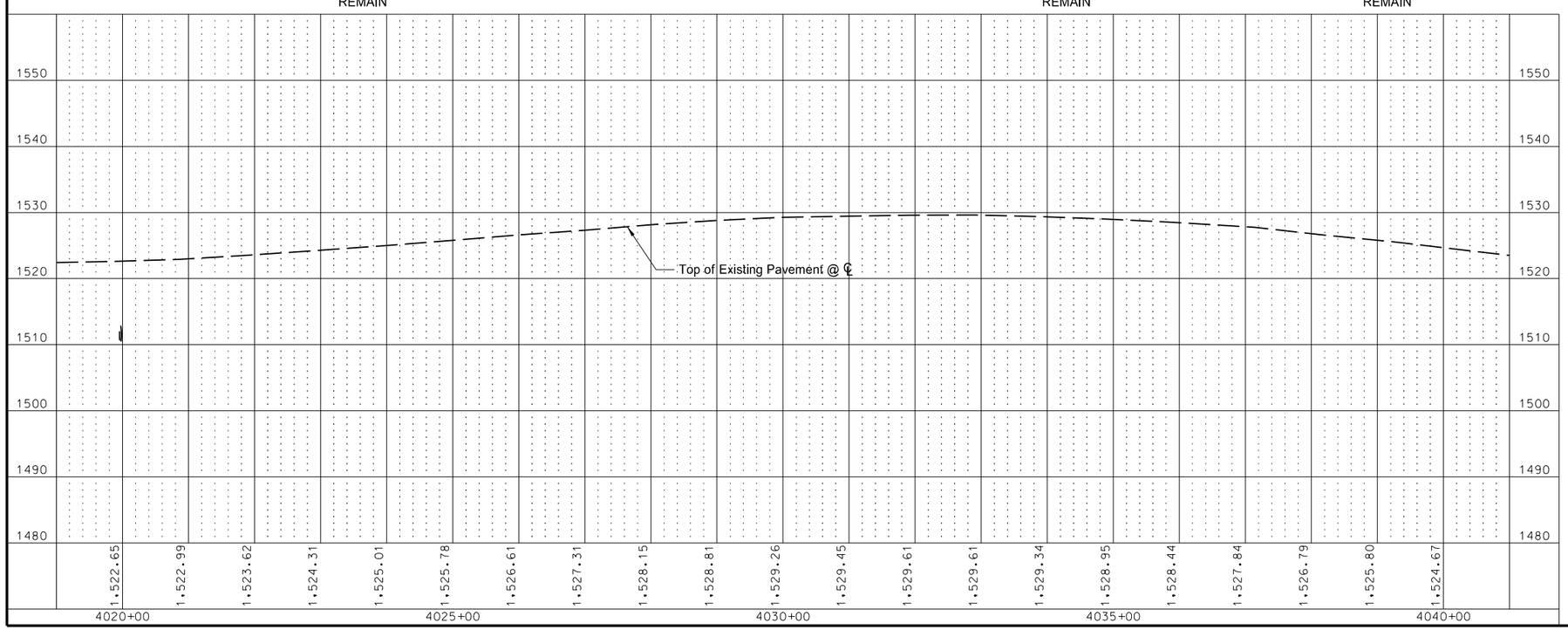
Starkweather S to Edmore - ND 17
Sta 4000+00 to Sta 4020+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	57





Note: R/W limits are approximate, based on existing plans.

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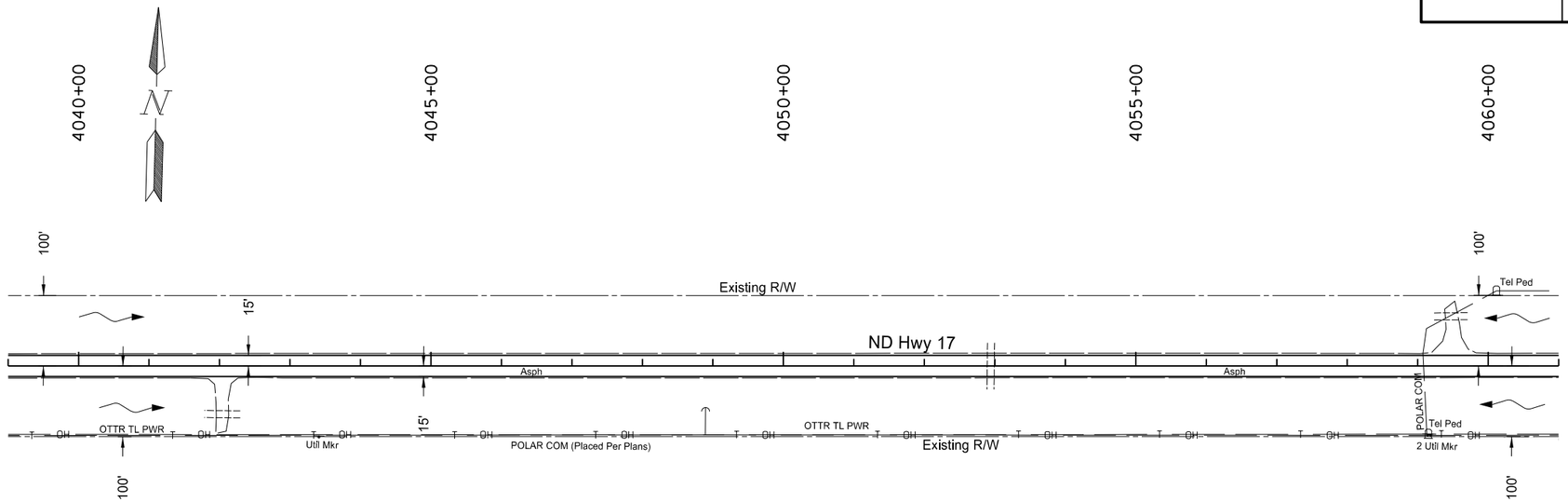
Starkweather S to Edmore - ND 17
Sta 4020+00 to Sta 4040+00

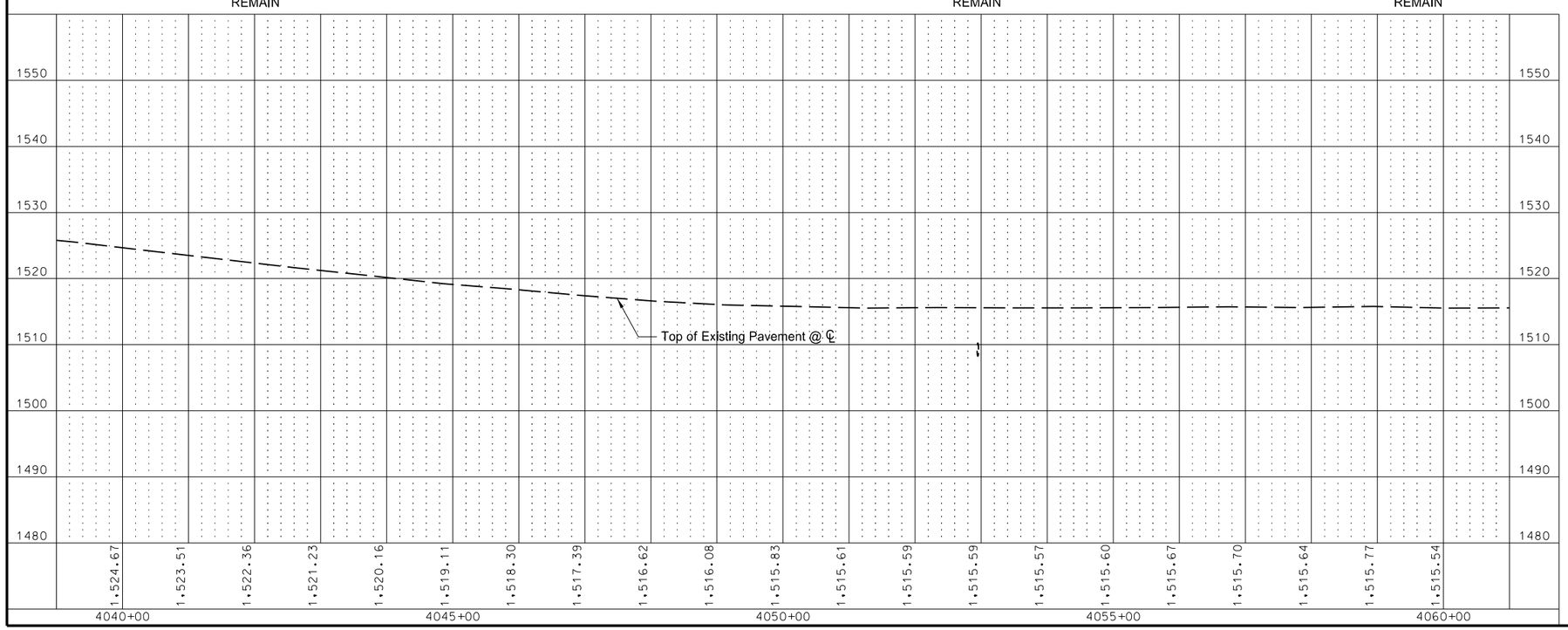
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	58



4042+04 - 69' Rt
18" x 51' CSP (W end Fair, E end Good)
1 CSES (W end Fair)
1 CSES (E end Good)
REMAIN

4052+95 - CL
24" x 66' RCP (Good)
2 RCES
REMAIN

4059+49 - 70' Lt
18" x 50' CSP (Fair)
2 CSES
REMAIN



Note: R/W limits are approximate, based on existing plans.

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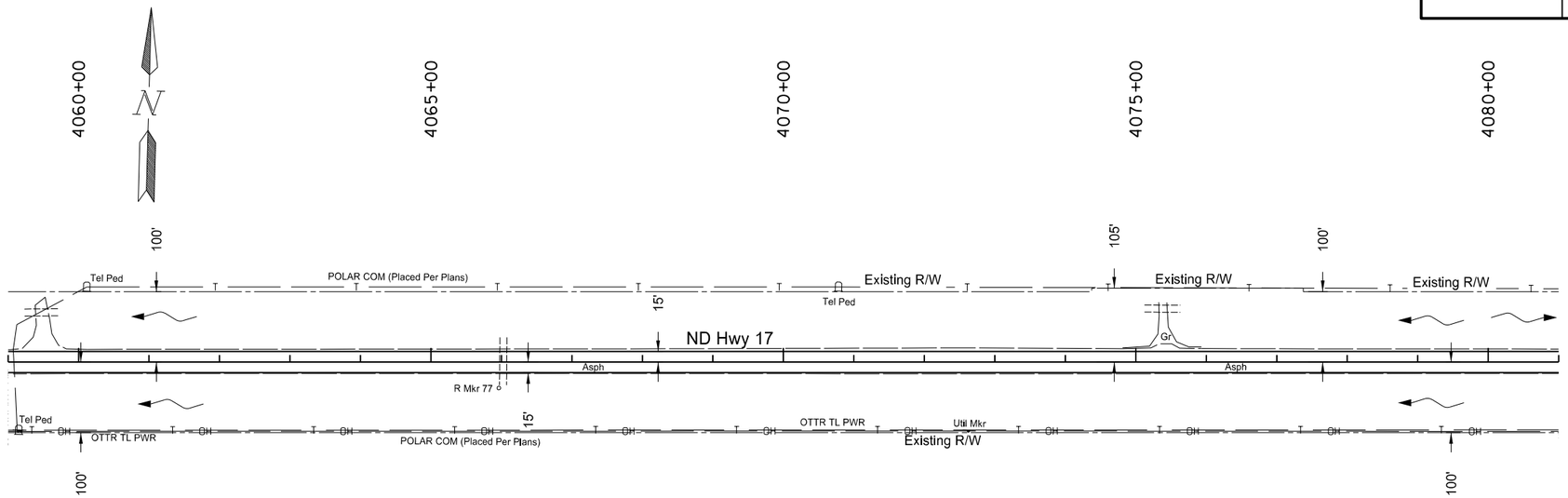
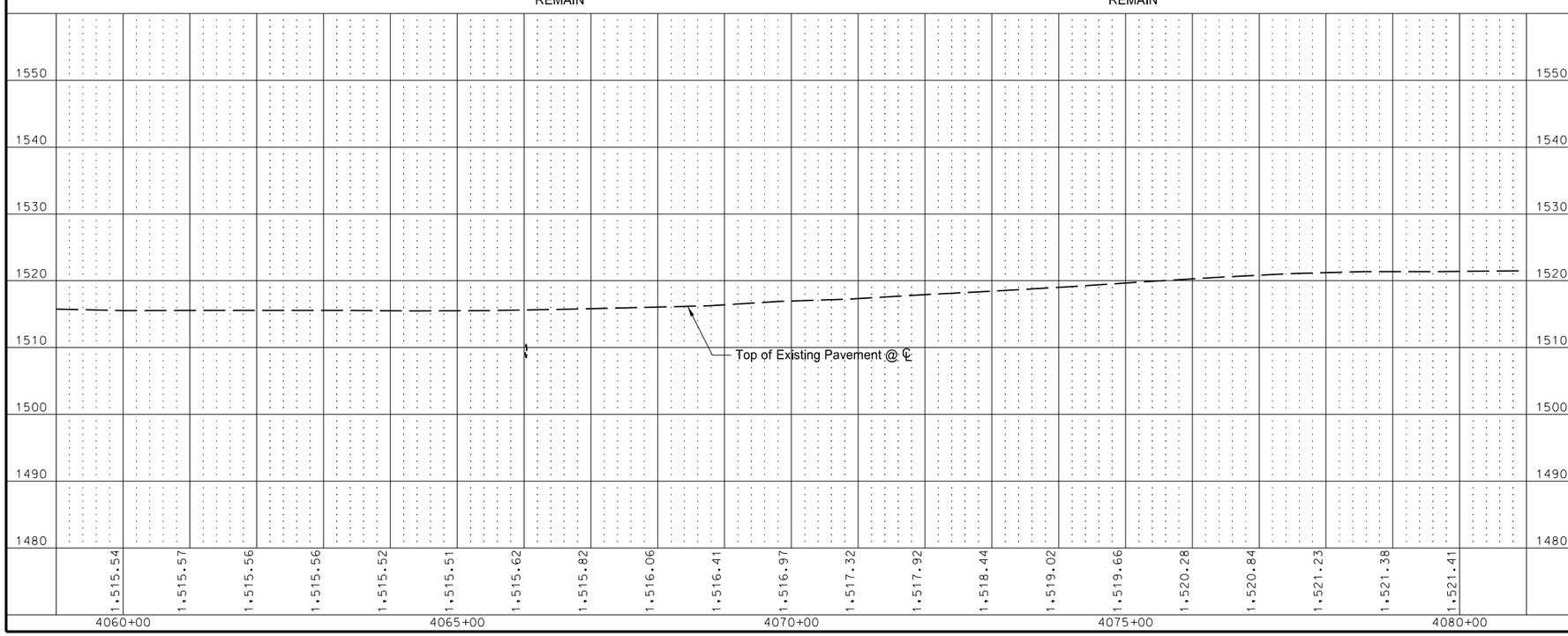
Starkweather S to Edmore - ND 17
Sta 4040+00 to Sta 4060+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	59



4066+03 - CL
24" x 66' RCP (Good)
2 RCES
REMAIN

4075+38 - 76' Lt
24" x 51' CSP (Good)
2 CSES
REMAIN



Note: R/W limits are approximate, based on existing plans.

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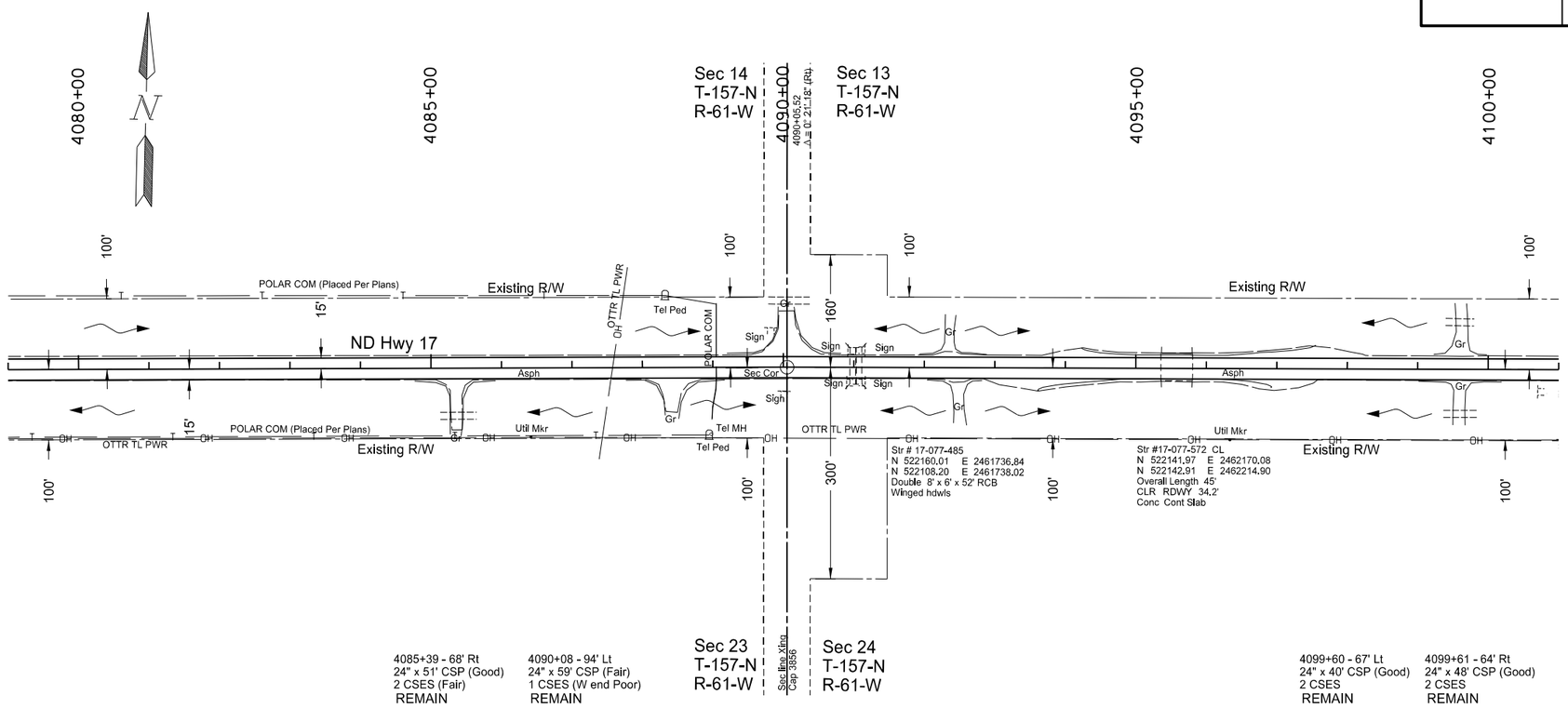
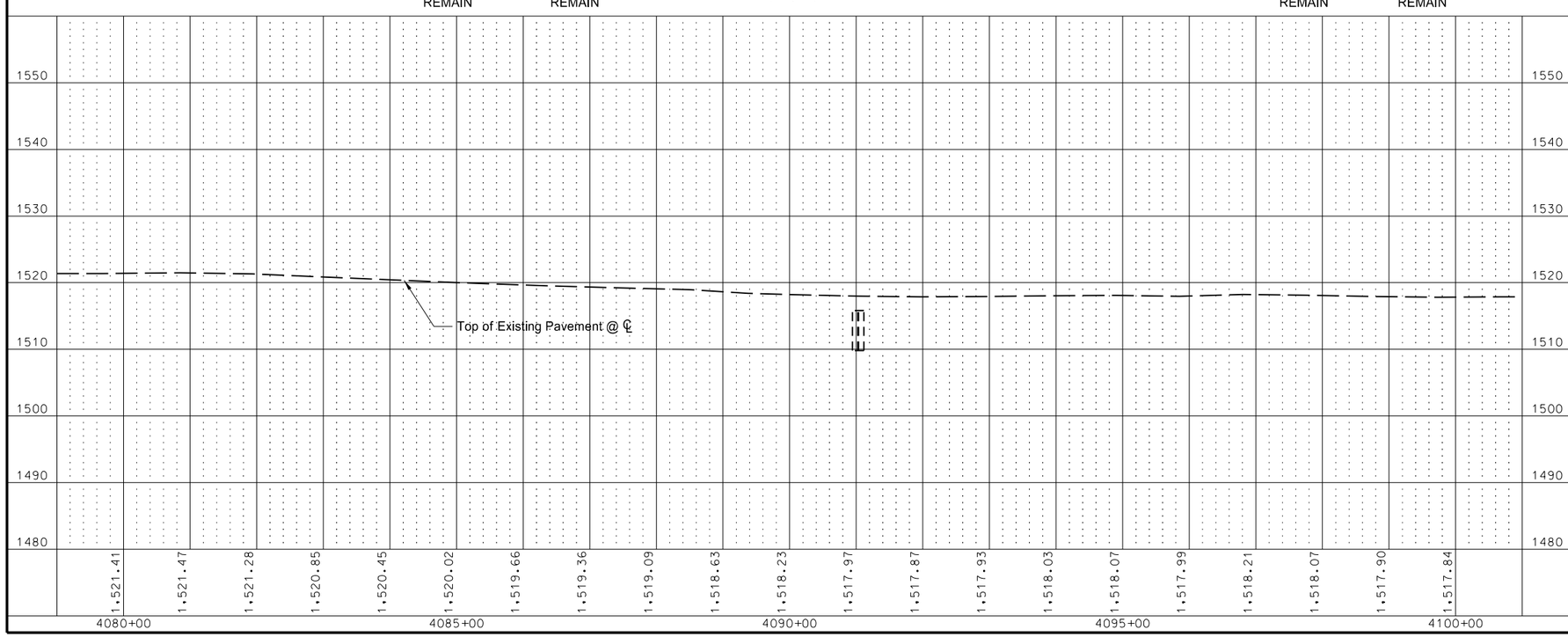
Starkweather S to Edmore - ND 17
Sta 4060+00 to Sta 4080+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	60





Note: R/W limits are approximate, based on existing plans.

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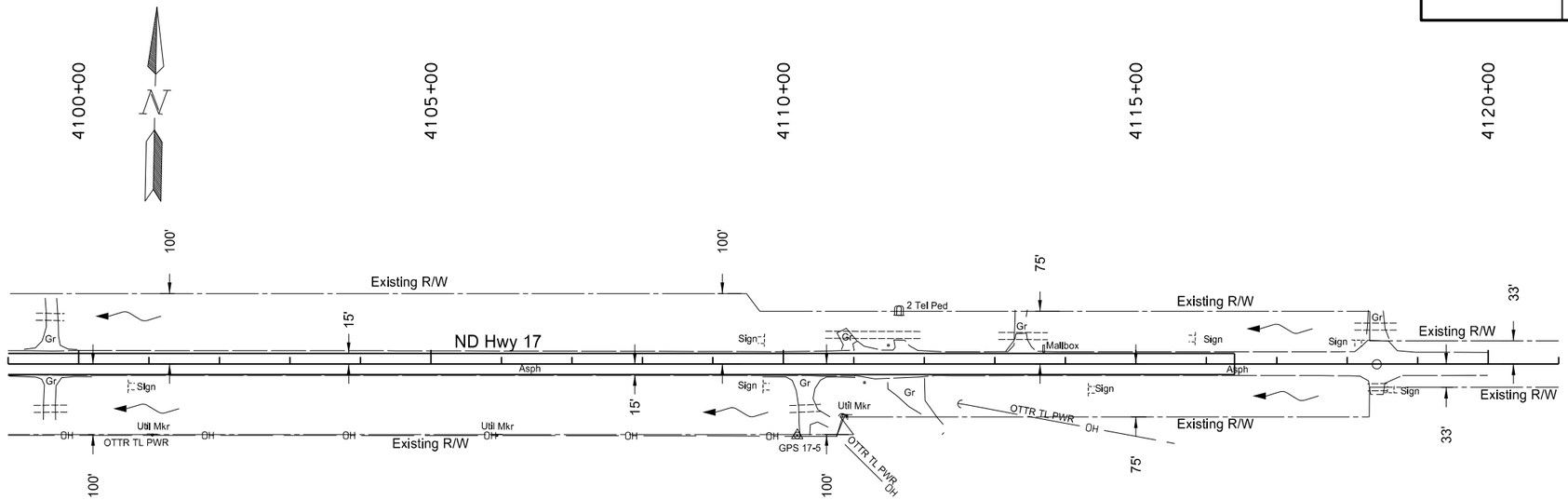
Starkweather S to Edmore - ND 17
Sta 4080+00 to Sta 4100+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	60	61



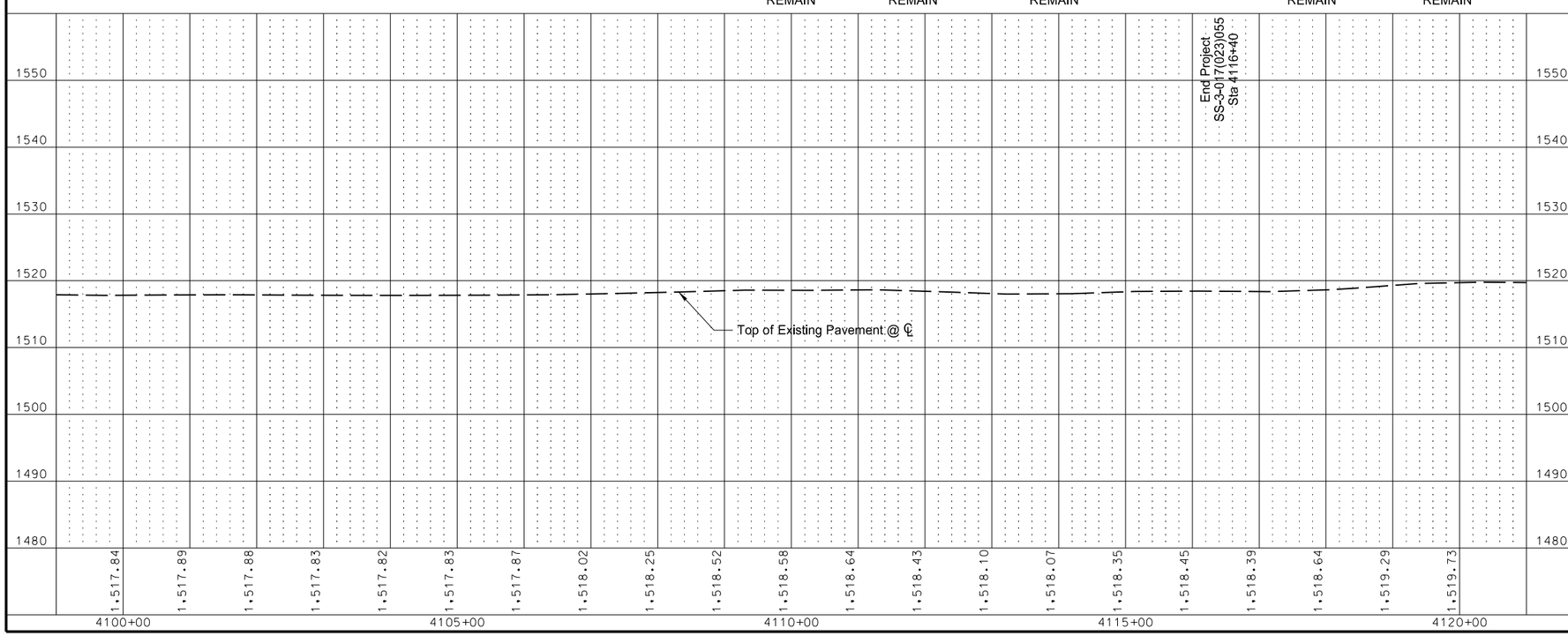
4110+32 - 63' Rt
18" x 44' CSP (Good)
2 CSES
REMAIN

4111+27 - 41' Lt
24" x 134' CSP (Fair)
2 CSES (W end Plugged)
REMAIN

4113+40 - 39' Lt
18" x 70' CSP (Fair)
2 CSES
REMAIN

4118+42 - 53' Lt
12" x 62' CPP (Fair)
REMAIN

4118+43 - 33' Rt
18" x 28' CSP (Fair)
2 CSES
REMAIN



Note: R/W limits are approximate, based on existing plans.

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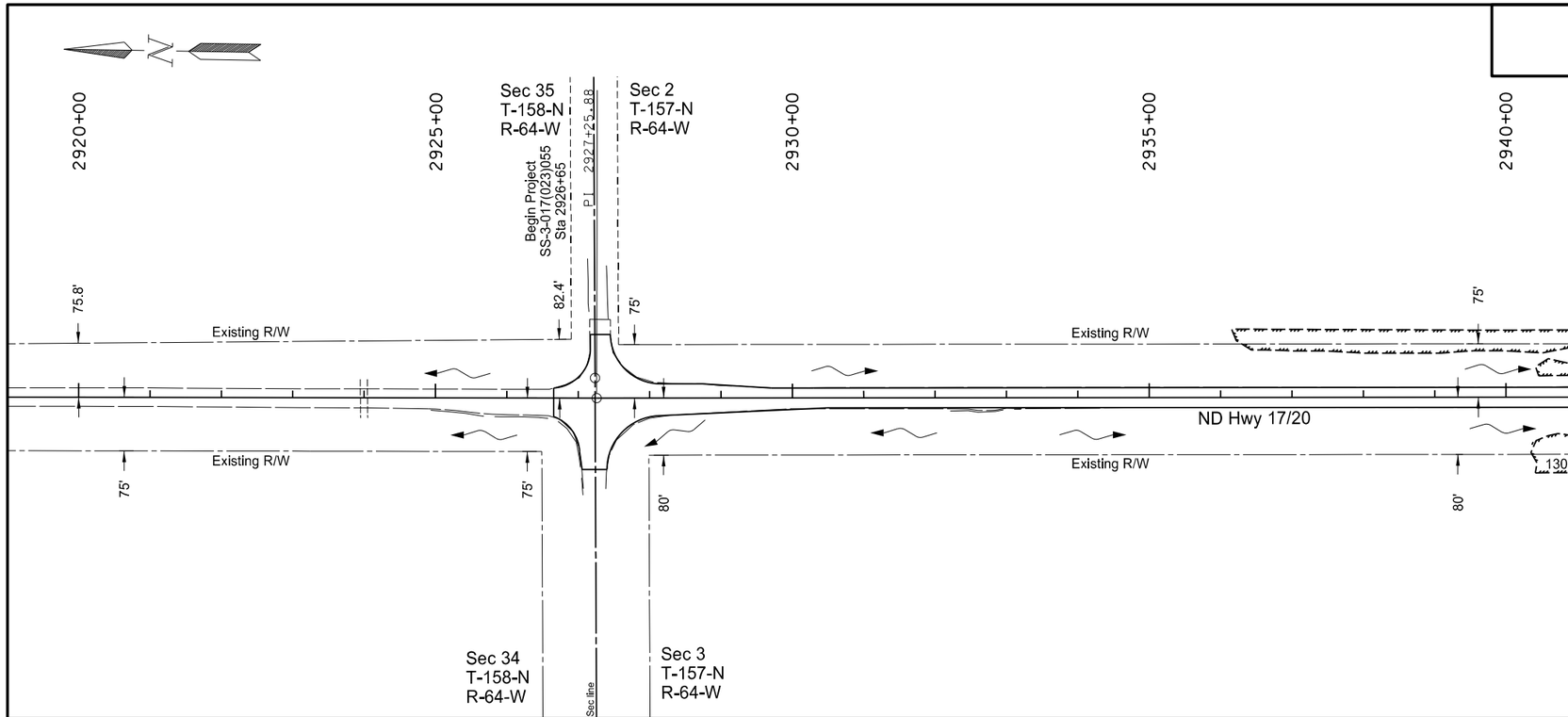
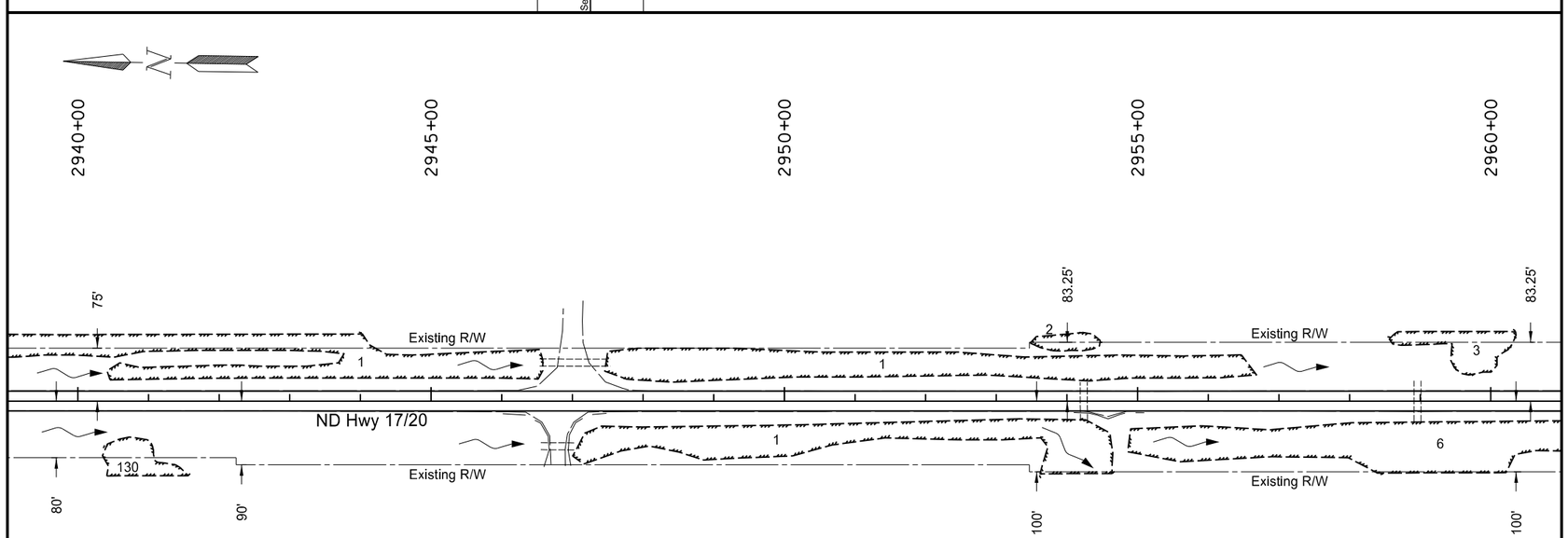
Plan & Profile

Starkweather S to Edmore - ND 17
Sta 4100+00 to Sta 4116+40

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	1





Note: All work from Sta 2926+65 to Sta 2960+00 shall be completed on top of the existing roadway, resulting in no wetland impacts anticipated.

R/W limits are approximate, based on existing plans.

Temporary Cover Crop (Seeding-Type B-CL IV) Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Temporary Fiber Rolls

x- - - - -x- - - - Temporary Silt Fence Supported

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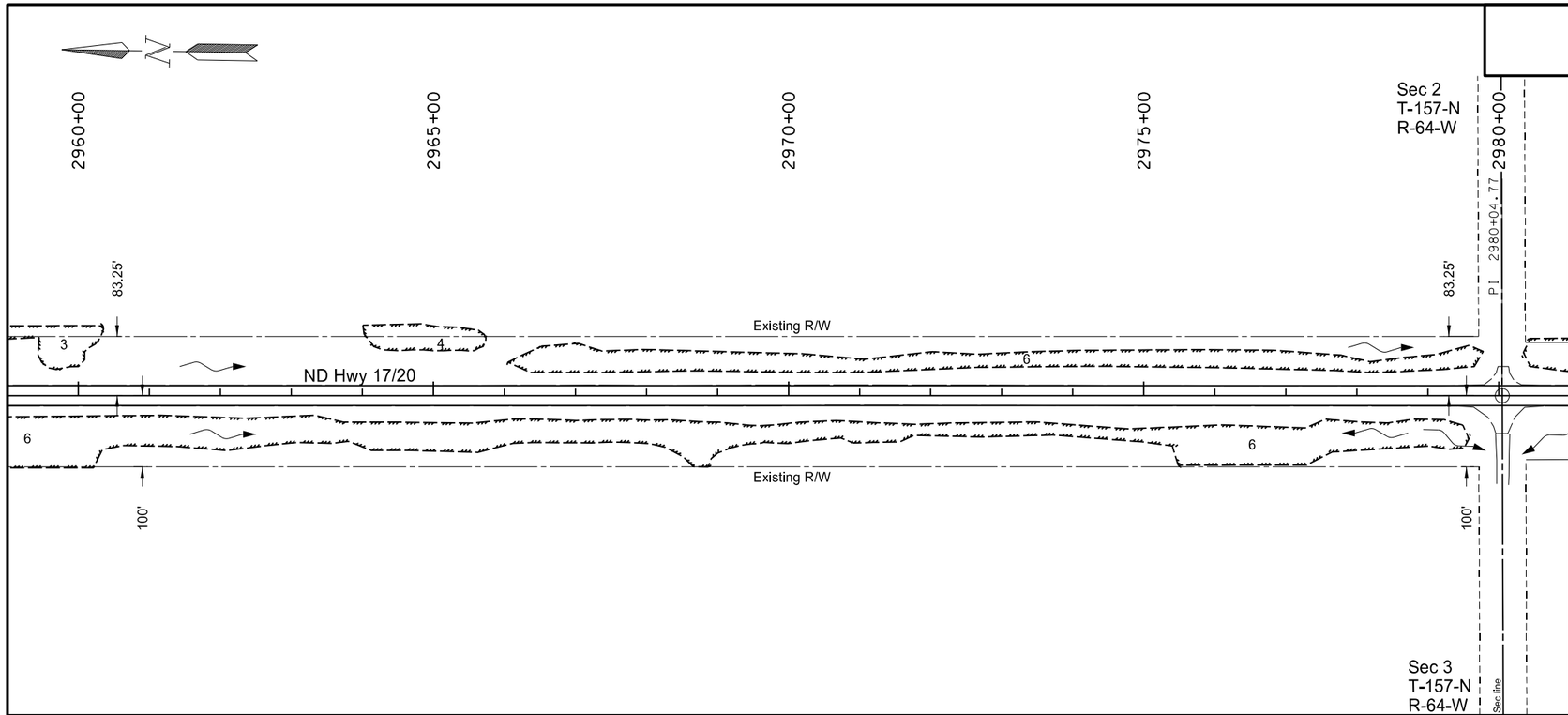
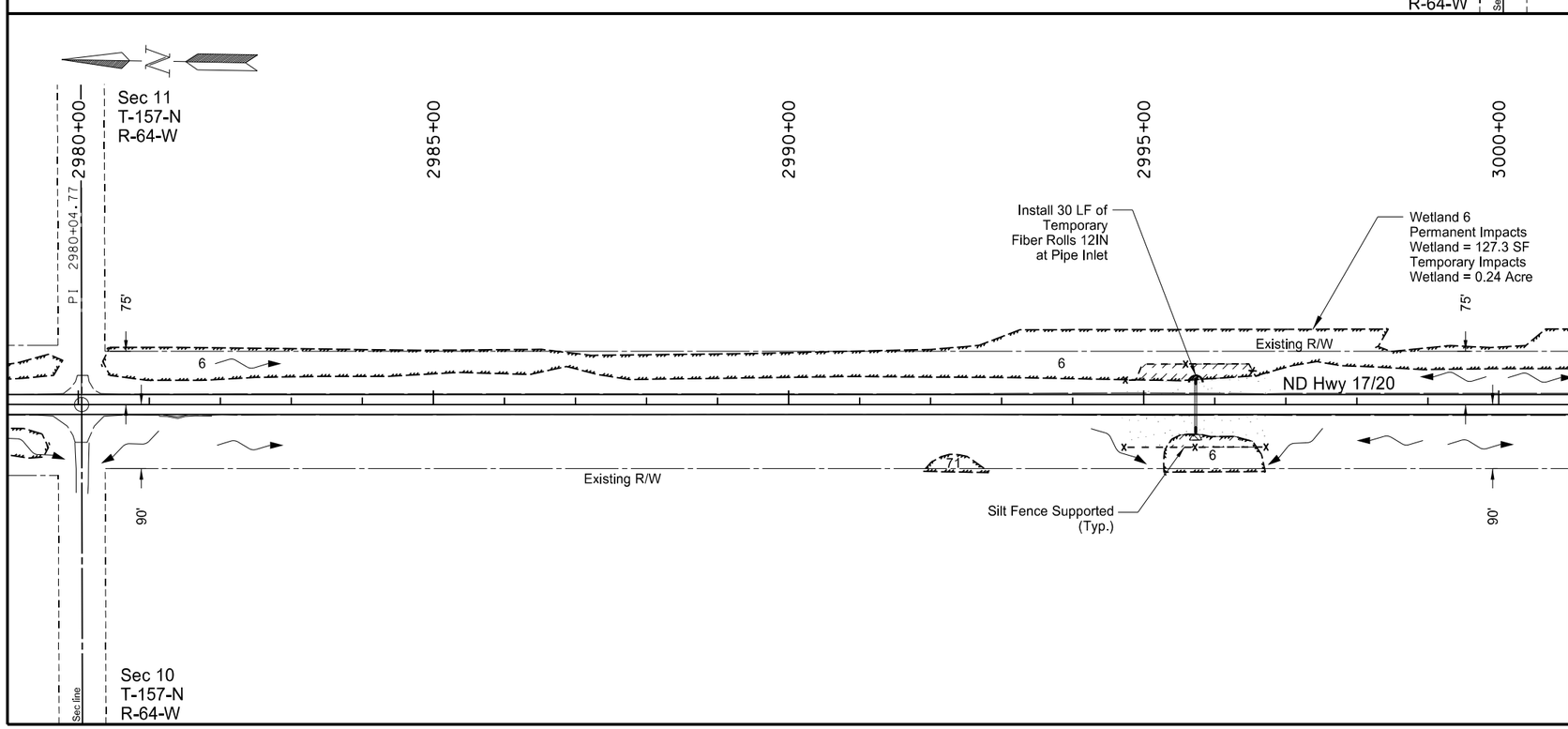
Wetlands, Temporary Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 2926+65 to Sta 2960+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	2





Item	Description	Quantity	Unit
708-1325	Silt Fence Supported		
	Sta 2960+00 Lt to Sta 3000+00 Lt	234	LF
	Sta 2960+00 Rt to Sta 3000+00 Rt	208	LF
708-1335	Removal Silt Fence Supported		
	Sta 2960+00 Lt to Sta 3000+00 Lt	234	LF
	Sta 2960+00 Rt to Sta 3000+00 Rt	208	LF
708-1430	Fiber Rolls 12IN		
	Sta 2960+00 Lt to Sta 3000+00 Lt	30	LF
708-1431	Removal Fiber Rolls 12IN		
	Sta 2960+00 Lt to Sta 3000+00 Lt	30	LF
708-2260	Seeding-Type B-CL IV		
	Sta 2960+00 Lt to Sta 3000+00 Lt	0.11	ACRE
	Sta 2960+00 Rt to Sta 3000+00 Rt	0.18	ACRE
708-5500	Mulching		
	Sta 2960+00 Lt to Sta 3000+00 Lt	0.11	ACRE
	Sta 2960+00 Rt to Sta 3000+00 Rt	0.18	ACRE

Note: R/W limits are approximate, based on existing plans.

Temporary Cover Crop (Seeding-Type B-CL IV) Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Temporary Fiber Rolls

x- - - - -x- - - - Temporary Silt Fence Supported

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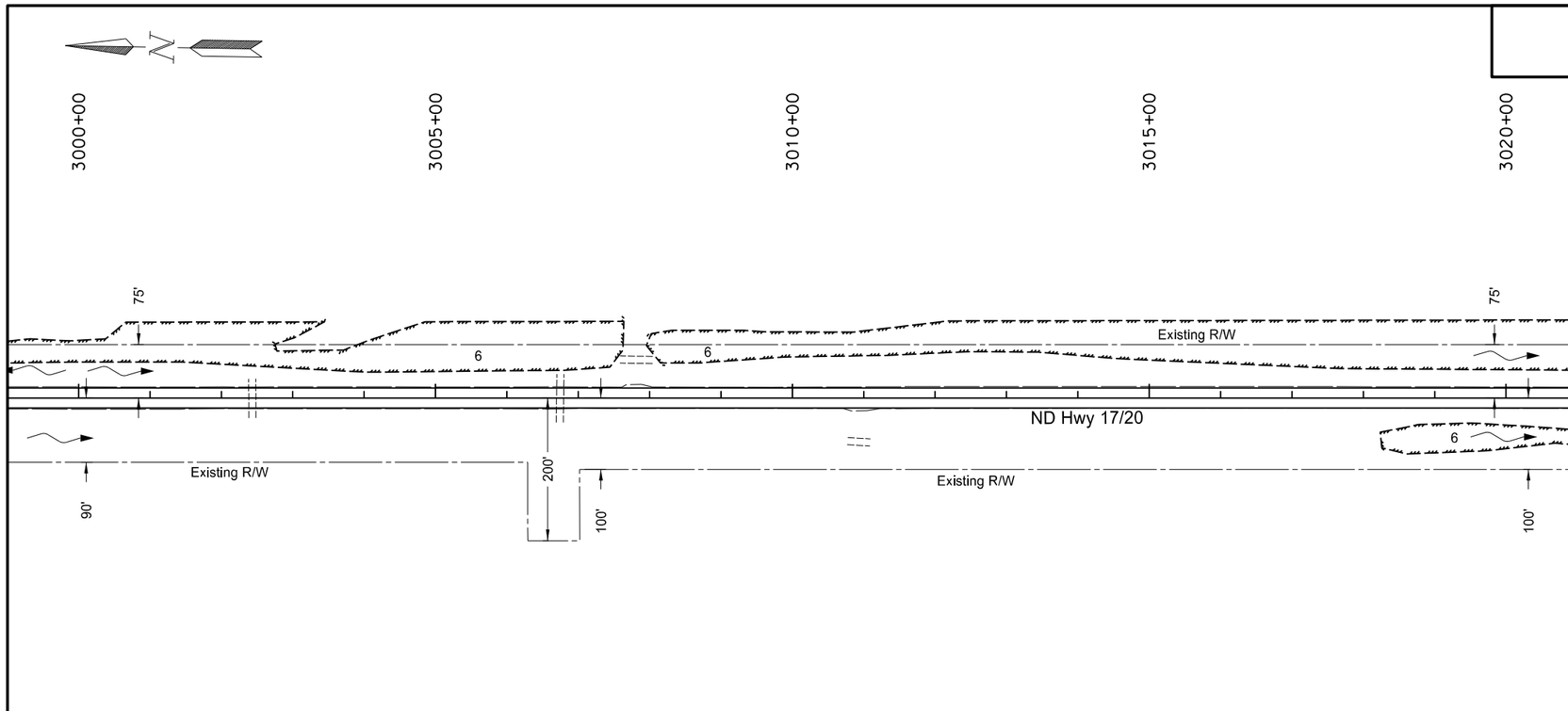
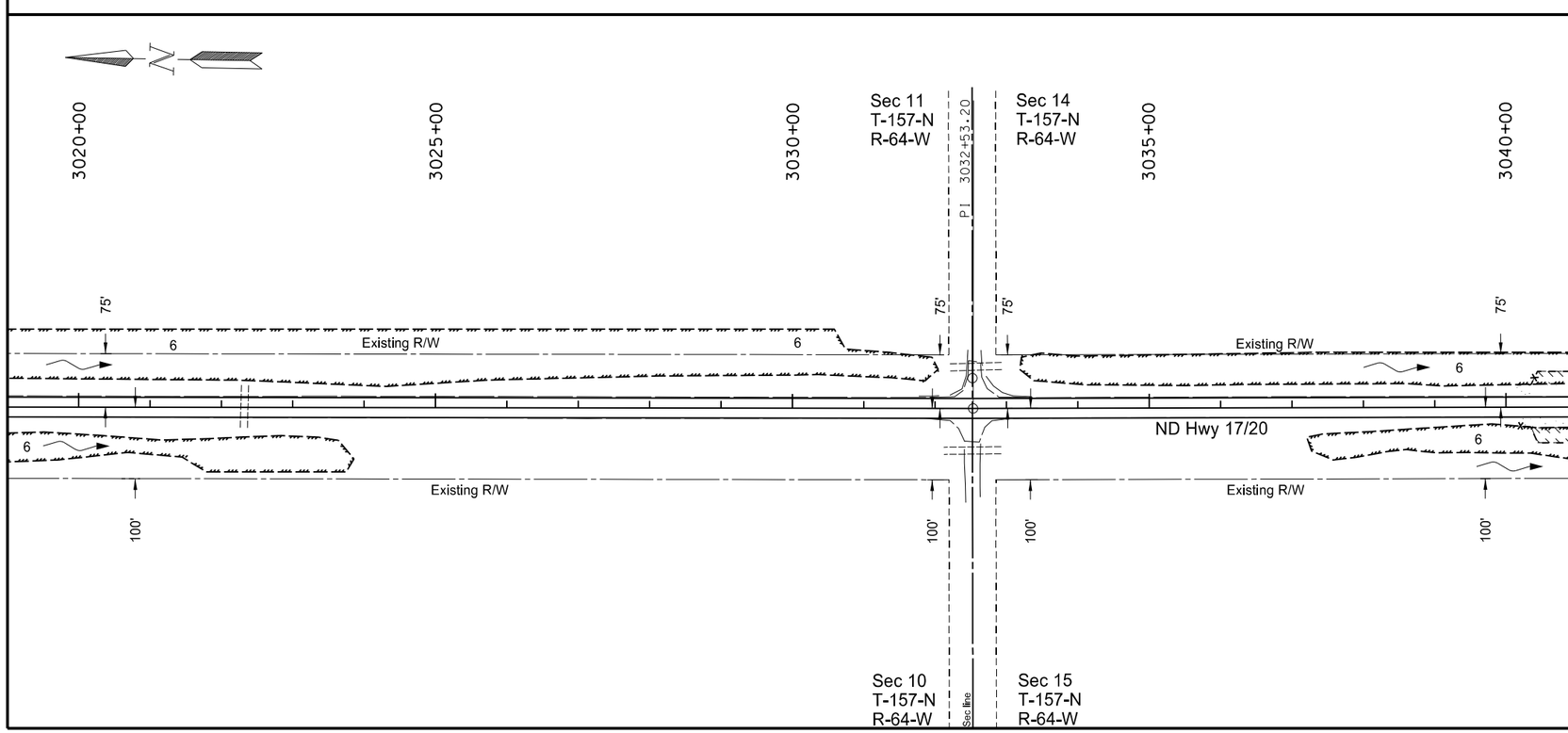
Wetlands, Temporary Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 2960+00 to Sta 3000+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	3





Note: All work from Sta 3000+00 to Sta 3040+00 shall be completed on top of the existing roadway, resulting in no wetland impacts anticipated.

R/W limits are approximate, based on existing plans.

Temporary Cover Crop (Seeding-Type B-CL IV) Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Temporary Fiber Rolls

Temporary Silt Fence Supported

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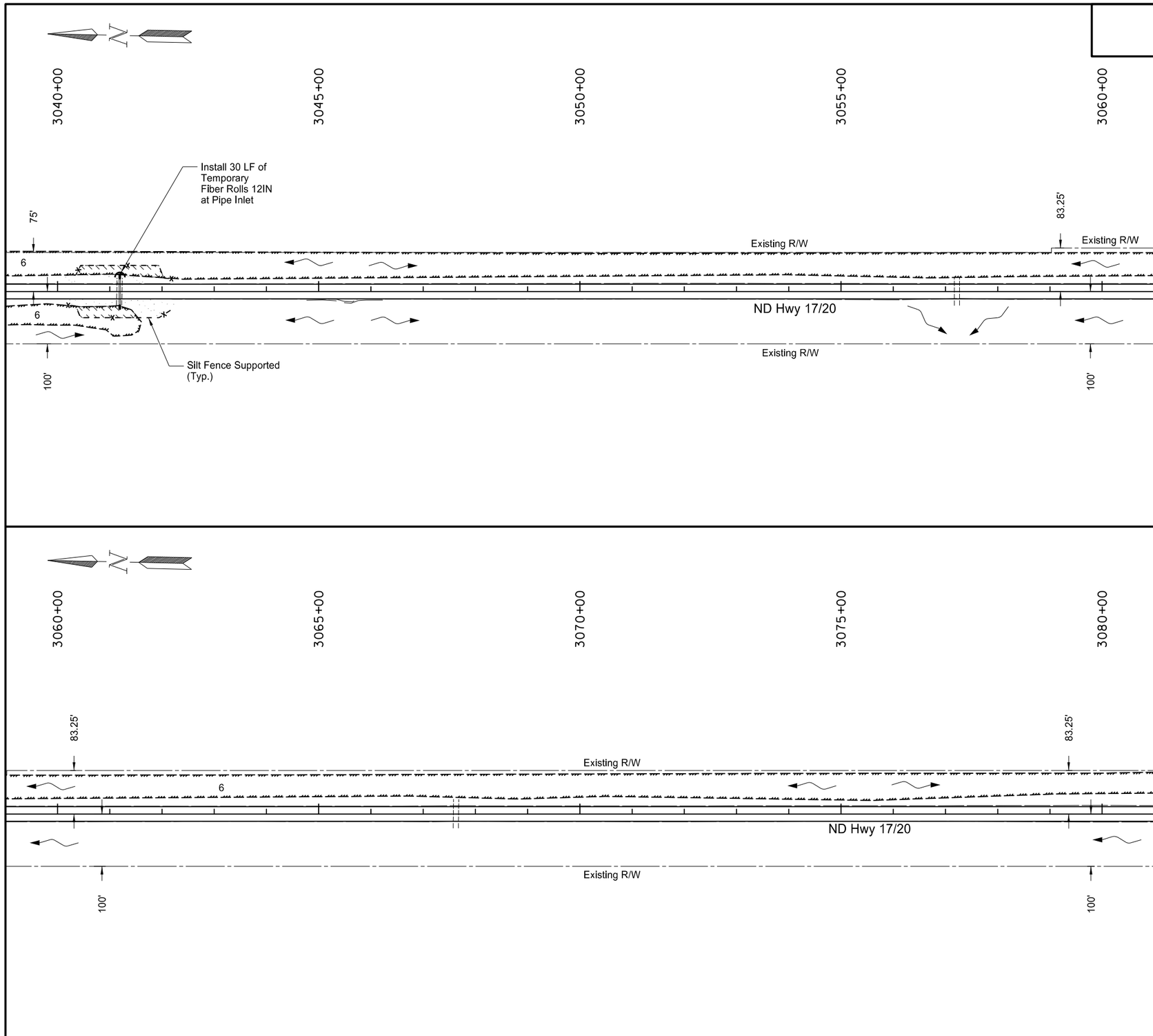
Wetlands, Temporary Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 3000+00 to Sta 3040+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	4



Item	Description	Quantity	Unit
708-1325	Silt Fence Supported		
	Sta 3040+00 Lt to Sta 3080+00 Lt	236	LF
	Sta 3040+00 Rt to Sta 3080+00 Rt	229	LF
708-1335	Removal Silt Fence Supported		
	Sta 3040+00 Lt to Sta 3080+00 Lt	236	LF
	Sta 3040+00 Rt to Sta 3080+00 Rt	229	LF
708-1430	Fiber Rolls 12IN		
	Sta 3040+00 Lt to Sta 3080+00 Lt	30	LF
708-1431	Removal Fiber Rolls 12IN		
	Sta 3040+00 Lt to Sta 3080+00 Lt	30	LF
708-2260	Seeding-Type B-CL IV		
	Sta 3040+00 Lt to Sta 3080+00 Lt	0.08	ACRE
	Sta 3040+00 Rt to Sta 3080+00 Rt	0.10	ACRE
708-5500	Mulching		
	Sta 3040+00 Lt to Sta 3080+00 Lt	0.08	ACRE
	Sta 3040+00 Rt to Sta 3080+00 Rt	0.10	ACRE

Note: R/W limits are approximate, based on existing plans.

Temporary Cover Crop (Seeding-Type B-CL IV) Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Temporary Fiber Rolls

x- - - - -x- - - - Temporary Silt Fence Supported

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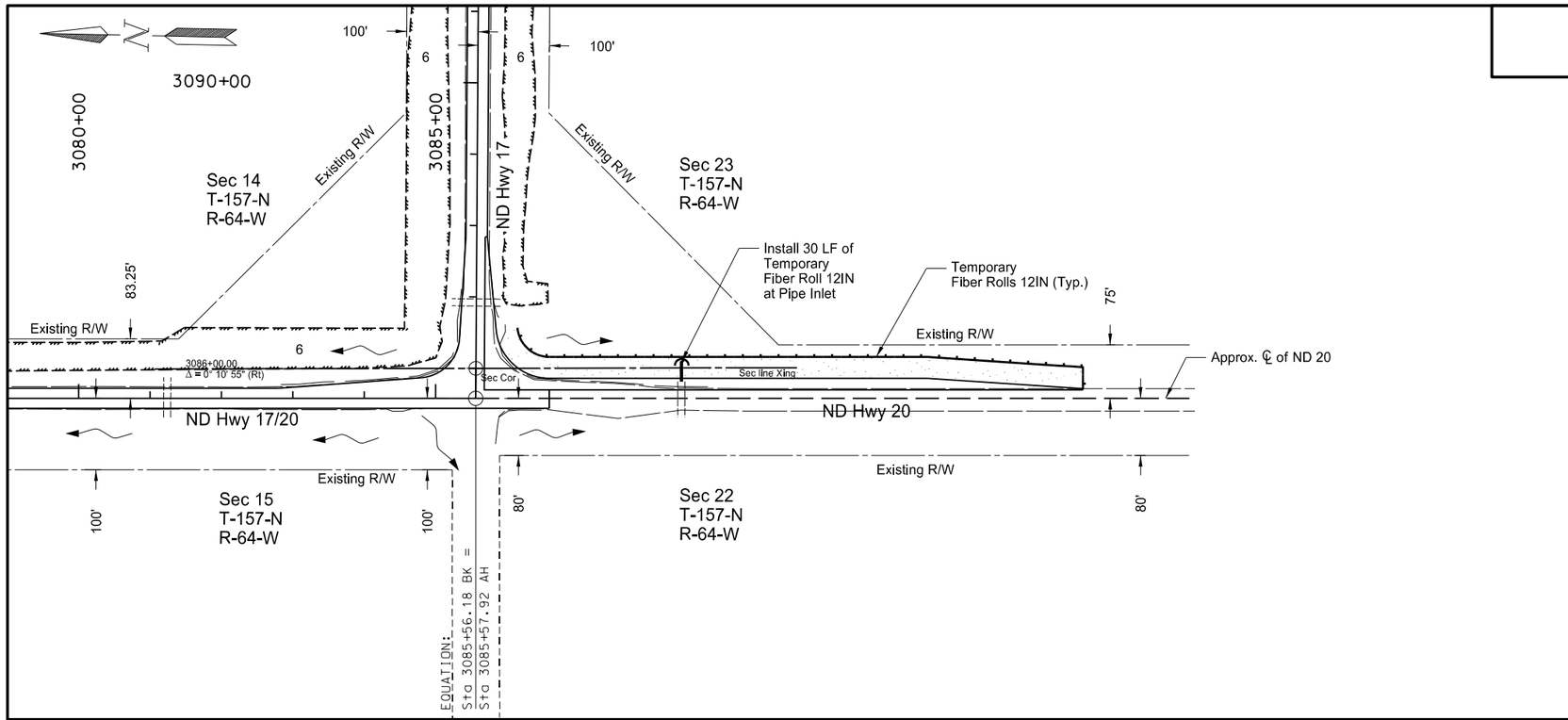
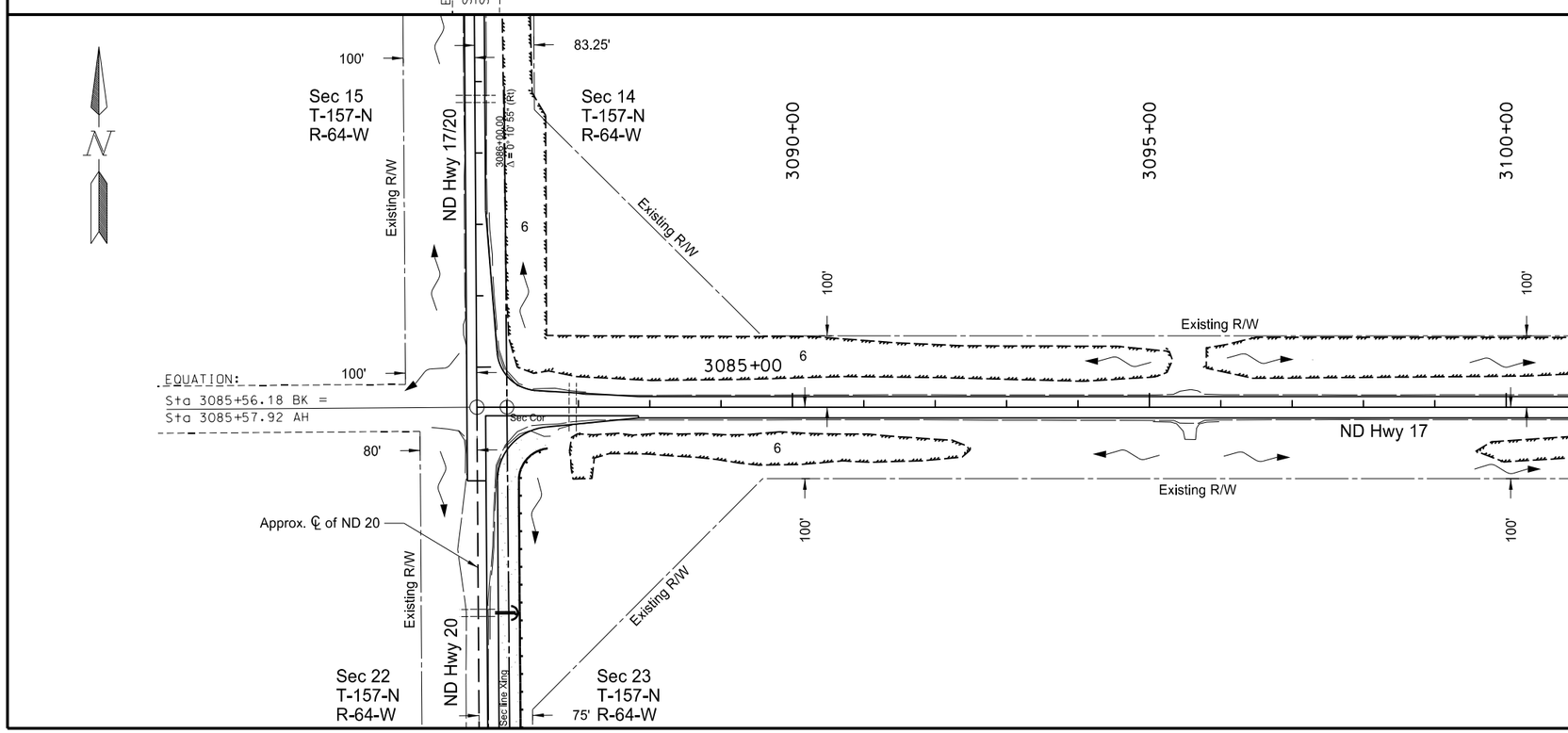
Wetlands, Temporary Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 3040+00 to Sta 3080+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	5





Item	Description	Quantity	Unit
708-1430	Fiber Rolls 12IN Sta 3080+00 Rt to Sta 3100+00 Rt	875	LF
708-1431	Removal Fiber Rolls 12IN Sta 3080+00 Rt to Sta 3100+00 Rt	875	LF
708-2260	Seeding-Type B-CL IV Sta 3080+00 Rt to Sta 3100+00 Rt	0.57	ACRE
708-5500	Mulching Sta 3080+00 Rt to Sta 3100+00 Rt	0.57	ACRE

Note: R/W limits are approximate, based on existing plans.

Temporary Cover Crop (Seeding-Type B-CL IV) Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Temporary Fiber Rolls

Temporary Silt Fence Supported

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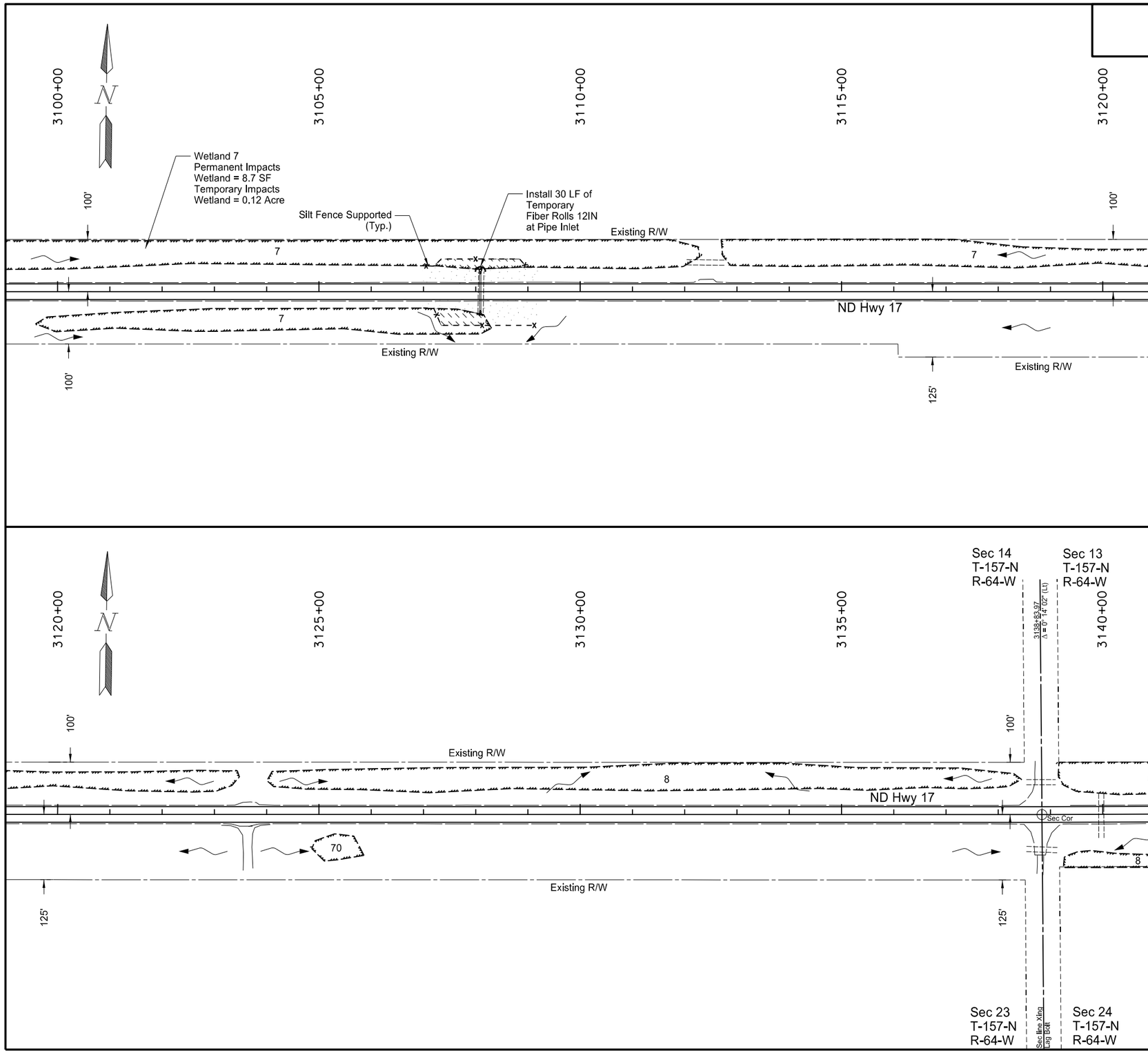
Wetlands, Temporary Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 3080+00 to Sta 3100+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	6



Item	Description	Quantity	Unit
708-1325	Silt Fence Supported		
	Sta 3100+00 Lt to Sta 3140+00 Lt	231	LF
	Sta 3100+00 Rt to Sta 3140+00 Rt	239	LF
708-1335	Removal Silt Fence Supported		
	Sta 3100+00 Lt to Sta 3140+00 Lt	231	LF
	Sta 3100+00 Rt to Sta 3140+00 Rt	239	LF
708-1430	Fiber Rolls 12IN		
	Sta 3100+00 Lt to Sta 3140+00 Lt	30	LF
708-1431	Removal Fiber Rolls 12IN		
	Sta 3100+00 Lt to Sta 3140+00 Lt	30	LF
708-2260	Seeding-Type B-CL IV		
	Sta 3100+00 Lt to Sta 3140+00 Lt	0.15	ACRE
	Sta 3100+00 Rt to Sta 3140+00 Rt	0.16	ACRE
708-5500	Mulching		
	Sta 3100+00 Lt to Sta 3140+00 Lt	0.15	ACRE
	Sta 3100+00 Rt to Sta 3140+00 Rt	0.16	ACRE

Note: R/W limits are approximate, based on existing plans.

Temporary Cover Crop (Seeding-Type B-CL IV) Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Temporary Fiber Rolls

x- - - - -x- - - - Temporary Silt Fence Supported

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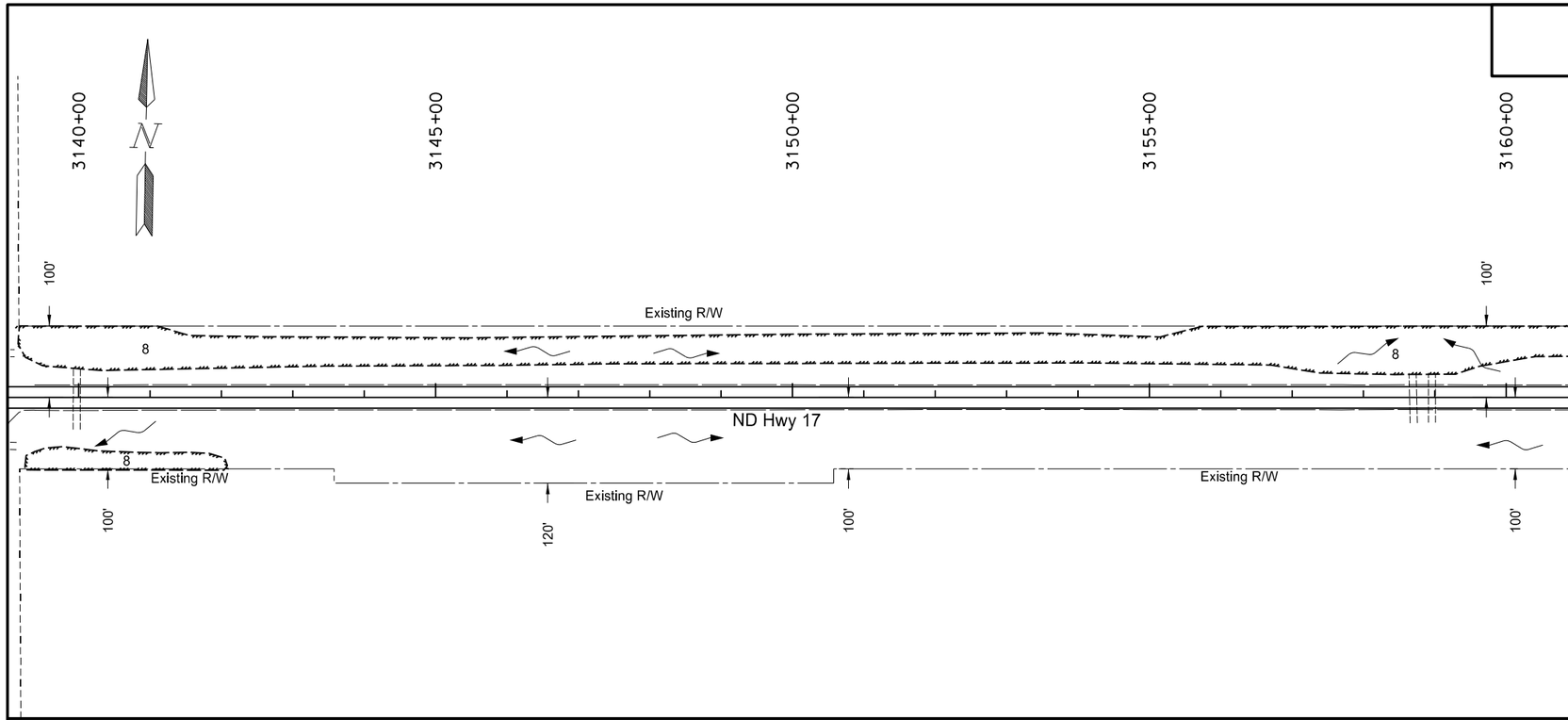
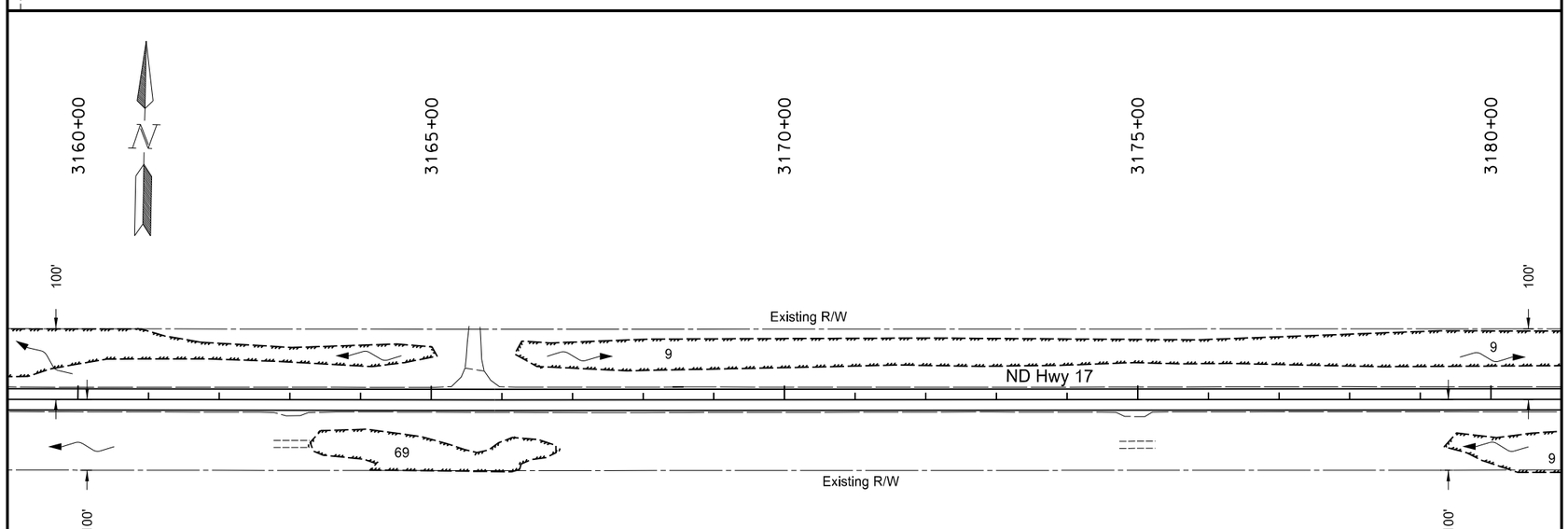
Wetlands, Temporary Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 3100+00 to Sta 3140+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	7





Note: All work from Sta 3140+00 to Sta 3180+00 shall be completed on top of the existing roadway, resulting in no wetland impacts anticipated.

R/W limits are approximate, based on existing plans.

Temporary Cover Crop (Seeding-Type B-CL IV) Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Temporary Fiber Rolls

x- - - - -x- - - - Temporary Silt Fence Supported

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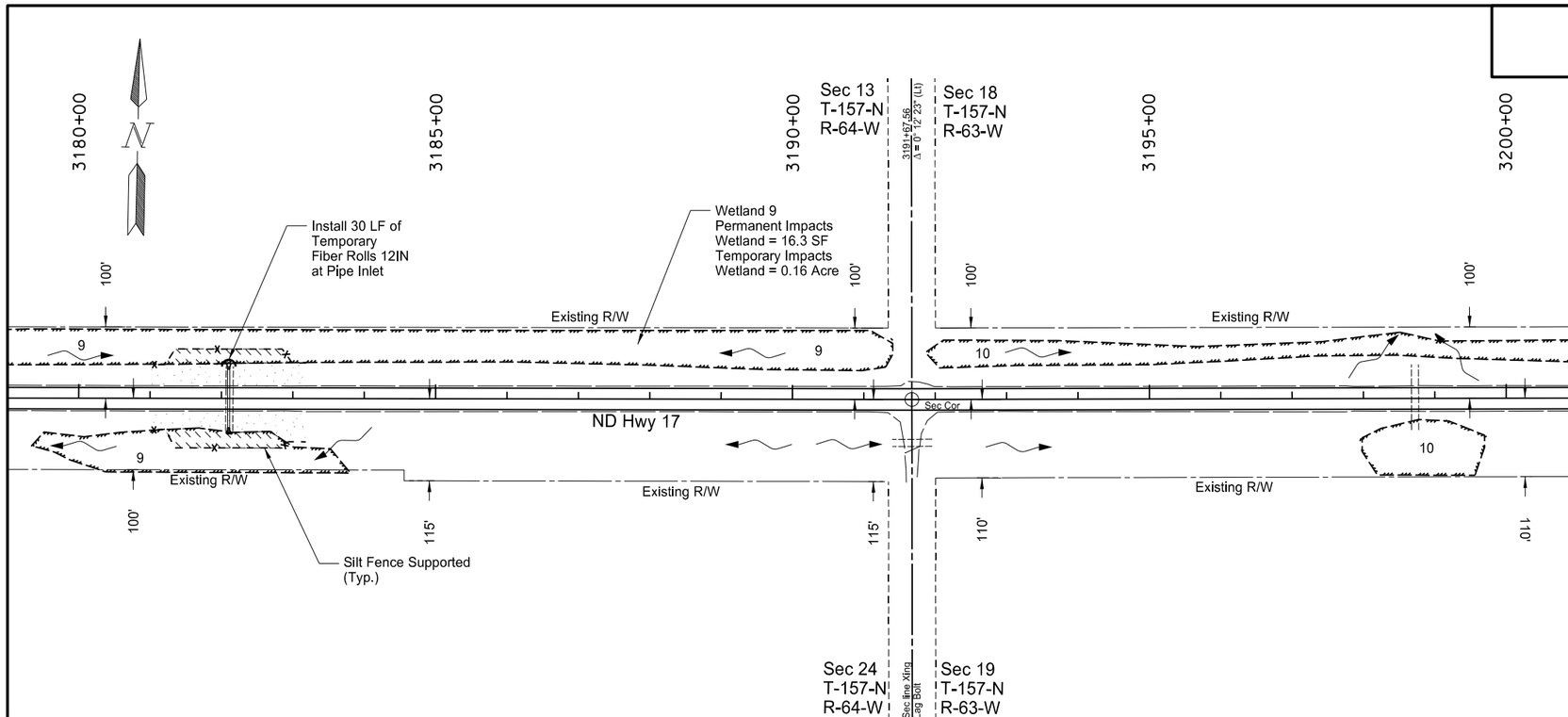
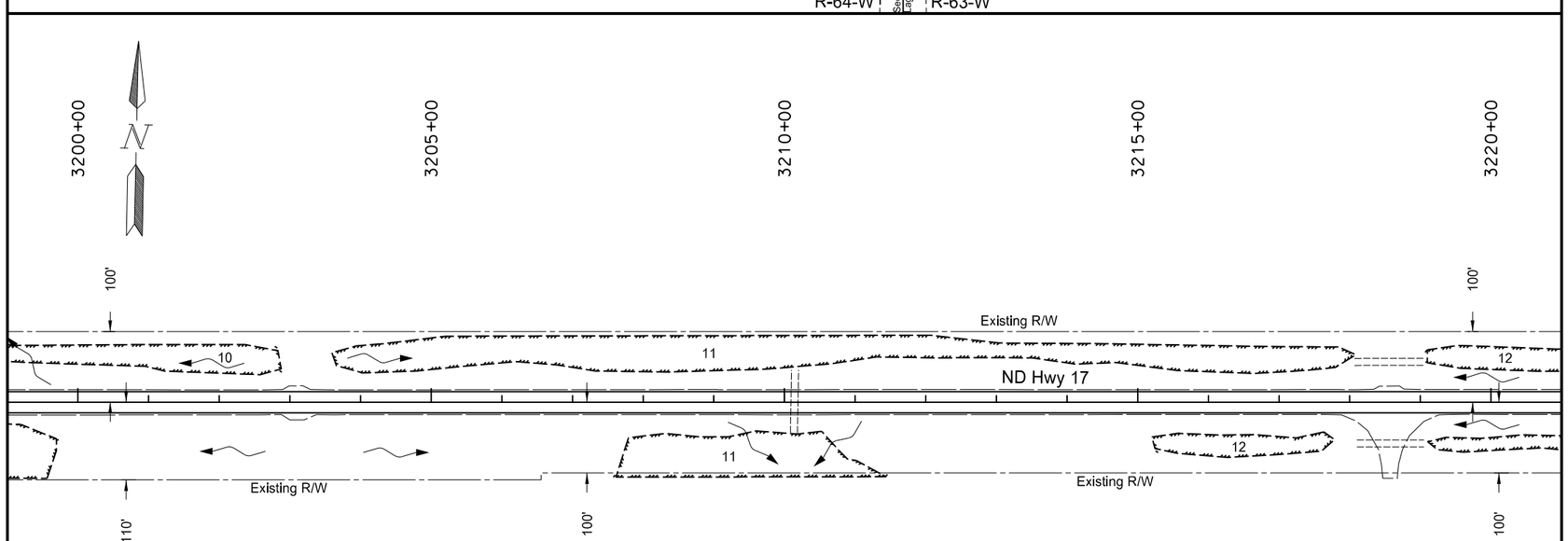
Wetlands, Temporary Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 3140+00 to Sta 3180+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	8





Item	Description	Quantity	Unit
708-1325	Silt Fence Supported		
	Sta 3180+00 Lt to Sta 3220+00 Lt	240	LF
	Sta 3180+00 Rt to Sta 3220+00 Rt	237	LF
708-1335	Removal Silt Fence Supported		
	Sta 3180+00 Lt to Sta 3220+00 Lt	240	LF
	Sta 3180+00 Rt to Sta 3220+00 Rt	237	LF
708-1430	Fiber Rolls 12IN		
	Sta 3180+00 Lt to Sta 3220+00 Lt	30	LF
708-1431	Removal Fiber Rolls 12IN		
	Sta 3180+00 Lt to Sta 3220+00 Lt	30	LF
708-2260	Seeding-Type B-CL IV		
	Sta 3180+00 Lt to Sta 3220+00 Lt	0.17	ACRE
	Sta 3180+00 Rt to Sta 3220+00 Rt	0.16	ACRE
708-5500	Mulching		
	Sta 3180+00 Lt to Sta 3220+00 Lt	0.17	ACRE
	Sta 3180+00 Rt to Sta 3220+00 Rt	0.16	ACRE

Note: R/W limits are approximate, based on existing plans.

Temporary Cover Crop (Seeding-Type B-CL IV) Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Temporary Fiber Rolls

x- - - - -x- - - - Temporary Silt Fence Supported

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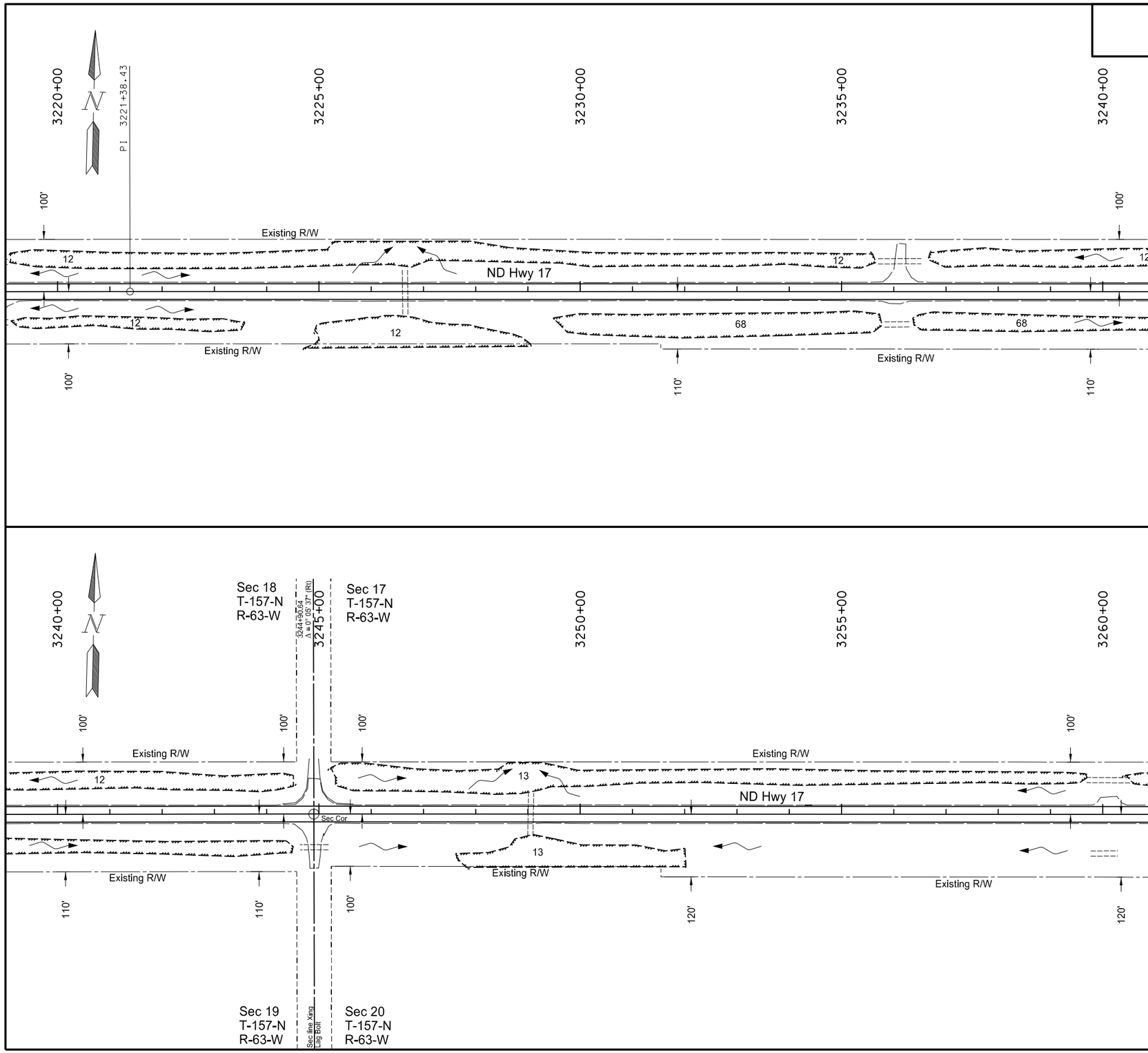
Wetlands, Temporary Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 3180+00 to Sta 3220+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	9



Note: All work from Sta 3220+00 to Sta 3260+00 shall be completed on top of the existing roadway, resulting in no wetland impacts anticipated.

R/W limits are approximate, based on existing plans.

Temporary Cover Crop (Seeding-Type B-CL IV) Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Temporary Fiber Rolls

x- - - - -x- - - - Temporary Silt Fence Supported

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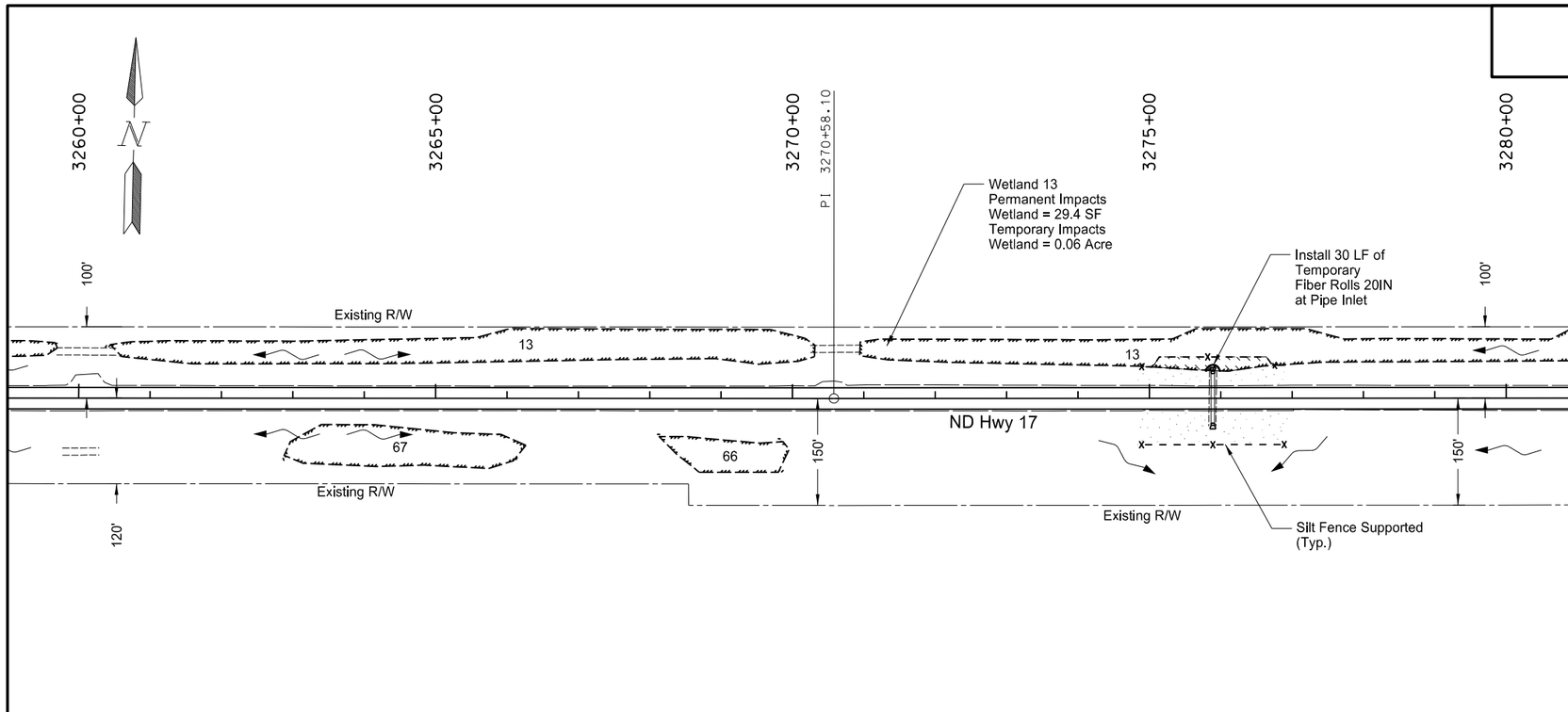
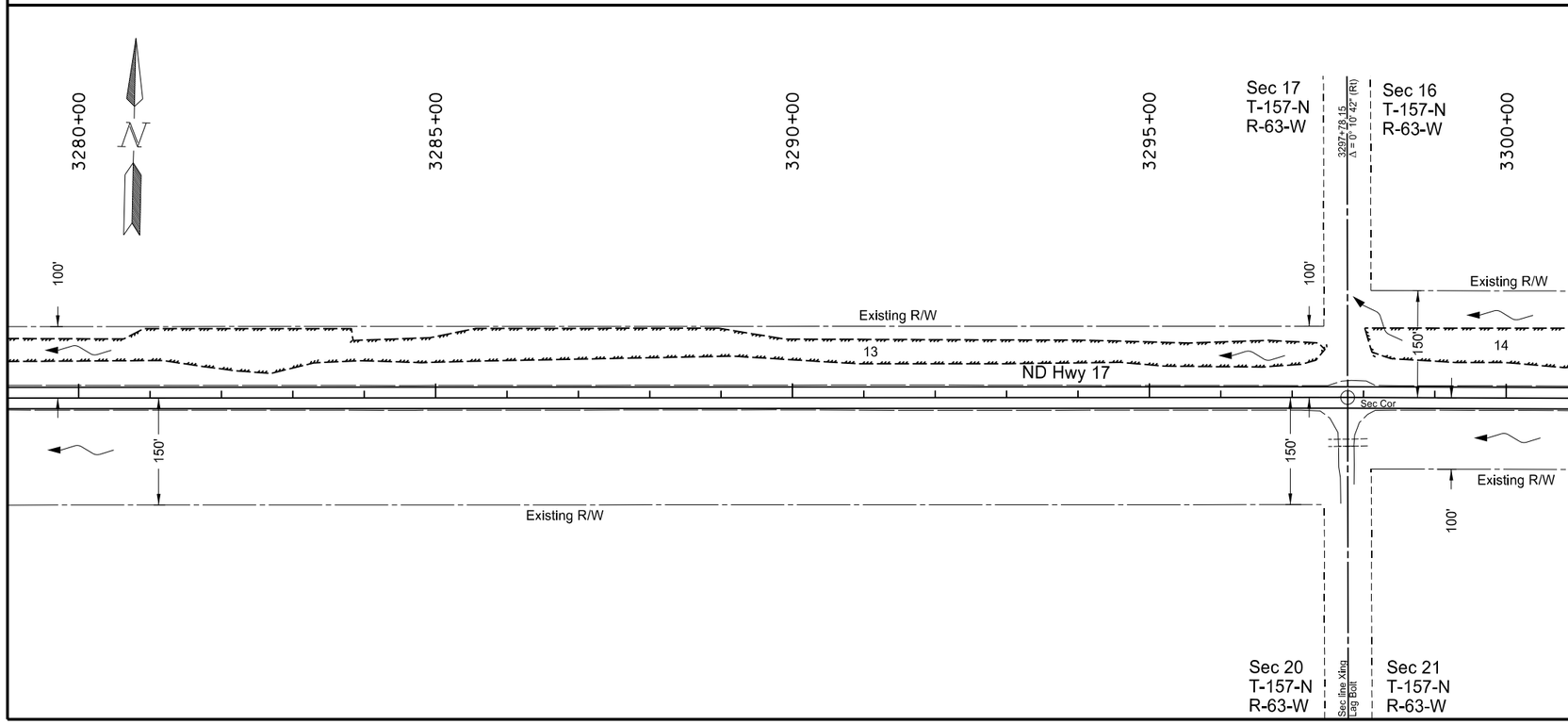
Wetlands, Temporary Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 3220+00 to Sta 3260+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	10





Item	Description	Quantity	Unit
708-1325	Silt Fence Supported		
	Sta 3260+00 Lt to Sta 3300+00 Lt	223	LF
	Sta 3260+00 Rt to Sta 3300+00 Rt	210	LF
708-1335	Removal Silt Fence Supported		
	Sta 3260+00 Lt to Sta 3300+00 Lt	223	LF
	Sta 3260+00 Rt to Sta 3300+00 Rt	210	LF
708-1460	Fiber Rolls 20IN		
	Sta 3260+00 Lt to Sta 3300+00 Lt	30	LF
708-1461	Removal Fiber Rolls 20IN		
	Sta 3260+00 Lt to Sta 3300+00 Lt	30	LF
708-2260	Seeding-Type B-CL IV		
	Sta 3260+00 Lt to Sta 3300+00 Lt	0.12	ACRE
	Sta 3260+00 Rt to Sta 3300+00 Rt	0.24	ACRE
708-5500	Mulching		
	Sta 3260+00 Lt to Sta 3300+00 Lt	0.12	ACRE
	Sta 3260+00 Rt to Sta 3300+00 Rt	0.24	ACRE

Note: R/W limits are approximate, based on existing plans.

Temporary Cover Crop (Seeding-Type B-CL IV) Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Temporary Fiber Rolls

Temporary Silt Fence Supported

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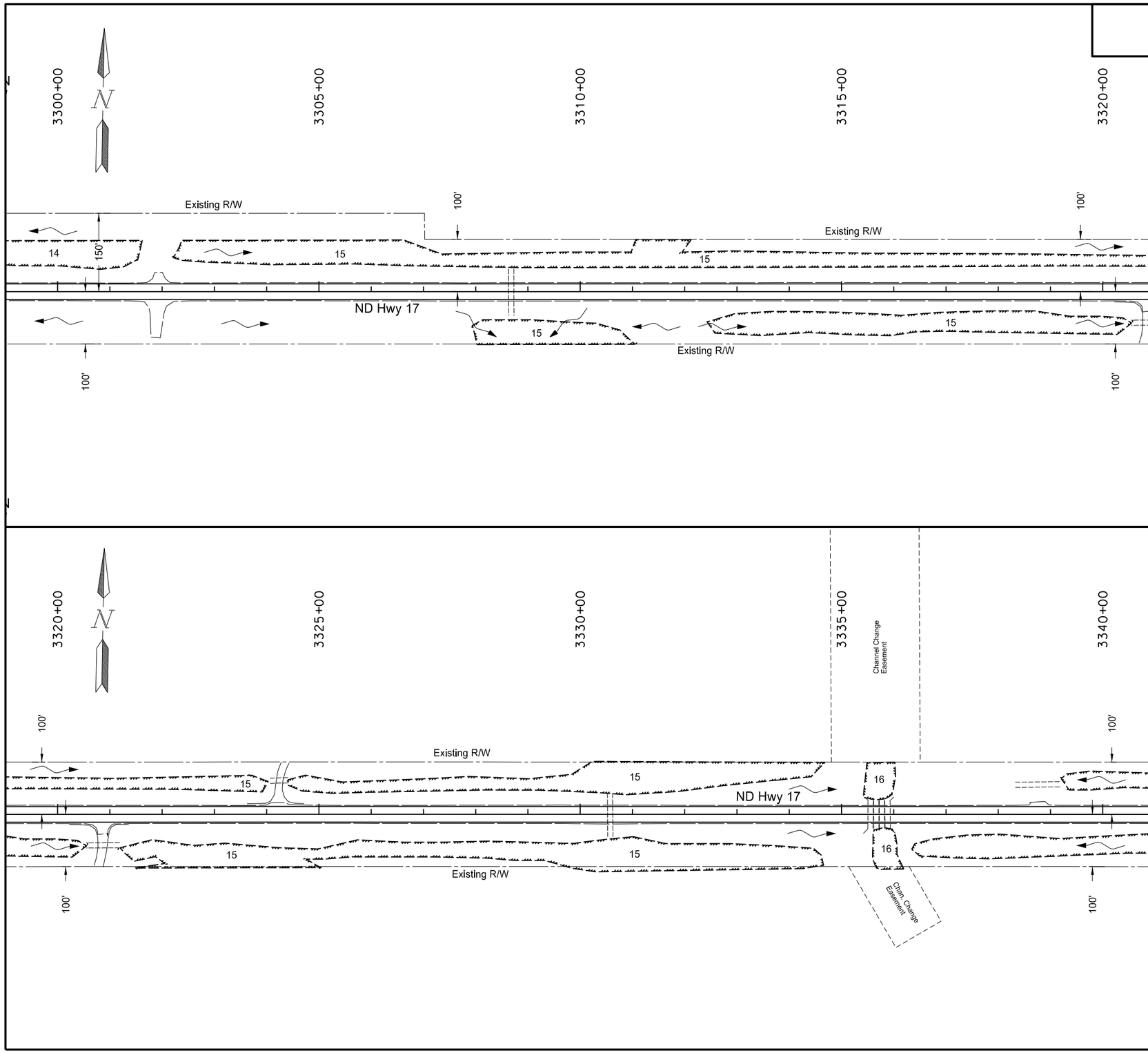
Wetlands, Temporary Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 3260+00 to Sta 3300+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	11



Note: All work from Sta 3300+00 to Sta 3340+00 shall be completed on top of the existing roadway, resulting in no wetland impacts anticipated.

R/W limits are approximate, based on existing plans.

Temporary Cover Crop (Seeding-Type B-CL IV) Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Temporary Fiber Rolls

Temporary Silt Fence Supported

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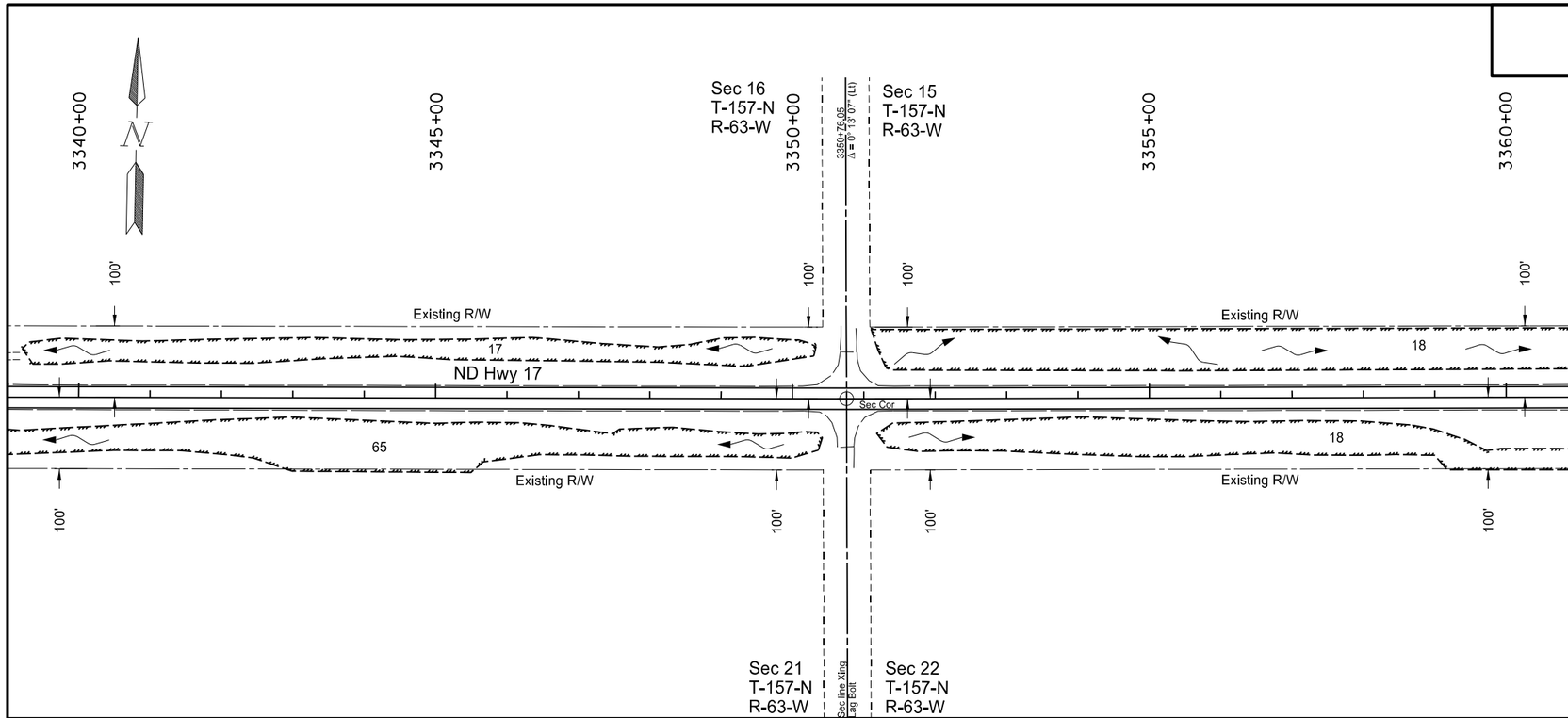
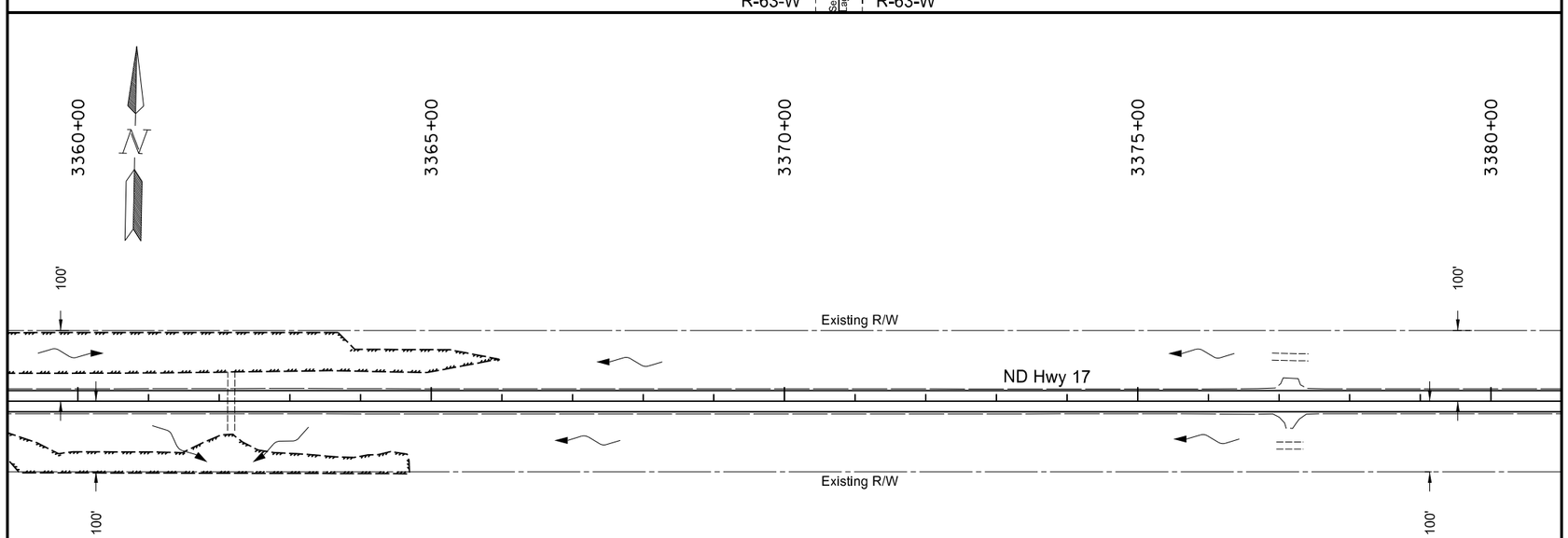
Wetlands, Temporary Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 3300+00 to Sta 3340+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	12





Note: All work from Sta 3340+00 to Sta 3380+00 shall be completed on top of the existing roadway, resulting in no wetland impacts anticipated.

R/W limits are approximate, based on existing plans.

Temporary Cover Crop (Seeding-Type B-CL IV) Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Temporary Fiber Rolls

x- - - - -x- - - - Temporary Silt Fence Supported

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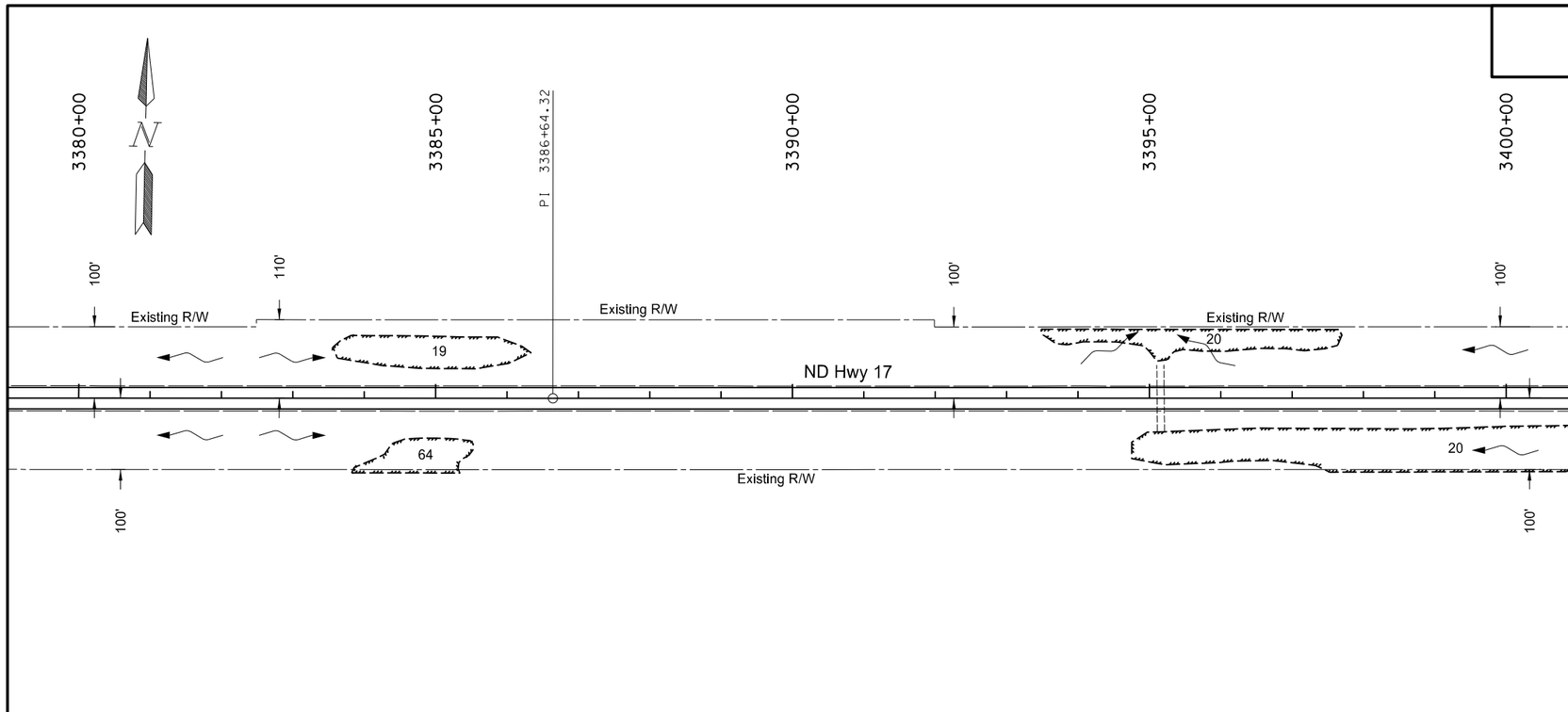
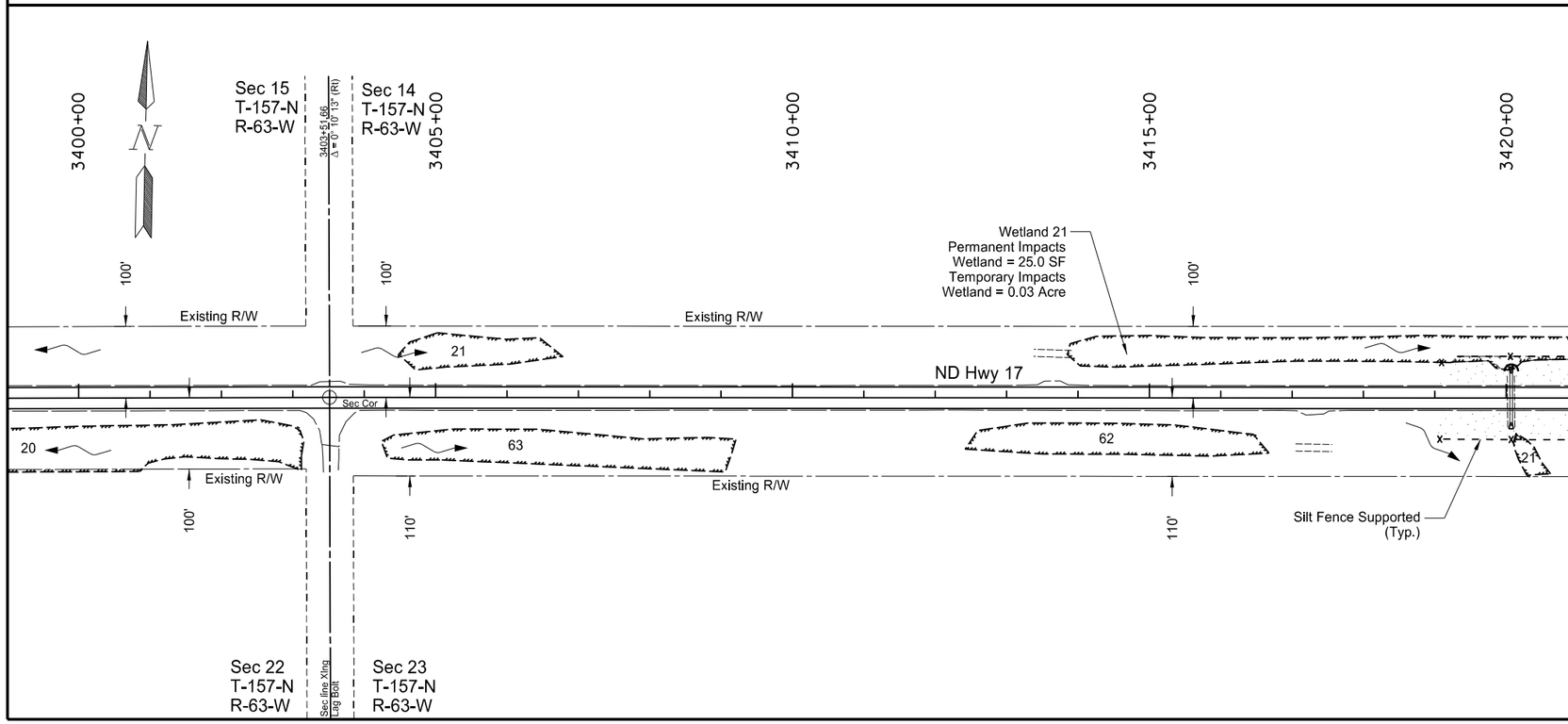
Wetlands, Temporary Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 3340+00 to Sta 3380+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	13





Item	Description	Quantity	Unit
708-1325	Silt Fence Supported		
	Sta 3380+00 Lt to Sta 3420+00 Lt	100	LF
	Sta 3380+00 Rt to Sta 3420+00 Rt	98	LF
708-1335	Removal Silt Fence Supported		
	Sta 3380+00 Lt to Sta 3420+00 Lt	100	LF
	Sta 3380+00 Rt to Sta 3420+00 Rt	98	LF
708-2260	Seeding-Type B-CL IV		
	Sta 3380+00 Lt to Sta 3420+00 Lt	0.07	ACRE
	Sta 3380+00 Rt to Sta 3420+00 Rt	0.09	ACRE
708-5500	Mulching		
	Sta 3380+00 Lt to Sta 3420+00 Lt	0.07	ACRE
	Sta 3380+00 Rt to Sta 3420+00 Rt	0.09	ACRE

Note: R/W limits are approximate, based on existing plans.

Temporary Cover Crop (Seeding-Type B-CL IV) Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Temporary Fiber Rolls

x- - - - -x- - - - Temporary Silt Fence Supported

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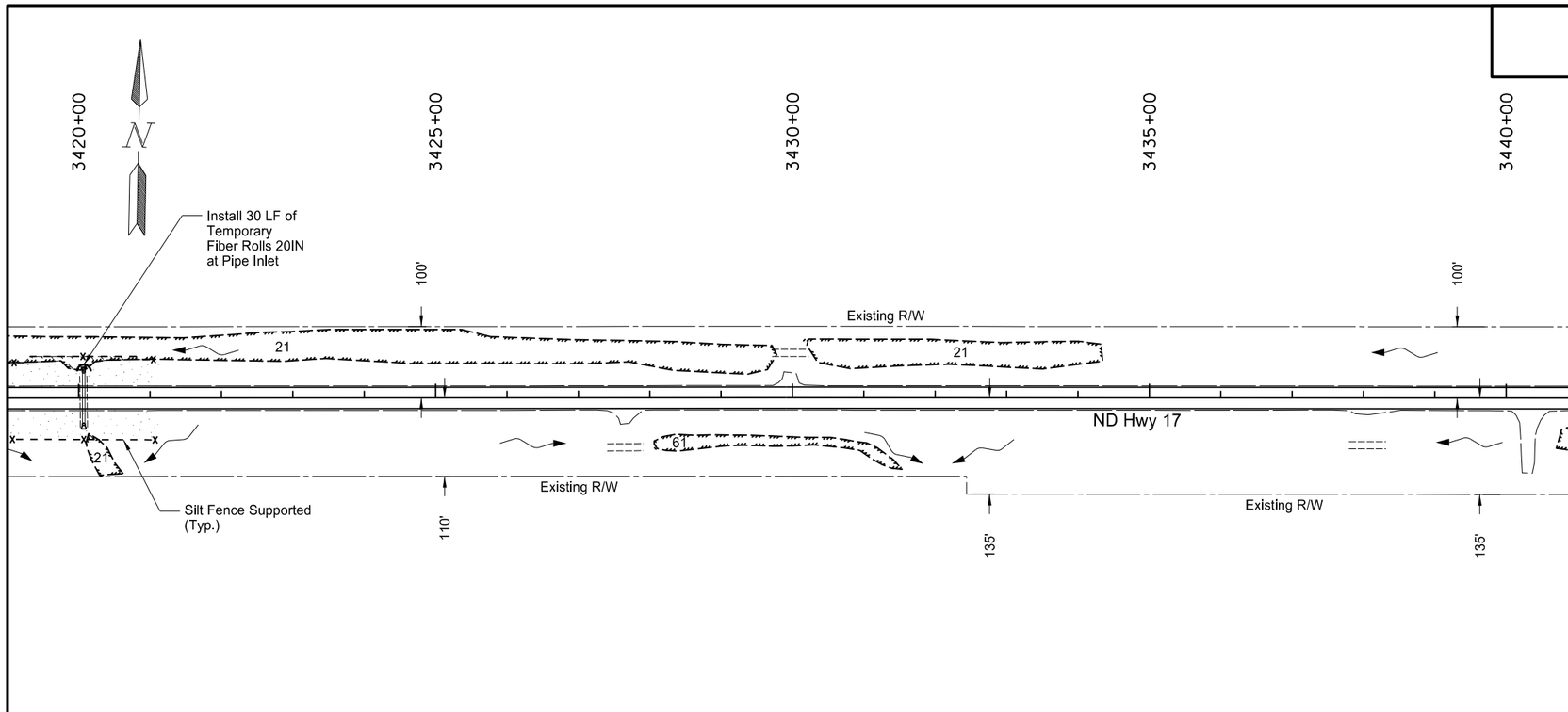
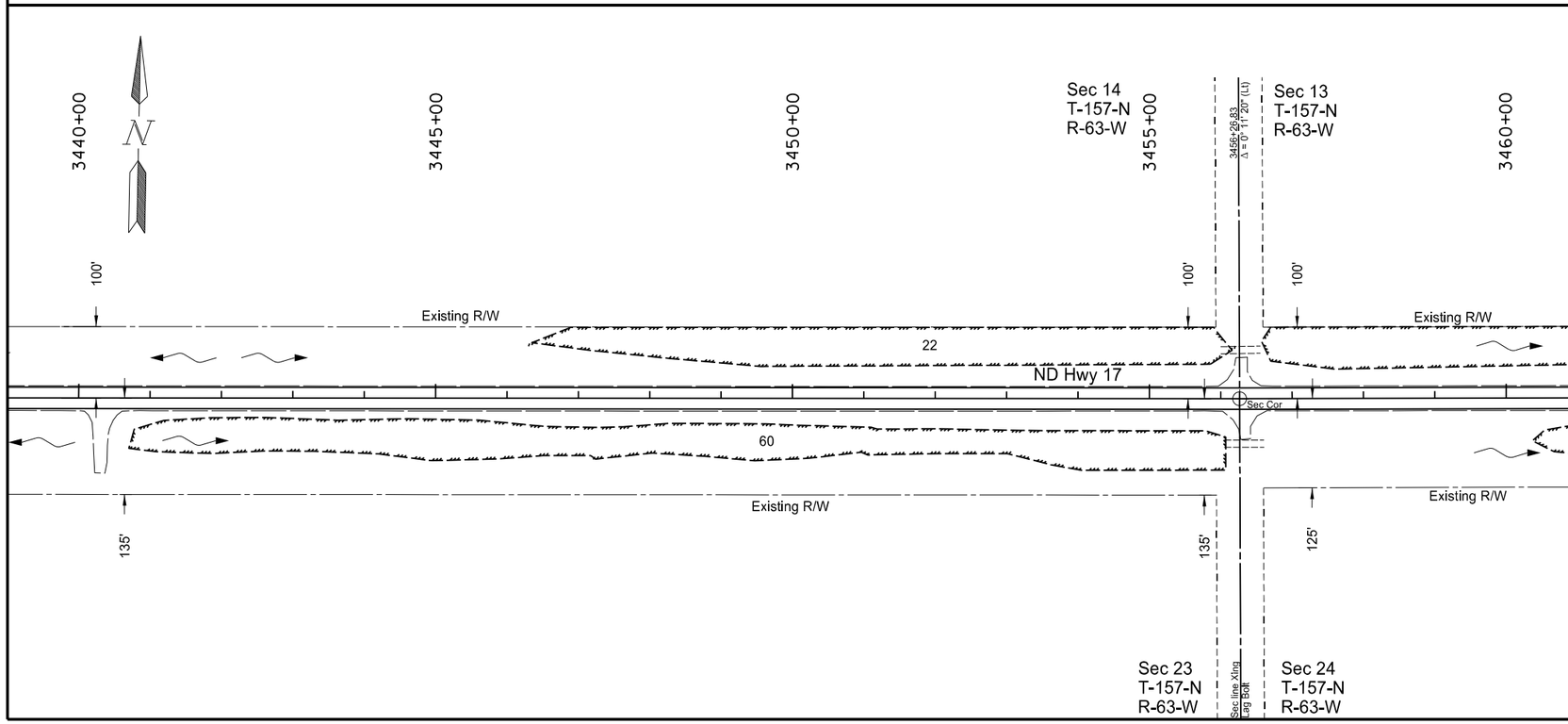
Wetlands, Temporary Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 3380+00 to Sta 3420+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	14





Item	Description	Quantity	Unit
708-1325	Silt Fence Supported		
	Sta 3420+00 Lt to Sta 3460+00 Lt	111	LF
	Sta 3420+00 Rt to Sta 3460+00 Rt	112	LF
708-1335	Removal Silt Fence Supported		
	Sta 3420+00 Lt to Sta 3460+00 Lt	111	LF
	Sta 3420+00 Rt to Sta 3460+00 Rt	112	LF
708-1460	Fiber Rolls 20IN		
	Sta 3420+00 Lt to Sta 3460+00 Lt	30	LF
708-1461	Removal Fiber Rolls 20IN		
	Sta 3420+00 Lt to Sta 3460+00 Lt	30	LF
708-2260	Seeding-Type B-CL IV		
	Sta 3420+00 Lt to Sta 3460+00 Lt	0.09	ACRE
	Sta 3420+00 Rt to Sta 3460+00 Rt	0.11	ACRE
708-5500	Mulching		
	Sta 3420+00 Lt to Sta 3460+00 Lt	0.09	ACRE
	Sta 3420+00 Rt to Sta 3460+00 Rt	0.11	ACRE

Note: R/W limits are approximate, based on existing plans.

Temporary Cover Crop (Seeding-Type B-CL IV) Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Temporary Fiber Rolls

x- - - - -x- - - - Temporary Silt Fence Supported

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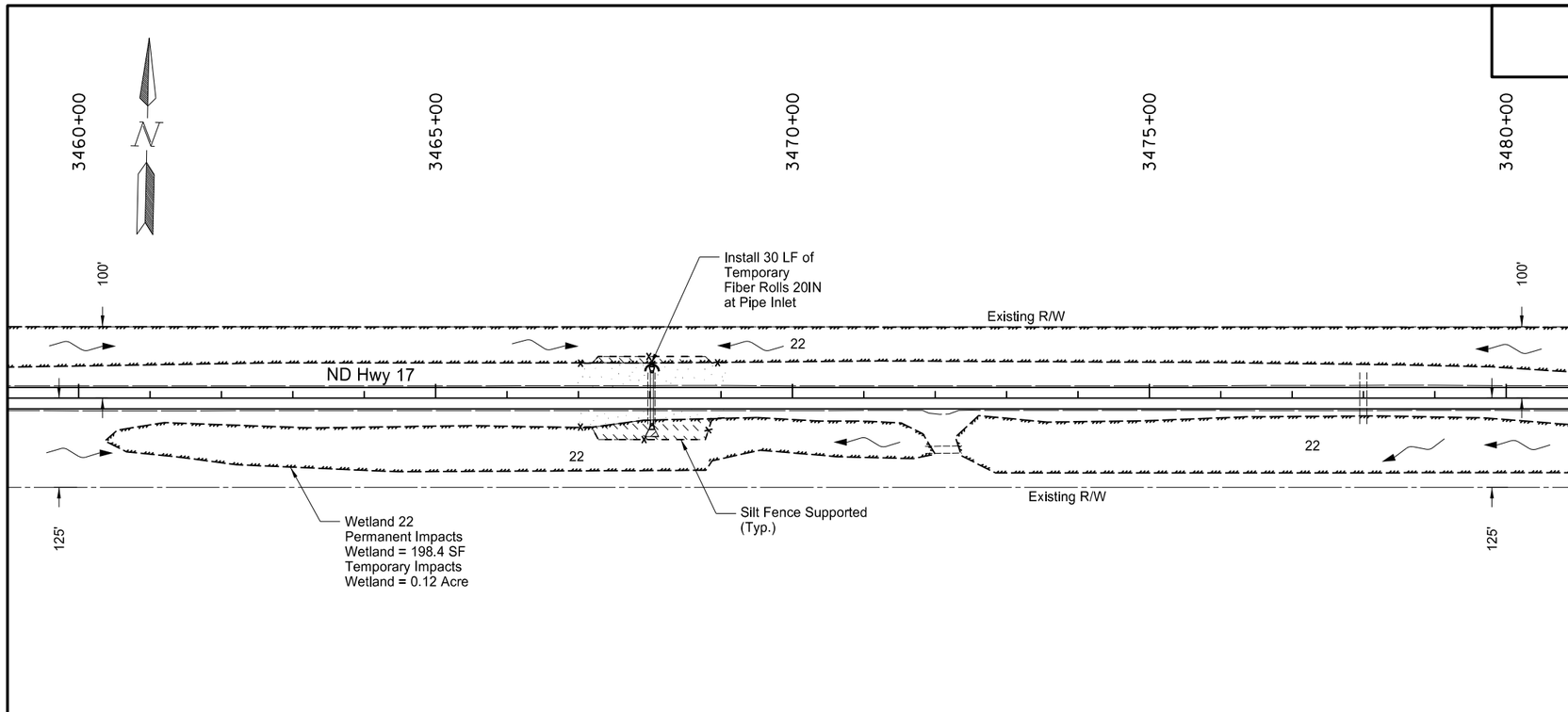
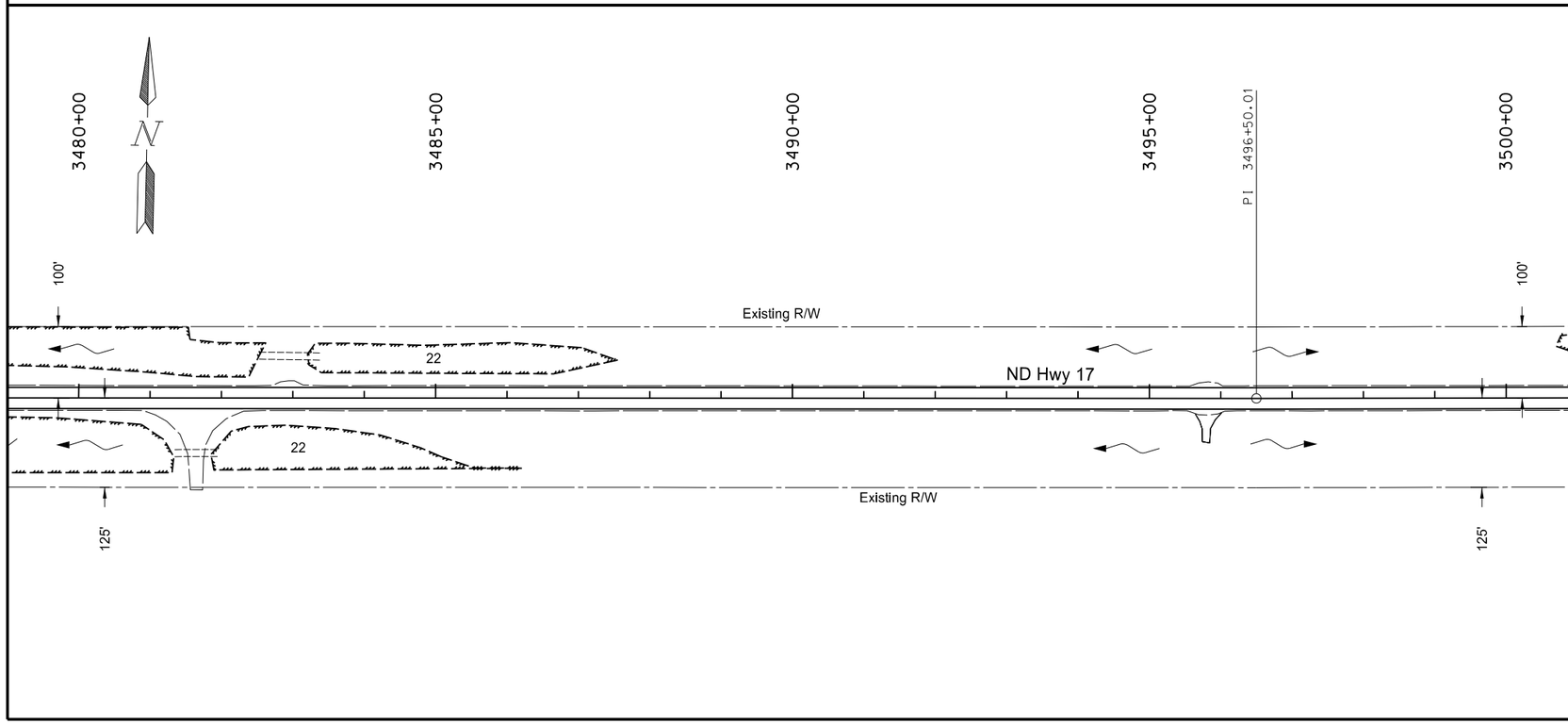
Wetlands, Temporary Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 3420+00 to Sta 3460+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	15





Item	Description	Quantity	Unit
708-1325	Silt Fence Supported		
	Sta 3460+00 Lt to Sta 3500+00 Lt	218	LF
	Sta 3460+00 Rt to Sta 3500+00 Rt	243	LF
708-1335	Removal Silt Fence Supported		
	Sta 3460+00 Lt to Sta 3500+00 Lt	218	LF
	Sta 3460+00 Rt to Sta 3500+00 Rt	243	LF
708-1460	Fiber Rolls 20IN		
	Sta 3460+00 Lt to Sta 3500+00 Lt	30	LF
708-1461	Removal Fiber Rolls 20IN		
	Sta 3460+00 Lt to Sta 3500+00 Lt	30	LF
708-2260	Seeding-Type B-CL IV		
	Sta 3460+00 Lt to Sta 3500+00 Lt	0.16	ACRE
	Sta 3460+00 Rt to Sta 3500+00 Rt	0.08	ACRE
708-5500	Mulching		
	Sta 3460+00 Lt to Sta 3500+00 Lt	0.16	ACRE
	Sta 3460+00 Rt to Sta 3500+00 Rt	0.08	ACRE

Note: R/W limits are approximate, based on existing plans.

Temporary Cover Crop (Seeding-Type B-CL IV) Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Temporary Fiber Rolls

x- - - - -x- - - - Temporary Silt Fence Supported

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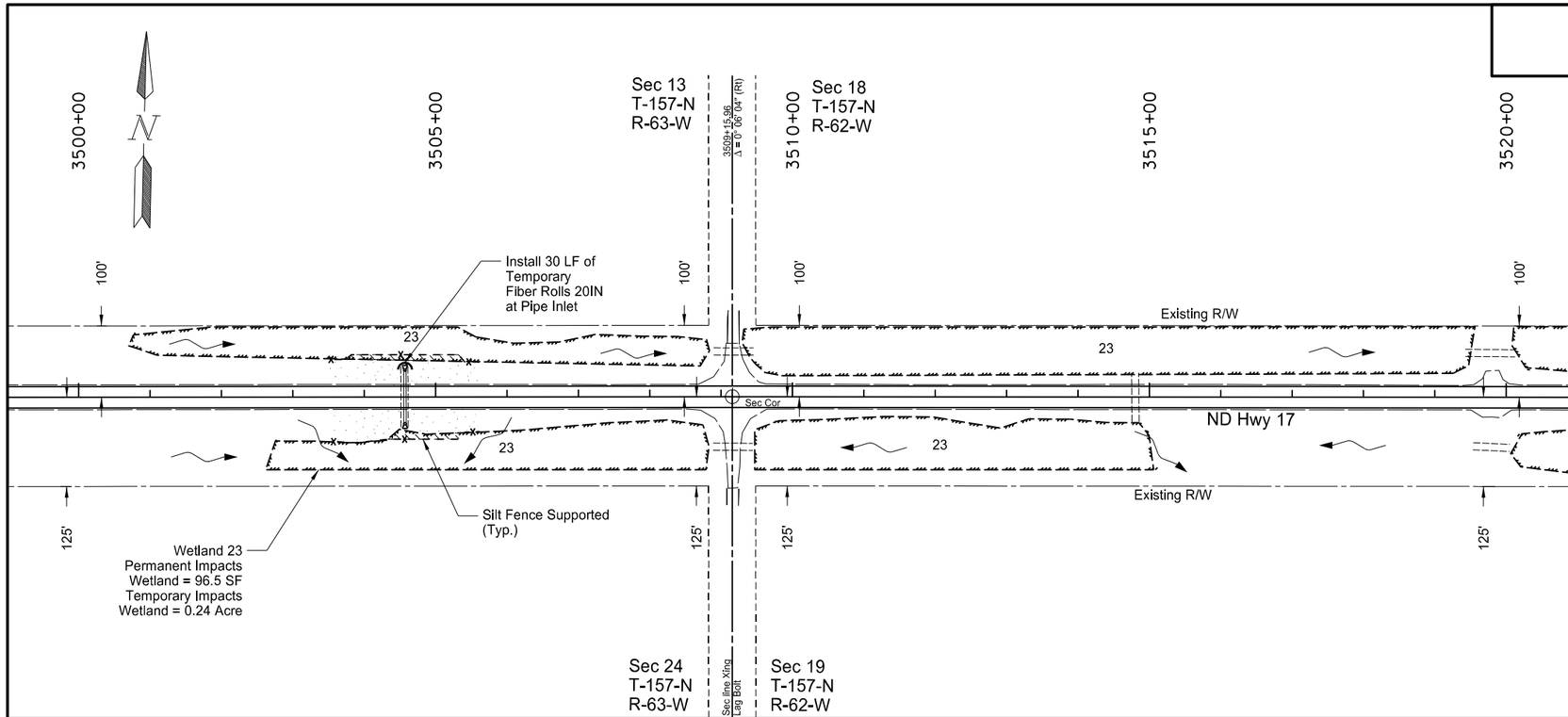
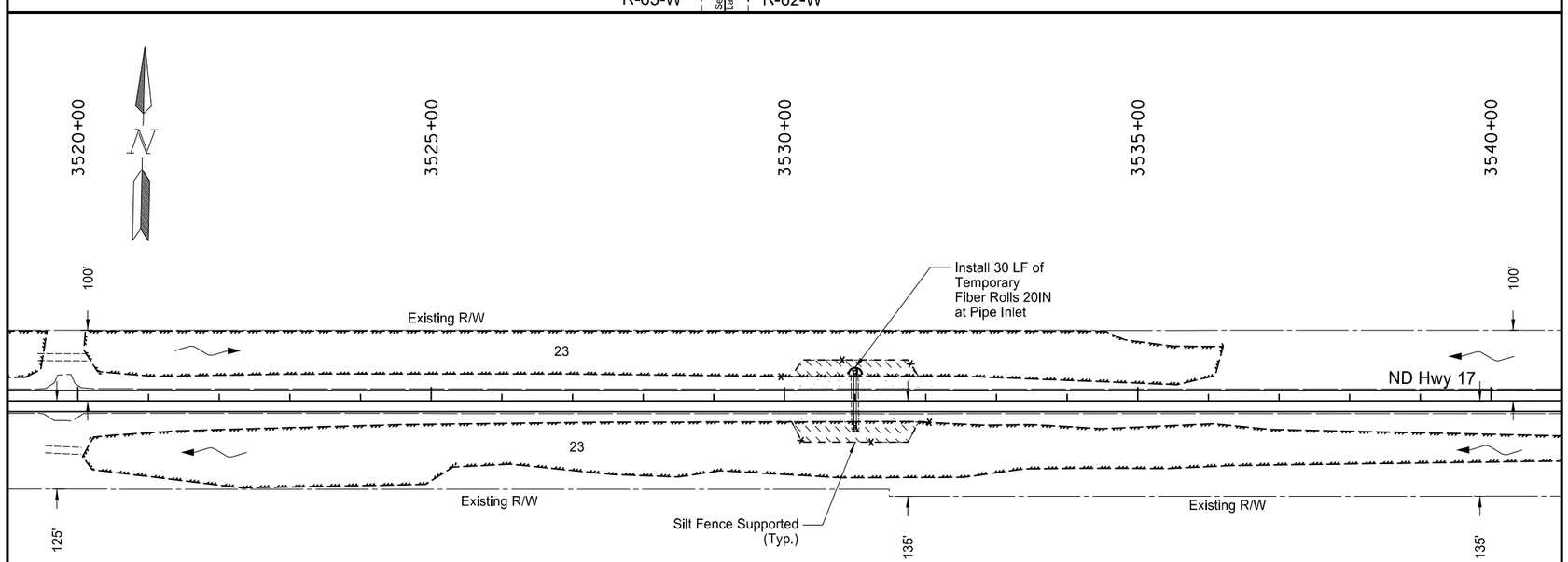
Wetlands, Temporary Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 3460+00 to Sta 3500+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	16





Item	Description	Quantity	Unit
708-1325	Silt Fence Supported		
	Sta 3500+00 Lt to Sta 3540+00 Lt	466	LF
	Sta 3500+00 Rt to Sta 3540+00 Rt	470	LF
708-1335	Removal Silt Fence Supported		
	Sta 3500+00 Lt to Sta 3540+00 Lt	466	LF
	Sta 3500+00 Rt to Sta 3540+00 Rt	470	LF
708-1460	Fiber Rolls 20IN		
	Sta 3500+00 Lt to Sta 3540+00 Lt	60	LF
708-1461	Removal Fiber Rolls 20IN		
	Sta 3500+00 Lt to Sta 3540+00 Lt	60	LF
708-2260	Seeding-Type B-CL IV		
	Sta 3500+00 Lt to Sta 3540+00 Lt	0.26	ACRE
	Sta 3500+00 Rt to Sta 3540+00 Rt	0.25	ACRE
708-5500	Mulching		
	Sta 3500+00 Lt to Sta 3540+00 Lt	0.26	ACRE
	Sta 3500+00 Rt to Sta 3540+00 Rt	0.25	ACRE

Note: R/W limits are approximate, based on existing plans.

Temporary Cover Crop (Seeding-Type B-CL IV) Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Temporary Fiber Rolls

x- - - - -x- - - - Temporary Silt Fence Supported

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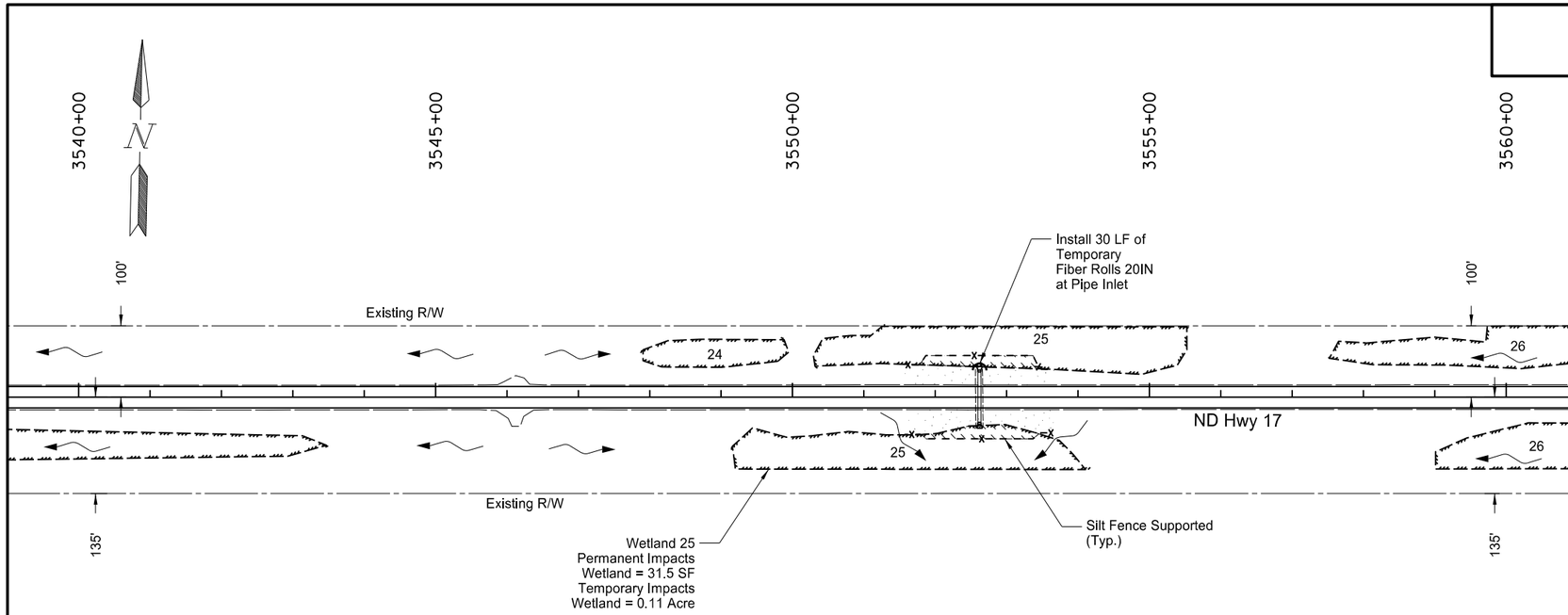
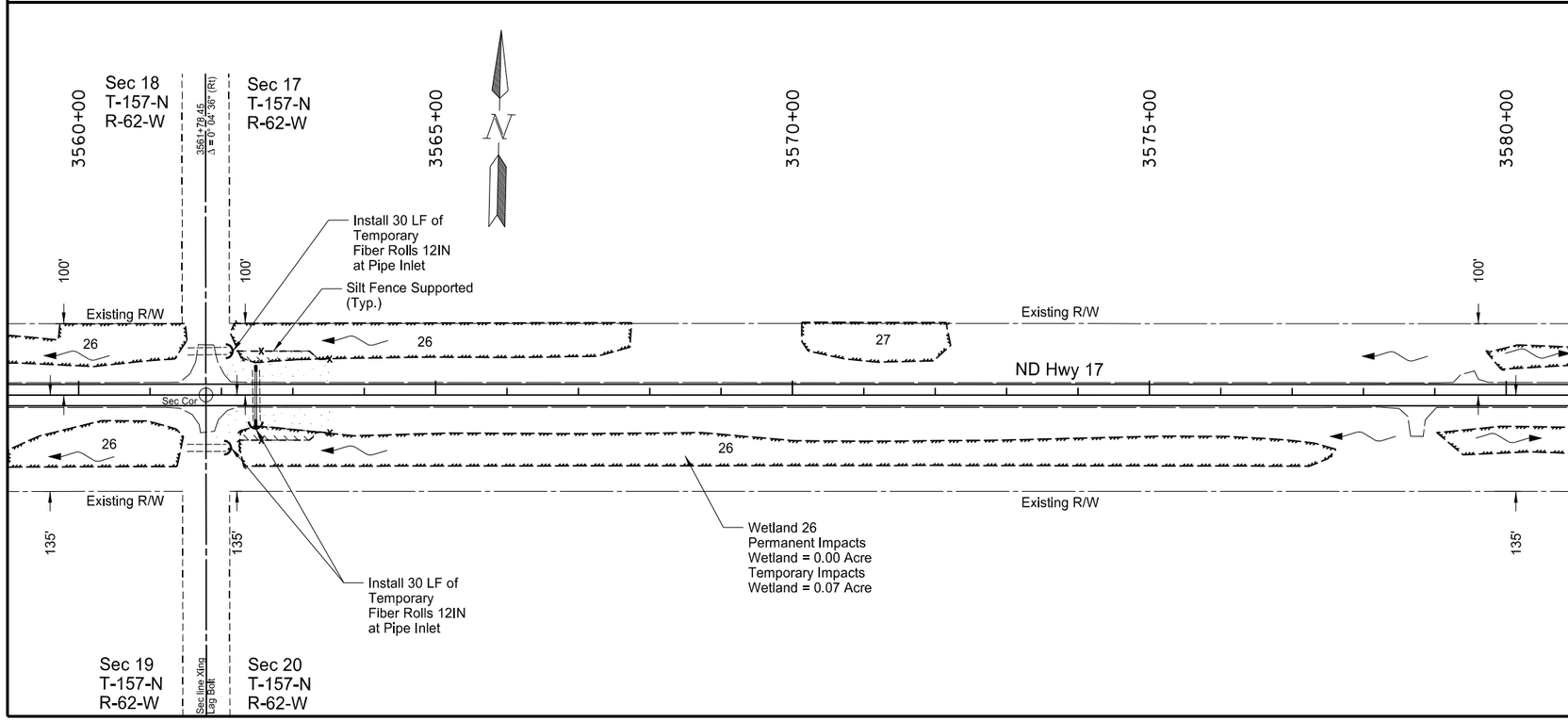
Wetlands, Temporary Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 3500+00 to Sta 3540+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	17





Item	Description	Quantity	Unit
708-1325	Silt Fence Supported		
	Sta 3540+00 Lt to Sta 3580+00 Lt	374	LF
	Sta 3540+00 Rt to Sta 3580+00 Rt	367	LF
708-1335	Removal Silt Fence Supported		
	Sta 3540+00 Lt to Sta 3580+00 Lt	374	LF
	Sta 3540+00 Rt to Sta 3580+00 Rt	367	LF
708-1430	Fiber Rolls 12IN		
	Sta 3540+00 Lt to Sta 3580+00 Lt	30	LF
	Sta 3540+00 Rt to Sta 3580+00 Rt	60	LF
708-1431	Removal Fiber Rolls 12IN		
	Sta 3540+00 Lt to Sta 3580+00 Lt	30	LF
	Sta 3540+00 Rt to Sta 3580+00 Rt	60	LF
708-1460	Fiber Rolls 20IN		
	Sta 3540+00 Lt to Sta 3580+00 Lt	30	LF
708-1461	Removal Fiber Rolls 20IN		
	Sta 3540+00 Lt to Sta 3580+00 Lt	30	LF
708-2260	Seeding-Type B-CL IV		
	Sta 3540+00 Lt to Sta 3580+00 Lt	0.25	ACRE
	Sta 3540+00 Rt to Sta 3580+00 Rt	0.27	ACRE
708-5500	Mulching		
	Sta 3540+00 Lt to Sta 3580+00 Lt	0.25	ACRE
	Sta 3540+00 Rt to Sta 3580+00 Rt	0.27	ACRE

Note: R/W limits are approximate, based on existing plans.

Temporary Cover Crop (Seeding-Type B-CL IV) Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Temporary Fiber Rolls

x- - - - -x- - - - Temporary Silt Fence Supported

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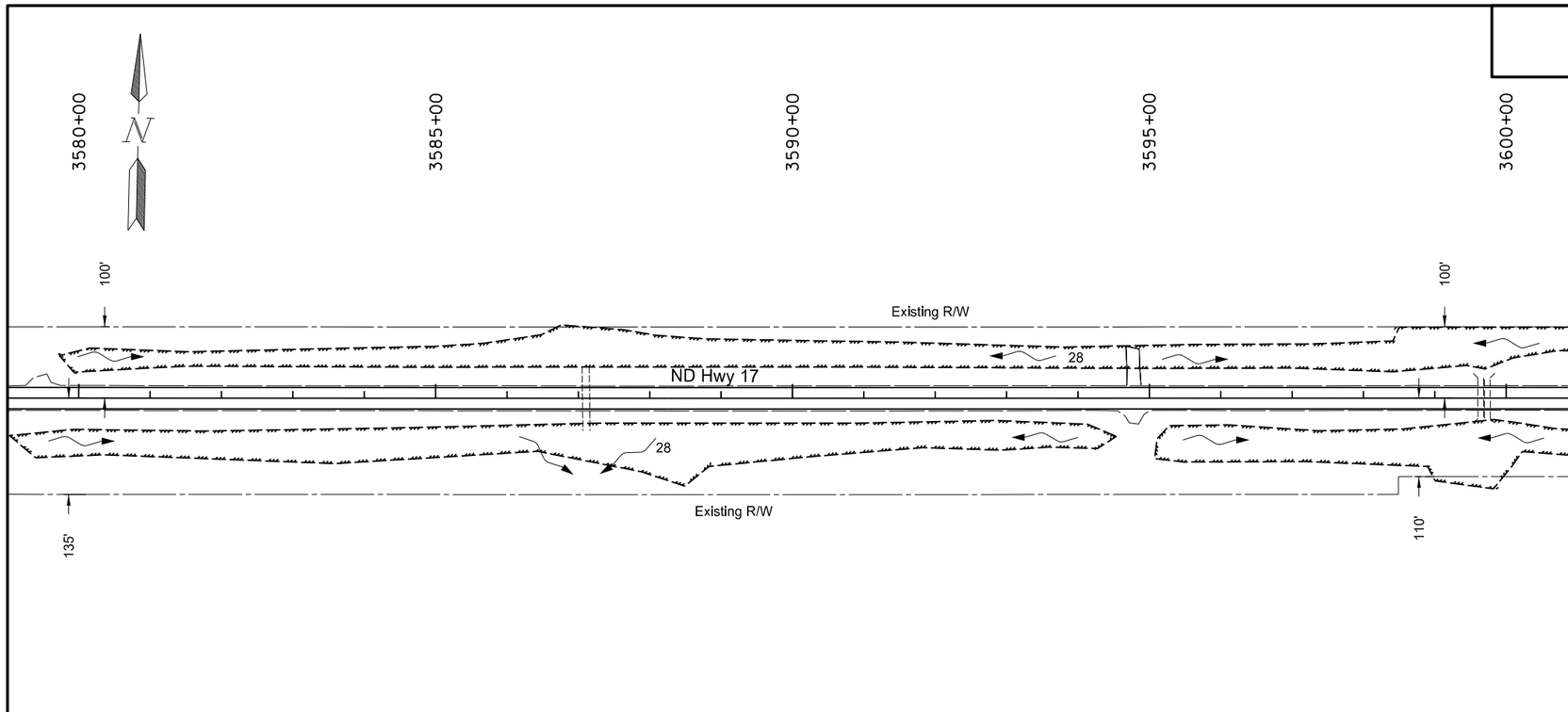
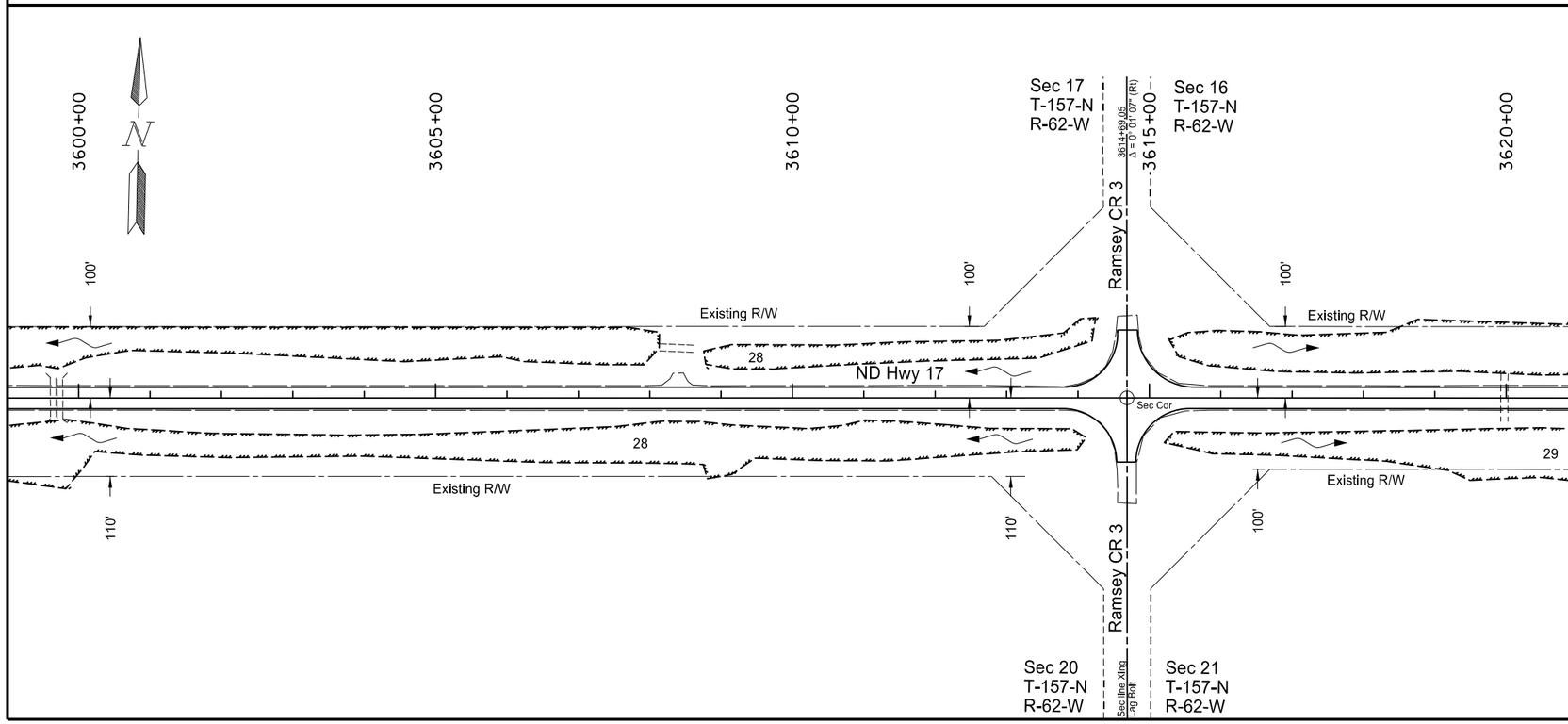
Wetlands, Temporary Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 3540+00 to Sta 3580+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	18





Note: All work from Sta 3580+00 to Sta 3620+00 shall be completed on top of the existing roadway, resulting in no wetland impacts anticipated.

R/W limits are approximate, based on existing plans.

Temporary Cover Crop (Seeding-Type B-CL IV) Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Temporary Fiber Rolls

Temporary Silt Fence Supported

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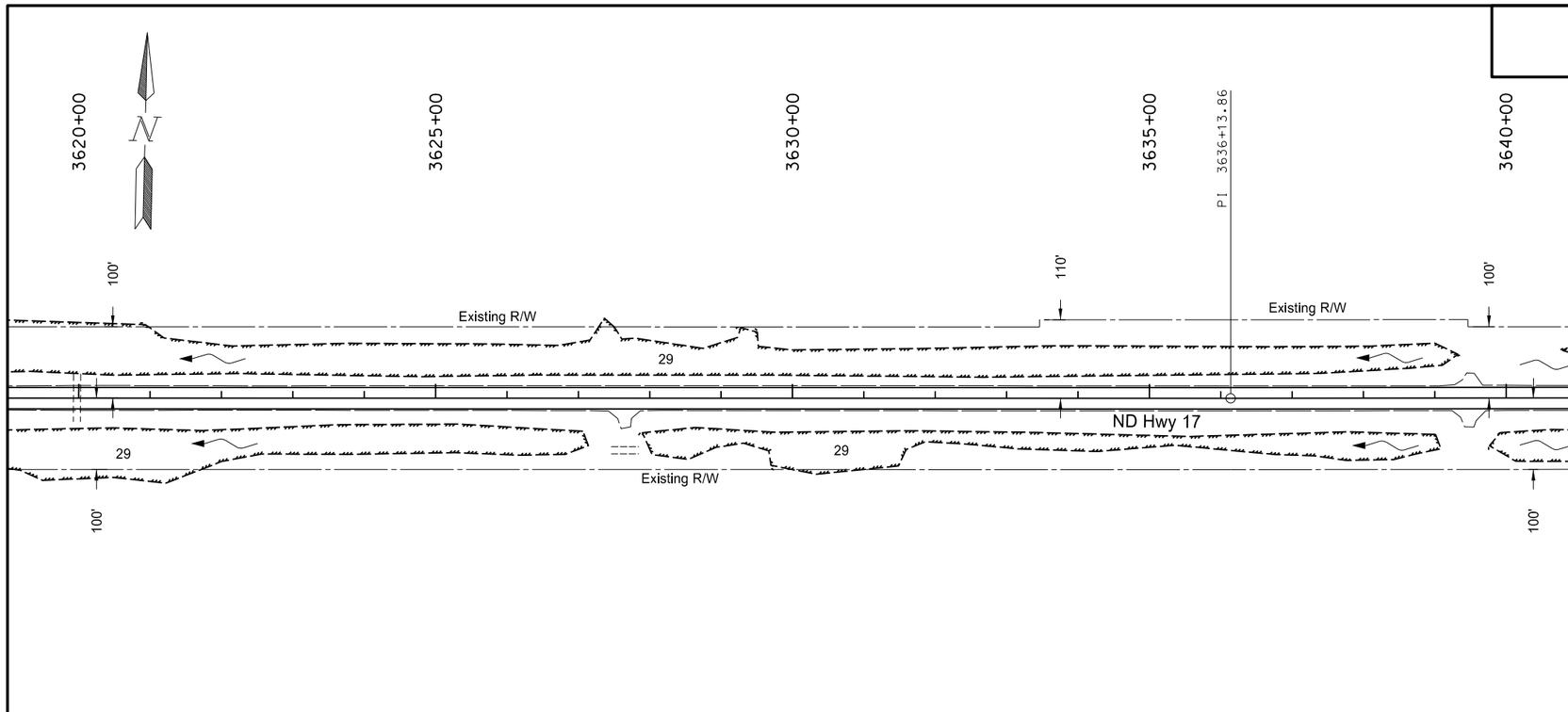
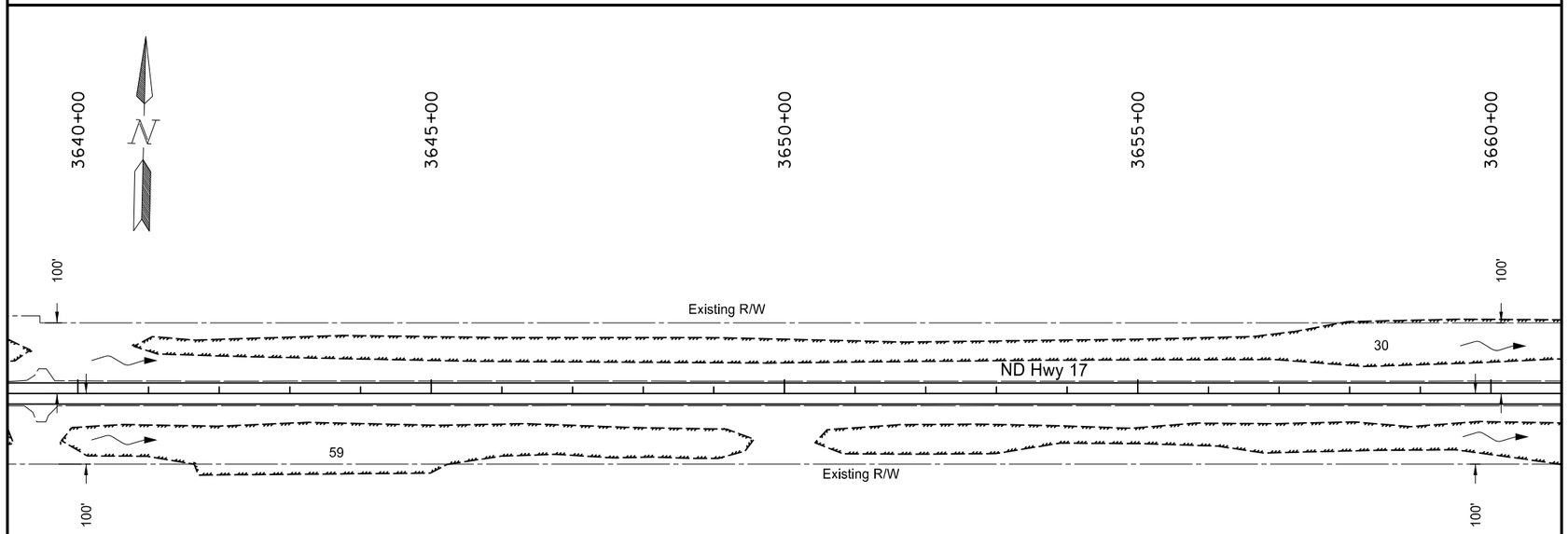
Wetlands, Temporary Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 3580+00 to Sta 3620+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	19





Note: All work from Sta 3620+00 to Sta 3660+00 shall be completed on top of the existing roadway, resulting in no wetland impacts anticipated.

R/W limits are approximate, based on existing plans.

Temporary Cover Crop (Seeding-Type B-CL IV) Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Temporary Fiber Rolls

x- - - - -x- - - - Temporary Silt Fence Supported

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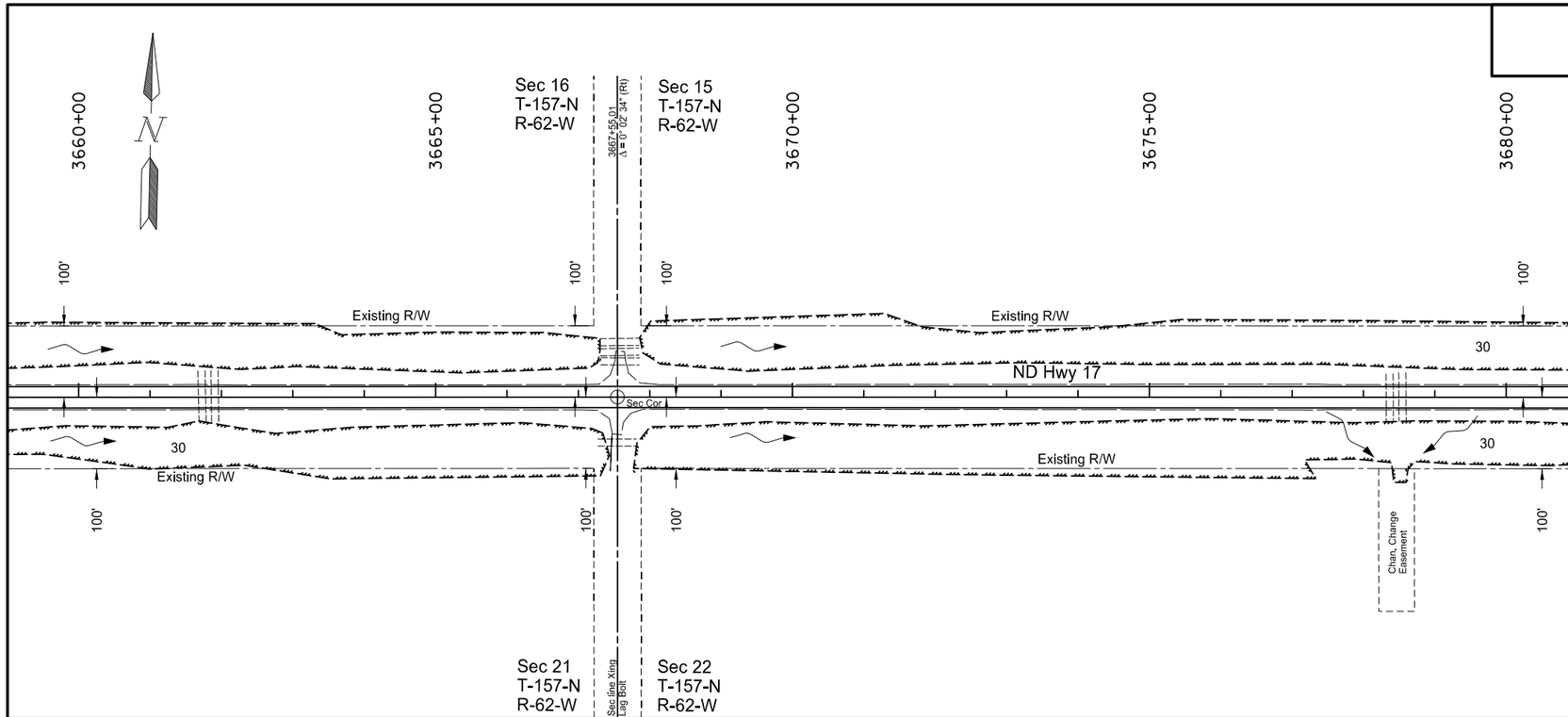
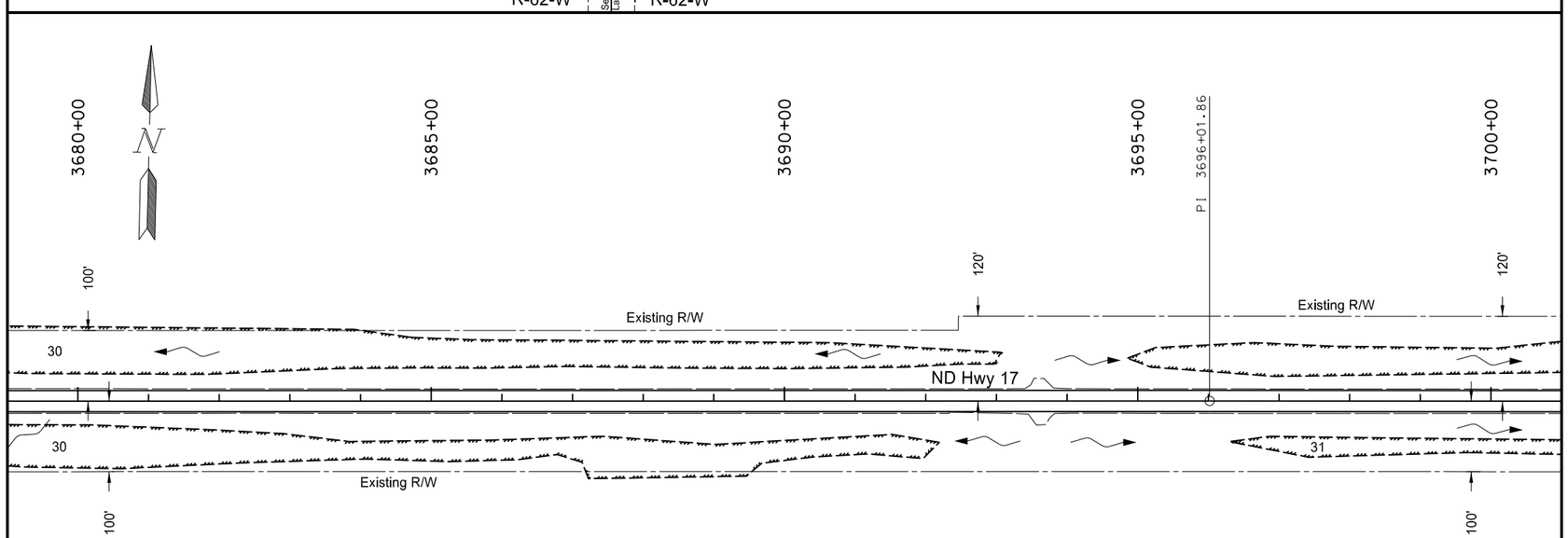
Wetlands, Temporary Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 3620+00 to Sta 3660+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	20





Note: All work from Sta 3660+00 to Sta 3700+00 shall be completed on top of the existing roadway, resulting in no wetland impacts anticipated.

R/W limits are approximate, based on existing plans.

Temporary Cover Crop (Seeding-Type B-CL IV) Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Temporary Fiber Rolls

x- - - - -x- - - - Temporary Silt Fence Supported

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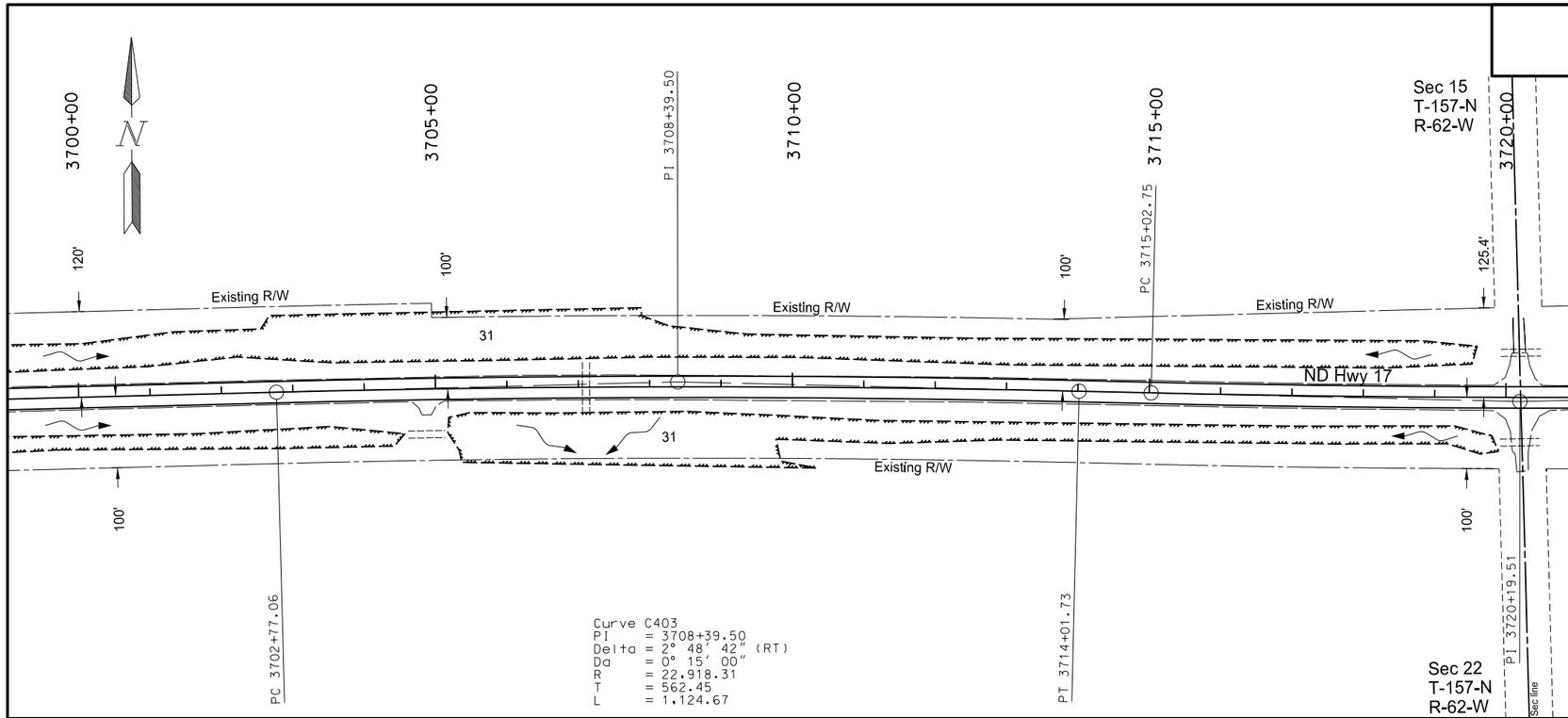
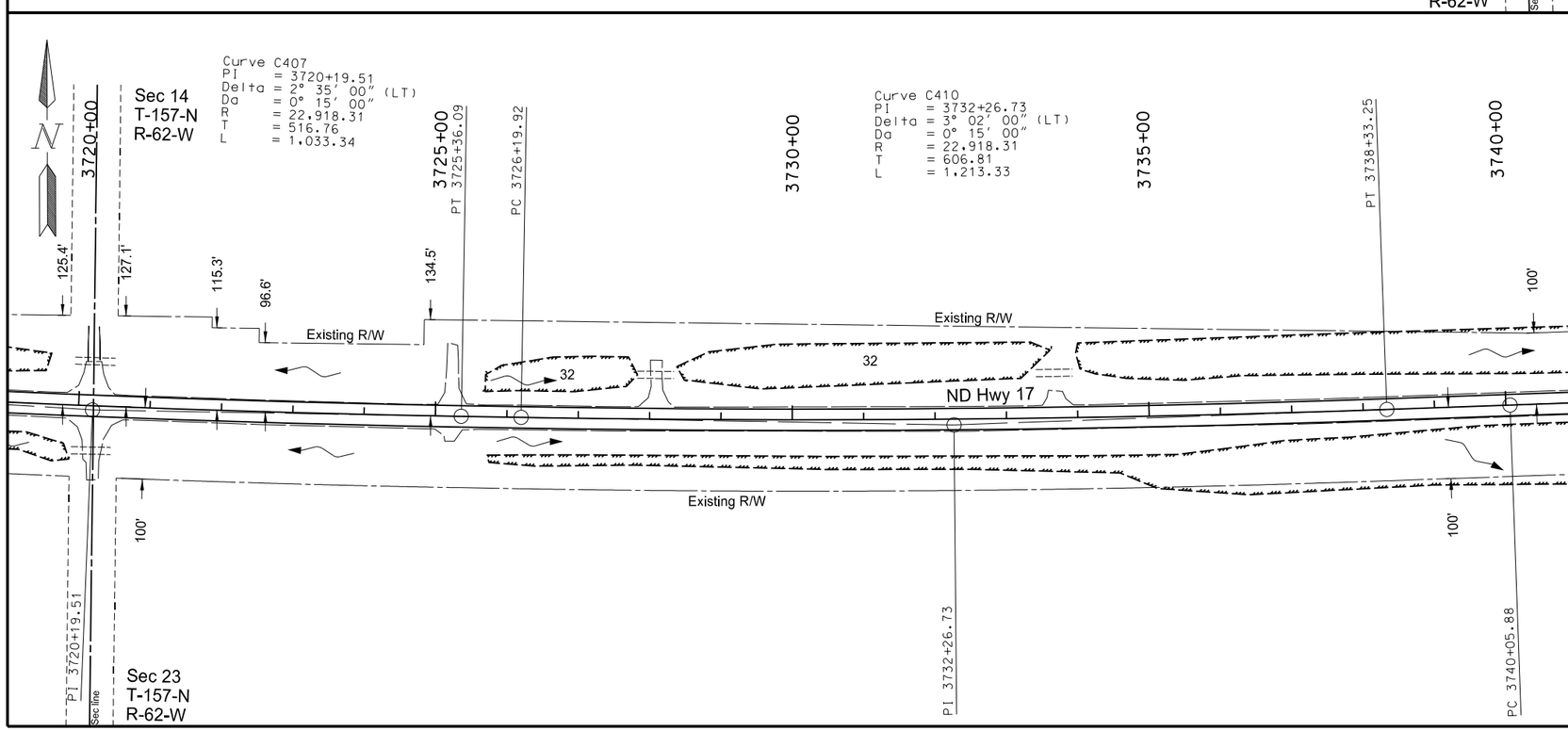
Wetlands, Temporary Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 3660+00 to Sta 3700+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	21





Note: All work from Sta 3700+00 to Sta 3740+00 shall be completed on top of the existing roadway, resulting in no wetland impacts anticipated.

R/W limits are approximate, based on existing plans.

Temporary Cover Crop (Seeding-Type B-CL IV) Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Temporary Fiber Rolls

x- - - - -x- - - - Temporary Silt Fence Supported

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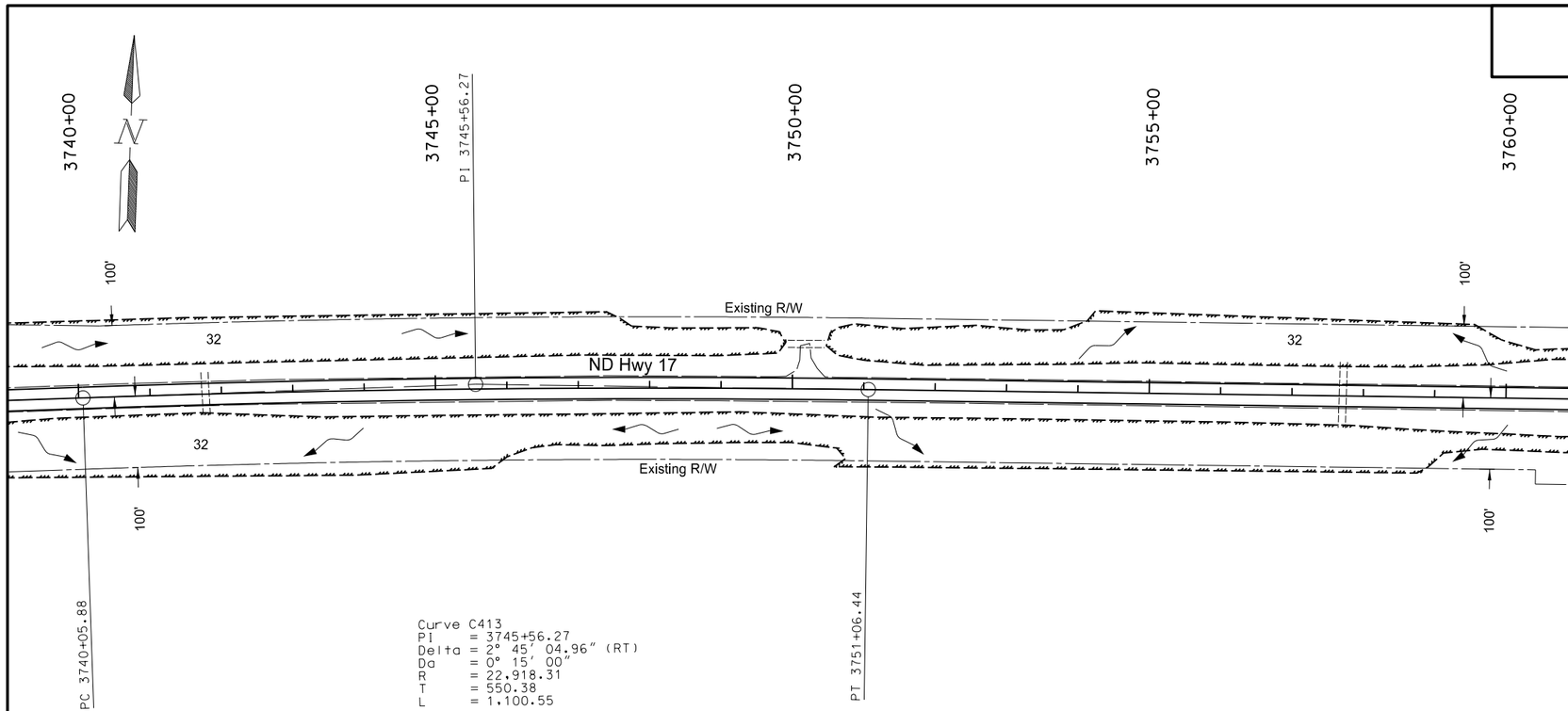
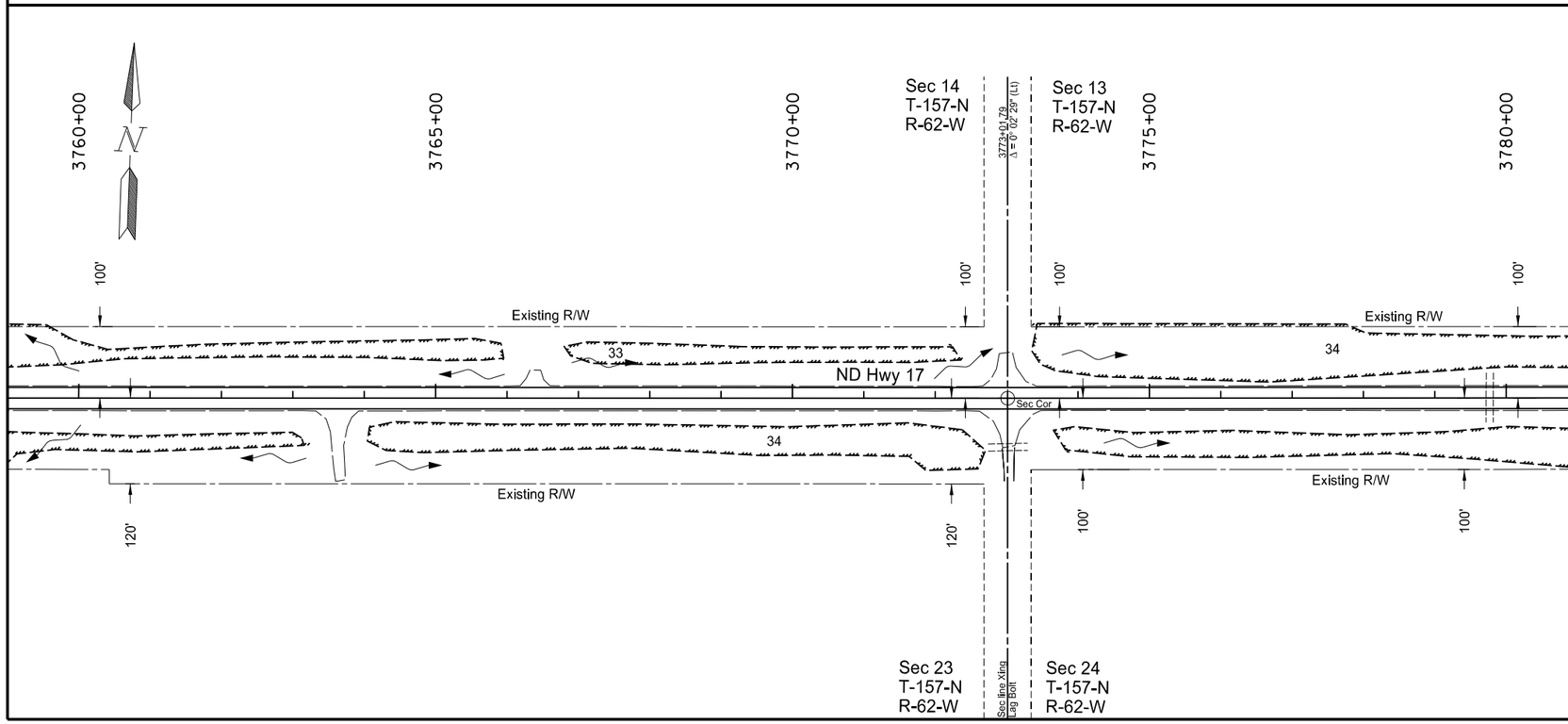
Wetlands, Temporary Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 3700+00 to Sta 3740+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	22





Note: All work from Sta 3740+00 to Sta 3780+00 shall be completed on top of the existing roadway, resulting in no wetland impacts anticipated.

R/W limits are approximate, based on existing plans.

Temporary Cover Crop (Seeding-Type B-CL IV) Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Temporary Fiber Rolls

x- - - - -x- - - - Temporary Silt Fence Supported

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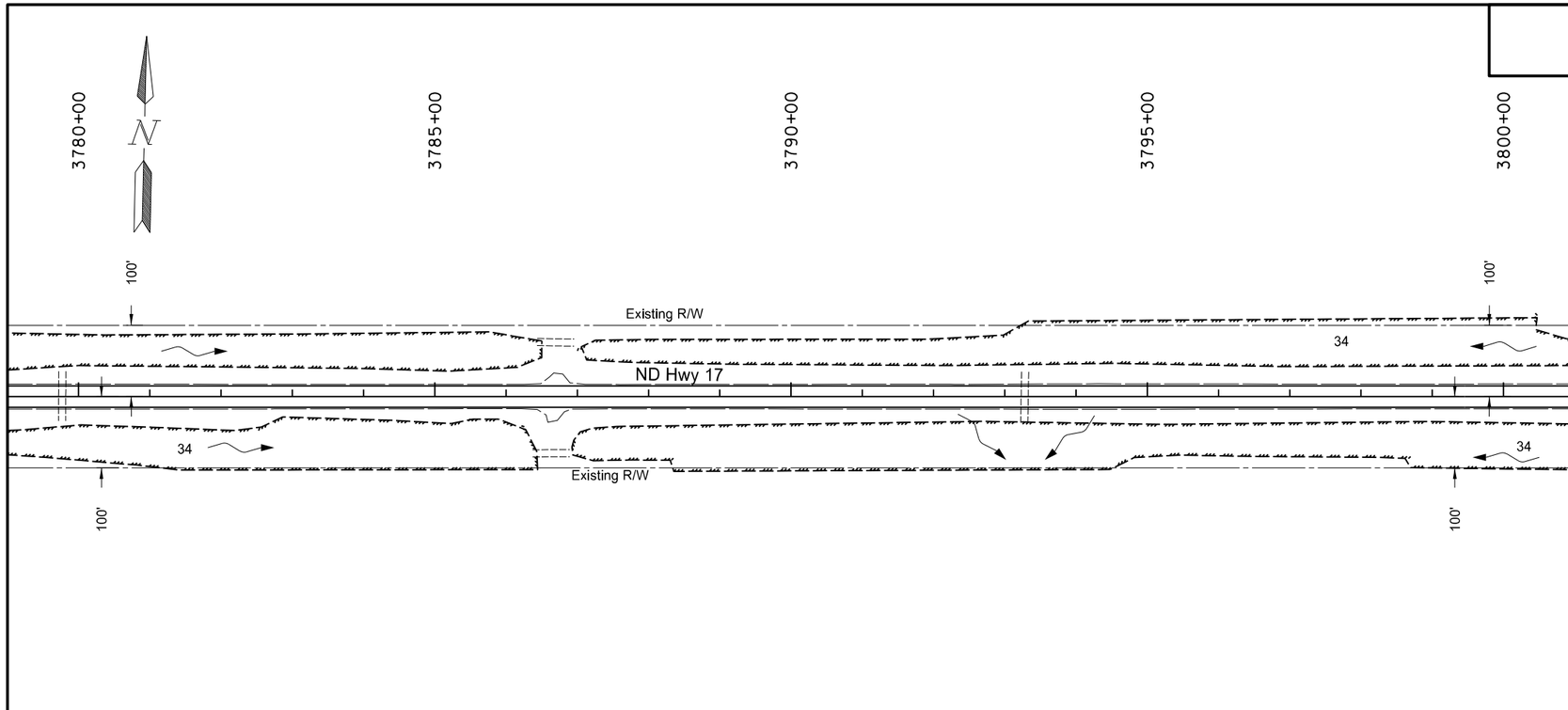
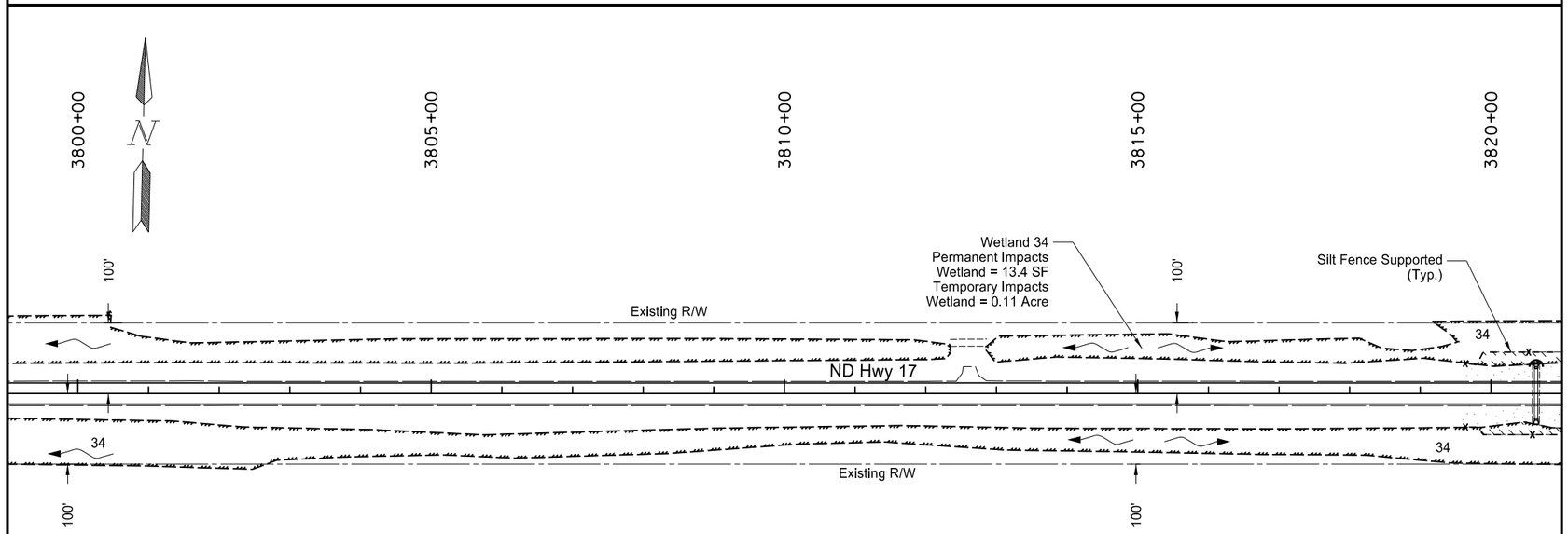
Wetlands, Temporary Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 3740+00 to Sta 3780+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	23





Item	Description	Quantity	Unit
708-1325	Silt Fence Supported		
	Sta 3780+00 Lt to Sta 3820+00 Lt	51	LF
	Sta 3780+00 Rt to Sta 3820+00 Rt	45	LF
708-1335	Removal Silt Fence Supported		
	Sta 3780+00 Lt to Sta 3820+00 Lt	51	LF
	Sta 3780+00 Rt to Sta 3820+00 Rt	45	LF
708-2260	Seeding-Type B-CL IV		
	Sta 3780+00 Lt to Sta 3820+00 Lt	0.02	ACRE
	Sta 3780+00 Rt to Sta 3820+00 Rt	0.03	ACRE
708-5500	Mulching		
	Sta 3780+00 Lt to Sta 3820+00 Lt	0.02	ACRE
	Sta 3780+00 Rt to Sta 3820+00 Rt	0.03	ACRE

Note: R/W limits are approximate, based on existing plans.

Temporary Cover Crop (Seeding-Type B-CL IV) Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Temporary Fiber Rolls

Temporary Silt Fence Supported

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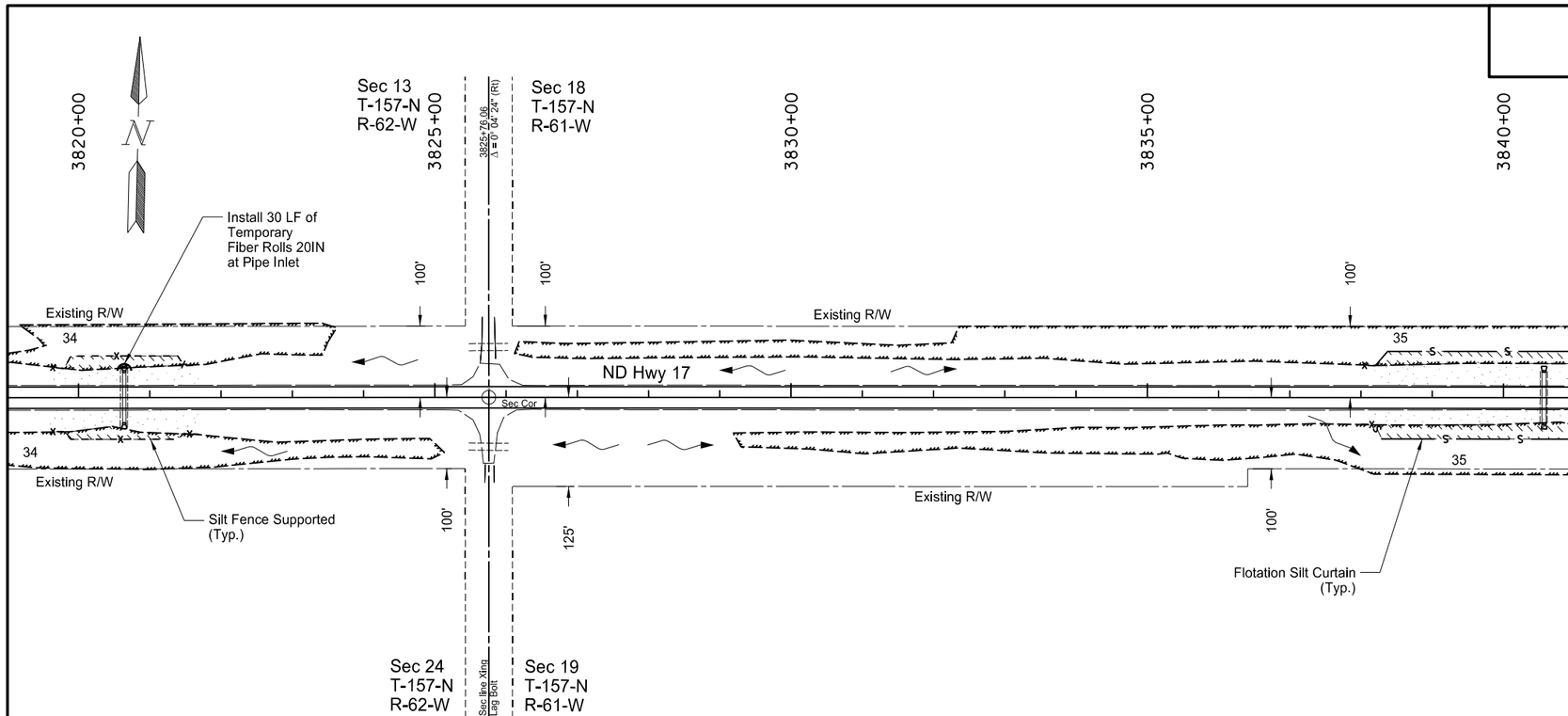
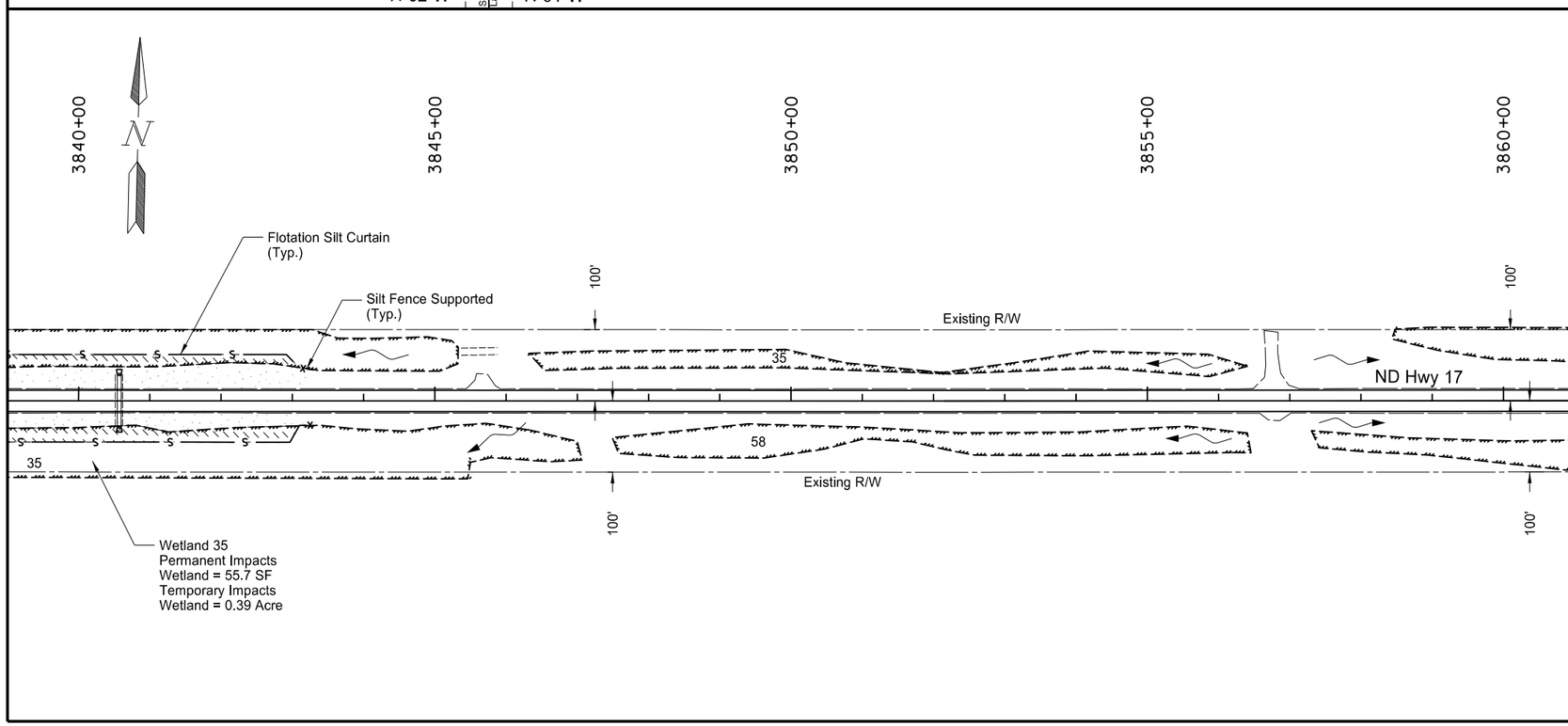
Wetlands, Temporary Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 3780+00 to Sta 3820+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	24





Item	Description	Quantity	Unit
708-1325	Silt Fence Supported		
	Sta 3820+00 Lt to Sta 3860+00 Lt	268	LF
	Sta 3820+00 Rt to Sta 3860+00 Rt	258	LF
708-1335	Removal Silt Fence Supported		
	Sta 3820+00 Lt to Sta 3860+00 Lt	268	LF
	Sta 3820+00 Rt to Sta 3860+00 Rt	258	LF
708-1375	Flotation Silt Curtain		
	Sta 3820+00 Lt to Sta 3860+00 Lt	507	LF
	Sta 3820+00 Rt to Sta 3860+00 Rt	517	LF
708-1376	Removal Flotation Silt Curtain		
	Sta 3820+00 Lt to Sta 3860+00 Lt	507	LF
	Sta 3820+00 Rt to Sta 3860+00 Rt	517	LF
708-1460	Fiber Rolls 20IN		
	Sta 3820+00 Lt to Sta 3860+00 Lt	30	LF
708-1461	Removal Fiber Rolls 20IN		
	Sta 3820+00 Lt to Sta 3860+00 Lt	30	LF
708-2260	Seeding-Type B-CL IV		
	Sta 3820+00 Lt to Sta 3860+00 Lt	0.48	ACRE
	Sta 3820+00 Rt to Sta 3860+00 Rt	0.37	ACRE
708-5500	Mulching		
	Sta 3820+00 Lt to Sta 3860+00 Lt	0.48	ACRE
	Sta 3820+00 Rt to Sta 3860+00 Rt	0.37	ACRE

Note: R/W limits are approximate, based on existing plans.

Temporary Cover Crop (Seeding-Type B-CL IV)
Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Temporary Fiber Rolls

Temporary Silt Fence Supported

Temporary Flotation Silt Curtain

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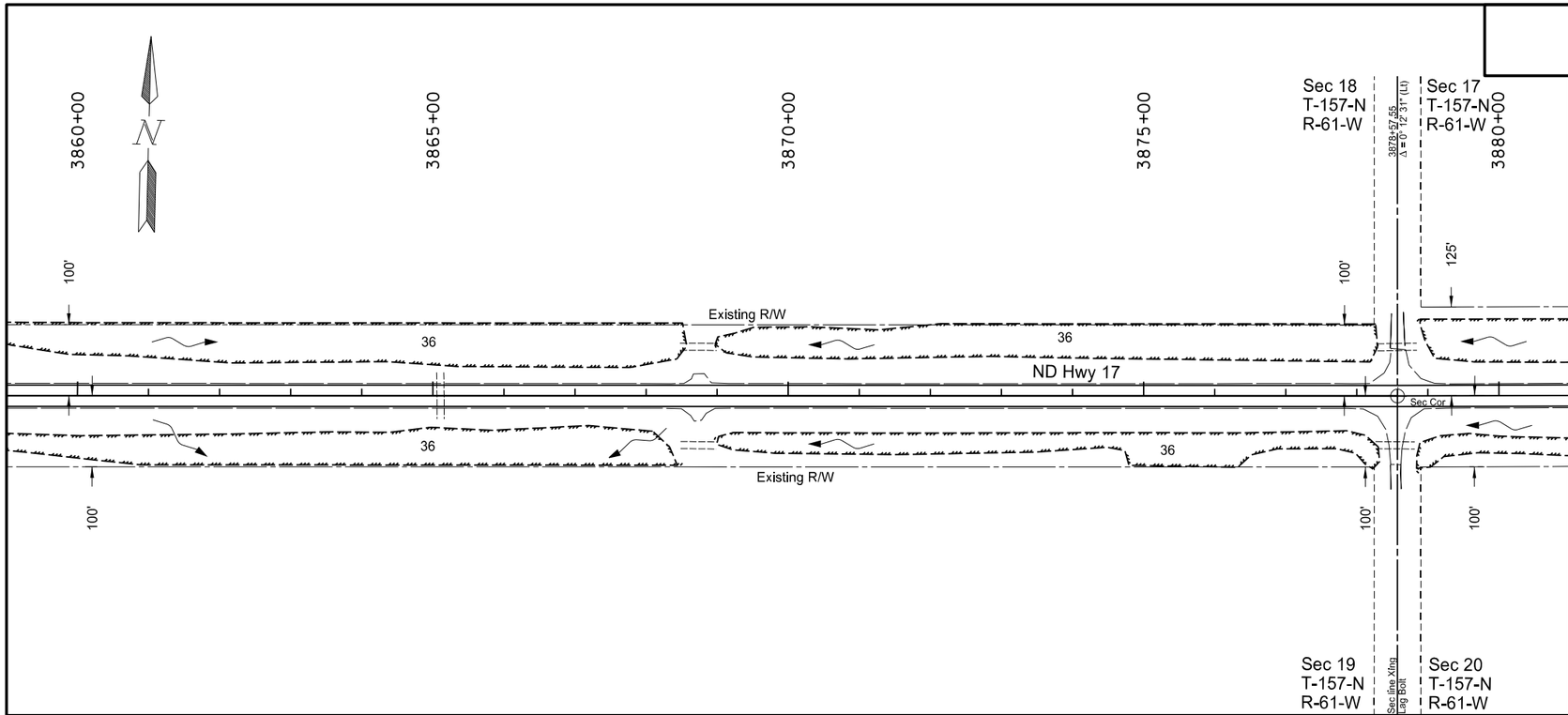
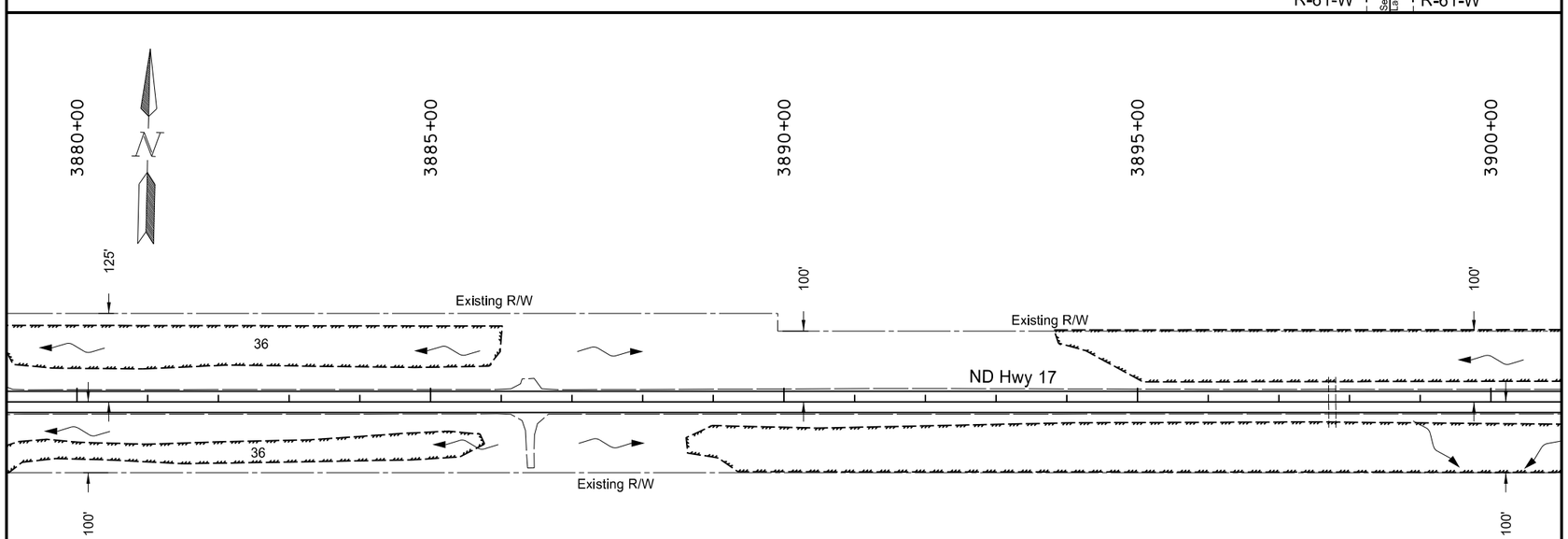
Wetlands, Temporary Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 3820+00 to Sta 3860+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	25





Note: All work from Sta 3860+00 to Sta 3900+00 shall be completed on top of the existing roadway, resulting in no wetland impacts anticipated.

R/W limits are approximate, based on existing plans.

Temporary Cover Crop (Seeding-Type B-CL IV) Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Temporary Fiber Rolls

x- - - - -x- - - - Temporary Silt Fence Supported

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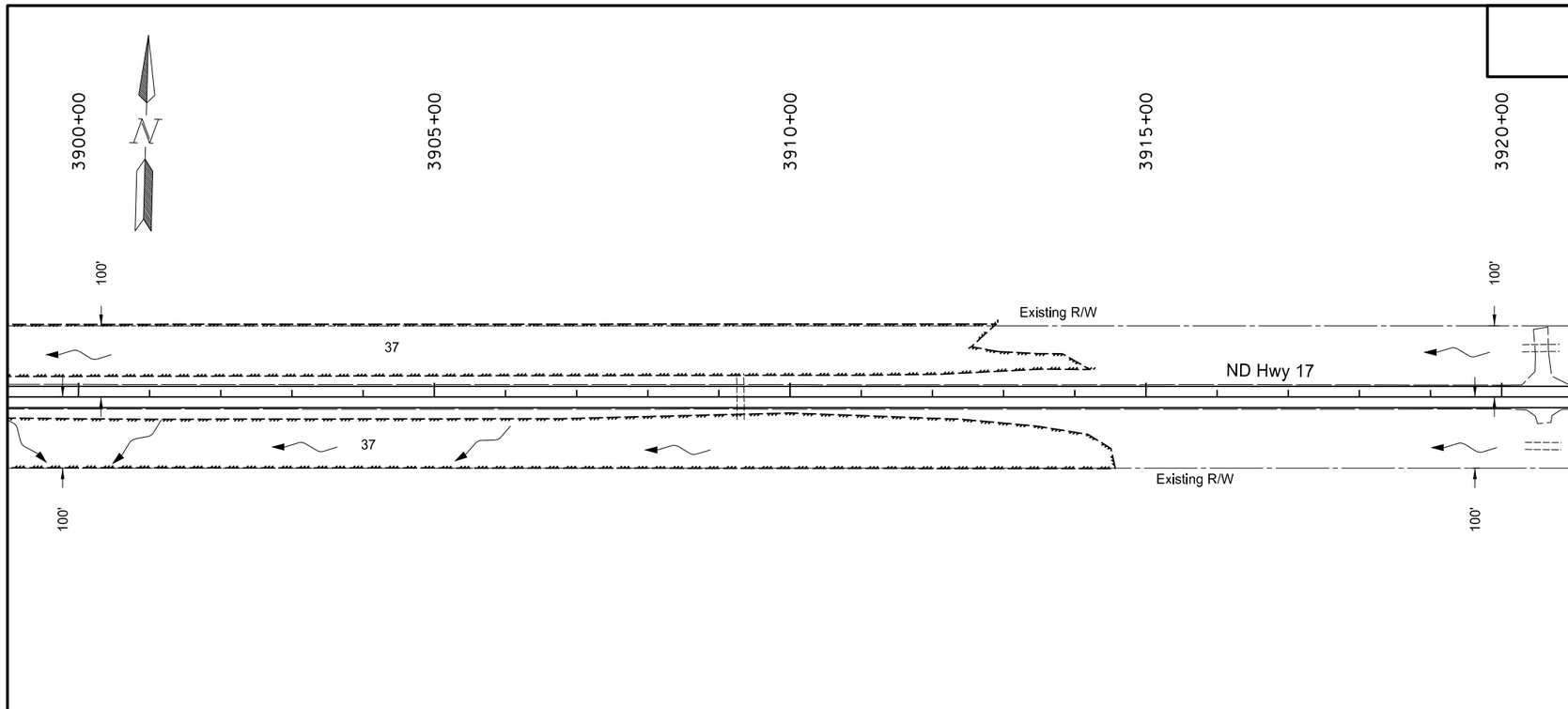
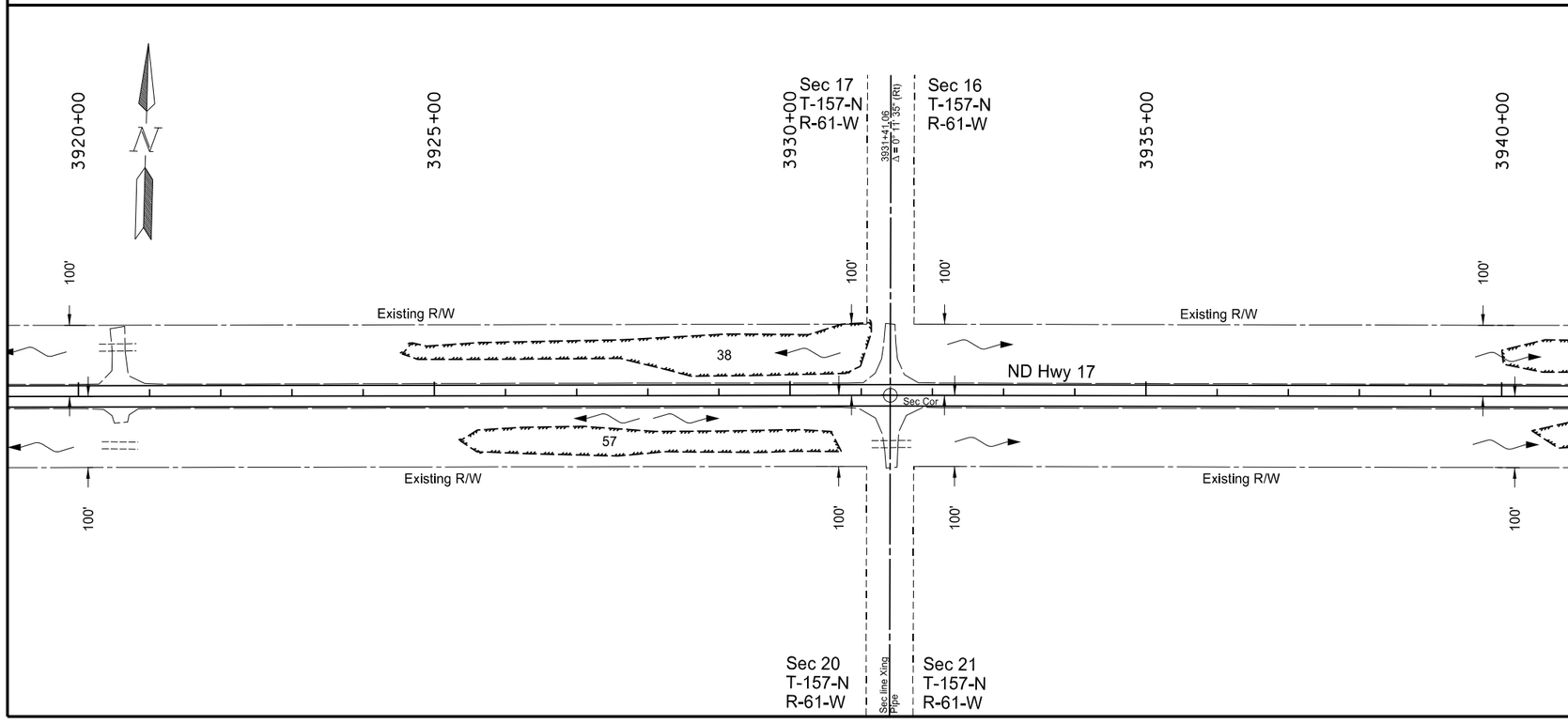
Wetlands, Temporary Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 3860+00 to Sta 3900+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	26





Note: All work from Sta 3900+00 to Sta 3940+00 shall be completed on top of the existing roadway, resulting in no wetland impacts anticipated.

R/W limits are approximate, based on existing plans.

Temporary Cover Crop (Seeding-Type B-CL IV) Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Temporary Fiber Rolls

x- - - - -x- - - - Temporary Silt Fence Supported

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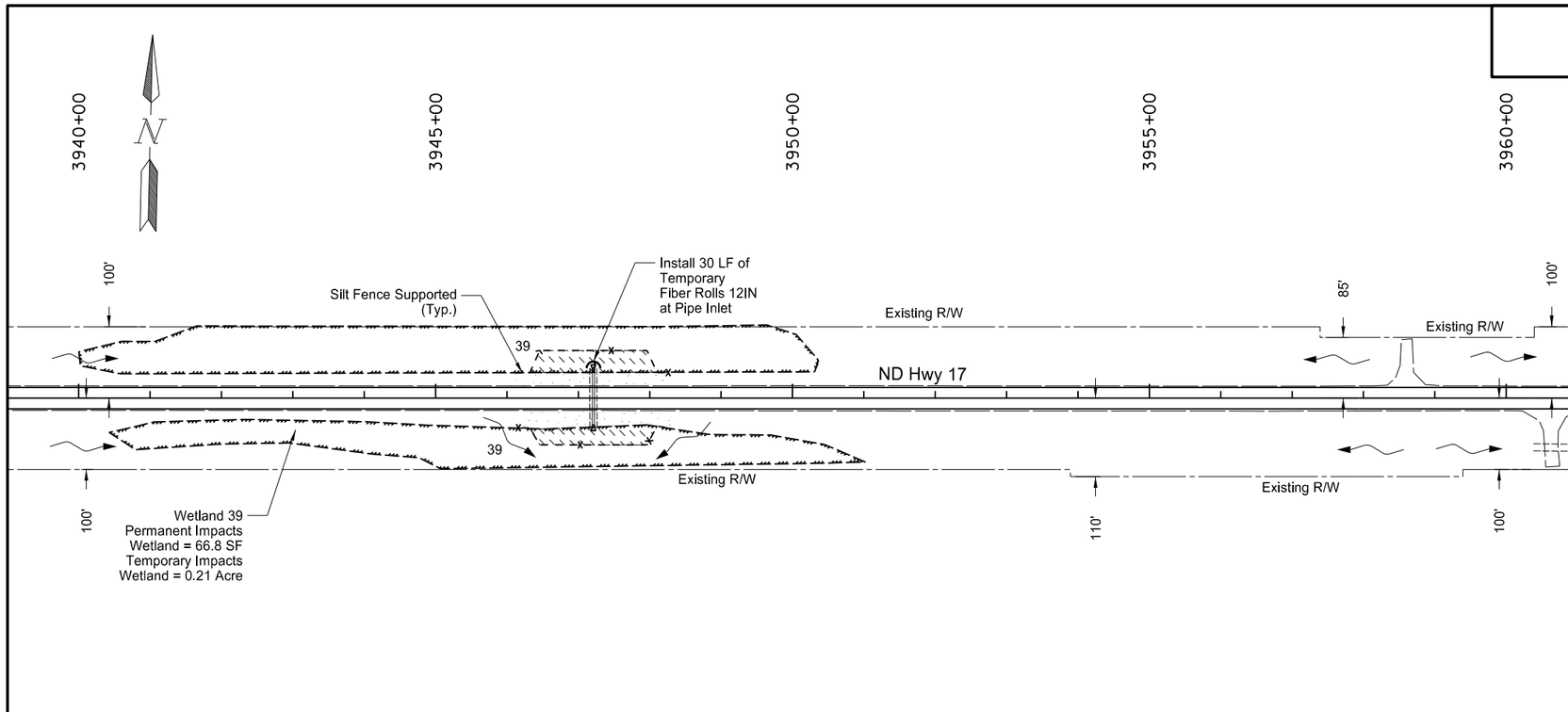
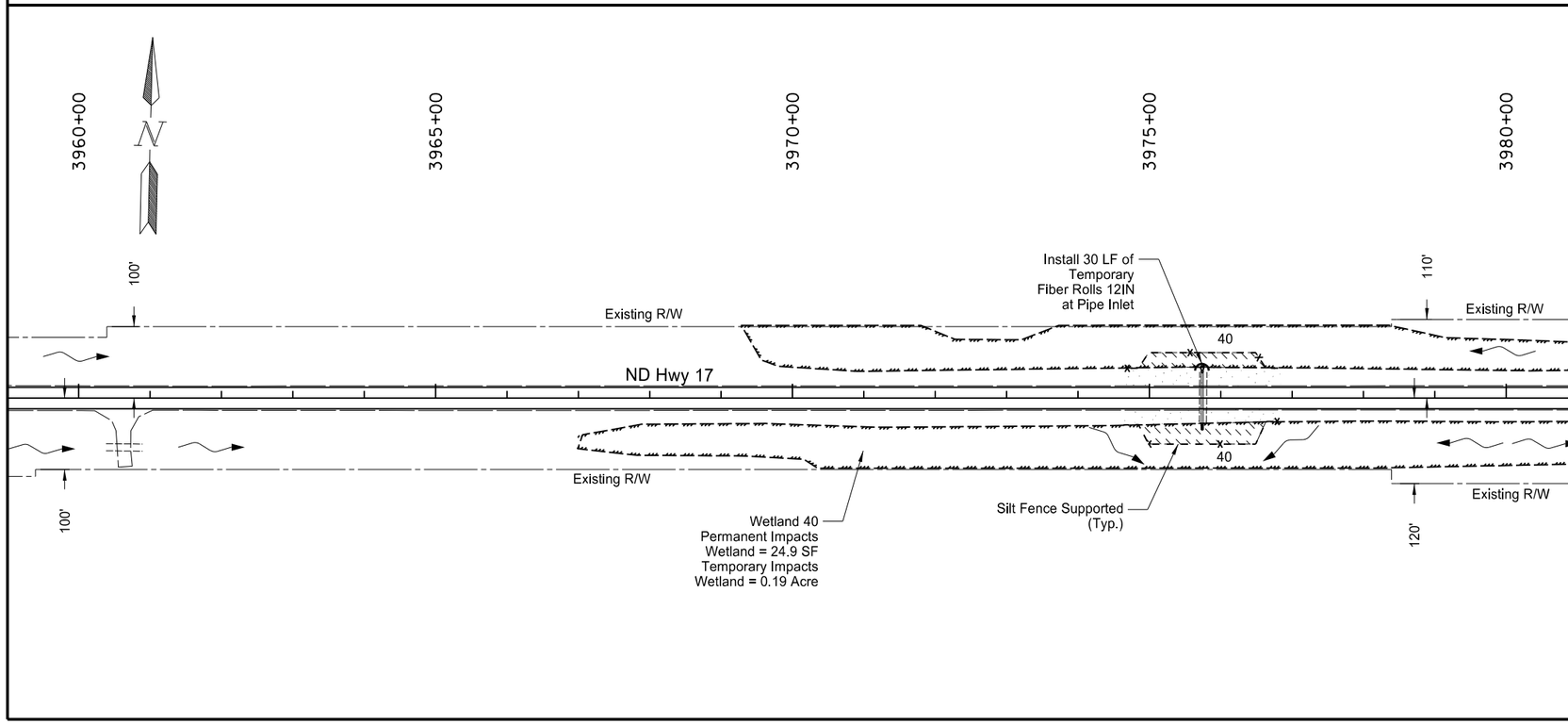
Wetlands, Temporary Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 3900+00 to Sta 3940+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	27





Item	Description	Quantity	Unit
708-1325	Silt Fence Supported		
	Sta 3940+00 Lt to Sta 3980+00 Lt	504	LF
	Sta 3940+00 Rt to Sta 3980+00 Rt	506	LF
708-1335	Removal Silt Fence Supported		
	Sta 3940+00 Lt to Sta 3980+00 Lt	504	LF
	Sta 3940+00 Rt to Sta 3980+00 Rt	506	LF
708-1430	Fiber Rolls 12IN		
	Sta 3940+00 Lt to Sta 3980+00 Lt	60	LF
708-1431	Removal Fiber Rolls 12IN		
	Sta 3940+00 Lt to Sta 3980+00 Lt	60	LF
708-2260	Seeding-Type B-CL IV		
	Sta 3940+00 Lt to Sta 3980+00 Lt	0.23	ACRE
	Sta 3940+00 Rt to Sta 3980+00 Rt	0.22	ACRE
708-5500	Mulching		
	Sta 3940+00 Lt to Sta 3980+00 Lt	0.23	ACRE
	Sta 3940+00 Rt to Sta 3980+00 Rt	0.22	ACRE

Note: R/W limits are approximate, based on existing plans.

Temporary Cover Crop (Seeding-Type B-CL IV) Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Temporary Fiber Rolls

Temporary Silt Fence Supported

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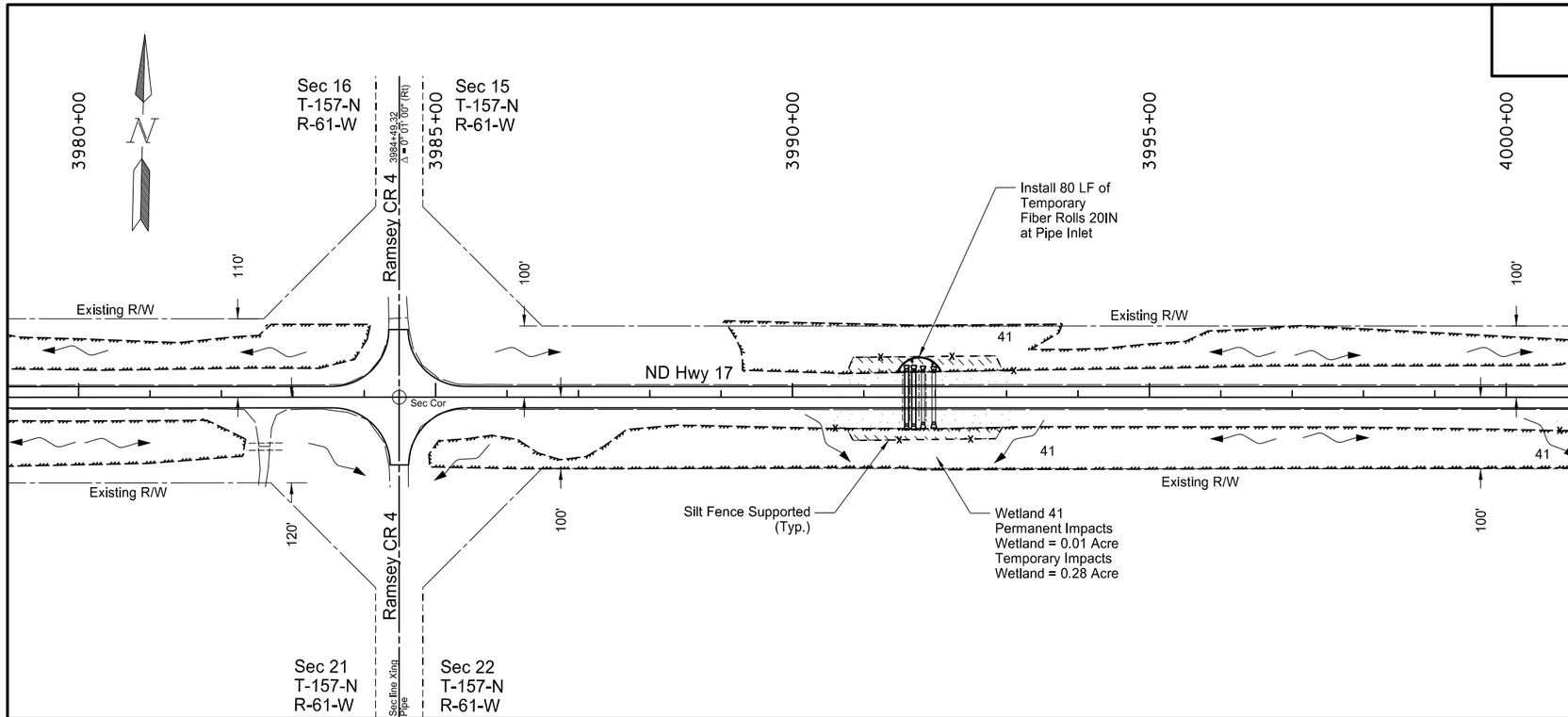
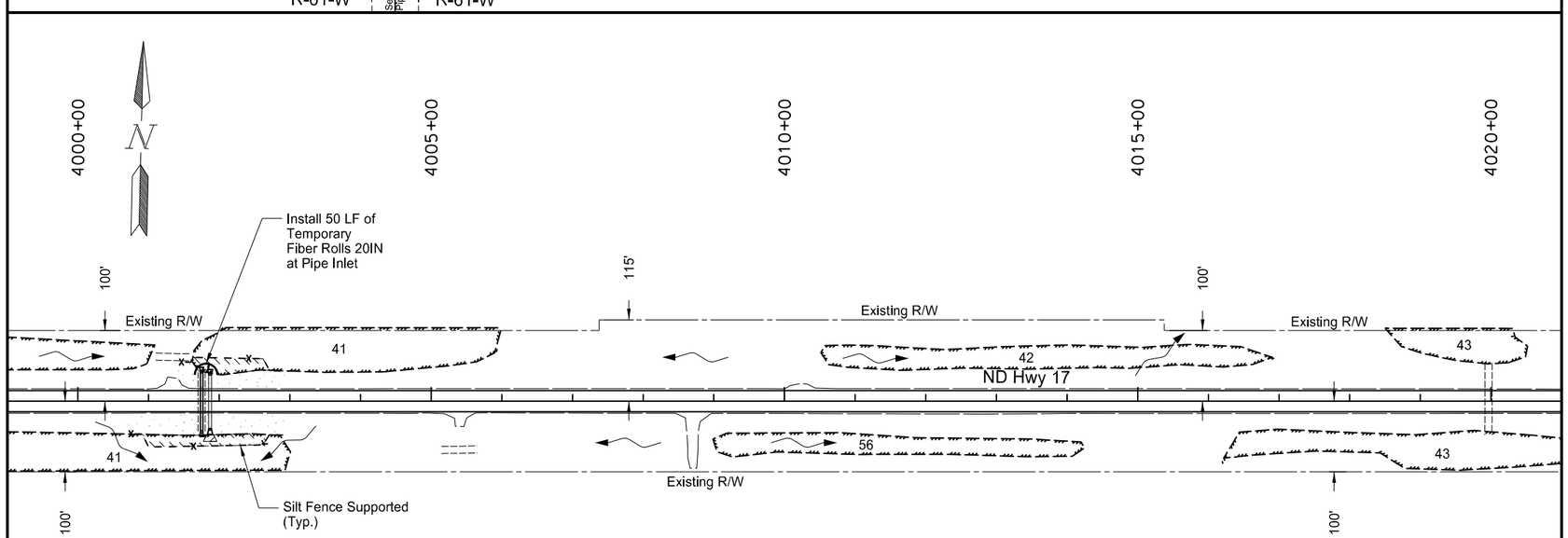
Wetlands, Temporary Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 3940+00 to Sta 3980+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	28





Item	Description	Quantity	Unit
708-1325	Silt Fence Supported		
	Sta 3980+00 Lt to Sta 4020+00 Lt	453	LF
	Sta 3980+00 Rt to Sta 4020+00 Rt	522	LF
708-1335	Removal Silt Fence Supported		
	Sta 3980+00 Lt to Sta 4020+00 Lt	453	LF
	Sta 3980+00 Rt to Sta 4020+00 Rt	522	LF
708-1460	Fiber Rolls 20IN		
	Sta 3980+00 Lt to Sta 4020+00 Lt	130	LF
708-1461	Removal Fiber Rolls 20IN		
	Sta 3980+00 Lt to Sta 4020+00 Lt	130	LF
708-2260	Seeding-Type B-CL IV		
	Sta 3980+00 Lt to Sta 4020+00 Lt	0.21	ACRE
	Sta 3980+00 Rt to Sta 4020+00 Rt	0.32	ACRE
708-5500	Mulching		
	Sta 3980+00 Lt to Sta 4020+00 Lt	0.21	ACRE
	Sta 3980+00 Rt to Sta 4020+00 Rt	0.32	ACRE

Note: R/W limits are approximate, based on existing plans.

Temporary Cover Crop (Seeding-Type B-CL IV) Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Temporary Fiber Rolls

Temporary Silt Fence Supported

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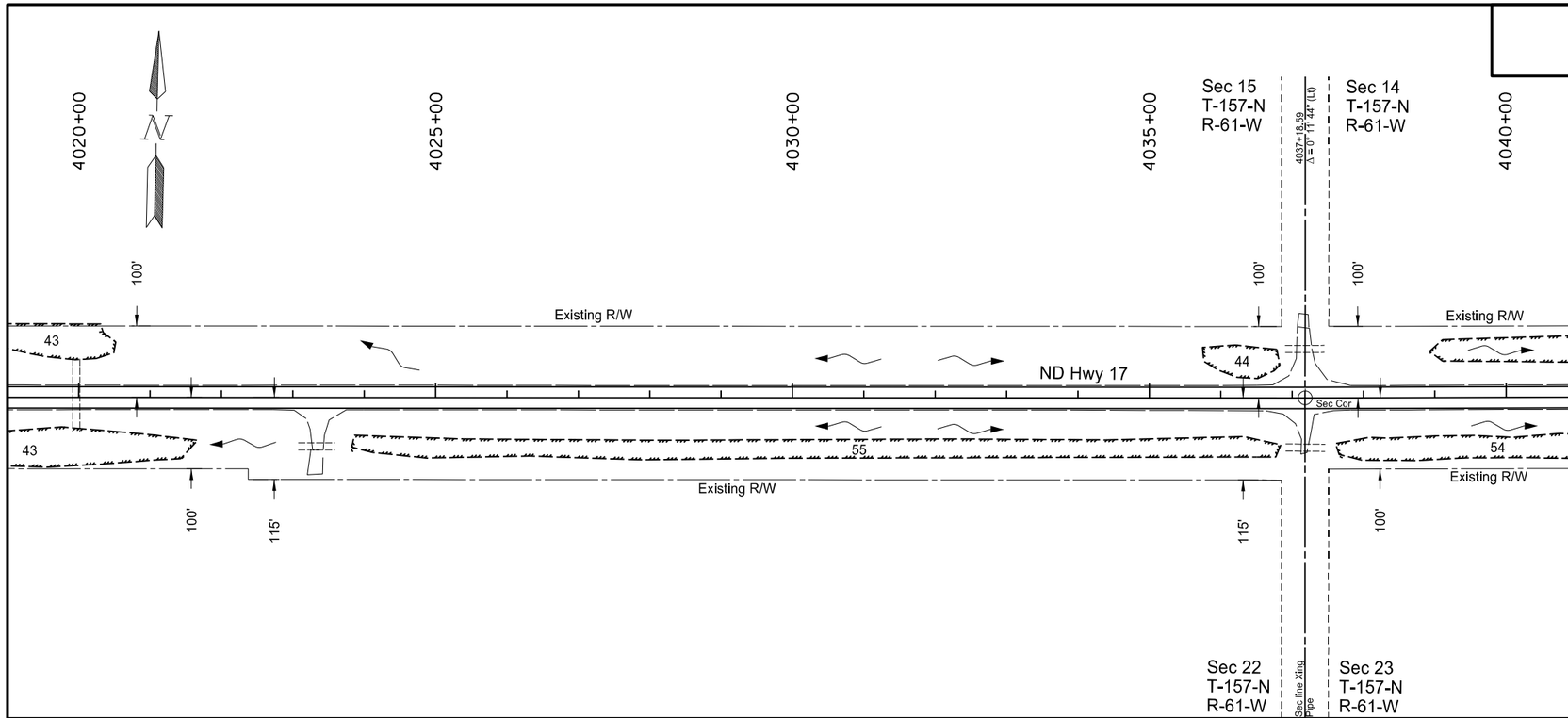
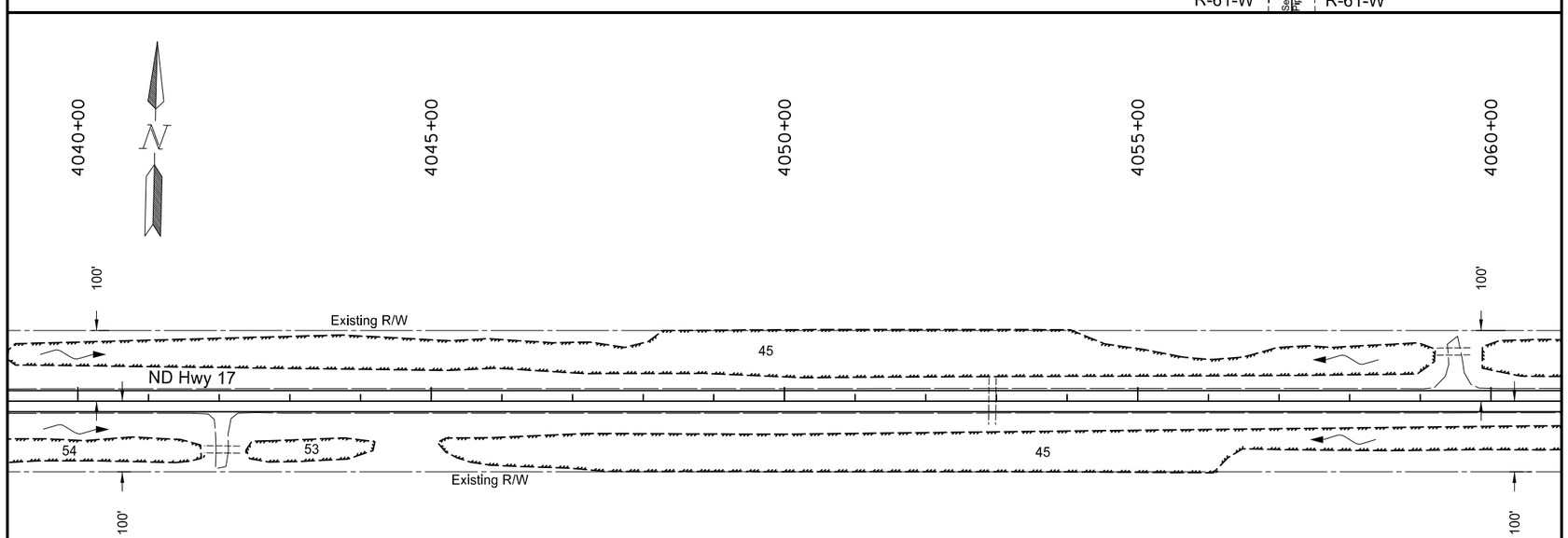
Wetlands, Temporary Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 3980+00 to Sta 4020+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	29





Note: All work from Sta 4020+00 to Sta 4060+00 shall be completed on top of the existing roadway, resulting in no wetland impacts anticipated.

R/W limits are approximate, based on existing plans.

Temporary Cover Crop (Seeding-Type B-CL IV) Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Temporary Fiber Rolls

x- - - - -x- - - - Temporary Silt Fence Supported

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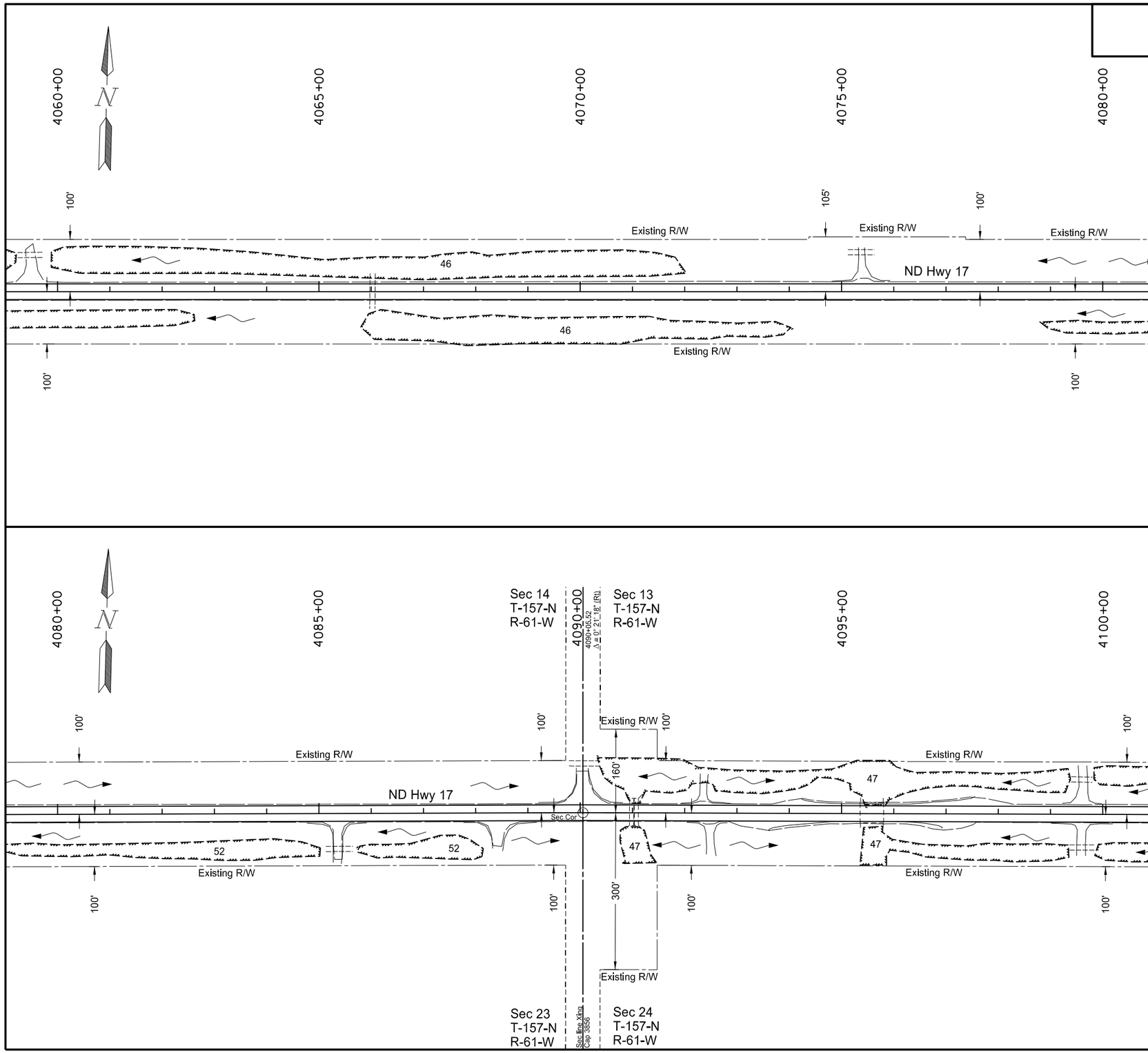
Wetlands, Temporary Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 4020+00 to Sta 4060+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	30



Note: All work from Sta 4060+00 to Sta 4100+00 shall be completed on top of the existing roadway, resulting in no wetland impacts anticipated.

R/W limits are approximate, based on existing plans.

Temporary Cover Crop (Seeding-Type B-CL IV) Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Temporary Fiber Rolls

Temporary Silt Fence Supported

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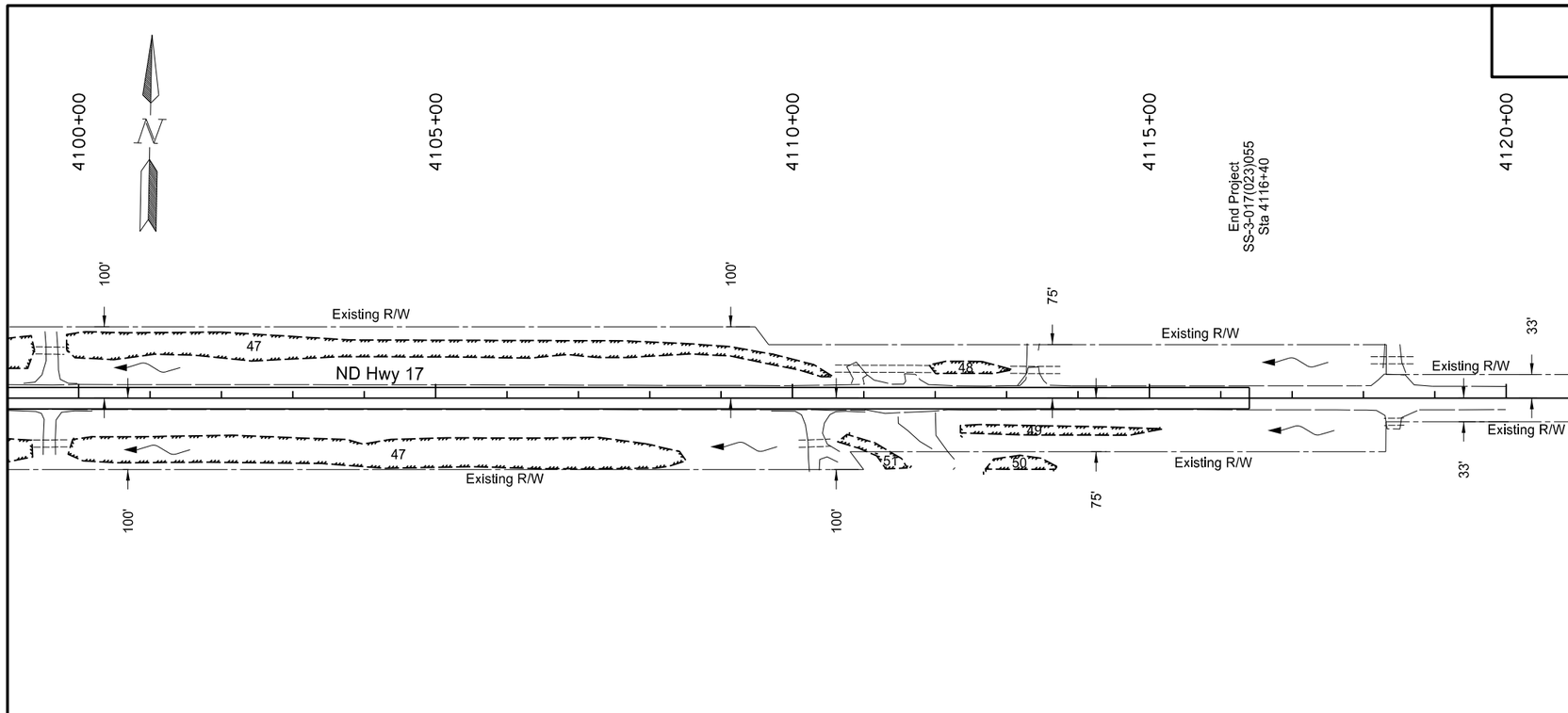
Wetlands, Temporary Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 4060+00 to Sta 4100+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	31



Note: All work from Sta 4100+00 to Sta 4116+40 shall be completed on top of the existing roadway, resulting in no wetland impacts anticipated.

R/W limits are approximate, based on existing plans.

Temporary Cover Crop (Seeding-Type B-CL IV) Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Temporary Fiber Rolls

x– – – – –x– – – – Temporary Silt Fence Supported

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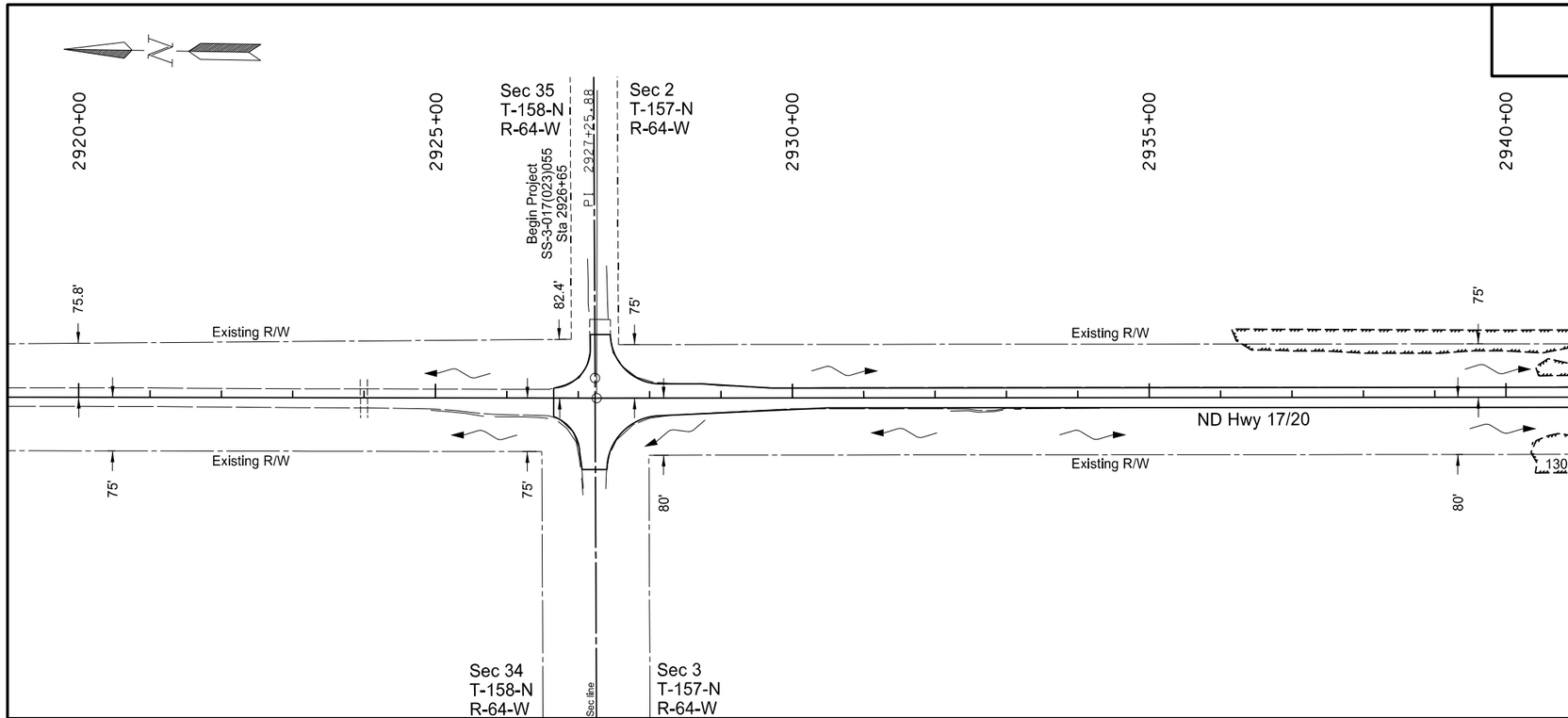
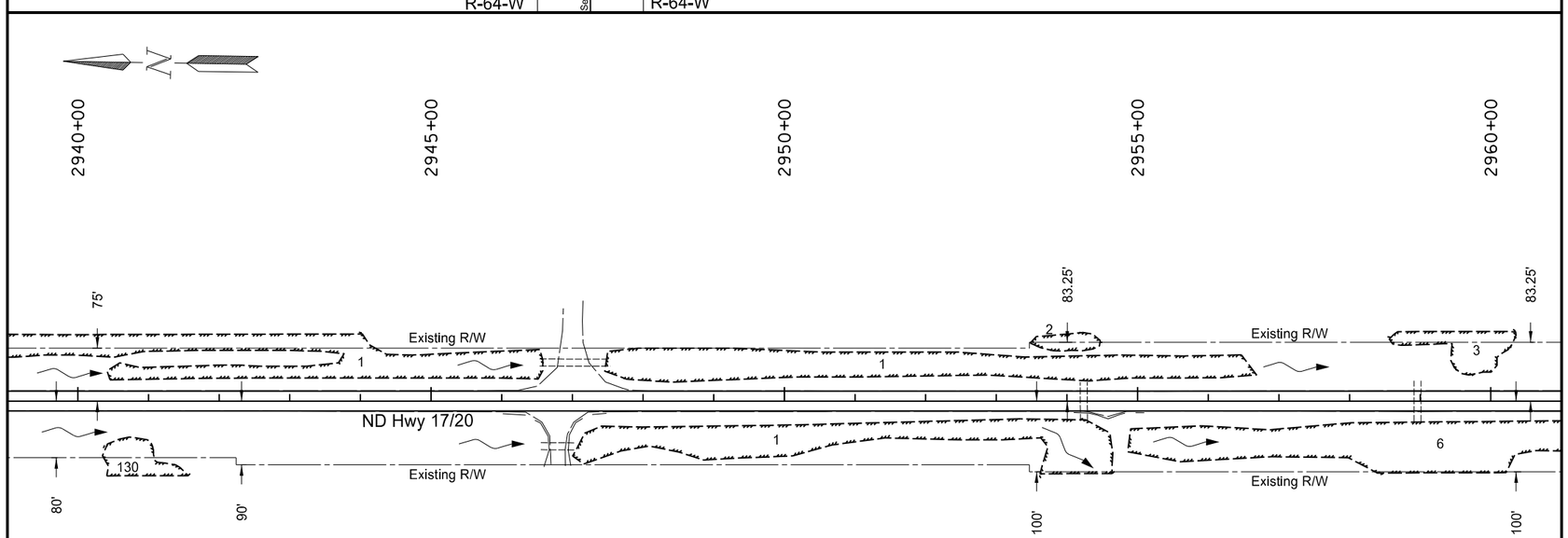
Wetlands, Temporary Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 4100+00 to Sta 4116+40

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	32





Note: All work from Sta 2926+65 to Sta 2960+00 shall be completed on top of the existing roadway, resulting in no wetland impacts anticipated.

R/W limits are approximate, based on existing plans.

Seeding-Type B-CL II
Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Permanent Fiber Rolls

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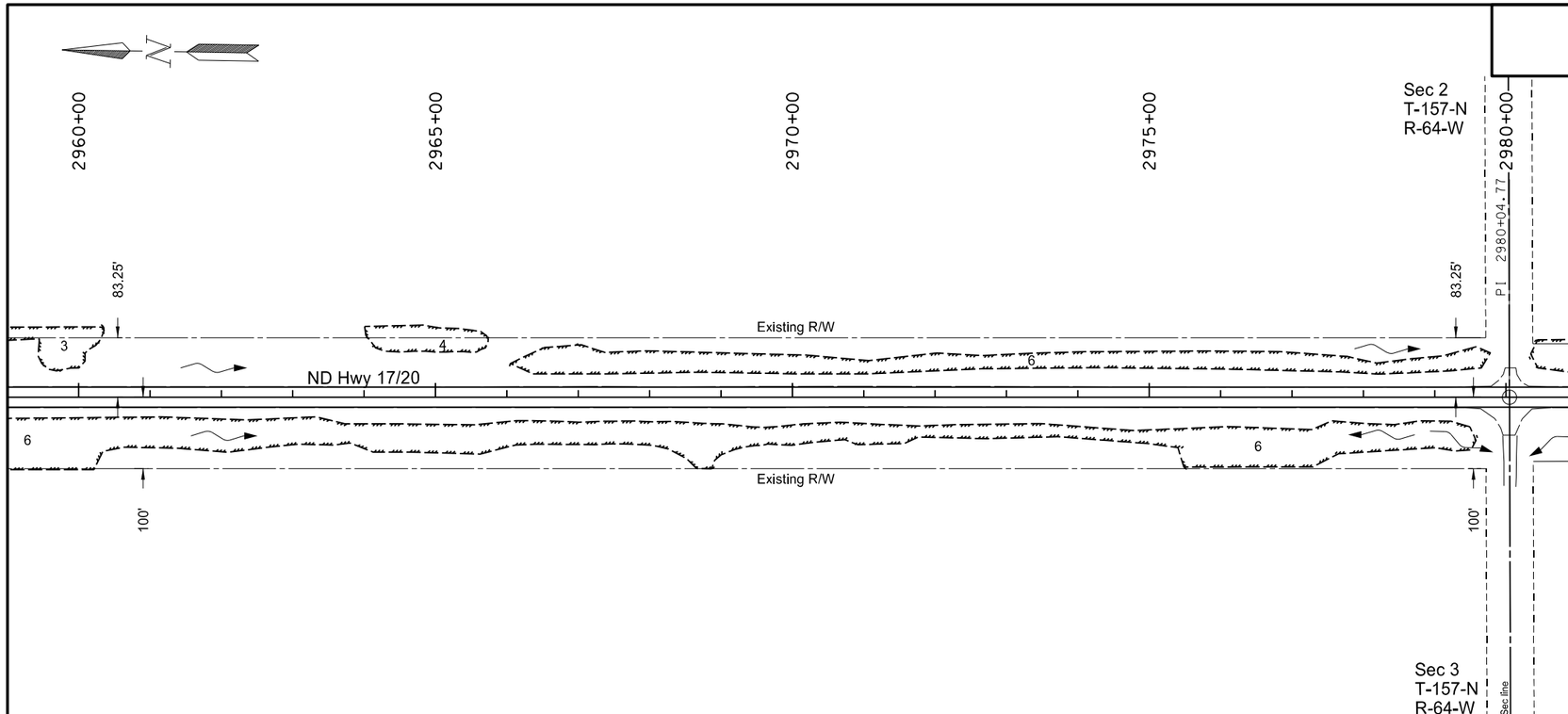
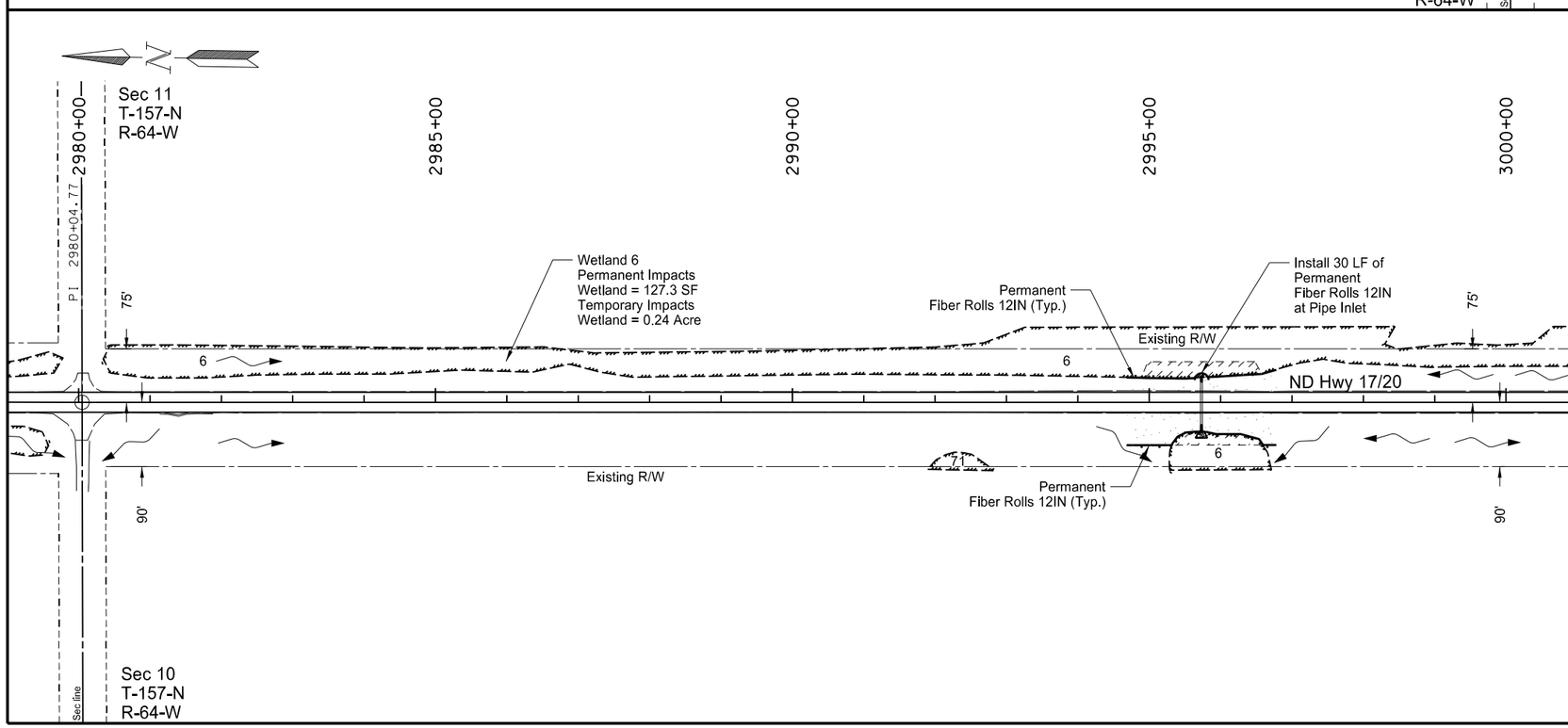
Wetlands, Permanent Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 2926+65 to Sta 2960+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	33





Item	Description	Quantity	Unit
708-1030	Riprap-Loose Rock		
	Sta 2960+00 Rt to Sta 3000+00 Rt	17.8	TON
708-1430	Fiber Rolls 12IN		
	Sta 2960+00 Lt to Sta 3000+00 Lt	223	LF
	Sta 2960+00 Rt to Sta 3000+00 Rt	215	LF
708-2240	Seeding-Type B-CL II		
	Sta 2960+00 Lt to Sta 3000+00 Lt	0.11	ACRE
	Sta 2960+00 Rt to Sta 3000+00 Rt	0.18	ACRE
708-5500	Mulching		
	Sta 2960+00 Lt to Sta 3000+00 Lt	0.11	ACRE
	Sta 2960+00 Rt to Sta 3000+00 Rt	0.18	ACRE
709-0600	Geotextile Fabric-Type RR		
	Sta 2960+00 Rt to Sta 3000+00 Rt	13.3	SY

Note: R/W limits are approximate, based on existing plans.

RipRap-Loose Rock

Seeding-Type B-CL II
Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Permanent Fiber Rolls

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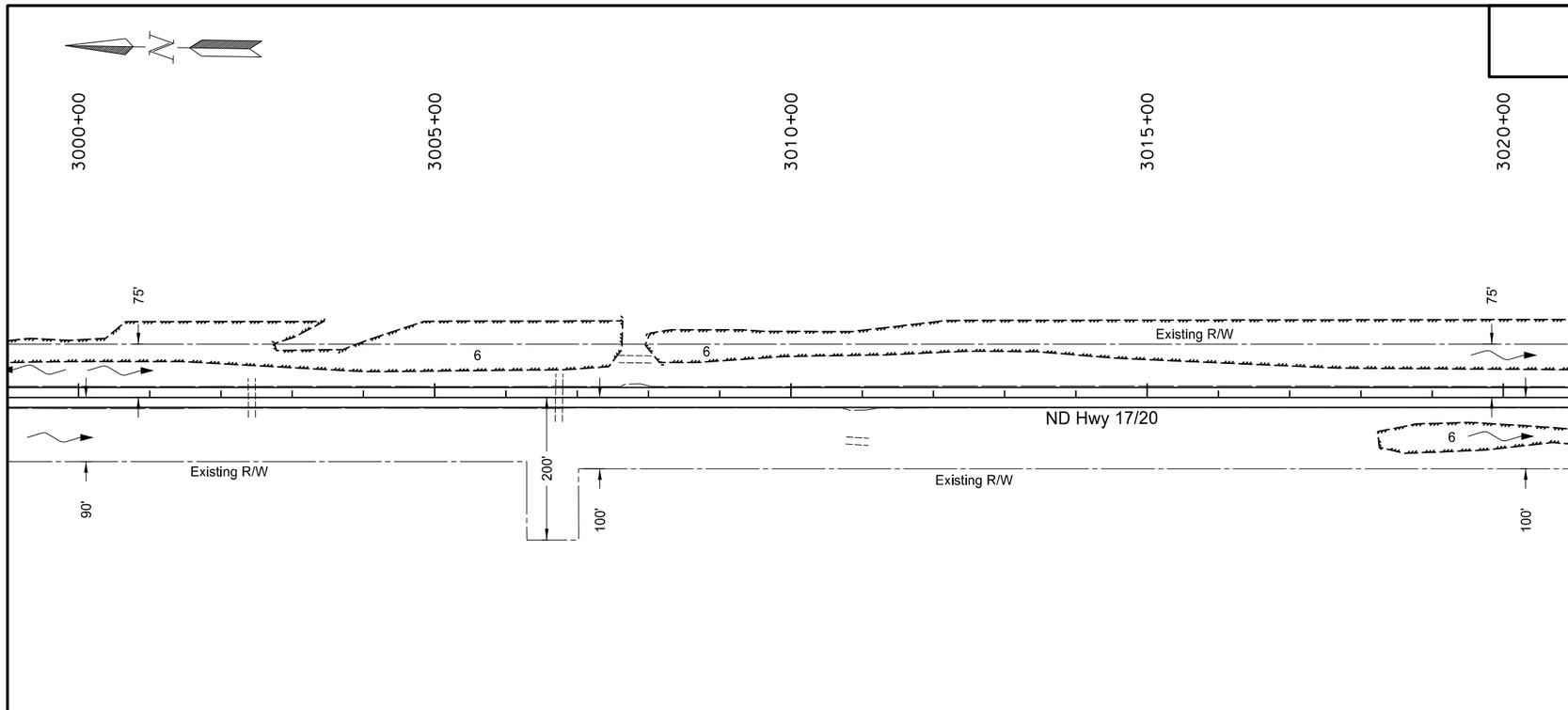
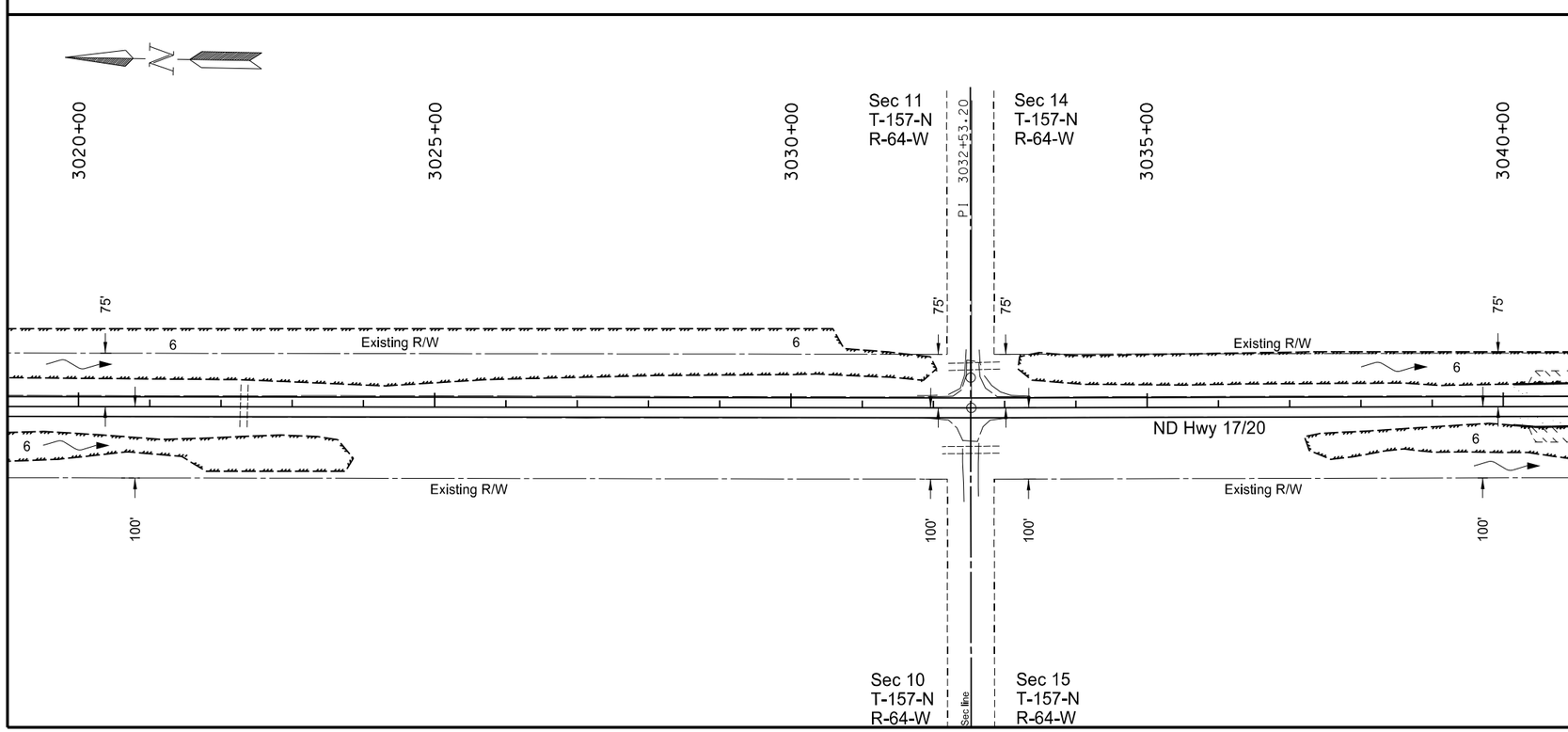
Wetlands, Permanent Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 2960+00 to Sta 3000+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	34





Note: All work from Sta 3000+00 to Sta 3040+00 shall be completed on top of the existing roadway, resulting in no wetland impacts anticipated.

R/W limits are approximate, based on existing plans.

Seeding-Type B-CL II
Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Permanent Fiber Rolls

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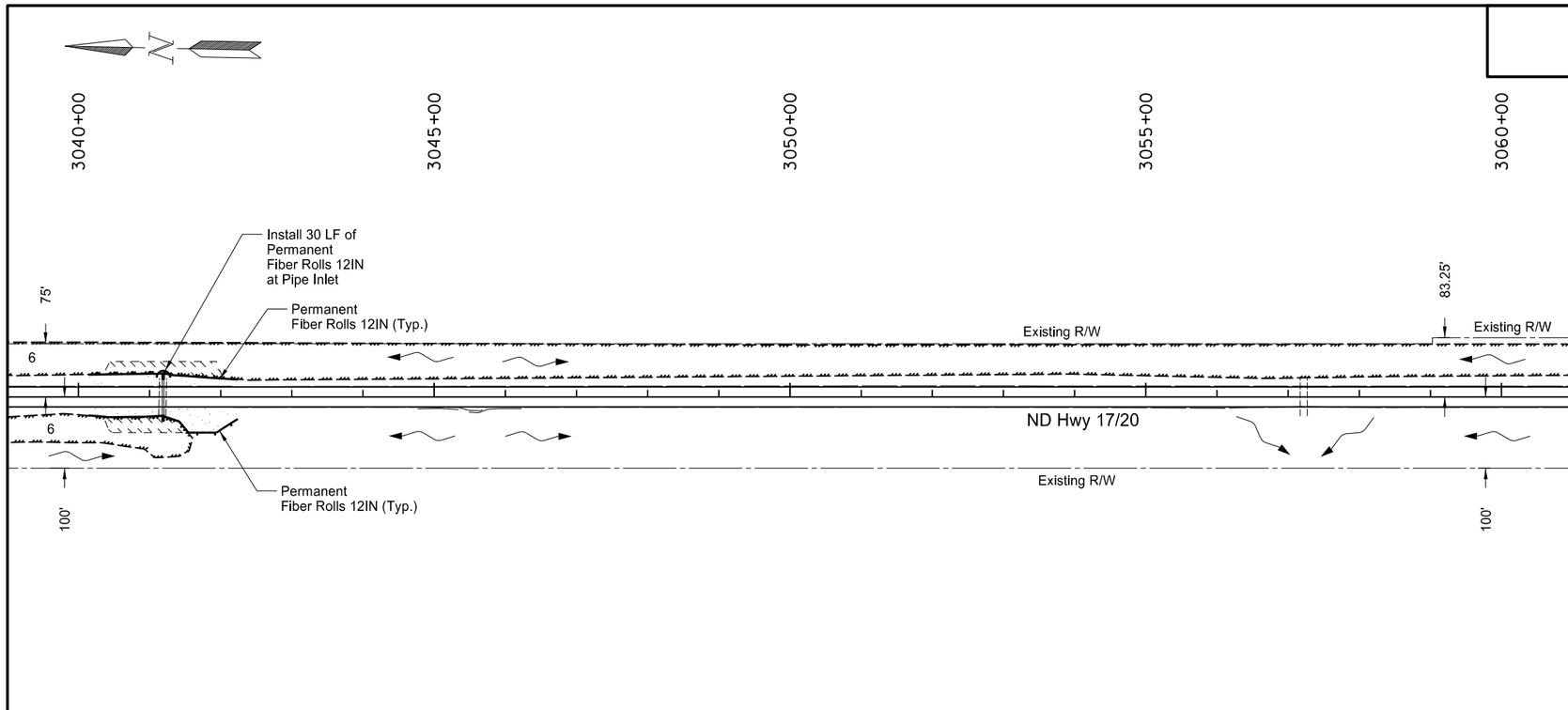
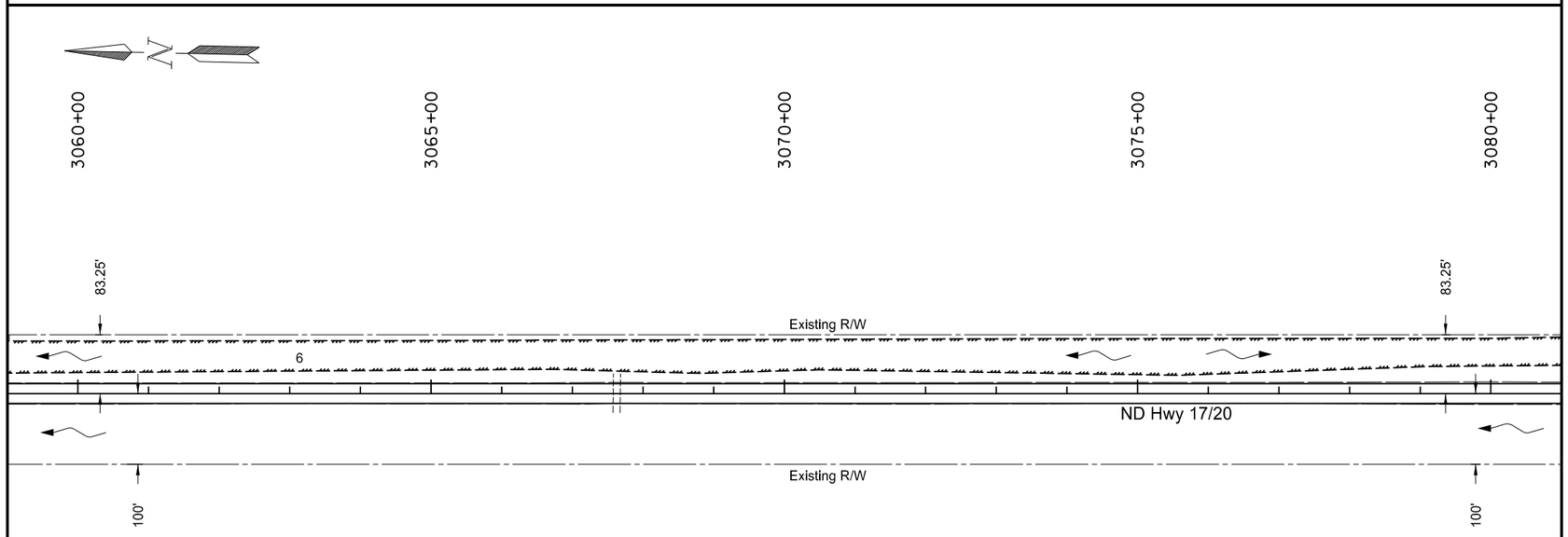
Wetlands, Permanent Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 3000+00 to Sta 3040+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	35





Item	Description	Quantity	Unit
708-1430	Fiber Rolls 12IN		
	Sta 3040+00 Lt to Sta 3080+00 Lt	223	LF
	Sta 3040+00 Rt to Sta 3080+00 Rt	221	LF
708-2240	Seeding-Type B-CL II		
	Sta 3040+00 Lt to Sta 3080+00 Lt	0.08	ACRE
	Sta 3040+00 Rt to Sta 3080+00 Rt	0.10	ACRE
708-5500	Mulching		
	Sta 3040+00 Lt to Sta 3080+00 Lt	0.08	ACRE
	Sta 3040+00 Rt to Sta 3080+00 Rt	0.10	ACRE

Note: R/W limits are approximate, based on existing plans.

Seeding-Type B-CL II
Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Permanent Fiber Rolls

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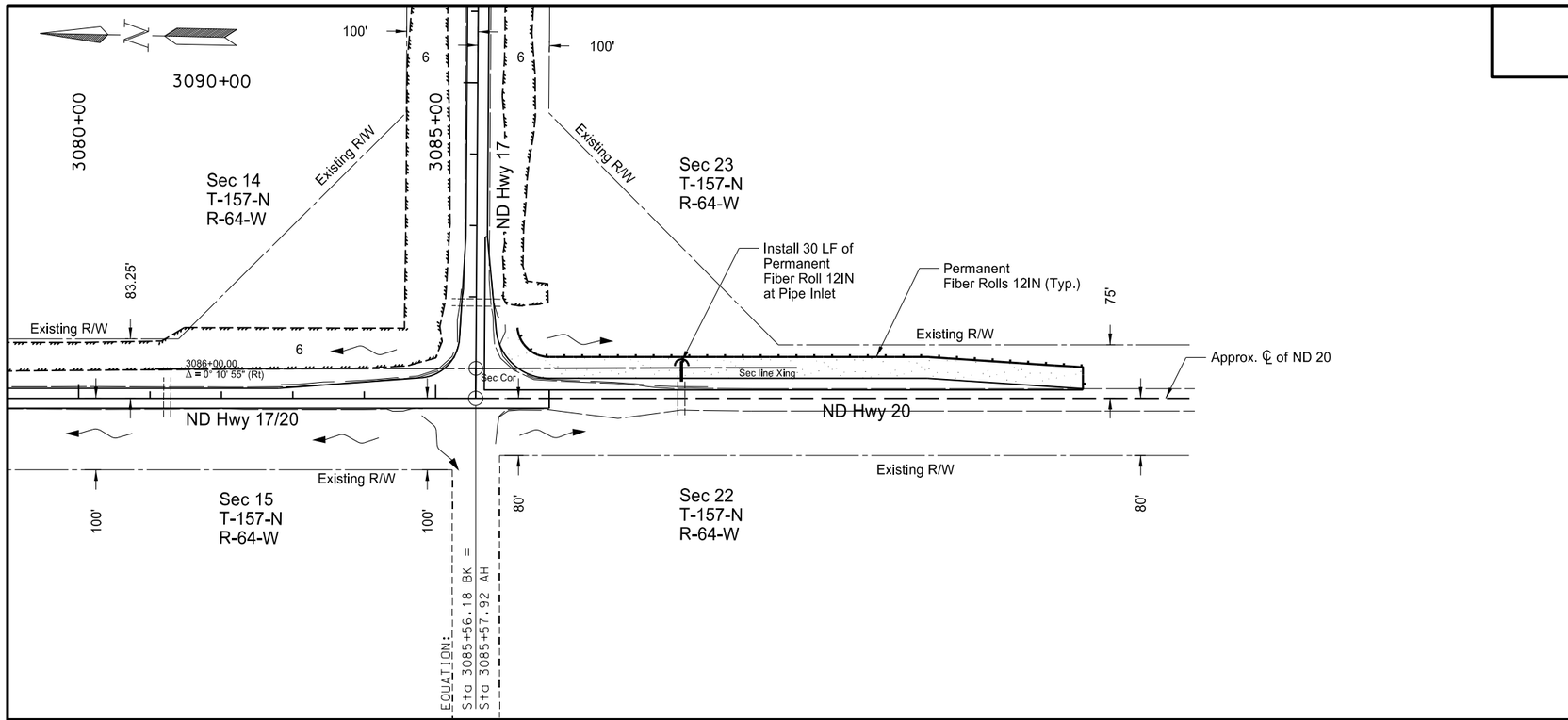
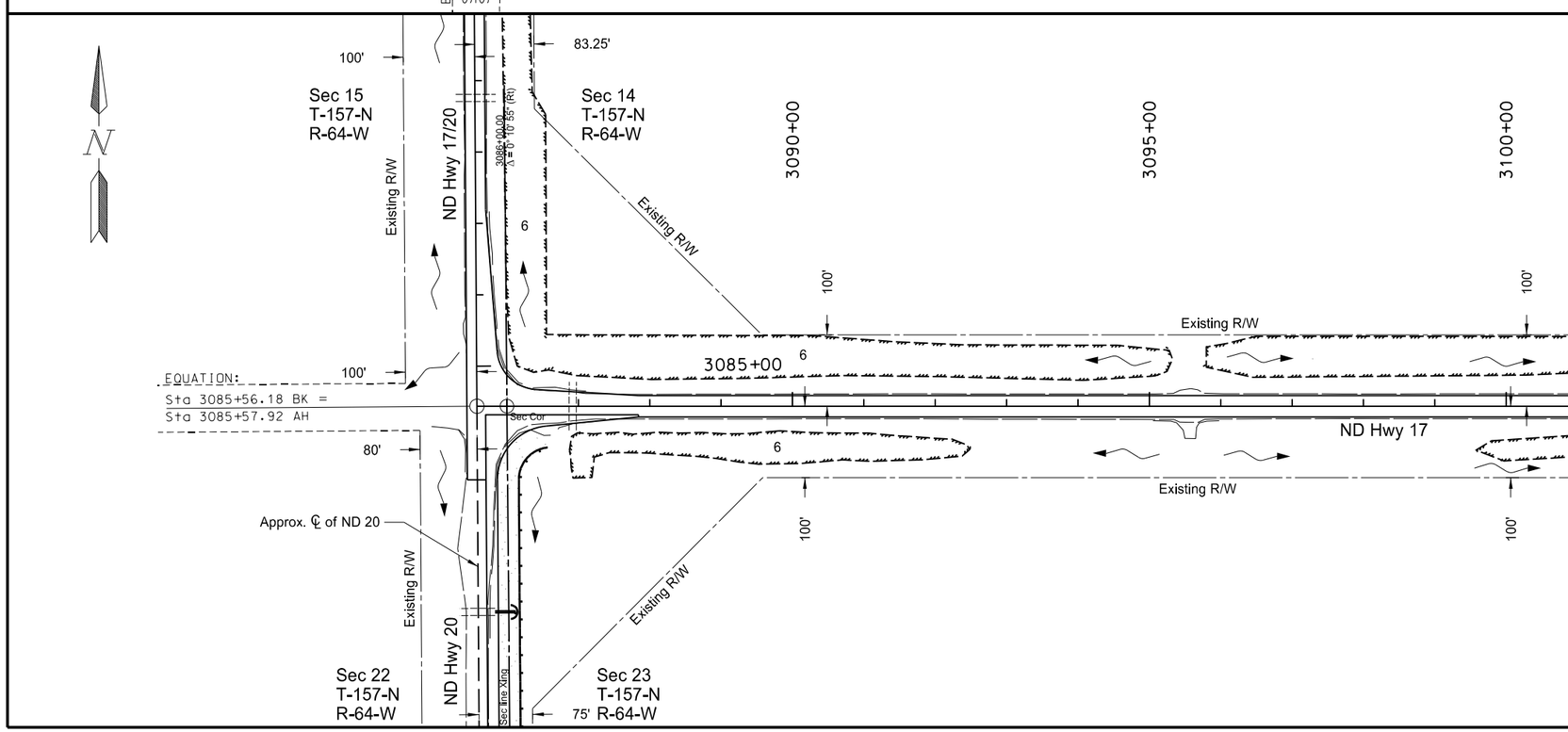
Wetlands, Permanent Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 3040+00 to Sta 3080+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	36





Item	Description	Quantity	Unit
708-1430	Fiber Rolls 12IN Sta 3080+00 Rt to Sta 3100+00 Rt	875	LF
708-2240	Seeding-Type B-CL II Sta 3080+00 Rt to Sta 3100+00 Rt	0.57	ACRE
708-5500	Mulching Sta 3080+00 Rt to Sta 3100+00 Rt	0.57	ACRE

Note: R/W limits are approximate, based on existing plans.

Seeding-Type B-CL II
Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Permanent Fiber Rolls

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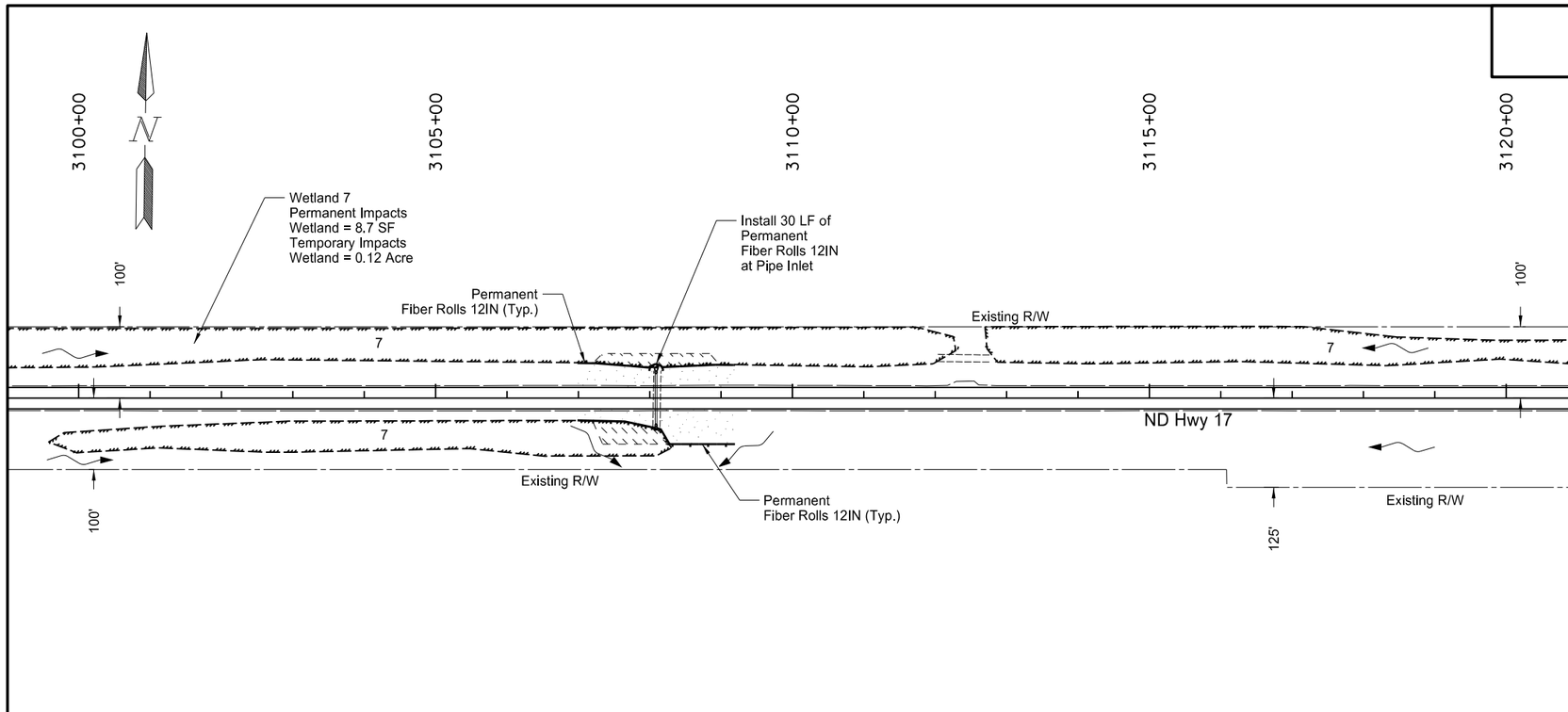
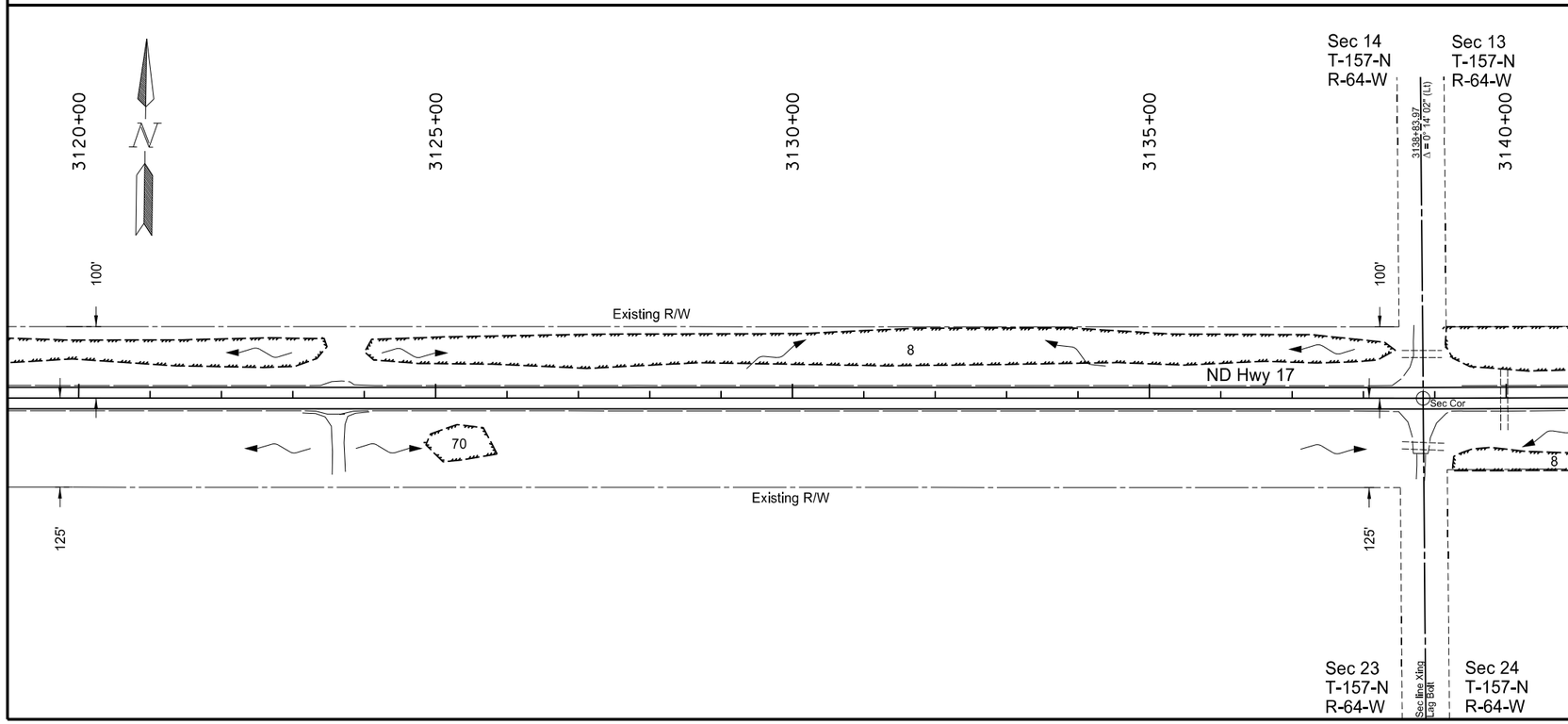
Wetlands, Permanent Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 3080+00 to Sta 3100+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	37





Item	Description	Quantity	Unit
708-1430	Fiber Rolls 12IN		
	Sta 3100+00 Lt to Sta 3140+00 Lt	235	LF
	Sta 3100+00 Rt to Sta 3140+00 Rt	230	LF
708-2240	Seeding-Type B-CL II		
	Sta 3100+00 Lt to Sta 3140+00 Lt	0.15	ACRE
	Sta 3100+00 Rt to Sta 3140+00 Rt	0.16	ACRE
708-5500	Mulching		
	Sta 3100+00 Lt to Sta 3140+00 Lt	0.15	ACRE
	Sta 3100+00 Rt to Sta 3140+00 Rt	0.16	ACRE

Note: R/W limits are approximate, based on existing plans.

Seeding-Type B-CL II
Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Permanent Fiber Rolls

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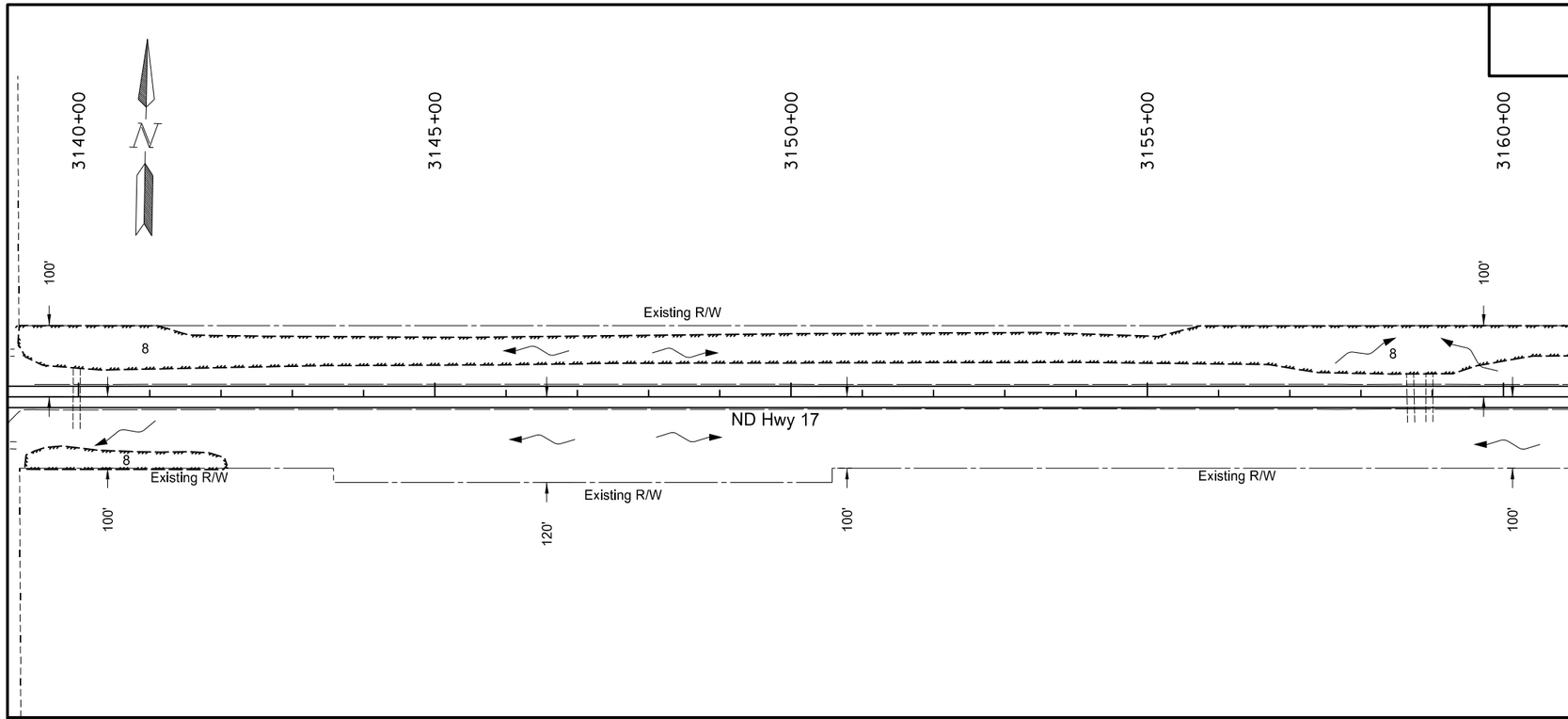
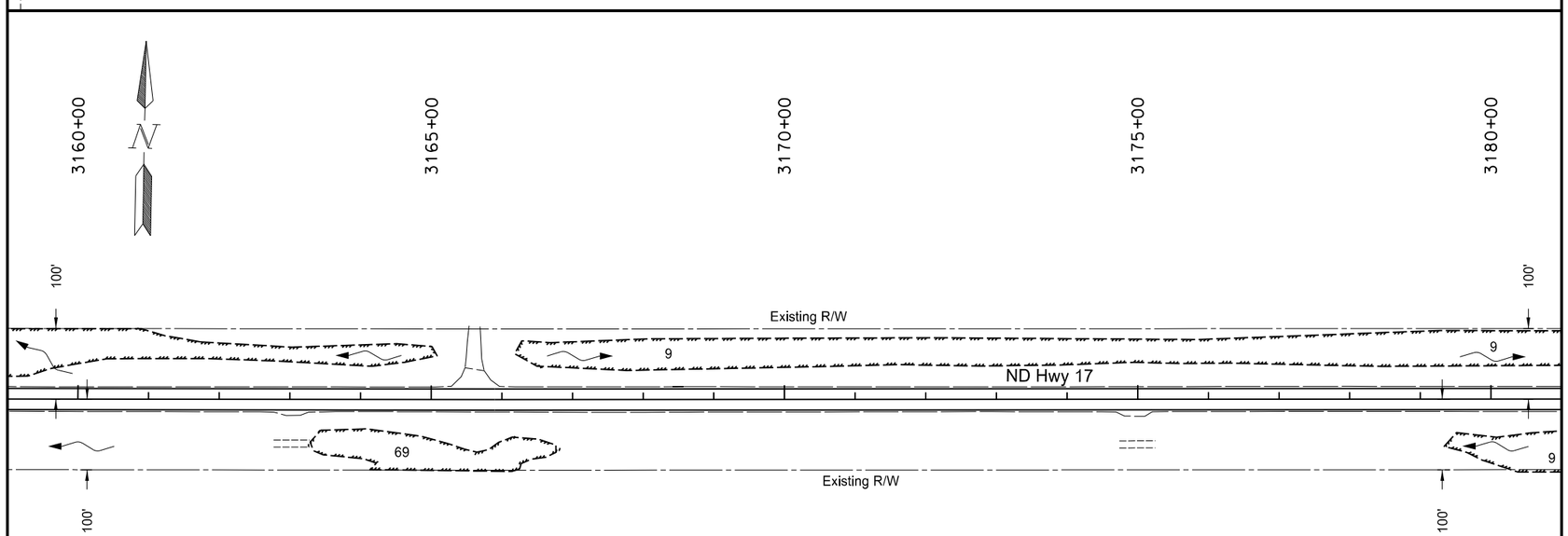
Wetlands, Permanent Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 3100+00 to Sta 3140+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	38





Note: All work from Sta 3140+00 to Sta 3180+00 shall be completed on top of the existing roadway, resulting in no wetland impacts anticipated.

R/W limits are approximate, based on existing plans.

Seeding-Type B-CL II
Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Permanent Fiber Rolls

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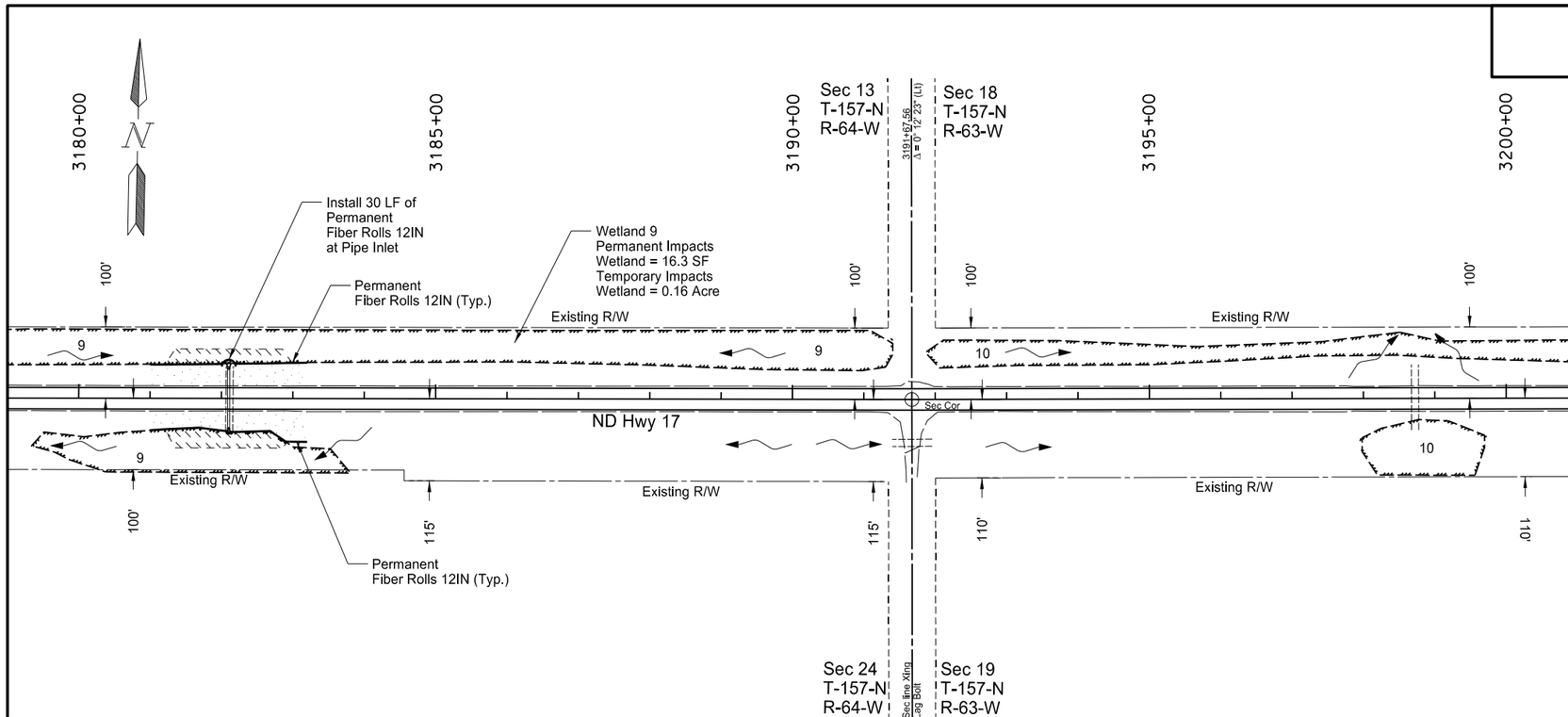
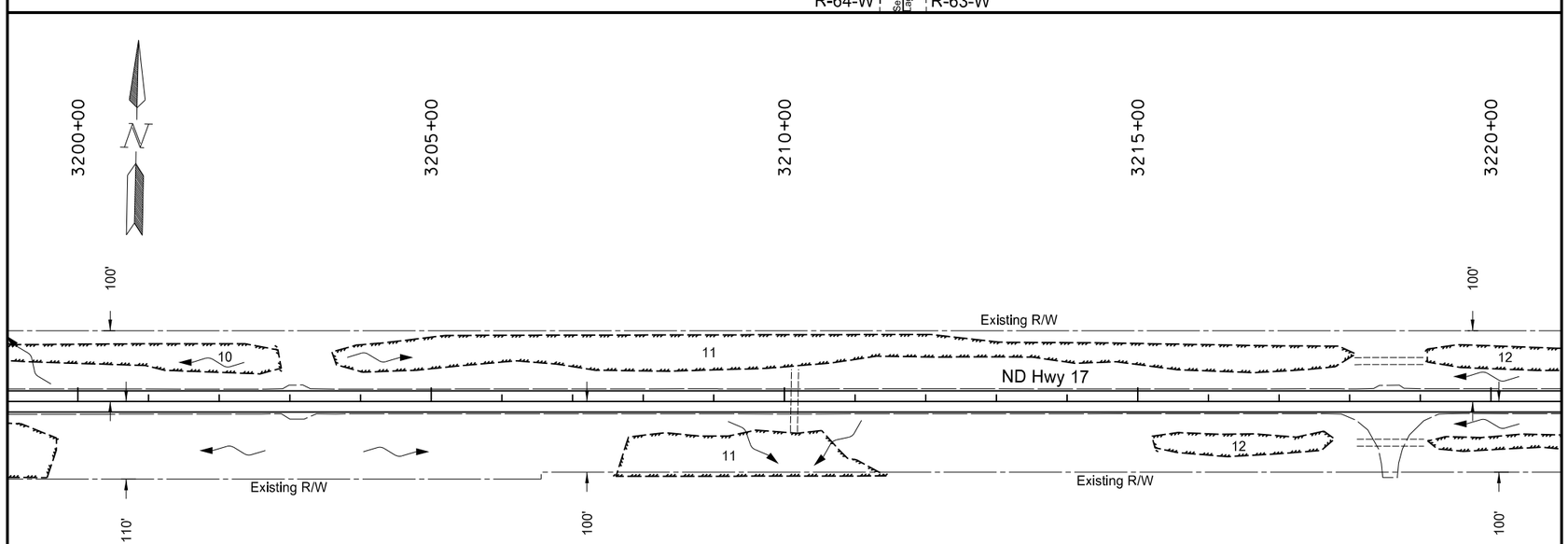
Wetlands, Permanent Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 3140+00 to Sta 3180+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	39





Item	Description	Quantity	Unit
708-1430	Fiber Rolls 12IN		
	Sta 3180+00 Lt to Sta 3220+00 Lt	232	LF
	Sta 3180+00 Rt to Sta 3220+00 Rt	220	LF
708-2240	Seeding-Type B-CL II		
	Sta 3180+00 Lt to Sta 3220+00 Lt	0.17	ACRE
	Sta 3180+00 Rt to Sta 3220+00 Rt	0.16	ACRE
708-5500	Mulching		
	Sta 3180+00 Lt to Sta 3220+00 Lt	0.17	ACRE
	Sta 3180+00 Rt to Sta 3220+00 Rt	0.16	ACRE

Note: R/W limits are approximate, based on existing plans.

Seeding-Type B-CL II
Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Permanent Fiber Rolls

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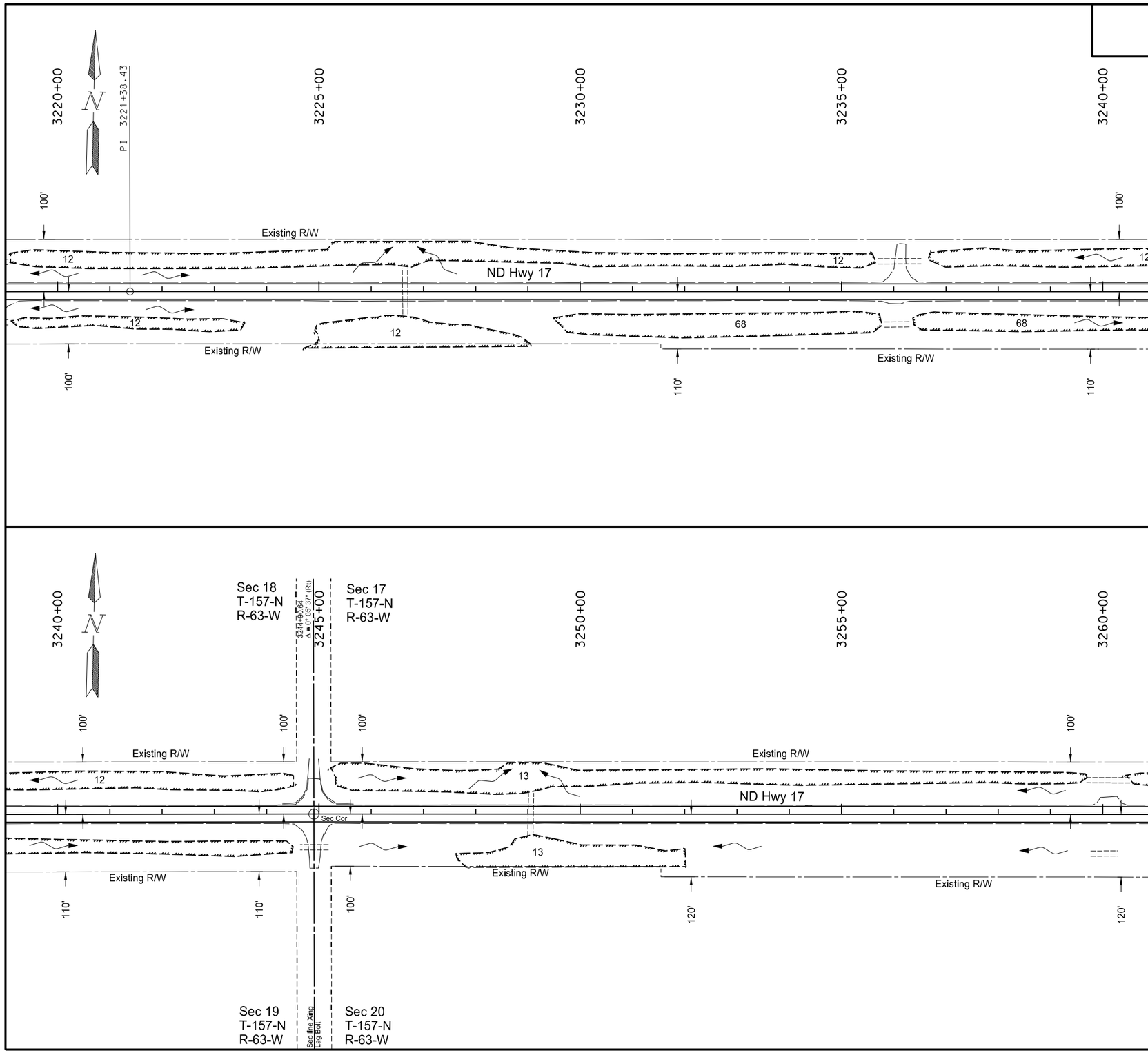
Wetlands, Permanent Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 3180+00 to Sta 3220+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	40



Note: All work from Sta 3220+00 to Sta 3260+00 shall be completed on top of the existing roadway, resulting in no wetland impacts anticipated.

R/W limits are approximate, based on existing plans.

Seeding-Type B-CL II
Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Permanent Fiber Rolls

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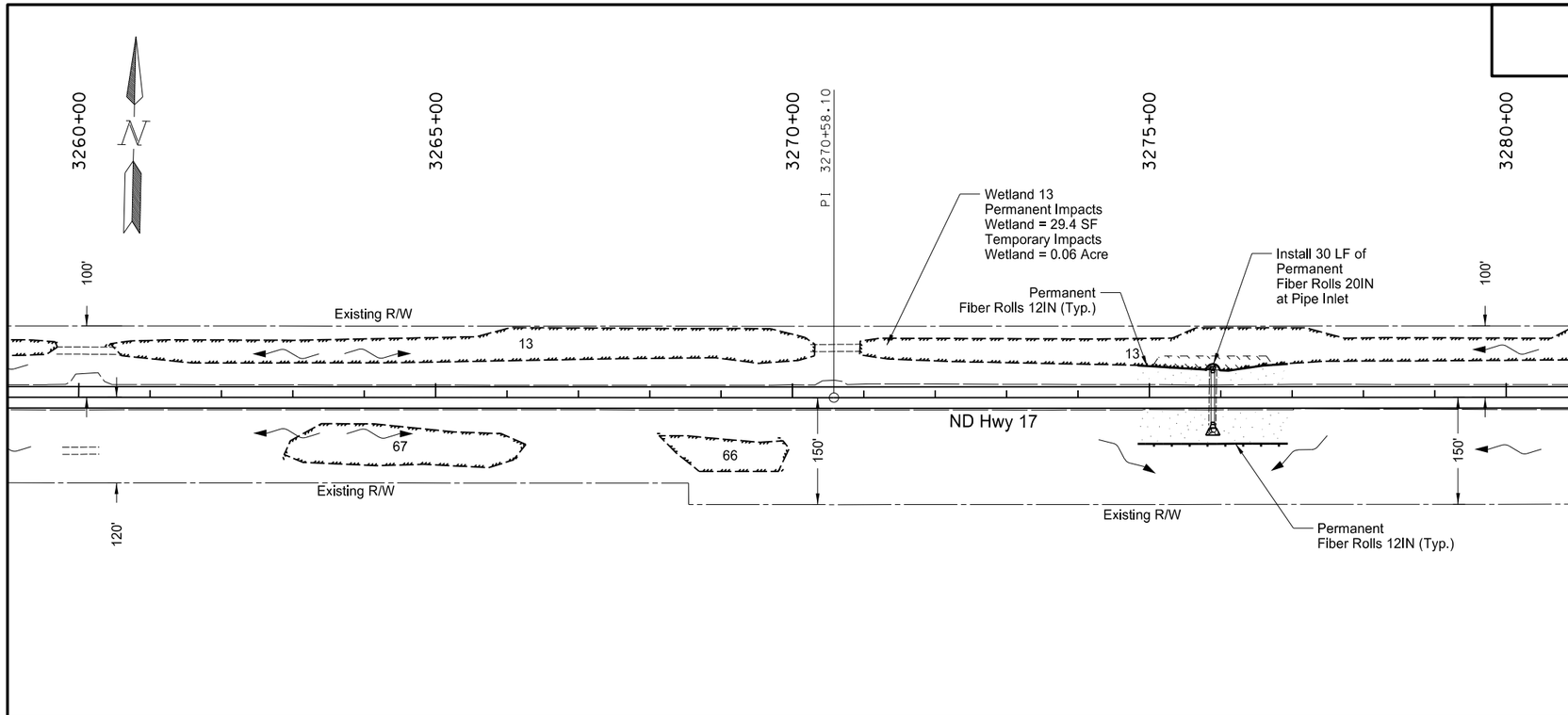
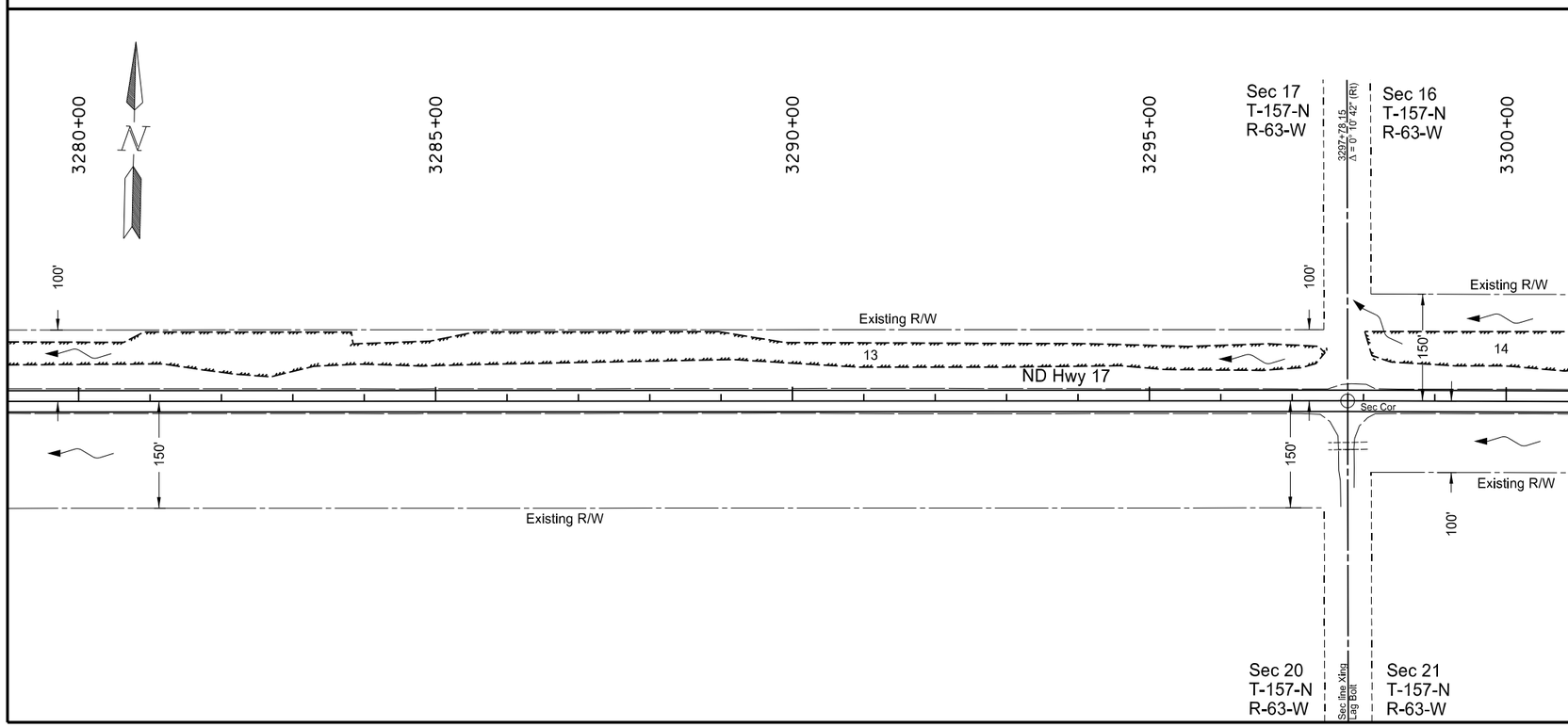
Wetlands, Permanent Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 3220+00 to Sta 3260+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	41





Item	Description	Quantity	Unit
708-1030	Riprap-Loose Rock		
	Sta 3260+00 Rt to Sta 3300+00 Rt	22.2	TON
708-1430	Fiber Rolls 12IN		
	Sta 3260+00 Lt to Sta 3300+00 Lt	192	LF
	Sta 3260+00 Rt to Sta 3300+00 Rt	210	LF
708-1460	Fiber Rolls 20IN		
	Sta 3260+00 Lt to Sta 3300+00 Lt	30	LF
708-2240	Seeding-Type B-CL II		
	Sta 3260+00 Lt to Sta 3300+00 Lt	0.12	ACRE
	Sta 3260+00 Rt to Sta 3300+00 Rt	0.24	ACRE
708-5500	Mulching		
	Sta 3260+00 Lt to Sta 3300+00 Lt	0.12	ACRE
	Sta 3260+00 Rt to Sta 3300+00 Rt	0.24	ACRE
709-0600	Geotextile Fabric-Type RR		
	Sta 3260+00 Rt to Sta 3300+00 Rt	16.7	SY

Note: R/W limits are approximate, based on existing plans.

RipRap-Loose Rock

Seeding-Type B-CL II
Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Permanent Fiber Rolls

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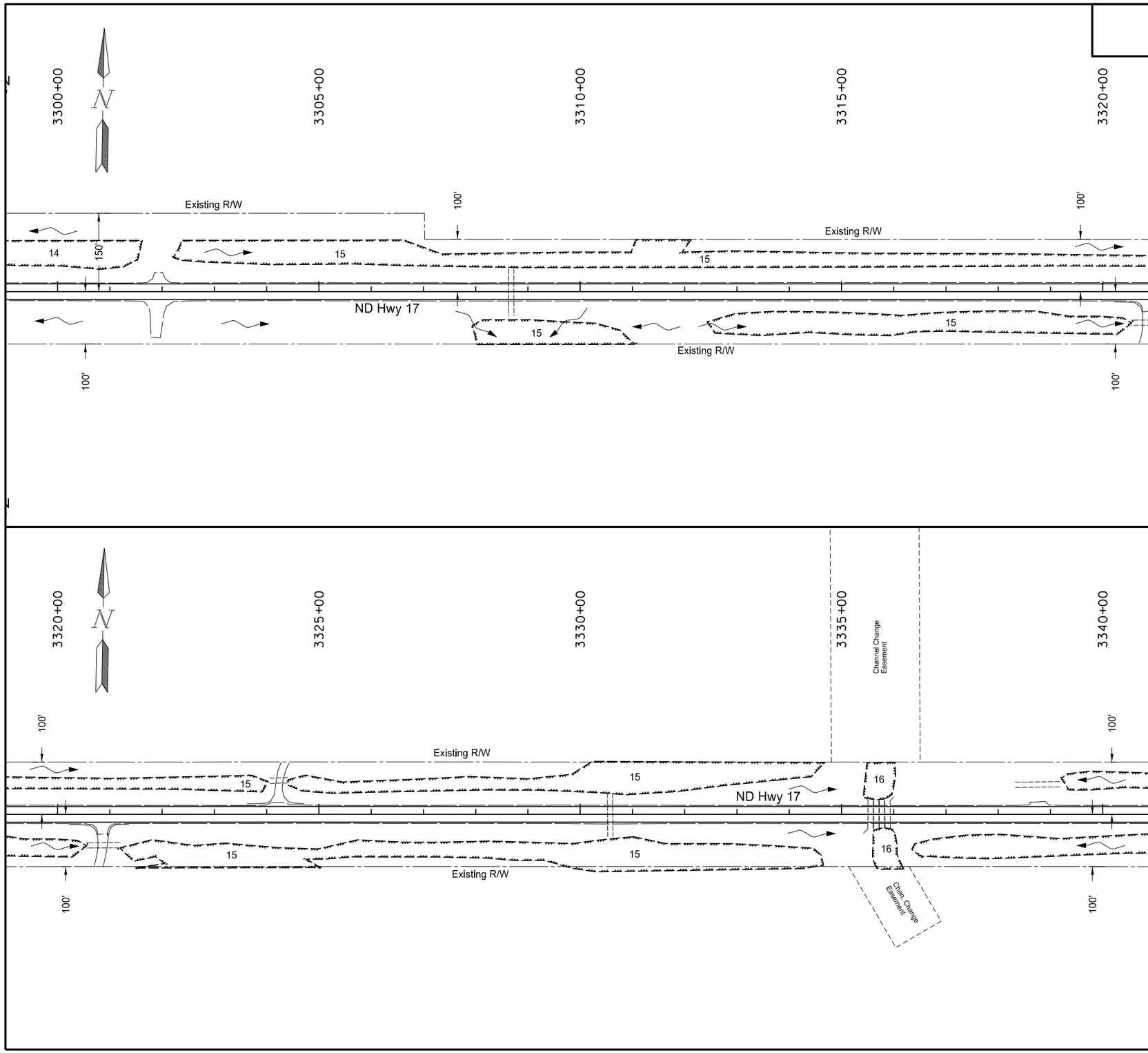
Wetlands, Permanent Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 3260+00 to Sta 3300+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	42



Note: All work from Sta 3300+00 to Sta 3340+00 shall be completed on top of the existing roadway, resulting in no wetland impacts anticipated.

R/W limits are approximate, based on existing plans.

Seeding-Type B-CL II
Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Permanent Fiber Rolls

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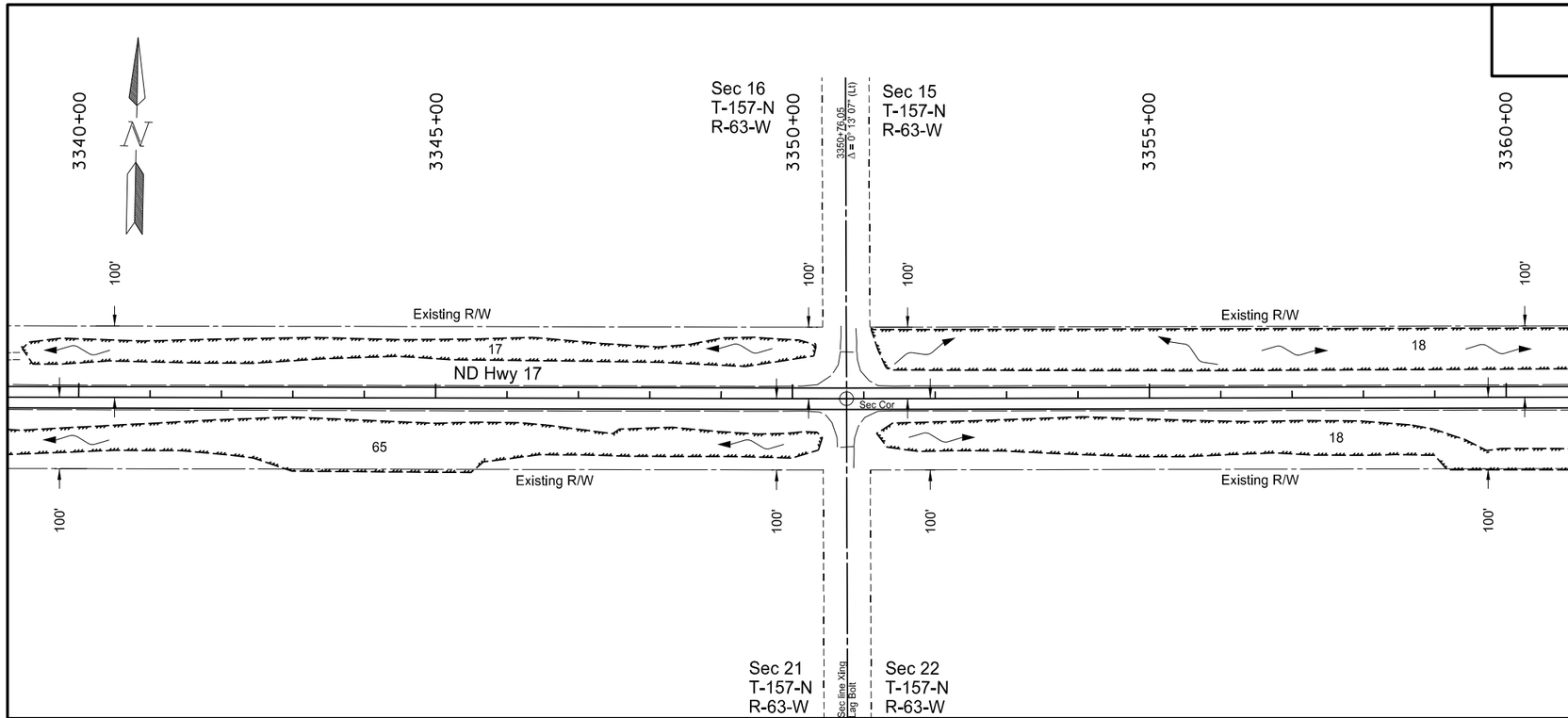
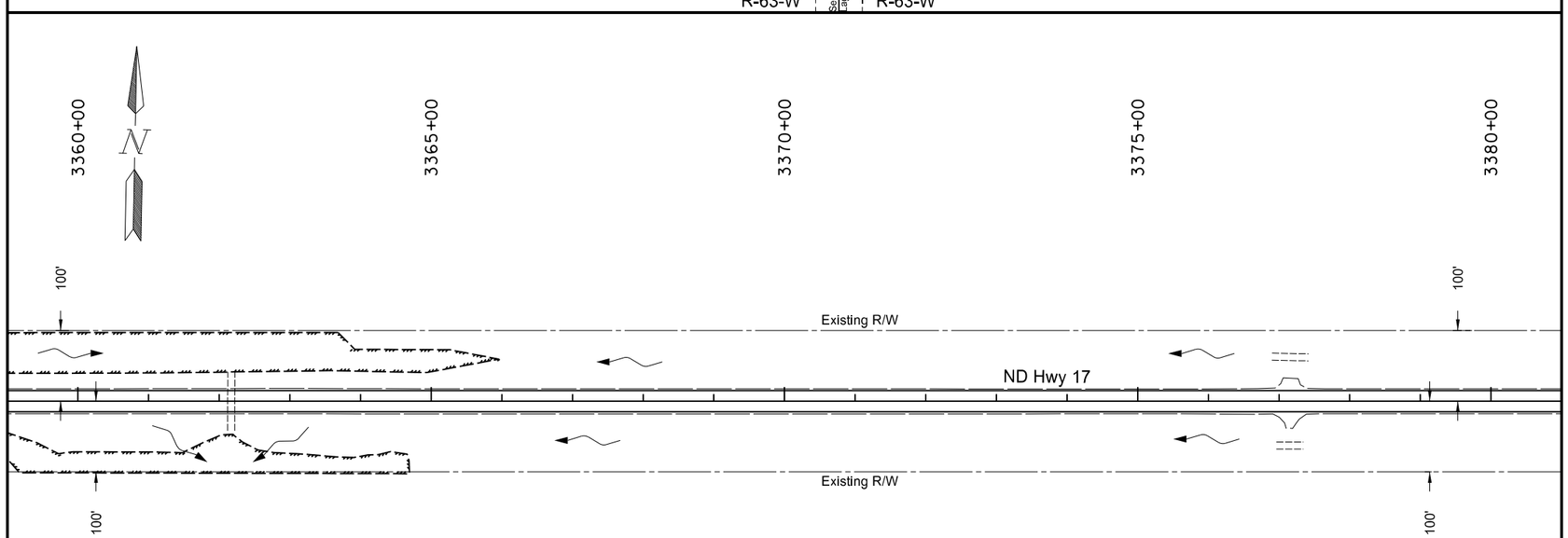
Wetlands, Permanent Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 3300+00 to Sta 3340+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	43





Note: All work from Sta 3340+00 to Sta 3380+00 shall be completed on top of the existing roadway, resulting in no wetland impacts anticipated.

R/W limits are approximate, based on existing plans.

Seeding-Type B-CL II
Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Permanent Fiber Rolls

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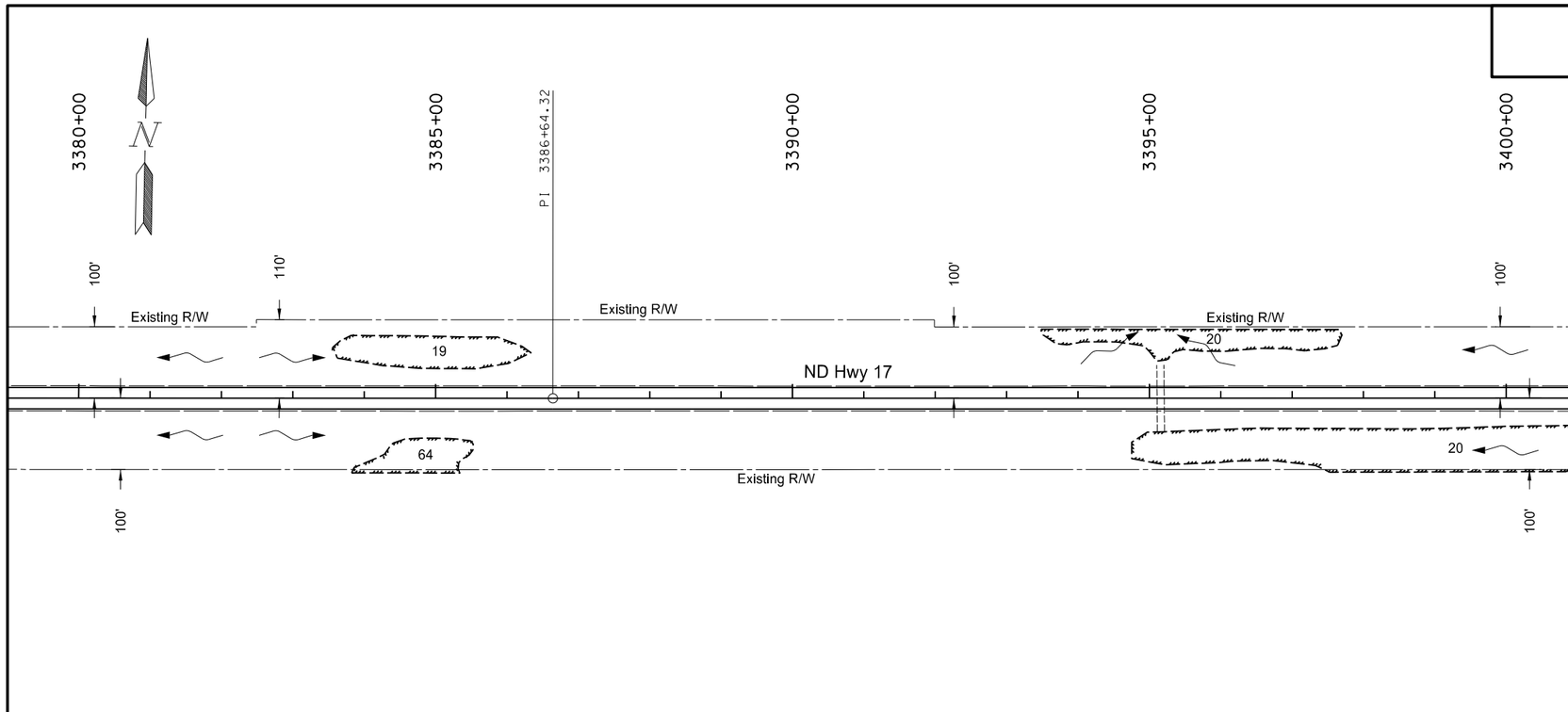
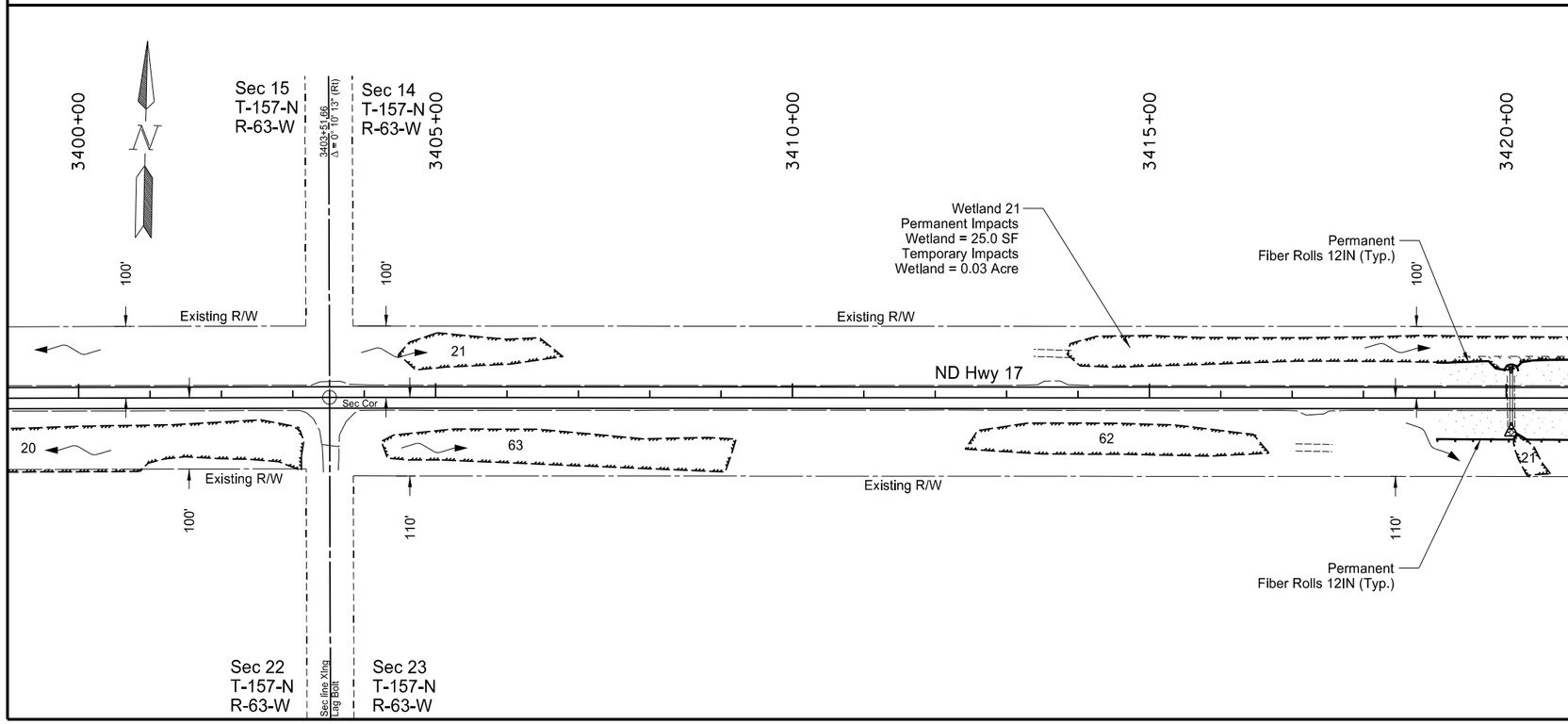
Wetlands, Permanent Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 3340+00 to Sta 3380+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	44





Item	Description	Quantity	Unit
708-1430	Fiber Rolls 12IN		
	Sta 3380+00 Lt to Sta 3420+00 Lt	100	LF
	Sta 3380+00 Rt to Sta 3420+00 Rt	99	LF
708-2240	Seeding-Type B-CL II		
	Sta 3380+00 Lt to Sta 3420+00 Lt	0.07	ACRE
	Sta 3380+00 Rt to Sta 3420+00 Rt	0.09	ACRE
708-5500	Mulching		
	Sta 3380+00 Lt to Sta 3420+00 Lt	0.07	ACRE
	Sta 3380+00 Rt to Sta 3420+00 Rt	0.09	ACRE

Note: R/W limits are approximate, based on existing plans.

Seeding-Type B-CL II
Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Permanent Fiber Rolls

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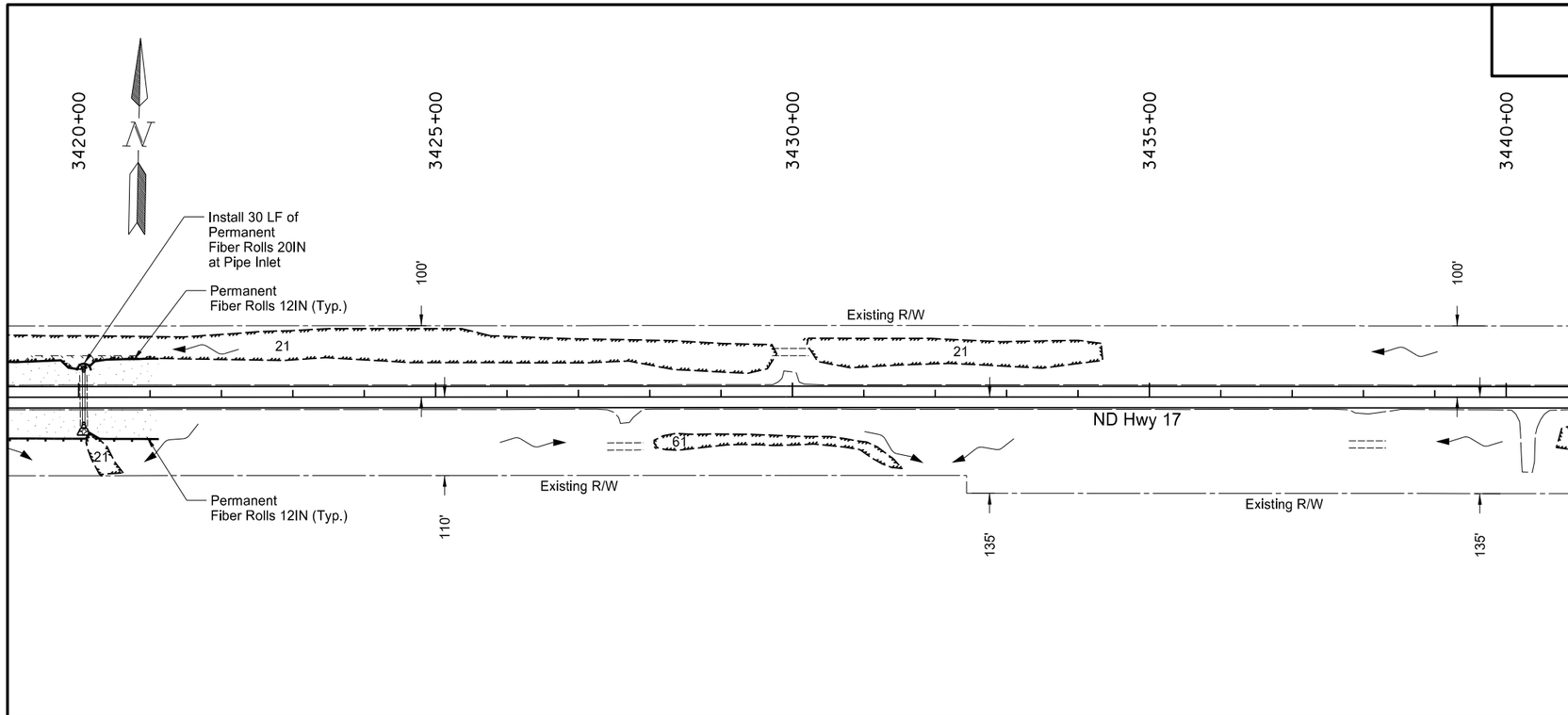
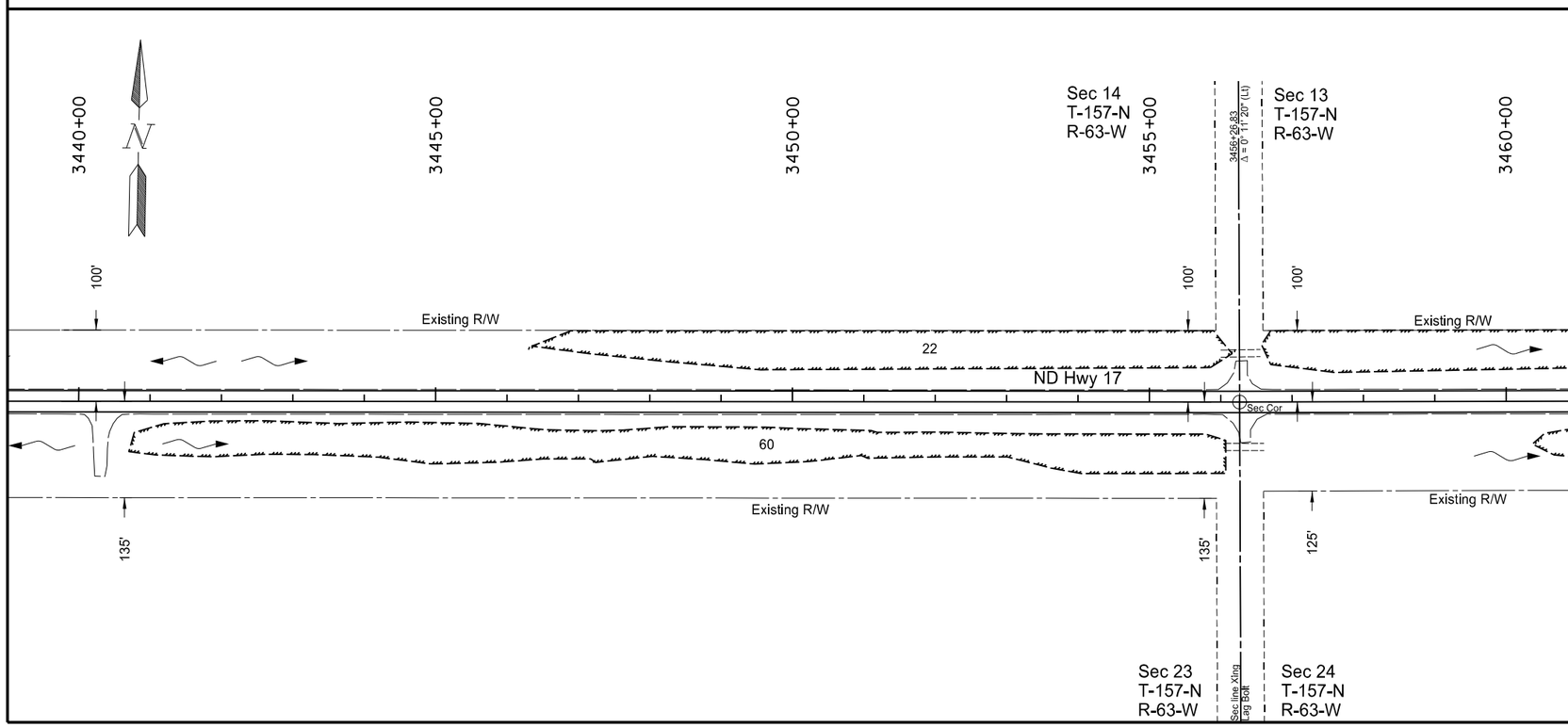
Wetlands, Permanent Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 3380+00 to Sta 3420+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	45





Item	Description	Quantity	Unit
708-1030	Riprap-Loose Rock		
	Sta 3420+00 Rt to Sta 3460+00 Rt	20	TON
708-1430	Fiber Rolls 12IN		
	Sta 3420+00 Lt to Sta 3460+00 Lt	100	LF
	Sta 3420+00 Rt to Sta 3460+00 Rt	115	LF
708-1460	Fiber Rolls 20IN		
	Sta 3420+00 Lt to Sta 3460+00 Lt	30	LF
708-2240	Seeding-Type B-CL II		
	Sta 3420+00 Lt to Sta 3460+00 Lt	0.09	ACRE
	Sta 3420+00 Rt to Sta 3460+00 Rt	0.11	ACRE
708-5500	Mulching		
	Sta 3420+00 Lt to Sta 3460+00 Lt	0.09	ACRE
	Sta 3420+00 Rt to Sta 3460+00 Rt	0.11	ACRE
709-0600	Geotextile Fabric-Type RR		
	Sta 3420+00 Rt to Sta 3460+00 Rt	15	SY

Note: R/W limits are approximate, based on existing plans.

RipRap-Loose Rock

Seeding-Type B-CL II
Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Permanent Fiber Rolls

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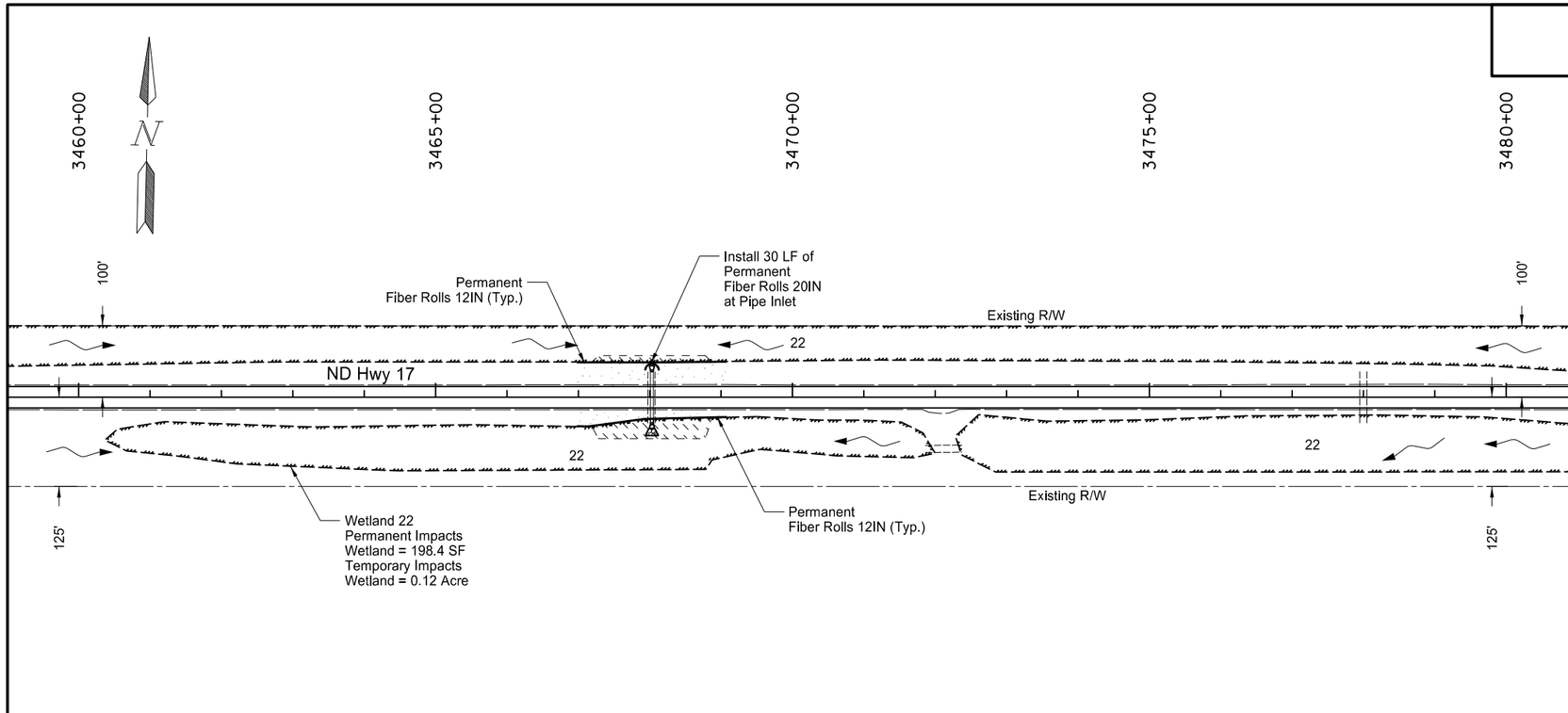
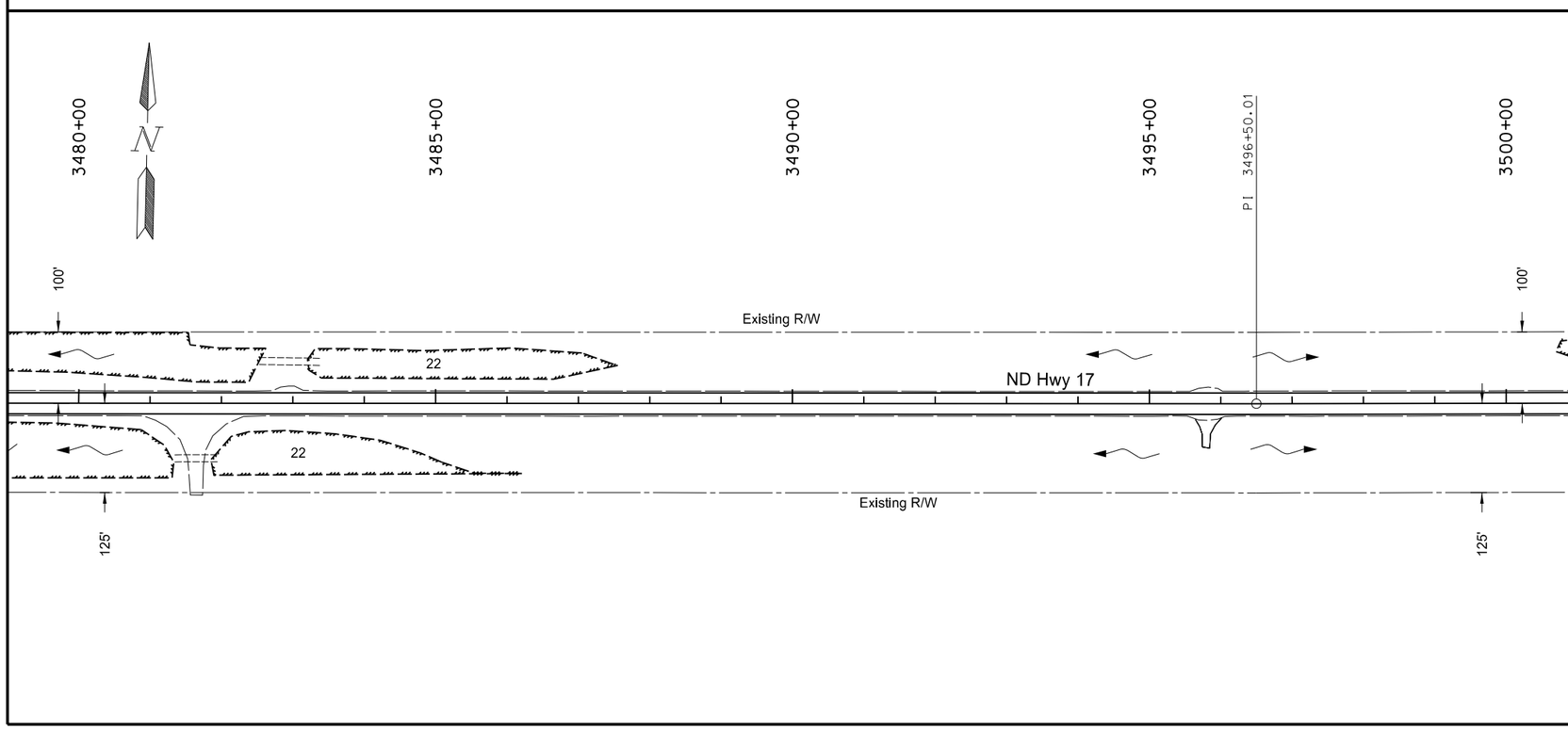
Wetlands, Permanent Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 3420+00 to Sta 3460+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	46





Item	Description	Quantity	Unit
708-1030	Riprap-Loose Rock		
	Sta 3460+00 Rt to Sta 3500+00 Rt	20.7	TON
708-1430	Fiber Rolls 12IN		
	Sta 3460+00 Lt to Sta 3500+00 Lt	210	LF
	Sta 3460+00 Rt to Sta 3500+00 Rt	210	LF
708-1460	Fiber Rolls 20IN		
	Sta 3460+00 Lt to Sta 3500+00 Lt	30	LF
708-2240	Seeding-Type B-CL II		
	Sta 3460+00 Lt to Sta 3500+00 Lt	0.16	ACRE
	Sta 3460+00 Rt to Sta 3500+00 Rt	0.08	ACRE
708-5500	Mulching		
	Sta 3460+00 Lt to Sta 3500+00 Lt	0.16	ACRE
	Sta 3460+00 Rt to Sta 3500+00 Rt	0.08	ACRE
709-0600	Geotextile Fabric-Type RR		
	Sta 3460+00 Rt to Sta 3500+00 Rt	15.6	SY

Note: R/W limits are approximate, based on existing plans.

RipRap-Loose Rock

Seeding-Type B-CL II
Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Permanent Fiber Rolls

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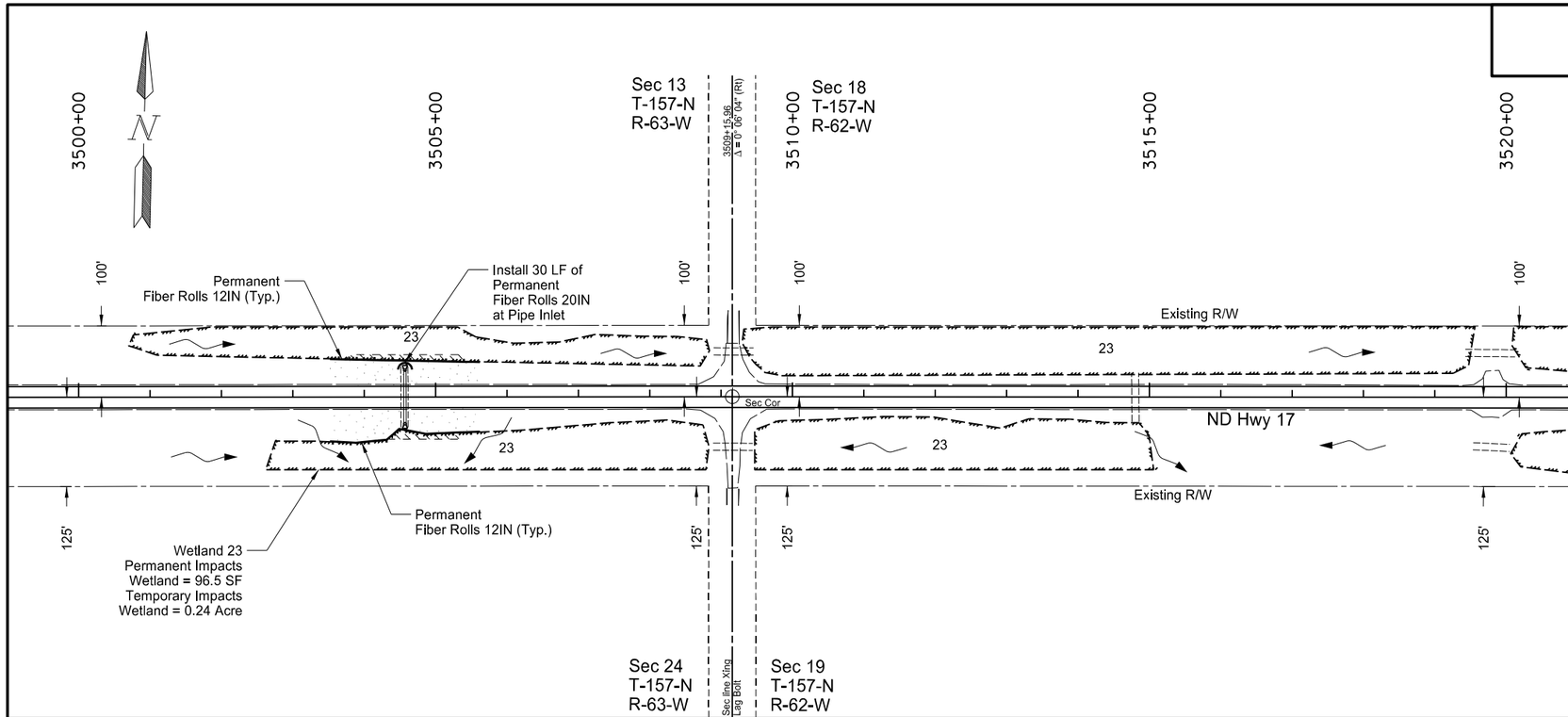
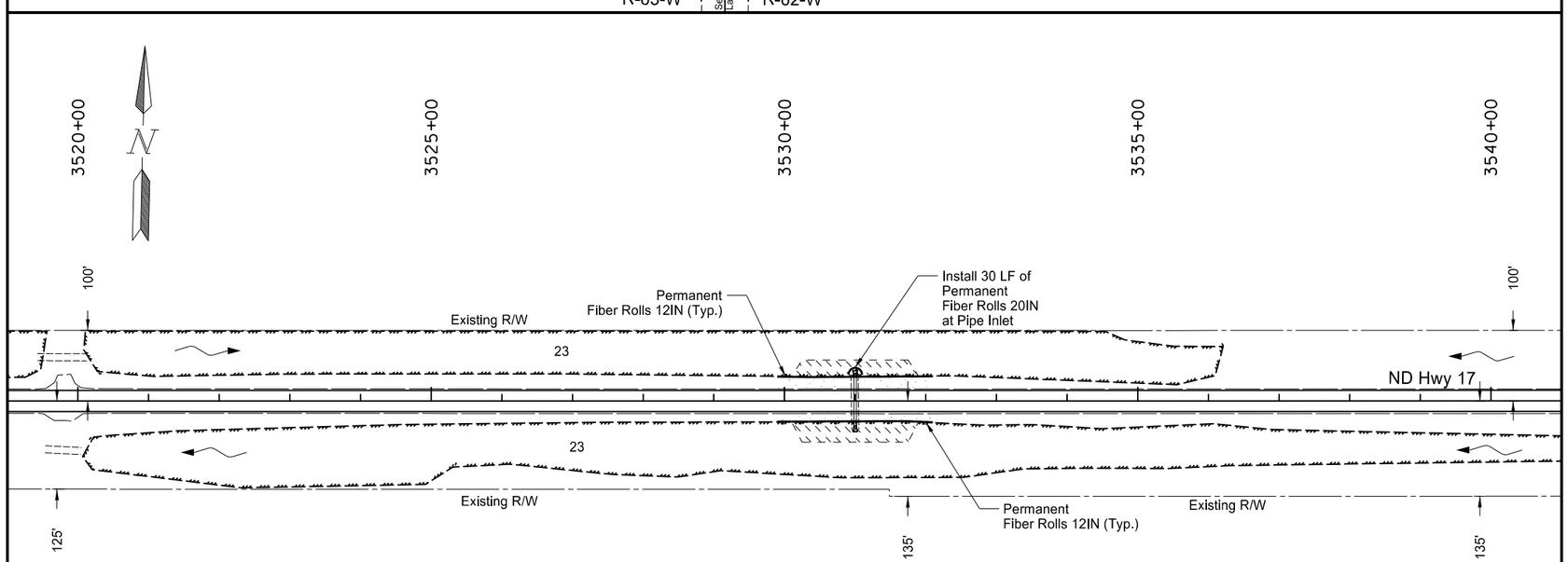
Wetlands, Permanent Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 3460+00 to Sta 3500+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	47





Item	Description	Quantity	Unit
708-1430	Fiber Rolls 12IN		
	Sta 3500+00 Lt to Sta 3540+00 Lt	430	LF
	Sta 3500+00 Rt to Sta 3540+00 Lt	437	LF
708-1460	Fiber Rolls 20IN		
	Sta 3500+00 Lt to Sta 3540+00 Lt	60	LF
708-2240	Seeding-Type B-CL II		
	Sta 3500+00 Lt to Sta 3540+00 Lt	0.26	ACRE
	Sta 3500+00 Rt to Sta 3540+00 Rt	0.25	ACRE
708-5500	Mulching		
	Sta 3500+00 Lt to Sta 3540+00 Lt	0.26	ACRE
	Sta 3500+00 Rt to Sta 3540+00 Rt	0.25	ACRE

Note: R/W limits are approximate, based on existing plans.

Seeding-Type B-CL II
Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Permanent Fiber Rolls

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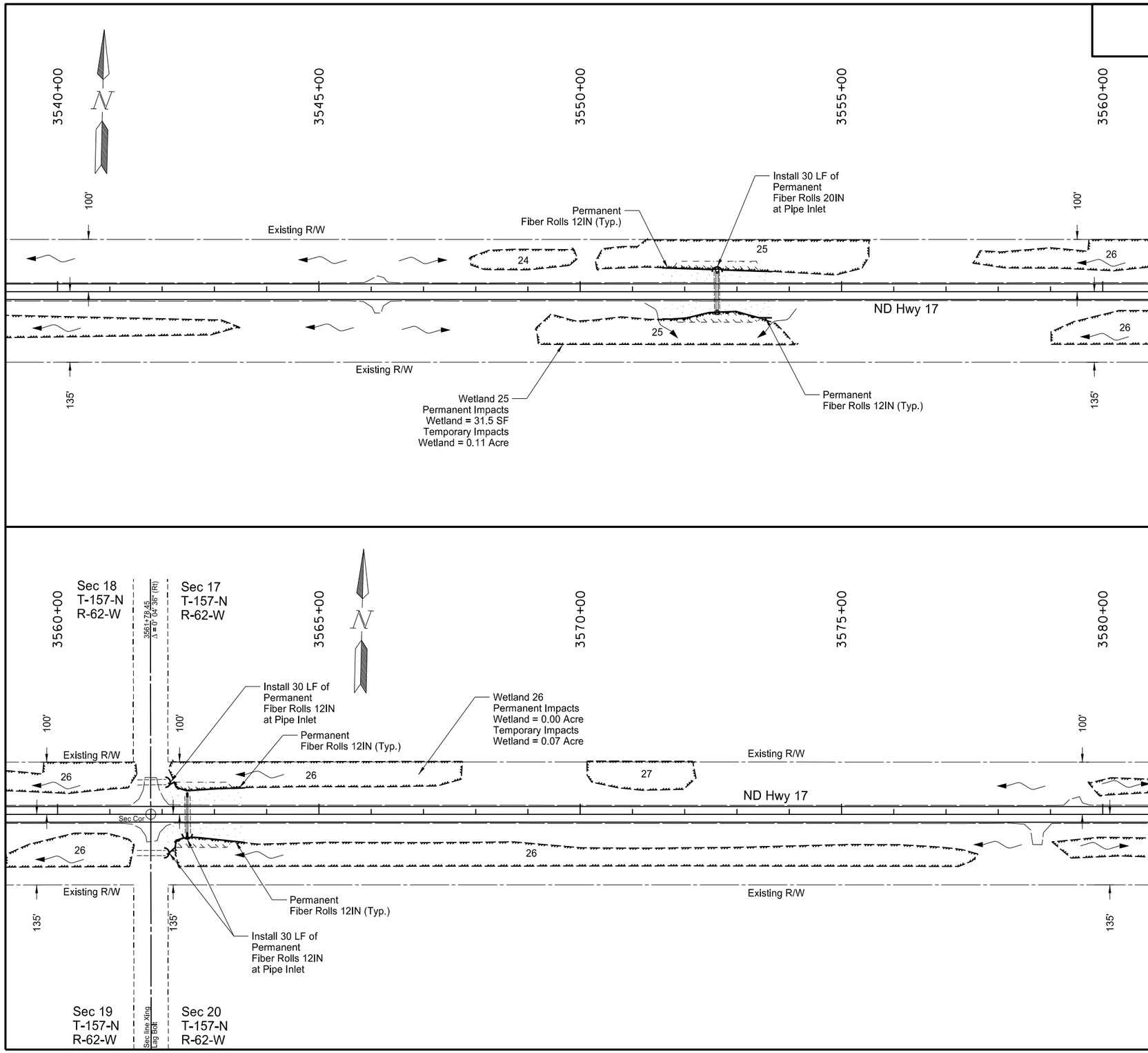
Wetlands, Permanent Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 3500+00 to Sta 3540+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	48



Item	Description	Quantity	Unit
708-1430	Fiber Rolls 12IN		
	Sta 3540+00 Lt to Sta 3580+00 Lt	376	LF
	Sta 3540+00 Rt to Sta 3580+00 Lt	418	LF
708-1460	Fiber Rolls 20IN		
	Sta 3540+00 Lt to Sta 3580+00 Lt	30	LF
708-2240	Seeding-Type B-CL II		
	Sta 3540+00 Lt to Sta 3580+00 Lt	0.25	ACRE
	Sta 3540+00 Rt to Sta 3580+00 Rt	0.27	ACRE
708-5500	Mulching		
	Sta 3540+00 Lt to Sta 3580+00 Lt	0.25	ACRE
	Sta 3540+00 Rt to Sta 3580+00 Rt	0.27	ACRE

Note: R/W limits are approximate, based on existing plans.

Seeding-Type B-CL II
Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Permanent Fiber Rolls

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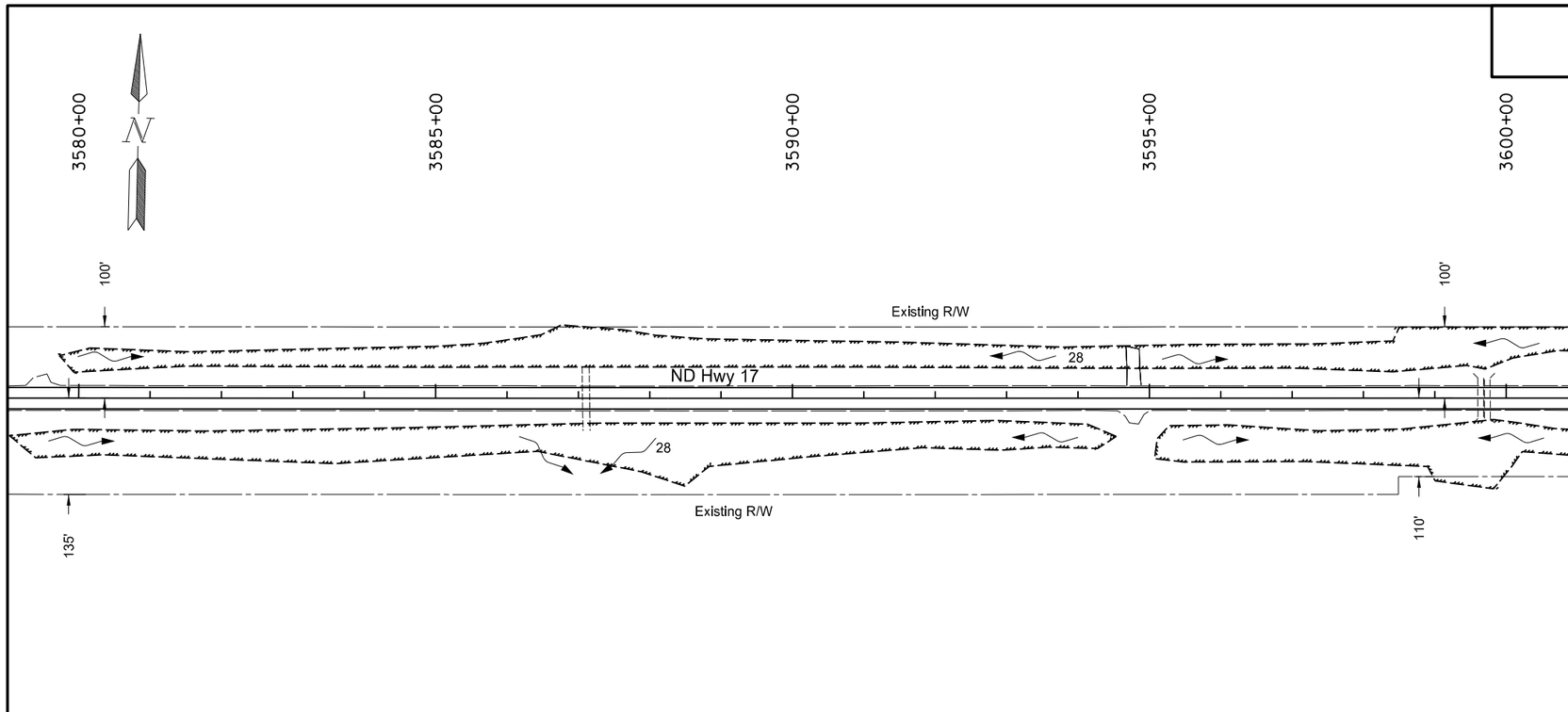
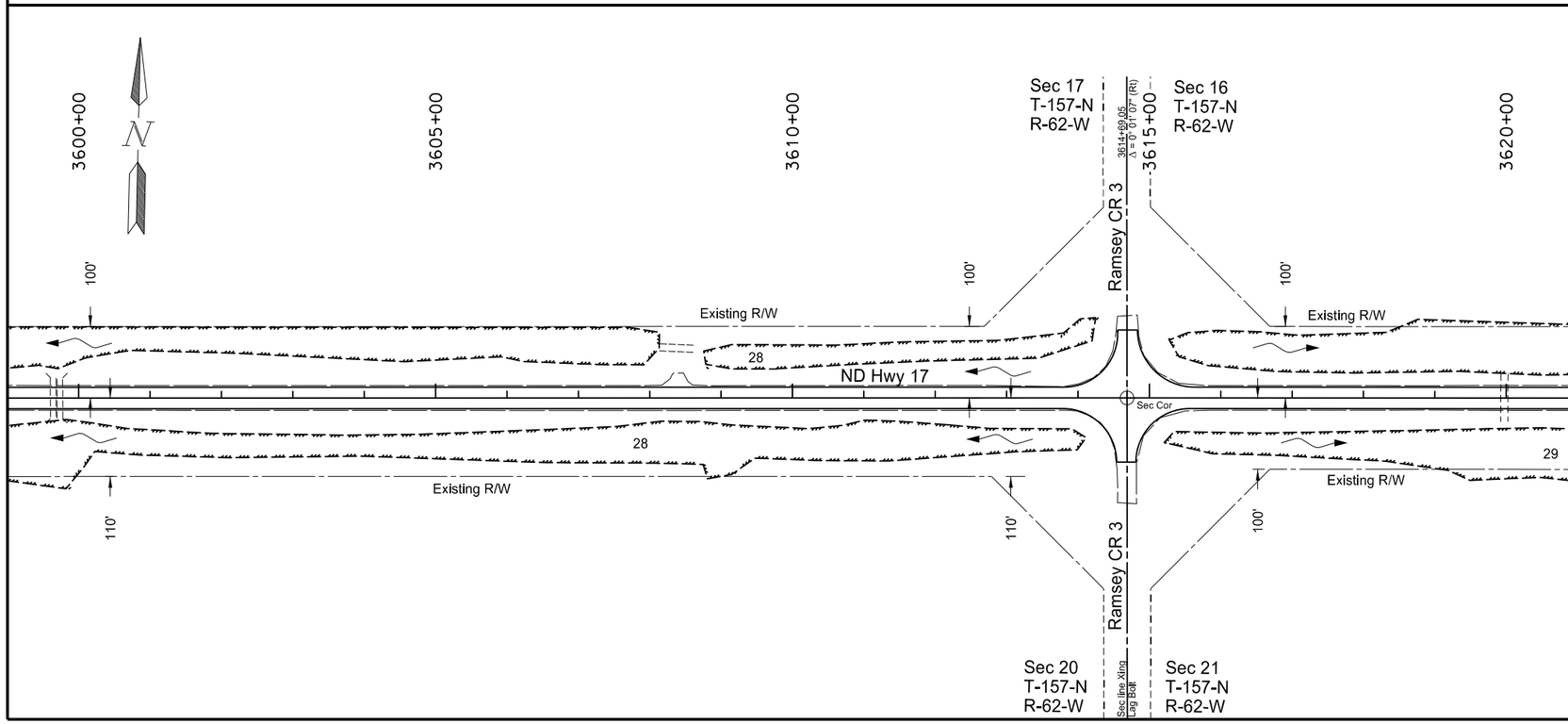
Wetlands, Permanent Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 3540+00 to Sta 3580+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	49





Note: All work from Sta 3580+00 to Sta 3620+00 shall be completed on top of the existing roadway, resulting in no wetland impacts anticipated.

R/W limits are approximate, based on existing plans.

Seeding-Type B-CL II
Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Permanent Fiber Rolls

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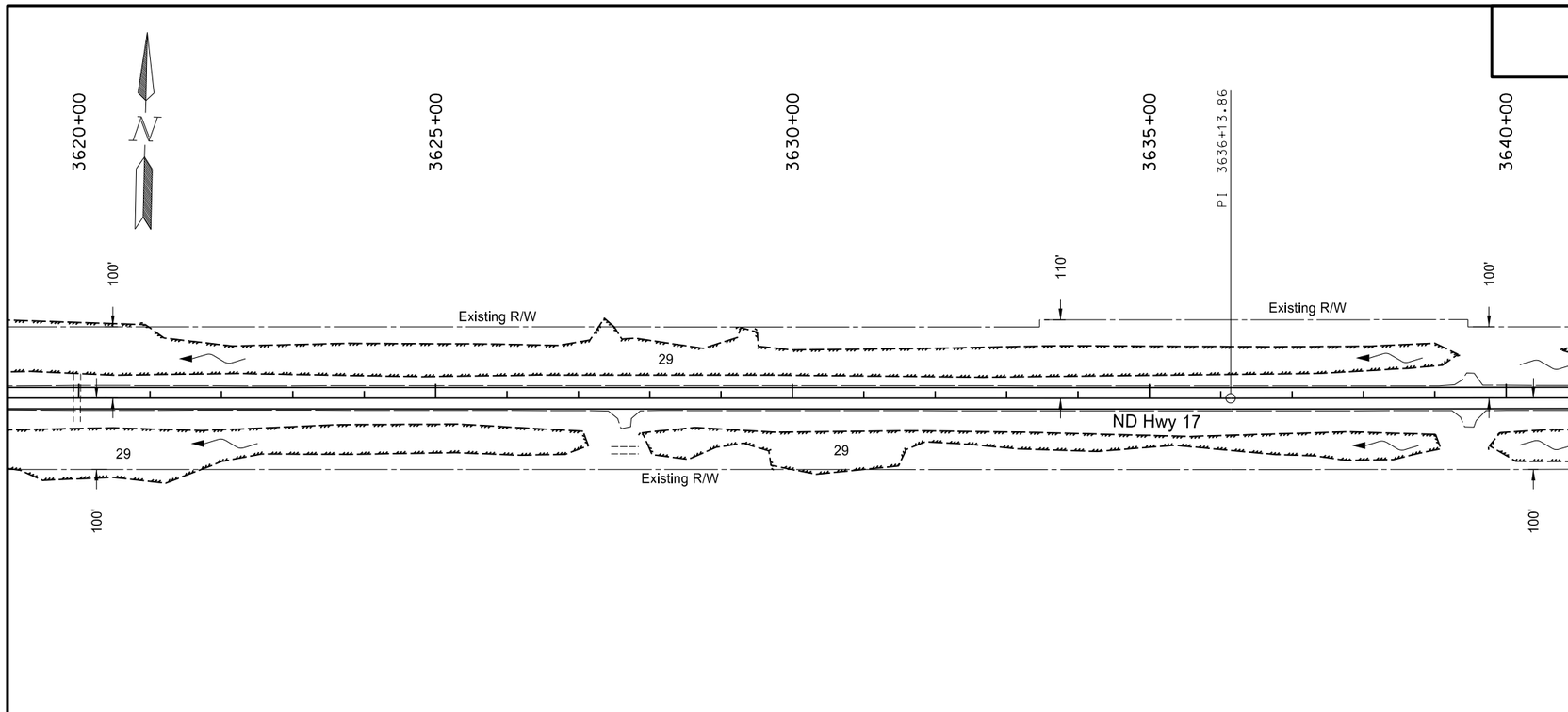
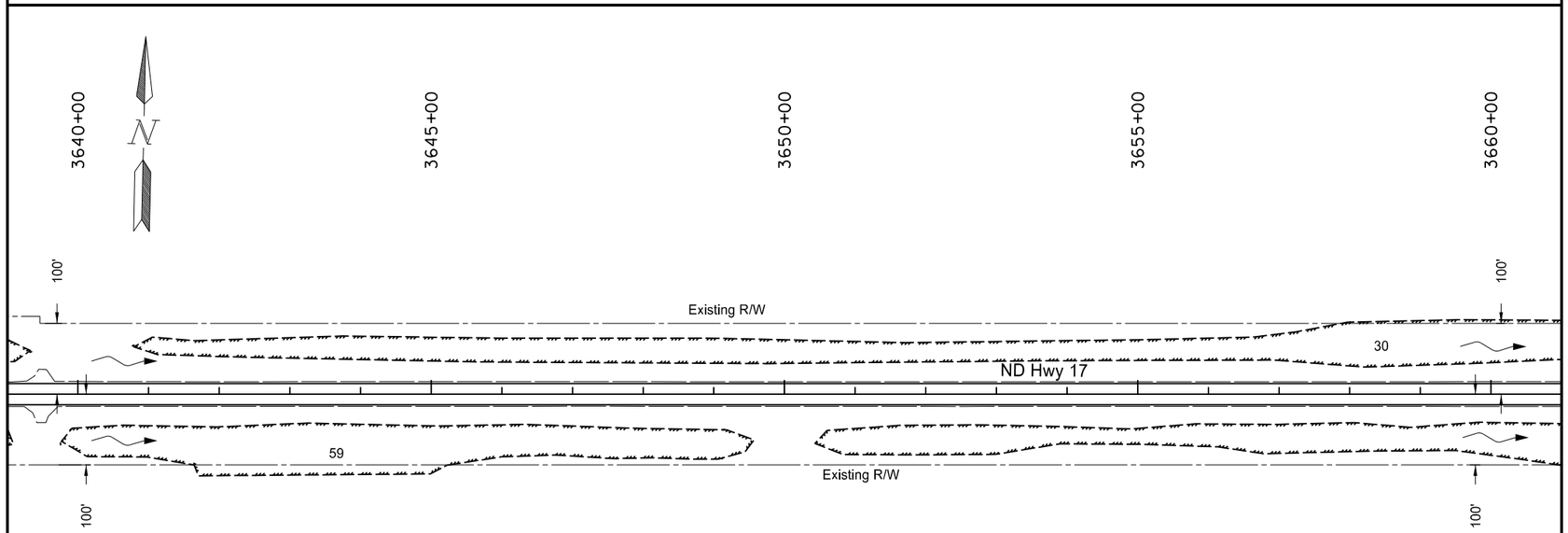
Wetlands, Permanent Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 3580+00 to Sta 3620+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	50





Note: All work from Sta 3620+00 to Sta 3660+00 shall be completed on top of the existing roadway, resulting in no wetland impacts anticipated.

R/W limits are approximate, based on existing plans.

Seeding-Type B-CL II
Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Permanent Fiber Rolls

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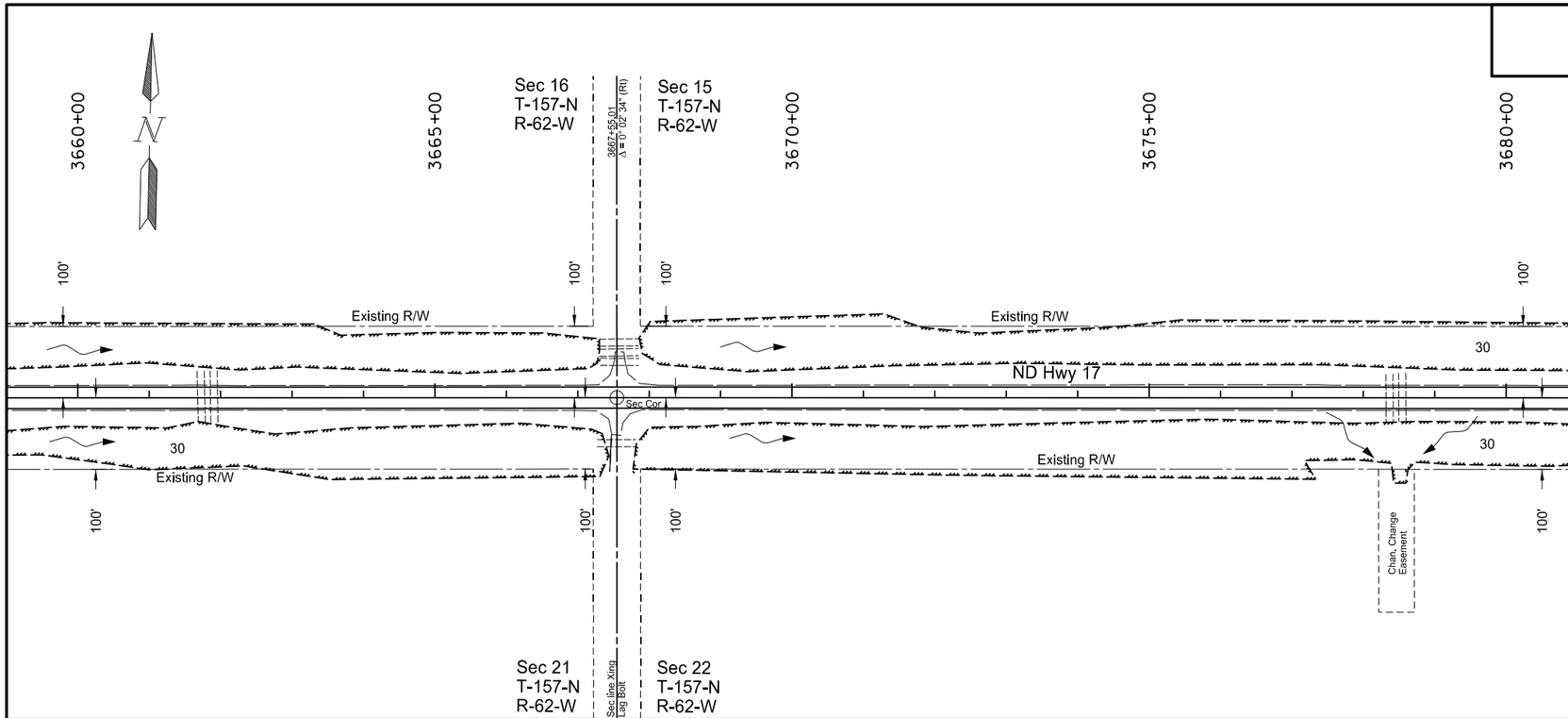
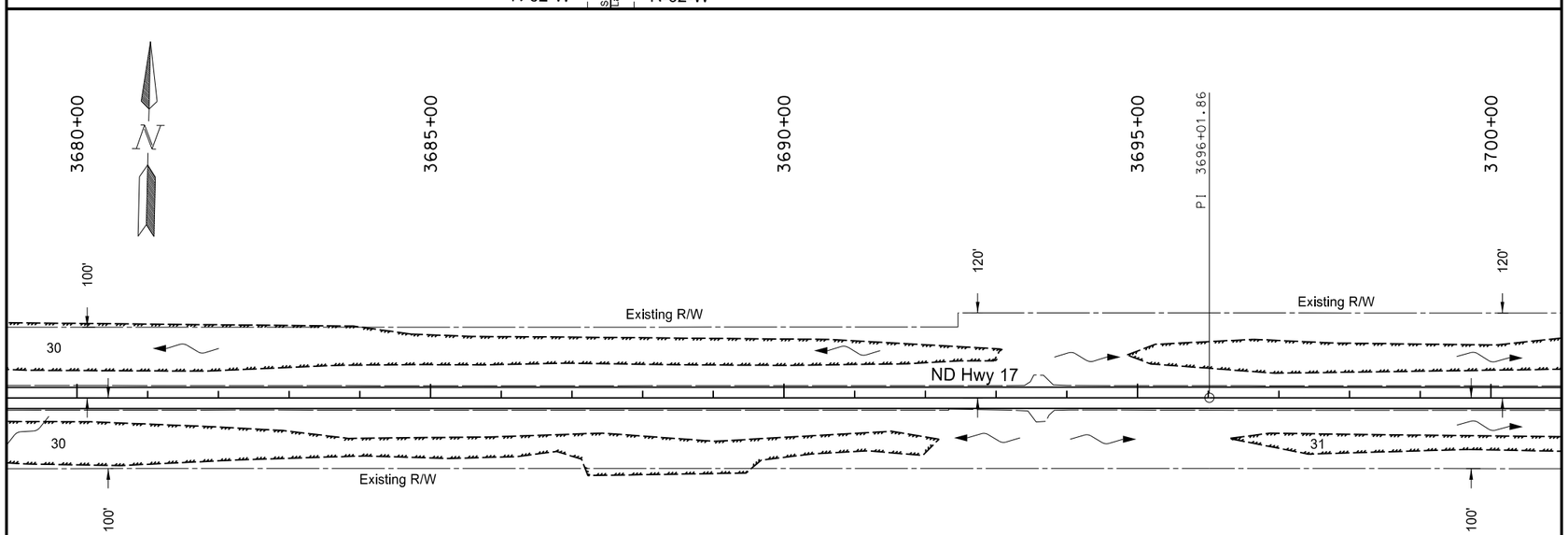
Wetlands, Permanent Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 3620+00 to Sta 3660+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	51





Note: All work from Sta 3660+00 to Sta 3700+00 shall be completed on top of the existing roadway, resulting in no wetland impacts anticipated.

R/W limits are approximate, based on existing plans.

Seeding-Type B-CL II Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Permanent Fiber Rolls

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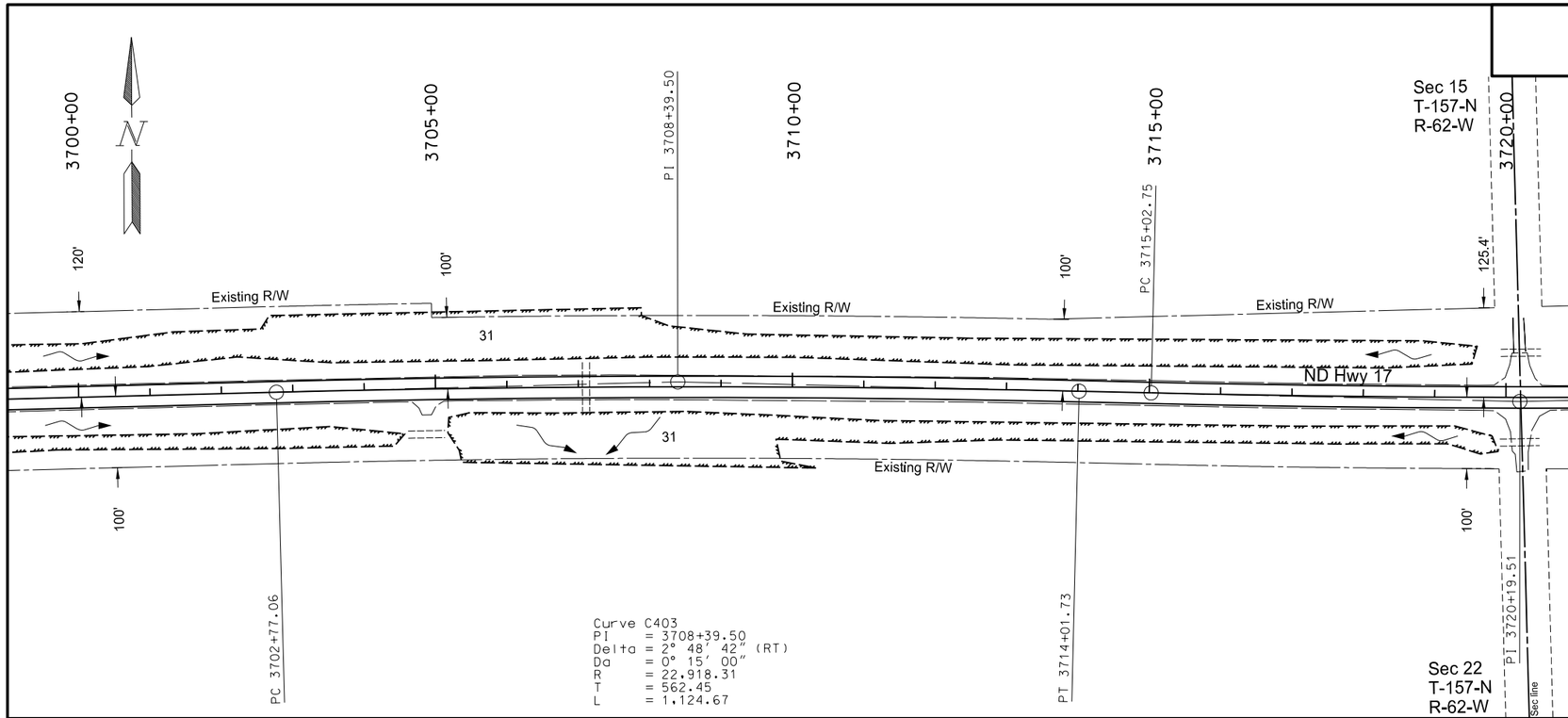
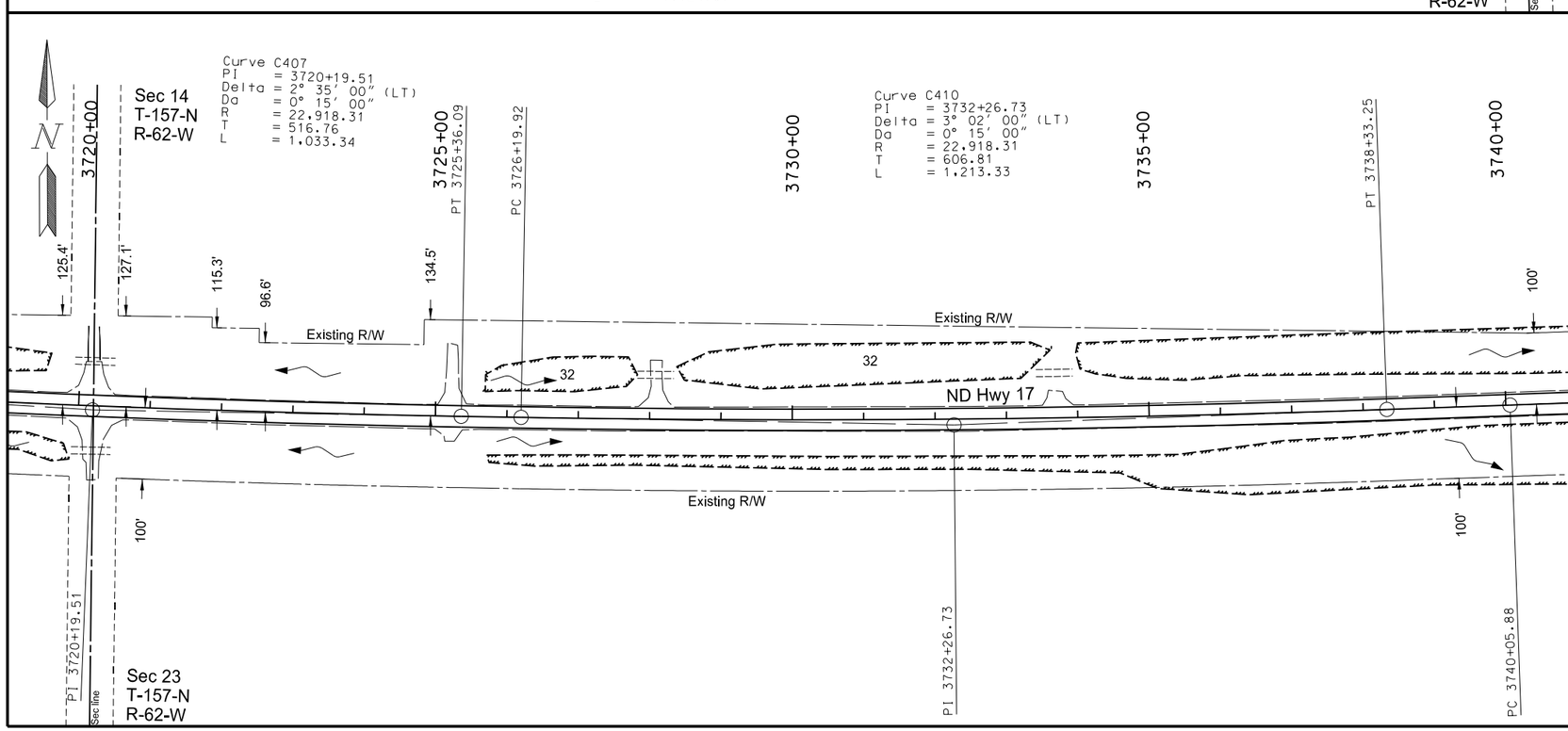
Wetlands, Permanent Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 3660+00 to Sta 3700+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	52





Note: All work from Sta 3700+00 to Sta 3740+00 shall be completed on top of the existing roadway, resulting in no wetland impacts anticipated.

R/W limits are approximate, based on existing plans.

Seeding-Type B-CL II
Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Permanent Fiber Rolls

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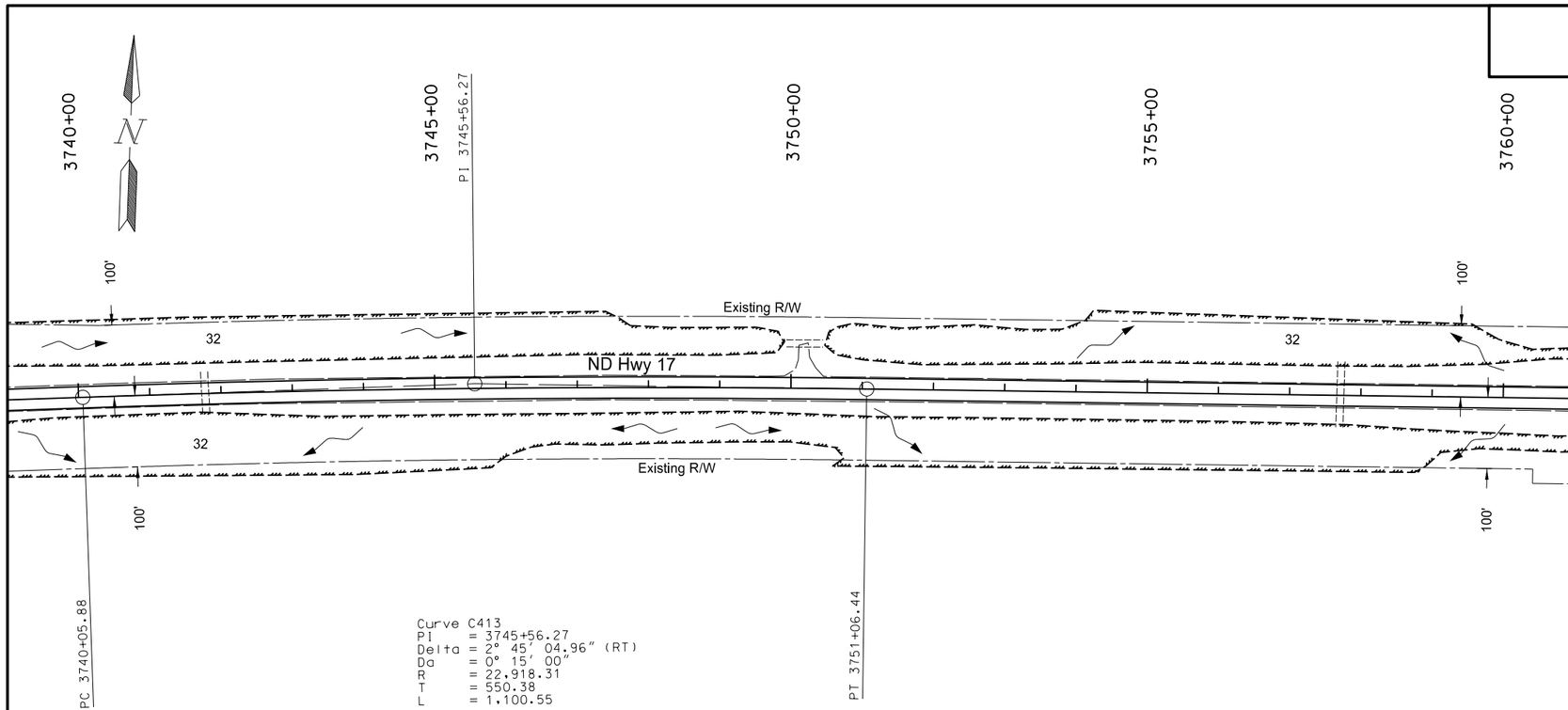
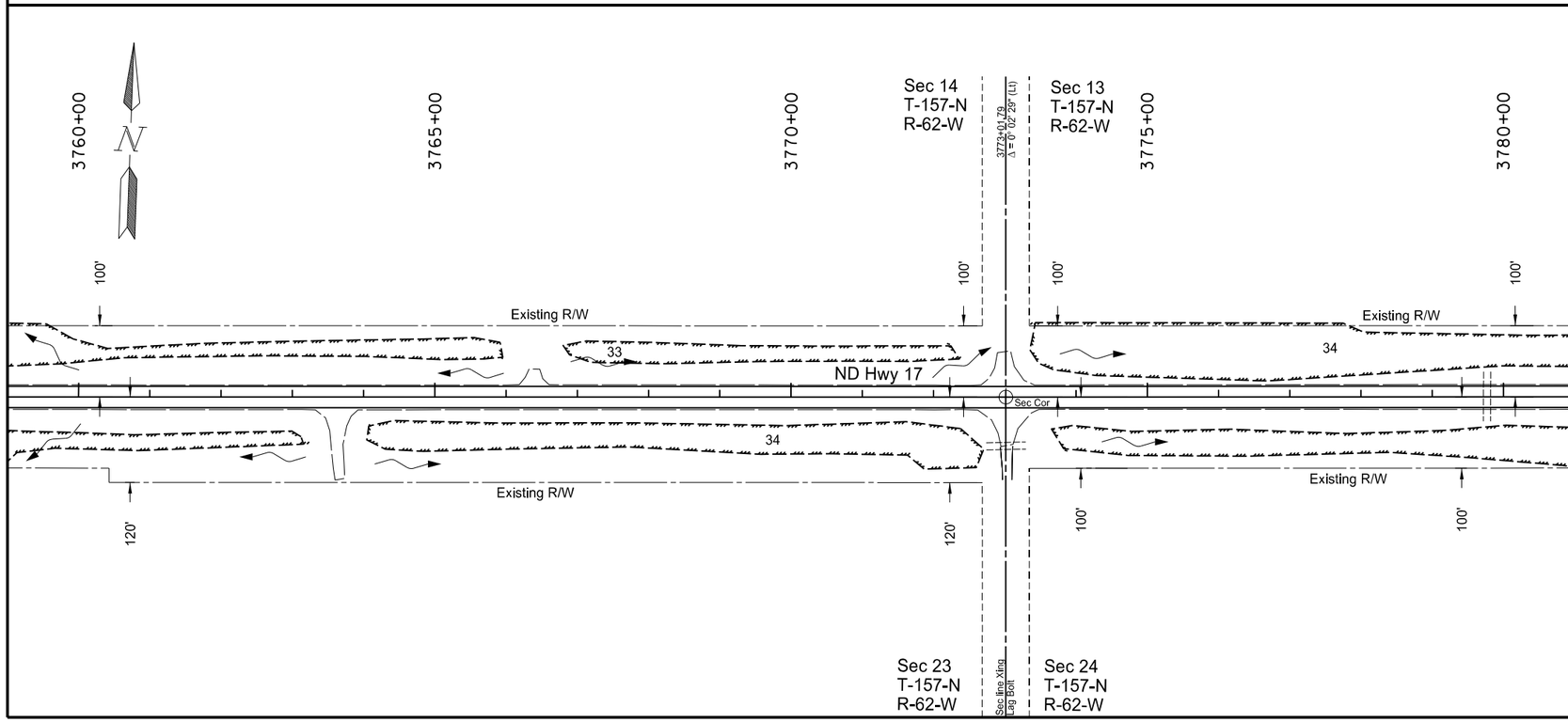
Wetlands, Permanent Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 3700+00 to Sta 3740+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	53





Note: All work from Sta 3740+00 to Sta 3780+00 shall be completed on top of the existing roadway, resulting in no wetland impacts anticipated.

R/W limits are approximate, based on existing plans.

Seeding-Type B-CL II Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Permanent Fiber Rolls

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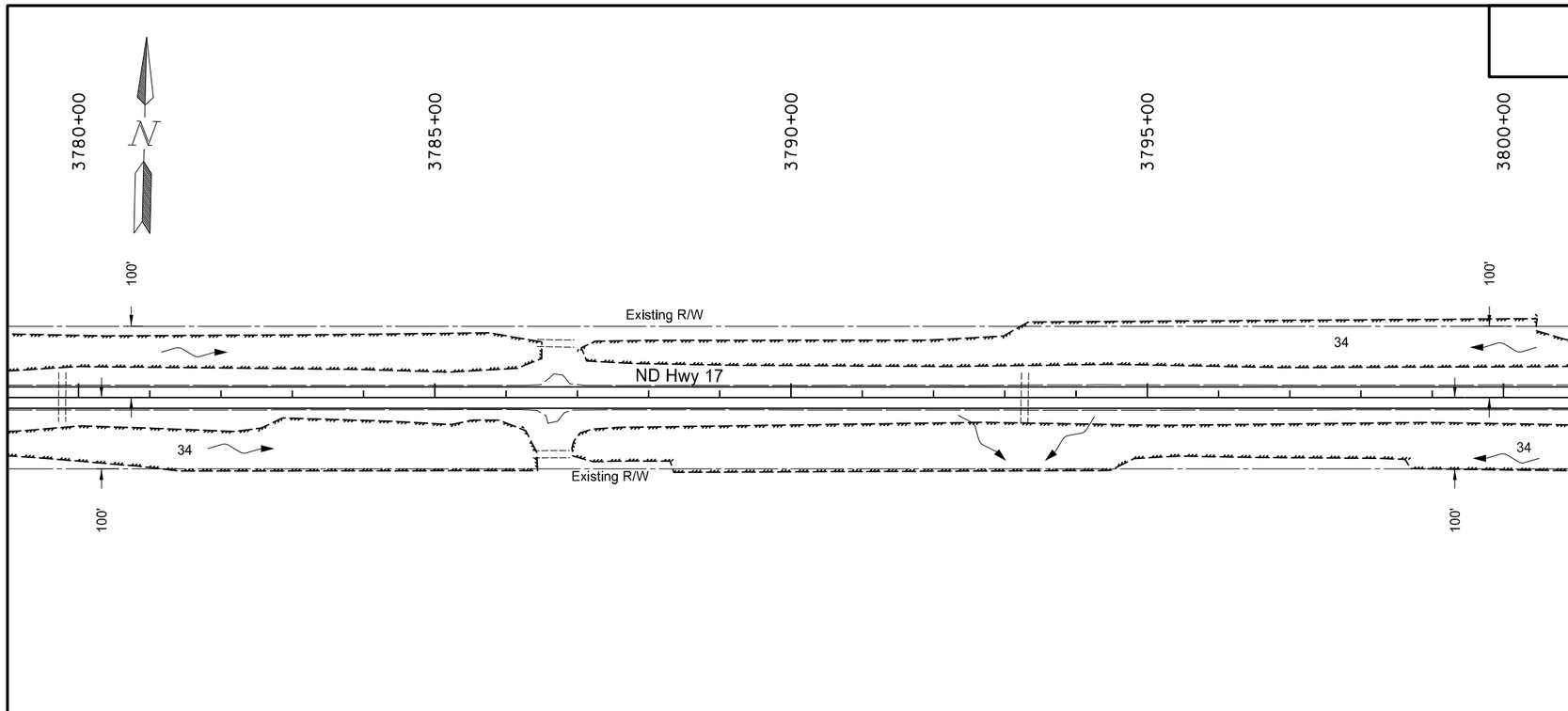
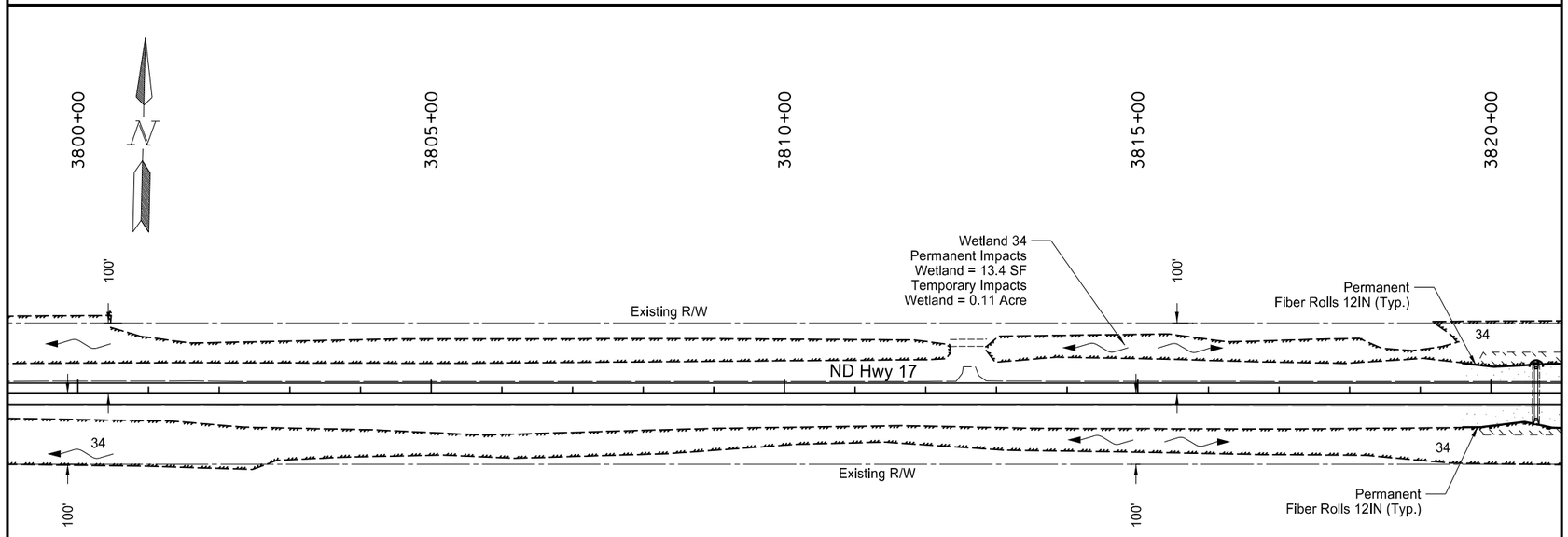
Wetlands, Permanent Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 3740+00 to Sta 3780+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	54





Item	Description	Quantity	Unit
708-1430	Fiber Rolls 12IN		
	Sta 3780+00 Lt to Sta 3820+00 Lt	41	LF
	Sta 3780+00 Rt to Sta 3820+00 Rt	41	LF
708-2240	Seeding-Type B-CL II		
	Sta 3780+00 Lt to Sta 3820+00 Lt	0.02	ACRE
	Sta 3780+00 Rt to Sta 3820+00 Rt	0.03	ACRE
708-5500	Mulching		
	Sta 3780+00 Lt to Sta 3820+00 Lt	0.02	ACRE
	Sta 3780+00 Rt to Sta 3820+00 Rt	0.03	ACRE

Note: R/W limits are approximate, based on existing plans.

Seeding-Type B-CL II
Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Permanent Fiber Rolls

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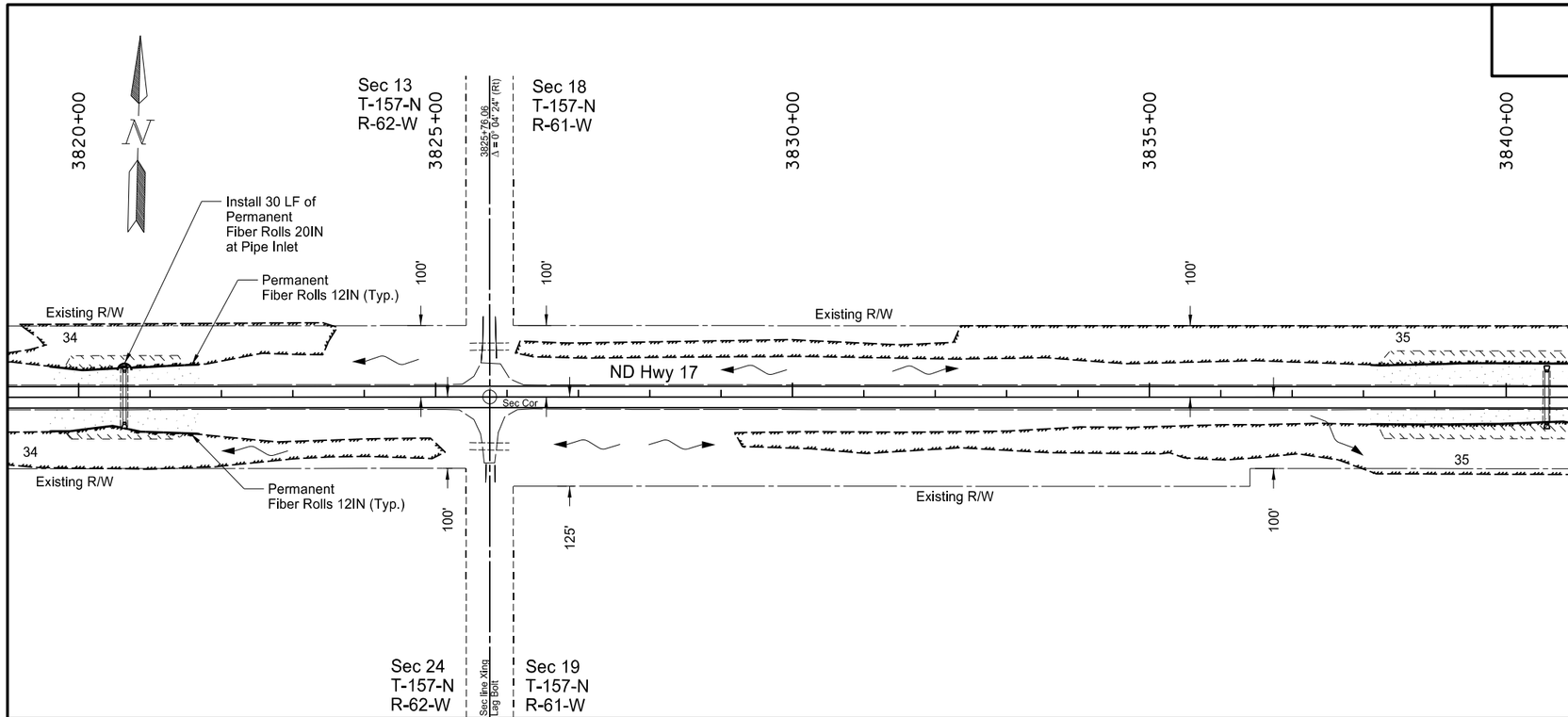
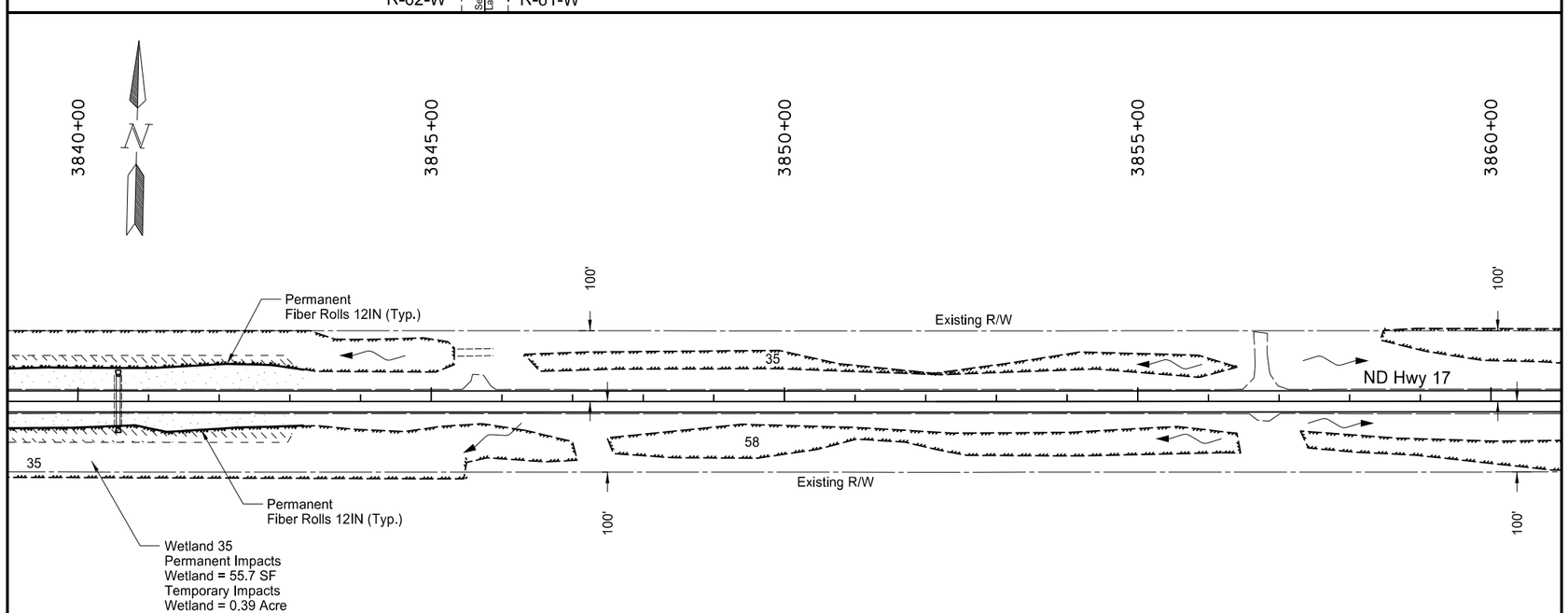
Wetlands, Permanent Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 3780+00 to Sta 3820+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	55





Item	Description	Quantity	Unit
708-1430	Fiber Rolls 12IN		
	Sta 3820+00 Lt to Sta 3860+00 Lt	662	LF
	Sta 3820+00 Rt to Sta 3860+00 Rt	679	LF
708-1460	Fiber Rolls 20IN		
	Sta 3820+00 Lt to Sta 3860+00 Lt	30	LF
708-2240	Seeding-Type B-CL II		
	Sta 3820+00 Lt to Sta 3860+00 Lt	0.48	ACRE
	Sta 3820+00 Rt to Sta 3860+00 Rt	0.37	ACRE
708-5500	Mulching		
	Sta 3820+00 Lt to Sta 3860+00 Lt	0.48	ACRE
	Sta 3820+00 Rt to Sta 3860+00 Rt	0.37	ACRE

Note: R/W limits are approximate, based on existing plans.

Seeding-Type B-CL II
Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Permanent Fiber Rolls

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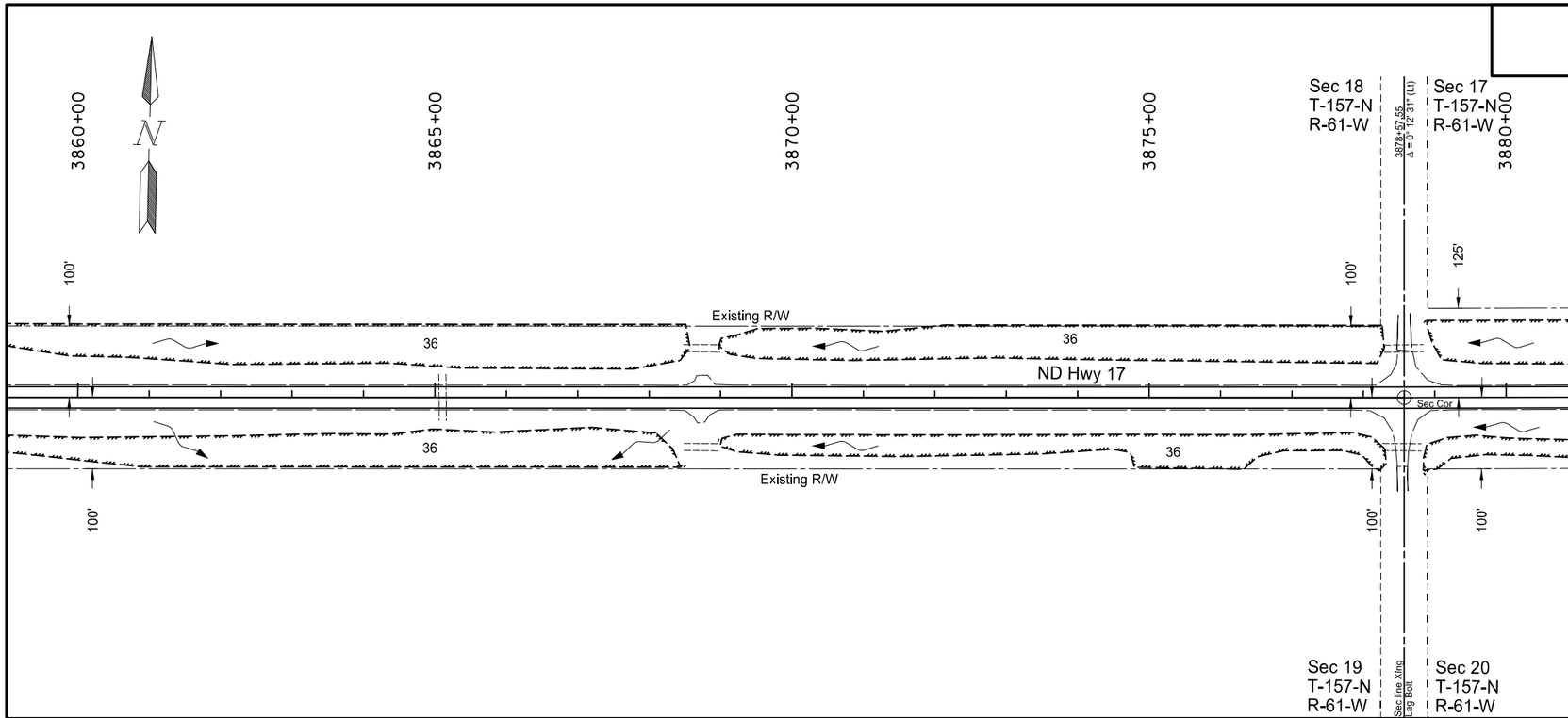
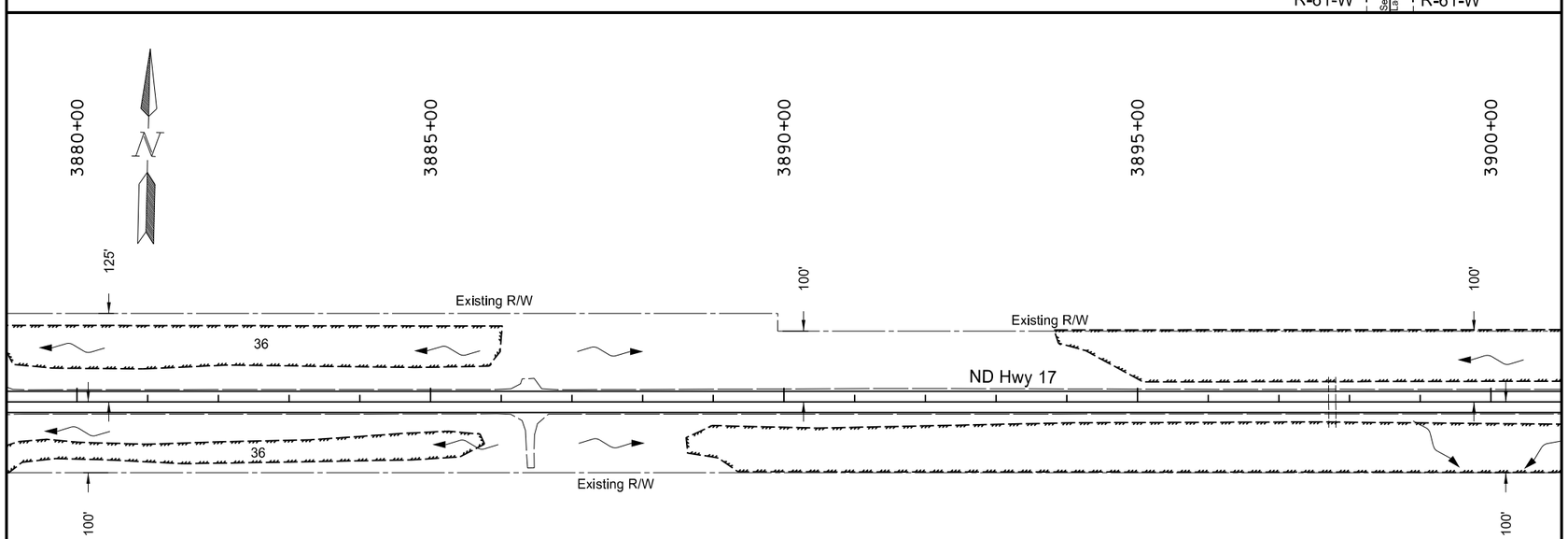
Wetlands, Permanent Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 3820+00 to Sta 3860+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	56





Note: All work from Sta 3860+00 to Sta 3900+00 shall be completed on top of the existing roadway, resulting in no wetland impacts anticipated.

R/W limits are approximate, based on existing plans.

Seeding-Type B-CL II
Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Permanent Fiber Rolls

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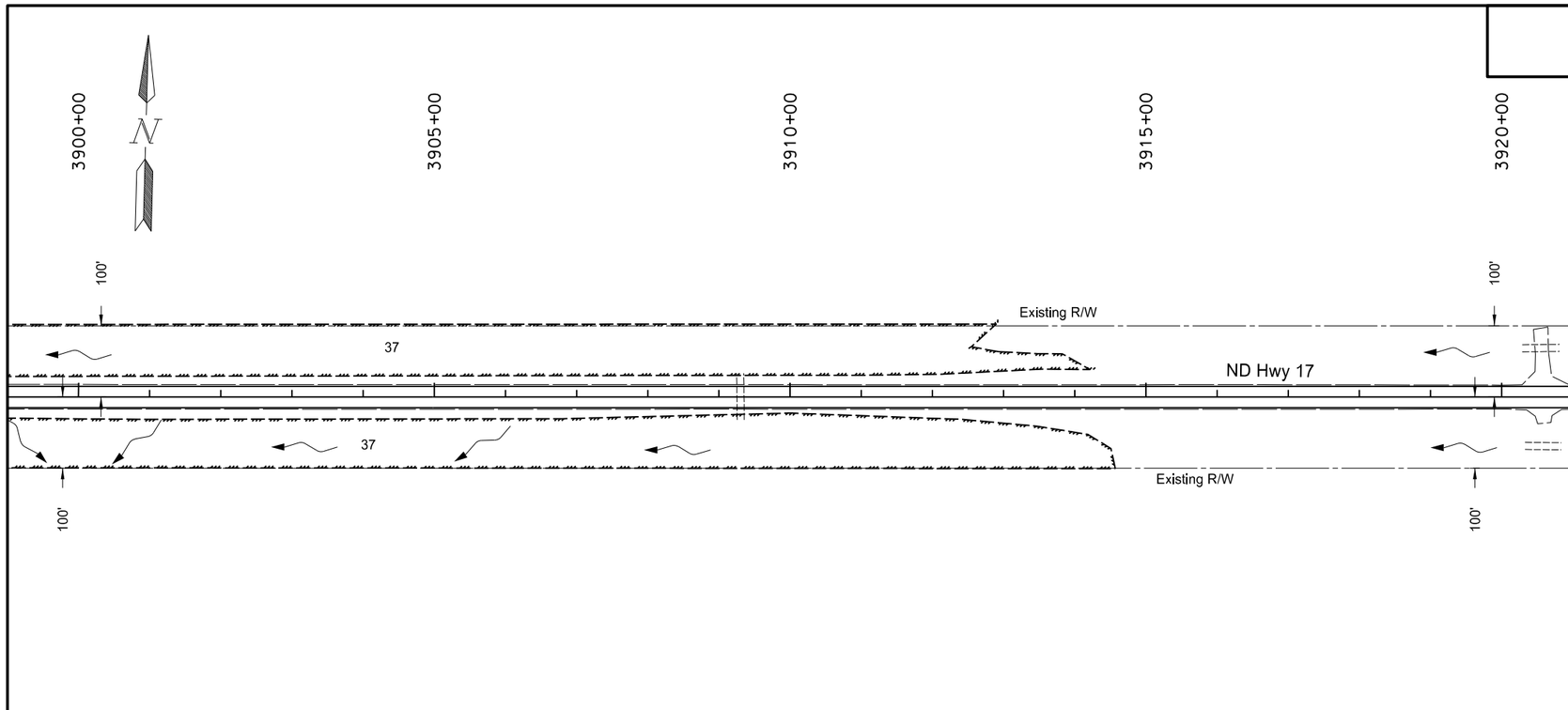
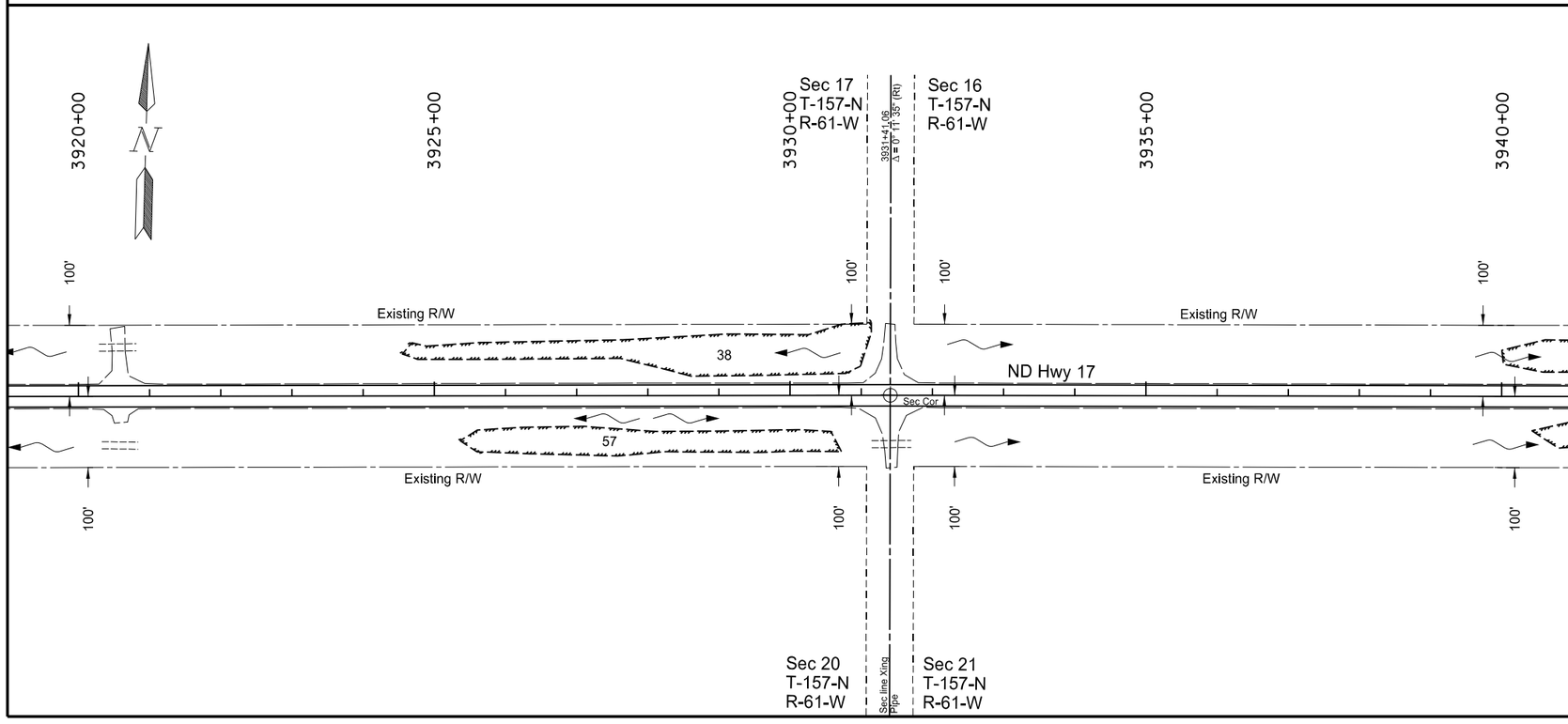
Wetlands, Permanent Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 3860+00 to Sta 3900+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	57





Note: All work from Sta 3900+00 to Sta 3940+00 shall be completed on top of the existing roadway, resulting in no wetland impacts anticipated.

R/W limits are approximate, based on existing plans.

Seeding-Type B-CL II
Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Permanent Fiber Rolls

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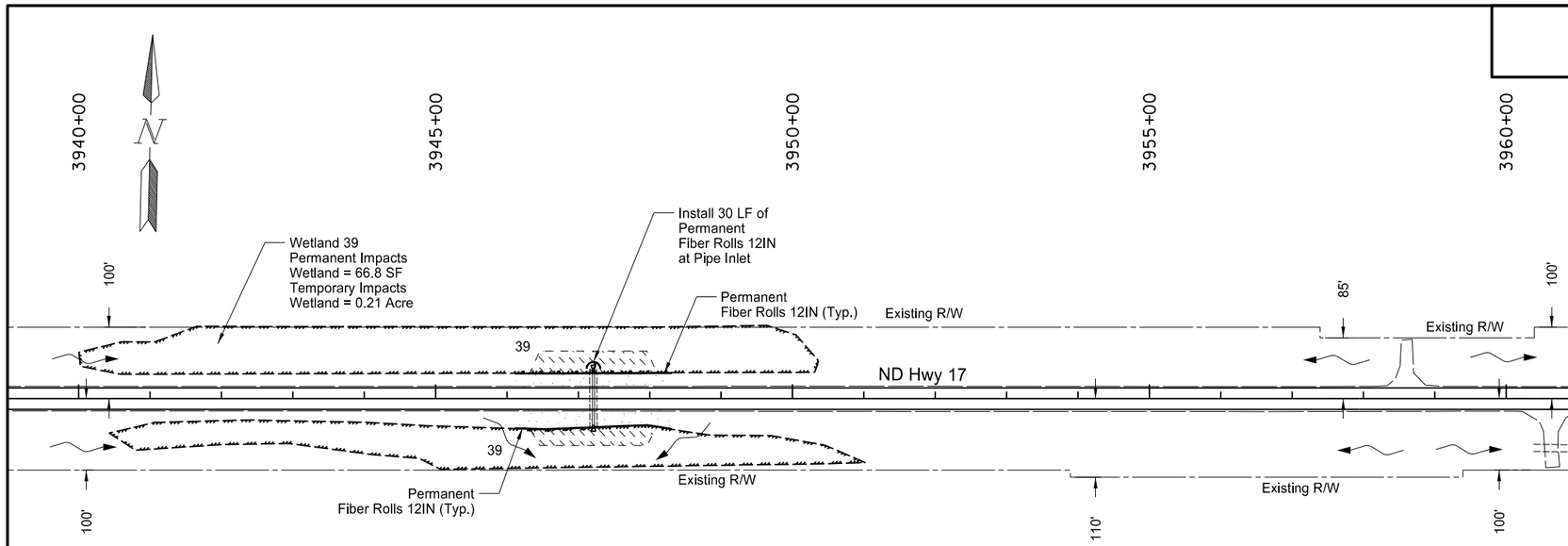
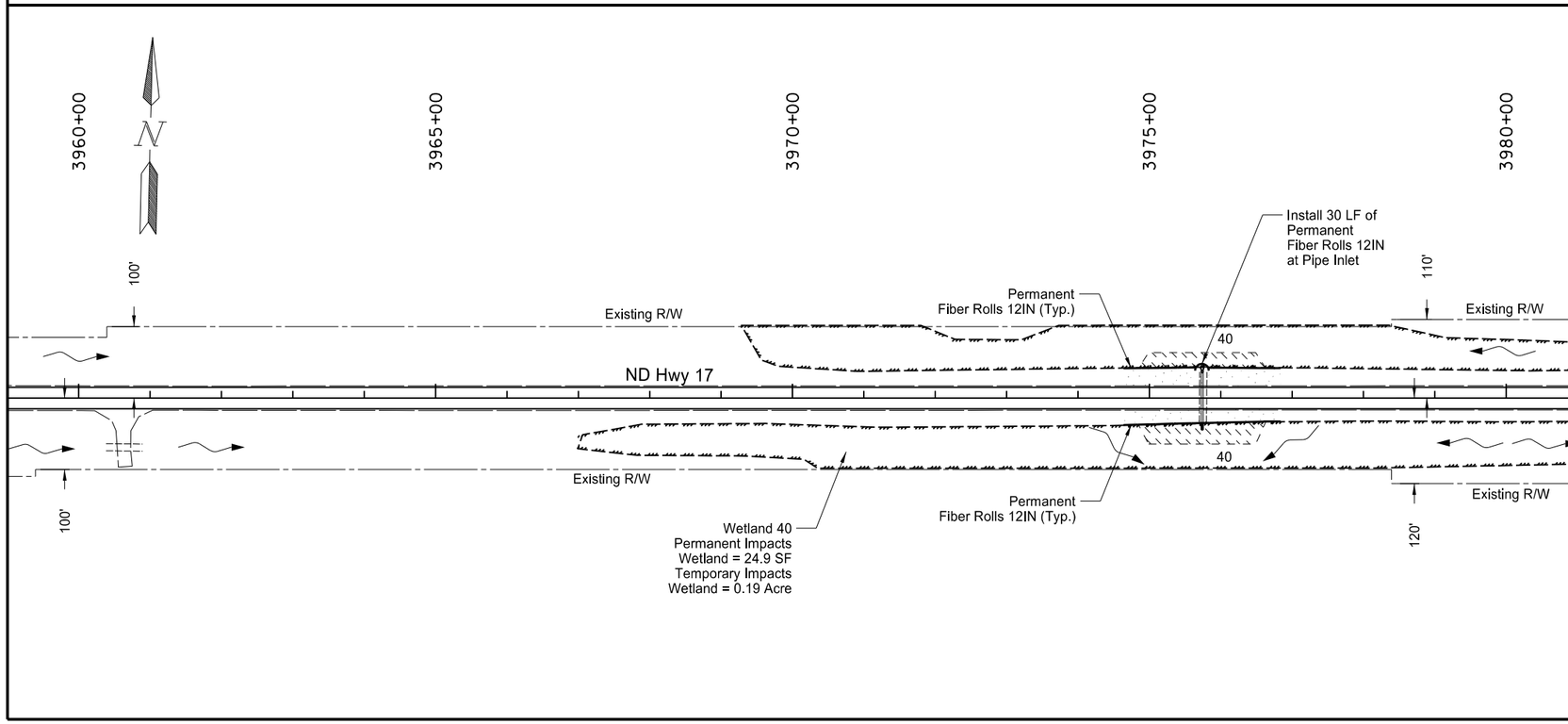
Wetlands, Permanent Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 3900+00 to Sta 3940+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	58





Item	Description	Quantity	Unit
708-1430	Fiber Rolls 12IN		
	Sta 3940+00 Lt to Sta 3980+00 Lt	483	LF
	Sta 3940+00 Rt to Sta 3980+00 Rt	438	LF
708-2240	Seeding-Type B-CL II		
	Sta 3940+00 Lt to Sta 3980+00 Lt	0.23	ACRE
	Sta 3940+00 Rt to Sta 3980+00 Rt	0.22	ACRE
708-5500	Mulching		
	Sta 3940+00 Lt to Sta 3980+00 Lt	0.23	ACRE
	Sta 3940+00 Rt to Sta 3980+00 Rt	0.22	ACRE

Note: R/W limits are approximate, based on existing plans.

Seeding-Type B-CL II
Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Permanent Fiber Rolls

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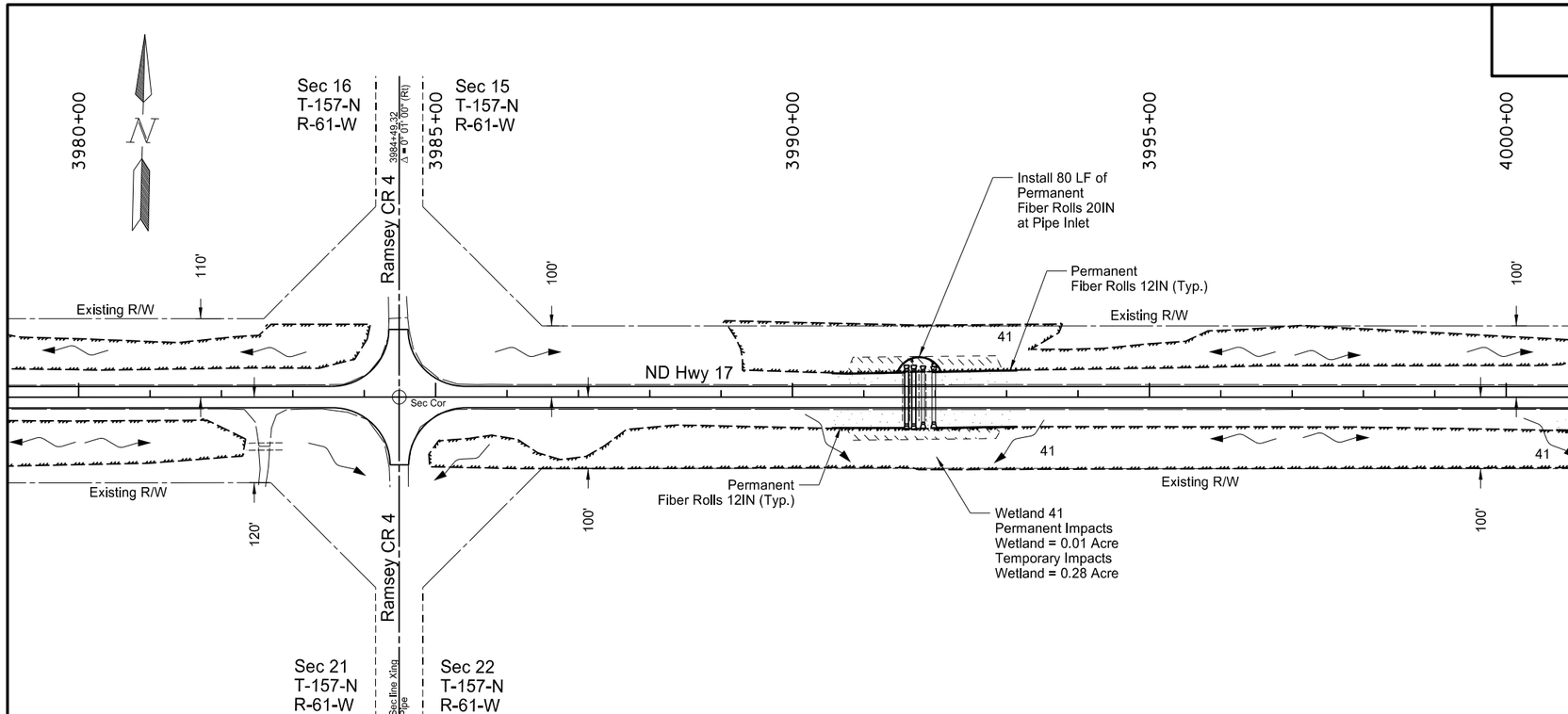
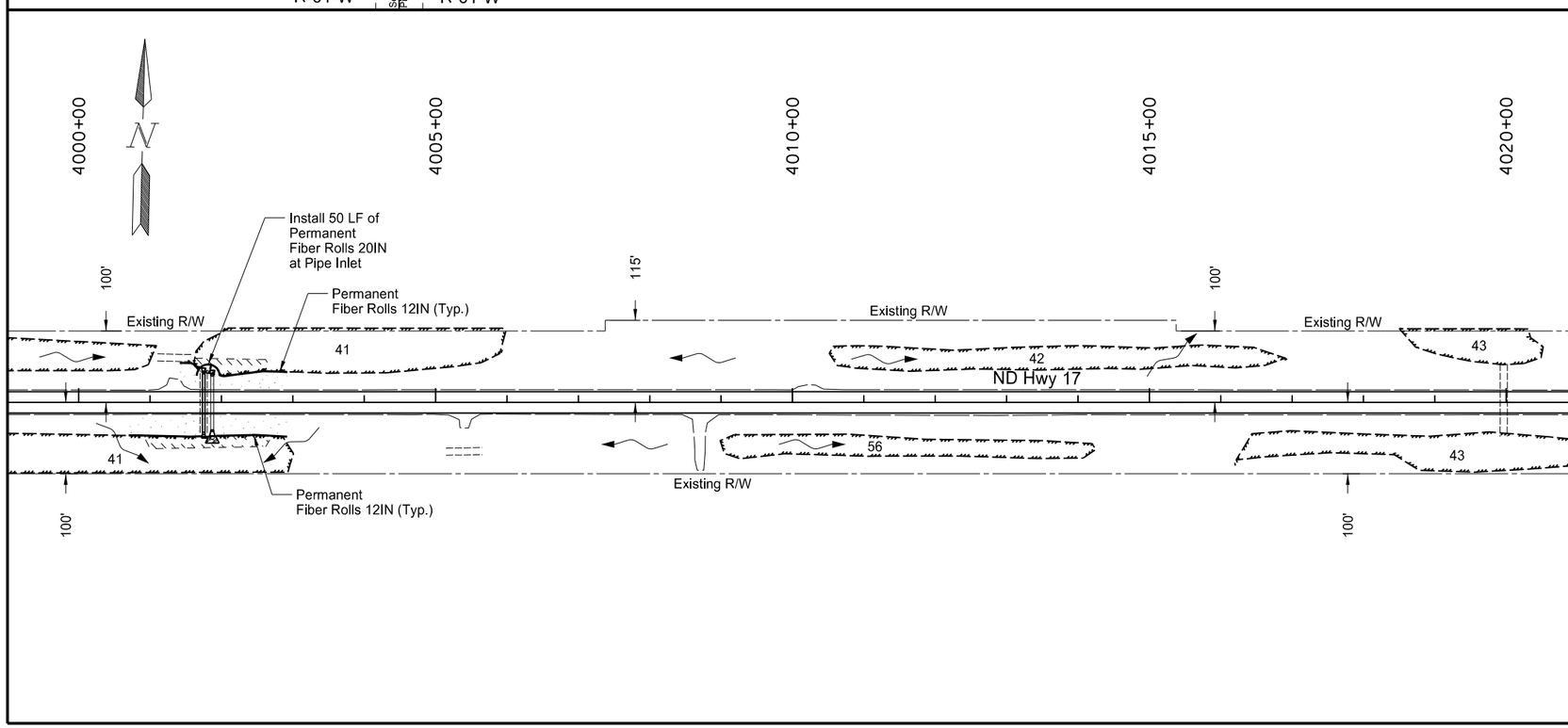
Wetlands, Permanent Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 3940+00 to Sta 3980+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	59





Item	Description	Quantity	Unit
708-1030	Riprap-Loose Rock		
	Sta 3980+00 Rt to Sta 4020+00 Rt	20.7	TON
708-1430	Fiber Rolls 12IN		
	Sta 3980+00 Lt to Sta 4020+00 Lt	342	LF
	Sta 3980+00 Rt to Sta 4020+00 Rt	419	LF
708-1460	Fiber Rolls 20IN		
	Sta 3980+00 Lt to Sta 4020+00 Lt	130	LF
708-2240	Seeding-Type B-CL II		
	Sta 3980+00 Lt to Sta 4020+00 Lt	0.21	ACRE
	Sta 3980+00 Rt to Sta 4020+00 Rt	0.32	ACRE
708-5500	Mulching		
	Sta 3980+00 Lt to Sta 4020+00 Lt	0.21	ACRE
	Sta 3980+00 Rt to Sta 4020+00 Rt	0.32	ACRE
709-0600	Geotextile Fabric-Type RR		
	Sta 3980+00 Rt to Sta 4020+00 Rt	15.6	SY

Note: R/W limits are approximate, based on existing plans.

RipRap-Loose Rock

Seeding-Type B-CL II
Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Permanent Fiber Rolls

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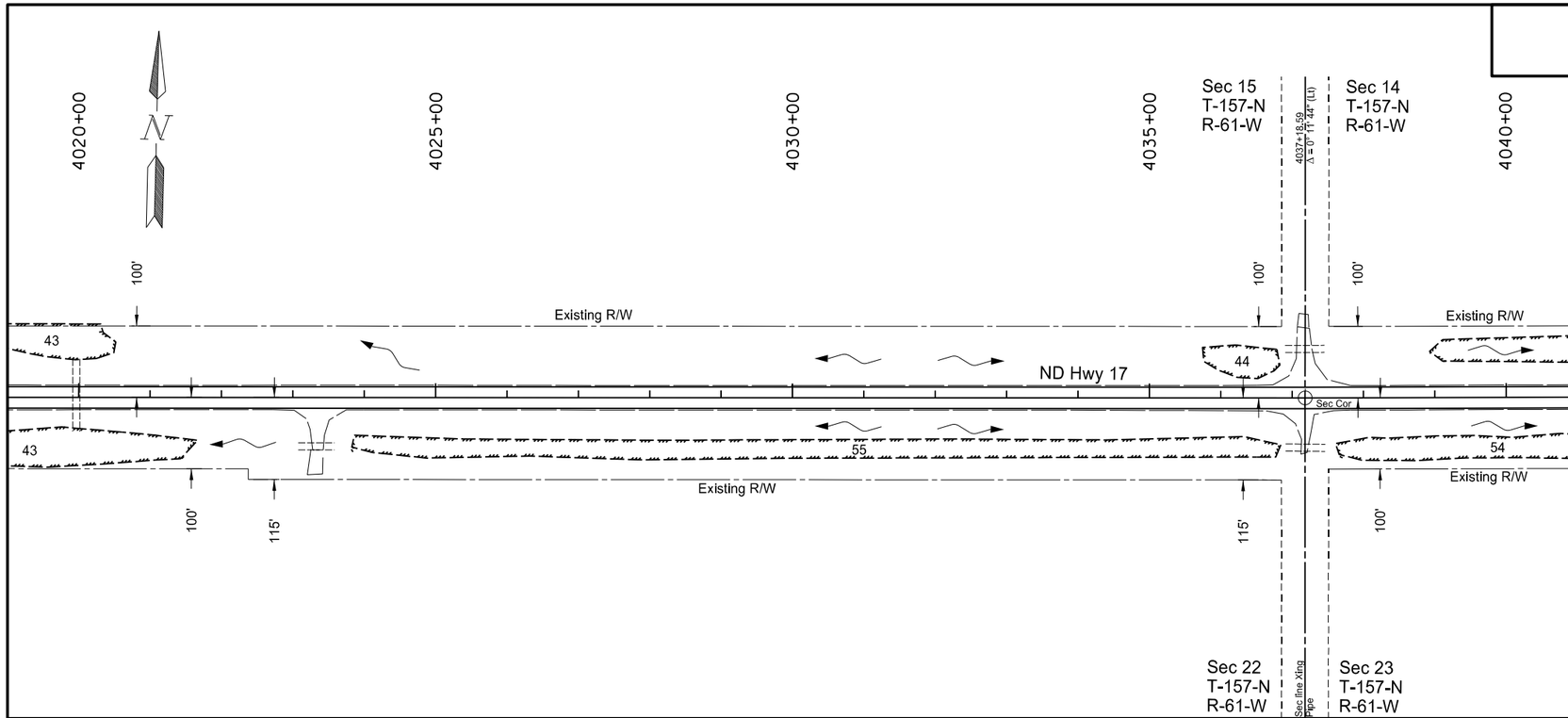
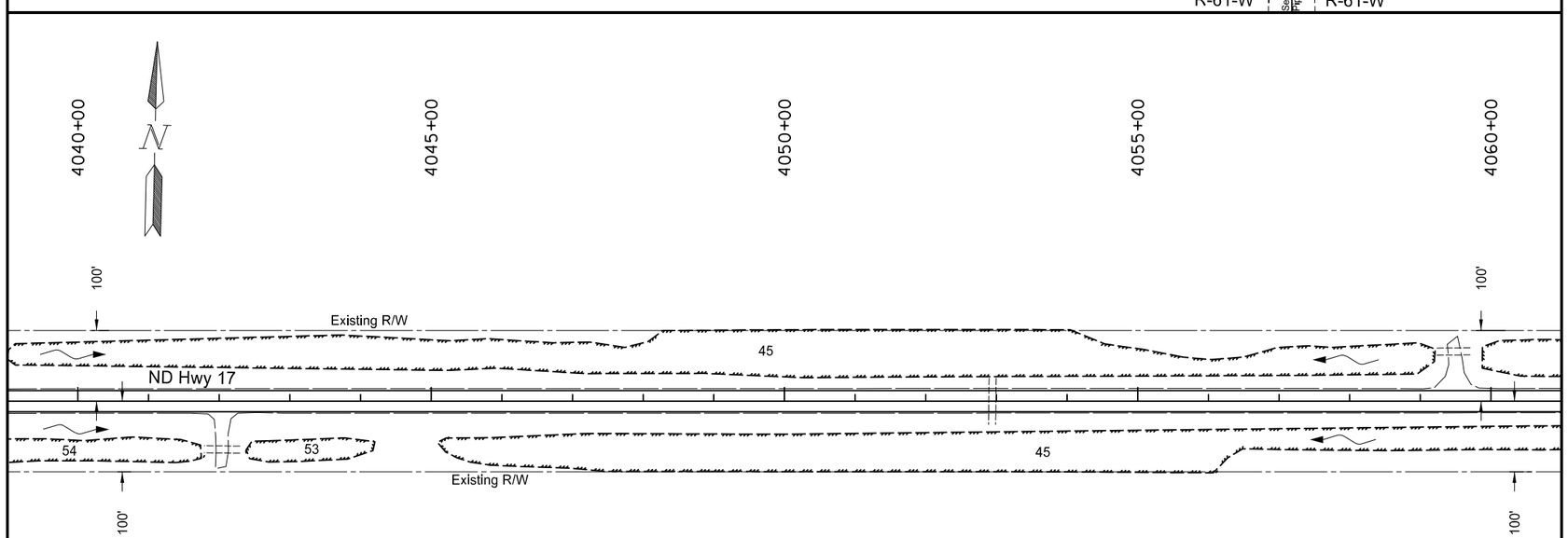
Wetlands, Permanent Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 3980+00 to Sta 4020+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	60





Note: All work from Sta 4020+00 to Sta 4060+00 shall be completed on top of the existing roadway, resulting in no wetland impacts anticipated.

R/W limits are approximate, based on existing plans.

Seeding-Type B-CL II
Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Permanent Fiber Rolls

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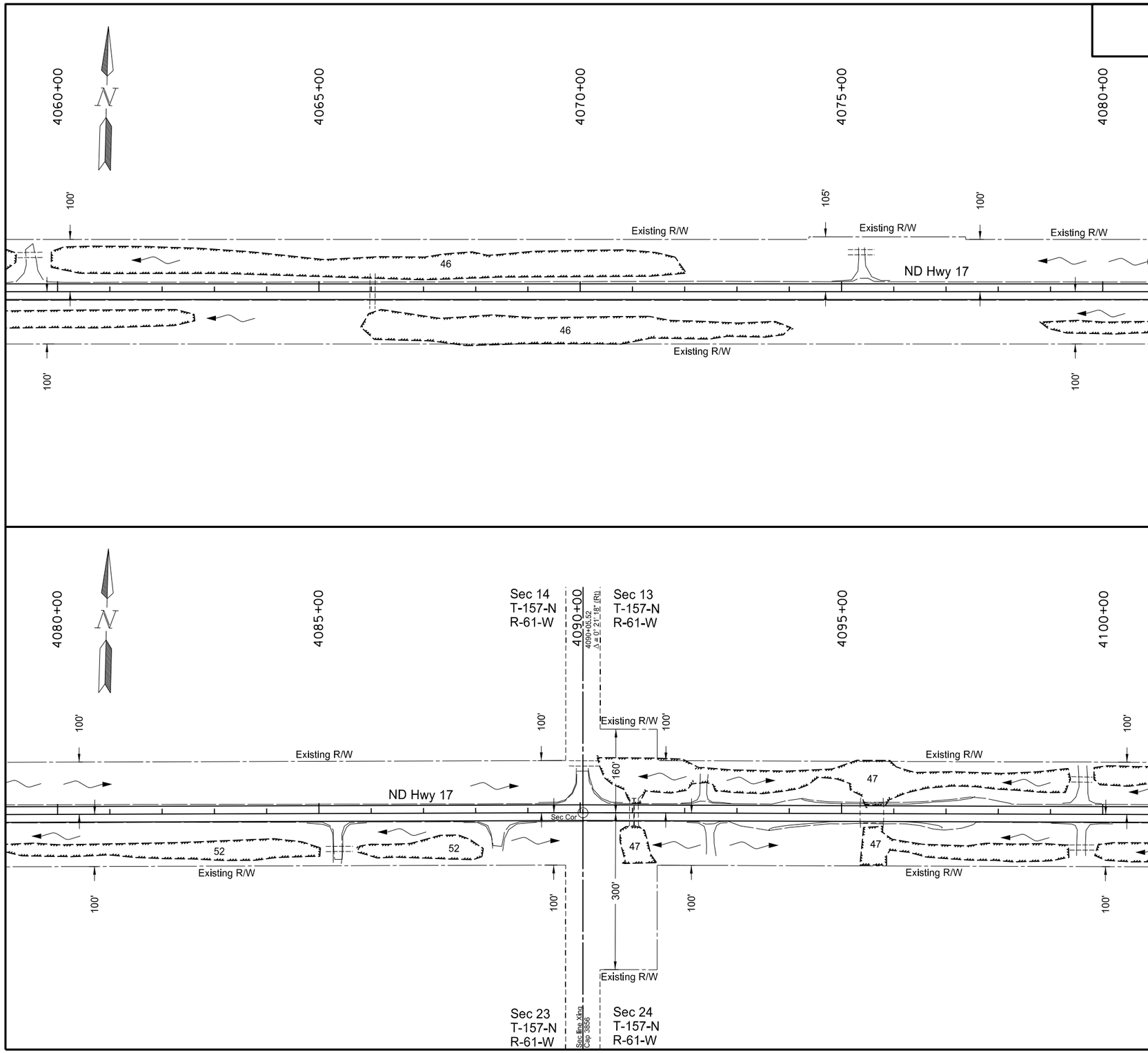
Wetlands, Permanent Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 4020+00 to Sta 4060+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	61



Note: All work from Sta 4060+00 to Sta 4100+00 shall be completed on top of the existing roadway, resulting in no wetland impacts anticipated.

R/W limits are approximate, based on existing plans.

Seeding-Type B-CL II
Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Permanent Fiber Rolls

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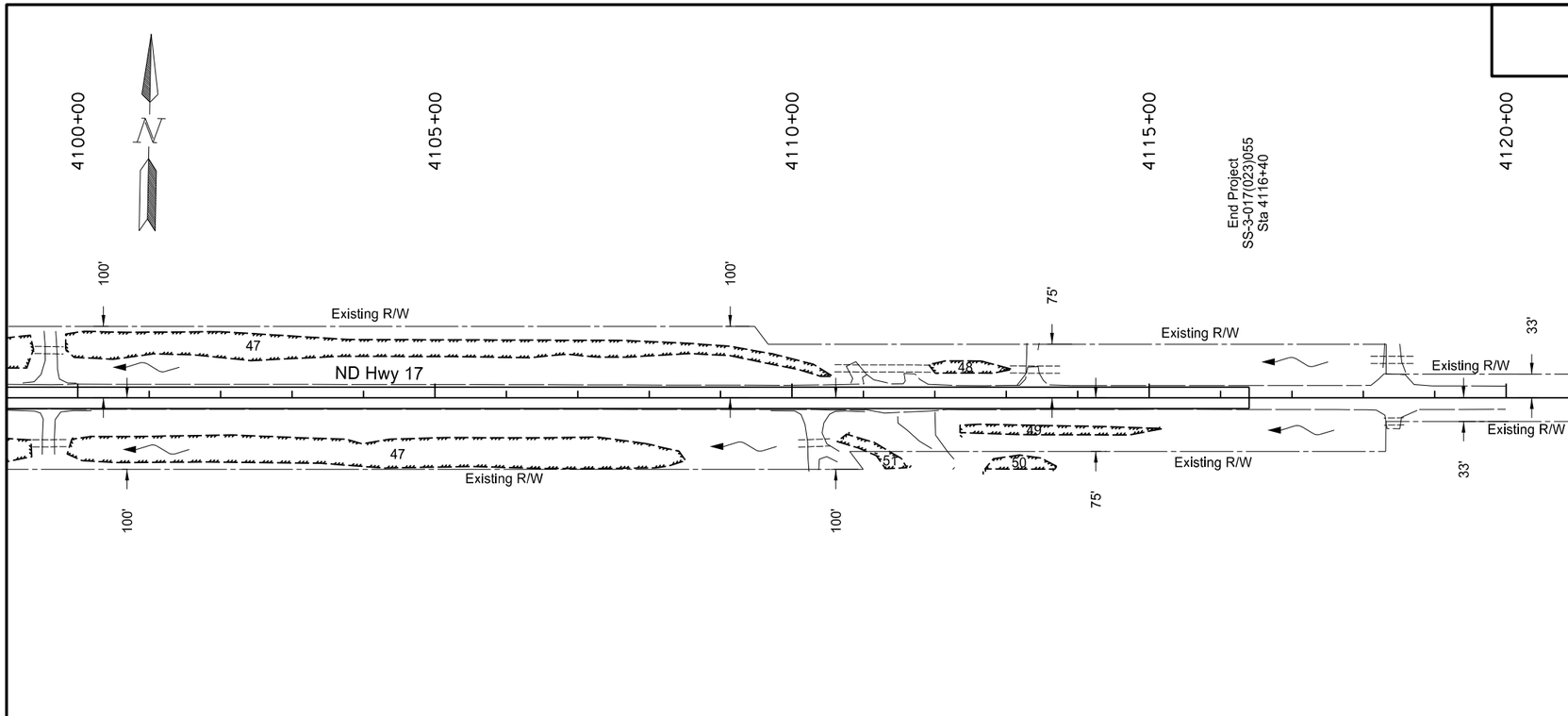
Wetlands, Permanent Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 4060+00 to Sta 4100+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	75	62



Note: All work from Sta 4100+00 to Sta 4116+40 shall be completed on top of the existing roadway, resulting in no wetland impacts anticipated.

R/W limits are approximate, based on existing plans.

Seeding-Type B-CL II
Mulching

Permanent Wetland Impact

Temporary Wetland Impact

Permanent Fiber Rolls

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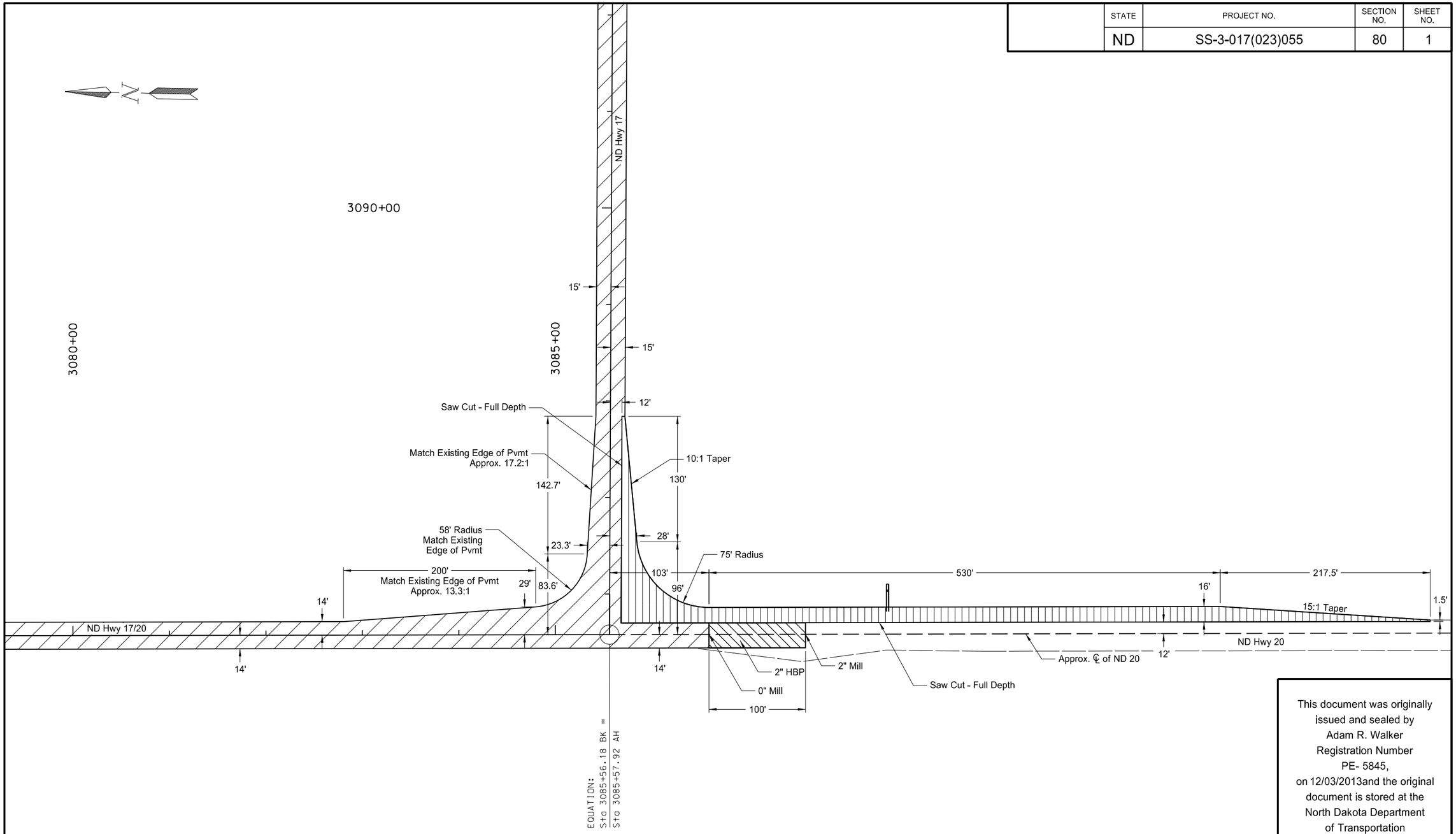
Wetlands, Permanent Erosion Control, and Seeding

Starkweather S to Edmore - ND 17
Sta 4100+00 to Sta 4116+40

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	80	1



Milling Transition and 2" HBP Overlay

2" HBP Overlay

Proposed Turn Lane Improvement

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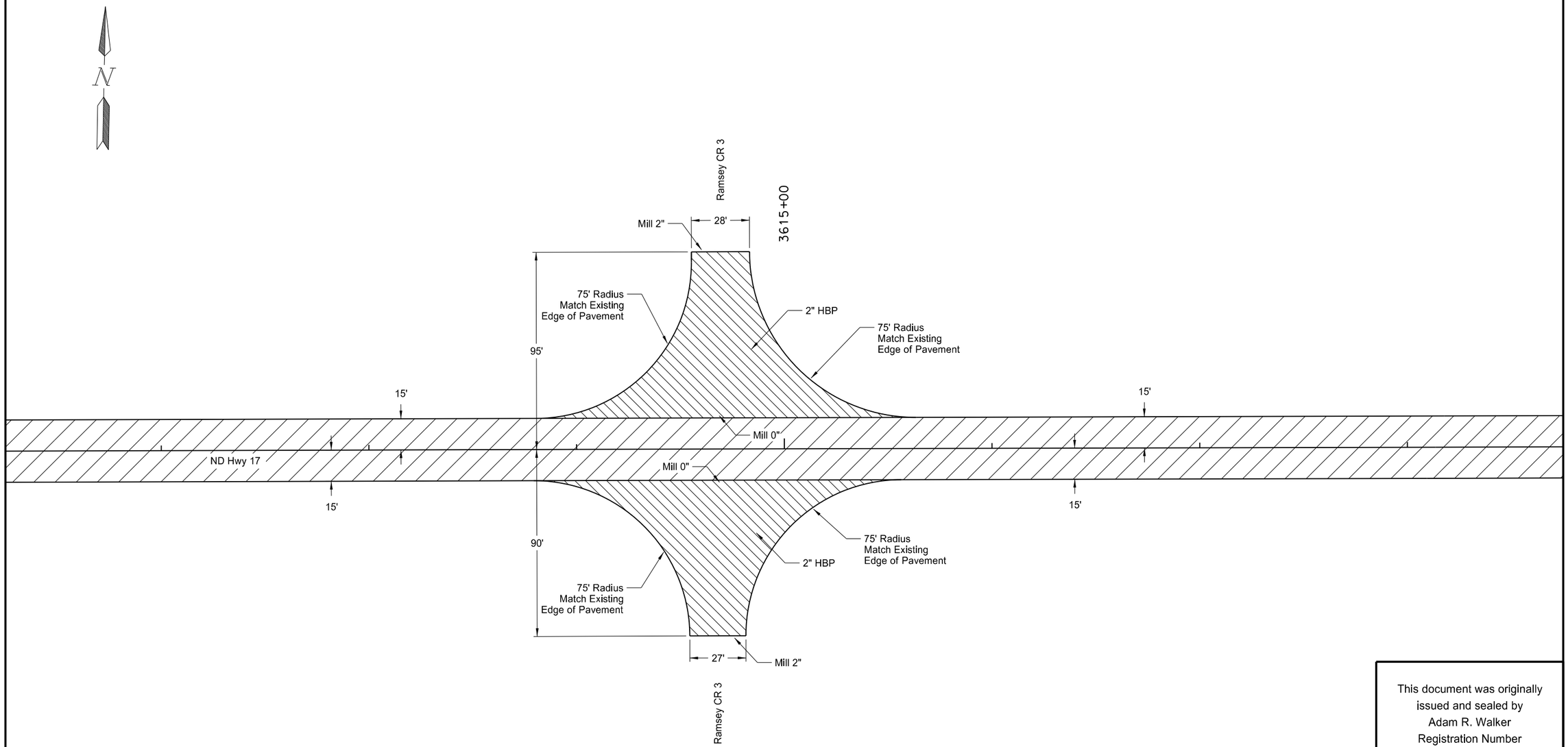
South Junction of ND 17 & ND 20
Milling and Paving Transition

Starkweather S to Edmore - ND 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	80	2



Milling Transition and 2" HBP Overlay

2" HBP Overlay

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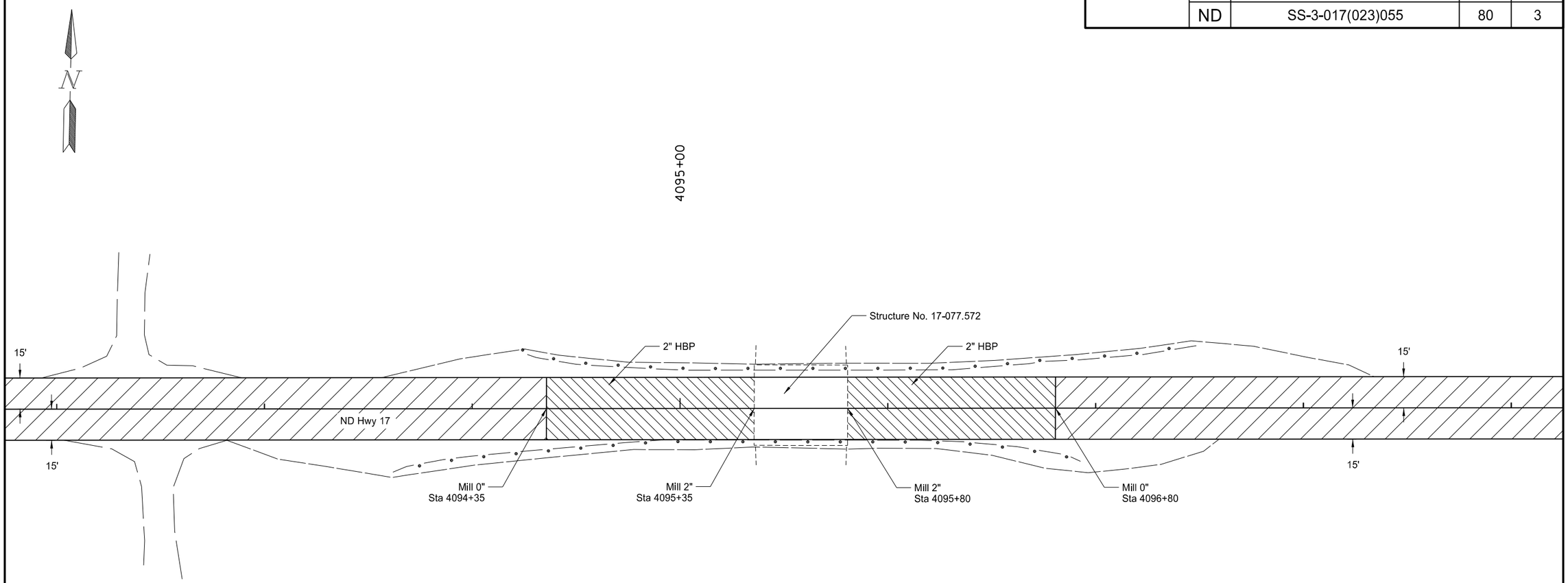
Ramsey CR 3
Milling and Paving Transition

Starkweather S to Edmore - ND 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	80	3



Milling Transition and 2" HBP Overlay

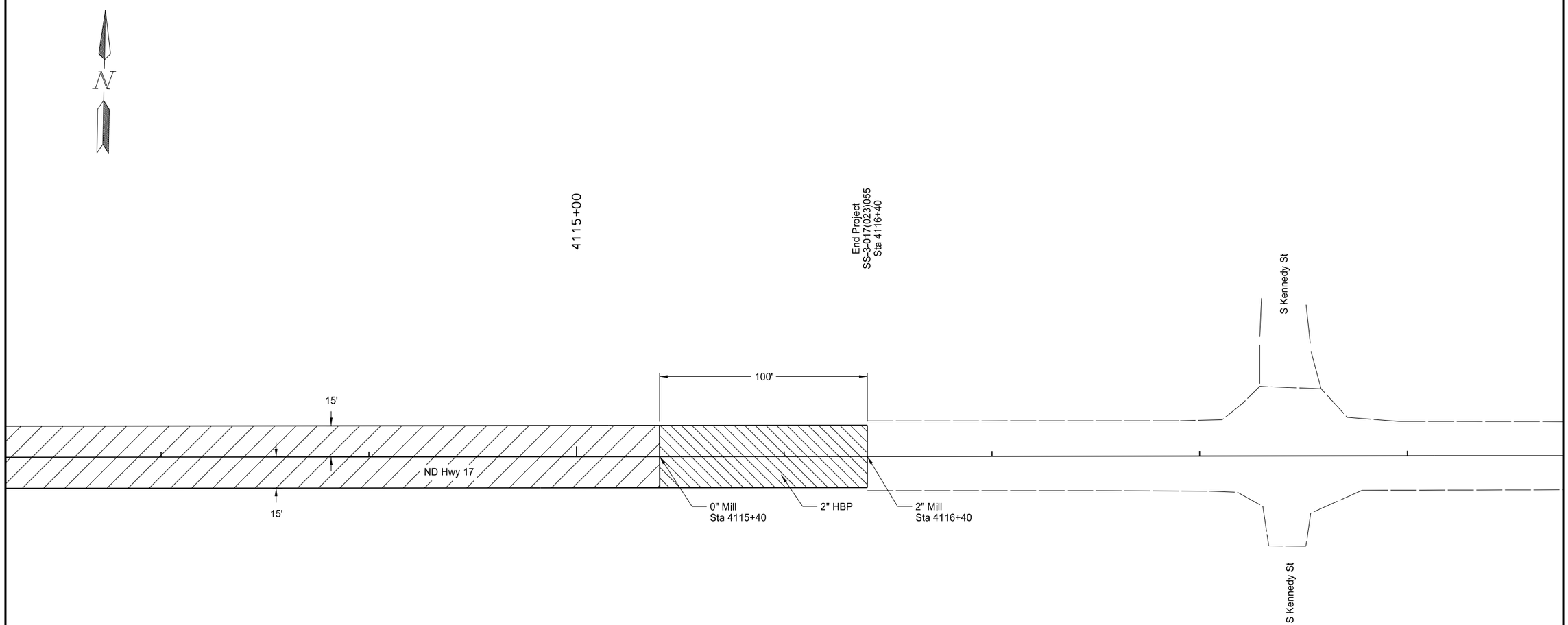
2" HBP Overlay

This document was originally issued and sealed by Adam R. Walker Registration Number PE- 5845, on 12/03/2013 and the original document is stored at the North Dakota Department of Transportation

Structure No. 17-077.572
Milling and Paving Transition

Starkweather S to Edmore - ND 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	80	4



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Milling Transition and 2" HBP Overlay

2" HBP Overlay

End Project
Milling and Paving Transition

Starkweather S to Edmore - ND 17

PRELIMINARY SURVEY COORDINATE AND CURVE DATA - ND HWY 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	81	1

HORIZONTAL ALIGNMENT

PNT	STATION	NORTHING	EASTING
EX17 - ND 17			
Sec Cor	2821+63.20	546293.81	2360715.04
Sec Cor	2874+56.11	541002.19	2360831.59
PI	2900+79.38	538379.47	2360885.00
PI	2927+25.88	535733.24	2360923.21
PI	2980+05.00	530455.76	2361054.77
PI	3032+53.51	525207.50	2361105.69
EQUATION	3085+56.18 BK =	519906.05	2361219.53
	3085+57.92 AH		
Sec Cor	3086+00.22	519906.49	2361261.53
Sec Cor	3138+83.97	519984.13	2366544.70
¼ Cor	3165+90.12	520034.93	2369250.38
Sec Cor	3191+67.56	20087.29	2371827.29
PI	3221+38.73	520158.33	2374797.60
Sec Cor	3244+90.64	520210.46	2377148.94
PI	3270+58.40	520263.18	2379716.16
Sec Cor	3297+78.15	520321.93	2382435.27
¼ Cor	3324+15.53	520370.70	2385072.20
Sec Cor	3350+76.05	520419.17	2387732.28
PI	3386+64.62	520498.25	2391319.98
Sec Cor	3403+51.66	520536.77	2393006.58
¼ Cor	3429+91.67	520589.22	2395646.07
Sec Cor	3456+26.83	520638.82	2398280.76
PI	3496+50.31	520727.82	2402303.26
Sec Cor	3509+15.96	520758.33	2403568.54
¼ Cor	3535+55.64	520817.30	2406207.56
Sec Cor	3561+78.45	520877.63	2408829.68
¼ Cor	3588+25.88	520935.00	2411476.48
Sec Cor	3614+69.05	520994.43	2414118.98
PI	3636+14.16	521041.97	2416263.57
Sec Cor	3667+55.01	521115.07	2419403.57
PI	3696+02.16	521179.22	2422249.99
PC	3702+77.36	521194.18	2422925.03
PI	3708+39.81	521206.64	2423487.34

CURVE DATA

ARC DEFINITION					
	C403			C410	
PI STA =	3708+39.81		PI STA =	3732+27.03	
Delta =	2° 48' 42"		Delta =	3° 02' 00"	
Da =	0° 15' 00"		Da =	0° 15' 00"	
R =	22,918.31'		R =	22,918.31'	
T =	562.45'		T =	606.81'	
L =	1,124.67'		L =	1,213.33'	
	C407			C413	
PI STA =	3720+19.81		PI STA =	3745+56.57	
Delta =	2° 35' 00"		Delta =	2° 45' 05"	
Da =	0° 15' 00"		Da =	0° 15' 00"	
R =	22,918.31'		R =	22,918.31'	
T =	516.76'		T =	550.38'	
L =	1,033.34		L =	1,100.55'	

US PUBLIC LAND SURVEY DATA

DESC.	SEC-TWP-RGE	NORTHING	EASTING
SW SEC COR	SEC 14 T-157-N R-64-W	519906.49	2361261.53
NE SEC COR	SEC 23 T-157-N R-64-W	519984.13	2366544.70
N ¼ COR	SEC 24 T-157-N R-64-W	520034.93	2369250.38
NE SEC COR	SEC 24 T-157-N R-64-W	520087.29	2371827.29
NE SEC COR	SEC 19 T-157-N R-63-W	520210.46	2377148.94
NE SEC COR	SEC 20 T-157-N R-63-W	520321.93	2382435.27
N ¼ COR	SEC 21 T-157-N R-63-W	520370.70	2385072.20
NE SEC COR	SEC 21 T-157-N R-63-W	520419.17	2387732.28
NE SEC COR	SEC 22 T-157-N R-63-W	520536.77	2393006.58
N ¼ COR	SEC 23 T-157-N R-63-W	520589.22	2395646.07
NE SEC COR	SEC 23 T-157-N R-63-W	520638.82	2398280.76
NE SEC COR	SEC 24 T-157-N R-63-W	520758.33	2403568.54
N ¼ COR	SEC 19 T-157-N R-62-W	520817.30	2406207.56
NE SEC COR	SEC 19 T-157-N R-62-W	520877.63	2408829.68
N ¼ COR	SEC 20 T-157-N R-62-W	520935.00	2411476.48
NE SEC COR	SEC 20 T-157-N R-62-W	520994.43	2414118.98
NE SEC COR	SEC 21 T-157-N R-62-W	521115.07	2419403.57
NE SEC COR	SEC 23 T-157-N R-62-W	521354.72	2429945.49
N ¼ COR	SEC 24 T-157-N R-62-W	521417.69	2432588.61
NE SEC COR	SEC 24 T-157-N R-62-W	521479.95	2435218.28
N ¼ COR	SEC 19 T-157-N R-61-W	521539.03	2437856.44
NE SEC COR	SEC 19 T-157-N R-61-W	521599.86	2440498.41

SURVEY CONTROL POINTS

PNT	NORTHING	EASTING	ELEV	STATION	OFFSET	CONTROL POINT DESCRIPTION
GPS 20-4	556845.89	2361013.59	1523.12	Off Alignment		⅝" Iron Pin
GPS 20-5	538354.13	2360790.44	1499.33	2901+03.34	95' RT	⅝" Iron Pin
GPS 17-1	519798.79	2361320.76	1479.67	3086+57.87	109' RT	⅝" Iron Pin
GPS 17-2	520313.33	2387800.82	1493.91	3351+42.24	107' RT	⅝" Iron Pin
GPS 17-3	520832.61	2414192.06	1509.04	3615+38.52	163' RT	⅝" Iron Pin
GPS 17- 4	521026.27	2440499.89	1520.87	3878+45.83	573' RT	⅝" Iron Pin
GPS 17-5	522070.28	2463655.82	1519.20	4110+19.98	101' RT	⅝" Iron Pin

NOTES:

Date Survey Completed 11/1/11

☐ Assumed Coordinates

☒ All coordinates on this sheet are Ramsey County ground coordinates. They are derived from the "North Dakota Coordinate System of 1983", NAD83(opus), North Zone Combination factor (cf) = 0.9998685

All coordinates and measurements on this document derived from the International Foot definition.

INITIALIZING BENCH MARK
CORS SYSTEM

☒ NAVD-88
☐ NGVD-29

☒ ENGLISH UNITS
☐ METRIC UNITS

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PRELIMINARY SURVEY COORDINATE AND CURVE DATA - ND HWY 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	81	2

HORIZONTAL ALIGNMENT

PNT	STATION	NORTHING	EASTING
EX17 - ND 17 (CONTINUED)			
PT	3714+02.03	521191.51	2424049.58
PC	3715+03.05	521188.79	2424150.57
PI	3720+19.81	521174.88	2424667.14
PT	3725+36.39	521184.27	2425183.81
PC	3726+20.22	521185.80	2425267.63
PI	3732+27.03	521196.82	2425874.34
PT	3738+33.55	521239.94	2426479.61
PC	3740+06.19	521252.21	2426651.81
PI	3745+56.57	521291.32	2427200.80
PT	3751+06.74	521304.03	2427751.03
Sec Cor	3773+01.79	521354.72	2429945.49
¼ Cor	3799+45.66	521417.69	2432588.61
Sec Cor	3825+76.06	521479.95	2435218.28
¼ Cor	3852+14.88	521539.03	2437856.44
Sec Cor	3878+57.55	521599.86	2440498.41
¼ Cor	3904+98.56	521670.27	2443138.48
Sec Cor	3931+41.06	521741.34	2445780.03
¼ Cor	3957+94.61	521803.77	2448432.84
Sec Cor	3984+49.32	521866.36	2451086.81
Sec Cor	4037+18.59	521989.06	2456354.65
Sec Cor	4090+05.52	522130.19	2461639.70
PI	4129+51.19	522211.08	2465584.54
Sec Cor	4142+58.57	522244.54	2466891.49

CURVE DATA

ARC DEFINITION

REFERENCE MARKERS

R Mkr#	NORTHING	EASTING	STATION	OFFSET
R Mkr 54	543332.52	2360749.23	2851+24.53	31.03 RT
R Mkr 55	538045.14	2360857.27	2904+13.26	32.56 RT
R Mkr 56	532758.42	2360936.70	2957+00.11	60.65 RT
R Mkr 57	527487.26	2361031.91	3009+73.14	51.66 RT
R Mkr 58	522219.87	2361138.17	3062+41.15	31.67 RT
R Mkr 59	519912.09	2364267.24	3116+05.70	38.57 RT
R Mkr 60	520002.10	2369515.66	3168+54.68	38.22 RT
R Mkr 61	520124.45	2374767.11	3221+07.43	33.15 RT
R Mkr 62	520230.34	2380017.42	3273+58.89	39.34 RT
R Mkr 63	520336.33	2385320.77	3326+63.43	38.89 RT
R Mkr 64	520441.90	2390581.57	3379+25.15	40.06 RT
R Mkr 65	520554.55	2395844.88	3431+89.79	38.41 RT
R Mkr 66	520664.74	2401111.93	3484+57.88	36.71 RT
R Mkr 67	520782.11	2406436.63	3537+83.84	40.44 RT
R Mkr 68	520902.83	2411720.87	3590+69.48	37.65 RT
R Mkr 69	521033.04	2416999.18	3643+49.37	26.05 RT
R Mkr 70	521141.83	2422306.58	3696+57.90	38.63 RT
R Mkr 71	521265.37	2427541.99	3748+96.56	32.86 RT
R Mkr 72	521387.68	2432805.92	3801+62.19	35.14 RT
R Mkr 73	521505.66	2438075.46	3854+33.08	38.40 RT
R Mkr 74	521639.71	2443384.82	3907+43.99	37.17 RT
R Mkr 75	521769.96	2448621.42	3959+82.34	38.25 RT
R Mkr 76	521898.12	2453914.99	4012+77.47	34.11 RT
R Mkr 77	522029.14	2459232.65	4065+96.63	36.76 RT

SURVEY CONTROL POINTS

PNT	NORTHING	EASTING	ELEV	STATION	OFFSET	CONTROL POINT DESCRIPTION

NOTES:

Date Survey Completed 11/1/11

☐ Assumed Coordinates

☒ All coordinates on this sheet are Ramsey County ground coordinates.
They are derived from the "North Dakota Coordinate System of 1983", NAD83(opus), North Zone
Combination factor (cf) = 0.9998685

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INITIALIZING BENCH MARK
CORS SYSTEM

☒ NAVD-88
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☒ ENGLISH UNITS
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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	100	1

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
D3-36	36"x6"	STREET NAME SIGN (Sign and installation only)		6	
G20-1a-60	**60"x24"**	**ROAD WORK NEXT __ MILES**	**3**	**34**	**102**
G20-1b-60	60"x24"	WORK IN PROGRESS/ NO WORK IN PROGRESS (Sign and installation only)		26	
G20-2a-48	**48"x24"**	**END ROAD WORK**	**2**	**19**	**38**
G20-4-36	**36"x18"**	**PILOT CAR FOLLOW ME**	**1**	**18**	**18**
G20-10-108	**108"x48"**	**CONTRACTOR SIGN**	**2**	**64**	**128**
G20-50a-72	**72"x36"**	**ROAD WORK NEXT __ MILES RT & LT ARROWS**	**5**	**37**	**185**
G20-52a-72	72"x24"	ROAD WORK NEXT __ MILES RT or LT ARROW		30	
G20-55-96	**96"x48"**	**SPEED LIMIT ENFORCED - MINIMUM FEE $80 WHEN WORKERS PRESENT**	**2**	**59**	**118**
M1-1-36	36"x36"	INTERSTATE ROUTE MARKER (Post and installation only)		10	
M1-4-24	24"x24"	U.S. ROUTE MARKER (Post and installation only)		10	
M1-5-24	24"x24"	STATE ROUTE MARKER (Post and installation only)		10	
M3-1-24	24"x12"	NORTH (Mounted on route marker post)		7	
M3-2-24	24"x12"	EAST (Mounted on route marker post)		7	
M3-3-24	24"x12"	SOUTH (Mounted on route marker post)		7	
M3-4-24	24"x12"	WEST (Mounted on route marker post)		7	
M4-8-24	24"x12"	DETOUR (Mounted on route marker post)		7	
M4-9-30	30"x24"	DETOUR ARROW RIGHT or LEFT/AHD AND RT or LT		15	
M4-10-48	48"x18"	DETOUR ARROW RIGHT or LEFT		23	
M5-1-21	21"x15"	ARROW AHD AND RT or LT(Mounted on route marker post)		7	
M5-2-21	21"x15"	ARROW AHD UP & RT or LT (Mounted on route marker post)		7	
M6-1-21	21"x15"	ARROW RT or LT (Mounted on route marker post)		7	
M6-2-21	21"x15"	ARROW UP & RT or LT (Mounted on route marker post)		7	
M6-3-21	21"x15"	ARROW AHD (Mounted on route marker post)		7	
R1-1-48	**48"x48"**	**STOP**	**2**	**32**	**64**
R1-1a-18	**18"x18"**	**STOP and SLOW PADDLE Back to Back**	**4**	**5**	**20**
R1-2-60	60"x60"	YIELD		29	
R2-1-48	**48"x60"**	**SPEED LIMIT __**	**24**	**39**	**936**
R2-1a-24	**24"x18"**	**MINIMUM FEE $80 (Mounted on Speed Limit post)**	**4**	**10**	**40**
R3-7-48	48"x48"	LEFT or RIGHT LANE MUST TURN LEFT or RIGHT		35	
R4-1-48	48"x60"	DO NOT PASS		39	
R4-7-48	48"x60"	KEEP RIGHT SYMBOL		39	
R5-1-48	48"x48"	DO NOT ENTER		35	
R6-1-36	36"x12"	ONE WAY RIGHT or LEFT		13	
R7-1-12	12"x18"	NO PARKING		11	
R10-6-24	24"x36"	STOP HERE ON RED		16	
R11-2-48	**48"x30"**	**ROAD CLOSED**	**2**	**28**	**56**
R11-2a-48	48"x30"	STREET CLOSED		28	
R11-3a-60	60"x30"	ROAD CLOSED __ MILES AHEAD LOCAL TRAFFIC ONLY		31	
R11-3c-60	60"x30"	STREET CLOSED __ MILES AHEAD LOCAL TRAFFIC ONLY		31	
R11-4a-60	60"x30"	STREET CLOSED TO THRU TRAFFIC		31	
W1-3-48	48"x48"	RIGHT or LEFT SHARP REVERSE CURVE ARROW		35	
W1-4-48	**48"x48"**	**RIGHT or LEFT REVERSE CURVE ARROW**	**4**	**35**	**140**
W1-4b-48	48"x48"	DOUBLE RIGHT or LEFT REVERSE CURVE ARROW		35	
W1-6-48	**48"x24"**	**LARGE ARROW**	**2**	**26**	**52**
W3-1-48	48"x48"	STOP AHEAD SYMBOL		35	
W3-3-48	48"x48"	SIGNAL AHEAD SYMBOL		35	
W3-4-48	**48"x48"**	**BE PREPARED TO STOP**	**4**	**35**	**140**
W3-5-48	**48"x48"**	**SPEED REDUCTION AHEAD**	**6**	**35**	**210**
W4-2-48	48"x48"	RIGHT or LEFT LANE TRANSITION SYMBOL		35	
W5-1-48	48"x48"	ROAD NARROWS		35	
W5-8-48	48"x48"	THRU TRAFFIC RIGHT LANE		35	
W5-9-48	48"x48"	ROAD WORK TRAFFIC ONLY DOWN & LT or RT ARROW		35	
W6-3-48	48"x48"	TWO WAY TRAFFIC SYMBOL		35	
W8-1-48	**48"x48"**	**BUMP**	**18**	**35**	**630**
W8-3-48	48"x48"	PAVEMENT ENDS		35	
W8-7-48	48"x48"	LOOSE GRAVEL		35	
W8-9a-48	48"x48"	SHOULDER DROP-OFF		35	
W8-11-48	48"x48"	UNEVEN LANES		35	
W8-12-48	48"x48"	NO CENTER STRIPE		35	
W8-53-48	48"x48"	TRUCKS ENTERING HIGHWAY		35	
W8-54-48	**48"x48"**	**TRUCKS ENTERING AHEAD or __ FT.**	**2**	**35**	**70**
W8-55-48	**48"x48"**	**TRUCKS CROSSING AHEAD or __ FT.**	**2**	**35**	**70**
W8-56-48	48"x48"	TRUCKS EXITING HIGHWAY		35	
W9-3a-48	48"x48"	CENTER LANE CLOSED SYMBOL		35	
W12-2-48	48"x48"	LOW CLEARANCE SYMBOL		35	
W13-1-24	**24"x24"**	**__ MPH ADVISORY SPEED PLATE (Mounted on warning sign post)**	**4**	**11**	**44**
W13-4-48	48"x60"	RAMP ARROW		39	
W14-3-48	48"x36"	NO PASSING ZONE		23	
W20-1-48	**48"x48"**	**ROAD WORK AHEAD or _FT or _ MILE**	**12**	**35**	**420**
W20-2-48	48"x48"	DETOUR AHEAD or __ FT		35	
W20-3-48	48"x48"	ROAD or STREET CLOSED AHEAD or __ FT.		35	
W20-4-48	48"x48"	ONE LANE ROAD AHEAD or __ FT.		35	
W20-5-48	48"x48"	RIGHT or LEFT LANE CLOSED AHEAD or __ FT.		35	
W20-7a-48	**48"x48"**	**FLAGGING SYMBOL**	**4**	**35**	**140**
W20-7k-24	24"x18"	__ FEET (Mounted on warning sign post)		10	
W20-8-48	48"x48"	STREET CLOSED		35	
W20-51-48	48"x48"	EQUIPMENT WORKING		35	
W20-52-54	**54"x12"**	**NEXT __ MILES (Mounted on warning sign post)**	**12**	**12**	**144**
W21-1a-48	48"x48"	WORKERS SYMBOL		35	
W21-2-48	**48"x48"**	**FRESH OIL**	**2**	**35**	**70**
W21-3-48	48"x48"	ROAD MACHINERY AHEAD or __ FT		35	

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
W21-5-48	**48"x48"**	**SHOULDER WORK**	**2**	**35**	**70**
W21-5a-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED		35	
W21-5b-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED AHEAD or __ FT.		35	
W21-6a-48	48"x48"	SURVEY CREW AHEAD		35	
W21-50-48	48"x48"	BRIDGE PAINTING AHEAD or __ FT.		35	
W21-51-48	**48"x48"**	**MATERIAL ON ROADWAY**	**2**	**35**	**70**
W22-8-48	48"x48"	FRESH OIL LOOSE ROCK		35	
	24"x24"	TAKE TURNS (6" D letters) (Mounted on stop sign post)		11	

SPECIAL SIGNS

Consign 1	**48"x48"**	**PAVEMENT BREAKS**	**8**	**35**	**280**
	18"x18"	**ORANGE BLANK SIGN**	**34**	**12**	**408**

SPEC & CODE

704-1000	**TRAFFIC CONTROL SIGNS**	**TOTAL UNITS**	**4663**

SPEC & CODE	DESCRIPTION	UNIT	QUANTITY
704-0100	**FLAGGING**	**MHR**	**2200**
704-1041	ATTENUATION DEVICE-TYPE B-55	EACH	
704-1043	ATTENUATION DEVICE-TYPE B-65	EACH	
704-1044	ATTENUATION DEVICE-TYPE B-70	EACH	
704-1050	TYPE I BARRICADES	EACH	
704-1051	TYPE II BARRICADES	EACH	
704-1052	**TYPE III BARRICADES**	**EACH**	**6**
704-1060	**DELINEATOR DRUMS**	**EACH**	**65**
704-1065	TRAFFIC CONES	EACH	
704-1067	TUBULAR MARKERS	EACH	
704-1070	DELINEATOR	EACH	
704-1072	FLEXIBLE DELINEATORS	EACH	
704-1080	**STACKABLE VERTICAL PANELS**	**EACH**	**100**
704-1081	VERTICAL PANELS - BACK TO BACK	EACH	
704-1085	SEQUENCING ARROW PANEL - TYPE A	EACH	
704-1086	SEQUENCING ARROW PANEL - TYPE B	EACH	
704-1087	SEQUENCING ARROW PANEL - TYPE C	EACH	
704-1088	SEQUENCING ARROW PANEL - TYPE C - CROSSOVER	EACH	
704-1095	TYPE B FLASHERS	EACH	
704-1185	**PILOT CAR**	**HR**	**1000**
704-3501	PORTABLE PRECAST CONCRETE MED BARRIER	LF	
704-3510	PRECAST CONCRETE MED BARRIER - STATE FURNISHED	EACH	
762-0200	RAISED PAVEMENT MARKERS	EACH	
762-0420	SHORT TERM 4IN LINE - TYPE R	LF	
762-0430	**SHORT TERM 4IN LINE - TYPE NR**	**LF**	**99001**
762-1500	OBLITERATION OF PVMT MK	SF	
772-2110	FLASHING BEACON - POST MOUNTED	EACH	

NOTE:
If additional signs are required, units will be calculated using the formula from Section III-19.06 of the Design Manual.
http://www.dot.nd.gov/

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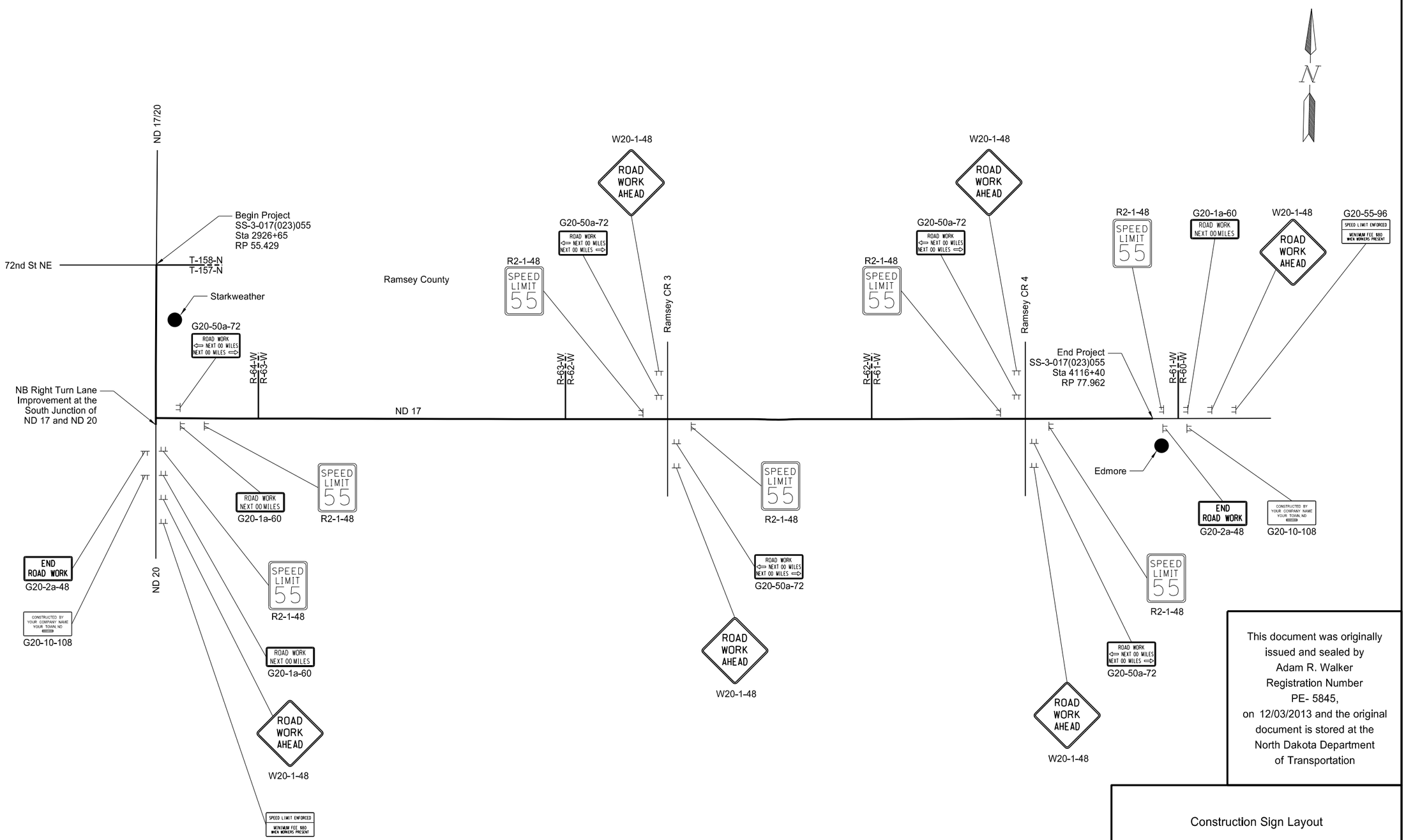
Traffic Control Devices List

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	100	2



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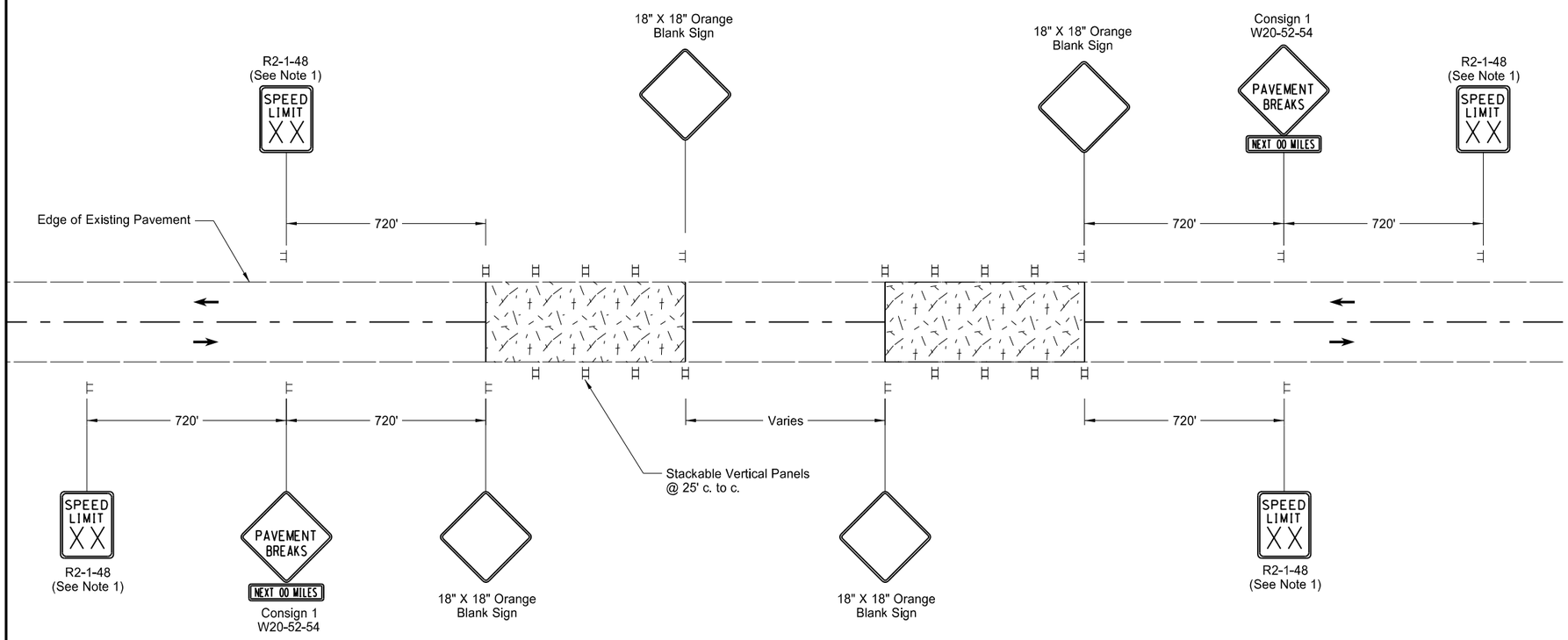
Construction Sign Layout

Starkweather S to Edmore - ND 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	100	3

Notes:

1. Where necessary, placement and speed limit of R2-1-48 signs shall be determined by the engineer in the field.
2. 18" x 18" orange blank signs shall be installed at all subcut and culvert replacement locations.
3. Consign 1 and W20-52-54 signs have been provided to be placed in the vacinity of the following locations:
   - -Beginning and end of project (2 Total)
   - -South Junction of ND 17 and ND 20 (2 Total)
   - -Intersection of ND 17 and Ramsey CR 3 (2 Total)
   - -Intersection of ND 17 and Ramsey CR 4 (2 Total)
4. See Standard Drawing D-704-15 Type A TEMPORARY ROAD CLOSURE for when work is present.



Temporary Aggregate Surface

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Work Zone Traffic Control
Subcut and Pipe Replacement Locations
When No Work is Present

Starkweather S to Edmore - ND 17

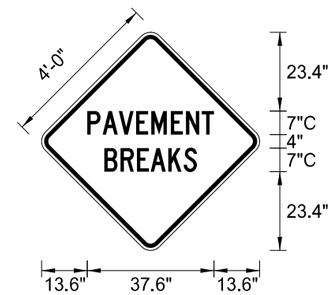
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	100	4

SIGN NUMBER	Consign 1
WIDTH x HEIGHT	5'-5" x 5'-5"
BORDER WIDTH	1.25" (inset 0.75")
CORNER RADIUS	3"
MOUNTING	Ground
BACKGROUND	TYPE: Diamond Grade
	COLOR: Fluorescent Orange
LEGEND/BORDER	TYPE: Non Reflective
	COLOR: Black

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S):

AREA: 16.0 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: NDDOT_Pavement Breaks.ssl

LETTER POSITION (X)																			LENGTH	SIZE	SERIES
P	A	V	E	M	E	N	T												37.6	7	C 2000
13.6	18.2	23	28.1	32.6	38.4	42.9	47.6														
B	R	E	A	K	S														27.5	7	C 2000
18.6	23.5	28.3	32.4	37.6	42.2																

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Construction Sign Details

Starkweather S to Edmore - ND 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
N.D.	SS-3-017(023)055	110	1

Sta/RP	Sign No.	Assembly No.	Flat Sheet For Signs IV SF	Flat Sheet For Signs XI SF	Sign Support Length 1st LF	Sign Support Length 2nd LF	Sign Support Length 3rd LF	Sign Support Length 4th LF	Support Size	Max Post Len LF	Sleeve Length 1st LF	Sleeve Length 2nd LF	Sleeve Length 3rd LF	Sleeve Length 4th LF	Sleeve Size	Anchor EA	Anchor LF	Anchor Size	Reset Sign Panel EA	Reset Sign Support EA	Break-Away EA	Comments
2942+00 Rt					9.9	10.9			2.5 x 2.5 12 ga	14.6						2	4	3 x 3 7 ga	1		2	
2952+00 Lt					9.9	10.9			2.5 x 2.5 12 ga	14.6						2	4	3 x 3 7 ga	1		2	
3073+00 Rt		405	12.4		12.3				2.5 x 2.5 12 ga	13.5	3.9				2.25 x 2.25 12 ga	1	4	3 x 3 7 ga			1	
3077+00 Rt	SN 1		34.0		12.2	12.6	13.0		2.5 x 2.5 12 ga	14.2	3.7	4.1	4.5		2.25 x 2.25 12 ga	3	4	3 x 3 7 ga			3	
3078+80 Lt		9			11.4				2.25 x 2.25 12 ga	15.0						1	4	2.5 x 2.5 12 ga	1			
3081+00 Rt		399	6.2		12.7				2.5 x 2.5 12 ga	15.9						1	4	3 x 3 7 ga				
3082+80 Lt		375	12.0		11.8				2.5 x 2.5 12 ga	13.8	3.4				2.25 x 2.25 12 ga	1	4	3 x 3 7 ga			1	
3085+30 Rt		405	12.4		12.4				2.5 x 2.5 12 ga	13.5	4.1				2.25 x 2.25 12 ga	1	4	3 x 3 7 ga			1	
3085+58 Rt		371	6.0		13.0				2.5 x 2.5 12 ga	16.2						1	4	3 x 3 7 ga				
3085+90 Rt		405	12.4		12.5				2.5 x 2.5 12 ga	13.5	4.2				2.25 x 2.25 12 ga	1	4	3 x 3 7 ga			1	
3086+22 Lt		2		7.5	10.5				2.5 x 2.5 12 ga	12.1						1	4	3 x 3 7 ga				
3092+30 Lt		399	6.2		12.7				2.5 x 2.5 12 ga	15.9						1	4	3 x 3 7 ga				
3096+30 Lt		391	6.2		12.7				2.5 x 2.5 12 ga	15.9						1	4	3 x 3 7 ga				
3100+30 Lt		20		9.0	12.6				2.25 x 2.25 12 ga	14.1	3.8				2 x 2 12 ga	1	4	3 x 3 7 ga			1	
3607+40 Lt		9		5.0	11.6				2.25 x 2.25 12 ga	15.0						1	4	2.5 x 2.5 12 ga				
3614+15 Rt		405	12.4		12.5				2.5 x 2.5 12 ga	13.5	4.1				2.25 x 2.25 12 ga	1	4	3 x 3 7 ga			1	
3615+30 Lt		405	12.4		12.4				2.5 x 2.5 12 ga	13.5	4.1				2.25 x 2.25 12 ga	1	4	3 x 3 7 ga			1	
3622+00 Rt		9		5.0	11.7				2.25 x 2.25 12 ga	15.0						1	4	2.5 x 2.5 12 ga				
3976+00 Rt		437	8.4		13.2				2.5 x 2.5 10 ga	15.2						1	4	3 x 3 7 ga			1	
3978+00 Lt		9		5.0	11.6				2.25 x 2.25 12 ga	15.0						1	4	2.5 x 2.5 12 ga				
3982+00 Lt		371	6.0		12.1				2.25 x 2.25 12 ga	12.9						1	4	2.5 x 2.5 12 ga				
3984+05 Rt		405	12.4		12.4				2.5 x 2.5 12 ga	13.5	4.1				2.25 x 2.25 12 ga	1	4	3 x 3 7 ga			1	
3984+95 Lt		405	12.4		12.4				2.5 x 2.5 12 ga	13.5	4.1				2.25 x 2.25 12 ga	1	4	3 x 3 7 ga			1	
3987+00 Rt		371	6.0		12.1				2.25 x 2.25 12 ga	12.9						1	4	2.5 x 2.5 12 ga				
3989+00 Rt		9		5.0	11.6				2.25 x 2.25 12 ga	15.0						1	4	2.5 x 2.5 12 ga				
4090+00 Rt		38		12.5	11.5				2.5 x 2.5 12 ga	12.9	3.7				2.25 x 2.25 12 ga	1	4	3 x 3 7 ga			1	
4099+00 Rt		20		9.0	12.6				2.25 x 2.25 12 ga	14.1	3.8				2 x 2 12 ga	1	4	3 x 3 7 ga			1	
4109+71 Lt		9			11.6				2.25 x 2.25 12 ga	15.0						1	4	2.5 x 2.5 12 ga	1			
4114+33 Rt					10.8				2.5 x 2.5 12 ga	14.0						1	4	3 x 3 7 ga	1			
Sub Total			177.8	58.0		**Total**	394.4									**Total**	132		5	0	19	
Grand Total			177.8	58.0		**Total**	394.4									**Total**	132		5	0	19	

Basis of Estimate
Sign Support Lengths

The sign support lengths have been calculated using the following vertical clearances:

Rural Roadway - 60"

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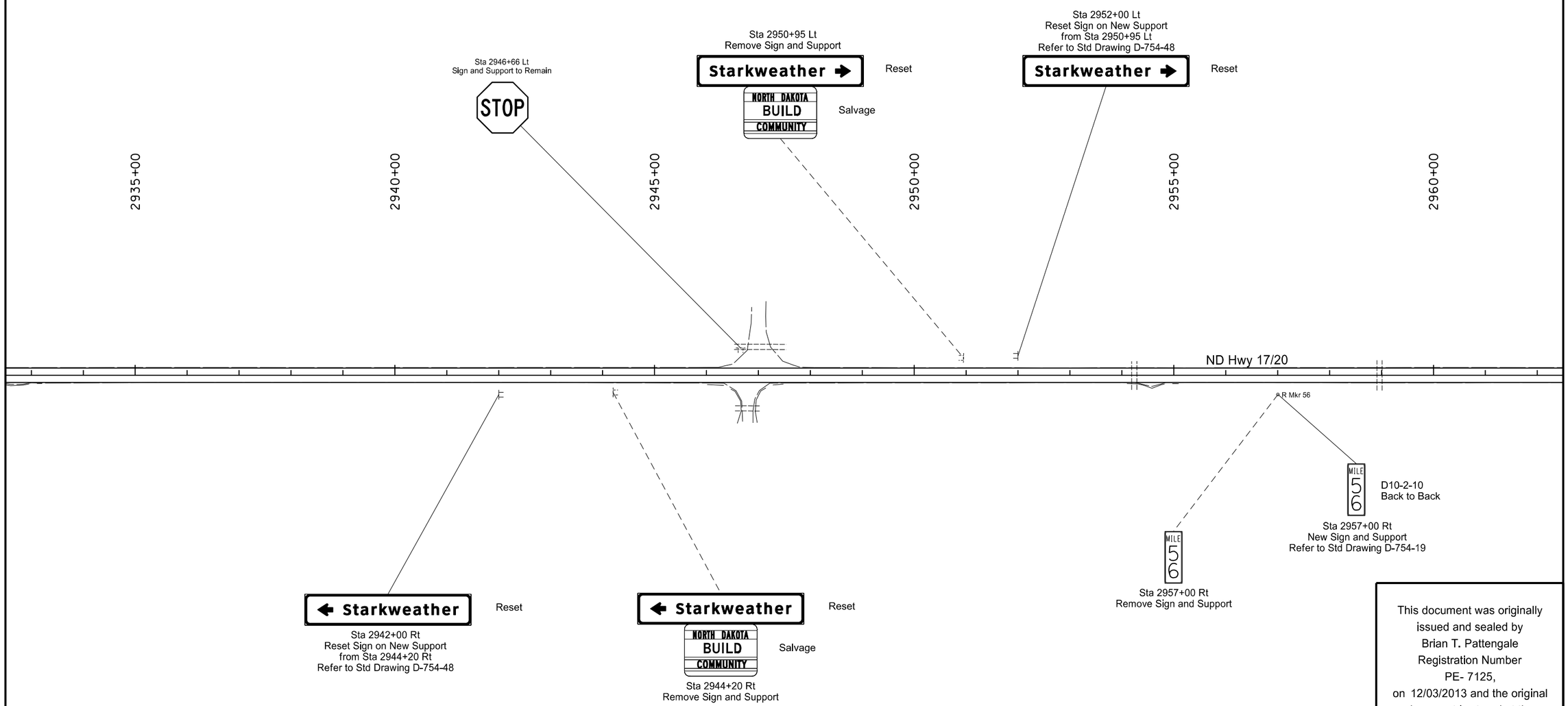
Sign Summary
Perforated Tube

Starkweather S to Edmore - ND 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	110	2

Item	Description	Quantity	Unit
754-0562	Reference Marker - Type B Sta 2957+00 Rt	1	EA



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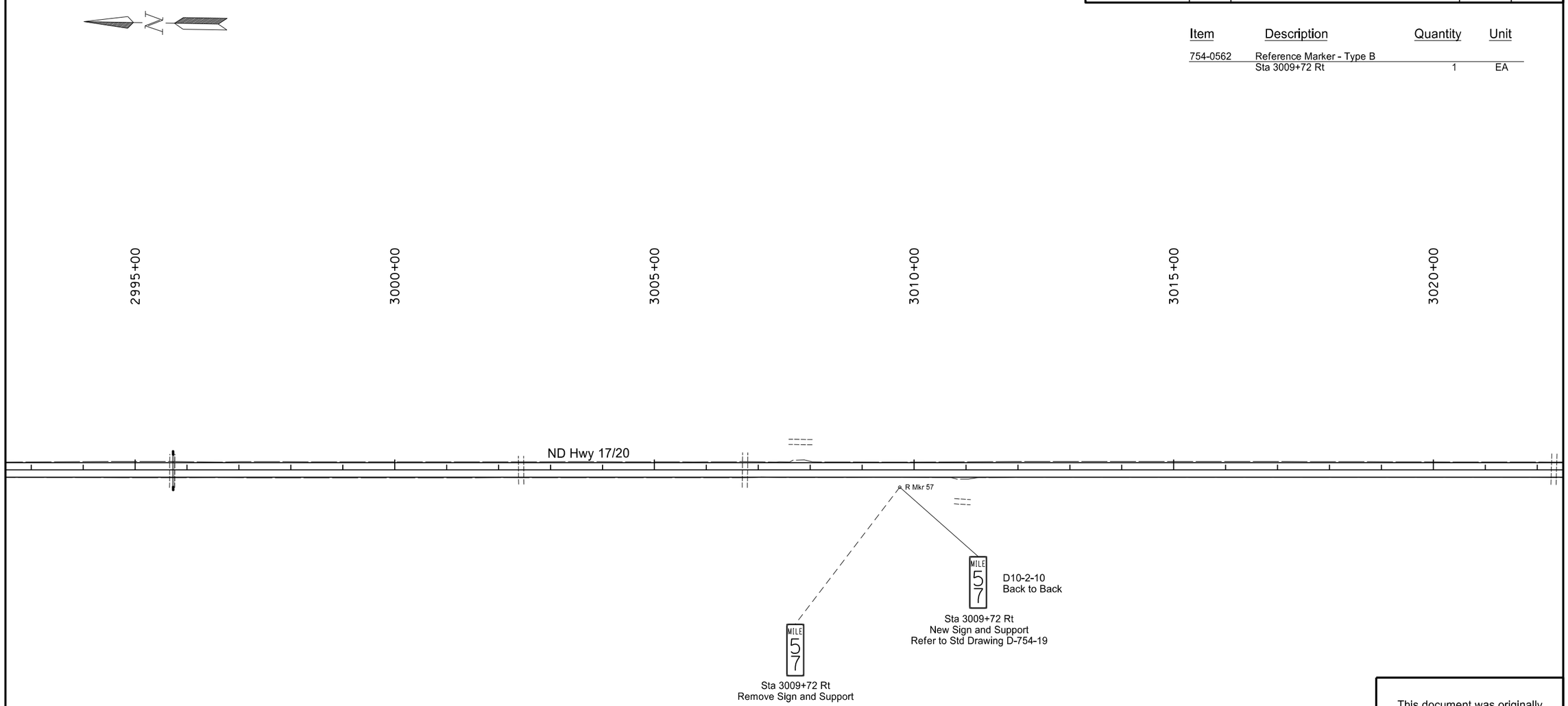
Signing

Starkweather S to Edmore - ND 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	110	3

Item	Description	Quantity	Unit
754-0562	Reference Marker - Type B Sta 3009+72 Rt	1	EA



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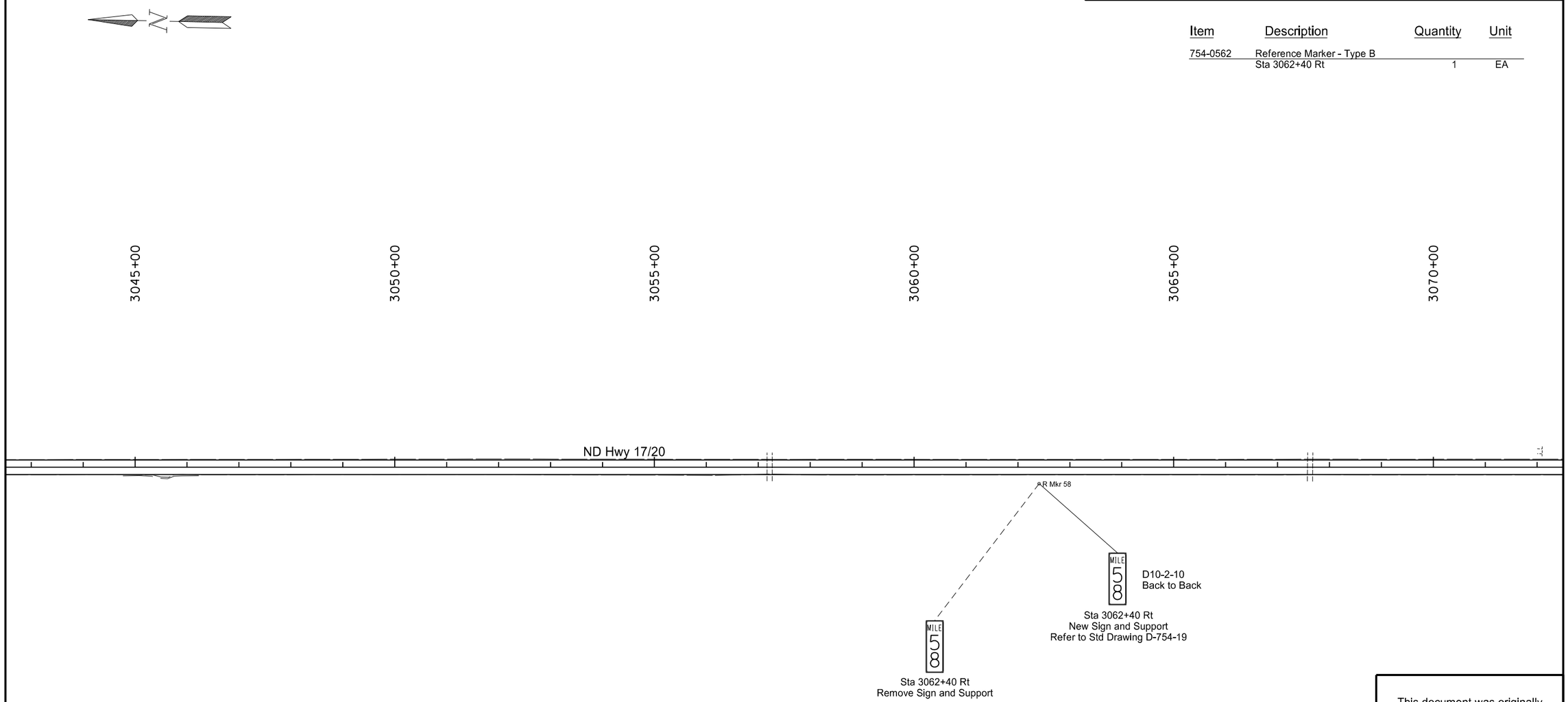
Signing

Starkweather S to Edmore - ND 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	110	4

Item	Description	Quantity	Unit
754-0562	Reference Marker - Type B Sta 3062+40 Rt	1	EA



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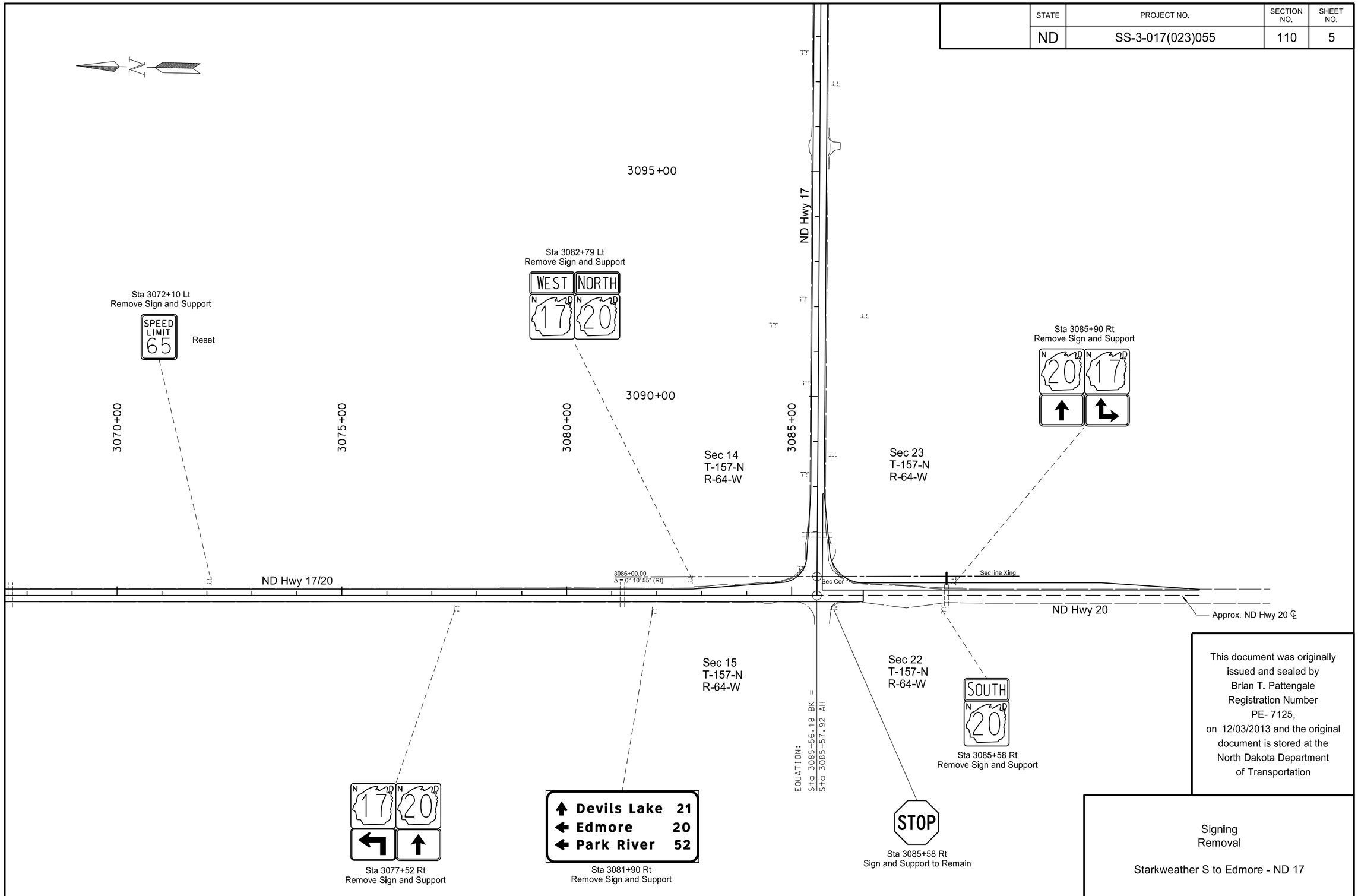
Starkeather S to Edmore - ND 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	110	5



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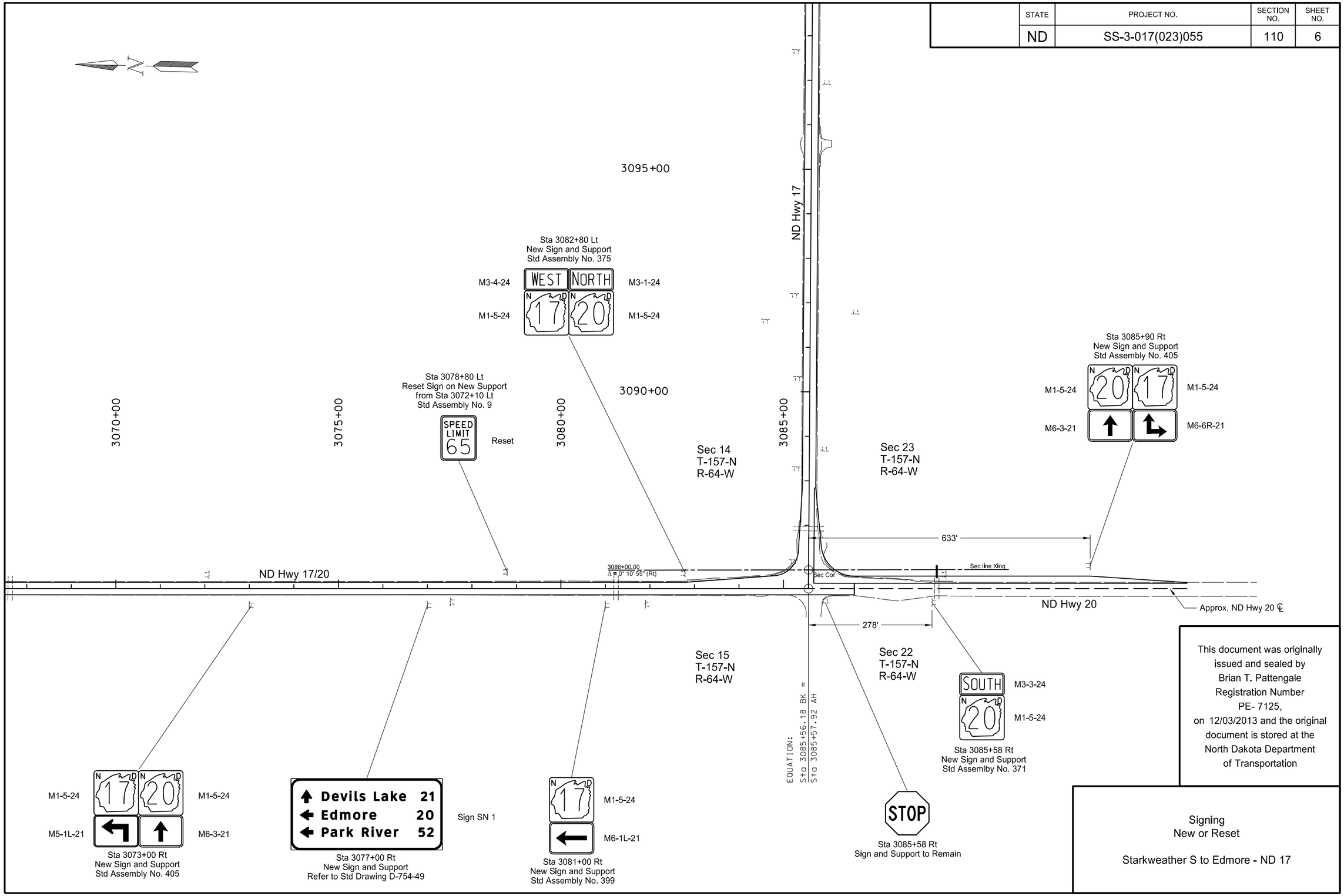
Signing
Removal

Starkweather S to Edmore - ND 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	110	6



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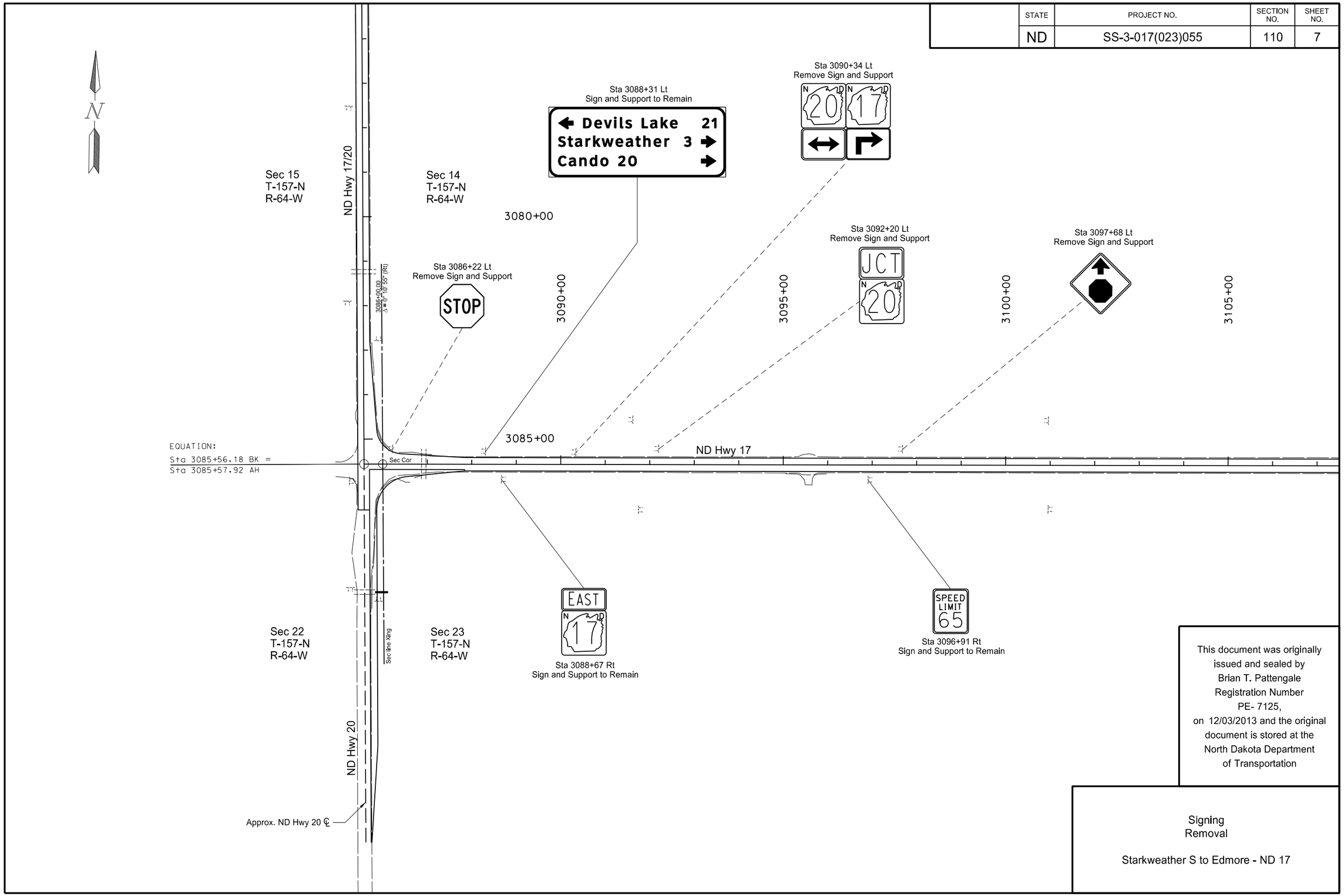
Signing
New or Reset

Starkweather S to Edmore - ND 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	110	7



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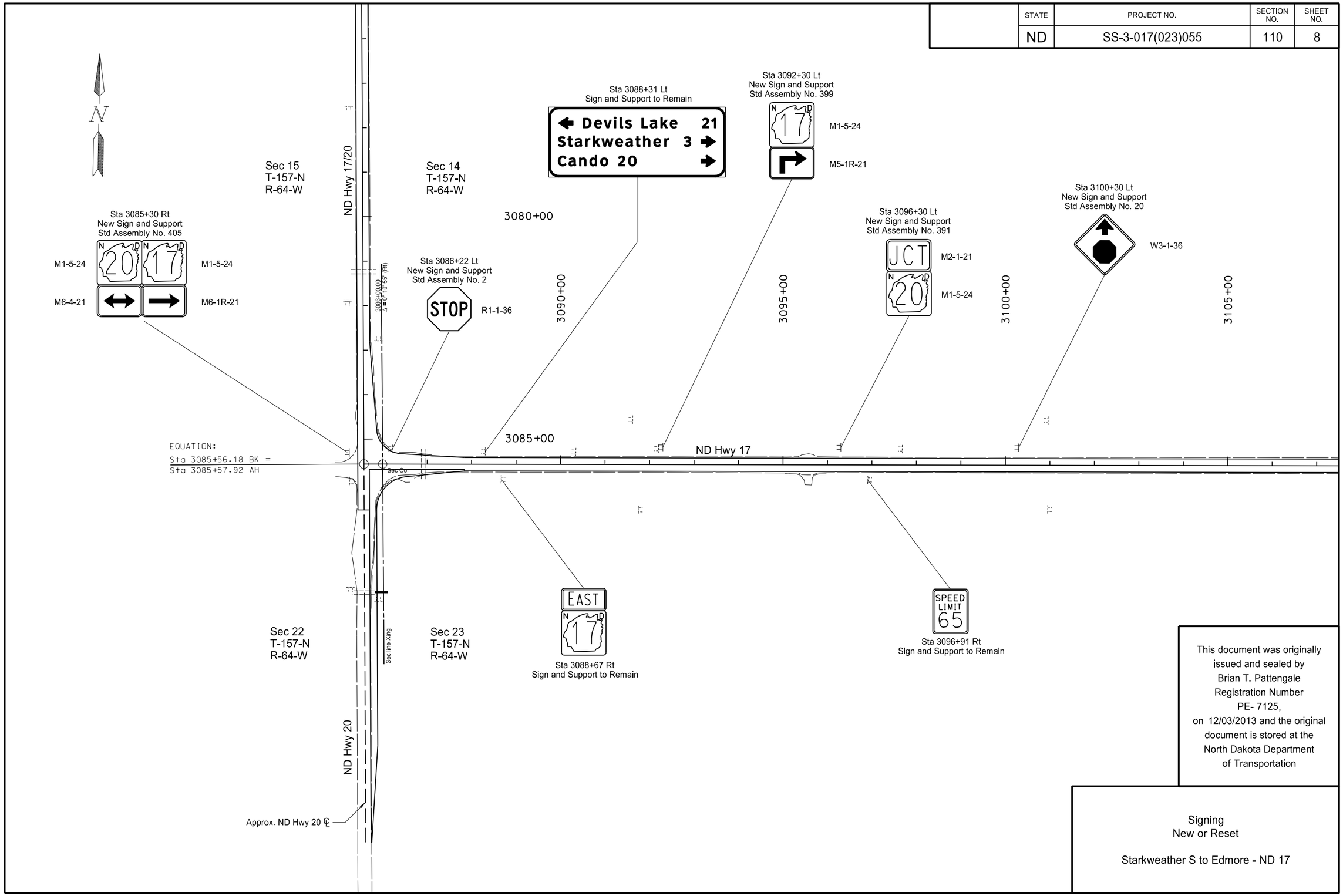
Signing
Removal

Starkweather S to Edmore - ND 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	110	8



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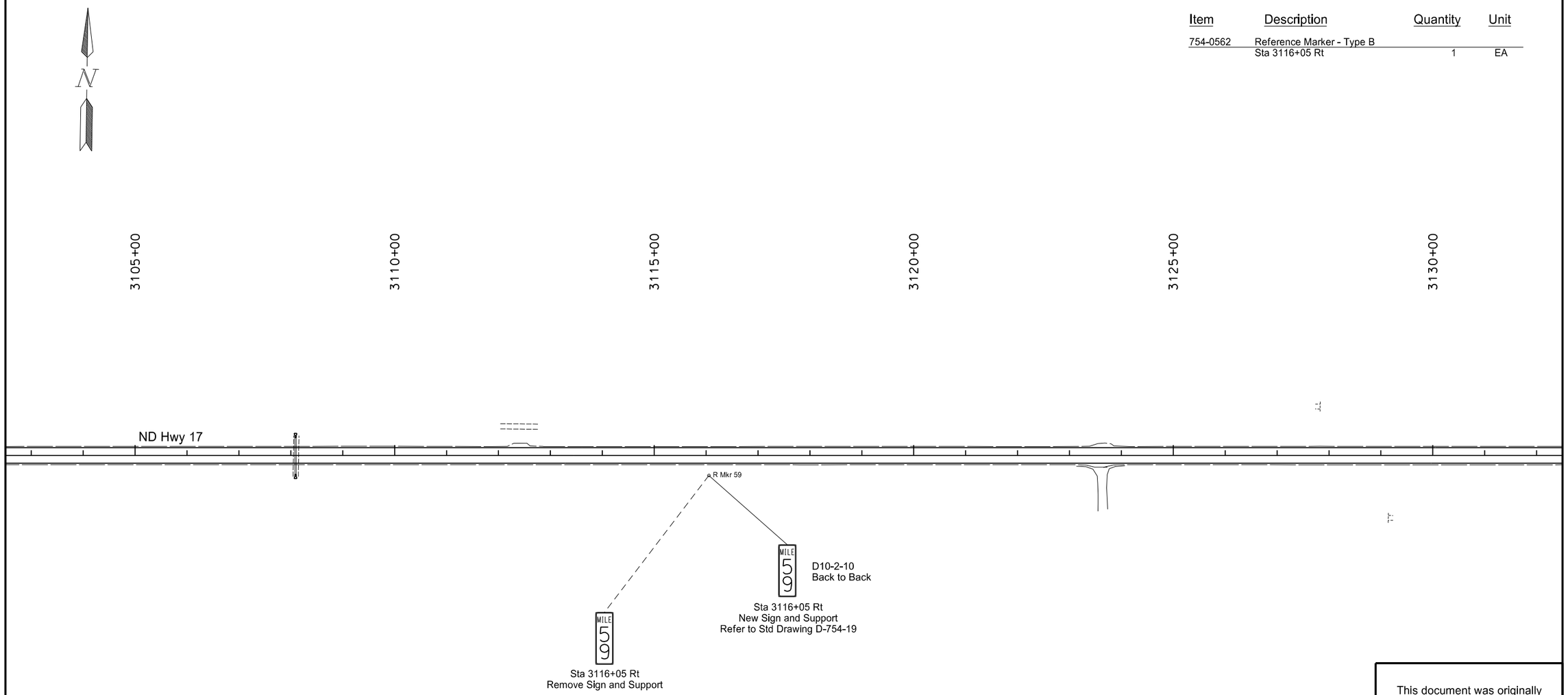
Signing
New or Reset

Starkweather S to Edmore - ND 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	110	9

Item	Description	Quantity	Unit
754-0562	Reference Marker - Type B Sta 3116+05 Rt	1	EA



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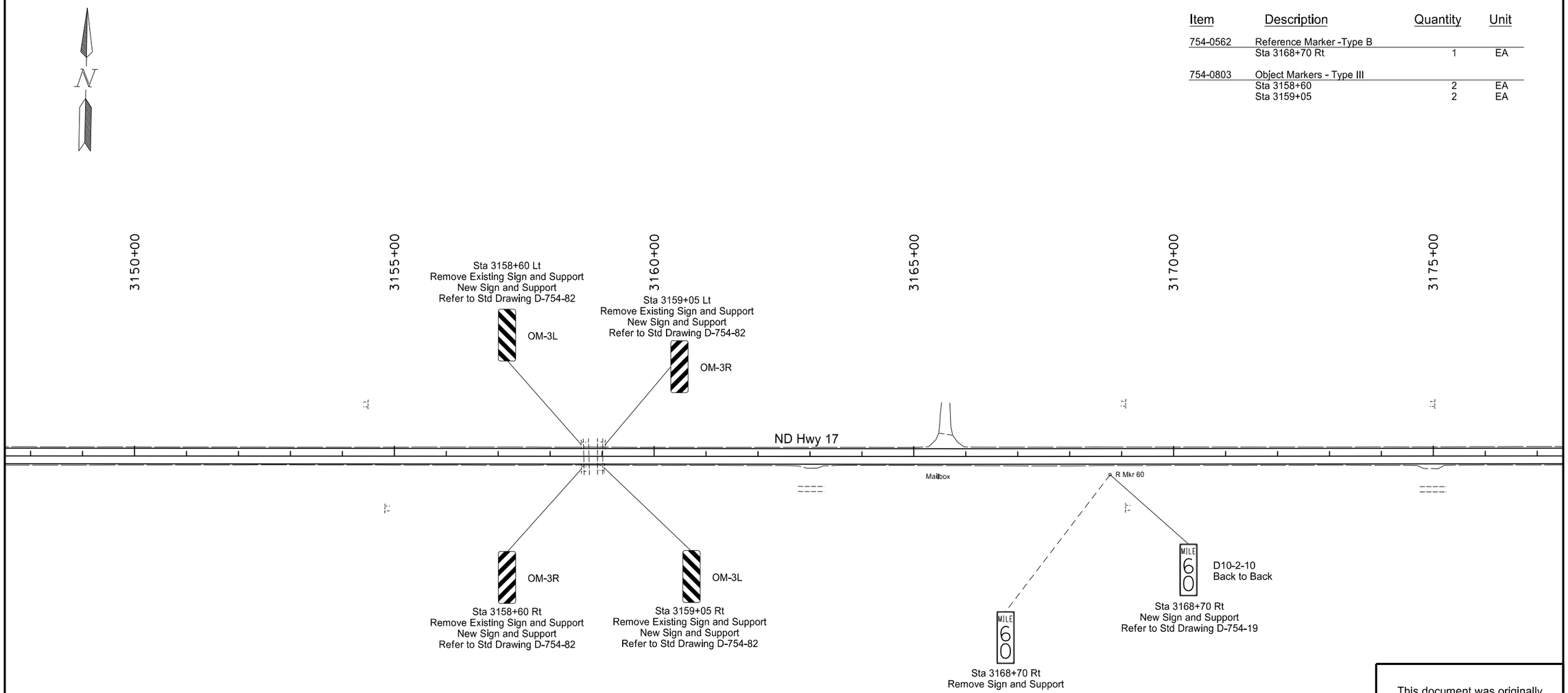
Starkweather S to Edmore - ND 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	110	10

Item	Description	Quantity	Unit
754-0562	Reference Marker -Type B		
	Sta 3168+70 Rt	1	EA
754-0803	Object Markers - Type III		
	Sta 3158+60	2	EA
	Sta 3159+05	2	EA



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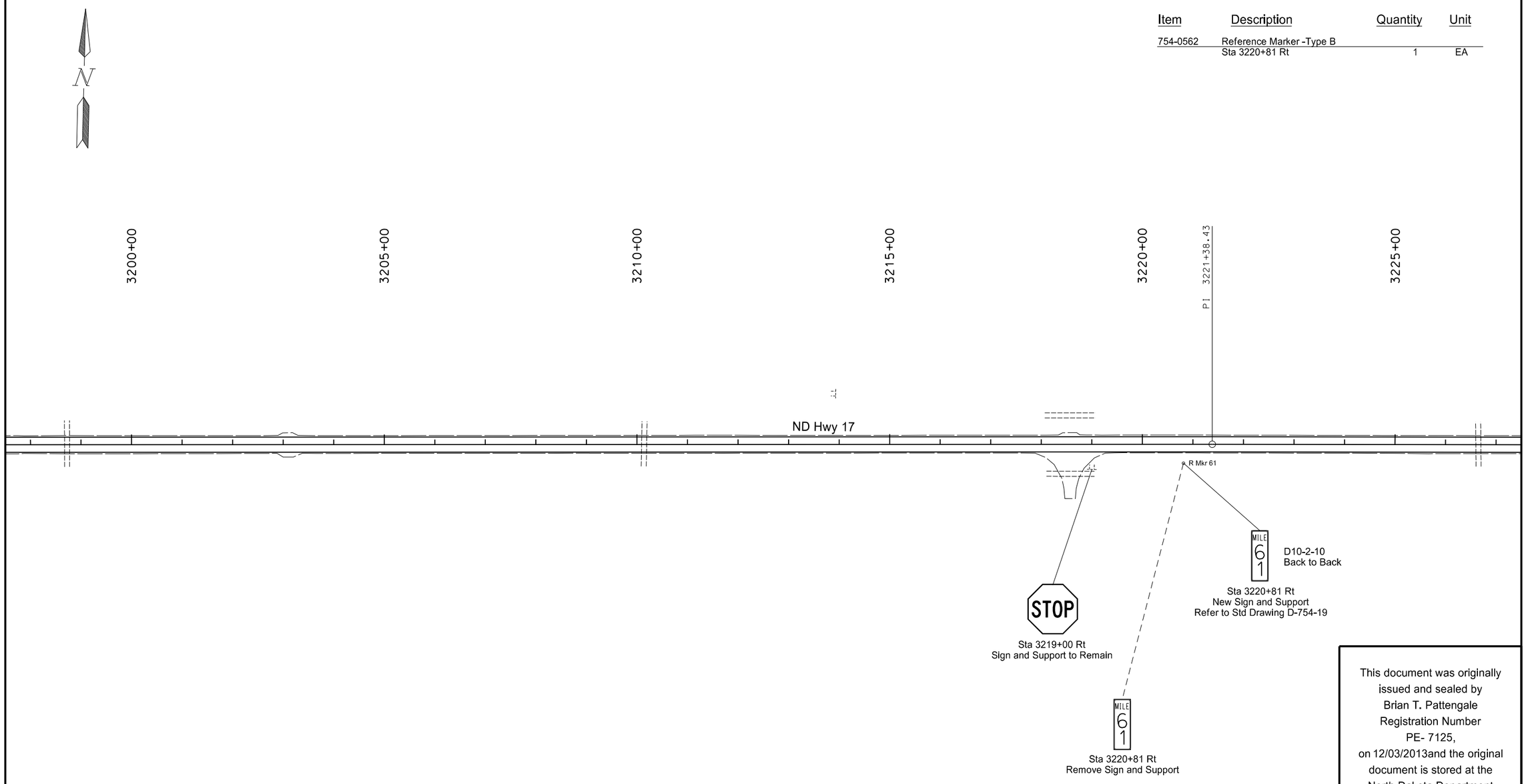
Starkweather S to Edmore - ND 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	110	11

Item	Description	Quantity	Unit
754-0562	Reference Marker -Type B Sta 3220+81 Rt	1	EA



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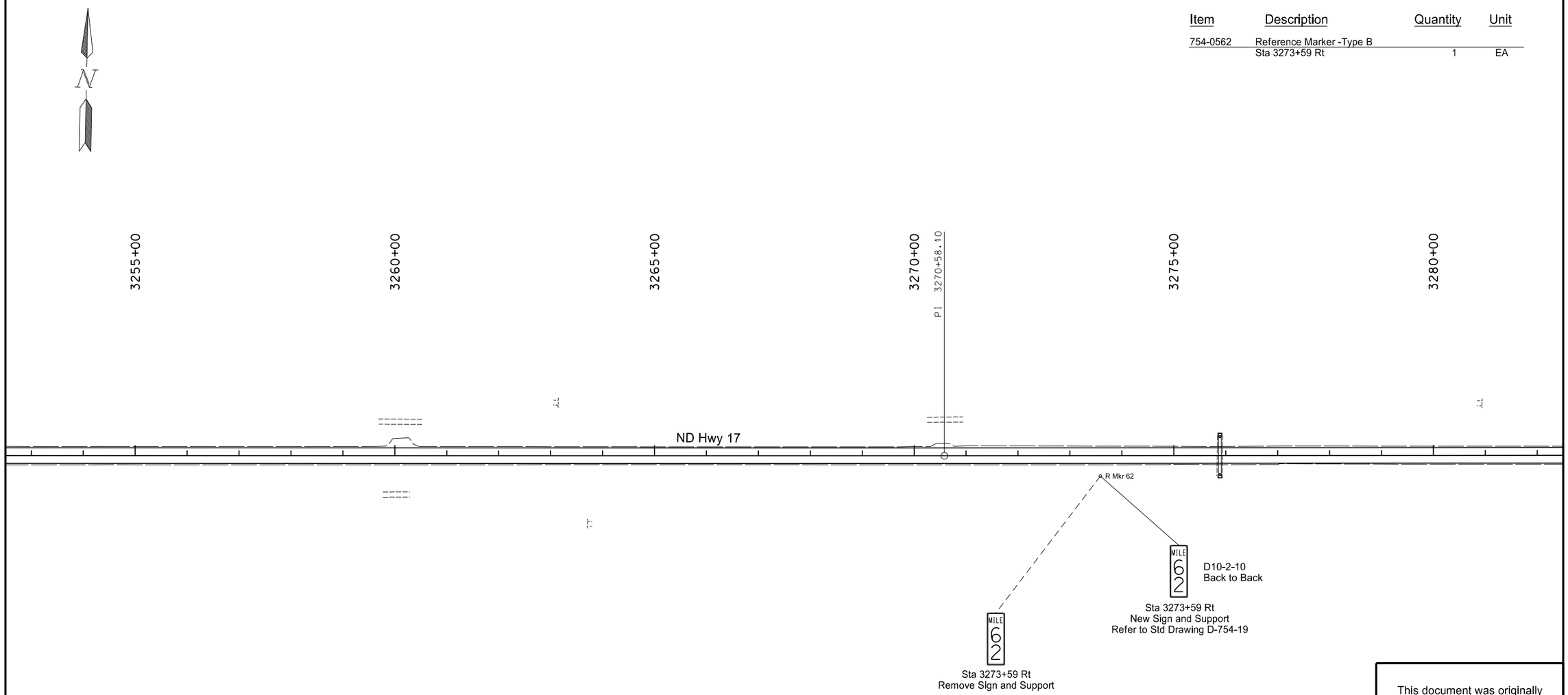
Starkweather S to Edmore - ND 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	110	12

Item	Description	Quantity	Unit
754-0562	Reference Marker -Type B Sta 3273+59 Rt	1	EA



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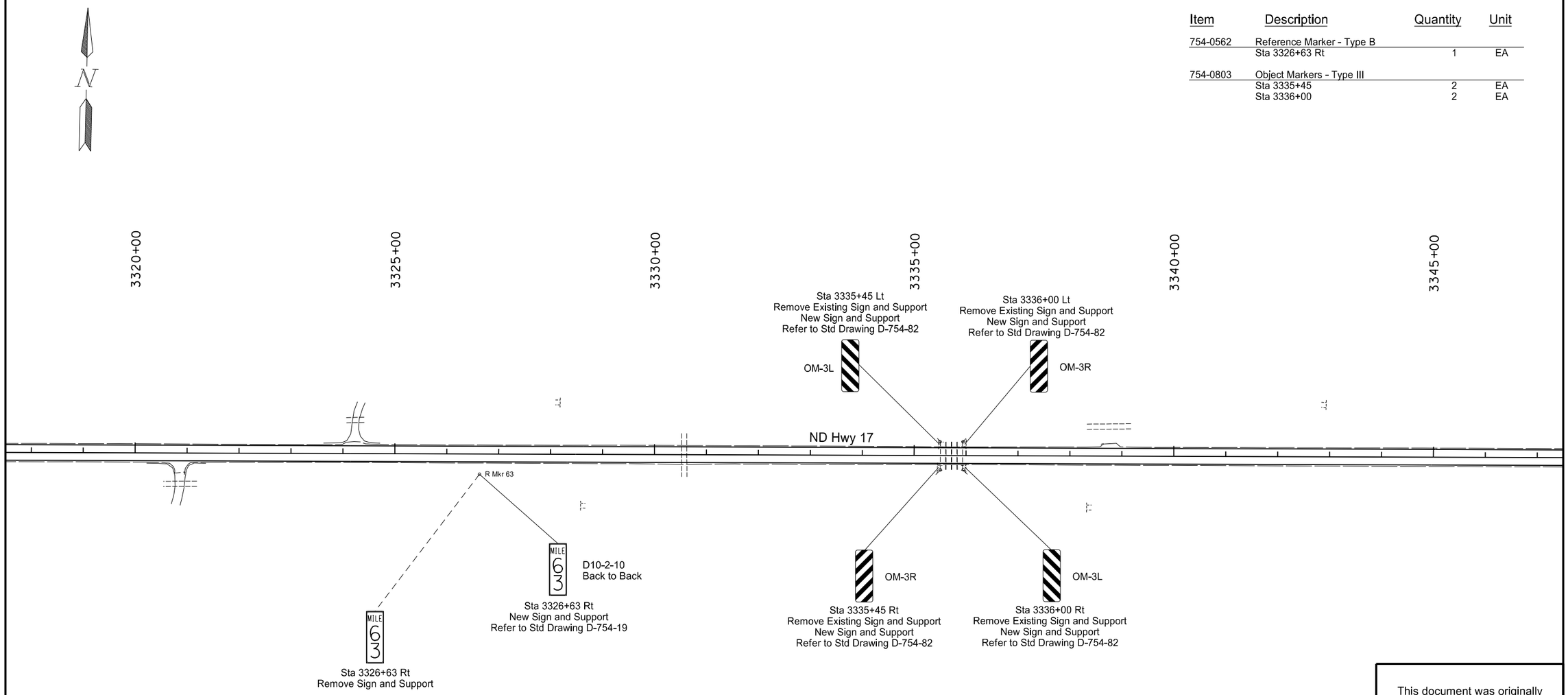
Starkweather S to Edmore - ND 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	110	13

Item	Description	Quantity	Unit
754-0562	Reference Marker - Type B		
	Sta 3326+63 Rt	1	EA
754-0803	Object Markers - Type III		
	Sta 3335+45	2	EA
	Sta 3336+00	2	EA



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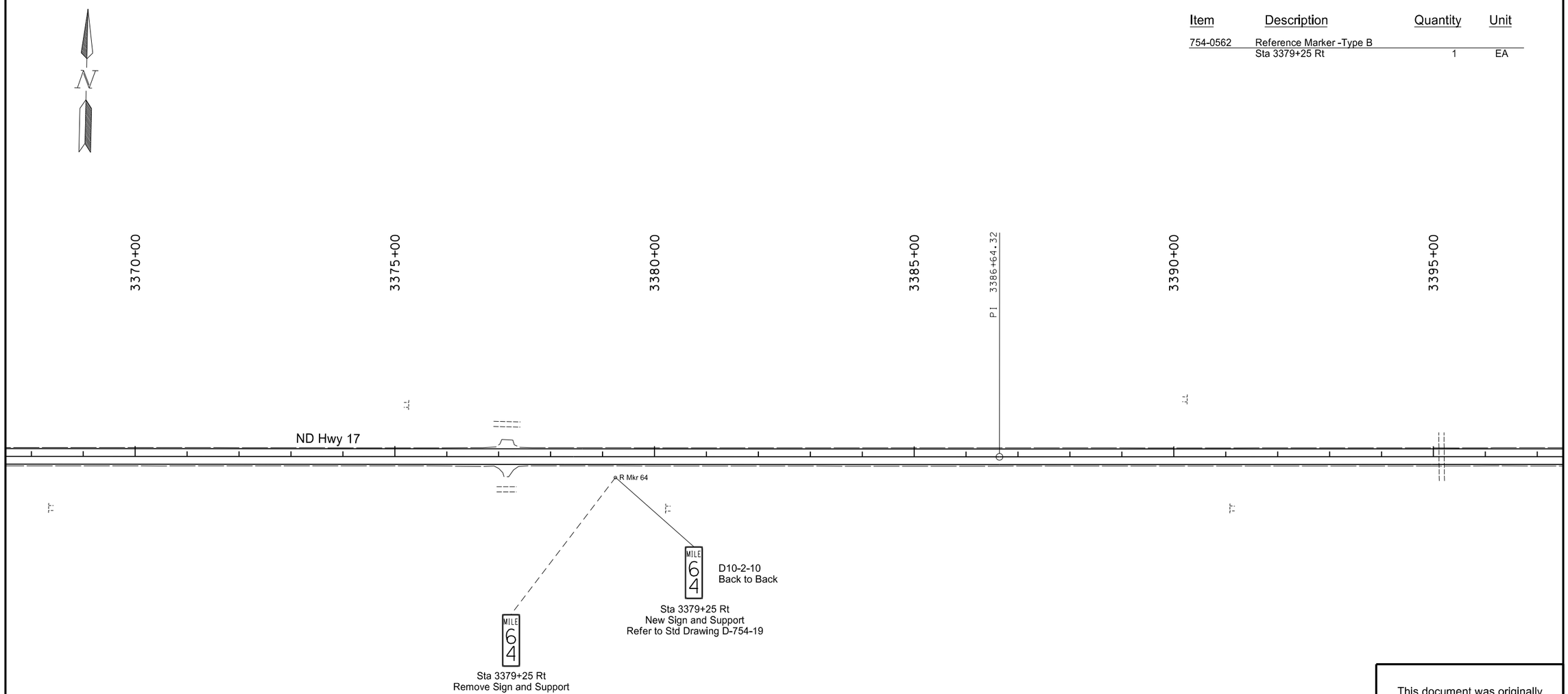
Starkweather S to Edmore - ND 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	110	14

Item	Description	Quantity	Unit
754-0562	Reference Marker -Type B Sta 3379+25 Rt	1	EA



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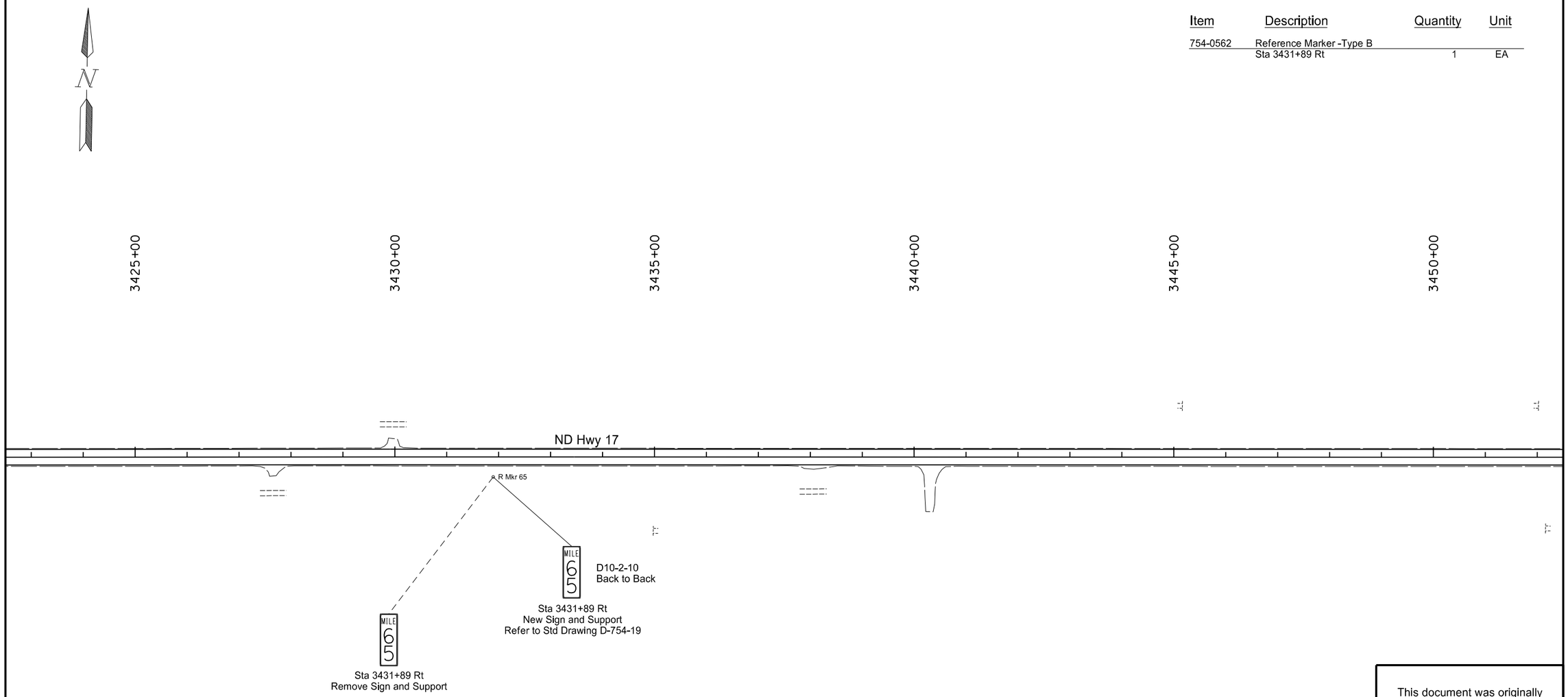
Signing

Starkweather S to Edmore - ND 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	110	15

Item	Description	Quantity	Unit
754-0562	Reference Marker -Type B Sta 3431+89 Rt	1	EA



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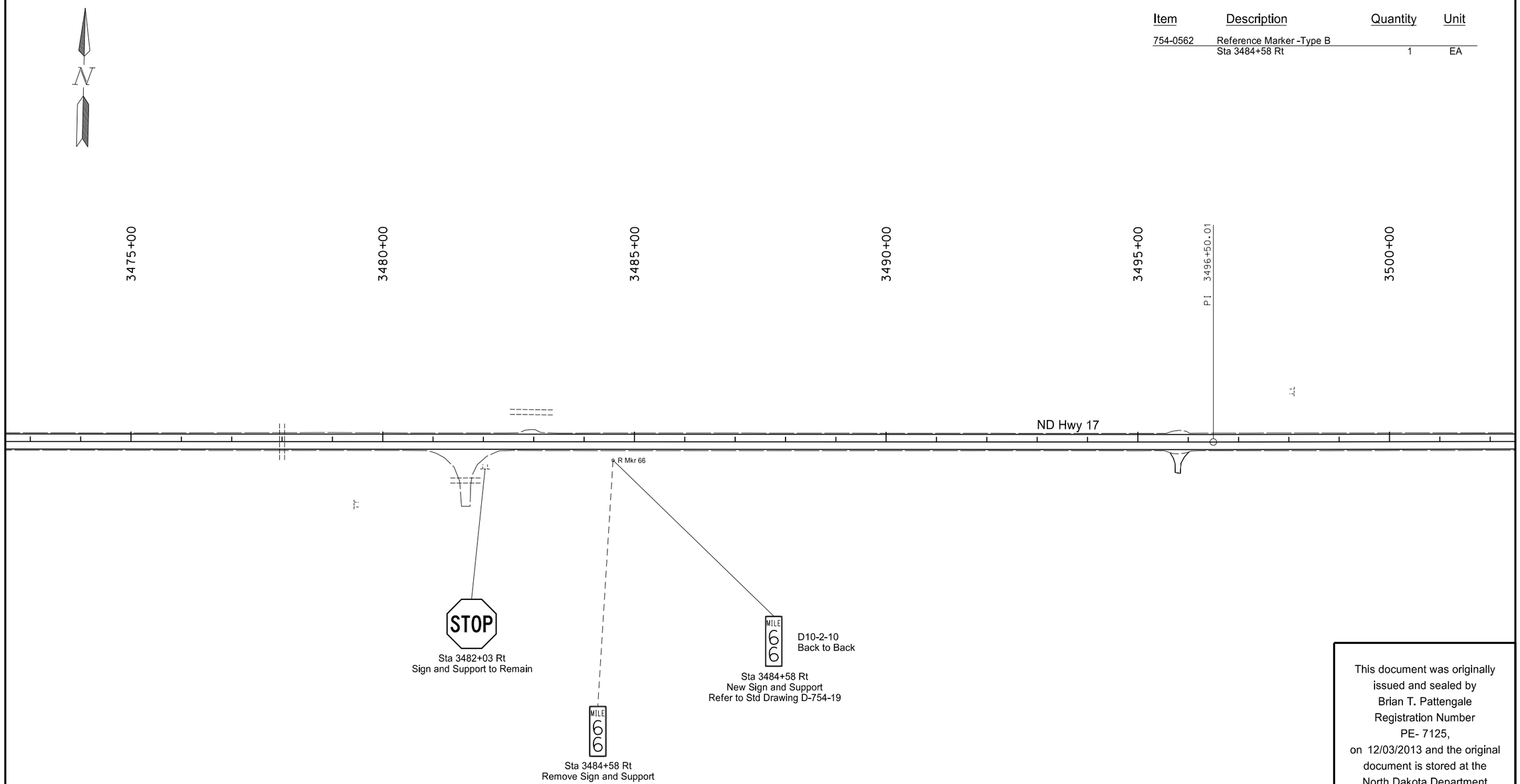
Starkweather S to Edmore - ND 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	110	16

Item	Description	Quantity	Unit
754-0562	Reference Marker -Type B Sta 3484+58 Rt	1	EA



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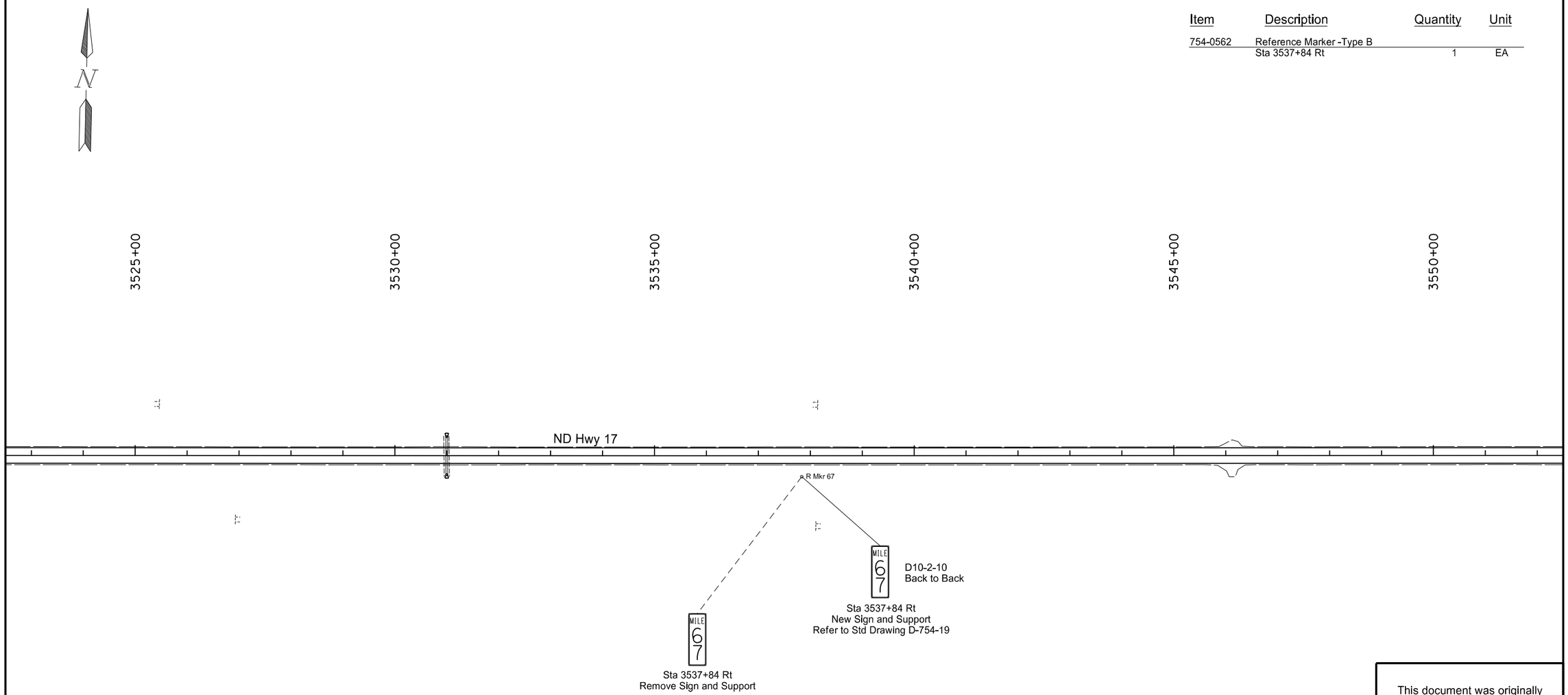
Starkweather S to Edmore - ND 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	110	17

Item	Description	Quantity	Unit
754-0562	Reference Marker -Type B Sta 3537+84 Rt	1	EA



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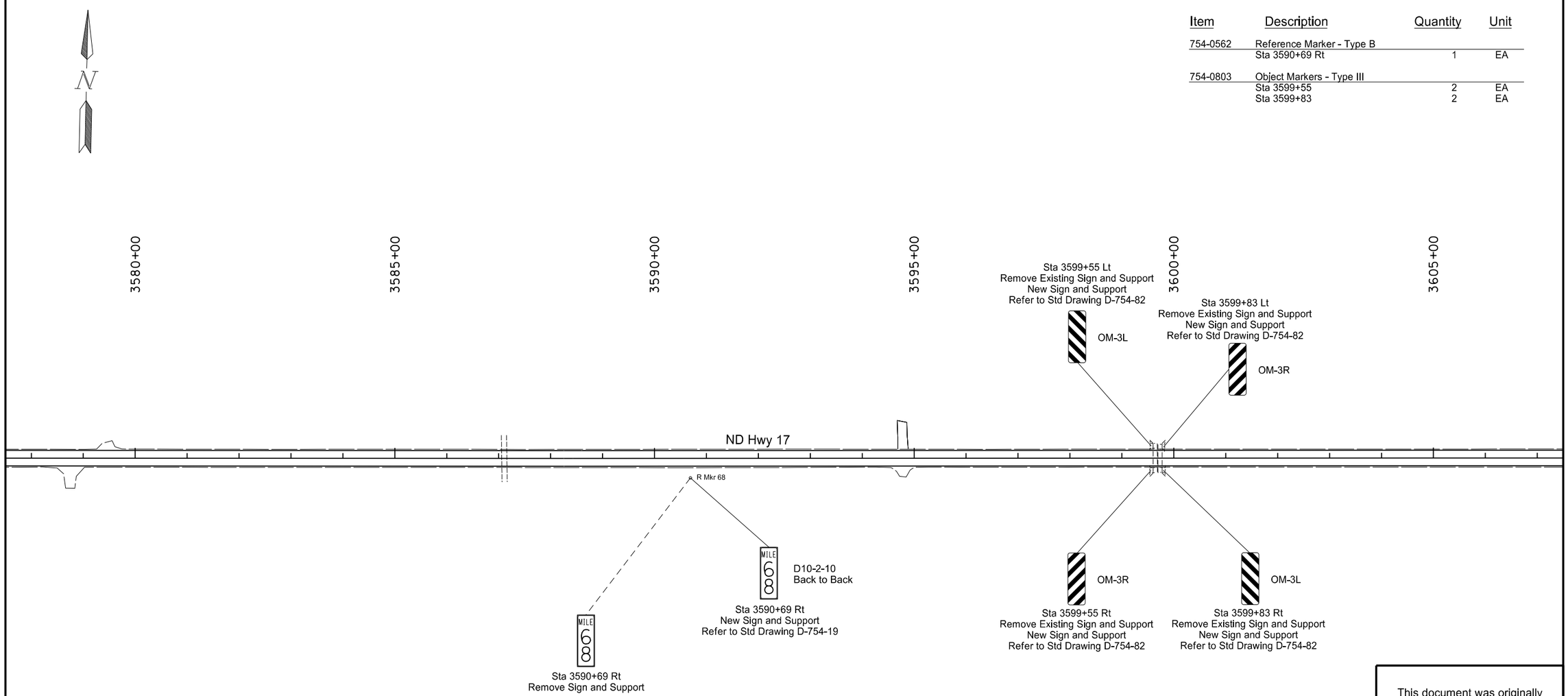
Signing

Starkweather S to Edmore - ND 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	110	18

Item	Description	Quantity	Unit
754-0562	Reference Marker - Type B		
	Sta 3590+69 Rt	1	EA
754-0803	Object Markers - Type III		
	Sta 3599+55	2	EA
	Sta 3599+83	2	EA



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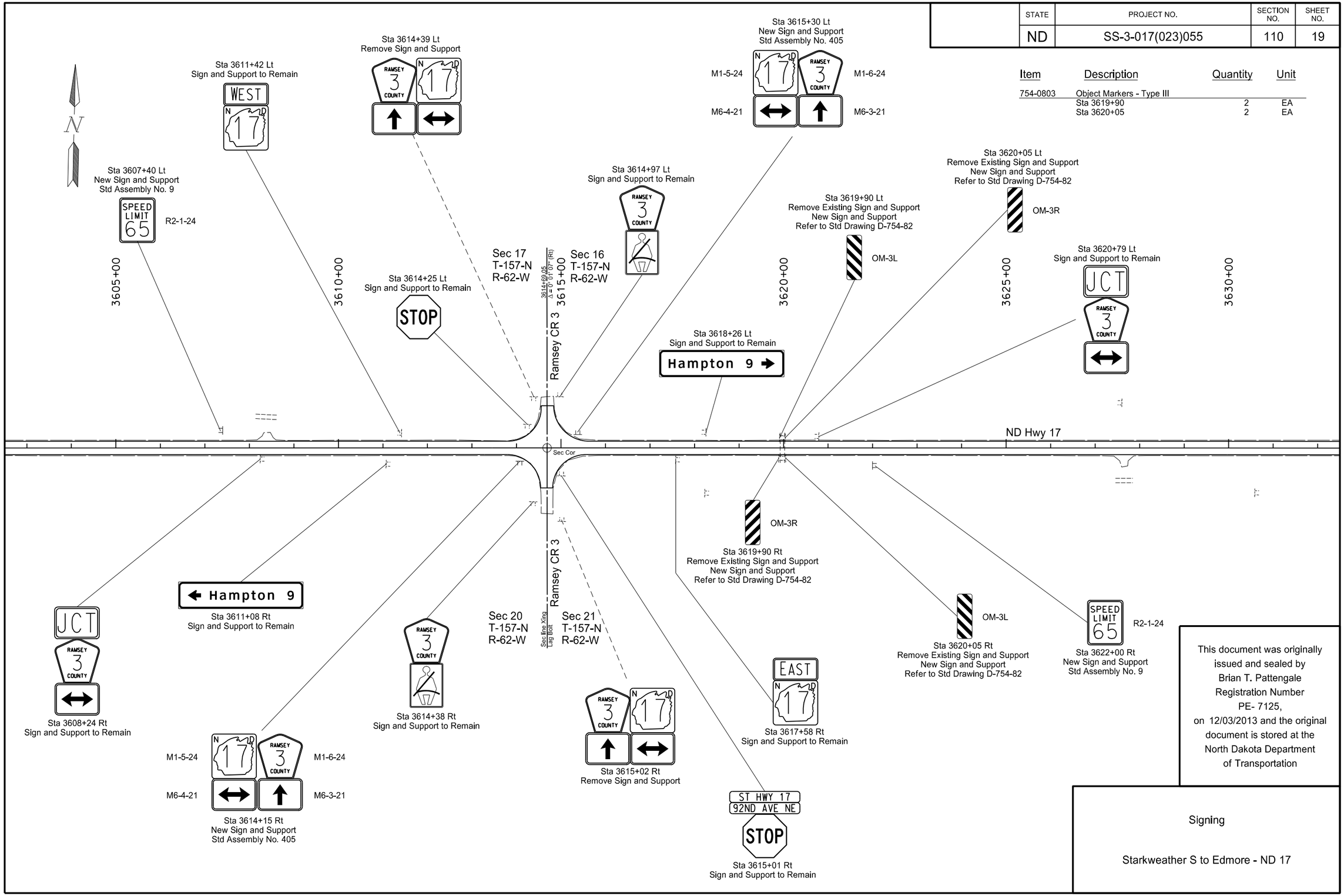
Signing

Starkweather S to Edmore - ND 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	110	19

Item	Description	Quantity	Unit
754-0803	Object Markers - Type III		
	Sta 3619+90	2	EA
	Sta 3620+05	2	EA



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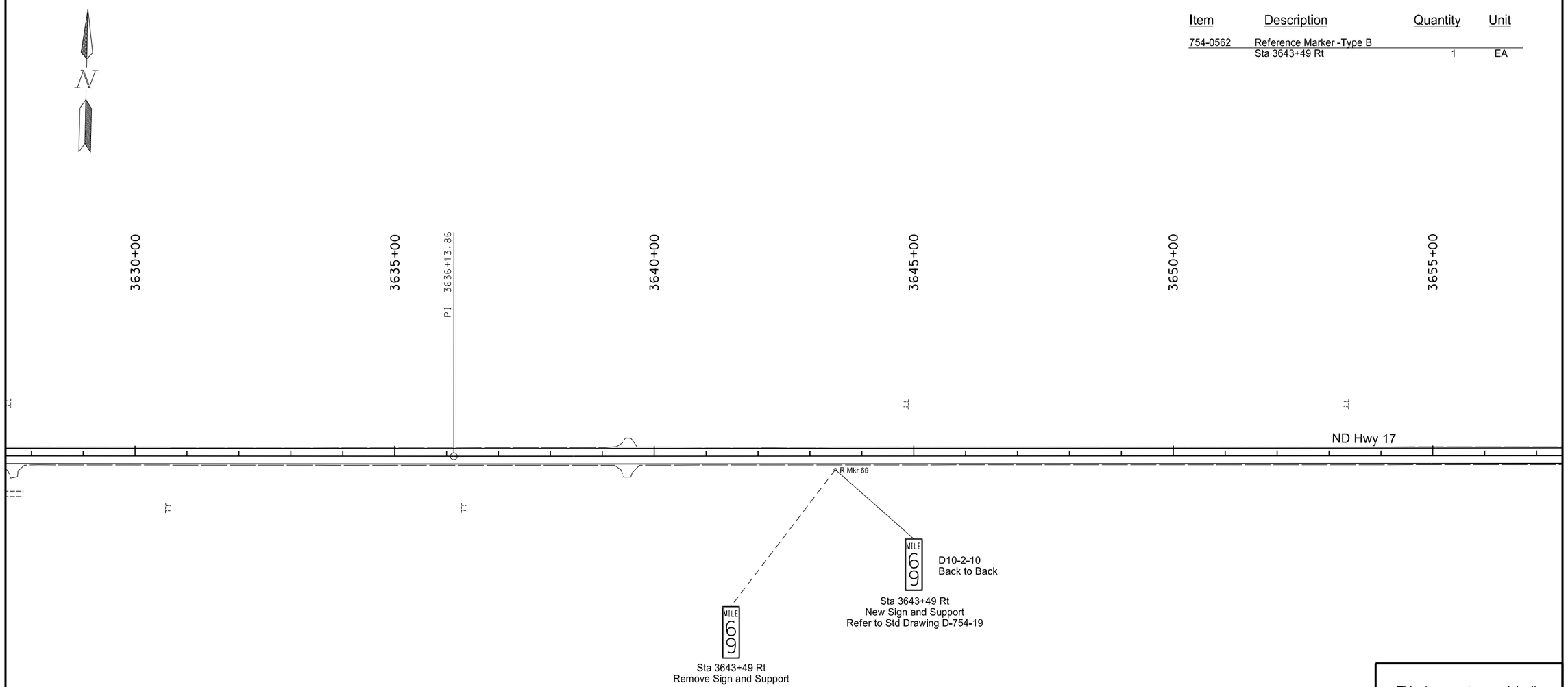
Signing

Starkweather S to Edmore - ND 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	110	20

Item	Description	Quantity	Unit
754-0562	Reference Marker -Type B Sta 3643+49 Rt	1	EA



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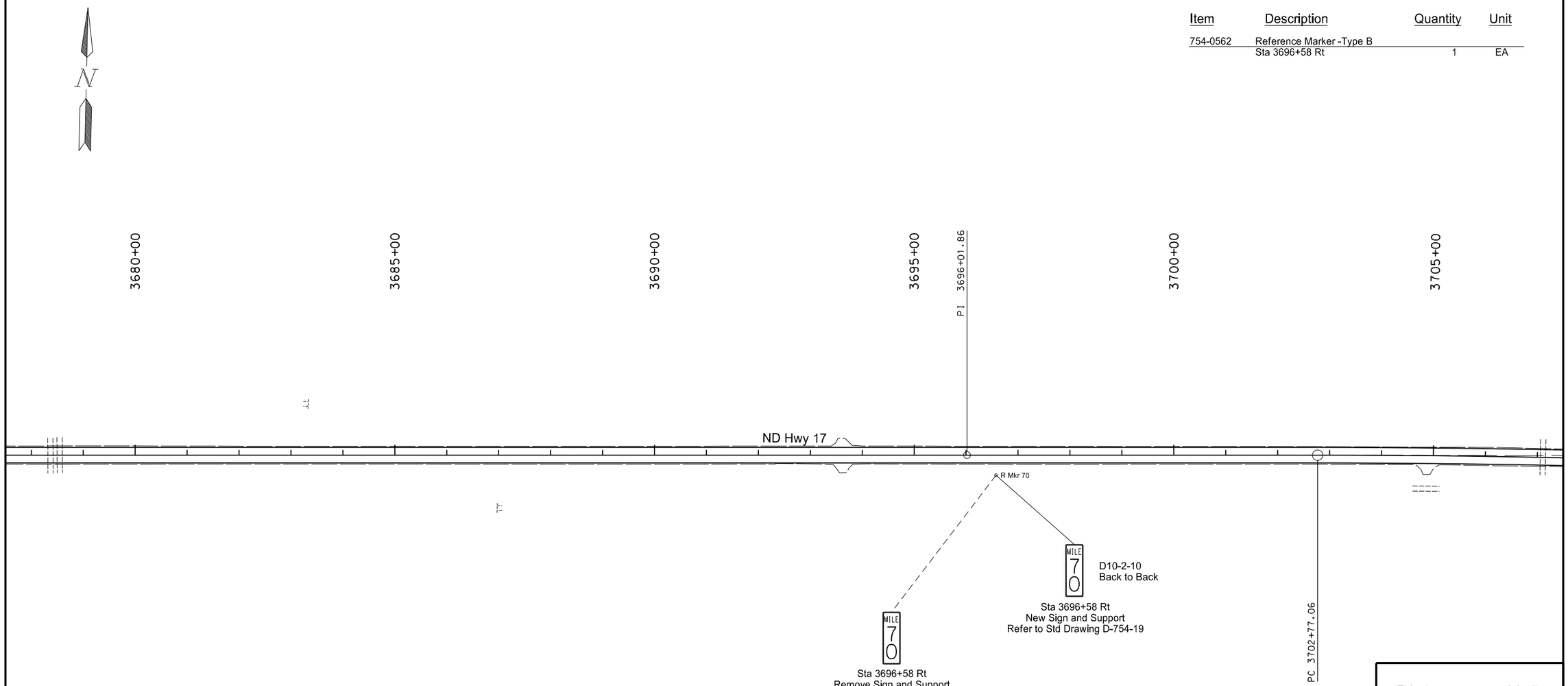
Signing

Starkweather S to Edmore - ND 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	110	21

Item	Description	Quantity	Unit
754-0562	Reference Marker -Type B Sta 3696+58 Rt	1	EA



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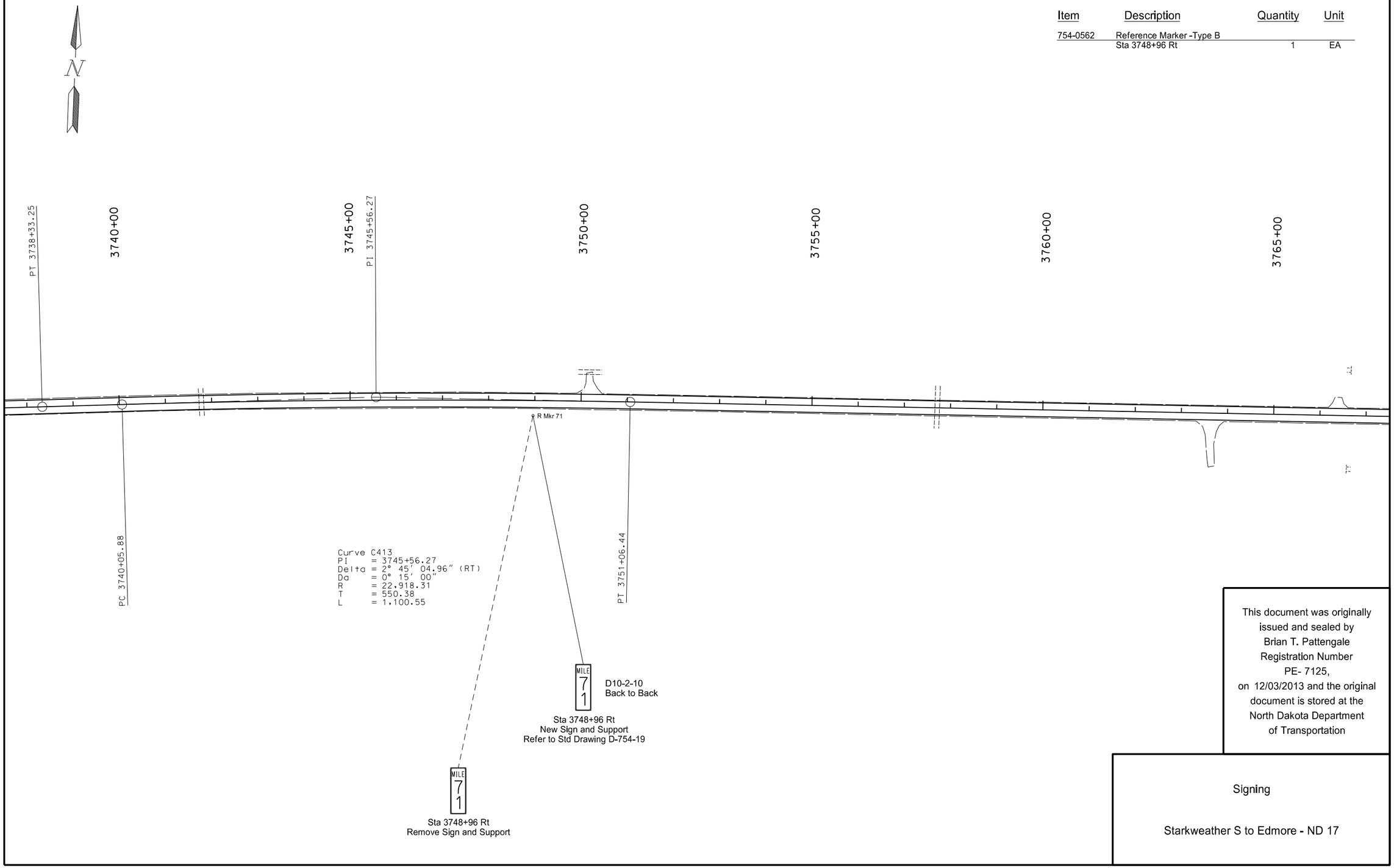
Signing

Starkweather S to Edmore - ND 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	110	22

Item	Description	Quantity	Unit
754-0562	Reference Marker -Type B Sta 3748+96 Rt	1	EA



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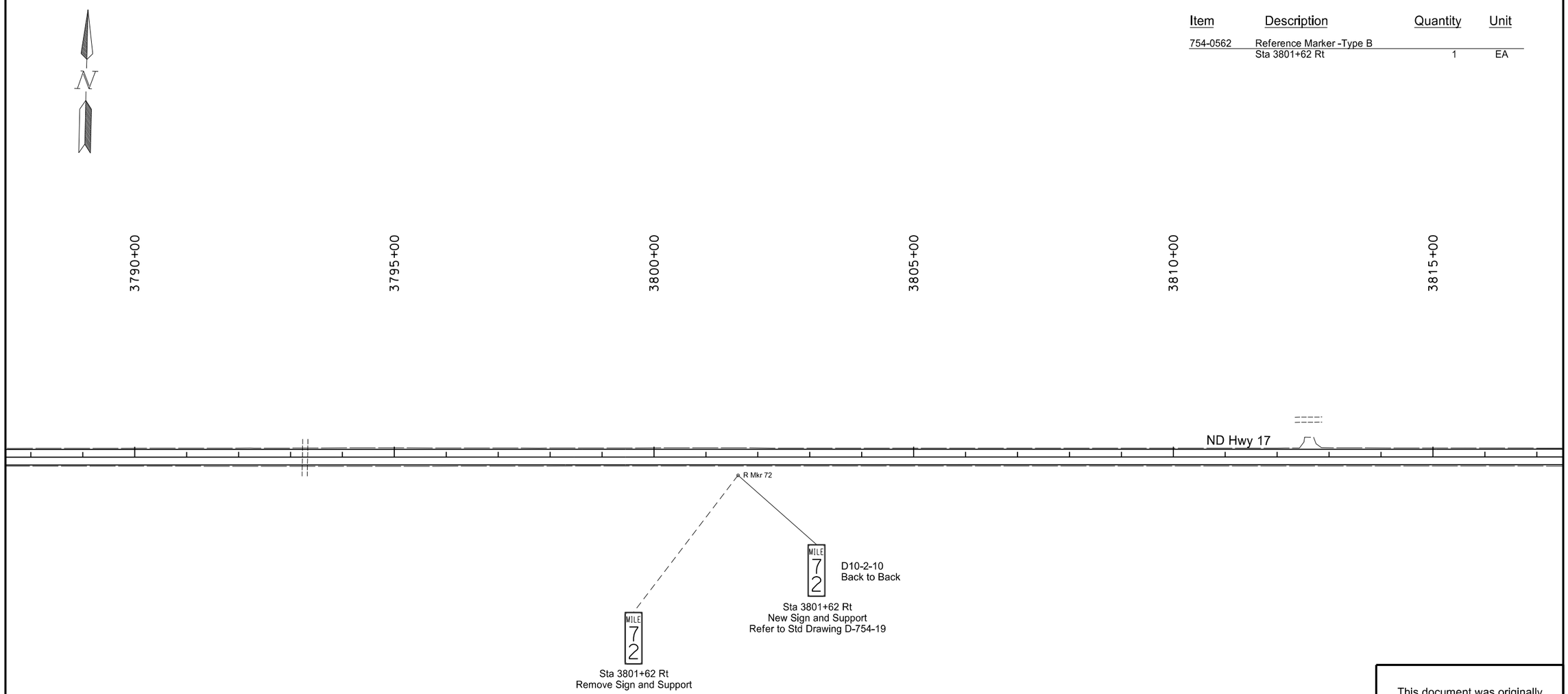
Starkweather S to Edmore - ND 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	110	23

Item	Description	Quantity	Unit
754-0562	Reference Marker -Type B Sta 3801+62 Rt	1	EA



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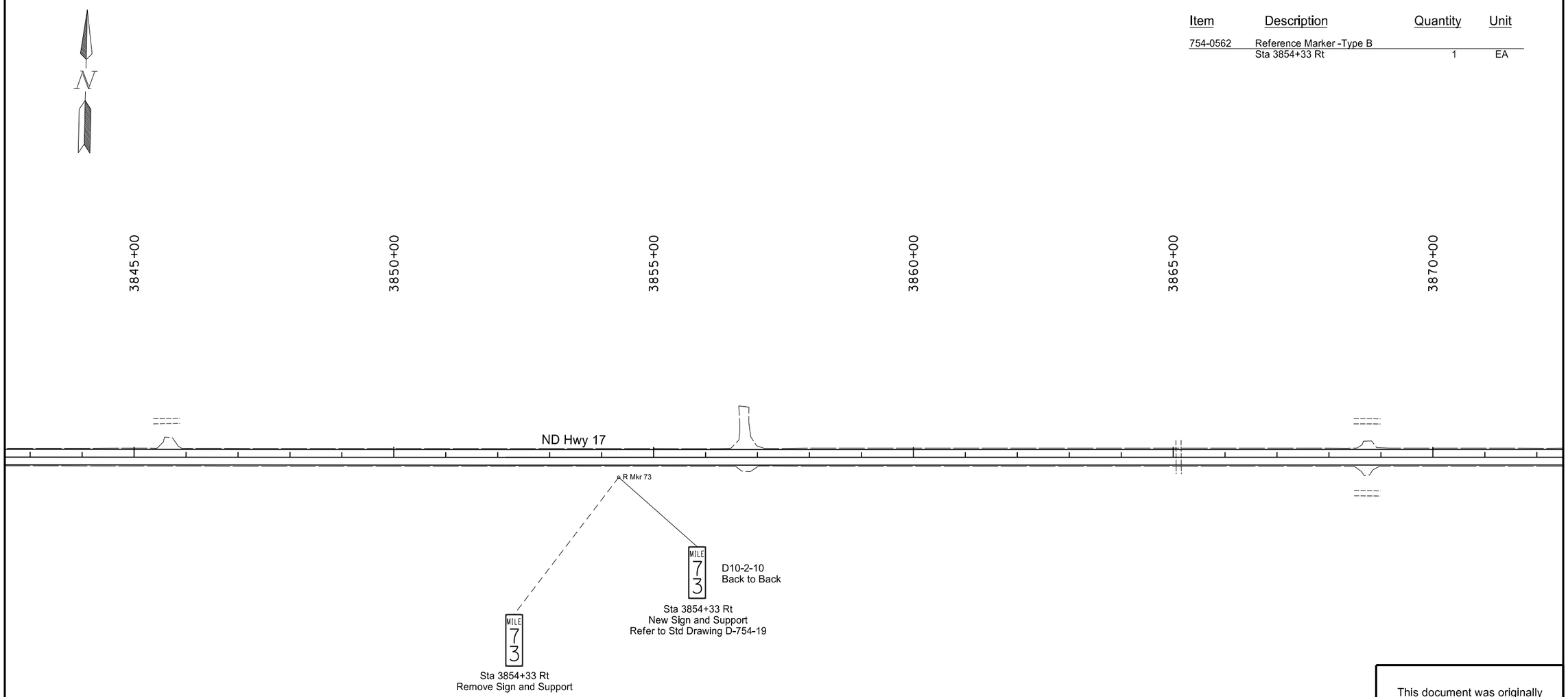
Starkweather S to Edmore - ND 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	110	24

Item	Description	Quantity	Unit
754-0562	Reference Marker -Type B Sta 3854+33 Rt	1	EA



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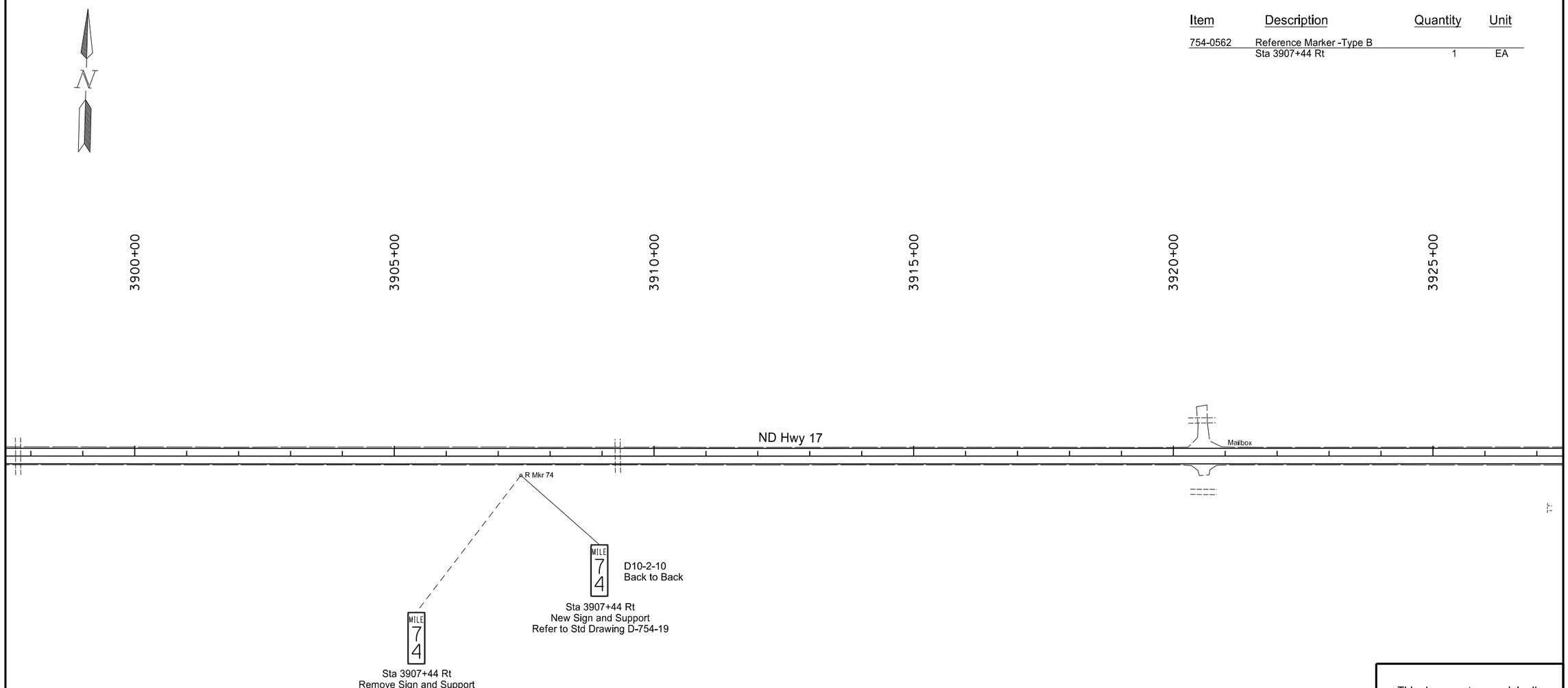
Starkweather S to Edmore - ND 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	110	25

Item	Description	Quantity	Unit
754-0562	Reference Marker -Type B Sta 3907+44 Rt	1	EA



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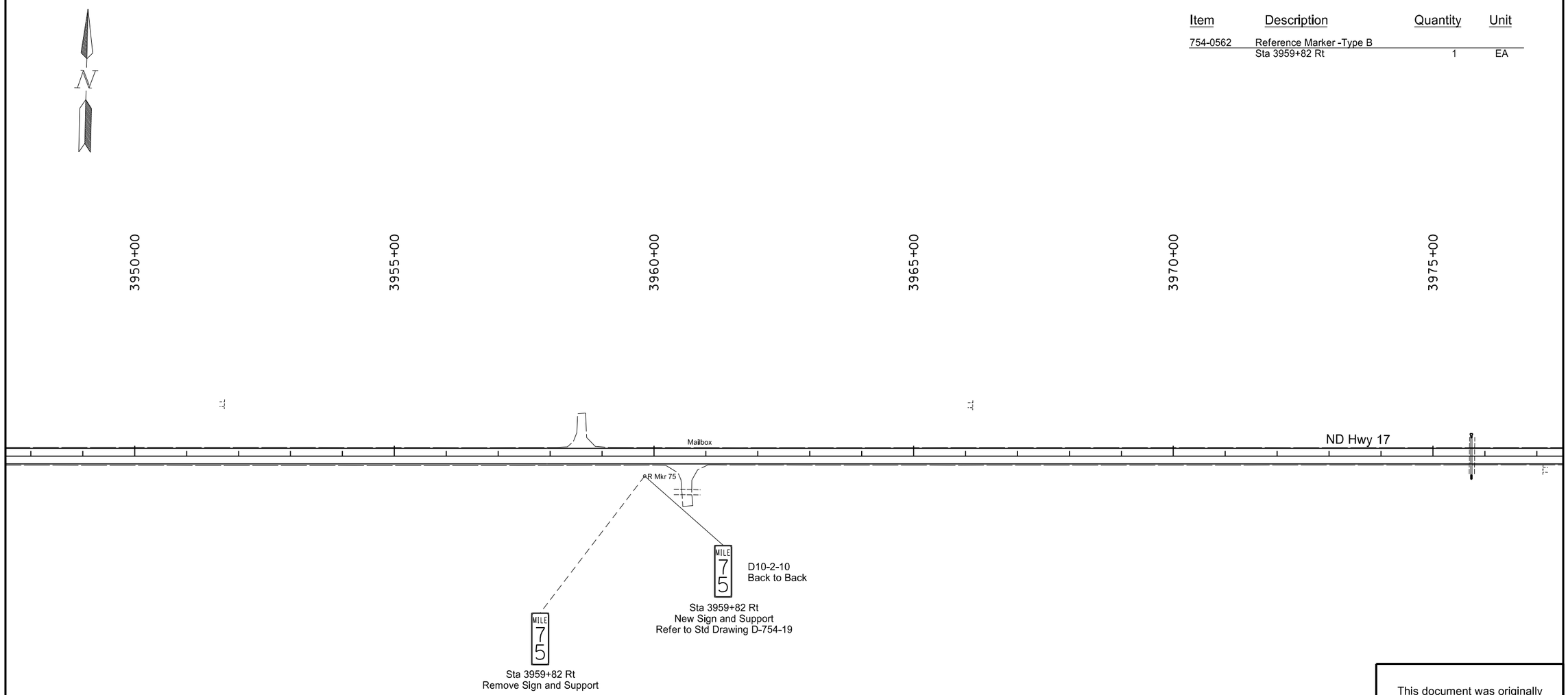
Starkweather S to Edmore - ND 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	110	26

Item	Description	Quantity	Unit
754-0562	Reference Marker -Type B Sta 3959+82 Rt	1	EA



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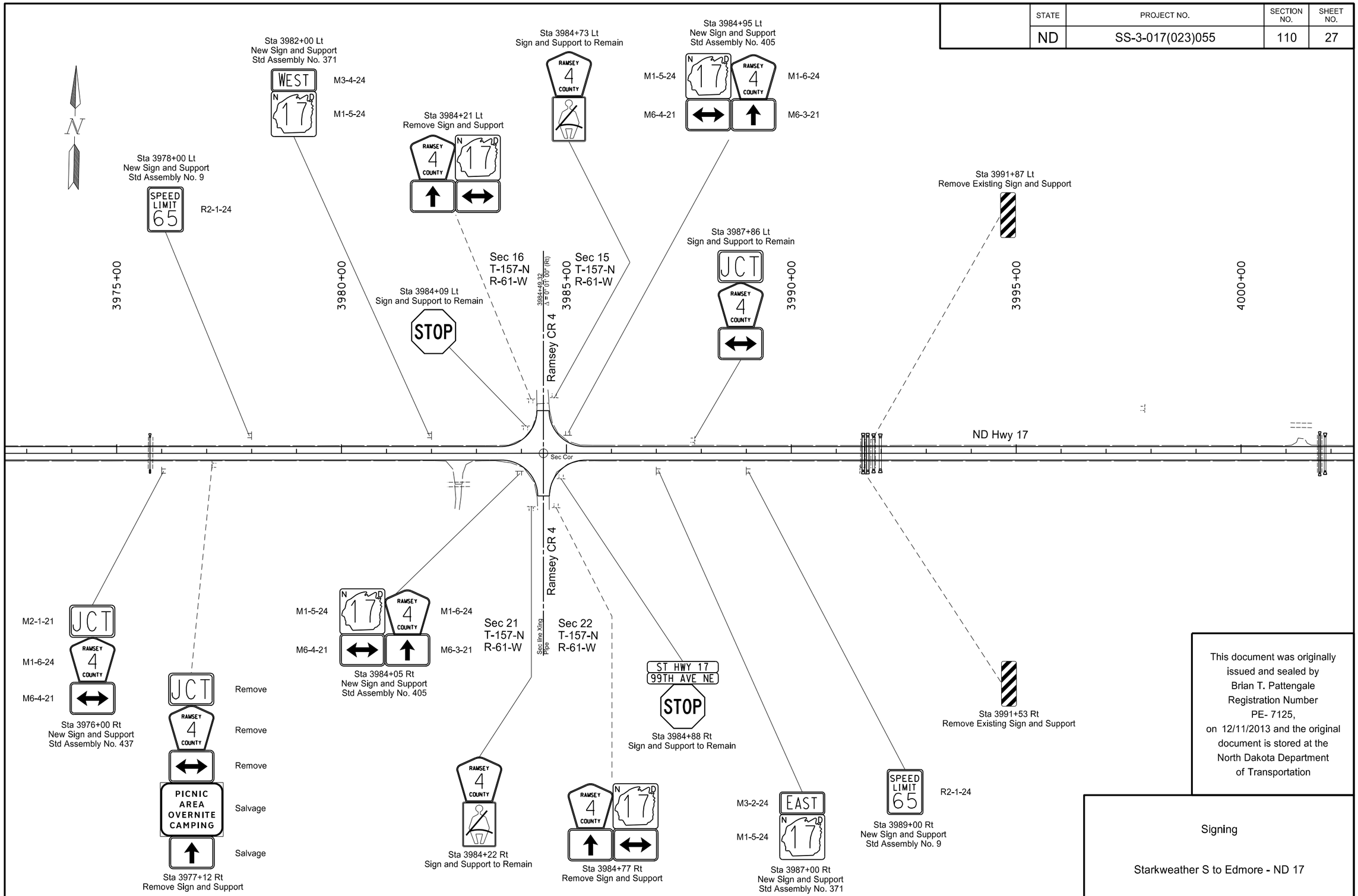
Signing

Starkweather S to Edmore - ND 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	110	27



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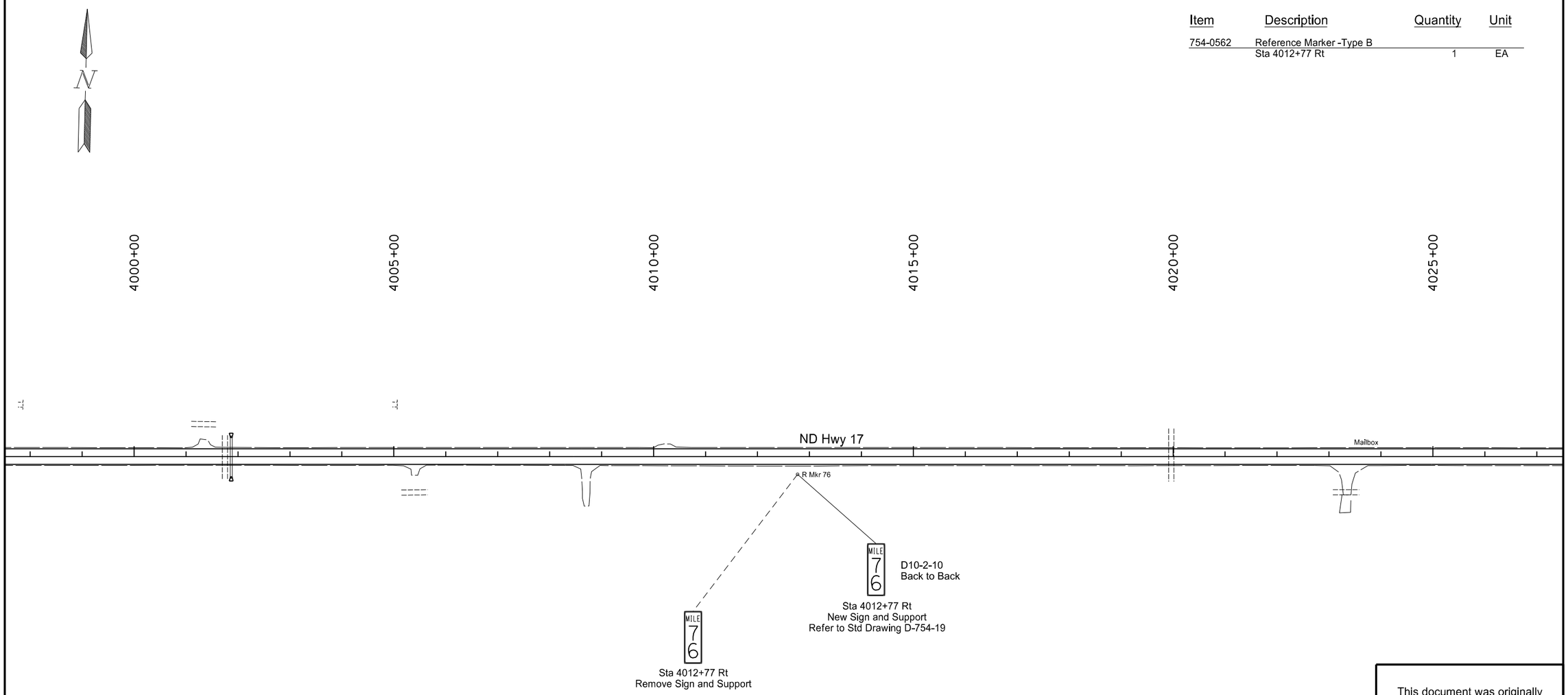
Signing

Starkweather S to Edmore - ND 17

12/11/2013 4:07:09 PM sstrack Z:\3900\3950\11_3950_103\CAD\Design\Sheets\110SN_027_LSIGN.dgn

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	110	28

Item	Description	Quantity	Unit
754-0562	Reference Marker -Type B Sta 4012+77 Rt	1	EA



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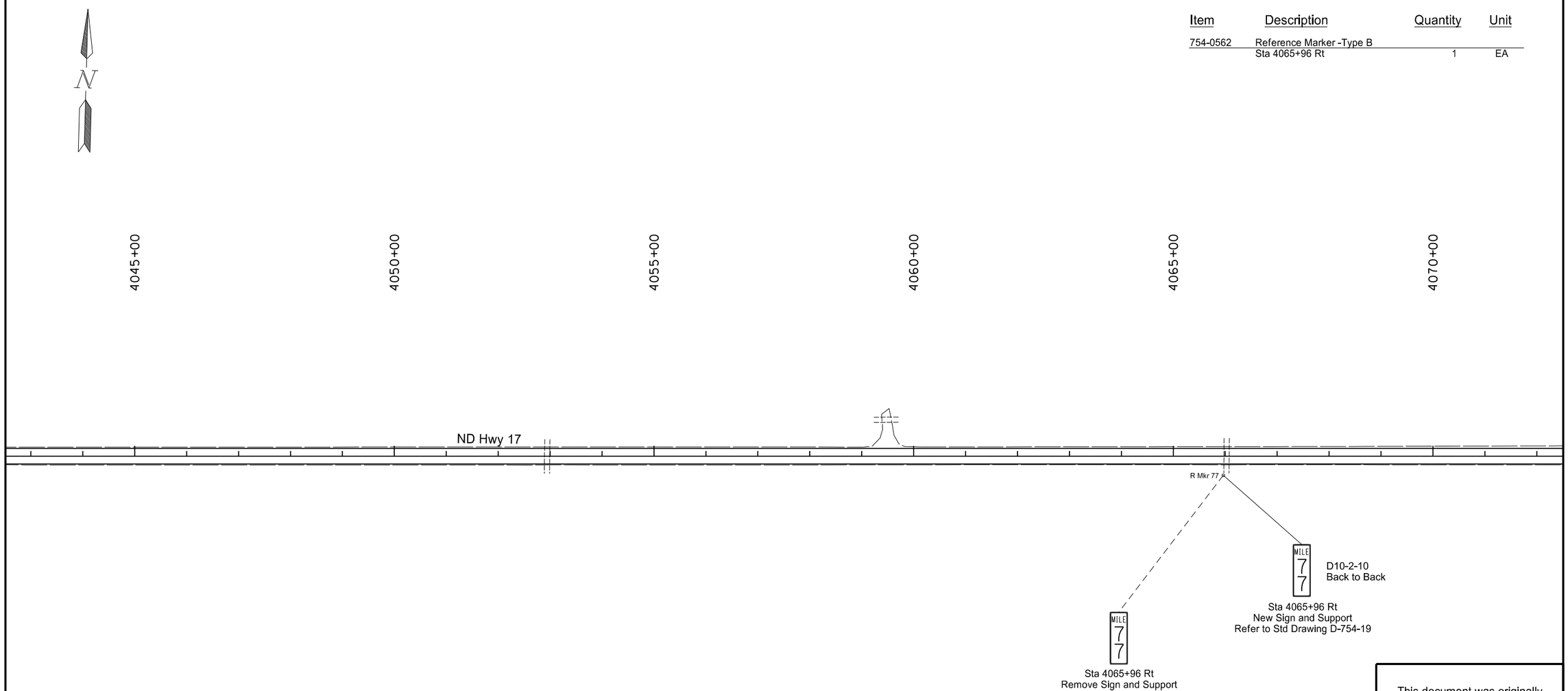
Starkweather S to Edmore - ND 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	110	29

Item	Description	Quantity	Unit
754-0562	Reference Marker -Type B Sta 4065+96 Rt	1	EA



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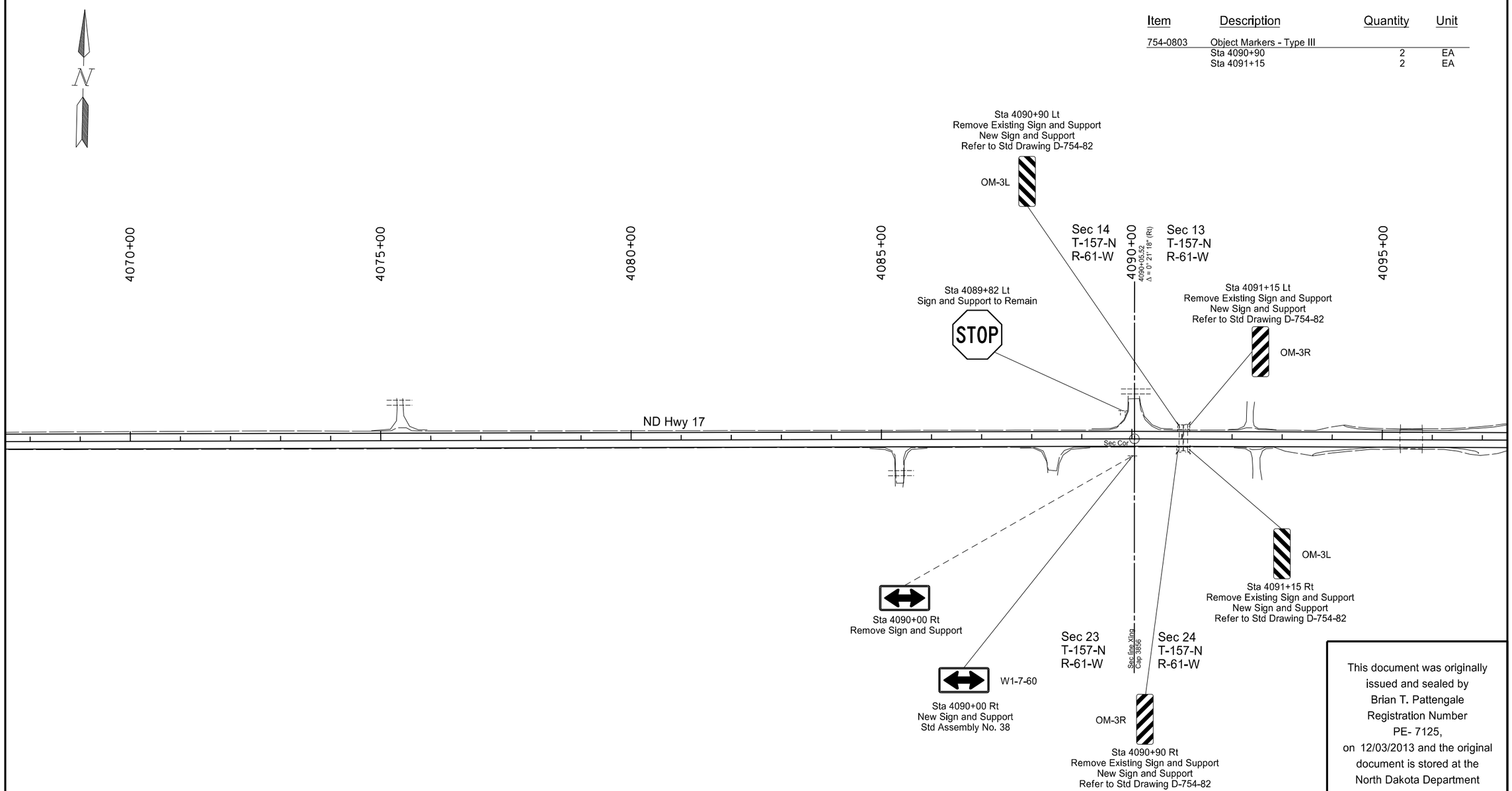
Starkweather S to Edmore - ND 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	110	30

Item	Description	Quantity	Unit
754-0803	Object Markers - Type III		
	Sta 4090+90	2	EA
	Sta 4091+15	2	EA



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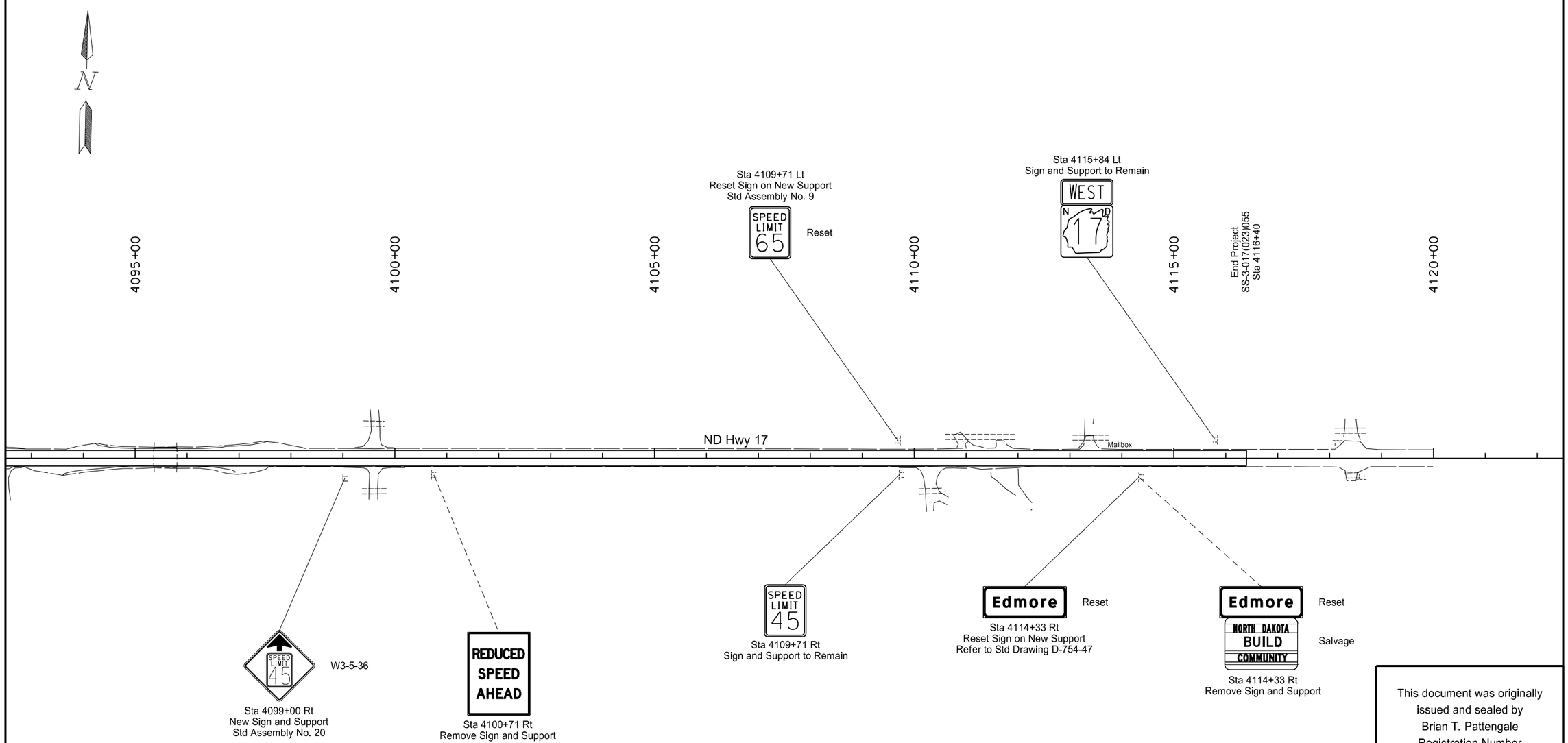
Signing

Starkweather S to Edmore - ND 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	110	31



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Signing

Starkweather S to Edmore - ND 17

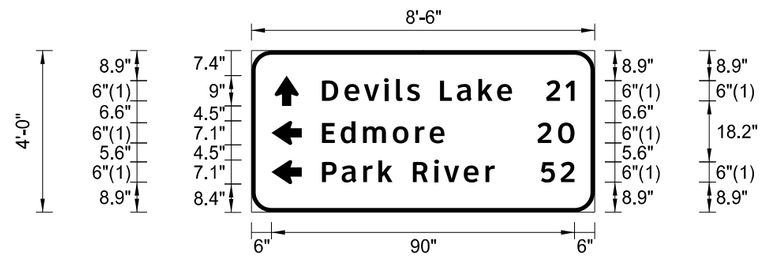
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	110	32

SIGN NUMBER	SN 1
WIDTH x HEIGHT	8'-6" x 4'-0"
BORDER WIDTH	1.25" (inset 0")
CORNER RADIUS	6"
MOUNTING	Ground
BACKGROUND	TYPE: Type IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: Type IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE
ARDD	6.9	31.6	7.1	9	90
ARDD	6	20	7.1	9	180
ARDD	6	8.3	7.1	9	180

STATION(S):
3077+00 Rt

AREA: 34.0 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Conv_Distance,ssl

LETTER POSITION (X)										LENGTH	SIZE	SERIES
D	e	v	i	l	s	L	a	k	e	56.5	6/4.9	ClearviewHwy-5-W
21	27.7	33.4	39.4	43	46.2	56	61.1	67.4	73			
2	1									8.4	6	ClearviewHwy-5-W
87.6	93.3											
E	d	m	o	r	e					36.4	6/4.9	ClearviewHwy-5-W
21	26.5	33.2	42	48.7	53							
2	0									11	6	ClearviewHwy-5-W
85	91.1											
P	a	r	k	R	i	v	e	r		51.3	6/4.9	ClearviewHwy-5-W
21	26.8	33.2	37.7	47.9	54.3	57.2	63.1	69.5				
5	2									10	6	ClearviewHwy-5-W
86	91.8											

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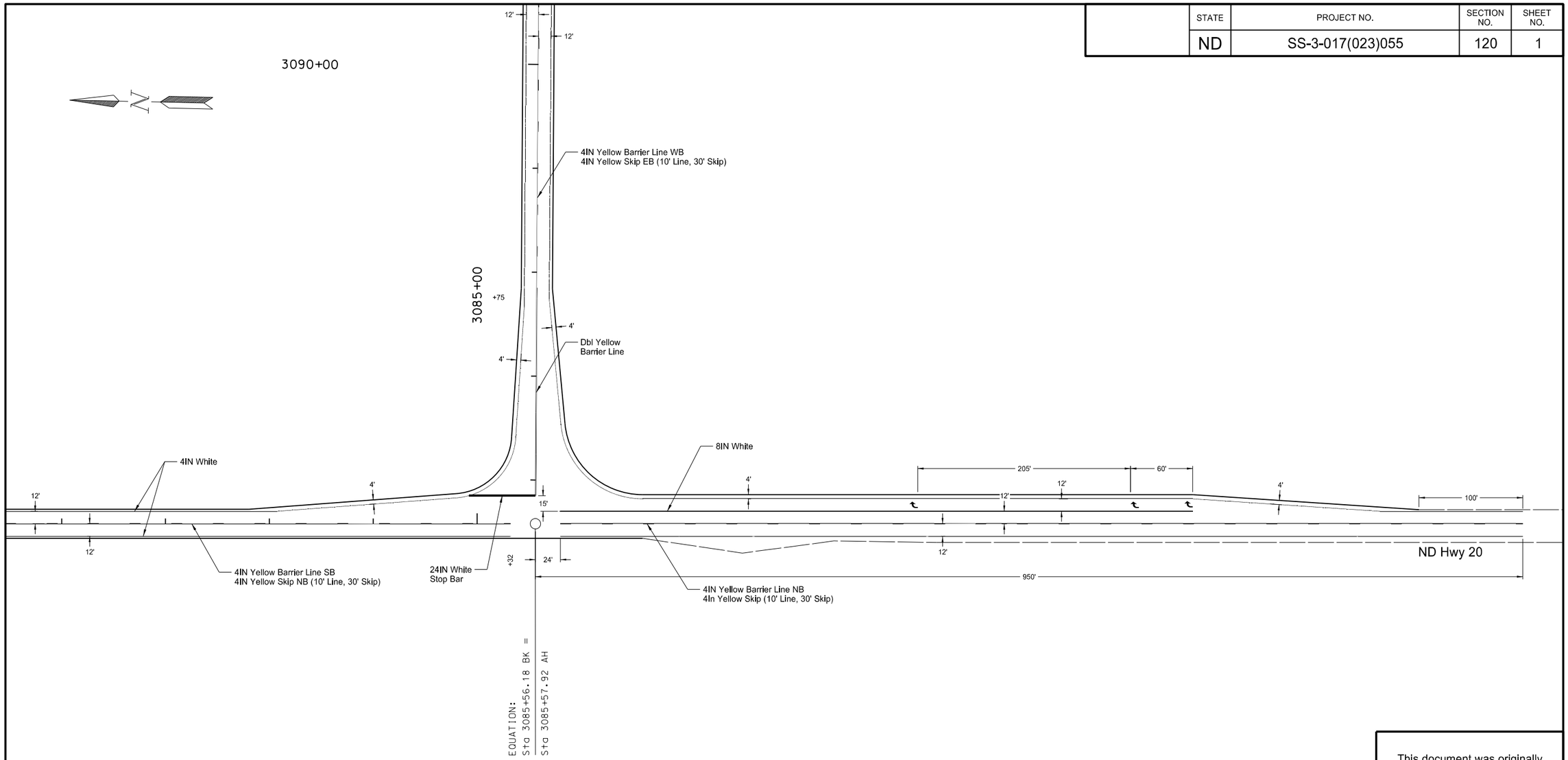
Signing Details

Starkweather S to Edmore - ND 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	120	1



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Note:
Refer to Sheet 10-2 for additional pavement marking details.

Pavement Marking Layout

Starkweather S to Edmore - ND 17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	180	1

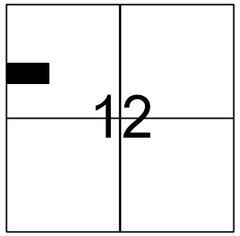
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

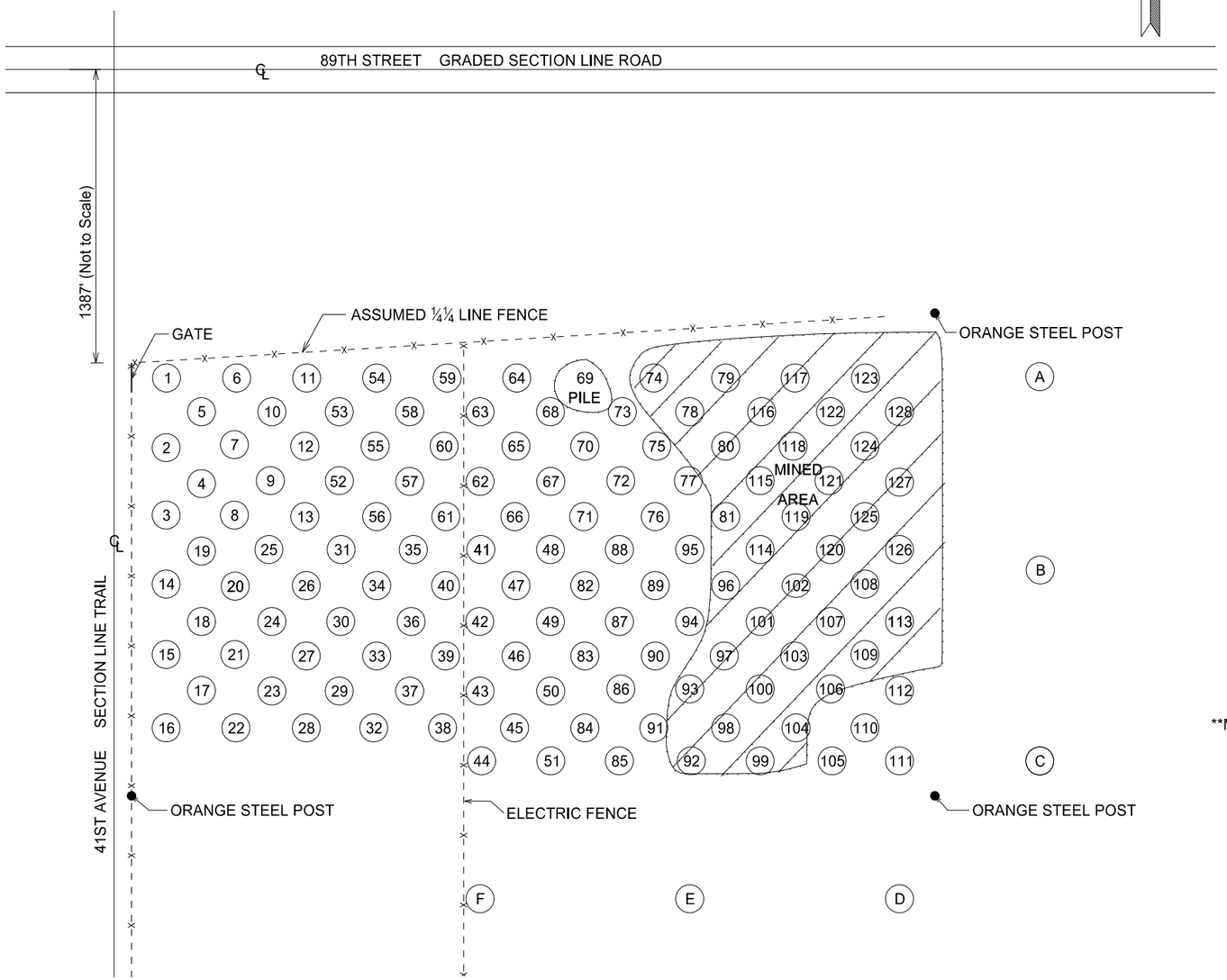
TEST HOLE PLAT

Location: SW1/2NW1/4 12-160-71 County: Rolette

Ownership: Kermit Knudson, Margaret Tumey, and Peter Knudson, Rolette, ND

LOCATION OF PIT IN SECTION





SCALE 1" = 200'

Area "A" consists of test holes 1 - 13
Area "B" consists of test holes 14 - 31
Area "C" consists of test holes 32 - 51
Area "D" consists of test holes 52 - 66
Area "E" consists of test holes 67 - 81
Area "F" consists of test holes 82 - 98
Area "G" consists of test holes 99 - 113
Area "H" consists of test holes 114 - 128

Legend:
gr = gravel
sd = sand
FS = fine sand
Fgr = fine gravel
CS = coarse sand
sh = shale
SiCl = silt clay
rk = rock
FeO = Iron oxide
CoS = Coal Slack
WL = water line
NG = no gravel
DM = disturbed material

**MATERIAL HAS BEEN REMOVED FROM THIS PIT SINCE BORINGS WERE TAKEN

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	180	2

PIT LOGGING BY TEST HOLES

Test Hole No.	Depth of Stripping (Ft.)	Depth of Gravel (Ft.)	% Retained on 1 ½" Screen	% Retained on 3/4" Screen	% Retained on 3/8" Screen	% Retained on # 4 Screen	Bottom of Test Hole
1	1.5	3.5gr	1	14	23	35	sdsh
		1.0grsh					
		1.0gr					
		1.0sd					
		1.0gr					
2	1.5	5.0gr	0	11	23	32	+ WL 9.0
		1.0sdsh					
		0.5gr					
		1.0sd					
3	2	1.0gr	0	11	22	33	+ WL 9.0
		1.0grsh					
		4.0gr					
		1.0sd					
4	1.5	2.0grsh	0	10	17	29	Si Cl
		1.0gr					
		1.0sd					
		2.gr					
5	1	2.0sd	0	8	16	27	sdsh
		5.5gr					
6	2	1.0Fgrsh	0	4	15	26	sdsh
		1.0gr					
		1.0sd					
		1.0grsh					
		1.0gr					
7	2	1.0gr	0	6	20	31	+ WL 9.0
		1.5grsh					
		1.5gr					
		0.5grsh					
		1.5gr					
		1.0grsh					
8	1	1.0grsh	0	5	15	25	+ WL8.5
		1.0gr					
		1.0sd					
		1.0gr					
		1.0sd					
		2.5gr					
9	1	2.0sd	0	6	17	28	+ WL9.0
		1.0grsh					
		3.0gr					
		1.0sd					
		1.0gr					

PIT LOGGING BY TEST HOLES

Test Hole No.	Depth of Stripping (Ft.)	Depth of Gravel (Ft.)	% Retained on 1 1/2" Screen	% Retained on 3/4" Screen	% Retained on 3/8" Screen	% Retained on # 4 Screen	Bottom of Test Hole
10	1.5	2.5gr	0	7	15	26	+ WL8.5
		1.0sd					
		1.0gr					
		1.0Fgr					
		1.5gr					
11	1	0.5gr	0	9	17	26	sdWL8.5
		1.5sd					
		3.0gr					
		2.0sd					
		0.5gr					
12	2	1.0FS	0	5	13	24	sdWL9.0
		3.5gr					
		1.5sdsh					
		1.0grsh					
13	1	2.0gr	0	6	16	25	+ WL 9.0
		1.0grsh					
		2.0gr					
		2.0sdsh					
		1.0gr					
		1.0sd					
14	2	1.0sd	0	3	10	18	Si Cl
		2.5gr					
		1.0sdsh					
		1.0grsh					
		1.0sd					
15	1.5	3.5gr	0	10	24	35	sdWL8.0
		1.0grsh					
		1.0sd					
		1.0gr					
16	1	3.0grsh	0	3	15	25	+ WL8.0
		1.5gr					
		1.5sd					
		1.0sdsh					
17	1	5.5gr	0	7	19	31	+ WL8.0
		1.5sdsh					
18	1	1.0gr					
		1.0grsh	0	7	17	25	+ WL8.0
		1.0gr					
		1.0grsh					
		1.0sd					
		1.0sdsh					
		1.0sd					
19	1.5	2.0gr	0	11	20	29	Si Cl
		1.0sd					
		1.5gr					
		1.5sd					

PIT LOGGING BY TEST HOLES

Test Hole No.	Depth of Stripping (Ft.)	Depth of Gravel (Ft.)	% Retained on 1 1/2 Screen	% Retained on 3/4 Screen	% Retained on 3/8 Screen	% Retained on # 4 Screen	Bottom of Test Hole
20	1	1.0gr	0	7	18	28	sdWL8.5
		2.0sd					
		2.5gr					
		1.0sd					
		1.0gr					
21	1.5	1.5grsh	0	7	18	29	+ WL8.5
		1.0gr					
		1.0sd					
		2.0gr					
		1.5sdsh					
22	1	6.0gr	0	14	25	36	+ WL8.5
		1.5sdsh					
23	1	4.0gr	0	9	20	29	+ WL8.5
		1.0Fgr					
		1.0sd					
		1.0sdsh					
		0.5gr					
24	1	4.0gr	0	5	16	27	+ WL8.5
		2.0sd					
		1.5gr					
25	2	1.5sd	0	7	14	22	+ WL9.0
		3.0gr					
		1.5Fsd					
		1.0sd					
26	1	1.0gr	0	4	14	24	Si Cl
		1.0sd					
		3.5gr					
		1.0Fsd					
		0.5gr					
27	1.5	4.5gr	0	9	21	34	+ WL8.0
		1.0grsh					
		1.0sd					
28	1	4.0gr	0	9	21	31	+ WL8.0
		1.0Fgr					
		2.0sd					
29	1	1.0grsh	0	7	19	30	+ WL9.0
		1.0gr					
		1.0sd					
		1.0gr					
		1.0sd					
		1.0sdsh					
		2.0gr					

PIT LOGGING BY TEST HOLES

Test Hole No.	Depth of Stripping (Ft.)	Depth of Gravel (Ft.)	% Retained on 1 1/2 Screen	% Retained on 3/4 Screen	% Retained on 3/8 Screen	% Retained on # 4 Screen	Bottom of Test Hole
30	1.5	1.0grsh	0	8	19	35	+ WL8.5
		0.5sd					
		3.0gr					
		1.0sd					
		1.5gr					
31	0.5	0.5gr	0	8	19	26	+ WL7.5
		1.5sd					
		3.0gr					
		1.0sd					
		1.0sdsh					
32	0.5	1.0gr	0	9	24	37	+ WL8.0
		0.5sd					
		1.0grsh					
		5.0gr					
33	1.5	4.5gr	0	7	21	33	sdWL8.5
		1.0sd					
		1.0sdsh					
		0.5gr					
34	1.5	1.0grsh	0	5	15	25	grWL8.0
		0.5gr					
		1.0sd					
		1.0sdsh					
		2.0sd					
35	3	3.0gr	0	7	17	26	+ WL8.5
		2.5sd					
36	1.5	3.5gr	0	8	19	31	Si Cl
		2.0sd					
		1.0gr					
37	0.5	3.0gr	0	5	19	32	+ WL8.5
		1.5sd					
		1.0grsh					
		2.5gr					

RANGE 71 **TWP.** 160 **SEC.** 12

Rolette **COUNTY**

PIT PROSPECTED BY Willie Heinrich 9-99

INSPECTED & APPROVED

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	180	3

PIT LOGGING BY TEST HOLES

Test Hole No.	Depth of Stripping (Ft.)	Depth of Gravel (Ft.)	% Retained on 1 ½" Screen	% Retained on 3/4" Screen	% Retained on 3/8" Screen	% Retained on # 4 Screen	Bottom of Test Hole
38	0.5	4.5gr	1	6	18	31	+ WL8.0
		1.0Fgr					
		1.0FS					
		1.0gr					
39	0.5	4.0gr	0	5	16	28	+ WL9.0
		1.0sd					
		0.5gr					
		1.0Fgrsh					
		1.0sd					
		1.0gr					
40	1	4.0grsh	0	4	16	24	+ WL8.0
		1.0sd					
		2.0FS					
41	1.5	2.5gr	1	10	20	31	+ WL9.0
		1.0Fgr					
		3.0gr					
		1.0sdsh					
42	1.5	4.5gr	0	5	16	28	Si Cl
		1.5sd					
43	1	2.0grsh	0	7	20	33	+ WL8.5
		5.5gr					
44	1.5	0.5gr	0	7	20	32	+ WL7.5
		1.0grsh					
		3.0gr					
		1.5sd					
45	1	2.0grsh	1	9	22	34	+ WL8.5
		3.0gr					
		1.0Fgr					
		1.5gr					
46	1.5	1.5grsh	0	12	25	40	sdsh
		3.5gr					
		1.0sd					
47	1	1.0grsh	0	12	27	40	+ WL8.5
		4.5gr					
		1.0sdsh					
		1.0gr					
48	0.5	2.0gr	0	10	23	35	+ WL7.0
		1.0sd					
		1.5gr					
		1.0sd					
		1.0sdsh					

PIT LOGGING BY TEST HOLES

Test Hole No.	Depth of Stripping (Ft.)	Depth of Gravel (Ft.)	% Retained on 1 1/2" Screen	% Retained on 3/4" Screen	% Retained on 3/8" Screen	% Retained on # 4 Screen	Bottom of Test Hole
49	0.5	3.5grsh	0	6	20	34	+ WL8.0
		1.0sd					
		1.5gr					
		1.0FS					
		0.5gr					
50	1.5	1.5gr	0	10	22	35	+ WL8.0
		1.0grsh					
		4.0gr					
51	2	0.5sd	0	3	12	23	+ WL7.5
		2.5gr					
		1.0sd					
		1.5gr					
52	1	5.0grsh	1	7	17	29	+ WL8.5
		2.0sd					
		0.5gr					
53	1.5	1.5grsh	0	6	17	30	sdsh
		4.0gr					
		1.0grsh					
54	1	2.0grsh	1	10	18	28	sdWL9.0
		3.5gr					
		1.5sd					
		1.0gr					
55	2	2.0gr	0	7	19	28	FgrWL8.5
		1.0sd					
		1.0gr					
		1.0sd					
		0.5Fgr					
56	0.5	2.5grsh	0	7	19	30	sdsh
		1.5gr					
		2.5sd					
57	0.5	4.5gr	0	9	26	39	+ WL9.0
		1.0grsh					
		1.0gr					
		2.0sd					
58	0.5	3.5grsh	0	10	21	31	+ WL8.5
		1.0gr					
		1.0sdsh					
		2.5gr					
59	1.5	3.5gr	0	8	16	24	sdWL8.5
		1.0sdsh					
		1.0Fgr					
		1.0sd					

PIT LOGGING BY TEST HOLES

Test Hole No.	Depth of Stripping (Ft.)	Depth of Gravel (Ft.)	% Retained on 1 1/2 Screen	% Retained on 3/4 Screen	% Retained on 3/8 Screen	% Retained on # 4 Screen	Bottom of Test Hole
60	1.5	4.0gr	0	8	23	33	+ WL8.5
		2.5sd					
		0.5gr					
61	2	4.0gr	0	17	28	38	sdsh
		1.0Fgr					
62	1.5	2.0gr	0	9	21	31	+ WL8.5
		1.0sd					
		1.0gr					
		1.0sdsh					
		0.5sd					
		1.5gr					
63	1	1.0sd	0	7	16	25	+ WL8.5
		3.0grsh					
		3.5sdsh					
64	1.5	3.5gr	1	11	23	33	+ WL8.5
		0.5FS					
		0.5gr					
		1.0sdsh					
		1.5gr					
65	1.5	1.0gr	0	13	23	32	sdsh
		0.5grsh					
		2.0sd					
		2.0gr					
66	1.5	1.5gr	1	14	27	38	+ WL8.0
		1.0sd					
		2.0gr					
		1.0sdsh					
		1.0grsh					
67	1	3.0grsh	1	9	23	35	+ WL8.0
		2.0gr					
		1.0sd					
		1.0gr					
68	1	1.0sd	0	5	15	25	+ WL8.0
		1.0gr					
		1.0sd					
		1.0gr					
		1.0sd					
		2.0gr					
69	0.5	2.5gr	0	9	23	35	+ WL8.0
		1.0grsh					
		2.0gr					
		0.5sd					
		0.5sdsh					
		1.0gr					

PIT LOGGING BY TEST HOLES

Test Hole No.	Depth of Stripping (Ft.)	Depth of Gravel (Ft.)	% Retained on 1 1/2 Screen	% Retained on 3/4 Screen	% Retained on 3/8 Screen	% Retained on # 4 Screen	Bottom of Test Hole
70	1.5	2.5grsh	0	7	18	28	+ WL8.0
		1.5gr					
		1.0sd					
		1.5gr					
71	1	5.0gr	0	11	23	35	+ WL8.5
		1.0sd					
		1.5gr					
72	3	3.5gr	0	5	15	26	+ WL8.5
		1.0sd					
		1.0gr					
73	1	2.0grsh	0	8	20	31	+ WL8.0
		2.0gr					
		1.0FS					
		1.0gr					
		1.0sd					
74	2	4.0gr	0	7	19	31	+ WL8.0
		1.0sdsh					
		1.0Fgrsh					
75	1	3.0gr	0	6	17	27	+ WL8.0
		1.0grsh					
		1.5sd					
		0.5sdsh					
		1.0Fgr					
76	1	6.0gr	0	6	23	37	+ WL8.0
		1.0grsh					
77	1.5	6	0	8	23	41	+ WL7.5
78	0.5	5.5gr	0	5	18	29	+ WL8.0
		1.5FS					
		0.5gr					
79	1.5	5.5gr	1	10	24	39	+ WL8.5
		1.0grsh					
		0.5gr					

RANGE 71 **TWP.** 160 **SEC.** 12

Rolette **COUNTY**

PIT PROSPECTED BY Willie Heinrich 9-99

INSPECTED & APPROVED

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	180	4

PIT LOGGING BY TEST HOLES

Test Hole No.	Depth of Stripping (Ft.)	Depth of Gravel (Ft.)	% Retained on 1 ½" Screen	% Retained on 3/4" Screen	% Retained on 3/8" Screen	% Retained on # 4 Screen	Bottom of Test Hole
80	1	6.5gr	0	9	22	34	+ WL8.5
		0.5sd					
		0.5sd					
81	0.5	6.5	1	14	30	44	sdsh
82	1.5	3.0grsh	1	11	20	31	+ WL8.0
		0.5sd					
		3.0gr					
83	1	3.0gr	0	7	21	35	+ WL7.5
		1.0grsh					
		1.0gr					
		1.0grsh					
		0.5sd					
84	2	2.5gr	0	3	12	25	+ WL7.5
		1.0sdsh					
		1.0Fgr					
		1.0gr					
85	0.5	6.5	1	11	25	42	sdWL7.0
86	2	1.0grsh	0	7	17	31	+ WL8.0
		3.0gr					
		1.0sd					
		1.0grsh					
87	1	3.0gr	0	6	17	29	+ WL8.0
		1.0FS					
		2.0Fgr					
		1.0sd					
88	1	1.0gr	0	10	24	39	+ WL8.0
		1.0grsh					
		5.0gr					
89	0.5	5.5gr	0	7	22	35	sdWL7.5
		1.5sd					
90	0.5	4.5gr	0	5	16	28	+ WL8.0
		1.0sdsh					
		1.0FS					
		1.0gr					
91	1	6.5	0	14	29	43	+ WL7.5
92	1	1.0grsh	0	6	18	32	+ WL8.0
		1.0sd					
		1.0grsh					
		1.0gr					
		1.0grsh					
		2.0gr					
93	1.5	3.5grsh	0	9	23	34	+ WL7.0
		1.0sd					
		1.0gr					

PIT LOGGING BY TEST HOLES

Test Hole No.	Depth of Stripping (Ft.)	Depth of Gravel (Ft.)	% Retained on 1 1/2" Screen	% Retained on 3/4" Screen	% Retained on 3/8" Screen	% Retained on # 4 Screen	Bottom of Test Hole
94	1.5	1.5gr	1	9	23	35	+ WL8.0
		1.0sd					
		3.0gr					
		1.0sd					
95	1	5.0gr	1	15	28	40	+ WL7.5
		1.5sdsh					
96	1	1.0gr	0	5	15	28	+ WL8.0
		2.0DM					
		2.0gr					
		1.0Fgrsh					
		1.0sd					
97	2	1.0grsh	1	10	25	36	+WL7.0
		2.5gr					
		1.5sd					
98	1	2.0grsh	1	14	26	38	+ WL7.5
		2.0gr					
		1.0sdsh					
		1.5gr					
99	1	1.5FS	0	11	24	37	+ WL8.5
		4.5gr					
		1.0sd					
		0.5gr					
100	2	3.5gr	0	5	17	29	sdWL7.0
		0.5sd					
		1.0gr					
101	2	5.0gr	0	9	22	33	+ WL8.0
		1.0sd					
102	1.5	2.0grsh	0	11	25	38	+ WL8.5
		0.5sd					
		3.0gr					
		1.0sdsh					
		0.5gr					
103	1.5	4.0gr	0	13	24	34	sdWL7.0
		1.5sd					
104	1.5	1.0FS	0	7	19	31	+ WL7.5
		3.0gr					
		1.0sd					
		0.5gr					
		0.5FS					
105	1.5	5.5gr	0	8	18	29	+ WL8.0
		1.0sd					
106	2.5	3.0gr	0	9	23	35	+ WL7.5
		1.0sd					
		1.0gr					

PIT LOGGING BY TEST HOLES

Test Hole No.	Depth of Stripping (Ft.)	Depth of Gravel (Ft.)	% Retained on 1 1/2 Screen	% Retained on 3/4 Screen	% Retained on 3/8 Screen	% Retained on # 4 Screen	Bottom of Test Hole
107	1.5	1.5FS	0	8	22	34	sdsh
		1.0Fgr					
		3.5gr					
108	1.5	1.5FS	1	8	21	32	+ WL8.5
		5.5gr					
109	1.5	2.5grsh	0	5	17	29	+ WL7.5
		2.0gr					
		1.5sd					
110	1	6	0	8	20	33	+ WL7.0
111	1	1.0gr	0	10	23	34	grWL7.0
		1.0grsh					
		3.0gr					
		1.0sd					
112	1.5	1.0gr	0	8	21	34	sdWL7.0
		1.0sd					
		2.5gr					
113	1.5	1.5grsh	0	9	22	34	+ WL8.0
		1.0gr					
		1.0sd					
		2.0gr					
		0.5sd					
		0.5gr					
114	1.5	5.5gr	1	10	24	37	+ WL8.5
		1.5Fgrsh					
115	1.5	6.5	0	12	27	40	sdsh
116	2	6.0gr	0	9	25	37	+ WL9.5
		1.5sd					
117	1.5	5.0gr	0	5	16	27	+ WL8.5
		2.0sd					
118	2	2.0FS	0	9	21	33	+ WL9.5
		5.5gr					
119	1	5.5gr	0	12	25	37	+ WL8.0
		1.5sd					
120	2	2.0gr	0	8	21	33	+ WL9.0
		1.0sd					
		1.0Fgr					
		2.0gr					
		1.0grsh					
121	1	6.0gr	0	10	25	39	+ WL8.0
		1.0sdsh					
122	1.5	7	0	9	24	38	+ WL8.5
123	1.5	0.5grsh	0	9	22	34	+ WL8.5
		4.0gr					
		2.5grsh					

PIT LOGGING BY TEST HOLES

Test Hole No.	Depth of Stripping (Ft.)	Depth of Gravel (Ft.)	% Retained on 1 1/2 Screen	% Retained on 3/4 Screen	% Retained on 3/8 Screen	% Retained on # 4 Screen	Bottom of Test Hole
124	1.5	0.5grsh	1	11	26	38	+ WL
		4.0gr					
		2.0sd					
		1.0gr					
125	1.5	2.5gr	0	13	28	143	+ WL8.5
		1.0grsh					
		2.0gr					
		1.5grsh					
126	3	1.0grSiCl	0	5	15	27	+ WL7.5
		2.0gr					
		1.5sd					
127	1.5	1.0gr	0	7	22	37	+ WL8.0
		1.0grsh					
		4.5gr					
128	2	4.5gr	0	5	18	32	+ WL8.5
		1.5sd					
		0.5gr					

RANGE 71 **TWP.** 160 **SEC.** 12

Rolette **COUNTY**

PIT PROSPECTED BY **Willie Heinrich 9-99**

INSPECTED & APPROVED

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	180	5

PIT LOGGING BY TEST HOLES

Test Hole No.	Depth of Stripping (Ft.)	Depth of Gravel (Ft.)	% Retained on 1 ½" Screen	% Retained on 3/4" Screen	% Retained on 3/8" Screen	% Retained on # 4 Screen	Bottom of Test Hole
A	1.5	4.5gr	0	8	26	40	sdWL8.0
		1.0grsh					
		1.0gr					
B	1.5	1.0FS	0	8	19	33	+ WL8.0
		3.0gr					
		1.0FS					
		1.0gr					
C	1.5	1.5FS	0	5	17	29	sdWL8.0
		4.0gr					
		1.0sd					
D	1.5	2.5gr	0	9	23	35	+ WL8.0
		1.0sd					
		1.0grsh					
		2.0gr					
E	1	4.0gr	0	11	27	38	sdWL7.0
		1.0sd					
		1.0gr					
F	1	1.0Fgrsh	0	7	16	29	+ WL8.0
		1.0Fgr					
		1.0gr					
		1.0grsh					
		1.0sd					
		1.0gr					
		1.0sdsh					

PIT LOGGING BY TEST HOLES

Test Hole No.	Depth of Stripping (Ft.)	Depth of Gravel (Ft.)	% Retained on 1 1/2" Screen	% Retained on 3/4" Screen	% Retained on 3/8" Screen	% Retained on # 4 Screen	Bottom of Test Hole

PIT LOGGING BY TEST HOLES

Test Hole No.	Depth of Stripping (Ft.)	Depth of Gravel (Ft.)	% Retained on 1 1/2 Screen	% Retained on 3/4 Screen	% Retained on 3/8 Screen	% Retained on # 4 Screen	Bottom of Test Hole

PIT LOGGING BY TEST HOLES

Test Hole No.	Depth of Stripping (Ft.)	Depth of Gravel (Ft.)	% Retained on 1 1/2 Screen	% Retained on 3/4 Screen	% Retained on 3/8 Screen	% Retained on # 4 Screen	Bottom of Test Hole

RANGE 71 TWP. 160 SEC. 12

Rolette COUNTY

PIT PROSPECTED BY Willie Heinrich 9-99

INSPECTED & APPROVED

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	180	6

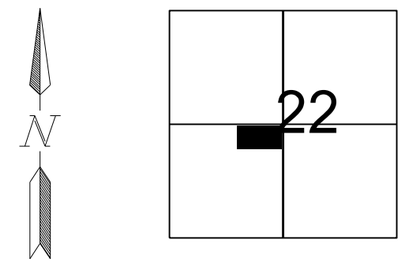
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

TEST HOLE PLAT

Location: N1/2NE1/4SW1/4 22-156-56 County: Walsh

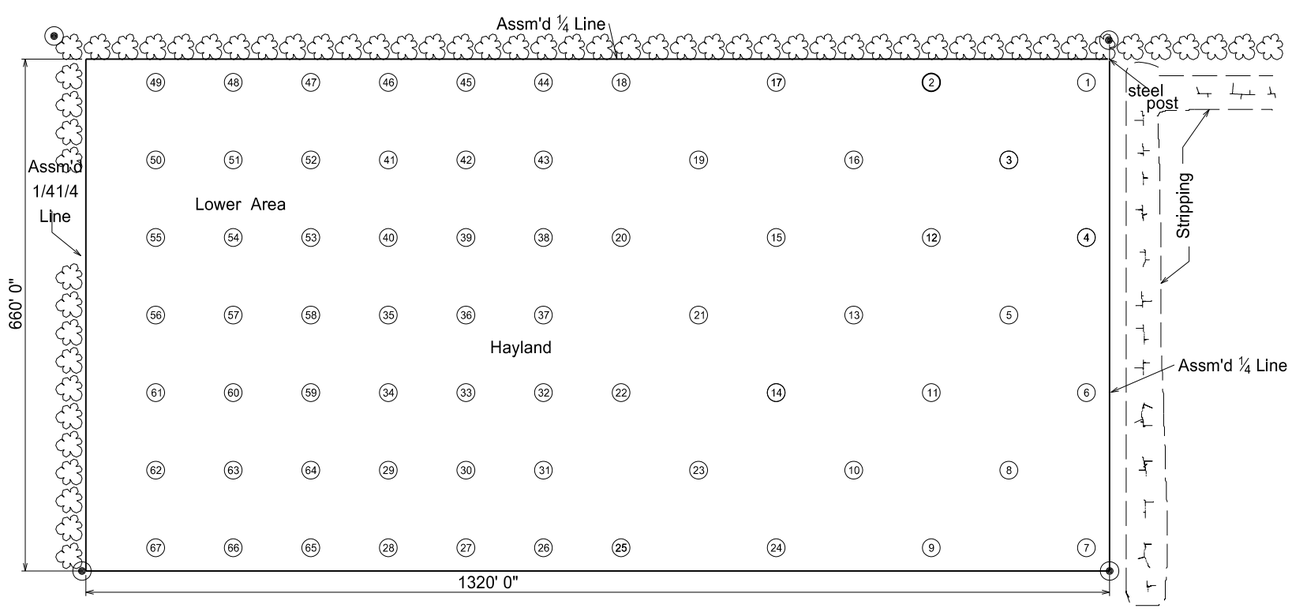
Ownership: Don Dvorak, Lankin, ND - Contact Jason Dvorak - Phone: 701-787-5326

LOCATION OF PIT IN SECTION



Area "A" consists of Test Holes 1- 5
Area "B" consists of Test Holes 6-10
Area "C" consists of Test Holes 11-15
Area "D" consists of Test Holes 16-20
Area "E" consists of Test Holes 21-25
Area "F" consists of Test Holes 26-34
Area "G" consists of Test Holes 35-46
Area "H" consists of Test Holes 47-58
Area "I" consists of Test Holes 59-67

Legend:
gr = gravel
sd = sand
FS = fine sand
Fgr = fine gravel
CS = coarse sand
sh = shale
SiCl = silt clay
FeO = Iron oxide
rk = rock
CoS = Coal Slack
WL = water line
NG = no gravel



Scale 1" = 200'

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	180	7

PIT LOGGING BY TEST HOLES

Test Hole No.	Depth of Stripping (Ft)	Depth of Material (Ft)	% Retained on 1½" Screen	% Retained on ¾" Screen	% Retained on 3/8" Screen	% Retained on #4 Screen	Bottom of Test Hole
1	3.0	2.0 gr Si Cl	0	8	25	41	+WL 17.0
		1.0 gr					
		4.0 gr Si Cl					
		1.0 CS					
		4.5 gr sh					
		1.5 sd sh					
2	1.5	12.5 gr	0	7	20	32	+WL 18.0
		1.0 Fgr					
		1.0 sd					
		1.0 Fgr sh					
		1.0 gr sh					
3	0.5	8.5 gr	0	10	22	34	rk
		2.0 sd					
		6.0 gr					
4	1.5	14.5 gr	0	6	22	36	+WL 17.0
		1.0 sd					
5	1.0	8.0 gr	0	7	19	33	+WL 17.0
		1.0 gr sh					
		7.0 gr					
6	1.0	4.5 gr	0	11	21	34	sd sh
		1.5 FS					
		3.0 gr					
		2.0 gr sh					
		2.0 gr					
		1.0 Fgr sh					
7	2.0	1.0 gr Si Cl	0	9	20	31	sd sh
		10.0 gr					
8	1.0	9.0 gr	0	9	23	39	+ gr
		3.5 gr sh					
		2.5 gr					
		1.0 CS					
		2.5 gr					
9	1.0	4.0 gr	0	8	21	35	sd sh
		1.0 gr Si Cl					
		6.0 gr					
10	2.5	3.5 gr	0	7	15	24	+WL 17.0
		5.0 sd					
		1.0 sd sh					
		5.0 gr sh					
11	2.0	8.0 gr	0	5	16	33	sd sh
		2.0 Fgr sh					
12	1.0	7.0 gr	0	8	19	32	+WL 18.0
		1.0 sd sh					
		1.0 gr					
		1.0 gr sh					
		7.0 gr					
13	1.0	7.0 gr	0	6	16	28	+WL 16.0
		1.0 Fgr sh					
		2.0 gr					
		5.0 Fgr sh					

PIT LOGGING BY TEST HOLES

Test Hole No.	Depth of Stripping (Ft)	Depth of Material (Ft)	% Retained on 1½" Screen	% Retained on ¾" Screen	% Retained on 3/8" Screen	% Retained on #4 Screen	Bottom of Test Hole
14	3.0	4.0 gr	0	3	11	19	+WL 17.0
		4.0 Fgr					
		2.0 sd sh					
		4.0 gr					
15	2.0	7.0 gr	0	7	18	30	+WL 16.0
		3.0 Fgr					
		3.0 sd sh					
		1.0 Fgr sh					
16	1.0	15.0 gr	0	8	24	39	+ cave
		1.0 Fgr sh					
		1.0 gr					
17	1.0	2.0 gr	1	9	21	36	+ cave
		1.0 Fgr sh					
		11.0 gr					
		3.0 gr sh					
18	2.0	4.0 gr	0	4	8	15	+ cave
		6.0 sd sh					
19	2.5	1.5 gr	0	3	11	21	+WL 15.0
		2.0 Fgr sh					
		1.0 gr					
		3.0 sd sh					
		4.0 gr					
		1.0 gr sh					
20	2.0	5.0 gr	0	3	13	24	+ cave
		2.0 sd sh					
		3.0 gr					
		1.0 sd sh					
21	1.0	6.0 gr	0	8	20	34	+WL 17.0
		5.0 gr sh					
		3.0 gr					
		2.0 gr sh					
22	3.0	6.0 gr	0	10	19	28	+WL 14.0
		4.0 sd sh					
		1.0 Fgr sh					
23	1.0	11.0 gr	0	10	26	39	rk
24	2.0	8.0 gr	0	7	21	32	rk
		3.0 gr sh					
25	2.5	1.5 gr	0	8	17	30	rk
		6.0 gr sh					
		1.0 gr					
		1.0 CS					
		1.0 gr sh					
26	1.0	4.0 gr	0	8	20	30	+WL 13.0
		1.0 sd sh					
		1.0 Fgr					
		3.0 sd					
		1.0 Fgr					
		2.0 gr sh					

PIT LOGGING BY TEST HOLES

Test Hole No.	Depth of Stripping (Ft)	Depth of Material (Ft)	% Retained on 1½" Screen	% Retained on ¾" Screen	% Retained on 3/8" Screen	% Retained on #4 Screen	Bottom of Test Hole
27	1.0	3.0 gr	1	10	22	34	+WL 11.0
		1.0 sd					
		6.0 Fgr sh					
28	2.0	2.0 gr Si Cl	1	14	28	42	+WL 10.0
		4.0 gr					
		2.0 gr sh					
29	1.0	2.0 gr Si Cl	2	13	26	39	+WL 10.0
		5.0 gr					
		2.0 gr sh					
30	1.0	6.0 gr	0	13	25	37	+WL 11.5
		3.0 gr sh					
		1.5 Fgr sh					
31	0.5	5.5 gr	0	10	21	32	+WL 13.0
		1.0 gr sh					
		4.0 sd sh					
		2.0 gr sh					
32	1.5	3.5 gr	0	2	13	21	+WL 12.0
		7.0 sd sh					
33	2.0	2.0 gr	0	12	23	33	+WL 12.0
		3.0 sd sh					
		1.5 Fgr					
		0.5 sd sh					
		2.0 gr sh					
		1.0 gr					
34	1.0	6.0 gr	0	11	28	43	+WL 11.0
		4.0 Fgr sh					
35	2.0	2.0 gr Si Cl	0	13	28	38	+WL 10.5
		4.0 gr					
		1.0 CS sh					
		1.5 sd					
36	2.0	5.0 gr	0	10	24	37	+WL 10.5
		3.5 sd sh					
37	1.0	3.0 gr	0	4	10	16	+WL 11.5
		7.5 sd sh					
38	2.0	4.0 gr	0	9	20	30	+WL 11.5
		5.5 sd sh					
39	1.0	7.0 gr	0	12	27	38	+WL 11.0
		2.0 sd					
		2.0 sd sh					
40	3.0	3.0 gr	0	13	20	28	+WL 10.5
		4.5 sd sh					
41	2.5	3.5 gr	1	15	29	39	rk
		1.0 sd sh					
		2.0 gr sh					
42	4.0	1.0 gr	0	0	2	5	+WL 10.0
		5.0 sd sh					
43	2.0	3.5 gr	0	8	18	28	+WL 10.0
		5.0 sd sh					

PIT LOGGING BY TEST HOLES

Test Hole No.	Depth of Stripping (Ft)	Depth of Material (Ft)	% Retained on 1½" Screen	% Retained on ¾" Screen	% Retained on 3/8" Screen	% Retained on #4 Screen	Bottom of Test Hole
44	2.0	1.0 gr	0	5	9	15	+WL 11.0
		4.0 sd					
		4.0 sd sh					
45	5.0	3.0 gr	0	7	15	21	+WL 10.5
		2.5 sd					
46	4.0	6.0 gr	1	17	33	47	+WL 10.0
47	2.0	2.0 gr sh	0	4	10	15	+WL 10.5
		2.0 sd					
		4.5 sd sh					
48	2.0	3.5 gr	1	10	18	25	+WL 10.5
		5.0 sd sh					
49	2.0	2.0 gr Si Cl	1	16	34	46	+WL 10.0
		6.0 gr					
50	2.0	1.0 gr Si Cl	1	14	26	39	+WL 9.5
		2.0 gr sh					
		4.5 gr					
51	1.0	9.0 gr	1	16	28	40	+WL 10.0
52	1.0	4.0 gr	0	7	18	27	+WL 10.0
		5.0 sd sh					
53	2.0	2.0 gr Si Cl	0	12	28	40	+WL 9.0
		3.0 gr sh					
		2.0 sd sh					
54	1.5	2.5 gr	1	10	18	27	+WL 10.0
		3.0 sd sh					
		3.0 Fgr					
55	2.0	2.0 gr sh	2	8	20	31	+WL 10.0
		2.0 sd sh					
		1.0 gr sh					
		3.0 sd sh					
56	2.0	2.0 gr	0	10	23	34	+WL 9.5
		2.0 gr sh					
		2.0 sd sh					
		1.5 gr					
57	2.0	1.0 gr Si Cl	0	7	21	35	+WL 10.0
		4.0 gr sh					
		3.0 sd sh					
58	2.0	2.0 gr	1	14	28	42	+WL 10.0
		6.0 gr sh					
59	1.0	8.0 gr sh	1	11	28	43	+WL 10.5
		1.5 sd sh					

RANGE 56 **TWP** 156 **SEC.** N1/2 NE1/4 SW1/4 22-156-56

COUNTY WALSH Sep-05

PROSPECTED BY S. Wutzke 98 & T. Volk 05

INSPECTED & APPROVED S. Carter Sep-05

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-017(023)055	180	8

PIT LOGGING BY TEST HOLES

Test Hole No.	Depth of Stripping (Ft)	Depth of Material (Ft)	% Retained on 1½" Screen	% Retained on ¾" Screen	% Retained on 3/8" Screen	% Retained on #4 Screen	Bottom of Test Hole
60	1.0	3.0 gr	1	14	25	36	+WL 10.0
		1.0 sd sh					
		2.0 gr					
		3.0 Fgr sh					
61	2.5	1.0 gr Si Cl	0	8	19	31	+WL 9.5
		6.0 gr sh					
62	3.0	1.0 gr	0	8	19	28	+WL 9.0
		1.0 Fgr					
		1.0 sd					
		2.0 Fgr sh					
		1.0 sd					
63	1.0	2.0 gr Si Cl	0	13	28	40	+WL 10.0
		2.0 gr sh					
		5.0 gr					
64	1.0	2.0 gr	0	10	23	37	+WL 10.5
		5.0 gr sh					
		2.5 sd sh					
65	1.0	4.0 gr	0	10	25	41	+WL 10.5
		3.0 gr sh					
		2.5 Fgr					
66	1.0	4.0 gr sh	0	7	17	27	+WL 9.5
		4.0 sd sh					
		0.5 gr sh					
67	4.0	5.5 gr	1	22	41	57	+WL 9.5

PIT LOGGING BY TEST HOLES

Test Hole No.	Depth of Stripping (Ft)	Depth of Material (Ft)	% Retained on 1½" Screen	% Retained on ¾" Screen	% Retained on 3/8" Screen	% Retained on #4 Screen	Bottom of Test Hole

PIT LOGGING BY TEST HOLES

Test Hole No.	Depth of Stripping (Ft)	Depth of Material (Ft)	% Retained on 1½" Screen	% Retained on ¾" Screen	% Retained on 3/8" Screen	% Retained on #4 Screen	Bottom of Test Hole

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RANGE 56 **TWP** 156 **SEC** N1/2 NE1/4 SW1/4 22-156-56

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