Docusign Envelope ID: FC56CC11-D79A-827D-801F-103ABB86BF87

DESIGN DATA XA-SS-FTFA-1-031(021)078				
Traffic	Average Daily			
Current 2019	Pass: 658	Trucks: 107	Total: 765	
Forecast 2040	Pass: 839	Trucks: 136	Total: 975	
Clear Zone Distance: 20'		Design Speed: 65 MPH		
Minimum Sight Dist. for Stopping: 645 feet		Bridges: ___		
Sight Dist. for No Passing Zone: 1100 feet				
Pavement Design Life 20 years				
Design Accumulated One-way flexible ESALs: 652,054				

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NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

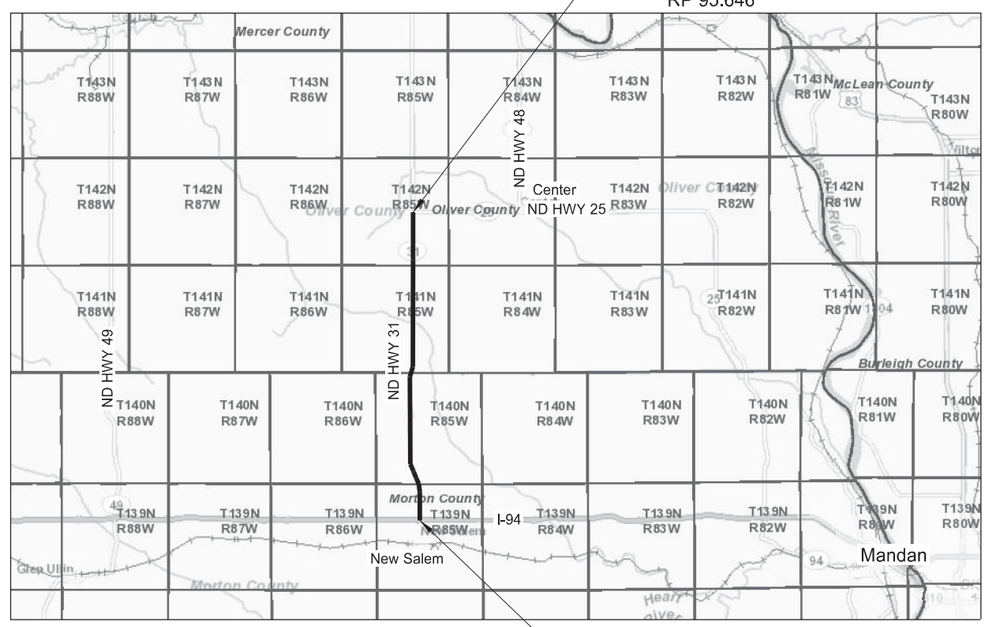
XA-SS-FTFA-1-031(021)078
Morton County, Oliver County
Jct I-94 to Hannover

Mill & Overlay, Widening, Approach Panels, Reconstruction, Bridge Deck Overlay, Guardrail, Box Culvert Extensions

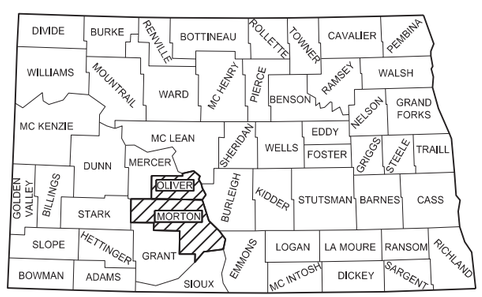
GOVERNING SPECIFICATIONS	Date Published and Adopted by the North Dakota Department of Transportation
Standard Specifications	7/1/2024
Supplemental Specifications	NONE

PROJECT NUMBER \ DESCRIPTION	NET MILES	GROSS MILES
XA-SS-FTFA-1-031(021)078	17.395	17.449

End Project
XA-SS-FTFA-1-031(021)078
ND 31
Sta 5049+58.81
RP 95.646



Begin Project
XA-SS-FTFA-1-031(021)078
ND 31
Sta 4128+29.93
RP 78.197



STATE COUNTY MAP

DESIGNER	Brian Meyers
DESIGNER	Hannah Mueller
DESIGNER	Zachary Thelen
DESIGNER	Stacy Johnson

ND DEPARTMENT OF TRANSPORTATION
OFFICE OF PROJECT DEVELOPMENT

kirk Hoff

Kirk Hoff
08/17/26

SRF CONSULTING GROUP

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 8/17/26
08/17/26
NORTH DAKOTA

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SP 278(24)	Concrete Spall Repair
SSP 1	Temporary Erosion and Sediment Best Management Practices
SSP 2	Federal Migratory Bird Treaty Act
SSP 4	Longitudinal Joint Density
SSP 10	E-Ticketing
SP 229(24)	Flexible Pavement Surface Tolerance
SP 24(24)	Permits and Environmental Considerations
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D-260-1	Erosion And Siltation Controls - Silt Fence
D-261-1	Erosion Control - Fiber Roll Placement Details
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D-704-7	Breakaway Systems For Construction Zone Signs - Perforated Tube
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D-704-17	Sign Layout For One Lane Closure Two Lane Roadway
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D-704-20	Terminal And Seal Coat Sign Layouts
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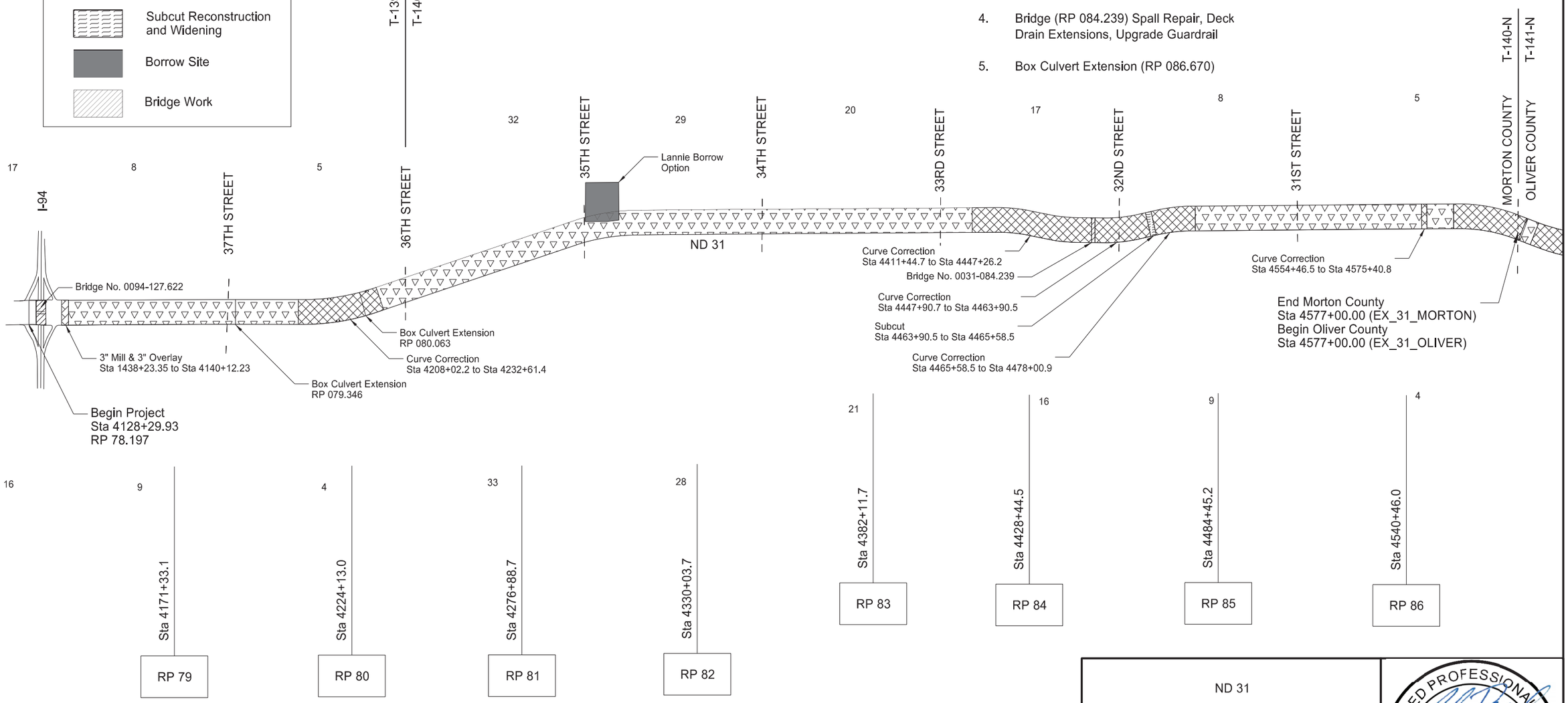
Legend

- 3" Mill & 3" Overlay
- 1" Mill & 3" Overlay and Widening
- Curve Correction and Widening
- Subcut Reconstruction and Widening
- Borrow Site
- Bridge Work

Other Work:

1. I-94 Bridge (94- RP 127.622), Replace Approach Panels, Overlay Bridge Deck, Upgrade Guardrail
2. Box Culvert Extension (RP 079.346)
3. Box Culvert Extension (RP 080.063)
4. Bridge (RP 084.239) Spall Repair, Deck Drain Extensions, Upgrade Guardrail
5. Box Culvert Extension (RP 086.670)



ND 31

Jct I-94 to Hannover

Scope of Work

Morton County

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 10/26/24
NORTH DAKOTA

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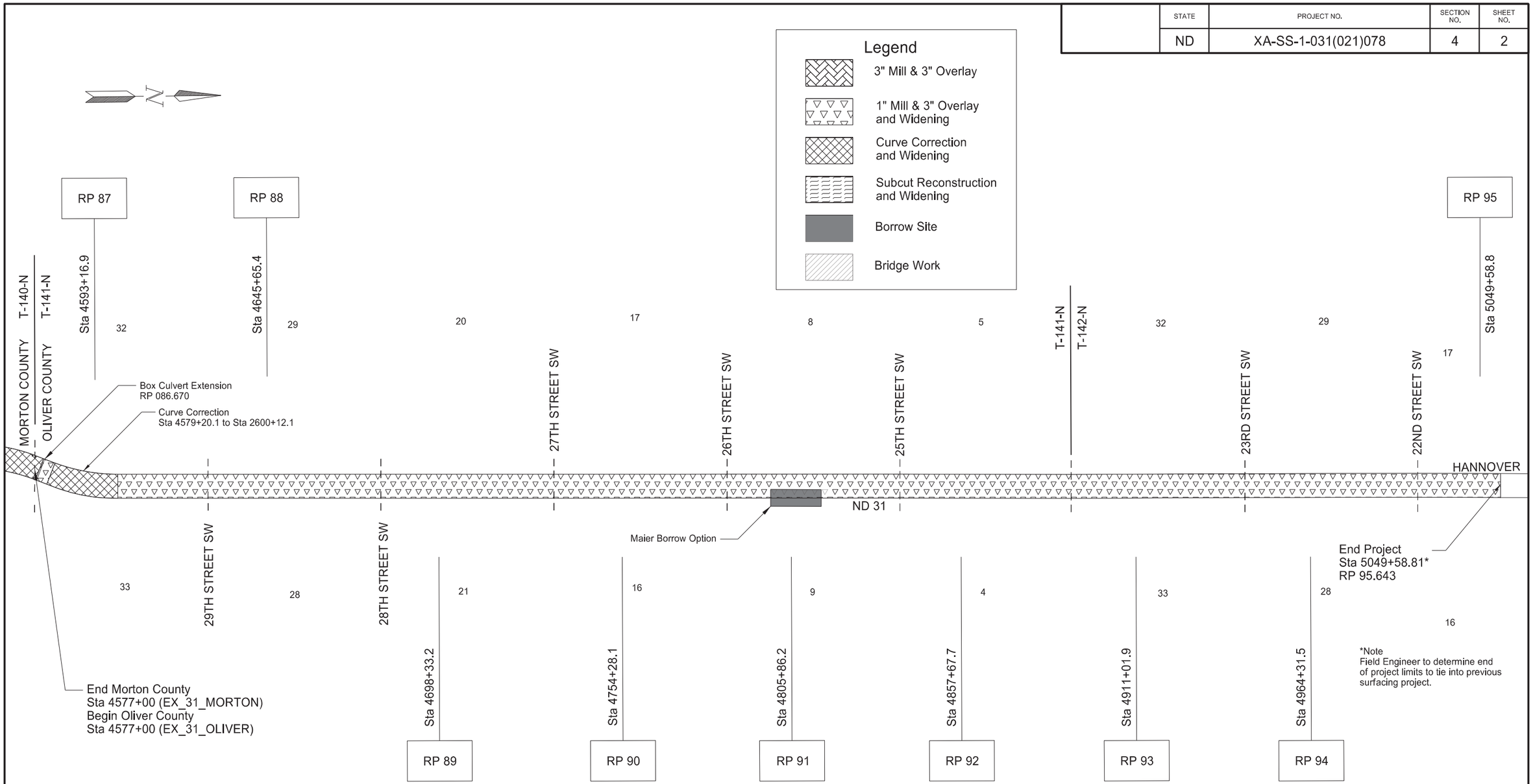

*Note
Field Engineer to determine end of project limits to tie into previous surfacing project.

ND 31

Jct I-94 to Hannover

Scope of Work

Oliver County

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 10/26/24
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	6	1

NOTES

GENERAL NOTES

100-P01 COORDINATION OF PROJECTS: Another project in the vicinity of this project is planned during the 2025 construction season. This project is XA-SS-1-025(015)028 ND 25 and ties into this project. The contractor will need to coordinate construction and tie in with the other project.

107-P01 MAINTAINING TRAFFIC – UNEVEN SHOULDER: If a shoulder and the adjacent lane are uneven due to milling or paving operations, the requirements of Section 704.04 O, "Traffic Control for Uneven Pavement" apply. If the uneven shoulder and adjacent lane are due to other circumstances, the contents of this note apply. If, at the end of the work-day, drop-offs greater than 2 inches and less than 18 inches or slopes steeper than 4:1 exist between the edge of a traffic lane and the outside edge of the proposed roadway, perform one of the following actions:

- Construct a traversable wedge in the area of the drop-off or steep slope; or
- Close the lane adjacent to the drop-off or steep slope and provide 24-hour flagging or pilot car operations.

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

Install stackable vertical panels that meet the requirements of Section 704.03 H, "Stackable Vertical Panels", along the edge of the driving lane closest to the wedge.

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

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

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

202-P01 REMOVAL OF PAVEMENT: The tonnage of “Removal of Pavement” is based on the existing sections shown in Section 30 for mainline. The tonnage includes the full depth of the bituminous surfacing and the full depth of aggregate base except the bottom two inches. The approaches were estimated at 6 inches of material. The quantity for “Removal of Pavement” has been deducted from the excavation quantity within the rehabilitation limits. Include all costs for removing, loading, hauling and disposal in the price bid for “REMOVAL OF PAVEMENT”.

203-010 SHRINKAGE: 25% percent additional volume is included for shrinkage in earth embankment.

203-P01 COMMON EXCAVATION – TYPE B: Include costs for removal and disposal of base material within the coulter cut limits in the contract unit price for “COMMON EXCAVATION – TYPE B”.

411-P01 MILLING PAVEMENT SURFACE: The field engineer will determine the end of project limits to tie into previous surfacing project on North edge of project. An additional 100’ of 1” milling and 3” of HBP have been included in the quantities to account for the additional work.

704-100 TRAFFIC CONTROL SUPERVISOR: Provide a Traffic Control Supervisor.

704-200 STATE FURNISHED MEDIAN BARRIER: Obtain (38) 22.5” x 12.5’ concrete barriers. They can be picked up and returned to the Sterling yard. Contact the Bismarck District office at 701-328-6950 to facilitate the exchanges.

Section 704.04 J “Precast Concrete Median Barrier (State Furnished)” applies to the contract item “State Furnished Median Barrier”.

If returning barriers with connection components, coordinate the delivery location for the connecting components with the Engineer. Some 4 inch x 4 inch boards are available at the return location. Provide any additional 4 inch x 4 inch boards necessary to stack barriers. The boards will become property of the Department.

Payment for the State Furnished Median Barrier will follow Section 704.06 D ”Precast Concrete Median Barrier (State Furnished)”. Include all costs associated with median barriers in the contract unit price for “State Furnished Median Barrier”.

REGISTERED PROFESSIONAL ENGINEER
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DATE: 10/26/24
NORTH DAKOTA

NOTES

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

Place the following sign assembly at the locations listed below.

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

Locations:

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

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

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

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

704-450 LANE CLOSURE - SIGNAL CONTROL/FLAGGING CONTROL: Install either the signal controlled lane closure on Standard D-704-16 or the flagging controlled lane closure on Standard D-704-17.

Obtain an electrical source for traffic signals. Solar powered signals may be used. Place generators a minimum of 60 feet from the roadway centerline, unless the generator and signal are part of a trailer mounted unit.

Place utility poles and equipment a minimum of 60 feet from the roadway centerline and place power conductors a minimum of 6 inches below the ground surface. Remove poles after they are no longer necessary.

The Engineer will measure individual traffic control devices, other than the signal system and flaggers, shown on the standards. Payment will be made at the respective contract unit price.

Include the cost of either a traffic signal system or flaggers in the contract unit price for "Lane Closure – Signal Control/Flagging Control".

704-500 PORTABLE RUMBLE STRIPS (PRS): Use PRS made of rubber or engineered polymers.

Install PRS as part of the temporary traffic control when the following signs are also part of the required traffic control set up:

- "Be Prepared to Stop" (W3-4); and
- "Flagger" symbol (W20-7)

Install PRS that meet the following criteria:

- Have no adhesives or fasteners required for placement;
- Have a manufacture's speed rating that meets or exceeds the posted speed limit; and
- Each strip in the array must weigh a minimum of 100 pounds.

Use individual PRS constructed in one of the following manners:

- A single piece;
- Interlocking segments; or
- Two pieces hinged at the midpoint.

An installed array of PRS consists of a minimum of 3 individual strips.

Move rumble strips with the flagging operation. Do not place rumble strips on horizontal curves.

The Engineer will count and measure each array as one unit. Include the cost of providing, installing, maintaining, and relocating PRS in the unit price bid for "PORTABLE RUMBLE STRIPS".

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NOTES

704-P01 TRAFFIC CONTROL FOR CURVE CORRECTION AND SUBCUT: Provide traffic control consisting of a temporary lane closure, flagging, and a pilot car.

Traffic control device quantities are estimated based on a 3/4-mile lane closure and the list below. The roadway will be opened at the end of each work day, otherwise pilot car and flaggers must utilized 24 hours at contractor's expense. The Department will pay for all necessary deployed devices, regardless of the length of the lane closure.

1. Standard D-704-19, layout F;
2. Standard D-704-20, layout G – signing will be required at junctions: Bridge Ave, Huck Ave, Jennings Ave, 40th Ave SW, 41st Ave SW, 42nd Ave SW, 43rd Ave SW, and ND 31.
3. Standard D-704-22, layouts K and L.
4. Standard D-704-26, layouts CC, EE, and GG.

The required traffic control signs and devices are included in the "Traffic Control Devices List" and will be measured and paid at the contract unit bid price for each device.

704-P02 TRAFFIC CONTROL FOR BITUMINOUS PAVEMENT: Provide traffic control consisting of a temporary lane closure, flagging, and a pilot car.

Traffic control device quantities are estimated based on a 3/4-mile lane closure and the list below. The Department will pay for all necessary deployed devices, regardless of the length of the lane closure.

1. Standard D-704-19, layout F;
   a. Standard D-704-20, layout G – signing will be required at junctions: 37th Street SW, 36th Street SW, 35th Street SW, 34th Street SW, 33rd Street SW, 32nd Street SW, 31st Street SW, 29th Street SW, 28th Street SW, 26th Street SW, 25th Street SW, 23rd Street SW, 22nd Street SW and ND 25.
2. Standard D-704-22, layouts K and L; and
3. Standard D-704-26, layouts CC, EE, and GG.
4. Place traffic control devices as shown on Standard D-704-26, layout KK at the following intersections when the lane closure spans across them:
   a. 37th Street SW, 36th Street SW, 35th Street SW, 34th Street SW, 33rd Street SW, 32nd Street SW, 31st Street SW, 29th Street SW, 28th Street SW, 26th Street SW, 25th Street SW, 23rd Street SW, 22nd Street SW and ND 25.

The required traffic control signs and devices are included in the "Traffic Control Devices List" and will be measured and paid at the contract unit price for each device.

704-P03 TRAFFIC CONTROL FOR HMA OVERLAYS: Provide traffic control consisting of a temporary lane closure and flagging.

The maximum work zone length is limited to one day's production.

One day's production is defined as the length of roadway that can be paved in a single day plus the length of roadway that can be milled in a single day.

For estimating purposes, the traffic control device list is based on a 3 mile work zone and the following list:

1. Standard D-704-20, layout G – signing will be required at junctions: Bridge Ave, Huck Ave, Jennings Ave, 40th Ave SW, 41st Ave SW, 42nd Ave SW, 43rd Ave SW, and ND 31.
2. Standard D-704-22, Types K and L;
3. Standard D-704-26, Type CC, EE, and GG;
4. Standard D-704-33

704-P04 TRAFFIC CONTROL FOR SHOULDER WIDENING AND INSLOPE REPAIR: Provide traffic control consisting of a temporary shoulder closure and flagging.

The shoulder work can only occur on one side of the roadway at a time.

For estimating purposes, the traffic control device list is based on a 3-mile work zone and the following list:

1. Standard D-704-24, Type R

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NOTES

704-P05 TRAFFIC CONTROL FOR BRIDGE WORK:

D-704-16, Sign layout for Lane Closure on a Two Lane Road Using Traffic Control Signals or D-704-17, Sign layout for Lane Closure on a Two Lane Road Using Flaggers. Use for bridge deck overlay, curb repair, approach slabs, remove and replace guardrail, and guardrail surfacing.

D-704-22, Layouts K & L for Construction Trucks Hauling Material.

D-704-26, Layouts Type BB, EE, and GG as needed.

D-704-33 for installing, relocating, and removing the portable precast concrete median barriers, attenuation devices, Type III barricades, delineator drums, along with obliteration of pavement marking, placement of interim pavement marking, or when any flagging is needed.

706-P01 FIELD OFFICE: Provide a field office which meets the following requirements:

1. Be completely insulated and weather tight.
2. Minimum total area of 450 square feet.
3. Indoor bathroom facilities, sewer and potable water.
4. Have a dependable source of electricity for power and lights with a minimum of 6 electrical outlets spaced throughout the building and light fixtures spaced to uniformly light the entire interior (lumens required 110 foot-candles).
5. Be wired by DSL Broadband internet with wireless Wi-Fi and have the capability to allow for hard wiring the computer. Include the cost of the installation and monthly feeds.
6. A heating and cooling system that is capable of maintaining the temperature between 65°F and 78°F year round.
7. A minimum of 3 desks and 3 desk chairs, 3 extra chairs, a drawer file cabinet with at least two drawers, one table minimum of 2.5 ft x 5 ft.
8. Photocopy machine/Printer capable of 11x17 photocopies/prints and toner to last the duration of the project. Engineer will provide paper. Other features to include digital copying and scanning. (Fax capabilities can be included but not necessary).
9. The location of the field office will be on and will avoid impact to all cultural resources identified on this project, or as close to the project as possible and approved by the Engineer. Any rental fees will be paid by the Contractor.
10. Make the field office available for occupancy one week before the start of the project and remain through project completion.
11. Heat, electric, internet service, sewer, and water hookups to be furnished by contractor, contractor to pay utility bills.

All requirements by the Field Office are subject to approval by the Engineer. Include the costs for the field office in the bid item “Field Office” and the Schedule for Payment is as follows:

- 25% when set up on site.
- 50% when 30% of the work is complete.
- 75% when 60% of the work is complete.
- 100% when project is complete.

748-P01 CURB & GUTTER – TYPE 1 SPECIAL: Install curb and gutter at the I-94 bridge, RP 127.622, in accordance with Standard Drawing D-748-1.

752–P01 ELECTRIC FENCE CONNECTION: Salvage the electrical wiring and connectors from existing electrical fencing called out to be removed in these plans. Attach the existing electrical fencing wiring from adjacent electrical fence, at the same height, to the new three strand barbed wire fence and posts and vehicle gate near approaches at station ranges Sta 4288+25 to Sta 229+06 (LT), Sta 4240+11 to Sta 4241+70 (LT), Sta 4937+33 to Sta 4938+08 (LT), Sta 4943+22 to Sta 4943+73 (LT), Sta 4944+22 to Sta 4944+37 (RT), and Sta 4957+70 to Sta 4958+55 RT. Include all costs for re-attaching electrical wiring and any additional materials needed for the connection in the contract unit price bid for the items “FENCE BARBED WIRE 3 STRAND” and “VEHICLE GATE”.

754-P01 ADOPT-A-HIGHWAY SIGN PANEL: The Adopt a highway symbol sign panel will be furnished and installed by NDDOT. The contractor will furnish and install the remaining signs as shown in the special assembly detail.

762-050 PAVEMENT MARKINGS: If the Engineer and Contractor agree, plan quantity will be used as the measurement for payment of pavement marking items.

762-P01 TEMPORARY FENCE: Temporary fence to be placed prior to removal of existing fence. Temporary fence can be removed once proposed fence is installed.

764-P01 REMOVE W-BEAM GUARDRAIL: Deliver the removed w-beam rail sections to the NDDOT Maintenance Storage Yard in Center, and neatly stack them at a location designated by the engineer. The remaining posts and hardware become the property of the contractor. The address of the NDDOT Maintenance Storage Yard is:

CENTER NDDOT
3738 Hwy 25
Center, ND 58530

Include all cost for delivery of the w-beam guardrail sections and for disposal of the remaining w-beam guardrail materials in the contract unit price bid for “REMOVE W-BEAM GUARDRAILS & POSTS”.

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ENVIRONMENTAL NOTES

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

EN-1 AVOIDANCE AREAS: The Project Engineer will contact ETS, Cultural Resources to coordinate any meetings needed to identify the limits of the avoidance area. There are a total of 10 sites along the corridor. The avoidance areas must not be disturbed and will be fenced prior to commencement of any construction. Provide the fence and fence posts, install the fence in the location designated in the plans, maintain the fence, and remove the fence upon completion of the project. A quantity of 2583 LF of temporary safety fence has been included for this purpose. Include the costs to provide, place, maintain, and remove the fence in the bid item “Temporary Safety Fence.”

EN-2 AQUATIC NUISANCE SPECIES (ANS): Equipment that was last used outside of North Dakota or within a Class I infested waterbody (identified on the North Dakota Game and Fish Department (NDGFD) website) requires an inspection by NDGFD. Notify the NDGFD at least 10 business days prior to pumps, watercraft, or any equipment entering a public water to allow the NDGFD sufficient time to inspect any and all such equipment for ANS. Contact the NDGFD ANS Coordinator, Ben Holen by e-mail - bholen@nd.gov for equipment inspections. Supply one of the following to the engineer as proof of compliance prior to work taking place in the water: (1) the NDGFD inspection report, (2) documented NDGFD correspondence (email or signed letter).

EN-3 THREATENED AND ENDANGERED SPECIES: The project is located near/within suitable habitat for the species listed in the following table

SPECIES	HABITAT	PRESENCE
Whooping Crane	Cropland/Wetland Associations	Spring: April 1 - May 15* Fall: September 10 – October 31
Northern Long-Eared Bat	Forested/Wooded Areas/Bridges/Box Culverts/Caves/Mines	Active Season: April 1 - October 31* Inactive Season: November 1 - March 31*

*Time frames can differ slightly, depending on the year

If any of the above threatened and endangered species are identified within 1 mile of the project, the Contractor will notify the Engineer immediately and cease construction activities in the vicinity until an avoidance area is established. The Engineer will establish an avoidance area that is at least a 0.5 mile and immediately coordinate with the USFWS (701-355-8513), FHWA (701-221-9464), and NDDOT Environmental and Transportation Services (701-328-2592). The Contractor will not resume work within the avoidance area until the Engineer has confirmed with the agencies that work may proceed (either the species have left the area, or approved avoidance/minimization measures have been implemented).

EN-4 TEMPORARY WETLAND IMPACT: Temporary impact areas within wetlands and or other waters are incorporated into the plans for this project. Remove temporary fill placed and sedimentation in wetlands or other waters. Restore these wetlands to preconstruction contours.

EN-5 WETLAND MITIGATION: Wetland mitigation is required for unavoidable permanent wetland impacts. The wetland mitigation plan is incorporated into the plans for this project. After completion of the mitigation area, the Engineer will complete the Onsite Mitigation Certification Form SFN 61042. Any sedimentation occurring within the mitigation area will be removed.

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Estimated Quantities

SPEC	CODE	ITEM DESCRIPTION	UNIT	Mainline:				TOTAL
103	0100	CONTRACT BOND	L SUM	1				1
202	0101	REMOVAL OF CONCRETE	EA	3				3
202	0136	REMOVAL OF PAVEMENT	TON	30751				30751
202	0169	REMOVAL OF END SECTION-ALL TYPES & SIZES	EA	1				1
202	0170	REMOVAL OF CULVERTS-ALL TYPES & SIZES	LF	367				367
202	0312	REMOVE EXISTING FENCE	LF	3402				3402
203	0102	COMMON EXCAVATION-TYPE B	CY	16401				16401
203	0109	TOPSOIL	CY	144808				144808
203	0122	TOPSOIL-DEPT OPTION BORROW AREA	CY	44934				44934
203	0138	COMMON EXCAVATION-SUBCUT	CY	168				168
203	0140	BORROW-EXCAVATION	CY	185755				185755
203	0237	SUBCUT AGGREGATE	TON	786				786
210	0050	BOX CULVERT EXCAVATION	EA	3				3
210	0210	FOUNDATION FILL	CY	115				115
210	0405	FOUNDATION PREPARATION-BOX CULVERT	EA	3				3
216	0100	WATER	M GAL	4892				4892
251	0200	SEEDING CLASS II	ACRE	165.7				165.7
251	1000	WETLAND SEED	ACRE	0.7				0.7
251	2000	TEMPORARY COVER CROP	ACRE	166.4				166.4
253	0101	STRAW MULCH	ACRE	333				333
255	0102	ECB TYPE 2	SY	2917				2917
256	0200	RIPRAP GRADE II	CY	319				319
260	0100	SILT FENCE UNSUPPORTED	LF	18022				18022
260	0101	REMOVE SILT FENCE UNSUPPORTED	LF	18022				18022
261	0112	FIBER ROLLS 12IN	LF	70579				70579
261	0113	REMOVE FIBER ROLLS 12IN	LF	20676				20676
262	0100	FLOTATION SILT CURTAIN	LF	375				375
262	0101	REMOVE FLOTATION SILT CURTAIN	LF	375				375
265	0100	STABILIZED CONSTRUCTION ACCESS	EA	2				2
265	0101	REMOVE STABILIZED CONSTRUCTION ACCESS	EA	2				2
302	0120	AGGREGATE BASE COURSE CL 5	TON	135766				135766
401	0050	TACK COAT	GAL	35494				35494
401	0060	PRIME COAT	GAL	32357				32357
401	0160	BLOTTER MATERIAL CL 44	TON	956				956
411	0100	MILLING PAVEMENT SURFACE	TON	14153				14153
430	0143	RAP - SUPERPAVE FAA 43	TON	61652				61652
430	1000	CORED SAMPLE	EA	587				587
430	5815	PG 58S-34 ASPHALT CEMENT	TON	3694				3694
602	1131	CLASS AE-3 CONCRETE-BOX CULVERT	CY	120.3				120.3
602	1135	BRIDGE APPROACH SLAB-REMOVE & REPLACE	SY	188.8				188.8
602	1250	PENETRATING WATER REPELLENT TREATMENT	SY	1420				1420
602	1300	BRIDGE DECK GROOVING	SF	10400				10400
602	7000	SPECIAL SURFACE FINISH	SF	1573				1573
612	0114	REINFORCING STEEL-GRADE 60-BOX CULVERT	LBS	18371				18371
650	0704	OVERLAY CONCRETE	CY	54.3				54.3
650	0707	DECK CONCRETE	CY	2.6				2.6
650	0710	CLASS 1-H REMOVAL	SY	977.8				977.8

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	8	2

Estimated Quantities

SPEC	CODE	ITEM DESCRIPTION	UNIT	Mainline:				TOTAL
650	0720	CLASS 1 REMOVAL	SY	977.8				977.8
650	0723	CLASS 3 REMOVAL	SY	30				30
650	0724	CLASS 4 REMOVAL	SY	2				2
702	0100	MOBILIZATION	L SUM	1				1
704	0100	FLAGGING	MHR	2320				2320
704	1000	TRAFFIC CONTROL SIGNS	UNIT	3819				3819
704	1043	ATTENUATION DEVICE-TYPE B-65	EA	2				2
704	1048	PORTABLE RUMBLE STRIPS	EA	2				2
704	1052	TYPE III BARRICADE	EA	2				2
704	1060	DELINEATOR DRUMS	EA	318				318
704	1067	TUBULAR MARKERS	EA	169				169
704	1185	PILOT CAR	HR	1160				1160
704	1500	OBLITERATION OF PAVEMENT MARKING	SF	792				792
704	3510	PRECAST CONCRETE MED BARRIER-STATE FURNISHED	EA	38				38
706	0400	FIELD OFFICE	EA	1				1
706	0500	AGGREGATE LABORATORY	EA	1				1
706	0550	BITUMINOUS LABORATORY	EA	1				1
706	0600	CONTRACTOR'S LABORATORY	EA	1				1
709	0100	GEOSYNTHETIC MATERIAL TYPE G	SY	73398				73398
709	0155	GEOSYNTHETIC MATERIAL TYPE RR	SY	597				597
714	0110	PIPE CONC REINF 12IN CL III	LF	18				18
714	0310	PIPE CONC REINF 18IN CL III	LF	126				126
714	0615	PIPE CONC REINF 24IN CL III	LF	356				356
714	0621	PIPE C R 24IN CL III-STORM DRAIN 7.5DEG BEND	LF	6				6
714	0820	PIPE CONC REINF 30IN CL III	LF	192				192
714	0905	PIPE CONC REINF 36IN CL III	LF	78				78
714	1510	PIPE CONC REINF 72IN CL III	LF	62				62
714	3023	END SECT-TRAVERSABLE REINF. CONC.24IN	EA	1				1
714	4099	PIPE CONDUIT 18IN-APPROACH	LF	192				192
714	4105	PIPE CONDUIT 24IN	LF	89				89
714	4115	PIPE CONDUIT 36IN	LF	230				230
714	5000	PIPE CORR STEEL .064IN 12IN	LF	23				23
714	5015	PIPE CORR STEEL .064IN 18IN	LF	234				234
714	5035	PIPE CORR STEEL .064IN 24IN	LF	41				41
714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES	EA	123				123
720	0110	RIGHT OF WAY MARKERS	EA	12				12
720	0130	IRON PIN R/W MONUMENTS	EA	12				12
748	0141	CURB & GUTTER-TYPE 1 SPECIAL	LF	60				60
752	0100	FENCE BARBED WIRE 3 STRAND	LF	2468				2468
752	0200	FENCE BARBED WIRE 4 STRAND	LF	94				94
752	0905	TEMPORARY FENCE	LF	2732				2732
752	0911	TEMPORARY SAFETY FENCE	LF	2583				2583
752	2100	VEHICLE GATE	EA	10				10
752	2120	REMOVE VEHICLE GATE	EA	5				5
752	3150	CORNER ASSEMBLY BARBED WIRE-WOOD POST	EA	16				16
752	4100	DOUBLE BRACE ASSEMBLY BARBED WIRE	EA	4				4
754	0110	FLAT SHEET FOR SIGNS-TYPE XI REFL SHEETING	SF	259				259

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	8	3

Estimated Quantities

SPEC	CODE	ITEM DESCRIPTION	UNIT	Mainline:				TOTAL
754	0112	FLAT SHEET FOR SIGNS-TYPE IV REFL SHEETING	SF	333				333
754	0206	STEEL GALV POSTS-TELESCOPING PERFORATED TUBE	LF	1276				1276
754	0562	REFERENCE MARKER-TYPE B	EA	17				17
754	0592	RESET SIGN PANEL	EA	19				19
754	0593	RESET SIGN SUPPORT	EA	1				1
754	0803	OBJECT MARKERS - TYPE III	EA	8				8
754	0805	OBJECT MARKERS - CULVERTS	EA	136				136
760	0025	SINUSOIDAL RUMBLE STRIP - ASPHALT SHOULDER	MILE	35				35
760	0027	SINUSOIDAL RUMBLE STRIP - ASPHALT CENTERLINE	MILE	17				17
762	0422	SHORT TERM 6IN LINE-TYPE R	LF	2742				2742
762	0426	SHORT TERM 24IN LINE-TYPE R	LF	24				24
762	0432	SHORT TERM 6IN LINE-TYPE NR	LF	172584				172584
762	1106	PVMT MK PAINTED 6IN LINE	LF	270560				270560
764	0131	W-BEAM GUARDRAIL	LF	545				545
764	0145	W-BEAM GUARDRAIL END TERMINAL	EA	8				8
764	0150	REMOVE & RESET GUARDRAIL	LF	212				212
764	0151	REMOVE W-BEAM GUARDRAIL & POSTS	LF	357				357
764	1059	RESET W-BEAM GUARDRAIL END TERMINAL	EA	4				4
764	2081	REMOVE END TREATMENT & TRANSITION	EA	29				29
766	0100	MAILBOX-ALL TYPES	EA	17				17
772	2800	INTERIM TRAFFIC SIGNALS	EA	2				2
900	1000	TEMPORARY STREAM DIVERSION	EA	5				5
930	3640	HIGH EXPANSION POLYURETHANE FOAM	GAL	30				30
930	9223	CRACK SEALING	LF	300				300
930	9534	MODIFY DECK DRAIN	EA	6				6
930	9612	SPALL REPAIR	SF	18				18
930	9639	APPROACH SLAB LIP REPAIR	LF	85				85
930	9671	BOX CULVERT JOINT REPAIR	EA	15				15
930	9672	BOX CULVERT JOINT REPAIR - FLOOR	EA	9				9

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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Material	Unit	Stations: Curve Correction Sta 4208+02.15 to Sta 4232+61.42 Sta 4411+44.67 to Sta 4447+26.23 Sta 4447+90.69 to Sta 4463+90.46 Sta 4465+58.46 to Sta 4478+00.93 Sta 4544+98.96 to Sta 4546+52.96 Sta 4554+46.46 to Sta 4575+40.75 Sta 4579+20.10 to Sta 4600+12.05		Stations: 3" Mill and 3" Bit Overlay Sta 4138+23.35 to Sta 4140+12.23		Stations: Subcut Sta 4463+90.46 to Sta 4465+58.46		Stations: 1" Mill and 3" Bit Overlay and Widening Sta 4140+12.19 to Sta 4208+02.15 Sta 4232+61.42 to Sta 4411+44.67 Sta 4478+00.93 to Sta 4554+98.96 Sta 4546+52.96 to Sta 4554+46.46 Sta 4575+40.75 to Sta 4579+20.10 Sta 4600+12.05 to Sta 5049+58.81	
		Tangent		Tangent		Tangent		Tangent	
		Width (ft)	Quantity per Station	Width (ft)	Quantity per Station	Width (ft)	Quantity per Station	Width (ft)	Quantity per Station
Prime Coat @ 0.25 Gal/SY	Gal	32	88.89	---	---	32	88.89	9	25.00
Blotter Material CI 44 @ 15 lbs/SY	Ton	32	2.67	---	---	32	2.67	9	0.75
Tack Coat @ 0.05 Gal/SY (1st Lift)	Gal	32	17.78	44	24.44	32	17.78	32	17.78
Tack Coat @ 0.05 Gal/SY (2nd Lift)	Gal	32	17.78	44	24.44	32	17.78	32	17.78
Tack Coat @ 0.05 Gal/SY (3rd Lift)	Gal	32	17.78	---	---	32	17.78	---	---
RAP Superpave FAA 43 @ 2 Ton/CY	Ton	32	98.77	44	81.48	32	98.77	32	59.26
PG 58S-34 Asphalt Cement @ 6.0%	Ton	32	5.93	44	4.89	32	5.93	32	3.56
Subcut Aggregate Base @ 1.875 Ton/CY	Ton	---	---	---	---	43	472.80	---	---
Aggregate CI 5 @1.875 Ton/CY	Ton	41.1	356.77	--- ---	--- ---	--- ---	--- ---	6.5 6.5	48.9 48.9
Geosynthetic Material Type G	SY	47	522.22	---	---	50	555.56	---	---

***Quantities for all approaches are calculated separately in section 20 and will be added together in cost estimate**

***An additional 100' of 1" milling and 3" HBP have been included in the quantities to account for additional work**

766 0100 Mailbox- All Types

Station	Type	Work
Morton County		
4240+48 - LT	Single	Replace Support
4240+57 - RT	Single	Replace Support
4296+52 - RT	Single	Replace Support
4325+02 - RT	Single	Do Nothing
4328+59 - LT	Single	Do Nothing
4349+46 - RT	Quad	Replace Support
4375+45 - LT	Single	Do Nothing
4437+09 - LT	Single	Replace Support
4475+57 - RT	Single	Replace Support
4508+42 - RT	Single	Do Nothing
4550+42 - RT	Single	Replace Support
Oliver County		
4593+79 - RT	Single	Do Nothing
4650+36 - LT	Single	Replace Support
4680+64 - RT	Single	Replace Support
4707+26 - RT	Single	Replace Support
4785+83 - LT	Single	Replace Support
4786+30 - RT	Double	Replace Support
4792+13 - LT	Single	Replace Support
4878+34 - RT	Single	Replace Support
4916+05 - RT	Single	Replace Support
5039+06 - RT	Single	Replace Support
5040+47 - RT	Single	Replace Support

216 0100 Water

Material	Basis	Basis Quantity		Quantity (Mgal)
Dust Palliative	25 Mgal/Mile	17.437	Mile	436
Aggregates	20 gal/Ton	129,895	Ton	2,598
Borrow Material	10 gal/CY	185,755	CY	1,858
			Total:	**4892**

760 0007 Rumble Strips - Asphalt Centerline

Begin Station	End Station	Basis	Quantity (mi)
4128+29.93	5049+59	5280 LF/Mile	17

760 0005 Rumble Strips - Asphalt Shoulders

Begin Station	End Station	Basis	Quantity (mi)
4128+29.93	5049+59	10560 LF/Mile	35

0704 1500 Obliteration of Pavement Marking

	Total
Stop Bar 24"	48 SF
Short Term - 6" White Type R	744 SF

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 10/23/24
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	10	2

0762 1106 Permanent Pavement Marking (Painted Pvmt Mk)

Edge Line - 6" White	Basis		Amount		Total	
Sta 4128+29.93 to Sta 5049+58.81	10560	LF/Mile	17.449	Miles	184262	LF
Centerline - 6" Double Yellow Barrier	Basis		Amount		Total	
Sta 4128+29.93 to Sta 4141+25.00	10560	LF/Mile	0.246	Miles	2598	LF
Sta 4172+15.00 to Sta 4185+65.00	10560	LF/Mile	0.256	Miles	2704	LF
Sta 4192+00.00 to Sta 4213+50.00	10560	LF/Mile	0.408	Miles	4309	LF
Sta 4232+85.00 to Sta 4248+35.00	10560	LF/Mile	0.294	Miles	3105	LF
Sta 4265+85.00 to Sta 4288+35.00	10560	LF/Mile	0.427	Miles	4510	LF
Sta 4299+45.00 to Sta 4320+95.00	10560	LF/Mile	0.408	Miles	4309	LF
Sta 4424+50.00 to Sta 4465+00.00	10560	LF/Mile	0.768	Miles	8111	LF
Sta 4525+50.00 to Sta 4550+45.00	10560	LF/Mile	0.473	Miles	4995	LF
Sta 4654+00.00 to Sta 4689+00.00	10560	LF/Mile	0.663	Miles	7002	LF
Sta 4699+50.00 to Sta 4720+50.00	10560	LF/Mile	0.398	Miles	4203	LF
Sta 4754+40.00 to Sta 4774+95.00	10560	LF/Mile	0.390	Miles	4119	LF
Sta 4829+05.00 to Sta 4851+00.00	10560	LF/Mile	0.416	Miles	4393	LF
Sta 4892+50.00 to Sta 4910+50.00	10560	LF/Mile	0.341	Miles	3601	LF
Sta 4944+00.00 to Sta 5002+05.00	10560	LF/Mile	1.081	Miles	11416	LF
Sta 5035+00.00 to Sta 5049+58.81	10560	LF/Mile	0.277	Miles	2926	LF
Centerline - 6" Yellow Skip (10' Line, 30' Skip)	Basis		Amount		Total	
Sta 4141+25.00 to Sta 4172+15.00	1320	LF/Mile	0.586	Miles	774	LF
Sta 4185+65.00 to Sta 4192+00.00	1320	LF/Mile	0.121	Miles	160	LF
Sta 4213+50.00 to Sta 4232+85.00	1320	LF/Mile	0.367	Miles	485	LF
Sta 4248+35.00 to Sta 4265+85.00	1320	LF/Mile	0.332	Miles	439	LF
Sta 4288+35.00 to Sta 4299+45.00	1320	LF/Mile	0.211	Miles	279	LF
Sta 4320+95.00 to Sta 4424+50.00	1320	LF/Mile	1.962	Miles	2590	LF
Sta 4465+00.00 to Sta 4525+50.00	1320	LF/Mile	1.146	Miles	1513	LF
Sta 4550+45.00 to Sta 4654+00.00	1320	LF/Mile	1.962	Miles	2590	LF
Sta 4689+00.00 to Sta 4699+50.00	1320	LF/Mile	0.199	Miles	263	LF
Sta 4720+50.00 to Sta 4754+40.00	1320	LF/Mile	0.643	Miles	849	LF
Sta 4774+95.00 to Sta 4829+05.00	1320	LF/Mile	1.025	Miles	1353	LF
Sta 4851+00.00 to Sta 4892+50.00	1320	LF/Mile	0.786	Miles	1038	LF
Sta 4910+50.00 to Sta 4944+00.00	1320	LF/Mile	0.635	Miles	839	LF
Sta 5002+05.00 to Sta 5035+05.00	1320	LF/Mile	0.625	Miles	825	LF

762 0432 Short Term Pavement Marking (Short Term Line-Type NR)

Centerline - 6" Double Yellow Barrier	Basis	Amount	Applications (1)	Total
Sta 4128+29.93 to Sta 4141+25.00	10560 LF/Mile	0.246 Miles	2EA	5196 LF
Sta 4172+15.00 to Sta 4185+65.00	10560 LF/Mile	0.256 Miles	2EA	5407 LF
Sta 4192+00.00 to Sta 4213+50.00	10560 LF/Mile	0.408 Miles	2EA	8617 LF
Sta 4232+85.00 to Sta 4248+35.00	10560 LF/Mile	0.294 Miles	2EA	6210 LF
Sta 4265+85.00 to Sta 4288+35.00	10560 LF/Mile	0.427 Miles	2EA	9019 LF
Sta 4299+45.00 to Sta 4320+95.00	10560 LF/Mile	0.408 Miles	2EA	8617 LF
Sta 4424+50.00 to Sta 4465+00.00	10560 LF/Mile	0.768 Miles	2EA	16221 LF
Sta 4525+50.00 to Sta 4550+45.00	10560 LF/Mile	0.473 Miles	2EA	9990 LF
Sta 4654+00.00 to Sta 4689+00.00	10560 LF/Mile	0.663 Miles	2EA	14003 LF
Sta 4699+50.00 to Sta 4720+50.00	10560 LF/Mile	0.398 Miles	2EA	8406 LF
Sta 4754+40.00 to Sta 4774+95.00	10560 LF/Mile	0.390 Miles	2EA	8237 LF
Sta 4829+05.00 to Sta 4851+00.00	10560 LF/Mile	0.416 Miles	2EA	8786 LF
Sta 4892+50.00 to Sta 4910+50.00	10560 LF/Mile	0.341 Miles	2EA	7202 LF
Sta 4944+00.00 to Sta 5002+05.00	10560 LF/Mile	1.081 Miles	2EA	22831 LF
Sta 5035+00.00 to Sta 5049+58.81	10560 LF/Mile	0.277 Miles	2EA	5851 LF
Centerline - 6" Yellow Skip (10' Line, 30' Skip)	Basis	Amount	Applications (1)	Total
Sta 4141+25.00 to Sta 4172+15.00	1320 LF/Mile	0.586 Miles	2EA	1548 LF
Sta 4185+65.00 to Sta 4192+00.00	1320 LF/Mile	0.121 Miles	2EA	320 LF
Sta 4213+50.00 to Sta 4232+85.00	1320 LF/Mile	0.367 Miles	2EA	969 LF
Sta 4248+35.00 to Sta 4265+85.00	1320 LF/Mile	0.332 Miles	2EA	877 LF
Sta 4288+35.00 to Sta 4299+45.00	1320 LF/Mile	0.211 Miles	2EA	558 LF
Sta 4320+95.00 to Sta 4424+50.00	1320 LF/Mile	1.962 Miles	2EA	5180 LF
Sta 4465+00.00 to Sta 4525+50.00	1320 LF/Mile	1.146 Miles	2EA	3026 LF
Sta 4550+45.00 to Sta 4654+00.00	1320 LF/Mile	1.962 Miles	2EA	5180 LF
Sta 4689+00.00 to Sta 4699+50.00	1320 LF/Mile	0.199 Miles	2EA	526 LF
Sta 4720+50.00 to Sta 4754+40.00	1320 LF/Mile	0.643 Miles	2EA	1698 LF
Sta 4774+95.00 to Sta 4829+05.00	1320 LF/Mile	1.025 Miles	2EA	2706 LF
Sta 4851+00.00 to Sta 4892+50.00	1320 LF/Mile	0.786 Miles	2EA	2076 LF
Sta 4910+50.00 to Sta 4944+00.00	1320 LF/Mile	0.635 Miles	2EA	1677 LF
Sta 5002+05.00 to Sta 5035+05.00	1320 LF/Mile	0.625 Miles	2EA	1650 LF

(1) Application of temporary pavement marking on milled surface and base lift.

HMA Cored Samples

Specification Section	Location	Begin Station	End Station	A	B		C	Quantity (AxBxC)	Quantity (1 per mile per lane)	Unit
				Distance (FT) ÷1000	Lanes	Joints	Lifts			
430.04 I.2b(1), "General"	ND 31	4128+29.93	5049+58.81	92	2	N/A	2	368	N/A	EA
SSP 4 Longitudinal Joint Density in HMA Pavements (Centerline)	ND 31	4128+29.93	5049+58.81	92	N/A	1	2	184	N/A	EA
430.04 I.2b(2), "Pavement Thickness Determination Cores"								N/A	35	EA
							Total	552	35	EA

REGISTERED PROFESSIONAL ENGINEER
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PE-27164
DATE: 10/23/24
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	11	1

Earthwork Summary			
Location	Common Excavation - Type B (CY) (Pay Item)	Embankment (1) (CY)	Borrow - Excavation (CY) (Pay Item)
	A	B	C = B-A
Highway 31 Morton	8,239	95,792	87,553
Highway 31 Oliver	8,162	106,365	98,203
Totals:	16,401	202,156	185,755

Notes:
(1) SHRINKAGE: 25% additional volume is included for shrinkage in earth embankment.

Topsoil Summary			
Location	Topsoil Excavation (CY)	Topsoil Required (CY)	Topsoil (CY) (Pay Item)
	A	B	A
Highway 31 Morton	67,520	63,808	67,520
Highway 31 Oliver	77,288	75,101	77,288
Totals	144,808	138,909	144,808

ND 31

Jct I-94 to Hanover

Earthwork Summary

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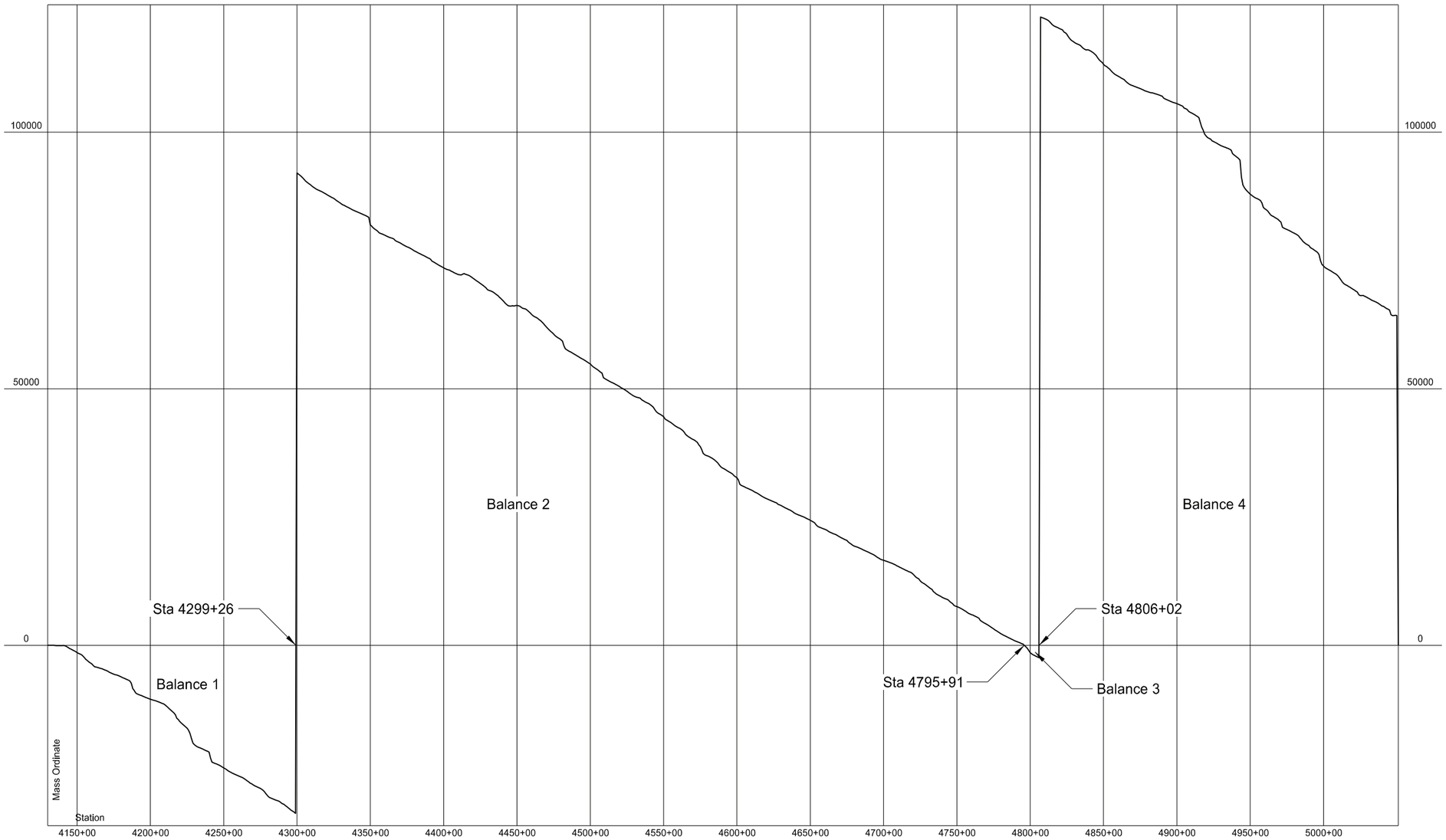
PE-27164
DATE: 10/26/24
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-031	11	2



Total for Balance 1

Haul = 2,520,463.72 CY Sta
Excavation Hauled = 32,751.10 CY

Total for Balance 2

Haul = 22,420,577.18 CY Sta
Excavation Hauled = 92,467.48 CY

Total for Balance 3

Haul = 14,481.04 CY Sta
Excavation Hauled = 2,410.35 CY

Total for Balance 4

Haul = 23,055,218.19 CY Sta
Excavation Hauled = 122,572.31 CY

Total for the Project

Haul = 48,010,740.13 CY Sta
Excavation Hauled = 250,201.24 CY
Average Haul Distance = 9,974.18 Sta

ND 31

Jct I-94 to Hanover

Mass Diagram

REGISTERED PROFESSIONAL ENGINEER
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PE-27164
DATE: 10/26/24
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	20	1

P.C. Station		4209+41.15
P.I. Station		4220+41.79
Delta	=	18.904°
Degree	=	0.867°
Tangent	=	1100.639
Length	=	2181.272
Radius	=	6611.099
External	=	90.993
P.T. Station		4231+22.42

Station	Left Slope	Right Slope
PC - 132	-2.10%	-2.10%
PC - 61	-2.10%	0.00%
PC	-2.10%	1.80%
PC + 30	-2.70%	2.70%
PT - 30	-2.70%	2.70%
PT	-2.10%	1.80%
PT + 61	-2.10%	0.00%
PT + 132	-2.10%	-2.10%

P.C. Station		4434+38.22
P.I. Station		4438+59.85
Delta	=	10.929°
Degree	=	1.300°
Tangent	=	421.629
Length	=	840.7
Radius	=	4407.499
External	=	20.121
P.T. Station		4442+78.92

Station	Left Slope	Right Slope
PC - 154	-2.10%	-2.10%
PC - 83	-2.10%	0.00%
PC	-2.47%	2.47%
PC + 42	-3.70%	3.70%
PT - 42	-3.70%	3.70%
PT	-2.47%	2.47%
PT + 83	-2.10%	0.00%
PT + 154	-2.10%	-2.10%

P.C. Station		4293+68.49
P.I. Station		4302+81.28
Delta	=	18.104°
Degree	=	1.000°
Tangent	=	912.796
Length	=	1810.378
Radius	=	5729.603
External	=	72.254
P.T. Station		4311+78.86

Station	Left Slope	Right Slope
PC - 138	-2.10%	-2.10%
PC - 67	0.00%	-2.10%
PC	2.00%	-2.10%
PC + 34	3.00%	-3.00%
PT - 34	3.00%	-3.00%
PT	2.00%	-2.10%
PT + 67	0.00%	-2.10%
PT + 138	-2.10%	2.10%

P.C. Station		4451+26.60
P.I. Station		4456+12.93
Delta	=	13.553°
Degree	=	1.400°
Tangent	=	486.321
Length	=	968.102
Radius	=	4092.701
External	=	28.793
P.T. Station		4460+94.71

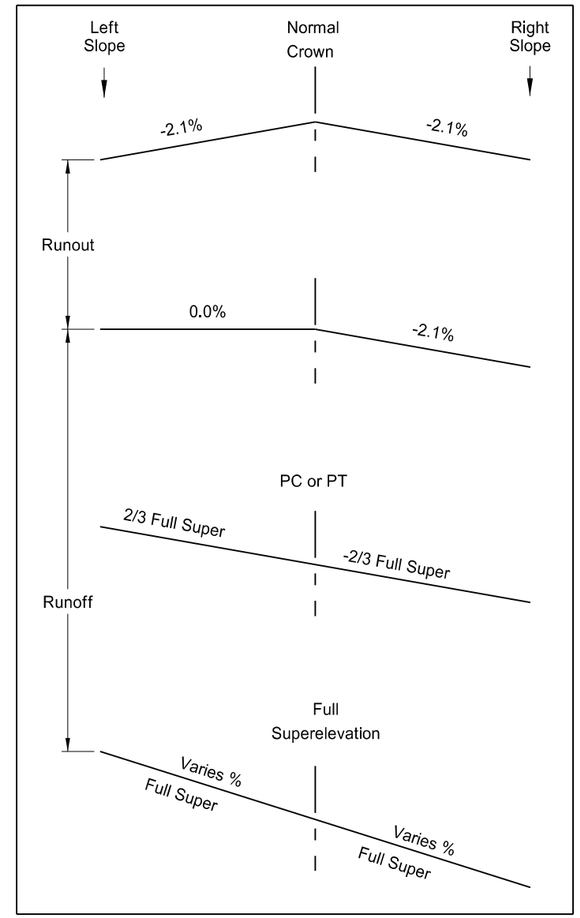
Station	Left Slope	Right Slope
PC - 158	-2.10%	-2.10%
PC - 87	-2.10%	0.00%
PC	-2.60%	2.60%
PC + 44	-3.90%	3.90%
PT - 44	-3.90%	3.90%
PT	-2.60%	2.60%
PT + 87	-2.10%	0.00%
PT + 158	-2.10%	-2.10%

P.C. Station		4418+99.59
P.I. Station		4423+56.54
Delta	=	11.838°
Degree	=	1.300°
Tangent	=	456.946
Length	=	910.639
Radius	=	4407.496
External	=	23.624
P.T. Station		4428+10.23

Station	Left Slope	Right Slope
PC - 155	-2.10%	-2.10%
PC - 84	0.00%	-2.10%
PC	2.47%	2.47%
PC + 41	3.70%	-3.70%
PT - 41	3.70%	-3.70%
PT	2.47%	2.47%
PT + 84	0.00%	-2.10%
PT + 155	-2.10%	-2.10%

P.C. Station		4466+75.59
P.I. Station		4471+59.53
Delta	=	12.532°
Degree	=	1.300°
Tangent	=	483.937
Length	=	964.013
Radius	=	4407.496
External	=	26.488
P.T. Station		4476+39.6

Station	Left Slope	Right Slope
PC - 154	-2.10%	-2.10%
PC - 83	0.00%	-2.10%
PC	2.47%	-2.47%
PC + 42	3.70%	-3.70%
PT - 42	3.70%	-3.70%
PT	2.47%	-2.47%
PT + 83	0.00%	-2.10%
PT + 154	-2.10%	-2.10%



Note: Calculations based on AASHTO method five. A design speed of 65 mph and maximum superelevation of 6% were used.

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Superelevation Table

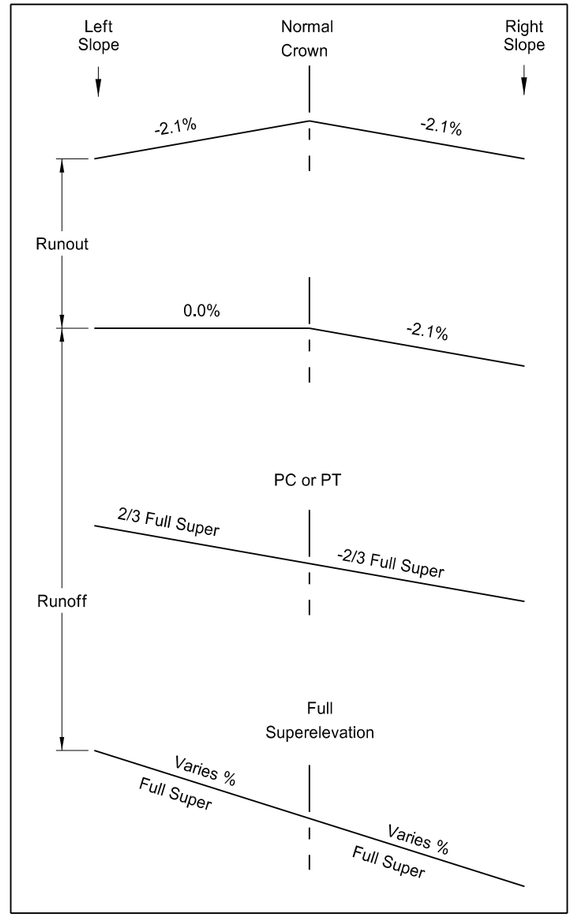
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	20	2

P.C. Station		4556+05.13
P.I. Station		4565+04.60
Delta	=	21.915°
Degree	=	1.233°
Tangent	=	899.472
Length	=	1776.958
Radius	=	4645.7
External	=	86.274
P.T. Station		4573+82.09

Station	Left Slope	Right Slope
PC - 152	-2.10%	-2.10%
PC - 81	0.00%	-2.10%
PC	2.40%	-2.40%
PC + 40	3.60%	-3.60%
PT - 40	3.60%	-3.60%
PT	2.40%	-2.40%
PT + 81	0.00%	-2.10%
PT + 152	-2.10%	-2.10%

P.C. Station		4580+76.77
P.I. Station		4589+76.51
Delta	=	21.343°
Degree	=	1.200°
Tangent	=	899.736
Length	=	1778.616
Radius	=	4774.74
External	=	84.032
P.T. Station		4598+55.39

Station	Left Slope	Right Slope
PC - 150	-2.10%	-2.10%
PC - 79	-2.10%	0.00%
PC	-2.33%	2.33%
PC + 39	-3.50%	3.50%
PT - 39	-3.50%	3.50%
PT	-2.33%	2.33%
PT + 79	-2.10%	0.00%
PT + 150	-2.10%	-2.10%



Note: Calculations based on AASHTO method five. A design speed of 65 mph and maximum superelevation of 6% were used.

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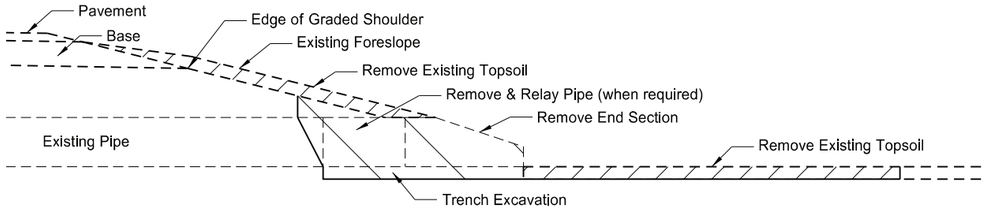
Jct I-94 to Hannover

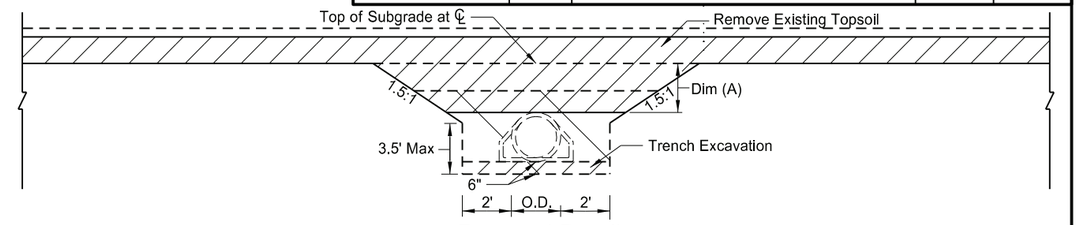
Superelevation Table

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	20	3



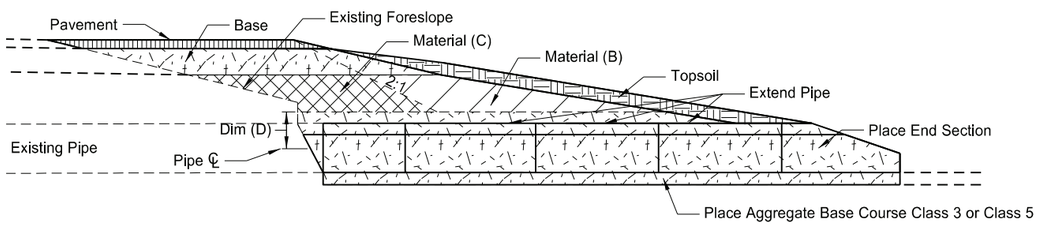
Removal Section

Cross Section View



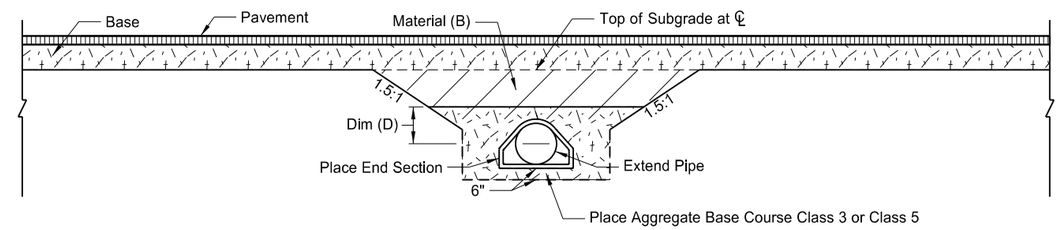
Removal Detail

Side View



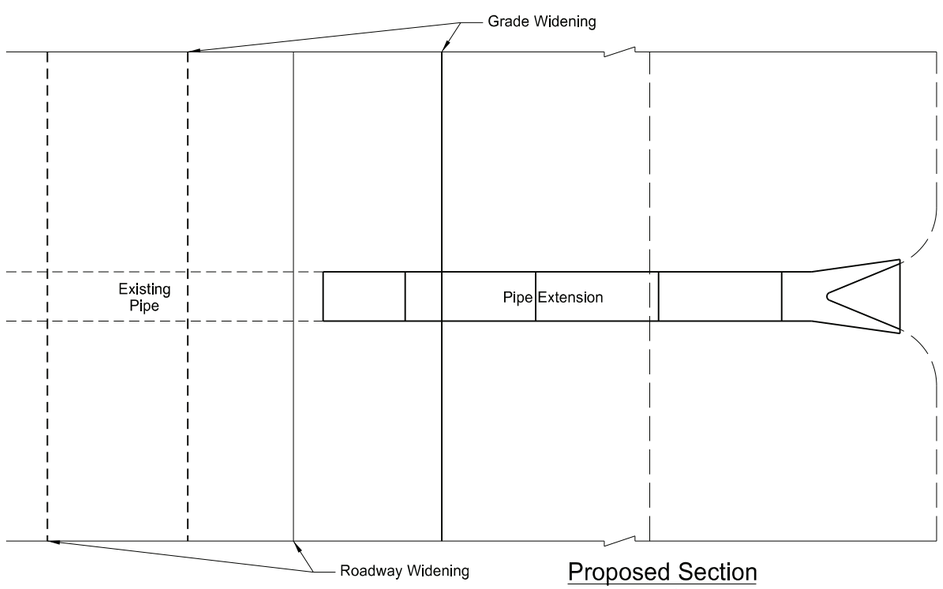
Proposed Section

Cross Section View



Backfill Detail

Side View (Topsoil not shown)



Proposed Section

Plan View

Pay Items
1) Pipe*
2) Remove & Relay Pipe - All Types & Sizes (when required)
3) Remove & Reset End Section or
   Remove End Section and Place New End Section
4) Borrow Excavation or Common Excavation
5) Topsoil
6) Seeding
7) Mulching

*Included in Pipe Pay Item
1) Pipe
2) Trench excavation
3) Aggregate Base Course Class 3 or Class 5

Pipe Materials	Dim (A)<=4 Feet		Backfill Dimension
	Material (B)	Material (C)	Dim (D)
Concrete	Embank or Aggr	Aggregate	0.5 O.D.
Metal	Embank or Aggr	Aggregate	0.5 O.D.+1 Foot

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

NOTES:
1. Embankment may be either Borrow Excavation or Common Excavation

2. Aggregate may be either Class 3 or Class 5 Aggregate Base Course.

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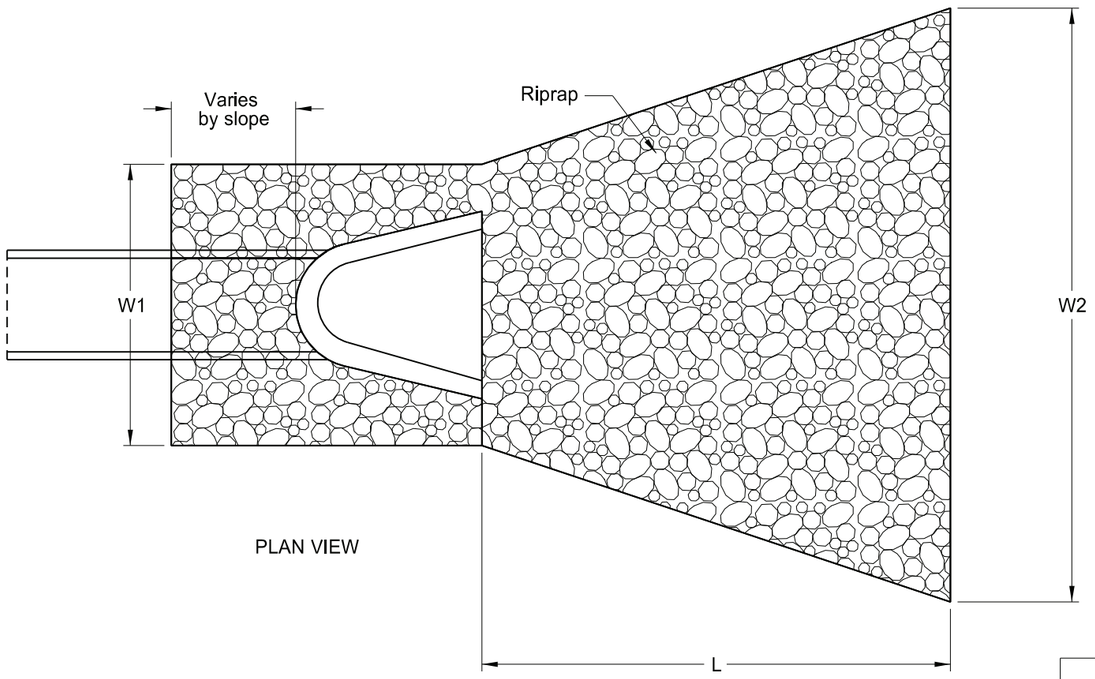
Mainline Widening CL Pipe Extension Detail

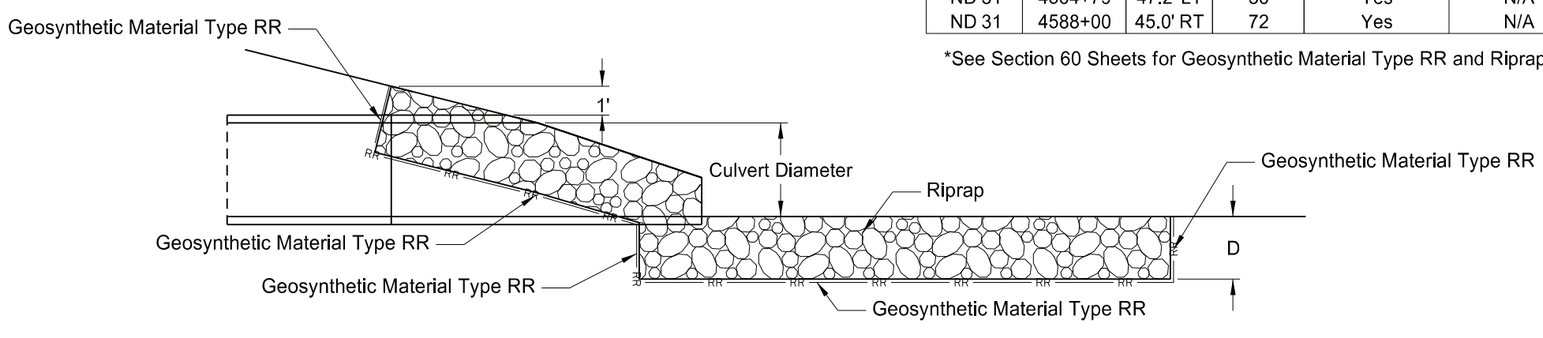
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XX-SS-1-031(021)078	20	4



PLAN VIEW

Riprap Quantities										
End Sections with Riprap			Pipe Diameter	Riprap Required for Smooth Pipe Alternatives	Riprap Required for Rough Pipe Alternatives	L	W1	W2	Geosynthetic Material Type RR	Riprap Grade II
Alignment	Station	Offset	(IN)	(Yes/No)	(Yes/No)	(LF)	(LF)	(LF)	(SY)	(CY)
ND 31	4417+08	37.7' RT	36	Yes	N/A	15	9	19	65.8	24.6
ND 31	4427+91	46.9' RT	24	Yes	N/A	10	6	12.7	40.6	9.4
ND 31	4564+79	47.2' LT	36	Yes	N/A	15	9	19	65.8	24.6
ND 31	4588+00	45.0' RT	72	Yes	N/A	30	19	40	180	90

*See Section 60 Sheets for Geosynthetic Material Type RR and Riprap Grade II locations



PROFILE VIEW

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JERAD
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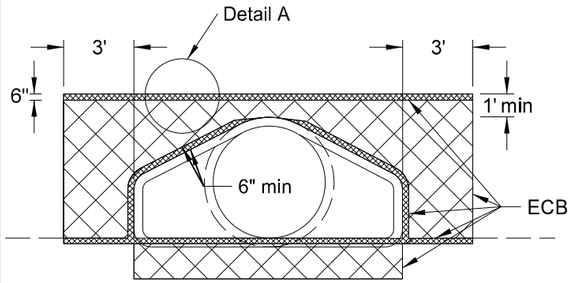
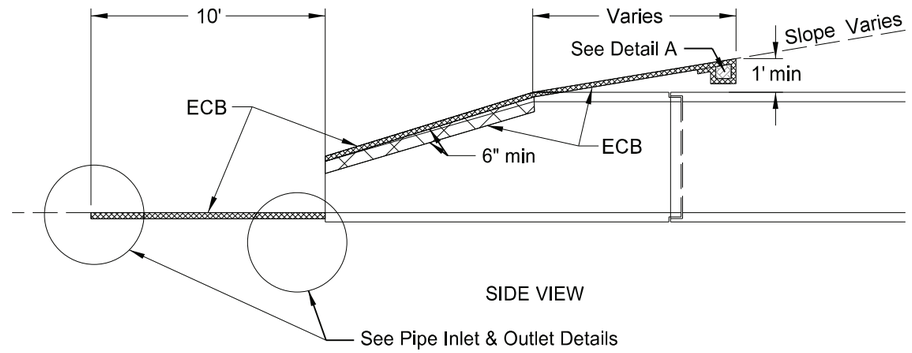
Jct I-94 to Hannover

Riprap at Pipe Outlets

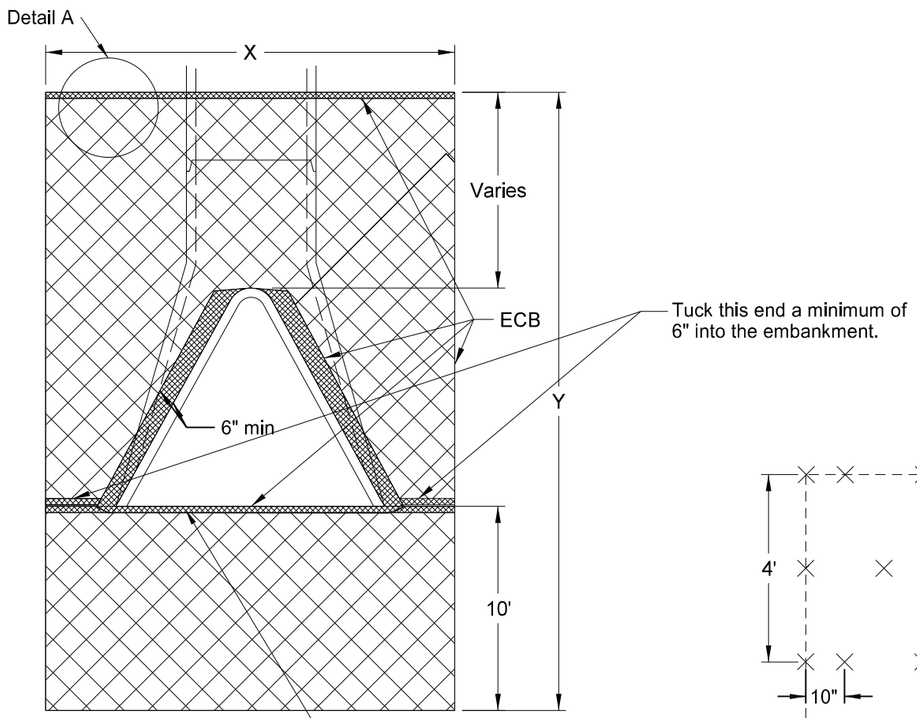
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	20	5



FRONT VIEW

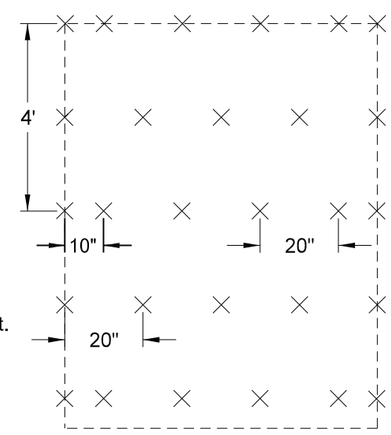


SIDE VIEW



TOP VIEW

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

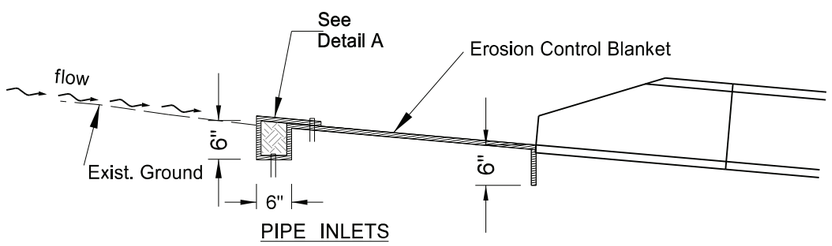


STAPLE PATTERN

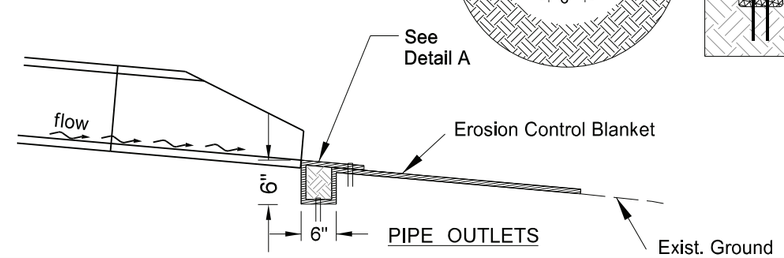
CENTERLINE CULVERTS									
DIA	X	Y	Surface area to be protected	ECB	DIA	X	Y	Surface area to be protected	ECB
In	Ft	Ft	SF	SY	In	Ft	Ft	SF	SY
24	10.5	19.6	193.1	22	24	10.5	17.6	172.1	20
27	11.0	20.0	204.3	23	27	11.0	18.0	182.3	21
30	11.6	20.5	218.3	25	30	11.6	18.5	195.1	22
36	12.7	21.2	242.1	27	36	12.7	19.2	216.7	24
42	13.3	21.2	251.8	28	42	13.3	19.2	225.2	25
48	13.8	22.0	265.6	30	48	13.8	20.0	238.0	27
54	14.5	21.5	273.7	31	54	14.5	19.5	244.7	28
60	15.0	21.0	278.3	31	60	15.0	19.0	248.3	28
66	15.6	22.0	295.7	33	66	15.6	20.0	264.5	30
72	16.2	22.5	309.2	35	72	16.2	20.5	276.8	31
Note: Quantities based on 6:1 slope.					Note: Quantities based on 4:1 slope.				

APPROACH CULVERTS				
DIA	X	Y	Surface area to be protected	ECB
In	Ft	Ft	SF	SY
15	9.0	20.0	176.0	20
18	9.5	20.7	190.7	22
21	9.5	21.0	190.9	22
24	10.5	21.6	214.1	24
27	11.0	22.0	226.3	25
30	11.6	22.5	241.5	27
36	12.7	23.3	268.8	30
42	13.3	23.3	279.7	31
48	13.8	24.0	293.2	33
54	14.5	23.4	300.6	34
60	15.0	23.0	307.5	35
66	15.6	24.0	325.6	37
72	16.2	24.5	340.6	38
Note: Quantities based on 8:1 slope.				

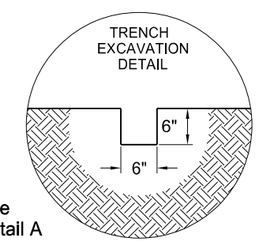
Check Section 20 Sheet 6 for calculations

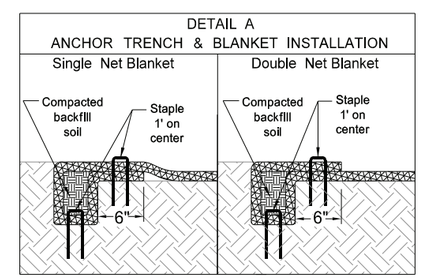


PIPE INLETS



PIPE OUTLETS





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Erosion Control at Culvert Flared End Sections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	20	6

Erosion Control Blanket (ECB)								
Location to Be Protected	Culvert Type	Pipe Diam	No	Unit Quantity	Total			
					Type 1	Type 2	Type 3	Type 4
Station	Appr/CL	(Inch)		(SY)	(SY)	(SY)	(SY)	(SY)
4152+18 RT	Appr	18	1	22	-	22	-	-
4156+48	CL	24	1	20	-	20	-	-
4160+43 LT	Appr	18	1	22	-	22	-	-
4171+36	CL	24	2	20	-	40	-	-
4187+10 LT	Appr	24	1	24	-	24	-	-
4187+19 RT	Appr	18	2	22	-	44	-	-
4219+49	CL	24	2	20	-	40	-	-
4252+56	CL	24	2	20	-	40	-	-
4263+38	CL	24	2	20	-	40	-	-
4279+96	CL	30	2	22	-	44	-	-
4296+23 RT	Appr	18	2	22	-	44	-	-
4296+57 LT	Appr	18	1	22	-	22	-	-
4303+50	CL	24	2	20	-	40	-	-
4324+71 RT	Appr	18	2	22	-	44	-	-
4379+00	CL	24	2	20	-	40	-	-
4402+16 LT	Appr	18	1	22	-	22	-	-
4417+07	CL	30	2	22	-	44	-	-
4427+91	CL	24	2	20	-	40	-	-
4437+12 RT	Appr	24	1	24	-	24	-	-
4464+21	CL	24	2	20	-	40	-	-
4479+51	CL	24	2	20	-	40	-	-
4487+12	CL	24	2	20	-	40	-	-
4500+92	CL	24	2	20	-	40	-	-
4510+12	CL	24	2	20	-	40	-	-
4521+11	CL	30	2	22	-	44	-	-
4534+58 RT	Appr	18	1	22	-	22	-	-
4534+60 LT	Appr	18	1	22	-	22	-	-
4550+23 RT	Appr	24	1	24	-	24	-	-
4550+24 LT	Appr	18	2	22	-	44	-	-
4553+69	CL	24	2	20	-	40	-	-
4564+79	CL	36	2	24	-	48	-	-
4574+18 RT	Appr	18	1	22	-	22	-	-
4588+01	CL	72	1	31	-	31	-	-
4601+53 LT	Appr	24	1	24	-	24	-	-
4615+22	CL	36	1	24	-	24	-	-
4627+61 RT	Appr	18	1	22	-	22	-	-
4627+65 LT	Appr	18	1	22	-	22	-	-
4638+84	CL	24	2	20	-	40	-	-
4650+86	CL	24	2	20	-	40	-	-
4675+36	CL	36	2	24	-	48	-	-
4675+43	CL	36	2	24	-	48	-	-

Erosion Control Blanket (ECB)								
Location to Be Protected	Culvert Type	Pipe Diam	No	Unit Quantity	Total			
					Type 1	Type 2	Type 3	Type 4
Station	Appr/CL	(Inch)		(SY)	(SY)	(SY)	(SY)	(SY)
4694+75	CL	30	2	22	-	44	-	-
4733+21 RT	Appr	18	1	22	-	22	-	-
4733+21 LT	Appr	18	1	22	-	22	-	-
4745+00 LT	Appr	24	2	24	-	48	-	-
4744+97 RT	Appr	24	2	24	-	48	-	-
4747+60	CL	72	2	31	-	62	-	-
4776+73	CL	24	2	20	-	40	-	-
4785+97 LT	Appr	18	1	22	-	22	-	-
4786+08 RT	Appr	24	1	24	-	24	-	-
4796+13 LT	Appr	18	2	22	-	44	-	-
4796+23 RT	Appr	24	1	24	-	24	-	-
4799+09	CL	72	2	31	-	62	-	-
4813+10	CL	30	1	22	-	22	-	-
4822+73 LT	Appr	18	1	22	-	22	-	-
4849+70	CL	30	2	22	-	44	-	-
4855+69	CL	36	2	24	-	48	-	-
4865+06	CL	36	2	24	-	48	-	-
4865+13	CL	36	2	24	-	48	-	-
4878+20 RT	Appr	18	2	22	-	44	-	-
4904+48 RT	Appr	18	1	22	-	22	-	-
4908+15	CL	24	2	20	-	40	-	-
4915+62 LT	Appr	12	2	20	-	40	-	-
4918+48	CL	72	2	31	-	62	-	-
4923+93 RT	Appr	18	1	22	-	22	-	-
4923+94 LT	Appr	12	1	20	-	20	-	-
4927+66	CL	30	2	22	-	44	-	-
4938+12	CL	24	2	20	-	40	-	-
4944+13 RT	Appr	18	1	22	-	22	-	-
4963+20	CL	30	2	22	-	44	-	-
4970+18	CL	30	2	22	-	44	-	-
4978+98	CL	24	2	20	-	40	-	-
4985+14	CL	30	2	22	-	44	-	-
5000+99	CL	30	2	22	-	44	-	-
5013+08	CL	30	2	22	-	44	-	-
5022+61	CL	24	2	20	-	40	-	-
5023+15 LT	Appr	18	1	22	-	22	-	-
5031+10	CL	24	2	20	-	40	-	-
5038+11	CL	24	2	20	-	40	-	-
5045+77 RT	Appr	18	2	22	-	44	-	-
Total (SY)						2917		

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Jct I-94 to Hannover

Erosion Control at Culvert Flared End Sections

REGISTERED PROFESSIONAL ENGINEER
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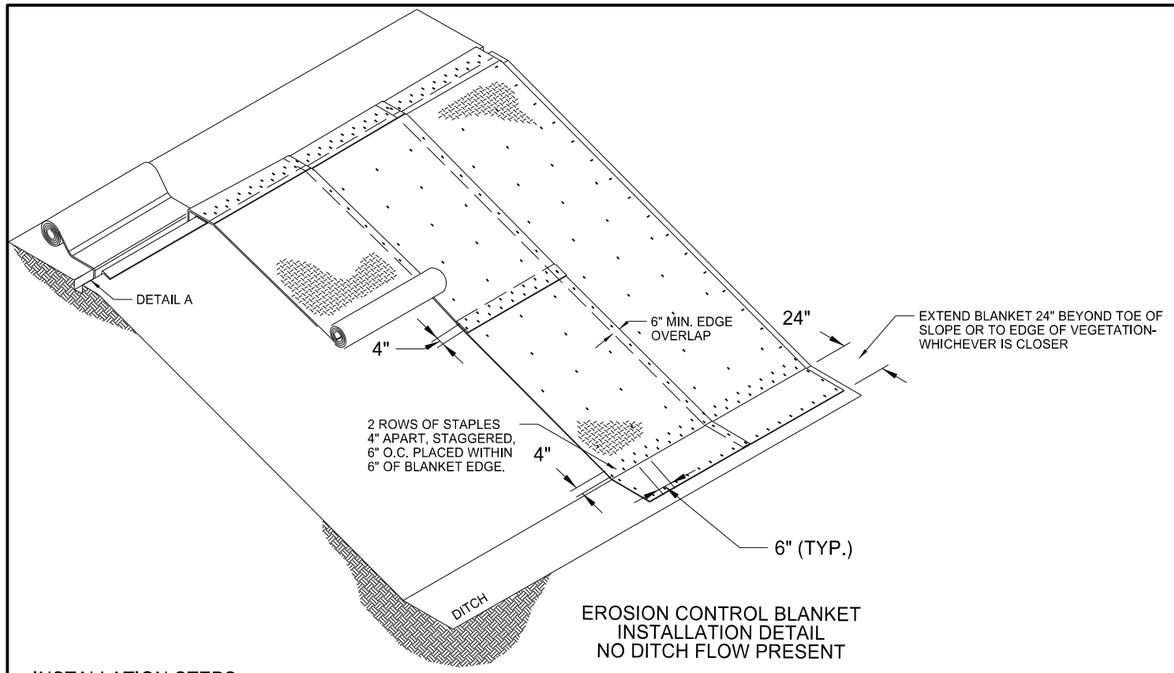
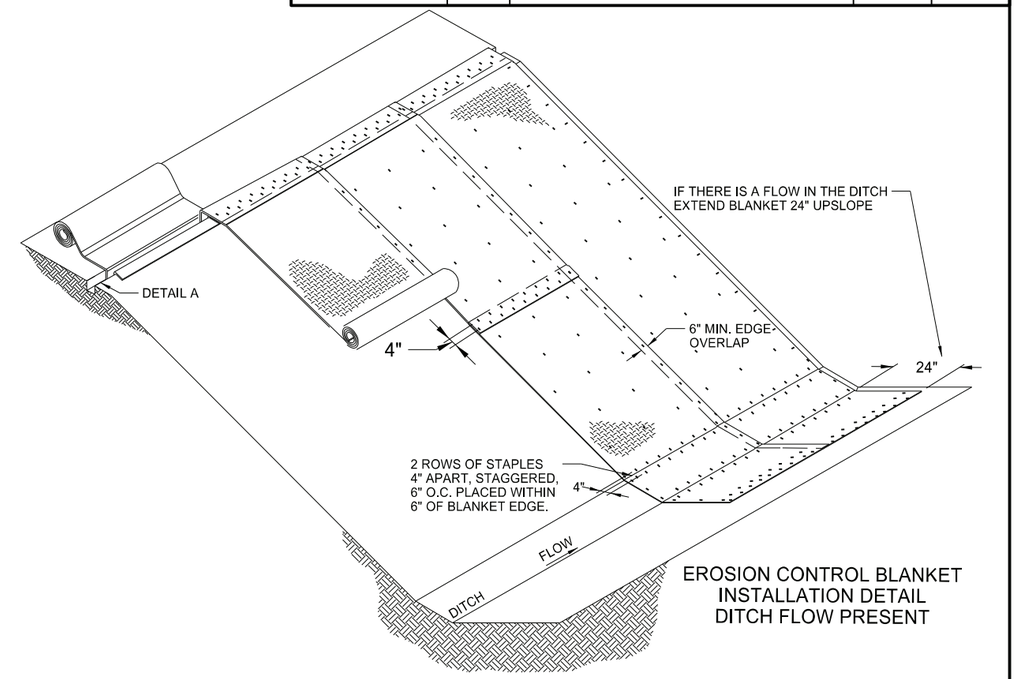
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	20	7



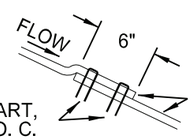
EROSION CONTROL BLANKET
INSTALLATION DETAIL
NO DITCH FLOW PRESENT



EROSION CONTROL BLANKET
INSTALLATION DETAIL
DITCH FLOW PRESENT

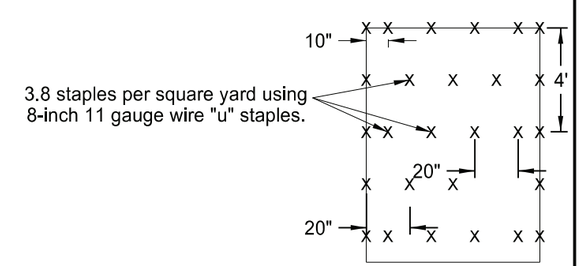
INSTALLATION STEPS:

1. Prepare smooth slope per spec. section 255
2. Amend soil and seed, as specified.
3. Dig anchor trench. Set aside native soil removed from trench.
4. Secure blanket in anchor trench, staking or stapling blanket as shown.
5. Replace native soil previously removed from trench.
6. Staple blanket as shown so there are no gaps between the blanket and the soil. Staple while unrolling blanket to minimize walking on blanket.
7. Install splices a minimum 24 inches prior to toe of slope.

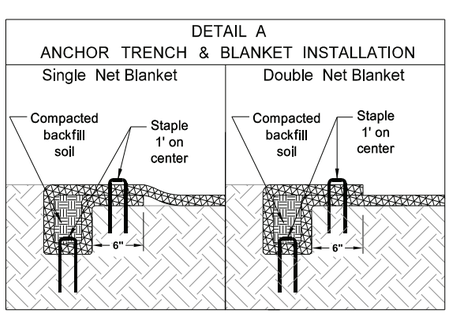


STAPLES ~ 4" APART, STAGGERED, 6" O. C.

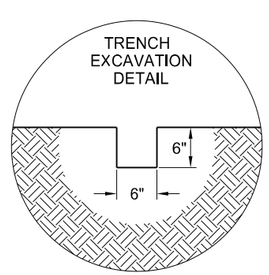
EROSION CONTROL BLANKETS

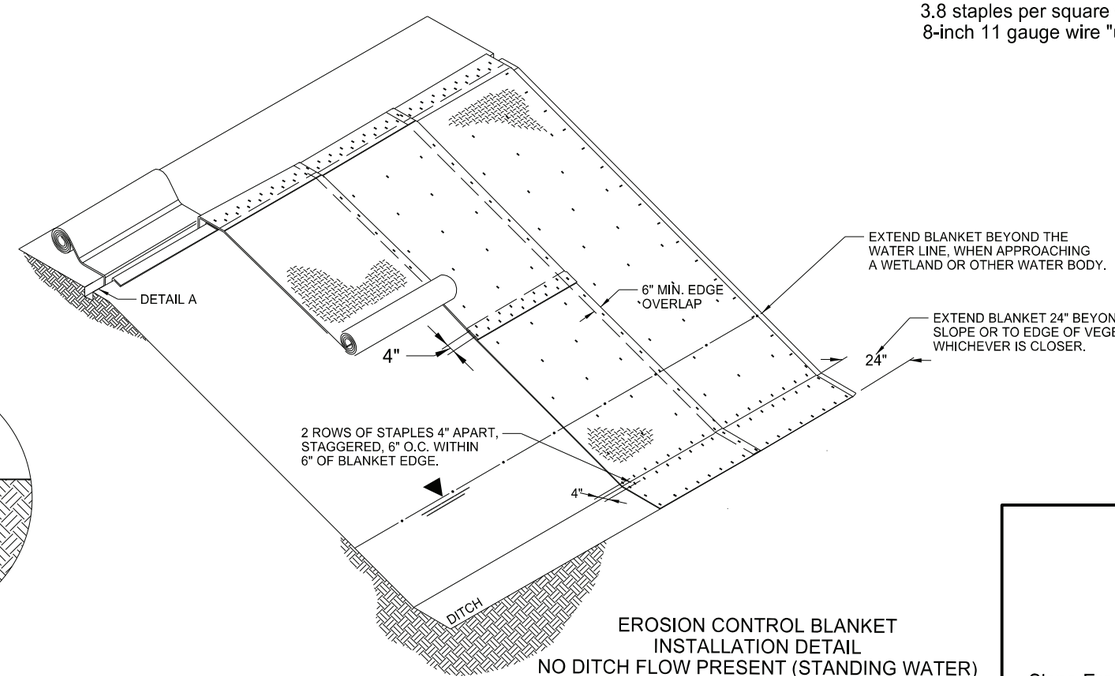


STAPLE PATTERN

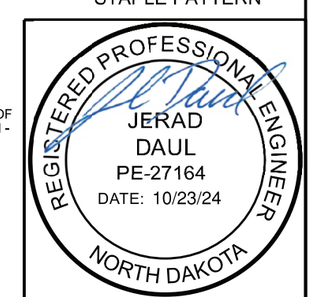


NOTE:
Install Single Net Blanket with netting on top of installed blanket.





EROSION CONTROL BLANKET
INSTALLATION DETAIL
NO DITCH FLOW PRESENT (STANDING WATER)



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Slope Erosion Control Blanket Installation Details

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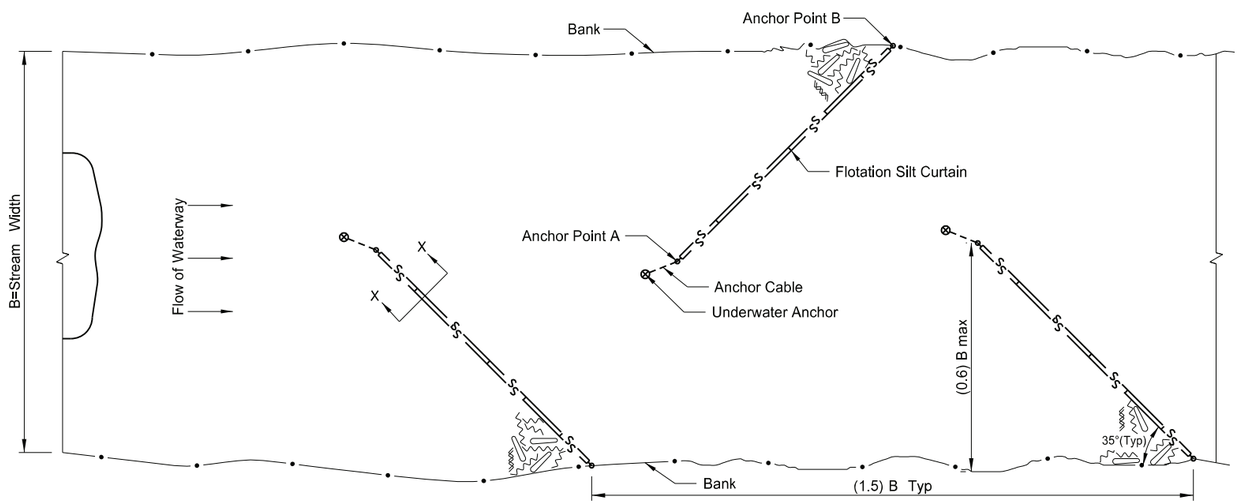
ND	XA-SS-1-031(021)078	20	8

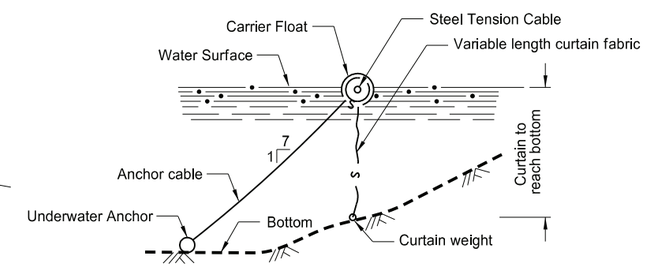
Note:
See section 76, Temporary Erosion Control, for Flotation Silt Curtain Quantities.



PLAN VIEW

FLOTATION SILT CURTAIN - TYPE HERRING BONE PATTERN

DESIGN GUIDELINES:
When temporary work encroaches more than ⅓ width of the stream
Or where stream width doesn't allow use of Type Moving Water



SECTION X-X
FLOTATION SILT CURTAINS

Note:
Maximum water velocity for moving water = 5 ft/sec

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Temporary Erosion Control - Flotation Silt Curtain

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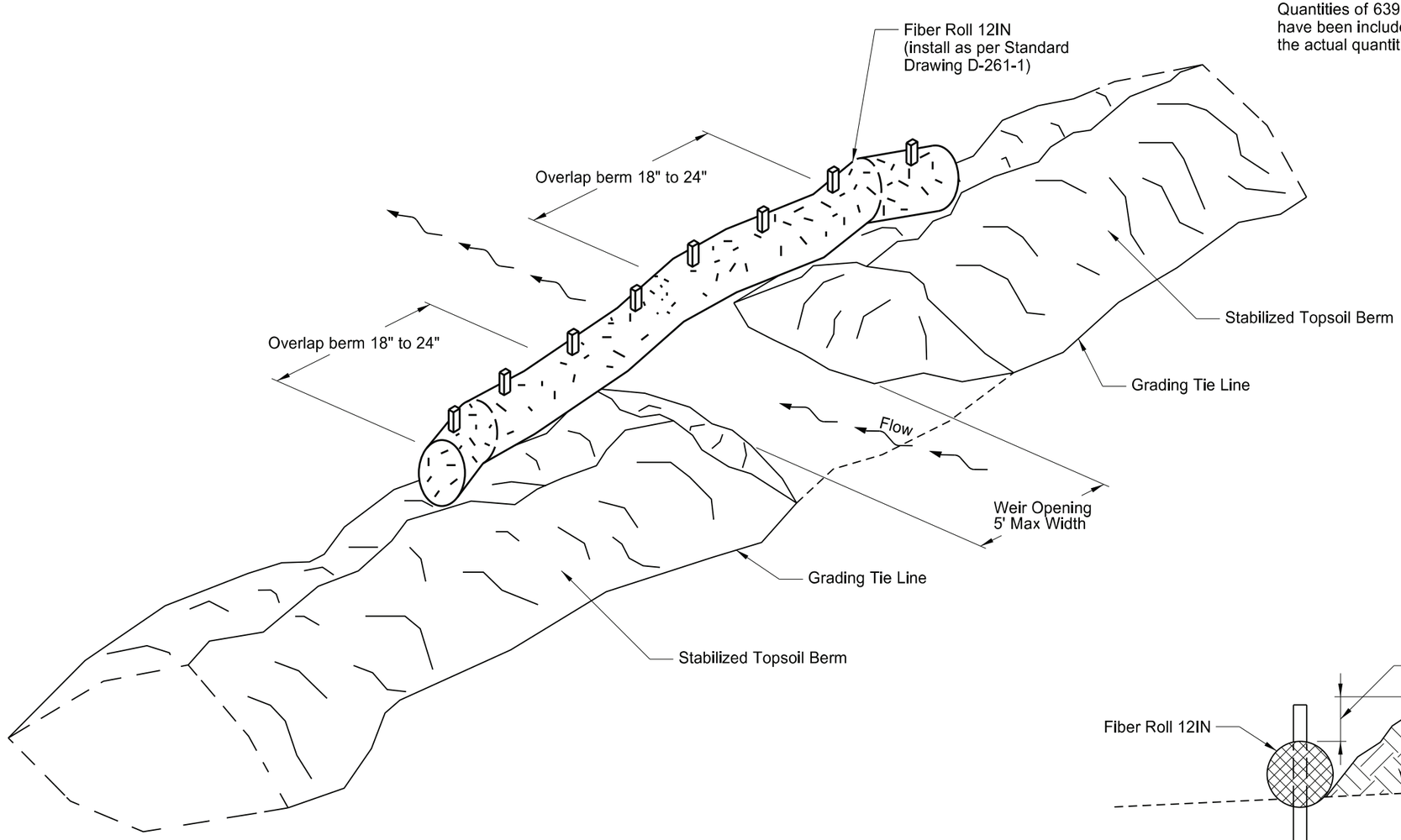
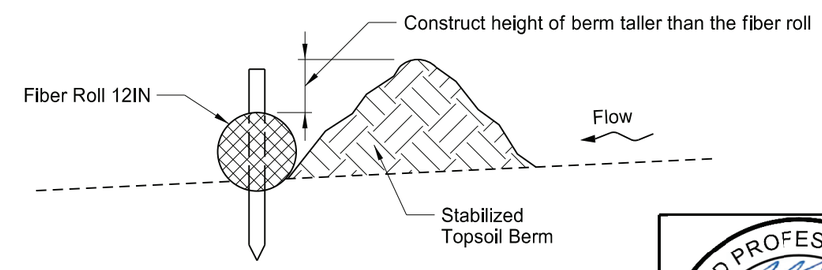
ND	XA-SS-1-031(021)078	20	9

Quantities of 639 LF of Fiber Roll 12IN and 639 LF of Remove Fiber Roll 12IN have been included in the quantities for use at weirs. The Engineer will measure the actual quantities required in the field.





Topsoil Berm Detail

Notes:

1. Windrow the existing topsoil from the foreslope to create a berm at the grading tie line.
2. Stabilize berms in accordance with the Construction General Permit.
3. Place weirs intermittently throughout the length of the berm to allow stormwater to drain through the berm.
4. Avoid placing weirs adjacent to waterbodies.
5. Install fiber rolls as the weirs are created in the topsoil berm.
6. Include costs to create, stabilize, maintain, and dismantle the berm in the unit price bid for "Topsoil".
7. Include costs for fiber rolls in the unit price bid for "Fiber Rolls 12IN."
8. Include costs to remove fiber rolls in the unit price bid for "Remove Fiber Rolls 12IN."

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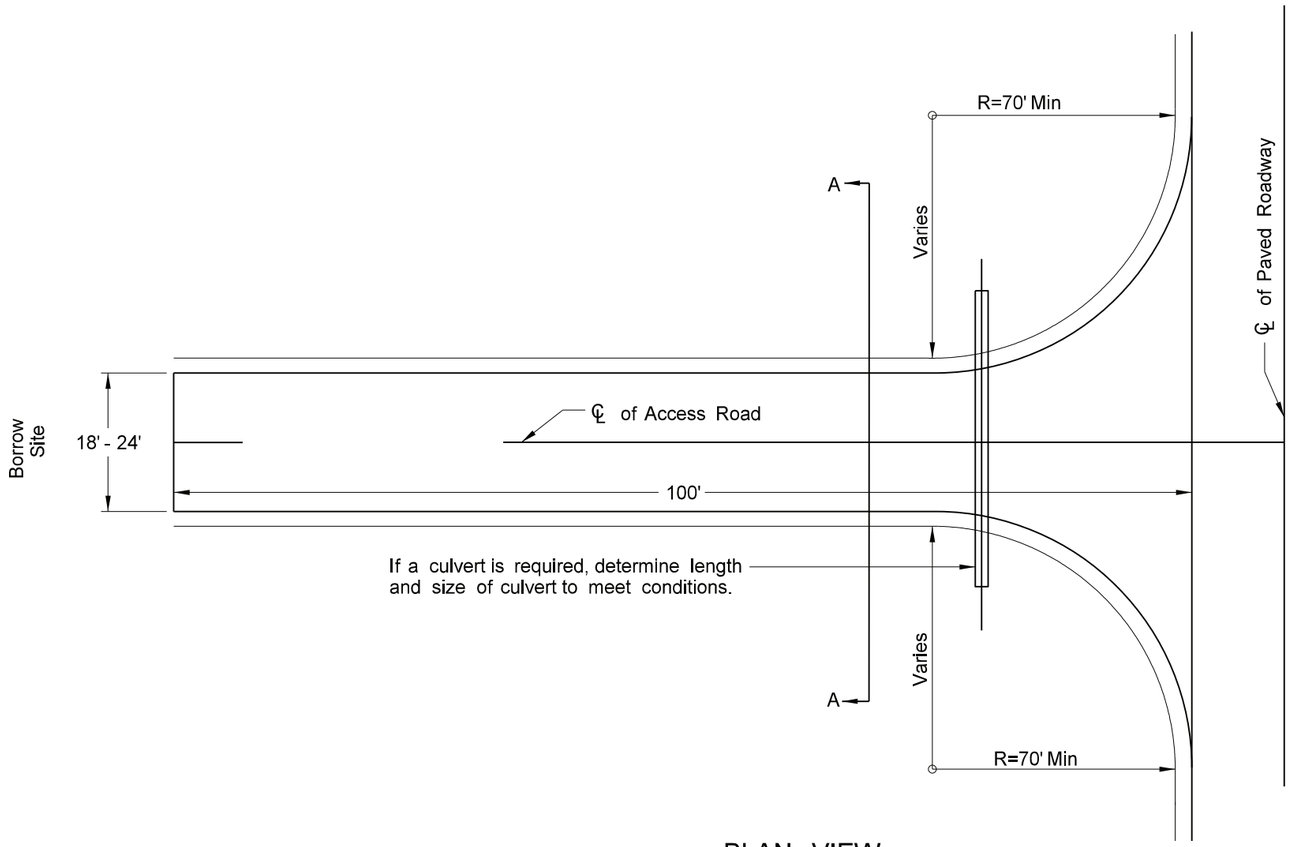
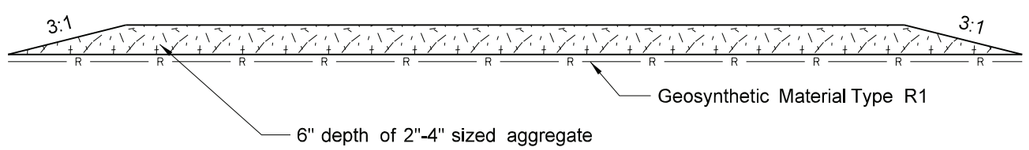
Temporary Topsoil Berm and Weir Detail

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	20	10



PLAN VIEW

265	0100	STABILIZED CONSTRUCTION ACCESS		
		SW Quad of Sec 29, T 140 N, R 85 W	1	EA
		SW Quad of Sec 11, T 141N, R 85 W	1	EA
265	0101	REMOVE STABILIZED CONSTRUCTION ACCESS		
		SW Quad of Sec 29, T 140 N, R 85 W	1	EA
		SW Quad of Sec 11, T 141N, R 85 W	1	EA



A - A Cross Section

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Stabilized Construction Access

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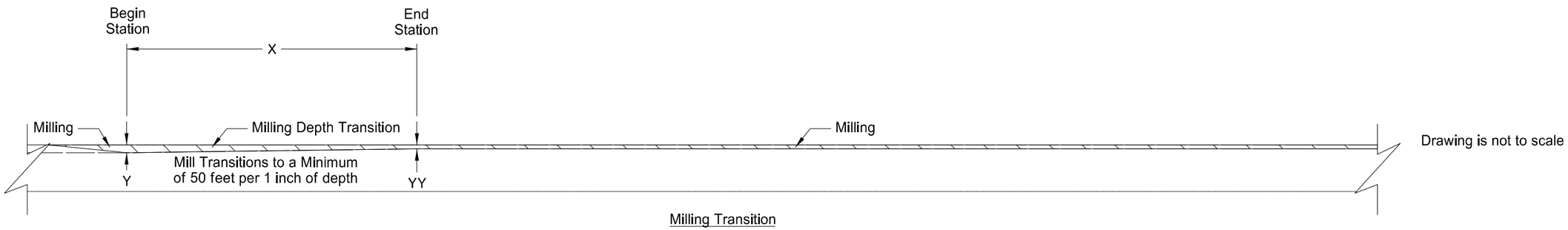
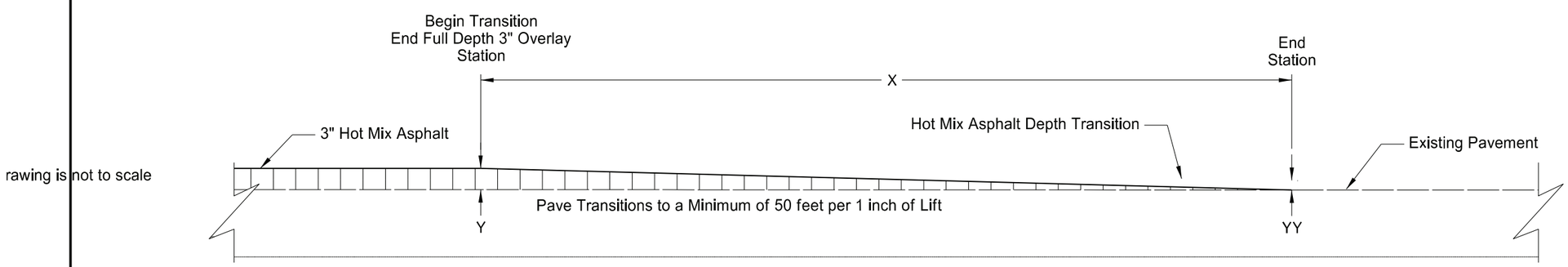
ND	XA-SS-1-031(021)078	20	11



Milling Transition

Milling Transitions

X	Begin Station	Y	End Station	YY
100 ft	4139+12.23	3 in.	4140+12.23	1 in.
50 ft	5049+08.81	1 in.	5049+58.81	0 in.



Paving Transition

Paving Transition

X	Begin Station	Y	End Station	YY
150 ft	5048+08.81	3 in	5049+58.81	0 in

Feild Engineer to determine end of project limits to tie into previous surfacing project

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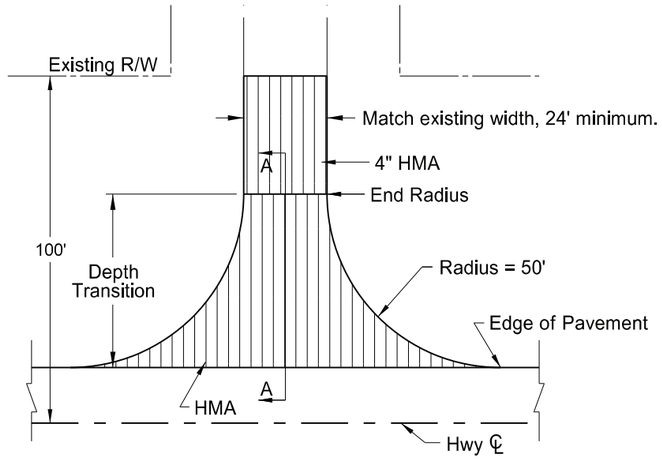
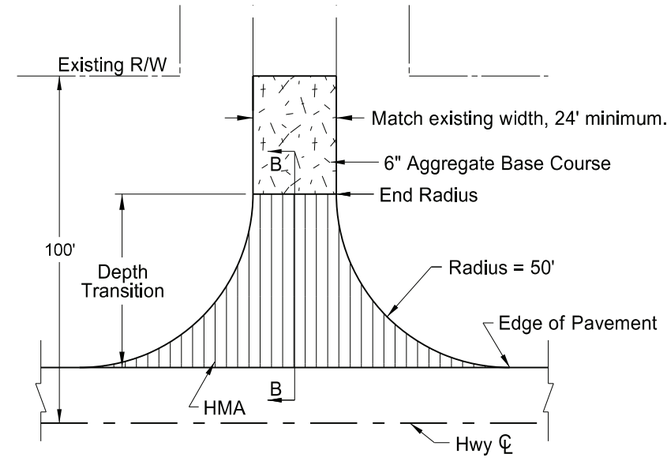
Paving Transition

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	20	12



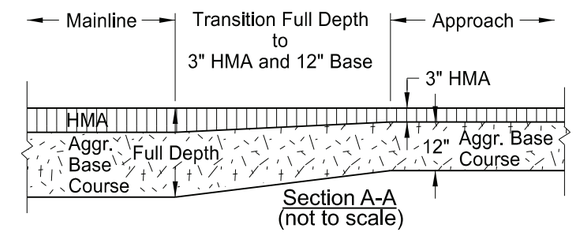
(1) Paved Section Line, County Road, or Street Approach



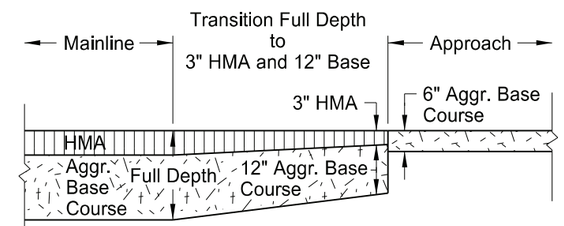
(2) Gravel Section Line, County Road, or Street Approach

Notes:

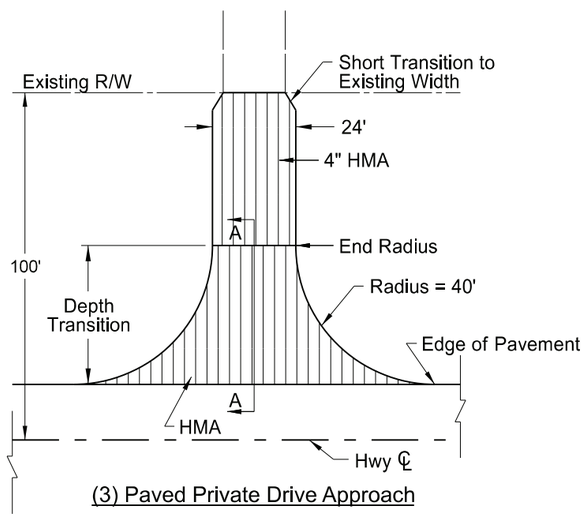
1. Actual HMA paving and aggregate base course locations may vary in the field, as approved by the Engineer.
2. Quantity totals have been included in the bid items of the "Estimate of Quantities" of the plans.
3. Approach radii may vary for (3) Paved Private Drive Approach and will be called out in section 82.



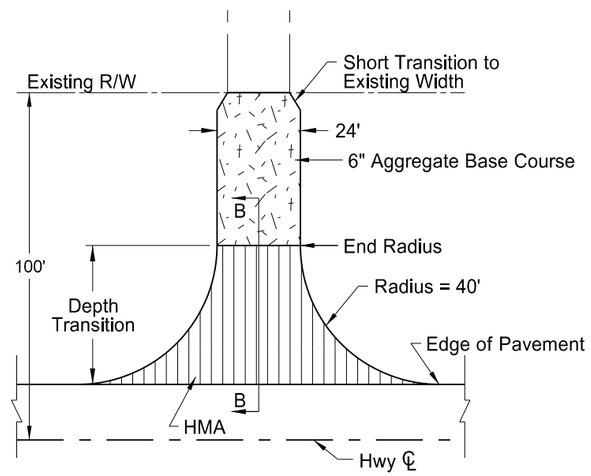
Section A-A
(not to scale)



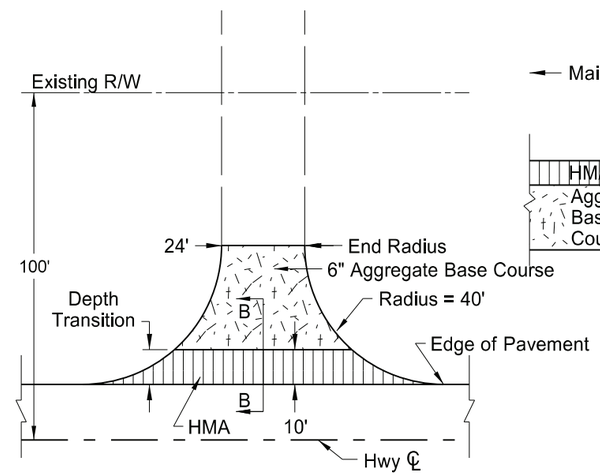
Section B-B
(not to scale)



(3) Paved Private Drive Approach



(4) Gravel Private Drive Approach



(5) Field Drive Approach

Basis of Estimate				(1) Paved Road		(2) Gravel Road		(3) Paved Private Drive		(4) Gravel Private Drive		(5) Field Drive		Total
Number of Locations				0		19		1		18		57		
Spec	Code		Unit	Total	Average	Total	Average	Total	Average	Total	Average	Total	Average	
302	0120	Aggregate Base Course CL 5 @ 1.875 Ton/CY	Ton	0	0	3812	293.3	188	187.9	1380	172.5	8404	147.4	13784
401	0050	Tack Coat @ 0.05 Gal/SY	Gal	0	0	157	12.1	12	11.6	85	9.4	215	3.8	469
401	0060	Prime Coat @ 0.35 Gal/SY	Gal	0	0	0	0.0	81	80.9	530	66.2	0	0	611
401	0160	Blotter Material CL 44 @ 15 lbs/SY	Ton	0	0	0	0.0	2	1.7	0	0.0	0	0	2
430	0043	RAP - Superpave FAA 43 @2 Ton/CY	Ton	0	0	606	46.7	80	80.0	368	40.8	854	15.0	1908
430	5815	PG 58S-34 Asphalt Cement @ 6% (both lifts)	Ton	0	0	36	2.8	5	4.8	22	2.5	51	0.9	114

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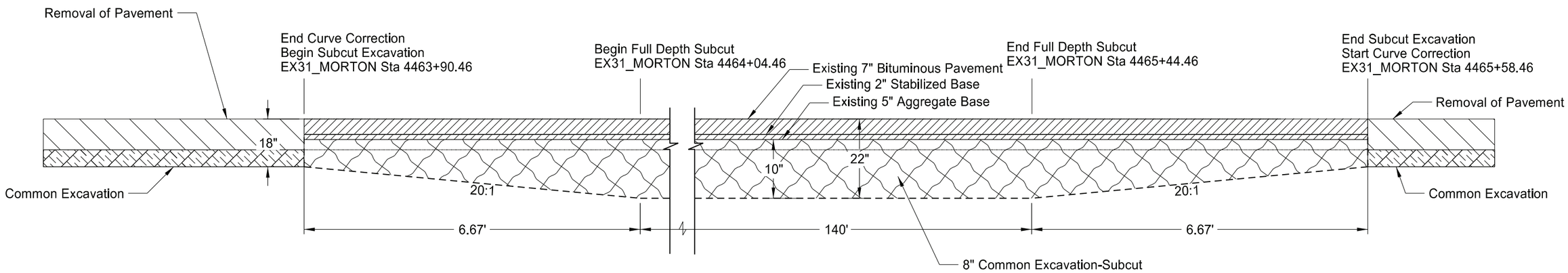
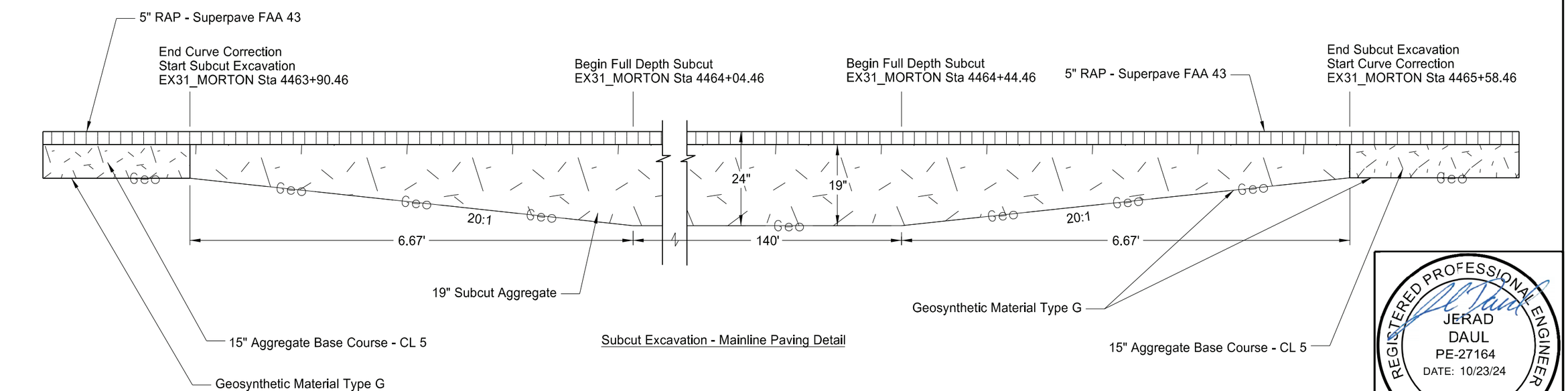
Approach Paving Details for New or Regrading Rural Approaches

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	20	13



Subcut Excavation - Mainline Removal Detail



Subcut Excavation - Mainline Paving Detail

NOTE:
1. See subcut typical section in Section 30 of the plans for more information.

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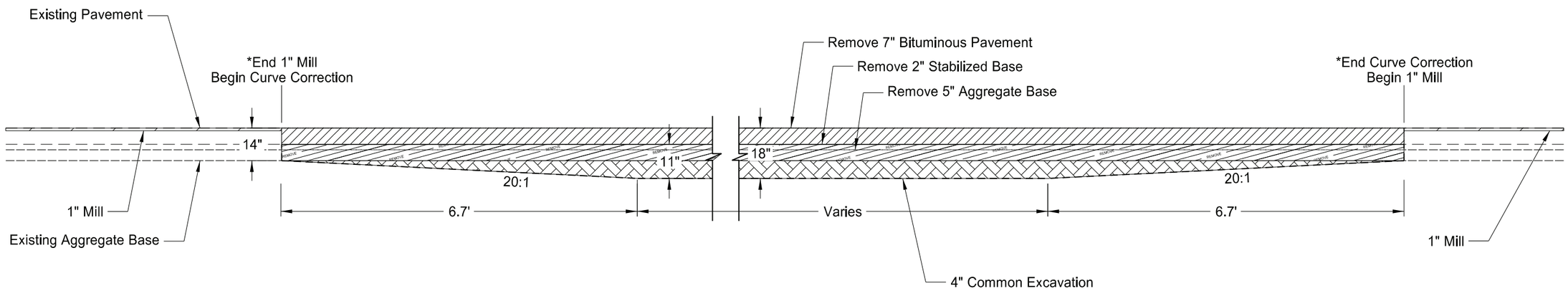
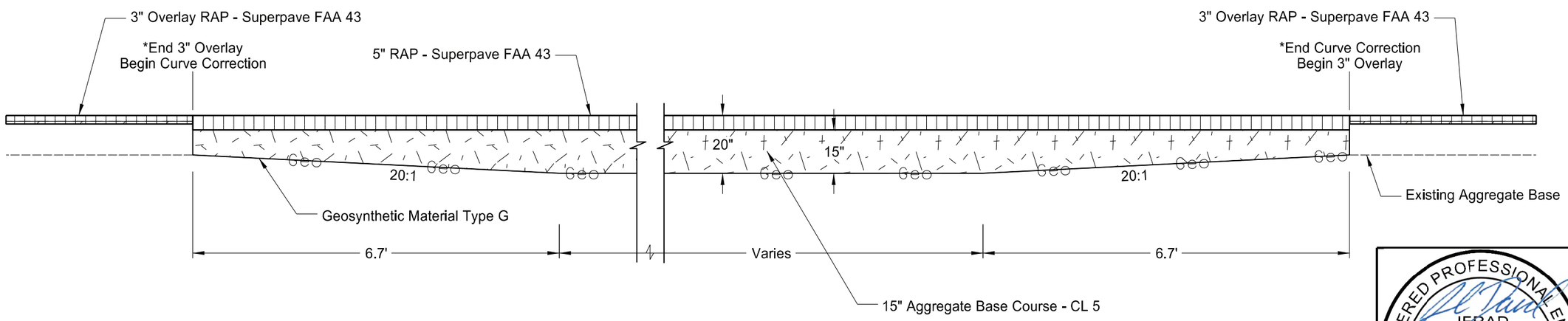
Subcut Detail

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	20	14



Curve Correction - Mainline Removal Detail



Curve Correction - Mainline 3" Overlay Transition Detail

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NOTE:
*See curve correction and overlay typical sections in Section 30 of the plans for stationing breakouts.

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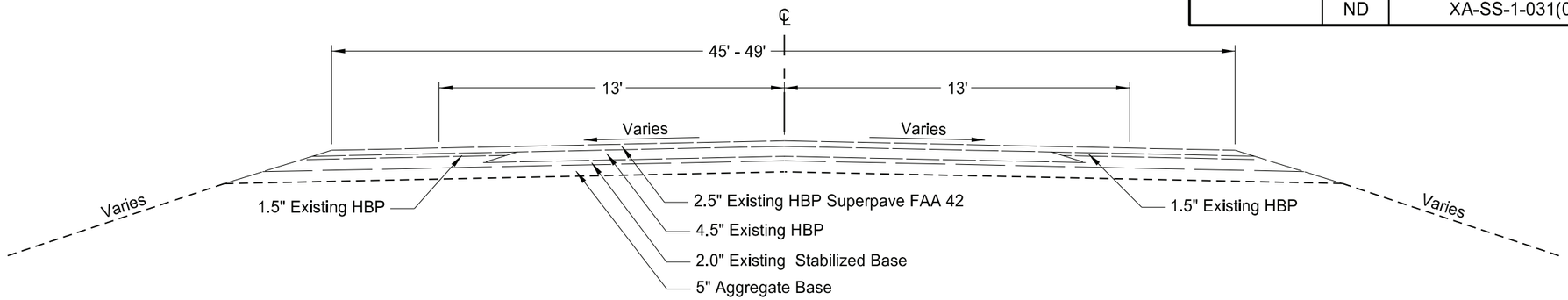
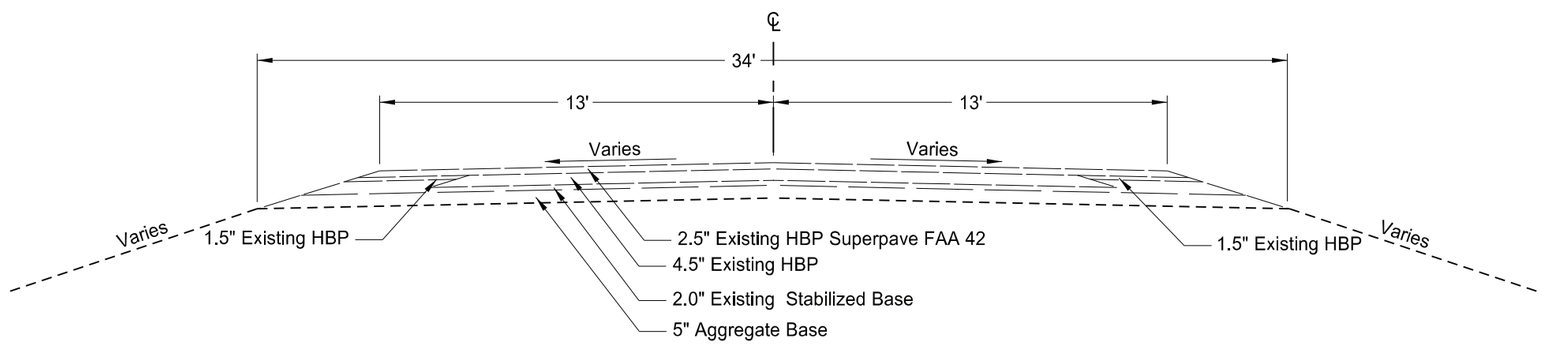
Curve Correction

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	30	1



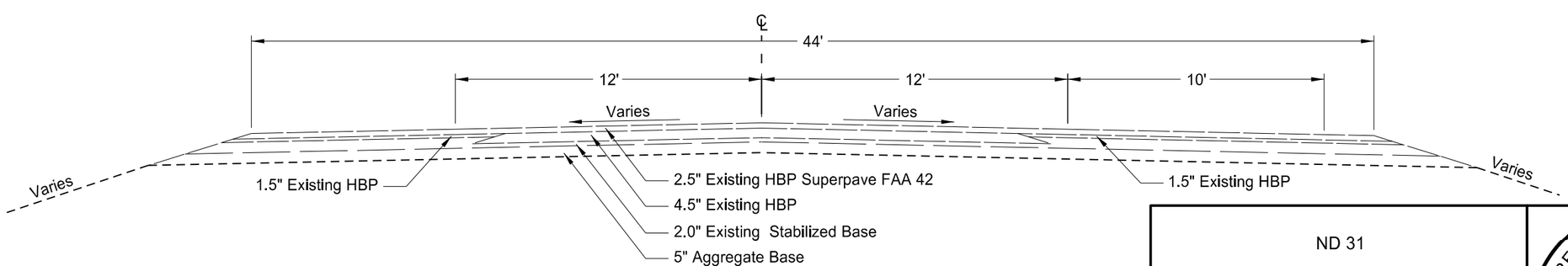
Existing Typical Section

EX31_MORTON Sta 4128+29.9 - 4130+55.5
EX31_MORTON Sta 4133+15.3 - 4140+12.2



Existing Typical Section

EX31_MORTON Sta 4133+15.6 - 4577+00
EX31_OLIVER Sta 4140+12.2 - 5047+28.4



Existing Typical Section

EX31_OLIVER Sta 5047+28.4 - 5049+58.8

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Typical Section

Existing Typical Sections

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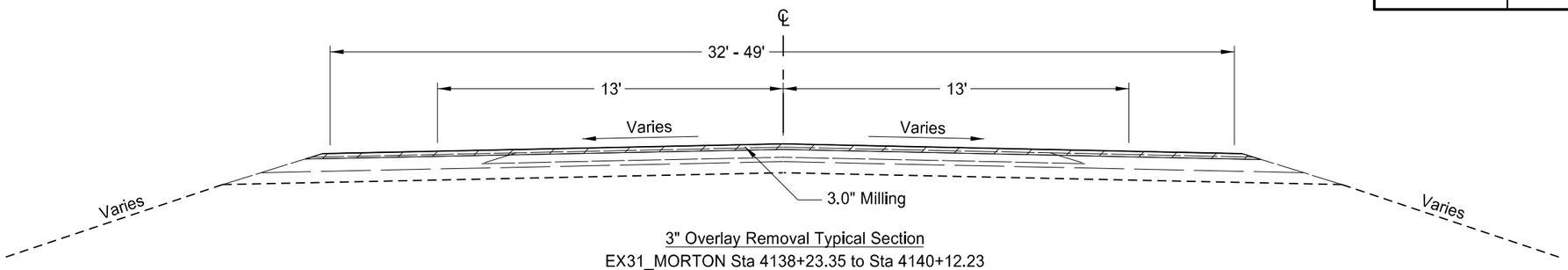
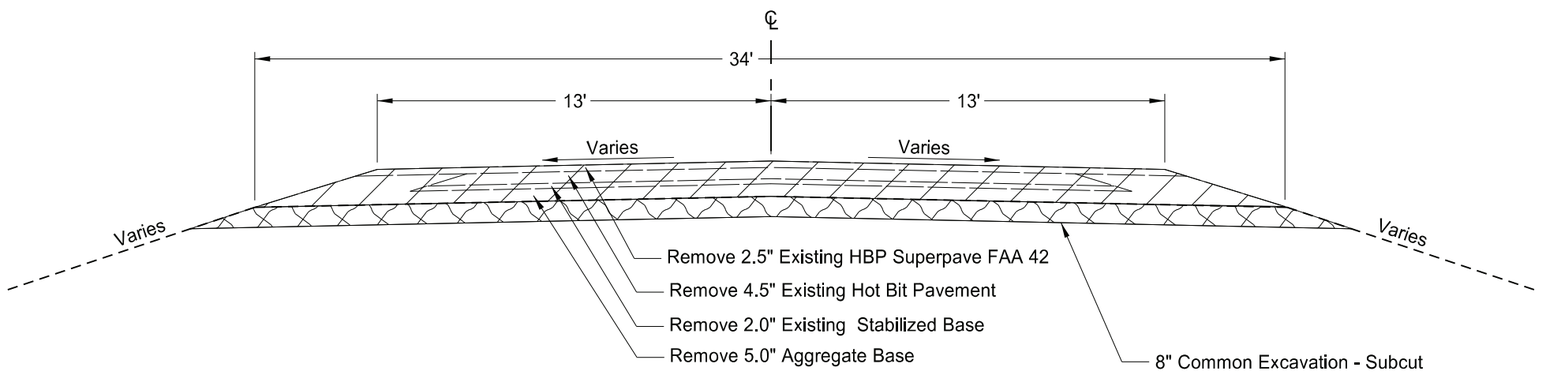
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	30	2



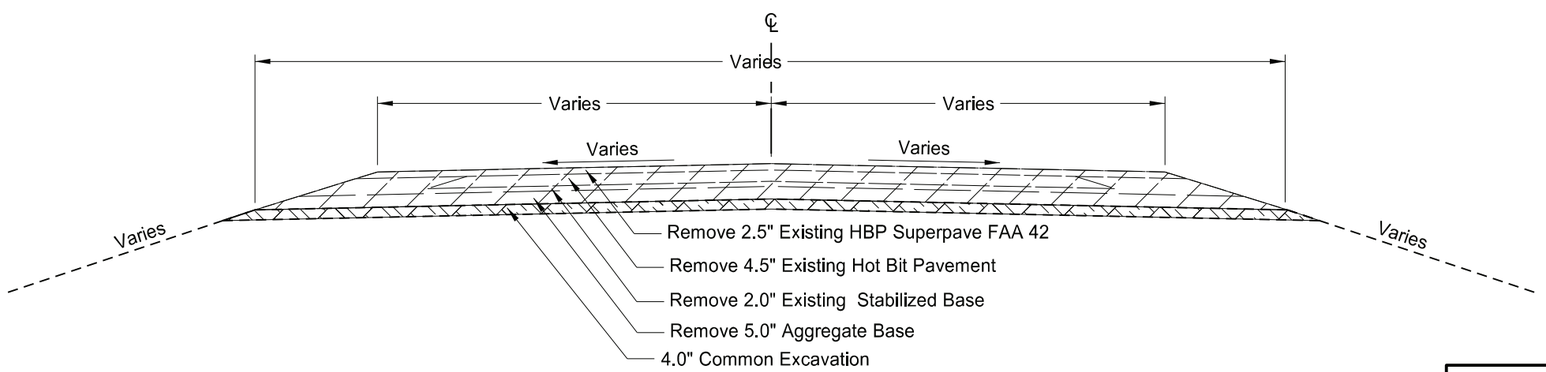
3" Overlay Removal Typical Section

EX31_MORTON Sta 4138+23.35 to Sta 4140+12.23



Subcut Removal Typical Section

EX31_MORTON Sta 4463+90.5 to Sta 4465+58.5



Curve Correction Removal Typical Section

EX31_MORTON Sta 4208+02.2 to Sta 4232+61.4
EX31_MORTON Sta 4411+44.7 to Sta 4447+26.2
EX31_MORTON Sta 4447+90.7 to Sta 4463+90.5
EX31_MORTON Sta 4465+58.5 to Sta 4478+00.9
EX31_MORTON Sta 4544+99.0 to Sta 4546+53.0
EX31_MORTON Sta 4554+46.5 to Sta 4575+40.8
EX31_OLIVER Sta 4579+20.1 to Sta 4600+12.05

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Typical Section

Proposed Removal Typical Sections

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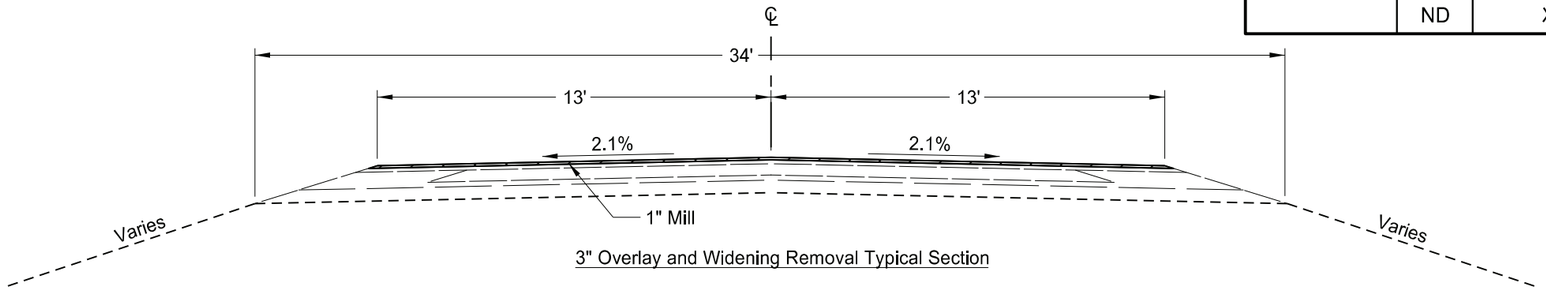
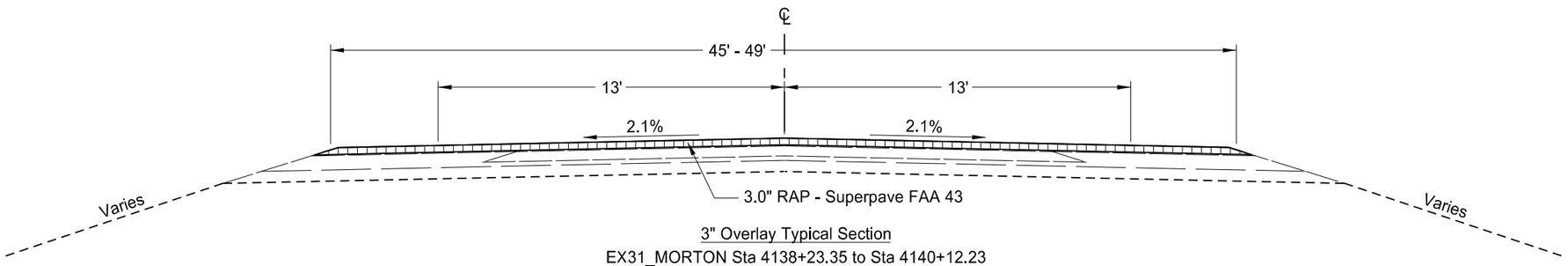
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	30	3

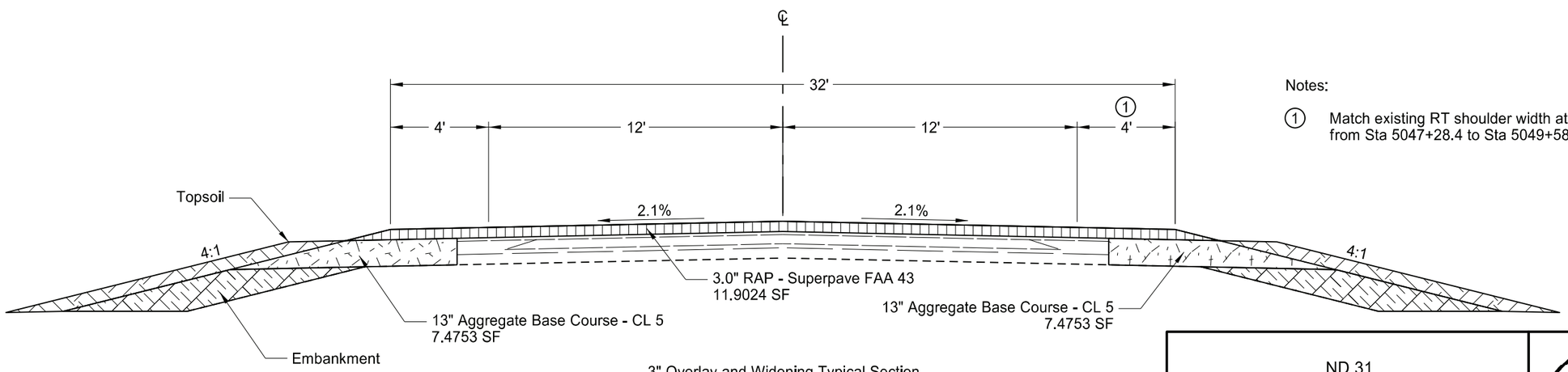


3" Overlay and Widening Removal Typical Section

EX31_MORTON Sta 1440+12.23 to Sta 4208+02.2
EX31_MORTON Sta 4232+61.4 to Sta 4411+44.7
EX31_MORTON Sta 4478+00.9 to Sta 4554+99.0
EX31_MORTON Sta 4546+53.0 to Sta 4554+46.5
EX 31_MORTON Sta 4575+40.8 to EX31_OLIVER Sta 4579+20.1
EX31_OLIVER Sta 4600+12.1 to Sta 5049+58.8



3" Overlay Typical Section
EX31_MORTON Sta 4138+23.35 to Sta 4140+12.23



Notes:

1. Match existing RT shoulder width at Jct ND 25 from Sta 5047+28.4 to Sta 5049+58.8

3" Overlay and Widening Typical Section

EX31_MORTON Sta 4139+12.23 to Sta 4208+02.2
EX31_MORTON Sta 4232+61.42 to Sta 4411+44.7
EX31_MORTON Sta 4478+00.9 to Sta 4554+99.0
EX31_MORTON Sta 4546+53.0 to Sta 4554+46.5
EX 31_MORTON Sta 4575+40.8 to EX31_OLIVER Sta 4579+20.1
EX31_OLIVER Sta 4600+12.1 to Sta 5049+58.8

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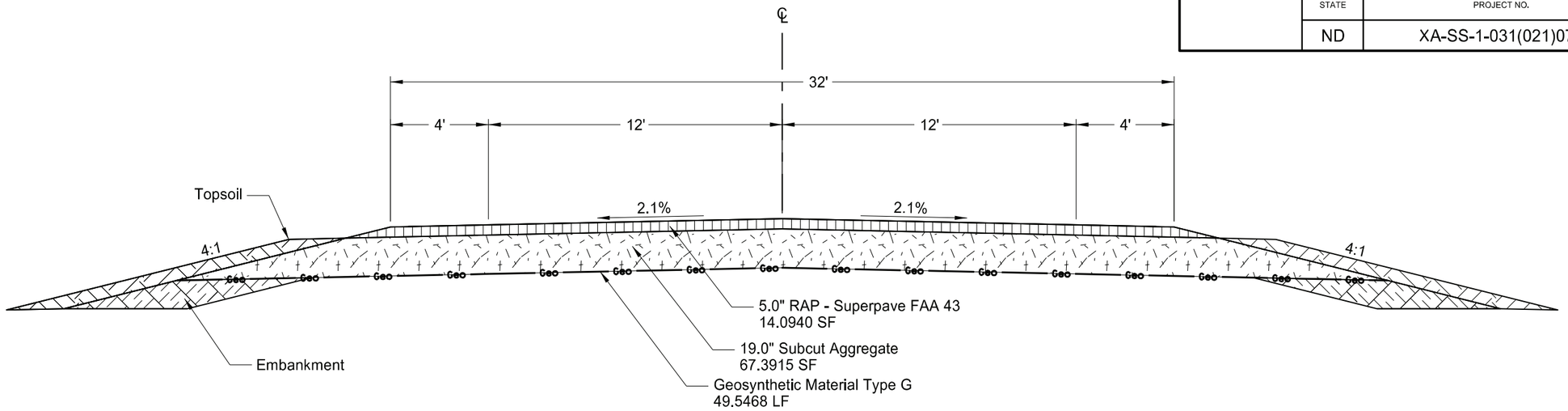
Typical Section

Proposed Typical Sections

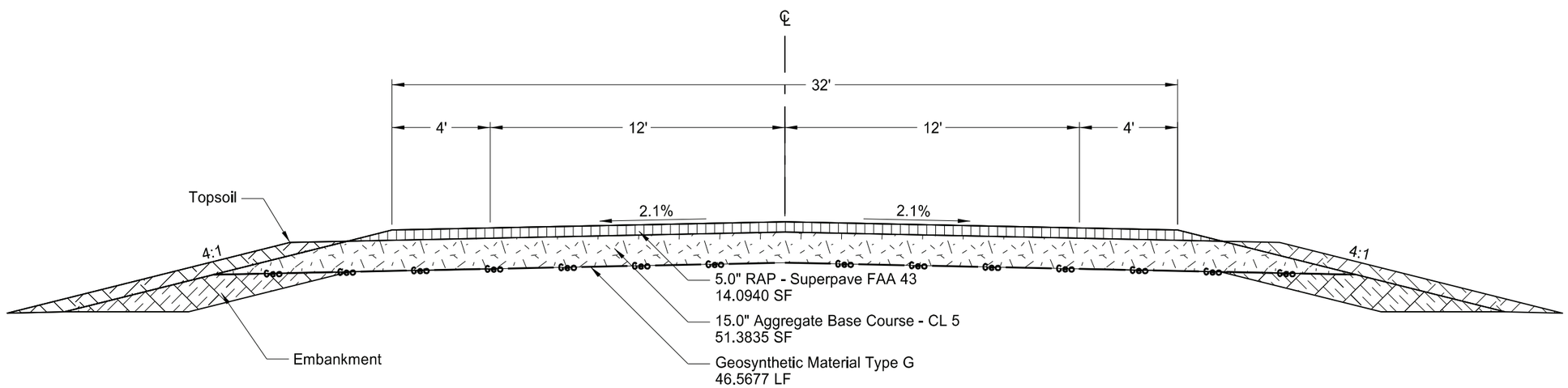
REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	30	4



Subcut Typical Section

EX31_MORTON Sta 4463+90.5 to Sta 4465+58.5



Curve Correction Typical Section

EX31_MORTON Sta 4208+02.2 to Sta 4232+61.4
EX31_MORTON Sta 4411+44.7 to Sta 4447+26.2
EX31_MORTON Sta 4447+90.7 to Sta 4463+90.5
EX31_MORTON Sta 4465+58.5 to Sta 4478+00.9
EX31_MORTON Sta 4544+99.0 to Sta 4546+53.0
EX31_MORTON Sta 4554+46.5 to Sta 4575+40.8
EX31_OLIVER Sta 4579+20.1 to Sta 4600+12.1

ND 31

Jct I-94 to Hannover

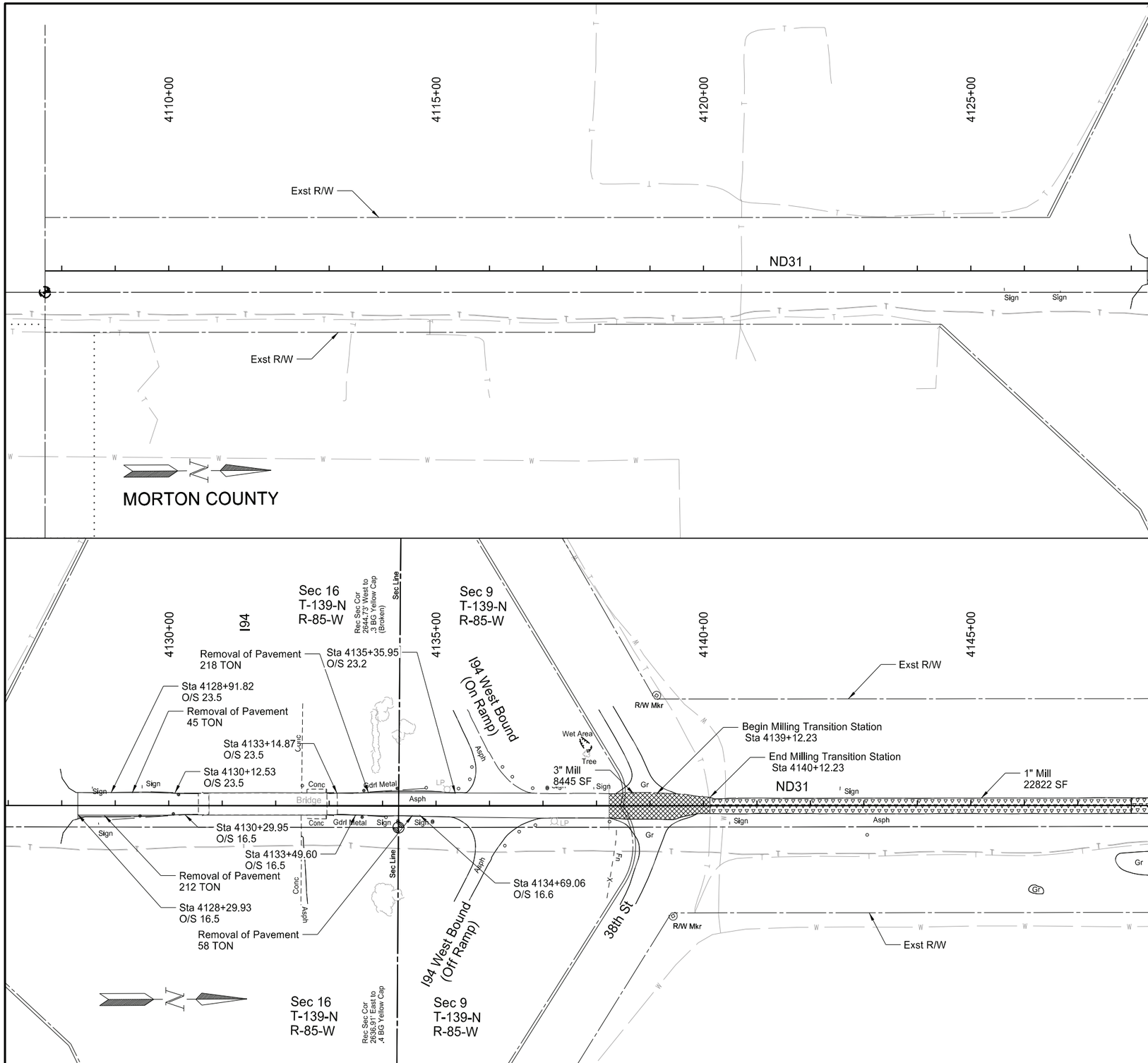
Typical Sections

Proposed Typical Sections

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	40	1

SPEC	CODE	BID ITEM	QTY	UNIT
202	0136	REMOVAL OF PAVEMENT Sta 4128+30 to Sta 4135+36	533	TON
411	0100	MILLING PAVEMENT SURFACE Sta 4138+23 to Sta 4148+00	298	TON



Legend

- 1" Mill
- 3" Mill
- Removal of Pavement
- Subcut Excavation

ND 31

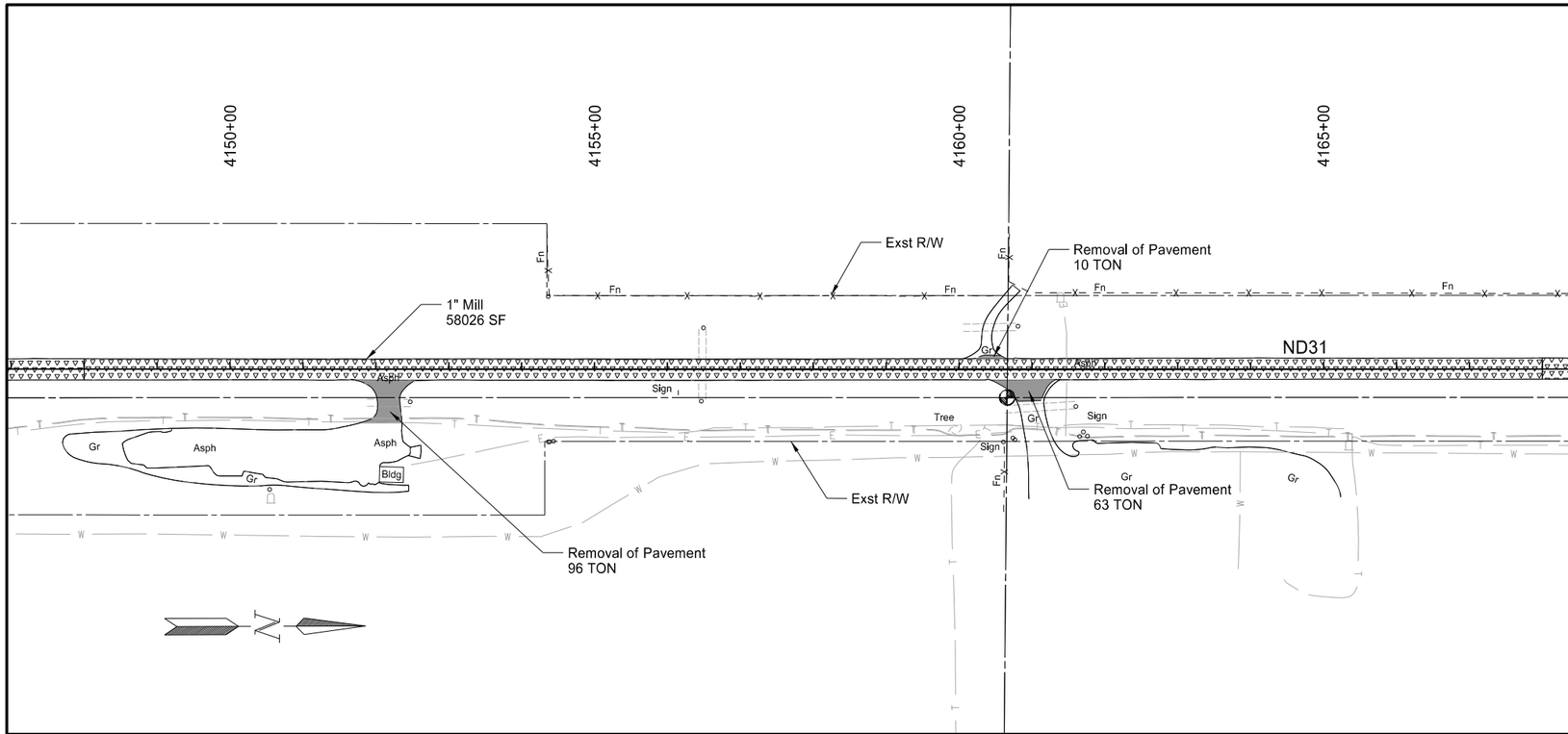
Jct I-94 to Hannover
Morton County

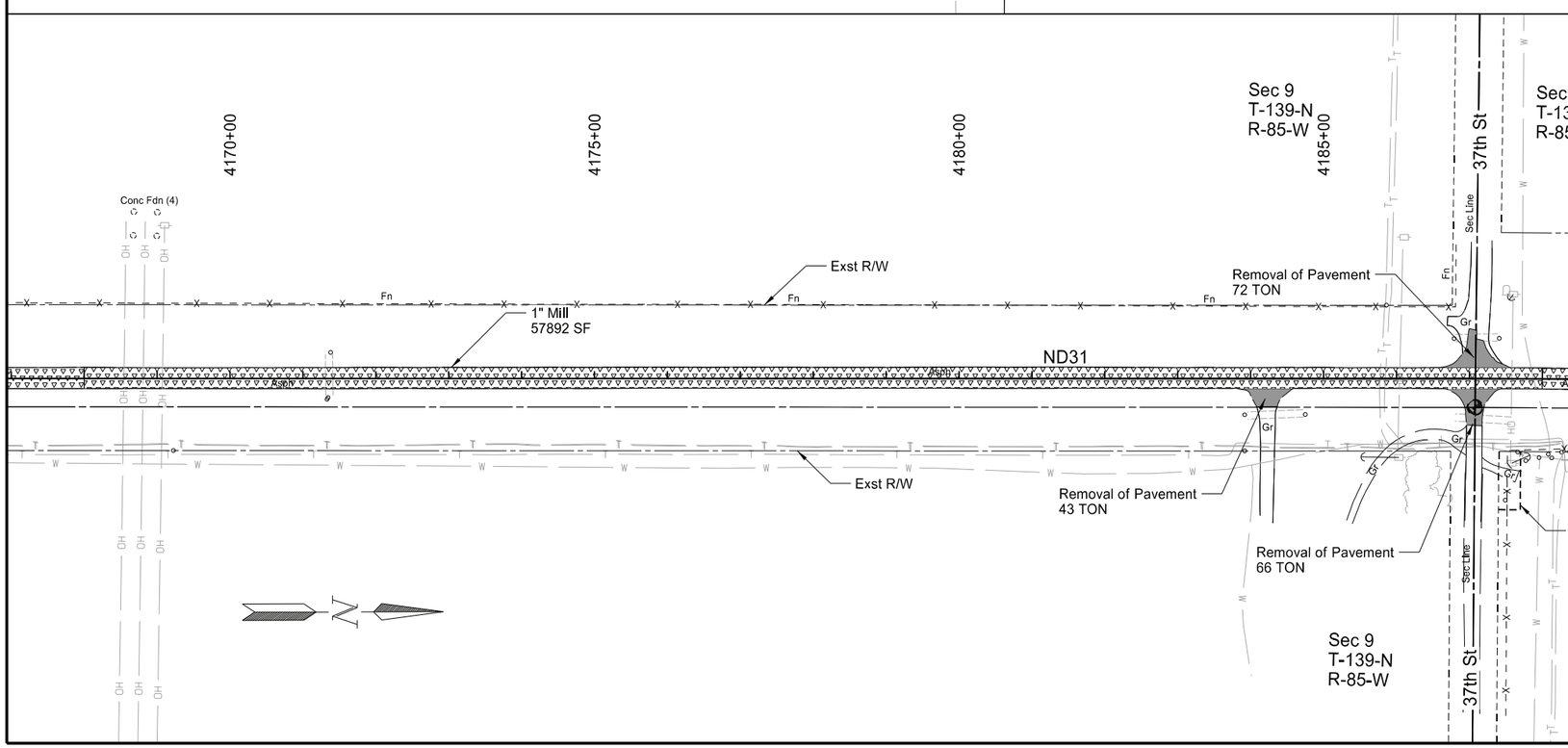
Removal Layout

Sta 4128+30 to Sta 4148+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	40	2





SPEC	CODE	BID ITEM	QTY	UNIT
202	0136	REMOVAL OF PAVEMENT		
		Sta 4151+69 to Sta 4152+57 RT	96	TON
		Sta 4160+15 to Sta 4160+66 LT	10	TON
		Sta 4160+44 to Sta 4161+35 RT	63	TON
		Sta 4183+84 to Sta 4184+57 RT	43	TON
		Sta 4186+57 to Sta 4187+58 LT	72	TON
		Sta 4186+71 to Sta 4187+45 RT	66	TON
411	0100	MILLING PAVEMENT SURFACE		
		Sta 4148+00 to Sta 4188+00	716	TON

Legend

- 1" Mill
- 3" Mill
- Removal of Pavement
- Subcut Excavation

ND 31

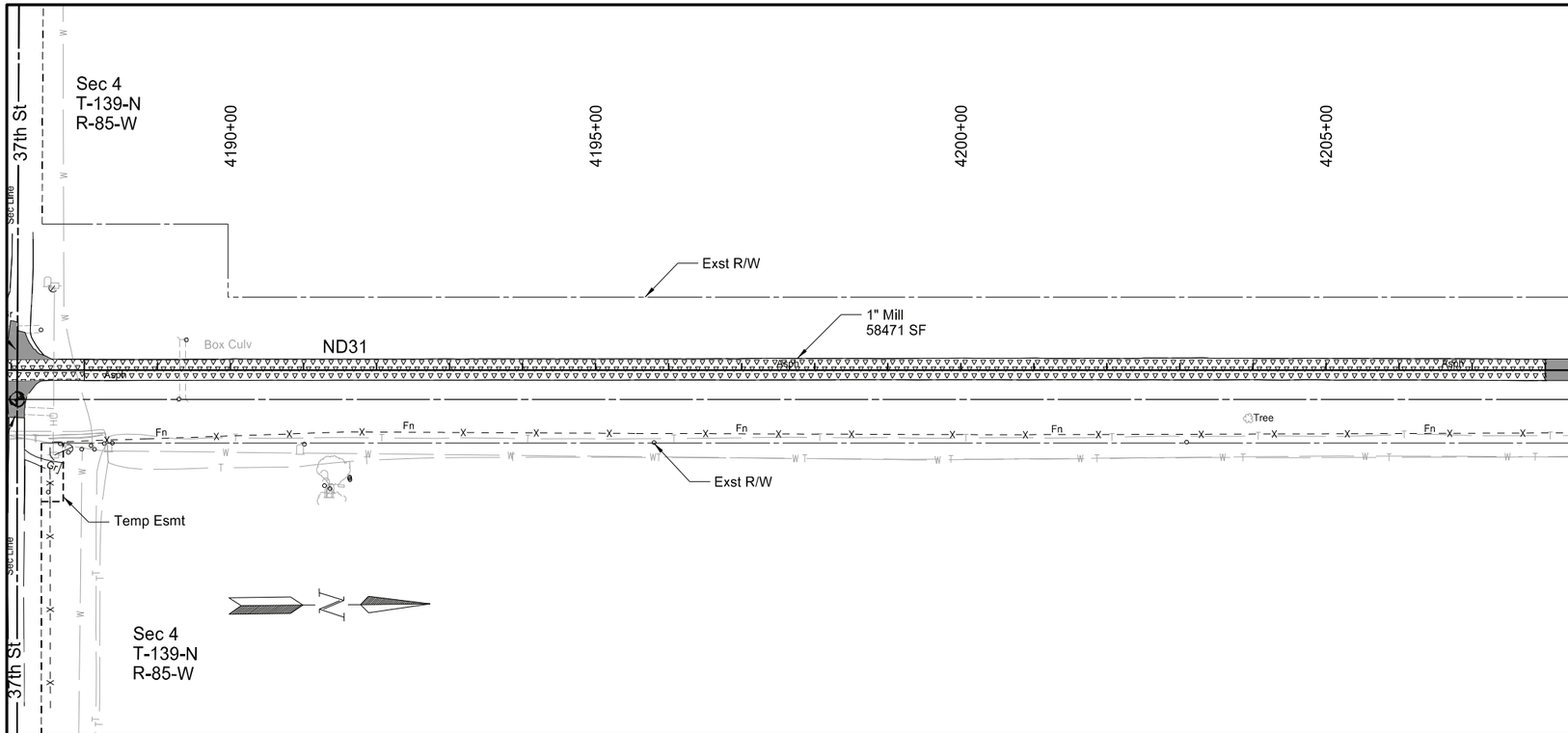
Jct I-94 to Hannover
Morton County

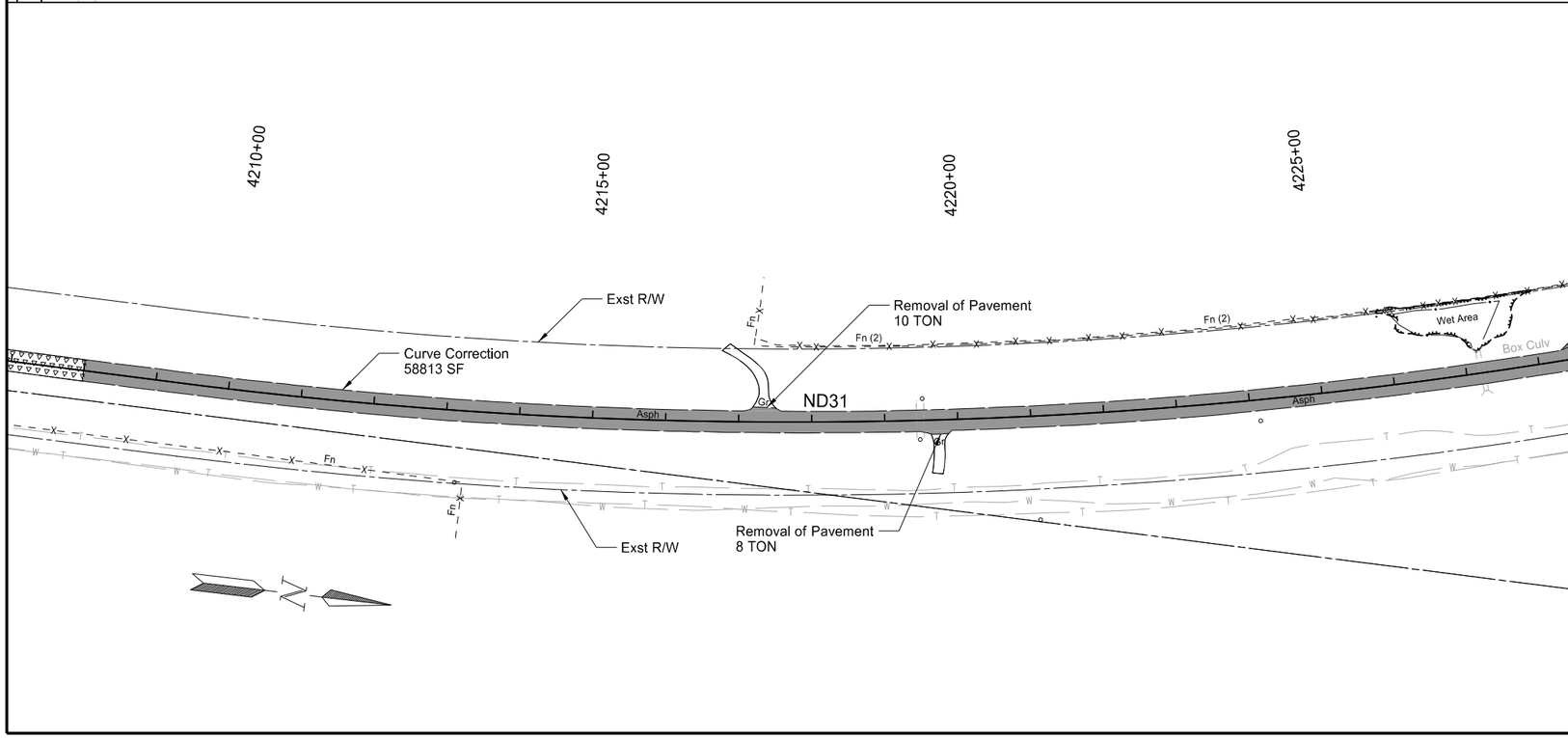
Removal Layout

Sta 4148+00 to Sta 4188+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	40	3





SPEC	CODE	BID ITEM	QTY	UNIT
202	0136	REMOVAL OF PAVEMENT		
		Sta 4208+00 to Sta 4228+00	4245	TON
		Sta 4217+05 to Sta 4217+59 LT	10	TON
		Sta 4219+44 to Sta 4219+93 RT	8	TON
411	0100	MILLING PAVEMENT SURFACE		
		Sta 4188+00 to Sta 4208+00	361	TON

Legend

- 1" Mill
- 3" Mill
- Removal of Pavement
- Subcut Excavation

ND 31

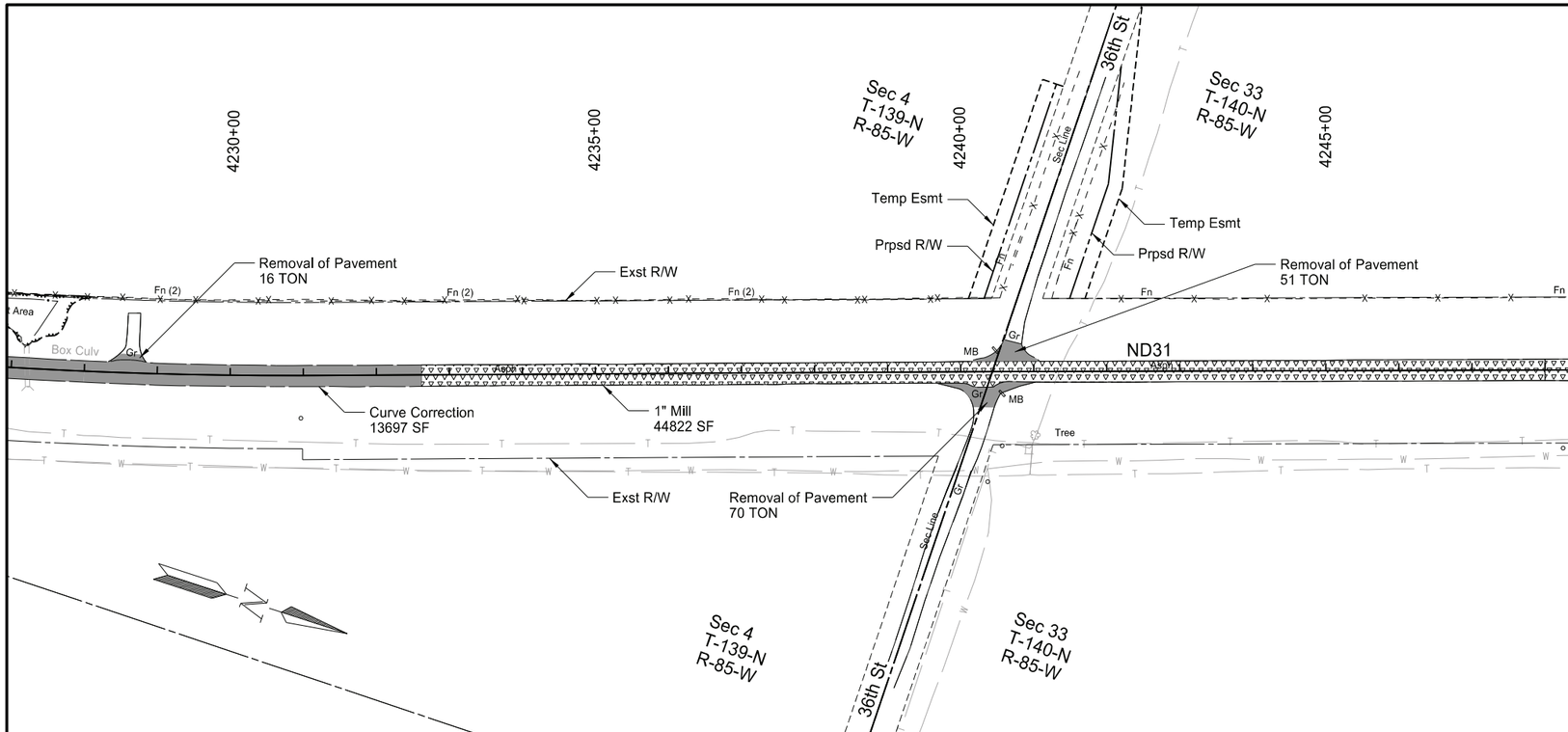
Jct I-94 to Hannover
Morton County

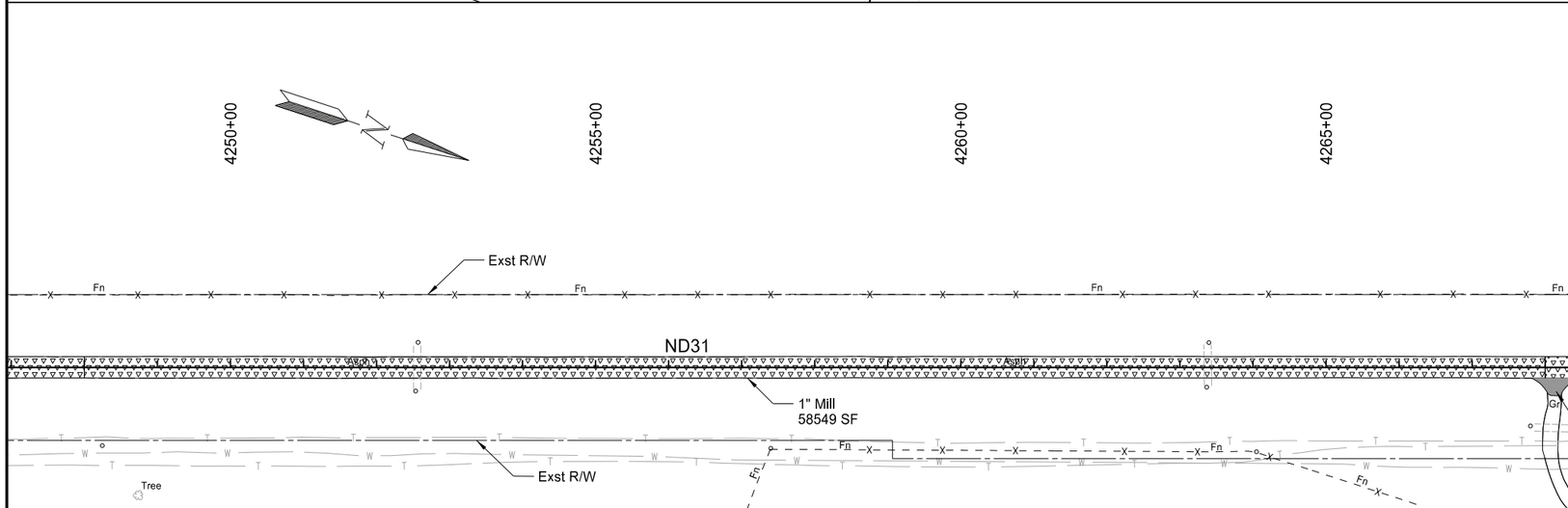
Removal Layout

Sta 4188+00 to Sta 4228+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	40	4





SPEC	CODE	BID ITEM	QTY	UNIT
202	0136	REMOVAL OF PAVEMENT		
		Sta 4228+00 to Sta 4232+61	396	TON
		Sta 4228+32 to Sta 4268+53 LT	16	TON
		Sta 4239+67 to Sta 4241+02 RT	70	TON
		Sta 4240+14 to Sta 4241+09 LT	51	TON
411	0100	MILLING PAVEMENT SURFACE		
		Sta 4232+61 to Sta 4268+00	639	TON

Legend

- 1" Mill
- 3" Mill
- Removal of Pavement
- Subcut Excavation

ND 31

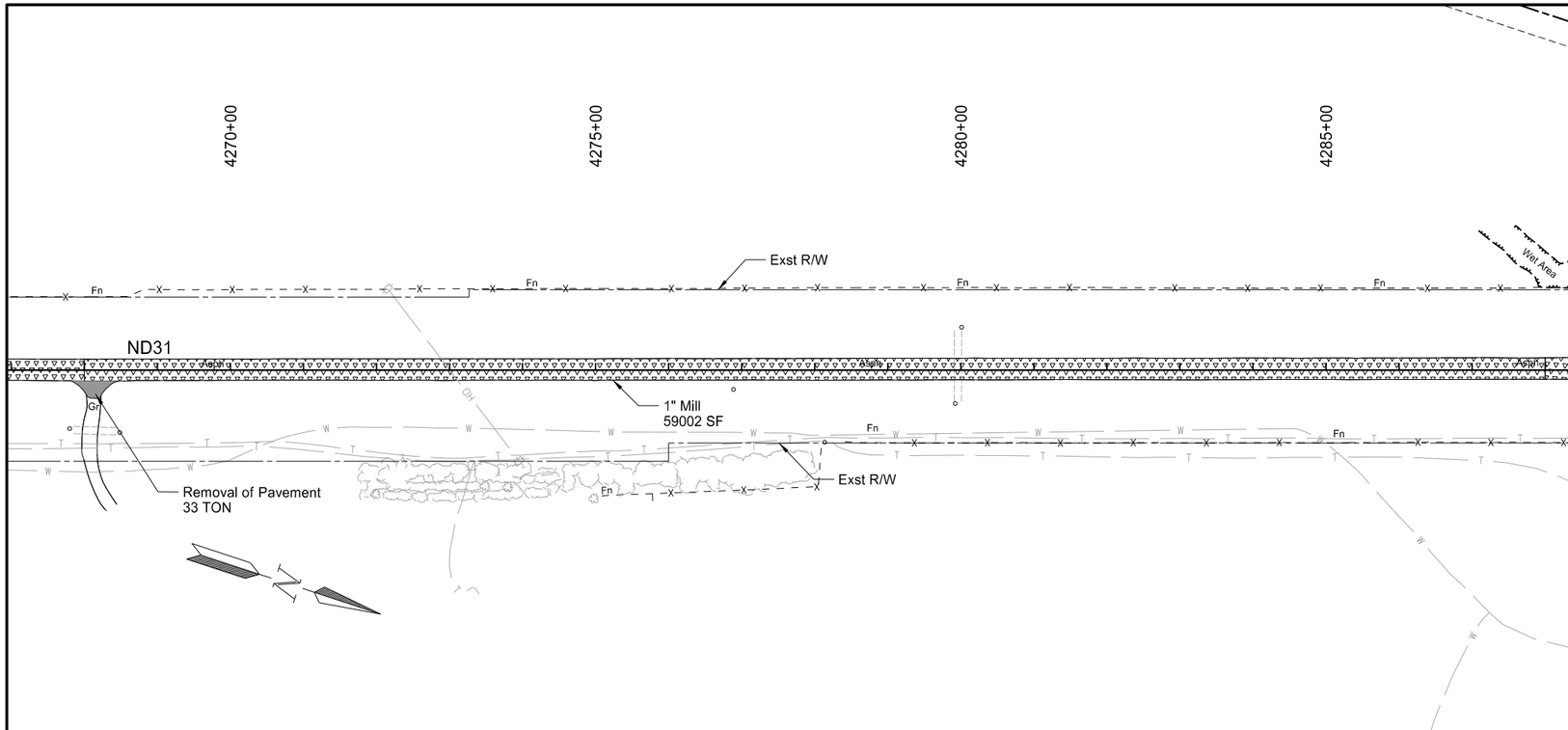
Jct I-94 to Hannover
Morton County

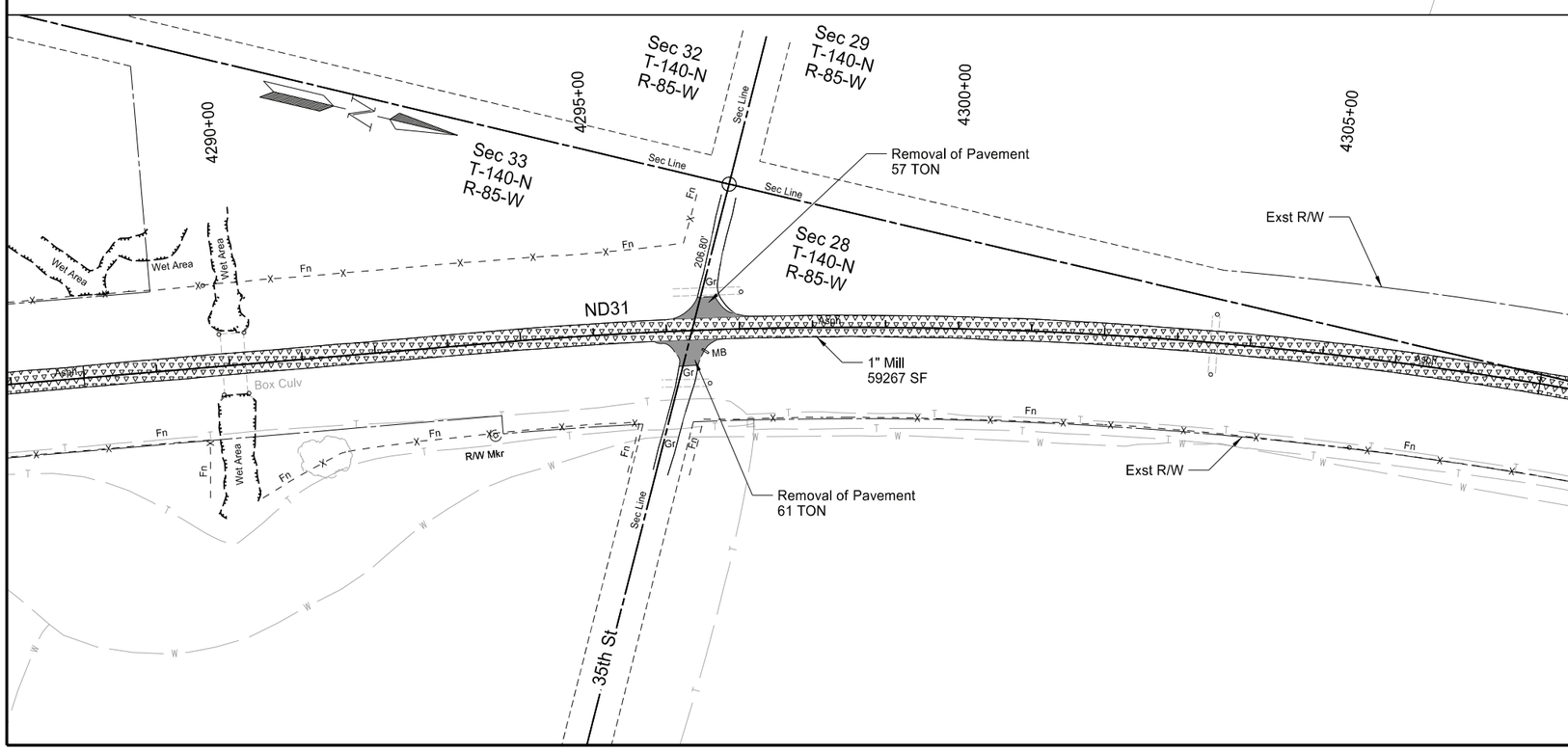
Removal Layout

Sta 4228+00 to Sta 4268+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	40	5





SPEC	CODE	BID ITEM	QTY	UNIT
202	0136	REMOVAL OF PAVEMENT		
		Sta 4267+80 to Sta 4268+53 RT	33	TON
		Sta 4295+83 to Sta 4296+74 RT	61	TON
		Sta 4296+07 to Sta 4297+18 LT	57	TON
411	0100	MILLING PAVEMENT SURFACE		
		Sta 4268+00 to Sta 4308+00	731	TON

Legend

- 1" Mill
- 3" Mill
- Removal of Pavement
- Subcut Excavation

ND 31

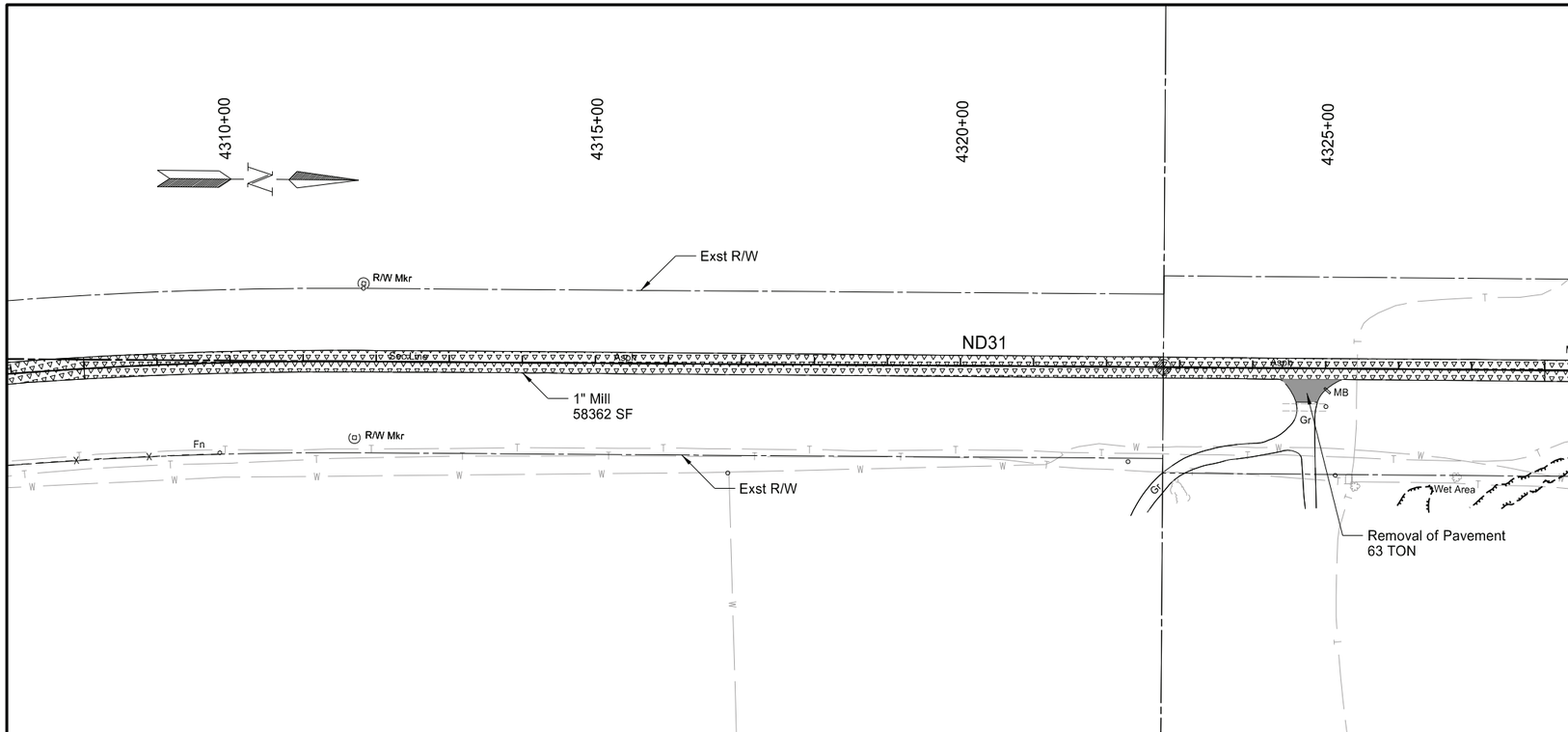
Jct I-94 to Hannover
Morton County

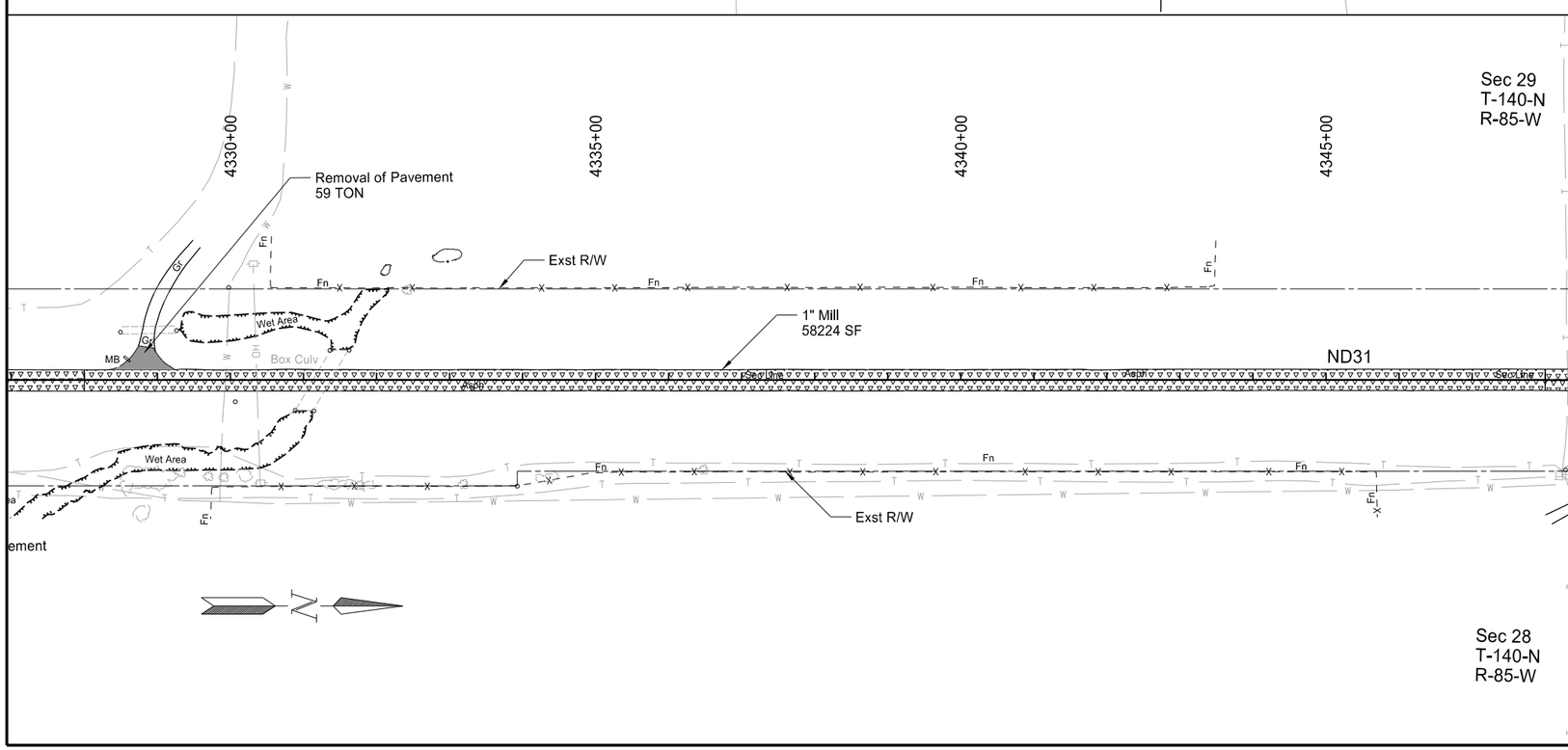
Removal Layout

Sta 4268+00 to Sta 4308+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	40	6





SPEC	CODE	BID ITEM	QTY	UNIT
202	0136	REMOVAL OF PAVEMENT		
		Sta 4324+36 to Sta 4325+27 RT	63	TON
		Sta 4328+32 to Sta 4329+25 LT	59	TON
411	0100	MILLING PAVEMENT SURFACE		
		Sta 4308+00 to Sta 4348+00	720	TON

Legend

- 1" Mill
- 3" Mill
- Removal of Pavement
- Subcut Excavation

ND 31

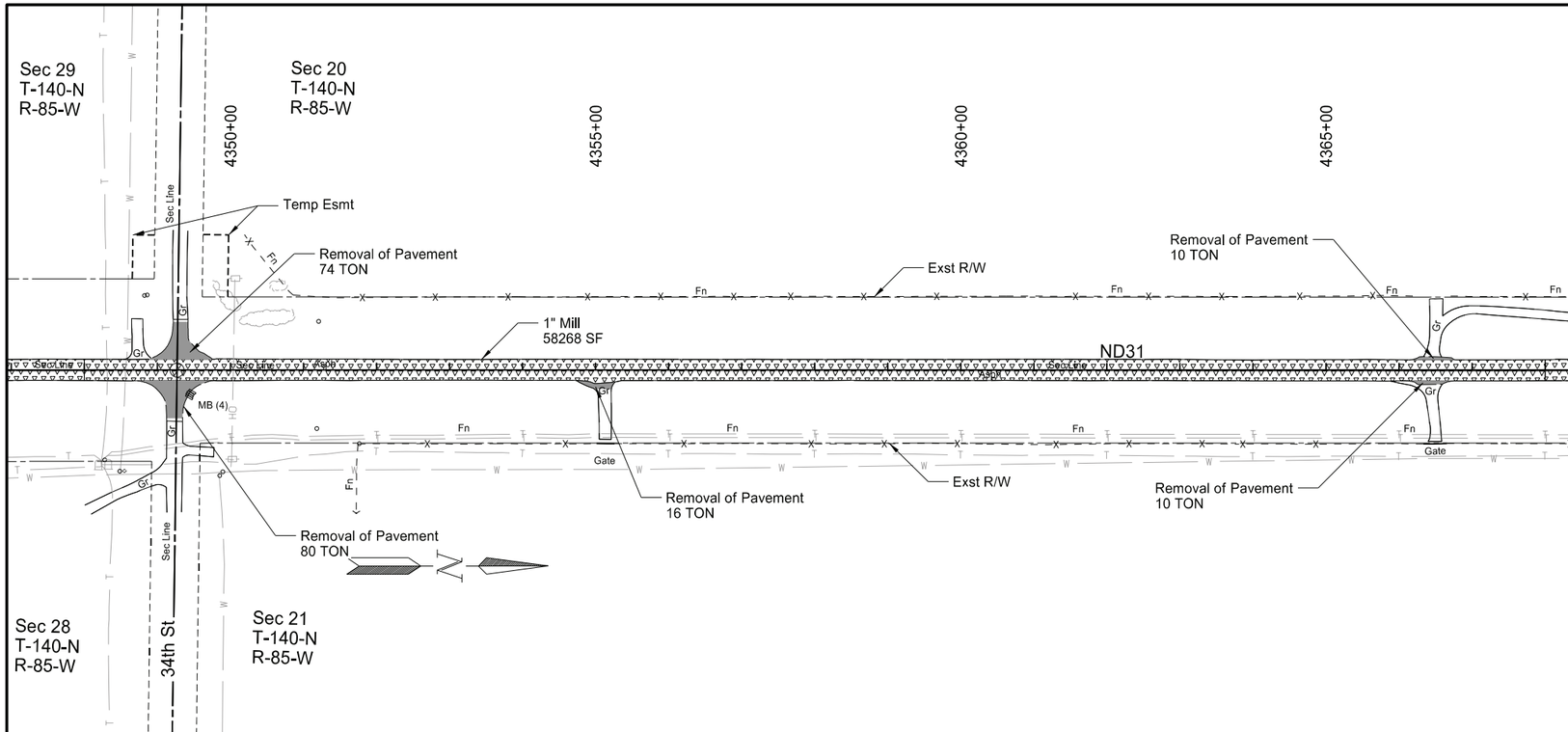
Jct I-94 to Hannover
Morton County

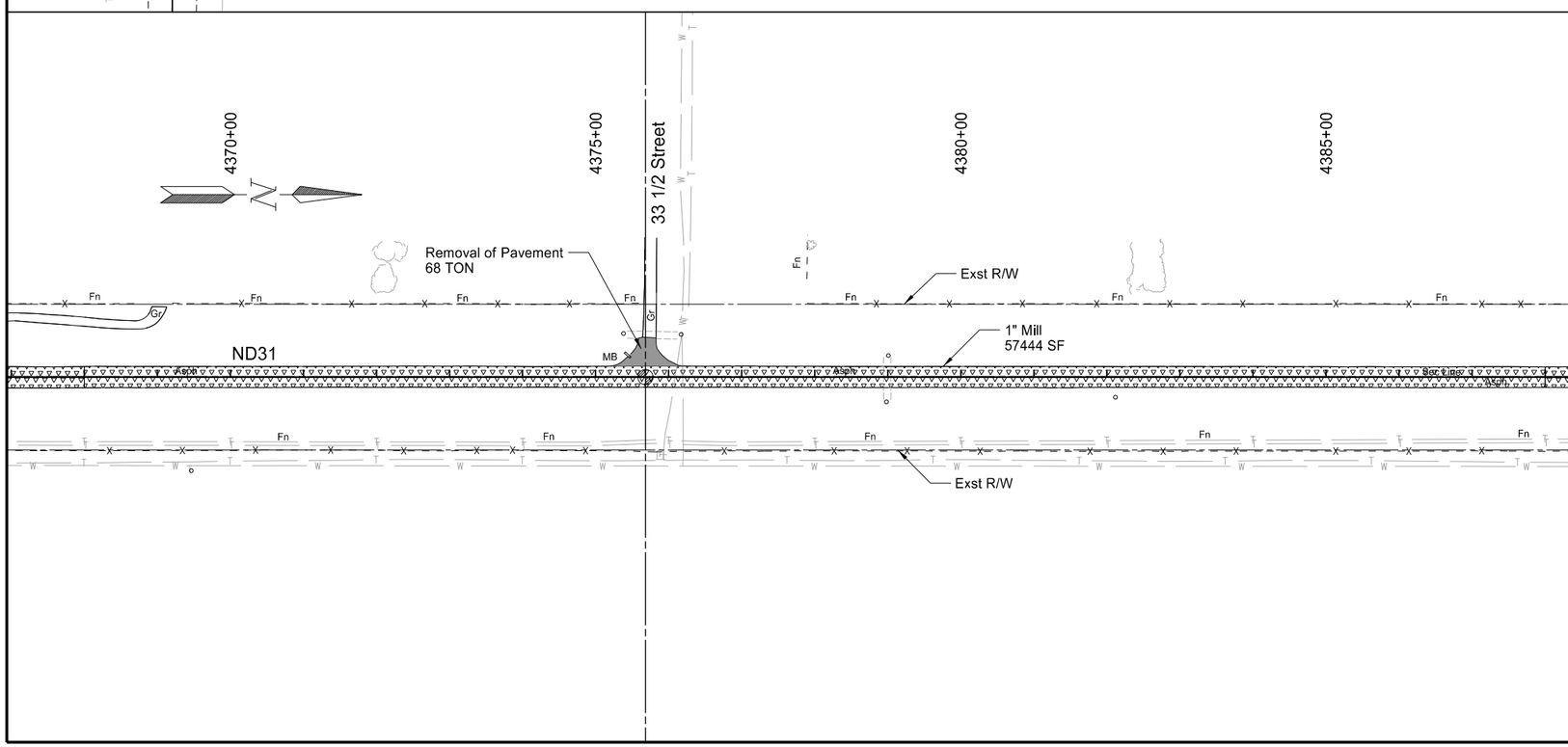
Removal Layout

Sta 4308+00 to Sta 4348+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	40	7





SPEC	CODE	BID ITEM	QTY	UNIT
202	0136	REMOVAL OF PAVEMENT		
		Sta 4348+66 to Sta 4349+77 RT	80	TON
		Sta 4348+82 to Sta 4349+78 LT	74	TON
		Sta 4354+73 to Sta 4355+27 RT	16	TON
		Sta 4366+06 to Sta 4366+79 RT	10	TON
		Sta 4366+16 to Sta 4366+78 LT	10	TON
		Sta 4375+14 to Sta 4376+20 LT	68	TON
411	0100	MILLING PAVEMENT SURFACE		
		Sta 4348+00 to Sta 4388+00	715	TON

Legend

- 1" Mill
- 3" Mill
- Removal of Pavement
- Subcut Excavation

ND 31

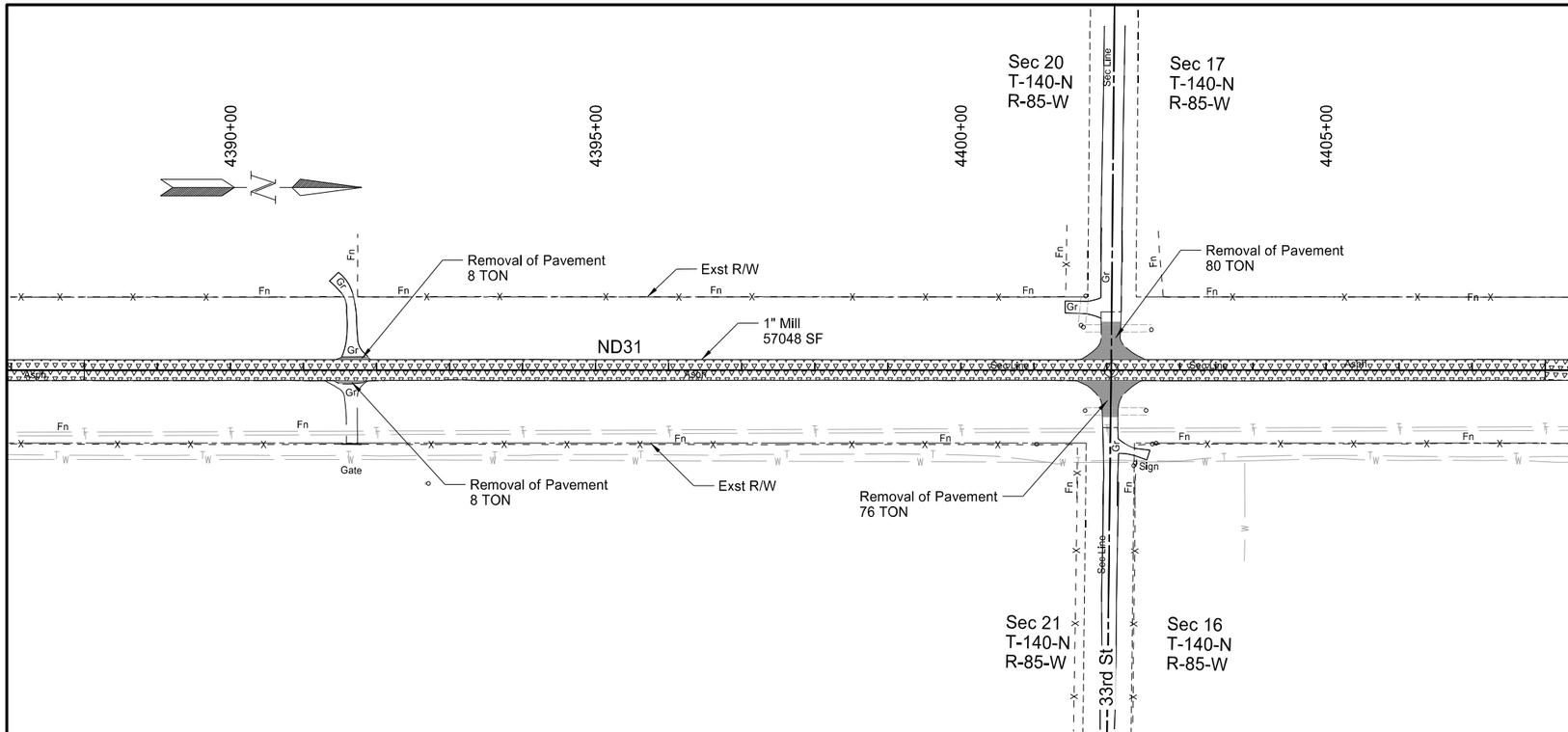
Jct I-94 to Hannover
Morton County

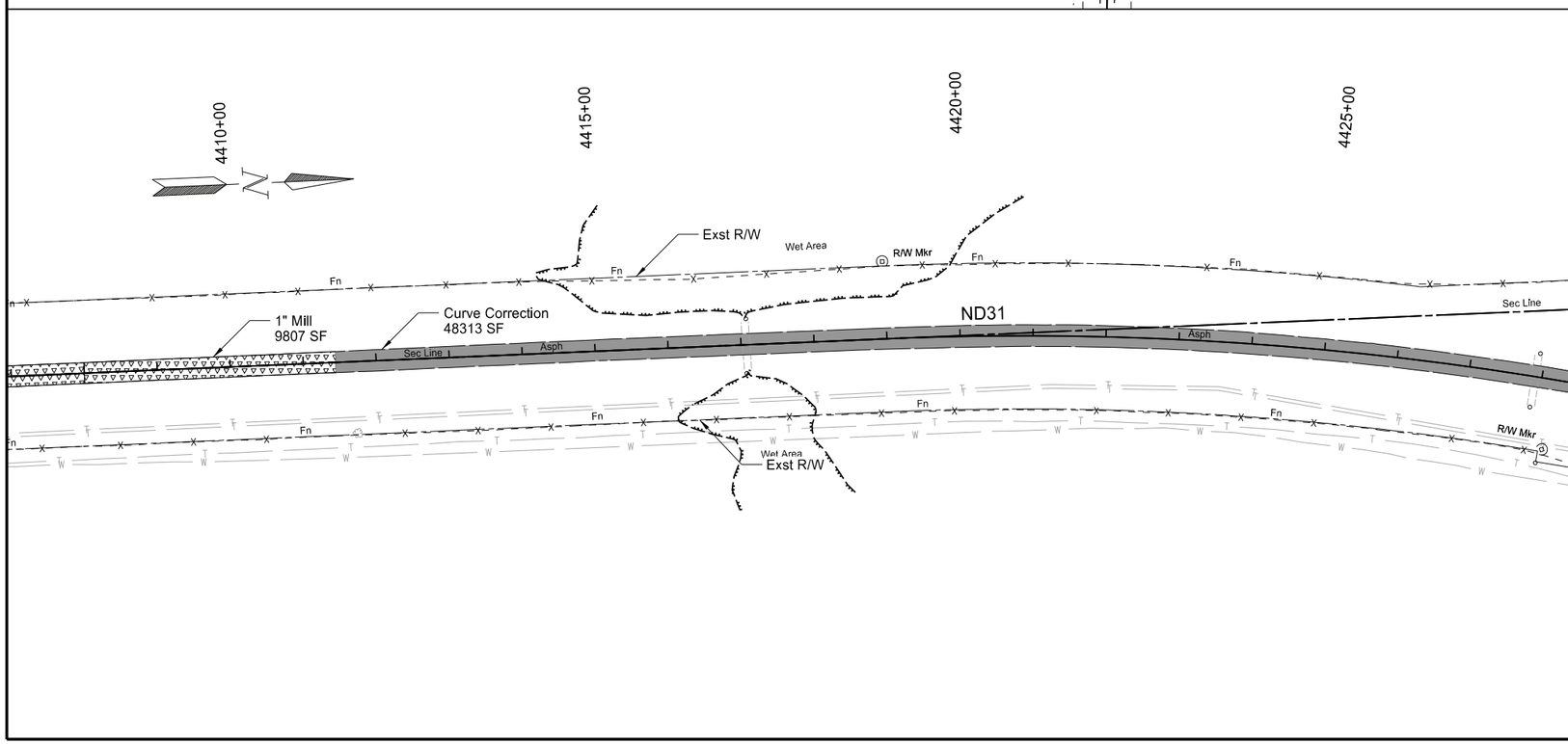
Removal Layout

Sta 4348+00 to Sta 4388+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	40	8





SPEC	CODE	BID ITEM	QTY	UNIT
202	0136	REMOVAL OF PAVEMENT		
		Sta 4411+45 to Sta 4428+00	3487	TON
		Sta 4391+41 to Sta 4391+89 RT	8	TON
		Sta 4391+44 to Sta 4391+93 LT	8	TON
		Sta 4401+55 to Sta 4402+51 RT	76	TON
		Sta 4401+61 to Sta 4402+54 LT	80	TON
411	0100	MILLING PAVEMENT SURFACE		
		Sta 4388+00 to Sta 4411+45	413	TON

Legend

- 1" Mill
- 3" Mill
- Removal of Pavement
- Subcut Excavation

ND 31

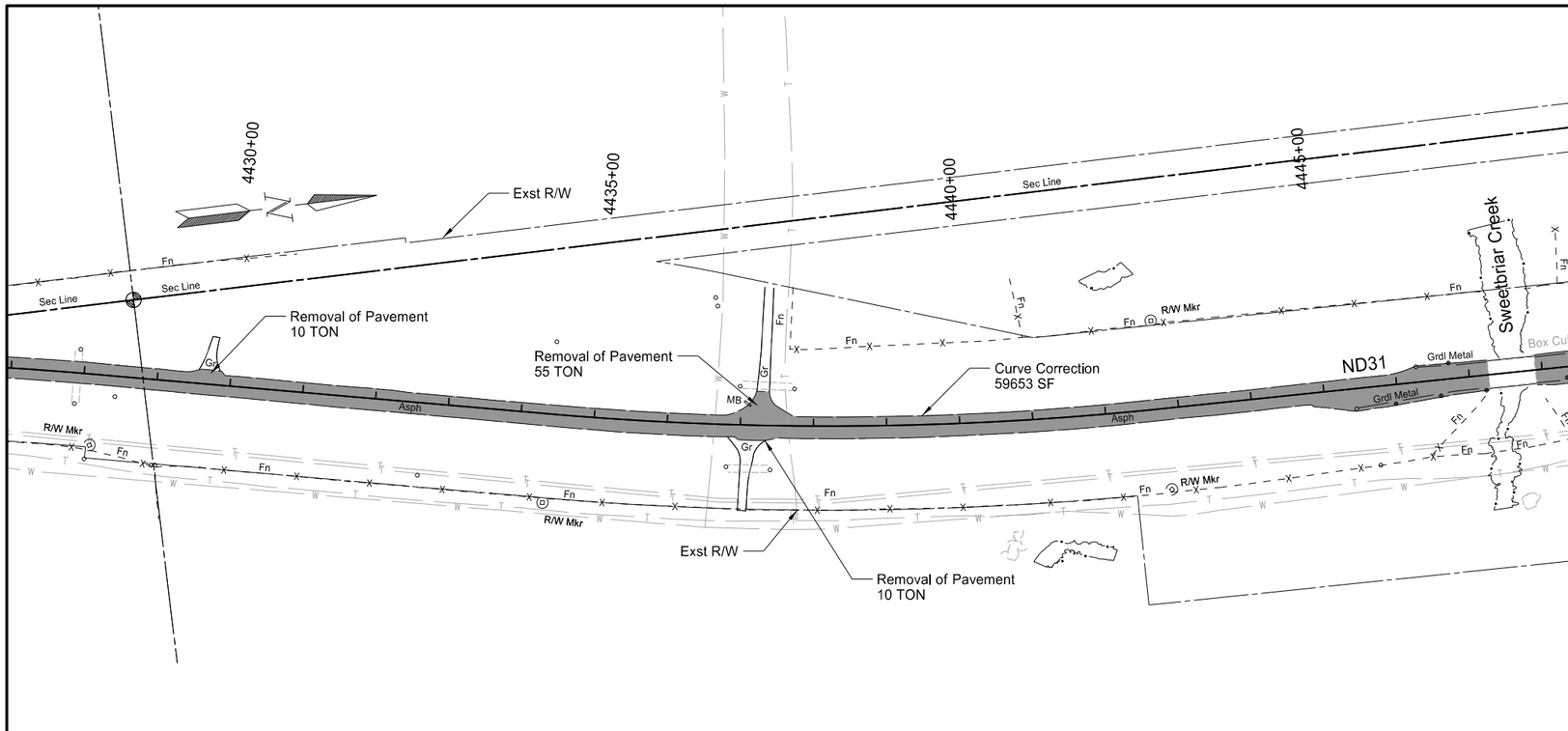
Jct I-94 to Hannover
Morton County

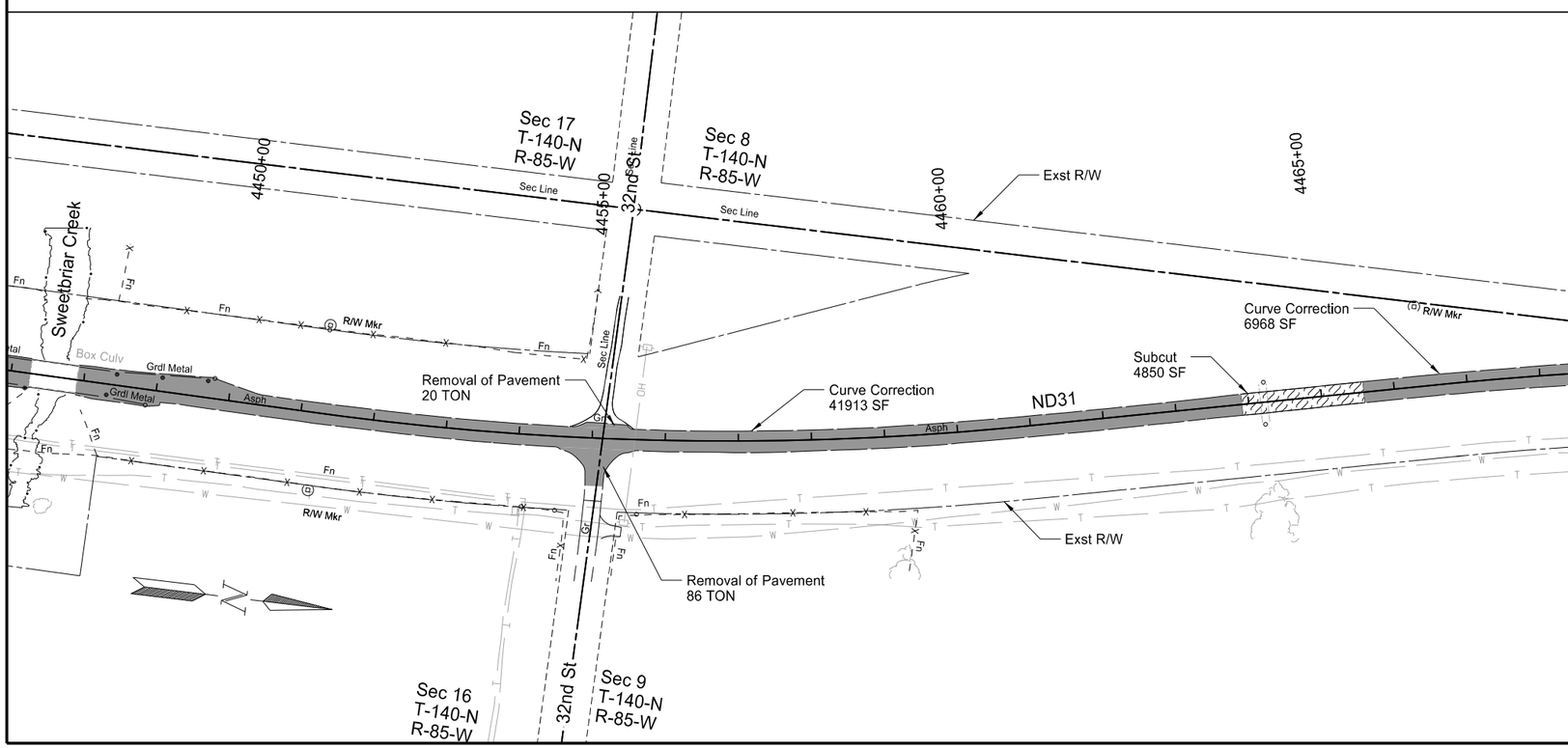
Removal Layout

Sta 4388+00 to Sta 4428+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	40	9





SPEC	CODE	BID ITEM	QTY	UNIT
202	0136	REMOVAL OF PAVEMENT		
		Sta 4428+00 to Sta 4447+26	4305	TON
		Sta 4447+91 to Sta 4463+90	3543	TON
		Sta 4463+90 to Sta 4465+58	388	TON
		Sta 4465+58 to Sta 4468+00	505	TON
		Sta 4429+38 to Sta 4429+94 LT	10	TON
		Sta 4436+75 to Sta 4437+76 LT	55	TON
		Sta 4436+83 to Sta 4437+53 RT	10	TON
		Sta 4454+50 to Sta 4455+64 RT	86	TON
		Sta 4454+72 to Sta 4455+56 LT	20	TON
203	0138	COMMON EXCAVATION - SUBCUT		
		Sta 4463+90 to Sta 4465+58	168	CY

Legend

- 1" Mill
- 3" Mill
- Removal of Pavement
- Subcut Excavation

ND 31

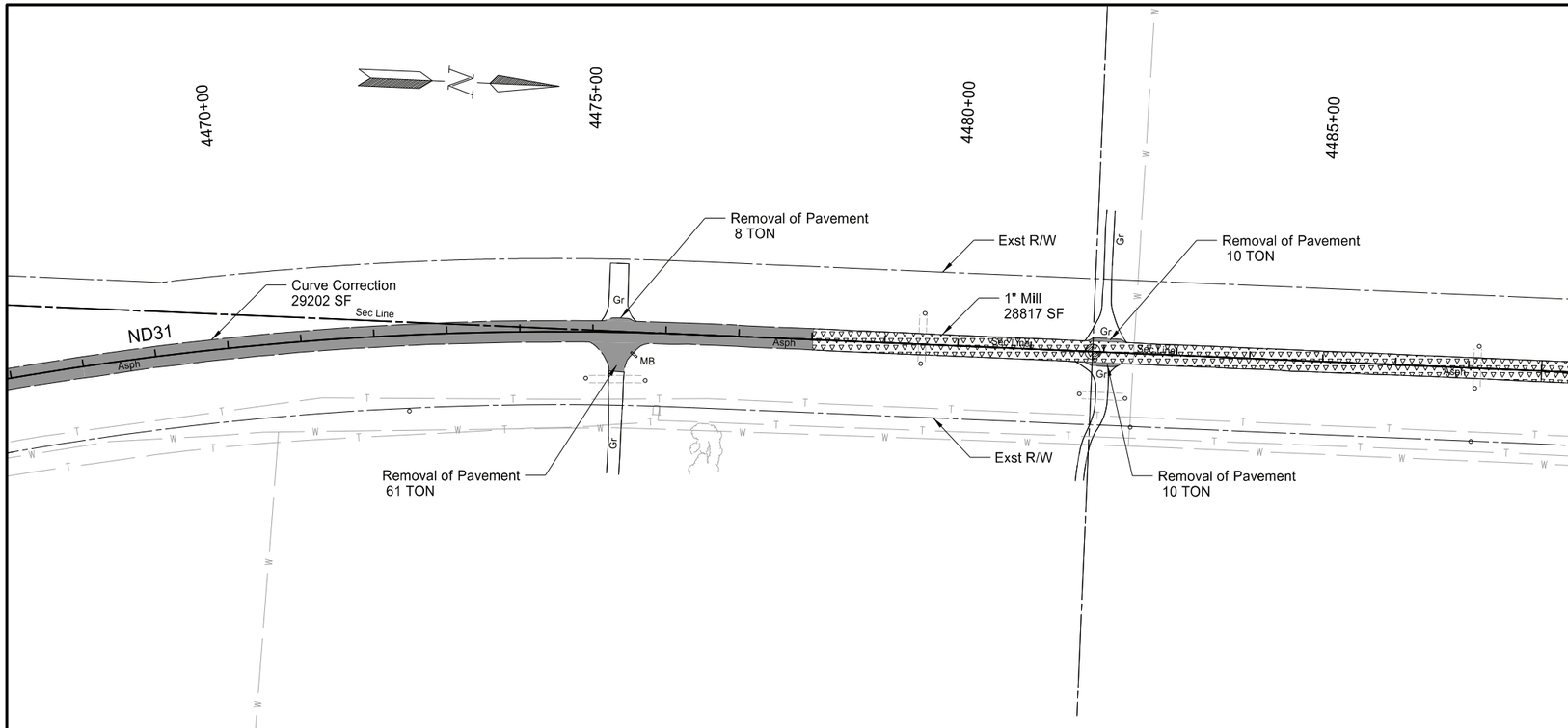
Jct I-94 to Hannover
Morton County

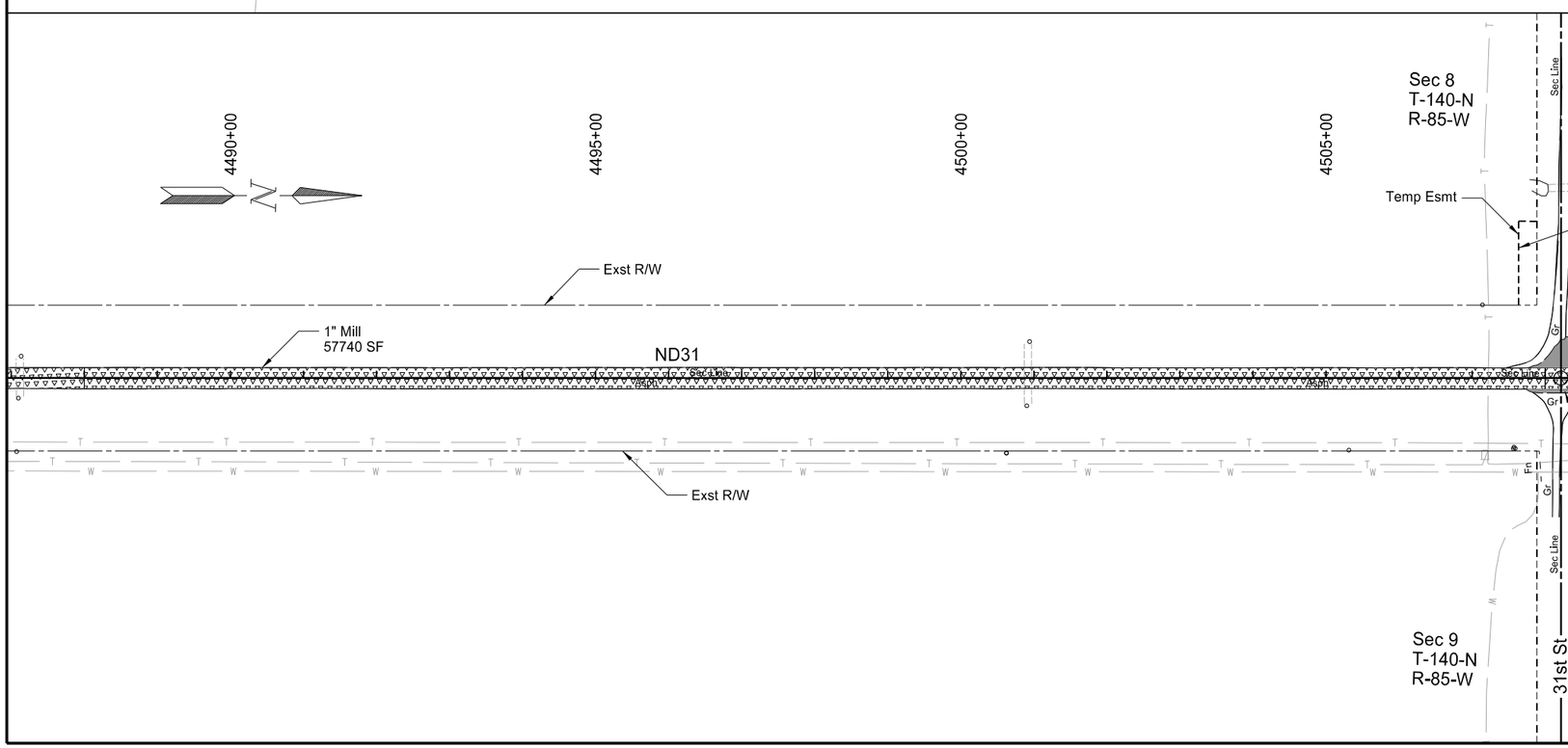
Removal Layout

Sta 4428+00 to Sta 4468+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	40	10





SPEC	CODE	BID ITEM	QTY	UNIT
202	0136	REMOVAL OF PAVEMENT		
		Sta 4468+00 to Sta 4478+01	2108	TON
		Sta 4474+93 to Sta 4475+79 RT	61	TON
		Sta 4475+13 to Sta 4475+59 LT	8	TON
		Sta 4481+73 to Sta 4482+26 RT	10	TON
		Sta 4481+74 to Sta 4482+30 LT	10	TON
411	0100	MILLING PAVEMENT SURFACE		
		Sta 4478+01 to Sta 4508+00	535	TON

Legend

- 1" Mill
- 3" Mill
- Removal of Pavement
- Subcut Excavation

ND 31

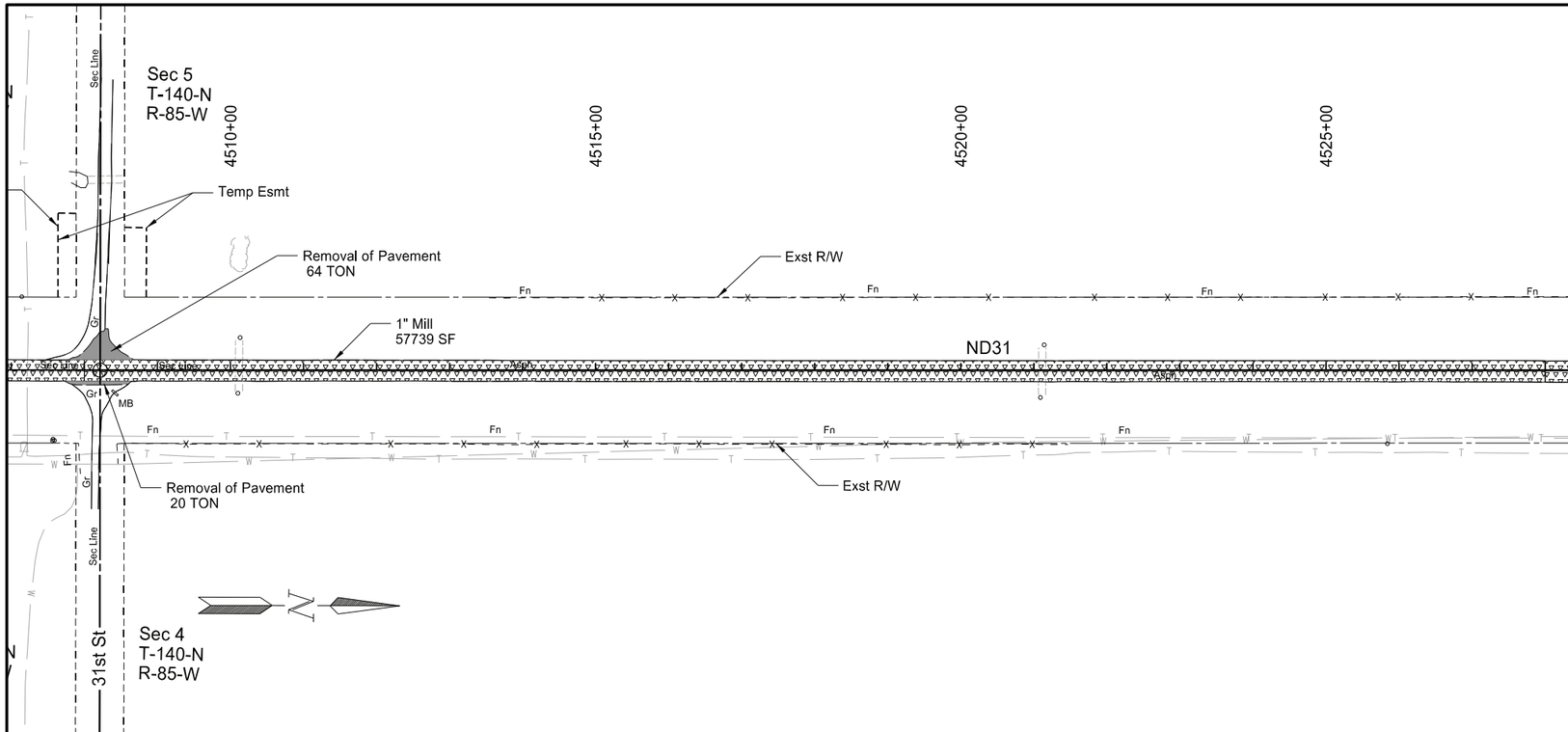
Jct I-94 to Hannover
Morton County

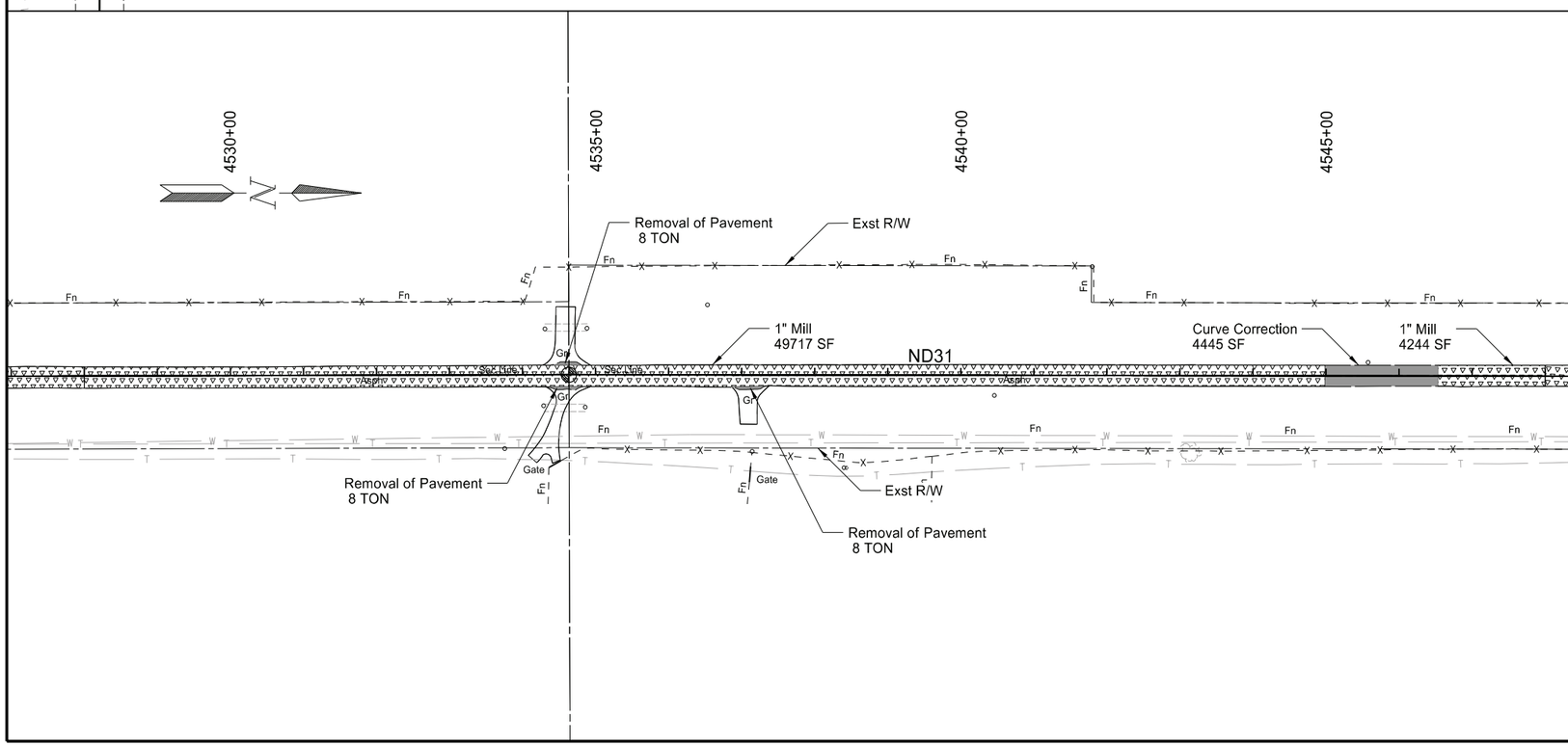
Removal Layout

Sta 4468+00 to Sta 4508+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	40	11





SPEC	CODE	BID ITEM	QTY	UNIT
202	0136	REMOVAL OF PAVEMENT		
		Sta 4507+71 to Sta 4508+65 RT	20	TON
		Sta 4507+75 to Sta 4508+70 LT	64	TON
		Sta 4534+28 to Sta 4534+85 RT	8	TON
		Sta 4534+33 to Sta 4534+83 LT	8	TON
		Sta 4536+79 to Sta 4537+35 RT	8	TON
		Sta 4544+99 to Sta 4546+53	321	TON
411	0100	MILLING PAVEMENT SURFACE		
		Sta 4508+00 to Sta 4544+99	664	TON
		Sta 4546+53 to Sta 4548+00	27	TON

Legend

- 1" Mill
- 3" Mill
- Removal of Pavement
- Subcut Excavation

ND 31

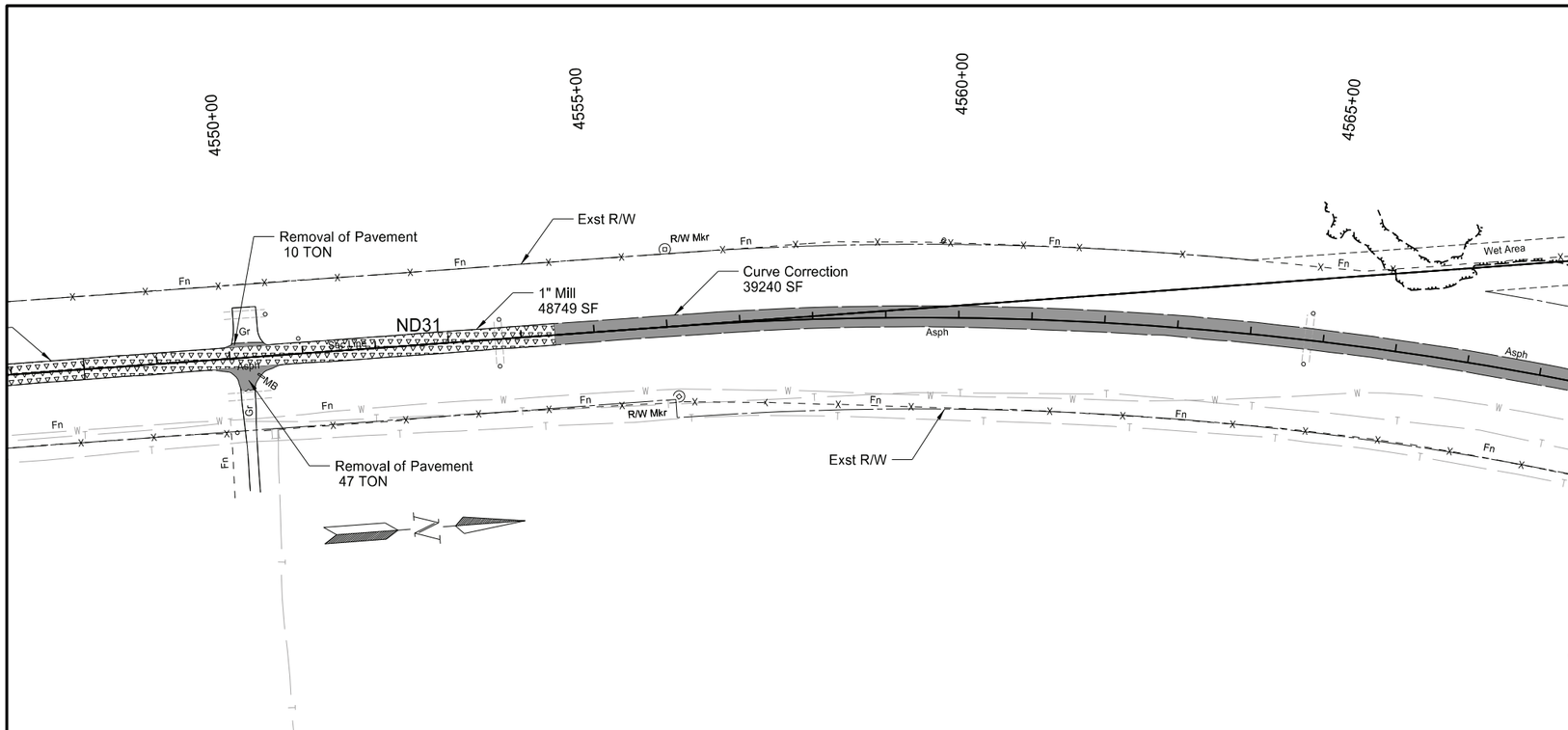
Jct I-94 to Hannover
Morton County

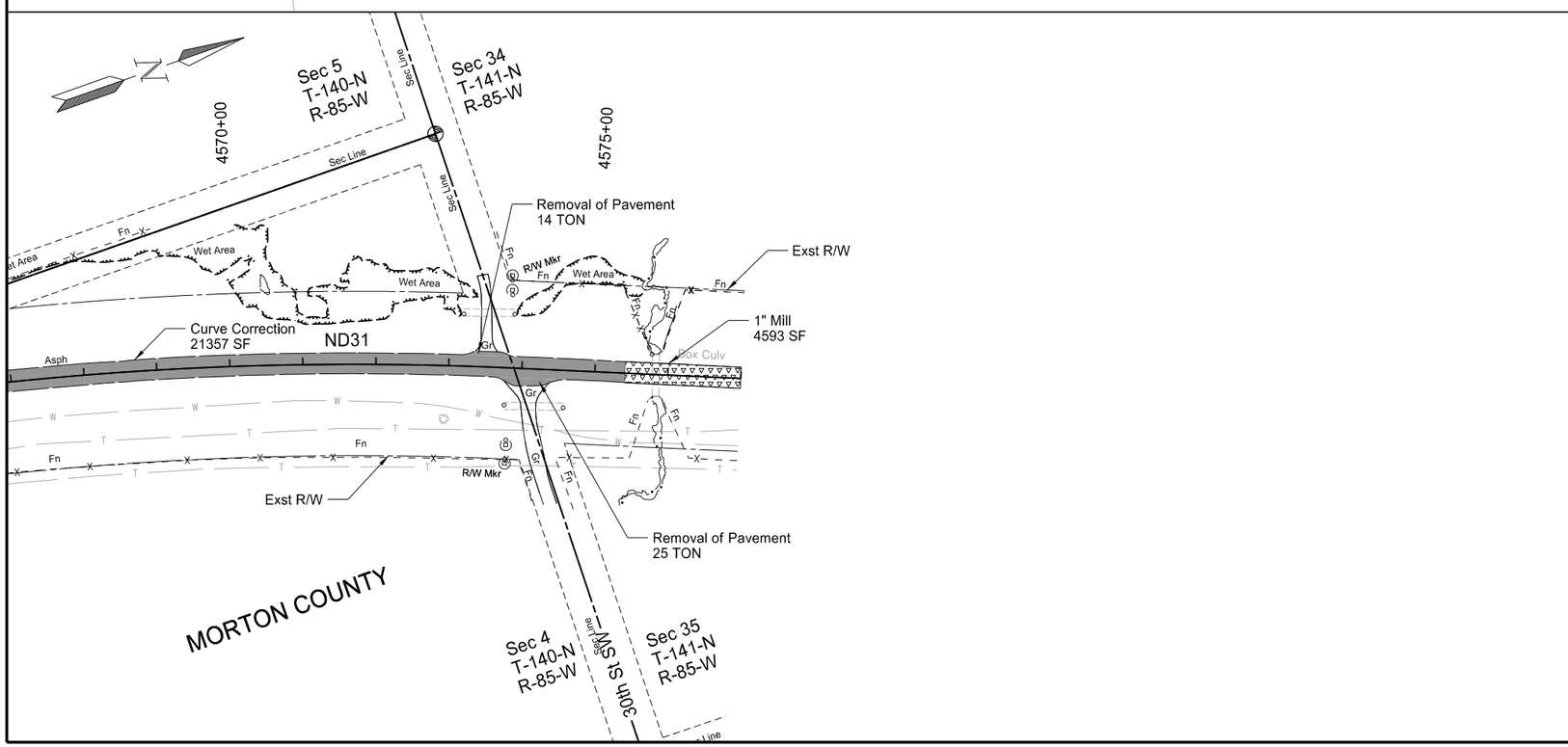
Removal Layout

Sta 4508+00 to Sta 4548+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	40	12





SPEC	CODE	BID ITEM	QTY	UNIT
202	0136	REMOVAL OF PAVEMENT		
		Sta 4549+65 to Sta 4550+73 RT	47	TON
		Sta 4549+90 to Sta 4550+54 LT	10	TON
		Sta 4554+46 to Sta 4575+41	4371	TON
		Sta 4573+17 to Sta 4573+87 LT	14	TON
		Sta 4573+65 to Sta 4574+61 RT	25	TON
411	0100	MILLING PAVEMENT SURFACE		
		Sta 4548+00 to Sta 4554+46	116	TON
		Sta 4575+41 to Sta 4577+00	29	TON

Legend

- 1" Mill
- 3" Mill
- Removal of Pavement
- Subcut Excavation

ND 31

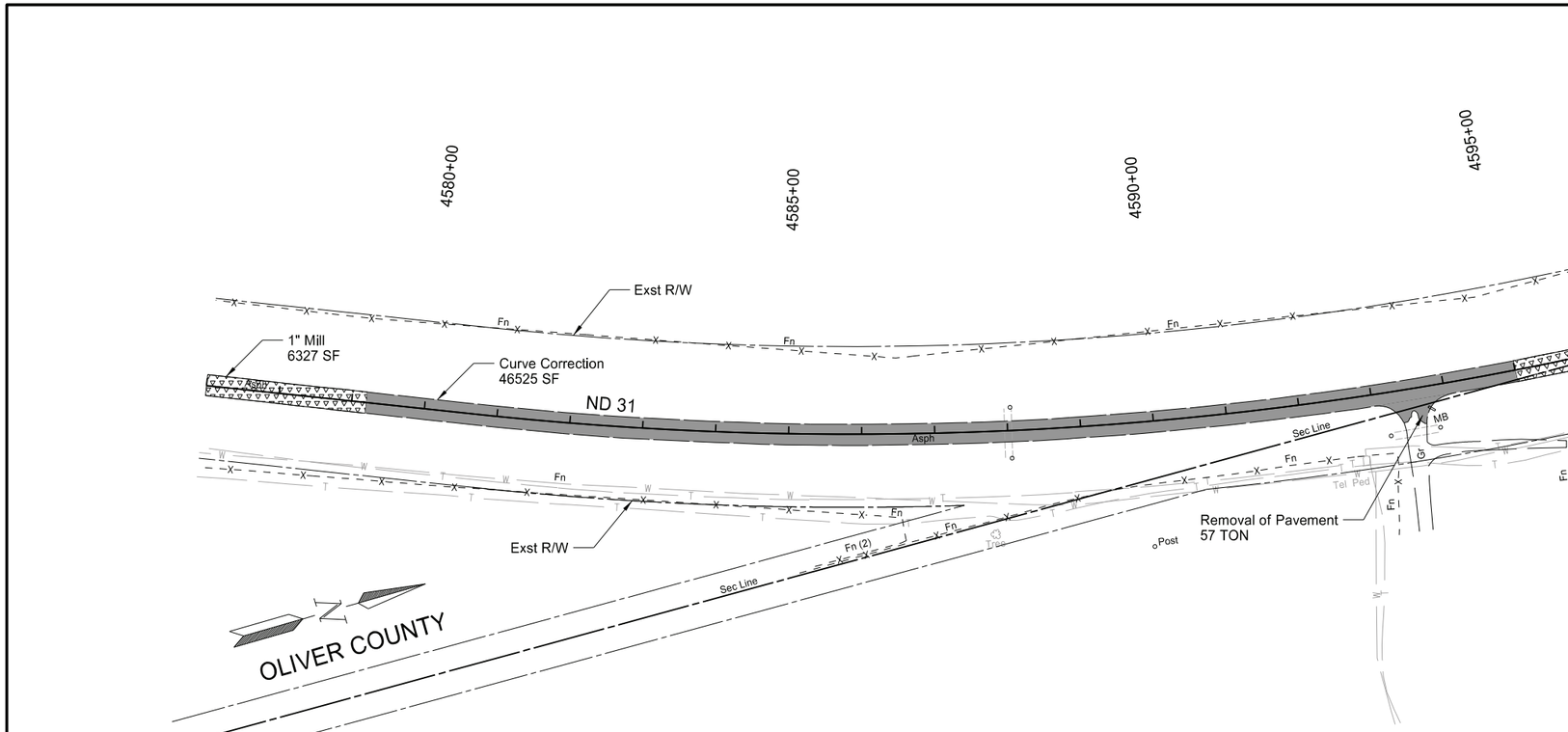
Jct I-94 to Hannover
Morton County

Removal Layout

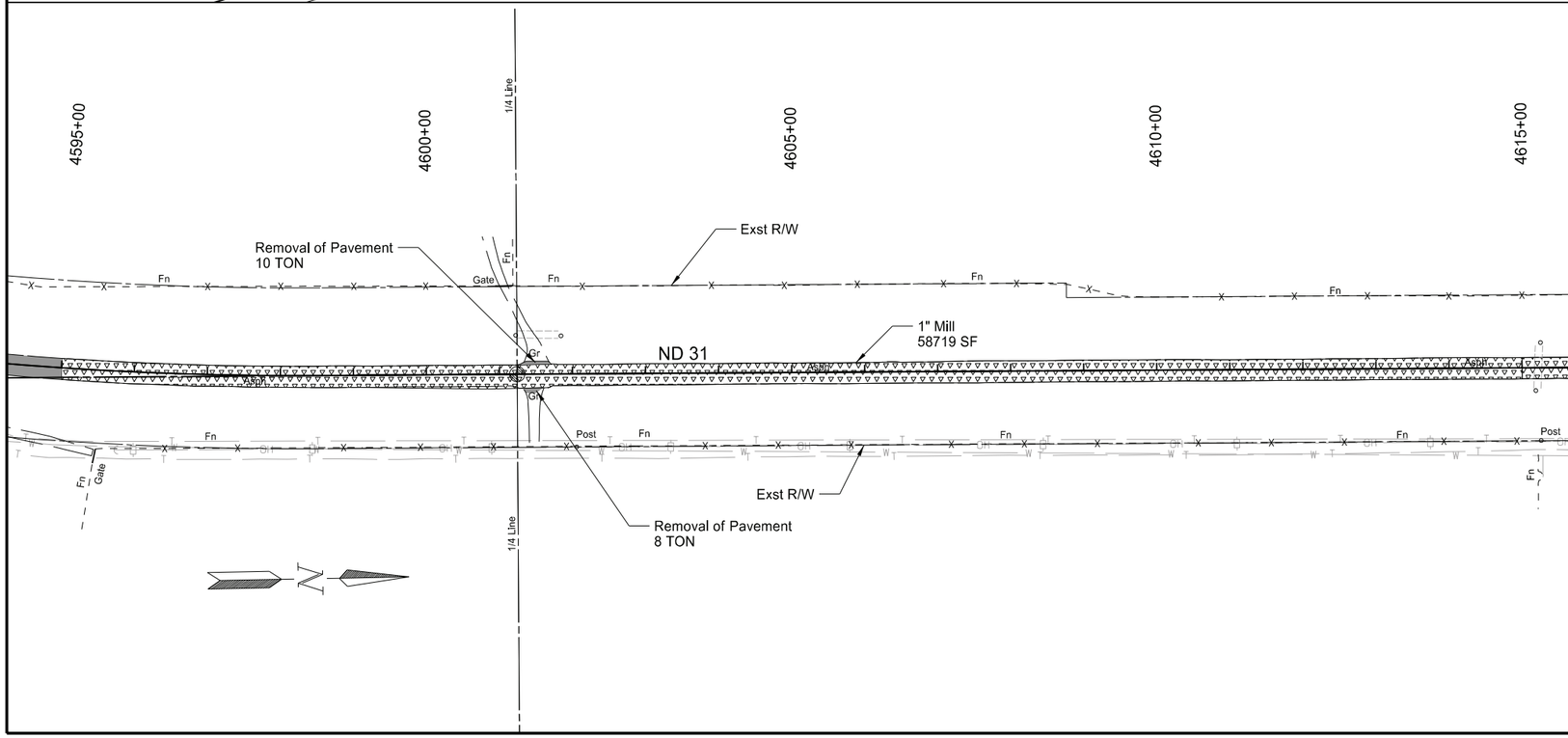
Sta 4548+00 to Sta 4577+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	40	13



SPEC	CODE	BID ITEM	QTY	UNIT
202	0136	REMOVAL OF PAVEMENT		
		Sta 4579+20 to Sta 4595+00	3292	TON
		Sta 4593+03 to Sta 4594+13 RT	57	TON
		Sta 4601+24 to Sta 4601+72 LT	10	TON
		Sta 4601+32 to Sta 4601+61 RT	8	TON
411	0100	MILLING PAVEMENT SURFACE		
		Sta 4577+00 to Sta 4579+20	40	TON
		Sta 4595+00 to Sta 4615+00	363	TON



Legend

- 1" Mill
- 3" Mill
- Removal of Pavement
- Subcut Excavation

ND 31

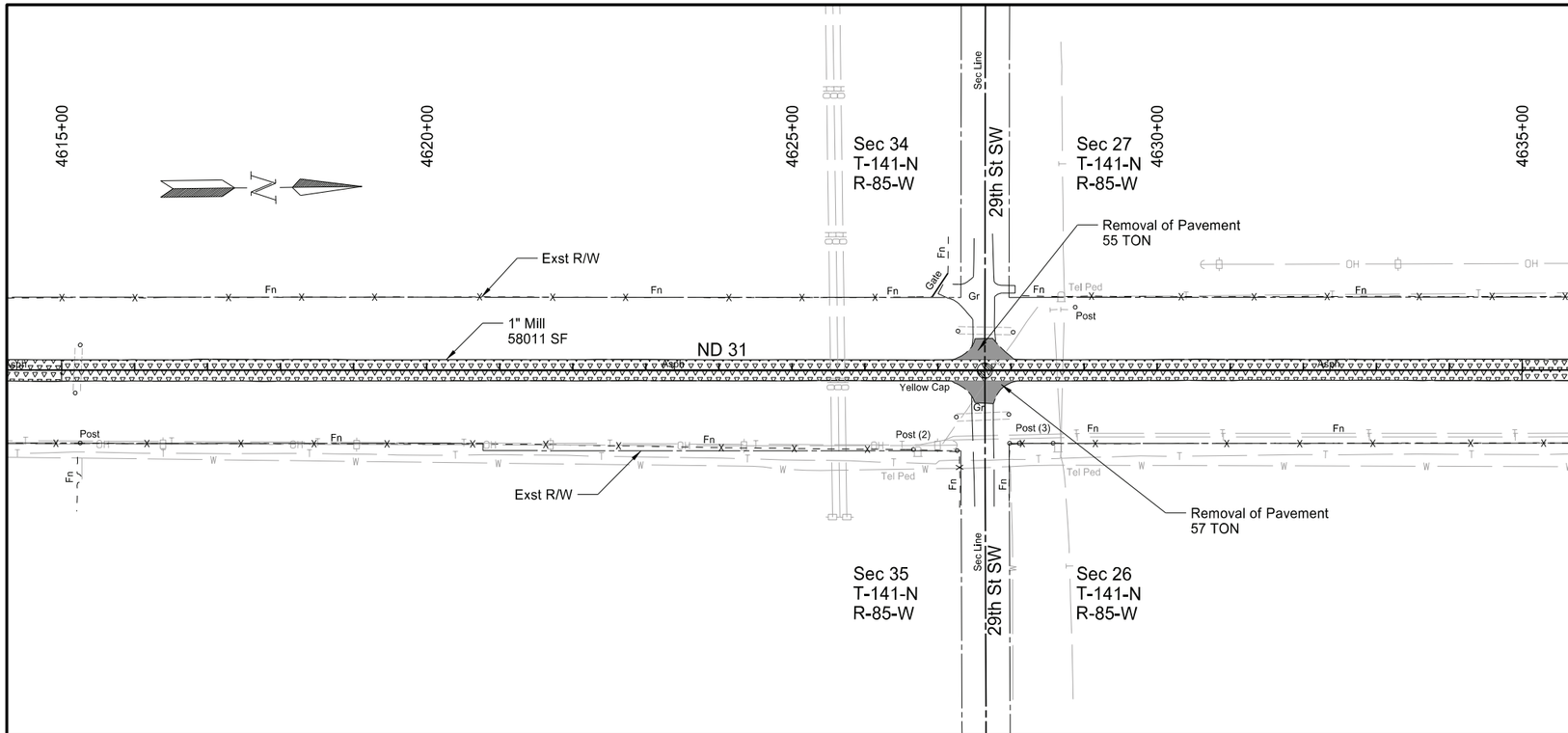
Jct I-94 to Hannover
Oliver County

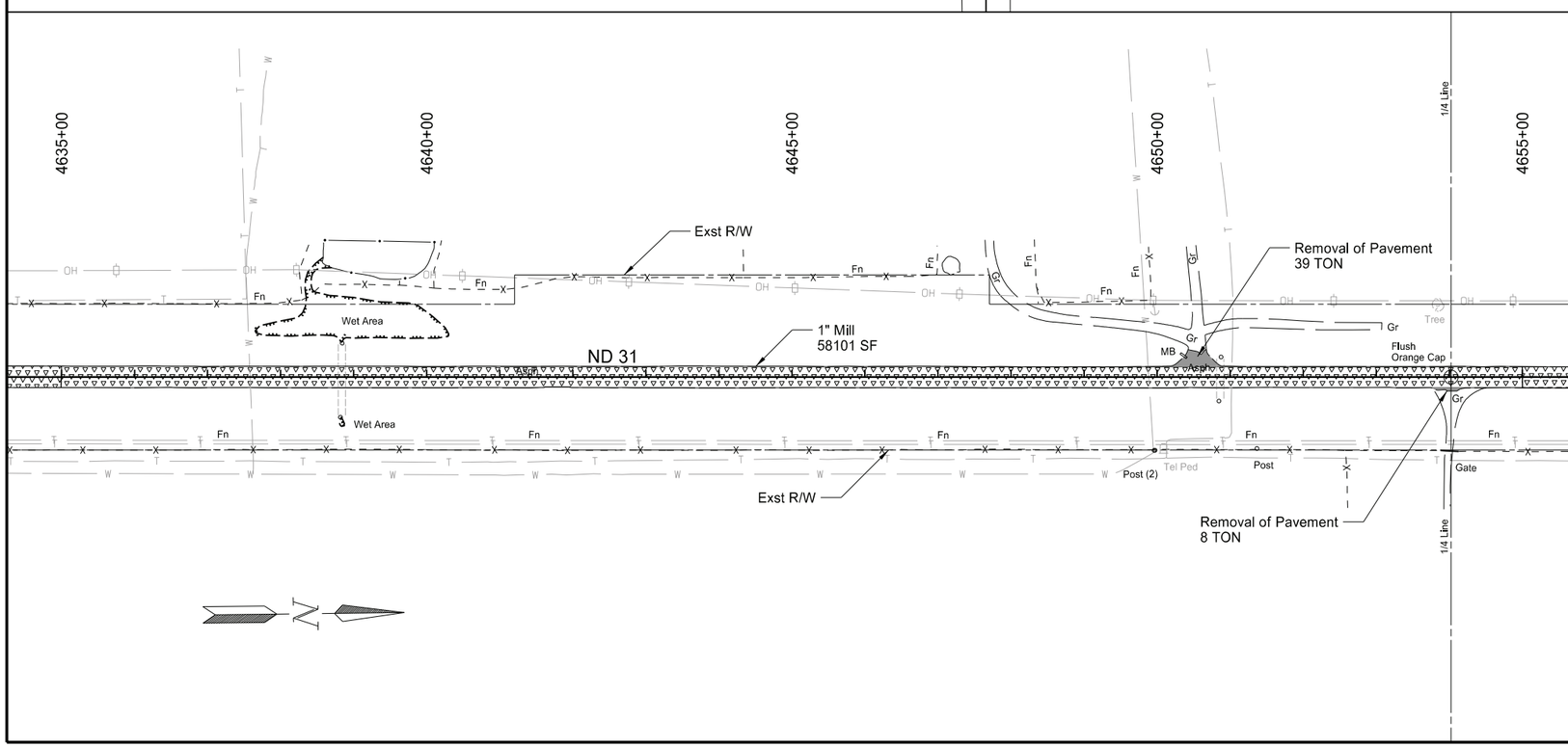
Removal Layout

Sta 4577+00 to Sta 4615+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	40	14





SPEC	CODE	BID ITEM	QTY	UNIT
202	0136	REMOVAL OF PAVEMENT		
		Sta 4627+18 to Sta 4628+09 RT	57	TON
		Sta 4627+19 to Sta 4628+05 LT	55	TON
		Sta 4649+87 to Sta 4651+17 LT	39	TON
		Sta 4653+74 to Sta 4654+51 RT	8	TON
411	0100	MILLING PAVEMENT SURFACE		
		Sta 4615+00 to Sta 4655+00	717	TON

Legend

- 1" Mill
- 3" Mill
- Removal of Pavement
- Subcut Excavation

ND 31

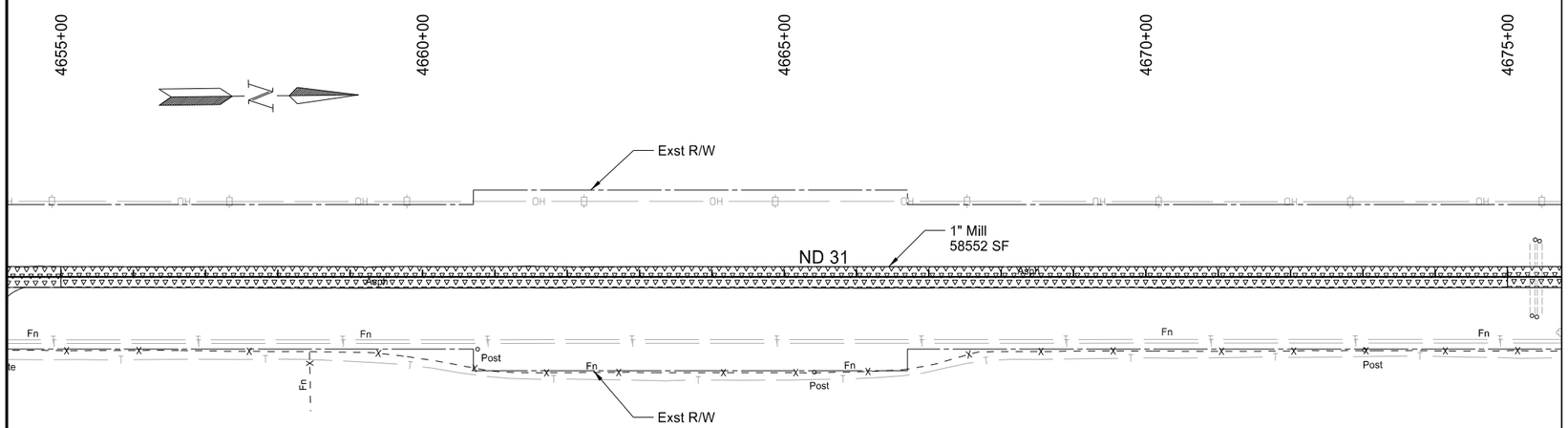
Jct I-94 to Hannover
Oliver County

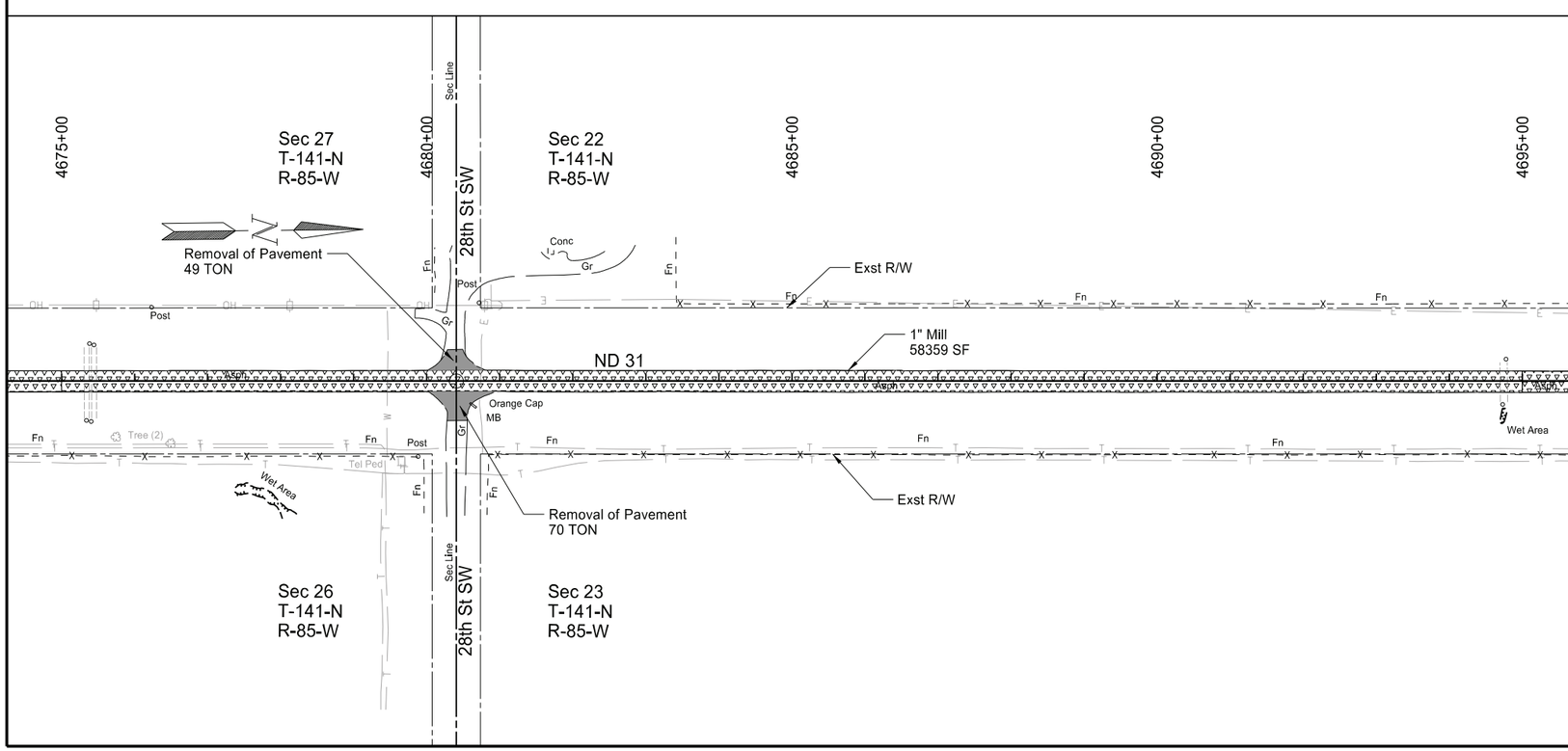
Removal Layout

Sta 4615+00 to Sta 4655+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	40	15





SPEC	CODE	BID ITEM	QTY	UNIT
202	0136	REMOVAL OF PAVEMENT		
		Sta 4680+00 to Sta 4680+82 LT	49	TON
		Sta 4680+01 to Sta 4680+99 RT	70	TON
411	0100	MILLING PAVEMENT SURFACE		
		Sta 4655+00 to Sta 4695+00	722	TON

Legend

- 1" Mill
- 3" Mill
- Removal of Pavement
- Subcut Excavation

ND 31

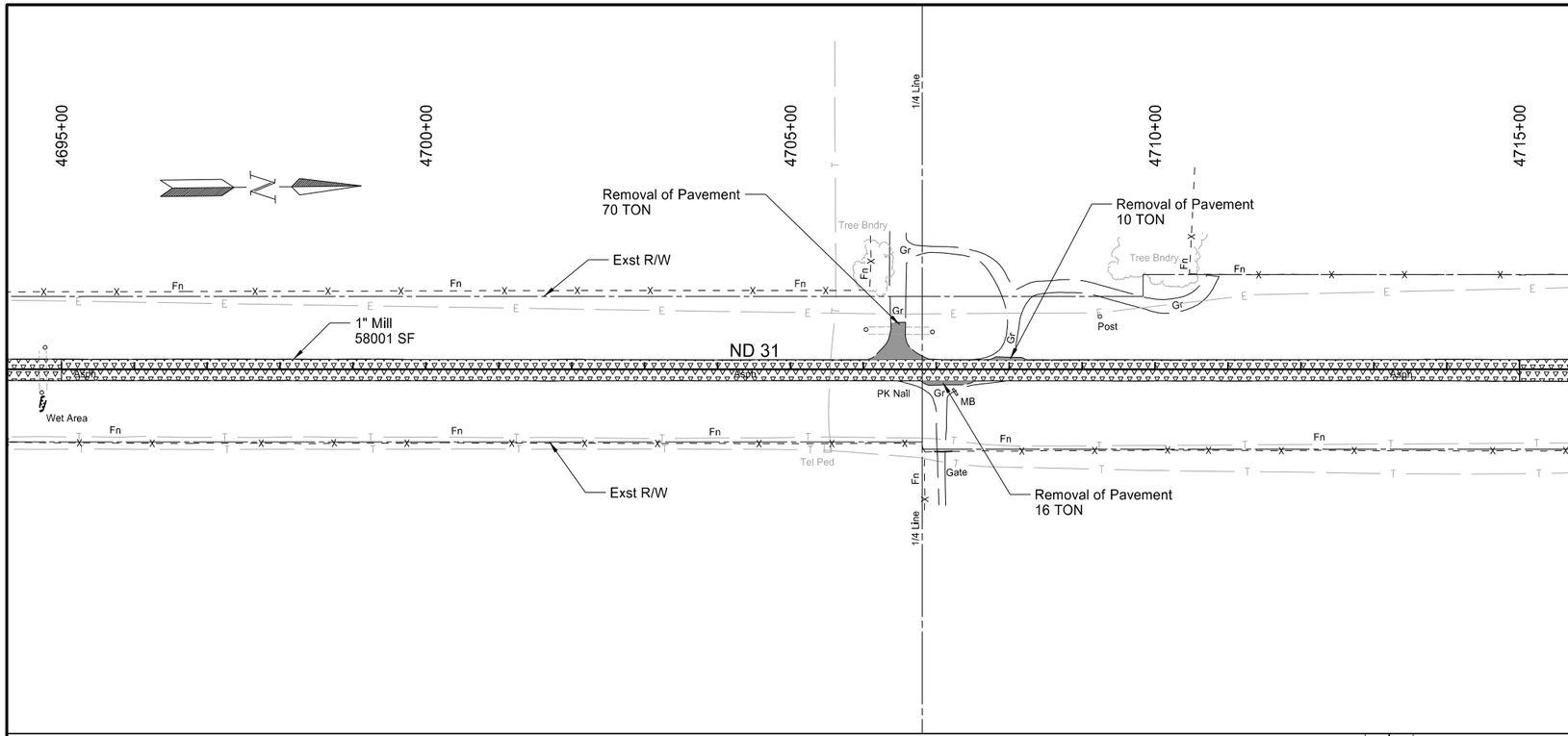
Jct I-94 to Hannover
Oliver County

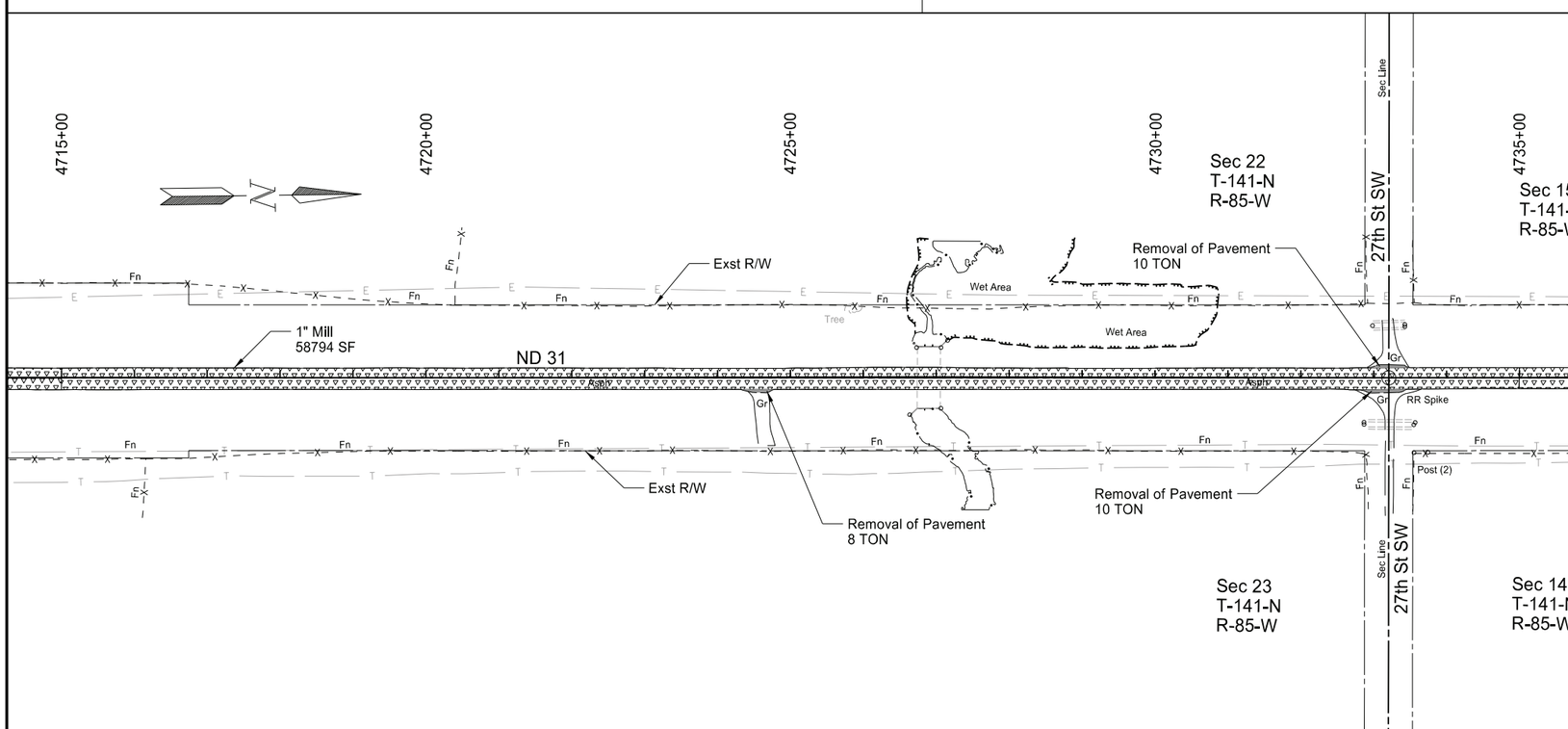
Removal Layout

Sta 4655+00 to Sta 4695+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	40	16





SPEC	CODE	BID ITEM	QTY	UNIT
202	0136	REMOVAL OF PAVEMENT		
		Sta 4706+01 to Sta 4706+97 LT	70	TON
		Sta 4706+78 to Sta 4707+85 RT	16	TON
		Sta 4707+61 to Sta 4708+26 LT	10	TON
		Sta 4724+30 to Sta 4724+80 RT	8	TON
		Sta 4732+74 to Sta 4733+47 RT	10	TON
		Sta 4732+65 to Sta 4733+80 LT	10	TON
411	0100	MILLING PAVEMENT SURFACE		
		Sta 4695+00 to Sta 4735+00	721	TON

Legend

- 1" Mill
- 3" Mill
- Removal of Pavement
- Subcut Excavation

ND 31

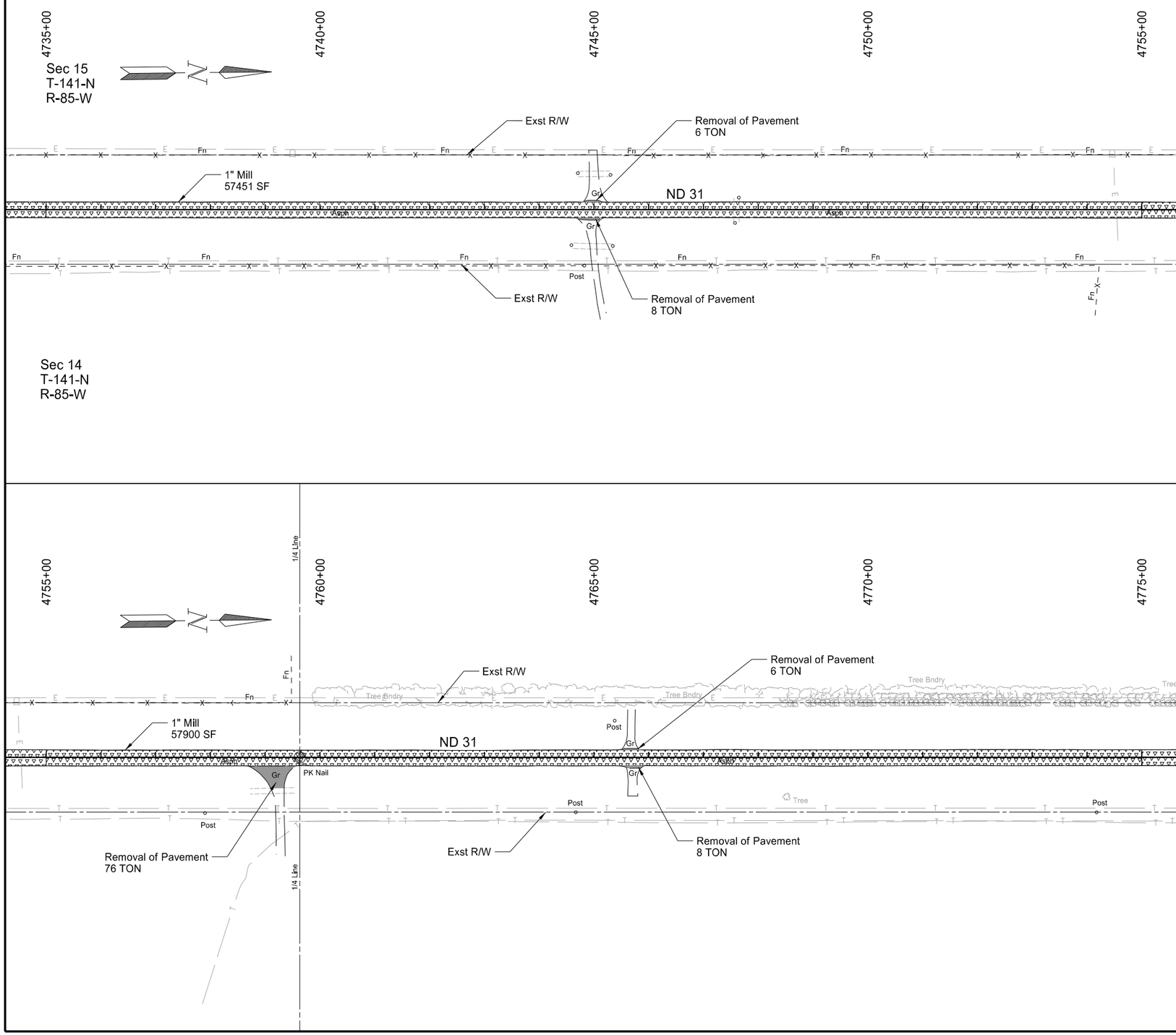
Jct I-94 to Hannover
Oliver County

Removal Layout

Sta 4695+00 to Sta 4735+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	40	17



SPEC	CODE	BID ITEM	QTY	UNIT
202	0136	REMOVAL OF PAVEMENT		
		Sta 4744+63 to Sta 4745+14 RT	8	TON
		Sta 4744+76 to Sta 4745+19 LT	6	TON
		Sta 4758+70 to Sta 4759+58 RT	76	TON
		Sta 4765+40 to Sta 4765+92 LT	6	TON
		Sta 4765+38 to Sta 4765+93 RT	8	TON
411	0100	MILLING PAVEMENT SURFACE		
		Sta 4735+00 to Sta 4775+00	713	TON

Legend

- 1" Mill
- 3" Mill
- Removal of Pavement
- Subcut Excavation

ND 31

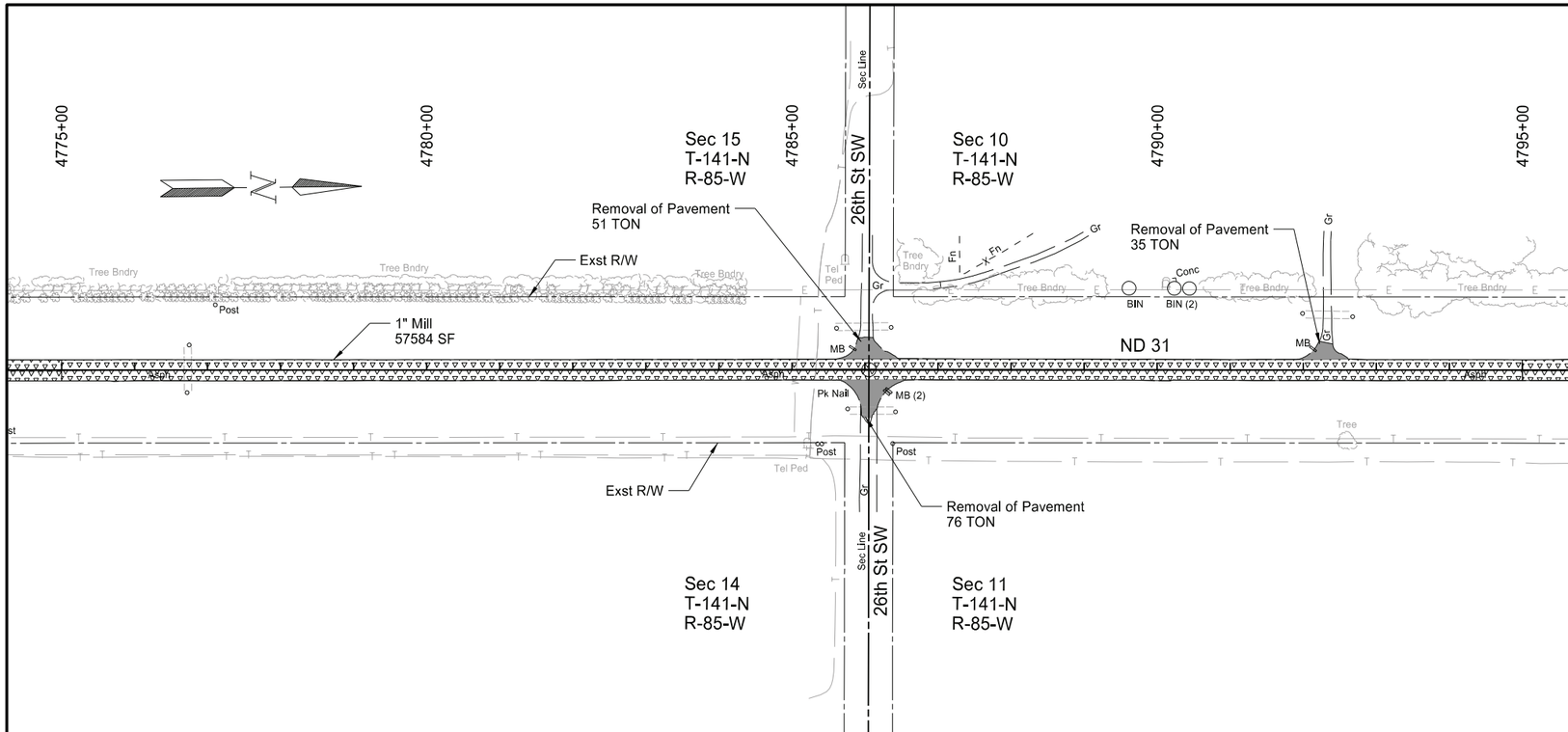
Jct I-94 to Hannover
Oliver County

Removal Layout

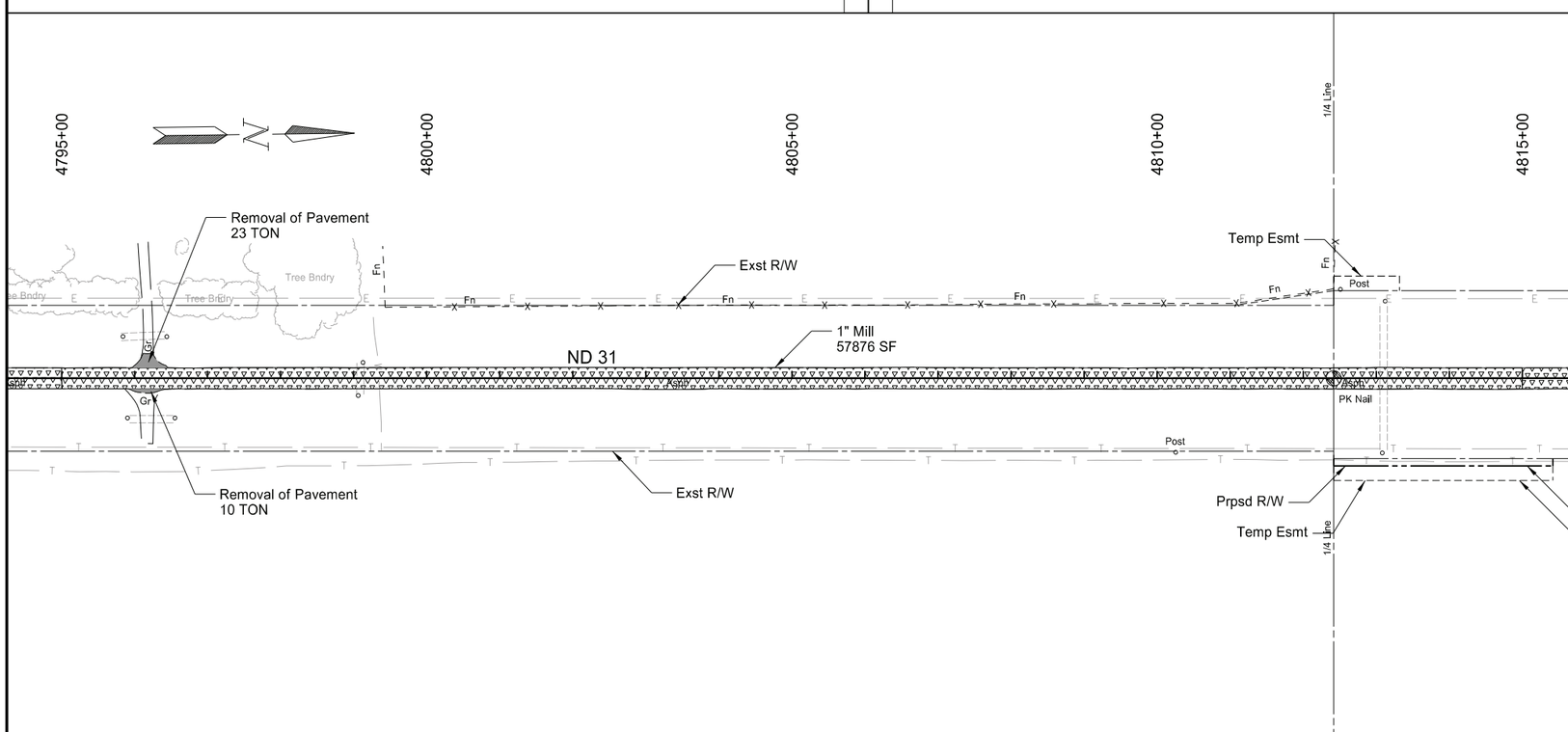
Sta 4735+00 to Sta 4775+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	40	18



SPEC	CODE	BID ITEM	QTY	UNIT
202	0136	REMOVAL OF PAVEMENT		
		Sta 4785+41 to Sta 4786+47 LT	51	TON
		Sta 4785+60 to Sta 4786+58 RT	76	TON
		Sta 4791+90 to Sta 4792+63 LT	35	TON
		Sta 4795+91 to Sta 4796+56 RT	23	TON
		Sta 4795+95 to Sta 4796+48 LT	10	TON
411	0100	MILLING PAVEMENT SURFACE		
		Sta 4775+00 to Sta 4815+00	713	TON



Legend

- 1" Mill
- 3" Mill
- Removal of Pavement
- Subcut Excavation

ND 31

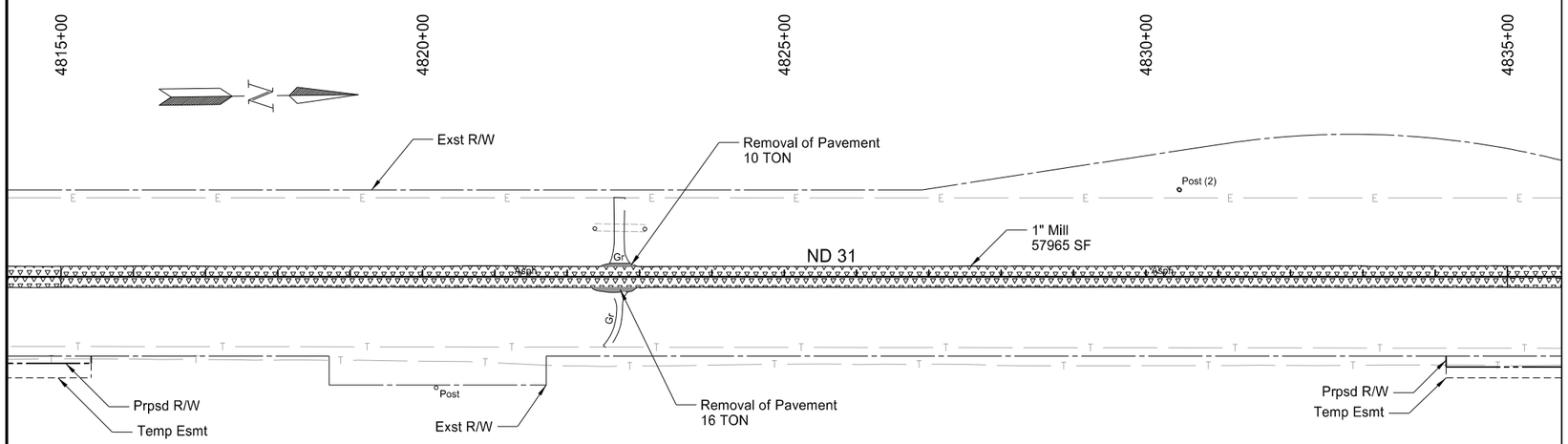
Jct I-94 to Hannover
Oliver County

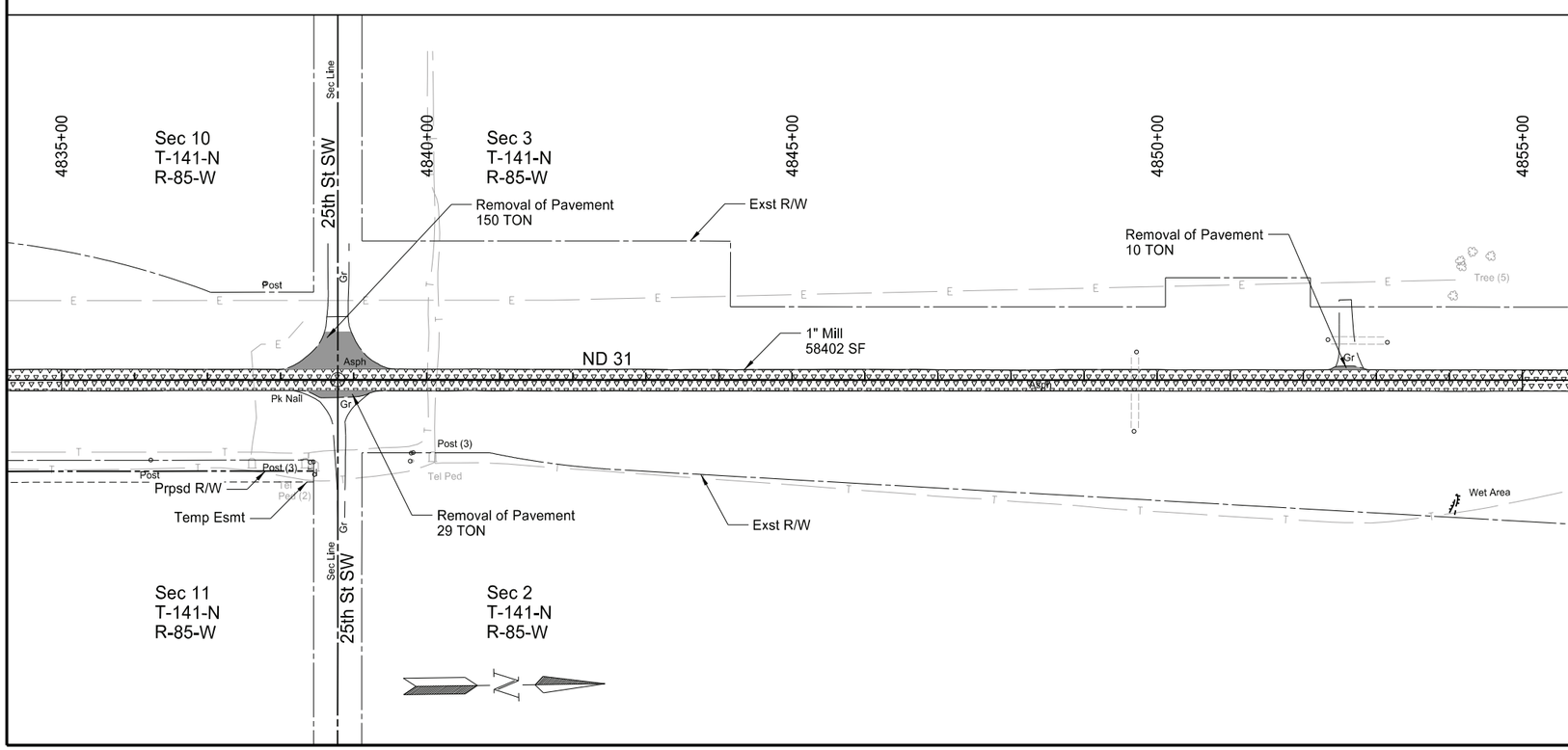
Removal Layout

Sta 4775+00 to Sta 4815+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	40	19





SPEC	CODE	BID ITEM	QTY	UNIT
202	0136	REMOVAL OF PAVEMENT		
		Sta 4822+34 to Sta 4822+98 RT	16	TON
		Sta 4822+43 to Sta 4822+99 LT	10	TON
		Sta 4838+00 to Sta 4839+54 LT	150	TON
		Sta 4838+18 to Sta 4839+39 RT	29	TON
		Sta 4852+30 to Sta 4853+07 LT	10	TON
411	0100	MILLING PAVEMENT SURFACE		
		Sta 4815+00 to Sta 4855+00	719	TON

Legend

- 1" Mill
- 3" Mill
- Removal of Pavement
- Subcut Excavation

ND 31

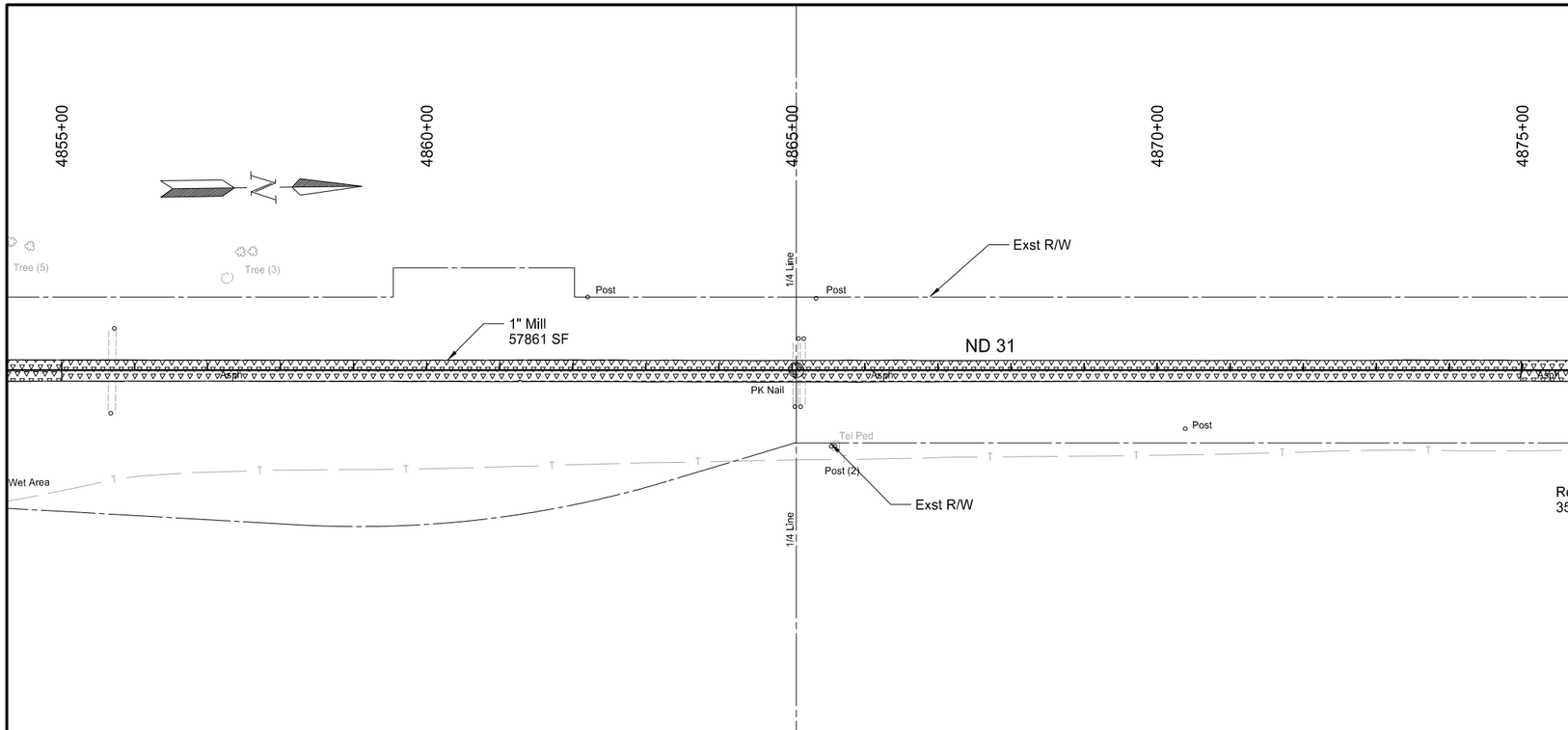
Jct I-94 to Hannover
Oliver County

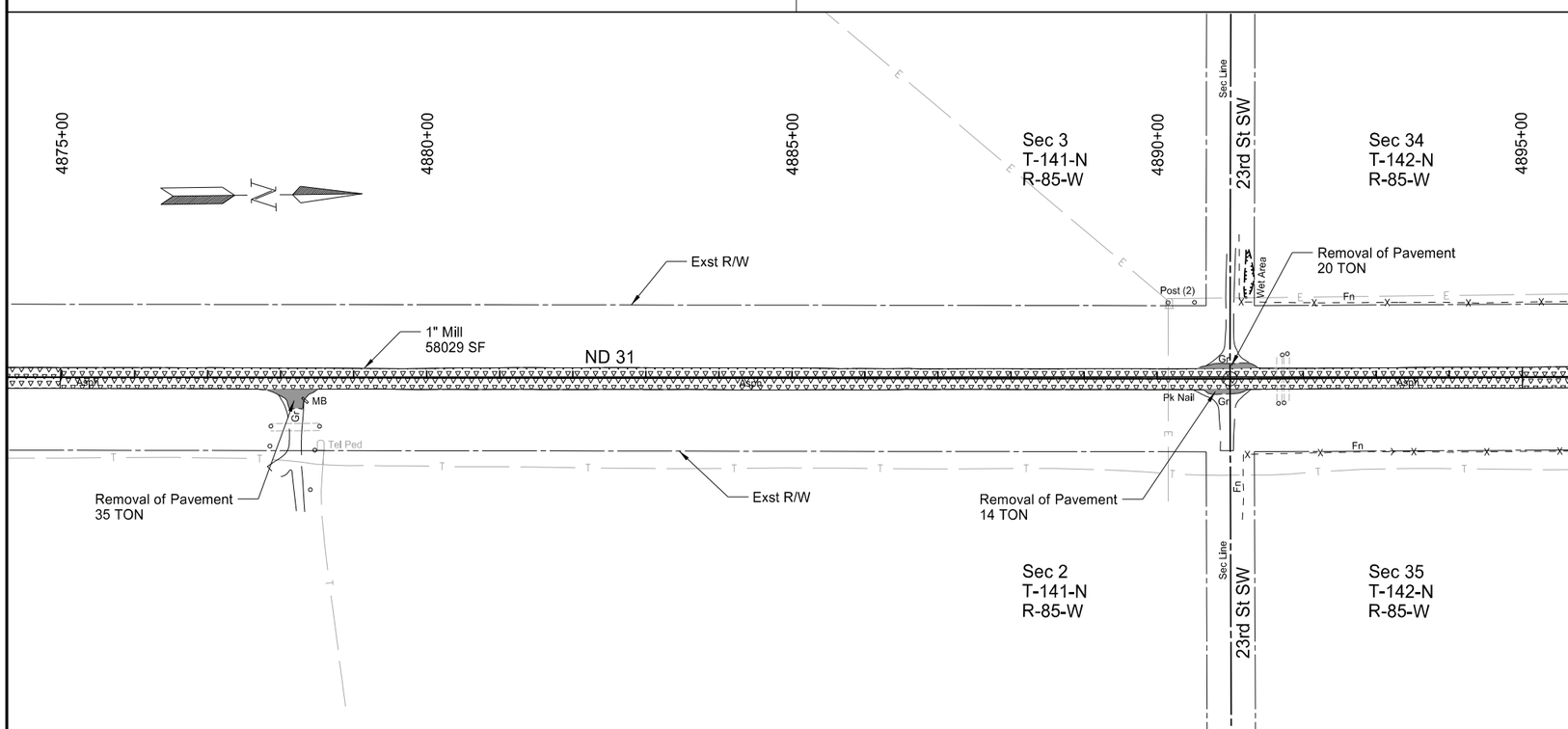
Removal Layout

Sta 4815+00 to Sta 4855+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	40	20





SPEC	CODE	BID ITEM	QTY	UNIT
202	0136	REMOVAL OF PAVEMENT		
		Sta 4877+77 to Sta 4878+52 RT	35	TON
		Sta 4890+54 to Sta 4891+39 LT	20	TON
		Sta 4890+60 to Sta 4891+27 RT	14	TON
411	0100	MILLING PAVEMENT SURFACE		
		Sta 4855+00 to Sta 4895+00	716	TON

Legend

- 1" Mill
- 3" Mill
- Removal of Pavement
- Subcut Excavation

ND 31

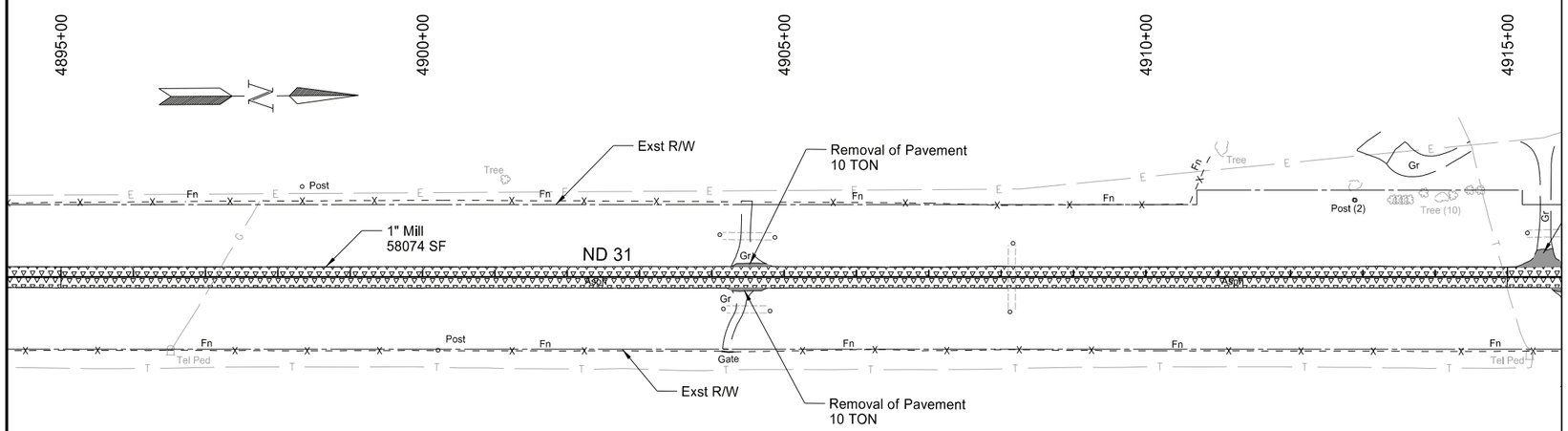
Jct I-94 to Hannover
Oliver County

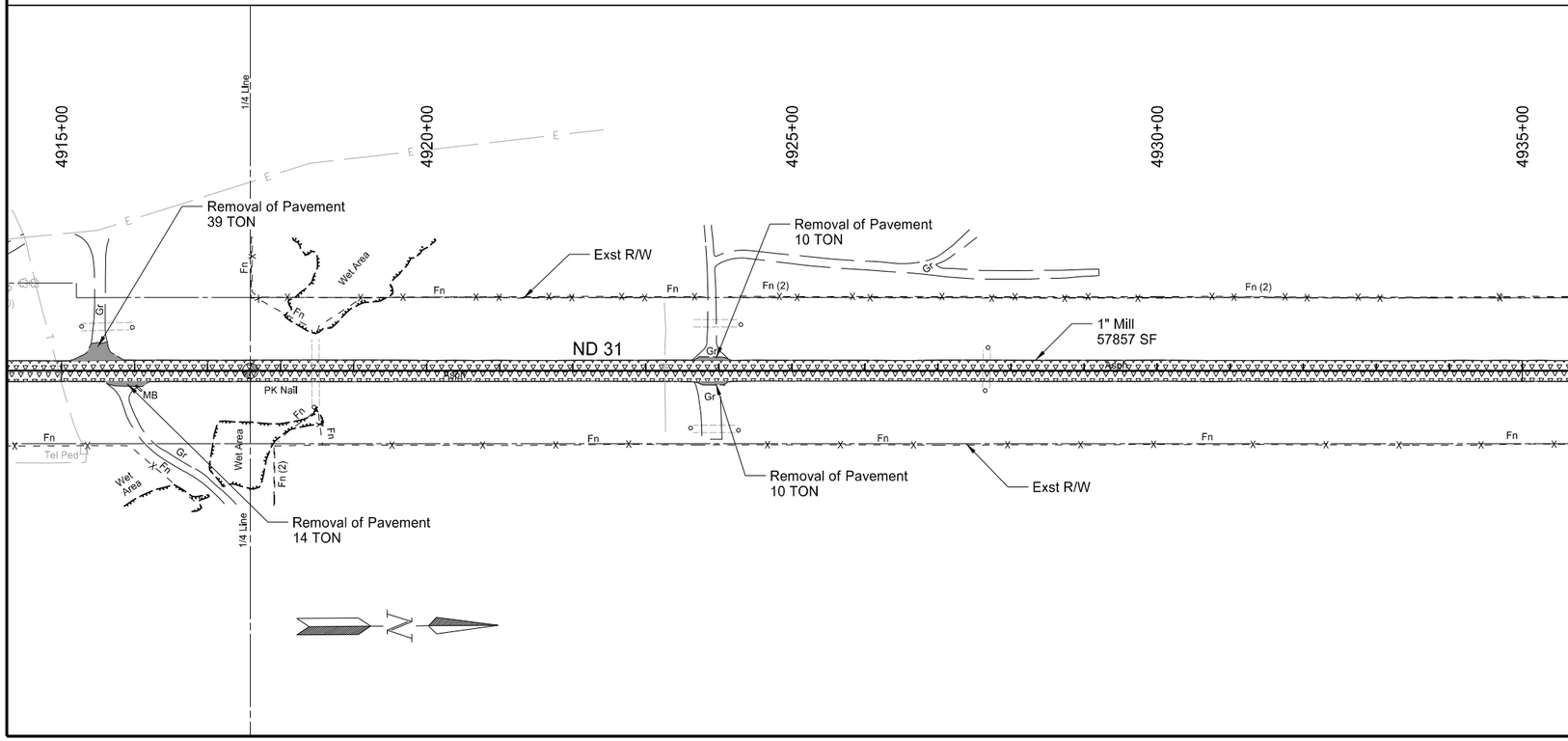
Removal Layout

Sta 4855+00 to Sta 4895+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	40	21





SPEC	CODE	ITEM DESCRIPTION	QTY	UNIT
202	0136	REMOVAL OF PAVEMENT		
		Sta 4903+97 to Sta 4904+78 RT	10	TON
		Sta 4904+26 to Sta 4904+84 LT	10	TON
		Sta 4915+00 to Sta 4916+08 LT	39	TON
		Sta 4915+59 to Sta 4916+25 RT	14	TON
		Sta 4293+64 to Sta 4924+17 LT	10	TON
		Sta 4293+67 to Sta 4924+14 RT	10	TON
411	0100	MILLING PAVEMENT SURFACE		
		Sta 4895+00 to Sta 4935+00	714	TON

Legend

- 1" Mill
- 3" Mill
- Removal of Pavement
- Subcut Excavation

ND 31

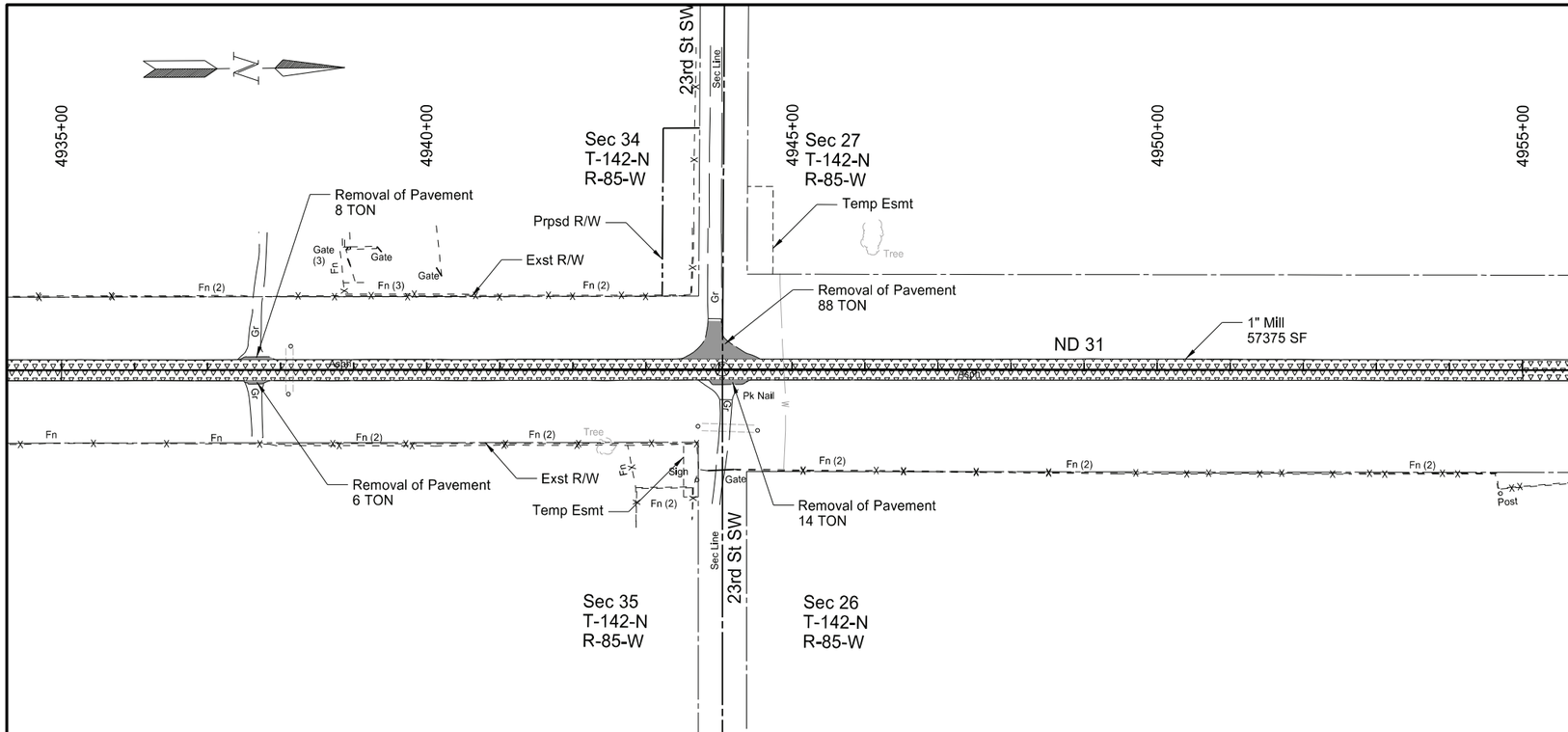
Jct I-94 to Hannover
Oliver County

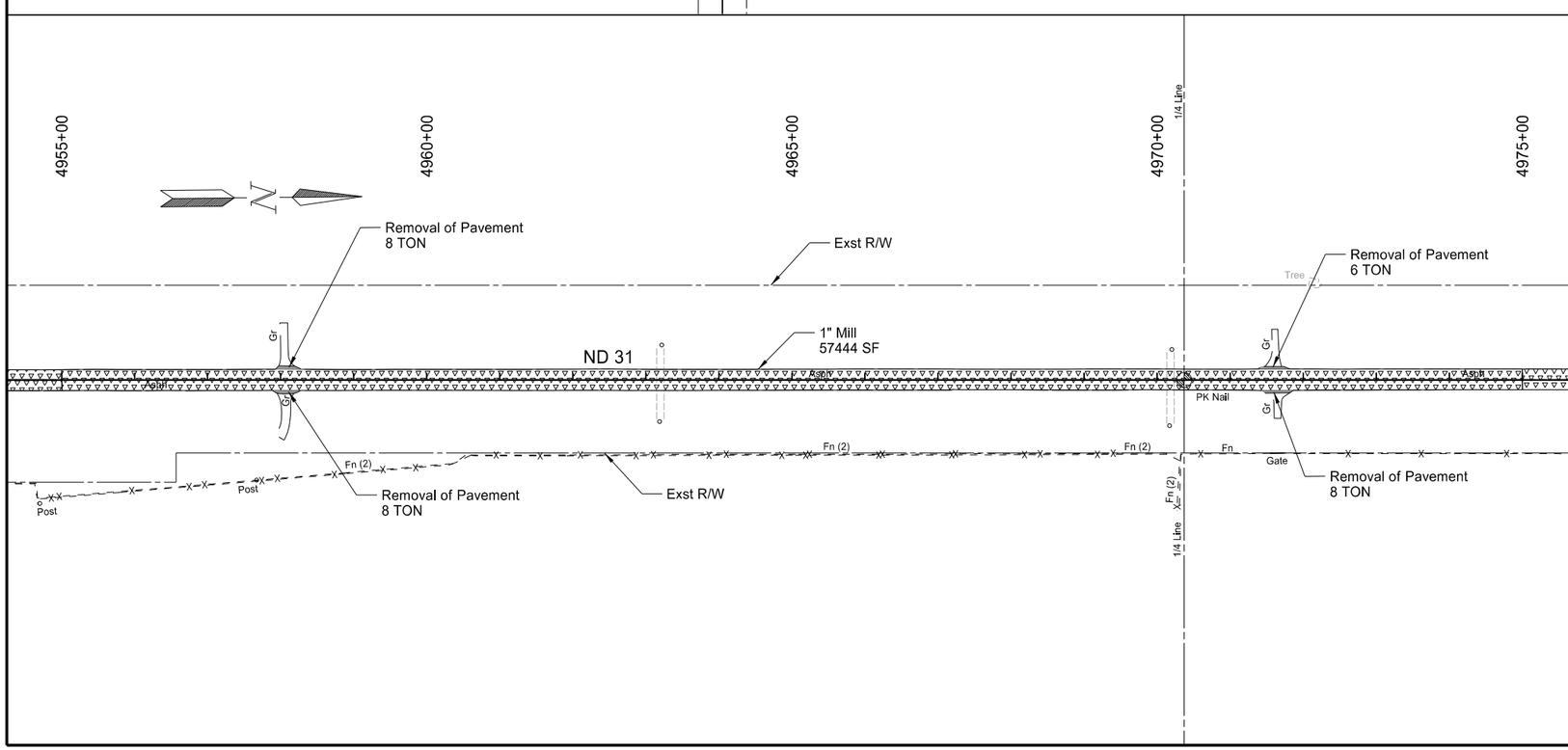
Removal Layout

Sta 4895+00 to Sta 4935+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	40	22





SPEC	CODE	ITEM DESCRIPTION	QTY	UNIT
202	0136	REMOVAL OF PAVEMENT		
		Sta 4937+41 to Sta 4937+94 LT	8	TON
		Sta 4937+48 to Sta 4937+89 RT	6	TON
		Sta 4943+46 to Sta 4944+57 LT	88	TON
		Sta 4943+85 to Sta 4944+45 RT	14	TON
		Sta 4957+88 to Sta 4958+27 RT	8	TON
		Sta 4957+92 to Sta 4958+43 LT	8	TON
		Sta 4971+38 to Sta 4971+82 LT	6	TON
		Sta 4971+42 to Sta 4971+87 RT	8	TON
411	0100	MILLING PAVEMENT SURFACE		
		Sta 4935+00 to Sta 4975+00	709	TON

Legend

- 1" Mill
- 3" Mill
- Removal of Pavement
- Subcut Excavation

ND 31

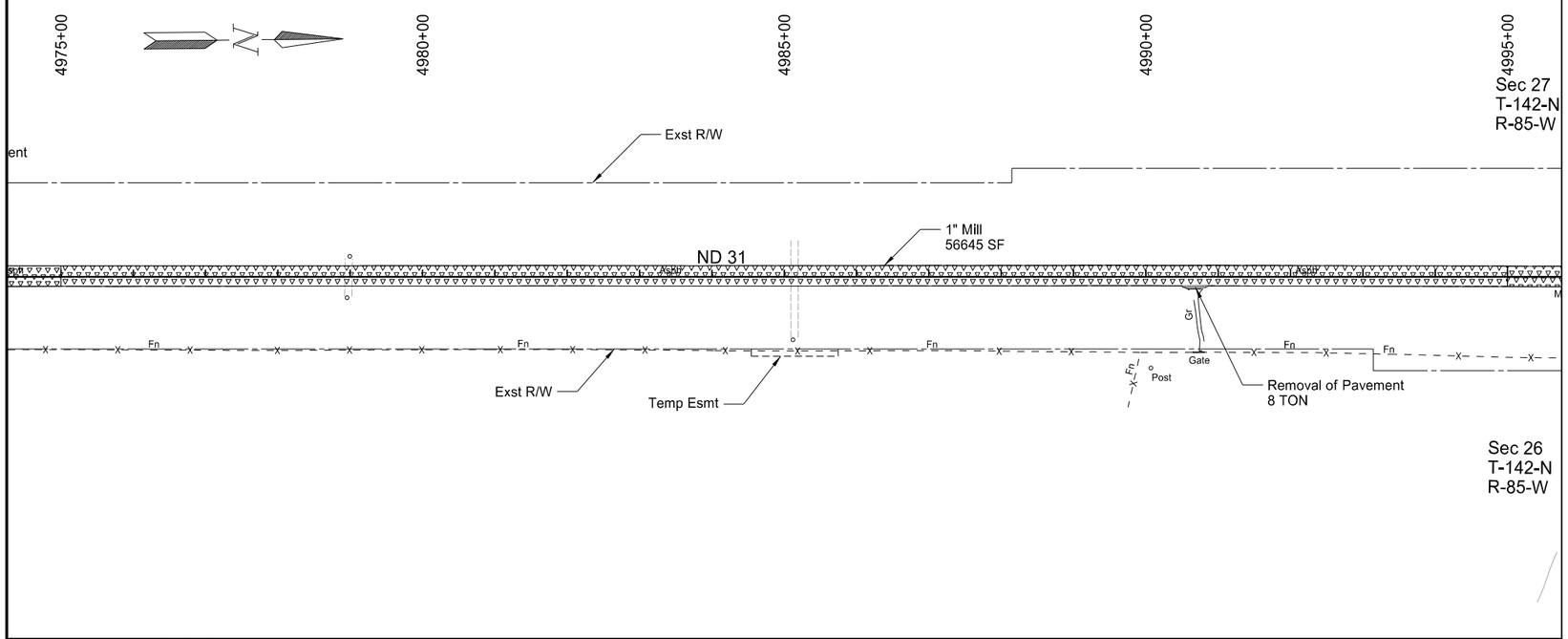
Jct I-94 to Hannover
Oliver County

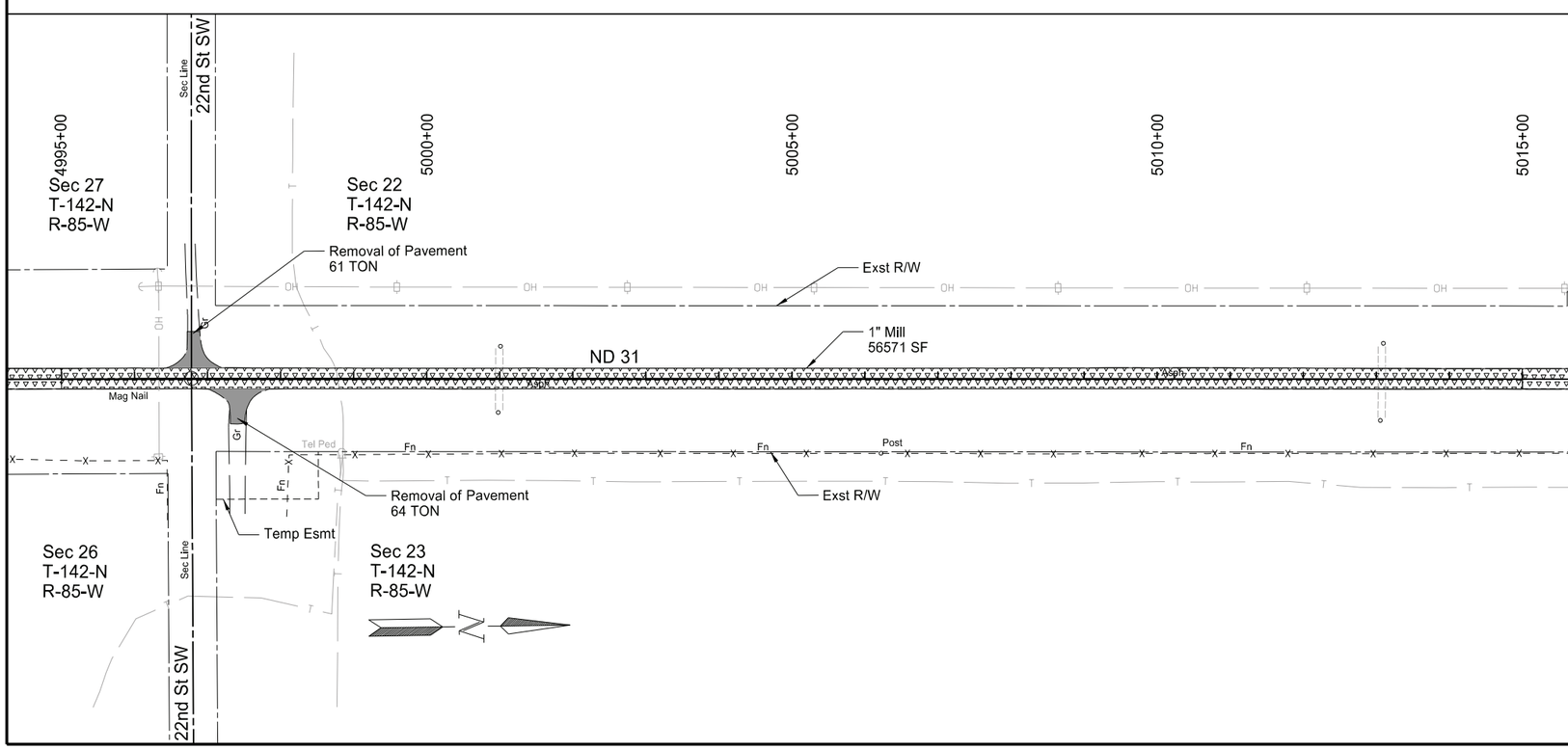
Removal Layout

Sta 4935+00 to Sta 4975+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	40	23





SPEC	CODE	ITEM DESCRIPTION	QTY	UNIT
202	0136	REMOVAL OF PAVEMENT		
		Sta 4990+50 to Sta 4990+96 RT	8	TON
		Sta 4996+39 to Sta 4997+23 LT	61	TON
		Sta 4996+99 to Sta 4997+85 RT	64	TON
411	0100	MILLING PAVEMENT SURFACE		
		Sta 4975+00 to Sta 5015+00	699	TON

Legend

- 1" Mill
- 3" Mill
- Removal of Pavement
- Subcut Excavation

ND 31

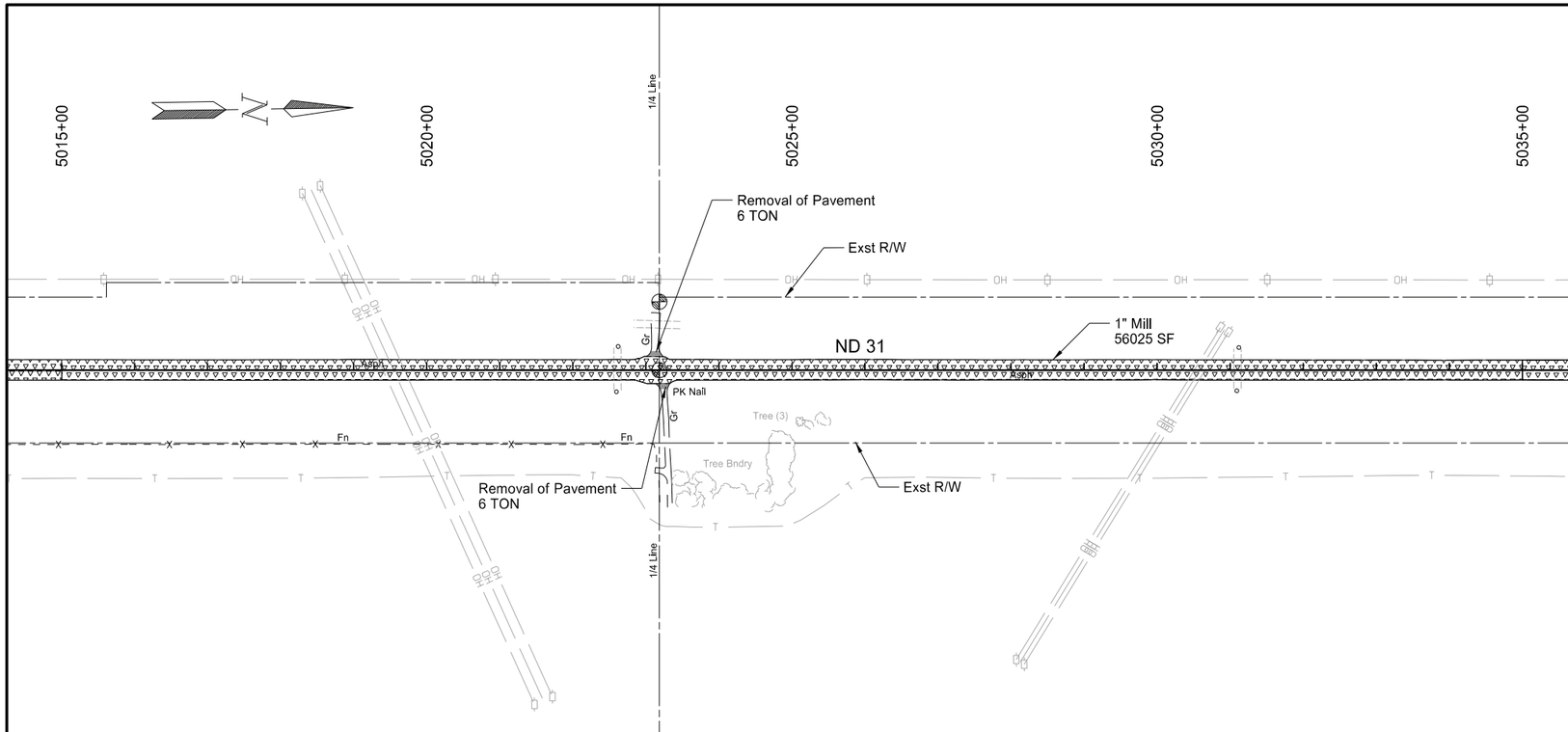
Jct I-94 to Hannover
Oliver County

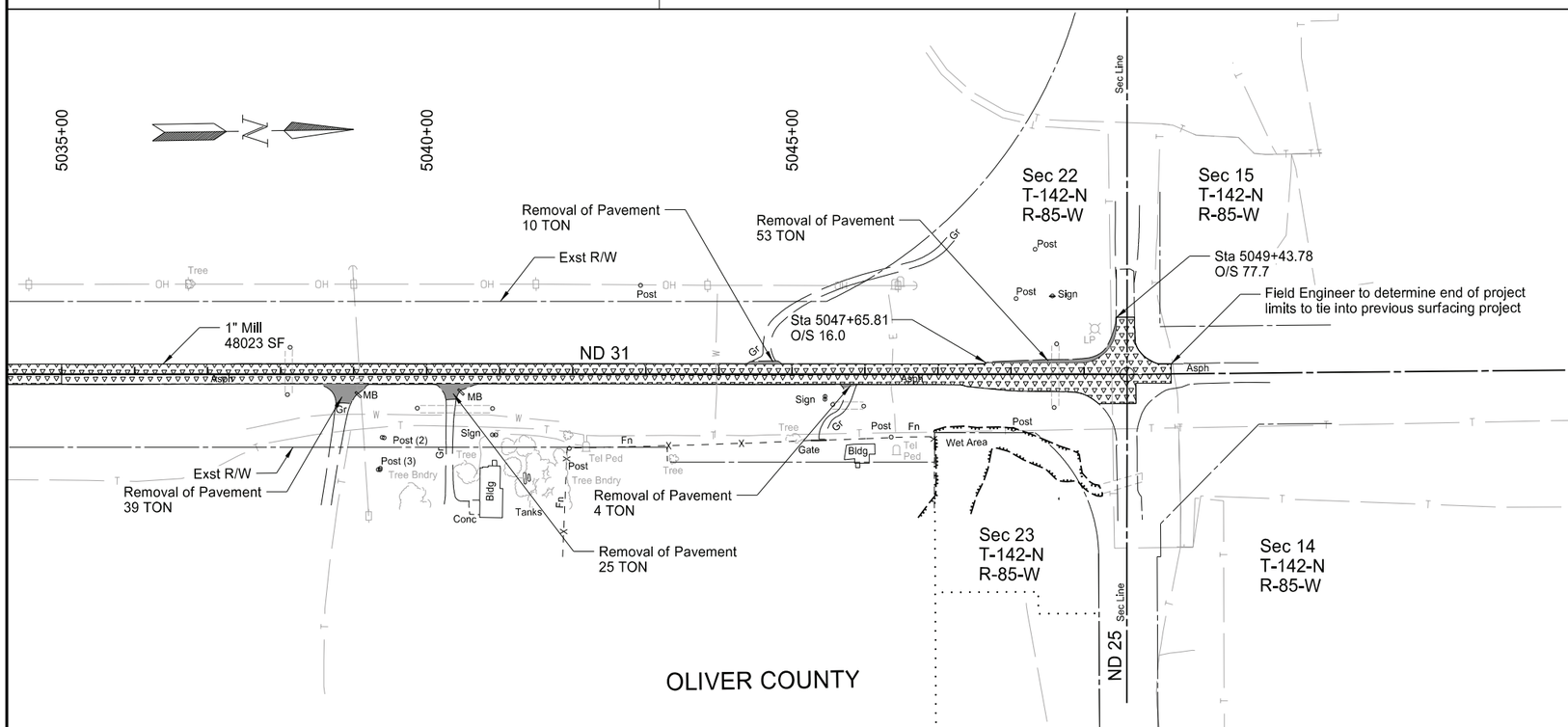
Removal Layout

Sta 4975+00 to Sta 5015+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	40	24





SPEC	CODE	ITEM DESCRIPTION	QTY	UNIT
202	0136	REMOVAL OF PAVEMENT		
		Sta 5047+66 to Sta 5049+44 LT	53	TON
		Sta 5023+01 to Sta 5023+24 LT	6	TON
		Sta 5023+13 to Sta 5023+33 RT	6	TON
		Sta 5038+56 to Sta 5039+20 RT	39	TON
		Sta 5040+09 to Sta 5040+73 RT	25	TON
		Sta 5044+36 to Sta 5044+86 LT	10	TON
		Sta 5045+66 to Sta 5045+89 RT	4	TON
411	0100	MILLING PAVEMENT SURFACE		
		Sta 5015+00 to Sta 5050+19	643	TON

Legend

- 1" Mill
- 3" Mill
- Removal of Pavement
- Subcut Excavation

ND 31

Jct I-94 to Hannover
Oliver County

Removal Layout

Sta 5015+00 to Sta 5050+19

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	51	1

Begin Station/ Location	Begin Offset	End Station/ Location	End Offset	Pipe Installation (Pay Item)			Allowable Material	Required Diameter	Steel Pipe Coatings	Steel Pipe Corrugations or Spiral Ribs	Steel Pipe Minimum Thickness	(*) End Treatments		Type G (Pay Item)	Applicable Backfill Detail	Notes
												Begin	End			
				IN	Bid Item	LF		IN	Type	IN	IN	EA	EA	SY		
4156+48	45.3' RT	4156+48	55.2' LT	24	Pipe Conc. Reinf. CL III (Extension)	4 RT 0 LT	Reinforced Concrete Pipe - Class II (Barrel Length = 4 LF)	24				Remove & Relay			Section 20 Sheet 3	
4171+36	39.4' RT	4171+37	31.2' LT	24	Pipe Conc. Reinf. CL III (Extension)	8 RT 6 LT	Reinforced Concrete Pipe - Class III (Barrel Length = 14 LF)	24				Remove & Relay	Remove & Relay		Section 20 Sheet 3	
4219+23	35.4' RT	4219+21	32.7' LT	36	Pipe Conduit	68	Reinforced Concrete Pipe - Class III (Barrel Length = 62 LF)	36				FES	FES	180	D-714-26	(A)
							Corrugated Steel Pipe	42	Z, A, P	2	0.064					
4252+56	36.0' RT	4252+56	42.2' LT	24	Pipe Conc. Reinf. CL III (Extension)	6 RT 10 LT	Reinforced Concrete Pipe - Class III (Barrel Length = 16 LF)	24				Remove & Relay	Remove & Relay		Section 20 Sheet 3	
4263+38	31.0' LT	4263+38	39.7' RT	24	Pipe Conc. Reinf. CL III (Extension)	6 RT 8 LT	Reinforced Concrete Pipe - Class III (Barrel Length = 14 LF)	24				Remove & Relay	Remove & Relay		Section 20 Sheet 3	
4279+96	50.8' RT	4279+96	63.3' LT	30	Pipe Conc. Reinf. CL III (Extension)	8 RT 8 LT	Reinforced Concrete Pipe - Class III (Barrel Length = 16 LF)	30				Remove & Relay	Remove & Relay		Section 20 Sheet 3	
4303+50	43.0' LT	4303+51	51.7' RT	24	Pipe Conc. Reinf. CL III (Extension)	10 RT 6 LT	Reinforced Concrete Pipe - Class III (Barrel Length = 16 LF)	24				Remove & Relay	Remove & Relay		Section 20 Sheet 3	
4378+99	33.2' LT	4378+99	39.3' RT	24	Pipe Conc. Reinf. CL III (Extension)	8 RT 6 LT	Reinforced Concrete Pipe - Class III (Barrel Length = 14 LF)	24				Remove & Relay	Remove & Relay		Section 20 Sheet 3	
4417+06	36.2' LT	4417+08	37.7' RT	36	Pipe Conduit	74	Reinforced Concrete Pipe - Class III (Barrel Length = 68 LF)	36				FES	FES	200	D-714-26	(A)
							Corrugated Steel Pipe	42	Z, A, P	2	0.064					
4427+90	42.0' LT	4427+91	46.9' RT	24	Pipe Conduit	89	Reinforced Concrete Pipe - Class III (Barrel Length = 84 LF)	24				FES	FES	190	D-714-26	(A)
							Corrugated Steel Pipe	30	Z, A, P	2	0.064					
4464+21	34.0' RT	4464+21	34.0' LT	24	Pipe Conc. Reinf. CL III (Extension)	4 RT 8 LT	Reinforced Concrete Pipe - Class III (Barrel Length = 11 LF)	24				Remove & Relay	TES		Section 20 Sheet 3	
4479+51	29.8' RT	4479+51	50.4' LT	24	Pipe Conc. Reinf. CL III (Extension)	6 RT 10 LT	Reinforced Concrete Pipe - Class III (Barrel Length = 16 LF)	24				Remove & Relay	Remove & Relay		Section 20 Sheet 3	
4487+12	31.5' RT	4487+12	32.9' LT	24	Pipe Conc. Reinf. CL III (Extension)	6 RT 6 LT	Reinforced Concrete Pipe - Class III (Barrel Length = 12 LF)	24				Remove & Relay	Remove & Relay		Section 20 Sheet 3	
4500+91	41.3' RT	4500+92	57.2' LT	24	Pipe Conc. Reinf. CL III (Extension)	6 RT 10 LT	Reinforced Concrete Pipe - Class III (Barrel Length = 16 LF)	24				Remove & Relay	Remove & Relay		Section 20 Sheet 3	
4510+12	34.9' RT	4510+12	47.1' LT	24	Pipe Conc. Reinf. CL III (Extension)	6 RT 6 LT	Reinforced Concrete Pipe - Class III (Barrel Length = 12 LF)	24				Remove & Relay	Remove & Relay		Section 20 Sheet 3	
4521+12	38.7' LT	4521+11	42.1' RT	30	Pipe Conc. Reinf. CL III (Extension)	8 RT 8 LT	Reinforced Concrete Pipe - Class III (Barrel Length = 16 LF)	30				Remove & Relay	Remove & Relay		Section 20 Sheet 3	

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

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

Corrugations: 2 = 2-2/3"x1/2"
3 = 3"x1"
5 = 5"x1"

(*) The price bid for "Pipe Conduit" bid items includes end treatments.
FES = Flared End Section
TES = Traversable End Section

Notes: (A) Centerline culvert full replacement.

ND 31

Jct I-94 to Hannover
Morton County

Allowable Pipe List
Centerline Pipes

REGISTERED PROFESSIONAL ENGINEER
ZACHARY THELEN
PE-40305
DATE: 10/28/24
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	51	2

Begin Station/ Location	Begin Offset	End Station/ Location	End Offset	Pipe Installation (Pay Item)			Allowable Material	Required Diameter	Steel Pipe Coatings	Steel Pipe Corrugations or Spiral Ribs	Steel Pipe Minimum Thickness	(*) End Treatments Begin	End	Type G (Pay Item)	Applicable Backfill Detail	Notes
4553+69	34.6' LT	4553+69	46.6' RT	24	Pipe Conc, Reinf, CL III (Extension)	10 RT 10 LT	Reinforced Concrete Pipe - Class III (Barrel Length = 20 LF)	24				Remove & Relay	Remove & Relay		Section 20 Sheet 3	
4564+79	40.6' RT	4564+80	47.2' LT	36	Pipe Conduit	88	Reinforced Concrete Pipe - Class III (Barrel Length = 82 LF)	36				FES	FES	240	D-714-26	(A)
							Corrugated Steel Pipe	42	Z, A, P	2	0.064					

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

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

Corrugations: 2 = 2-2/3"x1/2"
3 = 3"x1"
5 = 5"x1"

(*) The price bid for "Pipe Conduit" bid items includes end treatments.
FES = Flared End Section
TES = Traversable End Section

Notes: (A) Centerline culvert full replacement.

ND 31

Jct I-94 to Hannover
Morton County

Allowable Pipe List
Centerline Pipes

REGISTERED PROFESSIONAL ENGINEER
ZACHARY THELEN
PE-40305
DATE: 10/28/24
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	51	3

Begin Station/ Location	Begin Offset	End Station/ Location	End Offset	Pipe Installation (Pay Item) IN	Bid Item	LF	Allowable Material	Required Diameter IN	Steel Pipe Coatings Type	Steel Pipe Corrugations or Spiral Ribs IN	Steel Pipe Minimum Thickness IN	(*) End Treatments Begin EA	End EA	Type G (Pay Item) (A) SY	Applicable Backfill Detail	Notes
4151+83	45.7' RT	4152+56	46.4' RT	18	Pipe Corr. Steel (Extension)	8 N 5 S	Corrugated Steel Pipe	18	Z, A, P	2	0.064	Remove & Relay	Remove & Relay		Spec 714.04A	
4159+98	40.5' LT	4161+23	42' LT	18	Pipe Conduit - Approach	125	Reinforced Concrete Pipe - Class III (Barrel Length = 118 LF) Corrugated Steel Pipe	18	Z, A, P	2	0.064	FES	FES	230	D-203-8	(A)
4160+51	55.3' RT	4161+60	48.8' RT	18	Pipe Corr. Steel (Extension)	0 N 10 S	Corrugated Steel Pipe	18	Z, A, P	3	0.064	Remove & Relay			Spec 714.04A	
4186+81	55.2' LT	4187+57	56.6' LT	24	Pipe Conc. Reinf. CL III (Extension)	16 N 0 S	Reinforced Concrete Pipe - Class III (Barrel Length = 16 LF)	24					Remove & Relay		Spec 714.04A	
4186+68	53.2' RT	4187+86	59' RT	18	Pipe Conc. Reinf. CL III (Extension)	28 N 12 S	Reinforced Concrete Pipe - Class III (Barrel Length = 40 LF)	18				Remove & Relay	Remove & Relay		Spec 714.04A	
4296+62	72.3' RT	4295+83	70.5' RT	18	Pipe Corr. Steel (Extension)	6 N 7 S	Corrugated Steel Pipe	18	Z, A, P	2	0.064	Remove & Relay	Remove & Relay		Spec 714.04A	
4297+02	52.5' LT	4296+02	53.3' LT	18	Pipe Corr. Steel (Extension)	0 N 9 S	Corrugated Steel Pipe	18	Z, A, P	2	0.064		Remove & Relay		Spec 714.04A	
4324+36	53.8' RT	4325+20	53.4' RT	18	Pipe Corr. Steel (Extension)	19 N 4 S	Corrugated Steel Pipe	18	Z, A, P	2	0.064	Remove & Relay	Remove & Relay		Spec 714.04A	
4401+63	57' LT	4402+69	57.1' LT	18	Pipe Corr. Steel (Extension)	8 N 7 S	Corrugated Steel Pipe	18	Z, A, P	2	0.064	Remove & Relay	Remove & Relay		Spec 714.04A	
4401+70	57' RT	4402+58	56.9' RT	18	Pipe Corr. Steel (Extension)	4 N 0 S	Corrugated Steel Pipe	18	Z, A, P	3	0.064		Remove & Relay		Spec 714.04A	
4436+85	60.2' RT	4437+43	59.2' RT	24	Pipe Conc. Reinf. CL III (Extension)	4 N 0 S	Reinforced Concrete Pipe - Class III (Barrel Length = 4 LF)	24					Remove & Relay		Spec 714.04A	
4482+29	60.3' RT	4481+66	59.9' RT	24	Pipe Conc. Reinf. CL III (Extension)	0 N 4 S	Reinforced Concrete Pipe - Class III (Barrel Length = 4 LF)	24					Remove & Relay		Spec 714.04A	
4534+86	45.5' RT	4534+06	45.1' RT	18	Pipe Corr. Steel (Extension)	0 N 23 S	Corrugated Steel Pipe	18	Z, A, P	2	0.064		Remove & Relay		Spec 714.04A	
4534+88	64.7' LT	4534+22	64.5' LT	18	Pipe Corr. Steel (Extension)	0 N 9 S	Corrugated Steel Pipe	18	Z, A, P	2	0.064		Remove & Relay		Spec 714.04A	
4549+92	52.8' RT	4550+63	52.4' RT	24	Pipe Corr. Steel (Extension)	9 N 0 S	Corrugated Steel Pipe	24	Z, A, P	2	0.064		Remove & Relay		Spec 714.04A	
4549+91	59.2' LT	4550+67	58.8' LT	18	Pipe Corr. Steel (Extension)	16 N 5 S	Corrugated Steel Pipe	18	Z, A, P	2	0.064	Remove & Relay	Remove & Relay		Spec 714.04A	
4573+68	52.6' RT	4574+58	49.8' RT	18	Pipe Corr. Steel (Extension)	0 N 9 S	Corrugated Steel Pipe	18	Z, A, P	2	0.064	Remove & Relay			Spec 714.04A	

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

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

Corrugations: 2 = 2-2/3"x1/2"
3 = 3"x1"
5 = 5"x1"

(*) The price bid for "Pipe Conduit" bid items includes end treatments.
FES = Flared End Section

Notes: (A) Approach culvert full replacement.

ND 31

Jct I-94 to Hannover
Morton County

Allowable Pipe List
Approach Pipes

REGISTERED PROFESSIONAL ENGINEER
ZACHARY THELEN
PE-40305
DATE: 10/28/24
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	51	4

Begin Station/ Location	Begin Offset	End Station/ Location	End Offset	Pipe Installation (Pay Item)			Allowable Material	Required Diameter	Steel Pipe Coatings	Steel Pipe Corrugations or Spiral Ribs	Steel Pipe Minimum Thickness	(*) End Treatments		Type G (Pay Item)	Applicable Backfill Detail	Notes
												Begin	End			
				IN	Bid Item	LF		IN	Type	IN	IN	EA	EA	SY		
4588+01	36.0' LT	4588+00	45.0' RT	72	Pipe Conc. Reinf. CL III (Extension)	6 RT 4 LT	Reinforced Concrete Pipe - Class III (Barrel Length = 10 LF)	72				Remove & Relay	Remove & Relay		Section 20 Sheet 3	
4615+23	30.3' LT	4615+20	38.6' RT	36	Pipe Conc. Reinf. CL III (Extension)	10 RT 0 LT	Reinforced Concrete Pipe - Class III (Barrel Length = 10 LF)	36					Remove & Relay		Section 20 Sheet 3	
4638+84	52.7' LT	4638+84	60.3' RT	24	Pipe Conc. Reinf. CL III (Extension)	8 RT 8 LT	Reinforced Concrete Pipe - Class III (Barrel Length = 16 LF)	24				Remove & Relay	Remove & Relay		Section 20 Sheet 3	
4650+99	41.8' LT	4650+86	37.5' RT	24	Pipe Conc. Reinf. CL III (Extension)	8 RT 16 LT	Reinforced Concrete Pipe - Class III (Barrel Length = 24 LF)	24				Remove & Relay	Remove & Relay		Section 20 Sheet 3	
4675+35	54.4' LT	4675+36	61.3' RT	36	Pipe Conc. Reinf. CL III (Extension)	10 RT 6 LT	Reinforced Concrete Pipe - Class III (Barrel Length = 16 LF)	36				Remove & Relay	Remove & Relay		Section 20 Sheet 3	
4675+43	54.3' LT	4675+43	61.2' RT	36	Pipe Conc. Reinf. CL III (Extension)	10 RT 6 LT	Reinforced Concrete Pipe - Class III (Barrel Length = 16 LF)	36				Remove & Relay	Remove & Relay		Section 20 Sheet 3	
4694+74	37.2' LT	4694+75	40.3' RT	30	Pipe Conc. Reinf. CL III (Extension)	10 RT 10 LT	Reinforced Concrete Pipe - Class III (Barrel Length = 20 LF)	30				Remove & Relay	Remove & Relay		Section 20 Sheet 3	
4747+61	28.2' LT	4747+60	30.5' RT	72	Pipe Conc. Reinf. CL III (Extension)	6 RT 6 LT	Reinforced Concrete Pipe - Class III (Barrel Length = 12 LF)	72				Remove & Relay	Remove & Relay		Section 20 Sheet 3	
4776+73	34.6' RT	4776+73	37.9' LT	24	Pipe Conc. Reinf. CL III (Extension)	6 RT 6 LT	Reinforced Concrete Pipe - Class III (Barrel Length = 12 LF)	24				Remove & Relay	Remove & Relay		Section 20 Sheet 3	
4799+09	31.9' RT	4799+09	30.8' LT	72	Pipe Conc. Reinf. CL III (Extension)	10 RT 10 LT	Reinforced Concrete Pipe - Class III (Barrel Length = 20 LF)	72				Remove & Relay	Remove & Relay		Section 20 Sheet 3	
4813+10	104.3' RT	4813+10	102.2' LT	30	Pipe Conc. Reinf. CL III (Extension)	6 RT 0 LT	Reinforced Concrete Pipe - Class III (Barrel Length = 6 LF)	30				Remove & Relay			Section 20 Sheet 3	
4849+70	85.9' RT	4849+70	41.9' LT	30	Pipe Conc. Reinf. CL III (Extension)	20 RT 8 LT	Reinforced Concrete Pipe - Class III (Barrel Length = 28 LF)	30				Remove & Relay	Remove & Relay		Section 20 Sheet 3	
4855+70	60.3' LT	4855+70	61.4' RT	36	Pipe Conc. Reinf. CL III (Extension)	6 RT 6 LT	Reinforced Concrete Pipe - Class III (Barrel Length = 12 LF)	36				Remove & Relay	Remove & Relay		Section 20 Sheet 3	
4865+07	46.3' LT	4865+06	53.0' RT	36	Pipe Conc. Reinf. CL III (Extension)	6 RT 6 LT	Reinforced Concrete Pipe - Class III (Barrel Length = 12 LF)	36				Remove & Relay	Remove & Relay		Section 20 Sheet 3	
4865+13	46.1' LT	4865+13	52.9' RT	36	Pipe Conc. Reinf. CL III (Extension)	6 RT 6 LT	Reinforced Concrete Pipe - Class III (Barrel Length = 12 LF)	36				Remove & Relay	Remove & Relay		Section 20 Sheet 3	
4908+15	49.4' RT	4908+15	52.0' LT	24	Pipe Conc. Reinf. CL III (Extension)	4 RT 8 LT	Reinforced Concrete Pipe - Class III (Barrel Length = 12 LF)	24				Remove & Relay	Remove & Relay		Section 20 Sheet 3	

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

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

Corrugations: 2 = 2-2/3"x1/2"
3 = 3"x1"
5 = 5"x1"

(*) The price bid for "Pipe Conduit" bid items includes end treatments.
FES = Flared End Section
TES = Traversable End Section

Notes: (A) Centerline culvert full replacement.

ND 31

Jct I-94 to Hannover
Oliver County

Allowable Pipe List
Centerline Pipes

REGISTERED PROFESSIONAL ENGINEER
ZACHARY THELEN
PE-40305
DATE: 10/28/24
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	51	5

Begin Station/ Location	Begin Offset	End Station/ Location	End Offset	Pipe Installation (Pay Item)			Allowable Material	Required Diameter	Steel Pipe Coatings	Steel Pipe Corrugations or Spiral Ribs	Steel Pipe Minimum Thickness	(*) End Treatments		Type G (Pay Item)	Applicable Backfill Detail	Notes
												Begin	End			
				IN	Bid Item	LF		IN	Type	IN	IN	EA	EA	SY		
4918+48	52.9' LT	4918+48	58.3' RT	72	Pipe Conc. Reinf. CL III (Extension)	10 RT 10 LT	Reinforced Concrete Pipe - Class III (Barrel Length = 20 LF)	72				Remove & Relay	Remove & Relay		Section 20 Sheet 3	
4927+66	31.6' LT	4927+67	36.4' LT	30	Pipe Conc. Reinf. CL III (Extension)	8 RT 8 LT	Reinforced Concrete Pipe - Class III (Barrel Length = 16 LF)	30				Remove & Relay	Remove & Relay		Section 20 Sheet 3	
4938+12	35.4' LT	4938+12	40.3' RT	24	Pipe Conc. Reinf. CL III (Extension)	10 RT 6 LT	Reinforced Concrete Pipe - Class III (Barrel Length = 16 LF)	24				Remove & Relay	Remove & Relay		Section 20 Sheet 3	
4963+20	52.3' LT	4963+20	65.8' RT	30	Pipe Conc. Reinf. CL III (Extension)	12 RT 8 LT	Reinforced Concrete Pipe - Class III (Barrel Length = 20 LF)	30				Remove & Relay	Remove & Relay		Section 20 Sheet 3	
4970+18	46.7' LT	4970+18	69.5' RT	30	Pipe Conc. Reinf. CL III (Extension)	10 RT 8 LT	Reinforced Concrete Pipe - Class III (Barrel Length = 18 LF)	30				Remove & Relay	Remove & Relay		Section 20 Sheet 3	
4978+98	31.0' LT	4978+97	35.0' RT	24	Pipe Conc. Reinf. CL III (Extension)	8 RT 6 LT	Reinforced Concrete Pipe - Class III (Barrel Length = 14 LF)	24				Remove & Relay	Remove & Relay		Section 20 Sheet 3	
4985+14	56.3' LT	4985+14	95.9' RT	30	Pipe Conc. Reinf. CL III (Extension)	12 RT 6 LT	Reinforced Concrete Pipe - Class III (Barrel Length = 18 LF)	30				Remove & Relay	Remove & Relay		Section 20 Sheet 3	
5000+99	47.3' LT	5000+99	55.1' RT	30	Pipe Conc. Reinf. CL III (Extension)	12 RT 6 LT	Reinforced Concrete Pipe - Class III (Barrel Length = 18 LF)	30				Remove & Relay	Remove & Relay		Section 20 Sheet 3	
5013+08	53.6' LT	5013+07	61.0' RT	30	Pipe Conc. Reinf. CL III (Extension)	8 RT 8 LT	Reinforced Concrete Pipe - Class III (Barrel Length = 16 LF)	30				Remove & Relay	Remove & Relay		Section 20 Sheet 3	
5022+61	34.7' LT	5022+61	36.0' RT	24	Pipe Conc. Reinf. CL III (Extension)	8 RT 4 LT	Reinforced Concrete Pipe - Class III (Barrel Length = 12 LF)	24				Remove & Relay	Remove & Relay		Section 20 Sheet 3	
5031+10	31.3' RT	5031+10	35.7' LT	24	Pipe Conc. Reinf. CL III (Extension)	6 RT 6 LT	Reinforced Concrete Pipe - Class III (Barrel Length = 12 LF)	24				Remove & Relay	Remove & Relay		Section 20 Sheet 3	
5038+11	31.6' RT	5038+11	43.1' LT	24	Pipe Conc. Reinf. CL III (Extension)	6 RT 8 LT	Reinforced Concrete Pipe - Class III (Barrel Length = 14 LF)	24				Remove & Relay	Remove & Relay		Section 20 Sheet 3	

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

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

Corrugations: 2 = 2-2/3"x1/2"
3 = 3"x1"
5 = 5"x1"

(*) The price bid for "Pipe Conduit" bid items includes end treatments.
FES = Flared End Section
TES = Traversable End Section

Notes: (A) Centerline culvert full replacement.

ND 31

Jct I-94 to Hannover
Oliver County

Allowable Pipe List
Centerline Pipes

REGISTERED PROFESSIONAL ENGINEER
ZACHARY THELEN
PE-40305
DATE: 10/28/24
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	51	6

Begin Station/ Location	Begin Offset	End Station/ Location	End Offset	Pipe Installation (Pay Item)			Allowable Material	Required Diameter	Steel Pipe Coatings	Steel Pipe Corrugations or Spiral Ribs	Steel Pipe Minimum Thickness	(*) End Treatments		Type G (Pay Item) (A)	Applicable Backfill Detail	Notes
				IN	Bid Item	LF		IN	Type	IN	IN	Begin EA	End EA	SY		
4601+81	53.6' LT	4600+99	54.7' LT	24	Pipe Conc. Reinf. CL III (Extension)	0 N 26 S	Reinforced Concrete Pipe - Class III (Barrel Length = 26 LF)	24					Remove & Relay		Spec 714.04A	
4627+98	61.4' RT	4627+13	65' RT	18	Pipe Corr. Steel (Extension)	0 N 12 S	Corrugated Steel Pipe	18	Z, A, P	2	0.064		Remove & Relay		Spec 714.04A	
4628+02	53.8' LT	4627+12	55.4' LT	18	Pipe Corr. Steel (Extension)	0 N 16 S	Corrugated Steel Pipe	18	Z, A, P	2	0.064		Remove & Relay		Spec 714.04A	
4733+62	62.4' RT	4732+79	62.3' RT	18	Pipe Conc. Reinf. CL III (Extension)	6 N 8 S	Reinforced Concrete Pipe - Class III (Barrel Length = 14 LF)	18				Remove & Relay	Remove & Relay		Spec 714.04A	
4744+59	66.3' RT	4745+48	67.8' RT	24	Pipe Corr. Steel (Extension)	13 N 0 S	Corrugated Steel Pipe	24	Z, A, P	2	0.064		Remove & Relay		Spec 714.04A	
4745+30	65.4' LT	4744+58	64.8' LT	24	Pipe Corr. Steel (Extension)	0 N 13 S	Corrugated Steel Pipe	24	Z, A, P	2	0.064		Remove & Relay		Spec 714.04A	
4786+52	59.6' LT	4785+60	58.5' LT	18	Pipe Corr. Steel (Extension)	18 N 0 S	Corrugated Steel Pipe	18	Z, A, P	2	0.064	Remove & Relay			Spec 714.04A	
4785+71	56' RT	4786+39	55.9' RT	24	Pipe Corr. Steel (Extension)	0 N 6 S	Corrugated Steel Pipe	24	Z, A, P	2	0.064	Remove & Relay			Spec 714.04A	
4796+54	59.3' LT	4795+71	56.2' LT	18	Pipe Corr. Steel (Extension)	11 N 11 S	Corrugated Steel Pipe	18	Z, A, P	2	0.064	Remove & Relay	Remove & Relay		Spec 714.04A	
4796+53	56' RT	4795+84	56' RT	24	Pipe Conc. Reinf. CL III (Extension)	0 N 8 S	Reinforced Concrete Pipe - Class III (Barrel Length = 8 LF)	24					Remove & Relay		Spec 714.04A	
4823+08	67' LT	4822+33	68.2' LT	18	Pipe Corr. Steel (Extension)	0 N 6 S	Corrugated Steel Pipe	18	Z, A, P	2	0.064		Remove & Relay		Spec 714.04A	
4878+53	67.5' RT	4877+75	68.2' RT	18	Pipe Corr. Steel (Extension)	0 N 11 S	Corrugated Steel Pipe	18	Z, A, P	2	0.064		Remove & Relay		Spec 714.04A	
4903+94	44.9' RT	4904+76	44.8' RT	18	Pipe Conc. Reinf. CL III (Extension)	0 N 26 S	Reinforced Concrete Pipe - Class III (Barrel Length = 26 LF)	18				Remove & Relay			Spec 714.04A	
4915+11	59.2' LT	4916+03	61.2' LT	12	Pipe Corr. Steel (Extension)	6 N 17 S	Corrugated Steel Pipe	12	Z, A, P	2	0.064	Remove & Relay	Remove & Relay		Spec 714.04A	

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

Corrugations: 2 = 2-2/3"x1/2"
3 = 3"x1"
5 = 5"x1"

(*) The price bid for "Pipe Conduit" bid items includes end treatments.
FES = Flared End Section

Notes: (A) Approach culvert full replacement.

ND 31

Jct I-94 to Hannover
Oliver County

Allowable Pipe List
Approach Pipes

REGISTERED PROFESSIONAL ENGINEER
ZACHARY THELEN
PE-40305
DATE: 10/28/24
NORTH DAKOTA

Begin Station/ Location	Begin Offset	End Station/ Location	End Offset	Pipe Installation (Pay Item)			Allowable Material	Required Diameter	Steel Pipe Coatings	Steel Pipe Corrugations or Spiral Ribs	Steel Pipe Minimum Thickness	(*) End Treatments		Type G (Pay Item)	Applicable Backfill Detail	Notes
				IN	Bid Item	LF		IN	Type	IN	IN	Begin EA	End EA	(A) SY		
4924+22	79.6' RT	4923+59	79.8' RT	18	Pipe Conc. Reinf. CL III (Extension)	0 N 6 S	Reinforced Concrete Pipe - Class III (Barrel Length = 6 LF)	18					Remove & Relay		Spec 714.04A	
4924+25	64.8' LT	4923+45	64.8' LT	12	Pipe Conc. Reinf. CL III (Extension)	0 N 18 S	Reinforced Concrete Pipe - Class III (Barrel Length = 18 LF)	12					Remove & Relay		Spec 714.04A	
4944+48	81.6' RT	4943+53	78.2' RT	18	Pipe Conc. Reinf. CL III (Extension)	0 N 24 S	Reinforced Concrete Pipe - Class III (Barrel Length = 24 LF)	18					Remove & Relay		Spec 714.04A	
5022+83	63.4' LT	5023+63	61.1' LT	18	Pipe Conc. Reinf. CL III (Extension)	16 N 0 S	Reinforced Concrete Pipe - Class III (Barrel Length = 16 LF)	18					Remove & Relay		Spec 714.04A	
5045+03	55.4' RT	5045+70	67.2' RT	18	Pipe Conduit - Approach	67	Reinforced Concrete Pipe - Class III (Barrel Length = 59') Corrugated Steel Pipe	18	Z, A, P	2	0.064	FES	FES	120	D-203-8	(A)

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

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

Corrugations: 2 = 2-2/3"x1/2"
3 = 3"x1"
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(*) The price bid for "Pipe Conduit" bid items includes end treatments.
FES = Flared End Section

Notes: (A) Approach culvert full replacement.

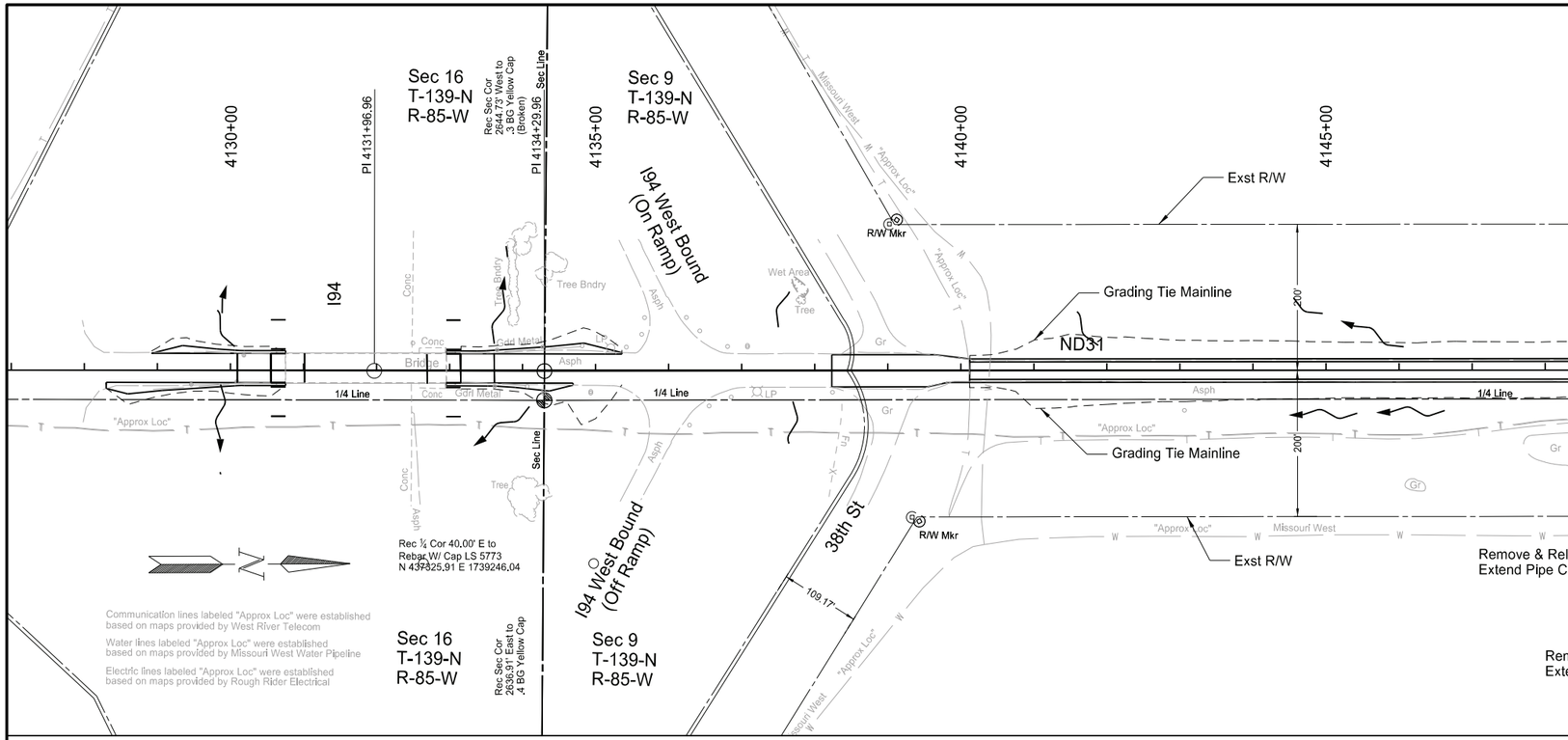
ND 31

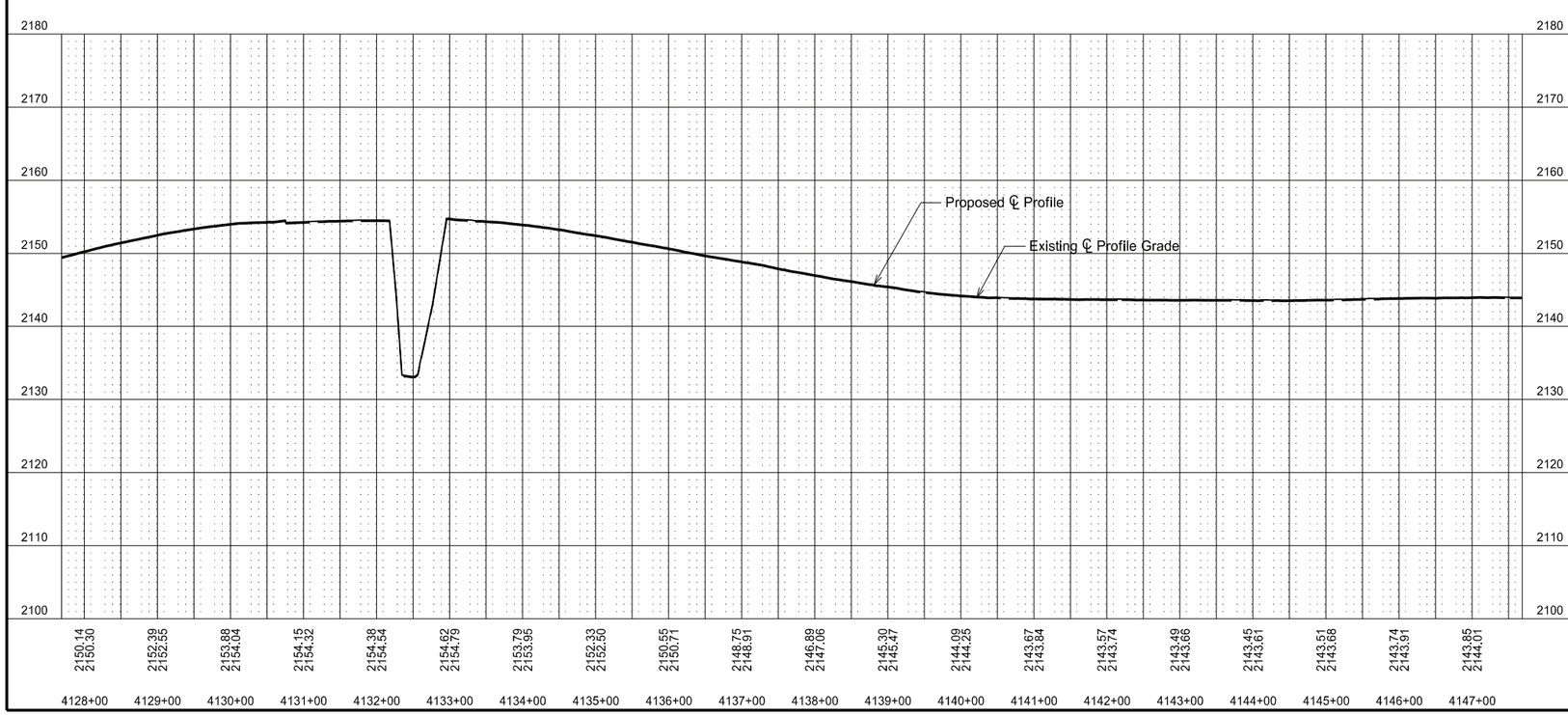
Jct I-94 to Hannover
Oliver County

Allowable Pipe List
Approach Pipes

REGISTERED PROFESSIONAL ENGINEER
ZACHARY THELEN
PE-40305
DATE: 10/28/24
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	60	1





ND 31

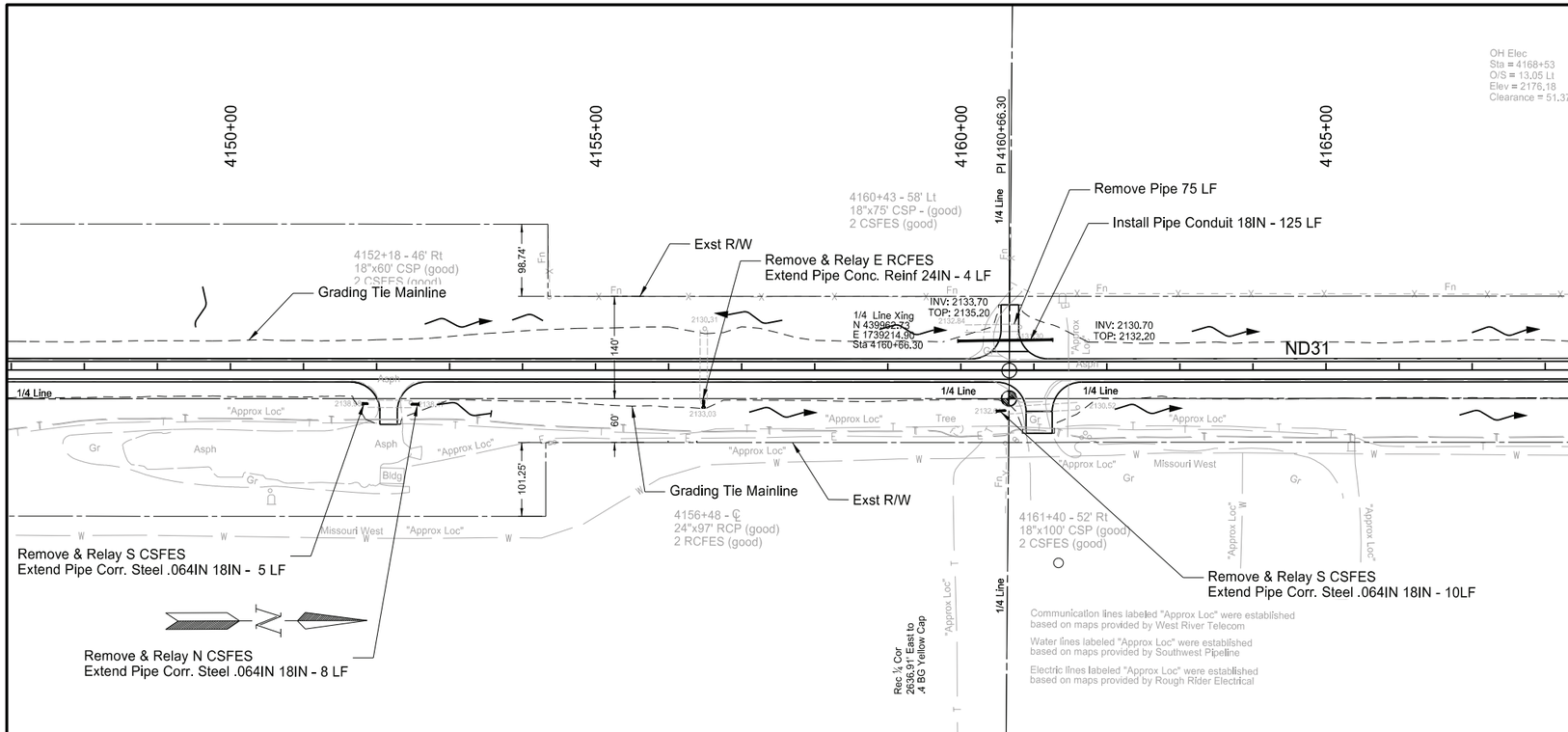
Jct I-94 to Hannover
Morton County

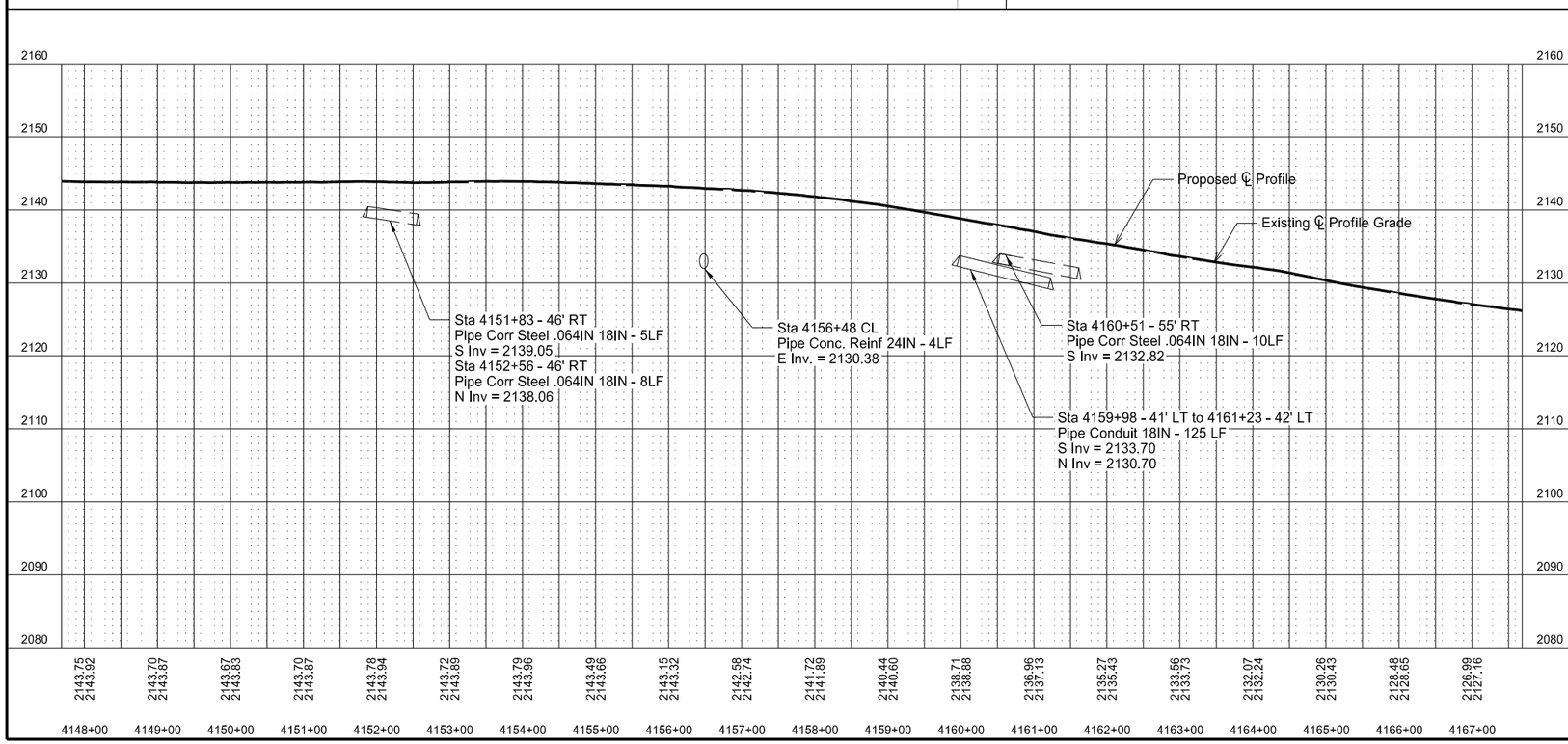
Plan and Profile

Sta 4128+00 to Sta 4148+00

REGISTERED PROFESSIONAL ENGINEER
ZACHARY
THELEN
PE-40305
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	60	2





SPEC	CODE	BID ITEM	QTY	UNIT
202	0170	REMOVAL OF CULVERTS - ALL TYPES & SIZES		
		4160+43 - 58' LT	75	LF
714	0615	PIPE CONC REINF 24IN CL III		
		4156+48 - CL RT	4	LF
714	4099	PIPE CONDUIT 18IN - APPROACH		
		4159+98 - 41' LT to 4161+23 - 42' LT	125	LF
714	5015	PIPE CORR STEEL .064IN 18IN		
		4151+83 - 46' RT	5	LF
		4152+56 - 46' RT	8	LF
		4160+51 - 55' RT	10	LF
714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES		
		4151+83 - 46' RT	1	EA
		4152+56 - 46' RT	1	EA
		4156+48 - CL RT	1	EA
		4160+51 - 55' RT	1	EA
754	0805	OBJECT MARKERS - CULVERTS		
		4151+83 - 46' RT	1	EA
		4152+56 - 46' RT	1	EA
		4156+48 - CL RT	1	EA
		4159+98 - 41' LT & 4161+23 - 42' LT	2	EA
		4160+51 - 55' RT	1	EA

ND 31

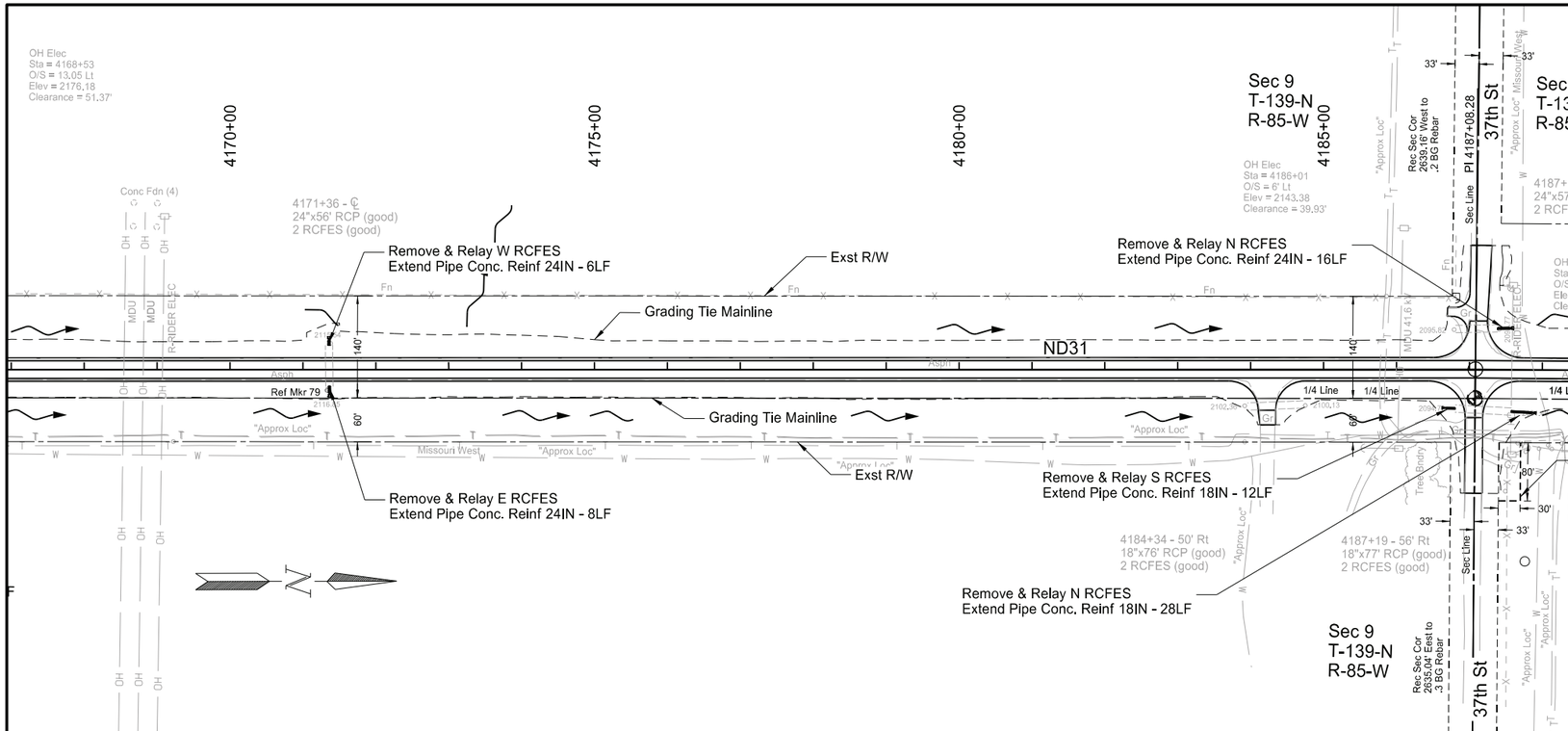
Jct I-94 to Hannover
Morton County

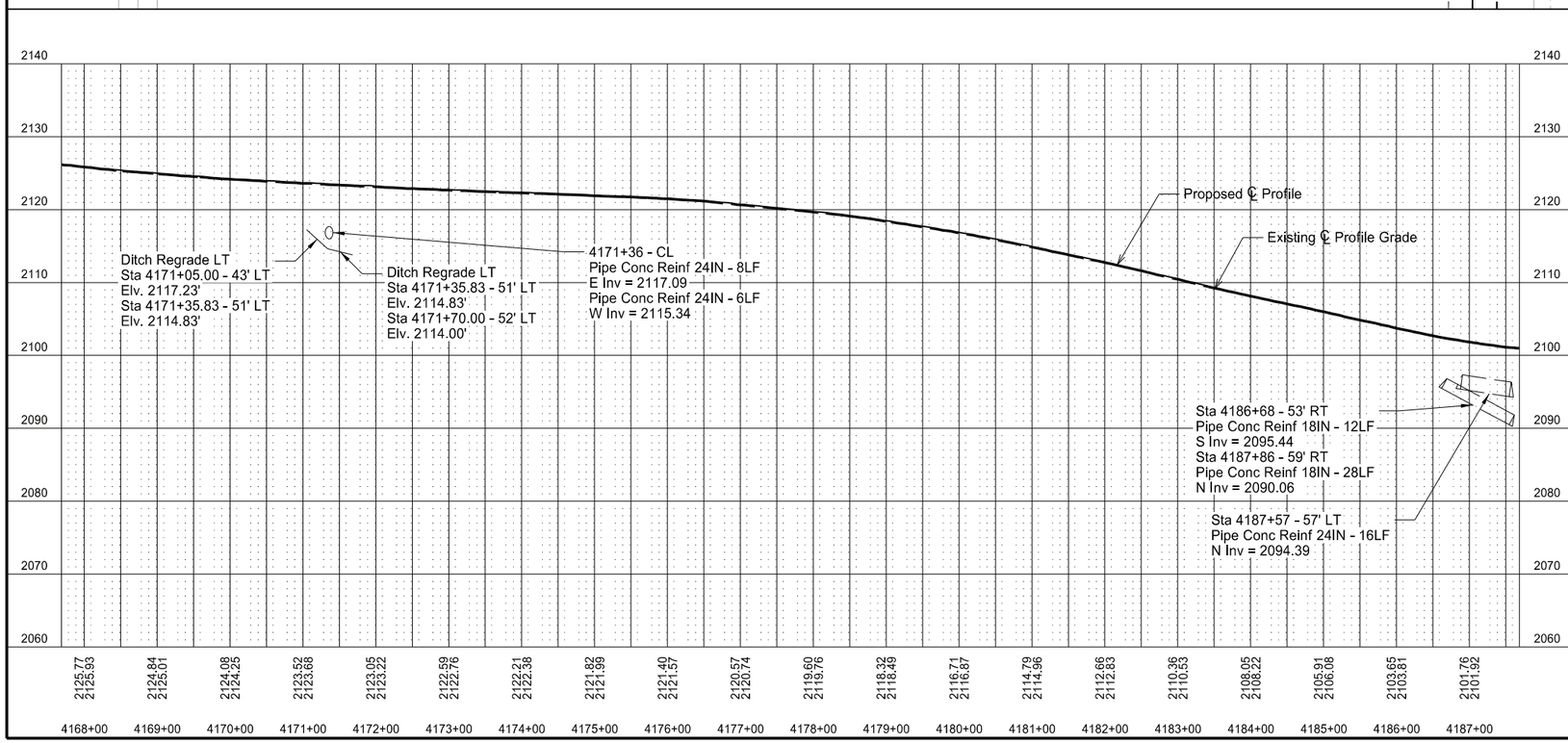
Plan and Profile

Sta 4148+00 to Sta 4168+00

REGISTERED PROFESSIONAL ENGINEER
ZACHARY THELEN
PE-40305
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	60	3





SPEC	CODE	BID ITEM	QTY	UNIT
714	0310	PIPE CONC REINF 18IN CL III		
		4186+68 - 53' RT	12	LF
		4187+86 - 59' RT	28	LF
714	0615	PIPE CONC REINF 24IN CL III		
		4171+36 - CL LT	6	LF
		4171+36 - CL RT	8	LF
		4187+57 - 57' LT	16	LF
714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES		
		4171+36 - CL LT	1	EA
		4171+36 - CL RT	1	EA
		4186+68 - 53' RT	1	EA
		4187+57 - 57' LT	1	EA
		4187+86 - 59' RT	1	EA
754	0805	OBJECT MARKERS - CULVERTS		
		4171+36 - CL LT	1	EA
		4171+36 - CL RT	1	EA
		4186+68 - 53' RT	1	EA
		4187+57 - 57' LT	1	EA
		4187+86 - 59' RT	1	EA

ND 31

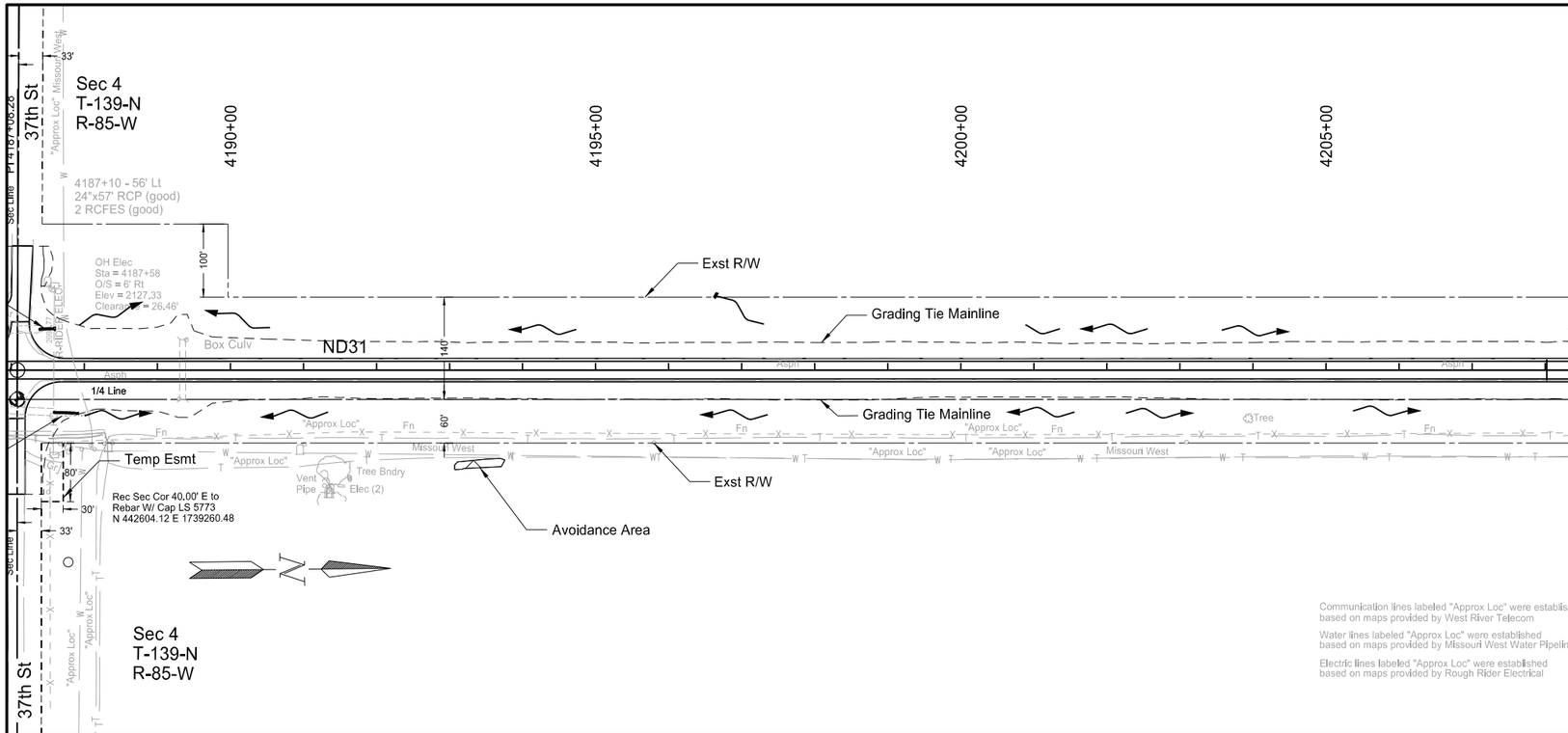
Jct I-94 to Hannover
Morton County

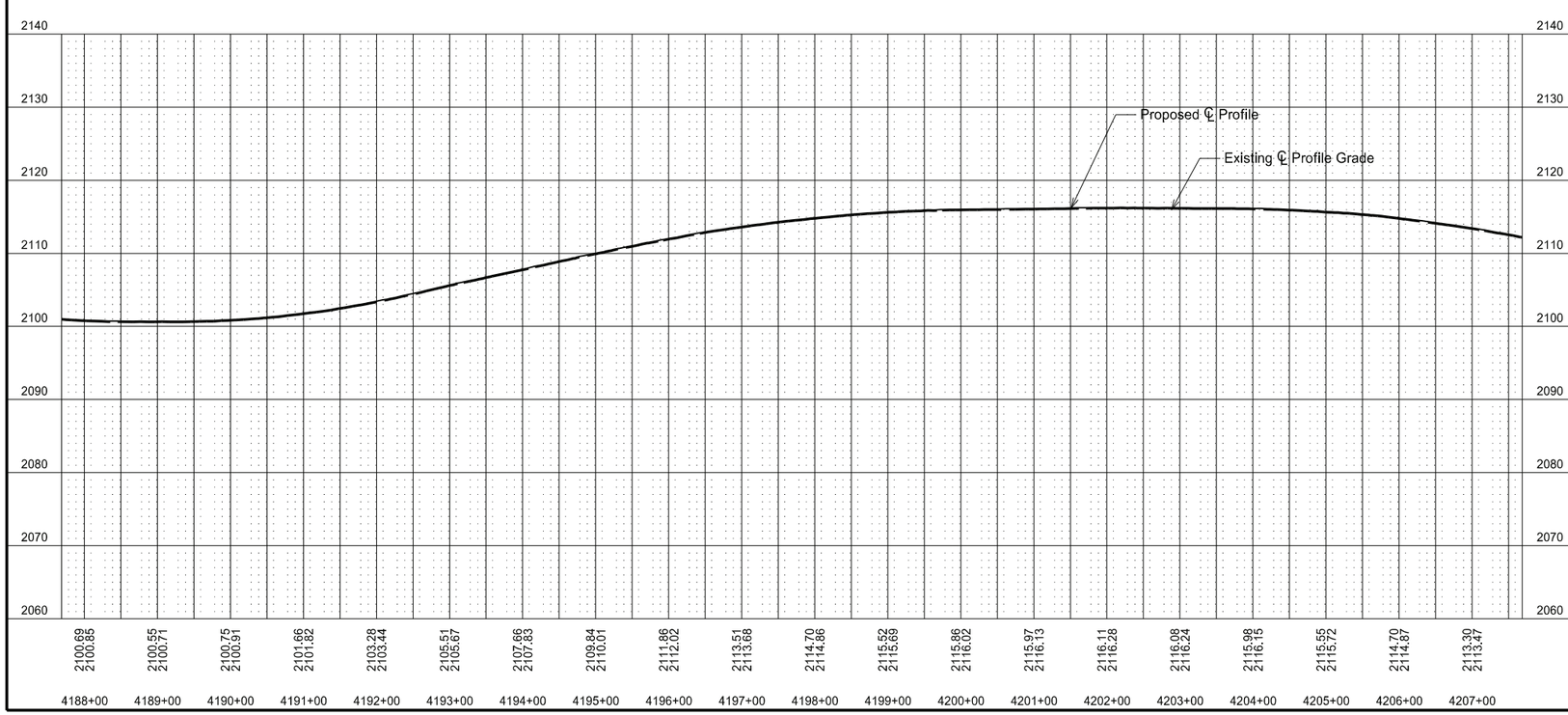
Plan and Profle

Sta 4168+00 to Sta 4188+00

REGISTERED PROFESSIONAL ENGINEER
ZACHARY THELEN
PE-40305
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	60	4





ND 31

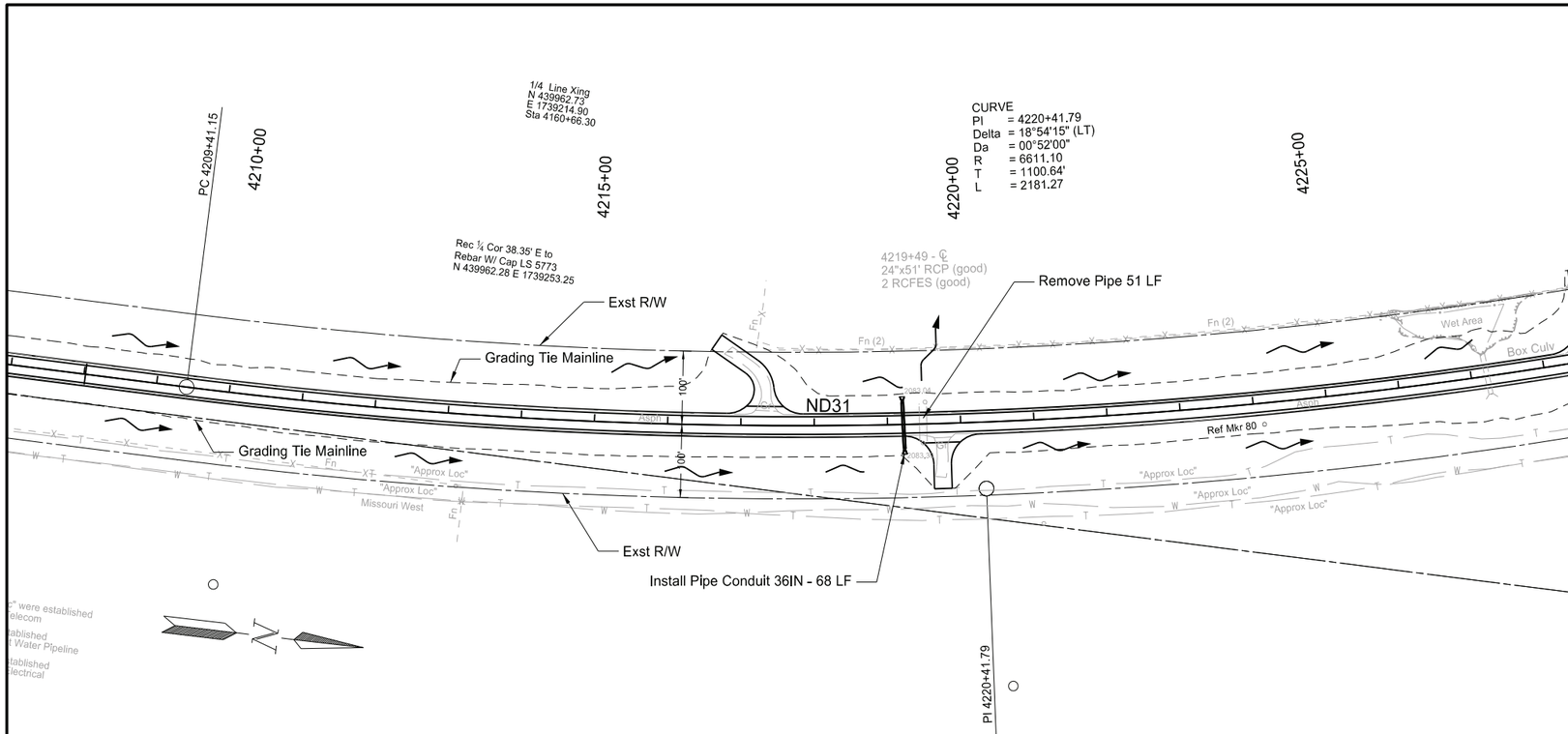
Jct I-94 to Hannover
Morton County

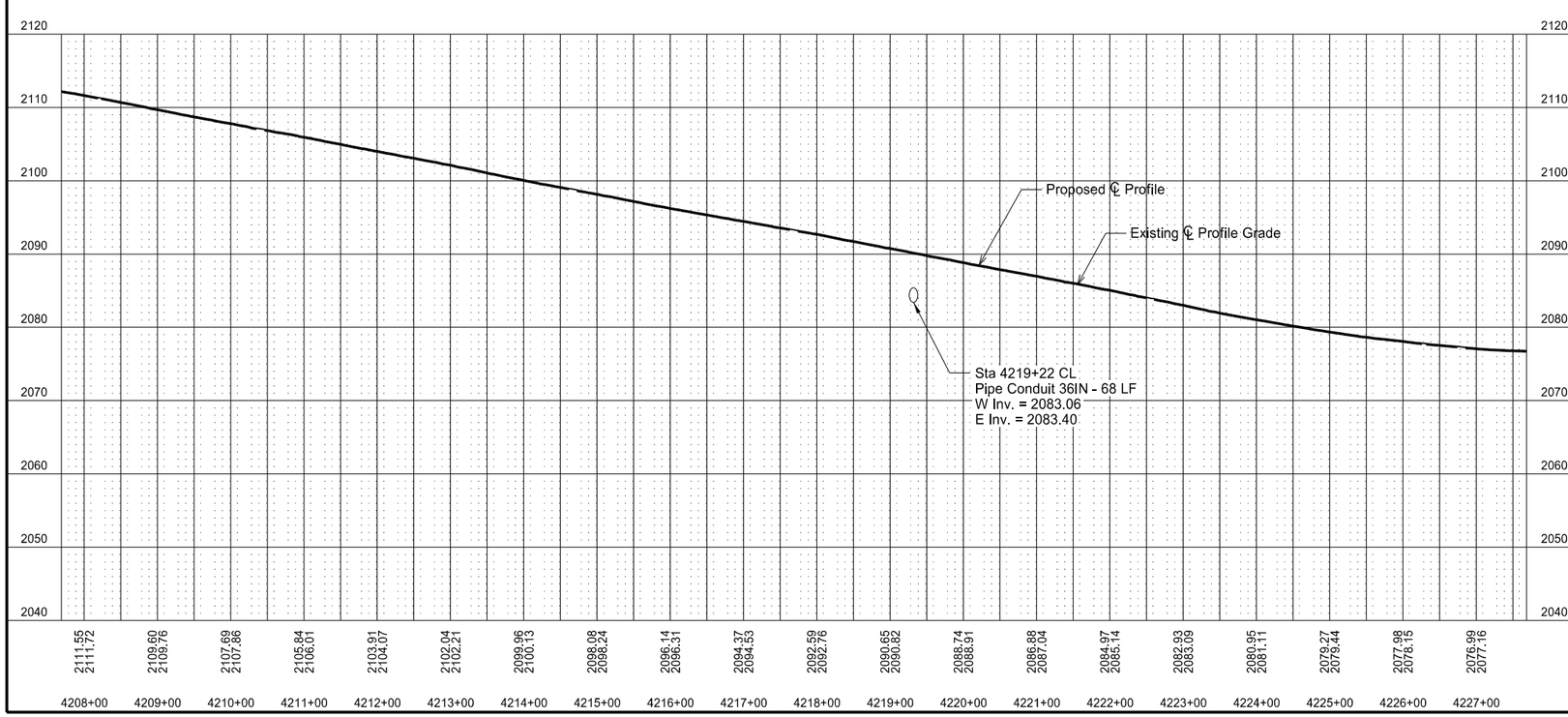
Plan and Profile

Sta 4188+00 to Sta 4208+00

REGISTERED PROFESSIONAL ENGINEER
ZACHARY THELEN
PE-40305
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	60	5





SPEC	CODE	BID ITEM	QTY	UNIT
202	0170	REMOVAL OF CULVERTS-ALL TYPES & SIZES		
		4219+49 - CL	51	LF
714	4115	PIPE CONDUIT 36IN		
		4219+22 - CL	68	LF
754	0805	OBJECT MARKERS - CULVERTS		
		4219+22 - CL - LT & RT	2	EA

ND 31

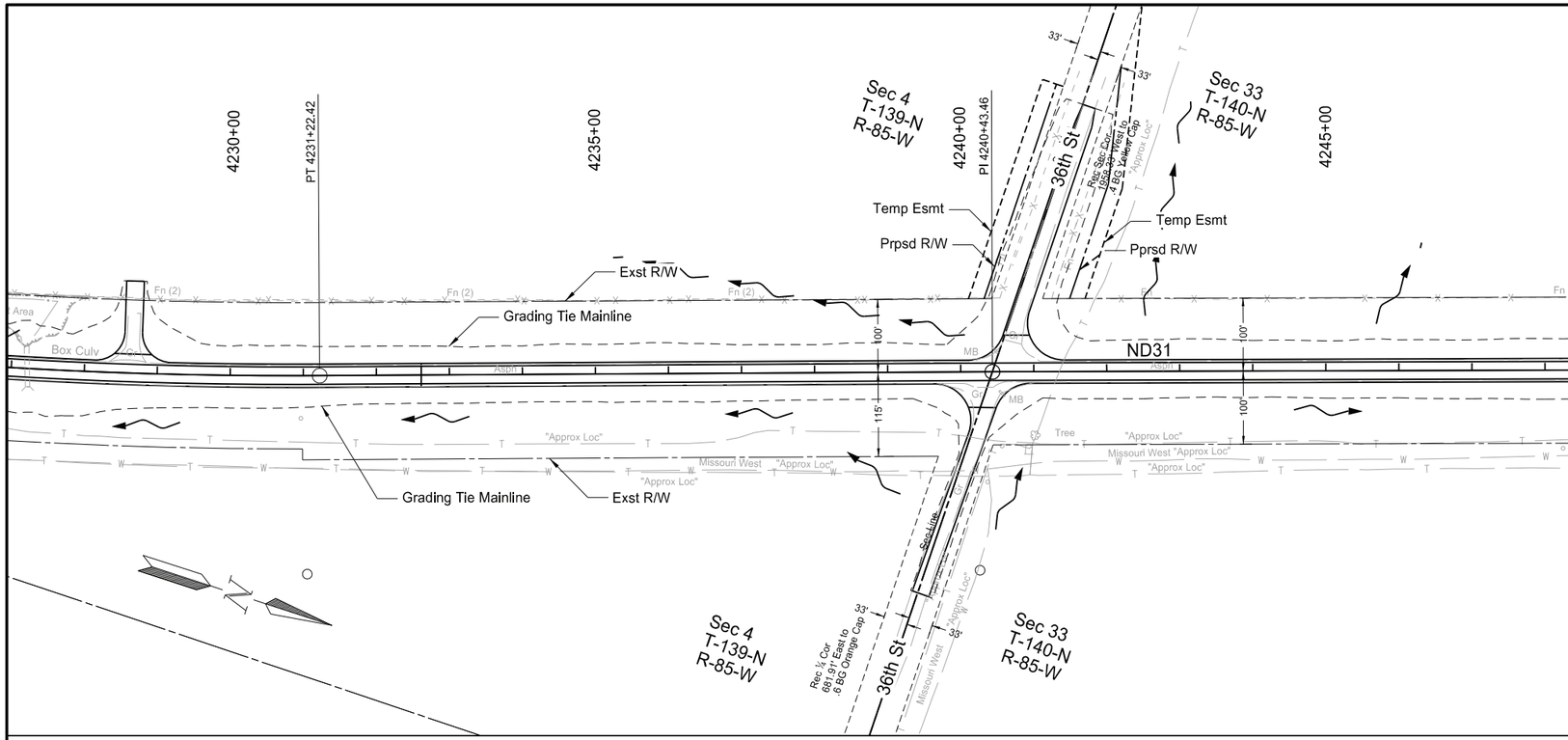
Jct I-94 to Hannover
Morton County

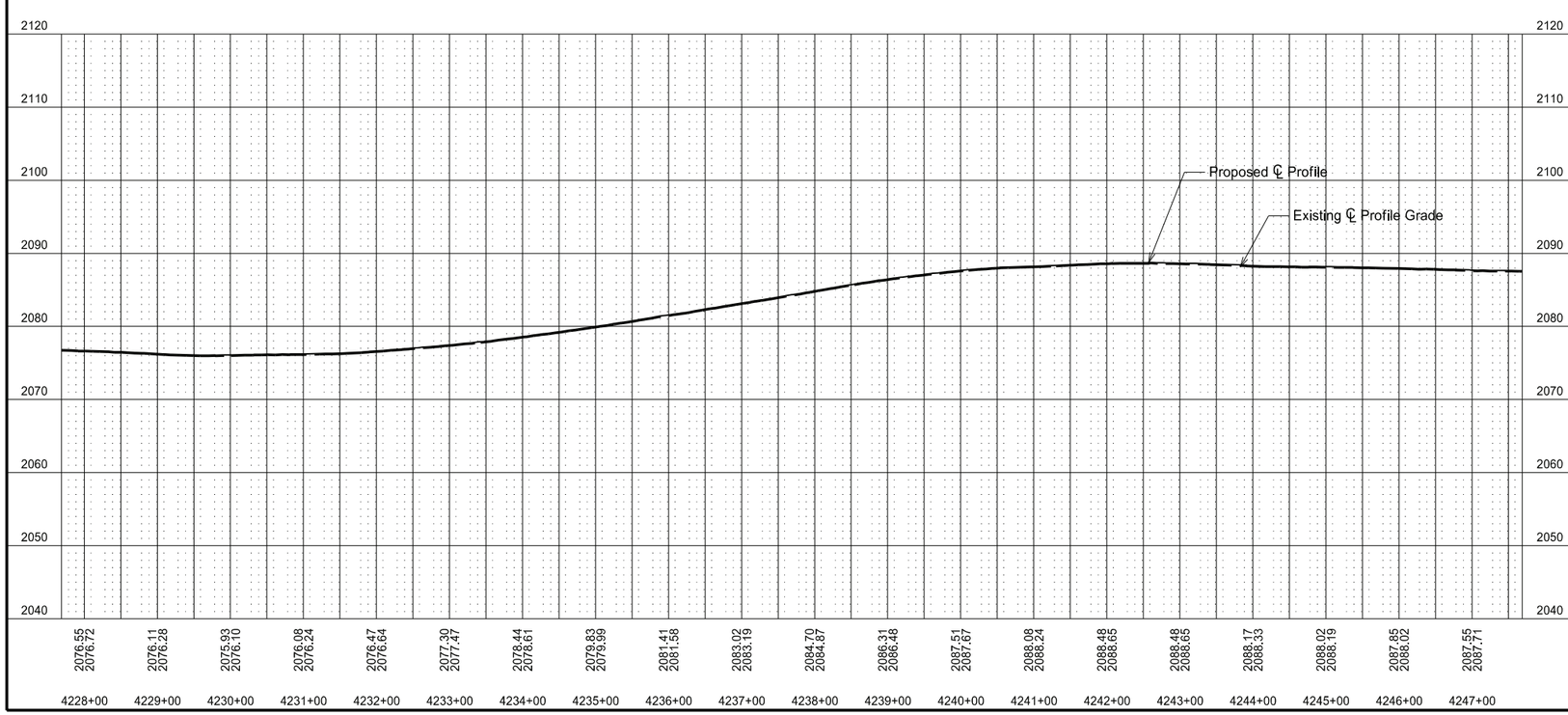
Plan and Profile

Sta 4208+00 to Sta 4228+00

REGISTERED PROFESSIONAL ENGINEER
ZACHARY THELEN
PE-40305
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	60	6





ND 31

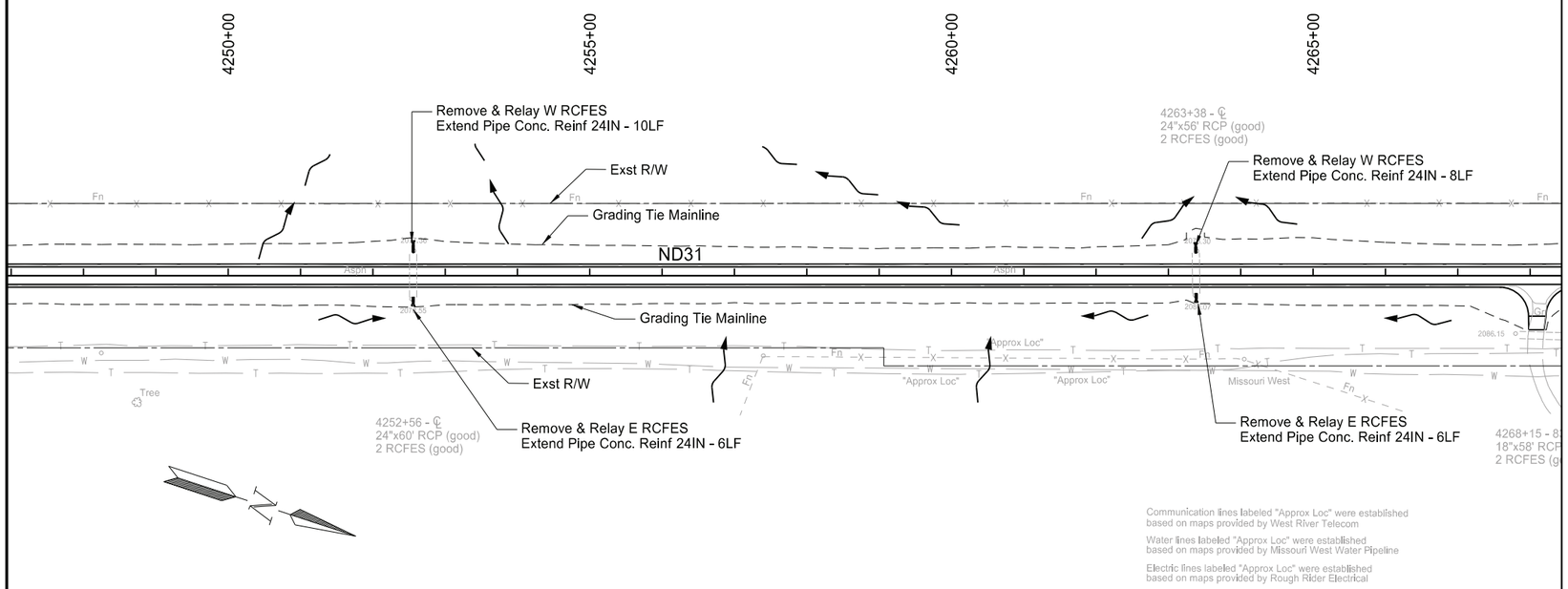
Jct I-94 to Hannover
Morton County

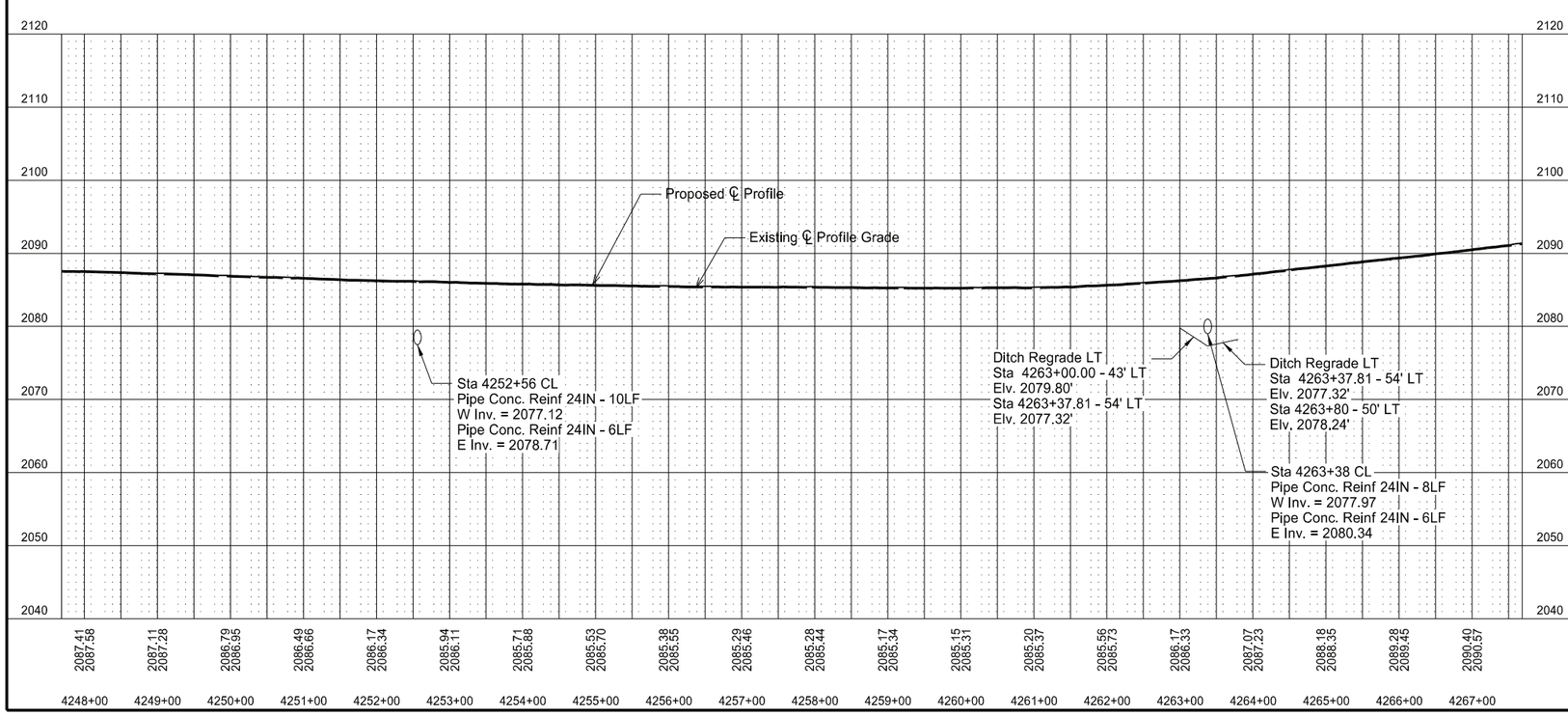
Plan and Profile

Sta 4228+00 to Sta 4248+00

REGISTERED PROFESSIONAL ENGINEER
ZACHARY
THELEN
PE-40305
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	60	7





SPEC	CODE	BID ITEM	QTY	UNIT
714	0615	PIPE CONC REINF 24IN CL III		
		4252+56 - CL LT	10	LF
		4252+56 - CL RT	6	LF
		4263+38 - CL LT	8	LF
		4263+38 - CL RT	6	LF
714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES		
		4252+56 - CL LT	1	EA
		4252+56 - CL RT	1	EA
		4263+38 - CL LT	1	EA
		4263+38 - CL RT	1	EA
754	0805	OBJECT MARKERS - CULVERTS		
		4252+56 - CL LT	1	EA
		4252+56 - CL RT	1	EA
		4263+38 - CL LT	1	EA
		4263+38 - CL RT	1	EA

ND 31

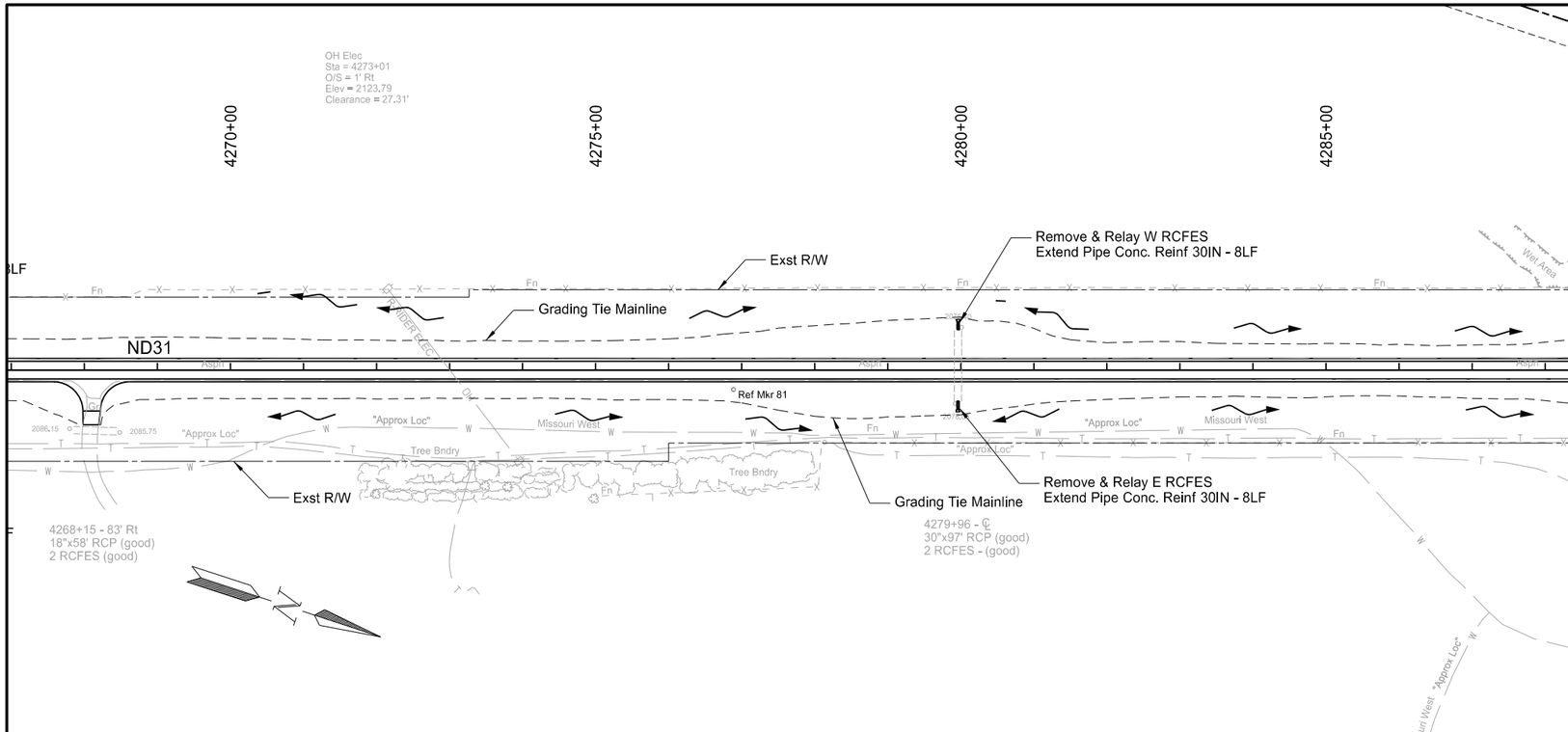
Jct I-94 to Hannover
Morton County

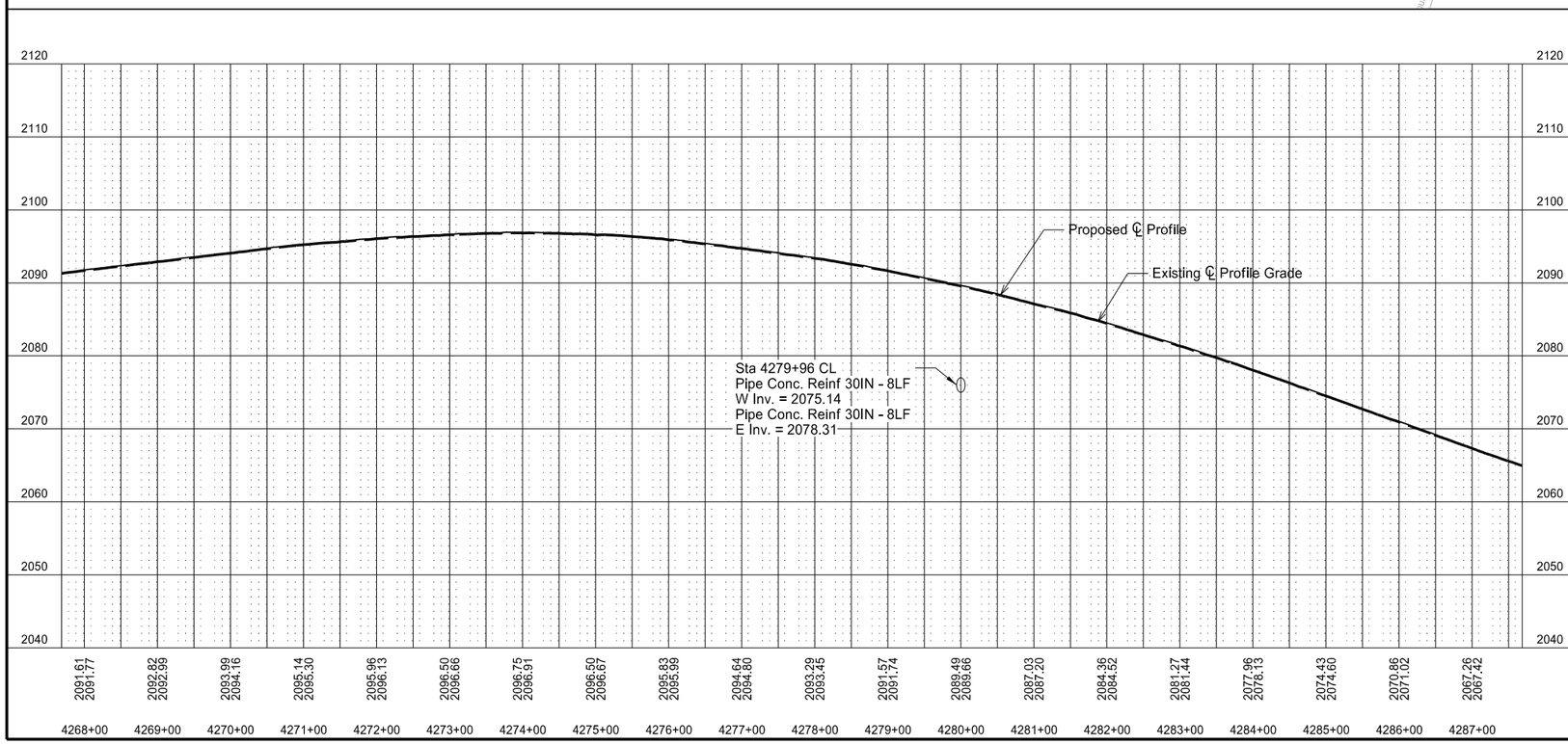
Plan and Profle

Sta 4248+00 to Sta 4268+00

REGISTERED PROFESSIONAL ENGINEER
ZACHARY THELEN
PE-40305
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	60	8





SPEC	CODE	BID ITEM	QTY	UNIT
714	0820	PIPE CONC REINF 30IN CL III		
		4279+96 - CL LT	8	LF
		4279+96 - CL RT	8	LF
714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES		
		4279+96 - CL LT	1	EA
		4279+96 - CL RT	1	EA
754	0805	OBJECT MARKERS - CULVERTS		
		4279+96 - CL LT	1	EA
		4279+96 - CL RT	1	EA

ND 31

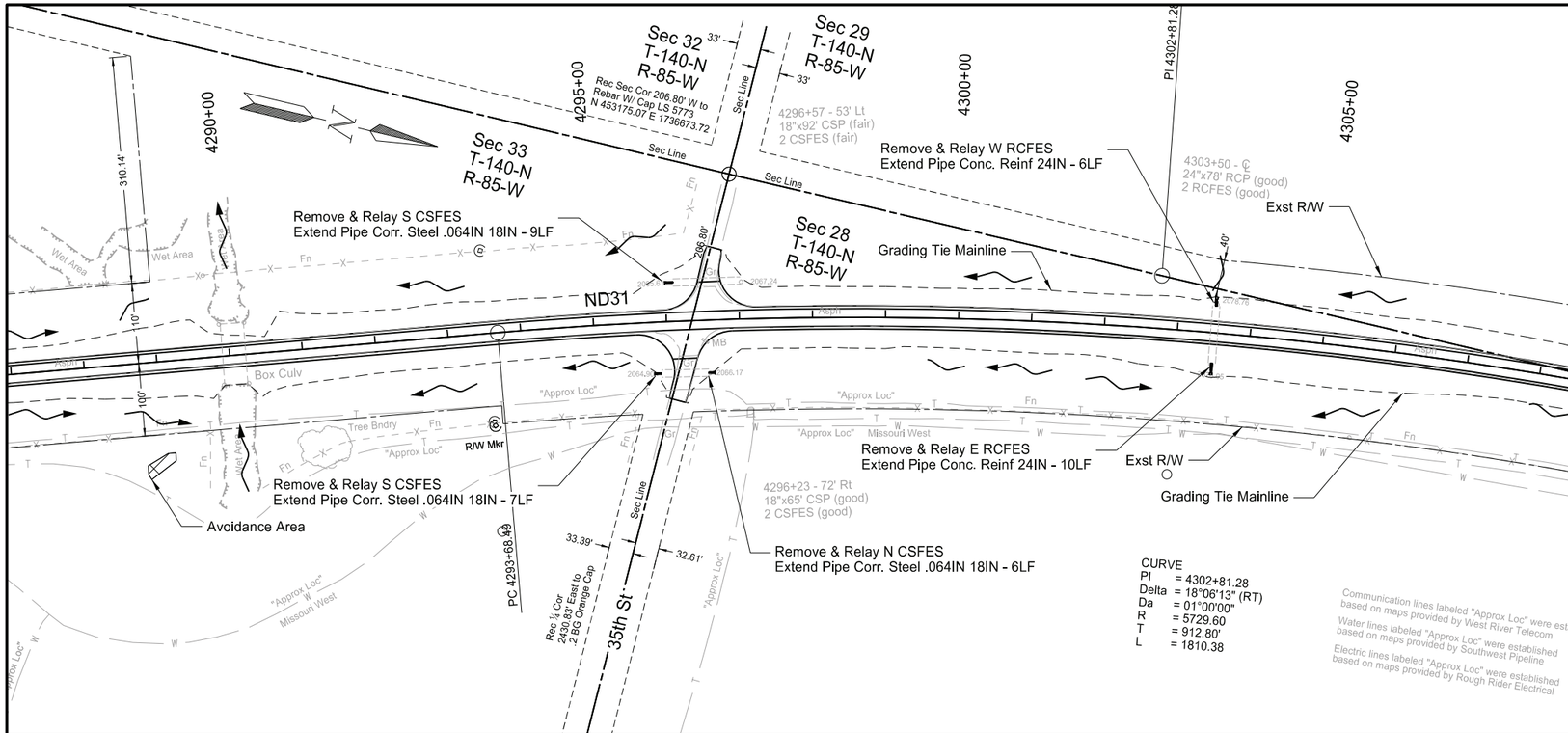
Jct I-94 to Hannover
Morton County

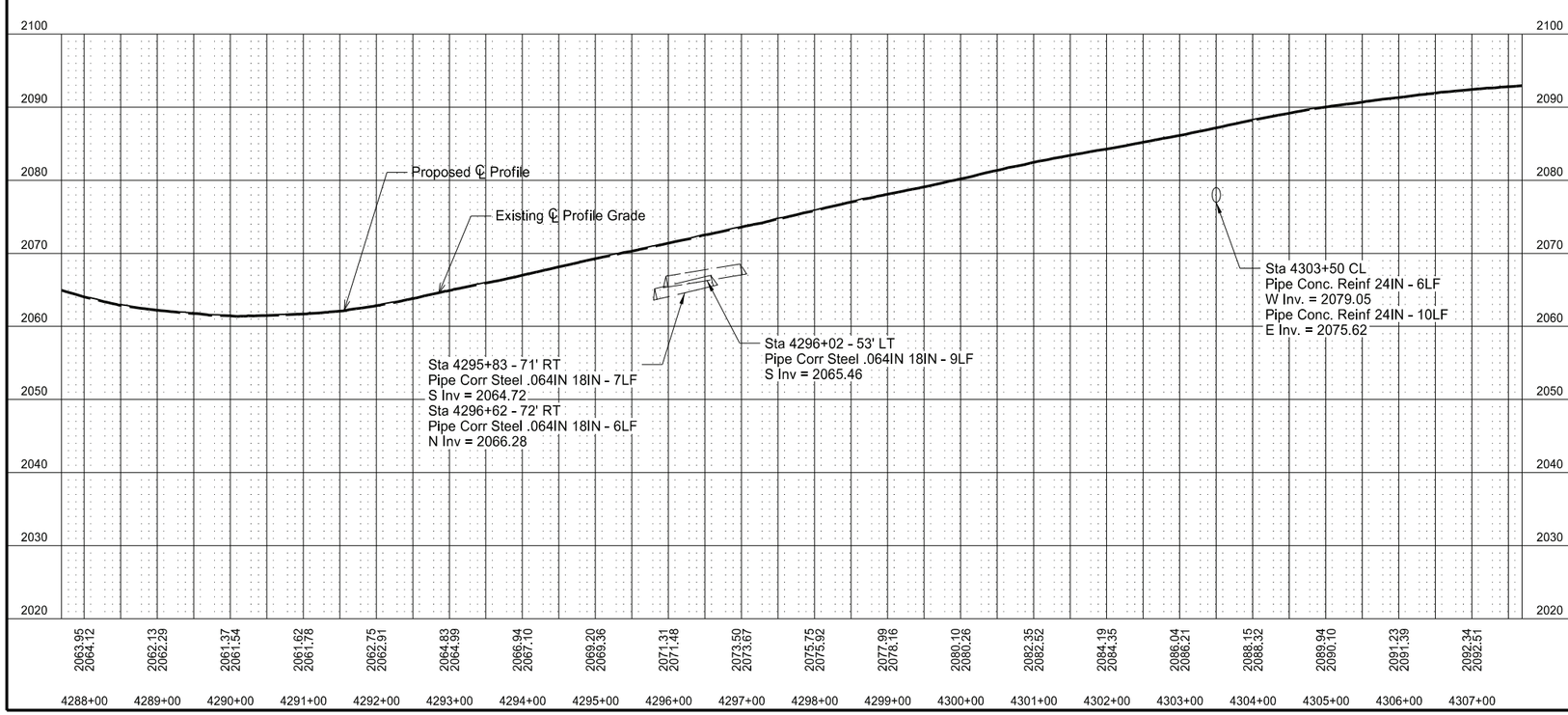
Plan and Profle

Sta 4268+00 to Sta 4288+00

REGISTERED PROFESSIONAL ENGINEER
ZACHARY THELEN
PE-40305
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	60	9





SPEC	CODE	BID ITEM	QTY	UNIT
714	0615	PIPE CONC REINF 24IN CL III		
		4303+50 - CL LT	6	LF
		4303+50 - CL RT	10	LF
714	5015	PIPE CORR STEEL .064IN 18IN		
		4295+83 - 71' RT	7	LF
		4296+02 - 53' LT	9	LF
		4296+62 - 72' RT	6	LF
714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES		
		4295+83 - 71' RT	1	EA
		4296+02 - 53' LT	1	EA
		4296+62 - 72' RT	1	EA
		4303+50 - CL LT	1	EA
		4303+50 - CL RT	1	EA
754	0805	OBJECT MARKERS - CULVERTS		
		4295+83 - 71' RT	1	EA
		4296+02 - 53' LT	1	EA
		4296+62 - 72' RT	1	EA
		4303+50 - CL LT	1	EA
		4303+50 - CL RT	1	EA

ND 31

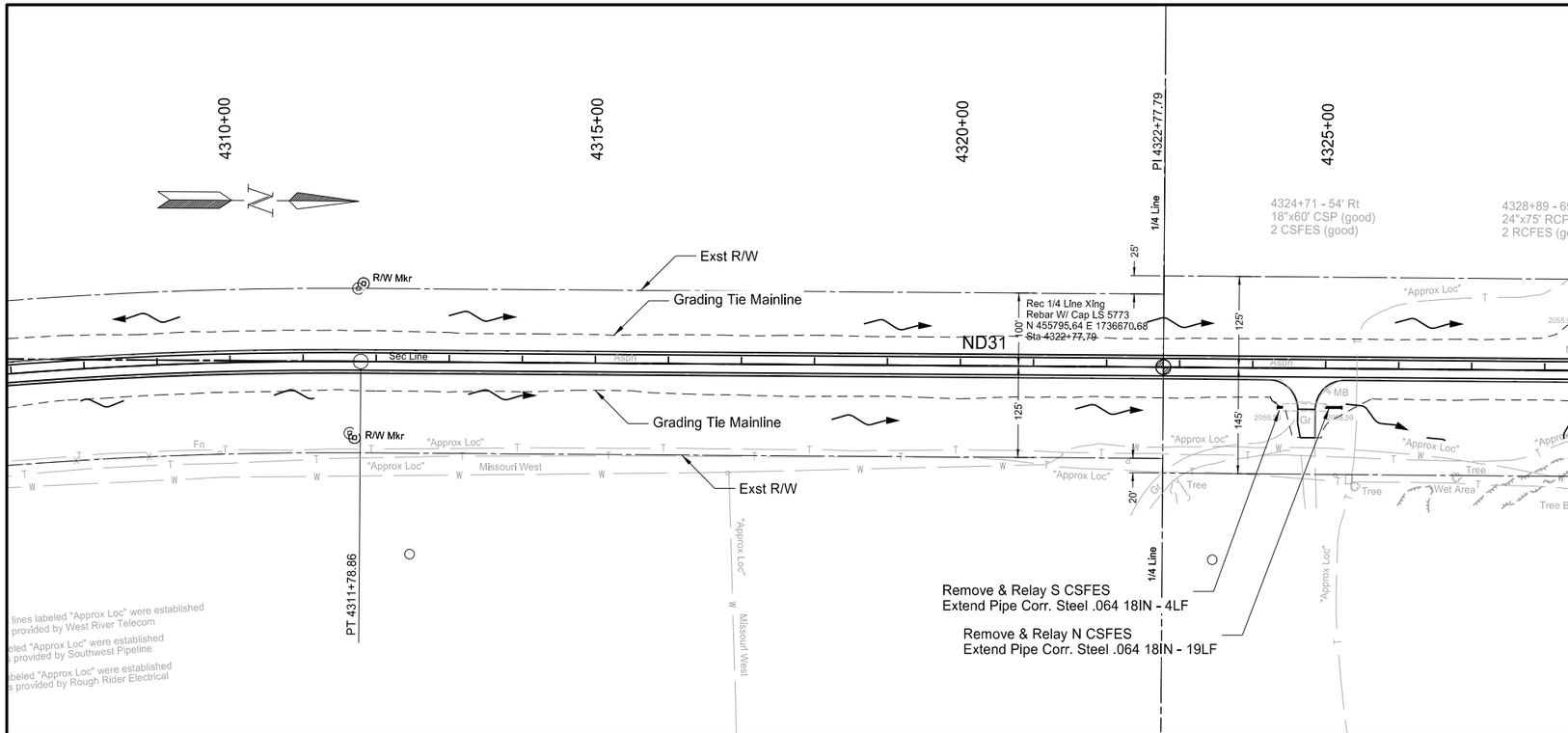
Jct I-94 to Hannover
Morton County

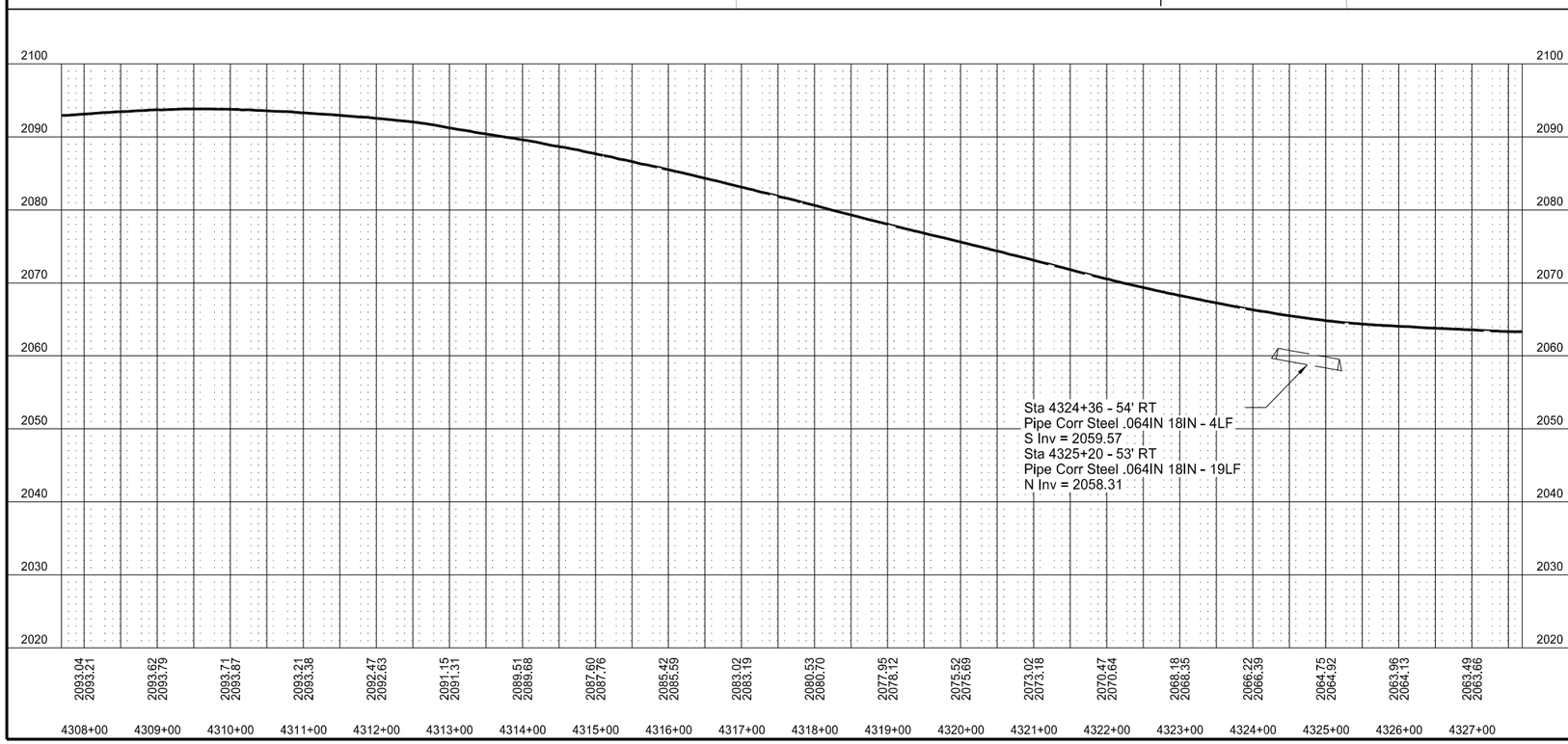
Plan and Profile

Sta 4288+00 to Sta 4308+00

REGISTERED PROFESSIONAL ENGINEER
ZACHARY THELEN
PE-40305
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	60	10





SPEC	CODE	BID ITEM	QTY	UNIT
714	5015	PIPE CORR STEEL .064IN 18IN		
		4324+36 - 54' RT	4	LF
		4325+20 - 53' RT	19	LF
714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES		
		4324+36 - 54' RT	1	EA
		4325+20 - 53' RT	1	EA
754	0805	OBJECT MARKERS - CULVERTS		
		4324+36 - 54' RT	1	EA
		4325+20 - 53' RT	1	EA

ND 31

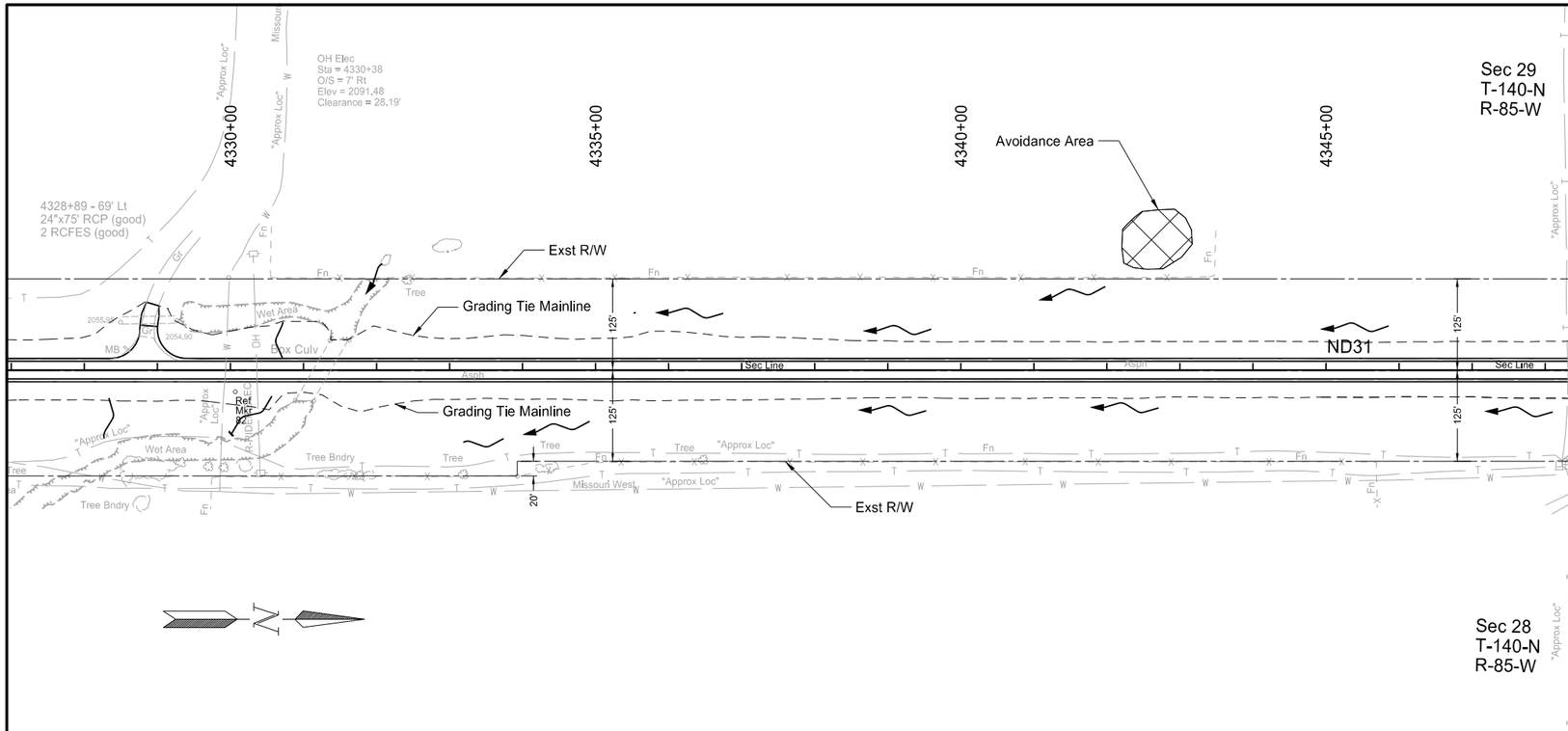
Jct I-94 to Hannover
Morton County

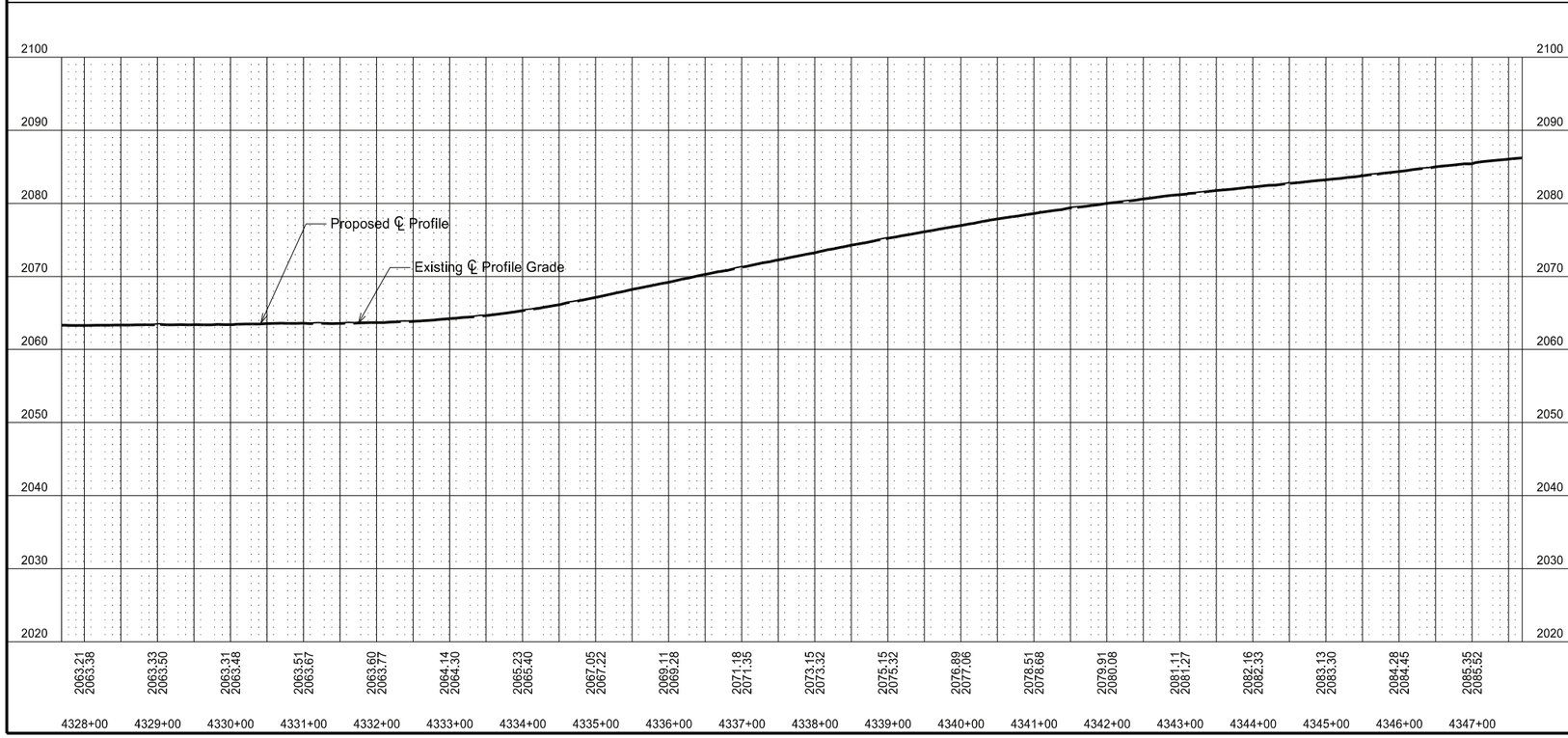
Plan and Profle

Sta 4308+00 to Sta 4328+00

REGISTERED PROFESSIONAL ENGINEER
ZACHARY THELEN
PE-40305
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	60	11





ND 31

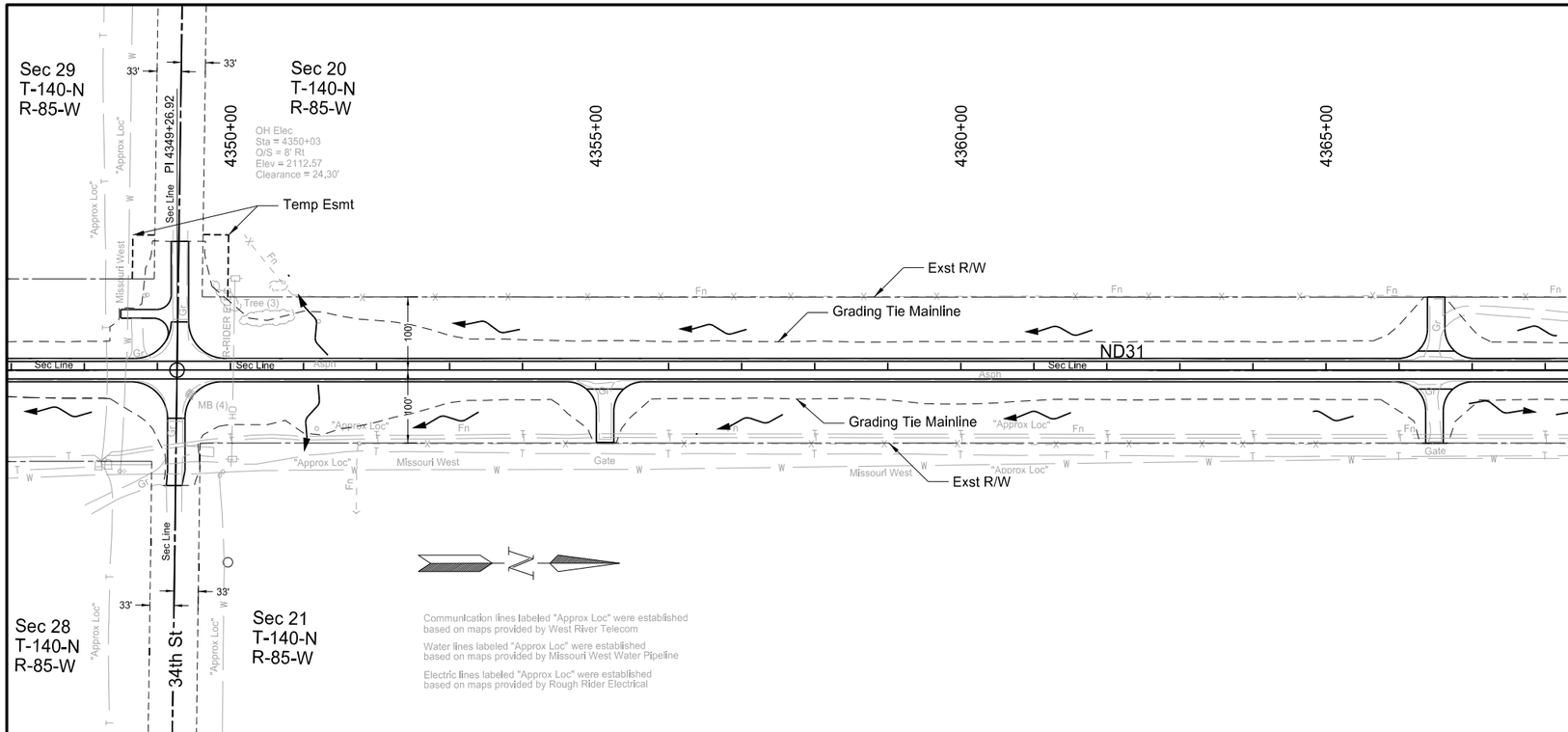
Jct I-94 to Hannover
Morton County

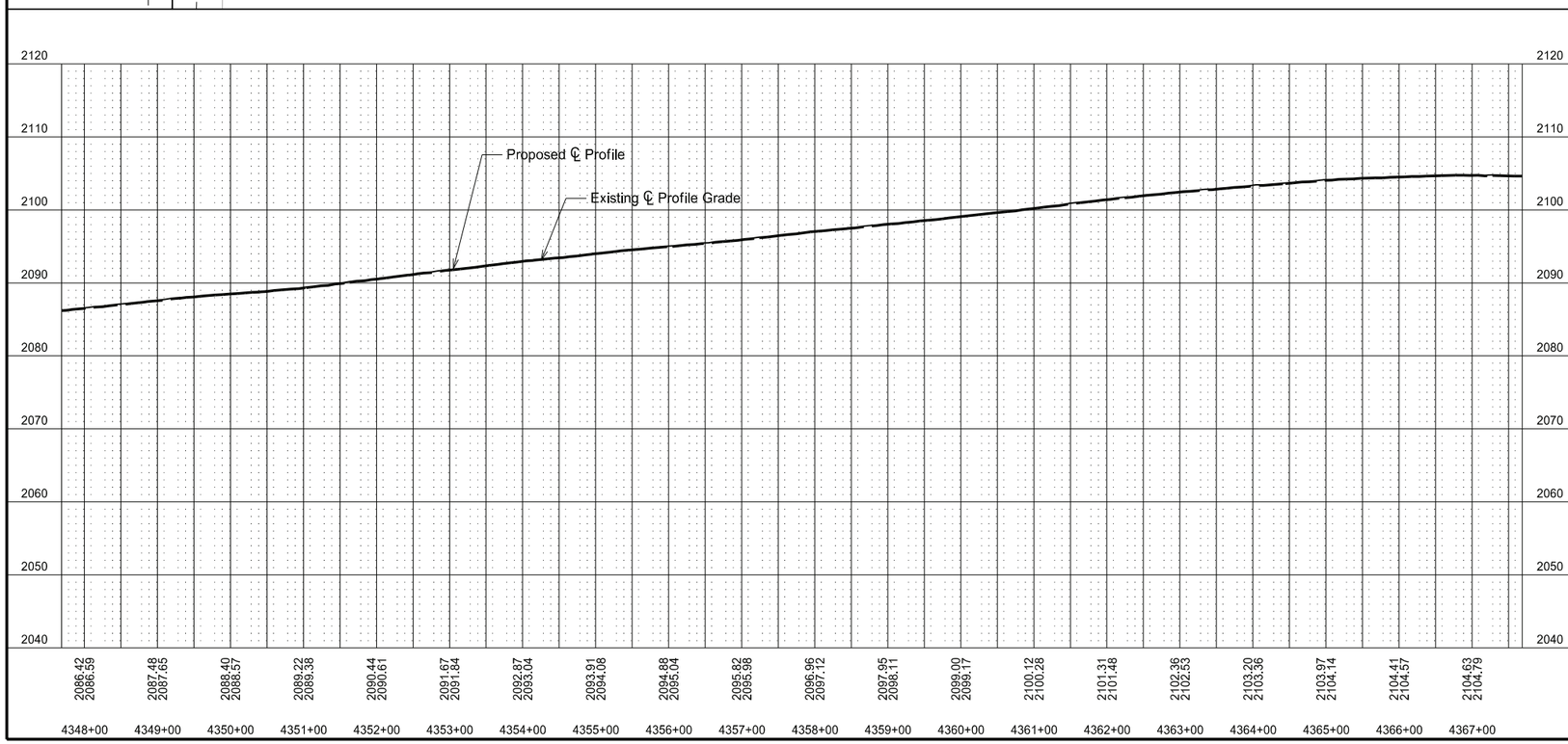
Plan and Profile

Sta 4328+00 to Sta 4348+00

REGISTERED PROFESSIONAL ENGINEER
ZACHARY THELEN
PE-40305
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	60	12





ND 31

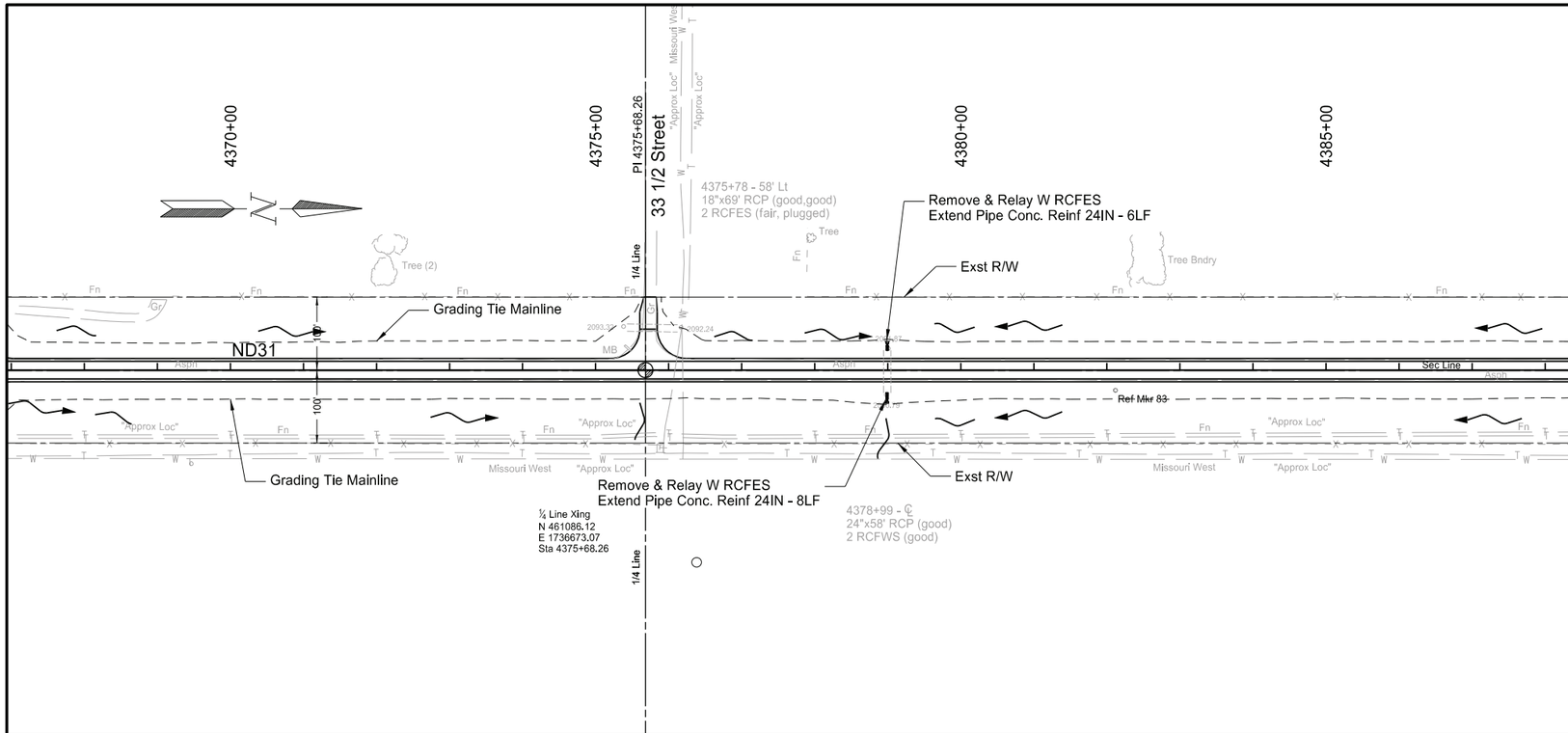
Jct I-94 to Hannover
Morton County

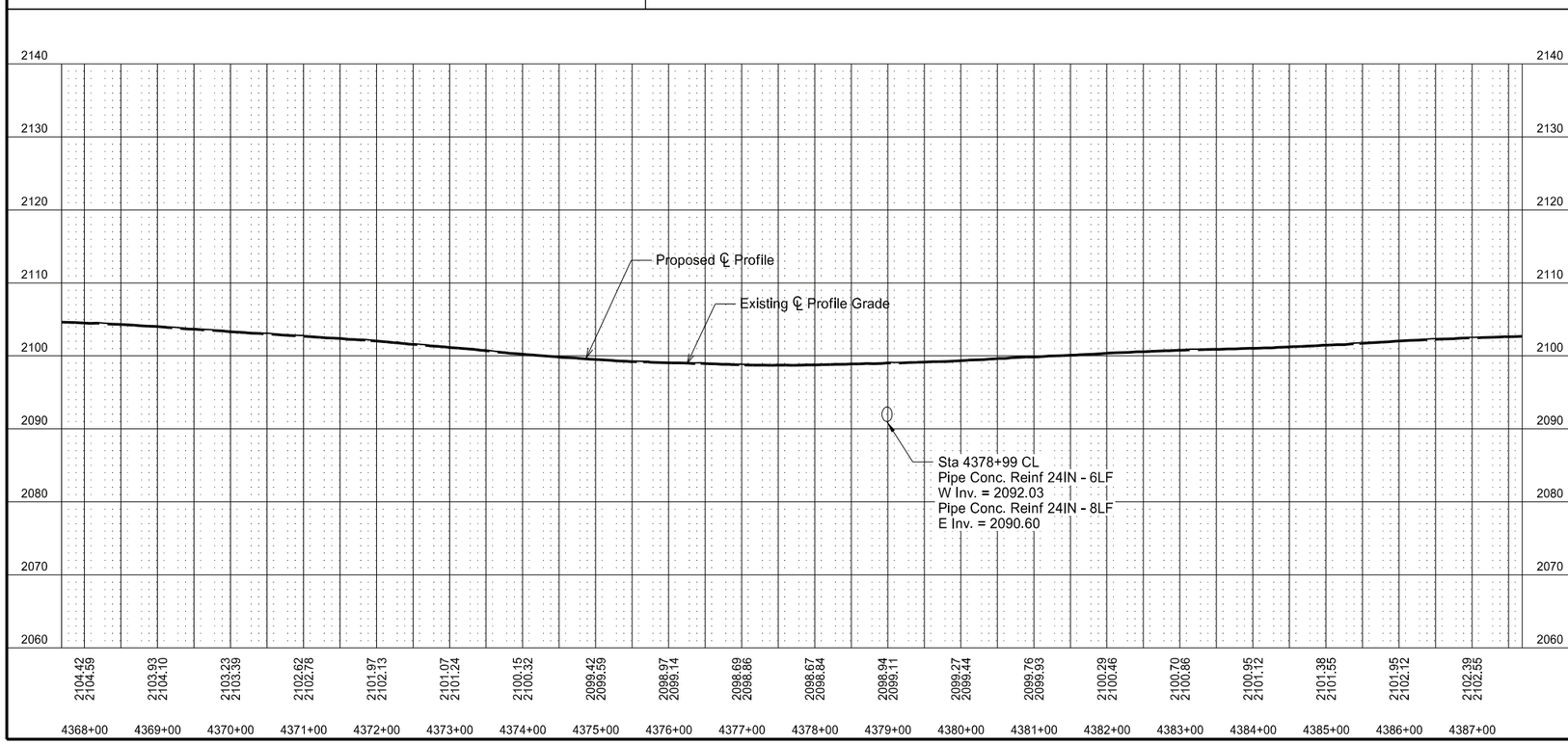
Plan and Profile

Sta 4348+00 to Sta 4368+00

REGISTERED PROFESSIONAL ENGINEER
ZACHARY THELEN
PE-40305
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	60	13





SPEC	CODE	BID ITEM	QTY	UNIT
714	0615	PIPE CONC REINF 24IN CL III		
		4378+99 - CL LT	6	LF
		4378+99 - CL RT	8	LF
714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES		
		4378+99 - CL LT	1	EA
		4378+99 - CL RT	1	EA
754	0805	OBJECT MARKERS - CULVERTS		
		4378+99 - CL LT	1	EA
		4378+99 - CL RT	1	EA

ND 31

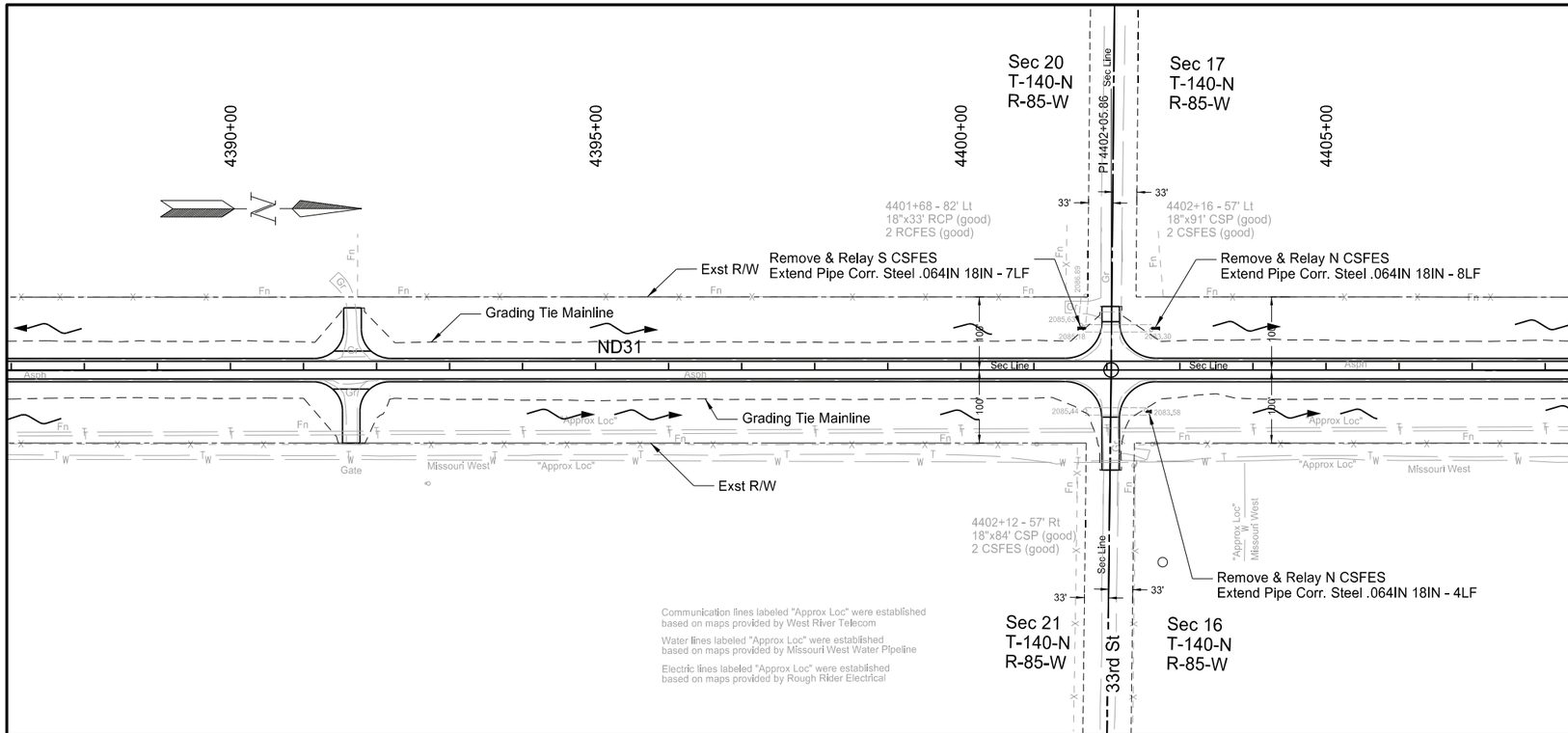
Jct I-94 to Hannover
Morton County

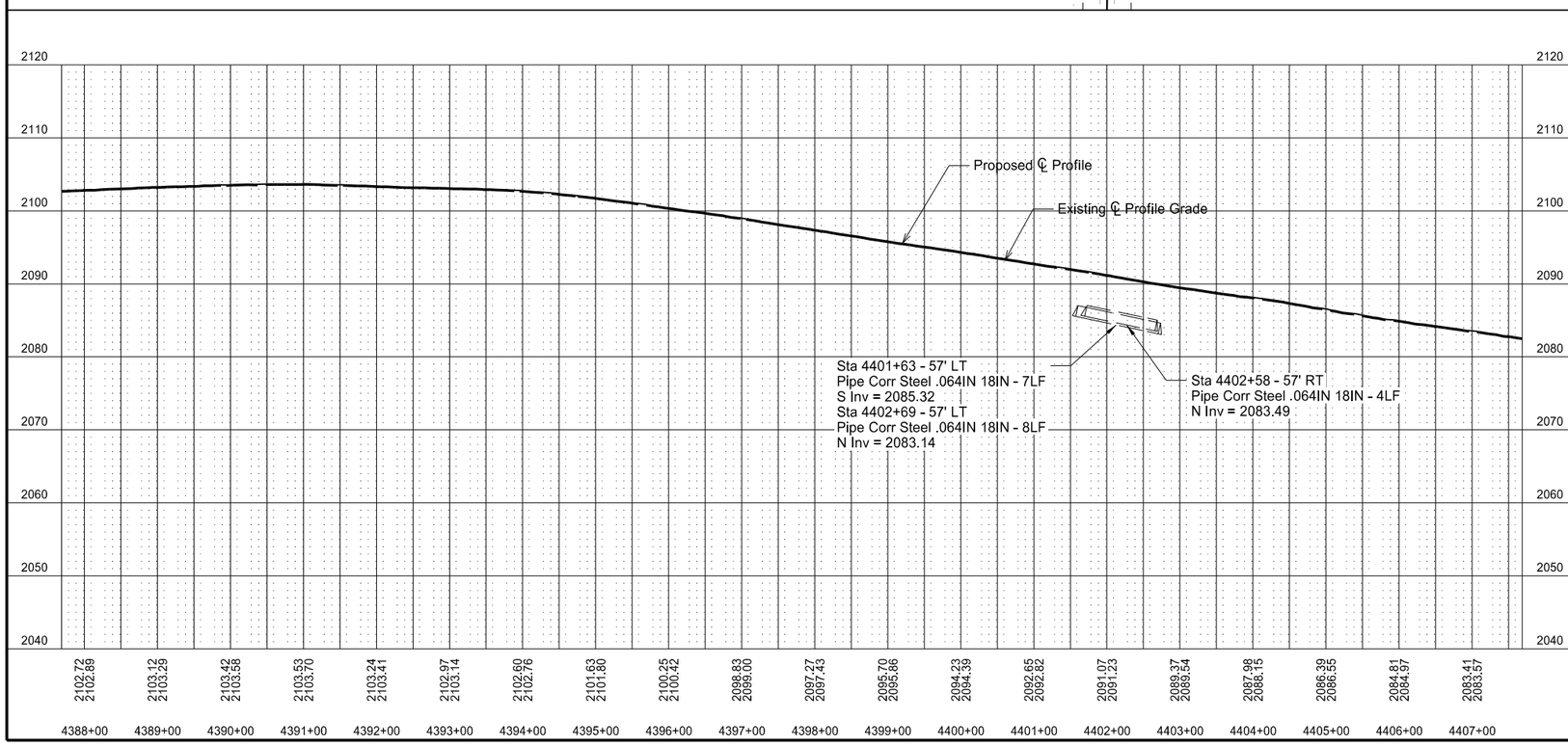
Plan and Profile

Sta 4368+00 to Sta 4388+00

REGISTERED PROFESSIONAL ENGINEER
ZACHARY THELEN
PE-40305
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	60	14





SPEC	CODE	BID ITEM	QTY	UNIT
714	5015	PIPE CORR STEEL .064IN 18IN		
		4401+63 - 57' LT	7	LF
		4402+58 - 57' RT	4	LF
		4402+69 - 57' LT	8	LF
714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES		
		4401+63 - 57' LT	1	EA
		4402+58 - 57' RT	1	EA
		4402+69 - 57' LT	1	EA
754	0805	OBJECT MARKERS - CULVERTS		
		4401+63 - 57' LT	1	EA
		4402+58 - 57' RT	1	EA
		4402+69 - 57' LT	1	EA

ND 31

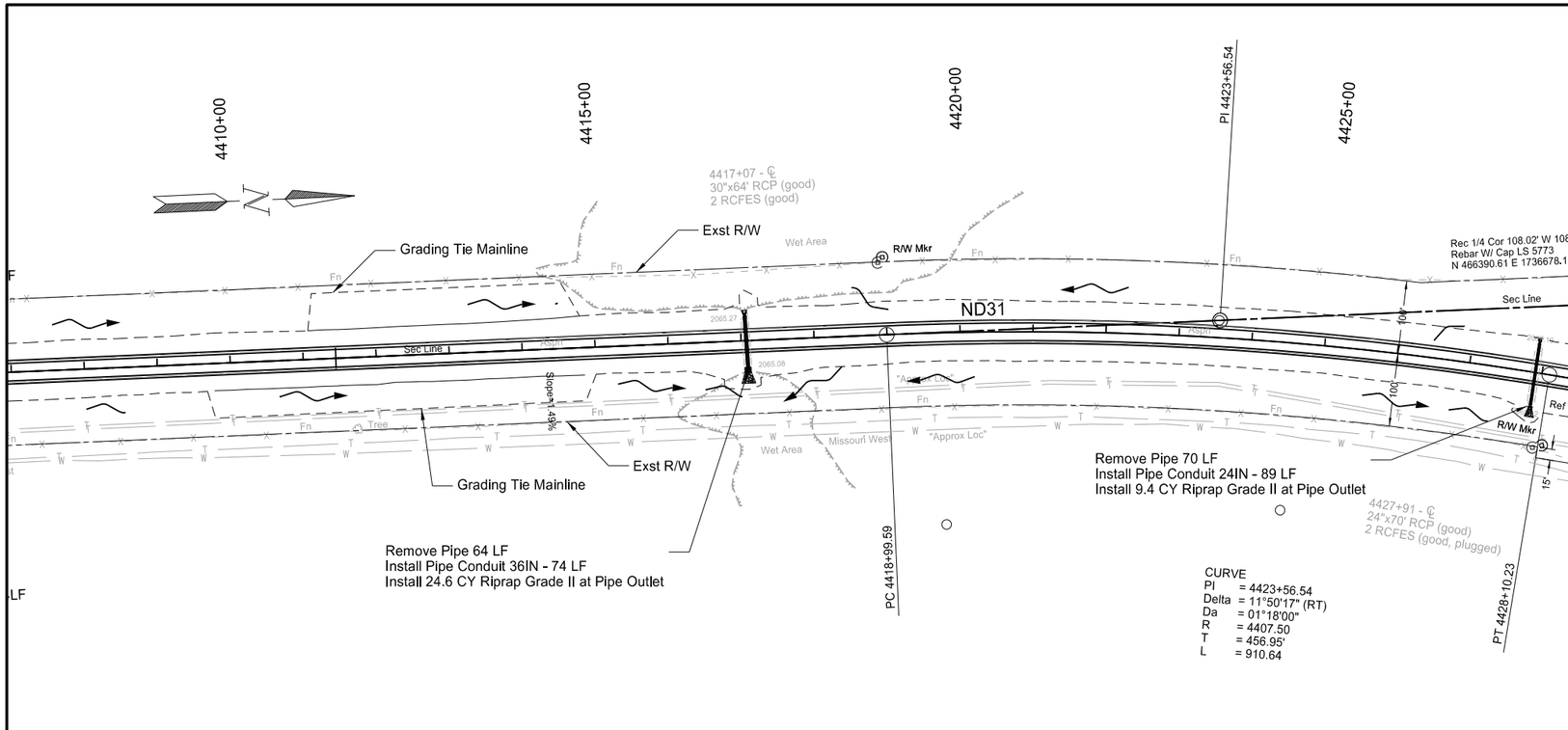
Jct I-94 to Hannover
Morton County

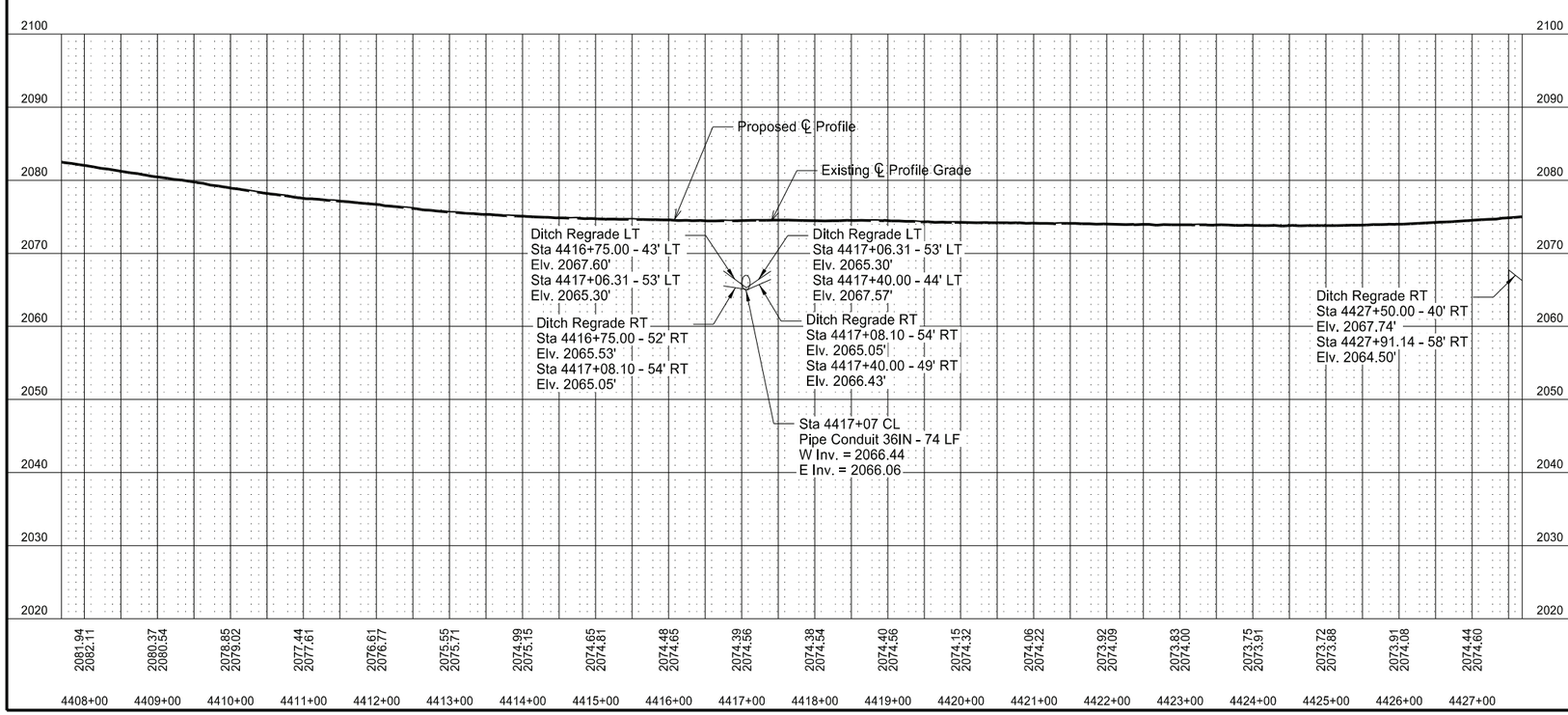
Plan and Profile

Sta 4388+00 to Sta 4408+00

REGISTERED PROFESSIONAL ENGINEER
ZACHARY THELEN
PE-40305
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	60	15





SPEC	CODE	BID ITEM	QTY	UNIT
202	0170	REMOVAL OF CULVERTS-ALL TYPES & SIZES		
		4417+07 - CL	64	LF
		4427+91 - CL	70	LF
714	4105	PIPE CONDUIT 24IN		
		4427+91 - CL	89	LF
714	4115	PIPE CONDUIT 36IN		
		4417+07 - CL	74	LF
754	0805	OBJECT MARKERS - CULVERTS		
		4417+07 - CL - LT & RT	2	EA
		4427+91 - CL - LT & RT	2	EA

*See Section 20 Sheet 4 for Geosynthetic Material Type RR and Riprap Grade II Quantities

ND 31

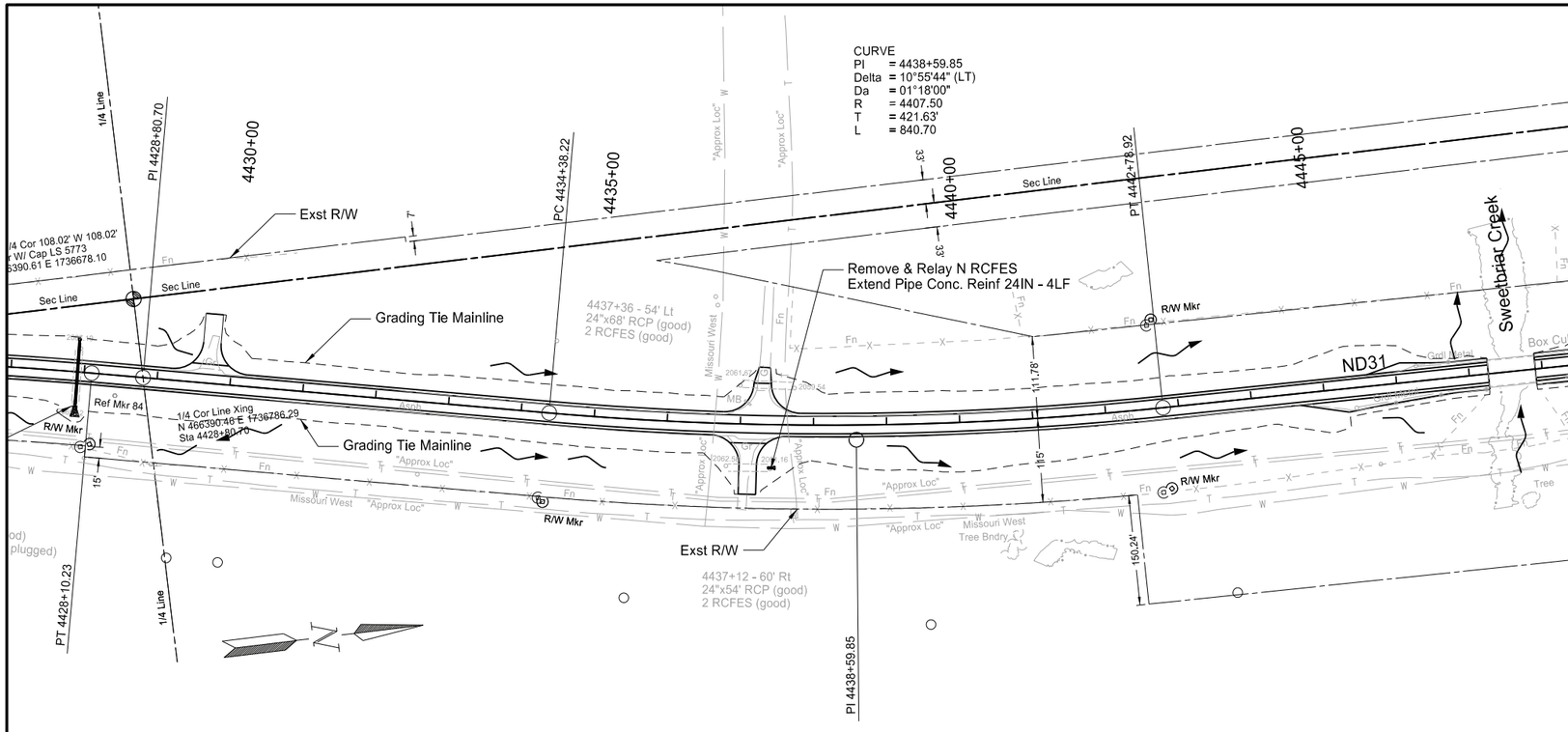
Jct I-94 to Hannover
Morton County

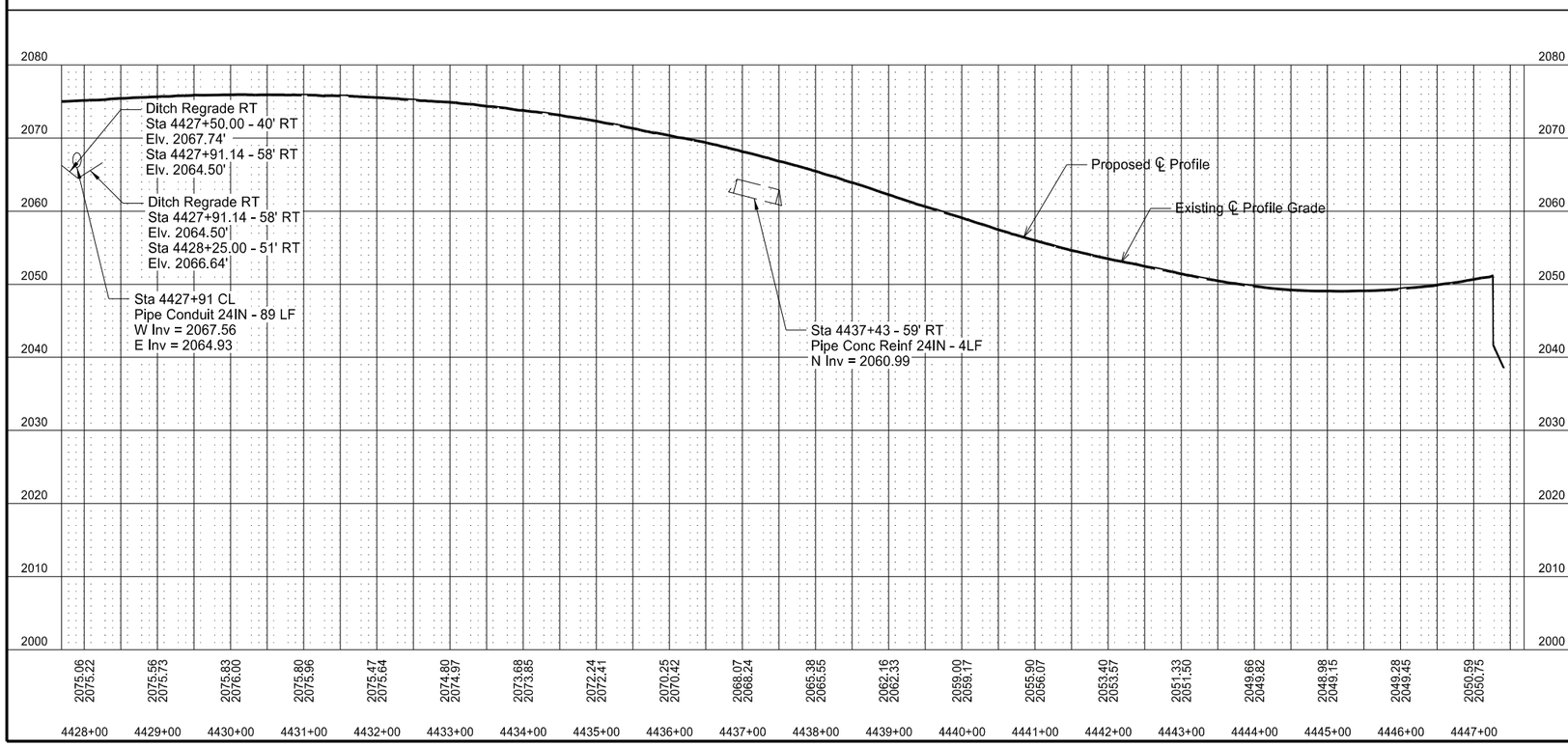
Plan and Profle

Sta 4408+00 to Sta 4428+00

REGISTERED PROFESSIONAL ENGINEER
ZACHARY THELEN
PE-40305
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	60	16





SPEC	CODE	BID ITEM	QTY	UNIT
714	0615	PIPE CONC REINF 24IN CL III		
		4437+43 - 59' RT	4	LF
714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES		
		4437+43 - 59' RT	1	EA
754	0805	OBJECT MARKERS - CULVERTS		
		4437+43 - 59' RT	1	EA

ND 31

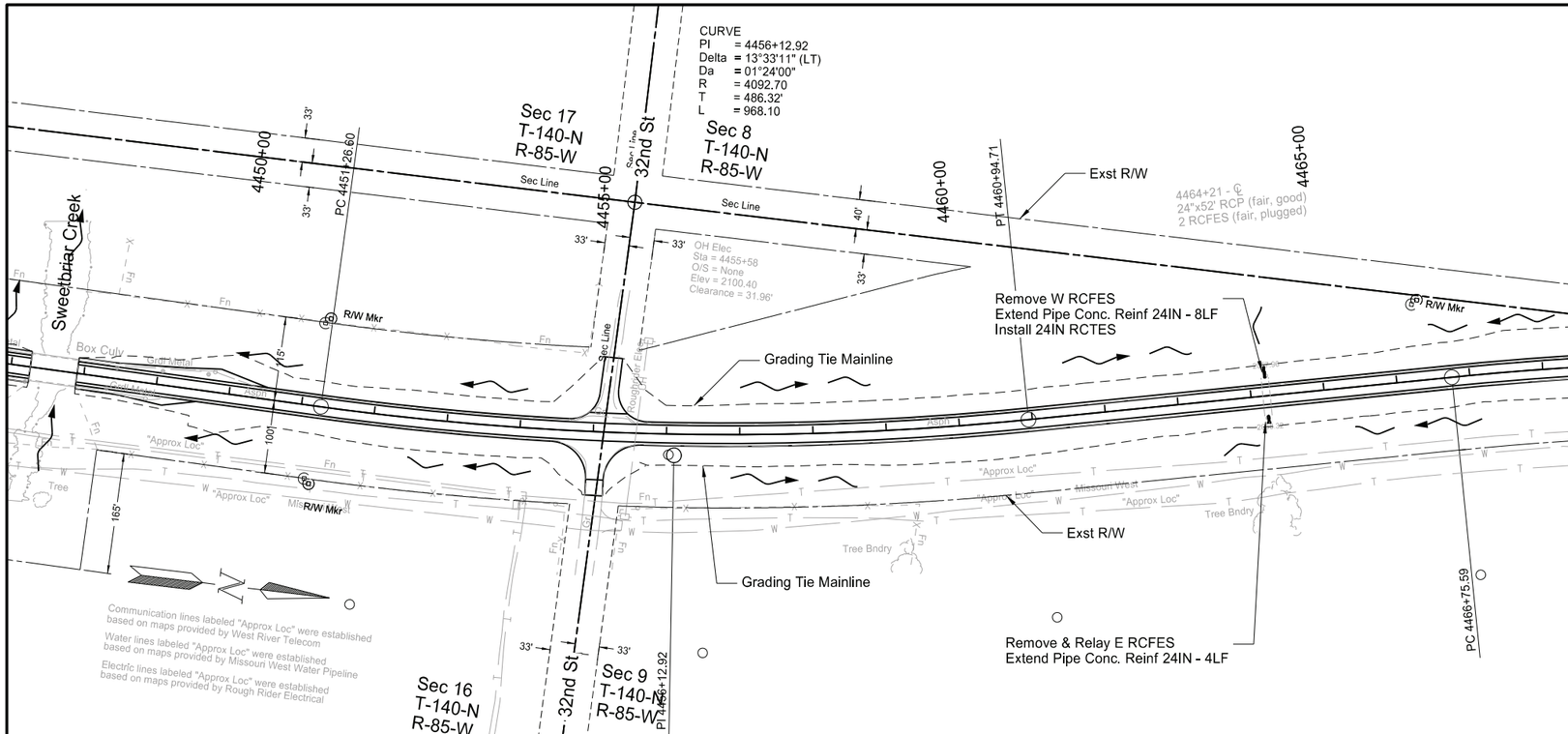
Jct I-94 to Hannover
Morton County

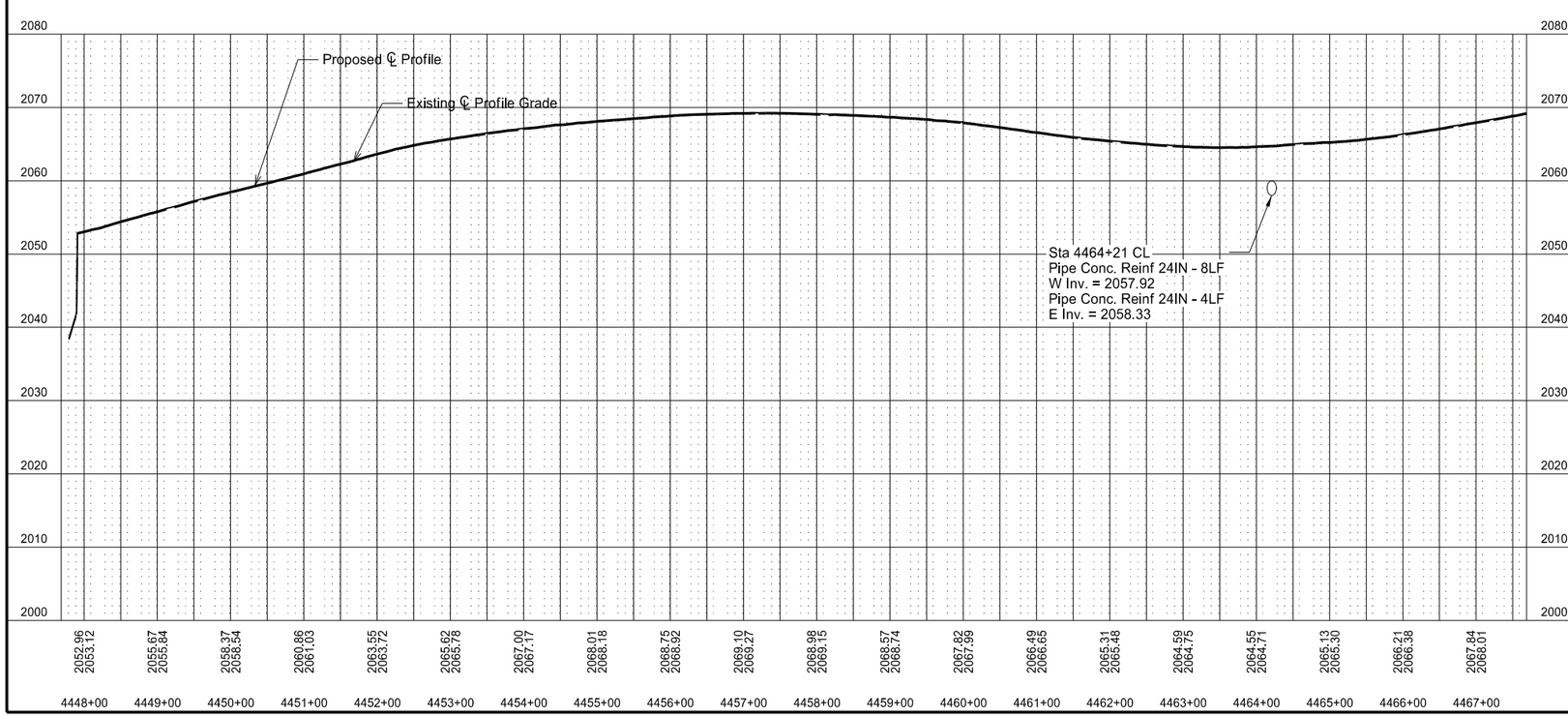
Plan and Profile

Sta 4428+00 to Sta 4448+00

REGISTERED PROFESSIONAL ENGINEER
ZACHARY THELEN
PE-40305
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	60	17





SPEC	CODE	BID ITEM	QTY	UNIT
202	0169	REMOVAL OF END SECTION-ALL TYPES & SIZES		
		4464+21- CL LT	1	EA
714	0615	PIPE CONC REINF 24IN CL III		
		4464+21- CL LT	8	LF
		4464+21- CL RT	4	LF
714	3023	END SECT-TRAVERSABLE REINF. CONC.24IN		
		4464+21- CL LT	1	EA
714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES		
		4464+21- CL RT	1	EA
754	0805	OBJECT MARKERS - CULVERTS		
		4464+21- CL LT	1	EA
		4464+21- CL RT	1	EA

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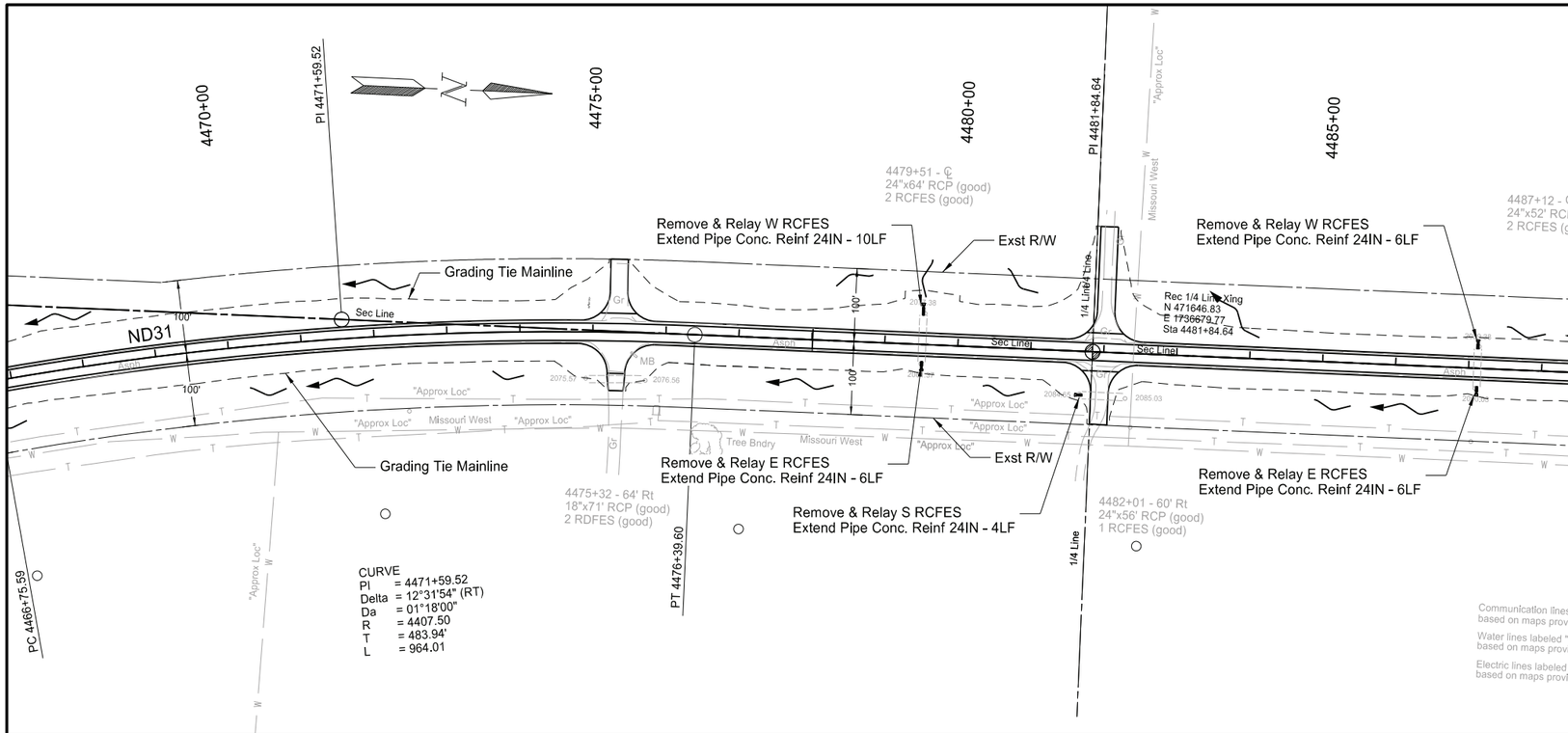
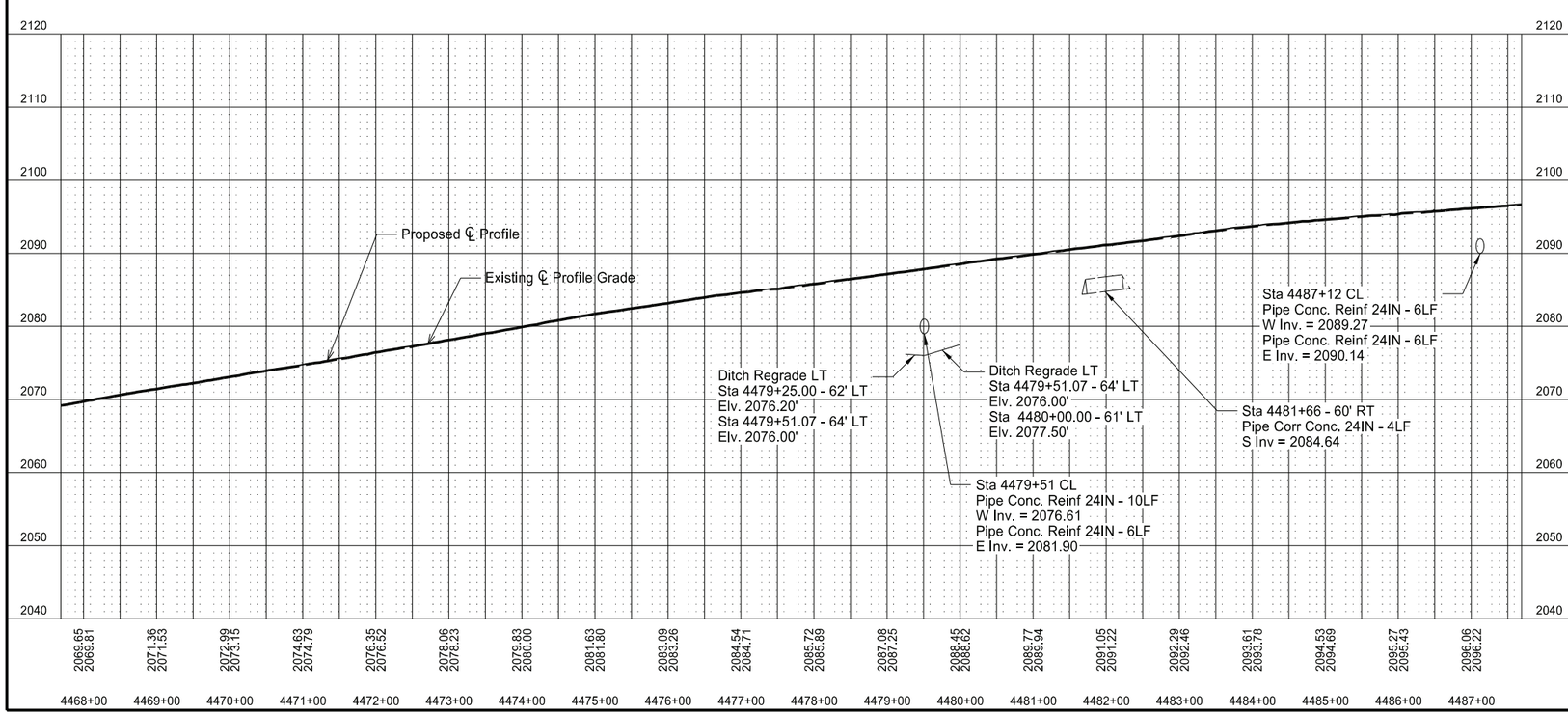
Sta 4448+00 to Sta 4468+00

REGISTERED PROFESSIONAL ENGINEER
ZACHARY THELEN
PE-40305
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	60	18





SPEC	CODE	BID ITEM	QTY	UNIT
714	0615	PIPE CONC REINF 24IN CL III		
		4479+51- CL LT	10	LF
		4479+51- CL RT	6	LF
		4481+66 - 60' RT	4	LF
		4487+12 - CL LT	6	LF
		4487+12 - CL RT	6	LF
714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES		
		4479+51- CL LT	1	EA
		4479+51- CL RT	1	EA
		4481+66 - 60' RT	1	EA
		4487+12 - CL LT	1	EA
		4487+12 - CL RT	1	EA
754	0805	OBJECT MARKERS - CULVERTS		
		4479+51- CL LT	1	EA
		4479+51- CL RT	1	EA
		4481+66 - 60' RT	1	EA
		4487+12 - CL LT	1	EA
		4487+12 - CL RT	1	EA

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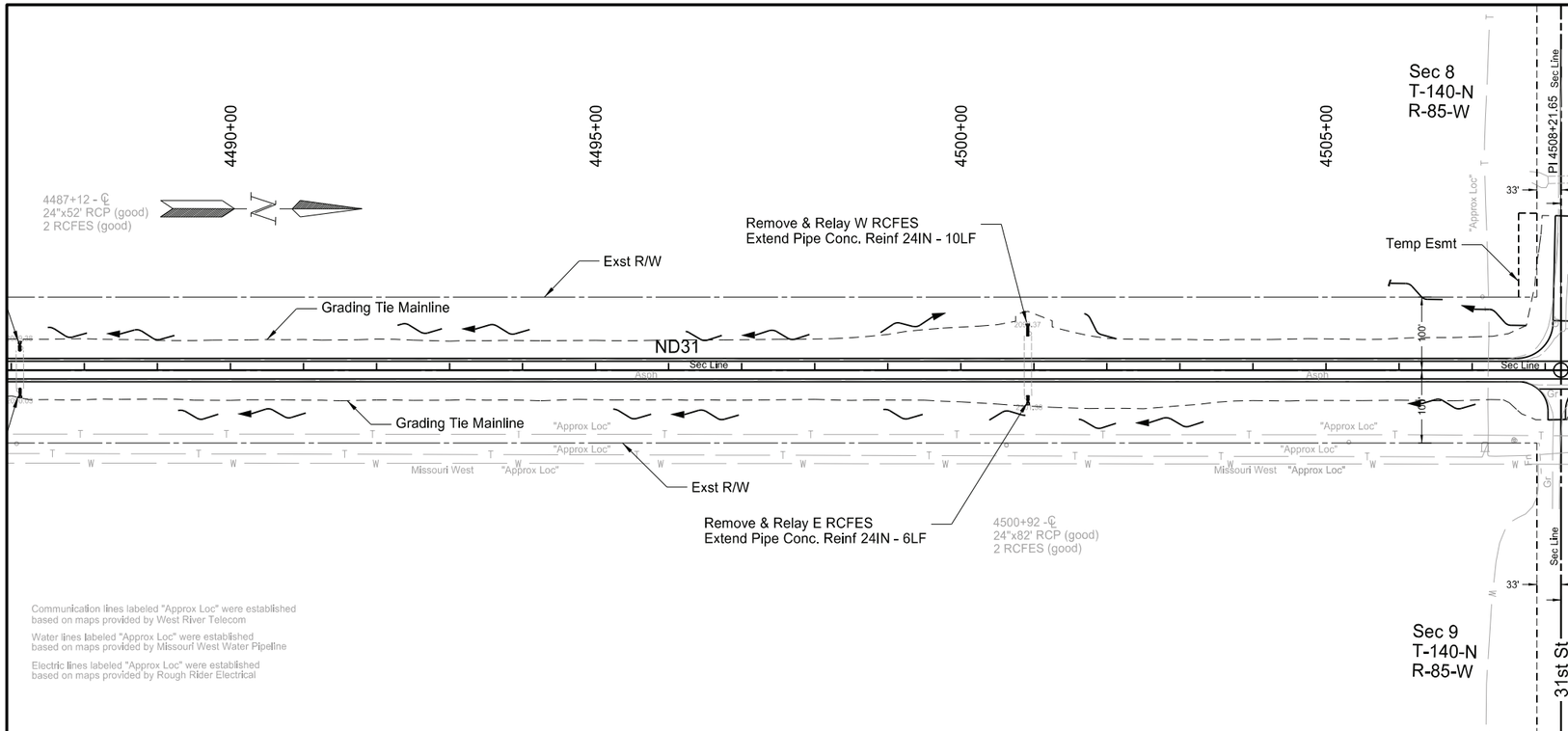
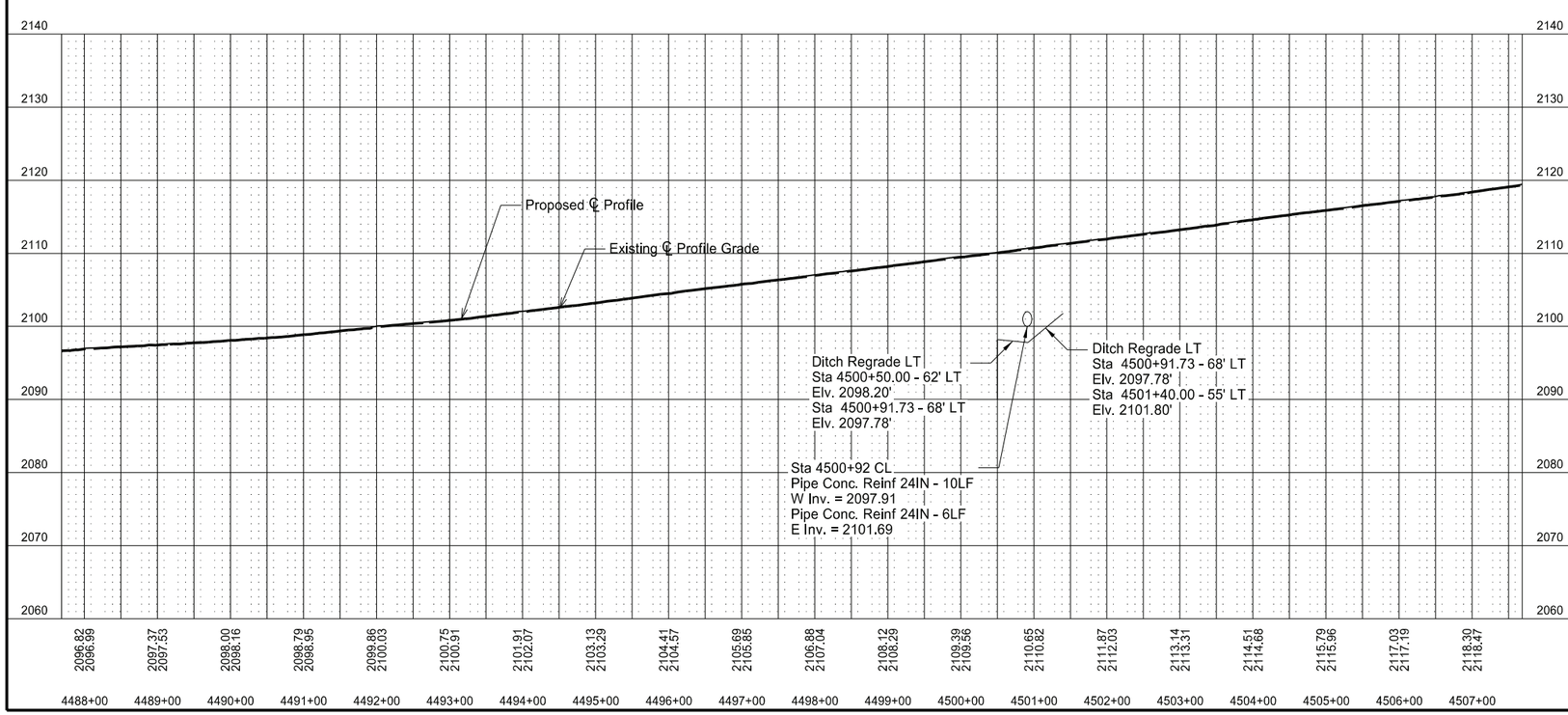
Sta 4468+00 to Sta 4488+00

REGISTERED PROFESSIONAL ENGINEER
ZACHARY THELEN
PE-40305
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	60	19





SPEC	CODE	BID ITEM	QTY	UNIT
714	0615	PIPE CONC REINF 24IN CL III		
		4500+92 - CL LT	10	LF
		4500+92 - CL RT	6	LF
714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES		
		4500+92 - CL LT	1	EA
		4500+92 - CL RT	1	EA
754	0805	OBJECT MARKERS - CULVERTS		
		4500+92 - CL LT	1	EA
		4500+92 - CL RT	1	EA

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Sta 4488+00 to Sta 4508+00

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PE-40305
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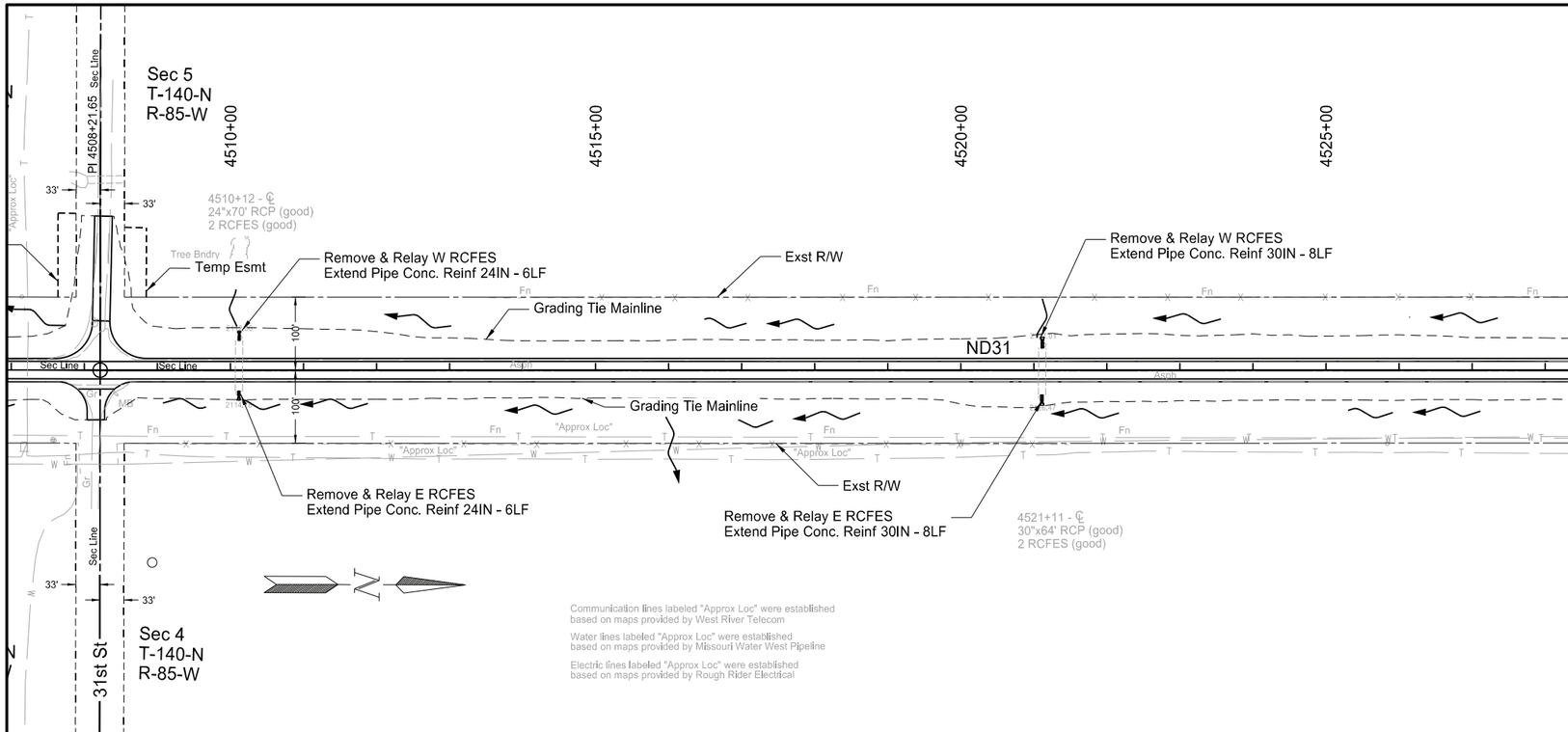
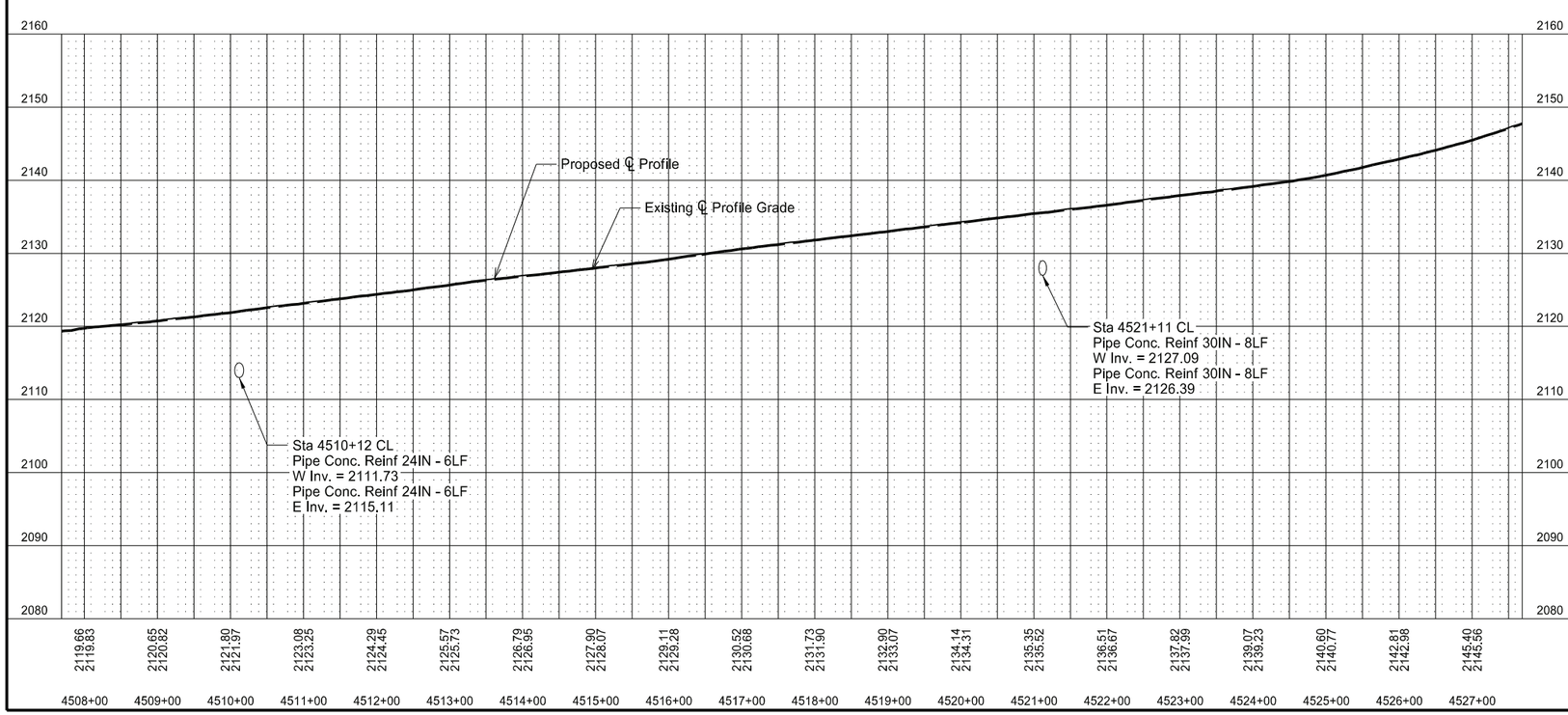
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	60	20





SPEC	CODE	BID ITEM	QTY	UNIT
714	0615	PIPE CONC REINF 24IN CL III		
		4510+12 - CL LT	6	LF
		4510+12 - CL RT	6	LF
714	0820	PIPE CONC REINF 30IN CL III		
		4521+11 - CL LT	8	LF
		4521+11 - CL RT	8	LF
714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES		
		4510+12 - CL LT	1	EA
		4510+12 - CL RT	1	EA
		4521+11 - CL LT	1	EA
		4521+11 - CL RT	1	EA
754	0805	OBJECT MARKERS - CULVERTS		
		4510+12 - CL LT	1	EA
		4510+12 - CL RT	1	EA
		4521+11 - CL LT	1	EA
		4521+11 - CL RT	1	EA

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Jct I-94 to Hannover
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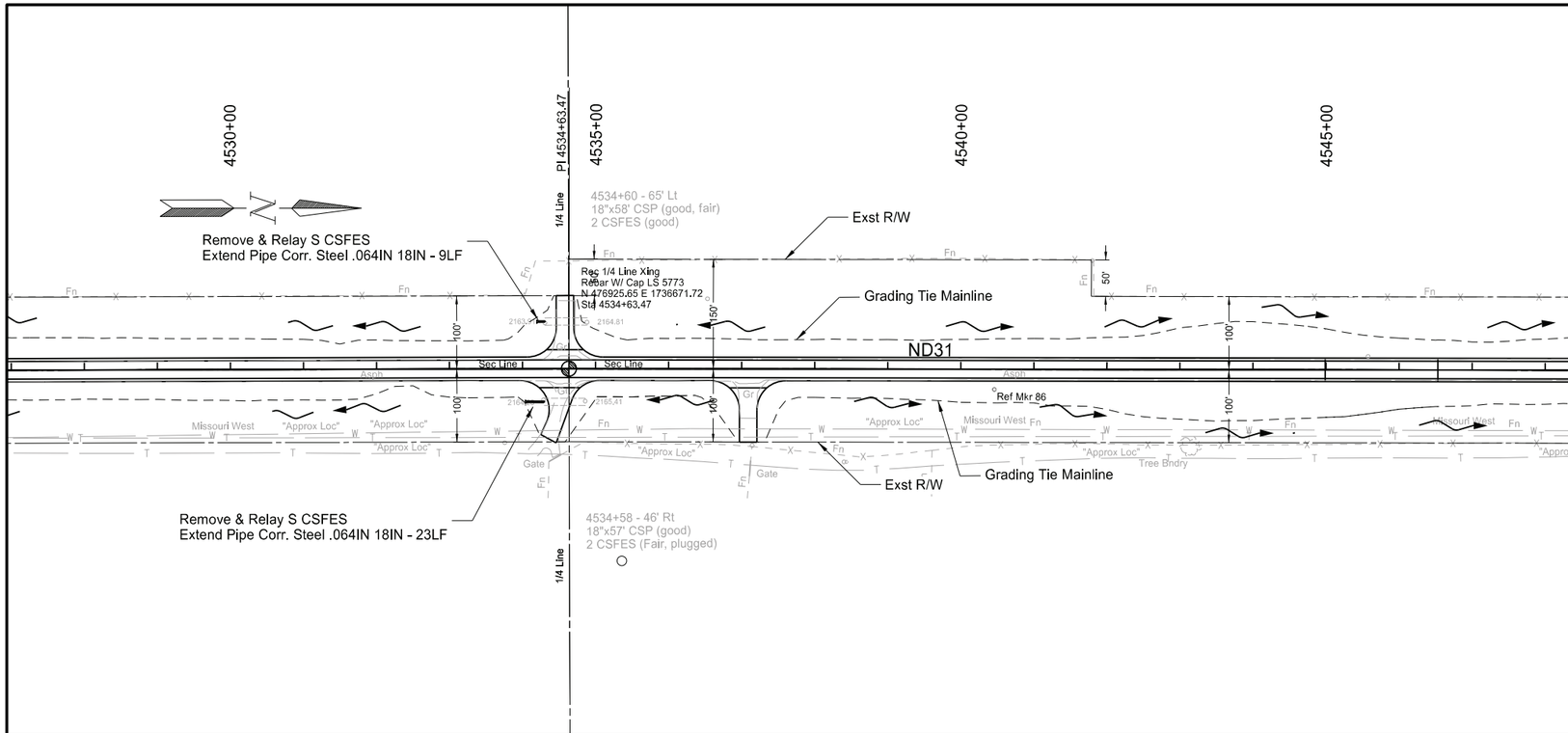
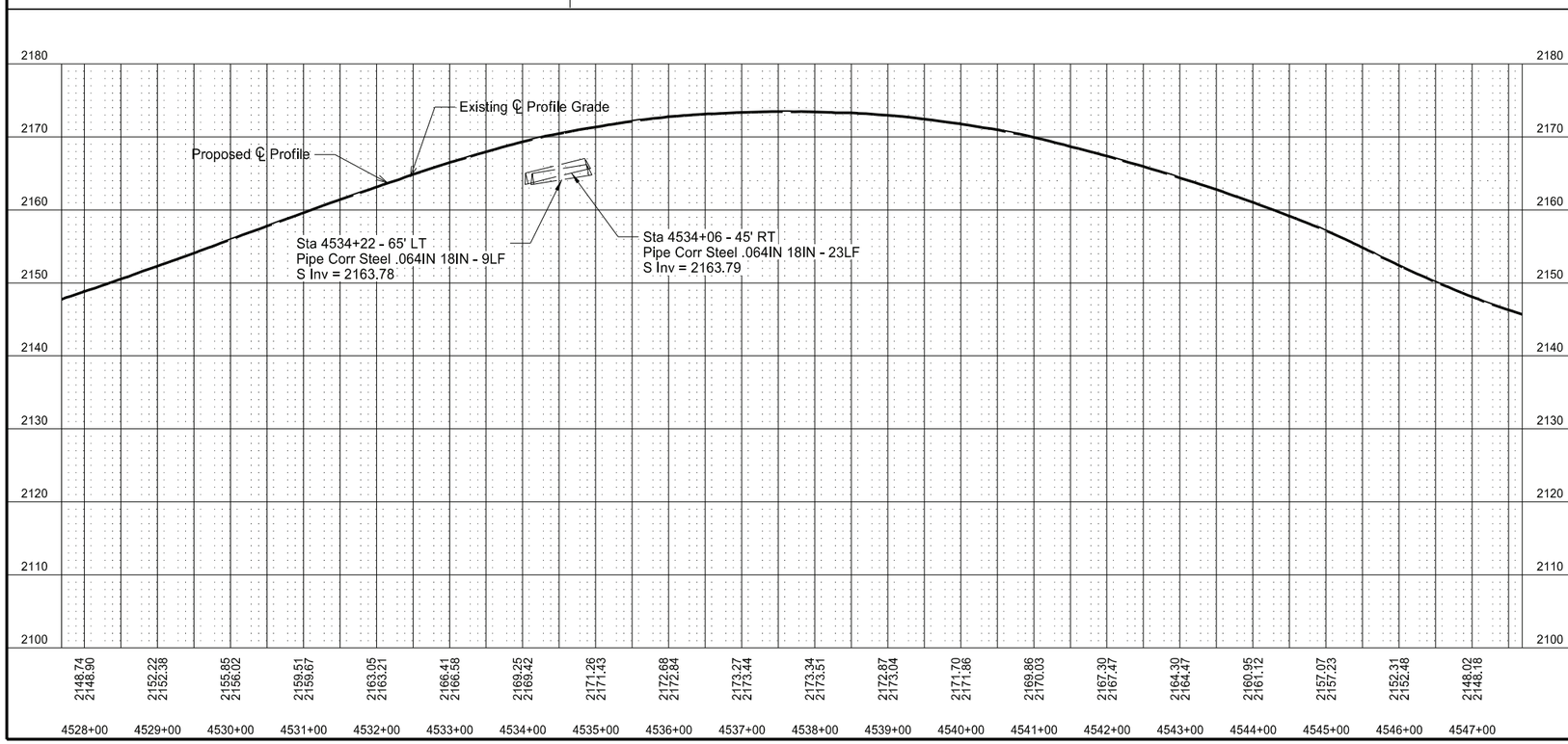
Sta 4508+00 to Sta 4528+00

REGISTERED PROFESSIONAL ENGINEER
ZACHARY THELEN
PE-40305
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	60	21





SPEC	CODE	BID ITEM	QTY	UNIT
714	5015	PIPE CORR STEEL .064IN 18IN		
		4534+06 - 45' RT	23	LF
		4534+22 - 65' LT	9	LF
714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES		
		4534+06 - 45' RT	1	EA
		4534+22 - 65' LT	1	EA
754	0805	OBJECT MARKERS - CULVERTS		
		4534+06 - 45' RT	1	EA
		4534+22 - 65' LT	1	EA

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Jct I-94 to Hannover
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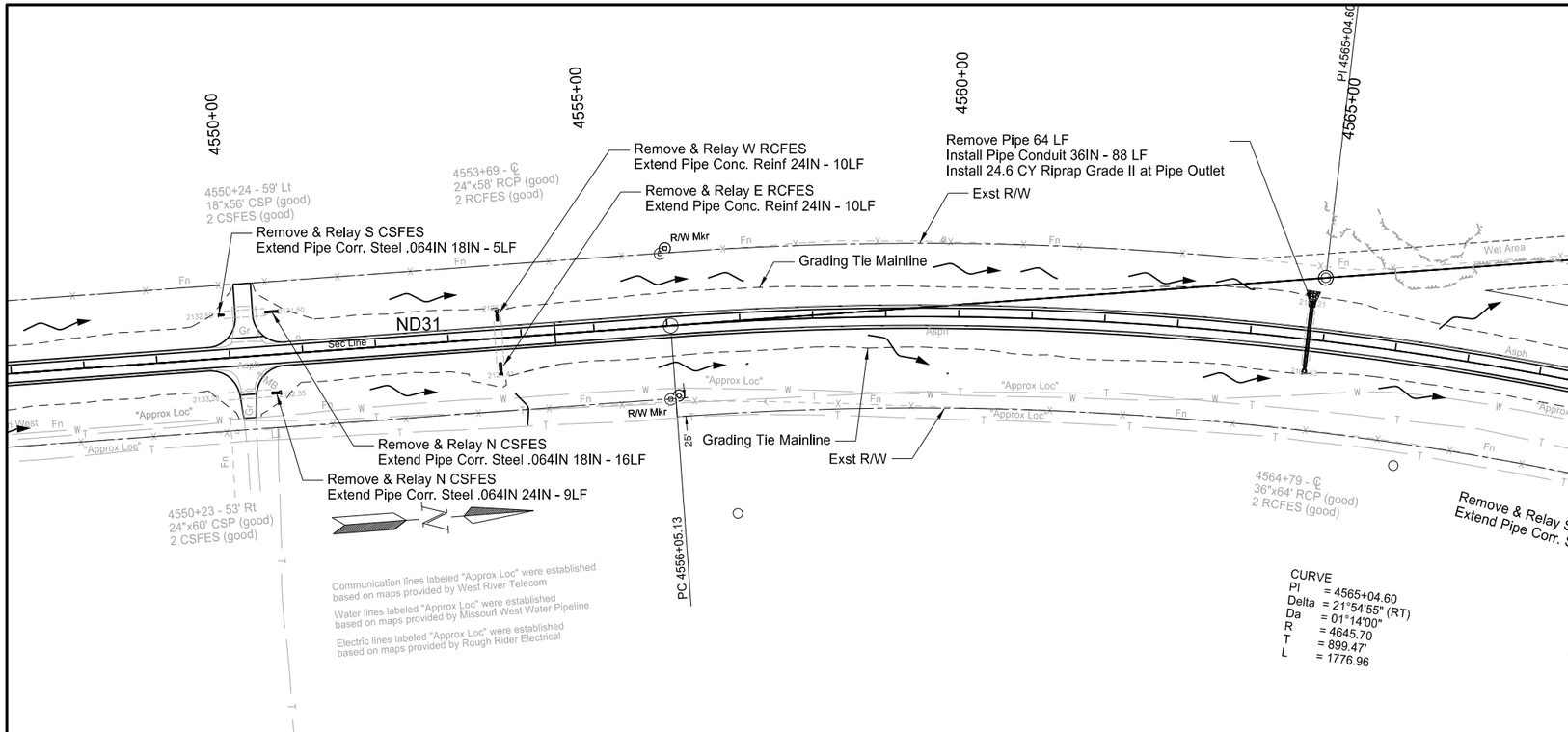
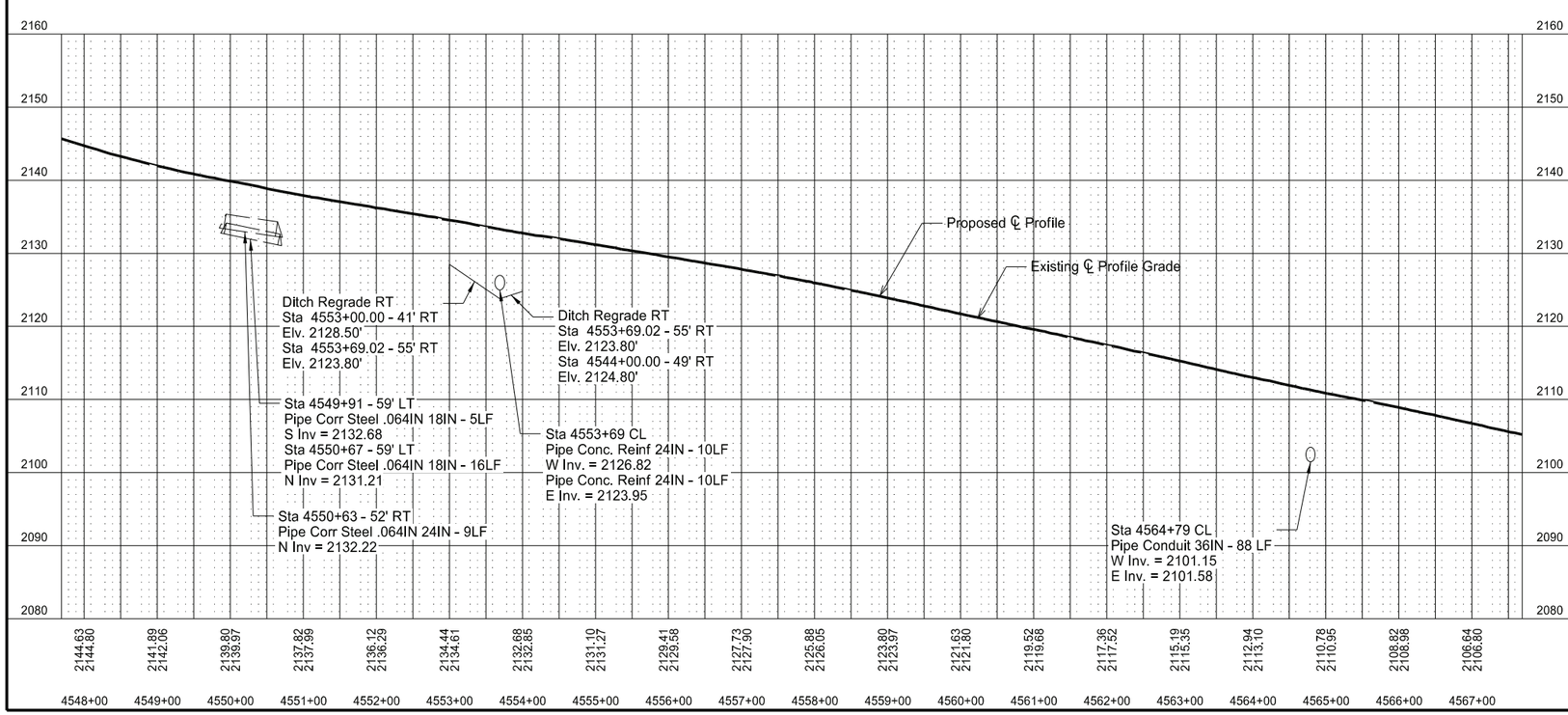
Sta 4528+00 to Sta 4548+00

REGISTERED PROFESSIONAL ENGINEER
ZACHARY THELEN
PE-40305
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	60	22





SPEC	CODE	BID ITEM	QTY	UNIT
202	0170	REMOVAL OF CULVERTS-ALL TYPES & SIZES		
		4564+79 - CL	64	LF
714	0615	PIPE CONC REINF 24IN CL III		
		4553+69 - CL LT	10	LF
		4553+69 - CL RT	10	LF
714	4115	PIPE CONDUIT 36IN		
		4564+79 - CL	88	LF
714	5015	PIPE CORR STEEL .064IN 18IN		
		4549+91 - 59' LT	5	LF
		4550+67 - 59' LT	16	LF
714	5035	PIPE CORR STEEL .064IN 24IN		
		4550+63 - 52' RT	9	LF
714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES		
		4550+63 - 52' RT	1	EA
		4550+63 - 52' RT	1	EA
		4550+67 - 59' LT	1	EA
		4553+69 - CL LT	1	EA
		4553+69 - CL RT	1	EA
754	0805	OBJECT MARKERS - CULVERTS		
		4550+63 - 52' RT	1	EA
		4550+63 - 52' RT	1	EA
		4550+67 - 59' LT	1	EA
		4553+69 - CL LT	1	EA
		4553+69 - CL RT	1	EA
		4564+79 - CL - LT & RT	2	EA

*See Section 20 Sheet 4 for Geosynthetic Material Type RR and Riprap Grade II Quantities

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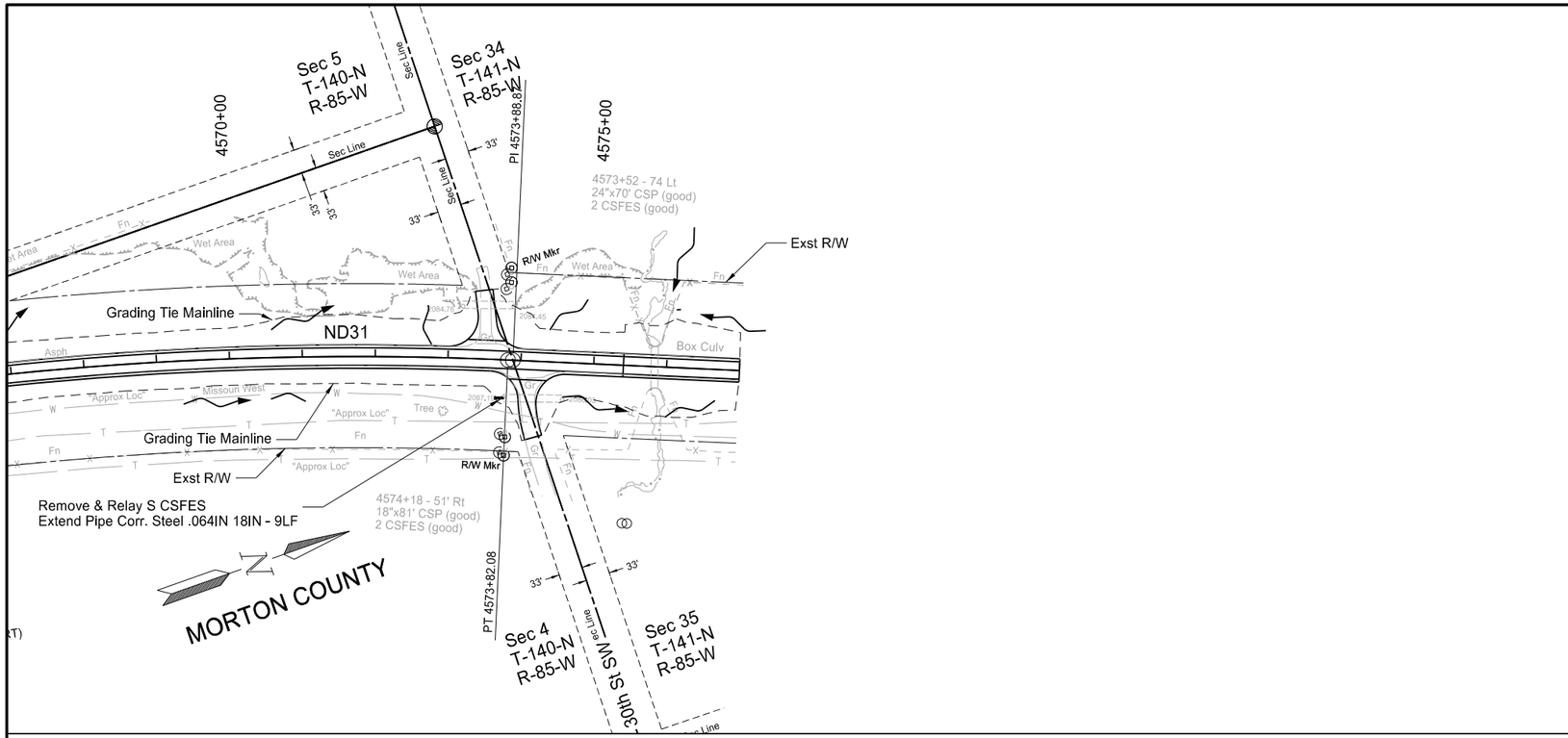
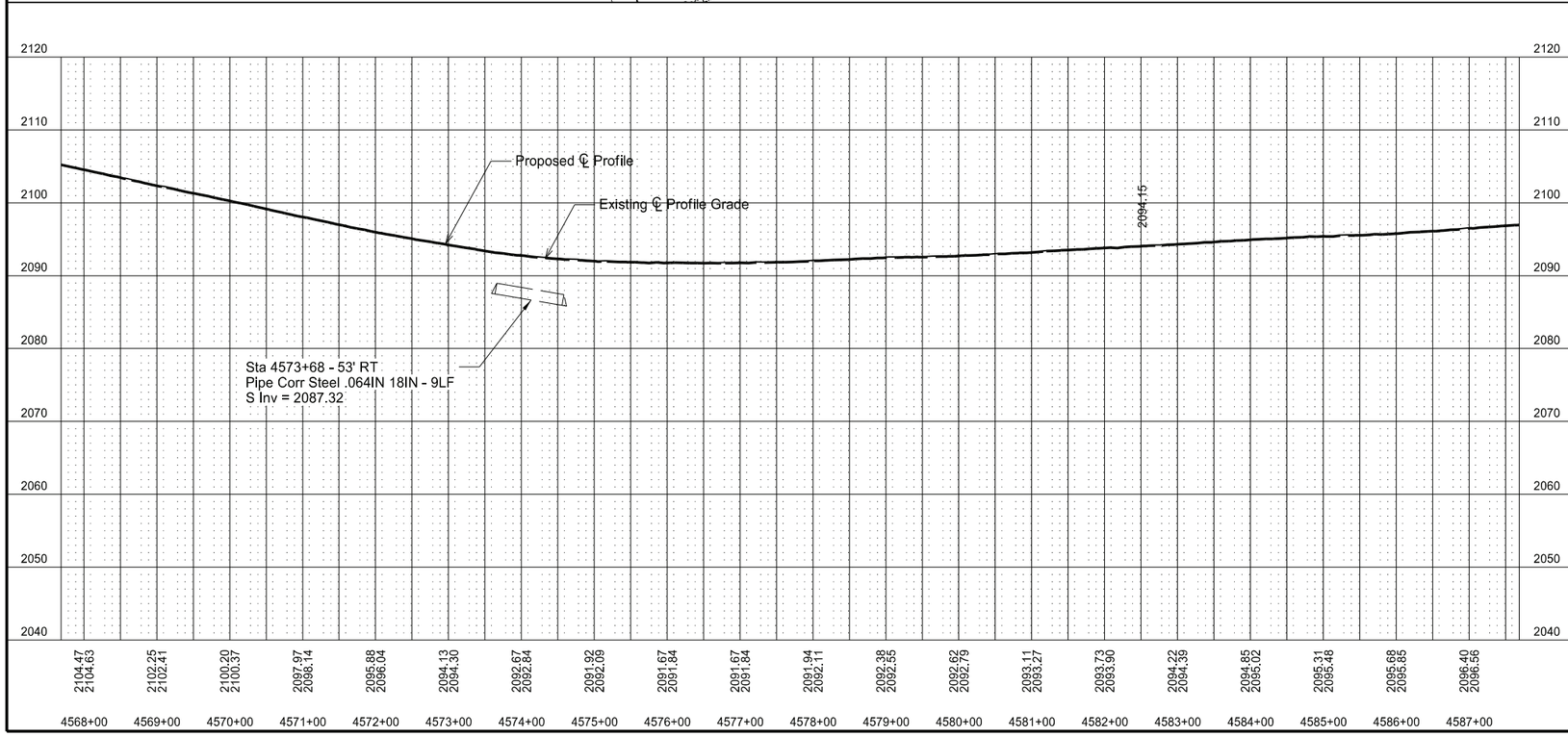
Sta 4548+00 to Sta 4568+00

REGISTERED PROFESSIONAL ENGINEER
ZACHARY THELEN
PE-40305
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	60	23



SPEC	CODE	BID ITEM	QTY	UNIT
714	5015	PIPE CORR STEEL .064IN 18IN		
		4573+68 - 53' RT	9	LF
714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES		
		4573+68 - 53' RT	1	EA
754	0805	OBJECT MARKERS - CULVERTS		
		4573+68 - 53' RT	1	EA



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Sta 4568+00 to Sta 4577+00

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ZACHARY THELEN
PE-40305
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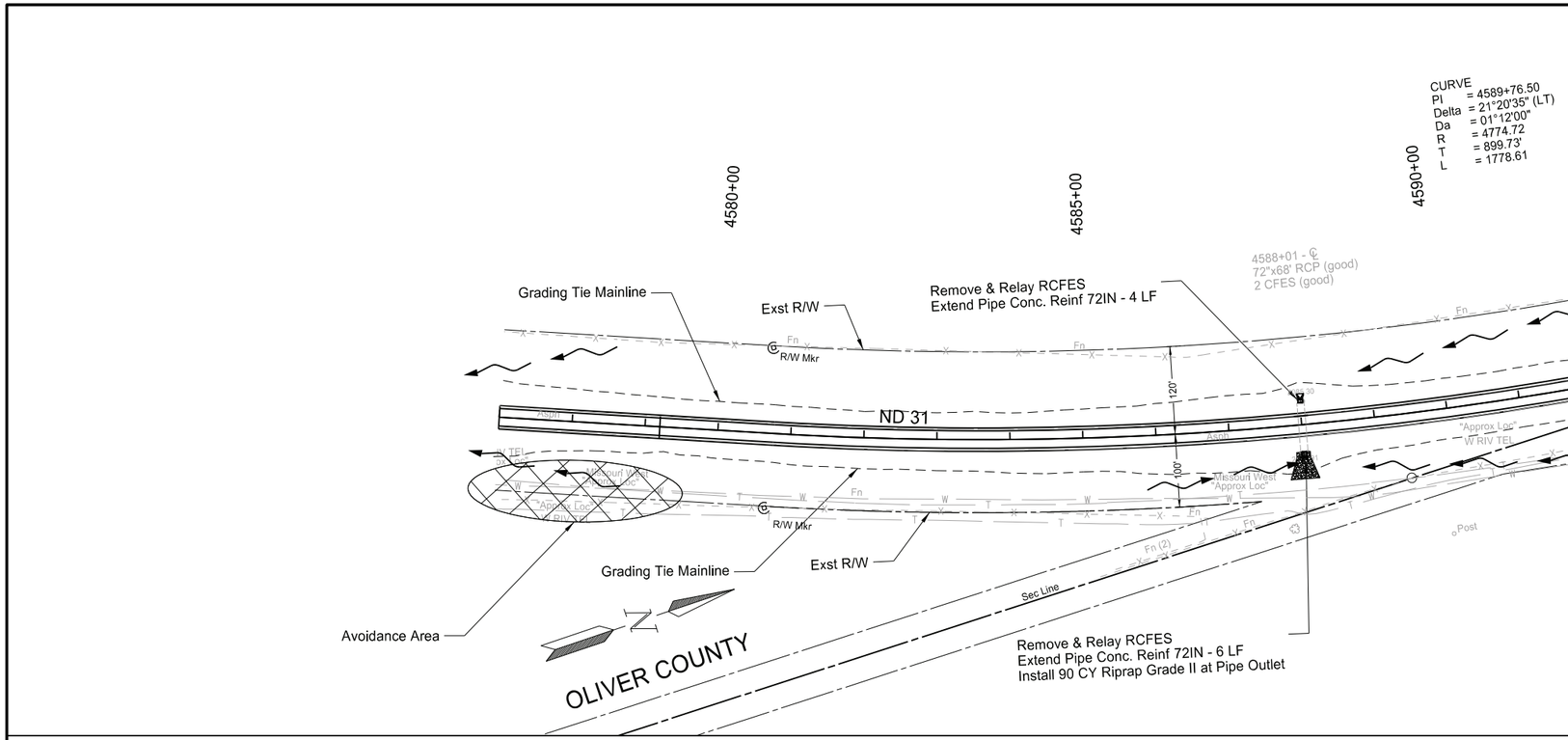
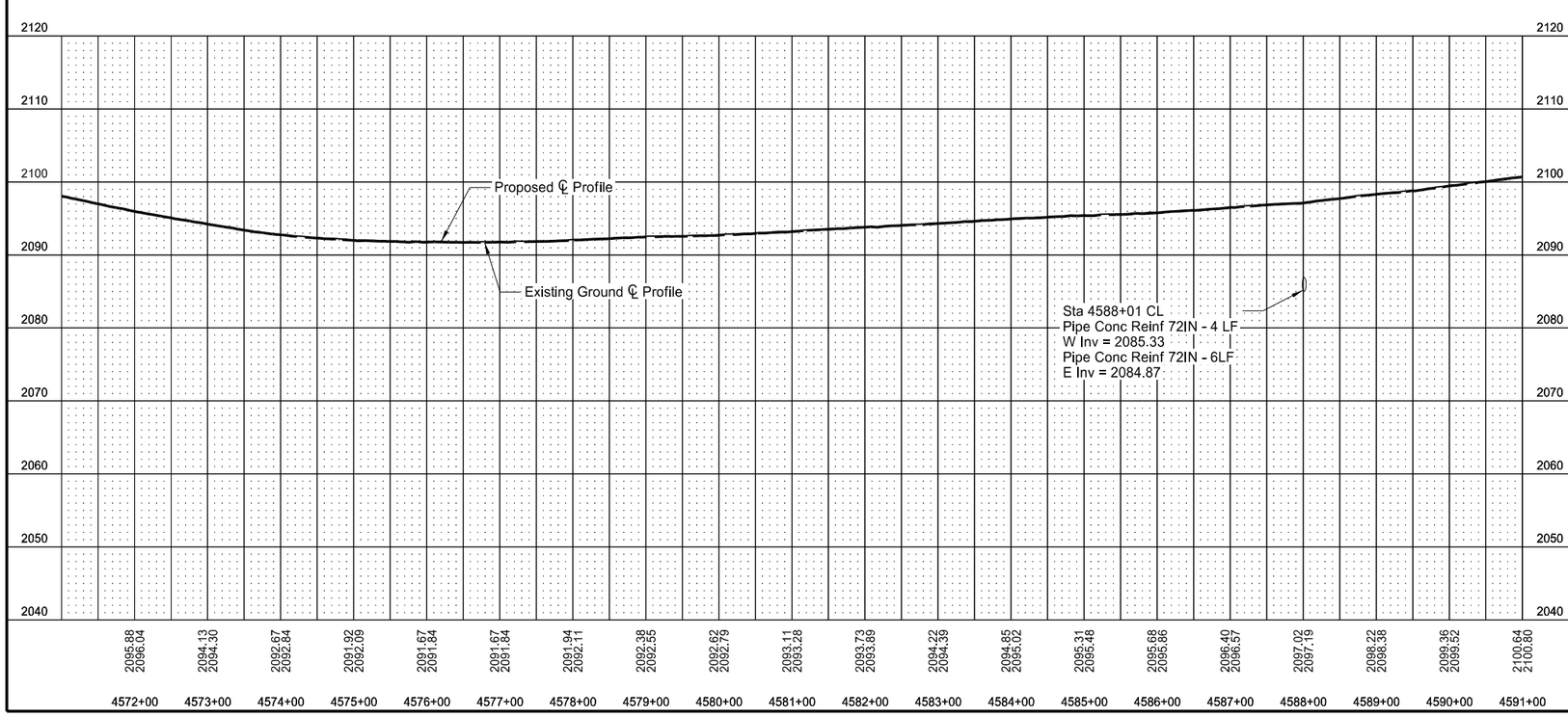
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	60	24



SPEC	CODE	BID ITEM	QTY	UNIT
714	1510	PIPE CONC REINF 72IN CL III		
		4588+01- CL LT	4	LF
		4588+01- CL RT	6	LF
714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES		
		4588+01- CL LT	1	EA
		4588+01- CL RT	1	EA
754	0805	OBJECT MARKERS - CULVERTS		
		4588+01- CL LT	1	EA
		4588+01- CL RT	1	EA

*See Section 20 Sheet 4 for Geosynthetic Material Type RR and Riprap Grade II Quantities



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Sta 4577+00 to Sta 4591+00

REGISTERED PROFESSIONAL ENGINEER
ZACHARY THELEN
PE-40305
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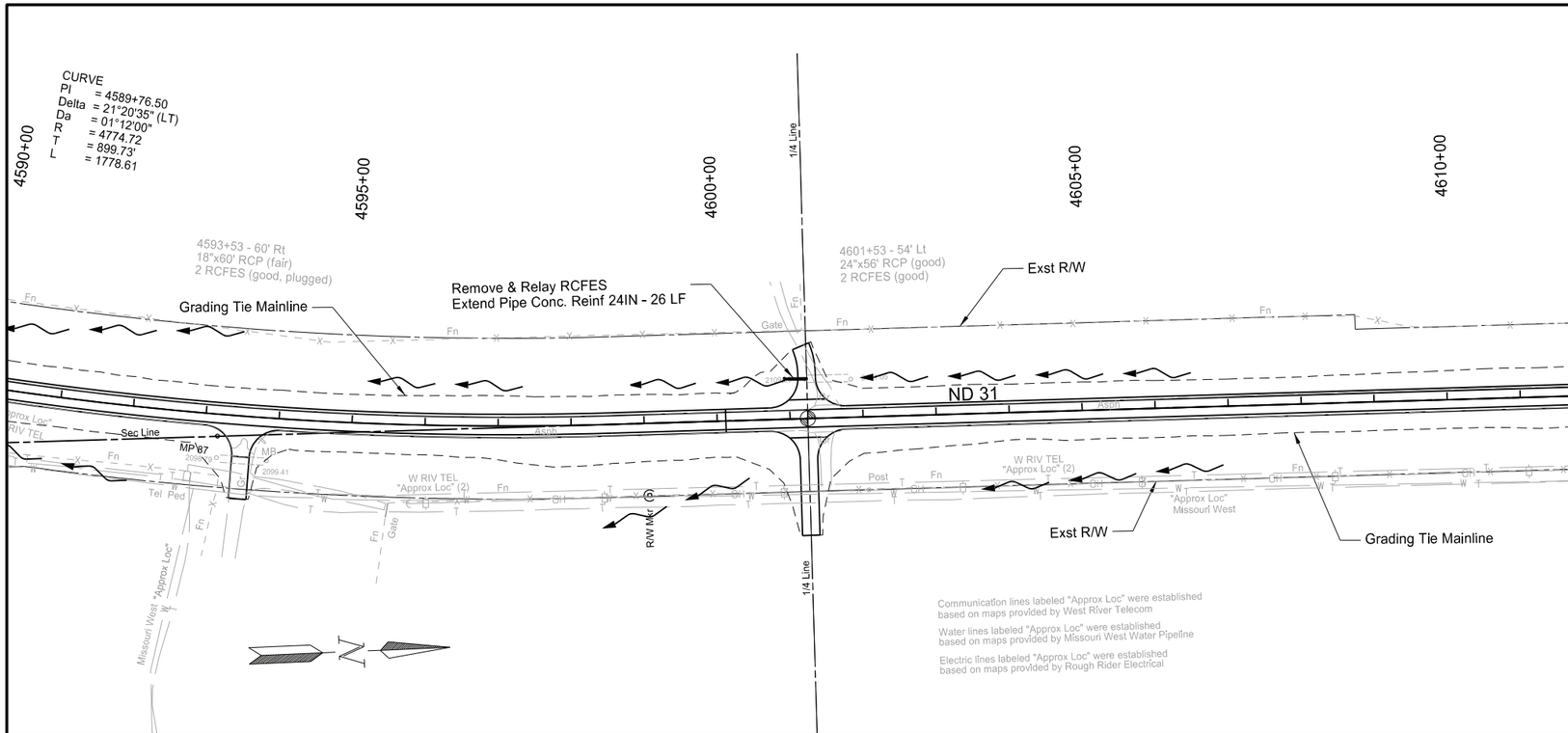
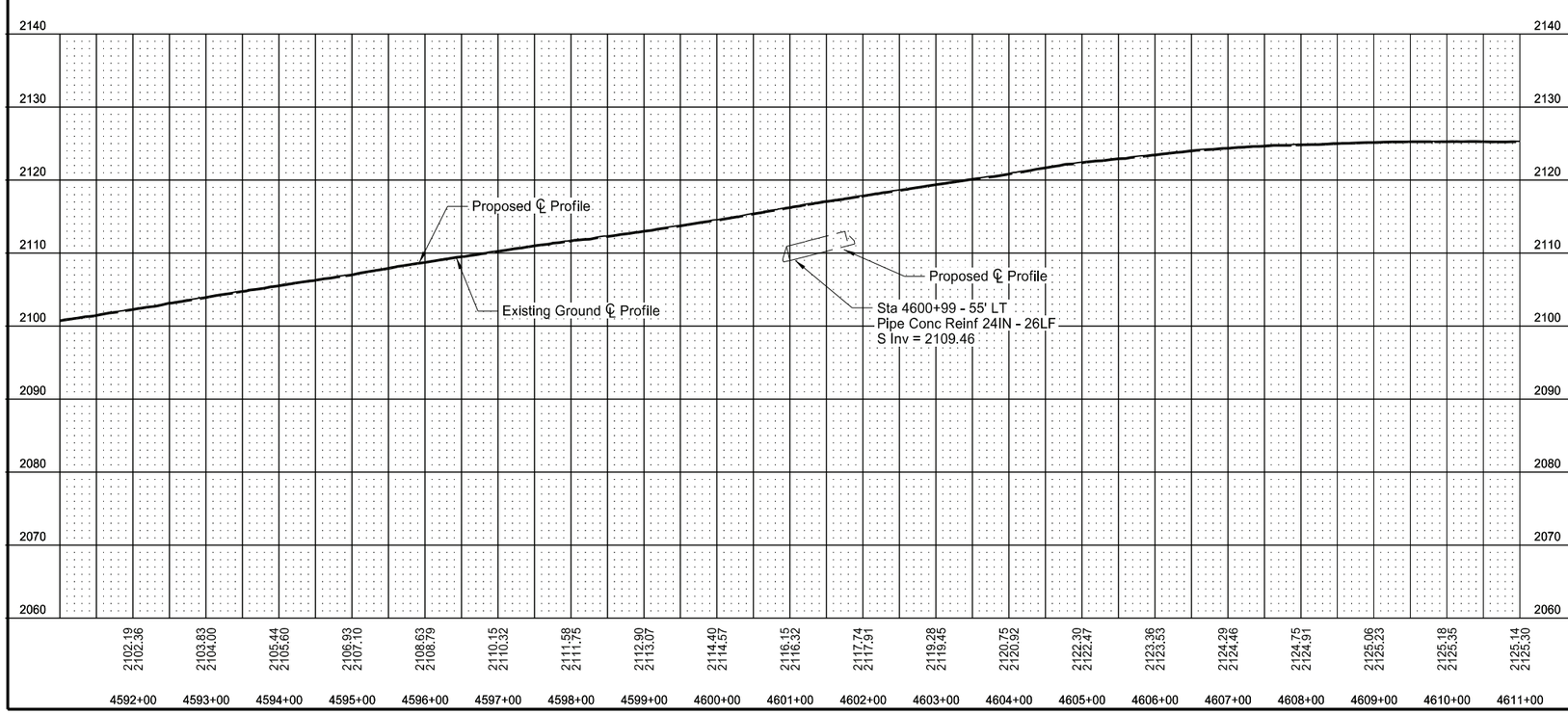
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	60	25





SPEC	CODE	BID ITEM	QTY	UNIT
714	0615	PIPE CONC REINF 24IN CL III		
		4600+99 - 55' LT	26	LF
714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES		
		4600+99 - 55' LT	1	EA
754	0805	OBJECT MARKERS - CULVERTS		
		4600+99 - 55' LT	1	EA

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Sta 4591+00 to Sta 4611+00

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ZACHARY THELEN
PE-40305
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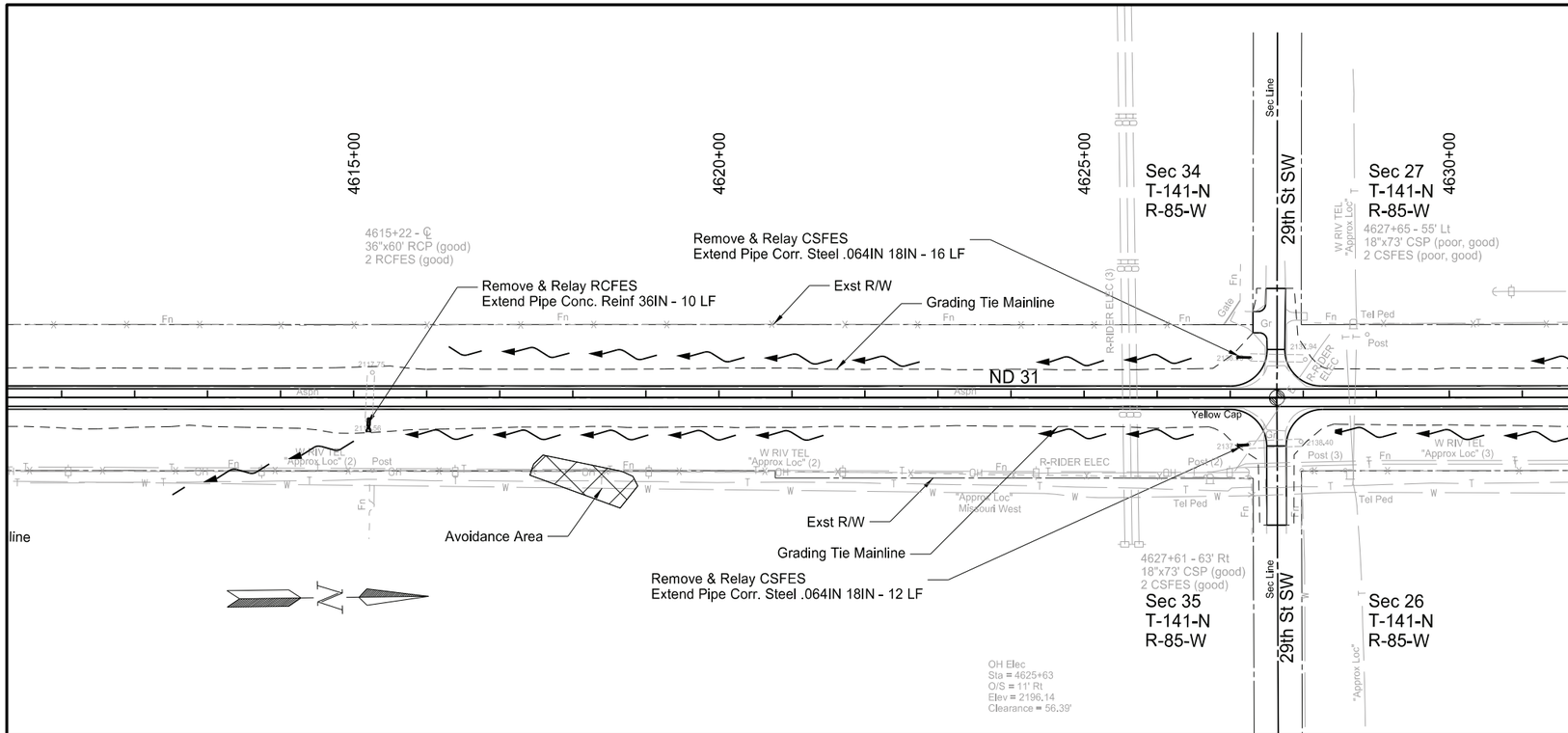
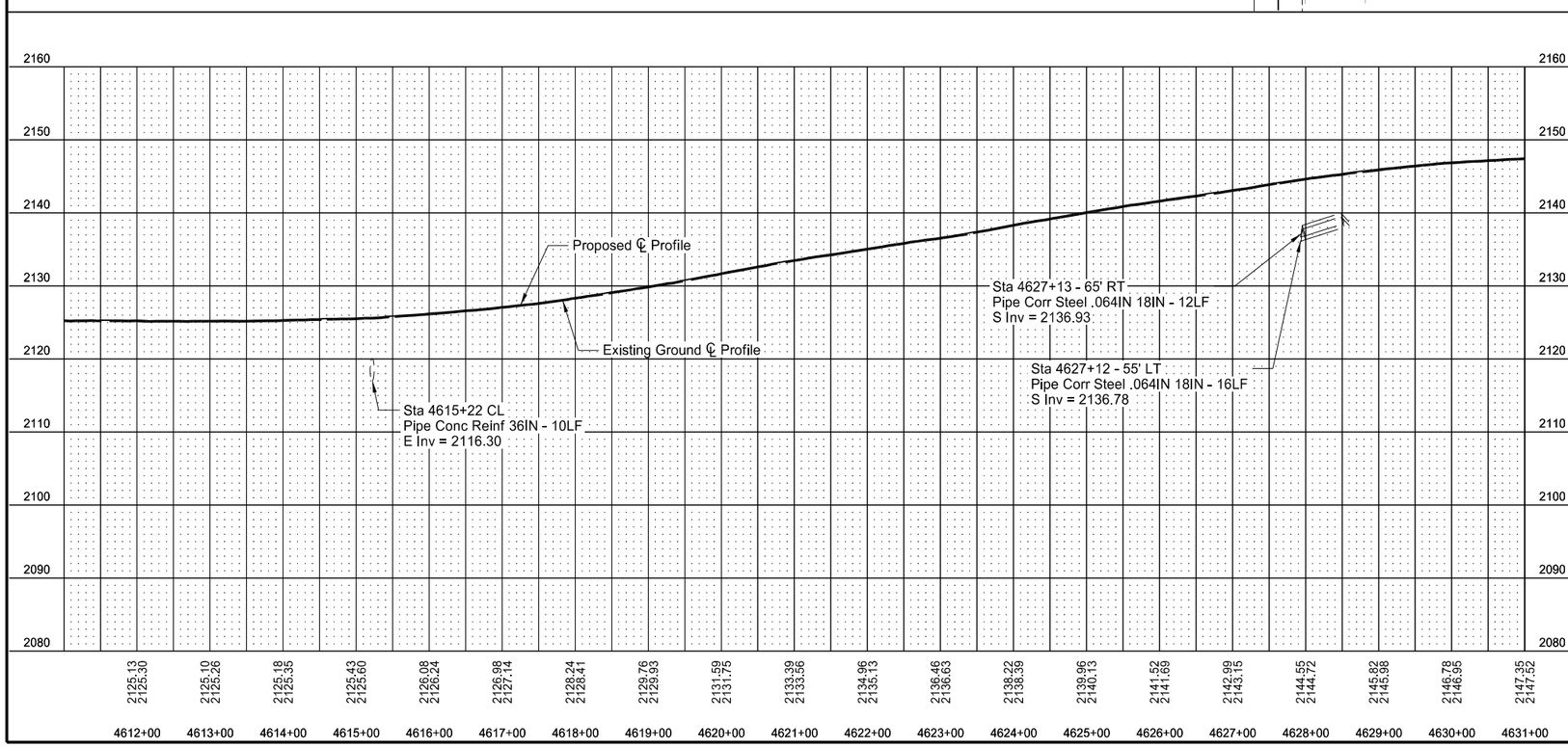
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	60	26





SPEC	CODE	BID ITEM	QTY	UNIT
714	0905	PIPE CONC REINF 36IN CL III		
		4615+22 - CL RT	10	LF
714	5015	PIPE CORR STEEL .064IN 18IN		
		4627+12 - 55' LT	16	LF
		4627+13 - 65' RT	12	LF
714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES		
		4615+22 - CL RT	1	EA
		4627+12 - 55' LT	1	EA
		4627+13 - 65' RT	1	EA
754	0805	OBJECT MARKERS - CULVERTS		
		4615+22 - CL RT	1	EA
		4627+12 - 55' LT	1	EA
		4627+13 - 65' RT	1	EA

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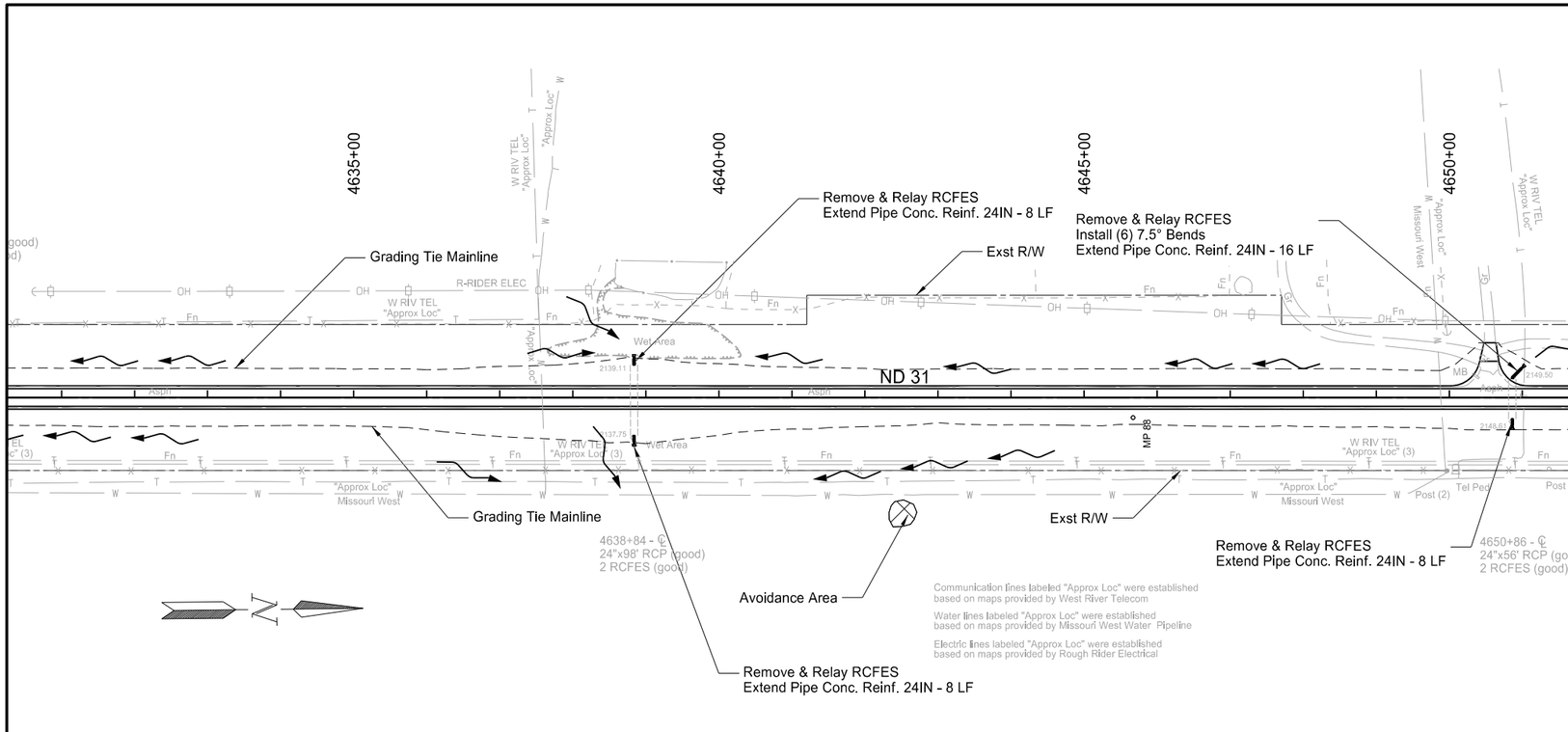
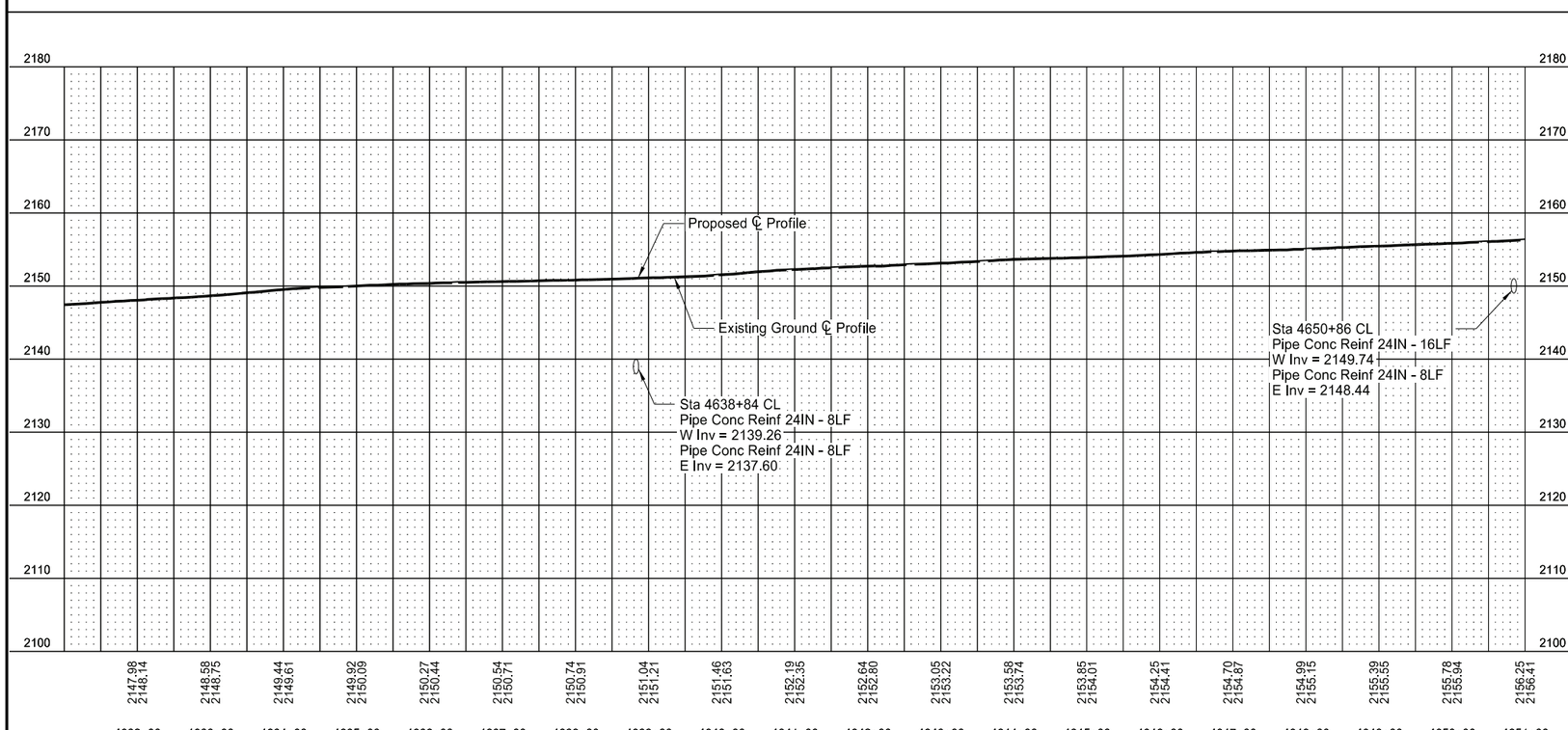
Sta 4611+00 to Sta 4631+00

REGISTERED PROFESSIONAL ENGINEER
ZACHARY THELEN
PE-40305
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	60	27





SPEC	CODE	BID ITEM	QTY	UNIT
714	0615	PIPE CONC REINF 24IN CL III		
		4638+84 - CL LT	8	LF
		4638+84 - CL RT	8	LF
		4650+86 - CL LT	16	LF
		4650+86 - CL RT	8	LF
714	0621	PIPE C R 24IN CL III-STORM DRAIN 7.5DEG BEND		
		4650+86 - CL LT	6	EA
714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES		
		4638+84 - CL LT	1	EA
		4638+84 - CL RT	1	EA
		4650+86 - CL LT	1	EA
		4650+86 - CL RT	1	EA
754	0805	OBJECT MARKERS - CULVERTS		
		4638+84 - CL LT	1	EA
		4638+84 - CL RT	1	EA
		4650+86 - CL LT	1	EA
		4650+86 - CL RT	1	EA

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Sta 4631+00 to Sta 4651+00

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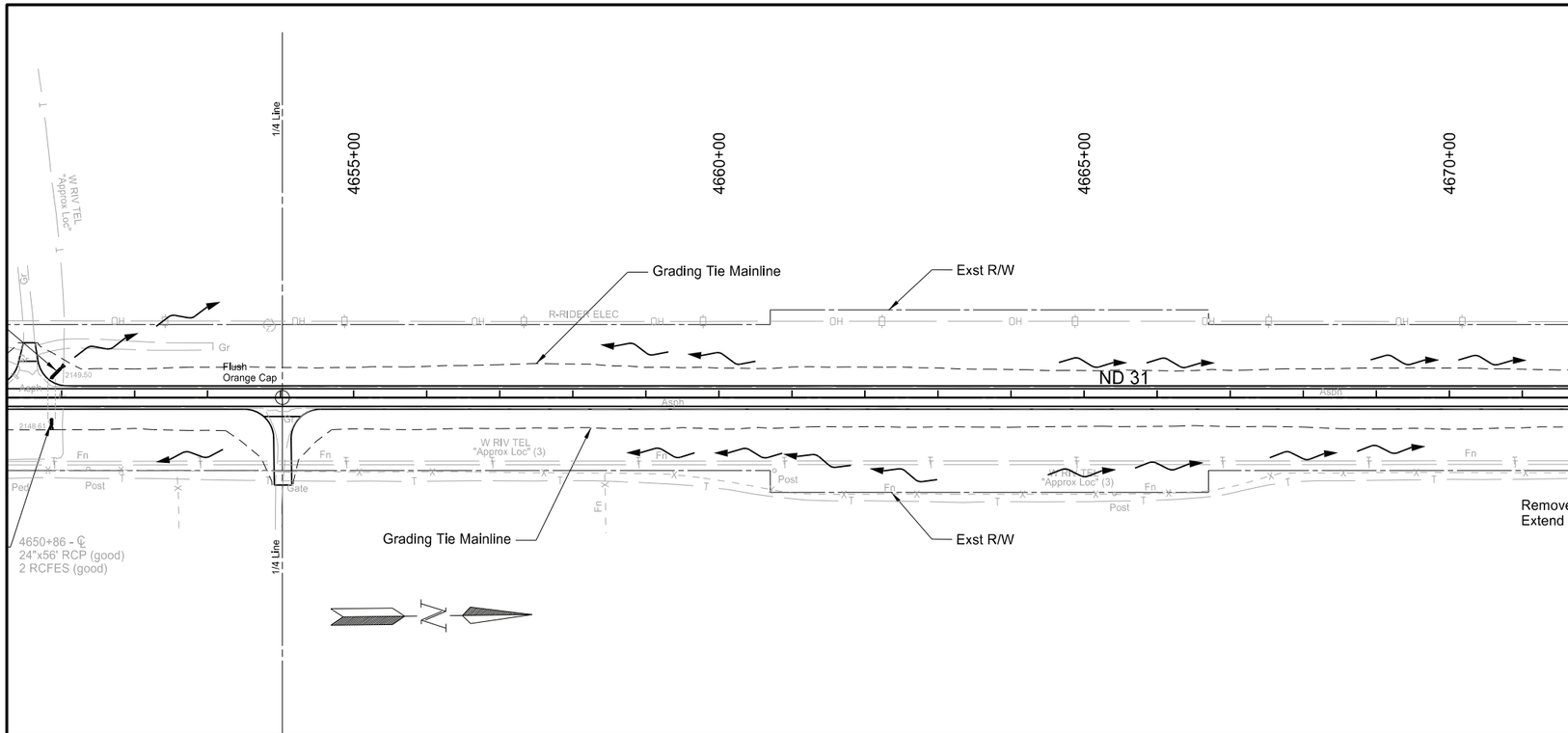
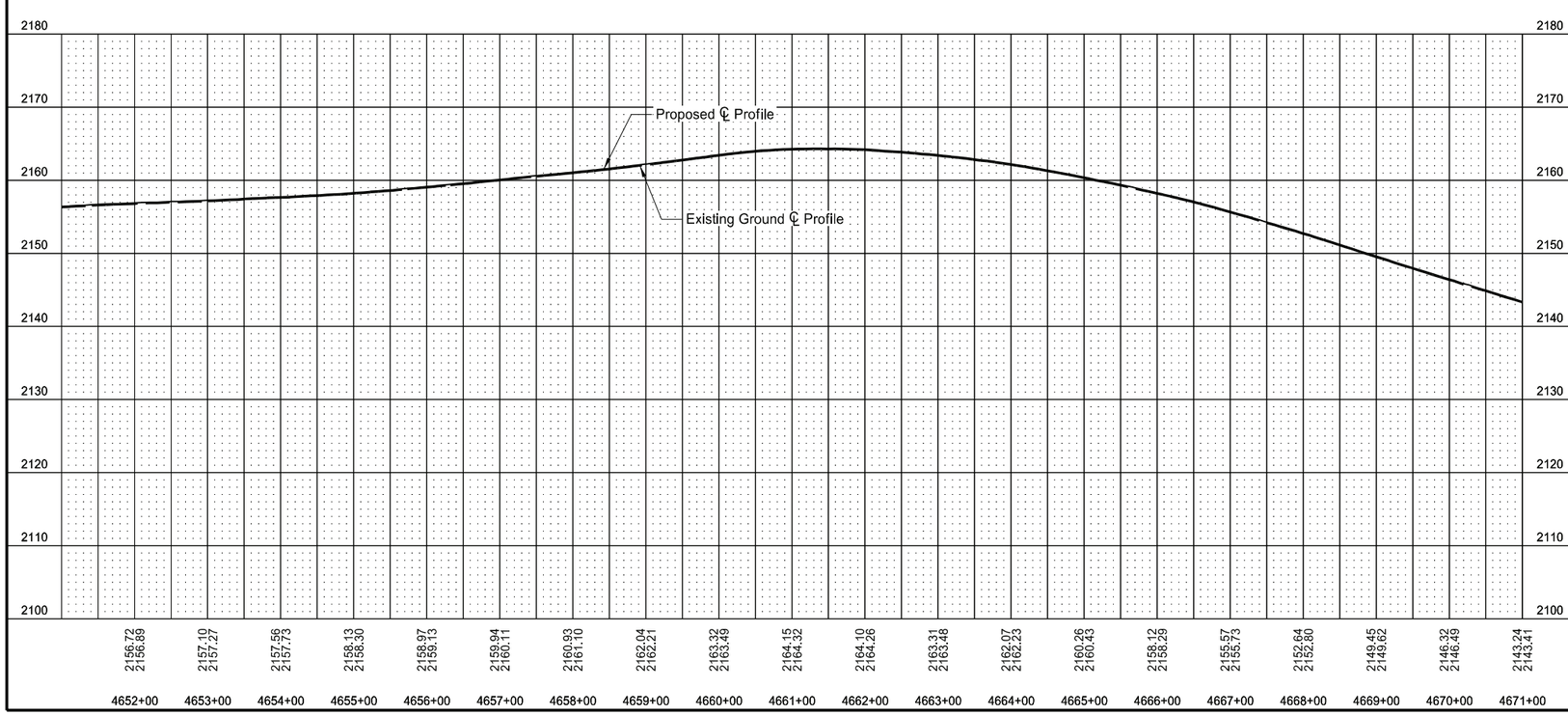
ZACHARY THELEN
PE-40305
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	60	28





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Jct I-94 to Hannover
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Sta 4651+00 to Sta 4671+00

REGISTERED PROFESSIONAL ENGINEER
ZACHARY THELEN
PE-40305
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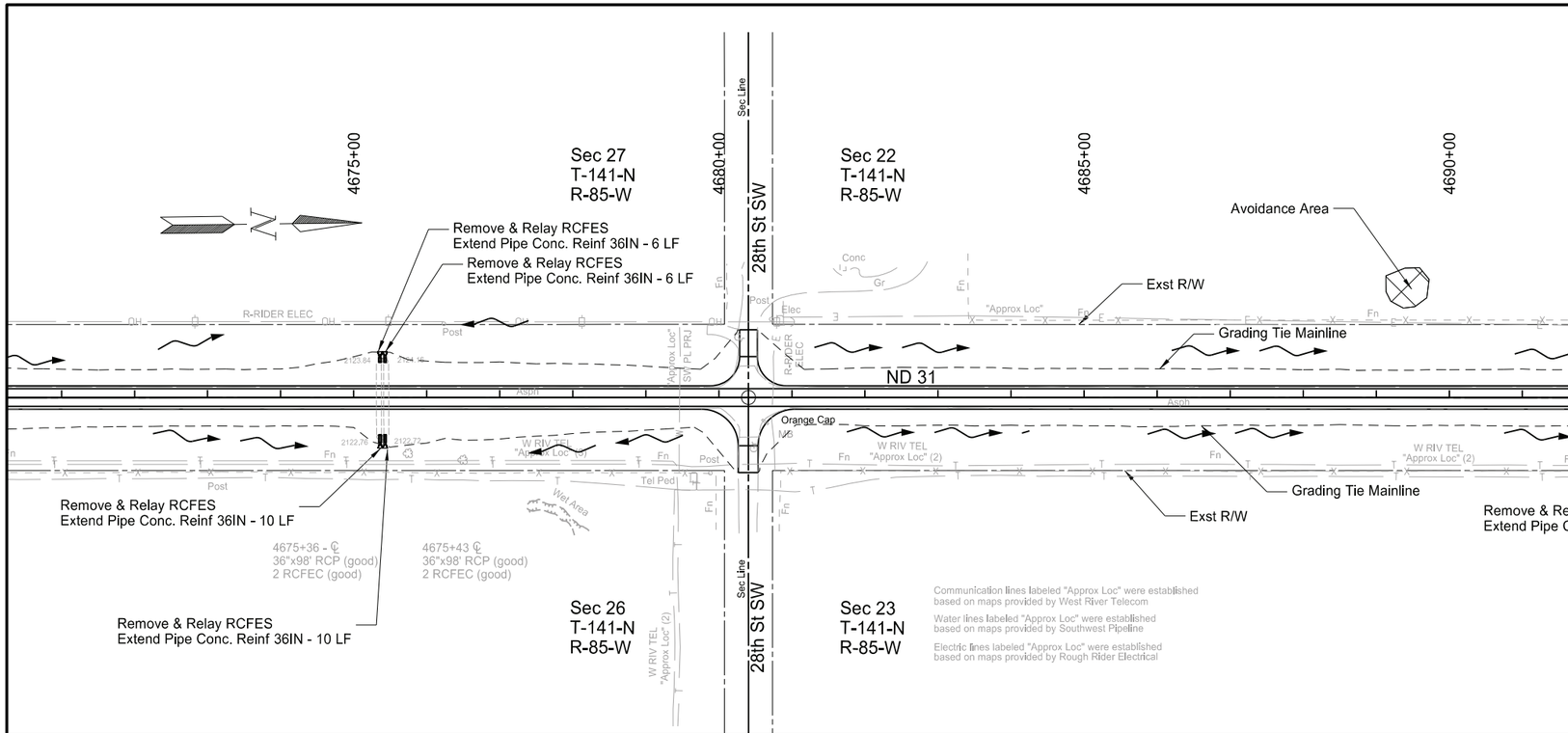
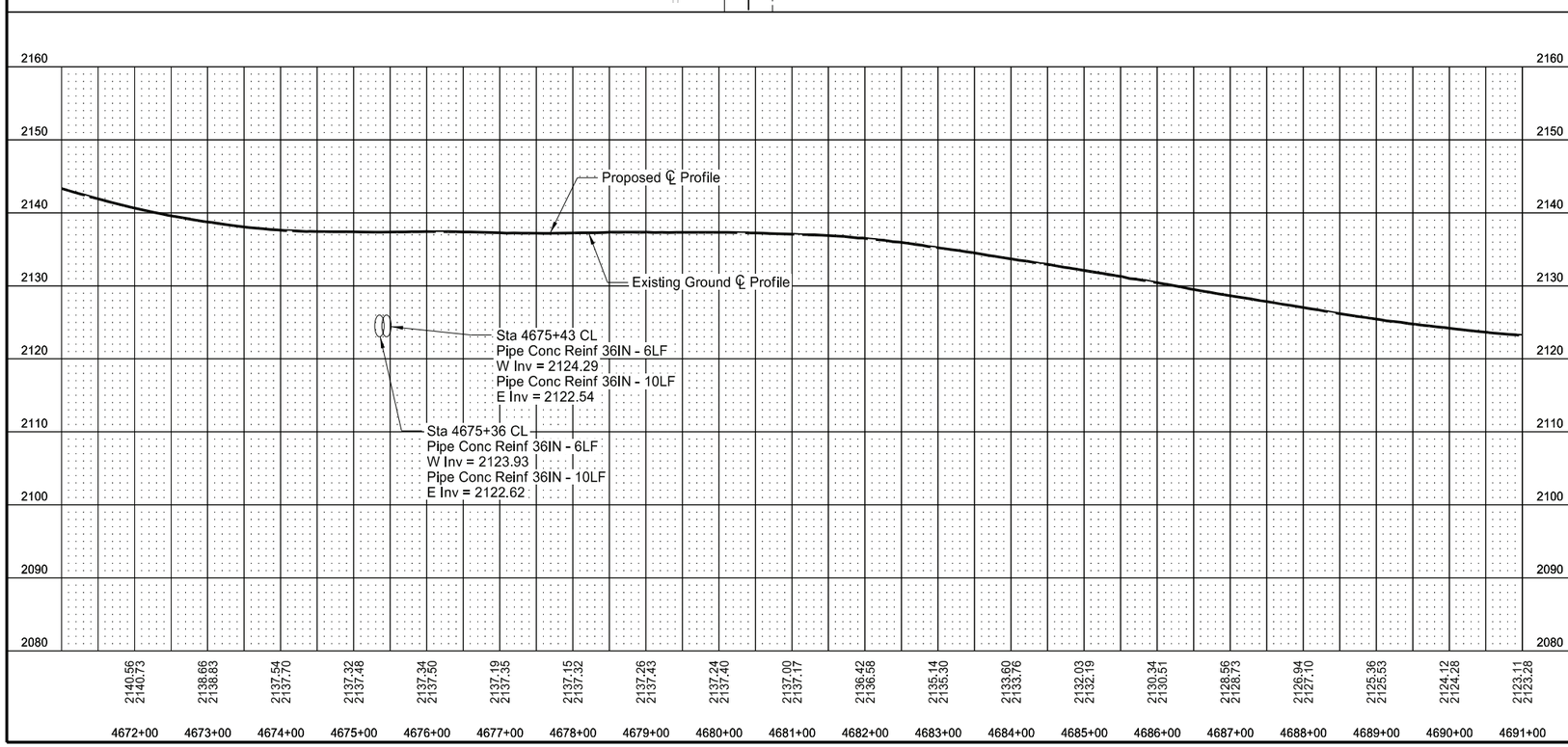
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	60	29





SPEC	CODE	BID ITEM	QTY	UNIT
714	0905	PIPE CONC REINF 36IN CL III		
		4675+36 - CL LT	6	LF
		4675+36 - CL RT	10	LF
		4675+43 - CL LT	6	LF
		4675+43 - CL RT	10	LF
714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES		
		4675+36 - CL LT	1	EA
		4675+36 - CL RT	1	EA
		4675+43 - CL LT	1	EA
		4675+43 - CL RT	1	EA
754	0805	OBJECT MARKERS - CULVERTS		
		4675+36 - CL LT	1	EA
		4675+36 - CL RT	1	EA
		4675+43 - CL LT	1	EA
		4675+43 - CL RT	1	EA

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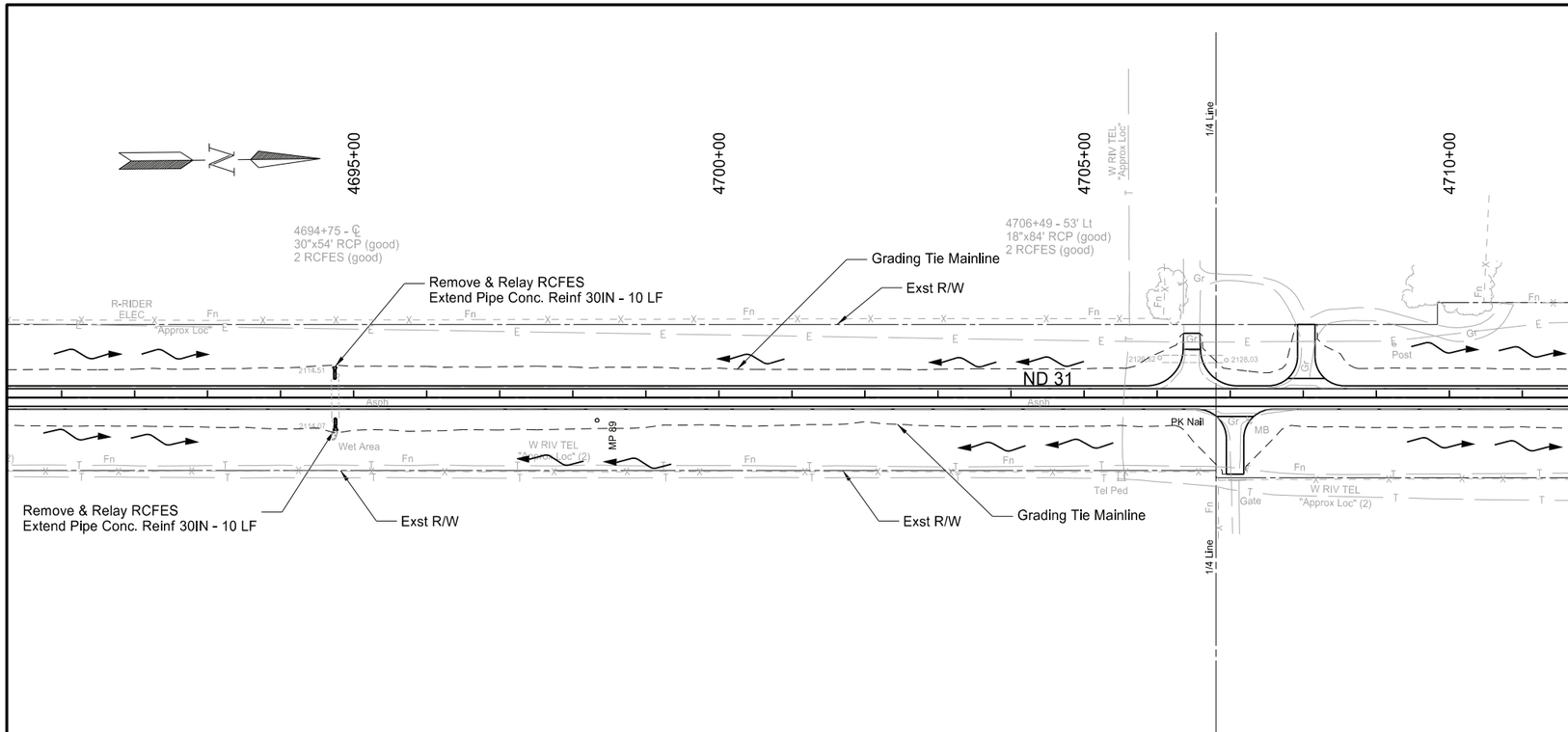
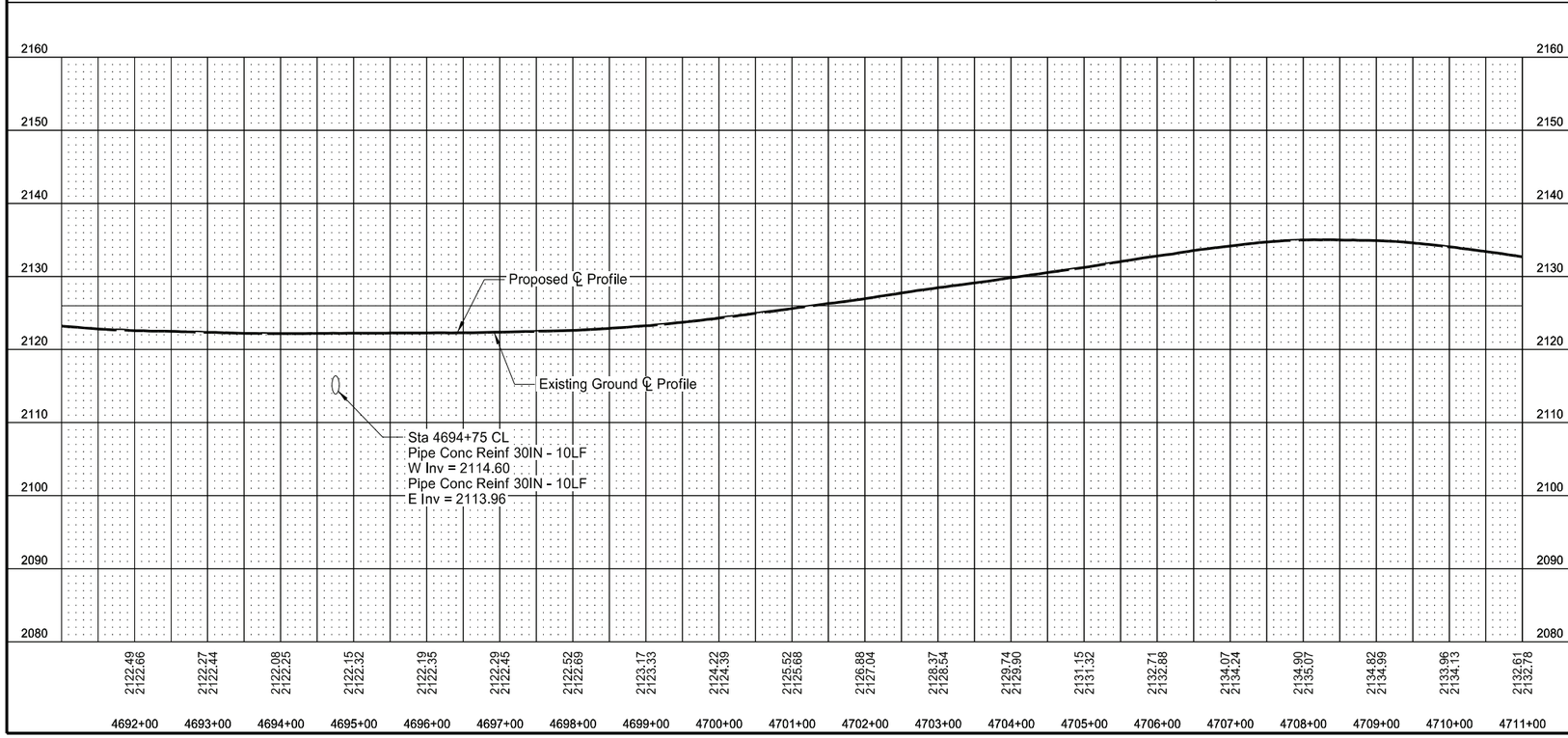
Sta 4671+00 to Sta 4691+00

REGISTERED PROFESSIONAL ENGINEER
ZACHARY THELEN
PE-40305
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	60	30





SPEC	CODE	BID ITEM	QTY	UNIT
714	0820	PIPE CONC REINF 30IN CL III		
		4694+75 - CL LT	10	LF
		4694+75 - CL RT	10	LF
714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES		
		4694+75 - CL LT	1	EA
		4694+75 - CL RT	1	EA
754	0805	OBJECT MARKERS - CULVERTS		
		4694+75 - CL LT	1	EA
		4694+75 - CL RT	1	EA

ND 31

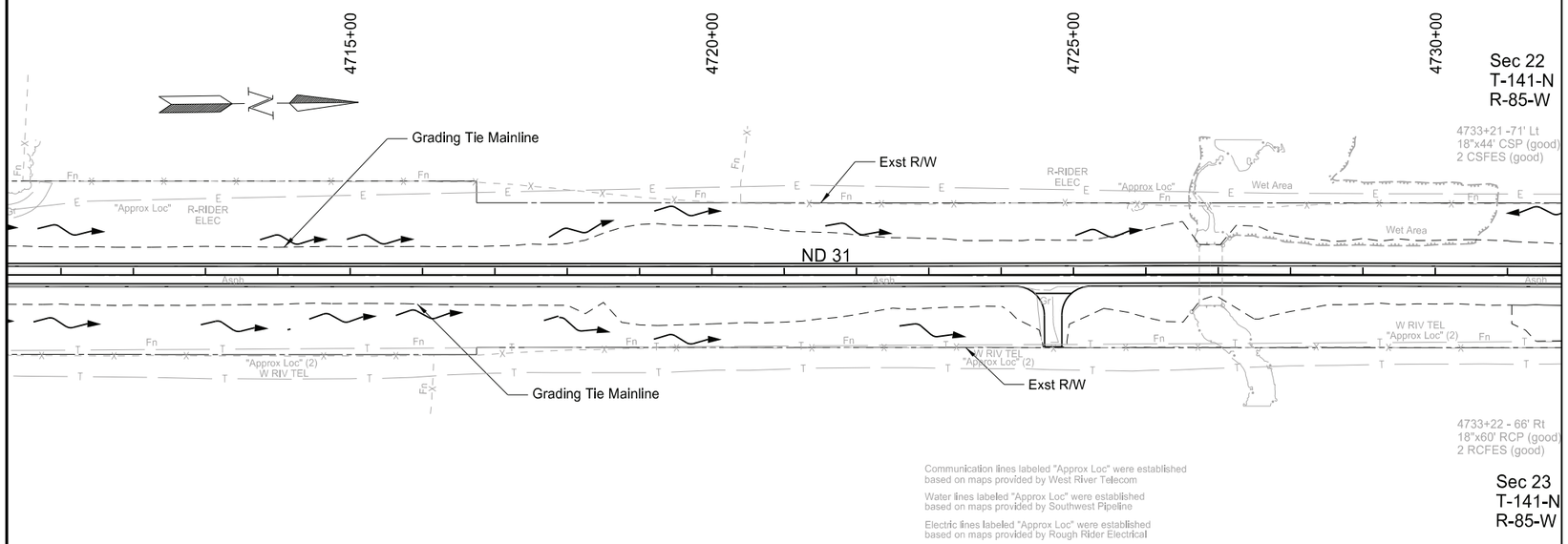
Jct I-94 to Hannover
Oliver County

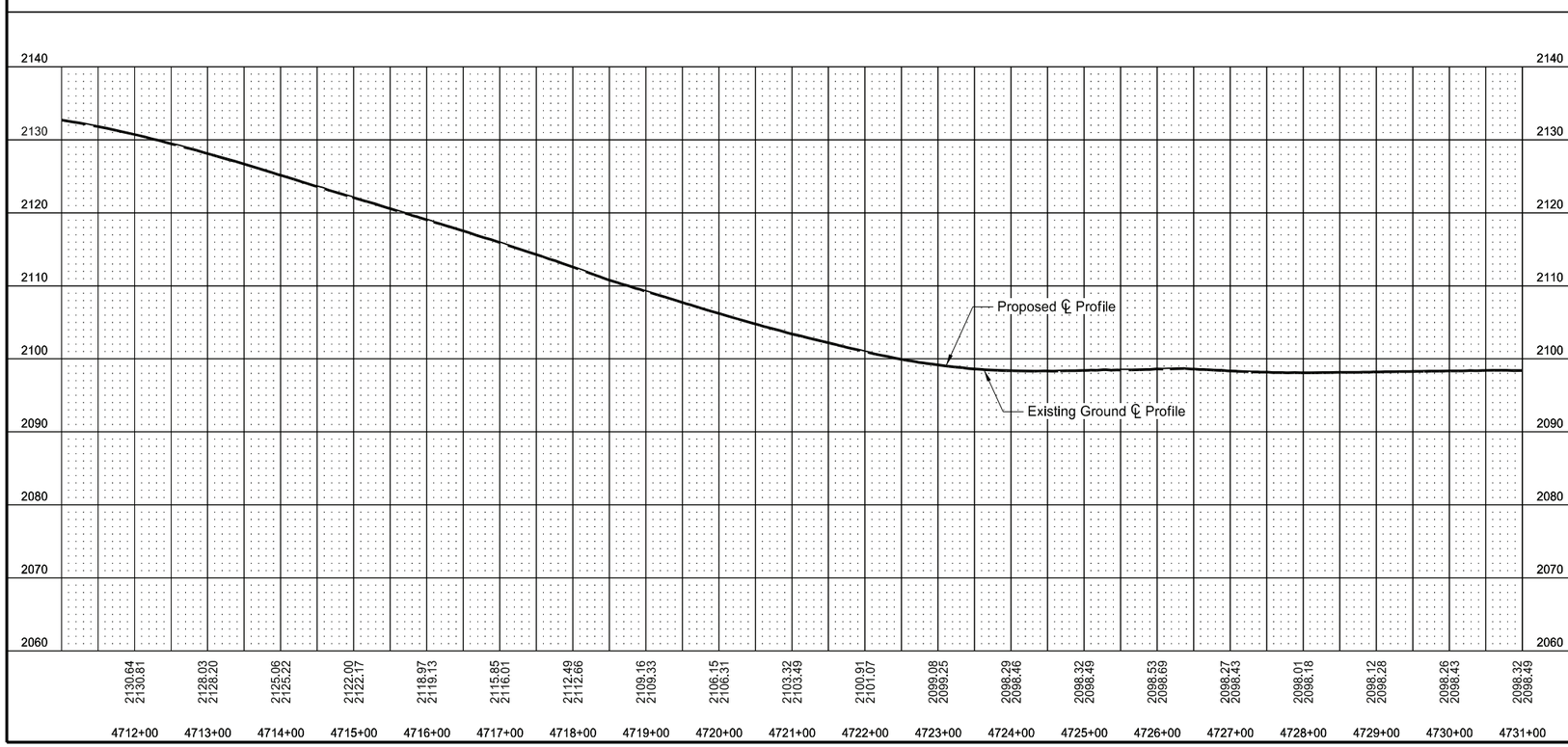
Plan and Profile

Sta 4691+00 to Sta 4711+00

REGISTERED PROFESSIONAL ENGINEER
ZACHARY THELEN
PE-40305
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	60	31





ND 31

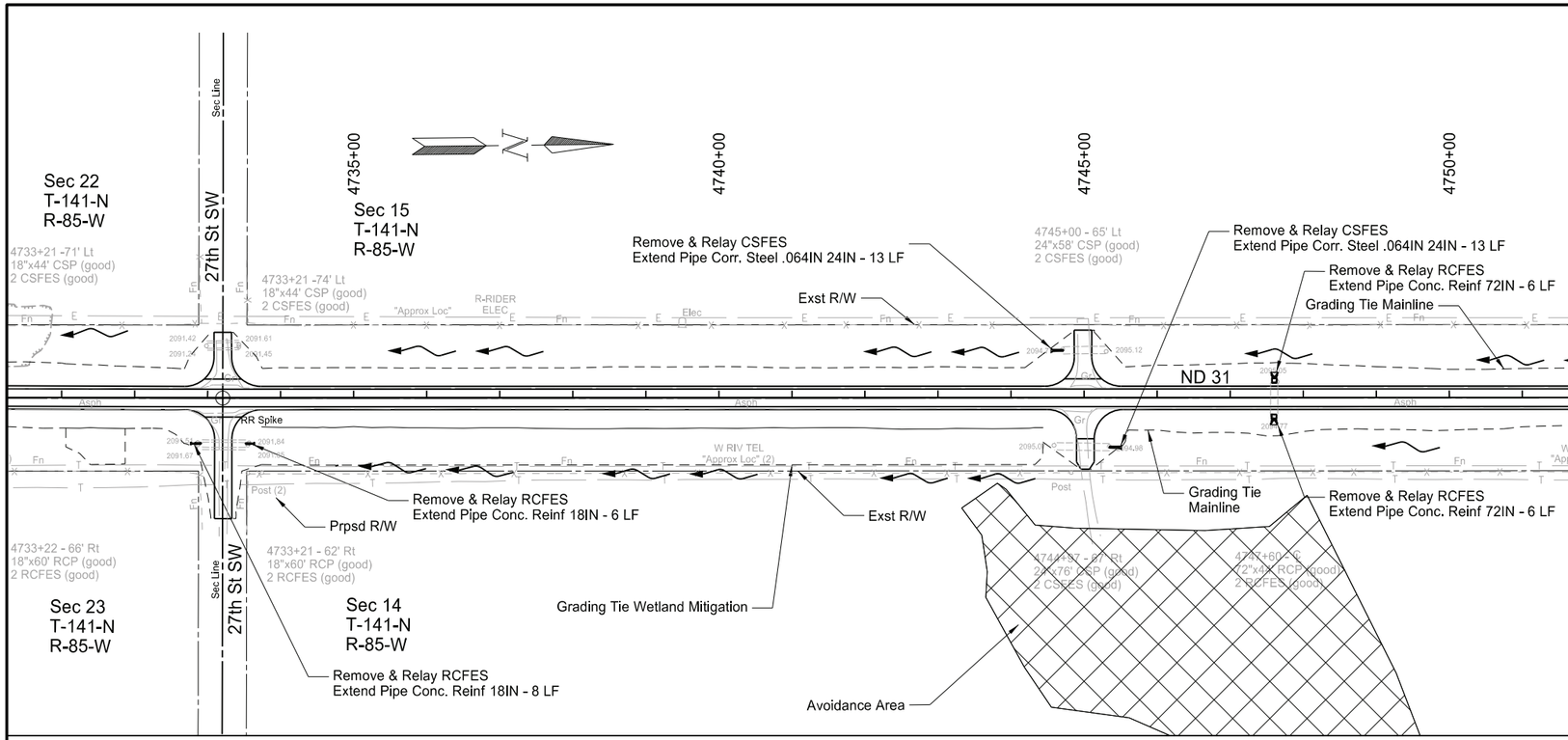
Jct I-94 to Hannover
Oliver County

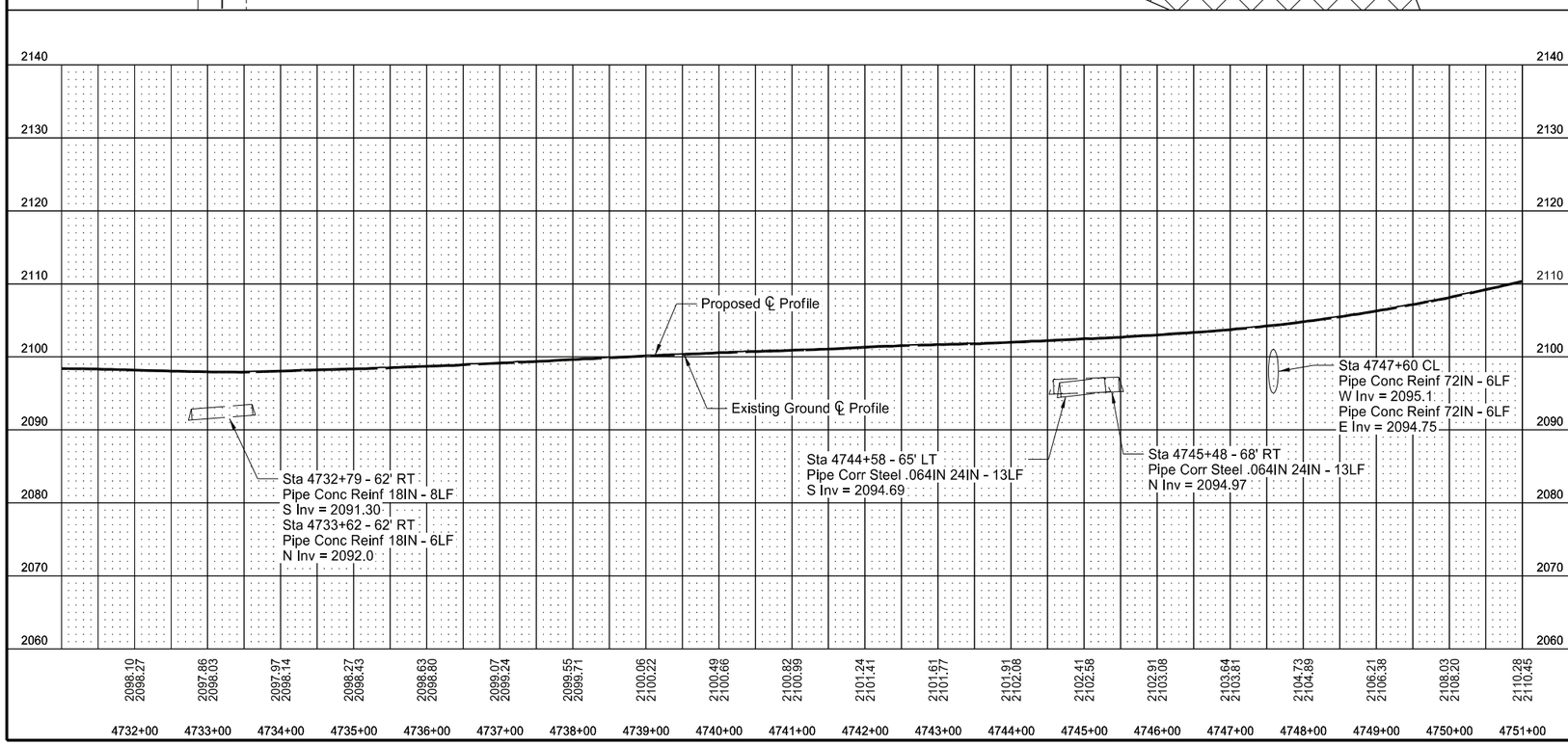
Plan and Profile

Sta 4711+00 to Sta 4731+00

REGISTERED PROFESSIONAL ENGINEER
ZACHARY THELEN
PE-40305
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	60	32





SPEC	CODE	BID ITEM	QTY	UNIT
714	0310	PIPE CONC REINF 18IN CL III		
		4732+79 - 62' RT	8	LF
		4733+62 - 62' RT	6	LF
714	1510	PIPE CONC REINF 72IN CL III		
		4747+60 - CL LT	6	LF
		4747+60 - CL RT	6	LF
714	5035	PIPE CORR STEEL .064IN 24IN		
		4745+48 - 68' RT	13	LF
		4744+58 - 65' LT	13	LF
714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES		
		4732+79 - 62' RT	1	EA
		4733+62 - 62' RT	1	EA
		4744+58 - 65' LT	1	EA
		4745+48 - 68' RT	1	EA
		4747+60 - CL LT	1	EA
		4747+60 - CL RT	1	EA
754	0805	OBJECT MARKERS - CULVERTS		
		4732+79 - 62' RT	1	EA
		4733+62 - 62' RT	1	EA
		4744+58 - 65' LT	1	EA
		4745+48 - 68' RT	1	EA
		4747+60 - CL LT	1	EA
		4747+60 - CL RT	1	EA

ND 31

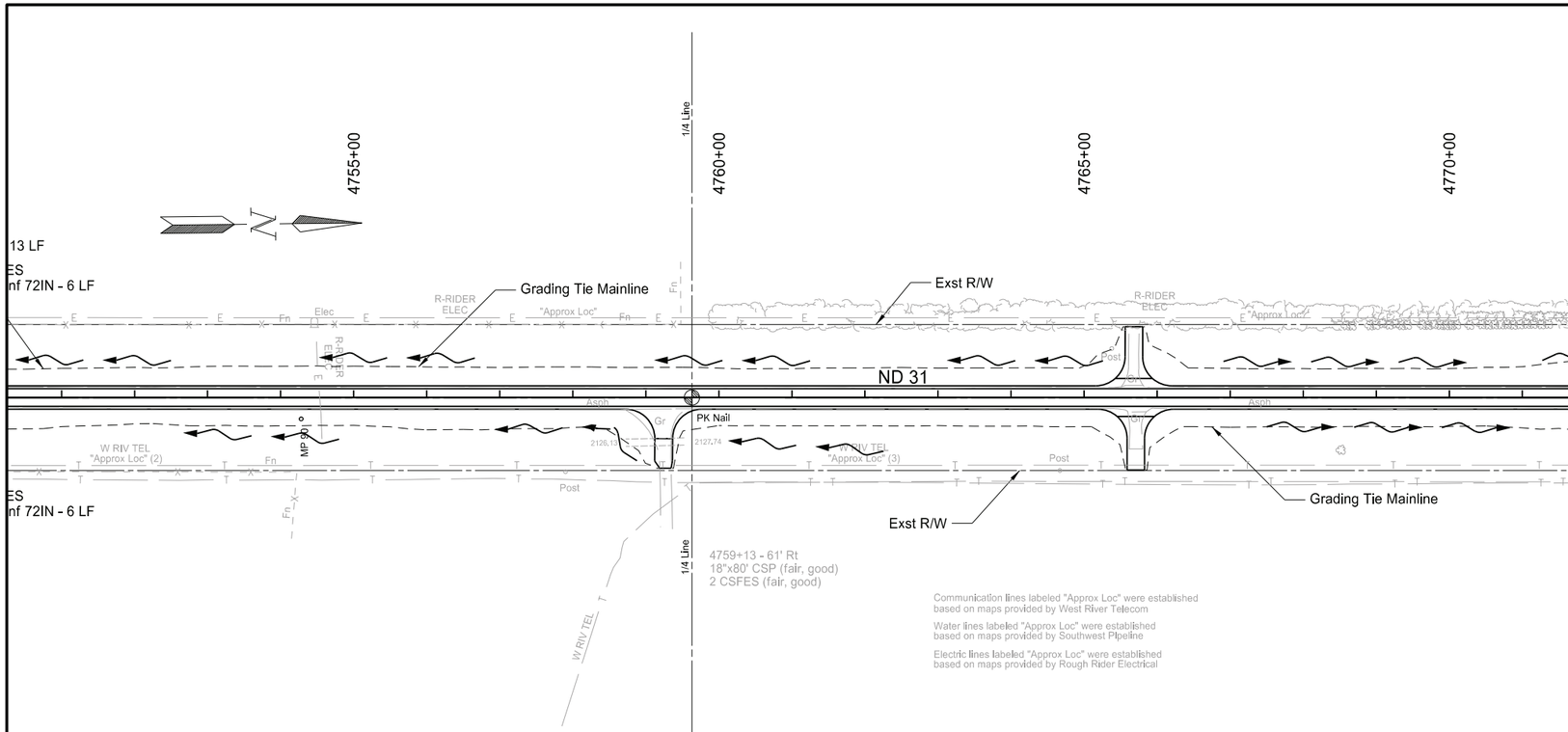
Jct I-94 to Hannover
Oliver County

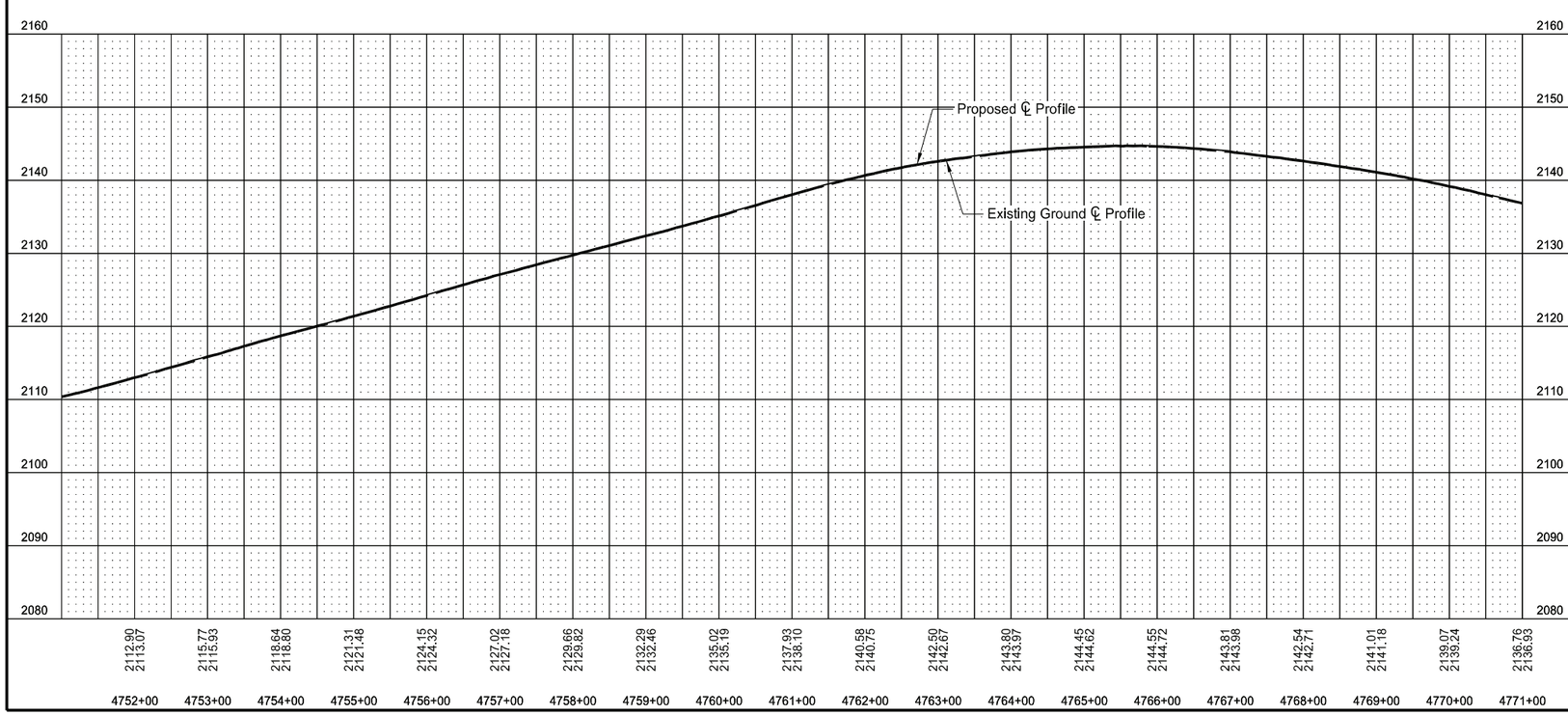
Plan and Profile

Sta 4731+00 to Sta 4751+00

REGISTERED PROFESSIONAL ENGINEER
ZACHARY THELEN
PE-40305
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	60	33





ND 31

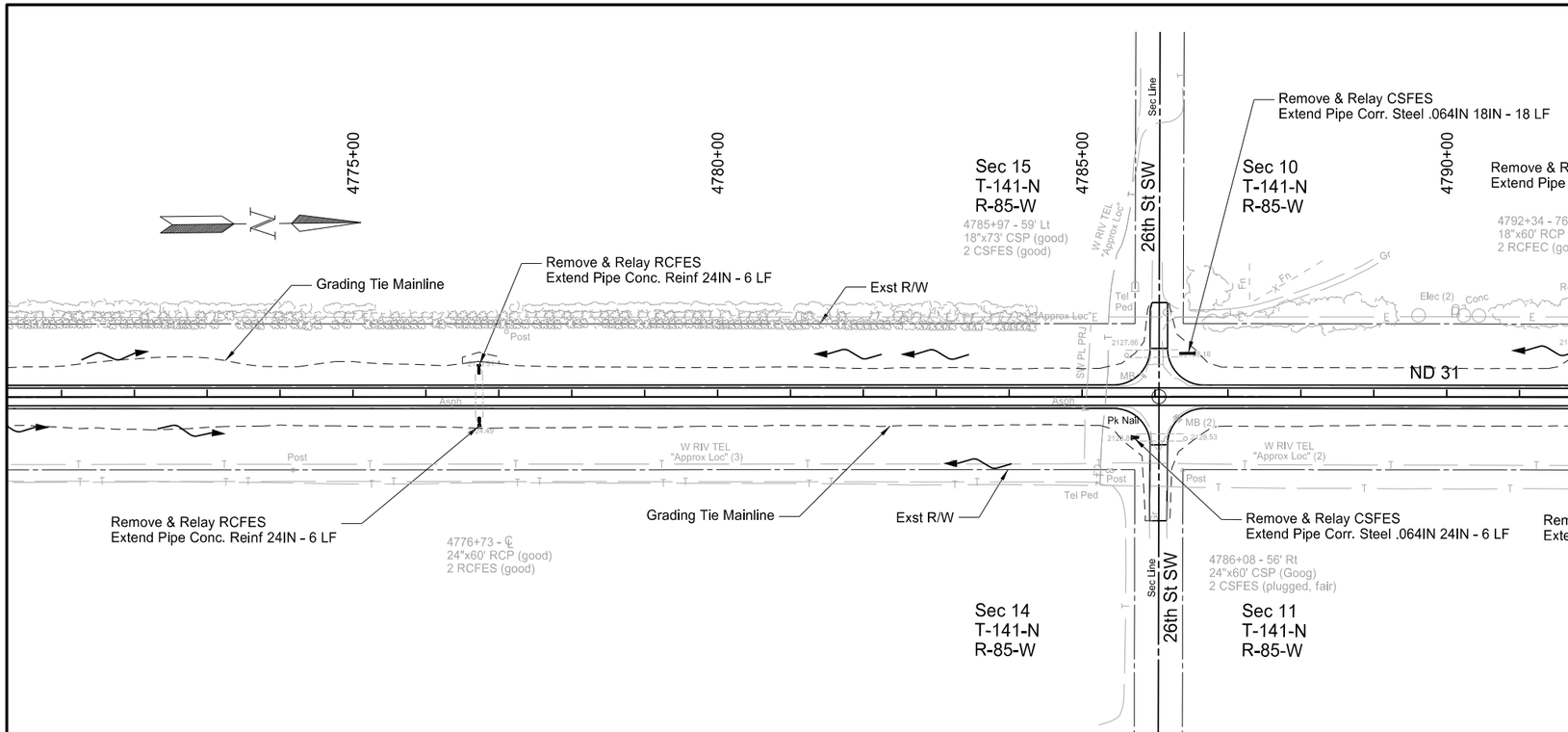
Jct I-94 to Hannover
Oliver County

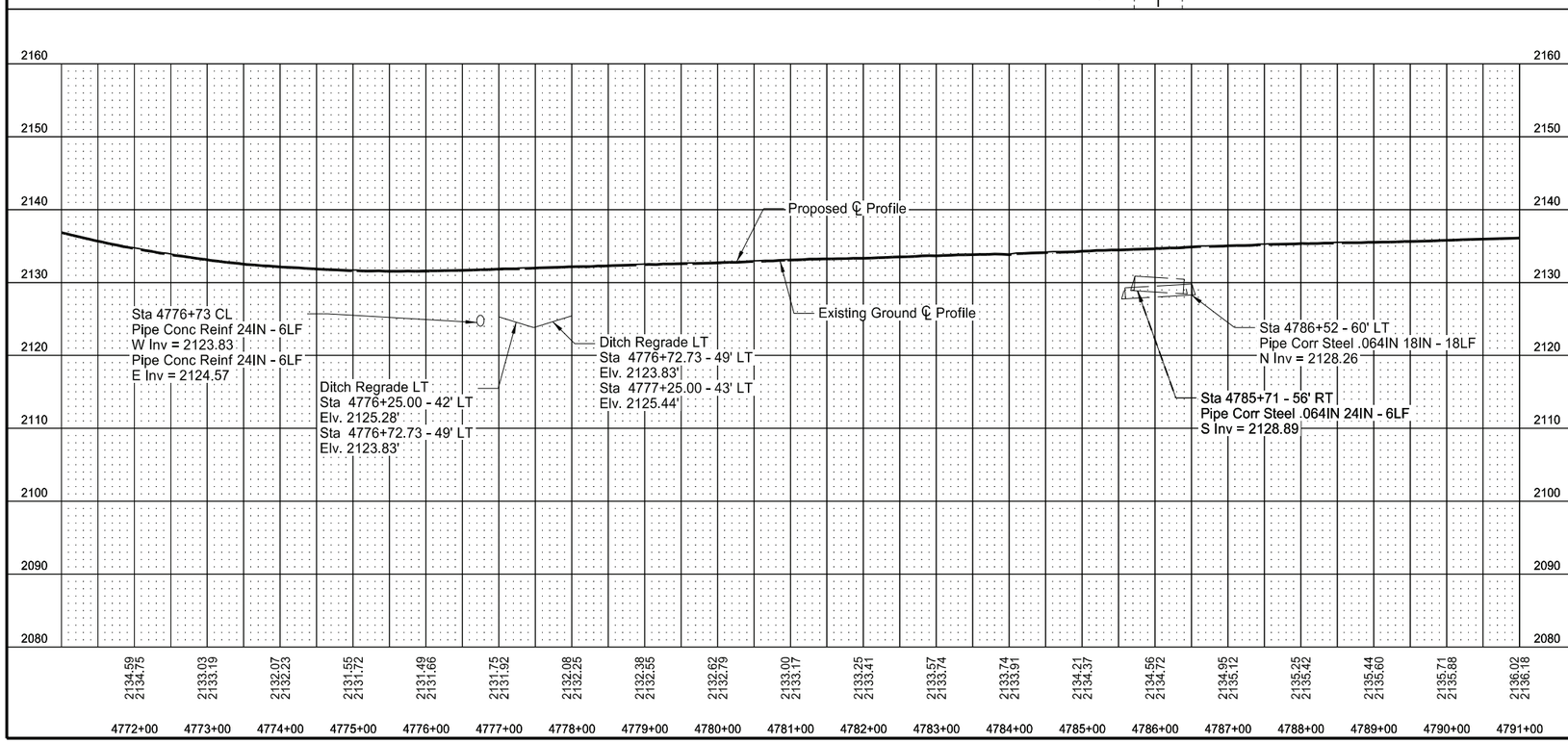
Plan and Profile

Sta 4751+00 to Sta 4771+00

REGISTERED PROFESSIONAL ENGINEER
ZACHARY THELEN
PE-40305
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	60	34





SPEC	CODE	BID ITEM	QTY	UNIT
714	0615	PIPE CONC REINF 24IN CL III		
		4776+73 - CL LT	6	LF
		4776+73 - CL RT	6	LF
714	5015	PIPE CORR STEEL .064IN 18IN		
		4786+52 - 60' LT	18	LF
714	5035	PIPE CORR STEEL .064IN 24IN		
		4785+71 - 56' RT	6	LF
714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES		
		4776+73 - CL LT	1	EA
		4776+73 - CL RT	1	EA
		4785+71 - 56' RT	1	EA
		4786+52 - 60' LT	1	EA
754	0805	OBJECT MARKERS - CULVERTS		
		4776+73 - CL LT	1	EA
		4776+73 - CL RT	1	EA
		4785+71 - 56' RT	1	EA
		4786+52 - 60' LT	1	EA

ND 31

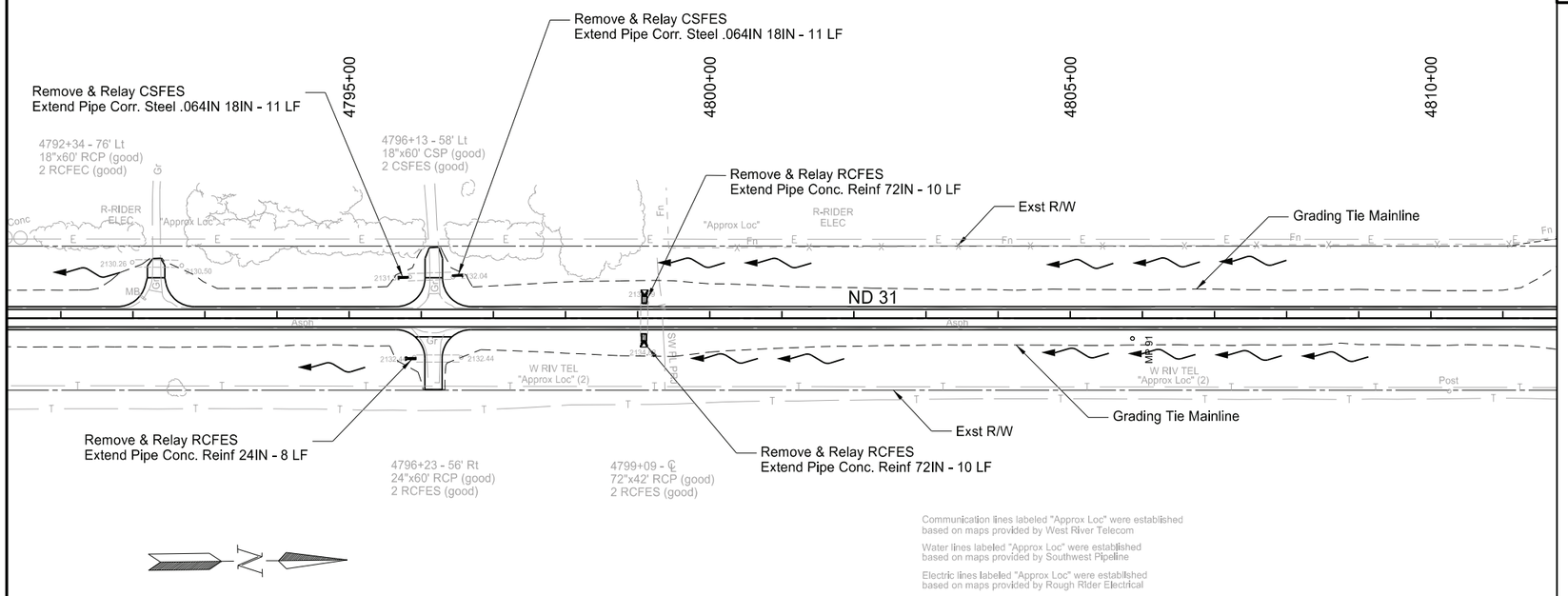
Jct I-94 to Hannover
Oliver County

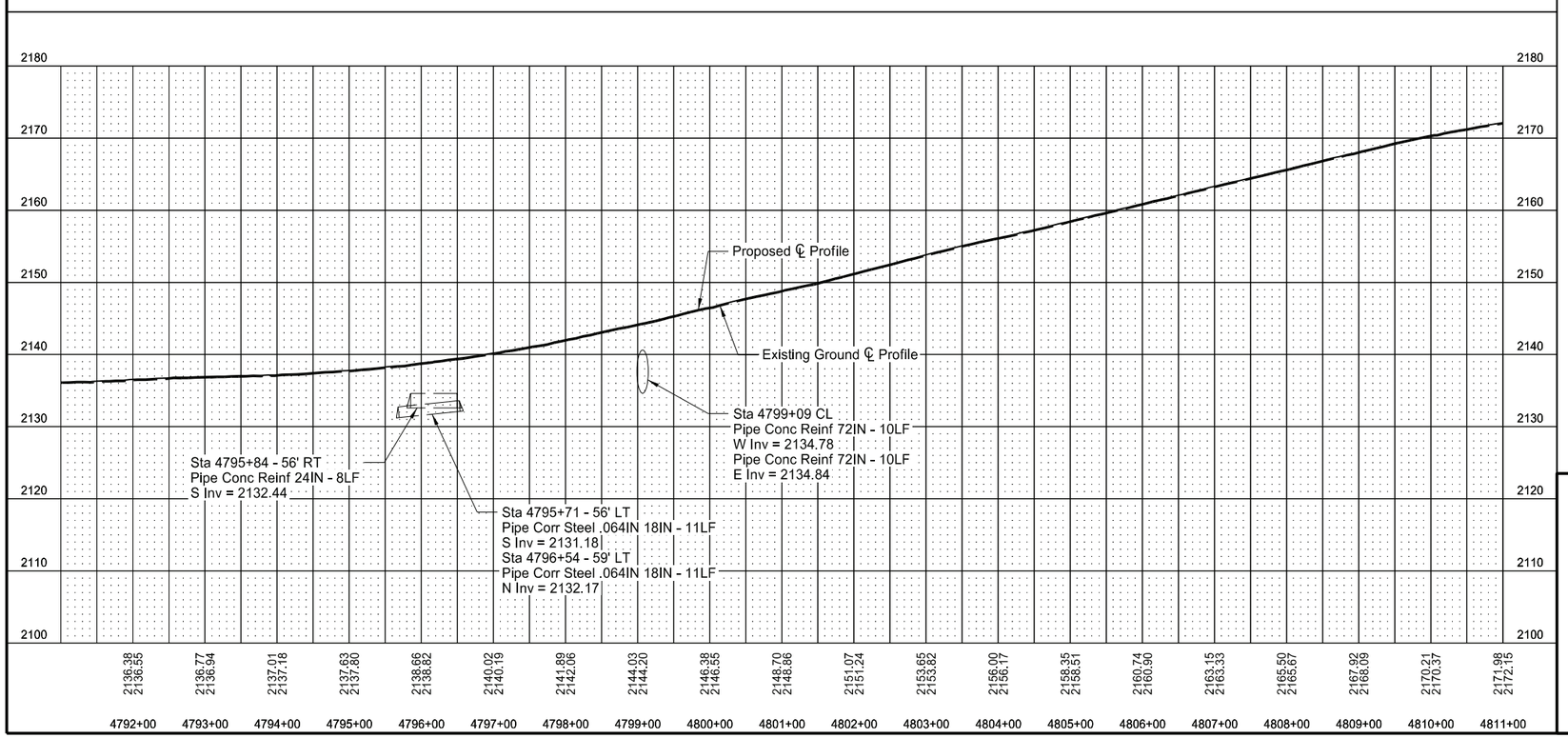
Plan and Profile

Sta 4771+00 to Sta 4791+00

REGISTERED PROFESSIONAL ENGINEER
ZACHARY THELEN
PE-40305
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	60	35





SPEC	CODE	BID ITEM	QTY	UNIT
714	0615	PIPE CONC REINF 24IN CL III		
		4795+84 - 56' RT	8	LF
714	1510	PIPE CONC REINF 72IN CL III		
		4799+09 - CL LT	10	LF
		4799+09 - CL RT	10	LF
714	5015	PIPE CORR STEEL .064IN 18IN		
		4795+71 - 56' LT	11	LF
		4796+54 - 59' LT	11	LF
714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES		
		4795+71 - 56' LT	1	EA
		4795+84 - 56' RT	1	EA
		4796+54 - 59' LT	1	EA
		4799+09 - CL LT	1	EA
		4799+09 - CL RT	1	EA
754	0805	OBJECT MARKERS - CULVERTS		
		4795+71 - 56' LT	1	EA
		4795+84 - 56' RT	1	EA
		4796+54 - 59' LT	1	EA
		4799+09 - CL LT	1	EA
		4799+09 - CL RT	1	EA

ND 31

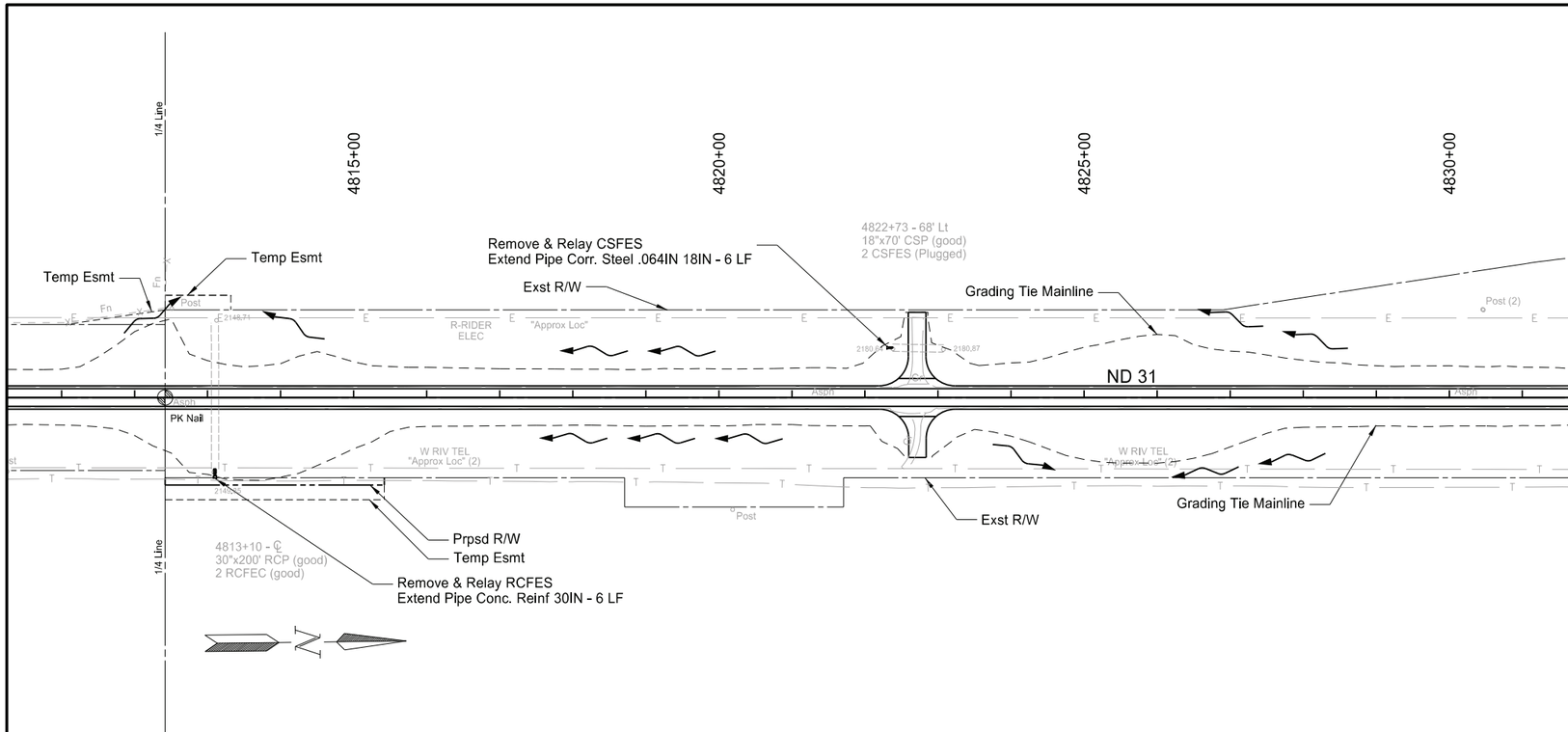
Jct I-94 to Hannover
Oliver County

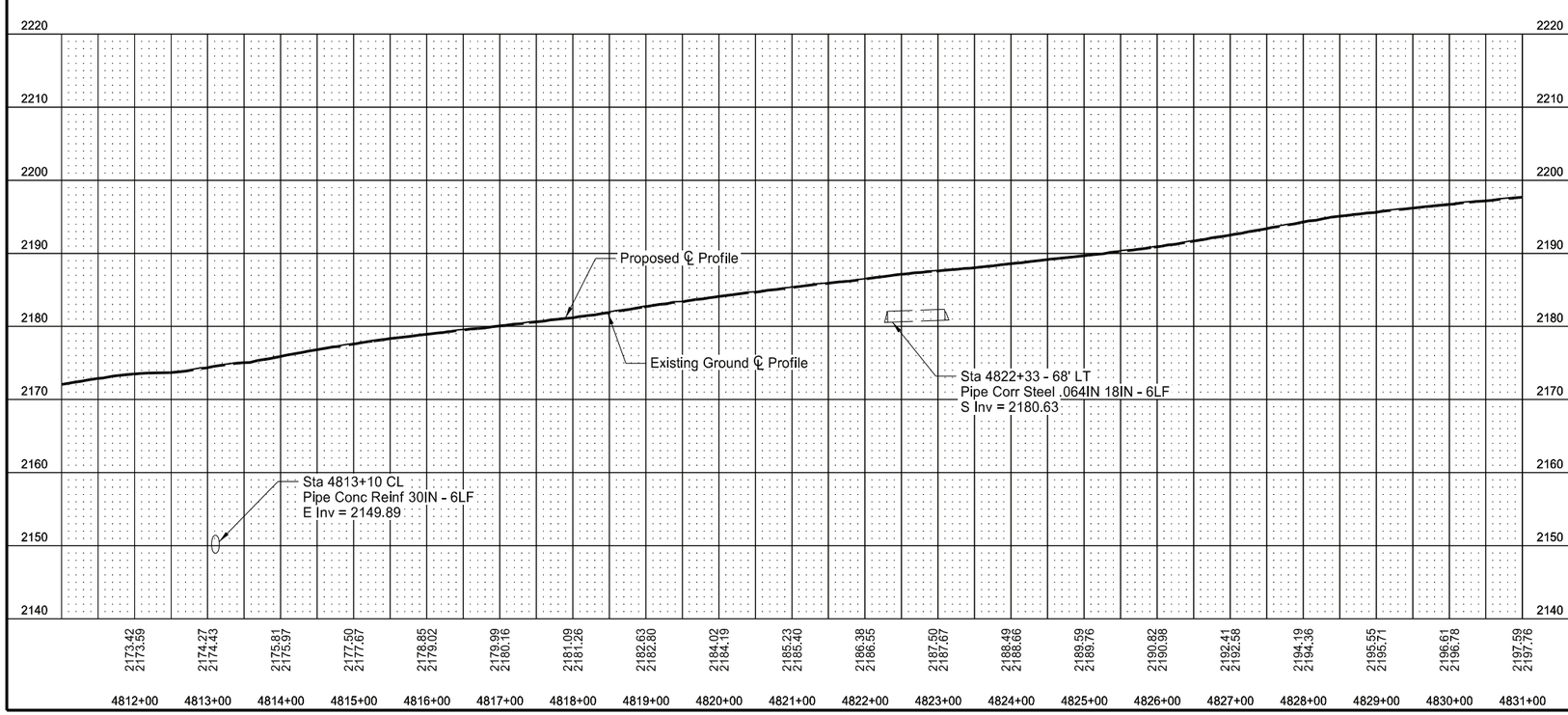
Plan and Profile

Sta 4791+00 to Sta 4811+00

REGISTERED PROFESSIONAL ENGINEER
ZACHARY THELEN
PE-40305
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	60	36





SPEC	CODE	BID ITEM	QTY	UNIT
714	0820	PIPE CONC REINF 30IN CL III		
		4813+10 - CL RT	6	LF
714	5015	PIPE CORR STEEL .064IN 18IN		
		4822+33 - 68' LT	6	LF
714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES		
		4813+10 - CL RT	1	EA
		4822+33 - 68' LT	1	EA
754	0805	OBJECT MARKERS - CULVERTS		
		4813+10 - CL RT	1	EA
		4822+33 - 68' LT	1	EA

ND 31

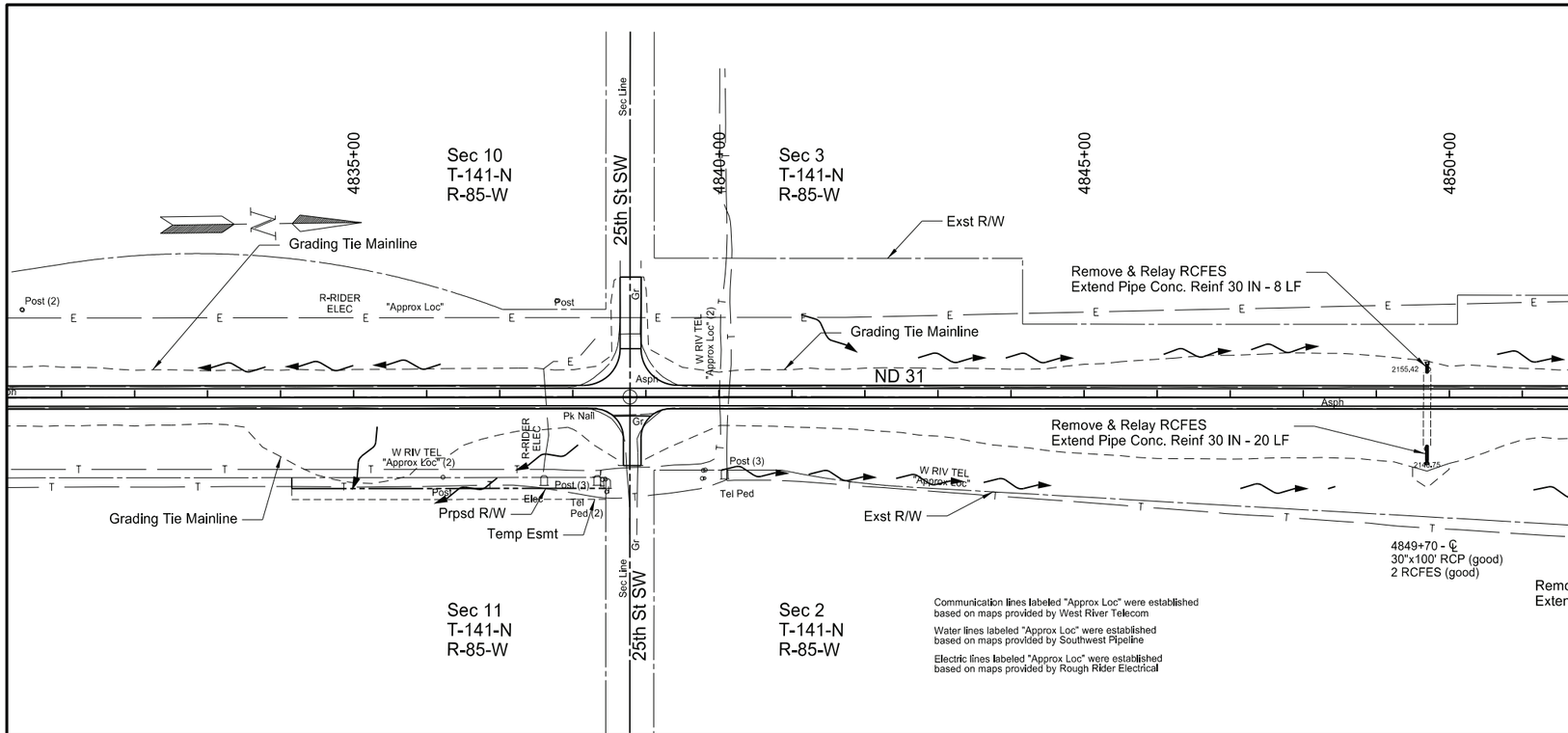
Jct I-94 to Hannover
Oliver County

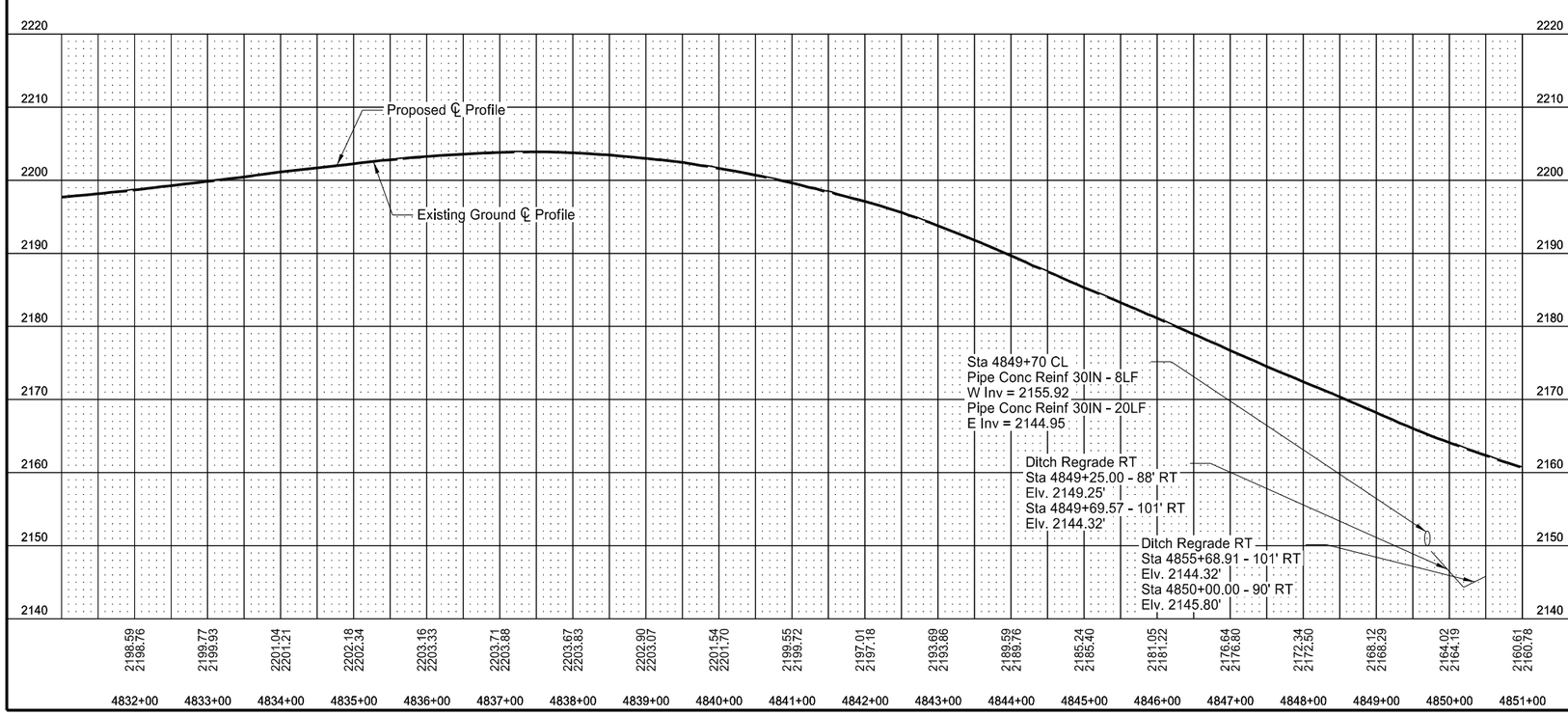
Plan and Profile

Sta 4811+00 to Sta 4831+00

REGISTERED PROFESSIONAL ENGINEER
ZACHARY THELEN
PE-40305
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	60	37





SPEC	CODE	BID ITEM	QTY	UNIT
714	0820	PIPE CONC REINF 30IN CL III		
		4849+70 - CL LT	8	LF
		4849+70 - CL RT	20	LF
714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES		
		4849+70 - CL LT	1	EA
		4849+70 - CL RT	1	EA
754	0805	OBJECT MARKERS - CULVERTS		
		4849+70 - CL LT	1	EA
		4849+70 - CL RT	1	EA

ND 31

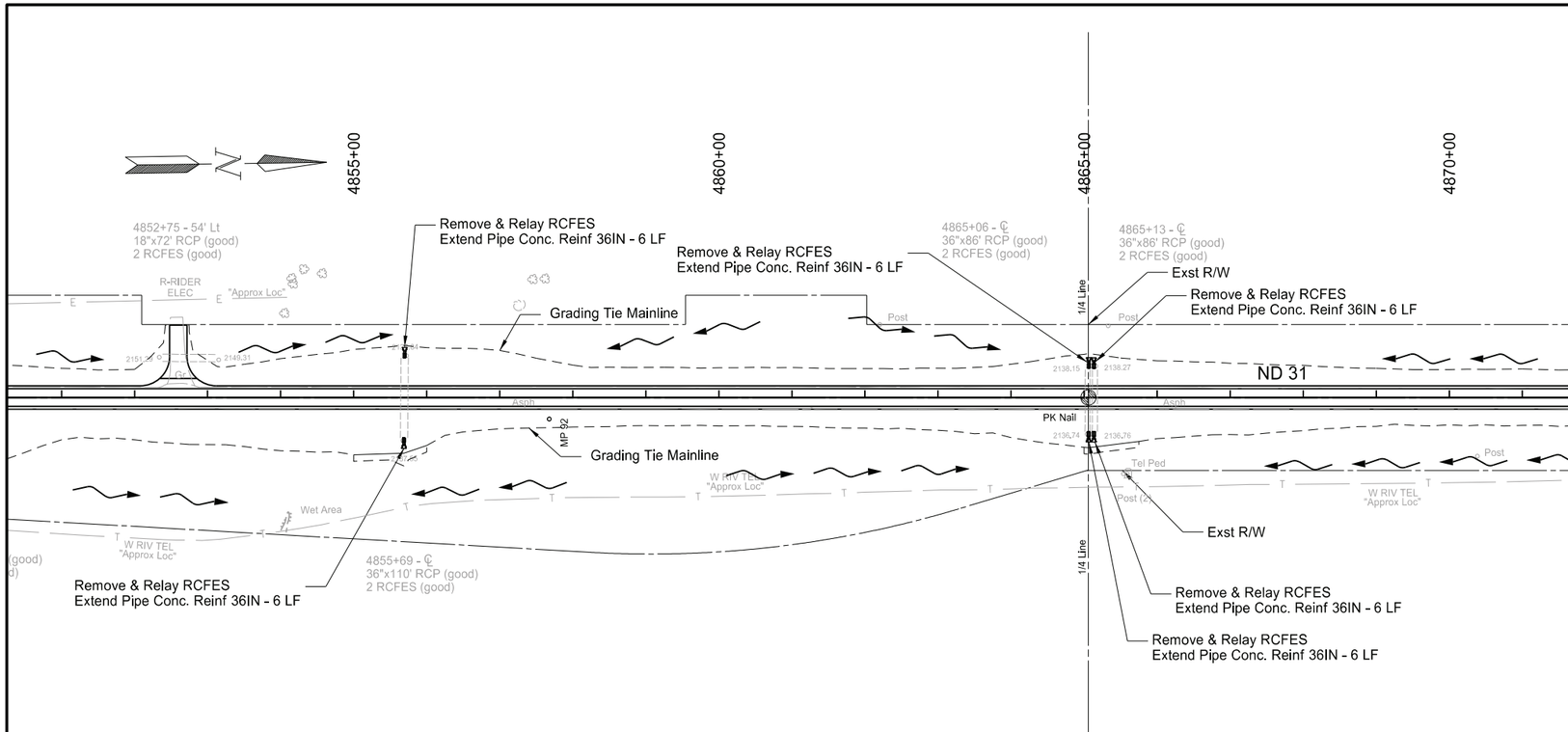
Jct I-94 to Hannover
Oliver County

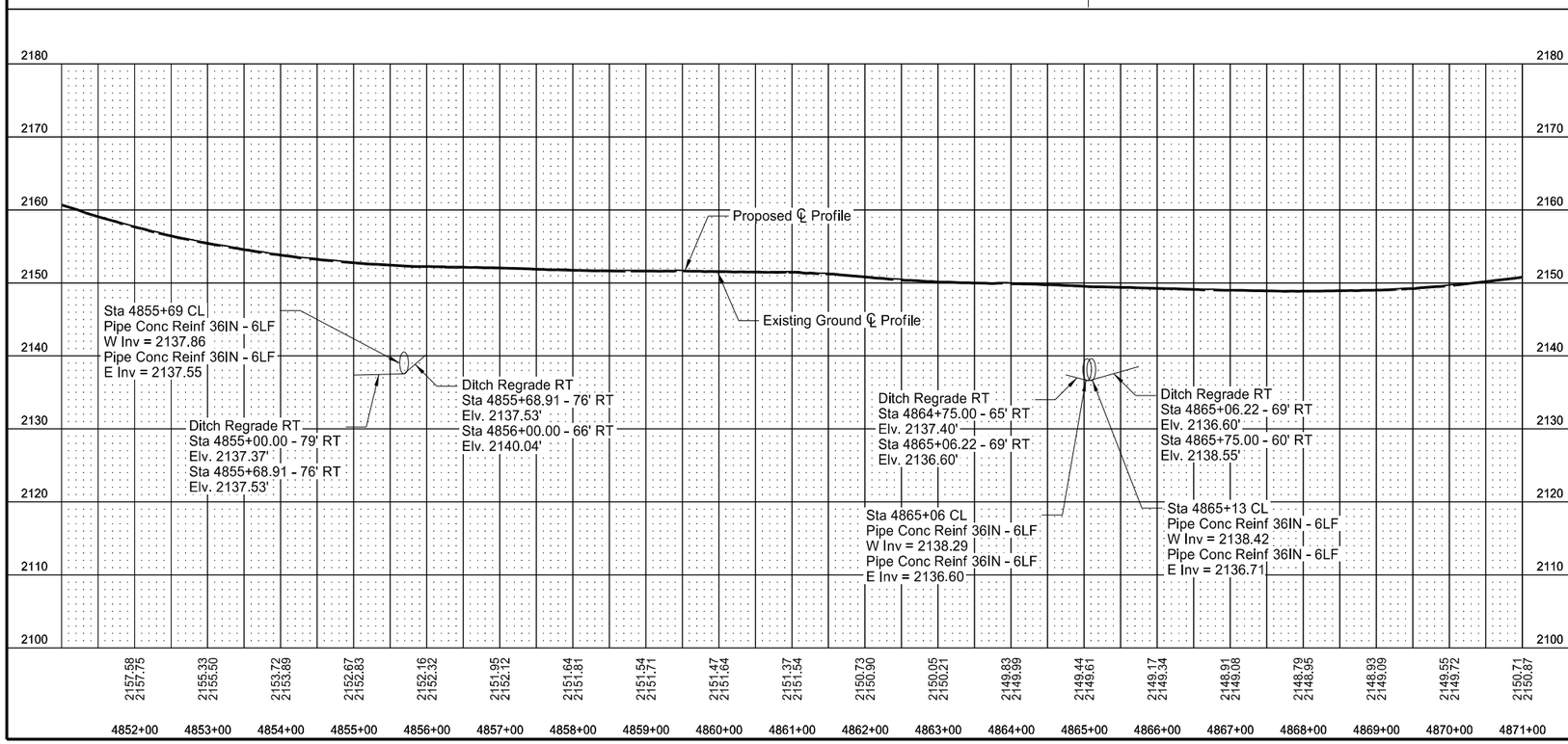
Plan and Profile

Sta 4831+00 to Sta 4851+00

REGISTERED PROFESSIONAL ENGINEER
ZACHARY THELEN
PE-40305
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	60	38





SPEC	CODE	BID ITEM	QTY	UNIT
714	0905	PIPE CONC REINF 36IN CL III		
		4855+69 - CL LT	6	LF
		4855+69 - CL RT	6	LF
		4865+06 - CL LT	6	LF
		4865+06 - CL RT	6	LF
		4865+13 - CL LT	6	LF
		4865+13 - CL RT	6	LF
714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES		
		4855+69 - CL LT	1	EA
		4855+69 - CL RT	1	EA
		4865+06 - CL LT	1	EA
		4865+06 - CL RT	1	EA
		4865+13 - CL LT	1	EA
		4865+13 - CL RT	1	EA
754	0805	OBJECT MARKERS - CULVERTS		
		4855+69 - CL LT	1	EA
		4855+69 - CL RT	1	EA
		4865+06 - CL LT	1	EA
		4865+06 - CL RT	1	EA
		4865+13 - CL LT	1	EA
		4865+13 - CL RT	1	EA

ND 31

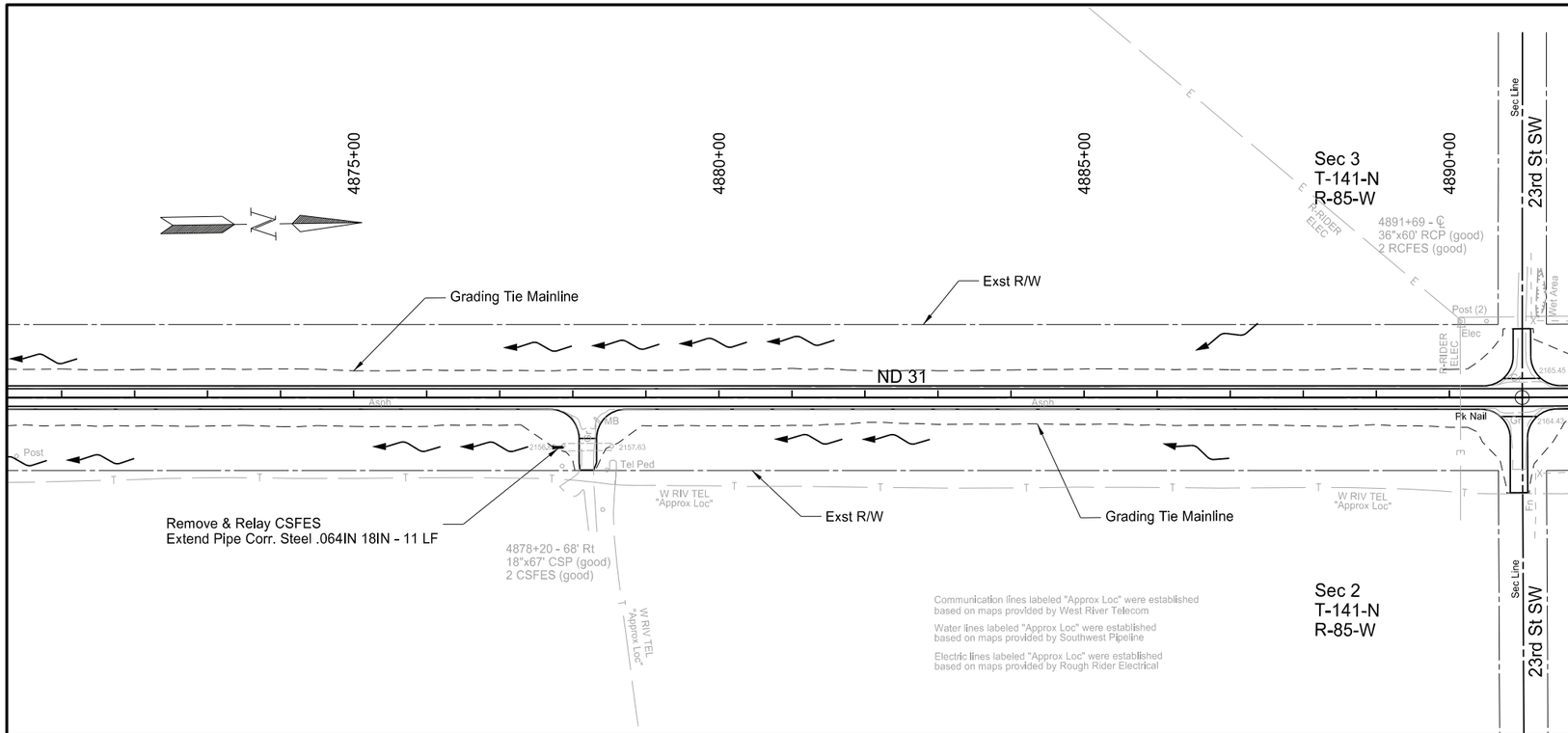
Jct I-94 to Hannover
Oliver County

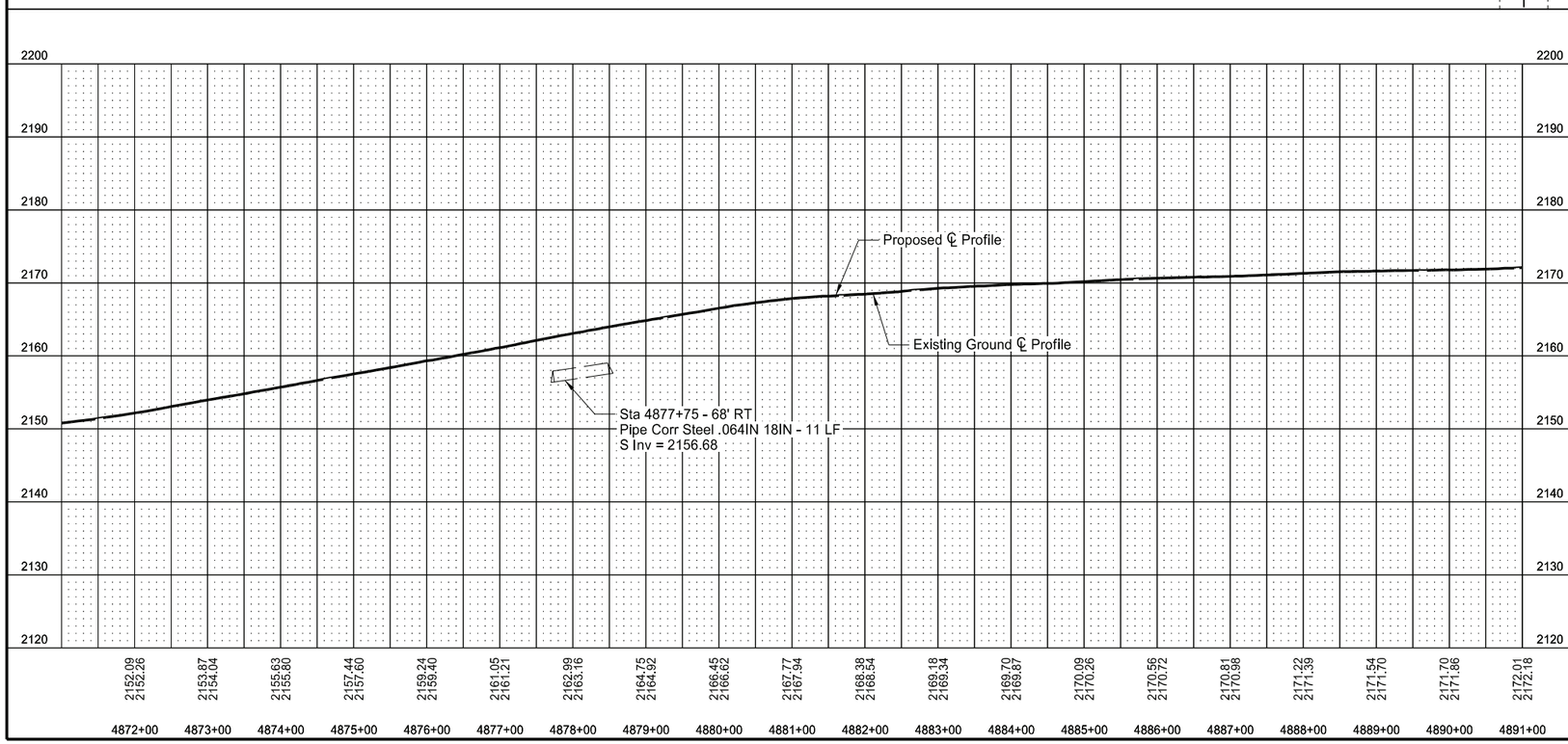
Plan and Profile

Sta 4851+00 to Sta 4871+00

REGISTERED PROFESSIONAL ENGINEER
ZACHARY THELEN
PE-40305
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	60	39





SPEC	CODE	BID ITEM	QTY	UNIT
714	5015	PIPE CORR STEEL .064IN 18IN		
		4877+75 - 68' RT	11	LF
714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES		
		4877+75 - 68' RT	1	EA
754	0805	OBJECT MARKERS - CULVERTS		
		4877+75 - 68' RT	1	EA

ND 31

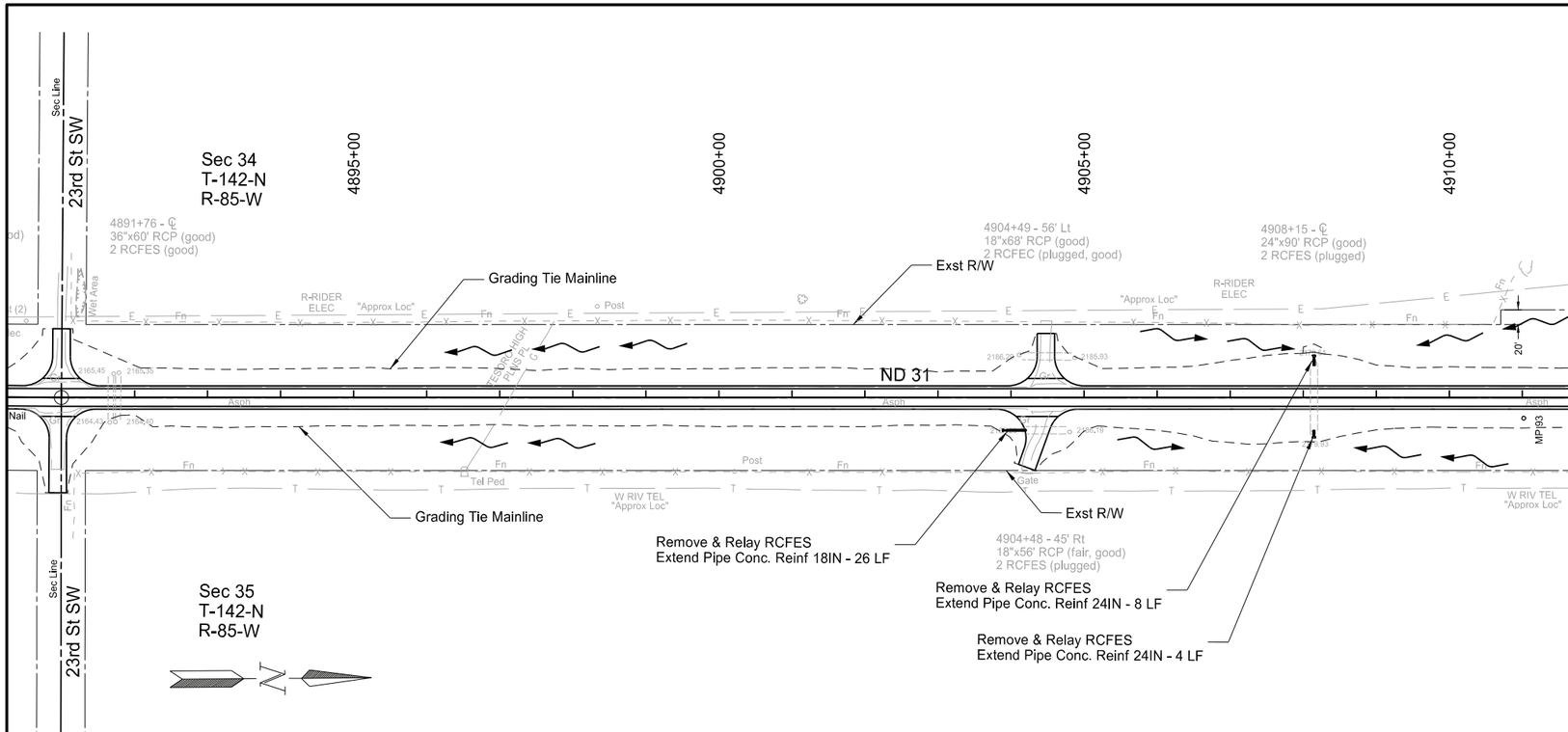
Jct I-94 to Hannover
Oliver County

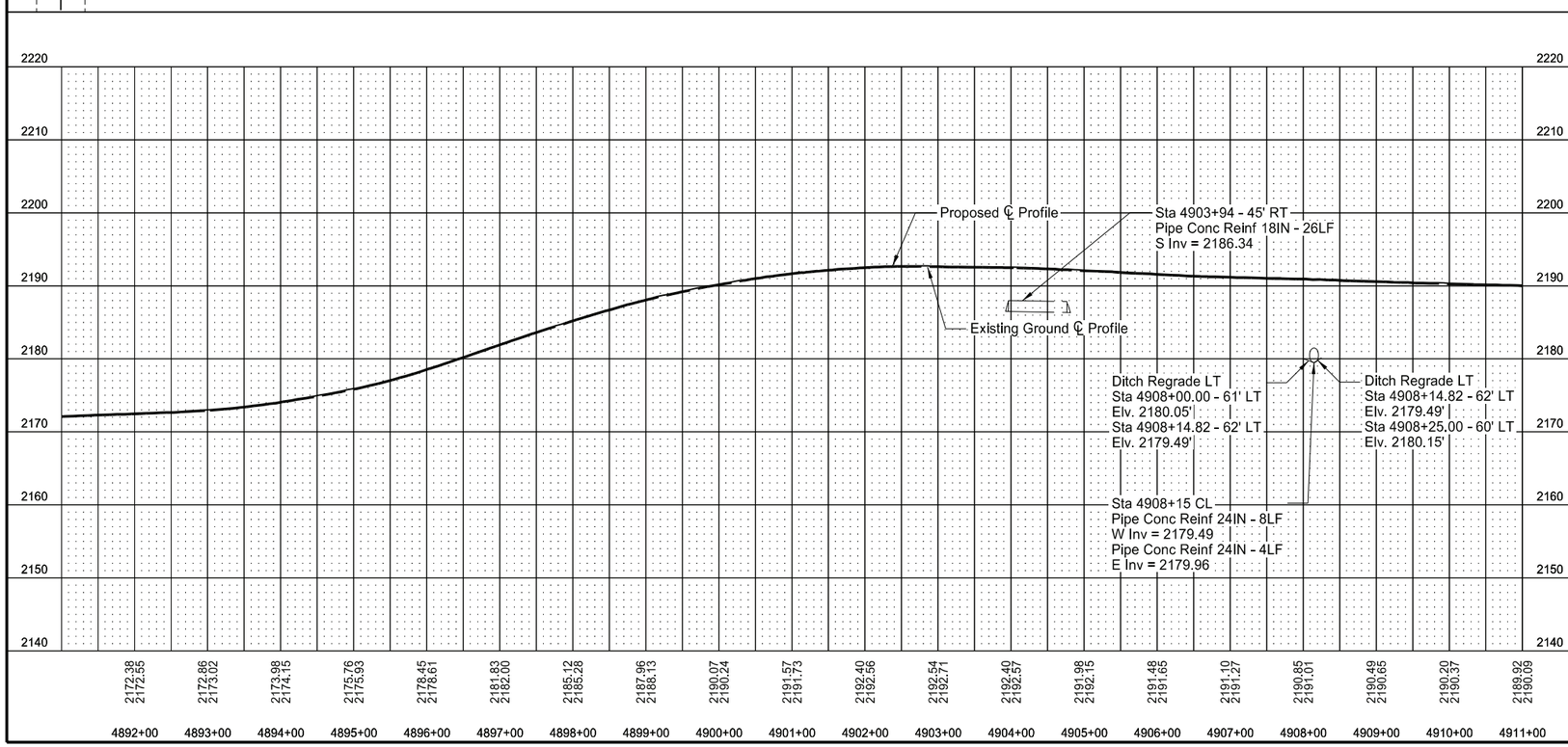
Plan and Profile

Sta 4871+00 to Sta 4891+00

REGISTERED PROFESSIONAL ENGINEER
ZACHARY THELEN
PE-40305
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	60	40





SPEC	CODE	BID ITEM	QTY	UNIT
714	0310	PIPE CONC REINF 18IN CL III		
		4903+94 - 45' RT	26	LF
714	0615	PIPE CONC REINF 24IN CL III		
		4908+15 - CL LT	8	LF
		4908+15 - CL RT	4	LF
714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES		
		4903+94 - 45' RT	1	EA
		4908+15 - CL LT	1	EA
		4908+15 - CL RT	1	EA
754	0805	OBJECT MARKERS - CULVERTS		
		4903+94 - 45' RT	1	EA
		4908+15 - CL LT	1	EA
		4908+15 - CL RT	1	EA

ND 31

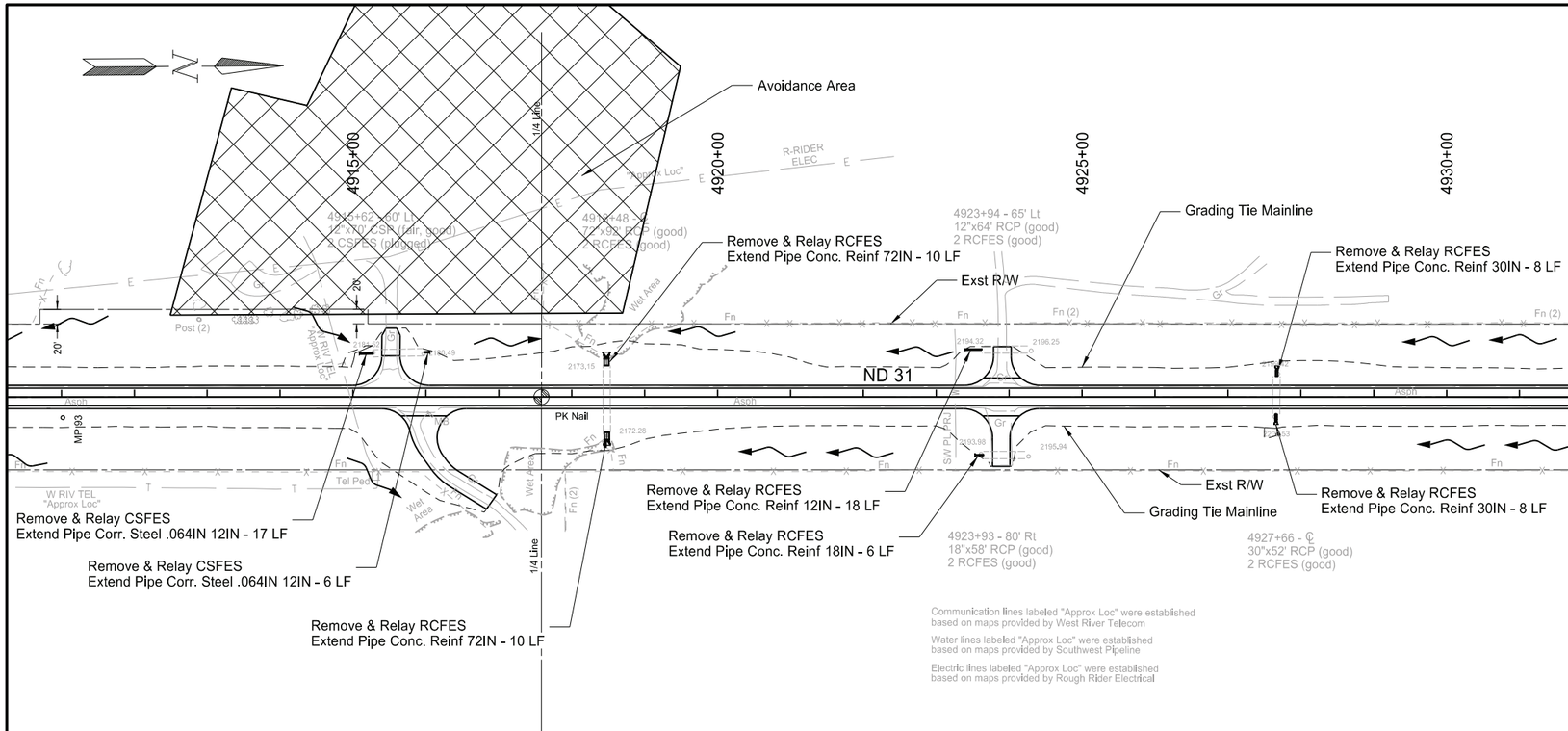
Jct I-94 to Hannover
Oliver County

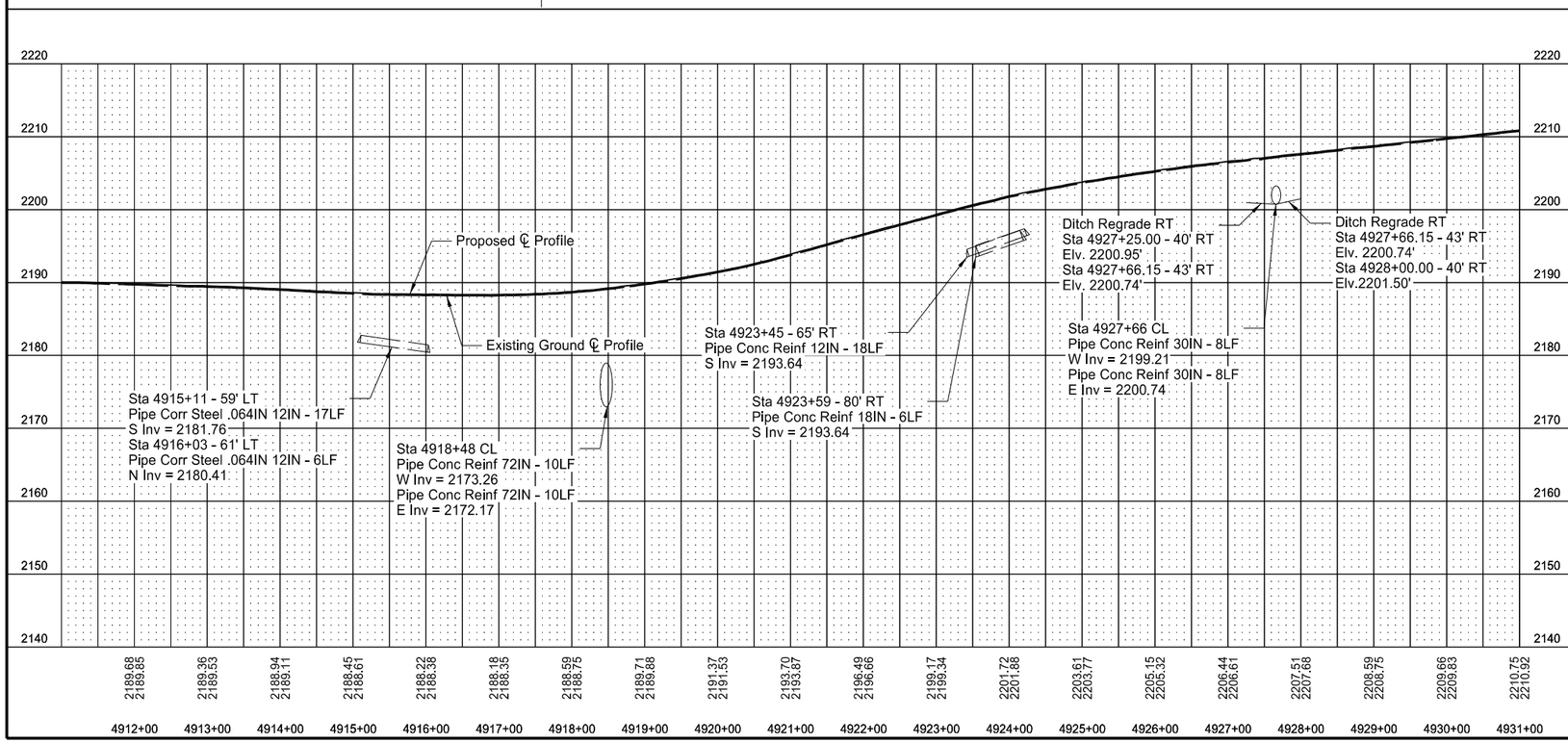
Plan and Profile

Sta 4891+00 to Sta 4911+00

REGISTERED PROFESSIONAL ENGINEER
ZACHARY THELEN
PE-40305
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	60	41





SPEC	CODE	BID ITEM	QTY	UNIT
714	0110	PIPE CONC REINF 12IN CL III		
		4923+45 - 65' LT	18	LF
714	0310	PIPE CONC REINF 18IN CL III		
		4923+59 - 80' RT	6	LF
714	0820	PIPE CONC REINF 30IN CL III		
		4927+66 - CL LT	8	LF
		4927+66 - CL RT	8	LF
714	1510	PIPE CONC REINF 72IN CL III		
		4918+48 - CL LT	10	LF
		4918+48 - CL RT	10	LF
714	5000	PIPE CORR STEEL .064IN 12IN		
		4915+11 - 59' LT	17	LF
		4916+03 - 61' LT	6	LF
714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES		
		4915+11 - 59' LT	1	EA
		4916+03 - 61' LT	1	EA
		4918+48 - CL LT	1	EA
		4918+48 - CL RT	1	EA
		4923+45 - 65' LT	1	EA
		4923+59 - 80' RT	1	EA
		4927+66 - CL LT	1	EA
		4927+66 - CL RT	1	EA
754	0805	OBJECT MARKERS - CULVERTS		
		4915+11 - 59' LT	1	EA
		4916+03 - 61' LT	1	EA
		4918+48 - CL LT	1	EA
		4918+48 - CL RT	1	EA
		4923+45 - 65' LT	1	EA
		4923+59 - 80' RT	1	EA
		4927+66 - CL LT	1	EA
		4927+66 - CL RT	1	EA

ND 31

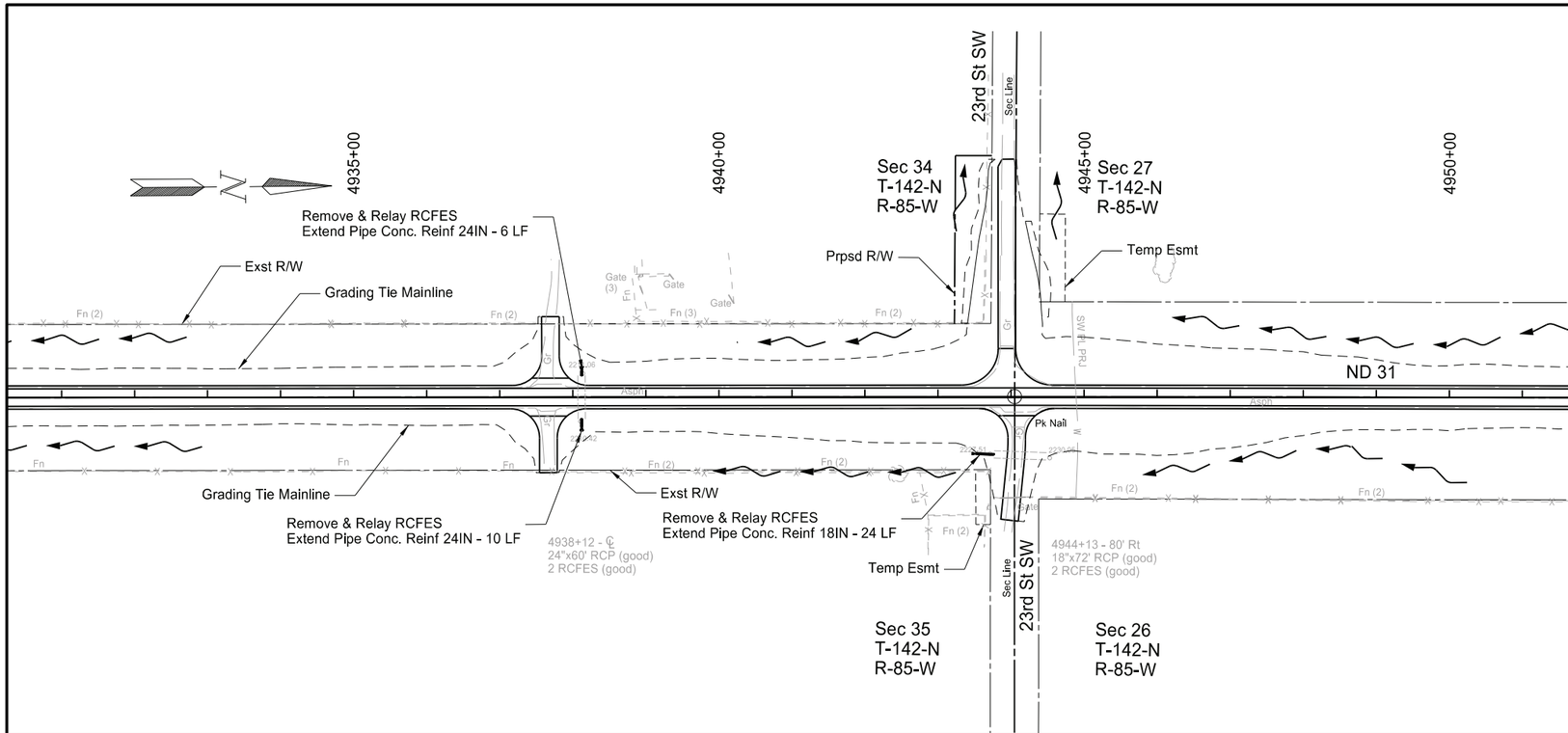
Jct I-94 to Hannover
Oliver County

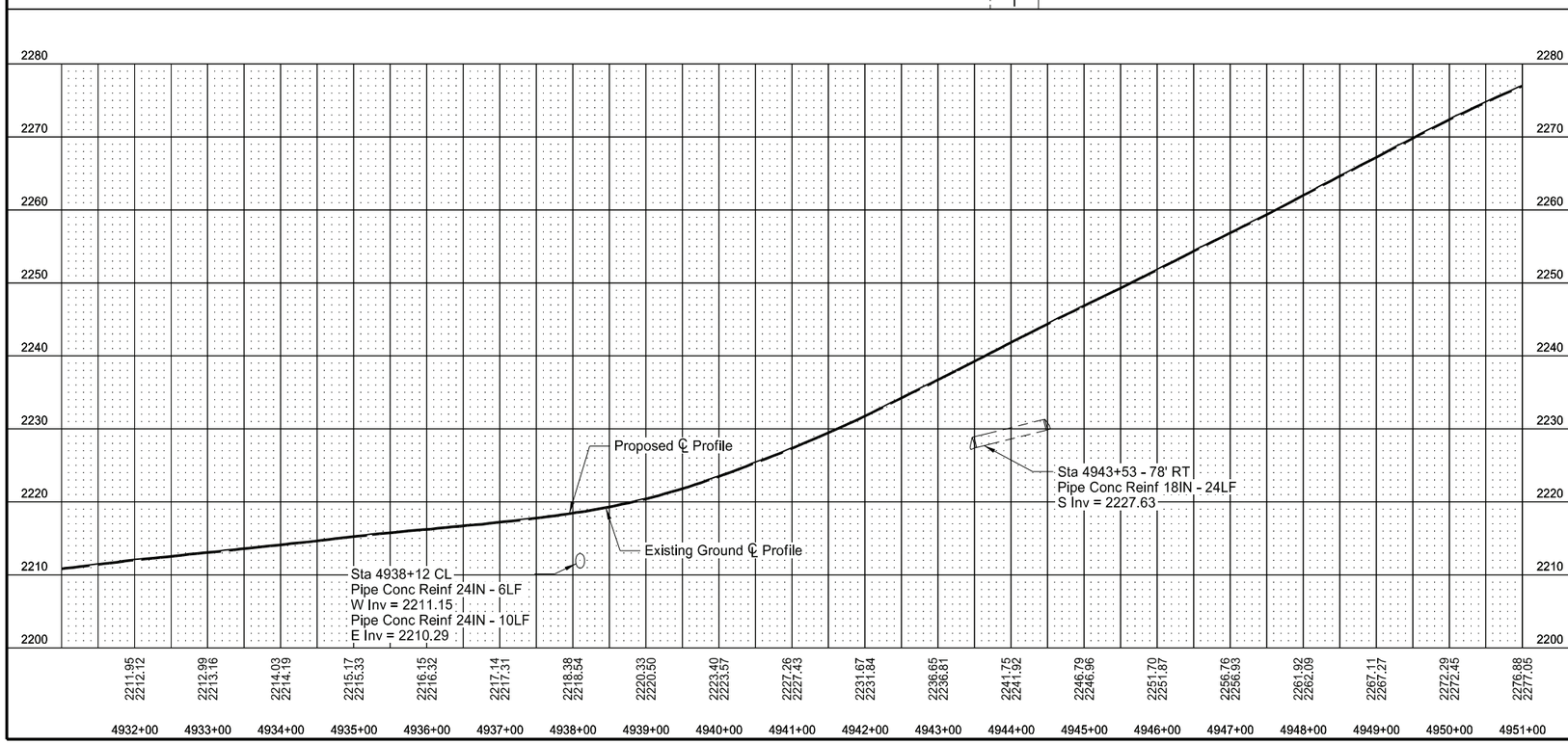
Plan and Profile

Sta 4911+00 to Sta 4931+00

REGISTERED PROFESSIONAL ENGINEER
ZACHARY THELEN
PE-40305
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	60	42





SPEC	CODE	BID ITEM	QTY	UNIT
714	0310	PIPE CONC REINF 18IN CL III		
		4943+53 - 78' RT	24	LF
714	0615	PIPE CONC REINF 24IN CL III		
		4938+12 - CL LT	6	LF
		4938+12 - CL RT	10	LF
714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES		
		4938+12 - CL LT	1	EA
		4938+12 - CL RT	1	EA
		4943+53 - 78' RT	1	EA
754	0805	OBJECT MARKERS - CULVERTS		
		4938+12 - CL LT	1	EA
		4938+12 - CL RT	1	EA
		4943+53 - 78' RT	1	EA

ND 31

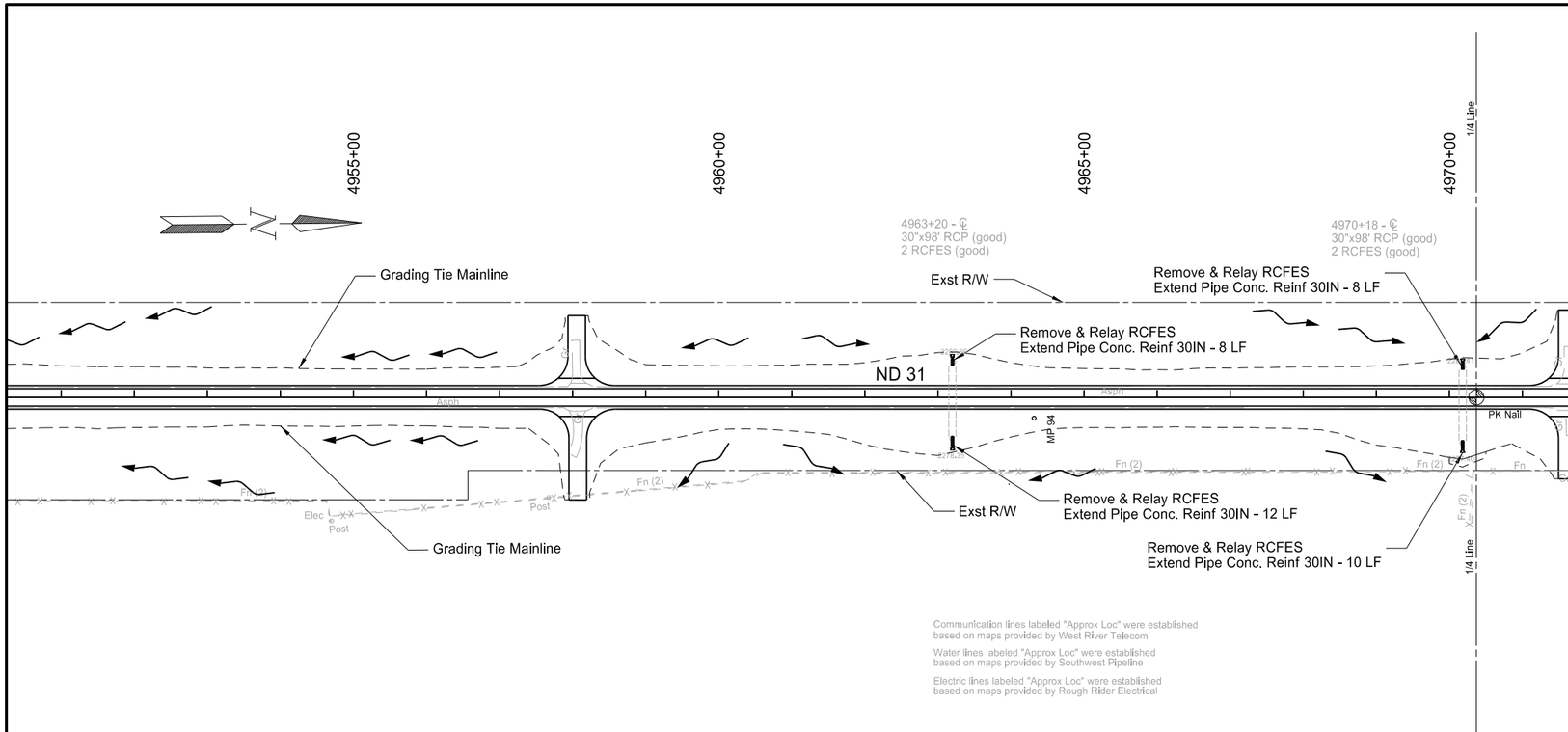
Jct I-94 to Hannover
Oliver County

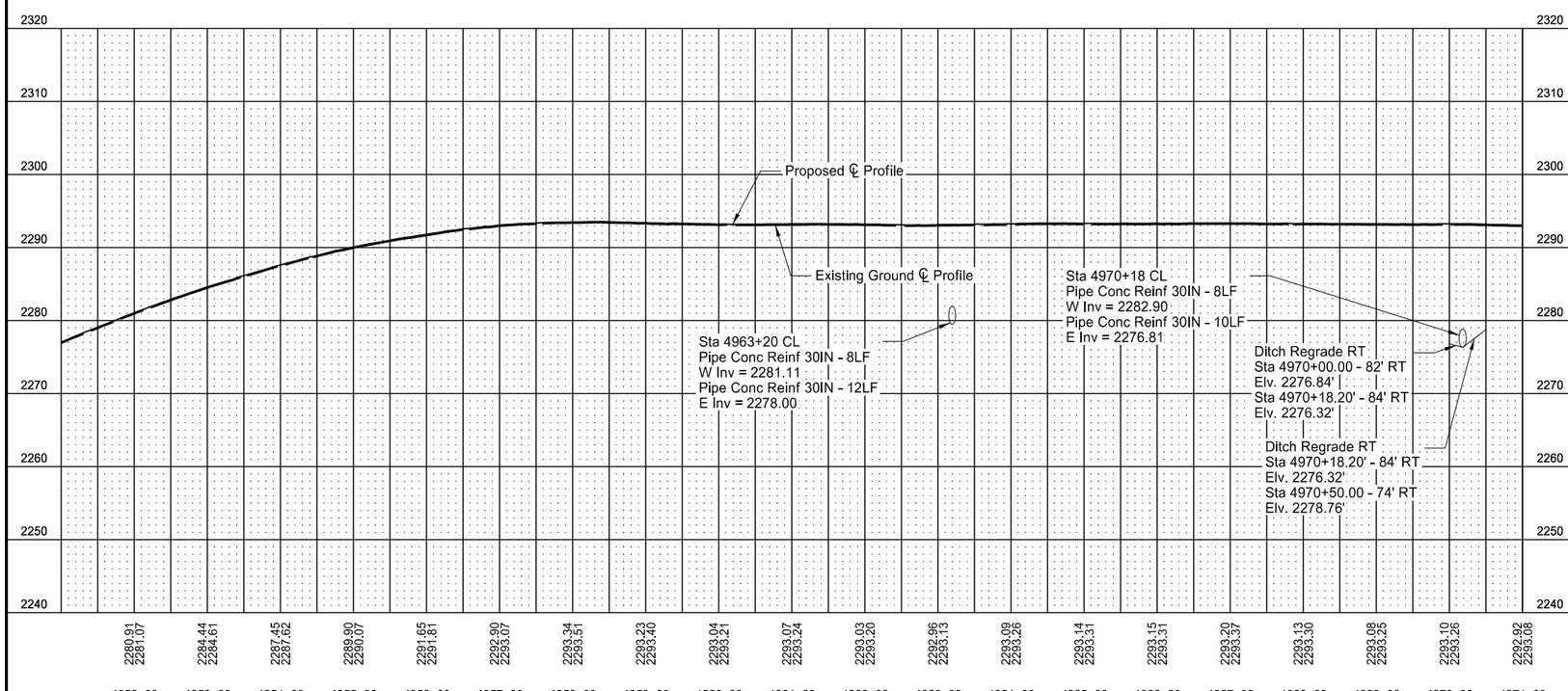
Plan and Profile

Sta 4931+00 to Sta 4951+00

REGISTERED PROFESSIONAL ENGINEER
ZACHARY THELEN
PE-40305
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	60	43





SPEC	CODE	BID ITEM	QTY	UNIT
714	0820	PIPE CONC REINF 30IN CL III		
		4963+20 - CL LT	8	LF
		4963+20 - CL RT	12	LF
		4970+18 - CL LT	8	LF
		4970+18 - CL RT	10	LF
714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES		
		4963+20 - CL LT	1	EA
		4963+20 - CL RT	1	EA
		4970+18 - CL LT	1	EA
		4970+18 - CL RT	1	EA
754	0805	OBJECT MARKERS - CULVERTS		
		4963+20 - CL LT	1	EA
		4963+20 - CL RT	1	EA
		4970+18 - CL LT	1	EA
		4970+18 - CL RT	1	EA

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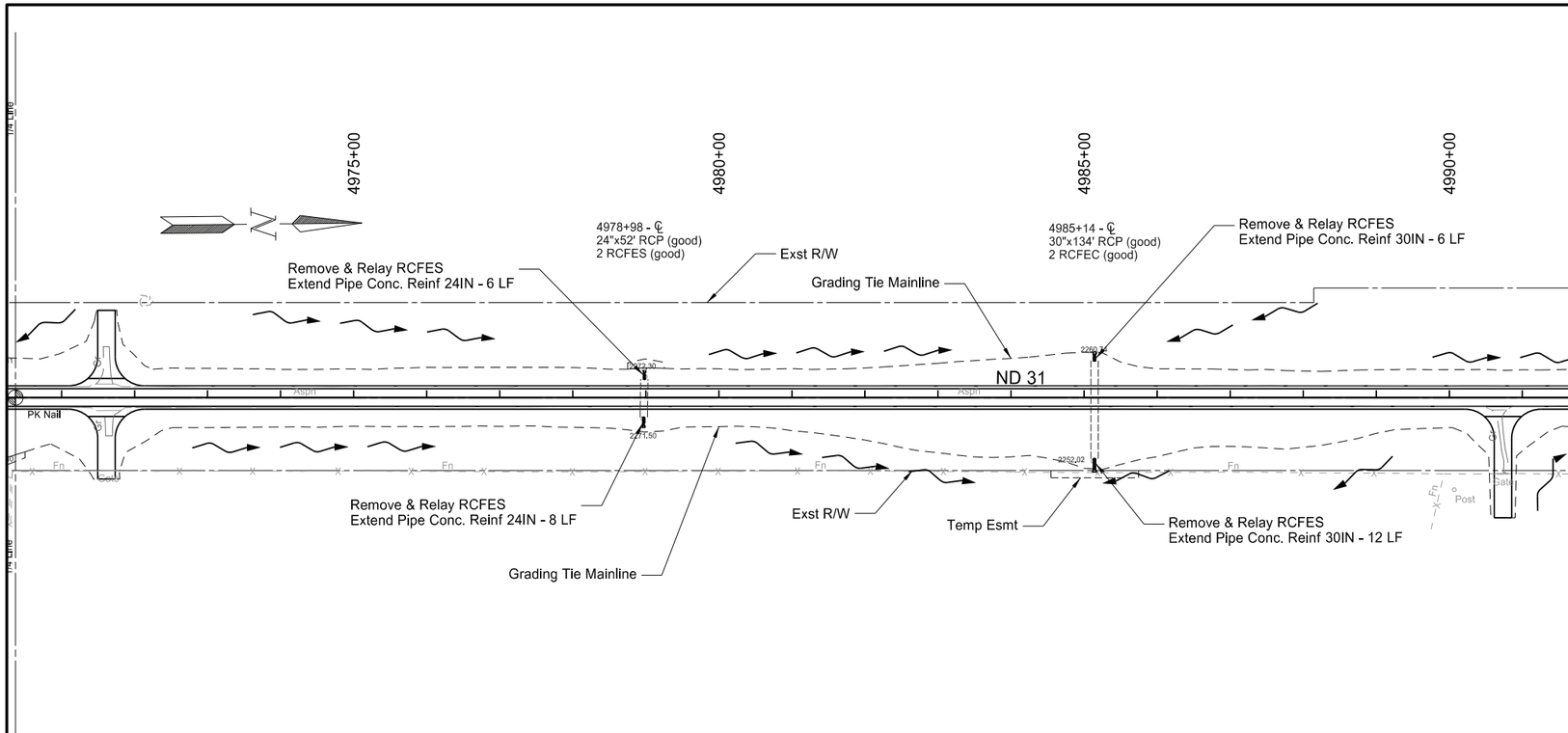
Jct I-94 to Hannover
Oliver County

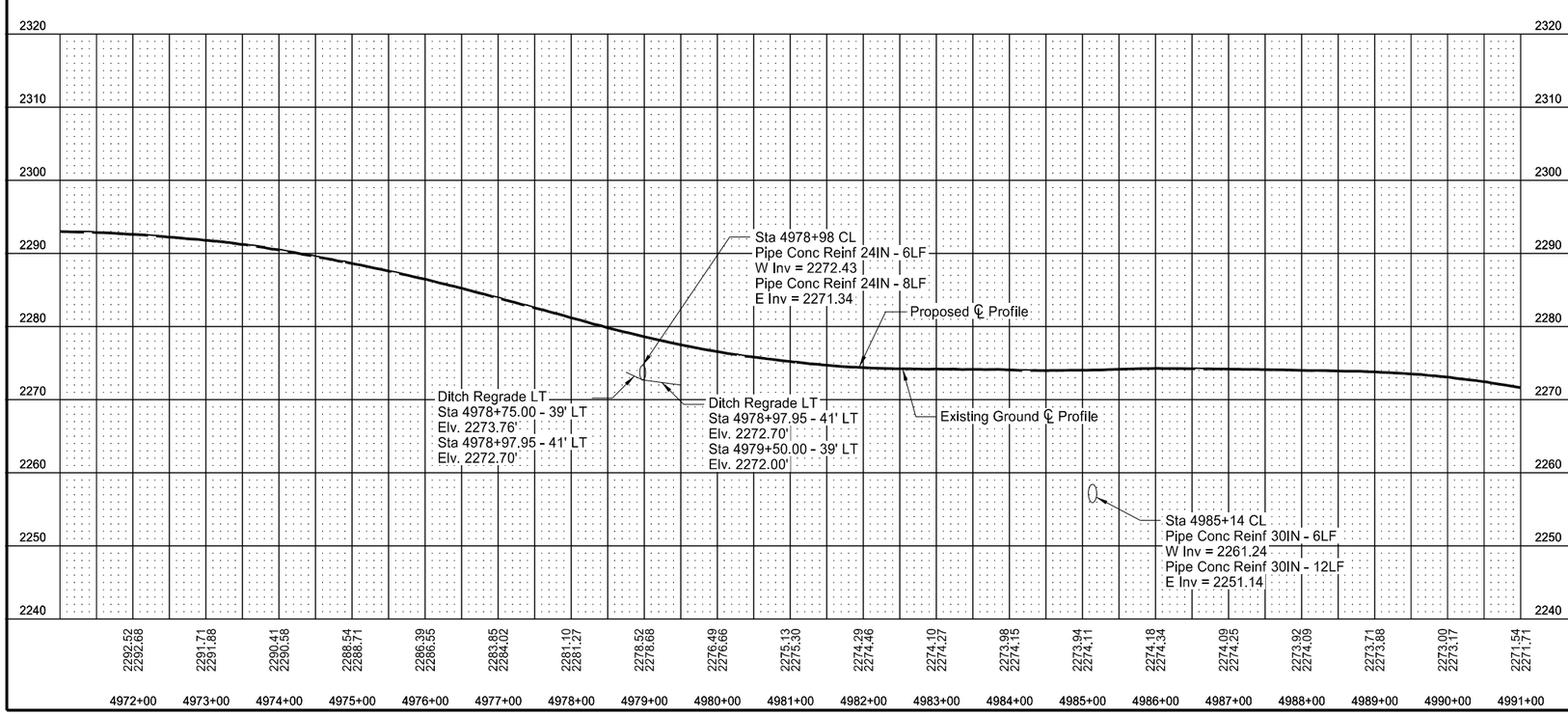
Plan and Profile

Sta 4951+00 to Sta 4971+00

REGISTERED PROFESSIONAL ENGINEER
ZACHARY THELEN
PE-40305
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	60	44





SPEC	CODE	BID ITEM	QTY	UNIT
714	0615	PIPE CONC REINF 24IN CL III		
		4978+98 - CL LT	6	LF
		4978+98 - CL RT	8	LF
714	0820	PIPE CONC REINF 30IN CL III		
		4985+14 - CL LT	6	LF
		4985+14 - CL RT	12	LF
714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES		
		4978+98 - CL LT	1	EA
		4978+98 - CL RT	1	EA
		4985+14 - CL LT	1	EA
		4985+14 - CL RT	1	EA
754	0805	OBJECT MARKERS - CULVERTS		
		4978+98 - CL LT	1	EA
		4978+98 - CL RT	1	EA
		4985+14 - CL LT	1	EA
		4985+14 - CL RT	1	EA

ND 31

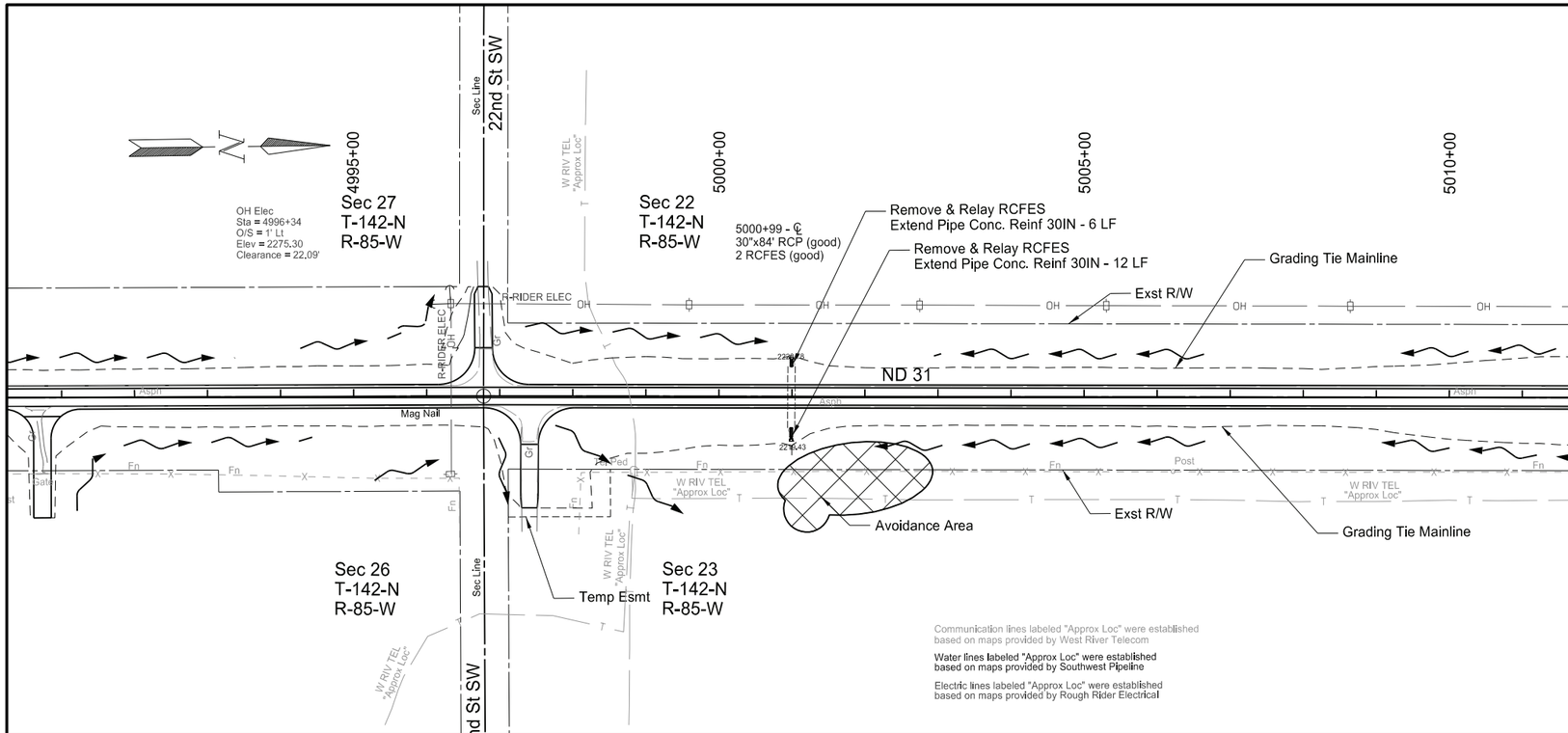
Jct I-94 to Hannover
Oliver County

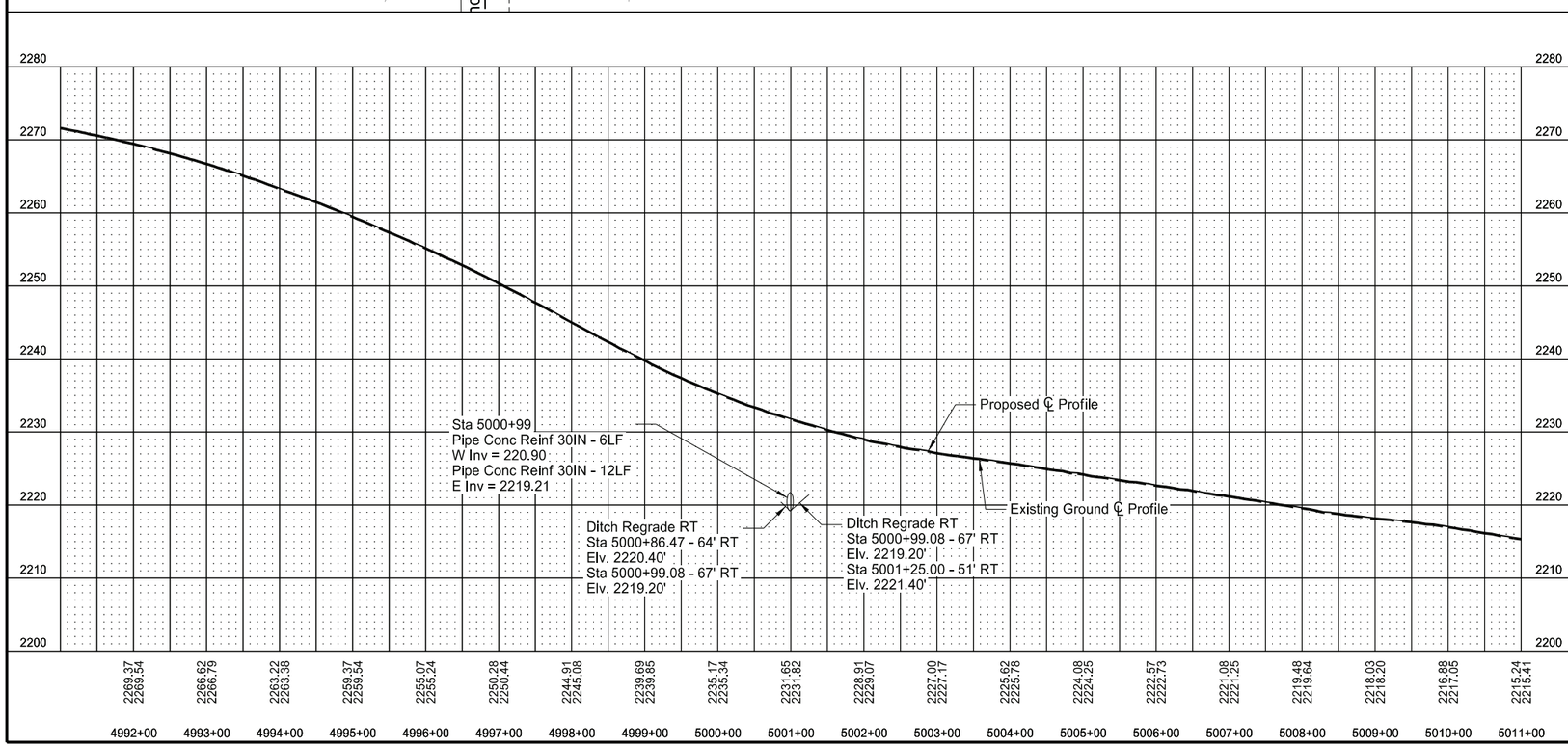
Plan and Profile

Sta 4971+00 to Sta 4991+00

REGISTERED PROFESSIONAL ENGINEER
ZACHARY THELEN
PE-40305
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	60	45





SPEC	CODE	BID ITEM	QTY	UNIT
714	0820	PIPE CONC REINF 30IN CL III		
		5000+99 - CL LT	6	LF
		5000+99 - CL RT	12	LF
714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES		
		5000+99 - CL LT	1	EA
		5000+99 - CL RT	1	EA
754	0805	OBJECT MARKERS - CULVERTS		
		5000+99 - CL LT	1	EA
		5000+99 - CL RT	1	EA

ND 31

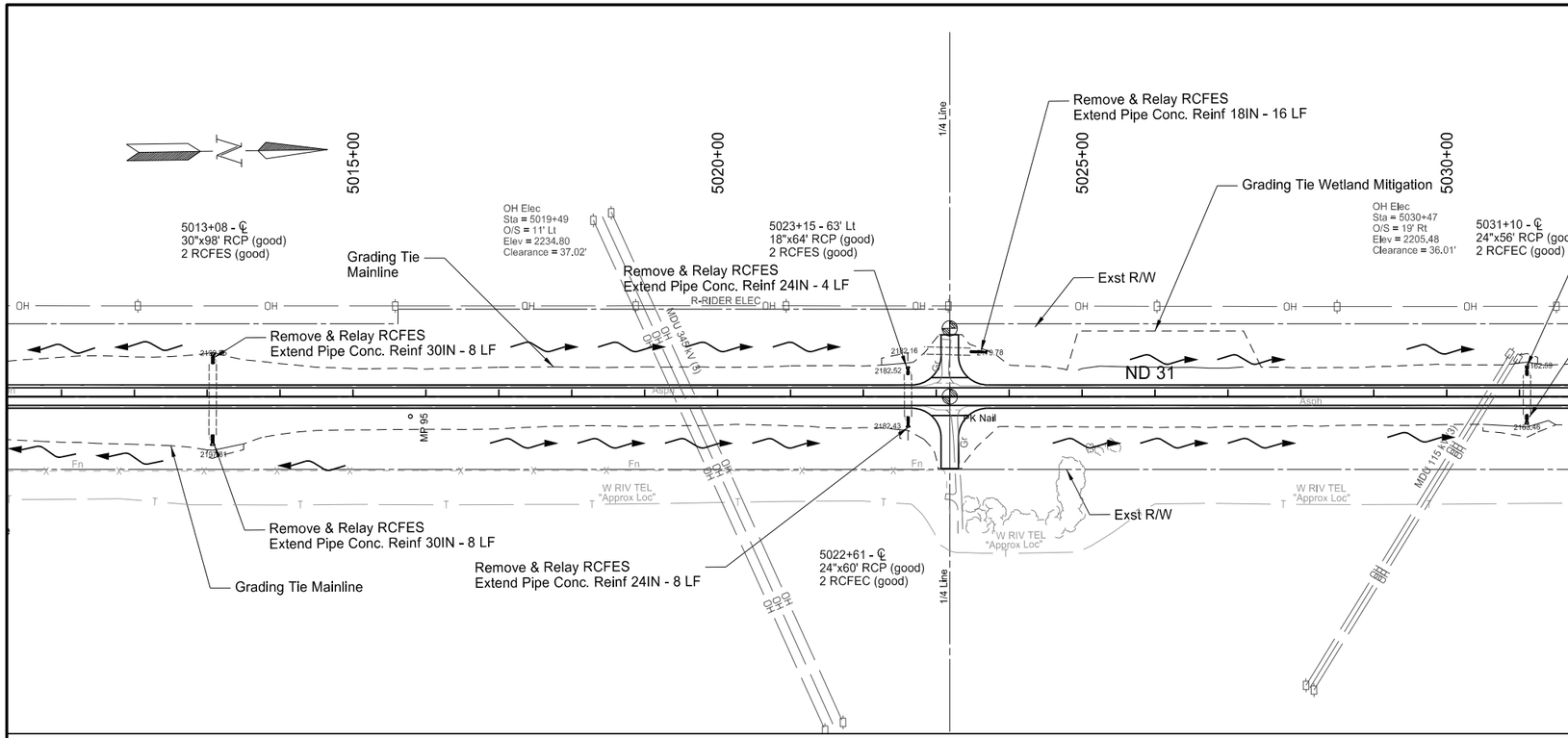
Jct I-94 to Hannover
Oliver County

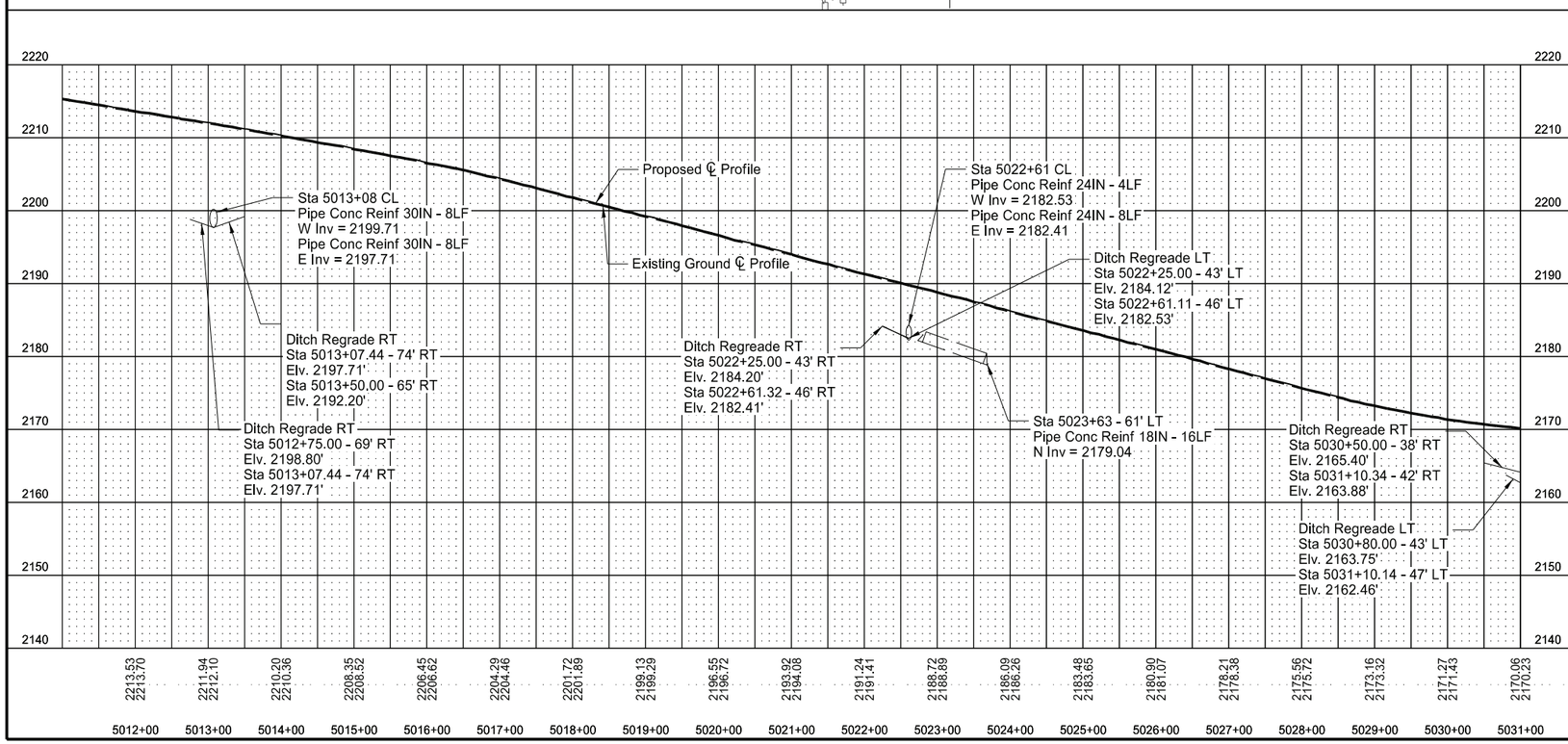
Plan and Profile

Sta 4991+00 to Sta 5011+00

REGISTERED PROFESSIONAL ENGINEER
ZACHARY THELEN
PE-40305
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	60	46





SPEC	CODE	BID ITEM	QTY	UNIT
714	0310	PIPE CONC REINF 18IN CL III		
		5023+63 - 61' LT	16	LF
714	0615	PIPE CONC REINF 24IN CL III		
		5022+61 - CL LT	4	LF
		5022+61 - CL RT	8	LF
714	0820	PIPE CONC REINF 30IN CL III		
		5013+08 - CL LT	8	LF
		5013+08 - CL RT	8	LF
714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES		
		5013+08 - CL LT	1	EA
		5013+08 - CL RT	1	EA
		5022+61 - CL LT	1	EA
		5022+61 - CL RT	1	EA
		5023+63 - 61' LT	1	EA
754	0805	OBJECT MARKERS - CULVERTS		
		5013+08 - CL LT	1	EA
		5013+08 - CL RT	1	EA
		5022+61 - CL LT	1	EA
		5022+61 - CL RT	1	EA
		5023+63 - 61' LT	1	EA

ND 31

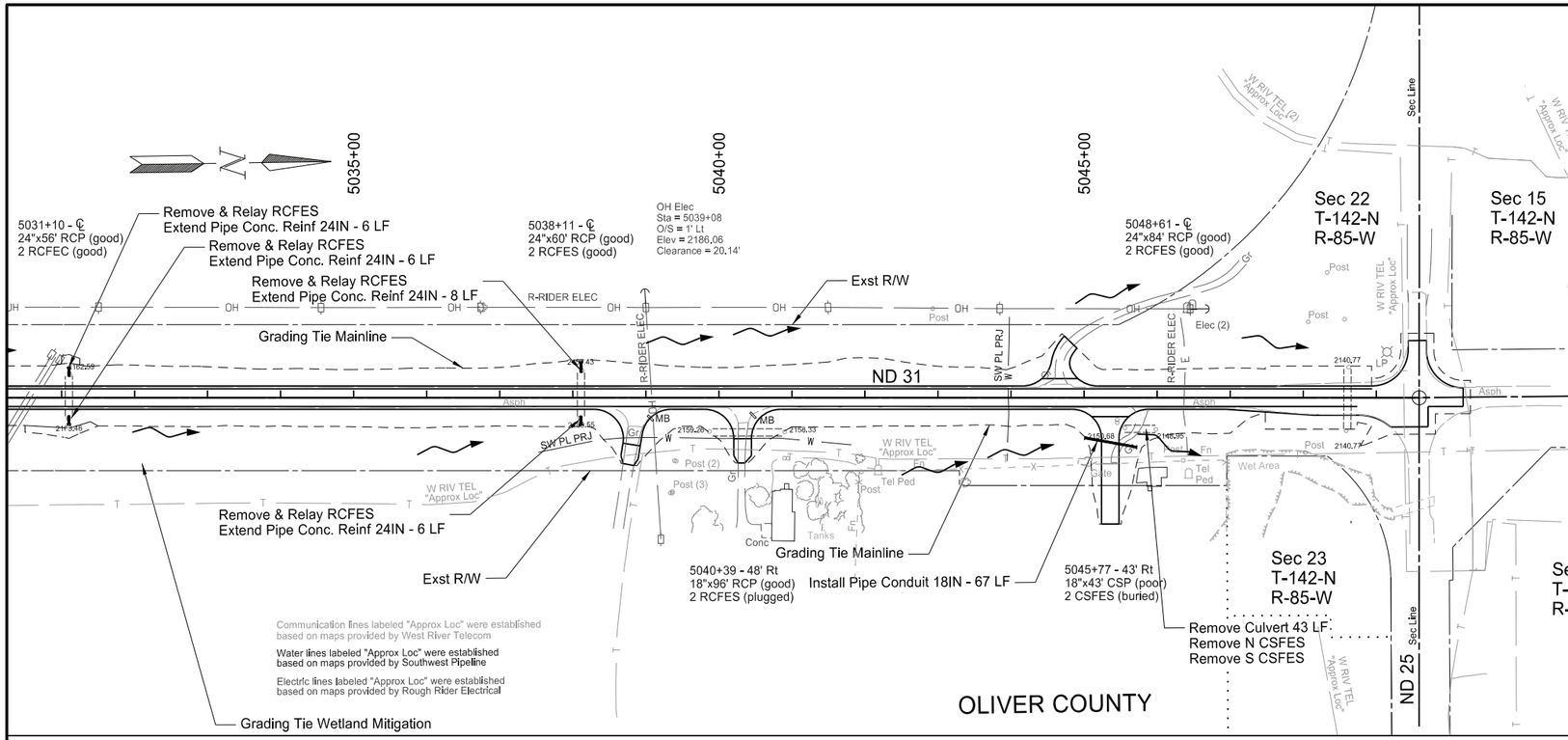
Jct I-94 to Hannover
Oliver County

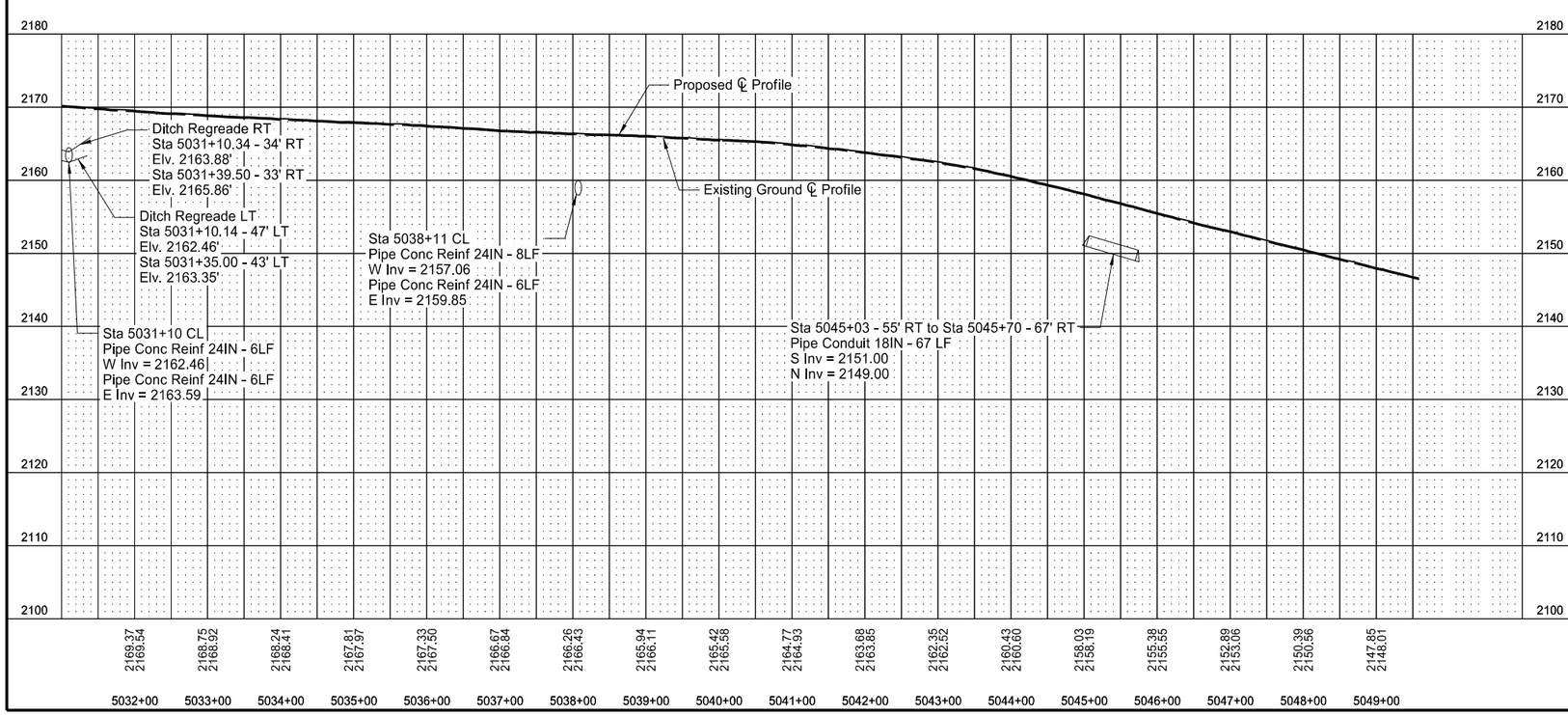
Plan and Profile

Sta 5011+00 to Sta 5031+00

REGISTERED PROFESSIONAL ENGINEER
ZACHARY THELEN
PE-40305
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	60	47





SPEC	CODE	BID ITEM	QTY	UNIT
202	0170	REMOVAL OF CULVERTS - ALL TYPES & SIZES		
		5045+77 - 43' RT	43	LF
714	0615	PIPE CONC REINF 24IN CL III		
		5031+10 - CL LT	6	LF
		5031+10 - CL RT	6	LF
		5038+11 - CL LT	8	LF
		5038+11 - CL RT	6	LF
714	4099	PIPE CONDUIT 18IN - APPROACH		
		5045+03 - 55' RT to 5045+70 - 67' RT	67	LF
714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES		
		5031+10 - CL LT	1	EA
		5031+10 - CL RT	1	EA
		5038+11 - CL LT	1	EA
		5038+11 - CL RT	1	EA
754	0805	OBJECT MARKERS - CULVERTS		
		5031+10 - CL LT	1	EA
		5031+10 - CL RT	1	EA
		5038+11 - CL LT	1	EA
		5038+11 - CL RT	1	EA
		5045+03 - 55' RT and 5045+70 - 67' RT	2	EA

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Jct I-94 to Hannover
Oliver County

Plan and Profile

Sta 5031+00 to Sta 5050+19

REGISTERED PROFESSIONAL ENGINEER
ZACHARY THELEN
PE-40305
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	75	1

Wetland Impact Table

Wetland Number	Location	Wetland Type	Wetland Feature	USACE Jurisdictional Wetlands[1]	Wetland Impact			Wetland Mitigation											
					Wetland Impacts Acre(s)			Mitigation Proposed			USACE/11990 Bank		11990 Bank		Onsite Mitigation Method			Onsite Constructed Location	
					Temp.	Perm. (Fill/Drain)	Perm. (Cut)	EO 11990	USACE	USFWS	Location	Acre(s)	Location	Acre(s)	Mitigation Location; Ratio	Ditch Shift Acre(s)	Acre(s)	Onsite Constructed Site #	Onsite Constructed Size Acre(s)
#1	Sec. 9, T139N, R85W	Ditch	Created	N	0.000	0.000		N	N										
#2a	Sec. 9, T139N, R85W	Ditch	Created	N	0.220	0.116		N	N										
#2b	Sec. 9, T139N, R85W	Ditch	Created	N	0.007	0.012		N	N										
#3	Sec. 9, T139N, R85W	Ditch	Created	N	0.000	0.000		N	N										
#4	Sec. 9, T139N, R85W	Ditch	Created	N	0.022	0.000		N	N										
#5	Sec. 9, T139N, R85W	Ditch	Created	N	0.030	0.002		N	N										
#6	Sec. 9, T139N, R85W	Ditch	Created	N	0.031	0.018		N	N										
#7a	Sec. 4, T139N, R85W	Slope	Natural	Y	0.004	0.013		Y	N				Anderson Bank	0.013					
#7b	Sec. 4, T139N, R85W	Ditch	Created	Y	0.000	0.008		N	N										
#8	Sec. 4, T139N, R85W	Ditch	Created	N	0.037	0.003		N	N										
#9	Sec. 4, T139N, R85W	Ditch	Created	N	0.045	0.000		N	N										
#10	Sec. 4, T139N, R85W	Ditch	Created	N	0.051	0.010		N	N										
#11	Sec. 4, T139N, R85W	Ditch	Created	N	0.110	0.067		N	N										
#12a	Sec. 4, T139N, R85W	Ditch	Created	N	0.050	0.080		N	N										
#12b	Sec. 4, T139N, R85W	Slope	Natural	Y	0.007	0.019		Y	N				Anderson Bank	0.019					

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

ND 31

Jct I-94 to Hannover

Wetlands Mitigation and Environmental

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	75	2

Wetland Impact Table

Wetland Number	Location	Wetland Type	Wetland Feature	USACE Jurisdictional Wetlands[1]	Wetland Impact			Wetland Mitigation											
					Wetland Impacts Acre(s)			Mitigation Proposed			USACE/11990 Bank		11990 Bank		Onsite Mitigation Method			Onsite Constructed Location	
					Temp.	Perm. (Fill/Drain)	Perm. (Cut)	EO 11990	USACE	USFWS	Location	Acre(s)	Location	Acre(s)	Mitigation Location; Ratio	Ditch Shift Acre(s)	Acre(s)	Onsite Constructed Site #	Onsite Constructed Size Acre(s)
#12c	Sec. 4, T139N, R85W	Slope	Natural	Y	0.034	0.027		Y	N				Anderson Bank	0.027					
#14	Sec. 4, T139N, R85W	Ditch	Created	Y	0.000	0.000		N	N										
#15	Sec. 4, T139N, R85W	Ditch	Created	N	0.026	0.000		N	N										
#16	Sec. 33, T140N, R85W	Ditch	Created	N	0.046	0.003		N	N										
#17b	Sec. 33, T140N, R85W	Ditch	Created	N	0.184	0.000		N	N										
#20	Sec. 29, T140N, R85W	Ditch	Created	N	0.030	0.000		N	N										
#21	Sec. 29, T140N, R85W	Ditch	Created	N	0.020	0.002		N	N										
#22a	Sec. 28, T140N, R85W	Ditch	Created	N	0.052	0.017		N	N										
#22b	Sec. 28, T140N, R85W	Ditch	Created	Y	0.010	0.006		N	N										
#23a	Sec. 29, T140N, R85W	Ditch	Created	N	0.070	0.003		N	N										
#24c	Sec. 29, T140N, R85W	Ditch	Created	Y	0.045	0.005		N	N										
#25	Sec. 28, T140N, R85W	Ditch	Created	N	0.070	0.035		N	N										
#26	Sec. 29, T140N, R85W	Ditch	Created	N	0.036	0.015		N	N										
#27a	Sec. 20, T140N, R85W	Slope	Natural	Y	0.040	0.034		Y	N				Anderson Bank	0.034					
#27b	Sec. 21, T140N, R85W	Slope	Natural	Y	0.007	0.001		Y	N				Anderson Bank	0.001					

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
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Wetlands Mitigation and Environmental

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	75	3

Wetland Impact Table

Wetland Number	Location	Wetland Type	Wetland Feature	USACE Jurisdictional Wetlands[1]	Wetland Impact			Wetland Mitigation											
					Wetland Impacts Acre(s)			Mitigation Proposed			USACE/11990 Bank		11990 Bank		Onsite Mitigation Method			Onsite Constructed Location	
					Temp.	Perm. (Fill/Drain)	Perm. (Cut)	EO 11990	USACE	USFWS	Location	Acre(s)	Location	Acre(s)	Mitigation Location; Ratio	Ditch Shift Acre(s)	Acre(s)	Onsite Constructed Site #	Onsite Constructed Size Acre(s)
#28	Sec. 21, T140N, R85W	Ditch	Created	N	0.022	0.002		N	N										
#29a	Sec. 16, T140N, R85W	Ditch	Created	Y	0.303	0.036		N	Y						Ditch Shift 1; 1:1	0.036		Ditch Shift 1	0.099
#29b	Sec. 16, T140N, R85W	Slope	Natural	Y	0.064	0.032		Y	Y		Bowman County Bank	0.032							
#29c	Sec. 16, T140N, R85W	Ditch	Created	Y	0.148	0.058		N	Y						Ditch Shift 2; 1:1	0.058			
#29d	Sec. 16, T140N, R85W	Slope	Natural	Y	0.021	0.013		Y	Y		Bowman County Bank	0.013							
#29e	Sec. 17, T140N, R85W	Ditch	Created	Y	0.021	0.000		N	Y										
#29f	Sec. 17, T140N, R85W	Slope	Natural	Y	0.095	0.002		Y	Y		Bowman County Bank	0.002							
#29g	Sec. 17, T140N, R85W	Ditch	Created	Y	0.166	0.023		N	Y						Ditch Shift 2; 1:1	0.023		Ditch Shift 2	0.173
#29h	Sec. 17, T140N, R85W	Slope	Natural	Y	0.188	0.027		Y	Y		Bowman County Bank	0.0266							
#29i	Sec. 16 & 17, T140N, R85W	Ditch	Created	Y	0.184	0.064		N	Y						Ditch Shift 2; 1:1	0.064			
#30	Sec. 16, T140N, R85W	Ditch	Created	N	0.056	0.027		N	N										
#31	Sec. 16, T140N, R85W	Ditch	Created	N	0.062	0.039		N	N										
#34	Sec. 5, T140N, R85W	Ditch	Created	N	0.008	0.003		N	N										
#35	Sec. 4, T140N, R85W	Ditch	Created	N	0.049	0.027		N	N										
#37a	Sec. 4, T140N, R85W	Slope	Natural	Y	0.054	0.006		Y	Y		Bowman County Bank	0.006							

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

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Jct I-94 to Hannover

Wetlands Mitigation and Environmental

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	75	4

Wetland Impact Table

Wetland Number	Location	Wetland Type	Wetland Feature	USACE Jurisdictional Wetlands[1]	Wetland Impact			Wetland Mitigation											
					Wetland Impacts Acre(s)			Mitigation Proposed			USACE/11990 Bank		11990 Bank		Onsite Mitigation Method			Onsite Constructed Location	
					Temp.	Perm. (Fill/Drain)	Perm. (Cut)	EO 11990	USACE	USFWS	Location	Acre(s)	Location	Acre(s)	Mitigation Location; Ratio	Ditch Shift Acre(s)	Acre(s)	Onsite Constructed Site #	Onsite Constructed Size Acre(s)
#37b	Sec. 4 & 5, T140N, R85W	Slope	Natural	Y	0.028	0.010		Y	Y		Bowman County Bank	0.010							
#37c	Sec. 4, T140N, R85W	Slope	Natural	Y	0.000	0.000		Y	Y										
#37d	Sec. 4, T140N, R85W	Basin	Natural	Y	0.043	0.014		Y	Y		Bowman County Bank	0.014							
#37e	Sec. 34, T141N, R85W	Ditch	Created	Y	0.002	0.000		N	Y										
#37g	Sec. 34, T141N, R85W	Ditch	Created	Y	0.008	0.000		N	Y										
#37i	Sec. 34, T141N, R85W	Ditch	Created	Y	0.023	0.024		N	Y		Bowman County Bank	0.024							
#37j	Sec. 4, T141N, R85W	Ditch	Created	Y	0.107	0.057		N	Y		Bowman County Bank	0.057							
#37k	Sec. 34, T141N, R85W	Ditch	Created	Y	0.098	0.023		N	Y		Bowman County Bank	0.023							
#38a	Sec. 34, T141N, R85W	Slope	Natural	Y	0.013	0.010		Y	N				Anderson Bank	0.010					
#38b	Sec. 34, T141N, R85W	Ditch	Created	Y	0.008	0.008		N	N										
#40	Sec. 26, T141N, R85W	Ditch	Created	Y	0.002	0.002		N	N						-				
#41	Sec. 26, T141N, R85W	Ditch	Created	N	0.011	0.000		N	N										
#42a	Sec. 27, T141N, R85W	Slope	Natural	Y	0.002	0.000		Y	N										
#42b	Sec. 26, T141N, R85W	Slope	Natural	Y	0.014	0.003		Y	N				Anderson Bank	0.003					
#43a	Sec. 22, T141N, R85W	Slope	Natural	Y	0.057	0.010		Y	N				Anderson Bank	0.01					

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
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Jct I-94 to Hannover

Wetlands Mitigation and Environmental

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	75	5

Wetland Impact Table

Wetland Number	Location	Wetland Type	Wetland Feature	USACE Jurisdictional Wetlands[1]	Wetland Impact			Wetland Mitigation											
					Wetland Impacts Acre(s)			Mitigation Proposed			USACE/11990 Bank		11990 Bank		Onsite Mitigation Method			Onsite Constructed Location	
					Temp.	Perm. (Fill/Drain)	Perm. (Cut)	EO 11990	USACE	USFWS	Location	Acre(s)	Location	Acre(s)	Mitigation Location; Ratio	Ditch Shift Acre(s)	Acre(s)	Onsite Constructed Site #	Onsite Constructed Size Acre(s)
#43b	Sec. 23, T141N, R85W	Slope	Natural	Y	0.012	0.003		Y	N				Anderson Bank	0.003					
#44a	Sec. 22, T141N, R85W	Slope	Natural	Y	0.138	0.049		Y	Y		Bowman County Bank	0.049							
#44b	Sec. 22, T141N, R85W	Slope	Natural	Y	0.177	0.070		Y	Y		Bowman County Bank	0.070							
#44c	Sec. 15, T141N, R85W	Ditch	Created	Y	0.254	0.054		N	Y						Ditch Shift 3; 1:1	0.054			
#44d	Sec. 15, T141N, R85W	Ditch	Created	Y	0.046	0.007		N	Y						Ditch Shift 4; 1:1	0.007			
#44e	Sec. 14, T141N, R85W	Ditch	Created	Y	0.059	0.032		N	Y						Ditch Shift 3; 1:1	0.032		-	-
#44f	Sec. 14, T141N, R85W	Ditch	Created	Y	0.815	0.081		N	Y						Ditch Shift 3; 1:1	0.081		Ditch Shift 3	0.290
#44g	Sec. 14 & 23, T141N, R85W	Ditch	Created	Y	0.112	0.014		N	Y						Ditch Shift 4; 1:1	0.014		Ditch Shift 4	0.039
#44h	Sec. 23, T141N, R85W	Slope	Natural	Y	0.000	0.000		Y	Y										
#44j	Sec. 23, T141N, R85W	Ditch	Created	Y	0.001	0.000		N	Y										
#44k	Sec. 23, T141N, R85W	Slope	Natural	Y	0.050	0.002		Y	Y		Bowman County Bank	0.002							
#46a	Sec. 3, T141N, R85W	Slope	Natural	N	0.024	0.004		Y	N				Anderson Bank	0.004					
#46b	Sec. 2, T141N, R85W	Slope	Natural	N	0.023	0.003		Y	N				Anderson Bank	0.003					
#47	Sec. 3, T141N, R85W	Ditch	Created	N	0.020	0.007		N	N										
#48b	Sec. 2, T141N, R85W	Slope	Natural	Y	0.012	0.006		Y	N				Anderson Bank	0.006					

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
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DATE: 7/29/26
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Jct I-94 to Hannover

Wetlands Mitigation and Environmental

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	75	6

Wetland Impact Table

Wetland Number	Location	Wetland Type	Wetland Feature	USACE Jurisdictional Wetlands[1]	Wetland Impact			Wetland Mitigation											
					Wetland Impacts Acre(s)			Mitigation Proposed			USACE/11990 Bank		11990 Bank		Onsite Mitigation Method			Onsite Constructed Location	
					Temp.	Perm. (Fill/Drain)	Perm. (Cut)	EO 11990	USACE	USFWS	Location	Acre(s)	Location	Acre(s)	Mitigation Location; Ratio	Ditch Shift Acre(s)	Acre(s)	Onsite Constructed Site #	Onsite Constructed Size Acre(s)
#48c	Sec. 3, T141N, R85W	Slope	Natural	Y	0.008	0.003		Y	N				Anderson Bank	0.003					
#49	Sec. 3, T141N, R85W	Ditch	Created	N	0.013	0.007		N	N										
#50a	Sec. 34, T142N, R85W	Slope	Natural	Y	0.051	0.028		Y	N				Anderson Bank	0.028					
#50b	Sec. 35, T142N, R85W	Slope	Natural	Y	0.018	0.025		Y	N				Anderson Bank	0.025					
#50c	Sec. 35, T142N, R85W	Slope	Natural	Y	0.000	0.000		Y	N										
#51a	Sec. 35, T142N, R85W	Basin	Natural	N	0.025	0.004		Y	N				Anderson Bank	0.004					
#51b	Sec. 34, T142N, R85W	Basin	Natural	N	0.041	0.017		Y	N				Anderson Bank	0.017					
#52	Sec. 34, T142N, R85W	Ditch	Created	N	0.030	0.011		N	N										
#53a	Sec. 35, T142N, R85W	Slope	Natural	Y	0.032	0.054		Y	N				Anderson Bank	0.054					
#53b	Sec. 34, T142N, R85W	Slope	Natural	Y	0.029	0.022		Y	N				Anderson Bank	0.022					
#58a	Sec. 22, T142N, R85W	Slope	Natural	Y	0.096	0.042		Y	Y		Bowman County Bank	0.042							
#58b	Sec. 22, T142N, R85W	Ditch	Created	Y	0.231	0.058		N	Y						Ditch Shift 5; 1:1	0.058		Ditch Shift 5	0.077
#58c	Sec. 23, T142N, R85W	Slope	Natural	Y	0.012	0.002		Y	Y		Bowman County Bank	0.002							
#58d	Sec. 23, T142N, R85W	Ditch	Created	Y	0.017	0.000		N	Y										
#58e	Sec. 23, T142N, R85W	Ditch	Created	N	0.010	0.001		N	N										
#58f	Sec. 23, T142N, R85W	Slope	Natural	Y	0.052	0.045		Y	Y		Bowman County Bank	0.045							
#59	Sec. 23, T142N, R85W	Ditch	Created	N	0.126	0.042		N	N										
				Totals	**5.675**	**1.710**						**0.418**		0.286		0.428	0.000		0.678

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Jct I-94 to Hannover

Wetlands Mitigation and Environmental

Other Waters Impact Table

Number	Location	Type	Feature	USACE Jurisdictional[1]	Impacts to Other Waters						Other Water Mitigation				
					Acres						Mitigation Proposed			USACE Mitigation Bank	
					Temp.	Perm. (Fill/Drain)	Perm. (Cut)	Perm. Loss	Perm. No Loss		EO 11990	USACE	USFWS	Location	Acre(s)
#OW 19a	Sec. 33, T140N, R85W	Stream	Natural	Y	0.000	0.000					N	N			
#OW 19b	Sec. 33, T140N, R85W	Artificial Straightened Stream	Natural	Y	0.000	0.000					N	N			
#OW 19c	Sec. 33, T140N, R85W	Artificial Straightened Stream	Natural	Y	0.002	0.000					N	N			
#OW 19d	Sec. 33, T140N, R85W	Historic Stream Meander	Natural	Y	0.000	0.000					N	N			
#OW 24a	Sec. 28, T140N, R85W	Stream	Natural	Y	0.000	0.000					N	N			
#OW 24b	Sec. 29, T140N, R85W	Stream	Natural	Y	0.007	0.000					N	N			
#OW 32	Sec. 16, T140N, R85W	Stream	Natural	Y	0.000	0.000					N	N			
#OW 37f	Sec. 34, T141N, R85W	Stream	Natural	Y	0.014	0.012		0.007	0.005		N	N			
#OW 37h	Sec. 34, T141N, R85W	Stream	Natural	Y	0.039	0.019		0.011	0.008		N	N			
#OW 44i	Sec. 34, T141N, R85W	Stream	Natural	Y	0.034	0.000					N	N			
#OW 53a	Sec. 35, T142N, R85W	Stream	Natural	Y	0.005	0.008		0.004	0.004		N	N			
#OW 53b	Sec. 34, T142N, R85W	Stream	Natural	Y	0.005	0.009		0.003	0.006		N	N			
#OW 61a	Sec. 23, T142N, R85W	Stream	Natural	Y	0.000	0.000					N	N			
#OW 61b	Sec. 14, T142N, R85W	Stream	Natural	Y	0.000	0.000					N	N			
				Totals	**0.106**	**0.048**									**0.000**

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Wetlands Mitigation and Environmental

Other Waters-d Impact Table

Number	Location	Type	Feature	USACE Jurisdictional[1]	Impacts to Other Waters						Other Water Mitigation				
					Acres			Linear Feet			Mitigation Proposed			Onsite Mitigation Method	
					Temp.	Perm. (Fill/Drain)	Perm. (Cut)	Temp.	Perm. (Fill/Drain)	Perm. (Cut)	EO 11990	USACE	USFWS	Mitigation Location; ratio	Acre(s)
#OW13-d	Sec. 23, T142N, R85W	Ephemeral Swale	Natural	N	0.000	0.000						N			
#OW17a-d	Sec. 33, T140N, R85W	Ephemeral Swale	Natural	N	0.002	0.002						N			
#OW17c-d	Sec. 33, T140N, R85W	Ephemeral Swale	Natural	N	0.013	0.003						N			
#OW18-d	Sec. 33, T140N, R85W	Ephemeral Swale	Natural	N	0.005	0.001						N			
#OW23b-d	Sec. 29, T140N, R85W	Ephemeral Swale	Natural	N	0.000	0.000						N			
#OW33-d	Sec. 8, T140N, R85W	Ephemeral Swale	Natural	N	0.014	0.006						N			
#OW36-d	Sec. 4, T140N, R85W	Ephemeral Swale	Natural	N	0.006	0.006						N			
#OW39a-d	Sec. 35, T141N, R85W	Ephemeral Swale	Natural	Y	0.009	0.005						N			
#OW39b-d	Sec. 34, T141N, R85W	Ephemeral Swale	Natural	Y	0.009	0.001						N			
#OW45-d	Sec. 15, T141N, R85W	Ephemeral Swale	Natural	Y	0.044	0.003						N			
#OW48a-d	Sec. 2, T141N, R85W	Ephemeral Swale	Natural	Y	0.000	0.000						N			
#OW54a-d	Sec. 27, T142N, R85W	Ephemeral Swale	Natural	N	0.002	0.001						N			
#OW54b-d	Sec. 26, T142N, R85W	Ephemeral Swale	Natural	N	0.007	0.008						N			
#OW55-d	Sec. 27, T142N, R85W	Ephemeral Swale	Natural	N	0.013	0.000						N			
#OW56a-d	Sec. 22, T142N, R85W	Ephemeral Swale	Natural	N	0.002	0.000						N			
#OW56b-d	Sec. 23, T142N, R85W	Ephemeral Swale	Natural	Y	0.011	0.005						N			
#OW57a-d	Sec. 22, T142N, R85W	Ephemeral Swale	Natural	Y	0.003	0.001						N			
#OW57b-d	Sec. 23, T142N, R85W	Ephemeral Swale	Natural	Y	0.008	0.004						N			
#OW60-d	Sec. 22, T142N, R85W	Ephemeral Swale	Natural	N	0.001	0.001						N			
				Totals	**0.149**	**0.047**									**0.000**

1. A wetland Jurisdictional Determination was issued by the USACE on 02/01/2023; NWO-2022-01743-BIS.
2. OW53a and OW53b mapped based on aerials

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Wetlands Mitigation and Environmental

Impact Summary Table

Permanent Impact Summary		Temporary Impacts and additional information	
Wetland Type	**Total Acre(s)**	**WaterType**	**Total Acre(s)**
Natural/JD (Fill/Drain)	0.571	**Temporary Wetland JD**	4.019
Natural/Non-JD (Fill/Drain)	0.028	**Non-JD Wetland Temporary**	1.656
Artificial/JD (Fill/Drain)	0.561		
Artificial /Non-JD (Fill/Drain))	0.549	**Permanent OW**	0.048
Total	**1.710**	**Temporary OW**	0.106
JD Natural (Cut)		**Permanent OW-d**	0.047
JD Artificial (Cut)		**Temporary OW-d**	0.149
Non-JD Natural (Cut)			
Non-JD Artificial (Cut)			
Total	**0.000**		

Mitigation Summary Table

	Location	Ditch Shift Acre(s)	Onsite Acre(s)	11990 Bank Acre(s)	USACE/11990 Bank Acre(s)	USFWS Bank Acre(s)
USACE Only	Bowman County Bank and Ditch Shift	0.428	0.000		0.104	
EO 11990 Only	Anderson Bank	0.000	0.000	0.286		
USACE/11990	Bowman County Bank	0.000	0.000		0.314	
USFWS						
	Total	**0.428**	**0.000**	**0.286**	**0.418**	**0**

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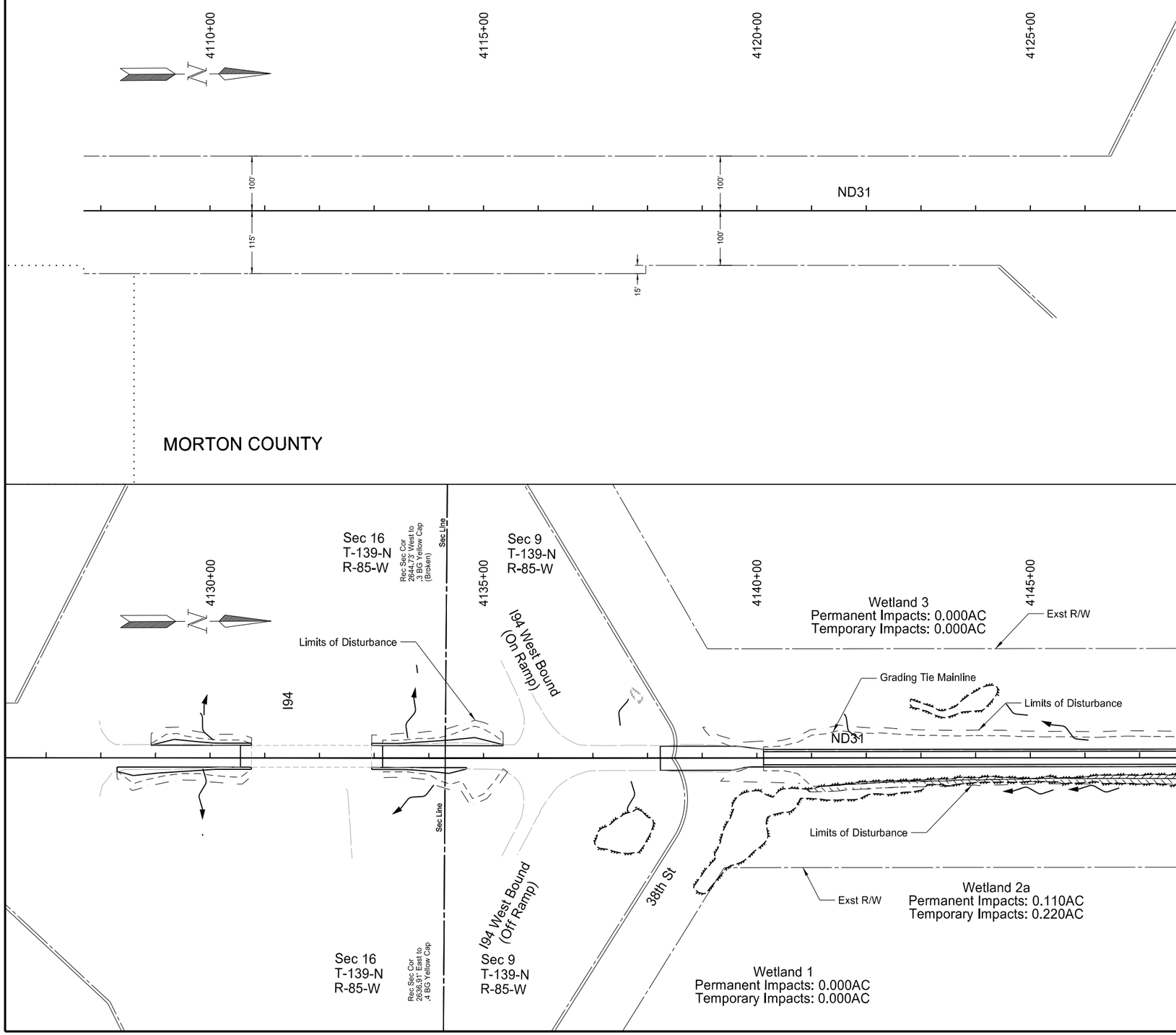
ND	XA-SS-1-031(021)078	75	10



Legend

- Temp Wetland Impact
- Perm Wetland Impact
- Other Water Perm Impact
- Other Water Temp Impact
- Wetland Mitigation
- Avoidance Area
- Exst Delineated Wetland

ND 31

Jct I-94 to Hannover
Morton County

Wetland Impacts & Mitigation

Sta 4128+29 to Sta 4148+00

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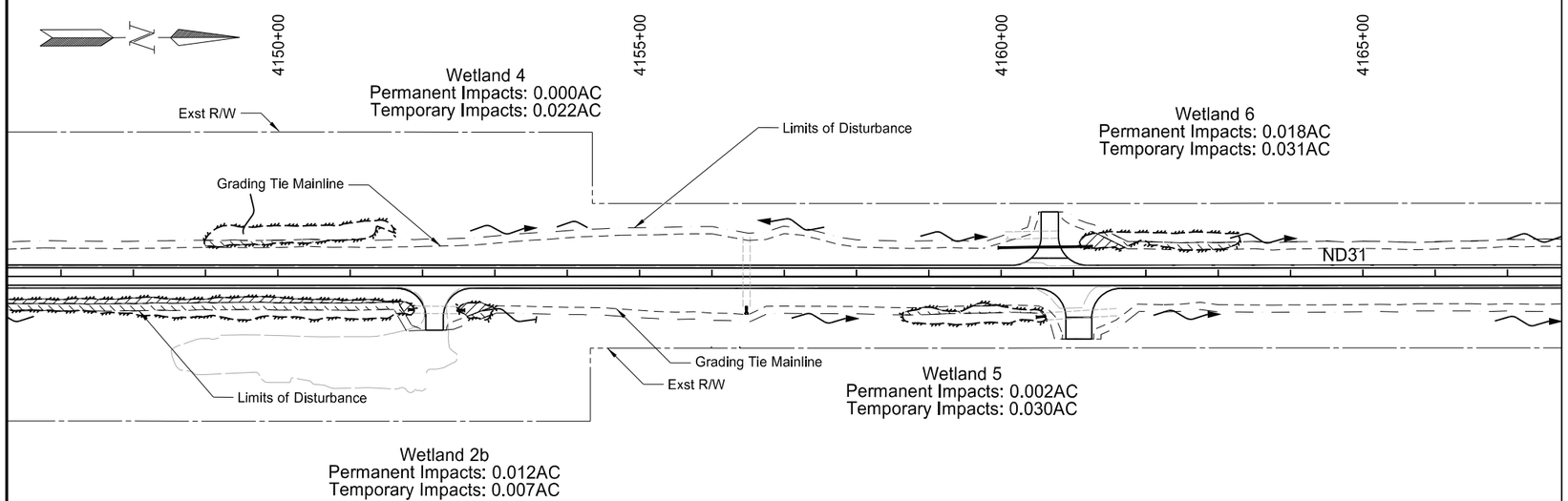
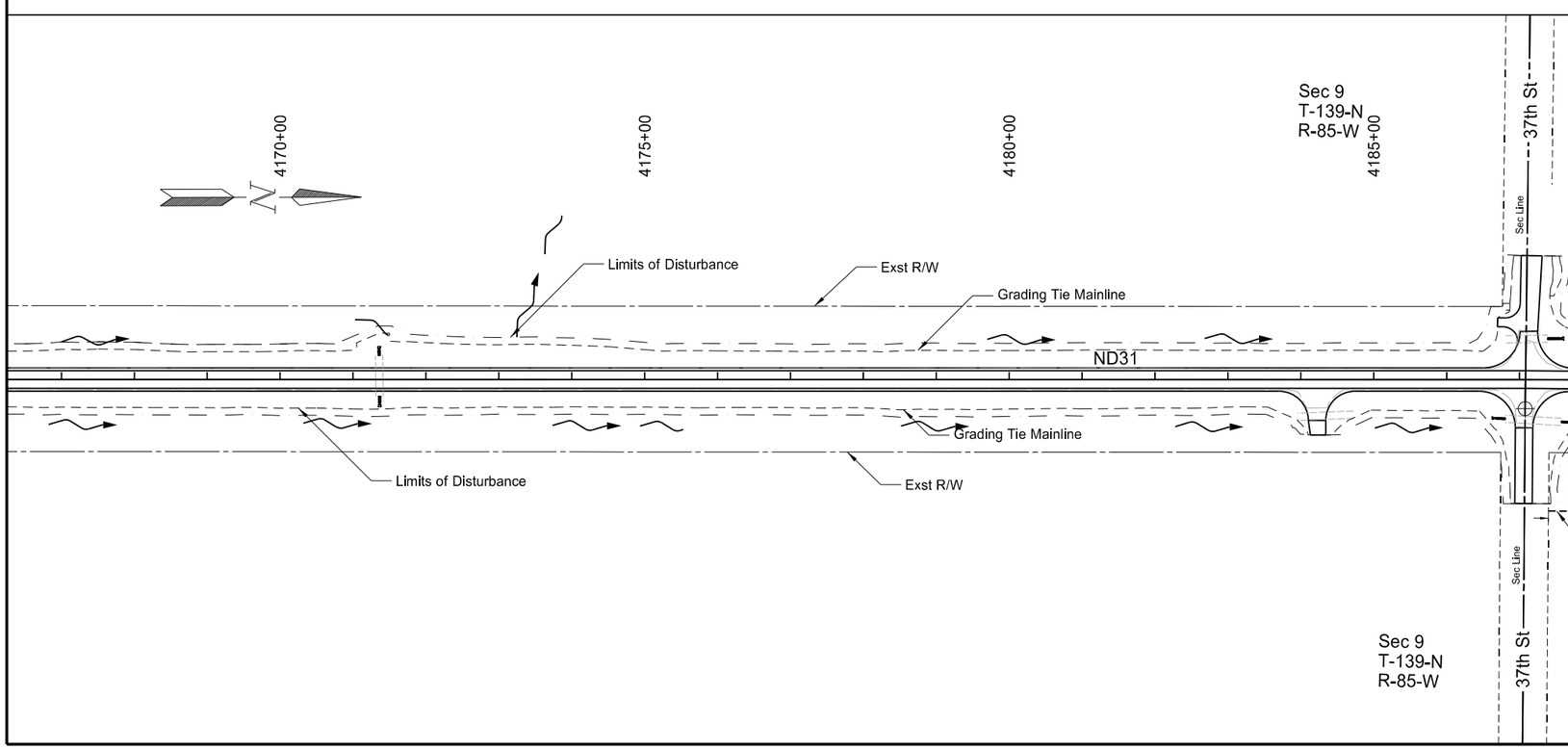
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	75	11





Legend

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ND 31

Jct I-94 to Hannover
Morton County

Wetland Impacts & Mitigation

Sta 4148+00 to Sta 4188+00

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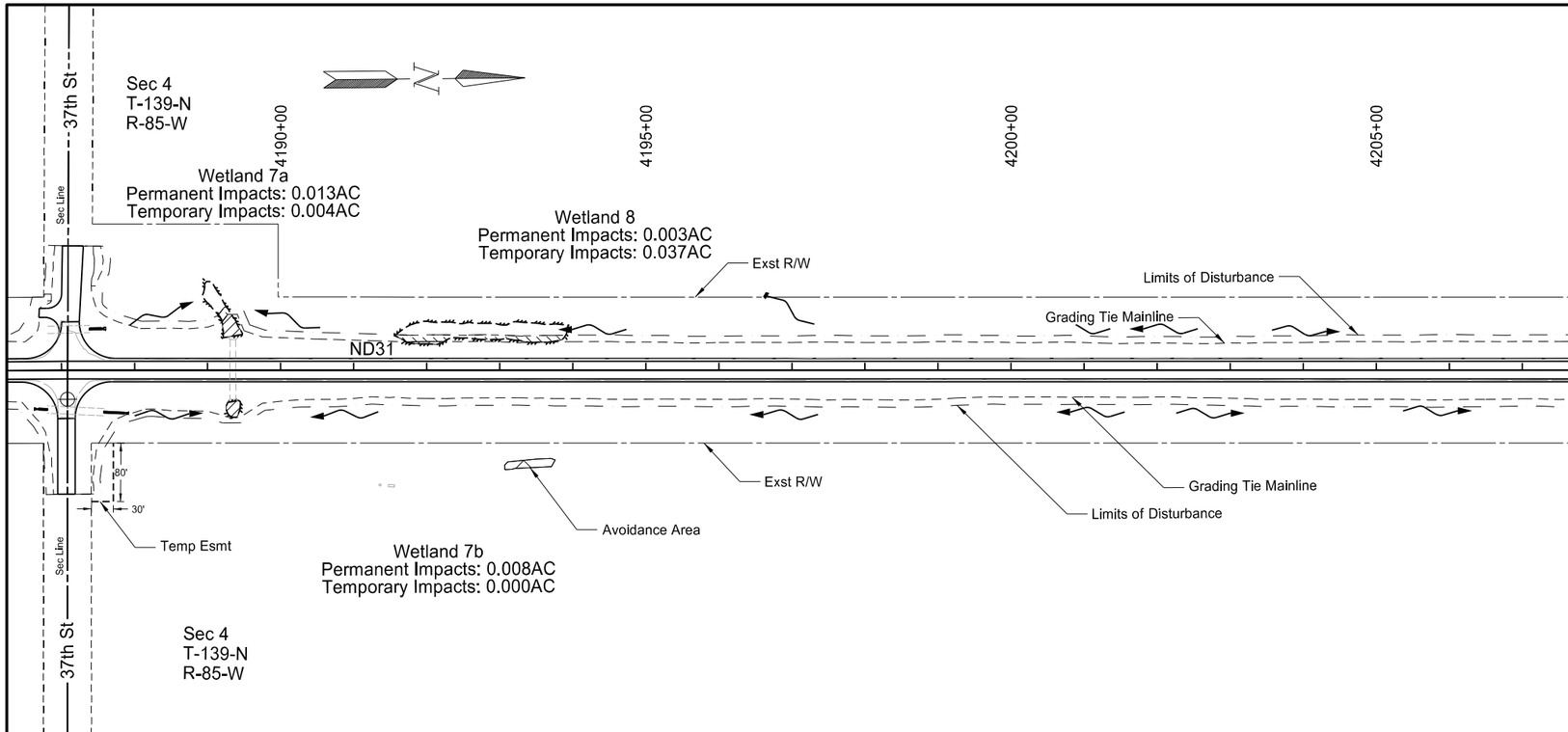
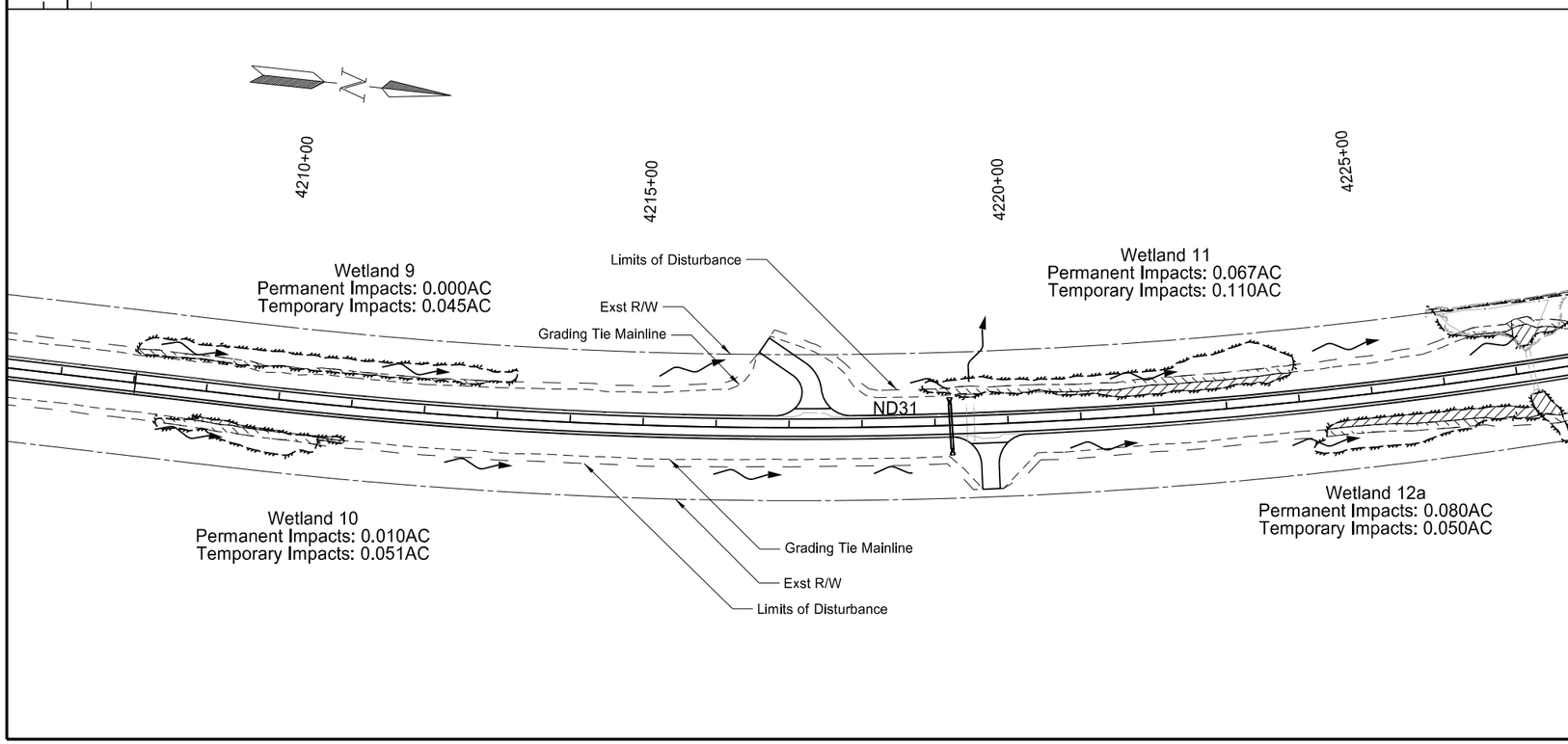
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	75	12





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Jct I-94 to Hannover
Morton County

Wetland Impacts & Mitigation

Sta 4188+00 to Sta 4228+00

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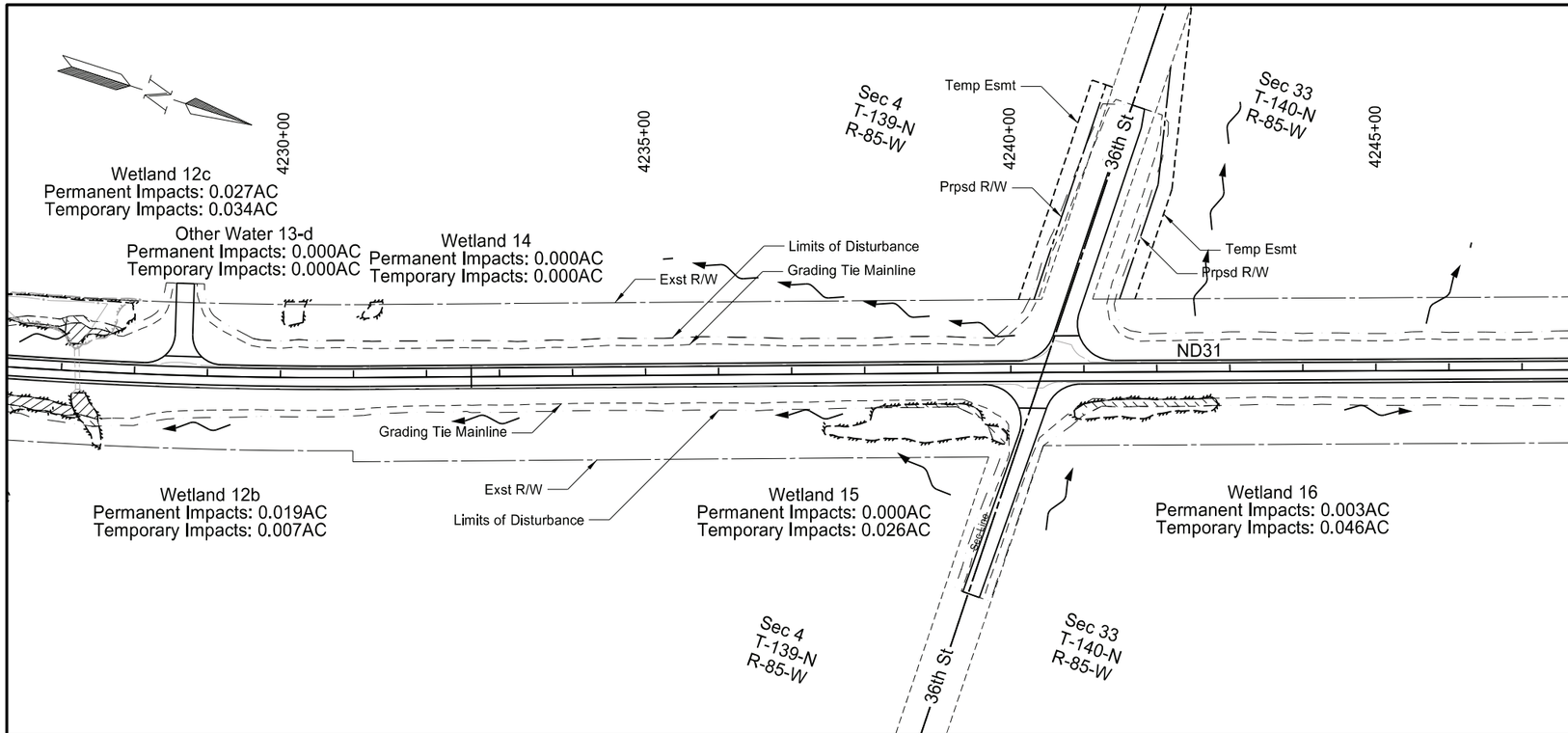
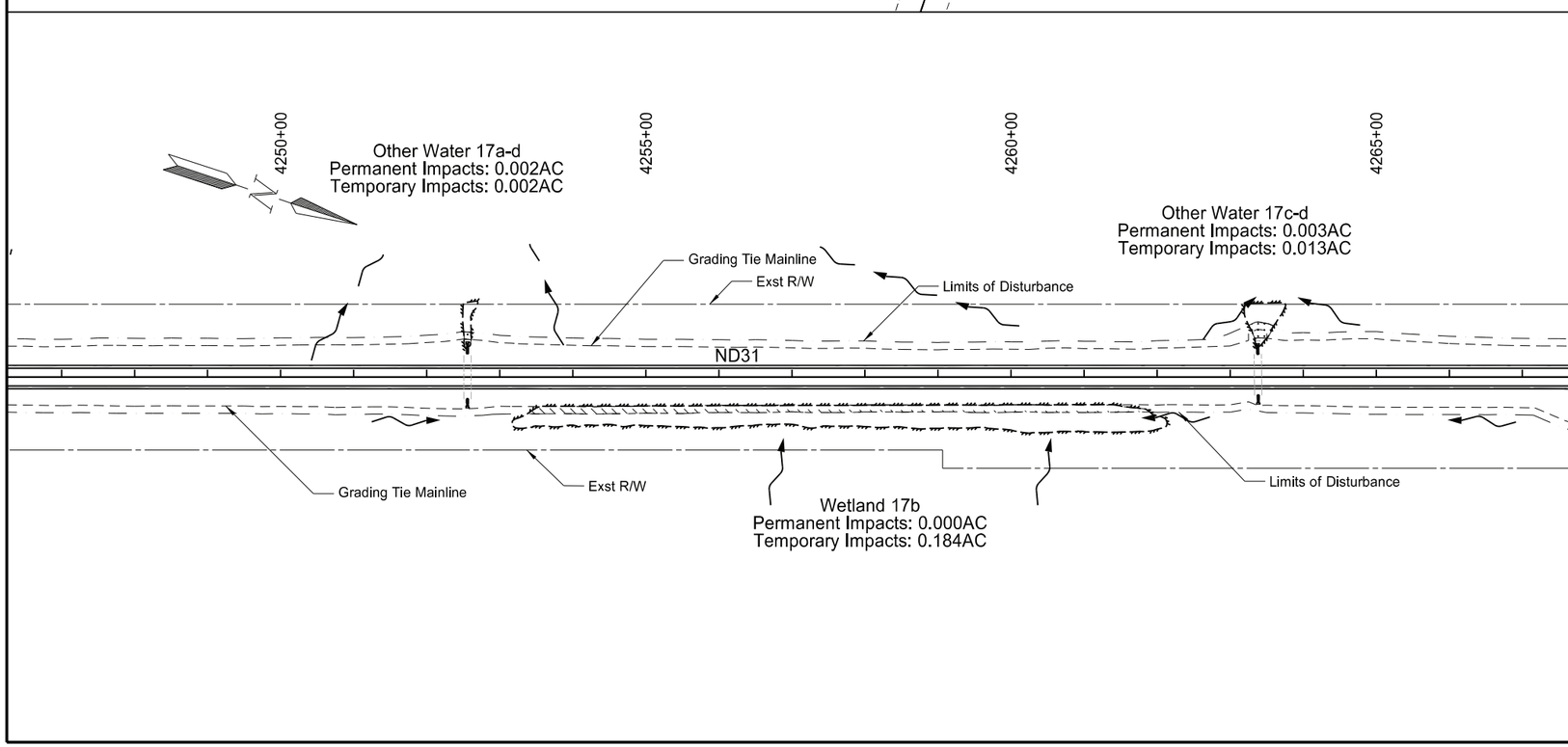
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	75	13





Legend

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Jct I-94 to Hannover
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Wetland Impacts & Mitigation

Sta 4228+00 to Sta 4268+00

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DATE: 7/29/26
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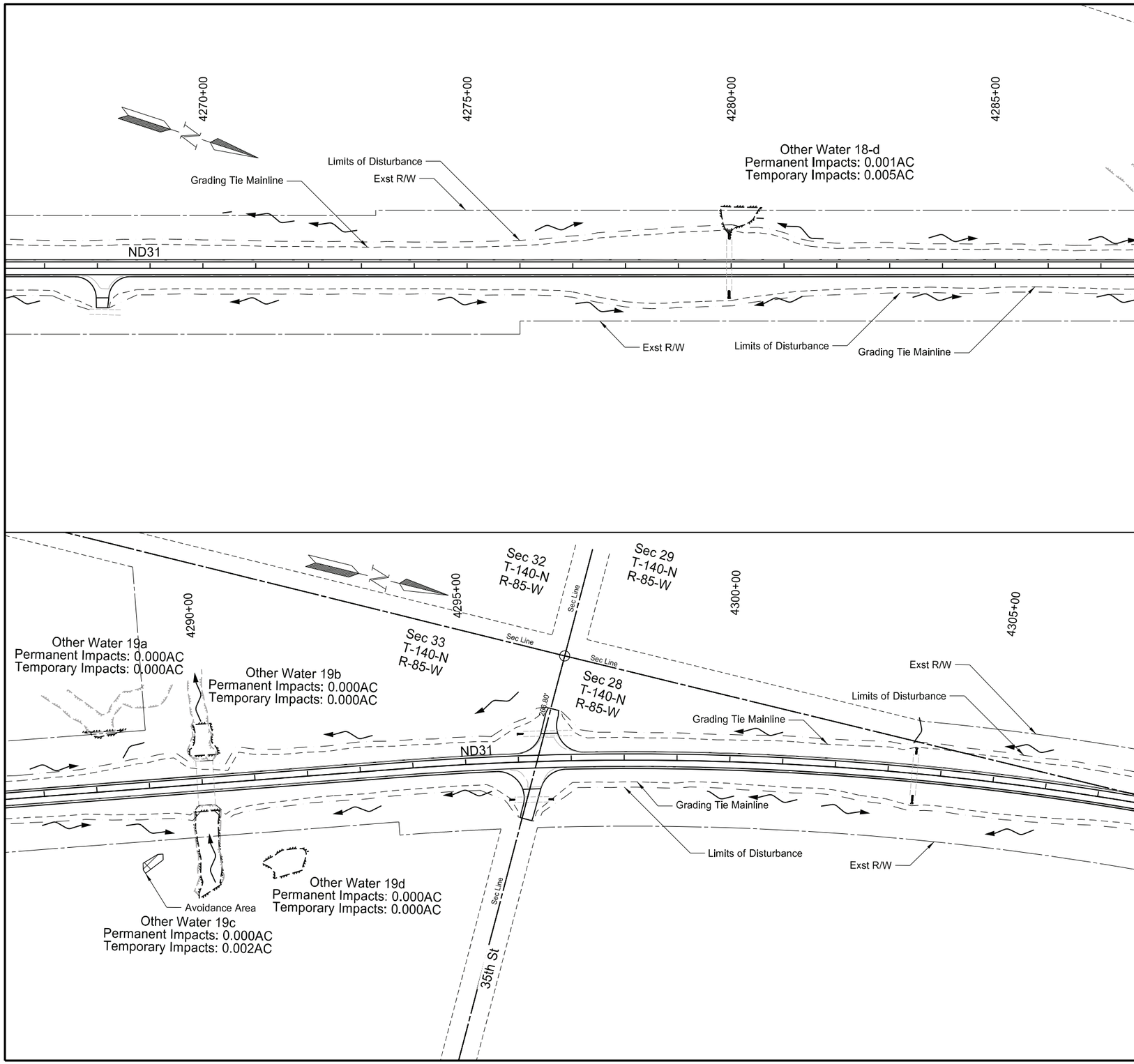
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	75	14



Legend

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Jct I-94 to Hannover
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Wetland Impacts & Mitigation

Sta 4268+00 to Sta 4308+00

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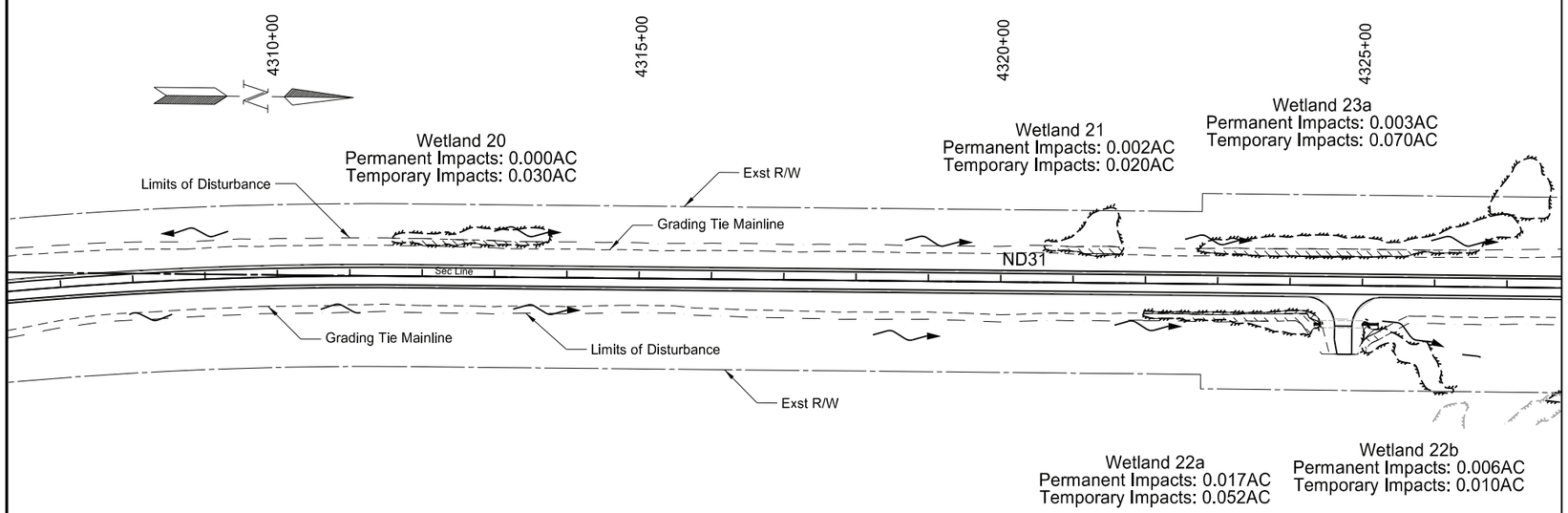
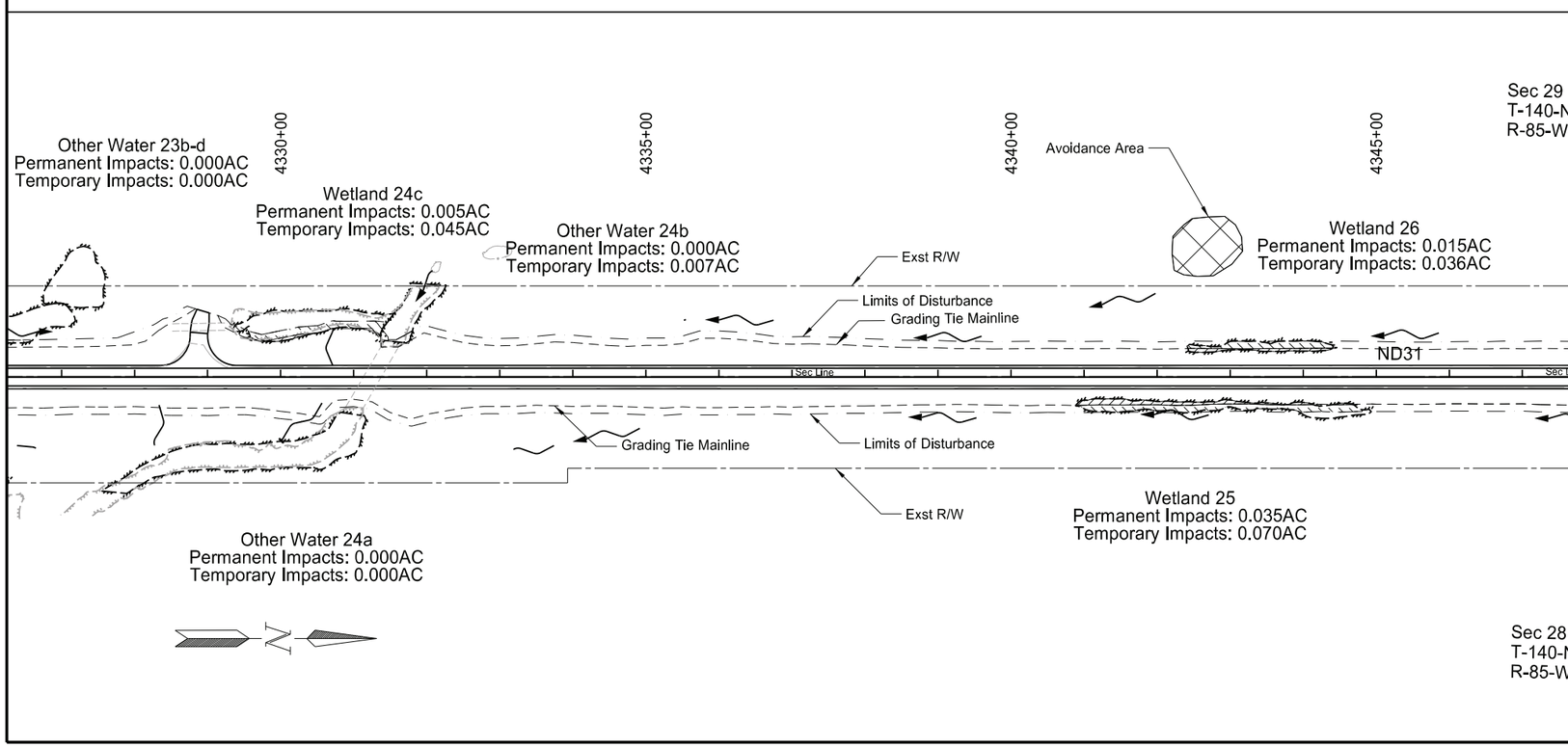
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	75	15





Legend

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Jct I-94 to Hannover
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Wetland Impacts & Mitigation

Sta 4308+00 to Sta 4348+00

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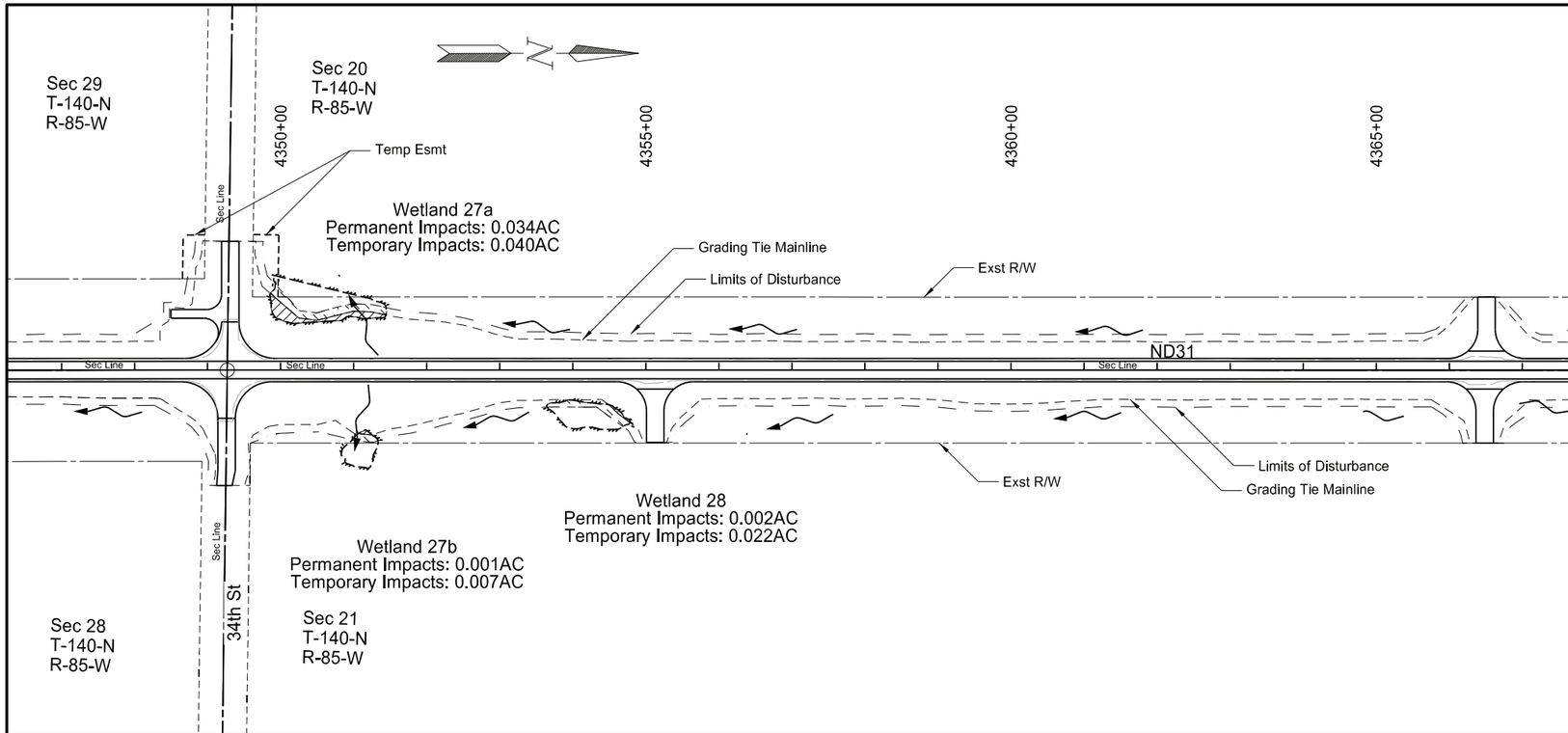
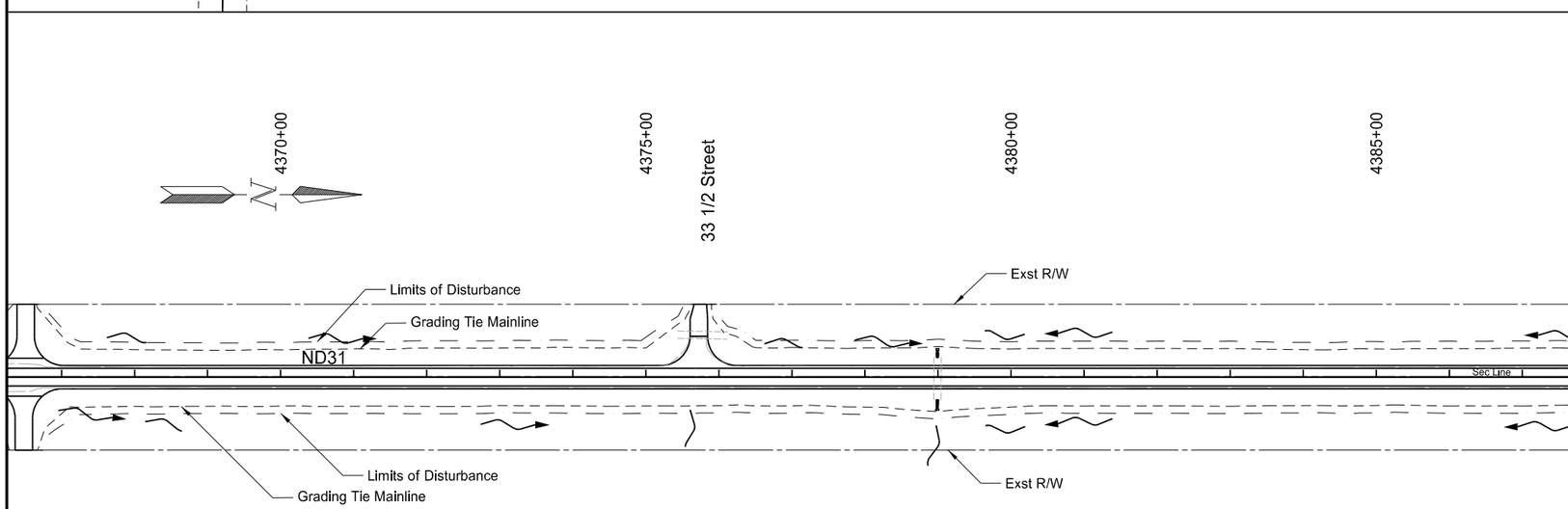
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	75	16





Legend

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ND 31

Jct I-94 to Hannover
Morton County

Wetland Impacts & Mitigation

Sta 4348+00 to Sta 4388+00

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DATE: 7/29/26
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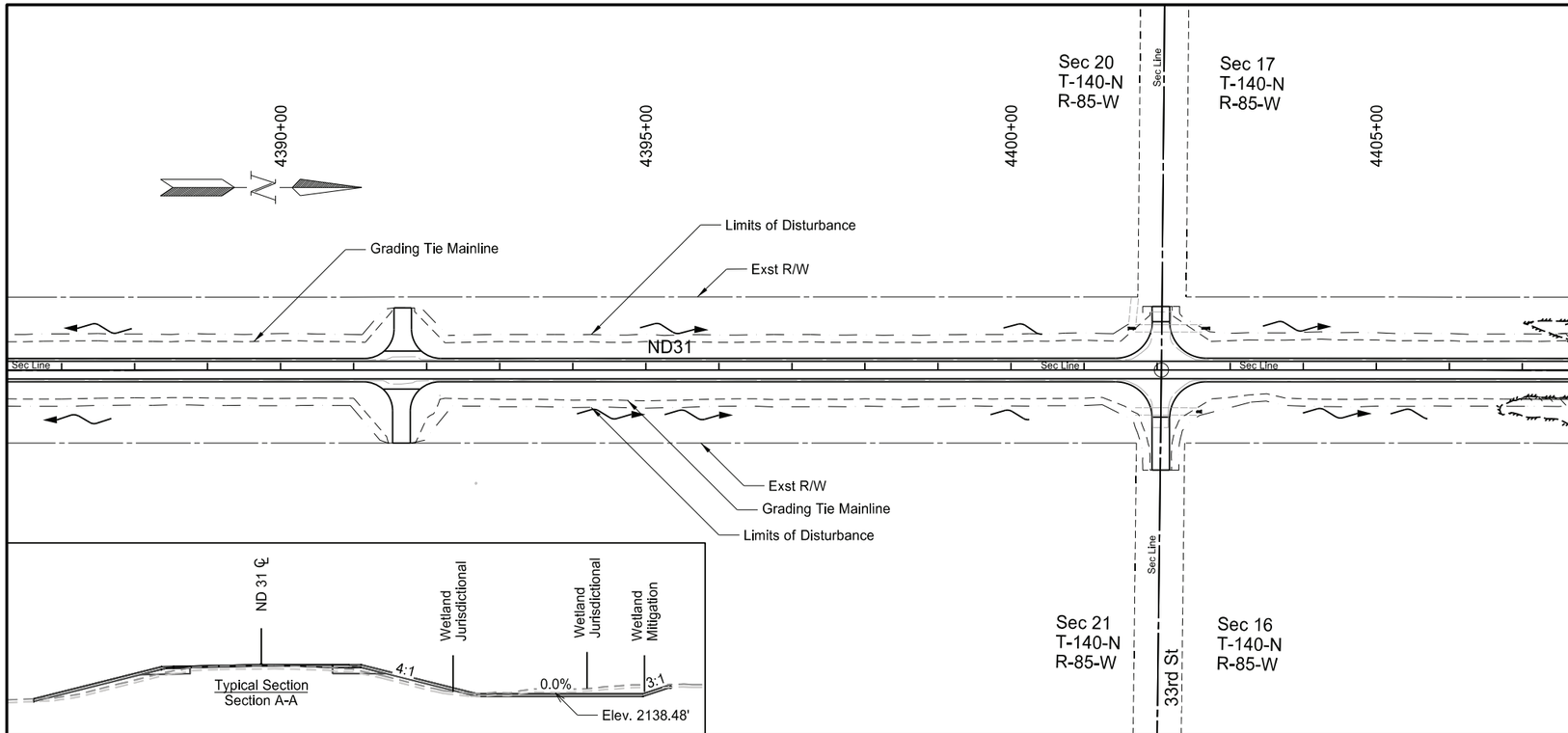
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	75	17



POINT	NORTHING	EASTING
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M13	464867.774	1736740.202
M14	465006.799	1736750.284
M15	464690.435	1736586.497
M16	464792.951	1736592.794
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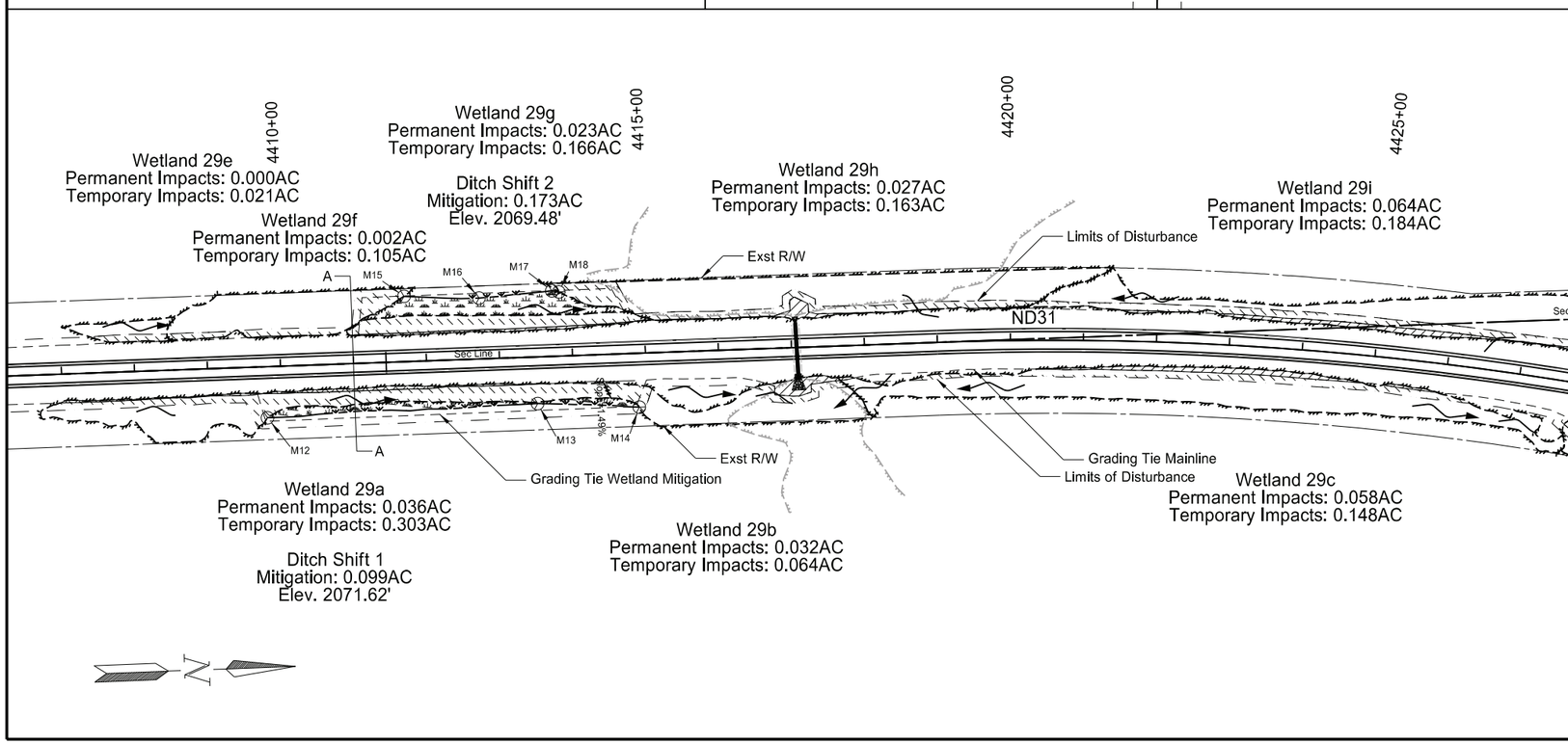
M18	464902.525	1736588.477



Legend

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Jct I-94 to Hannover
Morton County

Wetland Impacts & Mitigation

Sta 4388+00 to Sta 4428+00

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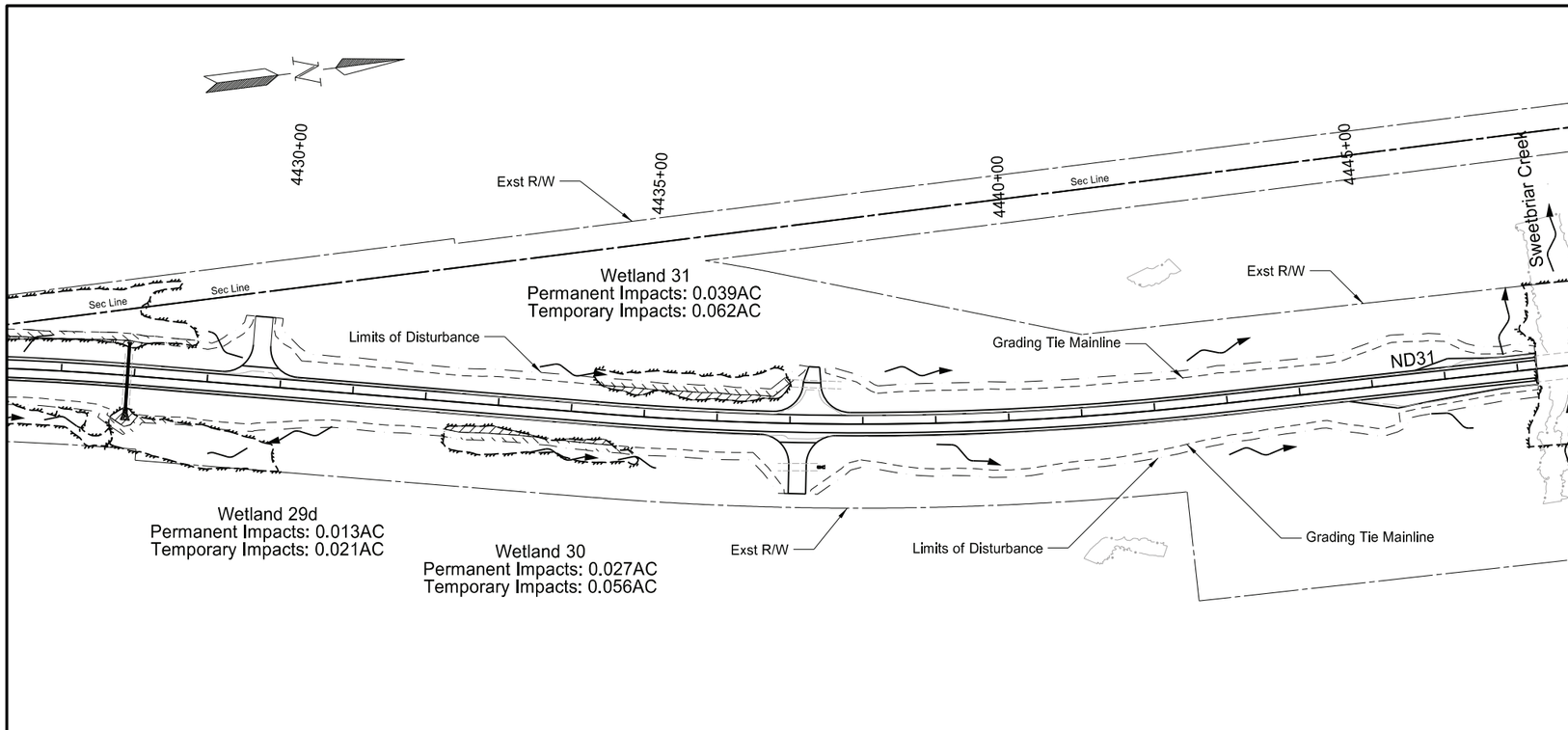
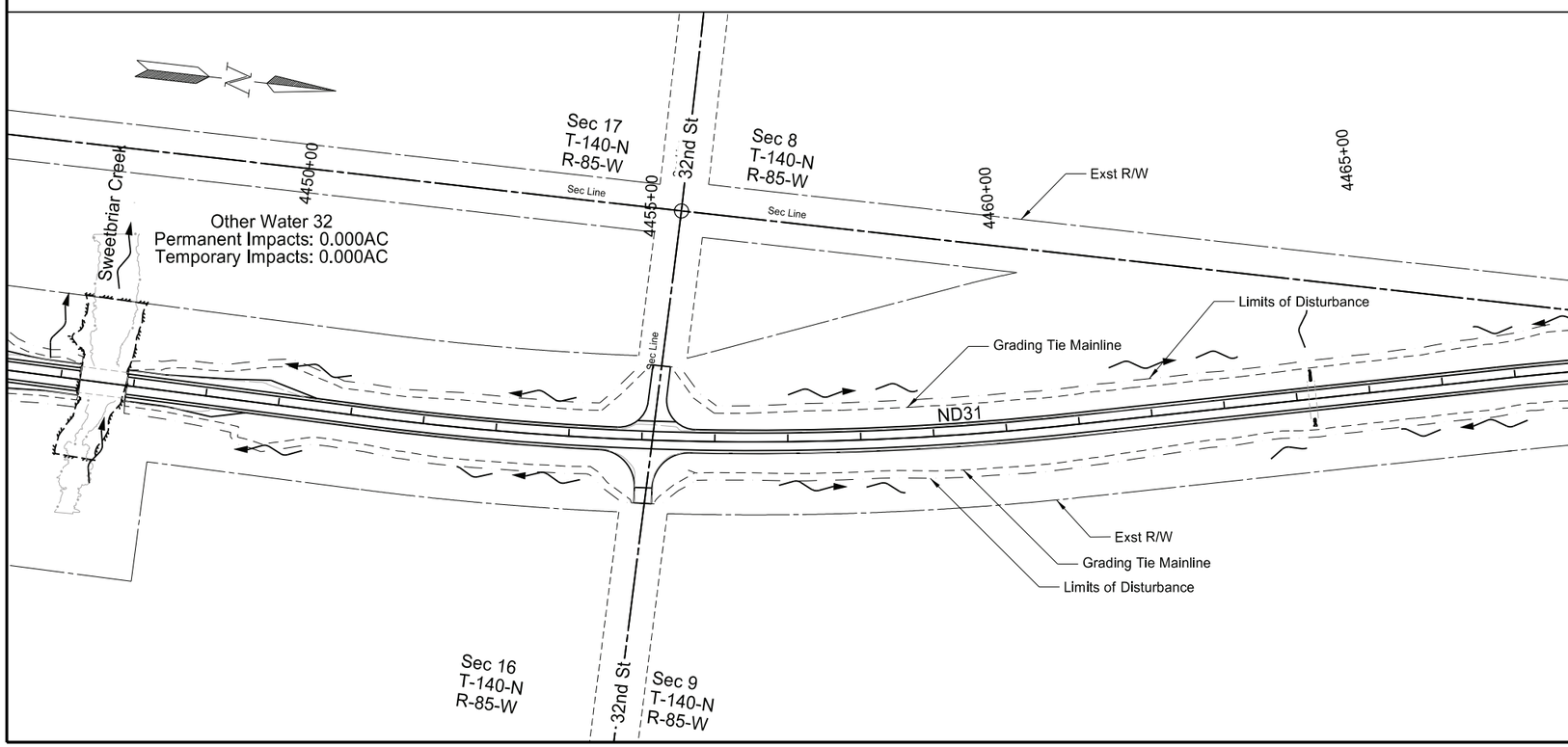
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	75	18





Legend

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Jct I-94 to Hannover
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Wetland Impacts & Mitigation

Sta 4428+00 to Sta 4468+00

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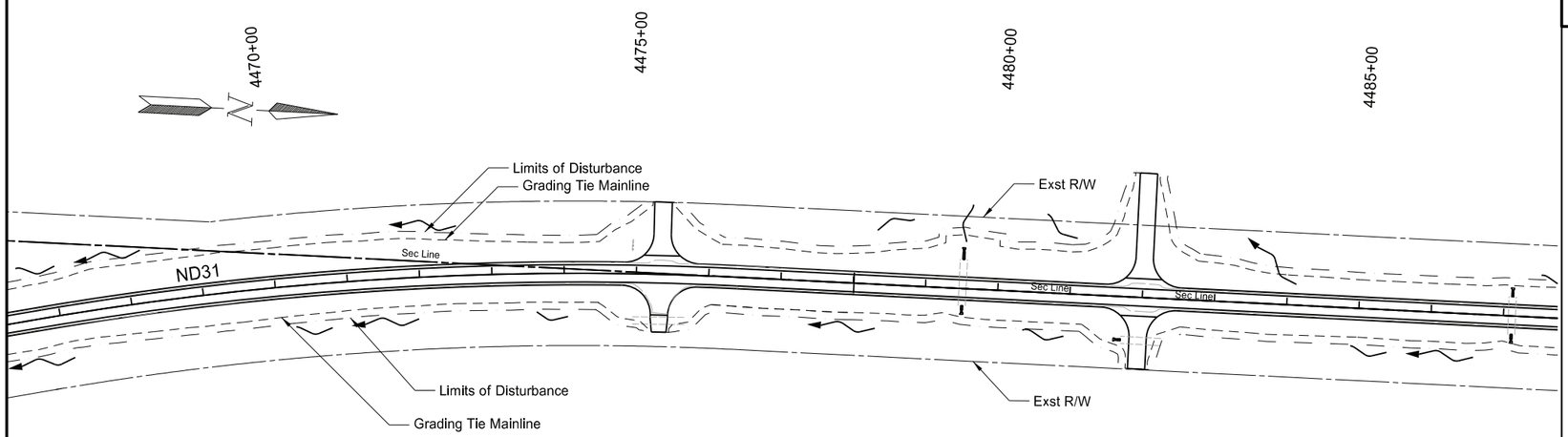
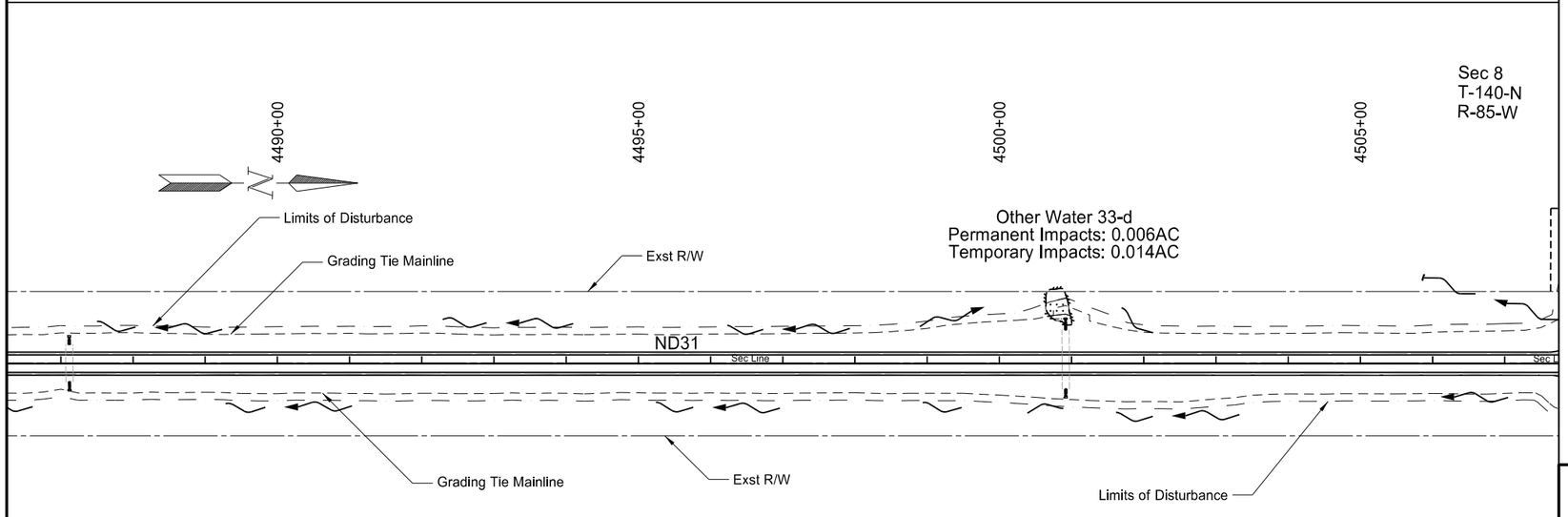
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	75	19





Legend

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Jct I-94 to Hannover
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Wetland Impacts & Mitigation

Sta 4468+00 to Sta 4508+00

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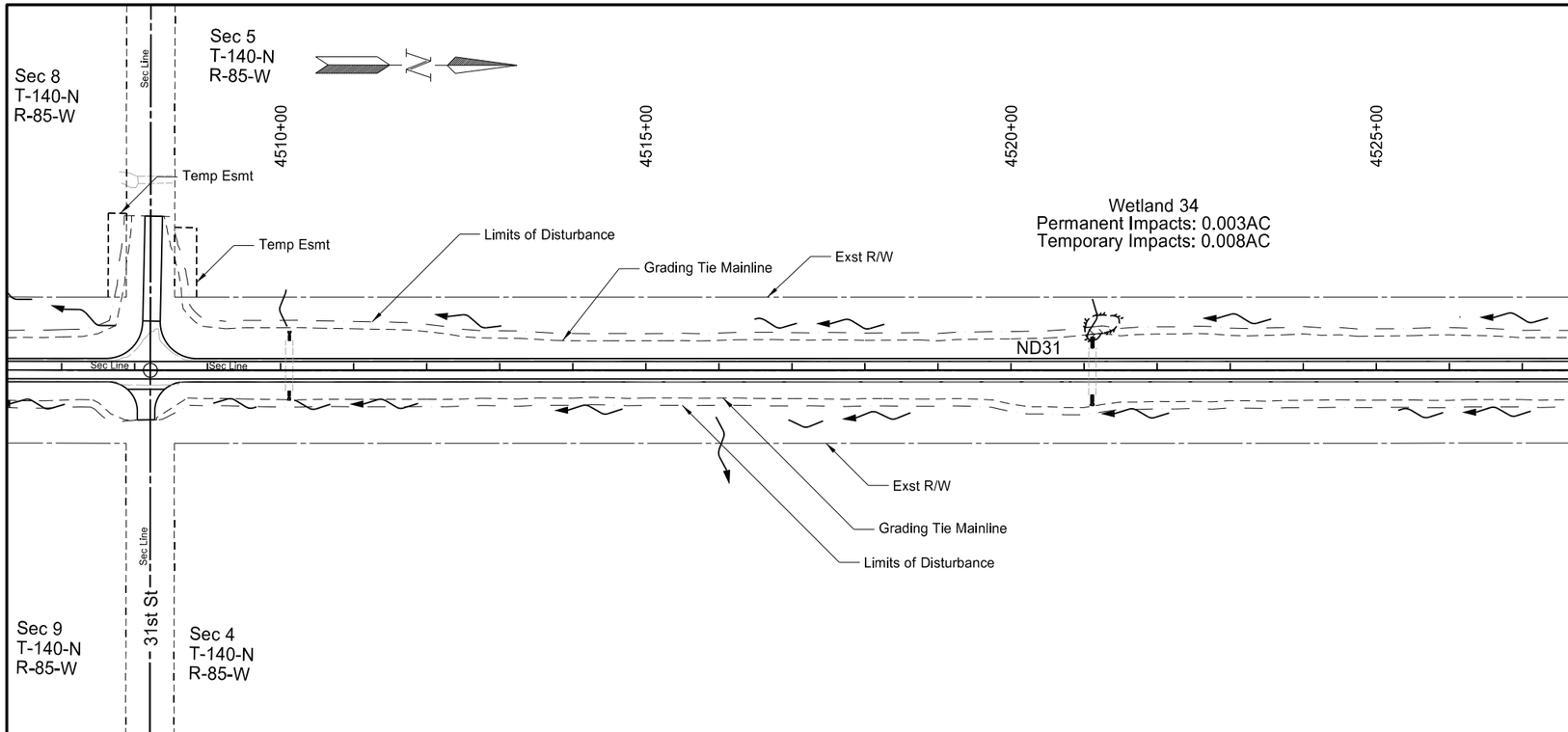
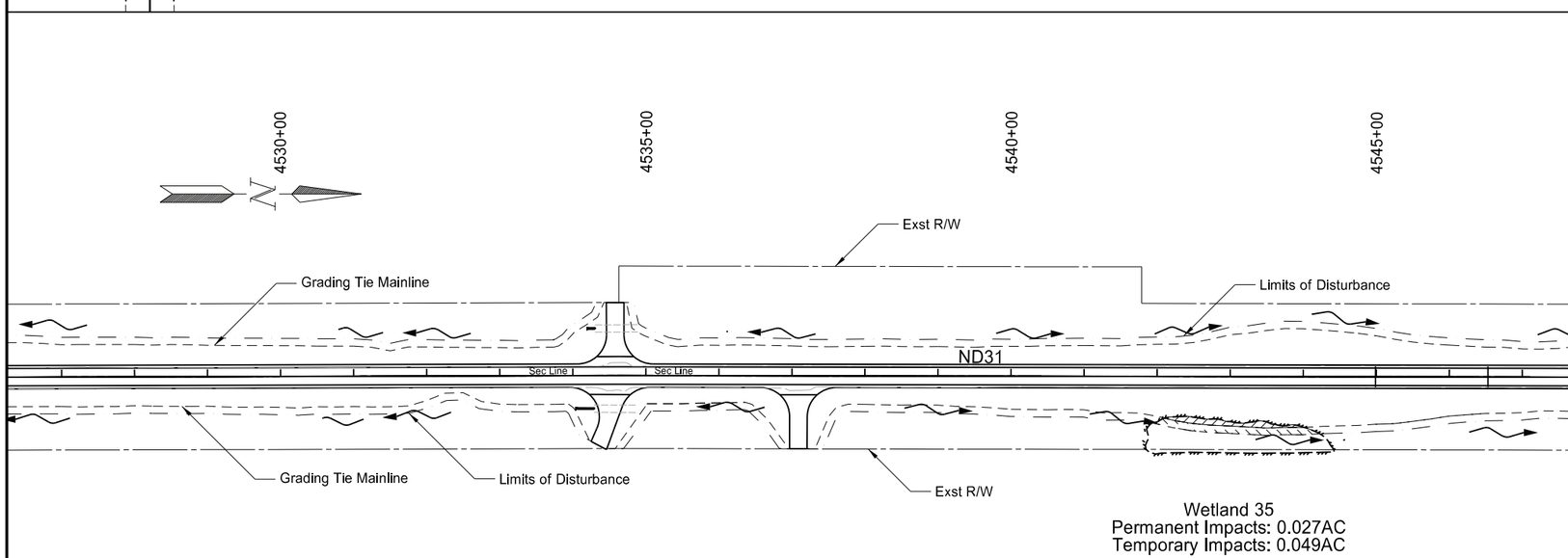
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	75	20





Legend

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Jct I-94 to Hannover
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Wetland Impacts & Mitigation

Sta 4508+00 to Sta 4548+00

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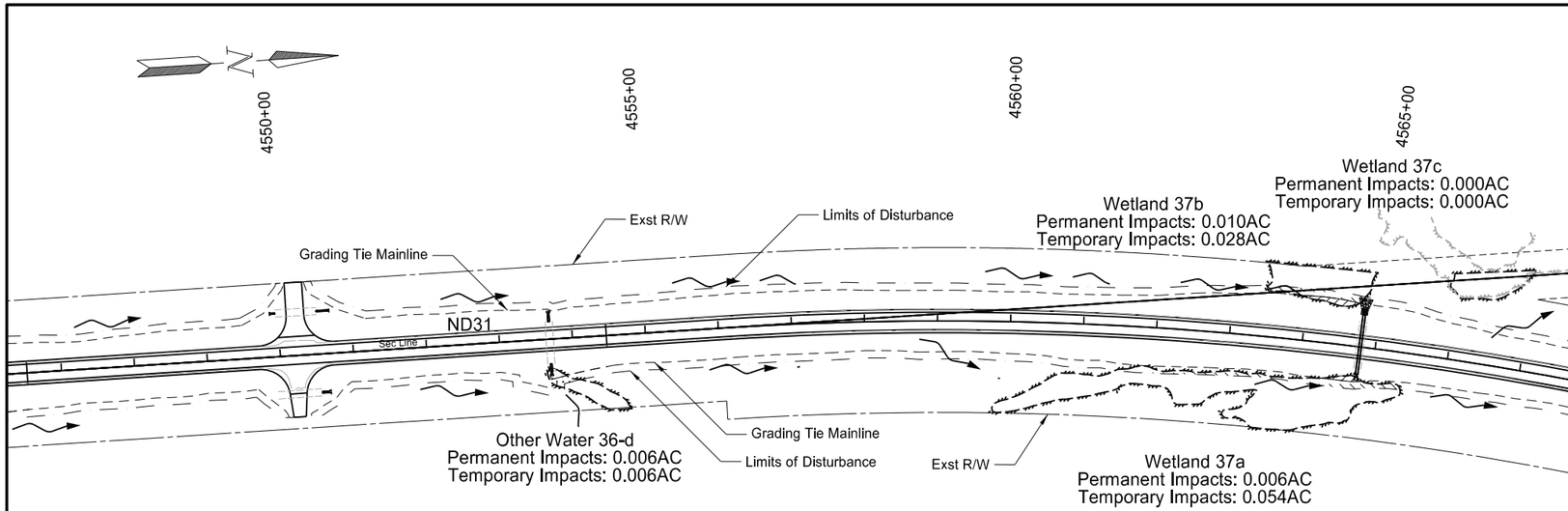
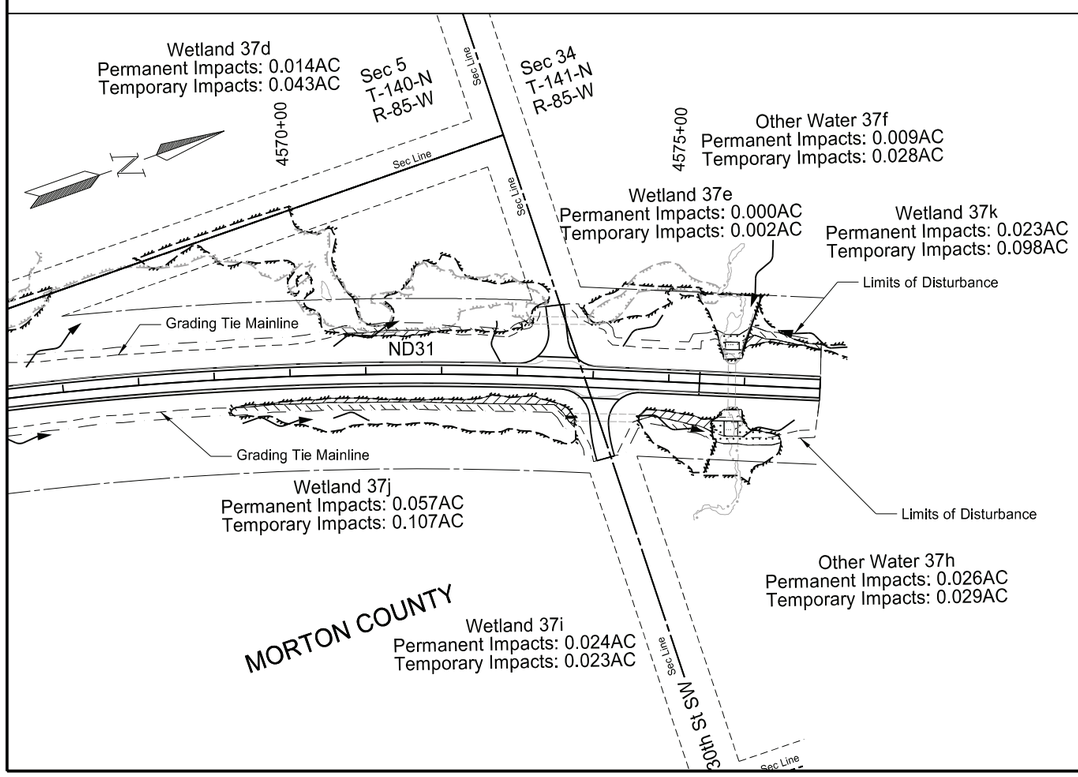
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	75	21





Legend

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Wetland Impacts & Mitigation

Sta 4548+00 to Sta 4577+00

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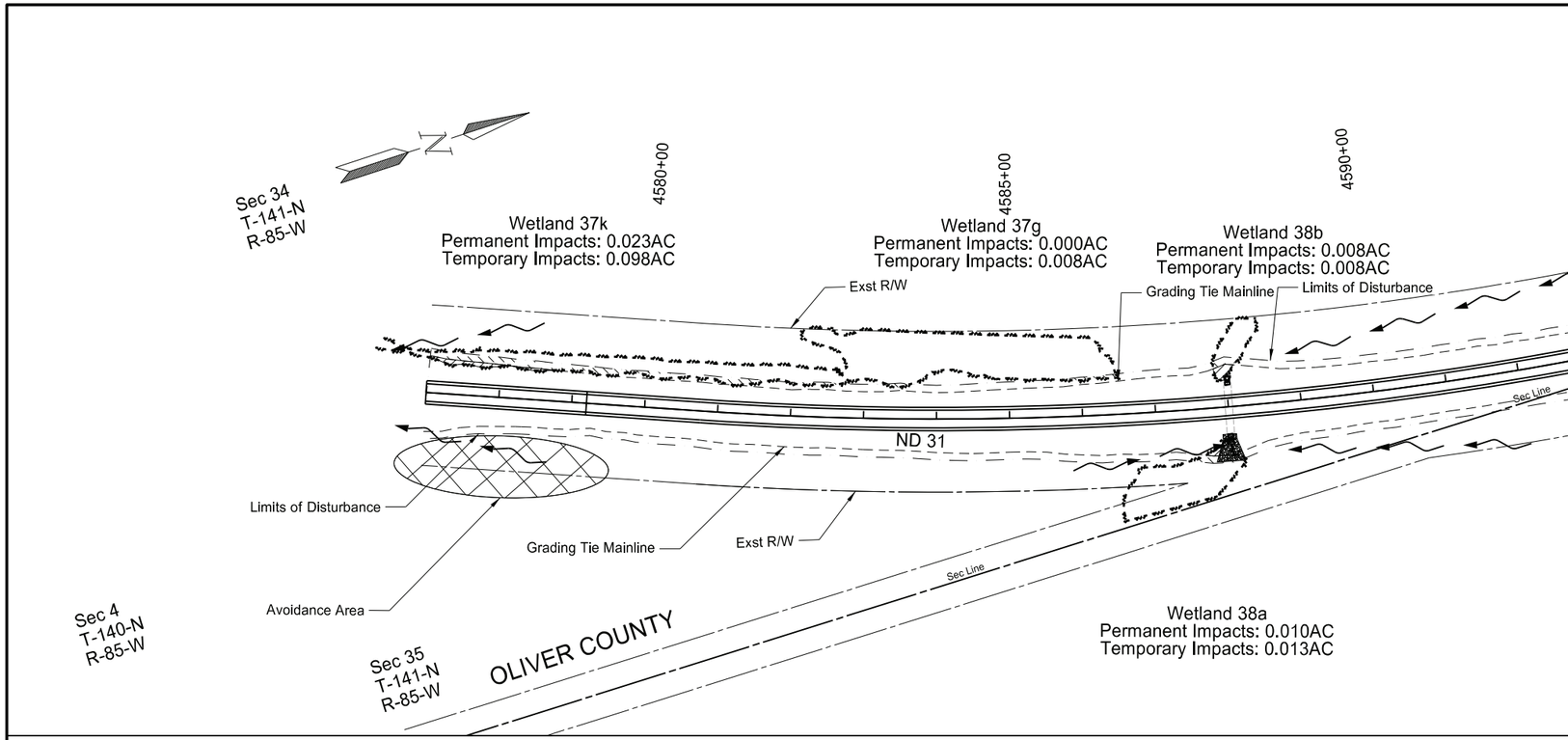
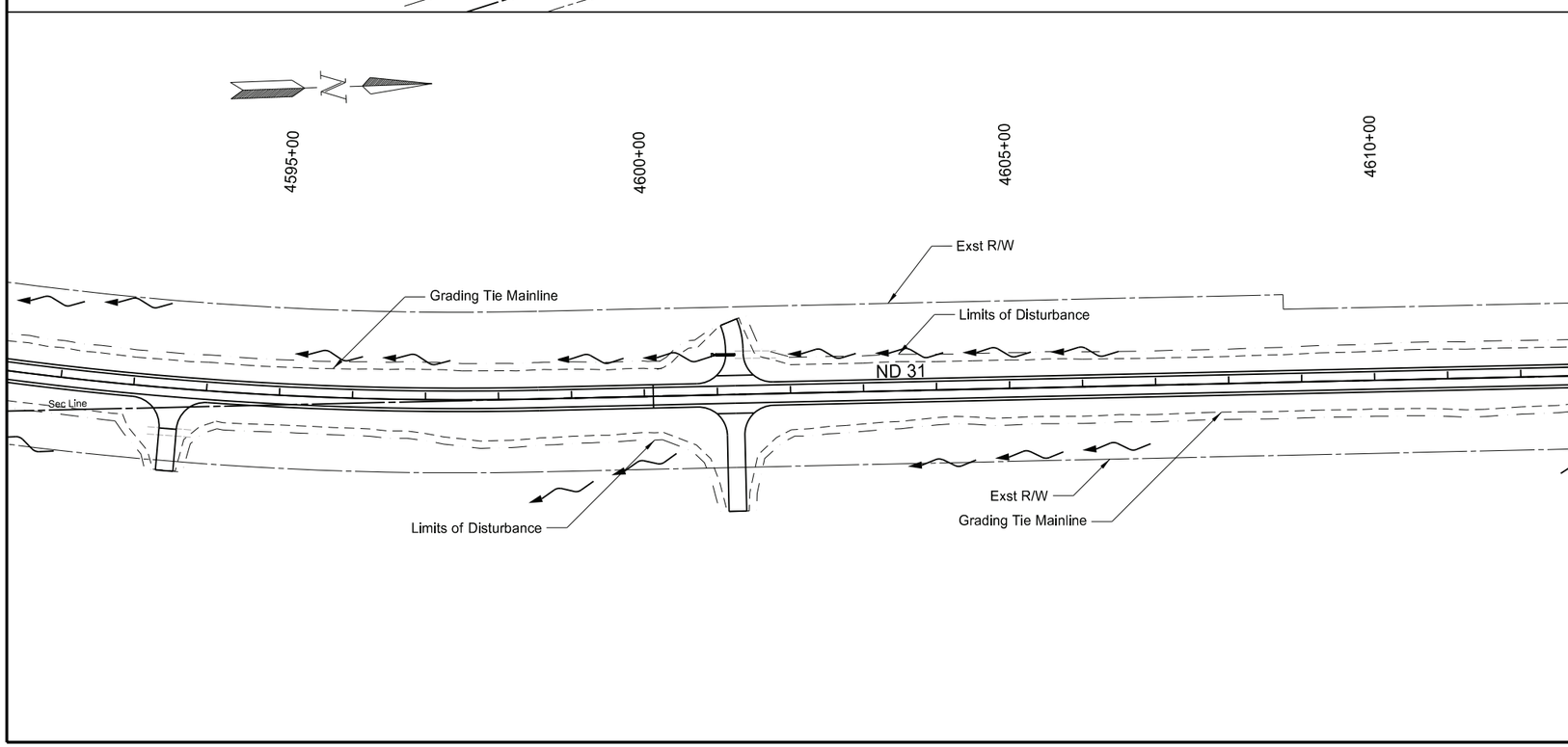
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	75	22





Legend

- Temp Wetland Impact
- Perm Wetland Impact
- Other Water Perm Impact
- Other Water Temp Impact
- Wetland Mitigation
- Avoidance Area
- Exst Delineated Wetland

ND 31

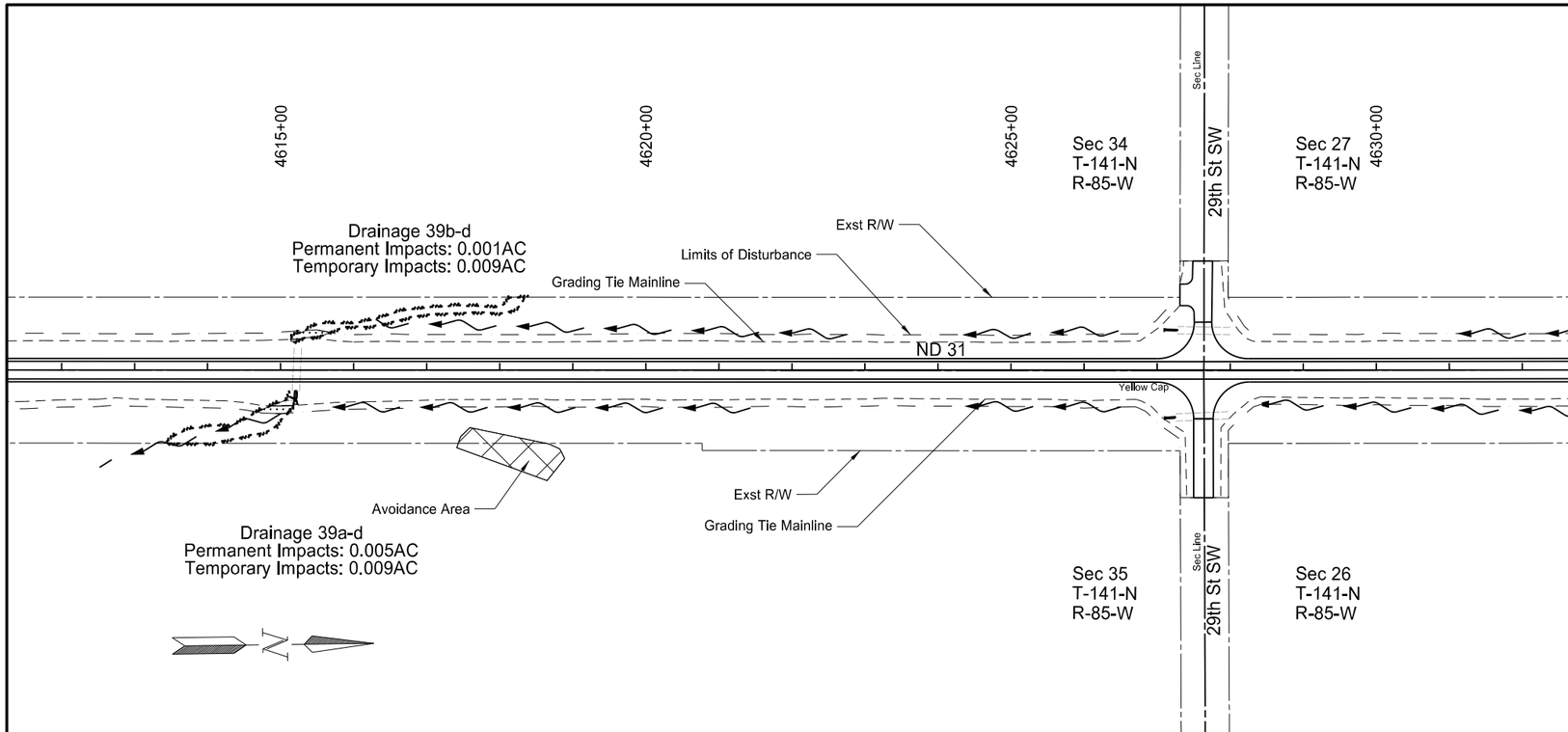
Jct I-94 to Hannover
Oliver County

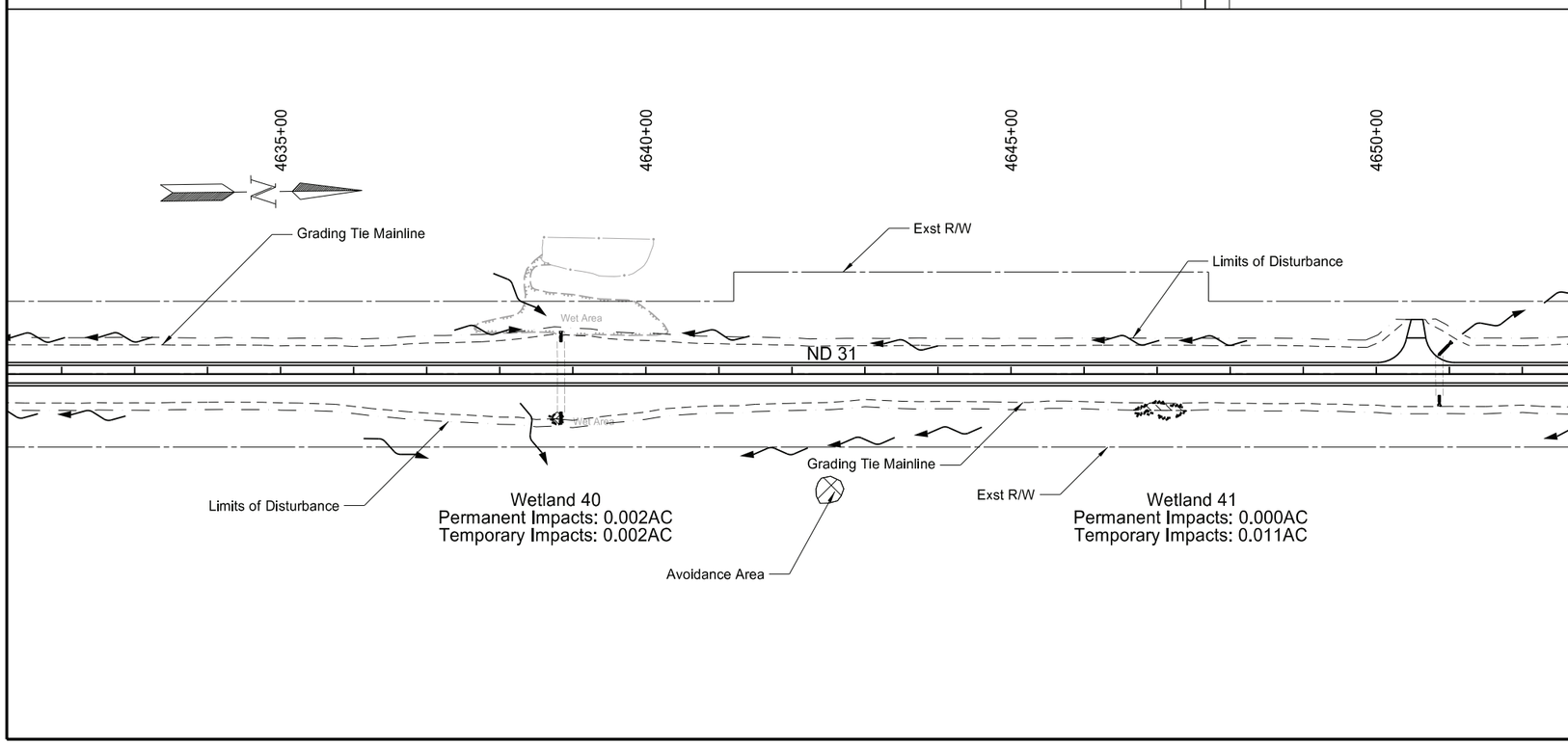
Wetland Impacts & Mitigation

Sta 4577+00 to Sta 4615+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	75	23





Legend

- Temp Wetland Impact
- Perm Wetland Impact
- Other Water Perm Impact
- Other Water Temp Impact
- Wetland Mitigation
- Avoidance Area
- Exst Delineated Wetland

ND 31

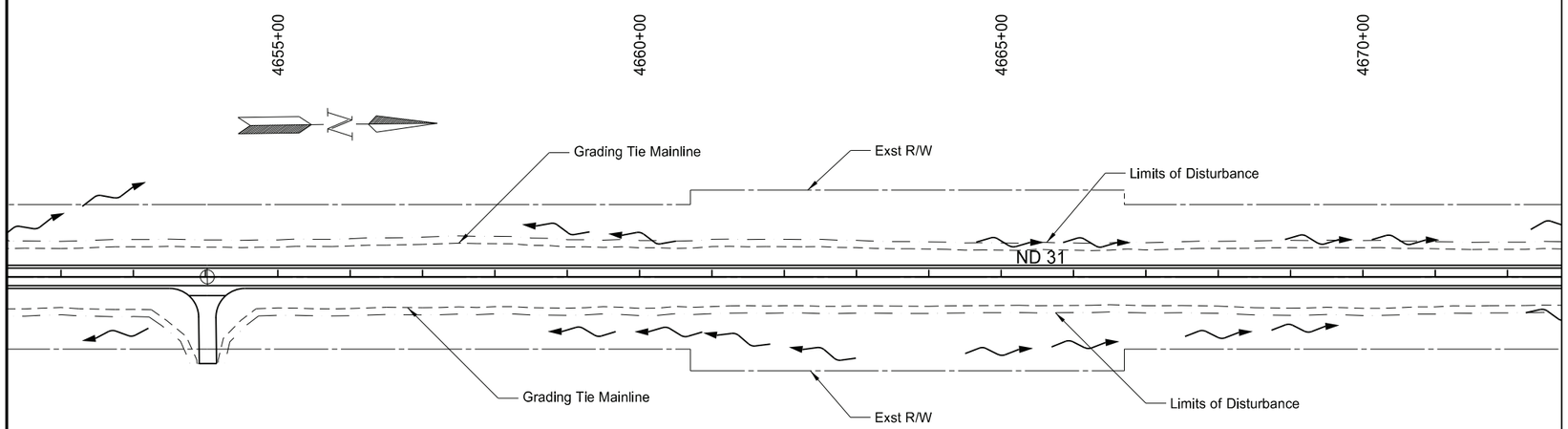
Jct I-94 to Hannover
Oliver County

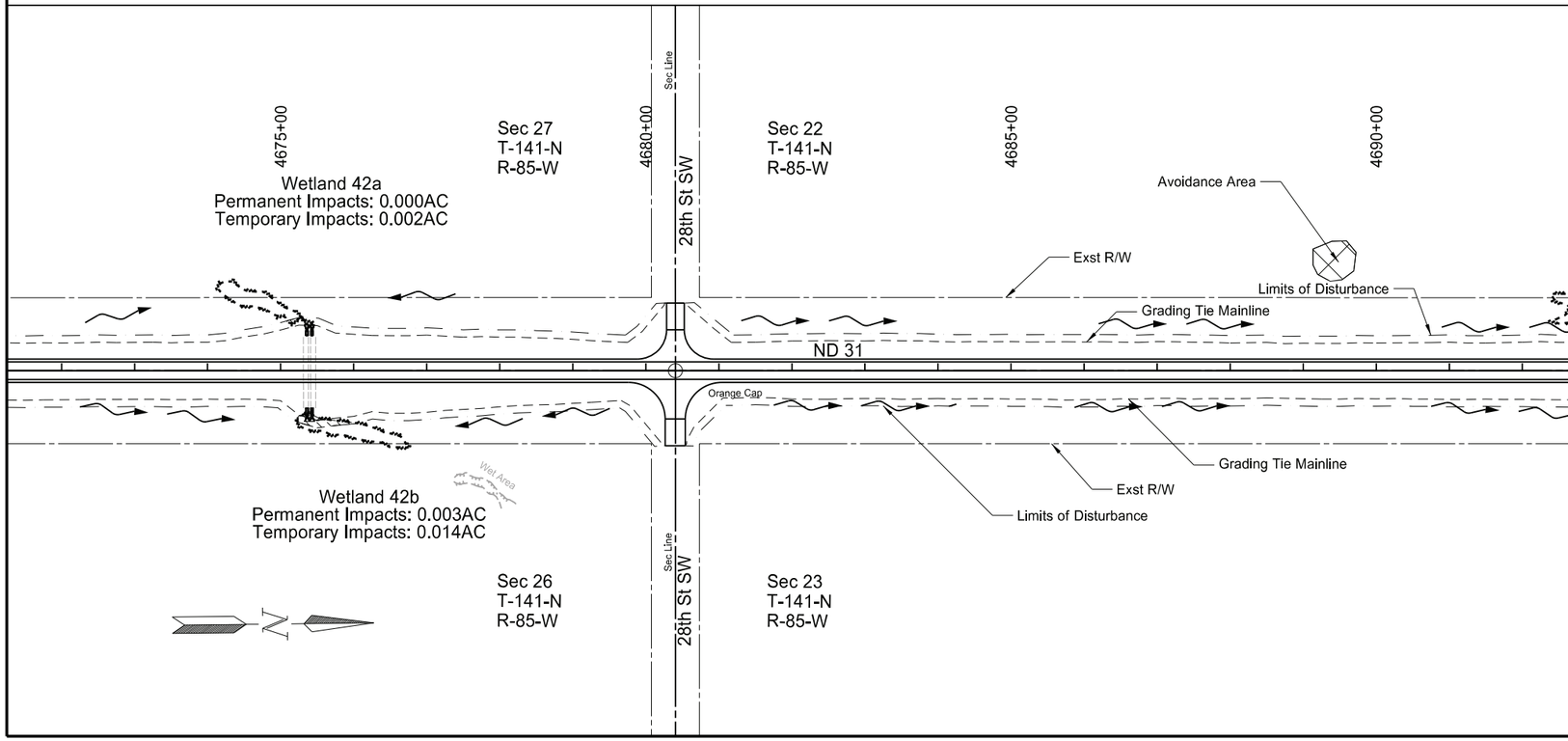
Wetland Impacts & Mitigation

Sta 4615+00 to Sta 4655+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	75	24





Legend

- Temp Wetland Impact
- Perm Wetland Impact
- Other Water Perm Impact
- Other Water Temp Impact
- Wetland Mitigation
- Avoidance Area
- Exst Delineated Wetland

ND 31

Jct I-94 to Hannover
Oliver County

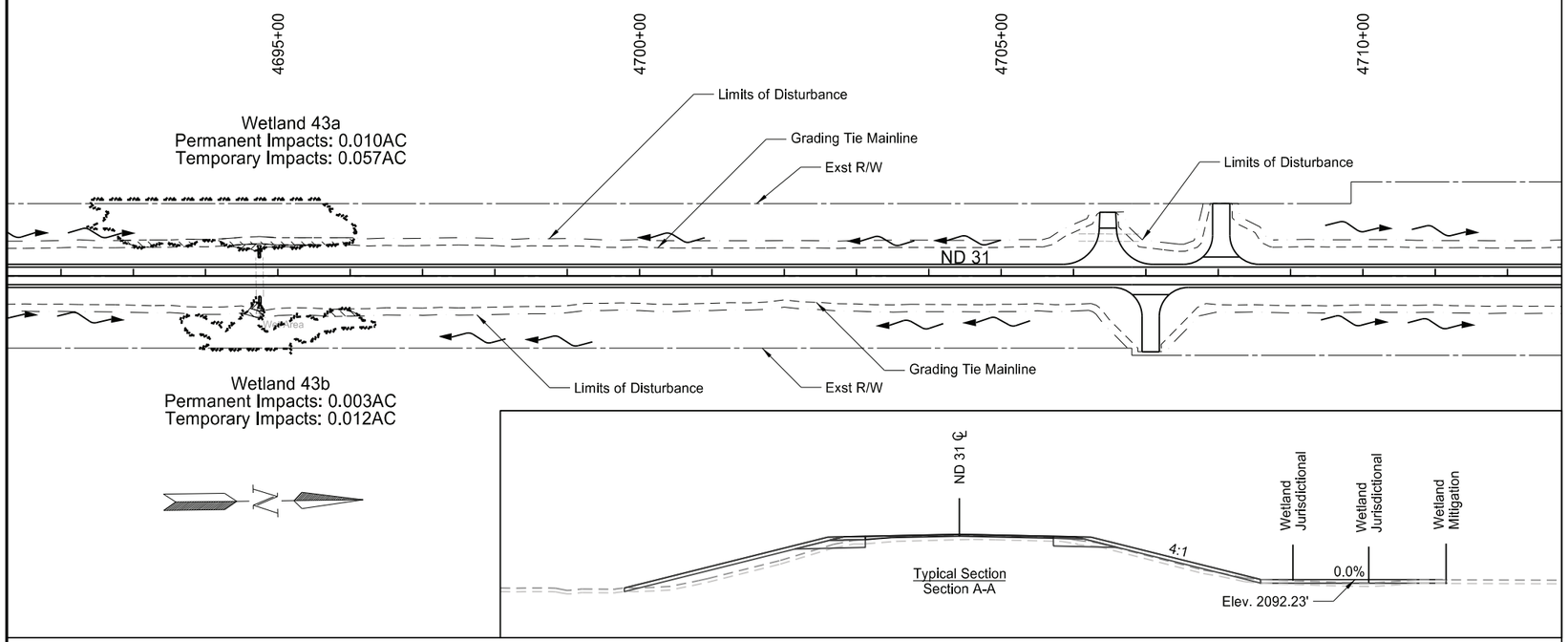
Wetland Impacts & Mitigation

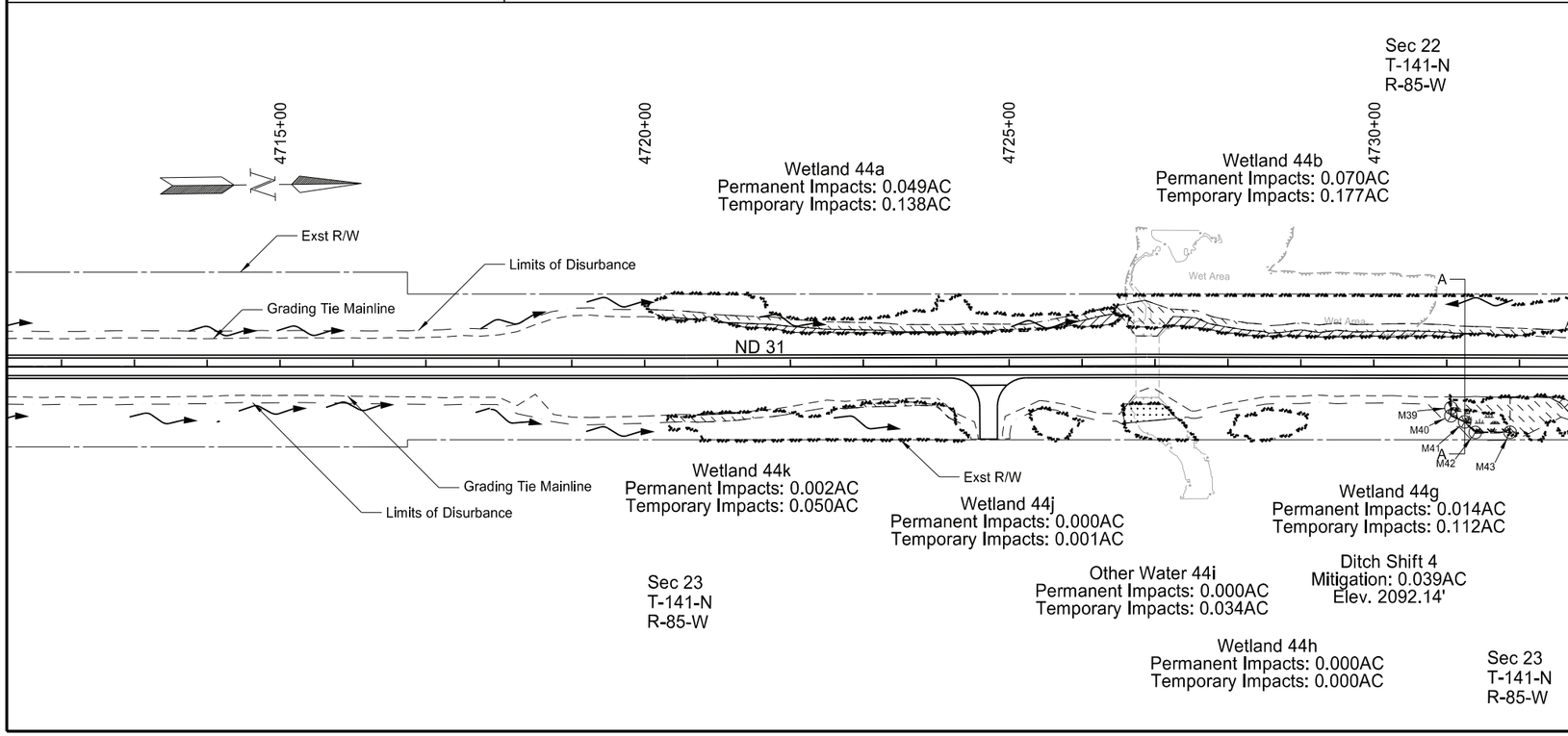
Sta 4655+00 to Sta 4695+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	75	25

POINT	NORTHING	EASTING
M39	496424.925	1737832.282
M40	496424.775	1737843.049
M41	496443.617	1737851.728
M42	496457.888	1737866.402
M43	496505.641	1737866.682





Legend

- Temp Wetland Impact
- Perm Wetland Impact
- Other Water Perm Impact
- Other Water Temp Impact
- Wetland Mitigation
- Avoidance Area
- Exst Delineated Wetland

ND 31

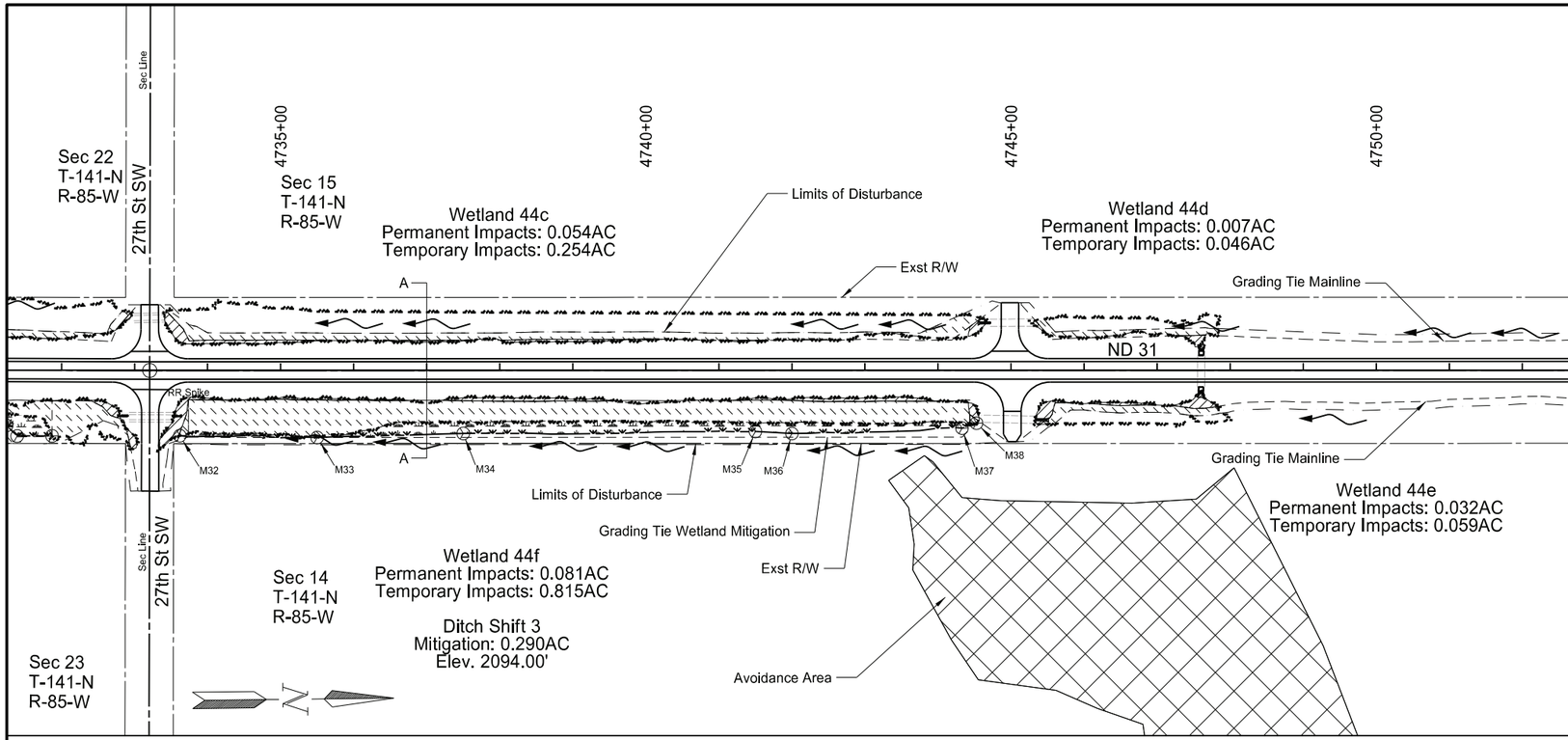
Jct I-94 to Hannover
Oliver County

Wetland Impacts & Mitigation

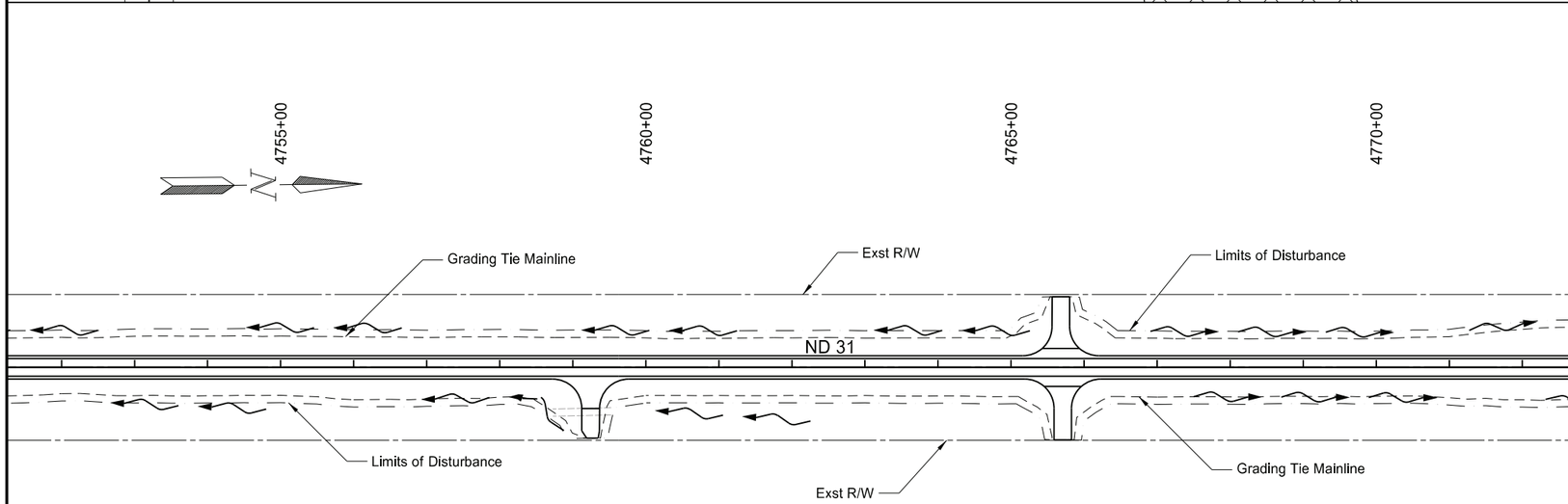
Sta 4695+00 to Sta 4735+00

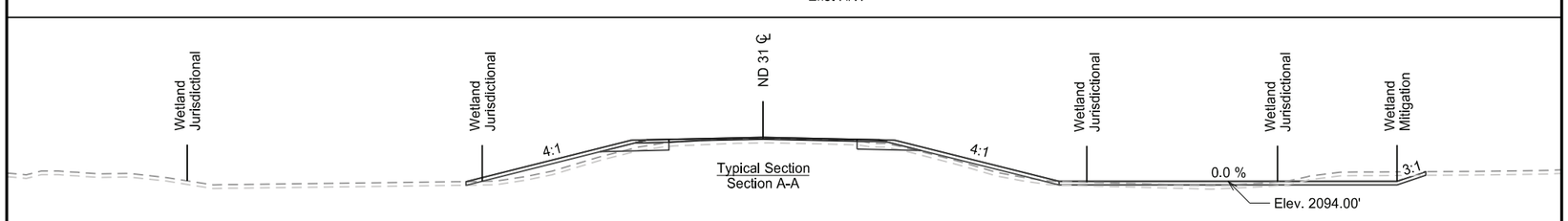
REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	75	26



POINT	NORTHING	EASTING
M32	496680.623	1737868.487
M33	496868.632	1737873.005
M34	497068.68	1737869.711
M35	497468.685	1737871.486
M36	497518.651	1737874.838
M37	497751.545	1737869.99
M38	497771.437	1737863.463





Legend

- Temp Wetland Impact
- Perm Wetland Impact
- Other Water Perm Impact
- Other Water Temp Impact
- Wetland Mitigation
- Avoidance Area
- Exst Delineated Wetland

ND 31

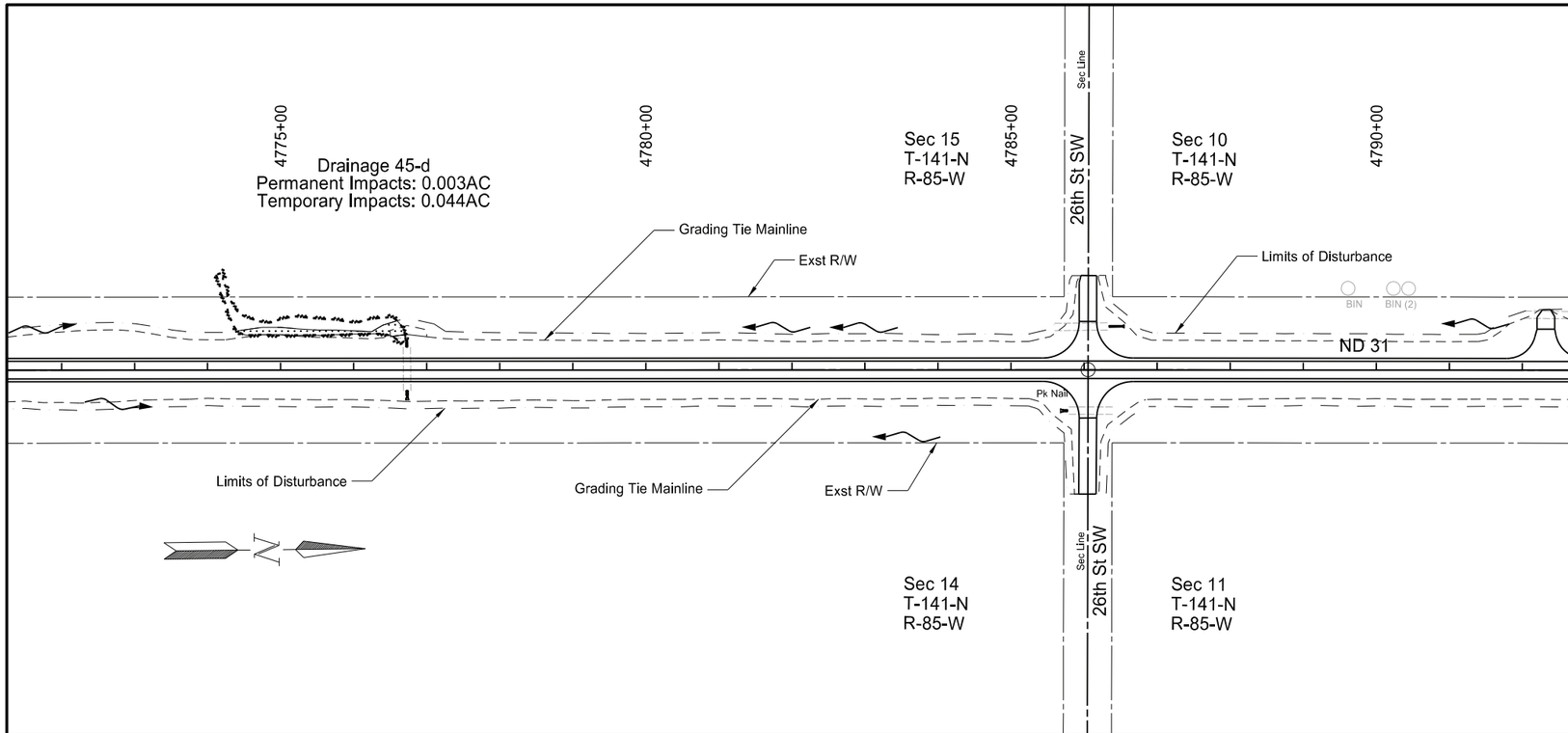
Jct I-94 to Hannover
Oliver County

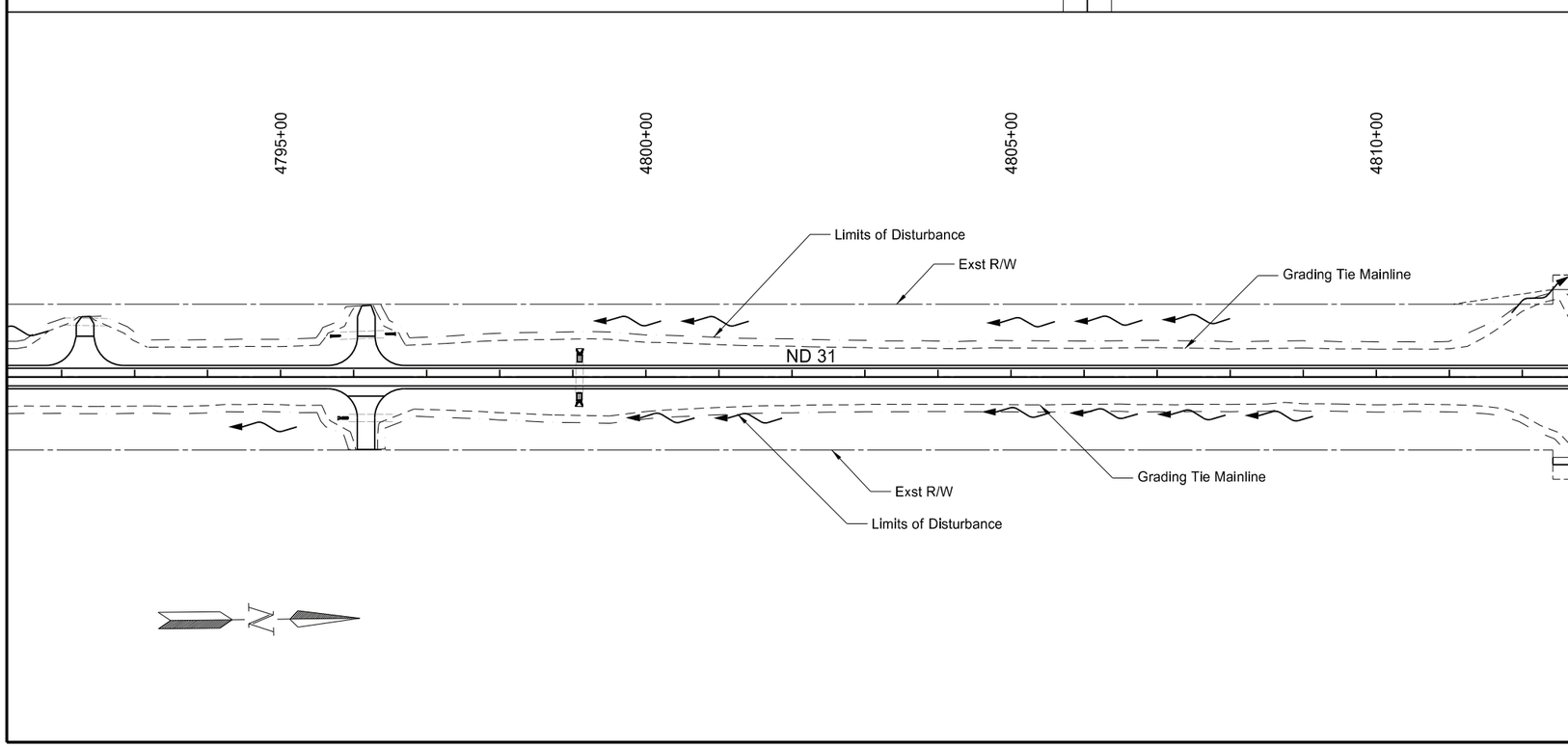
Wetland Impacts & Mitigation

Sta 4735+00 to Sta 4775+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	75	27





Legend

- Temp Wetland Impact
- Perm Wetland Impact
- Other Water Perm Impact
- Other Water Temp Impact
- Wetland Mitigation
- Avoidance Area
- Exst Delineated Wetland

ND 31

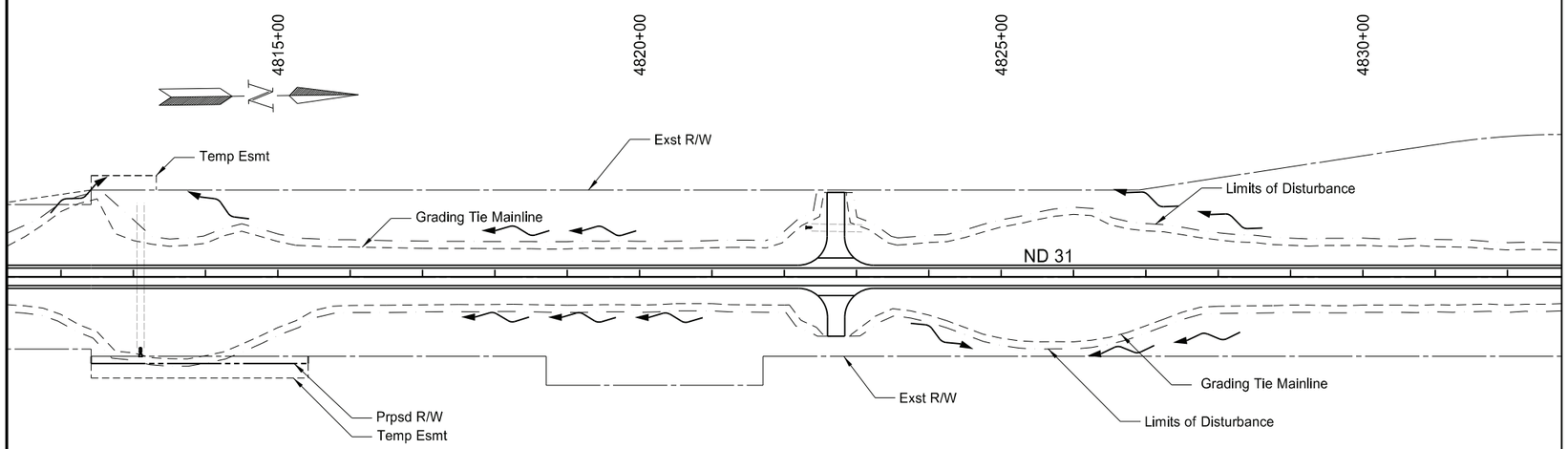
Jct I-94 to Hannover
Oliver County

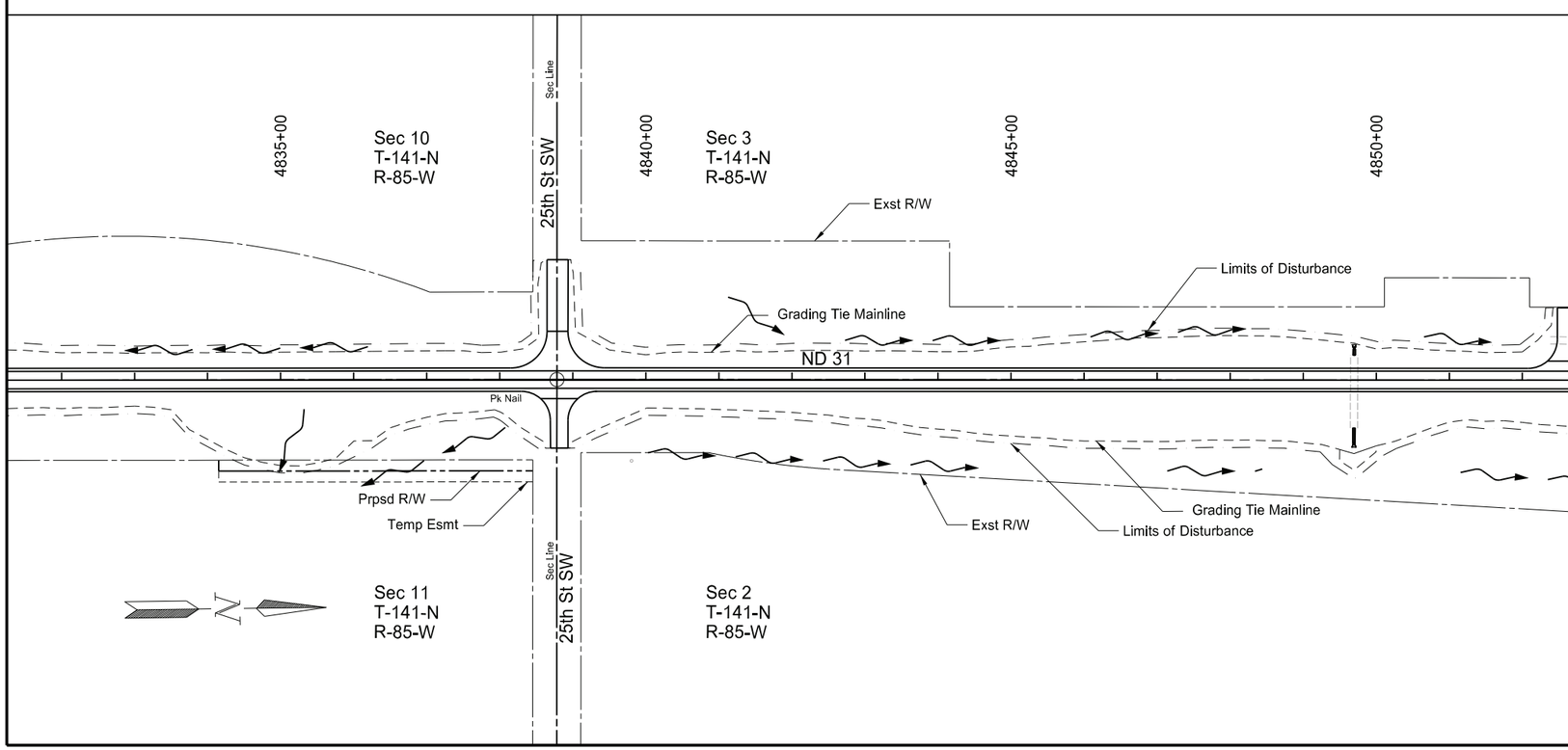
Wetland Impacts & Mitigation

Sta 4775+00 to Sta 4815+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	75	28





Legend

- Temp Wetland Impact
- Perm Wetland Impact
- Other Water Perm Impact
- Other Water Temp Impact
- Wetland Mitigation
- Avoidance Area
- Exst Delineated Wetland

ND 31

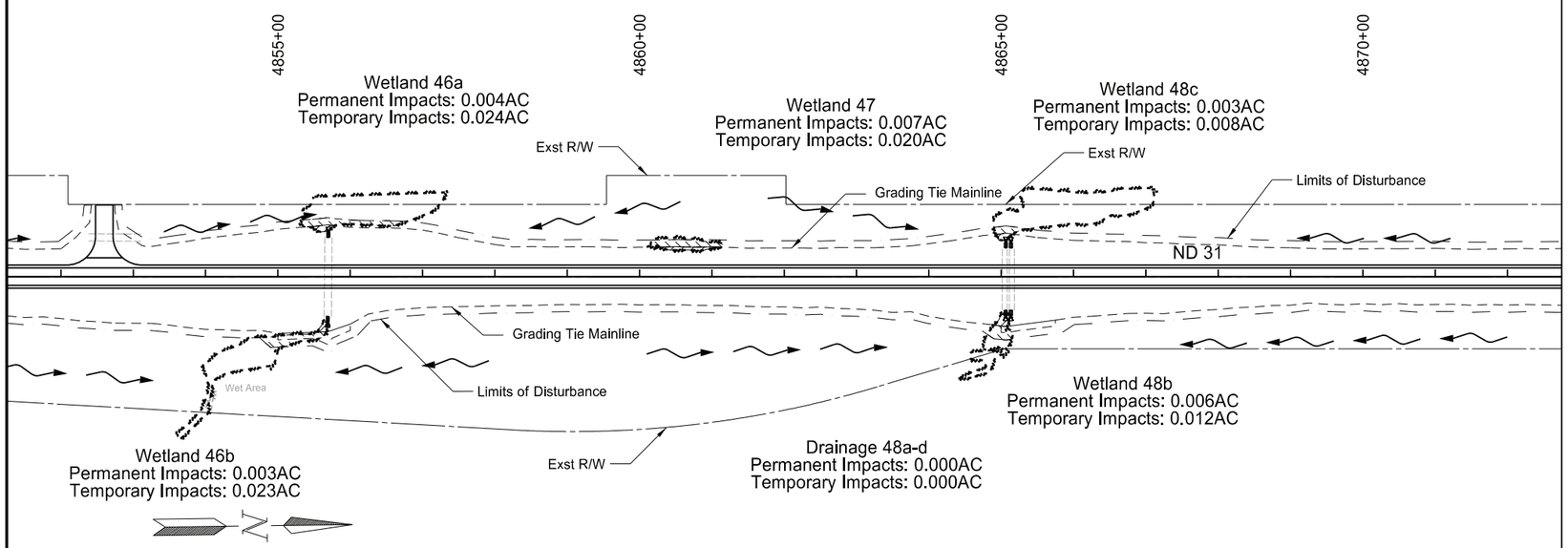
Jct I-94 to Hannover
Oliver County

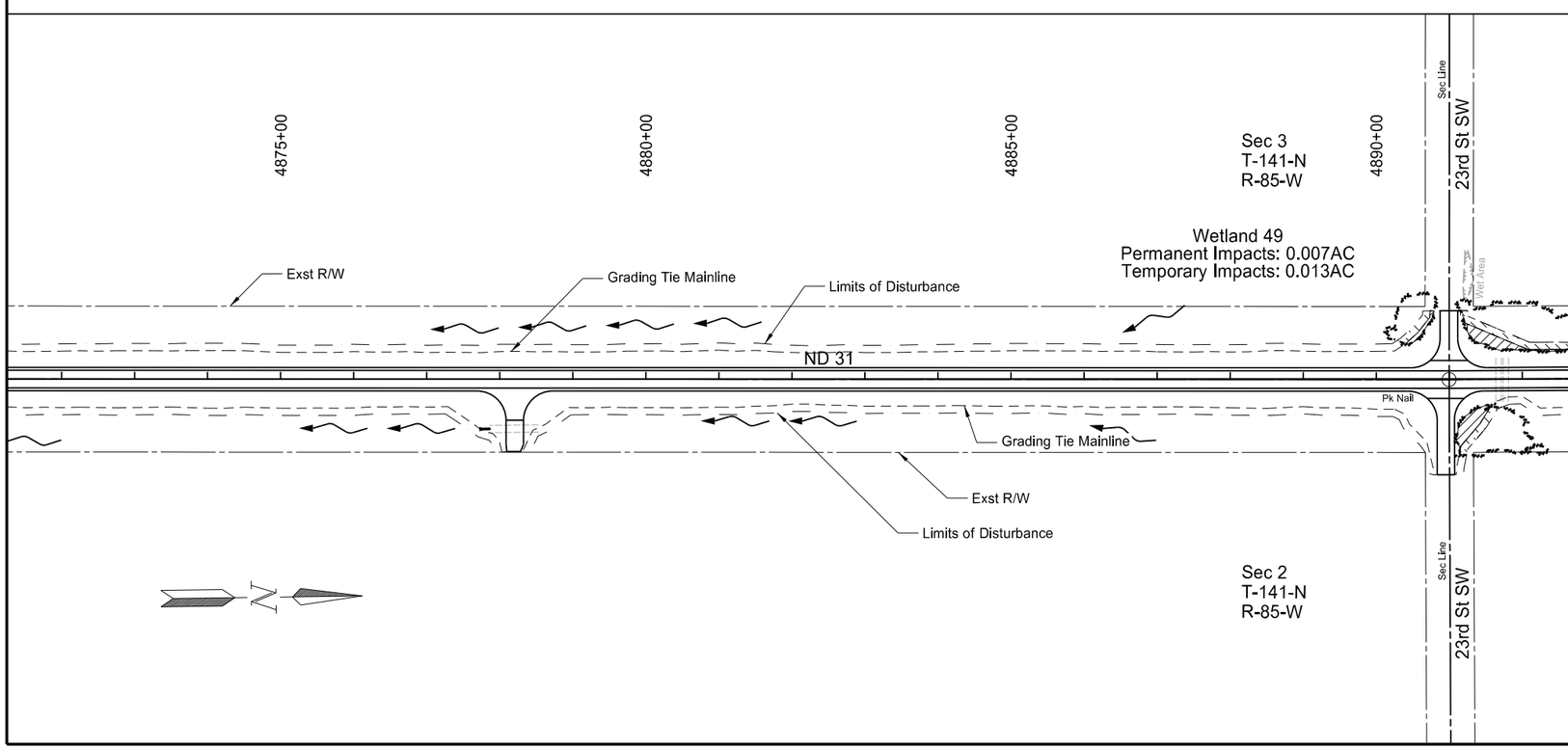
Wetland Impacts & Mitigation

Sta 4815+00 to Sta 4855+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	75	29





Legend

- Temp Wetland Impact
- Perm Wetland Impact
- Other Water Perm Impact
- Other Water Temp Impact
- Wetland Mitigation
- Avoidance Area
- Exst Delineated Wetland

ND 31

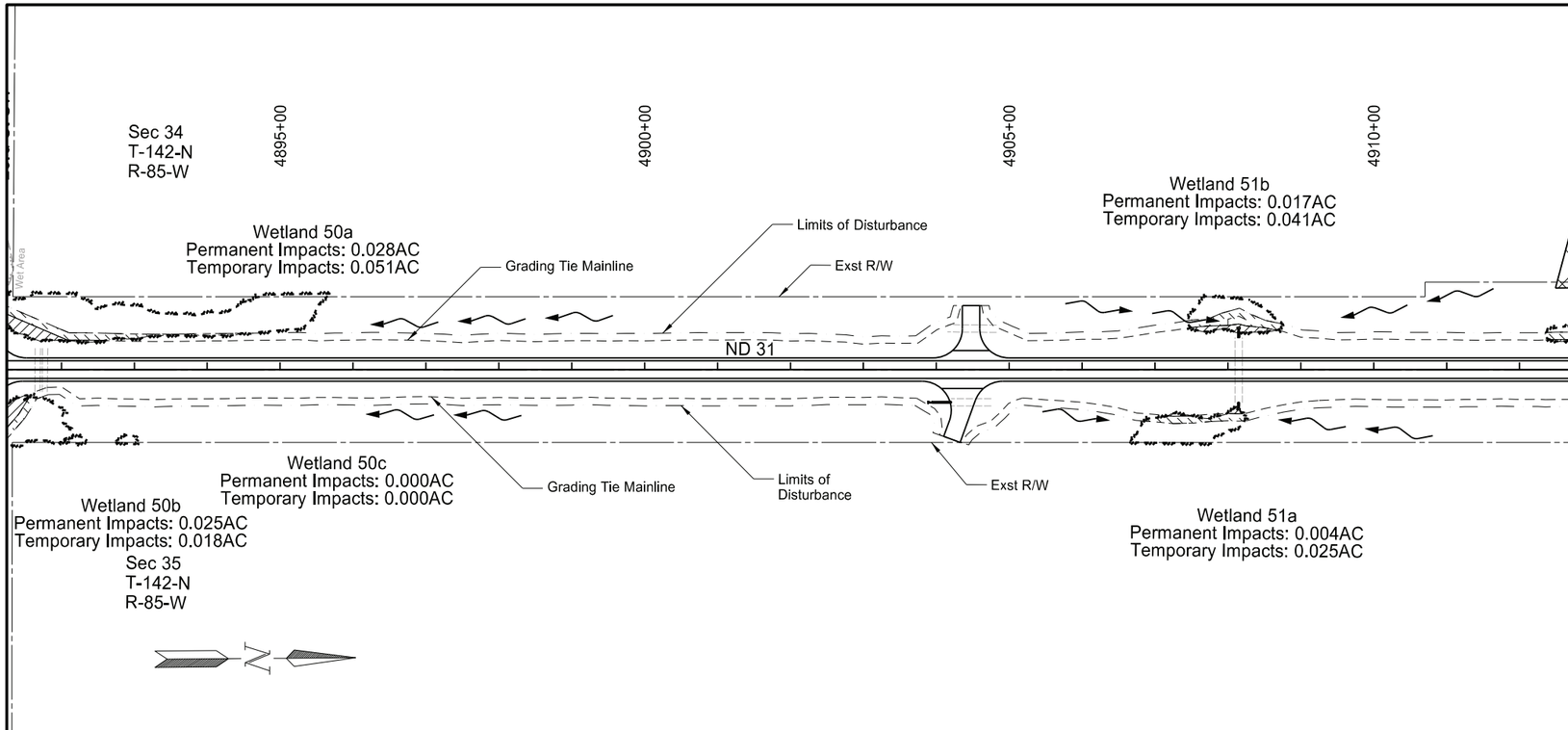
Jct I-94 to Hannover
Oliver County

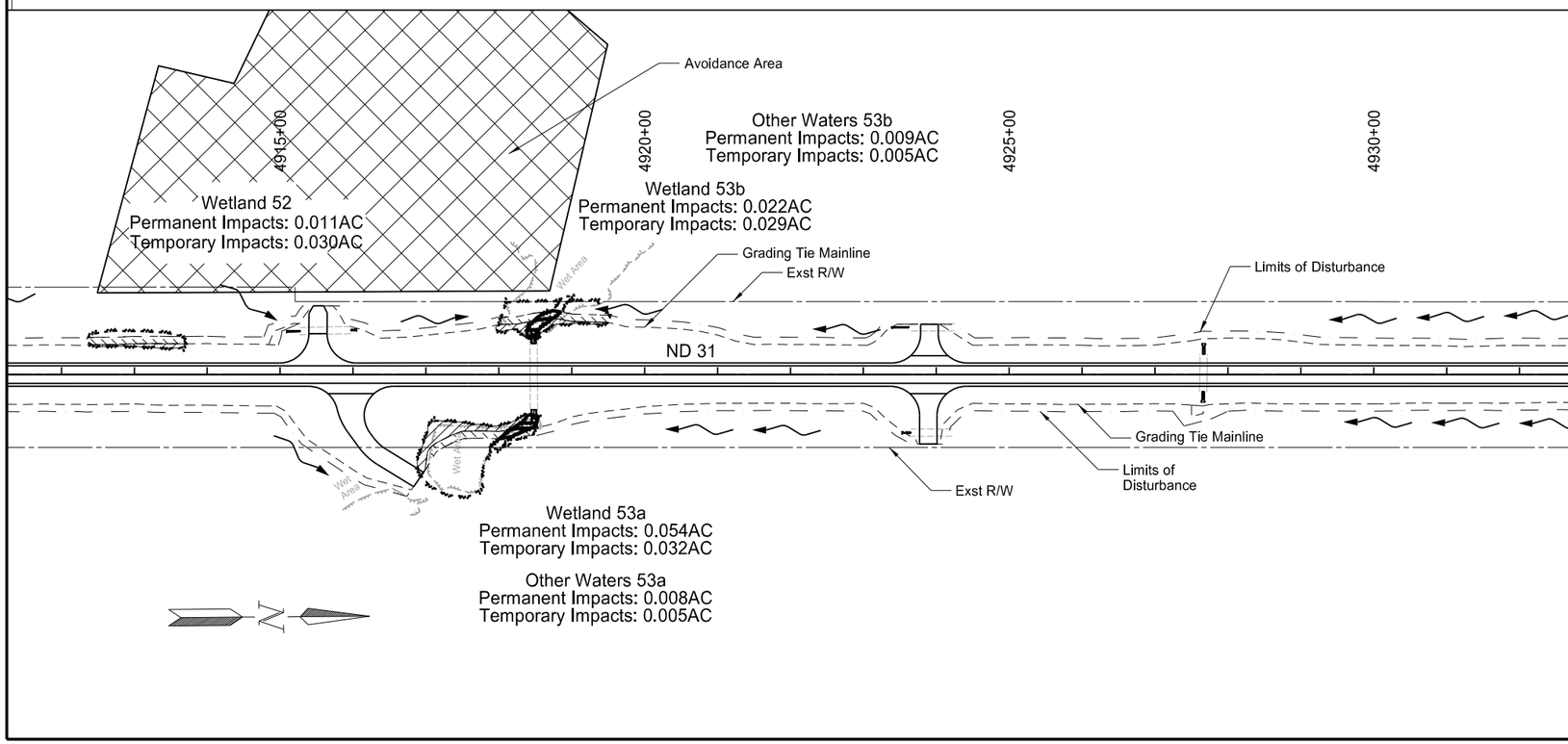
Wetland Impacts & Mitigation

Sta 4855+00 to Sta 4895+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	75	30





Legend

- Temp Wetland Impact
- Perm Wetland Impact
- Other Water Perm Impact
- Other Water Temp Impact
- Wetland Mitigation
- Avoidance Area
- Exst Delineated Wetland

ND 31

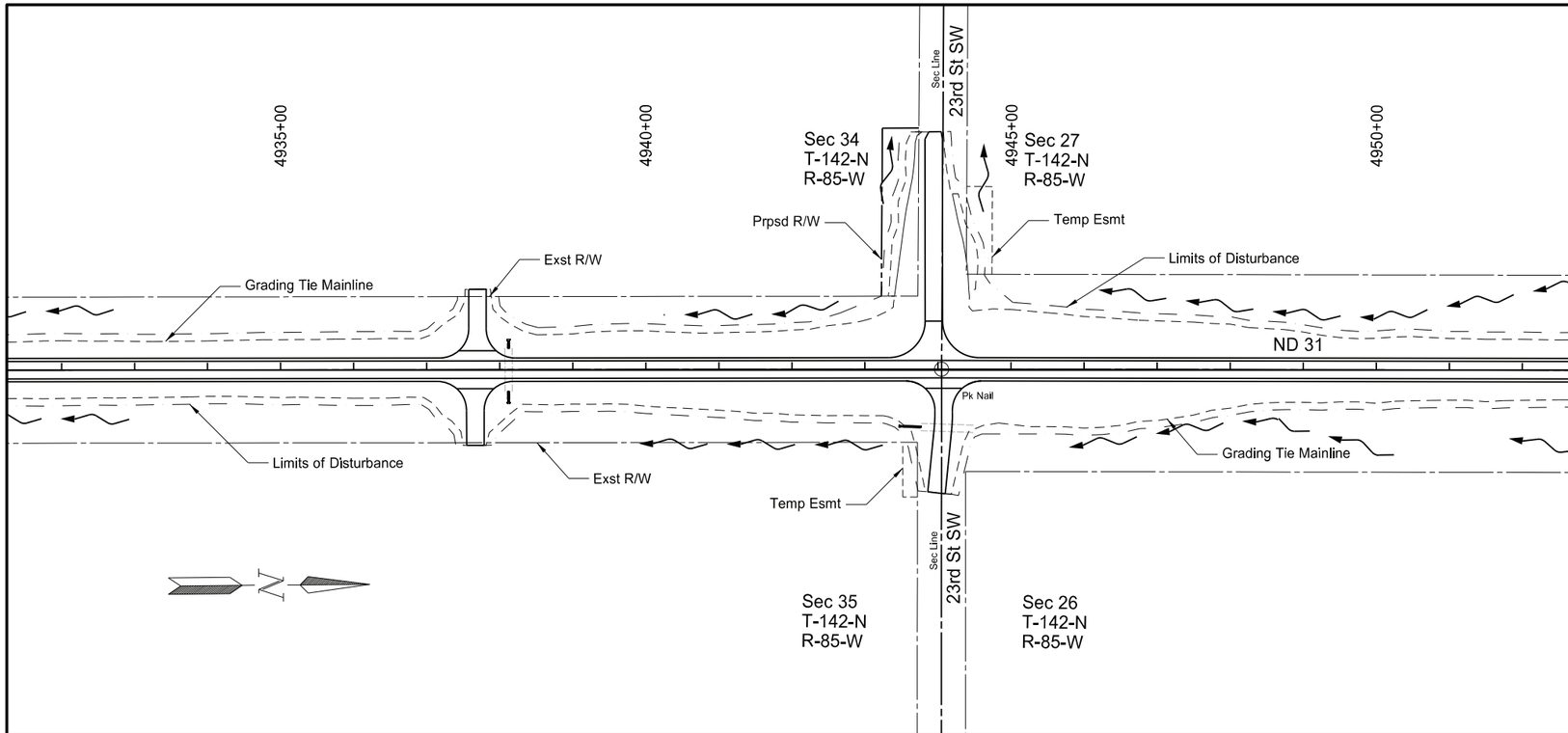
Jct I-94 to Hannover
Oliver County

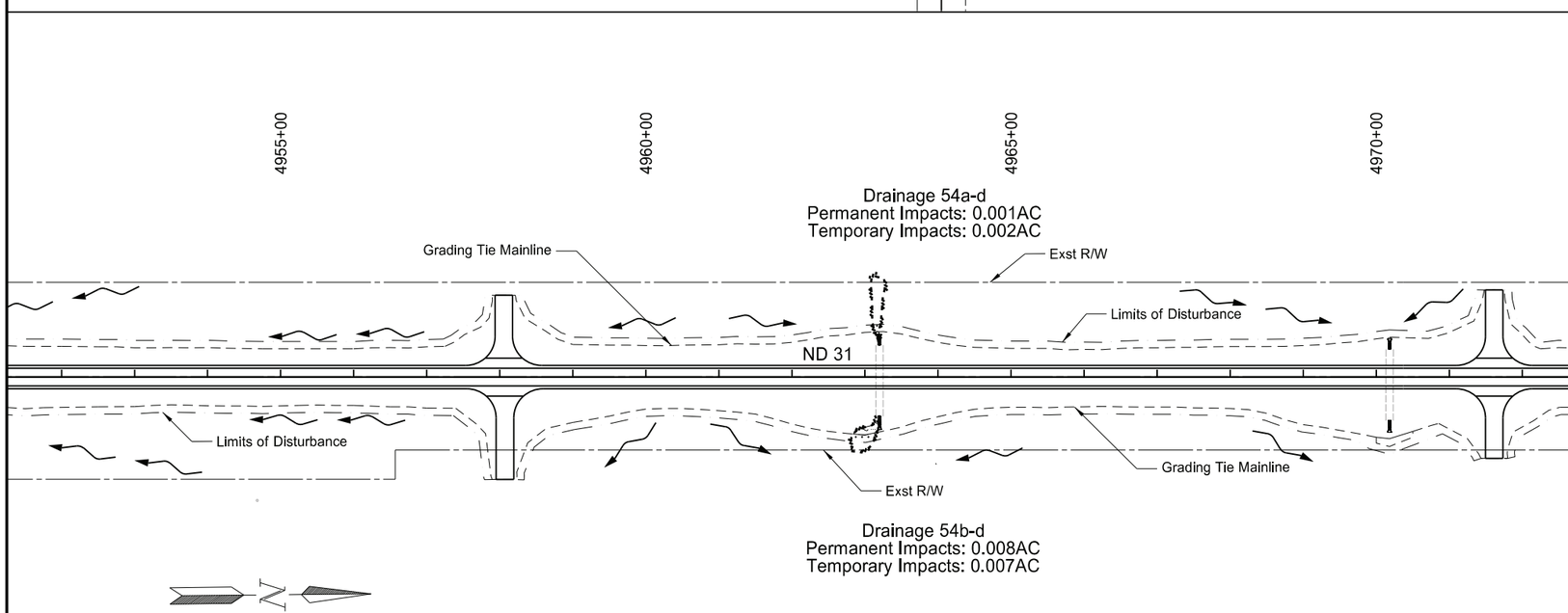
Wetland Impacts & Mitigation

Sta 4895+00 to Sta 4935+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	75	31





Legend

- Temp Wetland Impact
- Perm Wetland Impact
- Other Water Perm Impact
- Other Water Temp Impact
- Wetland Mitigation
- Avoidance Area
- Exst Delineated Wetland

ND 31

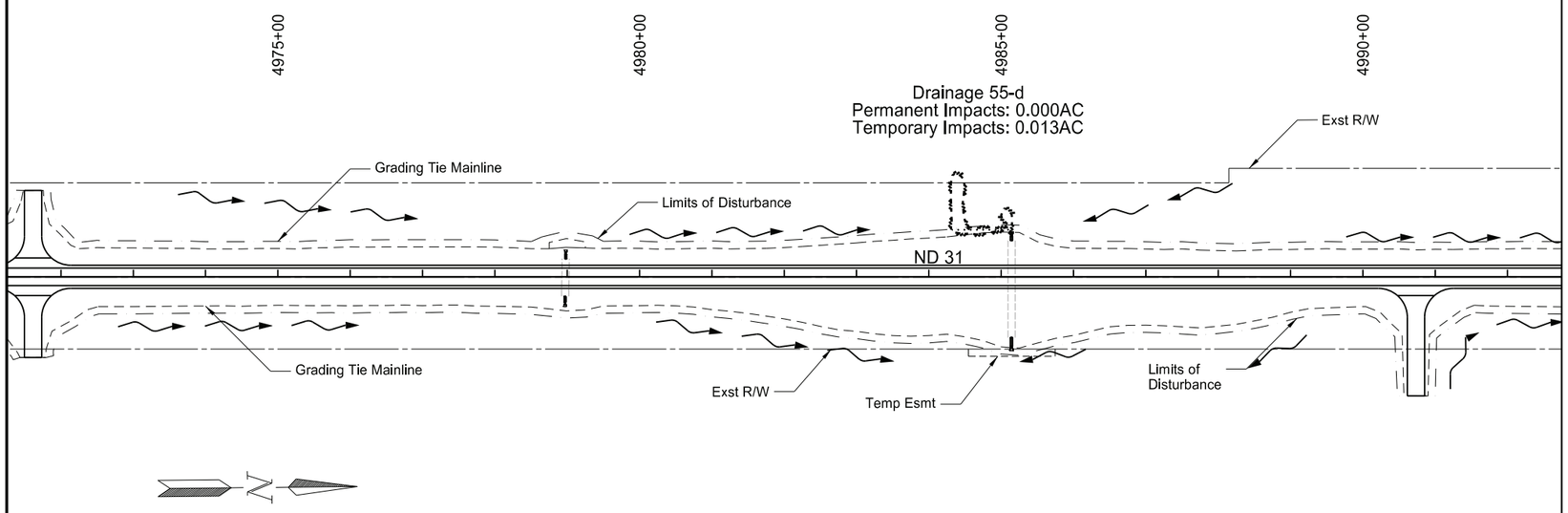
Jct I-94 to Hannover
Oliver County

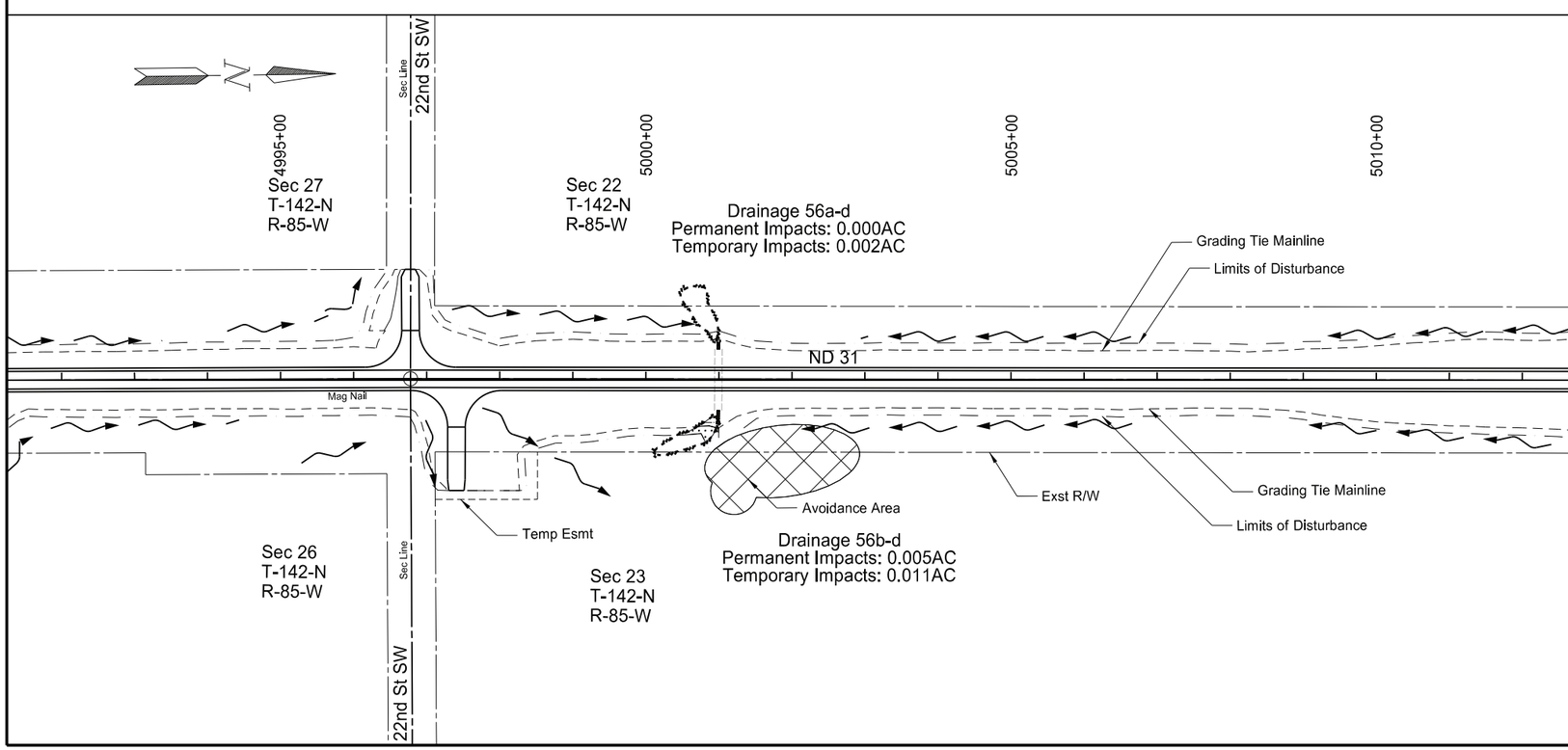
Wetland Impacts & Mitigation

Sta 4935+00 to Sta 4975+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	75	32





Legend

- Temp Wetland Impact
- Perm Wetland Impact
- Other Water Perm Impact
- Other Water Temp Impact
- Wetland Mitigation
- Avoidance Area
- Exst Delineated Wetland

ND 31

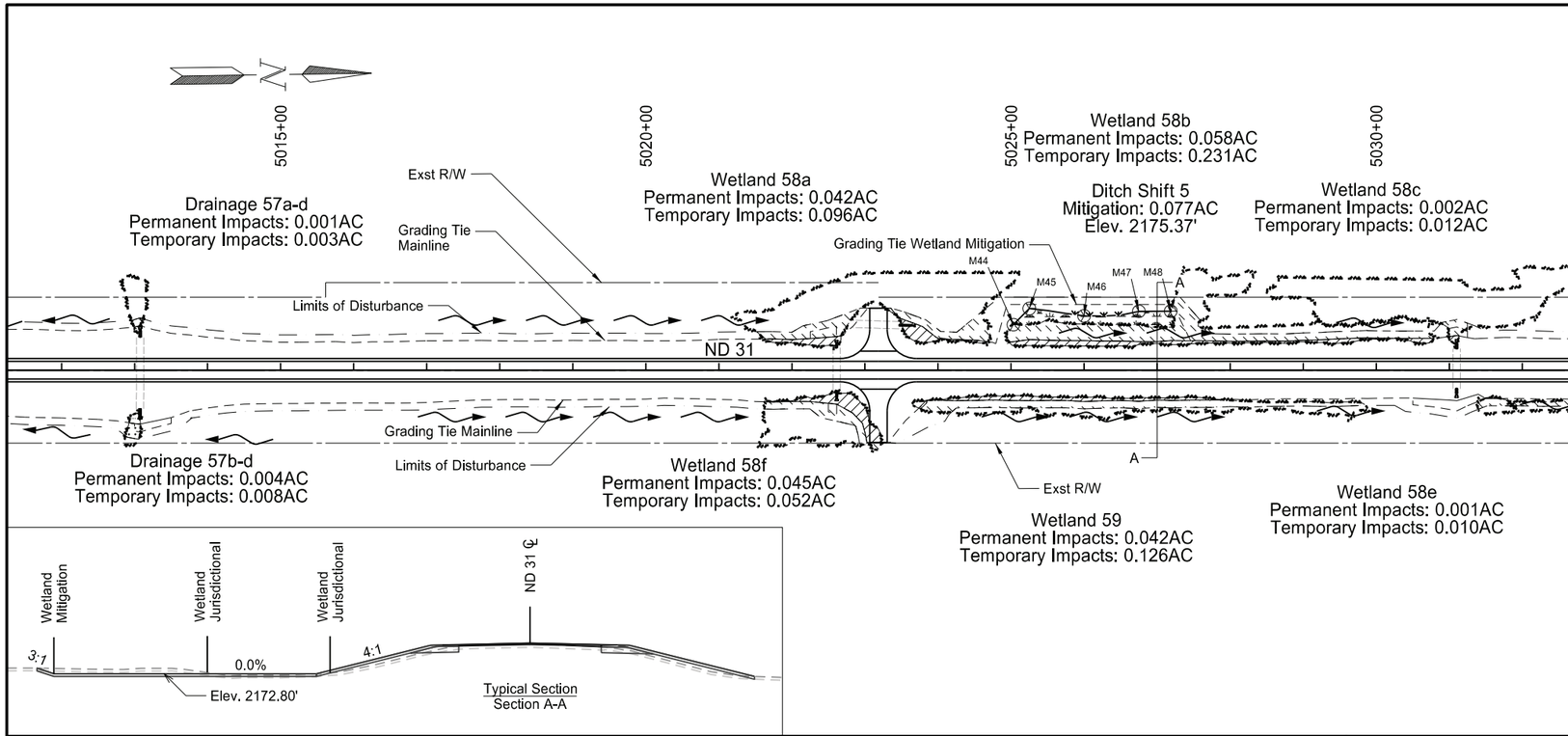
Jct I-94 to Hannover
Oliver County

Wetland Impacts & Mitigation

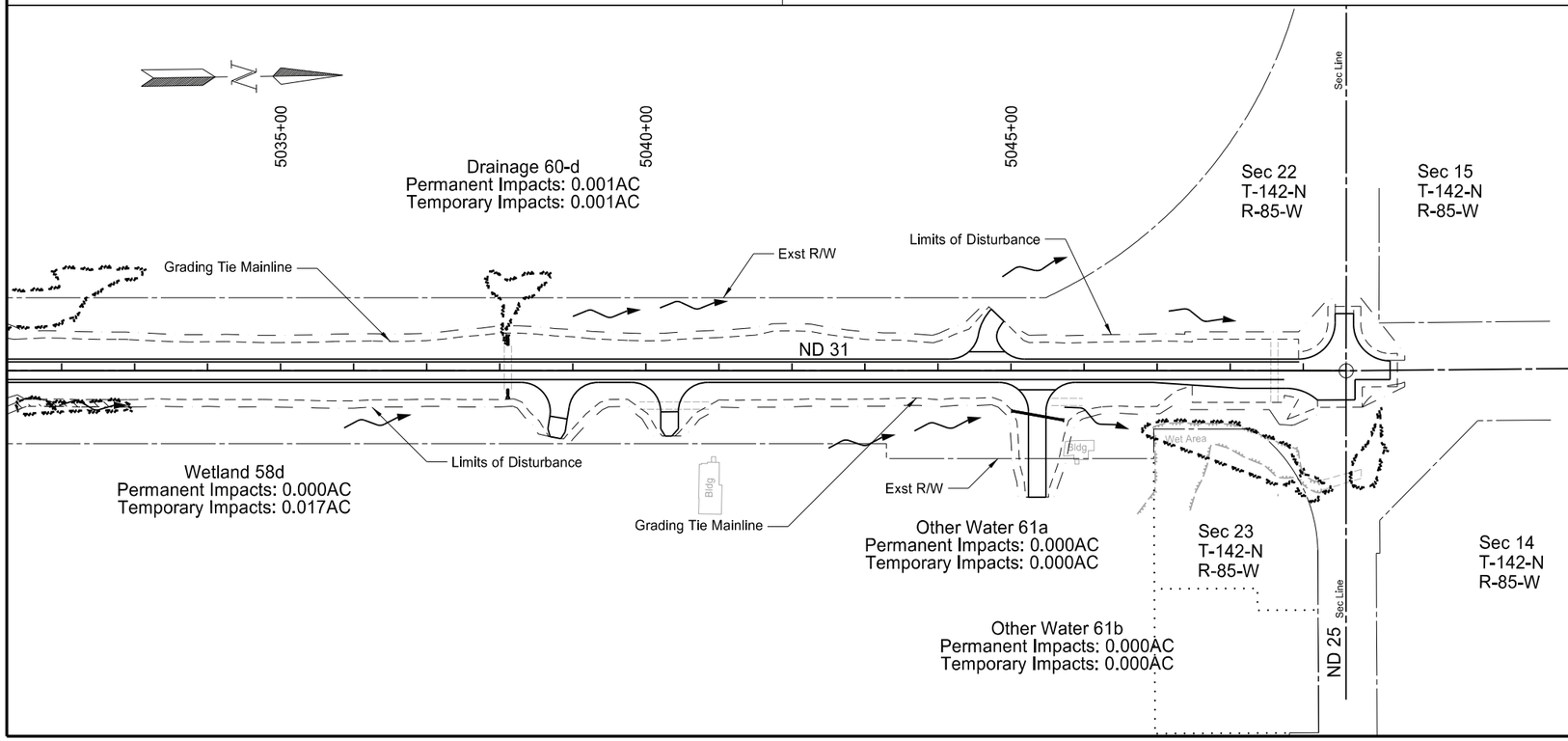
Sta 4975+00 to Sta 5015+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	75	33



POINT	NORTHING	EASTING
M44	525821.897	1738044.342
M45	525843.989	1738022.58
M46	525918.829	1738033.771
M47	525993.915	1738028.627
M48	526037.512	1738029.188



Legend

- Temp Wetland Impact
- Perm Wetland Impact
- Other Water Perm Impact
- Other Water Temp Impact
- Wetland Mitigation
- Avoidance Area
- Exst Delineated Wetland

ND 31

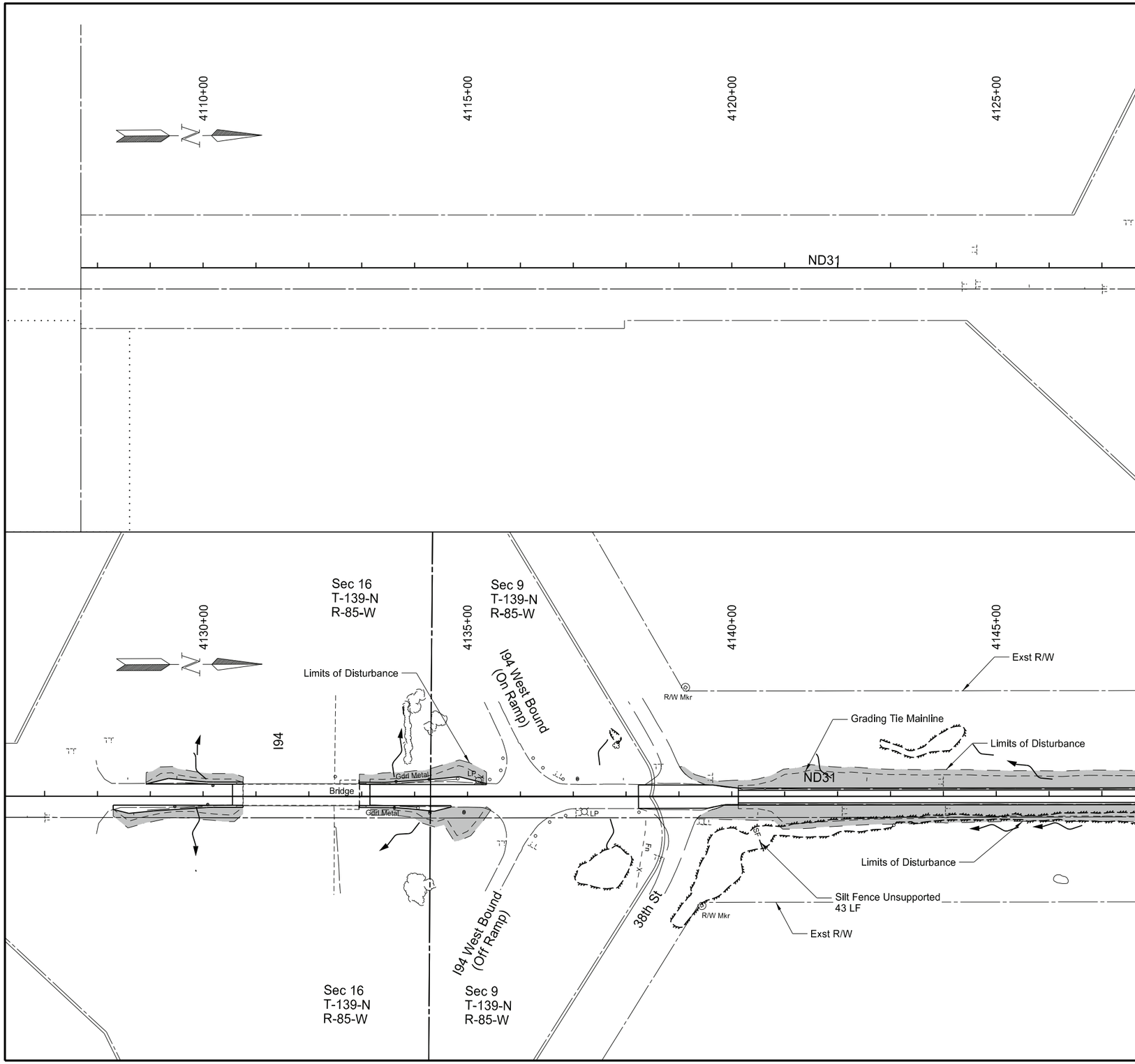
Jct I-94 to Hannover
Oliver County

Wetland Impacts & Mitigation

Sta 5015+00 to Sta 5050+19

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	76	1



SPEC	CODE	BID ITEM	QTY	UNIT
251	2000	TEMPORARY COVER CROP		
		Sta 4127 to Sta 4147+00	1.77	ACRE
253	0101	STRAW MULCH		
		Sta 4127 to Sta 4147+00	1.77	ACRE
260	0200	SILT FENCE UNSUPPORTED		
		Protecting 1	43	LF
260	0201	REMOVE SILT FENCE UNSUPPORTED		
		Protecting 1	43	LF

Legend

- Temporary Cover Crop & Straw Mulch
- Avoidance Area
- — SF — Silt Fence Unsupported
- Fiber Rolls - 12 IN
- — S — Floatation Silt Curtain

ND 31

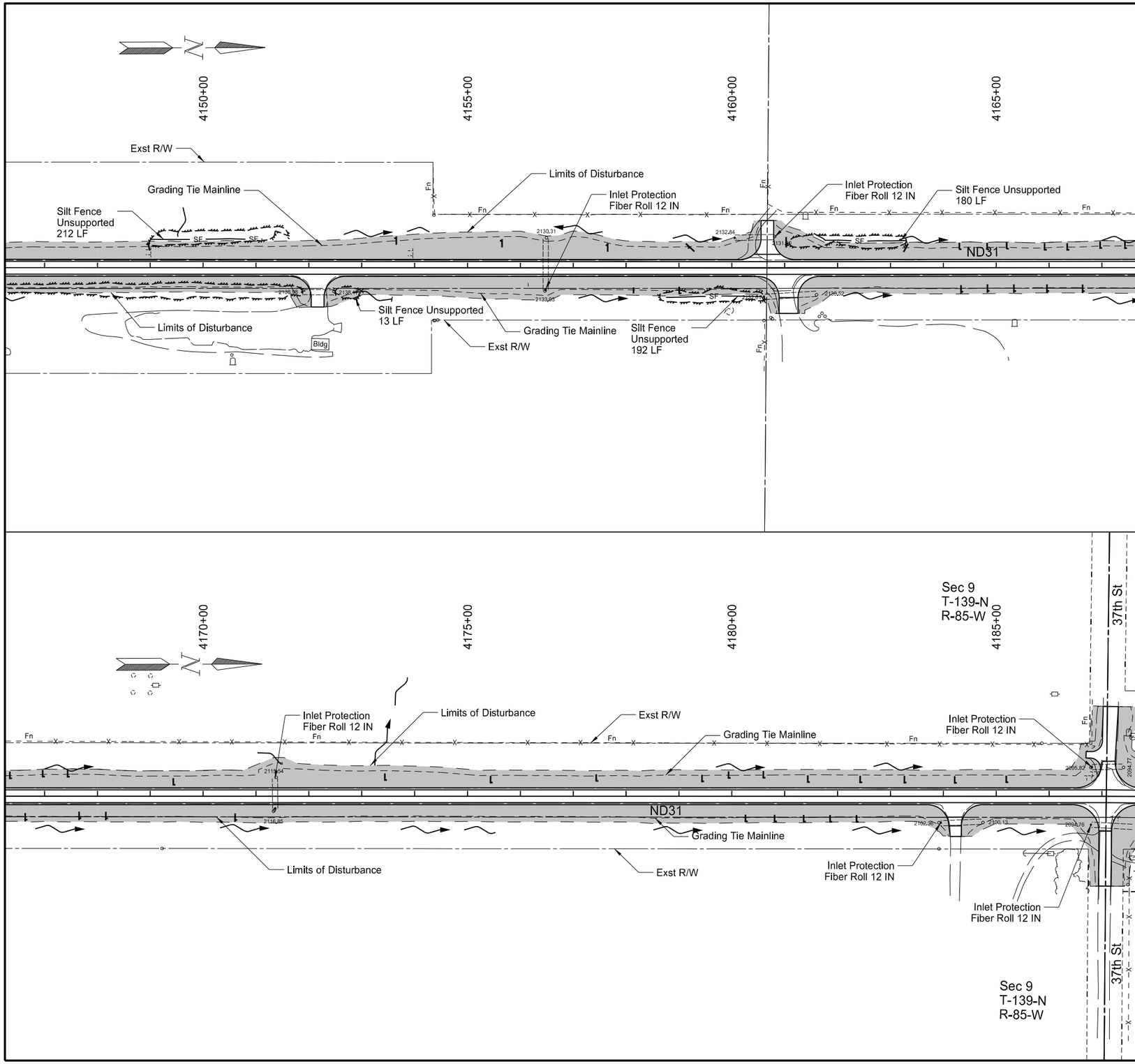
Jct I-94 to Hannover
Morton County

Temporary Erosion Control

Sta 4128+29 to Sta 4148+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	76	2



SPEC	CODE	BID ITEM	QTY	UNIT
251	2000	TEMPORARY COVER CROP		
		Sta 4147+00 to Sta 4187+00	6.82	ACRE
253	0101	STRAW MULCH		
		Sta 4147+00 to Sta 4187+00	6.82	ACRE
260	0200	SILT FENCE UNSUPPORTED		
		Protecting 2b, 4, 5, 6	612	LF
260	0201	REMOVE SILT FENCE UNSUPPORTED		
		Protecting 2b, 4, 5, 6	612	LF
261	0112	FIBER ROLLS 12 IN		
		Sta 4147+00 to Sta 4187+00	659	LF
261	0113	REMOVE FIBER ROLLS 12 IN		
		Sta 4147+00 to Sta 4187+00	659	LF

Legend

- Temporary Cover Crop & Straw Mulch
- Avoidance Area
- SF — Silt Fence Unsupported
- Fiber Rolls - 12 IN
- S — Floatation Silt Curtain

ND 31

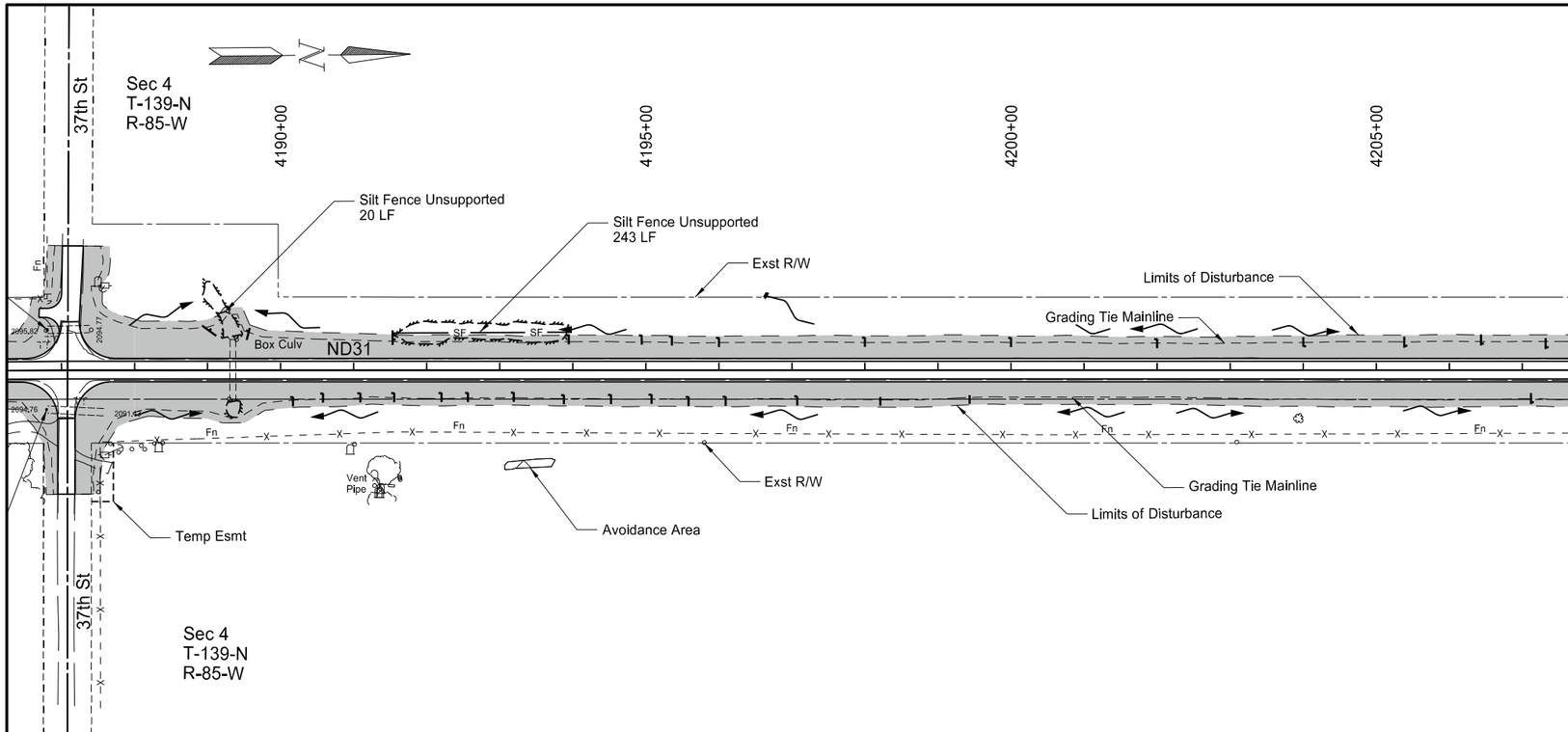
Jct I-94 to Hannover
Morton County

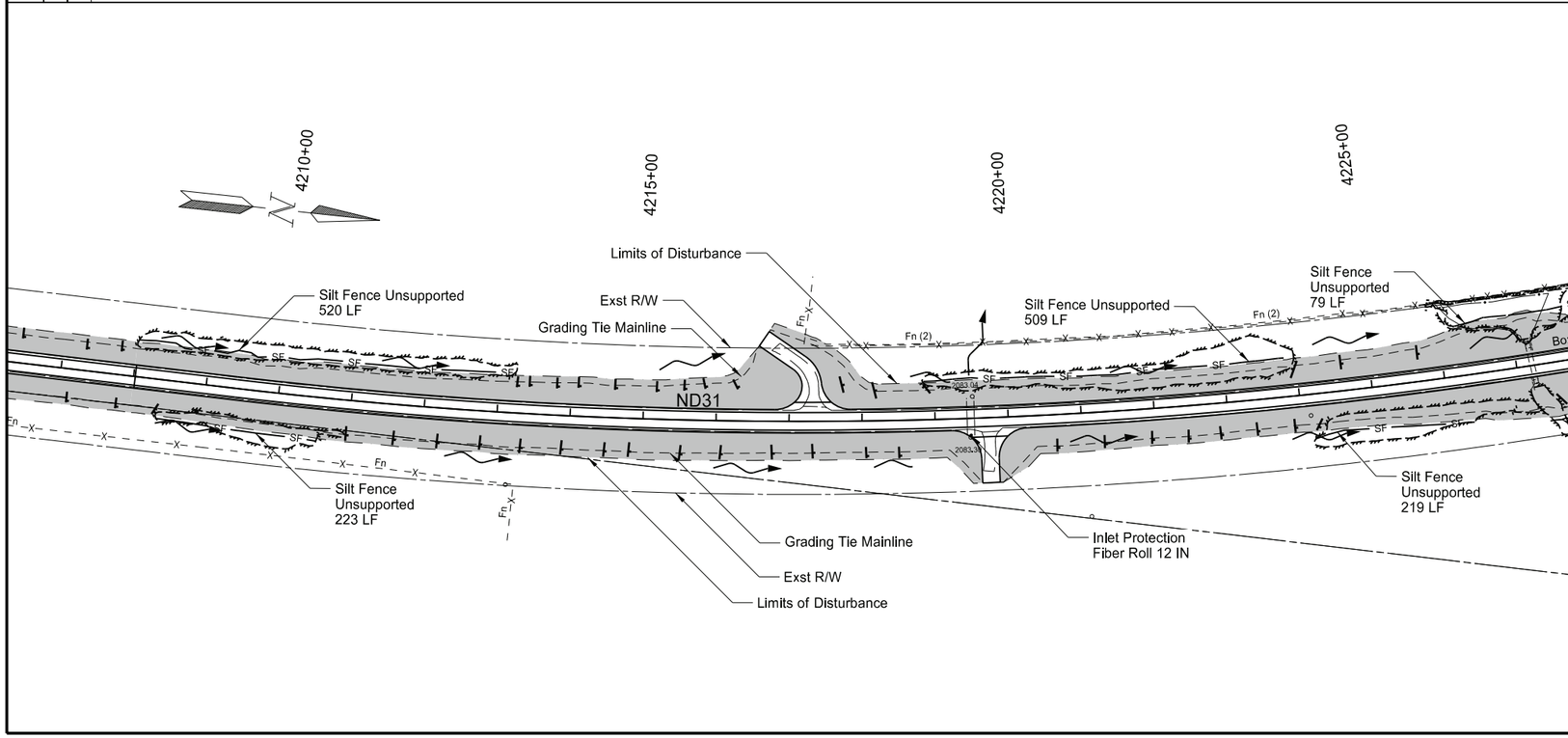
Temporary Erosion Control

Sta 4148+00 to Sta 4188+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	76	3





SPEC	CODE	BID ITEM	QTY	UNIT
251	2000	TEMPORARY COVER CROP		
		Sta 4187+00 to Sta 4227+00	6.77	ACRE
253	0101	STRAW MULCH		
		Sta 4187+00 to Sta 4227+00	6.77	ACRE
260	0200	SILT FENCE UNSUPPORTED		
		Protecting 7a, 9, 10, 11, 12a	1812	LF
260	0201	REMOVE SILT FENCE UNSUPPORTED		
		Protecting 7a, 9, 10, 11, 12a	1812	LF
261	0112	FIBER ROLLS 12 IN		
		Sta 4187+00 to Sta 4227+00	1172	LF
261	0113	REMOVE FIBER ROLLS 12 IN		
		Sta 4187+00 to Sta 4227+00	1172	LF

Legend

- Temporary Cover Crop & Straw Mulch
- Avoidance Area
- SF — Silt Fence Unsupported
- Fiber Rolls - 12 IN
- S — Floatation Silt Curtain

ND 31

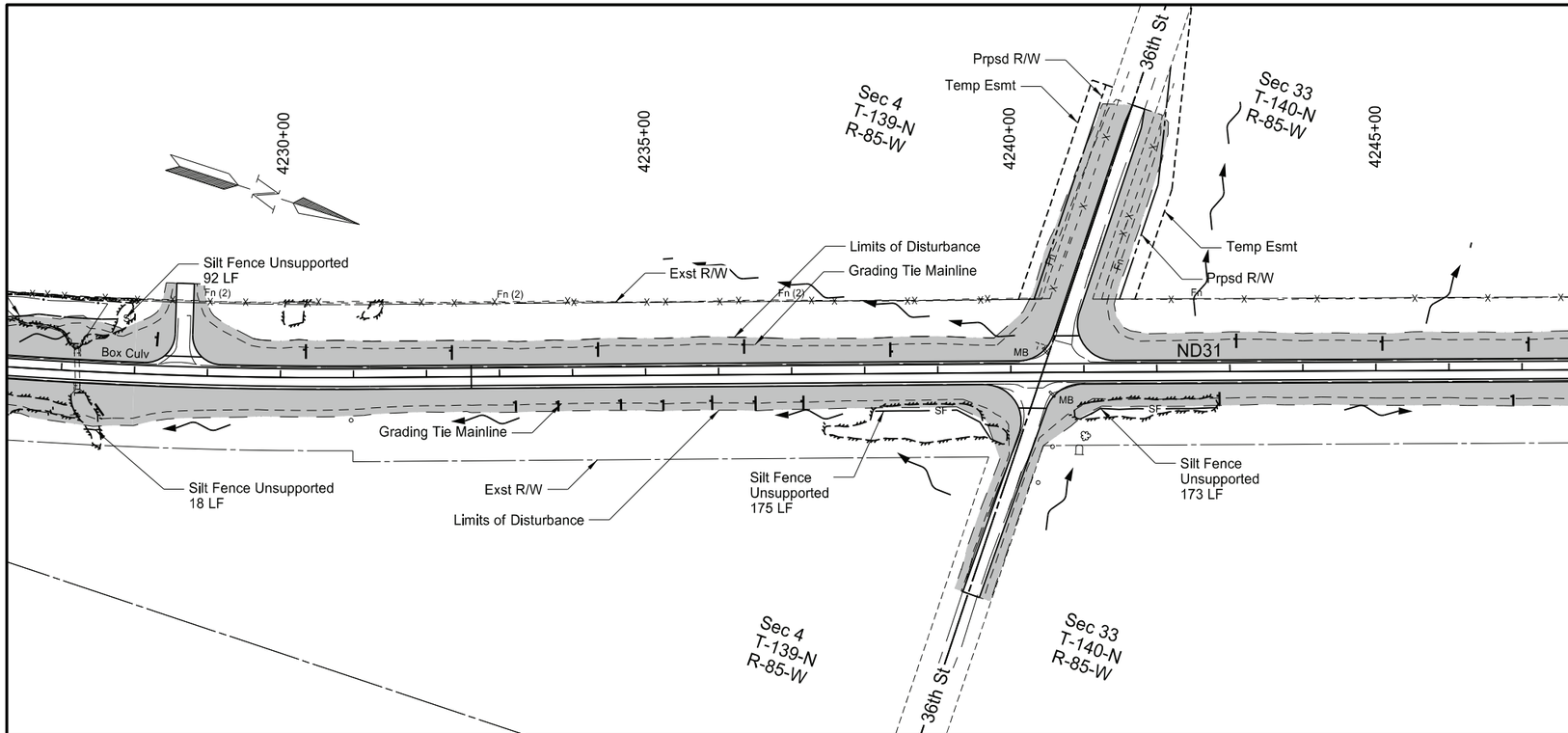
Jct I-94 to Hannover
Morton County

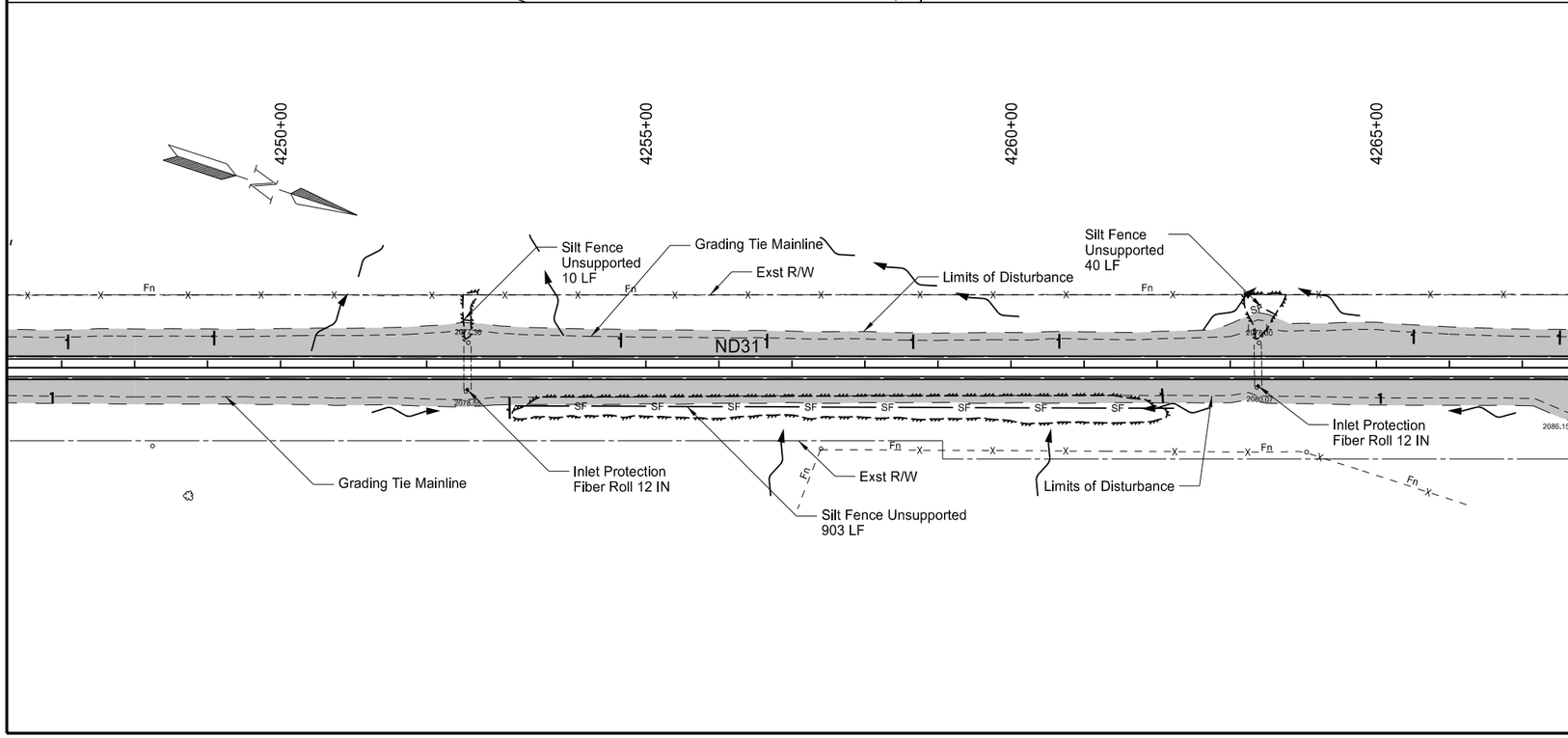
Temporary Erosion Control

Sta 4188+00 to Sta 4228+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	76	4





SPEC	CODE	BID ITEM	QTY	UNIT
251	2000	TEMPORARY COVER CROP		
		Sta 4227+00 to Sta 4267+00	7.31	ACRE
253	0101	STRAW MULCH		
		Sta 4227+00 to Sta 4267+00	7.31	ACRE
260	0200	SILT FENCE UNSUPPORTED		
		Protecting 12b, 12c, 15, 16, 17a-d, 17c-d	1432	LF
260	0201	REMOVE SILT FENCE UNSUPPORTED		
		Protecting 12b, 12c, 15, 16, 17a-d, 17c-d	1432	LF
261	0112	FIBER ROLLS 12 IN		
		Sta 4227+00 to Sta 4267+00	558	LF
261	0113	REMOVE FIBER ROLLS 12 IN		
		Sta 4227+00 to Sta 4267+00	558	LF

Legend

- Temporary Cover Crop & Straw Mulch
- Avoidance Area
- — SF — Silt Fence Unsupported
- Fiber Rolls - 12 IN
- — S — Floatation Silt Curtain

ND 31

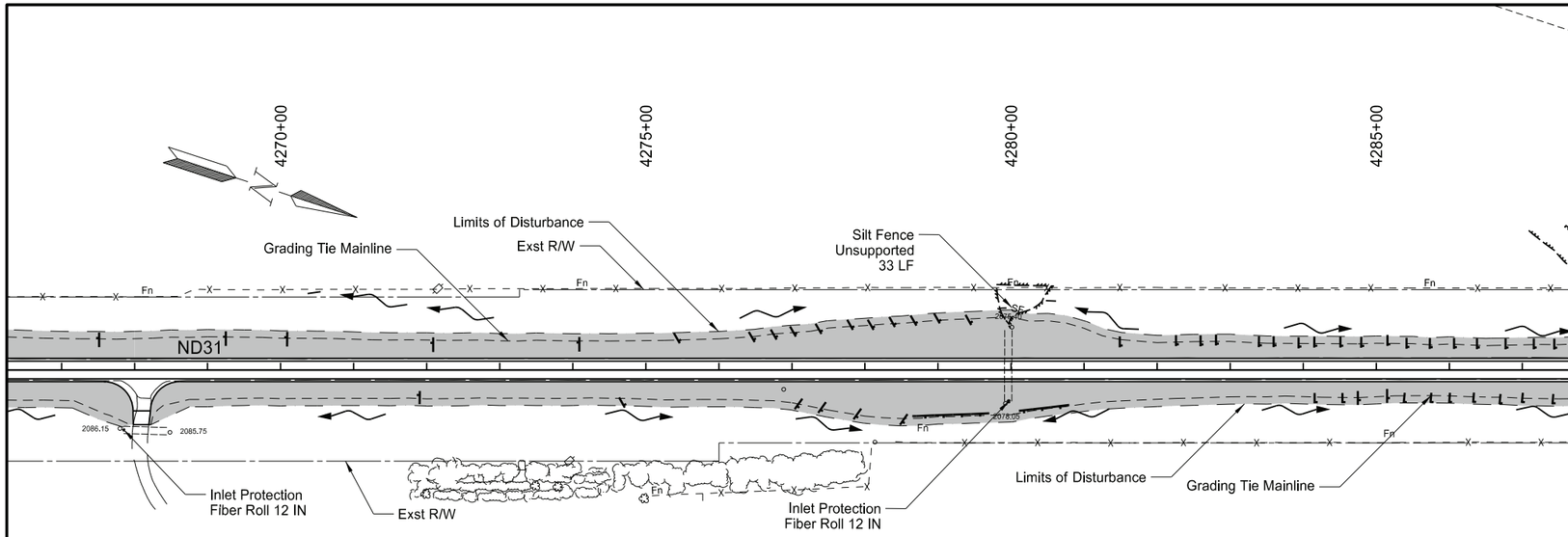
Jct I-94 to Hannover
Morton County

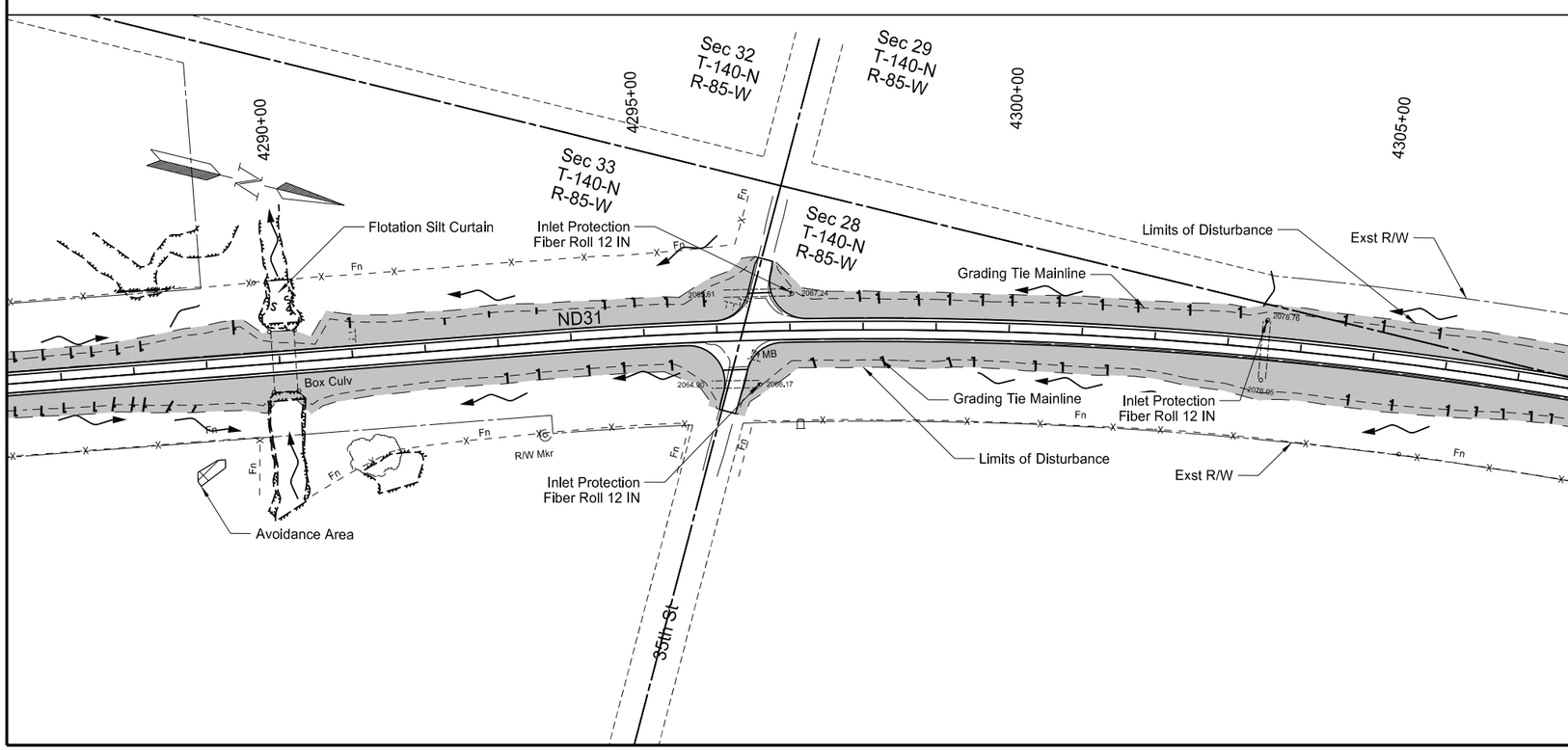
Temporary Erosion Control

Sta 4228+00 to Sta 4268+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	76	5





SPEC	CODE	BID ITEM	QTY	UNIT
251	2000	TEMPORARY COVER CROP		
		Sta 4267+00 to Sta 4307+00	7.16	ACRE
253	0101	STRAW MULCH		
		Sta 4267+00 to Sta 4307+00	7.16	ACRE
260	0200	SILT FENCE UNSUPPORTED		
		Protecting 18-d, 19c	32	LF
260	0201	REMOVE SILT FENCE UNSUPPORTED		
		Protecting 18-d, 19c	32	LF
261	0112	FIBER ROLLS 12 IN		
		Sta 4267+00 to Sta 4307+00	1756	LF
261	0113	REMOVE FIBER ROLLS 12 IN		
		Sta 4267+00 to Sta 4307+00	1756	LF
262	0100	FLOTATION SILT CURTAIN		
		Sta 4289+81 to Sta 4290+24	60	LF
262	0101	REMOVE FLOTATION SILT CURTAIN		
		Sta 4289+81 to Sta 4290+24	60	LF

Legend

- Temporary Cover Crop & Straw Mulch
- Avoidance Area
- SF — Silt Fence Unsupported
- Fiber Rolls - 12 IN
- S — Floatation Silt Curtain

ND 31

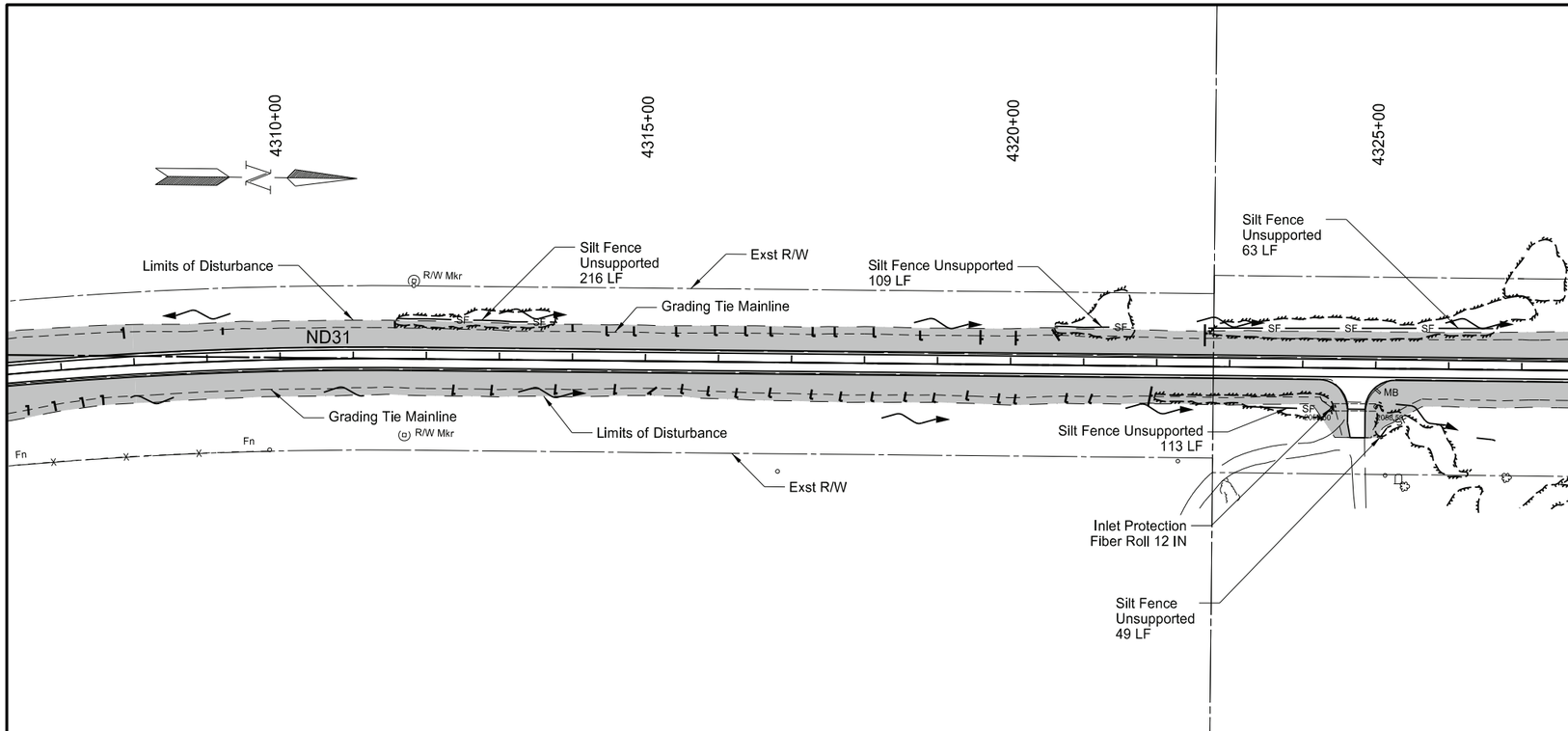
Jct I-94 to Hannover
Morton County

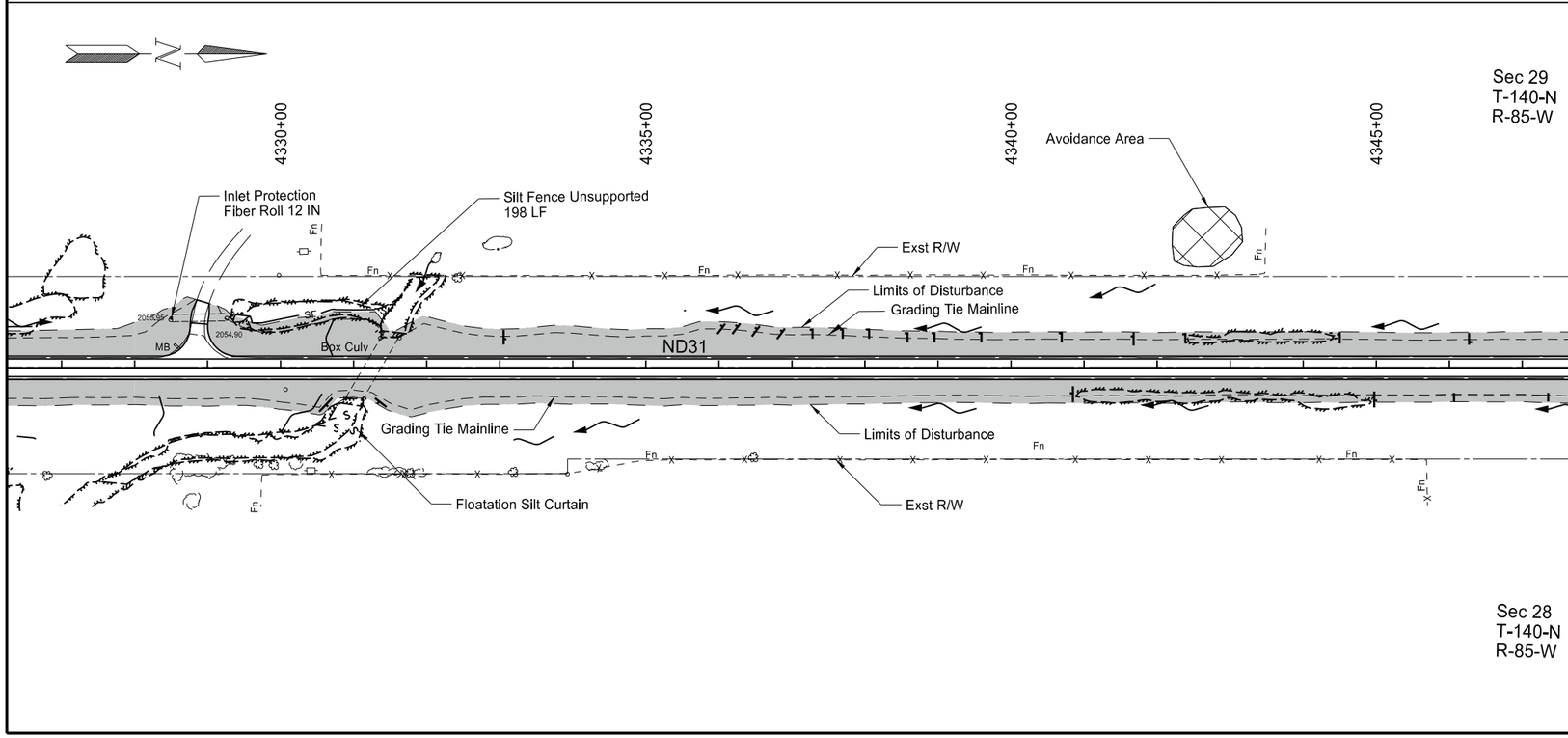
Temporary Erosion Control

Sta 4268+00 to Sta 4308+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	76	6





SPEC	CODE	BID ITEM	QTY	UNIT
251	2000	TEMPORARY COVER CROP		
		Sta 4307+00 Sta 4347+00	6.59	ACRE
253	0101	STRAW MULCH		
		Sta 4307+00 Sta 4347+00	6.59	ACRE
260	0200	SILT FENCE UNSUPPORTED		
		Protecting 20, 21, 22b, 23b-d, 24c, 26	1080	LF
260	0201	REMOVE SILT FENCE UNSUPPORTED		
		Protecting 20, 21, 22b, 23b-d, 24c, 26	1080	LF
261	0112	FIBER ROLLS 12 IN		
		Sta 4307+00 Sta 4347+00	915	LF
261	0113	REMOVE FIBER ROLLS 12 IN		
		Sta 4307+00 Sta 4347+00	915	LF
262	0100	FLOTATION SILT CURTAIN		
		Sta 4330+81 to Sta 4331+14	90	LF
262	0101	REMOVE FLOTATION SILT CURTAIN		
		Sta 4330+81 to Sta 4331+14	90	LF

Legend

- Temporary Cover Crop & Straw Mulch
- Avoidance Area
- SF — Silt Fence Unsupported
- Fiber Rolls - 12 IN
- S — Floatation Silt Curtain

ND 31

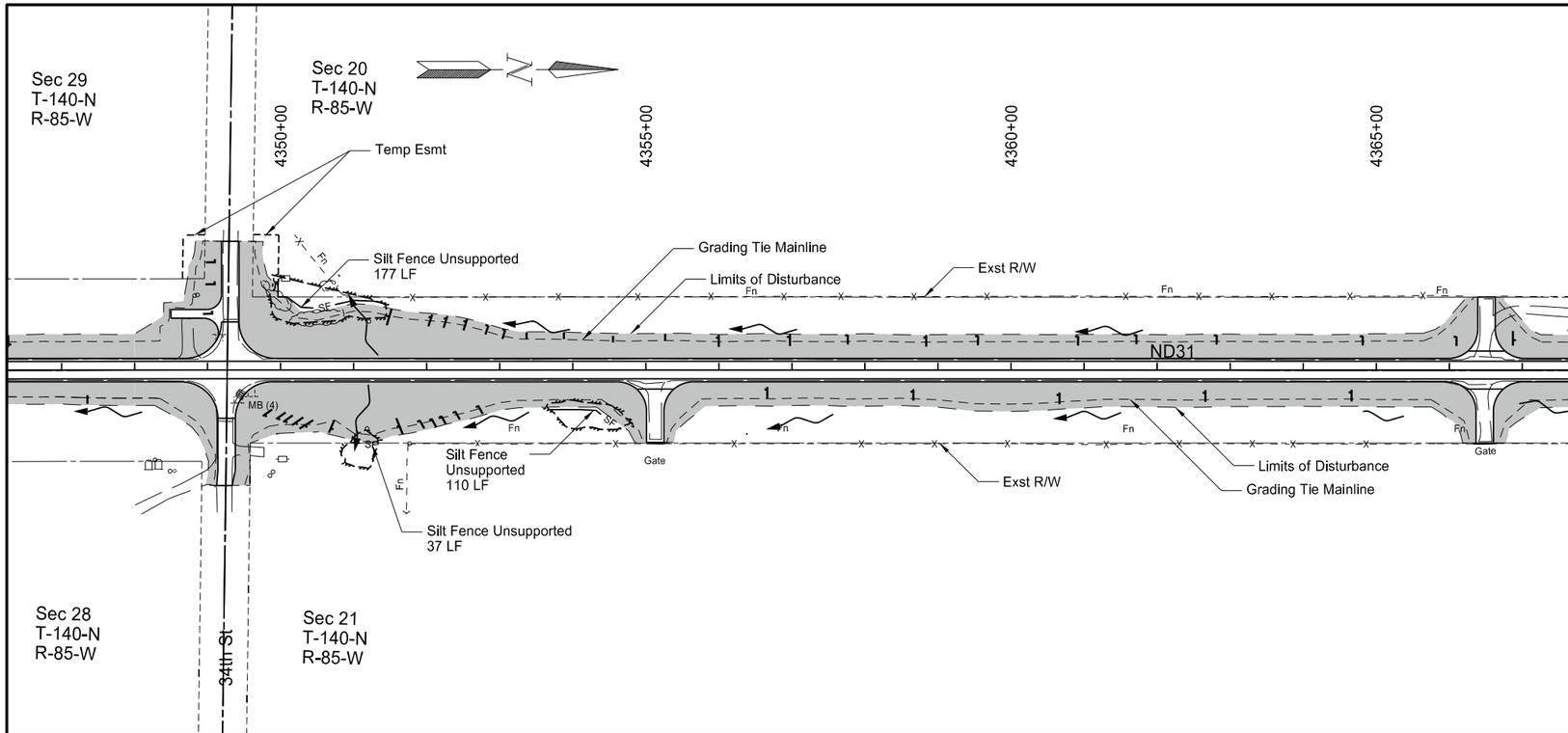
Jct I-94 to Hannover
Morton County

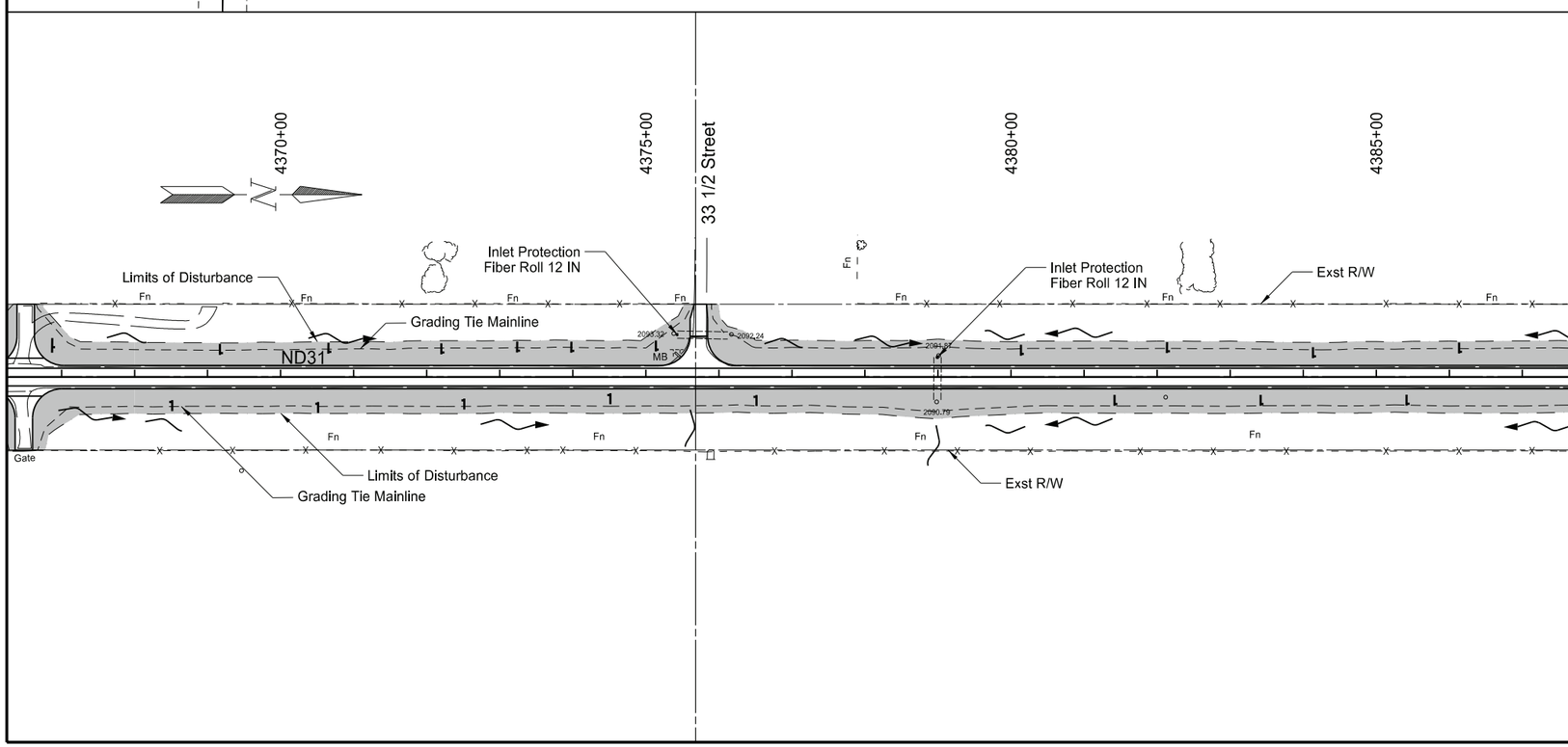
Temporary Erosion Control

Sta 4308+00 to Sta 4348+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	76	7





SPEC	CODE	BID ITEM	QTY	UNIT
251	2000	TEMPORARY COVER CROP		
		Sta 4347+00 to Sta 4387+00	7.17	ACRE
253	0101	STRAW MULCH		
		Sta 4347+00 to Sta 4387+00	7.17	ACRE
260	0200	SILT FENCE UNSUPPORTED		
		Protecting 27a, 27b, 28	324	LF
260	0201	REMOVE SILT FENCE UNSUPPORTED		
		Protecting 27a, 27b, 28	324	LF
261	0112	FIBER ROLLS 12 IN		
		Sta 4347+00 to Sta 4387+00	898	LF
261	0113	REMOVE FIBER ROLLS 12 IN		
		Sta 4347+00 to Sta 4387+00	898	LF

Legend

- Temporary Cover Crop & Straw Mulch
- Avoidance Area
- SF — Silt Fence Unsupported
- Fiber Rolls - 12 IN
- S — Floatation Silt Curtain

ND 31

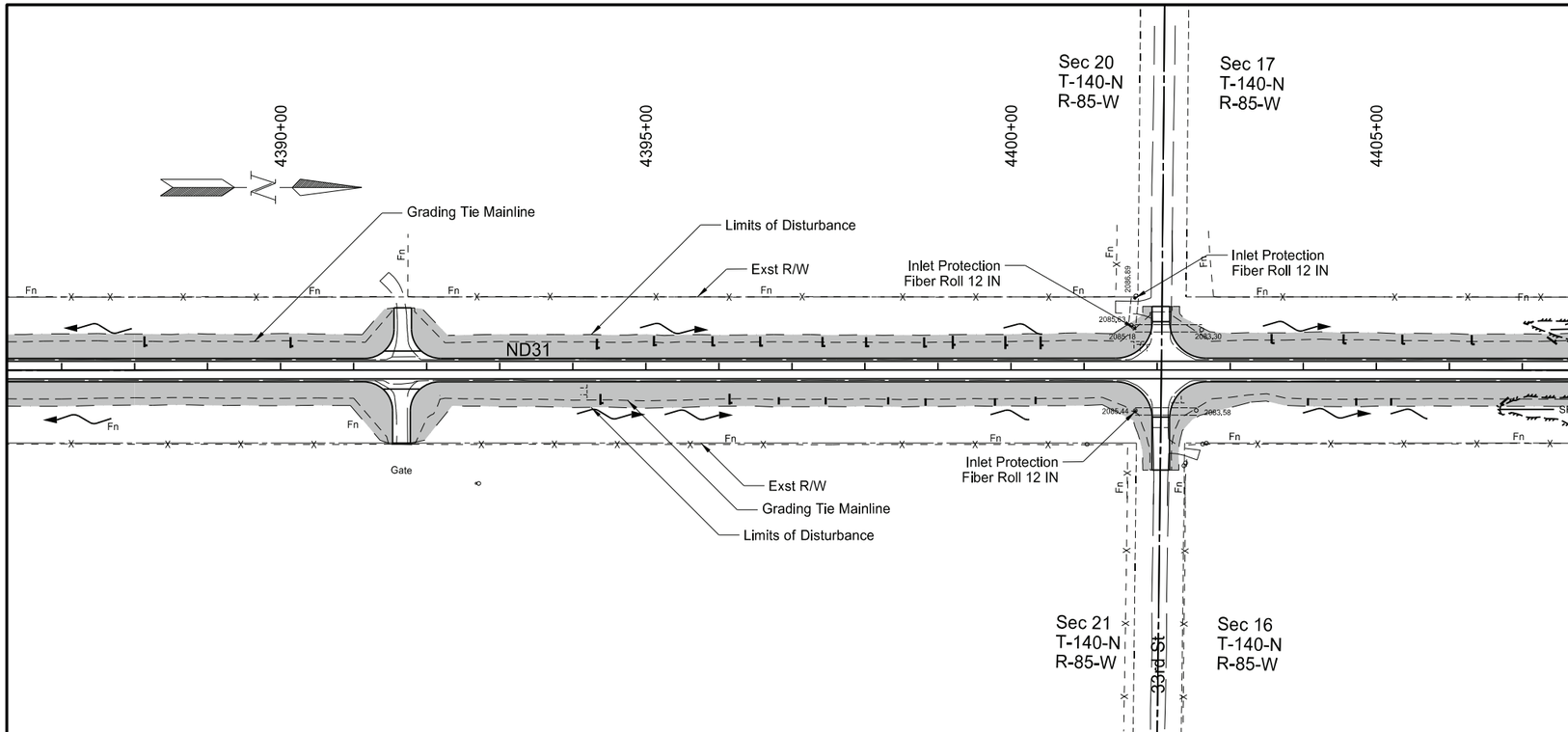
Jct I-94 to Hannover
Morton County

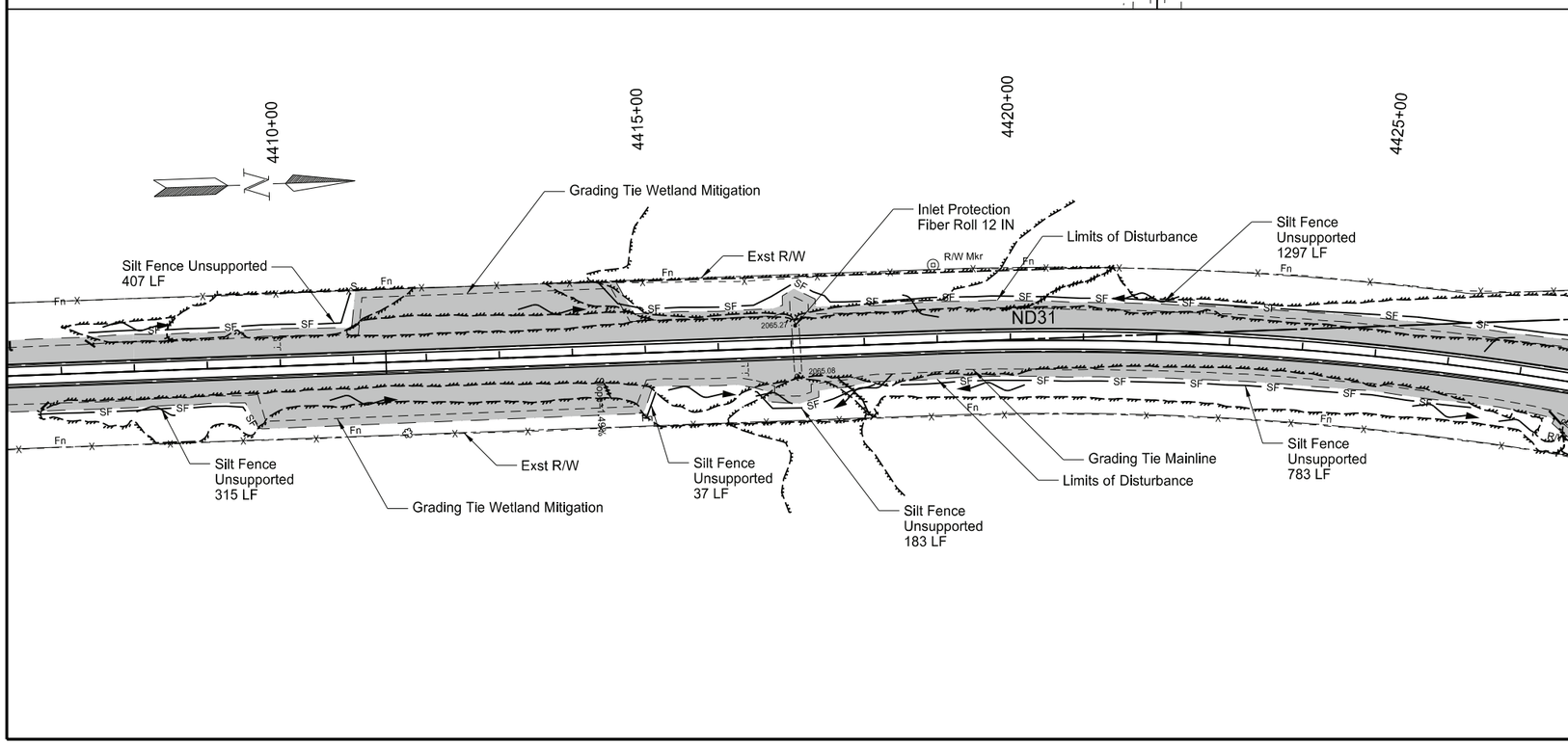
Temporary Erosion Control

Sta 4348+00 to Sta 4388+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	76	8





SPEC	CODE	BID ITEM	QTY	UNIT
251	2000	TEMPORARY COVER CROP		
		Sta 4387+00 to Sta 4427+00	7.31	ACRE
253	0101	STRAW MULCH		
		Sta 4387+00 to Sta 4427+00	7.31	ACRE
260	0200	SILT FENCE UNSUPPORTED		
		Protecting 29a, 29b, 29c, 29e, 29f 29g, 29h 29i	3029	LF
260	0201	REMOVE SILT FENCE UNSUPPORTED		
		Protecting 29a, 29b, 29c, 29e, 29f 29g, 29h 29i	3029	LF
261	0112	FIBER ROLLS 12 IN		
		Sta 4387+00 to Sta 4427+00	438	LF
261	0113	REMOVE FIBER ROLLS 12 IN		
		Sta 4387+00 to Sta 4427+00	438	LF

Legend

- Temporary Cover Crop & Straw Mulch
- Avoidance Area
- — SF — Silt Fence Unsupported
- Fiber Rolls - 12 IN
- — S — Floatation Silt Curtain

ND 31

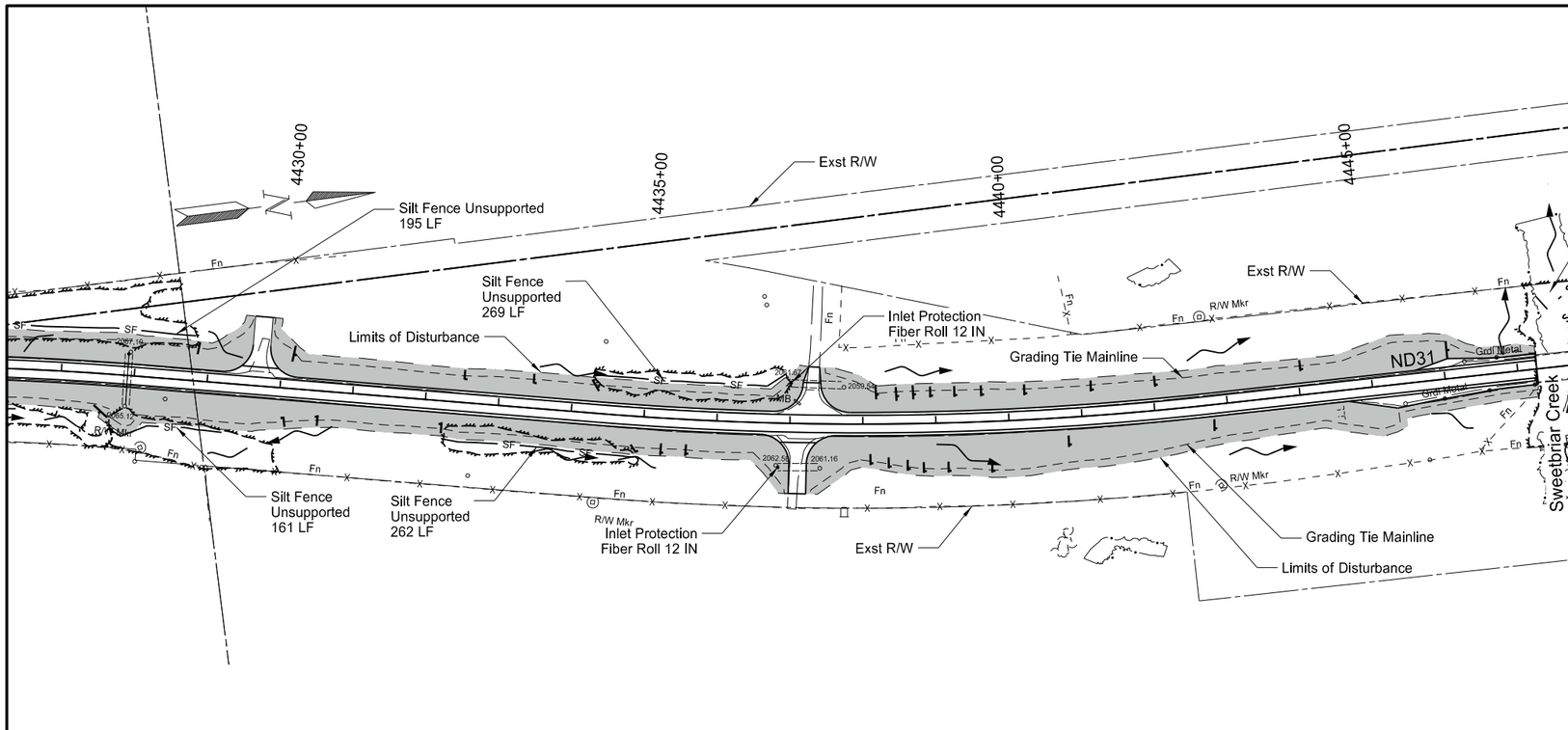
Jct I-94 to Hannover
Morton County

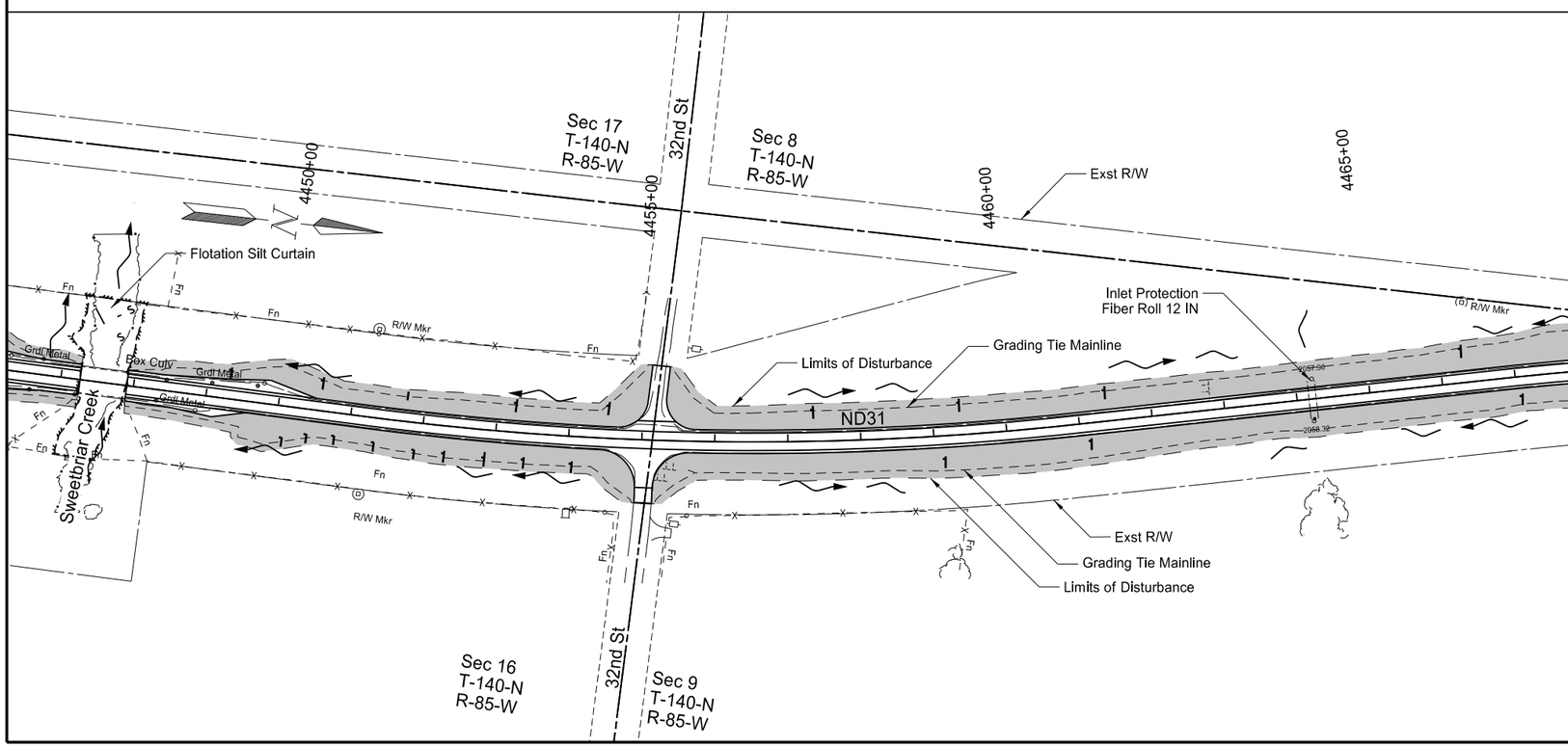
Temporary Erosion Control

Sta 4388+00 to Sta 4428+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	76	9





SPEC	CODE	BID ITEM	QTY	UNIT
251	2000	TEMPORARY COVER CROP		
		Sta 4427+00 to Sta 4467+00	6.67	ACRE
253	0101	STRAW MULCH		
		Sta 4427+00 to Sta 4467+00	6.67	ACRE
260	0200	SILT FENCE UNSUPPORTED		
		Protecting 29d, 30, 31	880	LF
260	0201	REMOVE SILT FENCE UNSUPPORTED		
		Protecting 29d, 30, 31	880	LF
261	0112	FIBER ROLLS 12 IN		
		Sta 4427+00 to Sta 4467+00	837	LF
261	0113	REMOVE FIBER ROLLS 12 IN		
		Sta 4427+00 to Sta 4467+00	837	LF
262	0100	FLOTATION SILT CURTAIN		
		Sta 4447+26 to Sta 4447+91	75	LF
262	0101	REMOVE FLOTATION SILT CURTAIN		
		Sta 4447+26 to Sta 4447+91	75	LF

Legend

- Temporary Cover Crop & Straw Mulch
- Avoidance Area
- SF — Silt Fence Unsupported
- Fiber Rolls - 12 IN
- S — Floatation Silt Curtain

ND 31

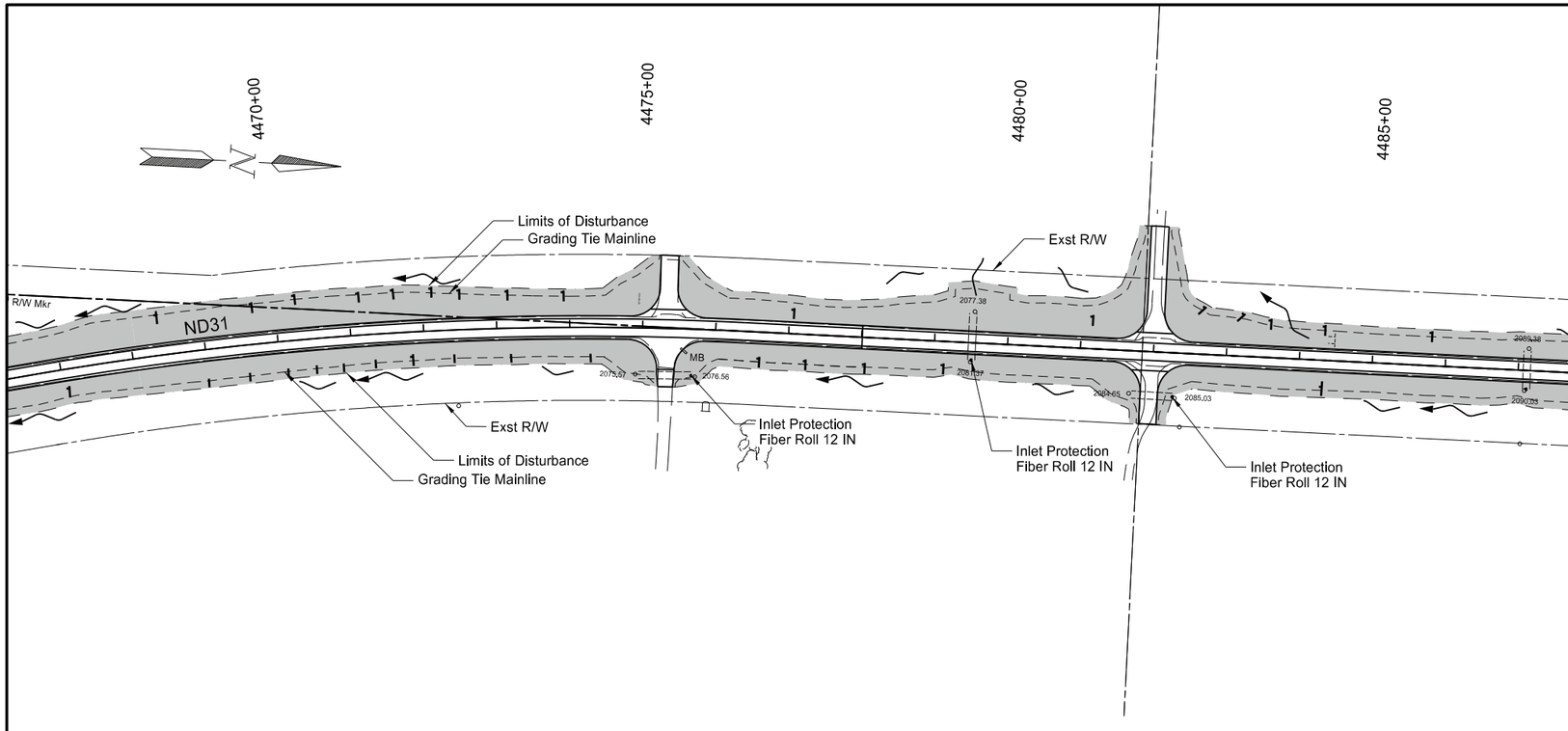
Jct I-94 to Hannover
Morton County

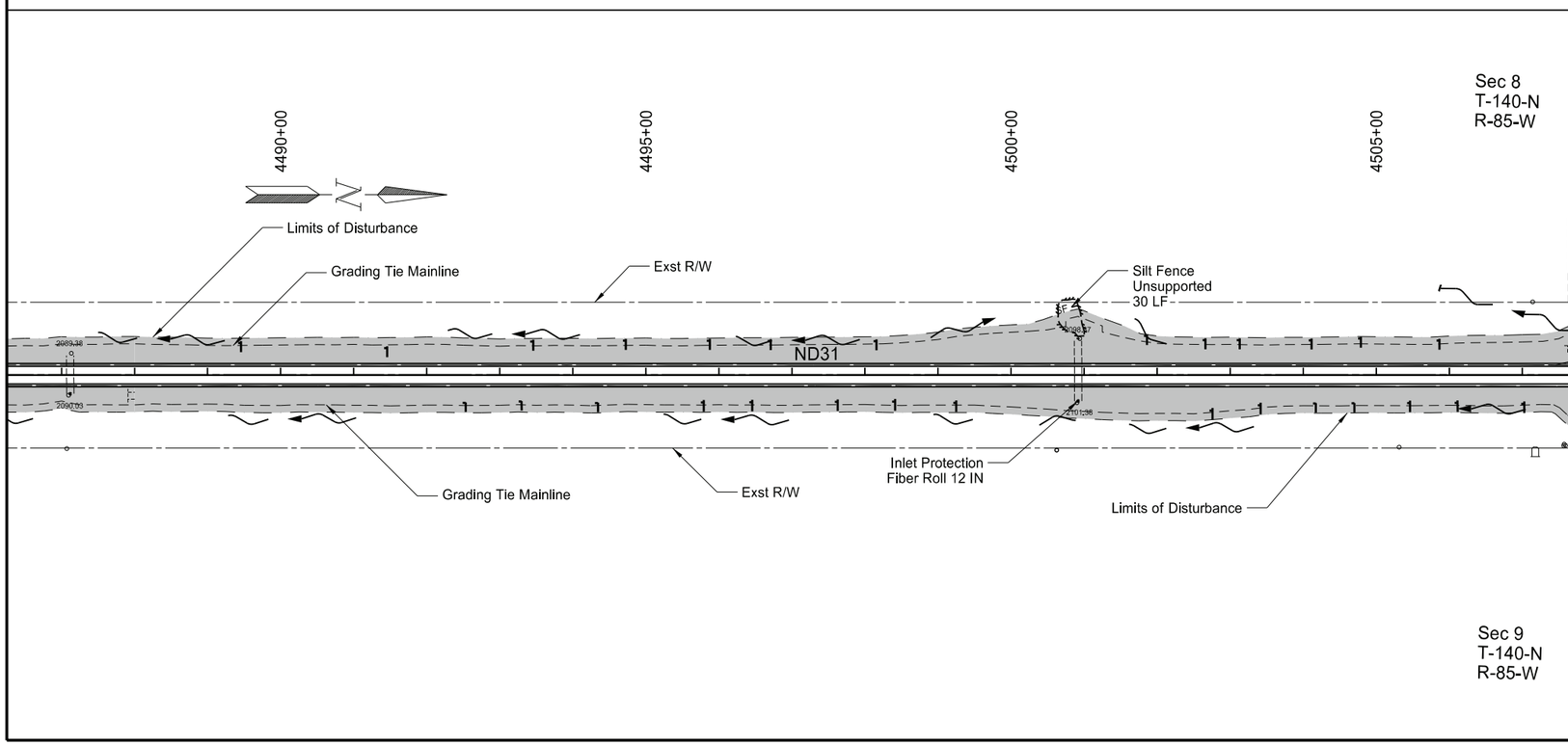
Temporary Erosion Control

Sta 4428+00 to Sta 4468+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	76	10





SPEC	CODE	BID ITEM	QTY	UNIT
251	2000	TEMPORARY COVER CROP		
		Sta 4467+00 to Sta 4507+00	7.32	ACRE
253	0101	STRAW MULCH		
		Sta 4467+00 to Sta 4507+00	7.32	ACRE
260	0200	SILT FENCE UNSUPPORTED		
		Protecting 33-d	30	LF
260	0201	REMOVE SILT FENCE UNSUPPORTED		
		Protecting 33-d	30	LF
261	0112	FIBER ROLLS 12 IN		
		Sta 4467+00 to Sta 4507+00	902	LF
261	0113	REMOVE FIBER ROLLS 12 IN		
		Sta 4467+00 to Sta 4507+00	902	LF

Legend

- Temporary Cover Crop & Straw Mulch
- Avoidance Area
- SF — Silt Fence Unsupported
- Fiber Rolls - 12 IN
- S — Floatation Silt Curtain

ND 31

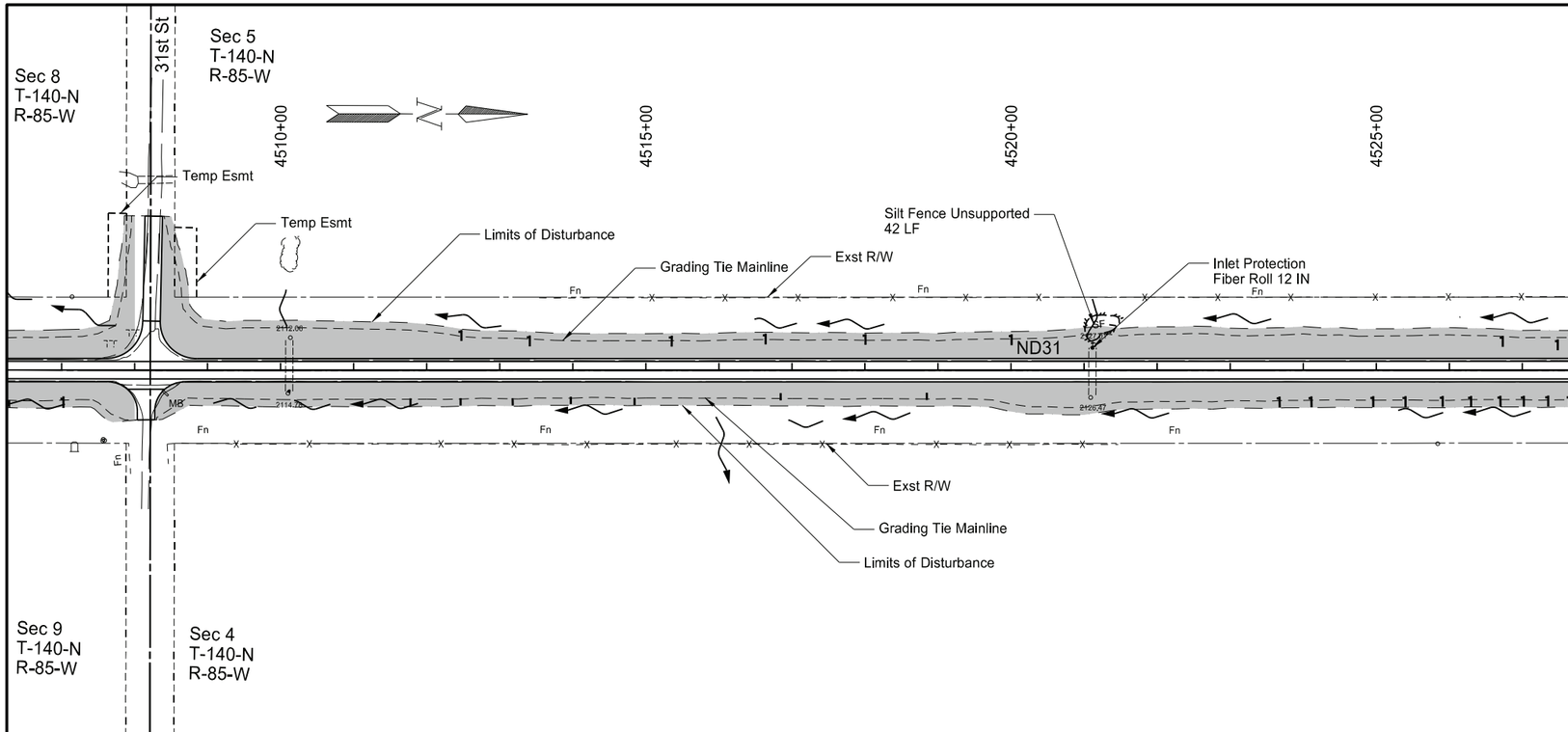
Jct I-94 to Hannover
Morton County

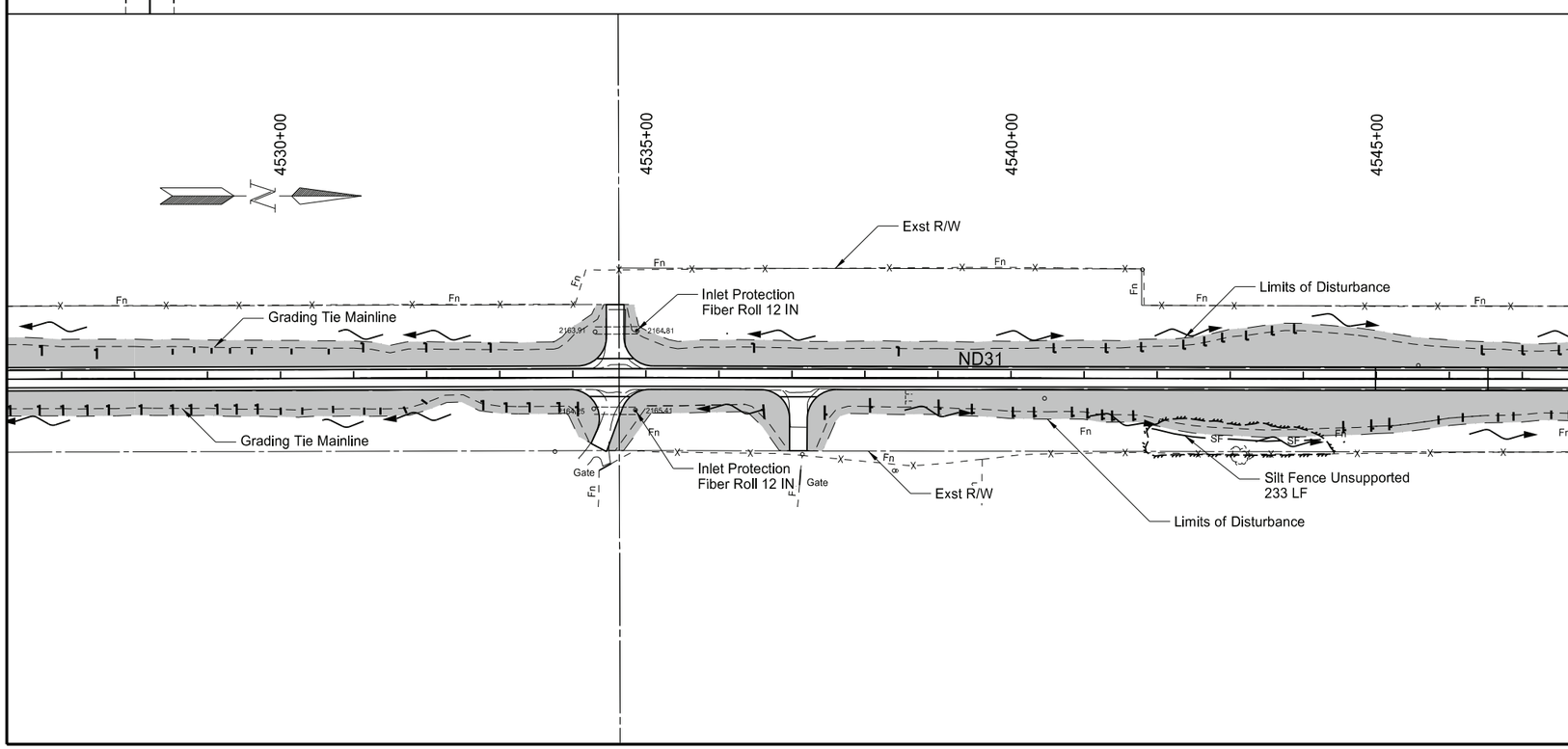
Temporary Erosion Control

Sta 4468+00 to Sta 4508+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	76	11





SPEC	CODE	BID ITEM	QTY	UNIT
251	2000	TEMPORARY COVER CROP		
		Sta 4507+00 to Sta 4547+00	7.20	ACRE
253	0101	STRAW MULCH		
		Sta 4507+00 to Sta 4547+00	7.20	ACRE
260	0200	SILT FENCE UNSUPPORTED		
		Protecting 34, 35	275	LF
260	0201	REMOVE SILT FENCE UNSUPPORTED		
		Protecting 34, 35	275	LF
261	0112	FIBER ROLLS 12 IN		
		Sta 4507+00 to Sta 4547+00	1204	LF
261	0113	REMOVE FIBER ROLLS 12 IN		
		Sta 4507+00 to Sta 4547+00	1204	LF

Legend

- Temporary Cover Crop & Straw Mulch
- Avoidance Area
- SF — Silt Fence Unsupported
- Fiber Rolls - 12 IN
- S — Floatation Silt Curtain

ND 31

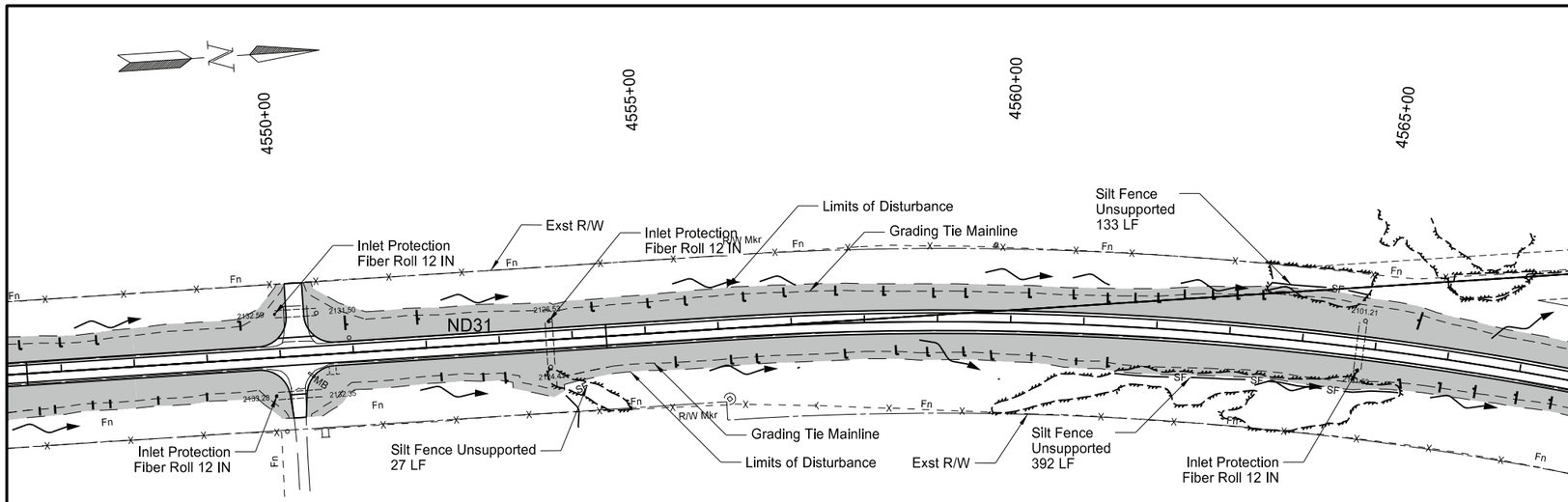
Jct I-94 to Hannover
Morton County

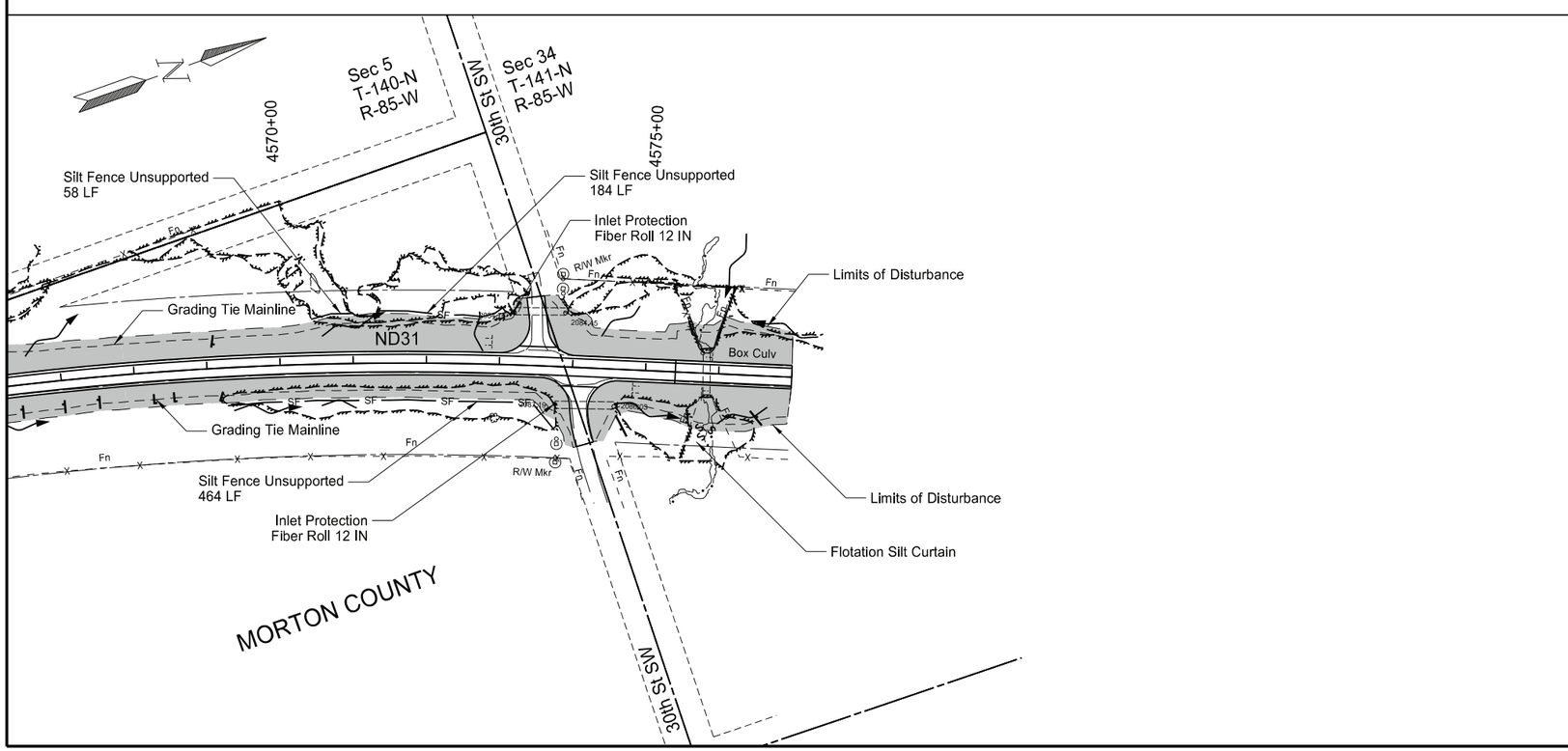
Temporary Erosion Control

Sta 4508+00 to Sta 4548+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	76	12





SPEC	CODE	BID ITEM	QTY	UNIT
251	2000	TEMPORARY COVER CROP		
		Sta 4547+00 to Sta 4577+00	5.37	ACRE
253	0101	STRAW MULCH		
		Sta 4547+00 to Sta 4577+00	5.37	ACRE
260	0200	SILT FENCE UNSUPPORTED		
		Protecting 36-d, 37a, 37b, 37c, 37d, 37j, 37e	1258	LF
260	0201	REMOVE SILT FENCE UNSUPPORTED		
		Protecting 36-d, 37a, 37b, 37c, 37d, 37j, 37e	1258	LF
261	0112	FIBER ROLLS 12 IN		
		Sta 4547+00 to Sta 4577+00	800	LF
261	0113	REMOVE FIBER ROLLS 12 IN		
		Sta 4547+00 to Sta 4577+00	800	LF
262	0100	FLOTATION SILT CURTAIN		
		Sta 4575+75 to Sta 4575+98	60	LF
262	0101	REMOVE FLOTATION SILT CURTAIN		
		Sta 4575+75 to Sta 4575+98	60	LF

Legend

- Temporary Cover Crop & Straw Mulch
- Avoidance Area
- SF — Silt Fence Unsupported
- Fiber Rolls - 12 IN
- S — Floatation Silt Curtain

ND 31

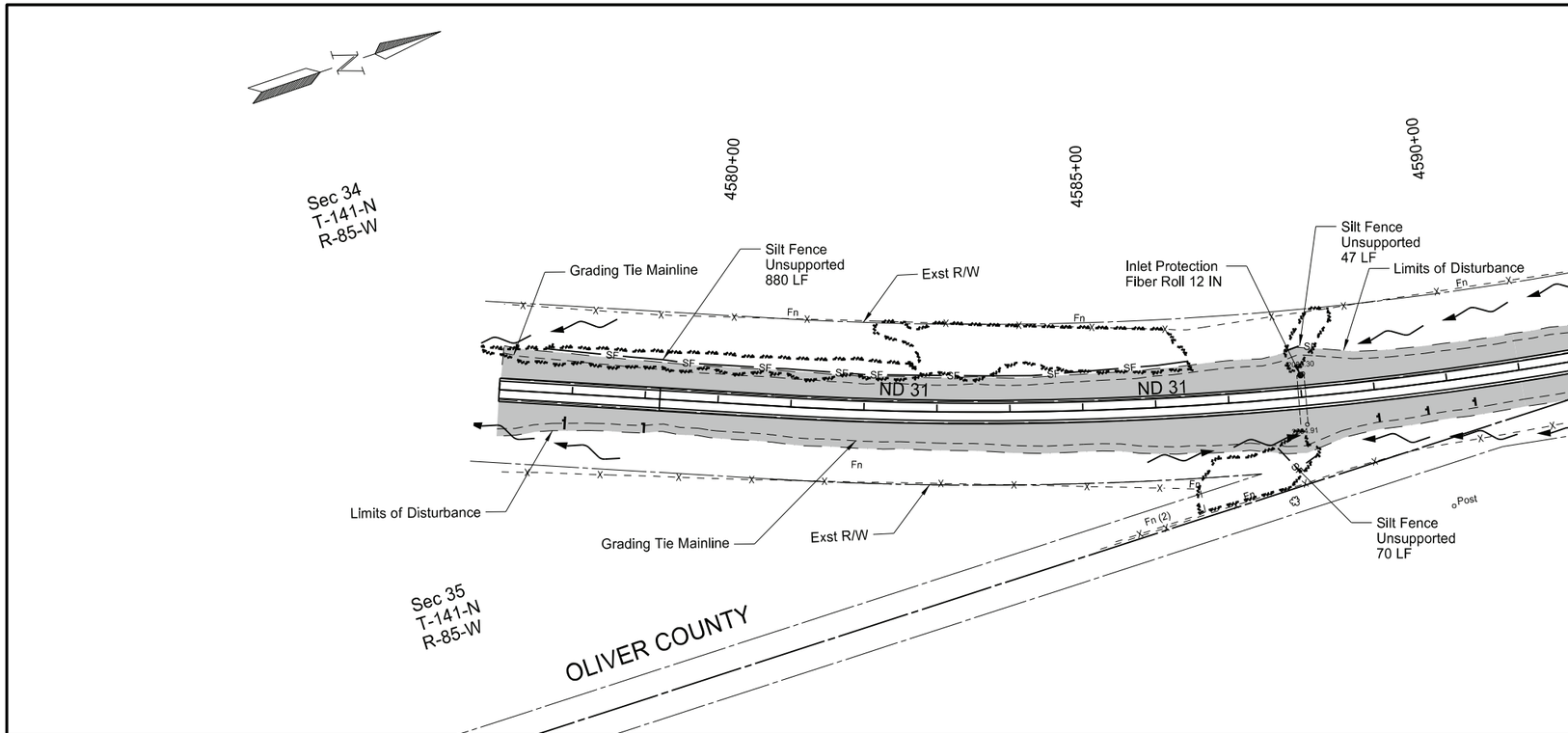
Jct I-94 to Hannover
Morton County

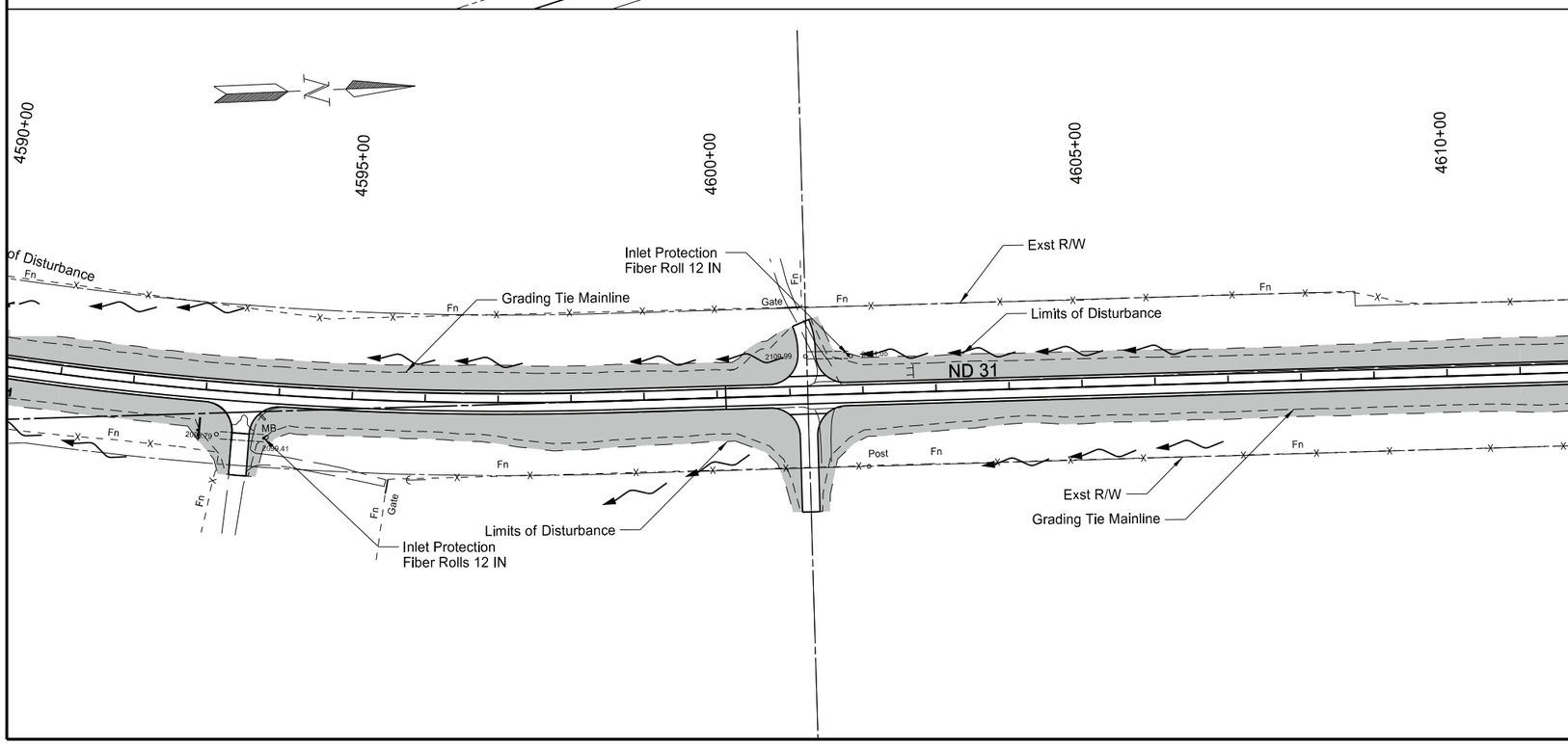
Temporary Erosion Control

Sta 4548+00 to Sta 4577+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	76	13





SPEC	CODE	BID ITEM	QTY	UNIT
251	2000	TEMPORARY COVER CROP		
		Sta 4577+00 to Sta Sta 4611+00	5.87	ACRE
253	0101	STRAW MULCH		
		Sta 4577+00 to Sta Sta 4611+00	5.87	ACRE
260	0200	SILT FENCE UNSUPPORTED		
		Sta 4577+00 to Sta Sta 4611+00	997	LF
260	0201	REMOVE SILT FENCE UNSUPPORTED		
		Sta 4577+00 to Sta Sta 4611+00	997	LF
261	0112	FIBER ROLLS 12 IN		
		Sta 4577+00 to Sta Sta 4611+00	131	LF
261	0113	REMOVE FIBER ROLLS 12 IN		
		Sta 4577+00 to Sta Sta 4611+00	131	LF

Legend

- Temporary Cover Crop & Straw Mulch
- Avoidance Area
- SF — Silt Fence Unsupported
- Fiber Rolls - 12 IN
- S — Floatation Silt Curtain

ND 31

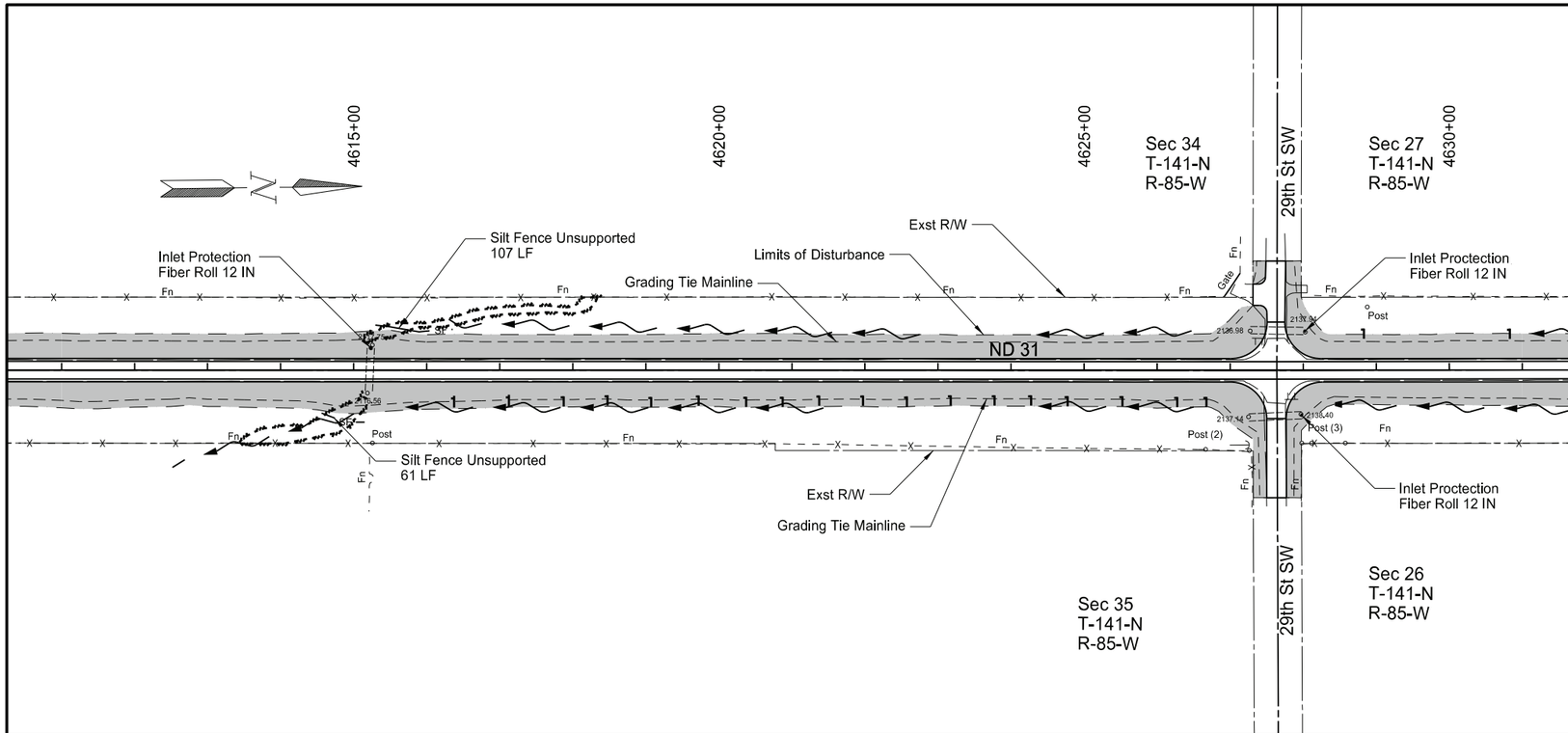
Jct I-94 to Hannover
Oliver County

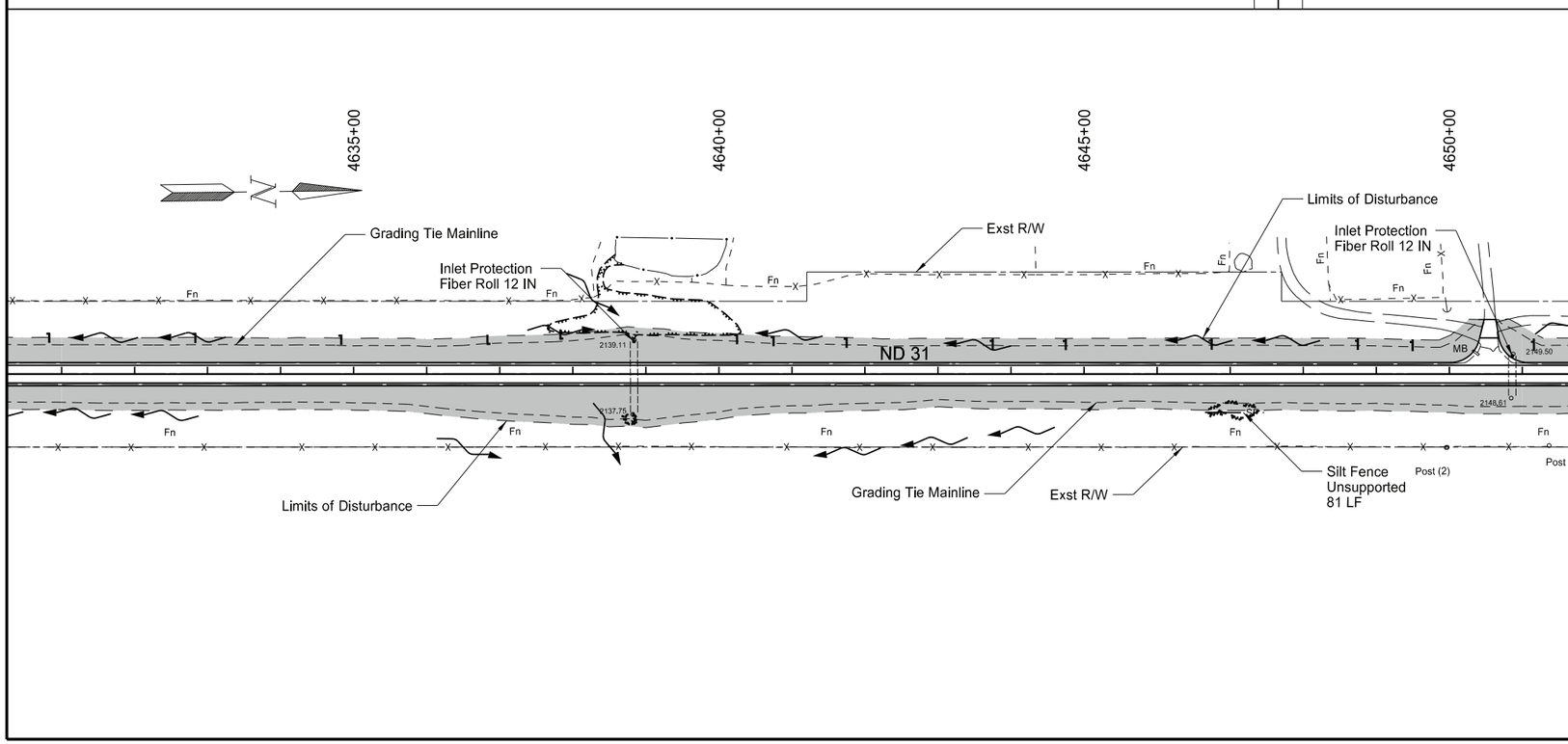
Temporary Erosion Control

Sta 4577+00 to Sta 4611+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	76	14





SPEC	CODE	BID ITEM	QTY	UNIT
251	2000	TEMPORARY COVER CROP		
		Sta 4611+00 to Sta 4651+00	6.64	ACRE
253	0101	STRAW MULCH		
		Sta 4611+00 to Sta 4651+00	6.64	ACRE
260	0200	SILT FENCE UNSUPPORTED		
		Sta 4611+00 to Sta 4651+00	249	LF
260	0201	REMOVE SILT FENCE UNSUPPORTED		
		Sta 4611+00 to Sta 4651+00	249	LF
261	0112	FIBER ROLLS 12 IN		
		Sta 4611+00 to Sta 4651+00	499	LF
261	0113	REMOVE FIBER ROLLS 12 IN		
		Sta 4611+00 to Sta 4651+00	499	LF

Legend

- Temporary Cover Crop & Straw Mulch
- Avoidance Area
- SF — Silt Fence Unsupported
- Fiber Rolls - 12 IN
- S — Floatation Silt Curtain

ND 31

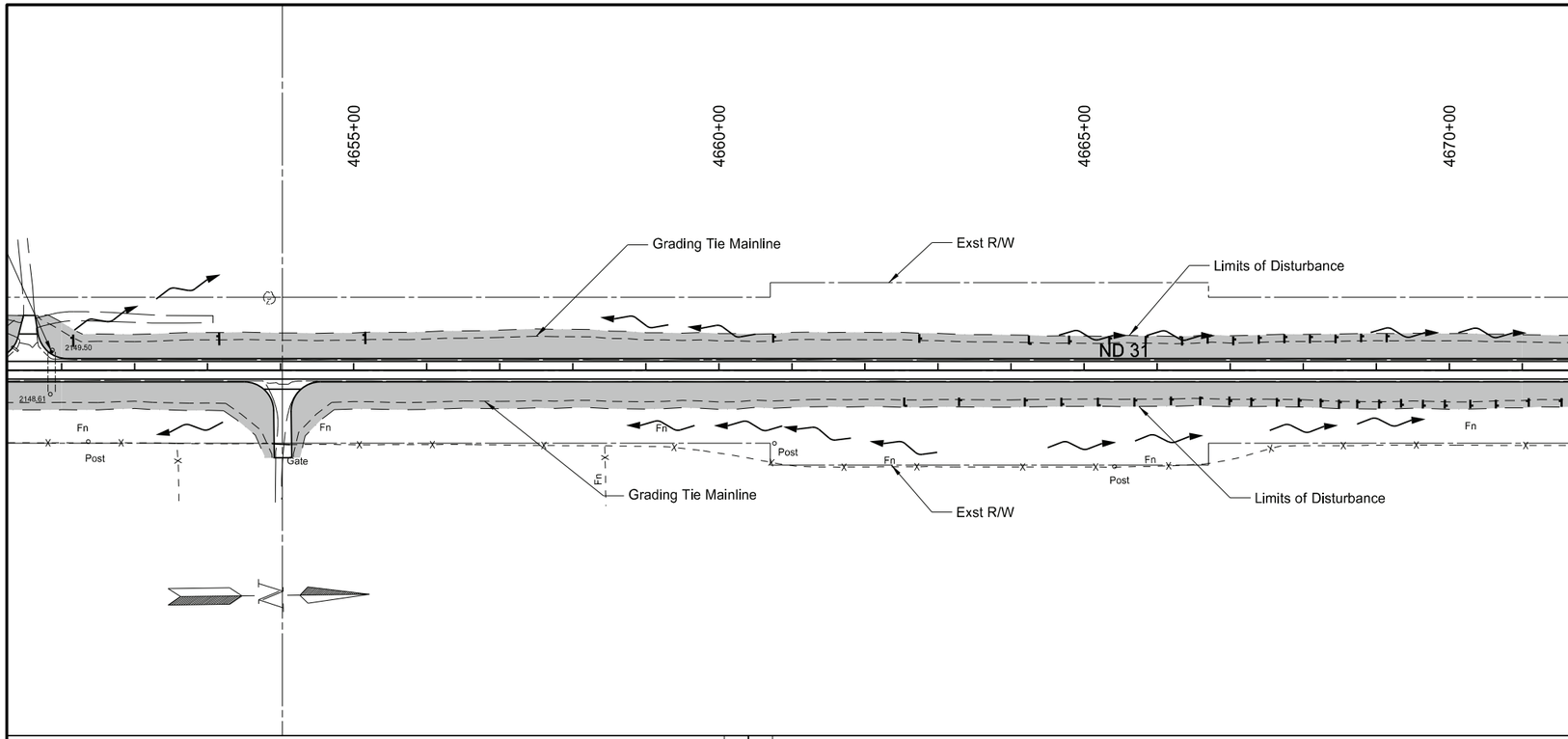
Jct I-94 to Hannover
Oliver County

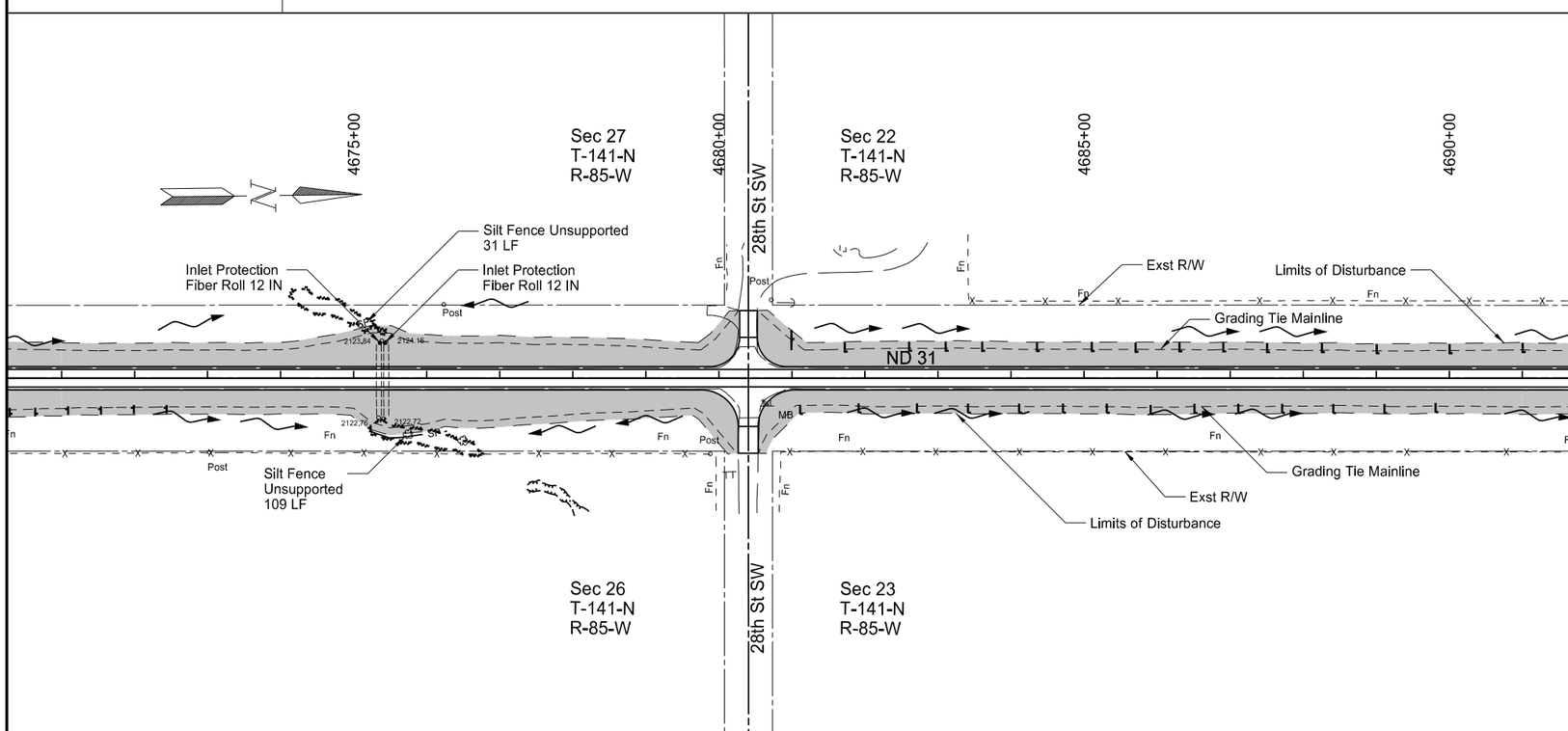
Temporary Erosion Control

Sta 4611+00 to Sta 4651+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	76	15





SPEC	CODE	BID ITEM	QTY	UNIT
251	2000	TEMPORARY COVER CROP		
		Sta 4651+00 to Sta 4691+00	6.67	ACRE
253	0101	STRAW MULCH		
		Sta 4651+00 to Sta 4691+00	6.67	ACRE
260	0200	SILT FENCE UNSUPPORTED		
		Sta 4651+00 to Sta 4691+00	139	LF
260	0201	REMOVE SILT FENCE UNSUPPORTED		
		Sta 4651+00 to Sta 4691+00	139	LF
261	0112	FIBER ROLLS 12 IN		
		Sta 4651+00 to Sta 4691+00	944	LF
261	0113	REMOVE FIBER ROLLS 12 IN		
		Sta 4651+00 to Sta 4691+00	944	LF

Legend

- Temporary Cover Crop & Straw Mulch
- Avoidance Area
- SF — Silt Fence Unsupported
- Fiber Rolls - 12 IN
- S — Floatation Silt Curtain

ND 31

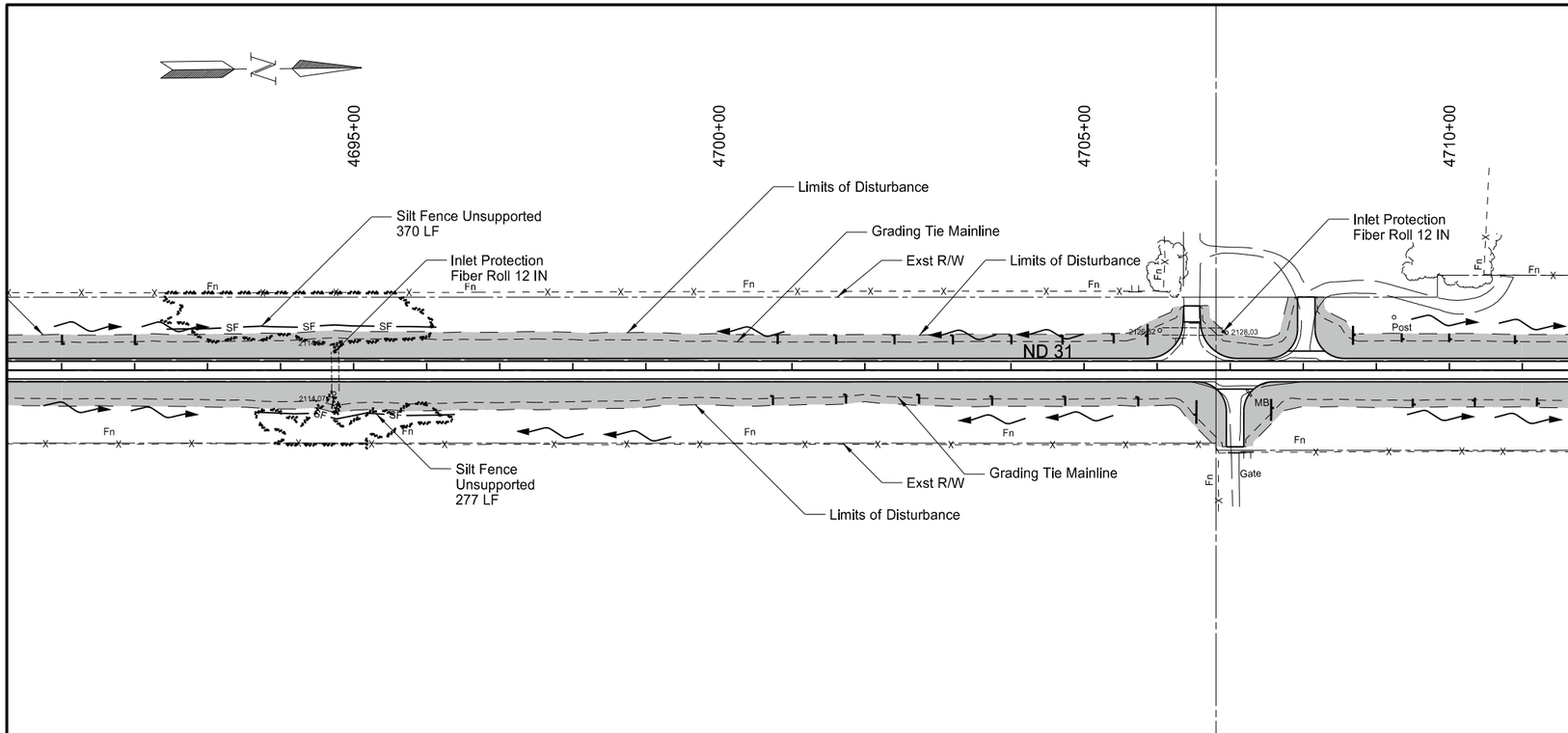
Jct I-94 to Hannover
Oliver County

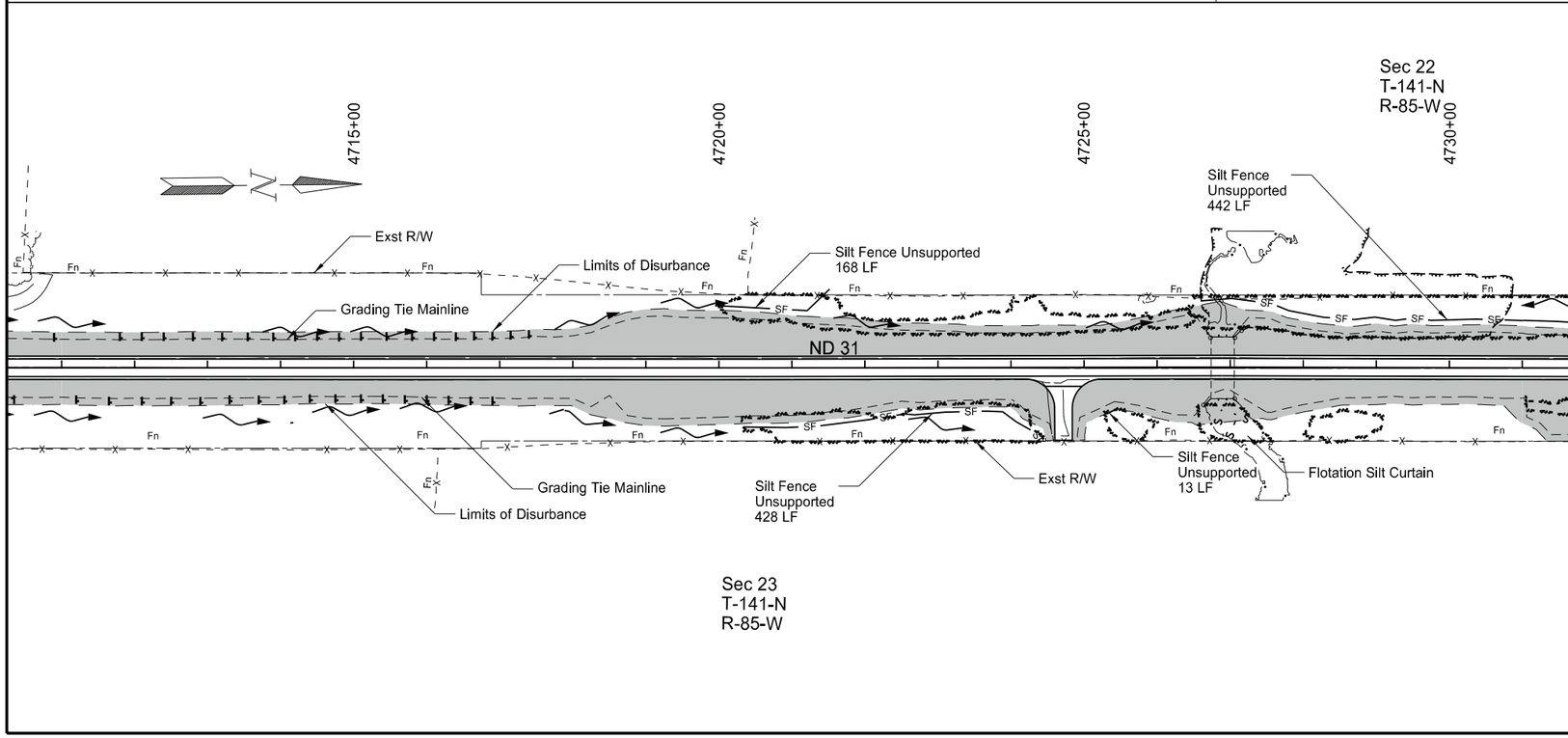
Temporary Erosion Control

Sta 4651+00 to Sta 4691+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	76	16





SPEC	CODE	BID ITEM	QTY	UNIT
251	2000	TEMPORARY COVER CROP		
		Sta 4691+00 to Sta 4731+00	7.29	ACRE
253	0101	STRAW MULCH		
		Sta 4691+00 to Sta 4731+00	7.29	ACRE
260	0200	SILT FENCE UNSUPPORTED		
		Sta 4691+00 to Sta 4731+00	1698	LF
260	0201	REMOVE SILT FENCE UNSUPPORTED		
		Sta 4691+00 to Sta 4731+00	1698	LF
261	0112	FIBER ROLLS 12 IN		
		Sta 4691+00 to Sta 4731+00	821	LF
261	0113	REMOVE FIBER ROLLS 12 IN		
		Sta 4691+00 to Sta 4731+00	821	LF
262	0100	FLOTATION SILT CURTAIN		
		Sta 4727+00 to Sta 4727+58	90	LF
262	0101	REMOVE FLOTATION SILT CURTAIN		
		Sta 4727+00 to Sta 4727+58	90	LF

Legend

- Temporary Cover Crop & Straw Mulch
- Avoidance Area
- SF — Silt Fence Unsupported
- Fiber Rolls - 12 IN
- S — Floatation Silt Curtain

ND 31

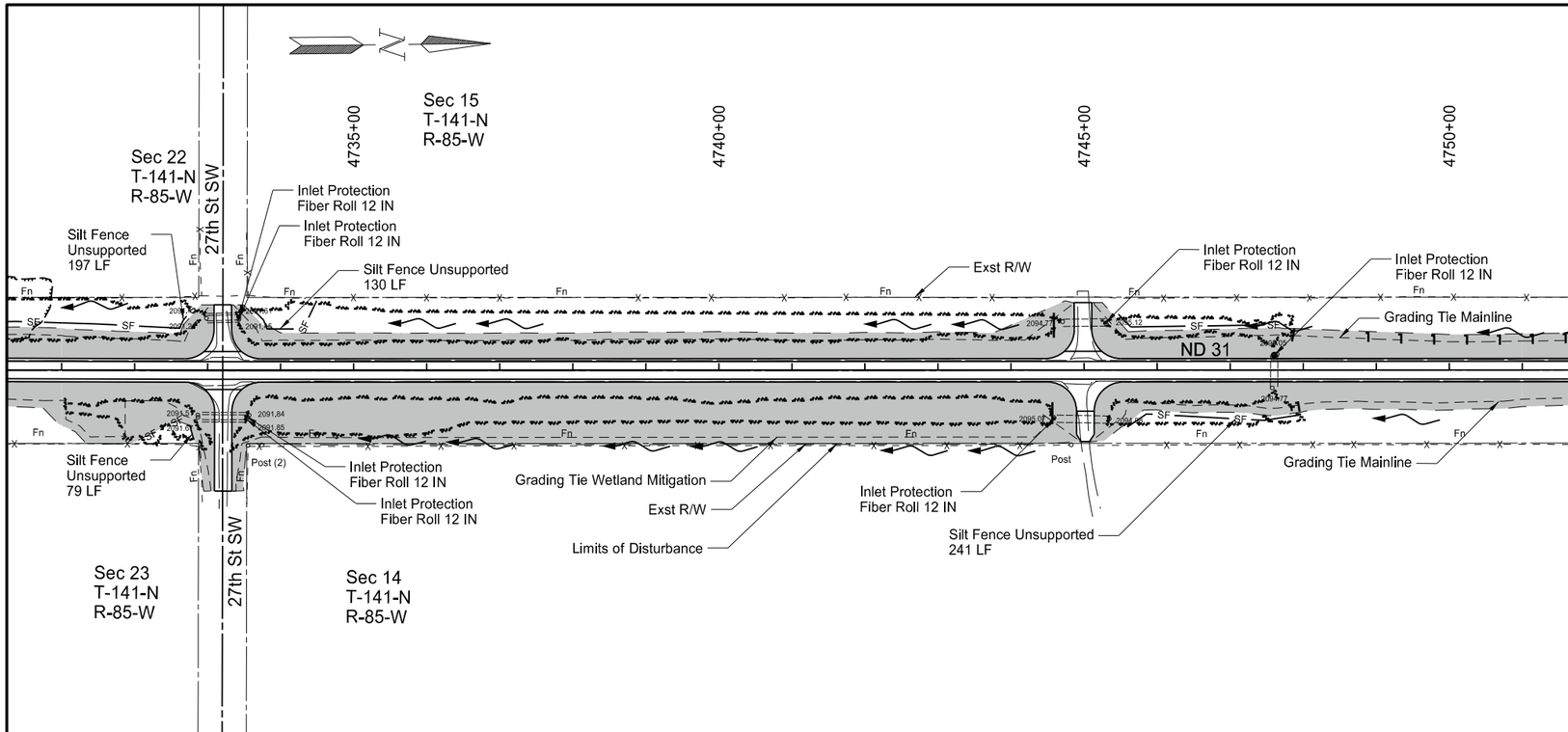
Jct I-94 to Hannover
Oliver County

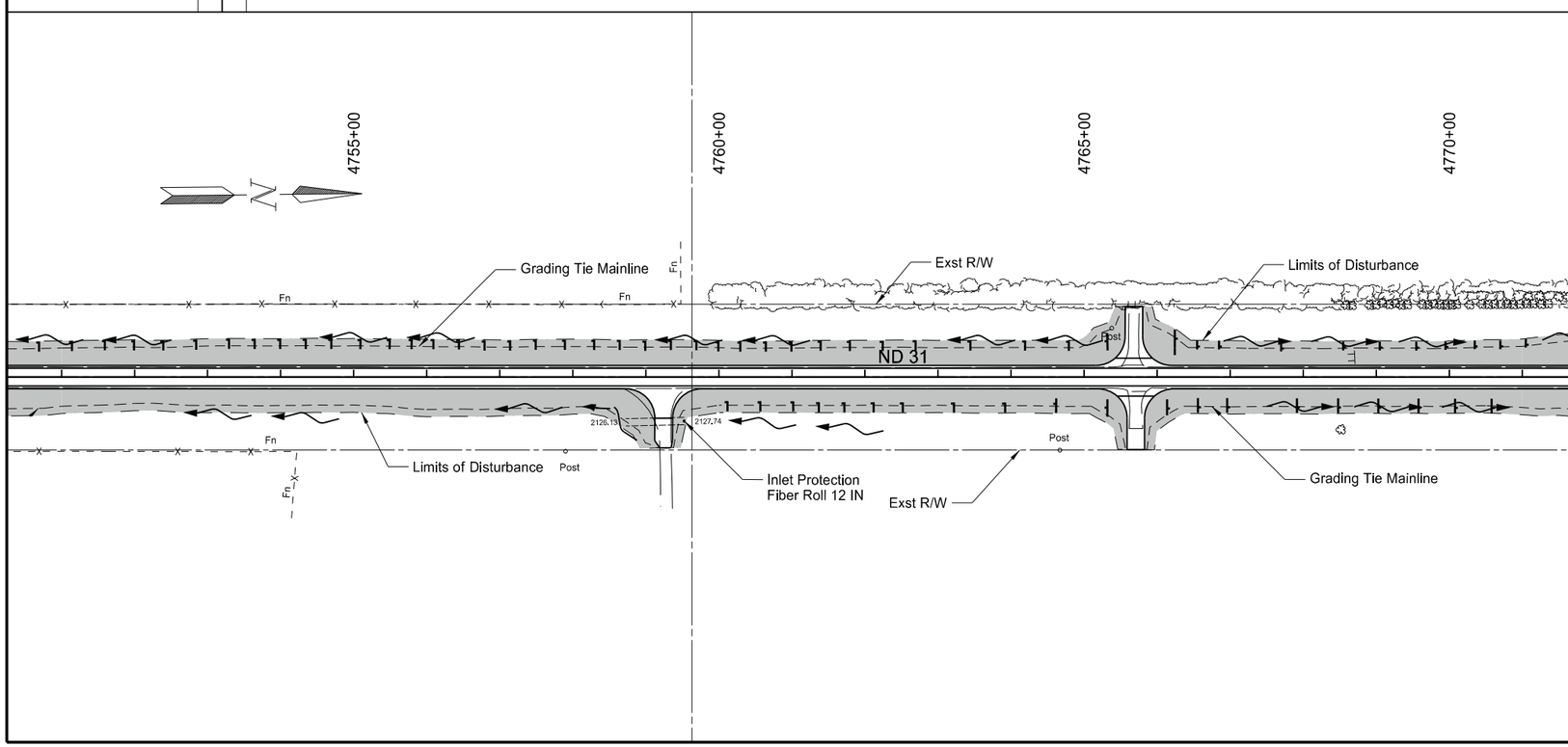
Temporary Erosion Control

Sta 4691+00 to Sta 4731+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	76	17





SPEC	CODE	BID ITEM	QTY	UNIT
251	2000	TEMPORARY COVER CROP		
		Sta 4731+00 to Sta 4771+00	8.23	ACRE
253	0101	STRAW MULCH		
		Sta 4731+00 to Sta 4771+00	8.23	ACRE
260	0200	SILT FENCE UNSUPPORTED		
		Sta 4731+00 to Sta 4771+00	886	LF
260	0201	REMOVE SILT FENCE UNSUPPORTED		
		Sta 4731+00 to Sta 4771+00	886	LF
261	0112	FIBER ROLLS 12 IN		
		Sta 4731+00 to Sta 4771+00	1238	LF
261	0113	REMOVE FIBER ROLLS 12 IN		
		Sta 4731+00 to Sta 4771+00	1238	LF

Legend

- Temporary Cover Crop & Straw Mulch
- Avoidance Area
- SF — Silt Fence Unsupported
- Fiber Rolls - 12 IN
- S — Floatation Silt Curtain

ND 31

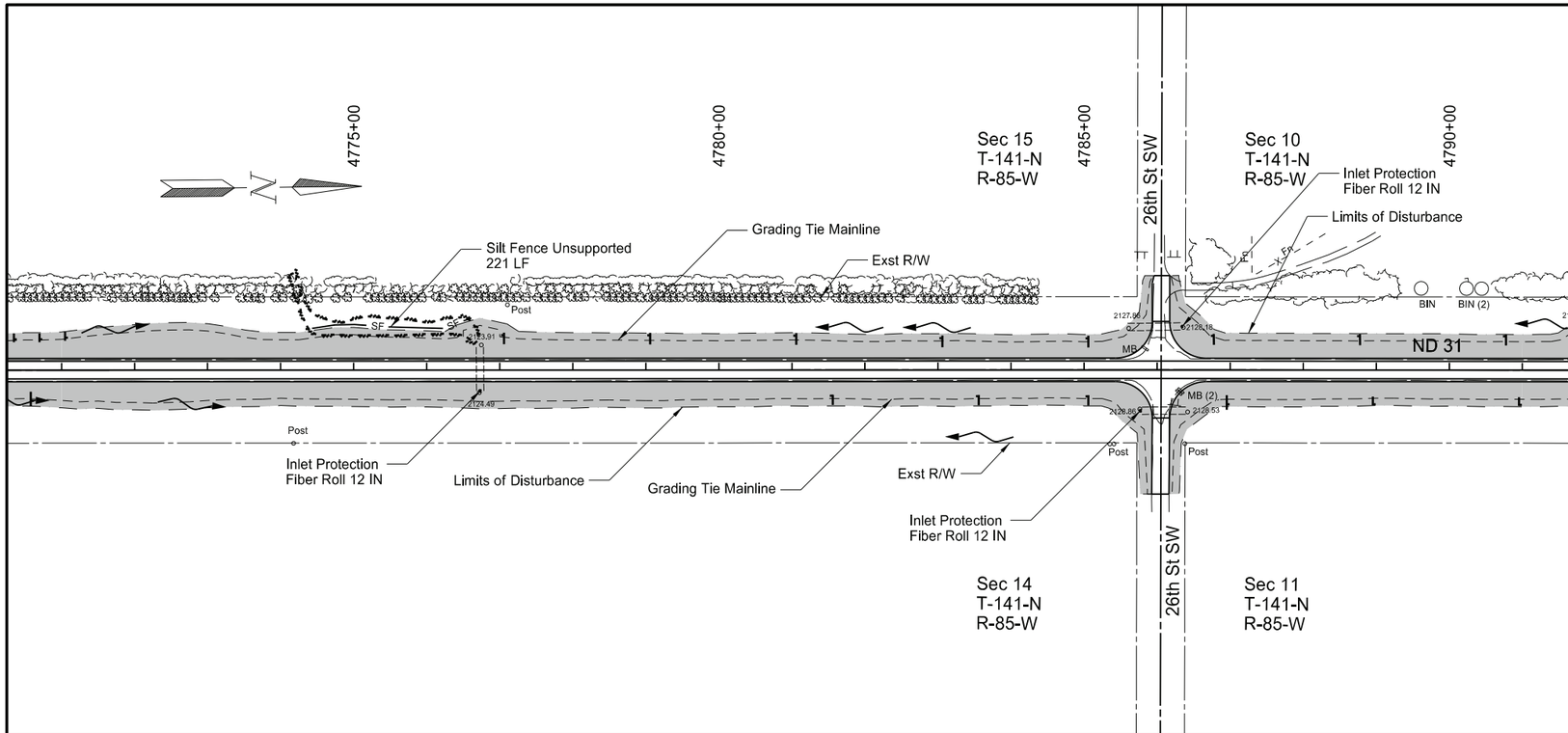
Jct I-94 to Hannover
Oliver County

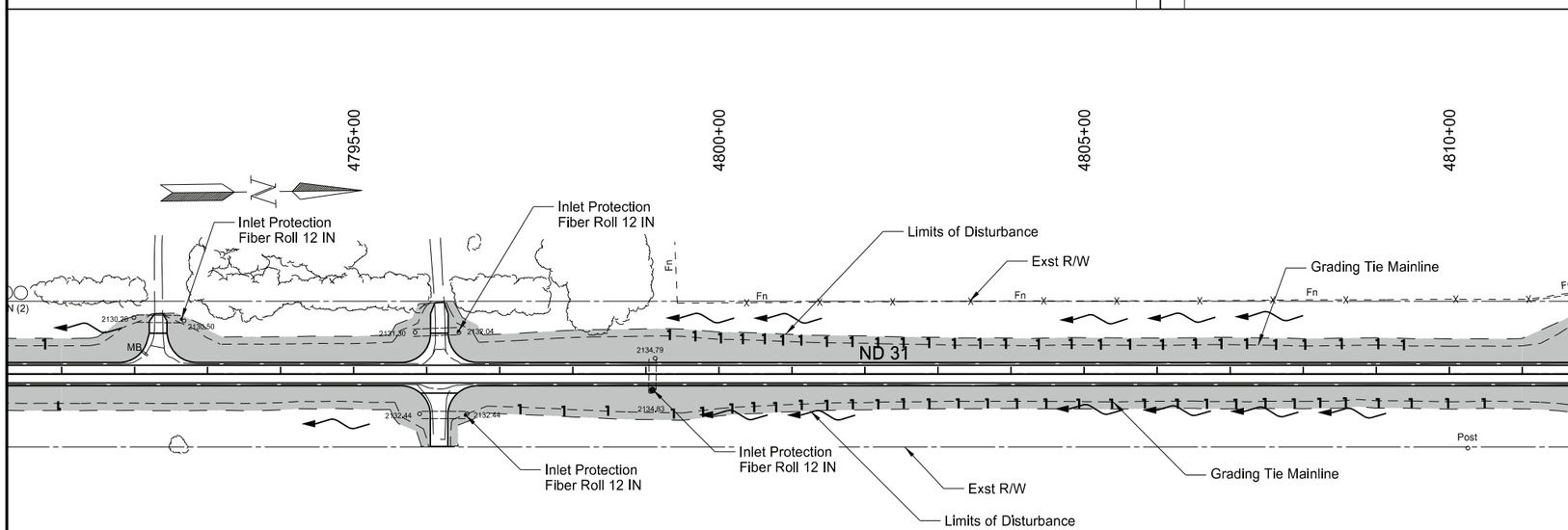
Temporary Erosion Control

Sta 4731+00 to Sta 4771+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	76	18





SPEC	CODE	BID ITEM	QTY	UNIT
251	2000	TEMPORARY COVER CROP		
		Sta 4771+00 to Sta 4811+00	6.74	ACRE
253	0101	STRAW MULCH		
		Sta 4771+00 to Sta 4811+00	6.74	ACRE
260	0200	SILT FENCE UNSUPPORTED		
		Sta 4771+00 to Sta 4811+00	221	LF
260	0201	REMOVE SILT FENCE UNSUPPORTED		
		Sta 4771+00 to Sta 4811+00	221	LF
261	0112	FIBER ROLLS 12 IN		
		Sta 4771+00 to Sta 4811+00	1150	LF
261	0113	REMOVE FIBER ROLLS 12 IN		
		Sta 4771+00 to Sta 4811+00	1150	LF

Legend

- Temporary Cover Crop & Straw Mulch
- Avoidance Area
- — SF — Silt Fence Unsupported
- Fiber Rolls - 12 IN
- — S — Floatation Silt Curtain

ND 31

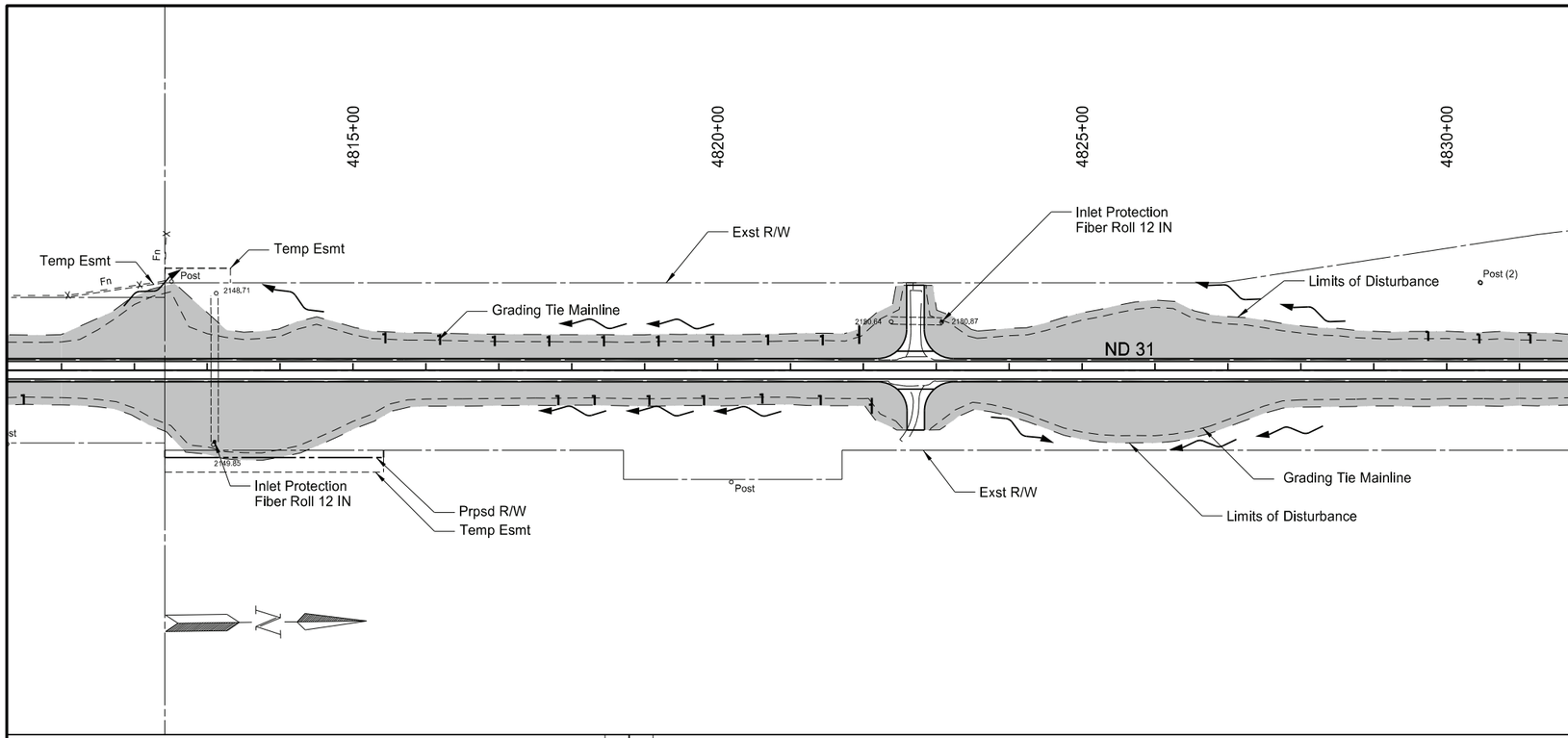
Jct I-94 to Hannover
Oliver County

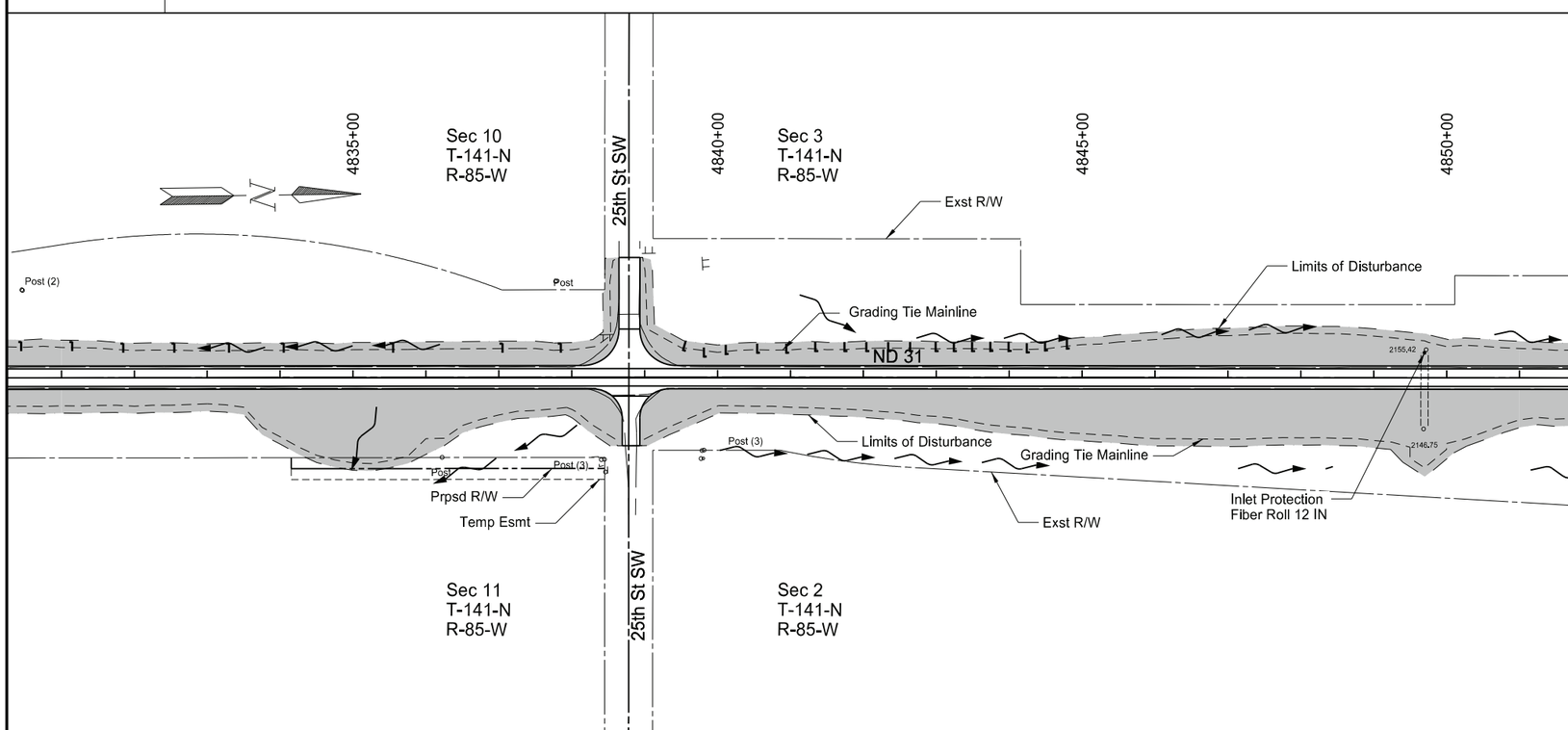
Temporary Erosion Control

Sta 4771+00 to Sta 4811+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	76	19





SPEC	CODE	BID ITEM	QTY	UNIT
251	2000	TEMPORARY COVER CROP		
		Sta 4811+00 to Sta 4851+00	9.02	ACRE
253	0101	STRAW MULCH		
		Sta 4811+00 to Sta 4851+00	9.02	ACRE
261	0112	FIBER ROLLS 12 IN		
		Sta 4811+00 to Sta 4851+00	672	LF
261	0113	REMOVE FIBER ROLLS 12 IN		
		Sta 4811+00 to Sta 4851+00	672	LF

Legend

- Temporary Cover Crop & Straw Mulch
- Avoidance Area
- — SF — Silt Fence Unsupported
- Fiber Rolls - 12 IN
- — S — Floatation Silt Curtain

ND 31

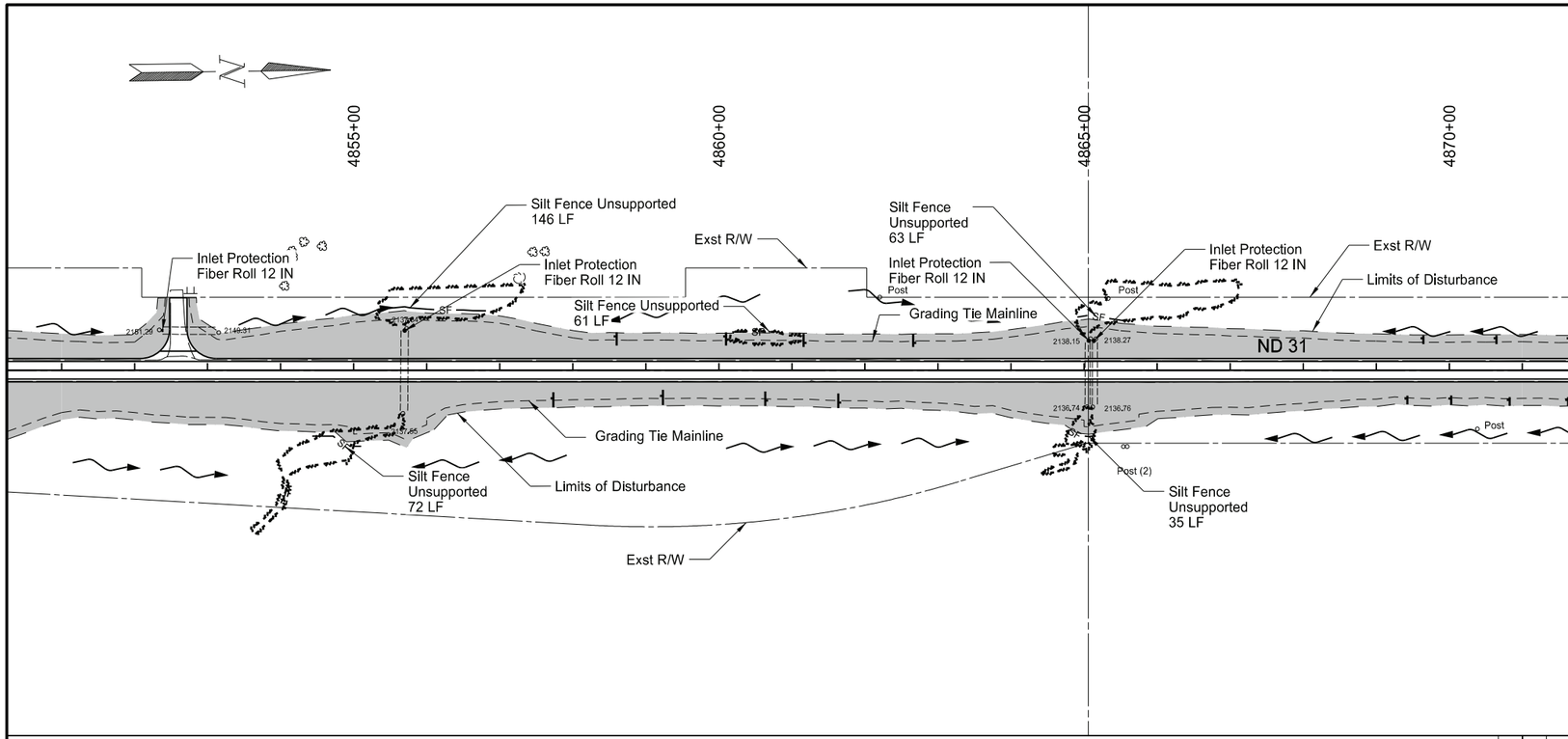
Jct I-94 to Hannover
Oliver County

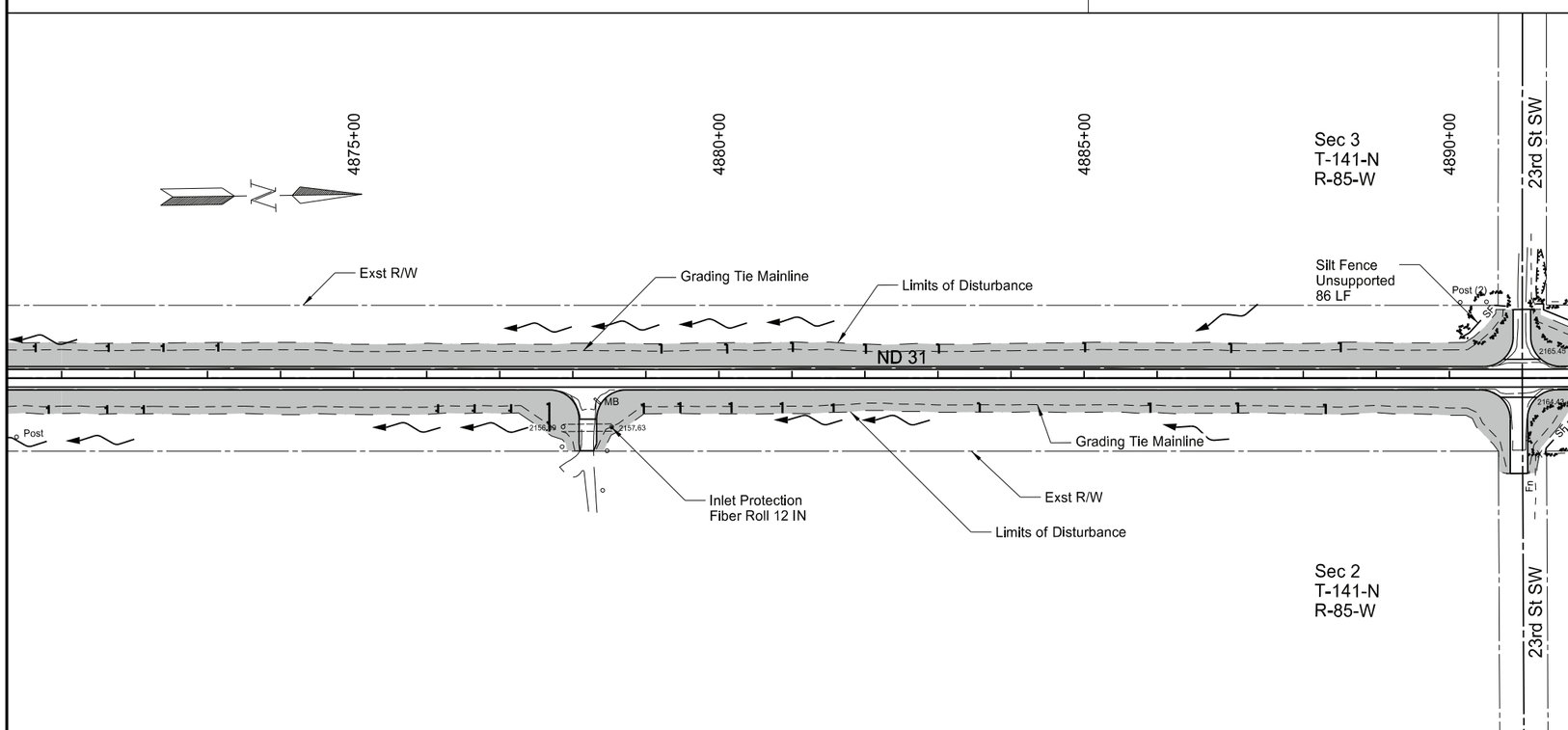
Temporary Erosion Control

Sta 4811+00 to Sta 4851+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	76	20





	CODE	BID ITEM	QTY	UNIT
251	2000	TEMPORARY COVER CROP		
		Sta 4851+00 to Sta 4891+00	7.09	ACRE
253	0101	STRAW MULCH		
		Sta 4851+00 to Sta 4891+00	7.09	ACRE
260	0200	SILT FENCE UNSUPPORTED		
		Sta 4851+00 to Sta 4891+00	463	LF
260	0201	REMOVE SILT FENCE UNSUPPORTED		
		Sta 4851+00 to Sta 4891+00	463	LF
261	0112	FIBER ROLLS 12 IN		
		Sta 4851+00 to Sta 4891+00	623	LF
261	0113	REMOVE FIBER ROLLS 12 IN		
		Sta 4851+00 to Sta 4891+00	623	LF

Legend

- Temporary Cover Crop & Straw Mulch
- Avoidance Area
- SF — Silt Fence Unsupported
- Fiber Rolls - 12 IN
- S — Floatation Silt Curtain

ND 31

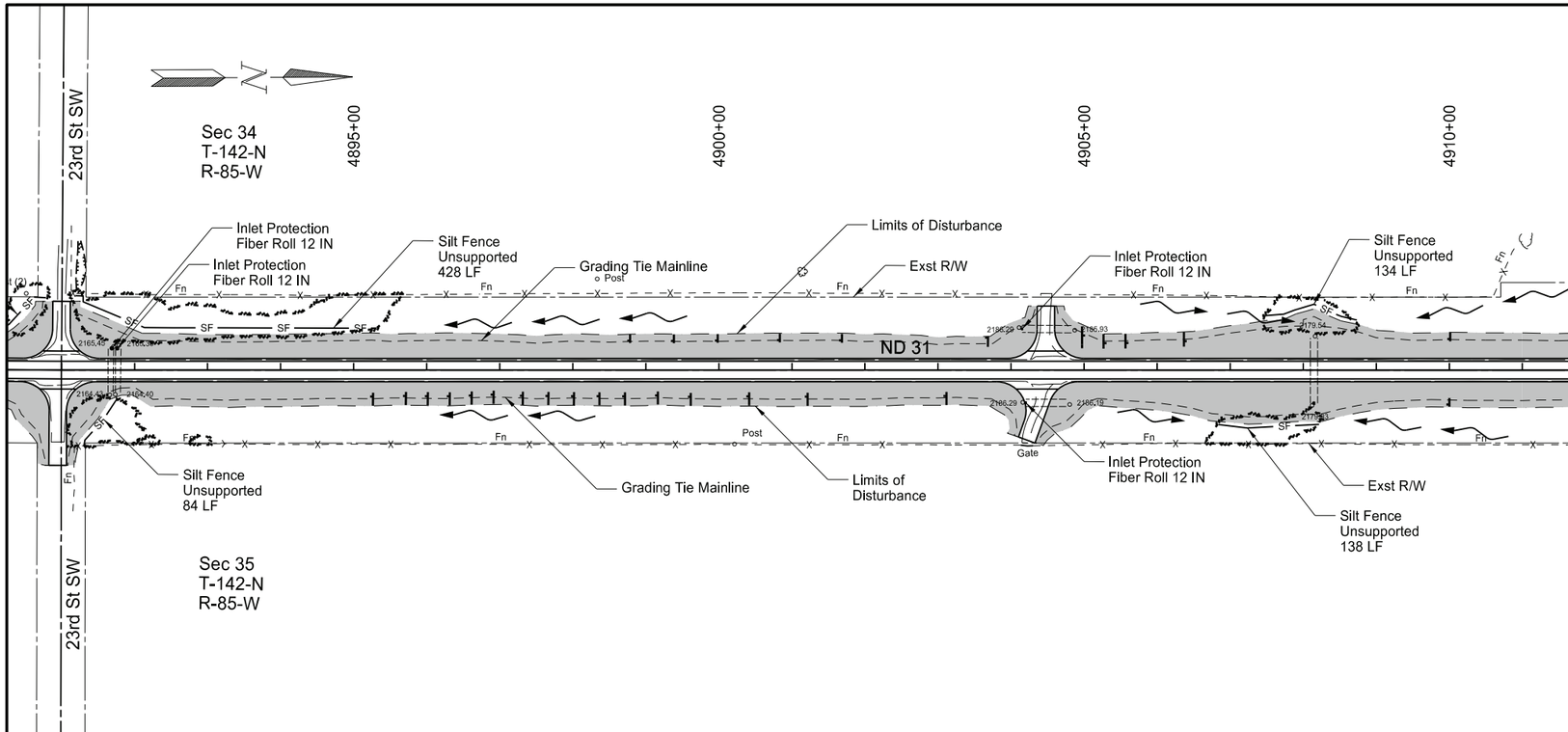
Jct I-94 to Hannover
Oliver County

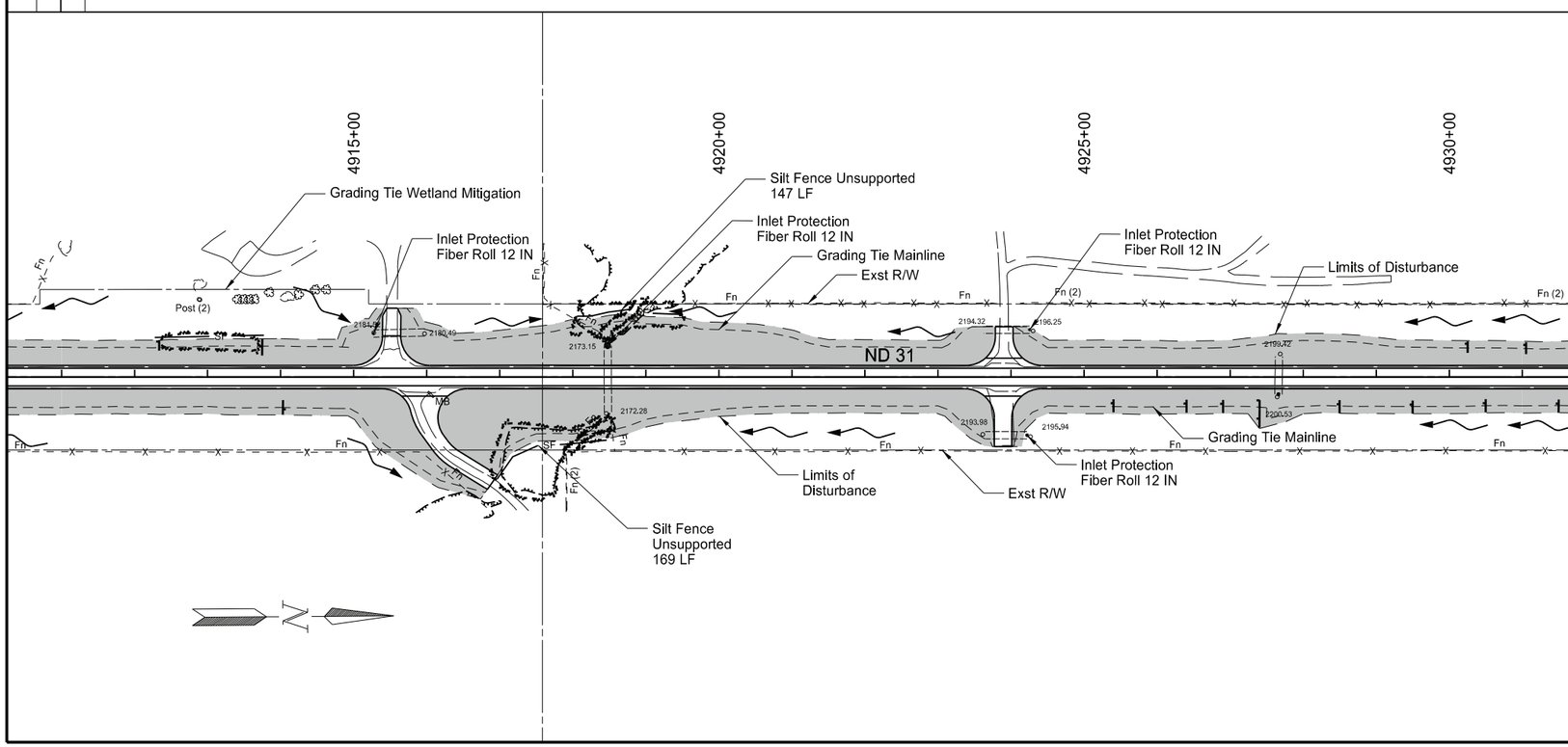
Temporary Erosion Control

Sta 4851+00 to Sta 4891+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	76	21





SPEC	CODE	BID ITEM	QTY	UNIT
251	2000	TEMPORARY COVER CROP		
		Sta 4891+00 to Sta 4931+00	7.43	ACRE
253	0101	STRAW MULCH		
		Sta 4891+00 to Sta 4931+00	7.43	ACRE
260	0200	SILT FENCE UNSUPPORTED		
		Sta 4891+00 to Sta 4931+00	1250	LF
260	0201	REMOVE SILT FENCE UNSUPPORTED		
		Sta 4891+00 to Sta 4931+00	1250	LF
261	0112	FIBER ROLLS 12 IN		
		Sta 4891+00 to Sta 4931+00	779	LF
261	0113	REMOVE FIBER ROLLS 12 IN		
		Sta 4891+00 to Sta 4931+00	779	LF

Legend

- Temporary Cover Crop & Straw Mulch
- Avoidance Area
- SF — Silt Fence Unsupported
- Fiber Rolls - 12 IN
- S — Floatation Silt Curtain

ND 31

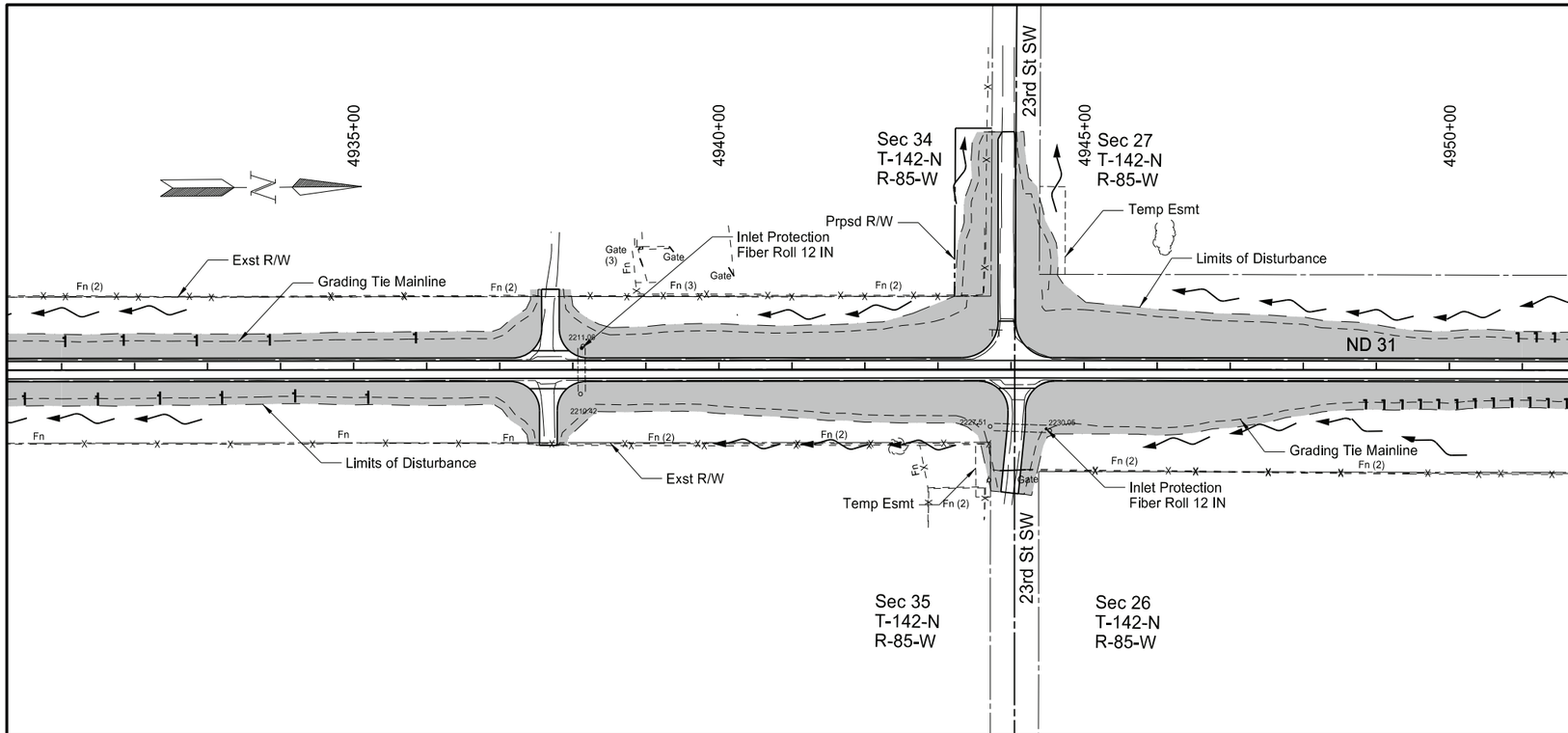
Jct I-94 to Hannover
Oliver County

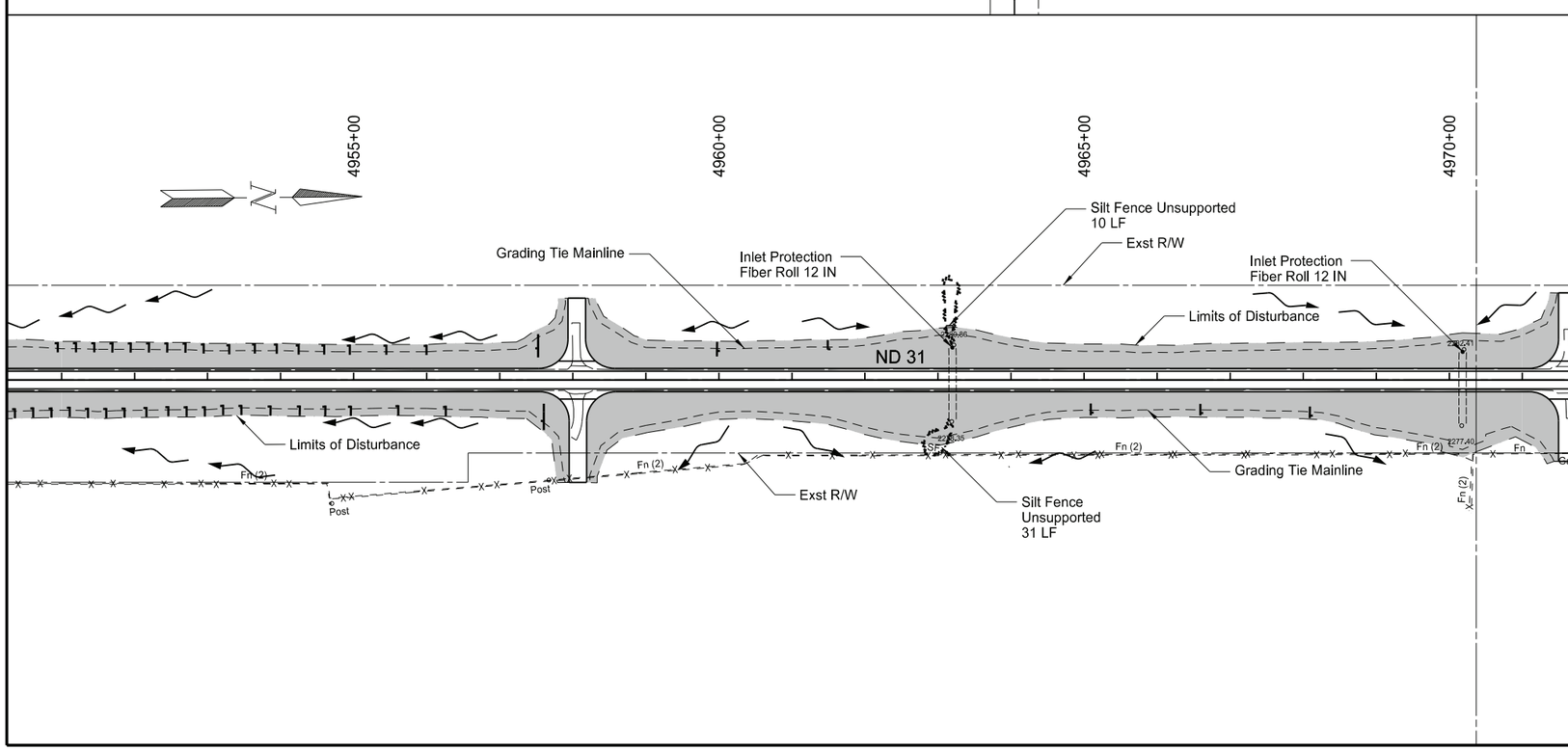
Temporary Erosion Control

Sta 4891+00 to Sta 4931+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	76	22





SPEC	CODE	BID ITEM	QTY	UNIT
251	2000	TEMPORARY COVER CROP		
		Sta 4931+00 to sta 4971+00	8.74	ACRE
253	0101	STRAW MULCH		
		Sta 4931+00 to sta 4971+00	8.74	ACRE
260	0200	SILT FENCE UNSUPPORTED		
		Sta 4931+00 to sta 4971+00	41	LF
260	0201	REMOVE SILT FENCE UNSUPPORTED		
		Sta 4931+00 to sta 4971+00	41	LF
261	0112	FIBER ROLLS 12 IN		
		Sta 4931+00 to sta 4971+00	938	LF
261	0113	REMOVE FIBER ROLLS 12 IN		
		Sta 4931+00 to sta 4971+00	938	LF

Legend

- Temporary Cover Crop & Straw Mulch
- Avoidance Area
- SF — Silt Fence Unsupported
- Fiber Rolls - 12 IN
- S — Floatation Silt Curtain

ND 31

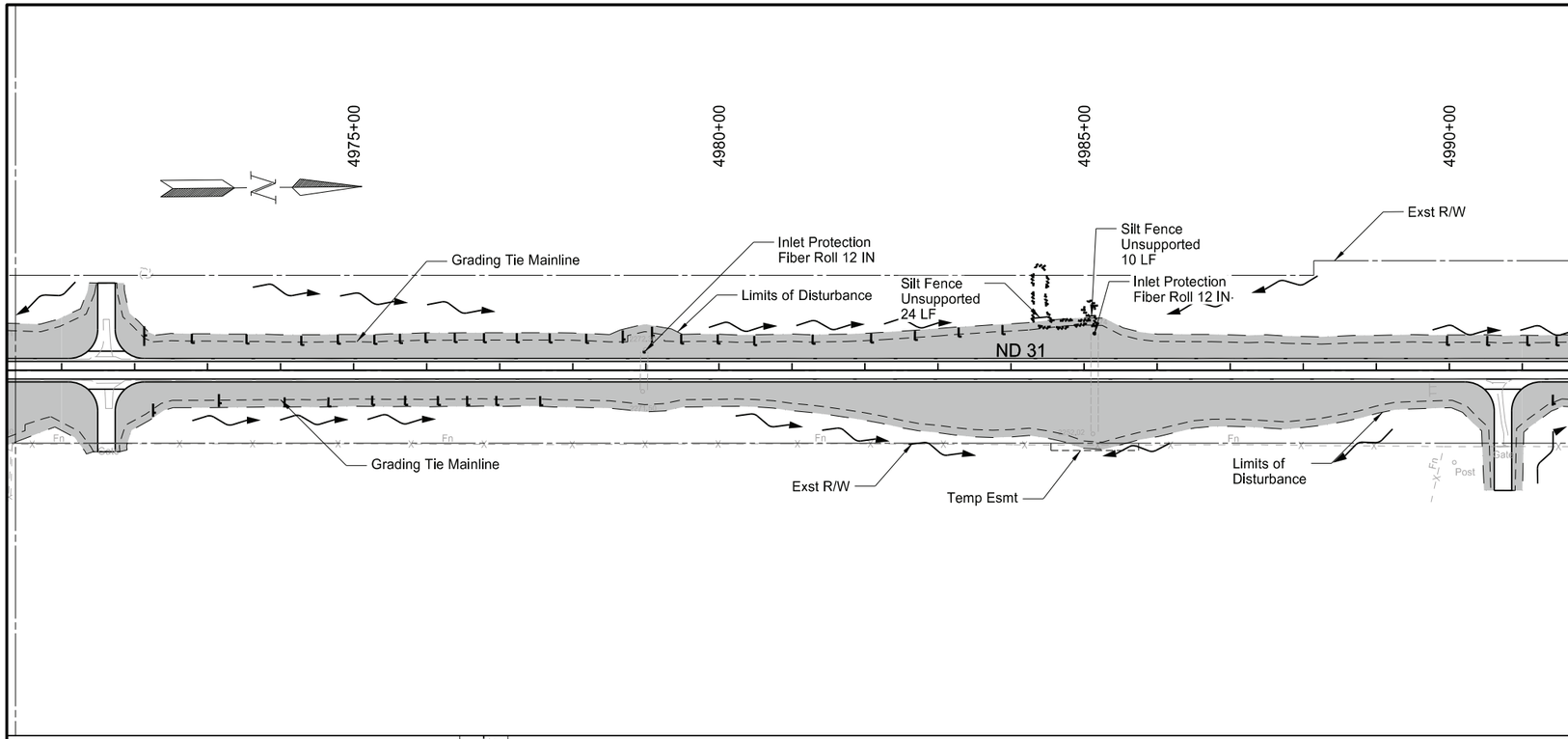
Jct I-94 to Hannover
Oliver County

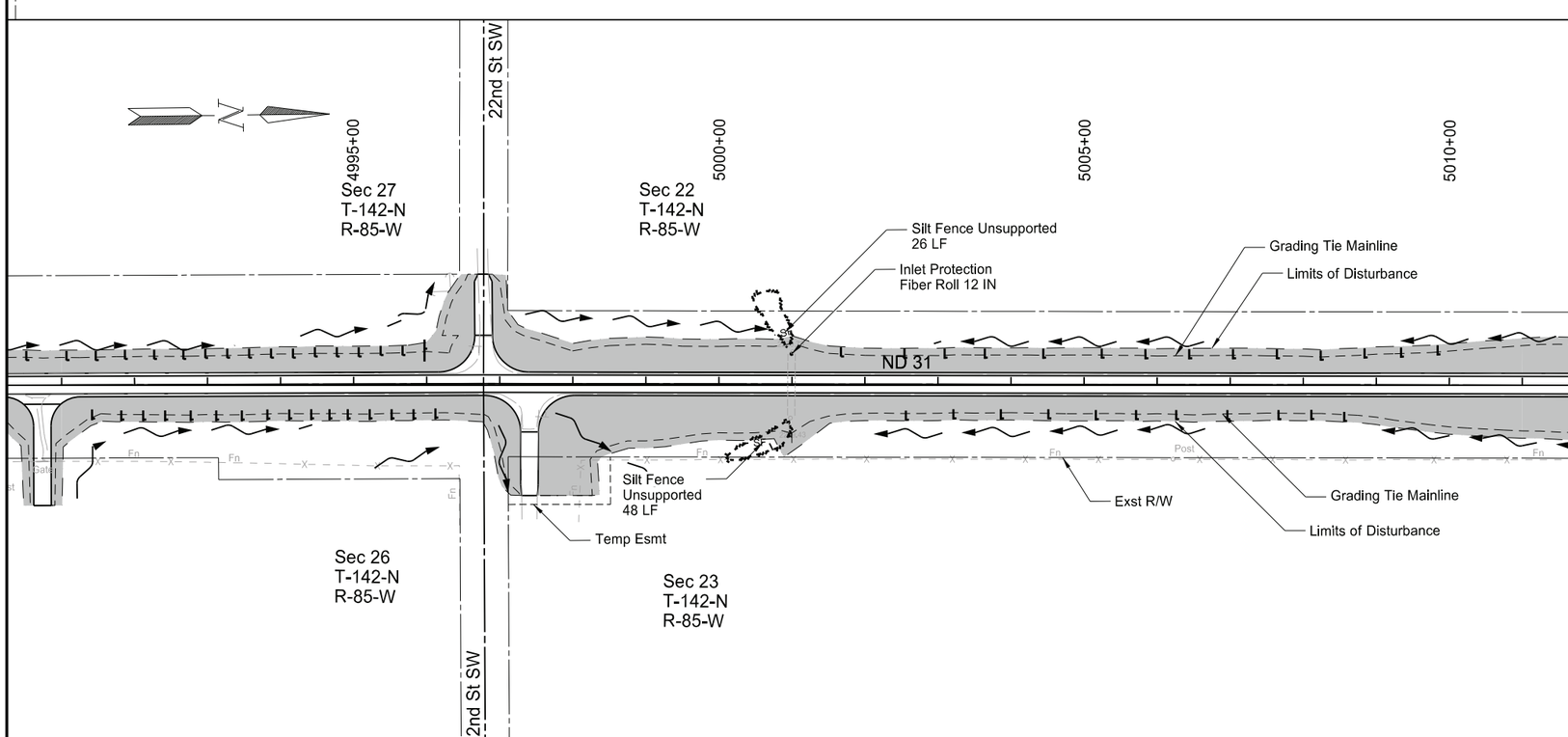
Temporary Erosion Control

Sta 4931+00 to Sta 4971+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	76	23





SPEC	CODE	BID ITEM	QTY	UNIT
251	2000	TEMPORARY COVER CROP		
		Sta 4971+00 to Sta 5011+00	7.97	ACRE
253	0101	STRAW MULCH		
		Sta 4971+00 to Sta 5011+00	7.97	ACRE
260	0200	SILT FENCE UNSUPPORTED		
		Sta 4971+00 to Sta 5011+00	108	LF
260	0201	REMOVE SILT FENCE UNSUPPORTED		
		Sta 4971+00 to Sta 5011+00	108	LF
261	0112	FIBER ROLLS 12 IN		
		Sta 4971+00 to Sta 5011+00	1332	LF
261	0113	REMOVE FIBER ROLLS 12 IN		
		Sta 4971+00 to Sta 5011+00	1332	LF

Legend

- Temporary Cover Crop & Straw Mulch
- Avoidance Area
- — SF — Silt Fence Unsupported
- Fiber Rolls - 12 IN
- — S — Floatation Silt Curtain

ND 31

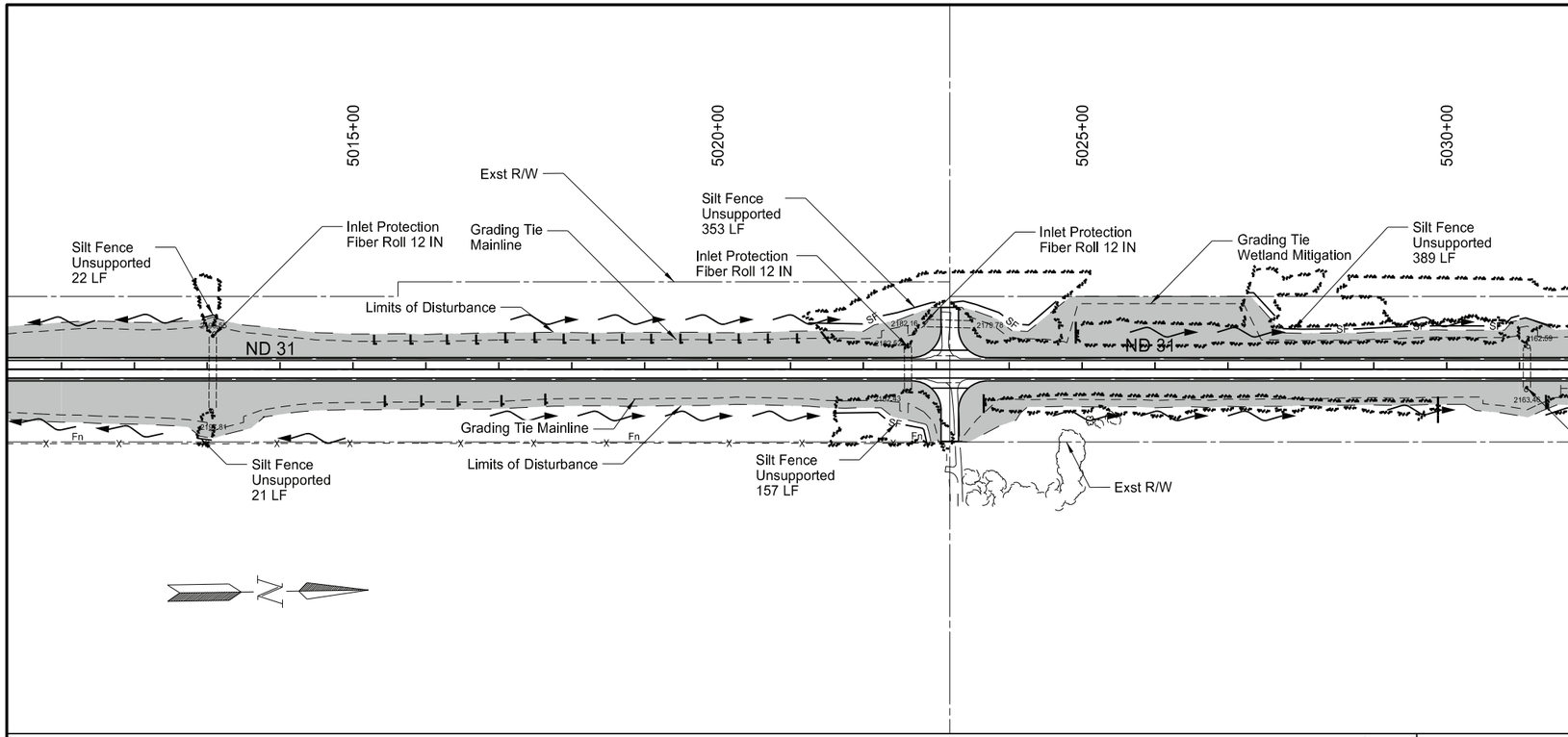
Jct I-94 to Hannover
Oliver County

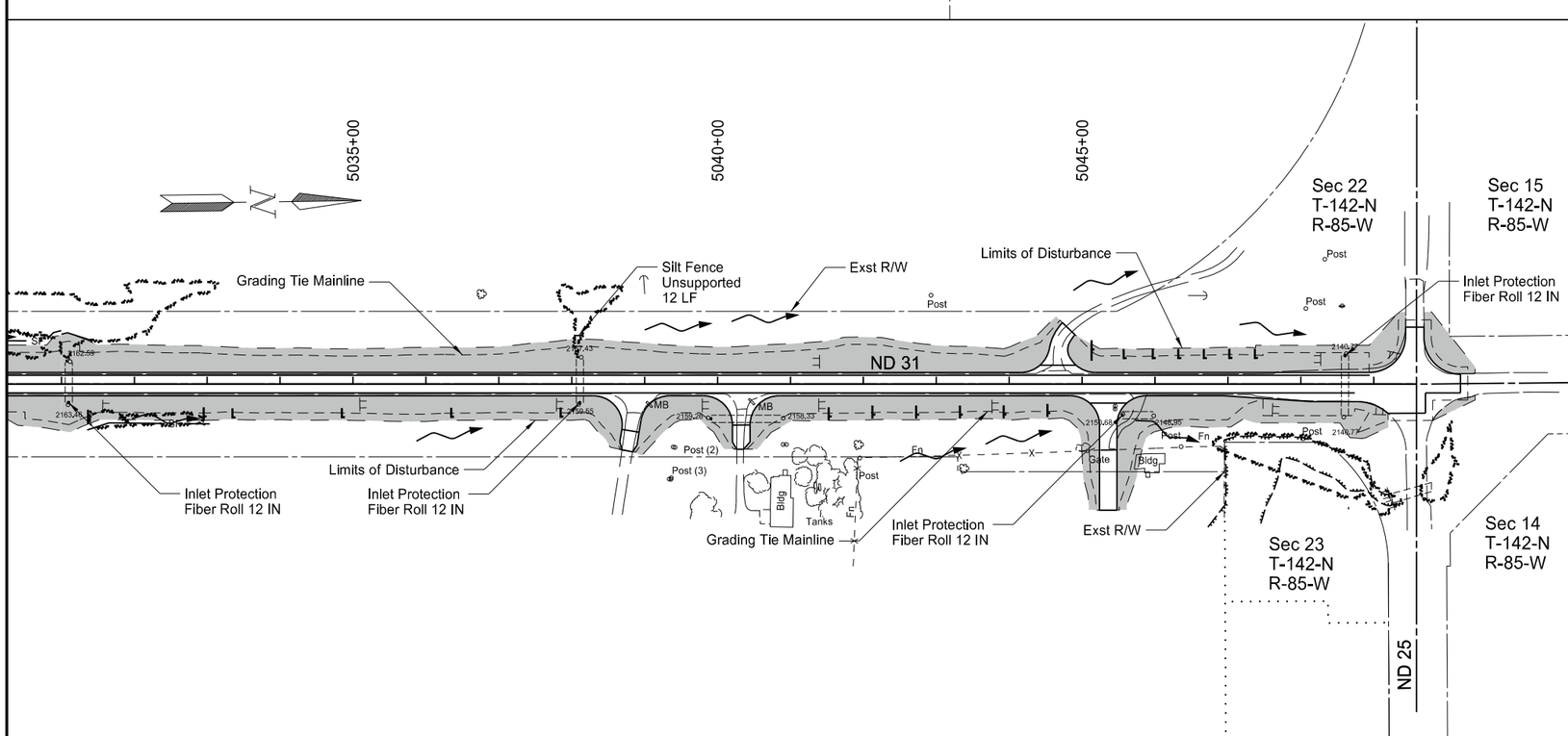
Temporary Erosion Control

Sta 4971+00 to Sta 5011+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	76	24





SPEC	CODE	BID ITEM	QTY	UNIT
251	2000	TEMPORARY COVER CROP		
		Sta 5011+00 to Sta 5049+59	7.29	ACRE
253	0101	STRAW MULCH		
		Sta 5011+00 to Sta 5049+59	7.29	ACRE
260	0200	SILT FENCE UNSUPPORTED		
		Sta 5011+00 to Sta 5049+59	1163	LF
260	0201	REMOVE SILT FENCE UNSUPPORTED		
		Sta 5011+00 to Sta 5049+59	1163	LF
261	0112	FIBER ROLLS 12 IN		
		Sta 5011+00 to Sta 5049+59	771	LF
261	0113	REMOVE FIBER ROLLS 12 IN		
		Sta 5011+00 to Sta 5049+59	771	LF

Legend

- Temporary Cover Crop & Straw Mulch
- Avoidance Area
- SF — Silt Fence Unsupported
- Fiber Rolls - 12 IN
- S — Floatation Silt Curtain

ND 31

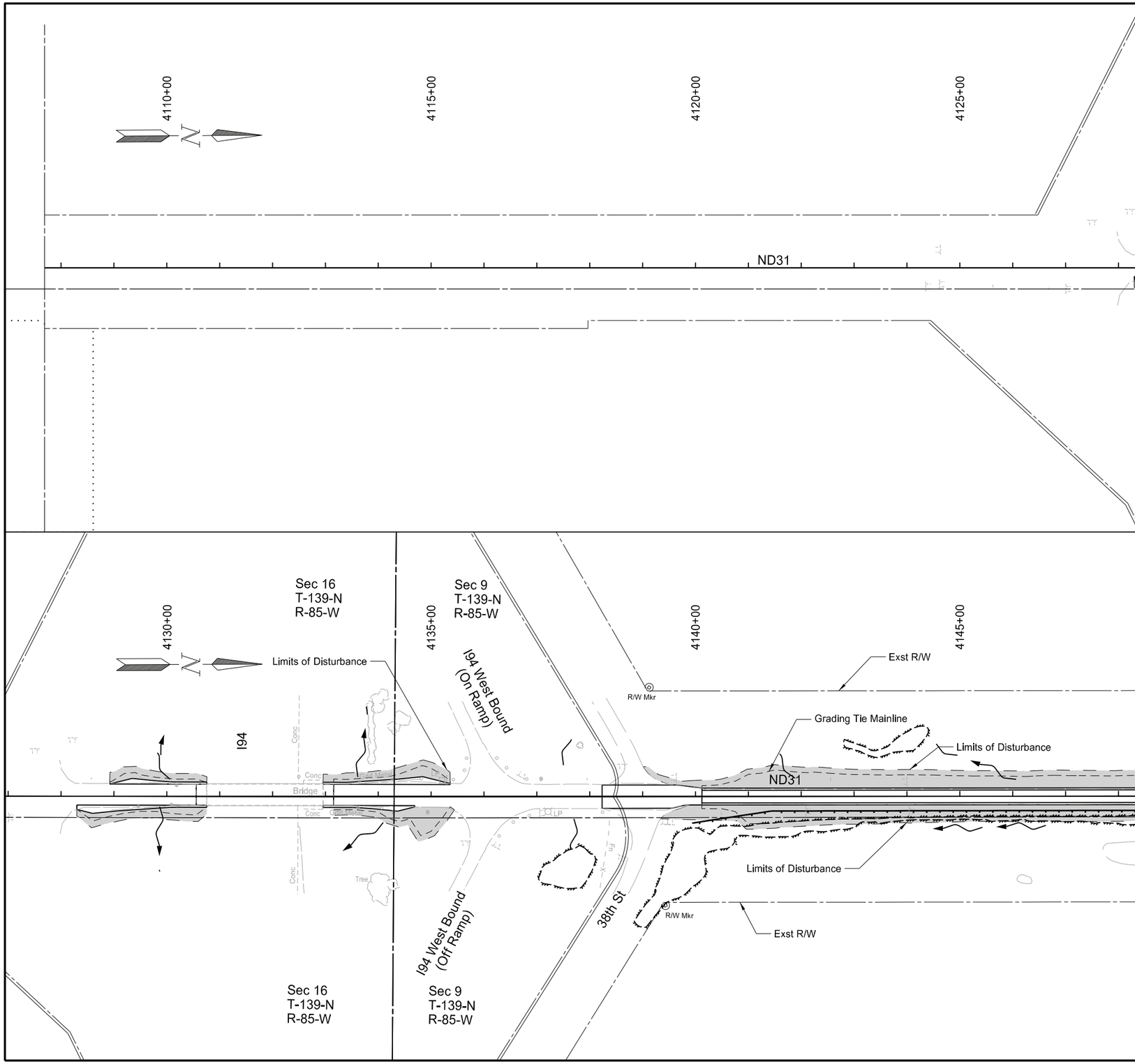
Jct I-94 to Hannover
Oliver County

Temporary Erosion Control

Sta 5011+00 to Sta 5049+59

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	77	1



SPEC	CODE	BID ITEM	QTY	UNIT
251	0200	SEEDING CLASS II		
		Sta 4128+29 to Sta 4148+00	1.77	ACRE
253	0101	STRAW MULCH		
		Sta 4128+29 to Sta 4148+00	1.77	ACRE
261	0112	FIBER ROLLS 12IN		
		Sta 4128+29 to Sta 4148+00	808	LF

Legend

- Seeding Class II and Straw Mulch
- Wetland Seed
- ECB Type 2
- Fiber Rolls - 12IN
- Delineated Wetland
- Avoidance Area

ND 31

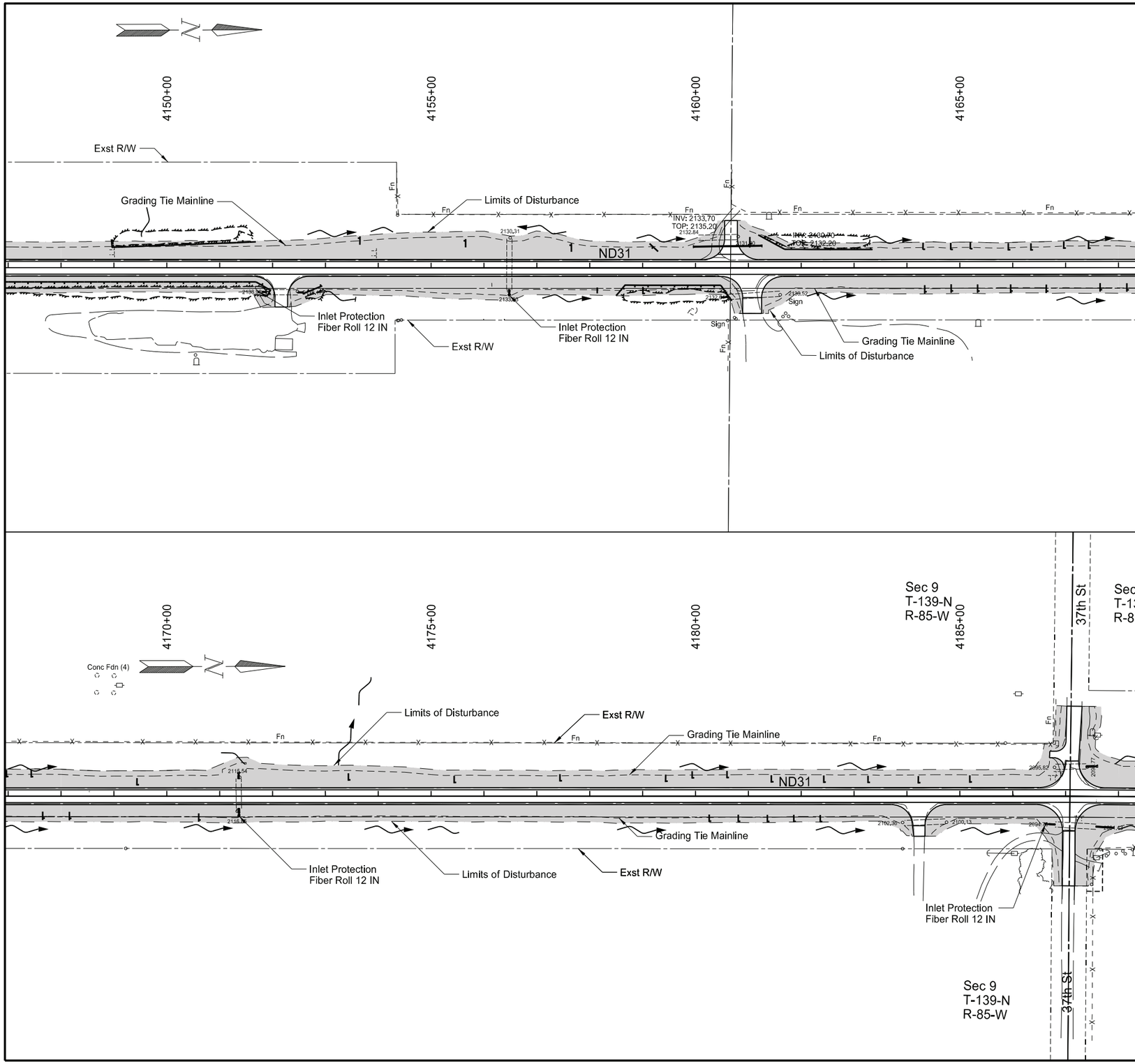
Jct I-94 to Hannover
Morton County

Permanent Erosion Control

Sta 4128+29 to Sta 4148+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	77	2



SPEC	CODE	BID ITEM	QTY	UNIT
251	0200	SEEDING CLASS II		
		Sta 4148+00 to Sta 4188+00	6.82	ACRE
253	0101	STRAW MULCH		
		Sta 4148+00 to Sta 4188+00	6.82	ACRE
261	0112	FIBER ROLLS 12IN		
		Sta 4148+00 to Sta 4188+00	1808	LF

Legend

- Seeding Class II and Straw Mulch
- Wetland Seed
- ECB Type 2
- Fiber Rolls - 12IN
- Delineated Wetland
- Avoidance Area

ND 31

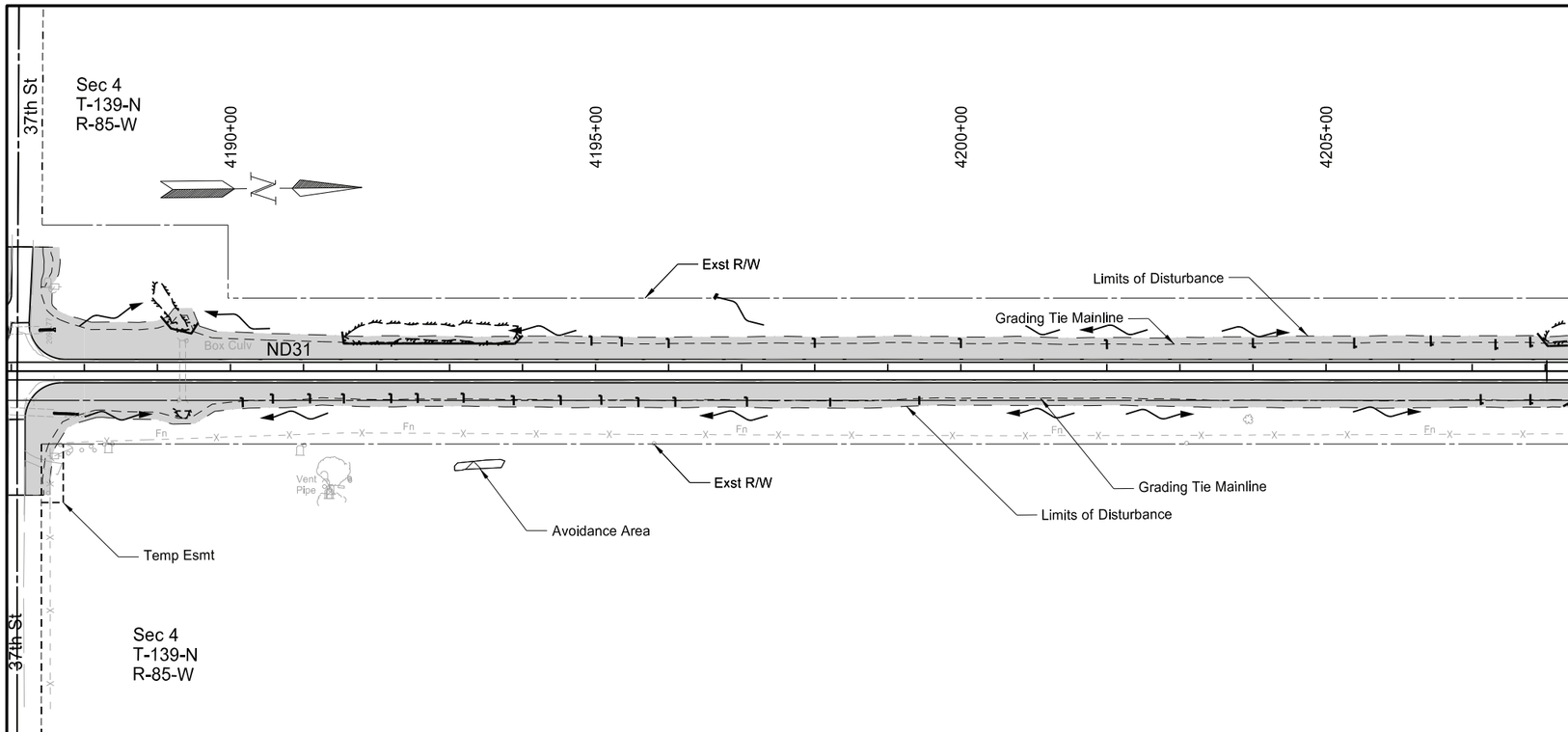
Jct I-94 to Hannover
Morton County

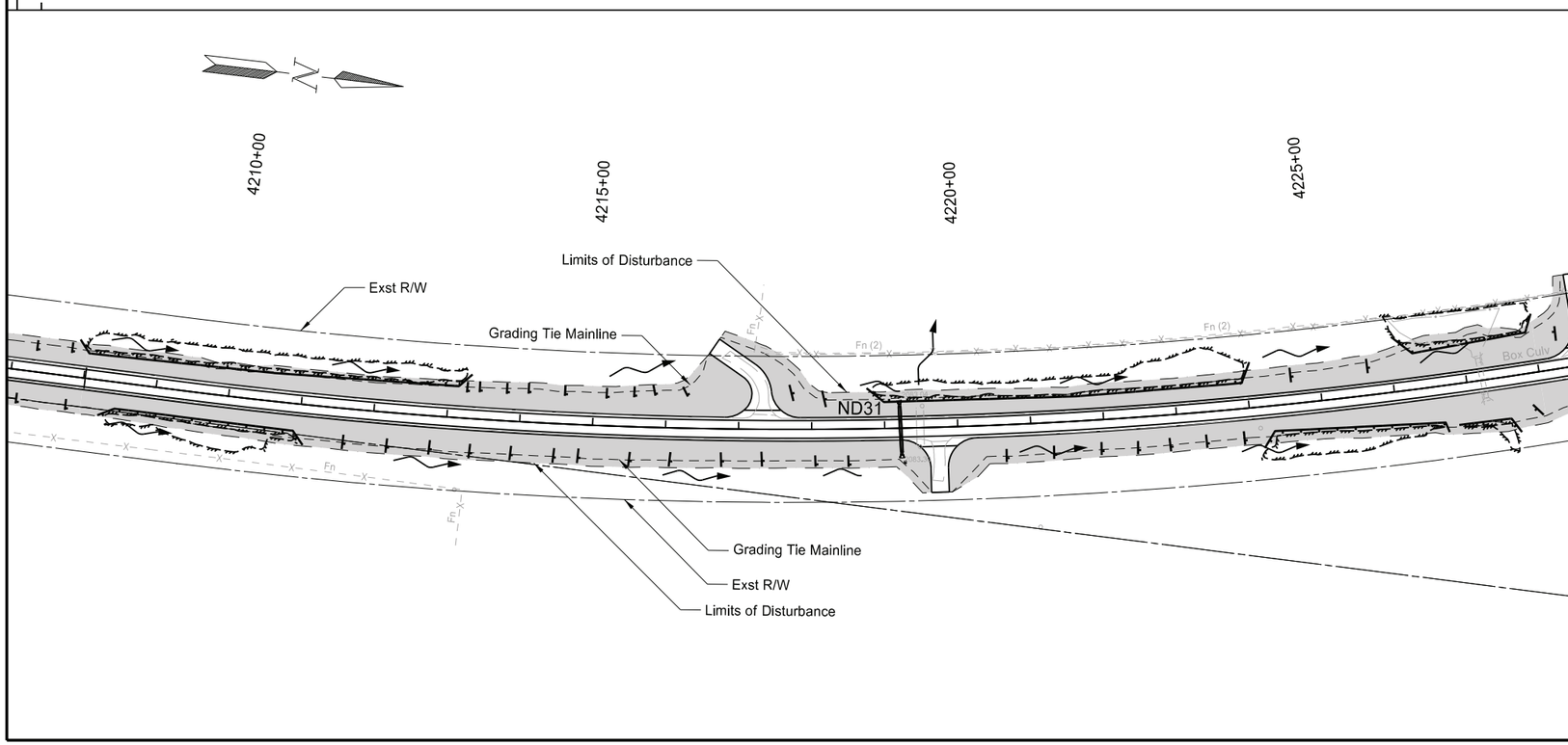
Permanent Erosion Control

Sta 4148+00 to Sta 4188+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	77	3





SPEC	CODE	BID ITEM	QTY	UNIT
251	0200	SEEDING CLASS II		
		Sta 4188+00 to Sta 4228+00	6.77	ACRE
253	0101	STRAW MULCH		
		Sta 4188+00 to Sta 4228+00	6.77	ACRE
261	0112	FIBER ROLLS 12IN		
		Sta 4188+00 to Sta 4228+00	3329	LF

Legend

- Seeding Class II and Straw Mulch
- Wetland Seed
- ECB Type 2
- Fiber Rolls - 12IN
- Delineated Wetland
- Avoidance Area

ND 31

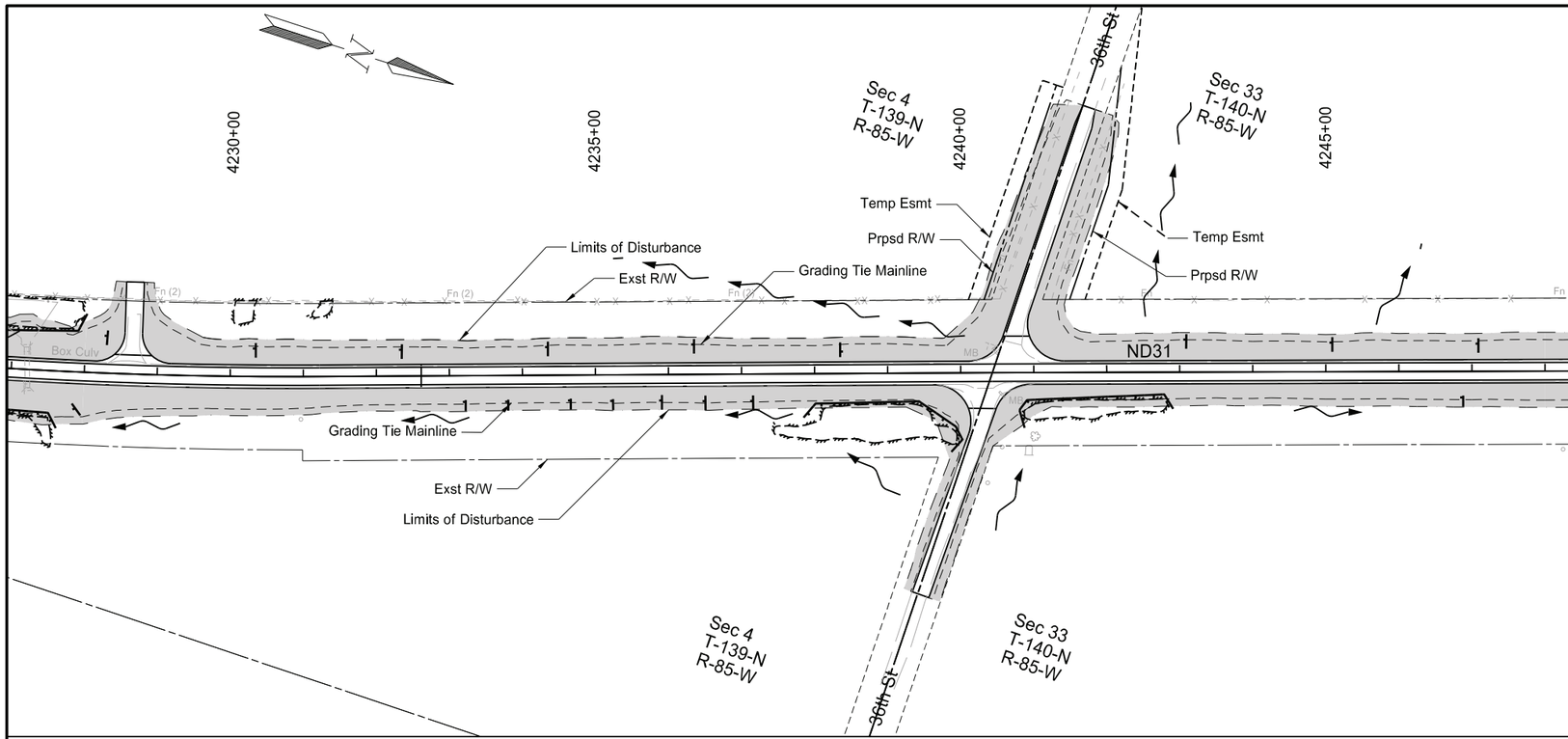
Jct I-94 to Hannover
Morton County

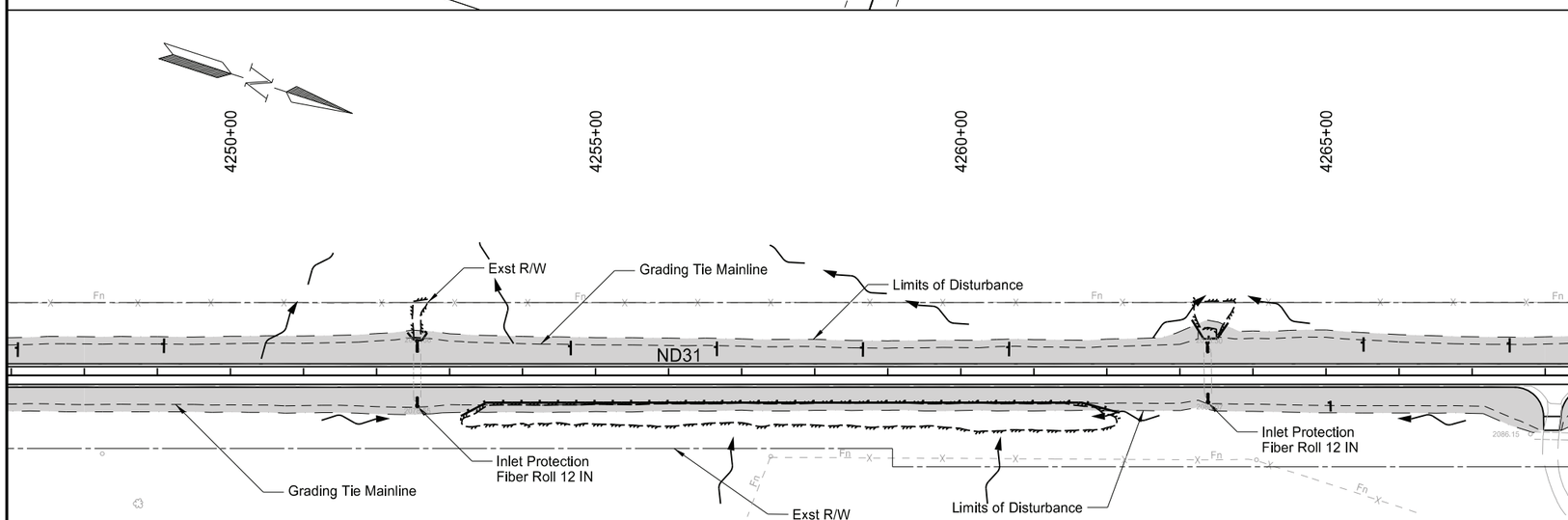
Permanent Erosion Control

Sta 4188+00 to Sta 4228+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	77	4





SPEC	CODE	BID ITEM	QTY	UNIT
251	0200	SEEDING CLASS II		
		Sta 4228+00 to Sta 4268+00	7.31	ACRE
253	0101	STRAW MULCH		
		Sta 4228+00 to Sta 4268+00	7.31	ACRE
261	0112	FIBER ROLLS 12IN		
		Sta 4228+00 to Sta 4268+00	2030	LF

Legend

- Seeding Class II and Straw Mulch
- Wetland Seed
- ECB Type 2
- Fiber Rolls - 12IN
- Delineated Wetland
- Avoidance Area

ND 31

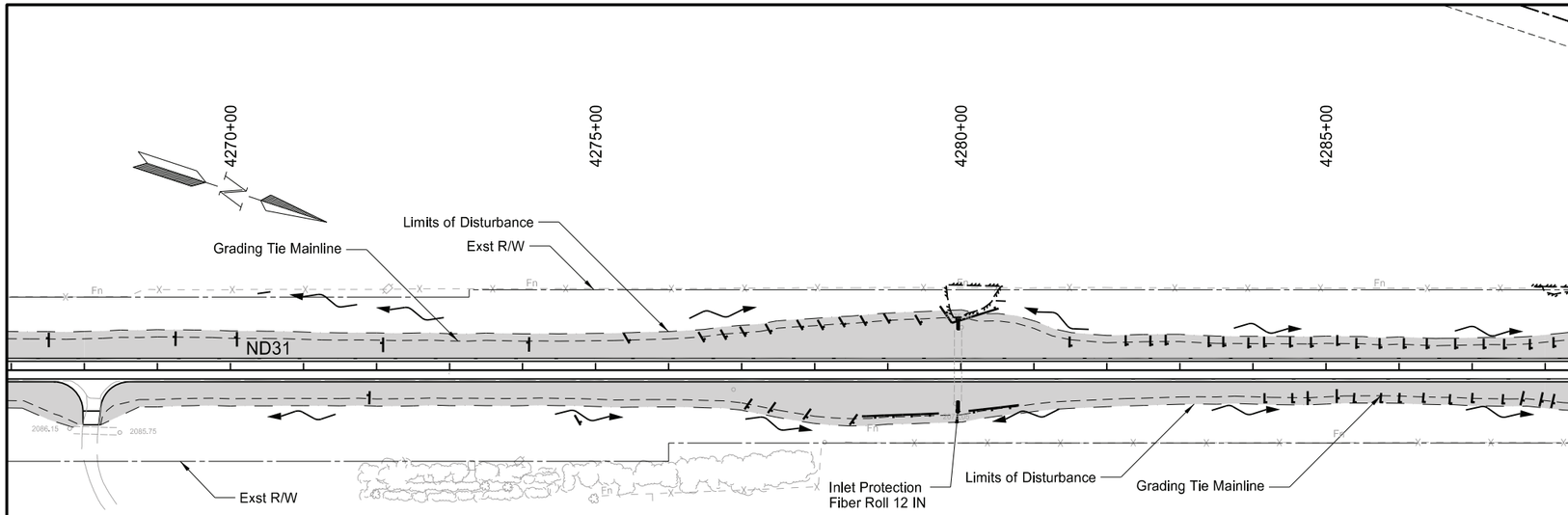
Jct I-94 to Hannover
Morton County

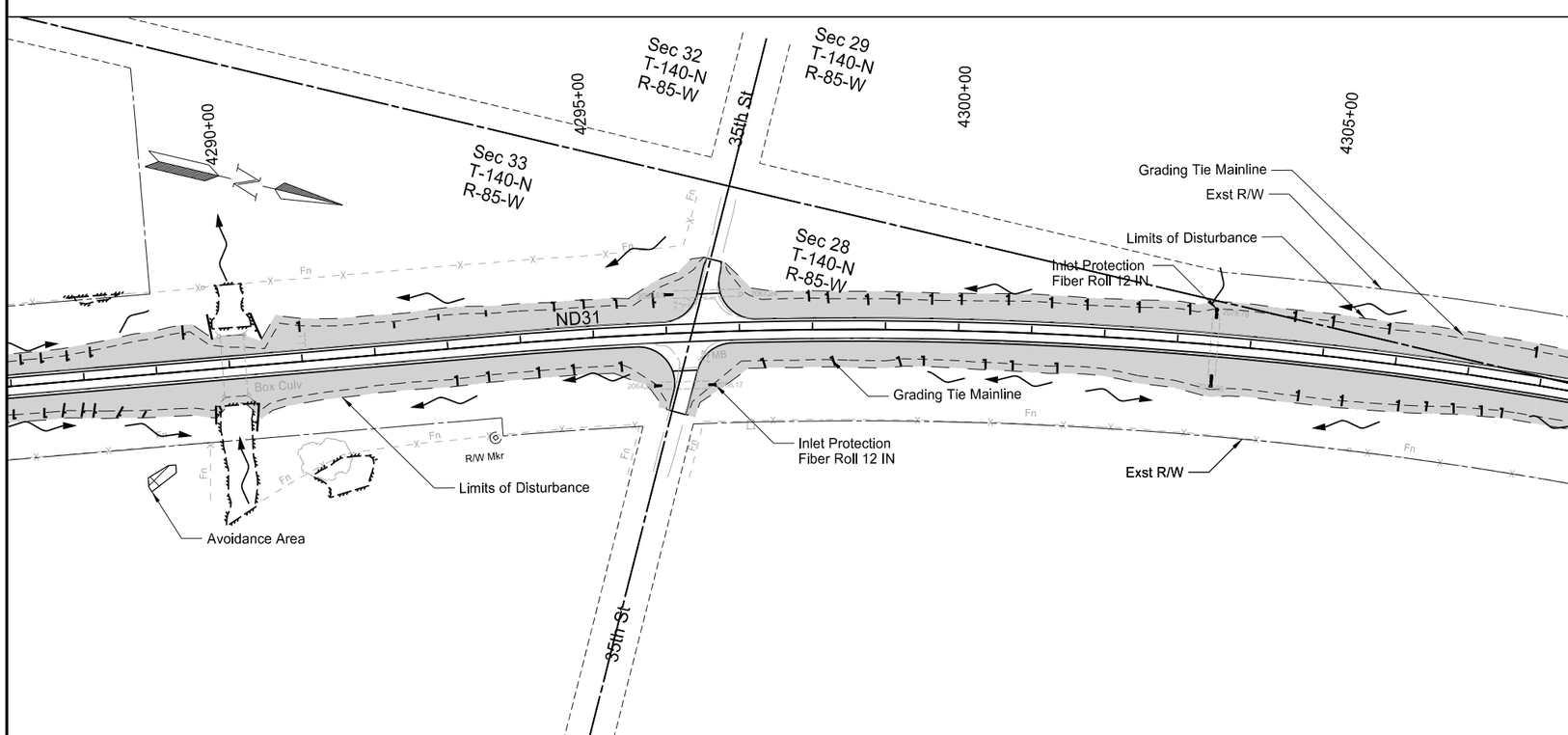
Permanent Erosion Control

Sta 4228+00 to Sta 4268+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	77	5





SPEC	CODE	BID ITEM	QTY	UNIT
251	0200	SEEDING CLASS II		
		Sta 4268+00 to Sta 4308+00	7.16	ACRE
253	0101	STRAW MULCH		
		Sta 4268+00 to Sta 4308+00	7.16	ACRE
261	0112	FIBER ROLLS 12IN		
		Sta 4268+00 to Sta 4308+00	1983	LF

Legend

- Seeding Class II and Straw Mulch
- Wetland Seed
- ECB Type 2
- Fiber Rolls - 12IN
- Delineated Wetland
- Avoidance Area

ND 31

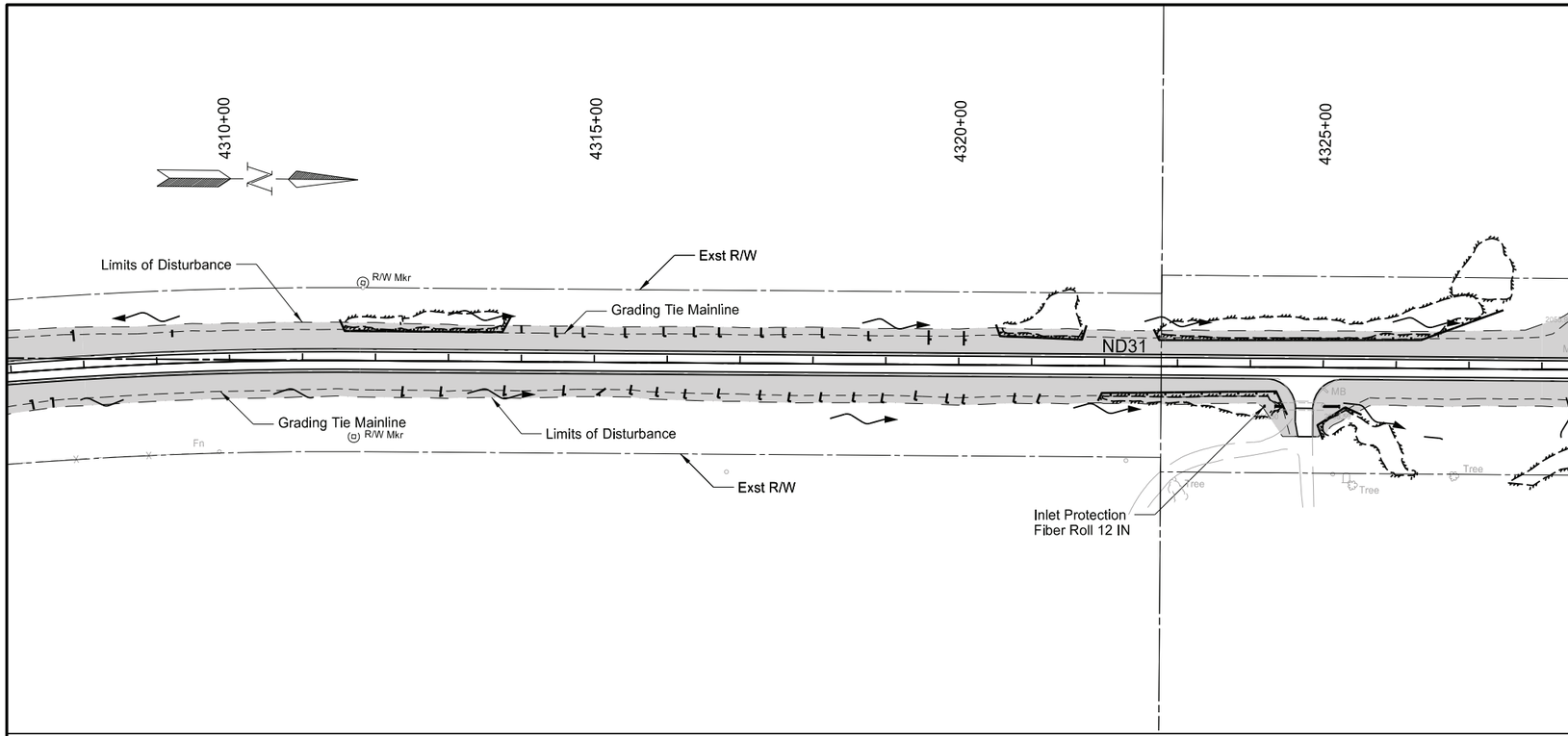
Jct I-94 to Hannover
Morton County

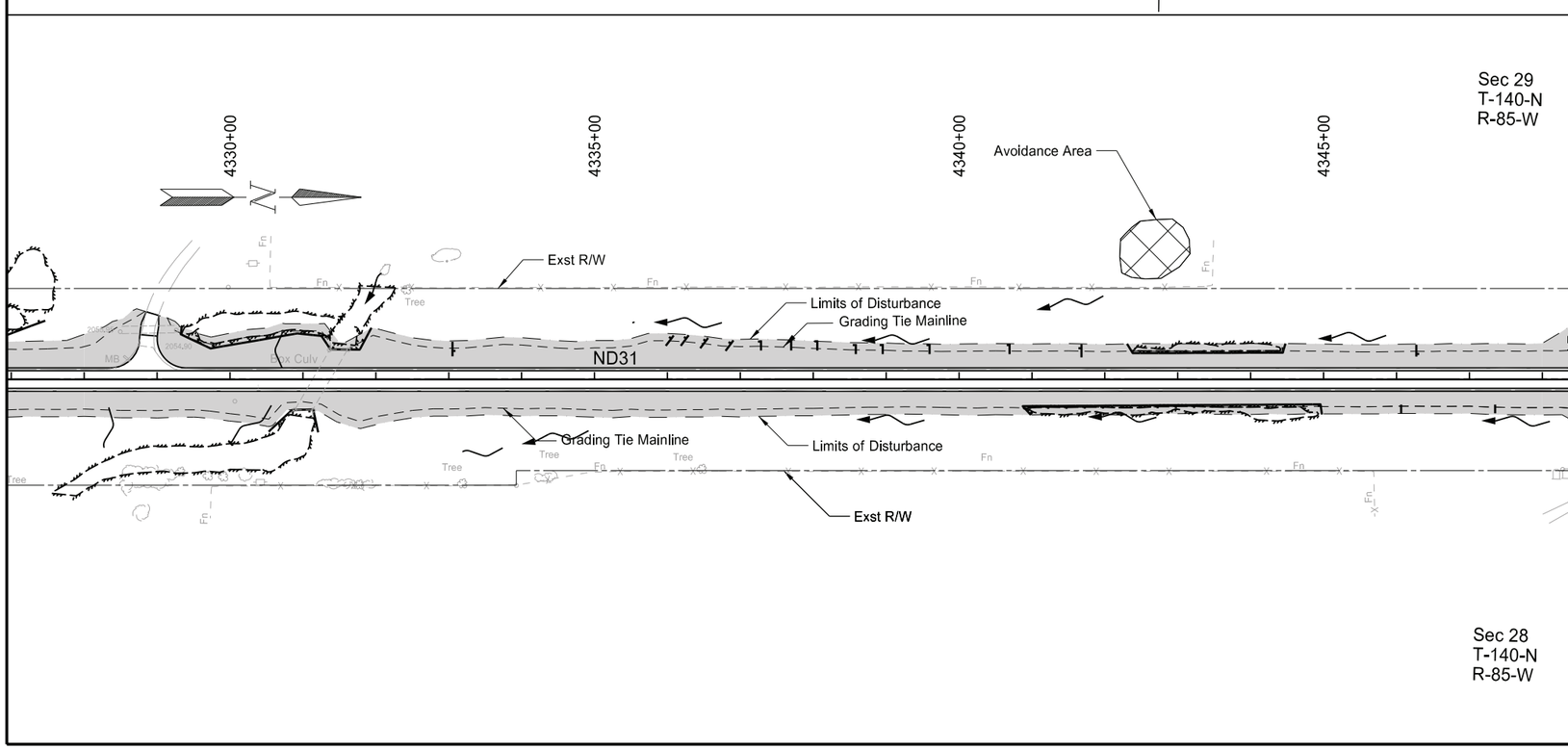
Permanent Erosion Control

Sta 4268+00 to Sta 4308+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	77	6





SPEC	CODE	BID ITEM	QTY	UNIT
251	0200	SEEDING CLASS II		
		Sta 4308+00 to Sta 4348+00	6.59	ACRE
253	0101	STRAW MULCH		
		Sta 4308+00 to Sta 4348+00	6.59	ACRE
261	0112	FIBER ROLLS 12IN		
		Sta 4308+00 to Sta 4348+00	3069	LF

Legend

- Seeding Class II and Straw Mulch
- Wetland Seed
- ECB Type 2
- Fiber Rolls - 12IN
- Delineated Wetland
- Avoidance Area

ND 31

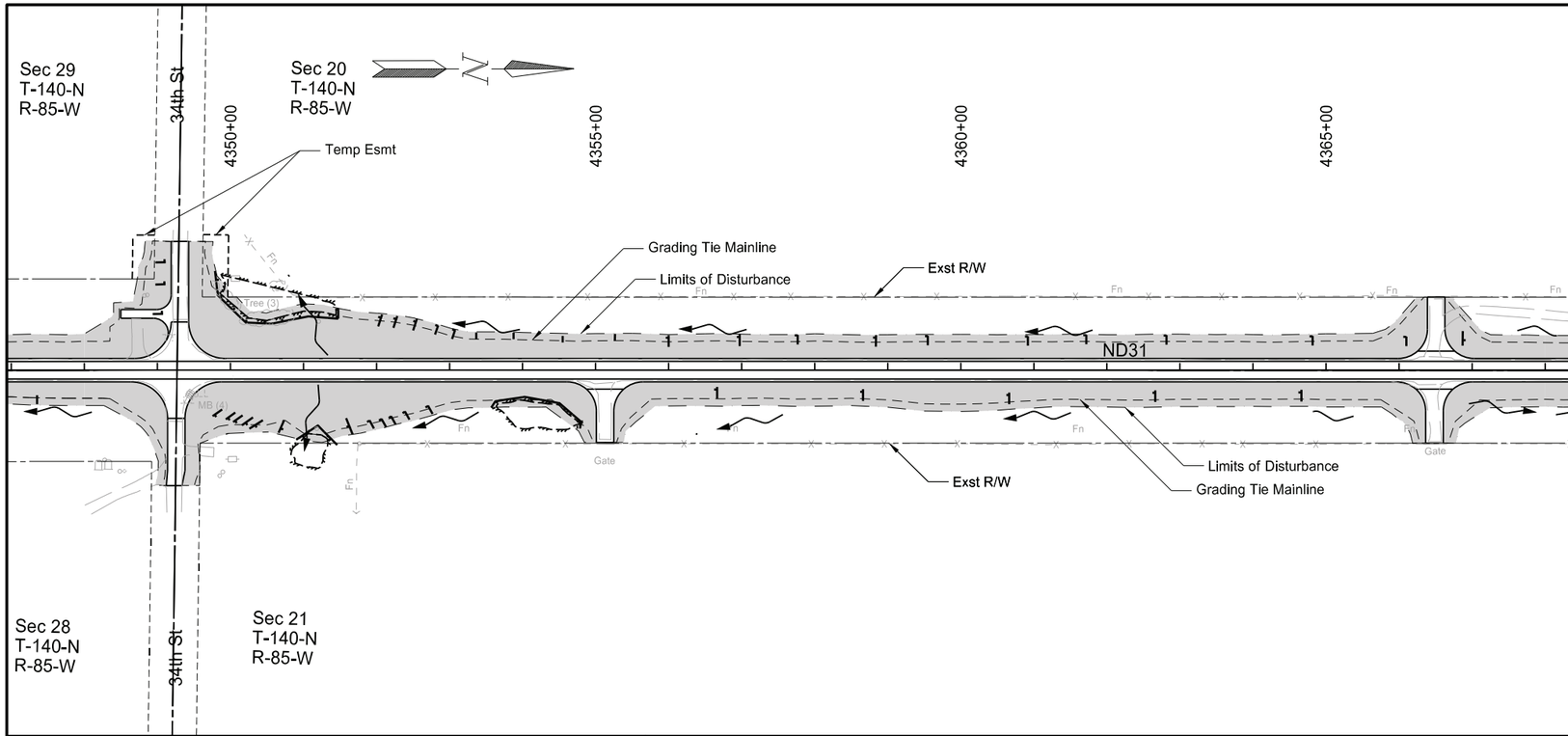
Jct I-94 to Hannover
Morton County

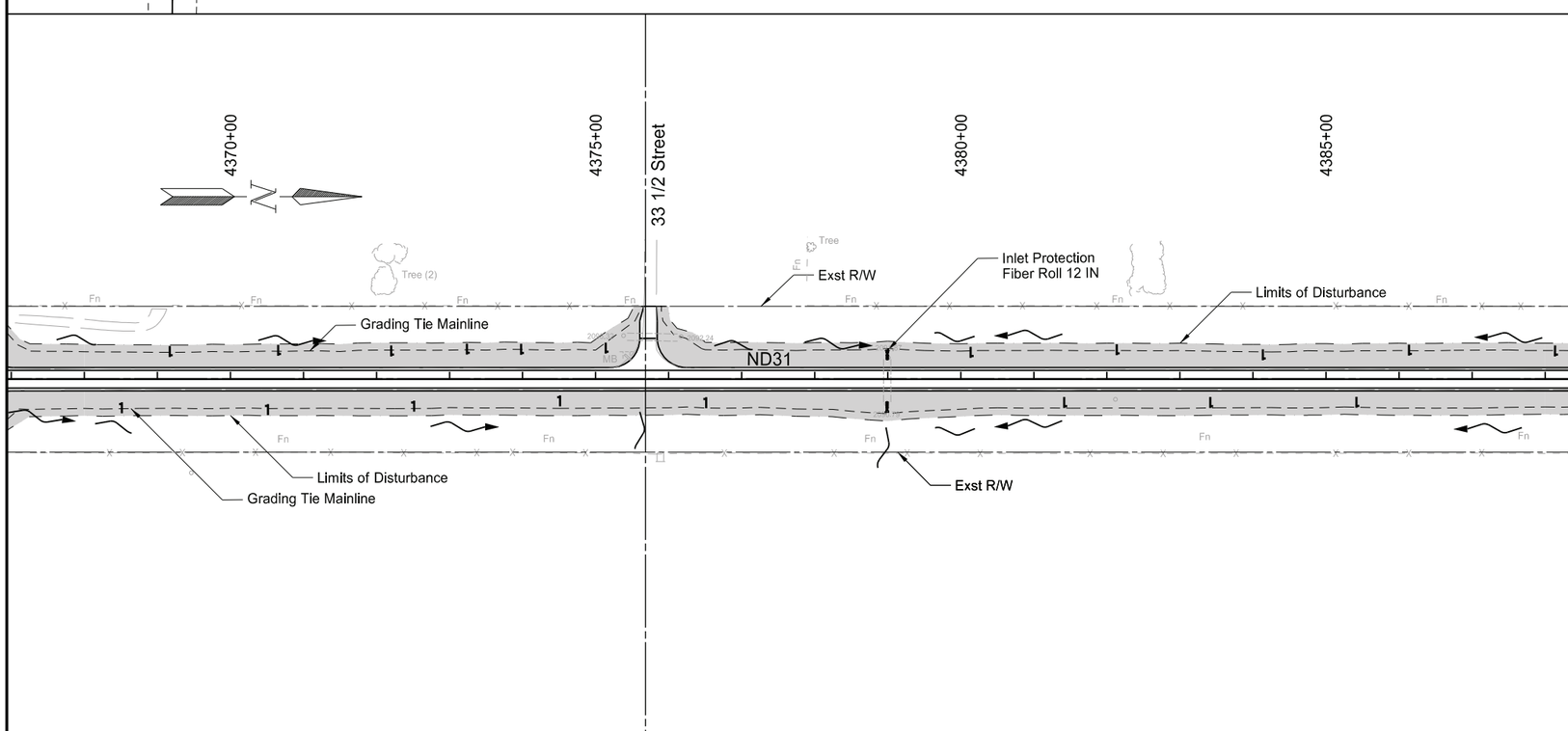
Permanent Erosion Control

Sta 4308+00 to Sta 4348+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	77	7





SPEC	CODE	BID ITEM	QTY	UNIT
251	0200	SEEDING CLASS II		
		Sta 4348+00 to Sta 4388+00	7.17	ACRE
253	0101	STRAW MULCH		
		Sta 4348+00 to Sta 4388+00	7.17	ACRE
261	0112	FIBER ROLLS 12IN		
		Sta 4348+00 to Sta 4388+00	1318	LF

Legend

- Seeding Class II and Straw Mulch
- Wetland Seed
- ECB Type 2
- Fiber Rolls - 12IN
- Delineated Wetland
- Avoidance Area

ND 31

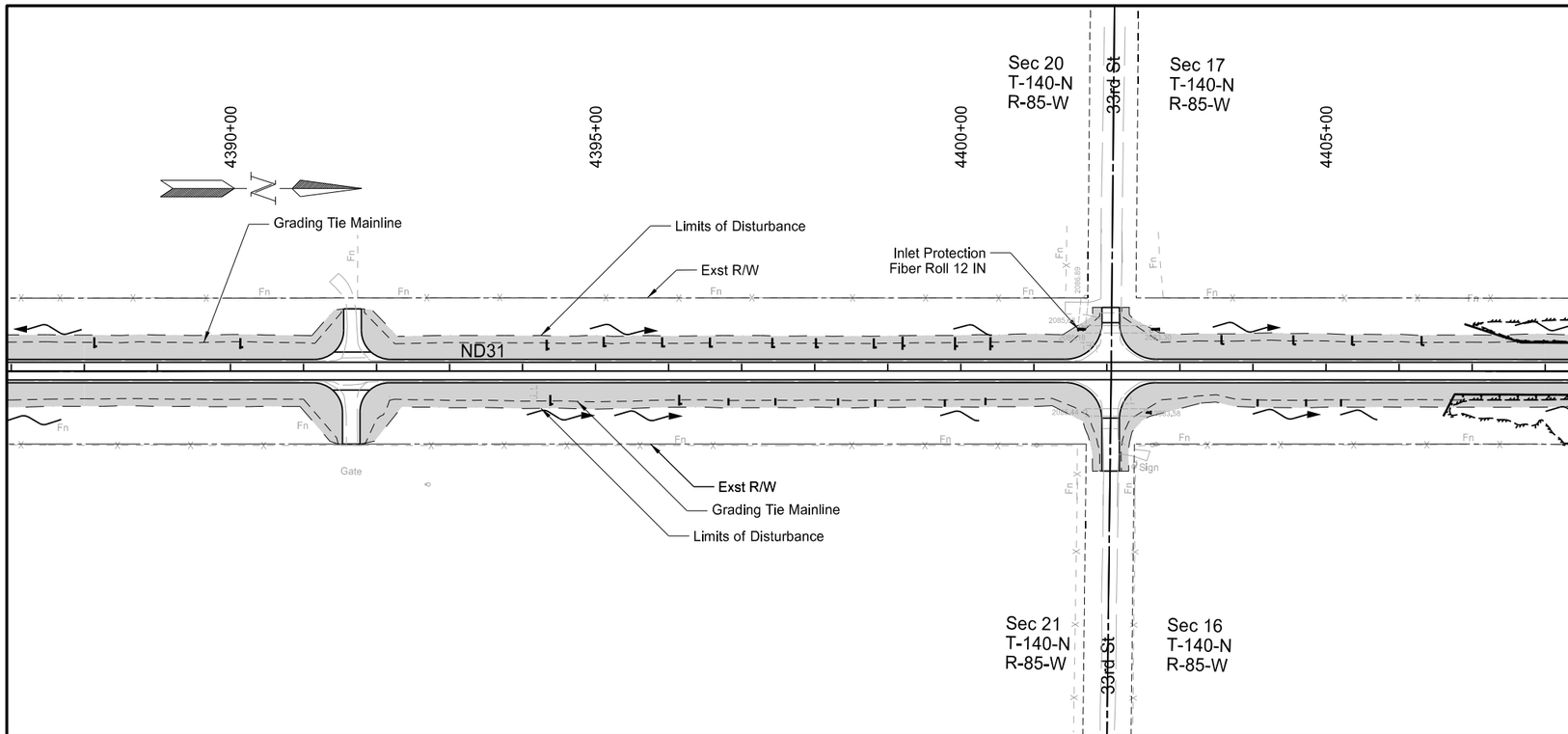
Jct I-94 to Hannover
Morton County

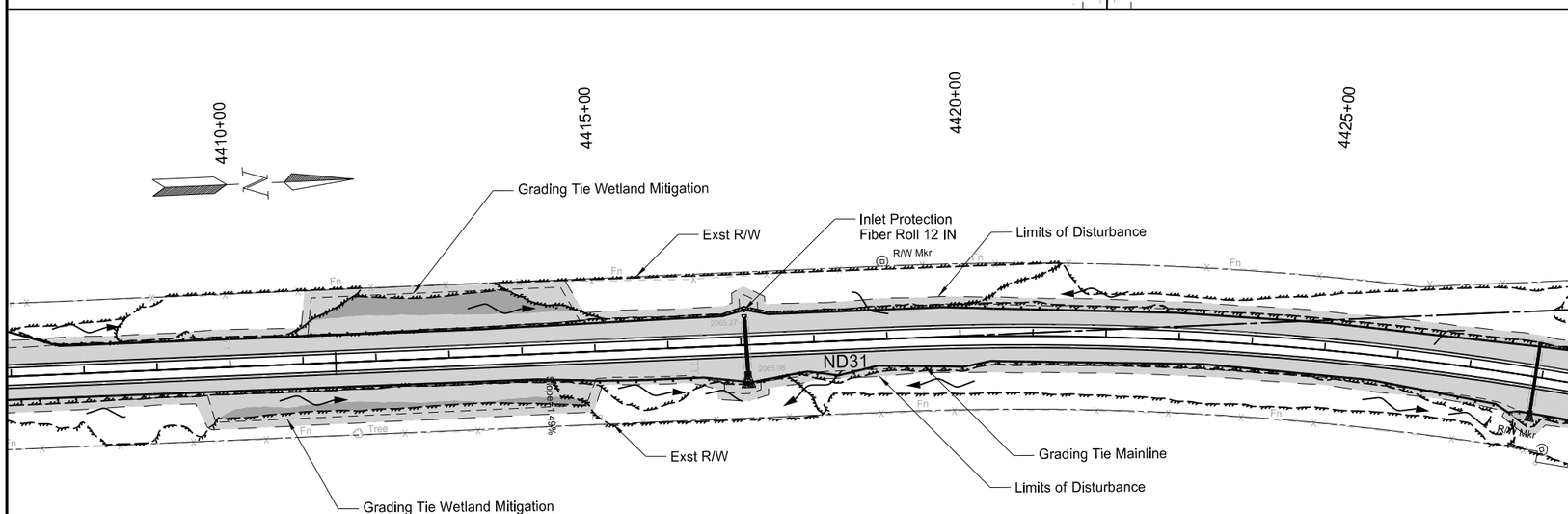
Permanent Erosion Control

Sta 4348+00 to Sta 4388+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	77	8





SPEC	CODE	BID ITEM	QTY	UNIT
251	0200	SEEDING CLASS II		
		Sta 4388+00 to Sta 4428+00	7.04	ACRE
251	1000	WETLAND SEED		
		Sta 4388+00 to Sta 4428+00	0.27	ACRE
253	0101	STRAW MULCH		
		Sta 4388+00 to Sta 4428+00	7.04	ACRE
261	0112	FIBER ROLLS 12IN		
		Sta 4388+00 to Sta 4428+00	4637	LF

Legend

- Seeding Class II and Straw Mulch
- Wetland Seed
- ECB Type 2
- Fiber Rolls - 12IN
- Delineated Wetland
- Avoidance Area

ND 31

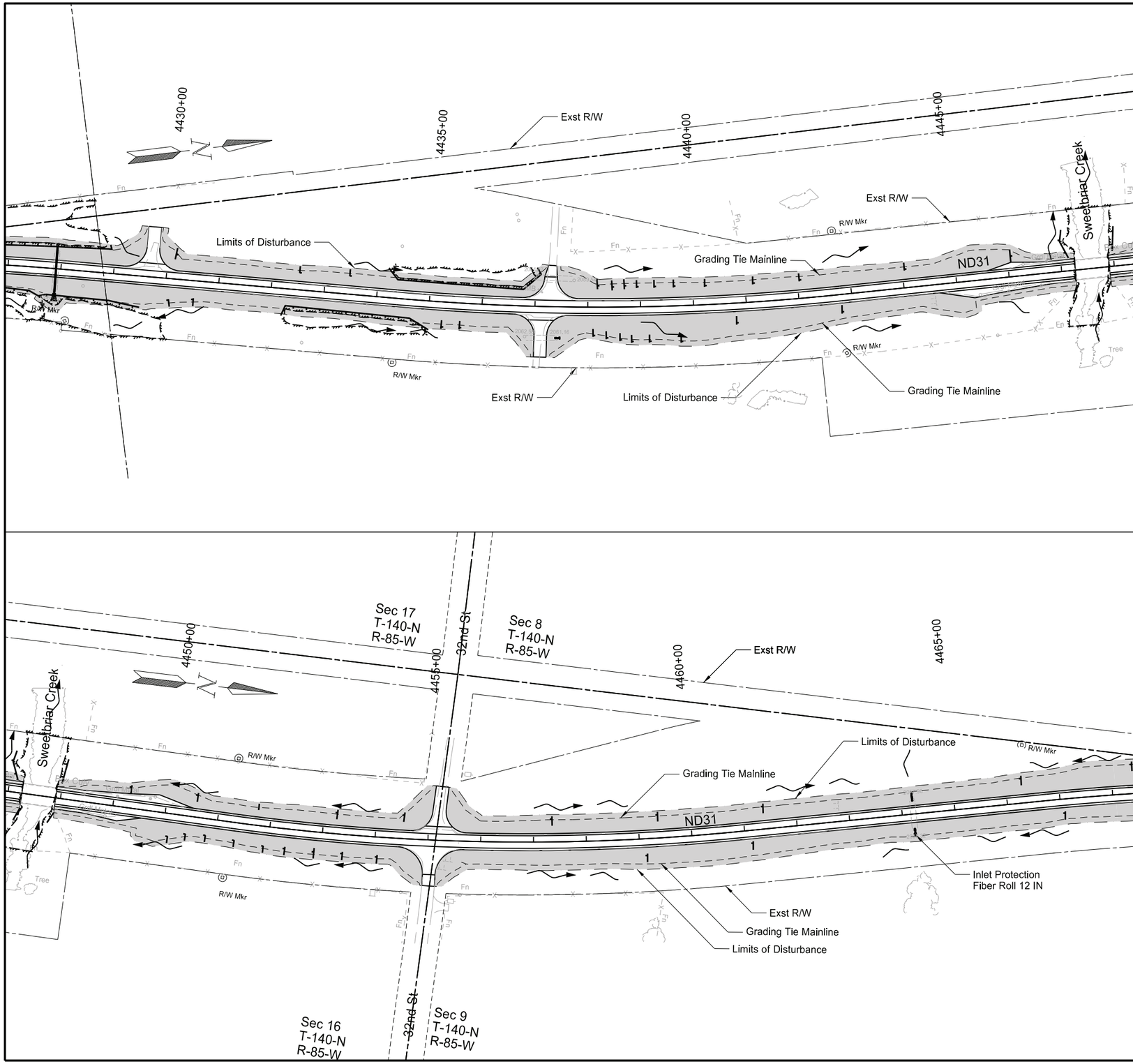
Jct I-94 to Hannover
Morton County

Permanent Erosion Control

Sta 4388+00 to Sta 4428+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	77	9



SPEC	CODE	BID ITEM	QTY	UNIT
251	0200	SEEDING CLASS II		
		Sta 4428+00 to Sta 4468+00	6.67	ACRE
253	0101	STRAW MULCH		
		Sta 4428+00 to Sta 4468+00	6.67	ACRE
261	0112	FIBER ROLLS 12IN		
		Sta 4428+00 to Sta 4468+00	1820	LF

Legend

- Seeding Class II and Straw Mulch
- Wetland Seed
- ECB Type 2
- Fiber Rolls - 12IN
- Delineated Wetland
- Avoidance Area

ND 31

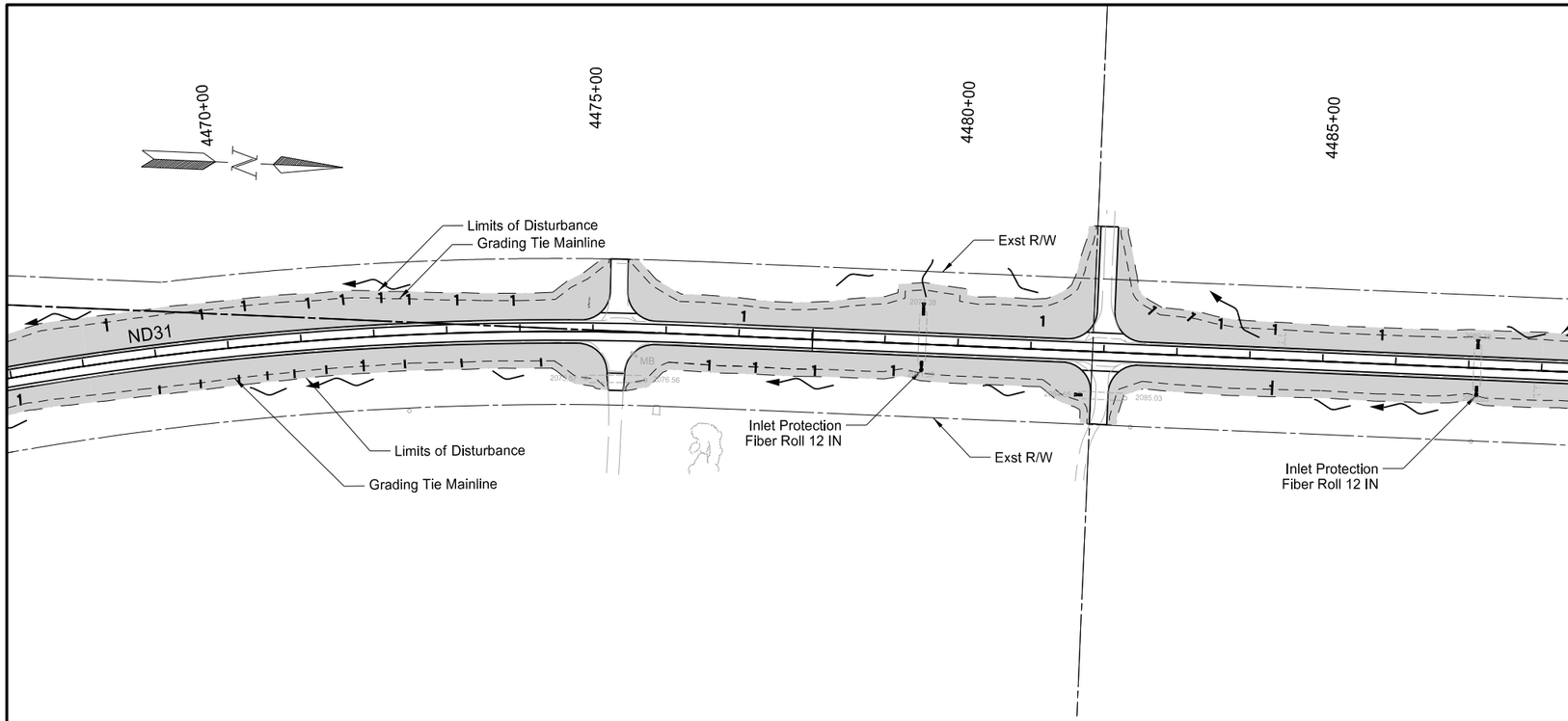
Jct I-94 to Hannover
Morton County

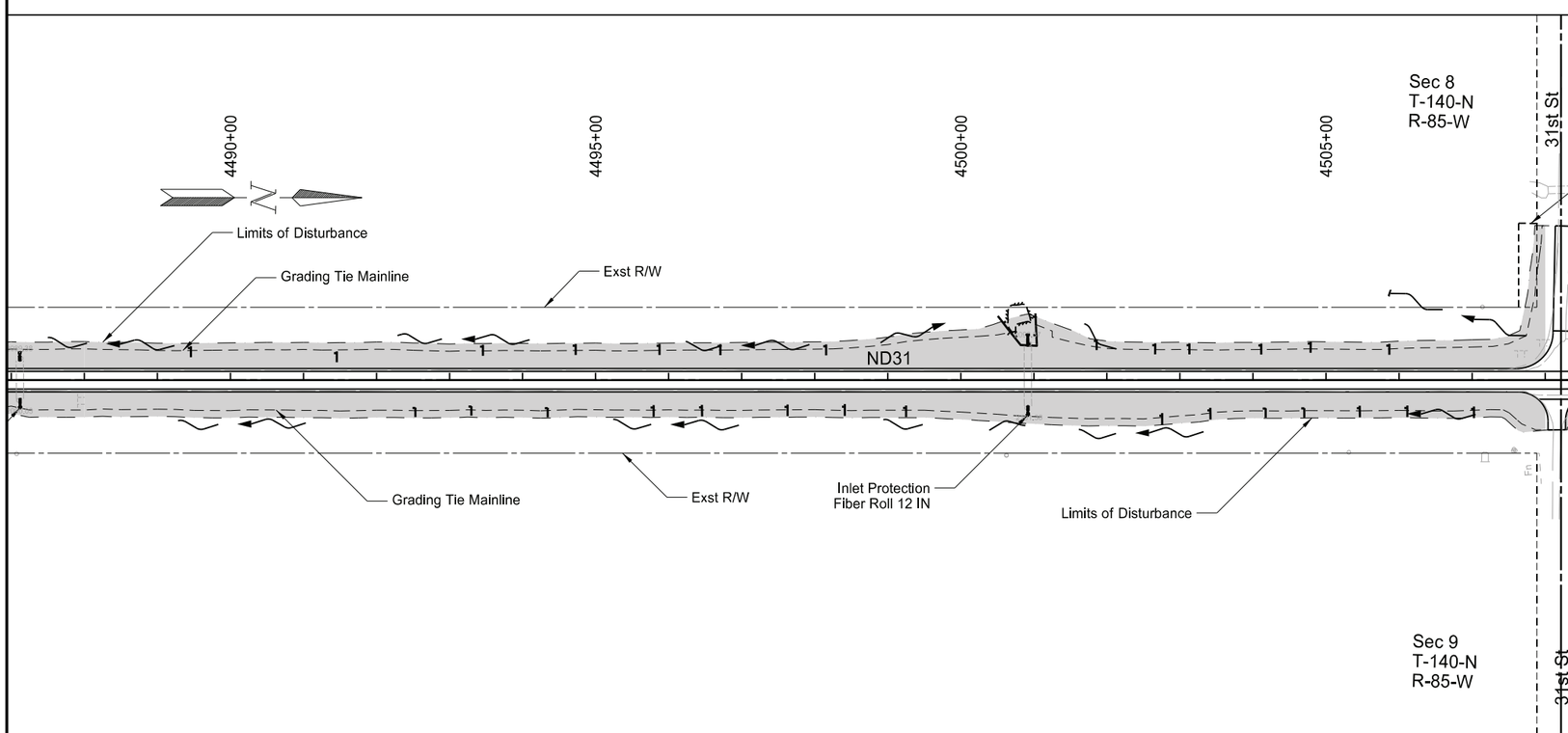
Permanent Erosion Control

Sta 4428+00 to Sta 4468+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	77	10





SPEC	CODE	BID ITEM	QTY	UNIT
251	0200	SEEDING CLASS II		
		Sta 4468+00 to Sta 4508+00	7.32	ACRE
253	0101	STRAW MULCH		
		Sta 4468+00 to Sta 4508+00	7.32	ACRE
261	0112	FIBER ROLLS 12IN		
		Sta 4468+00 to Sta 4508+00	1006	LF

Legend

- Seeding Class II and Straw Mulch
- Wetland Seed
- ECB Type 2
- Fiber Rolls - 12IN
- Delineated Wetland
- Avoidance Area

ND 31

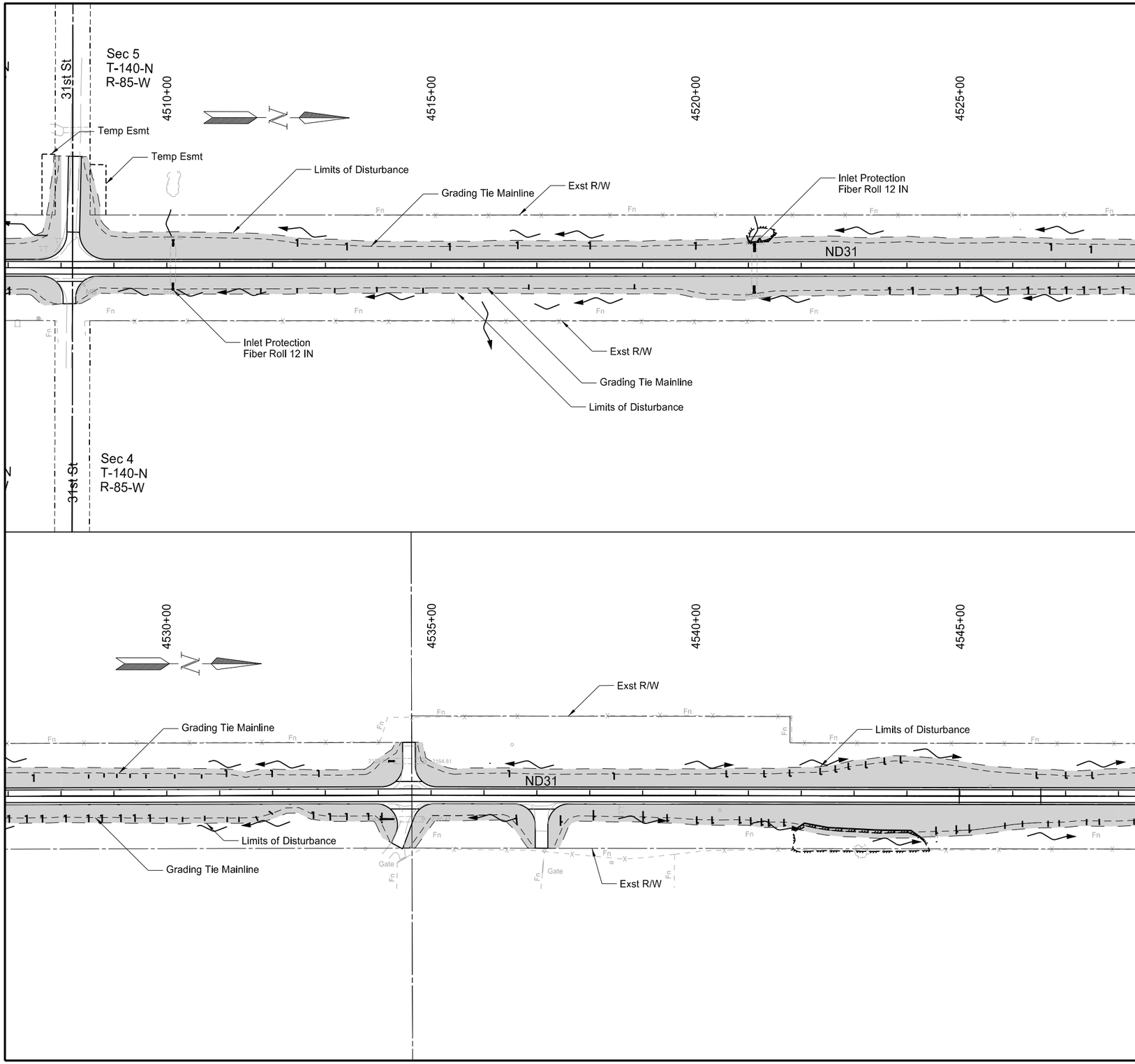
Jct I-94 to Hannover
Morton County

Permanent Erosion Control

Sta 4468+00 to Sta 4508+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	77	11



SPEC	CODE	BID ITEM	QTY	UNIT
251	0200	SEEDING CLASS II		
		Sta 4508+00 to Sta 4548+00	7.20	ACRE
253	0101	STRAW MULCH		
		Sta 4508+00 to Sta 4548+00	7.20	ACRE
261	0112	FIBER ROLLS 12IN		
		Sta 4508+00 to Sta 4548+00	1525	LF

Legend

- Seeding Class II and Straw Mulch
- Wetland Seed
- ECB Type 2
- Fiber Rolls - 12IN
- Delineated Wetland
- Avoidance Area

ND 31

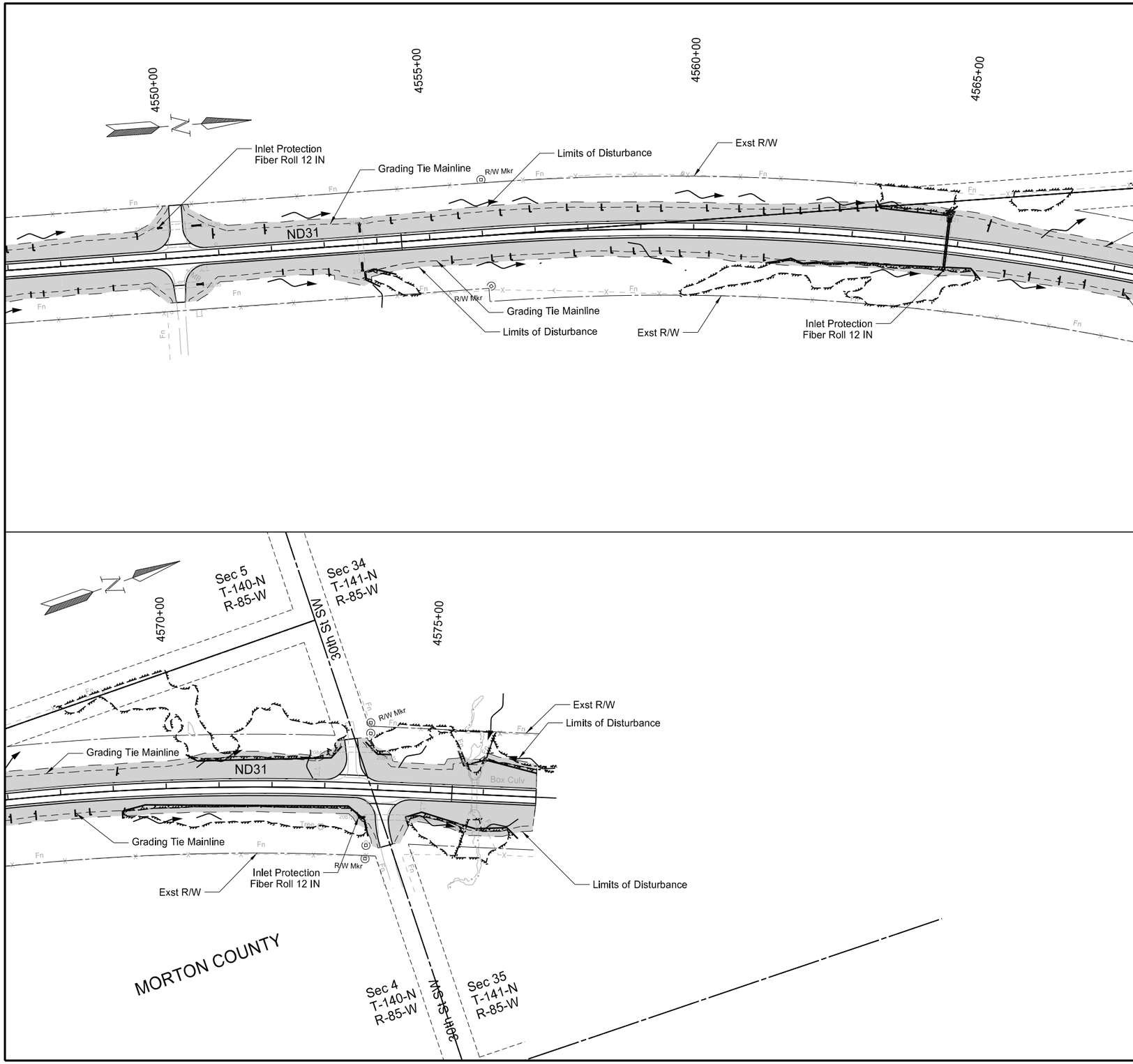
Jct I-94 to Hannover
Morton County

Permanent Erosion Control

Sta 4508+00 to Sta 4548+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	77	12



SPEC CODE		BID ITEM	QTY	UNIT
251	0200	SEEDING CLASS II		
		Sta 4548+00 to Sta 4588+00	5.37	ACRE
253	0101	STRAW MULCH		
		Sta 4548+00 to Sta 4588+00	5.37	ACRE
261	0112	FIBER ROLLS 12IN		
		Sta 4548+00 to Sta 4588+00	2688	LF

Legend

- Seeding Class II and Straw Mulch
- Wetland Seed
- ECB Type 2
- Fiber Rolls - 12IN
- Delineated Wetland
- Avoidance Area

ND 31

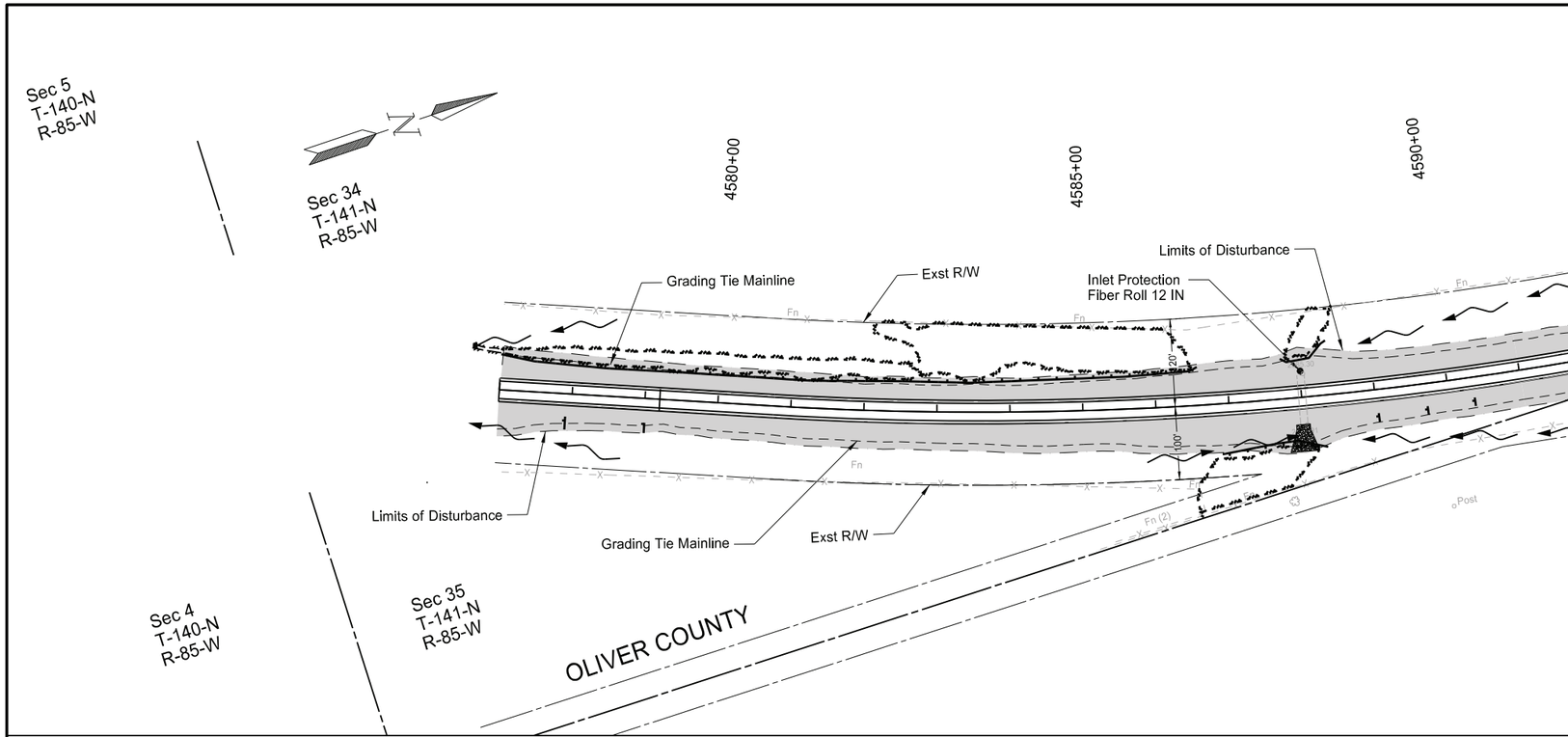
Jct I-94 to Hannover
Morton County

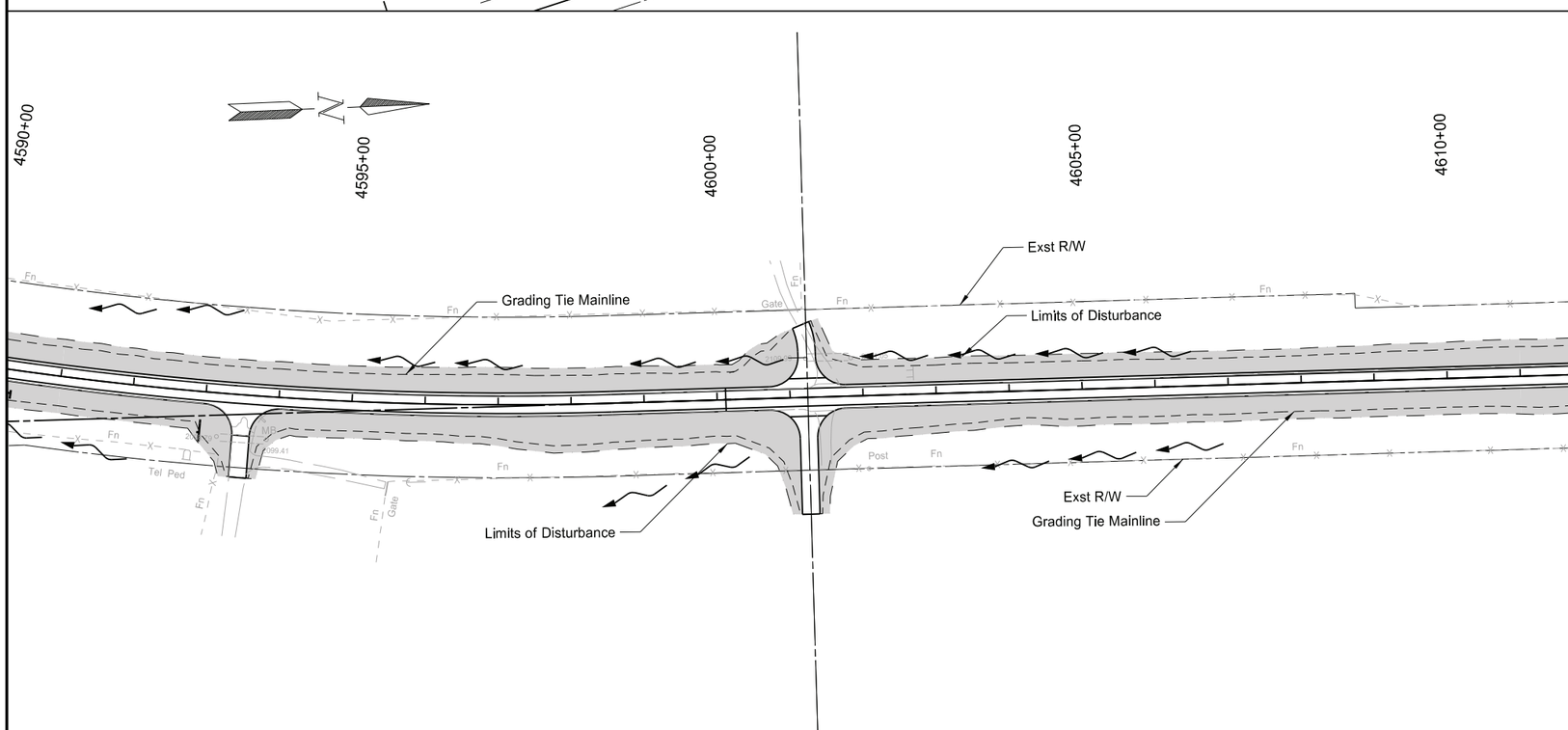
Permanent Erosion Control

Sta 4548+00 to Sta 4577+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	77	13





SPEC	CODE	BID ITEM	QTY	UNIT
251	0200	SEEDING CLASS II		
		Sta 4577+00 to Sta 4611+00	5.87	ACRE
253	0101	STRAW MULCH		
		Sta 4577+00 to Sta 4611+00	5.87	ACRE
261	0112	FIBER ROLLS 12IN		
		Sta 4577+00 to Sta 4611+00	1295	LF

Legend

- Seeding Class II and Straw Mulch
- Wetland Seed
- ECB Type 2
- Fiber Rolls - 12IN
- Delineated Wetland
- Avoidance Area

ND 31

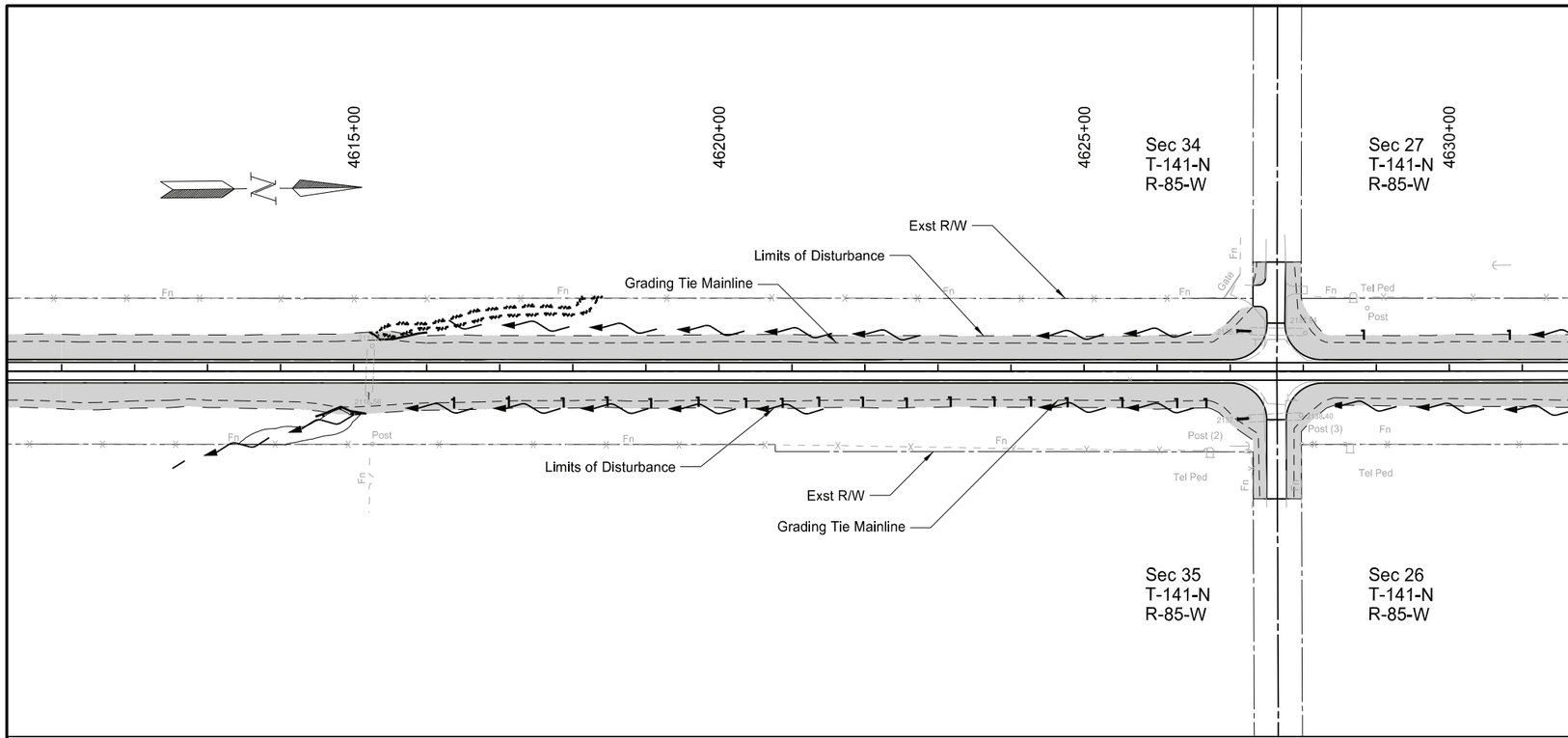
Jct I-94 to Hannover
Oliver County

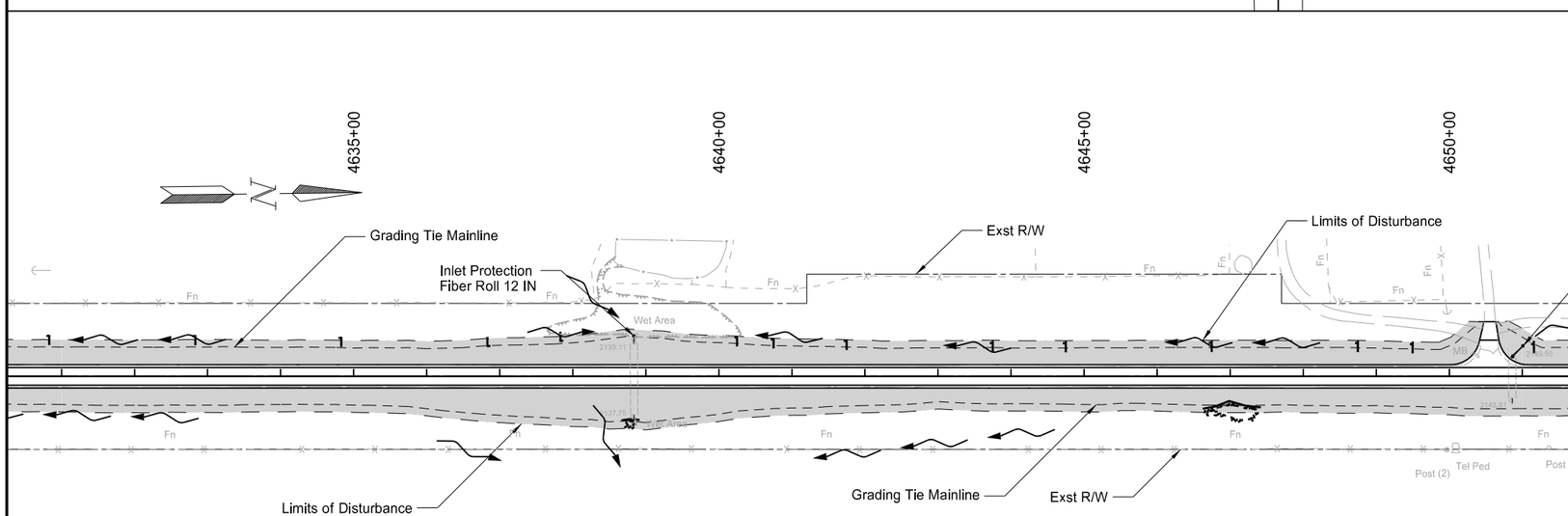
Permanent Erosion Control

Sta 4577+00 to Sta 4611+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	77	14





SPEC	CODE	BID ITEM	QTY	UNIT
251	0200	SEEDING CLASS II		
		Sta 4611+00 to Sta 4651+00	6.63	ACRE
253	0101	STRAW MULCH		
		Sta 4611+00 to Sta 4651+00	6.63	ACRE
261	0112	FIBER ROLLS 12IN		
		Sta 4611+00 to Sta 4651+00	734	LF

Legend

- Seeding Class II and Straw Mulch
- Wetland Seed
- ECB Type 2
- Fiber Rolls - 12IN
- Delineated Wetland
- Avoidance Area

ND 31

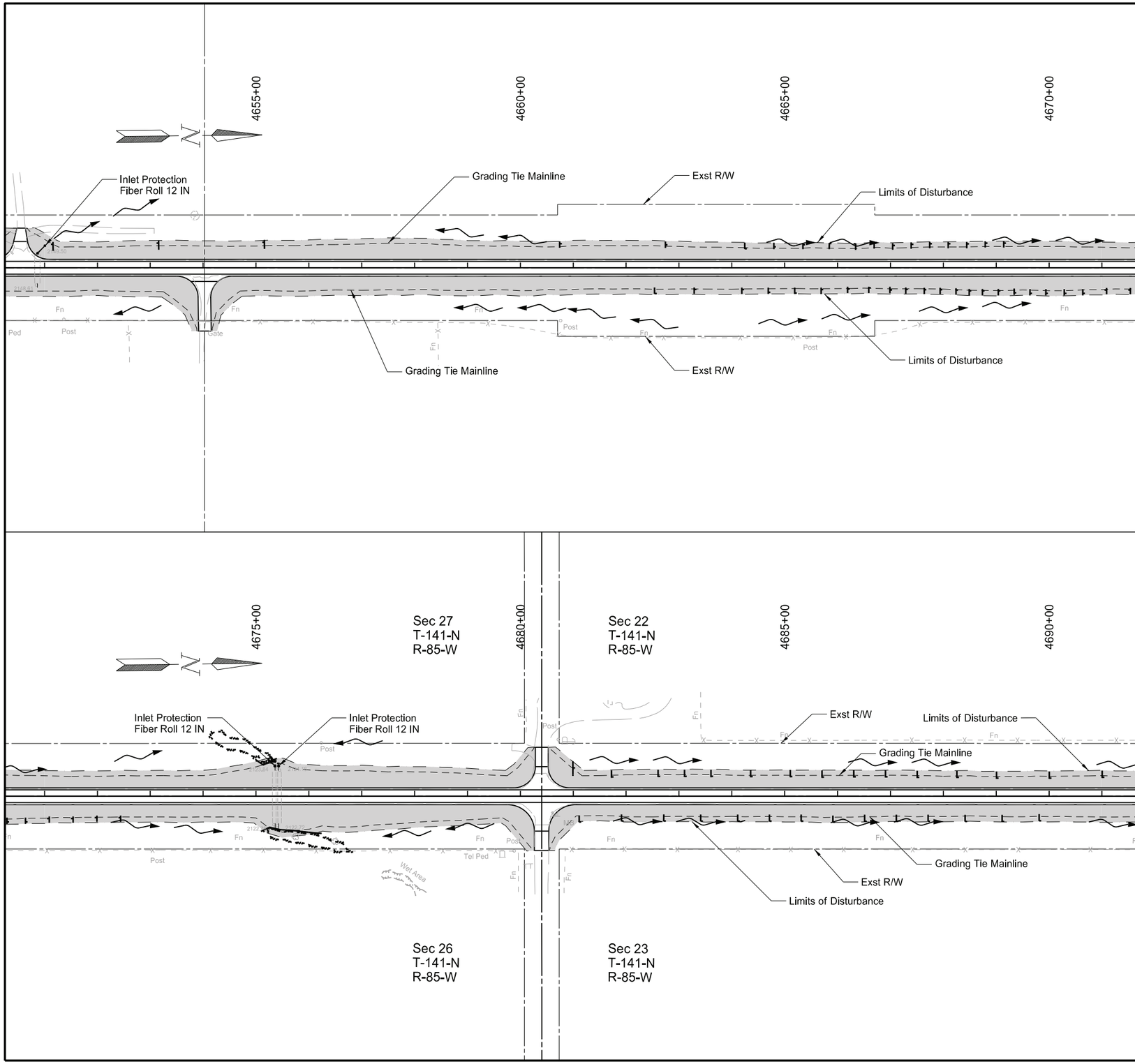
Jct I-94 to Hannover
Oliver County

Permanent Erosion Control

Sta 4611+00 to Sta 4651+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	77	15



SPEC	CODE	BID ITEM	QTY	UNIT
251	0200	SEEDING CLASS II		
		Sta 4651+00 to Sta 4691+00	6.67	ACRE
253	0101	STRAW MULCH		
		Sta 4651+00 to Sta 4691+00	6.67	ACRE
261	0112	FIBER ROLLS 12IN		
		Sta 4651+00 to Sta 4691+00	1115	LF

Legend

- Seeding Class II and Straw Mulch
- Wetland Seed
- ECB Type 2
- Fiber Rolls - 12IN
- Delineated Wetland
- Avoidance Area

ND 31

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Oliver County

Permanent Erosion Control

Sta 4651+00 to Sta 4691+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
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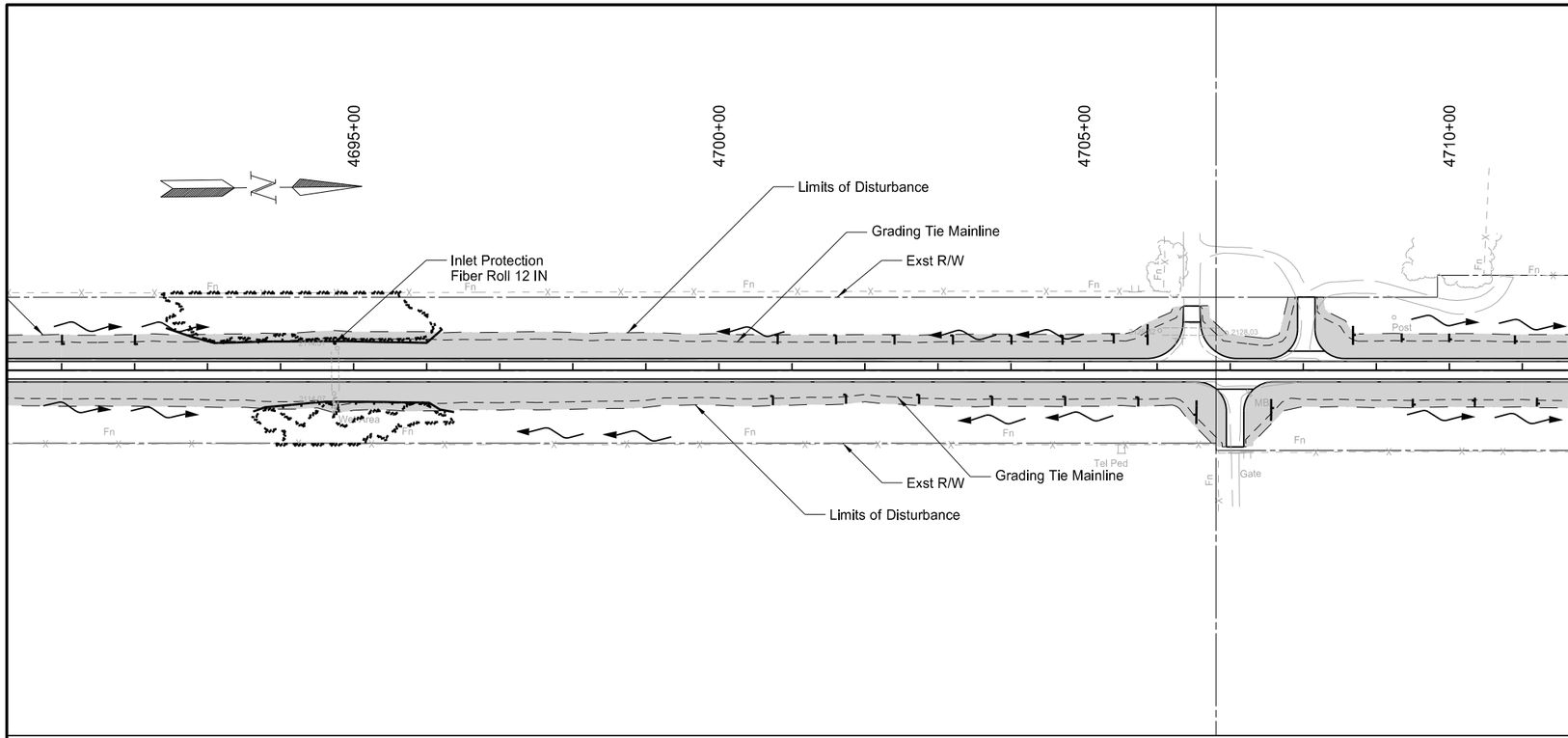
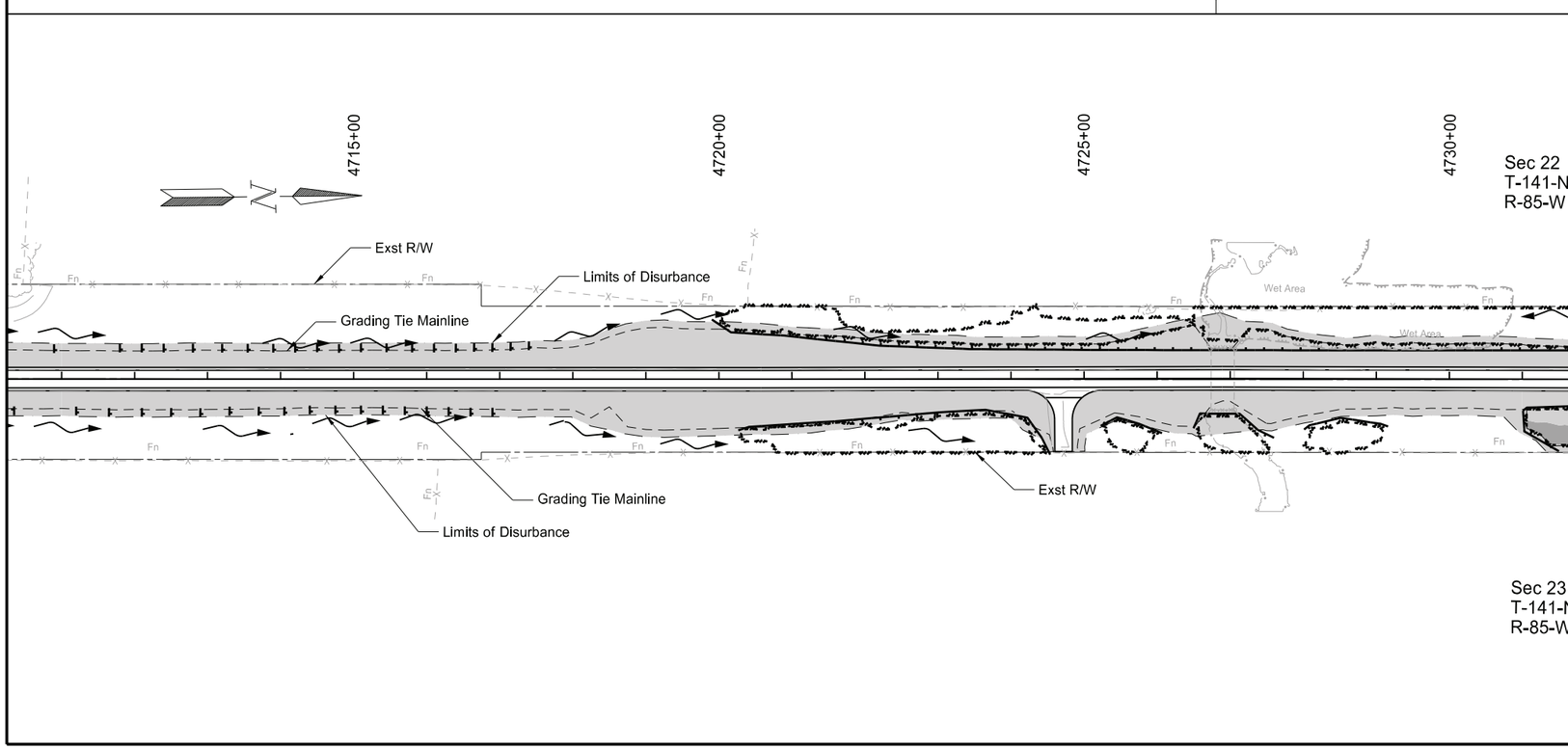
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	77	16





SPEC	CODE	BID ITEM	QTY	UNIT
251	0200	SEEDING CLASS II		
		Sta 4691+00 to Sta 4731+00	7.29	ACRE
253	0101	STRAW MULCH		
		Sta 4691+00 to Sta 4731+00	7.29	ACRE
261	0112	FIBER ROLLS 12IN		
		Sta 4691+00 to Sta 4731+00	3401	LF

Legend

- Seeding Class II and Straw Mulch
- Wetland Seed
- ECB Type 2
- Fiber Rolls - 12IN
- Delineated Wetland
- Avoidance Area

ND 31

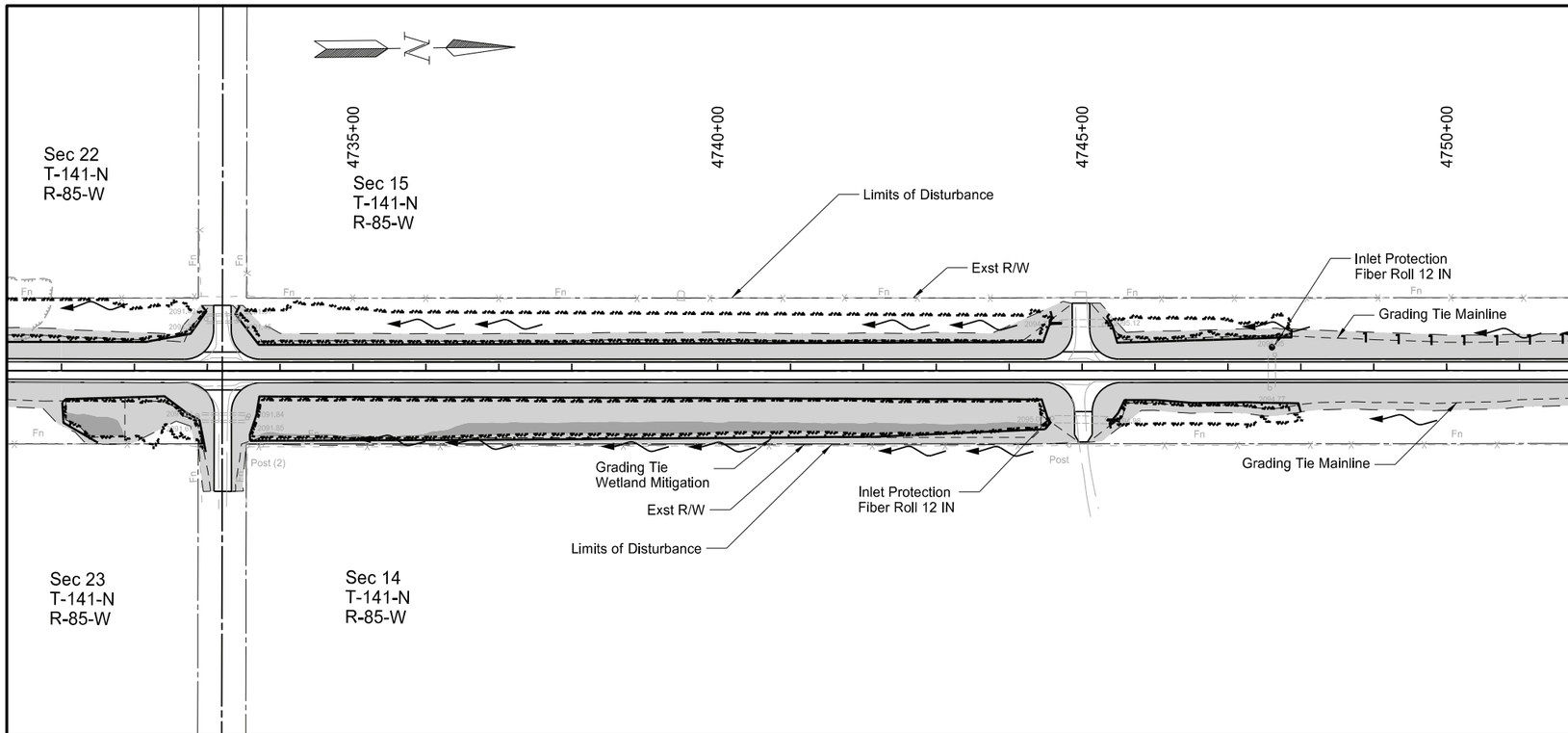
Jct I-94 to Hannover
Oliver County

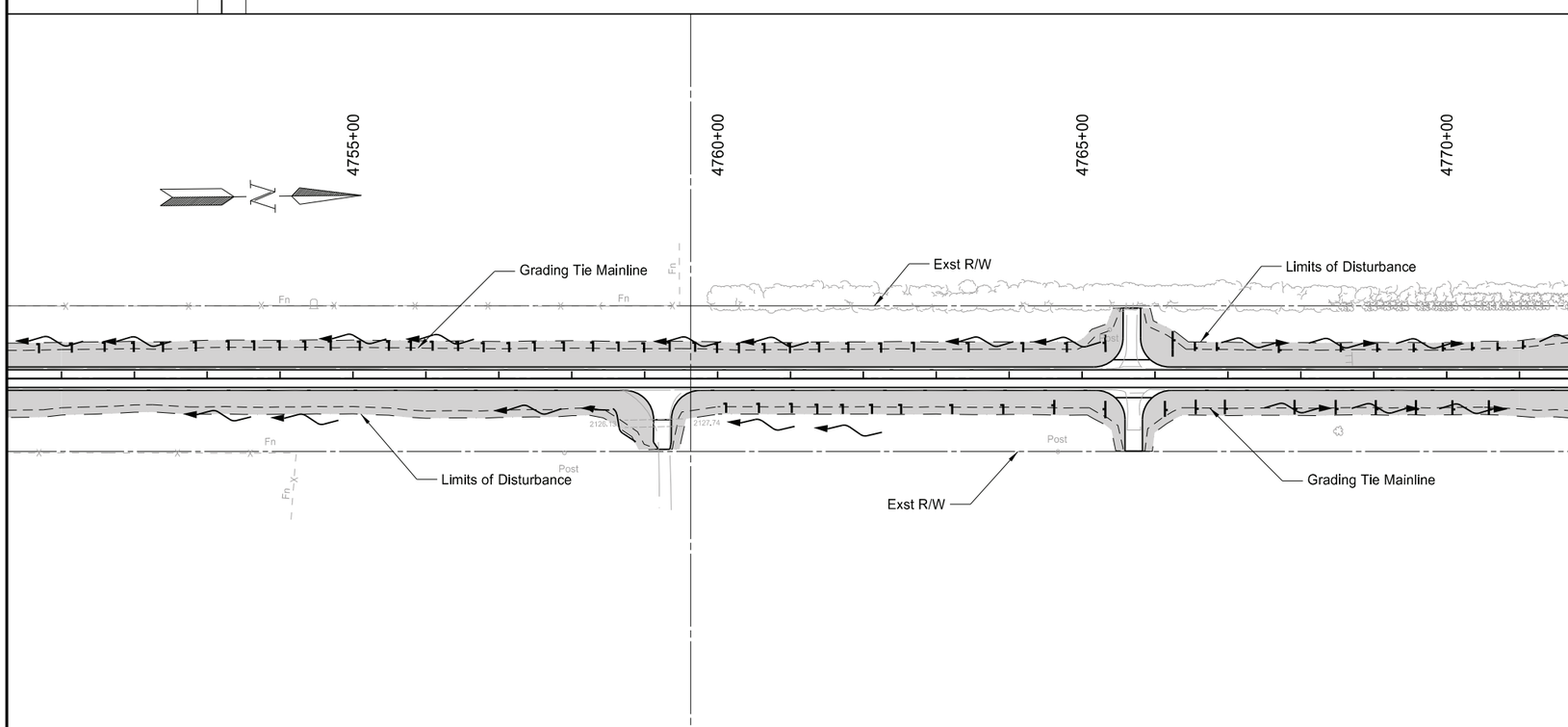
Permanent Erosion Control

Sta 4691+00 to Sta 4731+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	77	17





SPEC	CODE	BID ITEM	QTY	UNIT
251	0200	SEEDING CLASS II		
		Sta 4731+00 to Sta 4771+00	7.87	ACRE
251	1000	WETLAND SEED		
		Sta 4731+00 to Sta 4771+00	0.33	ACRE
253	0101	STRAW MULCH		
		Sta 4731+00 to Sta 4771+00	7.87	ACRE
261	0112	FIBER ROLLS 12IN		
		Sta 4731+00 to Sta 4771+00	5705	LF

Legend

- Seeding Class II and Straw Mulch
- Wetland Seed
- ECB Type 2
- Fiber Rolls - 12IN
- Delineated Wetland
- Avoidance Area

ND 31

Jct I-94 to Hannover
Oliver County

Permanent Erosion Control

Sta 4731+00 to Sta 4771+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
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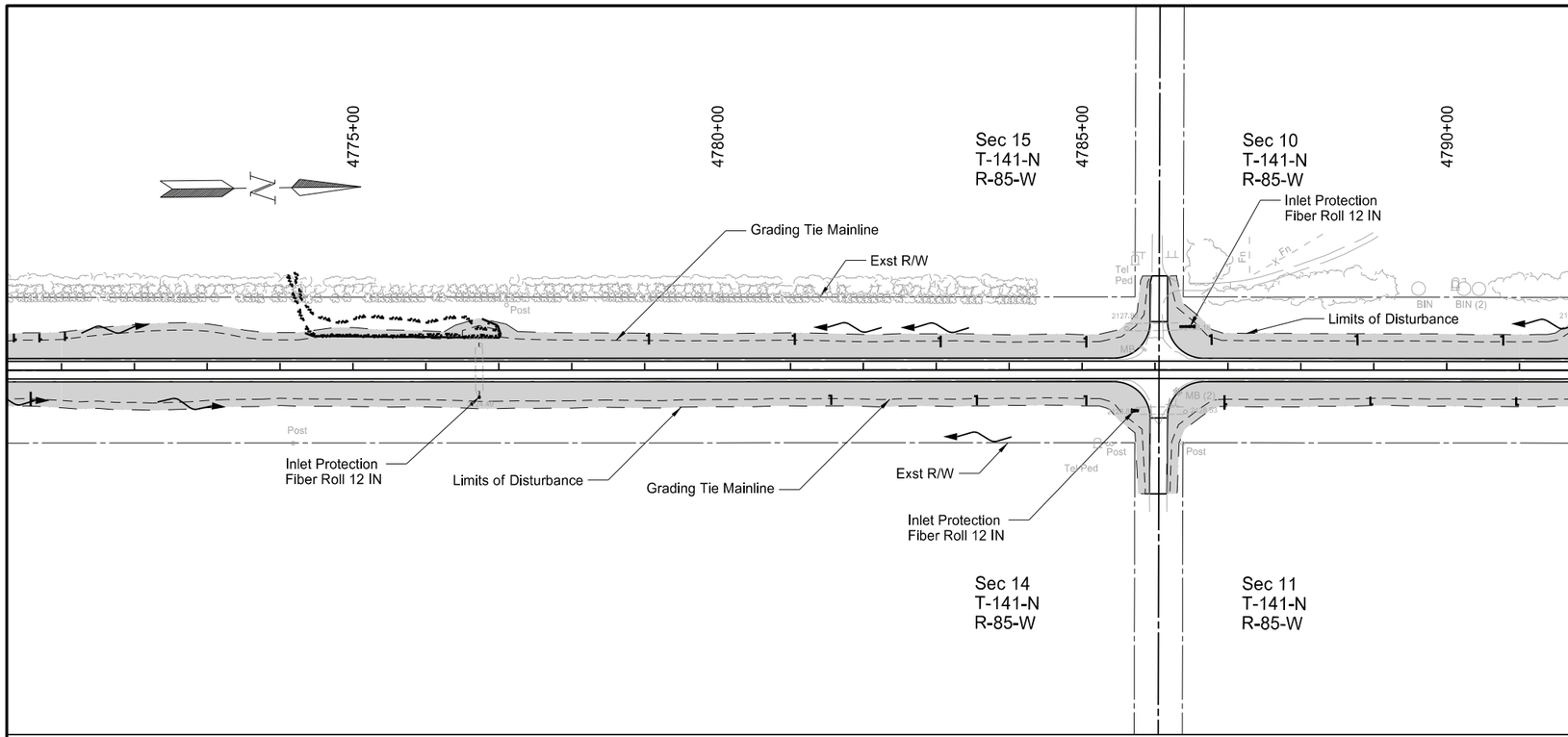
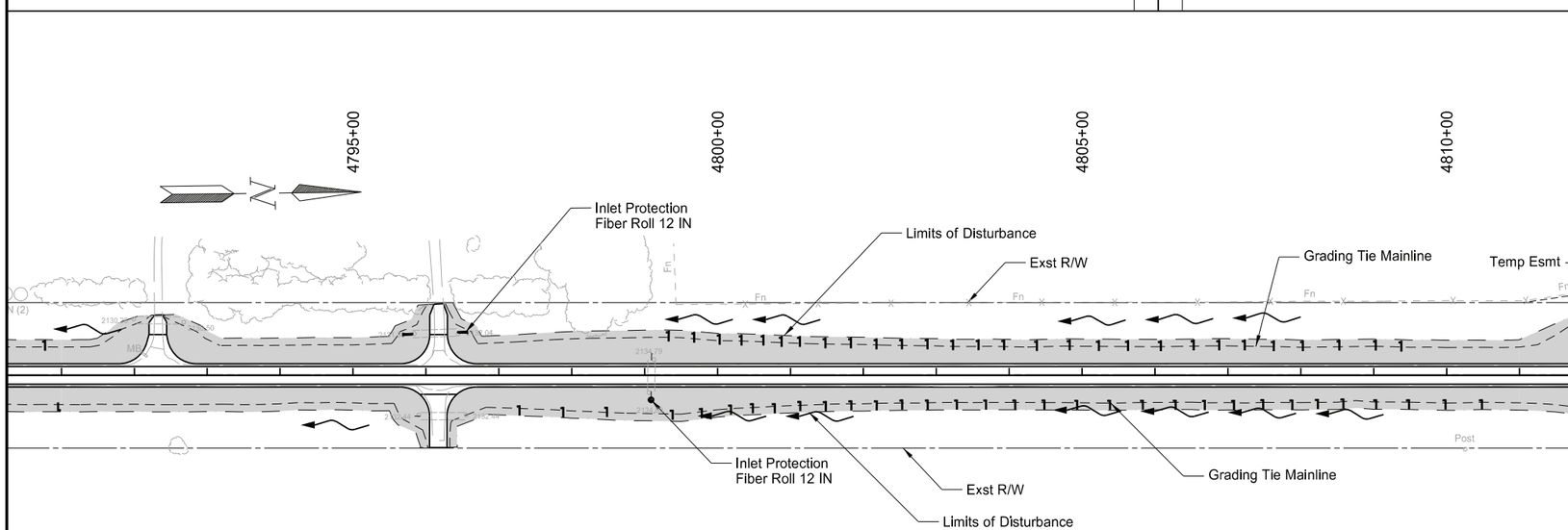
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	77	18





SPEC	CODE	BID ITEM	QTY	UNIT
251	0200	SEEDING CLASS II		
		Sta 4771+00 to Sta 4811+00	6.74	ACRE
253	0101	STRAW MULCH		
		Sta 4771+00 to Sta 4811+00	6.74	ACRE
261	0112	FIBER ROLLS 12IN		
		Sta 4771+00 to Sta 4811+00	1429	LF

Legend

- Seeding Class II and Straw Mulch
- Wetland Seed
- ECB Type 2
- Fiber Rolls - 12IN
- Delineated Wetland
- Avoidance Area

ND 31

Jct I-94 to Hannover
Oliver County

Permanent Erosion Control

Sta 4771+00 to Sta 4811+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
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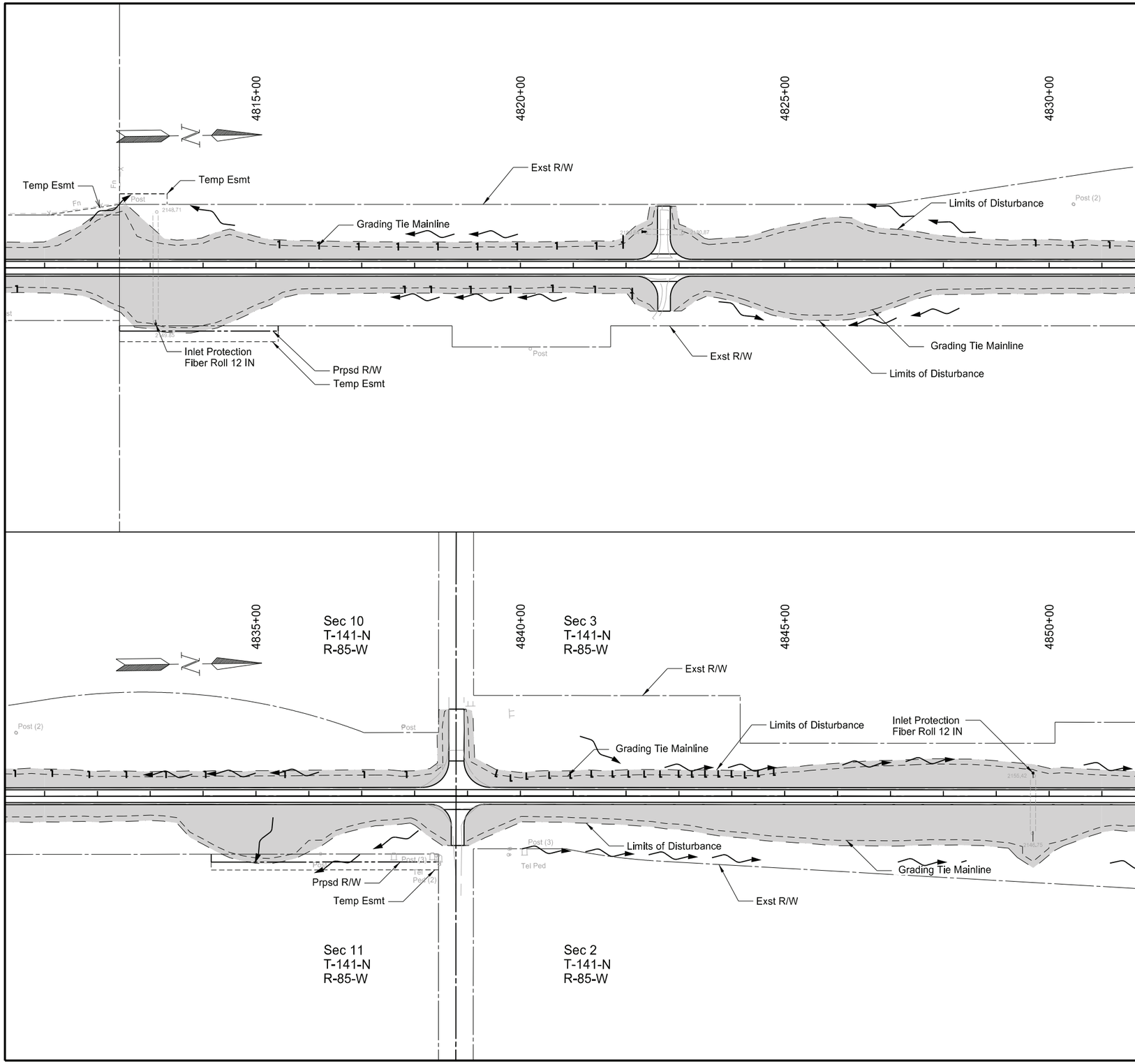
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	77	19



SPEC	CODE	BID ITEM	QTY	UNIT
251	0200	SEEDING CLASS II		
		Sta 4811+00 to Sta 4851+00	9.02	ACRE
253	0101	STRAW MULCH		
		Sta 4811+00 to Sta 4851+00	9.02	ACRE
261	0112	FIBER ROLLS 12IN		
		Sta 4811+00 to Sta 4851+00	667	LF

Legend

- Seeding Class II and Straw Mulch
- Wetland Seed
- ECB Type 2
- Fiber Rolls - 12IN
- Delineated Wetland
- Avoidance Area

ND 31

Jct I-94 to Hannover
Oliver County

Permanent Erosion Control

Sta 4811+00 to Sta 4851+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
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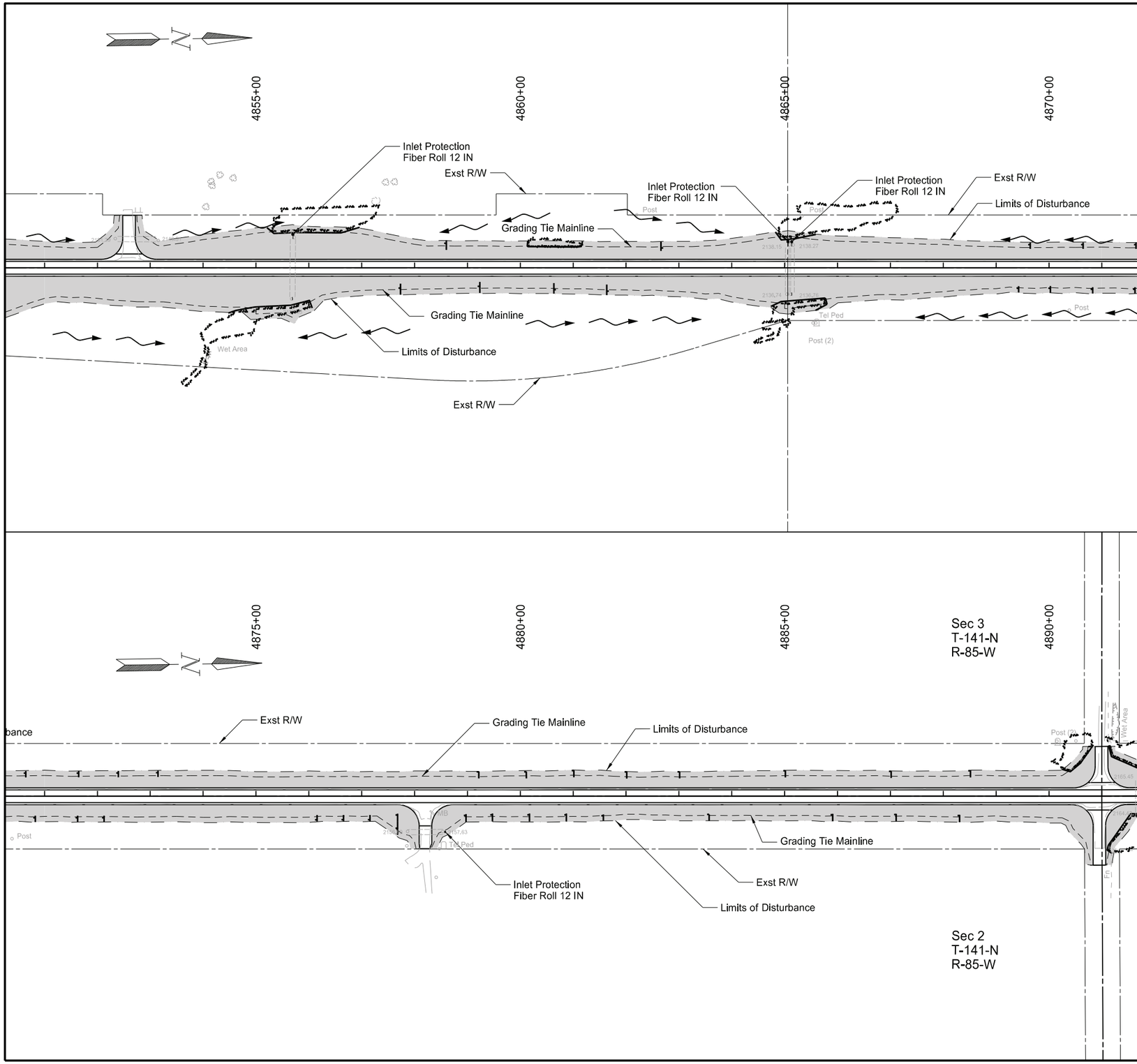
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	77	20



SPEC	CODE	BID ITEM	QTY	UNIT
251	0200	SEEDING CLASS II		
		Sta 4851+00 to Sta 4891+00	7.09	ACRE
253	0101	STRAW MULCH		
		Sta 4851+00 to Sta 4891+00	7.09	ACRE
261	0112	FIBER ROLLS 12IN		
		Sta 4851+00 to Sta 4891+00	1400	LF

Legend

- Seeding Class II and Straw Mulch
- Wetland Seed
- ECB Type 2
- Fiber Rolls - 12IN
- Delineated Wetland
- Avoidance Area

ND 31

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Oliver County

Permanent Erosion Control

Sta 4851+00 to Sta 4891+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
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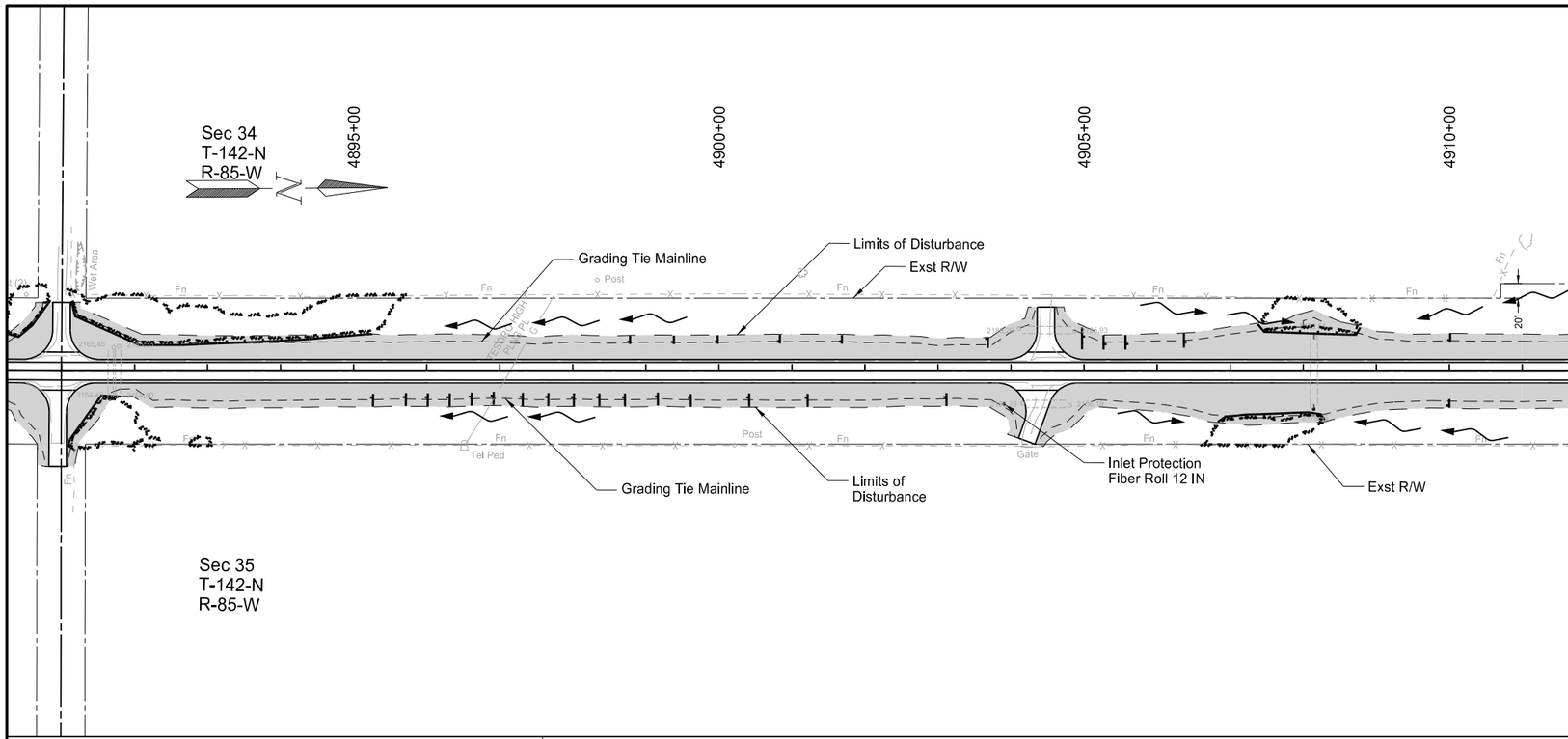
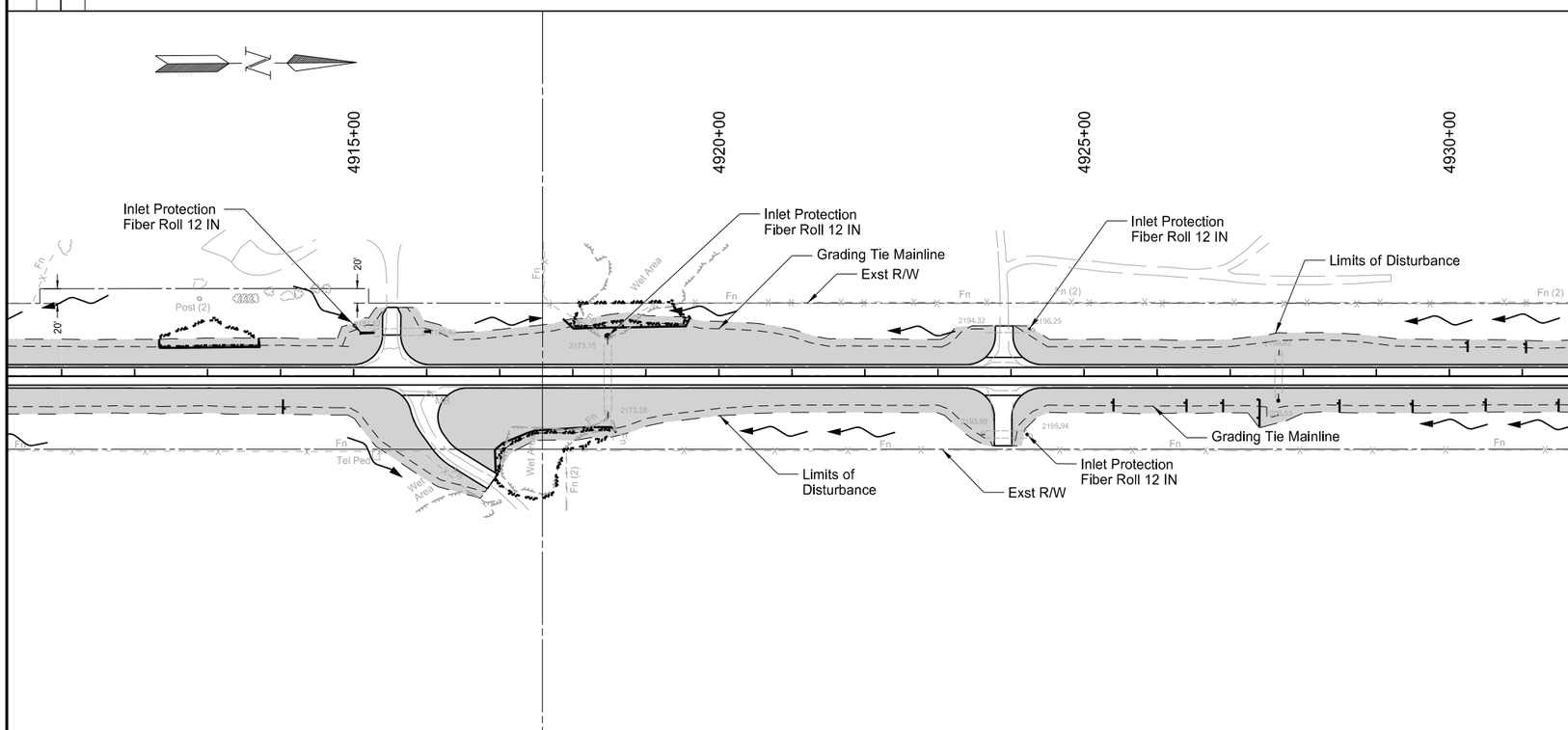
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	77	21





SPEC CODE	BID ITEM	QTY	UNIT
251 0200	SEEDING CLASS II		
	Sta 4891+00 to Sta 4931+00	7.43	ACRE
253 0101	STRAW MULCH		
	Sta 4891+00 to Sta 4931+00	7.43	ACRE
261 0112	FIBER ROLLS 12IN		
	Sta 4891+00 to Sta 4931+00	2189	LF

Legend

- Seeding Class II and Straw Mulch
- Wetland Seed
- ECB Type 2
- Fiber Rolls - 12IN
- Delineated Wetland
- Avoidance Area

ND 31

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Oliver County

Permanent Erosion Control

Sta 4891+00 to Sta 4931+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
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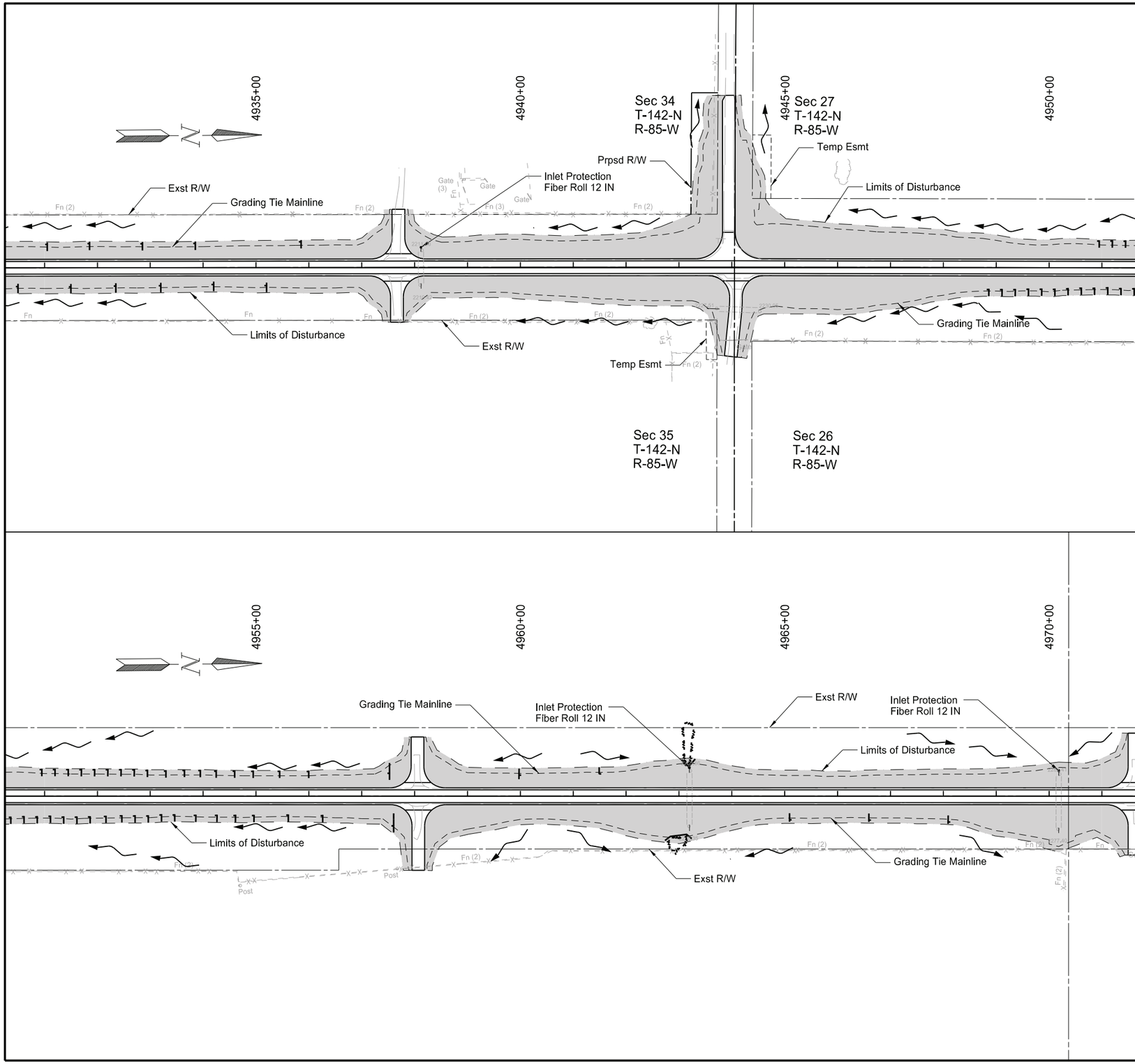
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	77	22



SPEC	CODE	BID ITEM	QTY	UNIT
251	0200	SEEDING CLASS II		
		Sta 4931+00 to Sta 4971+00	8.73	ACRE
253	0101	STRAW MULCH		
		Sta 4931+00 to Sta 4971+00	8.73	ACRE
261	0112	FIBER ROLLS 12IN		
		Sta 4931+00 to Sta 4971+00	1025	LF

Legend

- Seeding Class II and Straw Mulch
- Wetland Seed
- ECB Type 2
- Fiber Rolls - 12IN
- Delineated Wetland
- Avoidance Area

ND 31

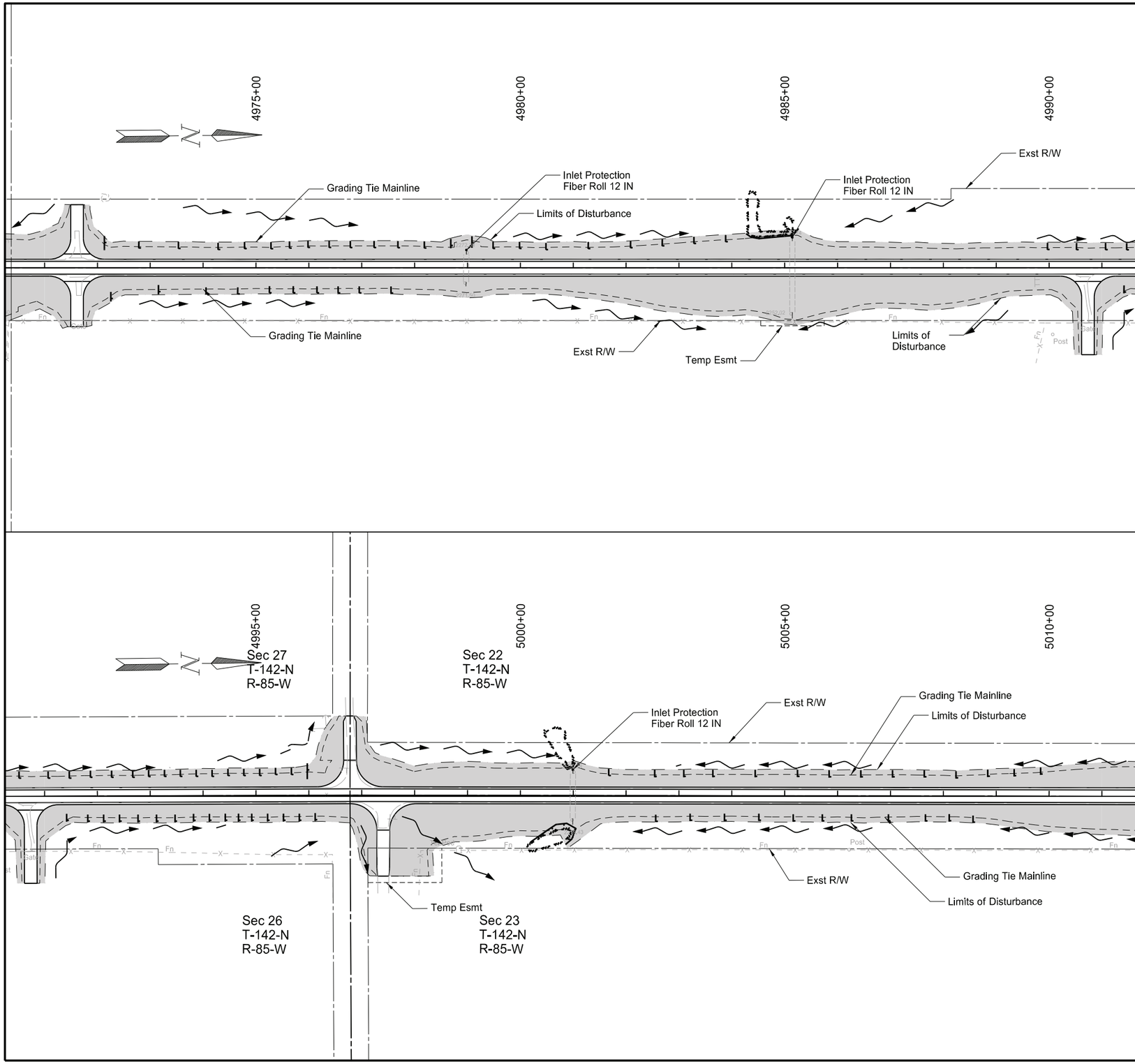
Jct I-94 to Hannover
Oliver County

Permanent Erosion Control

Sta 4931+00 to Sta 4971+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	77	23



SPEC	CODE	BID ITEM	QTY	UNIT
251	0200	SEEDING CLASS II		
		Sta 4971+00 to Sta 5011+00	7.97	ACRE
253	0101	STRAW MULCH		
		Sta 4971+00 to Sta 5011+00	7.97	ACRE
261	0112	FIBER ROLLS 12IN		
		Sta 4971+00 to Sta 5011+00	1611	LF

Legend

- Seeding Class II and Straw Mulch
- Wetland Seed
- ECB Type 2
- Fiber Rolls - 12IN
- Delineated Wetland
- Avoidance Area

ND 31

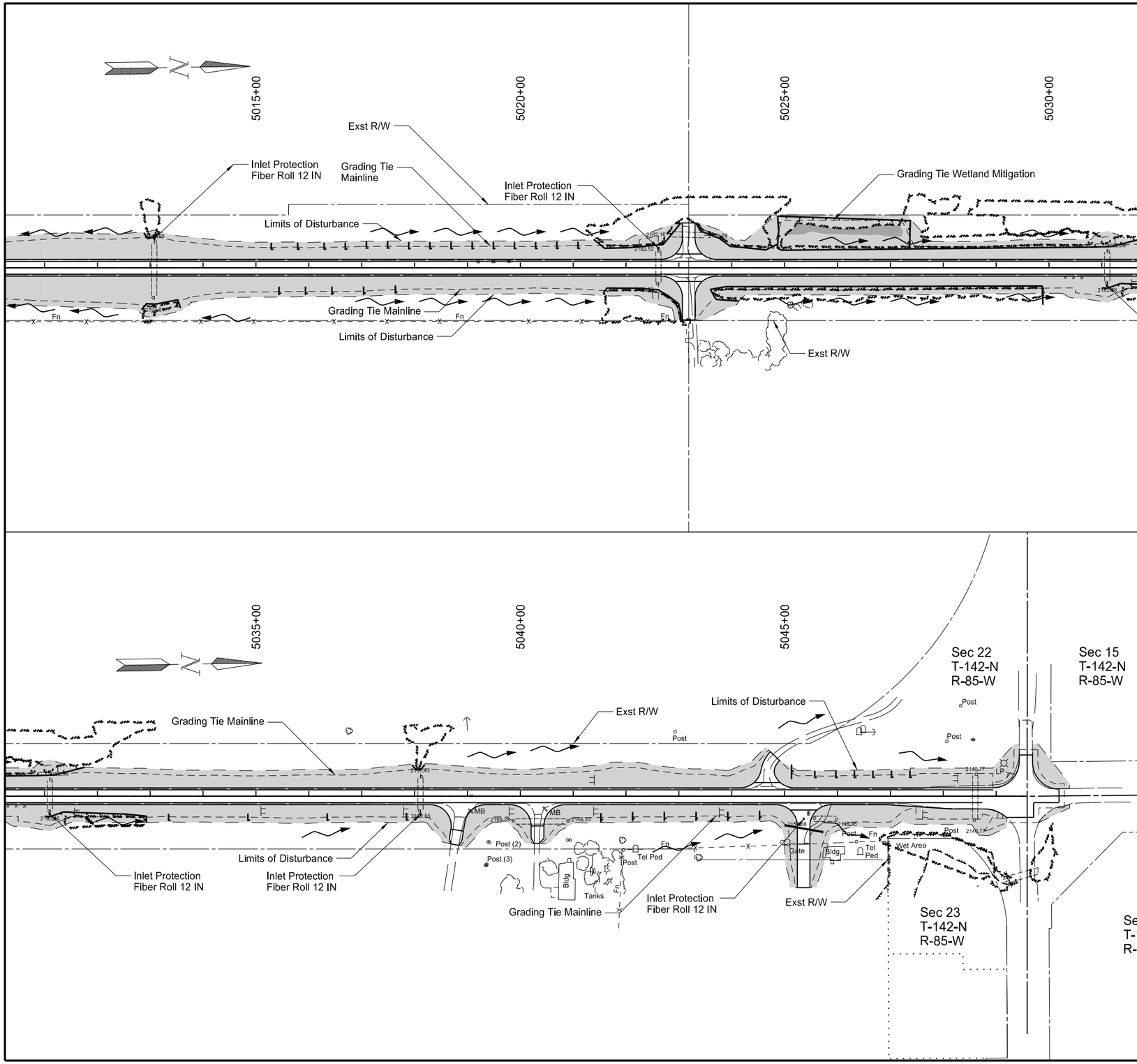
Jct I-94 to Hannover
Oliver County

Permanent Erosion Control

Sta 4971+00 to Sta 5011+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	77	24



SPEC	CODE	BID ITEM	QTY	UNIT
251	0200	SEEDING CLASS II		
		Sta 5011+00 to Sta 5050+19	7.22	ACRE
251	1000	WETLAND SEED		
		Sta 5011+00 to Sta 5050+19	0.08	ACRE
253	0101	STRAW MULCH		
		Sta 5011+00 to Sta 5050+19	7.22	ACRE
261	0112	FIBER ROLLS 12IN		
		Sta 5011+00 to Sta 5050+19	3311	LF

Legend

- Seeding Class II and Straw Mulch
- Wetland Seed
- ECB Type 2
- Fiber Rolls - 12IN
- Delineated Wetland
- Avoidance Area

ND 31

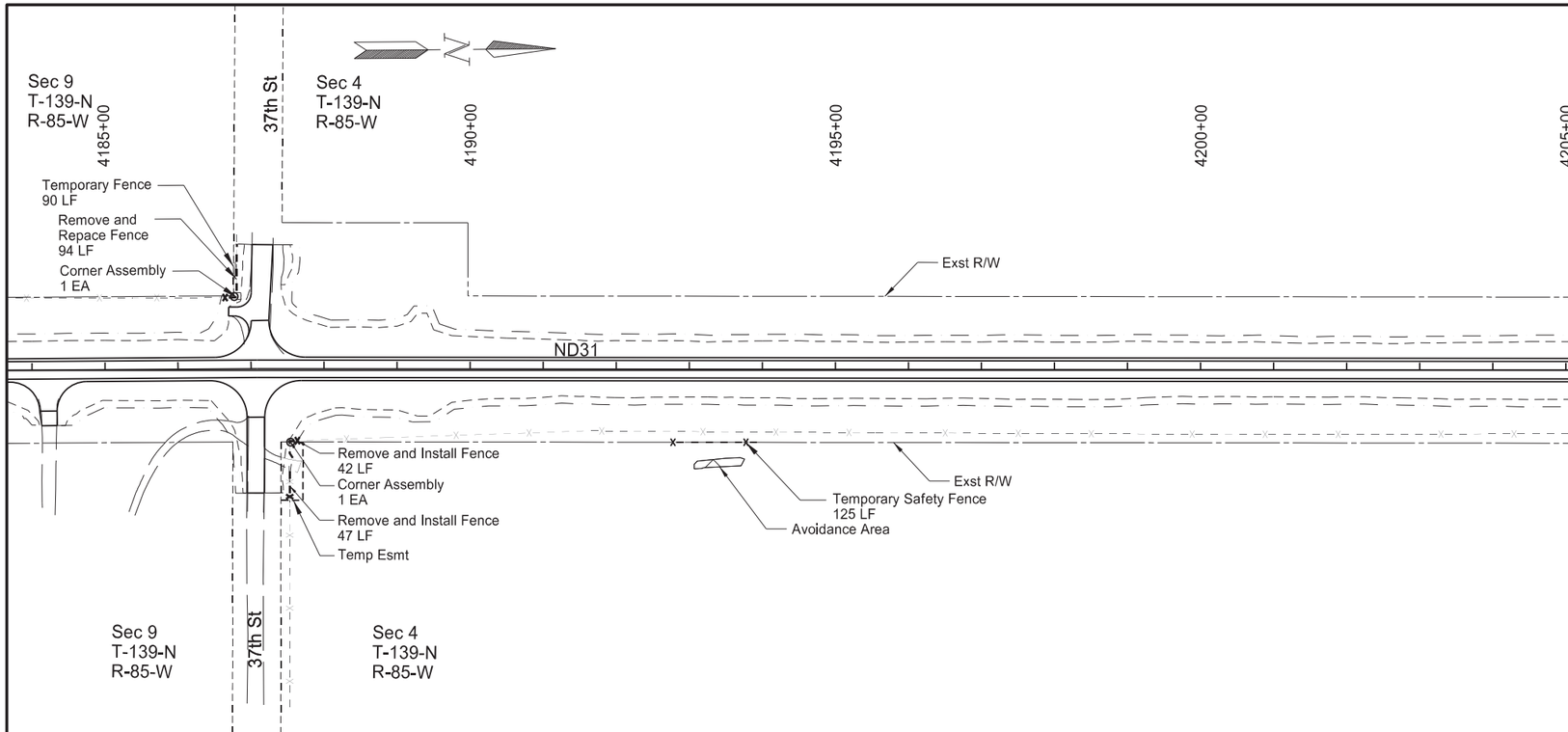
Jct I-94 to Hannover
Oliver County

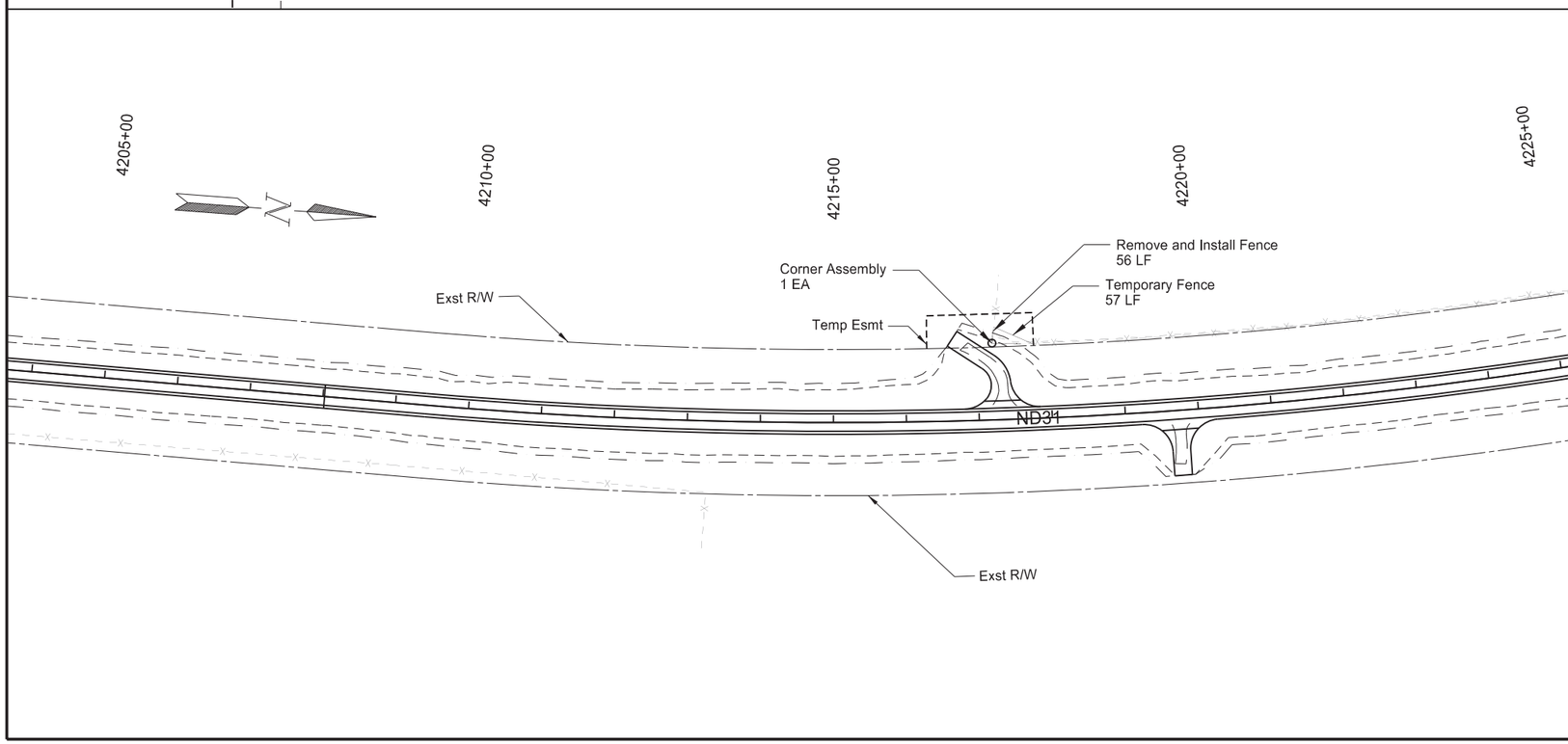
Permanent Erosion Control

Sta 5011+00 to Sta 5050+19

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	80	1





SPEC	CODE	BID ITEM	QTY	UNIT
202	0312	REMOVE EXISTING FENCE		
		Sta 4186+60 to Sta 4186+82 (LT)	94	LF
		Sta 4187+53 (RT)	47	LF
		Sta 4187+53 to Sta 4187+67 (RT)	42	LF
		Sta 4217+21 to Sta 4217+61 (LT)	56	LF
752	0100	FENCE BARBED WIRE 3 STRAND		
		Sta 4187+53 (RT)	47	LF
		Sta 4187+53 to Sta 4187+67 (RT)	42	LF
		Sta 4217+21 to Sta 4217+61 (LT)	56	LF
752	0200	FENCE BARBED WIRE 4 STRAND		
		Sta 4186+60 to Sta 4186+82 (LT)	94	LF
752	0905	TEMPORARY FENCE		
		Sta 4186+60 to Sta 4186+82 (LT)	90	LF
		Sta 4217+24 to Sta 4217+76 (LT)	57	LF
752	0911	TEMPORARY SAFETY FENCE		
		Sta 4192+73 to Sta 4193+99 (RT)	125	LF
752	3150	CORNER ASSEMBLY BARBED WIRE-WOOD POST		
		Sta 4186+76 (LT)	1	EA
		Sta 4187+53 (RT)	1	EA
		Sta 4217+21 (LT)	1	EA

Note: Temporary fence to be installed prior to the removal of existing fence.

*See Section 6 for electrical fence requirments.

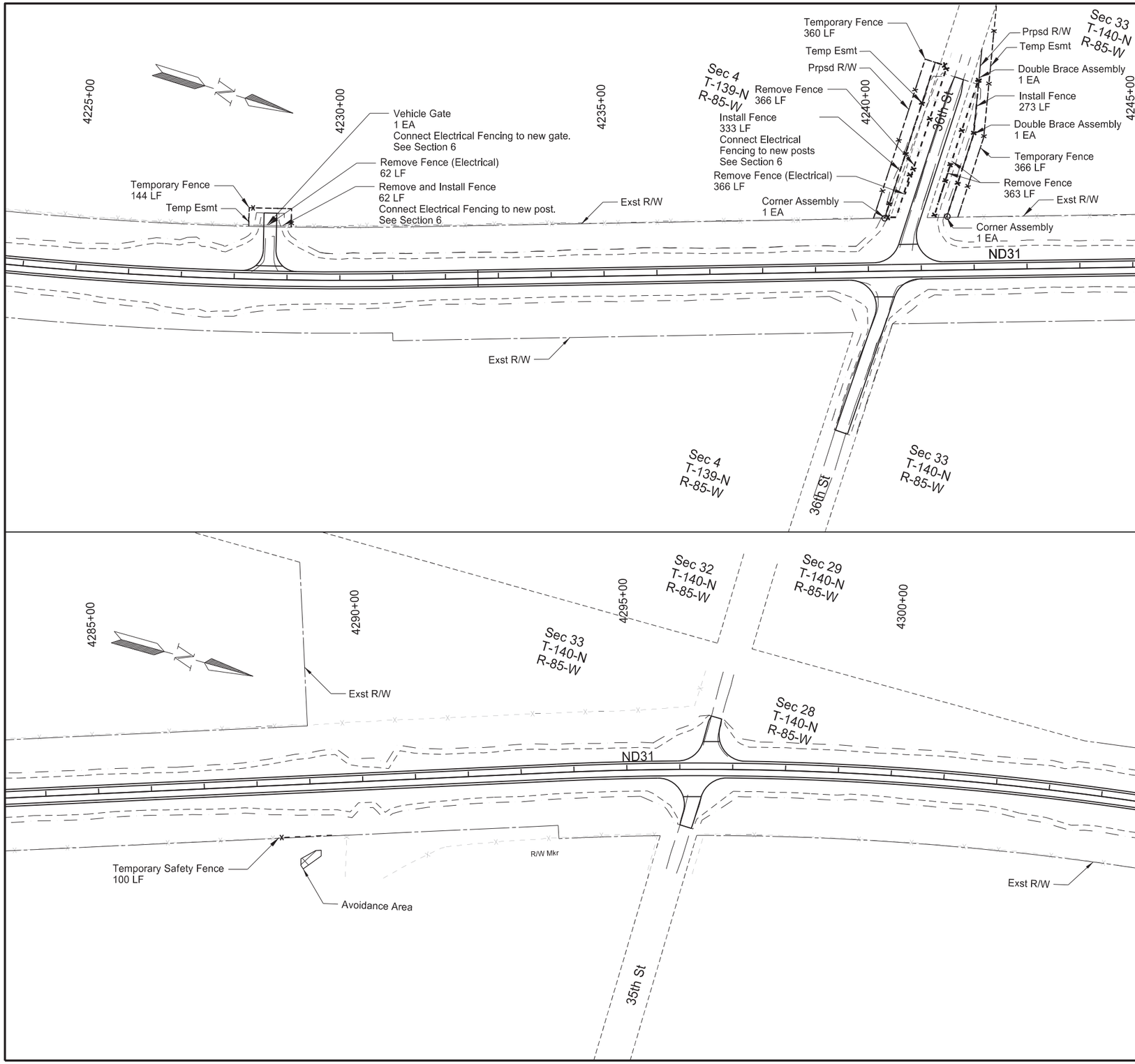
ND 31

Jct I-94 to Hannover
Morton County

Fencing Layout

Sta 4185+00 to Sta 4224+40

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	80	2

SPEC	CODE	BID ITEM	QTY	UNIT
202	0312	REMOVE EXISTING FENCE		
		Sta 4228+34 to Sta 4228+99 (LT)	124	LF
		Sta 4240+32 to Sta 4241+55 (LT)	732	LF
		Sta 4241+25 to Sta 4242+15 (LT)	363	LF
752	0100	FENCE BARBED WIRE 3 STRAND		
		Sta 4228+36 to Sta 4228+96 (LT)	62	LF
		Sta 4240+32 to Sta 4241+55 (LT)	333	LF
		Sta 4241+49 to Sta 4242+21 (LT)	273	LF
752	0905	TEMPORARY FENCE		
		Sta 4228+25 to Sta 4229+06 (LT)	144	LF
		Sta 4240+11 to Sta 4241+55 (LT)	360	LF
		Sta 4241+70 to Sta 4242+45 (LT)	366	LF
752	0911	TEMPORARY SAFETY FENCE		
		Sta 4288+37 to Sta 4289+37 (RT)	100	LF
752	3150	CORNER ASSEMBLY BARBED WIRE-WOOD POST		
		Sta 4240+32 (LT)	1	EA
		Sta 4241+49 (LT)	1	EA
752	4100	DOUBLE BRACE ASSEMBLY BARBED WIRE		
		Sta 4242+03 (LT)	1	EA
		Sta 4242+15 (LT)	1	EA
752	2100	VEHICLE GATE		
		Sta 4228+65 (LT)	1	EA

Note: Temporary fence to be installed prior to the removal of existing fence.

ND 31

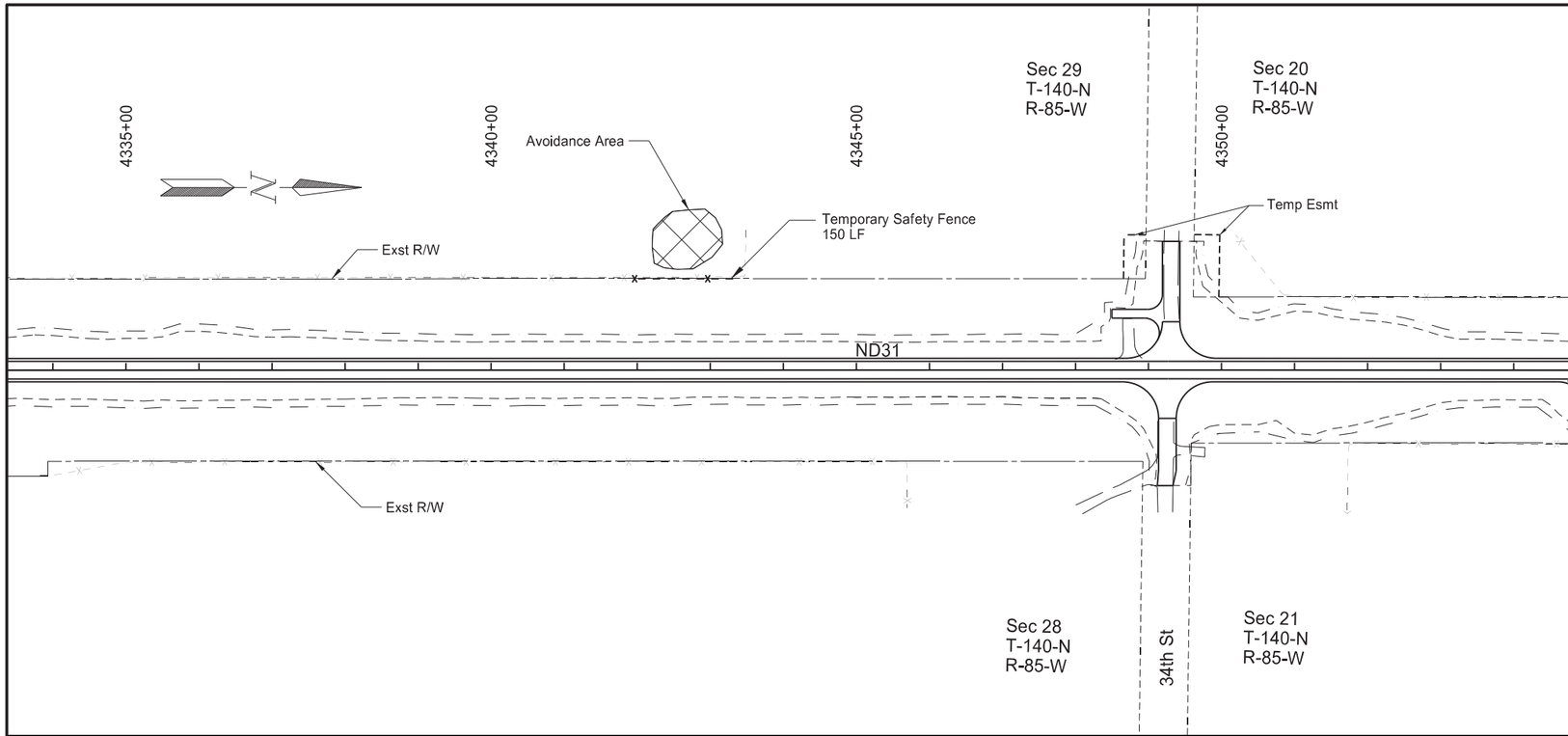
Jct I-94 to Hannover
Morton County

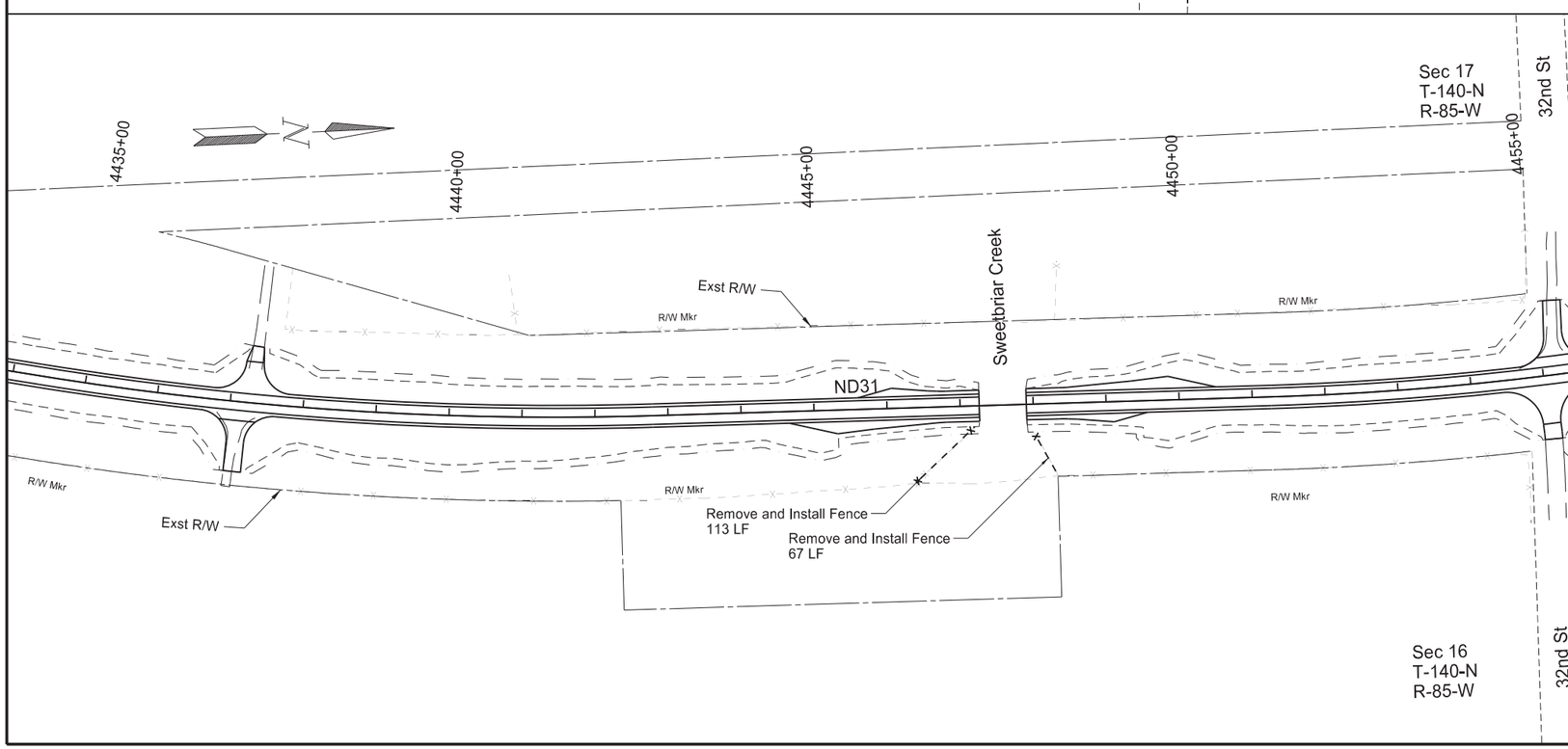
Fencing Layout

Sta 4224+40 to Sta 4245+00
Sta 4283+37 to Sta 4304+57

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	80	3





SPEC	CODE	BID ITEM	QTY	UNIT
202	0312	REMOVE EXISTING FENCE		
		Sta 4446+36 to Sta 4447+19 (RT)	113	LF
		Sta 4448+01 to Sta 4448+32 (RT)	67	LF
752	0100	FENCE BARBED WIRE 3 STRAND		
		Sta 4446+36 to Sta 4447+19 (RT)	113	LF
		Sta 4448+01 to Sta 4448+32 (RT)	67	LF
752	0911	TEMPORARY SAFETY FENCE		
		4341+92 to Sta 4343+42	150	LF

Note: Temporary fence to be installed prior to the removal of existing fence.

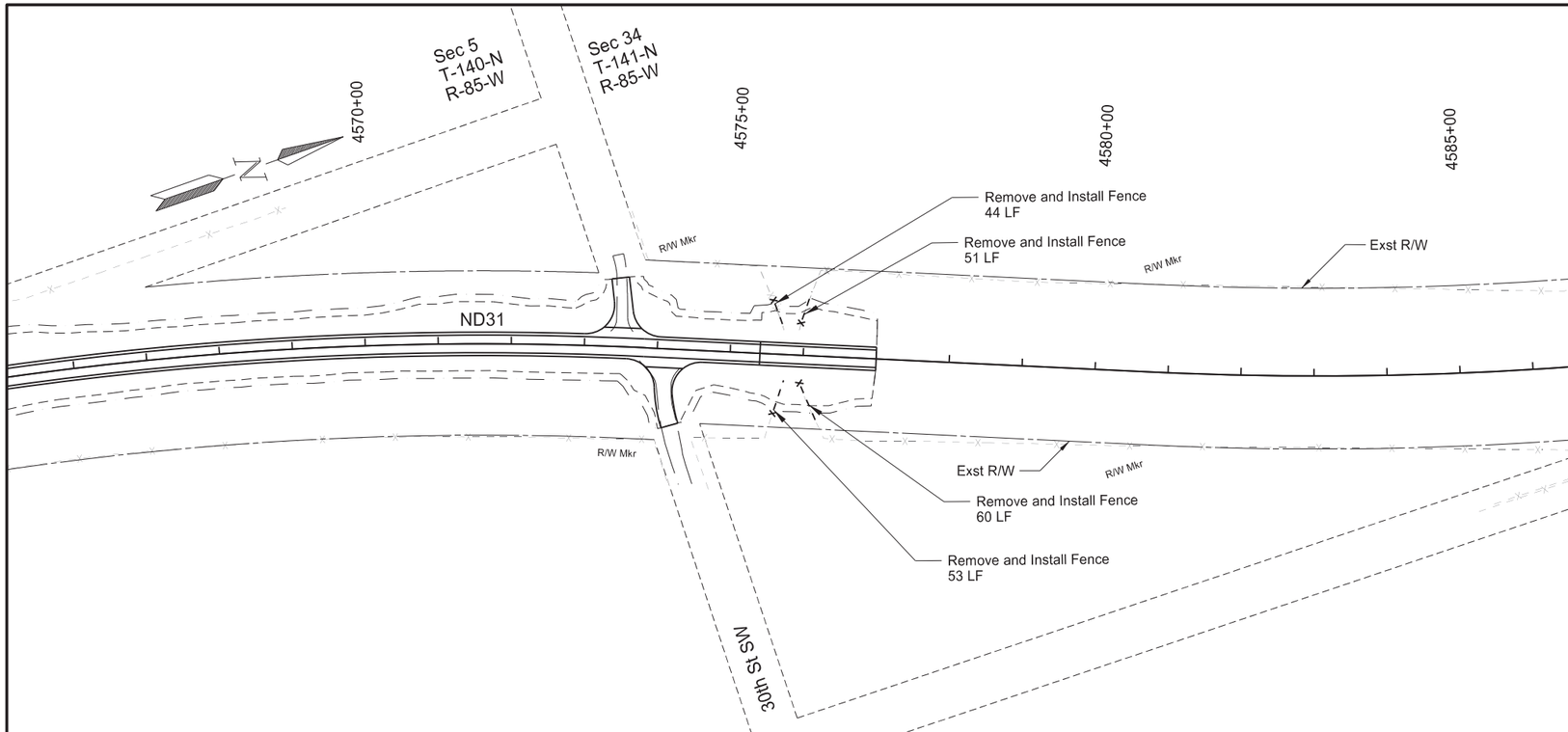
ND 31

Jct I-94 to Hannover
Morton County

Fencing Layout

Sta 4333+52 to Sta 4354+72
Sta 4434+00 to Sta 4454+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	80	4

SPEC	CODE	BID ITEM	QTY	UNIT
202	0312	REMOVE EXISTING FENCE		
		Sta 4575+55 to Sta 4575+72 (LT)	44	LF
		Sta 4575+60 to Sta 4575+74 (RT)	53	LF
		Sta 4575+93 to Sta 4576+09 (LT)	51	LF
		Sta 4575+96 to Sta 4576+22 (RT)	60	LF
752	0100	FENCE BARBED WIRE 3 STRAND		
		Sta 4575+55 to Sta 4575+72 (LT)	44	LF
		Sta 4575+60 to Sta 4575+74 (RT)	53	LF
		Sta 4575+93 to Sta 4576+09 (LT)	51	LF
		Sta 4575+96 to Sta 4576+22 (RT)	60	LF

Note: Temporary fence to be installed prior to the removal of existing fence.

ND 31

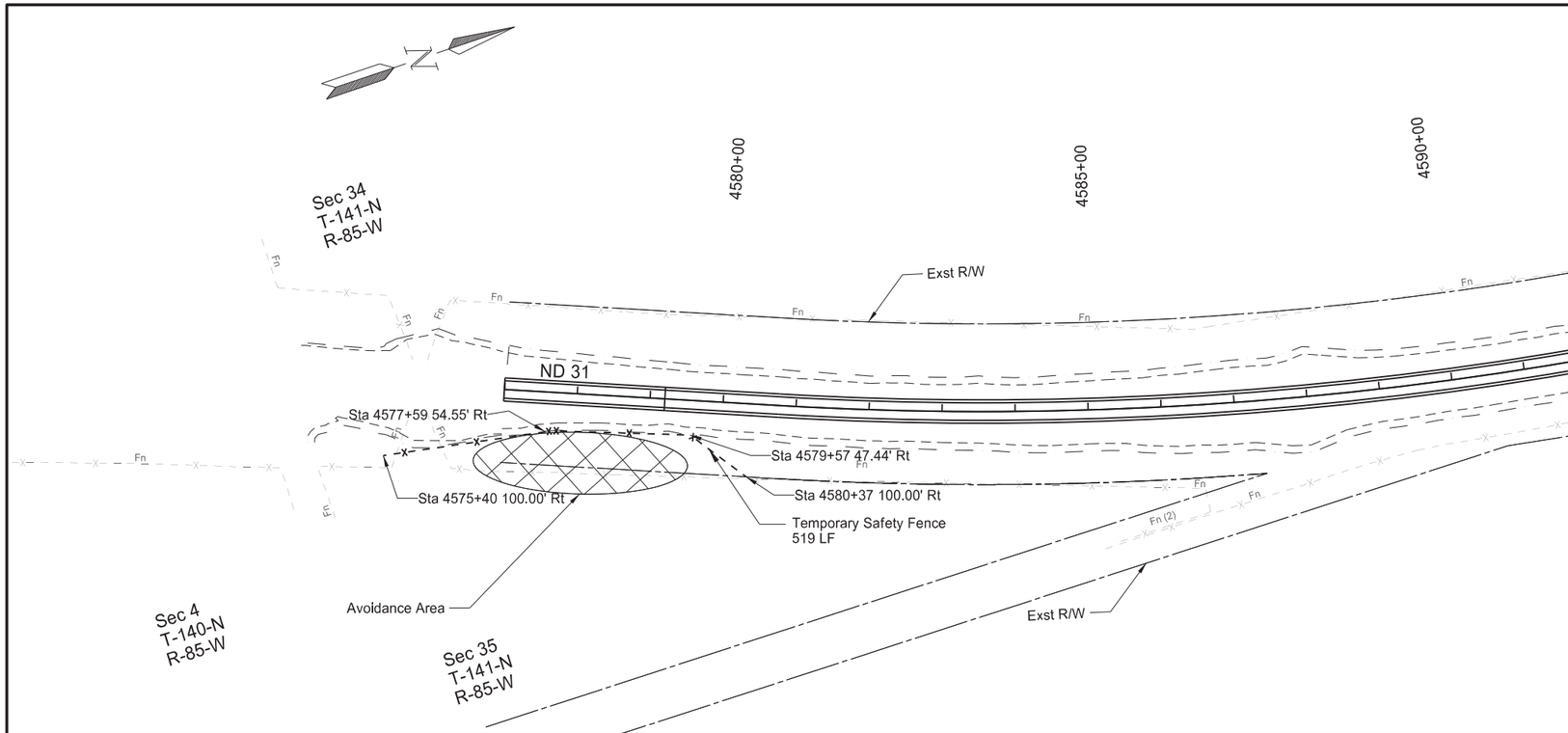
Jct I-94 to Hannover
Morton County

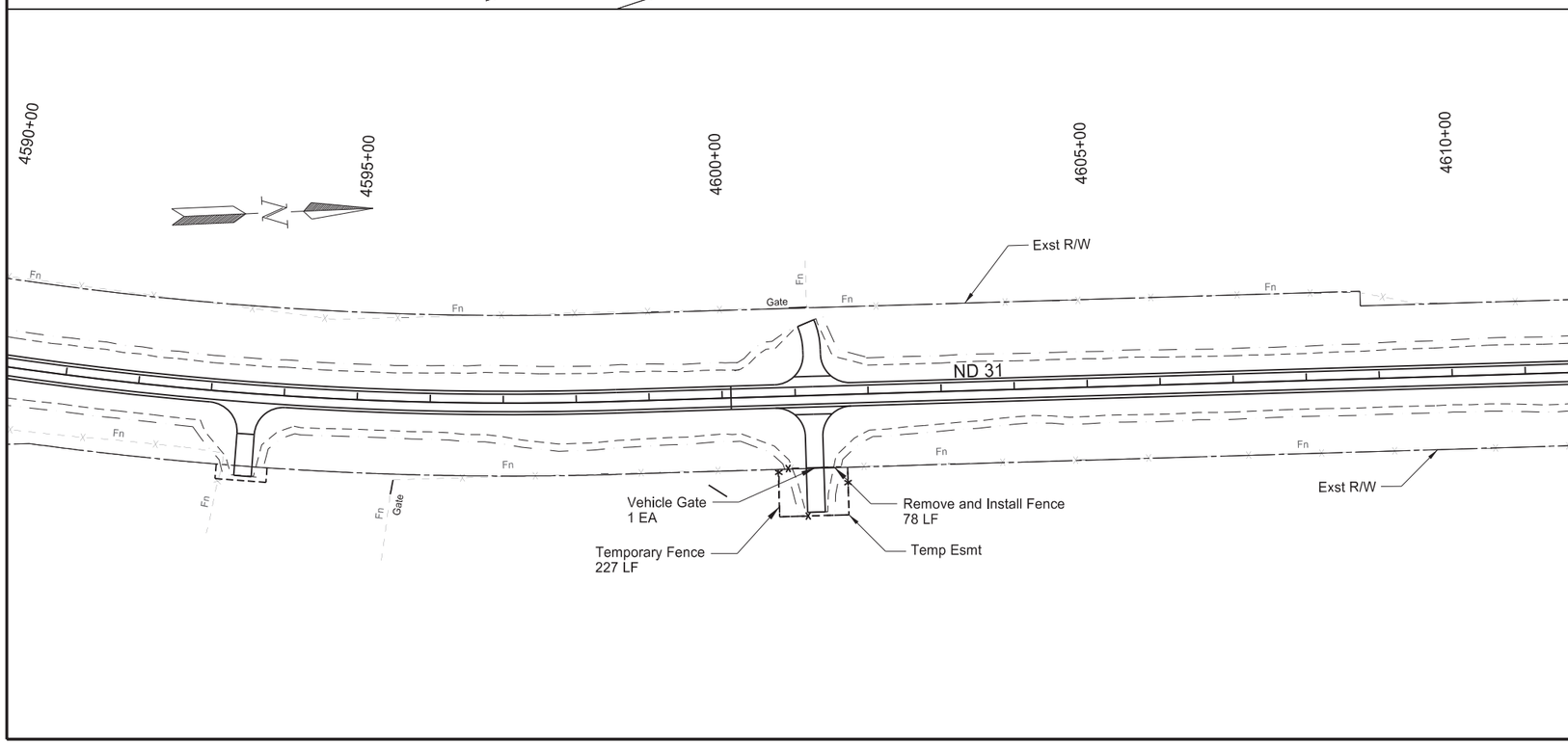
Fencing Layout

Sta 4565+50 to Sta 4580+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	80	5





SPEC	CODE	BID ITEM	QTY	UNIT
202	0312	REMOVE EXISTING FENCE		
		Sta 4600+82 to Sta 4601+61 (RT)	78	LF
752	0100	FENCE BARBED WIRE 3 STRAND		
		Sta 4600+82 to Sta 4601+61 (RT)	78	LF
752	0905	TEMPORARY FENCE		
		Sta 4600+74 to Sta 4601+69 (RT)	227	LF
752	0911	TEMPORARY SAFETY FENCE		
		Sta 4575+40 to Sta 4580+37 (RT)	519	LF
752	2100	VEHICLE GATE		
		Sta 4601+25 (RT)	1	EA

Note: Temporary fence to be installed prior to the removal of existing fence.

ND 31

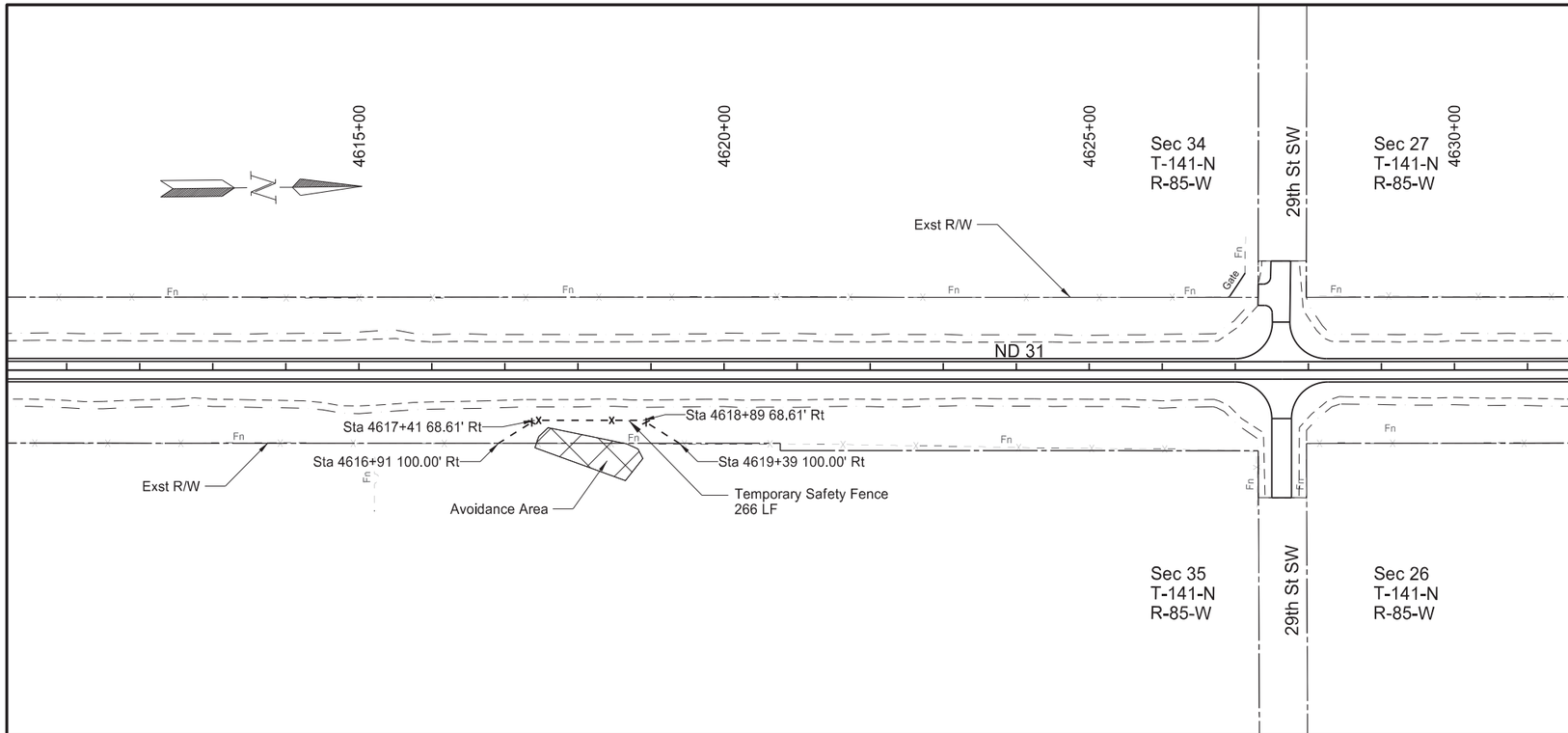
Jct I-94 to Hannover
Oliver County

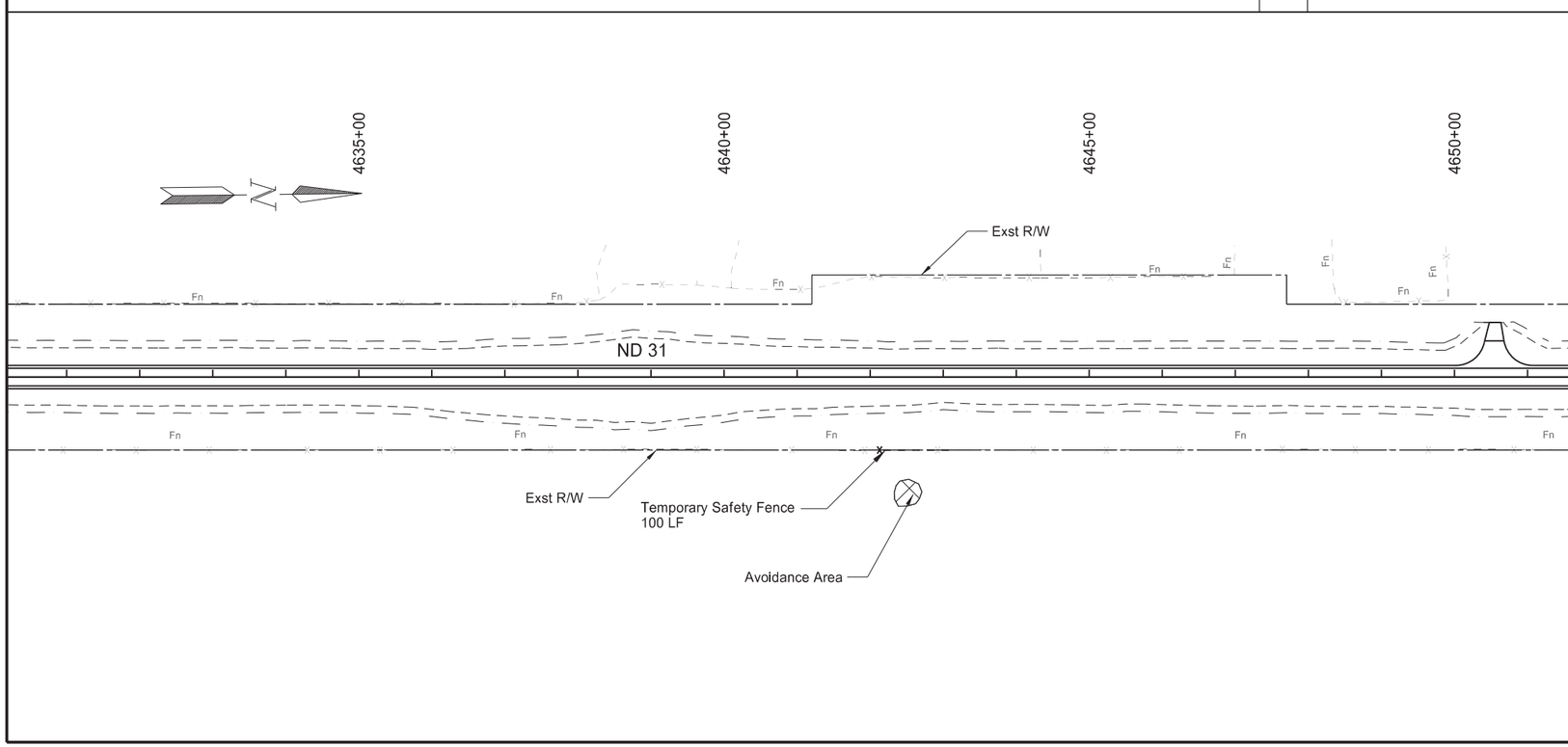
Fencing Layout

Sta 4577+00 to Sta 4610+93

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	80	6





SPEC	CODE	BID ITEM	QTY	UNIT
752	0911	TEMPORARY SAFETY FENCE		
		Sta 4616+91 to Sta 4619+39 (RT)	266	LF
		Sta 4642+09 to Sta 4243+08 (RT)	100	LF

Note: Temporary fence to be installed prior to the removal of existing fence.

ND 31

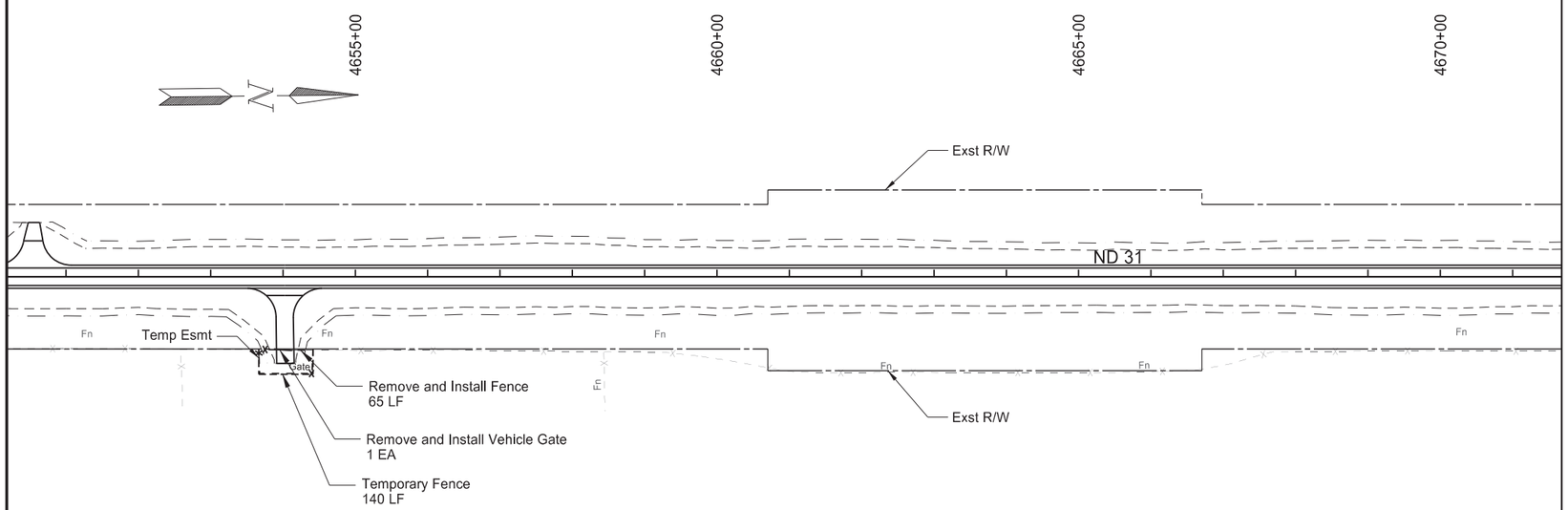
Jct I-94 to Hannover
Oliver County

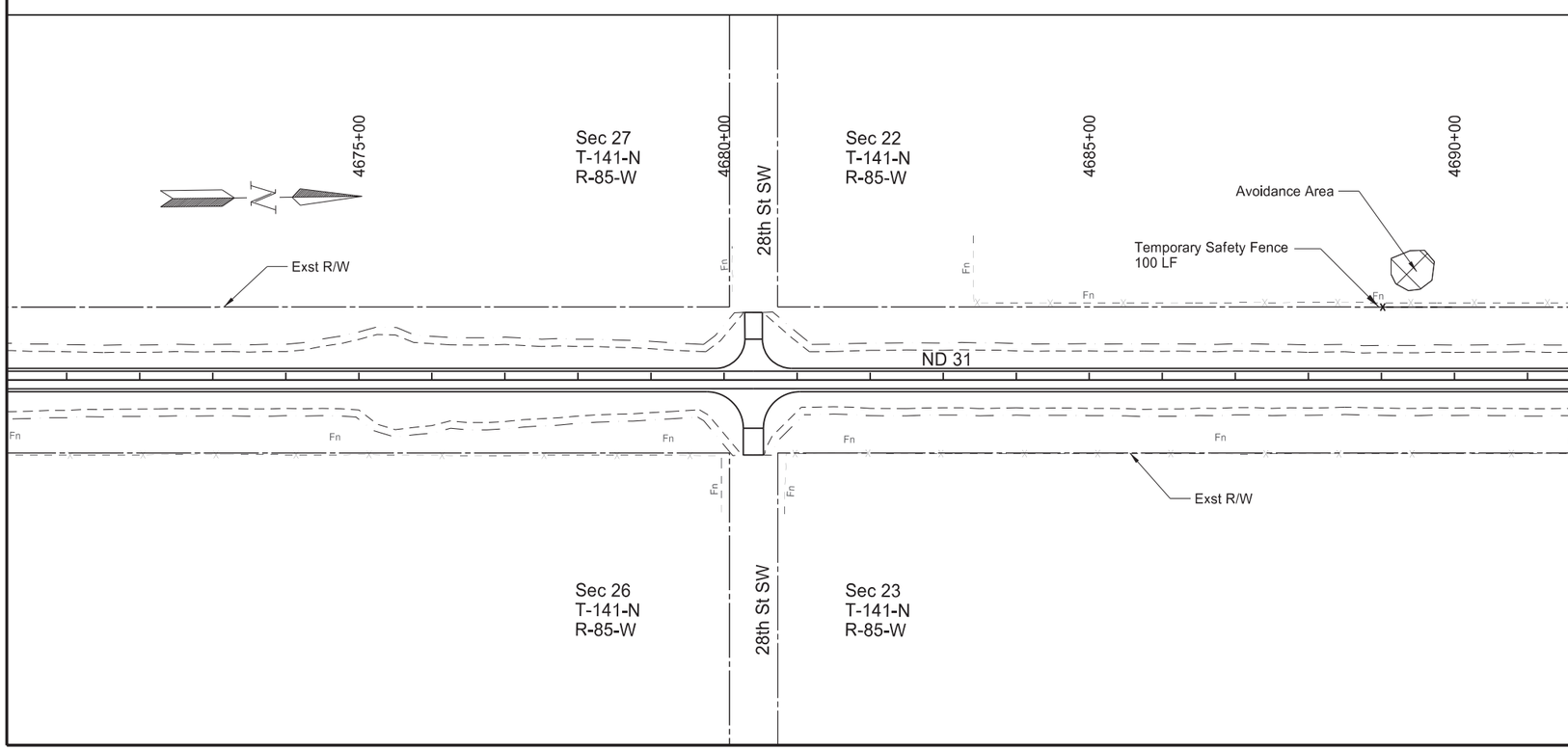
Fencing Layout

Sta 4610+93 to Sta 4650+93

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	80	7





SPEC	CODE	BID ITEM	QTY	UNIT
202	0312	REMOVE EXISTING FENCE		
		Sta 4653+70 to Sta 4654+35 (RT)	65	LF
752	0100	FENCE BARBED WIRE 3 STRAND		
		Sta 4653+68 to Sta 4654+35 (RT)	65	LF
752	0905	TEMPORARY FENCE		
		Sta 4653+67 to Sta 4654+41 (RT)	140	LF
752	0911	TEMPORARY SAFETY FENCE		
		Sta 4688+97 to Sta 4689+97 (LT)	100	LF
752	2100	VEHICLE GATE		
		Sta 4654+04 (RT)	1	EA
752	2120	REMOVE VEHICLE GATE		
		Sta 4654+04 (RT)	1	EA

Note: Temporary fence to be installed prior to the removal of existing fence.

ND 31

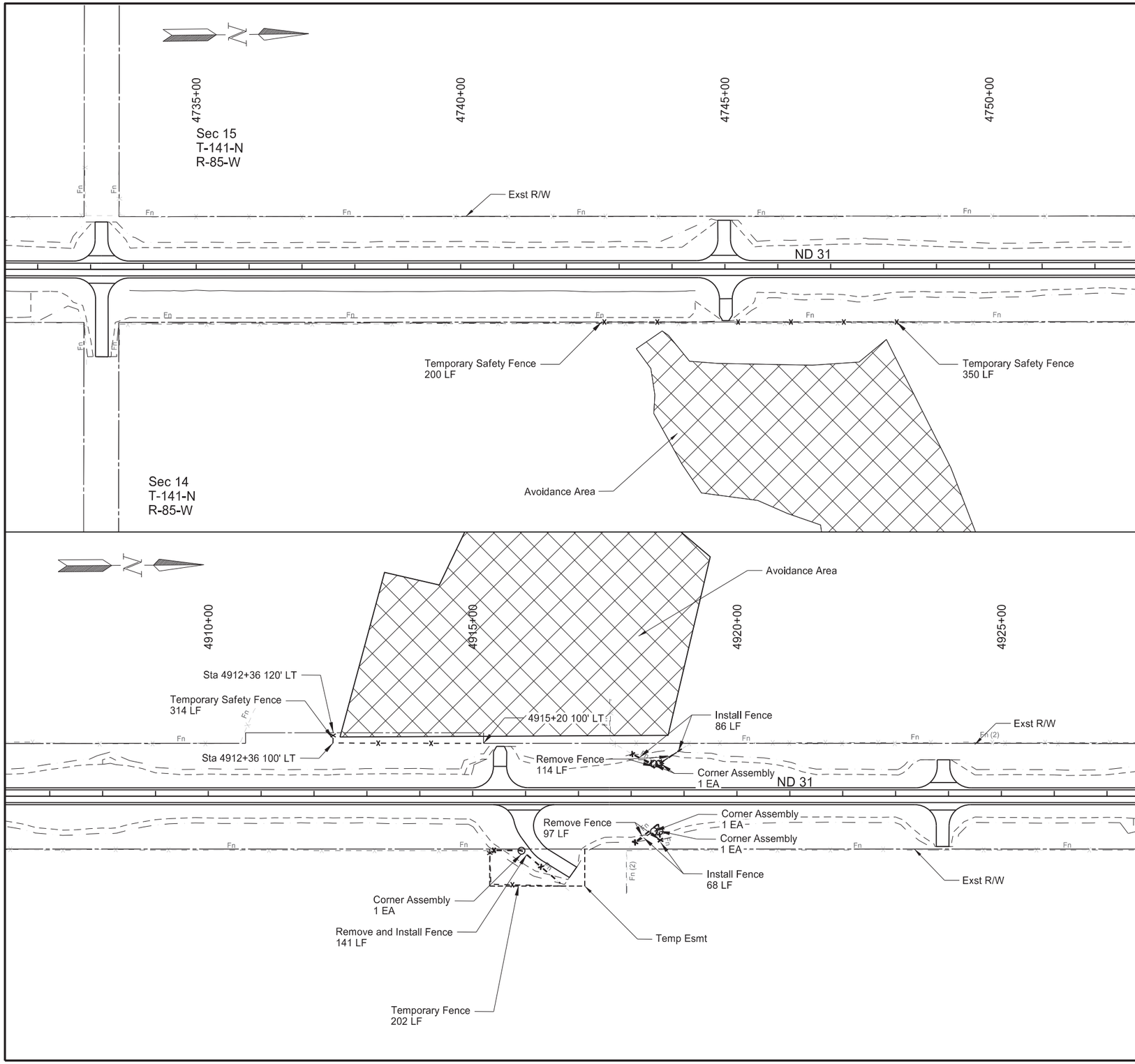
Jct I-94 to Hannover
Oliver County

Fencing Layout

Sta 4650+93 to Sta 4691+43

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	80	8



SPEC	CODE	BID ITEM	QTY	UNIT
202	0312	REMOVE EXISTING FENCE		
		Sta 4915+51 to Sta 4916+72 (RT)	141	LF
		Sta 4917+98 to Sta 4918+96 (LT)	114	LF
		Sta 4918+05 to Sta 4918+56 (RT)	97	LF
752	0100	FENCE BARBED WIRE 3 STRAND		
		Sta 4915+51 to Sta 4916+72 (RT)	141	LF
752	0905	TEMPORARY FENCE		
		Sta 4918+05 to Sta 4918+56 (RT)	206	LF
752	0911	TEMPORARY SAFETY FENCE		
		Sta 4742+67 to Sta 4744+67 (LT)	200	LF
		Sta 4745+20 to Sta 4748+70 (LT)	350	LF
		Sta 4912+36 to Sta 4915+20 (LT)	314	LF
752	3150	CORNER ASSEMBLY BARBED WIRE-WOOD POST		
		Sta 4915+93 (RT)	1	EA

Note: Temporary fence to be installed prior to the removal of existing fence.

ND 31

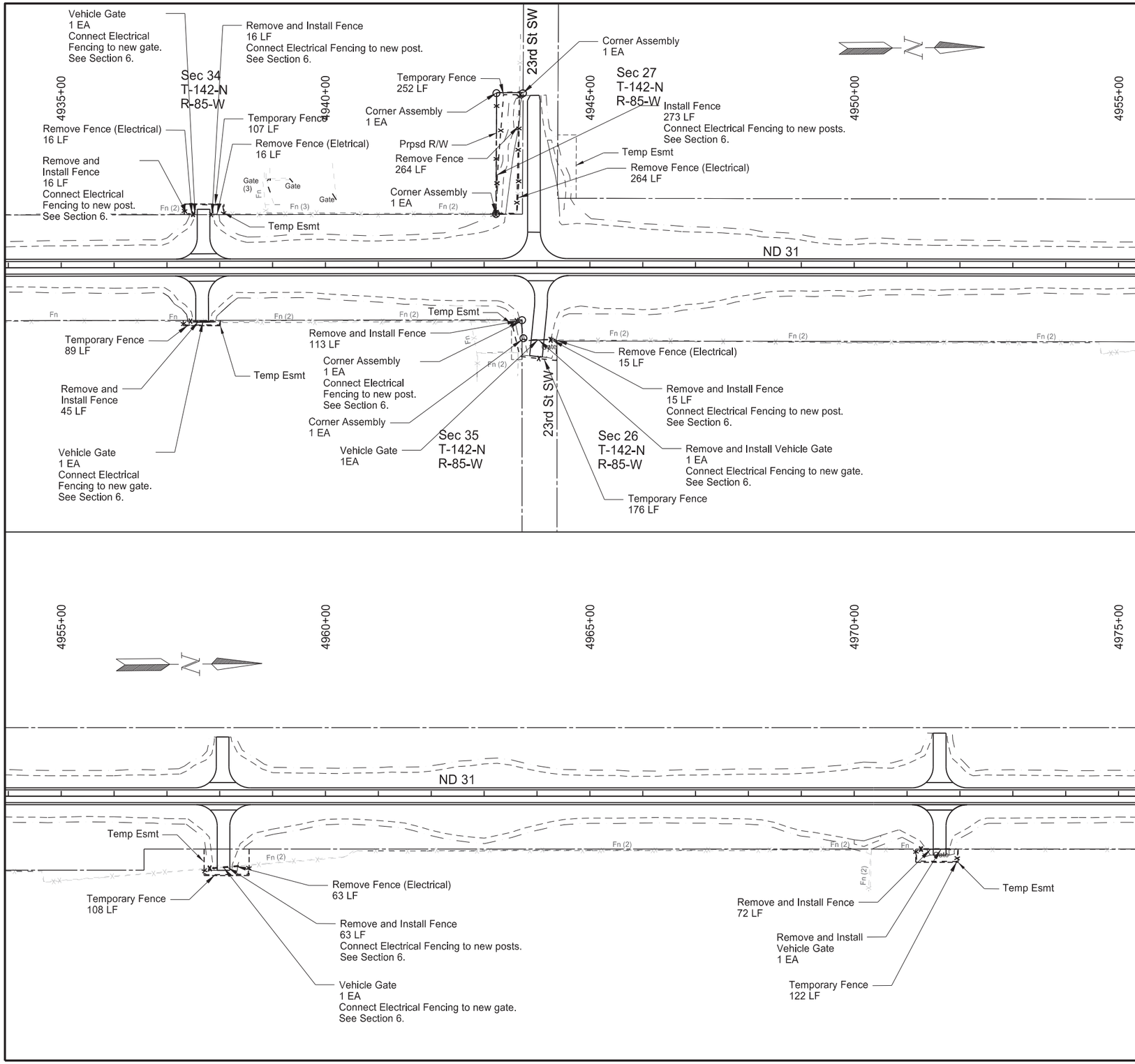
Jct I-94 to Hannover
Oliver County

Fencing Layout

Sta 4722+00 to Sta 4743+00
Sta 4906+40 to Sta 4927+40

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	80	9



SPEC	CODE	BID ITEM	QTY	UNIT
202	0312	REMOVE EXISTING FENCE		
		Sta 4937+39 to Sta 4937+85 (RT)	45	LF
		Sta 4937+39 to Sta 4937+95 (LT)	64	LF
		Sta 4943+22 to Sta 4943+67 (LT)	528	LF
		Sta 4943+57 to Sta 4944+37 (RT)	143	LF
		Sta 4957+77 to Sta 4958+39 (RT)	126	LF
		Sta 4971+21 to Sta 4971+94 (RT)	72	LF
752	0100	FENCE BARBED WIRE 3 STRAND		
		Sta 4937+39 to Sta 4937+85 (RT)	45	LF
		Sta 4937+39 to Sta 4937+95 (LT)	32	LF
		Sta 4943+22 to Sta 4943+67 (LT)	273	LF
		Sta 4943+57 to Sta 4944+37 (RT)	128	LF
		Sta 4957+77 to Sta 4958+39 (RT)	63	LF
		Sta 4971+21 to Sta 4971+94 (RT)	72	LF
752	0905	TEMPORARY FENCE		
		Sta 4937+31to Sta 4938+00 (RT)	89	LF
		Sta 4937+33 to Sta 4938+08 (LT)	107	LF
		Sta 4943+22 to Sta 4943+74 (LT)	252	LF
		Sta 4943+52 to Sta 4944+37 (RT)	176	LF
		Sta 4957+71to Sta 4958+55 (RT)	108	LF
		Sta 4971+17 to Sta 4971+96 (RT)	122	LF
752	3150	CORNER ASSEMBLY BARBED WIRE-WOOD POST		
		Sta 4943+23 (LT)	1	EA
		Sta 4943+24 (LT)	1	EA
		Sta 4943+72 (RT)	1	EA
		Sta 4943+73 (RT)	1	EA
		Sta 4943+74 (LT)	1	EA
752	2100	VEHICLE GATE		
		Sta 4937+62 (LT)	1	EA
		Sta 4937+63 (RT)	1	EA
		Sta 4943+72 (RT)	1	EA
		Sta 4944+03 (RT)	1	EA
		Sta 4958+08 (RT)	1	EA
		Sta 4971+64 (RT)	1	EA
752	2120	REMOVE VEHICLE GATE		
		Sta 4944+03 (RT)	1	EA
		Sta 4971+64 (RT)	1	EA

Note: Temporary fence to be installed prior to the removal of existing fence.

*See Section 6 for electrical fence requirments.

ND 31

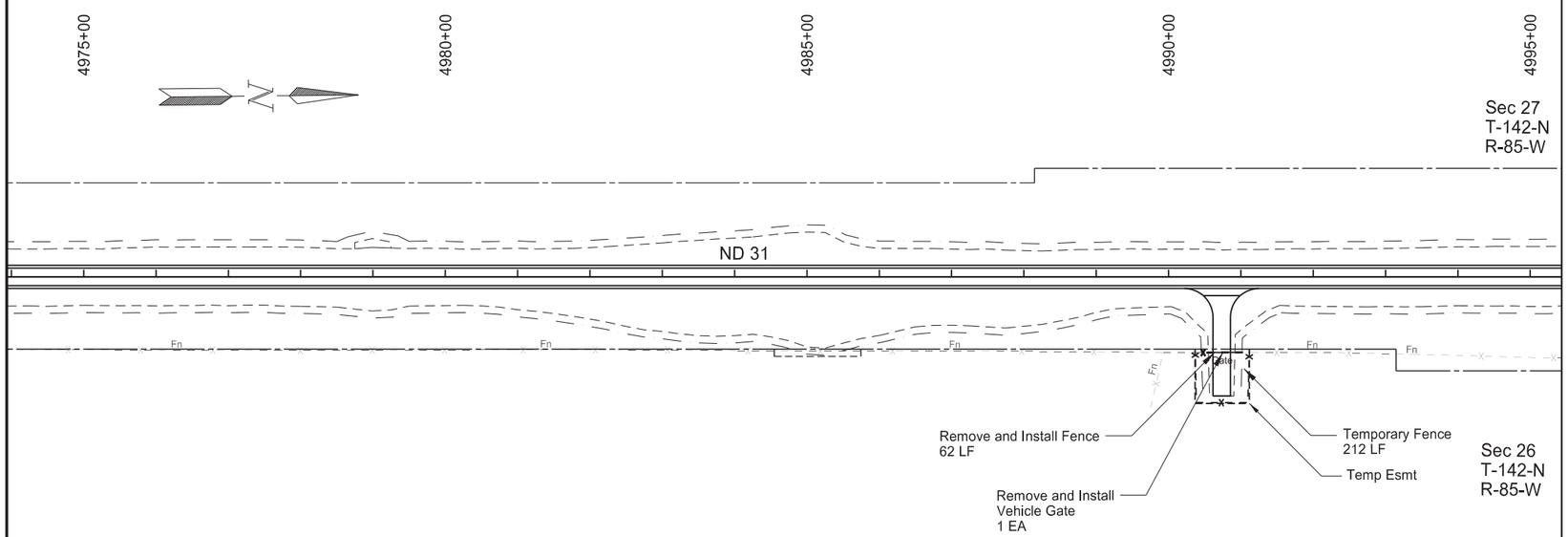
Jct I-94 to Hannover
Oliver County

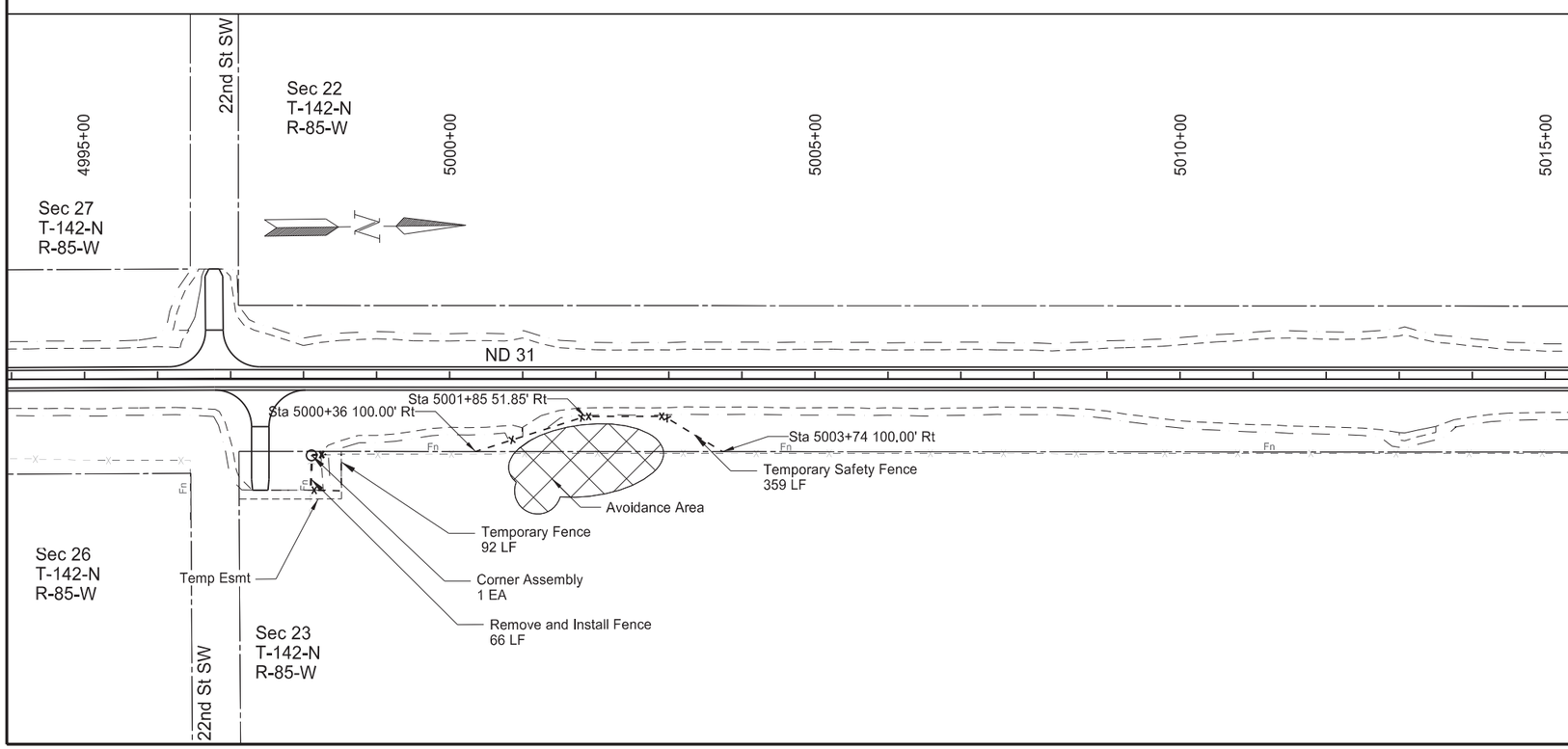
Fencing Layout

Sta 4974+68 to Sta 4934+68

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	80	10





SPEC	CODE	BID ITEM	QTY	UNIT
202	0312	REMOVE EXISTING FENCE		
		Sta 4990+43 to Sta 4991+05 (RT)	62	LF
		Sta 4998+10 to Sta 4998+30 (RT)	66	LF
752	0100	FENCE BARBED WIRE 3 STRAND		
		Sta 4990+43 to Sta 4991+05 (RT)	62	LF
		Sta 4998+10 to Sta 4998+30 (RT)	66	LF
752	0905	TEMPORARY FENCE		
		Sta 4990+37 to Sta 4991+12 (RT)	212	LF
		Sta 4998+10 to Sta 4998+51 (RT)	92	LF
752	0911	TEMPORARY SAFETY FENCE		
		Sta 5000+35 to Sta 5003+74 (RT)	359	LF
752	2100	VEHICLE GATE		
		Sta 4990+75 (RT)	1	EA
752	2120	REMOVE VEHICLE GATE		
		Sta 4990+75 (RT)	1	EA
752	3150	CORNER ASSEMBLY BARBED WIRE-WOOD POST		
		Sta 4998+12 (RT)	1	EA

Note: Temporary fence to be installed prior to the removal of existing fence.

ND 31

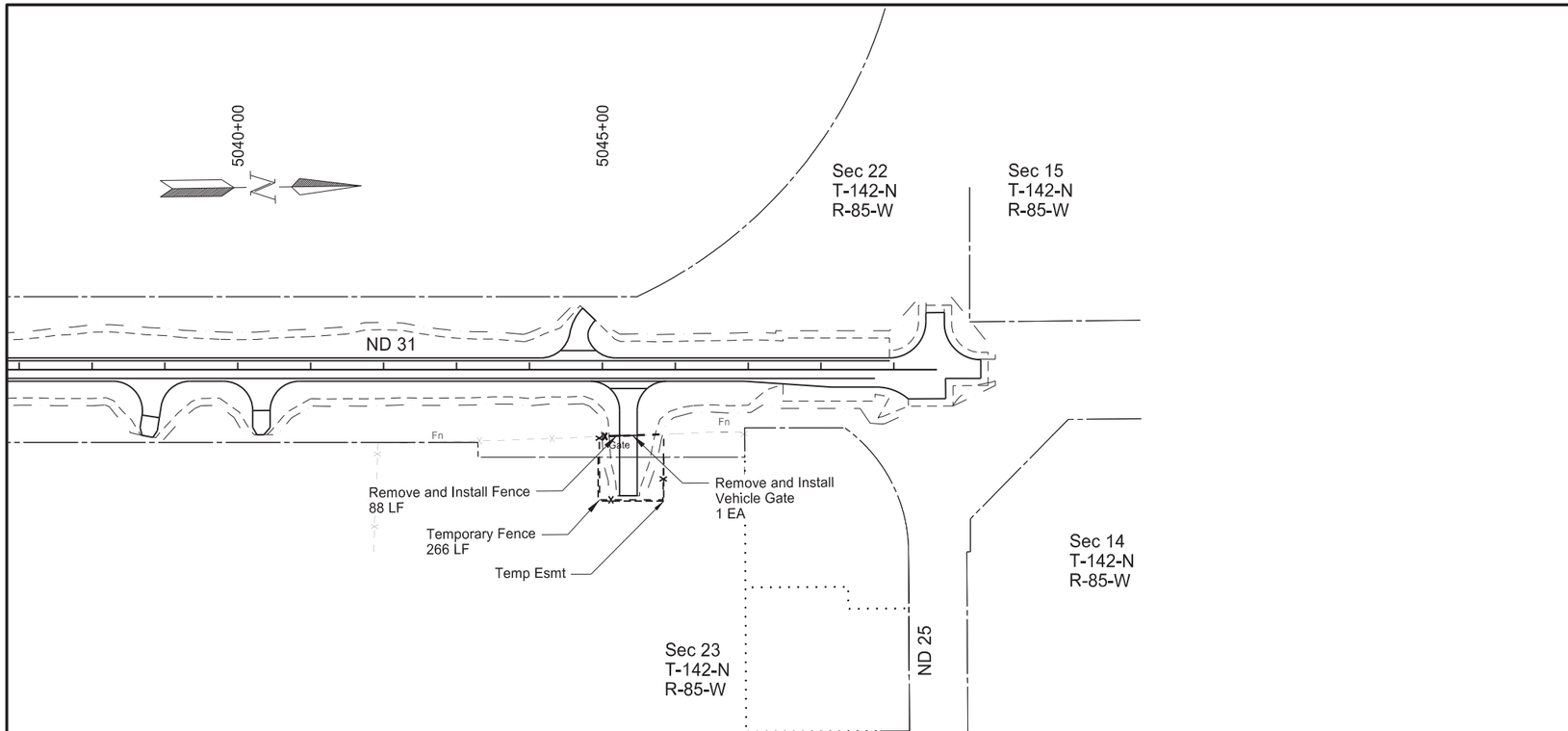
Jct I-94 to Hannover
Oliver County

Fencing Layout

Sta 4934+68 to Sta 5014+68

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	80	11



SPEC	CODE	BID ITEM	QTY	UNIT
202	0312	REMOVE EXISTING FENCE		
		Sta 5044+99 to sta 5045+84 (RT)	88	LF
752	0100	FENCE BARBED WIRE 3 STRAND		
		Sta 5044+99 to sta 5045+84 (RT)	88	LF
752	0905	TEMPORARY FENCE		
		Sta 5044+96 to sta 5045+84 (RT)	266	LF
752	2100	VEHICLE GATE		
		Sta 5045+43 (RT)	1	EA
752	2120	REMOVE VEHICLE GATE		
		Sta 5045+43 (RT)	1	EA

Note: Temporary fence to be installed prior to the removal of existing fence.

ND 31

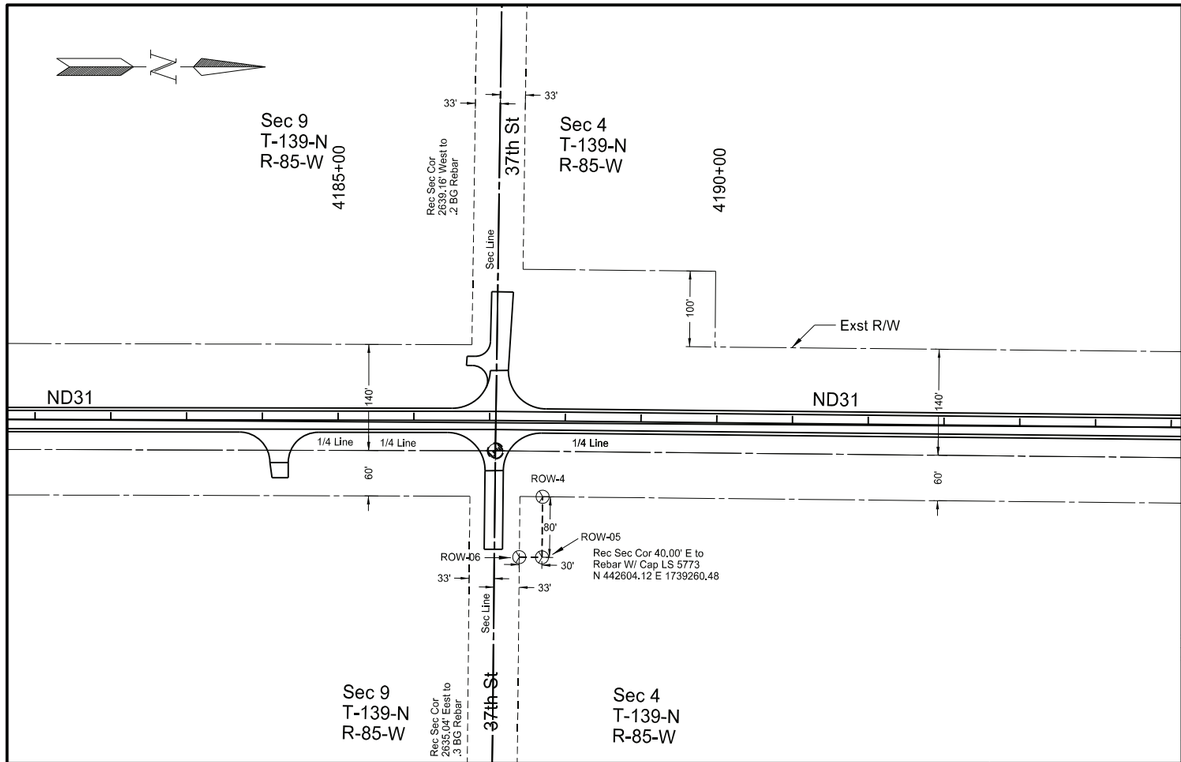
Jct I-94 to Hannover
Oliver County

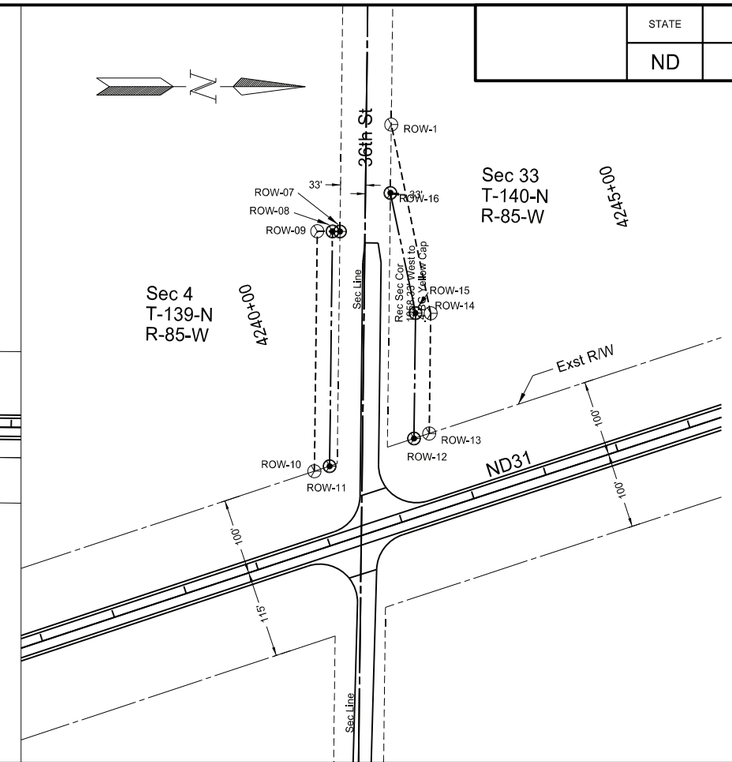
Fencing Layout

Sta 5037+00 to Sta 5050+19

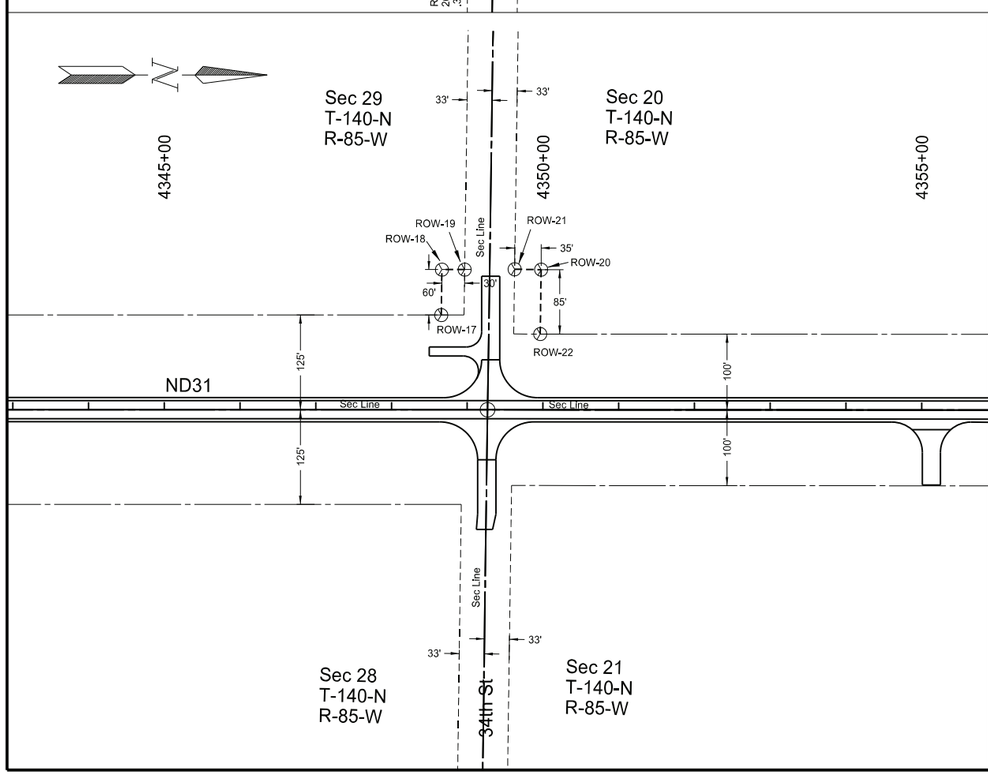
REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

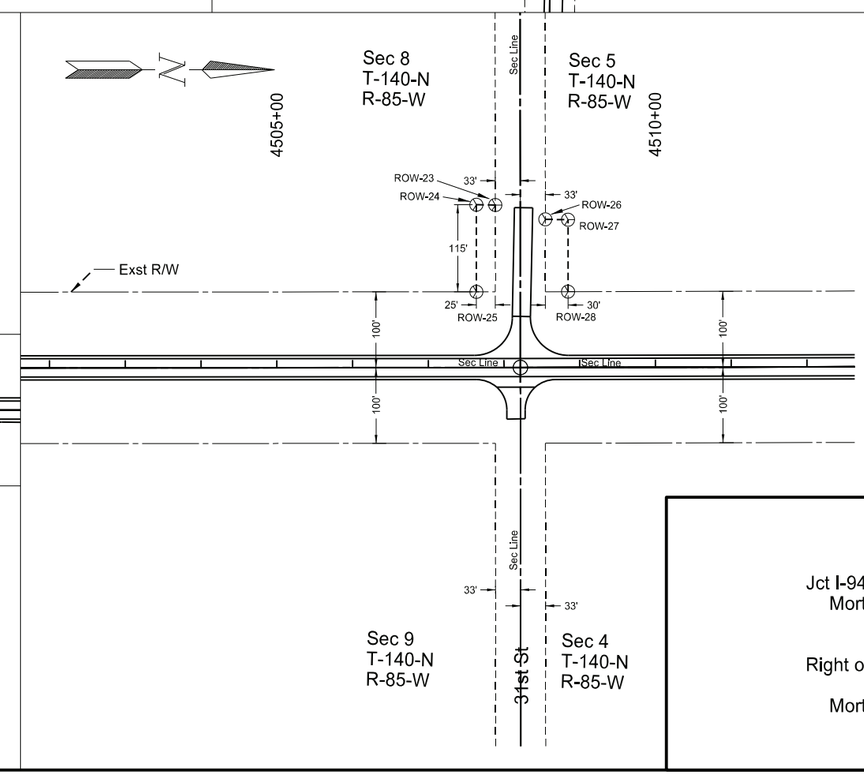
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	80	12





Spec	Code	Bid Item	Qty	Unit
720	110	RIGHT OF WAY MARKERS		
		ROW-7	1	EA
		ROW-8	1	EA
		ROW-11	1	EA
		ROW-12	1	EA
		ROW-15	1	EA
		ROW-16	1	EA
720	130	IRON PIN ROW MONUMENT		
		ROW-7	1	EA
		ROW-8	1	EA
		ROW-11	1	EA
		ROW-12	1	EA
		ROW-15	1	EA
		ROW-16	1	EA





POINT	NORTH	EAST	STATION	OFFSET
ROW-04	442666.445	1739321.122	418771.036 R1	100.012
ROW-05	442665.642	1739401.118	418771.036 R1	180.012
ROW-06	442635.643	1739400.817	418741.036 R1	180.012
ROW-07	447828.979	1738216.895	424141.841 R1	-390.098
ROW-08	447819.001	1738216.775	424132.398 R1	-393.323
ROW-09	447799.002	1738216.533	424113.472 R1	-399.789
ROW-10	447795.168	1738533.409	424011.291 R1	-100.000
ROW-11	447815.250	1738526.756	424032.446 R1	-100.000
ROW-12	447926.698	1738490.145	424149.477 R1	-100.000
ROW-13	447946.780	1738483.555	424170.612 R1	-100.000
ROW-14	447948.703	1738324.824	424221.940 R1	-250.216
ROW-15	447928.705	1738324.582	424203.010 R1	-256.682
ROW-16	447895.596	1738166.033	424221.000 R1	-417.650
ROW-1	447896.682	1738075.712	424250.190 R1	-503.128
ROW-17	458383.592	1736546.224	434865.712 R1	-125.000
ROW-18	458384.467	1736486.224	434865.575 R1	-185.000
ROW-19	458414.470	1736486.231	434896.578 R1	-185.000
ROW-20	458480.483	1736485.807	434962.501 R1	-185.455
ROW-21	458515.481	1736486.318	434997.499 R1	-184.968
ROW-22	458514.241	1736571.309	434996.318 R1	-99.977
ROW-23	474250.694	1736463.242	450788.672 R1	-214.555
ROW-24	474225.698	1736462.816	450763.676 R1	-215.000
ROW-25	474225.757	1736577.816	450763.649 R1	-100.000
ROW-26	474316.699	1736482.115	450854.963 R1	-195.581
ROW-27	474346.695	1736482.627	450884.958 R1	-195.000
ROW-28	474346.767	1736577.627	450884.812 R1	-100.000

ND 31

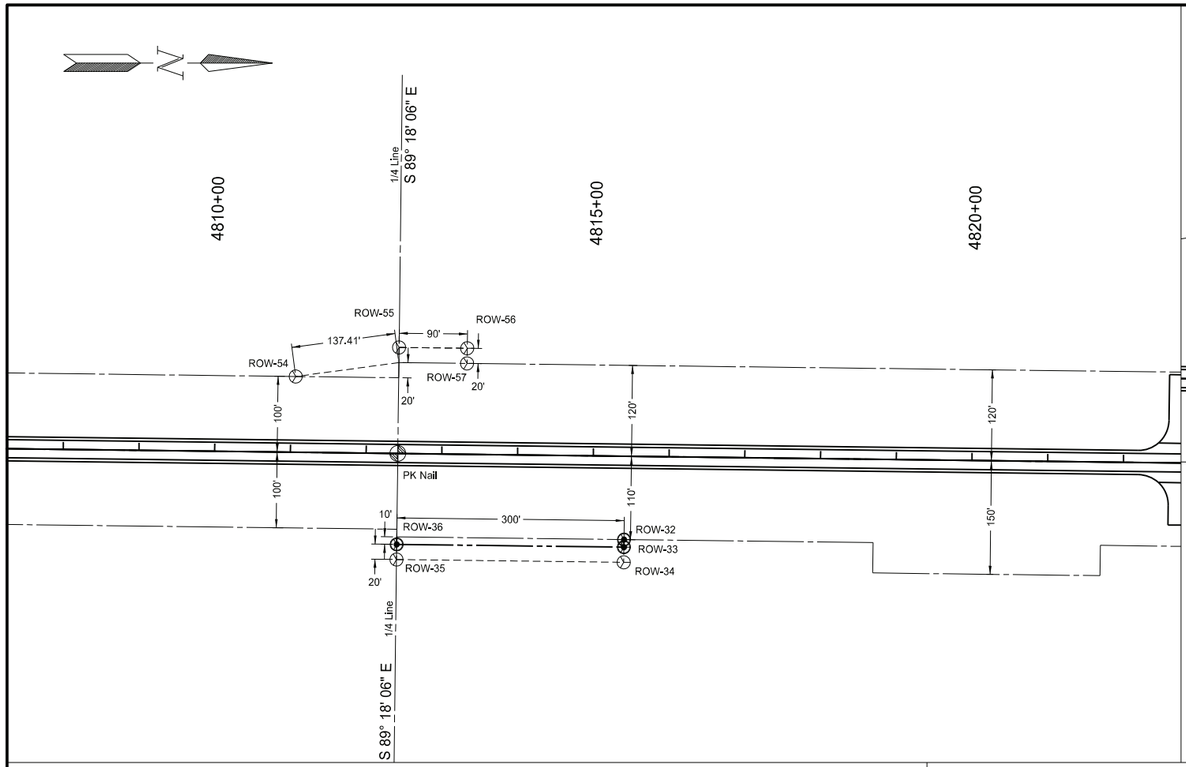
Jct I-94 to Hannover
Morton County

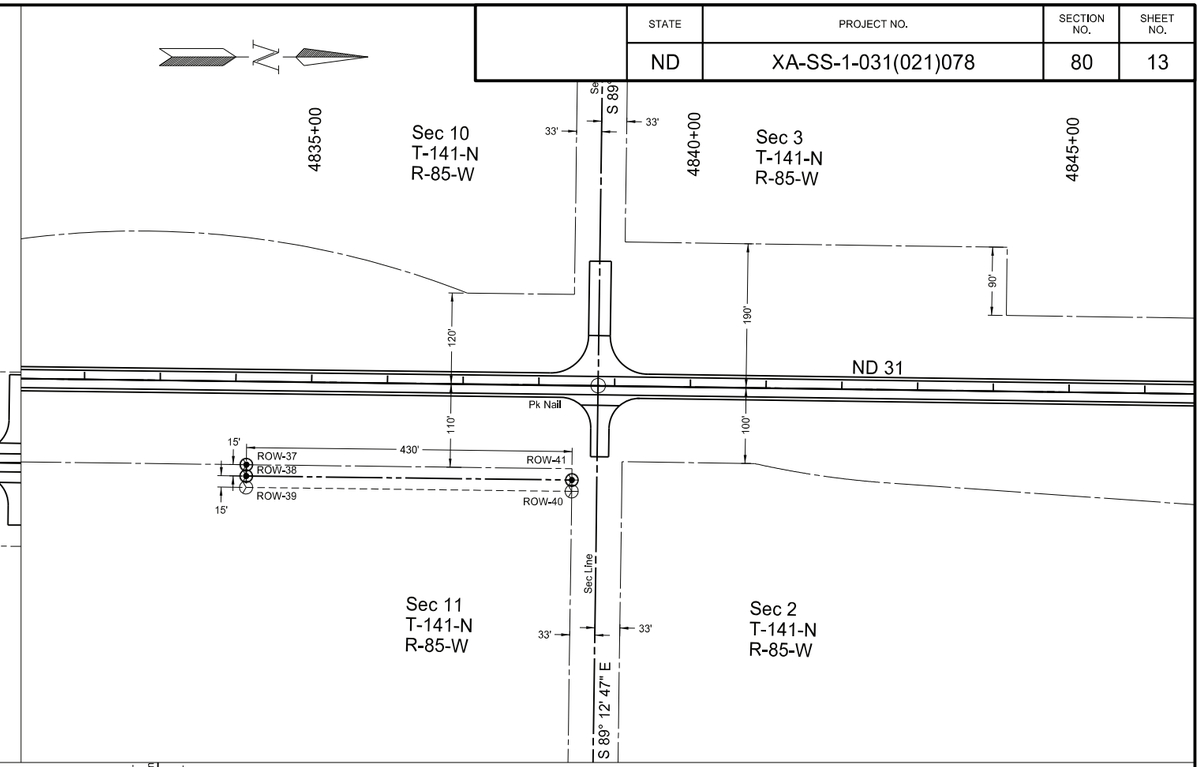
Right of Way Layout

Morton County

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

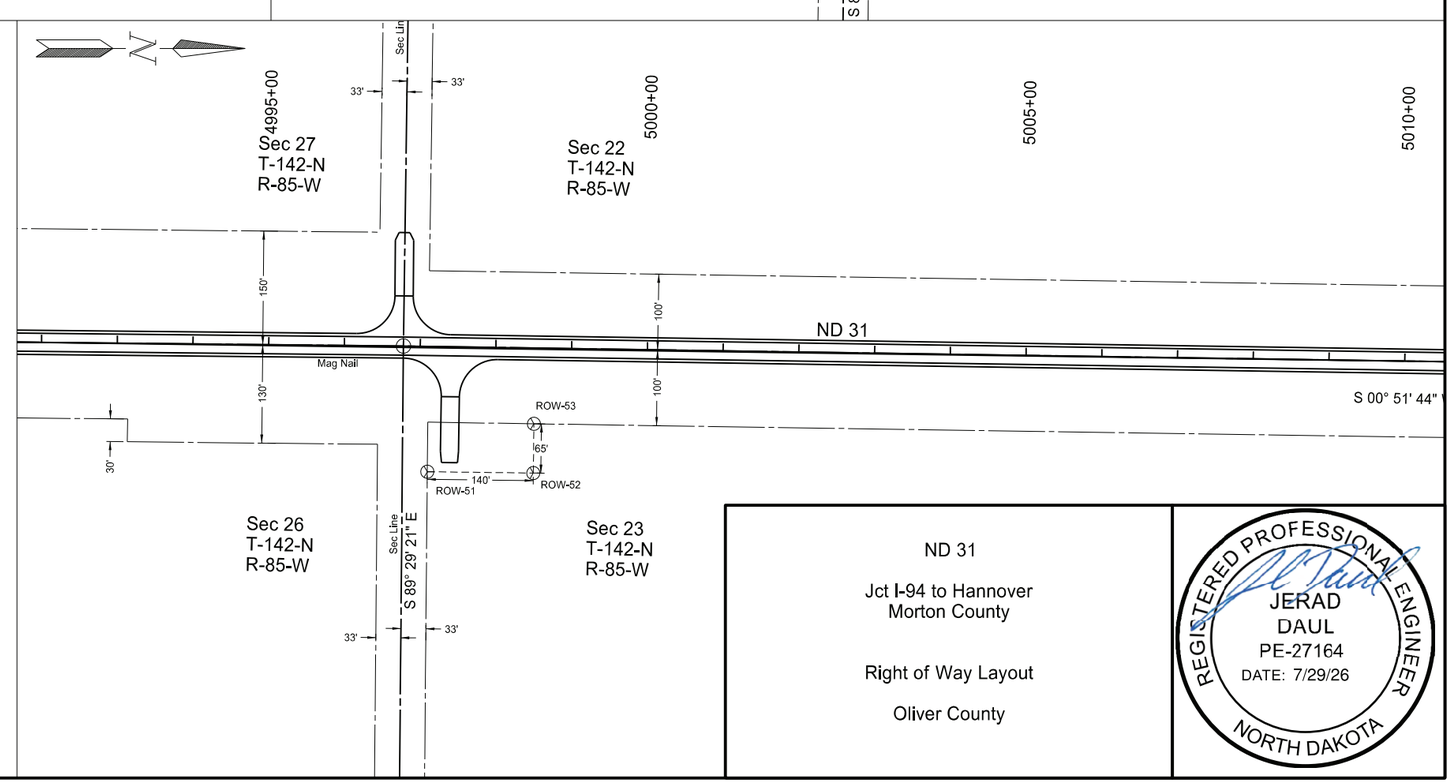
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	80	13





POINT	NORTH	EAST	STATION	OFFSET
ROW-32	504859.582	1737982.372	481541.806 R1	110.000
ROW-33	504859.460	1737992.371	481541.806 R1	120.000
ROW-34	504859.216	1738012.370	481541.806 R1	140.000
ROW-35	504559.238	1738008.714	481241.806 R1	140.000
ROW-36	504559.482	1737988.715	481241.806 R1	120.000
ROW-37	506732.720	1738005.202	483415.084 R1	110.000
ROW-38	506732.538	1738020.200	483415.084 R1	125.000
ROW-39	506732.355	1738035.199	483415.084 R1	140.000
ROW-40	507162.276	1738040.439	483845.038 R1	140.000
ROW-41	507162.482	1738025.441	483845.061 R1	125.000
ROW-42	517641.615	1737910.438	494322.566 R1	-100.000
ROW-43	517644.909	1737680.456	494324.165 R1	-330.000
ROW-44	517694.909	1737680.824	494374.166 R1	-330.000
ROW-45	517759.764	1737761.241	494438.943 R1	-250.155
ROW-46	517794.760	1737761.742	494473.943 R1	-250.006
ROW-47	517793.298	1737881.733	494473.685 R1	-130.006
ROW-48	517669.181	1738110.646	494351.606 R1	100.000
ROW-49	517668.628	1738185.644	494351.606 R1	175.000
ROW-50	517688.627	1738185.888	494371.606 R1	175.096
ROW-51	523027.404	1738230.020	499711.853 R1	165.398
ROW-52	523167.393	1738231.726	499851.853 R1	164.998
ROW-53	523168.185	1738166.731	499851.667 R1	99.998
ROW-54	504426.207	1737767.079	481105.843 R1	-100.000
ROW-55	504562.630	1737728.734	481241.785 R1	-140.000
ROW-56	504652.623	1737729.818	481331.785 R1	-140.013
ROW-57	504652.379	1737749.829	481331.785 R1	-120.000

Spec	Code	Bid Item	Qty	Unit
720	110	RIGHT OF WAY MARKERS		
		ROW-32	1	EA
		ROW-33	1	EA
		ROW-36	1	EA
		ROW-37	1	EA
		ROW-38	1	EA
		ROW-41	1	EA
720	130	IRON PIN ROW MONUMENT		
		ROW-32	1	EA
		ROW-33	1	EA
		ROW-36	1	EA
		ROW-37	1	EA
		ROW-38	1	EA
		ROW-41	1	EA



ND 31

Jct I-94 to Hannover
Morton County

Right of Way Layout

Oliver County

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

PRELIMINARY SURVEY COORDINATE AND CURVE DATA - JCT I-94 TO HANNOVER

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031 (021) 078	81	1

HORIZONTAL ALIGNMENT

PNT	STATION	NORTHING	EASTING
Chain EX31_MORTON			
Begin/Sec Line	4107+68.77	434665.2560	1739190.0600
PI (I94 Intersection)	4131+96.96	437093.4014	1739204.6391
Sec Line	4134+29.96	437326.4019	1739206.0381
1/4 SC	4160+66.30	439962.7273	1739214.9049
Sec Line	4187+08.28	442604.6970	1739220.4846
PC MC1	4209+41.15	444837.4552	1739242.9143
PI MC1	4220+41.97	445938.0386	1739253.9705
PT MC1	4231+22.42	446982.8402	1738907.8555
Sec Line	4240+43.46	447857.1524	1738618.2191
PC MC2	4293+68.49	452916.6445	1736957.6629
PI MC2	4302+81.28	453783.9230	1736673.0169
PT MC2	4311+78.86	454696.7177	1736671.9582
PI	4322+77.79	455795.6411	1736670.6837
PI	4349+26.92	458444.7745	1736671.2371
PI	4375+68.26	461086.1168	1736673.0730
PI	4402+05.86	463723.7162	1736674.9063
PC MC3	4418+99.59	465417.4427	1736676.9332
PI MC3	4423+56.54	465874.3880	1736677.4800
PT MC3	4428+10.23	466321.5027	1736771.7549
1/4 SC	4428+80.70	466390.4596	1736786.2946
PC MC4	4434+38.22	466935.9797	1736901.3184
PI MC4	4438+59.85	467348.5376	1736988.3069
PT MC4	4442+78.92	467770.1053	1736995.5015
PC MC5	4451+26.60	468617.6686	1737009.9663
PI MC5	4456+12.93	469103.9182	1737018.2648
PT MC5	4460+94.71	469578.5723	1736912.3827
PC MC6	4466+75.59	470145.5197	1736785.9125
PI MC6	4471+59.53	470617.8481	1736680.5491
PT MC6	4476+39.60	471101.7856	1736680.1825
PI	4481+84.64	471646.8260	1736679.7696
PI	4508+21.65	474283.8370	1736677.7718
PI	4534+63.47	476925.6483	1736671.7178

NOTES: Sheet 1 of 2

CURVE DATA

ARC DEFINITION

MC1	MC5
PI Sta = 4220+41.79	PI Sta = 4456+12.93
Delta = 18° 54' 15.20" (LT)	Delta = 13° 33' 10.58" (LT)
Da = 0° 51' 59.98"	Da = 1° 23' 59.82"
R = 6,611.0992	R = 4,092.7012
T = 1,100.6389	T = 486.3204
L = 2,181.2721	L = 968.1014
MC2	MC6
PI Sta = 4302.81.28	PI Sta = 4471+59.53
Delta = 18° 06' 13.29" (RT)	Delta = 12° 31' 54.52" (RT)
Da = 0° 59' 59.98"	Da = 1° 17' 59.86"
R = 5,729.6027	R = 4,407.4958
T = 912.7953	T = 483.9376
L = 1,810.3770	L = 964.0135
MC3	
PI Sta = 4423+56.54	
Delta = 11° 50' 16.61" (RT)	
Da = 1° 17' 59.86"	
R = 4,407.4964	
T = 456.9456	
L = 910.6379	
MC4	
PI Sta = 4438+59.85	
Delta = 10° 55' 43.58" (LT)	
Da = 1° 17' 59.86"	
R = 4,407.4987	
T = 421.6290	
L = 840.6998	

Date Survey Completed 10/04/2022

US PUBLIC LAND SURVEY DATA

CORNER	IRN	NORTHING	EASTING
T-139-N R-85-W			
Center Sec 16 (Calc)	6-F	434665.02	1739230.06
NW ¼ Cor Sec 16	5-E	437358.57	1736601.51
N ¼ Cor Sec 16	6-E	437325.91	1739246.04
NE Cor Sec 16	7-E	437297.86	1741882.08
N ¼ Cor Sec 9	5-D	439992.70	1736620.00
Center Sec 9 (Calc)	6-D	439962.28	1739253.25
E ¼ Cor Sec 9	7-D	439931.83	1741889.99
NW Cor Sec 9	5-C	442642.14	1736621.60
N Cor Sec 9	6-C	442604.12	1739260.48
NE Cor Sec 9	7-C	442577.67	1741895.39
NW Cor Sec 4	5-A	447880.71	1736660.02
N ¼ Cor Sec 4	6-A	447848.95	1739300.08
T-140-N R-85-W			
NW Cor Sec 33	5-L	453175.07	1736673.72
N ¼ Cor Sec 33	6-L	453131.35	1739310.98
W ¼ Cor Sec 28	5-K	455795.64	1736670.68
NW ¼ Cor Sec 28	5-J	458444.77	1736671.24
W ¼ Cor Sec 21	5-H	461086.12	1736673.07
NW Cor Sec 21	5-G	463723.72	1736674.91
W ¼ Cor Sec 16	5-F	466390.61	1736678.10
NW Cor Sec 16	5-E	469009.82	1736681.77
NE Cor Sec 16	7-E	468932.07	1741966.82
W ¼ Cor Sec 9	5-D	471646.83	1736679.77
NW Cor Sec 9	5-C	474283.84	1736677.77
W ¼ Cor Sec 4	5-B	476925.65	1736671.72
NW Cor Sec 4	5-A	480812.50	1736679.78
NW Cor Sec 4	6-A	480797.14	1737595.76
Center Sec 33	6-M	483447.06	1737627.73

☐ Assumed Coordinates

☒ All coordinates on this sheet are Morton County ground coordinates. They are derived from the NAD83(2011) reference frame; North Dakota South Zone Combination Factor (cf) = 0.9998485

SURVEY CONTROL POINTS

PNT	NORTHING	EASTING	ELEV	STATION	OFFSET	MONUMENT DESCRIPTION
PRIMARY CONTROL						
CP 200	435794.83	1739290.87	2133.20	4118+98.93	94' Rt	
CP 201	450486.21	1737855.71	2087.46	4267+79.20	95' Rt	
CP 202	468961.46	1736905.07	2069.27	4454+77.21	96' Lt	
GPS1	460137.79	1736572.52	2104.64	4366+19.87	100' Lt	
SECONDARY CONTROL						
RTK 1000	438843.82	1739282.67	2144.13	4149+47.64	72' Rt	
RTK 1001	477176.66	1736775.80	2177.92	4537+14.70	104' Rt	

REFERENCE MARKERS

R Mkr #	NORTHING	EASTING	STATION	O/S	ALIGNMENT
R Mkr 79	441029.50	1739245.62	4171+33.14	28' Rt	EX_31_Morton
R Mkr 80	446304.82	1739122.77	4224+12.96	29' Rt	EX_31_Morton
R Mkr 81	451328.93	1737506.69	4276+88.73	27' Rt	EX_31_Morton
R Mkr 82	456524.51	1736700.56	4330+06.66	30' Rt	EX_31_Morton
R Mkr 83	461729.51	1736701.12	4382+11.67	28' Rt	EX_31_Morton
R Mkr 84	466349.21	1736806.25	4428+44.46	28' Rt	EX_31_Morton
R Mkr 86	477508.08	1736700.53	4540+45.96	28' Rt	EX_31_Morton
R Mkr 87	482638.43	1737617.66	4593+17.35	30' Rt	EX_31_Morton

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

INITIALIZING BENCH MARK
NDDOT GPS 1

☒ NAVD-88
☐ _____

☐ GEOID12B ☐ _____
☒ GEOID18

Christopher D. Jordheim, PLS, VP

Digitally signed by Christopher D. Jordheim, PLS, VP
DN: C=US, E=chris.jordheim@widseth.com, O=Widseth, CN="Christopher D. Jordheim, PLS, VP"
Reason: I attest to the accuracy and integrity of this document
Date: 2024.10.29 10:44:49-05'00'

PRELIMINARY SURVEY COORDINATE AND CURVE DATA - JCT I-94 TO HANNOVER

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031 (021) 078	81	2

HORIZONTAL ALIGNMENT

PNT	STATION	NORTHING	EASTING
PC MC7	4556+05.13	479067.2995	1736676.1580
PI MC7	4565+04.60	479966.7695	1736678.0228
PT MC7	4573+82.09	480800.5445	1737015.4679
Sec Line	4573+88.87	480806.8298	1737018.0117
PC MC8	4580+76.77	481444.4929	1737276.0865
PI MC8	4589+76.51	482278.5125	1737613.6306
PT MC8	4598+55.39	483178.1831	1737624.4840
End PI	4601+24.29	483447.0623	1737627.7277
Chain EX94			
Begin	6714+49.16	437125.5906	1736598.6344
PI (ND31 Intersection)	6740+55.36	437093.4014	1739204.6391
PI	6740+95.36	437092.9074	1739244.6369
PI	6755+85.56	437077.0560	1740734.7518
End	6767+30.61	437047.6268	1741879.4179

CURVE DATA

ARC DEFINITION

MC7

PI Sta = 4565+04.60

Delta = 21° 54' 55.29" (RT)

Da = 1° 13' 59.91"

R = 4,645.6998

T = 899.4719

L = 1,776.9577

MC8

PI Sta = 4589+76.51

Delta = 21° 20' 34.72" (LT)

Da = 1° 11' 59.92"

R = 4,774.7401

T = 899.7359

L = 1,778.3501

US PUBLIC LAND SURVEY DATA

CORNER	IRN	NORTHING	EASTING

SURVEY CONTROL POINTS

PNT	NORTHING	EASTING	ELEV	STATION	OFFSET	MONUMENT DESCRIPTION

NOTES: Sheet 2 of 2

Date Survey Completed 10/04/2022

☐ Assumed Coordinates

☒ All coordinates on this sheet are Morton County ground coordinates. They are derived from the NAD83(2011) reference frame; North Dakota South Zone Combination Factor (cf) = 0.9998485

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

INITIALIZING BENCH MARK
NDDOT GPS 1

☒ NAVD-88

☐ _____

☐ GEOID12B ☐ _____

☒ GEOID18

Christopher D. Jordheim, PLS, VP

Digitally signed by Christopher D. Jordheim, PLS, VP
DN: C=US, E=chris.jordheim@widseth.com, O=Widseth, CN="Christopher D. Jordheim, PLS, VP"
Reason: I attest to the accuracy and integrity of this document
Date: 2024.10.29 10:45:05-05'00'

PRELIMINARY SURVEY COORDINATE AND CURVE DATA - JCT I-94 TO HANNOVER

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031 (021) 078	81	3

HORIZONTAL ALIGNMENT

PNT	STATION	NORTHING	EASTING
Chain EX31_OLIVER			
Begin/Sec Line	4534+63.49	476923.5018	1736663.9016
PC OC1	4556+05.14	479065.1433	1736668.3418
PI OC1	4565+04.60	479964.6093	1736670.2066
PT OC1	4573+82.09	480798.3805	1737007.6502
8104	4573+88.87	480804.6658	1737010.1939
PC OC2	4580+76.77	481442.3260	1737268.2676
PI OC2	4589+76.50	482276.3420	1737605.8102
PT OC2	4598+55.38	483176.0085	1737616.6635
8108	4601+24.28	483444.8864	1737619.9072
8109	4627+64.05	486084.4364	1737654.1681
8110	4654+02.37	488722.5712	1737685.1897
8111	4680+40.50	491360.5220	1737716.1773
8112	4706+80.61	494000.4526	1737747.4704
8113	4720+57.31	495377.0484	1773763.7882
8114	4726+89.02	496008.7312	1737769.9774
8115	4733+20.73	496640.3831	1737778.7635
8116	4759+63.09	499282.5795	1737807.7027
8117	4786+05.45	501924.7799	1737836.6890
8118	4812+41.79	504560.9234	1737868.7237
8119	4838+78.26	507197.1970	1737900.8544
8120	4865+05.93	509824.6202	1737936.9467
8121	4890+99.80	512418.2505	1737972.5960
8122	4917+58.49	515076.8723	1737991.5407
8123	4944+04.87	517723.1833	1738011.0416
8124	4970+36.95	520355.1252	1738037.4765
8125	4996+77.84	522995.8814	1738064.1284
8126	5023+18.51	525636.2545	1738103.8632
8127	5049+58.81	528276.2546	1738143.5391
Chain EX25_OLIVER			
Begin	1809+05.39	528249.8477	1740760.2537
PI	1835+22.24	528276.2546	1738143.5391
End	1861+68.58	528317.1616	1735497.5181

NOTES: Sheet 1 of 1

CURVE DATA

ARC DEFINITION

OC1

PI Sta = 4565+04.60

Delta = 21° 54' 55.30" (RT)

Da = 1° 13' 59.93"

R = 4,645.6787

T = 899.4679

L = 1,776.9498

OC2

PI Sta = 4589+76.50

Delta = 21° 20' 34.72" (LT)

Da = 1° 11' 59.94"

R = 4,774.7193

T = 899.7320

L = 1,778.6079

Date Survey Completed 10/04/2022

US PUBLIC LAND SURVEY DATA

CORNER	IRN	NORTHING	EASTING
T-141-N R-85-W			
SW Cor Sec 35	9-N	480794.98	1737587.94
W 1/4 Cor Sec 35	9-M	483444.89	1737619.91
NW Cor Sec 35	9-L	486084.44	1737654.17
W 1/4 Cor Sec 26	9-K	488722.57	1737685.19
NW Cor Sec 26	9-J	491360.52	1737716.18
W 1/4 Cor Sec 23	9-H	494000.45	1737747.47
NW Cor Sec 23	9-G	496640.38	1737778.76
W 1/4 Cor Sec 14	9-F	499282.58	1737807.70
NW Cor Sec 14	9-E	501924.78	1737836.69
W 1/4 Cor Sec 11	9-D	504560.92	1737868.72
NW Cor Sec 11	9-C	507197.20	1737900.85
W 1/4 Cor Sec 2	9-B	509824.62	1737936.95
NW Cor Sec 2	9-A	512418.25	1737972.60
T-142-N R-85-W			
W 1/4 Cor Sec 35	9-M	515076.87	1737991.54
NW Cor Sec 35	9-L	517723.18	1738011.04
W 1/4 Cor Sec 26	9-K	520355.13	1738037.48
NW Cor Sec 26	9-J	522995.88	1738064.13
W 1/4 Cor Sec 23	9-H	525636.25	1738103.86
NW Cor Sec 23	9-G	528276.25	1738143.54

☐ Assumed Coordinates

☒ All coordinates on this sheet are Oliver County ground coordinates. They are derived from the NAD83(2011) reference frame; North Dakota South Zone Combination Factor (cf) = 0.9998530

SURVEY CONTROL POINTS

PNT	NORTHING	EASTING	ELEV	STATION	OFFSET	MONUMENT DESCRIPTION
PRIMARY CONTROL						
CP 203	509423.91	1738021.99	2150.86	4861+06.43	91' Rt	
SECONDARY CONTROL						
RTK 350	526877.80	1738106.15	2166.71	5035+59.95	16' Lt	
RTK 351	523855.89	1738094.01	2222.29	5005+38.20	17' Rt	
RTK 352	524819.92	1738108.36	2207.46	5015+02.34	17' Rt	
RTK 353	525627.90	1738125.39	2187.14	5023+10.48	22' Rt	

REFERENCE MARKERS

R Mkr #	NORTHING	EASTING	STATION	O/S	ALIGNMENT
R Mkr 86	477505.93	1736692.71	4540+45.98	28' Rt	EX_31_Oliver
R Mkr 88	487886.98	1737702.93	4645+67.05	58' Rt	EX_31_Oliver
R Mkr 89	493152.74	1737768.64	4698+33.21	31' Rt	EX_31_Oliver
R Mkr 90	498747.29	1737831.18	4754+28.09	29' Rt	EX_31_Oliver
R Mkr 91	503905.06	1737888.94	4805+86.22	28' Rt	EX_31_Oliver
R Mkr 92	509086.08	1737956.36	4857+67.72	30' Rt	EX_31_Oliver
R Mkr 93	514420.08	1738015.20	4911+01.89	28' Rt	EX_31_Oliver
R Mkr 94	519749.51	1738059.74	4964+31.59	28' Rt	EX_31_Oliver
R Mkr 95	524896.10	1738119.87	5015+78.68	27' Rt	EX_31_Oliver

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

INITIALIZING BENCH MARK
NDDOT GPS 2

☒ NAVD-88

☐ _____

☐ GEOID12B ☐ _____

☒ GEOID18

Christopher D. Jordheim, PLS, VP

Digitally signed by Christopher D. Jordheim, PLS, VP
DN: C=US, E=chris.jordheim@widseth.com, O=Widseth, CN="Christopher D. Jordheim, PLS, VP"
Reason: I attest to the accuracy and integrity of this document
Date: 2024.10.29 10:45:37-05'00'

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	82	1

Alignment Name: EX_31_MORTON
Alignment Description:
Alignment Style: Alignment\Horizontal\Large Scale\Alignment 1 L

	Station	Northing	Easting
Element: Linear			
START ( )	410768.770 R1	434665.256	1739190.060
COMBINATION PI ( )	413196.959 R1	437093.401	1739204.639
Tangential Direction:	N0.344°E		
Tangential Length:	2428.189		
Element: Linear			
COMBINATION PI ( )	413196.959 R1	437093.401	1739204.639
COMBINATION PI ( )	413429.964 R1	437326.402	1739206.038
Tangential Direction:	N0.344°E		
Tangential Length:	233.005		
Element: Linear			
COMBINATION PI ( )	413429.964 R1	437326.402	1739206.038
COMBINATION PI ( )	416066.304 R1	439962.727	1739214.905
Tangential Direction:	N0.193°E		
Tangential Length:	2636.340		
Element: Linear			
COMBINATION PI ( )	416066.304 R1	439962.727	1739214.905
COMBINATION PI ( )	418708.280 R1	442604.697	1739220.485
Tangential Direction:	N0.121°E		
Tangential Length:	2641.976		
Element: Linear			
COMBINATION PI ( )	418708.280 R1	442604.697	1739220.485
PC ( )	420941.151 R1	444837.455	1739242.914
Tangential Direction:	N0.576°E		
Tangential Length:	2232.871		
Element: Circular			
PC ( )	420941.151 R1	444837.455	1739242.914
COMBINATION PI ( )	422041.789 R1	445938.039	1739253.970
CC ( )		444903.865	1732632.149
PT ( )	423122.423 R1	446982.840	1738907.855

Radius:	6611.099
Delta:	18.904° Left
Degree of Curvature (Arc):	0.867°
Length:	2181.272
Tangent:	1100.639
Chord:	2171.391
Middle Ordinate:	89.758
External:	90.993
Back Tangent Direction:	N0.576°E
Back Radial Direction:	S89.424°E
Chord Direction:	N8.877°W
Ahead Radial Direction:	N71.671°E
Ahead Tangent Direction:	N18.329°W

Element: Linear			
PT ( )	423122.423 R1	446982.840	1738907.855
COMBINATION PI ( )	424043.461 R1	447857.152	1738618.219
Tangential Direction:	N18.329°W		
Tangential Length:	921.038		
Element: Linear			
COMBINATION PI ( )	424043.461 R1	447857.152	1738618.219
PC ( )	429368.486 R1	452916.644	1736957.663
Tangential Direction:	N18.170°W		
Tangential Length:	5325.026		

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Jct I-94 to Hannover
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Survey Data Points

REGISTERED PROFESSIONAL ENGINEER
JERAD
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Element: Circular

PC ( )	429368.486 R1	452916.644	1736957.663
COMBINATION PI ( )	430281.282 R1	453783.923	1736673.017
CC ( )		454703.363	1742401.557
PT ( )	431178.864 R1	454696.718	1736671.958
Radius:	5729.603		
Delta:	18.104° Right		
Degree of Curvature (Arc):	1.000°		
Length:	1810.378		
Tangent:	912.796		
Chord:	1802.856		
Middle Ordinate:	71.354		
External:	72.254		
Back Tangent Direction:	N18.170°W		
Back Radial Direction:	N71.830°E		
Chord Direction:	N9.118°W		
Ahead Radial Direction:	N89.934°E		
Ahead Tangent Direction:	N0.066°W		

Element: Linear

PT ( )	431178.864 R1	454696.718	1736671.958
COMBINATION PI ( )	432277.788 R1	455795.641	1736670.684
Tangential Direction:	N0.066°W		
Tangential Length:	1098.924		

Element: Linear

COMBINATION PI ( )	432277.788 R1	455795.641	1736670.684
COMBINATION PI ( )	434926.922 R1	458444.774	1736671.237
Tangential Direction:	N0.012°E		
Tangential Length:	2649.133		

Element: Linear

COMBINATION PI ( )	434926.922 R1	458444.774	1736671.237
COMBINATION PI ( )	437568.265 R1	461086.117	1736673.073
Tangential Direction:	N0.040°E		
Tangential Length:	2641.343		

Element: Linear

COMBINATION PI ( )	437568.265 R1	461086.117	1736673.073
COMBINATION PI ( )	440205.865 R1	463723.716	1736674.906
Tangential Direction:	N0.040°E		
Tangential Length:	2637.600		

Element: Linear

COMBINATION PI ( )	440205.865 R1	463723.716	1736674.906
PC ( )	441899.592 R1	465417.443	1736676.933
Tangential Direction:	N0.069°E		
Tangential Length:	1693.728		

Element: Circular

PC ( )	441899.592 R1	465417.443	1736676.933
COMBINATION PI ( )	442356.538 R1	465874.389	1736677.480
CC ( )		465412.169	1741084.426
PT ( )	442810.231 R1	466321.504	1736771.755
Radius:	4407.496		
Delta:	11.838° Right		
Degree of Curvature (Arc):	1.300°		
Length:	910.639		
Tangent:	456.946		
Chord:	909.020		
Middle Ordinate:	23.498		
External:	23.624		
Back Tangent Direction:	N0.069°E		
Back Radial Direction:	S89.931°E		
Chord Direction:	N5.988°E		
Ahead Radial Direction:	S78.093°E		
Ahead Tangent Direction:	N11.907°E		

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Jct I-94 to Hannover
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REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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Element: Linear

PT ( )	442810.231 R1	466321.504	1736771.755
COMBINATION PI ( )	442880.703 R1	466390.460	1736786.295
Tangential Direction:	N11.907°E		
Tangential Length:	70.472		

Element: Linear

COMBINATION PI ( )	442880.703 R1	466390.460	1736786.295
PC ( )	443438.218 R1	466935.980	1736901.318
Tangential Direction:	N11.907°E		
Tangential Length:	557.515		

Element: Circular

PC ( )	443438.218 R1	466935.980	1736901.318
COMBINATION PI ( )	443859.847 R1	467348.537	1736988.307
CC ( )		467845.314	1732588.645
PT ( )	444278.917 R1	467770.105	1736995.501
Radius:	4407.499		
Delta:	10.929° Left		
Degree of Curvature (Arc):	1.300°		
Length:	840.700		
Tangent:	421.629		
Chord:	839.426		
Middle Ordinate:	20.030		
External:	20.121		
Back Tangent Direction:	N11.907°E		
Back Radial Direction:	S78.093°E		
Chord Direction:	N6.442°E		
Ahead Radial Direction:	S89.022°E		
Ahead Tangent Direction:	N0.978°E		

Element: Linear

PT ( )	444278.917 R1	467770.105	1736995.502
PC ( )	445126.604 R1	468617.669	1737009.966
Tangential Direction:	N0.978°E		
Tangential Length:	847.687		

Element: Circular

PC ( )	445126.604 R1	468617.669	1737009.966
COMBINATION PI ( )	445612.925 R1	469103.918	1737018.265
CC ( )		468687.506	1732917.861
PT ( )	446094.706 R1	469578.573	1736912.383
Radius:	4092.701		
Delta:	13.553° Left		
Degree of Curvature (Arc):	1.400°		
Length:	968.102		
Tangent:	486.321		
Chord:	965.846		
Middle Ordinate:	28.591		
External:	28.793		
Back Tangent Direction:	N0.978°E		
Back Radial Direction:	S89.022°E		
Chord Direction:	N5.799°W		
Ahead Radial Direction:	N77.425°E		
Ahead Tangent Direction:	N12.575°W		

Element: Linear

PT ( )	446094.706 R1	469578.573	1736912.383
PC ( )	446675.588 R1	470145.520	1736785.913
Tangential Direction:	N12.575°W		
Tangential Length:	580.882		

Element: Circular

PC ( )	446675.588 R1	470145.520	1736785.912
COMBINATION PI ( )	447159.525 R1	470617.848	1736680.549
CC ( )		471105.124	1741087.677
PT ( )	447639.600 R1	471101.785	1736680.183

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Radius:	4407.496		
Delta:	12.532° Right		
Degree of Curvature (Arc):	1.300°		
Length:	964.013		
Tangent:	483.937		
Chord:	962.092		
Middle Ordinate:	26.330		
External:	26.488		
Back Tangent Direction:	N12.575°W		
Back Radial Direction:	N77.425°E		
Chord Direction:	N6.309°W		
Ahead Radial Direction:	N89.957°E		
Ahead Tangent Direction:	N0.043°W		
Element: Linear			
PT ( )	447639.600 R1	471101.786	1736680.183
COMBINATION PI ( )	448184.641 R1	471646.826	1736679.770
Tangential Direction:	N0.043°W		
Tangential Length:	545.041		
Element: Linear			
COMBINATION PI ( )	448184.641 R1	471646.826	1736679.770
COMBINATION PI ( )	450821.653 R1	474283.837	1736677.772
Tangential Direction:	N0.043°W		
Tangential Length:	2637.012		
Element: Linear			
COMBINATION PI ( )	450821.653 R1	474283.837	1736677.772
COMBINATION PI ( )	453463.471 R1	476925.648	1736671.718
Tangential Direction:	N0.131°W		
Tangential Length:	2641.818		
Element: Linear			
COMBINATION PI ( )	453463.471 R1	476925.648	1736671.718
PC ( )	455605.127 R1	479067.299	1736676.158
Tangential Direction:	N0.119°E		
Tangential Length:	2141.656		

Element: Circular			
PC ( )	455605.127 R1	479067.299	1736676.158
COMBINATION PI ( )	456504.599 R1	479966.770	1736678.023
CC ( )		479057.668	1741321.848
PT ( )	457382.085 R1	480800.544	1737015.468
Radius:	4645.700		
Delta:	21.915° Right		
Degree of Curvature (Arc):	1.233°		
Length:	1776.958		
Tangent:	899.472		
Chord:	1766.145		
Middle Ordinate:	84.701		
External:	86.274		
Back Tangent Direction:	N0.119°E		
Back Radial Direction:	S89.881°E		
Chord Direction:	N11.076°E		
Ahead Radial Direction:	S67.966°E		
Ahead Tangent Direction:	N22.034°E		

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Element: Linear

PT ( )	457382.085 R1	480800.544	1737015.468
COMBINATION PI ( )	457388.865 R1	480806.830	1737018.012
Tangential Direction:	N22.034°E		
Tangential Length:	6.781		

Element: Linear

COMBINATION PI ( )	457388.865 R1	480806.830	1737018.012
PC ( )	458076.772 R1	481444.493	1737276.086
Tangential Direction:	N22.034°E		
Tangential Length:	687.907		

Element: Circular

PC ( )	458076.772 R1	481444.493	1737276.086
COMBINATION PI ( )	458976.508 R1	482278.512	1737613.631
CC ( )		483235.780	1732850.091
PT ( )	459855.388 R1	483178.183	1737624.484
Radius:	4774.740		
Delta:	21.343° Left		
Degree of Curvature (Arc):	1.200°		
Length:	1778.616		
Tangent:	899.736		
Chord:	1768.350		
Middle Ordinate:	82.579		
External:	84.032		
Back Tangent Direction:	N22.034°E		
Back Radial Direction:	S67.966°E		
Chord Direction:	N11.363°E		
Ahead Radial Direction:	S89.309°E		
Ahead Tangent Direction:	N0.691°E		

Element: Linear

PT ( )	459855.388 R1	483178.183	1737624.484
END ( )	460124.287 R1	483447.062	1737627.728
Tangential Direction:	N0.691°E		
Tangential Length:	268.899		

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REGISTERED PROFESSIONAL ENGINEER
JERAD
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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	82	6

Alignment Name: EX31_OLOVER
Alignment Description:
Alignment Style: Alignment\Horizontal\Large Scale\Alignment 2 L

	Station	Northing	Easting
Element: Linear			
START ( )	453463.490 R1	476923.502	1736663.902
PC ( )	455605.136 R1	479065.143	1736668.342
Tangential Direction:	N0.119°E		
Tangential Length:	2141.646		
Element: Circular			
PC ( )	455605.136 R1	479065.143	1736668.342
COMBINATION PI ( )	456504.604 R1	479964.609	1736670.207
CC ( )		479055.512	1741314.011
PT ( )	457382.086 R1	480798.380	1737007.650
Radius:	4645.679		
Delta:	21.915° Right		
Degree of Curvature (Arc):	1.233°		
Length:	1776.950		
Tangent:	899.468		
Chord:	1766.137		
Middle Ordinate:	84.701		
External:	86.274		
Back Tangent Direction:	N0.119°E		
Back Radial Direction:	S89.881°E		
Chord Direction:	N11.076°E		
Ahead Radial Direction:	S67.966°E		
Ahead Tangent Direction:	N22.034°E		
Element: Linear			
PT ( )	457382.086 R1	480798.380	1737007.650
COMBINATION PI ( )	457388.866 R1	480804.666	1737010.194
Tangential Direction:	N22.033°E		
Tangential Length:	6.781		
Element: Linear			
COMBINATION PI ( )	457388.866 R1	480804.666	1737010.194
PC ( )	458076.770 R1	481442.325	1737268.267
Tangential Direction:	N22.034°E		
Tangential Length:	687.904		
Element: Circular			
PC ( )	458076.770 R1	481442.325	1737268.267
COMBINATION PI ( )	458976.502 R1	482276.341	1737605.810
CC ( )		483233.605	1732842.292
PT ( )	459855.378 R1	483176.008	1737616.663
Radius:	4774.719		
Delta:	21.343° Left		
Degree of Curvature (Arc):	1.200°		
Length:	1778.608		
Tangent:	899.732		
Chord:	1768.343		
Middle Ordinate:	82.578		
External:	84.032		
Back Tangent Direction:	N22.034°E		
Back Radial Direction:	S67.966°E		
Chord Direction:	N11.363°E		
Ahead Radial Direction:	S89.309°E		
Ahead Tangent Direction:	N0.691°E		
Element: Linear			
PT ( )	459855.378 R1	483176.008	1737616.664
COMBINATION PI ( )	460124.276 R1	483444.886	1737619.907
Tangential Direction:	N0.691°E		
Tangential Length:	268.897		

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Element: Linear

COMBINATION PI ( )	460124.276 R1	483444.886	1737619.907
COMBINATION PI ( )	462764.048 R1	486084.436	1737654.168
Tangential Direction:	N0.744°E		
Tangential Length:	2639.772		

Element: Linear

COMBINATION PI ( )	462764.048 R1	486084.436	1737654.168
COMBINATION PI ( )	465402.365 R1	488722.571	1737685.190
Tangential Direction:	N0.674°E		
Tangential Length:	2638.317		

Element: Linear

COMBINATION PI ( )	465402.365 R1	488722.571	1737685.190
COMBINATION PI ( )	468040.498 R1	491360.522	1737716.177
Tangential Direction:	N0.673°E		
Tangential Length:	2638.133		

Element: Linear

COMBINATION PI ( )	468040.498 R1	491360.522	1737716.177
COMBINATION PI ( )	470680.614 R1	494000.453	1737747.470
Tangential Direction:	N0.679°E		
Tangential Length:	2640.116		

Element: Linear

COMBINATION PI ( )	470680.614 R1	494000.453	1737747.470
COMBINATION PI ( )	472057.306 R1	495377.048	1737763.788
Tangential Direction:	N0.679°E		
Tangential Length:	1376.693		

Element: Linear

COMBINATION PI ( )	472057.306 R1	495377.048	1737763.788
COMBINATION PI ( )	472689.020 R1	496008.731	1737769.977
Tangential Direction:	N0.561°E		
Tangential Length:	631.713		

Element: Linear

COMBINATION PI ( )	472689.020 R1	496008.731	1737769.977
COMBINATION PI ( )	473320.733 R1	496640.383	1737778.763
Tangential Direction:	N0.797°E		
Tangential Length:	631.713		

Element: Linear

COMBINATION PI ( )	473320.733 R1	496640.383	1737778.763
COMBINATION PI ( )	475963.087 R1	499282.579	1737807.703
Tangential Direction:	N0.628°E		
Tangential Length:	2642.355		

Element: Linear

COMBINATION PI ( )	475963.087 R1	499282.579	1737807.703
COMBINATION PI ( )	478605.447 R1	501924.780	1737836.689
Tangential Direction:	N0.629°E		
Tangential Length:	2642.359		

Element: Linear

COMBINATION PI ( )	478605.447 R1	501924.780	1737836.689
COMBINATION PI ( )	481241.785 R1	504560.923	1737868.724
Tangential Direction:	N0.696°E		
Tangential Length:	2636.338		

Element: Linear

COMBINATION PI ( )	481241.785 R1	504560.923	1737868.724
COMBINATION PI ( )	483878.254 R1	507197.197	1737900.854
Tangential Direction:	N0.698°E		
Tangential Length:	2636.469		

Element: Linear

COMBINATION PI ( )	483878.254 R1	507197.197	1737900.854
COMBINATION PI ( )	486505.925 R1	509824.620	1737936.947
Tangential Direction:	N0.787°E		
Tangential Length:	2627.671		

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REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
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NORTH DAKOTA

Element: Linear

COMBINATION PI ( )	486505.925 R1	509824.620	1737936.947
COMBINATION PI ( )	489099.801 R1	512418.251	1737972.596
Tangential Direction:	N0.787°E		
Tangential Length:	2593.875		

Element: Linear

COMBINATION PI ( )	489099.801 R1	512418.251	1737972.596
COMBINATION PI ( )	491758.490 R1	515076.872	1737991.541
Tangential Direction:	N0.408°E		
Tangential Length:	2658.689		

Element: Linear

COMBINATION PI ( )	491758.490 R1	515076.872	1737991.541
COMBINATION PI ( )	494404.873 R1	517723.183	1738011.042
Tangential Direction:	N0.422°E		
Tangential Length:	2646.383		

Element: Linear

COMBINATION PI ( )	494404.873 R1	517723.183	1738011.042
COMBINATION PI ( )	497036.948 R1	520355.125	1738037.477
Tangential Direction:	N0.575°E		
Tangential Length:	2632.075		

Element: Linear

COMBINATION PI ( )	497036.948 R1	520355.125	1738037.477
COMBINATION PI ( )	499677.838 R1	522995.881	1738064.128
Tangential Direction:	N0.578°E		
Tangential Length:	2640.891		

Element: Linear

COMBINATION PI ( )	499677.838 R1	522995.881	1738064.128
COMBINATION PI ( )	502318.510 R1	525636.255	1738103.863
Tangential Direction:	N0.862°E		
Tangential Length:	2640.672		

Element: Linear

COMBINATION PI ( )	502318.510 R1	525636.255	1738103.863
END ( )	504958.809 R1	528276.255	1738143.539
Tangential Direction:	N0.861°E		
Tangential Length:	2640.298		

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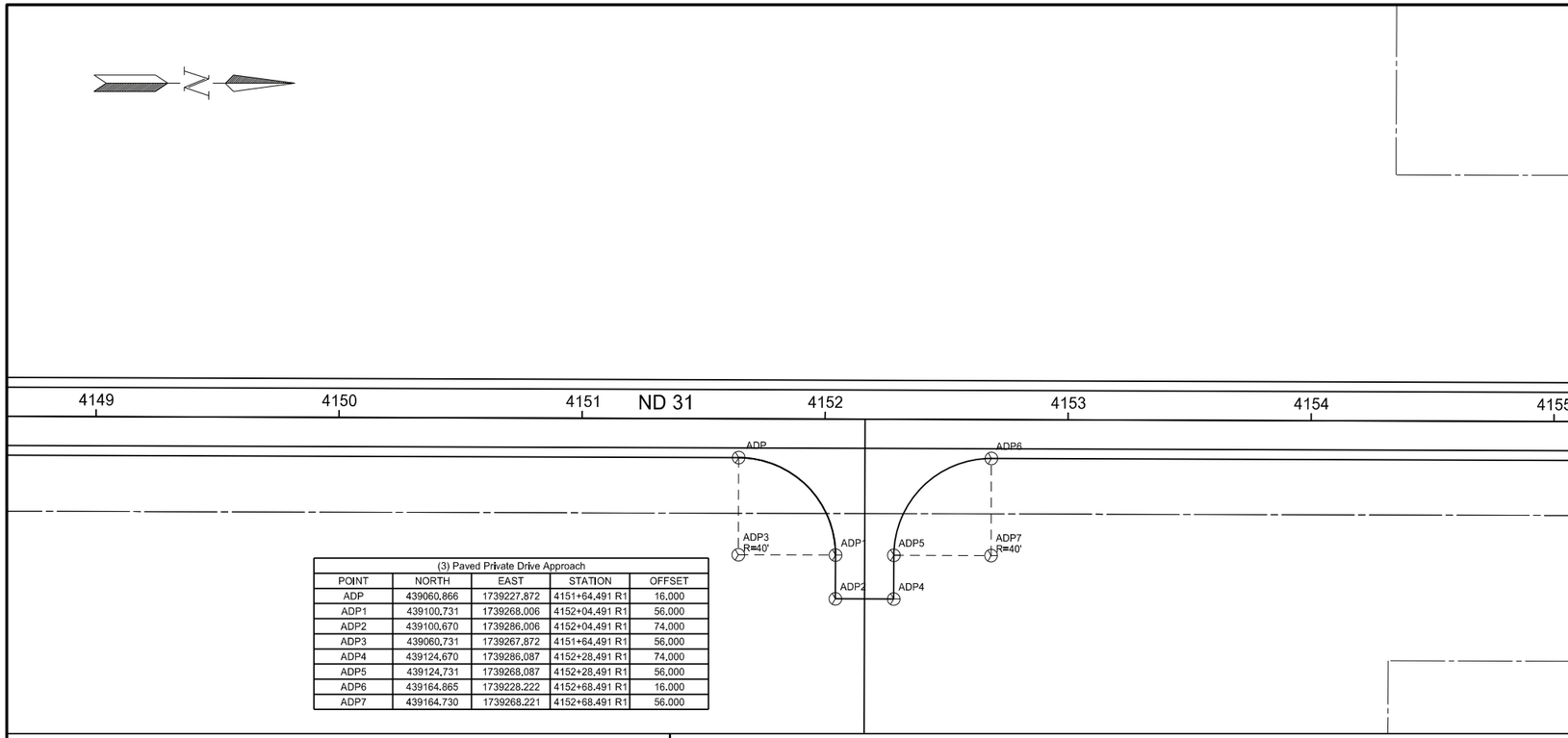
Jct I-94 to Hannover
Morton County

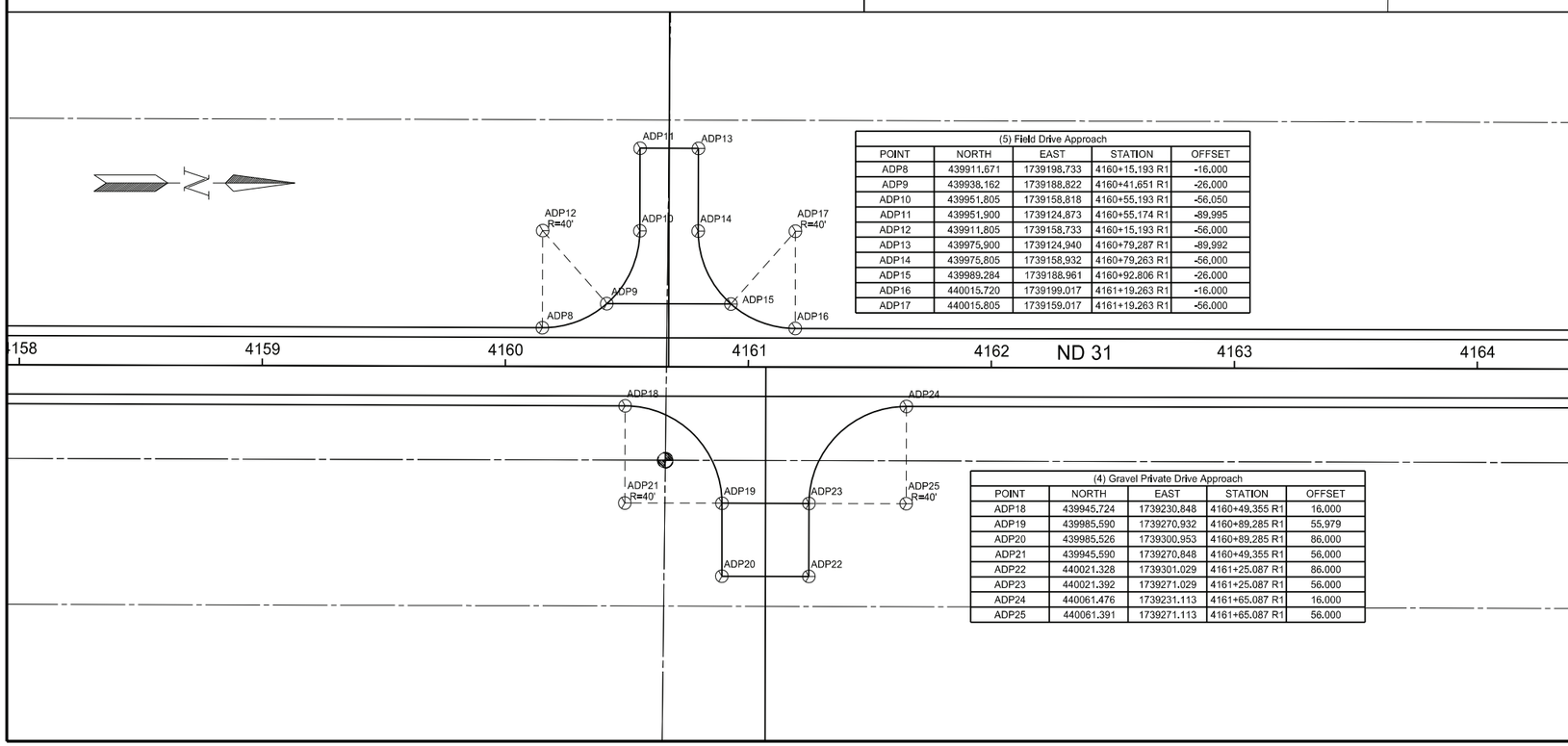
Survey Data Points

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	82	9



(3) Paved Private Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP	439060.866	1739227.872	4151+64.491 R1	16.000
ADP1	439100.731	1739268.006	4152+04.491 R1	56.000
ADP2	439100.670	1739286.006	4152+04.491 R1	74.000
ADP3	439060.731	1739267.872	4151+64.491 R1	56.000
ADP4	439124.670	1739286.087	4152+28.491 R1	74.000
ADP5	439124.731	1739268.087	4152+28.491 R1	56.000
ADP6	439164.865	1739228.222	4152+68.491 R1	16.000
ADP7	439164.730	1739268.221	4152+68.491 R1	56.000



(5) Field Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP8	439911.671	1739198.733	4160+15.193 R1	-16.000
ADP9	439938.162	1739188.822	4160+41.651 R1	-26.000
ADP10	439951.805	1739158.818	4160+55.193 R1	-56.050
ADP11	439951.900	1739124.873	4160+55.174 R1	-89.995
ADP12	439911.805	1739158.733	4160+15.193 R1	-56.000
ADP13	439975.900	1739124.940	4160+79.287 R1	-89.992
ADP14	439975.805	1739158.932	4160+79.263 R1	-56.000
ADP15	439989.284	1739188.961	4160+92.806 R1	-26.000
ADP16	440015.720	1739199.017	4161+19.263 R1	-16.000
ADP17	440015.805	1739159.017	4161+19.263 R1	-56.000

(4) Gravel Private Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP18	439945.724	1739230.848	4160+49.355 R1	16.000
ADP19	439985.590	1739270.932	4160+89.285 R1	55.979
ADP20	439985.526	1739300.953	4160+89.285 R1	86.000
ADP21	439945.590	1739270.848	4160+49.355 R1	56.000
ADP22	440021.328	1739301.029	4161+25.087 R1	86.000
ADP23	440021.392	1739271.029	4161+25.087 R1	56.000
ADP24	440061.476	1739231.113	4161+65.087 R1	16.000
ADP25	440061.391	1739271.113	4161+65.087 R1	56.000

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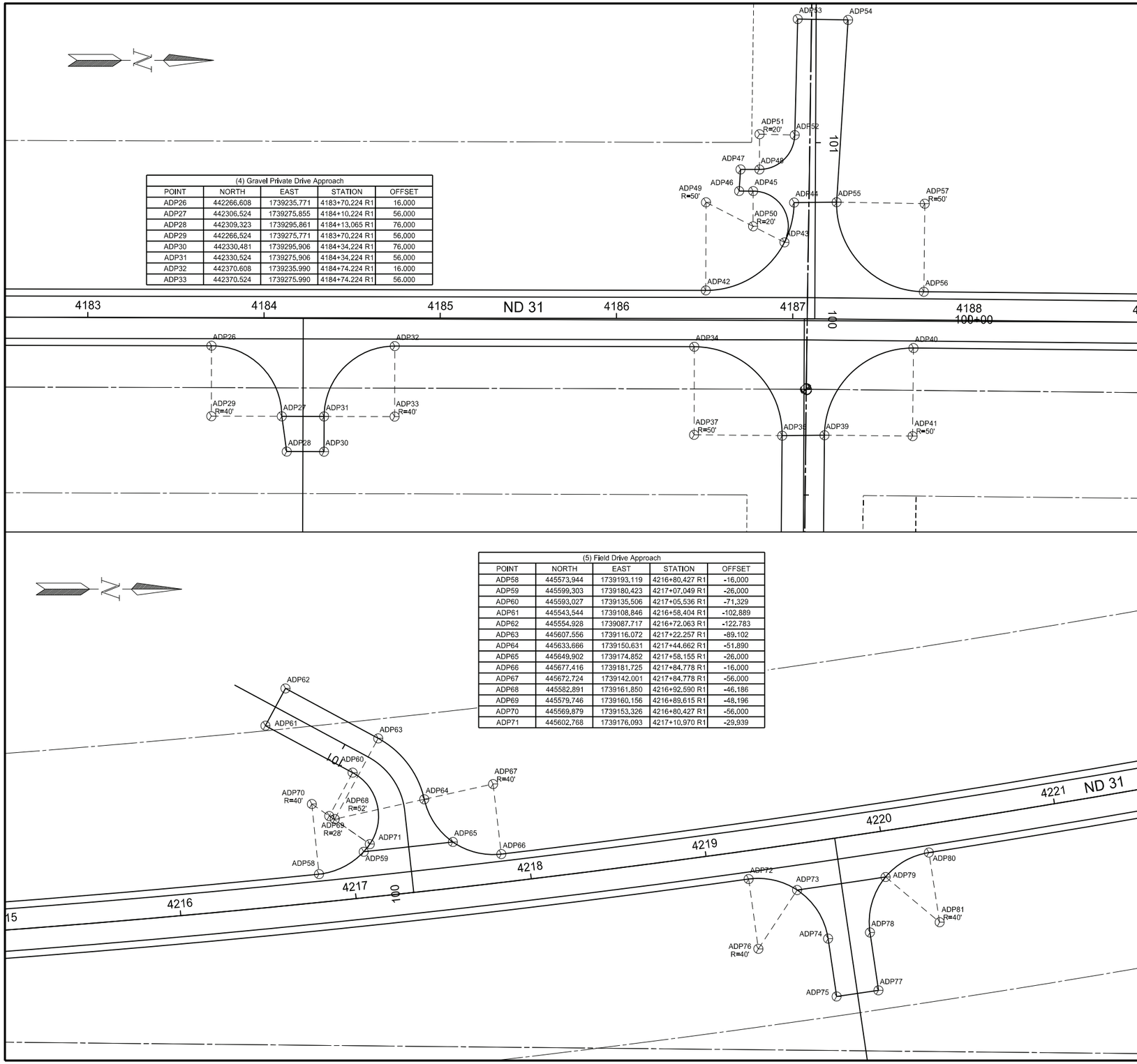
Jct I-94 to Hannover
Morton County

Survey Data Points

Sta 4148+63 to Sta 4155+07
Sta 4157+95 to Sta 4164+40

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	82	10



(4) Gravel Private Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP26	442266.608	1739235.771	4183+70.224 R1	16.000
ADP27	442306.524	1739275.855	4184+10.224 R1	56.000
ADP28	442309.323	1739295.861	4184+13.065 R1	76.000
ADP29	442266.524	1739275.771	4183+70.224 R1	56.000
ADP30	442330.481	1739295.906	4184+34.224 R1	76.000
ADP31	442330.524	1739275.906	4184+34.224 R1	56.000
ADP32	442370.608	1739235.990	4184+74.224 R1	16.000
ADP33	442370.524	1739275.990	4184+74.224 R1	56.000

(5) Field Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP58	445573.944	1739193.119	4216+80.427 R1	-16.000
ADP59	445599.303	1739180.423	4217+07.049 R1	-26.000
ADP60	445593.027	1739135.506	4217+05.536 R1	-71.329
ADP61	445543.544	1739108.846	4216+58.404 R1	-102.889
ADP62	445554.928	1739087.717	4216+72.063 R1	-122.783
ADP63	445607.556	1739116.072	4217+22.257 R1	-89.102
ADP64	445633.666	1739150.631	4217+44.662 R1	-51.890
ADP65	445649.902	1739174.852	4217+58.155 R1	-26.000
ADP66	445677.416	1739181.725	4217+84.778 R1	-16.000
ADP67	445672.724	1739142.001	4217+84.778 R1	-56.000
ADP68	445582.891	1739161.850	4216+92.590 R1	-46.186
ADP69	445579.746	1739160.156	4216+89.615 R1	-48.196
ADP70	445569.879	1739153.326	4216+80.427 R1	-56.000
ADP71	445602.768	1739176.093	4217+10.970 R1	-29.939

(2) Gravel Section Line, County Road, or Street Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP42	442547.131	1739204.363	4186+50.680 R1	-16.000
ADP43	442591.776	1739177.083	4186+95.267 R1	-43.374
ADP44	442597.236	1739154.500	4187+00.680 R1	-65.969
ADP45	442574.015	1739147.995	4186+77.445 R1	-72.424
ADP46	442566.065	1739147.974	4186+69.495 R1	-72.429
ADP47	442566.834	1739135.678	4186+70.237 R1	-84.727
ADP48	442577.561	1739135.707	4186+80.965 R1	-84.720
ADP49	442547.236	1739154.363	4186+50.680 R1	-66.000
ADP50	442573.960	1739167.995	4186+77.432 R1	-52.424
ADP51	442577.616	1739115.707	4186+80.977 R1	-104.720
ADP52	442597.609	1739116.211	4187+00.972 R1	-104.258
ADP53	442599.270	1739050.348	4187+02.493 R1	-170.125
ADP54	442627.884	1739050.840	4187+29.762 R1	-169.869
ADP55	442621.368	1739154.292	4187+24.285 R1	-66.357
ADP56	442670.858	1739205.148	4187+74.283 R1	-16.000
ADP57	442671.360	1739155.151	4187+74.283 R1	-66.000

(2) Gravel Section Line, County Road, or Street Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP34	442540.587	1739236.349	4186+44.204 R1	16.000
ADP35	442590.479	1739286.853	4186+94.202 R1	66.399
ADP36	442589.436	1739390.351	4186+93.377 R1	169.898
ADP37	442540.482	1739286.349	4186+44.204 R1	66.000
ADP38	442613.434	1739390.593	4187+18.725 R1	170.012
ADP39	442614.483	1739286.584	4187+18.729 R1	65.998
ADP40	442664.983	1739237.091	4187+68.729 R1	16.000
ADP41	442664.481	1739287.089	4187+68.729 R1	66.000

(5) Field Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP72	445817.751	1739195.932	4219+22.155 R1	16.000
ADP73	445845.268	1739202.145	4219+48.450 R1	26.000
ADP74	445862.841	1739229.725	4219+61.820 R1	55.808
ADP75	445867.667	1739262.573	4219+61.871 R1	89.008
ADP76	445823.267	1739235.550	4219+22.155 R1	56.000
ADP77	445891.412	1739259.083	4219+85.552 R1	89.014
ADP78	445886.585	1739226.230	4219+85.619 R1	55.808
ADP79	445895.465	1739194.756	4219+98.988 R1	26.000
ADP80	445920.025	1739180.879	4220+25.283 R1	16.000
ADP81	445926.158	1739220.406	4220+25.283 R1	56.000

ND 31

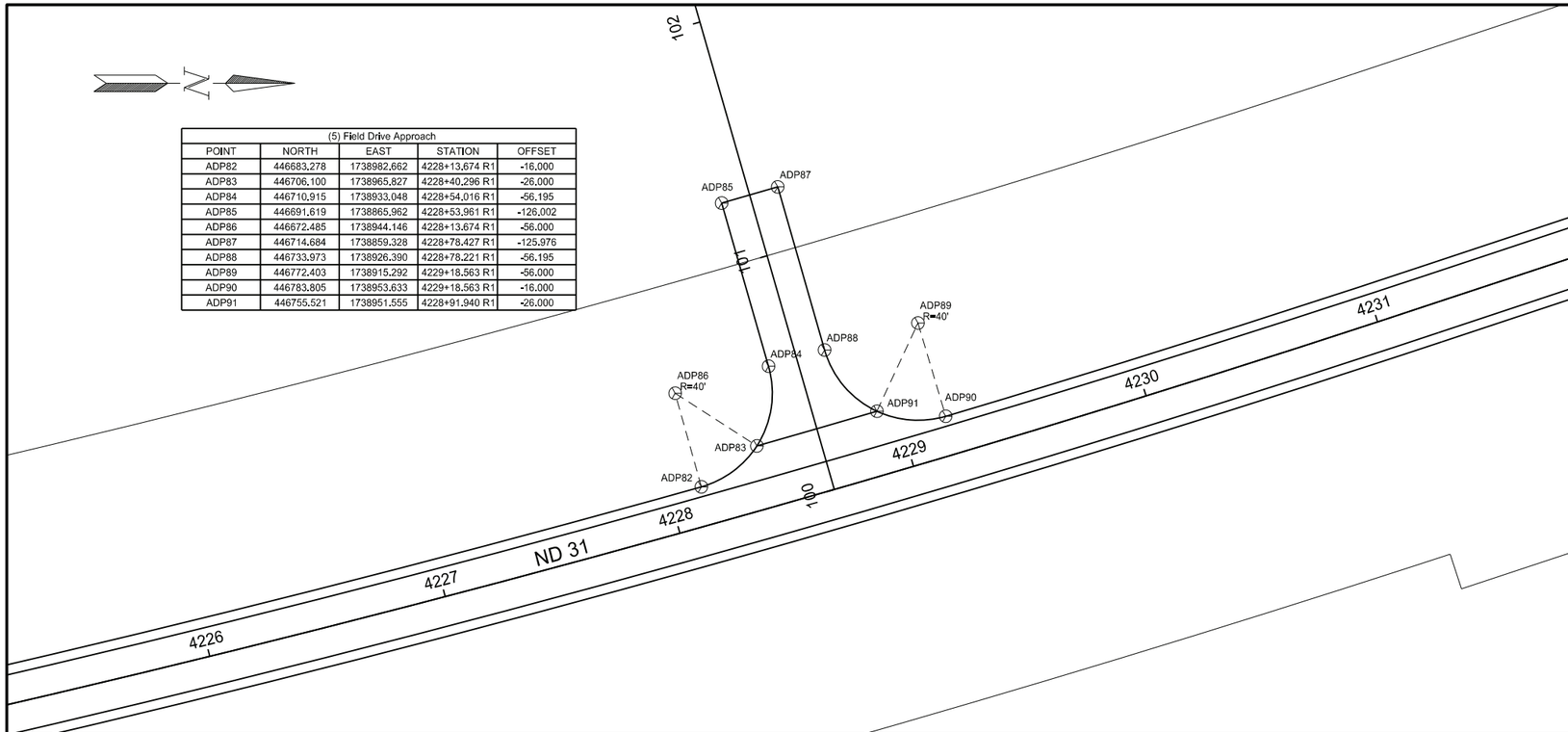
Jct I-94 to Hannover
Morton County

Survey Data Points

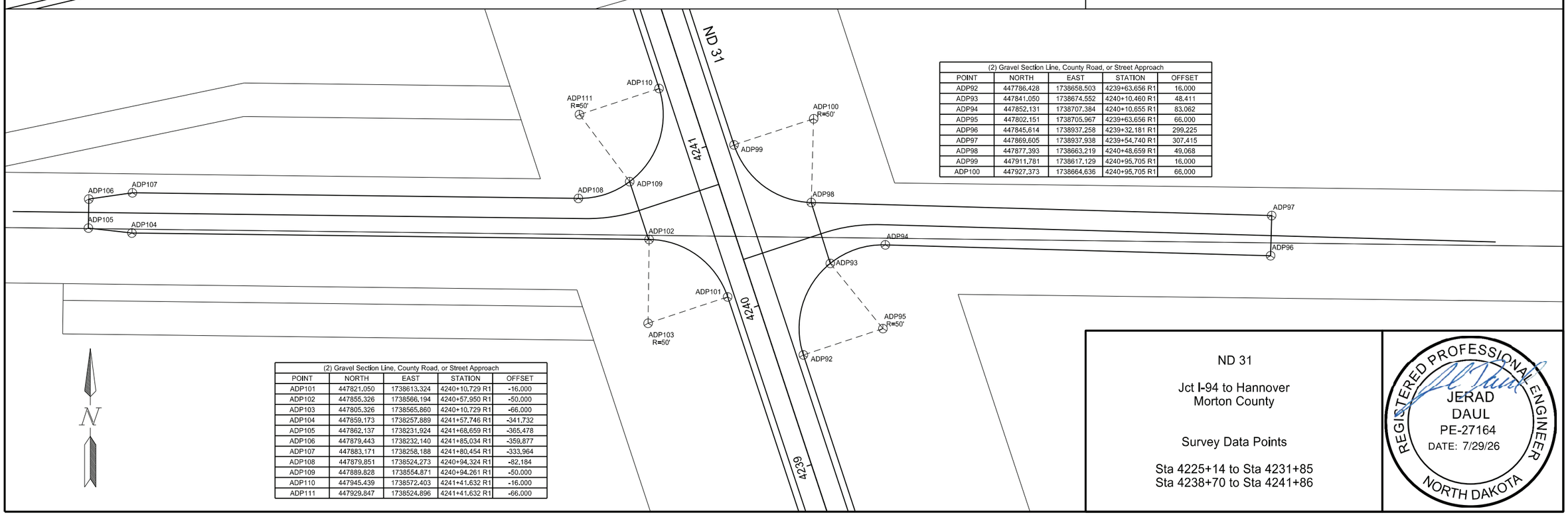
Sta 4182+53 to Sta 4188+98
Sta 4215+00 to Sta 4221+49

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	82	11



(5) Field Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP82	446683.278	1738982.662	4228+13.674 R1	-16.000
ADP83	446706.100	1738965.827	4228+40.296 R1	-26.000
ADP84	446710.915	1738933.048	4228+54.016 R1	-56.195
ADP85	446691.619	1738865.962	4228+53.961 R1	-126.002
ADP86	446672.485	1738944.146	4228+13.674 R1	-56.000
ADP87	446714.684	1738859.328	4228+78.427 R1	-125.976
ADP88	446733.973	1738926.390	4228+78.221 R1	-56.195
ADP89	446772.403	1738915.292	4229+18.563 R1	-56.000
ADP90	446783.805	1738953.633	4229+18.563 R1	-16.000
ADP91	446755.521	1738951.555	4228+91.940 R1	-26.000



(2) Gravel Section Line, County Road, or Street Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP92	447786.428	1738658.503	4239+63.656 R1	16.000
ADP93	447841.050	1738674.552	4240+10.460 R1	48.411
ADP94	447852.131	1738707.384	4240+10.655 R1	83.062
ADP95	447802.151	1738705.967	4239+63.656 R1	66.000
ADP96	447845.614	1738937.258	4239+32.181 R1	299.225
ADP97	447869.605	1738937.938	4239+54.740 R1	307.415
ADP98	447877.393	1738663.219	4240+48.659 R1	49.068
ADP99	447911.781	1738617.129	4240+95.705 R1	16.000
ADP100	447927.373	1738664.636	4240+95.705 R1	66.000

(2) Gravel Section Line, County Road, or Street Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP101	447821.050	1738613.324	4240+10.729 R1	-16.000
ADP102	447855.326	1738566.194	4240+57.950 R1	-50.000
ADP103	447805.326	1738565.860	4240+10.729 R1	-66.000
ADP104	447859.173	1738257.889	4241+57.746 R1	-341.732
ADP105	447862.137	1738231.924	4241+68.659 R1	-365.478
ADP106	447879.443	1738232.140	4241+85.034 R1	-359.877
ADP107	447883.171	1738258.188	4241+80.454 R1	-333.964
ADP108	447879.851	1738524.273	4240+94.324 R1	-82.184
ADP109	447889.828	1738554.871	4240+94.261 R1	-50.000
ADP110	447945.439	1738572.403	4241+41.632 R1	-16.000
ADP111	447929.847	1738524.896	4241+41.632 R1	-66.000

ND 31

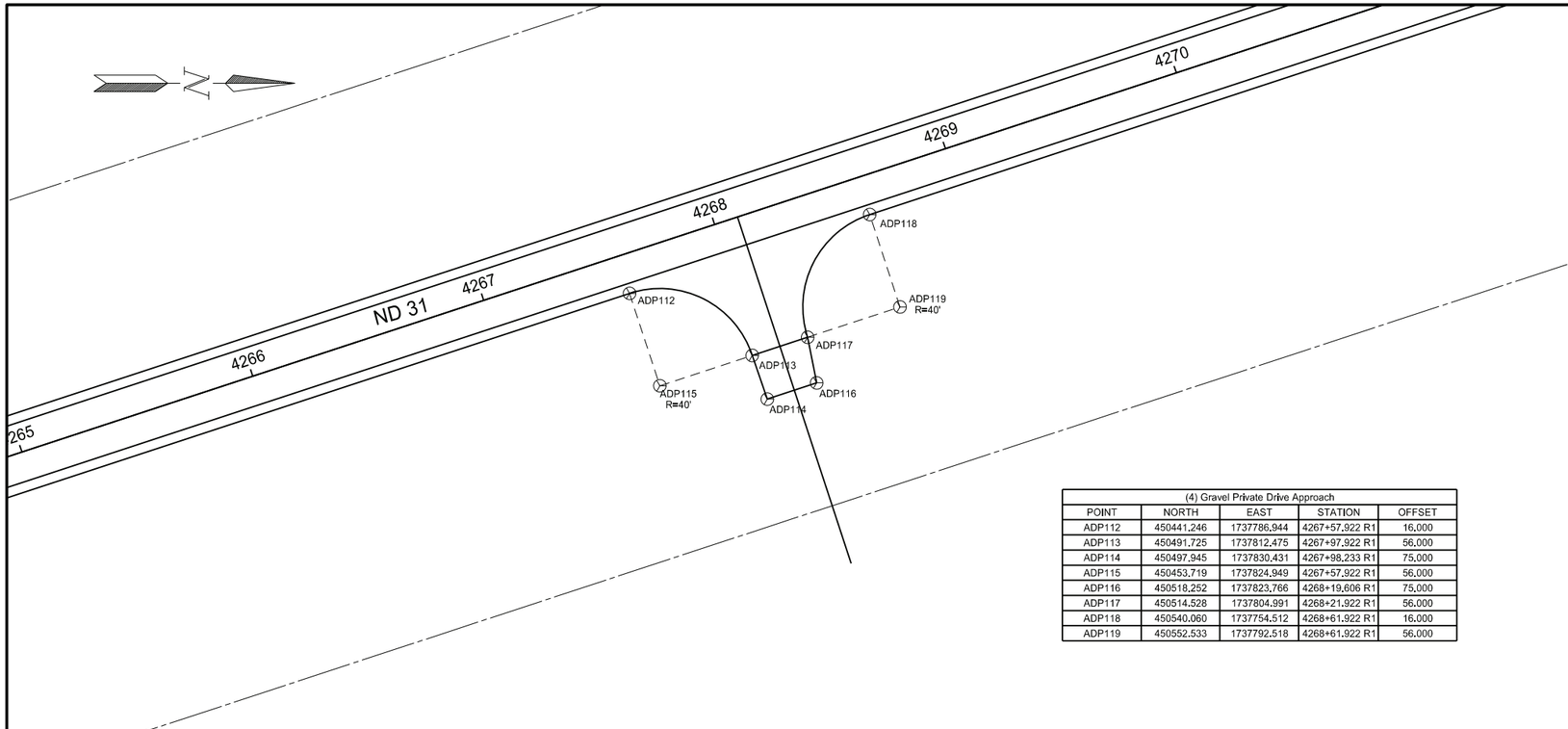
Jct I-94 to Hannover
Morton County

Survey Data Points

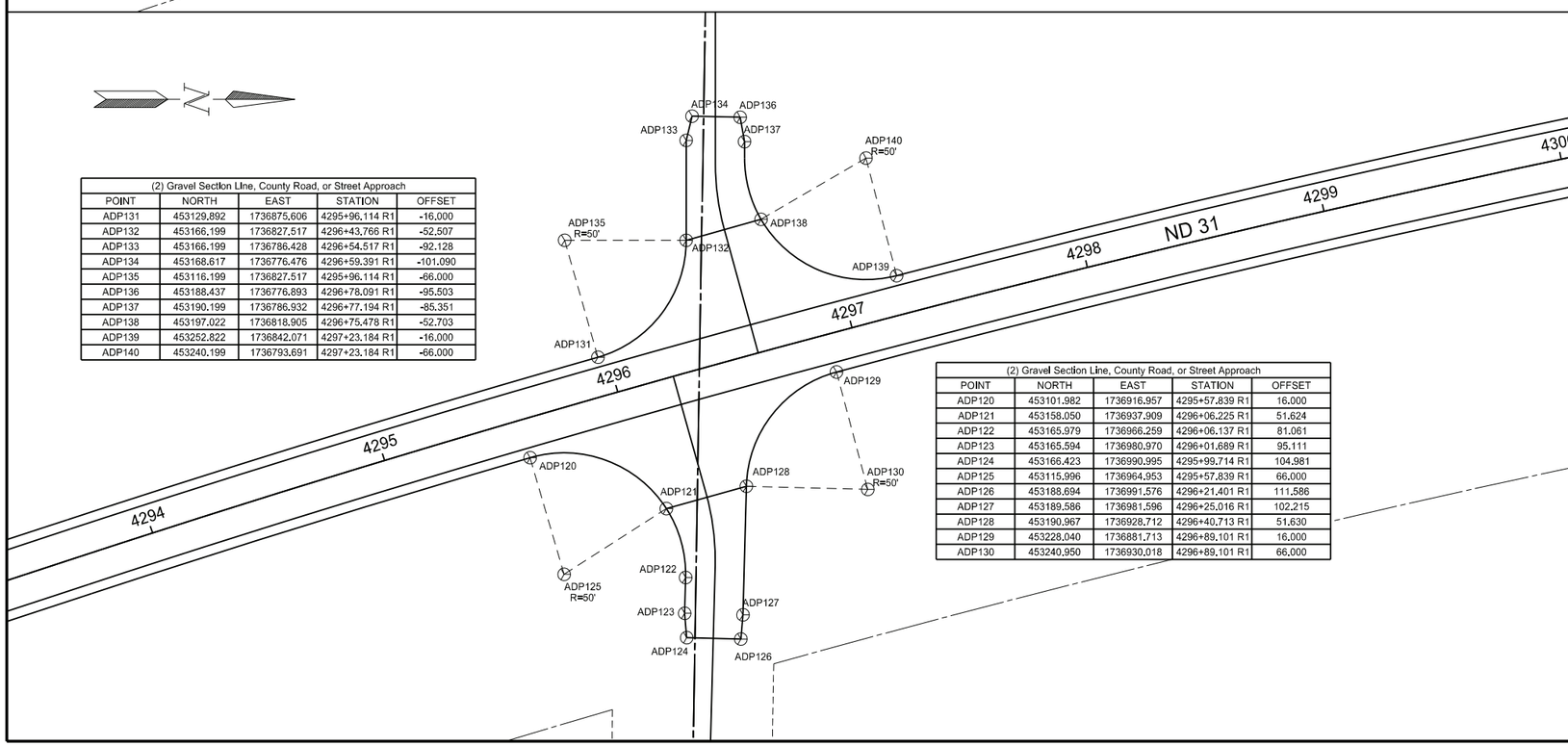
Sta 4225+14 to Sta 4231+85
Sta 4238+70 to Sta 4241+86

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	82	12



(4) Gravel Private Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP112	450441.246	1737786.944	4267+57.922 R1	16.000
ADP113	450491.725	1737812.475	4267+97.922 R1	56.000
ADP114	450497.945	1737830.431	4267+98.233 R1	75.000
ADP115	450453.719	1737824.949	4267+57.922 R1	56.000
ADP116	450518.252	1737823.766	4268+19.606 R1	75.000
ADP117	450514.528	1737804.991	4268+21.922 R1	56.000
ADP118	450540.060	1737754.512	4268+61.922 R1	16.000
ADP119	450552.533	1737792.518	4268+61.922 R1	56.000



(2) Gravel Section Line, County Road, or Street Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP131	453129.892	1736875.606	4295+96.114 R1	-16.000
ADP132	453166.199	1736827.517	4296+43.766 R1	-52.507
ADP133	453166.199	1736786.428	4296+54.517 R1	-92.128
ADP134	453168.617	1736776.476	4296+59.391 R1	-101.090
ADP135	453116.199	1736827.517	4295+96.114 R1	-66.000
ADP136	453188.437	1736776.893	4296+78.091 R1	-95.503
ADP137	453190.199	1736786.932	4296+77.194 R1	-85.351
ADP138	453197.022	1736818.905	4296+75.478 R1	-52.703
ADP139	453252.822	1736842.071	4297+23.184 R1	-16.000
ADP140	453240.199	1736793.691	4297+23.184 R1	-66.000

(2) Gravel Section Line, County Road, or Street Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP120	453101.982	1736916.957	4295+57.839 R1	16.000
ADP121	453158.050	1736937.909	4296+06.225 R1	51.624
ADP122	453165.979	1736966.259	4296+06.137 R1	81.061
ADP123	453165.594	1736980.970	4296+01.689 R1	95.111
ADP124	453166.423	1736990.995	4295+99.714 R1	104.981
ADP125	453115.996	1736964.953	4295+57.839 R1	66.000
ADP126	453188.694	1736991.576	4296+21.401 R1	111.586
ADP127	453189.586	1736981.596	4296+25.016 R1	102.215
ADP128	453190.967	1736928.712	4296+40.713 R1	51.630
ADP129	453228.040	1736881.713	4296+89.101 R1	16.000
ADP130	453240.950	1736930.018	4296+89.101 R1	66.000

ND 31

Jct I-94 to Hannover
Morton County

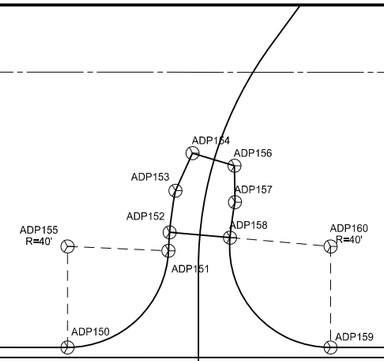
Survey Data Points

Sta 4264+93 to Sta 4270+90
Sta 4293+37 to Sta 4300+05

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	82	13

(4) Gravel Private Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP150	456353.755	1736654.800	4328+35.899 R1	-16.000
ADP151	456393.727	1736616.500	4328+75.863 R1	-54.308
ADP152	456394.201	1736609.229	4328+76.335 R1	-61.580
ADP153	456396.506	1736592.738	4328+78.637 R1	-78.071
ADP154	456403.279	1736577.854	4328+85.407 R1	-92.956
ADP155	456353.763	1736614.800	4328+35.899 R1	-56.000
ADP156	456419.893	1736582.821	4329+02.021 R1	-87.993
ADP157	456420.073	1736597.279	4329+02.205 R1	-73.536
ADP158	456418.109	1736611.326	4329+00.243 R1	-59.487
ADP159	456457.947	1736654.822	4329+40.091 R1	-16.000
ADP160	456457.956	1736614.822	4329+40.091 R1	-56.000



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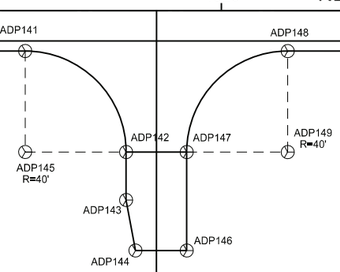
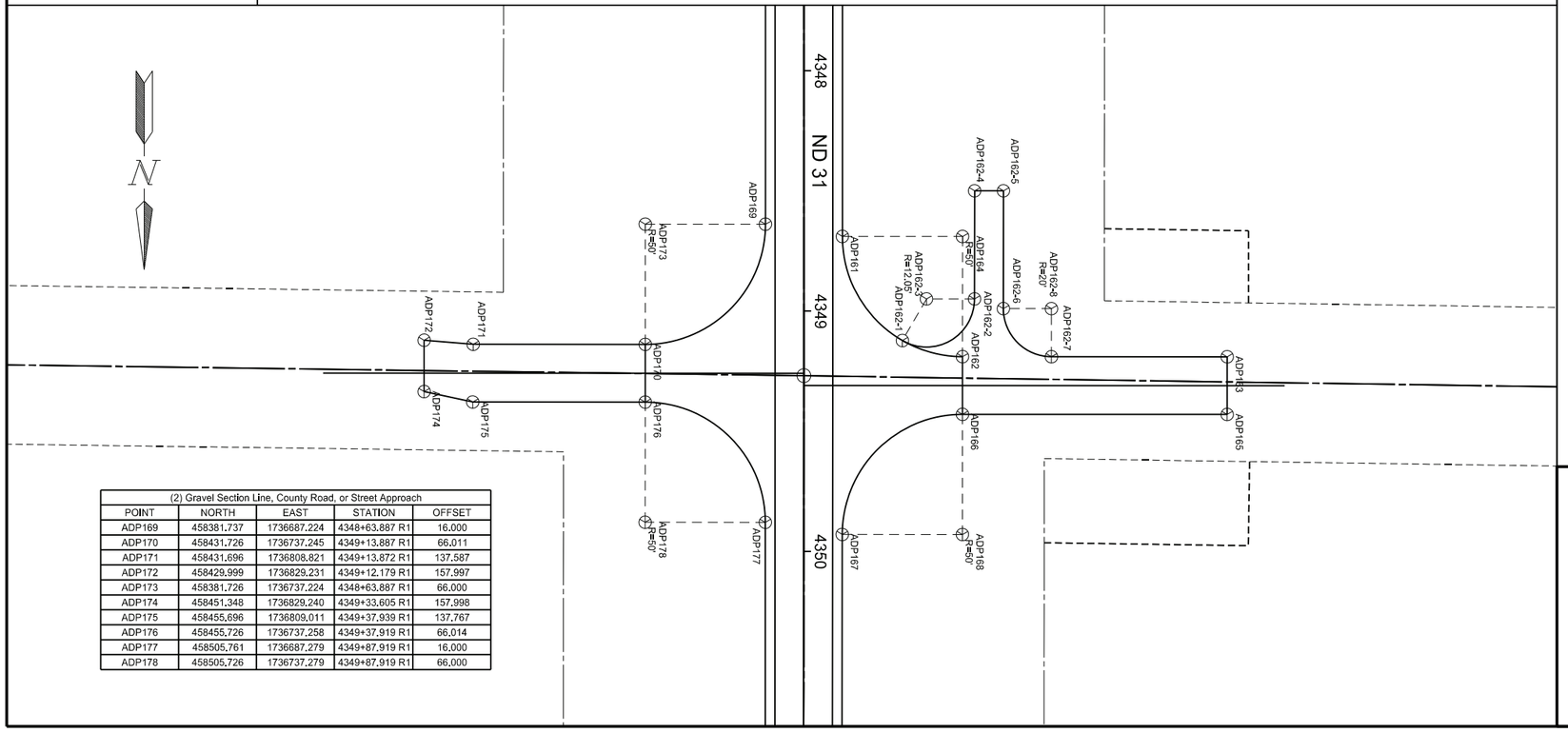


(4) Gravel Private Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP141	455940.099	1736686.714	4324+22.249 R1	16.000
ADP142	455980.091	1736726.722	4324+62.249 R1	56.000
ADP143	455980.087	1736745.722	4324+62.249 R1	75.000
ADP144	455983.779	1736765.723	4324+65.946 R1	95.000
ADP145	455940.091	1736726.714	4324+22.249 R1	56.000
ADP146	456004.083	1736765.727	4324+86.249 R1	95.000
ADP147	456004.091	1736726.727	4324+86.249 R1	56.000
ADP148	456044.099	1736686.736	4325+26.249 R1	16.000
ADP149	456044.091	1736726.736	4325+26.249 R1	56.000



(2) Gravel Section Line, County Road, or Street Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP169	458381.737	1736687.224	4348+63.887 R1	16.000
ADP170	458431.726	1736737.245	4349+13.887 R1	66.011
ADP171	458431.696	1736808.821	4349+13.872 R1	137.587
ADP172	458429.999	1736829.231	4349+12.179 R1	157.997
ADP173	458381.726	1736737.224	4348+63.887 R1	66.000
ADP174	458451.348	1736829.240	4349+33.605 R1	157.998
ADP175	458455.696	1736809.011	4349+37.939 R1	137.767
ADP176	458455.726	1736737.258	4349+37.919 R1	66.014
ADP177	458505.761	1736687.279	4349+87.919 R1	16.000
ADP178	458505.726	1736737.279	4349+87.919 R1	66.000

(2) Gravel Section Line, County Road, or Street Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP161	458386.826	1736655.225	4348+68.969 R1	-16.000
ADP162	458436.836	1736605.246	4349+18.969 R1	-65.989
ADP162-1	458430.127	1736630.243	4349+12.265 R1	-40.991
ADP162-2	458412.819	1736600.236	4348+94.951 R1	-70.994
ADP162-3	458412.811	1736620.236	4348+94.947 R1	-50.994
ADP162-4	458367.838	1736600.217	4348+49.971 R1	-71.004
ADP162-5	458367.843	1736588.217	4348+49.973 R1	-83.004
ADP162-6	458416.843	1736588.238	4348+98.973 R1	-82.994
ADP162-7	458436.852	1736568.246	4349+18.977 R1	-102.989
ADP162-8	458416.852	1736568.238	4348+98.977 R1	-102.994
ADP163	458436.883	1736495.117	4349+18.993 R1	-176.119
ADP164	458386.836	1736605.225	4348+68.969 R1	-66.000
ADP165	458460.883	1736495.122	4349+42.907 R1	-176.127
ADP166	458460.836	1736605.262	4349+42.937 R1	-65.986
ADP167	458510.801	1736655.283	4349+92.937 R1	-16.000
ADP168	458510.836	1736605.283	4349+92.937 R1	-66.000

ND 31

Jct I-94 to Hannover
Morton County

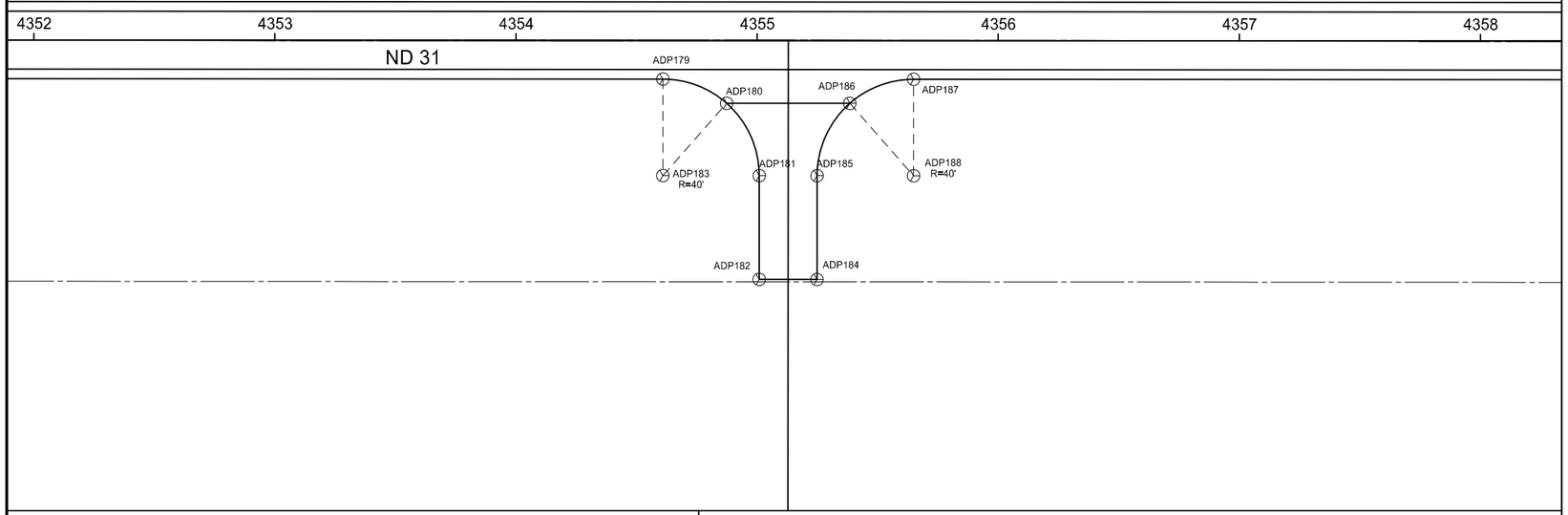
Survey Data Points

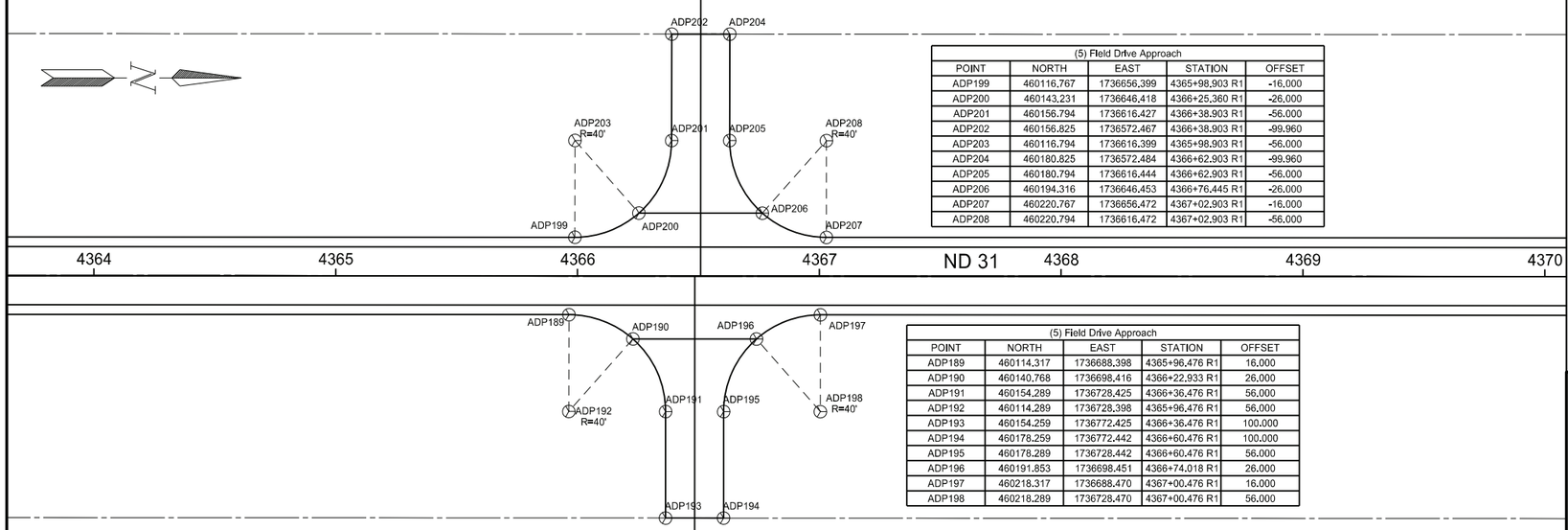
Sta 4323+70 to Sta 4330+15
Sta 4347+73 to Sta 4350+73

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	82	14

(5) Field Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP179	458978.771	1736687.608	4354+60.930 R1	16.000
ADP180	459005.222	1736697.627	4354+87.387 R1	26.000
ADP181	459018.743	1736727.636	4355+00.930 R1	56.000
ADP182	459018.714	1736770.636	4355+00.930 R1	99.000
ADP183	458978.743	1736727.608	4354+60.930 R1	56.000
ADP184	459042.714	1736770.653	4355+24.930 R1	99.000
ADP185	459042.743	1736727.653	4355+24.930 R1	56.000
ADP186	459056.307	1736697.662	4355+38.472 R1	26.000
ADP187	459082.771	1736687.681	4355+64.930 R1	16.000
ADP188	459082.743	1736727.681	4355+64.930 R1	56.000





(5) Field Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP199	460116.767	1736656.399	4365+98.903 R1	-16.000
ADP200	460143.231	1736646.418	4366+25.360 R1	-26.000
ADP201	460156.794	1736616.427	4366+38.903 R1	-56.000
ADP202	460156.825	1736572.467	4366+38.903 R1	-99.960
ADP203	460116.794	1736616.399	4365+98.903 R1	-56.000
ADP204	460180.825	1736572.484	4366+62.903 R1	-99.960
ADP205	460180.794	1736616.444	4366+62.903 R1	-56.000
ADP206	460194.316	1736646.453	4366+76.445 R1	-26.000
ADP207	460220.767	1736656.472	4367+02.903 R1	-16.000
ADP208	460220.794	1736616.472	4367+02.903 R1	-56.000

(5) Field Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP189	460114.317	1736688.398	4365+96.476 R1	16.000
ADP190	460140.768	1736698.416	4366+22.933 R1	26.000
ADP191	460154.289	1736728.425	4366+36.476 R1	56.000
ADP192	460114.289	1736728.398	4365+96.476 R1	56.000
ADP193	460154.259	1736772.425	4366+36.476 R1	100.000
ADP194	460178.259	1736772.442	4366+60.476 R1	100.000
ADP195	460178.289	1736728.442	4366+60.476 R1	56.000
ADP196	460191.853	1736698.451	4366+74.018 R1	26.000
ADP197	460218.317	1736688.470	4367+00.476 R1	16.000
ADP198	460218.289	1736728.470	4367+00.476 R1	56.000

ND 31

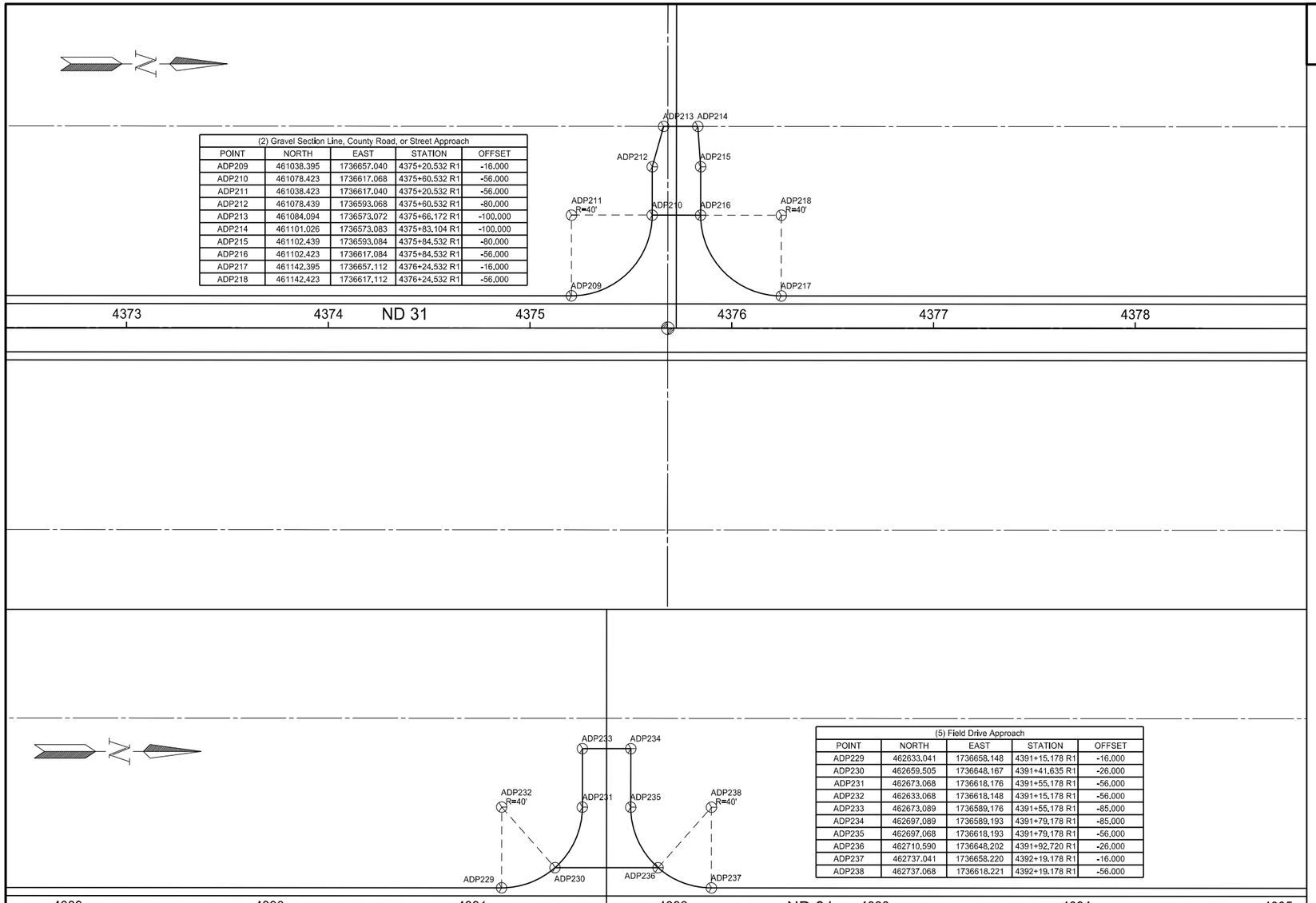
Jct I-94 to Hannover
Morton County

Survey Data Points

Sta 4351+89 to Sta 4358+34
Sta 4363+64 to Sta 4370+09

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	82	15



(2) Gravel Section Line, County Road, or Street Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP209	461038.395	1736657.040	4375+20.532 R1	-16.000
ADP210	461078.423	1736617.068	4375+60.532 R1	-56.000
ADP211	461038.423	1736617.040	4375+20.532 R1	-56.000
ADP212	461078.439	1736593.068	4375+60.532 R1	-80.000
ADP213	461084.094	1736573.072	4375+66.172 R1	-100.000
ADP214	461101.026	1736573.083	4375+83.104 R1	-100.000
ADP215	461102.439	1736593.084	4375+84.532 R1	-80.000
ADP216	461102.423	1736617.084	4375+84.532 R1	-56.000
ADP217	461142.395	1736657.112	4376+24.532 R1	-16.000
ADP218	461142.423	1736617.112	4376+24.532 R1	-56.000

(5) Field Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP229	462633.041	1736658.148	4391+15.178 R1	-16.000
ADP230	462659.505	1736648.167	4391+41.635 R1	-26.000
ADP231	462673.068	1736618.176	4391+55.178 R1	-56.000
ADP232	462633.068	1736618.148	4391+15.178 R1	-56.000
ADP233	462673.089	1736589.176	4391+55.178 R1	-85.000
ADP234	462697.089	1736589.193	4391+79.178 R1	-85.000
ADP235	462697.068	1736618.193	4391+79.178 R1	-56.000
ADP236	462710.590	1736648.202	4391+92.720 R1	-26.000
ADP237	462737.041	1736658.220	4392+19.178 R1	-16.000
ADP238	462737.068	1736618.221	4392+19.178 R1	-56.000

(5) Field Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP219	462631.252	1736690.147	4391+13.411 R1	16.000
ADP220	462657.702	1736700.165	4391+39.868 R1	26.000
ADP221	462671.224	1736730.175	4391+53.411 R1	56.000
ADP222	462671.193	1736774.175	4391+53.411 R1	100.000
ADP223	462631.224	1736730.147	4391+13.411 R1	56.000
ADP224	462695.193	1736774.191	4391+77.411 R1	100.000
ADP225	462695.224	1736730.191	4391+77.411 R1	56.000
ADP226	462708.787	1736700.201	4391+90.953 R1	26.000
ADP227	462735.252	1736690.219	4392+17.411 R1	16.000
ADP228	462735.224	1736730.219	4392+17.411 R1	56.000

ND 31

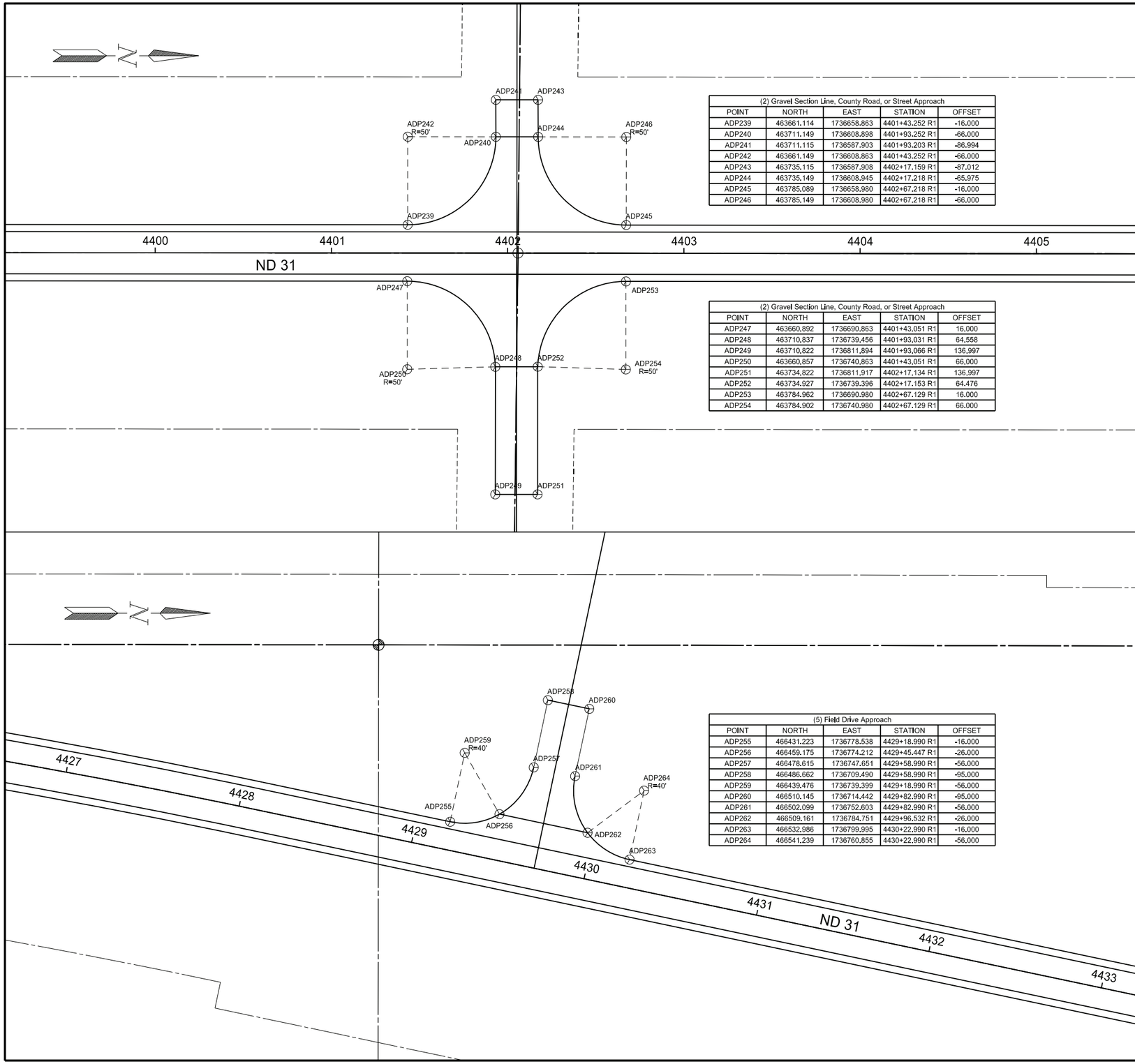
Jct I-94 to Hannover
Morton County

Survey Data Points

Sta 4372+40 to Sta 4378+85
Sta 4388+69 to Sta 4395+14

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	82	16



(2) Gravel Section Line, County Road, or Street Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP239	463661.114	1736658.863	4401+43.252 R1	-16.000
ADP240	463711.149	1736608.898	4401+93.252 R1	-66.000
ADP241	463711.115	1736587.903	4401+93.203 R1	-86.994
ADP242	463661.149	1736608.863	4401+43.252 R1	-66.000
ADP243	463735.115	1736587.908	4402+17.159 R1	-87.012
ADP244	463735.149	1736608.945	4402+17.218 R1	-65.975
ADP245	463785.089	1736658.980	4402+67.218 R1	-16.000
ADP246	463785.149	1736608.980	4402+67.218 R1	-66.000

(2) Gravel Section Line, County Road, or Street Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP247	463660.892	1736690.863	4401+43.051 R1	16.000
ADP248	463710.837	1736739.456	4401+93.031 R1	64.558
ADP249	463710.822	1736811.894	4401+93.066 R1	136.997
ADP250	463660.857	1736740.863	4401+43.051 R1	66.000
ADP251	463734.822	1736811.917	4402+17.134 R1	136.997
ADP252	463734.927	1736739.396	4402+17.153 R1	64.476
ADP253	463784.962	1736690.980	4402+67.129 R1	16.000
ADP254	463784.902	1736740.980	4402+67.129 R1	66.000

(5) Field Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP255	466431.223	1736778.538	4429+18.990 R1	-16.000
ADP256	466459.175	1736774.212	4429+45.447 R1	-26.000
ADP257	466478.615	1736747.651	4429+58.990 R1	-56.000
ADP258	466486.662	1736709.490	4429+58.990 R1	-95.000
ADP259	466439.476	1736739.399	4429+18.990 R1	-56.000
ADP260	466510.145	1736714.442	4429+82.990 R1	-95.000
ADP261	466502.099	1736752.603	4429+82.990 R1	-56.000
ADP262	466509.161	1736784.751	4429+96.532 R1	-26.000
ADP263	466532.986	1736799.995	4430+22.990 R1	-16.000
ADP264	466541.239	1736760.855	4430+22.990 R1	-56.000

ND 31

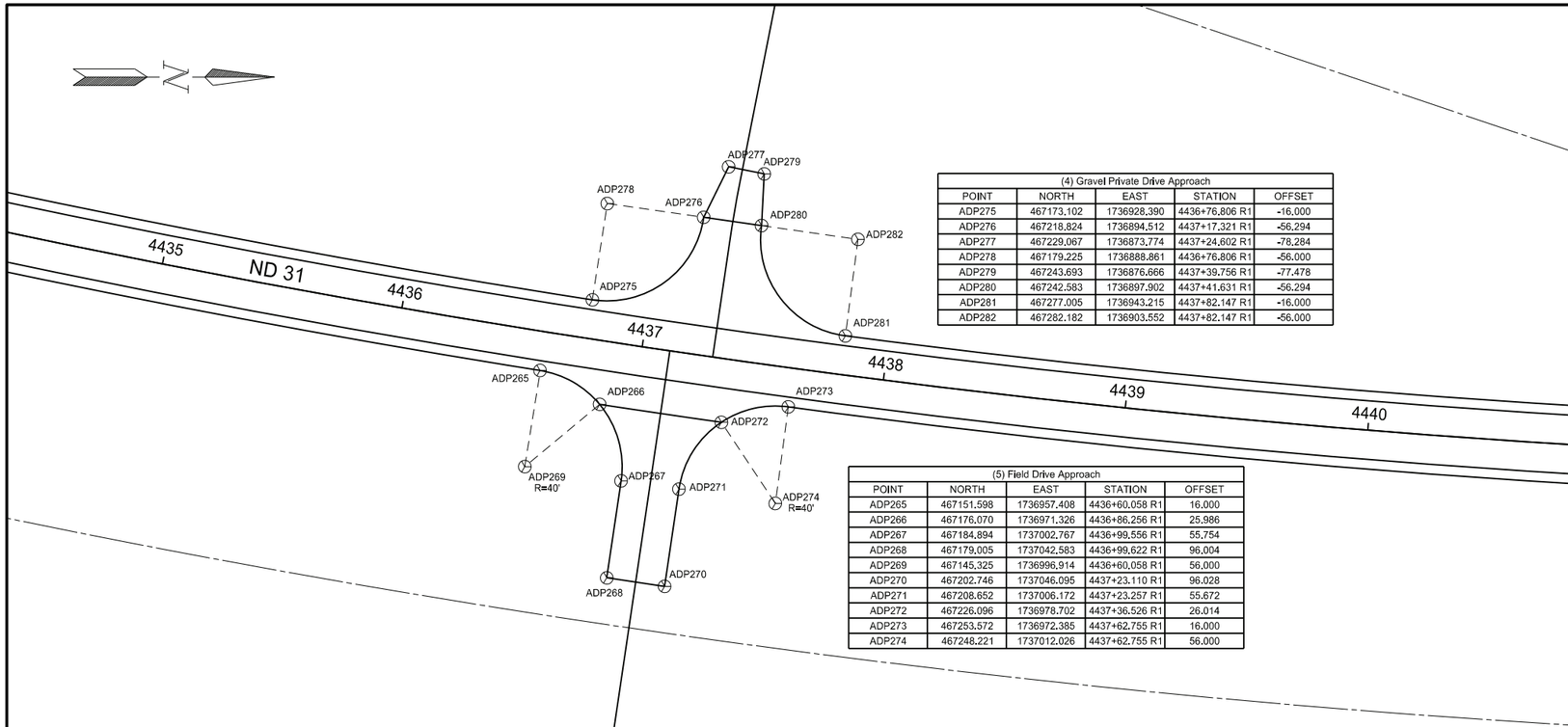
Jct I-94 to Hannover
Morton County

Survey Data Points

Sta 4399+15 to Sta 4405+60
Sta 4426+65 to Sta 4433+23

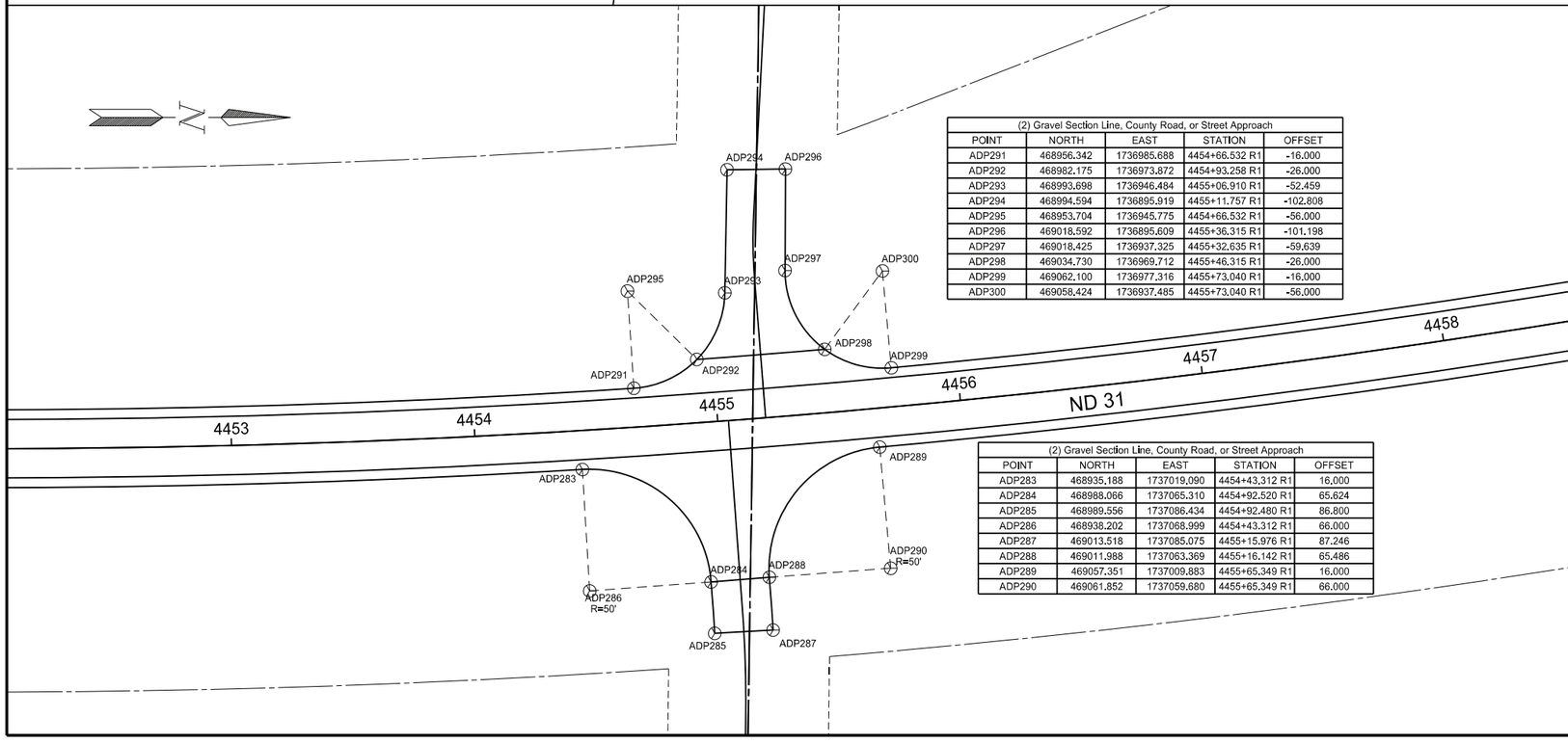
REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	82	17



(4) Gravel Private Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP275	467173.102	1736928.390	4436+76.806 R1	-16.000
ADP276	467218.824	1736894.512	4437+17.321 R1	-56.294
ADP277	467229.067	1736873.774	4437+24.602 R1	-78.284
ADP278	467179.225	1736888.861	4436+76.806 R1	-56.000
ADP279	467243.693	1736876.666	4437+39.756 R1	-77.478
ADP280	467242.583	1736897.902	4437+41.631 R1	-56.294
ADP281	467277.005	1736943.215	4437+82.147 R1	-16.000
ADP282	467282.182	1736903.552	4437+82.147 R1	-56.000

(5) Field Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP265	467151.598	1736957.408	4436+60.058 R1	16.000
ADP266	467176.070	1736971.326	4436+86.256 R1	25.986
ADP267	467184.894	1737002.767	4436+99.556 R1	55.754
ADP268	467179.005	1737042.583	4436+99.622 R1	96.004
ADP269	467145.325	1736996.914	4436+60.058 R1	56.000
ADP270	467202.746	1737046.095	4437+23.110 R1	96.028
ADP271	467208.652	1737006.172	4437+23.257 R1	55.672
ADP272	467226.096	1736978.702	4437+36.526 R1	26.014
ADP273	467253.572	1736972.385	4437+62.755 R1	16.000
ADP274	467248.221	1737012.026	4437+62.755 R1	56.000



(2) Gravel Section Line, County Road, or Street Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP291	468956.342	1736985.688	4454+66.532 R1	-16.000
ADP292	468982.175	1736973.872	4454+93.258 R1	-26.000
ADP293	468993.698	1736946.484	4455+06.910 R1	-52.459
ADP294	468994.594	1736895.919	4455+11.757 R1	-102.808
ADP295	468953.704	1736945.775	4454+66.532 R1	-56.000
ADP296	469018.592	1736895.609	4455+36.315 R1	-101.198
ADP297	469018.425	1736937.325	4455+32.635 R1	-59.639
ADP298	469034.730	1736969.712	4455+46.315 R1	-26.000
ADP299	469062.100	1736977.316	4455+73.040 R1	-16.000
ADP300	469058.424	1736937.485	4455+73.040 R1	-56.000

(2) Gravel Section Line, County Road, or Street Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP283	468935.188	1737019.090	4454+43.312 R1	16.000
ADP284	468988.066	1737065.310	4454+92.520 R1	65.624
ADP285	468989.556	1737086.434	4454+92.480 R1	86.800
ADP286	468938.202	1737068.999	4454+43.312 R1	66.000
ADP287	469013.518	1737085.075	4455+15.976 R1	87.246
ADP288	469011.988	1737063.369	4455+16.142 R1	65.486
ADP289	469057.351	1737009.883	4455+65.349 R1	16.000
ADP290	469061.852	1737059.680	4455+65.349 R1	66.000

ND 31

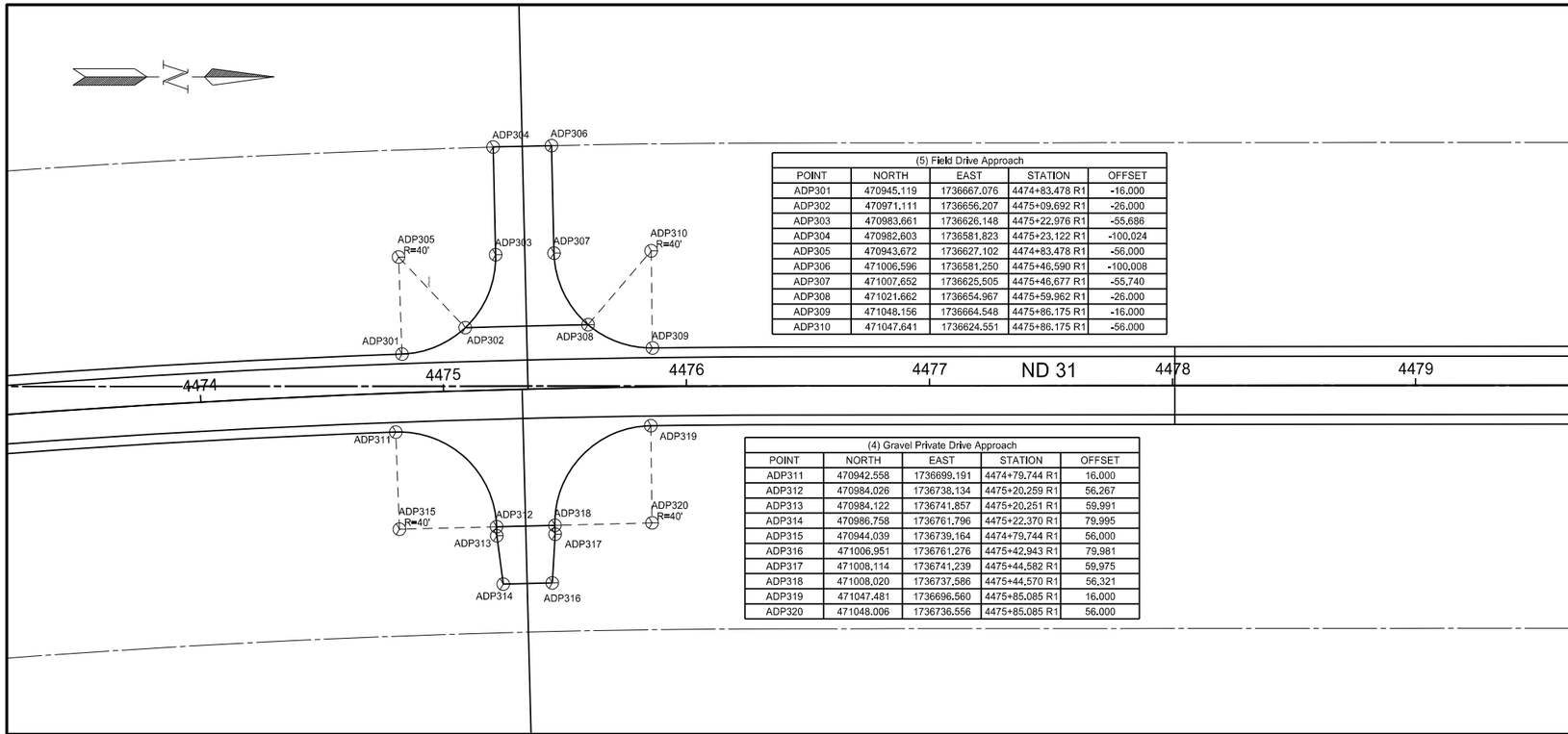
Jct I-94 to Hannover
Morton County

Survey Data Points

Sta 4434+35 to Sta 4440+86
Sta 4452+08 to Sta 4458+55

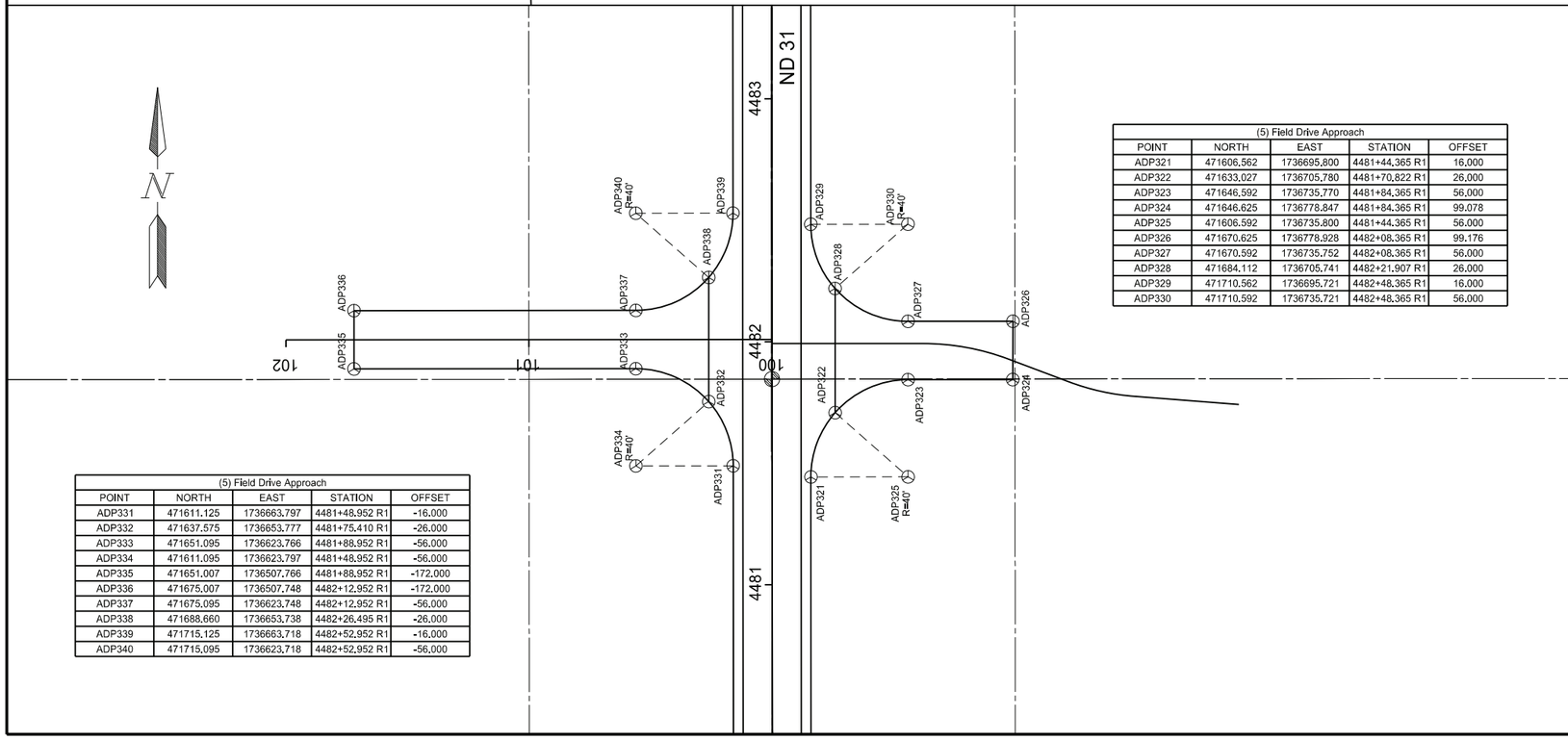
REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	82	18



(5) Field Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP301	470945.119	1736667.076	4474+83.478 R1	-16.000
ADP302	470971.111	1736656.207	4475+09.692 R1	-26.000
ADP303	470983.661	1736626.148	4475+22.976 R1	-55.686
ADP304	470982.603	1736581.823	4475+23.122 R1	-100.024
ADP305	470943.672	1736627.102	4474+83.478 R1	-56.000
ADP306	471006.596	1736581.250	4475+46.590 R1	-100.008
ADP307	471007.652	1736625.505	4475+46.677 R1	-55.740
ADP308	471021.662	1736654.967	4475+59.962 R1	-26.000
ADP309	471048.156	1736664.548	4475+86.175 R1	-16.000
ADP310	471047.641	1736624.551	4475+86.175 R1	-56.000

(4) Gravel Private Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP311	470942.558	1736699.191	4474+79.744 R1	16.000
ADP312	470984.026	1736738.134	4475+20.259 R1	56.267
ADP313	470984.122	1736741.857	4475+20.251 R1	59.991
ADP314	470986.758	1736761.796	4475+22.370 R1	79.995
ADP315	470944.039	1736739.164	4474+79.744 R1	56.000
ADP316	471006.951	1736761.276	4475+42.943 R1	79.981
ADP317	471008.114	1736741.239	4475+44.582 R1	59.975
ADP318	471008.020	1736737.586	4475+44.570 R1	56.321
ADP319	471047.481	1736696.560	4475+85.085 R1	16.000
ADP320	471048.006	1736736.556	4475+85.085 R1	56.000



(5) Field Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP321	471606.562	1736695.800	4481+44.365 R1	16.000
ADP322	471633.027	1736705.780	4481+70.822 R1	26.000
ADP323	471646.592	1736735.770	4481+84.365 R1	56.000
ADP324	471646.625	1736778.847	4481+84.365 R1	99.078
ADP325	471606.592	1736735.800	4481+44.365 R1	56.000
ADP326	471670.625	1736778.928	4482+08.365 R1	99.176
ADP327	471670.592	1736735.752	4482+08.365 R1	56.000
ADP328	471684.112	1736705.741	4482+21.907 R1	26.000
ADP329	471710.562	1736695.721	4482+48.365 R1	16.000
ADP330	471710.592	1736735.721	4482+48.365 R1	56.000

(5) Field Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP331	471611.125	1736663.797	4481+48.952 R1	-16.000
ADP332	471637.575	1736653.777	4481+75.410 R1	-26.000
ADP333	471651.095	1736623.766	4481+88.952 R1	-56.000
ADP334	471611.095	1736623.797	4481+48.952 R1	-56.000
ADP335	471651.007	1736507.766	4481+88.952 R1	-172.000
ADP336	471675.007	1736507.748	4482+12.952 R1	-172.000
ADP337	471675.095	1736623.748	4482+12.952 R1	-56.000
ADP338	471688.660	1736653.738	4482+26.495 R1	-26.000
ADP339	471715.125	1736663.718	4482+52.952 R1	-16.000
ADP340	471715.095	1736623.718	4482+52.952 R1	-56.000

ND 31

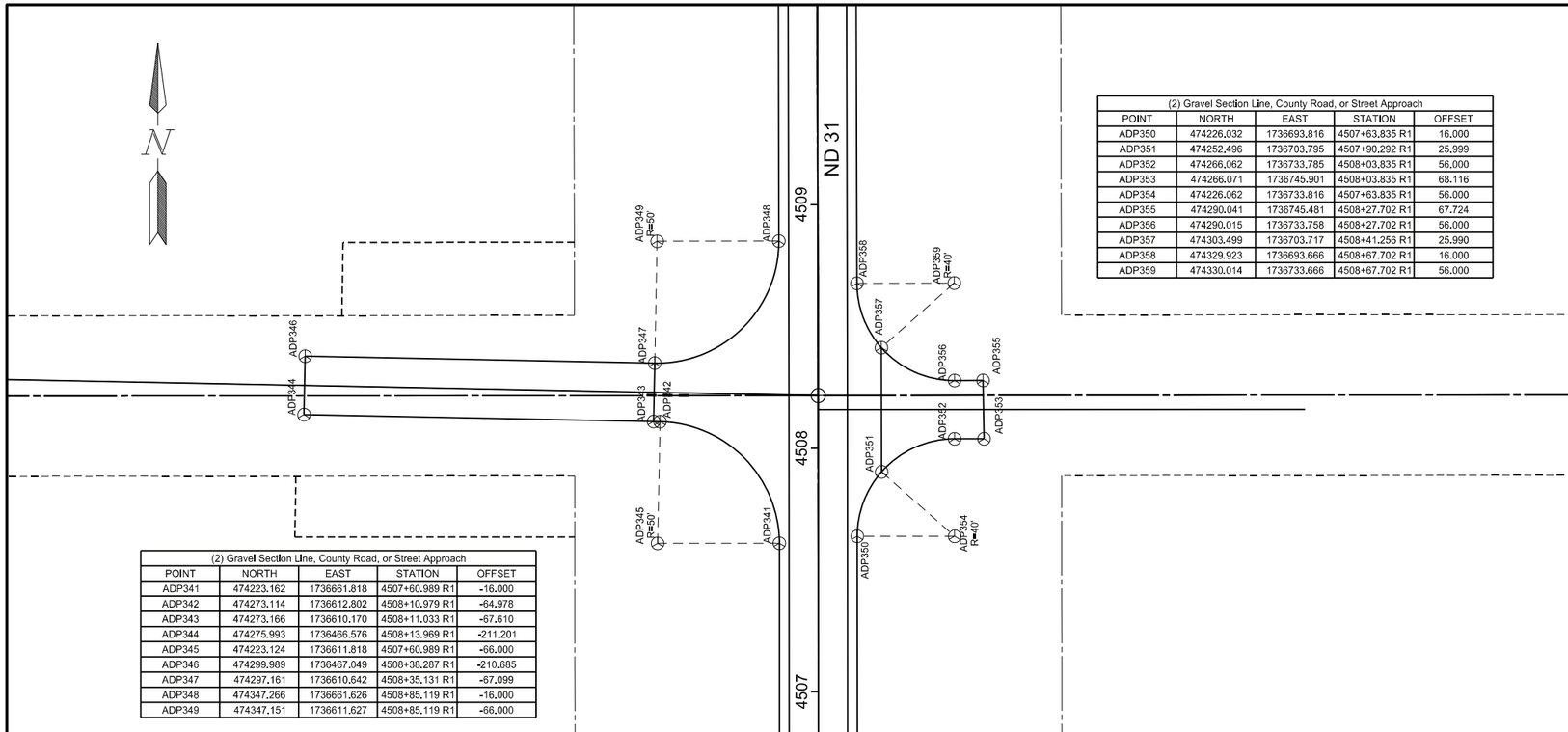
Jct I-94 to Hannover
Morton County

Survey Data Points

Sta 4473+20 to Sta 4479+65
Sta 4480+38 to Sta 4483+38

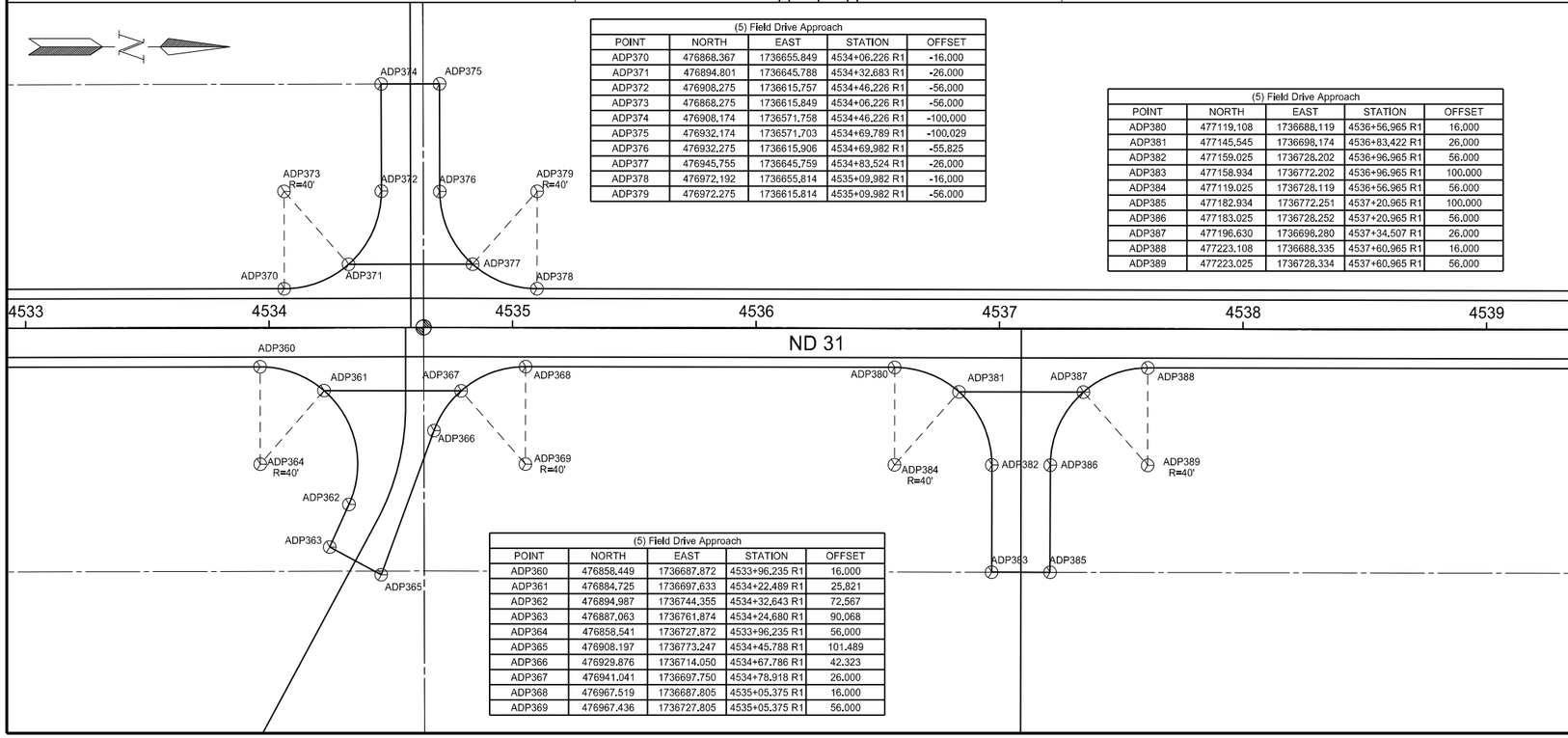
REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	82	19



(2) Gravel Section Line, County Road, or Street Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP350	474226.032	1736693.816	4507+63.835 R1	16.000
ADP351	474252.496	1736703.795	4507+90.292 R1	25.999
ADP352	474266.062	1736733.785	4508+03.835 R1	56.000
ADP353	474266.071	1736745.901	4508+03.835 R1	68.116
ADP354	474226.062	1736733.816	4507+63.835 R1	56.000
ADP355	474290.041	1736745.481	4508+27.702 R1	67.724
ADP356	474290.015	1736733.758	4508+27.702 R1	56.000
ADP357	474303.499	1736703.717	4508+41.256 R1	25.990
ADP358	474329.923	1736693.666	4508+67.702 R1	16.000
ADP359	474330.014	1736733.666	4508+67.702 R1	56.000

(2) Gravel Section Line, County Road, or Street Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP341	474223.162	1736661.818	4507+60.989 R1	-16.000
ADP342	474273.114	1736612.802	4508+10.979 R1	-64.978
ADP343	474273.166	1736610.170	4508+11.033 R1	-67.610
ADP344	474275.993	1736466.576	4508+13.969 R1	-211.201
ADP345	474223.124	1736611.818	4507+60.989 R1	-66.000
ADP346	474299.989	1736467.049	4508+38.287 R1	-210.685
ADP347	474297.161	1736610.642	4508+35.131 R1	-67.099
ADP348	474347.266	1736661.626	4508+85.119 R1	-16.000
ADP349	474347.151	1736611.627	4508+85.119 R1	-66.000



(5) Field Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP370	476868.367	1736655.849	4534+06.226 R1	-16.000
ADP371	476894.801	1736645.788	4534+32.683 R1	-26.000
ADP372	476908.275	1736615.757	4534+46.226 R1	-56.000
ADP373	476868.275	1736615.849	4534+06.226 R1	-56.000
ADP374	476908.174	1736571.758	4534+46.226 R1	-100.000
ADP375	476932.174	1736571.703	4534+69.789 R1	-100.029
ADP376	476932.275	1736615.906	4534+69.982 R1	-55.825
ADP377	476945.755	1736645.759	4534+83.524 R1	-26.000
ADP378	476972.192	1736655.814	4535+09.982 R1	-16.000
ADP379	476972.275	1736615.814	4535+09.982 R1	-56.000

(5) Field Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP380	477119.108	1736688.119	4536+56.965 R1	16.000
ADP381	477145.545	1736698.174	4536+83.422 R1	26.000
ADP382	477159.025	1736728.202	4536+96.965 R1	56.000
ADP383	477158.934	1736772.202	4536+96.965 R1	100.000
ADP384	477119.025	1736728.119	4536+56.965 R1	56.000
ADP385	477182.934	1736772.251	4537+20.965 R1	100.000
ADP386	477183.025	1736728.252	4537+20.965 R1	56.000
ADP387	477196.630	1736698.280	4537+34.507 R1	26.000
ADP388	477223.108	1736688.335	4537+60.965 R1	16.000
ADP389	477223.025	1736728.334	4537+60.965 R1	56.000

(5) Field Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP360	476858.449	1736687.872	4533+96.235 R1	16.000
ADP361	476884.725	1736697.633	4534+22.489 R1	25.821
ADP362	476894.987	1736744.355	4534+32.643 R1	72.567
ADP363	476887.063	1736761.874	4534+24.680 R1	90.068
ADP364	476858.541	1736727.872	4533+96.235 R1	56.000
ADP365	476908.197	1736773.247	4534+45.788 R1	101.489
ADP366	476929.876	1736714.050	4534+67.786 R1	42.323
ADP367	476941.041	1736697.750	4534+78.918 R1	26.000
ADP368	476967.519	1736687.805	4535+05.375 R1	16.000
ADP369	476967.436	1736727.805	4535+05.375 R1	56.000

ND 31

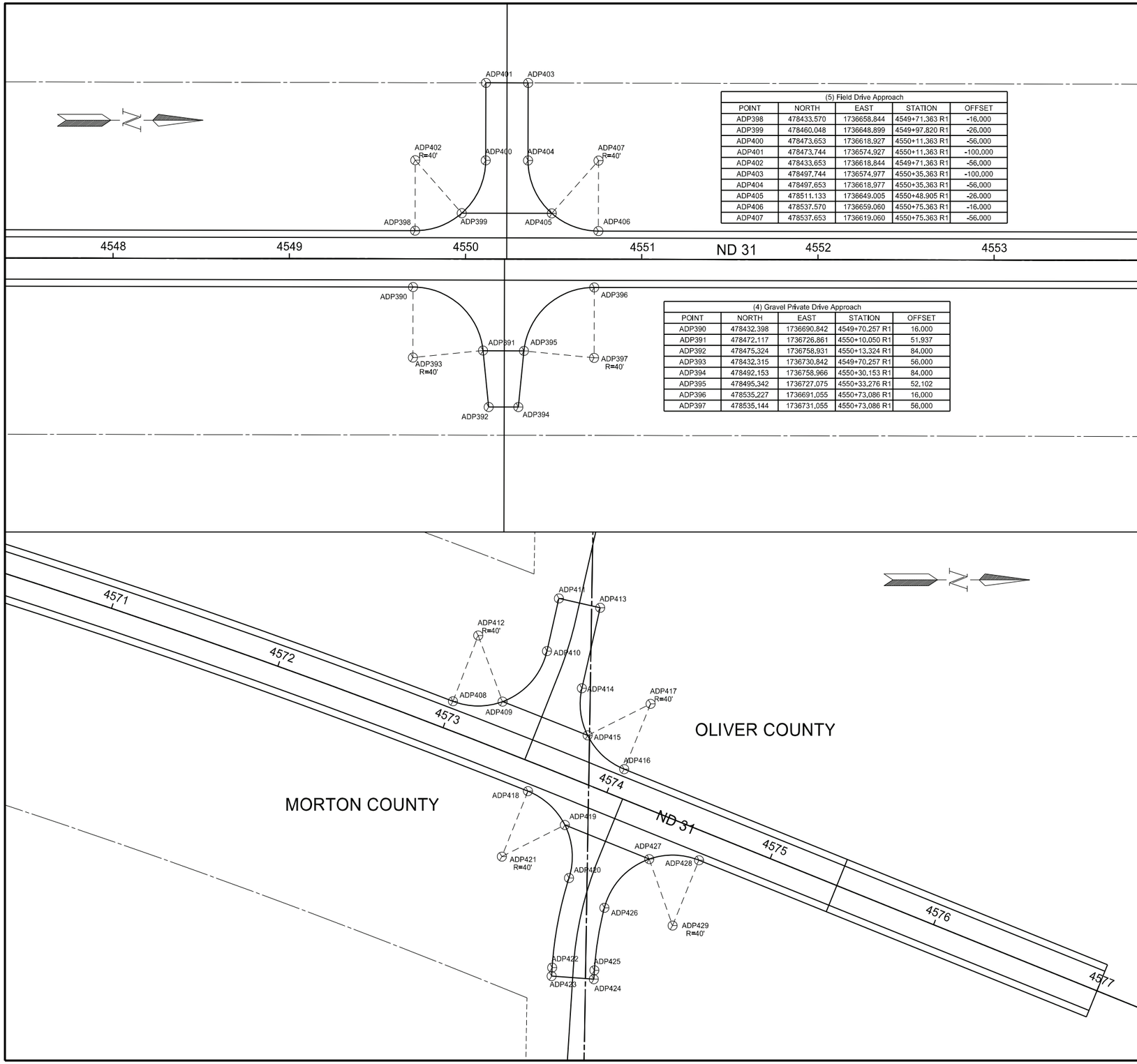
Jct I-94 to Hannover
Morton County

Survey Data Points

Sta 4506+82 to Sta 4509+82
Sta 4532+92 to Sta 4539+37

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	82	20



(5) Field Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP398	478433.570	1736658.844	4549+71.363 R1	-16.000
ADP399	478460.048	1736648.899	4549+97.820 R1	-26.000
ADP400	478473.653	1736618.927	4550+11.363 R1	-56.000
ADP401	478473.744	1736574.927	4550+11.363 R1	-100.000
ADP402	478433.653	1736618.844	4549+71.363 R1	-56.000
ADP403	478497.744	1736574.977	4550+35.363 R1	-100.000
ADP404	478497.653	1736618.977	4550+35.363 R1	-56.000
ADP405	478511.133	1736649.005	4550+48.905 R1	-26.000
ADP406	478537.570	1736659.060	4550+75.363 R1	-16.000
ADP407	478537.653	1736619.060	4550+75.363 R1	-56.000

(4) Gravel Private Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP390	478432.398	1736690.842	4549+70.257 R1	16.000
ADP391	478472.117	1736726.861	4550+10.050 R1	51.937
ADP392	478475.324	1736758.931	4550+13.324 R1	84.000
ADP393	478432.315	1736730.842	4549+70.257 R1	56.000
ADP394	478492.153	1736758.966	4550+30.153 R1	84.000
ADP395	478495.342	1736727.075	4550+33.276 R1	52.102
ADP396	478535.227	1736691.055	4550+73.086 R1	16.000
ADP397	478535.144	1736731.055	4550+73.086 R1	56.000

(5) Field Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP408	480729.812	1736970.368	4572+99.878 R1	-16.000
ADP409	480757.990	1736970.563	4573+26.104 R1	-26.000
ADP410	480783.170	1736941.876	4573+38.944 R1	-61.901
ADP411	480789.951	1736911.972	4573+34.384 R1	-92.212
ADP412	480744.160	1736933.030	4572+99.878 R1	-56.000
ADP413	480813.357	1736917.280	4573+57.630 R1	-95.889
ADP414	480802.991	1736962.987	4573+64.848 R1	-49.598
ADP415	480806.222	1736989.719	4573+77.712 R1	-26.000
ADP416	480826.995	1737008.912	4574+04.143 R1	-16.000
ADP417	480842.001	1736971.834	4574+04.143 R1	-56.000

(5) Field Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP418	480772.378	1737021.396	4573+58.117 R1	16.000
ADP419	480793.302	1737040.585	4573+84.794 R1	26.000
ADP420	480795.677	1737070.689	4573+98.290 R1	53.014
ADP421	480757.564	1737058.551	4573+58.117 R1	56.000
ADP422	480786.109	1737121.552	4574+08.502 R1	103.751
ADP423	480785.803	1737126.362	4574+10.023 R1	108.324
ADP424	480809.740	1737128.123	4574+32.872 R1	100.977
ADP425	480810.061	1737123.077	4574+31.276 R1	96.179
ADP426	480815.756	1737087.616	4574+23.252 R1	61.172
ADP427	480841.193	1737059.968	4574+36.459 R1	26.000
ADP428	480869.470	1737060.624	4574+62.916 R1	16.000
ADP429	480854.463	1737097.702	4574+62.916 R1	56.000

ND 31

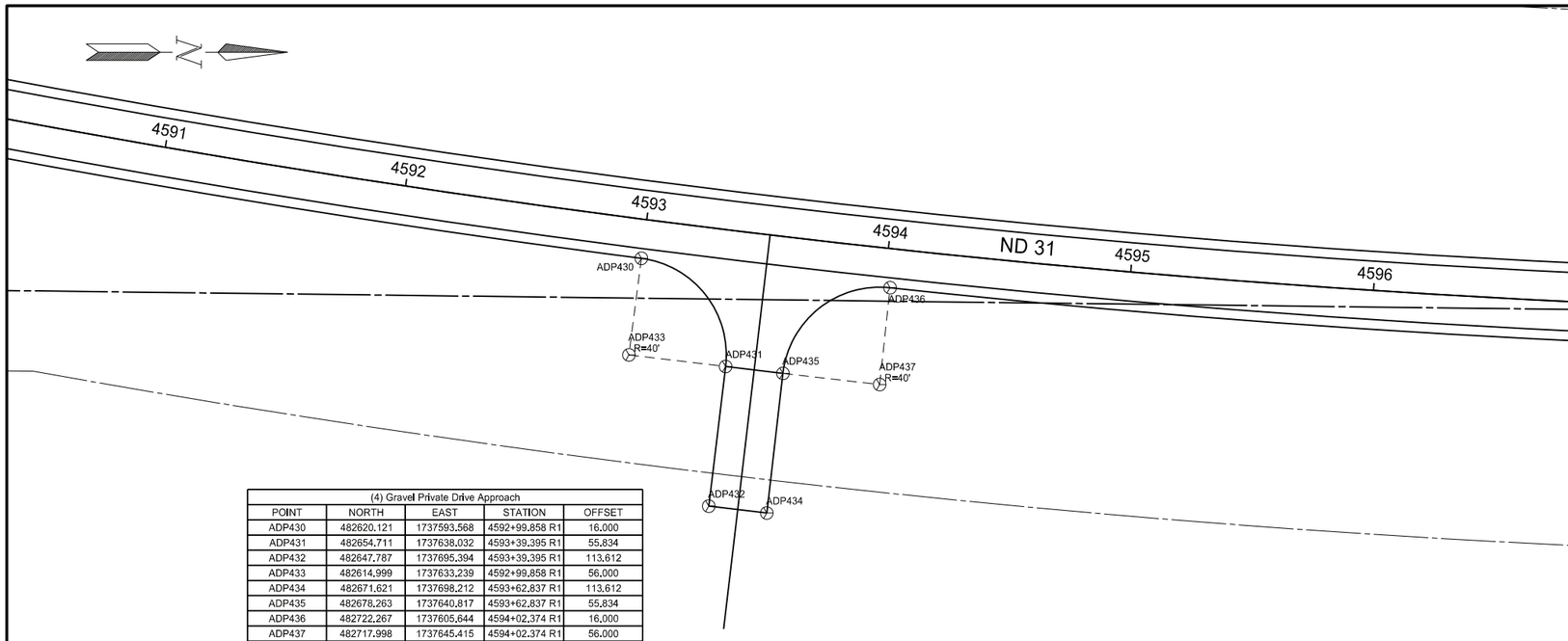
Jct I-94 to Hannover
Morton County

Survey Data Points

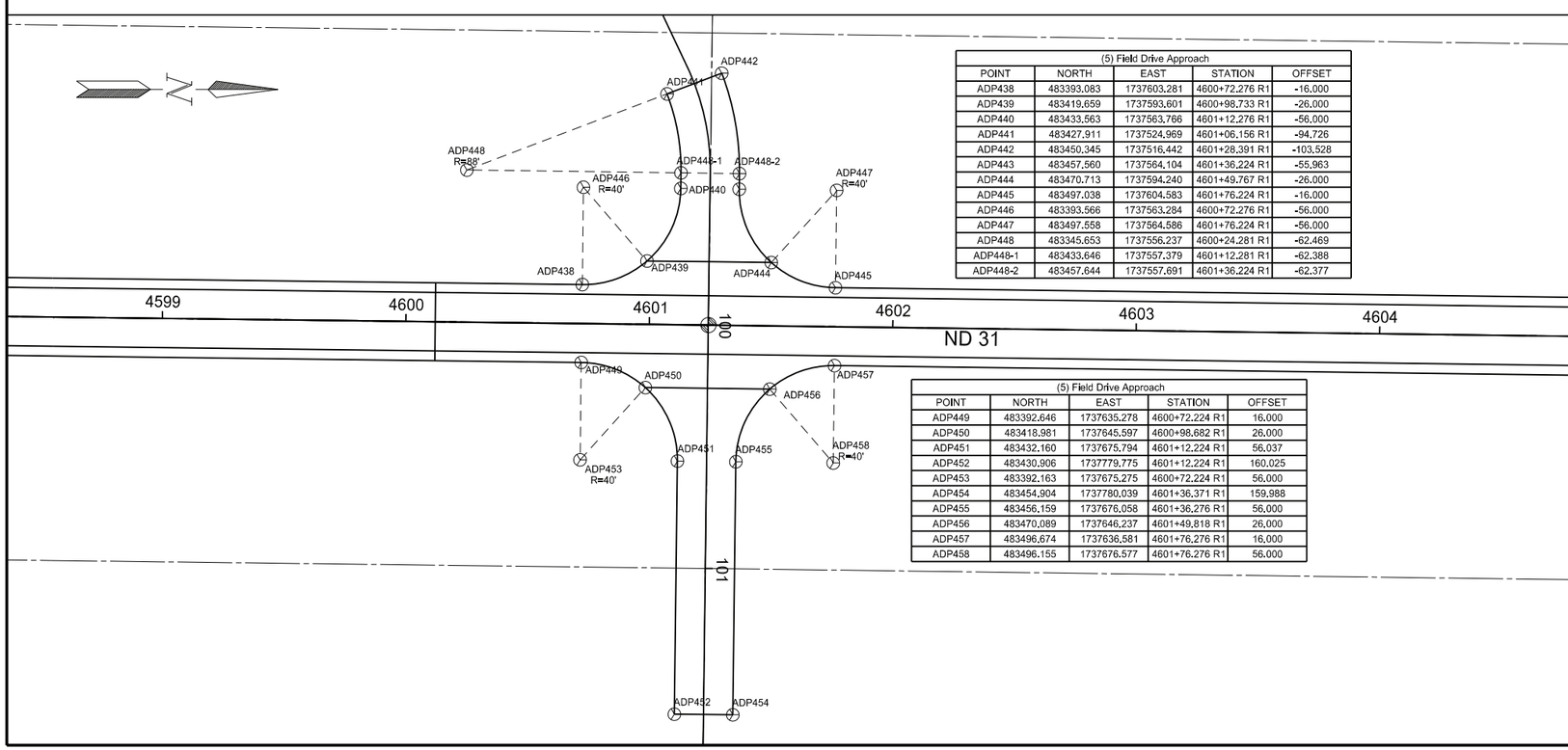
Sta 4547+39 to Sta 4553+84
Sta 4570+36 to Sta 4577+30

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	82	21



(4) Gravel Private Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP430	482620.121	1737593.568	4592+99.858 R1	16.000
ADP431	482654.711	1737638.032	4593+39.395 R1	55.834
ADP432	482647.787	1737695.394	4593+39.395 R1	113.612
ADP433	482614.999	1737633.239	4592+99.858 R1	56.000
ADP434	482671.621	1737698.212	4593+62.837 R1	113.612
ADP435	482678.263	1737640.817	4593+62.837 R1	55.834
ADP436	482722.267	1737605.644	4594+02.374 R1	16.000
ADP437	482717.998	1737645.415	4594+02.374 R1	56.000



(5) Field Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP438	483393.083	1737603.281	4600+72.276 R1	-16.000
ADP439	483419.659	1737593.601	4600+98.733 R1	-26.000
ADP440	483433.563	1737563.766	4601+12.276 R1	-56.000
ADP441	483427.911	1737524.969	4601+06.156 R1	-94.726
ADP442	483450.345	1737516.442	4601+28.391 R1	-103.528
ADP443	483457.560	1737564.104	4601+36.224 R1	-55.963
ADP444	483470.713	1737594.240	4601+49.767 R1	-26.000
ADP445	483497.038	1737604.583	4601+76.224 R1	-16.000
ADP446	483393.566	1737563.284	4600+72.276 R1	-56.000
ADP447	483497.558	1737564.586	4601+76.224 R1	-56.000
ADP448	483345.653	1737556.237	4600+24.281 R1	-62.469
ADP448-1	483433.646	1737557.379	4601+12.281 R1	-62.388
ADP448-2	483457.644	1737557.691	4601+36.224 R1	-62.377

(5) Field Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP449	483392.646	1737635.278	4600+72.224 R1	16.000
ADP450	483418.981	1737645.597	4600+98.682 R1	26.000
ADP451	483432.160	1737675.794	4601+12.224 R1	56.037
ADP452	483430.906	1737779.775	4601+12.224 R1	160.025
ADP453	483392.163	1737675.275	4600+72.224 R1	56.000
ADP454	483454.904	1737780.039	4601+36.371 R1	159.988
ADP455	483456.159	1737676.058	4601+36.276 R1	56.000
ADP456	483470.089	1737646.237	4601+49.818 R1	26.000
ADP457	483496.674	1737636.581	4601+76.276 R1	16.000
ADP458	483496.155	1737676.577	4601+76.276 R1	56.000

ND 31

Jct I-94 to Hannover
Oliver County

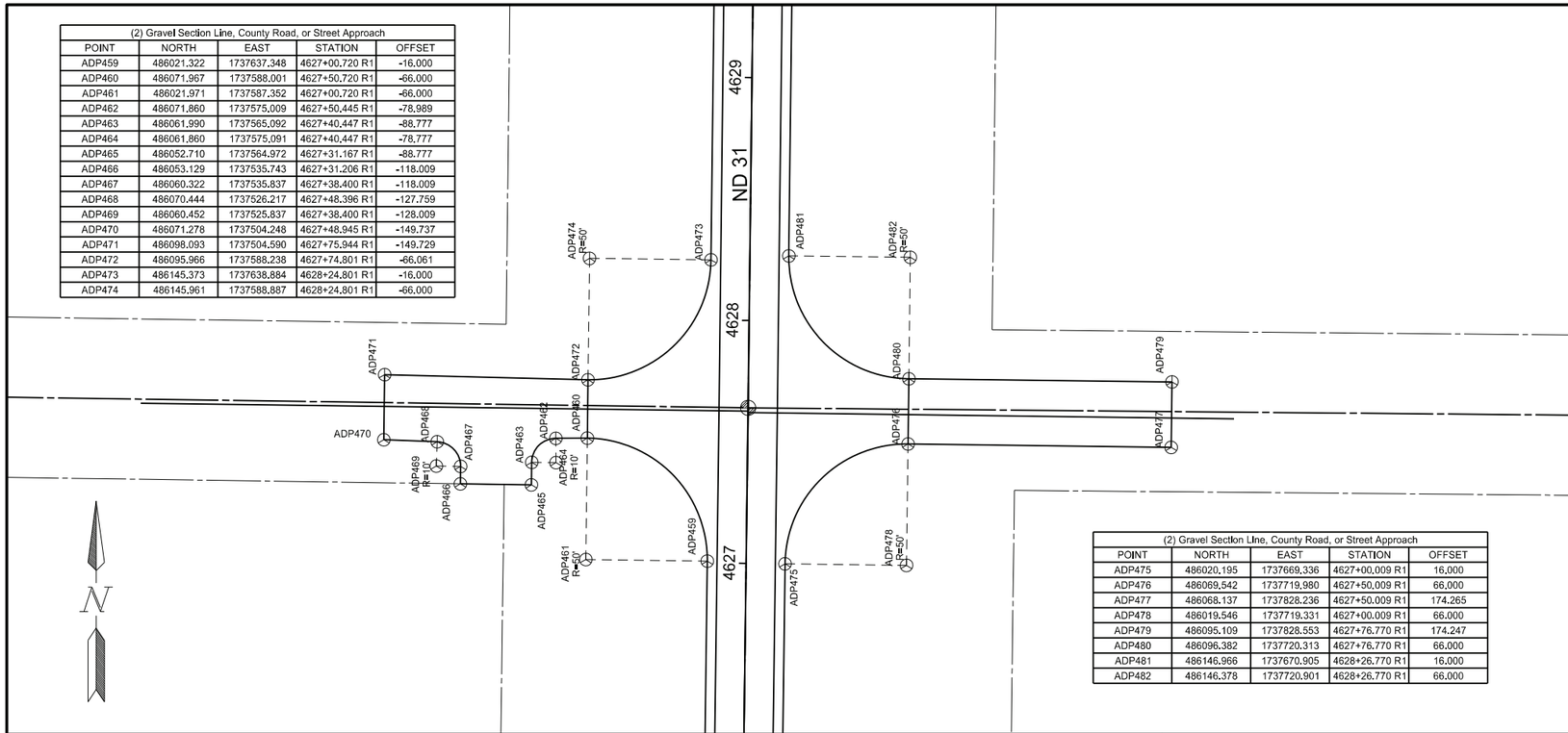
Survey Data Points

Sta 4590+34 to Sta 4596+84
Sta 4598+36 to Sta 4604+81

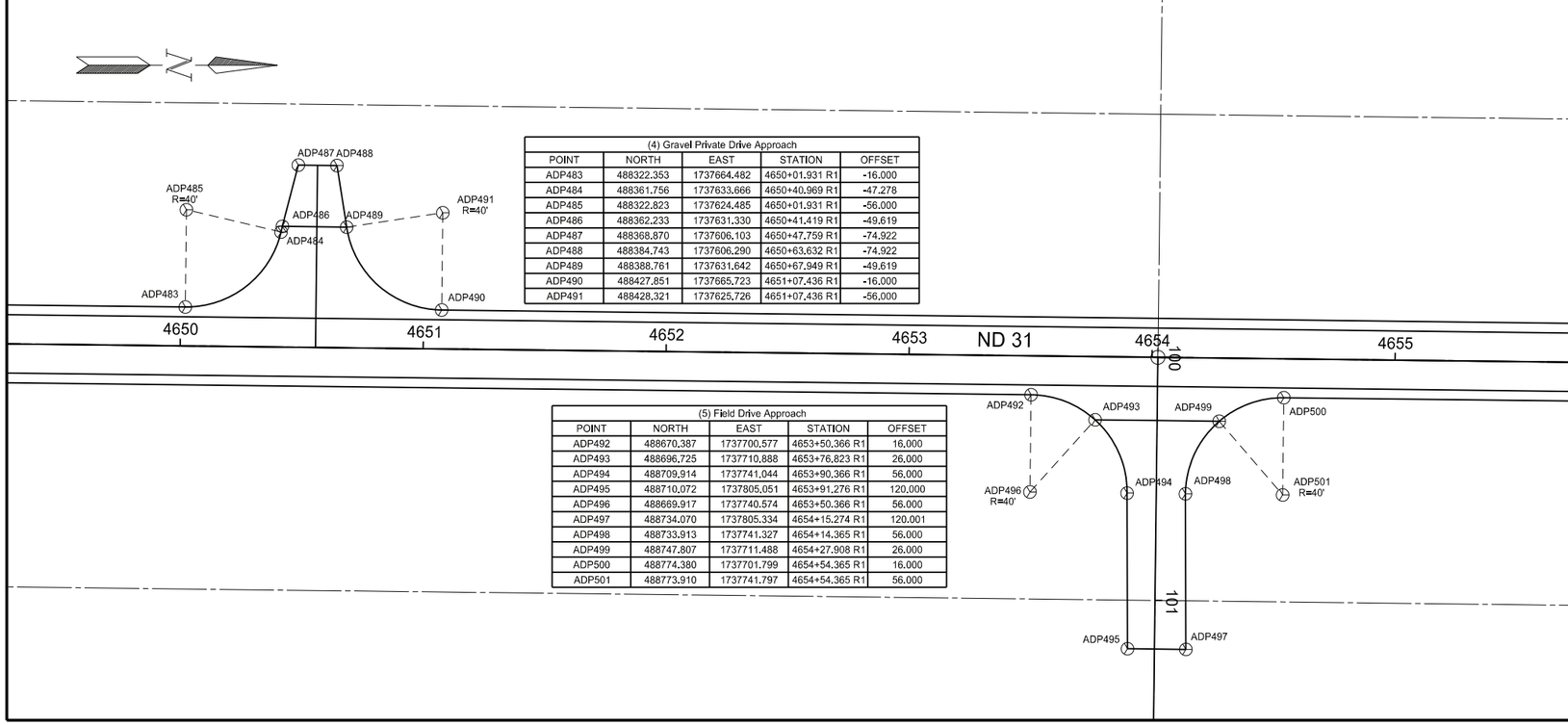
REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	82	22

(2) Gravel Section Line, County Road, or Street Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP459	486021.322	1737637.348	4627+00.720 R1	-16.000
ADP460	486071.967	1737588.001	4627+50.720 R1	-66.000
ADP461	486021.971	1737587.352	4627+00.720 R1	-66.000
ADP462	486071.860	1737575.009	4627+50.445 R1	-78.989
ADP463	486061.990	1737565.092	4627+40.447 R1	-88.777
ADP464	486061.860	1737575.091	4627+40.447 R1	-78.777
ADP465	486052.710	1737564.972	4627+31.167 R1	-88.777
ADP466	486053.129	1737535.743	4627+31.206 R1	-118.009
ADP467	486060.322	1737535.837	4627+38.400 R1	-118.009
ADP468	486070.444	1737526.217	4627+48.396 R1	-127.759
ADP469	486060.452	1737525.837	4627+38.400 R1	-128.009
ADP470	486071.278	1737504.248	4627+48.945 R1	-149.737
ADP471	486098.093	1737504.590	4627+75.944 R1	-149.729
ADP472	486095.966	1737588.238	4627+74.801 R1	-66.061
ADP473	486145.373	1737638.884	4628+24.801 R1	-16.000
ADP474	486145.961	1737588.887	4628+24.801 R1	-66.000



(2) Gravel Section Line, County Road, or Street Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP475	486020.195	1737669.336	4627+00.009 R1	16.000
ADP476	486069.542	1737719.980	4627+50.009 R1	66.000
ADP477	486068.137	1737828.236	4627+50.009 R1	174.265
ADP478	486019.546	1737719.331	4627+00.009 R1	66.000
ADP479	486095.109	1737828.553	4627+76.770 R1	174.247
ADP480	486096.382	1737720.313	4627+76.770 R1	66.000
ADP481	486146.966	1737670.905	4628+26.770 R1	16.000
ADP482	486146.378	1737720.901	4628+26.770 R1	66.000



(4) Gravel Private Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP483	488322.353	1737664.482	4650+01.931 R1	-16.000
ADP484	488361.756	1737633.666	4650+40.969 R1	-47.278
ADP485	488322.823	1737624.485	4650+01.931 R1	-56.000
ADP486	488362.233	1737631.330	4650+41.419 R1	-49.619
ADP487	488368.870	1737606.103	4650+47.759 R1	-74.922
ADP488	488384.743	1737606.290	4650+63.632 R1	-74.922
ADP489	488388.761	1737631.642	4650+67.949 R1	-49.619
ADP490	488427.851	1737665.723	4651+07.436 R1	-16.000
ADP491	488428.321	1737625.726	4651+07.436 R1	-56.000

(5) Field Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP492	488670.387	1737700.577	4653+50.366 R1	16.000
ADP493	488696.725	1737710.888	4653+76.823 R1	26.000
ADP494	488709.914	1737741.044	4653+90.366 R1	56.000
ADP495	488710.072	1737805.051	4653+91.276 R1	120.000
ADP496	488669.917	1737740.574	4653+50.366 R1	56.000
ADP497	488734.070	1737805.334	4654+15.274 R1	120.001
ADP498	488733.913	1737741.327	4654+14.365 R1	56.000
ADP499	488747.807	1737711.488	4654+27.908 R1	26.000
ADP500	488774.380	1737701.799	4654+54.365 R1	16.000
ADP501	488773.910	1737741.797	4654+54.365 R1	56.000

ND 31

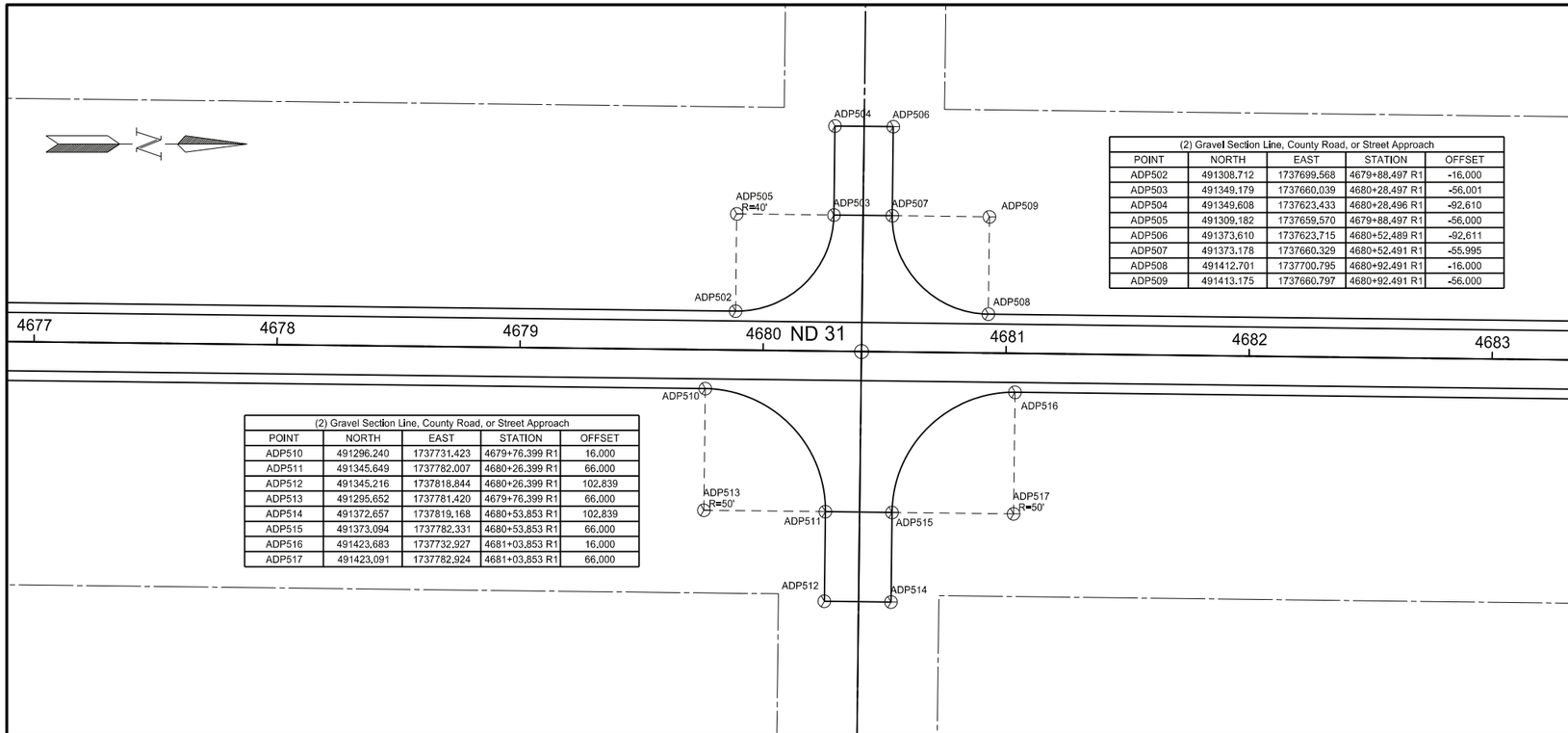
Jct I-94 to Hannover
Oliver County

Survey Data Points

Sta 4626+30 to Sta 4629+30
Sta 4649+29 to Sta 4655+74

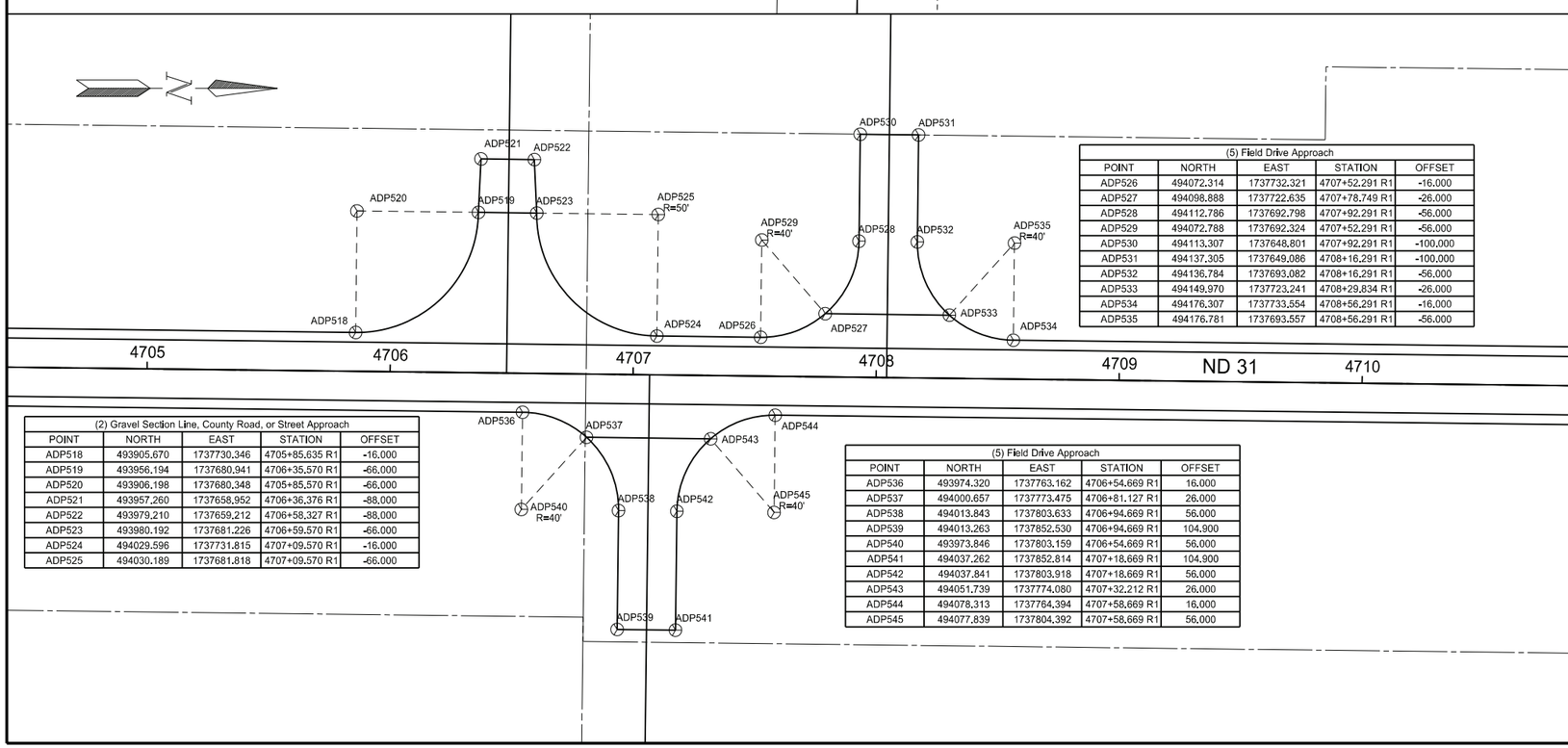
REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	82	23



(2) Gravel Section Line, County Road, or Street Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP502	491308.712	1737699.568	4679+88.497 R1	-16.000
ADP503	491349.179	1737660.039	4680+28.497 R1	-56.001
ADP504	491349.608	1737623.433	4680+28.496 R1	-92.610
ADP505	491309.182	1737659.570	4679+88.497 R1	-56.000
ADP506	491373.610	1737623.715	4680+52.489 R1	-92.611
ADP507	491373.178	1737660.329	4680+52.491 R1	-55.995
ADP508	491412.701	1737700.795	4680+92.491 R1	-16.000
ADP509	491413.175	1737660.797	4680+92.491 R1	-56.000

(2) Gravel Section Line, County Road, or Street Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP510	491296.240	1737731.423	4679+76.399 R1	16.000
ADP511	491345.649	1737782.007	4680+26.399 R1	66.000
ADP512	491345.216	1737818.844	4680+26.399 R1	102.839
ADP513	491295.652	1737781.420	4679+76.399 R1	66.000
ADP514	491372.657	1737819.168	4680+53.853 R1	102.839
ADP515	491373.094	1737782.331	4680+53.853 R1	66.000
ADP516	491423.683	1737732.927	4681+03.853 R1	16.000
ADP517	491423.091	1737782.924	4681+03.853 R1	66.000



(5) Field Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP526	494072.314	1737732.321	4707+52.291 R1	-16.000
ADP527	494098.888	1737722.635	4707+78.749 R1	-26.000
ADP528	494112.786	1737692.798	4707+92.291 R1	-56.000
ADP529	494072.788	1737692.324	4707+52.291 R1	-56.000
ADP530	494113.307	1737648.801	4707+92.291 R1	-100.000
ADP531	494137.305	1737649.086	4708+16.291 R1	-100.000
ADP532	494136.784	1737693.082	4708+16.291 R1	-56.000
ADP533	494149.970	1737723.241	4708+29.834 R1	-26.000
ADP534	494176.307	1737733.554	4708+56.291 R1	-16.000
ADP535	494176.781	1737693.557	4708+56.291 R1	-56.000

(2) Gravel Section Line, County Road, or Street Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP518	493905.670	1737730.346	4705+85.635 R1	-16.000
ADP519	493956.194	1737680.941	4706+35.570 R1	-66.000
ADP520	493906.198	1737680.348	4705+85.570 R1	-66.000
ADP521	493957.260	1737658.952	4706+36.376 R1	-88.000
ADP522	493979.210	1737659.212	4706+58.327 R1	-88.000
ADP523	493980.192	1737681.226	4706+59.570 R1	-66.000
ADP524	494029.596	1737731.815	4707+09.570 R1	-16.000
ADP525	494030.189	1737681.818	4707+09.570 R1	-66.000

(5) Field Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP536	493974.320	1737763.162	4706+54.669 R1	16.000
ADP537	494000.657	1737773.475	4706+81.127 R1	26.000
ADP538	494013.843	1737803.633	4706+94.669 R1	56.000
ADP539	494013.263	1737852.530	4706+94.669 R1	104.900
ADP540	493973.846	1737803.159	4706+54.669 R1	56.000
ADP541	494037.262	1737852.814	4707+18.669 R1	104.900
ADP542	494037.841	1737803.918	4707+18.669 R1	56.000
ADP543	494051.739	1737774.080	4707+32.212 R1	26.000
ADP544	494078.313	1737764.394	4707+58.669 R1	16.000
ADP545	494077.839	1737804.392	4707+58.669 R1	56.000

ND 31

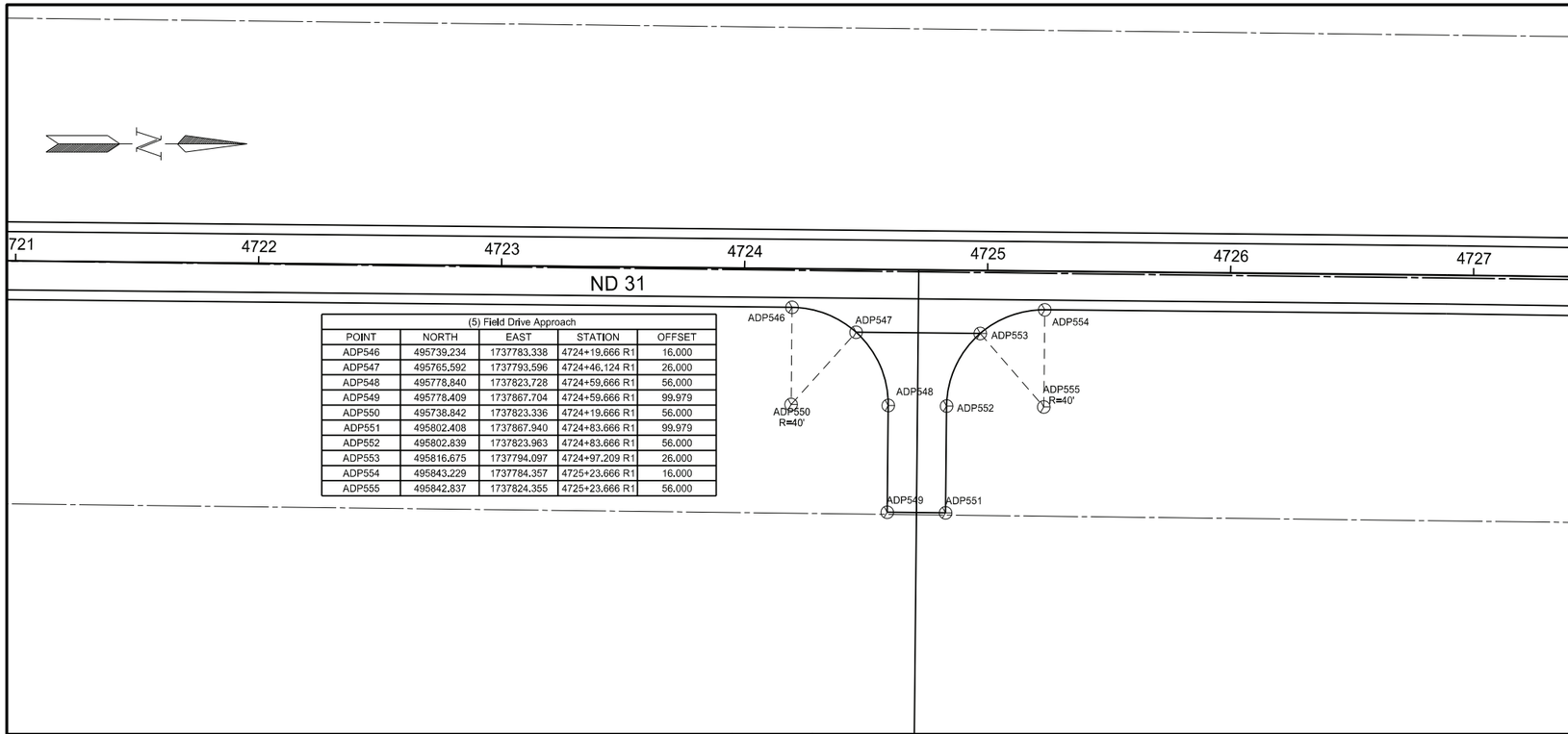
Jct I-94 to Hannover
Oliver County

Survey Data Points

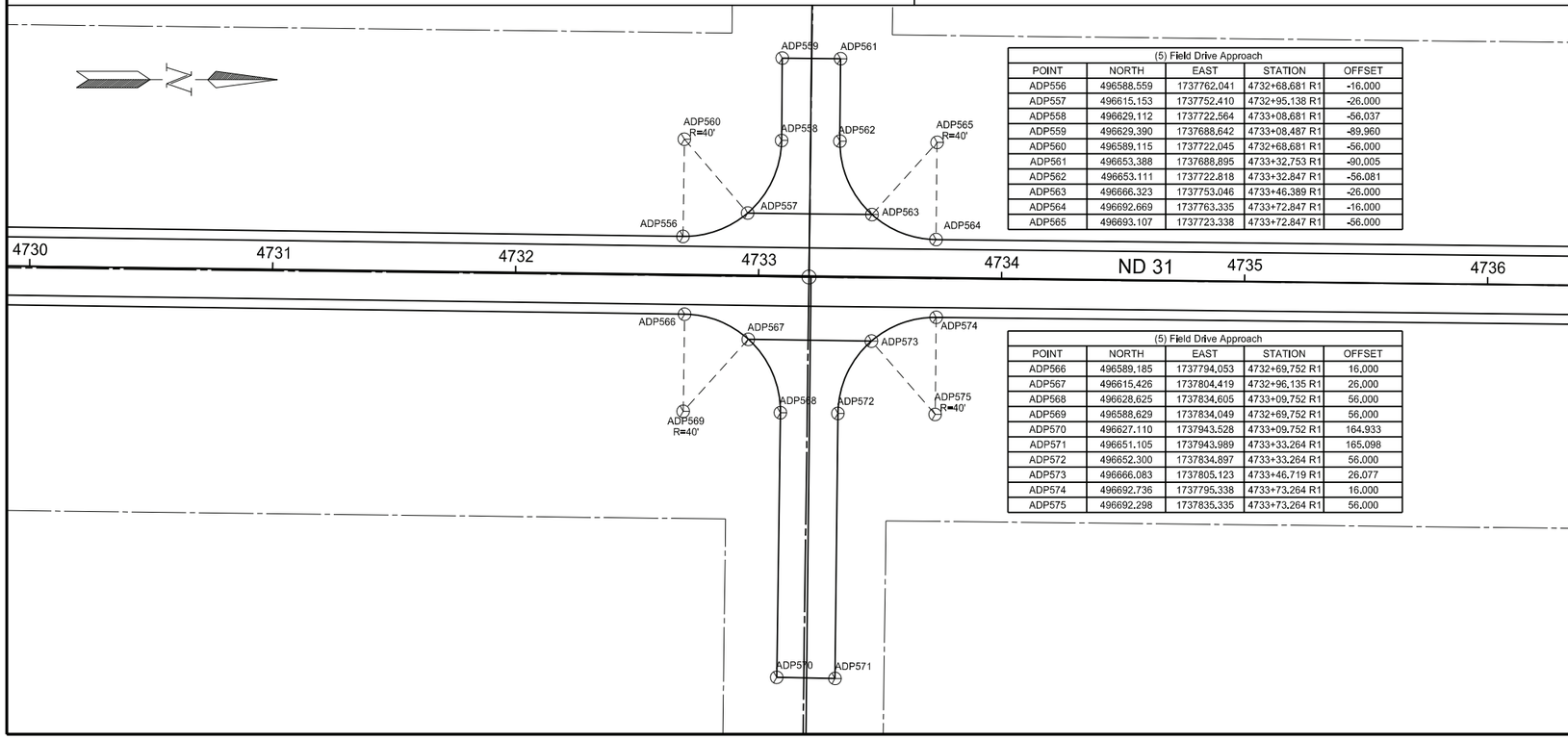
Sta 4676+89 to Sta 4683+34
Sta 4704+42 to Sta 4710+87

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	82	24



(5) Field Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP546	495739.234	1737783.338	4724+19.666 R1	16.000
ADP547	495765.592	1737793.596	4724+46.124 R1	26.000
ADP548	495778.840	1737823.728	4724+59.666 R1	56.000
ADP549	495778.409	1737867.704	4724+59.666 R1	99.979
ADP550	495738.842	1737823.336	4724+19.666 R1	56.000
ADP551	495802.408	1737867.940	4724+83.666 R1	99.979
ADP552	495802.839	1737823.963	4724+83.666 R1	56.000
ADP553	495816.675	1737794.097	4724+97.209 R1	26.000
ADP554	495843.229	1737784.357	4725+23.666 R1	16.000
ADP555	495842.837	1737824.355	4725+23.666 R1	56.000



(5) Field Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP556	496588.559	1737762.041	4732+68.681 R1	-16.000
ADP557	496615.153	1737752.410	4732+95.138 R1	-26.000
ADP558	496629.112	1737722.564	4733+08.681 R1	-56.037
ADP559	496629.390	1737688.642	4733+08.487 R1	-89.960
ADP560	496589.115	1737722.045	4732+68.681 R1	-56.000
ADP561	496653.388	1737688.895	4733+32.753 R1	-90.005
ADP562	496653.111	1737722.818	4733+32.847 R1	-56.081
ADP563	496666.323	1737753.046	4733+46.389 R1	-26.000
ADP564	496692.669	1737763.335	4733+72.847 R1	-16.000
ADP565	496693.107	1737723.338	4733+72.847 R1	-56.000

(5) Field Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP566	496589.185	1737794.053	4732+69.752 R1	16.000
ADP567	496615.426	1737804.419	4732+96.135 R1	26.000
ADP568	496628.625	1737834.605	4733+09.752 R1	56.000
ADP569	496588.629	1737834.049	4732+69.752 R1	56.000
ADP570	496627.110	1737943.528	4733+09.752 R1	164.933
ADP571	496651.105	1737943.989	4733+33.264 R1	165.098
ADP572	496652.300	1737834.897	4733+33.264 R1	56.000
ADP573	496666.083	1737805.123	4733+46.719 R1	26.077
ADP574	496692.736	1737795.338	4733+73.264 R1	16.000
ADP575	496692.298	1737835.335	4733+73.264 R1	56.000

ND 31

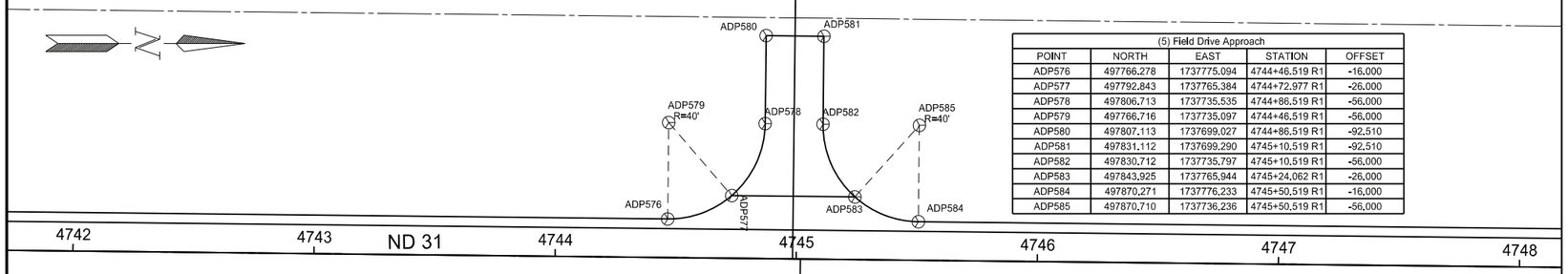
Jct I-94 to Hannover
Oliver County

Survey Data Points

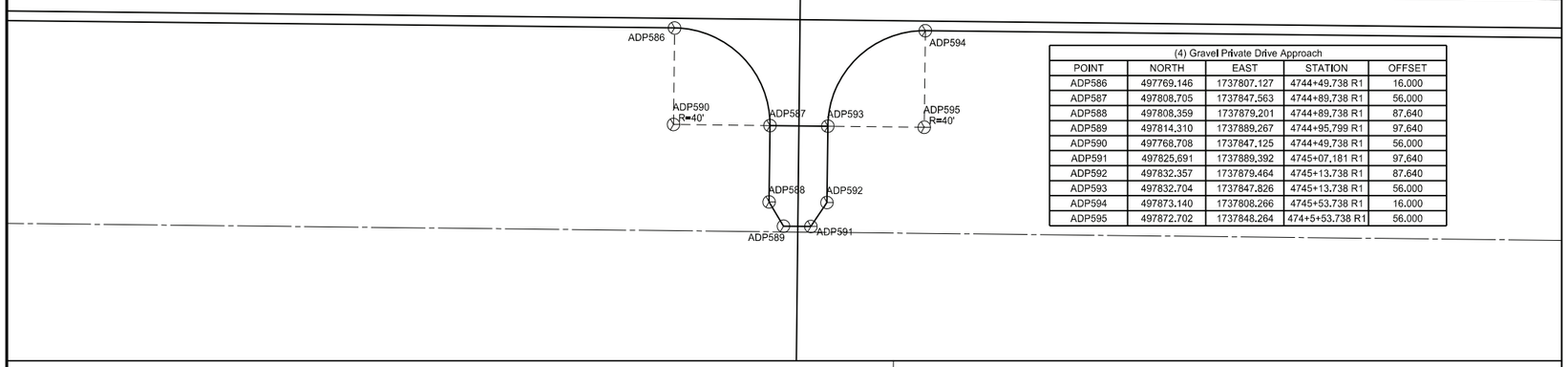
Sta 4720+96 to Sta 4727+41
Sta 4729+91 to Sta 4736+36

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

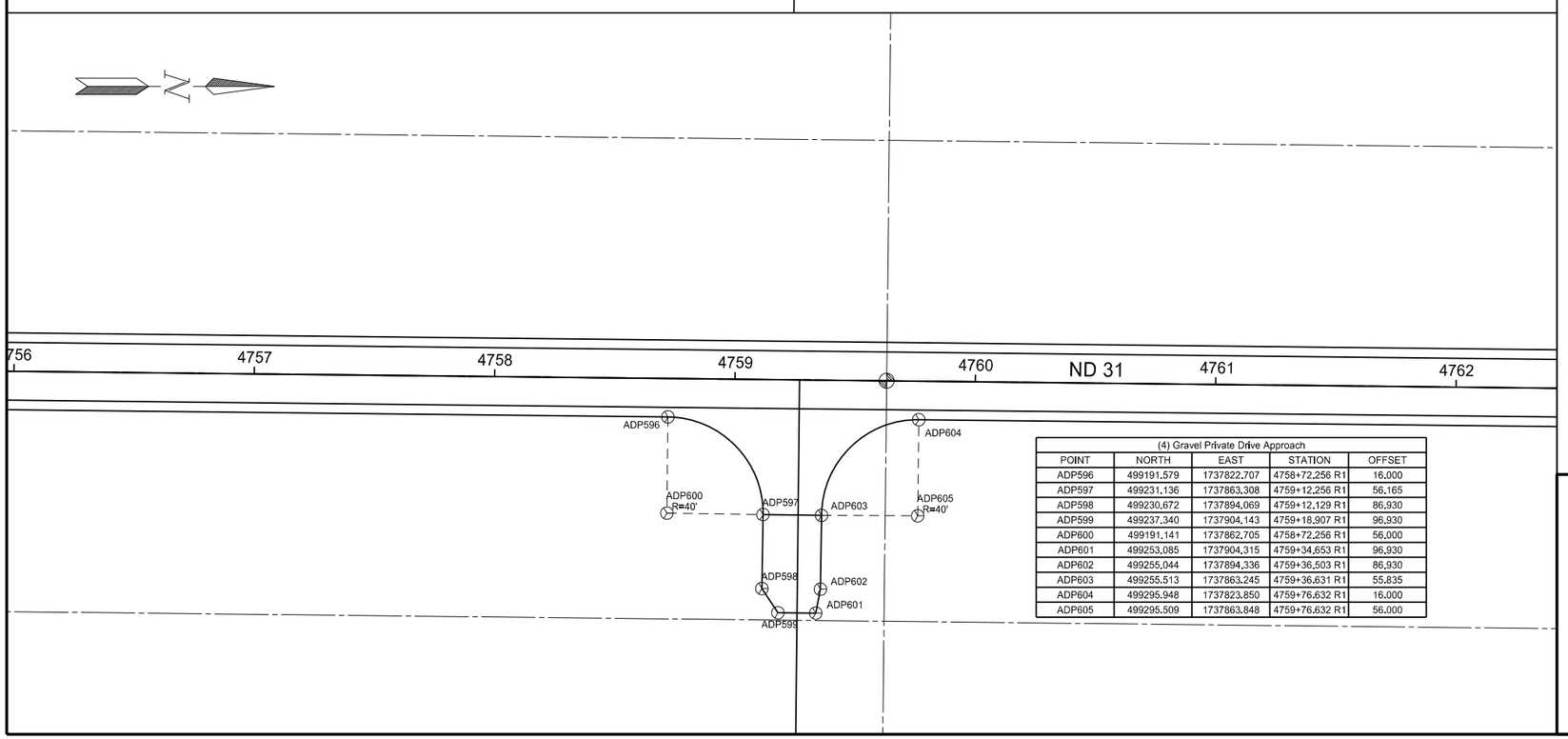
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	82	25



(5) Field Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP576	497766.278	1737775.094	4744+46.519 R1	-16.000
ADP577	497792.843	1737765.384	4744+72.977 R1	-26.000
ADP578	497806.713	1737735.535	4744+86.519 R1	-56.000
ADP579	497766.716	1737735.097	4744+46.519 R1	-56.000
ADP580	497807.113	1737699.027	4744+86.519 R1	-92.510
ADP581	497831.112	1737699.290	4745+10.519 R1	-92.510
ADP582	497830.712	1737735.797	4745+10.519 R1	-56.000
ADP583	497843.925	1737765.944	4745+24.062 R1	-26.000
ADP584	497870.271	1737776.233	4745+50.519 R1	-16.000
ADP585	497870.710	1737736.236	4745+50.519 R1	-56.000



(4) Gravel Private Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP586	497769.146	1737807.127	4744+49.738 R1	16.000
ADP587	497808.705	1737847.563	4744+89.738 R1	56.000
ADP588	497808.359	1737879.201	4744+89.738 R1	87.640
ADP589	497814.310	1737889.267	4744+95.799 R1	97.640
ADP590	497768.708	1737847.125	4744+49.738 R1	56.000
ADP591	497825.691	1737889.392	4745+07.181 R1	97.640
ADP592	497832.357	1737879.464	4745+13.738 R1	87.640
ADP593	497832.704	1737847.826	4745+13.738 R1	56.000
ADP594	497873.140	1737808.266	4745+53.738 R1	16.000
ADP595	497872.702	1737848.264	474+5+53.738 R1	56.000



(4) Gravel Private Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP596	499191.579	1737822.707	4758+72.256 R1	16.000
ADP597	499231.136	1737863.308	4759+12.256 R1	56.165
ADP598	499230.672	1737894.069	4759+12.129 R1	86.930
ADP599	499237.340	1737904.143	4759+18.907 R1	96.930
ADP600	499191.141	1737862.705	4758+72.256 R1	56.000
ADP601	499253.085	1737904.315	4759+34.653 R1	96.930
ADP602	499255.044	1737894.336	4759+36.503 R1	86.930
ADP603	499255.513	1737863.245	4759+36.631 R1	55.835
ADP604	499295.948	1737823.850	4759+76.632 R1	16.000
ADP605	499295.509	1737863.848	4759+76.632 R1	56.000

ND 31

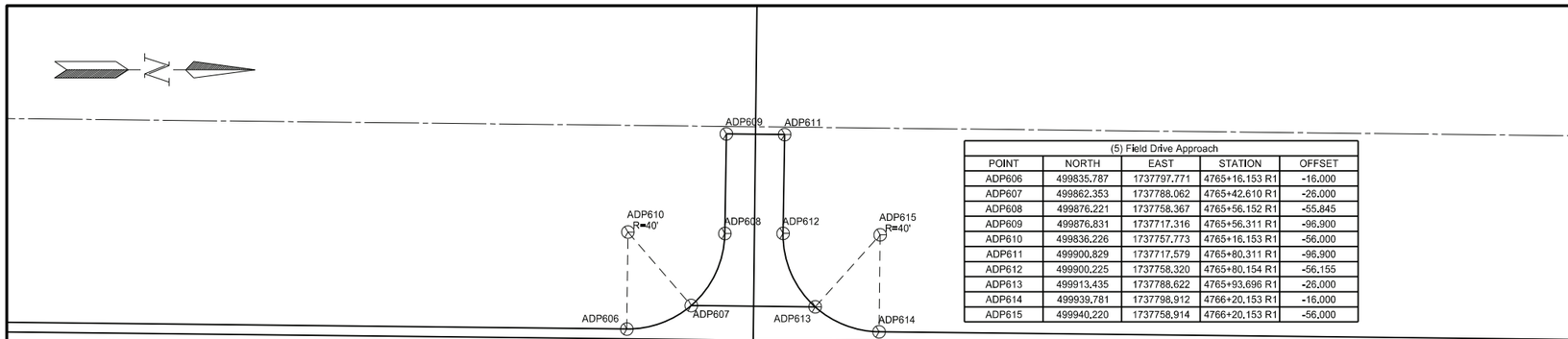
Jct I-94 to Hannover
Oliver County

Survey Data Points

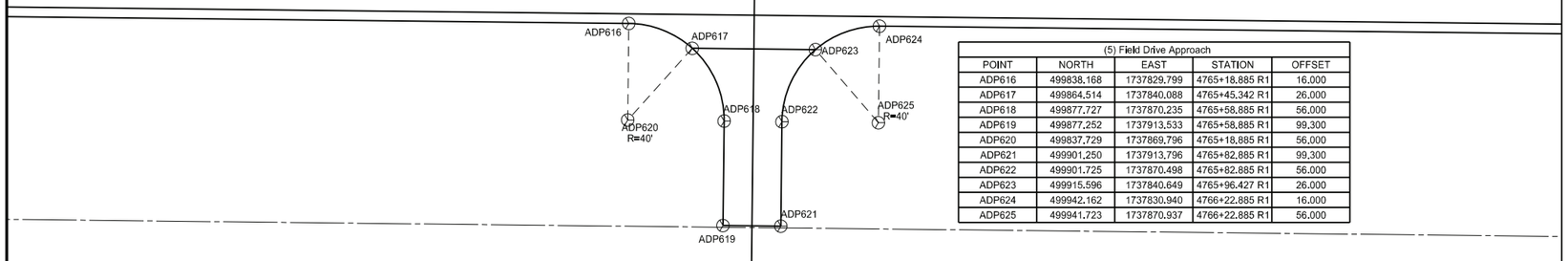
Sta 4741+73 to Sta 4748+18
Sta 4755+97 to Sta 4762+42

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

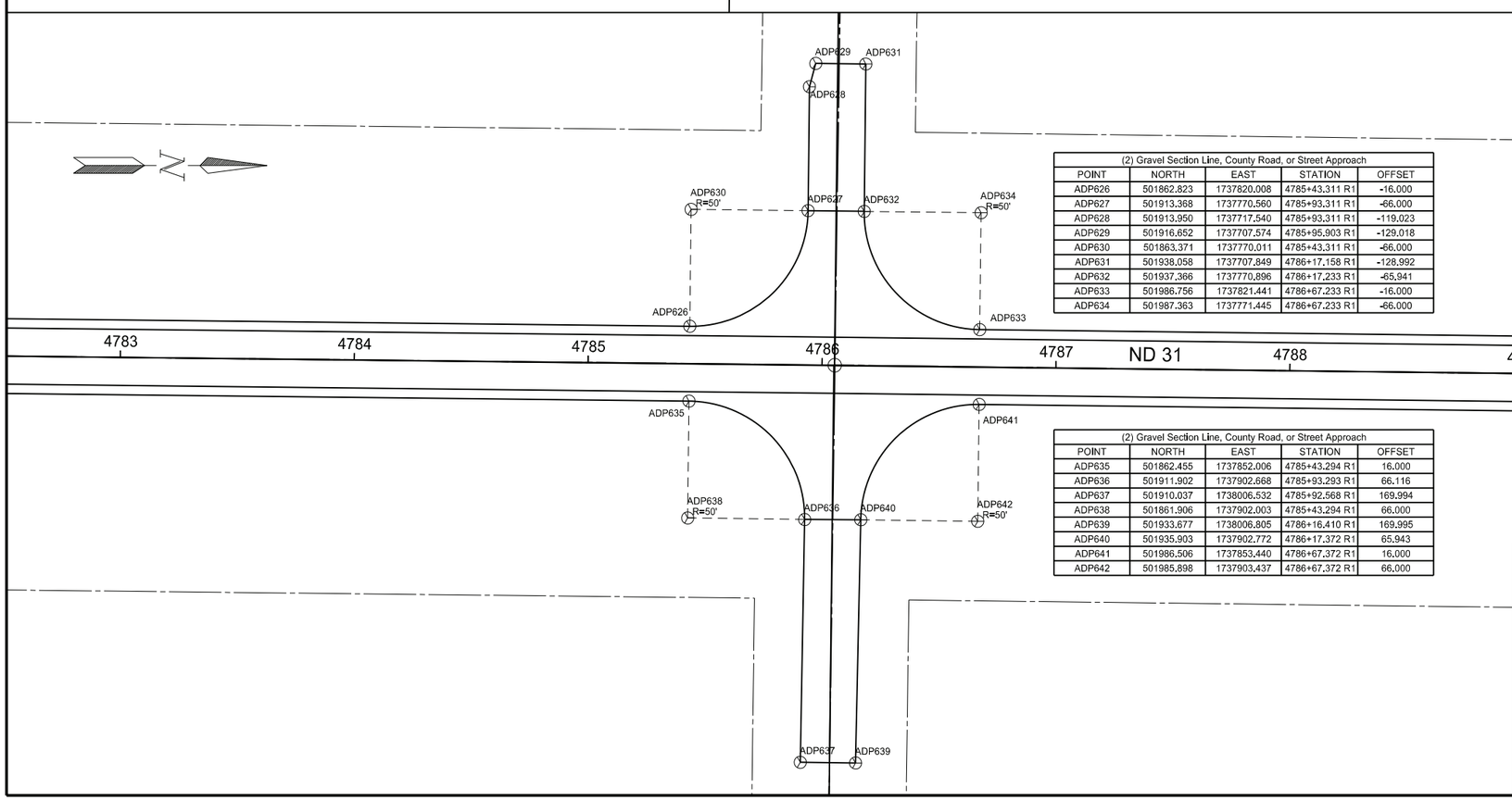
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	82	26



(5) Field Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP606	499835.787	1737797.771	4765+16.153 R1	-16.000
ADP607	499862.353	1737788.062	4765+42.610 R1	-26.000
ADP608	499876.221	1737758.367	4765+56.152 R1	-55.845
ADP609	499876.831	1737717.316	4765+56.311 R1	-96.900
ADP610	499836.226	1737757.773	4765+16.153 R1	-56.000
ADP611	499900.829	1737717.579	4765+80.311 R1	-96.900
ADP612	499900.225	1737758.320	4765+80.154 R1	-56.155
ADP613	499913.435	1737788.622	4765+93.696 R1	-26.000
ADP614	499939.781	1737798.912	4766+20.153 R1	-16.000
ADP615	499940.220	1737758.914	4766+20.153 R1	-56.000



(5) Field Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP616	499838.168	1737829.799	4765+18.885 R1	16.000
ADP617	499864.514	1737840.088	4765+45.342 R1	26.000
ADP618	499877.727	1737870.235	4765+58.885 R1	56.000
ADP619	499877.252	1737913.533	4765+58.885 R1	99.300
ADP620	499837.729	1737869.796	4765+18.885 R1	56.000
ADP621	499901.250	1737913.796	4765+82.885 R1	99.300
ADP622	499901.725	1737870.498	4765+82.885 R1	56.000
ADP623	499915.596	1737840.649	4765+96.427 R1	26.000
ADP624	499942.162	1737830.940	4766+22.885 R1	16.000
ADP625	499941.723	1737870.937	4766+22.885 R1	56.000



(2) Gravel Section Line, County Road, or Street Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP626	501862.823	1737820.008	4785+43.311 R1	-16.000
ADP627	501913.368	1737770.560	4785+93.311 R1	-66.000
ADP628	501913.950	1737717.540	4785+93.311 R1	-119.023
ADP629	501916.652	1737707.574	4785+95.903 R1	-129.018
ADP630	501863.371	1737770.011	4785+43.311 R1	-66.000
ADP631	501938.058	1737707.849	4786+17.158 R1	-128.992
ADP632	501937.366	1737770.896	4786+17.233 R1	-65.941
ADP633	501986.756	1737821.441	4786+67.233 R1	-16.000
ADP634	501987.363	1737771.445	4786+67.233 R1	-66.000

(2) Gravel Section Line, County Road, or Street Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP635	501862.455	1737852.006	4785+43.294 R1	16.000
ADP636	501911.902	1737902.668	4785+93.293 R1	66.116
ADP637	501910.037	1738006.532	4785+92.568 R1	169.994
ADP638	501861.906	1737902.003	4785+43.294 R1	66.000
ADP639	501933.677	1738006.805	4786+16.410 R1	169.995
ADP640	501935.903	1737902.772	4786+17.372 R1	65.943
ADP641	501986.506	1737853.440	4786+67.372 R1	16.000
ADP642	501985.898	1737903.437	4786+67.372 R1	66.000

ND 31

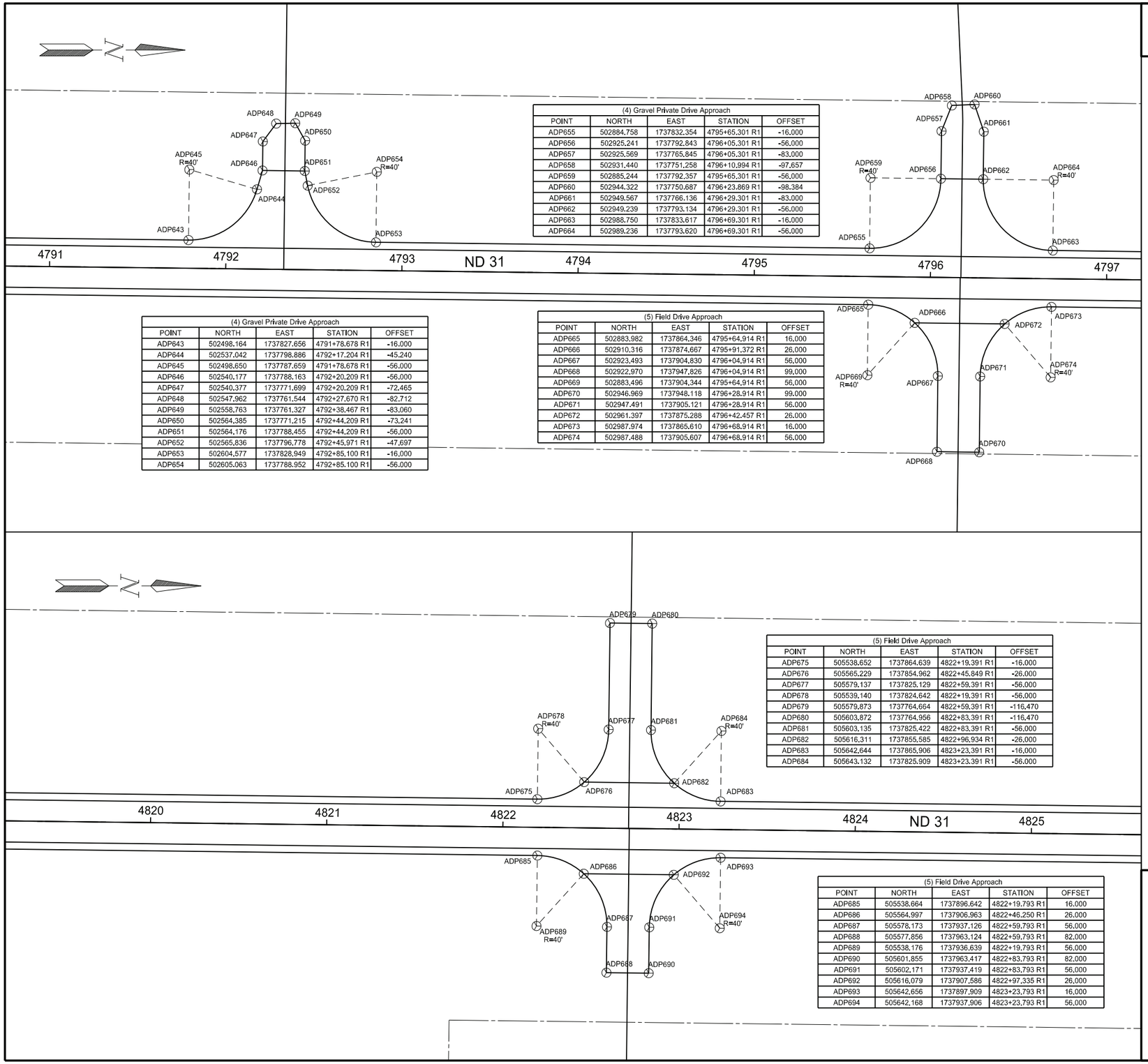
Jct I-94 to Hannover
Oliver County

Survey Data Points

Sta 4762+61 to Sta 4769+06
Sta 4782+51 to Sta 4788+96

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	82	27



(4) Gravel Private Drive Approach

POINT	NORTH	EAST	STATION	OFFSET
ADP655	502884.758	1737832.354	4795+65.301 R1	-16.000
ADP656	502925.241	1737792.843	4796+05.301 R1	-56.000
ADP657	502925.569	1737765.845	4796+05.301 R1	-83.000
ADP658	502931.440	1737751.258	4796+10.994 R1	-97.657
ADP659	502885.244	1737792.357	4795+65.301 R1	-56.000
ADP660	502944.322	1737750.687	4796+23.869 R1	-98.384
ADP661	502949.567	1737766.136	4796+29.301 R1	-83.000
ADP662	502949.239	1737793.134	4796+29.301 R1	-56.000
ADP663	502988.750	1737833.617	4796+69.301 R1	-16.000
ADP664	502989.236	1737793.620	4796+69.301 R1	-56.000

(4) Gravel Private Drive Approach

POINT	NORTH	EAST	STATION	OFFSET
ADP643	502498.164	1737827.656	4791+78.678 R1	-16.000
ADP644	502537.042	1737798.886	4792+17.204 R1	-45.240
ADP645	502498.650	1737787.659	4791+78.678 R1	-56.000
ADP646	502540.177	1737788.163	4792+20.209 R1	-56.000
ADP647	502540.377	1737771.699	4792+20.209 R1	-72.465
ADP648	502547.962	1737761.544	4792+27.670 R1	-82.712
ADP649	502558.763	1737761.327	4792+38.467 R1	-83.060
ADP650	502564.385	1737771.215	4792+44.209 R1	-73.241
ADP651	502564.176	1737788.455	4792+44.209 R1	-56.000
ADP652	502565.836	1737796.778	4792+45.971 R1	-47.697
ADP653	502604.577	1737828.949	4792+85.100 R1	-16.000
ADP654	502605.063	1737788.952	4792+85.100 R1	-56.000

(5) Field Drive Approach

POINT	NORTH	EAST	STATION	OFFSET
ADP665	502883.982	1737864.346	4795+64.914 R1	16.000
ADP666	502910.316	1737874.667	4795+91.372 R1	26.000
ADP667	502923.493	1737904.830	4796+04.914 R1	56.000
ADP668	502922.970	1737947.826	4796+04.914 R1	99.000
ADP669	502883.496	1737904.344	4795+64.914 R1	56.000
ADP670	502946.969	1737948.118	4796+28.914 R1	99.000
ADP671	502947.491	1737905.121	4796+28.914 R1	56.000
ADP672	502961.397	1737875.288	4796+42.457 R1	26.000
ADP673	502987.974	1737865.610	4796+68.914 R1	16.000
ADP674	502987.488	1737905.607	4796+68.914 R1	56.000

(5) Field Drive Approach

POINT	NORTH	EAST	STATION	OFFSET
ADP675	505538.652	1737864.639	4822+19.391 R1	-16.000
ADP676	505565.229	1737854.962	4822+45.849 R1	-26.000
ADP677	505579.137	1737825.129	4822+59.391 R1	-56.000
ADP678	505539.140	1737824.642	4822+19.391 R1	-56.000
ADP679	505579.873	1737764.664	4822+59.391 R1	-116.470
ADP680	505603.872	1737764.956	4822+83.391 R1	-116.470
ADP681	505603.135	1737825.422	4822+83.391 R1	-56.000
ADP682	505616.311	1737855.585	4822+96.934 R1	-26.000
ADP683	505642.644	1737865.906	4823+23.391 R1	-16.000
ADP684	505643.132	1737825.909	4823+23.391 R1	-56.000

(5) Field Drive Approach

POINT	NORTH	EAST	STATION	OFFSET
ADP685	505538.664	1737896.642	4822+19.793 R1	16.000
ADP686	505564.997	1737906.963	4822+46.250 R1	26.000
ADP687	505578.173	1737937.126	4822+59.793 R1	56.000
ADP688	505577.856	1737963.124	4822+59.793 R1	82.000
ADP689	505538.176	1737936.639	4822+19.793 R1	56.000
ADP690	505601.855	1737963.417	4822+83.793 R1	82.000
ADP691	505602.171	1737937.419	4822+83.793 R1	56.000
ADP692	505616.079	1737907.586	4822+97.335 R1	26.000
ADP693	505642.656	1737897.909	4823+23.793 R1	16.000
ADP694	505642.168	1737937.906	4823+23.793 R1	56.000

ND 31

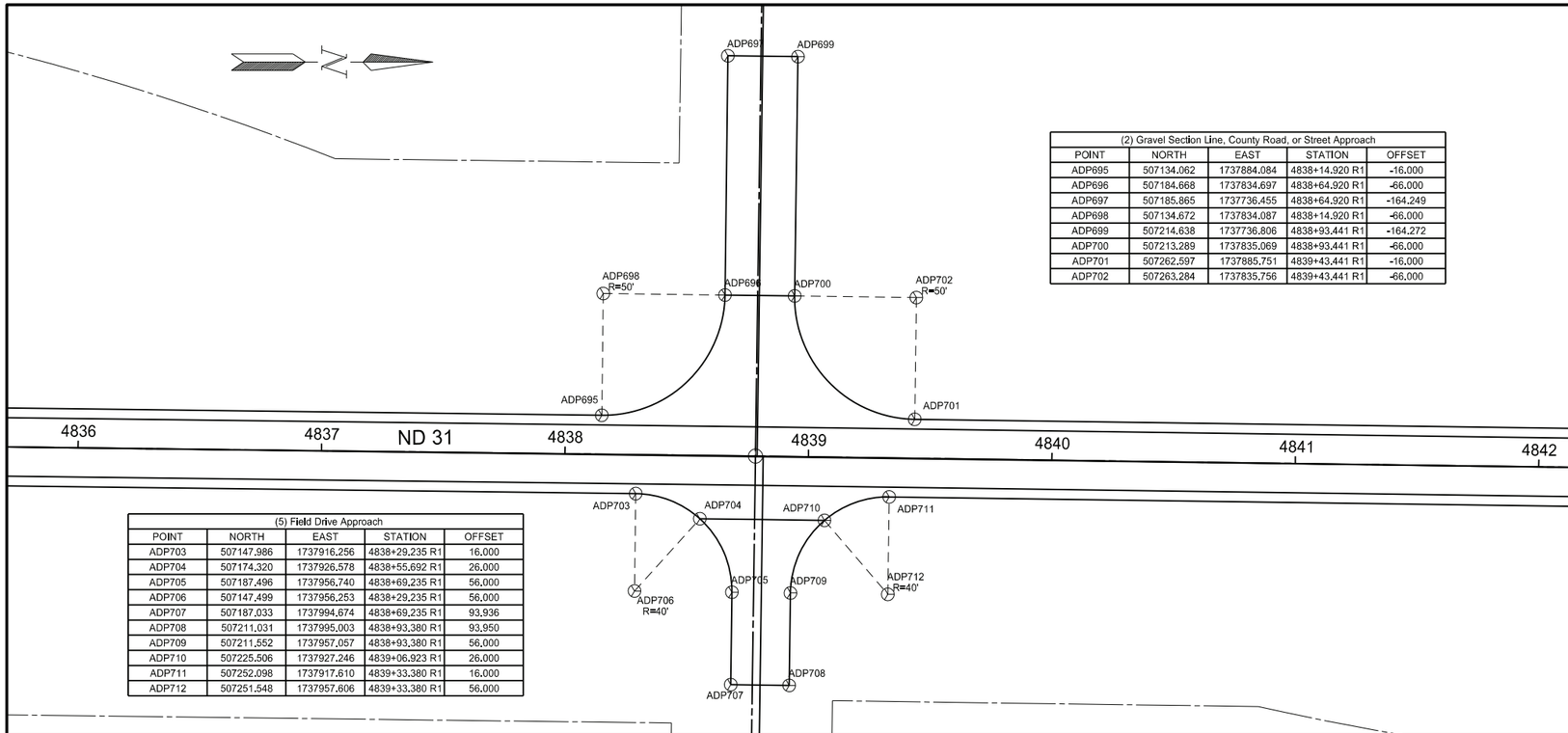
Jct I-94 to Hannover
Oliver County

Survey Data Points

Sta 4790+75 to Sta 4797+20
Sta 4819+17 to Sta 4825+62

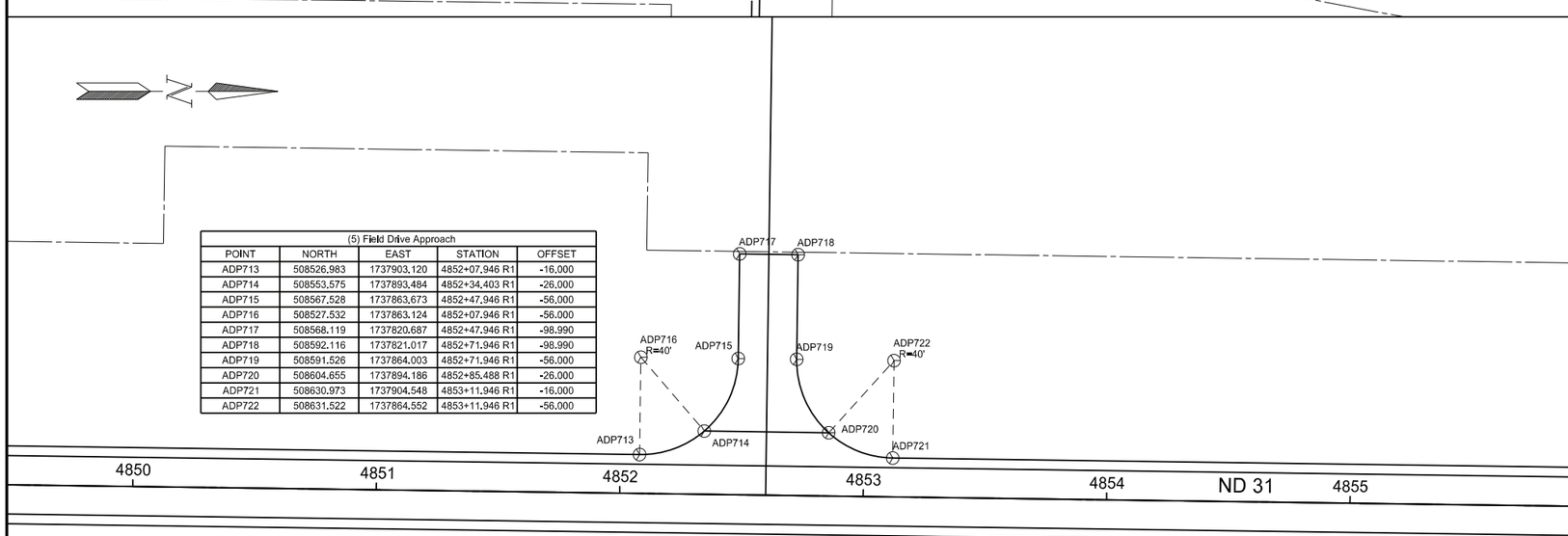
REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	82	28



(2) Gravel Section Line, County Road, or Street Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP695	507134.062	1737884.084	4838+14.920 R1	-16.000
ADP696	507184.668	1737834.697	4838+64.920 R1	-66.000
ADP697	507185.865	1737736.455	4838+64.920 R1	-164.249
ADP698	507134.672	1737834.087	4838+14.920 R1	-66.000
ADP699	507214.638	1737736.806	4838+93.441 R1	-164.272
ADP700	507213.289	1737835.069	4838+93.441 R1	-66.000
ADP701	507262.597	1737885.751	4839+43.441 R1	-16.000
ADP702	507263.284	1737835.756	4839+43.441 R1	-66.000

(5) Field Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP703	507147.986	1737916.256	4838+29.235 R1	16.000
ADP704	507174.320	1737926.578	4838+55.692 R1	26.000
ADP705	507187.496	1737956.740	4838+69.235 R1	56.000
ADP706	507147.499	1737956.253	4838+29.235 R1	56.000
ADP707	507187.033	1737994.674	4838+69.235 R1	93.936
ADP708	507211.031	1737995.003	4838+93.380 R1	93.950
ADP709	507211.552	1737957.057	4838+93.380 R1	56.000
ADP710	507225.506	1737927.246	4839+06.923 R1	26.000
ADP711	507252.098	1737917.610	4839+33.380 R1	16.000
ADP712	507251.548	1737957.606	4839+33.380 R1	56.000



(5) Field Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP713	508526.983	1737903.120	4852+07.946 R1	-16.000
ADP714	508553.575	1737893.484	4852+34.403 R1	-26.000
ADP715	508567.528	1737863.673	4852+47.946 R1	-56.000
ADP716	508527.532	1737863.124	4852+07.946 R1	-56.000
ADP717	508568.119	1737820.687	4852+47.946 R1	-98.990
ADP718	508592.116	1737821.017	4852+71.946 R1	-98.990
ADP719	508591.526	1737864.003	4852+71.946 R1	-56.000
ADP720	508604.655	1737894.186	4852+85.488 R1	-26.000
ADP721	508630.973	1737904.548	4853+11.946 R1	-16.000
ADP722	508631.522	1737864.552	4853+11.946 R1	-56.000

ND 31

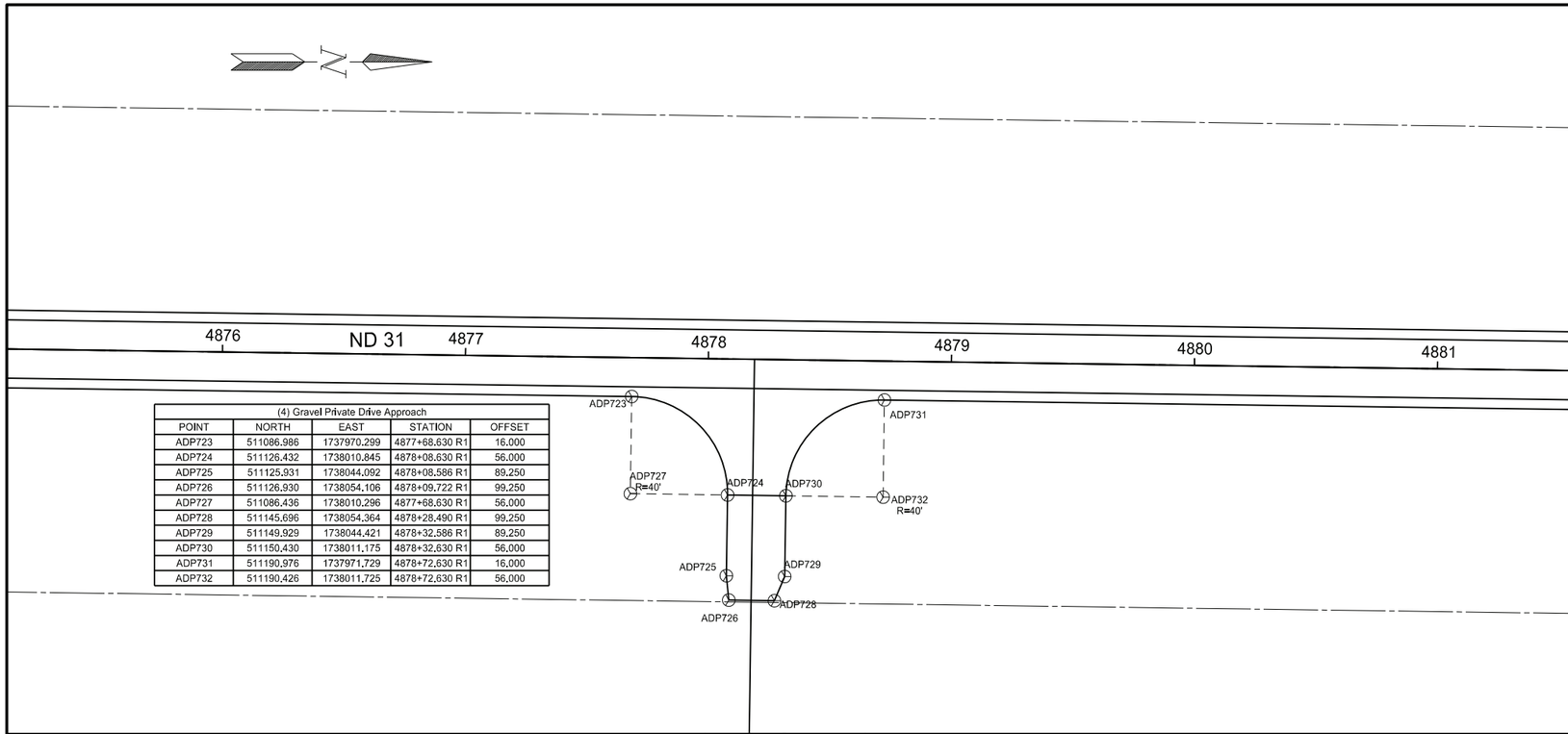
Jct I-94 to Hannover
Oliver County

Survey Data Points

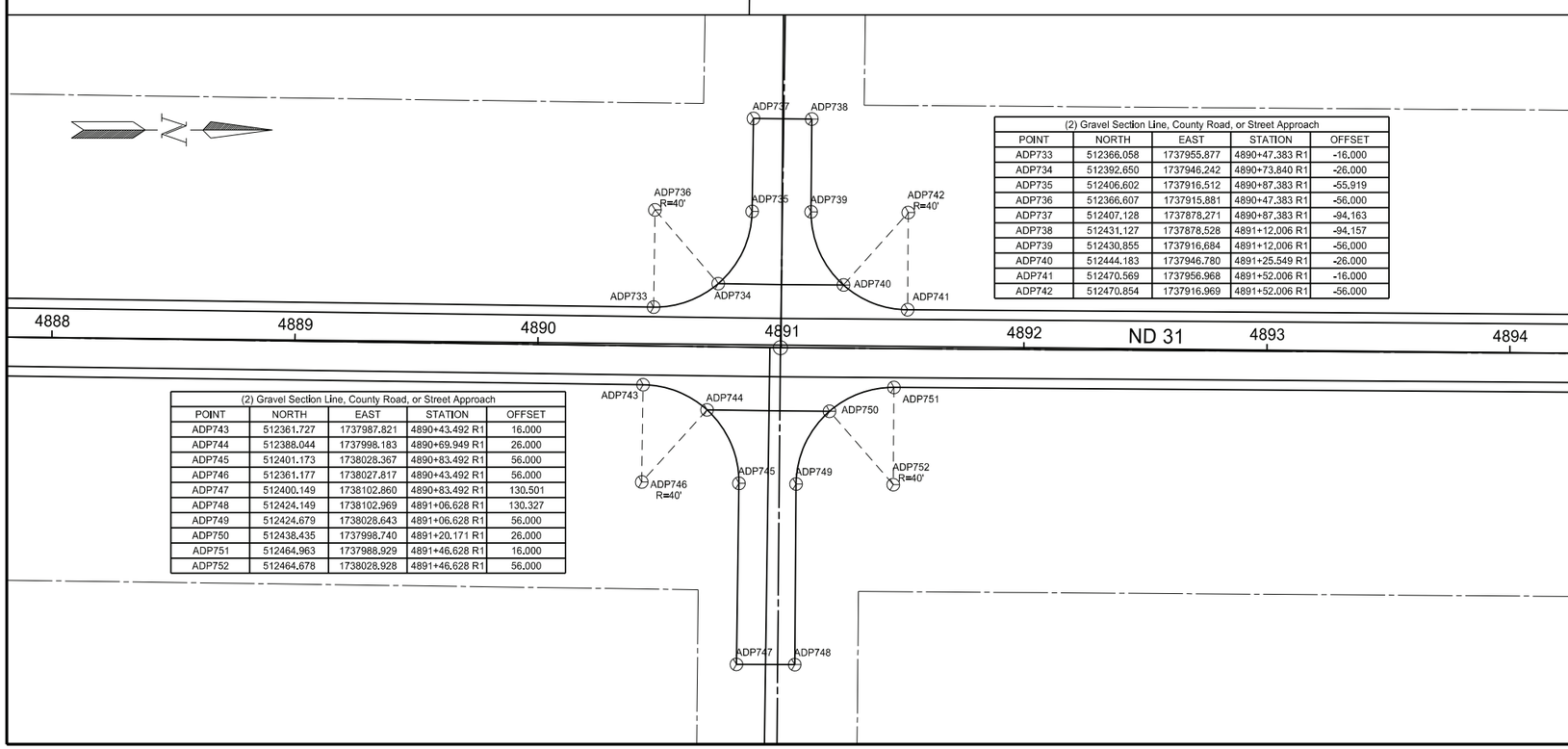
Sta 4835+71 to Sta 4842+16
Sta 4849+48 to Sta 4855+93

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	82	29



(4) Gravel Private Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP723	511086.986	1737970.299	4877+68.630 R1	16.000
ADP724	511126.432	1738010.845	4878+08.630 R1	56.000
ADP725	511125.931	1738044.092	4878+08.586 R1	89.250
ADP726	511126.930	1738054.106	4878+09.722 R1	99.250
ADP727	511086.436	1738010.296	4877+68.630 R1	56.000
ADP728	511145.696	1738054.364	4878+28.490 R1	99.250
ADP729	511149.929	1738044.421	4878+32.586 R1	89.250
ADP730	511150.430	1738011.175	4878+32.630 R1	56.000
ADP731	511190.976	1737971.729	4878+72.630 R1	16.000
ADP732	511190.426	1738011.725	4878+72.630 R1	56.000



(2) Gravel Section Line, County Road, or Street Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP733	512366.058	1737955.877	4890+47.383 R1	-16.000
ADP734	512392.650	1737946.242	4890+73.840 R1	-26.000
ADP735	512406.602	1737916.512	4890+87.383 R1	-55.919
ADP736	512366.607	1737915.881	4890+47.383 R1	-56.000
ADP737	512407.128	1737878.271	4890+87.383 R1	-94.163
ADP738	512431.127	1737878.528	4891+12.006 R1	-94.157
ADP739	512430.855	1737916.684	4891+12.006 R1	-56.000
ADP740	512444.183	1737946.780	4891+25.549 R1	-26.000
ADP741	512470.569	1737956.968	4891+52.006 R1	-16.000
ADP742	512470.854	1737916.969	4891+52.006 R1	-56.000

(2) Gravel Section Line, County Road, or Street Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP743	512361.727	1737987.821	4890+43.492 R1	16.000
ADP744	512388.044	1737998.183	4890+69.949 R1	26.000
ADP745	512401.173	1738028.367	4890+83.492 R1	56.000
ADP746	512361.177	1738027.817	4890+43.492 R1	56.000
ADP747	512400.149	1738102.860	4890+83.492 R1	130.501
ADP748	512424.149	1738102.969	4891+06.628 R1	130.327
ADP749	512424.679	1738028.643	4891+06.628 R1	56.000
ADP750	512438.435	1737998.740	4891+20.171 R1	26.000
ADP751	512464.963	1737988.929	4891+46.628 R1	16.000
ADP752	512464.678	1738028.928	4891+46.628 R1	56.000

ND 31

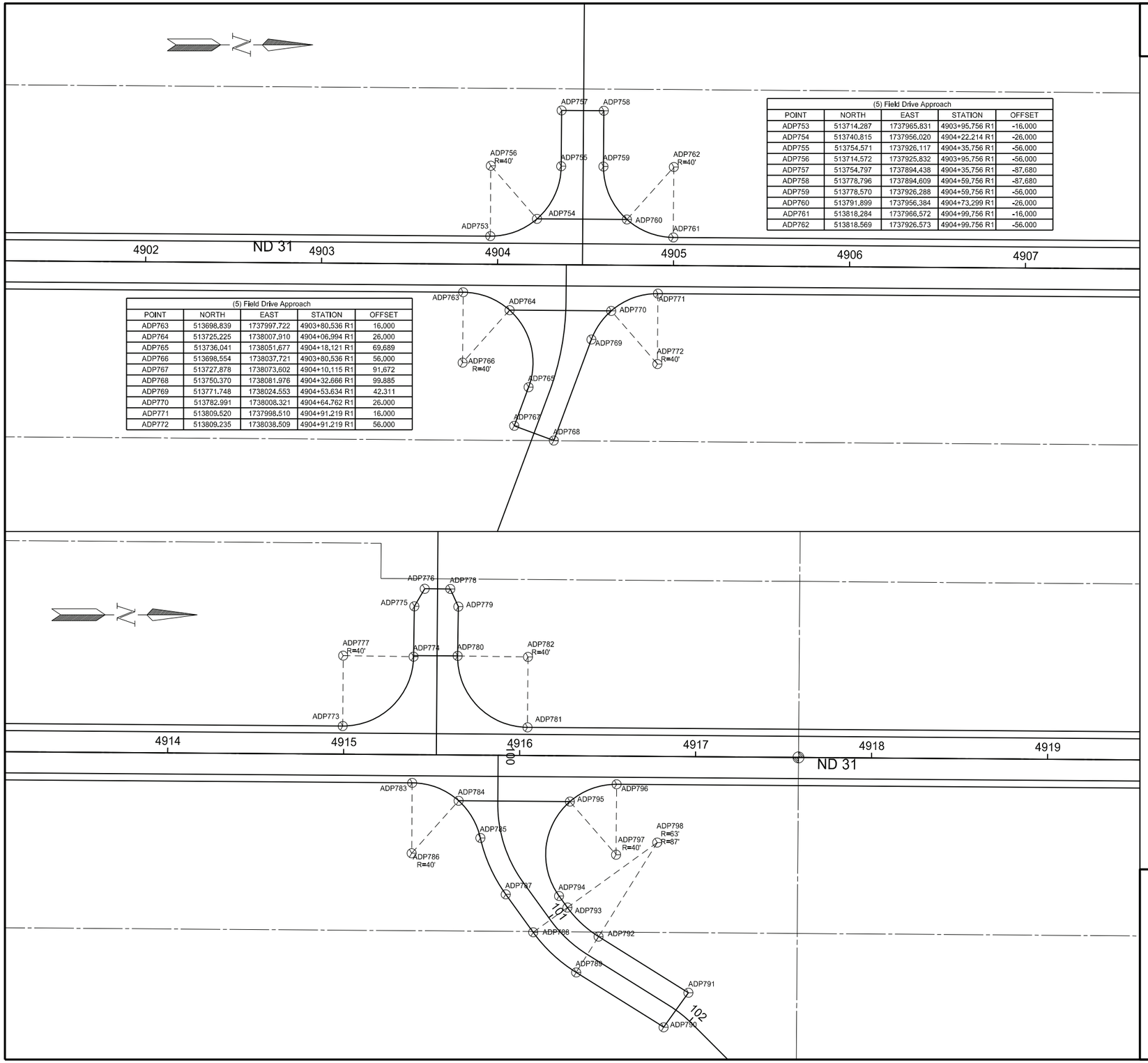
Jct I-94 to Hannover
Oliver County

Survey Data Points

Sta 4875+11 to Sta 4881+56
Sta 4887+81 to Sta 4894+26

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	82	30



(5) Field Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP753	513714.287	1737965.831	4903+95.756 R1	-16.000
ADP754	513740.815	1737956.020	4904+22.214 R1	-26.000
ADP755	513754.571	1737926.117	4904+35.756 R1	-56.000
ADP756	513714.572	1737925.832	4903+95.756 R1	-56.000
ADP757	513754.797	1737894.438	4904+35.756 R1	-87.680
ADP758	513778.796	1737894.609	4904+59.756 R1	-87.680
ADP759	513778.570	1737926.288	4904+59.756 R1	-56.000
ADP760	513791.899	1737956.384	4904+73.299 R1	-26.000
ADP761	513818.284	1737966.572	4904+99.756 R1	-16.000
ADP762	513818.569	1737926.573	4904+99.756 R1	-56.000

(5) Field Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP763	513698.839	1737997.722	4903+80.536 R1	16.000
ADP764	513725.225	1738007.910	4904+06.994 R1	26.000
ADP765	513736.041	1738051.677	4904+18.121 R1	69.689
ADP766	513698.554	1738037.721	4903+80.536 R1	56.000
ADP767	513727.878	1738073.602	4904+10.115 R1	91.672
ADP768	513750.370	1738081.976	4904+32.666 R1	99.885
ADP769	513771.748	1738024.553	4904+53.634 R1	42.311
ADP770	513782.991	1738008.321	4904+64.762 R1	26.000
ADP771	513809.520	1737998.510	4904+91.219 R1	16.000
ADP772	513809.235	1738038.509	4904+91.219 R1	56.000

(4) Gravel Private Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP773	514817.855	1737973.695	4914+99.352 R1	-16.000
ADP774	514858.135	1737934.299	4915+39.351 R1	-55.682
ADP775	514858.567	1737905.673	4915+39.578 R1	-84.310
ADP776	514864.466	1737895.715	4915+45.407 R1	-94.310
ADP777	514818.140	1737933.696	4914+99.352 R1	-56.000
ADP778	514879.003	1737895.818	4915+59.944 R1	-94.310
ADP779	514883.584	1737905.851	4915+64.596 R1	-84.310
ADP780	514883.162	1737933.841	4915+64.374 R1	-56.318
ADP781	514922.873	1737974.443	4916+04.372 R1	-16.000
ADP782	514923.158	1737934.444	4916+04.372 R1	-56.000

(5) Field Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP783	514857.335	1738005.977	4915+39.061 R1	16.000
ADP784	514883.720	1738016.165	4915+65.518 R1	26.000
ADP785	514896.092	1738037.275	4915+78.040 R1	47.021
ADP786	514857.050	1738045.976	4915+39.061 R1	56.000
ADP787	514910.513	1738069.334	4915+92.690 R1	78.977
ADP788	514926.096	1738090.881	4916+08.426 R1	100.412
ADP789	514950.525	1738113.699	4916+33.017 R1	123.056
ADP790	515000.209	1738144.864	4916+82.921 R1	153.866
ADP791	515014.305	1738125.218	4916+96.877 R1	134.119
ADP792	514963.233	1738093.340	4916+45.579 R1	102.606
ADP793	514945.543	1738076.816	4916+27.772 R1	86.209
ADP794	514940.791	1738070.245	4916+22.973 R1	79.672
ADP795	514946.959	1738016.616	4916+28.759 R1	26.000
ADP796	514973.487	1738006.804	4916+55.216 R1	16.000
ADP797	514973.202	1738046.803	4916+55.216 R1	56.000
ADP798	514996.592	1738039.896	4916+78.556 R1	48.926

ND 31

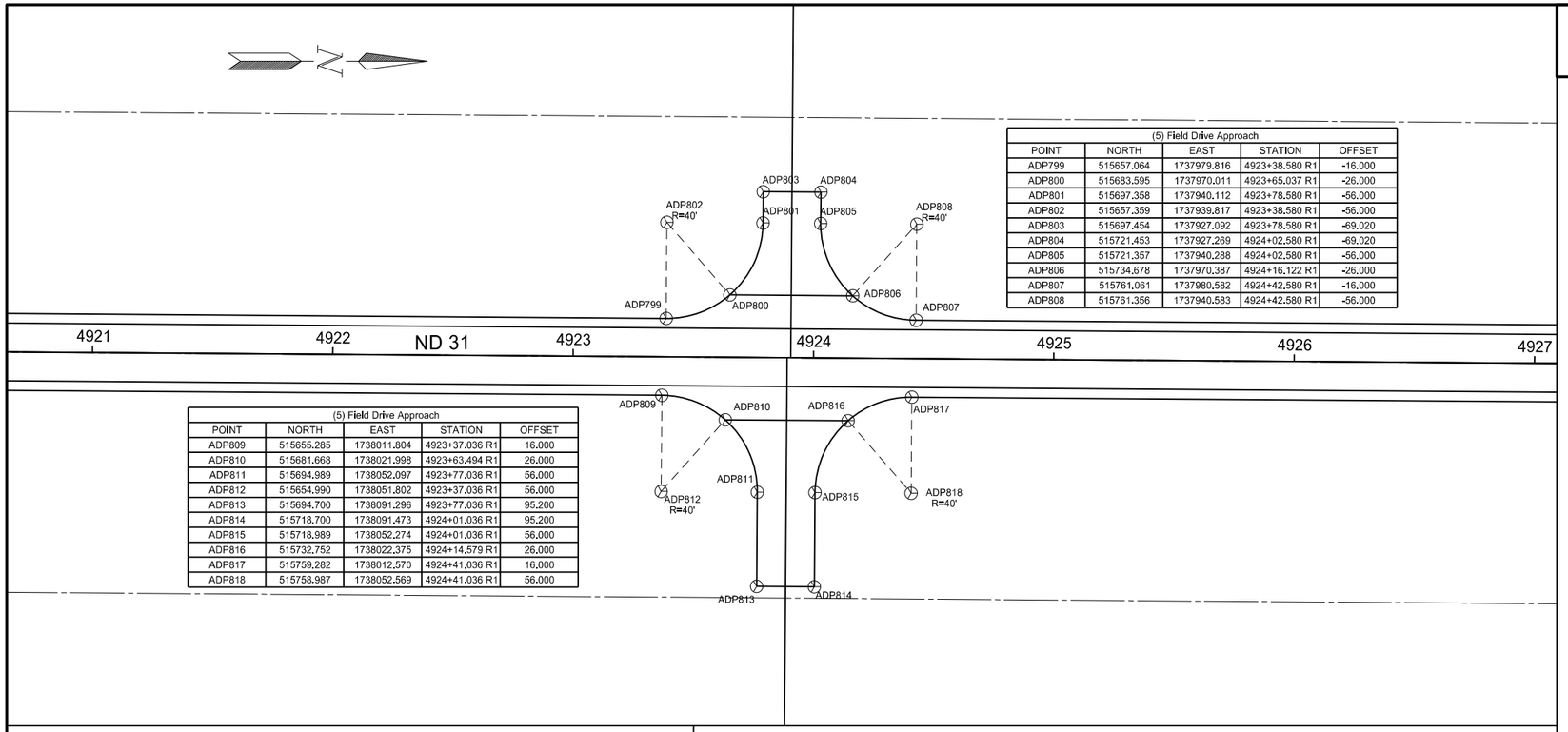
Jct I-94 to Hannover
Oliver County

Survey Data Points

Sta 4901+20 to Sta 4907+65
Sta 4913+07 to Sta 4919+53

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	82	31

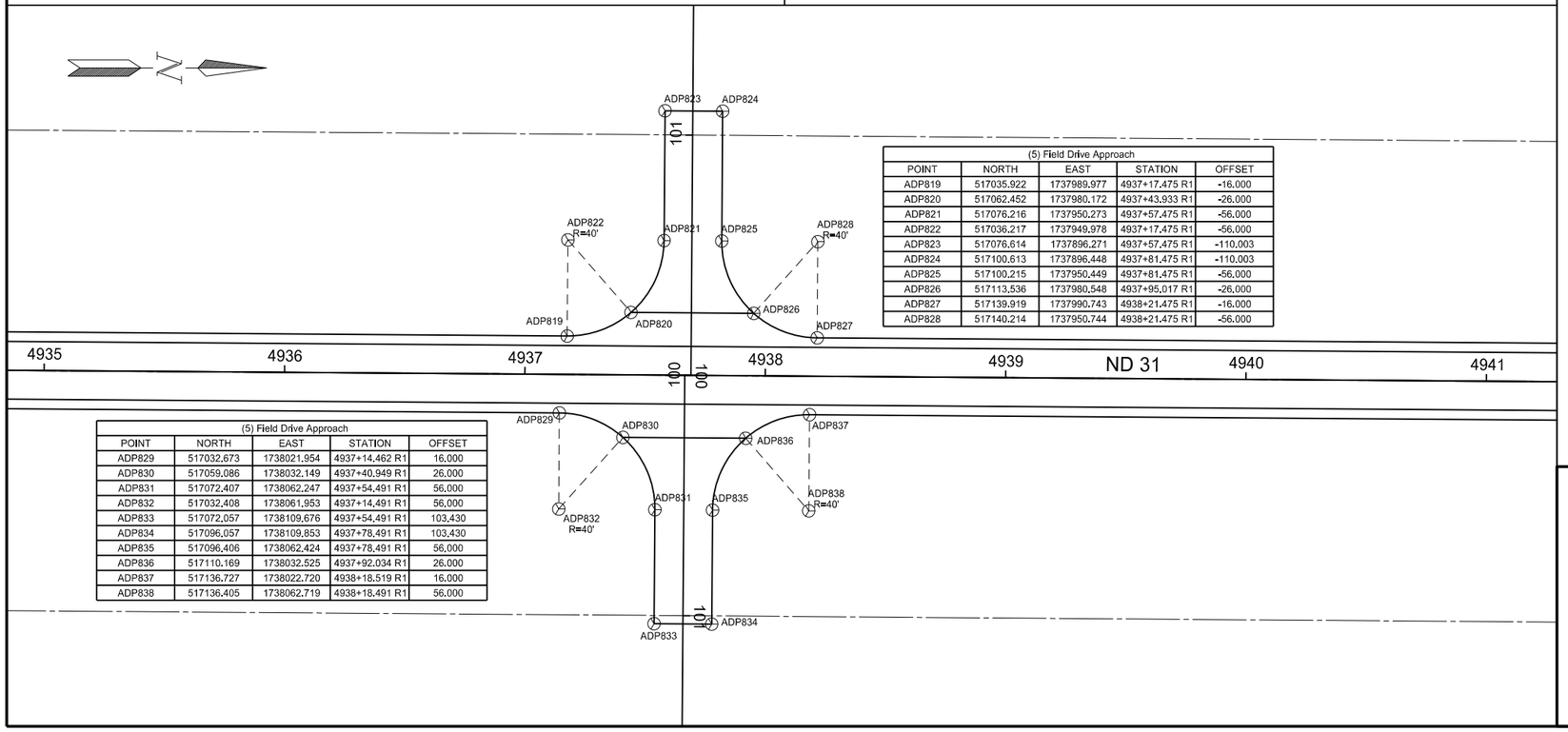


(5) Field Drive Approach

POINT	NORTH	EAST	STATION	OFFSET
ADP799	515657.064	1737979.816	4923+38.580 R1	-16.000
ADP800	515683.595	1737970.011	4923+65.037 R1	-26.000
ADP801	515697.358	1737940.112	4923+78.580 R1	-56.000
ADP802	515657.359	1737939.817	4923+38.580 R1	-56.000
ADP803	515697.454	1737927.092	4923+78.580 R1	-69.020
ADP804	515721.453	1737927.269	4924+02.580 R1	-69.020
ADP805	515721.357	1737940.288	4924+02.580 R1	-56.000
ADP806	515734.678	1737970.387	4924+16.122 R1	-26.000
ADP807	515761.061	1737980.582	4924+42.580 R1	-16.000
ADP808	515761.356	1737940.583	4924+42.580 R1	-56.000

(5) Field Drive Approach

POINT	NORTH	EAST	STATION	OFFSET
ADP809	515655.285	1738011.804	4923+37.036 R1	16.000
ADP810	515681.668	1738021.998	4923+63.494 R1	26.000
ADP811	515694.989	1738052.097	4923+77.036 R1	56.000
ADP812	515654.990	1738051.802	4923+37.036 R1	56.000
ADP813	515694.700	1738091.296	4923+77.036 R1	95.200
ADP814	515718.700	1738091.473	4924+01.036 R1	95.200
ADP815	515718.989	1738052.274	4924+01.036 R1	56.000
ADP816	515732.752	1738022.375	4924+14.579 R1	26.000
ADP817	515759.282	1738012.570	4924+41.036 R1	16.000
ADP818	515758.987	1738052.569	4924+41.036 R1	56.000



(5) Field Drive Approach

POINT	NORTH	EAST	STATION	OFFSET
ADP819	517035.922	1737989.977	4937+17.475 R1	-16.000
ADP820	517062.452	1737980.172	4937+43.933 R1	-26.000
ADP821	517076.216	1737950.273	4937+57.475 R1	-56.000
ADP822	517036.217	1737949.978	4937+17.475 R1	-56.000
ADP823	517076.614	1737896.271	4937+57.475 R1	-110.003
ADP824	517100.613	1737896.448	4937+81.475 R1	-110.003
ADP825	517100.215	1737950.449	4937+81.475 R1	-56.000
ADP826	517113.536	1737980.548	4937+95.017 R1	-26.000
ADP827	517139.919	1737990.743	4938+21.475 R1	-16.000
ADP828	517140.214	1737950.744	4938+21.475 R1	-56.000

(5) Field Drive Approach

POINT	NORTH	EAST	STATION	OFFSET
ADP829	517032.673	1738021.954	4937+14.462 R1	16.000
ADP830	517059.086	1738032.149	4937+40.949 R1	26.000
ADP831	517072.407	1738062.247	4937+54.491 R1	56.000
ADP832	517032.408	1738061.953	4937+14.491 R1	56.000
ADP833	517072.057	1738109.676	4937+54.491 R1	103.430
ADP834	517096.057	1738109.853	4937+78.491 R1	103.430
ADP835	517096.406	1738062.424	4937+78.491 R1	56.000
ADP836	517110.169	1738032.525	4937+92.034 R1	26.000
ADP837	517136.727	1738022.720	4938+18.519 R1	16.000
ADP838	517136.405	1738062.719	4938+18.491 R1	56.000

ND 31

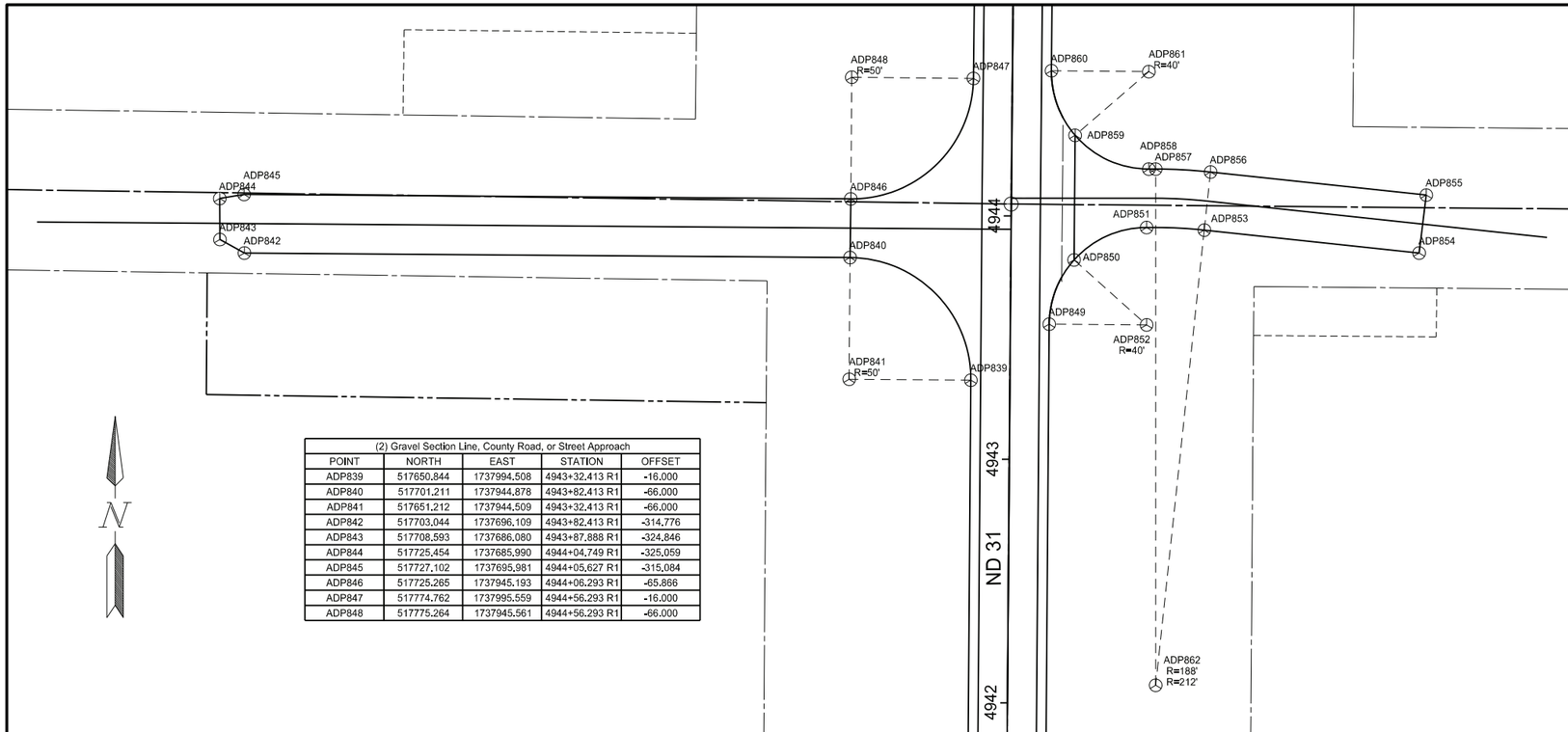
Jct I-94 to Hannover
Oliver County

Survey Data Points

Sta 4920+64 to Sta 4927+09
Sta 4934+84 to Sta 4941+29

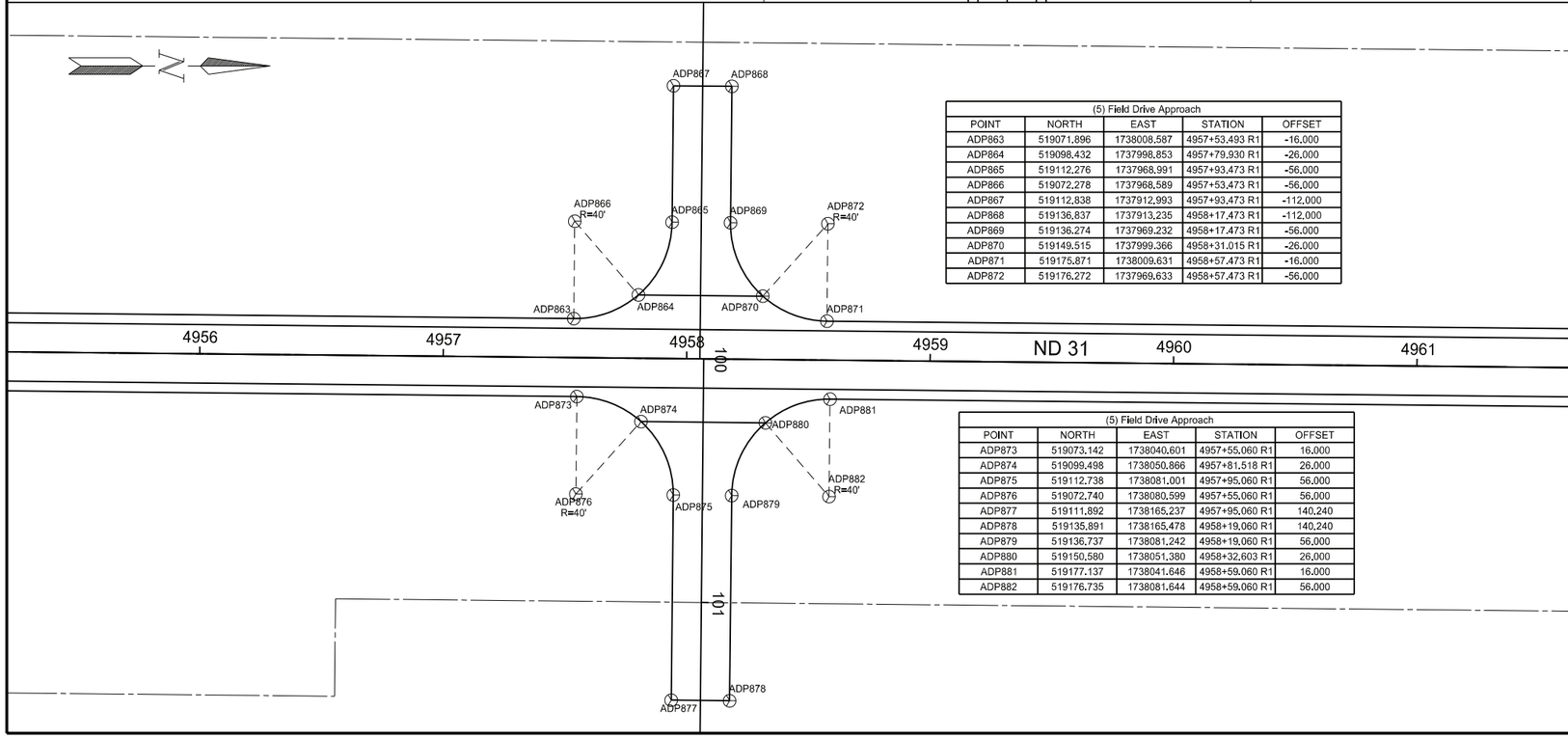
REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	82	32



(2) Gravel Section Line, County Road, or Street Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP839	517650.844	1737994.508	4943+32.413 R1	-16.000
ADP840	517701.211	1737944.878	4943+82.413 R1	-66.000
ADP841	517651.212	1737944.509	4943+32.413 R1	-66.000
ADP842	517703.044	1737696.109	4943+82.413 R1	-314.776
ADP843	517708.593	1737686.080	4943+87.888 R1	-324.846
ADP844	517725.454	1737685.990	4944+04.749 R1	-325.059
ADP845	517727.102	1737695.981	4944+05.627 R1	-315.084
ADP846	517725.265	1737945.193	4944+06.293 R1	-65.866
ADP847	517774.762	1737995.559	4944+56.293 R1	-16.000
ADP848	517775.264	1737945.561	4944+56.293 R1	-66.000

(5) Field Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP849	517673.830	1738026.678	4943+55.636 R1	16.000
ADP850	517700.213	1738036.873	4943+82.094 R1	26.000
ADP851	517713.535	1738066.677	4943+95.635 R1	55.705
ADP852	517673.535	1738066.677	4943+55.636 R1	56.000
ADP853	517712.470	1738090.389	4943+94.745 R1	79.424
ADP854	517703.041	1738178.619	4943+85.966 R1	167.721
ADP855	517726.862	1738181.564	4944+10.265 R1	170.477
ADP856	517736.335	1738092.940	4944+18.846 R1	81.762
ADP857	517737.535	1738070.410	4944+19.820 R1	59.221
ADP858	517737.535	1738067.590	4944+19.792 R1	56.402
ADP859	517751.380	1738037.326	4944+33.332 R1	26.000
ADP860	517777.937	1738027.592	4944+59.790 R1	16.000
ADP861	517777.535	1738067.590	4944+59.790 R1	56.000
ADP862	517525.535	1738070.410	4942+07.668 R1	60.823



(5) Field Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP863	519071.896	1738008.587	4957+53.493 R1	-16.000
ADP864	519098.432	1737998.853	4957+79.930 R1	-26.000
ADP865	519112.276	1737968.991	4957+93.473 R1	-56.000
ADP866	519072.278	1737968.589	4957+53.473 R1	-56.000
ADP867	519112.838	1737912.993	4957+93.473 R1	-112.000
ADP868	519136.837	1737913.235	4958+17.473 R1	-112.000
ADP869	519136.274	1737969.232	4958+17.473 R1	-56.000
ADP870	519149.515	1737999.366	4958+31.015 R1	-26.000
ADP871	519175.871	1738009.631	4958+57.473 R1	-16.000
ADP872	519176.272	1737969.633	4958+57.473 R1	-56.000

(5) Field Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP873	519073.142	1738040.601	4957+55.060 R1	16.000
ADP874	519099.498	1738050.866	4957+81.518 R1	26.000
ADP875	519112.738	1738081.001	4957+95.060 R1	56.000
ADP876	519072.740	1738080.599	4957+55.060 R1	56.000
ADP877	519111.892	1738165.237	4957+95.060 R1	140.240
ADP878	519135.891	1738165.478	4958+19.060 R1	140.240
ADP879	519136.737	1738081.242	4958+19.060 R1	56.000
ADP880	519150.580	1738051.380	4958+32.603 R1	26.000
ADP881	519177.137	1738041.646	4958+59.060 R1	16.000
ADP882	519176.735	1738081.644	4958+59.060 R1	56.000

ND 31

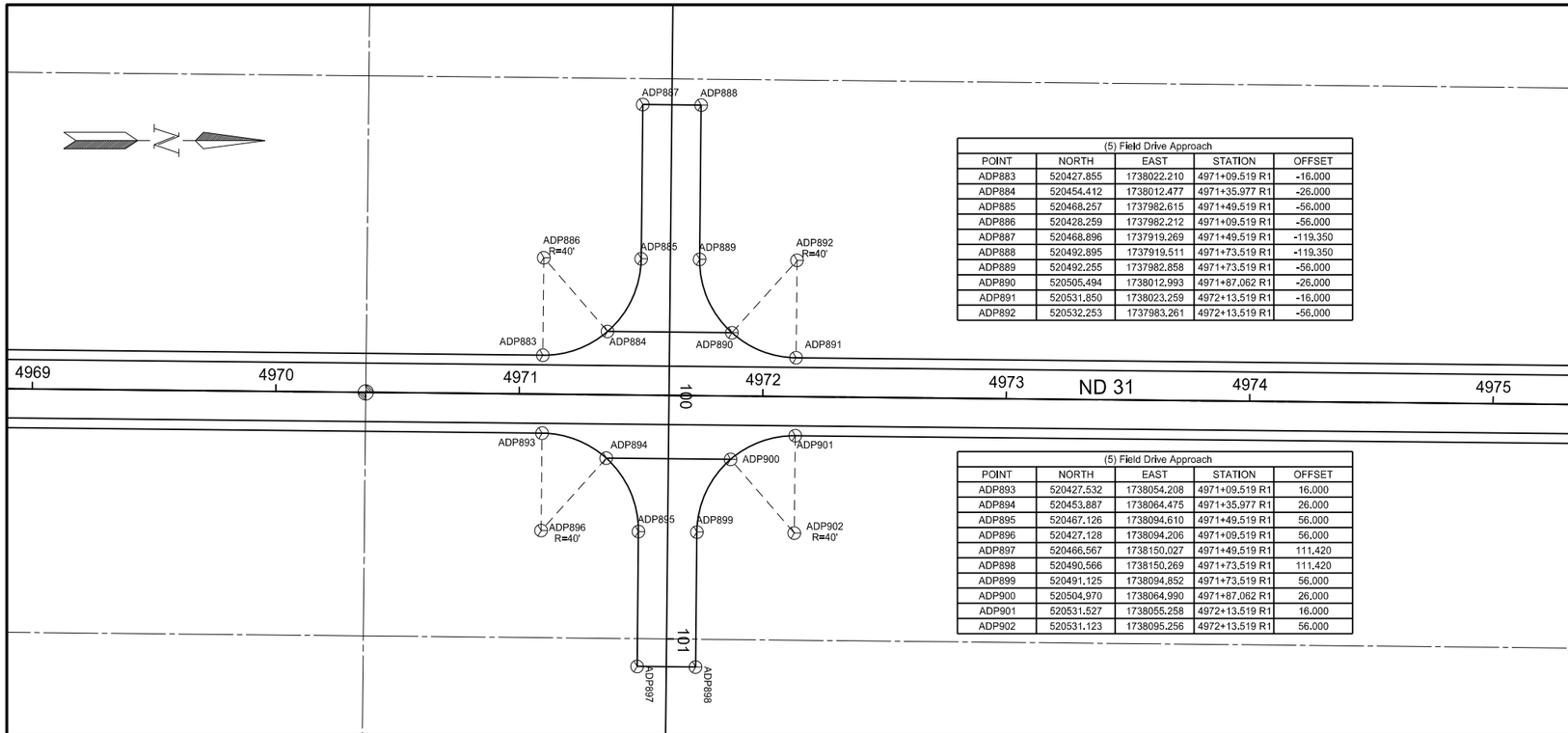
Jct I-94 to Hannover
Oliver County

Survey Data Points

Sta 4941+87 to Sta 4944+87
Sta 4955+21 to Sta 4961+66

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	82	33

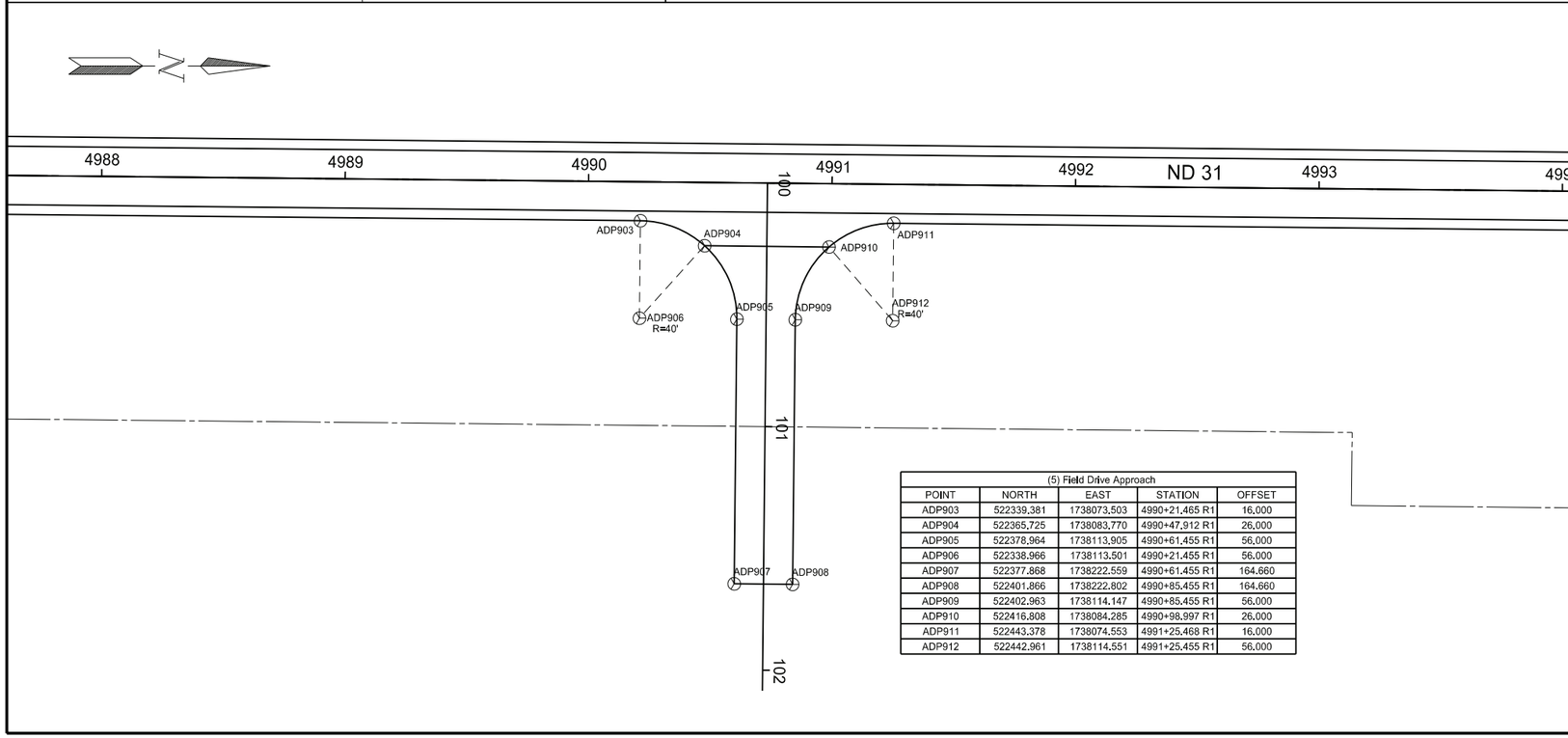


(5) Field Drive Approach

POINT	NORTH	EAST	STATION	OFFSET
ADP883	520427.855	1738022.210	4971+09.519 R1	-16.000
ADP884	520454.412	1738012.477	4971+35.977 R1	-26.000
ADP885	520468.257	1737982.615	4971+49.519 R1	-56.000
ADP886	520428.259	1737982.212	4971+09.519 R1	-56.000
ADP887	520468.896	1737919.269	4971+49.519 R1	-119.350
ADP888	520492.895	1737919.511	4971+73.519 R1	-119.350
ADP889	520492.255	1737982.858	4971+73.519 R1	-56.000
ADP890	520505.494	1738012.993	4971+87.062 R1	-26.000
ADP891	520531.850	1738023.259	4972+13.519 R1	-16.000
ADP892	520532.253	1737983.261	4972+13.519 R1	-56.000

(5) Field Drive Approach

POINT	NORTH	EAST	STATION	OFFSET
ADP893	520427.532	1738054.208	4971+09.519 R1	16.000
ADP894	520453.887	1738064.475	4971+35.977 R1	26.000
ADP895	520467.126	1738094.610	4971+49.519 R1	56.000
ADP896	520427.128	1738094.206	4971+09.519 R1	56.000
ADP897	520466.567	1738150.027	4971+49.519 R1	111.420
ADP898	520490.566	1738150.269	4971+73.519 R1	111.420
ADP899	520491.125	1738094.852	4971+73.519 R1	56.000
ADP900	520504.970	1738064.990	4971+87.062 R1	26.000
ADP901	520531.527	1738055.258	4972+13.519 R1	16.000
ADP902	520531.123	1738095.256	4972+13.519 R1	56.000



(5) Field Drive Approach

POINT	NORTH	EAST	STATION	OFFSET
ADP903	522339.381	1738073.503	4990+21.465 R1	16.000
ADP904	522365.725	1738083.770	4990+47.912 R1	26.000
ADP905	522378.964	1738113.905	4990+61.455 R1	56.000
ADP906	522338.966	1738113.501	4990+21.455 R1	56.000
ADP907	522377.868	1738222.559	4990+61.455 R1	164.660
ADP908	522401.866	1738222.802	4990+85.455 R1	164.660
ADP909	522402.963	1738114.147	4990+85.455 R1	56.000
ADP910	522416.808	1738084.285	4990+98.997 R1	26.000
ADP911	522443.378	1738074.553	4991+25.468 R1	16.000
ADP912	522442.961	1738114.551	4991+25.455 R1	56.000

ND 31

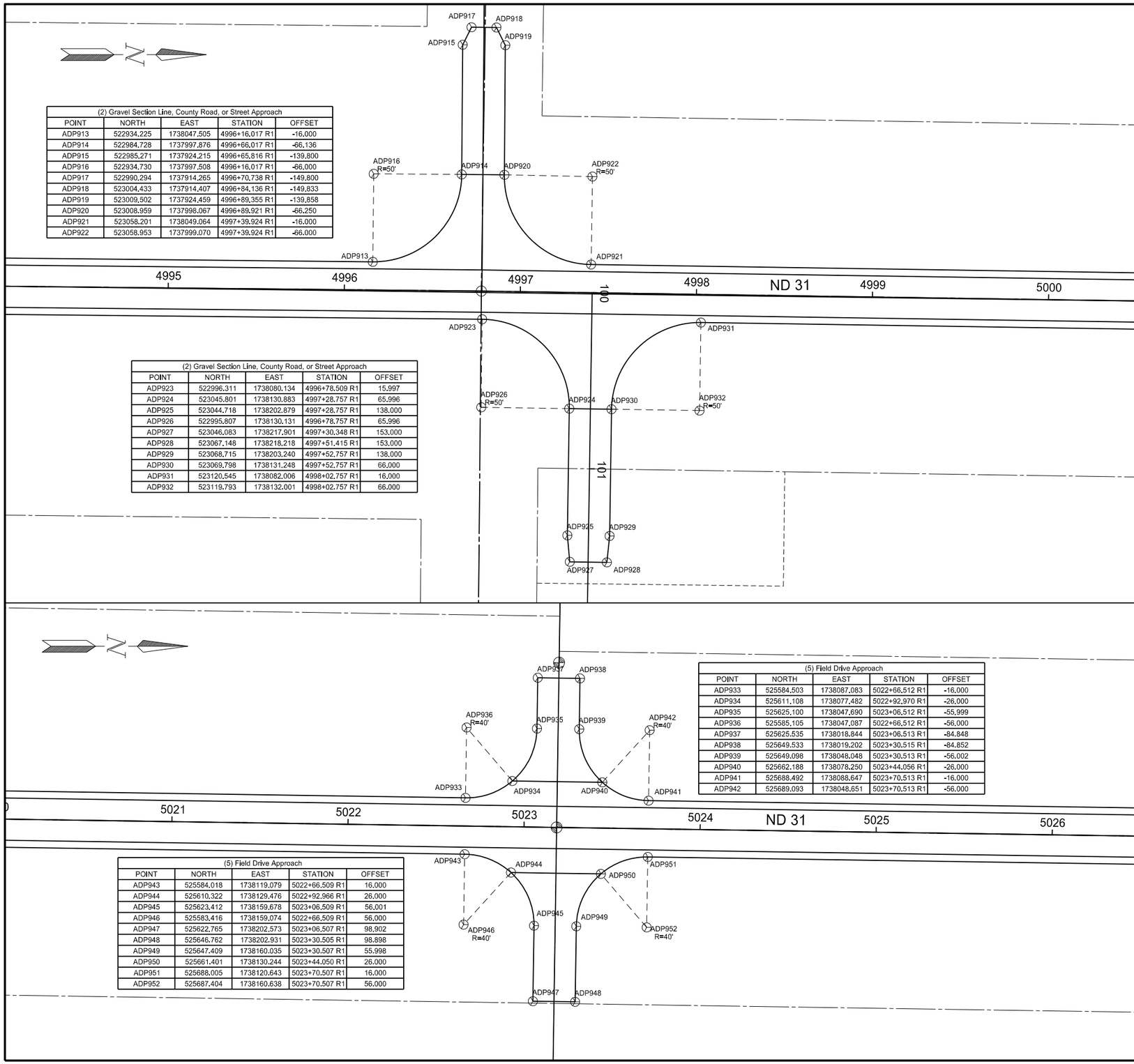
Jct I-94 to Hannover
Oliver County

Survey Data Points

Sta 4968+89 to Sta 4975+34
Sta 4987+60 to Sta 4994+06

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	82	34



(2) Gravel Section Line, County Road, or Street Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP913	522934.225	1738047.505	4996+16.017 R1	-16.000
ADP914	522984.728	1737997.876	4996+66.017 R1	-66.136
ADP915	522985.271	1737924.215	4996+65.816 R1	-139.800
ADP916	522934.730	1737997.508	4996+16.017 R1	-66.000
ADP917	522990.294	1737914.265	4996+70.738 R1	-149.800
ADP918	523004.433	1737914.407	4996+84.136 R1	-149.833
ADP919	523009.502	1737924.459	4996+89.355 R1	-139.858
ADP920	523008.959	1737998.067	4996+89.921 R1	-66.250
ADP921	523058.201	1738049.064	4997+39.924 R1	-16.000
ADP922	523058.953	1737999.070	4997+39.924 R1	-56.000

(2) Gravel Section Line, County Road, or Street Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP923	522996.311	1738080.134	4996+78.509 R1	15.997
ADP924	523045.801	1738130.883	4997+28.757 R1	65.996
ADP925	523044.718	1738202.879	4997+28.757 R1	138.000
ADP926	522995.807	1738130.131	4996+78.757 R1	65.996
ADP927	523046.083	1738217.901	4997+30.348 R1	153.000
ADP928	523067.148	1738218.218	4997+51.415 R1	153.000
ADP929	523068.715	1738203.240	4997+52.757 R1	138.000
ADP930	523069.798	1738131.248	4997+52.757 R1	66.000
ADP931	523120.545	1738082.006	4998+02.757 R1	16.000
ADP932	523119.793	1738132.001	4998+02.757 R1	66.000

(5) Field Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP933	525584.503	1738087.083	5022+66.512 R1	-16.000
ADP934	525611.108	1738077.482	5022+92.970 R1	-26.000
ADP935	525625.100	1738047.690	5023+06.512 R1	-55.999
ADP936	525585.105	1738047.087	5022+66.512 R1	-56.000
ADP937	525625.535	1738018.844	5023+06.513 R1	-84.848
ADP938	525649.533	1738019.202	5023+30.515 R1	-84.852
ADP939	525649.098	1738048.048	5023+30.513 R1	-56.002
ADP940	525662.188	1738078.250	5023+44.056 R1	-26.000
ADP941	525688.492	1738088.647	5023+70.513 R1	-16.000
ADP942	525689.093	1738048.651	5023+70.513 R1	-56.000

(5) Field Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP943	525584.018	1738119.079	5022+66.509 R1	16.000
ADP944	525610.322	1738129.476	5022+92.966 R1	26.000
ADP945	525623.412	1738159.678	5023+06.509 R1	56.001
ADP946	525583.416	1738159.074	5022+66.509 R1	56.000
ADP947	525622.765	1738202.573	5023+06.507 R1	98.902
ADP948	525646.762	1738202.931	5023+30.505 R1	98.898
ADP949	525647.409	1738160.035	5023+30.507 R1	55.998
ADP950	525661.401	1738130.244	5023+44.050 R1	26.000
ADP951	525688.005	1738120.643	5023+70.507 R1	16.000
ADP952	525687.404	1738160.638	5023+70.507 R1	56.000

ND 31

Jct I-94 to Hannover
Oliver County

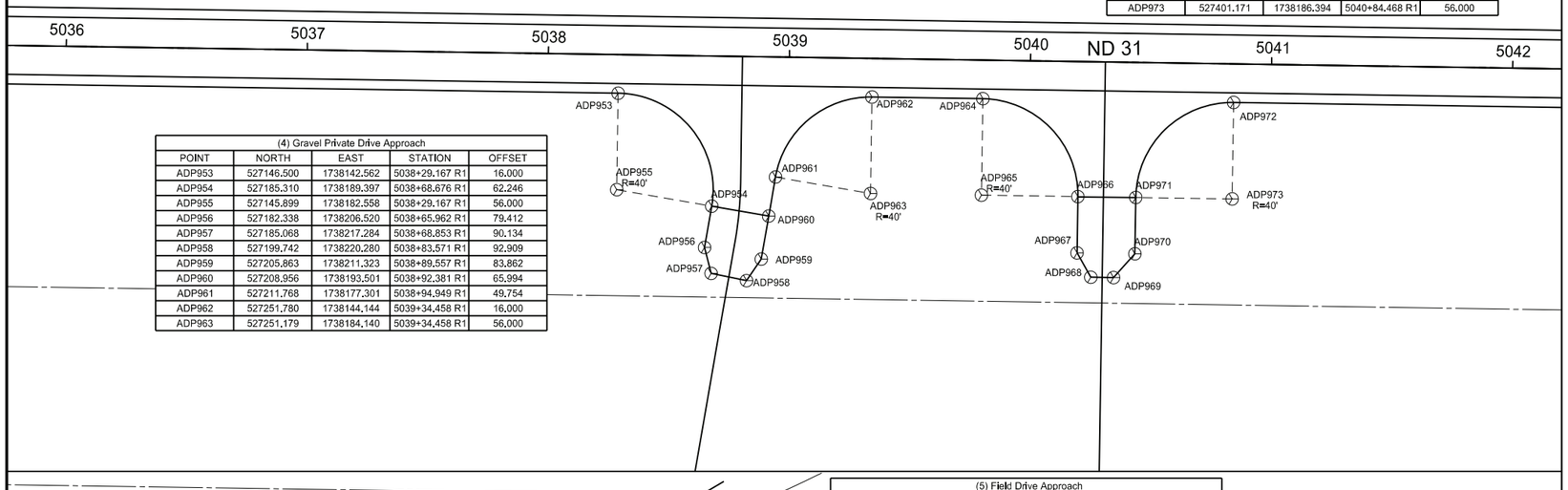
Survey Data Points

Sta 4994+07 to Sta 5000+52
Sta 5020+05 to Sta 5026+50

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

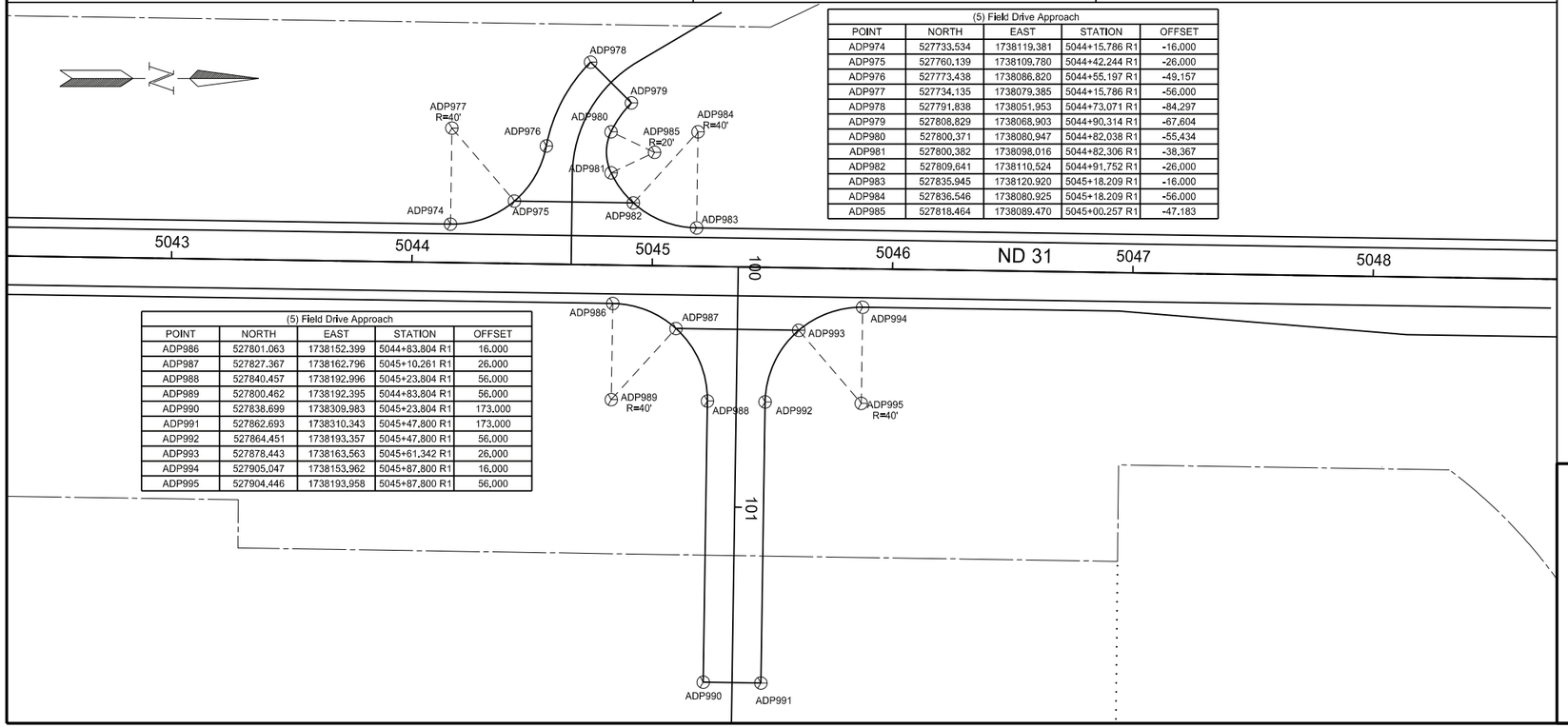
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	82	35

(4) Gravel Private Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP964	527297.784	1738144.836	5039+80.468 R1	16.000
ADP965	527297.183	1738184.831	5039+80.468 R1	56.000
ADP966	527337.178	1738185.432	5040+20.468 R1	56.000
ADP967	527336.827	1738208.780	5040+20.468 R1	79.350
ADP968	527342.536	1738218.867	5040+26.328 R1	89.350
ADP969	527351.966	1738219.008	5040+35.758 R1	89.350
ADP970	527360.825	1738209.140	5040+44.468 R1	79.350
ADP971	527361.175	1738185.793	5040+44.468 R1	56.000
ADP972	527401.772	1738146.399	5040+84.468 R1	16.000
ADP973	527401.171	1738186.394	5040+84.468 R1	56.000



(4) Gravel Private Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP953	527146.500	1738142.562	5038+29.167 R1	16.000
ADP954	527185.310	1738189.397	5038+68.676 R1	62.246
ADP955	527145.899	1738182.558	5038+29.167 R1	56.000
ADP956	527182.338	1738206.520	5038+65.962 R1	79.412
ADP957	527185.068	1738217.284	5038+68.853 R1	90.134
ADP958	527199.742	1738220.280	5038+83.571 R1	92.909
ADP959	527205.863	1738211.323	5038+89.557 R1	83.862
ADP960	527208.956	1738193.501	5038+92.381 R1	65.994
ADP961	527211.768	1738177.301	5038+94.949 R1	49.754
ADP962	527251.780	1738144.144	5039+34.458 R1	16.000
ADP963	527251.179	1738184.140	5039+34.458 R1	56.000

(5) Field Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP974	527733.534	1738119.381	5044+15.786 R1	-16.000
ADP975	527760.139	1738109.780	5044+42.244 R1	-26.000
ADP976	527773.438	1738086.820	5044+55.197 R1	-49.157
ADP977	527734.135	1738079.385	5044+15.786 R1	-56.000
ADP978	527791.838	1738051.953	5044+73.071 R1	-84.297
ADP979	527808.829	1738068.903	5044+90.314 R1	-67.604
ADP980	527800.371	1738080.947	5044+82.038 R1	-55.434
ADP981	527800.382	1738098.016	5044+82.306 R1	-38.367
ADP982	527809.641	1738110.524	5044+91.752 R1	-26.000
ADP983	527835.945	1738120.920	5045+18.209 R1	-16.000
ADP984	527836.546	1738080.925	5045+18.209 R1	-56.000
ADP985	527818.464	1738089.470	5045+00.257 R1	-47.183



(5) Field Drive Approach				
POINT	NORTH	EAST	STATION	OFFSET
ADP986	527801.063	1738152.399	5044+83.804 R1	16.000
ADP987	527827.367	1738162.796	5045+10.261 R1	26.000
ADP988	527840.457	1738192.996	5045+23.804 R1	56.000
ADP989	527800.462	1738192.395	5044+83.804 R1	56.000
ADP990	527838.699	1738309.983	5045+23.804 R1	173.000
ADP991	527862.693	1738310.343	5045+47.800 R1	173.000
ADP992	527864.451	1738193.357	5045+47.800 R1	56.000
ADP993	527878.443	1738163.563	5045+61.342 R1	26.000
ADP994	527905.047	1738153.962	5045+87.800 R1	16.000
ADP995	527904.446	1738193.958	5045+87.800 R1	56.000

ND 31

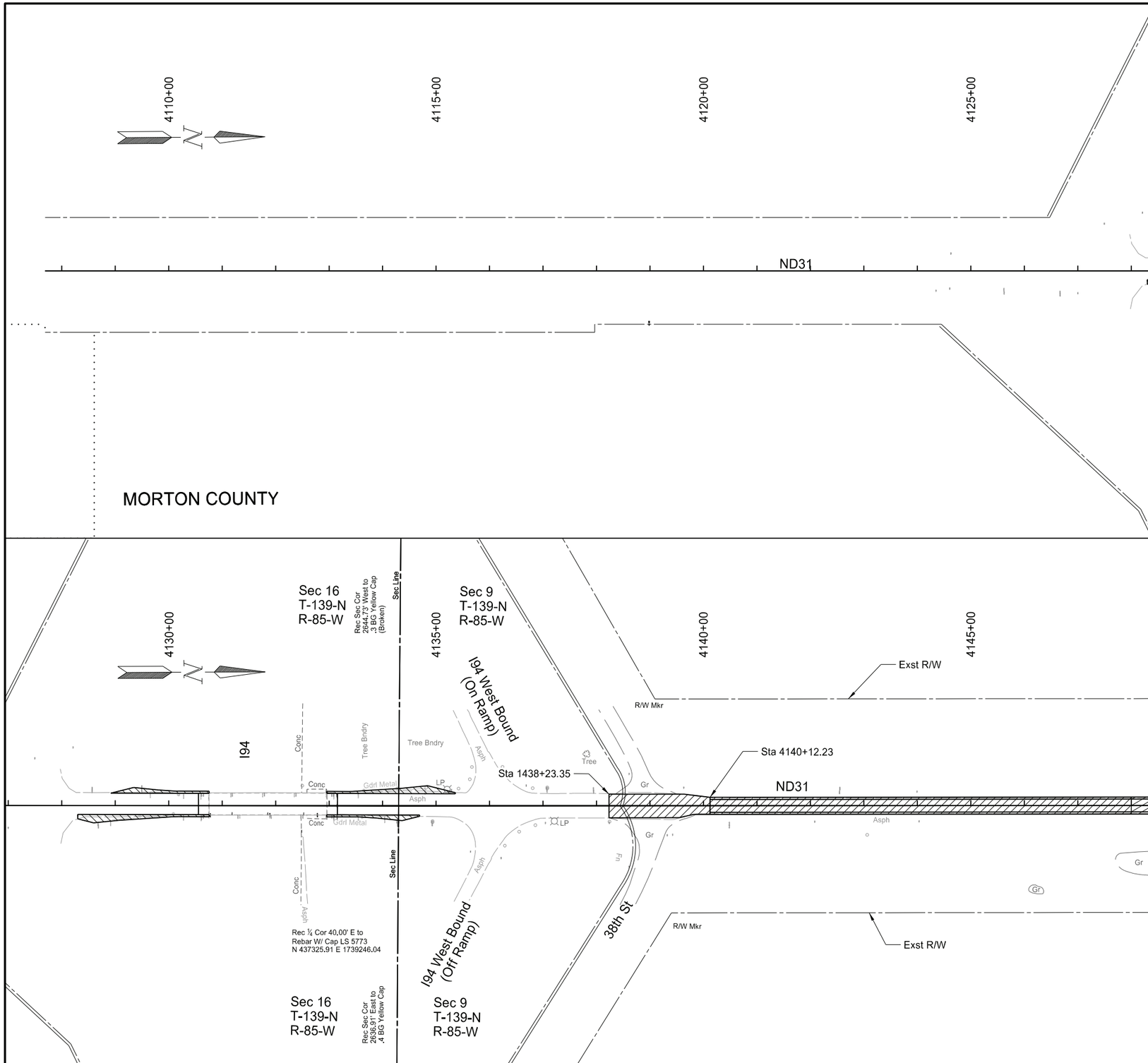
Jct I-94 to Hannover
Oliver County

Survey Data Points

Sta 5035+75 to Sta 5042+20
Sta 5042+31 to Sta 5048+76

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	90	1



SPEC	CODE	BID ITEM	QTY	UNIT
302	0121	AGGREGATE BASE COURSE CL 5		
		Sta 4130+56 to Sta 4148+00	1021	TON
401	0050	TACK COAT		
		Sta 4130+56 to Sta 4148+00	400	GAL
401	0060	PRIME COAT		
		Sta 4130+56 to Sta 4148+00	359	GAL
401	0160	BLOTTER MATERIAL CL 44		
		Sta 4130+56 to Sta 4148+00	11	TON
			0	
430	0143	RAP - SUPERPAVE FAA 43		
		Sta 4130+56 to Sta 4148+00	685	TON
430	5815	PG 58S-34 ASPHALT CEMENT		
		Sta 4130+56 to Sta 4148+00	41	TON

*See section 20 sheet 12 for approach quantities.

Legend

- 2" Bituminous Paving
- 3" Bituminous Overlay
- Aggregate Surface
- Curve Correction
- Subcut Reconstruction

ND 31

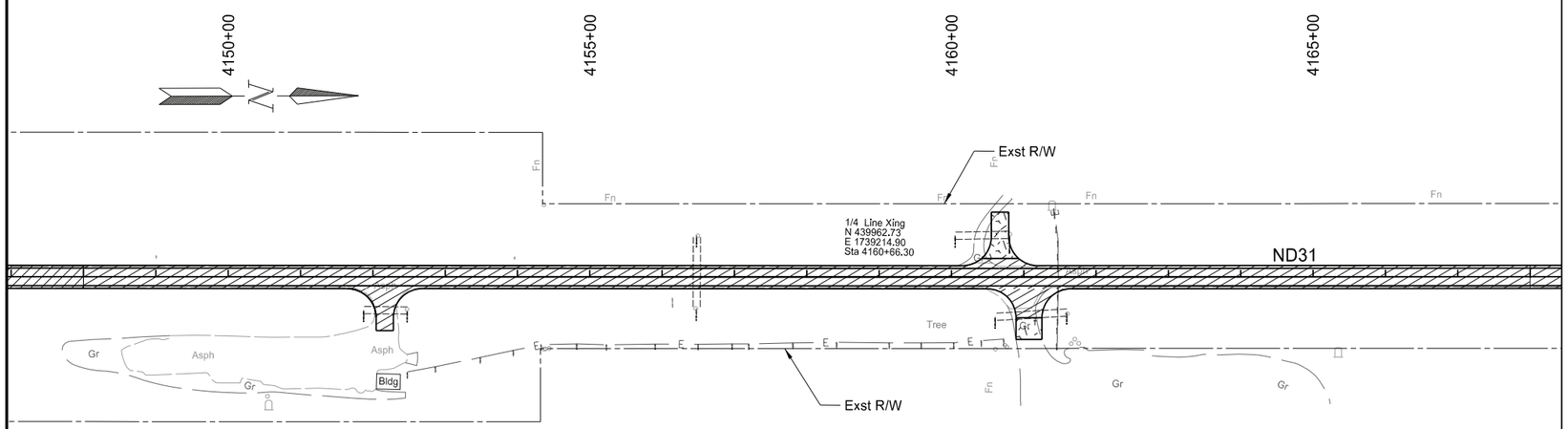
Jct I-94 to Hannover
Morton County

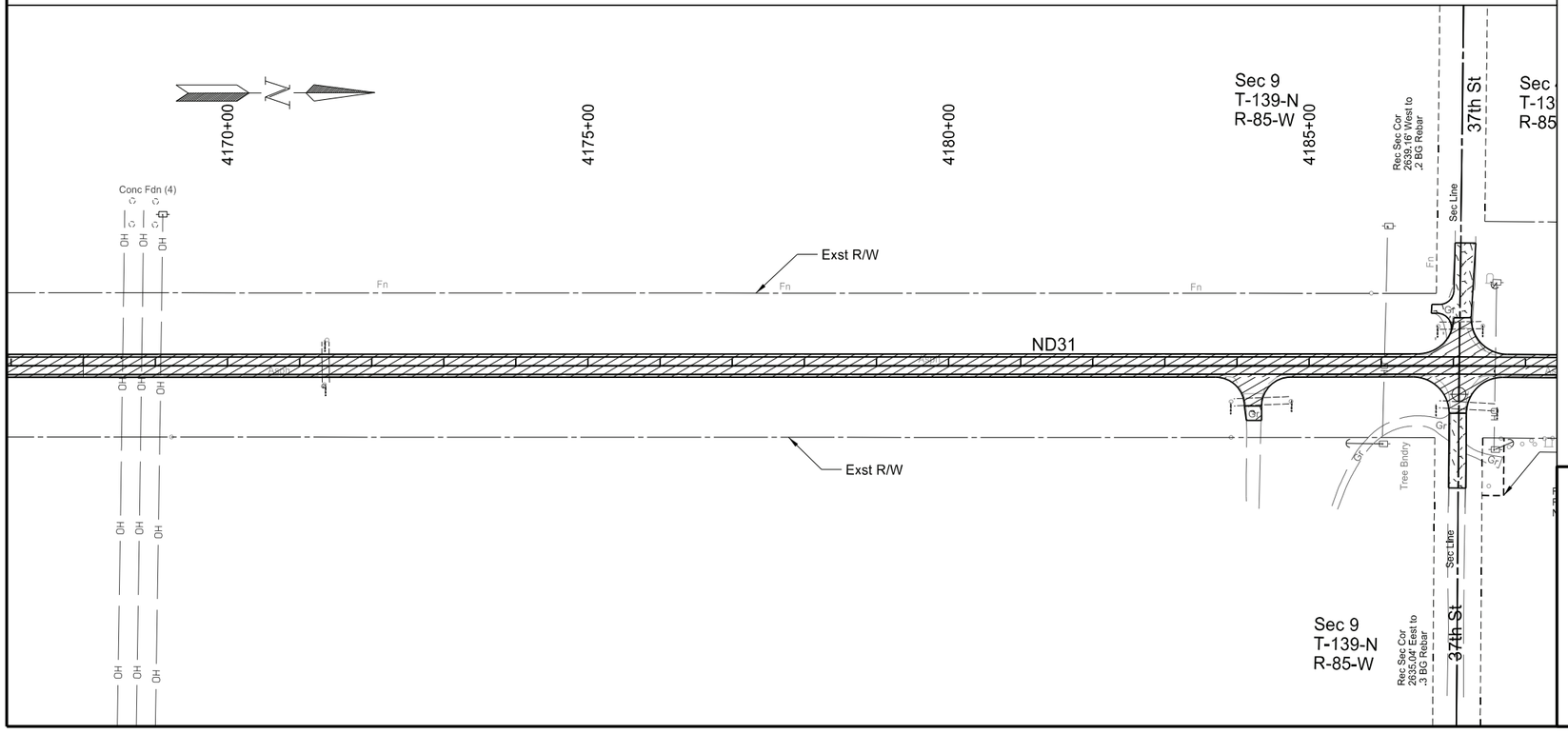
Paving Layout

Sta 4128+00 to Sta 4148+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	90	2





SPEC	CODE	BID ITEM	QTY	UNIT
302	0121	AGGREGATE BASE COURSE CL 5		
		Sta 4148+00 to Sta 4168+00	1107	TON
		Sta 4168+00 to Sta 4188+00	1107	TON
401	0050	TACK COAT		
		Sta 4148+00 to Sta 4168+00	711	GAL
		Sta 4168+00 to Sta 4188+00	711	GAL
401	0060	PRIME COAT		
		Sta 4148+00 to Sta 4168+00	500	GAL
		Sta 4168+00 to Sta 4188+00	500	GAL
401	0160	BLOTTER MATERIAL CL 44		
		Sta 4148+00 to Sta 4168+00	15	TON
		Sta 4168+00 to Sta 4188+00	15	TON
430	0143	RAP - SUPERPAVE FAA 43		
		Sta 4148+00 to Sta 4168+00	1185	TON
		Sta 4168+00 to Sta 4188+00	1185	TON
430	5815	PG 58S-34 ASPHALT CEMENT		
		Sta 4148+00 to Sta 4168+00	71	TON
		Sta 4168+00 to Sta 4188+00	71	TON

*See section 20 sheet 12 for approach quantities.

Legend

- 2" Bituminous Paving
- 3" Bituminous Overlay
- Aggregate Surface
- Curve Correction
- Subcut Reconstruction

ND 31

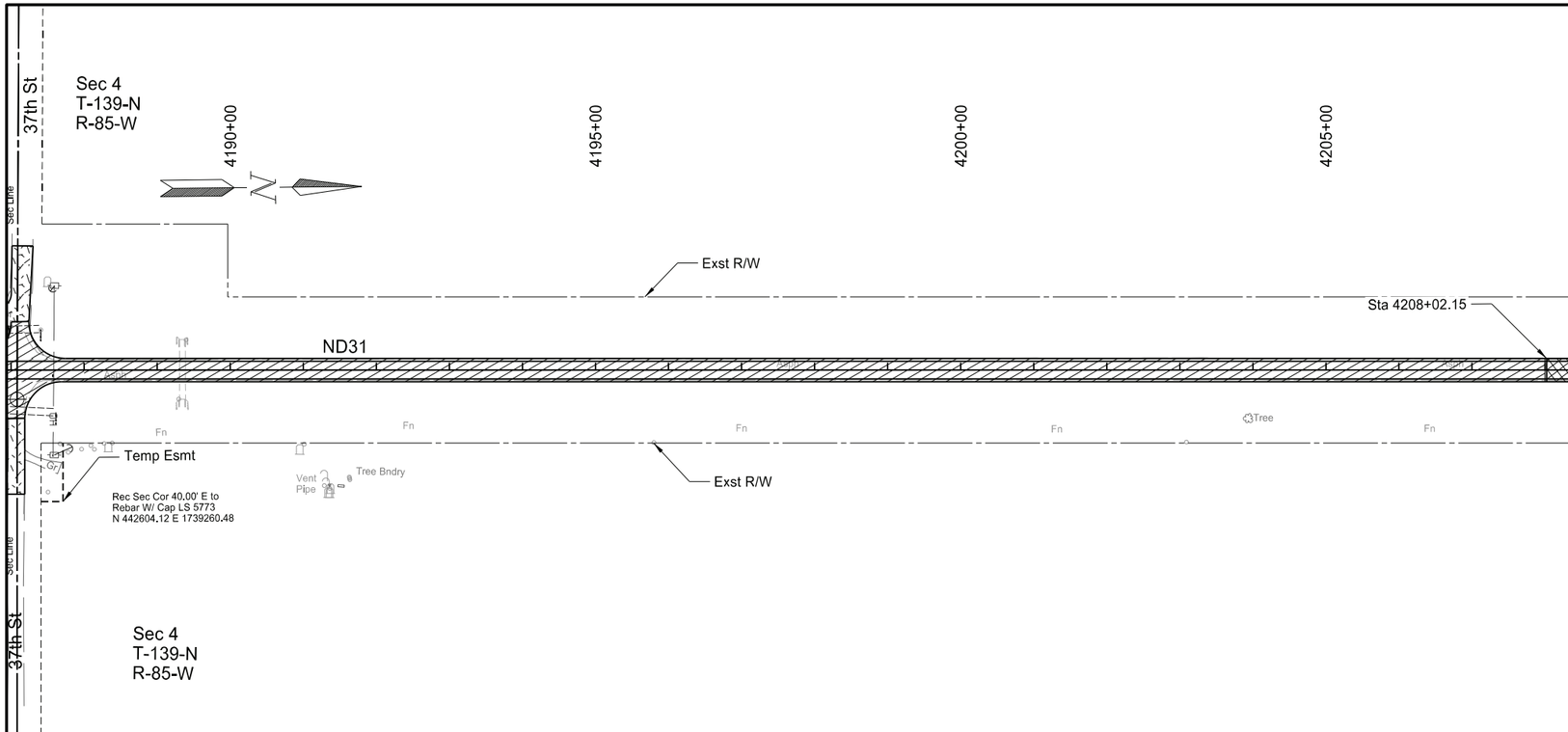
Jct I-94 to Hannover
Morton County

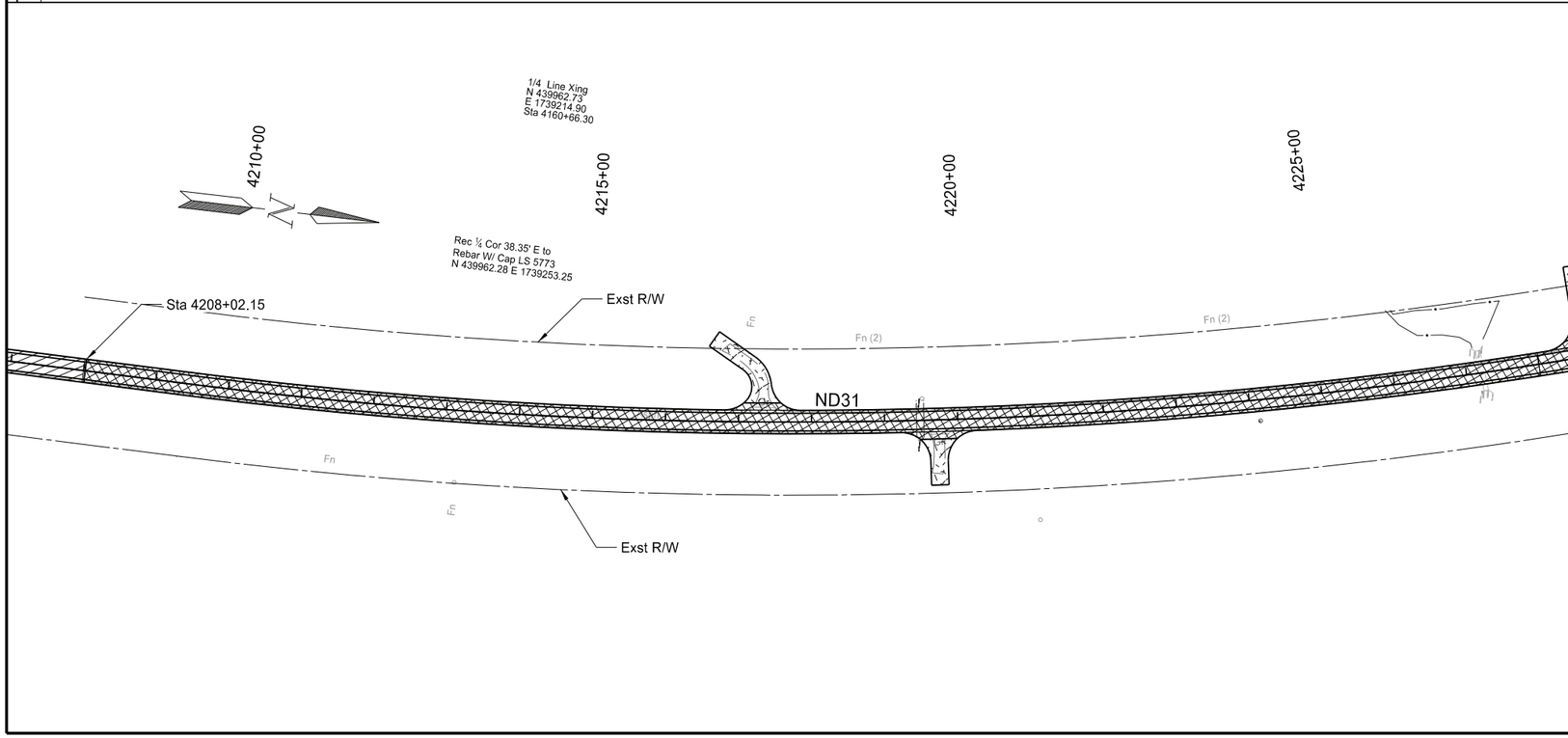
Paving Layout

Sta 4148+00 to Sta 4188+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	90	3





SPEC	CODE	BID ITEM	QTY	UNIT
302	0121	AGGREGATE BASE COURSE CL 5		
		Sta 4188+00 to Sta 4208+00	1107	TON
		Sta 4208+00 to Sta 4228+00	3810	TON
401	0050	TACK COAT		
		Sta 4188+00 to Sta 4208+00	711	GAL
		Sta 4208+00 to Sta 4228+00	1066	GAL
401	0060	PRIME COAT		
		Sta 4188+00 to Sta 4208+00	500	GAL
		Sta 4208+00 to Sta 4228+00	1776	GAL
401	0160	BLOTTER MATERIAL CL 44		
		Sta 4188+00 to Sta 4208+00	15	TON
		Sta 4208+00 to Sta 4228+00	53	TON
430	0143	RAP - SUPERPAVE FAA 43		
		Sta 4188+00 to Sta 4208+00	1185	TON
		Sta 4208+00 to Sta 4228+00	1973	TON
430	5815	PG 58S-34 ASPHALT CEMENT		
		Sta 4188+00 to Sta 4208+00	71	TON
		Sta 4208+00 to Sta 4228+00	118	TON
709	0100	GEOSYNTHETIC MATERIAL TYPE G		
		Sta 4208+00 to Sta 4228+00	10359	SY

*See section 20 sheet 12 for approach quantities.

Legend

- 2" Bituminous Paving
- 3" Bituminous Overlay
- Aggregate Surface
- Curve Correction
- Subcut Reconstruction

ND 31

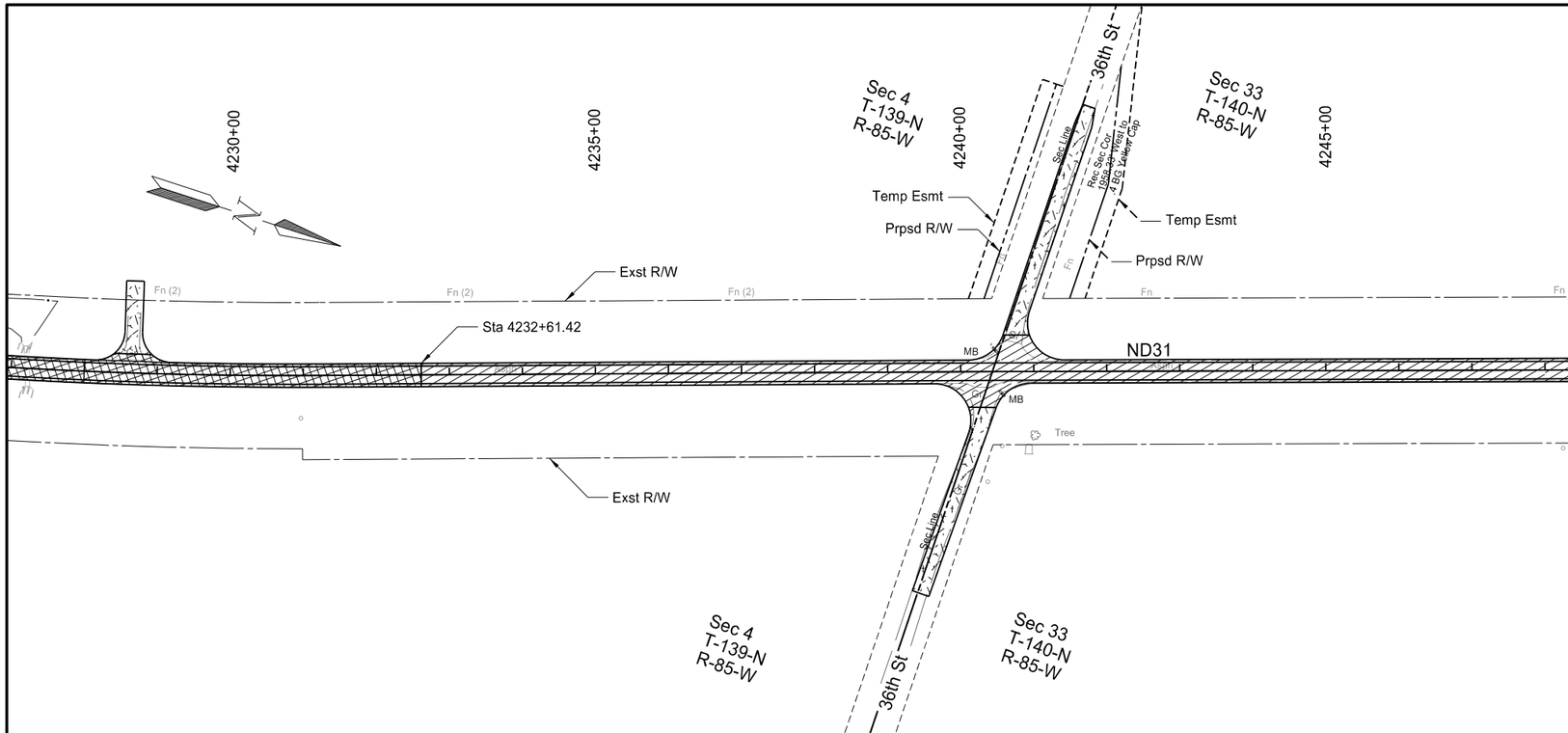
Jct I-94 to Hannover
Morton County

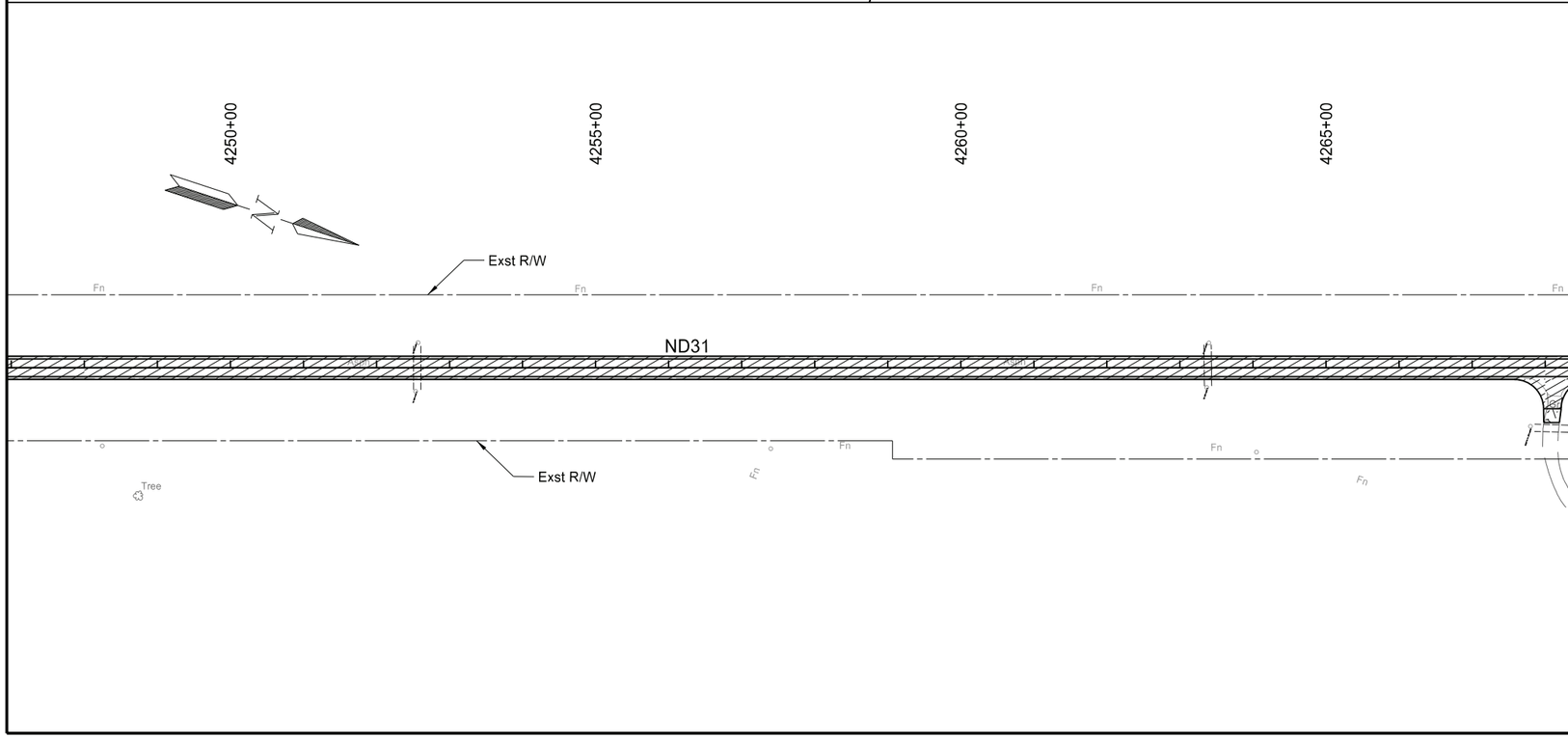
Paving Layout

Sta 4188+00 to Sta 4228+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	90	4





SPEC	CODE	BID ITEM	QTY	UNIT
302	0121	AGGREGATE BASE COURSE CL 5		
		Sta 4228+00 to Sta 4248+00	3355	TON
		Sta 4248+00 to Sta 4268+00	2076	TON
401	0050	TACK COAT		
		Sta 4228+00 to Sta 4248+00	793	GAL
		Sta 4248+00 to Sta 4268+00	711	GAL
401	0060	PRIME COAT		
		Sta 4228+00 to Sta 4248+00	806	GAL
		Sta 4248+00 to Sta 4268+00	500	GAL
401	0160	BLOTTER MATERIAL CL 44		
		Sta 4228+00 to Sta 4248+00	24	TON
		Sta 4248+00 to Sta 4268+00	15	TON
430	0143	RAP - SUPERPAVE FAA 43		
		Sta 4228+00 to Sta 4248+00	1368	TON
		Sta 4248+00 to Sta 4268+00	1185	TON
430	5815	PG 58S-34 ASPHALT CEMENT		
		Sta 4228+00 to Sta 4248+00	82	TON
		Sta 4248+00 to Sta 4268+00	71	TON
709	0100	GEOSYNTHETIC MATERIAL TYPE G		
		Sta 4228+00 to Sta 4248+00	2481	SY

*See section 20 sheet 12 for approach quantities.

Legend

- 2" Bituminous Paving
- 3" Bituminous Overlay
- Aggregate Surface
- Curve Correction
- Subcut Reconstruction

ND 31

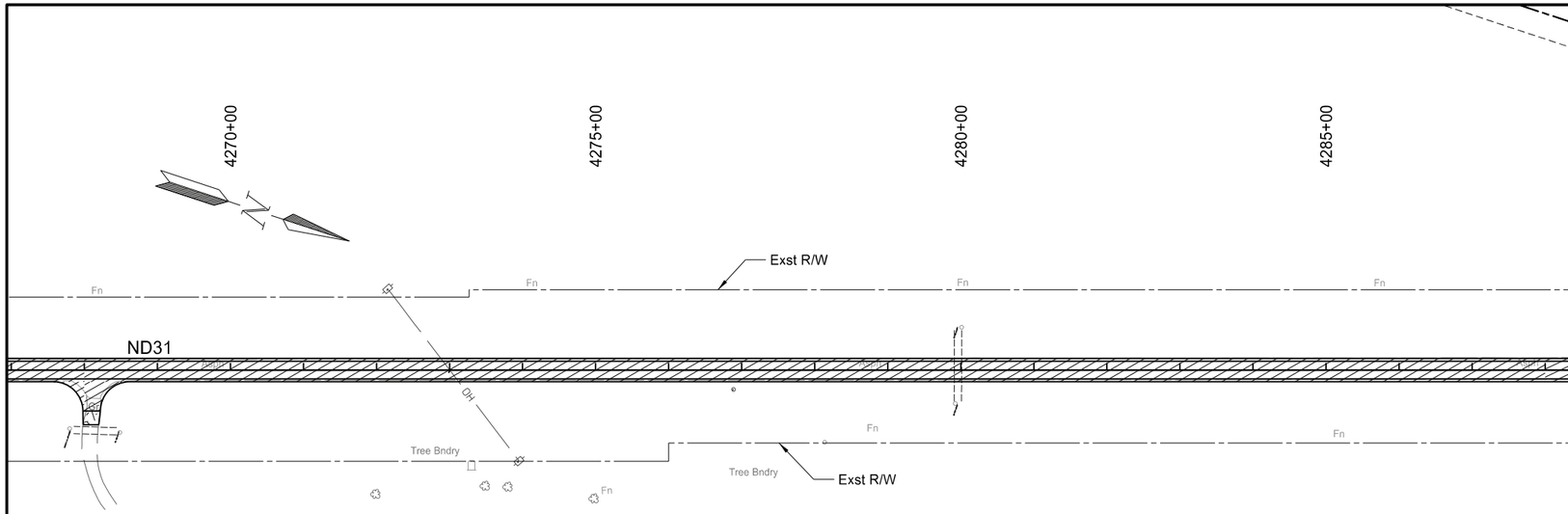
Jct I-94 to Hannover
Morton County

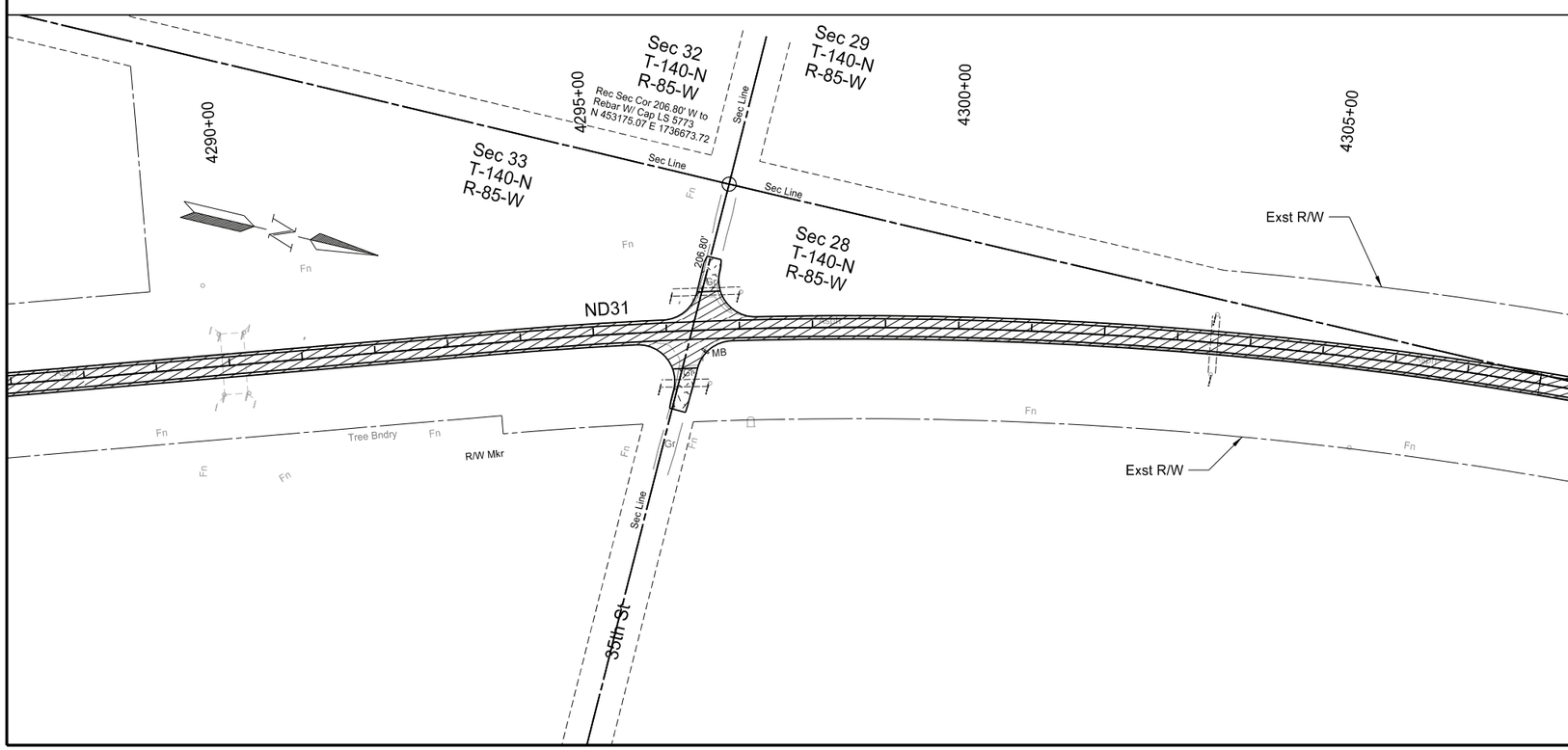
Paving Layout

Sta 4228+00 to Sta 4268+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	90	5





SPEC	CODE	BID ITEM	QTY	UNIT
302	0121	AGGREGATE BASE COURSE CL 5		
		Sta 4268+00 to Sta 4288+00	2076	TON
		Sta 4288+00 to Sta 4308+00	2076	TON
401	0050	TACK COAT		
		Sta 4268+00 to Sta 4288+00	711	GAL
		Sta 4288+00 to Sta 4308+00	711	GAL
401	0060	PRIME COAT		
		Sta 4268+00 to Sta 4288+00	500	GAL
		Sta 4288+00 to Sta 4308+00	500	GAL
401	0160	BLOTTER MATERIAL CL 44		
		Sta 4268+00 to Sta 4288+00	15	TON
		Sta 4288+00 to Sta 4308+00	15	TON
430	0143	RAP - SUPERPAVE FAA 43		
		Sta 4268+00 to Sta 4288+00	1185	TON
		Sta 4288+00 to Sta 4308+00	1185	TON
430	5815	PG 58S-34 ASPHALT CEMENT		
		Sta 4268+00 to Sta 4288+00	71	TON
		Sta 4288+00 to Sta 4308+00	71	TON

*See section 20 sheet 12 for approach quantities.

Legend

- 2" Bituminous Paving
- 3" Bituminous Overlay
- Aggregate Surface
- Curve Correction
- Subcut Reconstruction

ND 31

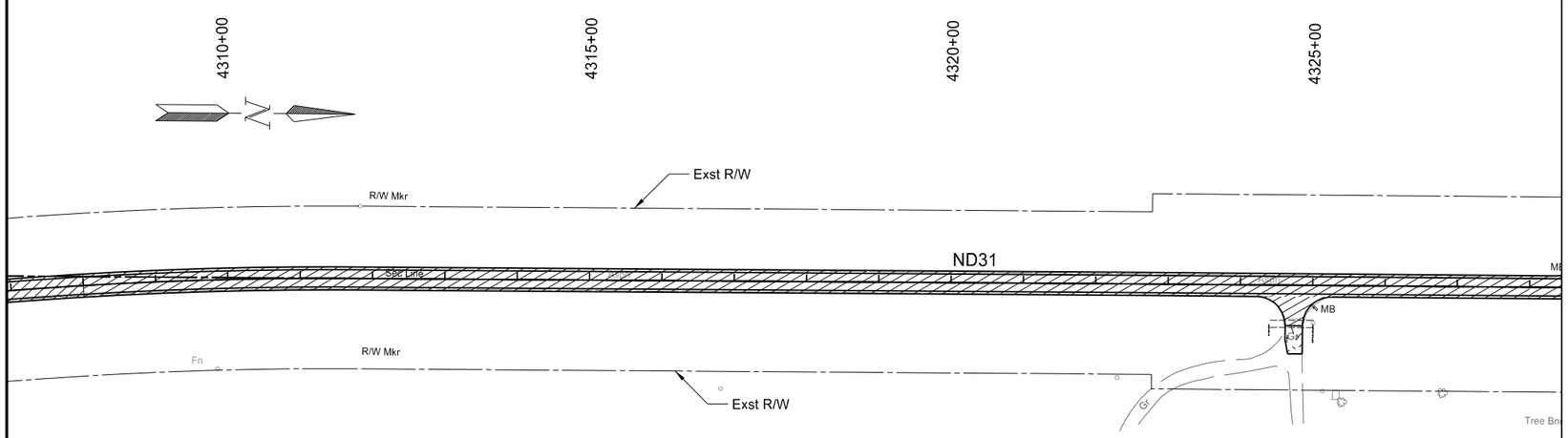
Jct I-94 to Hannover
Morton County

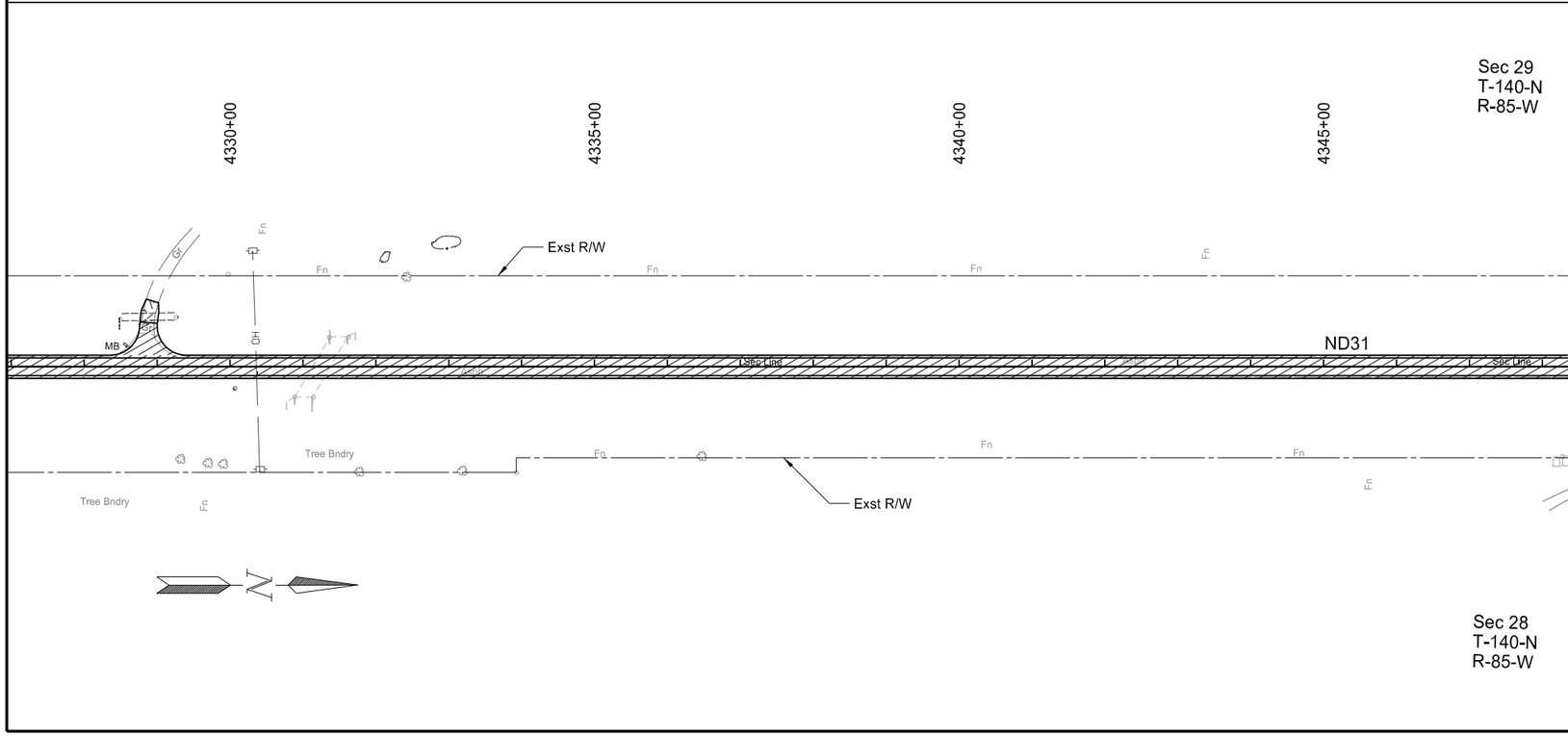
Paving Layout

Sta 4268+00 to Sta 4308+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	90	6





SPEC	CODE	BID ITEM	QTY	UNIT
302	0121	AGGREGATE BASE COURSE CL 5		
		Sta 4308+00 to Sta 4328+00	2076	TON
		Sta 4328+00 to Sta 4348+00	2076	TON
401	0050	TACK COAT		
		Sta 4308+00 to Sta 4328+00	711	GAL
		Sta 4328+00 to Sta 4348+00	711	GAL
401	0060	PRIME COAT		
		Sta 4308+00 to Sta 4328+00	500	GAL
		Sta 4328+00 to Sta 4348+00	500	GAL
401	0160	BLOTTER MATERIAL CL 45		
		Sta 4308+00 to Sta 4328+00	15	TON
		Sta 4328+00 to Sta 4348+00	15	TON
430	0143	RAP - SUPERPAVE FAA 43		
		Sta 4308+00 to Sta 4328+00	1185	TON
		Sta 4328+00 to Sta 4348+00	1185	TON
430	5815	PG 58S-34 ASPHALT CEMENT		
		Sta 4308+00 to Sta 4328+00	71	TON
		Sta 4328+00 to Sta 4348+00	71	TON

*See section 20 sheet 12 for approach quantities.

Legend

- 2" Bituminous Paving
- 3" Bituminous Overlay
- Aggregate Surface
- Curve Correction
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ND 31

Jct I-94 to Hannover
Morton County

Paving Layout

Sta 4308+00 to Sta 4348+00

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DATE: 7/29/26
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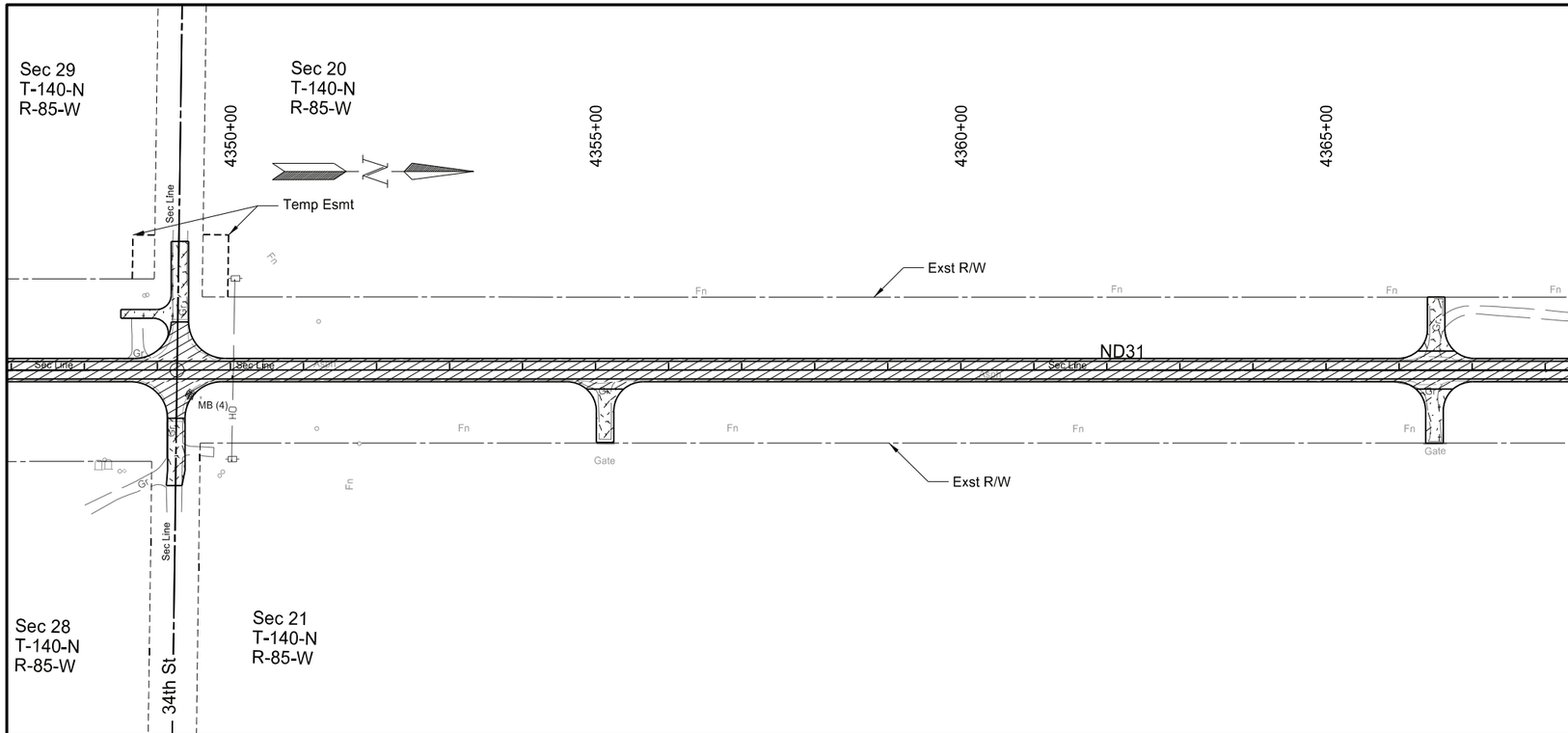
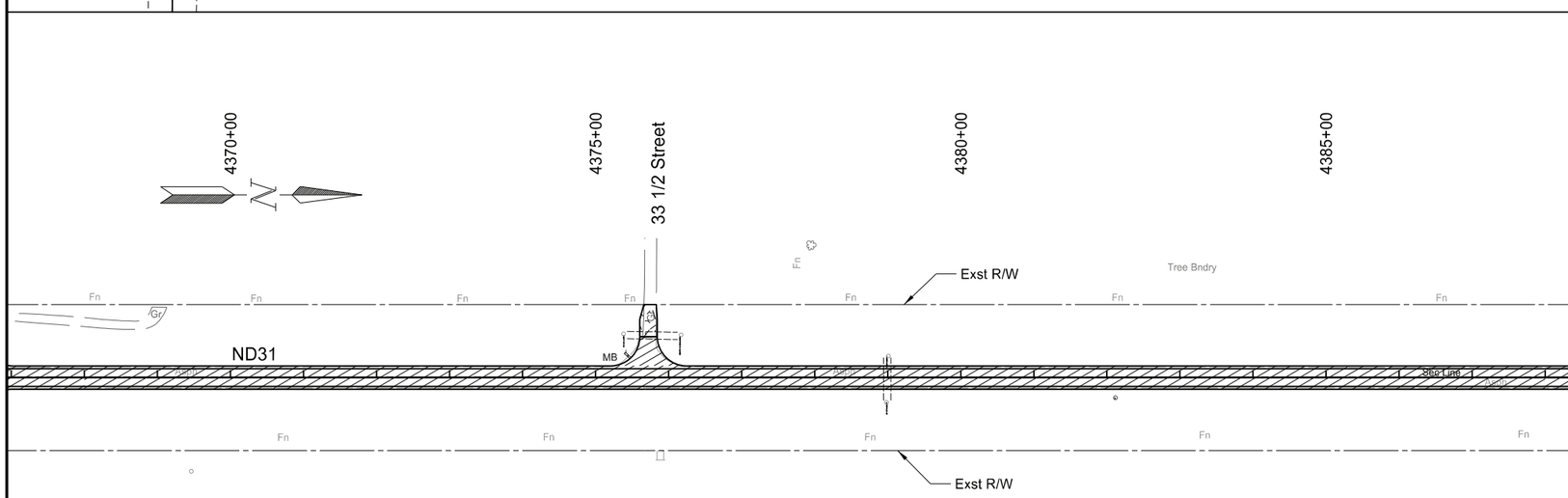
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	90	7





SPEC	CODE	BID ITEM	QTY	UNIT
302	0121	AGGREGATE BASE COURSE CL 5		
		Sta 4348+00 to Sta 4368+00	2076	TON
		Sta 4368+00 to Sta 4388+00	2076	TON
401	0050	TACK COAT		
		Sta 4348+00 to Sta 4368+00	711	GAL
		Sta 4368+00 to Sta 4388+00	711	GAL
401	0060	PRIME COAT		
		Sta 4348+00 to Sta 4368+00	500	GAL
		Sta 4368+00 to Sta 4388+00	500	GAL
401	0160	BLOTTER MATERIAL CL 46		
		Sta 4348+00 to Sta 4368+00	15	TON
		Sta 4368+00 to Sta 4388+00	15	TON
430	0143	RAP - SUPERPAVE FAA 43		
		Sta 4348+00 to Sta 4368+00	1185	TON
		Sta 4368+00 to Sta 4388+00	1185	TON
430	5815	PG 58S-34 ASPHALT CEMENT		
		Sta 4348+00 to Sta 4368+00	71	TON
		Sta 4368+00 to Sta 4388+00	71	TON

*See section 20 sheet 12 for approach quantities.

Legend

- 2" Bituminous Paving
- 3" Bituminous Overlay
- Aggregate Surface
- Curve Correction
- Subcut Reconstruction

ND 31

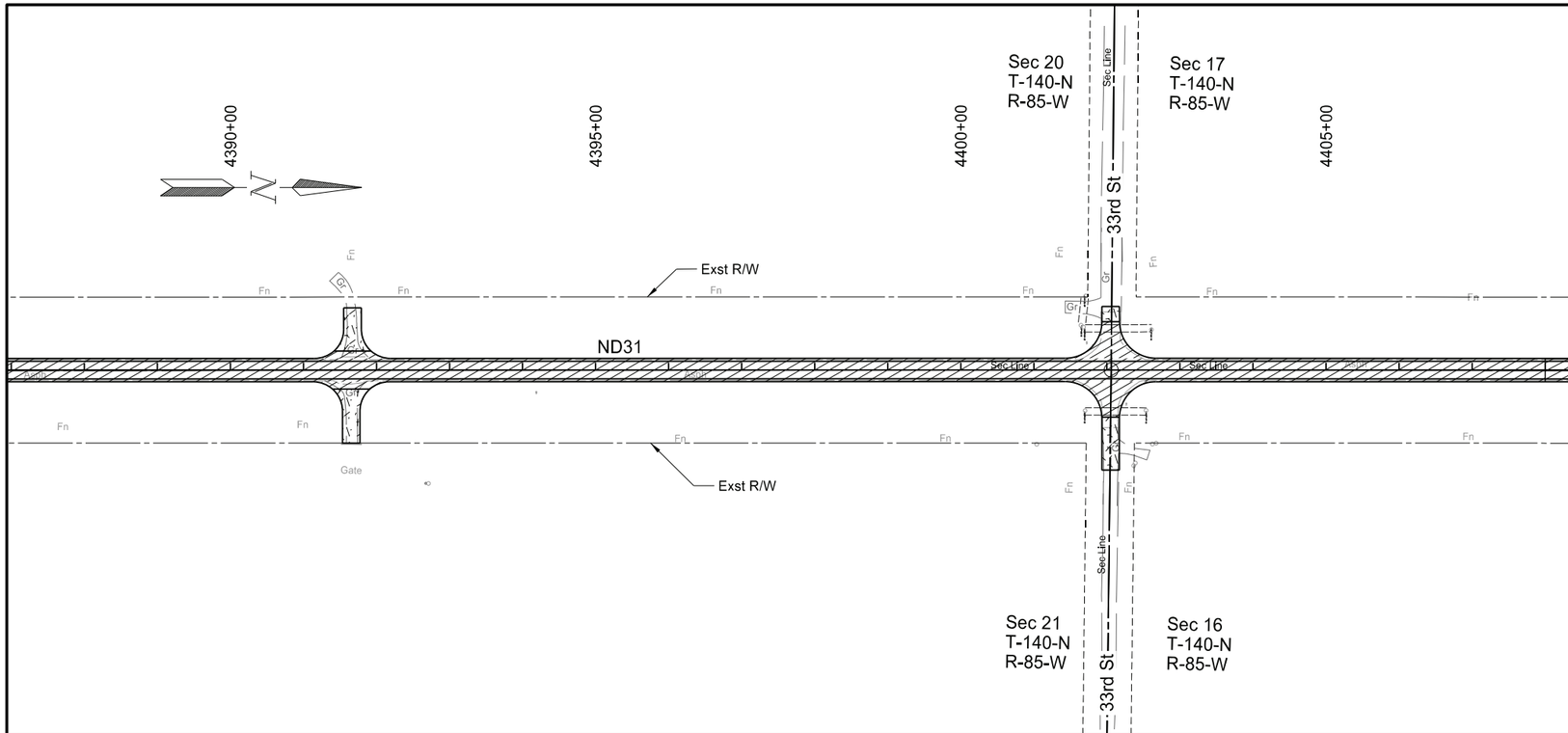
Jct I-94 to Hannover
Morton County

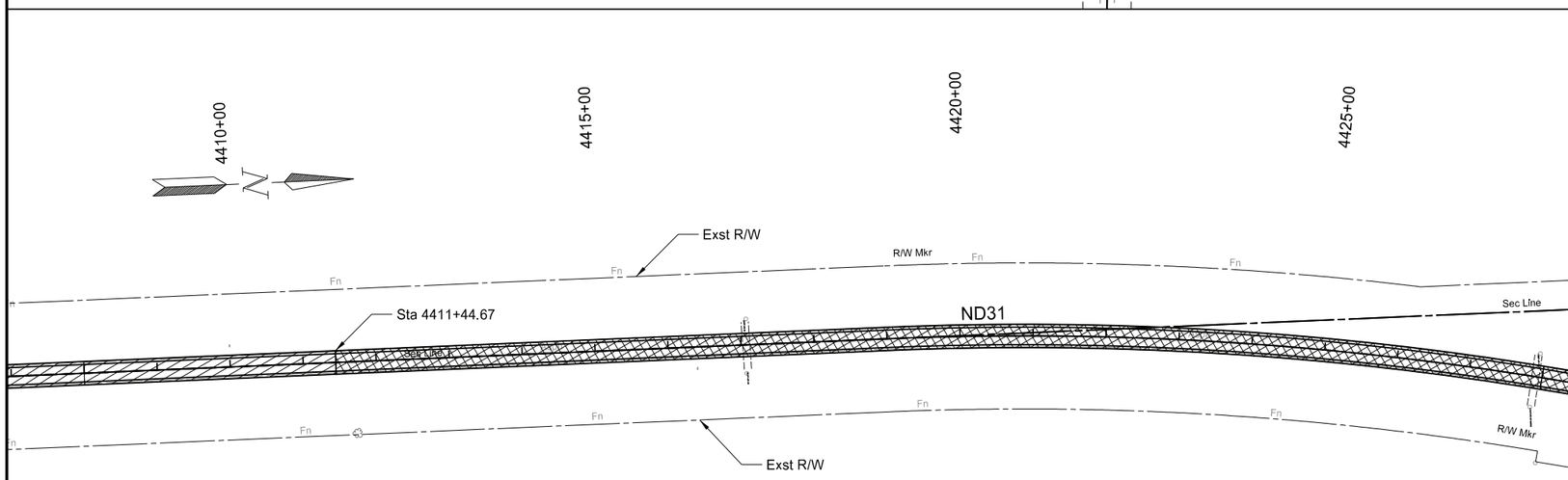
Paving Layout

Sta 4348+00 to Sta 4388+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	90	8





SPEC	CODE	BID ITEM	QTY	UNIT
302	0121	AGGREGATE BASE COURSE CL 5		
		Sta 4388+00 to Sta 4408+00	2155	TON
		Sta 4408+00 to Sta 4428+00	6264	TON
401	0050	TACK COAT		
		Sta 4388+00 to Sta 4408+00	711	GAL
		Sta 4408+00 to Sta 4428+00	1005	GAL
401	0060	PRIME COAT		
		Sta 4388+00 to Sta 4408+00	519	GAL
		Sta 4408+00 to Sta 4428+00	1558	GAL
401	0160	BLOTTER MATERIAL CL 47		
		Sta 4388+00 to Sta 4408+00	16	TON
		Sta 4408+00 to Sta 4428+00	47	TON
430	0143	RAP - SUPERPAVE FAA 43		
		Sta 4388+00 to Sta 4408+00	1185	TON
		Sta 4408+00 to Sta 4428+00	1839	TON
430	5815	PG 58S-34 ASPHALT CEMENT		
		Sta 4388+00 to Sta 4408+00	71	TON
		Sta 4408+00 to Sta 4428+00	110	TON
709	0100	GEOSYNTHETIC MATERIAL TYPE G		
		Sta 4408+00 to Sta 4428+00	8565	SY

*See section 20 sheet 12 for approach quantities.

Legend

- 2" Bituminous Paving
- 3" Bituminous Overlay
- Aggregate Surface
- Curve Correction
- Subcut Reconstruction

ND 31

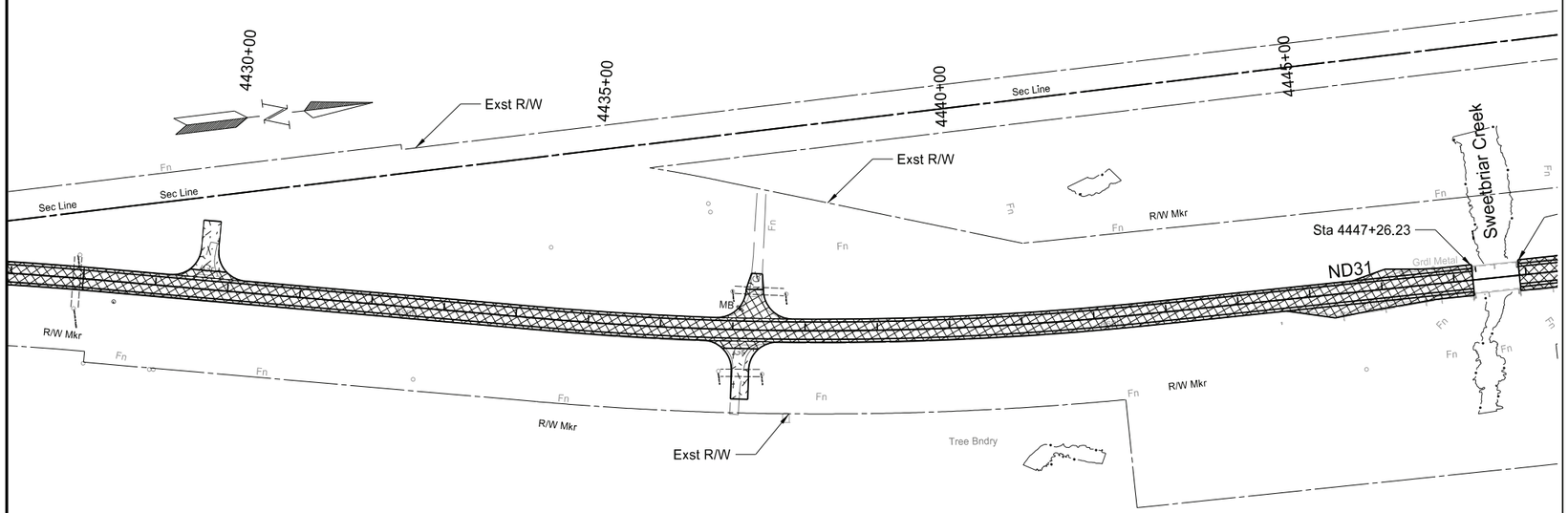
Jct I-94 to Hannover
Morton County

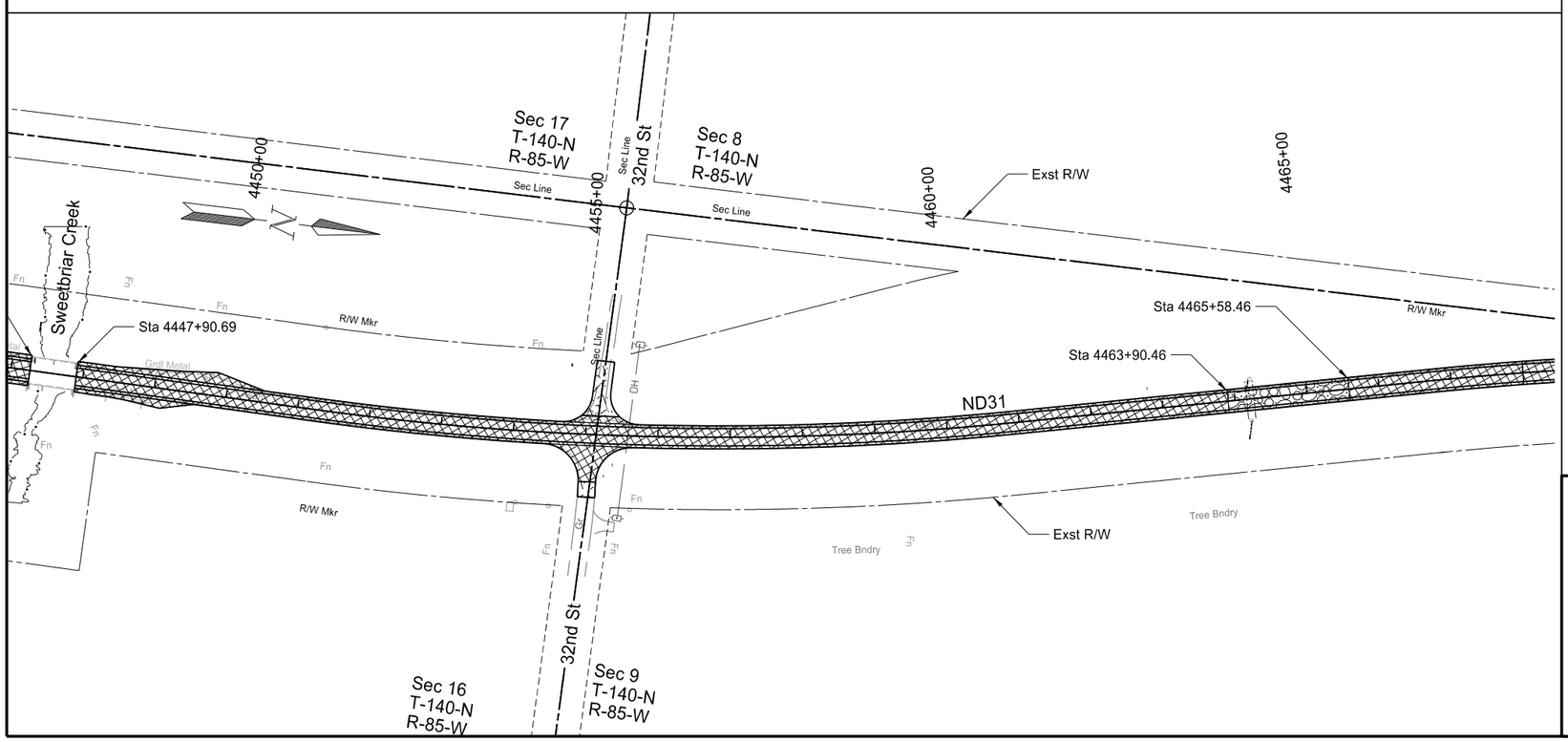
Paving Layout

Sta 4388+00 to Sta 4428+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	90	9





SPEC	CODE	BID ITEM	QTY	UNIT
203	237	SUBCUT AGGREGATE		
		Sta 4463+90 to Sta 4465+58	786	TON
302	0121	AGGREGATE BASE COURSE CL 5		
		Sta 4428+00 to Sta 4448+00	6872	TON
		Sta 4448+00 to Sta 4468+00	6572	TON
401	0050	TACK COAT		
		Sta 4428+00 to Sta 4448+00	1097	GAL
		Sta 4448+00 to Sta 4468+00	1141	GAL
401	0060	PRIME COAT		
		Sta 4428+00 to Sta 4448+00	1829	GAL
		Sta 4448+00 to Sta 4468+00	1902	GAL
401	0160	BLOTTER MATERIAL CL 48		
		Sta 4428+00 to Sta 4448+00	55	TON
		Sta 4448+00 to Sta 4468+00	57	TON
430	0143	RAP - SUPERPAVE FAA 43		
		Sta 4428+00 to Sta 4448+00	2032	TON
		Sta 4448+00 to Sta 4468+00	2114	TON
430	5815	PG 58S-34 ASPHALT CEMENT		
		Sta 4428+00 to Sta 4448+00	122	TON
		Sta 4448+00 to Sta 4468+00	127	TON
709	0100	GEOSYNTHETIC MATERIAL TYPE G		
		Sta 4428+00 to Sta 4448+00	9965	SY
		Sta 4448+00 to Sta 4468+00	10456	SY

*See section 20 sheet 12 for approach quantities.

Legend

- 2" Bituminous Paving
- 3" Bituminous Overlay
- Aggregate Surface
- Curve Correction
- Subcut Reconstruction

ND 31

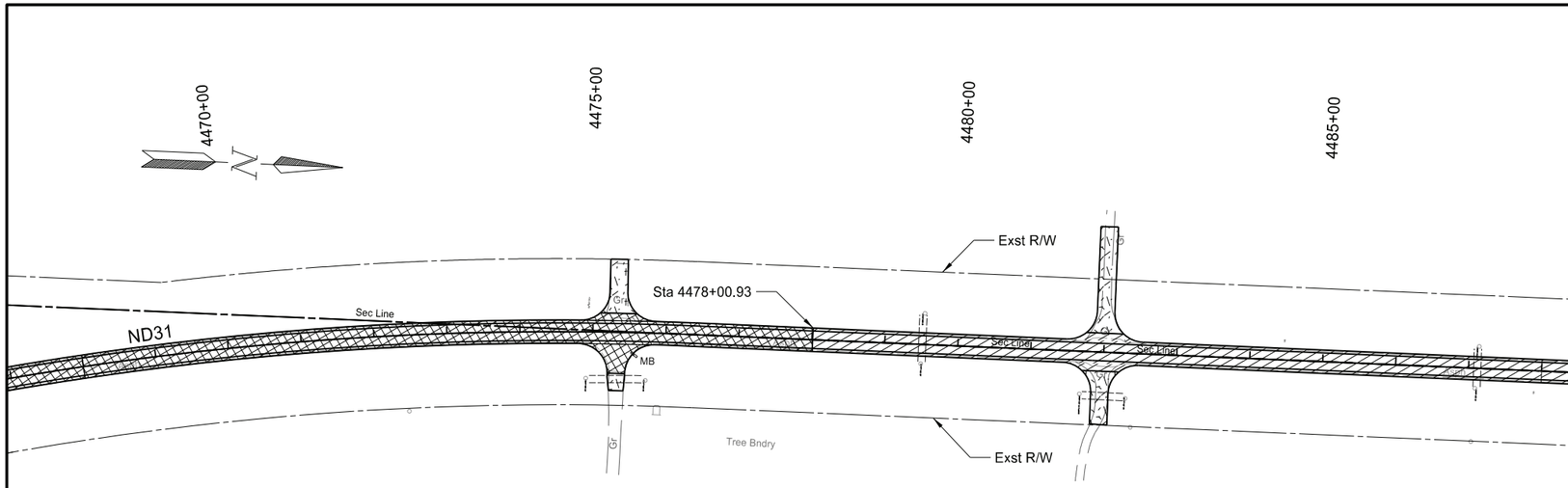
Jct I-94 to Hannover
Morton County

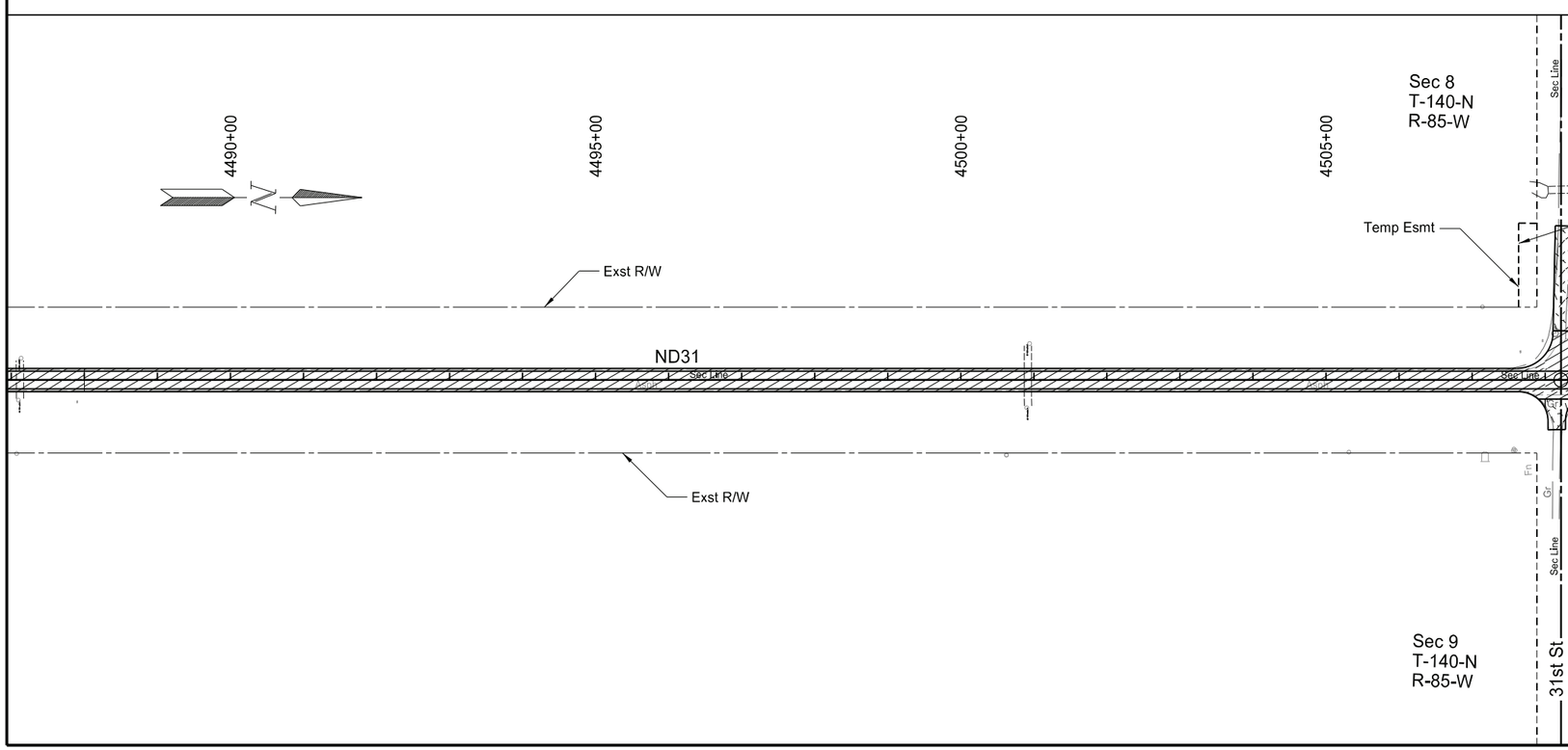
Paving Layout

Sta 4428+00 to Sta 4468+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	90	10





SPEC	CODE	BID ITEM	QTY	UNIT
302	0121	AGGREGATE BASE COURSE CL 5		
		Sta 4468+00 to Sta 4488+00	4610	TON
		Sta 4488+00 to Sta 4508+00	2076	TON
401	0050	TACK COAT		
		Sta 4468+00 to Sta 4488+00	889	GAL
		Sta 4488+00 to Sta 4508+00	711	GAL
401	0060	PRIME COAT		
		Sta 4468+00 to Sta 4488+00	1140	GAL
		Sta 4488+00 to Sta 4508+00	500	GAL
401	0160	BLOTTER MATERIAL CL 49		
		Sta 4468+00 to Sta 4488+00	34	TON
		Sta 4488+00 to Sta 4508+00	15	TON
430	0143	RAP - SUPERPAVE FAA 43		
		Sta 4468+00 to Sta 4488+00	1581	TON
		Sta 4488+00 to Sta 4508+00	1185	TON
430	5815	PG 58S-34 ASPHALT CEMENT		
		Sta 4468+00 to Sta 4488+00	95	TON
		Sta 4488+00 to Sta 4508+00	71	TON
709	0100	GEOSYNTHETIC MATERIAL TYPE G		
		Sta 4468+00 to Sta 4488+00	5174	SY

*See section 20 sheet 12 for approach quantities.

Legend

- 2" Bituminous Paving
- 3" Bituminous Overlay
- Aggregate Surface
- Curve Correction
- Subcut Reconstruction

ND 31

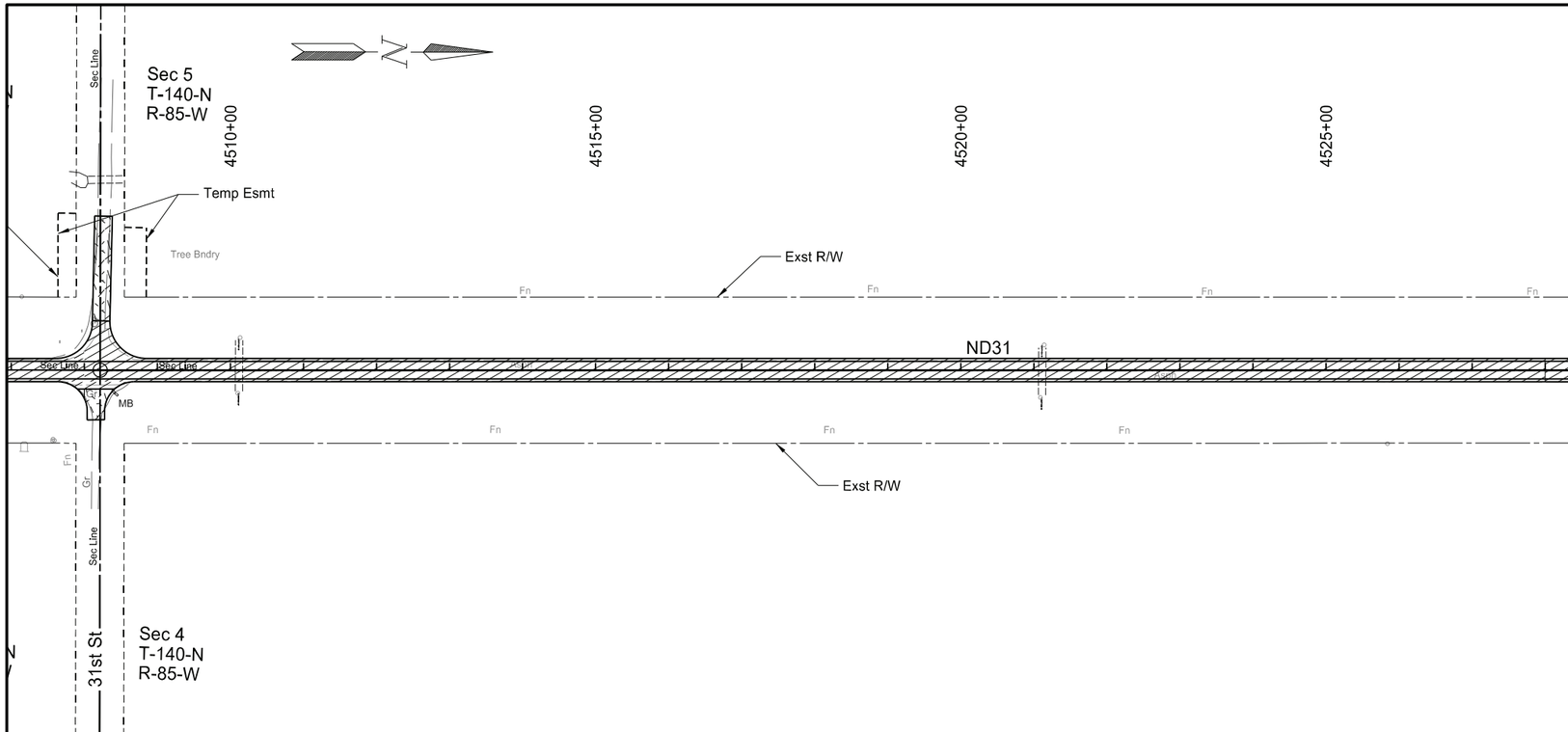
Jct I-94 to Hannover
Morton County

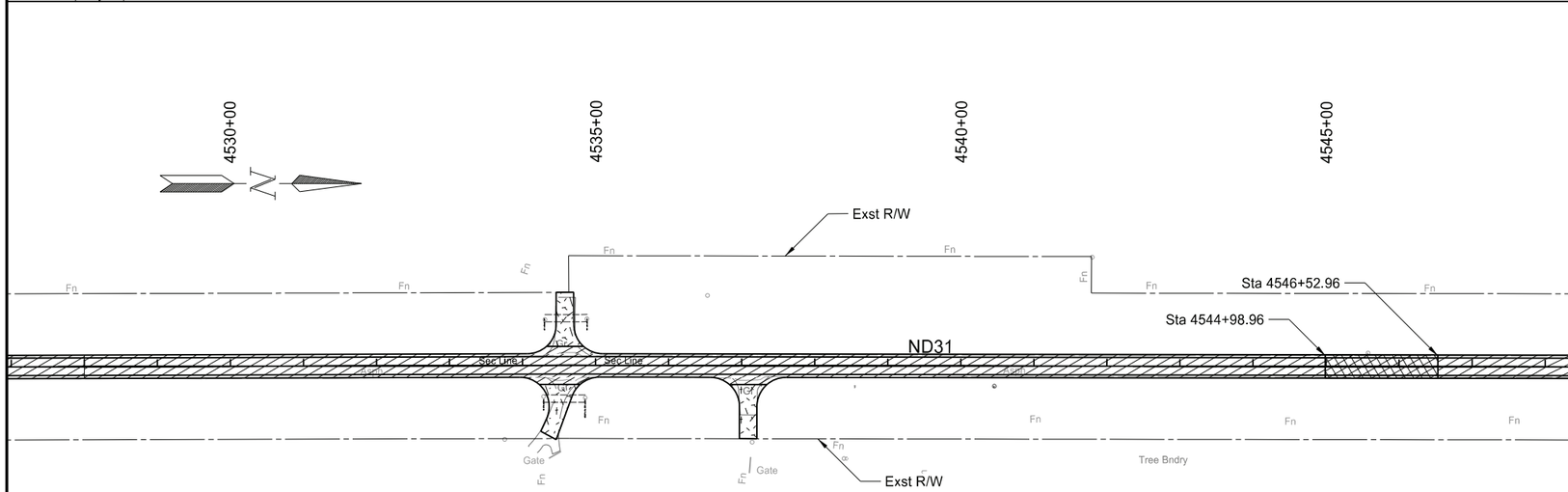
Paving Layout

Sta 4468+00 to Sta 4508+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	90	11





SPEC	CODE	BID ITEM	QTY	UNIT
302	0121	AGGREGATE BASE COURSE CL 5		
		Sta 4508+00 to Sta 4528+00	2076	TON
		Sta 4528+00 to Sta 4548+00	2466	TON
401	0050	TACK COAT		
		Sta 4508+00 to Sta 4528+00	711	GAL
		Sta 4528+00 to Sta 4548+00	738	GAL
401	0060	PRIME COAT		
		Sta 4508+00 to Sta 4528+00	500	GAL
		Sta 4528+00 to Sta 4548+00	598	GAL
401	0160	BLOTTER MATERIAL CL 50		
		Sta 4508+00 to Sta 4528+00	15	TON
		Sta 4528+00 to Sta 4548+00	18	TON
430	0143	RAP - SUPERPAVE FAA 43		
		Sta 4508+00 to Sta 4528+00	1185	TON
		Sta 4528+00 to Sta 4548+00	1246	TON
430	5815	PG 58S-34 ASPHALT CEMENT		
		Sta 4508+00 to Sta 4528+00	71	TON
		Sta 4528+00 to Sta 4548+00	75	TON
709	0100	GEOSYNTHETIC MATERIAL TYPE G		
		Sta 4528+00 to Sta 4548+00	797	SY

*See section 20 sheet 12 for approach quantities.

Legend

- 2" Bituminous Paving
- 3" Bituminous Overlay
- Aggregate Surface
- Curve Correction
- Subcut Reconstruction

ND 31

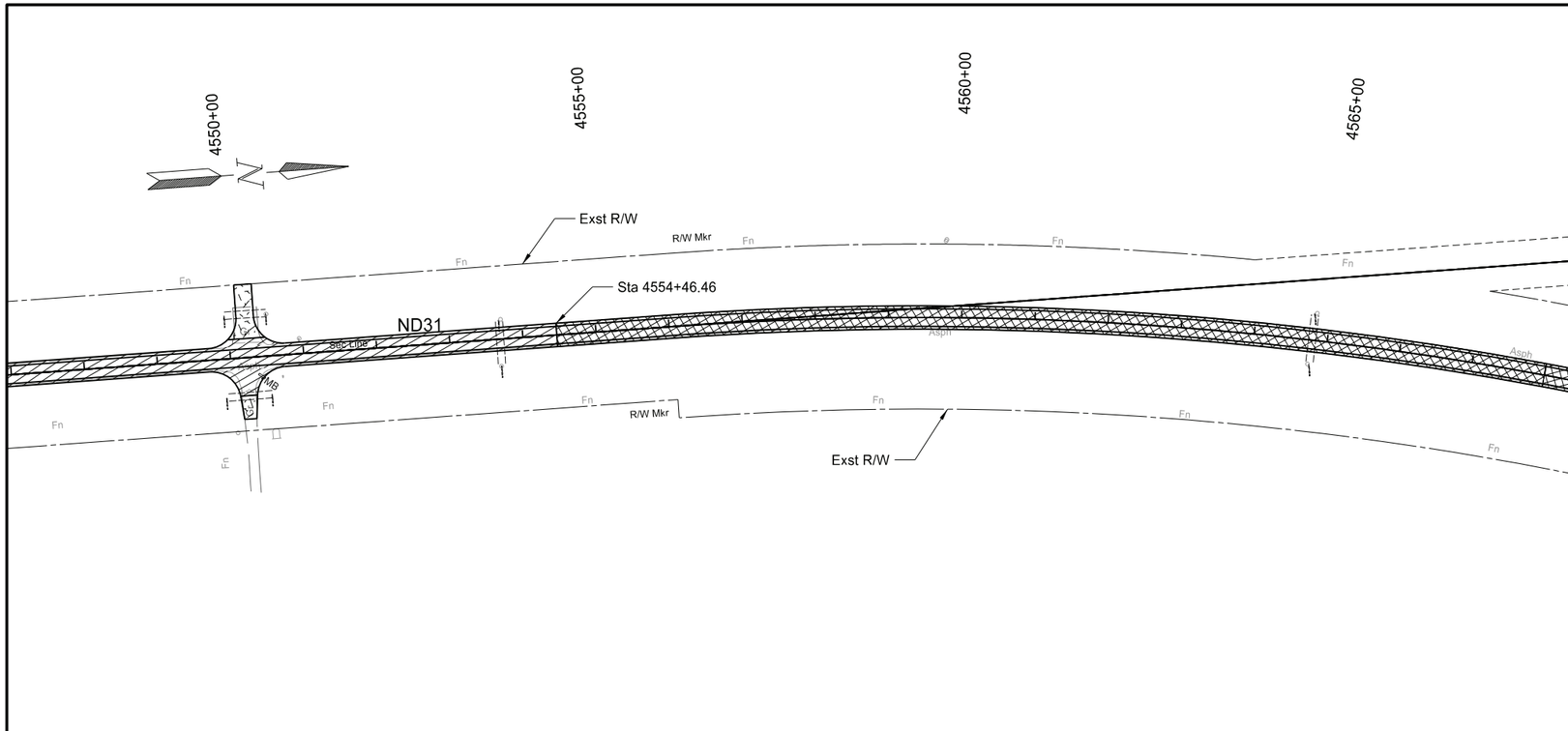
Jct I-94 to Hannover
Morton County

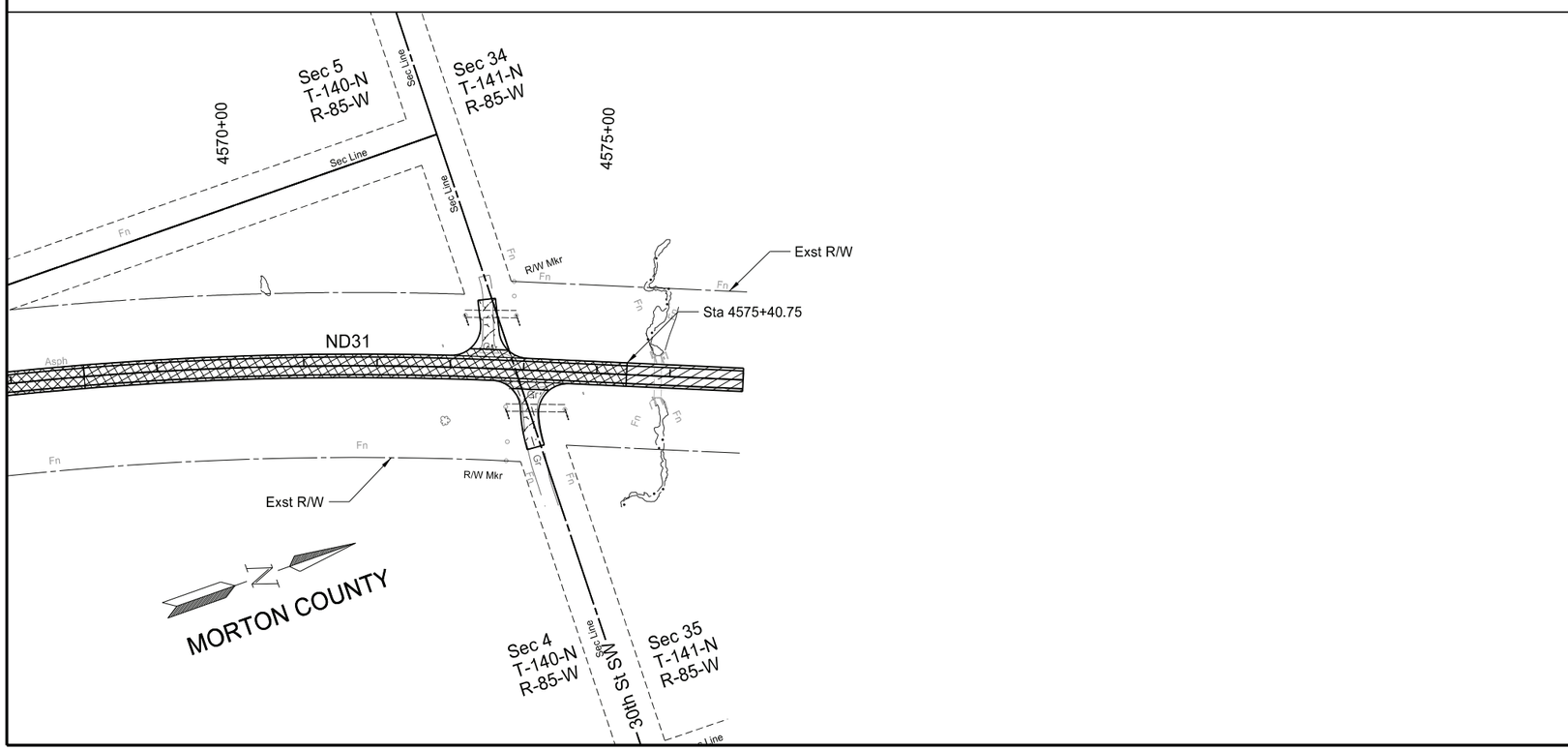
Paving Layout

Sta 4508+00 to Sta 4548+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	90	12





SPEC	CODE	BID ITEM	QTY	UNIT
302	0121	AGGREGATE BASE COURSE CL 5		
		Sta 4548+00 to Sta 4568+00	5500	TON
		Sta 4568+00 to Sta 4588+00	2806	TON
401	0050	TACK COAT		
		Sta 4548+00 to Sta 4568+00	952	GAL
		Sta 4568+00 to Sta 4588+00	450	GAL
401	0060	PRIME COAT		
		Sta 4548+00 to Sta 4568+00	1365	GAL
		Sta 4568+00 to Sta 4588+00	698	GAL
401	0160	BLOTTER MATERIAL CL 51		
		Sta 4548+00 to Sta 4568+00	41	TON
		Sta 4568+00 to Sta 4588+00	21	TON
430	0143	RAP - SUPERPAVE FAA 43		
		Sta 4548+00 to Sta 4568+00	1720	TON
		Sta 4568+00 to Sta 4588+00	823	TON
430	5815	PG 58S-34 ASPHALT CEMENT		
		Sta 4548+00 to Sta 4568+00	103	TON
		Sta 4568+00 to Sta 4588+00	49	TON
709	0100	GEOSYNTHETIC MATERIAL TYPE G		
		Sta 4548+00 to Sta 4568+00	7003	SY
		Sta 4568+00 to Sta 4588+00	3829	SY

*See section 20 sheet 12 for approach quantities.

Legend

- 2" Bituminous Paving
- 3" Bituminous Overlay
- Aggregate Surface
- Curve Correction
- Subcut Reconstruction

ND 31

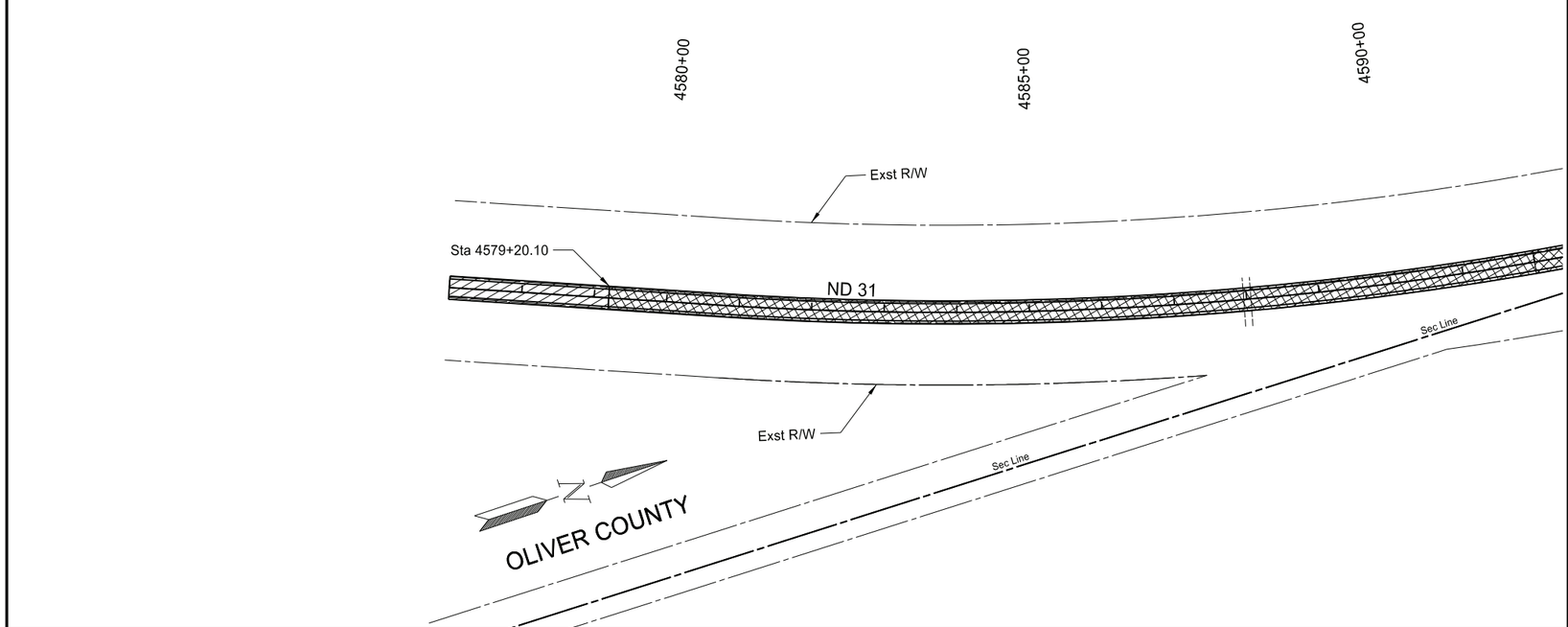
Jct I-94 to Hannover
Morton County

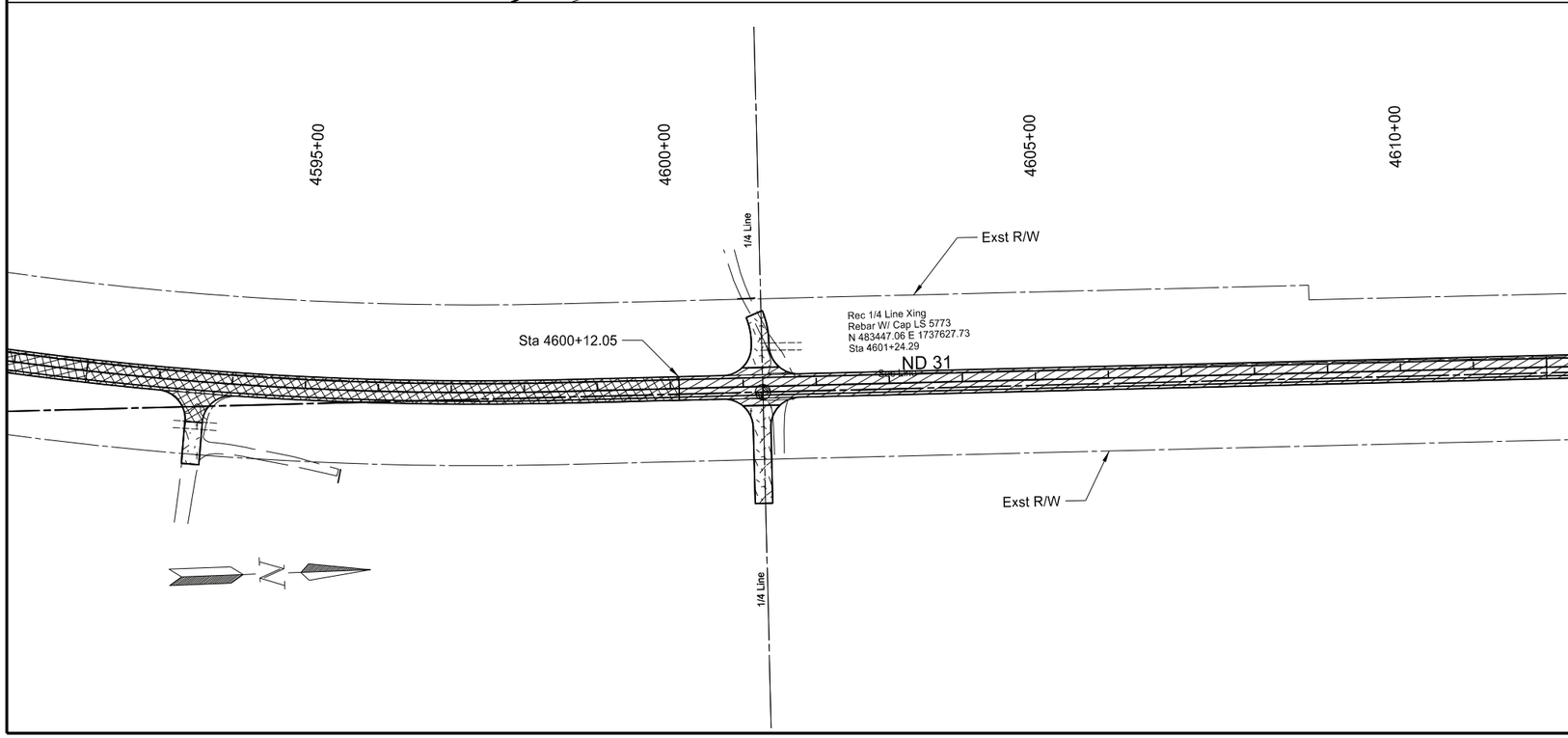
Paving Layout

Sta 4548+00 to Sta 4577+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	90	13





SPEC	CODE	BID ITEM	QTY	UNIT
302	0121	AGGREGATE BASE COURSE CL 5		
		Sta 4577+00 to Sta 4592+00	4806	TON
		Sta 4592+00 to Sta 4612+00	4131	TON
401	0050	TACK COAT		
		Sta 4577+00 to Sta 4592+00	761	GAL
		Sta 4592+00 to Sta 4612+00	855	GAL
401	0060	PRIME COAT		
		Sta 4577+00 to Sta 4592+00	1193	GAL
		Sta 4592+00 to Sta 4612+00	1018	GAL
401	0160	BLOTTER MATERIAL CL 44		
		Sta 4577+00 to Sta 4592+00	36	TON
		Sta 4592+00 to Sta 4612+00	31	TON
430	0143	RAP - SUPERPAVE FAA 43		
		Sta 4577+00 to Sta 4592+00	1395	TON
		Sta 4592+00 to Sta 4612+00	1505	TON
430	5815	PG 58S-34 ASPHALT CEMENT		
		Sta 4577+00 to Sta 4592+00	84	TON
		Sta 4592+00 to Sta 4612+00	90	TON
709	0100	GEOSYNTHETIC MATERIAL TYPE G		
		Sta 4577+00 to Sta 4592+00	6638	SY
		Sta 4592+00 to Sta 4612+00	4201	SY

*See section 20 sheet 12 for approach quantities.

Legend

- 2" Bituminous Paving
- 3" Bituminous Overlay
- Aggregate Surface
- Curve Correction
- Subcut Reconstruction

ND 31

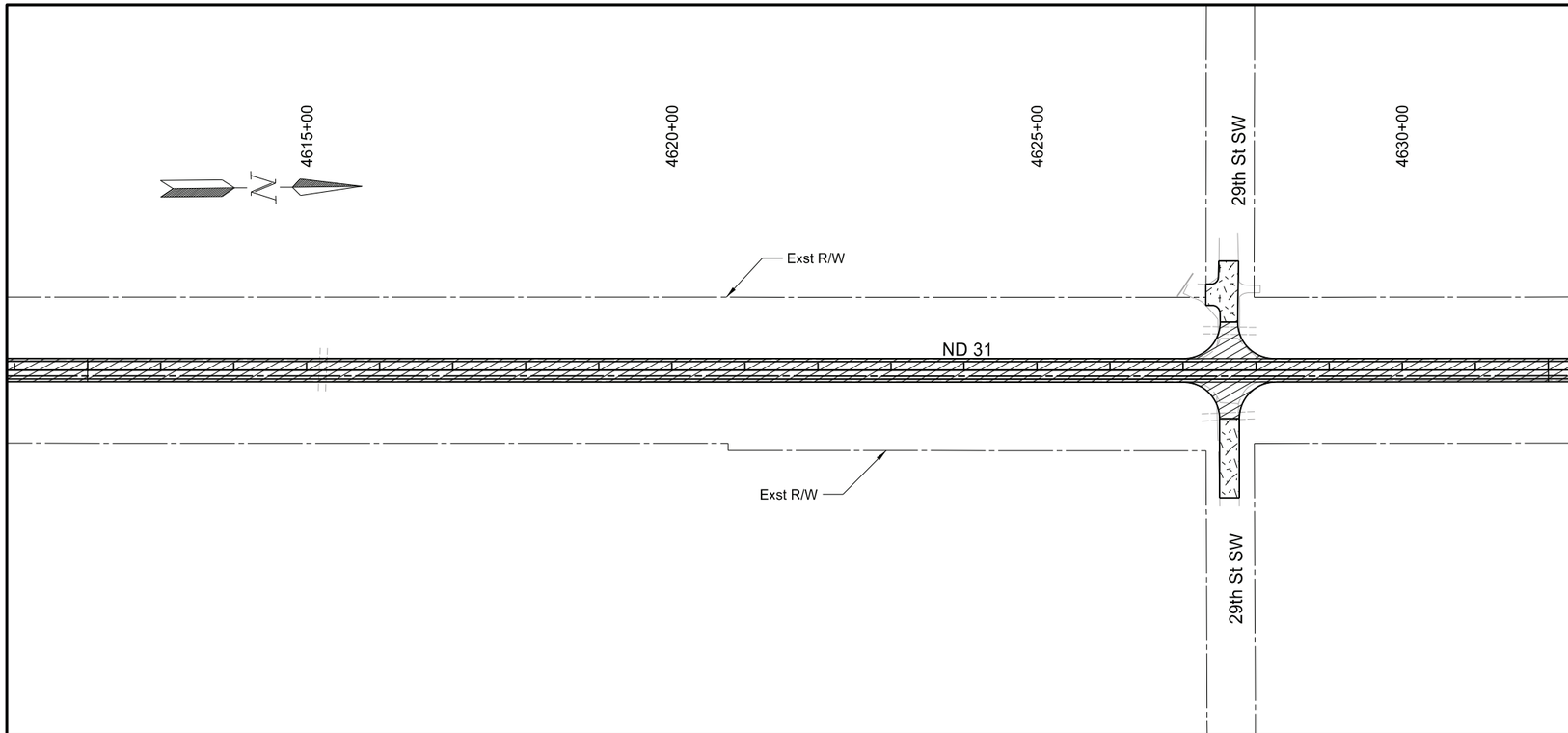
Jct I-94 to Hannover
Oliver County

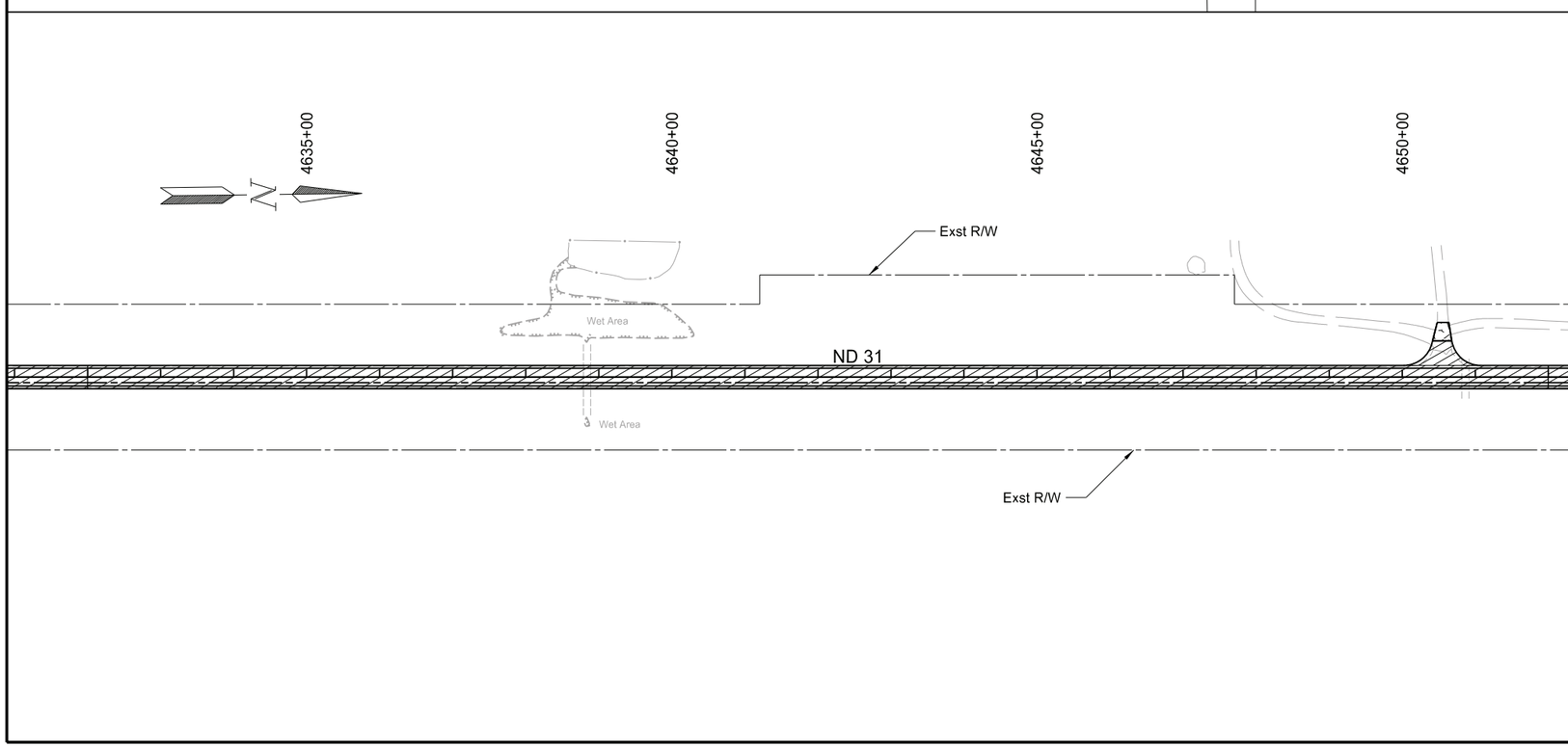
Paving Layout

Sta 4577+00 to Sta 4615+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	90	14





SPEC	CODE	BID ITEM	QTY	UNIT
302	0121	AGGREGATE BASE COURSE CL 5		
		Sta 4612+00 to Sta 4632+00	2076	TON
		Sta 4632+00 to Sta 4652+00	2076	TON
401	0050	TACK COAT		
		Sta 4612+00 to Sta 4632+00	711	GAL
		Sta 4632+00 to Sta 4652+00	711	GAL
401	0060	PRIME COAT		
		Sta 4612+00 to Sta 4632+00	500	GAL
		Sta 4632+00 to Sta 4652+00	500	GAL
401	0160	BLOTTER MATERIAL CL 44		
		Sta 4612+00 to Sta 4632+00	15	TON
		Sta 4632+00 to Sta 4652+00	15	TON
430	0143	RAP - SUPERPAVE FAA 43		
		Sta 4612+00 to Sta 4632+00	1185	TON
		Sta 4632+00 to Sta 4652+00	1185	TON
430	5815	PG 58S-34 ASPHALT CEMENT		
		Sta 4612+00 to Sta 4632+00	71	TON
		Sta 4632+00 to Sta 4652+00	71	TON

*See section 20 sheet 12 for approach quantities.

Legend

- 2" Bituminous Paving
- 3" Bituminous Overlay
- Aggregate Surface
- Curve Correction
- Subcut Reconstruction

ND 31

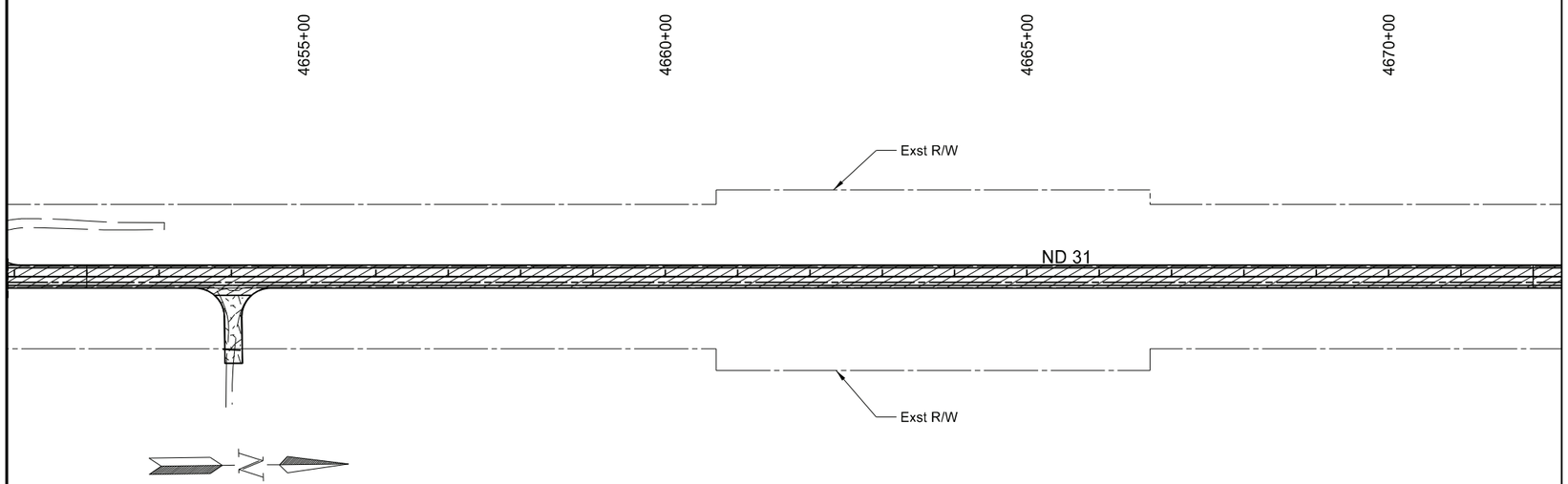
Jct I-94 to Hannover
Oliver County

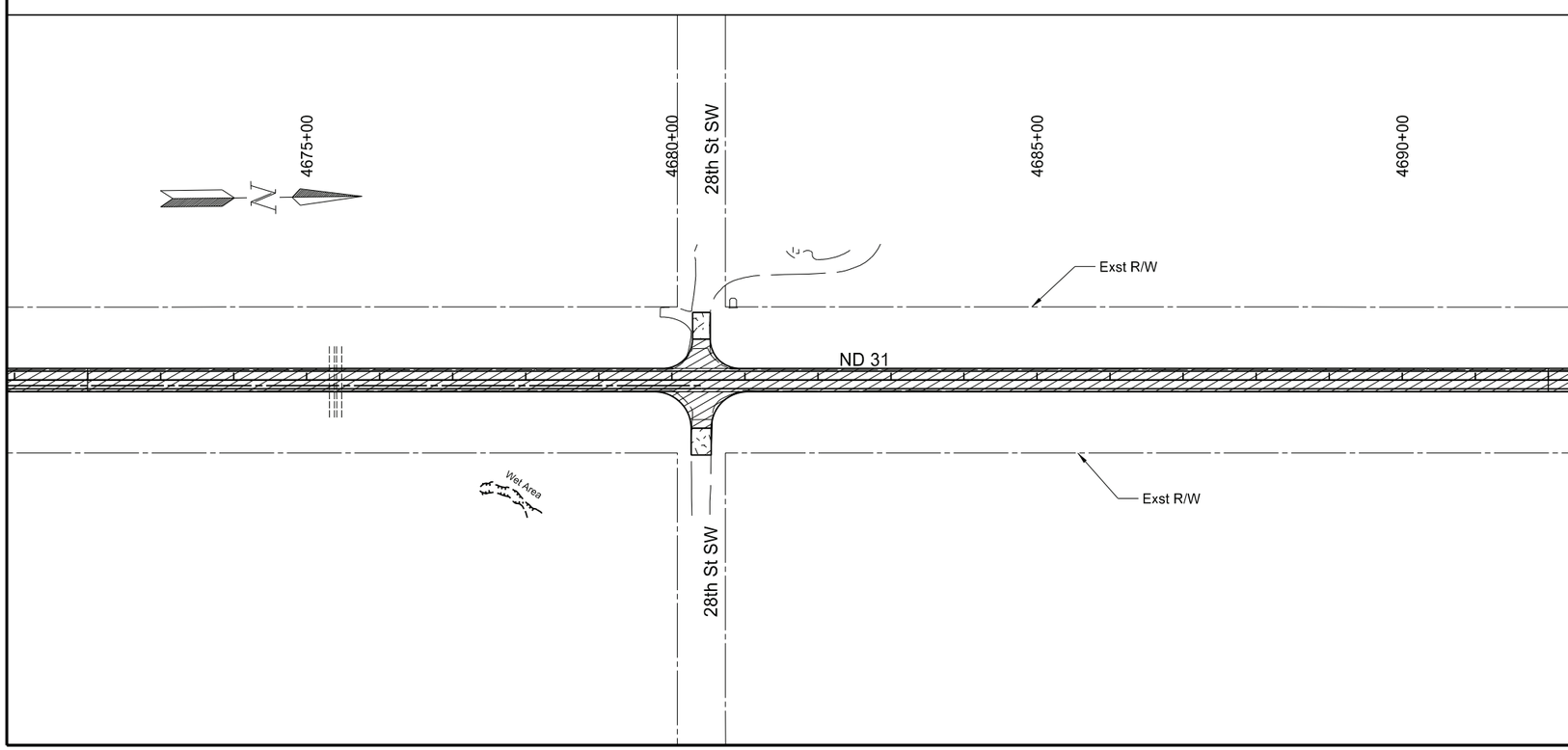
Paving Layout

Sta 4615+00 to Sta 4655+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	90	15





SPEC	CODE	BID ITEM	QTY	UNIT
302	0121	AGGREGATE BASE COURSE CL 5		
		Sta 4652+00 to Sta 4672+00	2076	TON
		Sta 4672+00 to Sta 4692+00	2076	TON
401	0050	TACK COAT		
		Sta 4652+00 to Sta 4672+00	711	GAL
		Sta 4672+00 to Sta 4692+00	711	GAL
401	0060	PRIME COAT		
		Sta 4652+00 to Sta 4672+00	500	GAL
		Sta 4672+00 to Sta 4692+00	500	GAL
401	0160	BLOTTER MATERIAL CL 45		
		Sta 4652+00 to Sta 4672+00	15	TON
		Sta 4672+00 to Sta 4692+00	15	TON
430	0143	RAP - SUPERPAVE FAA 43		
		Sta 4652+00 to Sta 4672+00	1185	TON
		Sta 4672+00 to Sta 4692+00	1185	TON
430	5815	PG 58S-34 ASPHALT CEMENT		
		Sta 4652+00 to Sta 4672+00	71	TON
		Sta 4672+00 to Sta 4692+00	71	TON

*See section 20 sheet 12 for approach quantities.

Legend

- 2" Bituminous Paving
- 3" Bituminous Overlay
- Aggregate Surface
- Curve Correction
- Subcut Reconstruction

ND 31

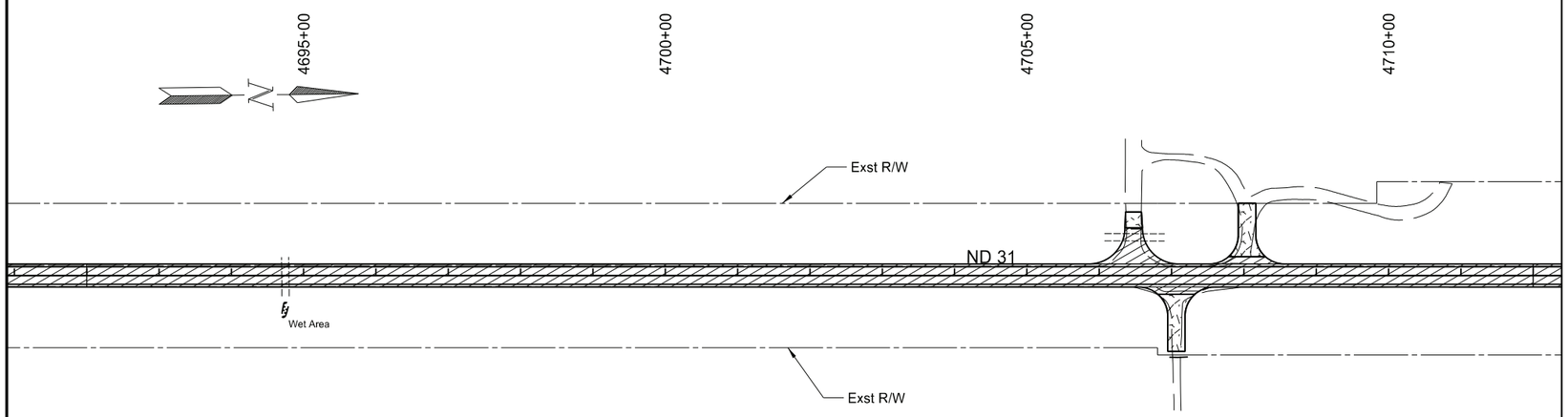
Jct I-94 to Hannover
Oliver County

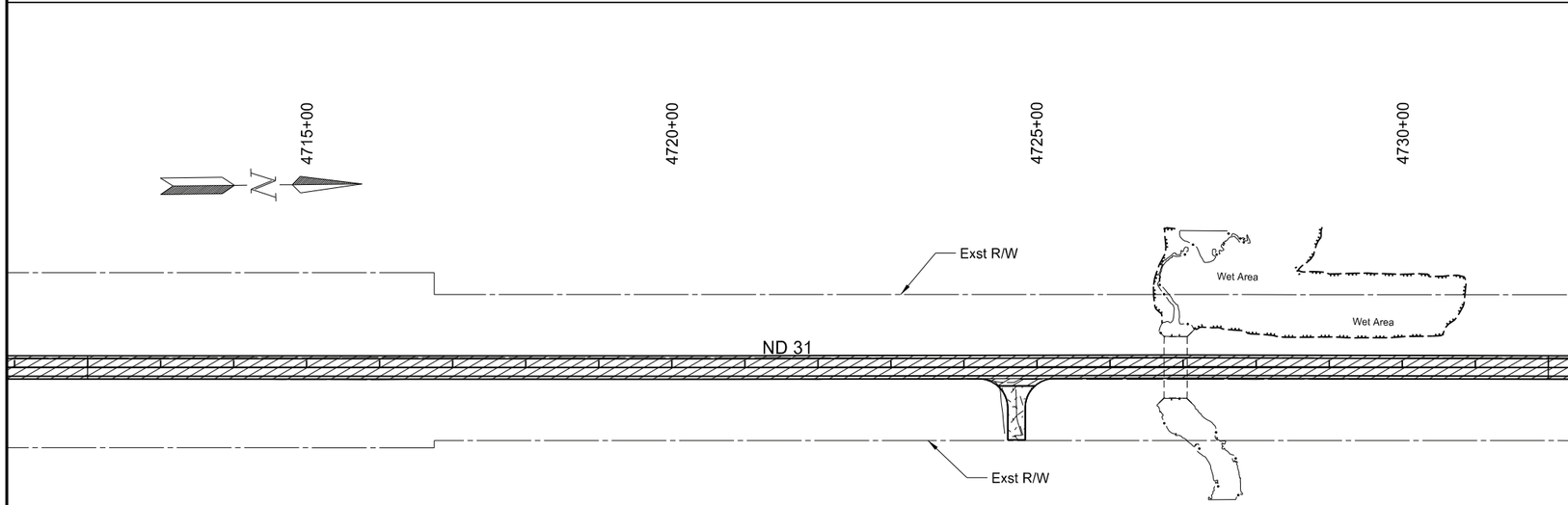
Paving Layout

Sta 4655+00 to Sta 4695+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	90	16





SPEC	CODE	BID ITEM	QTY	UNIT
302	0121	AGGREGATE BASE COURSE CL 5		
		Sta 4692+00 to Sta 4712+00	2076	TON
		Sta 4712+00 to Sta 4732+00	2076	TON
401	0050	TACK COAT		
		Sta 4692+00 to Sta 4712+00	711	GAL
		Sta 4712+00 to Sta 4732+00	711	GAL
401	0060	PRIME COAT		
		Sta 4692+00 to Sta 4712+00	500	GAL
		Sta 4712+00 to Sta 4732+00	500	GAL
401	0160	BLOTTER MATERIAL CL 46		
		Sta 4692+00 to Sta 4712+00	15	TON
		Sta 4712+00 to Sta 4732+00	15	TON
430	0143	RAP - SUPERPAVE FAA 43		
		Sta 4692+00 to Sta 4712+00	1185	TON
		Sta 4712+00 to Sta 4732+00	1185	TON
430	5815	PG 58S-34 ASPHALT CEMENT		
		Sta 4692+00 to Sta 4712+00	71	TON
		Sta 4712+00 to Sta 4732+00	71	TON

*See section 20 sheet 12 for approach quantities.

Legend

- 2" Bituminous Paving
- 3" Bituminous Overlay
- Aggregate Surface
- Curve Correction
- Subcut Reconstruction

ND 31

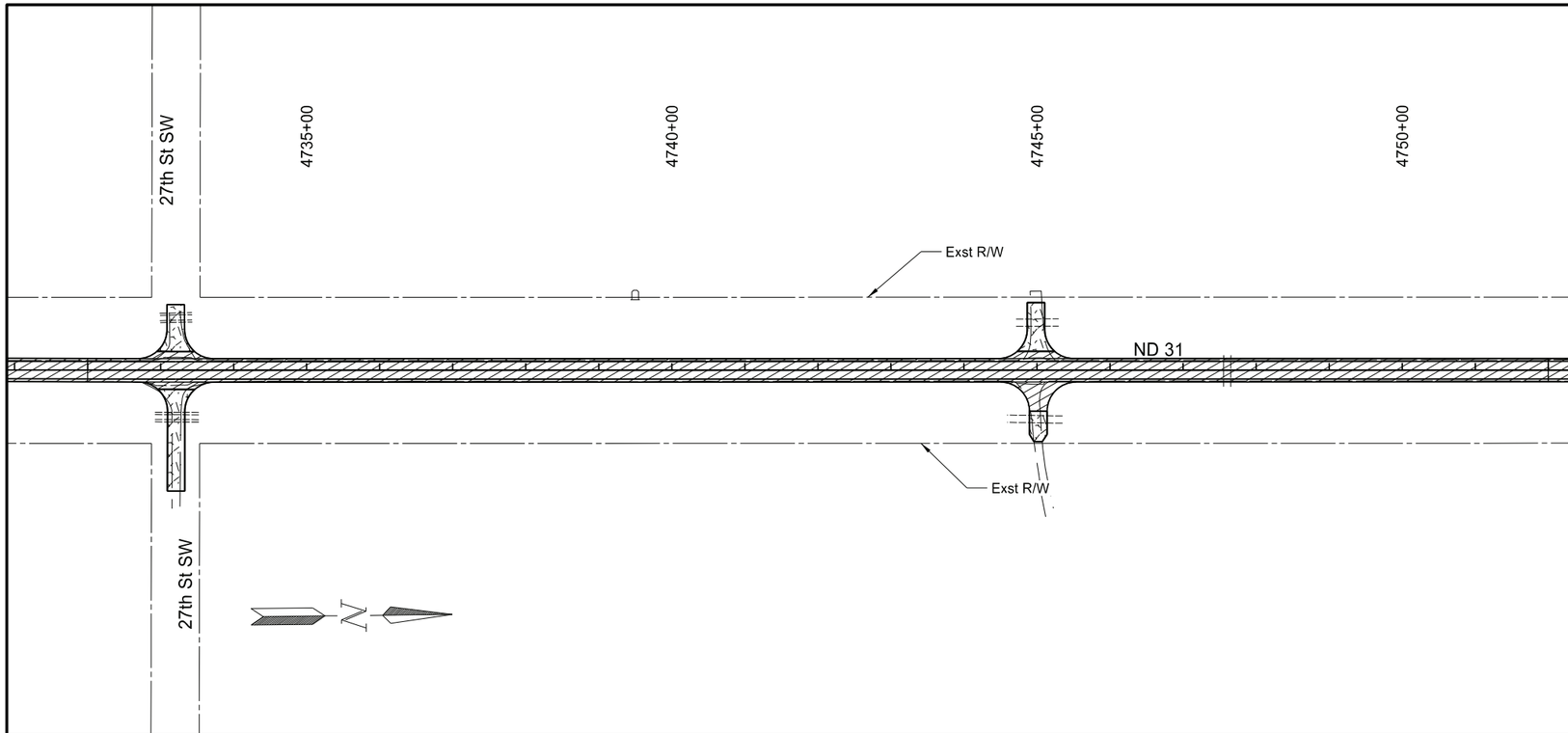
Jct I-94 to Hannover
Oliver County

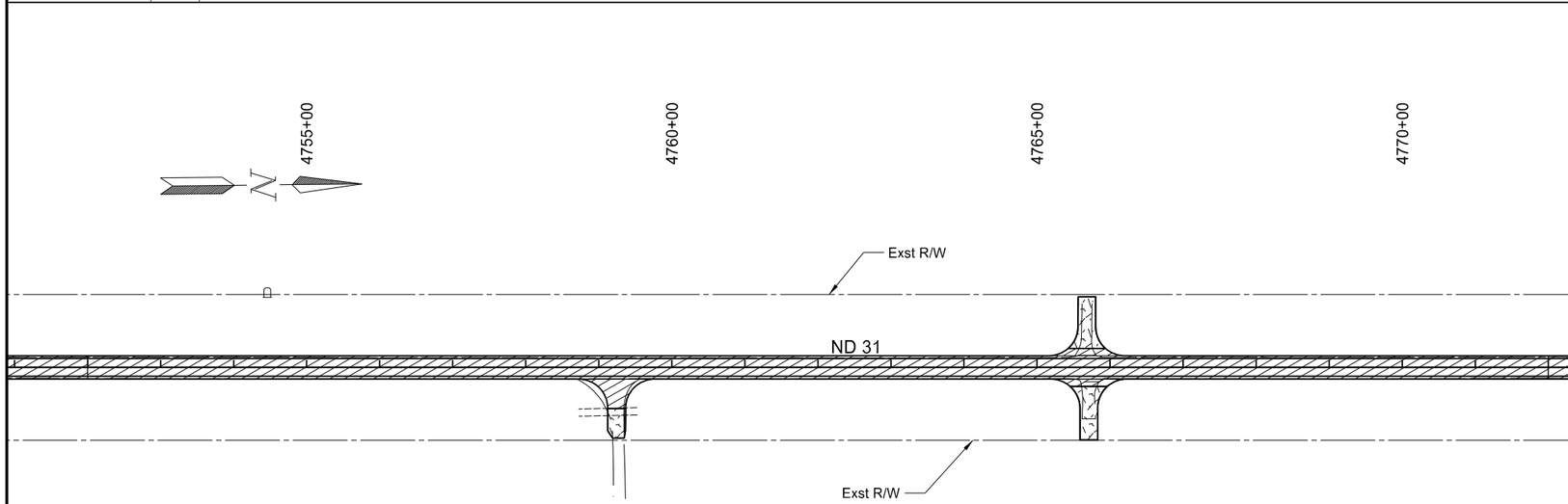
Paving Layout

Sta 4695+00 to Sta 4735+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	90	17





SPEC	CODE	BID ITEM	QTY	UNIT
302	0121	AGGREGATE BASE COURSE CL 5		
		Sta 4732+00 to Sta 4752+00	2076	TON
		Sta 4752+00 to Sta 4772+00	2076	TON
401	0050	TACK COAT		
		Sta 4732+00 to Sta 4752+00	711	GAL
		Sta 4752+00 to Sta 4772+00	711	GAL
401	0060	PRIME COAT		
		Sta 4732+00 to Sta 4752+00	500	GAL
		Sta 4752+00 to Sta 4772+00	500	GAL
401	0160	BLOTTER MATERIAL CL 47		
		Sta 4732+00 to Sta 4752+00	15	TON
		Sta 4752+00 to Sta 4772+00	15	TON
430	0143	RAP - SUPERPAVE FAA 43		
		Sta 4732+00 to Sta 4752+00	1185	TON
		Sta 4752+00 to Sta 4772+00	1185	TON
430	5815	PG 58S-34 ASPHALT CEMENT		
		Sta 4732+00 to Sta 4752+00	71	TON
		Sta 4752+00 to Sta 4772+00	71	TON

*See section 20 sheet 12 for approach quantities.

Legend

- 2" Bituminous Paving
- 3" Bituminous Overlay
- Aggregate Surface
- Curve Correction
- Subcut Reconstruction

ND 31

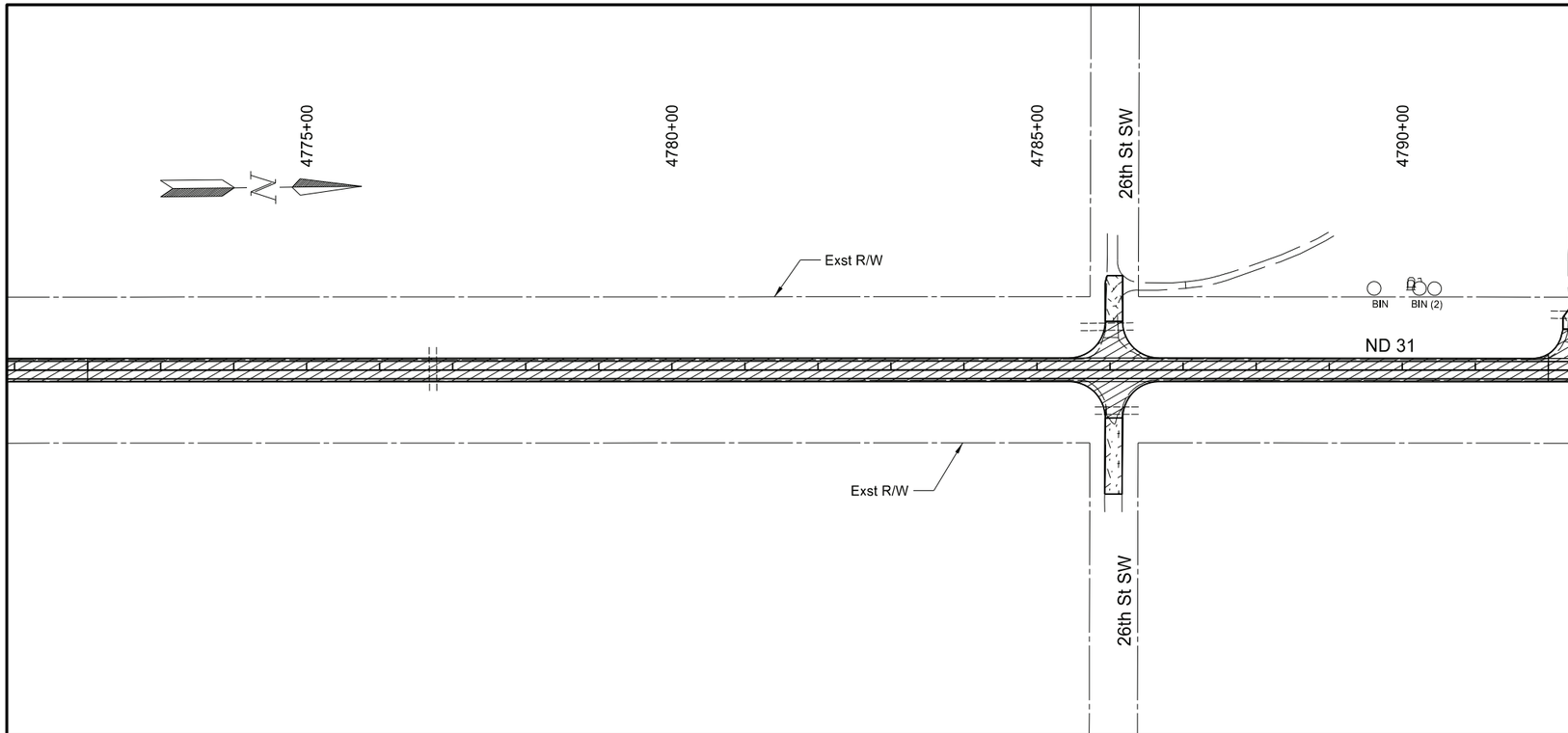
Jct I-94 to Hannover
Oliver County

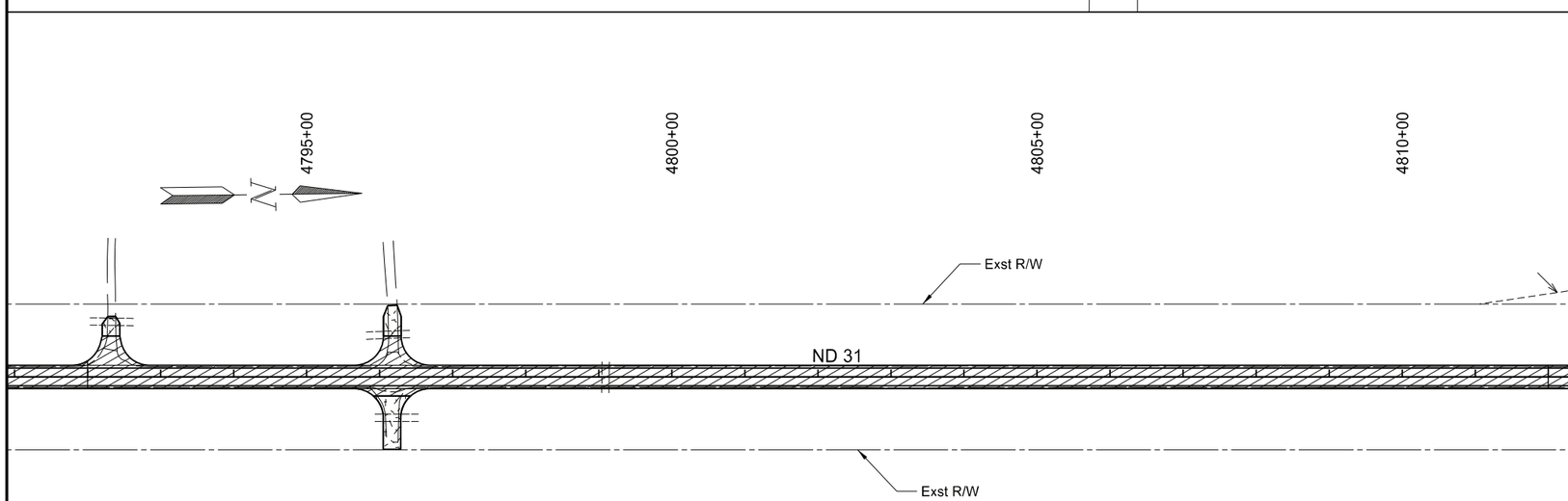
Paving Layout

Sta 4735+00 to Sta 4775+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	90	18





SPEC	CODE	BID ITEM	QTY	UNIT
302	0121	AGGREGATE BASE COURSE CL 5		
		Sta 4772+00 to Sta 4792+00	2076	TON
		Sta 4792+00 to Sta 4812+00	2076	TON
401	0050	TACK COAT		
		Sta 4772+00 to Sta 4792+00	711	GAL
		Sta 4792+00 to Sta 4812+00	711	GAL
401	0060	PRIME COAT		
		Sta 4772+00 to Sta 4792+00	500	GAL
		Sta 4792+00 to Sta 4812+00	500	GAL
401	0160	BLOTTER MATERIAL CL 48		
		Sta 4772+00 to Sta 4792+00	15	TON
		Sta 4792+00 to Sta 4812+00	15	TON
430	0143	RAP - SUPERPAVE FAA 43		
		Sta 4772+00 to Sta 4792+00	1185	TON
		Sta 4792+00 to Sta 4812+00	1185	TON
430	5815	PG 58S-34 ASPHALT CEMENT		
		Sta 4772+00 to Sta 4792+00	71	TON
		Sta 4792+00 to Sta 4812+00	71	TON

*See section 20 sheet 12 for approach quantities.

Legend

- 2" Bituminous Paving
- 3" Bituminous Overlay
- Aggregate Surface
- Curve Correction
- Subcut Reconstruction

ND 31

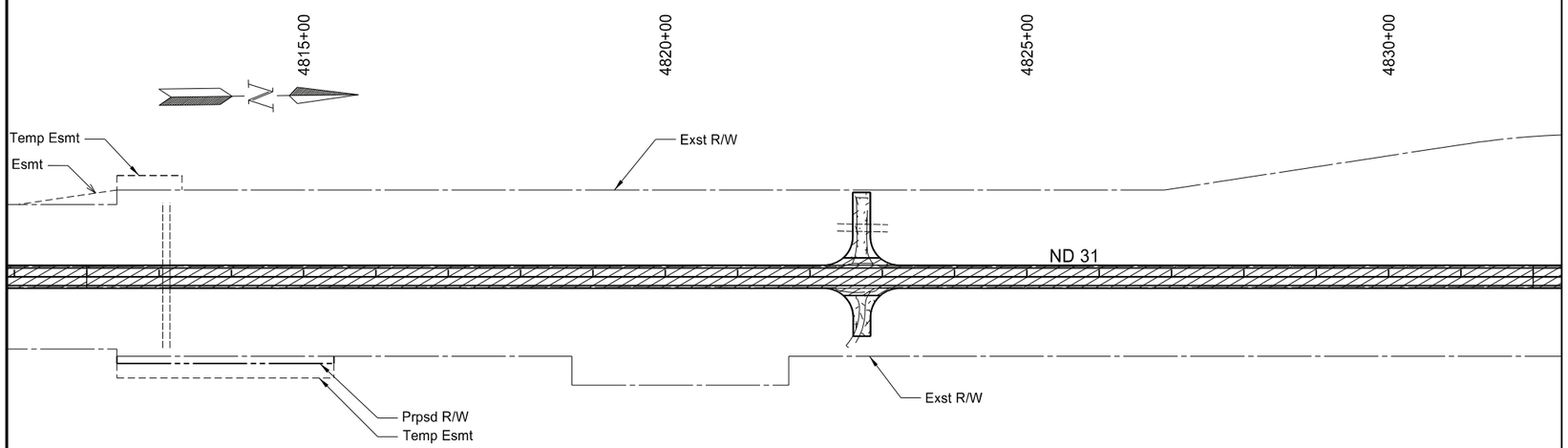
Jct I-94 to Hannover
Oliver County

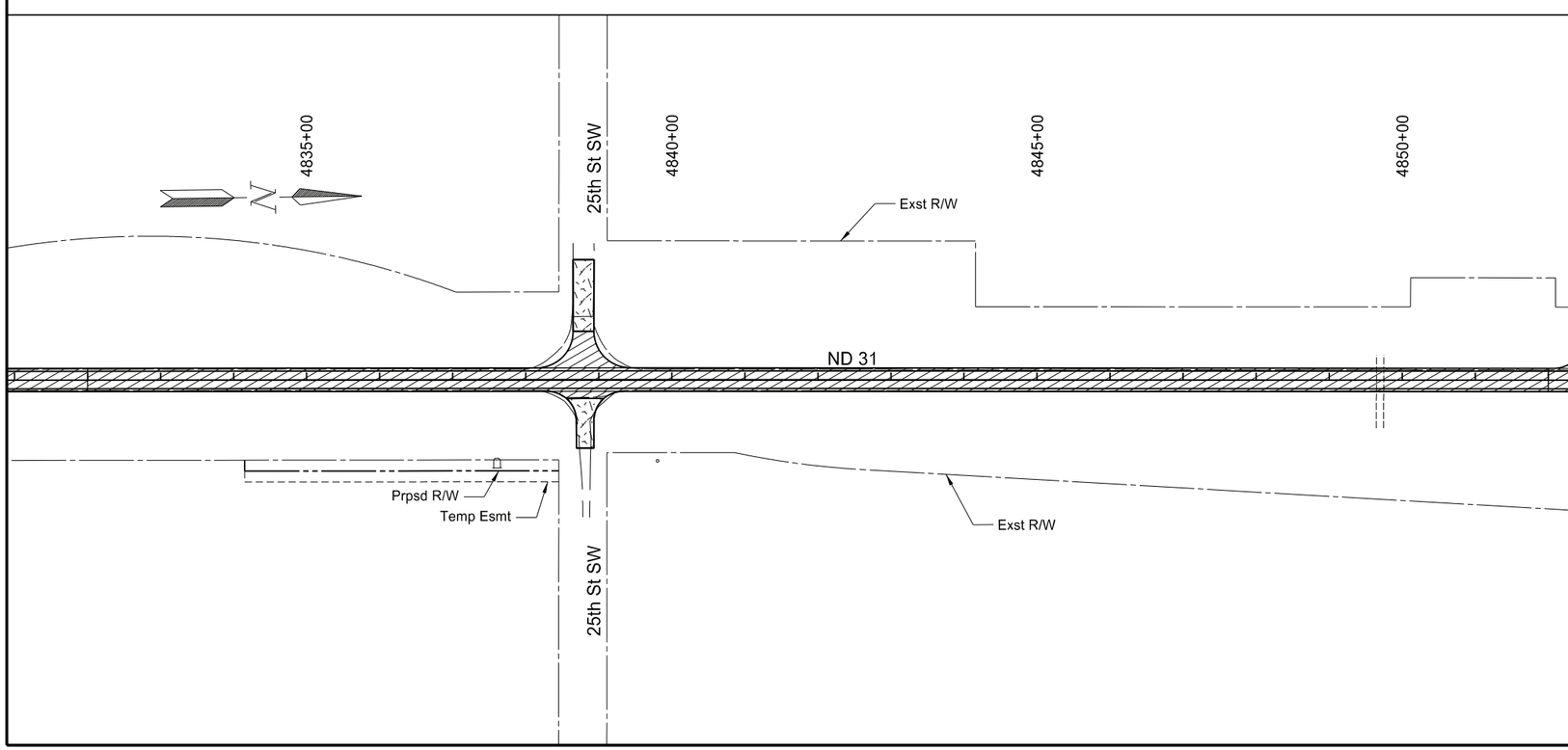
Paving Layout

Sta 4775+00 to Sta 4815+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	90	19





SPEC	CODE	BID ITEM	QTY	UNIT
302	0121	AGGREGATE BASE COURSE CL 5		
		Sta 4812+00 to Sta 4832+00	2076	TON
		Sta 4832+00 to Sta 4852+00	2076	TON
401	0050	TACK COAT		
		Sta 4812+00 to Sta 4832+00	711	GAL
		Sta 4832+00 to Sta 4852+00	711	GAL
401	0060	PRIME COAT		
		Sta 4812+00 to Sta 4832+00	500	GAL
		Sta 4832+00 to Sta 4852+00	500	GAL
401	0160	BLOTTER MATERIAL CL 49		
		Sta 4812+00 to Sta 4832+00	15	TON
		Sta 4832+00 to Sta 4852+00	15	TON
430	0143	RAP - SUPERPAVE FAA 43		
		Sta 4812+00 to Sta 4832+00	1185	TON
		Sta 4832+00 to Sta 4852+00	1185	TON
430	5815	PG 58S-34 ASPHALT CEMENT		
		Sta 4812+00 to Sta 4832+00	71	TON
		Sta 4832+00 to Sta 4852+00	71	TON

*See section 20 sheet 12 for approach quantities.

Legend

- 2" Bituminous Paving
- 3" Bituminous Overlay
- Aggregate Surface
- Curve Correction
- Subcut Reconstruction

ND 31

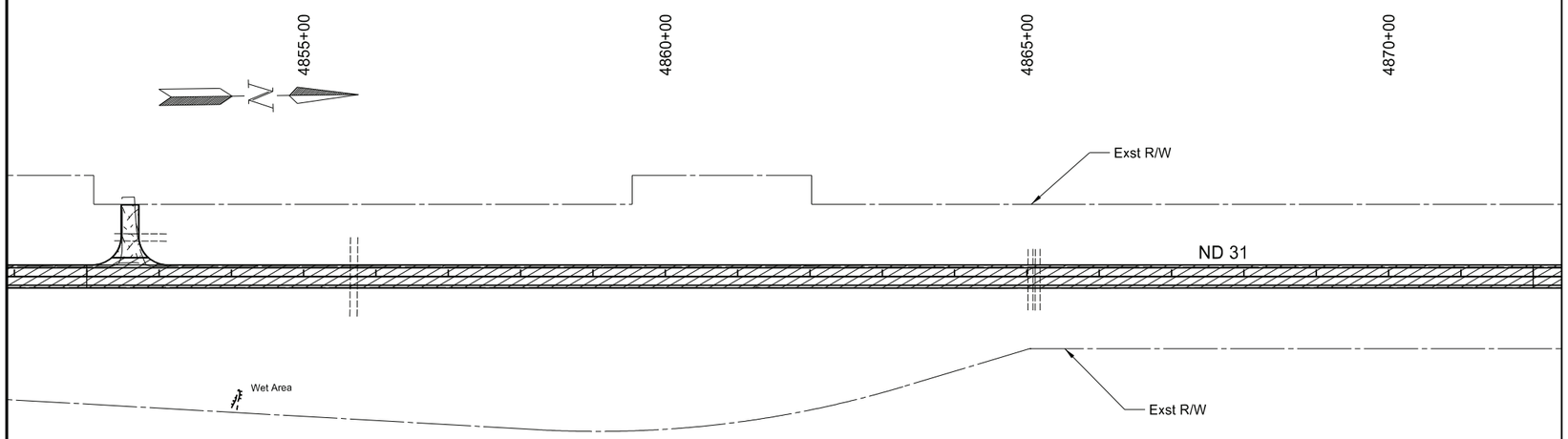
Jct I-94 to Hannover
Oliver County

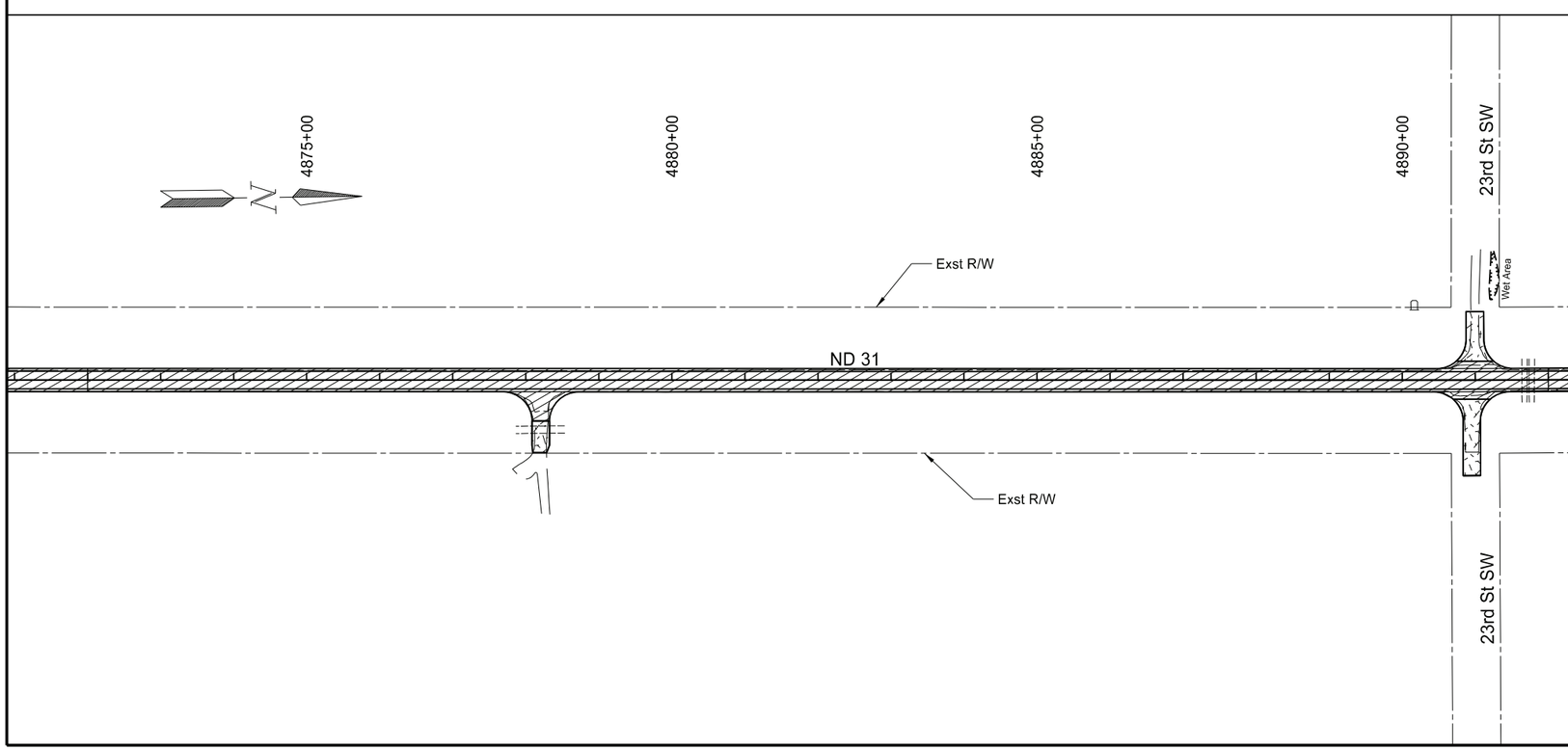
Paving Layout

Sta 4815+00 to Sta 4855+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	90	20





SPEC	CODE	BID ITEM	QTY	UNIT
302	0121	AGGREGATE BASE COURSE CL 5		
		Sta 4852+00 to Sta 4872+00	2076	TON
		Sta 4872+00 to Sta 4892+00	2076	TON
401	0050	TACK COAT		
		Sta 4852+00 to Sta 4872+00	711	GAL
		Sta 4872+00 to Sta 4892+00	711	GAL
401	0060	PRIME COAT		
		Sta 4852+00 to Sta 4872+00	500	GAL
		Sta 4872+00 to Sta 4892+00	500	GAL
401	0160	BLOTTER MATERIAL CL 50		
		Sta 4852+00 to Sta 4872+00	15	TON
		Sta 4872+00 to Sta 4892+00	15	TON
430	0143	RAP - SUPERPAVE FAA 43		
		Sta 4852+00 to Sta 4872+00	1185	TON
		Sta 4872+00 to Sta 4892+00	1185	TON
430	5815	PG 58S-34 ASPHALT CEMENT		
		Sta 4852+00 to Sta 4872+00	71	TON
		Sta 4872+00 to Sta 4892+00	71	TON

*See section 20 sheet 12 for approach quantities.

Legend

- 2" Bituminous Paving
- 3" Bituminous Overlay
- Aggregate Surface
- Curve Correction
- Subcut Reconstruction

ND 31

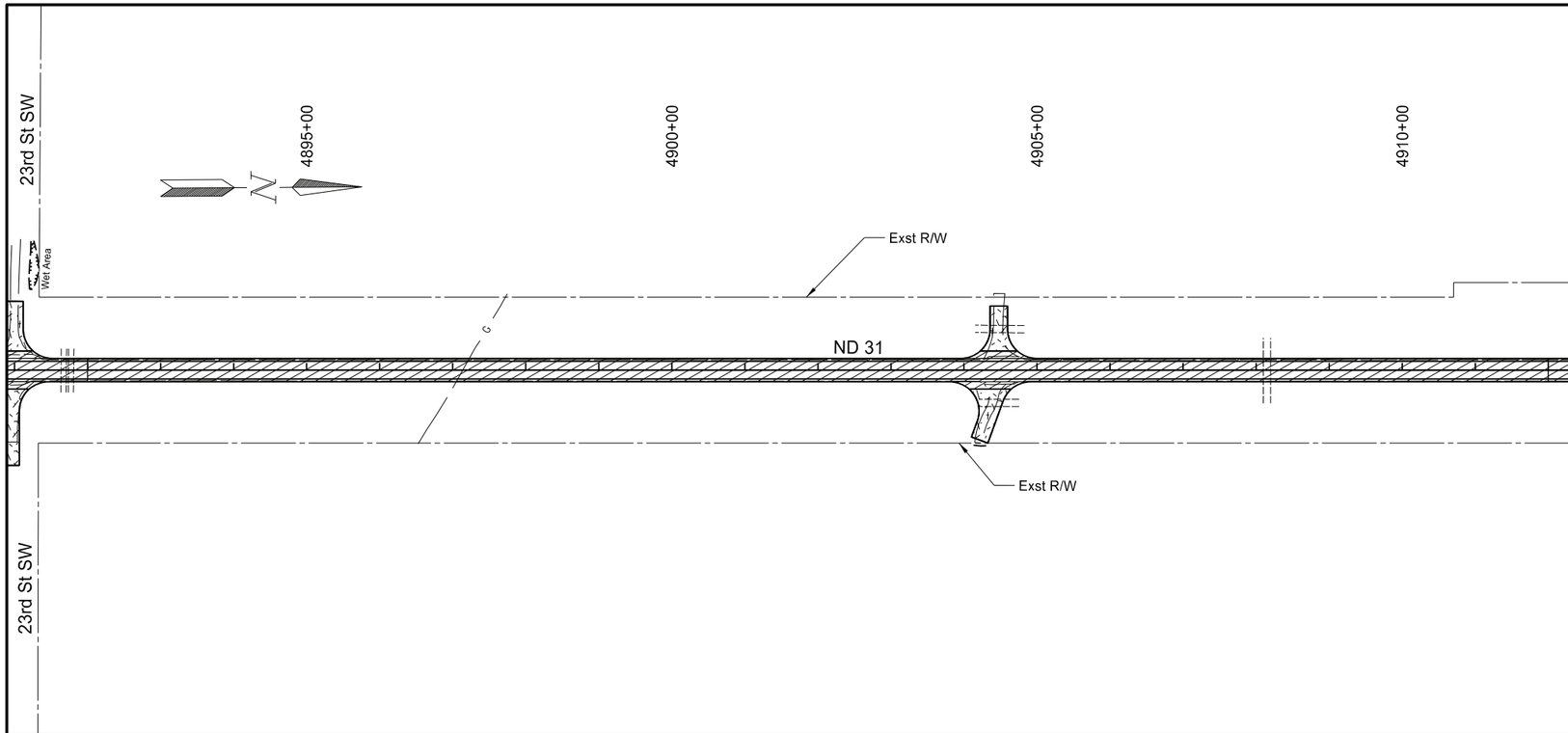
Jct I-94 to Hannover
Oliver County

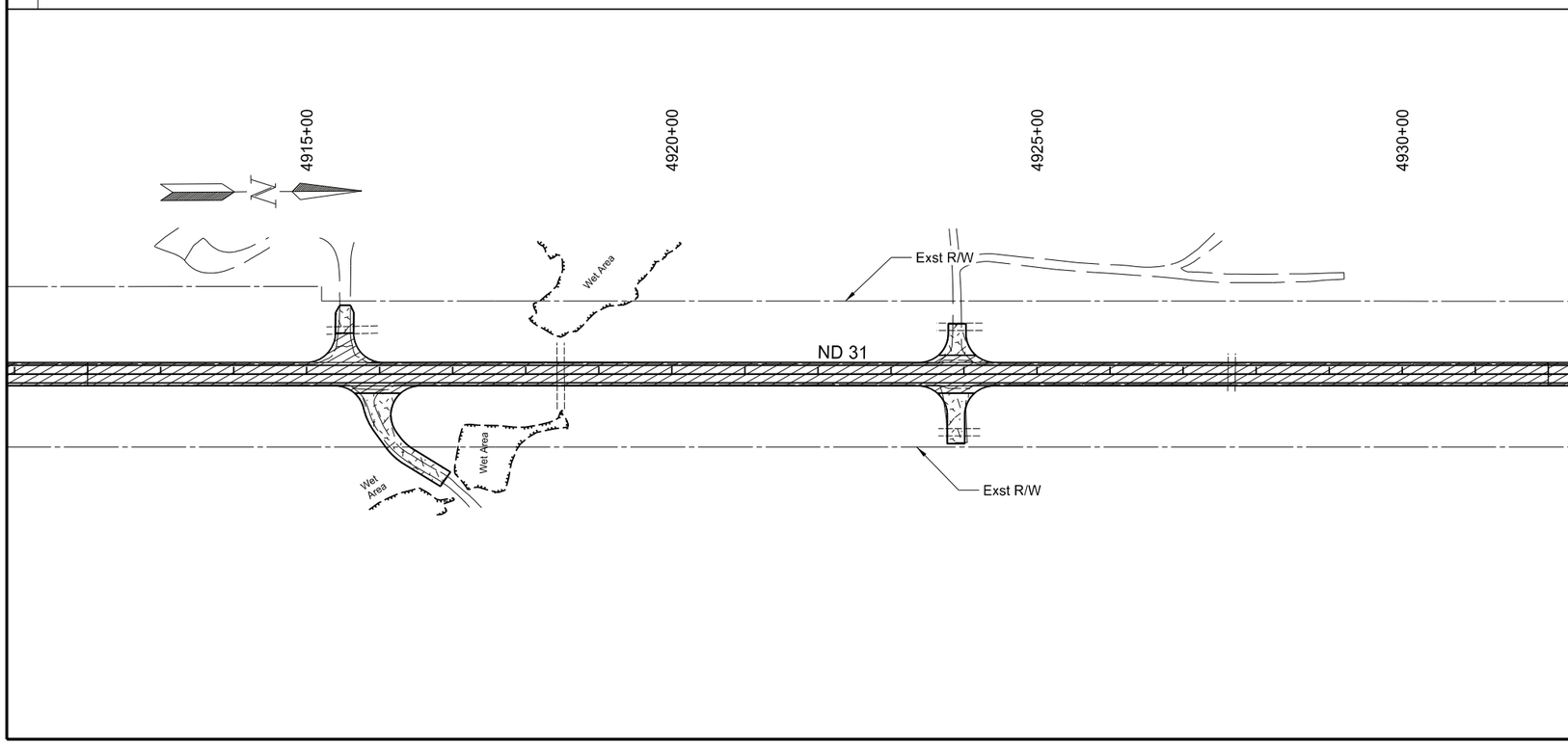
Paving Layout

Sta 4855+00 to Sta 4895+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	90	21





SPEC	CODE	BID ITEM	QTY	UNIT
302	0121	AGGREGATE BASE COURSE CL 5		
		Sta 4892+00 to Sta 4912+00	2076	TON
		Sta 4912+00 to Sta 4932+00	2076	TON
401	0050	TACK COAT		
		Sta 4892+00 to Sta 4912+00	711	GAL
		Sta 4912+00 to Sta 4932+00	711	GAL
401	0060	PRIME COAT		
		Sta 4892+00 to Sta 4912+00	500	GAL
		Sta 4912+00 to Sta 4932+00	500	GAL
401	0160	BLOTTER MATERIAL CL 51		
		Sta 4892+00 to Sta 4912+00	15	TON
		Sta 4912+00 to Sta 4932+00	15	TON
430	0143	RAP - SUPERPAVE FAA 43		
		Sta 4892+00 to Sta 4912+00	1185	TON
		Sta 4912+00 to Sta 4932+00	1185	TON
430	5815	PG 58S-34 ASPHALT CEMENT		
		Sta 4892+00 to Sta 4912+00	71	TON
		Sta 4912+00 to Sta 4932+00	71	TON

*See section 20 sheet 12 for approach quantities.

Legend

- 2" Bituminous Paving
- 3" Bituminous Overlay
- Aggregate Surface
- Curve Correction
- Subcut Reconstruction

ND 31

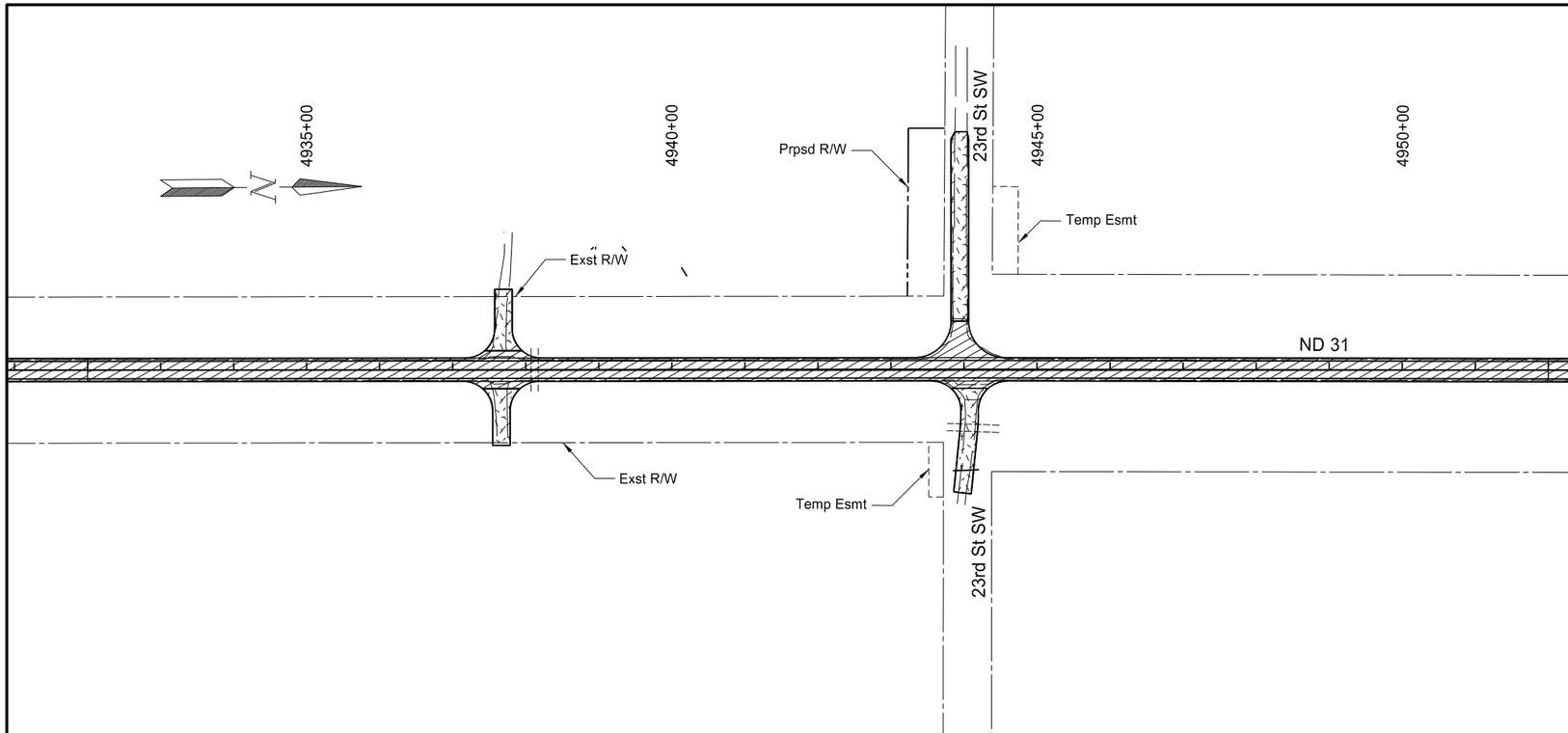
Jct I-94 to Hannover
Oliver County

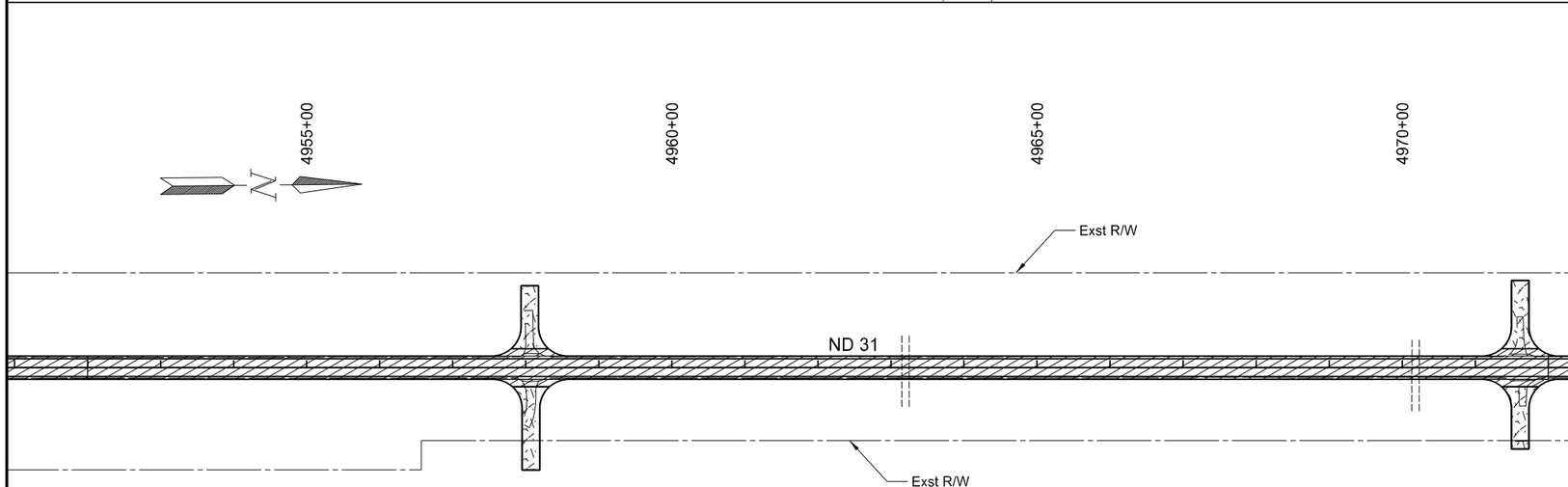
Paving Layout

Sta 4895+00 to Sta 4935+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	90	22





SPEC	CODE	BID ITEM	QTY	UNIT
302	0121	AGGREGATE BASE COURSE CL 5		
		Sta 4932+00 to Sta 4952+00	2076	TON
		Sta 4952+00 to Sta 4972+00	2076	TON
401	0050	TACK COAT		
		Sta 4932+00 to Sta 4952+00	711	GAL
		Sta 4952+00 to Sta 4972+00	711	GAL
401	0060	PRIME COAT		
		Sta 4932+00 to Sta 4952+00	500	GAL
		Sta 4952+00 to Sta 4972+00	500	GAL
401	0160	BLOTTER MATERIAL CL 52		
		Sta 4932+00 to Sta 4952+00	15	TON
		Sta 4952+00 to Sta 4972+00	15	TON
430	0143	RAP - SUPERPAVE FAA 43		
		Sta 4932+00 to Sta 4952+00	1185	TON
		Sta 4952+00 to Sta 4972+00	1185	TON
430	5815	PG 58S-34 ASPHALT CEMENT		
		Sta 4932+00 to Sta 4952+00	71	TON
		Sta 4952+00 to Sta 4972+00	71	TON

*See section 20 sheet 12 for approach quantities.

Legend

- 2" Bituminous Paving
- 3" Bituminous Overlay
- Aggregate Surface
- Curve Correction
- Subcut Reconstruction

ND 31

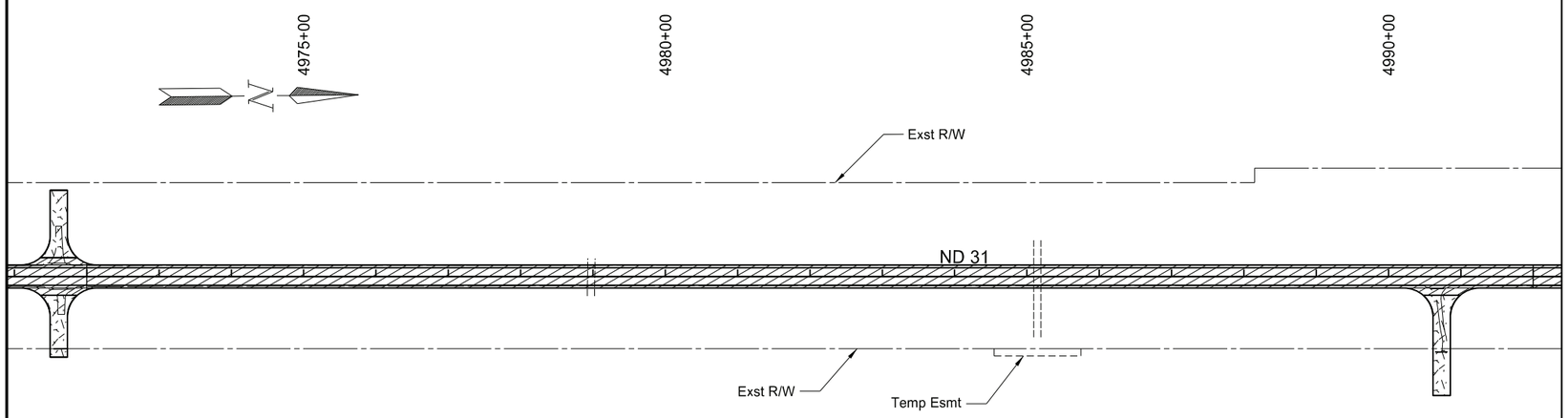
Jct I-94 to Hannover
Oliver County

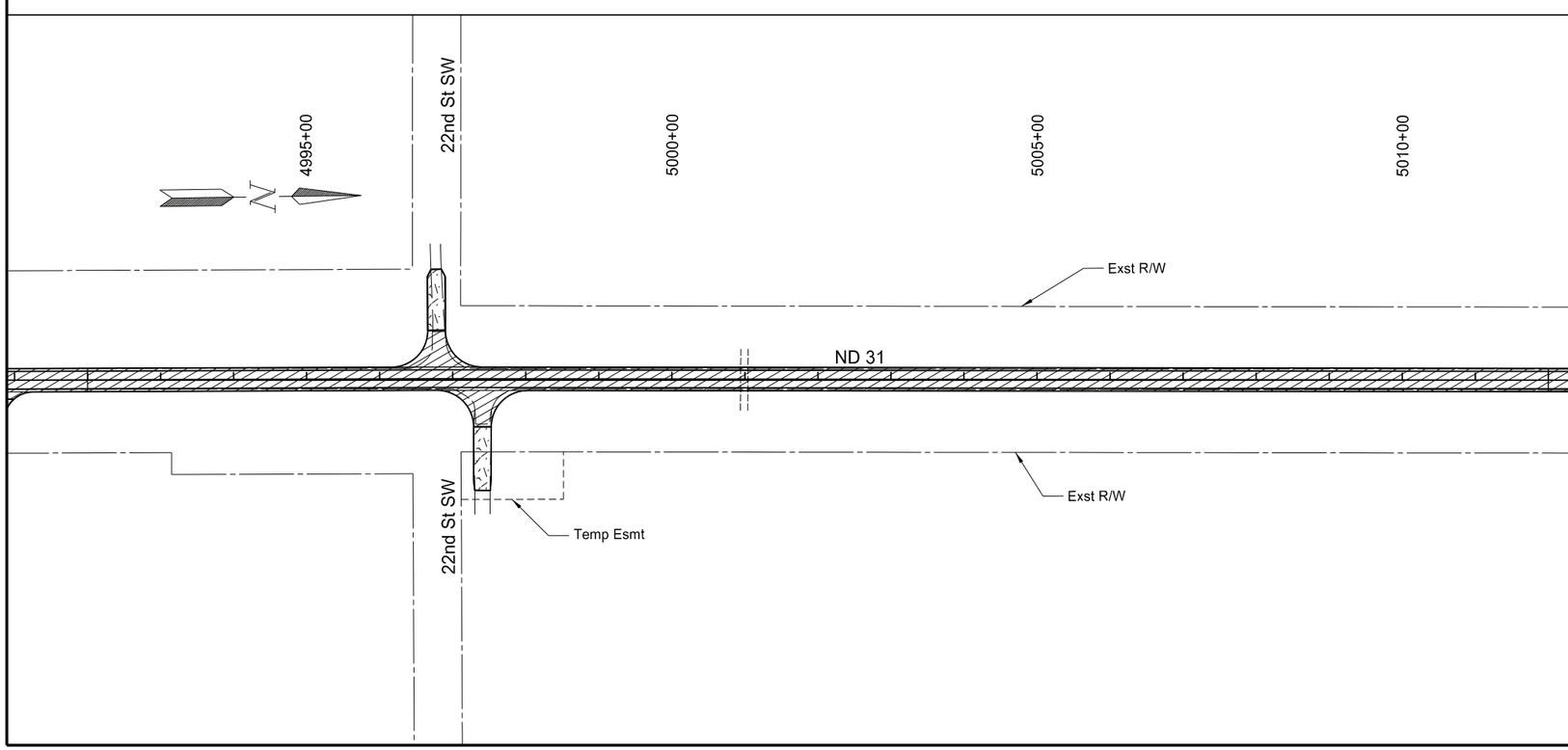
Paving Layout

Sta 4935+00 to Sta 4975+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	90	23





SPEC	CODE	BID ITEM	QTY	UNIT
302	0121	AGGREGATE BASE COURSE CL 5		
		Sta 4972+00 to Sta 4992+00	2076	TON
		Sta 4992+00 to Sta 5019+59	2076	TON
401	0050	TACK COAT		
		Sta 4972+00 to Sta 4992+00	711	GAL
		Sta 4992+00 to Sta 5019+59	711	GAL
401	0060	PRIME COAT		
		Sta 4972+00 to Sta 4992+00	500	GAL
		Sta 4992+00 to Sta 5019+59	500	GAL
401	0160	BLOTTER MATERIAL CL 53		
		Sta 4972+00 to Sta 4992+00	15	TON
		Sta 4992+00 to Sta 5019+59	15	TON
430	0143	RAP - SUPERPAVE FAA 43		
		Sta 4972+00 to Sta 4992+00	1185	TON
		Sta 4992+00 to Sta 5019+59	1185	TON
430	5815	PG 58S-34 ASPHALT CEMENT		
		Sta 4972+00 to Sta 4992+00	71	TON
		Sta 4992+00 to Sta 5019+59	71	TON

*See section 20 sheet 12 for approach quantities.

Legend

- 2" Bituminous Paving
- 3" Bituminous Overlay
- Aggregate Surface
- Curve Correction
- Subcut Reconstruction

ND 31

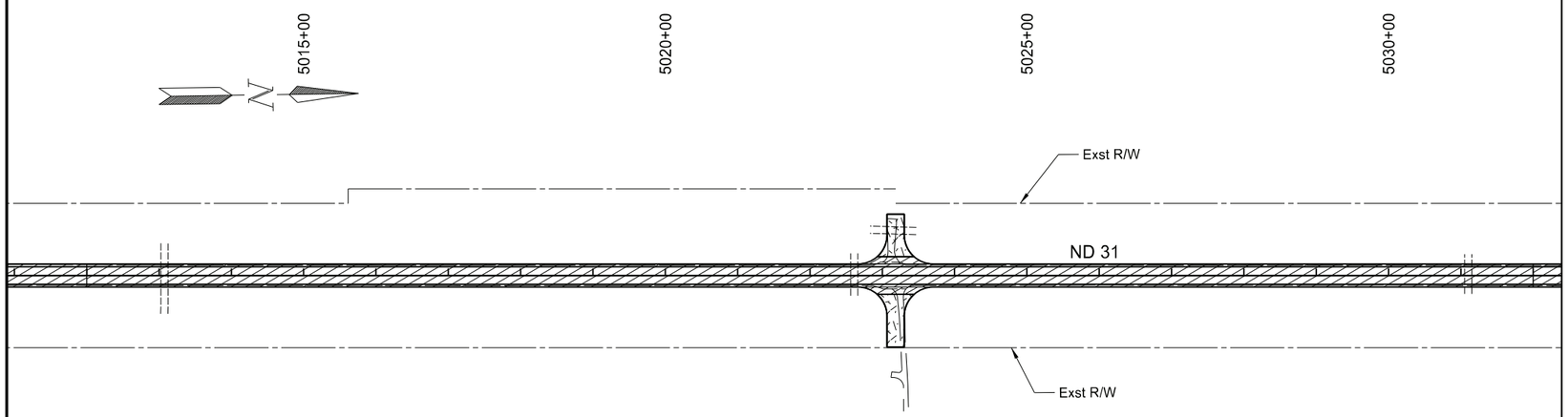
Jct I-94 to Hannover
Oliver County

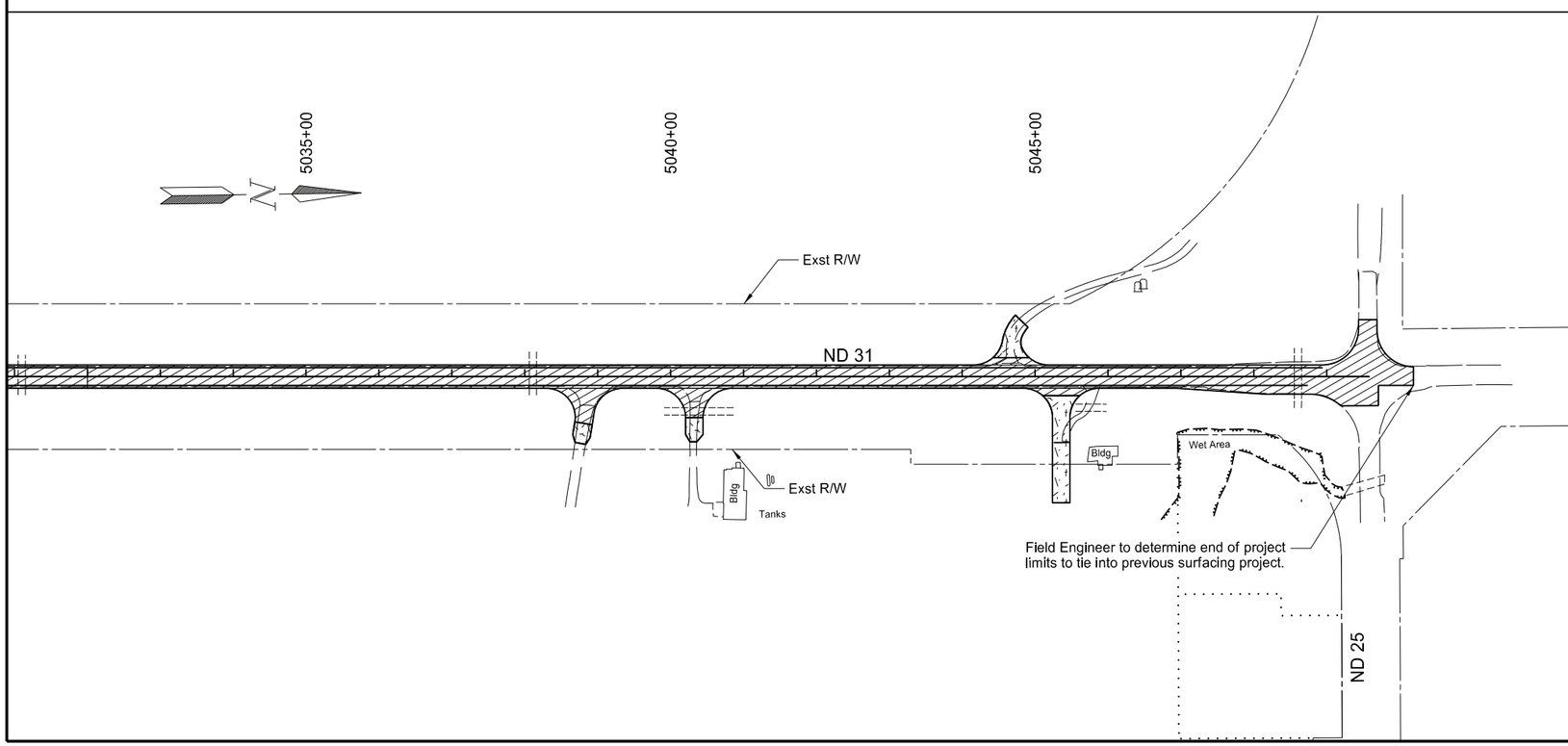
Paving Layout

Sta 4975+00 to Sta 5015+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	90	24





SPEC	CODE	BID ITEM	QTY	UNIT
302	0121	AGGREGATE BASE COURSE CL 5		
		Sta 5012+00 to Sta 5032+00	2076	TON
		Sta 5032+00 to Sta 5049+59	2013	TON
401	0050	TACK COAT		
		Sta 5012+00 to Sta 5032+00	711	GAL
		Sta 5032+00 to Sta 5049+59	704	GAL
401	0060	PRIME COAT		
		Sta 5012+00 to Sta 5032+00	500	GAL
		Sta 5032+00 to Sta 5049+59	485	GAL
401	0160	BLOTTER MATERIAL CL 54		
		Sta 5012+00 to Sta 5032+00	15	TON
		Sta 5032+00 to Sta 5049+59	15	TON
430	0143	RAP - SUPERPAVE FAA 43		
		Sta 5012+00 to Sta 5032+00	1185	TON
		Sta 5032+00 to Sta 5049+59	1173	TON
430	5815	PG 58S-34 ASPHALT CEMENT		
		Sta 5012+00 to Sta 5032+00	71	TON
		Sta 5032+00 to Sta 5049+59	70	TON

*See section 20 sheet 12 for approach quantities.

Legend

- 2" Bituminous Paving
- 3" Bituminous Overlay
- Aggregate Surface
- Curve Correction
- Subcut Reconstruction

ND 31

Jct I-94 to Hannover
Oliver County

Paving Layout

Sta 5015+00 to Sta 5050+19

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	100	1

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
E5-1-48	48"x48"	EXIT GORE		35	
G20-1-60	**60"x24"**	**ROAD WORK NEXT __ MILES**	**2**	**28**	**56**
G20-1b-60	60"x24"	NO WORK IN PROGRESS (Sign and installation only)		18	
G20-2-48	**48"x24"**	**END ROAD WORK**	**7**	**26**	**182**
G20-4-36	**36"x18"**	**PILOT CAR FOLLOW ME (Mounted to back of pilot car)**	**1**	**18**	**18**
G20-4b-36	**36"x30"**	**WAIT FOR PILOT CAR**	**17**	**18**	**306**
G20-50a-72	**72"x36"**	**ROAD WORK NEXT __ MILES RT & LT ARROWS**	**19**	**43**	**817**
G20-52a-72	**72"x24"**	**ROAD WORK NEXT __ MILES RT or LT ARROW**	**3**	**36**	**108**
G20-55-96	**96"x48"**	**SPEED LIMIT ENFORCED - MINIMUM FEE $150 WHEN WORKERS PRESENT**	**4**	**59**	**236**
M1-1-36	36"x36"	INTERSTATE ROUTE MARKER (Post and installation only)		11	
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 (INSIDE ARROW) RIGHT or LEFT (Mounted on barricade)		7	
M5-1-21	21"x15"	ADVANCE TURN ARROW RT or LT(Mounted on route marker post)		7	
M5-1-30	30"x21"	ADVANCE TURN ARROW RT or LT(Mounted on route marker post)		9	
M6-1-21	21"x15"	DIRECTIONAL ARROW RT or LT (Mounted on route marker post)		7	
M6-1-30	30"x21"	DIRECTIONAL ARROW RT or LT (Mounted on route marker post)		9	
M6-3-21	21"x15"	DIRECTIONAL ARROW UP (Mounted on route marker post)		7	
R1-1-48	**48"x48"**	**STOP**	**4**	**32**	**128**
R1-2-60	60"x60"	YIELD		29	
R2-1-36	**36"x48"**	**SPEED LIMIT __ (Portable only)**	**2**	**30**	**60**
R2-1-48	**48"x60"**	**SPEED LIMIT __**	**8**	**39**	**312**
R2-1aP-24	**24"x18"**	**MINIMUM FEE $150 (Mounted on Speed Limit post)**	**5**	**10**	**50**
R3-2-48	48"x48"	NO LEFT TURN		35	
R4-1-36	**36"x48"**	**DO NOT PASS (Portable only)**	**2**	**30**	**60**
R4-1-48	48"x60"	DO NOT PASS		39	
R4-7-48	48"x60"	KEEP RIGHT		39	
R5-1-48	48"x48"	DO NOT ENTER		35	
R6-1-54	54"x18"	ONE WAY RIGHT or LEFT (Mounted on STOP or DO NOT ENTER post)		14	
R7-1-12	12"x18"	NO PARKING ANY TIME		11	
R10-6-24	**24"x36"**	**STOP HERE ON RED**	**2**	**16**	**32**
R11-2-48	48"x30"	ROAD CLOSED (Mounted on barricade)		12	
R11-2a-48	48"x30"	STREET CLOSED (Mounted on barricade)		12	
R11-3a-60	60"x30"	ROAD CLOSED __ MILES AHEAD LOCAL TRAFFIC ONLY (Mtd on barricade)		15	
R11-3c-60	60"x30"	STREET CLOSED __ MILES AHEAD LOCAL TRAFFIC ONLY (Mtd on barricade)		15	
R11-4a-60	60"x30"	STREET CLOSED TO THRU TRAFFIC (Mounted on barricade)		15	
W1-3-48	48"x48"	REVERSE TURN RIGHT or LEFT		35	
W1-4-48	**48"x48"**	**REVERSE CURVE RIGHT or LEFT**	**1**	**35**	**35**
W1-4b-48	48"x48"	TWO LANE REVERSE CURVE RIGHT or LEFT		35	
W1-6-48	48"x24"	ONE DIRECTION LARGE ARROW		26	
W3-1-48	48"x48"	STOP AHEAD		35	
W3-3-48	**48"x48"**	**SIGNAL AHEAD**	**2**	**35**	**70**
W3-4-48	**48"x48"**	**BE PREPARED TO STOP**	**3**	**35**	**105**
W3-5-48	**48"x48"**	**SPEED REDUCTION AHEAD**	**5**	**35**	**175**
W4-2-48	48"x48"	LANE ENDS RIGHT or LEFT		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		35	
W8-1-48	**48"x48"**	**BUMP**	**1**	**35**	**35**
W8-3-48	48"x48"	PAVEMENT ENDS		35	
W8-7-48	48"x48"	LOOSE GRAVEL		35	
W8-9a-48	**48"x48"**	**SHOULDER DROP-OFF SYMBOL**	**2**	**35**	**70**
W8-11-48	**48"x48"**	**UNEVEN LANES**	**2**	**35**	**70**
W8-12-48	48"x48"	NO CENTER LINE		35	
W8-17-48	48"x48"	SHOULDER DROP-OFF SYMBOL		35	
W8-53-48	48"x48"	TRUCKS ENTERING HIGHWAY		35	
W8-54-48	**48"x48"**	**TRUCKS ENTERING AHEAD or __ FT or _ MILE**	**2**	**35**	**70**
W8-55-48	**48"x48"**	**TRUCKS CROSSING AHEAD or __ FT or _ MILE**	**2**	**35**	**70**
W8-56-48	48"x48"	TRUCKS EXITING HIGHWAY		35	
W9-3a-48	48"x48"	CENTER LANE CLOSED SYMBOL		35	
W13-1P-30	30"x30"	__ MPH ADVISORY SPEED PLAQUE (Mounted on warning sign post)		14	
W14-3-64	64"x48"	NO PASSING ZONE		28	
W16-2P-30	**30"x24"**	**__ FEET PLAQUE (Mounted on warning sign post)**	**2**	**10**	**20**
W20-1-48	**48"x48"**	**ROAD WORK AHEAD or _FT or _ MILE**	**9**	**35**	**315**
W20-2-48	48"x48"	DETOUR AHEAD or __ FT or _ MILE		35	
W20-3-48	48"x48"	ROAD or STREET CLOSED AHEAD or __ FT or _ MILE		35	
W20-4-48	**48"x48"**	**ONE LANE ROAD AHEAD or __ FT or _ MILE**	**4**	**35**	**140**
W20-5-48	48"x48"	RIGHT or CENTER or LEFT LANE CLOSED AHEAD or __ FT or _ MILE		35	
W20-7-48	**48"x48"**	**FLAGGER**	**2**	**35**	**70**
W20-8-18	**18"x18"**	**STOP - SLOW PADDLE Back to Back**	**2**	**5**	**10**
W20-52P-54	**54"x12"**	**NEXT __ MILES (Mounted on warning sign post)**	**2**	**12**	**24**
W21-1-48	48"x48"	WORKERS		35	
W21-2-48	**48"x48"**	**FRESH OIL**	**2**	**35**	**70**
W21-3-48	48"x48"	ROAD MACHINERY AHEAD or __ FT or _ MILE		35	
W21-5-48	**48"x48"**	**SHOULDER WORK**	**1**	**35**	**35**

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
W21-5a-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED		35	
W21-5b-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED AHEAD or __ FT or _ MILE		35	
W21-6-48	48"x48"	SURVEY CREW		35	
W21-50-48	48"x48"	BRIDGE PAINTING AHEAD or __ FT		35	
W21-51-48	48"x48"	MATERIAL ON ROADWAY		35	
W21-52-48	48"x48"	PAVEMENT BREAKS		35	
W21-53-48	**48"x48"**	**RUMBLE STRIPS AHEAD**	**2**	**35**	**70**
W22-8-48	48"x48"	FRESH OIL LOOSE ROCK		35	
W24-1-48	48"x48"	DOUBLE REVERSE CURVE		35	

SPECIAL SIGNS

SPEC & CODE

704-1000	**TRAFFIC CONTROL SIGNS**	**TOTAL UNITS**	**3819**

SPEC & CODE	DESCRIPTION	UNIT	QUANTITY
704-0100	**FLAGGING**	**MHR**	**2320**
704-1043	**ATTENUATION DEVICE-TYPE B-65**	**EACH**	**2**
704-1048	**PORTABLE RUMBLE STRIPS**	**EACH**	**2**
704-1050	TYPE I BARRICADES	EACH	
704-1052	**TYPE III BARRICADES**	**EACH**	**2**
704-1060	**DELINEATOR DRUMS**	**EACH**	**318**
704-1065	TRAFFIC CONES	EACH	
704-1067	**TUBULAR MARKERS**	**EACH**	**169**
704-1070	DELINEATOR	EACH	
704-1072	FLEXIBLE DELINEATORS	EACH	
704-1080	STACKABLE VERTICAL PANELS	EACH	
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	
704-1185	**PILOT CAR**	**HR**	**1160**
704-1500	**OBLITERATION OF PVMT MK**	**SF**	**792**
704-3501	PORTABLE PRECAST CONCRETE MED BARRIER	LF	
704-3510	**PRECAST CONCRETE MED BARRIER - STATE FURNISHED**	**EACH**	**38**
762-0200	RAISED PAVEMENT MARKERS	EACH	
762-0420	SHORT TERM 4IN LINE - TYPE R	LF	
762-0422	**SHORT TERM 6IN LINE-TYPE R**	**LF**	**2742**
762-0426	**SHORT TERM 24IN LINE-TYPE R**	**LF**	**24**
762-0430	SHORT TERM 4IN LINE - TYPE NR	LF	
772-2800	**INTERIM TRAFFIC SIGNALS**	**EACH**	**2**

NOTE:
If additional signs are required, units will be calculated using the formula from Section III-18.06 of the Design Manual.
http://www.dot.nd.gov/

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 3/30/26
NORTH DAKOTA

Traffic Control Devices List
ND 31
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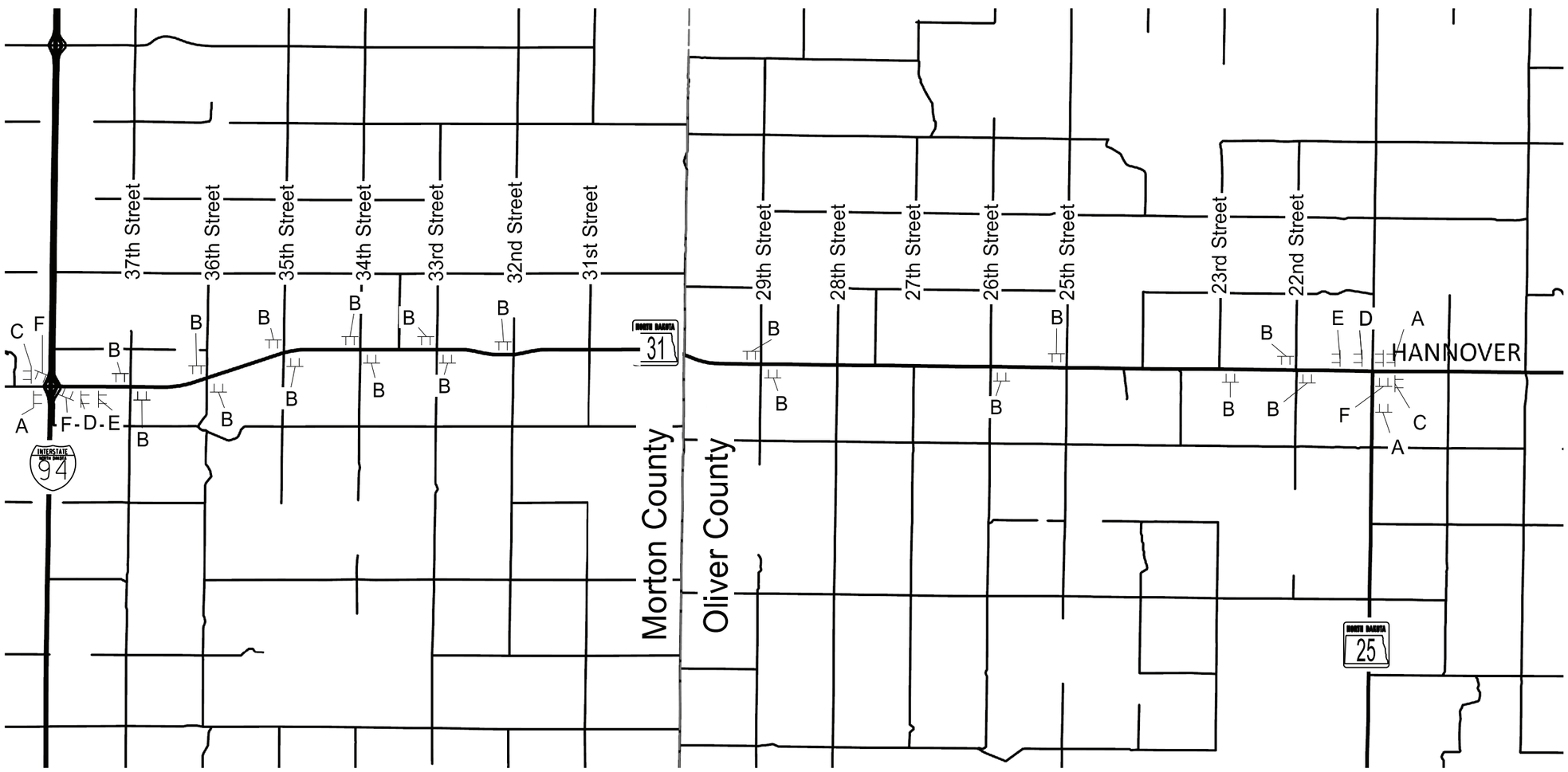
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	100	2



A

W20-1-48

B

G20-50a-72

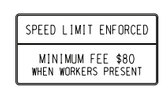
C

G20-2a-48

D

G20-1-60

E



G20-55-96

F

G20-52a-72

ND 31

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Work Zone Traffic Control

Terminal Signing

REGISTERED PROFESSIONAL ENGINEER
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DATE: 3/30/26
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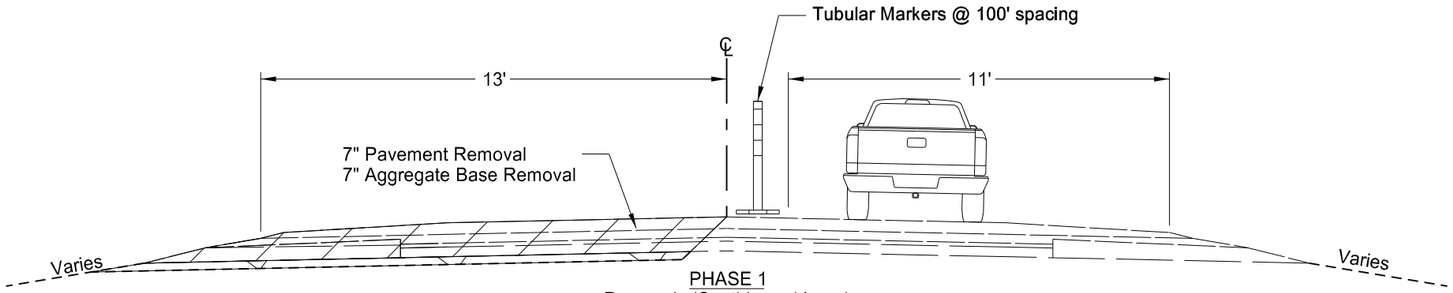
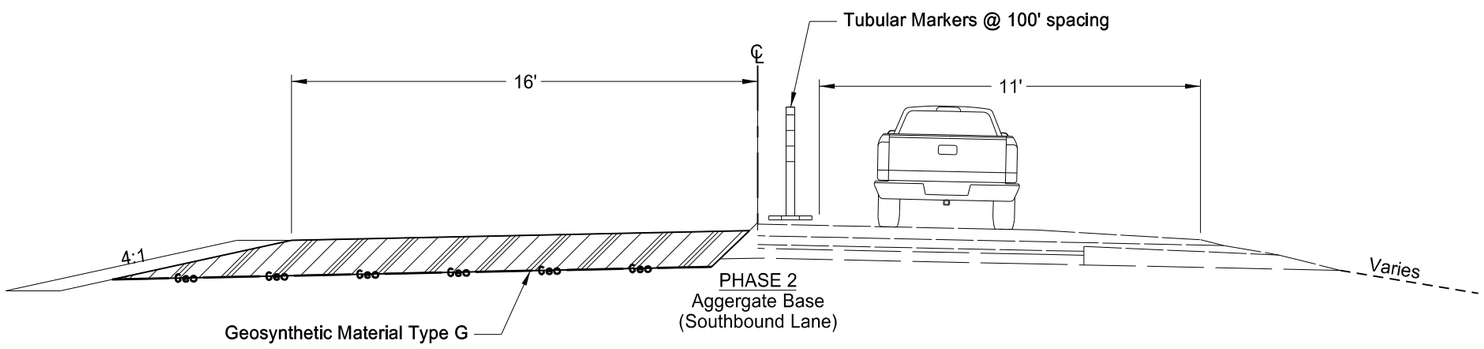
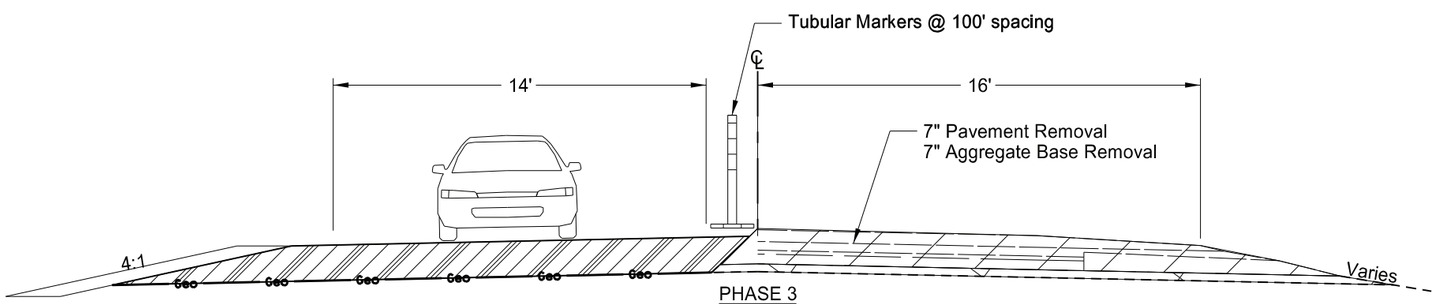
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	100	3



PHASE 1
Removals (Southbound Lane)



PHASE 2
Aggergate Base
(Southbound Lane)



PHASE 3
Removals (Northbound Lane)

Notes:

Phase 1
Move traffic to Northbound lane using
flaggers and pilot car.
Remove the pavement and base on Southbound side.

Phase 2
Complete aggregate compation on Southbound side.

Phase 3
Move traffic to Southbound lane
using flaggers and pilot car.
Remove the pavement and base on Northbound side.

See typical sections for pavement and aggregate depths.

See section 6 for traffic control notes.

Drawing Not to Scale

ND 31

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Curve Correction and Subcut

Work Zone Traffic Control

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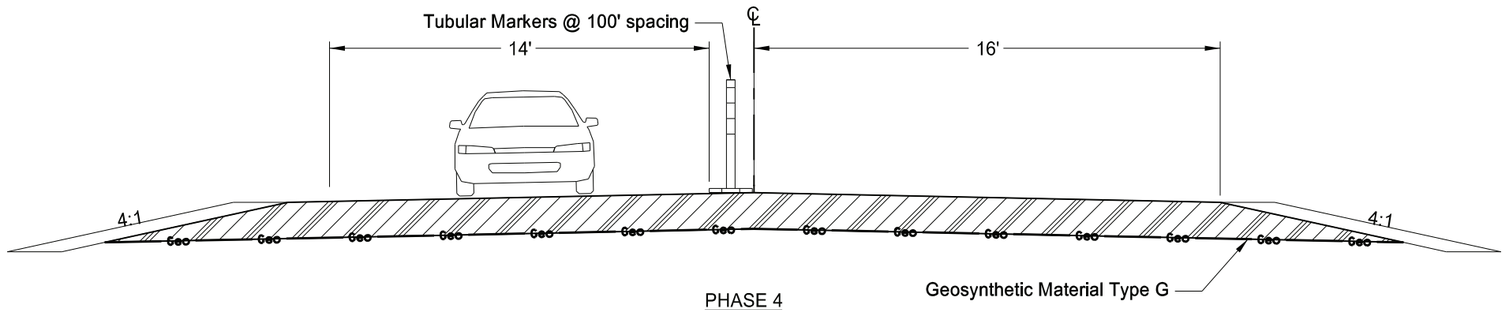
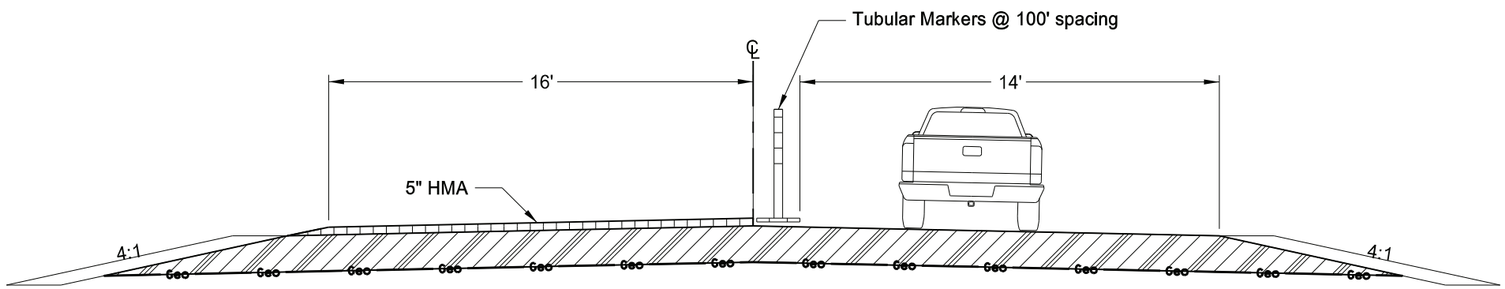
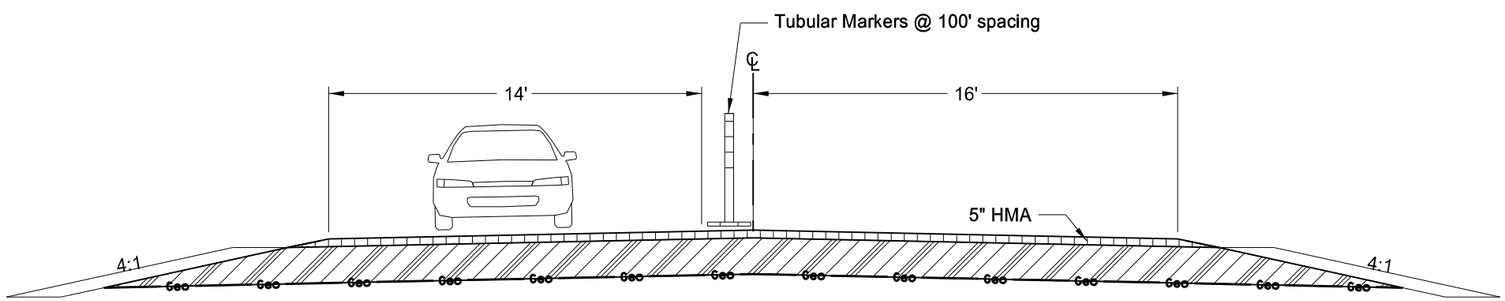
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	100	4



PHASE 4
Aggregate Base
(Northbound Lane)



PHASE 5
Paving
(Southbound Lane)



PHASE 6
Paving
(Northbound Lane)

Notes:

Phase 4
Complete aggergate compaction on Northbound lane.

Phase 5
Move traffic to Nouthbound lane
using flaggers and pilot car.
Complete the reconstruction on Southbound side.

Phase 6
Move traffic to Southbound lane
using flaggers and pilot car.
Complete Reconstruction on Northbound Lane.

See typical sections for pavement and aggregate depths.

See Section 6 for Traffic Control Notes

Drawing Not to Scale

ND 31

Jct I-94 to Hannover

Curve Correction and Subcut

Work Zone Traffic Control

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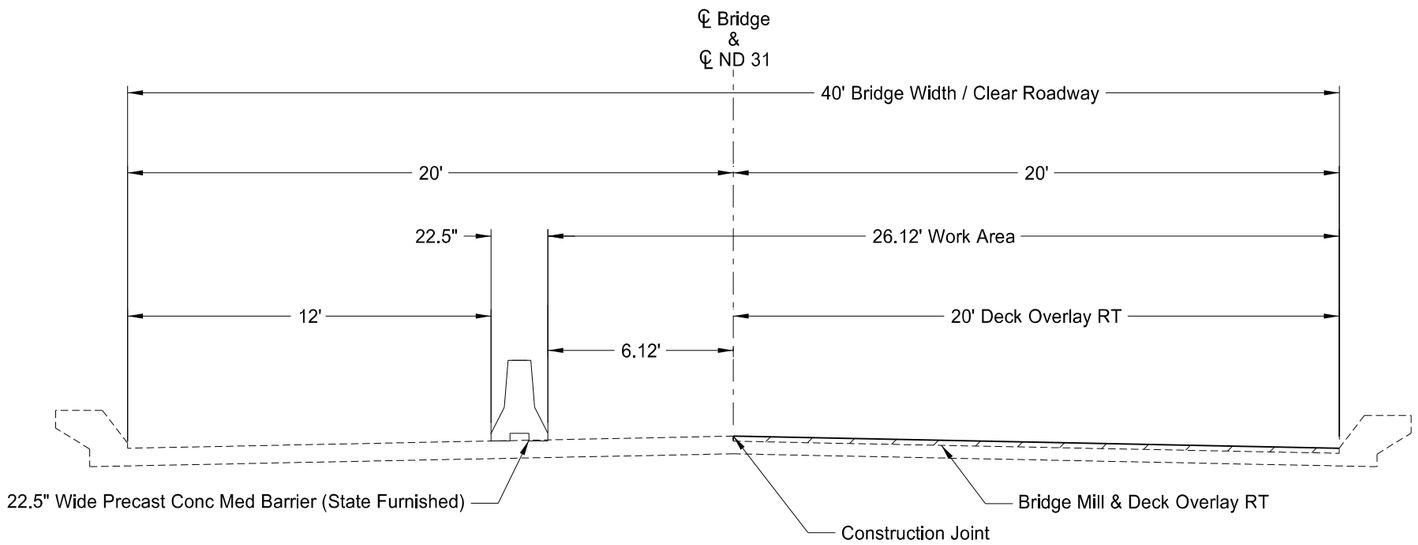
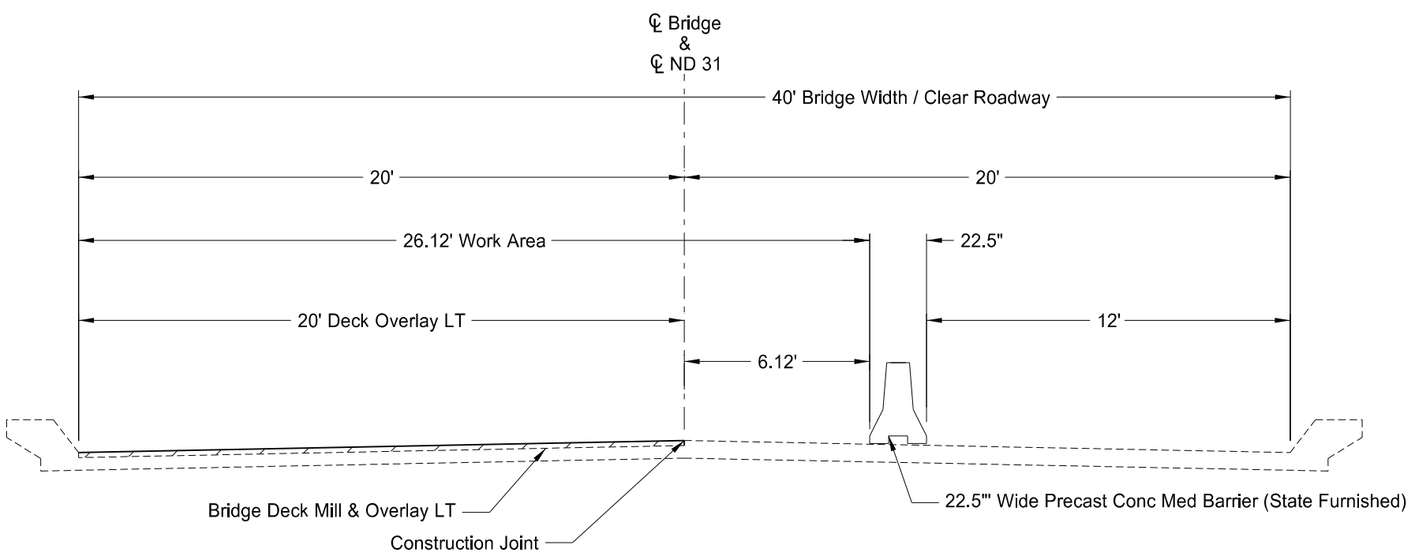
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	100	5



Phase 1



Phase 2

ND 31

Jct I-94 to Hannover

I-94 Bridge Overlay Typical Section

Work Zone Traffic Control

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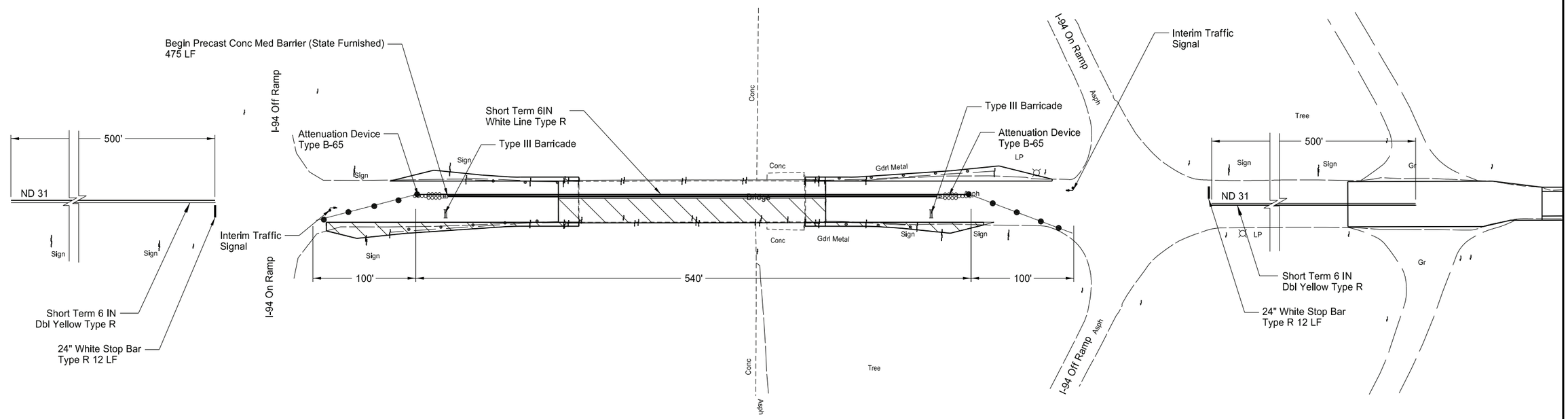
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	100	6



Legend

Work Area

Delineator Drums

Note:
Layout shows Phase 1 for the Bridge Mill and Overlay.

Phase 2 is similar as Phase 1 except layout is relocated to Phase 1 work area.
See work zone Traffic Control Typical Sections Phase 1 and 2.

Install signs in accordance to D-704-16 with a reduced speed limit of 25 MPH.
Add additional W20-1-48 signs on both EB & WB off ramps.

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I-94 Bridge Overlay Phasing Layout

Work Zone Traffic Control

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
N.D.	XA-SS-1-031(021)078	110	1

Station / 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	Vert Clear-ance FT	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
ND 31 - Morton County																							
4125+62 Rt	Assembly 436		18.4						5.0											1			Reset M1-5-24 & M6-3-21 located in center column
4127+01 Rt		379	8.2						5.0											1			Mount on Existing Supports
4128+57 Lt		17		16.0	12.0				5.0	2.5 x 2.5 10 ga	12.3	4.4				2.19 x 2.19 10 ga	1	4	3 x 3 7 ga			1	
4128+69 Rt		387	16.4		13.0				5.0	2.5 x 2.5 10 ga	13.7	4.2				2.19 x 2.19 10 ga	1	4	3 x 3 7 ga			1	
4129+50 Lt	SN 1		32.0						5.0														
4134+29 Rt	SN 2		30.0						5.0														
4134+93 Rt		17		16.0	11.9				5.0	2.5 x 2.5 10 ga	12.3	4.3				2.19 x 2.19 10 ga	1	4	3 x 3 7 ga			1	
4135+29 Lt		379	8.2		12.8				5.0	2.5 x 2.5 10 ga	15.3						1	4	3 x 3 7 ga			1	
4136+69 Lt		379	8.2		12.7				5.0	2.5 x 2.5 10 ga	15.3						1	4	3 x 3 7 ga			1	
4137+05 Rt		371	6.0		8.2				5.0	2 x 2 12 ga	10.0						1	4	2.25 x 2.25 12 ga				
4137+08 Lt		17		16.0	12.0				5.0	2.5 x 2.5 10 ga	12.3	4.4				2.19 x 2.19 10 ga	1	4	3 x 3 7 ga			1	
4137+75 Lt		387	16.4		13.1				5.0	2.5 x 2.5 10 ga	13.7	4.3				2.19 x 2.19 10 ga	1	4	3 x 3 7 ga			1	
4138+25 Rt		32		5.0	11.1				5.0	2.25 x 2.25 12 ga	13.9						1	4	2.5 x 2.5 12 ga				
4139+43 Rt		1		5.2	11.6				5.0	2.25 x 2.25 12 ga	13.7						1	4	2.5 x 2.5 12 ga				
4139+64 Lt		32		5.0	11.0				5.0	2.25 x 2.25 12 ga	13.9						1	4	2.5 x 2.5 12 ga				
4140+49 Rt	SN 3		19.3		11.9	12.6			5.0	2.25 x 2.25 12 ga	14.0	3.3	4.0			2.5 x 2.5 12 ga	2	4	3 x 3 7 ga			2	
4142+09 Rt	SN 4		3.8		13.4				5.0	2.25 x 2.25 12 ga	14.6	4.3				2.5 x 2.5 12 ga	1	4	3 x 3 7 ga			1	
4142+55 Lt	SN 5		17.5		11.7	12.7			5.0	2.25 x 2.25 12 ga	14.4	3.2	4.2			2.5 x 2.5 12 ga	2	4	3 x 3 7 ga			2	
4144+00 Lt		9		5.0	12.3				5.0	2.25 x 2.25 12 ga	15.0						1	4	2.5 x 2.5 12 ga				
4144+04 Rt		9		5.0	12.3				5.0	2.25 x 2.25 12 ga	15.0						1	4	2.5 x 2.5 12 ga				
4149+01 Lt		391	6.2		13.1				5.0	2.5 x 2.5 12 ga	15.9						1	4	3 x 3 7 ga				
4153+97 Lt		20		9.0	13.4				5.0	2.25 x 2.25 12 ga	14.7	4.4				2.5 x 2.5 12 ga	1	4	3 x 3 7 ga			1	
4156+15 Rt	SN 6		28.0						5.0														
4186+49 Lt	SA 1E				11.1				5.0	2 x 2 12 ga	14.6						1	4	2.25 x 2.25 12 ga	1			
4186+75 Lt		1		5.2	9.9				5.0	2 x 2 12 ga	10.5						1	4	2.25 x 2.25 12 ga				
4187+44 Rt		1		5.2	9.9				5.0	2 x 2 12 ga	10.5						1	4	2.25 x 2.25 12 ga				
4240+34 Lt	SA 1E				8.2				5.0	2 x 2 12 ga	17.0						1	4	2.25 x 2.25 12 ga	1			
4291+06 Lt	SN 4		3.8		13.4				5.0	2.25 x 2.25 12 ga	14.6	4.3				2.5 x 2.5 12 ga	1	4	3 x 3 7 ga			1	
4295+95 Lt	SA 1E				11.5				5.0	2 x 2 12 ga	14.6						1	4	2.25 x 2.25 12 ga	1			
4296+22 Lt		1		5.2	9.4				5.0	2 x 2 12 ga	10.5						1	4	2.25 x 2.25 12 ga	1			
4296+68 Rt		1		5.2	9.4				5.0	2 x 2 12 ga	10.5						1	4	2.25 x 2.25 12 ga				
4348+95 Lt		1		5.2	9.4				5.0	2 x 2 12 ga	10.5						1	4	2.25 x 2.25 12 ga				
4349+60 Rt		1		5.2	9.4				5.0	2 x 2 12 ga	10.5						1	4	2.25 x 2.25 12 ga				

REGISTERED PROFESSIONAL ENGINEER
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PE-27164
DATE: 7/29/26
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Sign Summary
Perforated Tube

ND 31

Jct I-94 to Hannover
Morton and Oliver County

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
N.D.	XA-SS-1-031(021)078	110	2

Station / 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	Vert Clear-ance FT	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
4349+86 Rt	SA 1E				11.5				5.0	2 x 2 12 ga	14.6						1	4	2.25 x 2.25 12 ga	1			
4375+35 Lt	SA 1E				7.7				5.0	2 x 2 12 ga	17.0						1	4	2.25 x 2.25 12 ga	1			
4394+20 Rt		437	8.4		13.9				5.0	2.5 x 2.5 10 ga	15.2						1	4	3 x 3 7 ga			1	Blue Background with Yellow Legend and Border
4401+63 Lt									5.0	2 x 2 12 ga										1	1		
4401+73 Lt		1		5.2	9.4				5.0	2 x 2 12 ga	10.5						1	4	2.25 x 2.25 12 ga				
4402+42 Rt		1		5.2	9.4				5.0	2 x 2 12 ga	10.5						1	4	2.25 x 2.25 12 ga				
4410+01 Lt		437	8.4		14.1				5.0	2.5 x 2.5 10 ga	15.2						1	4	3 x 3 7 ga			1	Blue Background with Yellow Legend and Border
4416+40 Rt		19		6.3	13.2				5.0	2.5 x 2.5 12 ga	14.6						1	4	3 x 3 7 ga				
4444+58 Rt		437	8.4		14.1				5.0	2.5 x 2.5 10 ga	15.2						1	4	3 x 3 7 ga			1	
4455+39 Rt		1		5.2	9.7				5.0	2 x 2 12 ga	10.5						1	4	2.25 x 2.25 12 ga				
4455+65 Rt	SA 1E				11.5				5.0	2 x 2 12 ga	12.9						1	4	2.25 x 2.25 12 ga	1			
4462+82 Lt		437	8.4		13.9				5.0	2.5 x 2.5 10 ga	15.2						1	4	3 x 3 7 ga			1	Blue Background with Yellow Legend and Border
4484+47 Lt		19		6.3	13.1				5.0	2.5 x 2.5 12 ga	14.6						1	4	3 x 3 7 ga				
4507+64 Lt	SA 1E				11.5				5.0	2 x 2 12 ga	13.7						1	4	2.25 x 2.25 12 ga	1			
4507+88 Lt		1		5.2	9.4				5.0	2 x 2 12 ga	10.5						1	4	2.25 x 2.25 12 ga				
4538+56 Rt		19		6.3	13.1				5.0	2.5 x 2.5 12 ga	14.6						1	4	3 x 3 7 ga				
4550+70 Rt		19		6.3	13.1				5.0	2.5 x 2.5 12 ga	14.6						1	4	3 x 3 7 ga				
4572+89 Lt	SN 7	36	8.8		12.0				5.0	2.5 x 2.5 10 ga	12.8						1	4	3 x 3 7 ga			1	
4574+83 Rt	SN 8	36	8.8		12.2				5.0	2.5 x 2.5 10 ga	12.8						1	4	3 x 3 7 ga			1	
Sub Total			273.6	159.4		**Total**	557.0										**Total**	192.0		11	1	20	

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

Sign Summary
Perforated Tube

ND 31

Jct I-94 to Hannover
Morton and Oliver County

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
N.D.	XA-SS-1-031(021)078	110	3

Station / 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	Vert Clear-ance FT	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
ND 31 - Oliver County																							
4602+70 Lt		19		6.3	13.1				5.0	2.5 x 2.5 12 ga	14.6						1	4	3 x 3 7 ga				
4627+26 Lt	SA 2E			5.2	9.9				5.0	2.5 x 2.5 12 ga	11.1						1	4	3 x 3 7 ga	1			
4627+96 Rt		1		5.2	9.4				5.0	2 x 2 12 ga	10.5						1	4	2.25 x 2.25 12 ga				
4680+77 Rt	SA 2E			5.2	9.9				5.0	2.5 x 2.5 12 ga	11.1						1	4	3 x 3 7 ga	1			
4706+09 Lt	SA 2E			5.2	8.2				5.0	2.5 x 2.5 12 ga	10.1						1	4	3 x 3 7 ga	1			
4768+71 Lt		19		6.3	10.8				5.0	2.25 x 2.25 12 ga	11.6						1	4	2.5 x 2.5 12 ga				
4786+41 Rt	SA 2E			5.2	9.9				5.0	2.5 x 2.5 12 ga	11.1						1	4	3 x 3 7 ga	1			
4838+43 Lt	SA 2E			5.2	9.9				5.0	2.5 x 2.5 12 ga	11.1						1	4	3 x 3 7 ga	1			
4943+59 Lt	SA 2E			5.2	9.9				5.0	2.5 x 2.5 12 ga	11.1						1	4	3 x 3 7 ga	1			
4989+73 Rt		19		6.3	10.8				5.0	2.25 x 2.25 12 ga	11.6						1	4	2.5 x 2.5 12 ga				
4996+43 Lt		1		5.2	9.4				5.0	2 x 2 12 ga	10.5						1	4	2.25 x 2.25 12 ga				
4997+78 Rt	SA 2E			5.2	9.9				5.0	2.5 x 2.5 12 ga	11.1						1	4	3 x 3 7 ga	1			
5031+56 Rt		19		6.3	13.1				5.0	2.5 x 2.5 12 ga	14.6						1	4	3 x 3 7 ga				
5035+09 Rt	SN 11	9	5.0		12.3				5.0	2.25 x 2.25 12 ga	15.0						1	4	2.5 x 2.5 12 ga				
5037+79 Rt		391	6.2		13.1				5.0	2.5 x 2.5 12 ga	15.9						1	4	3 x 3 7 ga				
5039+79 Rt		19		6.3	11.1				5.0	2.25 x 2.25 12 ga	11.6						1	4	2.5 x 2.5 12 ga				
5041+39 Rt		9		5.0	10.5				5.0	2 x 2 12 ga	11.5						1	4	2.25 x 2.25 12 ga				
5041+40 Lt		9		5.0	12.3				5.0	2.25 x 2.25 12 ga	15.0						1	4	2.5 x 2.5 12 ga				
5043+76 Rt	SN 9		6.8		11.3				5.0	2.5 x 2.5 12 ga	12.3						1	4	3 x 3 7 ga				
5046+86 Rt	SN 10		22.8		12.6	13.6			5.0	2.25 x 2.25 12 ga	14.2	4.0	5.0			2.5 x 2.5 12 ga	2	4	3 x 3 7 ga			2	
5047+61 Rt		405	12.4		13.1				5.0	2.25 x 2.25 12 ga	13.6	4.7				2.5 x 2.5 12 ga	1	4	3 x 3 7 ga			1	
5048+27 Lt		371	6.0		12.9				5.0	2.5 x 2.5 12 ga	16.2						1	4	3 x 3 7 ga				
5049+18 Lt	SA 2E			5.2	10.8				5.0	2.5 x 2.5 10 ga	13.5						1	4	3 x 3 7 ga	1		1	
5049+96 Rt		1		5.2	12.4				5.0	2.25 x 2.25 12 ga	13.7						1	4	2.5 x 2.5 12 ga				
Sub Total			59.2	98.7		**Total**	280.2										**Total**	100.0		8	0	4	
Grand Total			**332.8**	**258.1**		**Total**	**837.1**										**Total**	**292**	**0**	**19**	**1**	**24**	

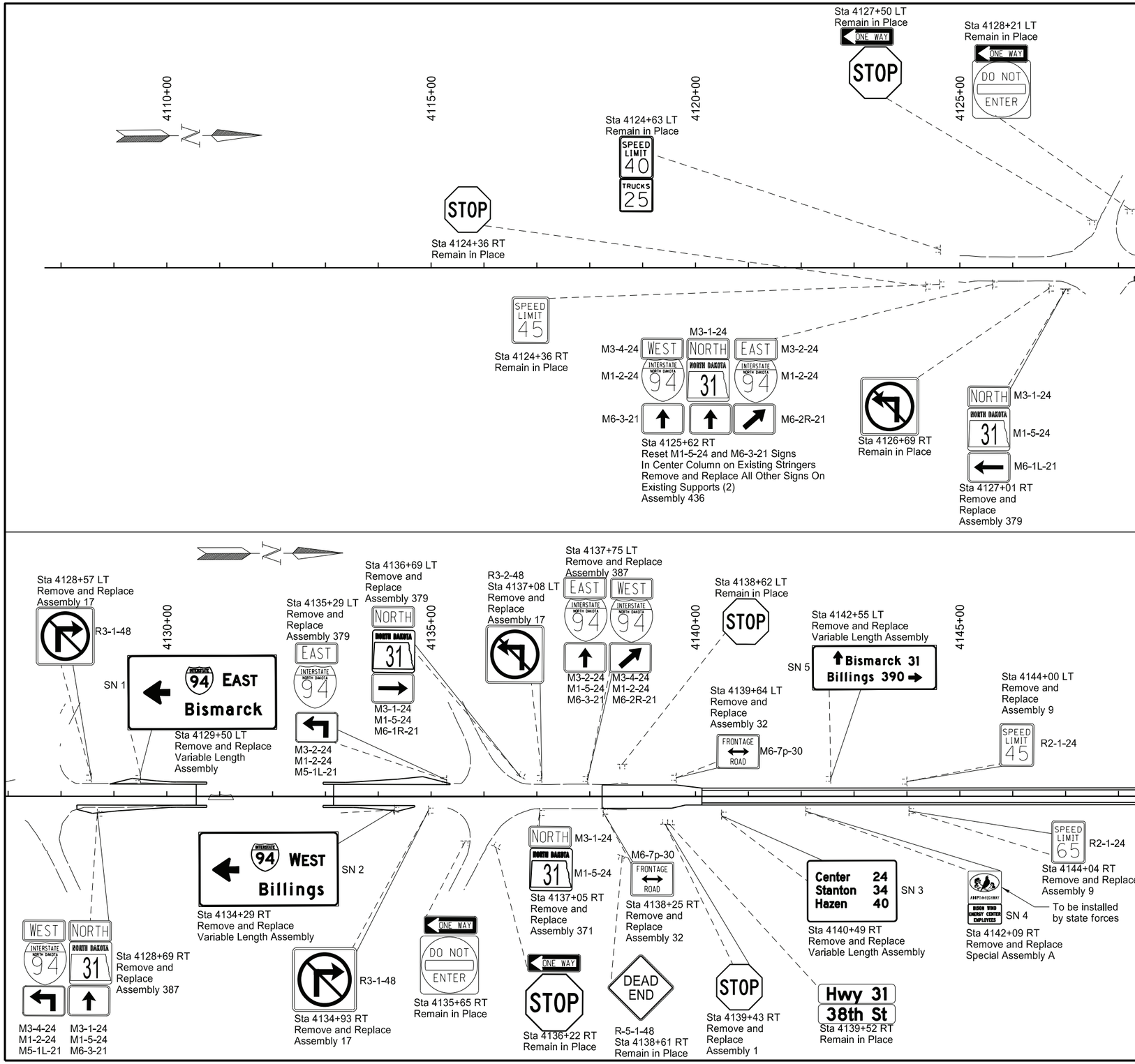
REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

Sign Summary
Perforated Tube

ND 31

Jct I-94 to Hannover
Morton and Oliver County

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	110	4



ND 31

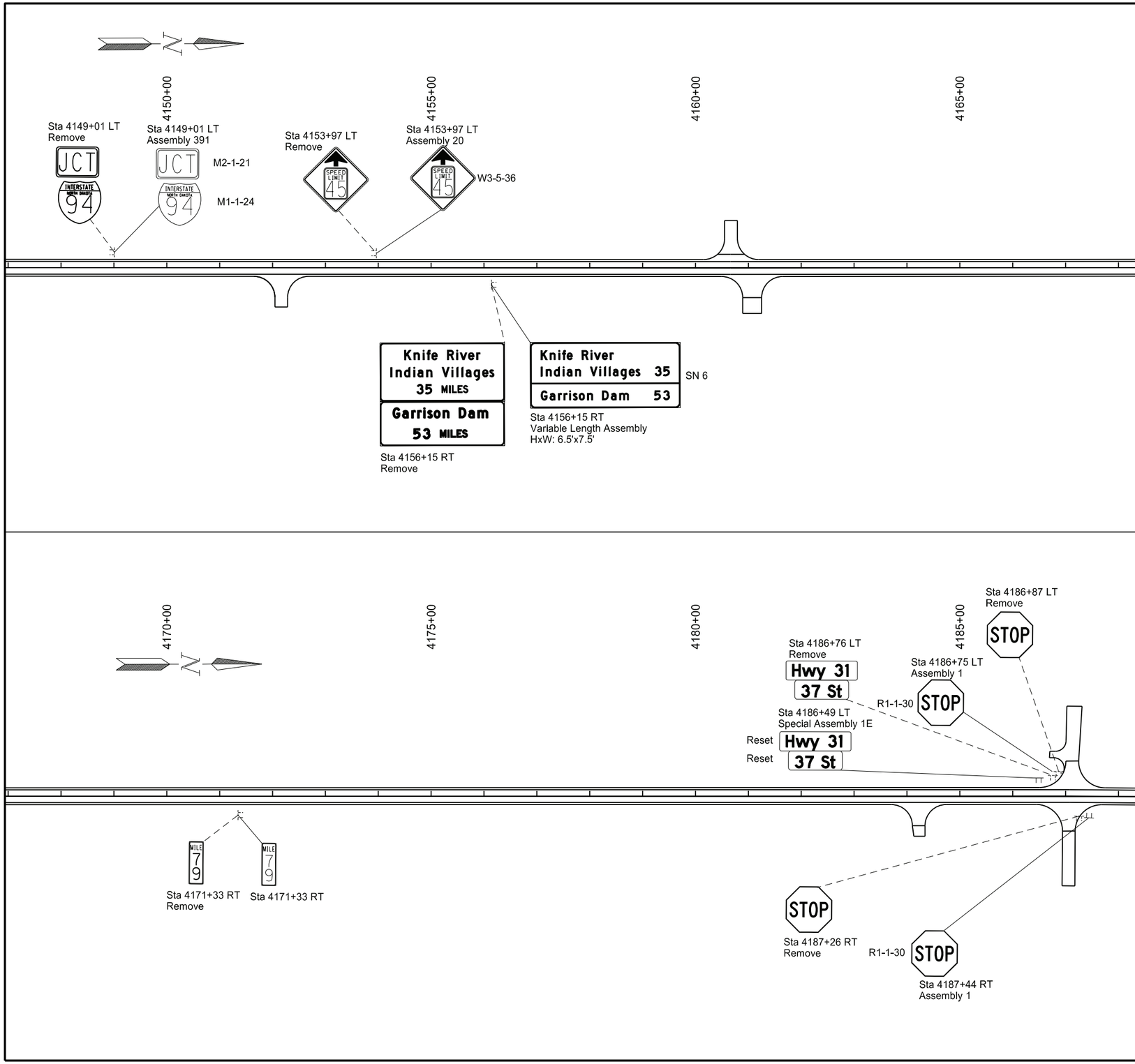
Jct I-94 to Hannover
Morton County

Signing Layout

Sta 4128+29 to Sta 4148+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	110	5



SPEC CODE	BID ITEM	QTY	UNIT
754 0562	REFRENCE MARKER - TYPE B		
	Sta 4171+33 RT	1	EA

ND 31

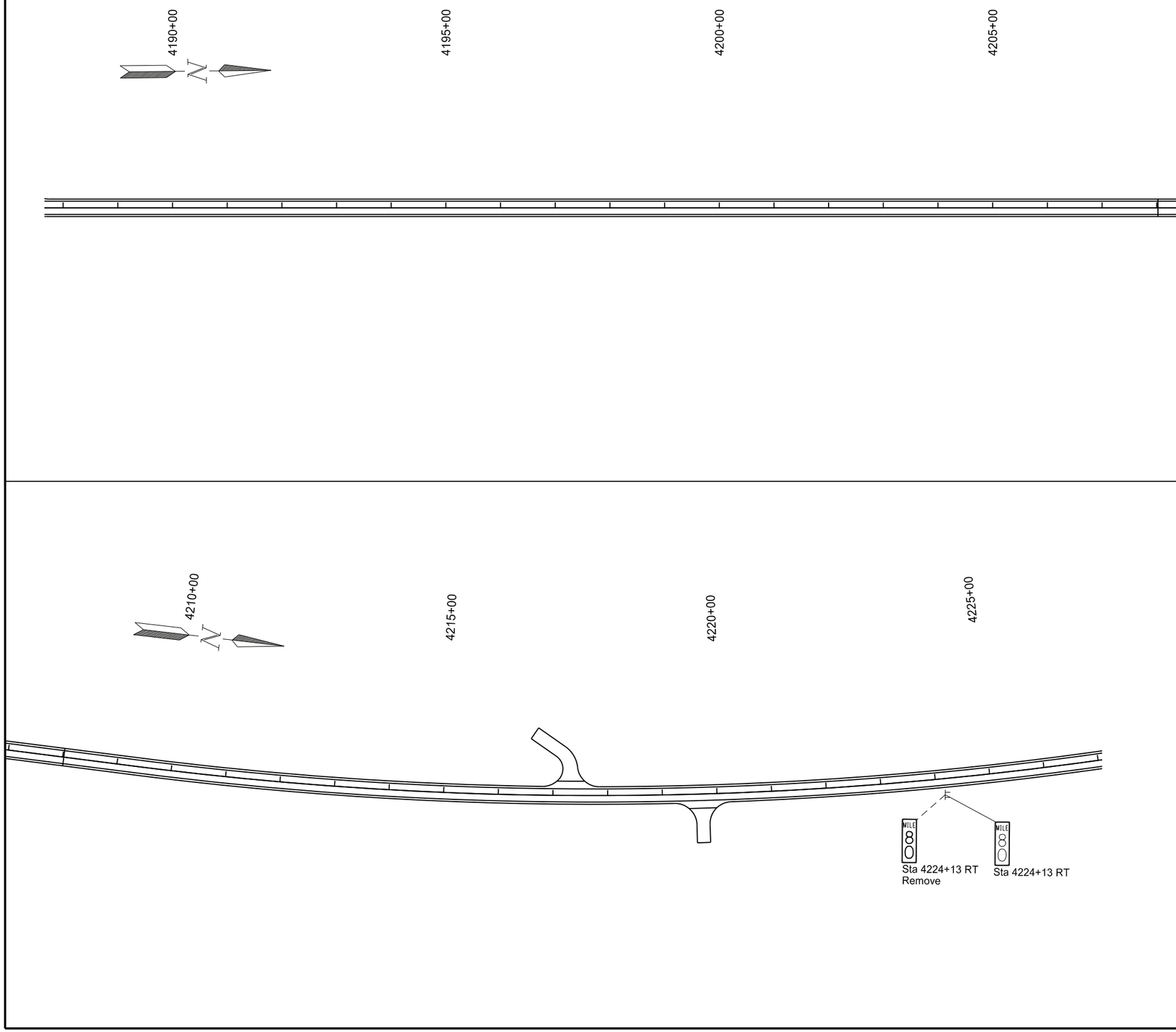
Jct I-94 to Hannover
Morton County

Signing Layout

Sta 4148+00 to Sta 4188+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	110	6



SPEC CODE	BID ITEM	QTY	UNIT
754 0562	REFRENCE MARKER - TYPE B		
	4224+13 RT	1	EA

ND 31

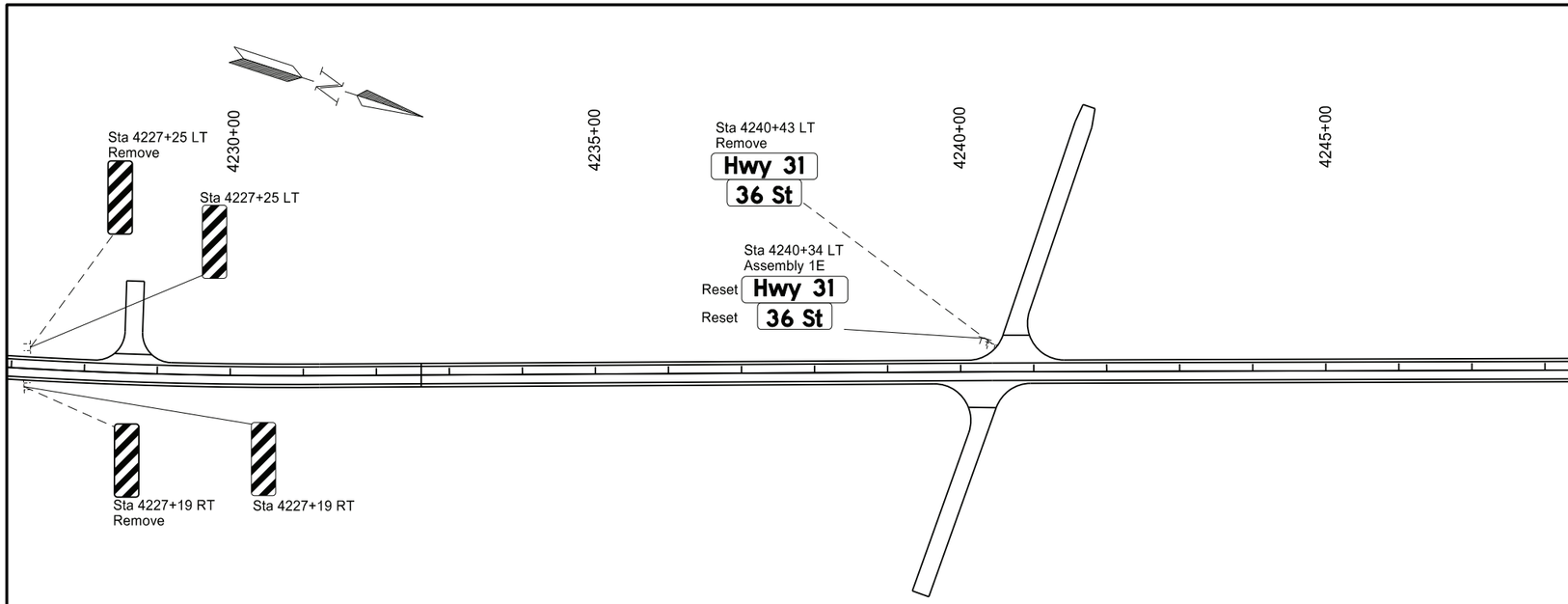
Jct I-94 to Hannover
Morton County

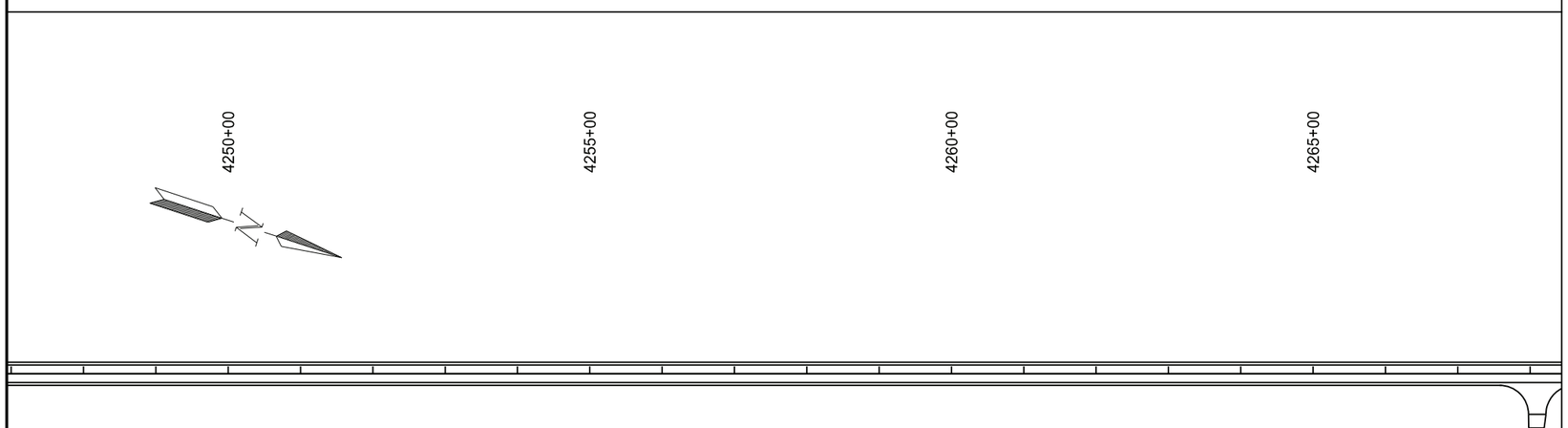
Signing Layout

Sta 4188+00 to Sta 4228+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	110	7





SPEC CODE	BID ITEM	QTY	UNIT
754 0803	OBJECT MARKERS - TYPE III		
	Sta 4227+19 RT	1	EA
	Sta 4227+25 LT	1	EA

ND 31

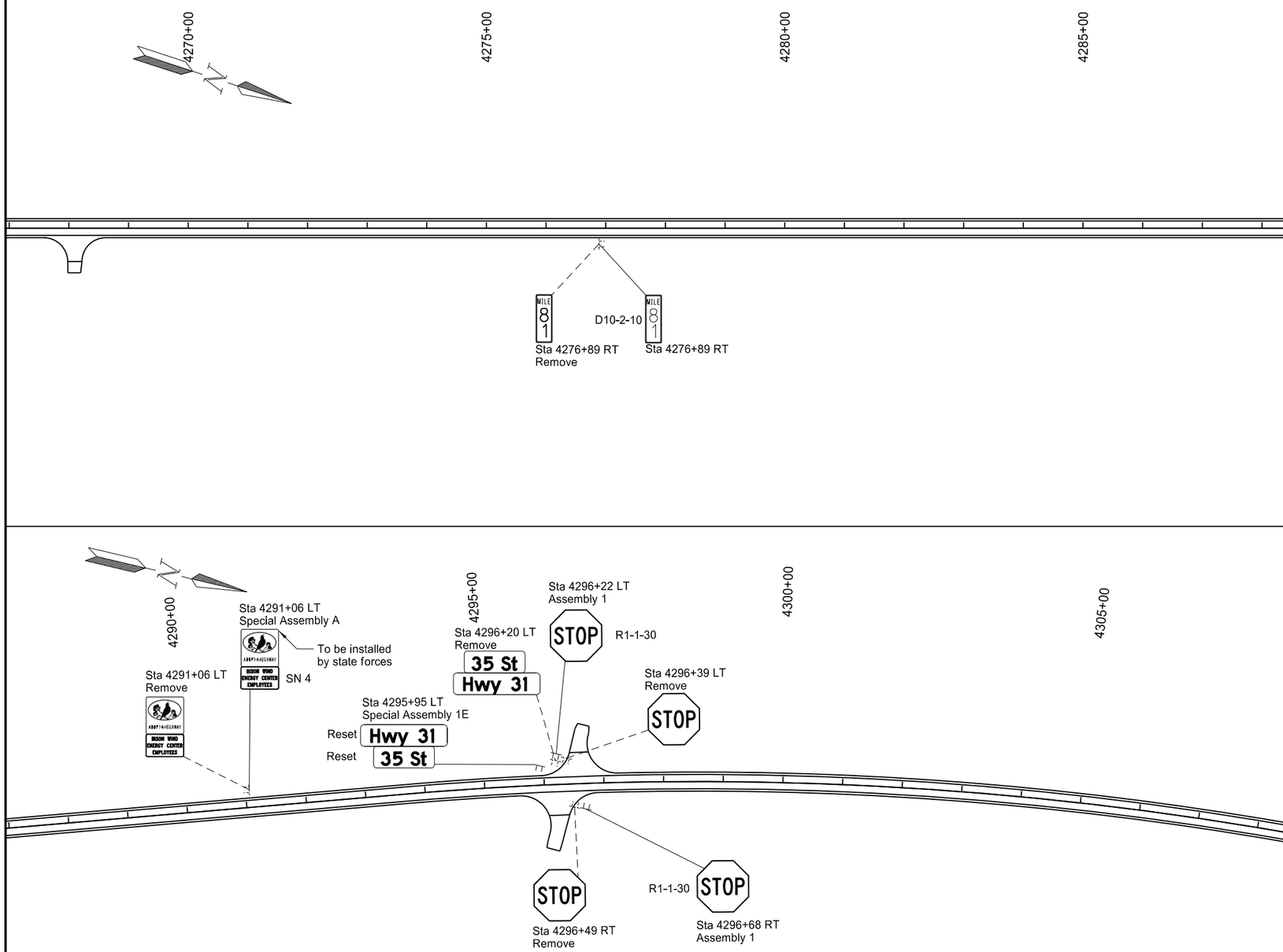
Jct I-94 to Hannover
Morton County

Signing Layout

Sta 4228+00 to Sta 4268+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	110	8



SPEC CODE	BID ITEM	QTY	UNIT
754 0562	REFRENCE MARKER - TYPE B		
	Sta 4276+89 RT	1	EA

ND 31

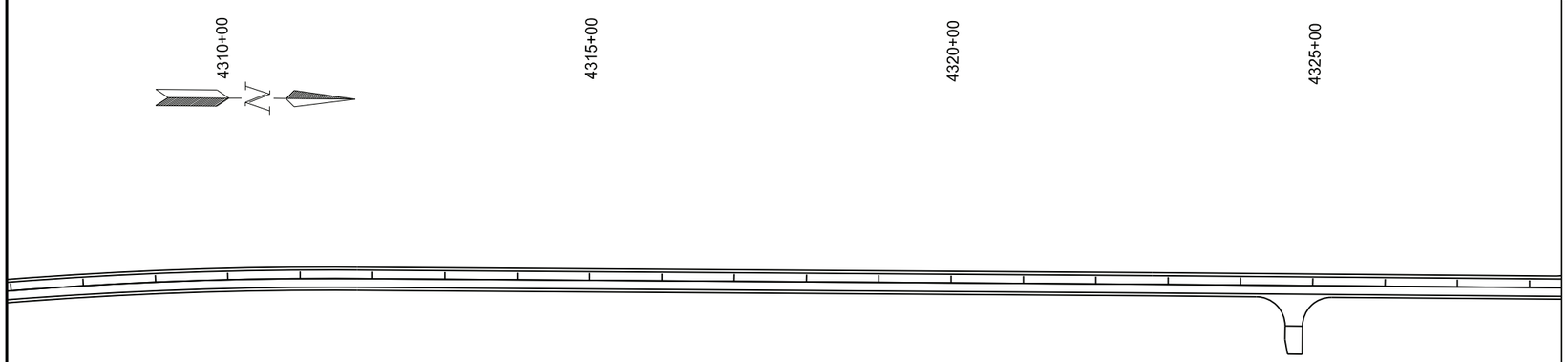
Jct I-94 to Hannover
Morton County

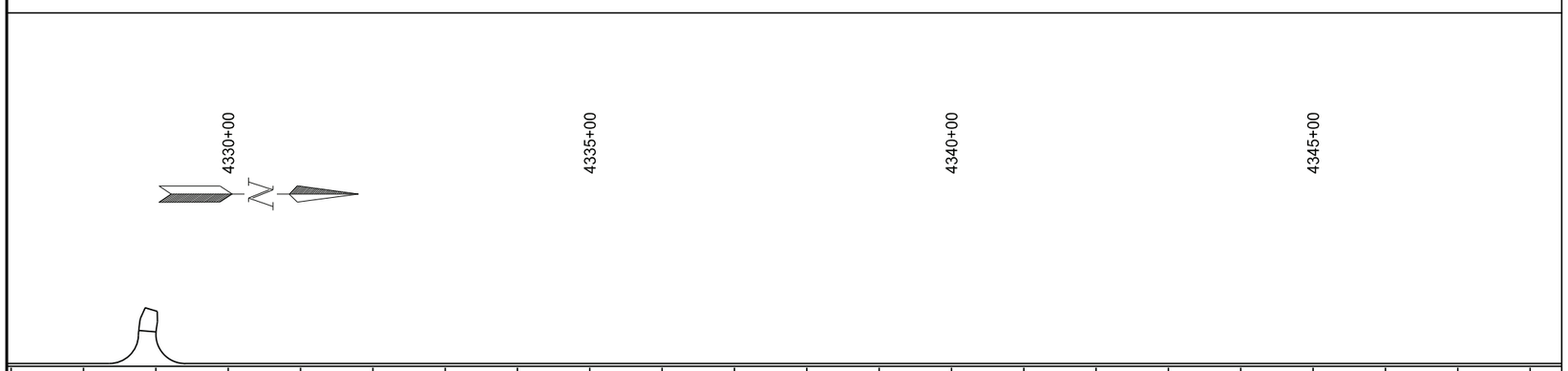
Signing Layout

Sta 4268+00 to Sta 4308+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	110	9





SPEC CODE	BID ITEM	QTY	UNIT
754 0562	REFRENCE MARKER - TYPE B		
	Sta 4330+07 RT	1	EA

ND 31

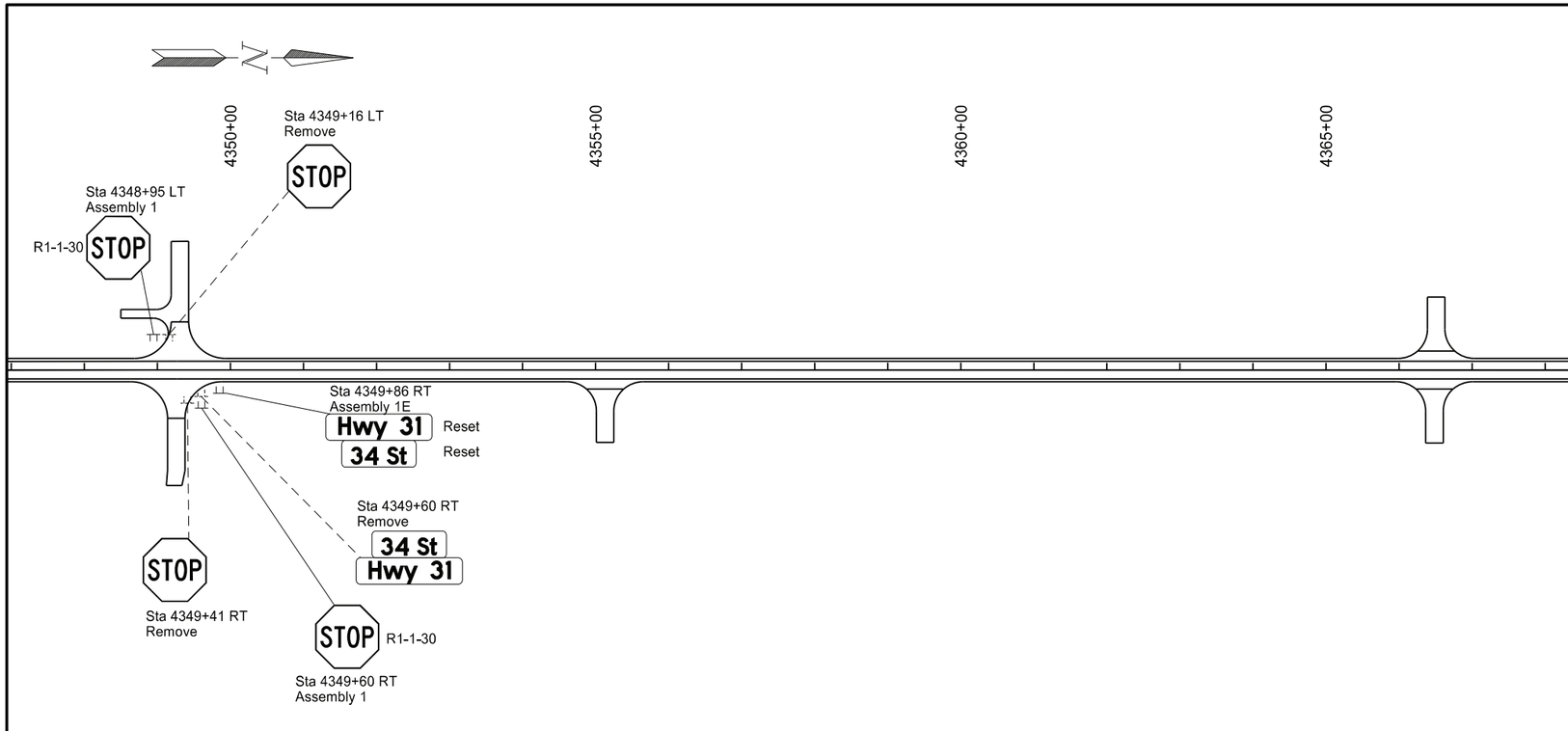
Jct I-94 to Hannover
Morton County

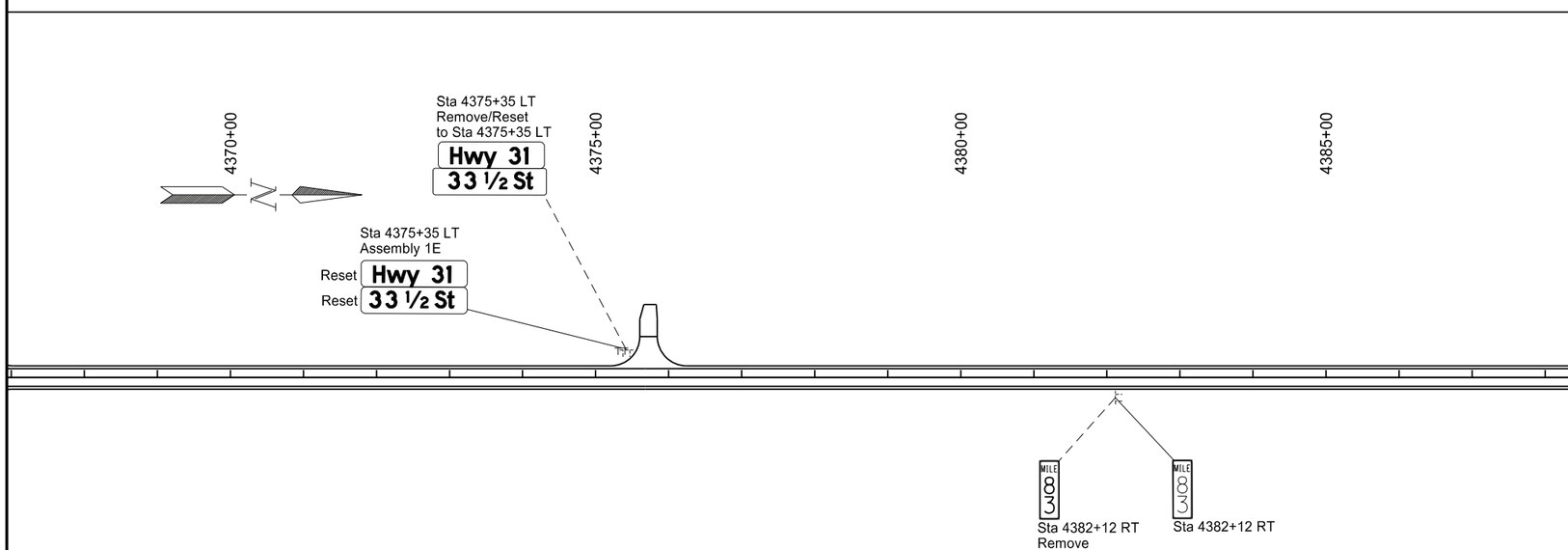
Signing Layout

Sta 4308+00 to Sta 4348+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	110	10





SPEC CODE	BID ITEM	QTY	UNIT
754 0562	REFRENCE MARKER - TYPE B		
	Sta 4382+12 RT	1	EA

ND 31

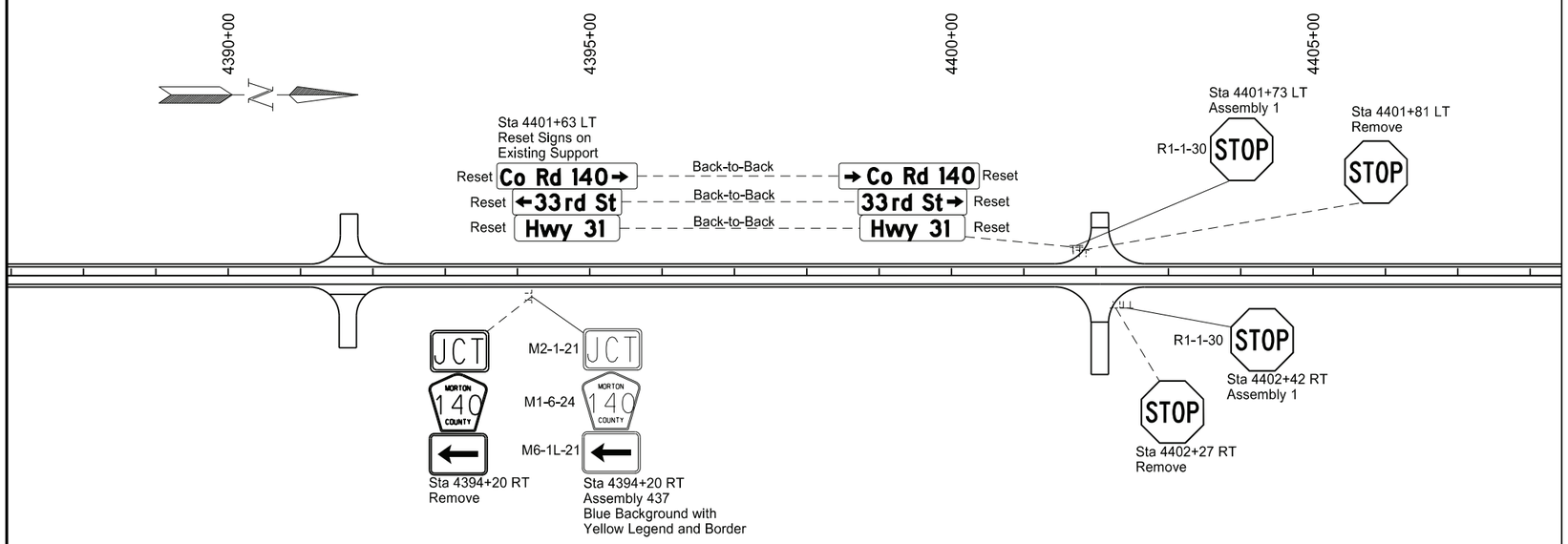
Jct I-94 to Hannover
Morton County

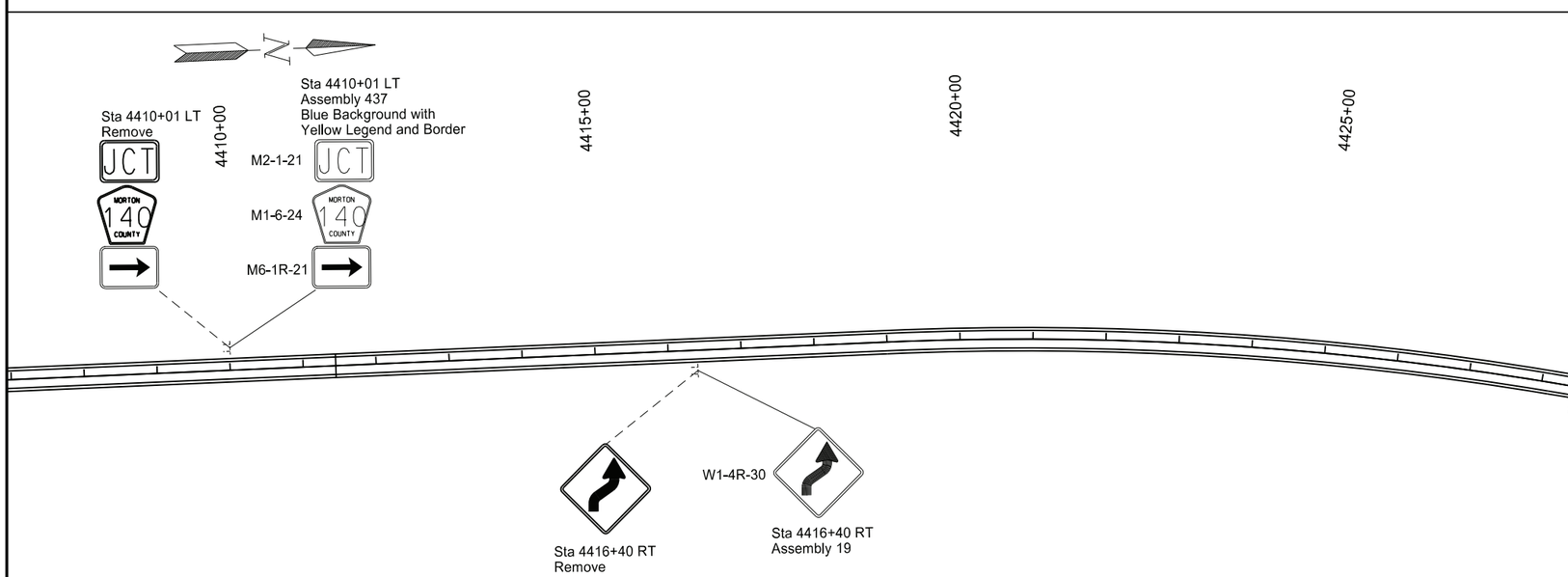
Signing Layout

Sta 4348+00 to Sta 4388+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	110	11





ND 31

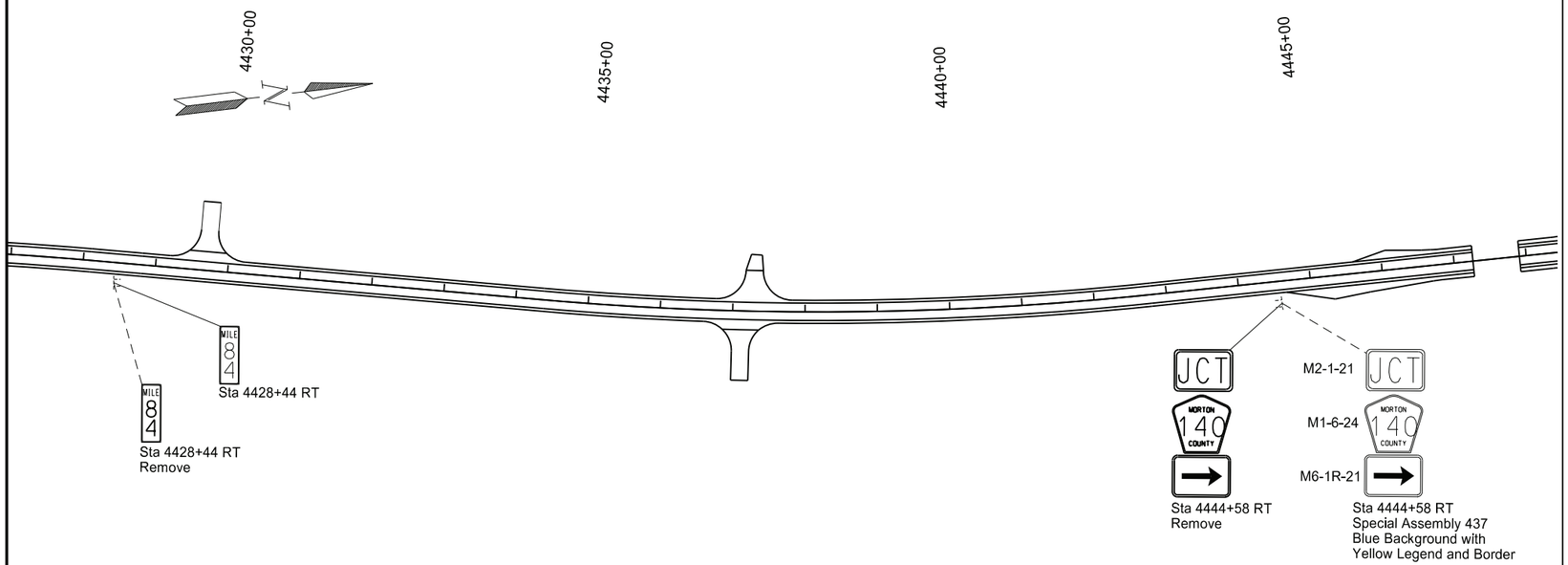
Jct I-94 to Hannover
Morton County

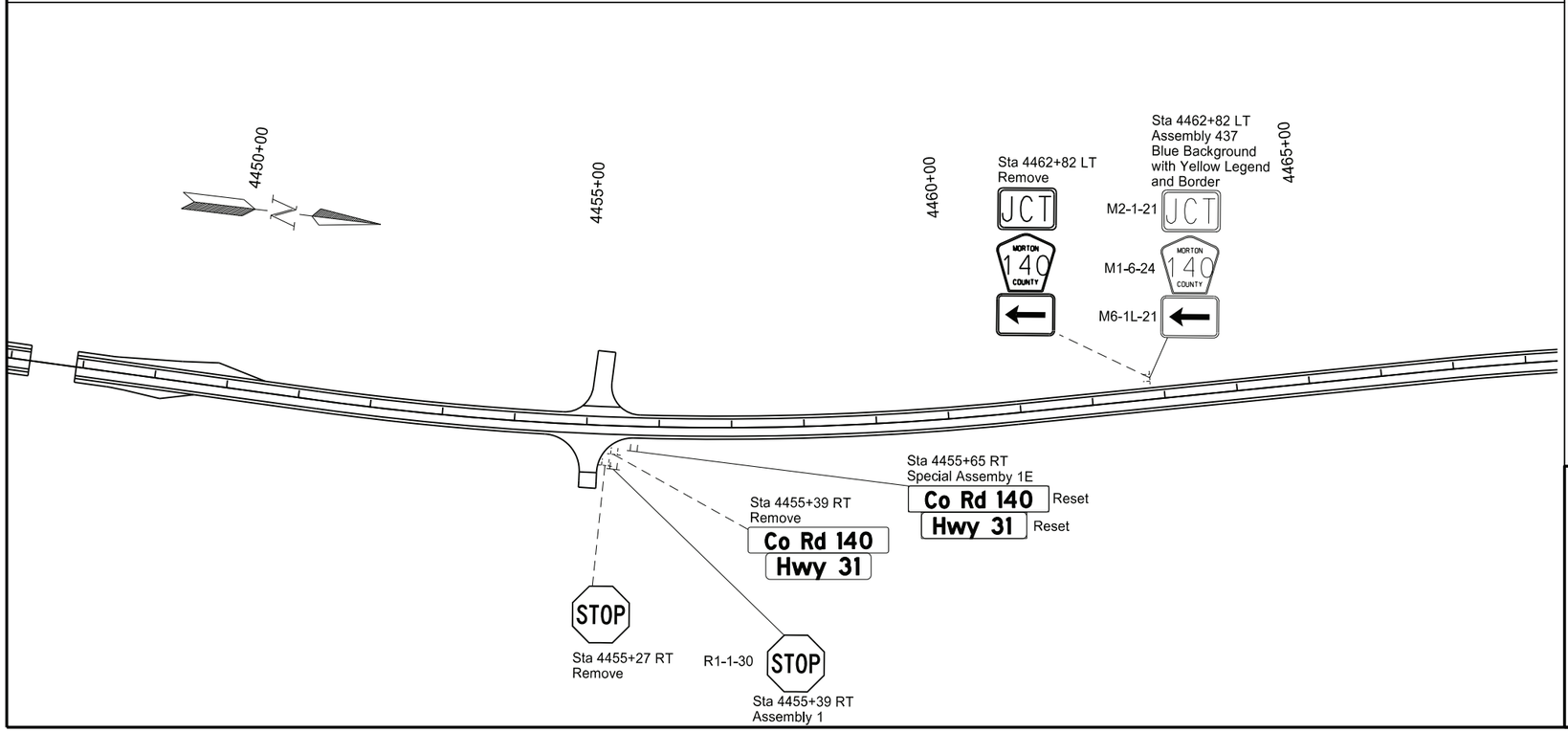
Signing Layout

Sta 4388+00 to Sta 4428+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	110	12





SPEC CODE	BID ITEM	QTY	UNIT
754 0562	REFRENCE MARKER - TYPE B		
	Sta 4428+44 RT	1	EA

ND 31

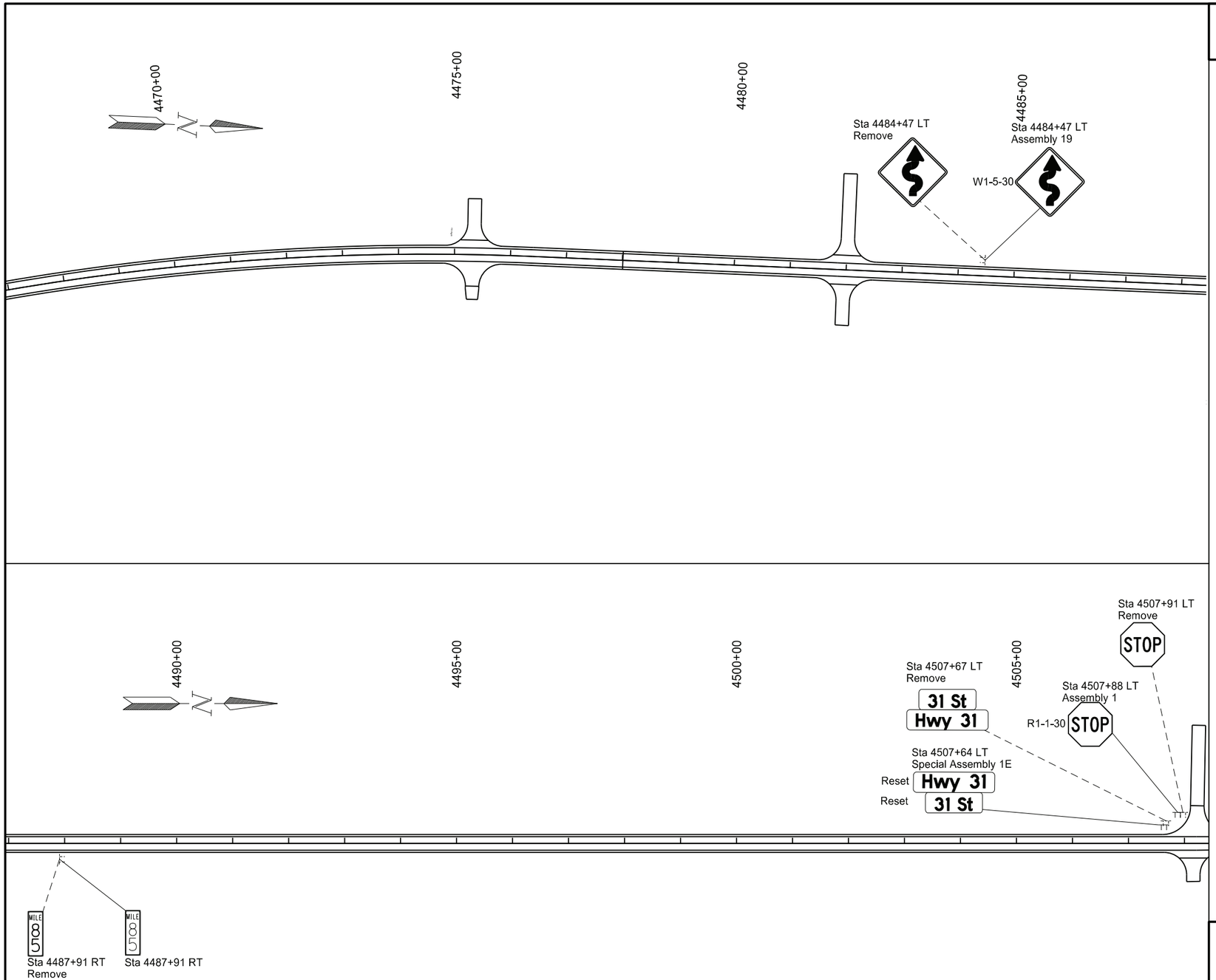
Jct I-94 to Hannover
Morton County

Signing Layout

Sta 4428+00 to Sta 4468+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	110	13



SPEC CODE	BID ITEM	QTY	UNIT
754 0562	REFRENCE MARKER - TYPE B		
	Sta 4487+91 RT	1	EA

ND 31

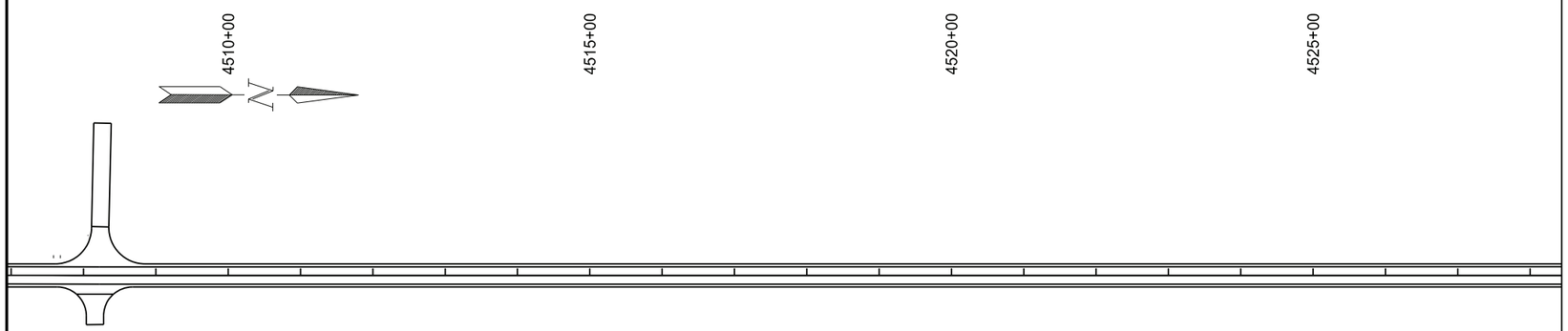
Jct I-94 to Hannover
Morton County

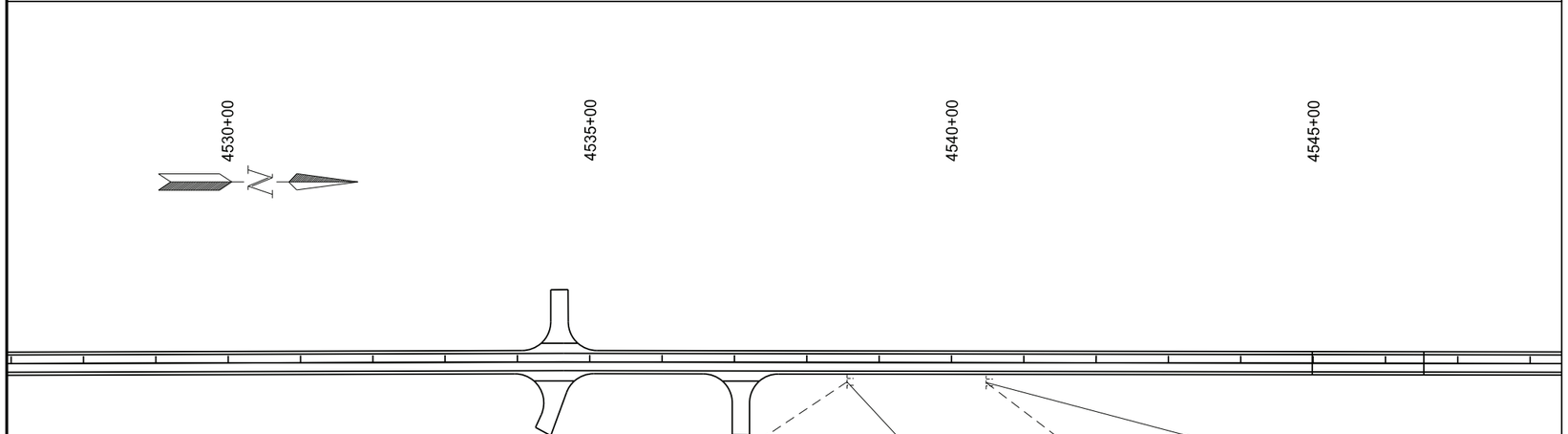
Signing Layout

Sta 4468+00 to Sta 4508+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	110	14





SPEC CODE	BID ITEM	QTY	UNIT
754 0562	REFRENCE MARKER - TYPE B		
	Sta 4540+48 RT	1	EA

ND 31

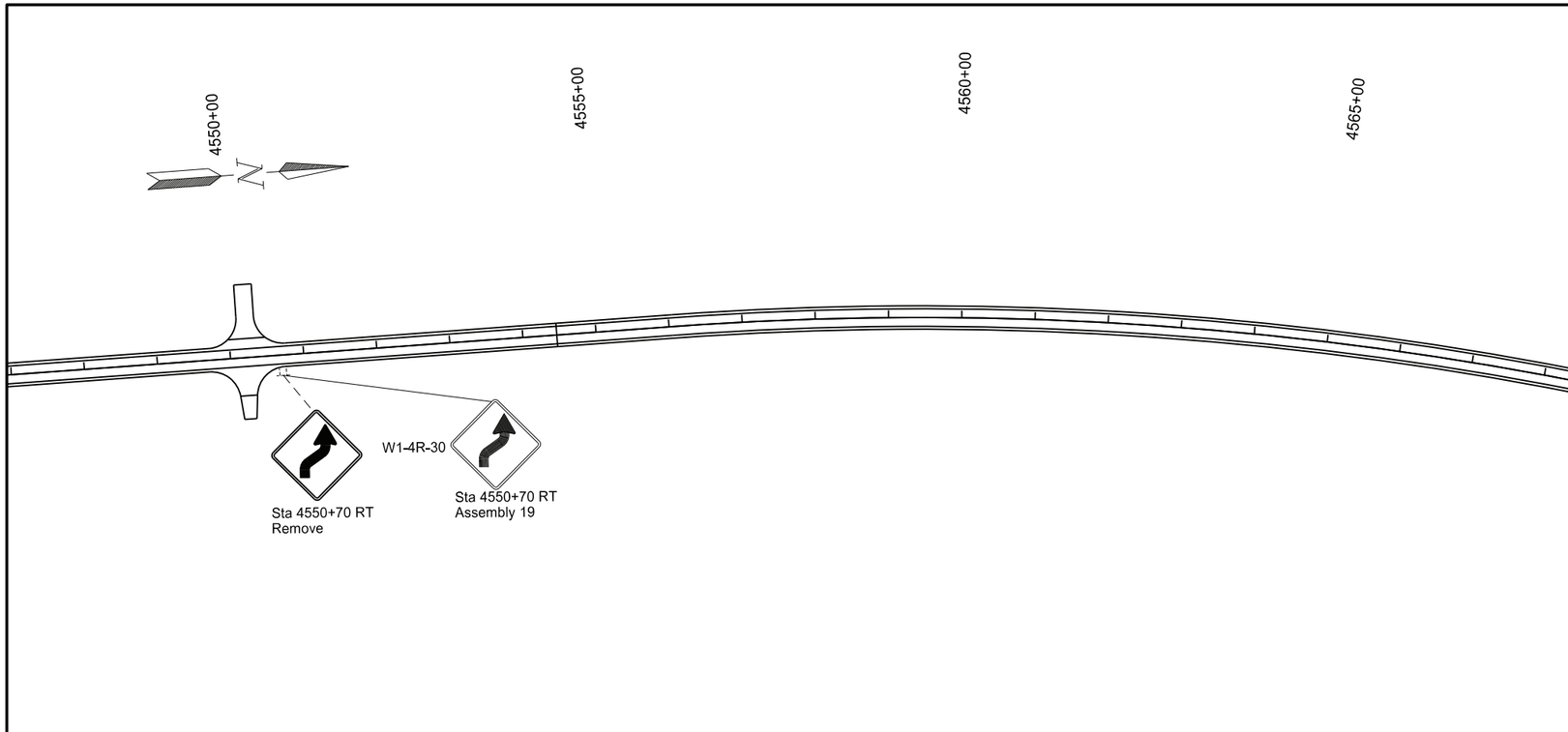
Jct I-94 to Hannover
Morton County

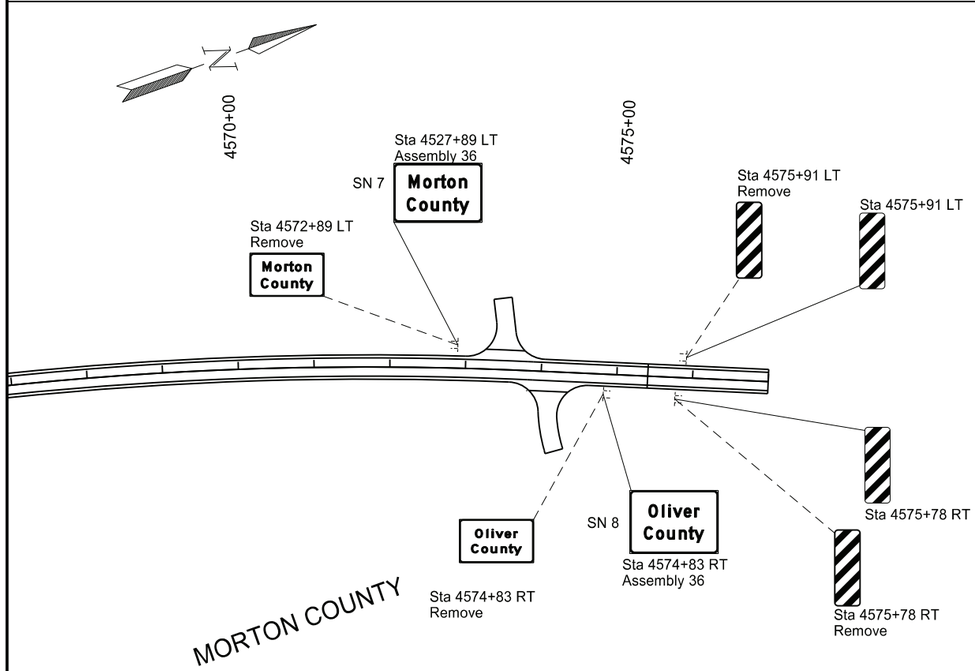
Signing Layout

Sta 4508+00 to Sta 4548+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	110	15





SPEC CODE	BID ITEM	QTY	UNIT
754 0803	OBJECT MARKERS - TYPE III		
	Sta 4575+78 RT	1	EA
	Sta 4575+91 LT	1	EA

ND 31

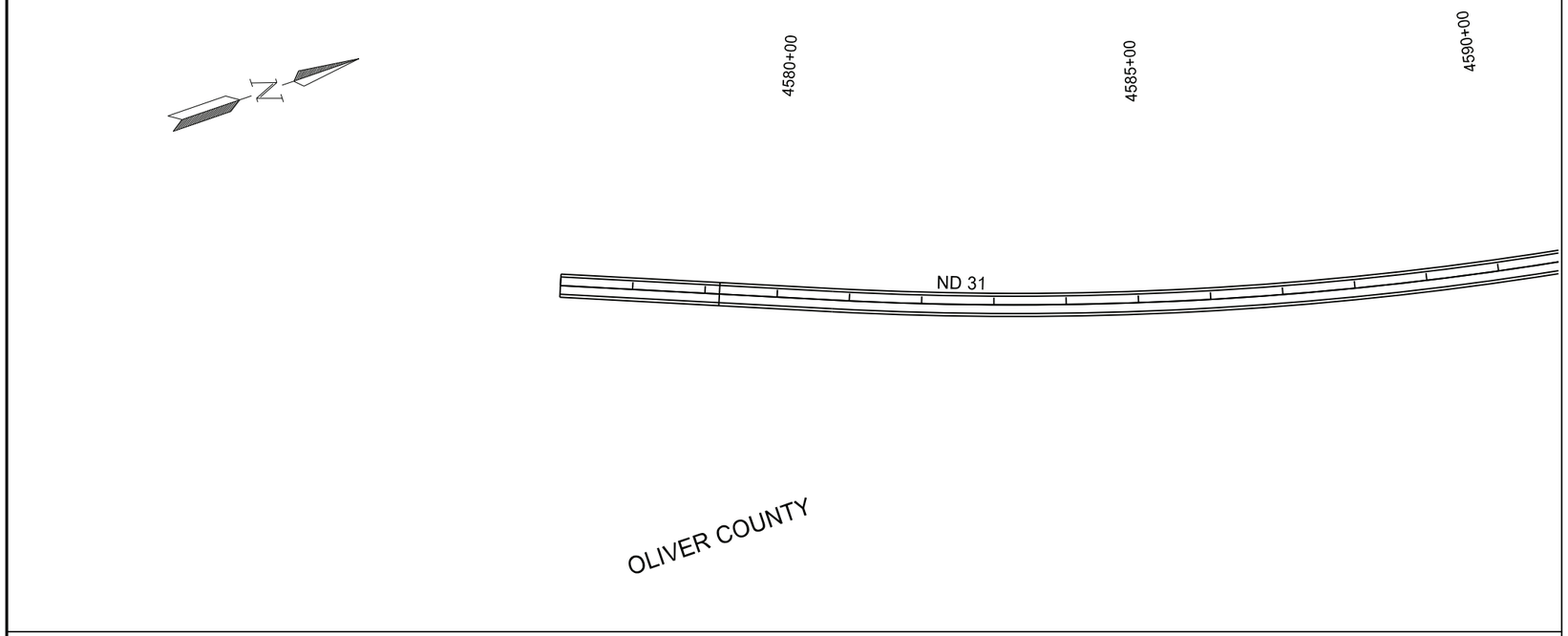
Jct I-94 to Hannover
Morton County

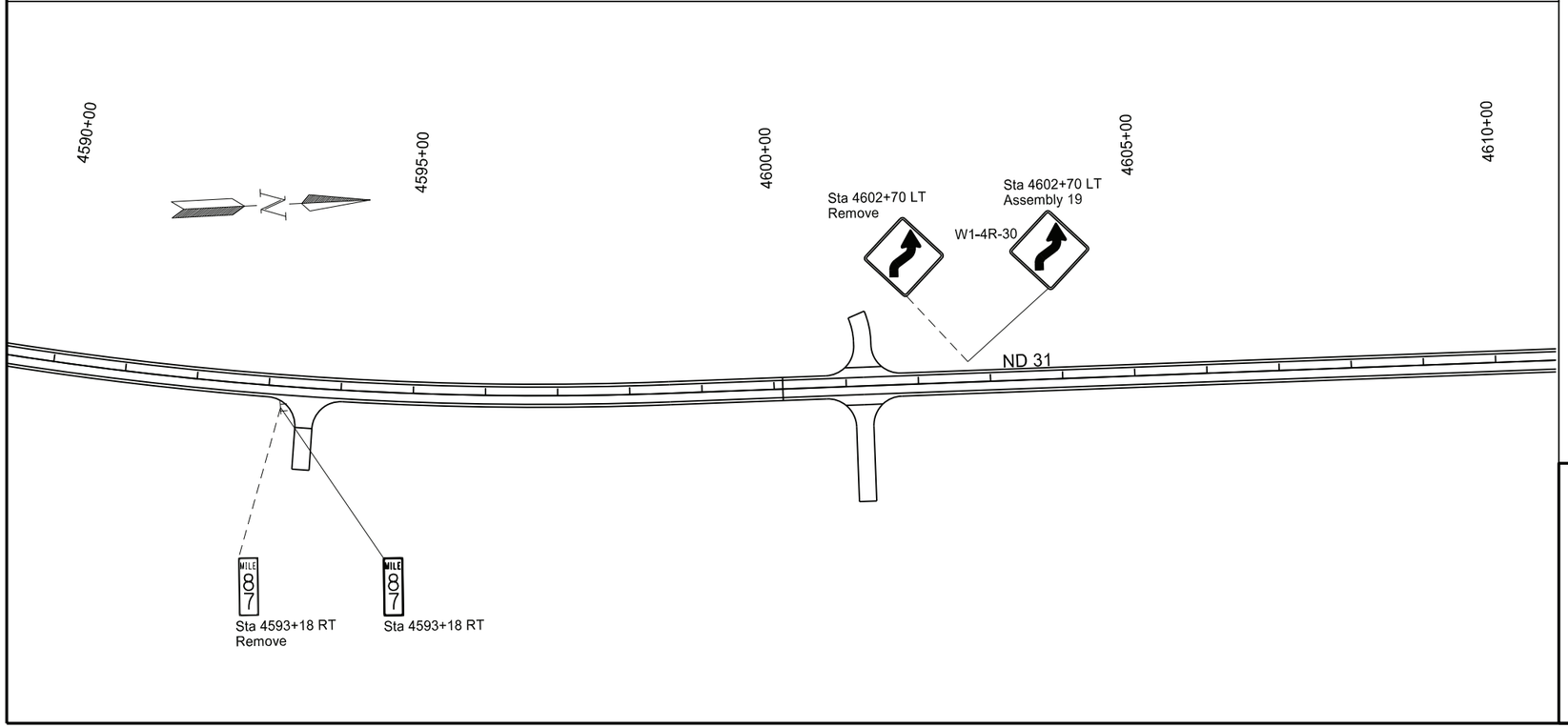
Signing Layout

Sta 4548+00 to Sta 4577+00

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	110	16





SPEC CODE	BID ITEM	QTY	UNIT
754 0562	REFRENCE MARKER - TYPE B		
	Sta 4593+18 RT	1	EA

ND 31

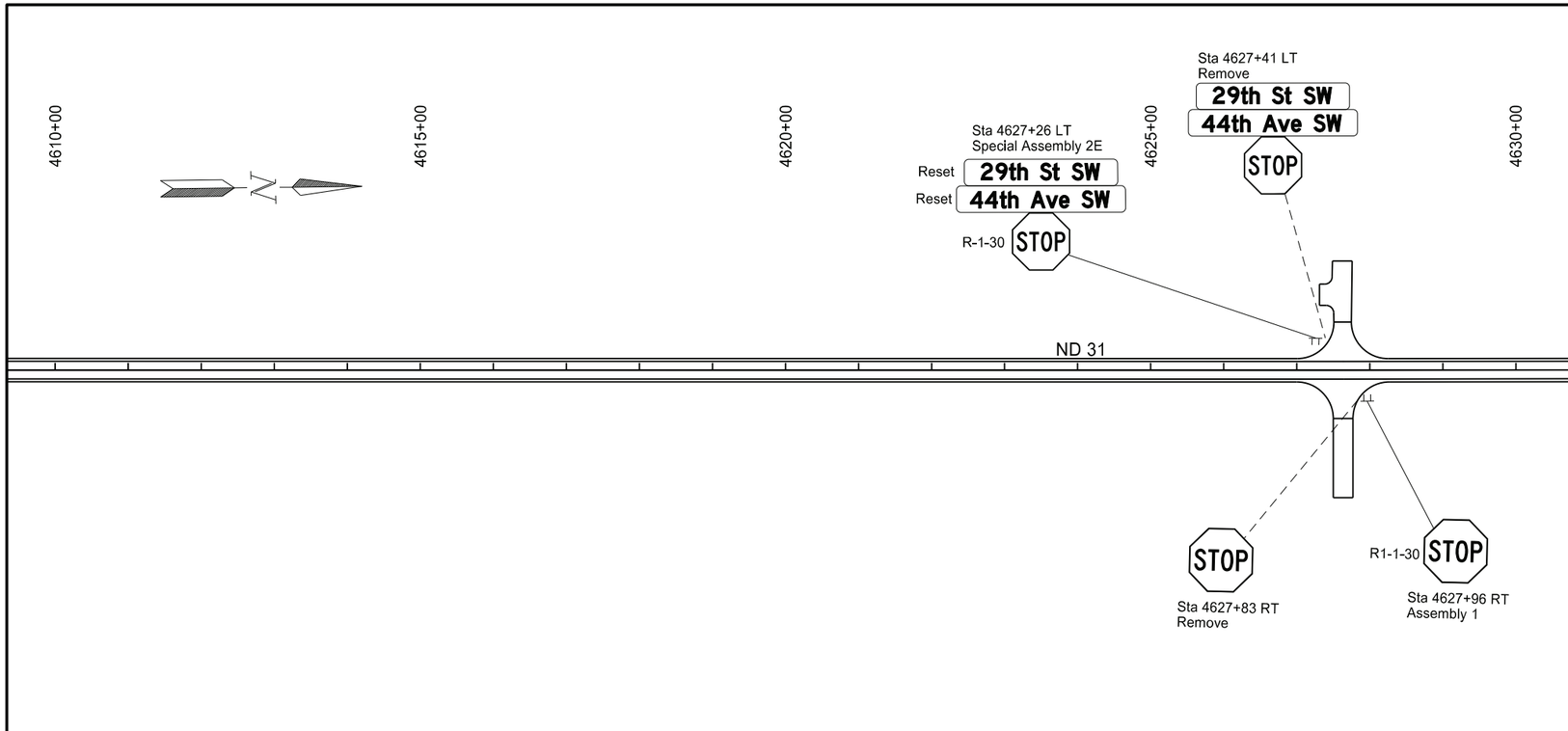
Jct I-94 to Hannover
Oliver County

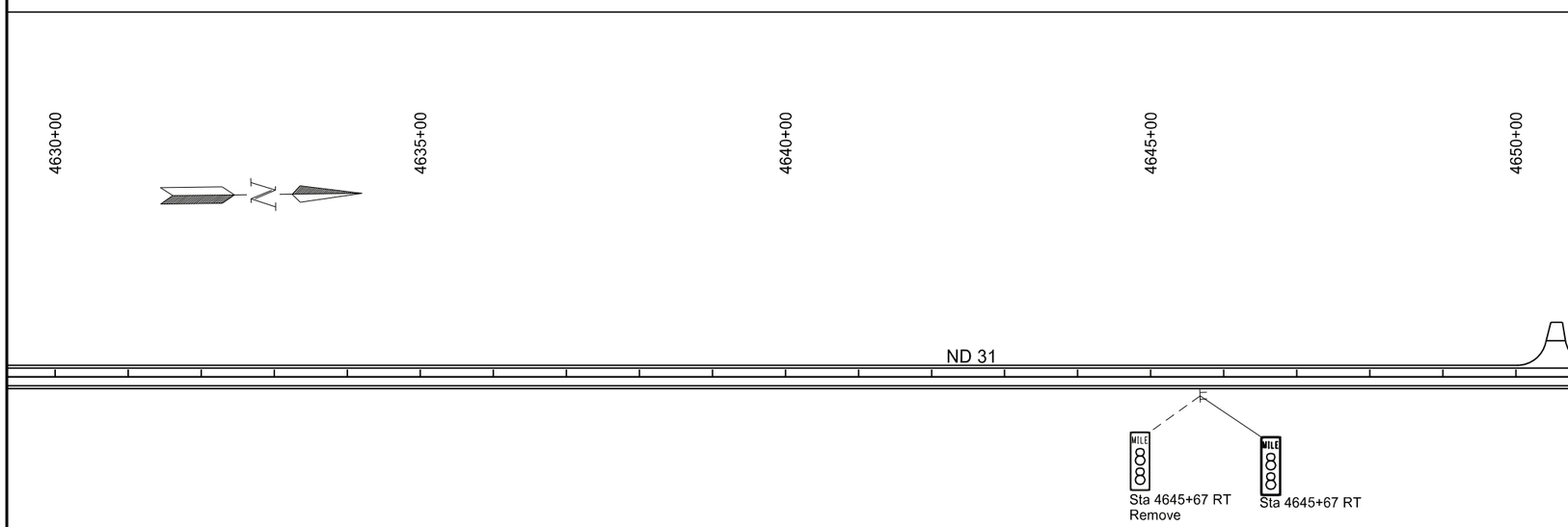
Signing Layout

Sta 4577+00 to Sta 4615+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	110	17





SPEC CODE	BID ITEM	QTY	UNIT
754 0562	REFRENCE MARKER - TYPE B		
	Sta 4645+67 RT	1	EA

ND 31

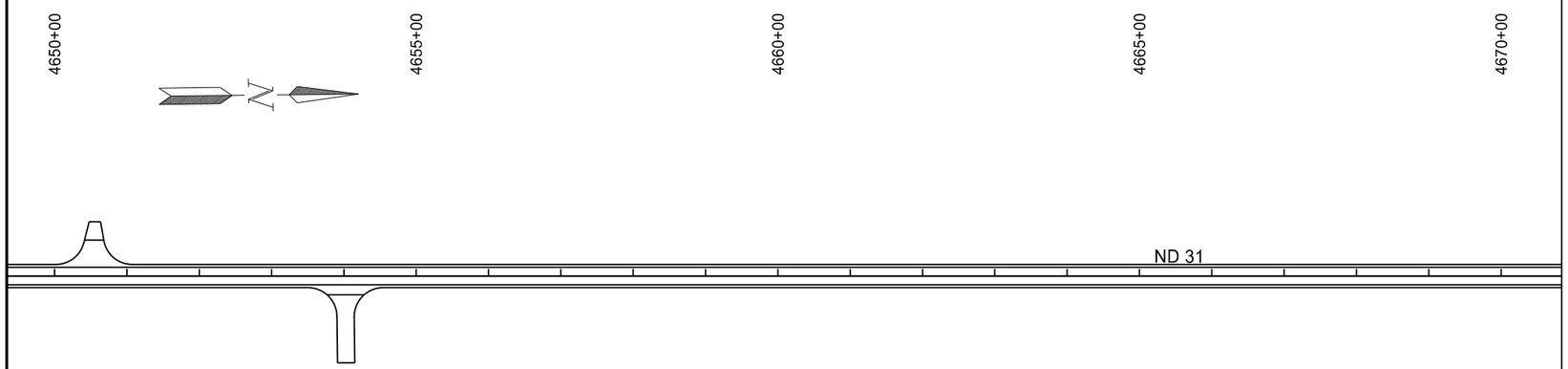
Jct I-94 to Hannover
Oliver County

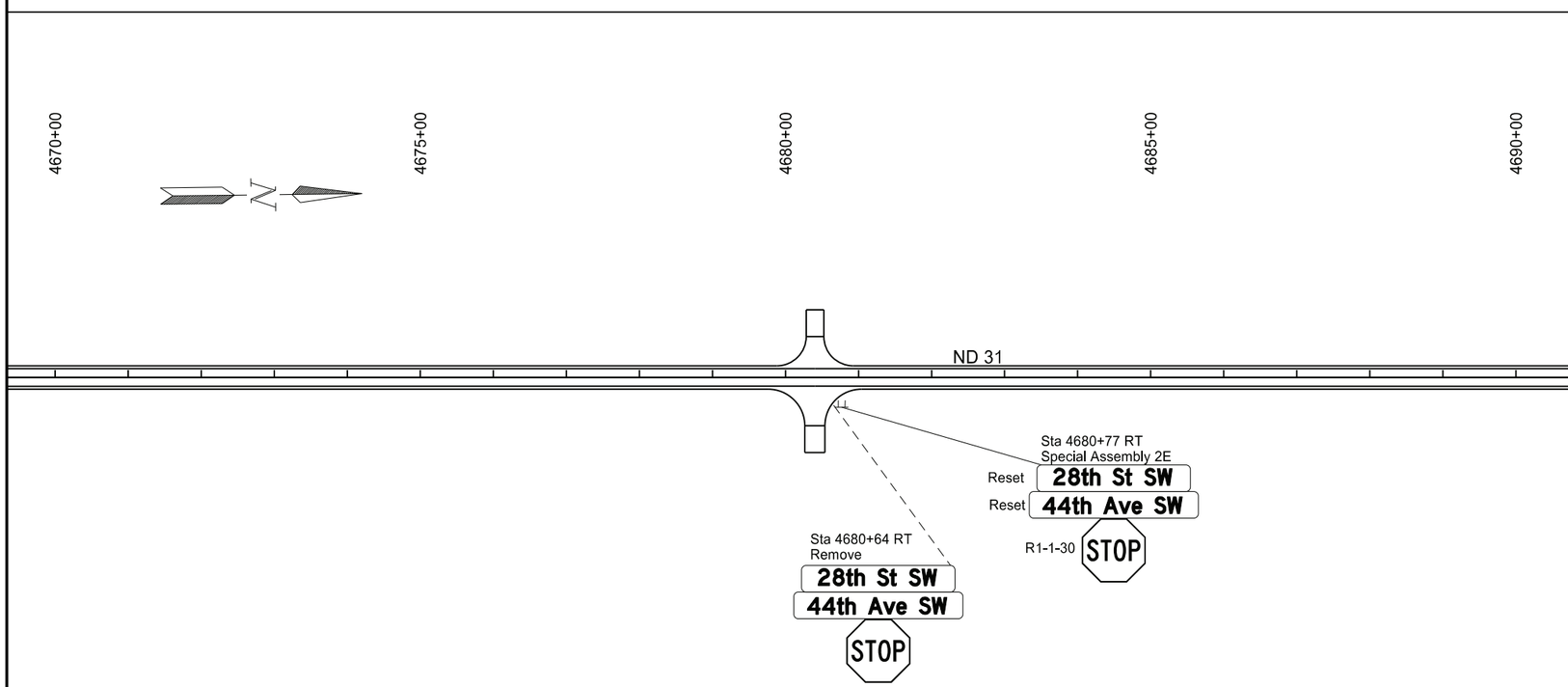
Signing Layout

Sta 4615+00 to Sta 4655+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	110	18





ND 31

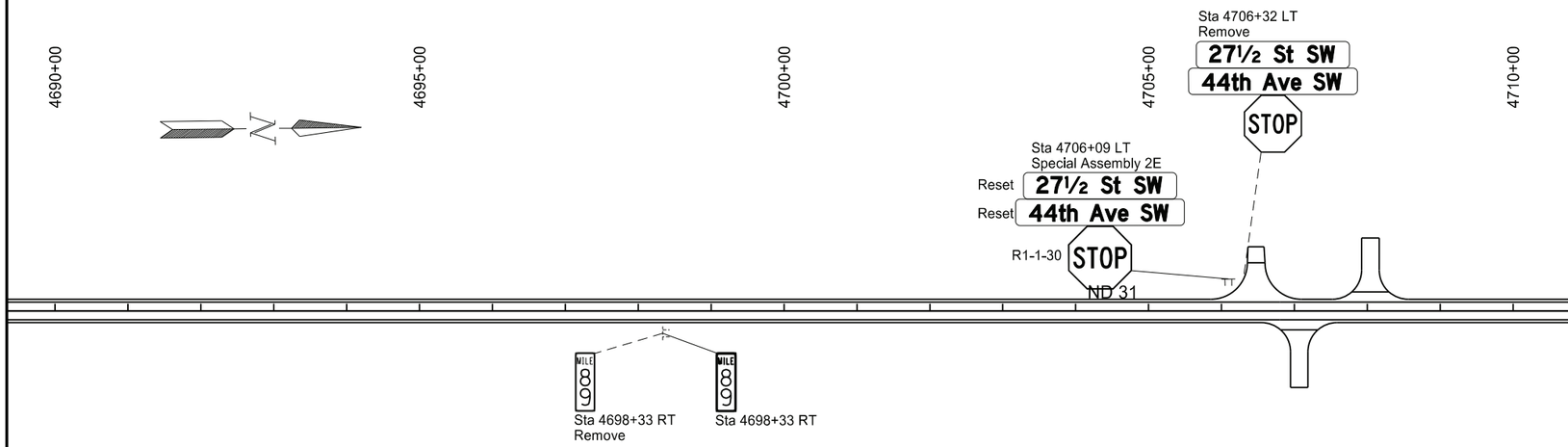
Jct I-94 to Hannover
Oliver County

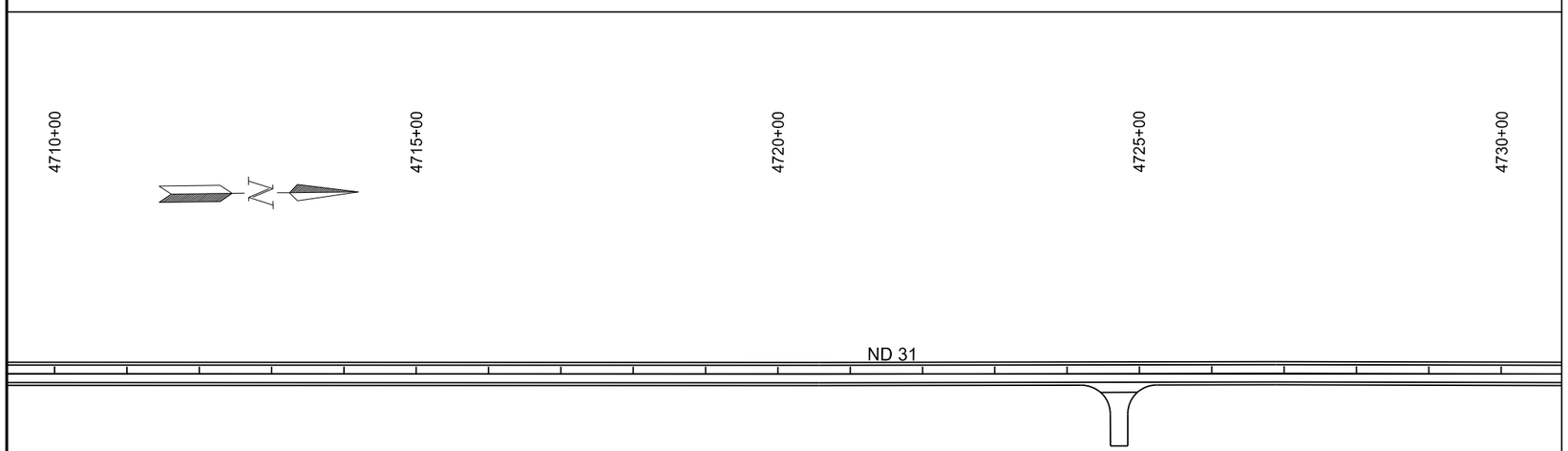
Signing Layout

Sta 4655+00 to Sta 4695+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	110	19





SPEC CODE	BID ITEM	QTY	UNIT
754 0562	REFRENCE MARKER - TYPE B		
	Sta 4698+33 RT	1	EA

ND 31

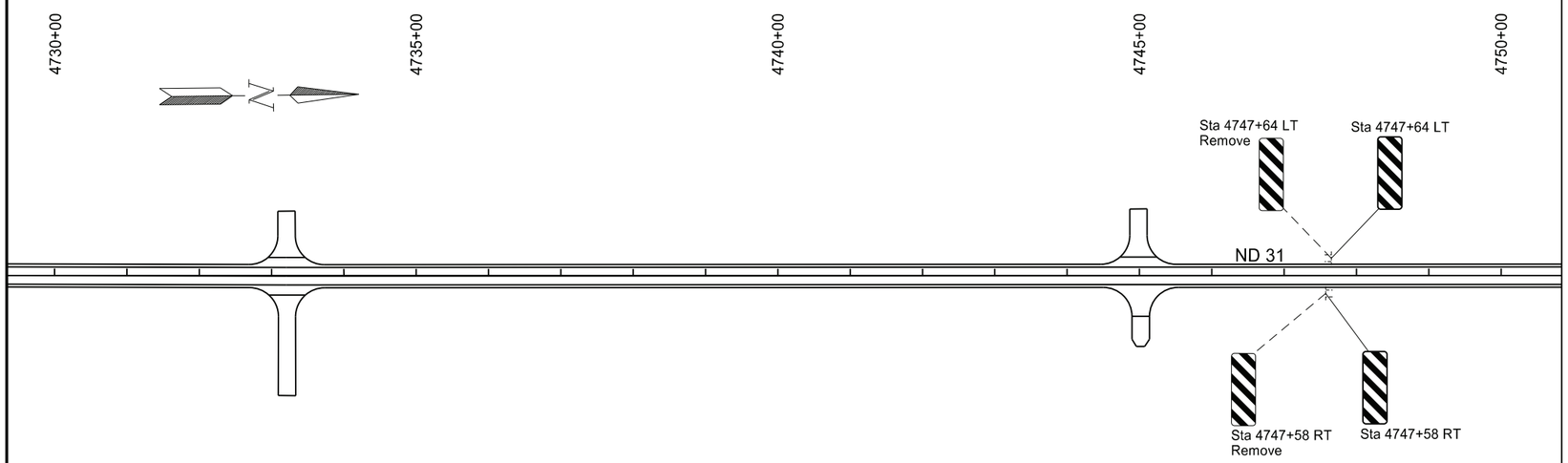
Jct I-94 to Hannover
Oliver County

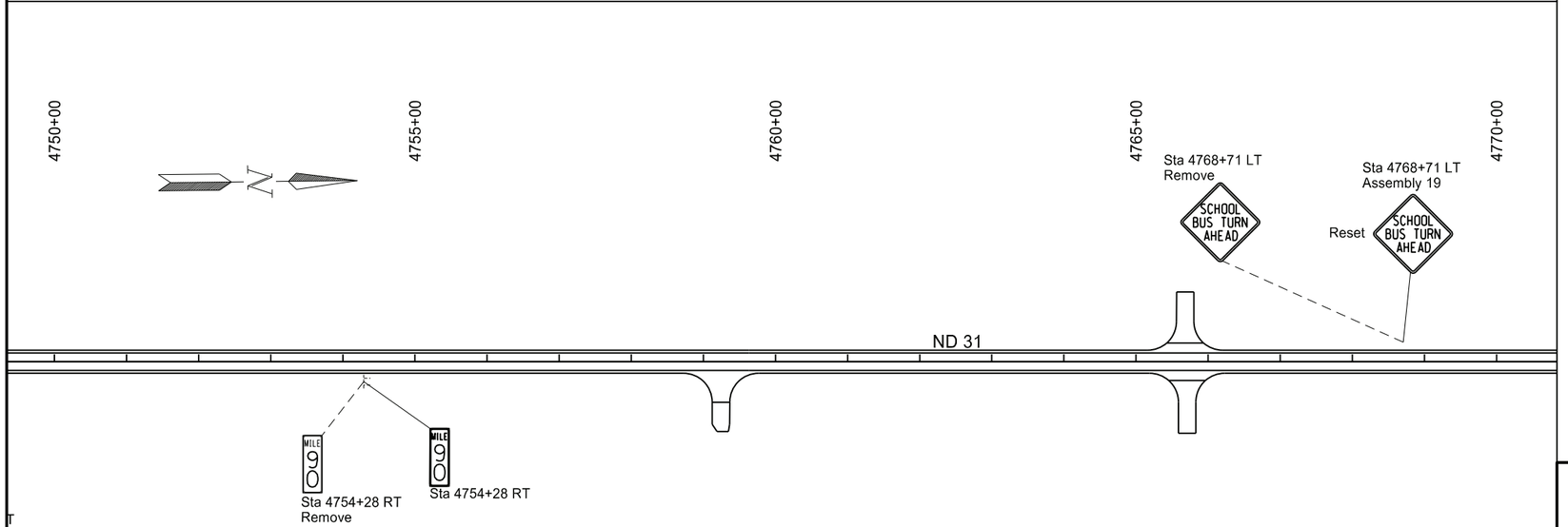
Signing Layout

Sta 4695+00 to Sta 4735+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	110	20





SPEC	CODE	BID ITEM	QTY	UNIT
754	0562	REFRENCE MARKER - TYPE B		
		Sta 4754+28 RT	1	EA
754	0803	OBJECT MARKERS - TYPE III		
		Sta 4747+58 RT	1	EA
		Sta 4747+64 LT	1	EA

ND 31

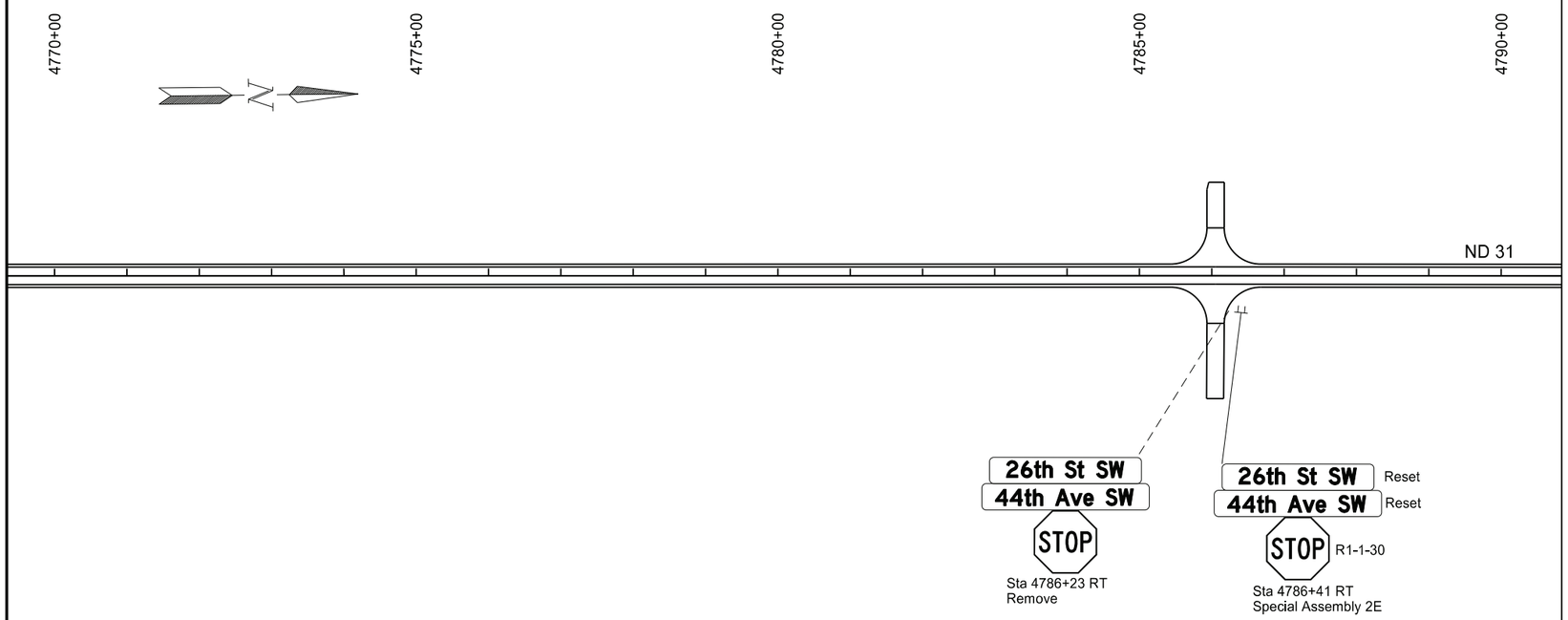
Jct I-94 to Hannover
Oliver County

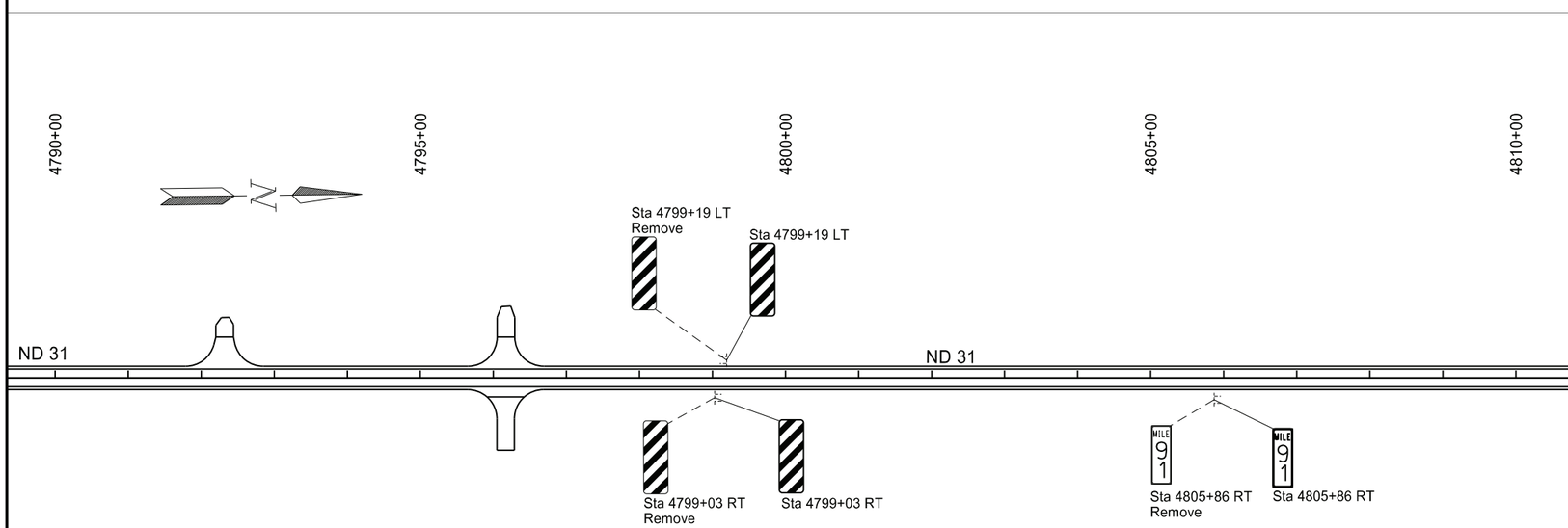
Signing Layout

Sta 4735+00 to Sta 4775+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	110	21





SPEC	CODE	BID ITEM	QTY	UNIT
754	0562	REFRENCE MARKER - TYPE B		
		Sta 4805+86 RT	1	EA
754	0803	OBJECT MARKERS - TYPE III		
		Sta 4799+03 RT	1	EA
		Sta 4799+19 LT	1	EA

ND 31

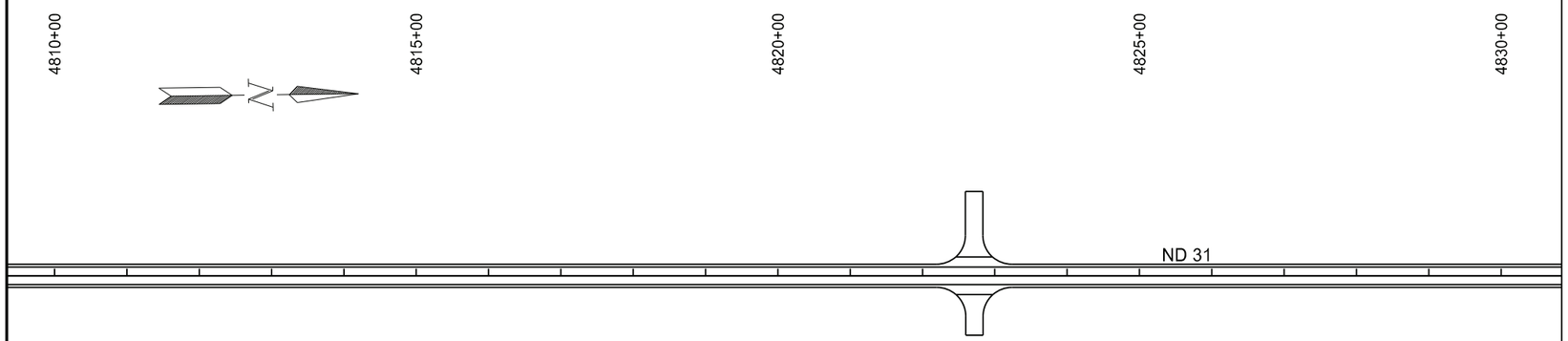
Jct I-94 to Hannover
Oliver County

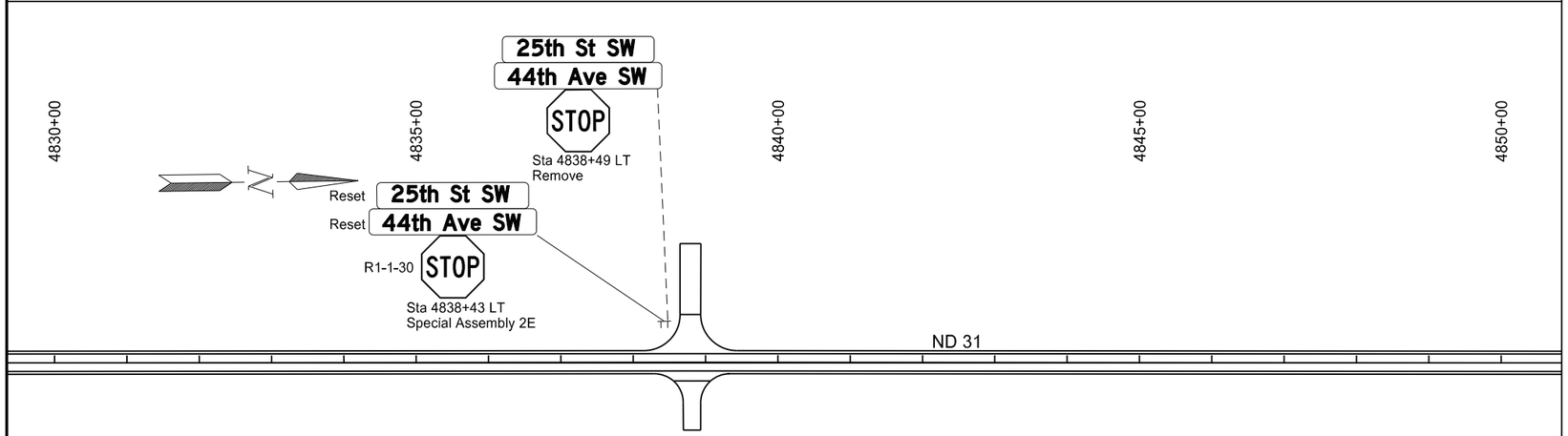
Signing Layout

Sta 4775+00 to Sta 4815+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	110	22





ND 31

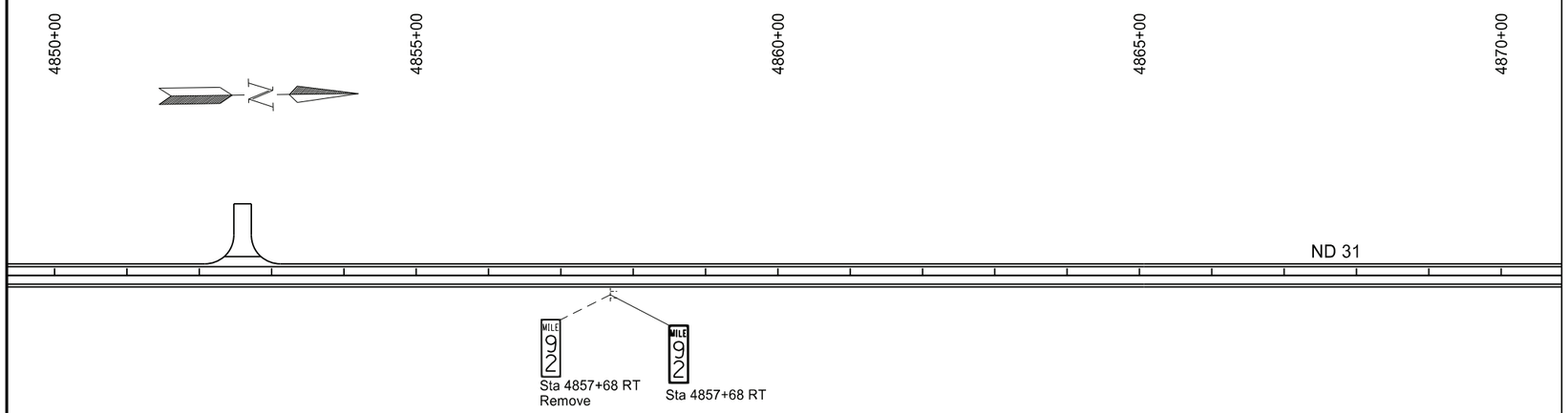
Jct I-94 to Hannover
Oliver County

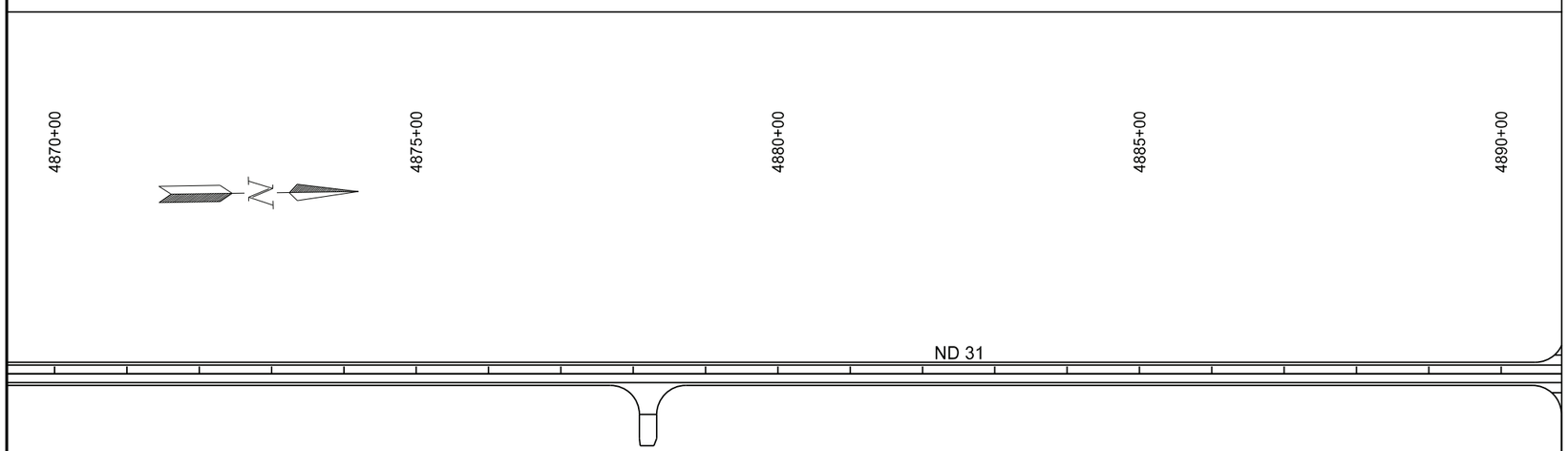
Signing Layout

Sta 4815+00 to Sta 4855+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	110	23





CODE	BID ITEM	QTY	UNIT
0562	REFRENCE MARKER - TYPE B		
	Sta 4857+68 RT	1	EA

ND 31

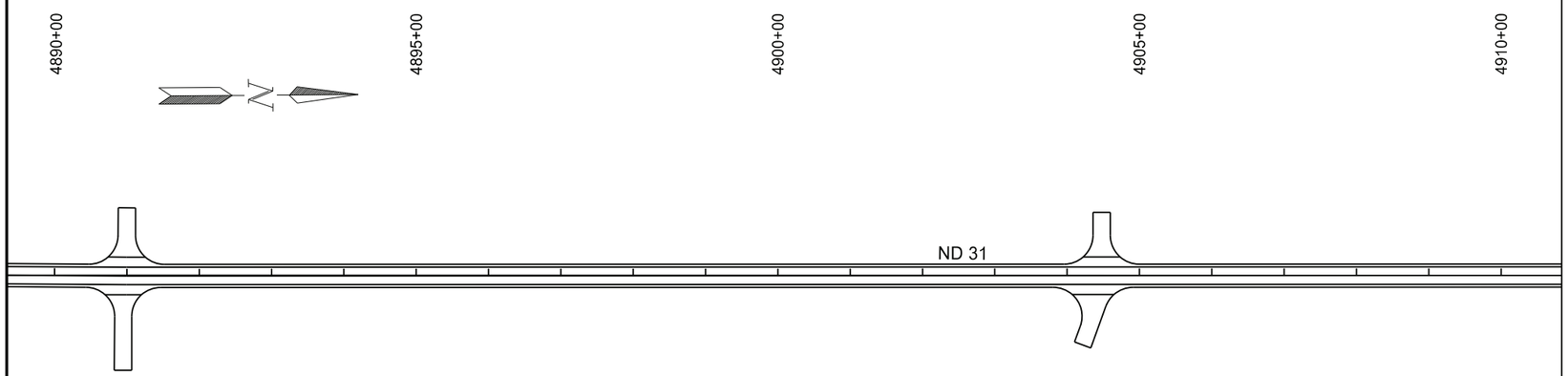
Jct I-94 to Hannover
Oliver County

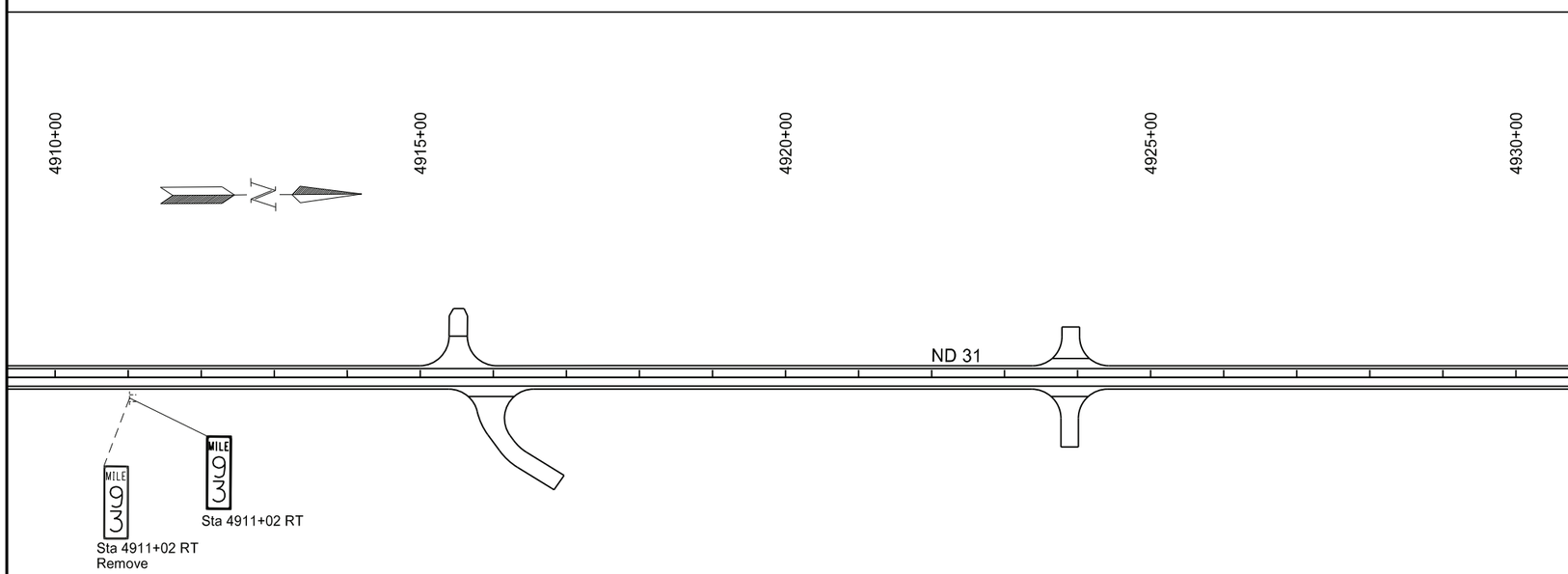
Signing Layout

Sta 4855+00 to Sta 4895+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	110	24





SPEC CODE	BID ITEM	QTY	UNIT
754 0562	REFRENCE MARKER - TYPE B		
	Sta 4911+02 RT	1	EA

ND 31

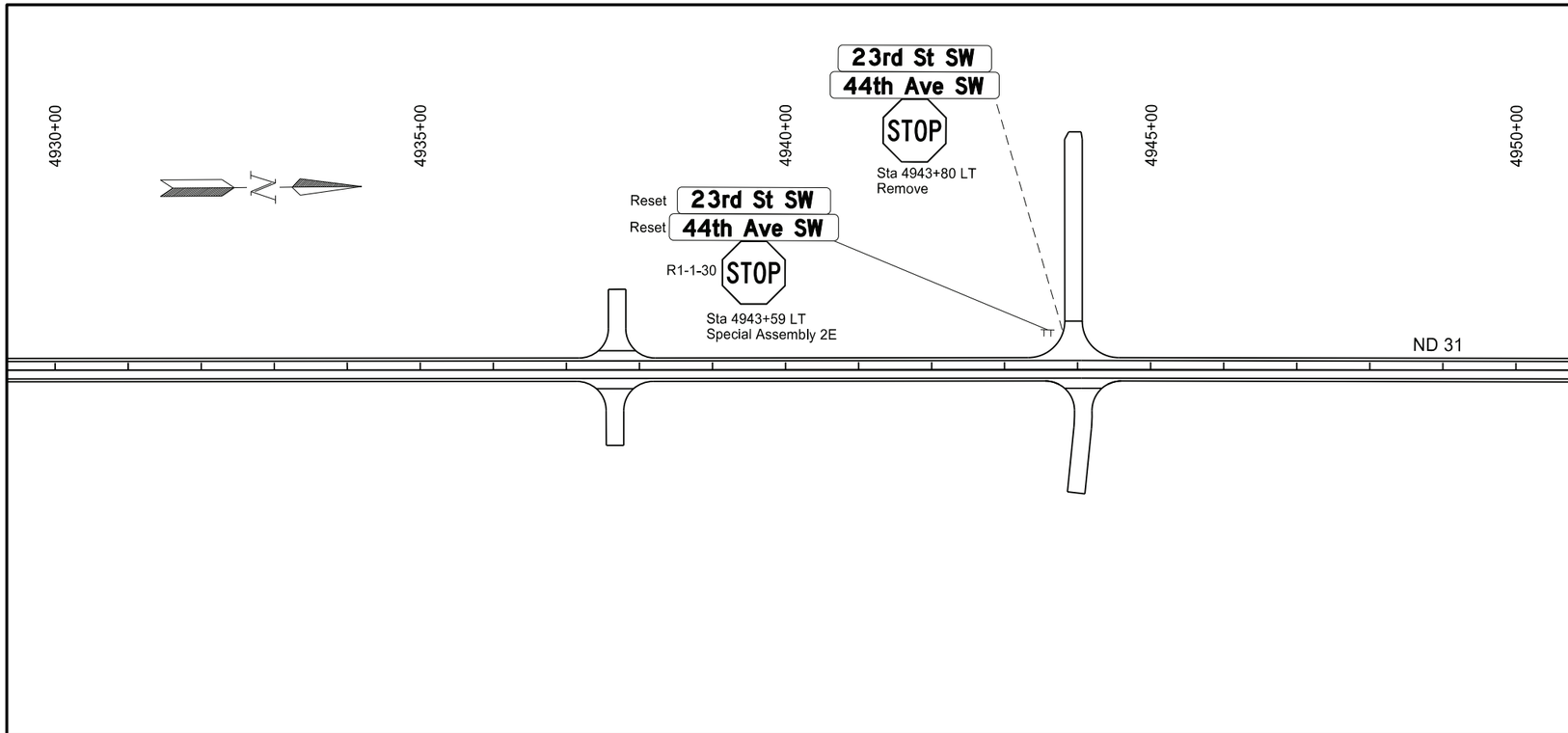
Jct I-94 to Hannover
Oliver County

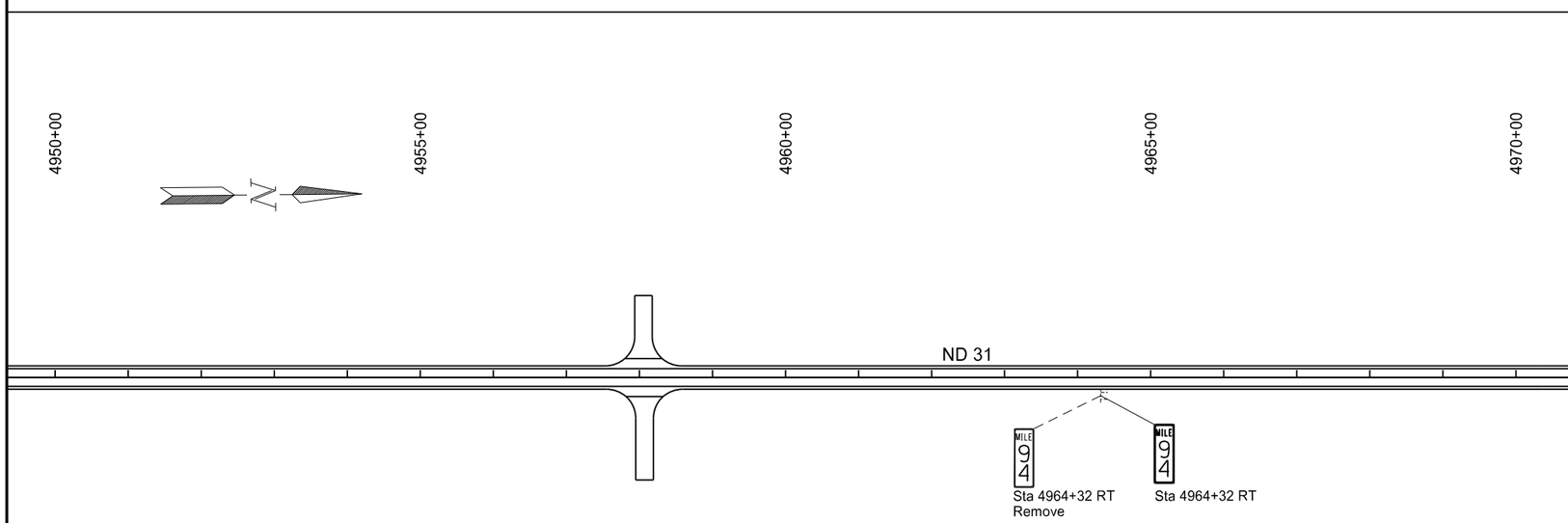
Signing Layout

Sta 4895+00 to Sta 4935+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	110	25





SPEC CODE	BID ITEM	QTY	UNIT
754 0562	REFRENCE MARKER - TYPE B Sta 4964+32 RT	1	EA

ND 31

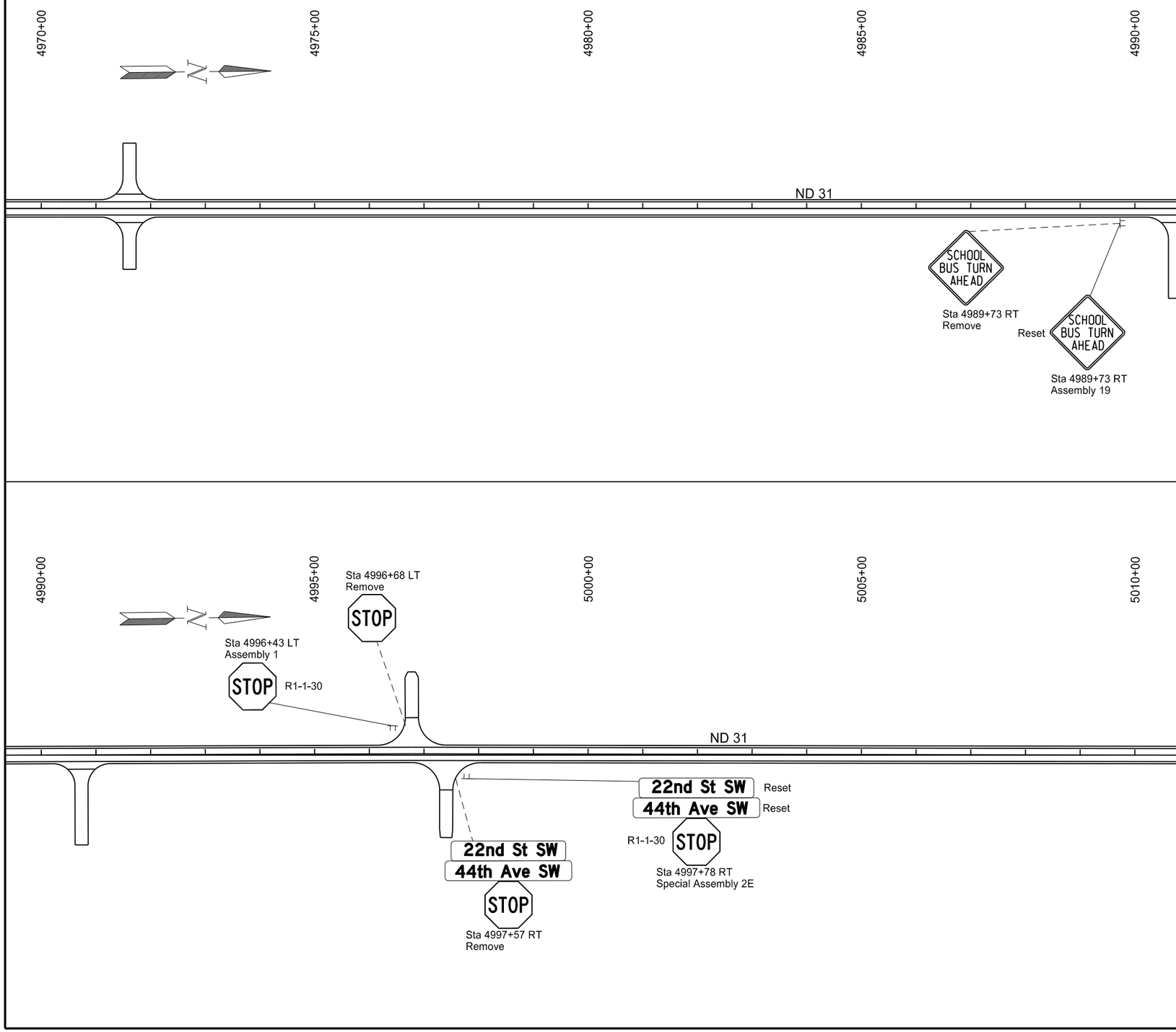
Jct I-94 to Hannover
Oliver County

Signing Layout

Sta 4935+00 to Sta 4975+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	110	26



ND 31

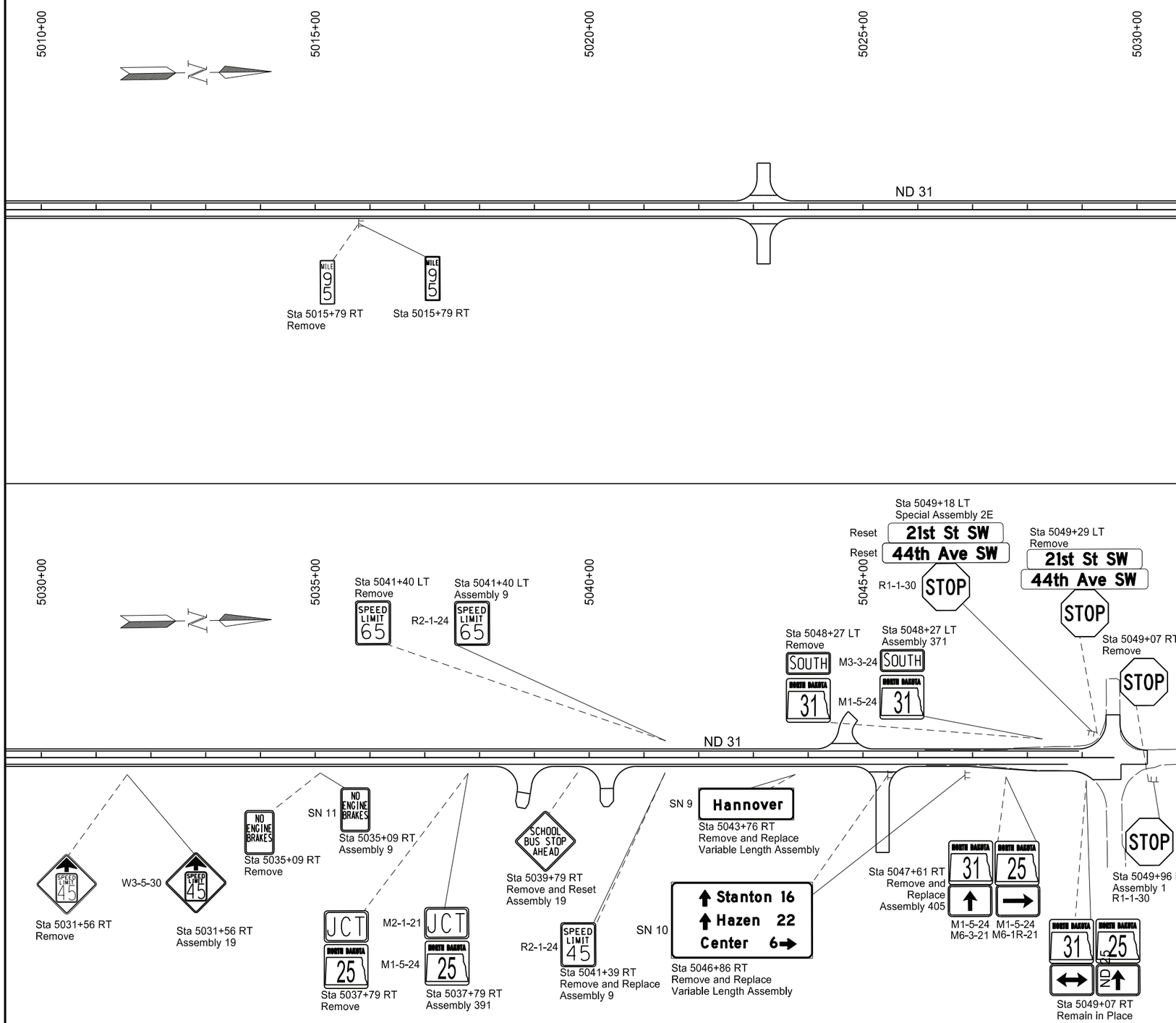
Jct I-94 to Hannover
Oliver County

Signing Layout

Sta 4975+00 to Sta 5015+00

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	110	27



SPEC CODE	BID ITEM	QTY	UNIT
754 0562	REFRENCE MARKER - TYPE B		
	Sta 5015+79 RT	1	EA

ND 31

Jct I-94 to Hannover
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Signing Layout

Sta 5015+00 to Sta 5050+19

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

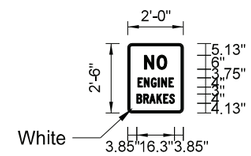
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	110	28

SIGN NUMBER	SN 11
WIDTH X HEIGHT	2'-0" x 2'-6"
BORDER WIDTH	0.63" (inset 0.38")
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: White
LEGEND/BORDER	TYPE: IV Non-reflective
	COLOR: Black

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S): 5035+09 Rt

AREA: 5.0 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Reg_24_Small.ssl

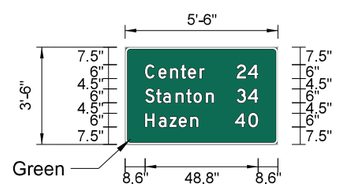
LETTER POSITION (X)																			LENGTH	SIZE	SERIES
N	O																		9.7	6	D 2000
7.2	12.6																				
E	N	G	I	N	E														15.4	4	C 2000
4.3	7	10.1	13.1	14.5	17.7																
B	R	A	K	E	S														16.3	4	C 2000
3.8	6.8	9.4	12.5	15.4	17.9																

SIGN NUMBER	SN 3
WIDTH X HEIGHT	5'-6" x 3'-6"
BORDER WIDTH	0.75" (inset 0")
CORNER RADIUS	2.25"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S): 4140+49 Rt

AREA: 19.3 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Conv_Distance.ssl

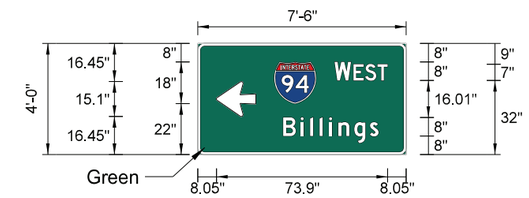
LETTER POSITION (X)																			LENGTH	SIZE	SERIES
C	e	n	t	e	r														25.8	6/4.5	D 2000
8.6	14.3	19.4	23.9	27.1	32.1																
2	4																		9.3	6	D 2000
48.1	52.9																				
S	t	a	n	t	o	n													29.8	6/4.5	D 2000
8.6	13.3	16.3	21.7	26.3	29.5	34.8															
3	4																		9.3	6	D 2000
48.1	52.9																				
H	a	z	e	n															23	6/4.5	D 2000
8.6	14.4	19.1	23.1	28.1																	
4	0																		10.1	6	D 2000
47.3	53.2																				

SIGN NUMBER	SN 2
WIDTH X HEIGHT	7'-6" x 4'-0"
BORDER WIDTH	1" (inset 0")
CORNER RADIUS	3"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE
M1_1	33.1	22	18	18	0
ND_8IN_TYPE B	8	16.5	15.1	17	90

STATION(S): 4134+29 Rt

AREA: 30.0 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Expwy_Destination.ssl

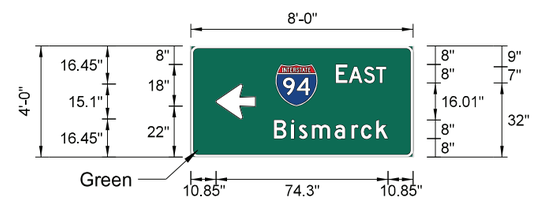
LETTER POSITION (X)																			LENGTH	SIZE	SERIES
W	E	S	T																22.9	8/7	D 2000
59.1	67.3	72.3	77.6																		
B	i	l	l	i	n	g	s												41.2	8/6	D 2000
36.9	44.4	48.5	52.6	56.7	60.8	67.6	74.3														

SIGN NUMBER	SN 1
WIDTH X HEIGHT	8'-0" x 4'-0"
BORDER WIDTH	1" (inset 0")
CORNER RADIUS	3"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE
M1_1	36.6	22	18	18	0
ND_8IN_TYPE B	10.9	16.5	15.1	17	90

STATION(S): 4129+50 Lt

AREA: 32.0 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Expwy_Destination.ssl

LETTER POSITION (X)																			LENGTH	SIZE	SERIES
E	A	S	T																21.7	8/7	D 2000
62.6	68.2	74.7	80																		
B	i	s	m	a	r	c	k												49.3	8/6	D 2000
35.9	43.4	46.6	52.2	62.1	69.3	73.5	80														

ND 31

Jct I-94 to Hannover
Morton County

Signing Details

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

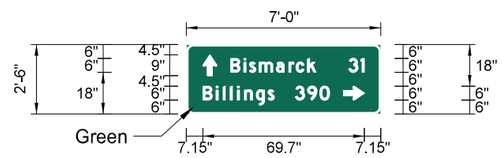
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	110	29

SIGN NUMBER	SN 5
WIDTH X HEIGHT	7'-0" x 2'-6"
BORDER WIDTH	0.75" (inset 0")
CORNER RADIUS	3"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE
ND_6IN_TYPE D	7.1	16.5	6	9	0
ND_6IN_TYPE D	67.9	6	6	9	270

STATION(S):
4142+55 Lt

AREA: 17.5 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Conv_Destination.ssl

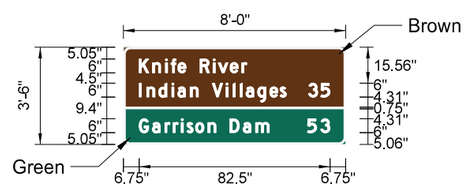
LETTER POSITION (X)								LENGTH	SIZE	SERIES
B	i	s	m	a	r	c	k	37	6\4.5	D 2000
19.1	24.8	27.2	31.4	38.8	44.2	47.4	52.3			
3	1							6.8	6	D 2000
70.1	75.4									
B	i	l	l	i	n	g	s	30.9	6\4.5	D 2000
7.1	12.8	15.9	18.9	22	25	30.1	35.2			
3	9	0						14.8	6	D 2000
47	52.3	57.6								

SIGN NUMBER	SN 6
WIDTH X HEIGHT	8'-0" x 3'-6"
BORDER WIDTH	0.75" (inset 0")
CORNER RADIUS	3"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green / Brown
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE
	0	0	174.3	78	0

STATION(S):
4156+15 Rt

AREA: 28.0 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Conv_Destination_Divided_Gr+Br.ssl

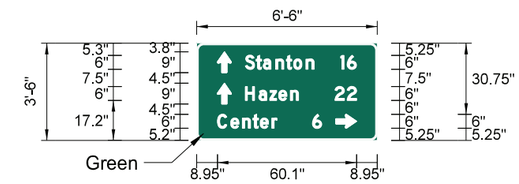
LETTER POSITION (X)																		LENGTH	SIZE	SERIES
K	n	i	f	e		R	i	v	e	r								46.5	6\4.5	D 2000
54.8	60.5	66.1	68.5	71.5	75	81	86.7	88.9	94	99										
I	n	d	i	a	n		V	i	l	l	a	g	e	s				63.6	6\4.5	D 2000
54.8	58	63.2	68.9	71.4	76.8	80.3	86.3	92.3	95.3	98.4	100.9	105.9	111.2	115.6						
3	5																	9.4	6	D 2000
127.9	133.2																			
G	a	r	r	i	s	o	n		D	a	m							56.2	6\4.5	D 2000
54.8	60.4	65.8	69.4	72.9	75.3	79.1	84.5	88	94	99.6	105.1									
5	3																	9.8	6	D 2000
127.4	133.2																			

SIGN NUMBER	SN 10
WIDTH X HEIGHT	6'-6" x 3'-6"
BORDER WIDTH	0.75" (inset 0")
CORNER RADIUS	3"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE
ND_6IN_TYPE D	8.9	29.3	6	9	0
ND_6IN_TYPE D	8.9	15.8	6	9	0
ND_6IN_TYPE D	60.1	5.3	6	9	270

STATION(S):
5046+86 Rt

AREA: 22.8 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Conv_Destination.ssl

LETTER POSITION (X)								LENGTH	SIZE	SERIES
S	t	a	n	t	o	n		29.8	6\4.5	D 2000
20.9	25.7	28.7	34.1	38.7	41.8	47.2				
1	6							6.9	6	D 2000
62.2	65									
H	a	z	e	n				23	6\4.5	D 2000
20.9	26.8	31.5	35.4	40.4						
2	2							9.4	6	D 2000
59.7	65									
C	e	n	t	e	r			25.8	6\4.5	D 2000
8.9	14.7	19.7	24.3	27.4	32.4					
6								4.1	6	D 2000
50										

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Jct I-94 to Hannover
Morton County

Signing Details

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

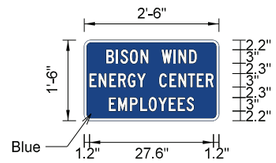
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	110	30

SIGN NUMBER	SN 4
WIDTH X HEIGHT	2'-6" x 1'-6"
BORDER WIDTH	0.5" (inset 0")
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Blue
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S):
4142+09 Rt
4291+06 Lt

AREA: 3.8 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Adopt-a-Highway_3.sst

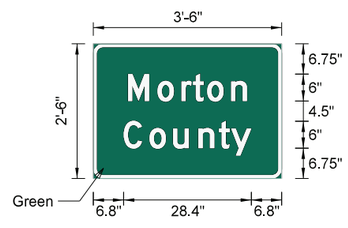
LETTER POSITION (X)																			LENGTH	SIZE	SERIES
B	I	S	O	N		W	I	N	D										20.1	3	C 2000
5	7.1	8.1	10.2	12.6	14.3	17.3	20	21	23.4												
E	N	E	R	G	Y		C	E	N	T	E	R							27.6	3	C 2000
1.2	3.2	5.6	7.6	9.8	11.8	13.7	16.7	19	21	23.1	25.1	27.1									
E	M	P	L	O	Y	E	E	S											18.9	3	C 2000
5.5	7.6	10.2	12.5	14.4	16.5	18.9	20.9	22.8													

SIGN NUMBER	SN 7
WIDTH X HEIGHT	3'-6" x 2'-6"
BORDER WIDTH	0.75" (inset 0")
CORNER RADIUS	2.25"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S):
4572+89 Lt

AREA: 8.8 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Conv_Boundary.sst

LETTER POSITION (X)																			LENGTH	SIZE	SERIES
M	o	r	t	o	n														26.5	6/4.5	D 2000
7.7	14.3	19.7	22.2	25.4	30.7																
C	o	u	n	t	y														28.4	6/4.5	D 2000
6.8	12.5	17.8	23.4	28	30.7																

SIGN NUMBER	SN 8
WIDTH X HEIGHT	3'-6" x 2'-6"
BORDER WIDTH	0.75" (inset 0")
CORNER RADIUS	2.25"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S):
4574+83 Rt

AREA: 8.8 Sq.Ft.

Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Conv_Boundary.sst

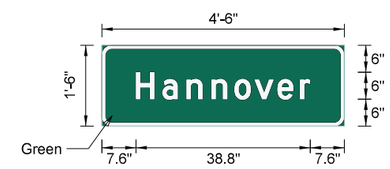
LETTER POSITION (X)																			LENGTH	SIZE	SERIES
O	l	i	v	e	r														24	6/4.5	D 2000
9	15.3	18.4	20.6	25.7	30.7																
C	o	u	n	t	y														28.4	6/4.5	D 2000
6.8	12.5	17.8	23.4	28	30.7																

SIGN NUMBER	SN 9
WIDTH X HEIGHT	4'-6" x 1'-6"
BORDER WIDTH	0.75" (inset 0")
CORNER RADIUS	2.25"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S):
5043+76

AREA: 6.8 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Conv_Boundary.sst

LETTER POSITION (X)																			LENGTH	SIZE	SERIES
H	a	n	n	o	v	e	r												38.8	6/4.5	D 2000
7.6	13.5	18.9	24.4	29.5	34	39.1	44.1														

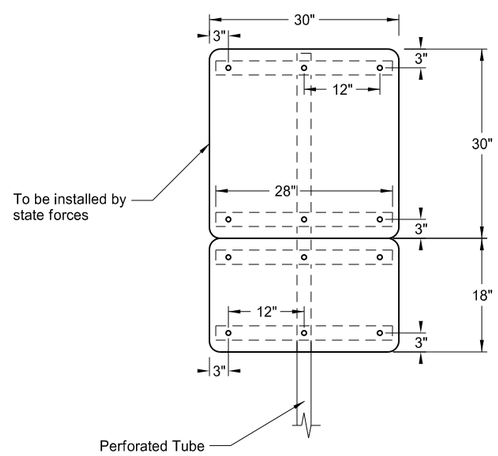
ND 31

Jct I-94 to Hannover
Morton County

Signing Details

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	110	31



Special Assembly A

Sta 4142+09 Rt
Sta 4291+06 Lt

Pay Area: 10.0 SF

ND 31

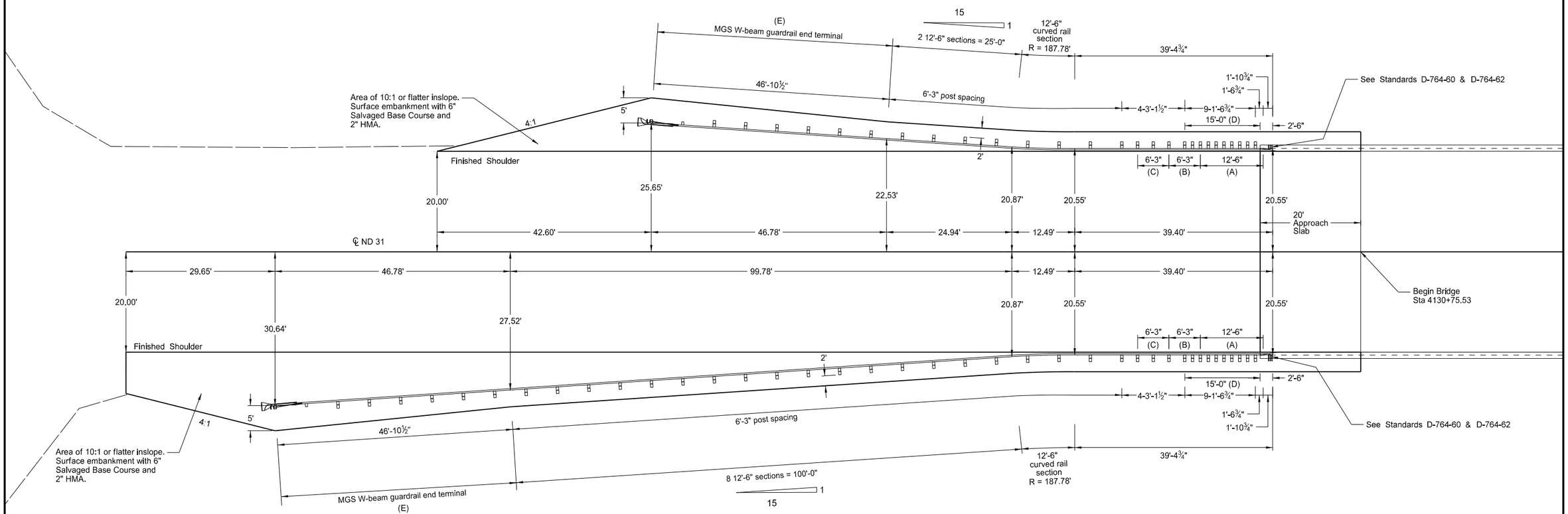
Jct I-94 to Hannover
Morton County

Sign Assemblies

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 7/29/26
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	130	1

23 USC § 407 Documents
NDDOT Reserves All Objections



(A) Thrie beam rail section (double thickness)

(B) W-Thrie beam transition section

(C) Asymmetrical W-Thrie beam section

(D) Curb & gutter - type 1 special. See section 170 for details.

(E) Install a MASH SoftStop or SKT End Terminal at this location. See Standard D-764-50 or D-764-51. Dimensions shown are for a MASH SKT End Terminal. If a MASH SoftStop End Terminal is used, install per Standard D-764-50 at a 50:1 taper over its length.

ND 31

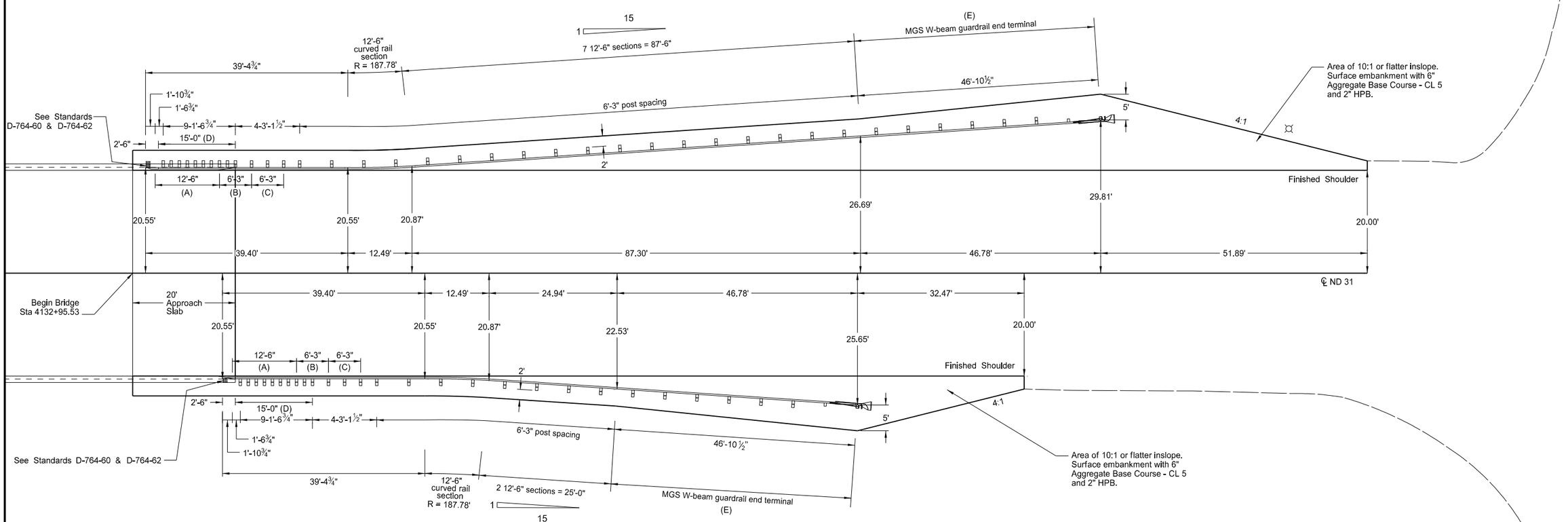
Jct I-94 to Hannover
Morton County

RP 127.622
I-94
Thrie/MGS W-Beam Guardrail Layout

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 10/23/24
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	130	2

23 USC § 407 Documents
NDDOT Reserves All Objections



(A) Thrie beam rail section (double thickness)

(B) W-Thrie beam transition section

(C) Asymmetrical W-Thrie beam section

(D) Curb & gutter - type 1 special. See section 170 for details.

(E) Install a MASH SoftStop or SKT End Terminal at this location. See Standard D-764-50 or D-764-51. Dimensions shown are for a MASH SKT End Terminal. If a MASH SoftStop End Terminal is used, install per Standard D-764-50 at a 50:1 taper over its length.

ND 31

Jct I-94 to Hannover
Morton County

RP 127.622
I-94
Thrie/MGS W-Beam Guardrail Layout

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 10/23/24
NORTH DAKOTA

23 USC § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	130	3

MGS W-BEAM GUARDRAIL SUMMARY OF QUANTITIES
THRIE/MGS W-BEAM GUARDRAIL AT OBSTRUCTIONS

Location	(A) 5/8" ø X 18" LONG GUARDRAIL BOLT	(A) (C) 5/8" ø X 22" LONG GUARDRAIL BOLT	(A) 5/8" ø X 1-1/4" LONG GUARDRAIL BOLT	(A) 5/8" ø X 2" LONG GUARDRAIL BOLT	(A) 6" X 8" X 6'-0" TIMBER POST	(A) 6" X 8" X 14" TIMBER BLOCK	(A) 12'-6" STRAIGHT W-BEAM RAIL SECTION	(A) 12'-6" CURVED W-BEAM RAIL SECTION	(A) REFLECTORIZED PLATES	(A) 6" X 8" X 7'-0" TIMBER POST	(A) 6" X 8" X 19" TIMBER OFFSET BLOCK	(A) (B) 6" X 12" X 19" TIMBER OFFSET BLOCK	(A) 6'-3" W-THRIE BEAM SECTION	(A) ASYMMETRICAL 6'-3" W-THRIE BEAM TRANSITION SECTION	(A) 12'-6" DOUBLE THRIE BEAM SECTION	(A) 2'-6" THRIE BEAM TERMINAL CONNECTOR	(A) 7/8" ø X 15" LONG HEX HEAD BOLT	(A) JERSEY BARRIER TO THRIE BEAM CONNECTOR PLATE
	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH
Sta 4128+59.59 to Sta 4130+58.03 Rt	44		88	36	27	21	9	1	7	6	12		1	1	1	1	5	1
Sta 4129+34.42 to Sta 4130+58.03 Lt	32		40	36	15	9	3	1	4	6	12		1	1	1	1	5	1
Sta 4133+13.03 to Sta 4134+36.57 Rt	32		40	36	15	9	3	1	4	6	12		1	1	1	1	5	1
Sta 4132+98.03 to Sta 4134+84.08 Lt	22	20	80	36	25	19	8	1	7	6	2	10	1	1	1	1	5	1
Total	130	20	248	144	82	58	23	4	22	24	38	10	4	4	4	4	20	4

SPEC	CODE	BID ITEM	QTY	UNIT
748	141	CURB & GUTTER-TYPE 1 SPECIAL		
		Sta 4130+40.53 to Sta 4130+55.53 Rt	15	LF
		Sta 4130+40.53 to Sta 4130+55.53 Lt	15	LF
		Sta 4133+15.53 to Sta 4133+30.53 Rt	15	LF
		Sta 4133+00.53 to Sta 4133+15.53 Lt	15	LF
764	0131	W-BEAM GUARDRAIL		
		Sta 4129+06.37 to Sta 4130+58.03 Rt	151.9	LF
		Sta 4129+81.20 to Sta 4130+58.03 Lt	76.9	LF
		Sta 4133+13.03 to Sta 4133+89.85 Rt	76.9	LF
		Sta 4132+98.03 to Sta 4134+37.29 Lt	139.4	LF
764	0145	W-BEAM GUARDRAIL END TERMINAL		
		Sta 4128+59.59 to Sta 4129+06.37 Rt	1	EA
		Sta 4129+34.42 to Sta 4129+81.20 Lt	1	EA
		Sta 4133+89.85 to Sta 4134+36.57 Rt	1	EA
		Sta 4134+37.29 to Sta 4134+84.08 Lt	1	EA
764	0151	REMOVE W-BEAM GUARDRAIL & POSTS		
		Sta 4129+41.97 to Sta 4130+61.24 Rt	120.0	LF
		Sta 4130+16.09 to Sta 4130+60.75 Lt	46.0	LF
		Sta 4133+09.31 to Sta 4133+55.05 Rt	46.0	LF
		Sta 4133+09.18 to Sta 4134+29.87 Lt	120.0	LF
764	2081	REMOVE END TREATMENT & TRANSITION		
		Sta 4128+91.93 to Sta 4129+41.97 Rt	1	EA
		Sta 4129+66.09 to Sta 4130+16.09 Lt	1	EA
		Sta 4133+55.05 to Sta 4134+04.64 Rt	1	EA
		Sta 4134+29.87 to Sta 4134+79.96 Lt	1	EA

(A) Include these items in the contract unit price bid for "W-BEAM GUARDAIL".

(B) Use 6"x12"x9" blocks for posts 1-10 shown on Standard D-764-60 to allow installation outside the approach panel.

(C) Use with 6"x12"x9" blocks.

ND 31

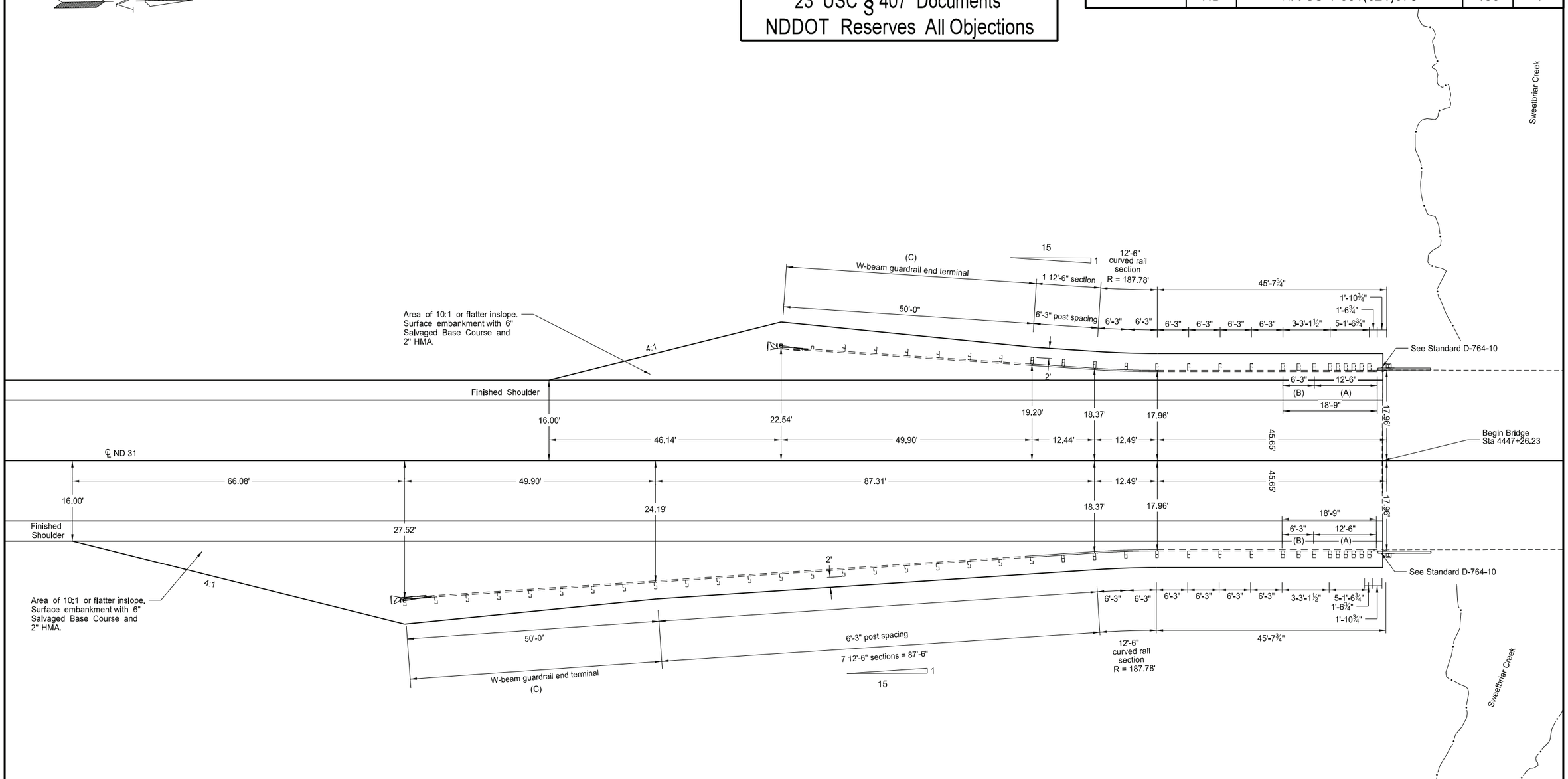
Jct I-94 to Hannover
Morton County

RP 127.622
I-94
Thrie/MGS W-Beam Guardrail Quantities

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 10/23/24
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	130	4

23 USC § 407 Documents
NDDOT Reserves All Objections



(A) Thrie beam rail section (double thickness)

(B) W-Thrie beam transition section

(C) Reset a FLEAT end terminal at this location. See Standard D-764-6.

ND 31

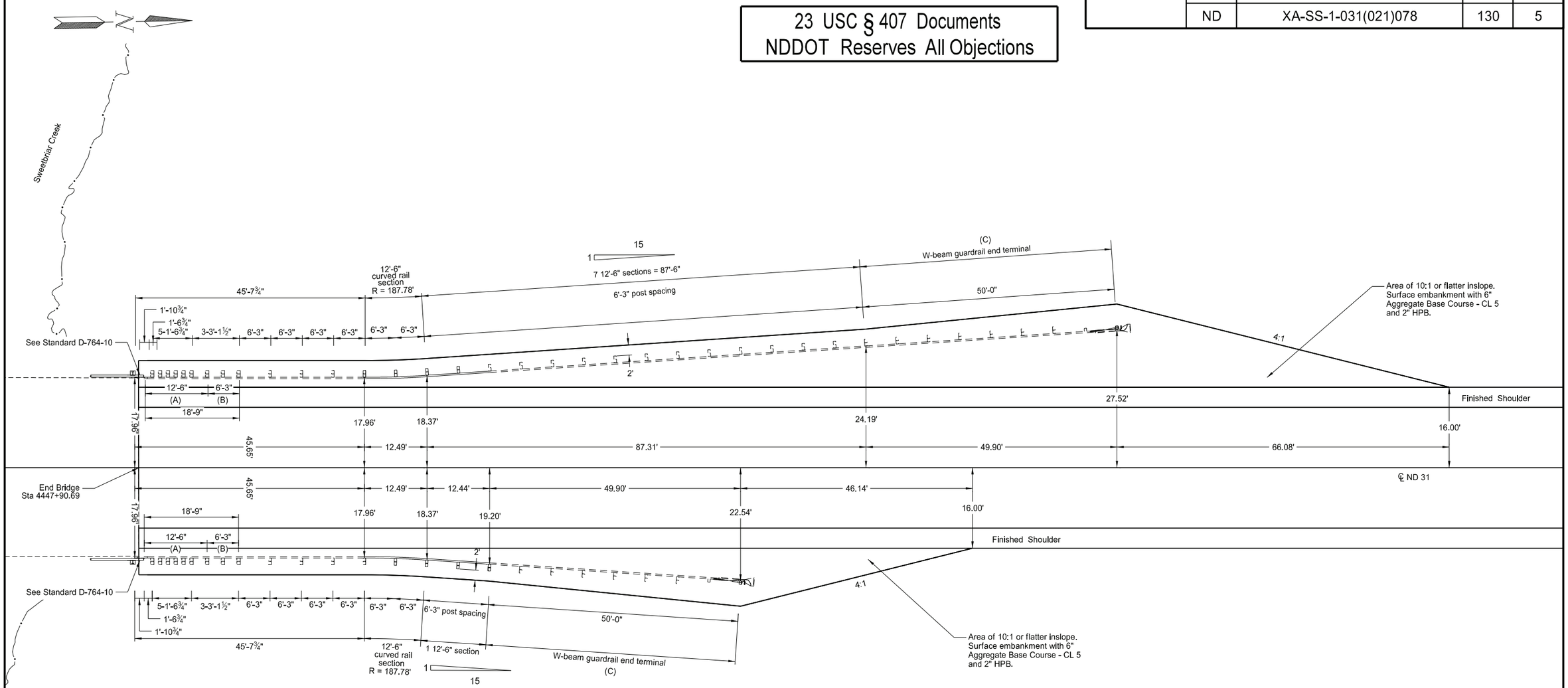
Jct I-94 to Hannover
Morton County

RP 84.239
Sweet Briar Creek
Thrie/W-Beam Guardrail Layout

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 10/23/24
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	130	5

23 USC § 407 Documents
NDDOT Reserves All Objections



(A) Thrie beam rail section (double thickness)

(B) W-Thrie beam transition section

(C) Reset a FLEAT end terminal at this location. See Standard D-764-6.

ND 31

Jct I-94 to Hannover
Morton County

RP 84.239
Sweet Briar Creek
Thrie/W-Beam Guardrail Layout

REGISTERED PROFESSIONAL ENGINEER
JERAD DAUL
PE-27164
DATE: 10/23/24
NORTH DAKOTA

23 USC § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	130	6

W-BEAM GUARDRAIL SUMMARY OF QUANTITIES							
THRIE/W-BEAM GUARDRAIL AT OBSTRUCTIONS							
Location	(A) 5/8" ø X 18" LONG GUARDRAIL BOLT	(A) 5/8" ø X 1-1/4" LONG GUARDRAIL BOLT	(A) 6" X 8" X 6'-0" TIMBER POST	(A) 6" X 8" X 14" TIMBER BLOCK	(A) 12'-6" STRAIGHT W-BEAM RAIL SECTION	(A) 12'-6" CURVED W-BEAM RAIL SECTION	(A) REFLECTORIZED PLATES
	EACH	EACH	EACH	EACH	EACH	EACH	EACH
Sta 4446+56.39 to Sta 4446+81.35 Rt	4	16	4	4	1	1	1
Sta 4446+56.42 to Sta 4446+81.35 Lt	4	16	4	4	1	1	1
Sta 4448+35.57 to Sta 4448+60.50 Rt	4	16	4	4	1	1	1
Sta 4448+35.57 to Sta 4448+60.50 Lt	4	16	4	4	1	1	1
Total	16	64	16	16	4	4	4

SPEC	CODE	BID ITEM	QTY	UNIT
764	0131	W-BEAM GUARDRAIL		
		Sta 4446+56.39 to Sta 4446+81.35 Rt	25.0	LF
		Sta 4446+56.42 to Sta 4446+81.35 Lt	25.0	LF
		Sta 4448+35.57 to Sta 4448+60.50 Rt	25.0	LF
		Sta 4448+35.57 to Sta 4448+60.50 Lt	25.0	LF
764	0150	REMOVE & RESET GUARDRAIL		
		Sta 4445+81.56 to Sta 4446+56.39 Rt	75.0	LF
		Sta 4446+81.35 to Sta 4447+27.00 Rt	45.7	LF
		Sta 4446+81.35 to Sta 4447+27.00 Lt	45.7	LF
		Sta 4447+89.92 to Sta 4448+35.57 Rt	45.7	LF
		Sta 4447+89.92 to Sta 4448+35.57 Lt	45.7	LF
		Sta 4448+60.50 to Sta 4449+35.37 Lt	75.0	LF
764	0151	REMOVE W-BEAM GUARDRAIL & POSTS		
		Sta 4446+68.86 to Sta 4446+81.35 Rt	12.5	LF
		Sta 4448+35.57 to Sta 4448+48.06 Lt	12.5	LF
764	1059	RESET W-BEAM GUARDRAIL END TERMINAL		
		Sta 4445+31.66 to Sta 4445+81.56 Rt	1	EA
		Sta 4446+06.53 to Sta 4446+56.42 Lt	1	EA
		Sta 4448+60.50 to Sta 4449+10.40 Rt	1	EA
		Sta 4449+35.37 to Sta 4449+85.27 Lt	1	EA

(A) Include these items in the contract unit price bid for "W-BEAM GUARDAIL".

ND 31

Jct I-94 to Hannover
Morton County

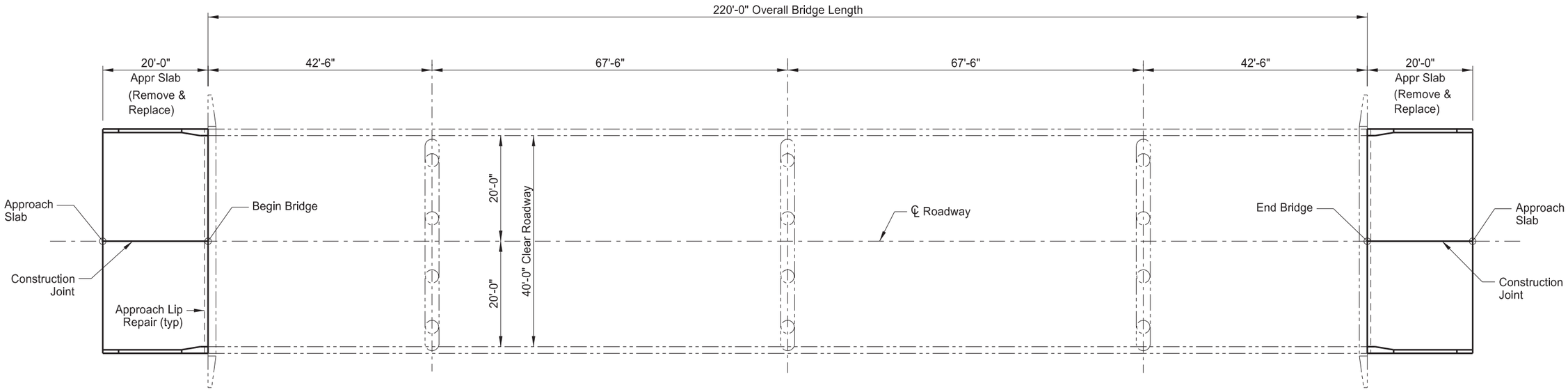
RP 84.239
Sweet Briar Creek
Thrie/W-Beam Guardrail Quantities

REGISTERED PROFESSIONAL ENGINEER
JERAD
DAUL
PE-27164
DATE: 10/23/24
NORTH DAKOTA

Docusign Envelope ID: 948E135F-D47F-84A2-83CE-E12E5D36DCB7

23 U.S.C. 407
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	170	1



PLAN

BRIDGE BID ITEMS

SPEC	CODE	ITEM DESCRIPTION	UNIT	QUANTITY
602	1135	BRIDGE APPROACH SLAB-REMOVE & REPLACE	SY	188.8
602	1250	PENETRATING WATER REPELLENT TREATMENT	SY	1,160
602	1300	BRIDGE DECK GROOVING	SF	10,400
602	7000	SPECIAL SURFACE FINISH	SF	1,573
650	0704	OVERLAY CONCRETE	CY	54.3
650	0707	DECK CONCRETE	CY	2.6
650	0710	CLASS 1-H REMOVAL	SY	977.8
650	0720	CLASS 1 REMOVAL	SY	977.8
650	0723	CLASS 3 REMOVAL	SY	30
650	0724	CLASS 4 REMOVAL	SY	2
930	9639	APPROACH SLAB LIP REPAIR	LF	85.0

REGISTERED PROFESSIONAL ENGINEER
RYAN A. RYKOWSKY
PE-6691
DATE: 07/20/26
NORTH DAKOTA

SPECIAL PROVISIONS	
SP 294(24)	HYDRODEMO & DECK OVERLAY

I-94/ND 31 INTERCHANGE

BRIDGE LAYOUT

ND DEPARTMENT OF TRANSPORTATION
BRIDGE DIVISION

Jason Thorenson
07/21/26

Docusign Envelope ID: 948E135F-D47F-84A2-83CE-E12E5D36DCB7

NOTES

100 SCOPE OF WORK: Work at this site consists of approach lip repair, placing a deck overlay, removing and replacing approach slabs, crack sealing, and applying penetrating water repellent treatment.

100 ND COUNTRY FEST TIMING: See https://www.ndcountryfest.com for dates and times for the ND Country Fest which will bring high volumes of traffic into the work area. Lane closures will not be permitted from July 6 through July 11.

602 CONCRETE BRIDGE APPROACH SLABS: Survey the elevation of the approach pavement prior to conducting removals. Construct the new approach panels to proper crown and grade to maintain adequate drainage of the bridge and approaches.

602 WATER WASHING EQUIPMENT: In addition to the water-washing equipment listed in Section 602.02 D, a cold water pressure washer that provides a minimum nozzle pressure of 3,000 psi may be used.

602 BRIDGE DECK GROOVING: Perform bridge deck and approach slab grooving in accordance with Section 602.04 D.3. Bridge deck and approach slab grooving will be paid separately.

602 PENETRATING WATER REPELLENT TREATMENT: Apply penetrating water repellent solution to the top of the bridge deck overlay and approach slabs. Apply penetrating water repellent to the approach slab surfaces after the approach slabs have been in place for 14 days. Do not apply crack sealant, pavement marking, or allow traffic until the solution has completely penetrated and the entire driving surface is dry.

602 CRACK SEALING: After the penetrating water repellent has been applied and is dry, the Engineer will perform a visual inspection of the bridge deck overlay and approach slabs to determine the need for crack sealing. Mark and repair all visible cracks appearing on the top surface 0.012" or greater in width at its widest segment or as directed by the Engineer.

Immediately before applying the sealer, clean the cracks by removing all dust and debris with compressed air. Seal the cracks with a two-part epoxy in accordance with the manufacturer's recommendations. Chase crack with the sealant application to limits of crack, including those portions that are narrower than 0.012" wide. Use Paulco TE-2501 (Viking Paints, Inc.), Dural 50 LM (Euclid Chemical Co.), TK-9000 or TK-2110 (TK Products), or an approved equal epoxy sealer.

Include all labor, equipment, and materials associated with the bridge deck crack sealing in the bid item “Overlay Concrete,” and all costs to seal the approach slabs in the price bid for "Bridge Approach Slab-Remove & Replace."

602 SPECIAL SURFACE FINISH: Clean the surfaces that are to receive the Tex-Cote surface finish using sandblasting, shot blasting, or water-washing equipment to remove all dirt, grease, oil, efflorescence, and laitance. Ensure any curing compounds and release agents have been completely removed from the surfaces to receive the Tex-Cote surface finish.

Apply Tex-Cote XL 70 Bridge Cote with Silane to the inside and top surfaces of the new and existing concrete barriers. Apply the surface finish in accordance with the manufacturer’s recommended application procedures to attain a dry film thickness of 15 mils.

Finish the surface with a uniform texture, color, and appearance free from fins, projections, cavities, and porous areas. Use a “sand” textured finish. Use gray surface finish color number 36424 meeting AMS-STD-595.

650 CLASS 4 REMOVAL: Provide protective shielding beneath the bridge deck in areas requiring Class 4 repair work to protect the area beneath the bridge from falling debris and material. Include the cost for protective shielding in the cost for “Class 4 Removal”.

650 OVERLAY CONCRETE: An additional ½” depth of overlay concrete was included in the overlay concrete quantity to account for the irregular surface profile from hydrodemolition.

REGISTERED PROFESSIONAL ENGINEER
RYAN A. RYKOWSKY
PE-9691
DATE 07/20/26
NORTH DAKOTA

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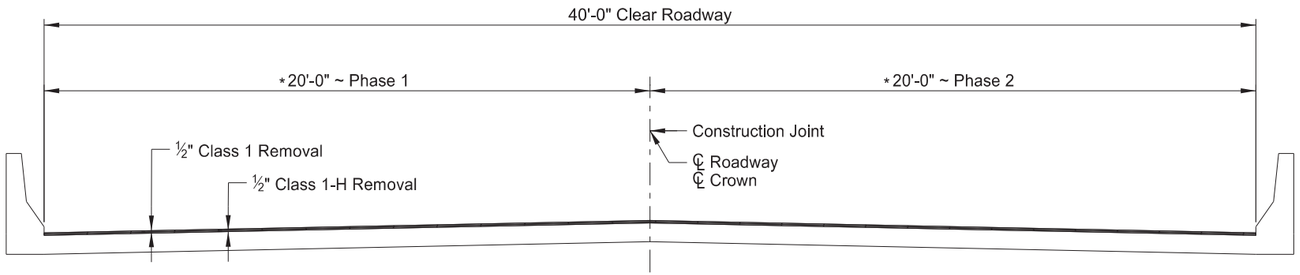
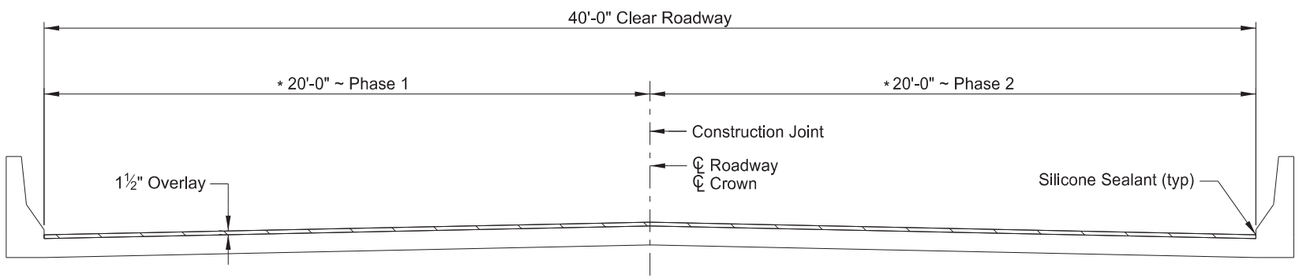
23 U.S.C. 407
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	170	3



(SHOWING REMOVAL)

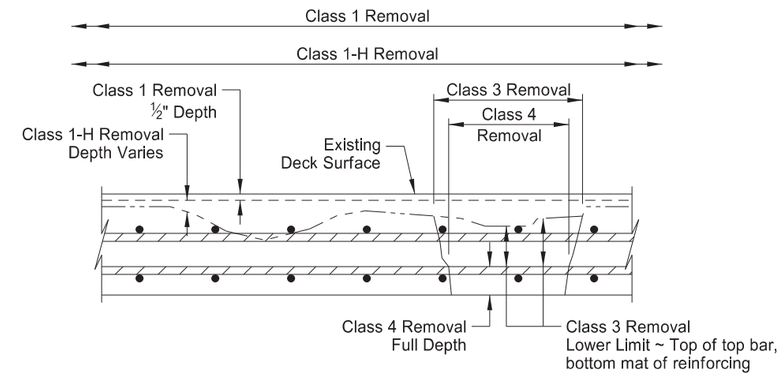
TYPICAL DECK SECTION



(SHOWING OVERLAY)

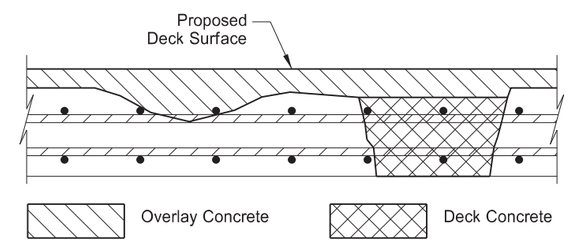
TYPICAL DECK SECTION

* Match existing deck cross slope.



(SHOWING REMOVALS)

EXISTING BRIDGE DECK SECTION



(SHOWING DECK & OVERLAY CONCRETE)

PROPOSED BRIDGE DECK SECTION

QUANTITIES	
OVERLAY CONCRETE	54.3 CY
DECK CONCRETE	2.6 CY
CLASS 1-H REMOVAL	977.8 SY
CLASS 1 REMOVAL	977.8 SY
CLASS 3 REMOVAL	30 SY
CLASS 4 REMOVAL	2 SY

REGISTERED PROFESSIONAL ENGINEER
RYAN A. RYKOWSKY
PE-6691
DATE: 07/20/26
NORTH DAKOTA

I-94/ND 31 INTERCHANGE

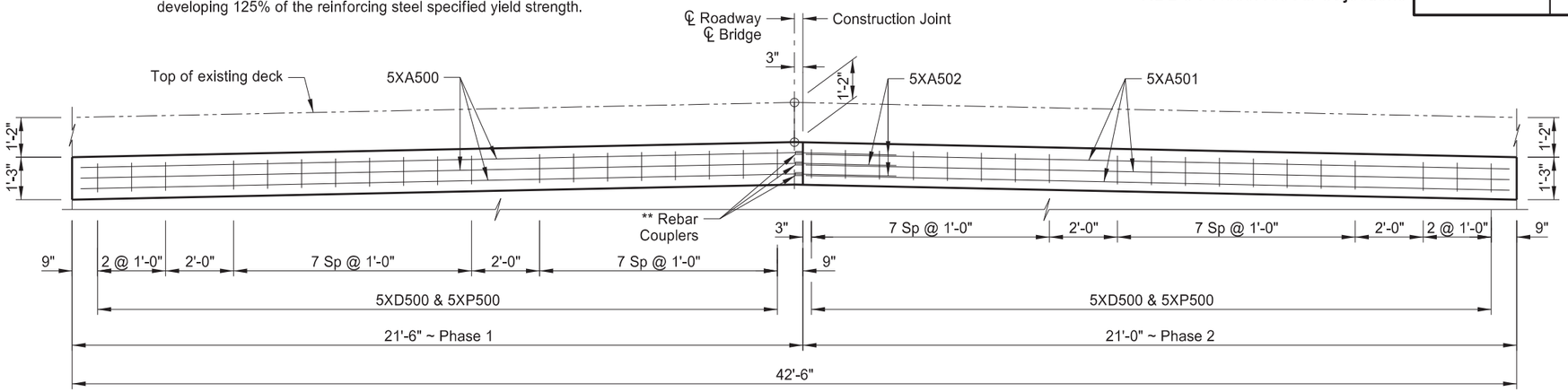
DECK OVERLAY DETAILS

Docusign Envelope ID: 948E135F-D47F-84A2-83CE-E12E5D36DCB7

23 U.S.C. 407
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	170	4

** Use approved mechanical connectors for the couplers capable of developing 125% of the reinforcing steel specified yield strength.



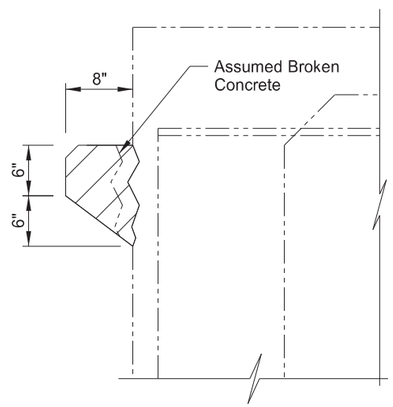
(SHOWING ONLY NEW REINFORCING)
ELEVATION

Hatched area indicates concrete to be removed.

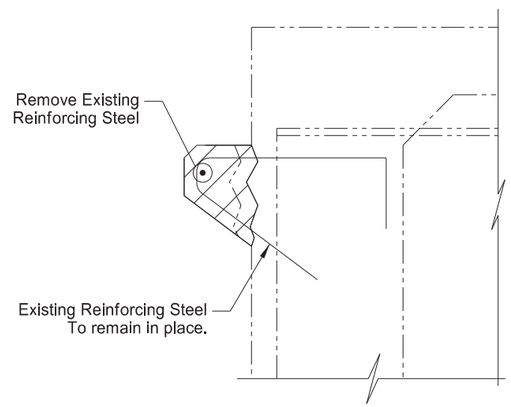
SKEW ANGLE = 0°			
BAR LIST - ONE APPROACH LIP			
SIZE	MARK	NO.	LENGTH
5	XA500	3	21'-1"
5	XA501	3	20'-9"
5	XA502	3	3'-0"
5	XD500	38	*1'-8"
5	XP500	38	*3'-0"

ESTIMATED MATERIAL QUANTITIES

REINFORCING STEEL (LBS)	CONCRETE (CY)
325	1.5



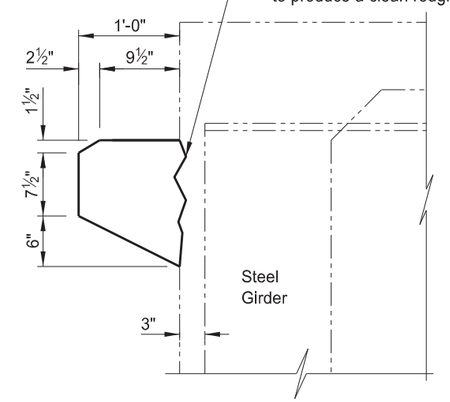
(SHOWING DIMENSIONS)



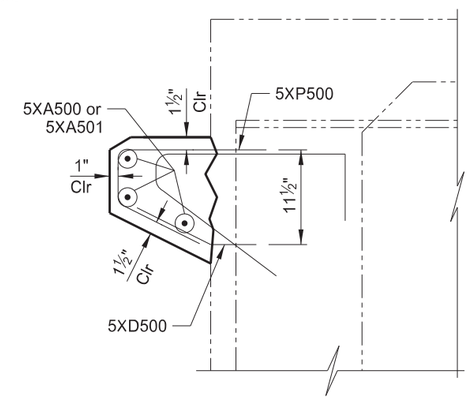
(SHOWING REINFORCING)

EXISTING APPROACH SLAB LIP

Bush Hammer Finish: Before any concrete is placed against the existing concrete, prepare the surface with a bush hammer to produce a clean rough finish.

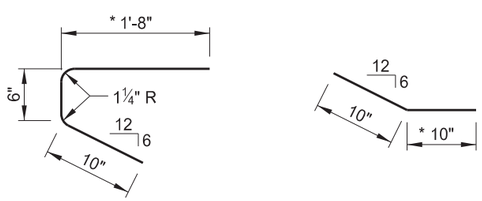


(SHOWING DIMENSIONS)



(SHOWING REINFORCING)

NEW APPROACH SLAB LIP



XP500 XD500

(DIMENSIONS SHOWN ARE OUT TO OUT)

BENT BAR DETAILS

* Length may vary depending on manufacturer's recommendations for anchorage. Provide a minimum anchorage length of 9 inches.

NOTES:

Provide Class AAE-3 concrete that meets Section 602.03 B and Grade 60 reinforcing steel that meets Section 612. Provide a mix that will attain a compressive strength of 4,000 psi at 28 days. Use a curing period of at least five days.

Install the 5XD500 and 5XP500 bars according to the manufacturer's recommendations with a high strength adhesive specifically intended for concrete anchorage (16k min. ultimate pullout) that meets the requirements of Section 806.02.

The estimated material quantities shown are for informational purposes only. Include all excavation and backfilling, labor, equipment, and materials required to remove the existing approach lip and to build the new approach lip in the bid item "Approach Slab Lip Repair."

The bar marks beginning with an "X" indicate an epoxy coated bar.

REGISTERED PROFESSIONAL ENGINEER
RYAN A. RYKOWSKY
PE-6691
DATE 07/20/26
NORTH DAKOTA

QUANTITIES	(ONE APPROACH LIP)
APPROACH SLAB LIP REPAIR	42.5 LF

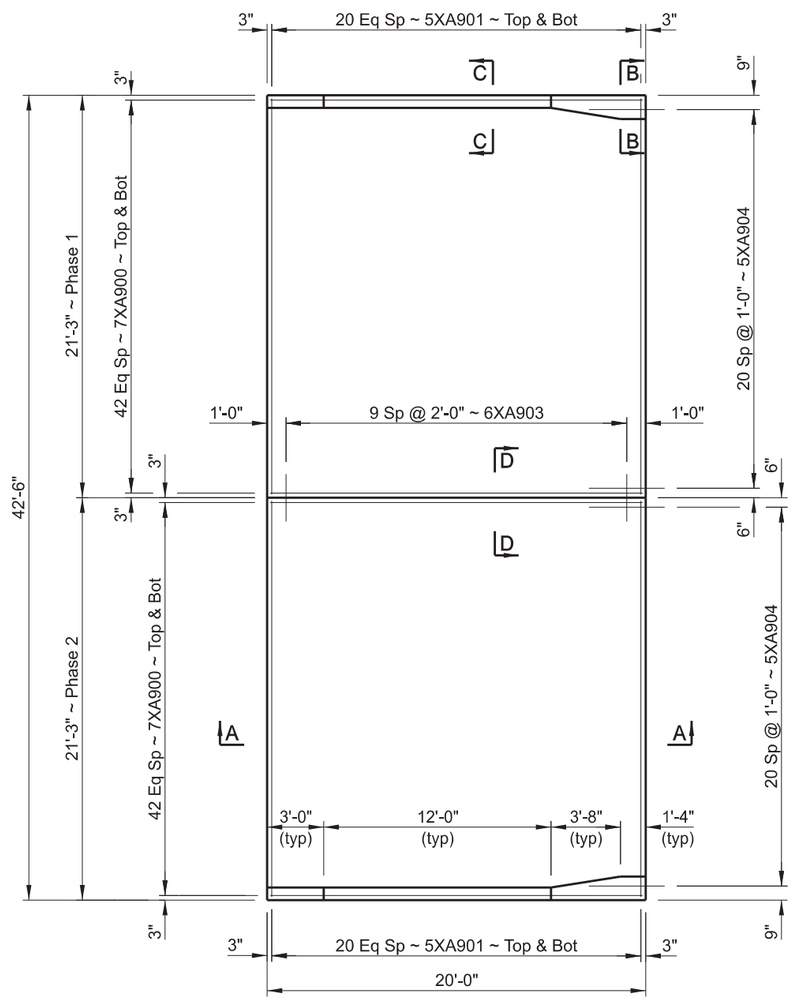
I-94/ND 31 INTERCHANGE

APPROACH SLAB LIP REPAIR DETAILS

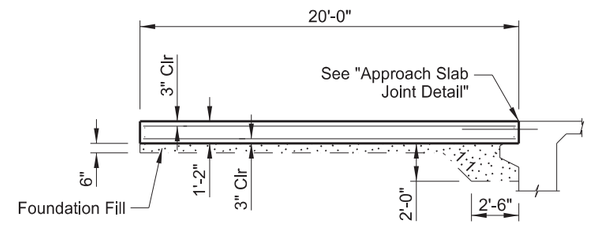
Docusign Envelope ID: 948E135F-D47F-84A2-83CE-E12E5D36DCB7

23 U.S.C. 407
NDDOT Reserves All Objections

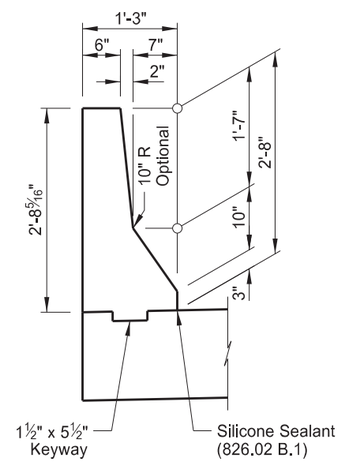
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	170	5



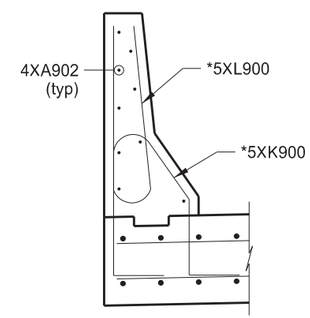
PLAN



A-A



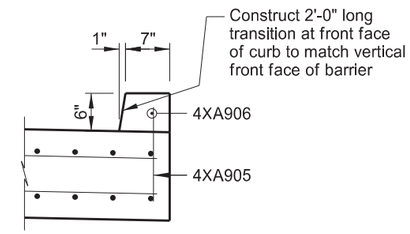
SHOWING DIMENSIONS



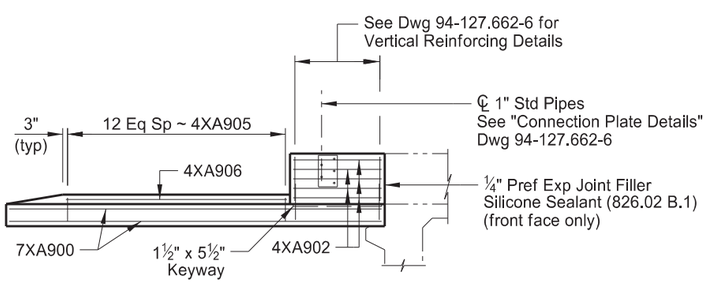
* Provide a 1½" clearance to the barrier reinforcing.

SHOWING REINFORCING

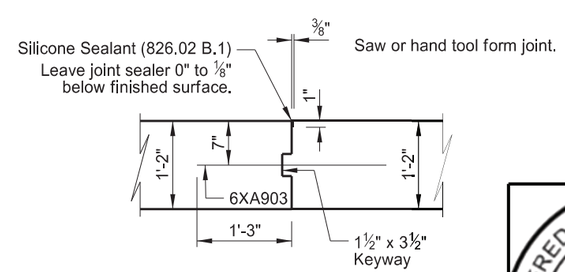
B-B



C-C



ELEVATION



D-D

REGISTERED PROFESSIONAL ENGINEER
RYAN A. RYKOWSKY
PE-6691
DATE 07/20/26
NORTH DAKOTA

QUANTITIES
SEE DWG 94-127.662-6

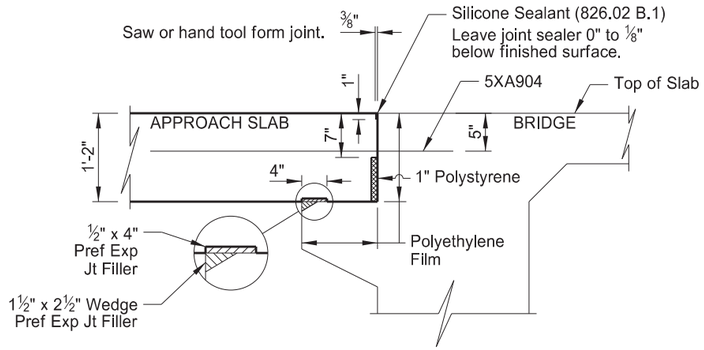
I-94/ND 31 INTERCHANGE

APPROACH SLAB DETAILS

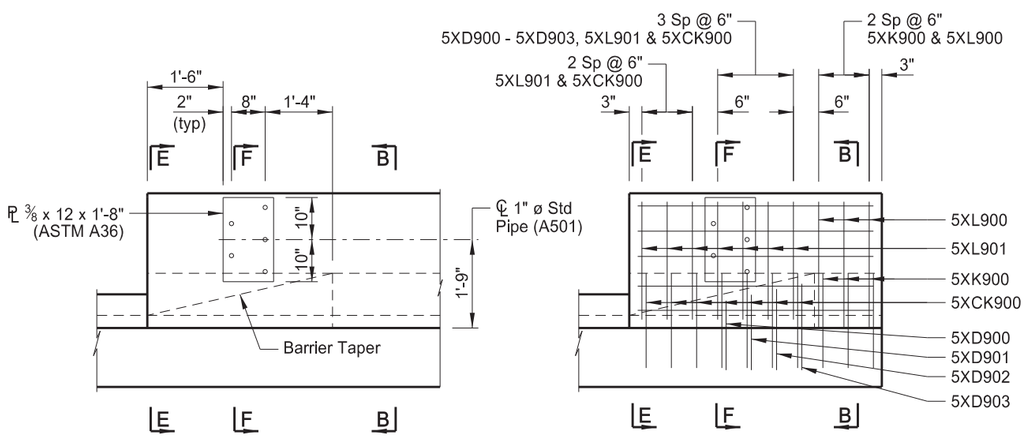
Docusign Envelope ID: 948E135F-D47F-84A2-83CE-E12E5D36DCB7

23 U.S.C. 407
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	170	6



APPROACH SLAB JOINT DETAIL

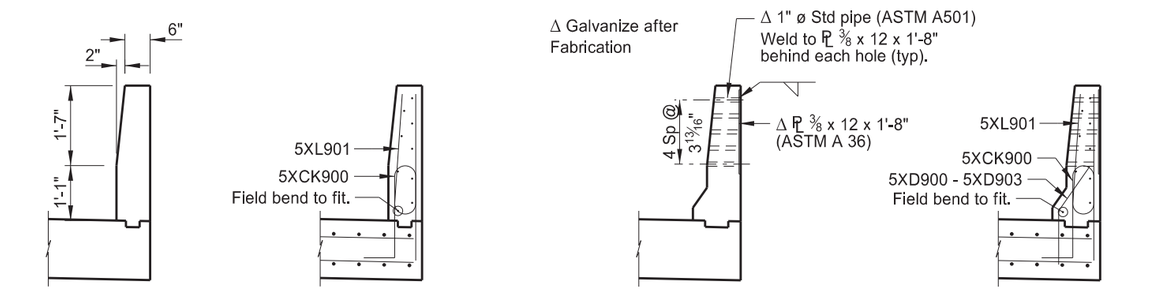


SHOWING DIMENSIONS

SHOWING REINFORCING

(SHOWING BACK FACE & JERSEY BARRIER TRANSITION)

CONNECTION PLATE DETAILS



SHOWING DIMENSIONS

SHOWING REINFORCING

E-E

SHOWING CONNECTION PLATE

SHOWING REINFORCING

F-F

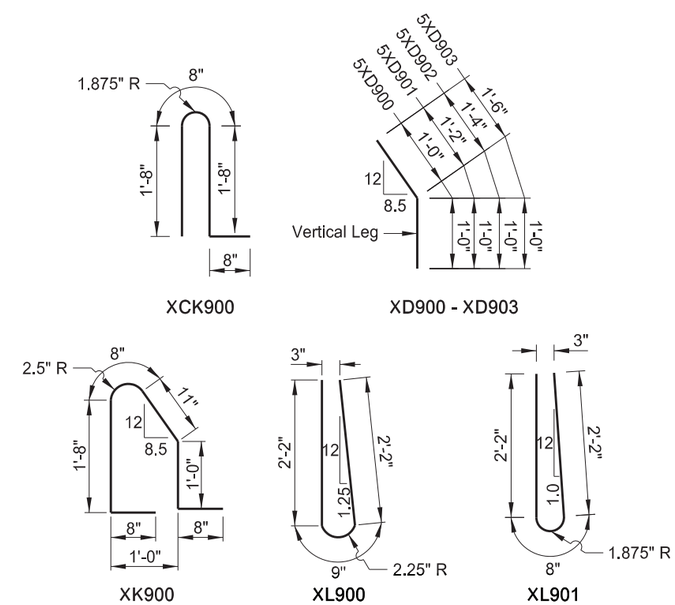
NOTES:

The estimated material quantities shown are for information purposes only. Include the concrete, reinforcing bars, polyethylene film, preformed joint filler, polystyrene, silicone sealant, connection plates and pipes, foundation fill, and labor required to build the approach slabs and barriers in the pay item "Bridge Approach Slab-Remove & Replace." Use Class AAE-3 concrete and Grade 60 reinforcing steel. Provide a mix that will attain a compressive strength of 4,000 at 28 days. Use a curing period of at least five days. Provide reinforcing steel that meets the requirements of Section 612. Use polyethylene film that meets the requirements of ASTM C171.

The bar marks beginning with an "X" indicate an epoxy coated bar. The dimensions shown in the "Bent Bar Details" are out to out. Radius values shown indicate the inside bend radius.

Install 5XA904 bars according to manufacturer's recommendation, with a high strength adhesive specifically intended for concrete anchorage (16k min. ultimate pullout) and that meets the requirements of Section 806.02. Provide a minimum anchorage length of 1 foot.

See Dwg 94-127.662-5 for Section B-B.



BENT BAR DETAILS

SKEW ANGLE = 0°

BAR LIST - ONE SLAB

SIZE	MARK	NO.	LENGTH
7	XA900	172	19'-8"
5	XA901	84	20'-11"
4	XA902	18	4'-8"
6	XA903	10	2'-6"
5	XA904	42	*4'-0"
4	XA905	26	1'-3"
4	XA906	2	11'-8"
5	XCK900	14	4'-8"
5	XD900	2	2'-0"
5	XD901	2	2'-2"
5	XD902	2	2'-4"
5	XD903	2	2'-6"
5	XK900	6	5'-7"
5	XL900	6	5'-1"
5	XL901	14	5'-0"

ESTIMATED MATERIAL QUANTITIES

REINFORCING STEEL (LBS)	CONCRETE (CY)
9,280	37.7

* Length may vary depending on manufacturer's recommendations for anchorage. Length based on 1 foot minimum anchorage length.

REGISTERED PROFESSIONAL ENGINEER
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PE-6691
DATE 07/20/26
NORTH DAKOTA

QUANTITIES	(ONE SLAB)
APPROACH SLAB	94.4 SY

I-94/ND 31 INTERCHANGE

APPROACH SLAB DETAILS

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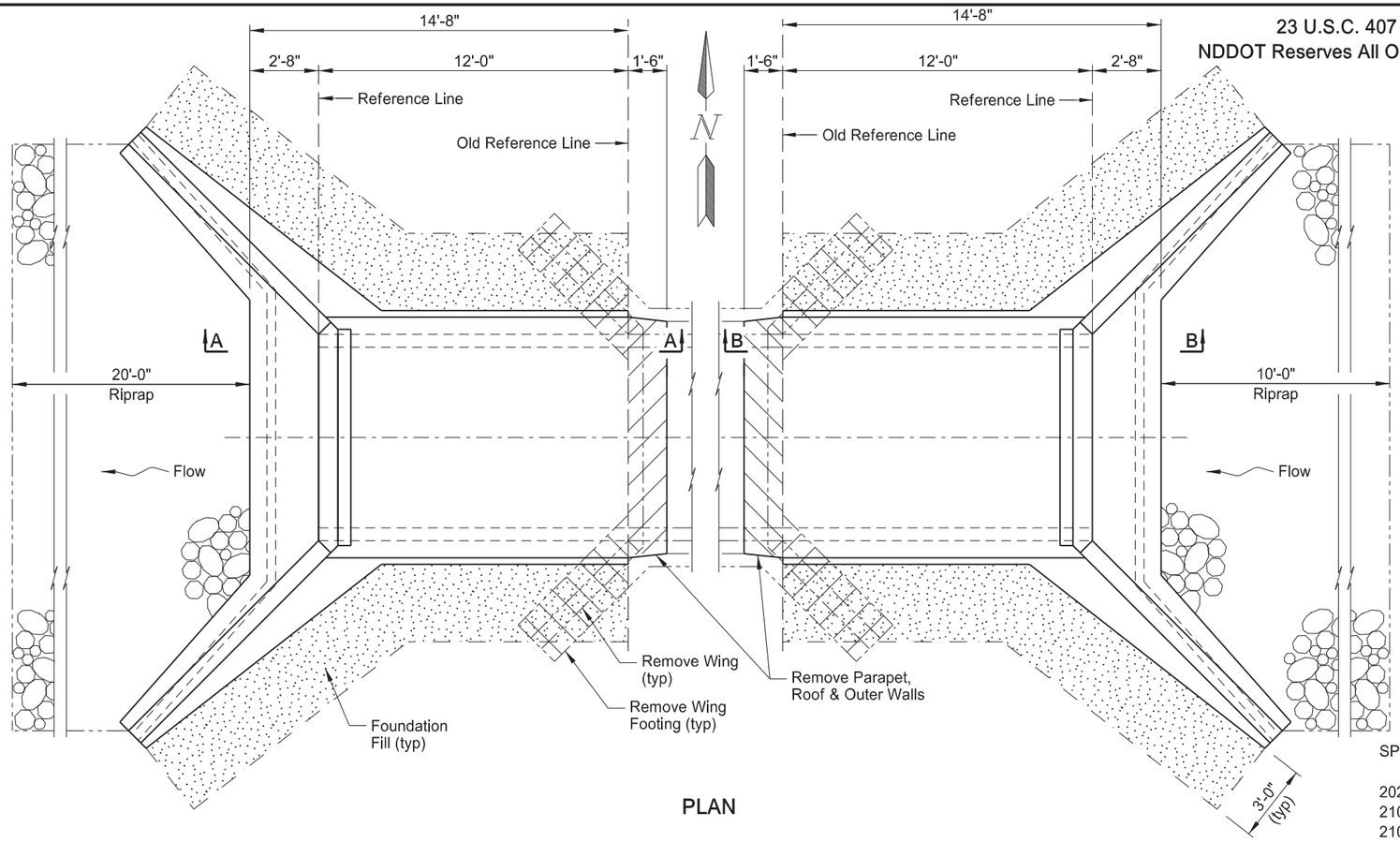
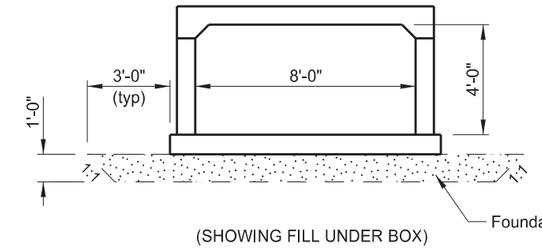
23 U.S.C. 407
NDDOT Reserves All Objections

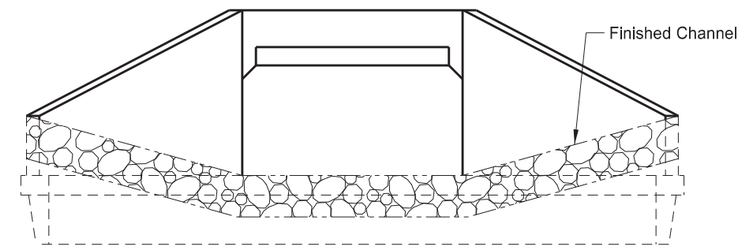
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	170	7



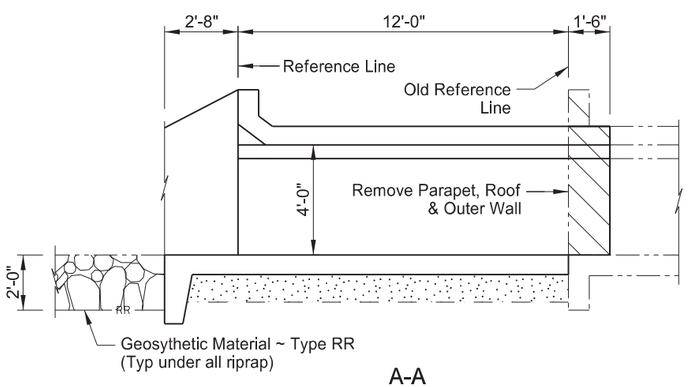
PLAN



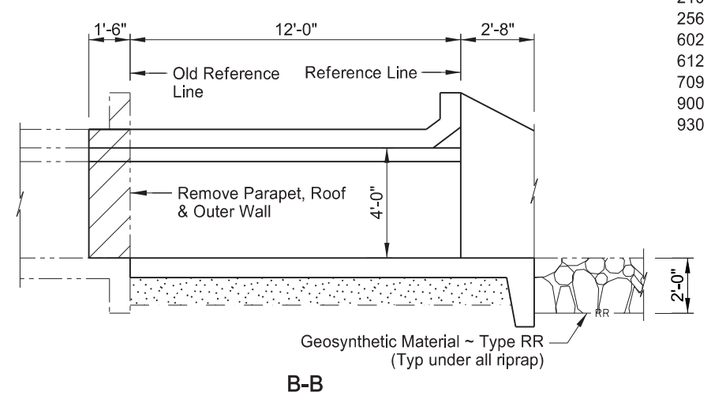
(SHOWING FILL UNDER BOX)
SECTION



(SHOWING FINISHED SECTION)
END VIEW



A-A



B-B

BOX CULVERT BID ITEMS

SPEC	CODE	ITEM DESCRIPTION	UNIT	QUANTITY
202	0101	REMOVAL OF CONCRETE	EA	1
210	0050	BOX CULVERT EXCAVATION	EA	1
210	0210	FOUNDATION FILL	CY	30
210	0405	FOUNDATION PREPARATION-BOX CULVERT	EA	1
256	0200	RIPRAP GRADE II	CY	50
602	1131	CLASS AE-3 CONCRETE-BOX CULVERT	CY	29.2
612	0114	REINFORCING STEEL-GRADE 60-BOX CULVERT	LBS	4,603
709	0155	GEOSYNTHETIC MATERIAL TYPE RR	SY	70
900	1000	TEMPORARY STREAM DIVERSION	EA	1
930	9612	SPALL REPAIR	SF	18

SPECIAL PROVISIONS

SSP 2	MIGRATORY BIRD TREATY ACT
SP 228(24)	TEMPORARY WATER DIVERSION
SP 278(24)	CONCRETE SPALL REPAIR

HL-93 DESIGN LOADING

1 NORTH OF I-94
CREEK

CLEAR SPAN 1 x 8' CLEAR HEIGHT 4'
MAXIMUM FILL 12' STATION 4189+34.72

REINFORCED CONCRETE SINGLE
BOX CULVERT EXTENSION LAYOUT

DESIGN STRENGTHS:

f'c = 3,000 psi ~ Class AE-3 Concrete
fy = 60,000 psi ~ Reinforcing Steel

Load & Resistance Factor Design

NOTE:

Provide a 1'-0" minimum depth of foundation fill under the floor. Remove and replace all unsound material under the box extension with foundation fill. The Engineer will determine the depth required.

REGISTERED PROFESSIONAL ENGINEER
RYAN A. RYKOWSKY
PE-6691
DATE: 07/20/26
NORTH DAKOTA

ND DEPARTMENT OF TRANSPORTATION
BRIDGE DIVISION

Jason Thorenson
07/21/26

Docusign Envelope ID: 948E135F-D47F-84A2-83CE-E12E5D36DCB7

NOTES

100 SCOPE OF WORK: Work at this site consists of extending a single 8' x 4' reinforced concrete box culvert 12'-0" on west end and 12'-0" on the east end; and repairing spalls.

202 REMOVAL OF CONCRETE: Remove portions of existing culvert end where extension is to be attached. Remove 1'-6" of existing concrete to expose the existing reinforcing steel at the parapet, roof, and outside walls at the vertical junction with the wing. Remove existing wing walls in entirety. Cut rebar protruding from the floor under the wing walls flush with the top surface of the floor. Leave existing floor and cutoff walls in place except as shown.

602 CLASS AE-3 CONCRETE: Cast the following elements of each section in one continuous run:

1. Floor slab and wing footings
2. Each sidewall up to the bottom of fillets with its adjacent wings complete to the top
3. Roof slab and parapets

Allow the concrete in the walls to set at least two hours before the roof slab is poured.

If the existing wall and roof thicknesses are different than the new thicknesses, align the inner surfaces and taper the exterior surfaces in the first 1'-6" of the barrel.

602 CURING CONCRETE: Wet cure all concrete surfaces not covered by forms. Cover the concrete with a double thickness of burlap. Maintain surface moisture between the final finish and placement of burlap by periodic applications of a light fog spray of water. Keep the burlap continuously moist until the end of the curing period.

602 WEATHER LIMITATIONS: All requests in accordance with 602.04 C.4 "Weather Limitations" require approval from the NDDOT Bridge Division.

612 REINFORCING STEEL: Place bolsters and bar supports for the roof steel at a maximum of 4 foot spacing.

900 TEMPORARY STREAM DIVERSION: It is anticipated that a temporary stream diversion will be required to complete the work at this site. Construct, maintain, and remove the temporary stream diversion in accordance with the Special Provision for Temporary Water Diversion.

Do not construct a temporary stream diversion if the Contractor and Engineer agree that no diversion is required at this site. No payment will be made for a temporary stream diversion at this site if the diversion is eliminated by agreement of Contractor and Engineer.

930 SPALL REPAIR: The box culvert roof at the west and east construction joints exhibits spalling at the locations shown in the "Spall Repair" table. The extents of repairs are approximations, the actual limits and number of repair locations are to be determined by the Engineer in the field. At the identified locations, remove all unsound concrete and replace it with new material to the original constructed section in accordance with the Concrete Spall Repair Special Provision. See supplemental bid information for photos. Include all labor, equipment and materials needed for these repairs in the bid item "Spall Repair."

SPALL REPAIR (SF)		
PHOTO	LOCATION	TOTAL (SF)
#1	WEST JOINT AT ROOF	12
#2	EAST JOINT AT ROOF	6

REGISTERED PROFESSIONAL ENGINEER
RYAN A. RYKOWSKY
PE-6691
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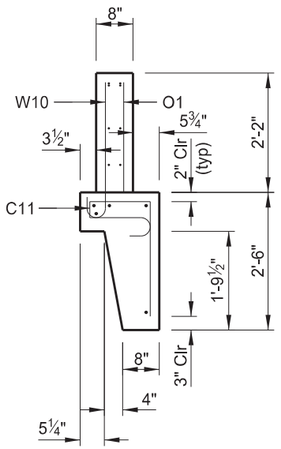
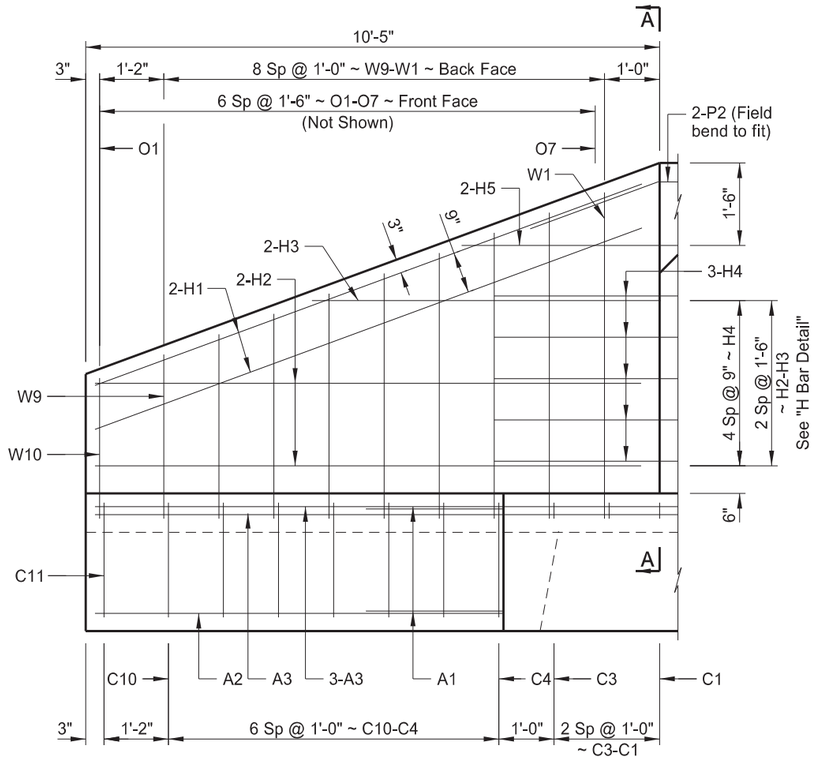
23 U.S.C. 407
NDDOT Reserves All Objections

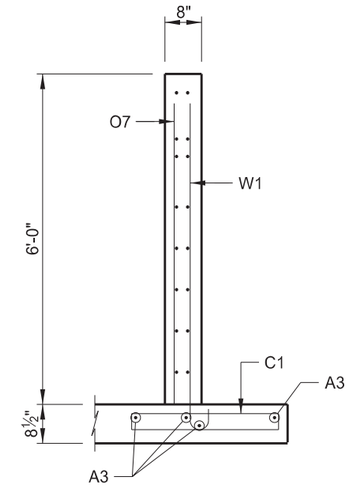
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	170	9



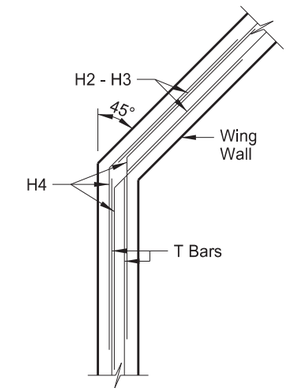
END VIEW



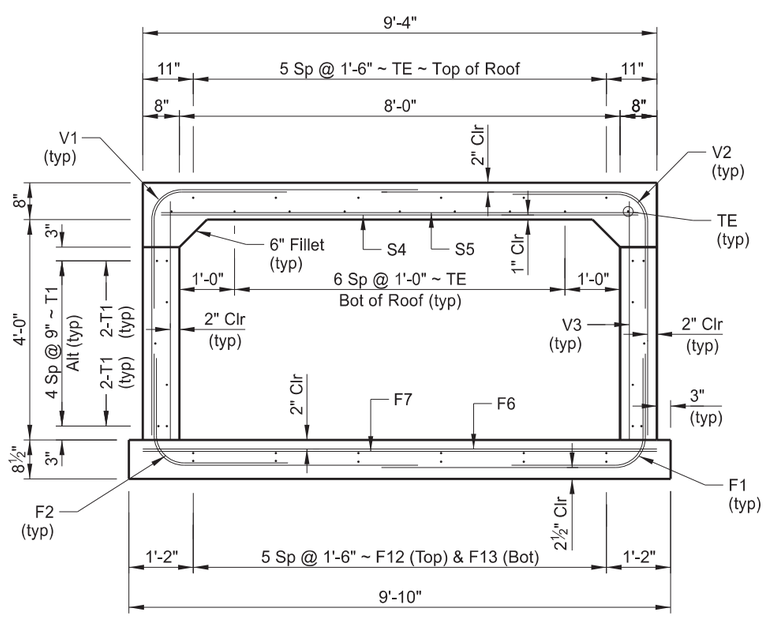
WING ELEVATION



A-A



H BAR DETAIL



SECTION OF BARREL

REGISTERED PROFESSIONAL ENGINEER
RYAN A. RYKOWSKY
PE-6691
DATE 07/20/26
NORTH DAKOTA

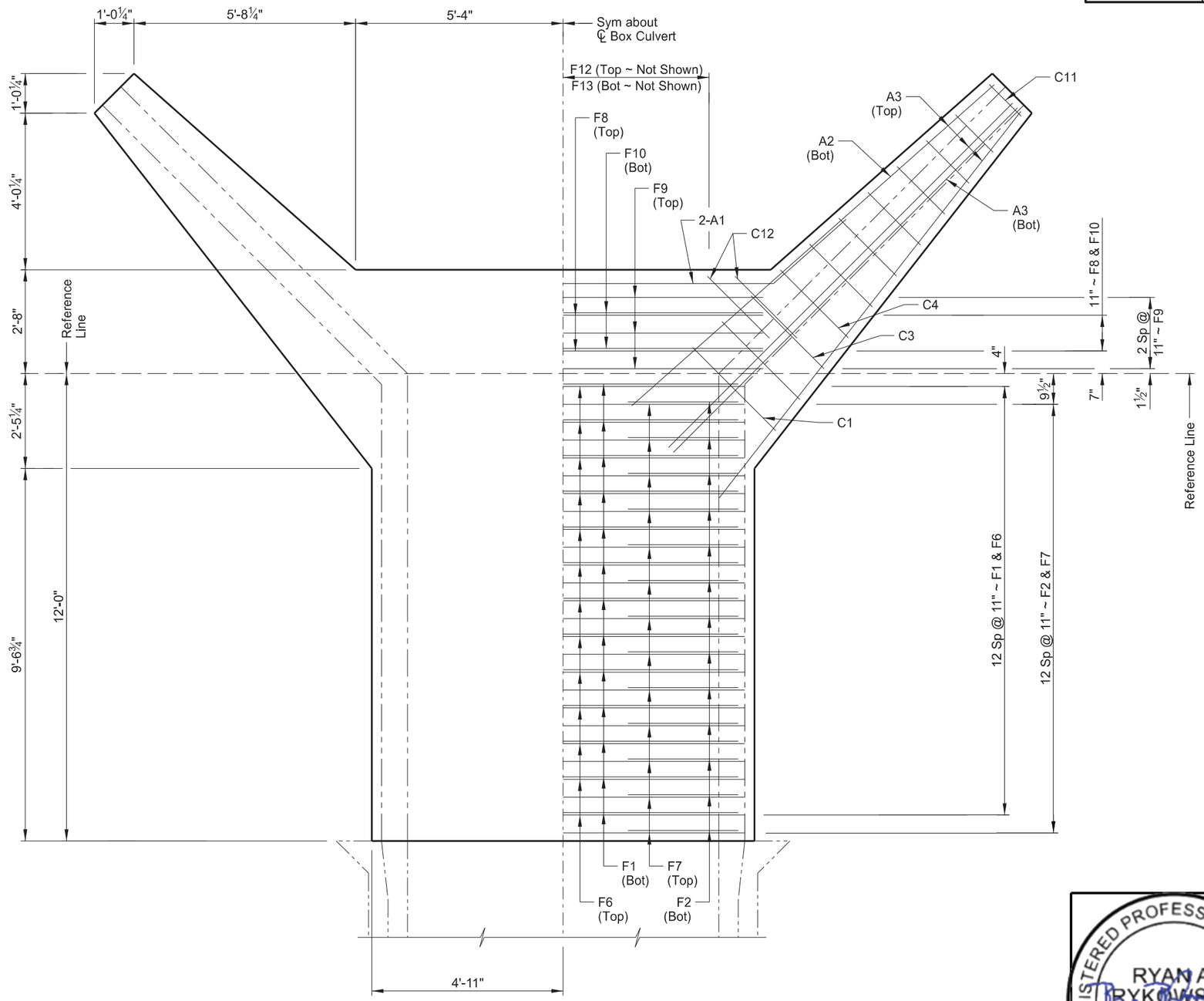
1 NORTH OF I-94
CREEK

BARREL SECTION & WING DETAILS

Docusign Envelope ID: 948E135F-D47F-84A2-83CE-E12E5D36DCB7

23 U.S.C. 407
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	170	10



(SHOWING DIMENSIONS) (SHOWING REINFORCING)

FLOOR PLAN

REGISTERED PROFESSIONAL ENGINEER
RYAN A. RYKOWSKY
PE-6691
DATE: 07/20/26
NORTH DAKOTA

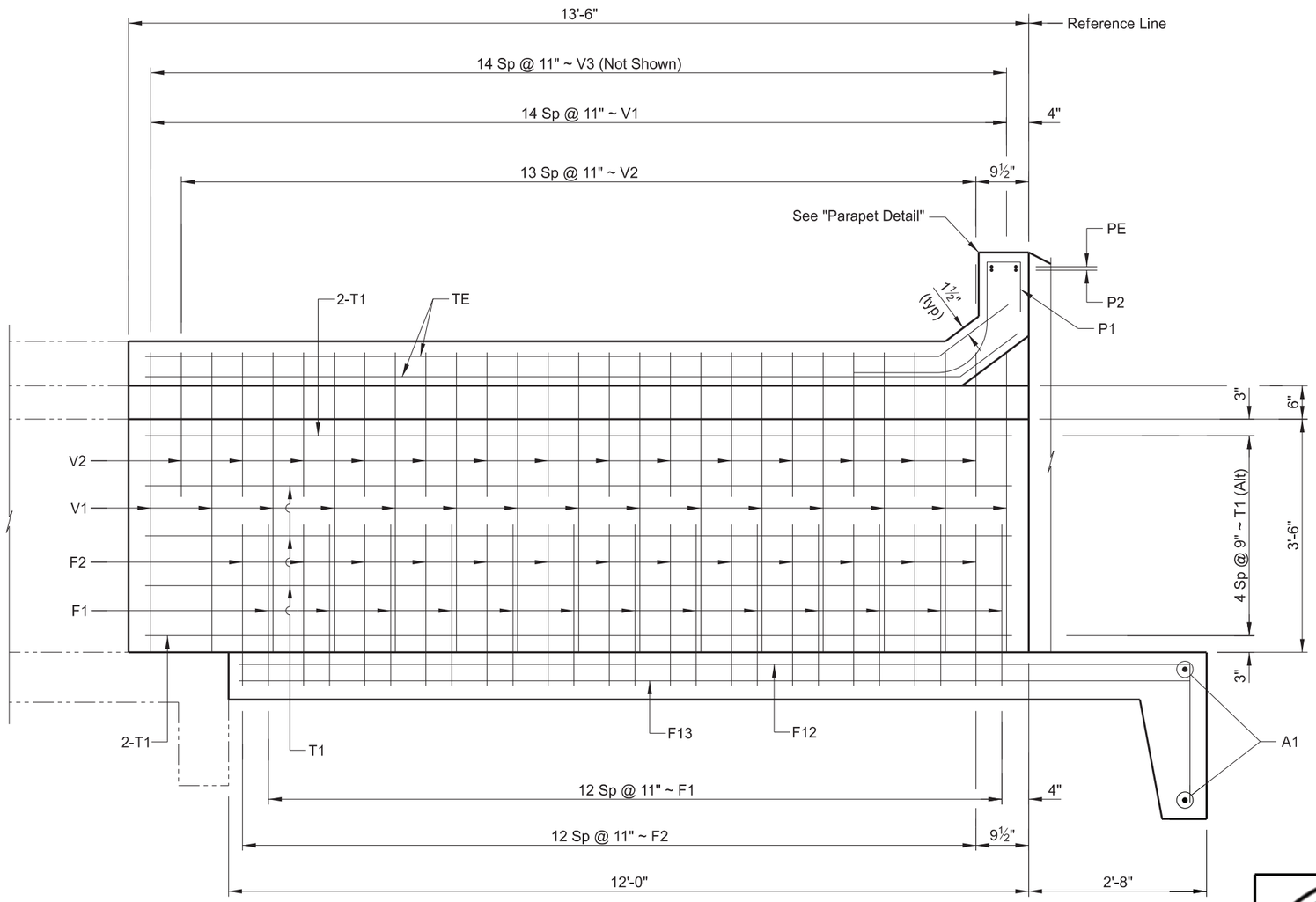
1 NORTH OF I-94
CREEK

FLOOR DETAIL

Docusign Envelope ID: 948E135F-D47F-84A2-83CE-E12E5D36DCB7

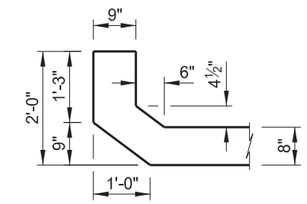
23 U.S.C. 407
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	170	11



OUTER WALL

LONGITUDINAL SECTION



PARAPET DETAIL

REGISTERED PROFESSIONAL ENGINEER
RYAN A. RYKOWSKY
PE-6691
DATE: 07/20/26
NORTH DAKOTA

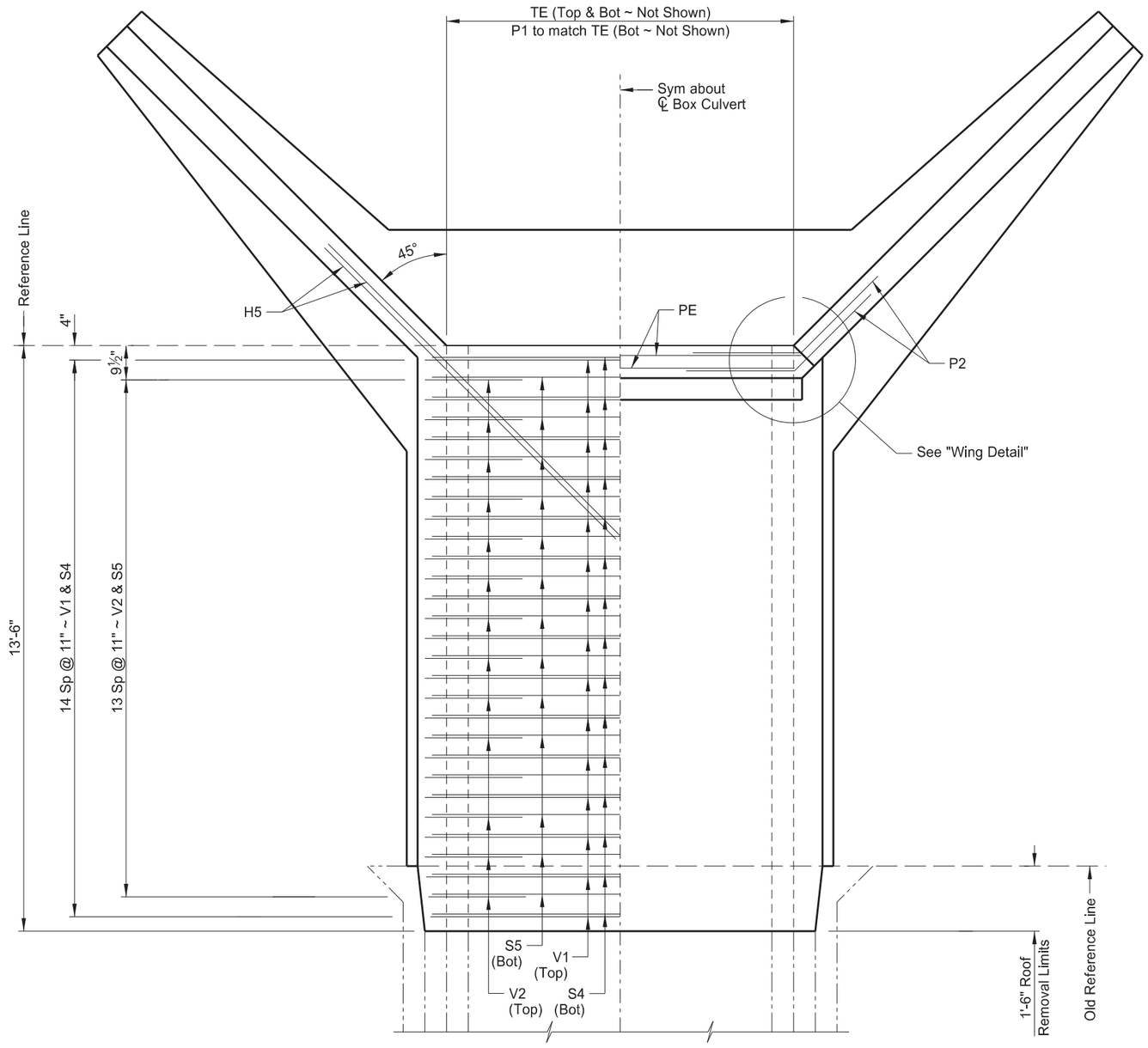
1 NORTH OF I-94
CREEK

WALL & PARAPET DETAILS

Docusign Envelope ID: 948E135F-D47F-84A2-83CE-E12E5D36DCB7

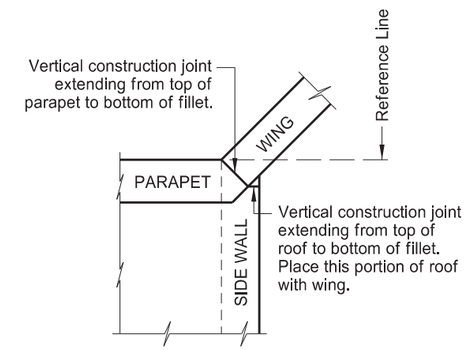
23 U.S.C. 407
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	170	12



(SHOWING ROOF REINFORCING) (SHOWING PARAPET REINFORCING)

ROOF PLAN



WING DETAIL

REGISTERED PROFESSIONAL ENGINEER
RYAN A. RYKOWSKY
PE-6691
DATE: 07/20/26
NORTH DAKOTA

1 NORTH OF I-94
CREEK

ROOF DETAILS

Docusign Envelope ID: 948E135F-D47F-84A2-83CE-E12E5D36DCB7

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	170	13

23 U.S.C. 407
NDDOT Reserves All Objections

BAR LIST (CONSTANT)

MARK	SIZE	NO.	LENGTH	SHAPE
W1	4	4	6'-5"	BENT
W2	4	4	6'-1"	BENT
W3	4	4	5'-8"	BENT
W4	4	4	5'-4"	BENT
W5	4	4	4'-11"	BENT
W6	4	4	4'-7"	BENT
W7	4	4	4'-3"	BENT
W8	4	4	3'-10"	BENT
W9	4	4	3'-6"	BENT
W10	4	4	3'-1"	BENT
C1	4	4	7'-2"	BENT
C2	4	4	6'-10"	BENT
C3	4	4	6'-6"	BENT
C4	4	4	7'-10"	BENT
C5	4	4	7'-4"	BENT
C6	4	4	7'-0"	BENT
C7	4	4	6'-8"	BENT
C8	4	4	6'-4"	BENT
C9	4	4	6'-0"	BENT
C10	4	4	5'-6"	BENT
C11	4	4	5'-0"	BENT
C12	4	8	4'-4"	BENT
H1	6	16	10'-7"	STR.
H2	4	16	9'-11"	STR.
H3	4	8	6'-1"	STR.
H4	4	60	6'-0"	BENT
H5	6	8	9'-5"	STR.
O1-O7	4	4 SETS	26'-3"	STR.
A1	6	8	8'-10"	BENT
A2	6	4	7'-7"	STR.
A3	6	16	11'-10"	STR.
P1	4	18	4'-7"	BENT
P2	6	8	5'-0"	BENT
PE	6	4	8'-0"	STR.
F8	5	4	12'-0"	STR.
F9	4	6	12'-0"	STR.
F10	4	4	12'-0"	STR.

BAR LIST (VARIABLE)

MARK	SIZE	NO.	LENGTH	SHAPE
V1	4	60	9'-3"	BENT
V2	4	56	4'-4"	BENT
V3	4	60	4'-4"	STR.
F1	4	52	7'-3"	BENT
F2	5	52	4'-9"	BENT
F6	5	26	9'-4"	STR.
F7	4	26	9'-4"	STR.
F12	4	12	16'-2"	BENT
F13	4	12	14'-2"	STR.
S4	4	30	8'-8"	STR.
S5	4	28	8'-8"	STR.
T1	4	28	13'-0"	STR.
TE	4	30	13'-0"	BENT

CONCRETE QUANTITIES (ONE END)

ENTIRE FLOOR	6.4 CY
TWO OUTSIDE WALLS & TWO WINGS	4.4 CY
ENTIRE ROOF	3.8 CY
TOTAL	14.6 CY

NOTES:

1. Verify the quantity, size, and shape of the bar reinforcement against the structure drawings and immediately notify the Engineer of any discrepancies. Discrepancies in the bar list will not be cause for adjustment of the contract unit price.
2. All dimensions are out to out of bars.
3. Nominal length of each bent bar or cut bar is the sum total of the detailing dimensions for that bar, unless otherwise noted.
4. The radius dimension in the "Bar Details" indicates the outside radius.

REGISTERED PROFESSIONAL ENGINEER
RYAN A. RYKOWSKY
PE-6691
DATE: 07/20/26
NORTH DAKOTA

QUANTITIES

CLASS AE-3 CONCRETE	29.2 CY
REINFORCING STEEL	4,603 LBS

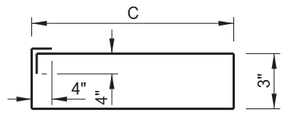
1 NORTH OF I-94
CREEK

REINFORCING BAR LIST

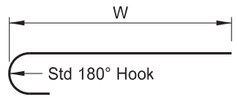
Docusign Envelope ID: 948E135F-D47F-84A2-83CE-E12E5D36DCB7

23 U.S.C. 407
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	170	14

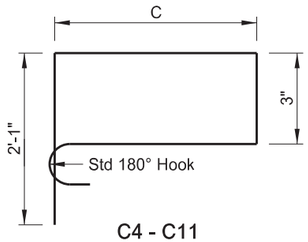


C1 - C3



W1 - W10

MARK	"W"
W1	5'- 11"
W2	5'- 7"
W3	5'- 2"
W4	4'- 10"
W5	4'- 5"
W6	4'- 1"
W7	3'- 9"
W8	3'- 4"
W9	3'- 0"
W10	2'- 7"



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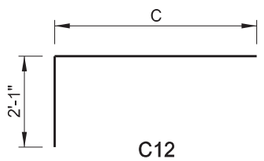
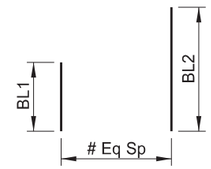


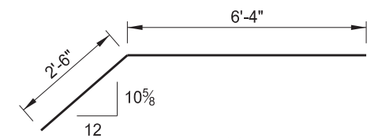
C12

MARK	"C"
C1	3'- 0"
C2	2'- 10"
C3	2'- 8"
C4	2'- 6"
C5	2'- 3"
C6	2'- 1"
C7	1'- 11"
C8	1'- 9"
C9	1'- 7"
C10	1'- 4"
C11	1'- 1"
C12	2'- 3"



MARK	LENGTH 1 SET	BL1	BL2	SPACES
O1-O7	26'-3"	2'-1"	5'-5"	6

STRAIGHT BAR SET DETAIL



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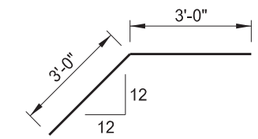

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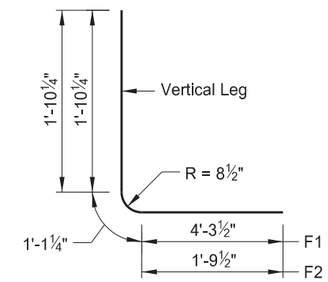
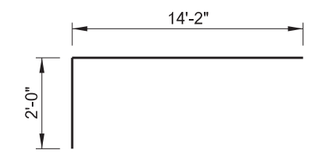
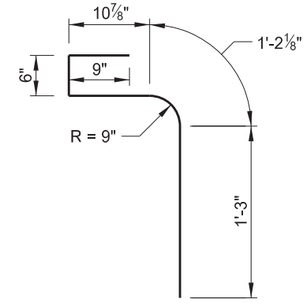


F1 & F2

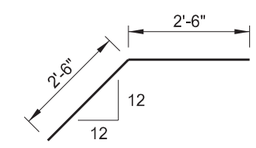


F12

TE



P1



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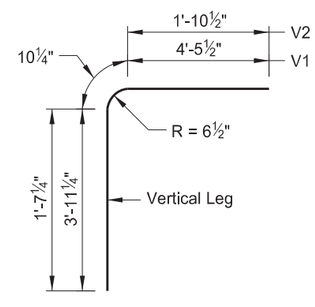

V1 & V2

REGISTERED PROFESSIONAL ENGINEER
RYAN A. RYKOWSKY
PE-6691
DATE: 07/20/26
NORTH DAKOTA

1 NORTH OF I-94
CREEK

BAR DETAILS

Docusign Envelope ID: 77D37DD3-8134-8132-8396-A973AD023345

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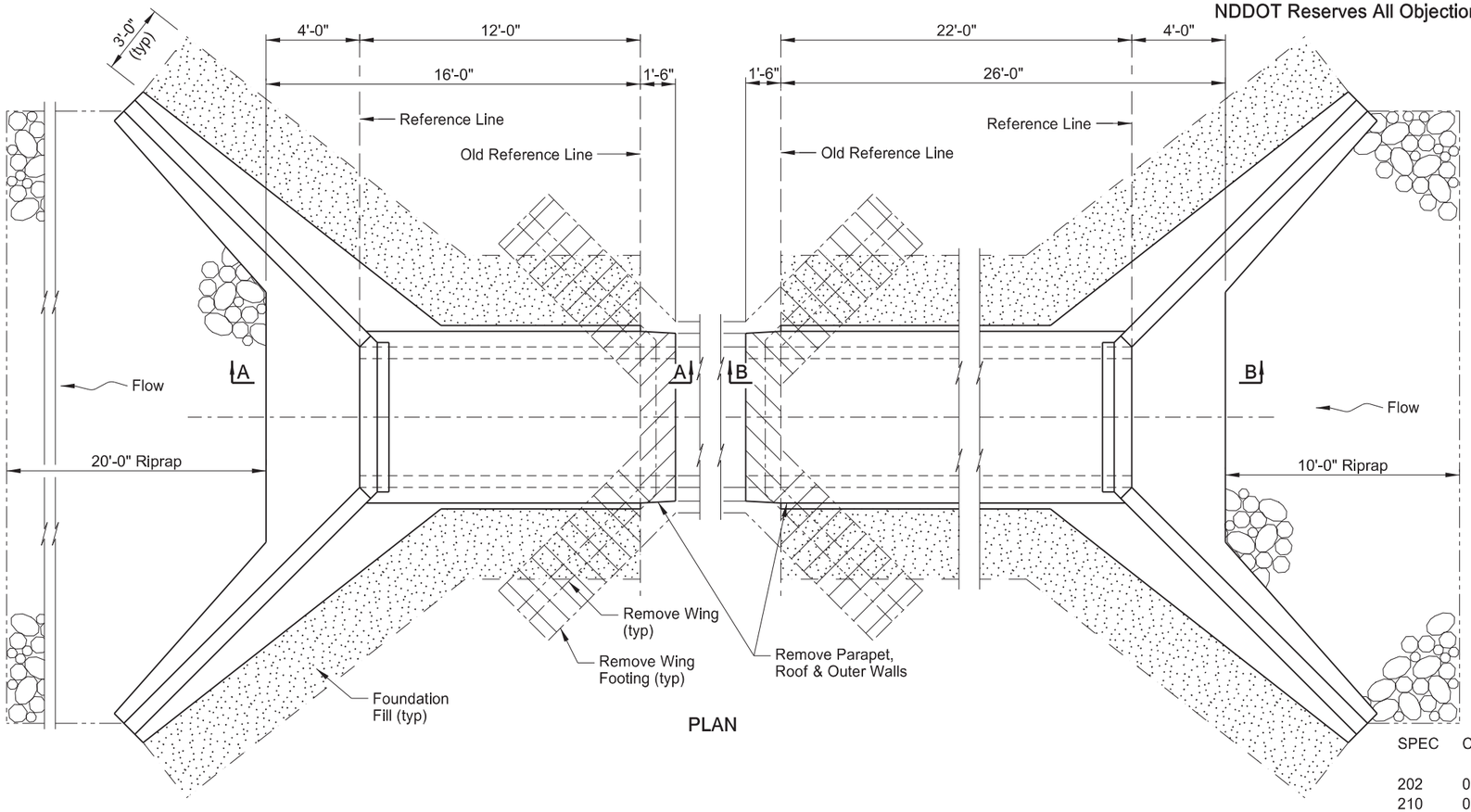
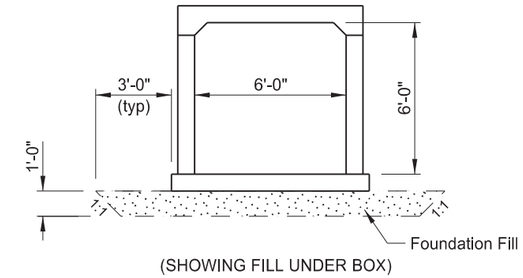
NDDOT Reserves All Objections

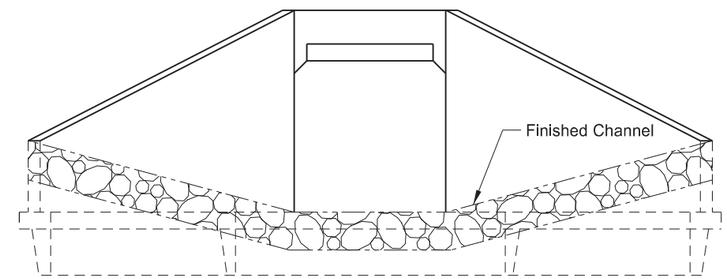
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	170	15



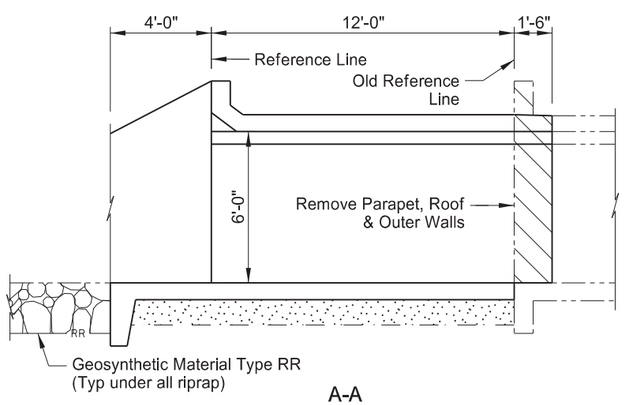
PLAN



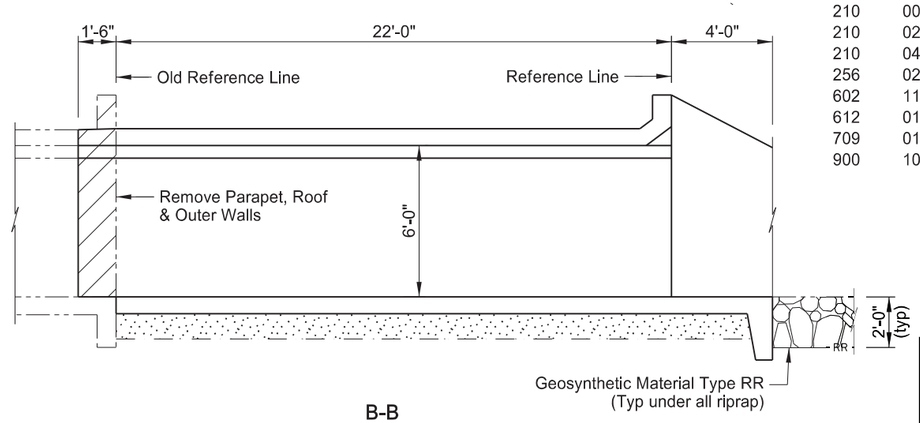
(SHOWING FILL UNDER BOX)
SECTION



(SHOWING FINISHED SECTION)
END VIEW



A-A



B-B

BOX CULVERT BID ITEMS

SPEC	CODE	ITEM DESCRIPTION	UNIT	QUANTITY
202	0101	REMOVAL OF CONCRETE	EA	1
210	0050	BOX CULVERT EXCAVATION	EA	1
210	0210	FOUNDATION FILL	CY	40
210	0405	FOUNDATION PREPARATION-BOX CULVERT	EA	1
256	0200	RIPRAP GRADE II	CY	55
602	1131	CLASS AE-3 CONCRETE-BOX CULVERT	CY	41.5
612	0114	REINFORCING STEEL-GRADE 60-BOX CULVERT	LBS	5,626
709	0155	GEOSYNTHETIC MATERIAL TYPE RR	SY	80
900	1000	TEMPORARY STREAM DIVERSION	EA	1

SPECIAL PROVISIONS

SSP 2	MIGRATORY BIRD TREATY ACT
SP 228(24)	TEMPORARY WATER DIVERSION

HL-93 DESIGN LOADING

2 NORTH OF I-94
CREEK

CLEAR SPAN 1 x 6' CLEAR HEIGHT 6'
MAXIMUM FILL 8' STATION 4227+21.67

REINFORCED CONCRETE SINGLE
BOX CULVERT EXTENSION LAYOUT

NOTE:

Provide a 1'-0" minimum depth of foundation fill under the floor. Remove and replace all unsound material under the box extension with foundation fill. The Engineer will determine the depth required.

DESIGN STRENGTHS:

f'c = 3,000 psi ~ Class AE-3 Concrete
fy = 60,000 psi ~ Reinforcing Steel

Load & Resistance Factor Design

REGISTERED PROFESSIONAL ENGINEER
RYAN A. RYKOWSKY
PE-6691
DATE 07/20/26
NORTH DAKOTA

ND DEPARTMENT OF TRANSPORTATION
BRIDGE DIVISION

Jason Thorenson
07/21/26

Docusign Envelope ID: 77D37DD3-8134-8132-8396-A973AD023345

NOTES

100 SCOPE OF WORK: Work at this site consists of extending a single 6' x 6' reinforced concrete box culvert 12'-0" on west end and 22'-0" on the east end.

202 REMOVAL OF CONCRETE: Remove portions of existing culvert end where extension is to be attached. Remove 1'-6" of existing concrete to expose the existing reinforcing steel at the parapet, roof, and outside walls at the vertical junction with the wing. Remove existing wing walls in entirety. Cut rebar protruding from the floor under the wing walls flush with the top surface of the floor. Leave existing floor and cutoff walls in place except as shown.

602 CLASS AE-3 CONCRETE: Cast the following elements of each section in one continuous run:

1. Floor slab and wing footings
2. Each sidewall up to the bottom of fillets with its adjacent wings complete to the top
3. Roof slab and parapets

Allow the concrete in the walls to set at least two hours before the roof slab is poured.

If the existing wall and roof thicknesses are different than the new thicknesses, align the inner surfaces and taper the exterior surfaces in the first 1'-6" of the barrel.

602 CURING CONCRETE: Wet cure all concrete surfaces not covered by forms. Cover the concrete with a double thickness of burlap. Maintain surface moisture between the final finish and placement of burlap by periodic applications of a light fog spray of water. Keep the burlap continuously moist until the end of the curing period.

602 WEATHER LIMITATIONS: All requests in accordance with 602.04 C.4 “Weather Limitations” require approval from the NDDOT Bridge Division.

612 REINFORCING STEEL: Place bolsters and bar supports for the roof steel at a maximum of 4 foot spacing.

900 TEMPORARY STREAM DIVERSION: It is anticipated that a temporary stream diversion will be required to complete the work at this site. Construct, maintain, and remove the temporary stream diversion in accordance with the Special Provision for Temporary Water Diversion.

Do not construct a temporary stream diversion if the Contractor and Engineer agree that no diversion is required at this site. No payment will be made for a temporary stream diversion at this site if the diversion is eliminated by agreement of Contractor and Engineer.

REGISTERED PROFESSIONAL ENGINEER
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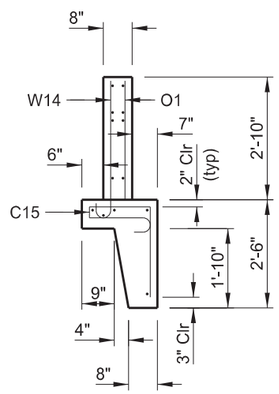
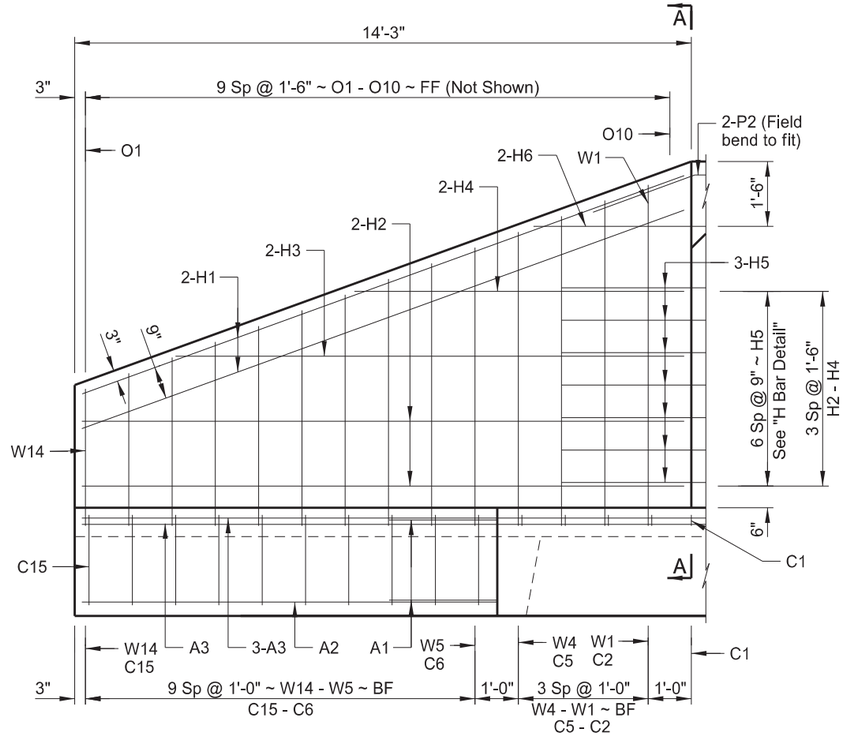
23 U.S.C. 407
NDDOT Reserves All Objections

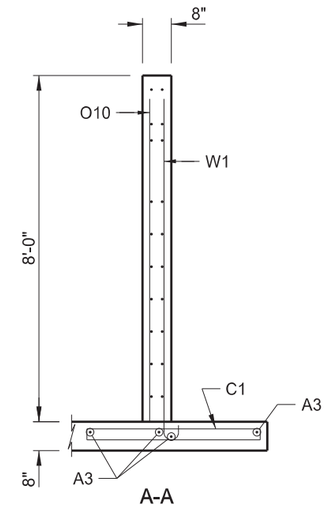
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	170	17



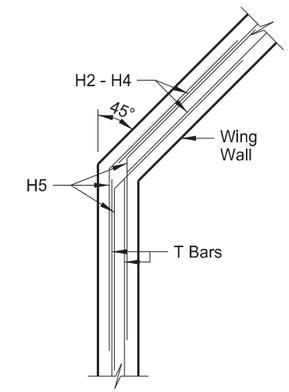
END VIEW



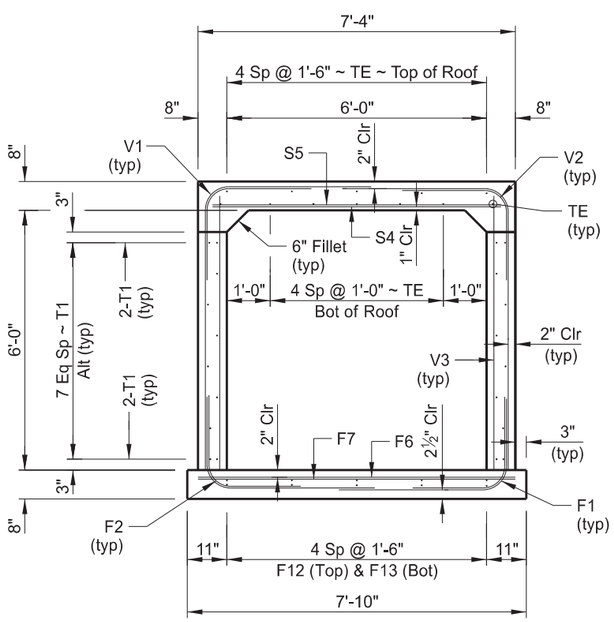
WING ELEVATION



A-A



H BAR DETAIL



SECTION OF BARREL

NOMENCLATURE:

FF = FRONT FACE
BF = BACK FACE

REGISTERED PROFESSIONAL ENGINEER
RYAN A. RYKOWSKY
PE-6691
DATE: 07/20/26
NORTH DAKOTA

2 NORTH OF I-94
CREEK

BARREL SECTION &
WING DETAILS

Docusign Envelope ID: 77D37DD3-8134-8132-8396-A973AD023345

23 U.S.C. 407
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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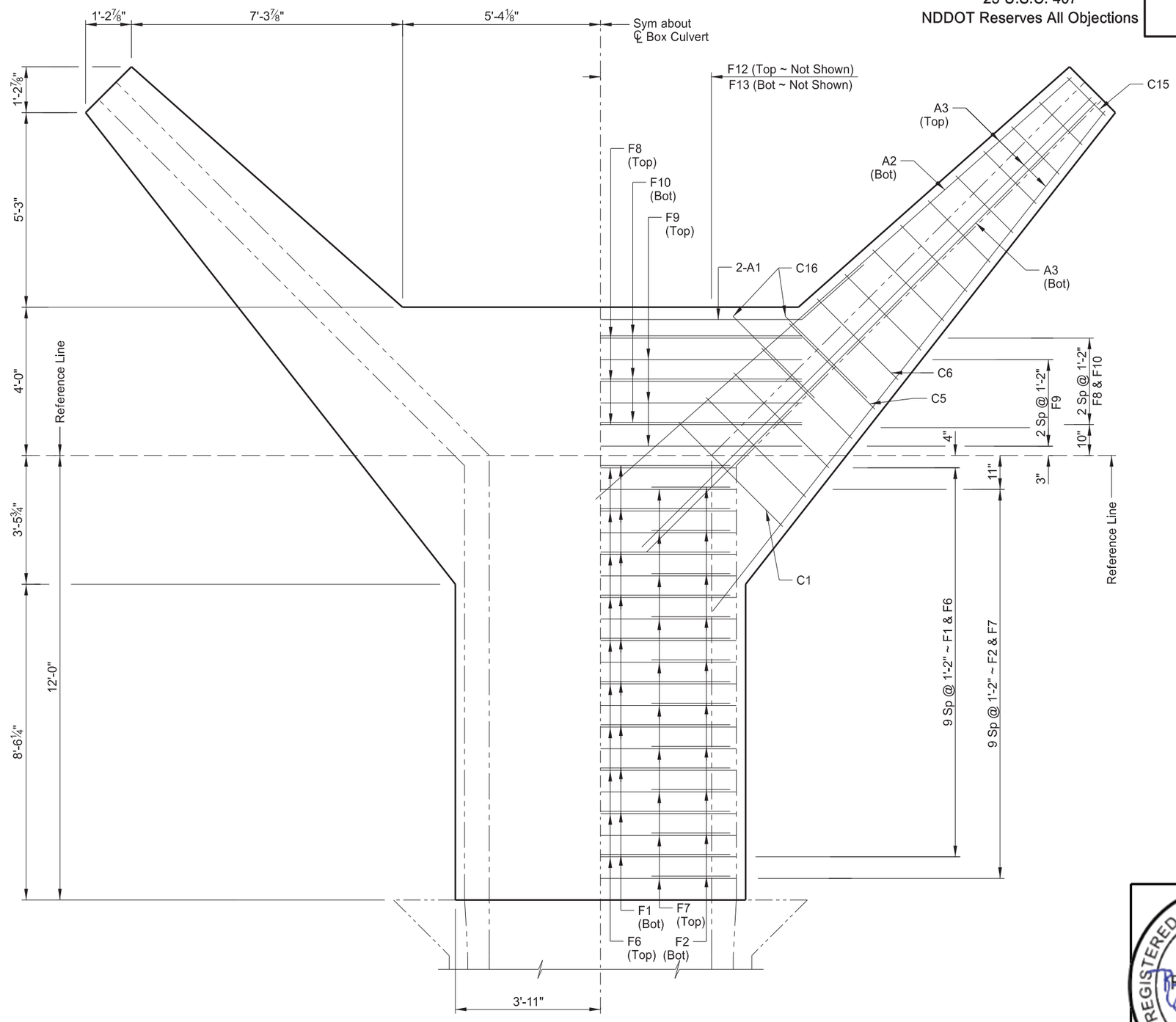

(SHOWING DIMENSIONS) (SHOWING REINFORCING)

FLOOR PLAN

REGISTERED PROFESSIONAL ENGINEER
RYAN A. RYKOWSKY
PE-6691
DATE: 07/20/26
NORTH DAKOTA

2 NORTH OF I-94
CREEK

(WEST EXTENSION)

FLOOR DETAIL

Docusign Envelope ID: 77D37DD3-8134-8132-8396-A973AD023345

23 U.S.C. 407
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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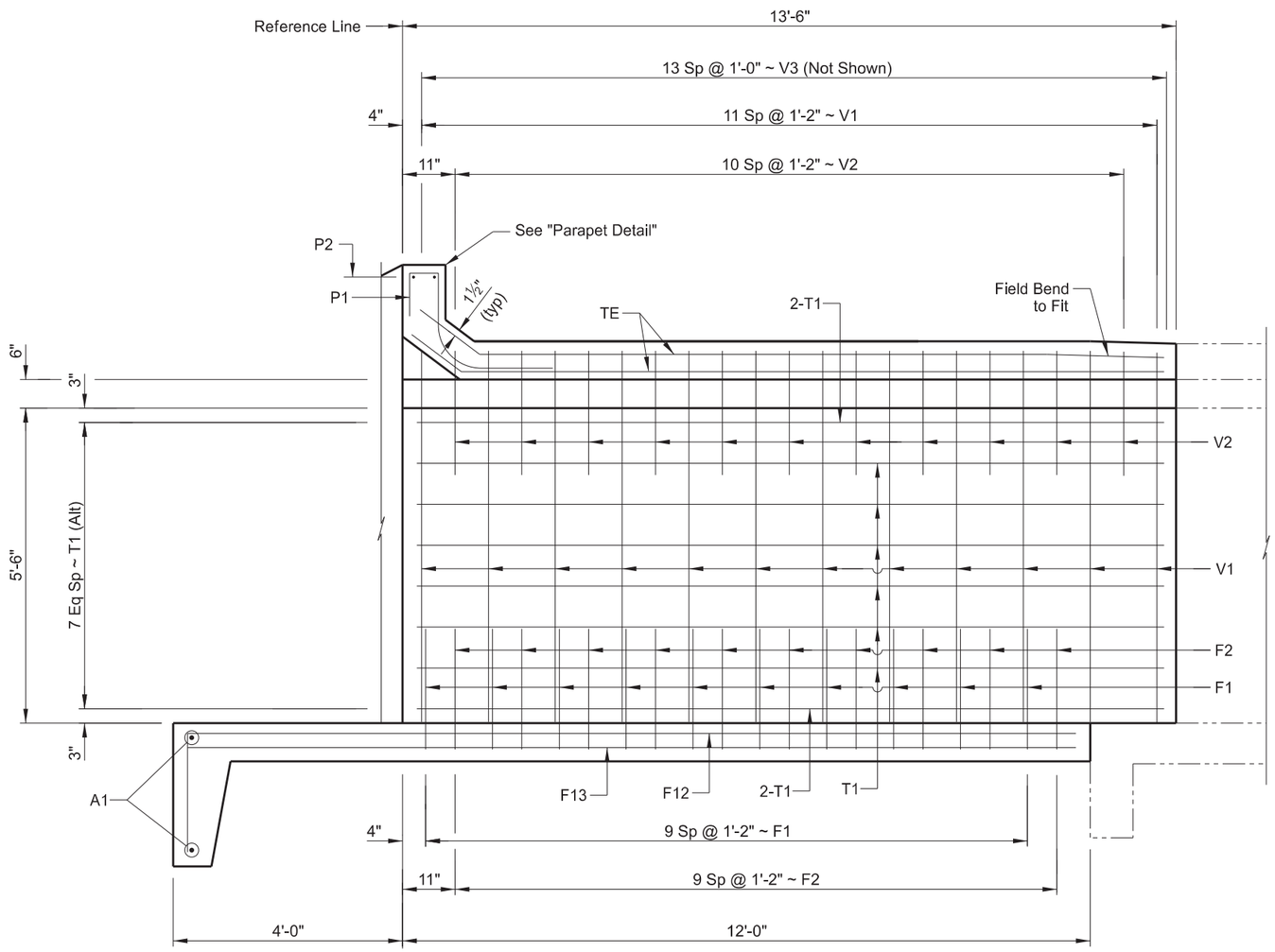
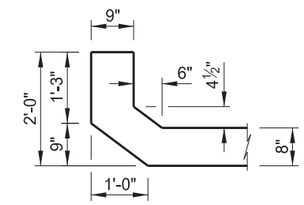


OUTER WALL

LONGITUDINAL SECTION



PARAPET DETAIL

REGISTERED PROFESSIONAL ENGINEER
RYAN A. RYKOWSKY
PE-6691
DATE: 07/20/26
NORTH DAKOTA

2 NORTH OF I-94
CREEK

(WEST EXTENSION)

WALL & PARAPET DETAIL

Docusign Envelope ID: 77D37DD3-8134-8132-8396-A973AD023345

23 U.S.C. 407
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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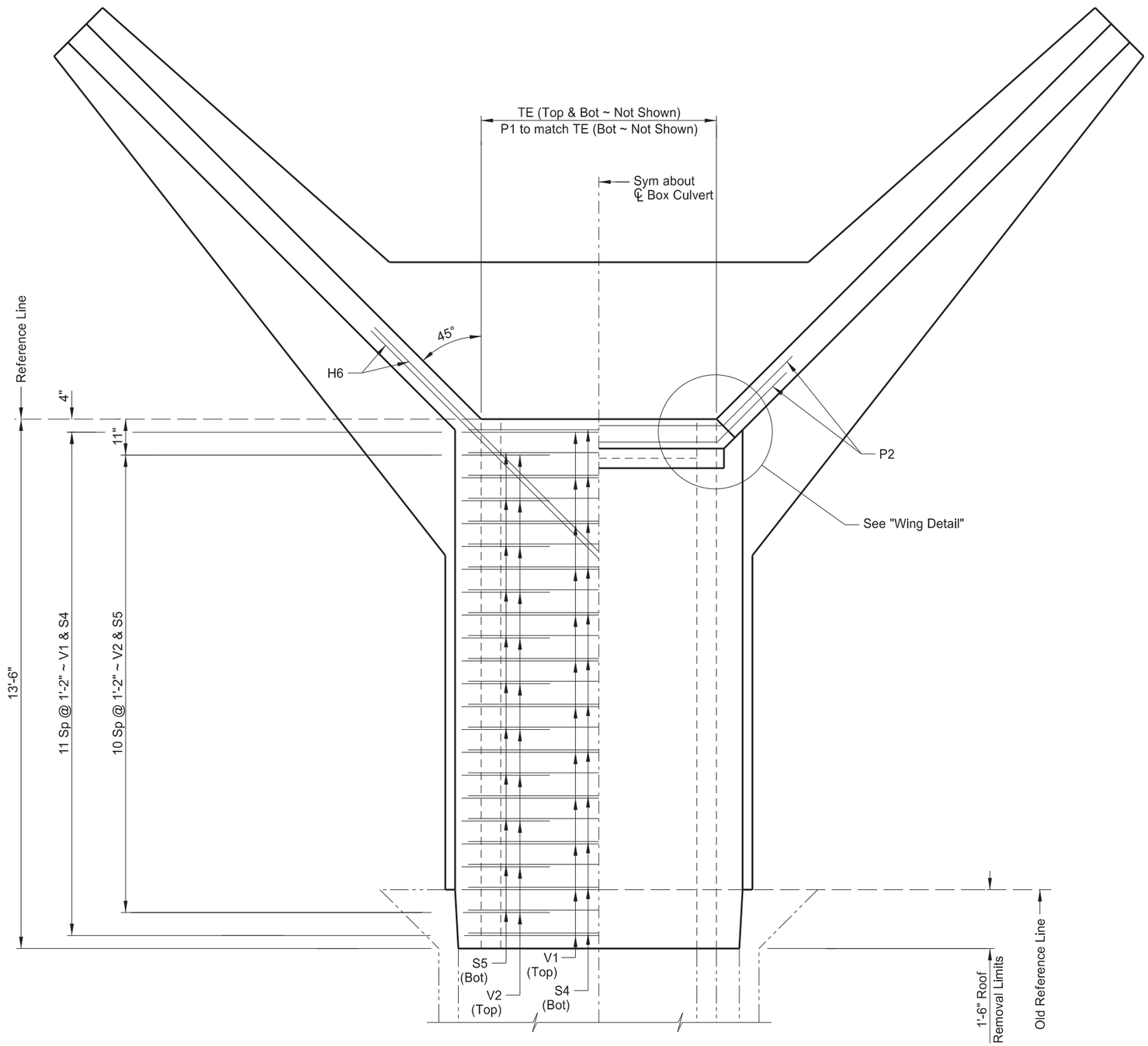
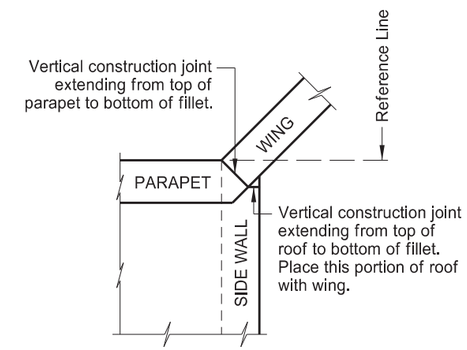


ROOF PLAN



WING DETAIL

REGISTERED PROFESSIONAL ENGINEER
RYAN A. RYKOWSKY
PE-6691
DATE: 07/20/26
NORTH DAKOTA

2 NORTH OF I-94
CREEK

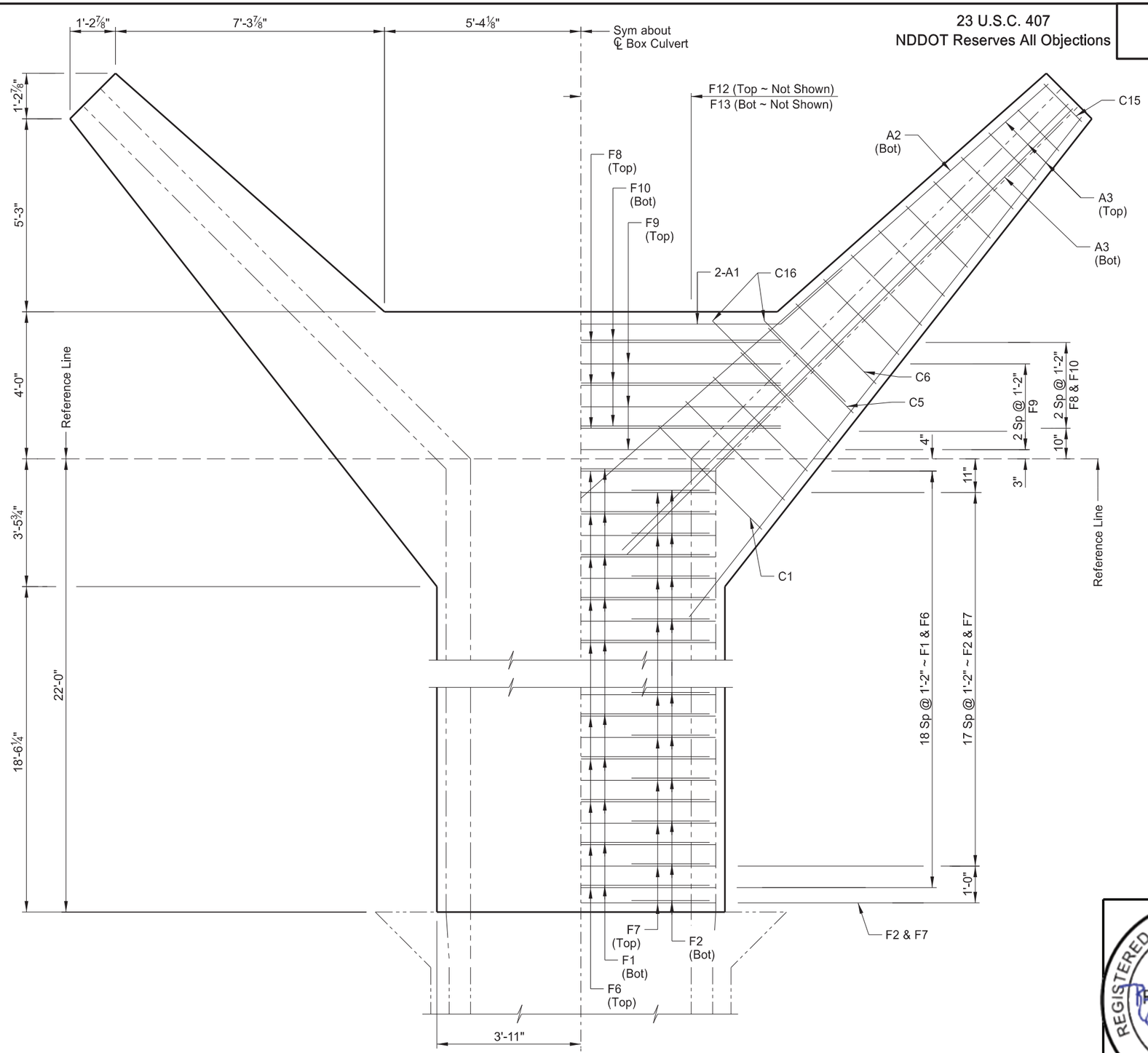
(WEST EXTENSION)

ROOF DETAILS

Docusign Envelope ID: 77D37DD3-8134-8132-8396-A973AD023345

23 U.S.C. 407
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	170	21



(SHOWING DIMENSIONS) (SHOWING REINFORCING)

FLOOR PLAN

REGISTERED PROFESSIONAL ENGINEER
RYAN A. RYKOWSKY
PE-6691
DATE 07/20/26
NORTH DAKOTA

2 NORTH OF I-94
CREEK

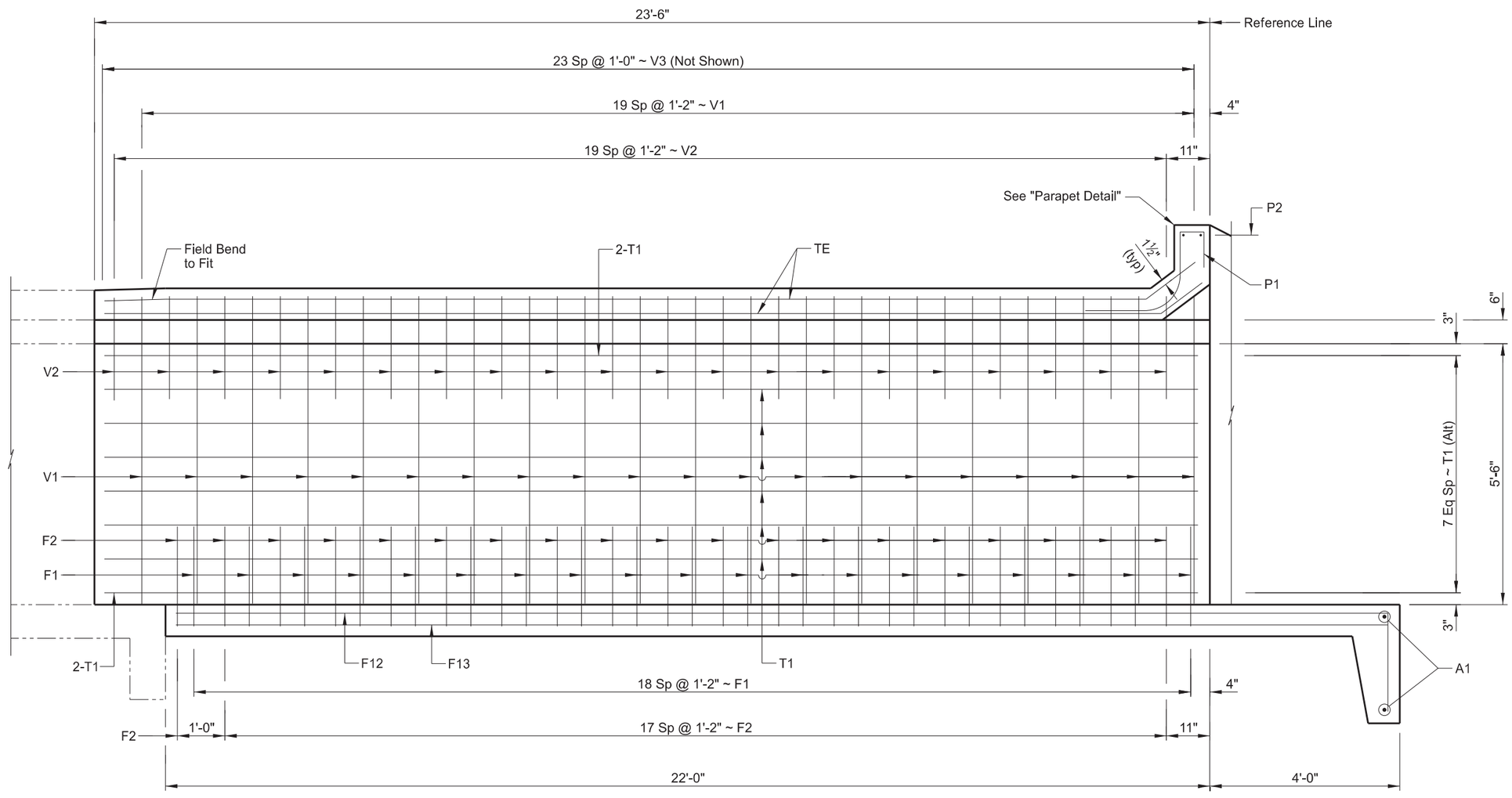
(EAST EXTENSION)

FLOOR DETAIL

Docusign Envelope ID: 77D37DD3-8134-8132-8396-A973AD023345

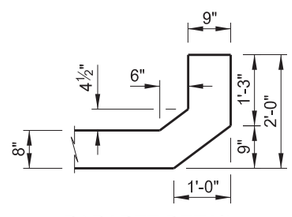
23 U.S.C. 407
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	170	22



OUTER WALL

LONGITUDINAL SECTION



PARAPET DETAIL

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DATE: 07/20/26
NORTH DAKOTA

2 NORTH OF I-94
CREEK

(EAST EXTENSION)

WALL & PARAPET DETAIL

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NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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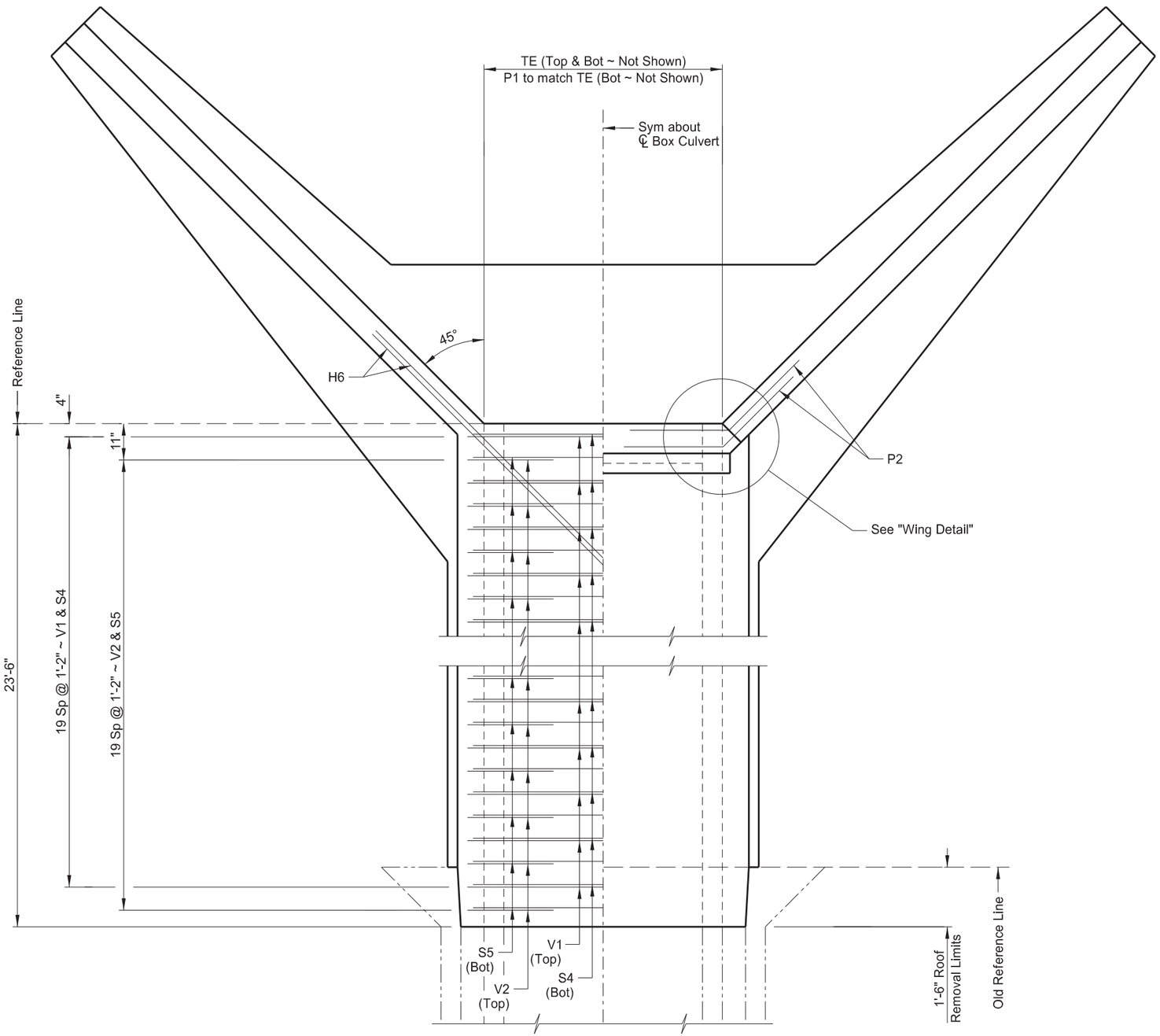
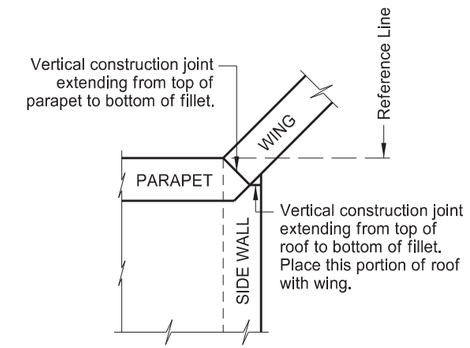


(SHOWING ROOF REINFORCING) (SHOWING PARAPET REINFORCING)

ROOF PLAN



WING DETAIL

REGISTERED PROFESSIONAL ENGINEER
RYAN A. RYKOWSKY
PE-6691
DATE: 07/20/26
NORTH DAKOTA

2 NORTH OF I-94
CREEK

(EAST EXTENSION)

ROOF DETAILS

Docusign Envelope ID: 77D37DD3-8134-8132-8396-A973AD023345

BAR LIST (CONSTANT)				
MARK	SIZE	NO.	LENGTH	SHAPE
W1	5	4	8'-6"	BENT
W2	5	4	8'-1"	BENT
W3	4	4	7'-8"	BENT
W4	4	4	7'-4"	BENT
W5	4	4	6'-11"	BENT
W6	4	4	6'-7"	BENT
W7	4	4	6'-3"	BENT
W8	4	4	5'-10"	BENT
W9	4	4	5'-6"	BENT
W10	4	4	5'-1"	BENT
W11	4	4	4'-9"	BENT
W12	4	4	4'-5"	BENT
W13	4	4	4'-0"	BENT
W14	4	4	3'-8"	BENT
C1	4	4	9'-2"	BENT
C2	4	4	8'-10"	BENT
C3	4	4	8'-6"	BENT
C4	4	4	8'-0"	BENT
C5	4	4	7'-8"	BENT
C6	4	4	9'-0"	BENT
C7	4	4	8'-8"	BENT
C8	4	4	8'-4"	BENT
C9	4	4	8'-0"	BENT
C10	4	4	7'-6"	BENT
C11	4	4	7'-2"	BENT
C12	4	4	6'-10"	BENT
C13	4	4	6'-6"	BENT
C14	4	4	6'-2"	BENT
C15	4	4	5'-8"	BENT
C16	4	8	5'-0"	BENT
H1	6	16	14'-8"	STR.
H2	4	16	13'-9"	STR.
H3	4	8	11'-9"	STR.
H4	4	8	7'-7"	STR.
H5	4	84	6'-0"	BENT
H6	6	8	9'-6"	STR.
O1-O10	4	4 SETS	52'-1"	STR.
A1	6	8	8'-10"	BENT
A2	6	4	9'-9"	STR.
A3	6	16	17'-2"	STR.
P1	4	14	4'-7"	BENT
P2	6	8	6'-6"	BENT
F8	5	6	10'-0"	STR.
F9	4	6	10'-0"	STR.
F10	4	6	10'-0"	STR.

BAR LIST (VARIABLE)				
MARK	SIZE	NO.	LENGTH	SHAPE
WEST END				
V1	4	24	10'-3"	BENT
V2	4	22	4'-0"	BENT
V3	4	28	6'-4"	STR.
F1	4	20	5'-9"	BENT
F2	4	20	4'-0"	BENT
F6	5	10	7'-4"	STR.
F7	4	10	7'-4"	STR.
*F12	4	5	17'-6"	BENT
*F13	4	5	15'-6"	STR.
S4	4	12	6'-8"	STR.
S5	4	11	6'-8"	STR.
*T1	4	20	13'-0"	STR.
*TE	4	12	13'-0"	BENT
EAST END				
V1	4	40	10'-3"	BENT
V2	4	40	4'-0"	BENT
V3	4	48	6'-4"	STR.
F1	4	38	5'-9"	BENT
F2	4	38	4'-0"	BENT
F6	5	19	7'-4"	STR.
F7	4	19	7'-4"	STR.
*F12	4	5	27'-6"	BENT
*F13	4	5	25'-6"	STR.
S4	4	20	6'-8"	STR.
S5	4	20	6'-8"	STR.
*T1	4	20	23'-0"	STR.
*TE	4	12	23'-0"	BENT

23 U.S.C. 407
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	170	24

NOTES:

1. Verify the quantity, size, and shape of the bar reinforcement against the structure drawings and immediately notify the Engineer of any discrepancies. Discrepancies in the bar list will not be cause for adjustment of the contract unit price.
2. All dimensions are out to out of bars.
3. Nominal length of each bent bar or cut bar is the sum total of the detailing dimensions for that bar, unless otherwise noted.
4. The radius dimension in the "Bar Details" indicates the outside radius.

* Add a designation to the F12, F13, T1, and TE bar marks to differentiate between the west and east ends.

CONCRETE QUANTITIES (WEST END)	
ENTIRE FLOOR	6.9 CY
TWO OUTSIDE WALLS & TWO WINGS	7.4 CY
ENTIRE ROOF	3.1 CY
TOTAL	17.4 CY

CONCRETE QUANTITIES (EAST END)	
ENTIRE FLOOR	8.8 CY
TWO OUTSIDE WALLS & TWO WINGS	10.1 CY
ENTIRE ROOF	5.2 CY
TOTAL	24.1 CY

REGISTERED PROFESSIONAL ENGINEER
RYAN A. RYKOWSKY
PE-6691
DATE: 07/20/26
NORTH DAKOTA

QUANTITIES	
CLASS AE-3 CONCRETE	41.5 CY
REINFORCING STEEL	5,626 LBS

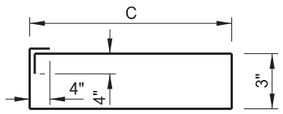
2 NORTH OF I-94
CREEK

REINFORCING BAR LIST

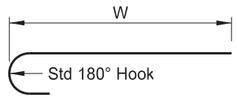
Docusign Envelope ID: 77D37DD3-8134-8132-8396-A973AD023345

23 U.S.C. 407
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	170	25

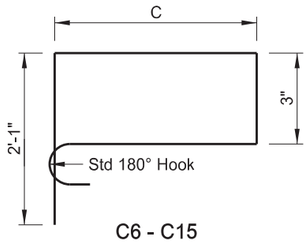


C1 - C5

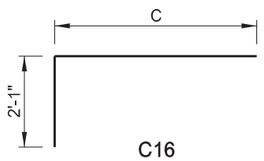


W1 - W14

MARK	"W"
W1	7'- 11"
W2	7'- 6"
W3	7'- 2"
W4	6'- 10"
W5	6'- 5"
W6	6'- 1"
W7	5'- 9"
W8	5'- 4"
W9	5'- 0"
W10	4'- 7"
W11	4'- 3"
W12	3'- 11"
W13	3'- 6"
W14	3'- 2"

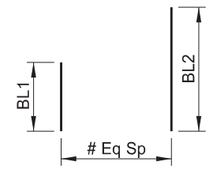


C6 - C15



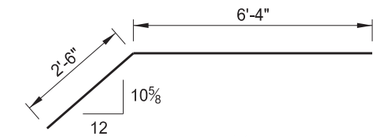
C16

MARK	"C"
C1	4'- 0"
C2	3'- 10"
C3	3'- 8"
C4	3'- 5"
C5	3'- 3"
C6	3'- 1"
C7	2'- 11"
C8	2'- 9"
C9	2'- 7"
C10	2'- 4"
C11	2'- 2"
C12	2'- 0"
C13	1'- 10"
C14	1'- 8"
C15	1'- 5"
C16	2'- 11"

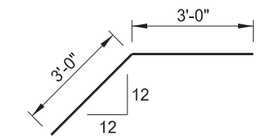


MARK	LENGTH 1 SET	BL1	BL2	SPACES
O1-O10	52'-1"	2'-9"	7'-8"	9

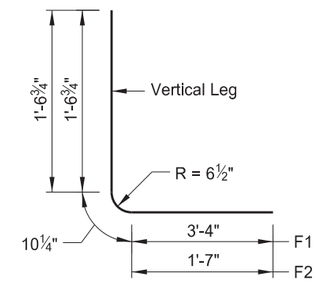
STRAIGHT BAR SET DETAIL



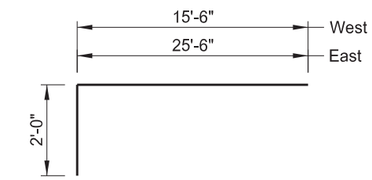
A1



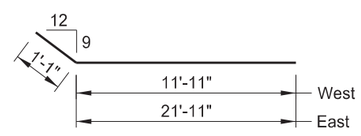
H5



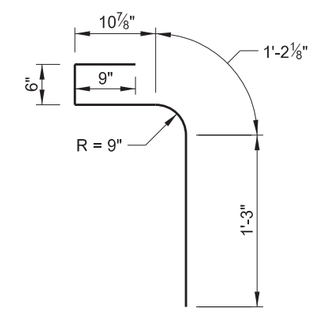
F1 & F2



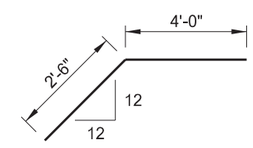
F12



TE



P1



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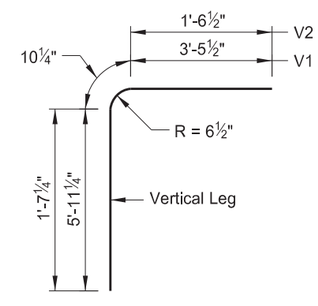


V1 & V2

REGISTERED PROFESSIONAL ENGINEER
RYAN A. RYKOWSKY
PE-6691
DATE: 07/20/26
NORTH DAKOTA

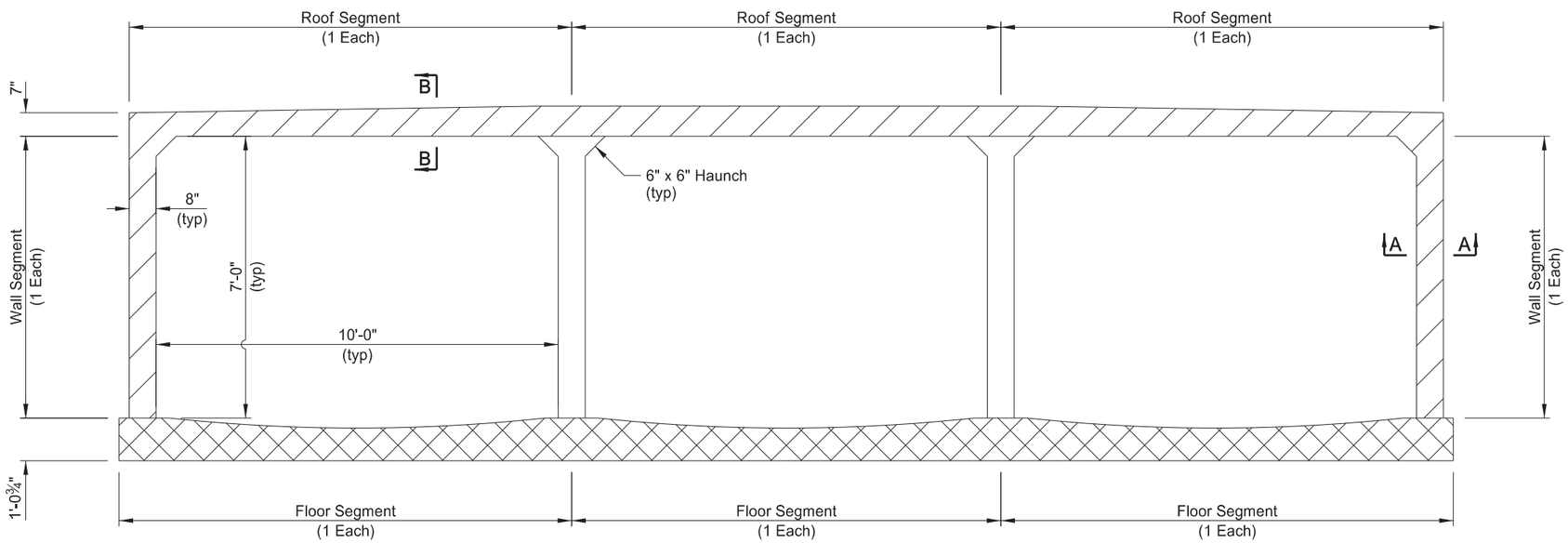
2 NORTH OF I-94
CREEK

BAR DETAILS

Docusign Envelope ID: F081549B-5821-8140-8046-62C46AD0B752

23 U.S.C. 407
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	170	26

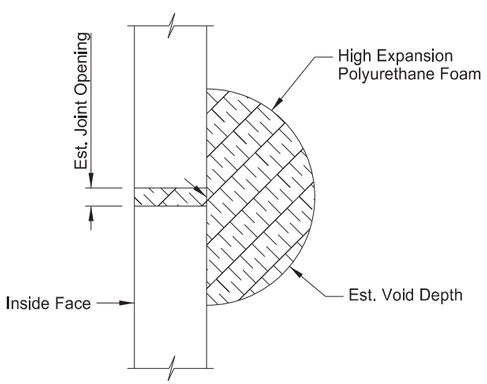


BOX CULVERT JOINT REPAIR

BOX CULVERT JOINT REPAIR - FLOOR

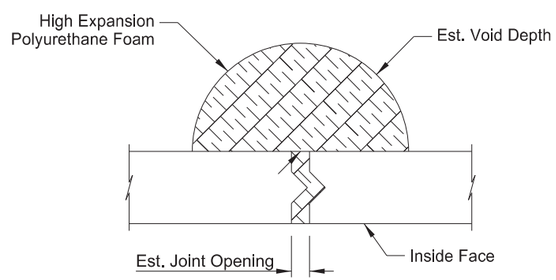
(AT CONSTRUCTION JOINT)

BARREL SECTION



(SECTION USED FOR QTY CALCS)

A-A



(SECTION USED FOR QTY CALCS)

B-B

BRIDGE BID ITEMS

SPEC	CODE	ITEM DESCRIPTION	UNIT	QUANTITY
900	1000	TEMPORARY STREAM DIVERSION	EA	1
930	3640	HIGH EXPANSION POLYURETHANE FOAM	GAL	20
930	9671	BOX CULVERT JOINT REPAIR	EA	10
930	9672	BOX CULVERT JOINT REPAIR - FLOOR	EA	6

SPECIAL PROVISIONS	
SSP 2	MIGRATORY BIRD TREATY ACT
SP 228(24)	TEMPORARY WATER DIVERSION

CREEK
3 NORTH OF I-94

CLEAR SPAN 3 x 10' CLEAR HEIGHT 7'

BOX CULVERT JOINT REPAIR

REGISTERED PROFESSIONAL ENGINEER
RYAN A. RYKOWSKY
PE-6691
DATE: 07/20/26
NORTH DAKOTA

ND DEPARTMENT OF TRANSPORTATION
BRIDGE DIVISION

Jason Thorenson
07/21/26

Docusign Envelope ID: F081549B-5821-8140-8046-62C46AD0B752

NOTES

900 TEMPORARY STREAM DIVERSION: It is anticipated that a temporary stream diversion will be required to complete the work at this site. Construct, maintain, and remove the temporary stream diversion in accordance with the Special Provision for Temporary Water Diversion.

Do not construct a temporary stream diversion if the Contractor and Engineer agree that no diversion is required at this site. No payment will be made for a temporary stream diversion at this site if the diversion is eliminated by agreement of Contractor and Engineer

930 BOX CULVERT JOINT REPAIR: The box culvert has existing construction joints as listed in the table below. Complete the joint repair work listed at each joint location. No work is required at joints with no repair quantities listed in the table.

Joint Number	Approx. Joint Opening	Est. Void Depth	Box Culvert Joint Repair (Roof & Walls)	Box Culvert Joint Repair - Floor	Estimated Qty High Expansion Foam
Joint 1	2”	Minimal	5 Segments	3 Segments	10 gallons
Joint 2	1 1/2”	0”	5 Segments	3 Segments	10 gallons

Note: Construction Joints are numbered from West to East.

Clean the joints by removing any dirt, debris, or loose material prior to completing joint repairs.

Floor Joints:

Fill the floor joint with concrete using Class AE-5 concrete or a commercially packaged self-consolidating concrete (SCC) mix. If using a commercially packaged SCC mix, provide a pre-blended polymer modified mix such as SikaCrete 211 SCC Plus, Sakrete Self-Consolidating Concrete Mix, or a similar product that produces a 28-day compressive strength of 4,000 psi or greater. Fill the joint so the concrete is flush with the interior floor of the box culvert. Wet cure the concrete a minimum of 3 days, or as specified by the manufacturer if using a commercially packaged SCC mix.

Include all costs for labor, equipment and materials required to repair the floor joints in the price bid for " Box Culvert Joint Repair - Floor".

Roof and Wall Joints:

Fill the box culvert joints and voids above the roof and behind the walls with high expansion polyurethane foam. Cut the foam flush with the interior of the box culvert after it has cured. Provide expansive foam consisting of a high expansive hydrophobic polyurethane foam that is nontoxic, nonflammable, and meets the following requirements.

Test	Requirement	Method
Tensile Strength	50 PSI	ASTM D 638
Compressive Strength	90 PSI	ASTM D 1621
Shear Strength	25 PSI	ASTM D 732
Water Absorption	< 2% by Volume	ASTM D 2842

Include all costs for labor, equipment and materials required to clean and prep the wall and roof joints to receive the expansive foam in the price bid for " Box Culvert Joint Repair".

Include the costs for labor, equipment and materials to place the expansive foam to fill the voids and joints in the roof and exterior walls in the price bid for "High Expansion Polyurethane Foam". The estimated foam quantities listed in the table are prior to expansion and assume a 16x foam expansion rate. Do not exceed the estimated quantity of foam without the permission of the Engineer.

REGISTERED PROFESSIONAL ENGINEER
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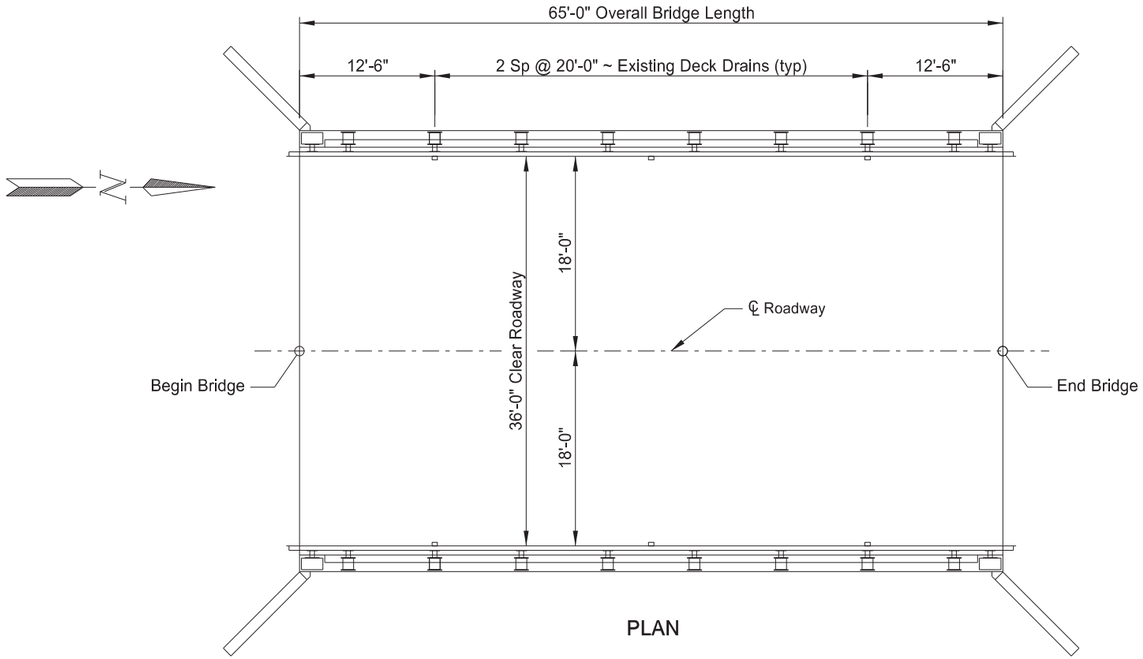
PE-6691
DATE: 07/20/26
NORTH DAKOTA

Docusign Envelope ID: F081549B-5821-8140-8046-62C46AD0B752

23 U.S.C. 407
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	170	28



PLAN

NOTES:

100 SCOPE OF WORK: Work at this site consists of abutment spall repair, extending the existing deck drains, applying penetrating water repellent to the bridge deck, and crack sealing the bridge deck.

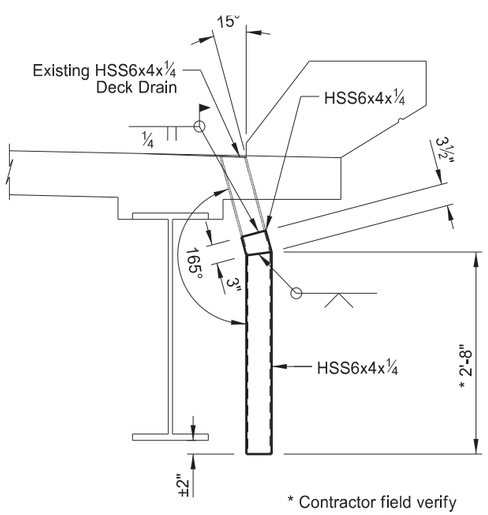
602 WATER WASHING EQUIPMENT: In addition to the water-washing equipment listed in Section 602.02 D, a cold water pressure washer that provides a minimum nozzle pressure of 3,000 psi may be used.

602 PENETRATING WATER REPELLENT TREATMENT: Apply penetrating water repellent solution to the top of the bridge deck. Do not apply crack sealant, pavement marking, or allow traffic until the solution has completely penetrated and the entire driving surface is dry.

602 CRACK SEALING: After the penetrating water repellent has been applied and is dry, the Engineer will perform a visual inspection of the bridge deck to determine the need for crack sealing. Mark and repair all visible cracks appearing on the top surface 0.012" or greater in width at its widest segment or as directed by the Engineer.

Immediately before applying the sealer, clean the cracks by removing all dust and debris with compressed air. Seal the cracks with a two-part epoxy in accordance with the manufacturer's recommendations. Chase crack with the sealant application to limits of crack, including those portions that are narrower than 0.012" wide. Use Paulco TE-2501 (Viking Paints, Inc.), Dural 50 LM (Euclid Chemical Co.), TK-9000 or TK-2110 (TK Products), or an approved equal epoxy sealer.

930 MODIFY DECK DRAIN: Extend the existing deck drains in accordance with Section 616. Provide HSS tubing meeting ASTM A500 Grade B. Include all labor, equipment, and materials required to extend the deck drains as shown in the plans in the bid item "Modify Deck Drain."



* Contractor field verify prior to fabrication

MODIFY DECK DRAIN DETAIL

BRIDGE BID ITEMS

SPEC	CODE	ITEM DESCRIPTION	UNIT	QUANTITY
602	1250	PENETRATING WATER REPELLENT TREATMENT	SY	260
930	9223	CRACK SEALING	LF	300
930	9534	MODIFY DECK DRAIN	EA	6

REGISTERED PROFESSIONAL ENGINEER
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PE-6691
DATE: 07/20/26
NORTH DAKOTA

6 NORTH OF I-94
SWEET BRIAR CREEK

BRIDGE LAYOUT

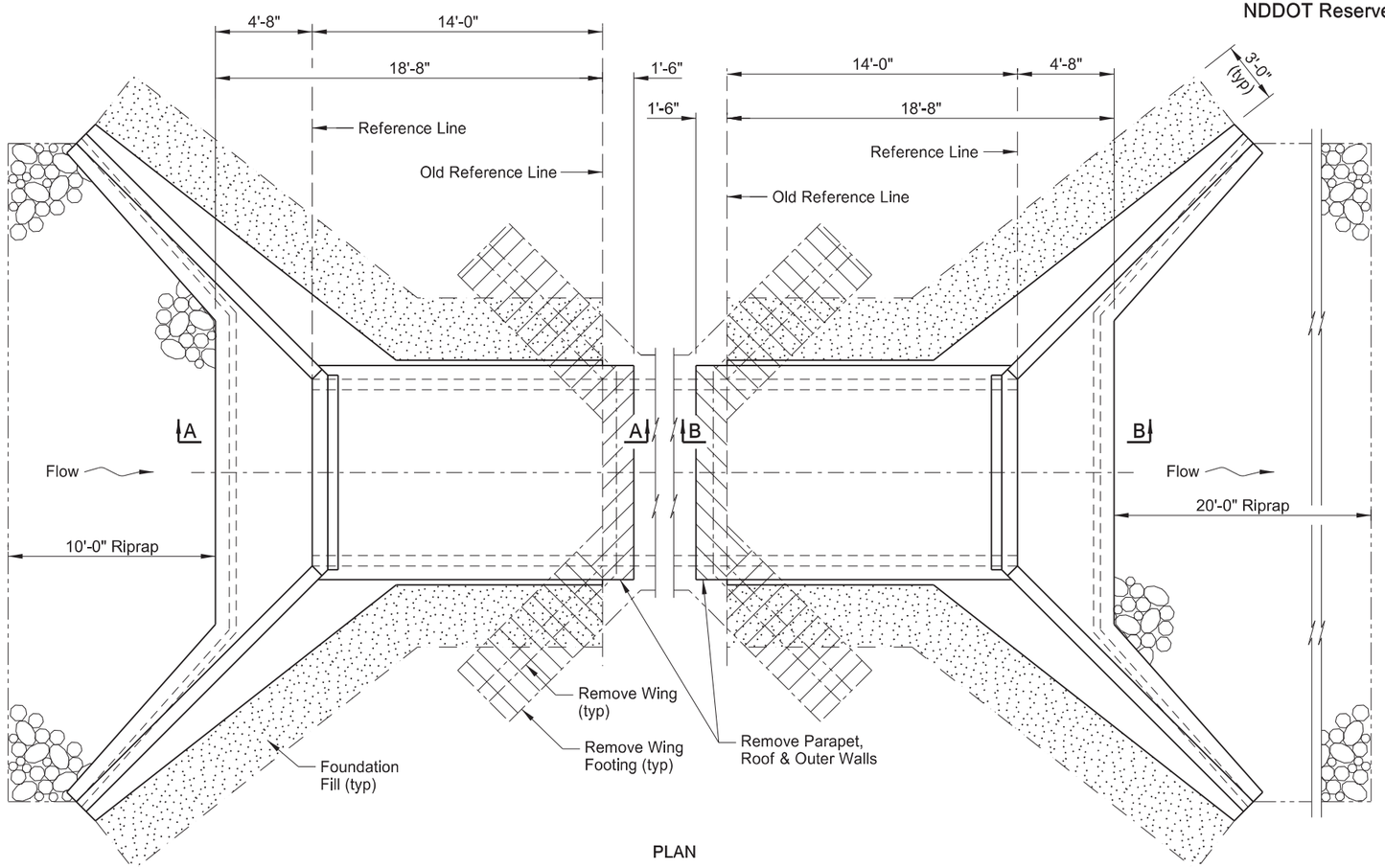
ND DEPARTMENT OF TRANSPORTATION
BRIDGE DIVISION

Jason Thorenson
07/21/26

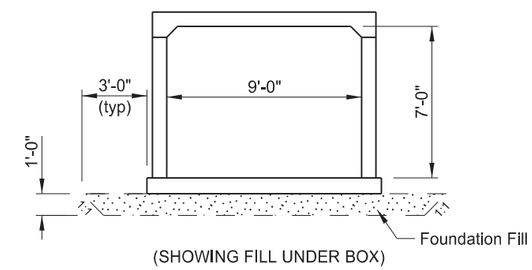
Docusign Envelope ID: F081549B-5821-8140-8046-62C46AD0B752

23 U.S.C. 407
NDDOT Reserves All Objections

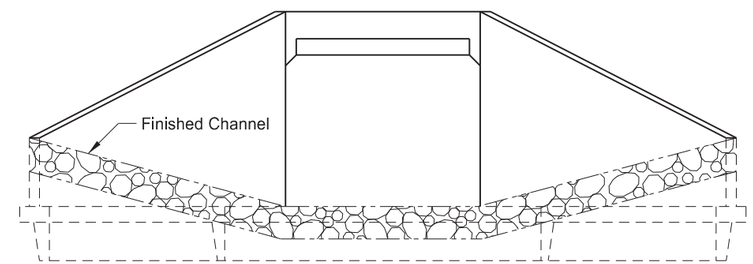
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	170	29



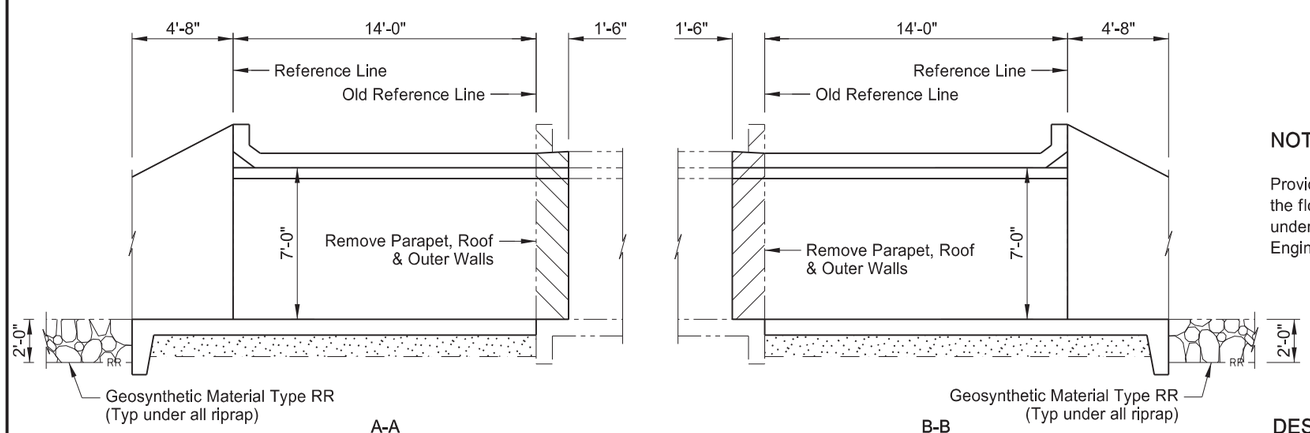
PLAN



(SHOWING FILL UNDER BOX)
SECTION



(SHOWING FINISHED SECTION)
END VIEW



A-A B-B

BOX CULVERT BID ITEMS

SPEC	CODE	ITEM DESCRIPTION	UNIT	QUANTITY
202	0101	REMOVAL OF CONCRETE	EA	1
210	0050	BOX CULVERT EXCAVATION	EA	1
210	0210	FOUNDATION FILL	CY	45
210	0405	FOUNDATION PREPARATION-BOX CULVERT	EA	1
256	0200	RIPRAP GRADE II	CY	65
602	1131	CLASS AE-3 CONCRETE-BOX CULVERT	CY	49.6
612	0114	REINFORCING STEEL-GRADE 60-BOX CULVERT	LBS	8,142
709	0155	GEOSYNTHETIC MATERIAL TYPE RR	SY	95
900	1000	TEMPORARY STREAM DIVERSION	EA	1

NOTE:

Provide a 1'-0" minimum depth of foundation fill under the floor. Remove and replace all unsound material under the box extension with foundation fill. The Engineer will determine the depth required.

DESIGN STRENGTHS:

f'c = 3,000 psi ~ Class AE-3 Concrete
fy = 60,000 psi ~ Reinforcing Steel

Load & Resistance Factor Design

REGISTERED PROFESSIONAL ENGINEER
RYAN A. RYKOWSKY
PE-6691
DATE 07/20/26
NORTH DAKOTA

SPECIAL PROVISIONS	
SSP 2	MIGRATORY BIRD TREATY ACT
SP 228(24)	TEMPORARY WATER DIVERSION

HL-93 DESIGN LOADING

8 NORTH OF I-94
CREEK

CLEAR SPAN 1 x 9' CLEAR HEIGHT 7'
MAXIMUM FILL 7' STATION 4575+83.56

REINFORCED CONCRETE SINGLE
BOX CULVERT EXTENSION LAYOUT

ND DEPARTMENT OF TRANSPORTATION
BRIDGE DIVISION

Jason Thorenson
07/21/26

Docusign Envelope ID: F081549B-5821-8140-8046-62C46AD0B752

NOTES

100 SCOPE OF WORK: Work at this site consists of extending a single 9' x 7' reinforced concrete box culvert 14'-0" on west end and 14'-0" on the east end.

202 REMOVAL OF CONCRETE: Remove portions of existing culvert end where extension is to be attached. Remove 1'-6" of existing concrete to expose the existing reinforcing steel at the parapet, roof, and outside walls at the vertical junction with the wing. Remove existing wing walls in entirety. Cut rebar protruding from the floor under the wing walls flush with the top surface of the floor. Leave existing floor and cutoff walls in place except as shown.

602 CLASS AE-3 CONCRETE: Cast the following elements of each section in one continuous run:

1. Floor slab and wing footings
2. Each sidewall up to the bottom of fillets with its adjacent wings complete to the top
3. Roof slab and parapets

Allow the concrete in the walls to set at least two hours before the roof slab is poured.

If the existing wall and roof thicknesses are different than the new thicknesses, align the inner surfaces and taper the exterior surfaces in the first 1'-6" of the barrel.

602 CURING CONCRETE: Wet cure all concrete surfaces not covered by forms. Cover the concrete with a double thickness of burlap. Maintain surface moisture between the final finish and placement of burlap by periodic applications of a light fog spray of water. Keep the burlap continuously moist until the end of the curing period.

602 WEATHER LIMITATIONS: All requests in accordance with 602.04 C.4 "Weather Limitations" require approval from the NDDOT Bridge Division.

612 REINFORCING STEEL: Place bolsters and bar supports for the roof steel at a maximum of 4 foot spacing.

900 TEMPORARY STREAM DIVERSION: It is anticipated that a temporary stream diversion will be required to complete the work at this site. Construct, maintain, and remove the temporary stream diversion in accordance with the Special Provision for Temporary Water Diversion.

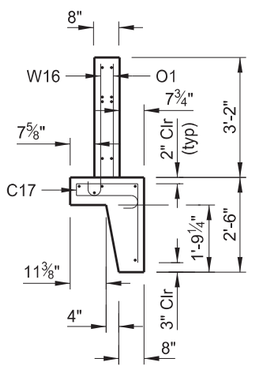
Do not construct a temporary stream diversion if the Contractor and Engineer agree that no diversion is required at this site. No payment will be made for a temporary stream diversion at this site if the diversion is eliminated by agreement of Contractor and Engineer.

REGISTERED PROFESSIONAL ENGINEER
RYAN A. RYKOWSKY
PE-6691
DATE: 07/20/26
NORTH DAKOTA

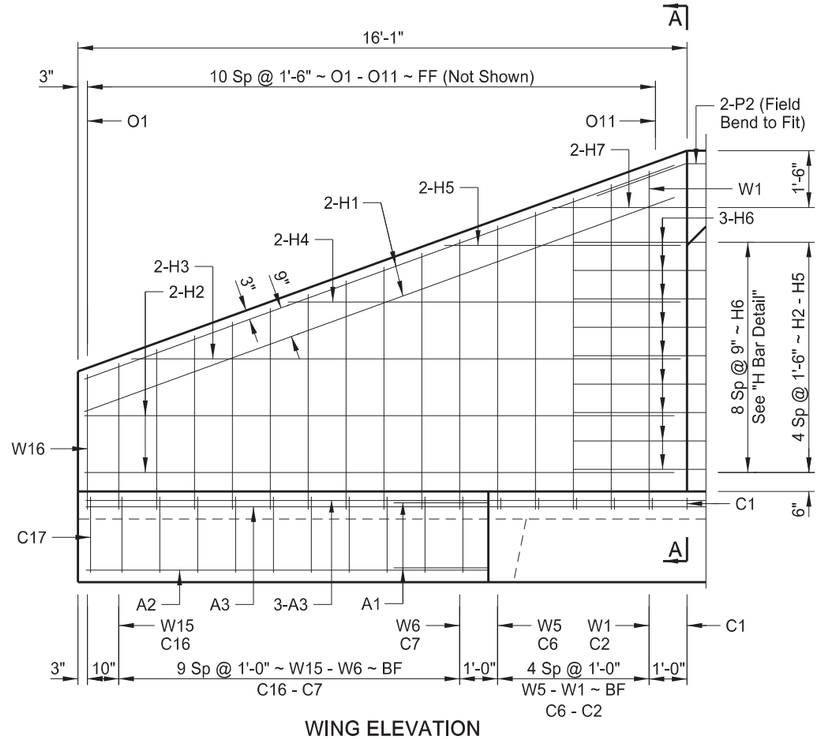
Docusign Envelope ID: F081549B-5821-8140-8046-62C46AD0B752

23 U.S.C. 407
NDDOT Reserves All Objections

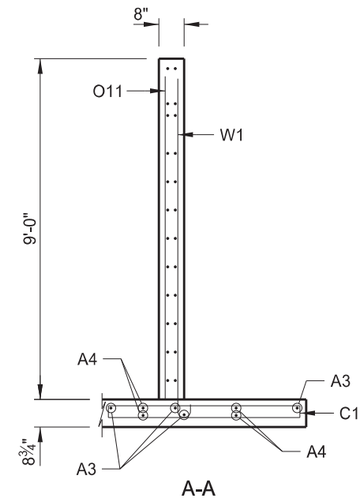
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	170	31



END VIEW



WING ELEVATION



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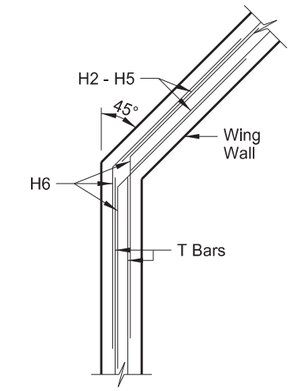
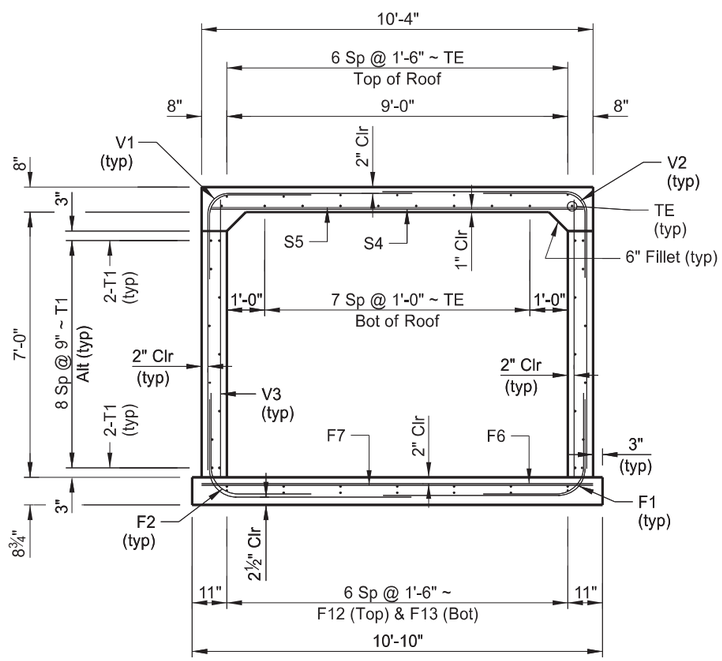


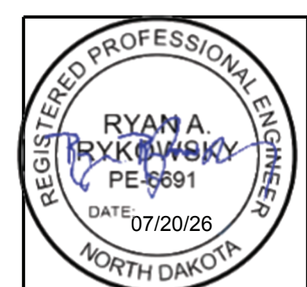
H BAR DETAIL



SECTION OF BARREL

NOMENCLATURE:

FF = FRONT FACE
BF = BACK FACE



8 NORTH OF I-94
CREEK

BARREL SECTION &
WING DETAILS

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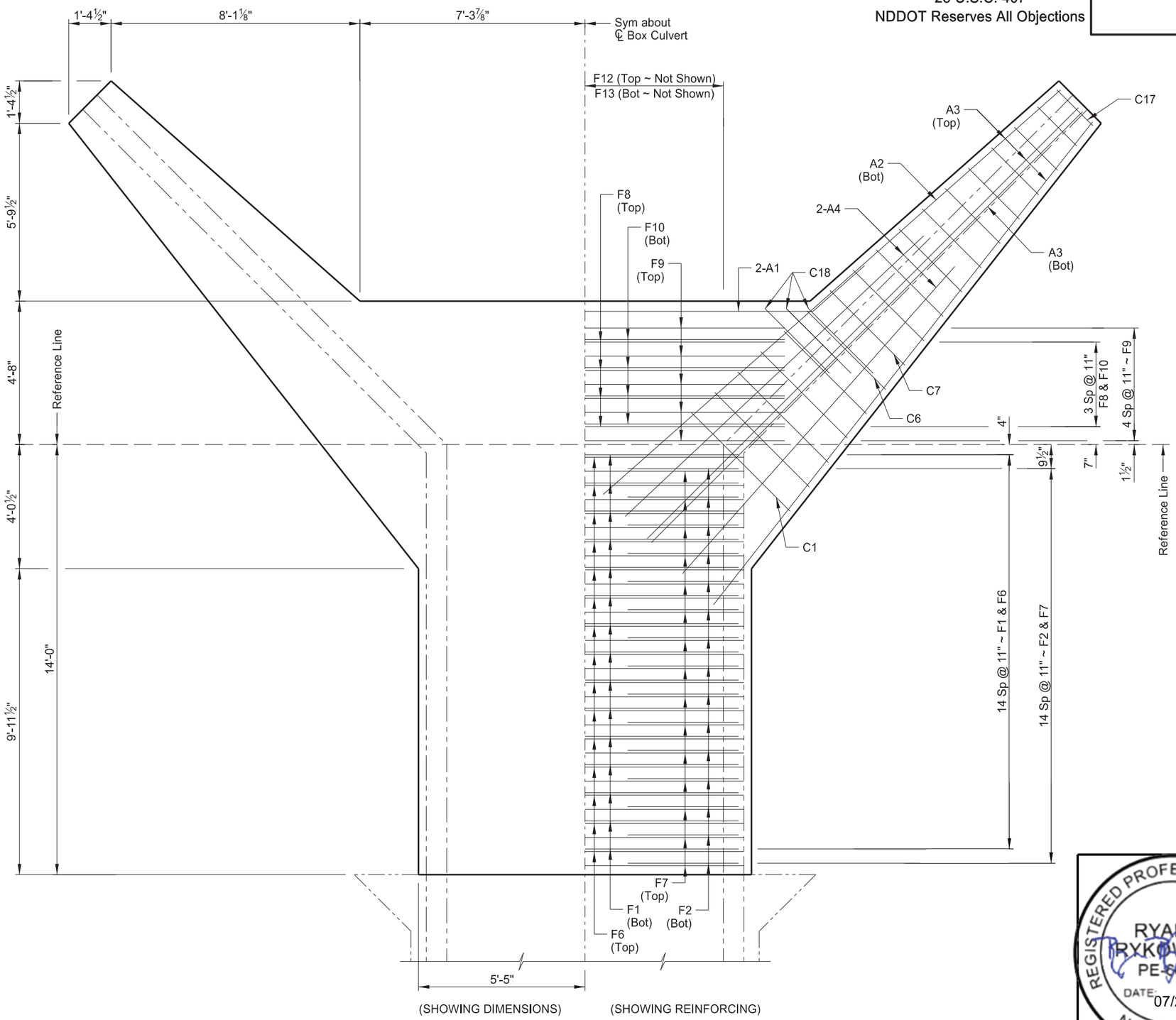
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	170	32



(SHOWING DIMENSIONS) (SHOWING REINFORCING)

FLOOR PLAN

REGISTERED PROFESSIONAL ENGINEER
RYAN A. RYKOWSKY
PE-6691
DATE: 07/20/26
NORTH DAKOTA

8 NORTH OF I-94
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FLOOR DETAIL

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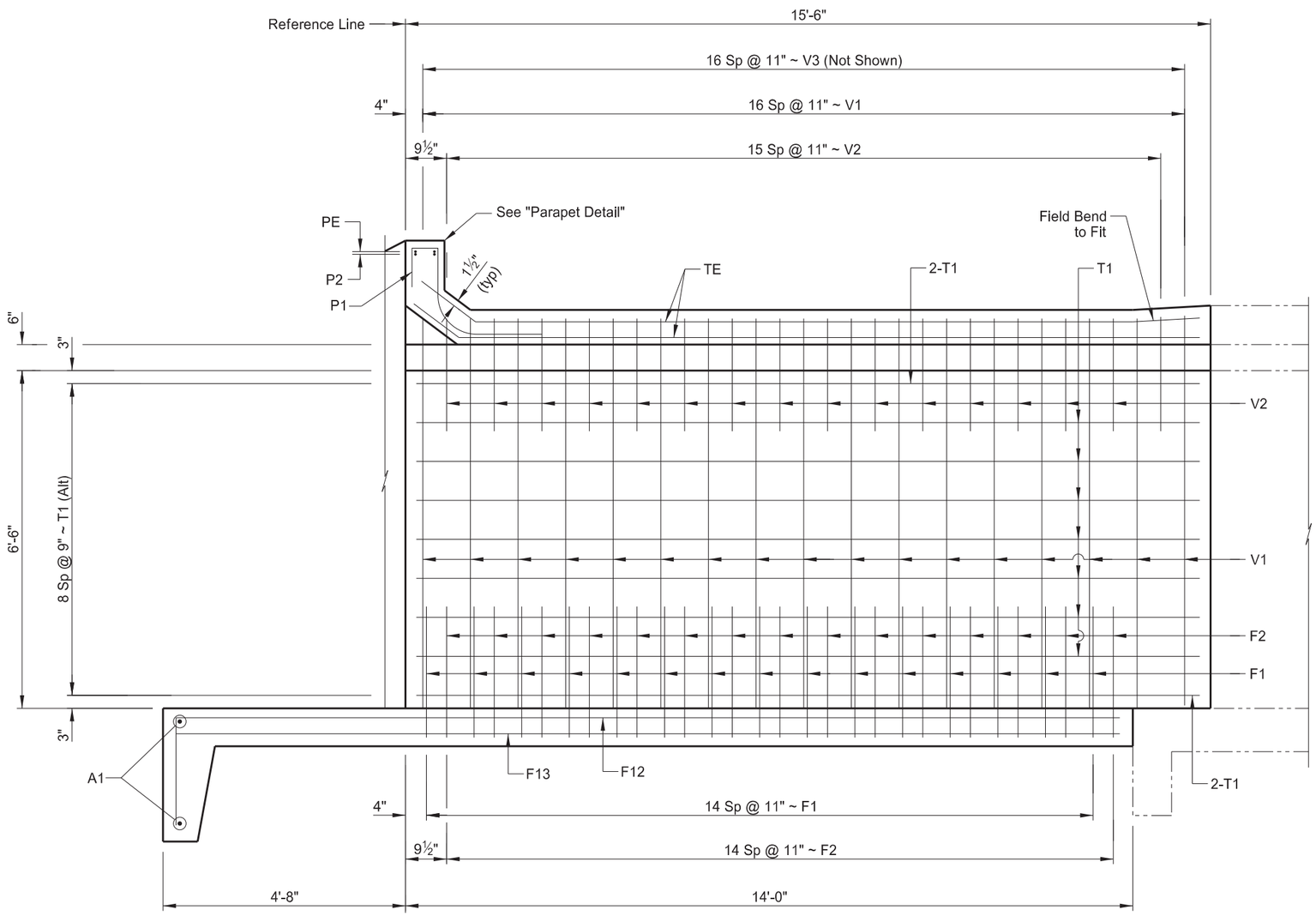
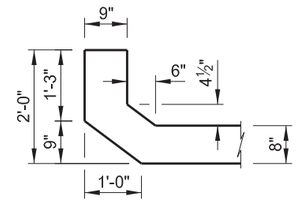
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	170	33



OUTER WALL

LONGITUDINAL SECTION



PARAPET DETAIL

REGISTERED PROFESSIONAL ENGINEER
RYAN A. RYKOWSKY
PE-6691
DATE: 07/20/26
NORTH DAKOTA

8 NORTH OF I-94
CREEK

WALL & PARAPET DETAILS

Docusign Envelope ID: F081549B-5821-8140-8046-62C46AD0B752

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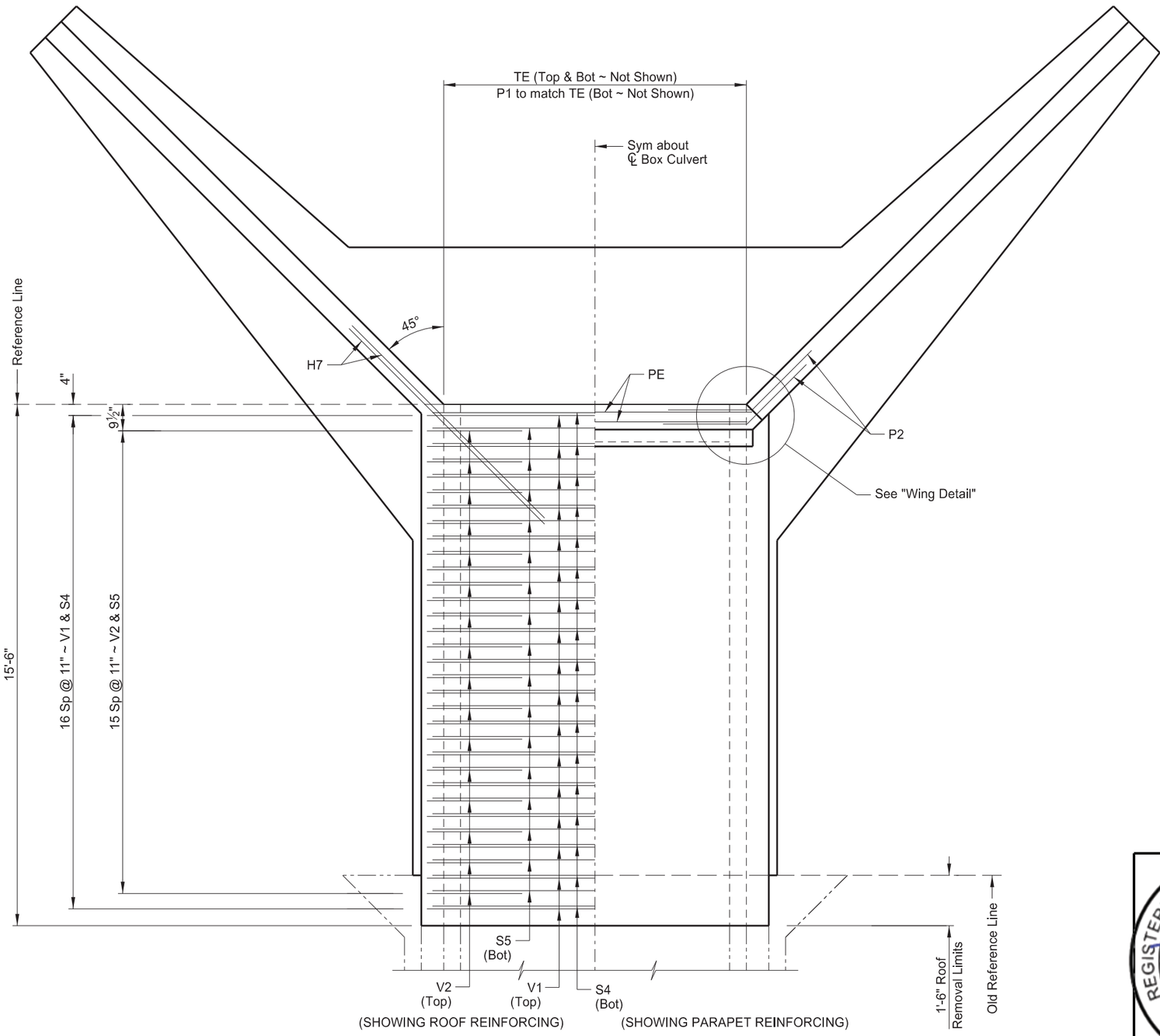
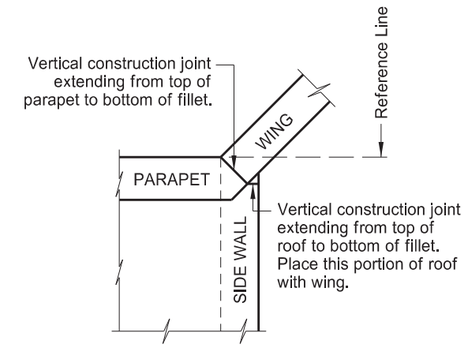
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	170	34



ROOF PLAN



WING DETAIL

REGISTERED PROFESSIONAL ENGINEER
RYAN A. RYKOWSKY
PE-6691
DATE: 07/20/26
NORTH DAKOTA

8 NORTH OF I-94
CREEK

ROOF DETAILS

Docusign Envelope ID: F081549B-5821-8140-8046-62C46AD0B752

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	170	35

23 U.S.C. 407
NDDOT Reserves All Objections

BAR LIST (CONSTANT)

MARK	SIZE	NO.	LENGTH	SHAPE
W1	6	4	9'-7"	BENT
W2	6	4	9'-3"	BENT
W3	5	4	8'-10"	BENT
W4	5	4	8'-5"	BENT
W5	5	4	8'-1"	BENT
W6	4	4	7'-8"	BENT
W7	4	4	7'-3"	BENT
W8	4	4	6'-11"	BENT
W9	4	4	6'-7"	BENT
W10	4	4	6'-2"	BENT
W11	4	4	5'-10"	BENT
W12	4	4	5'-6"	BENT
W13	4	4	5'-1"	BENT
W14	4	4	4'-9"	BENT
W15	4	4	4'-4"	BENT
W16	4	4	4'-1"	BENT
C1	5	4	10'-4"	BENT
C2	5	4	10'-0"	BENT
C3	5	4	9'-8"	BENT
C4	4	4	9'-4"	BENT
C5	4	4	9'-0"	BENT
C6	4	4	8'-6"	BENT
C7	4	4	9'-9"	BENT
C8	4	4	9'-5"	BENT
C9	4	4	9'-1"	BENT
C10	4	4	8'-9"	BENT
C11	4	4	8'-5"	BENT
C12	4	4	7'-11"	BENT
C13	4	4	7'-7"	BENT
C14	4	4	7'-3"	BENT
C15	4	4	6'-11"	BENT
C16	4	4	6'-7"	BENT
C17	4	4	6'-1"	BENT
C18	4	12	5'-4"	BENT
H1	7	16	16'-7"	STR.
H2	4	16	15'-7"	STR.
H3	4	8	14'-5"	STR.
H4	4	8	10'-3"	STR.
H5	4	8	6'-2"	STR.
H6	4	108	6'-0"	BENT
H7	6	8	9'-6"	STR.
O1-O11	4	4 SETS	63'-8"	STR.
A1	6	8	10'-10"	BENT
A2	6	4	10'-9"	STR.
A3	6	16	19'-10"	STR.
A4	6	16	13'-4"	STR.
P1	4	20	4'-7"	BENT
P2	6	8	5'-0"	BENT
PE	6	4	9'-0"	STR.
F8	5	8	13'-0"	STR.
F9	5	10	13'-0"	STR.
F10	4	8	13'-0"	STR.

BAR LIST (VARIABLE)

MARK	SIZE	NO.	LENGTH	SHAPE
V1	4	68	12'-8"	BENT
V2	4	64	4'-9"	BENT
V3	4	68	7'-4"	STR.
F1	4	60	7'-6"	BENT
F2	4	60	4'-9"	BENT
F6	5	30	10'-4"	STR.
F7	5	30	10'-4"	STR.
F12	4	14	20'-2"	BENT
F13	4	14	18'-2"	STR.
S4	6	34	9'-8"	STR.
S5	5	32	9'-8"	STR.
T1	4	44	15'-0"	STR.
TE	4	34	15'-0"	BENT

CONCRETE QUANTITIES (ONE END)

ENTIRE FLOOR	10.4 CY
TWO OUTSIDE WALLS & TWO WINGS	9.7 CY
ENTIRE ROOF	4.7 CY
TOTAL	24.8 CY

NOTES:

1. Verify the quantity, size, and shape of the bar reinforcement against the structure drawings and immediately notify the Engineer of any discrepancies. Discrepancies in the bar list will not be cause for adjustment of the contract unit price.
2. All dimensions are out to out of bars.
3. Nominal length of each bent bar or cut bar is the sum total of the detailing dimensions for that bar, unless otherwise noted.
4. The radius dimension in the "Bar Details" indicates the outside radius.

REGISTERED PROFESSIONAL ENGINEER
RYAN A. RYKOWSKY
PE-6691
DATE: 07/20/26
NORTH DAKOTA

QUANTITIES

CLASS AE-3 CONCRETE	49.6 CY
REINFORCING STEEL	8,142 LBS

8 NORTH OF I-94
CREEK

REINFORCING BAR LIST

Docusign Envelope ID: F081549B-5821-8140-8046-62C46AD0B752

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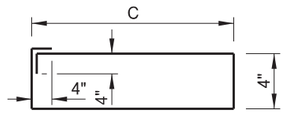
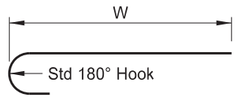
NDDOT Reserves All Objections

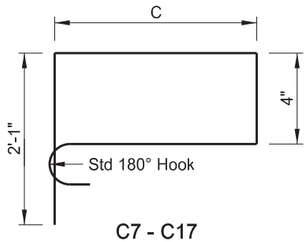
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	170	36



C1 - C6

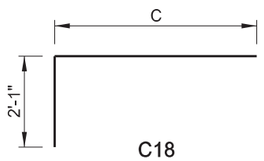


W1 - W16



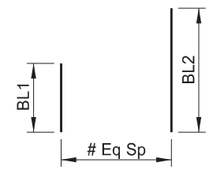
C7 - C17

MARK	"W"
W1	8'- 11"
W2	8'- 7"
W3	8'- 3"
W4	7'- 10"
W5	7'- 6"
W6	7'- 2"
W7	6'- 9"
W8	6'- 5"
W9	6'- 1"
W10	5'- 8"
W11	5'- 4"
W12	5'- 0"
W13	4'- 7"
W14	4'- 3"
W15	3'- 10"
W16	3'- 7"



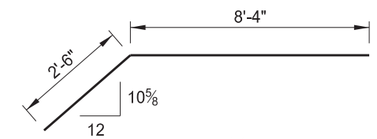
C18

MARK	"C"
C1	4'- 6"
C2	4'- 4"
C3	4'- 2"
C4	4'- 0"
C5	3'- 10"
C6	3'- 7"
C7	3'- 5"
C8	3'- 3"
C9	3'- 1"
C10	2'- 11"
C11	2'- 9"
C12	2'- 6"
C13	2'- 4"
C14	2'- 2"
C15	2'- 0"
C16	1'- 10"
C17	1'- 7"
C18	3'- 3"



MARK	LENGTH 1 SET	BL1	BL2	SPACES
O1-O11	63'-8"	3'-1"	8'-6"	10

STRAIGHT BAR SET DETAIL



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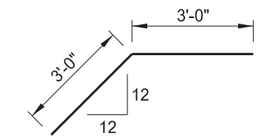

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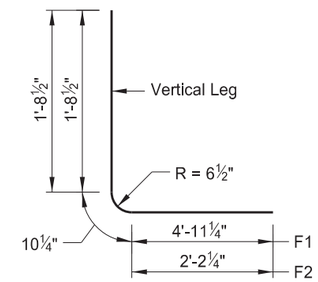
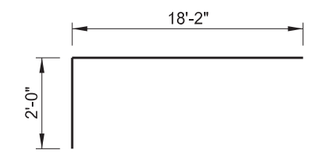


F1 & F2



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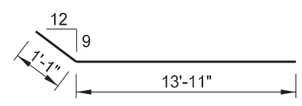

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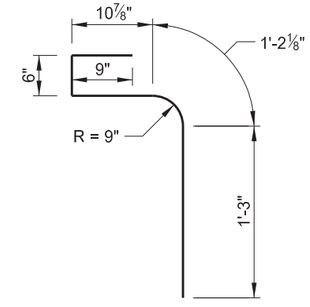

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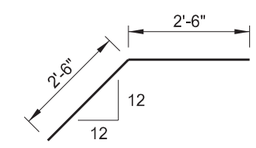

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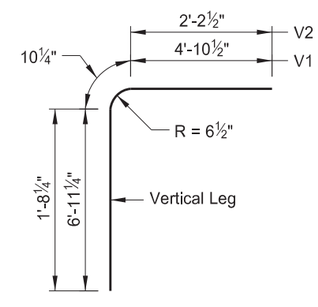

V1 & V2

REGISTERED PROFESSIONAL ENGINEER
RYAN A. RYKOWSKY
PE-6691
DATE: 07/20/26
NORTH DAKOTA

8 NORTH OF I-94
CREEK

BAR DETAILS

Docusign Envelope ID: F081549B-5821-8140-8046-62C46AD0B752

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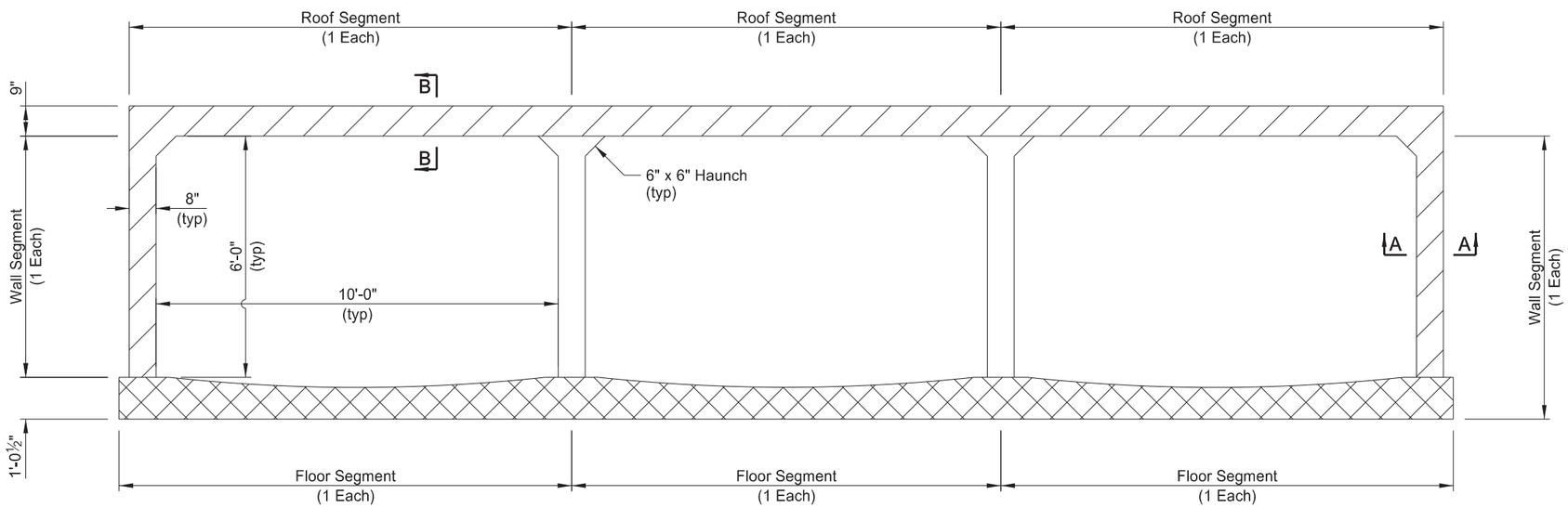
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	170	37



BOX CULVERT JOINT REPAIR

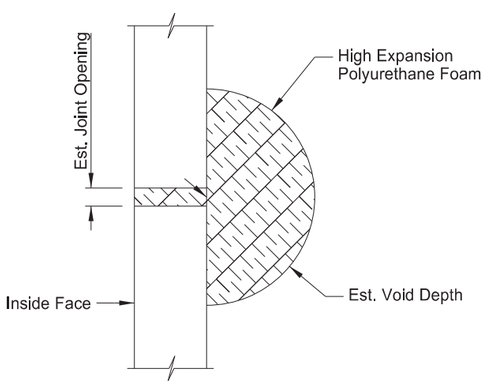
BOX CULVERT JOINT REPAIR - FLOOR

(AT CONSTRUCTION JOINT)

BARREL SECTION

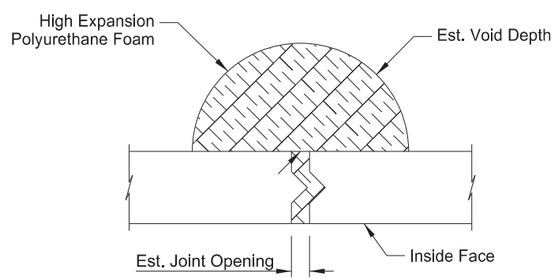
BRIDGE BID ITEMS

SPEC	CODE	ITEM DESCRIPTION	UNIT	QUANTITY
900	1000	TEMPORARY STREAM DIVERSION	EA	1
930	3640	HIGH EXPANSION POLYURETHANE FOAM	GAL	10
930	9671	BOX CULVERT JOINT REPAIR	EA	5
930	9672	BOX CULVERT JOINT REPAIR - FLOOR	EA	3



(SECTION USED FOR QTY CALCS)

A-A



(SECTION USED FOR QTY CALCS)

B-B

SPECIAL PROVISIONS	
SSP2	MIGRATORY BIRD TREATY ACT
SP 228(24)	TEMPORARY WATER DIVERSION

CREEK
6 SOUTH OF ND 25

CLEAR SPAN 3 x 10' CLEAR HEIGHT 6'

BOX CULVERT JOINT REPAIR

REGISTERED PROFESSIONAL ENGINEER
RYAN A. RYKOWSKY
PE-6691
DATE: 07/20/26
NORTH DAKOTA

ND DEPARTMENT OF TRANSPORTATION
BRIDGE DIVISION

Jason Thorenson
07/21/26

Docusign Envelope ID: F081549B-5821-8140-8046-62C46AD0B752

NOTES

900 TEMPORARY STREAM DIVERSION: It is anticipated that a temporary stream diversion will be required to complete the work at this site. Construct, maintain, and remove the temporary stream diversion in accordance with the Special Provision for Temporary Water Diversion.

Do not construct a temporary stream diversion if the Contractor and Engineer agree that no diversion is required at this site. No payment will be made for a temporary stream diversion at this site if the diversion is eliminated by agreement of Contractor and Engineer

930 BOX CULVERT JOINT REPAIR: The box culvert has existing construction joints as listed in the table below. Complete the joint repair work listed at each joint location. No work is required at joints listed with 0 segments in the joint repair columns.

Joint Number	Approx. Joint Opening	Est. Void Depth	Box Culvert Joint Repair (Roof & Walls)	Box Culvert Joint Repair - Floor	Estimated Qty High Expansion Foam
Joint 1	2”	0”	5 Segments	3 Segments	10 gallons
Joint 2	1”	0”	0 Segments	0 Segments	0 gallons

Note: Construction Joints are numbered from West to East.

Clean the joints by removing any dirt, debris, or loose material prior to completing joint repairs.

Floor Joints:

Fill the floor joint with concrete using Class AE-5 concrete or a commercially packaged self-consolidating concrete (SCC) mix. If using a commercially packaged SCC mix, provide a pre-blended polymer modified mix such as SikaCrete 211 SCC Plus, Sakrete Self-Consolidating Concrete Mix, or a similar product that produces a 28-day compressive strength of 4,000 psi or greater. Fill the joint so the concrete is flush with the interior floor of the box culvert. Wet cure the concrete a minimum of 3 days, or as specified by the manufacturer if using a commercially packaged SCC mix.

Include all costs for labor, equipment and materials required to repair the floor joints in the price bid for " Box Culvert Joint Repair - Floor".

Roof and Wall Joints:

Fill the box culvert joints and voids above the roof and behind the walls with high expansion polyurethane foam. Cut the foam flush with the interior of the box culvert after it has cured. Provide expansive foam consisting of a high expansive hydrophobic polyurethane foam that is nontoxic, nonflammable, and meets the following requirements.

Test	Requirement	Method
Tensile Strength	50 PSI	ASTM D 638
Compressive Strength	90 PSI	ASTM D 1621
Shear Strength	25 PSI	ASTM D 732
Water Absorption	< 2% by Volume	ASTM D 2842

Include all costs for labor, equipment and materials required to clean and prep the wall and roof joints to receive the expansive foam in the price bid for " Box Culvert Joint Repair".

Include the costs for labor, equipment and materials to place the expansive foam to fill the voids and joints in the roof and exterior walls in the price bid for "High Expansion Polyurethane Foam". The estimated foam quantities listed in the table are prior to expansion and assume a 16x foam expansion rate. Do not exceed the estimated quantity of foam without the permission of the Engineer.

The Engineer will deduct waste concrete from the measured quantity. The Contractor and Engineer will agree upon the amount of waste, including the material used in the yield test, at the end of each day.

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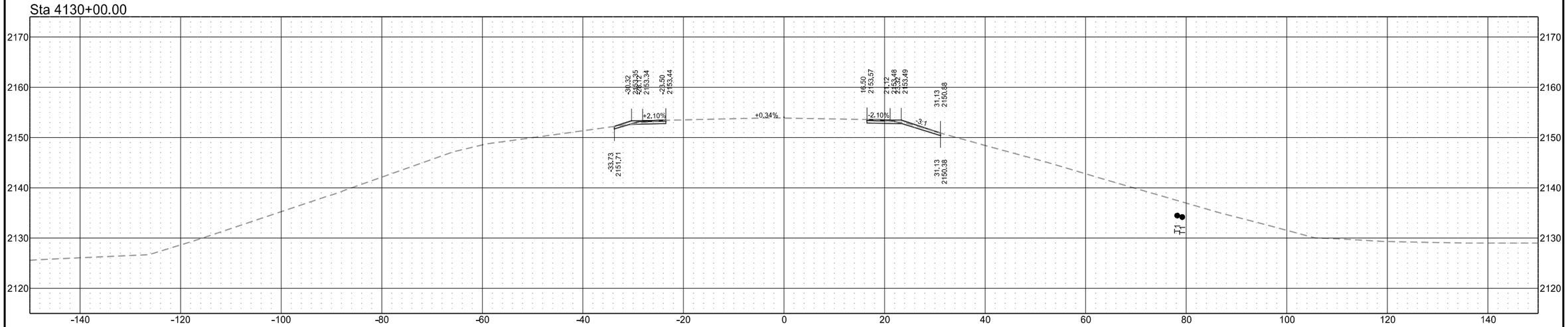
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	1

Sta 4130+00.00



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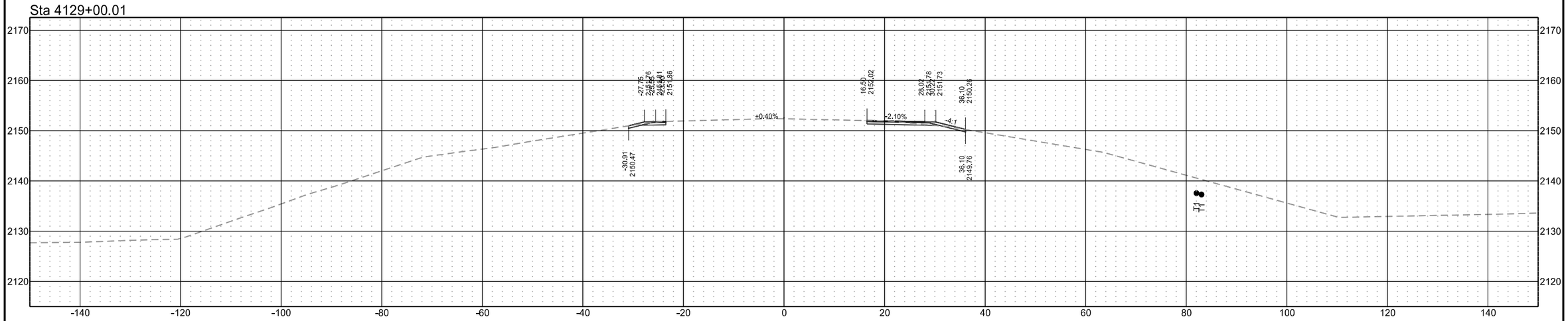

ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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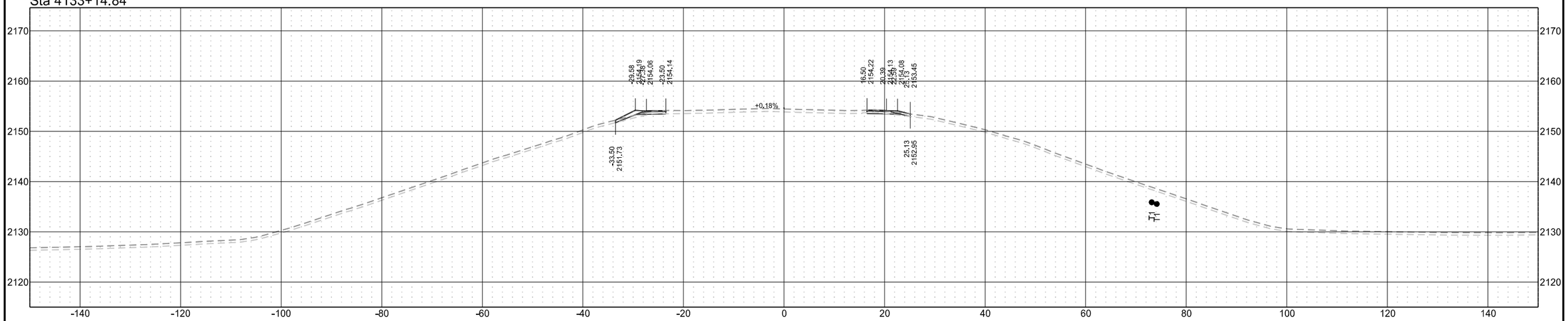
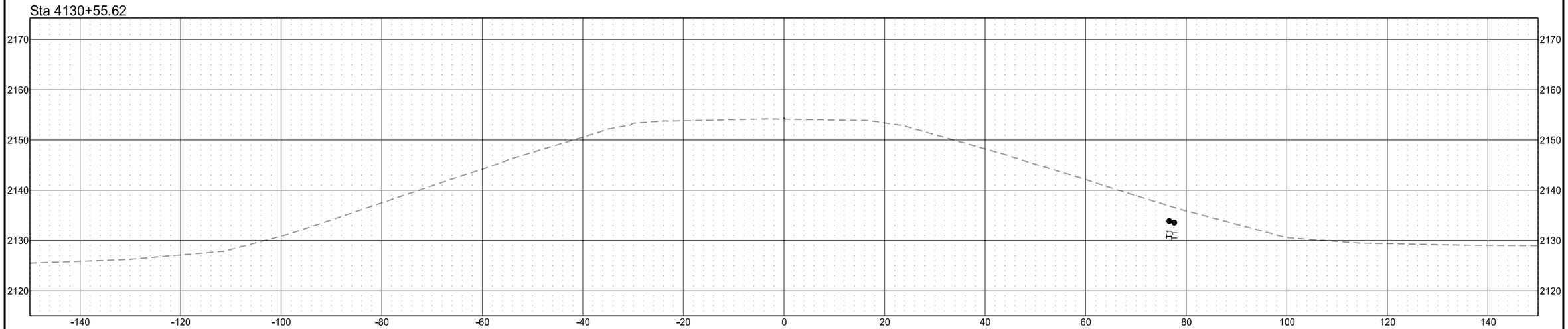
Sta 4133+14.84



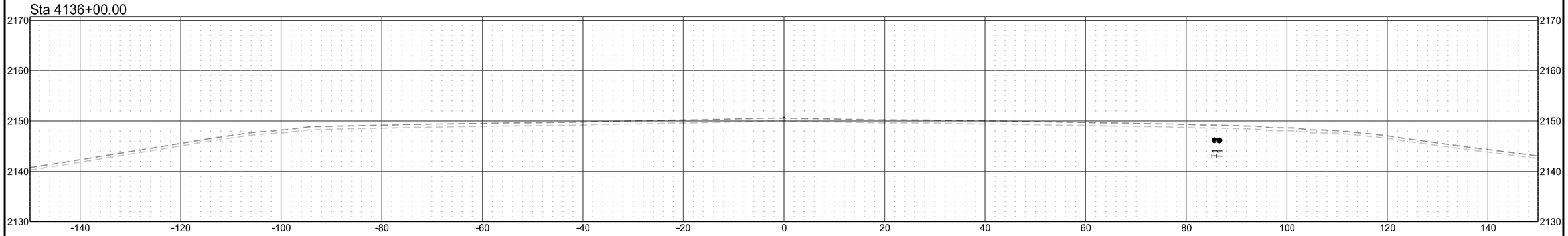
Sta 4130+55.62



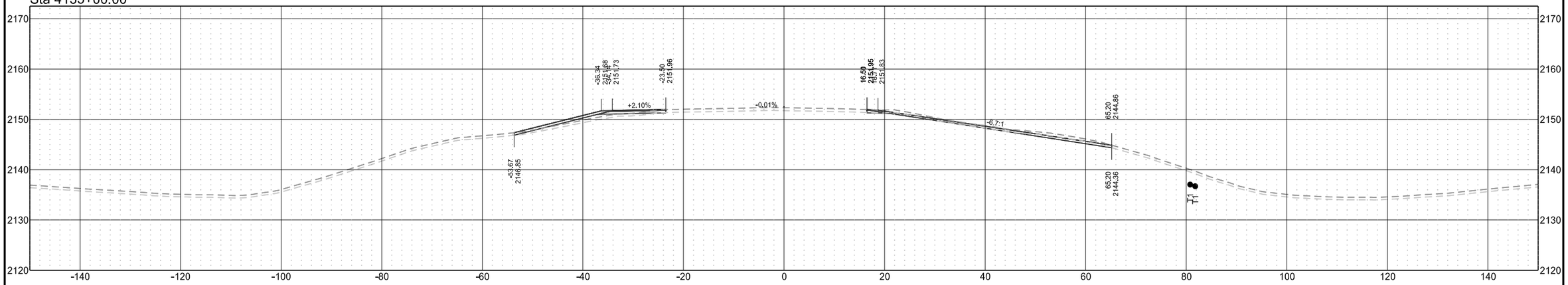
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	3

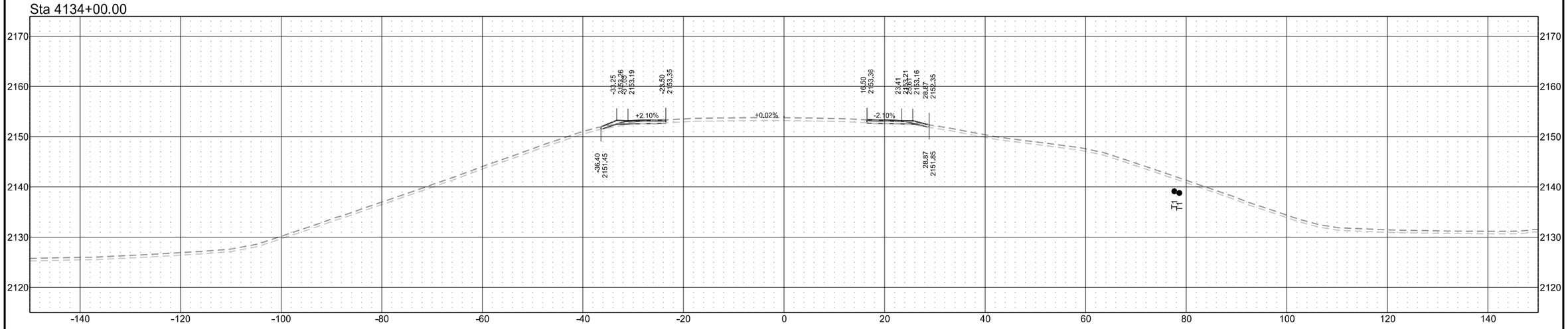
Sta 4136+00.00



Sta 4135+00.00



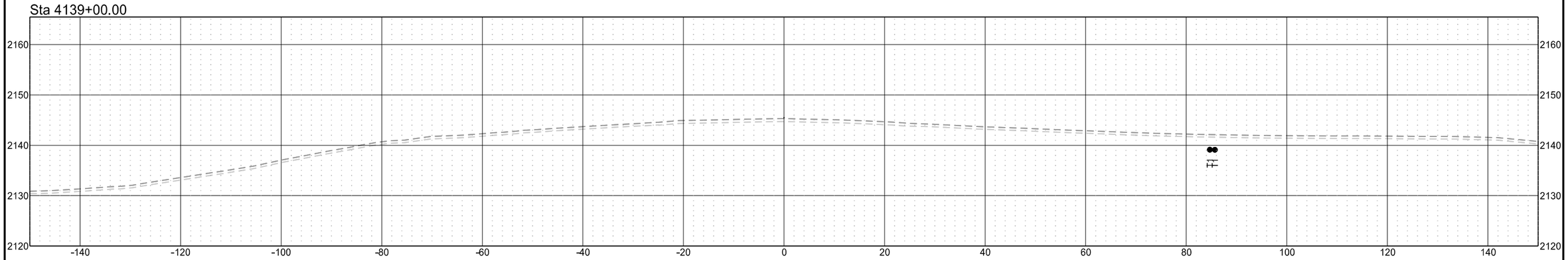
Sta 4134+00.00



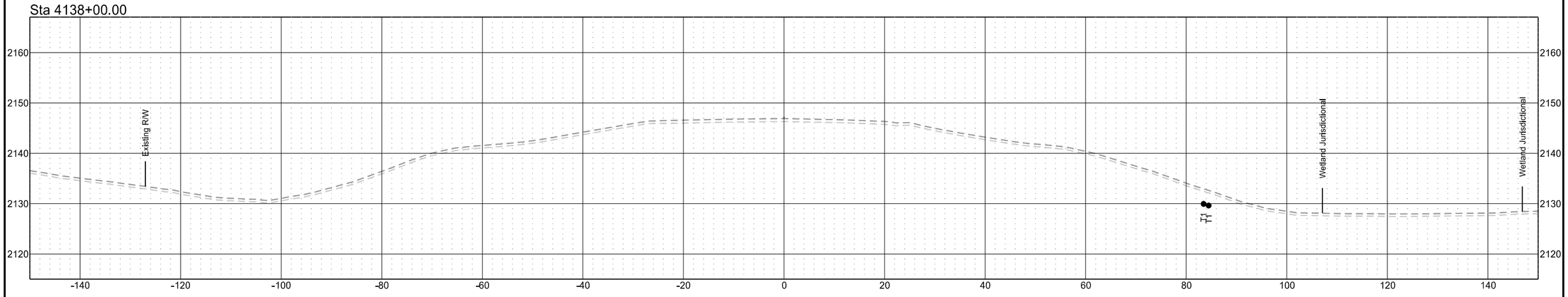
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	4

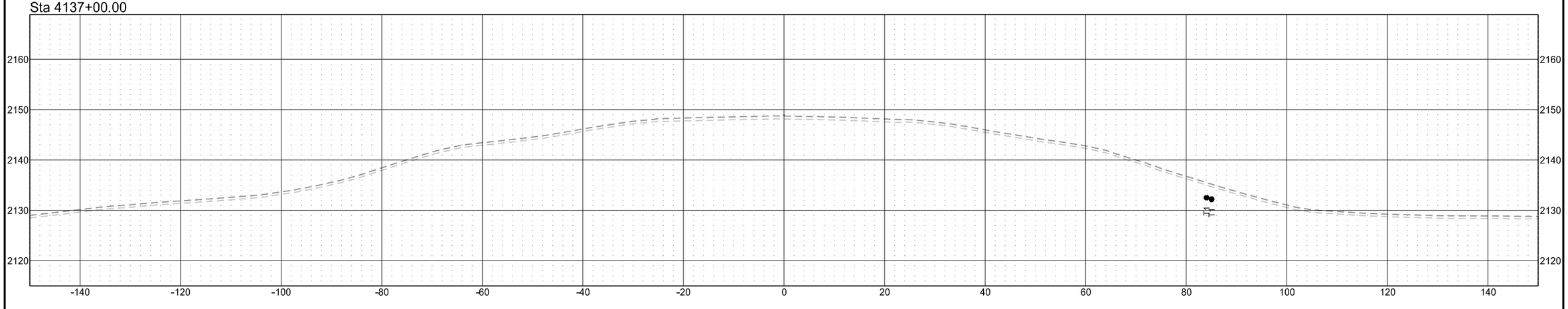
Sta 4139+00.00



Sta 4138+00.00



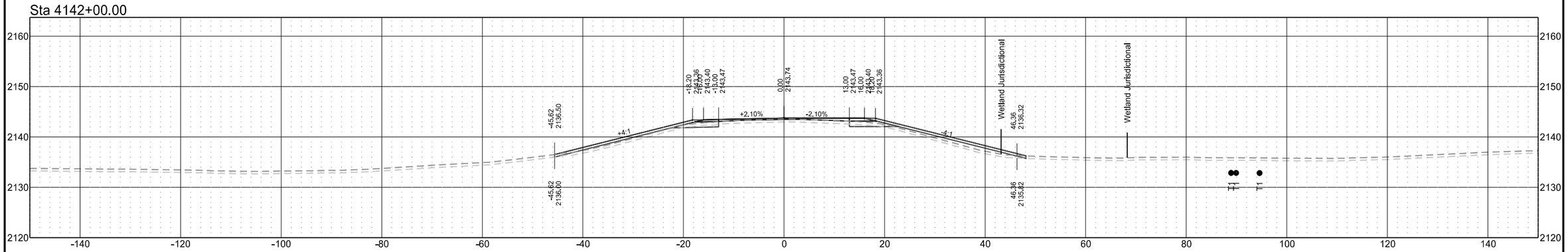
Sta 4137+00.00



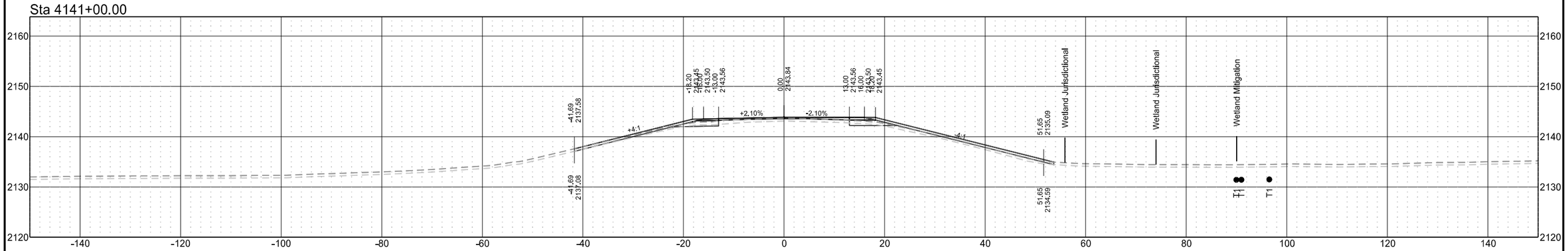
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	5

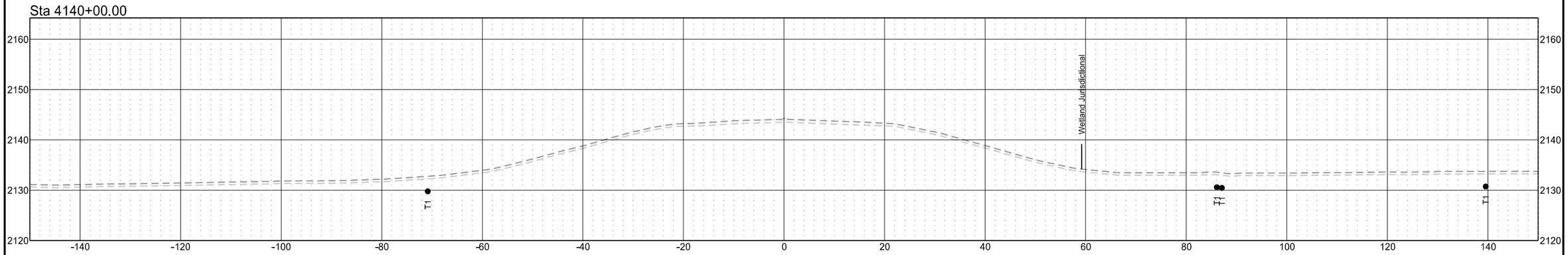
Sta 4142+00.00



Sta 4141+00.00



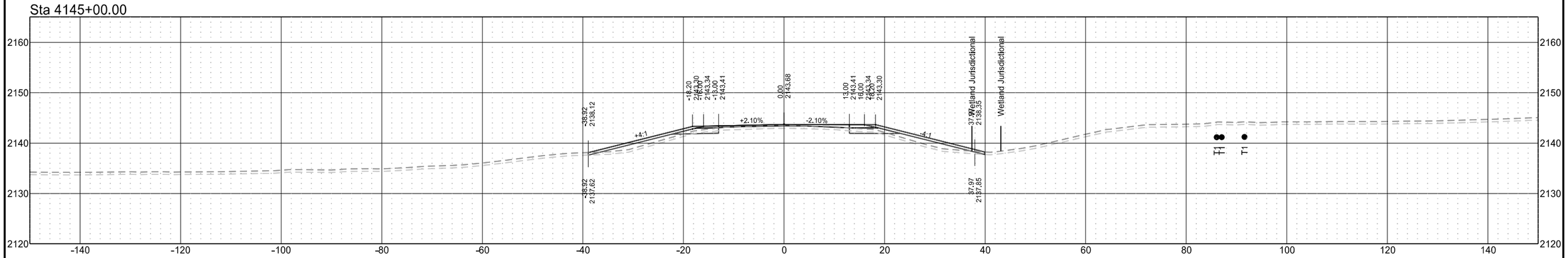
Sta 4140+00.00



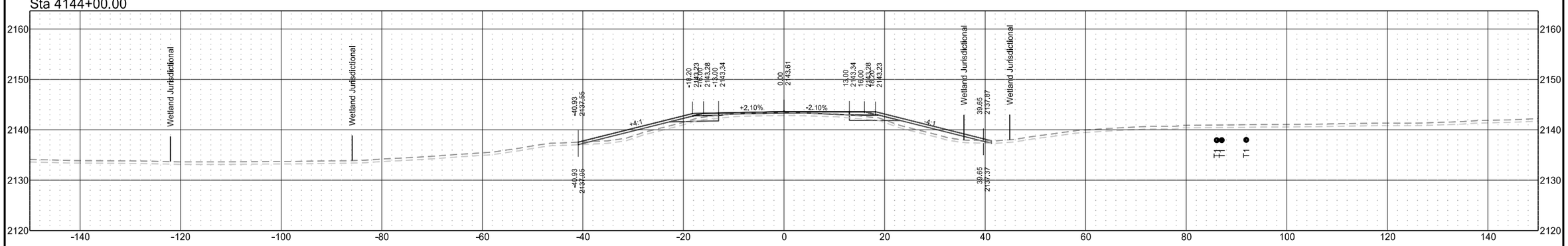
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	6

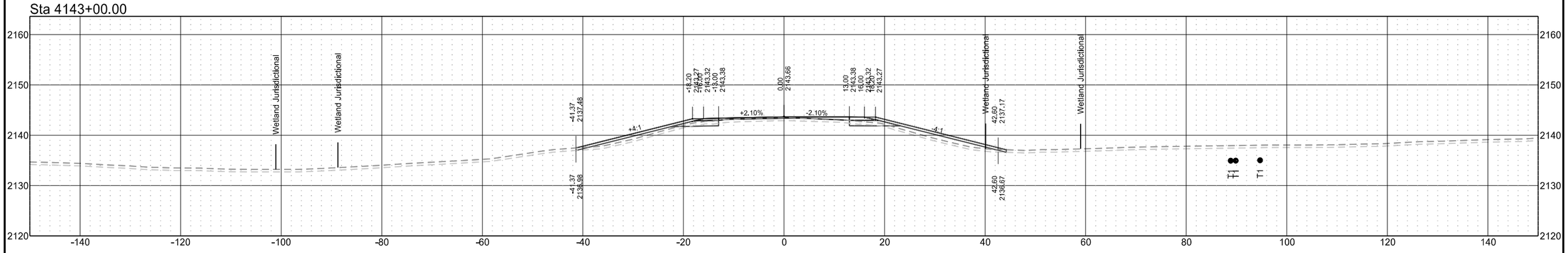
Sta 4145+00.00



Sta 4144+00.00



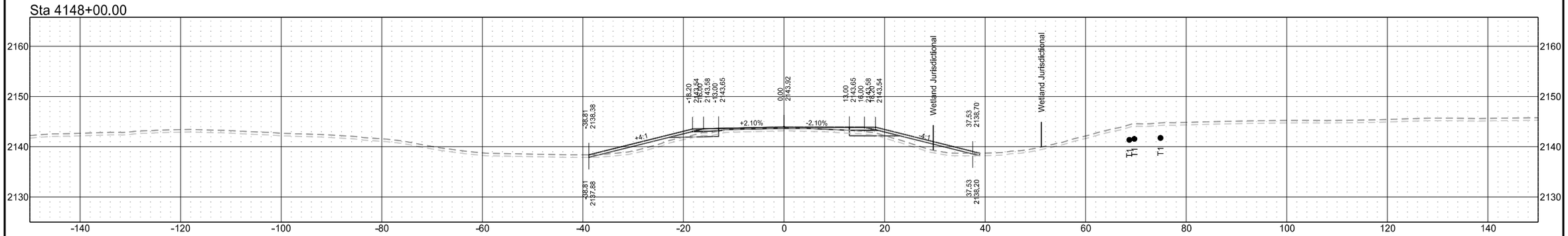
Sta 4143+00.00



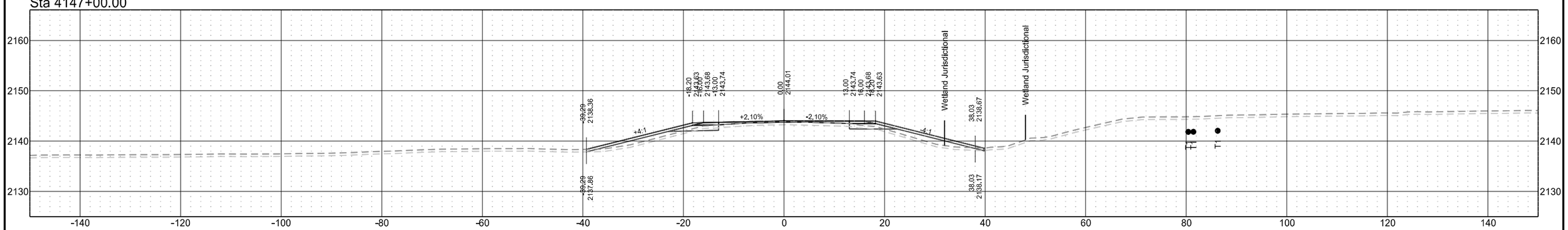
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	7

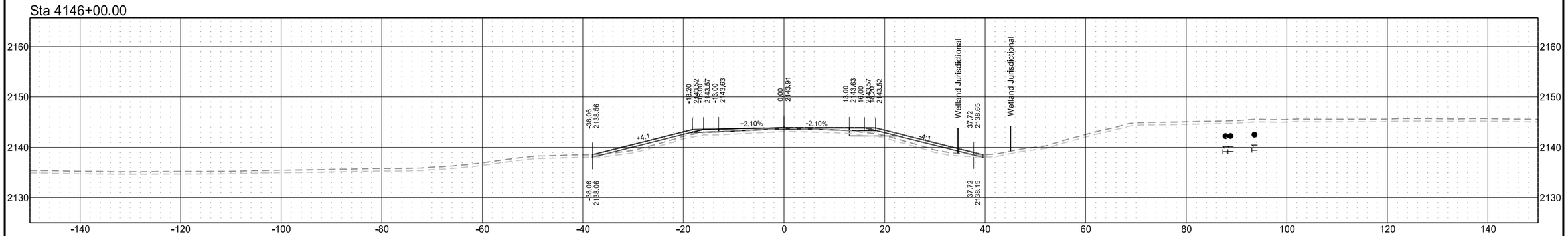
Sta 4148+00.00



Sta 4147+00.00



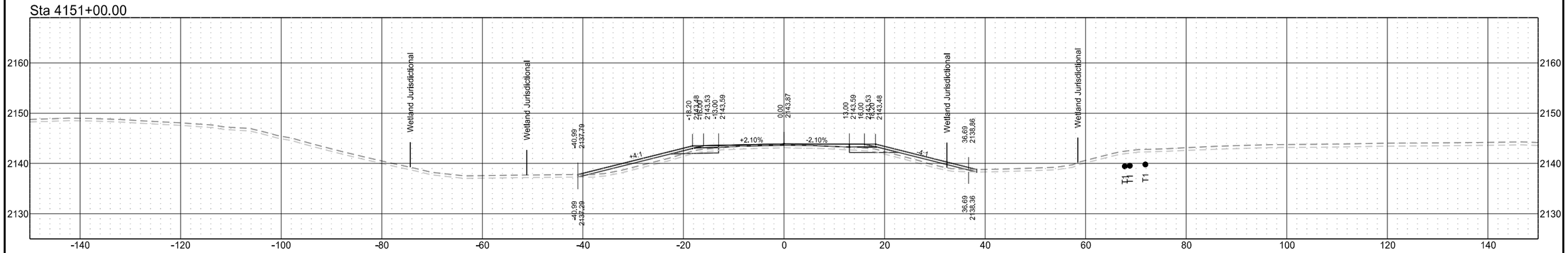
Sta 4146+00.00



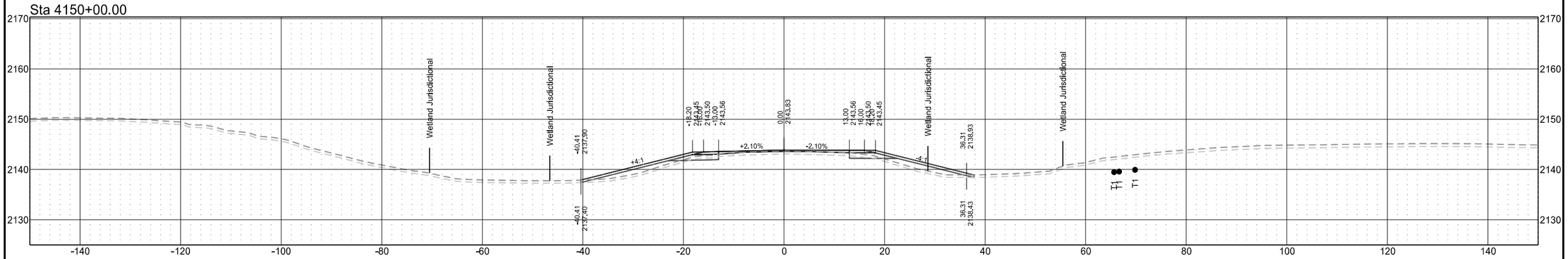
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	8

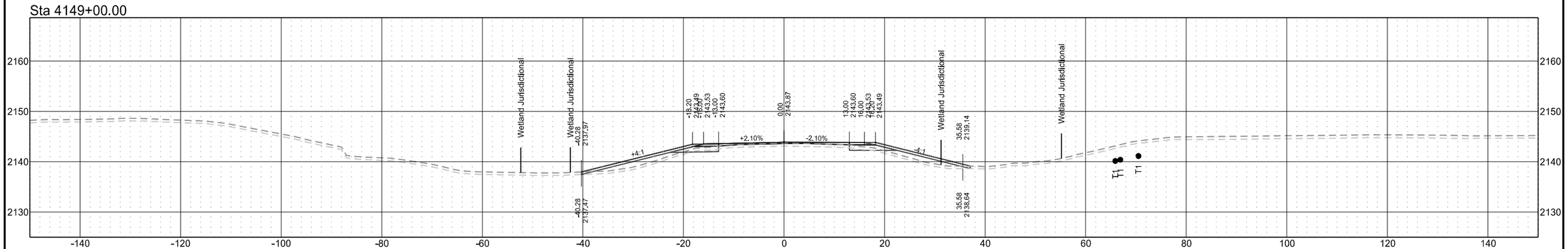
Sta 4151+00.00



Sta 4150+00.00



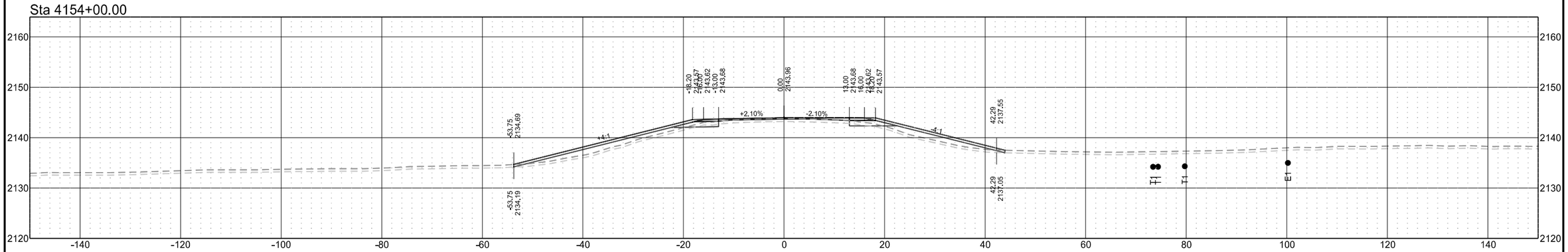
Sta 4149+00.00



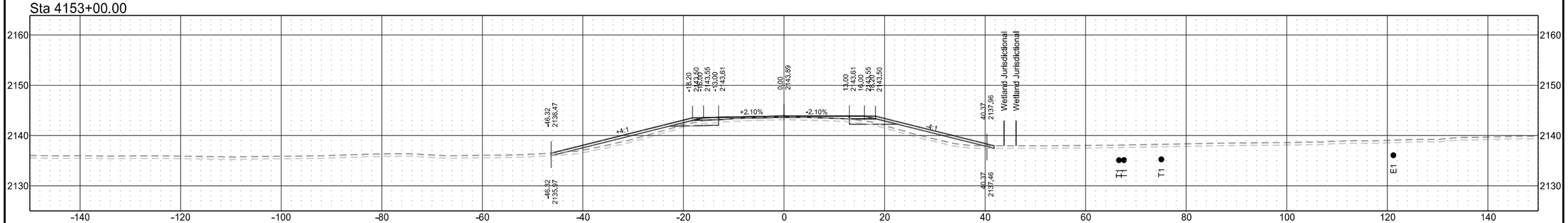
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	9

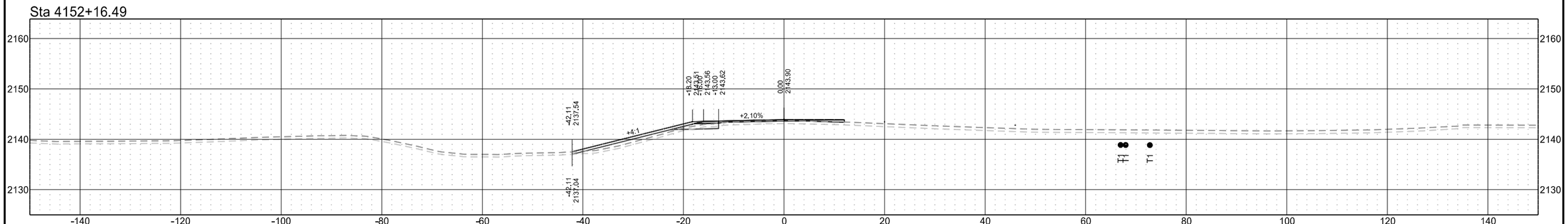
Sta 4154+00.00



Sta 4153+00.00



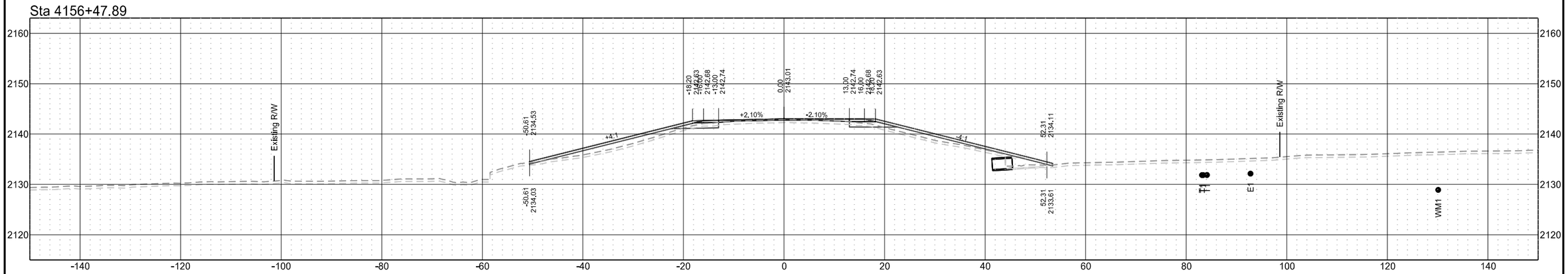
Sta 4152+16.49



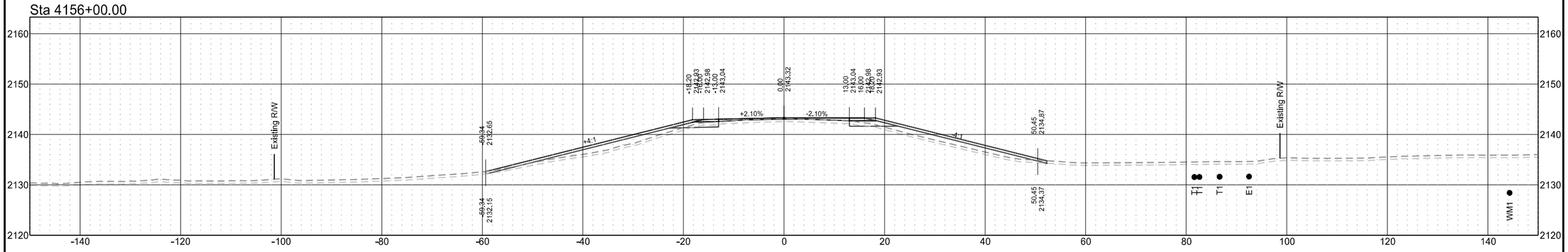
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	10

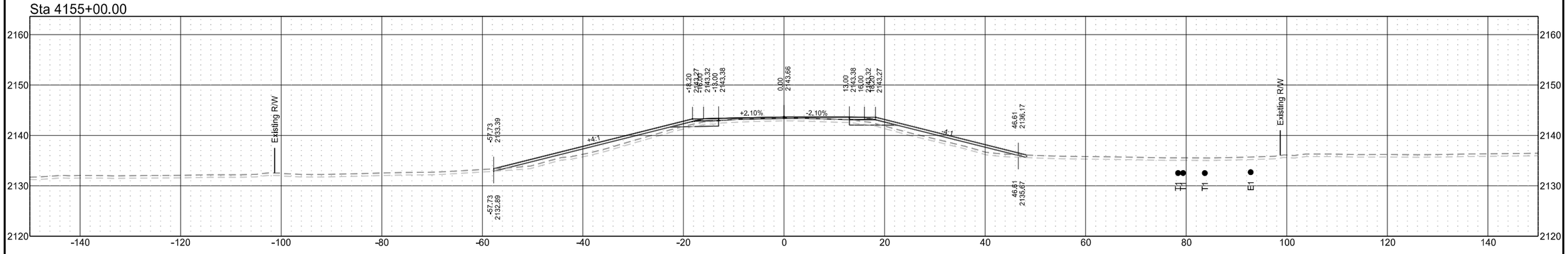
Sta 4156+47.89



Sta 4156+00.00



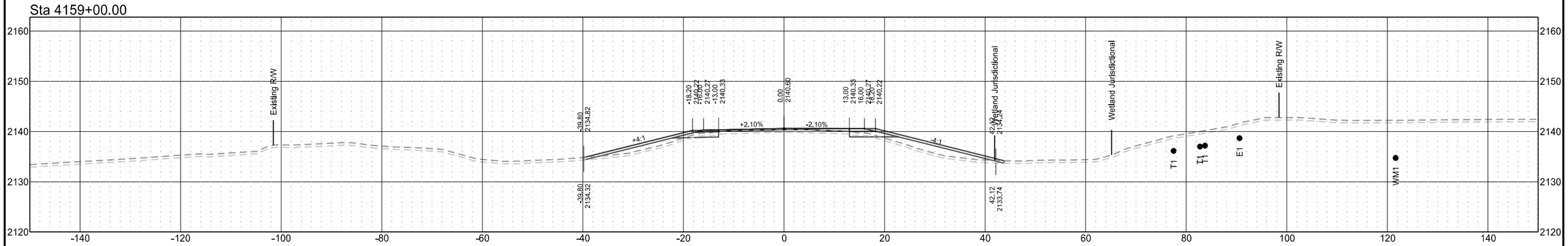
Sta 4155+00.00



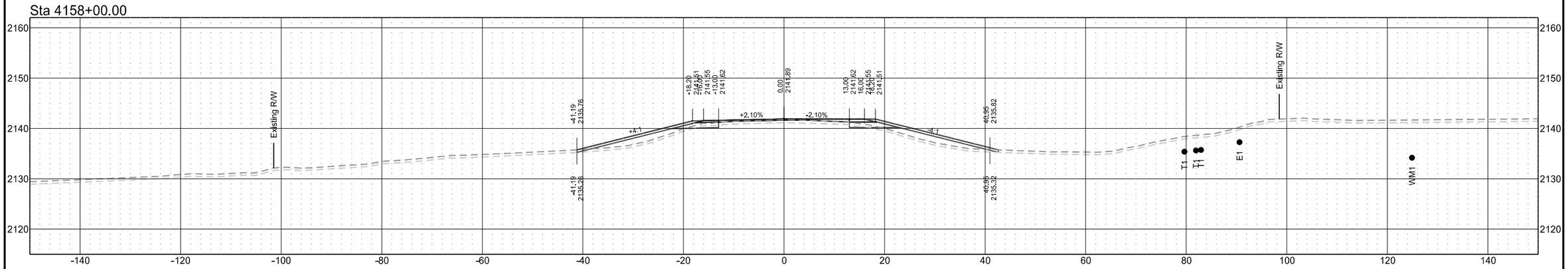
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	11

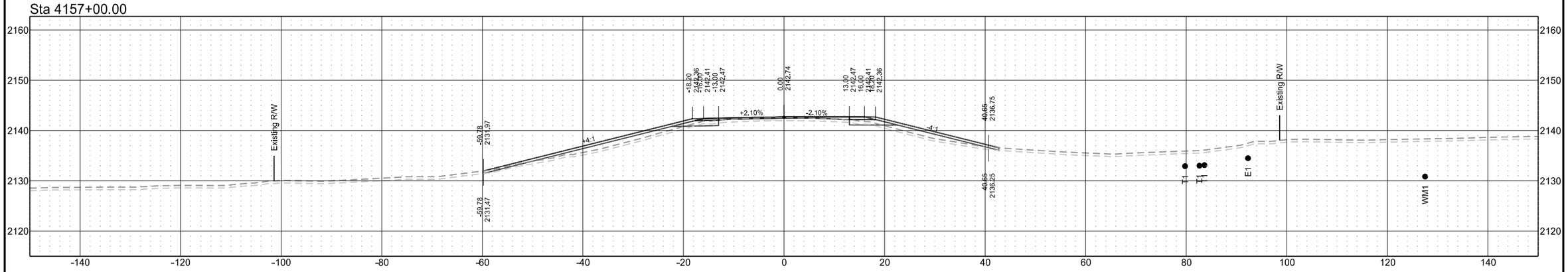
Sta 4159+00.00



Sta 4158+00.00



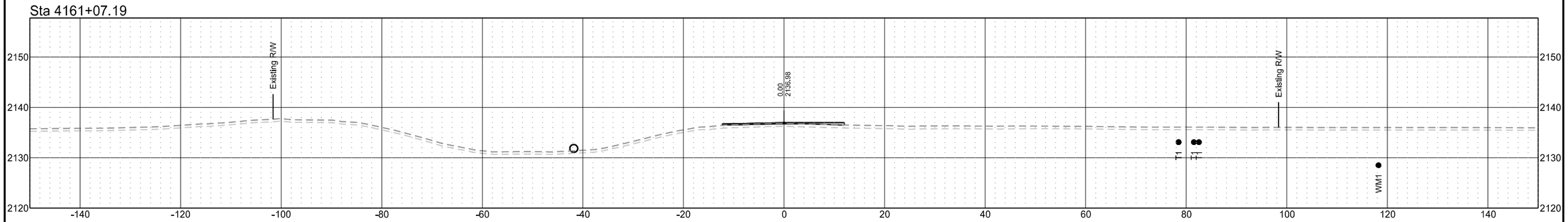
Sta 4157+00.00



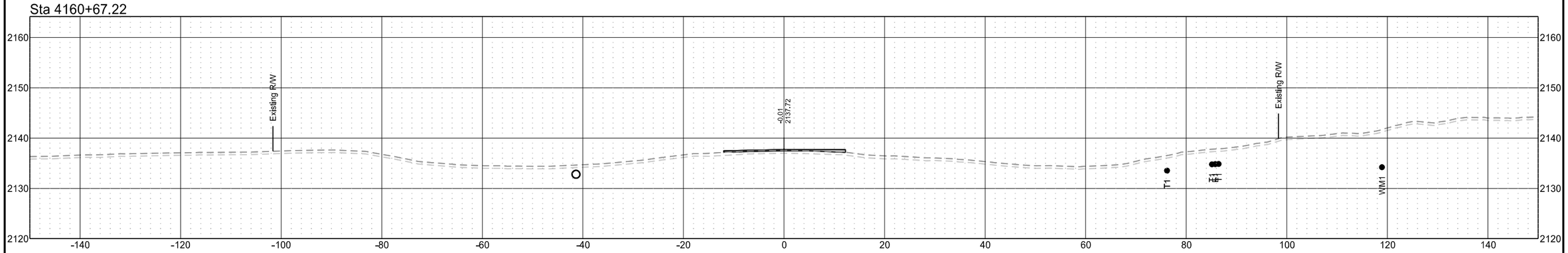
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	12

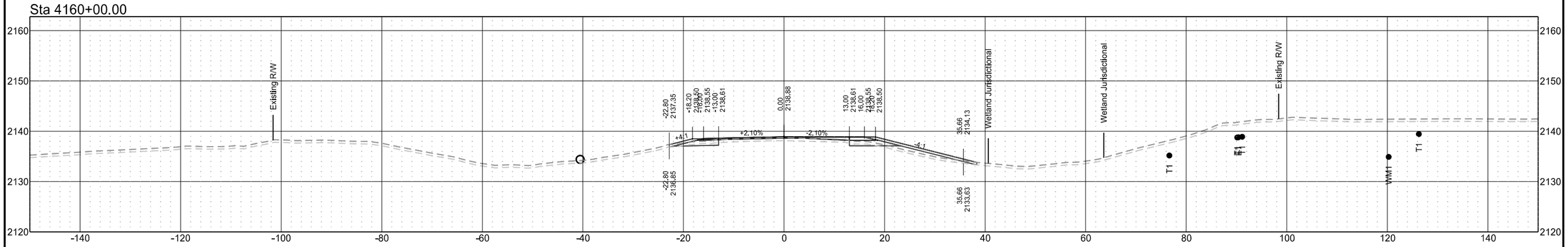
Sta 4161+07.19



Sta 4160+67.22



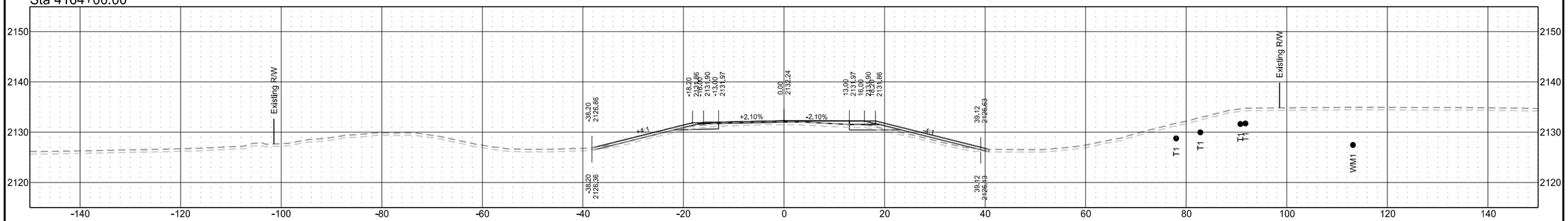
Sta 4160+00.00



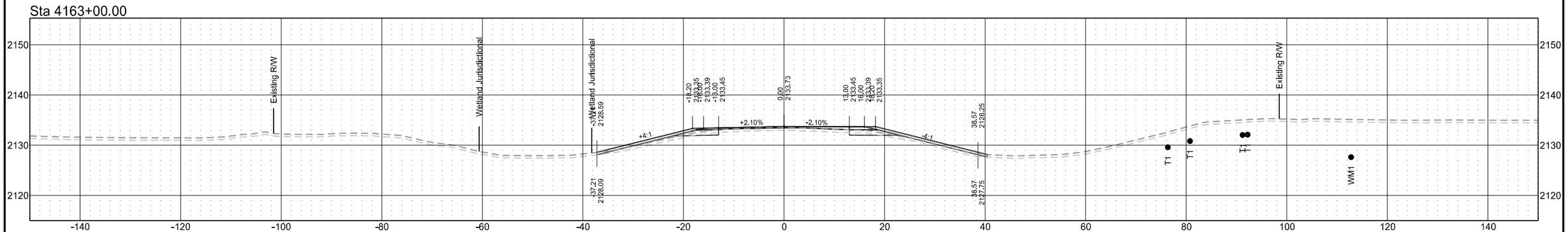
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	13

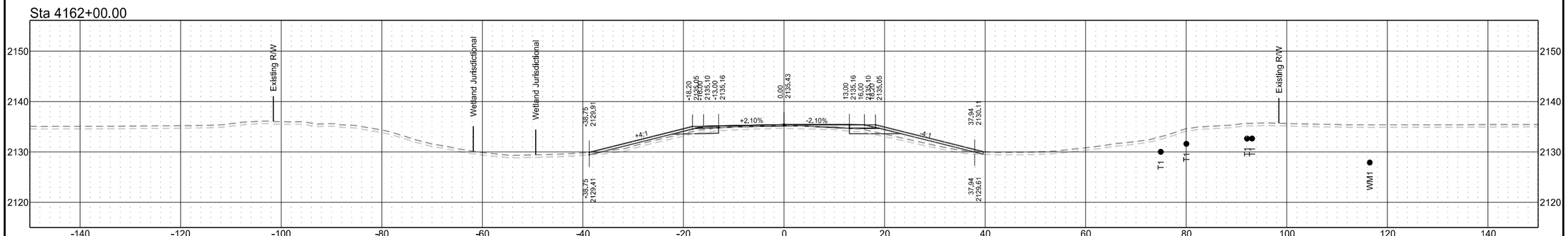
Sta 4164+00.00



Sta 4163+00.00



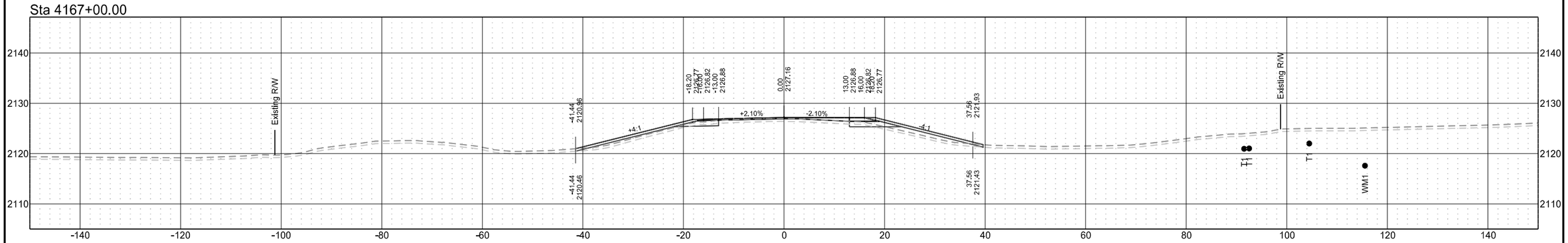
Sta 4162+00.00



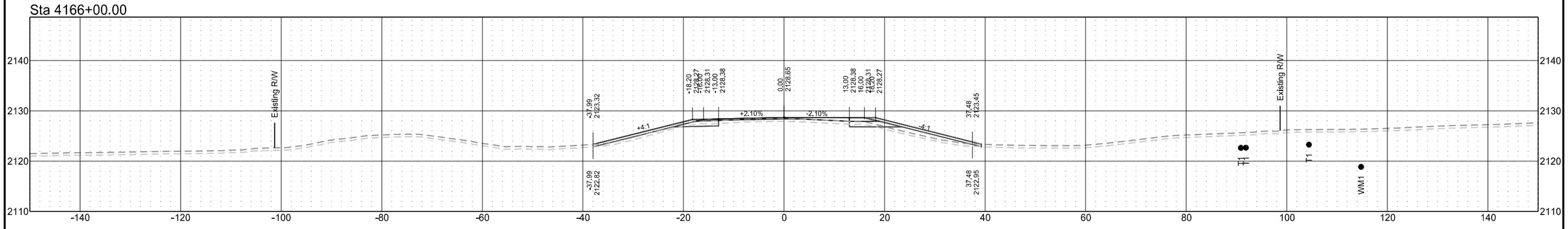
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	14

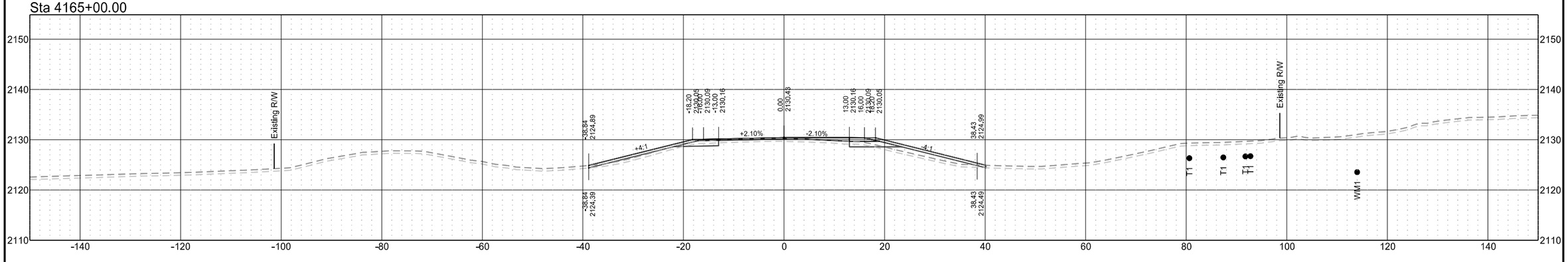
Sta 4167+00.00



Sta 4166+00.00



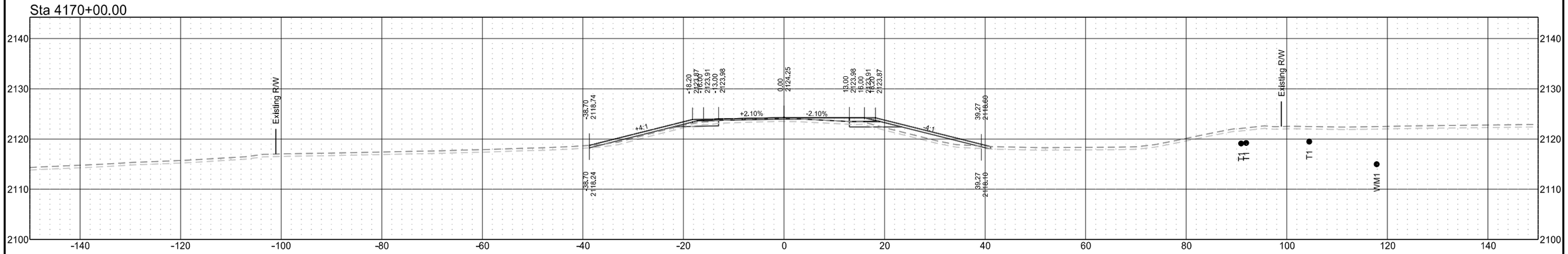
Sta 4165+00.00



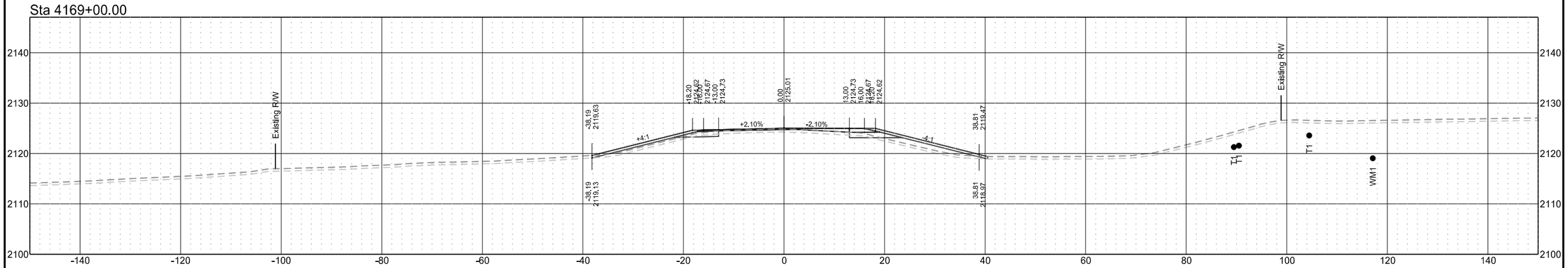
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	15

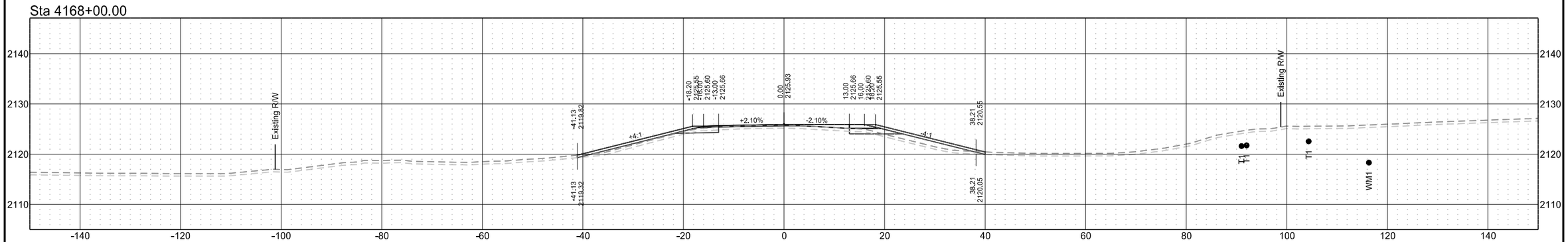
Sta 4170+00.00



Sta 4169+00.00



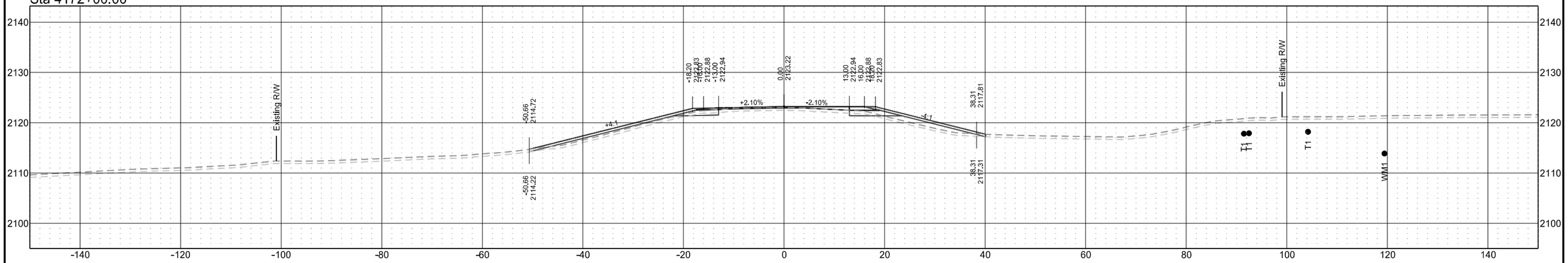
Sta 4168+00.00



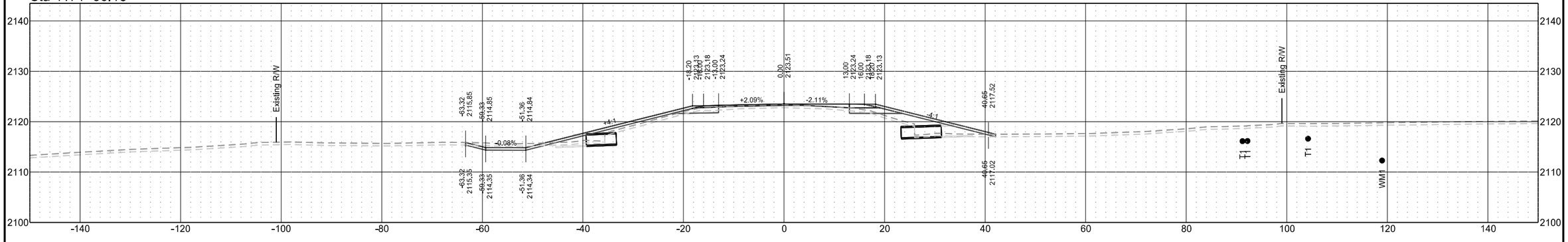
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	16

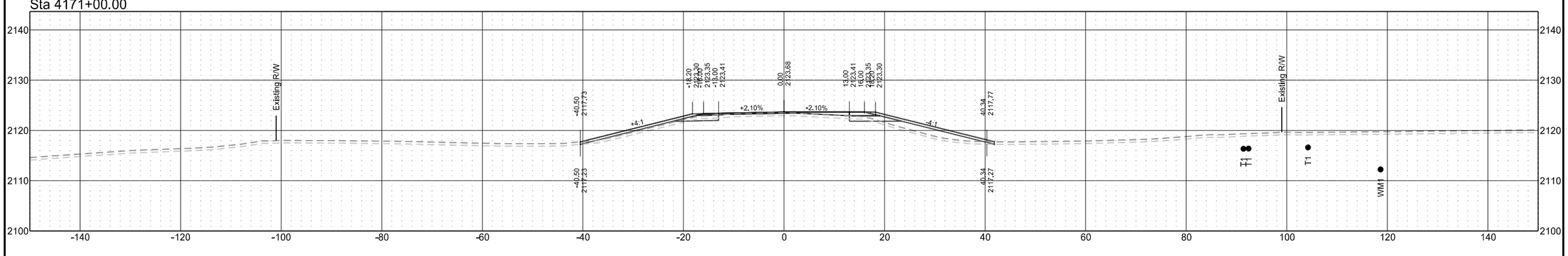
Sta 4172+00.00



Sta 4171+36.18



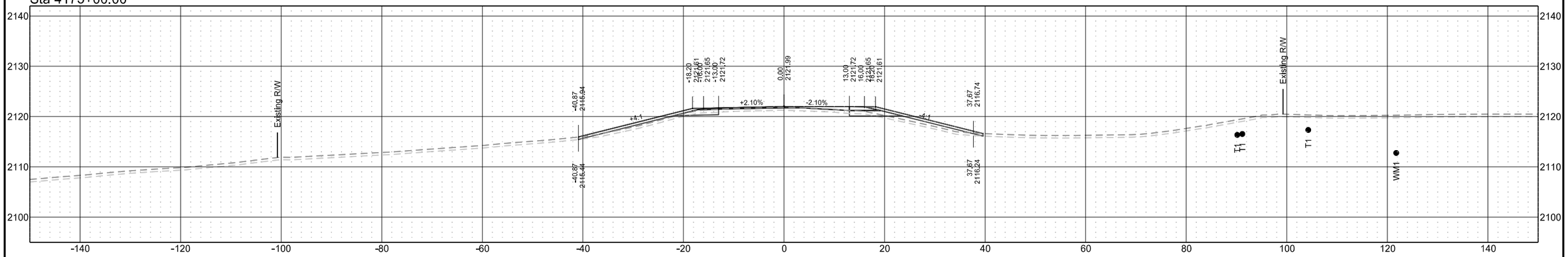
Sta 4171+00.00



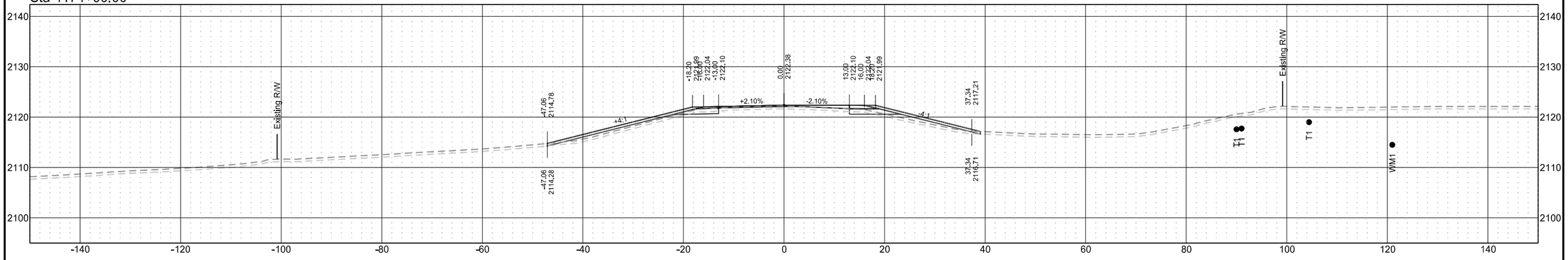
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	17

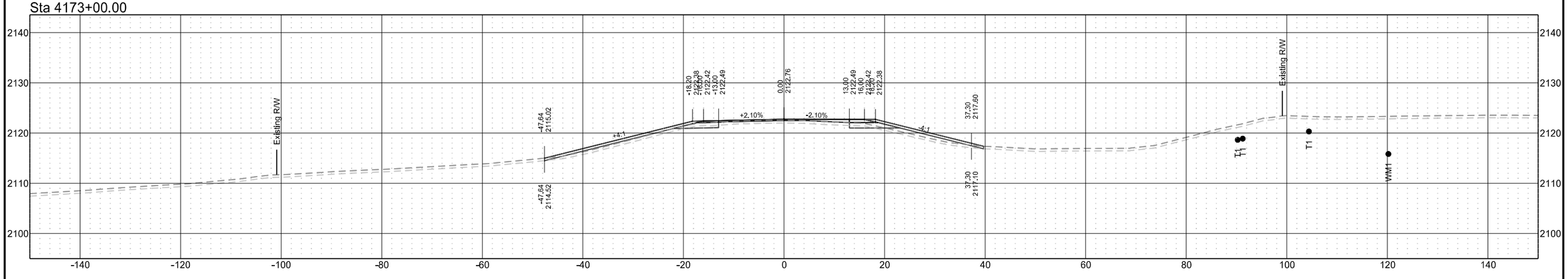
Sta 4175+00.00



Sta 4174+00.00



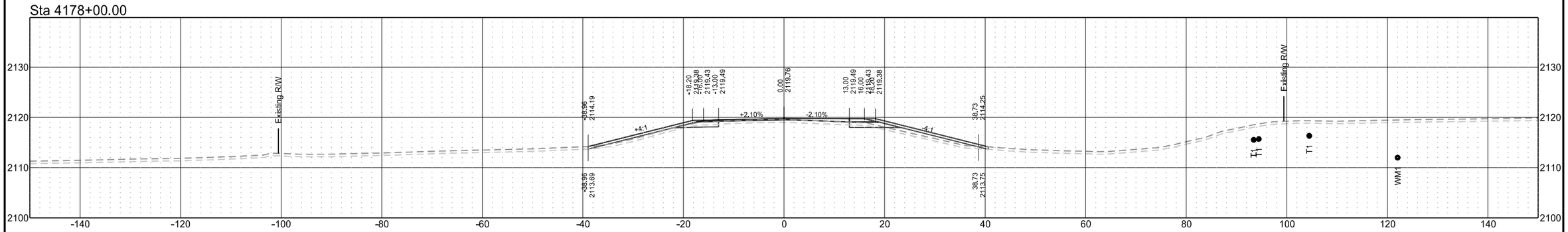
Sta 4173+00.00



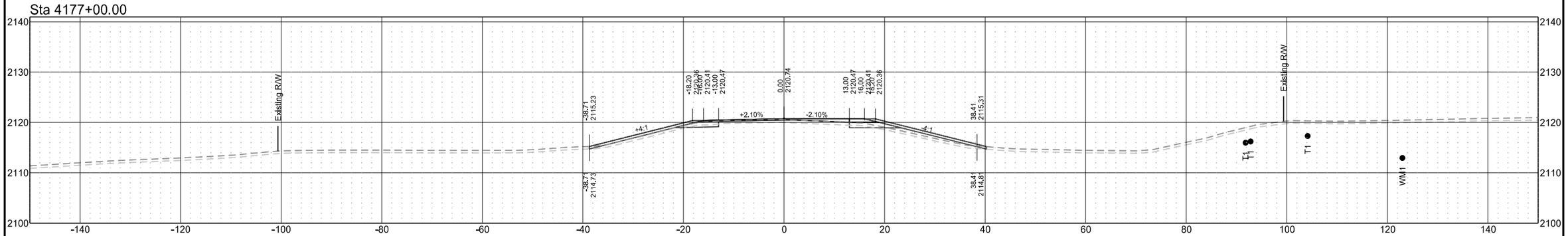
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	18

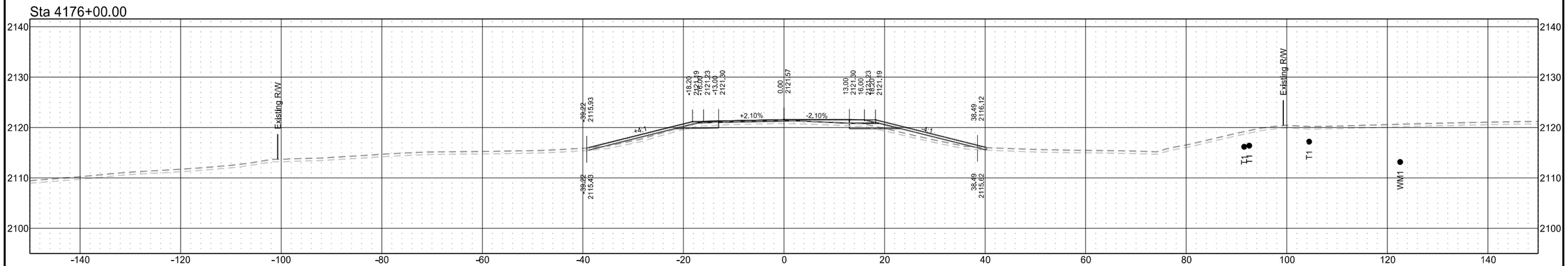
Sta 4178+00.00



Sta 4177+00.00



Sta 4176+00.00



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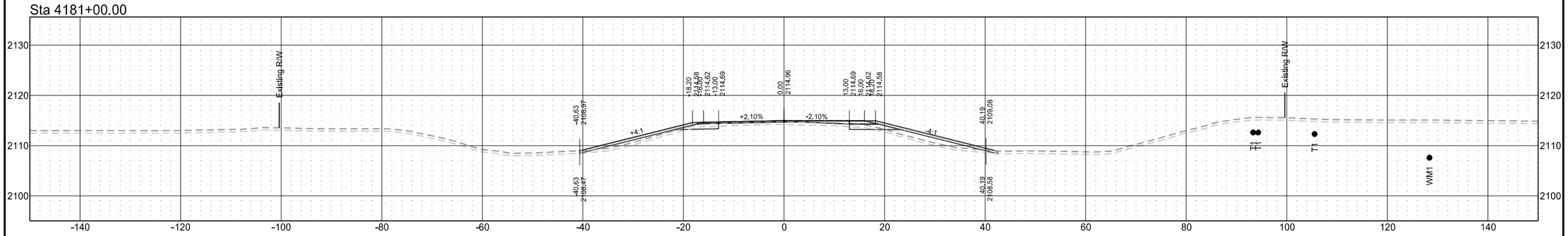
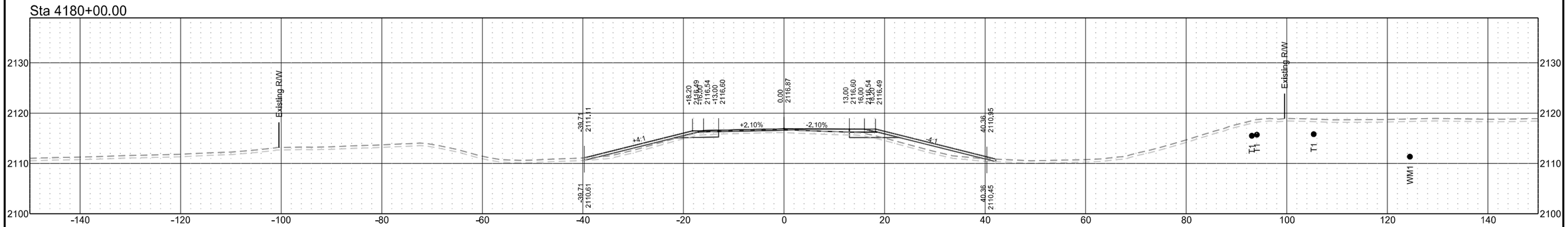
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	19

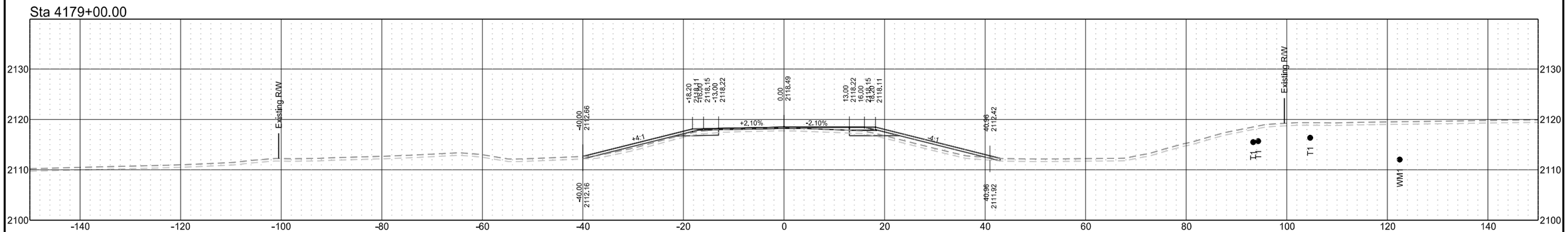
Sta 4181+00.00



Sta 4180+00.00



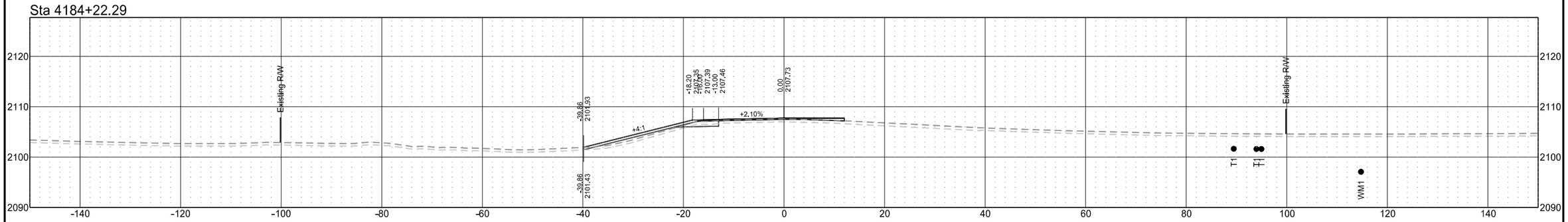
Sta 4179+00.00



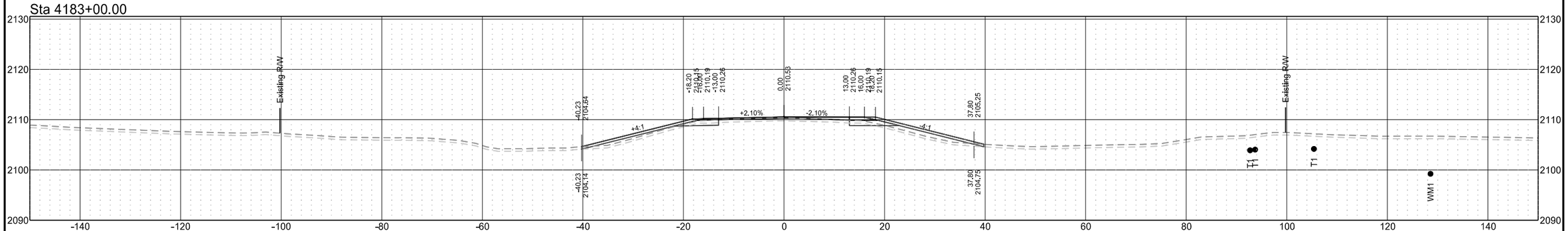
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	20

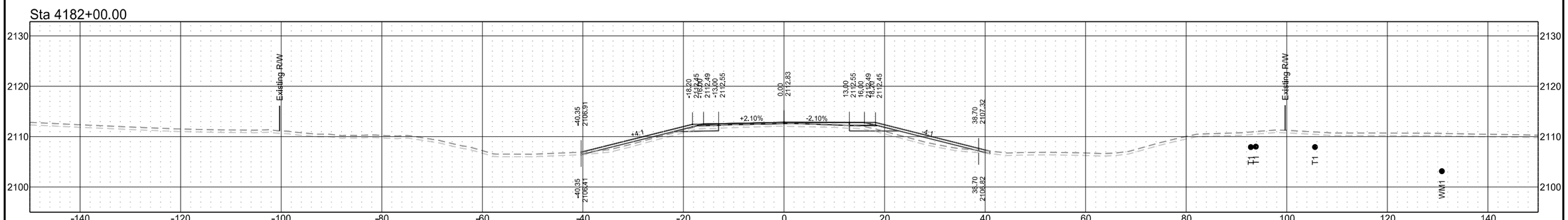
Sta 4184+22.29



Sta 4183+00.00



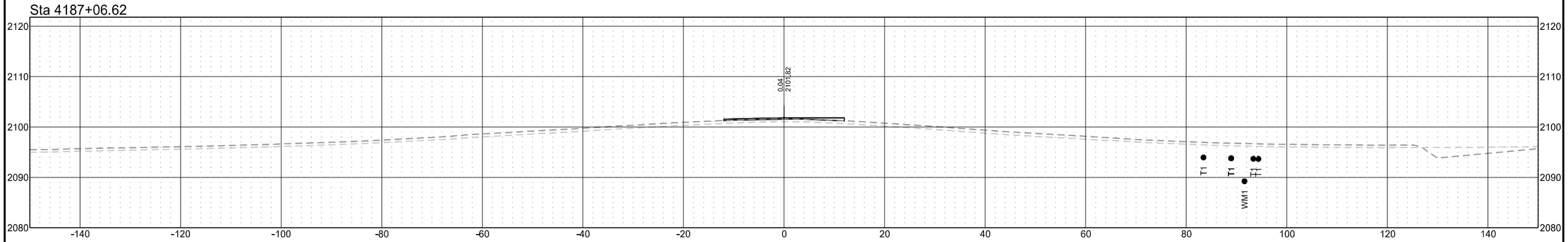
Sta 4182+00.00



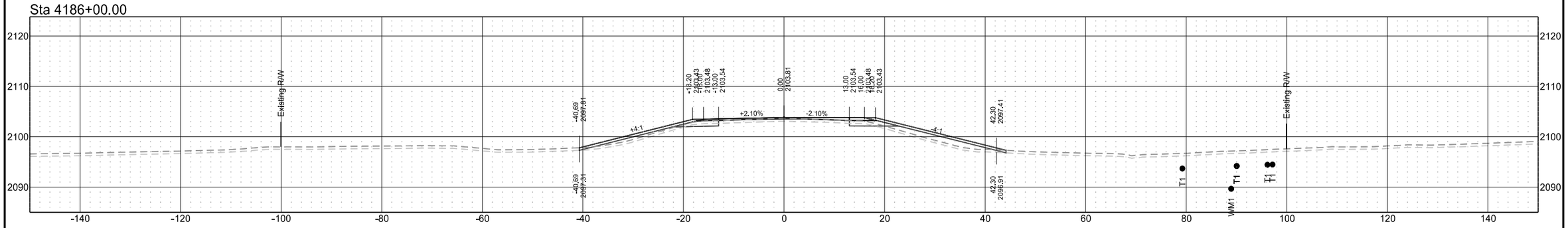
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	21

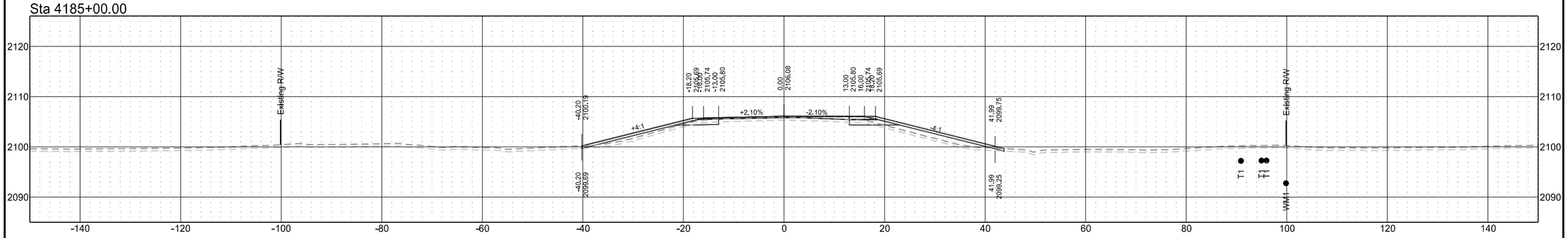
Sta 4187+06.62



Sta 4186+00.00



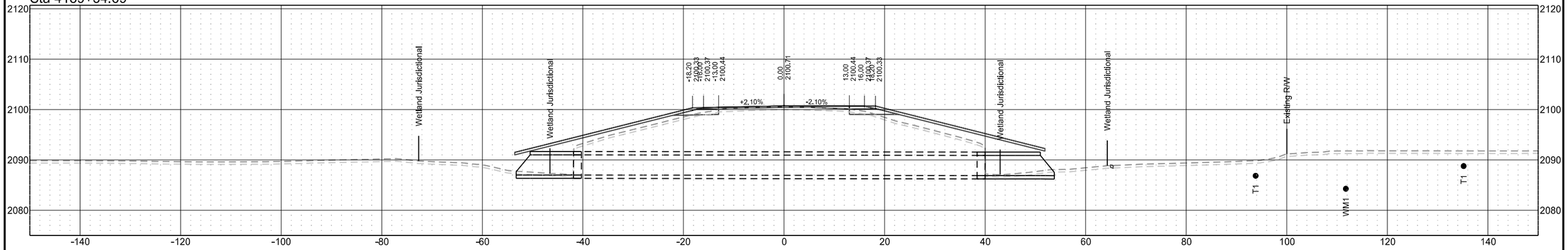
Sta 4185+00.00



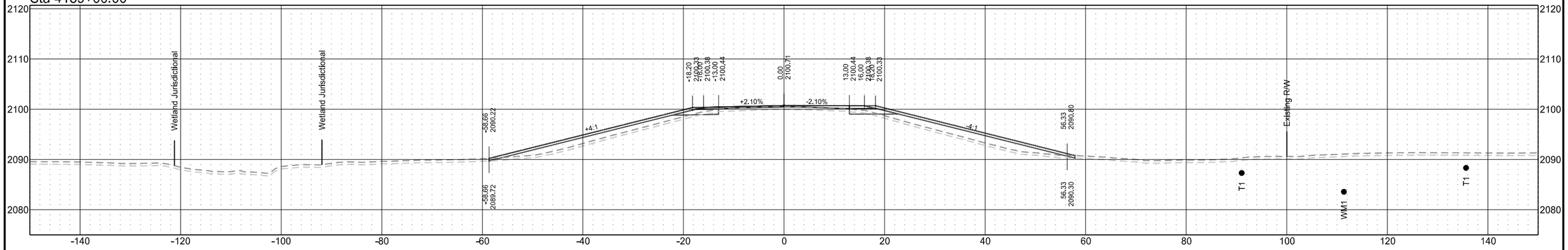
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	22

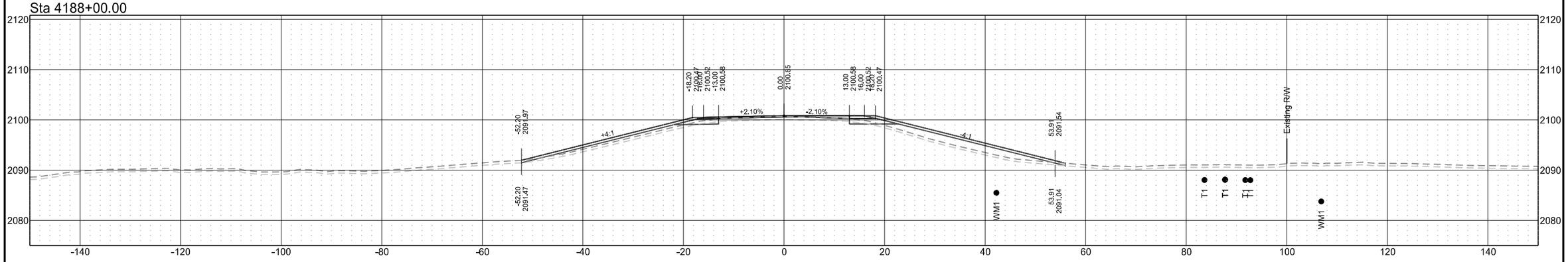
Sta 4189+34.69



Sta 4189+00.00



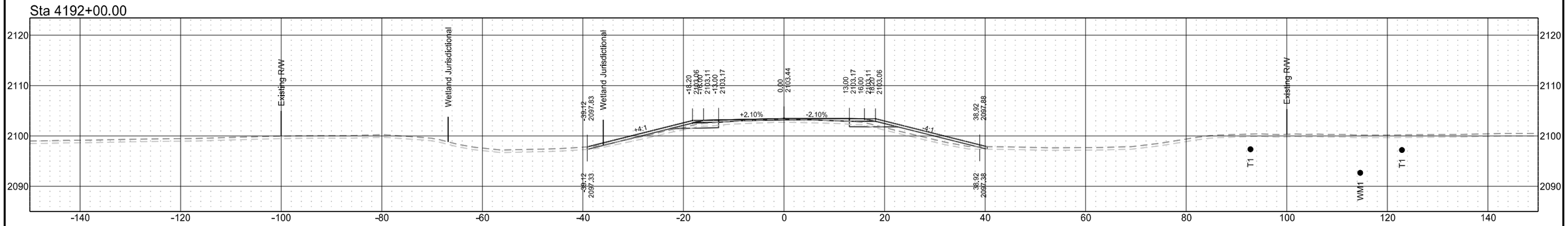
Sta 4188+00.00



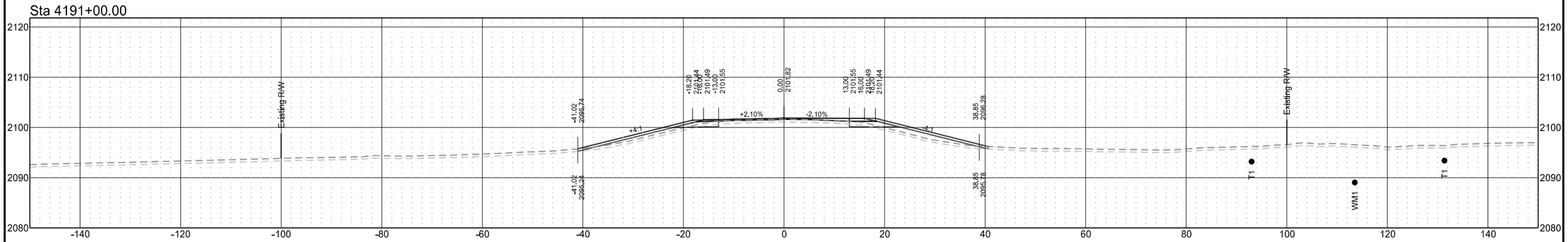
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	23

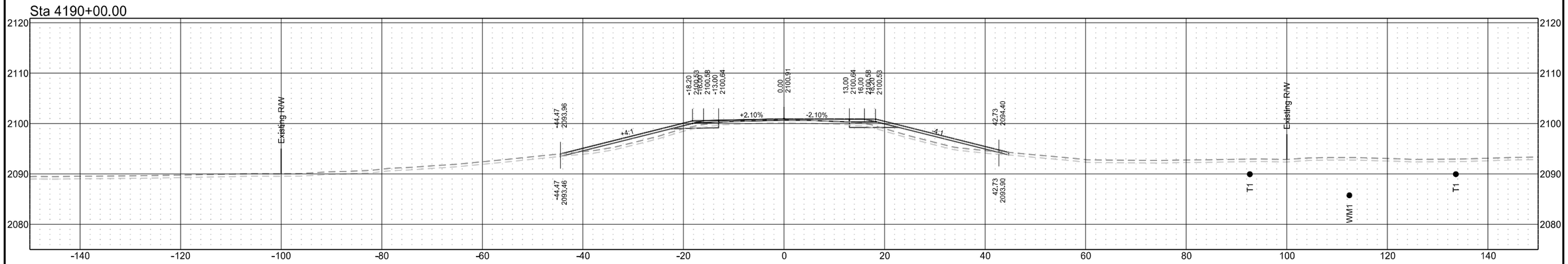
Sta 4192+00.00



Sta 4191+00.00



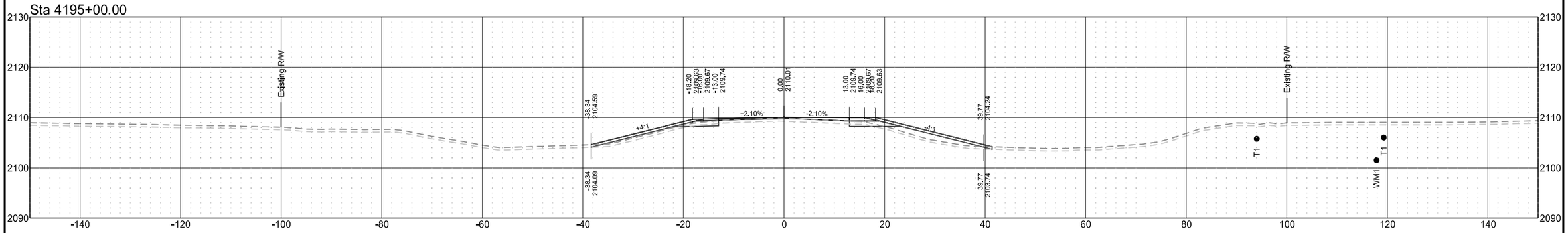
Sta 4190+00.00



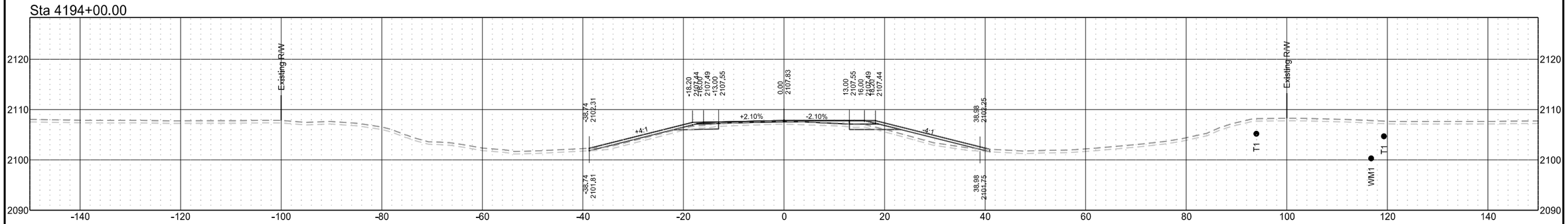
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	24

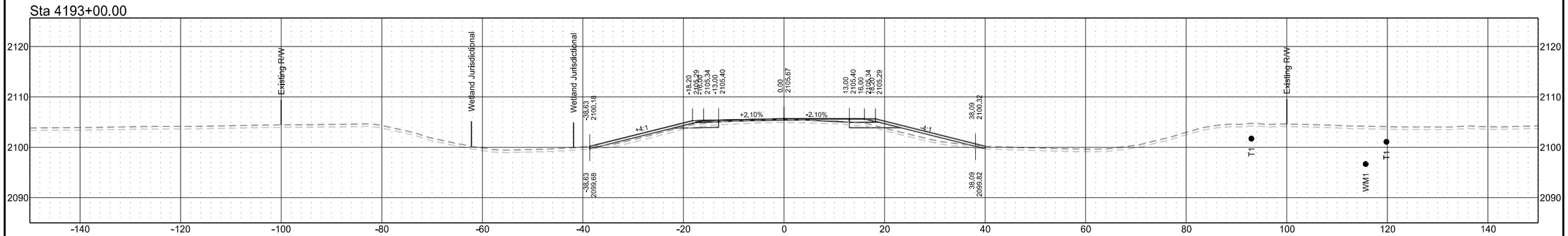
Sta 4195+00.00



Sta 4194+00.00



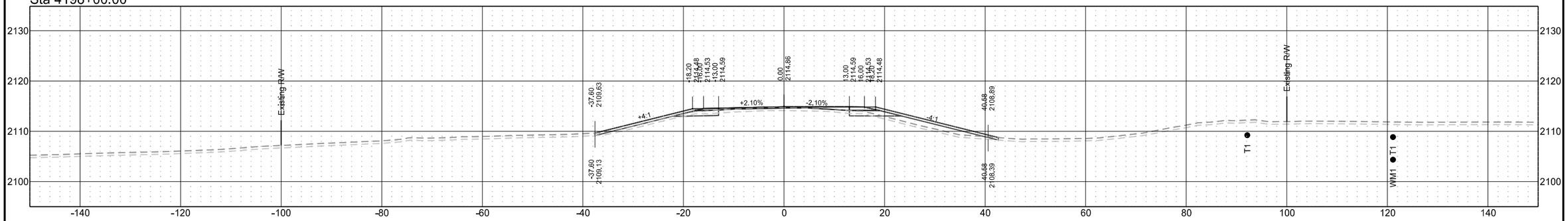
Sta 4193+00.00



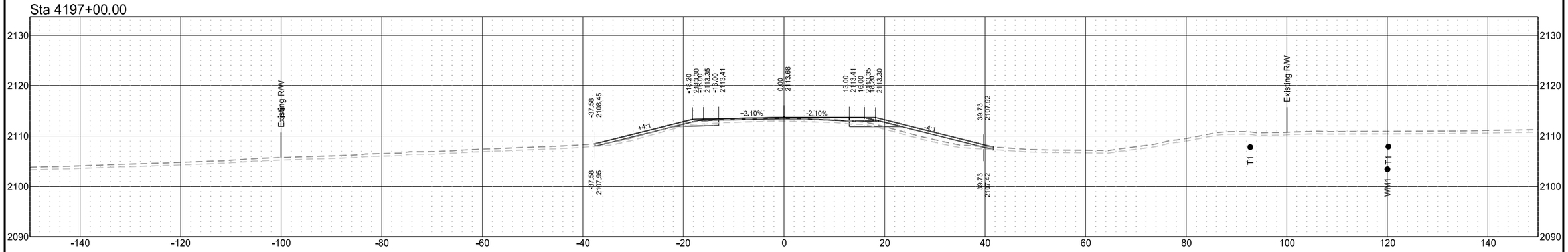
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	25

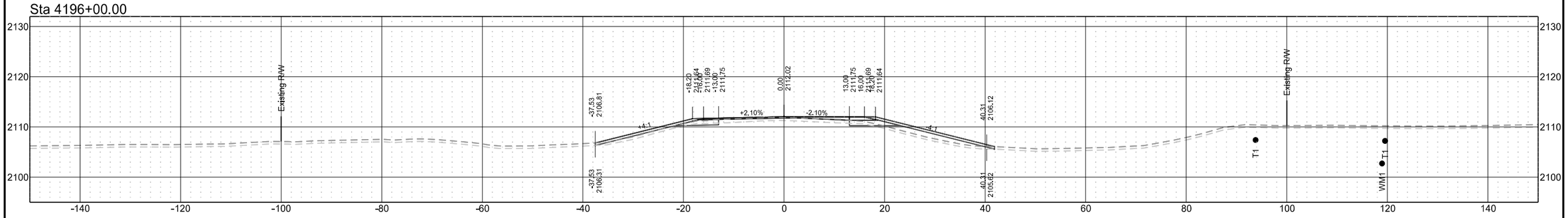
Sta 4198+00.00



Sta 4197+00.00



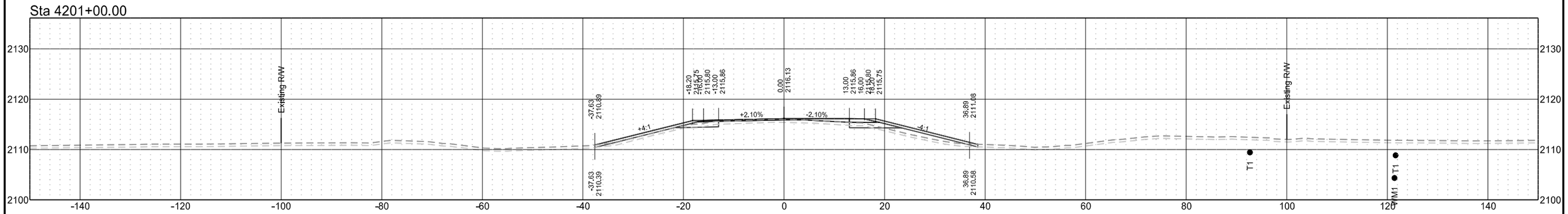
Sta 4196+00.00



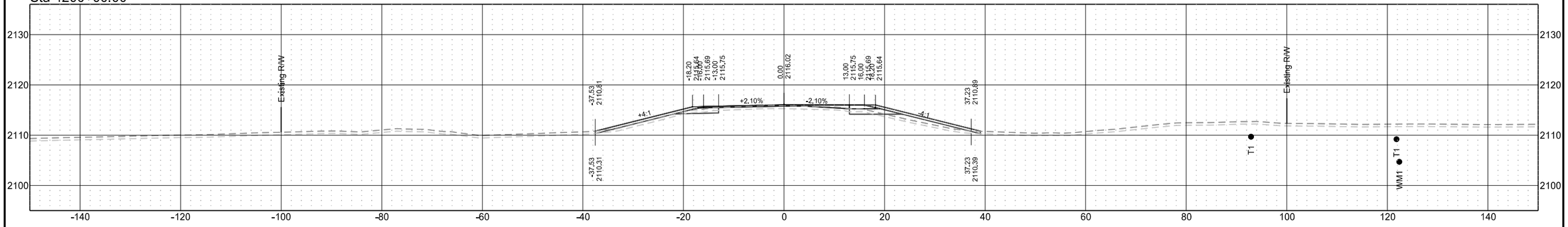
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	26

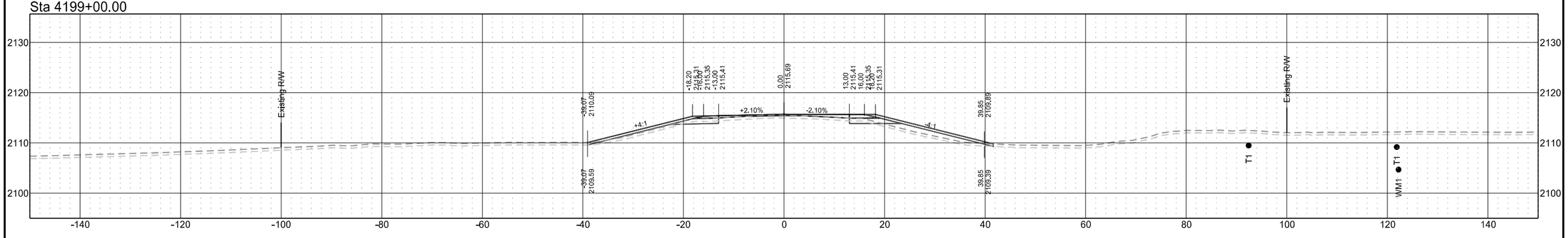
Sta 4201+00.00



Sta 4200+00.00



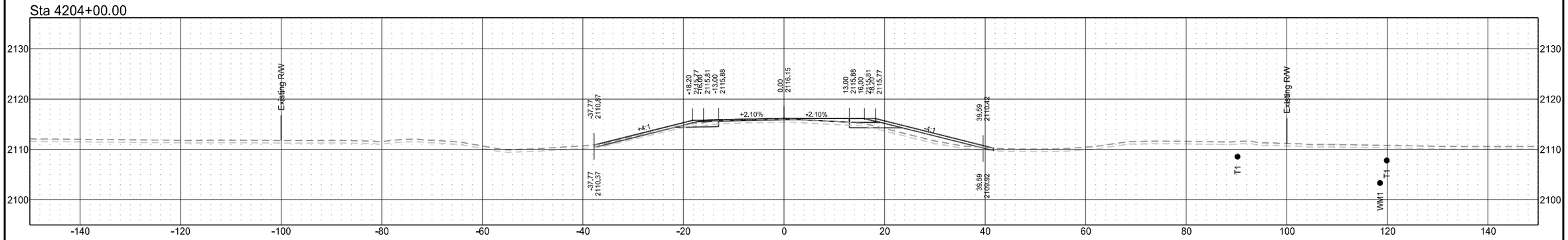
Sta 4199+00.00



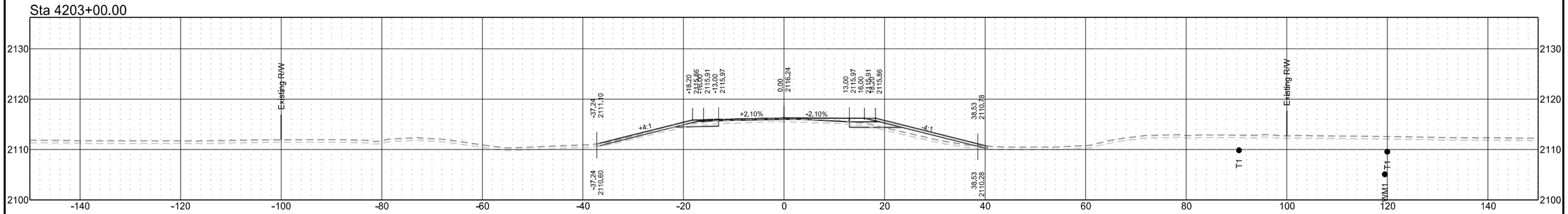
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	27

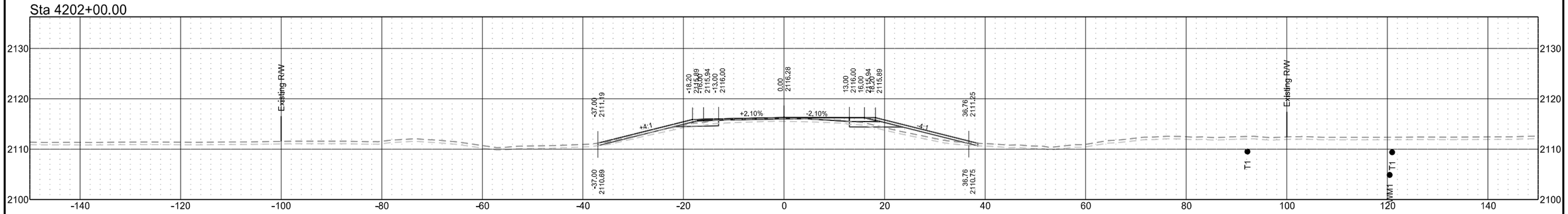
Sta 4204+00.00



Sta 4203+00.00



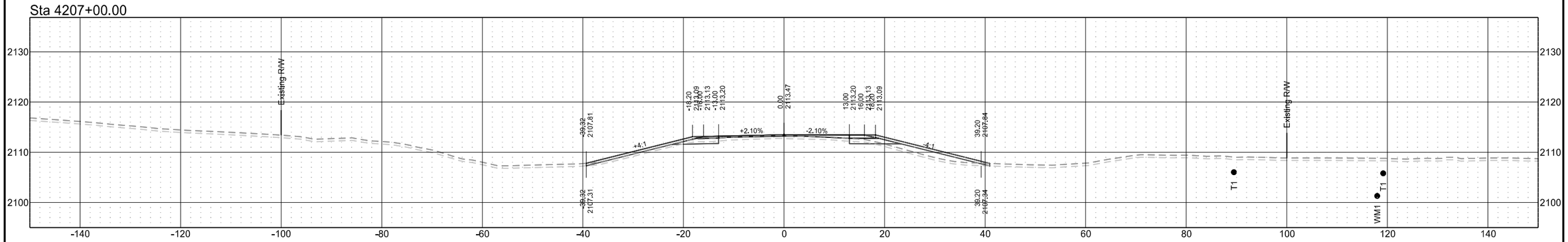
Sta 4202+00.00



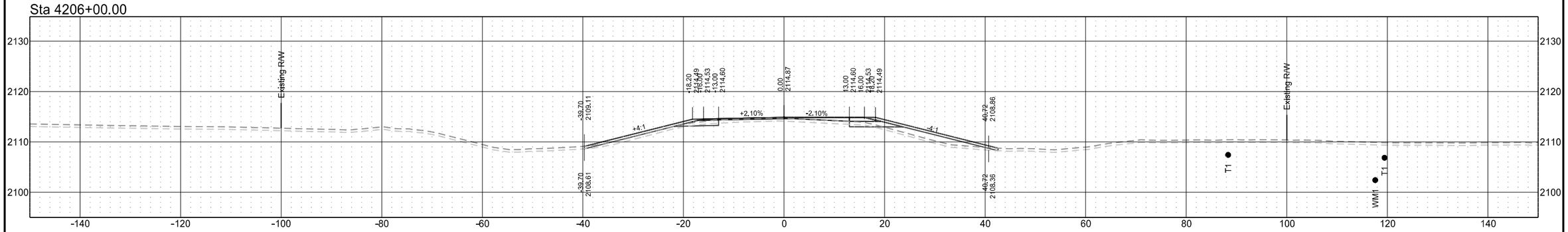
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	28

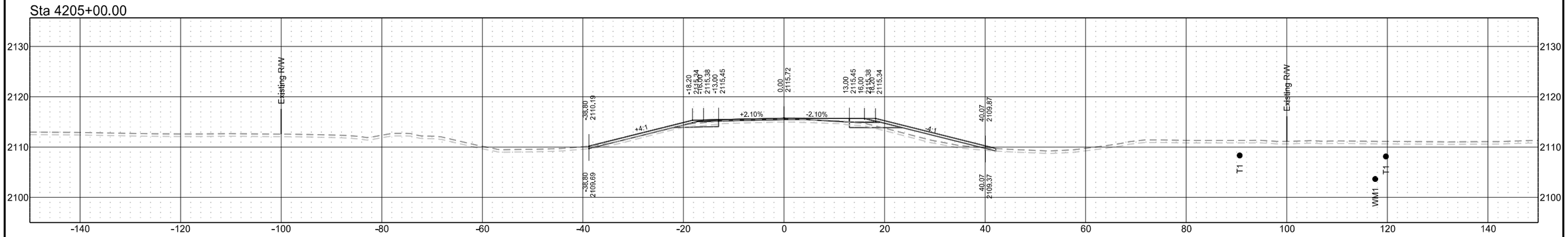
Sta 4207+00.00



Sta 4206+00.00



Sta 4205+00.00



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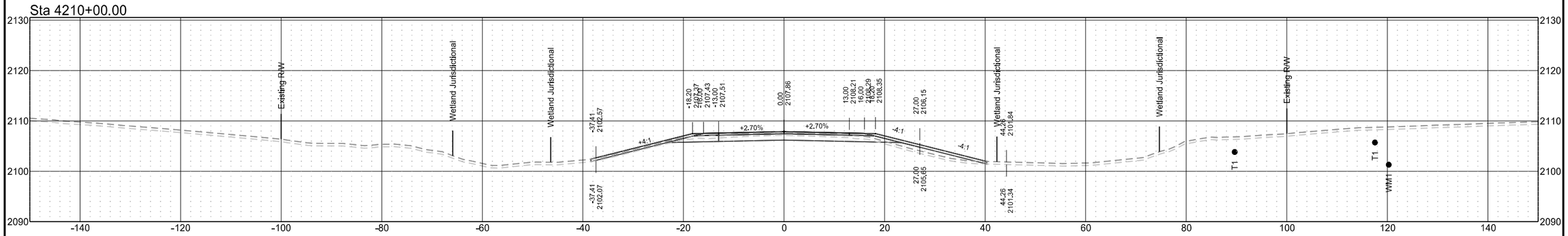
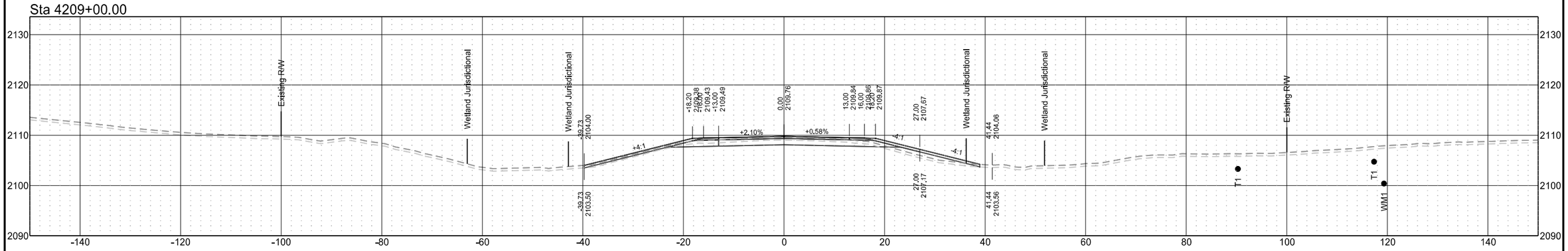
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	29

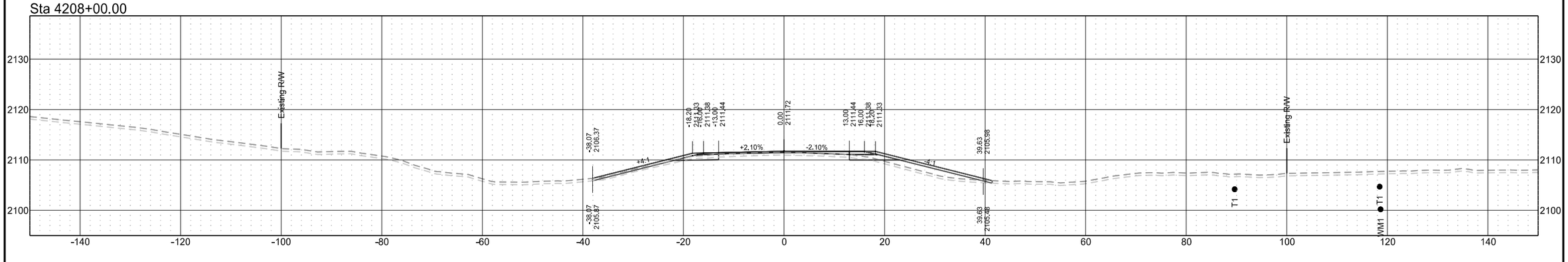
Sta 4210+00.00



Sta 4209+00.00



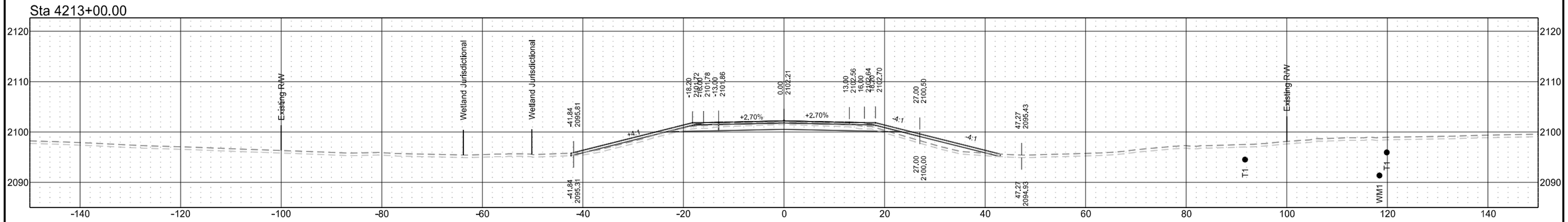
Sta 4208+00.00



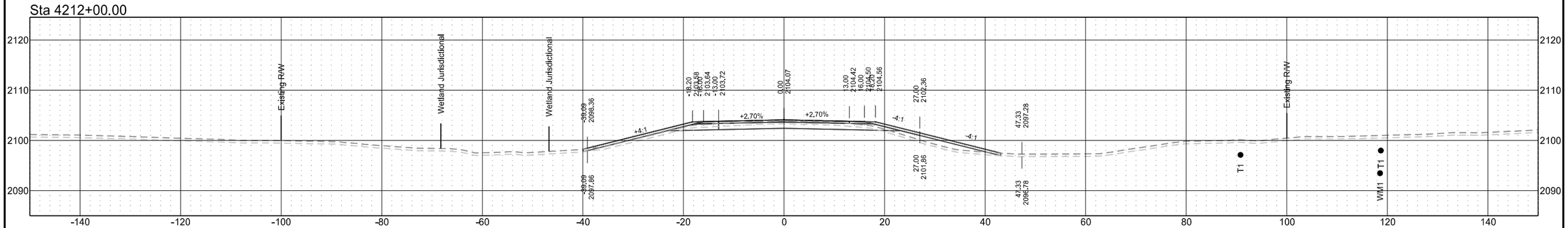
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	30

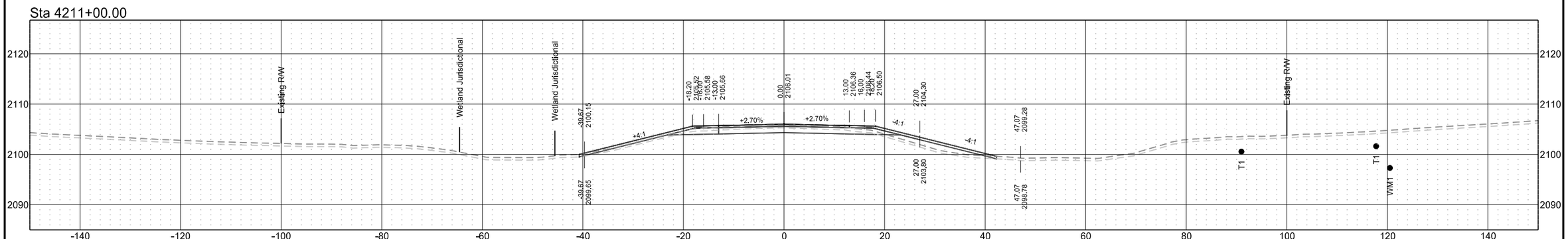
Sta 4213+00.00



Sta 4212+00.00



Sta 4211+00.00



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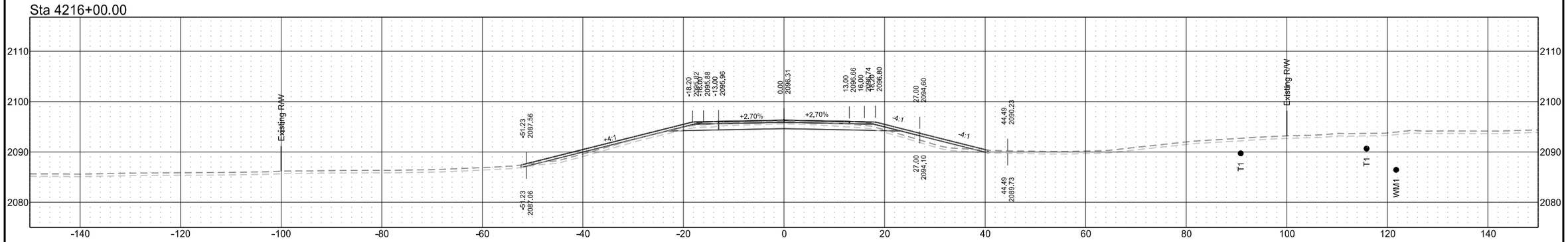
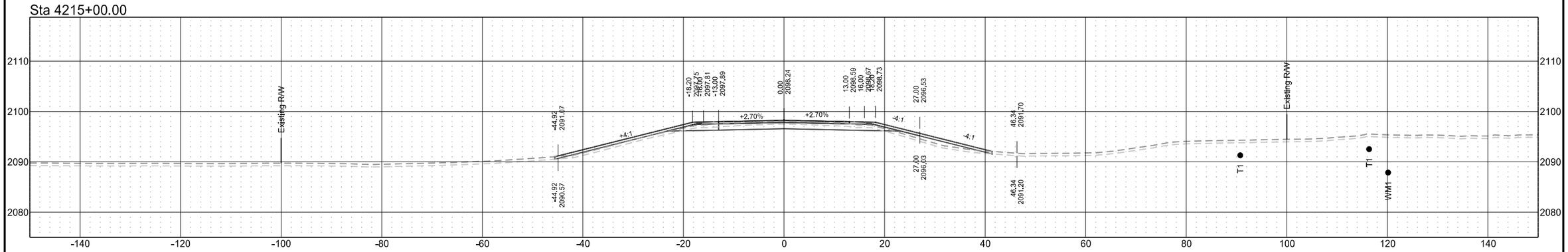
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	31

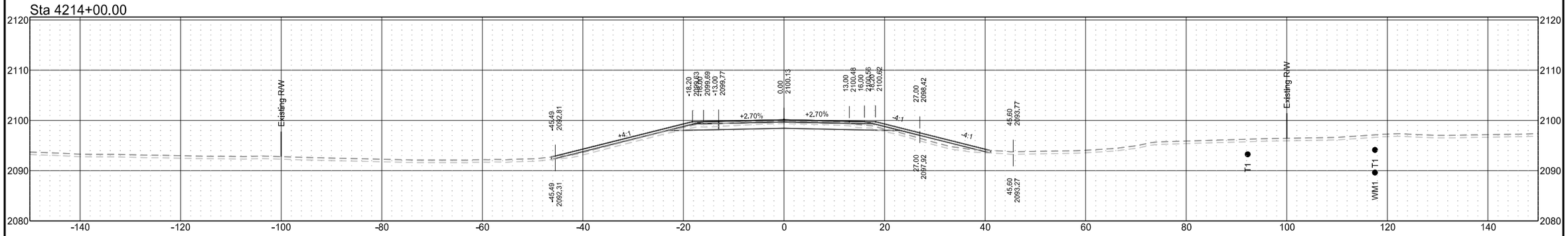
Sta 4216+00.00



Sta 4215+00.00



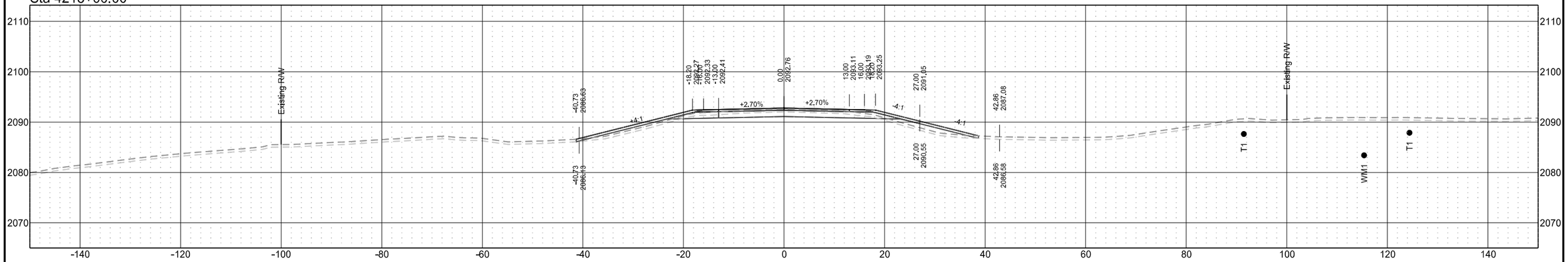
Sta 4214+00.00



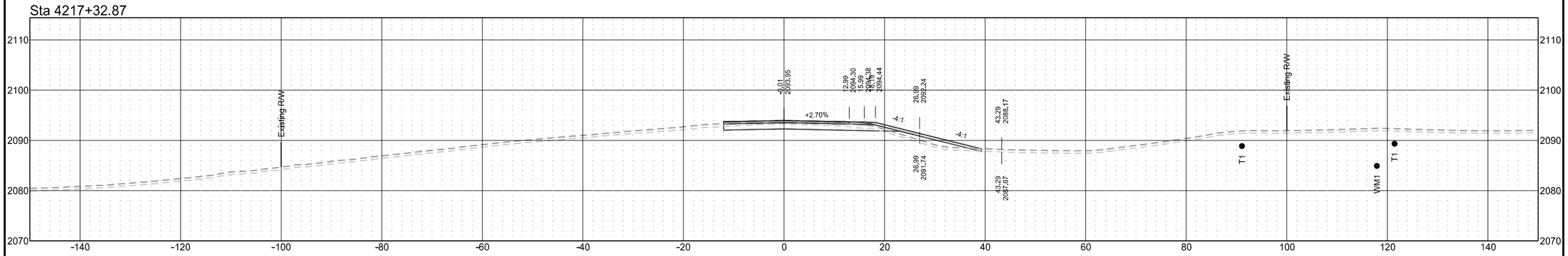
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	32

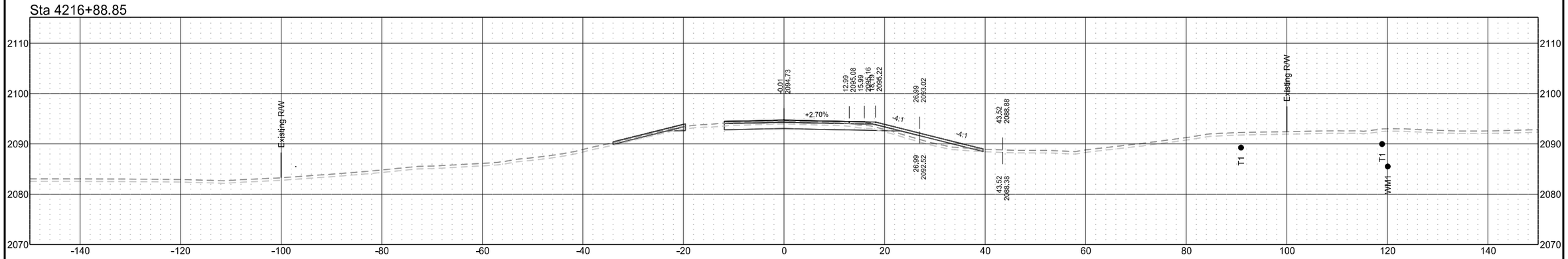
Sta 4218+00.00



Sta 4217+32.87



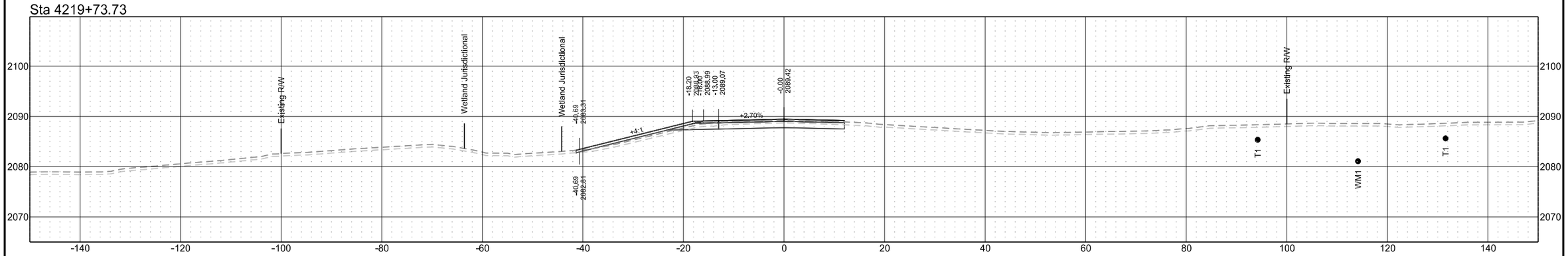
Sta 4216+88.85



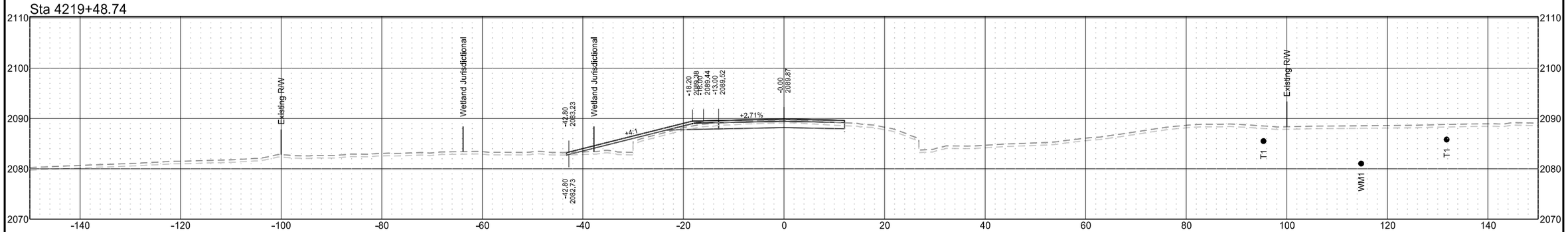
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	33

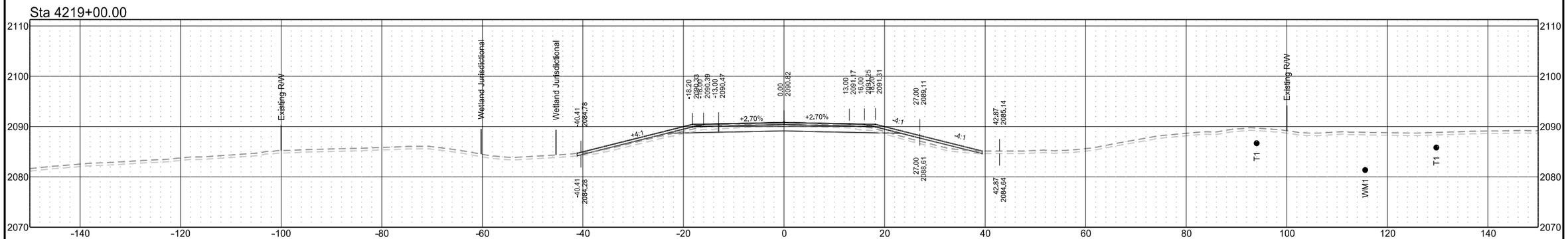
Sta 4219+73.73



Sta 4219+48.74



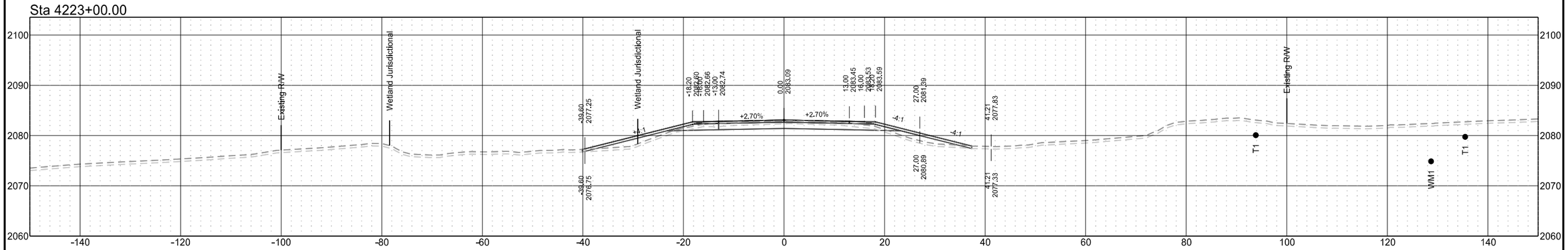
Sta 4219+00.00



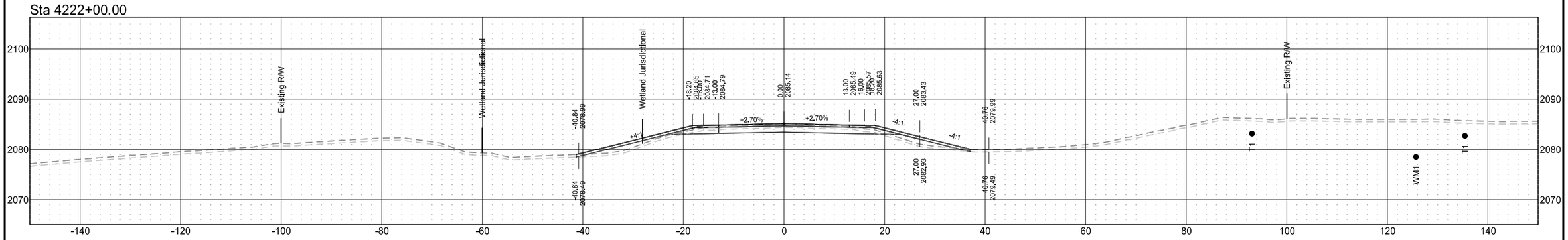
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	34

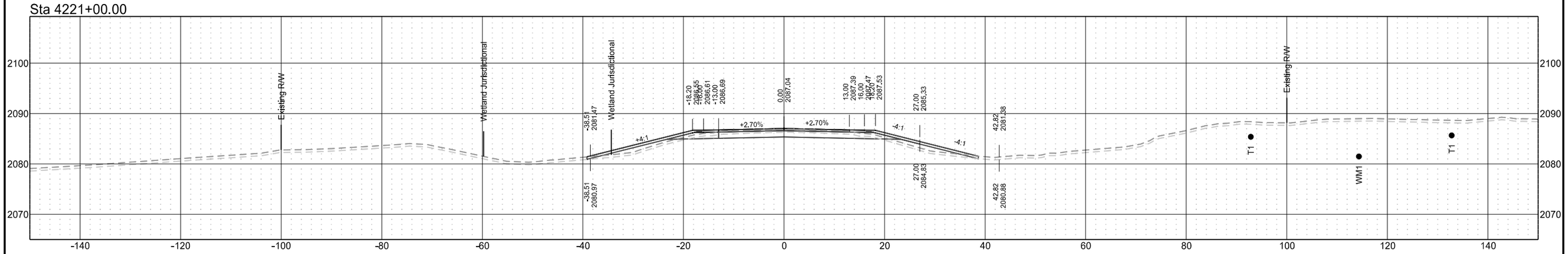
Sta 4223+00.00



Sta 4222+00.00



Sta 4221+00.00



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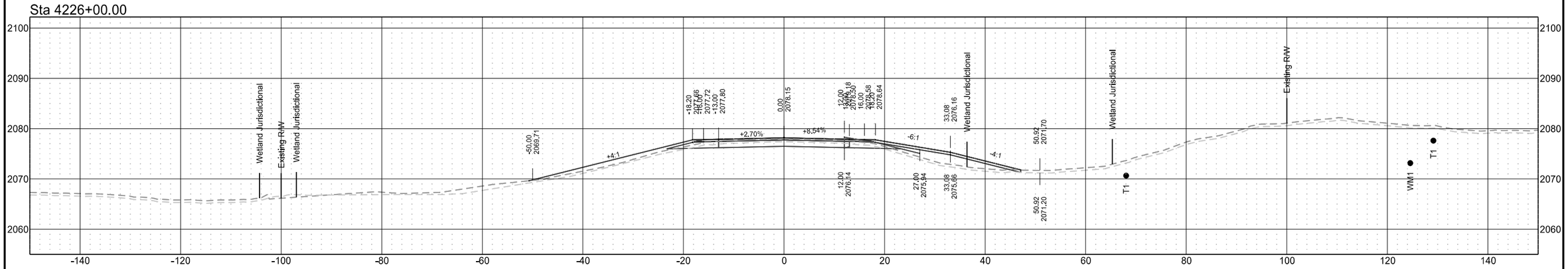
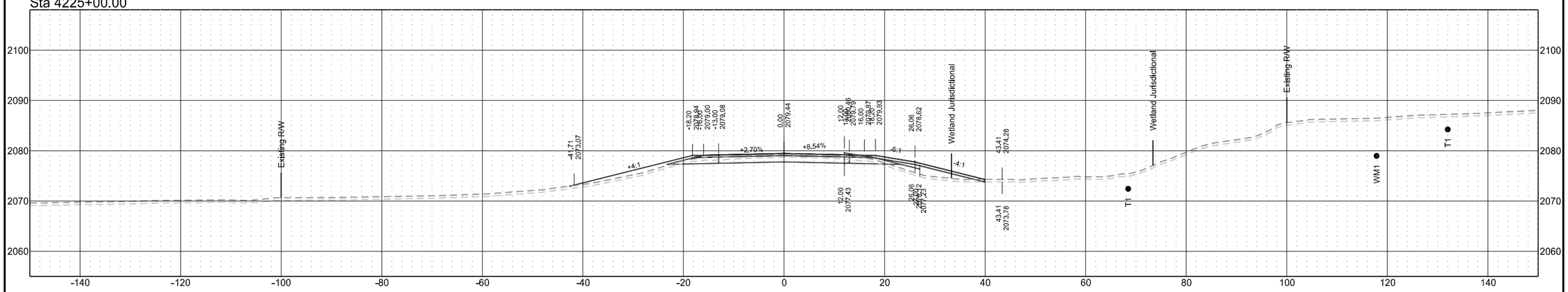
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	35

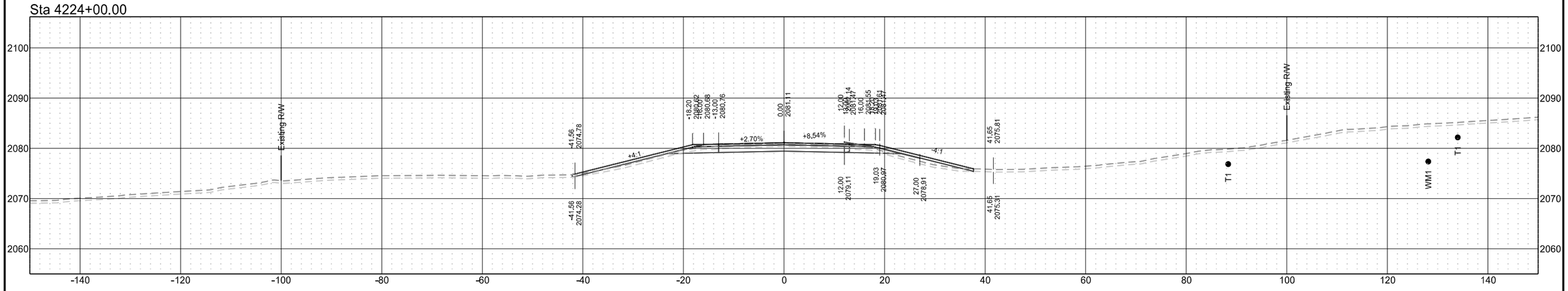
Sta 4226+00.00



Sta 4225+00.00



Sta 4224+00.00



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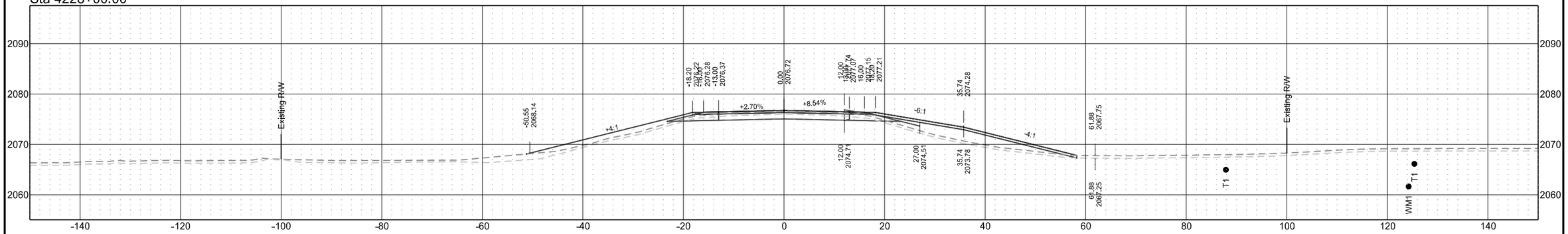
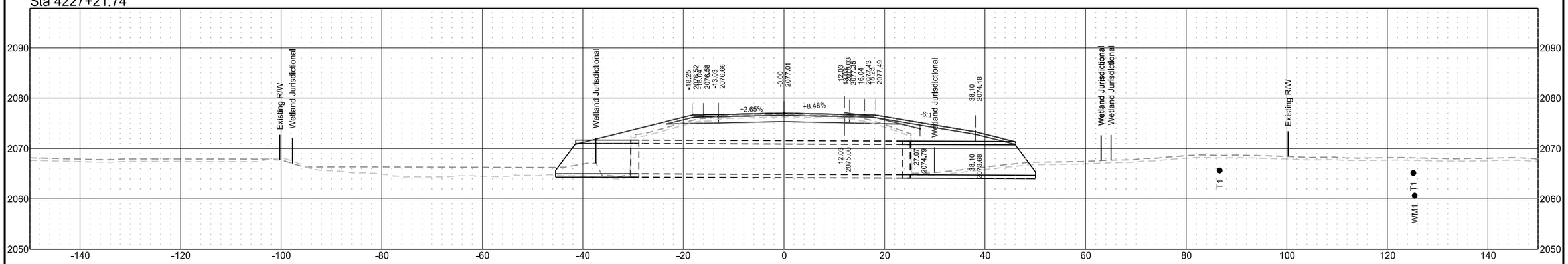
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	36

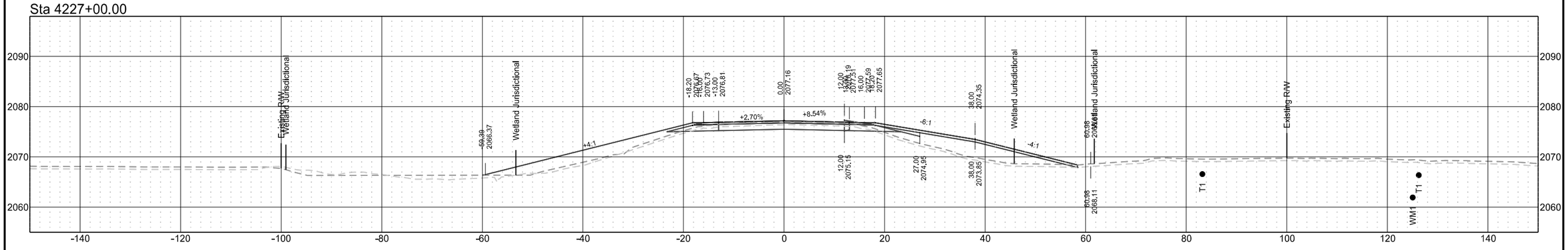
Sta 4228+00.00



Sta 4227+21.74



Sta 4227+00.00



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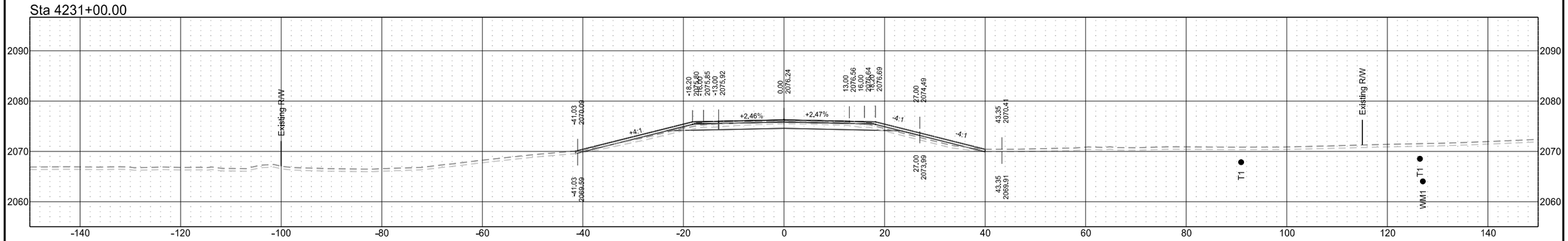
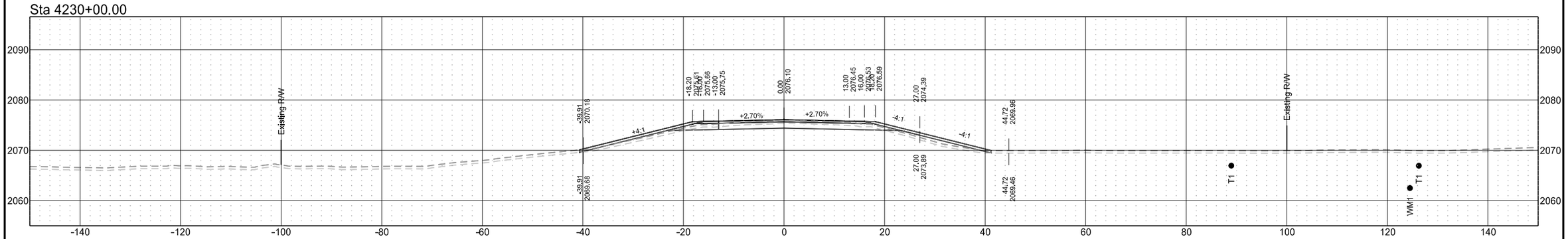
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	37

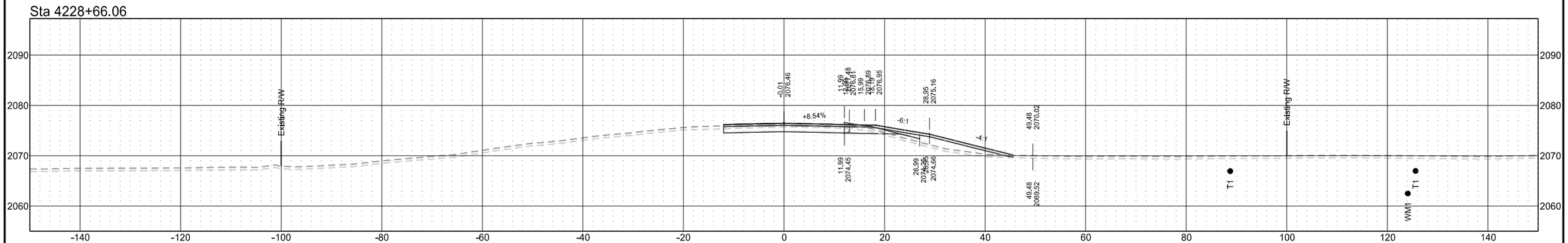
Sta 4231+00.00



Sta 4230+00.00



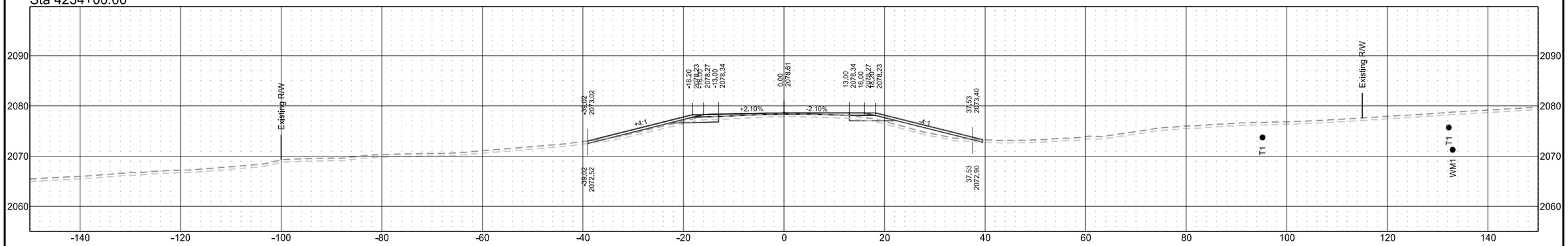
Sta 4228+66.06



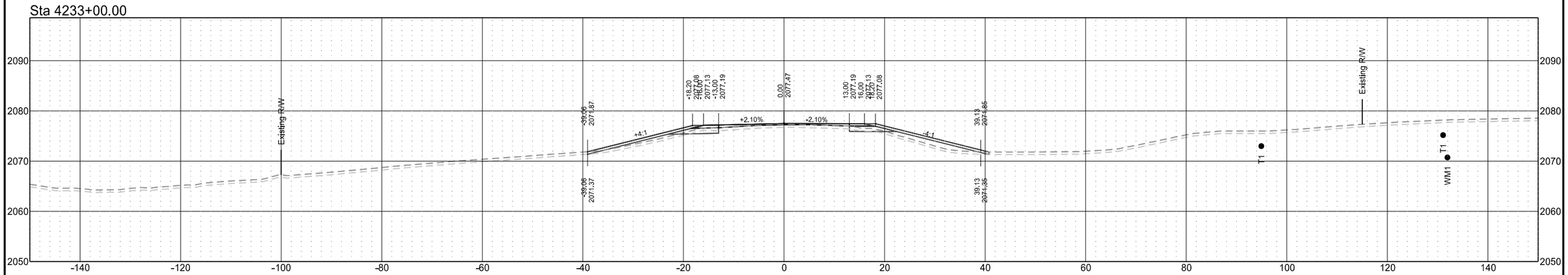
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	38

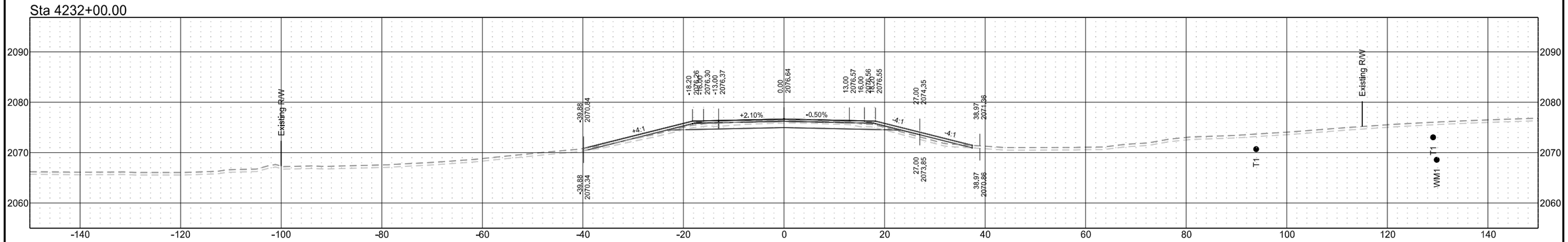
Sta 4234+00.00



Sta 4233+00.00



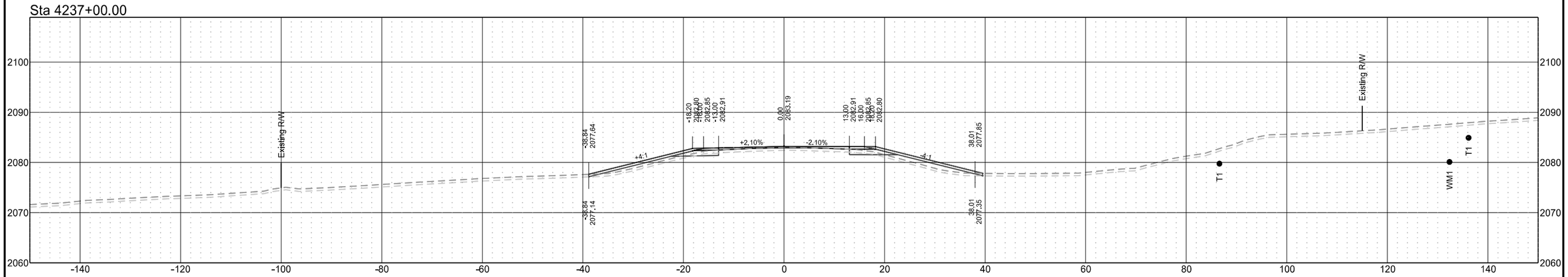
Sta 4232+00.00



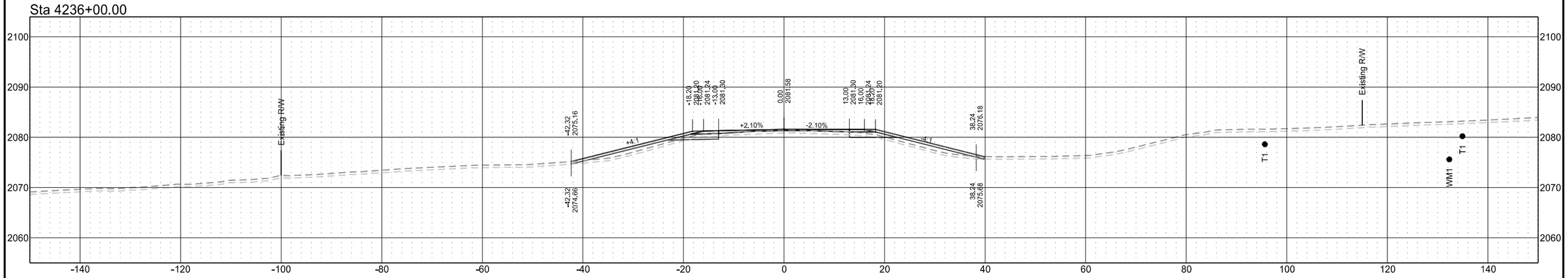
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	39

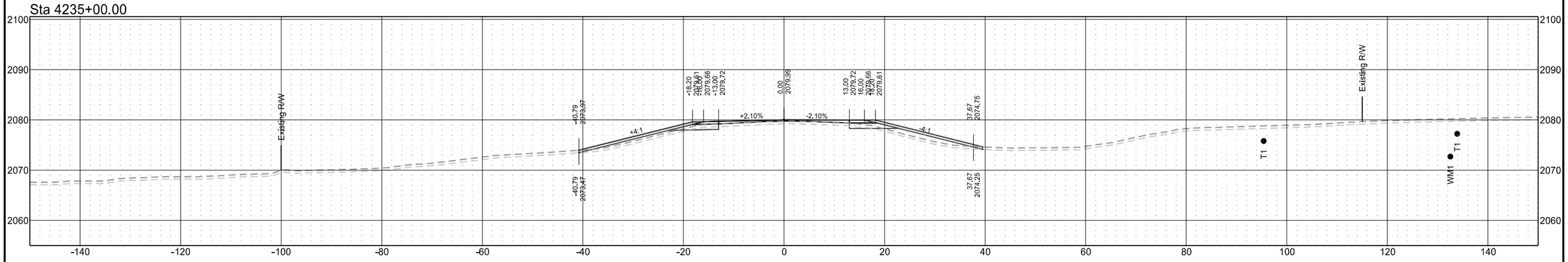
Sta 4237+00.00



Sta 4236+00.00



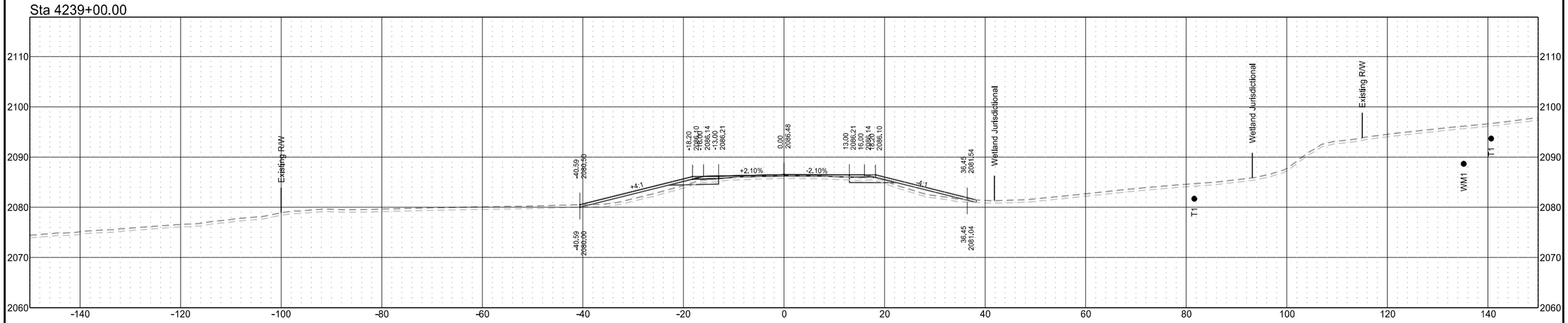
Sta 4235+00.00



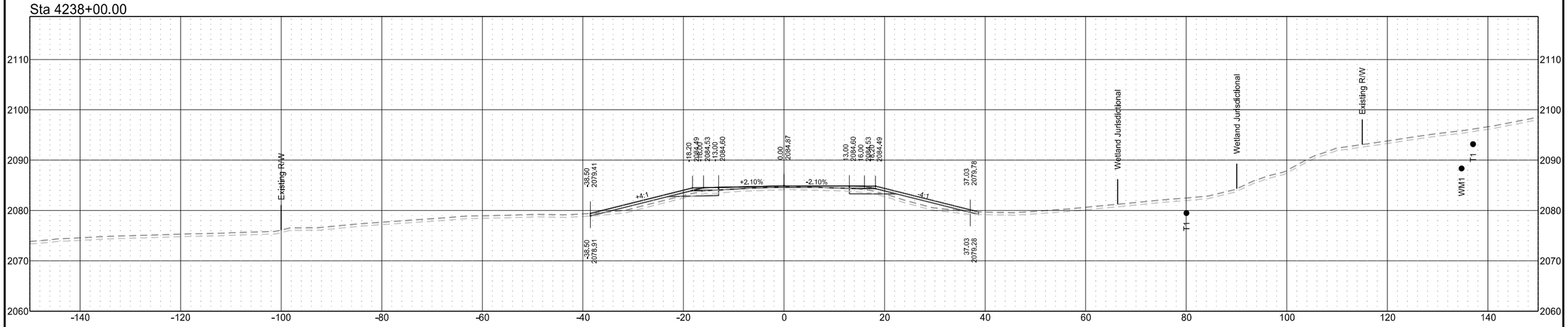
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	40

Sta 4239+00.00



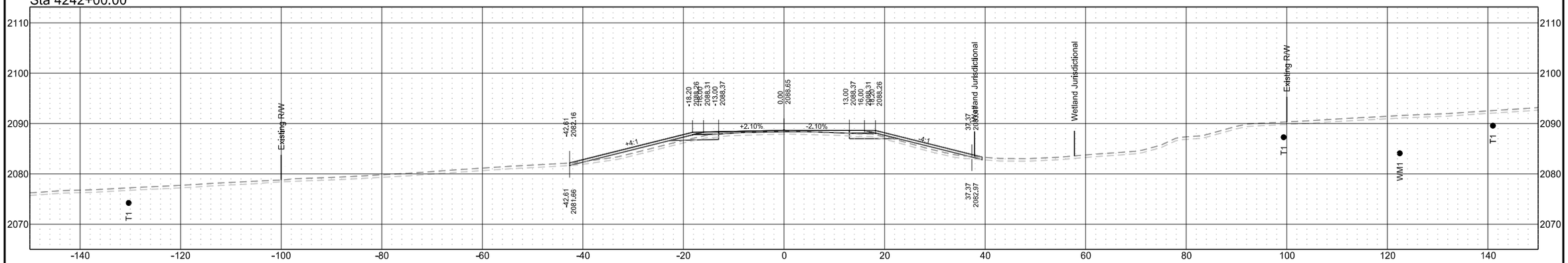
Sta 4238+00.00



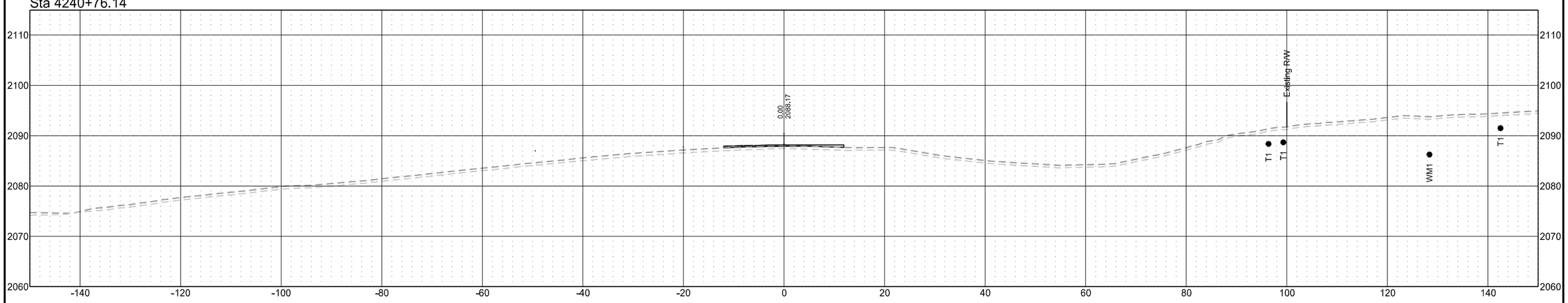
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	41

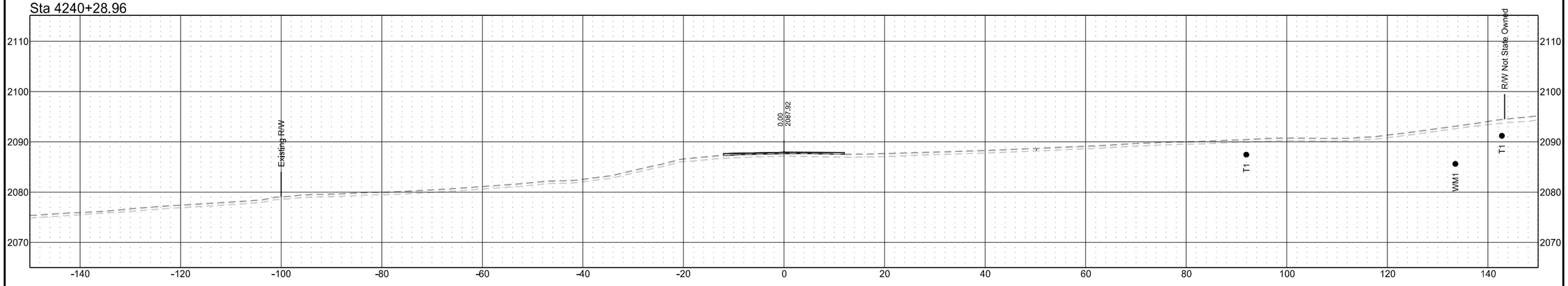
Sta 4242+00.00



Sta 4240+76.14



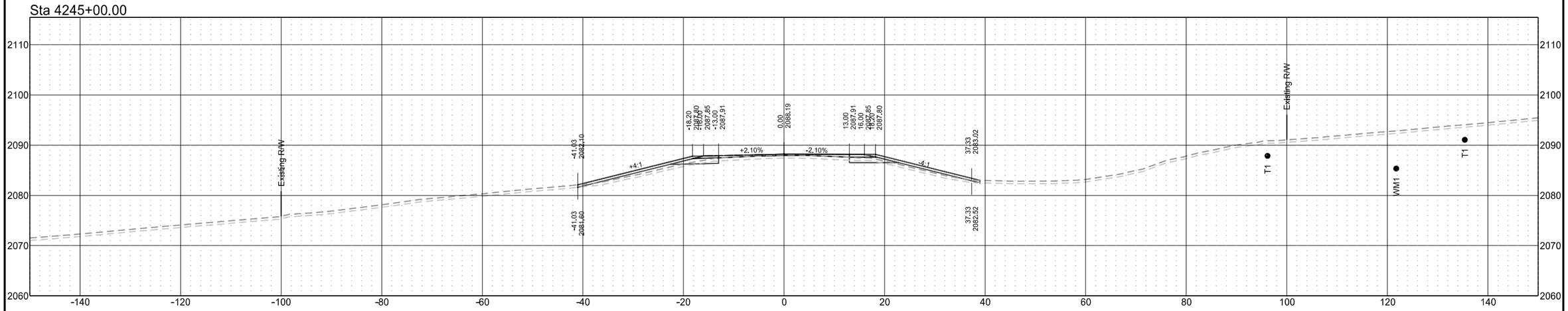
Sta 4240+28.96



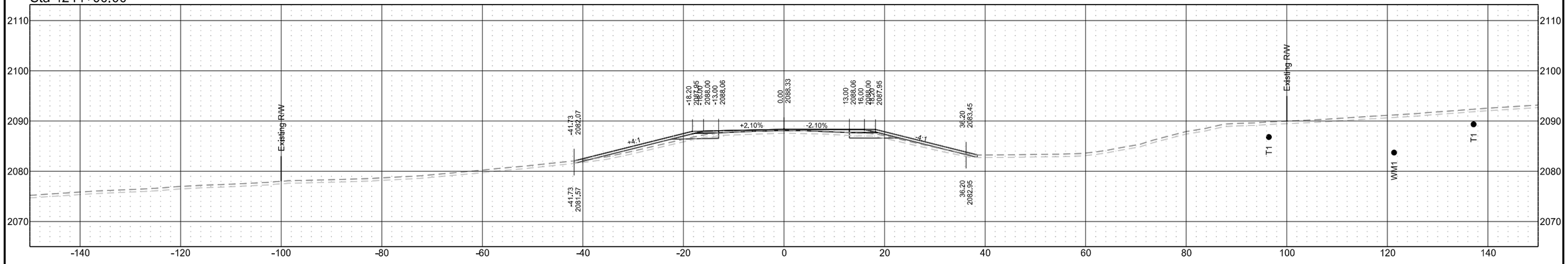
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	42

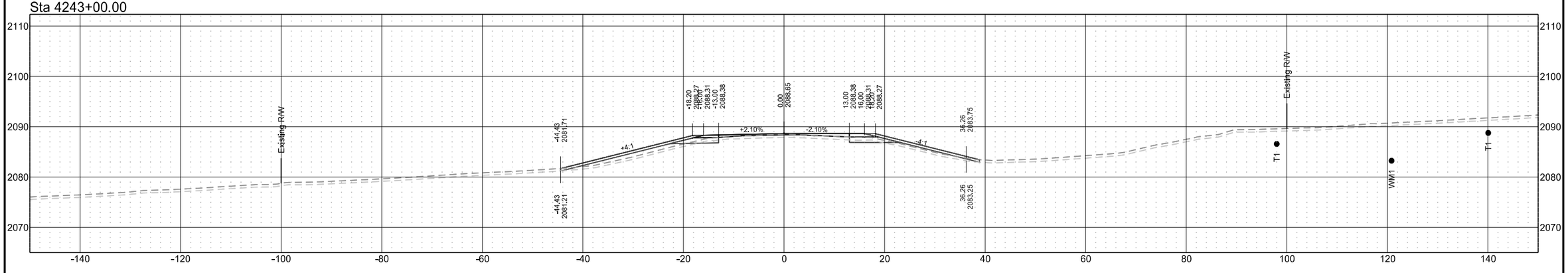
Sta 4245+00.00



Sta 4244+00.00



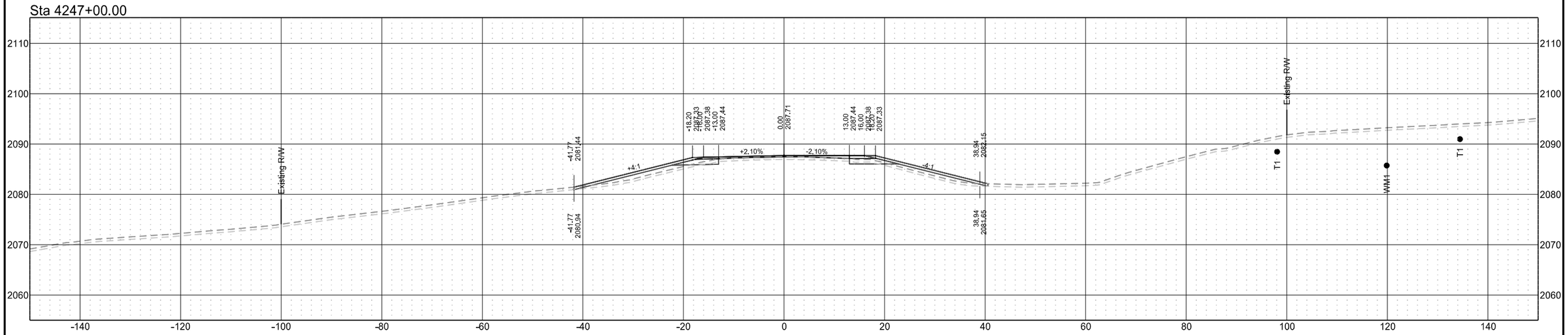
Sta 4243+00.00



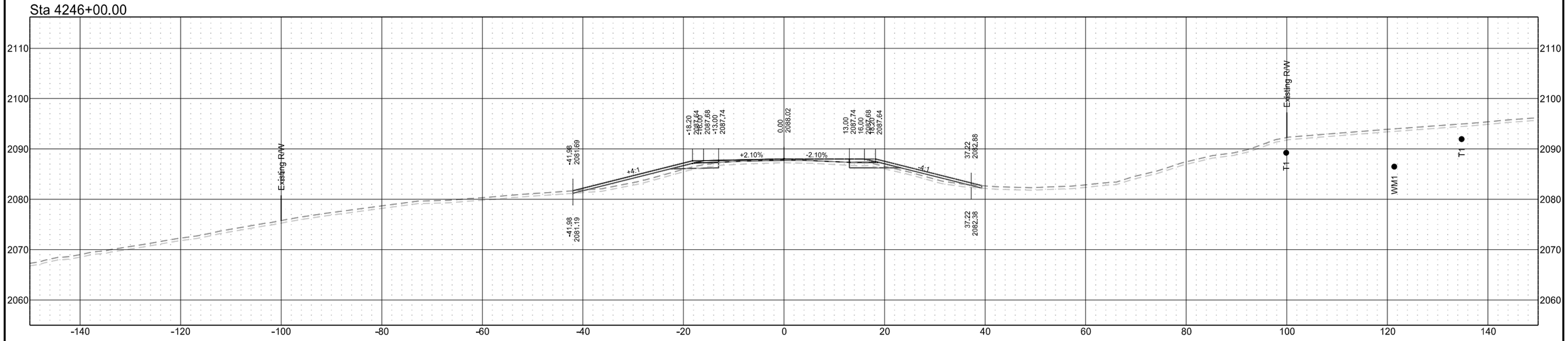
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	43

Sta 4247+00.00



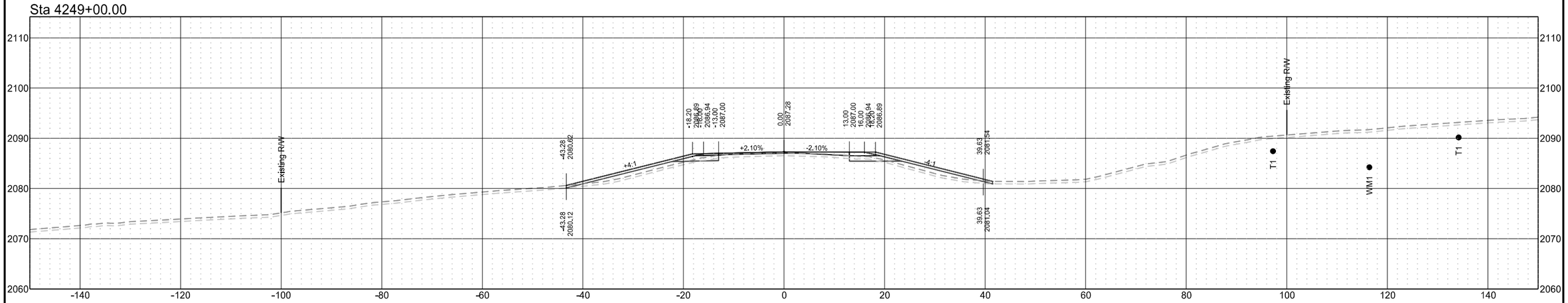
Sta 4246+00.00



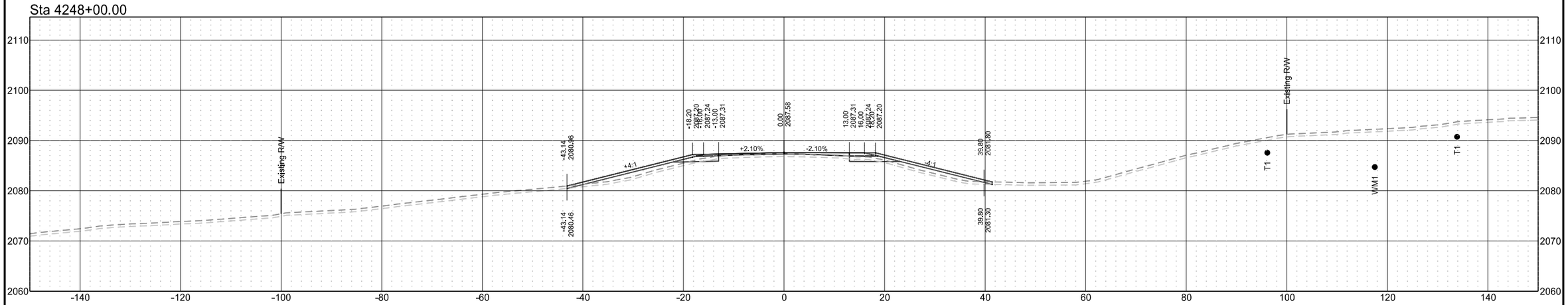
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	44

Sta 4249+00.00



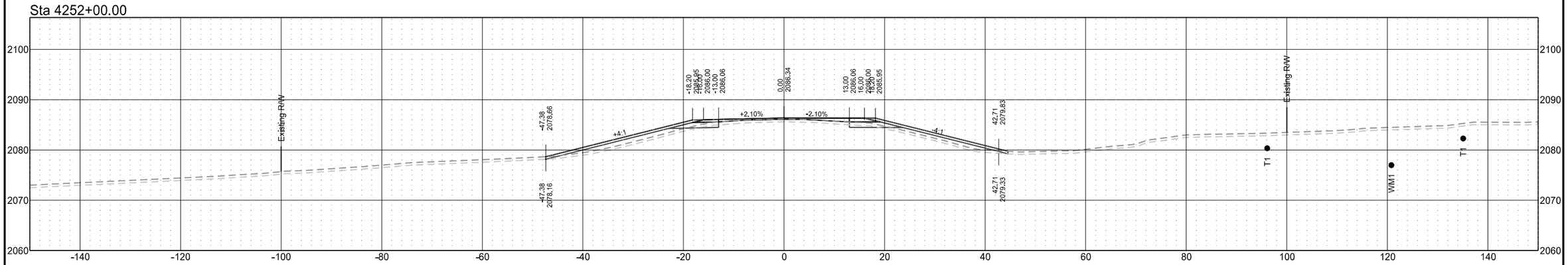
Sta 4248+00.00



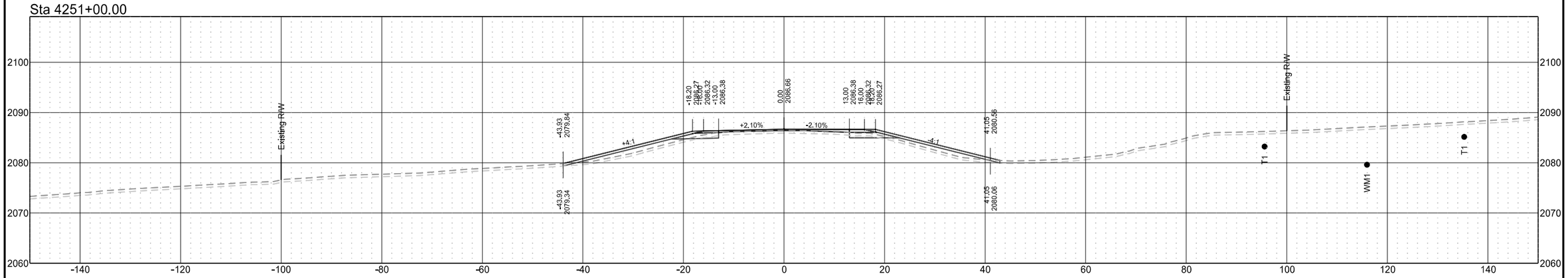
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	45

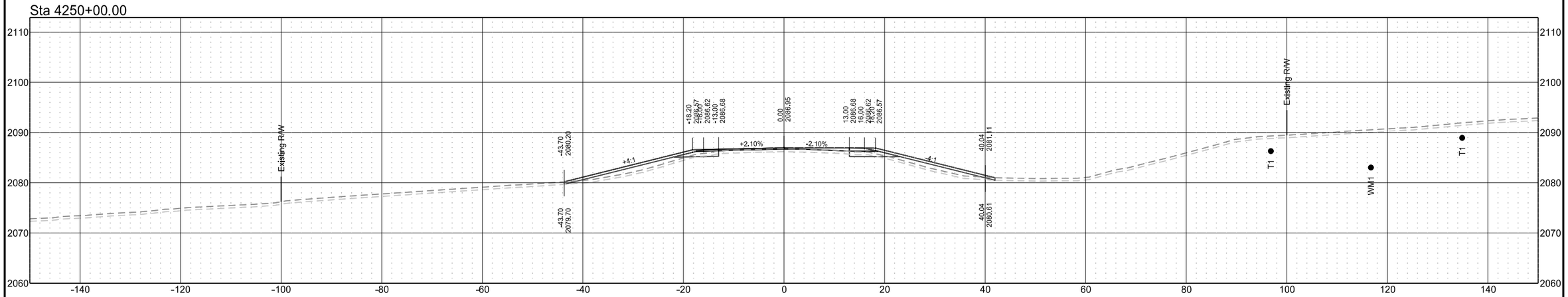
Sta 4252+00.00



Sta 4251+00.00



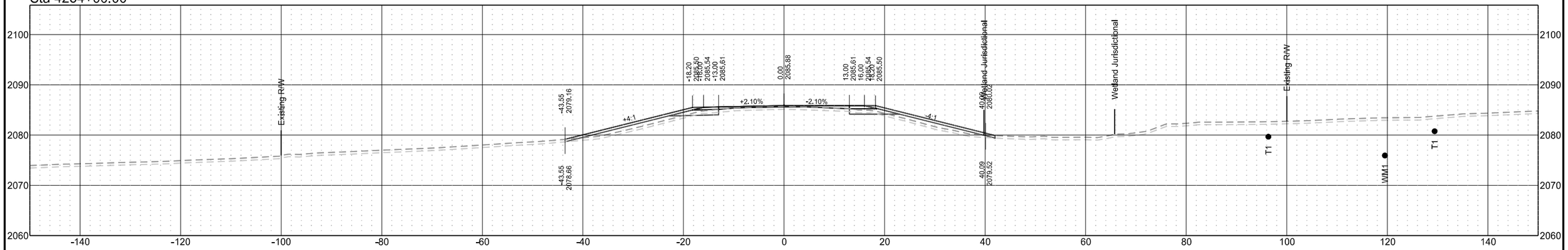
Sta 4250+00.00



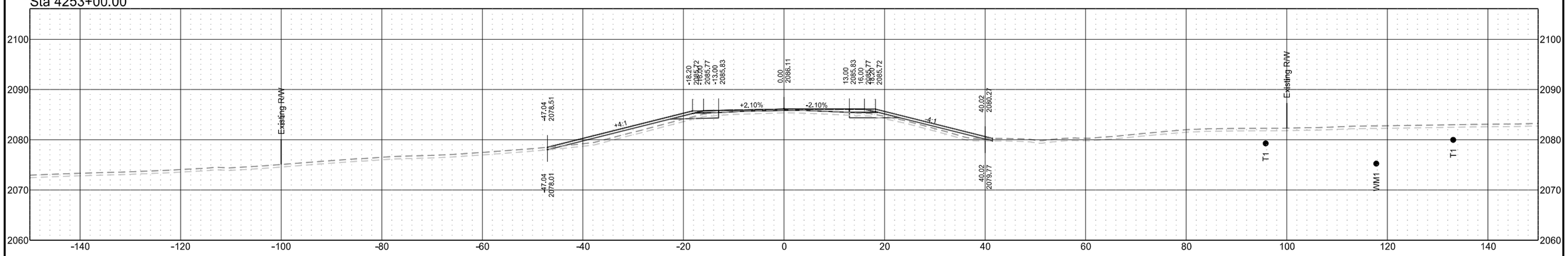
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	46

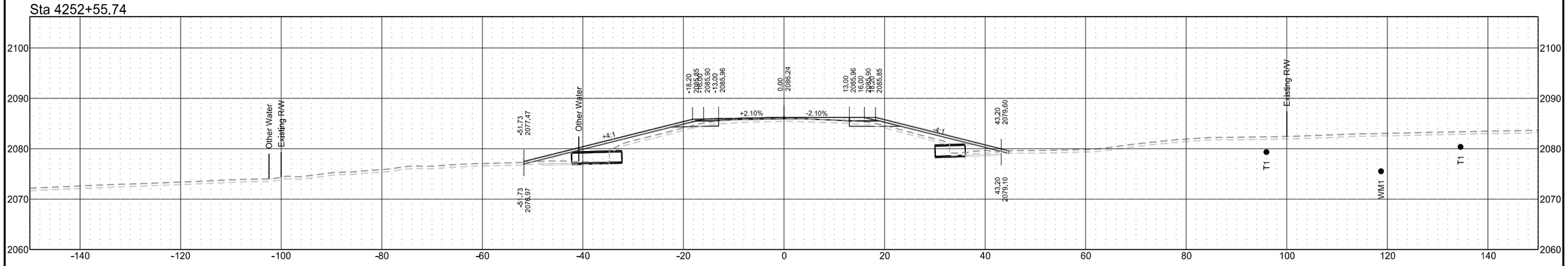
Sta 4254+00.00



Sta 4253+00.00



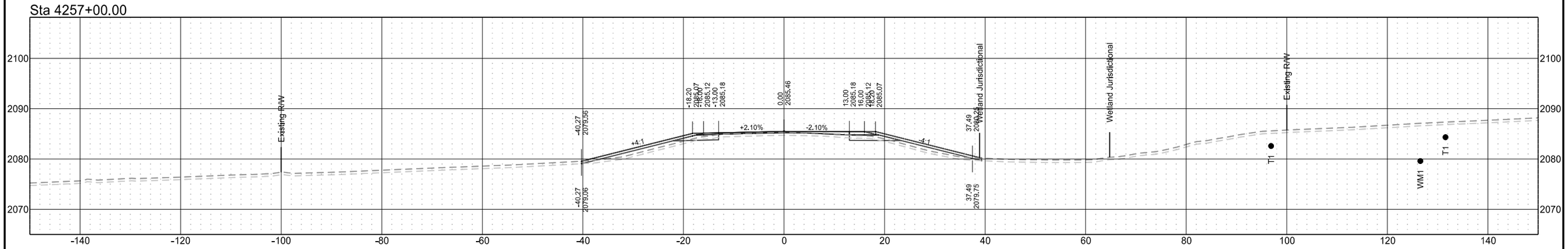
Sta 4252+55.74



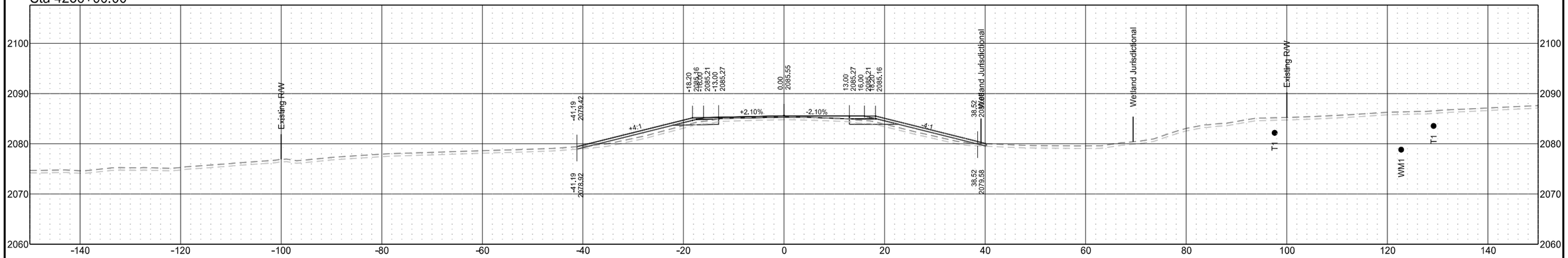
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	47

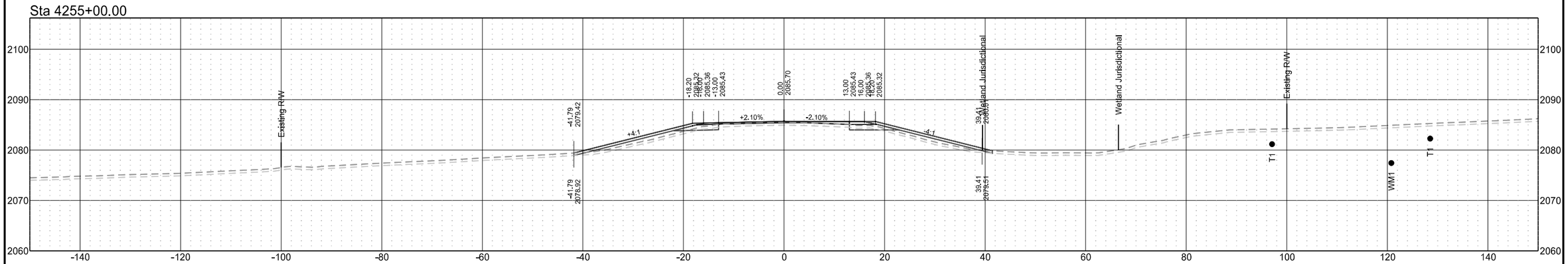
Sta 4257+00.00



Sta 4256+00.00



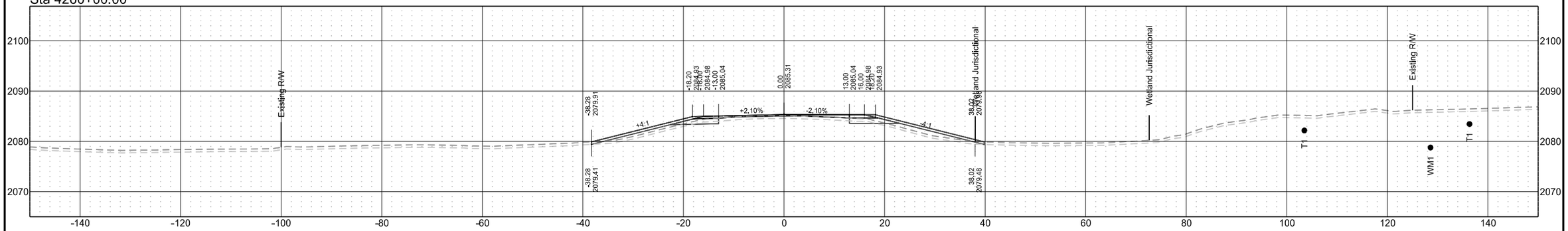
Sta 4255+00.00



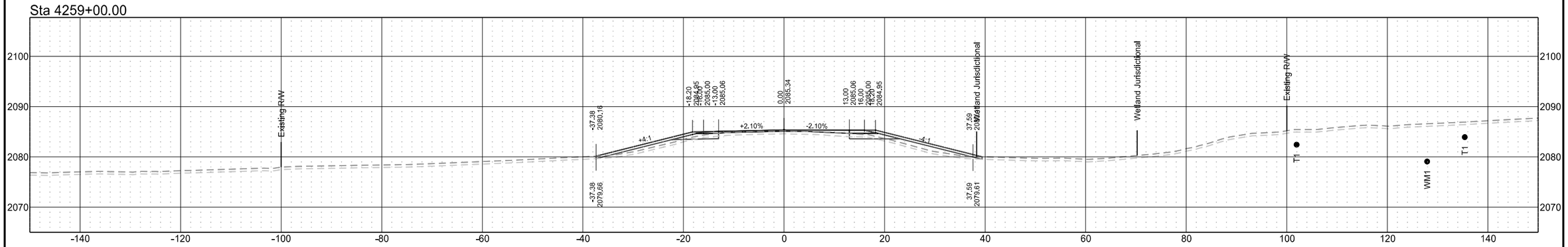
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	48

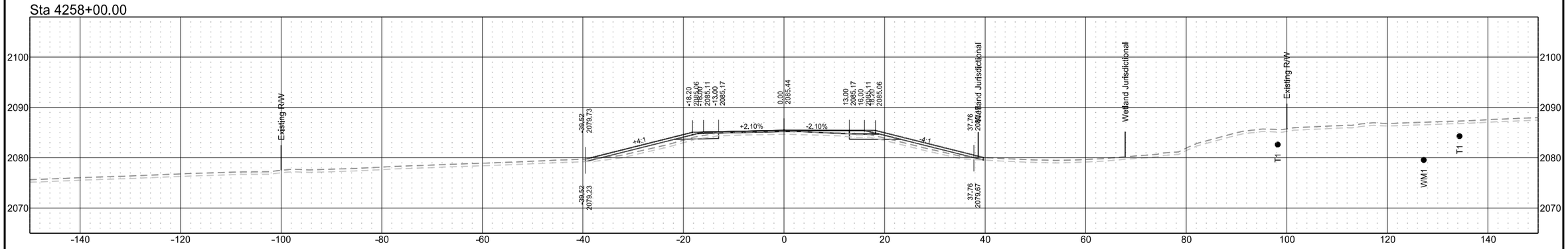
Sta 4260+00.00



Sta 4259+00.00



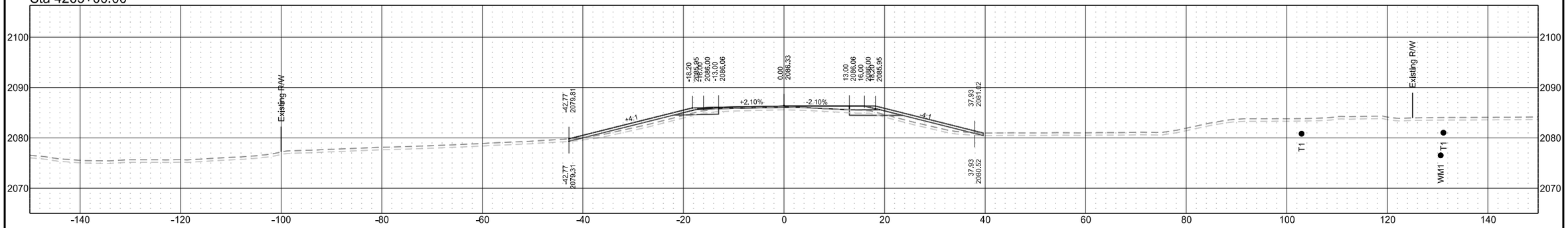
Sta 4258+00.00



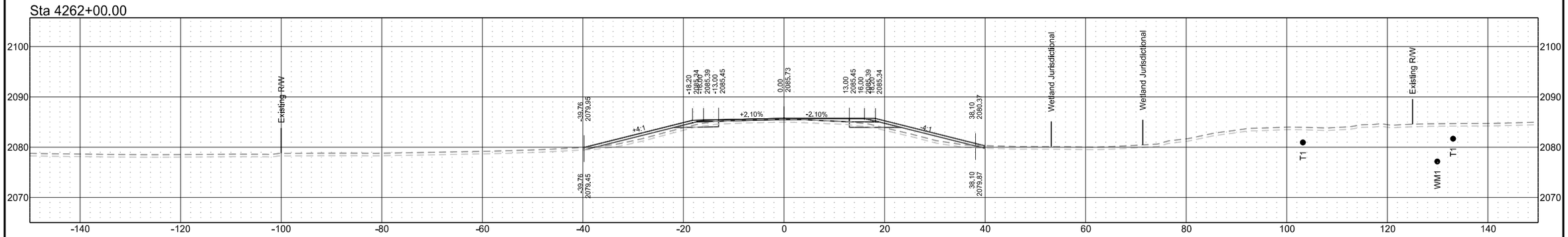
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	49

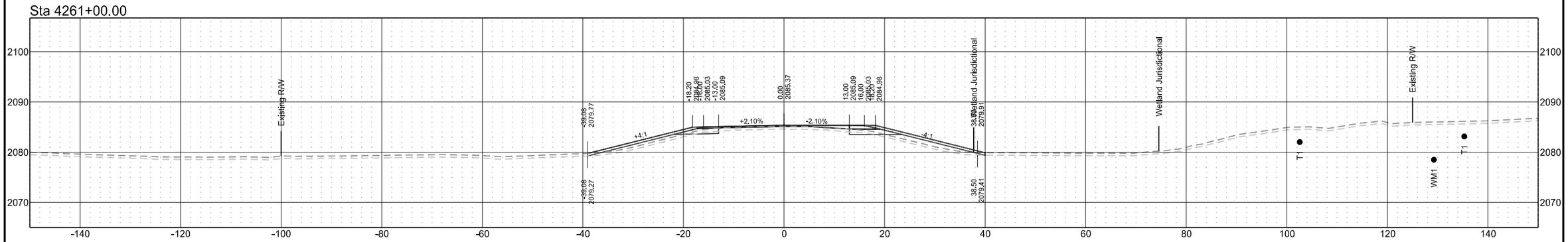
Sta 4263+00.00



Sta 4262+00.00



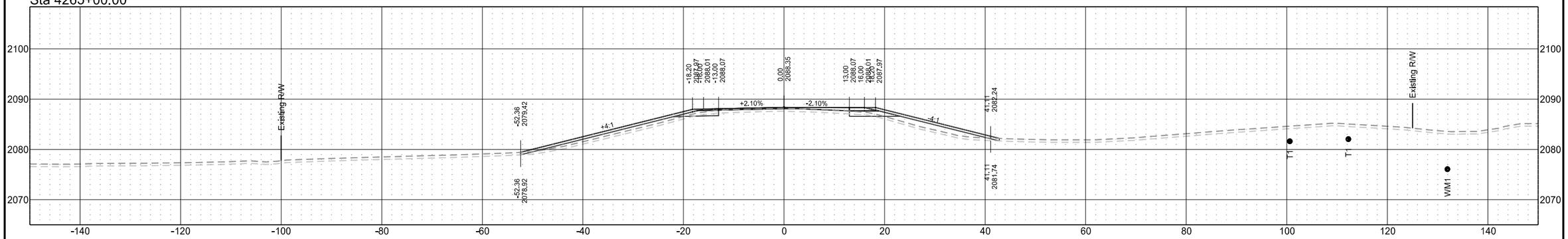
Sta 4261+00.00



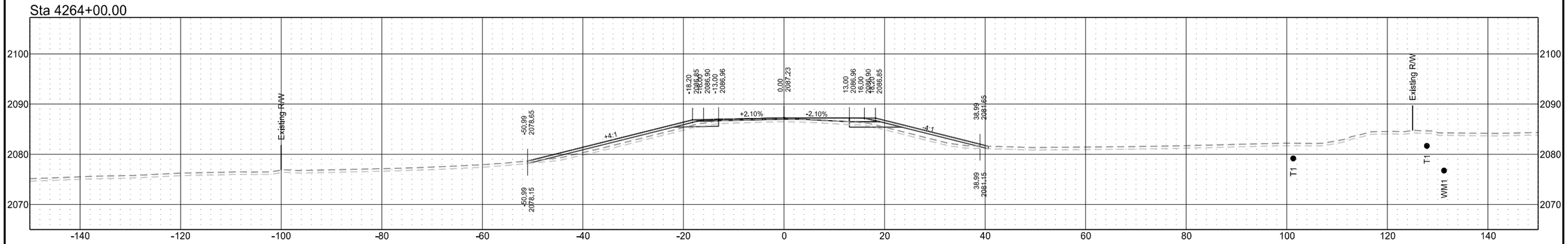
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	50

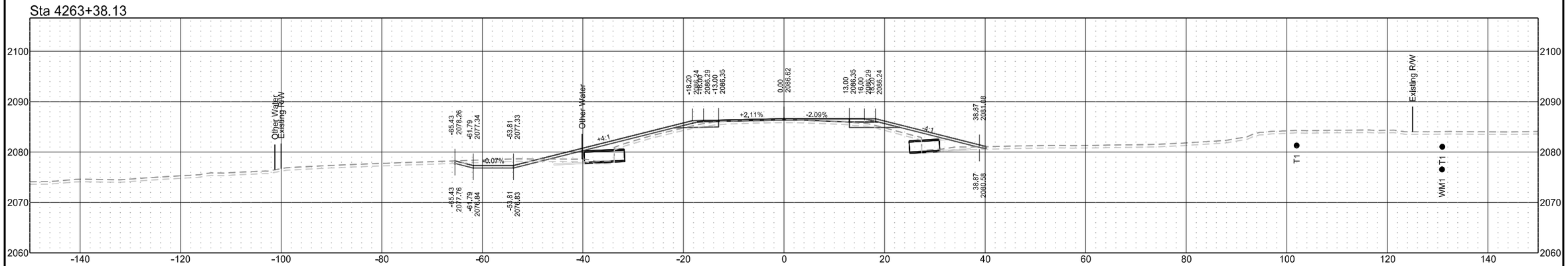
Sta 4265+00.00



Sta 4264+00.00



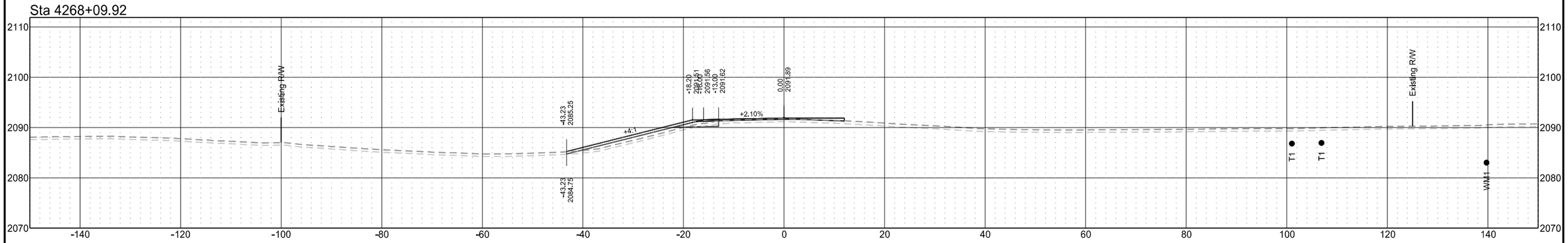
Sta 4263+38.13



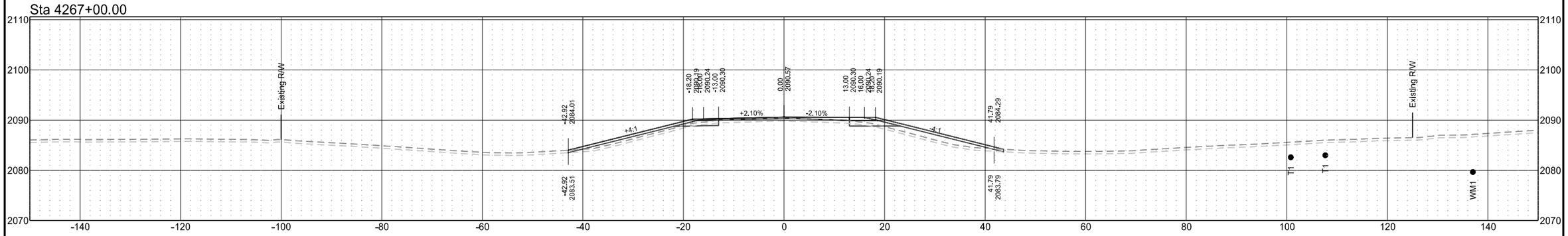
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	51

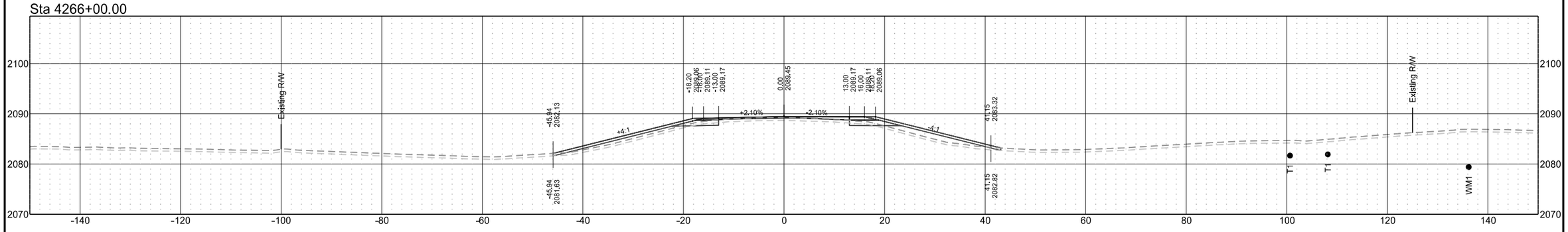
Sta 4268+09.92



Sta 4267+00.00



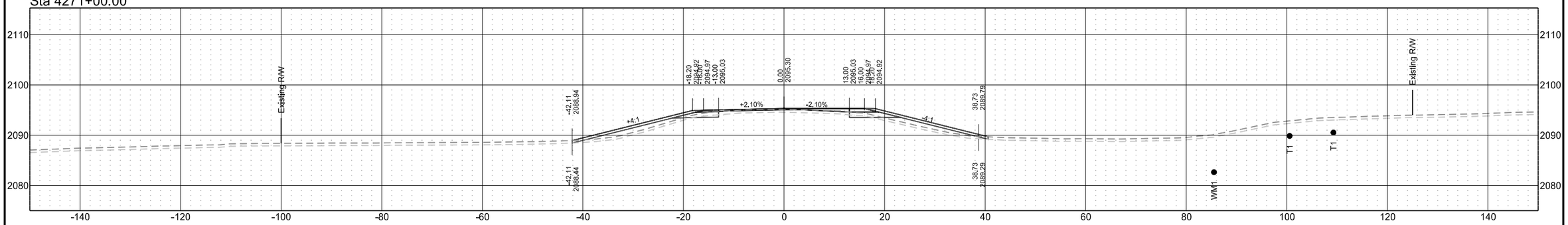
Sta 4266+00.00



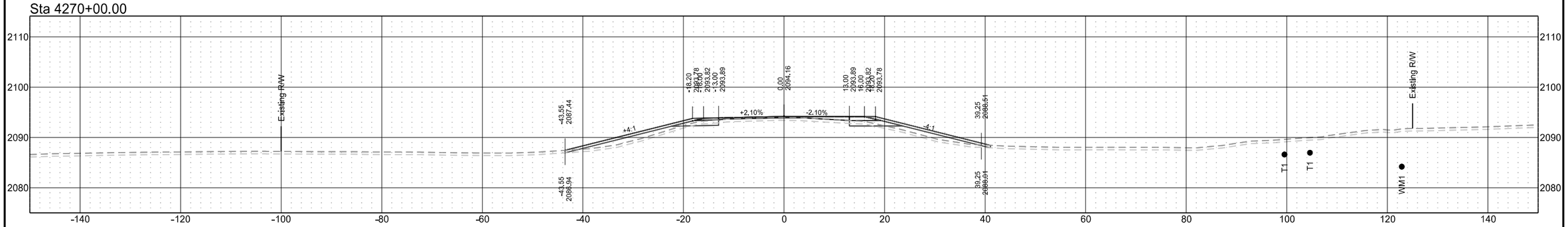
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	52

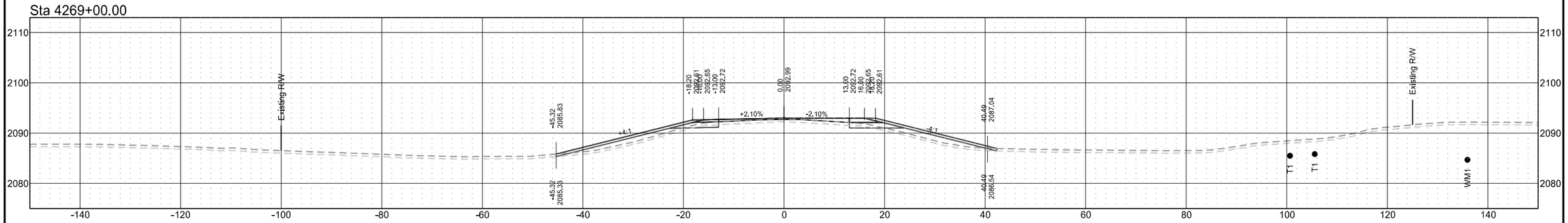
Sta 4271+00.00



Sta 4270+00.00



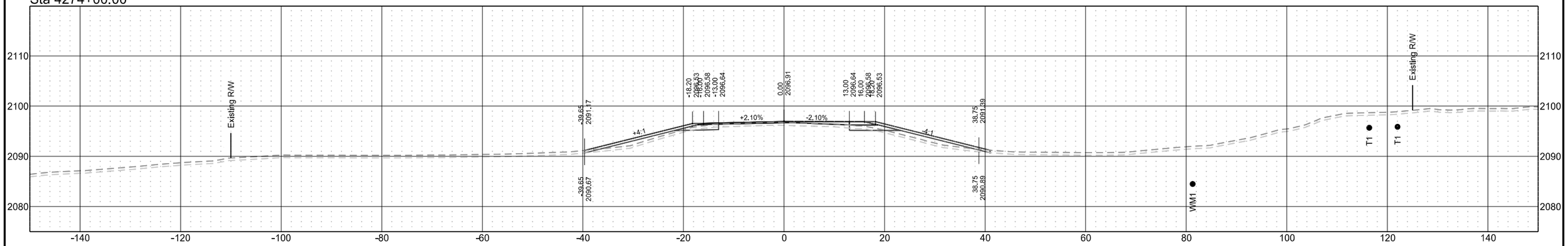
Sta 4269+00.00



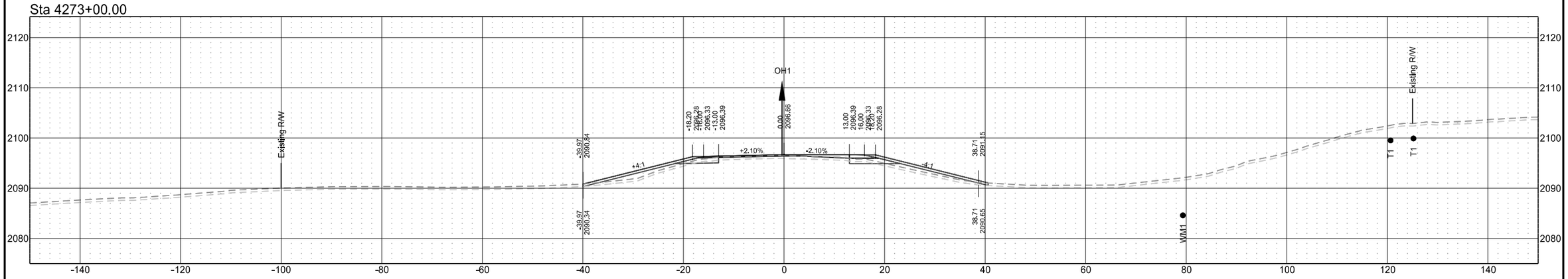
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	53

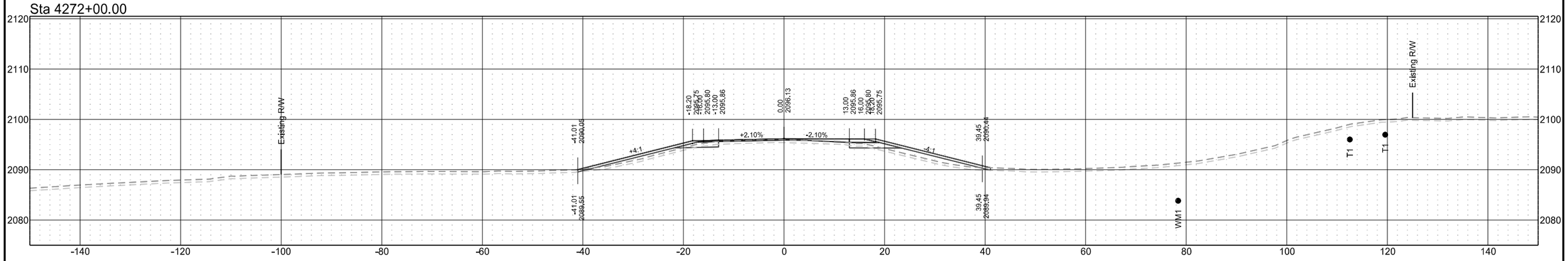
Sta 4274+00.00



Sta 4273+00.00



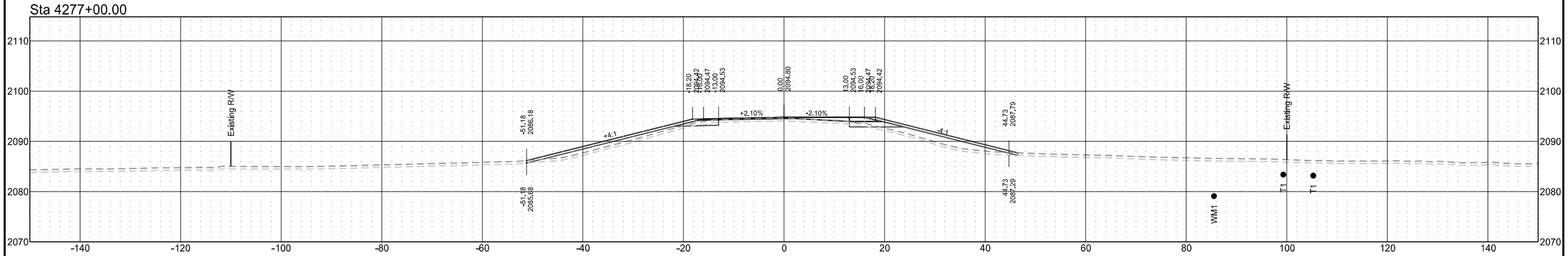
Sta 4272+00.00



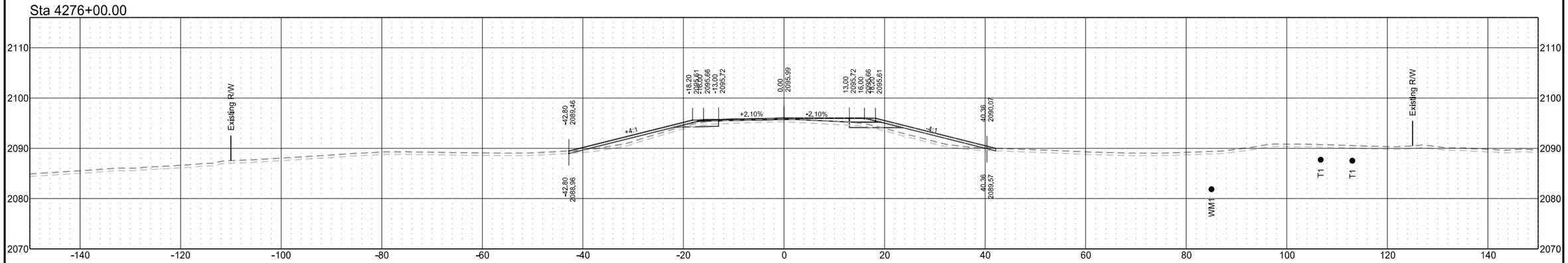
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	54

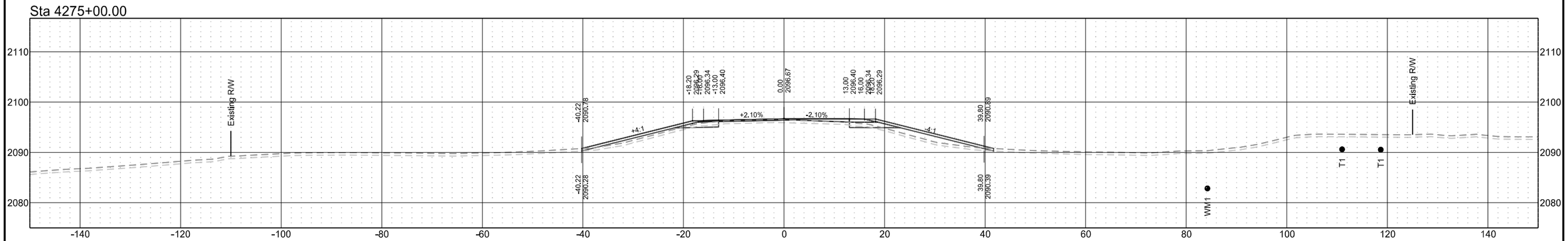
Sta 4277+00.00



Sta 4276+00.00



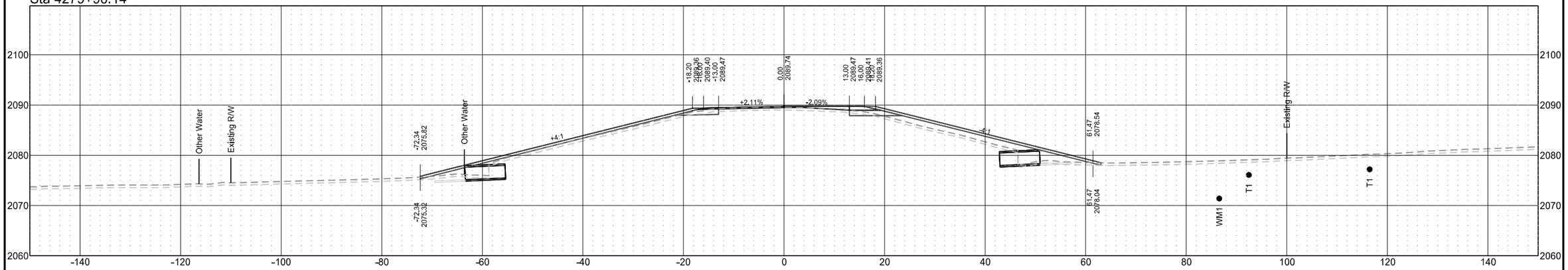
Sta 4275+00.00



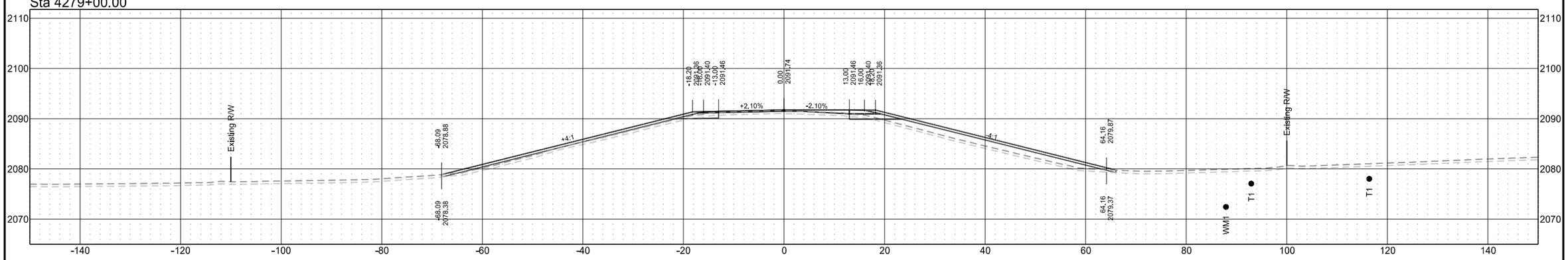
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	55

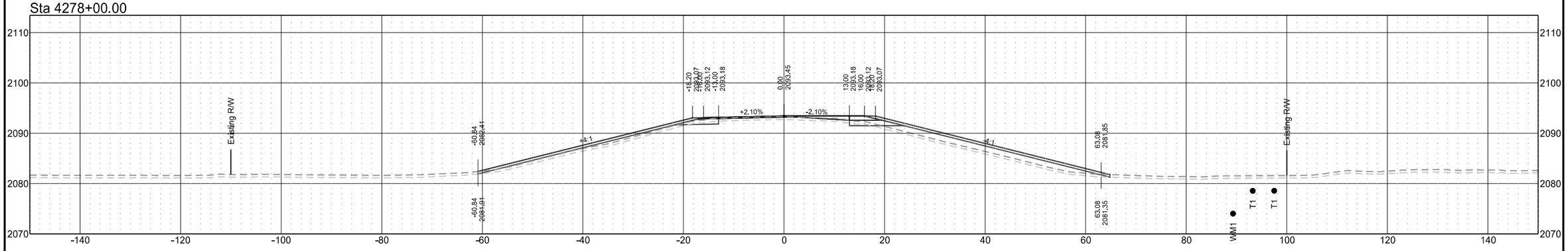
Sta 4279+96.14



Sta 4279+00.00



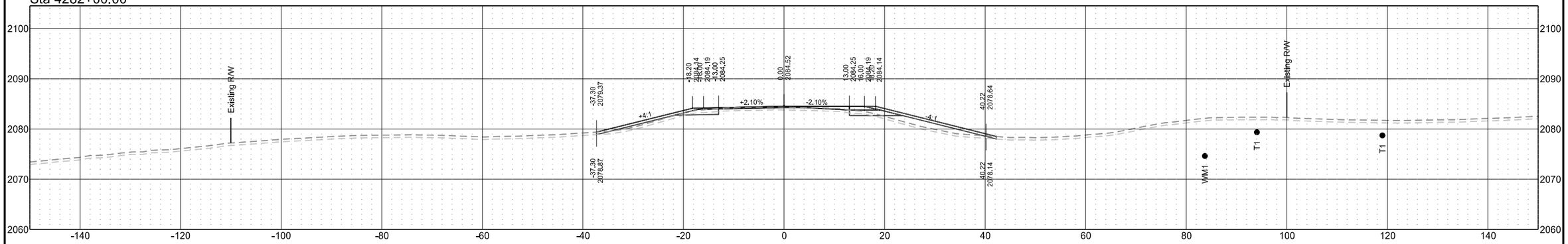
Sta 4278+00.00



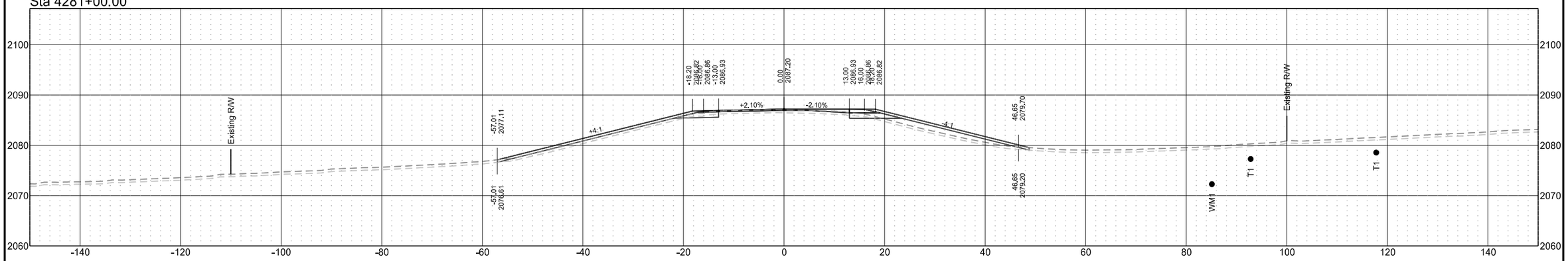
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	56

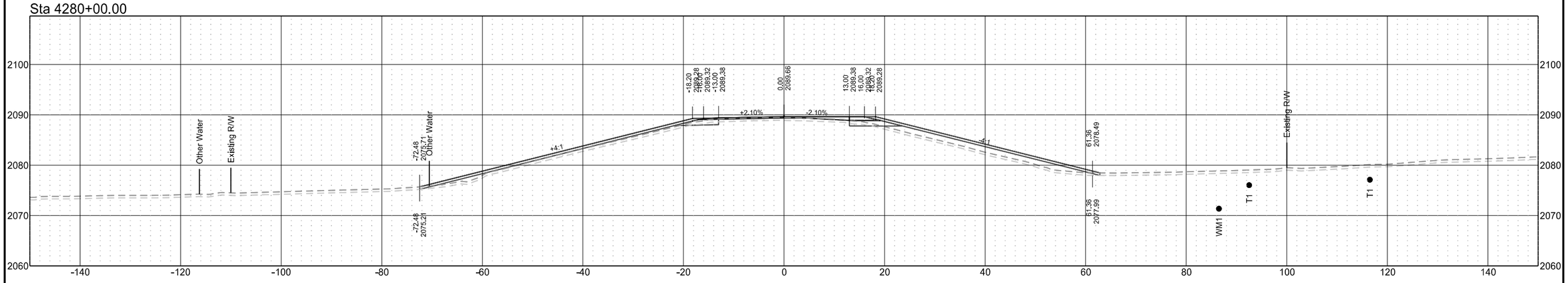
Sta 4282+00.00



Sta 4281+00.00



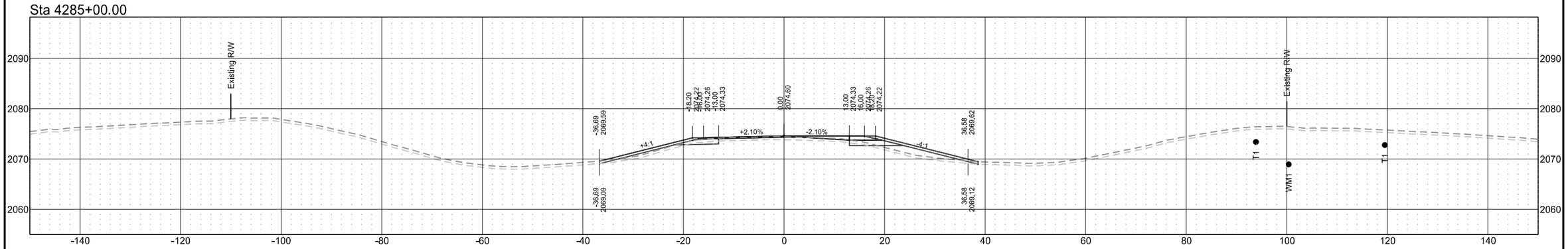
Sta 4280+00.00



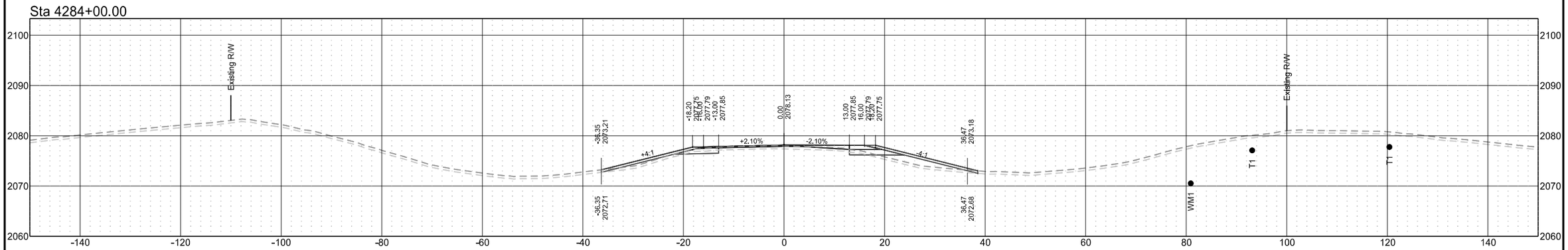
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	57

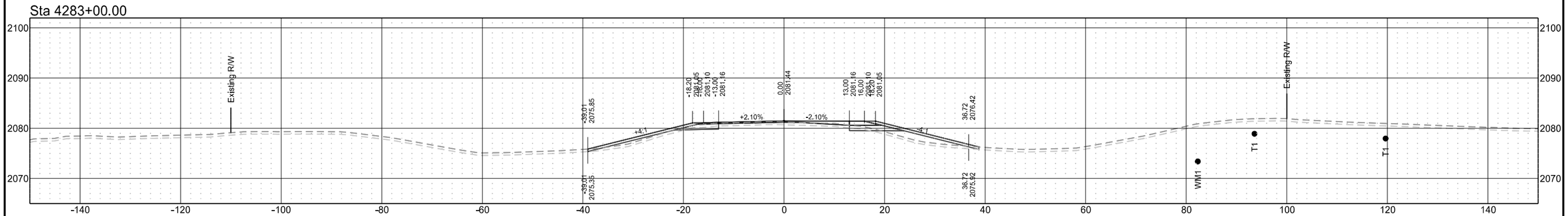
Sta 4285+00.00



Sta 4284+00.00



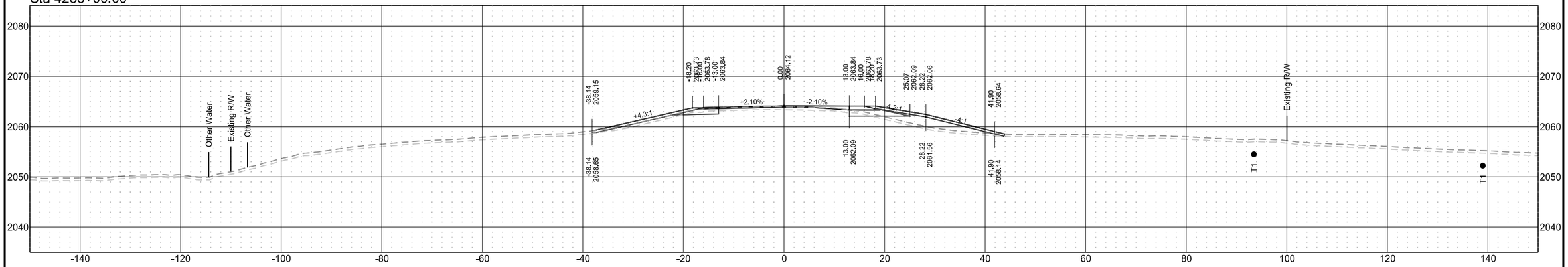
Sta 4283+00.00



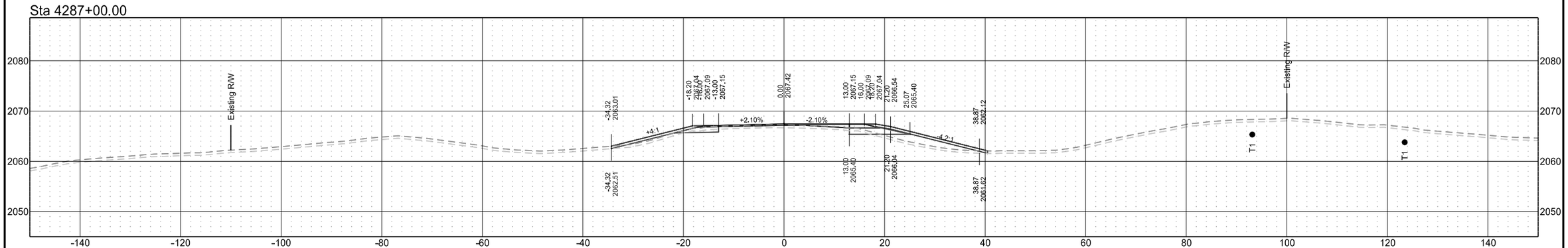
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	58

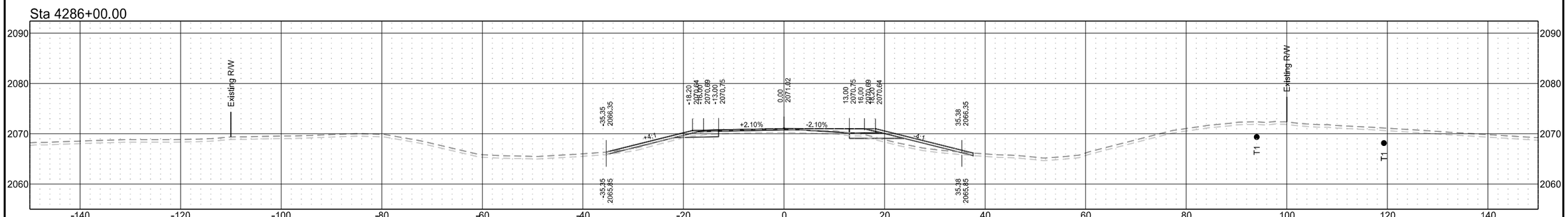
Sta 4288+00.00



Sta 4287+00.00



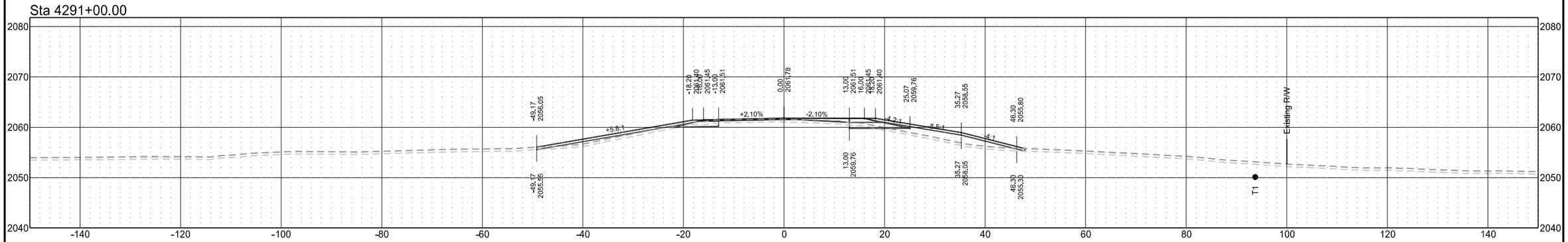
Sta 4286+00.00



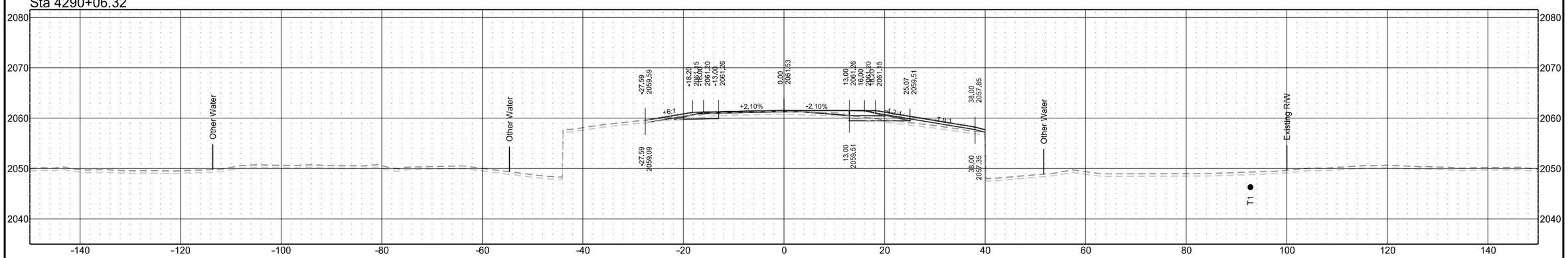
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	59

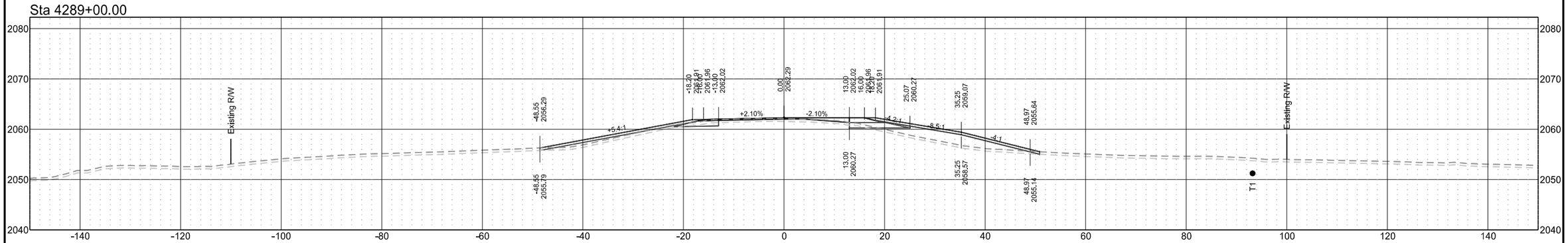
Sta 4291+00.00



Sta 4290+06.32



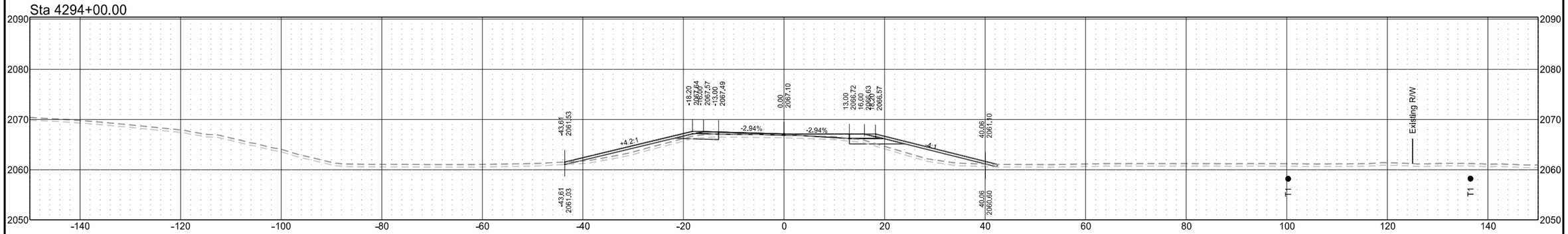
Sta 4289+00.00



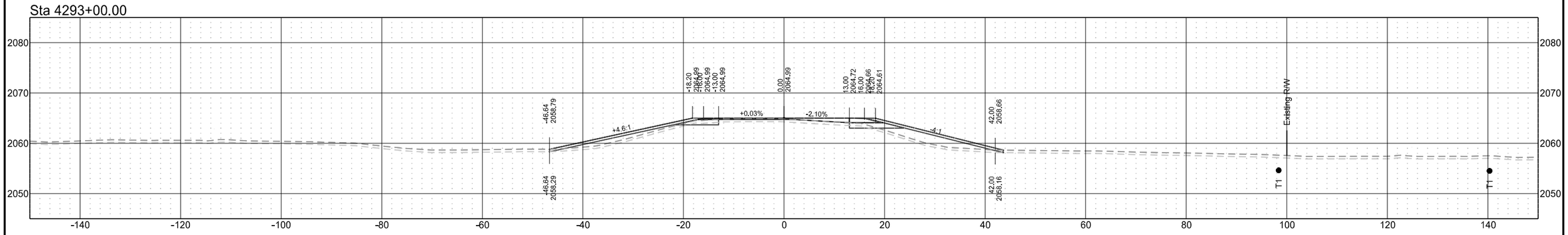
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	60

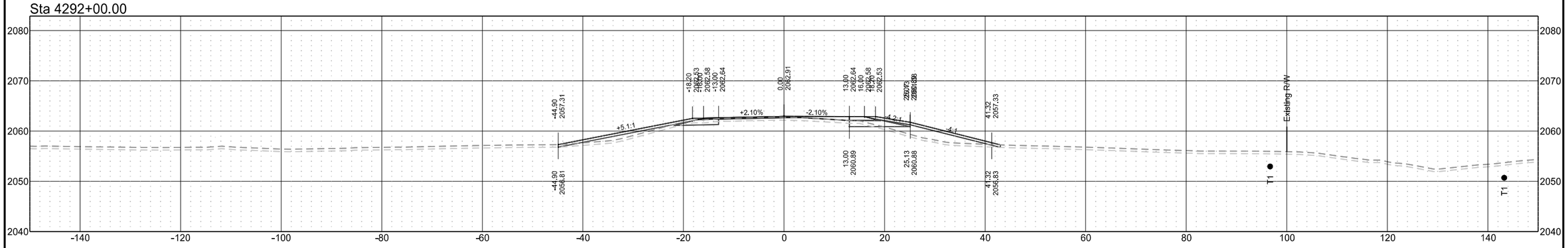
Sta 4294+00.00



Sta 4293+00.00



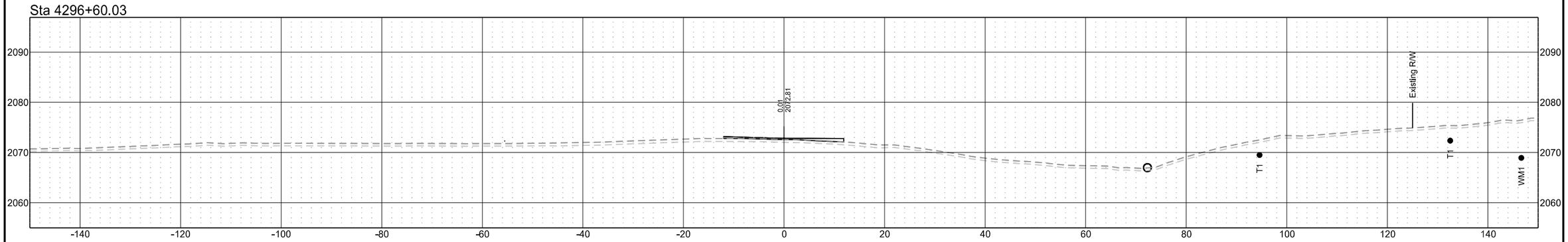
Sta 4292+00.00



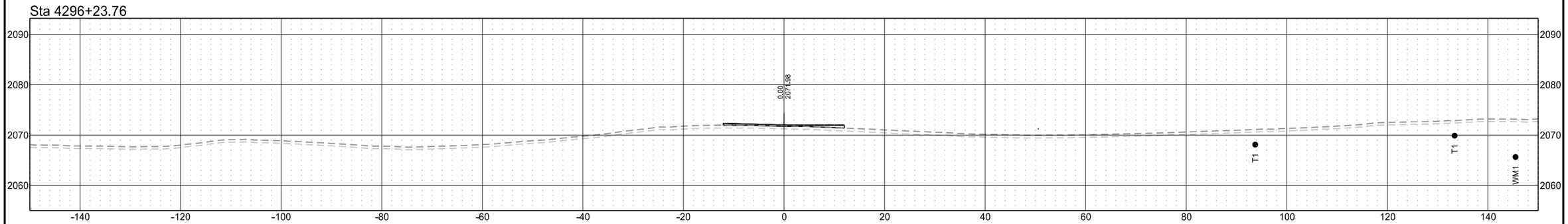
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	61

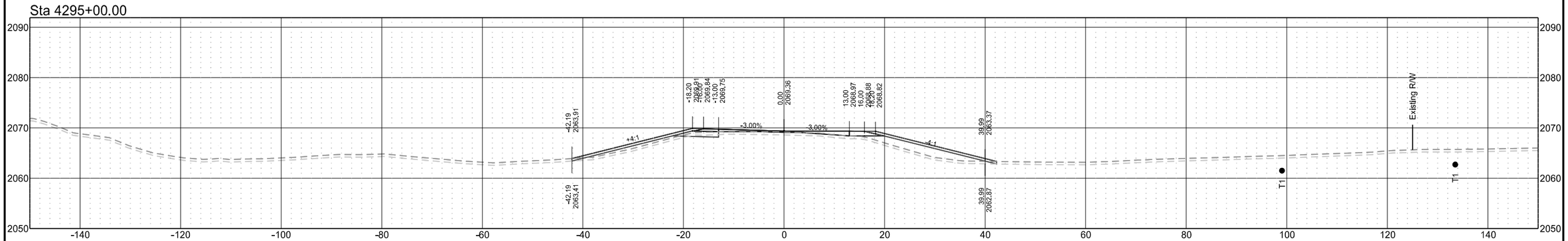
Sta 4296+60.03



Sta 4296+23.76



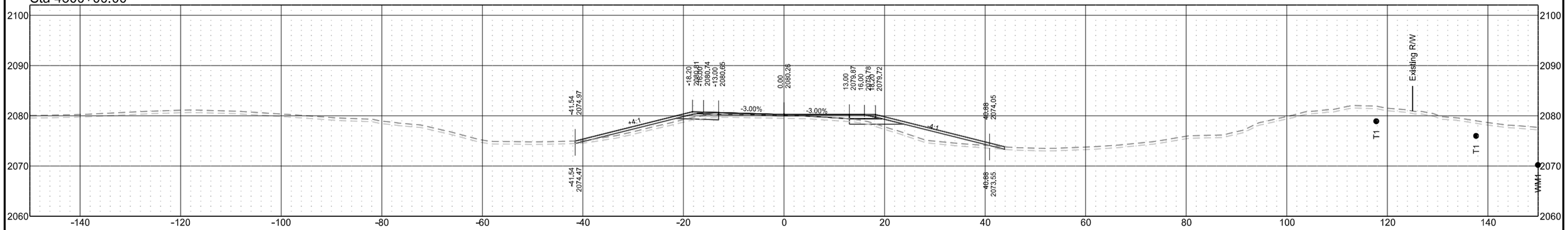
Sta 4295+00.00



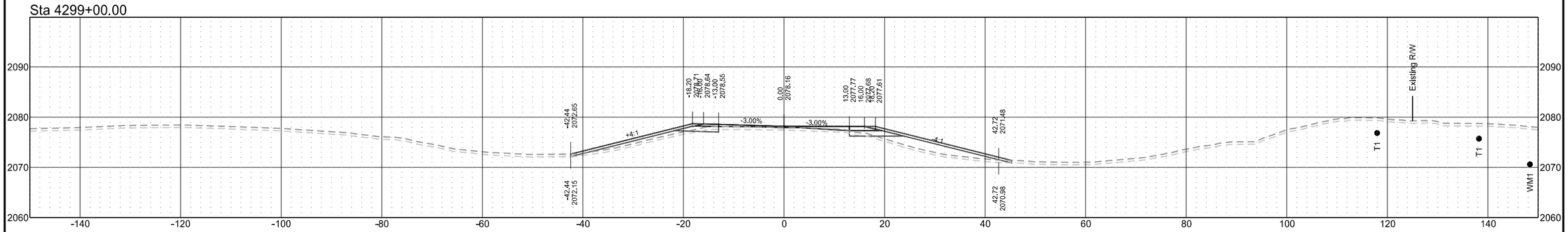
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	62

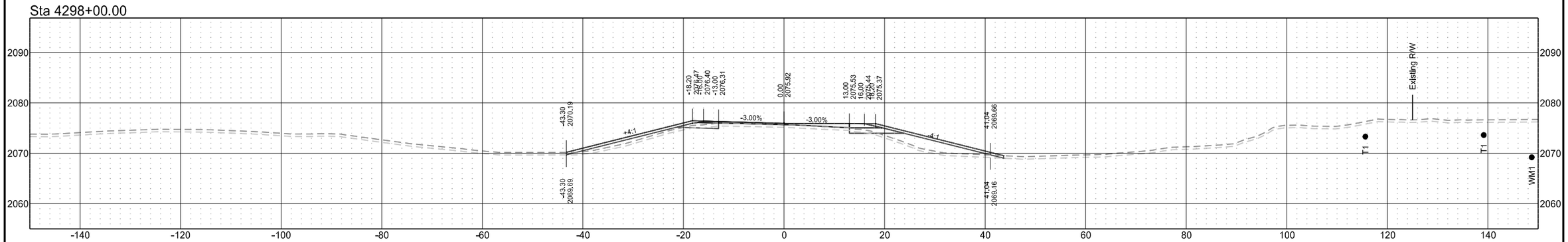
Sta 4300+00.00



Sta 4299+00.00



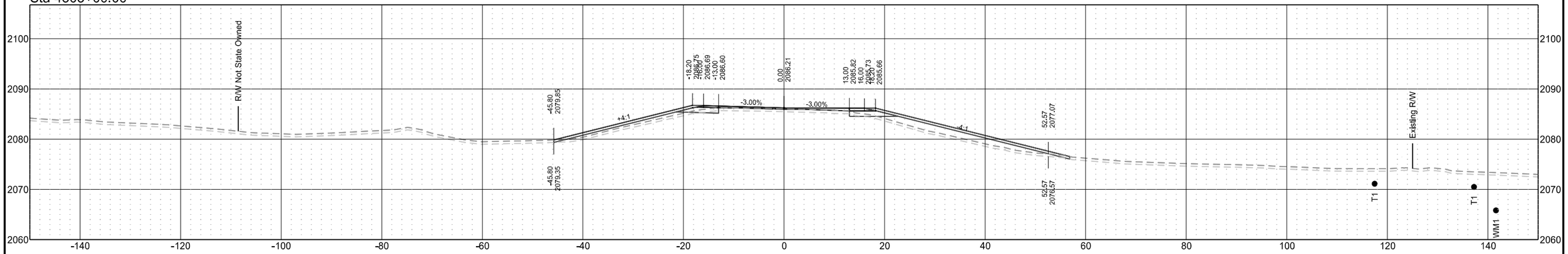
Sta 4298+00.00



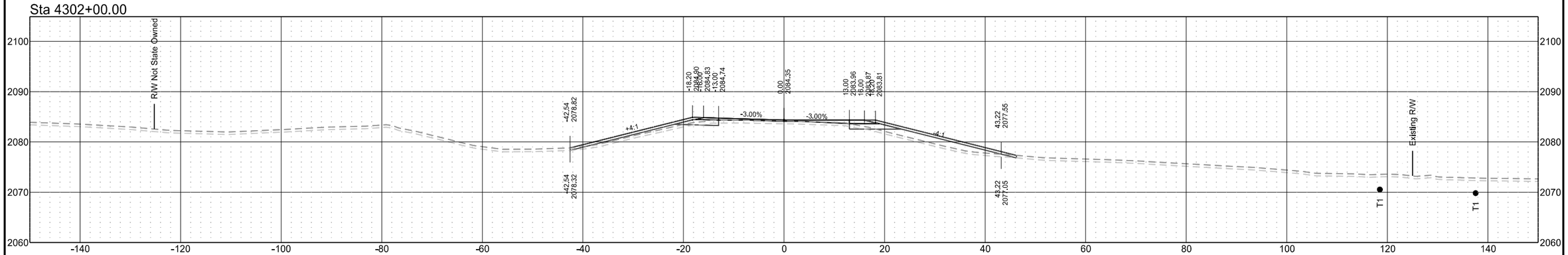
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	63

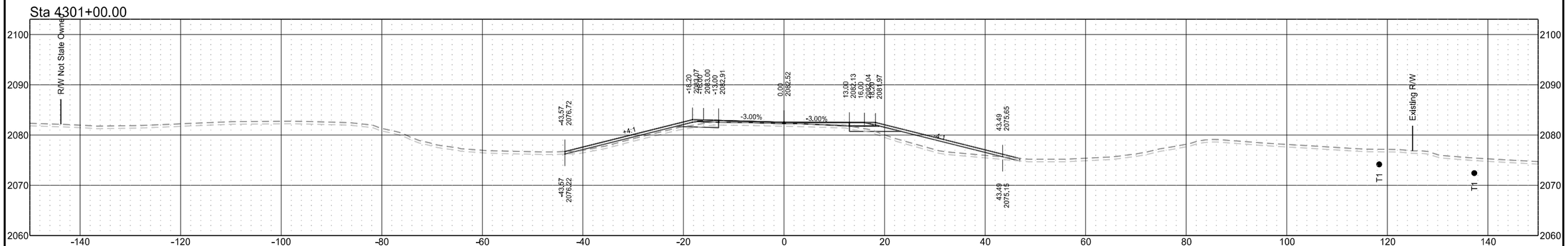
Sta 4303+00.00



Sta 4302+00.00



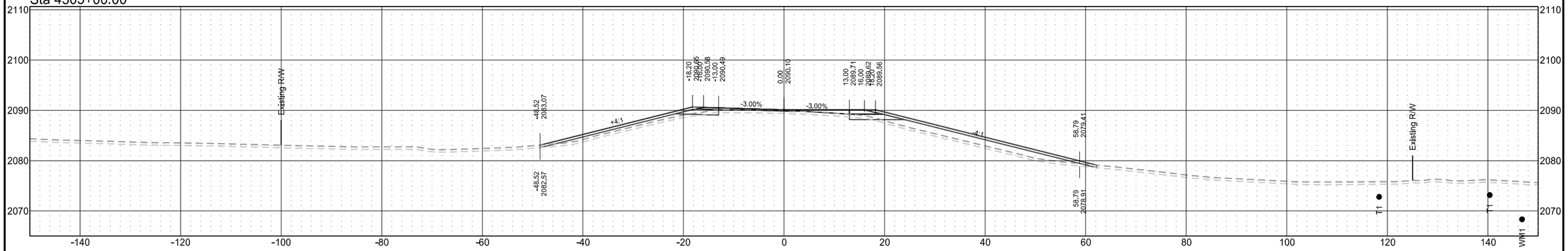
Sta 4301+00.00



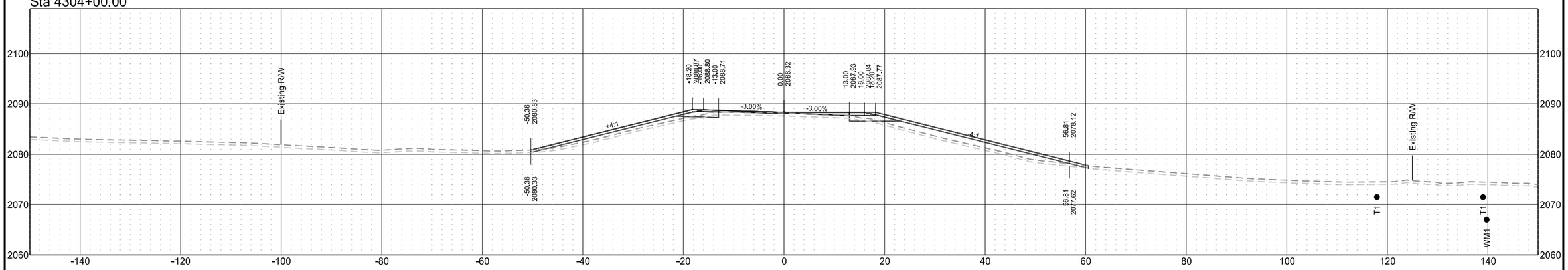
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	64

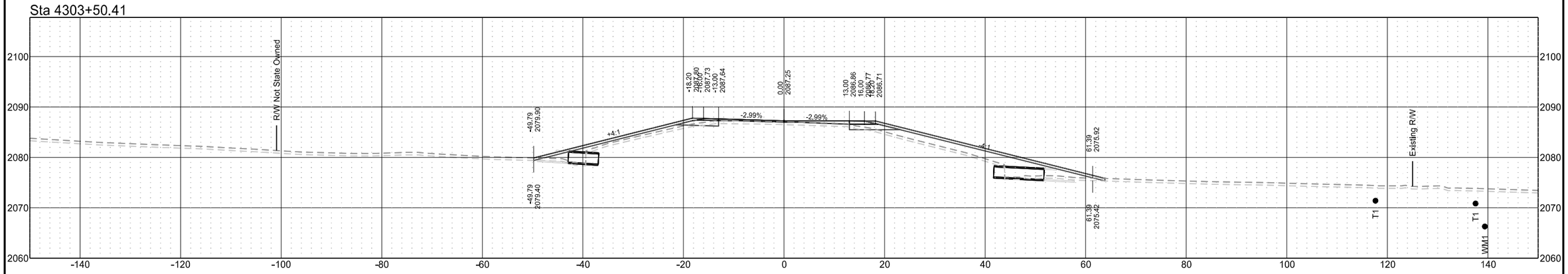
Sta 4305+00.00



Sta 4304+00.00



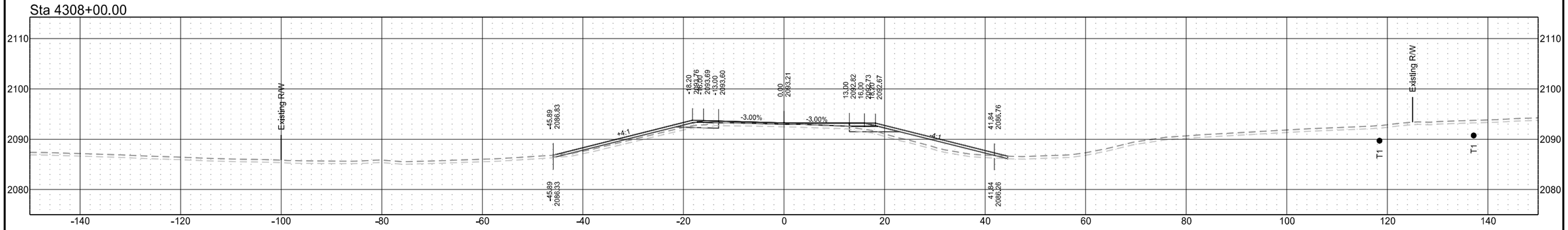
Sta 4303+50.41



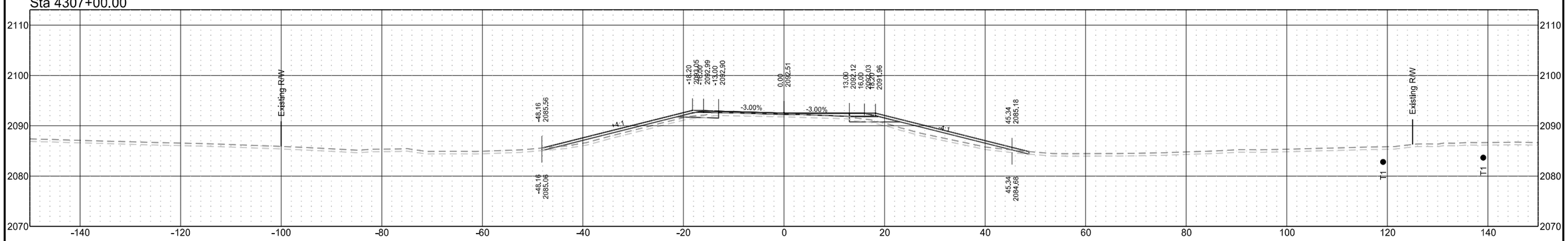
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	65

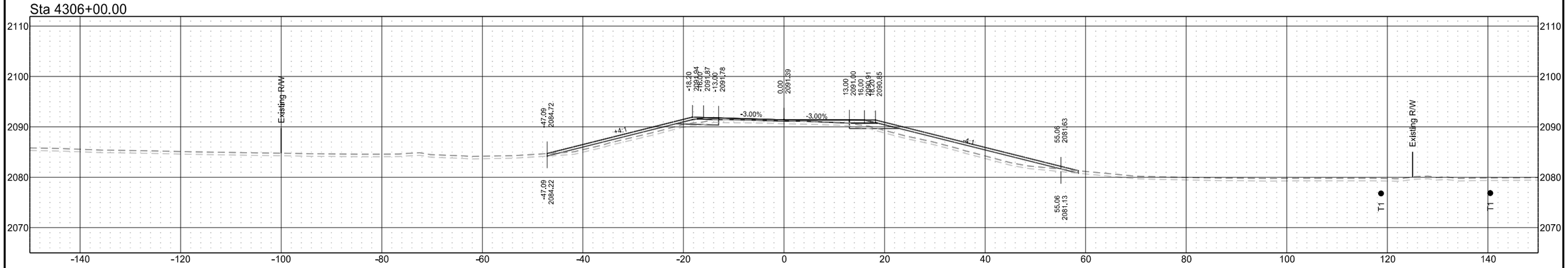
Sta 4308+00.00



Sta 4307+00.00



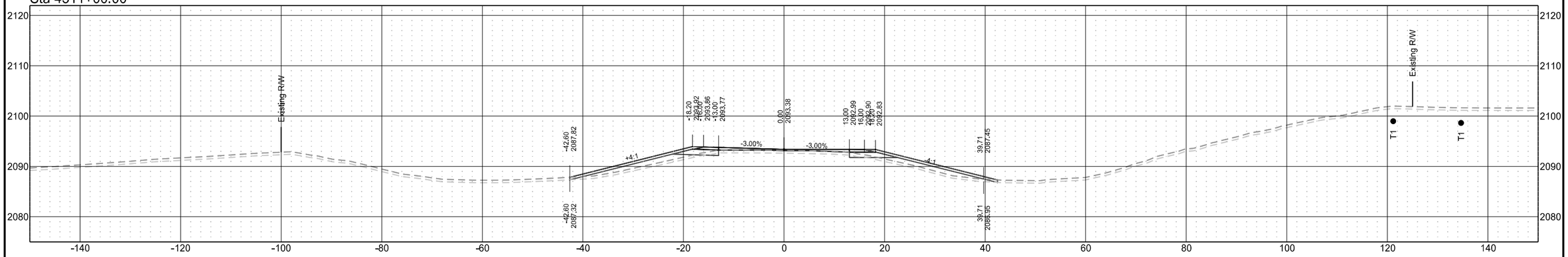
Sta 4306+00.00



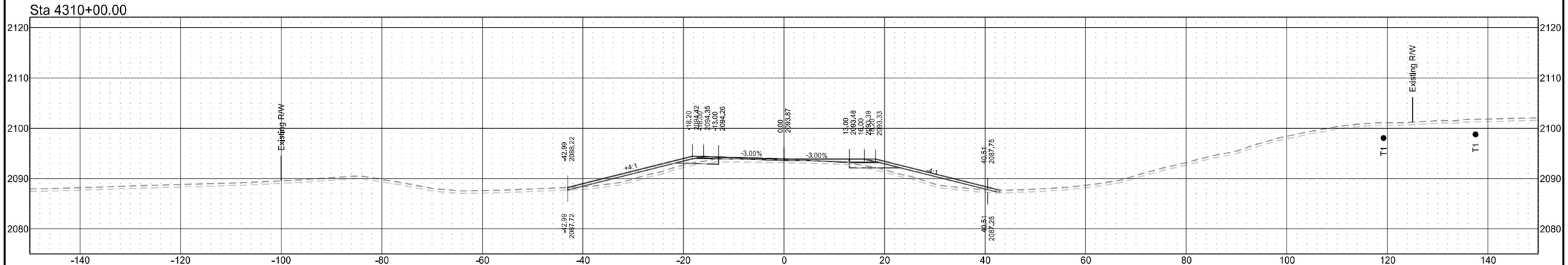
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	66

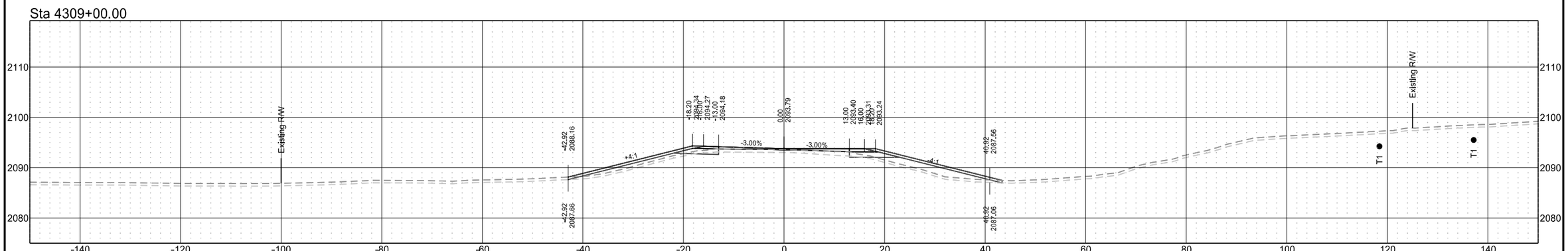
Sta 4311+00.00



Sta 4310+00.00



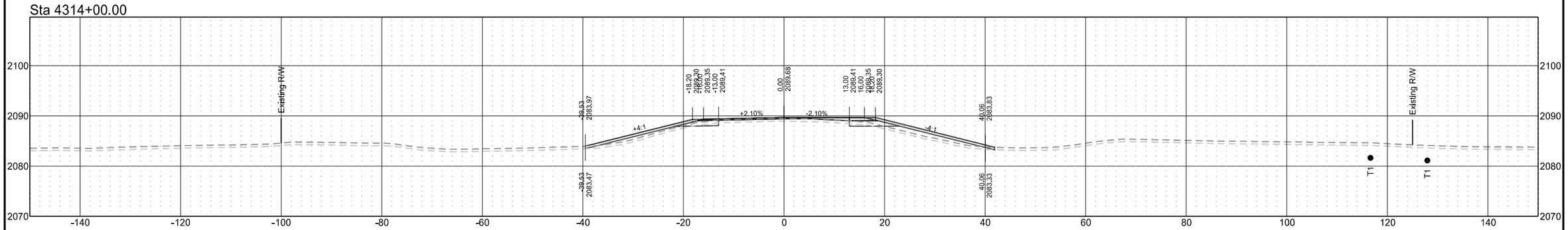
Sta 4309+00.00



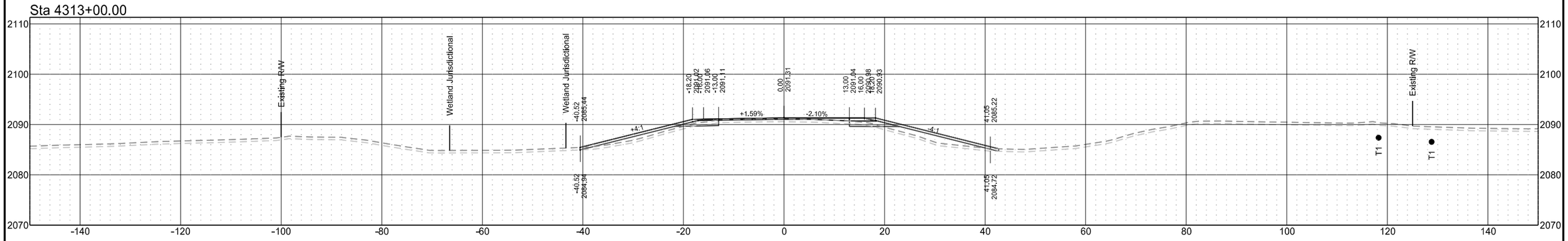
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	67

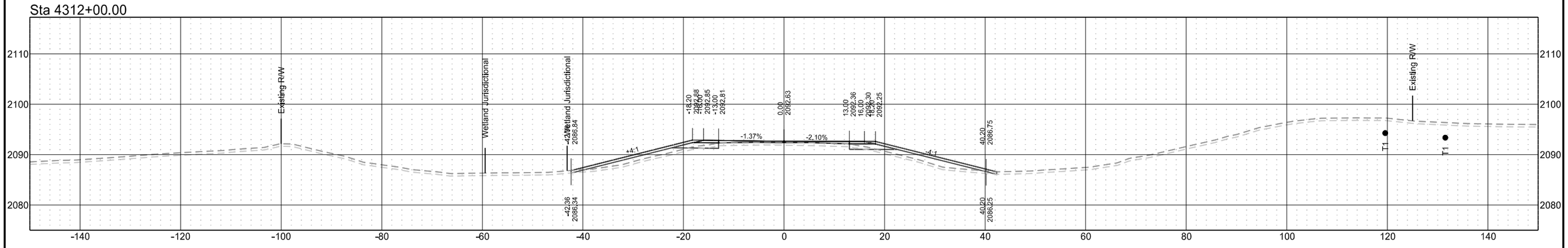
Sta 4314+00.00



Sta 4313+00.00



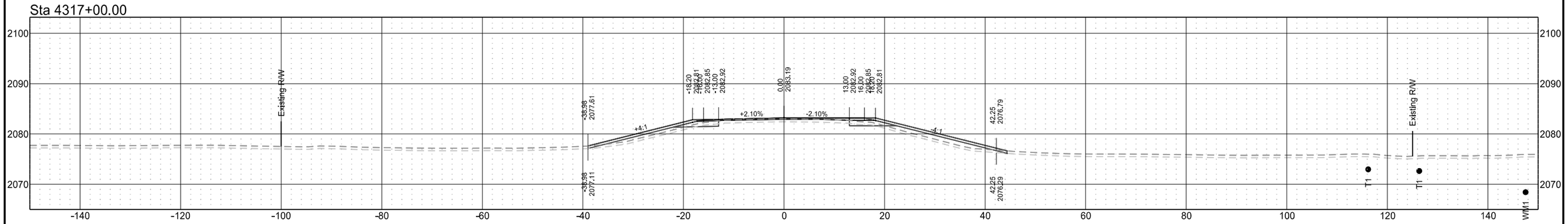
Sta 4312+00.00



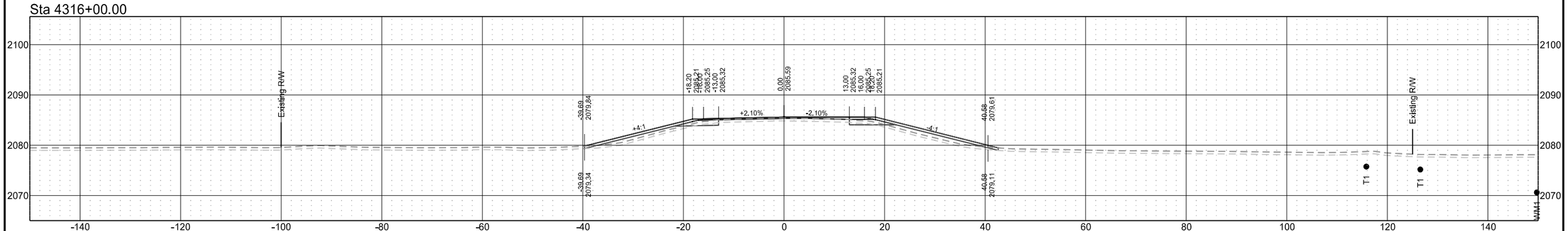
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	68

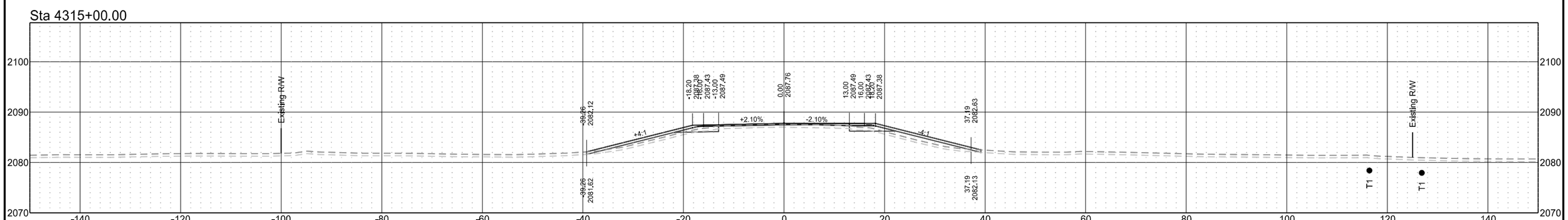
Sta 4317+00.00



Sta 4316+00.00



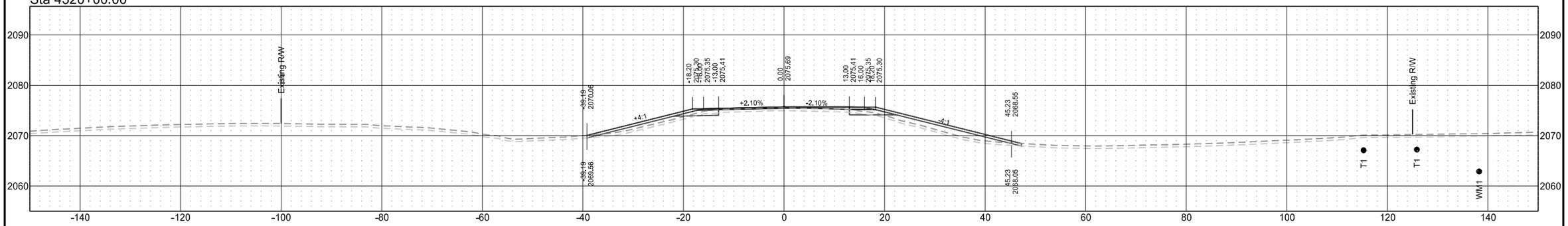
Sta 4315+00.00



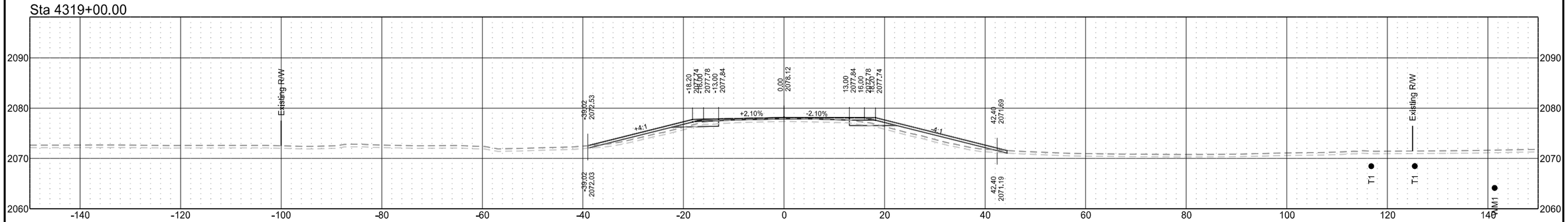
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	69

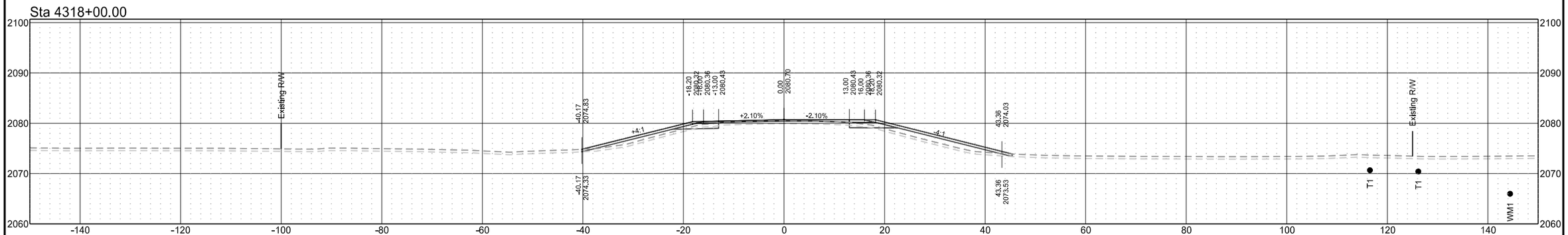
Sta 4320+00.00



Sta 4319+00.00



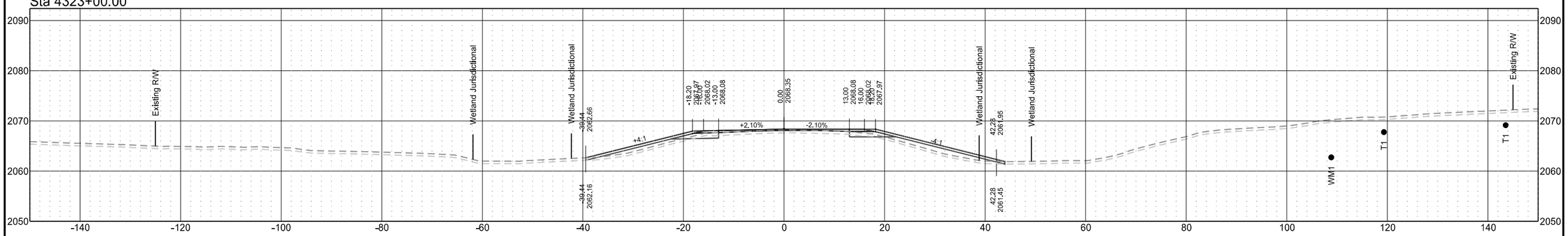
Sta 4318+00.00



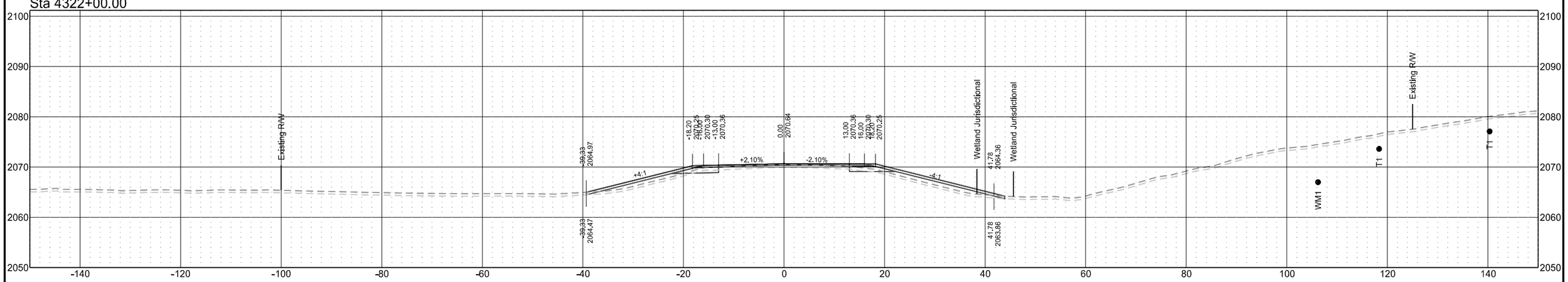
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	70

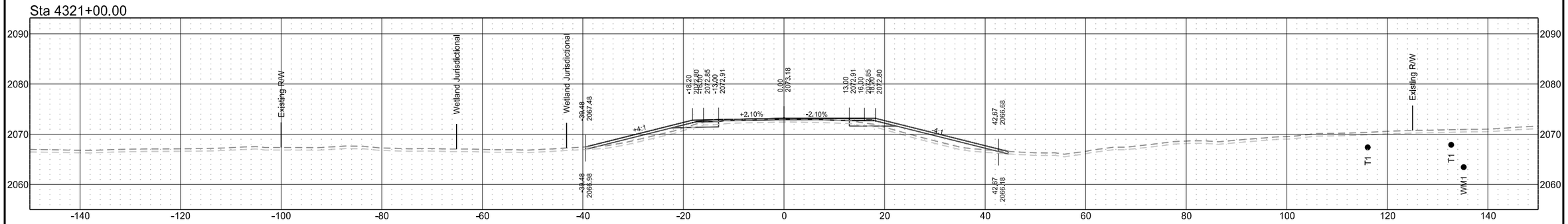
Sta 4323+00.00



Sta 4322+00.00



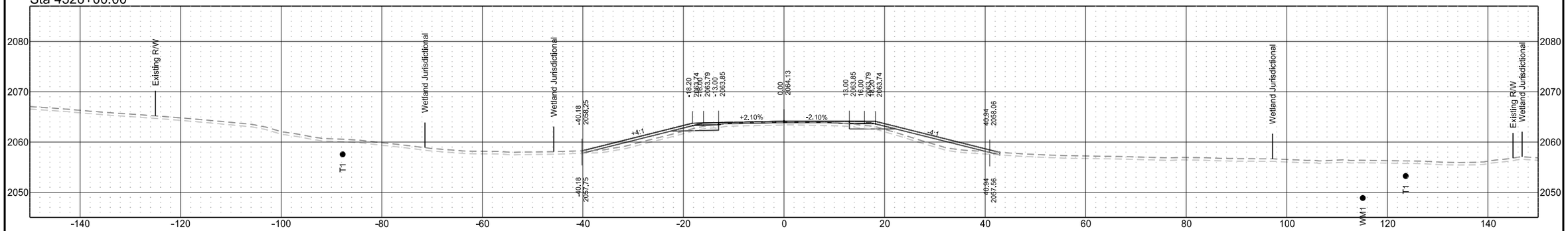
Sta 4321+00.00



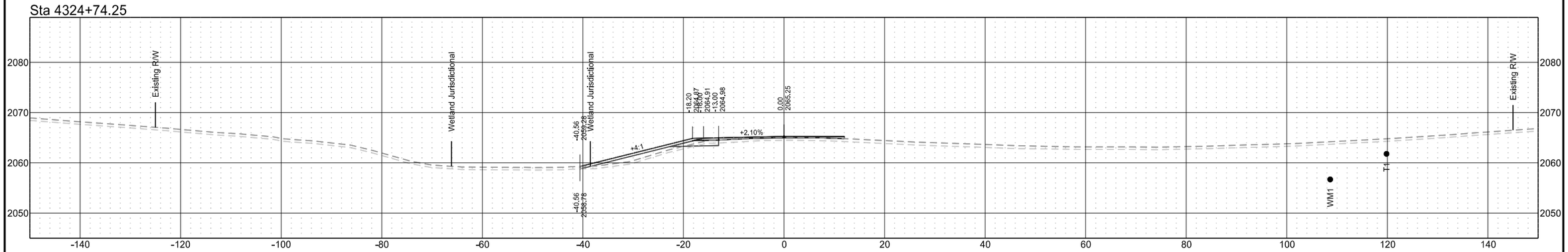
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	71

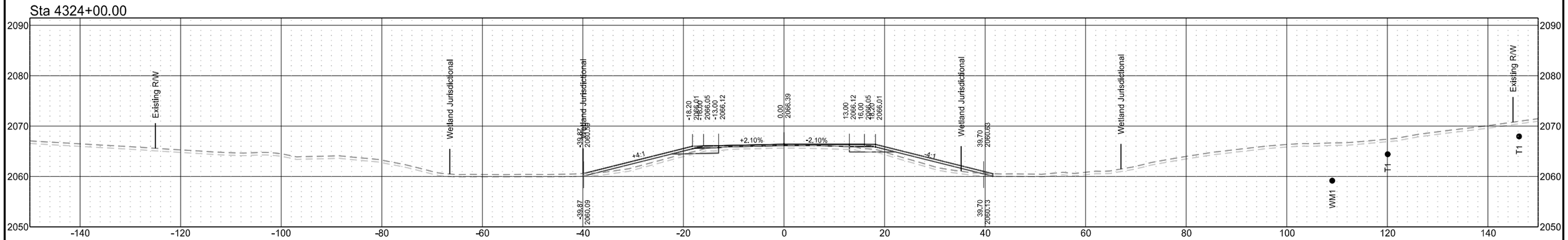
Sta 4326+00.00



Sta 4324+74.25



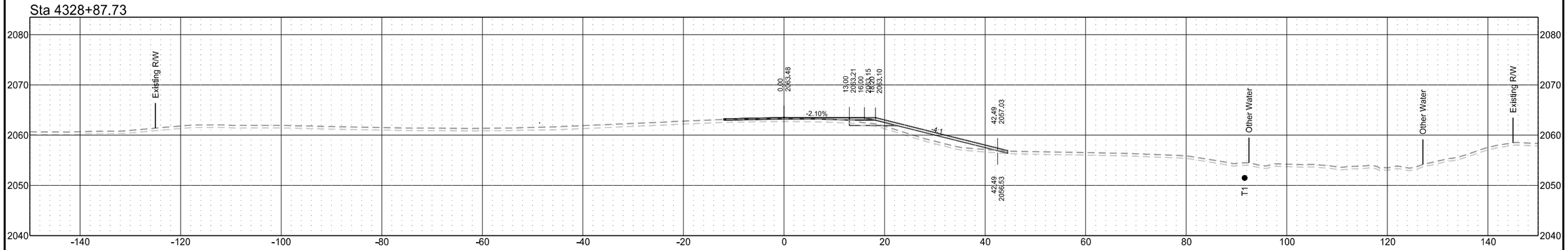
Sta 4324+00.00



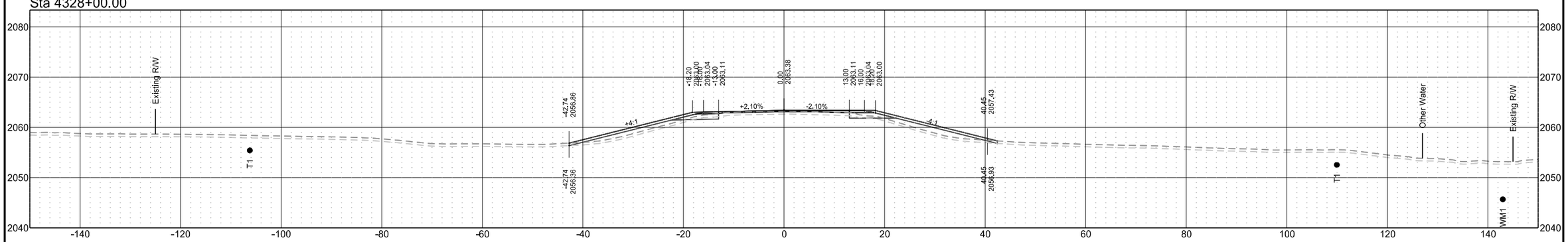
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	72

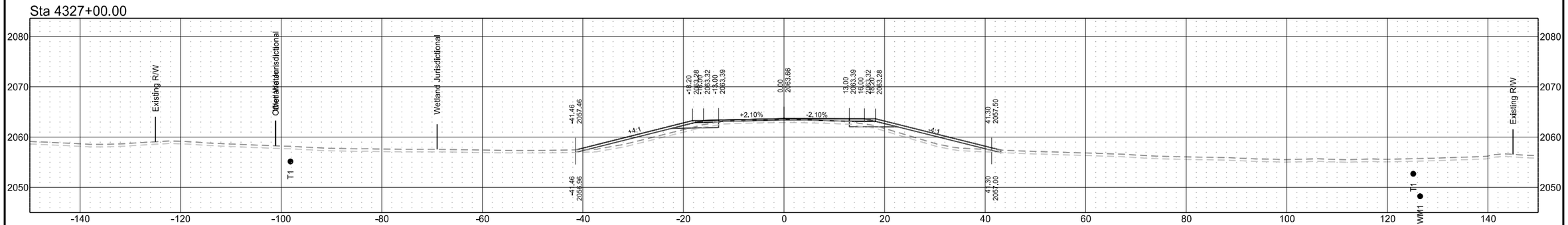
Sta 4328+87.73



Sta 4328+00.00



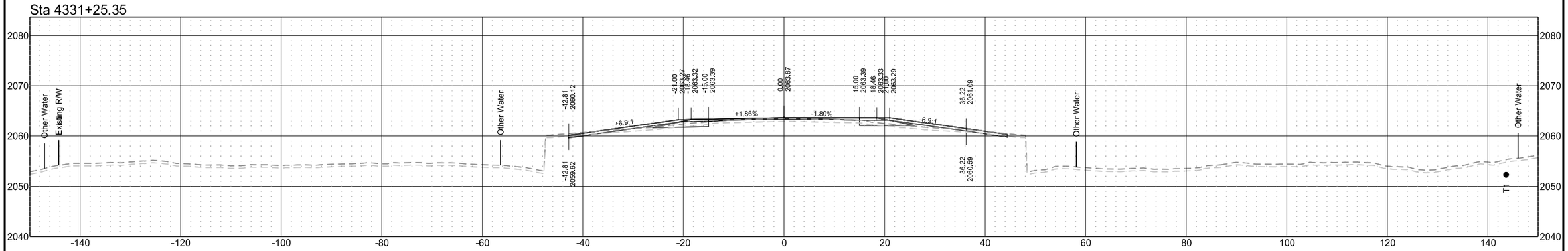
Sta 4327+00.00



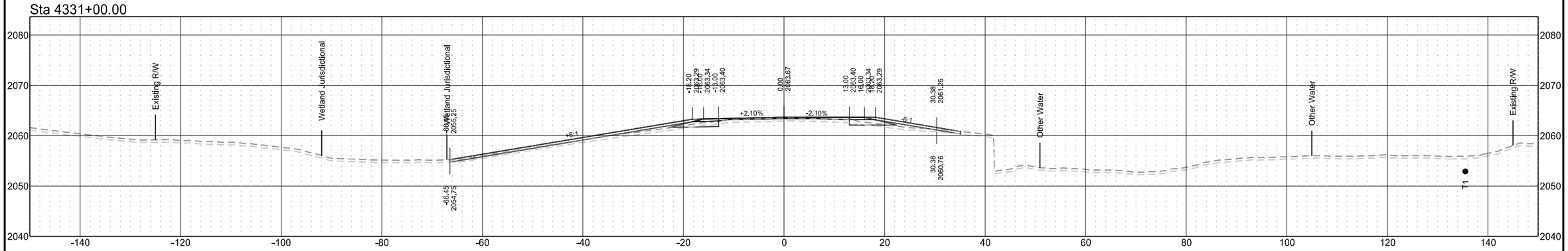
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	73

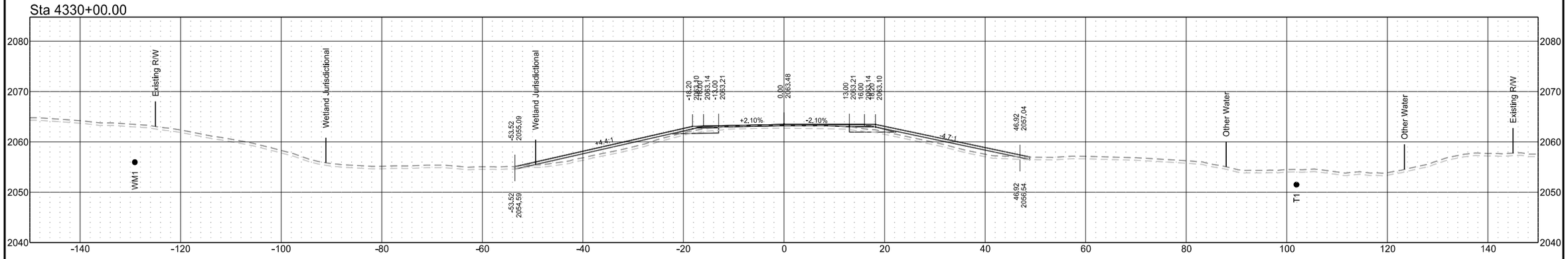
Sta 4331+25.35



Sta 4331+00.00



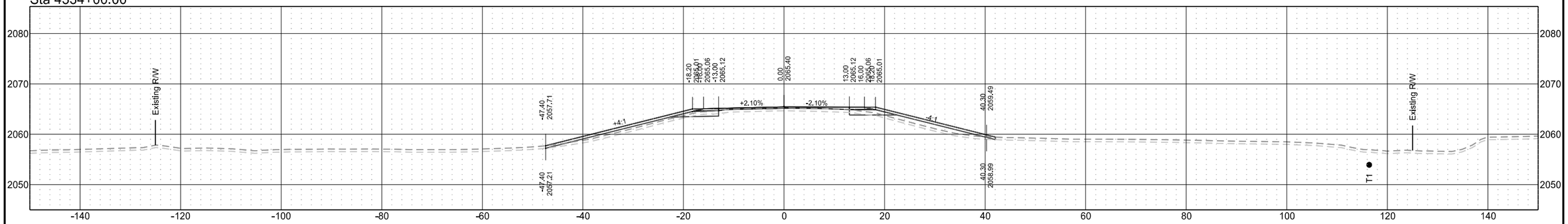
Sta 4330+00.00



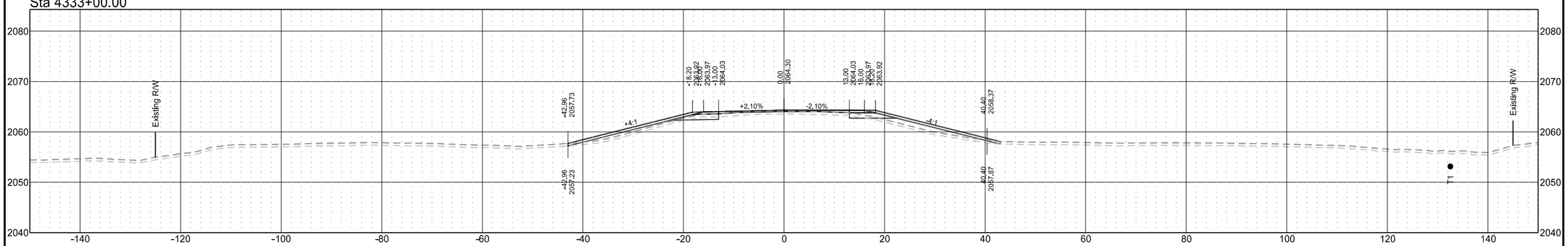
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	74

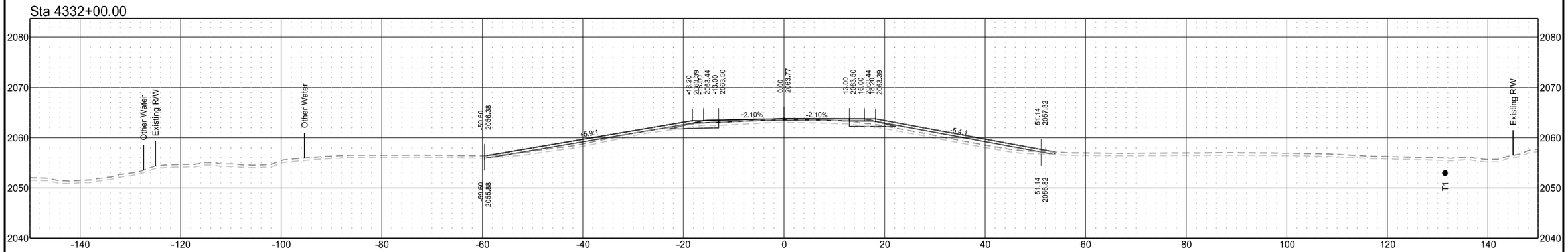
Sta 4334+00.00



Sta 4333+00.00



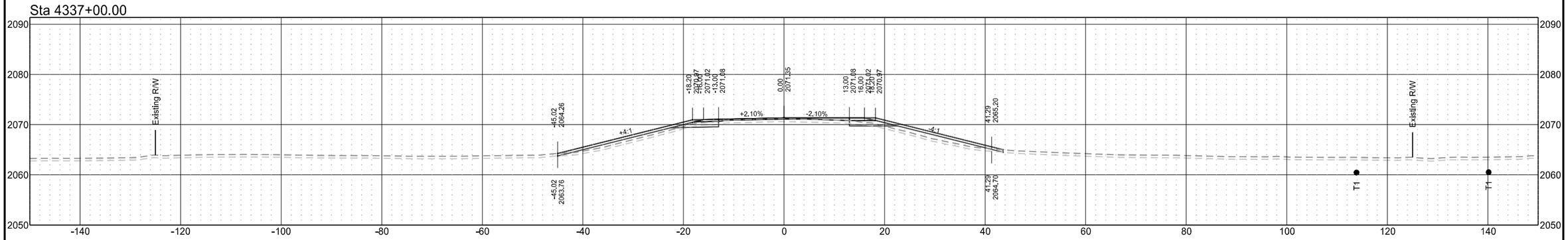
Sta 4332+00.00



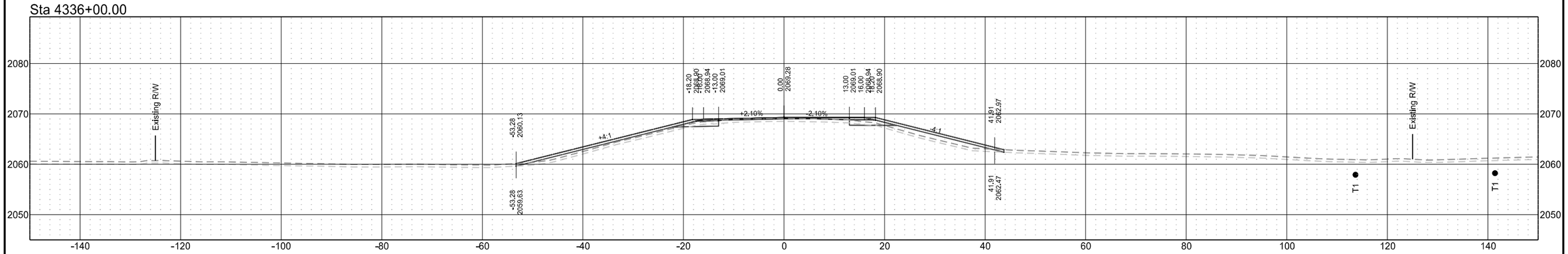
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	75

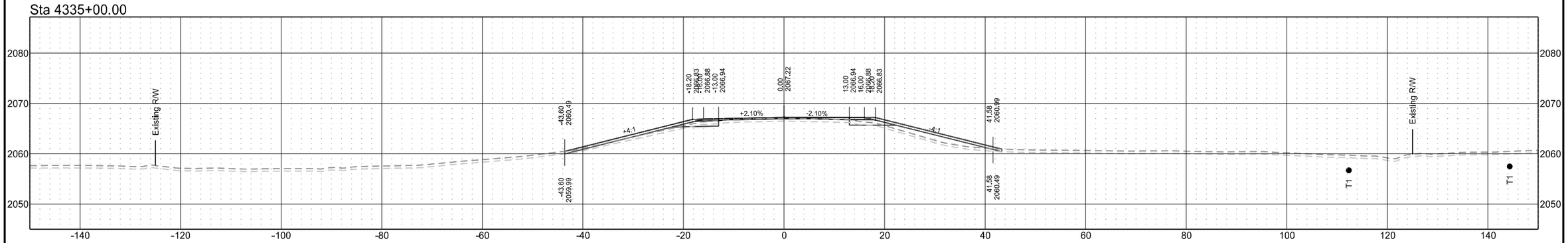
Sta 4337+00.00



Sta 4336+00.00



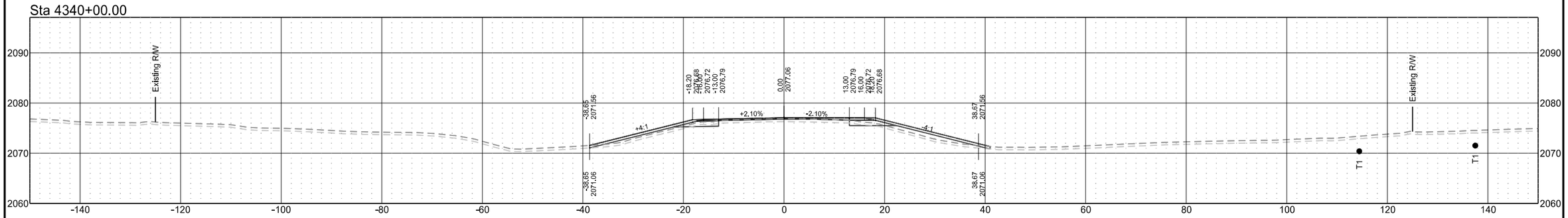
Sta 4335+00.00



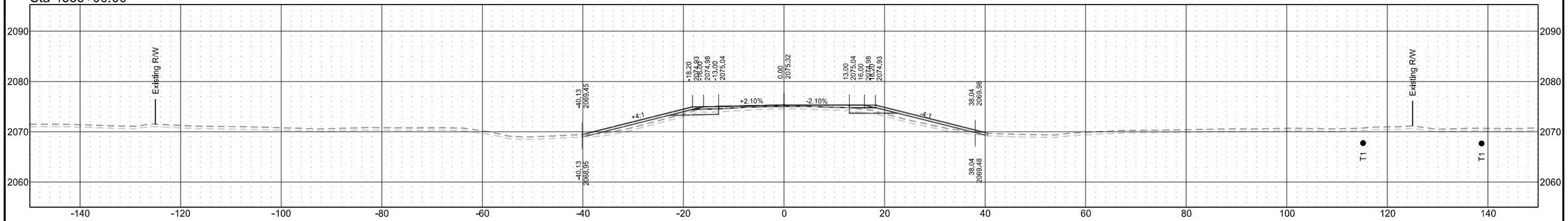
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	76

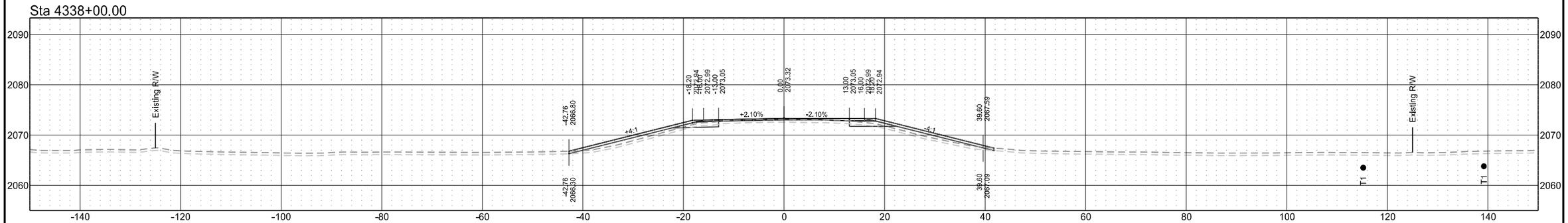
Sta 4340+00.00



Sta 4339+00.00



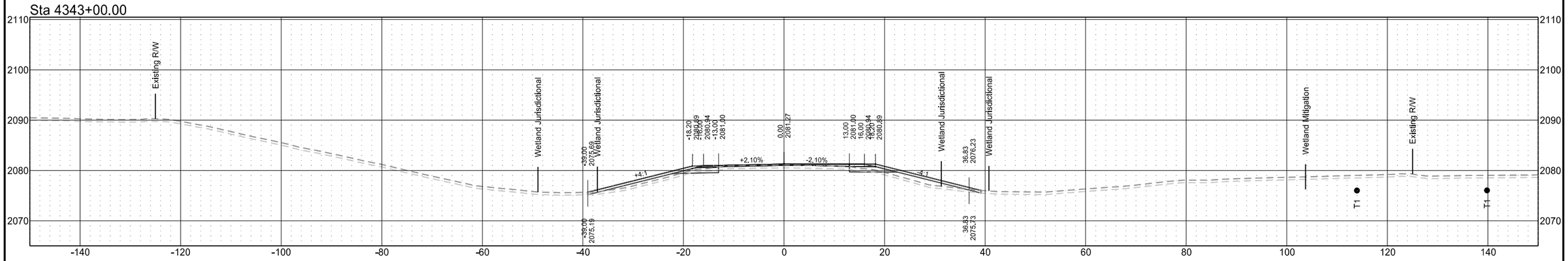
Sta 4338+00.00



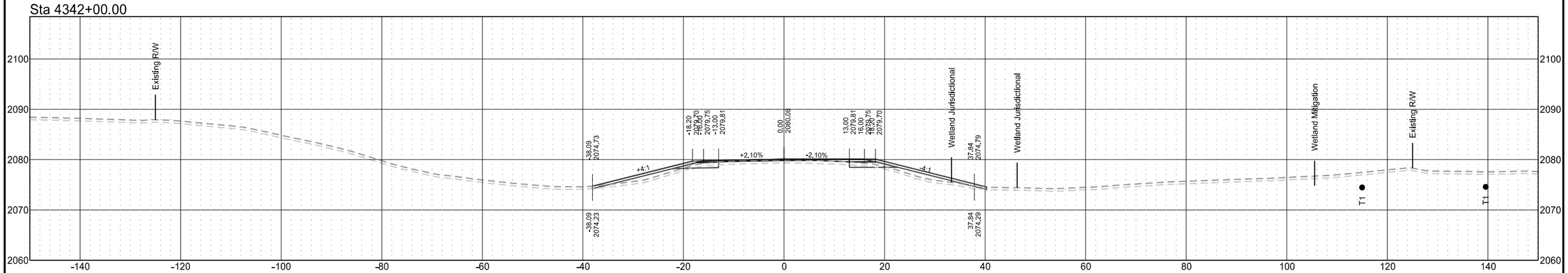
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	77

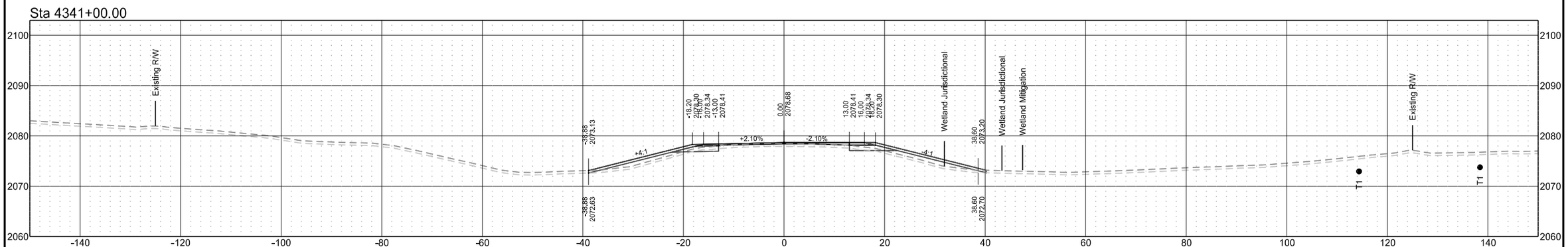
Sta 4343+00.00



Sta 4342+00.00



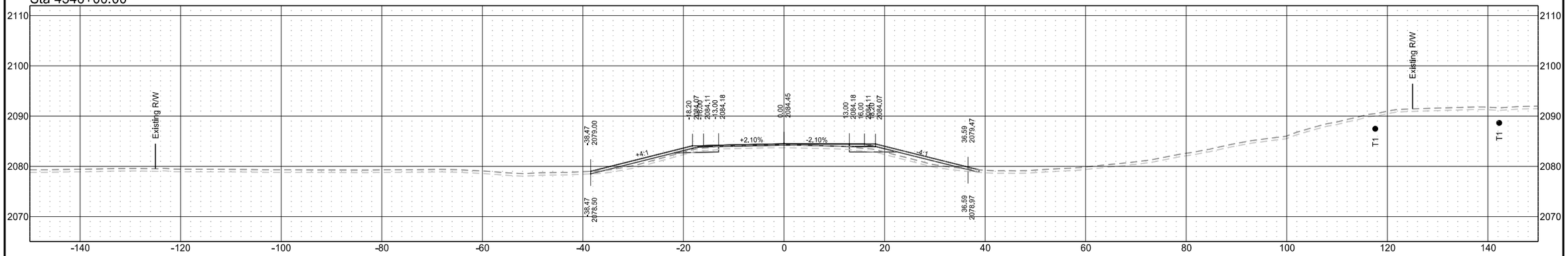
Sta 4341+00.00



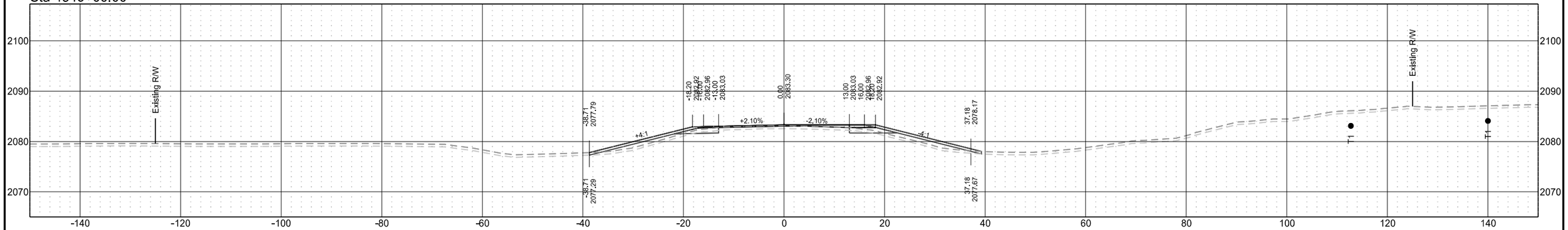
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	78

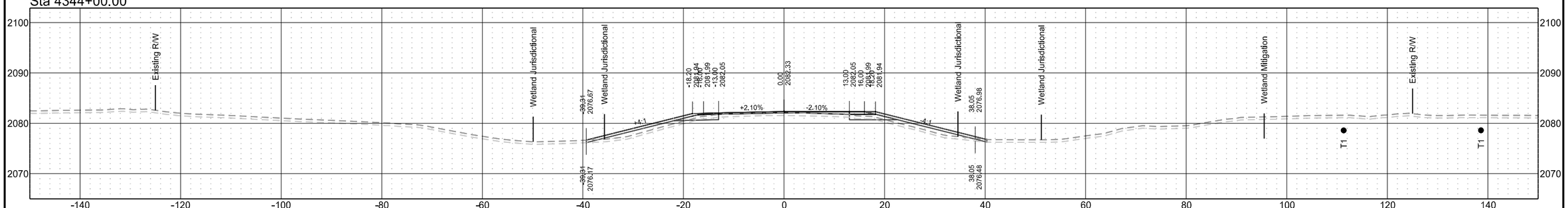
Sta 4346+00.00



Sta 4345+00.00



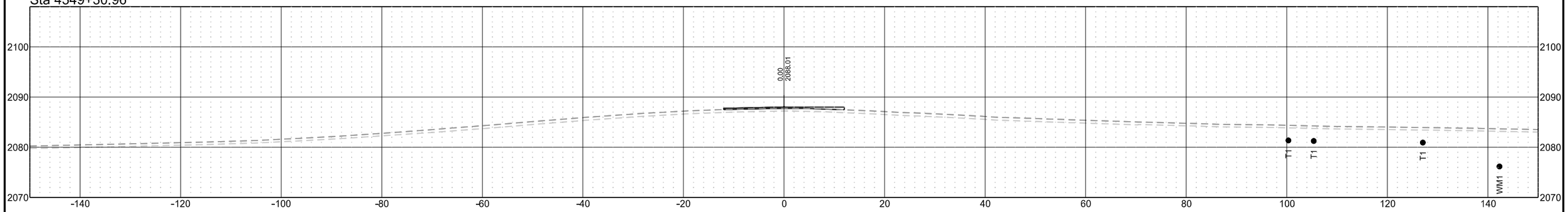
Sta 4344+00.00



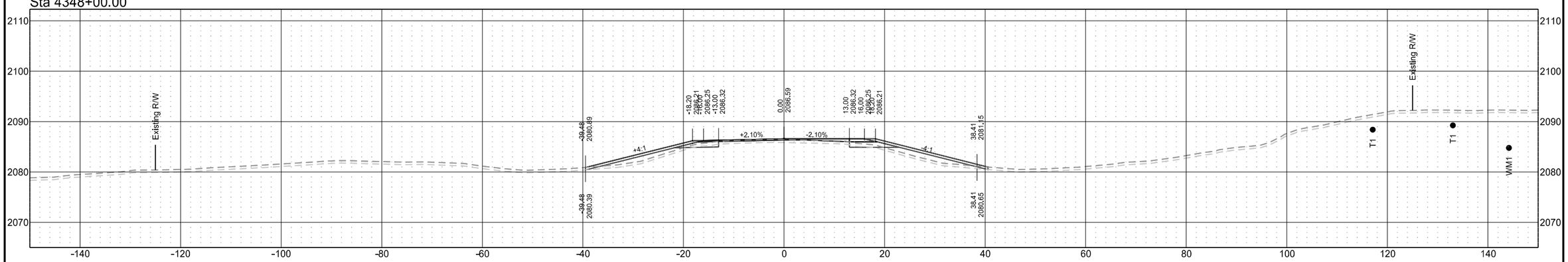
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	79

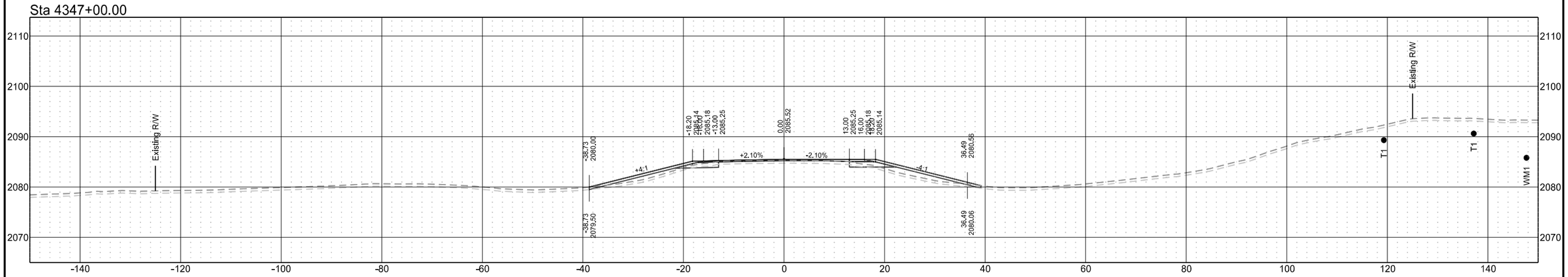
Sta 4349+30.96



Sta 4348+00.00



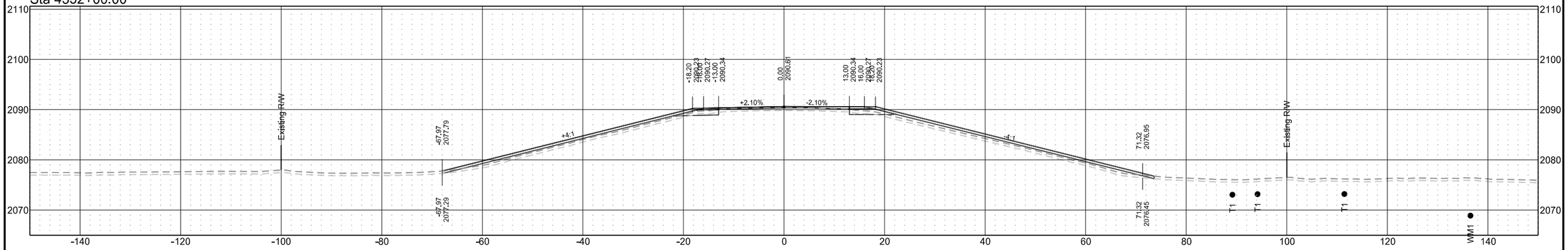
Sta 4347+00.00



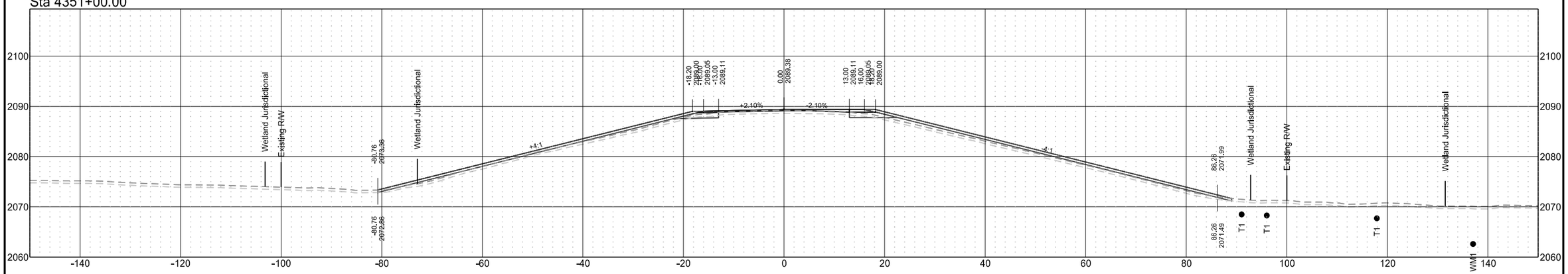
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	80

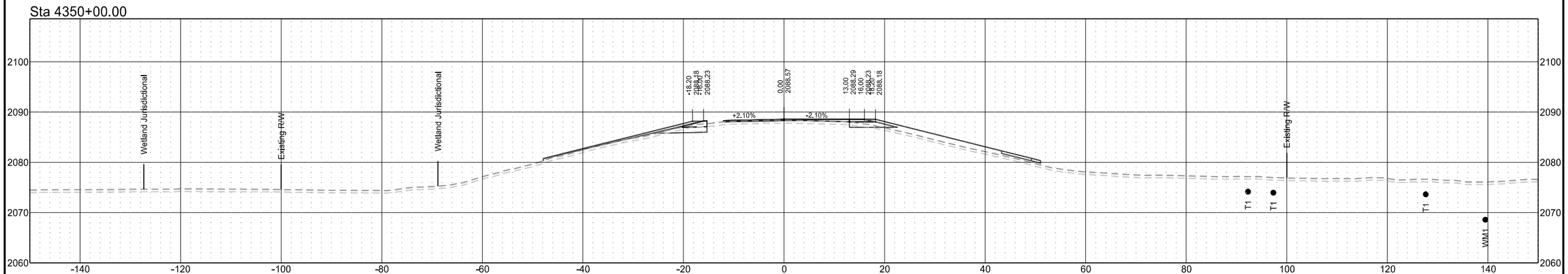
Sta 4352+00.00



Sta 4351+00.00



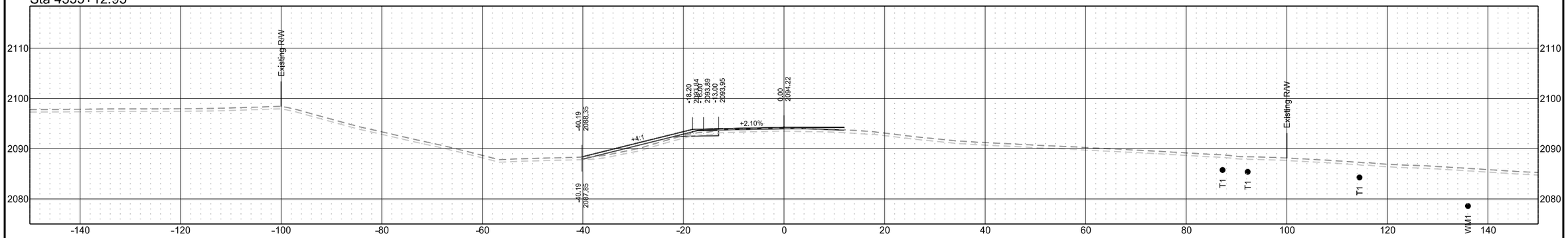
Sta 4350+00.00



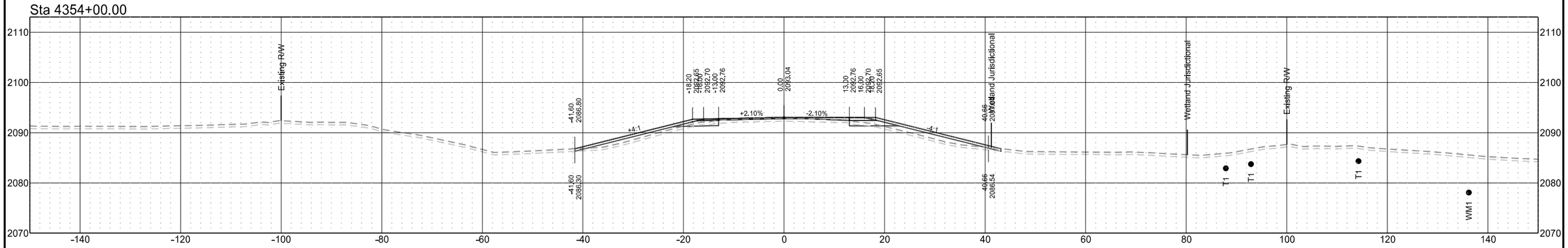
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	81

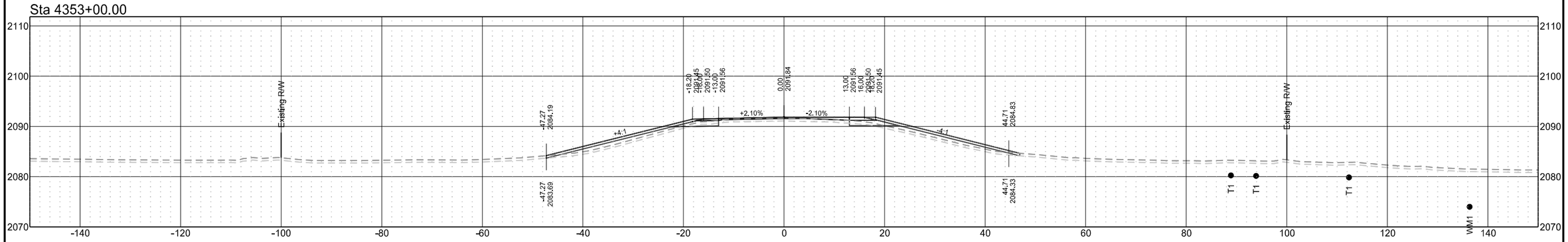
Sta 4355+12.93



Sta 4354+00.00



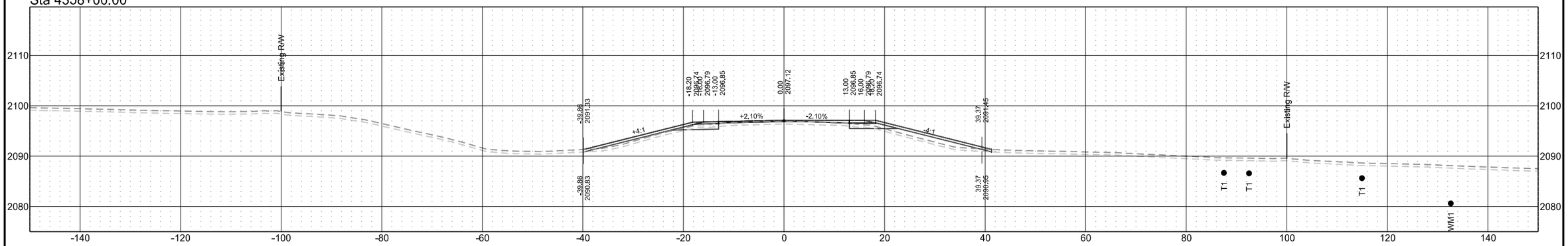
Sta 4353+00.00



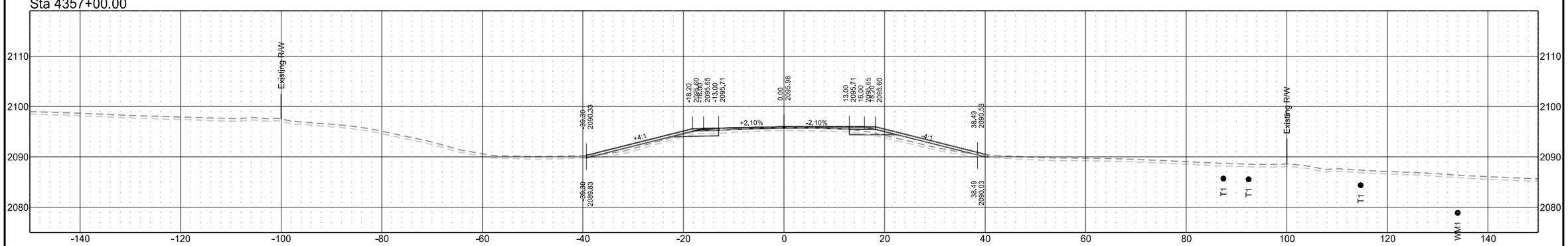
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	82

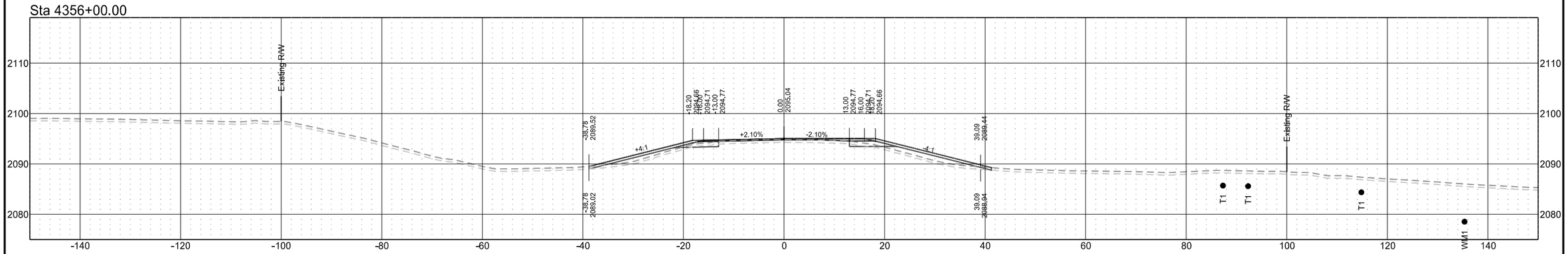
Sta 4358+00.00



Sta 4357+00.00



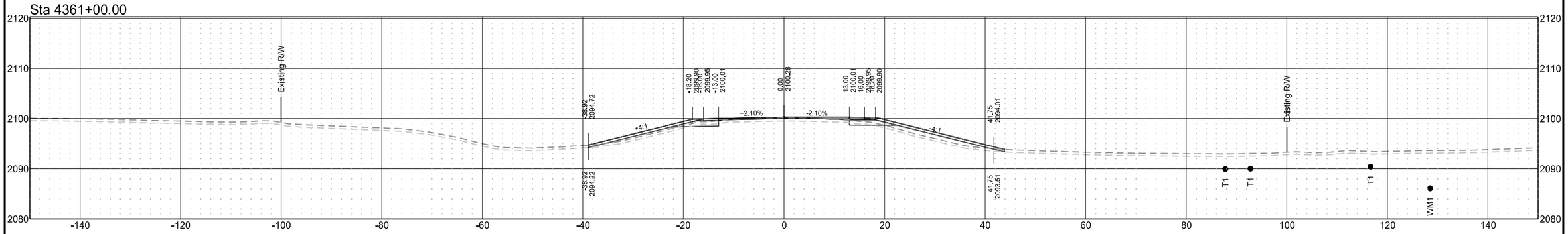
Sta 4356+00.00



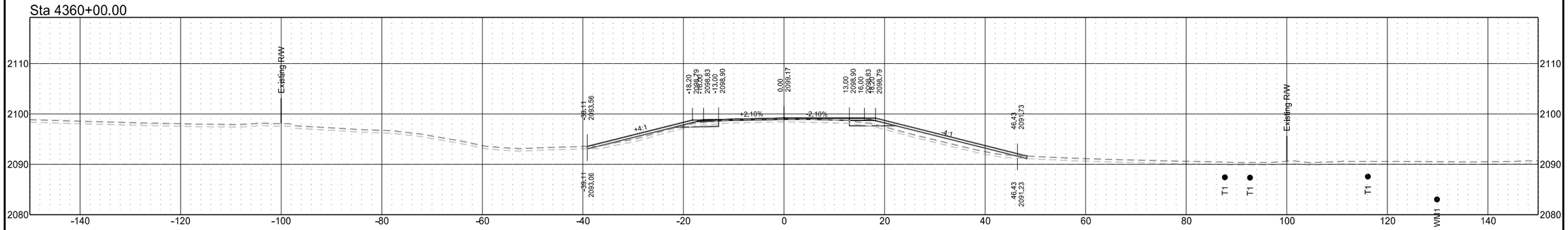
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	83

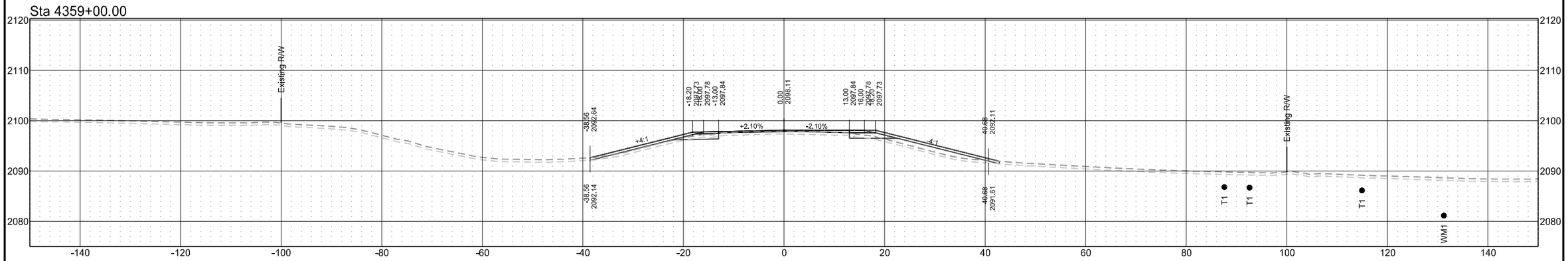
Sta 4361+00.00



Sta 4360+00.00



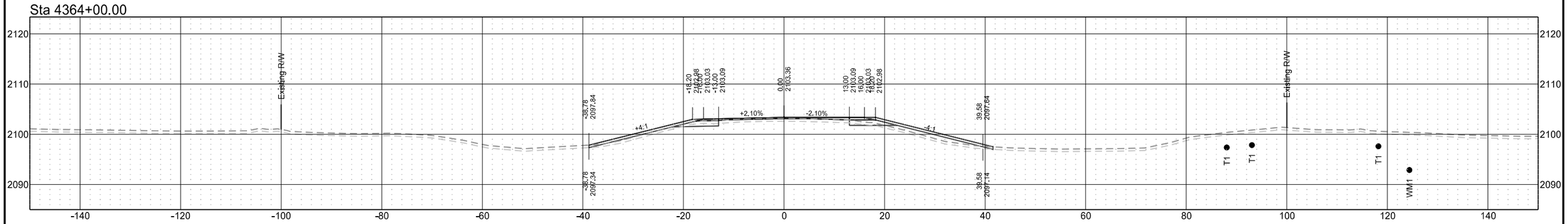
Sta 4359+00.00



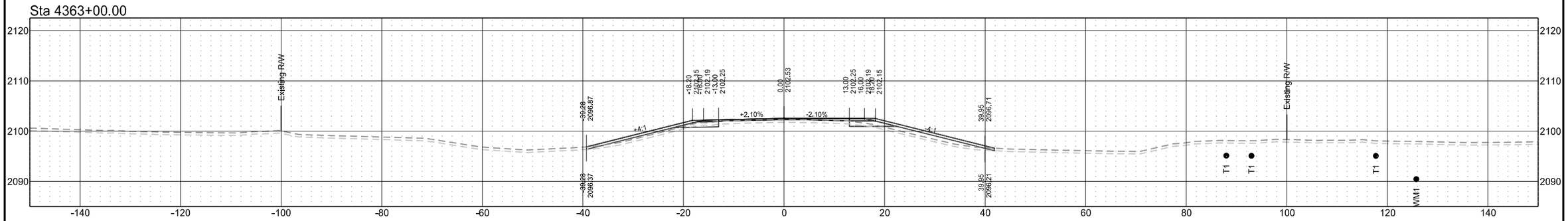
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	84

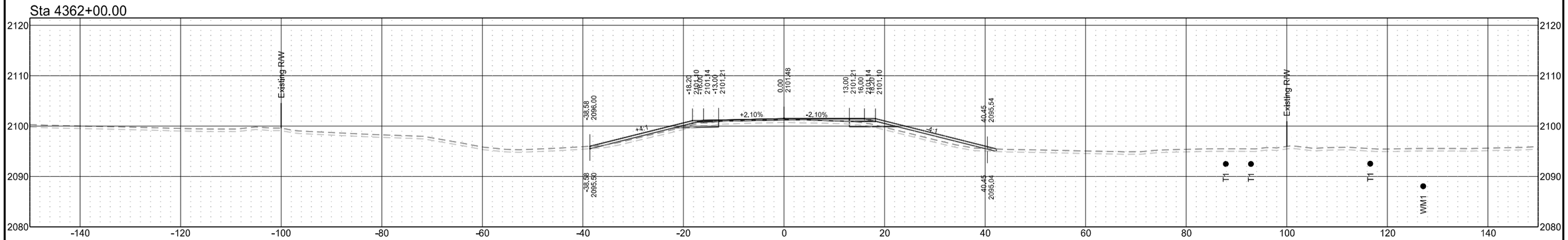
Sta 4364+00.00



Sta 4363+00.00



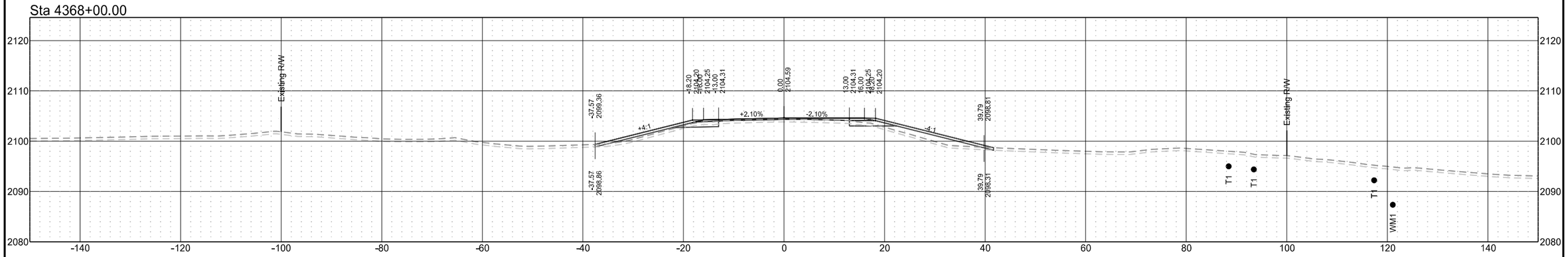
Sta 4362+00.00



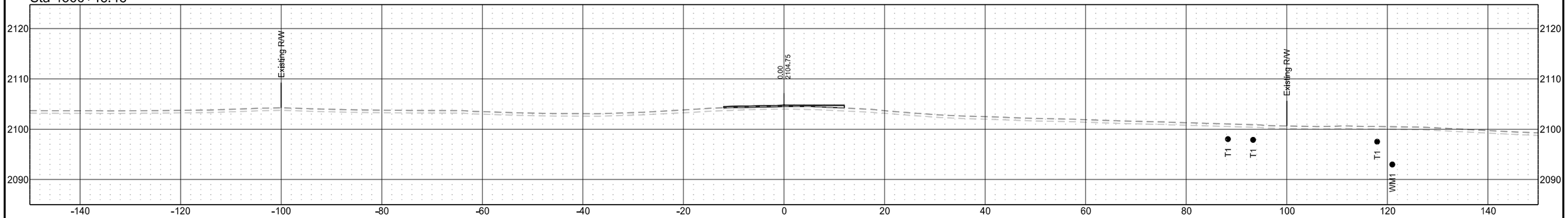
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	85

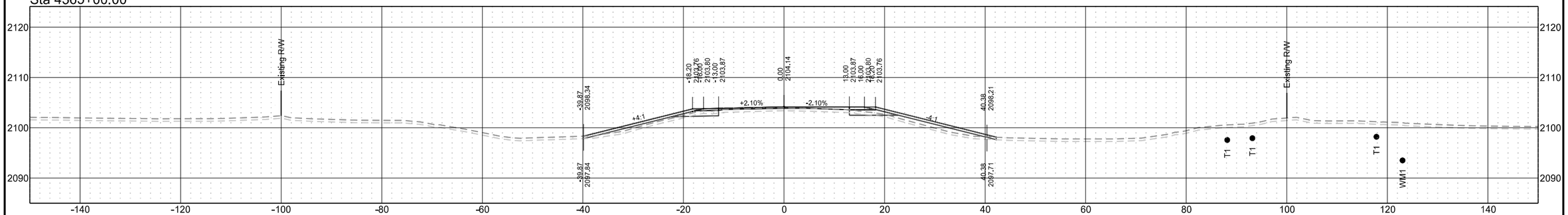
Sta 4368+00.00



Sta 4366+48.48



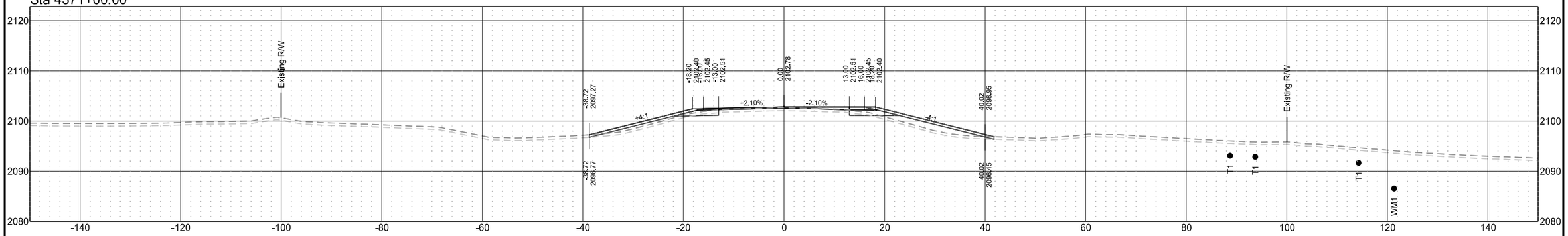
Sta 4365+00.00



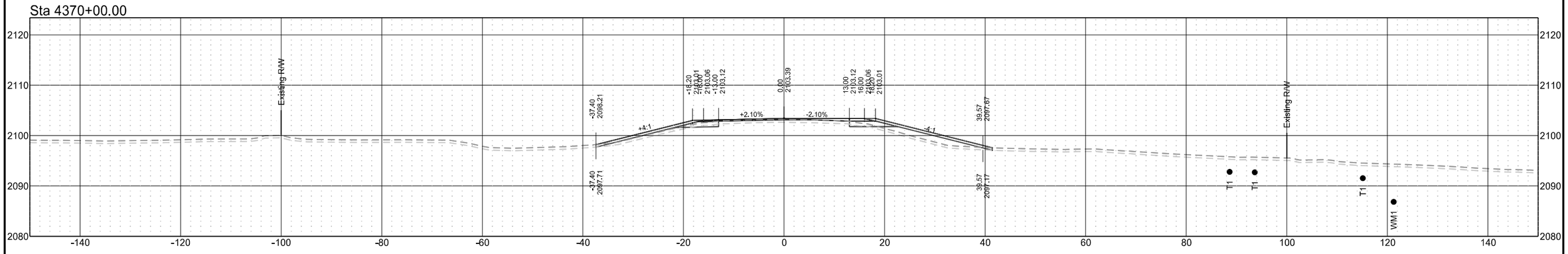
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	86

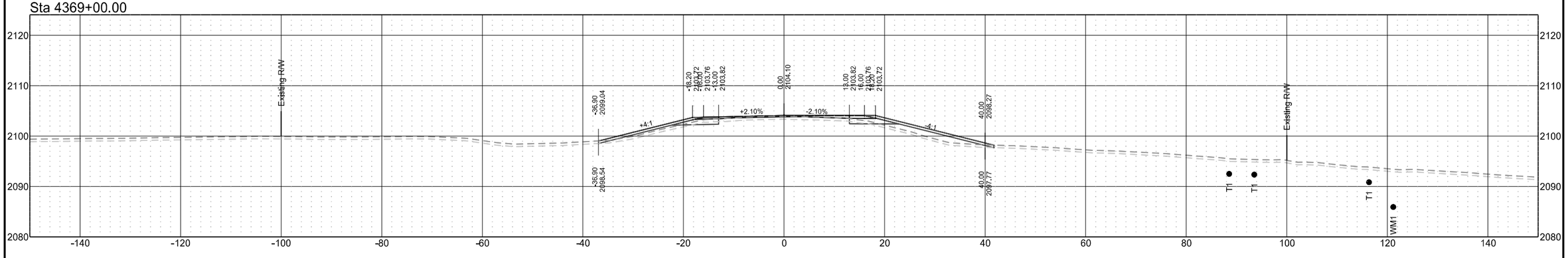
Sta 4371+00.00



Sta 4370+00.00



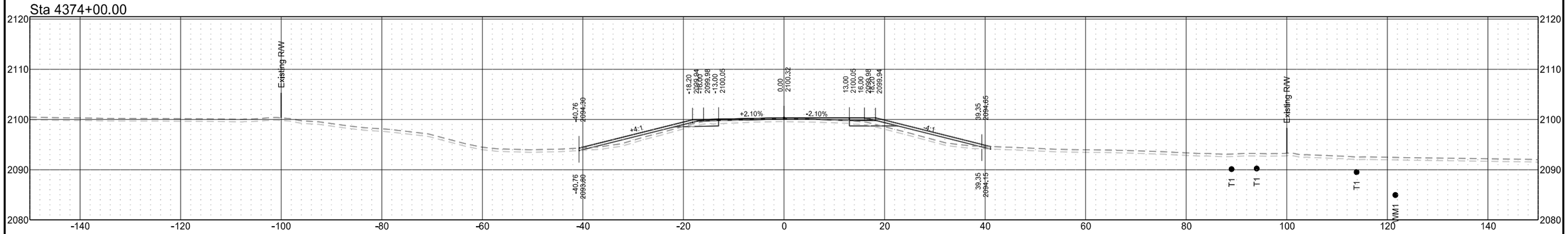
Sta 4369+00.00



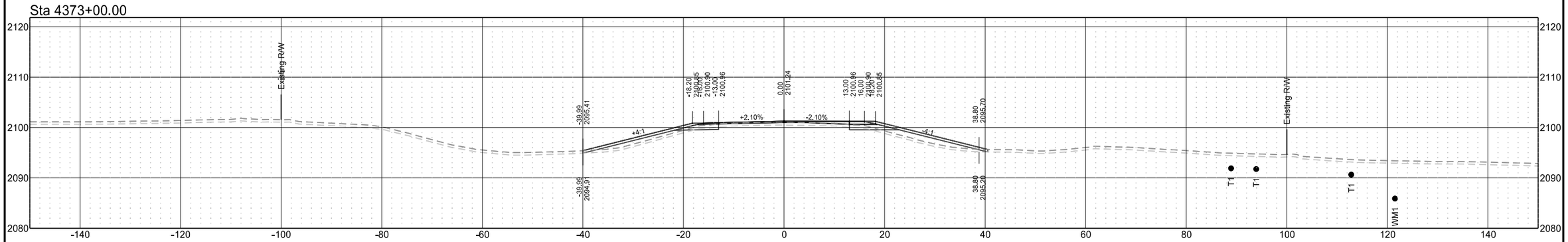
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	87

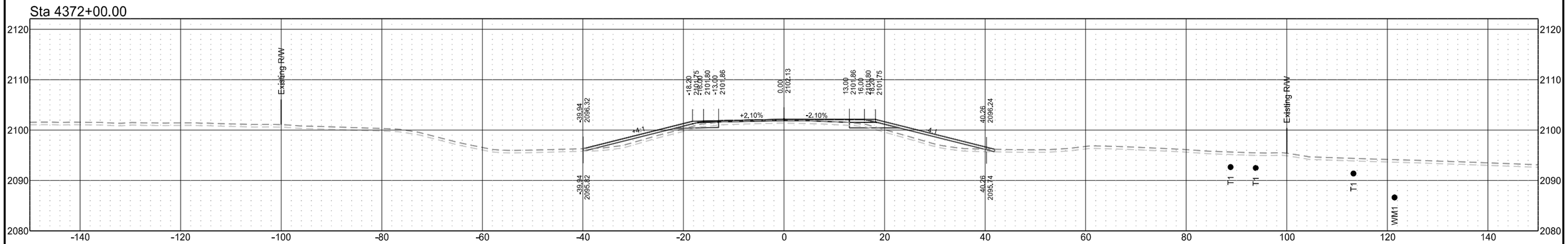
Sta 4374+00.00



Sta 4373+00.00



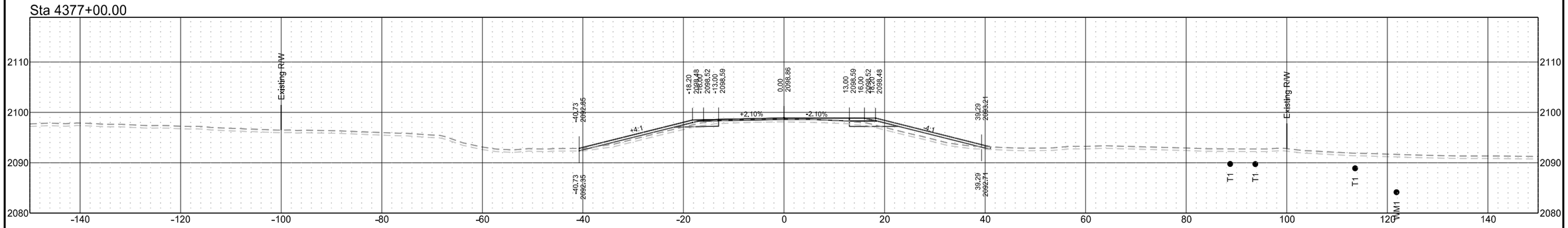
Sta 4372+00.00



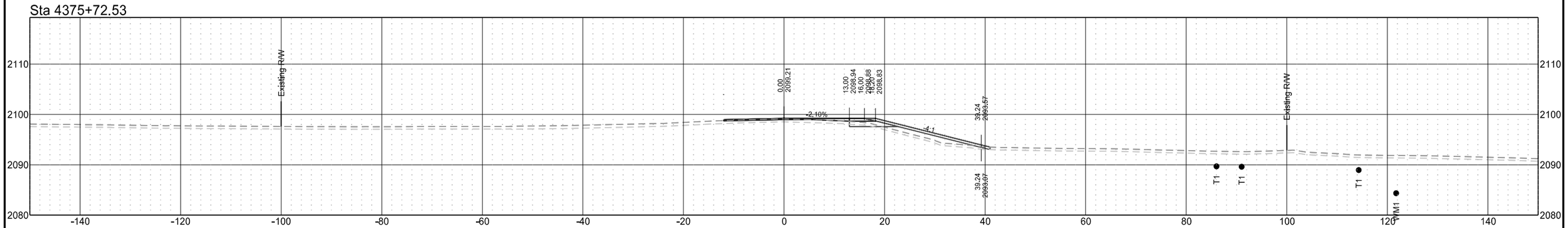
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	88

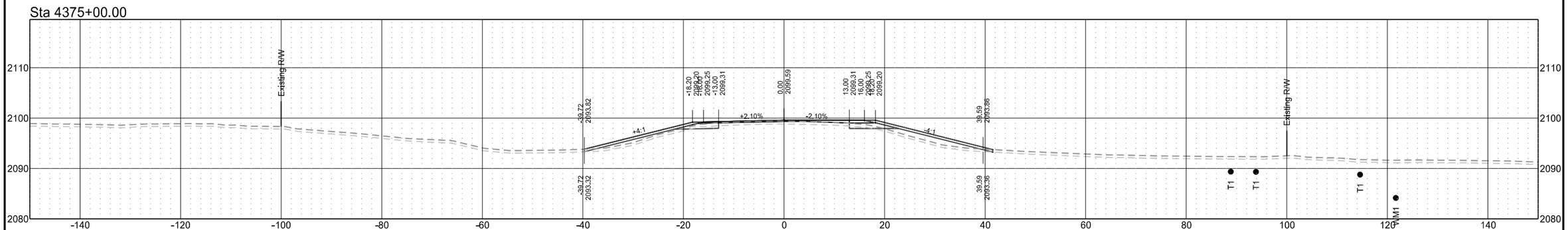
Sta 4377+00.00



Sta 4375+72.53



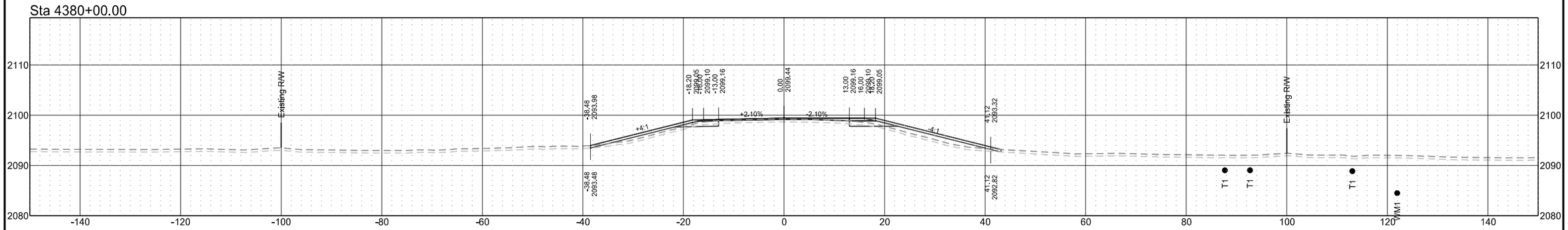
Sta 4375+00.00



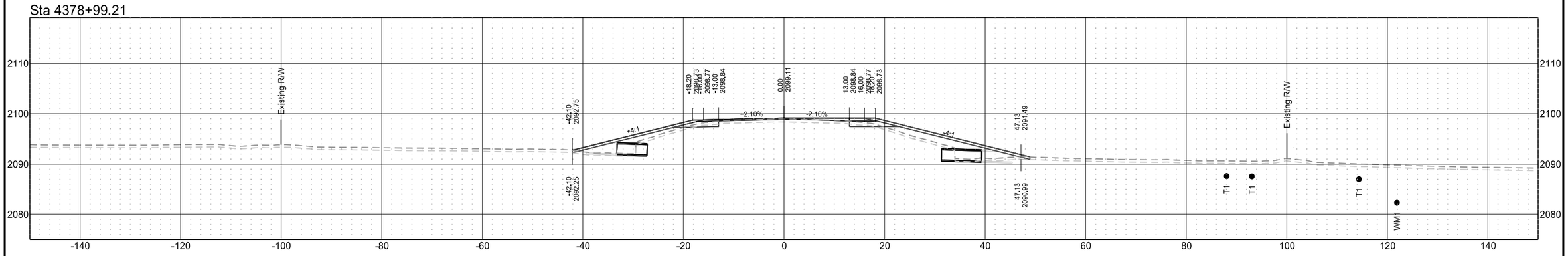
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	89

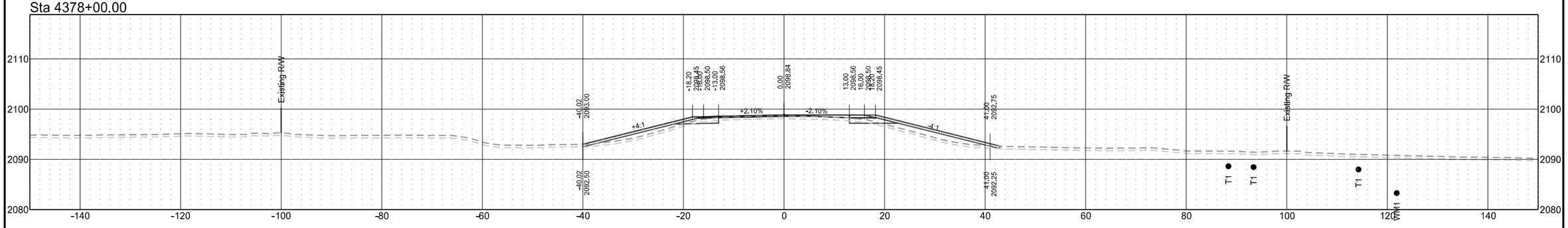
Sta 4380+00.00



Sta 4378+99.21



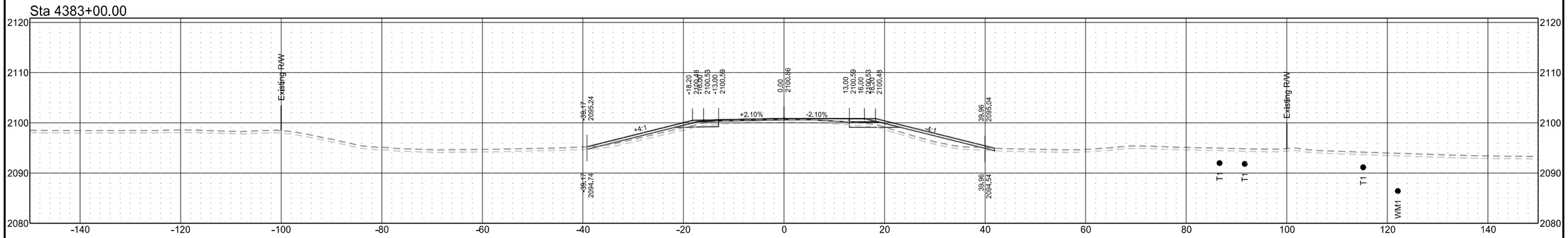
Sta 4378+00.00



ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	90

Sta 4383+00.00



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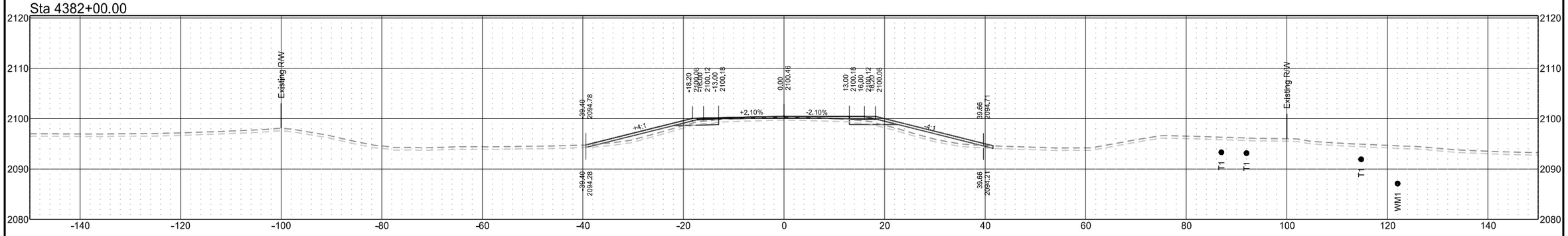
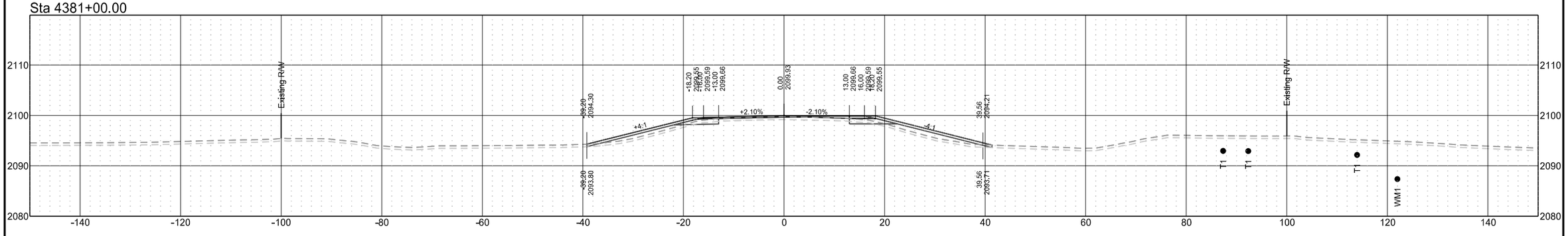


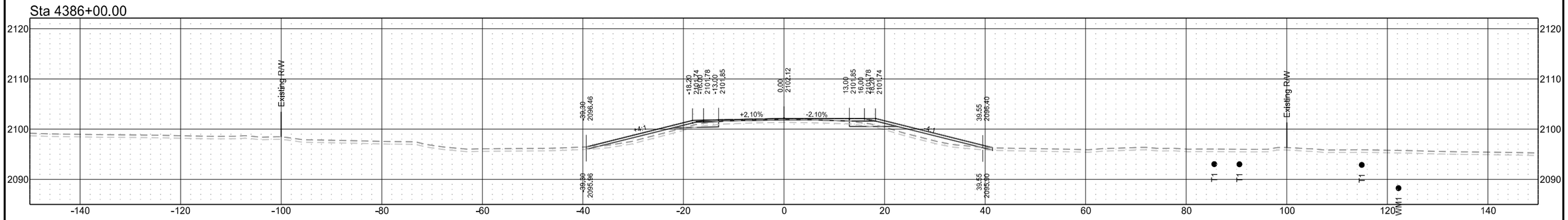
Sta 4381+00.00



ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	91

Sta 4386+00.00



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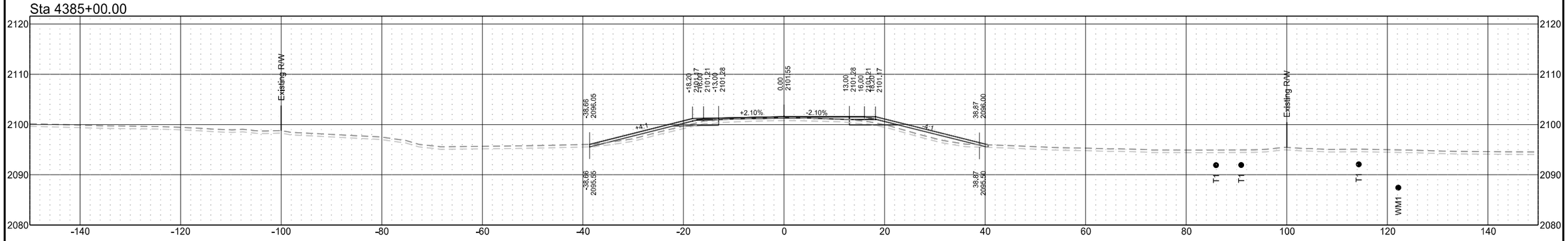
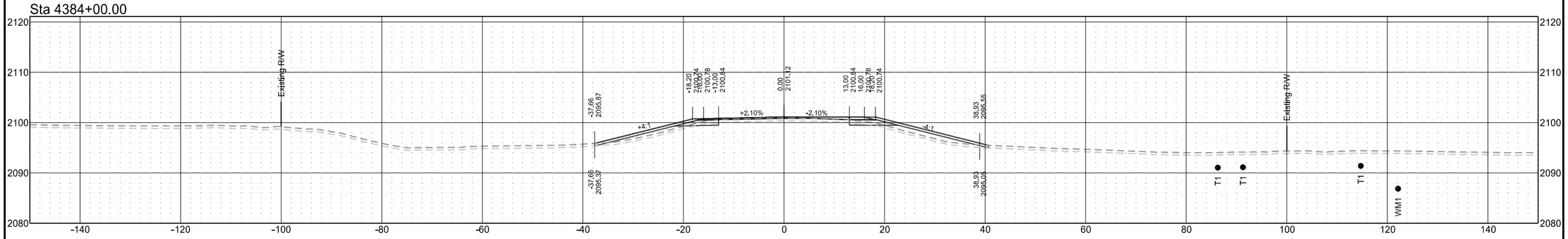


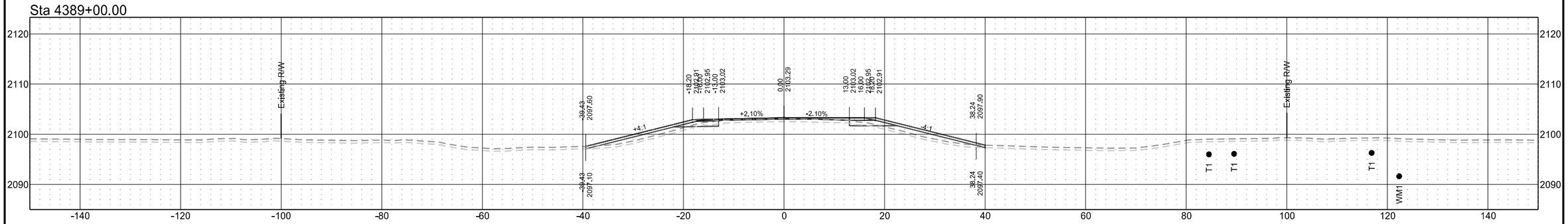
Sta 4384+00.00



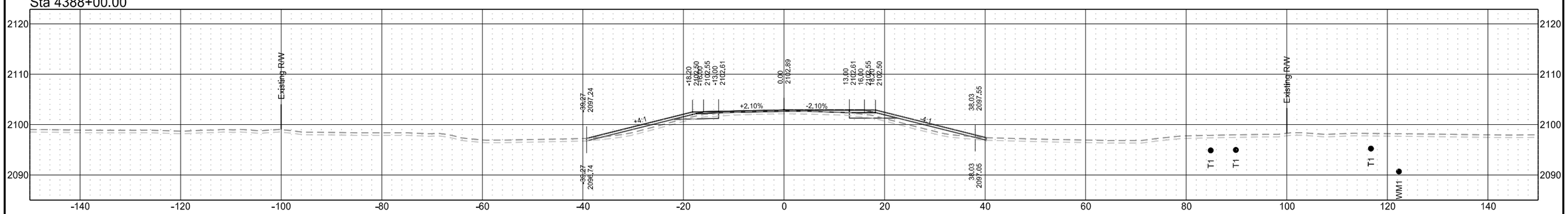
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	92

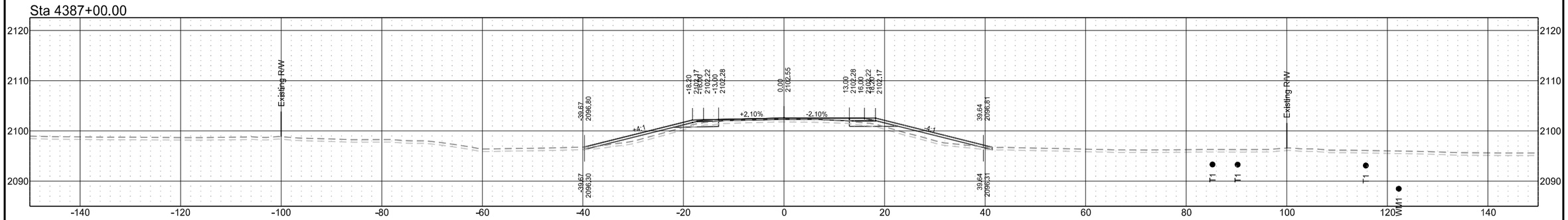
Sta 4389+00.00



Sta 4388+00.00



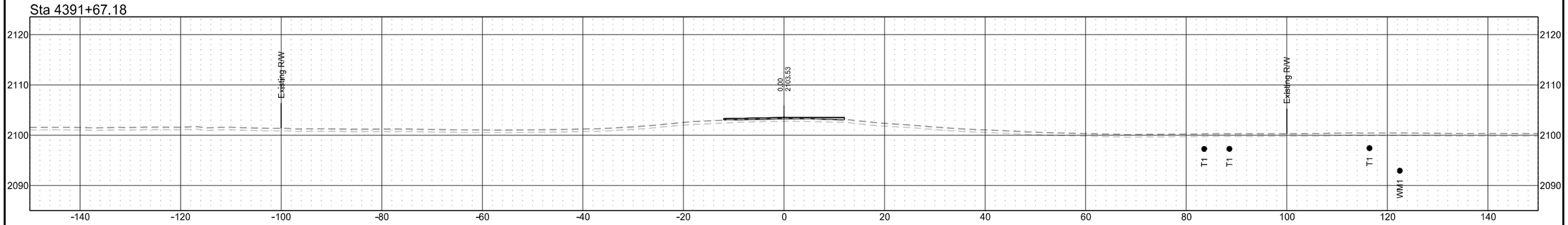
Sta 4387+00.00



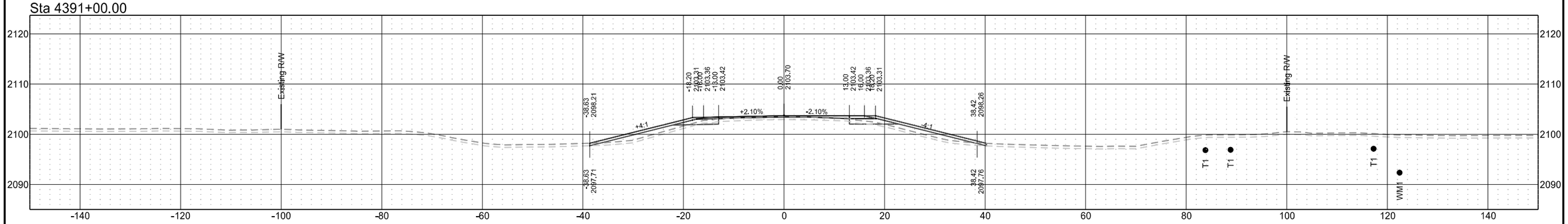
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	93

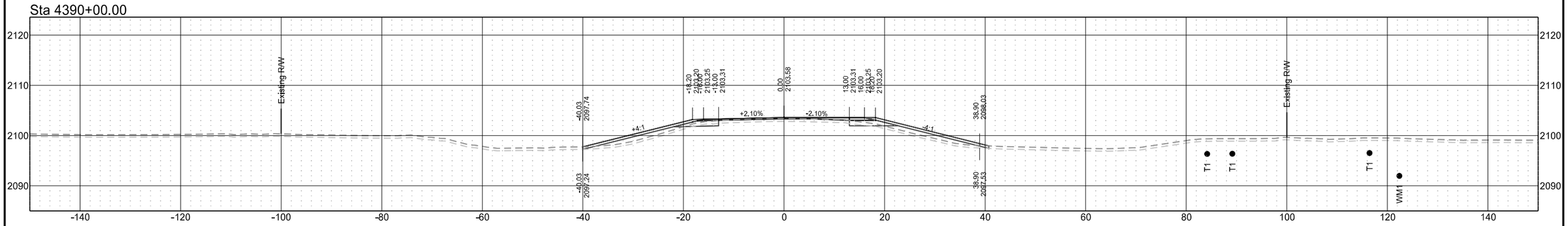
Sta 4391+67.18



Sta 4391+00.00



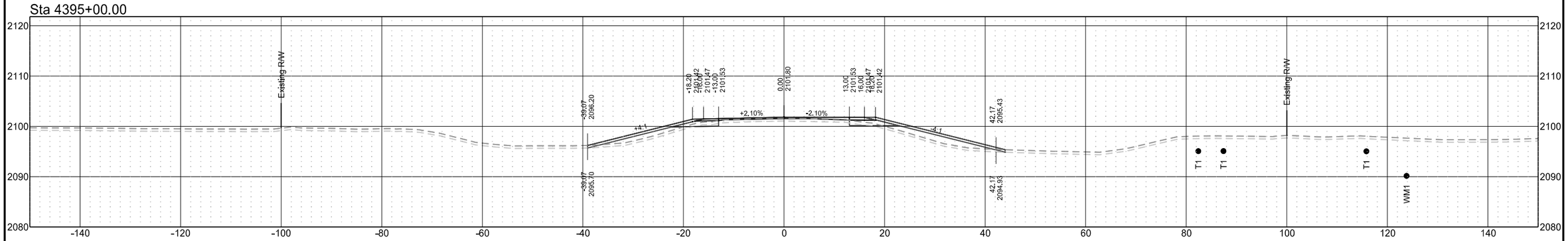
Sta 4390+00.00



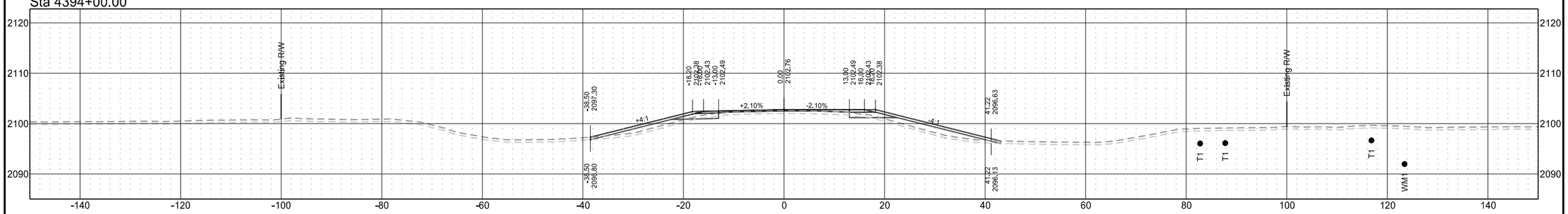
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	94

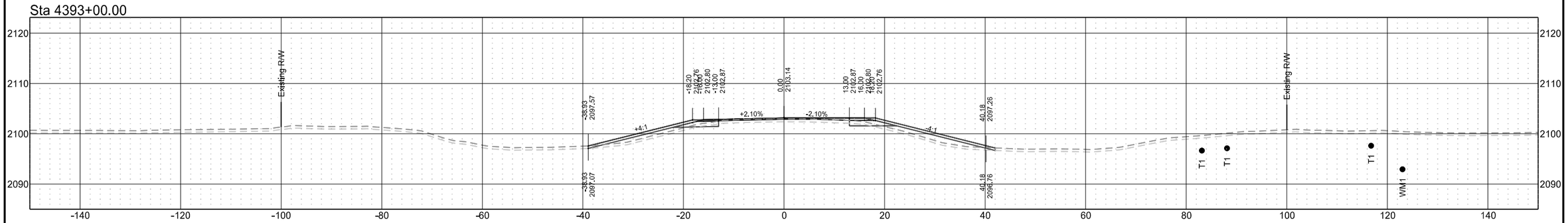
Sta 4395+00.00



Sta 4394+00.00



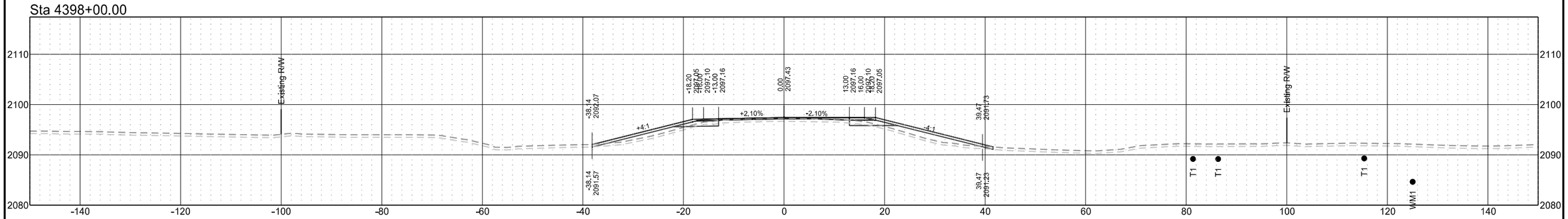
Sta 4393+00.00



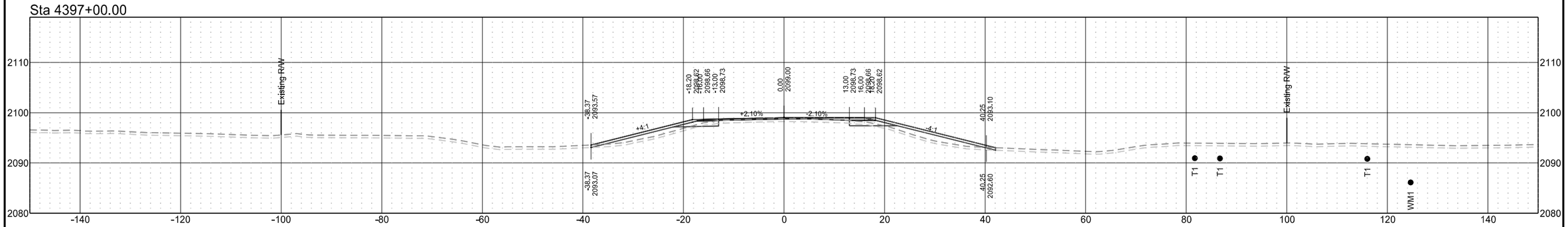
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	95

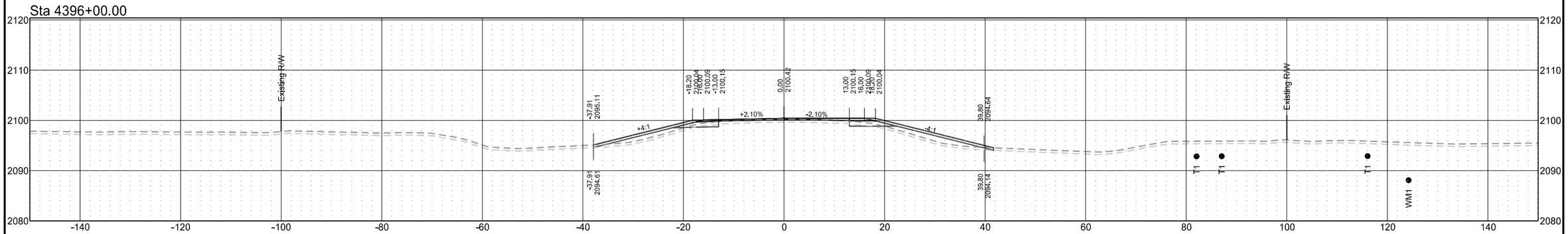
Sta 4398+00.00



Sta 4397+00.00



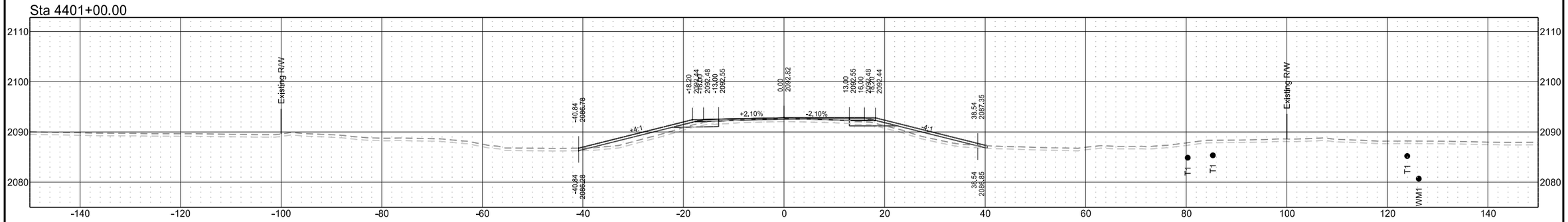
Sta 4396+00.00



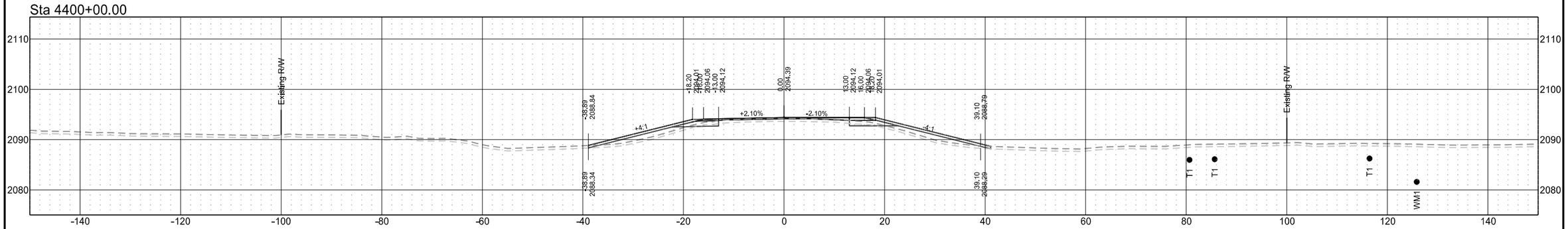
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	96

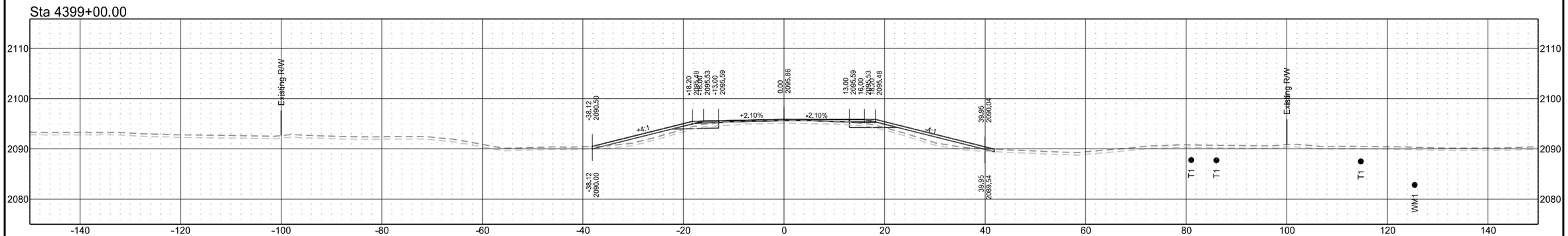
Sta 4401+00.00



Sta 4400+00.00



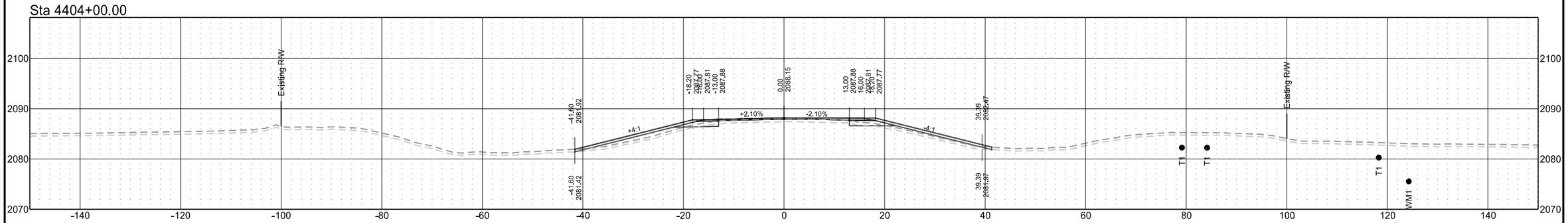
Sta 4399+00.00



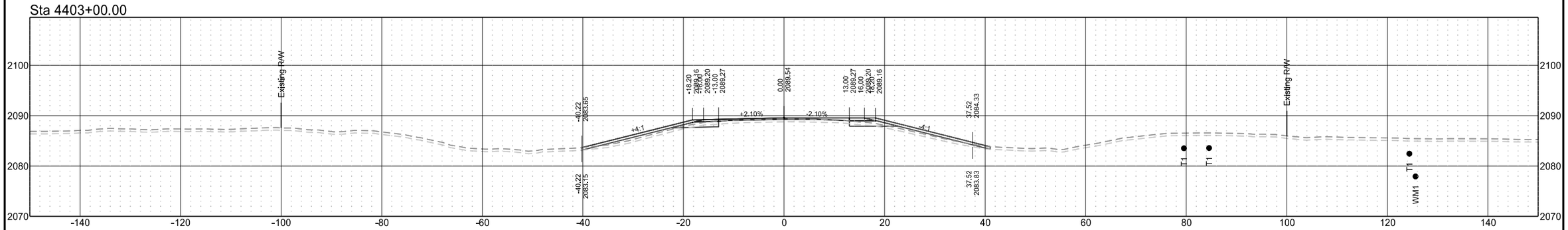
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	97

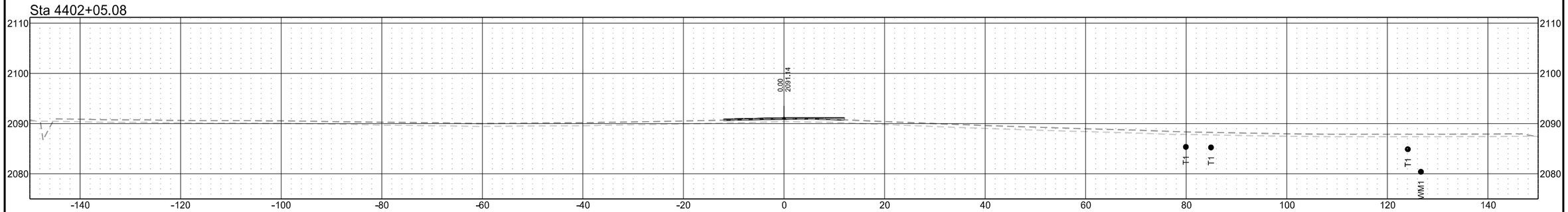
Sta 4404+00.00



Sta 4403+00.00



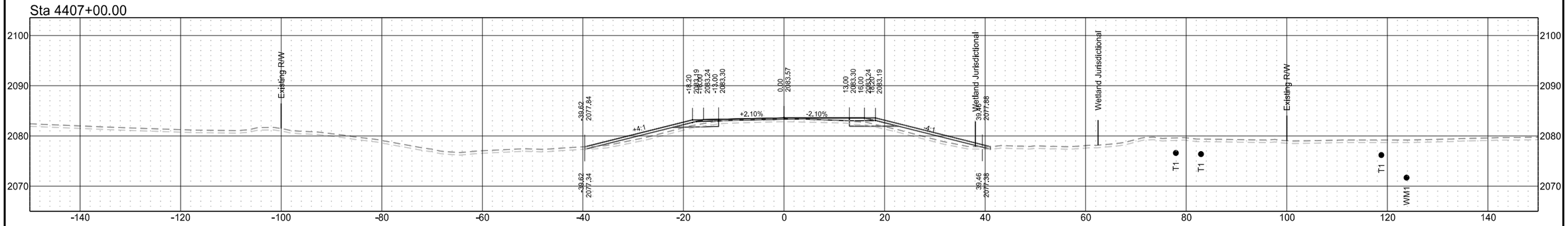
Sta 4402+05.08



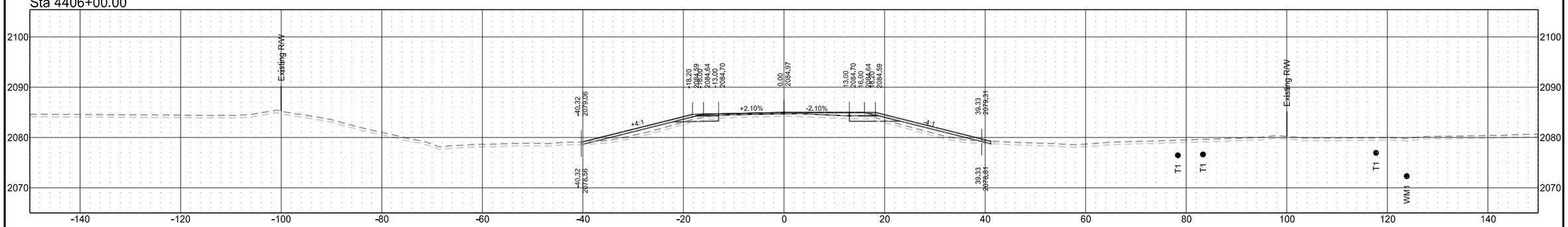
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	98

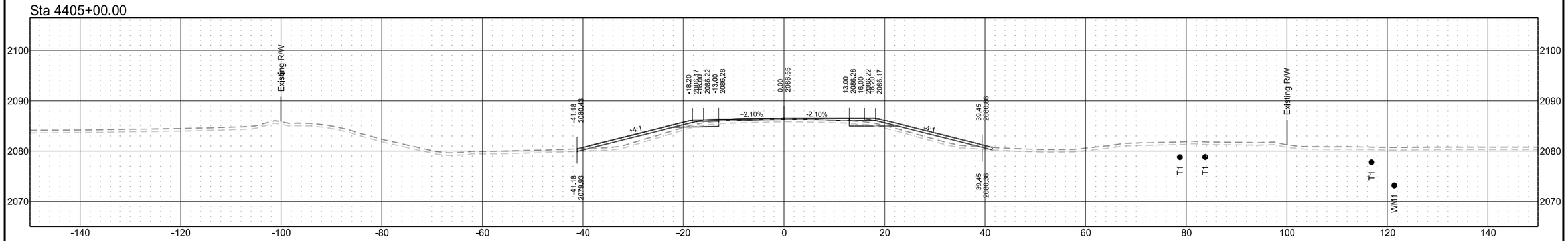
Sta 4407+00.00



Sta 4406+00.00



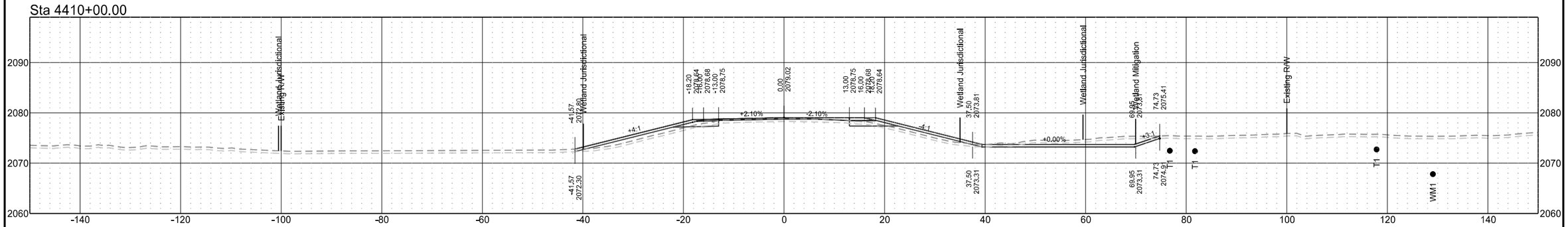
Sta 4405+00.00



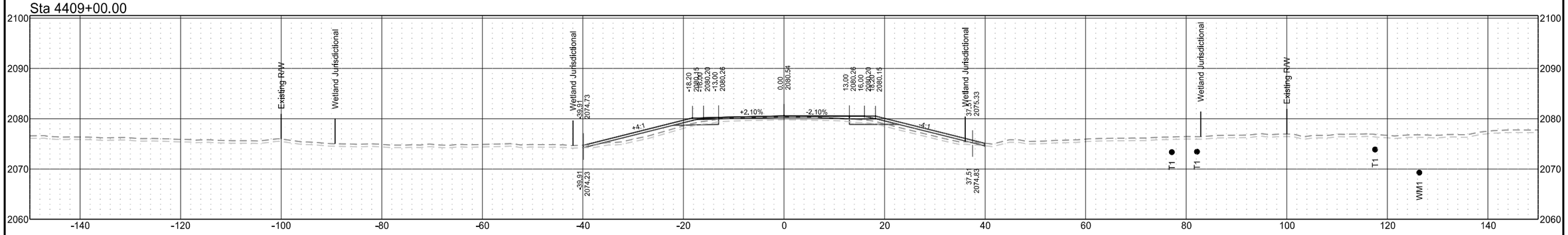
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	99

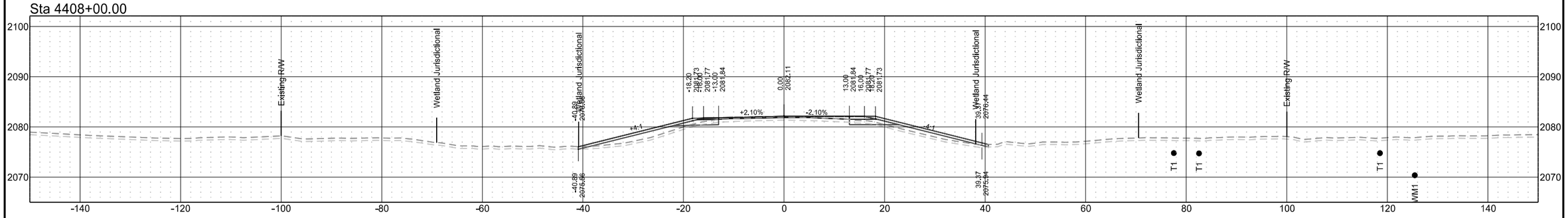
Sta 4410+00.00



Sta 4409+00.00



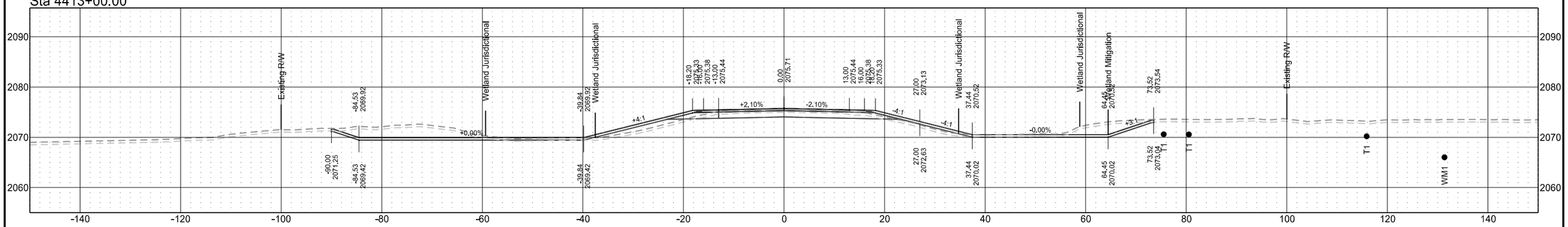
Sta 4408+00.00



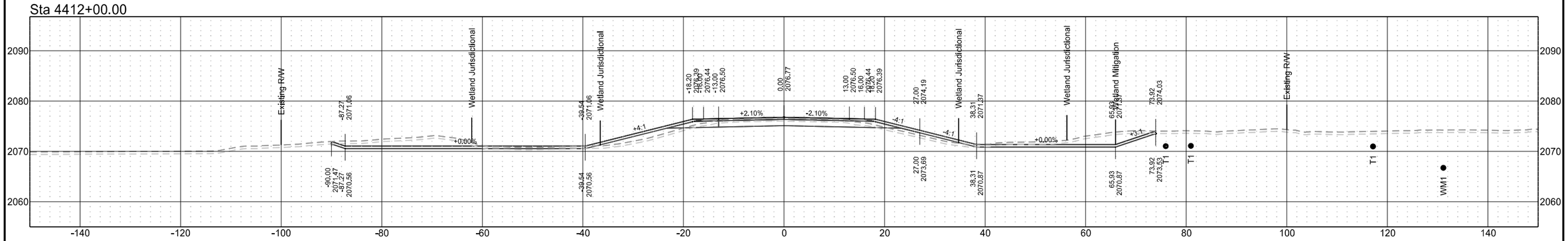
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	100

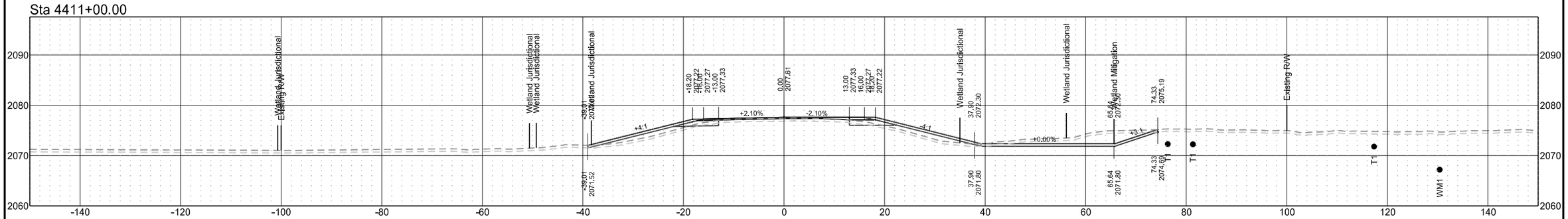
Sta 4413+00.00



Sta 4412+00.00



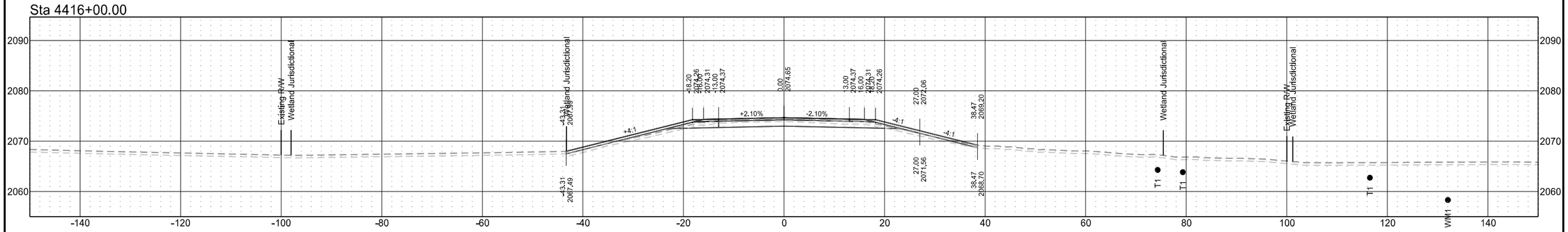
Sta 4411+00.00



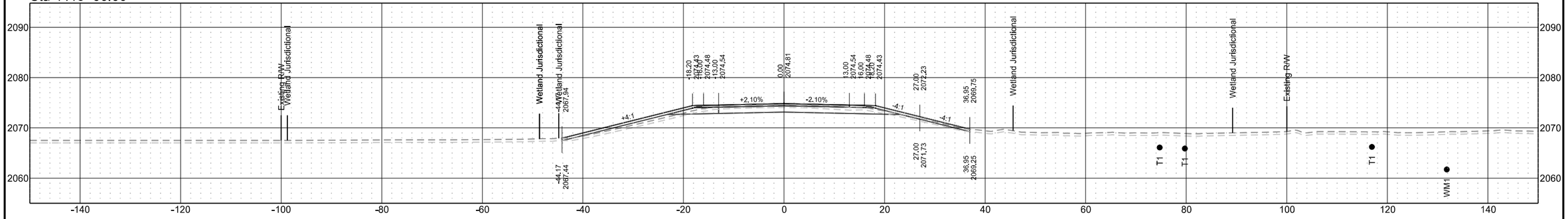
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	101

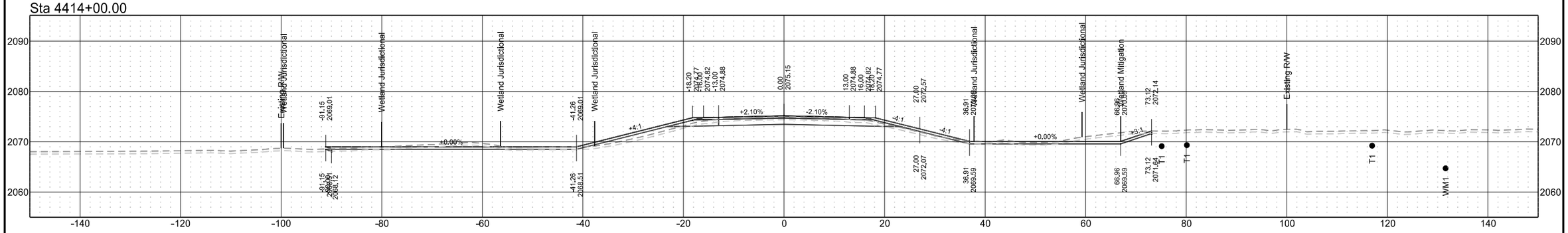
Sta 4416+00.00



Sta 4415+00.00



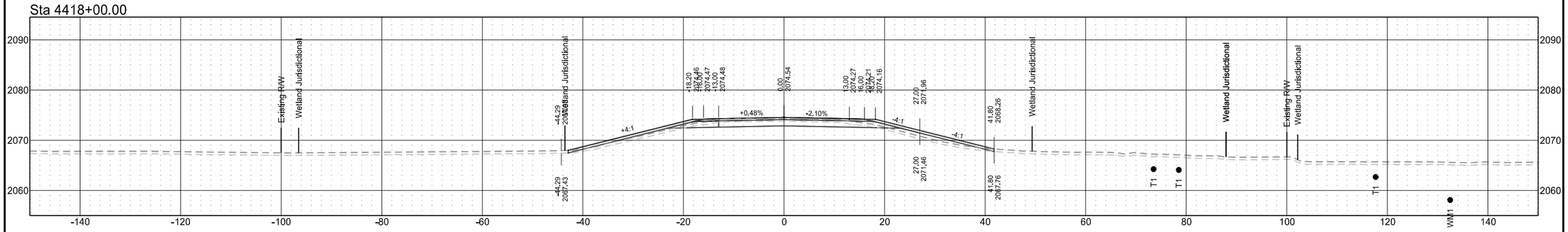
Sta 4414+00.00



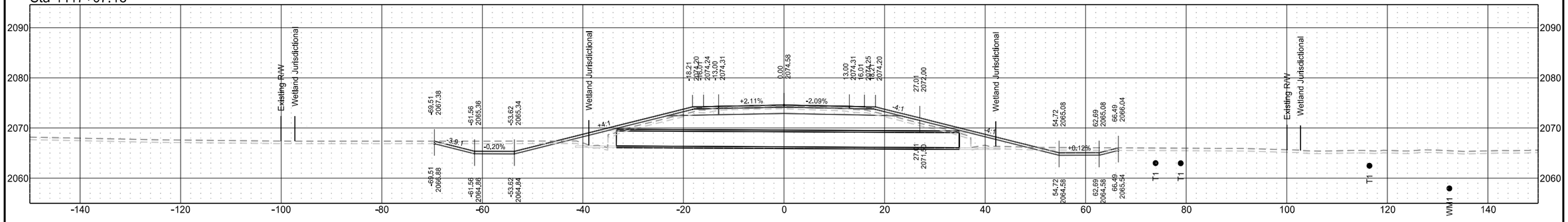
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	102

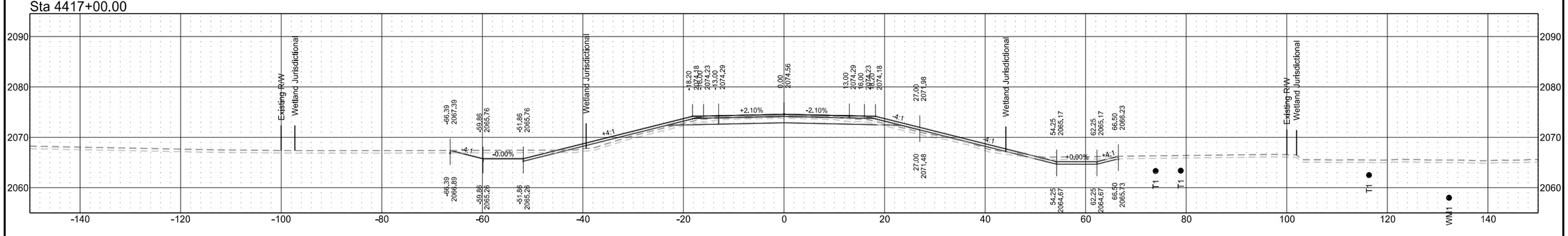
Sta 4418+00.00



Sta 4417+07.18



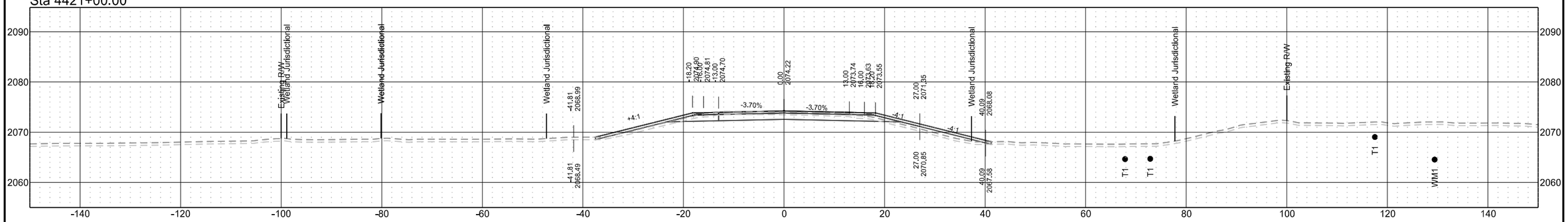
Sta 4417+00.00



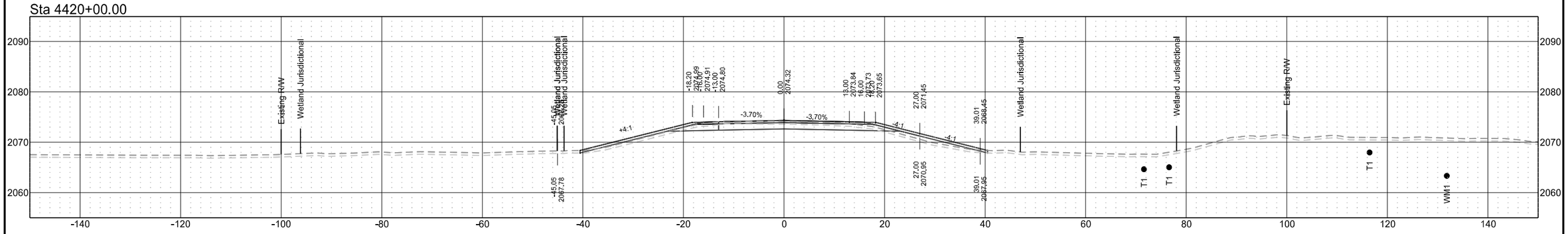
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	103

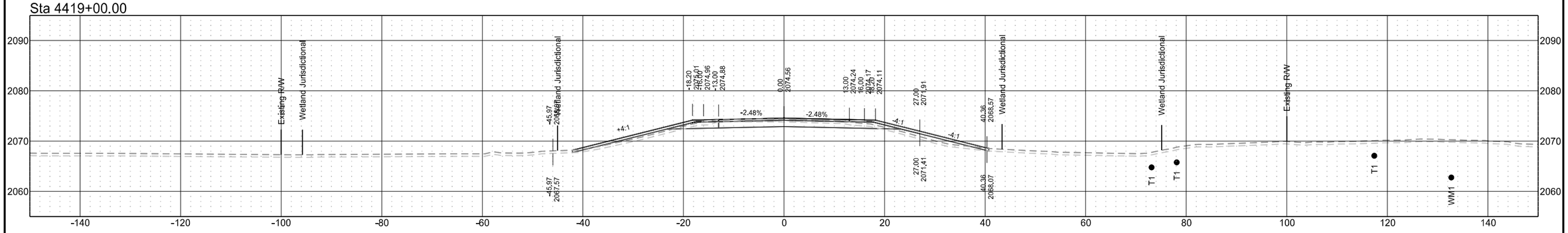
Sta 4421+00.00



Sta 4420+00.00



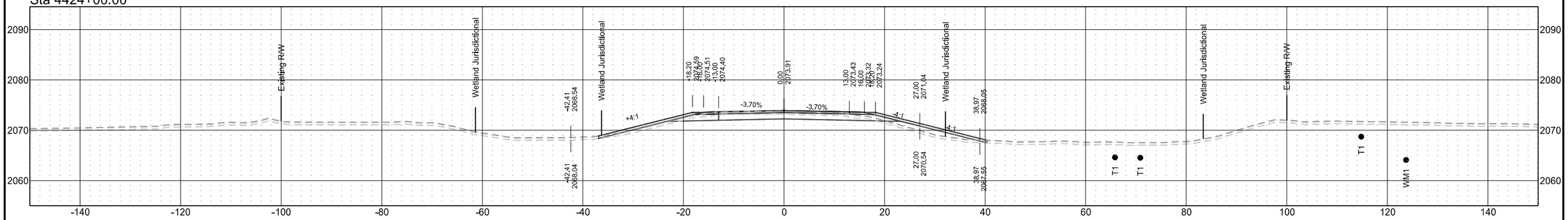
Sta 4419+00.00



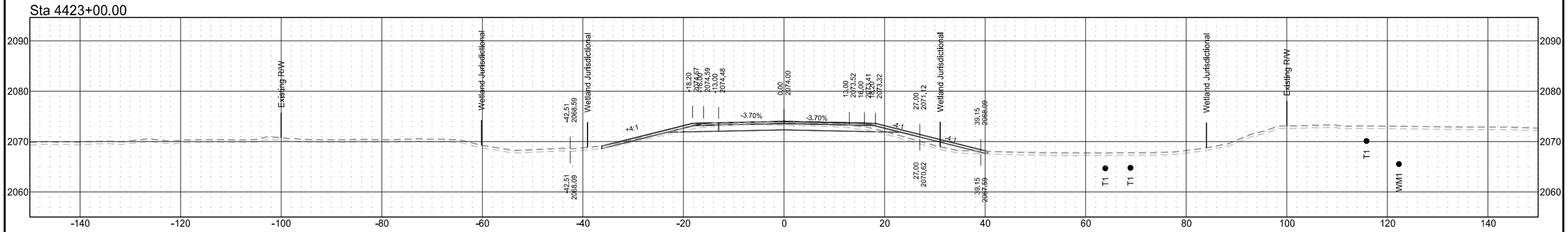
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	104

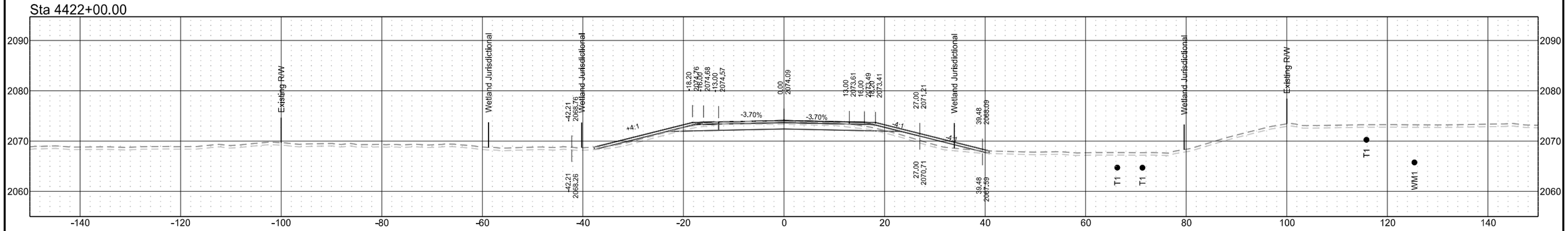
Sta 4424+00.00



Sta 4423+00.00



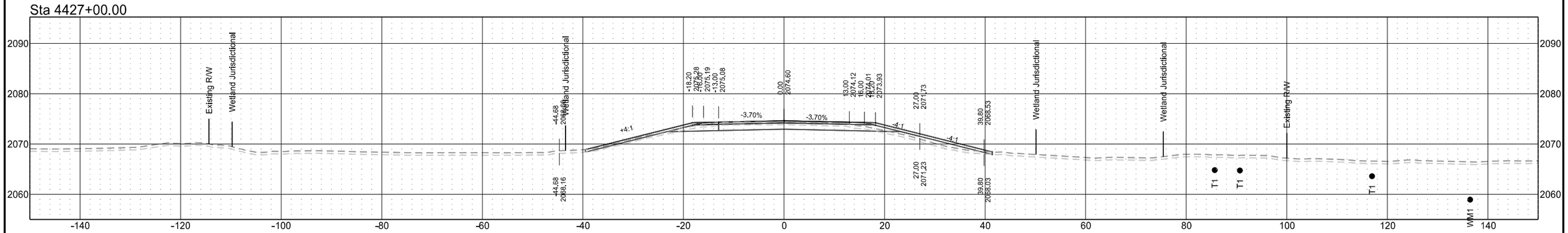
Sta 4422+00.00



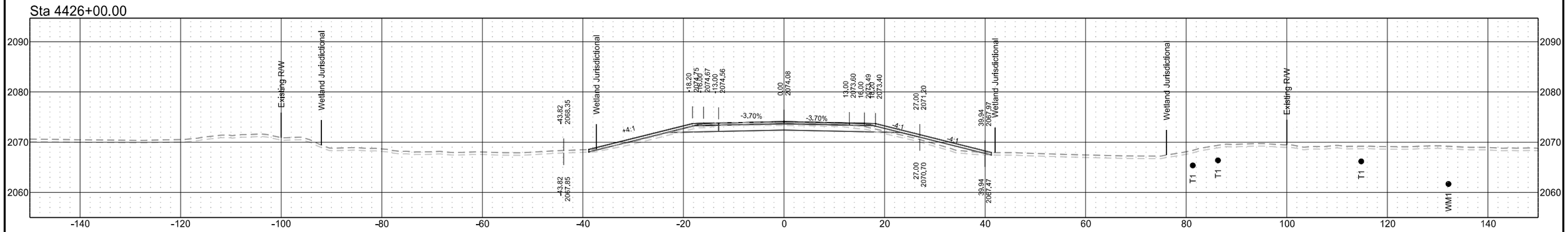
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	105

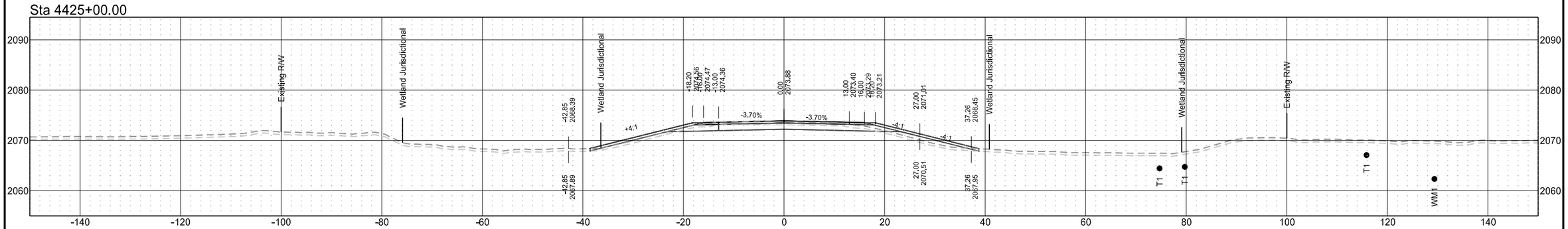
Sta 4427+00.00



Sta 4426+00.00



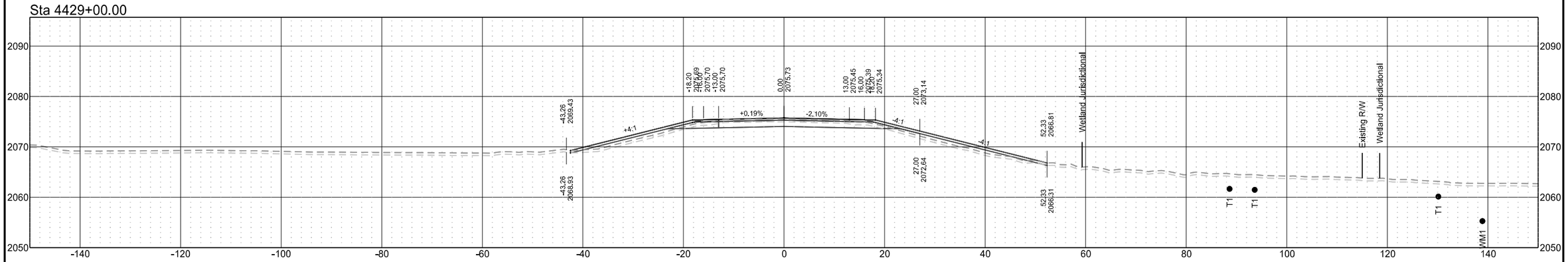
Sta 4425+00.00



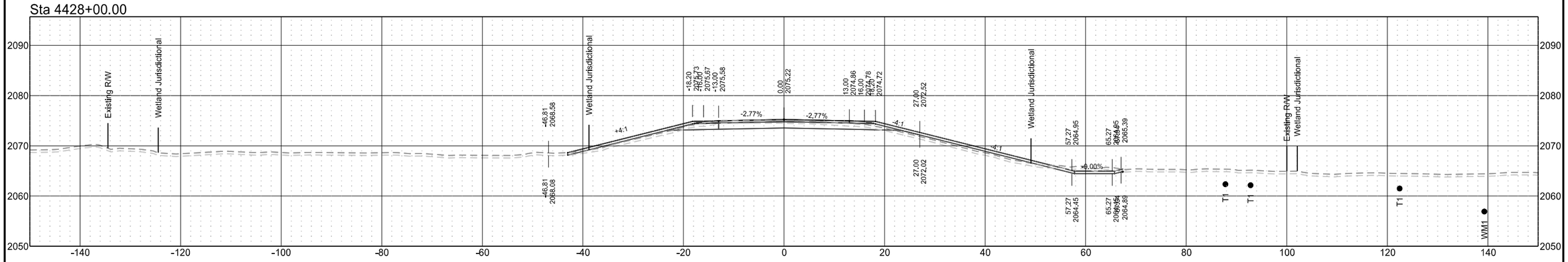
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	106

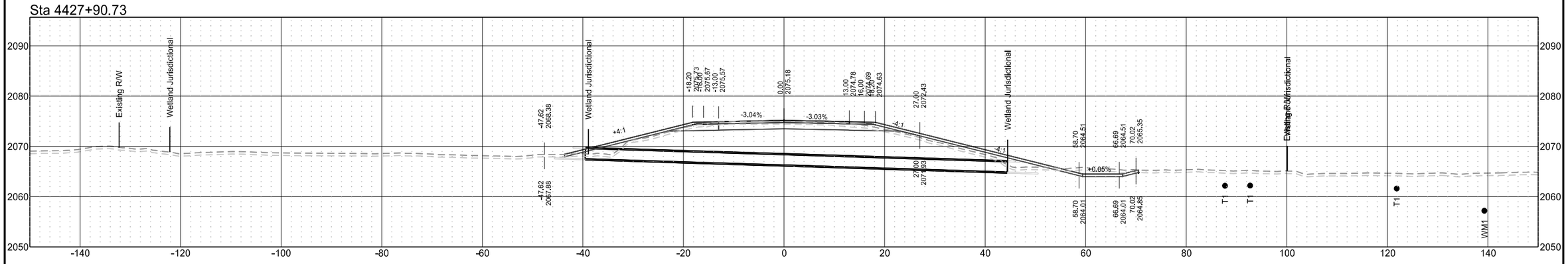
Sta 4429+00.00



Sta 4428+00.00



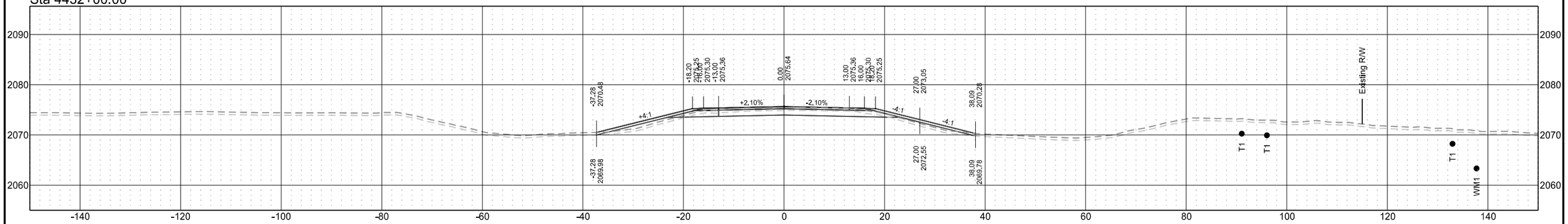
Sta 4427+90.73



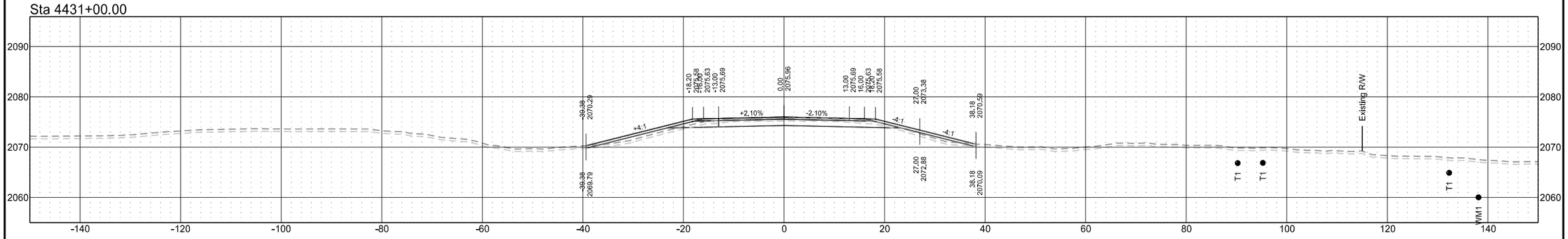
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	107

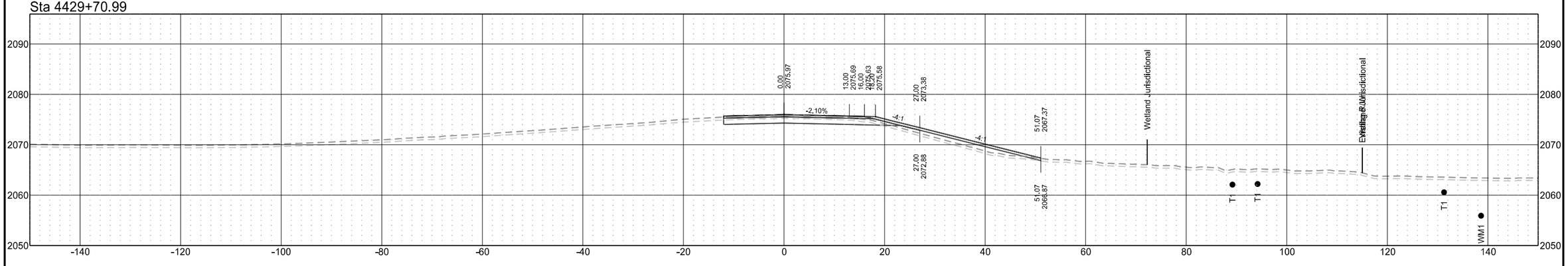
Sta 4432+00.00



Sta 4431+00.00



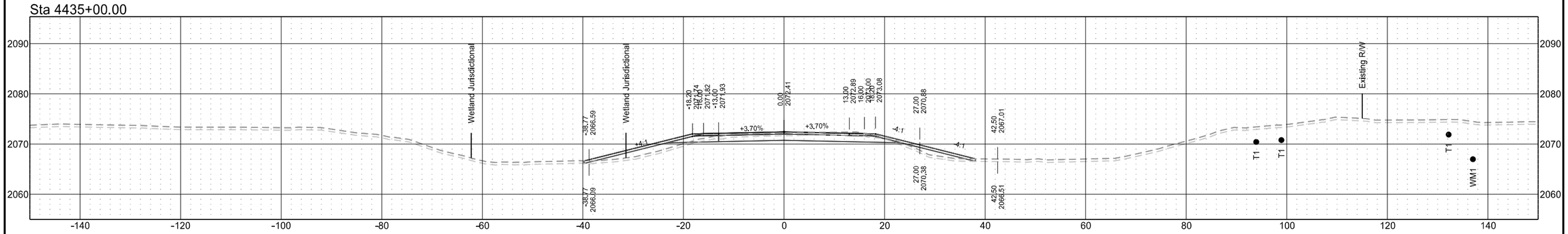
Sta 4429+70.99



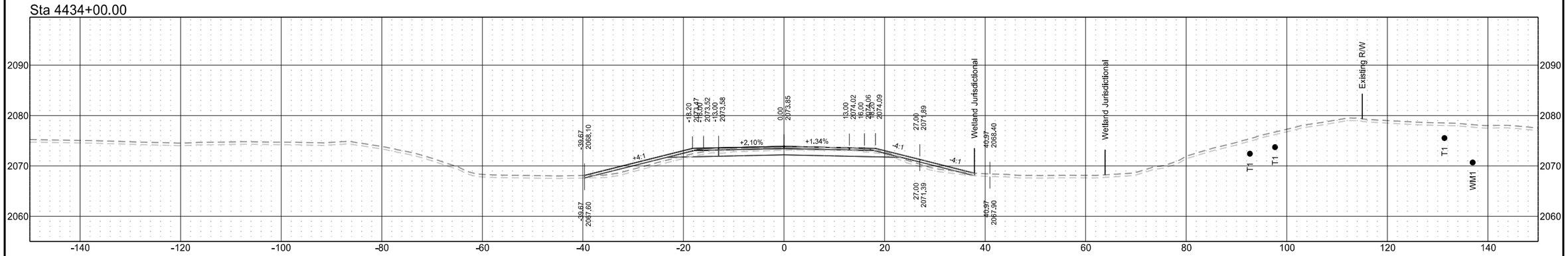
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	108

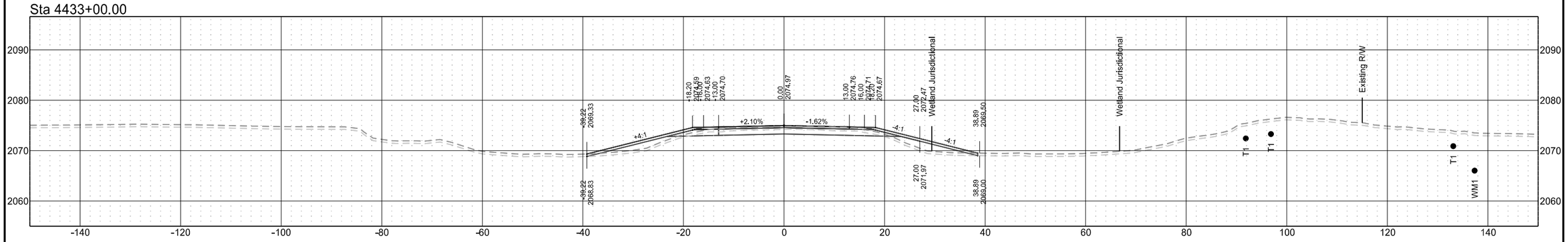
Sta 4435+00.00



Sta 4434+00.00



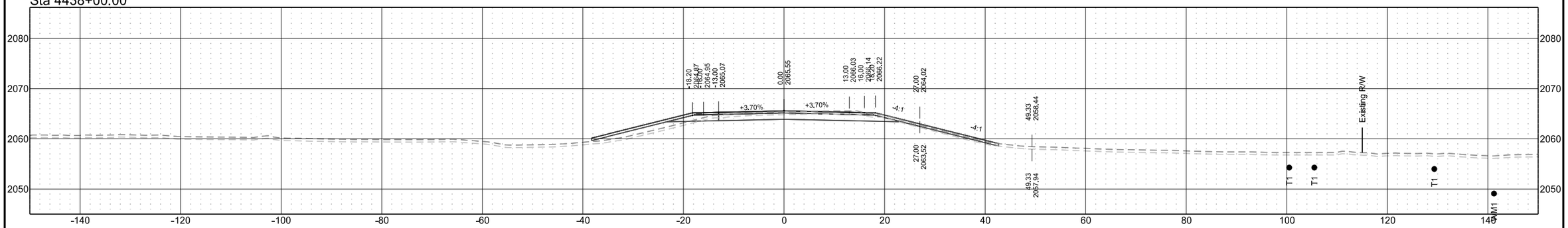
Sta 4433+00.00



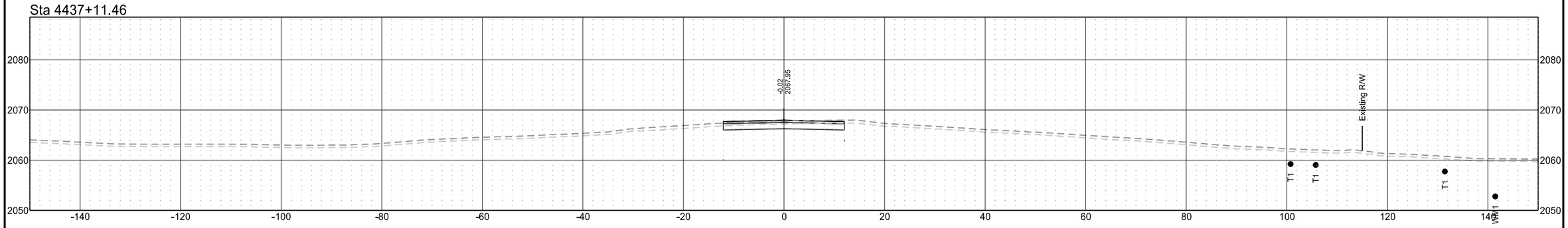
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	109

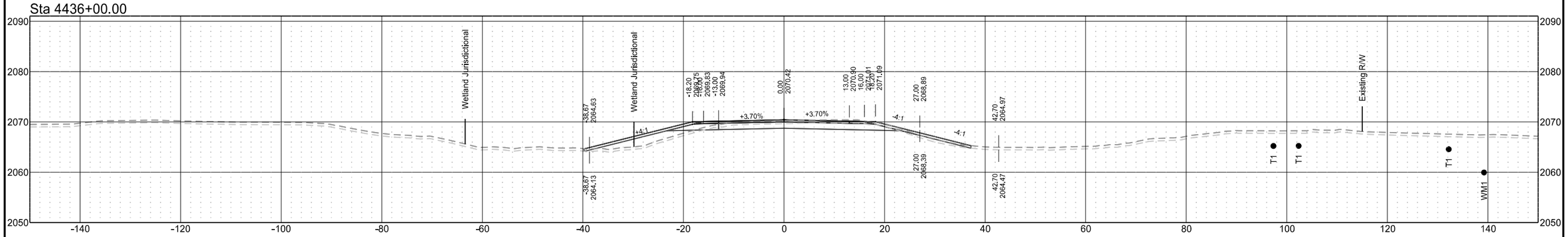
Sta 4438+00.00



Sta 4437+11.46



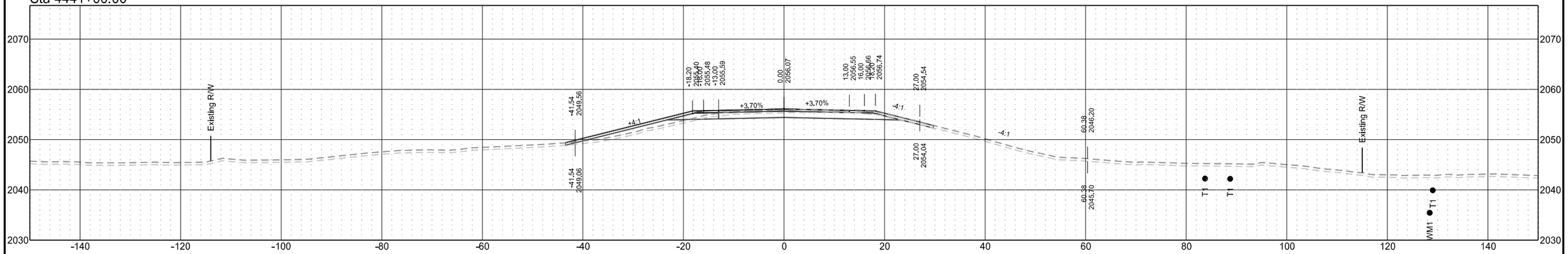
Sta 4436+00.00



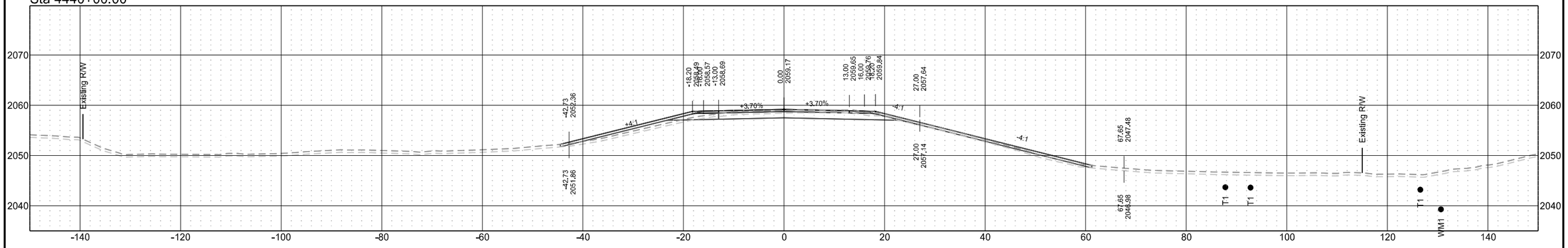
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	110

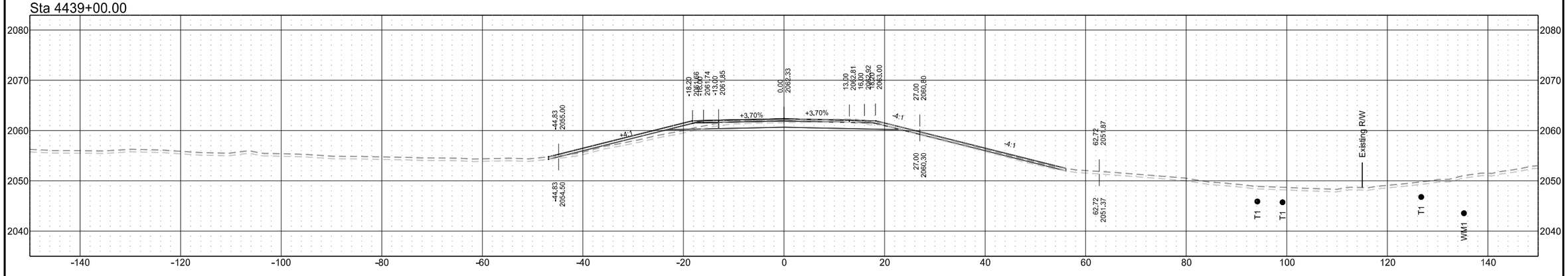
Sta 4441+00.00



Sta 4440+00.00



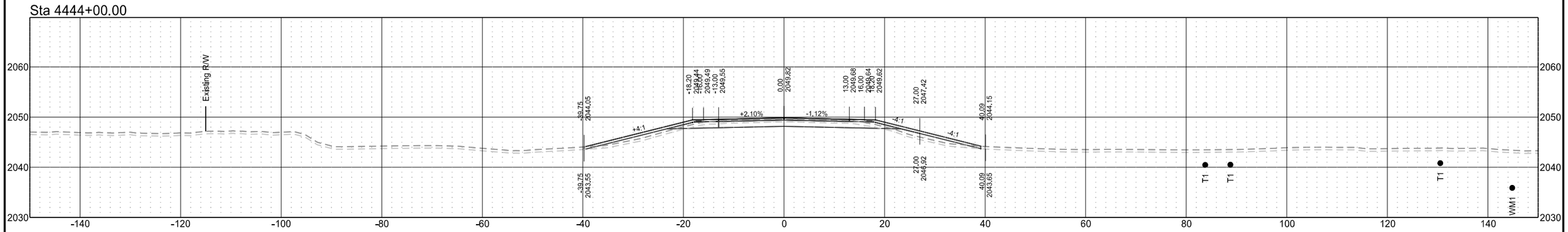
Sta 4439+00.00



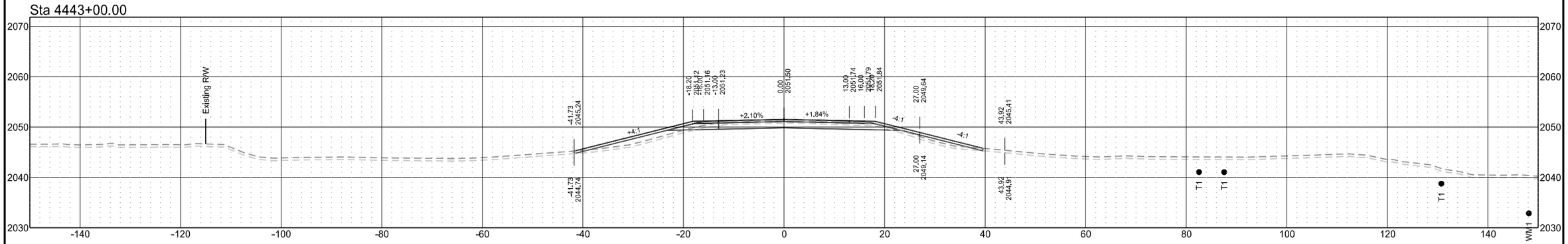
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	111

Sta 4444+00.00



Sta 4443+00.00



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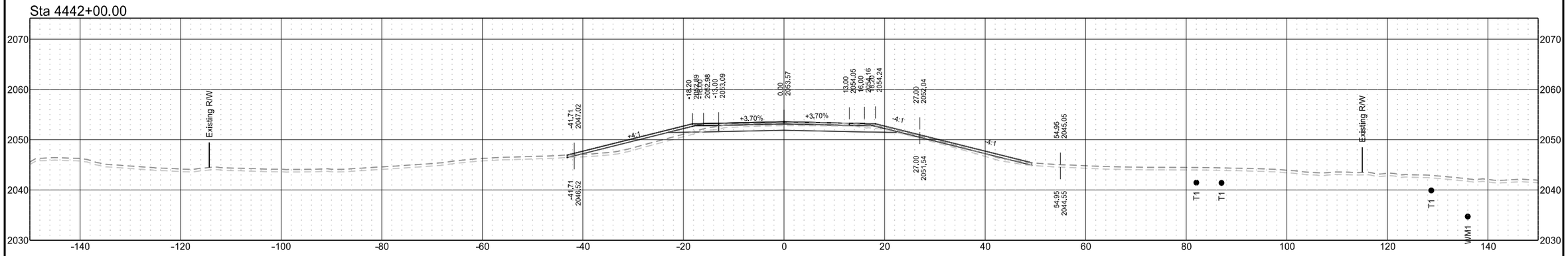
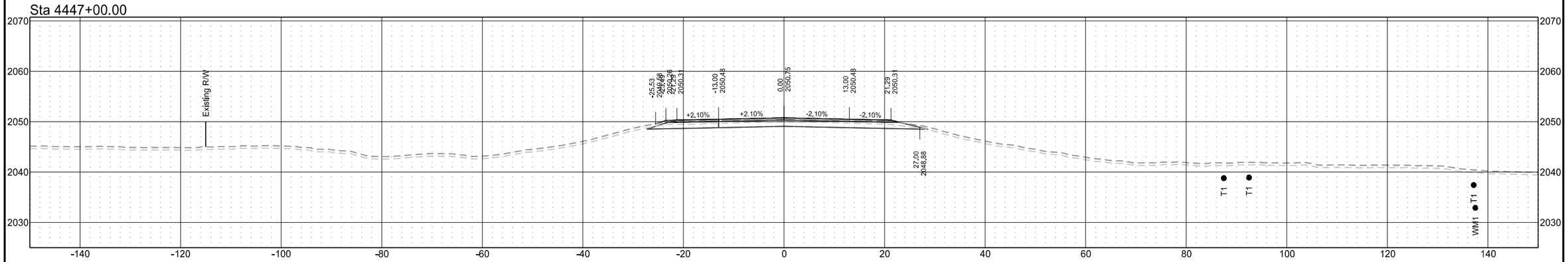


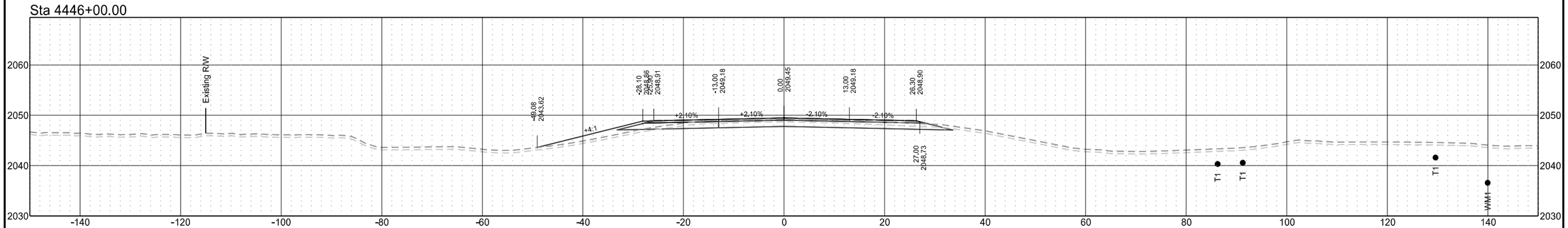
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	112

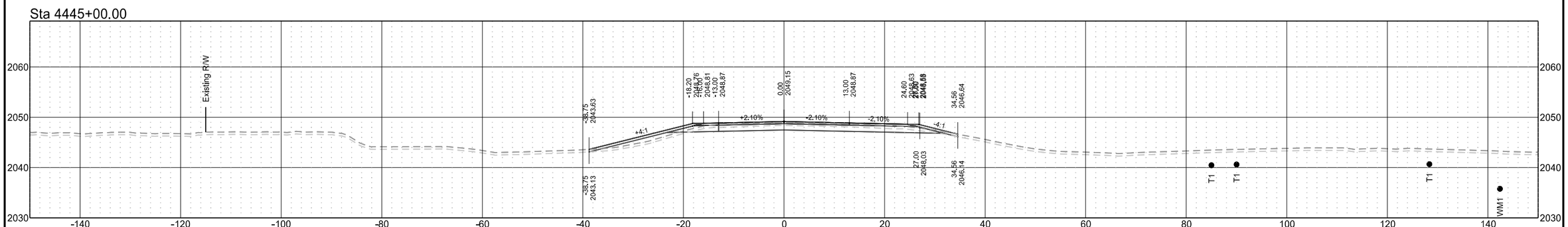
Sta 4447+00.00



Sta 4446+00.00



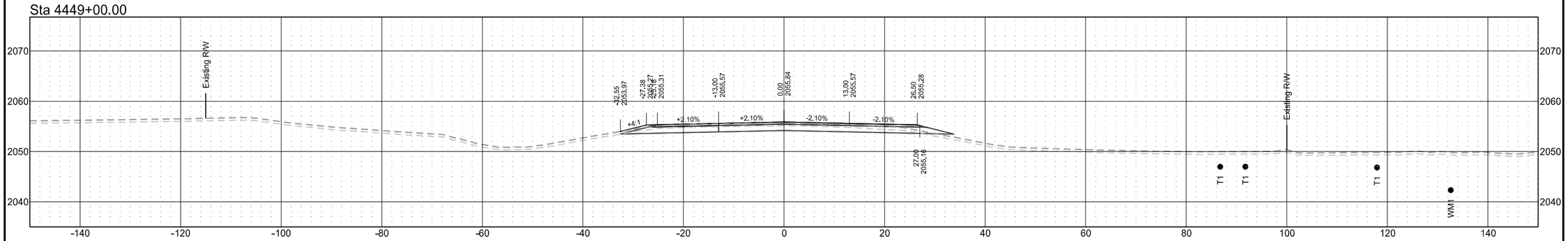
Sta 4445+00.00



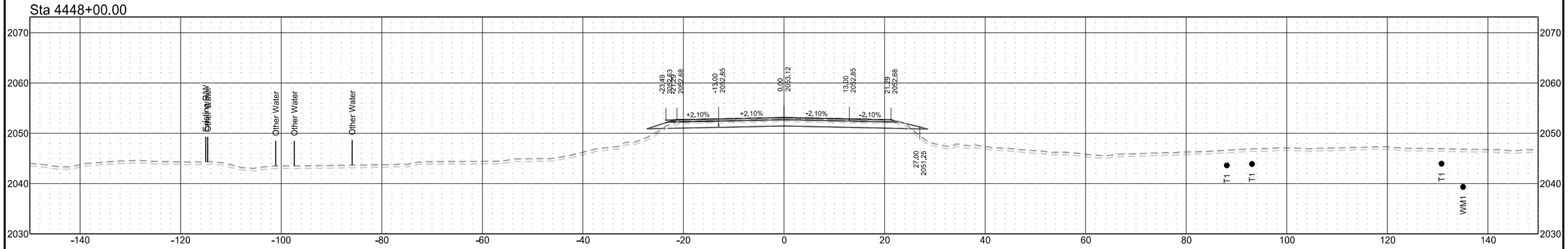
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	113

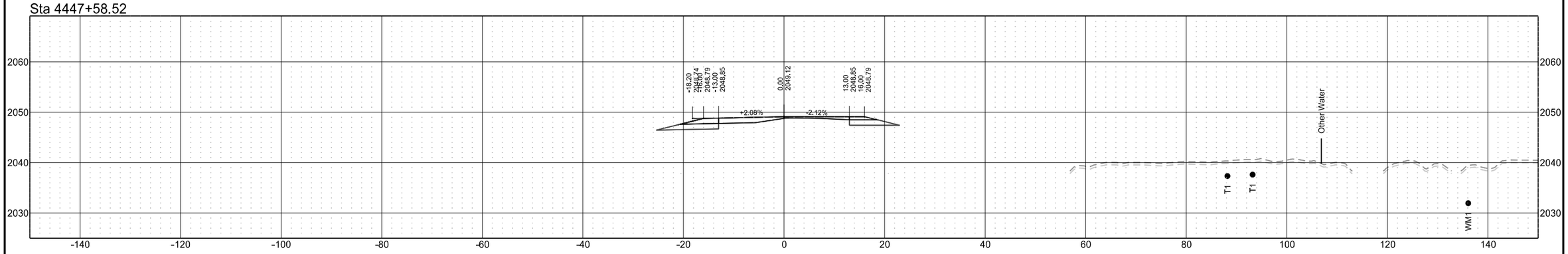
Sta 4449+00.00



Sta 4448+00.00



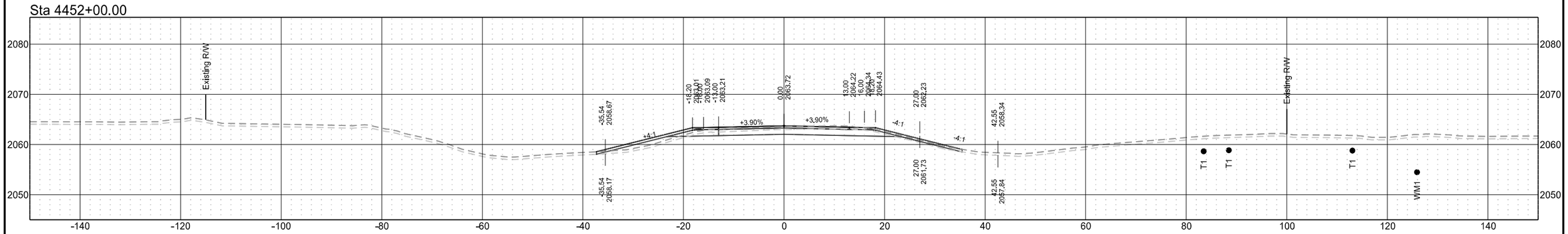
Sta 4447+58.52



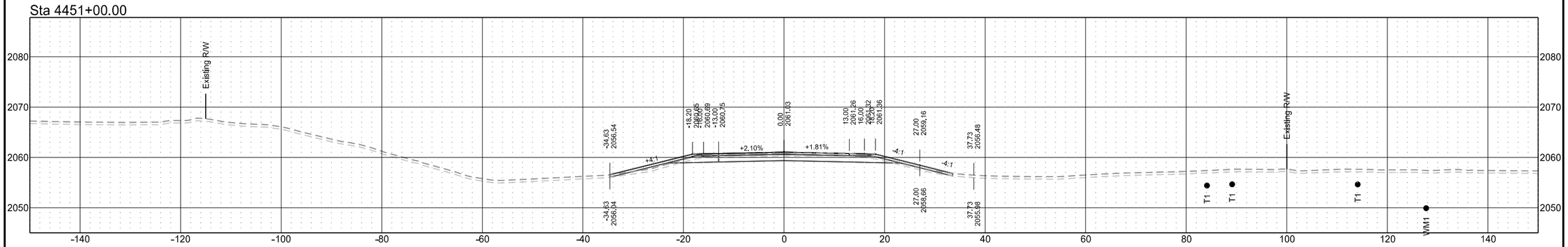
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	114

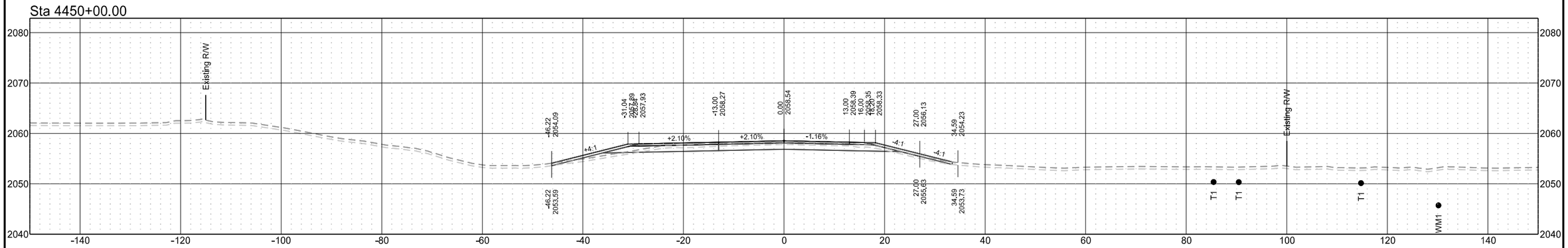
Sta 4452+00.00



Sta 4451+00.00



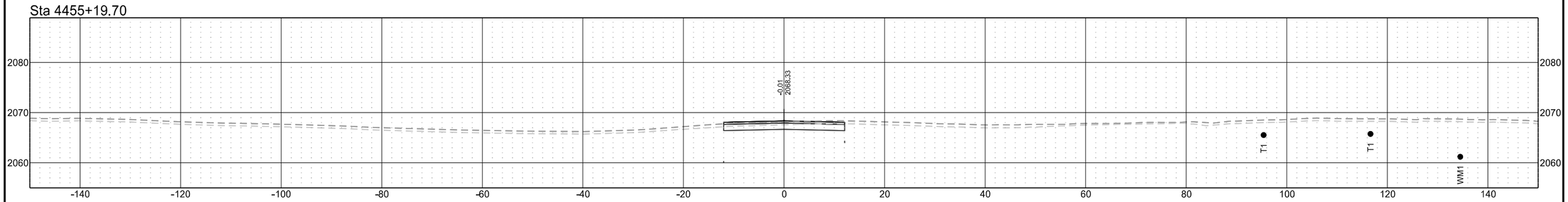
Sta 4450+00.00



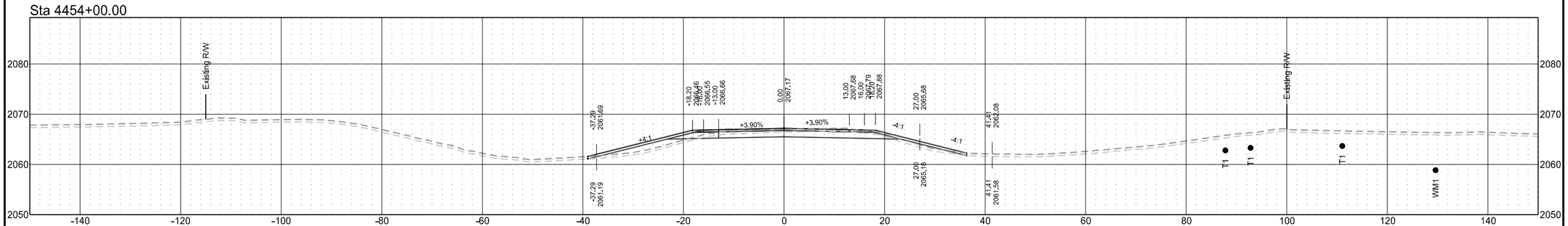
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	115

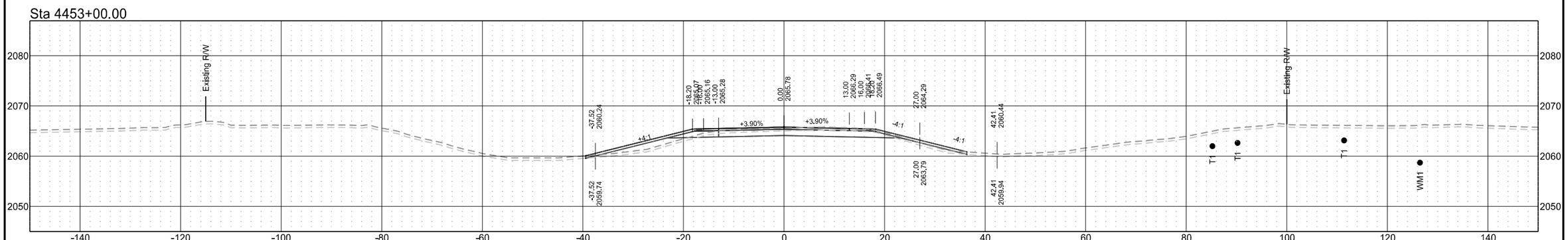
Sta 4455+19.70



Sta 4454+00.00



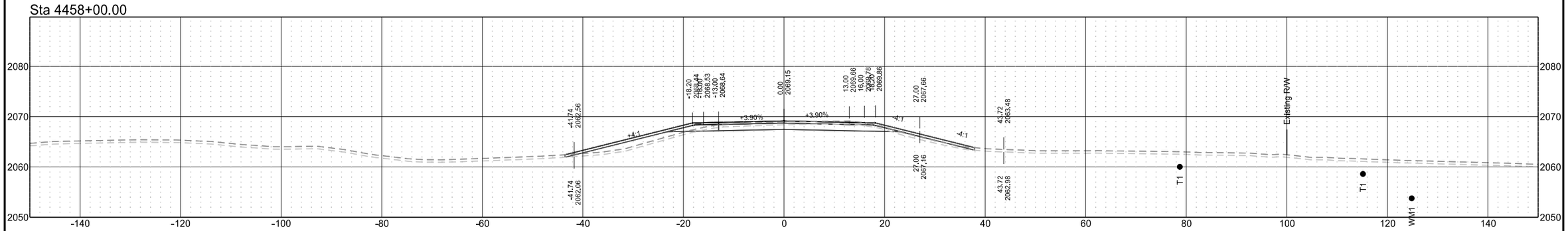
Sta 4453+00.00



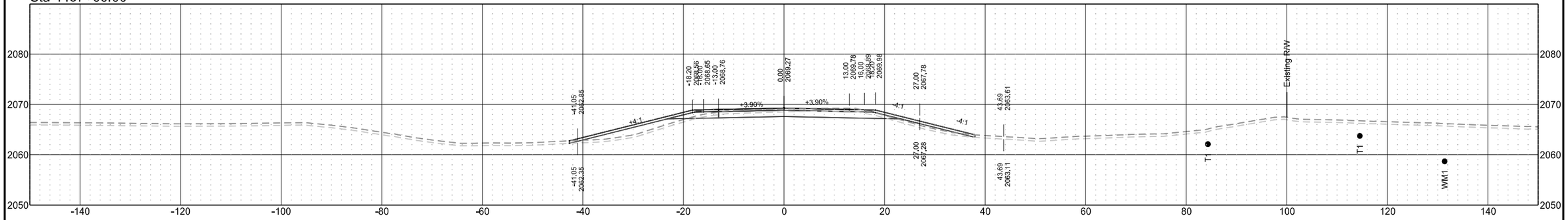
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	116

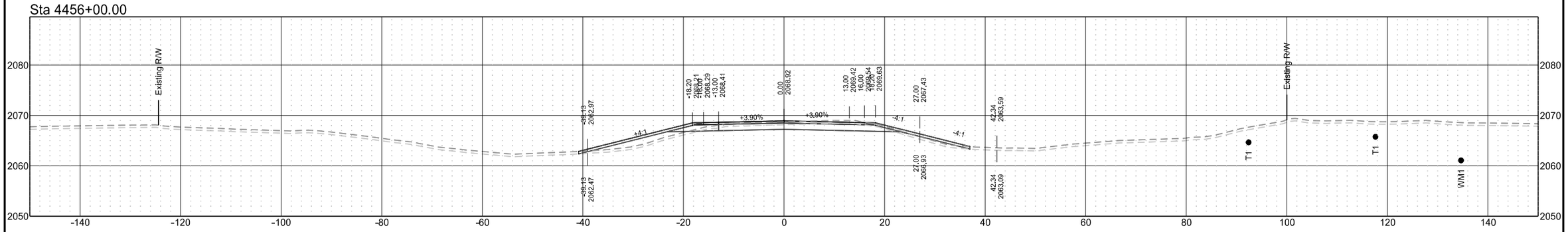
Sta 4458+00.00



Sta 4457+00.00



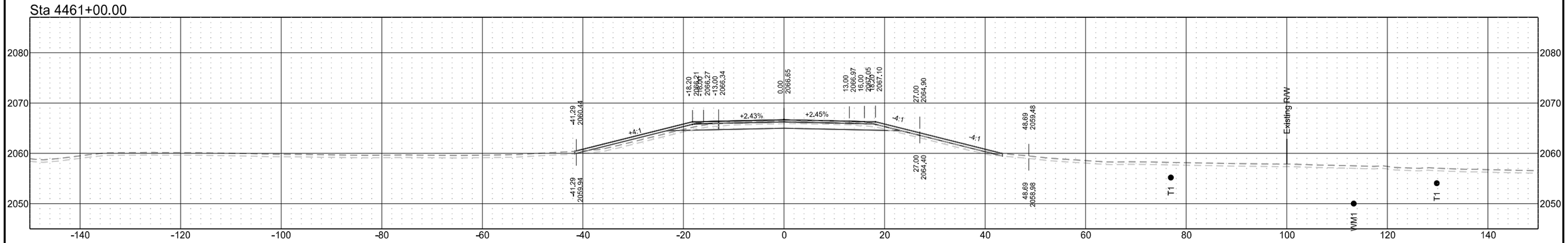
Sta 4456+00.00



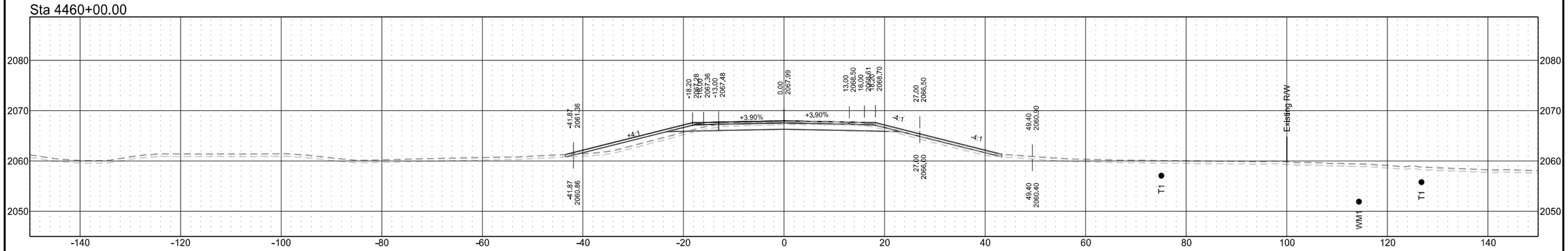
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	117

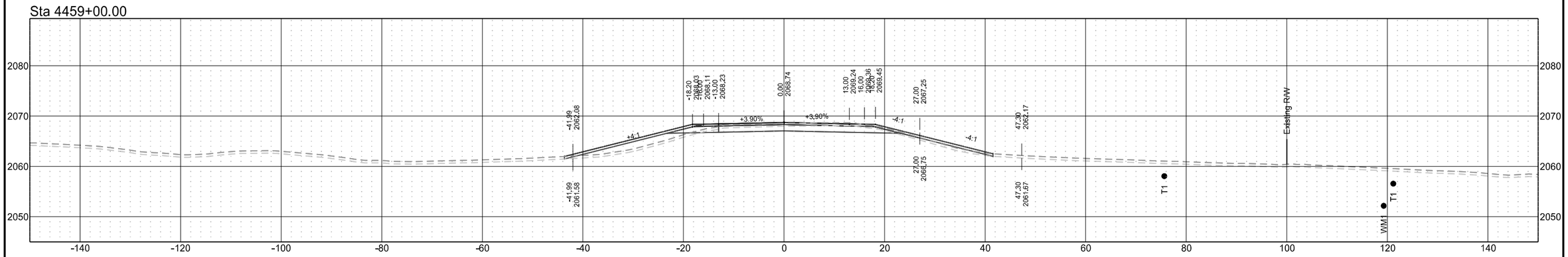
Sta 4461+00.00



Sta 4460+00.00



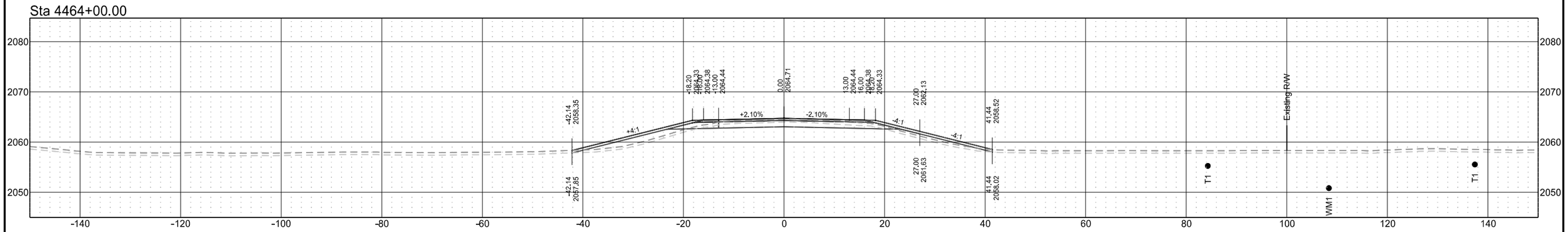
Sta 4459+00.00



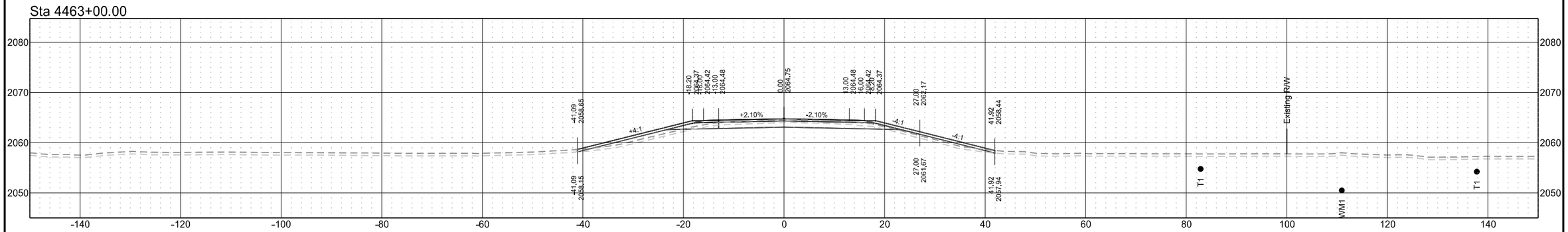
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	118

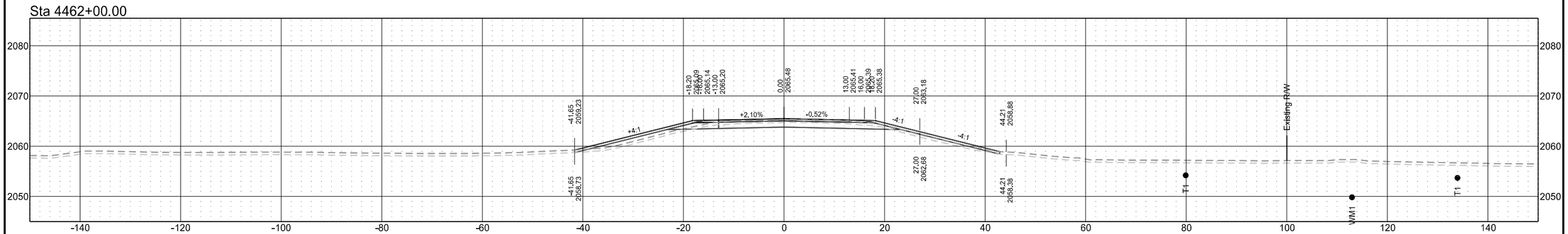
Sta 4464+00.00



Sta 4463+00.00



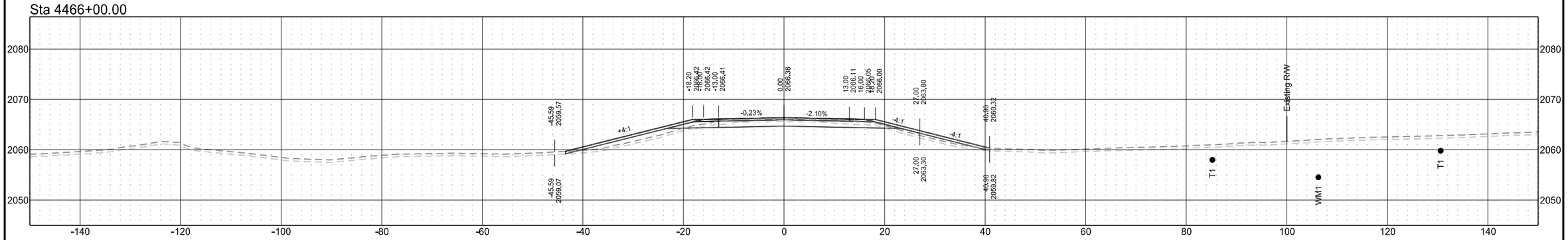
Sta 4462+00.00



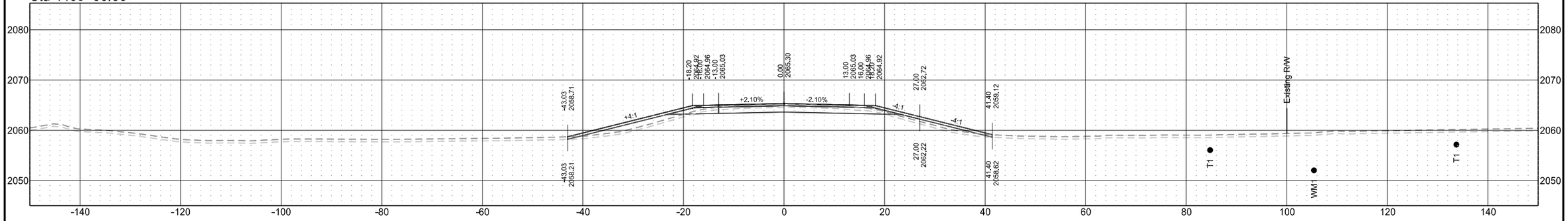
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	119

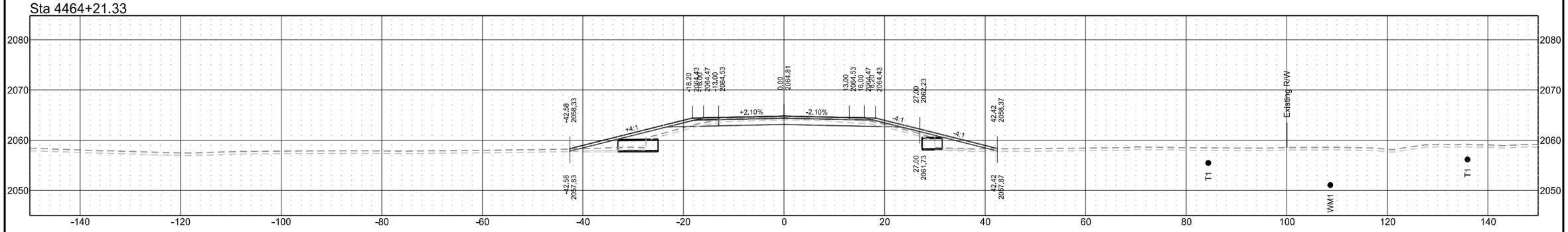
Sta 4466+00.00



Sta 4465+00.00



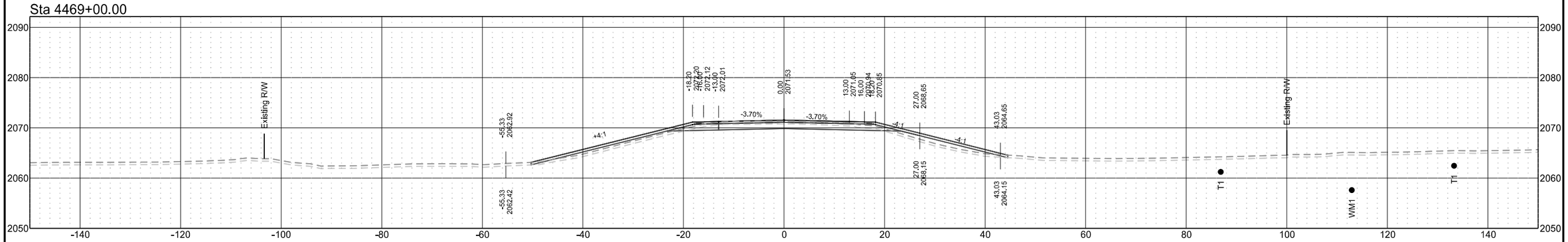
Sta 4464+21.33



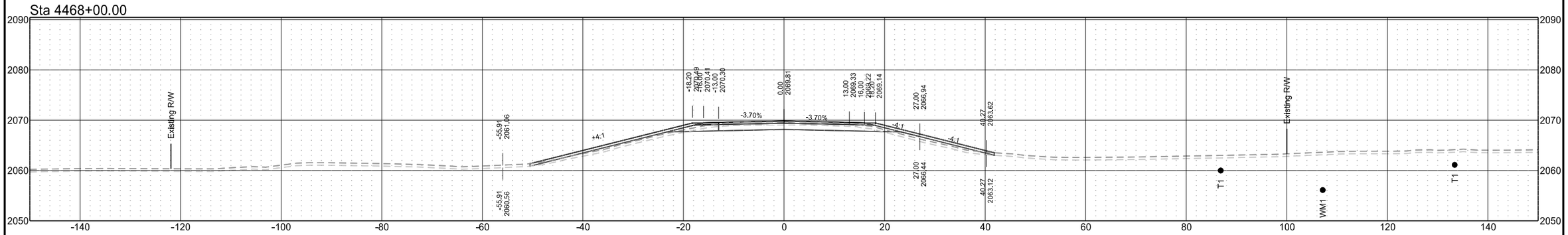
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	120

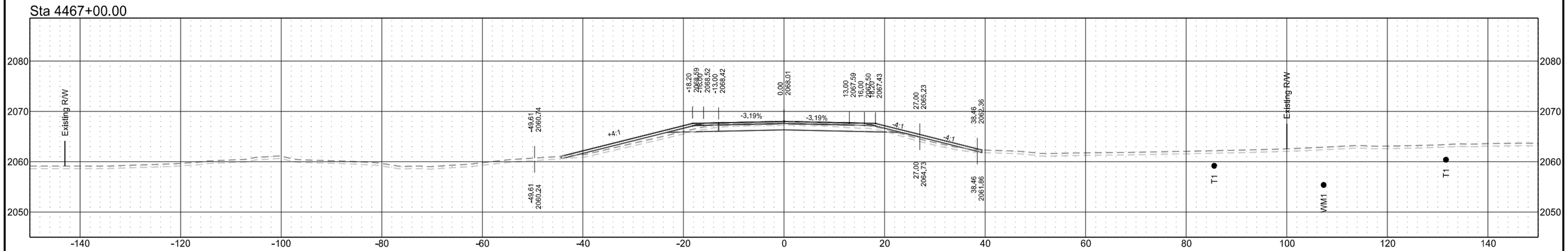
Sta 4469+00.00



Sta 4468+00.00



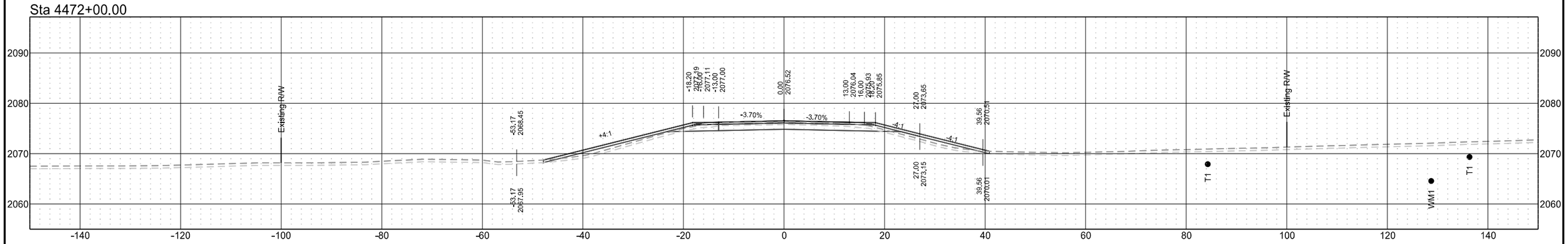
Sta 4467+00.00



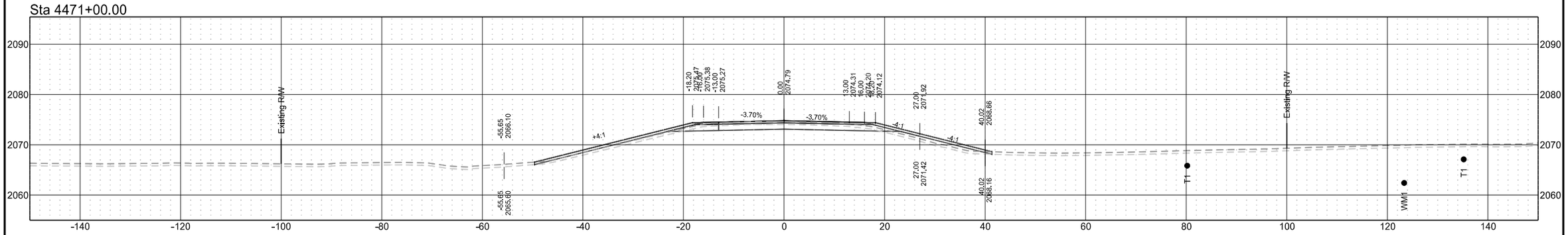
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	121

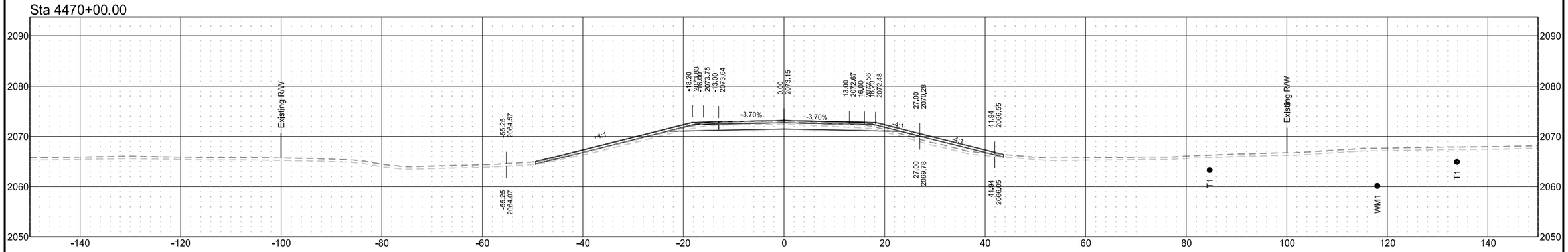
Sta 4472+00.00



Sta 4471+00.00



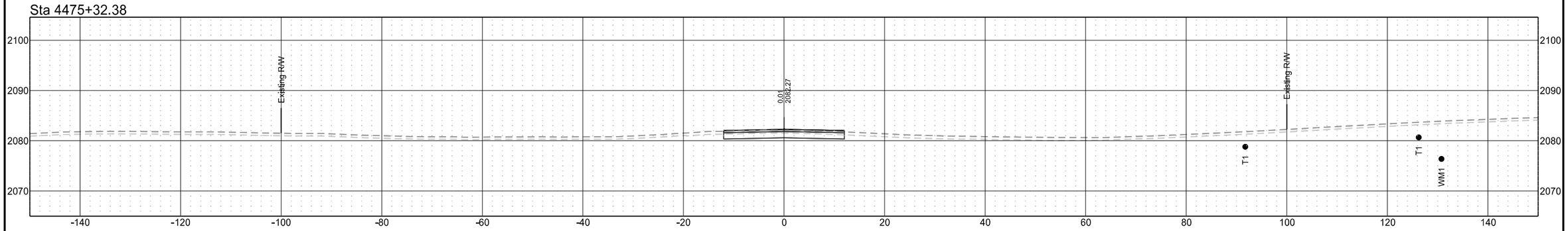
Sta 4470+00.00



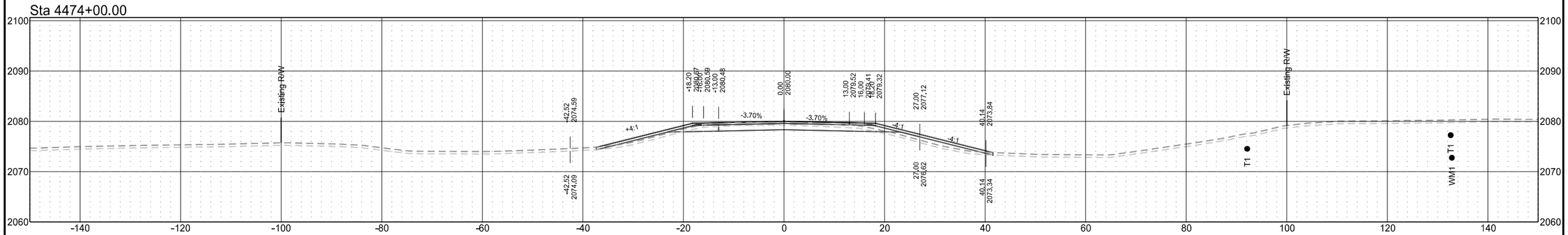
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	122

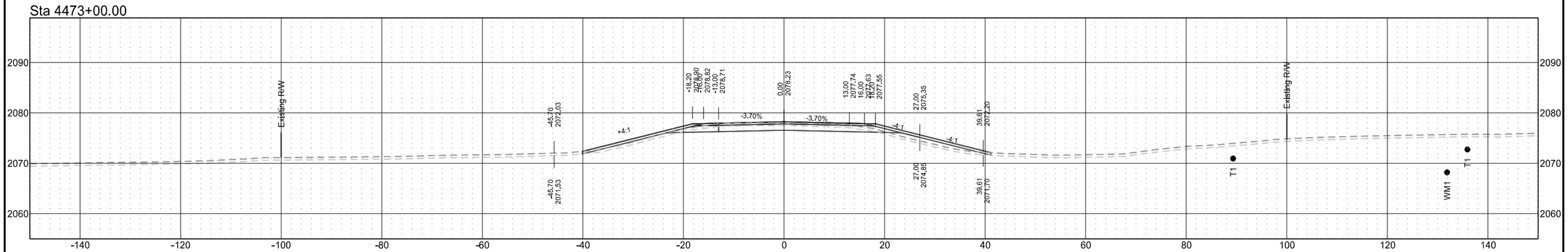
Sta 4475+32.38



Sta 4474+00.00



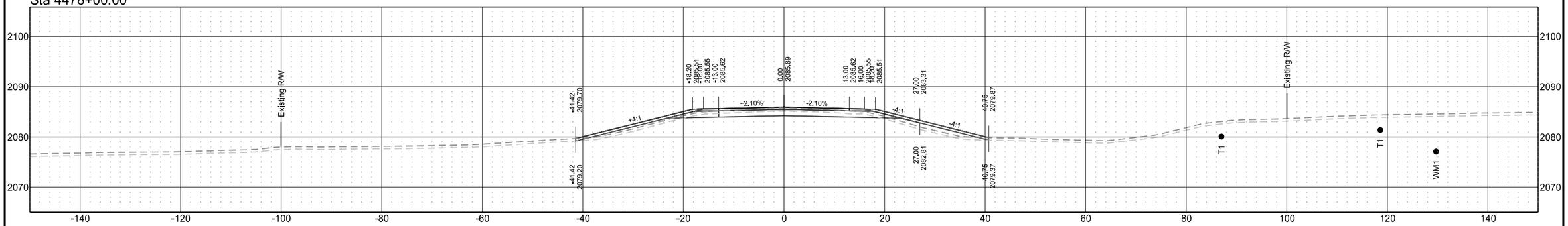
Sta 4473+00.00



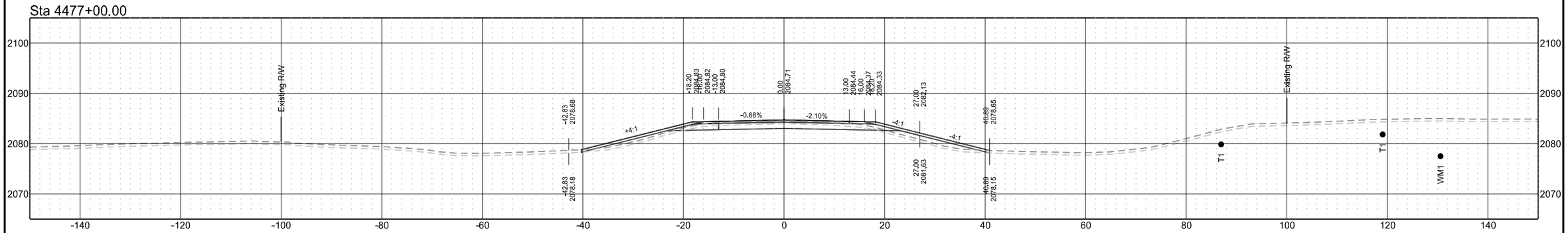
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	123

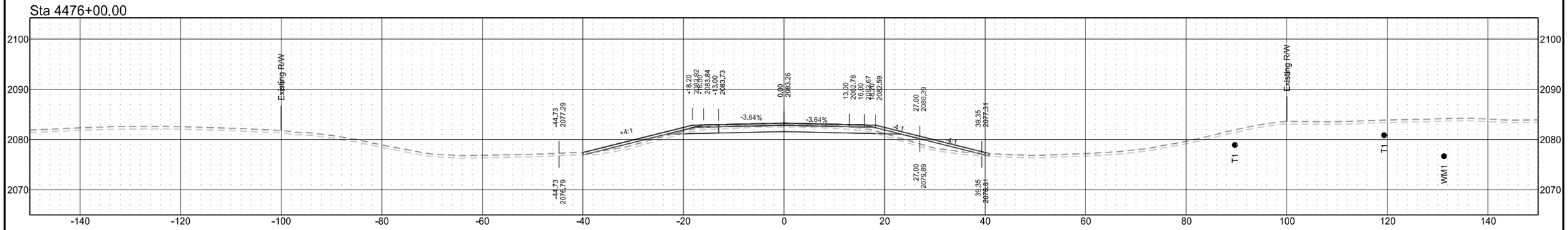
Sta 4478+00.00



Sta 4477+00.00



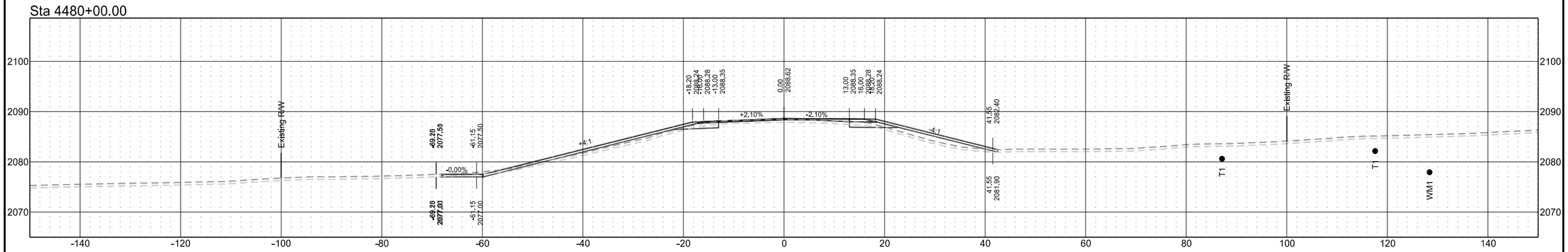
Sta 4476+00.00



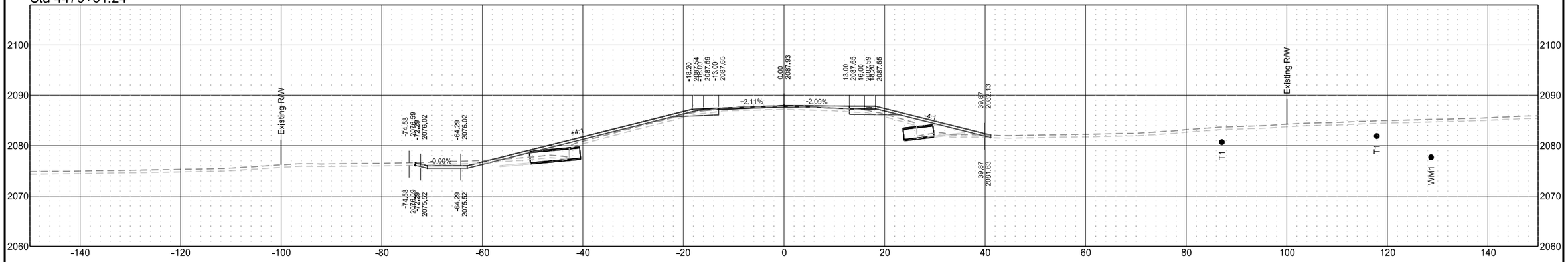
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	124

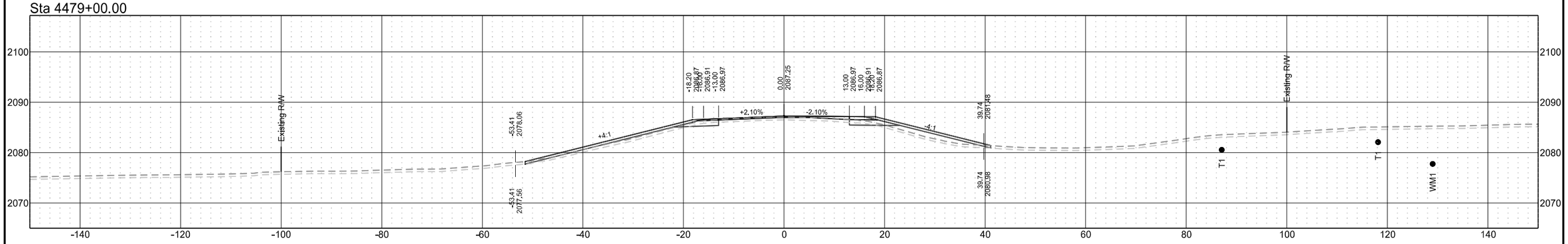
Sta 4480+00.00



Sta 4479+51.24



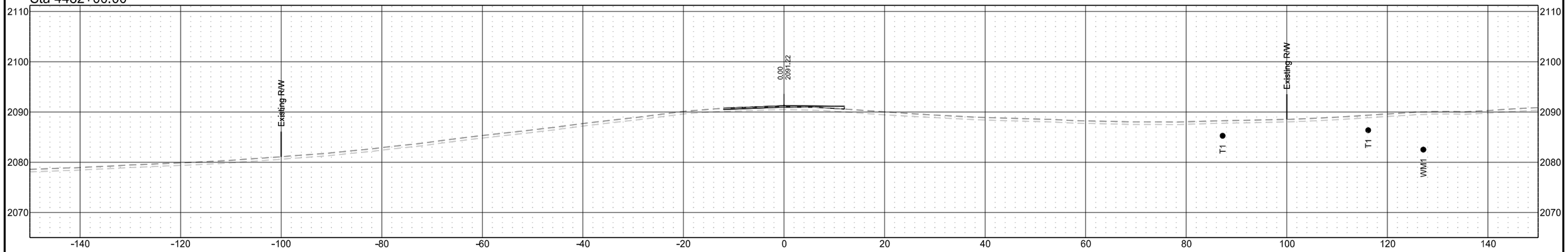
Sta 4479+00.00



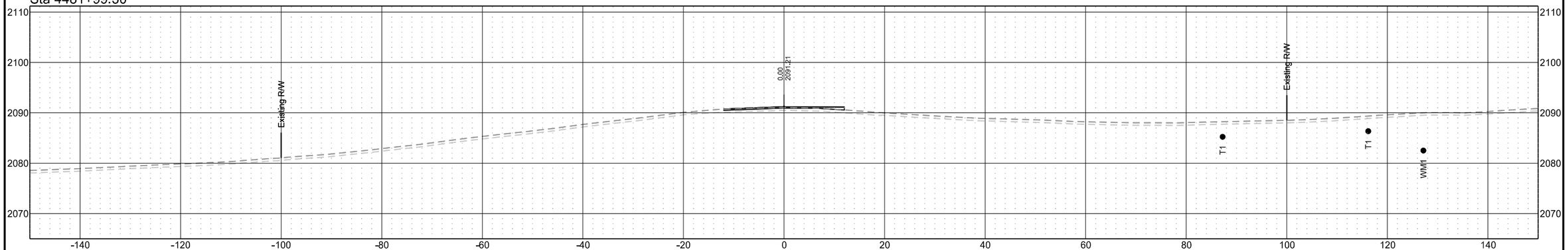
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	125

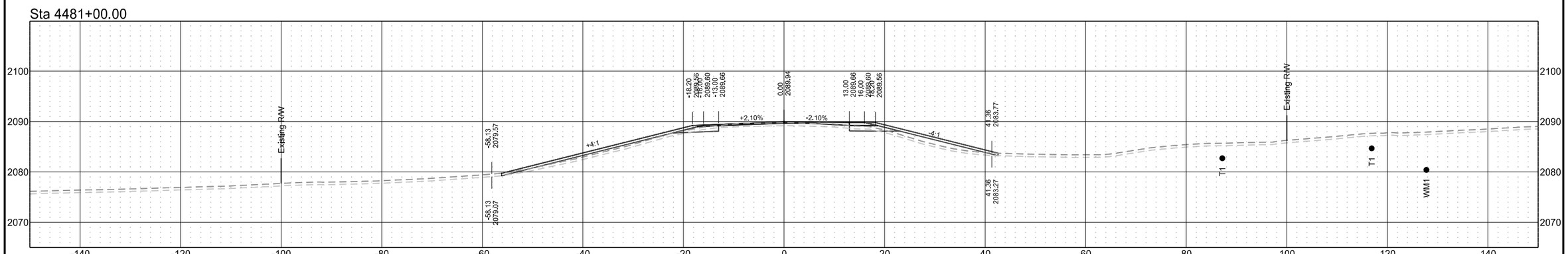
Sta 4482+00.00



Sta 4481+99.30



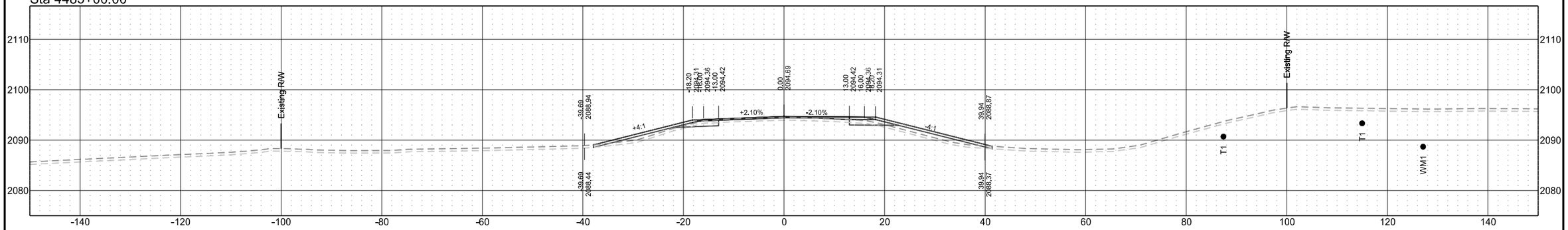
Sta 4481+00.00



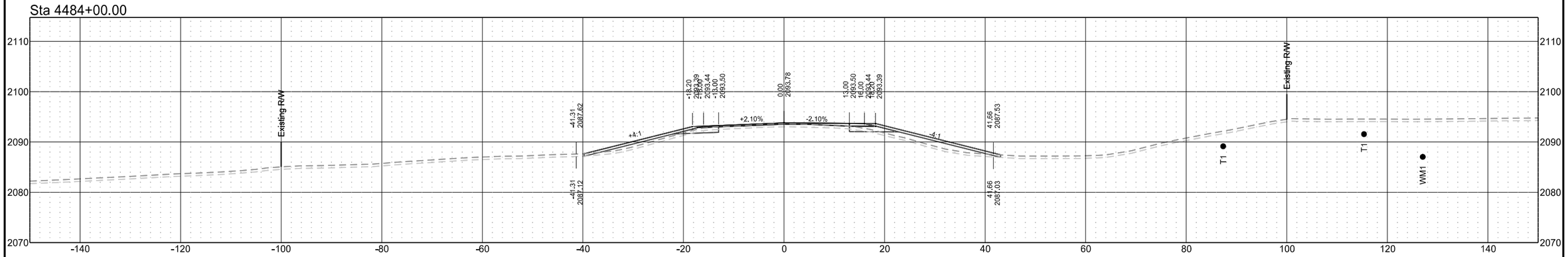
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	126

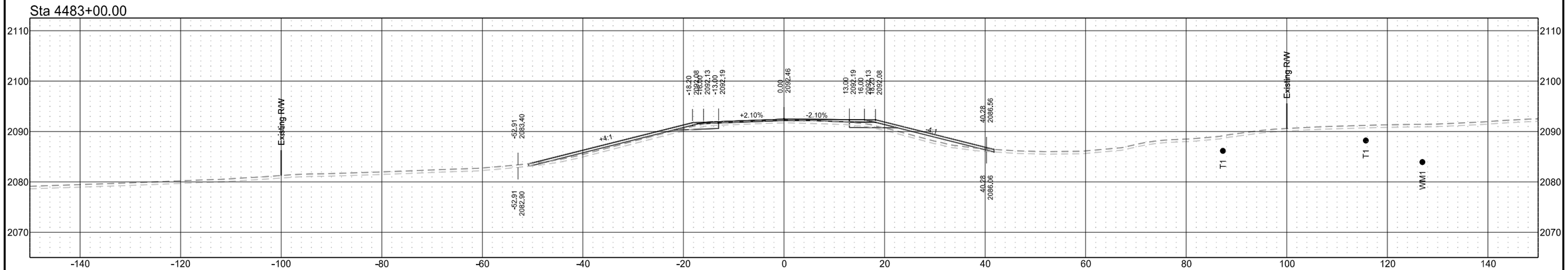
Sta 4485+00.00



Sta 4484+00.00



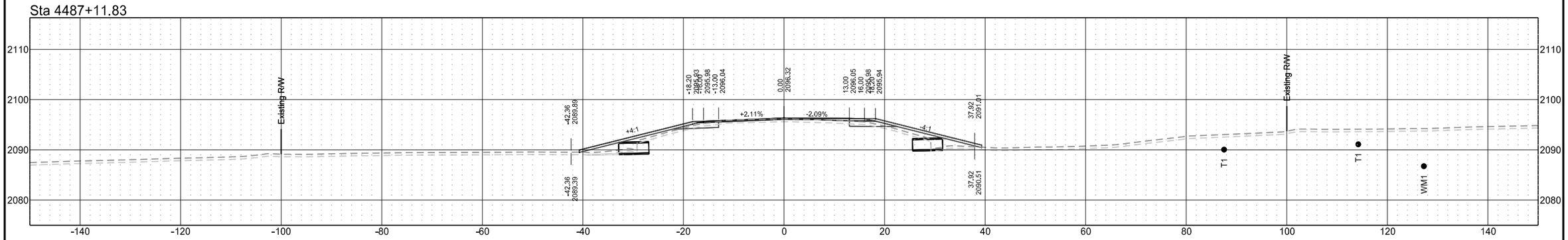
Sta 4483+00.00



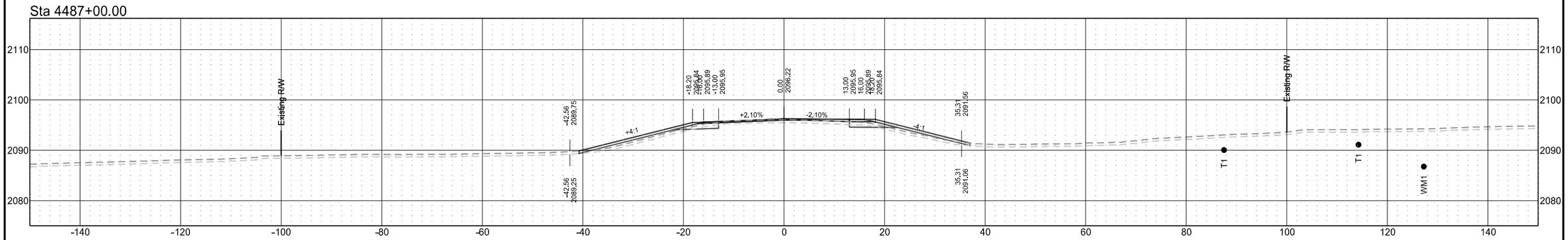
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	127

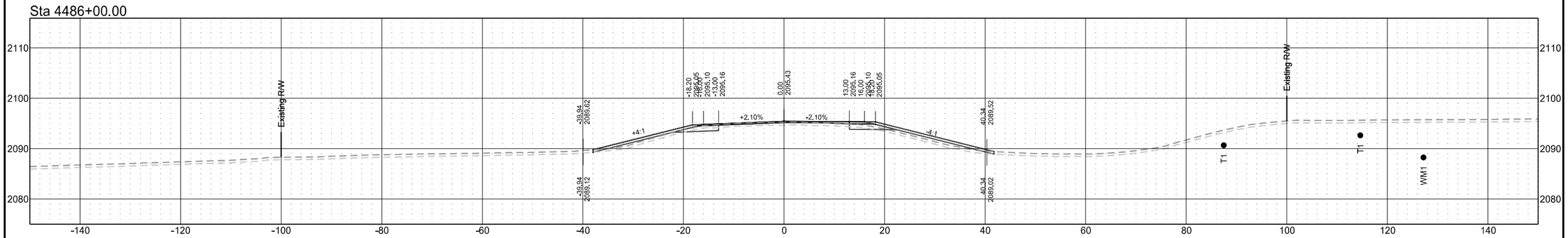
Sta 4487+11.83



Sta 4487+00.00



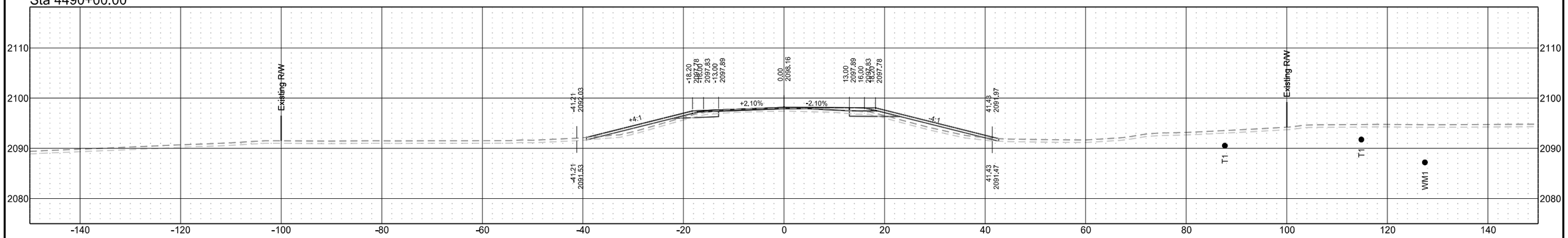
Sta 4486+00.00



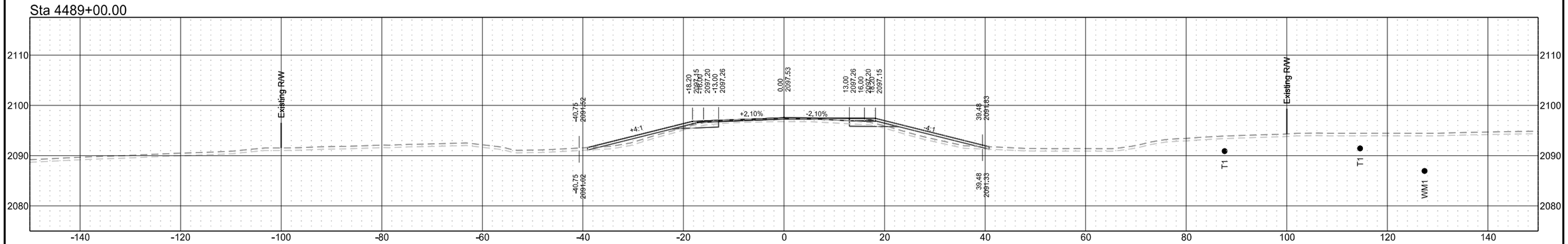
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	128

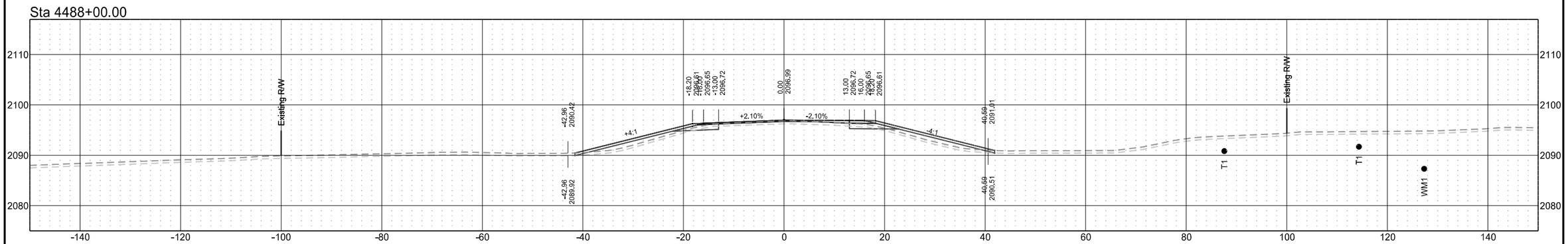
Sta 4490+00.00



Sta 4489+00.00



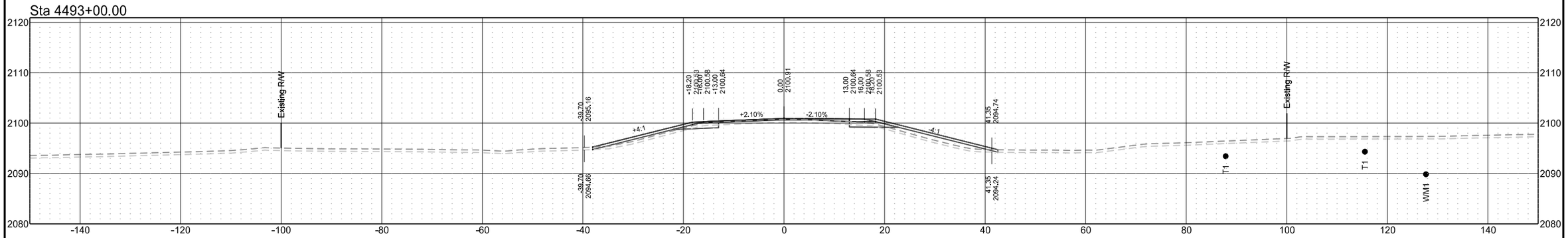
Sta 4488+00.00



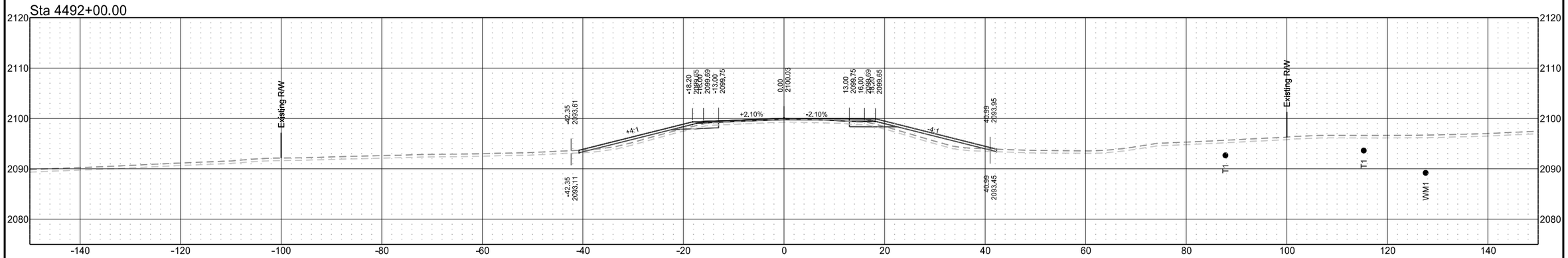
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	129

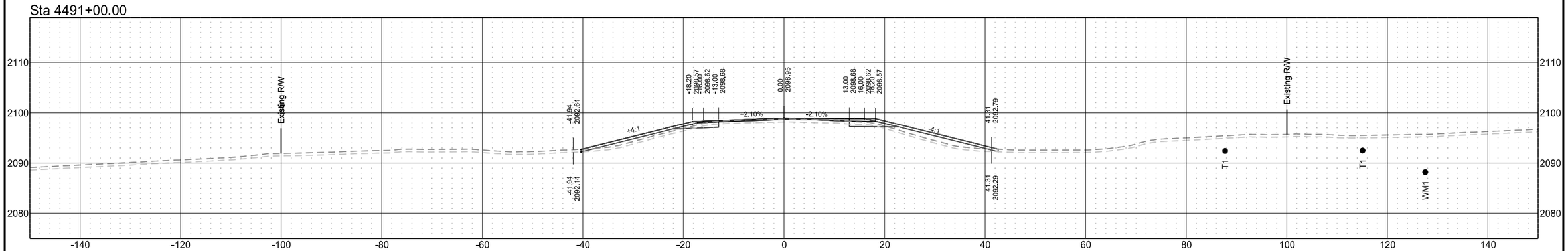
Sta 4493+00.00



Sta 4492+00.00



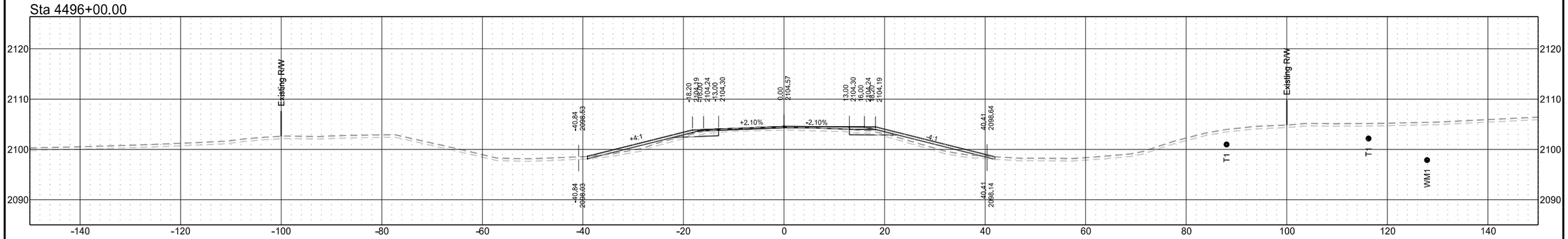
Sta 4491+00.00



ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	130

Sta 4496+00.00



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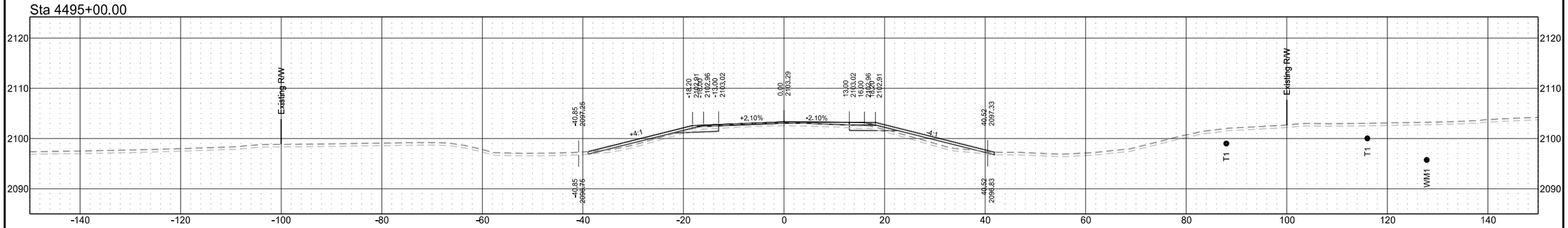
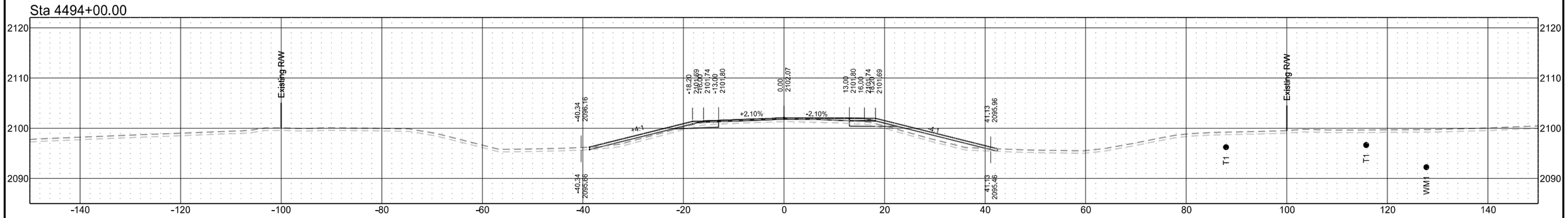


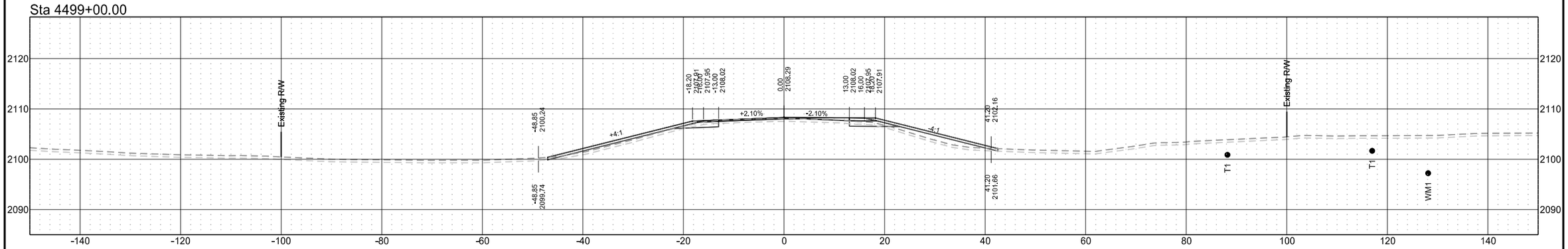
Sta 4494+00.00



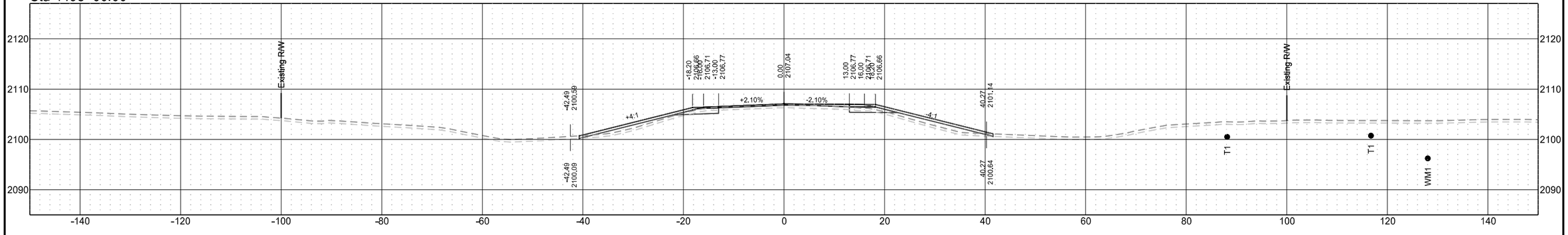
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	131

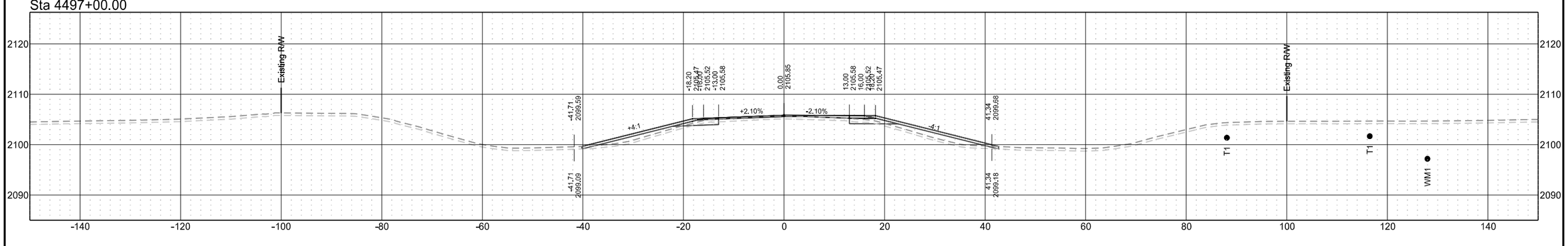
Sta 4499+00.00



Sta 4498+00.00



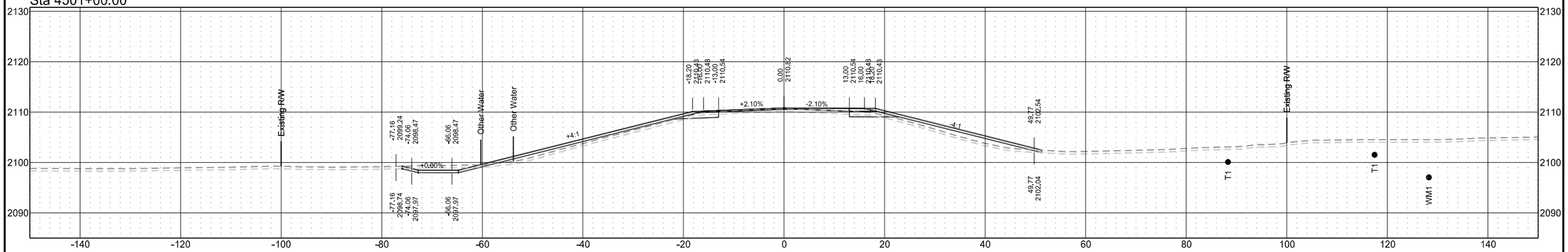
Sta 4497+00.00



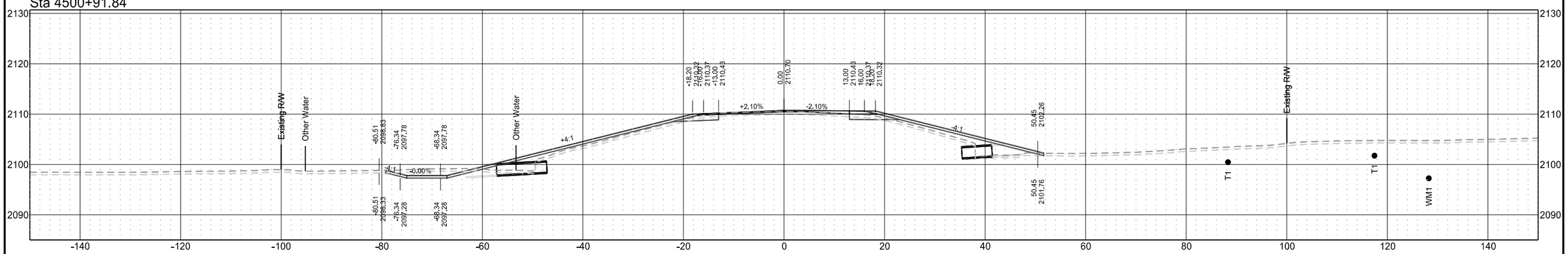
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	132

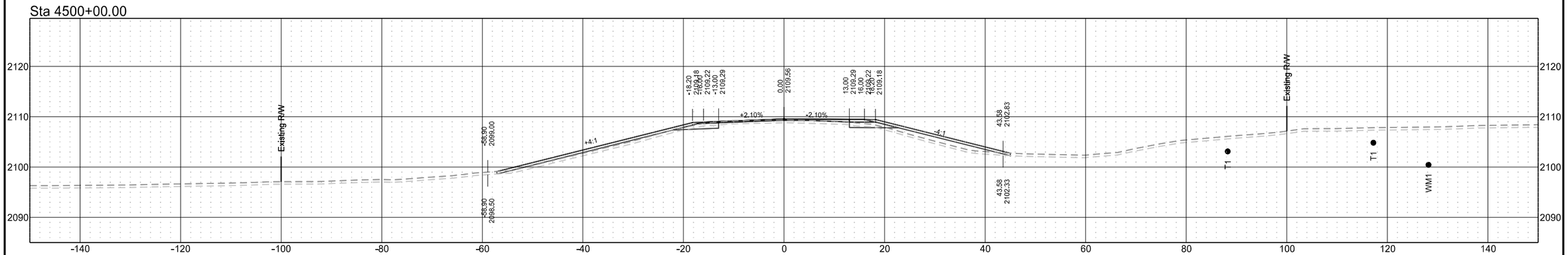
Sta 4501+00.00



Sta 4500+91.84



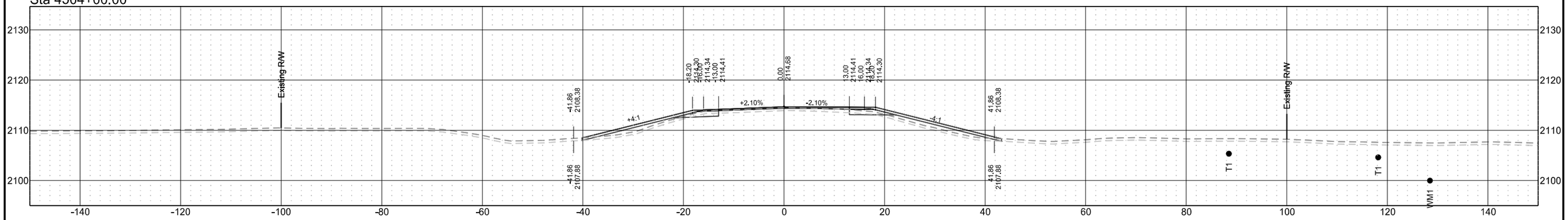
Sta 4500+00.00



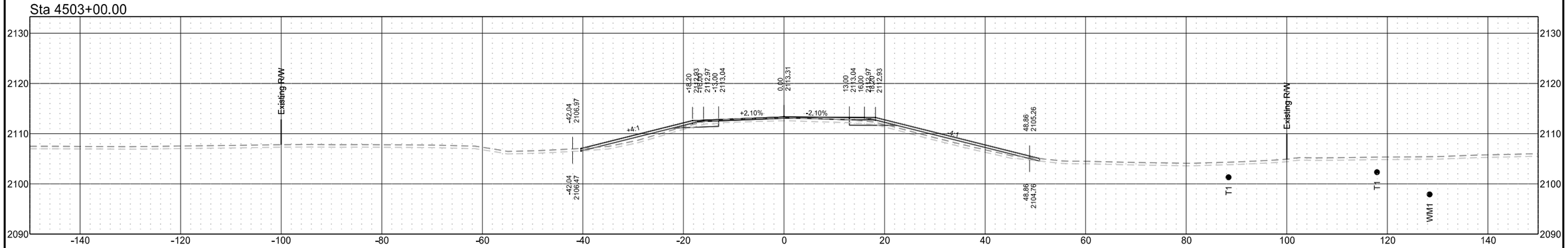
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	133

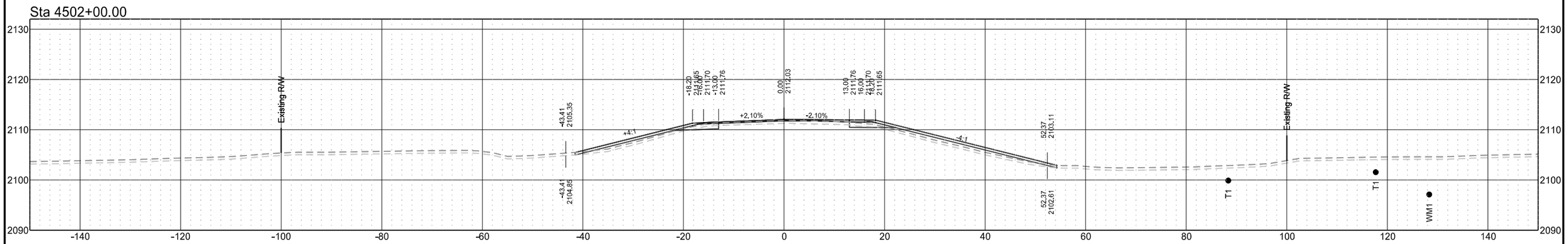
Sta 4504+00.00



Sta 4503+00.00



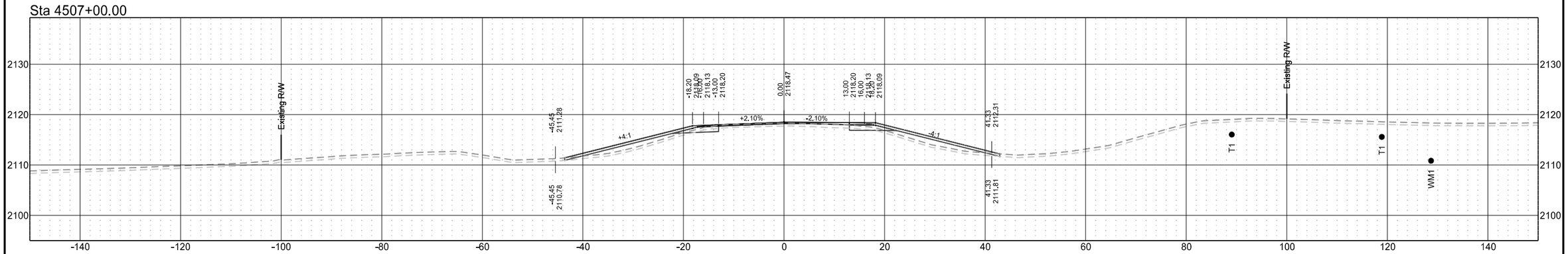
Sta 4502+00.00



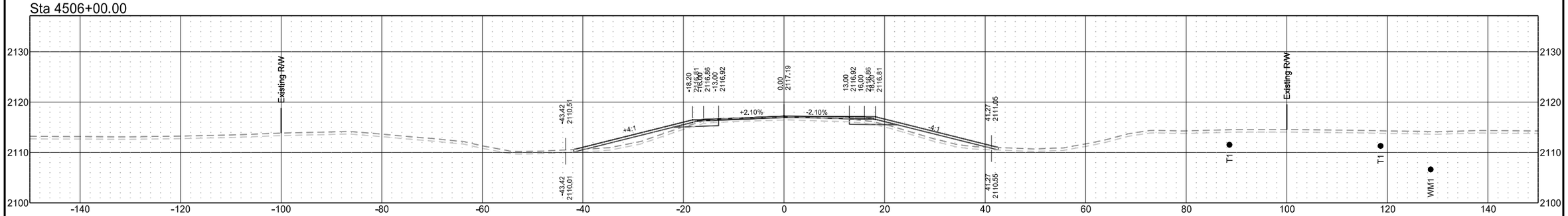
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	134

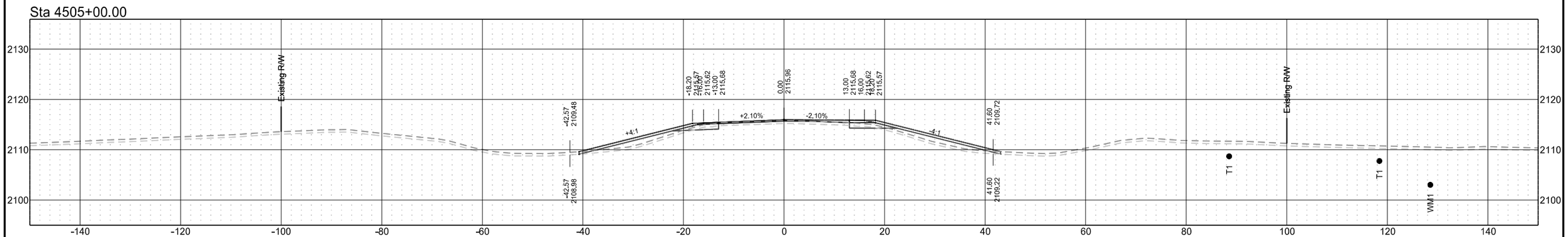
Sta 4507+00.00



Sta 4506+00.00



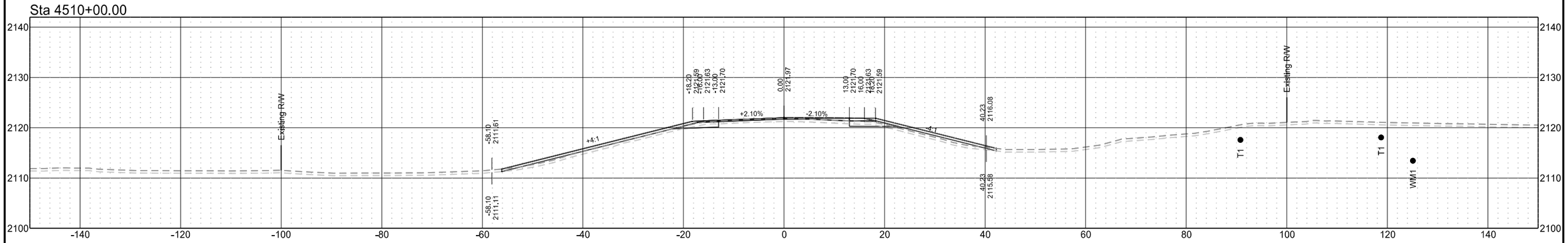
Sta 4505+00.00



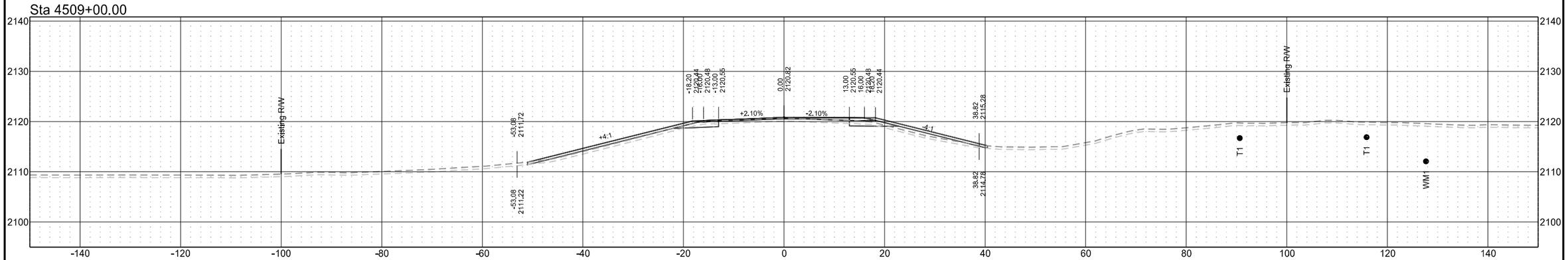
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	135

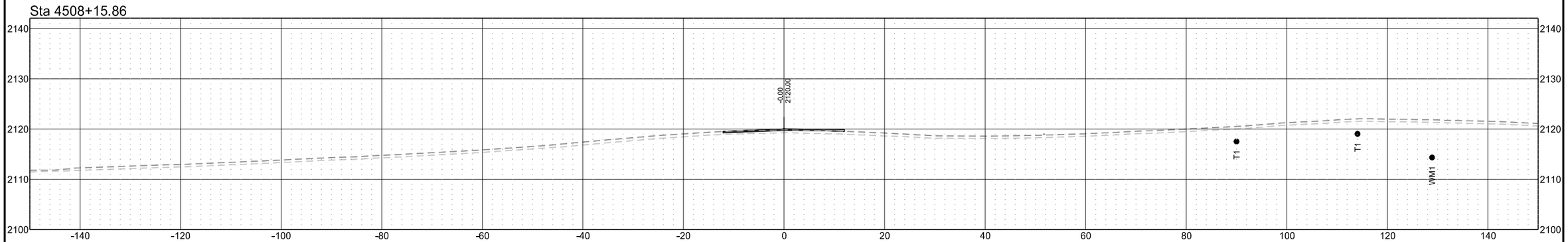
Sta 4510+00.00



Sta 4509+00.00



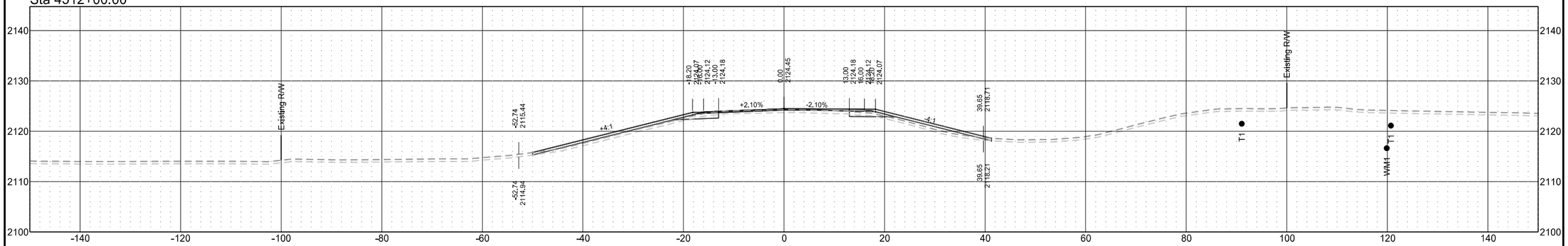
Sta 4508+15.86



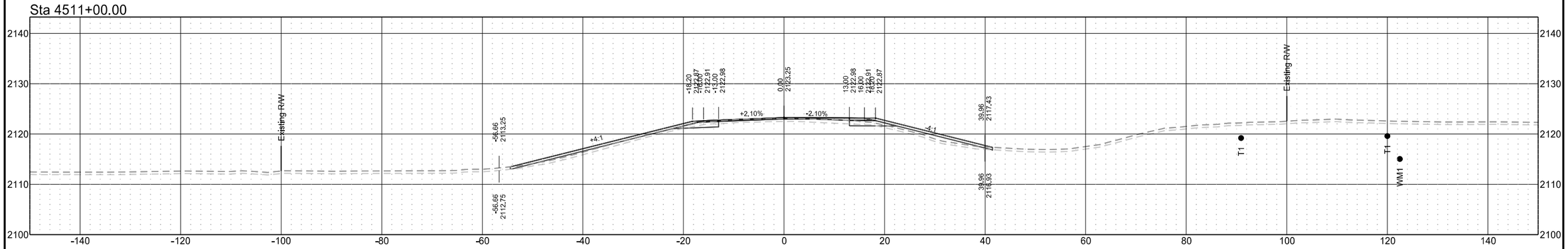
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	136

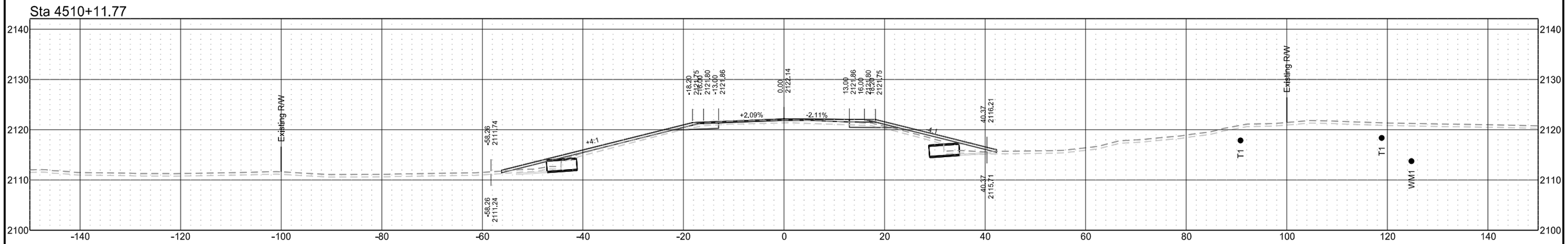
Sta 4512+00.00



Sta 4511+00.00



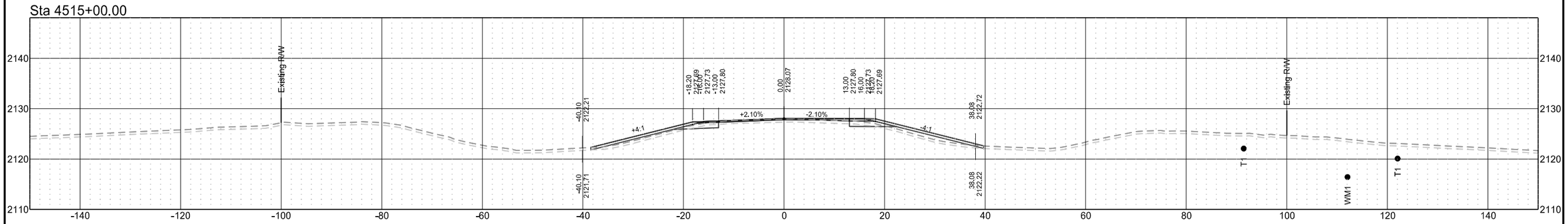
Sta 4510+11.77



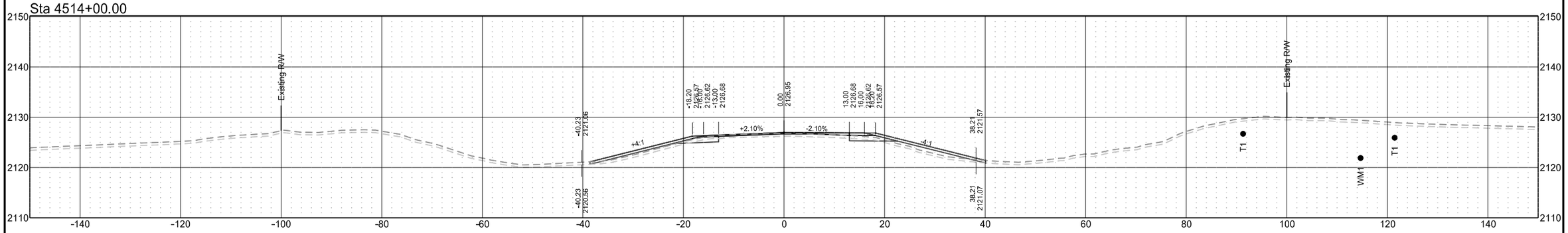
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	137

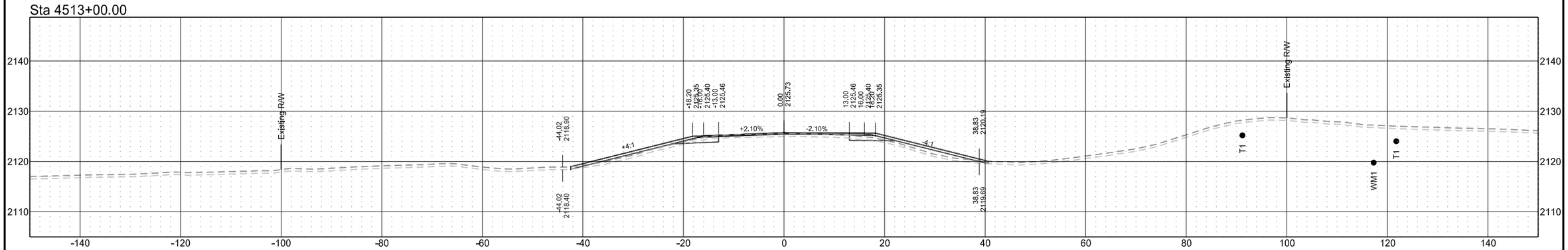
Sta 4515+00.00



Sta 4514+00.00



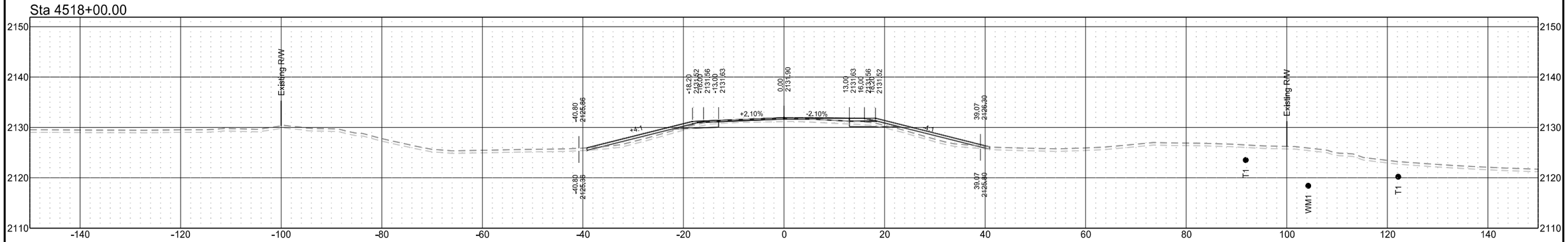
Sta 4513+00.00



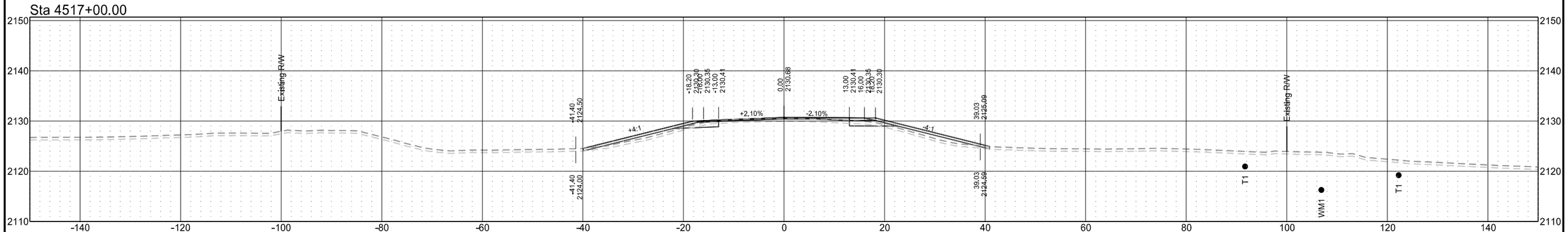
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	138

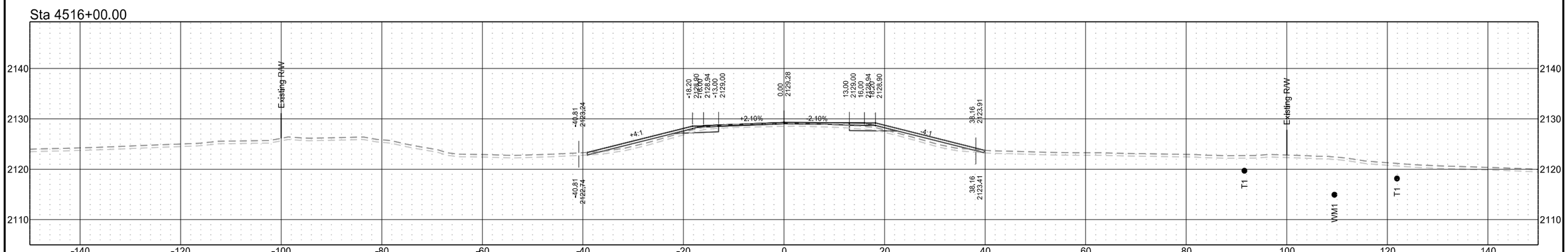
Sta 4518+00.00



Sta 4517+00.00



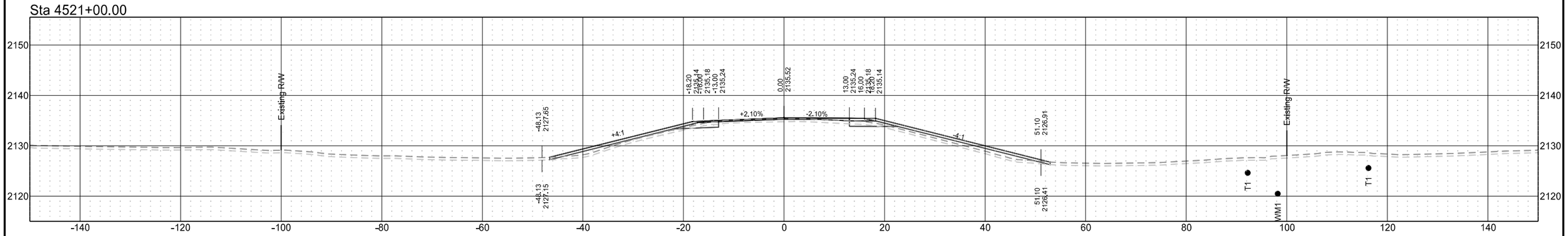
Sta 4516+00.00



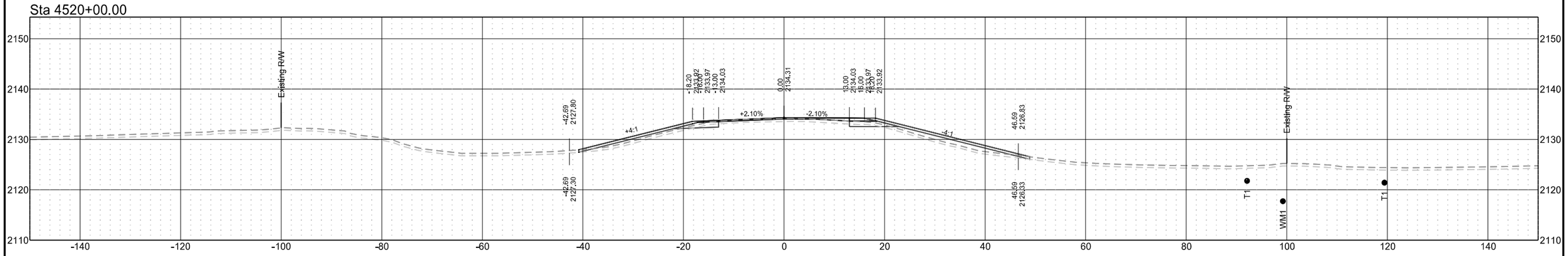
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	139

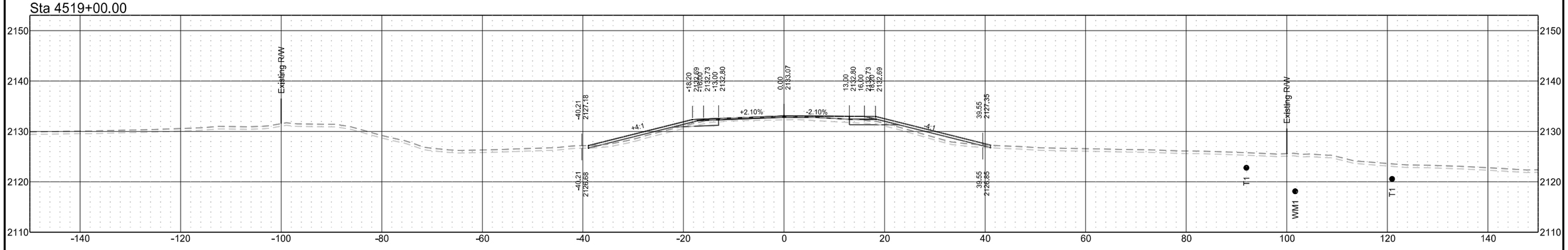
Sta 4521+00.00



Sta 4520+00.00



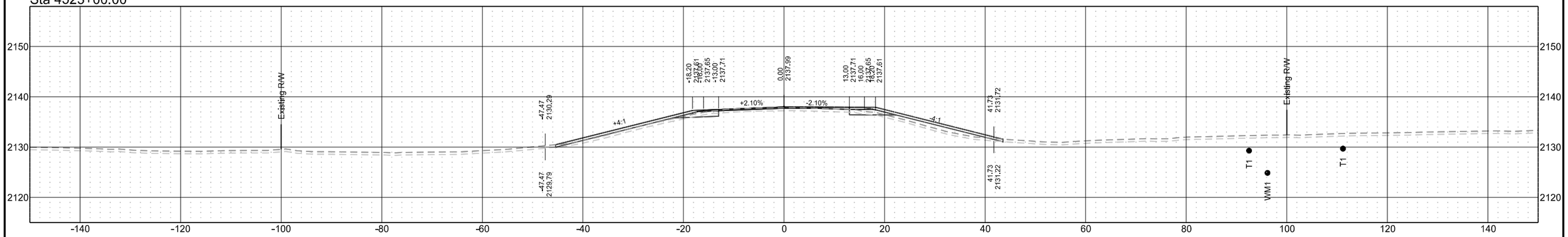
Sta 4519+00.00



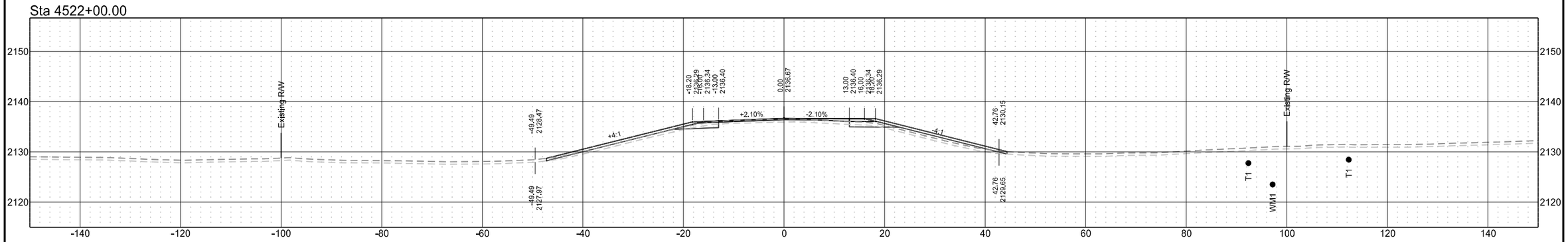
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	140

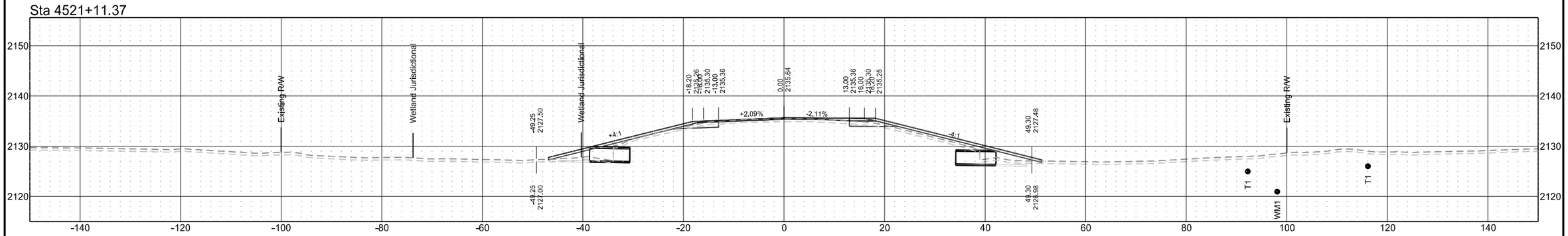
Sta 4523+00.00



Sta 4522+00.00



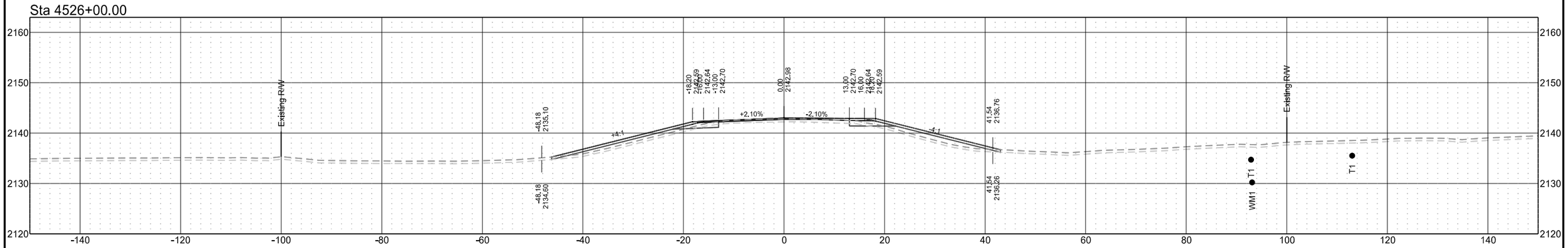
Sta 4521+11.37



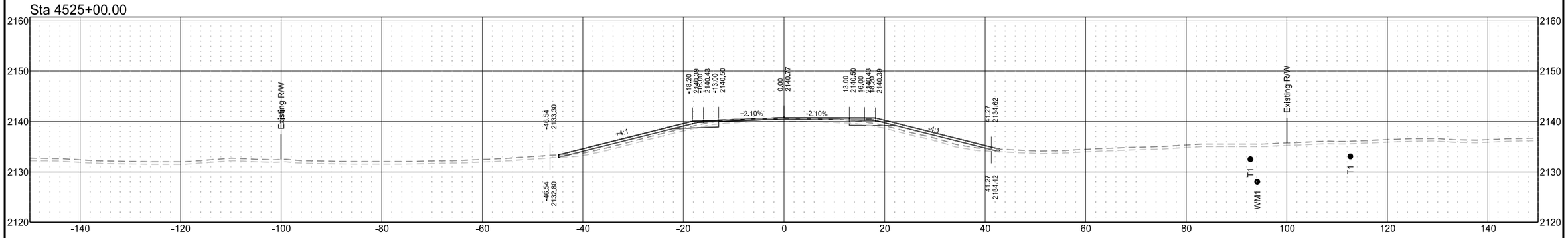
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	141

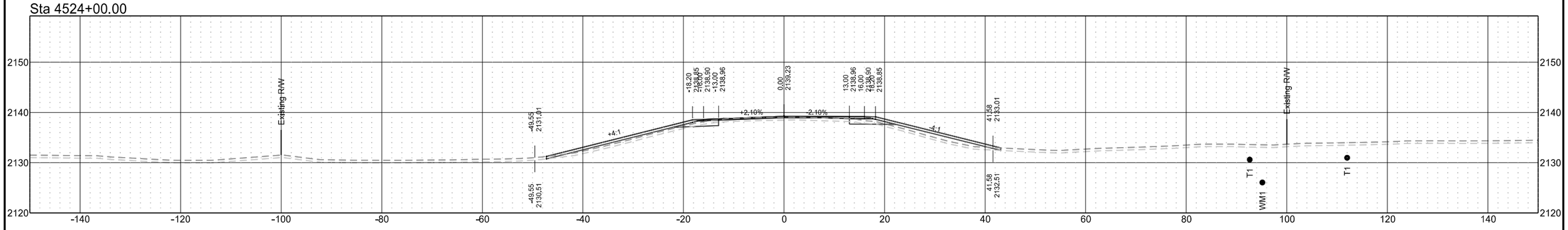
Sta 4526+00.00



Sta 4525+00.00



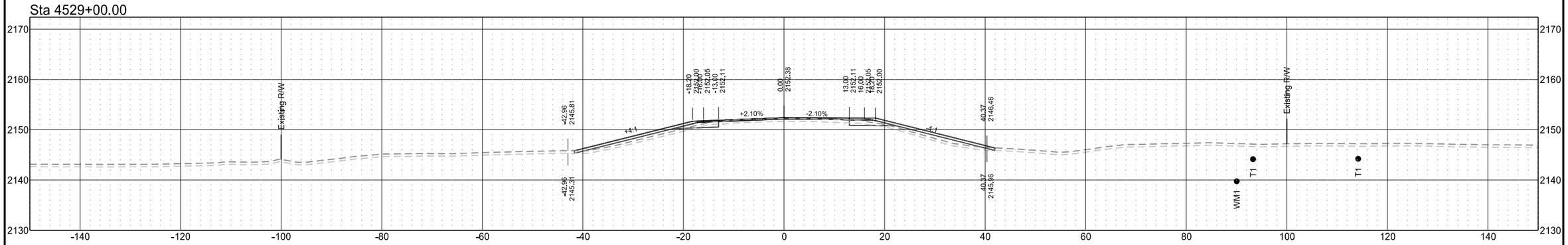
Sta 4524+00.00



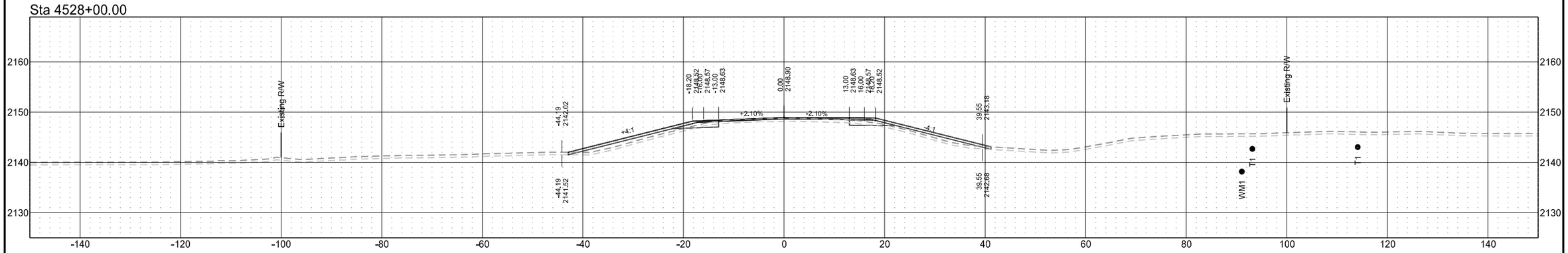
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	142

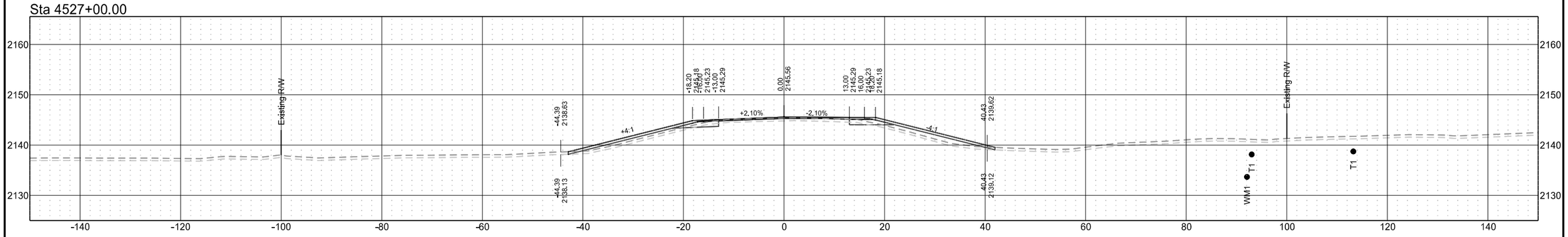
Sta 4529+00.00



Sta 4528+00.00



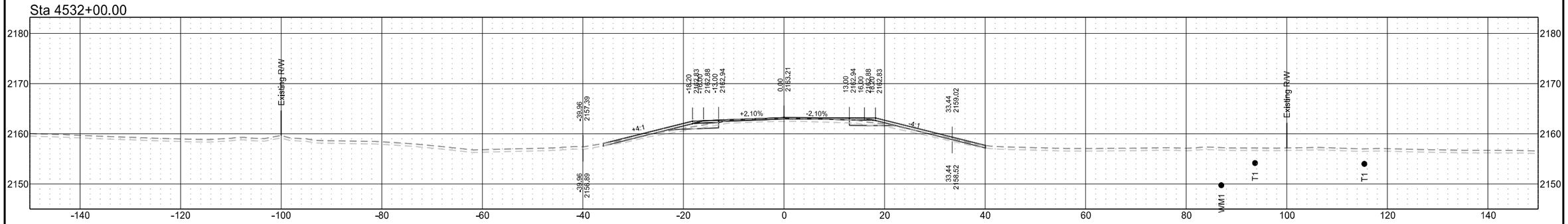
Sta 4527+00.00



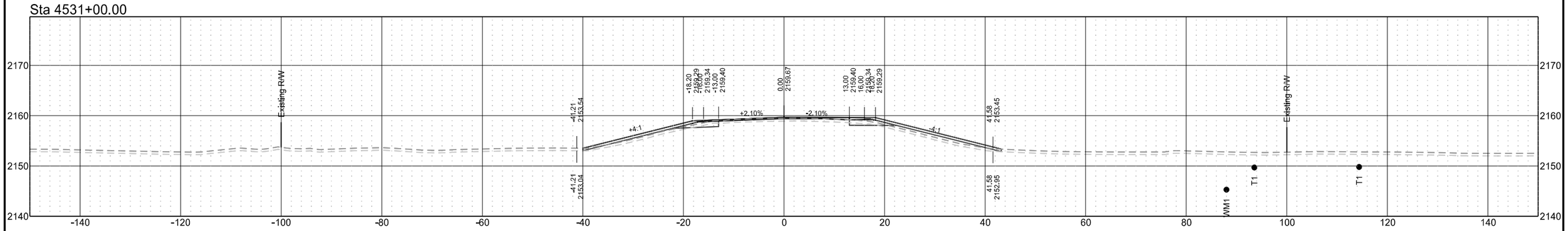
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	143

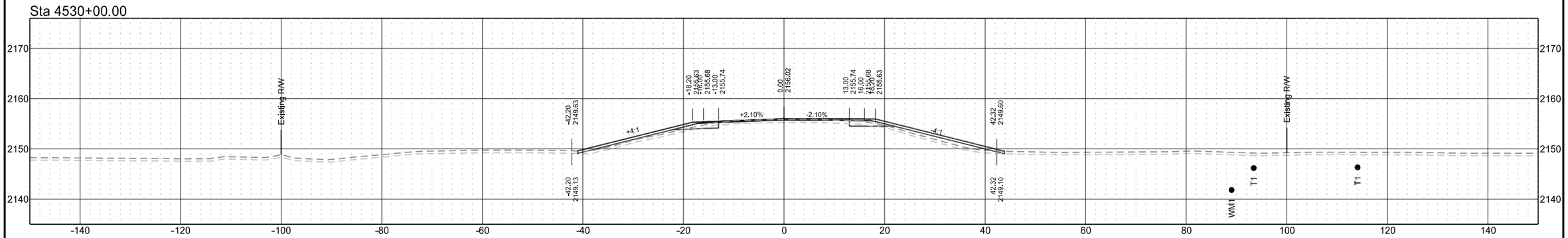
Sta 4532+00.00



Sta 4531+00.00



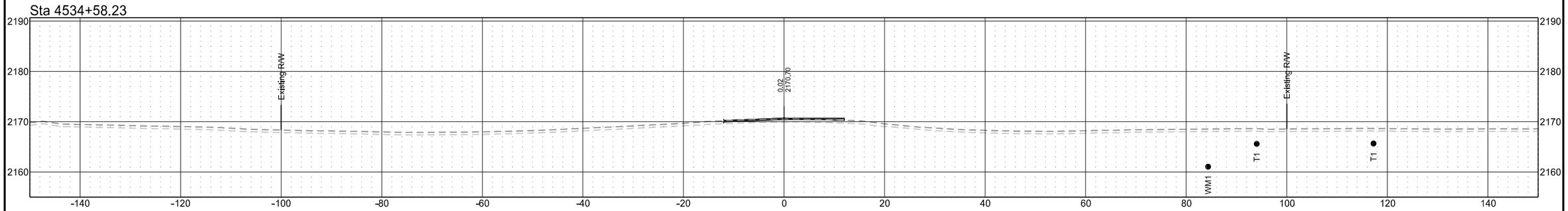
Sta 4530+00.00



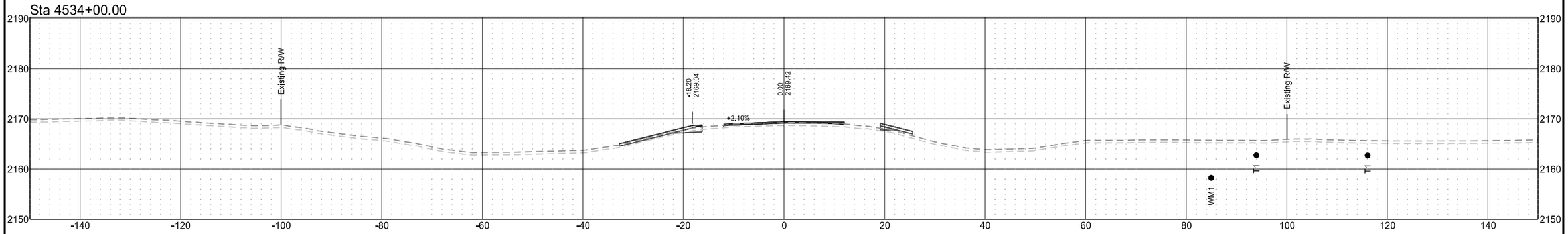
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	144

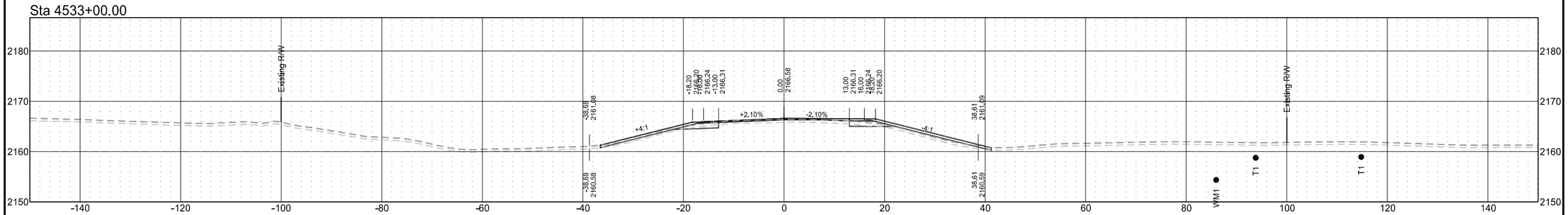
Sta 4534+58.23



Sta 4534+00.00



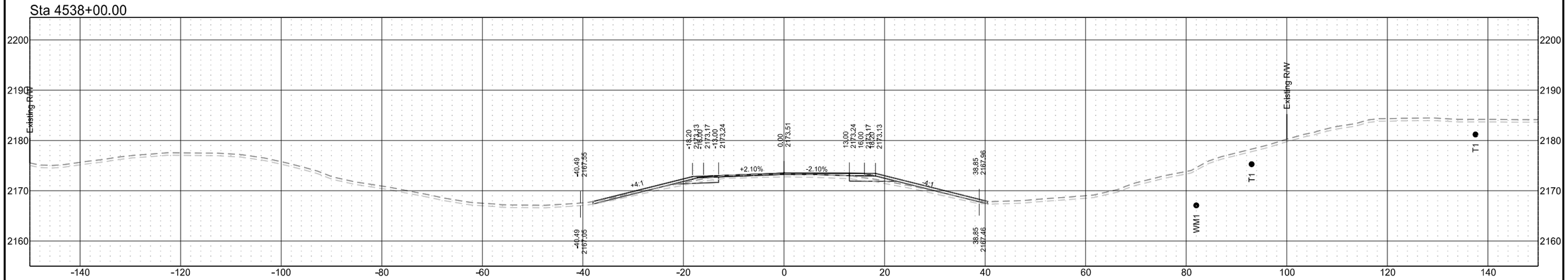
Sta 4533+00.00



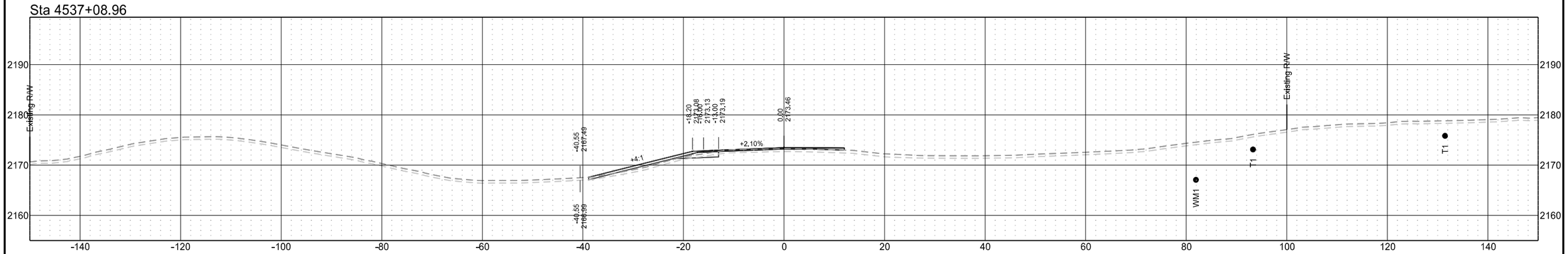
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	145

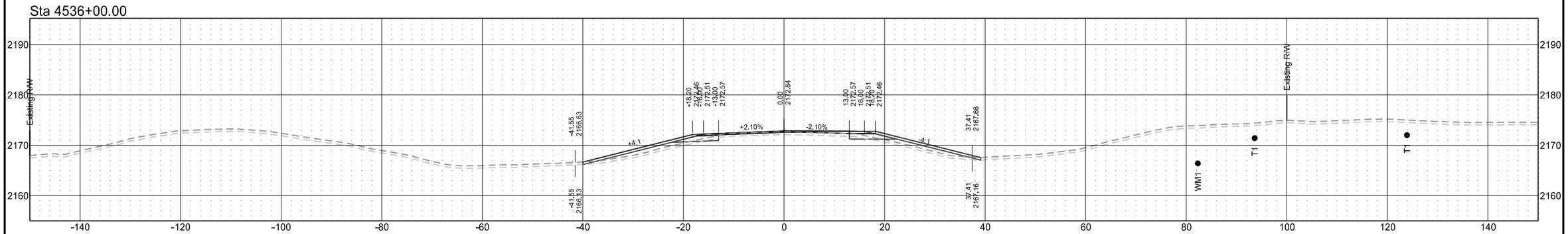
Sta 4538+00.00



Sta 4537+08.96



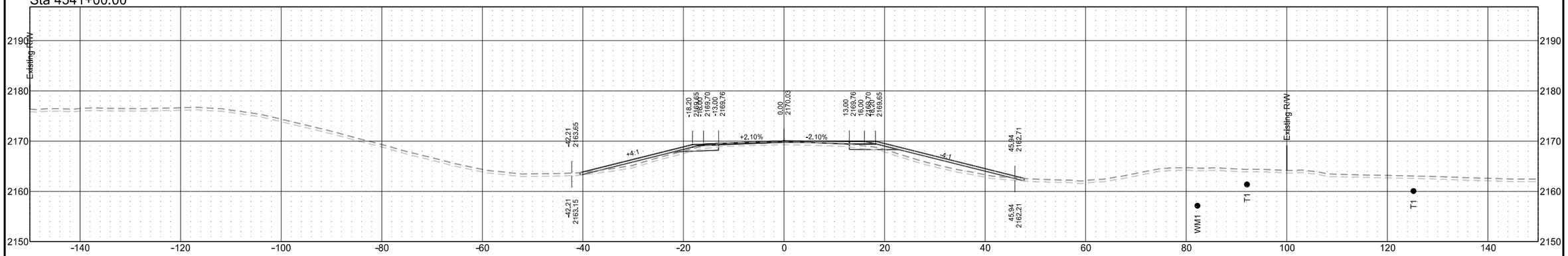
Sta 4536+00.00



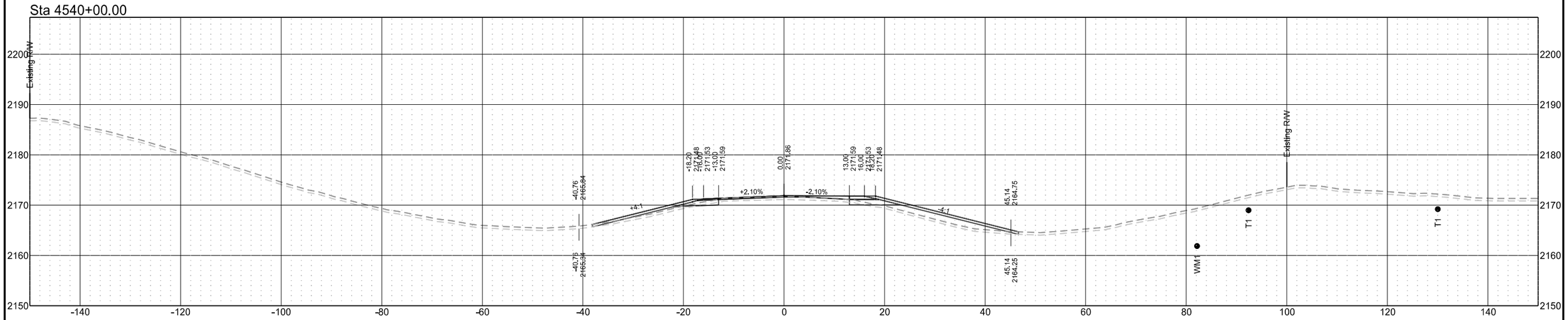
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	146

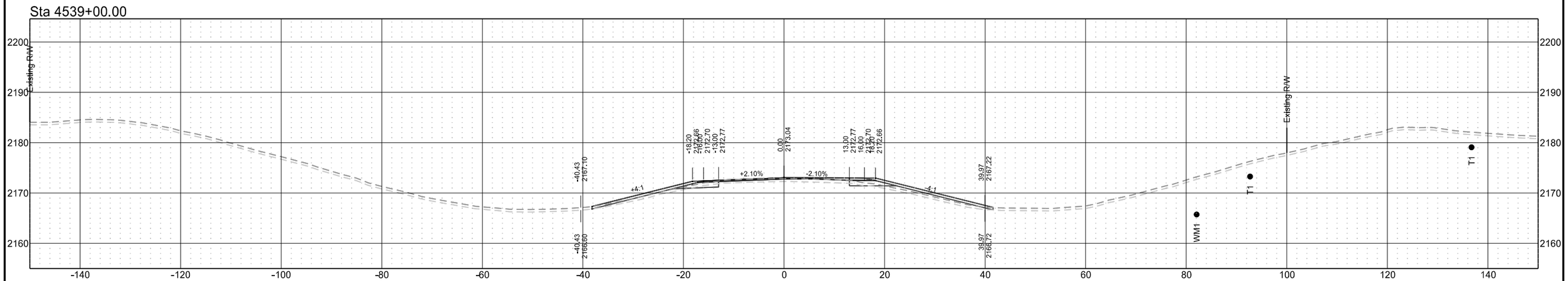
Sta 4541+00.00



Sta 4540+00.00



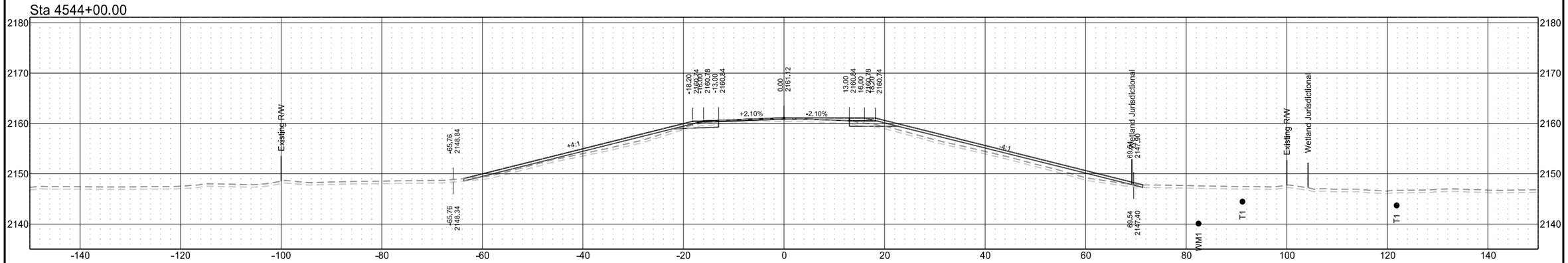
Sta 4539+00.00



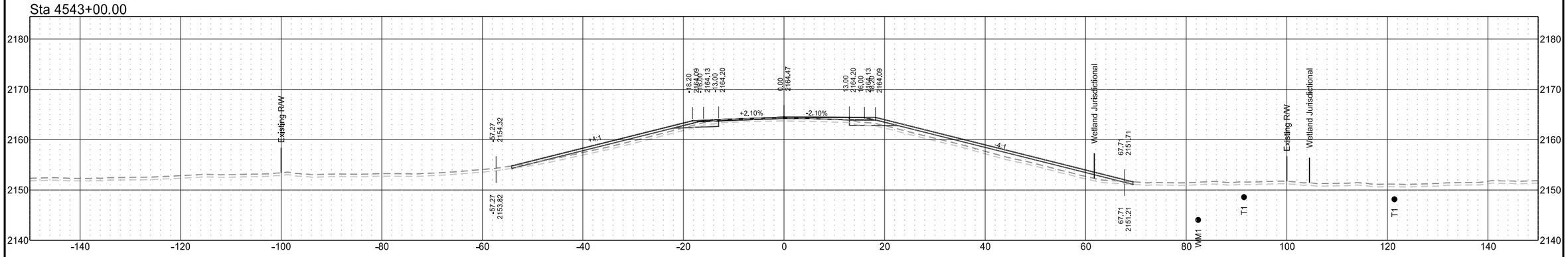
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	147

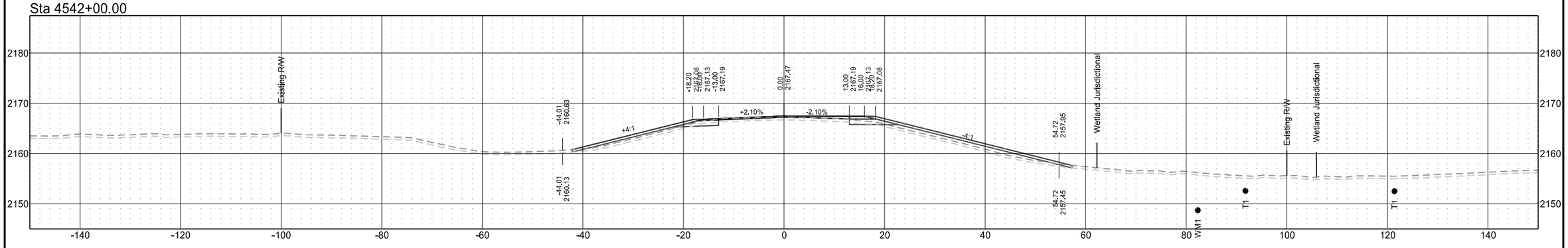
Sta 4544+00.00



Sta 4543+00.00



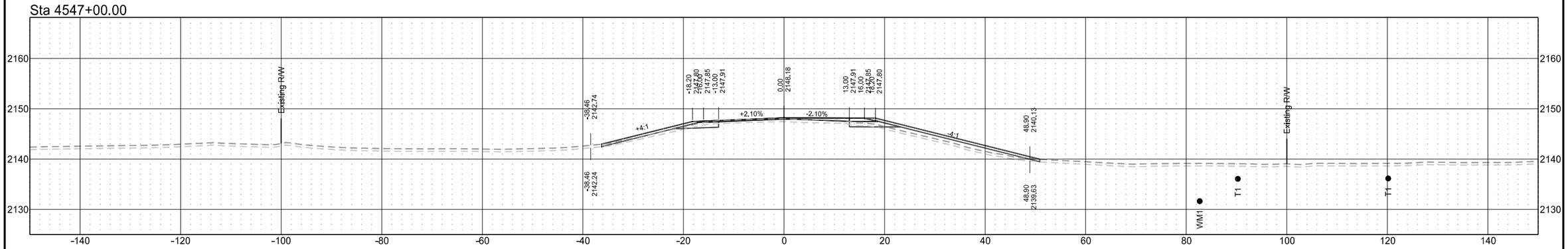
Sta 4542+00.00



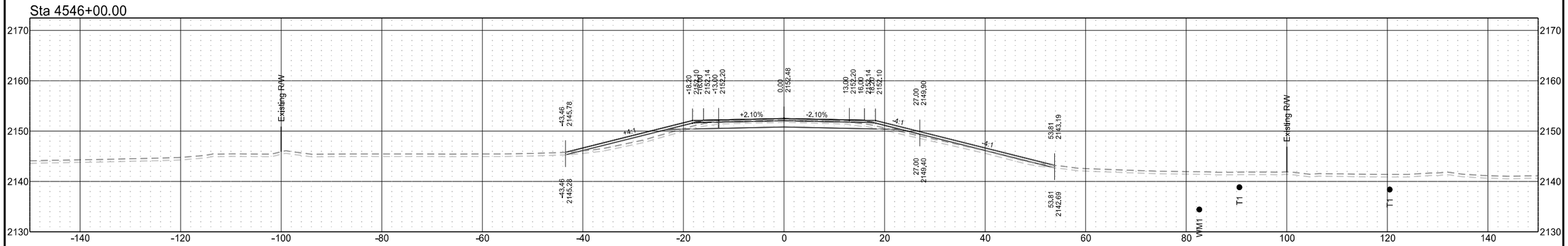
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	148

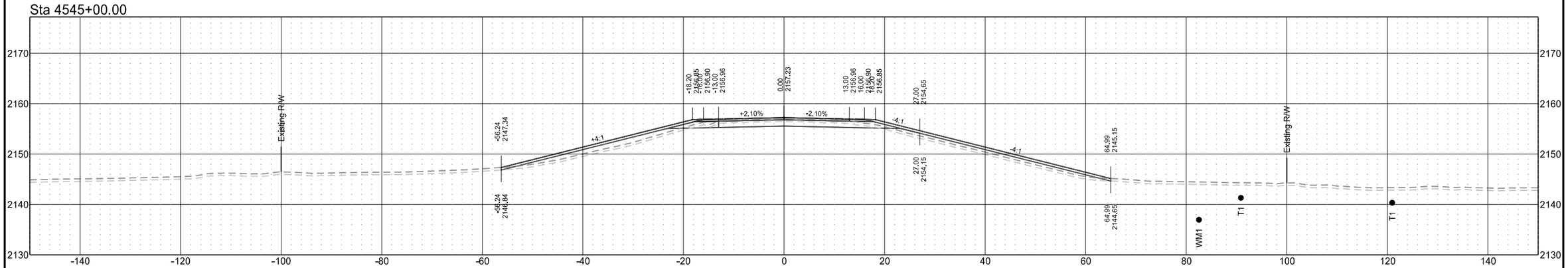
Sta 4547+00.00



Sta 4546+00.00



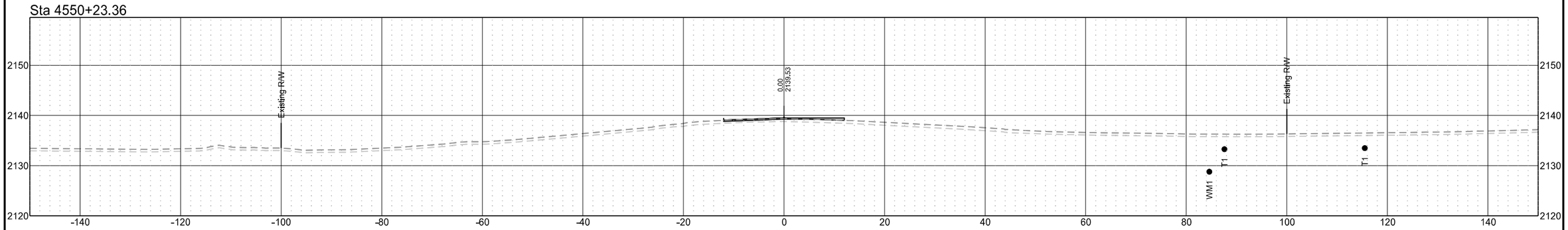
Sta 4545+00.00



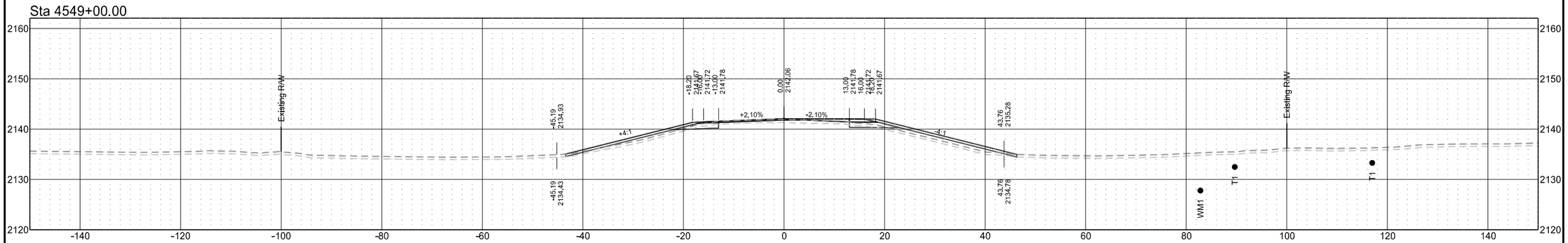
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	149

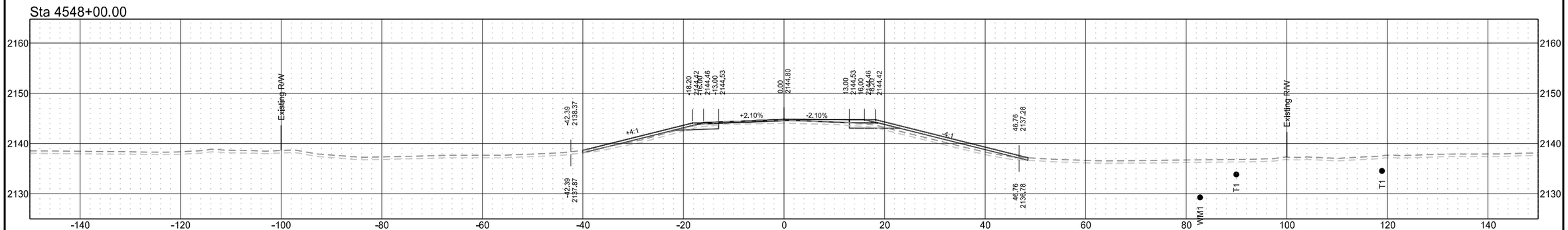
Sta 4550+23.36



Sta 4549+00.00



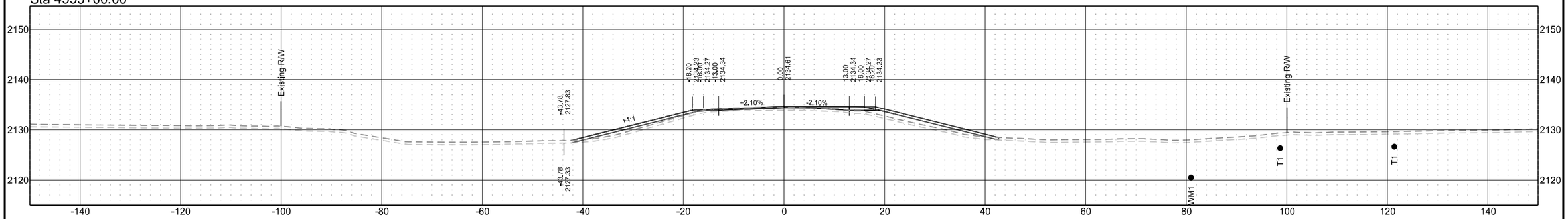
Sta 4548+00.00



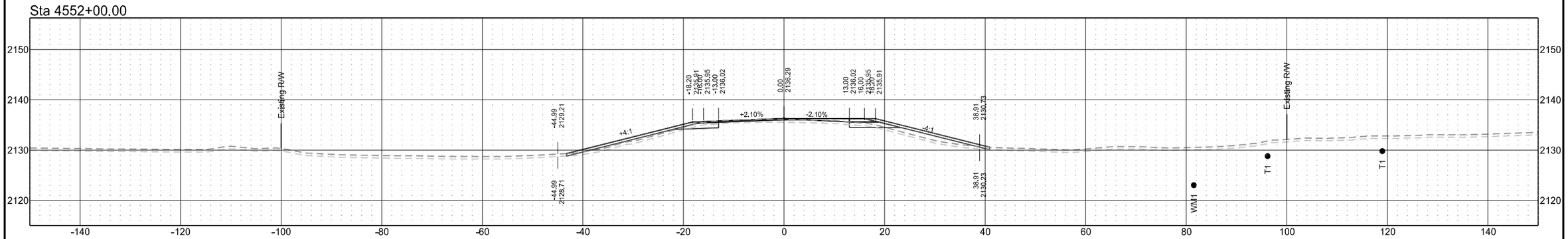
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	150

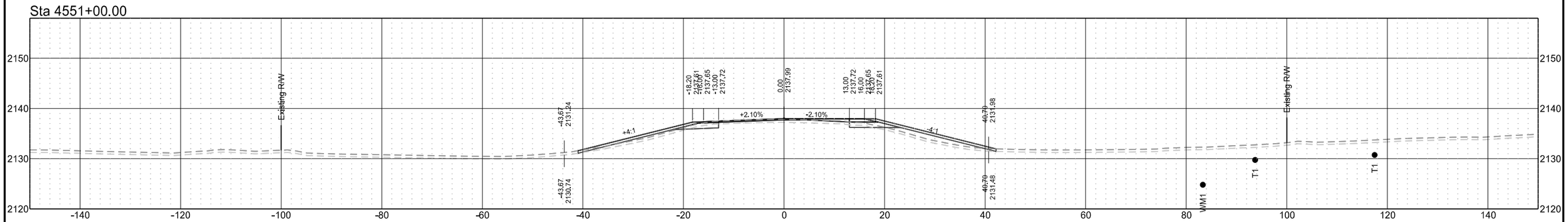
Sta 4553+00.00



Sta 4552+00.00



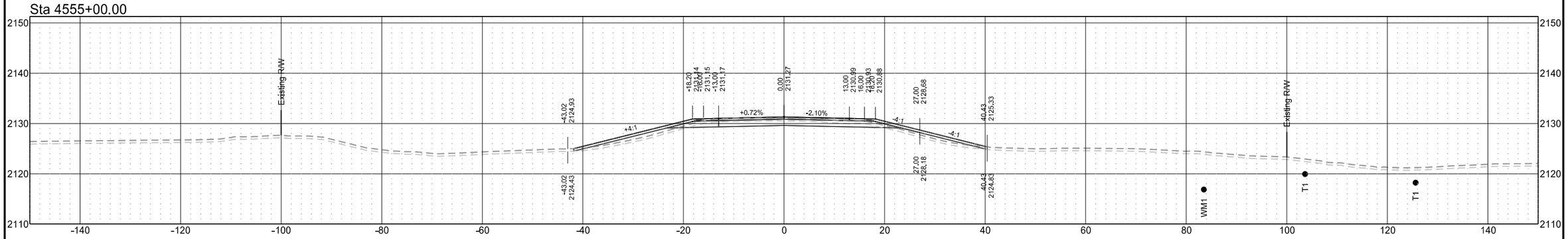
Sta 4551+00.00



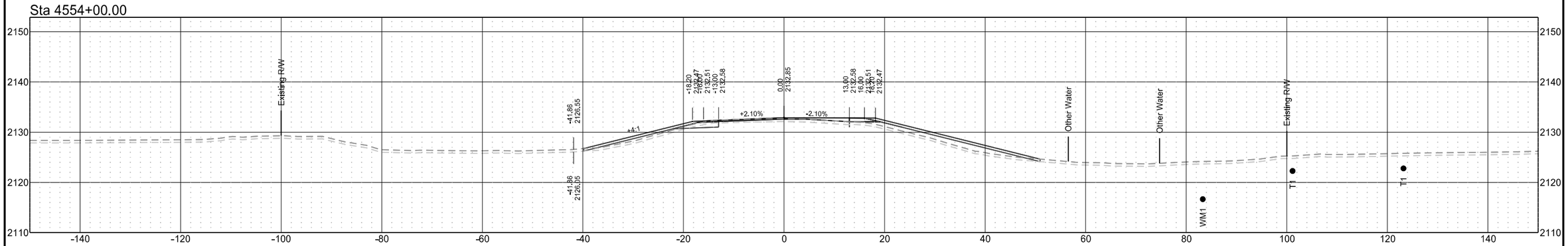
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	151

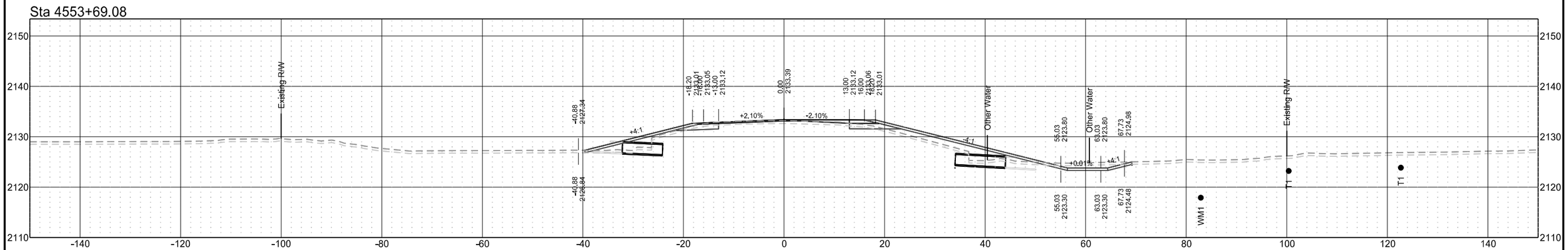
Sta 4555+00.00



Sta 4554+00.00



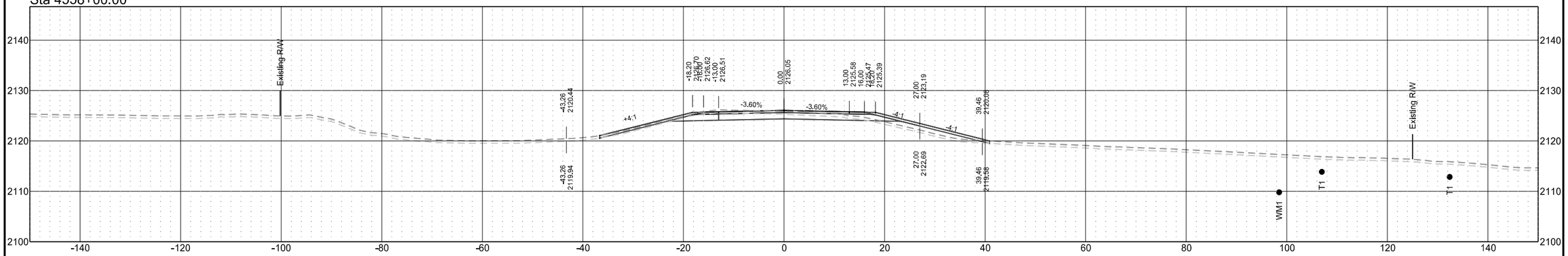
Sta 4553+69.08



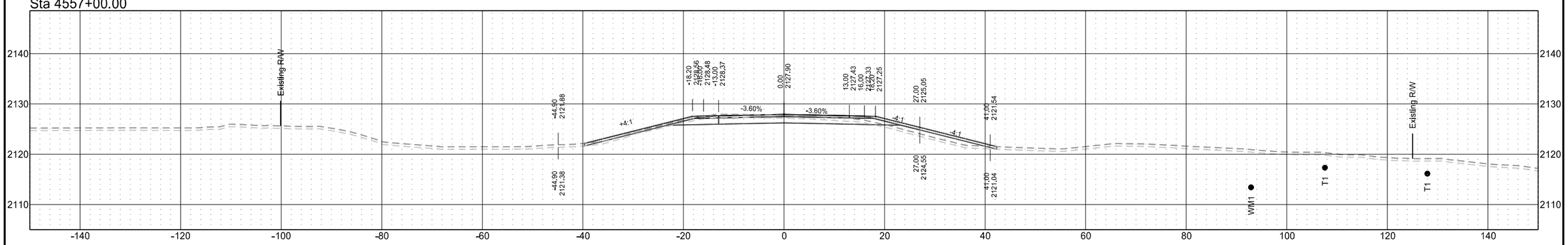
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	152

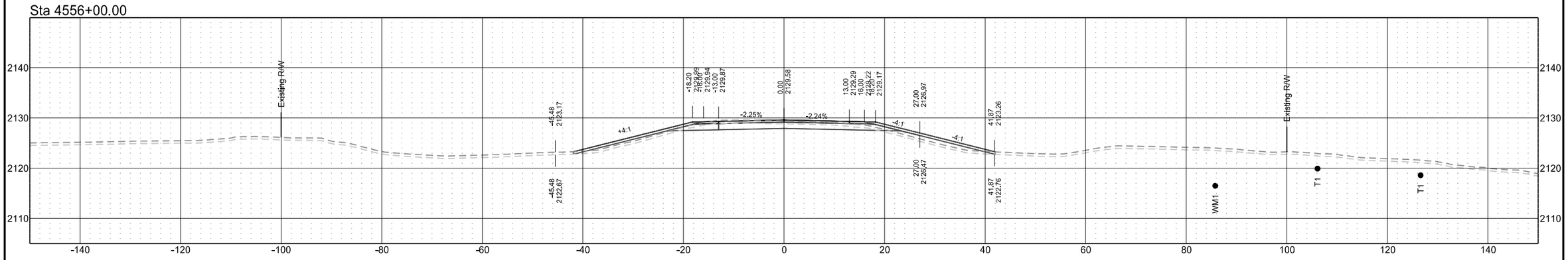
Sta 4558+00.00



Sta 4557+00.00



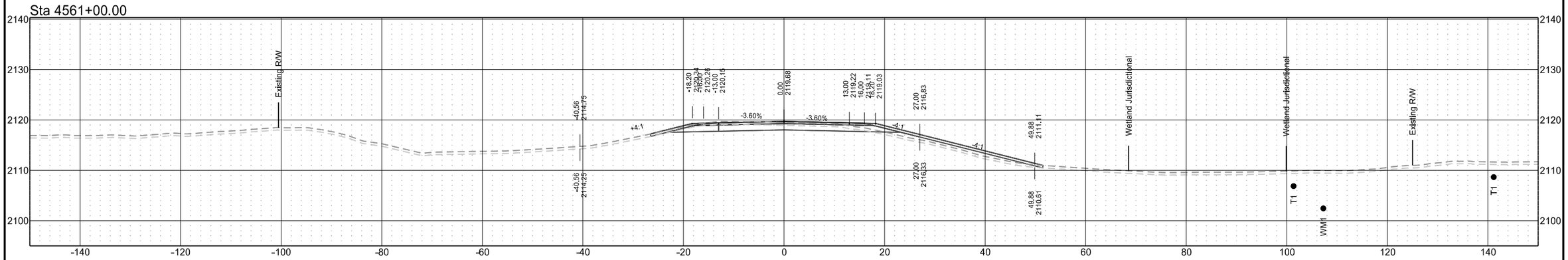
Sta 4556+00.00



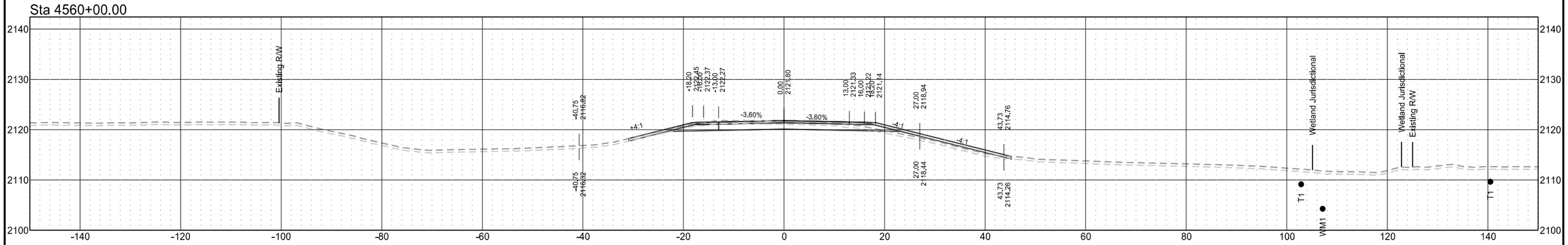
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	153

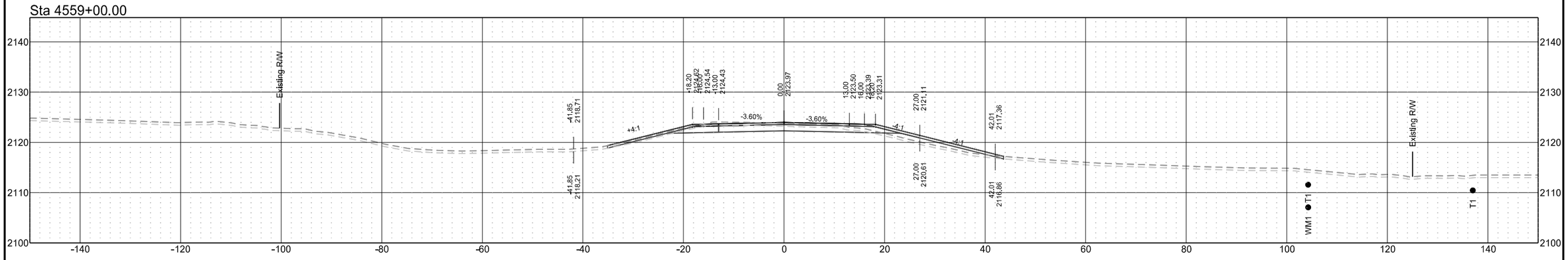
Sta 4561+00.00



Sta 4560+00.00



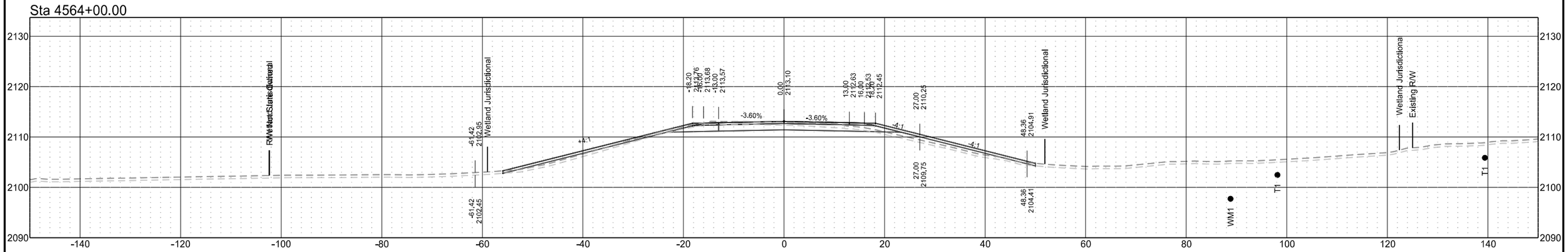
Sta 4559+00.00



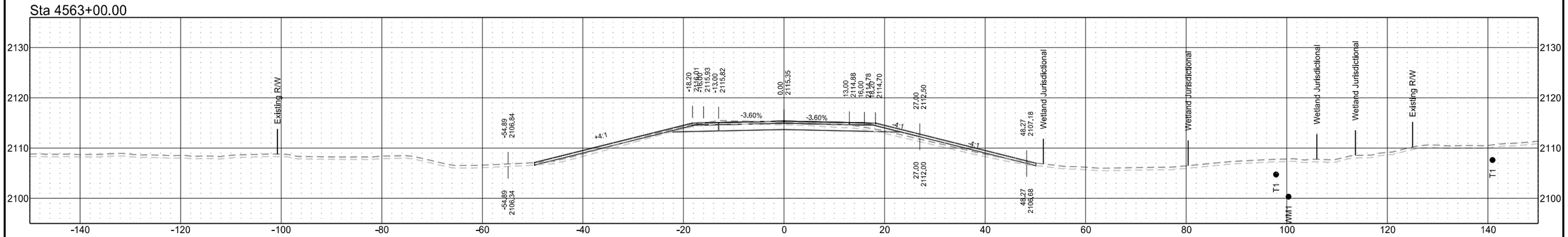
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	154

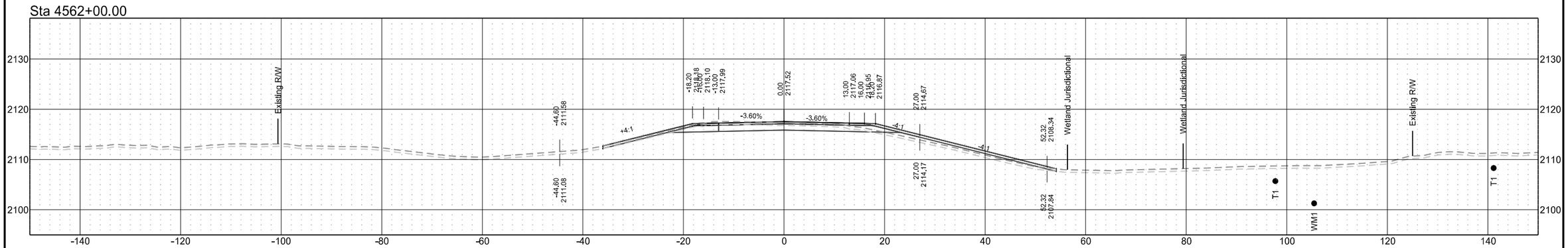
Sta 4564+00.00



Sta 4563+00.00



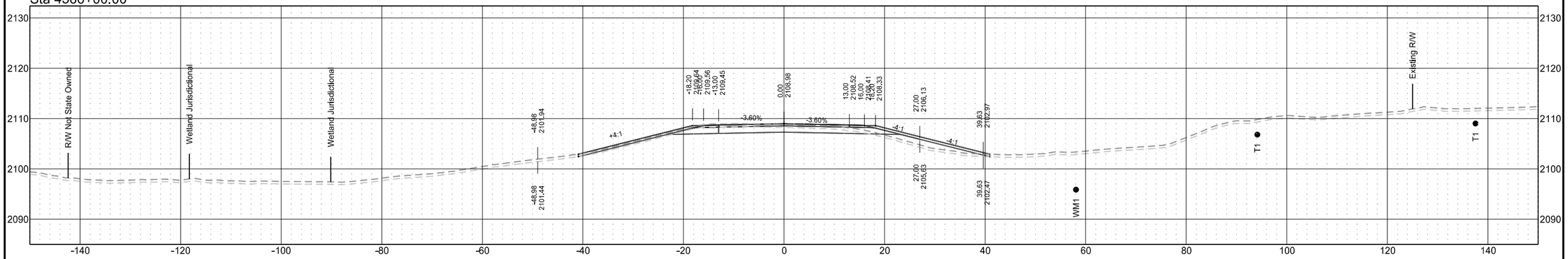
Sta 4562+00.00



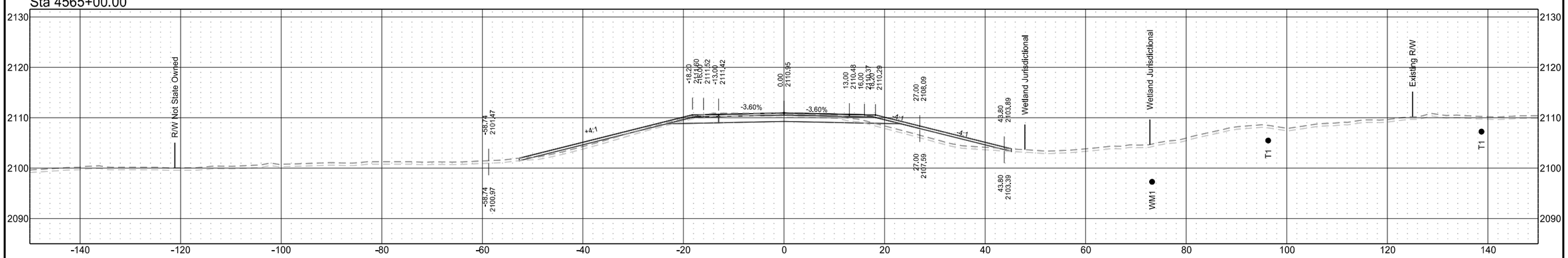
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	155

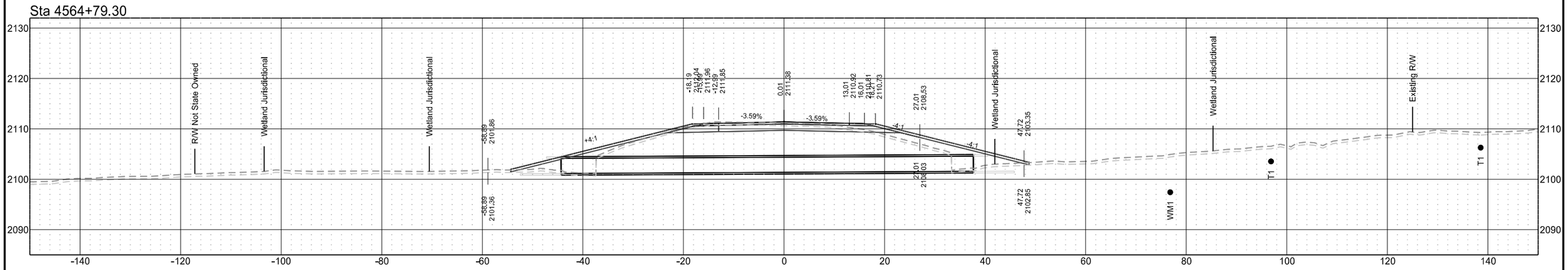
Sta 4566+00.00



Sta 4565+00.00



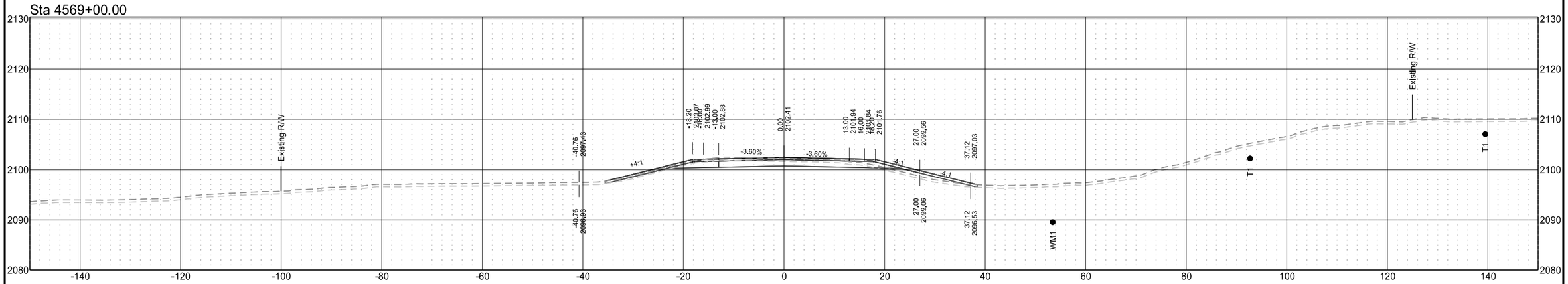
Sta 4564+79.30



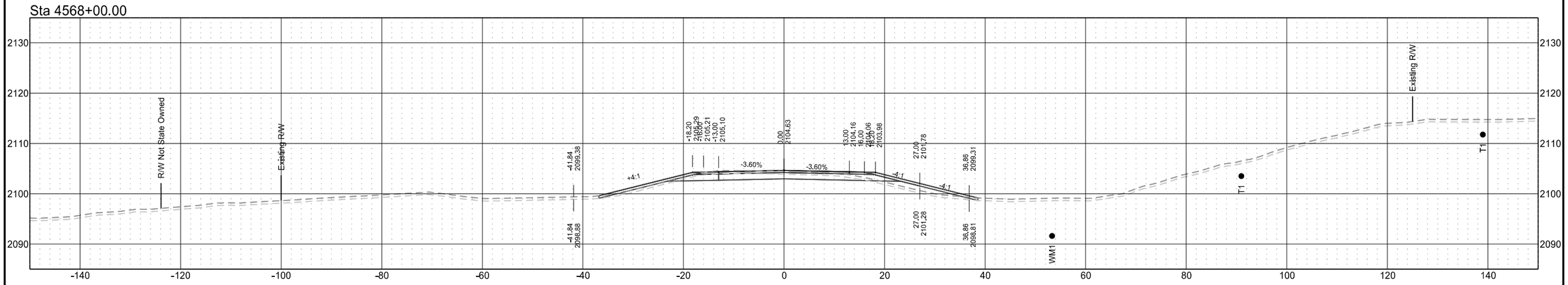
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	156

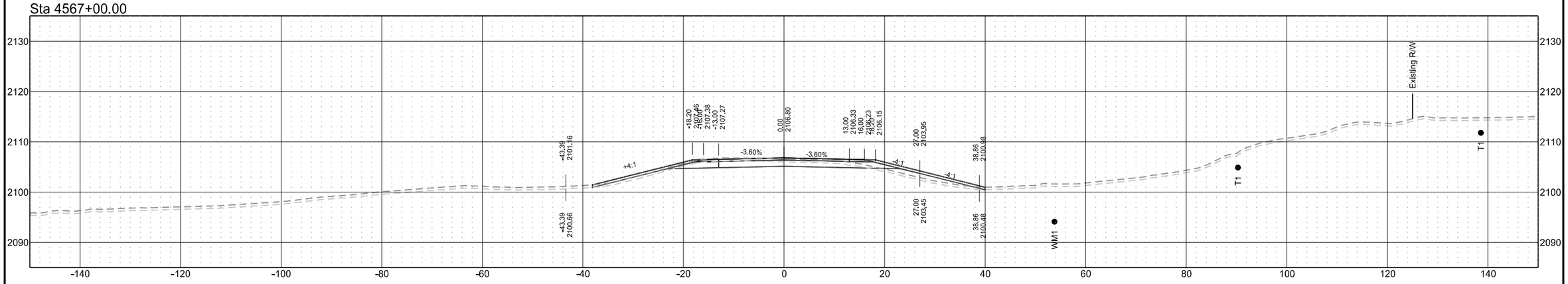
Sta 4569+00.00



Sta 4568+00.00



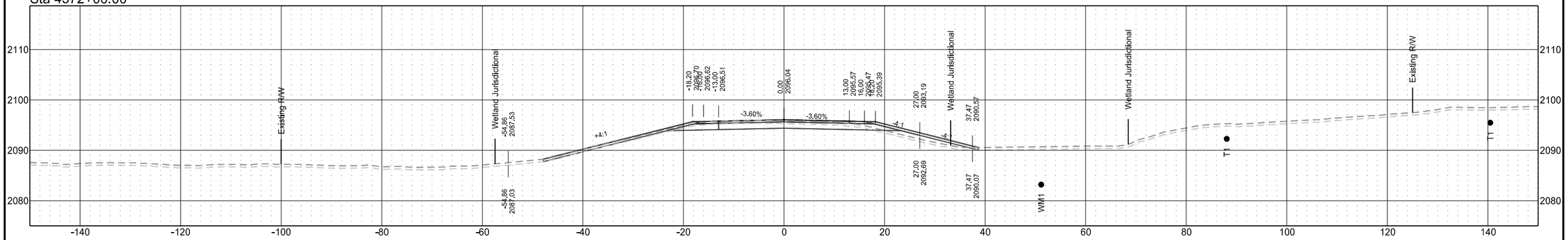
Sta 4567+00.00



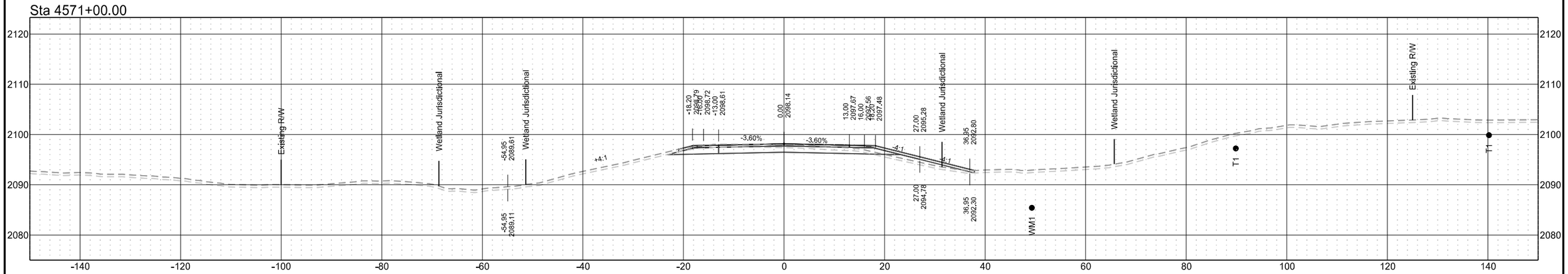
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	157

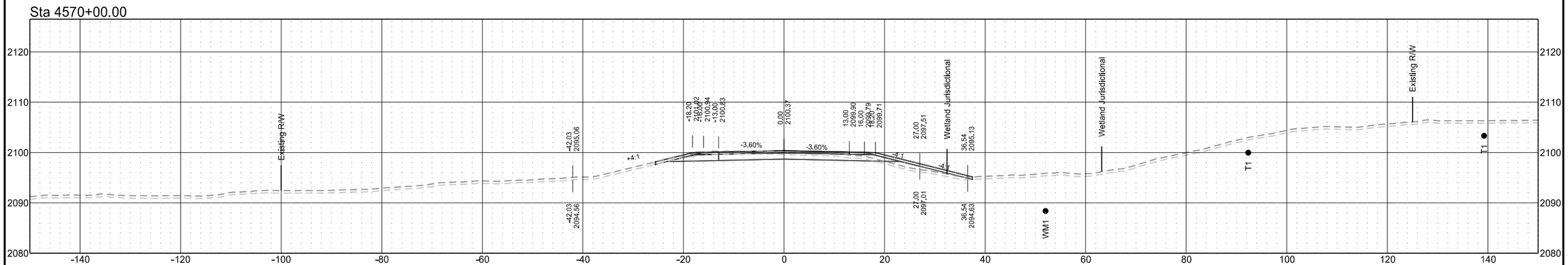
Sta 4572+00.00



Sta 4571+00.00



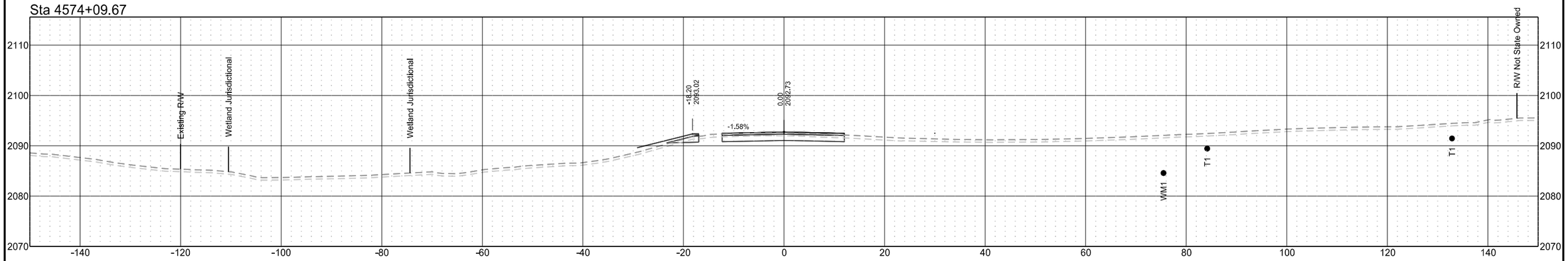
Sta 4570+00.00



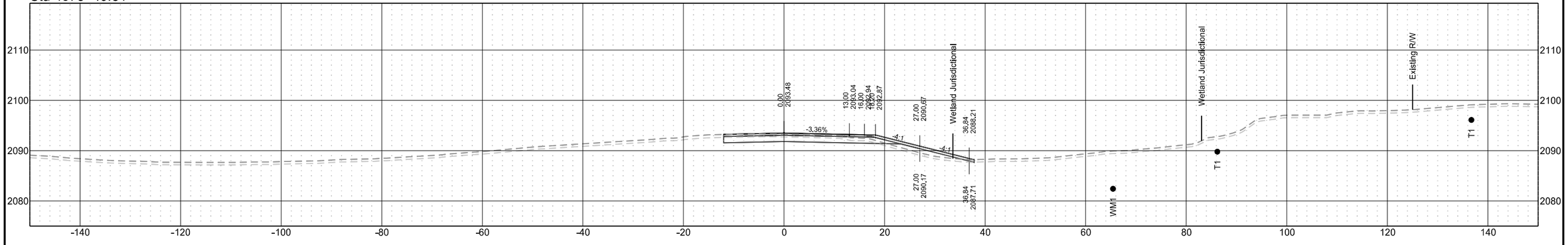
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	158

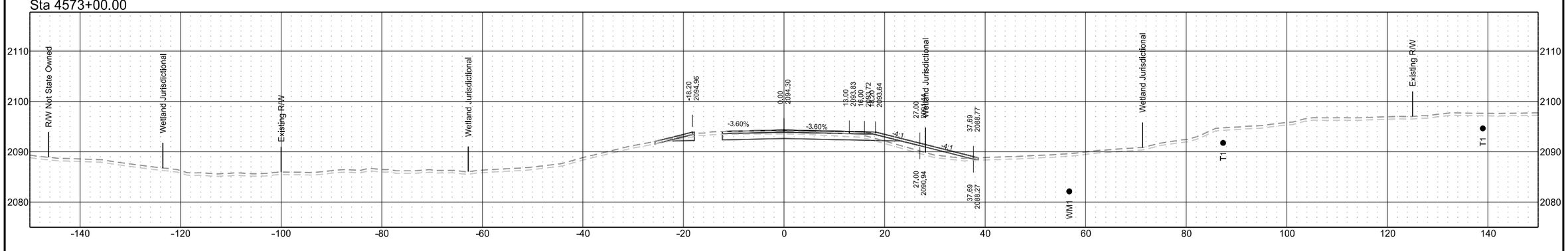
Sta 4574+09.67



Sta 4573+49.81



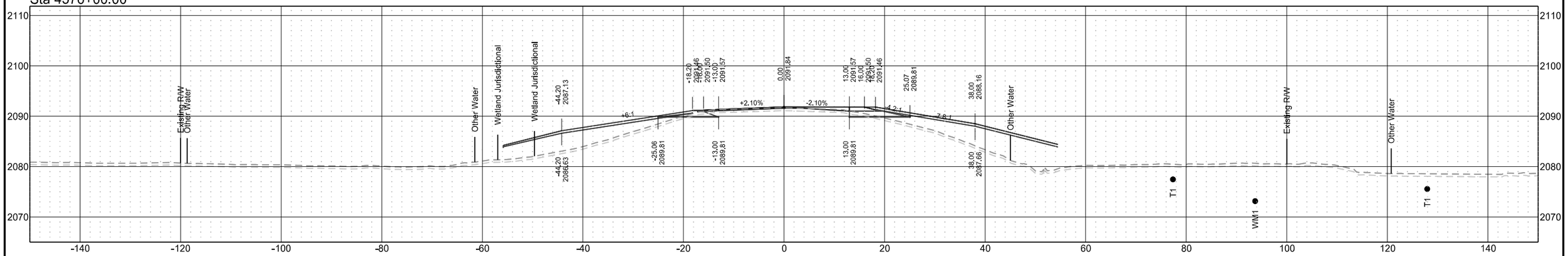
Sta 4573+00.00



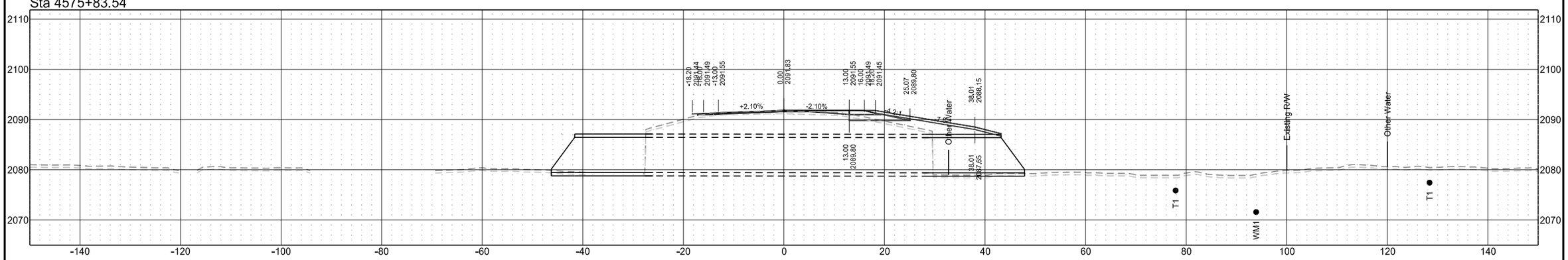
ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	159

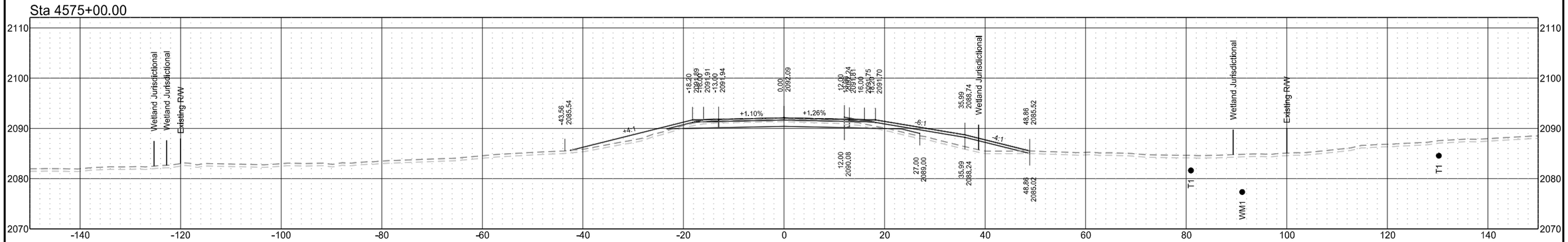
Sta 4576+00.00



Sta 4575+83.54



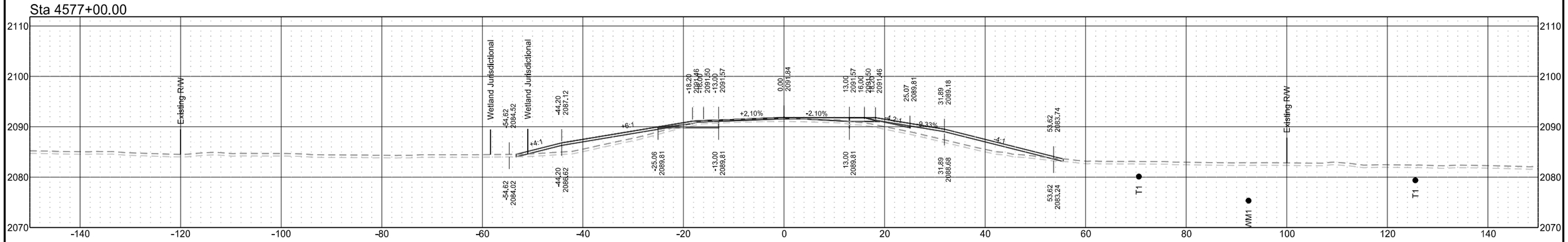
Sta 4575+00.00



ND 31

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	XA-SS-1-031(021)078	200	160

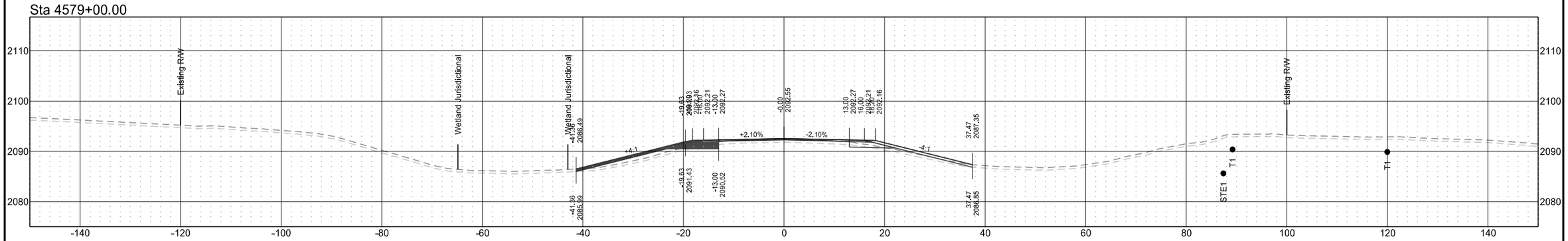
Sta 4577+00.00



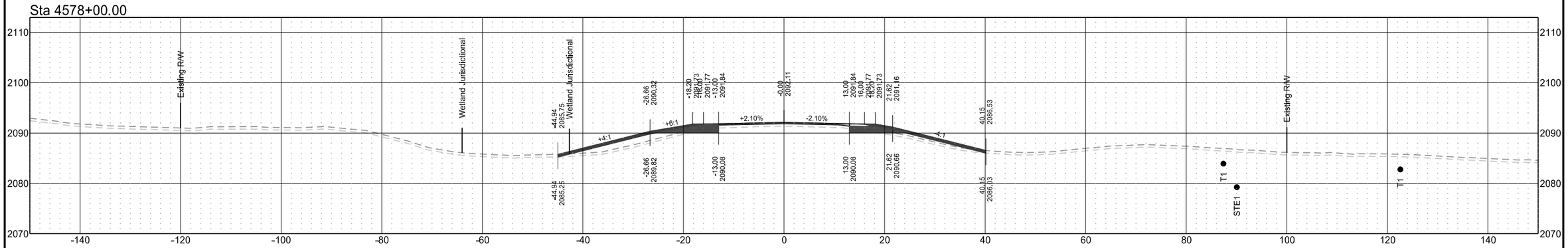
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	161
T4	D4				

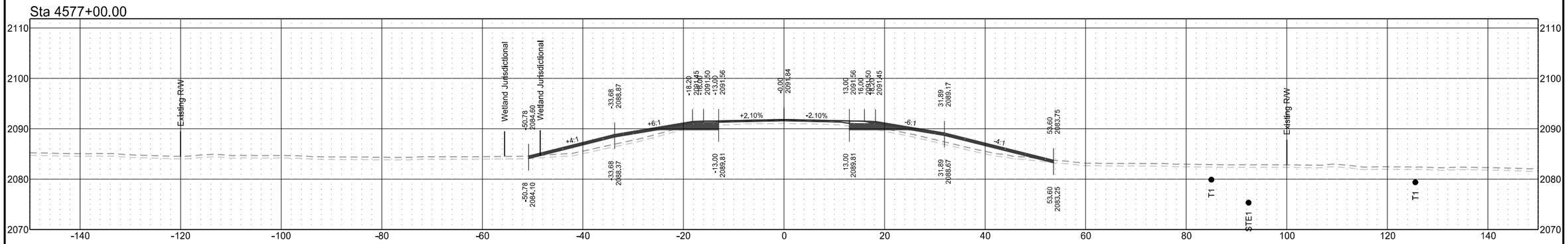
Sta 4579+00.00



Sta 4578+00.00



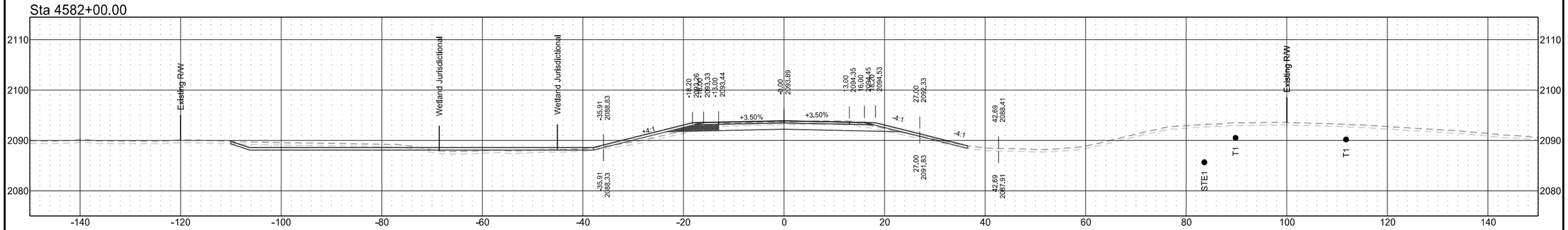
Sta 4577+00.00



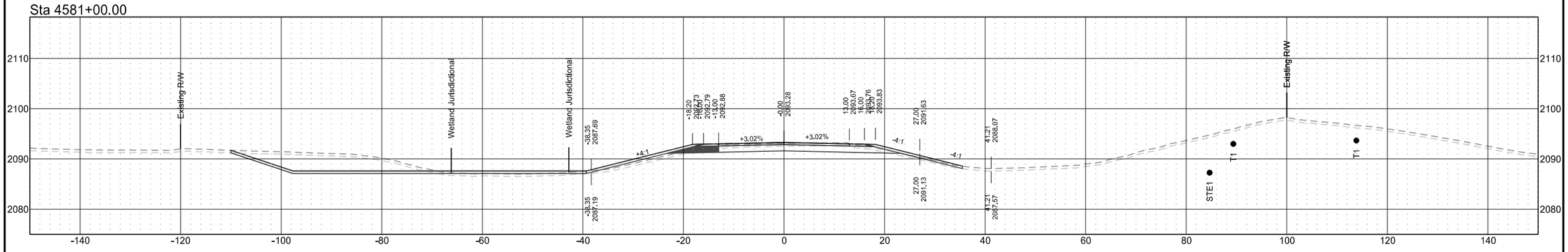
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	162
T4	D4				

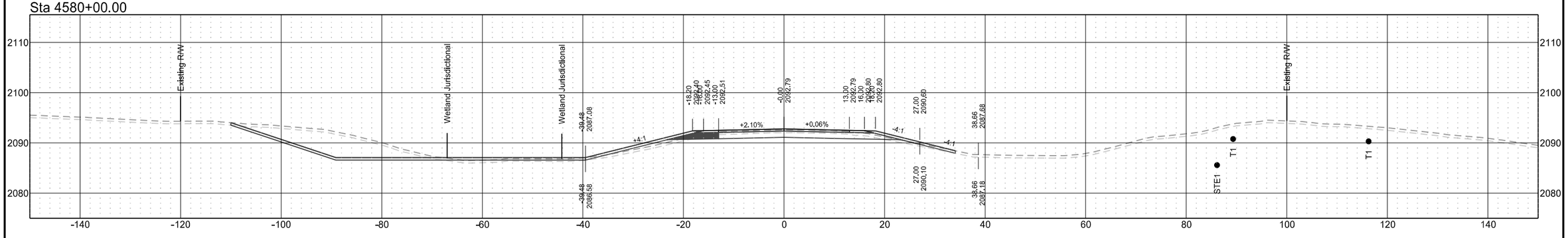
Sta 4582+00.00



Sta 4581+00.00



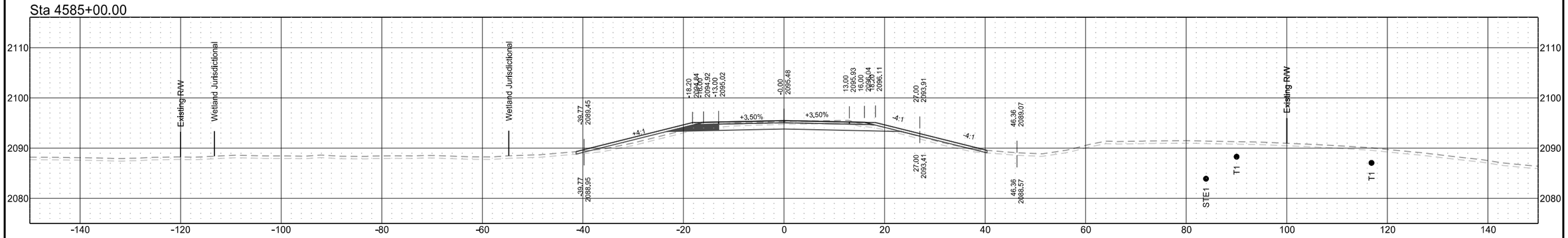
Sta 4580+00.00



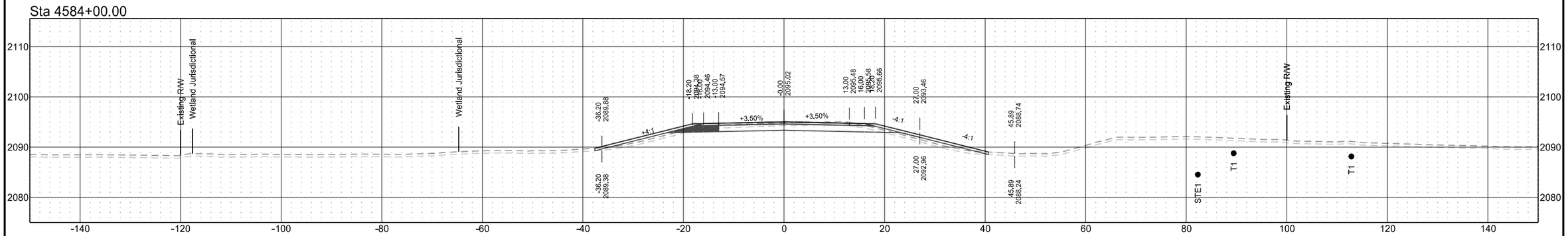
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	163
T4	D4				

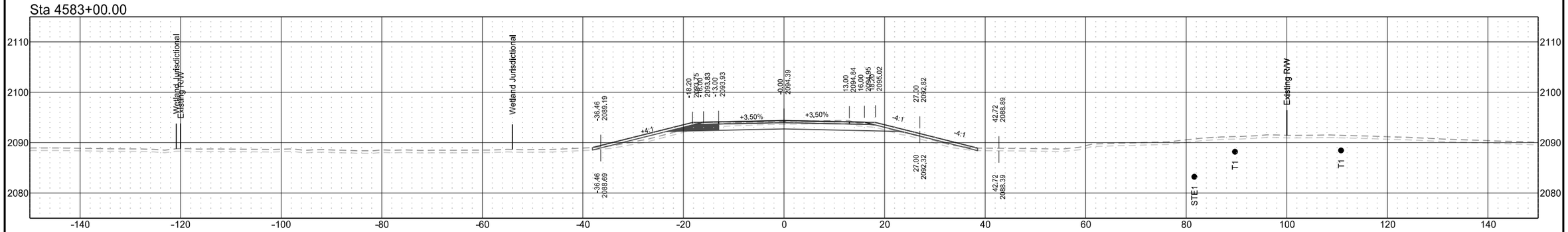
Sta 4585+00.00



Sta 4584+00.00



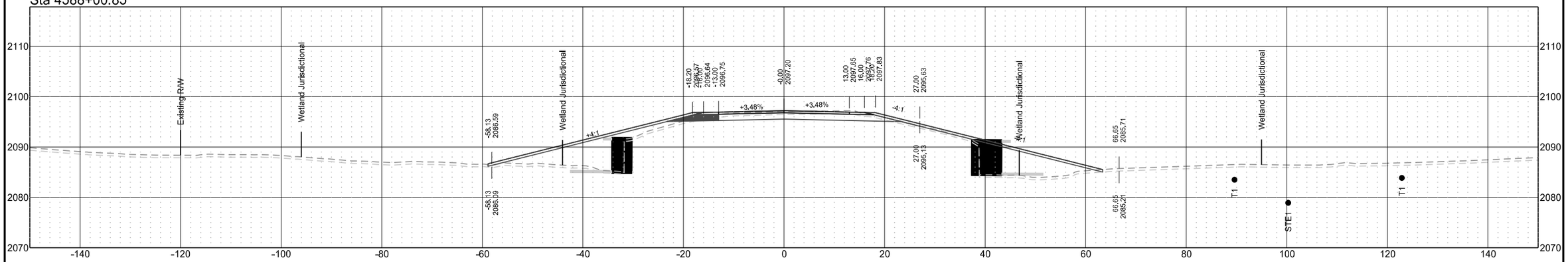
Sta 4583+00.00



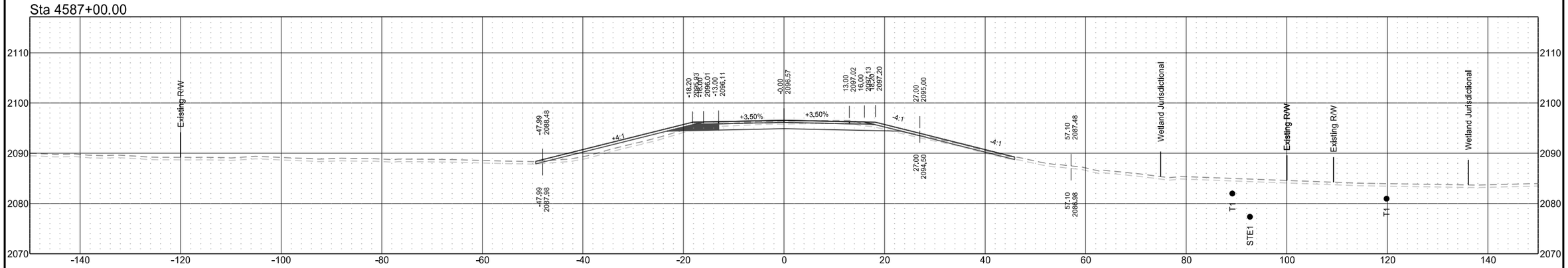
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	164
T4	D4				

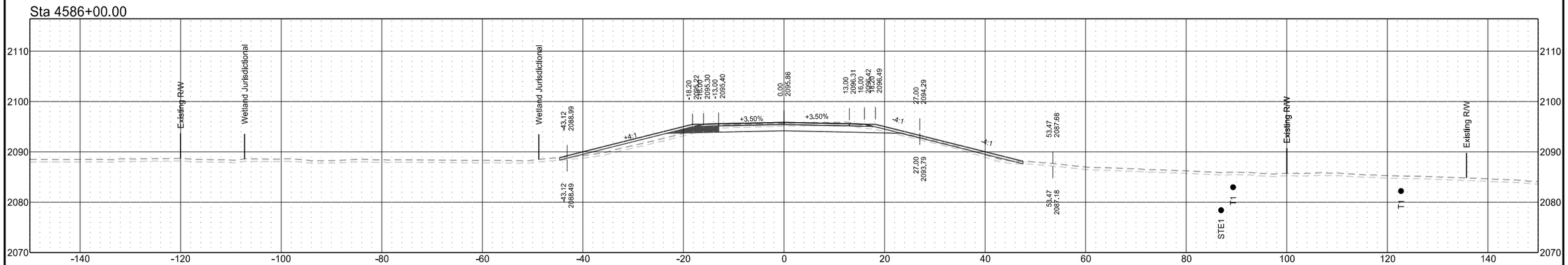
Sta 4588+00.85



Sta 4587+00.00



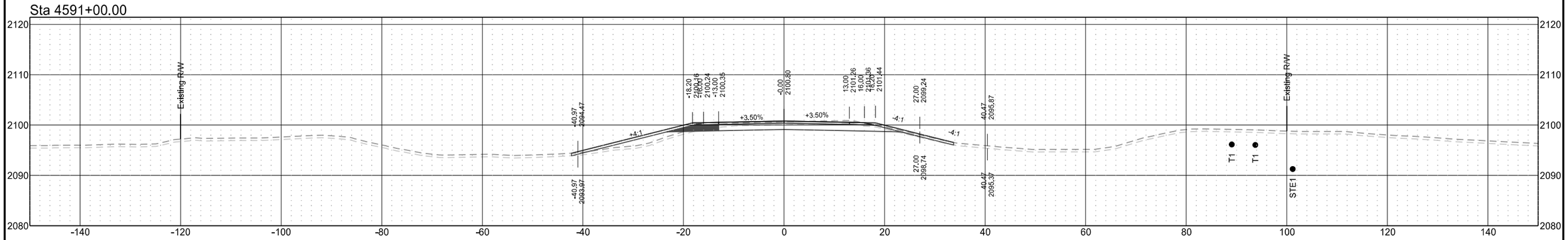
Sta 4586+00.00



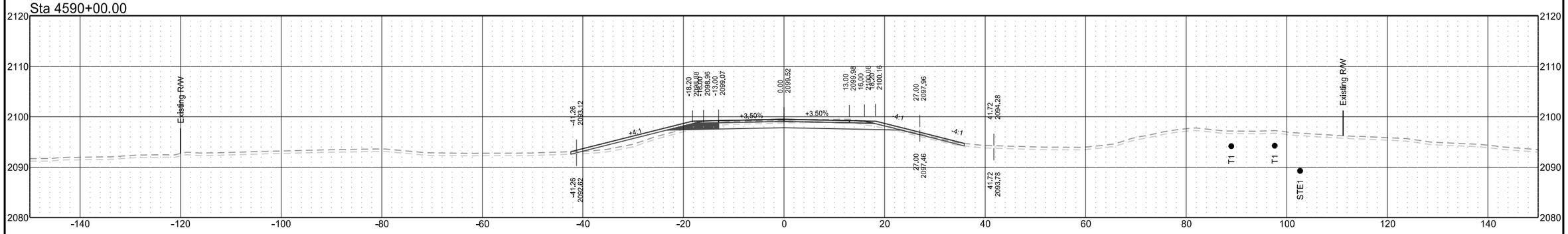
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	165
T4	D4				

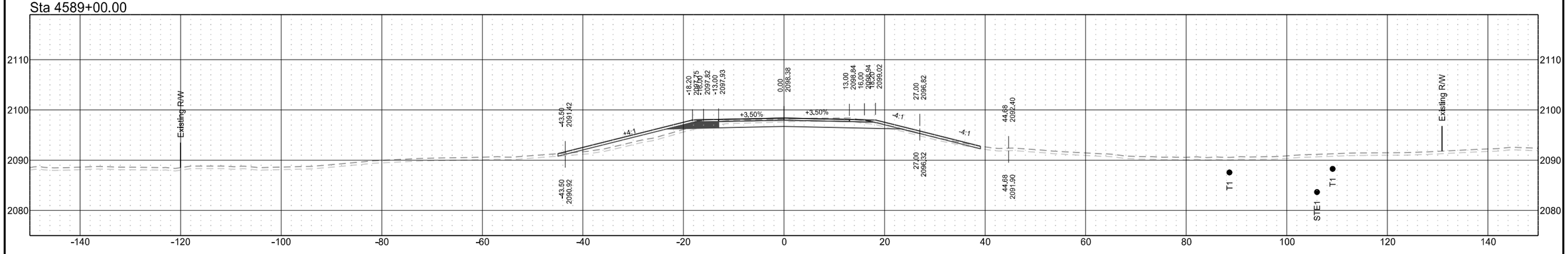
Sta 4591+00.00



Sta 4590+00.00



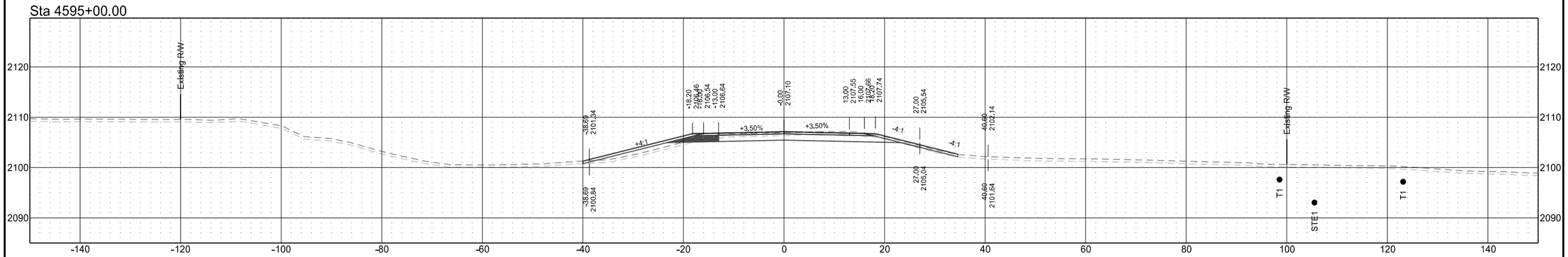
Sta 4589+00.00



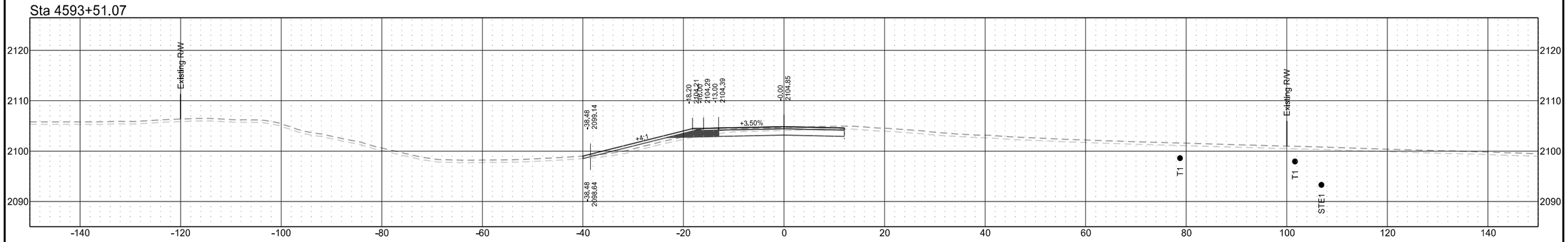
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	166
T4	D4				

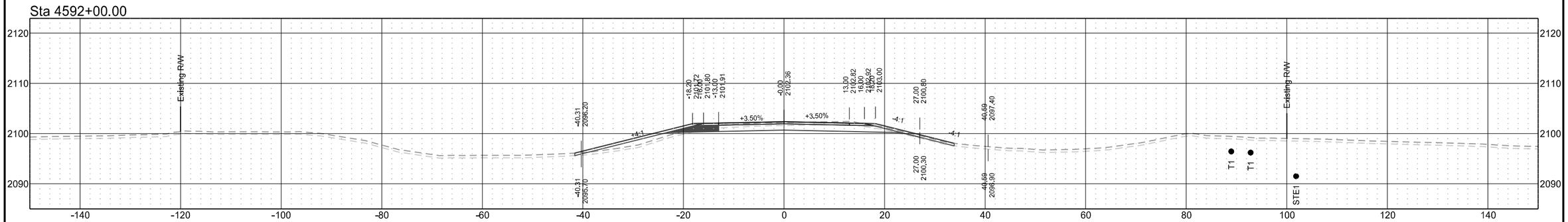
Sta 4595+00.00



Sta 4593+51.07



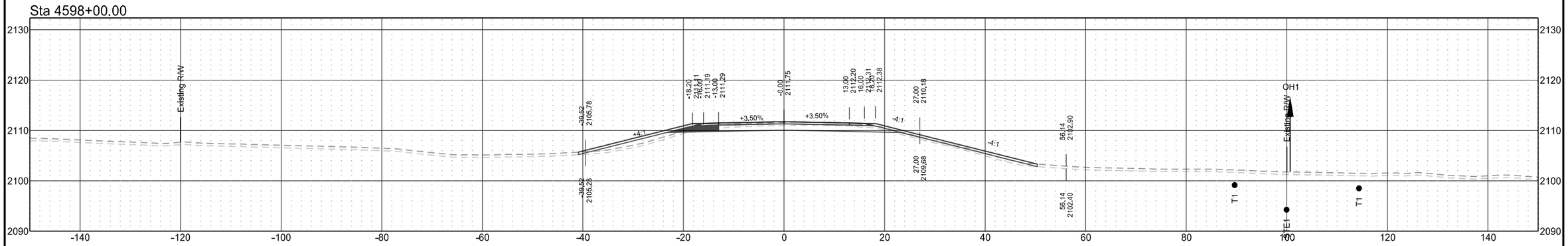
Sta 4592+00.00



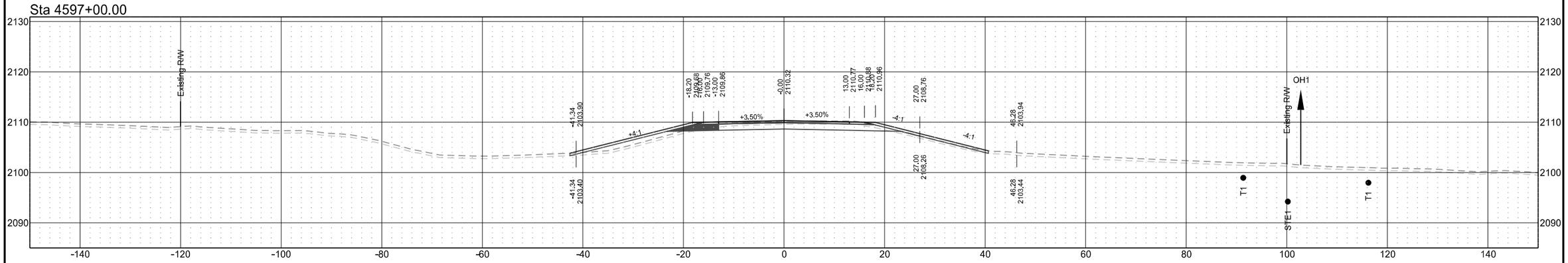
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	167
T4	D4				

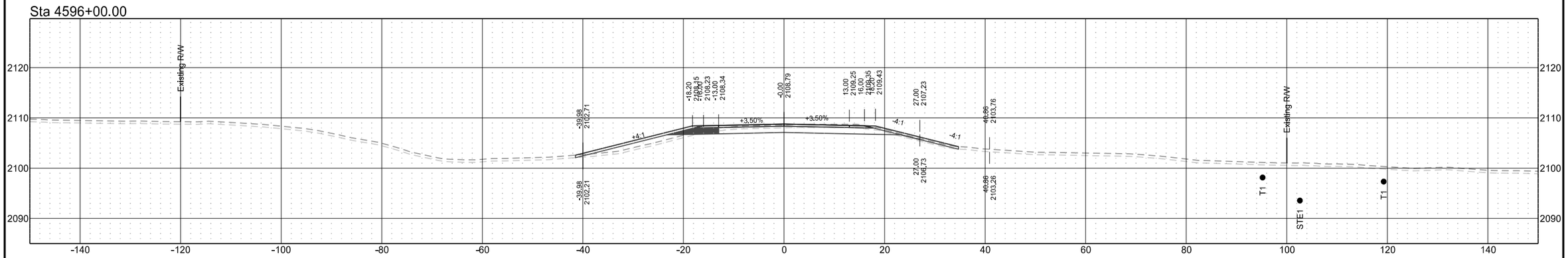
Sta 4598+00.00



Sta 4597+00.00



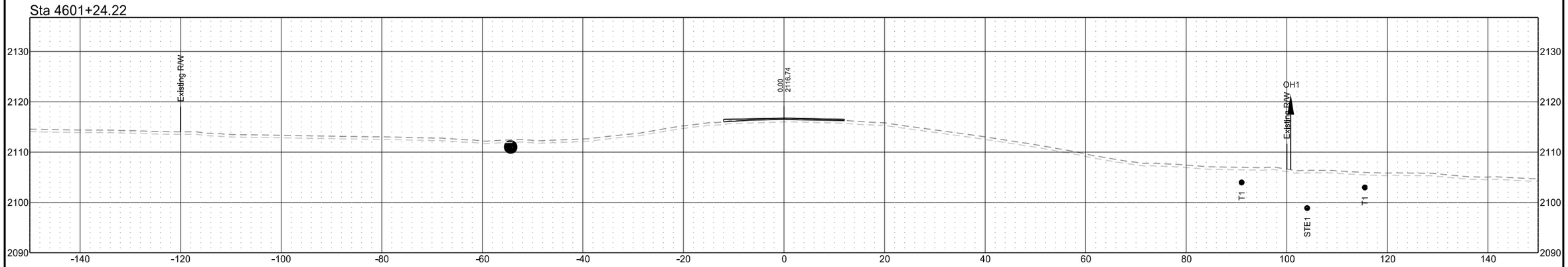
Sta 4596+00.00



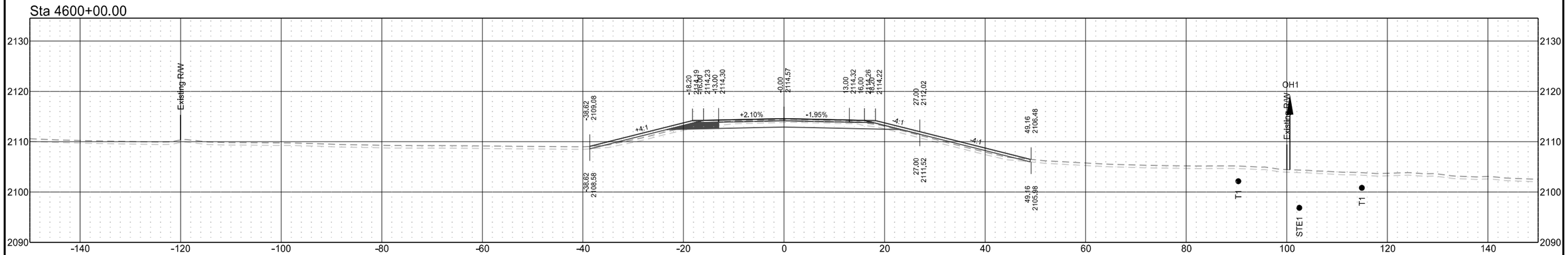
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	168
T4	D4				

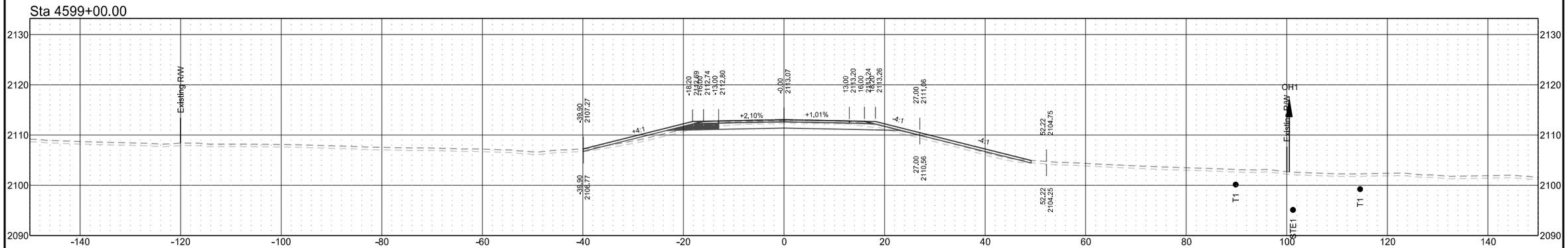
Sta 4601+24.22



Sta 4600+00.00



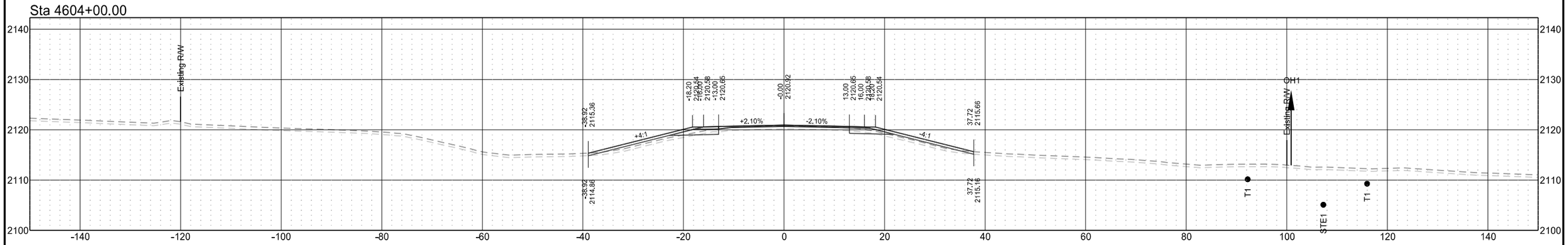
Sta 4599+00.00



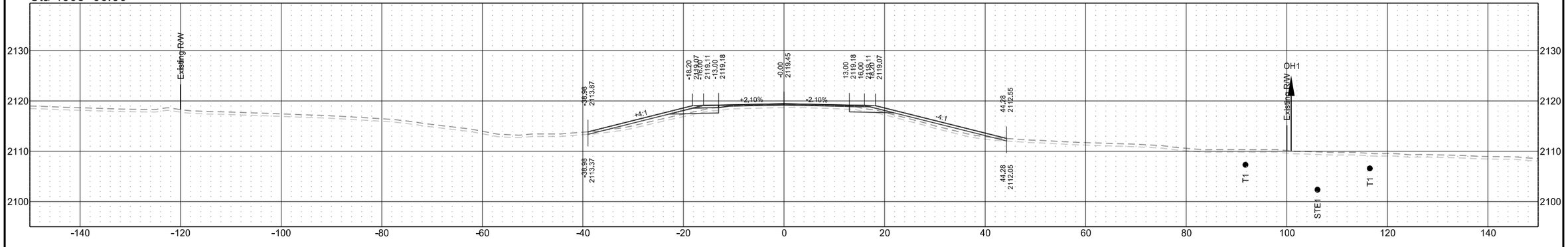
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	169
T4	D4				

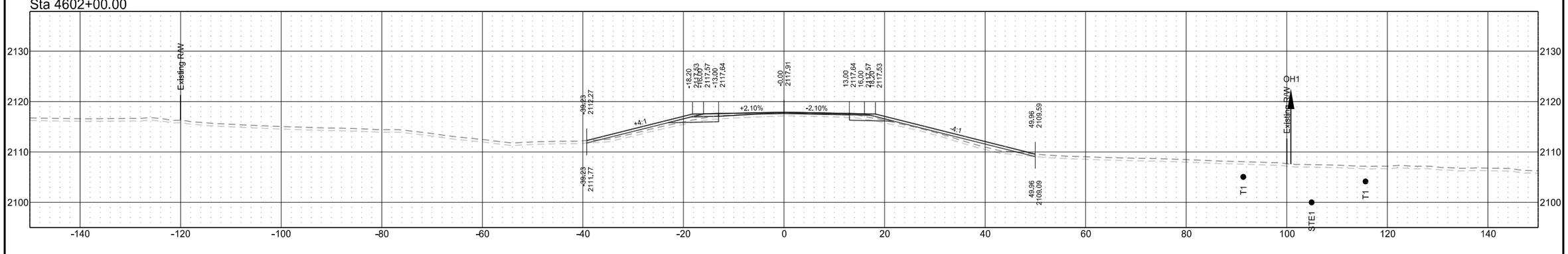
Sta 4604+00.00



Sta 4603+00.00



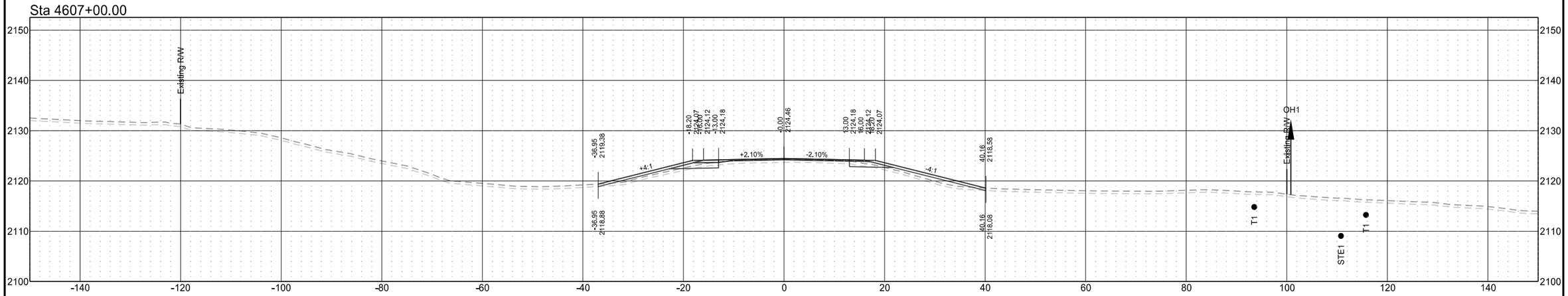
Sta 4602+00.00



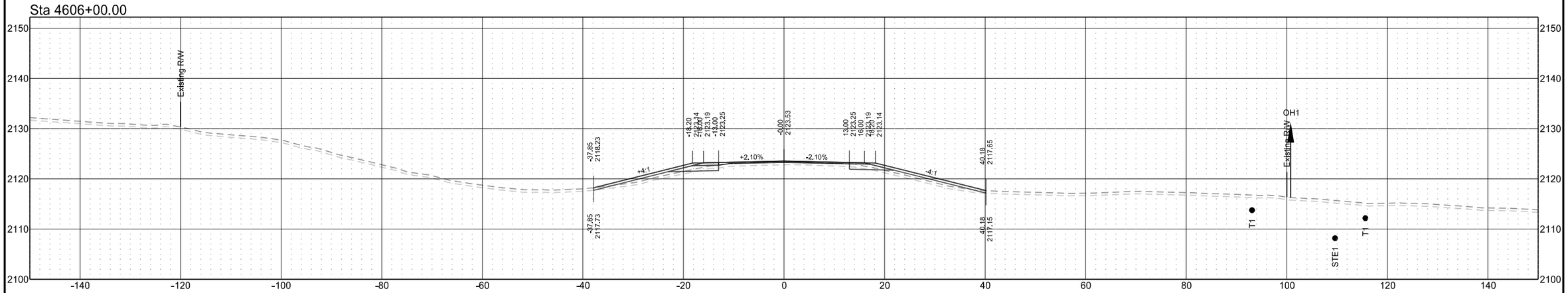
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	170
T4	D4				

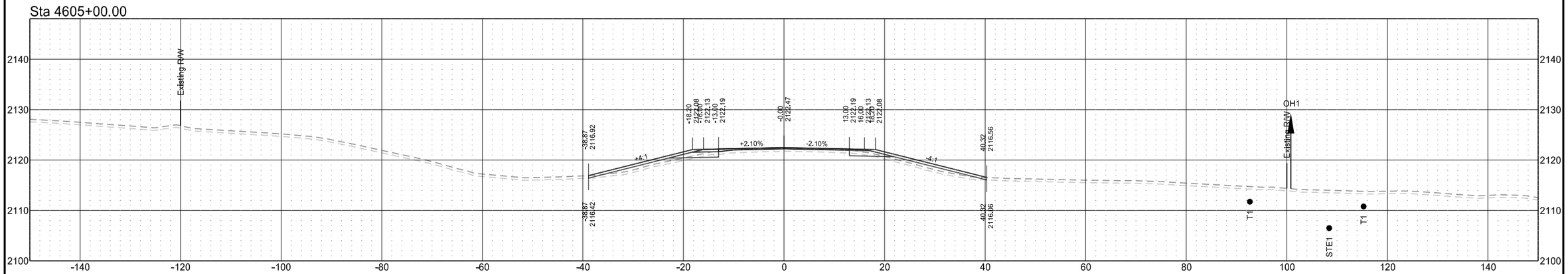
Sta 4607+00.00



Sta 4606+00.00



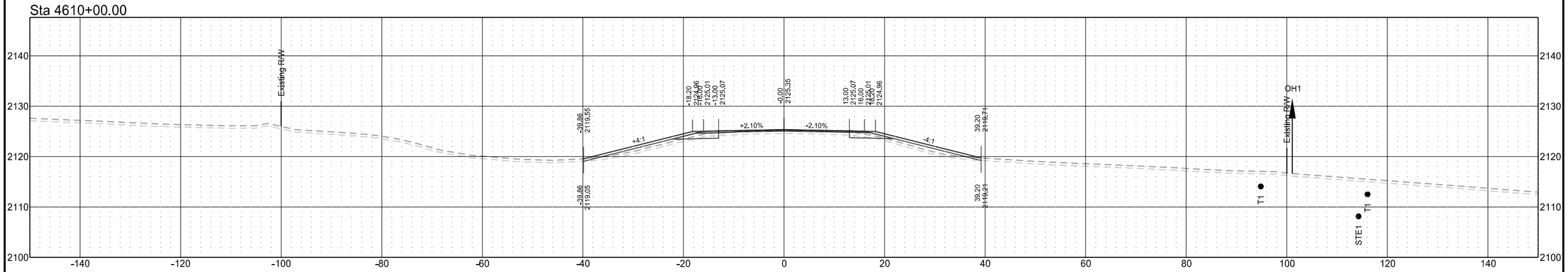
Sta 4605+00.00



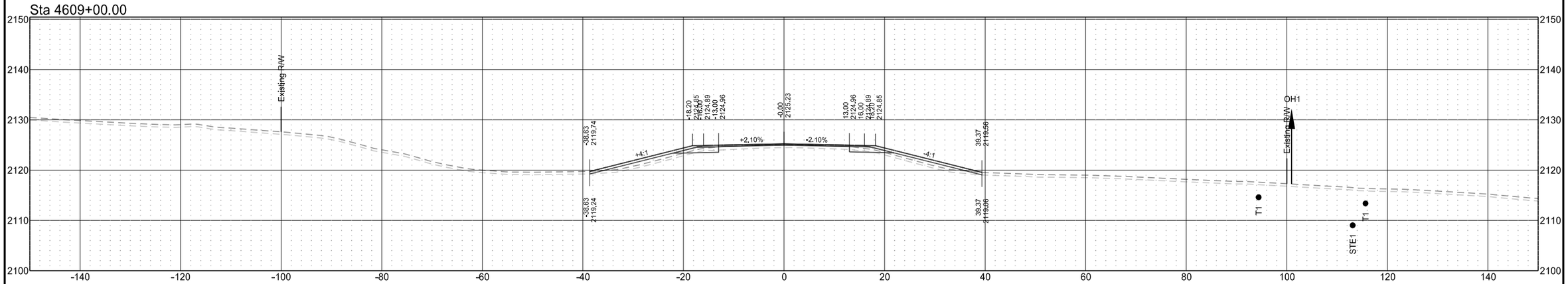
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	171
T4	D4				

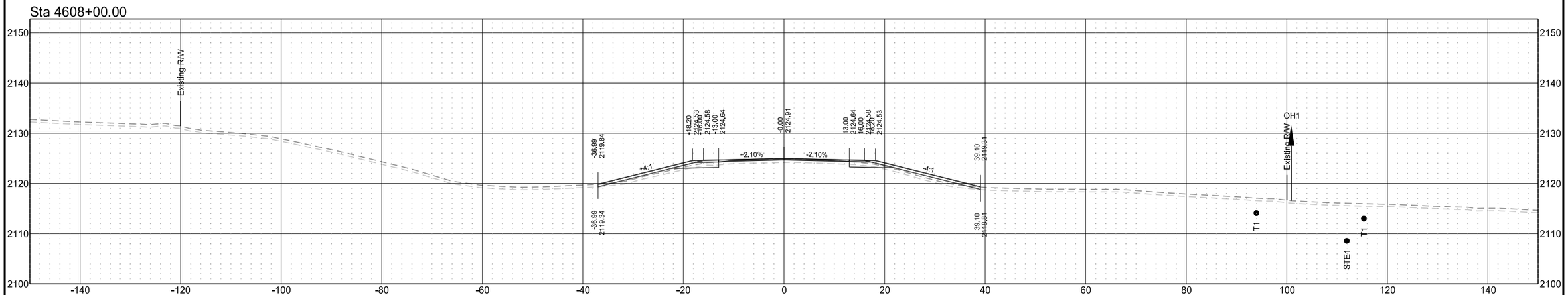
Sta 4610+00.00



Sta 4609+00.00



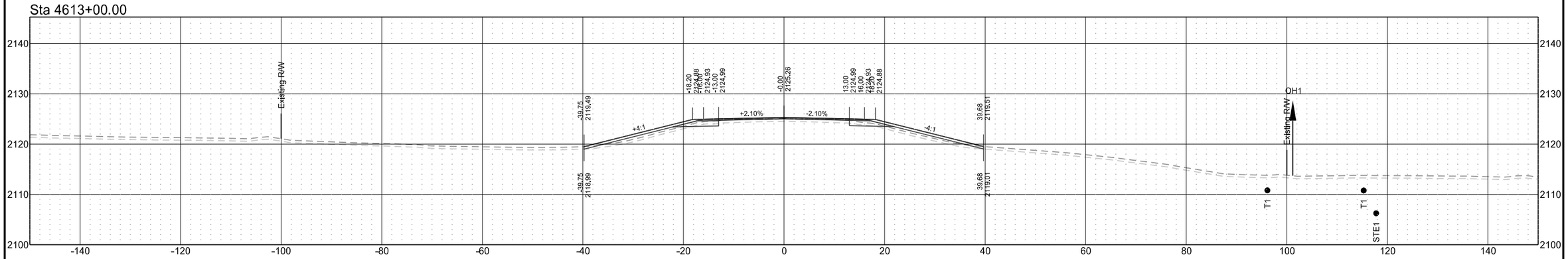
Sta 4608+00.00



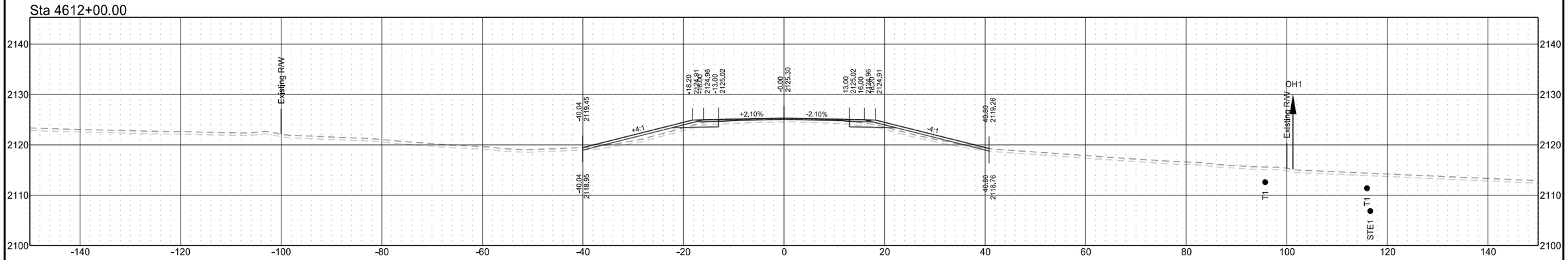
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	172
T4	D4				

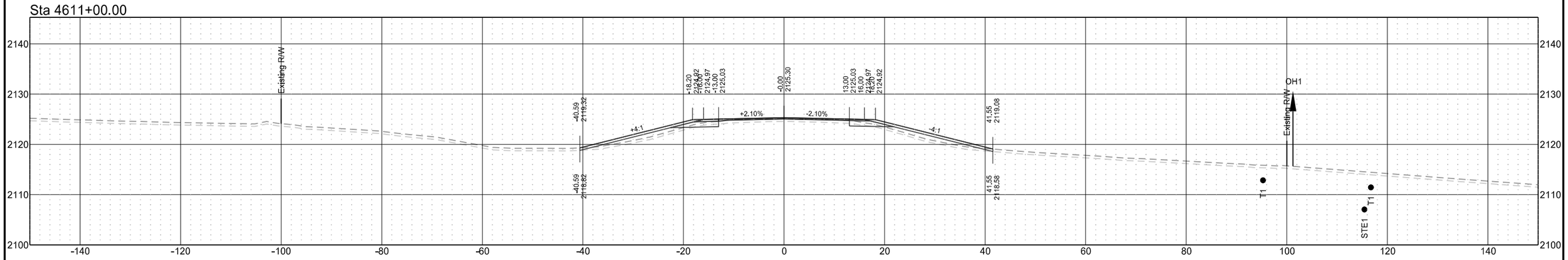
Sta 4613+00.00



Sta 4612+00.00



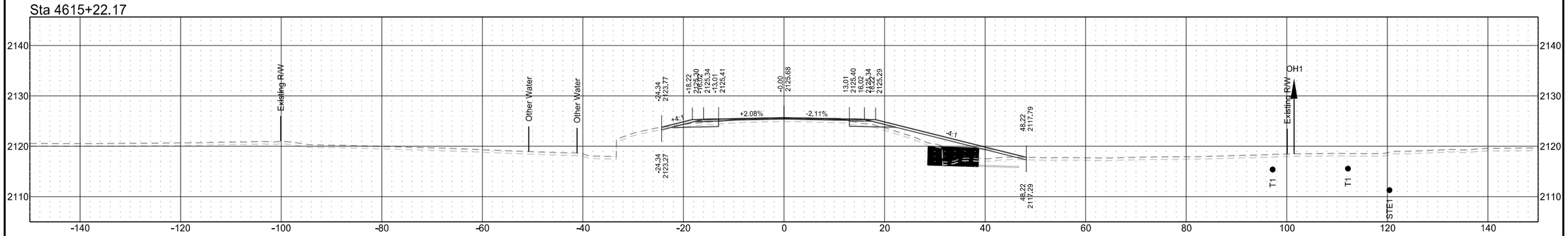
Sta 4611+00.00



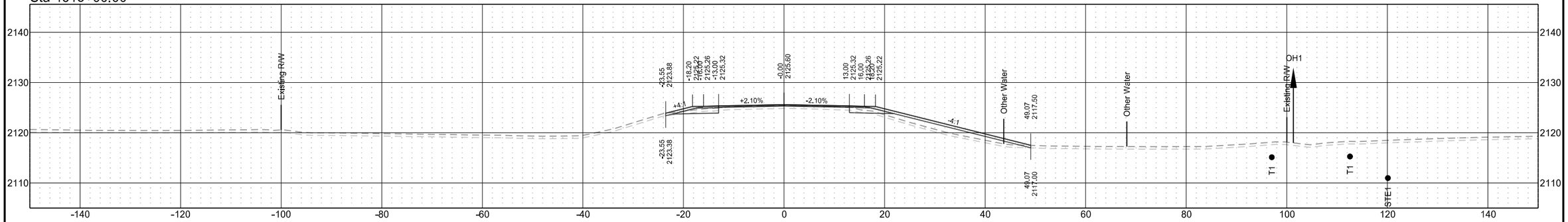
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	173
T4	D4				

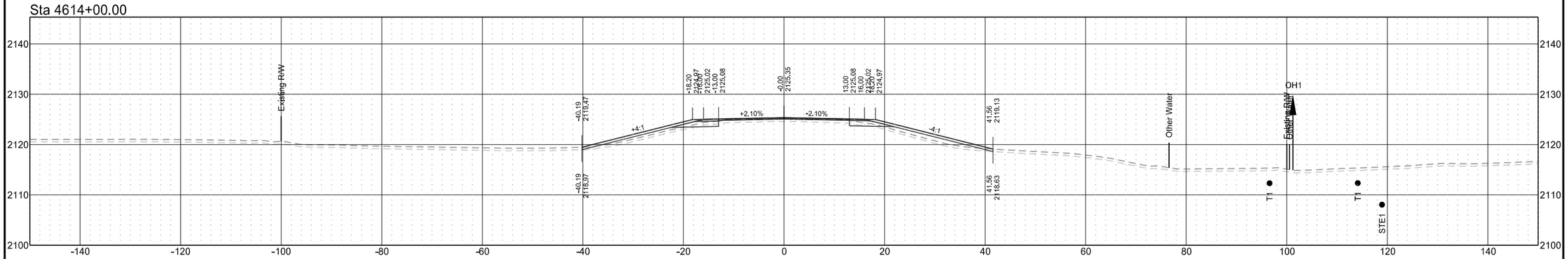
Sta 4615+22.17



Sta 4615+00.00



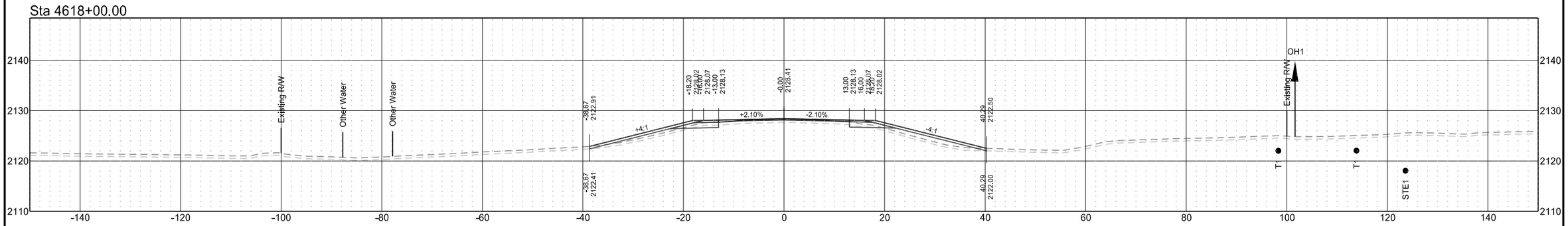
Sta 4614+00.00



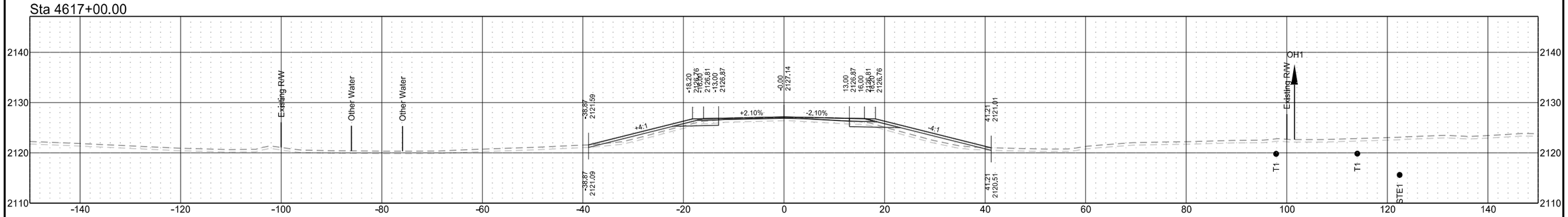
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	174
T4	D4				

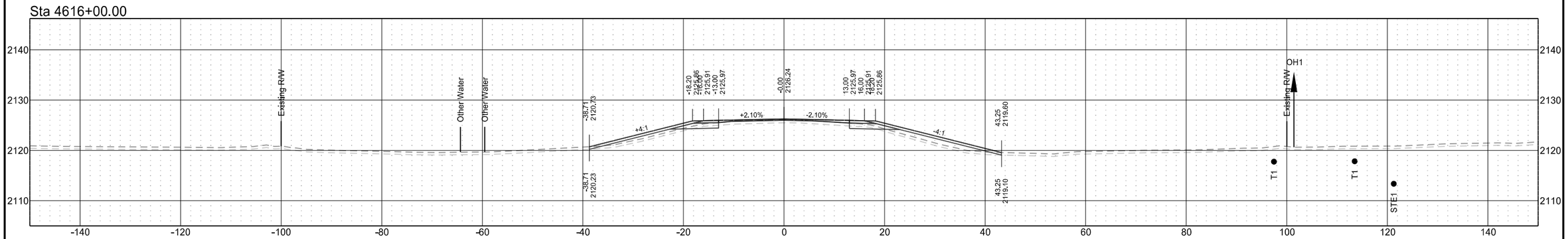
Sta 4618+00.00



Sta 4617+00.00



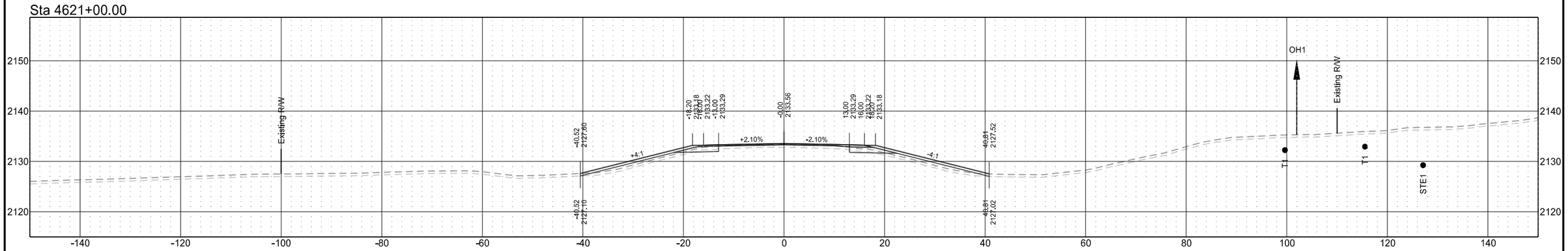
Sta 4616+00.00



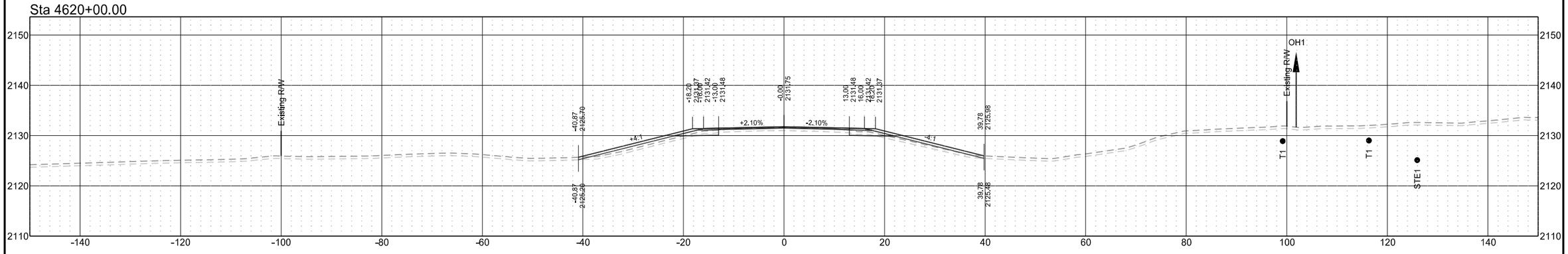
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	175
T4	D4				

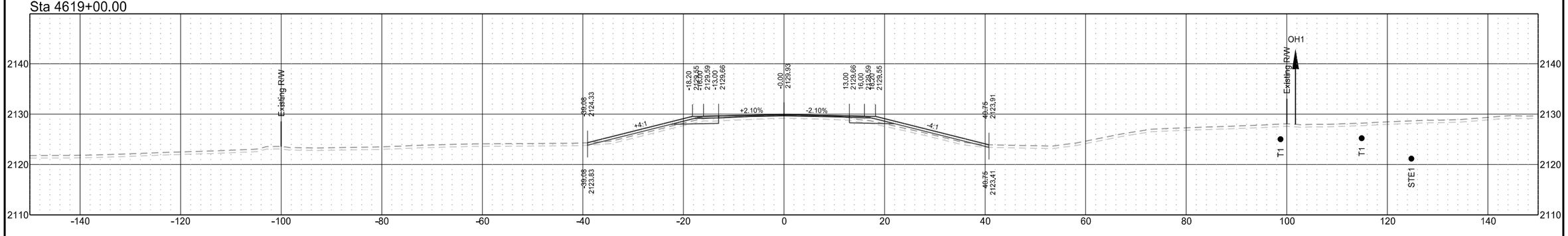
Sta 4621+00.00



Sta 4620+00.00



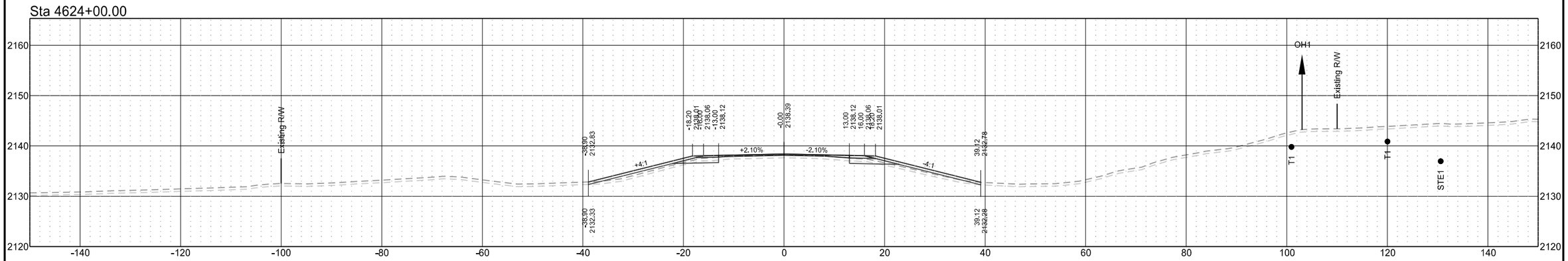
Sta 4619+00.00



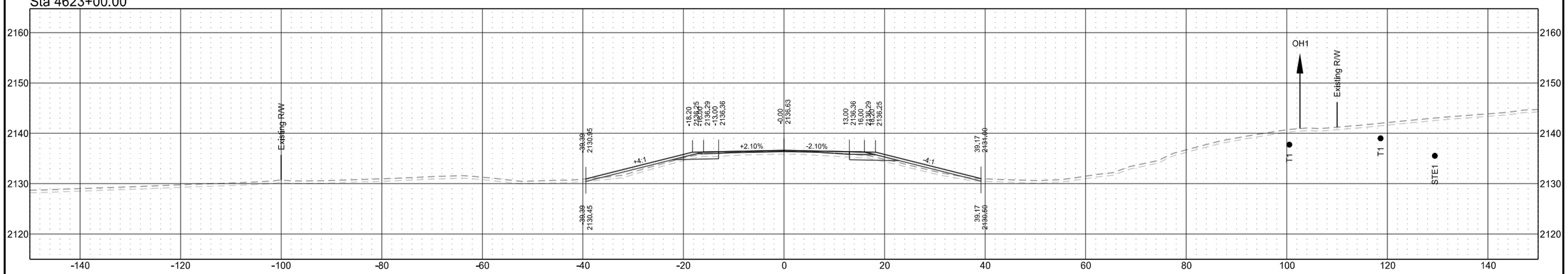
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	176
T4	D4				

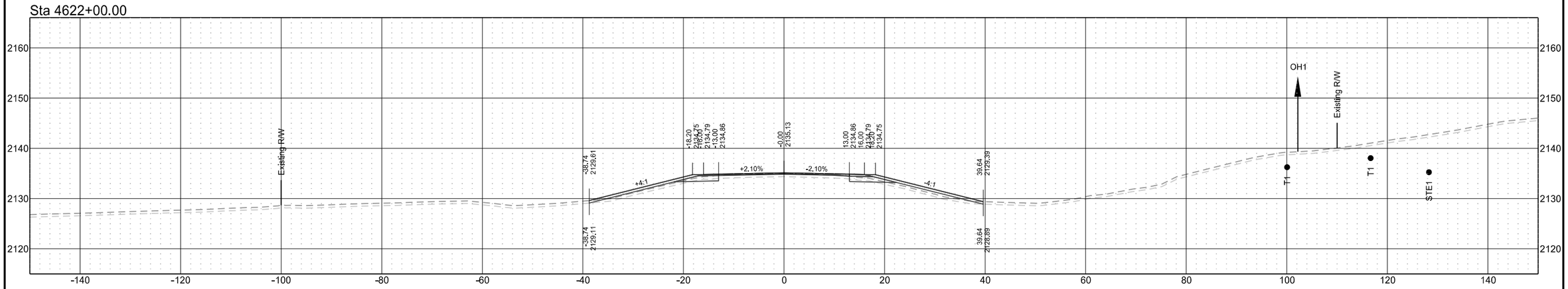
Sta 4624+00.00



Sta 4623+00.00



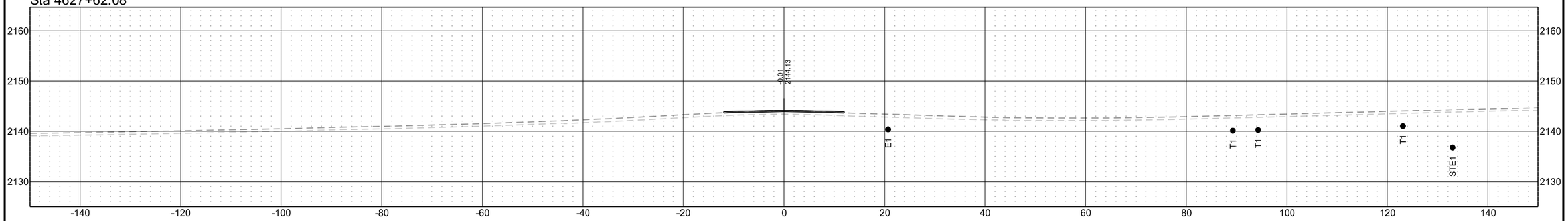
Sta 4622+00.00



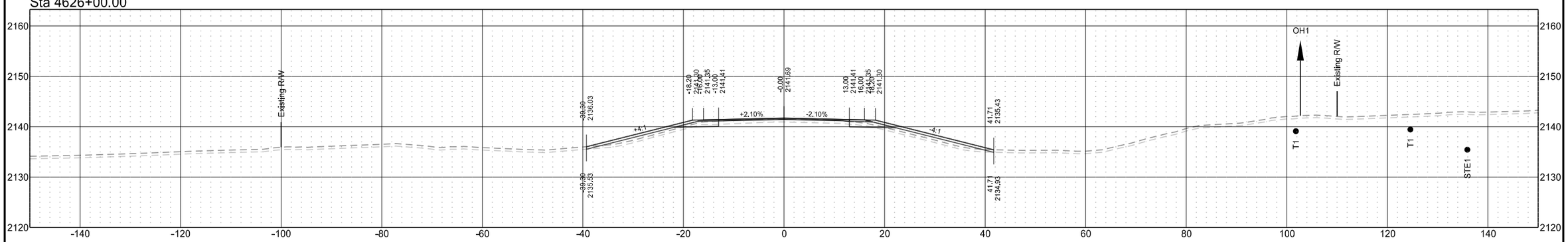
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	177
T4	D4				

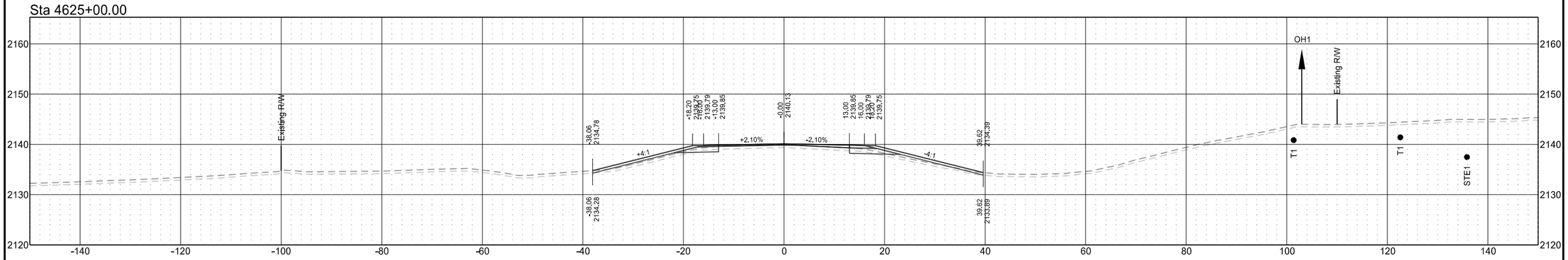
Sta 4627+62.08



Sta 4626+00.00



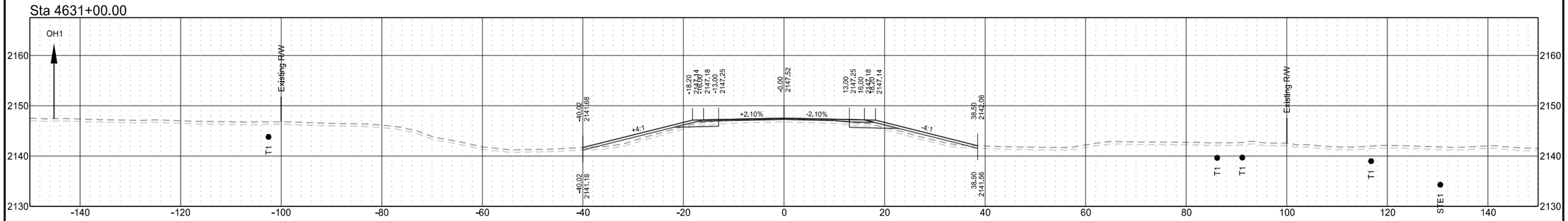
Sta 4625+00.00



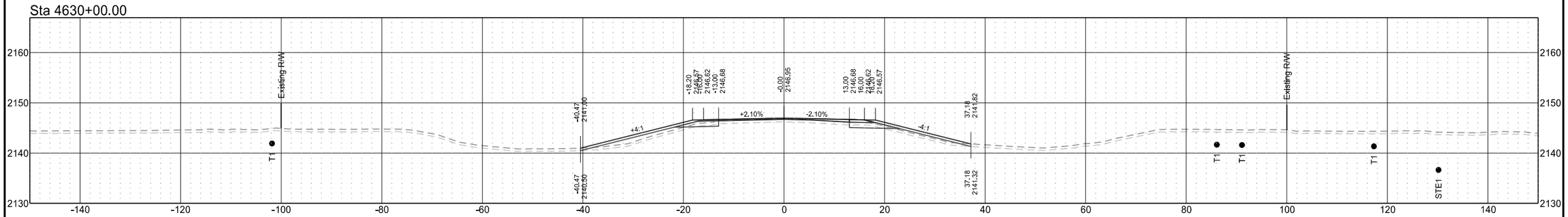
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	178
T4	D4				

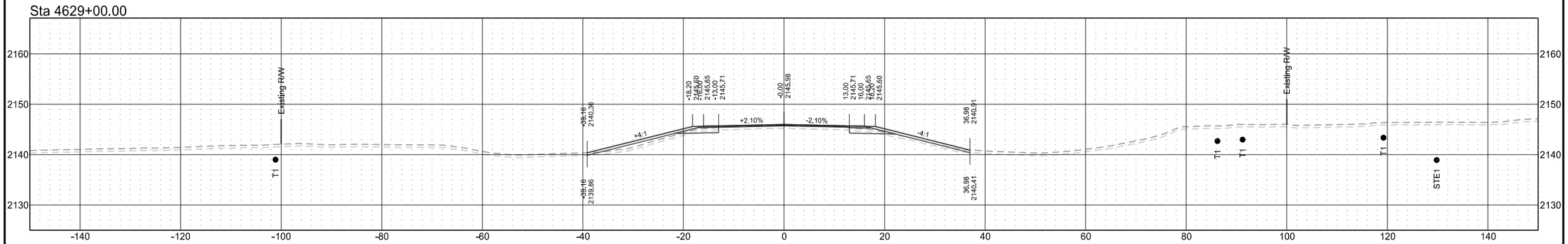
Sta 4631+00.00



Sta 4630+00.00



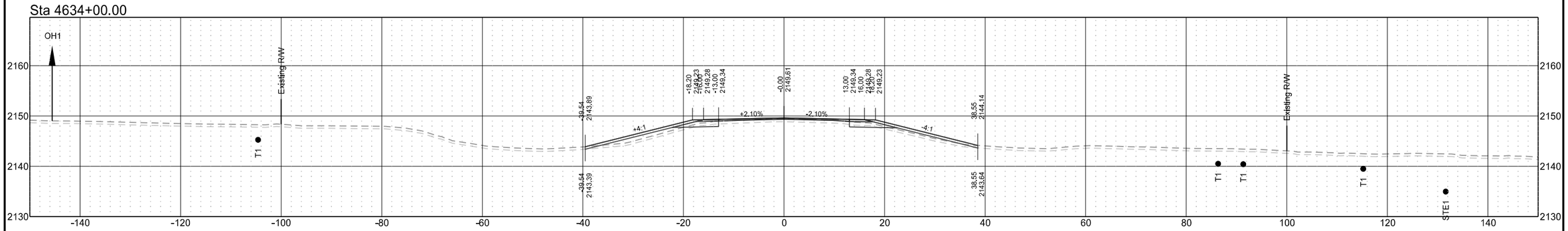
Sta 4629+00.00



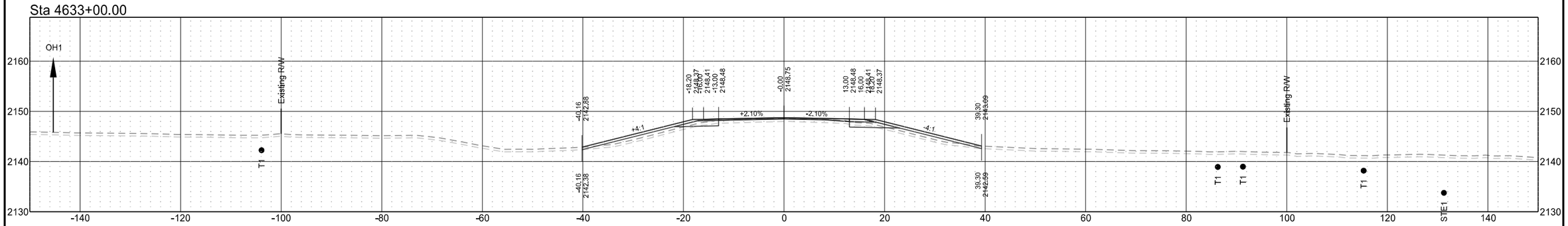
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	179
T4	D4				

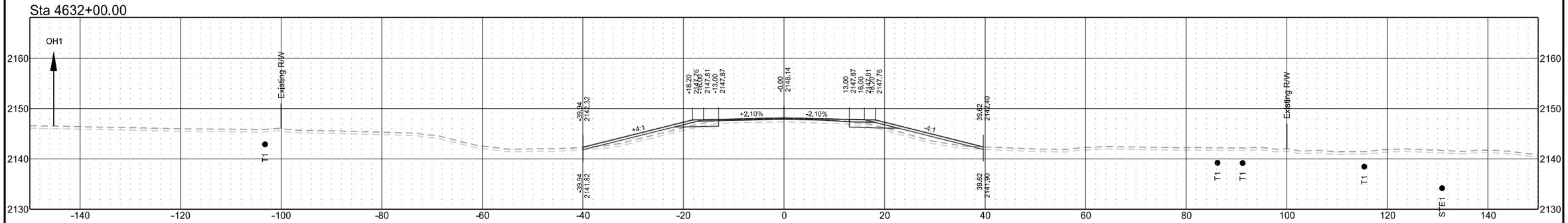
Sta 4634+00.00



Sta 4633+00.00



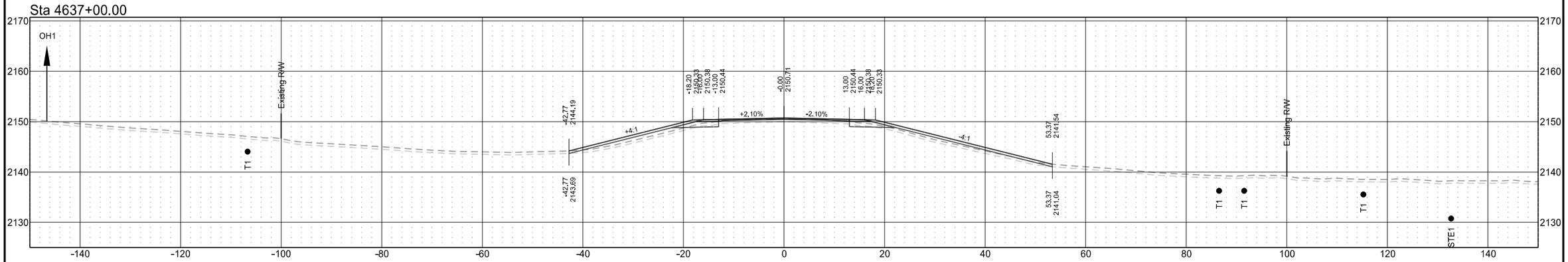
Sta 4632+00.00



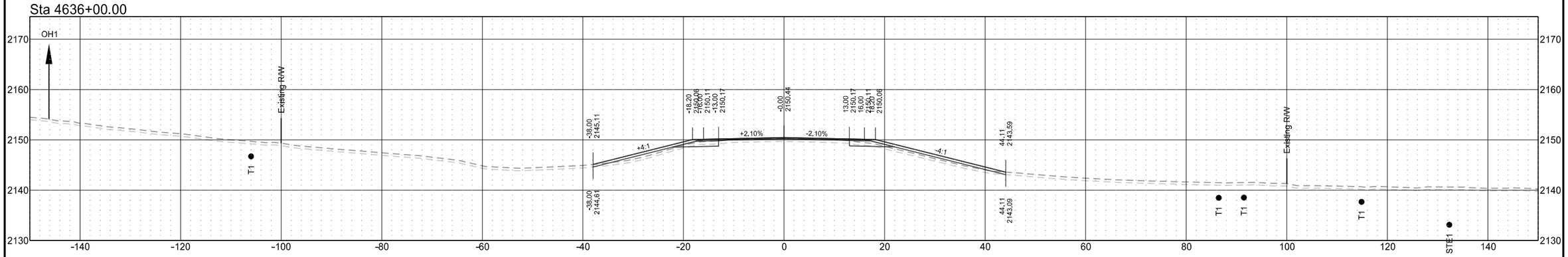
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	180
T4	D4				

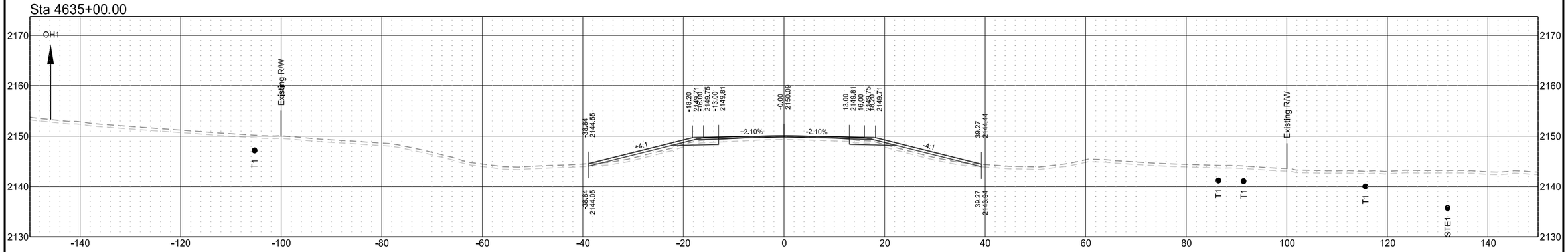
Sta 4637+00.00



Sta 4636+00.00



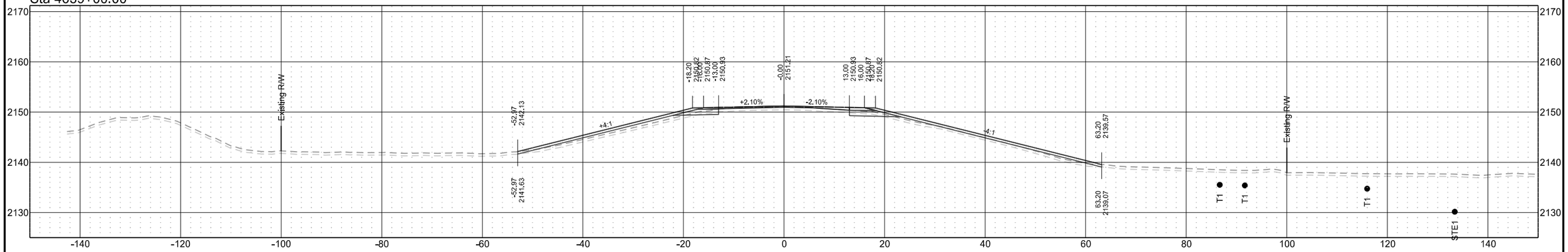
Sta 4635+00.00



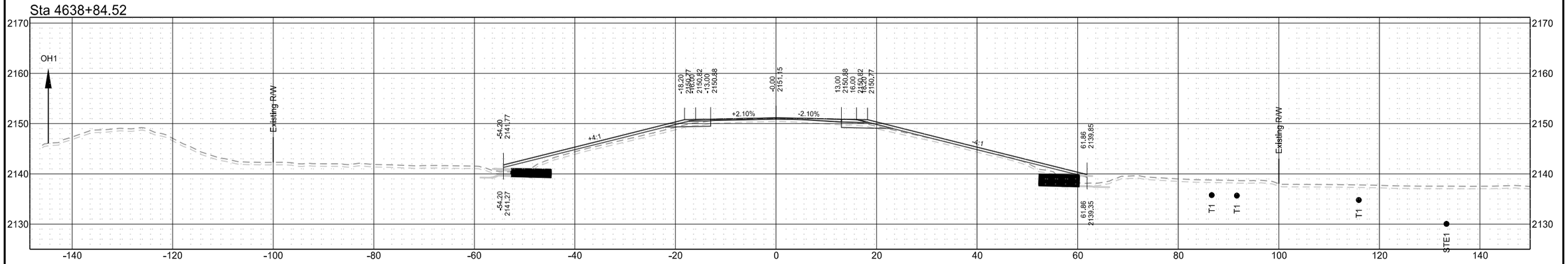
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	181
T4	D4				

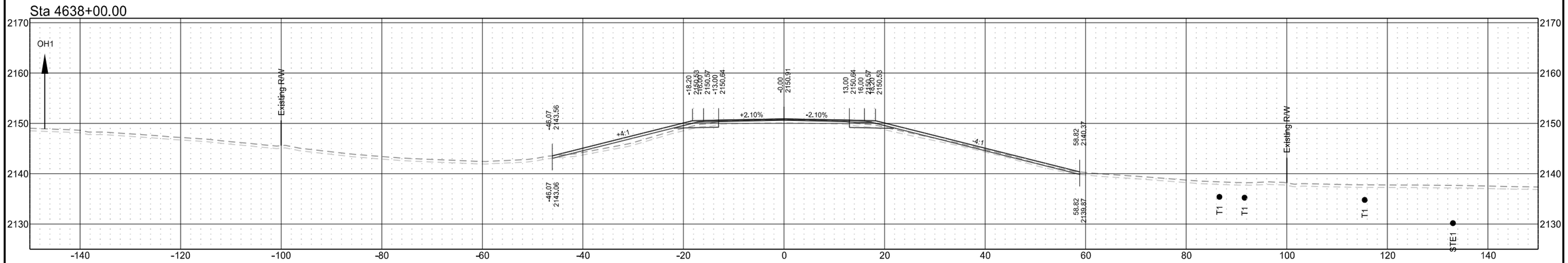
Sta 4639+00.00



Sta 4638+84.52



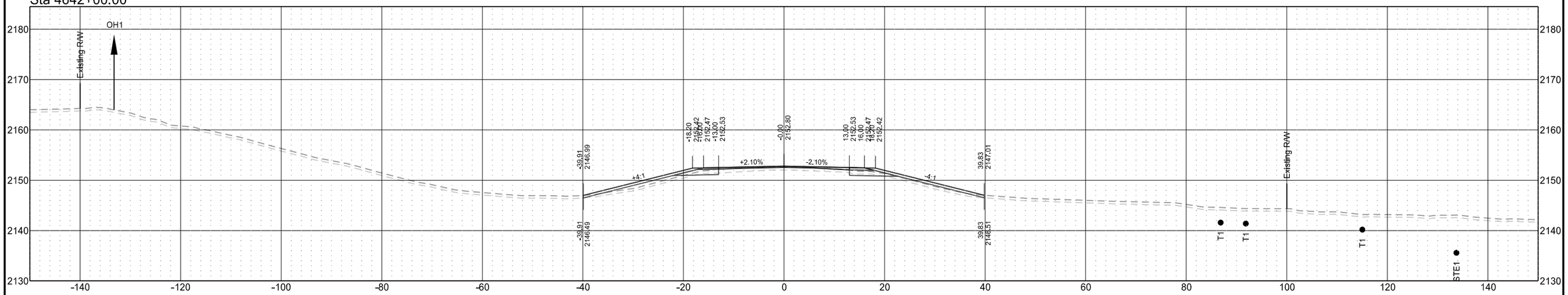
Sta 4638+00.00



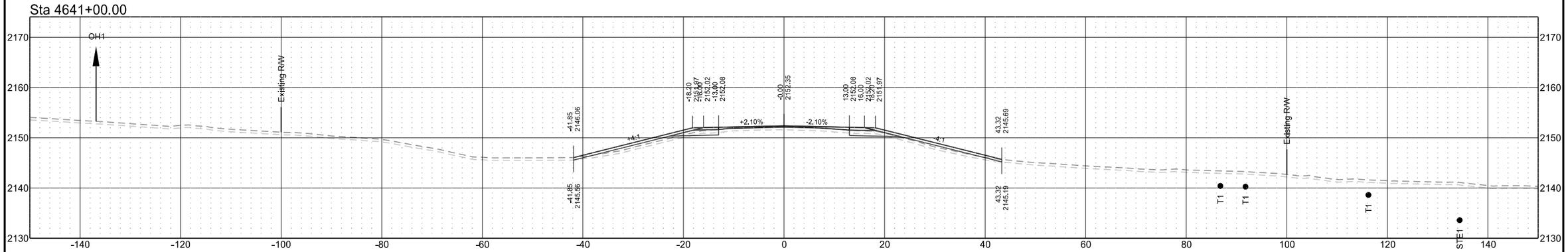
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	182
T4	D4				

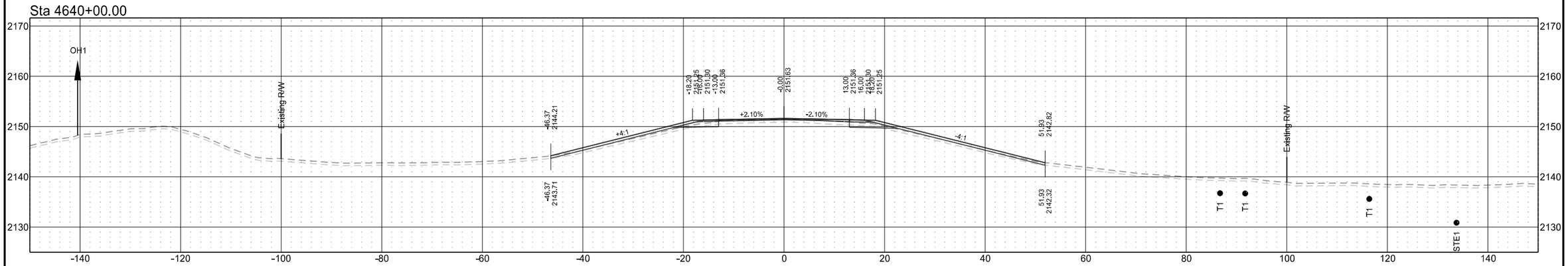
Sta 4642+00.00



Sta 4641+00.00



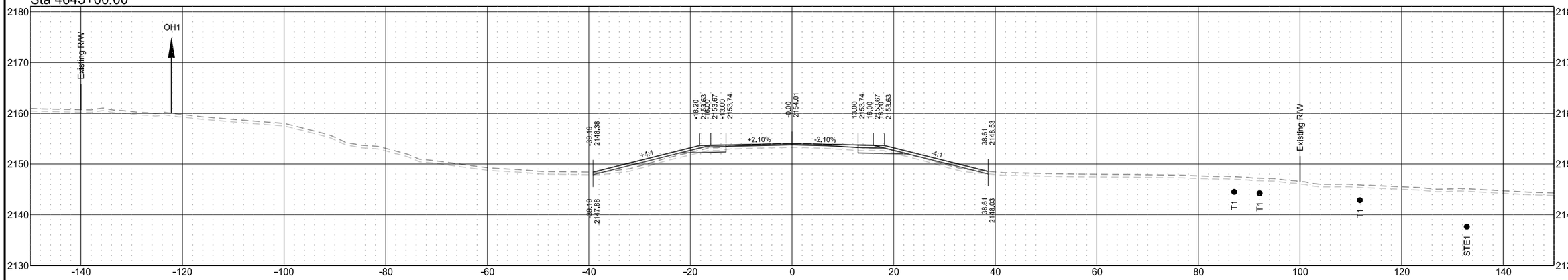
Sta 4640+00.00



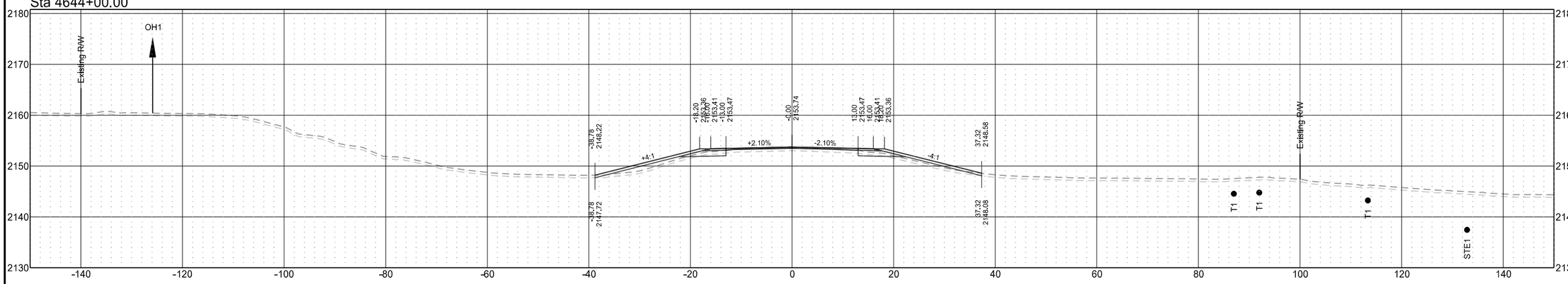
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	183
T4	D4				

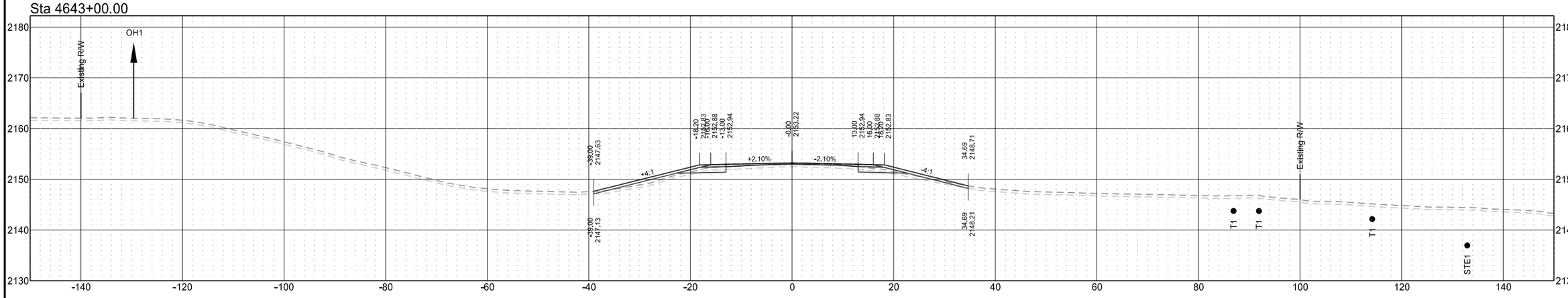
Sta 4645+00.00



Sta 4644+00.00



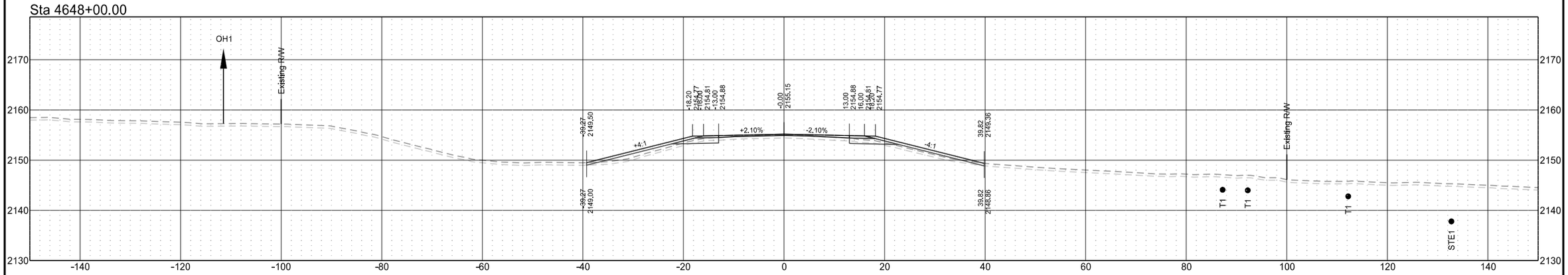
Sta 4643+00.00



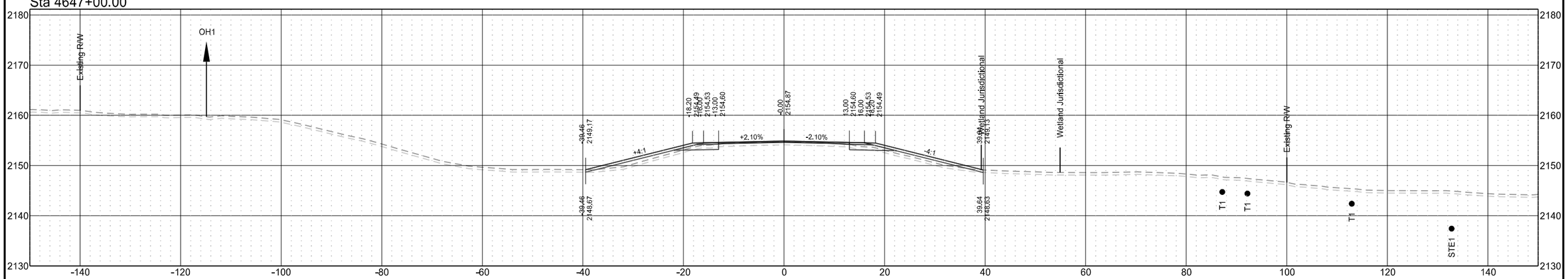
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	184
T4	D4				

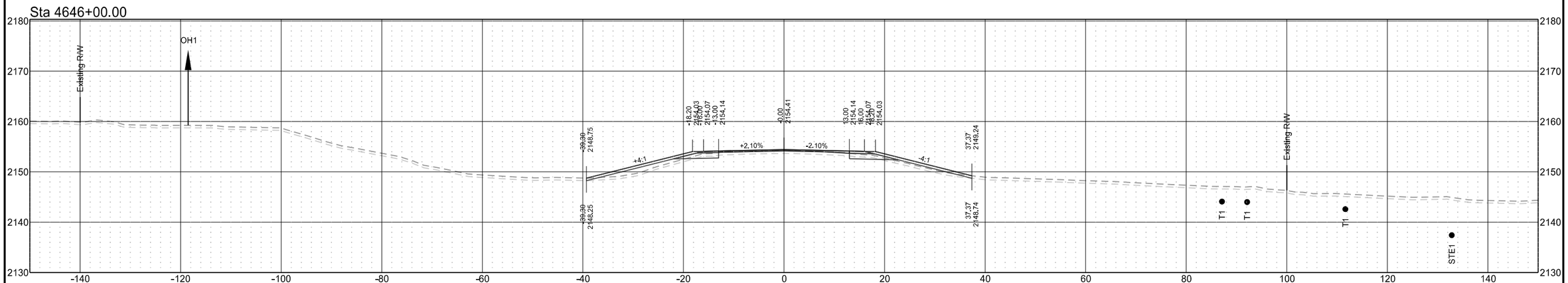
Sta 4648+00.00



Sta 4647+00.00



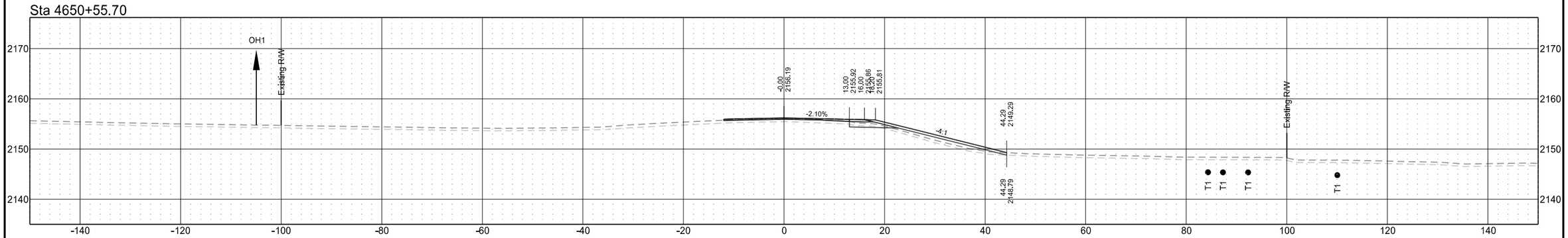
Sta 4646+00.00



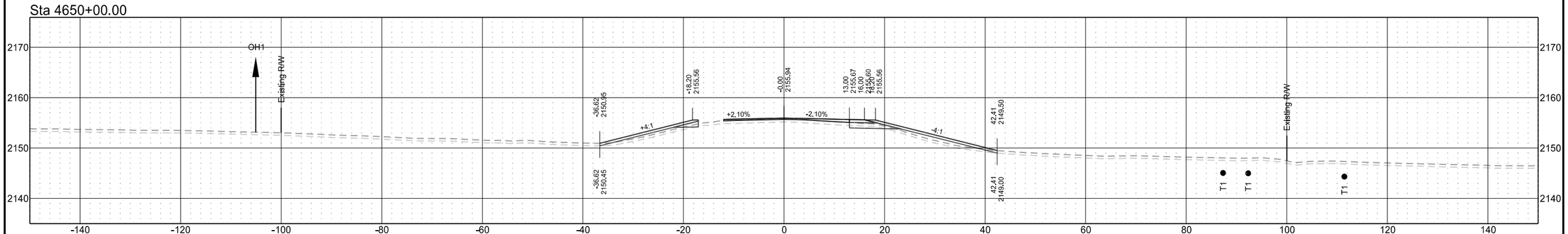
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	185
T4	D4				

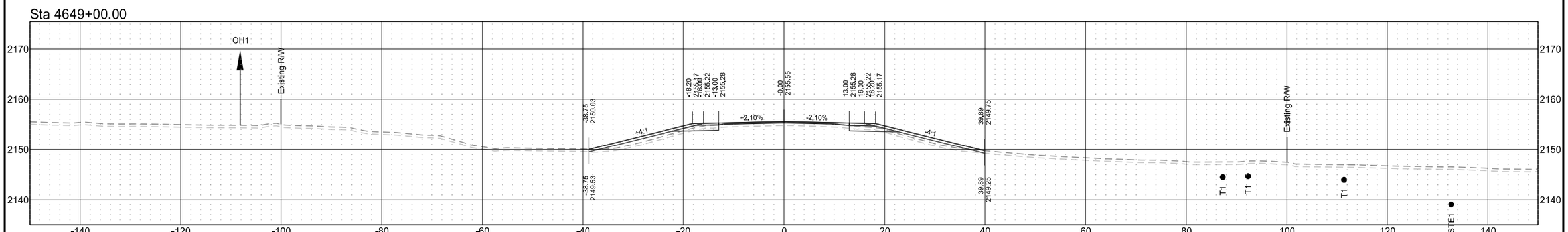
Sta 4650+55.70



Sta 4650+00.00



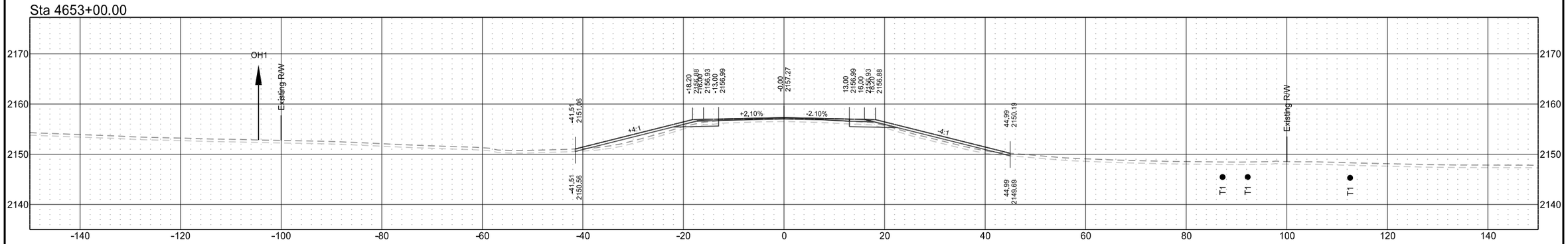
Sta 4649+00.00



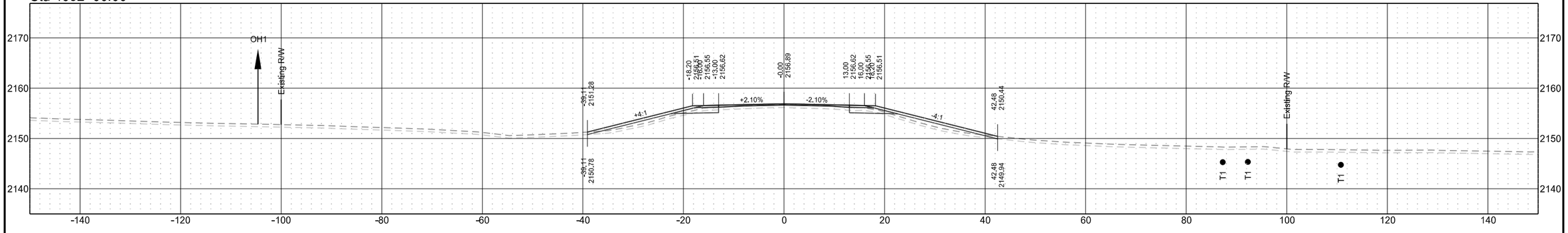
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	186
T4	D4				

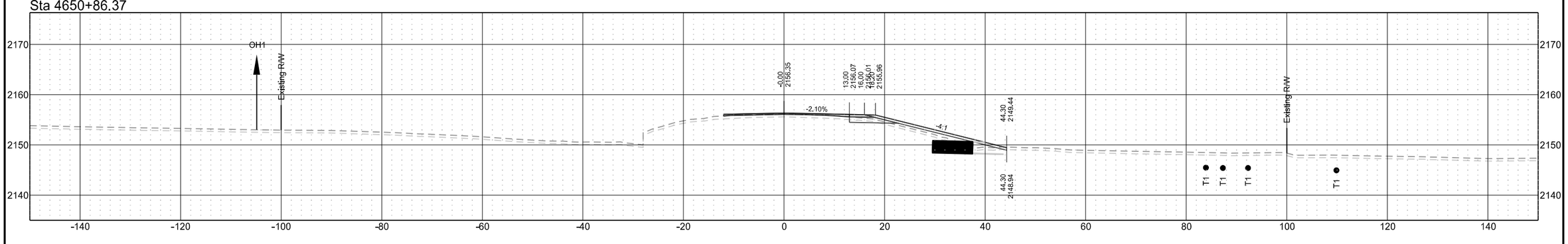
Sta 4653+00.00



Sta 4652+00.00



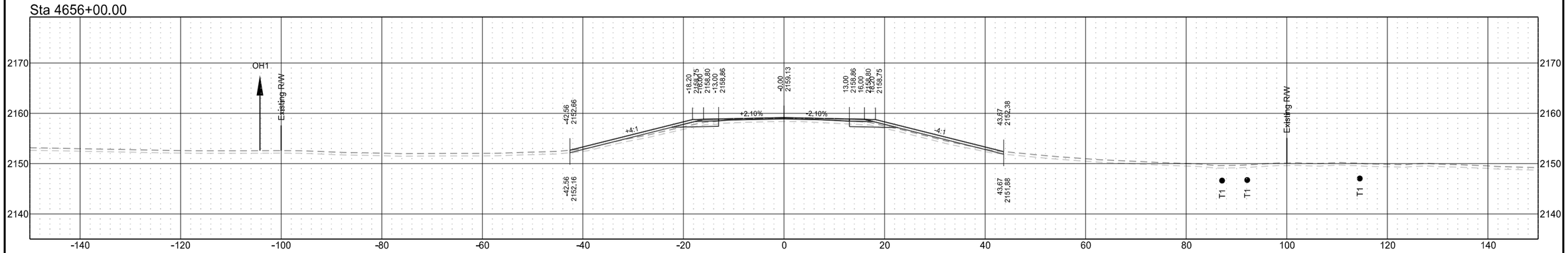
Sta 4650+86.37



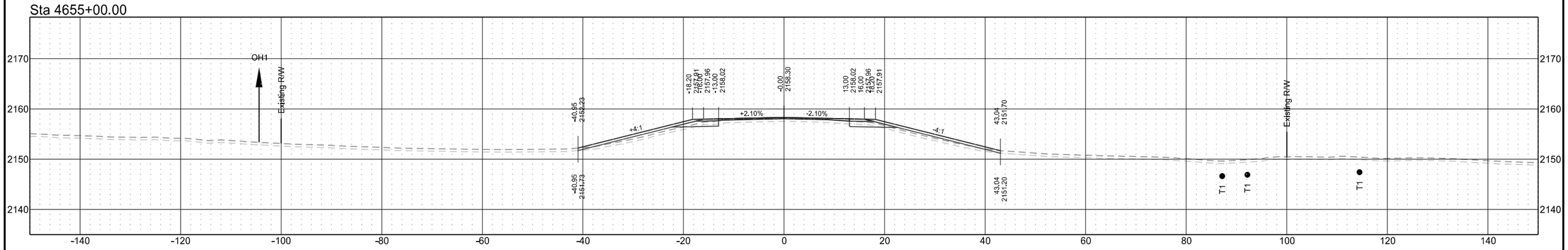
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	187
T4	D4				

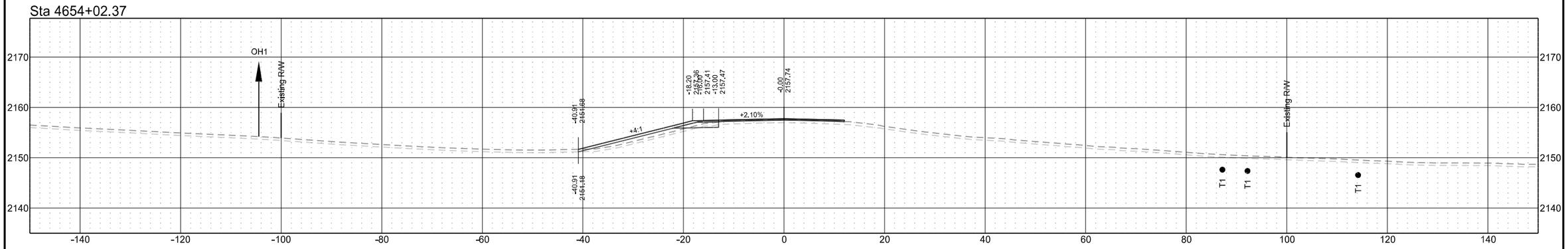
Sta 4656+00.00



Sta 4655+00.00



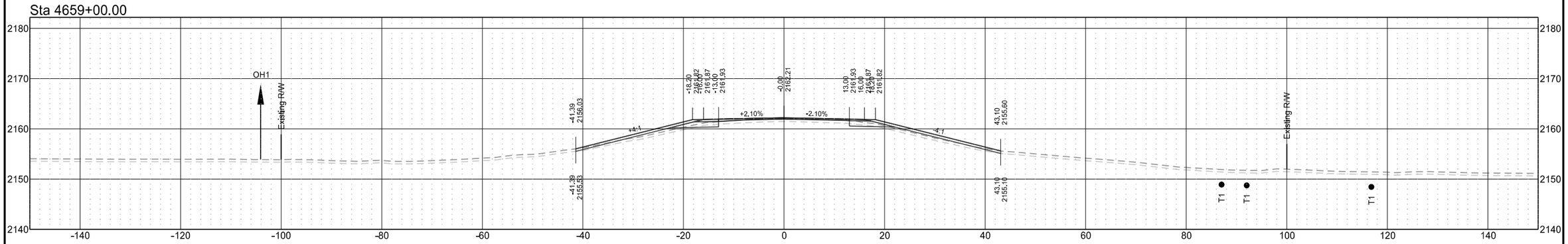
Sta 4654+02.37



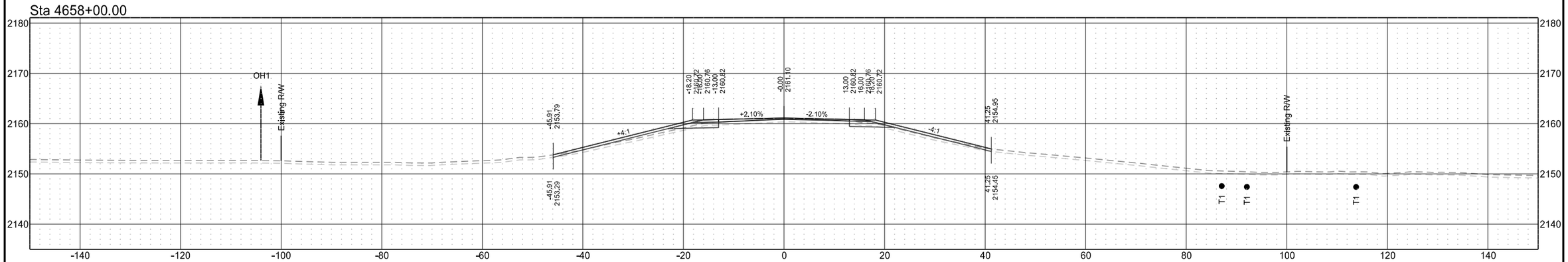
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	188
T4	D4				

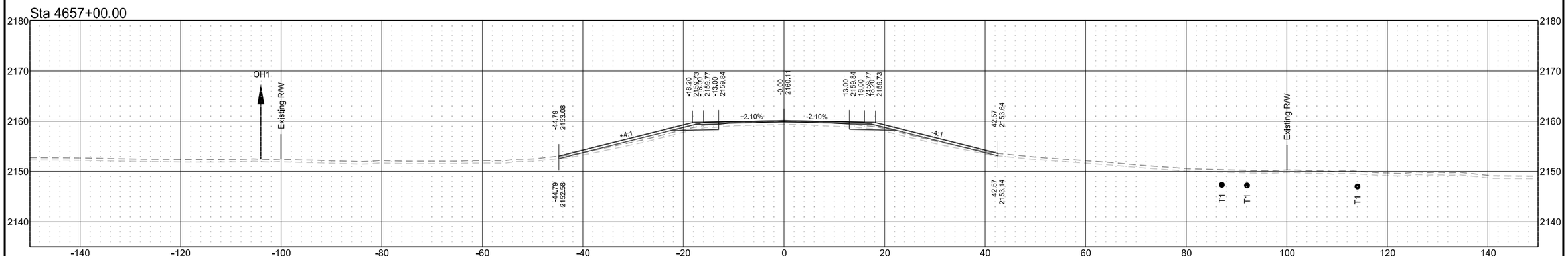
Sta 4659+00.00



Sta 4658+00.00



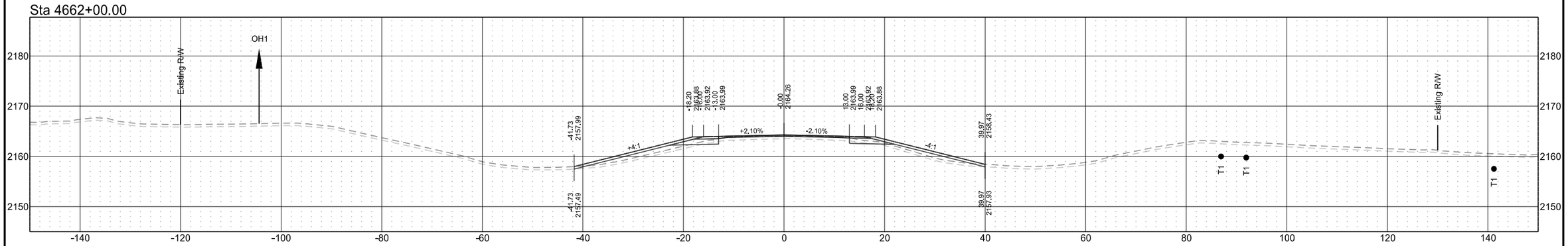
Sta 4657+00.00



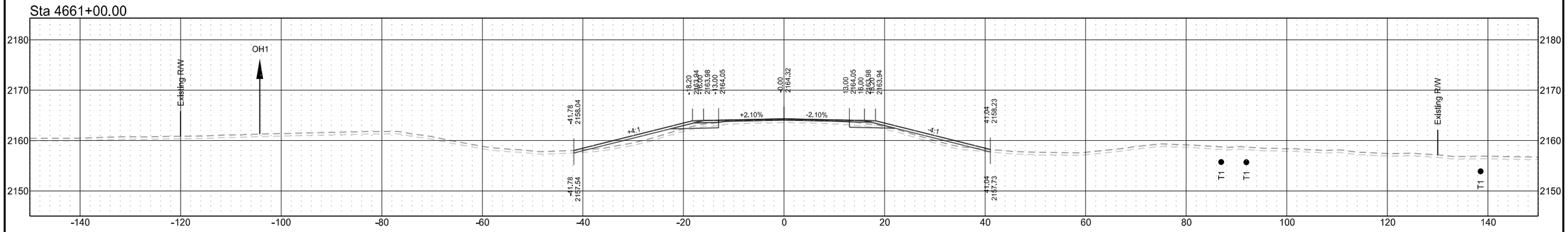
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	189
T4	D4				

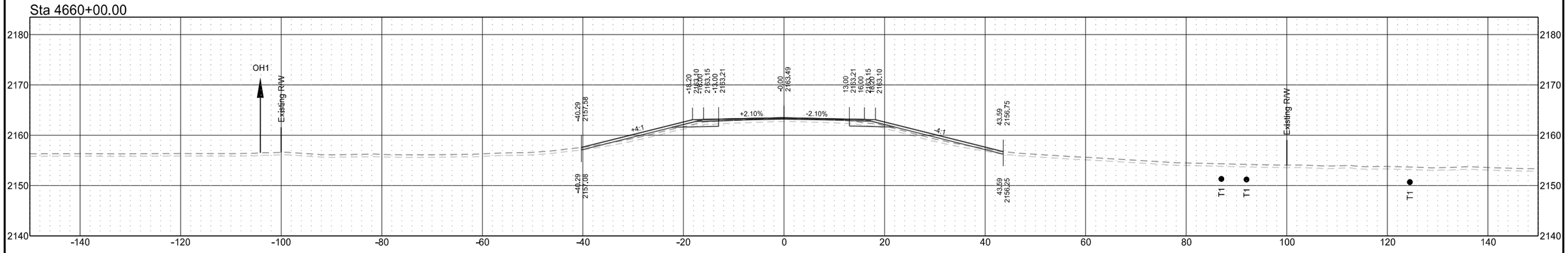
Sta 4662+00.00



Sta 4661+00.00



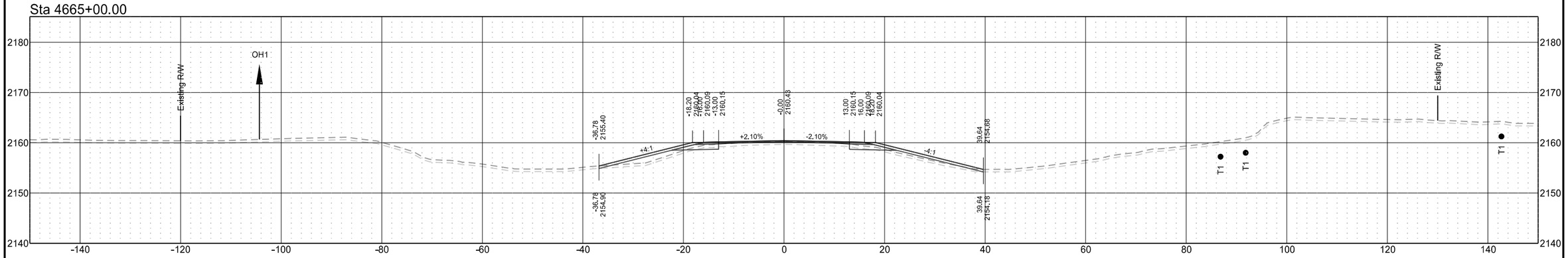
Sta 4660+00.00



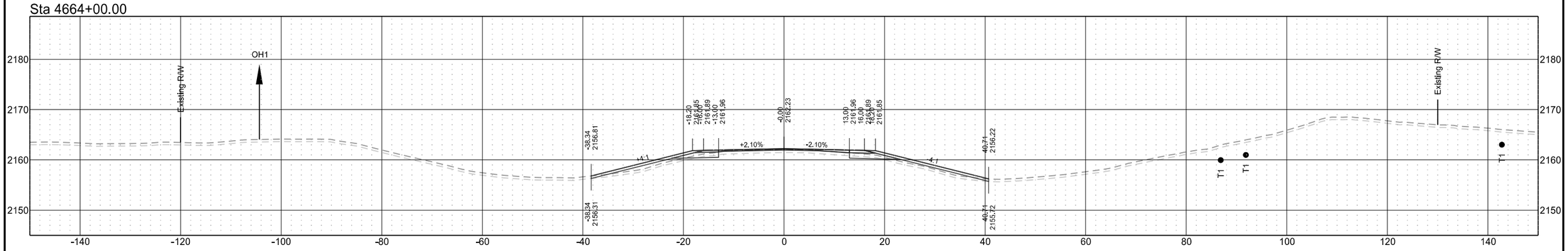
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	190
T4	D4				

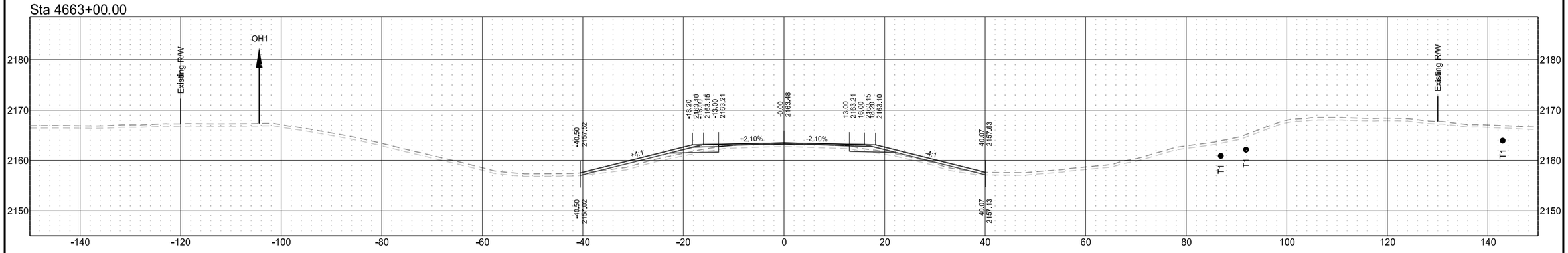
Sta 4665+00.00



Sta 4664+00.00



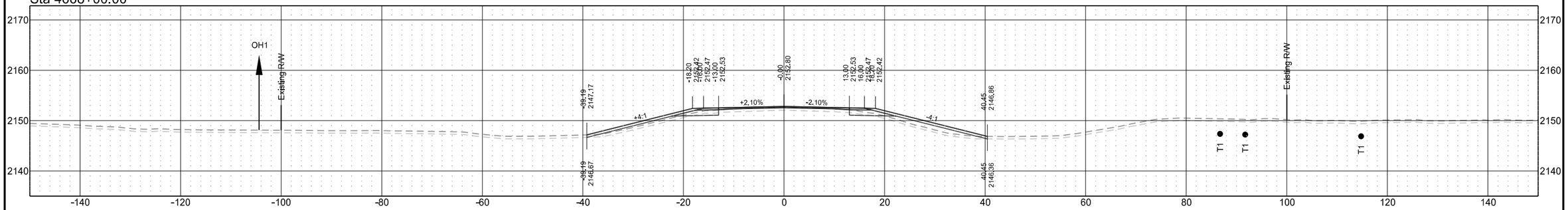
Sta 4663+00.00



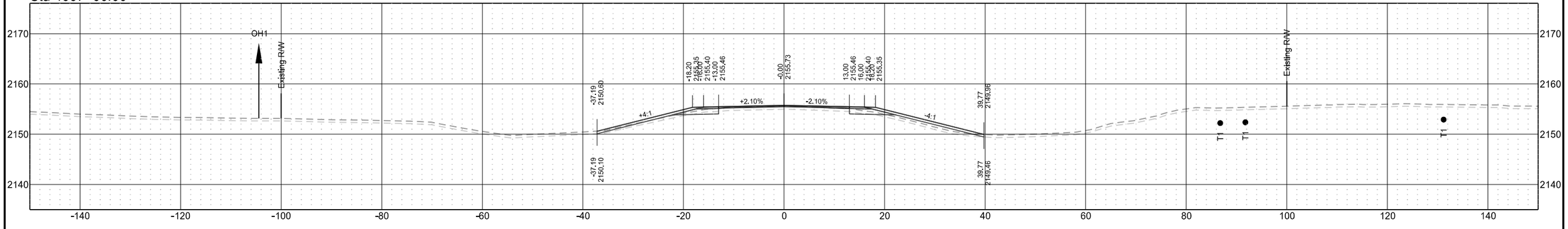
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	191
T4	D4				

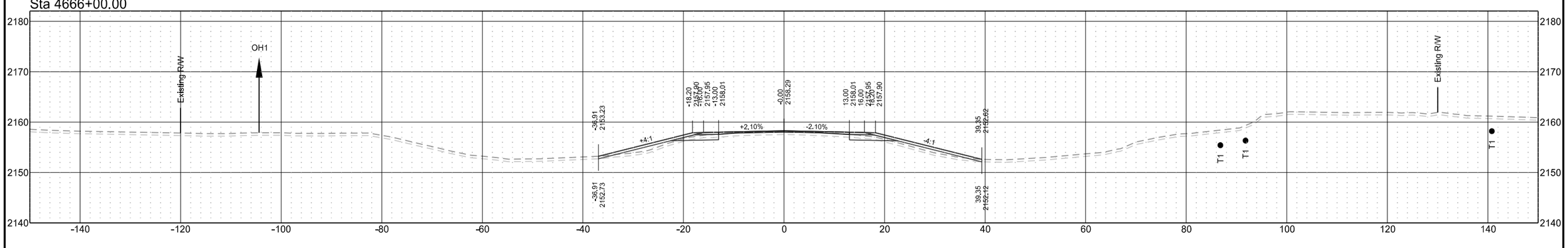
Sta 4668+00.00



Sta 4667+00.00



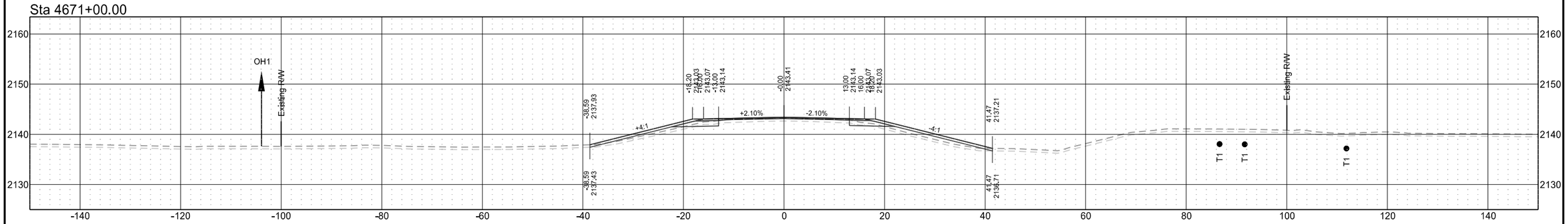
Sta 4666+00.00



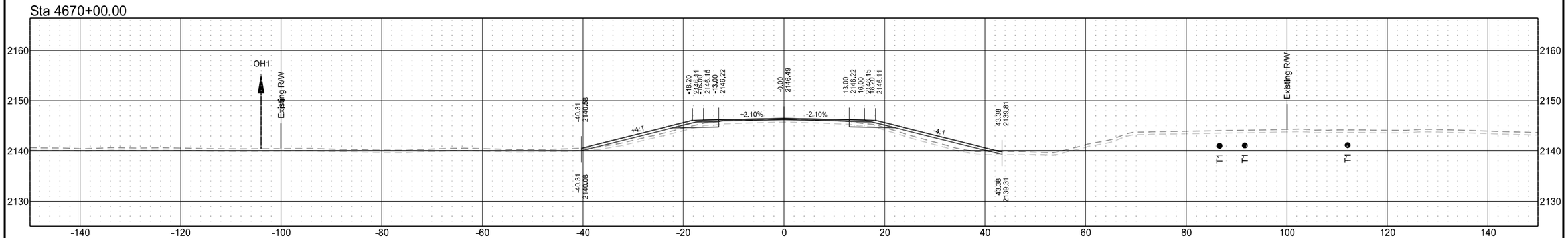
ND 31

T1 D1 T2 D2 T3 D3 T4 D4	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	XA-SS-1-031(021)078	200	192

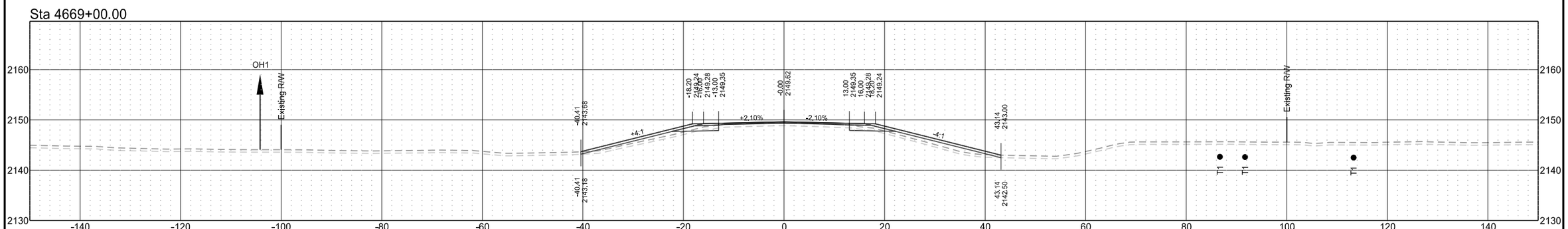
Sta 4671+00.00



Sta 4670+00.00



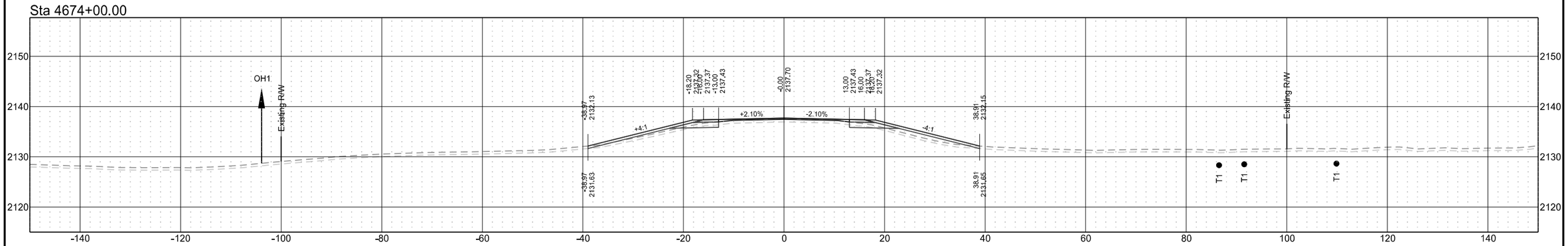
Sta 4669+00.00



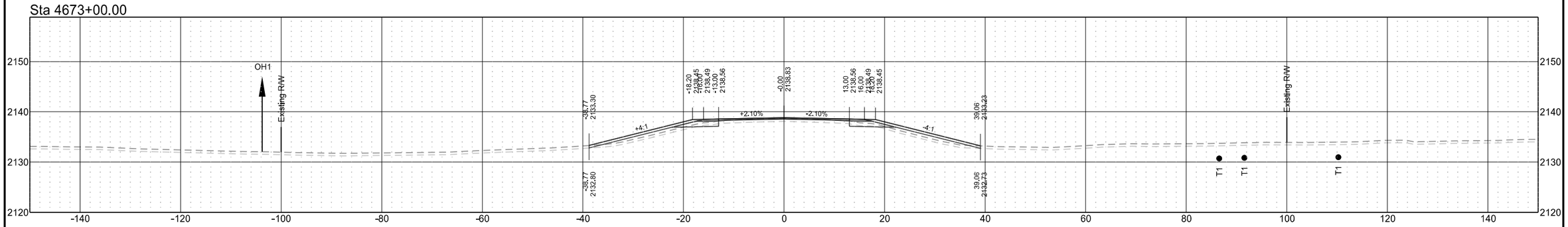
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	193
T4	D4				

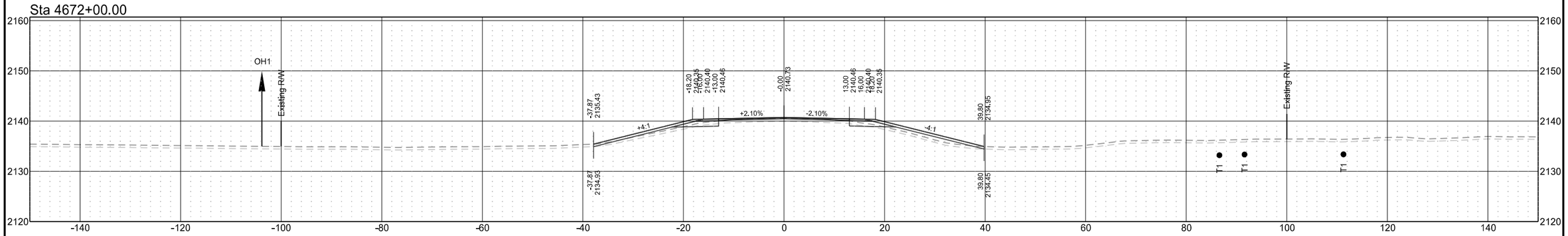
Sta 4674+00.00



Sta 4673+00.00



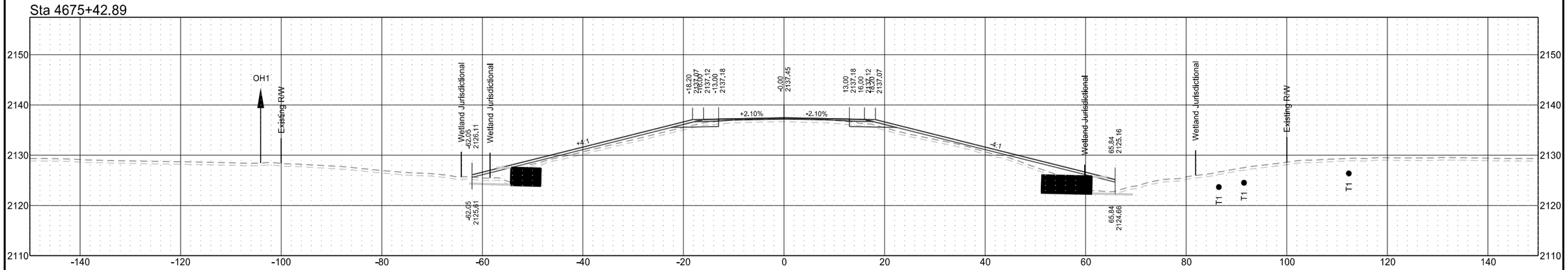
Sta 4672+00.00



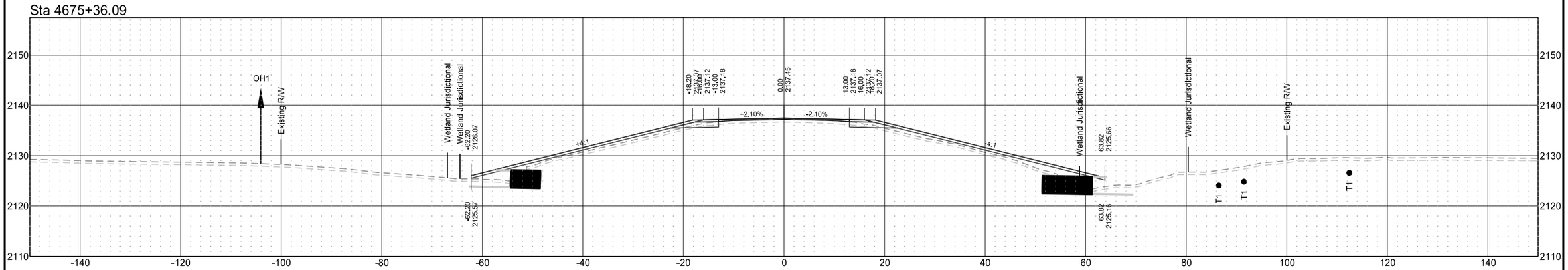
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	194
T4	D4				

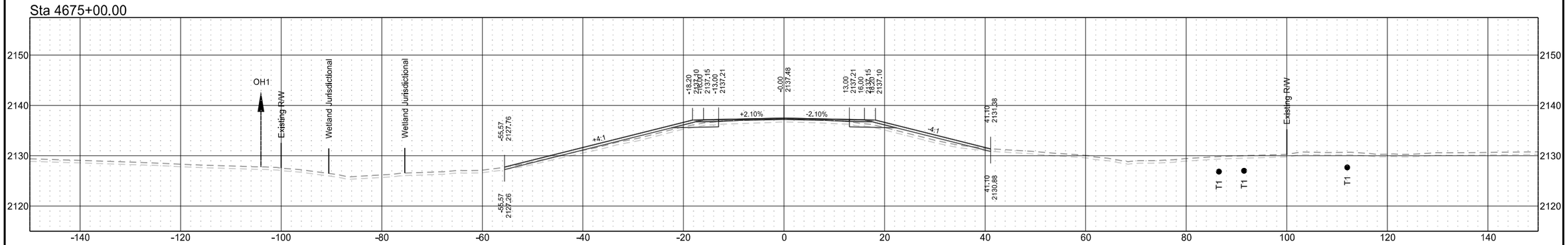
Sta 4675+42.89



Sta 4675+36.09



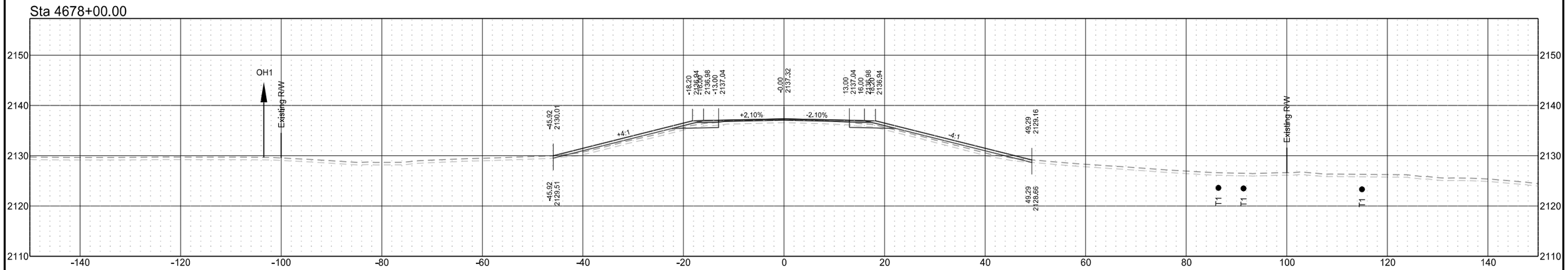
Sta 4675+00.00



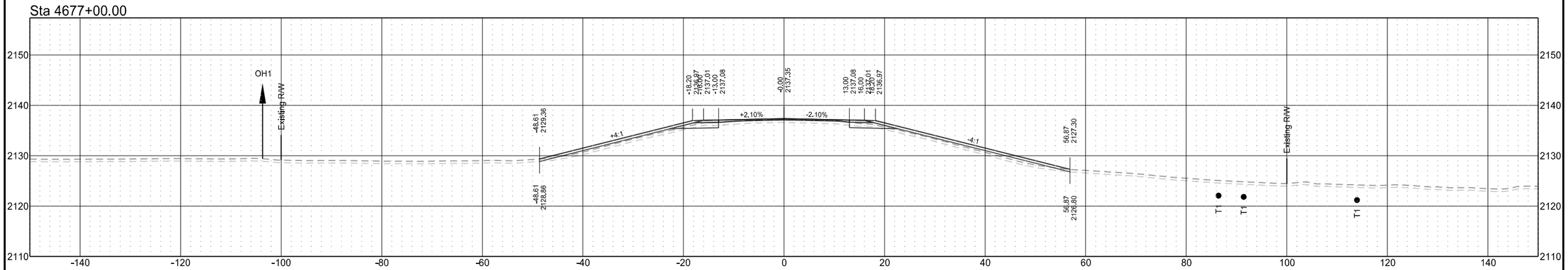
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	195
T4	D4				

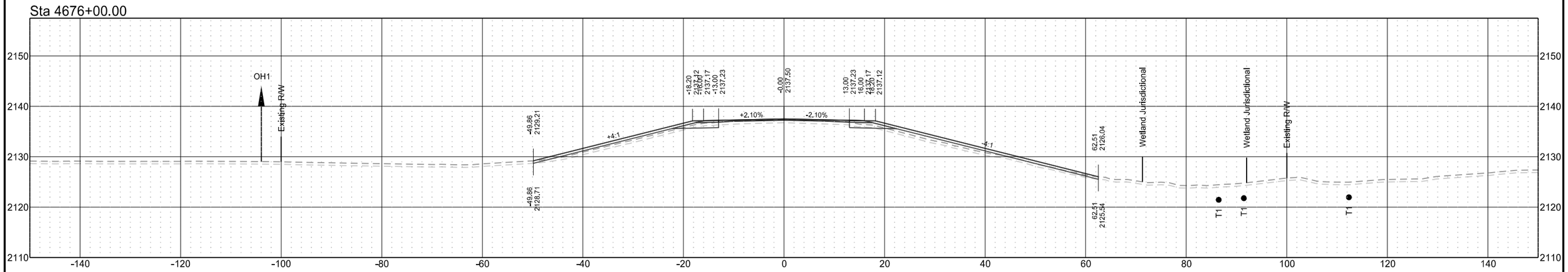
Sta 4678+00.00



Sta 4677+00.00



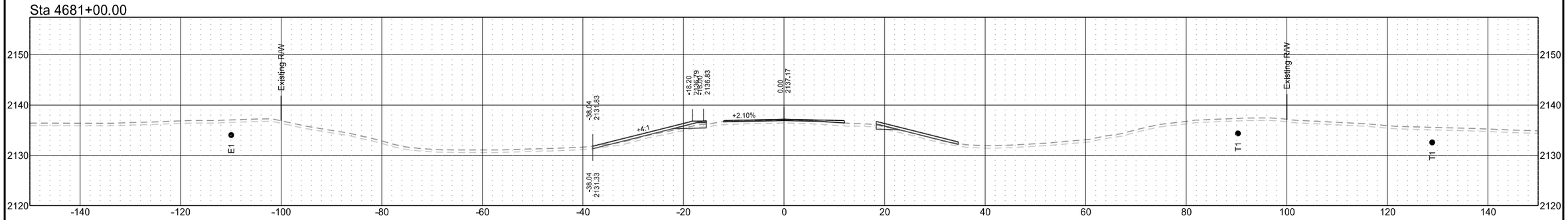
Sta 4676+00.00



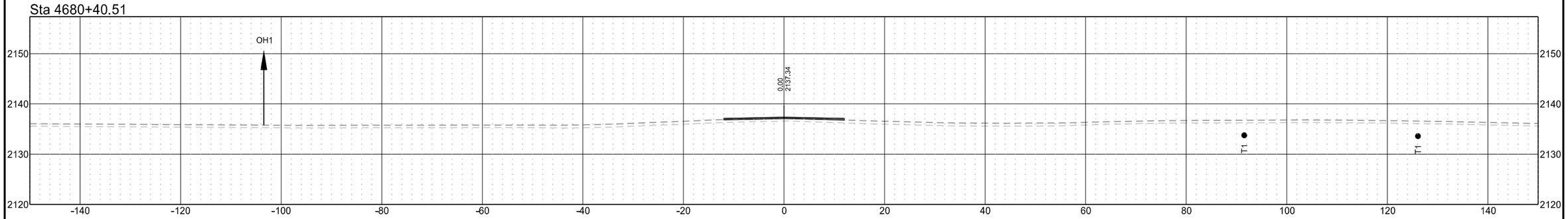
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	196
T4	D4				

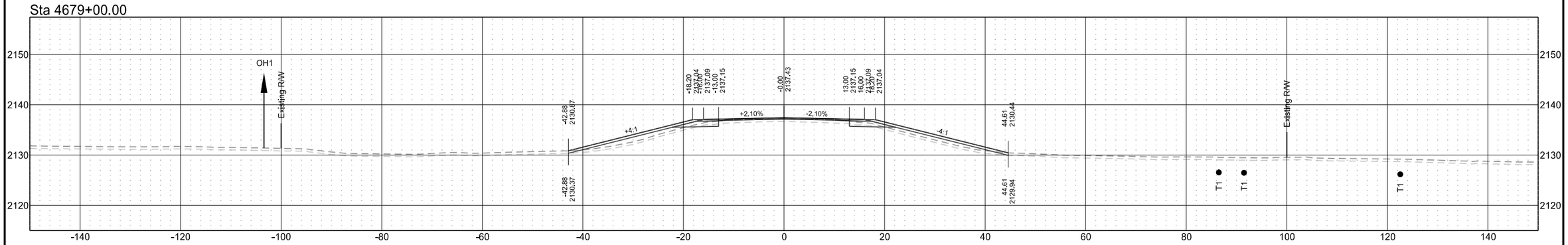
Sta 4681+00.00



Sta 4680+40.51



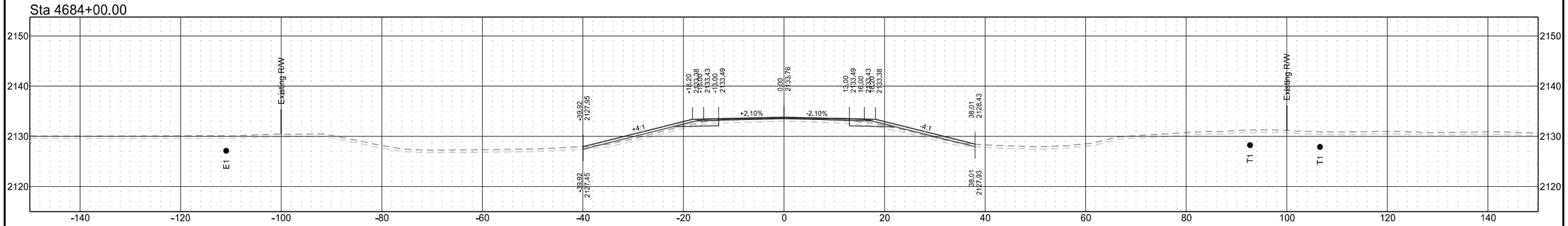
Sta 4679+00.00



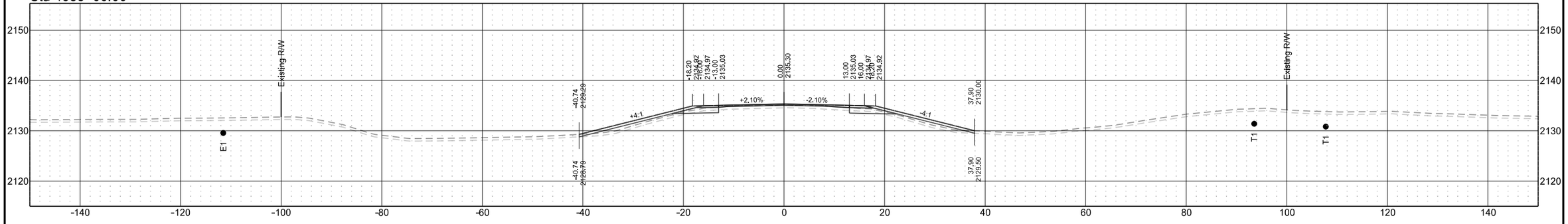
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	197
T4	D4				

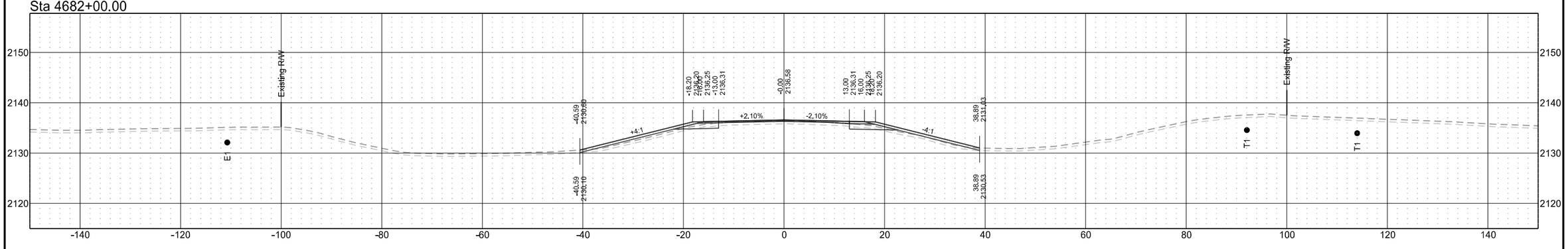
Sta 4684+00.00



Sta 4683+00.00



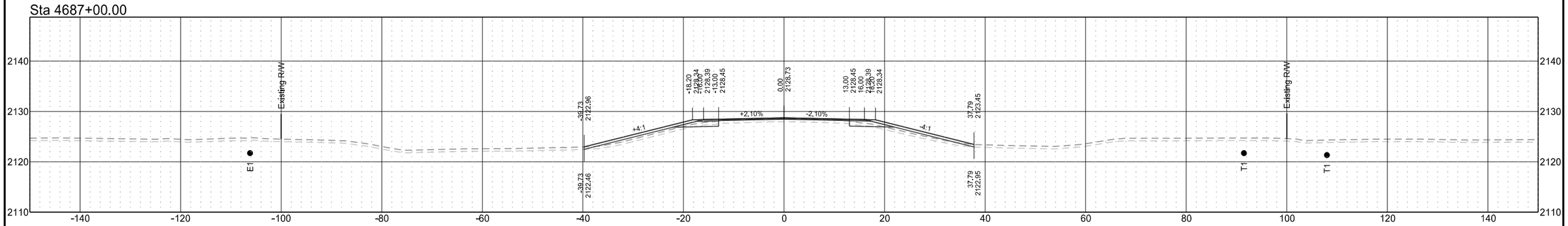
Sta 4682+00.00



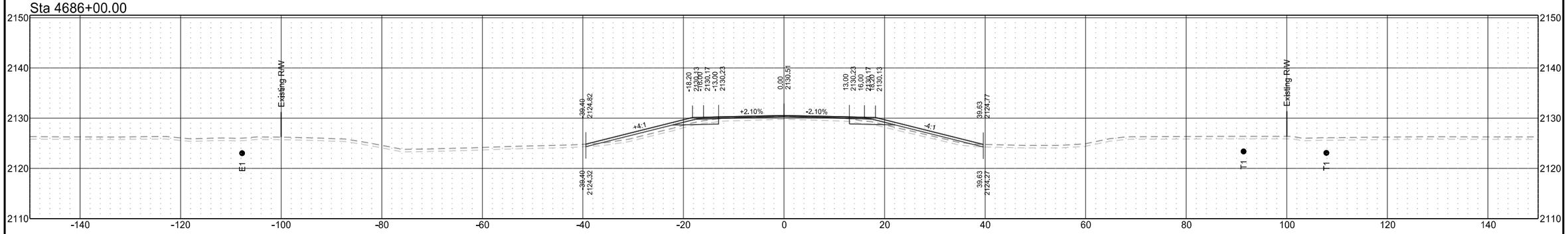
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	198
T4	D4				

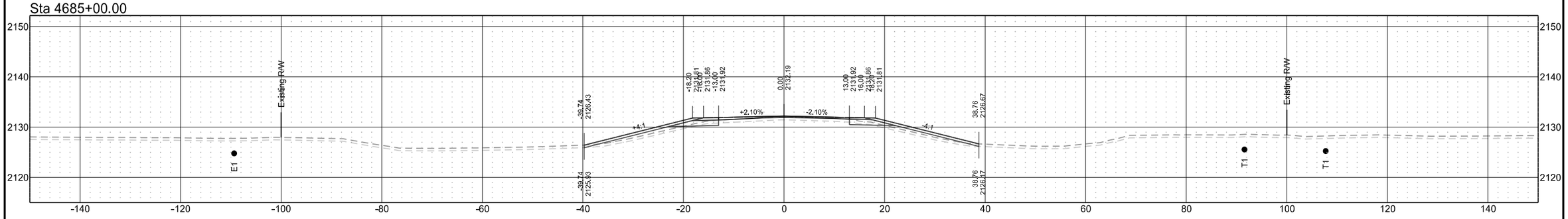
Sta 4687+00.00



Sta 4686+00.00



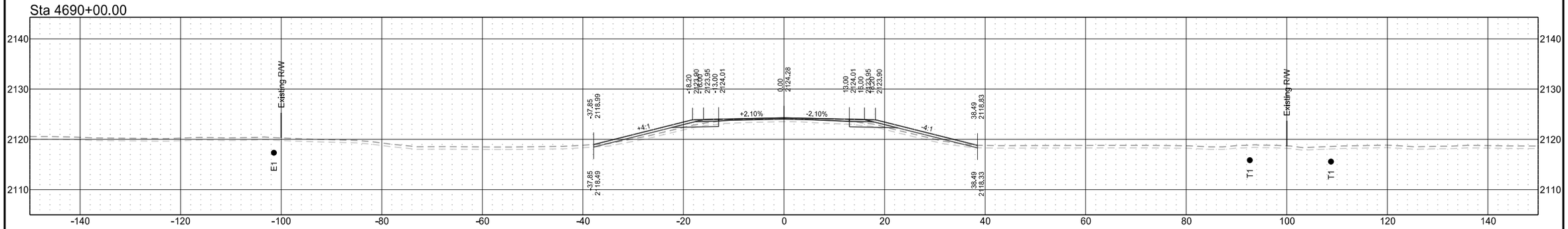
Sta 4685+00.00



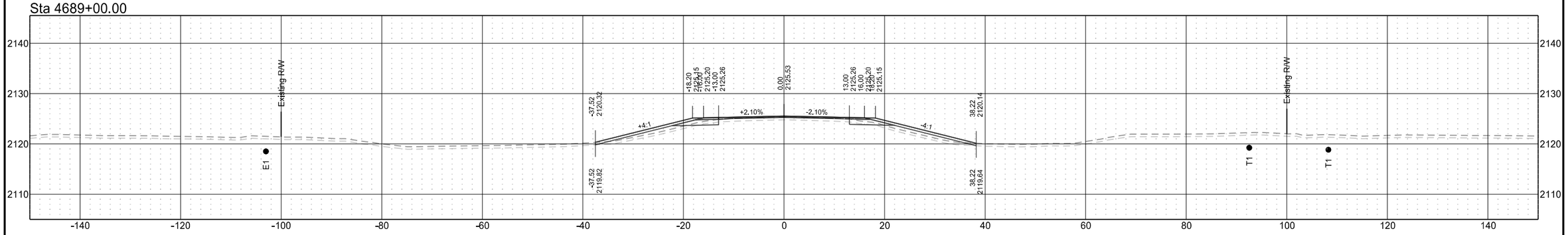
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	199
T4	D4				

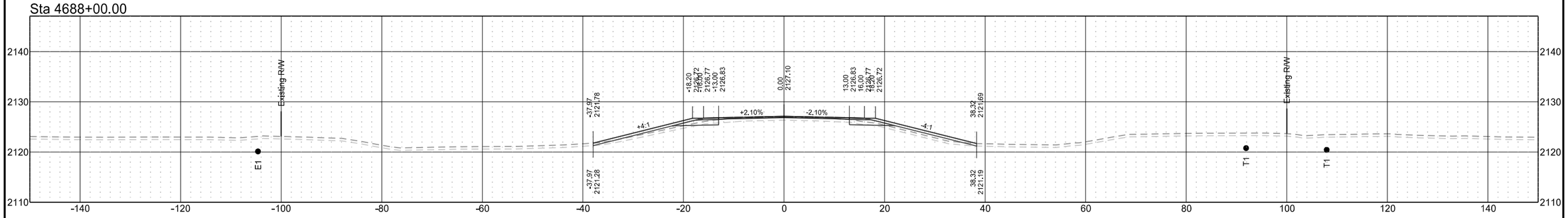
Sta 4690+00.00



Sta 4689+00.00



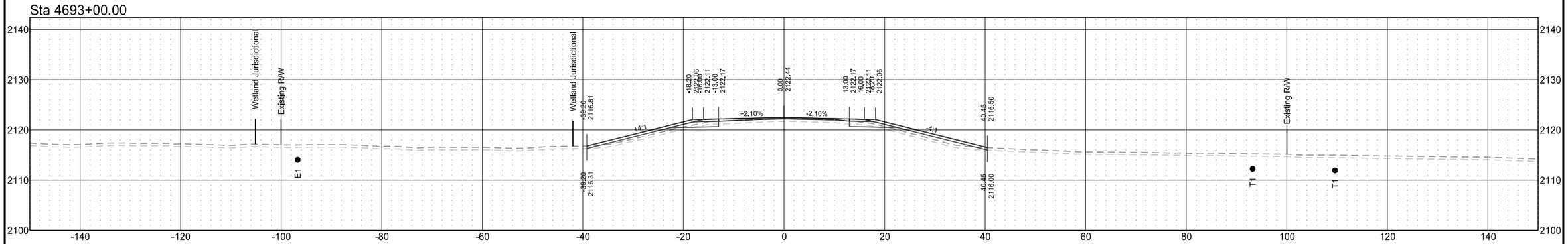
Sta 4688+00.00



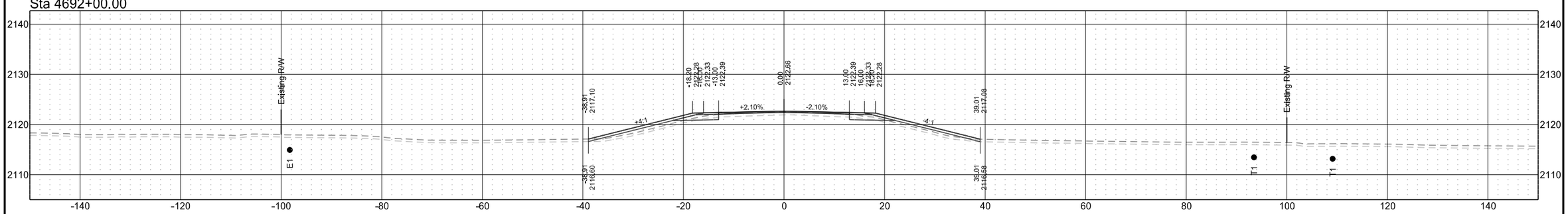
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	200
T4	D4				

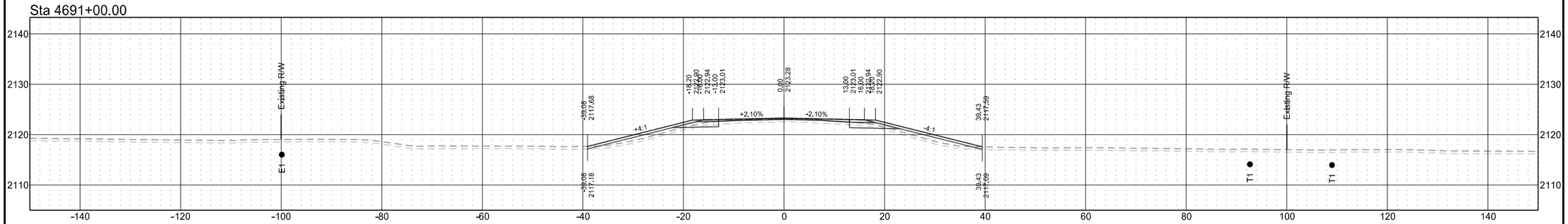
Sta 4693+00.00



Sta 4692+00.00



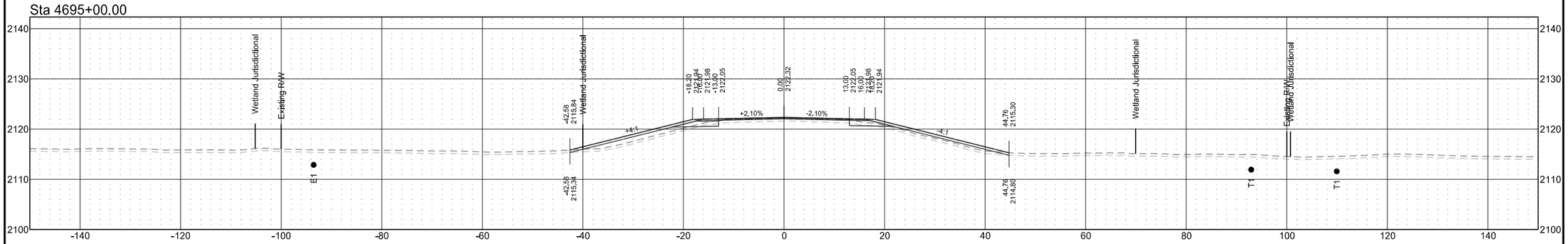
Sta 4691+00.00



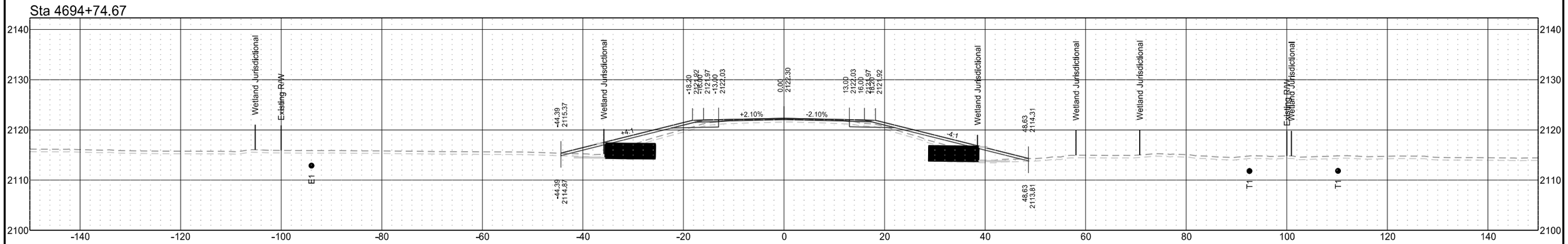
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	201
T4	D4				

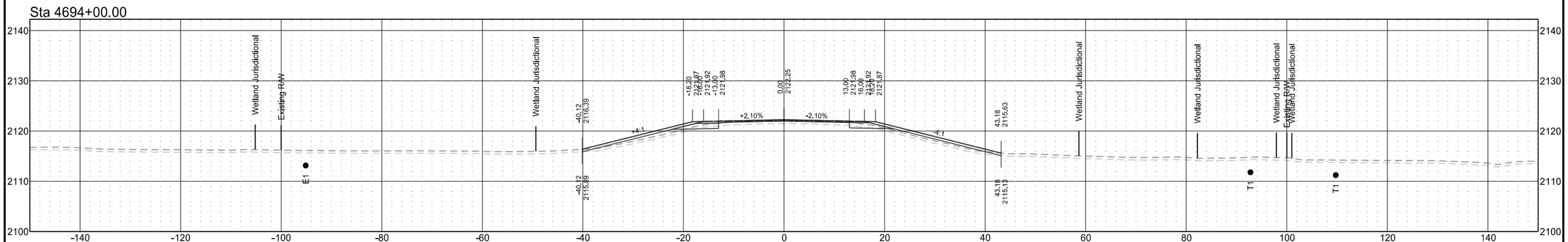
Sta 4695+00.00



Sta 4694+74.67



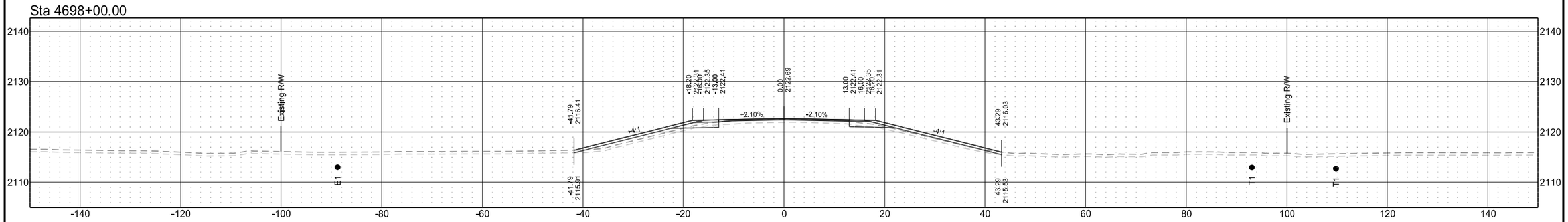
Sta 4694+00.00



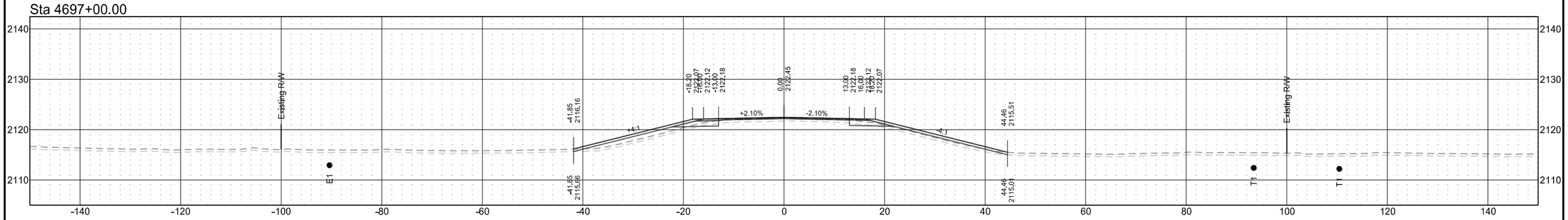
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	202
T4	D4				

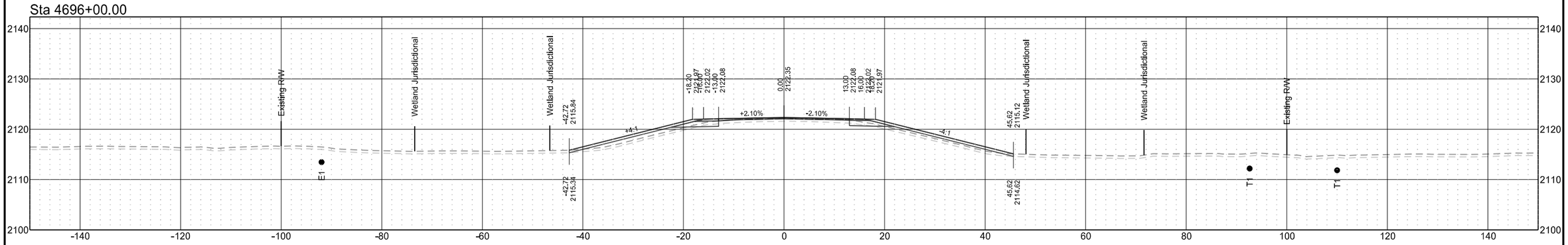
Sta 4698+00.00



Sta 4697+00.00



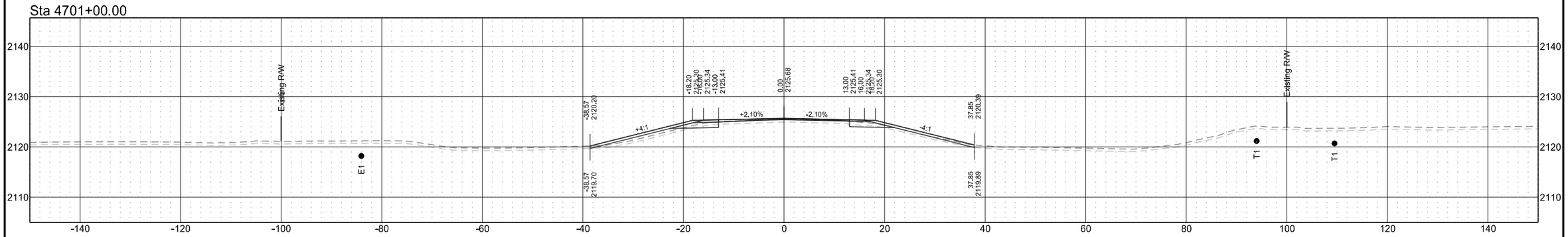
Sta 4696+00.00



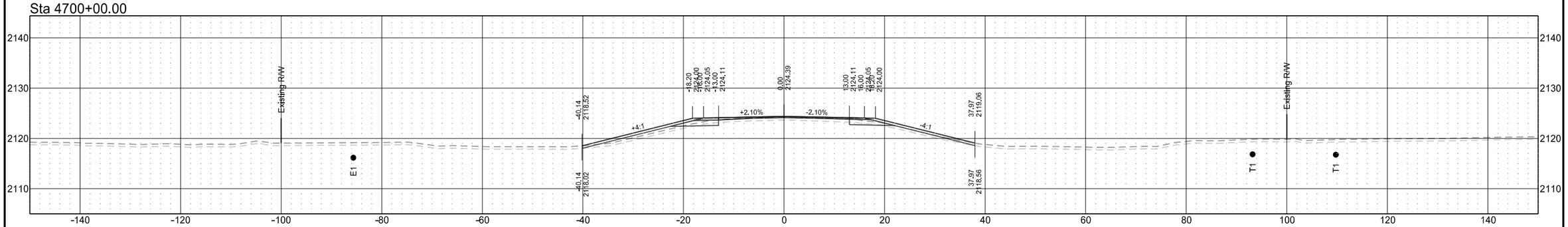
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	203
T4	D4				

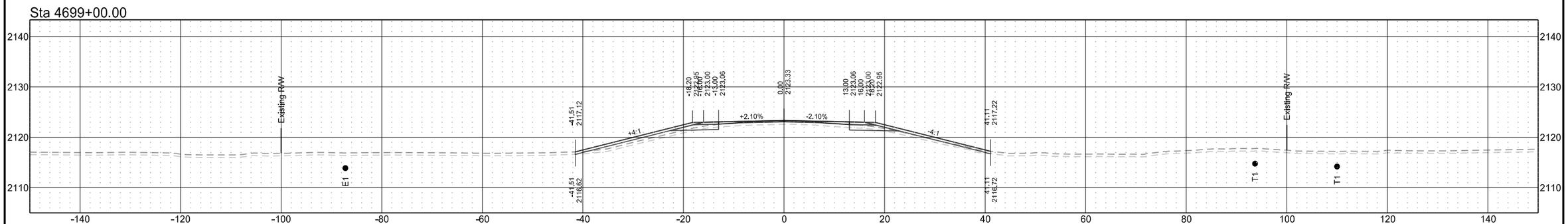
Sta 4701+00.00



Sta 4700+00.00



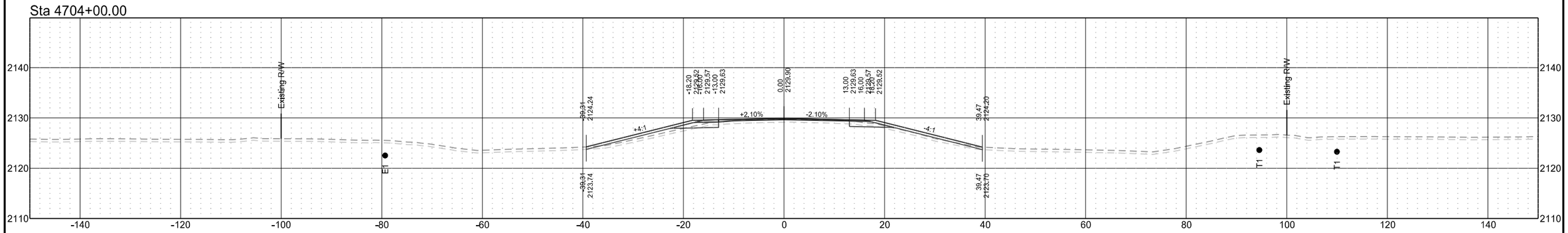
Sta 4699+00.00



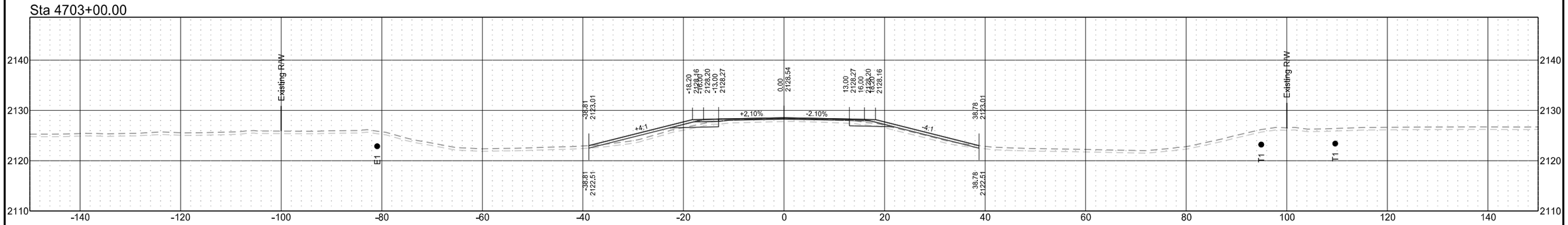
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	204
T4	D4				

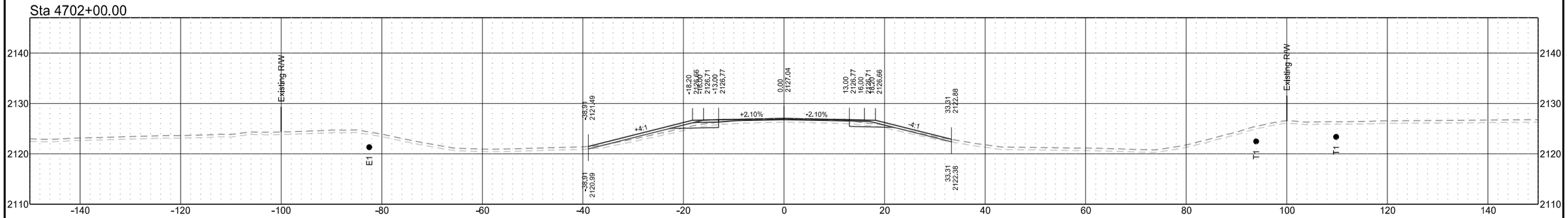
Sta 4704+00.00



Sta 4703+00.00



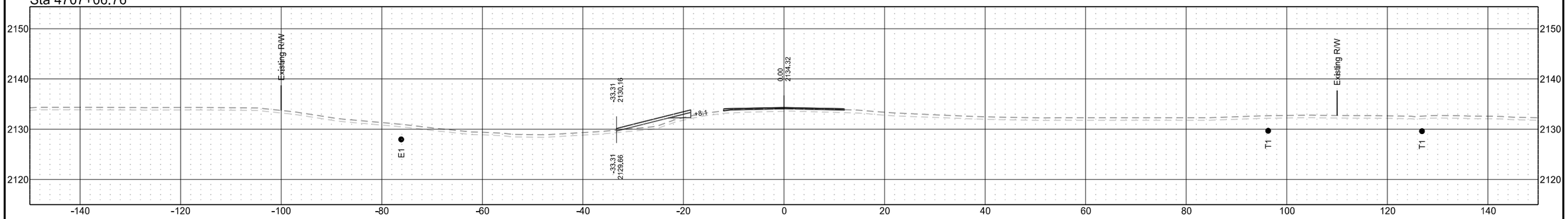
Sta 4702+00.00



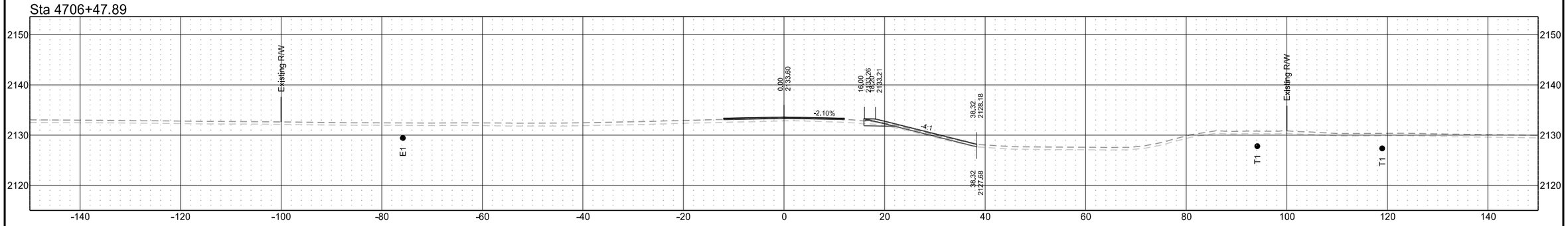
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	205
T4	D4				

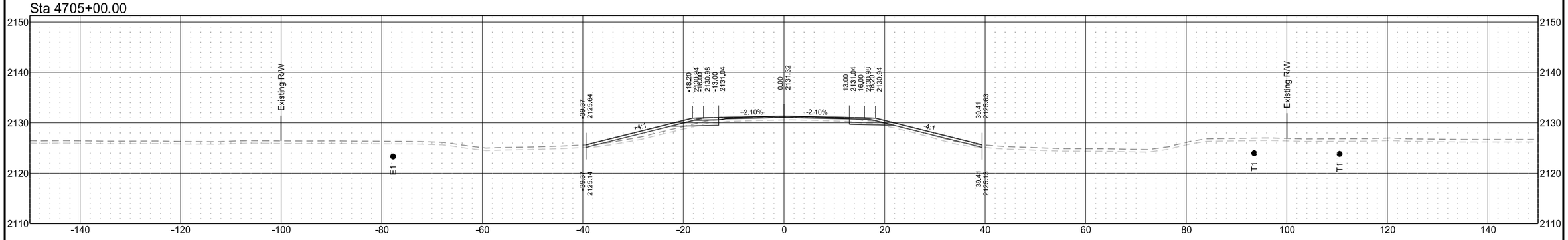
Sta 4707+06.76



Sta 4706+47.89



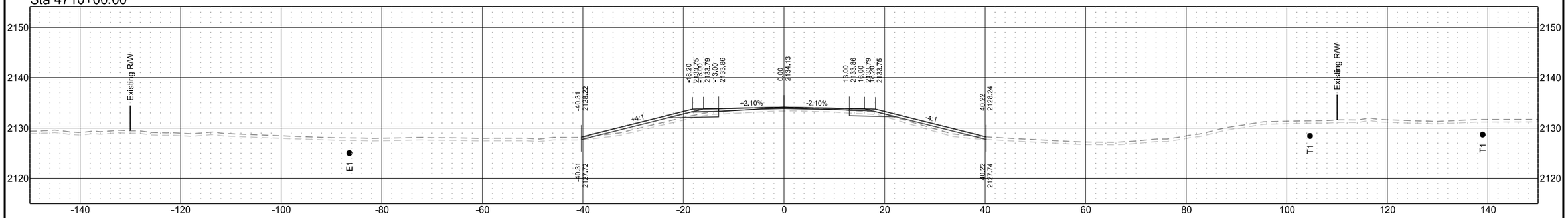
Sta 4705+00.00



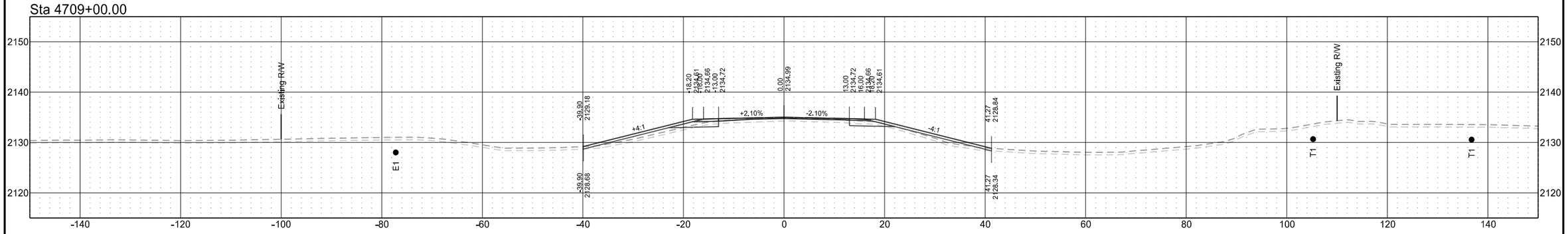
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	206
T4	D4				

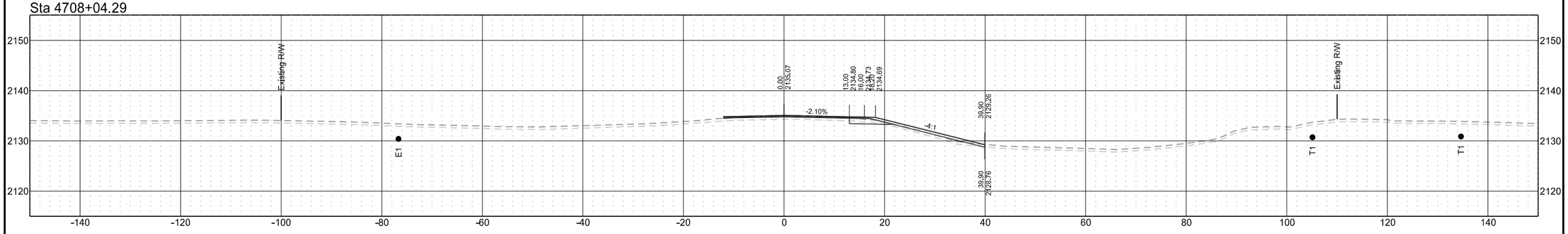
Sta 4710+00.00



Sta 4709+00.00



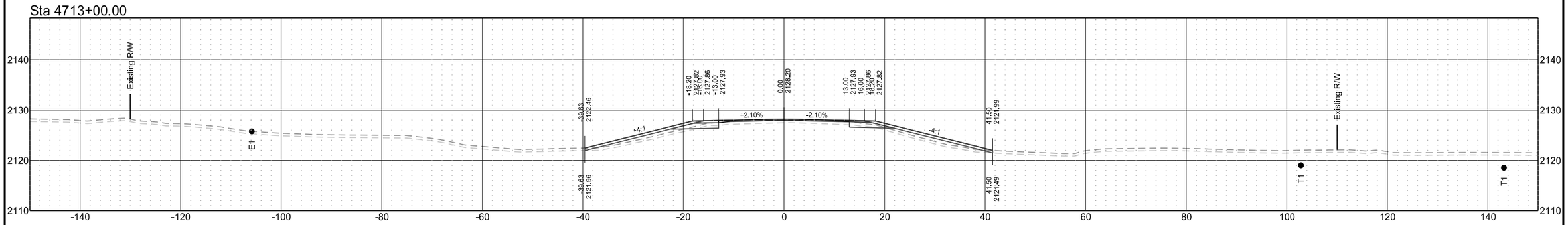
Sta 4708+04.29



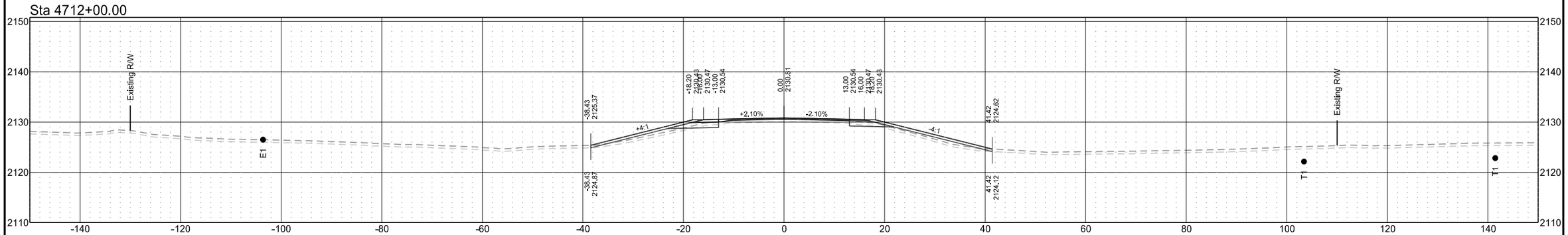
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	207
T4	D4				

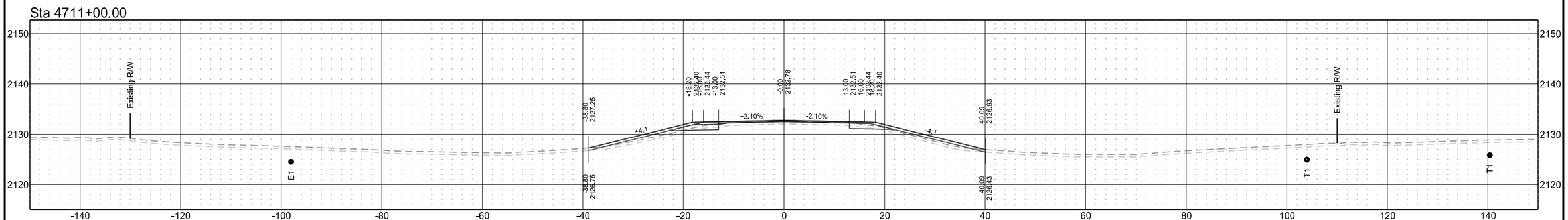
Sta 4713+00.00



Sta 4712+00.00



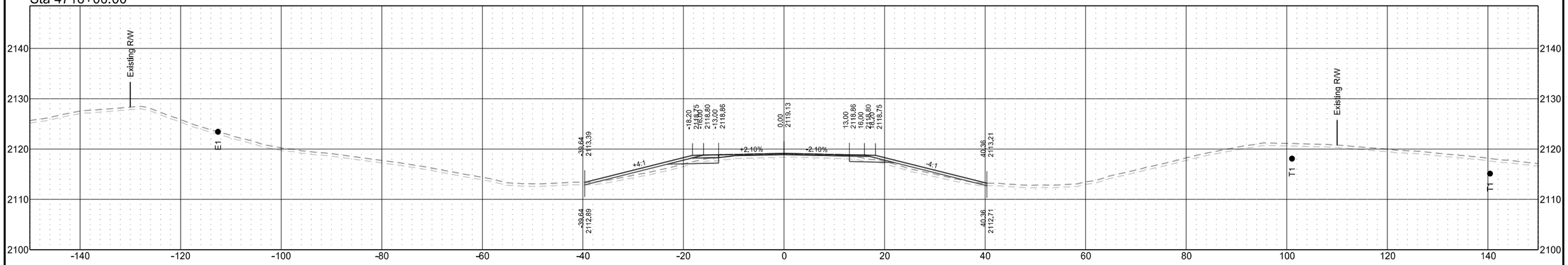
Sta 4711+00.00



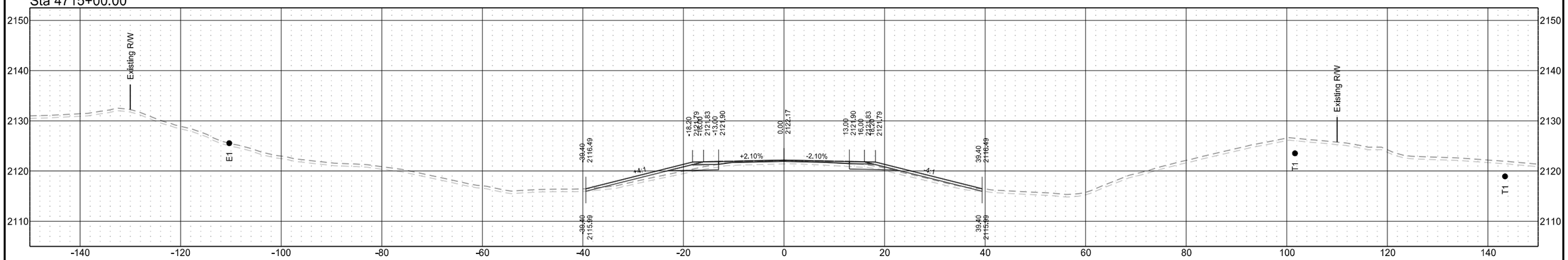
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	208
T4	D4				

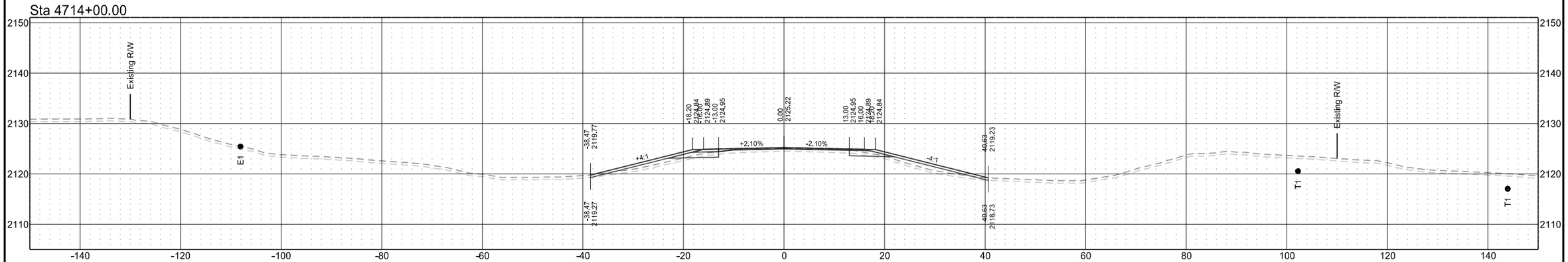
Sta 4716+00.00



Sta 4715+00.00



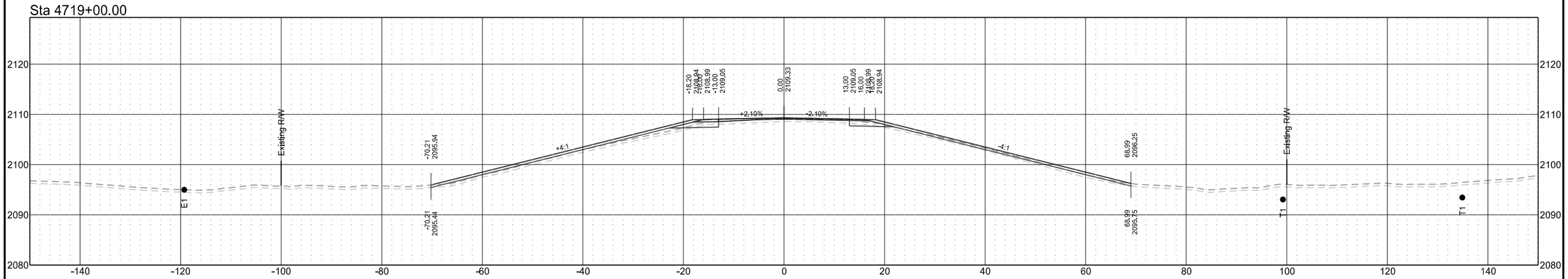
Sta 4714+00.00



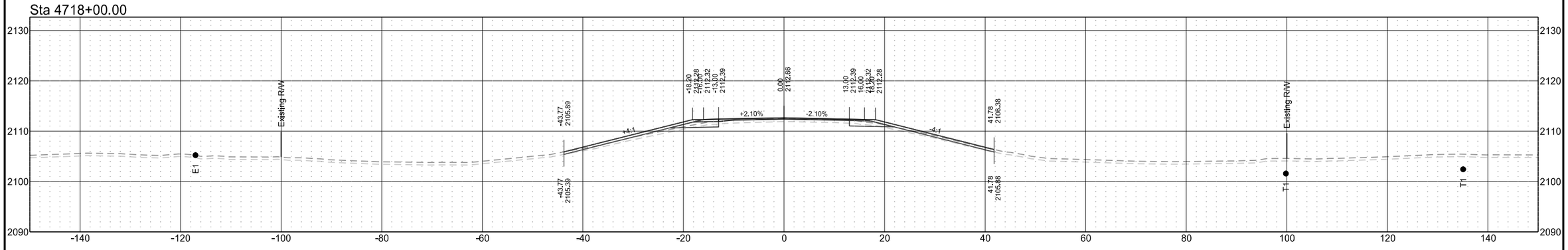
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	209
T4	D4				

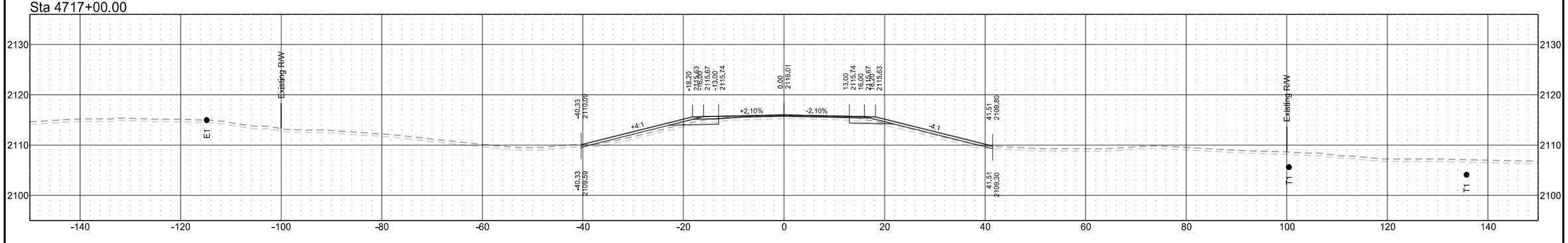
Sta 4719+00.00



Sta 4718+00.00



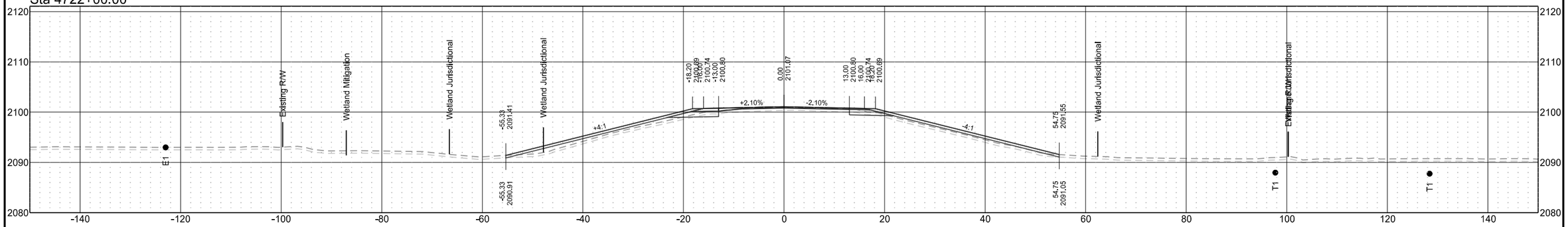
Sta 4717+00.00



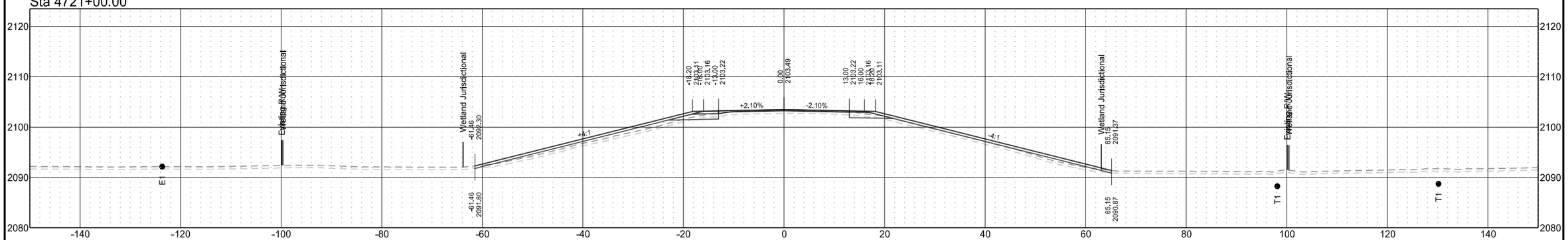
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	210
T4	D4				

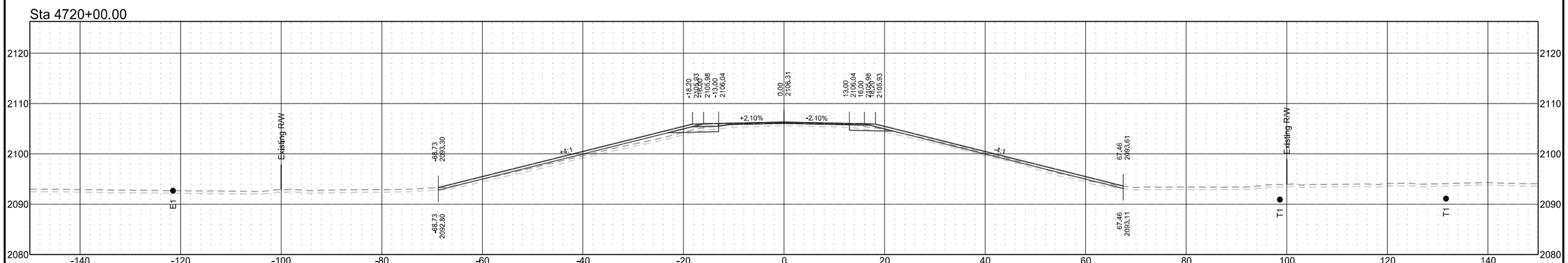
Sta 4722+00.00



Sta 4721+00.00



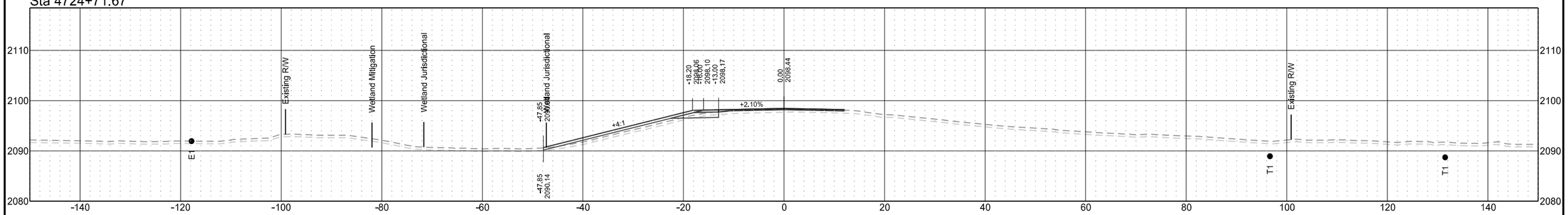
Sta 4720+00.00



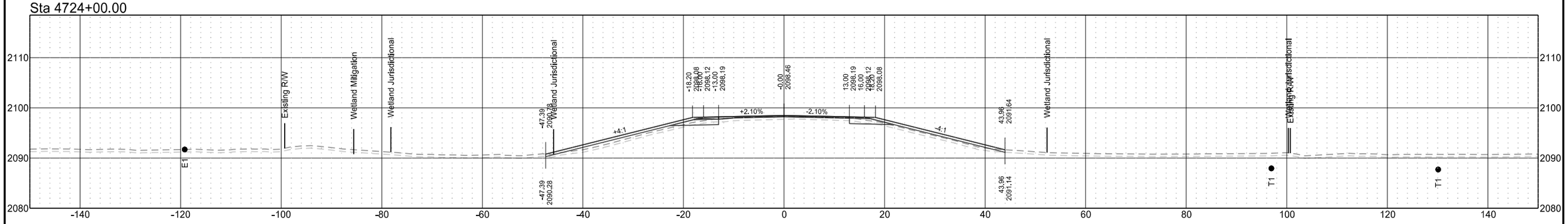
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	211
T4	D4				

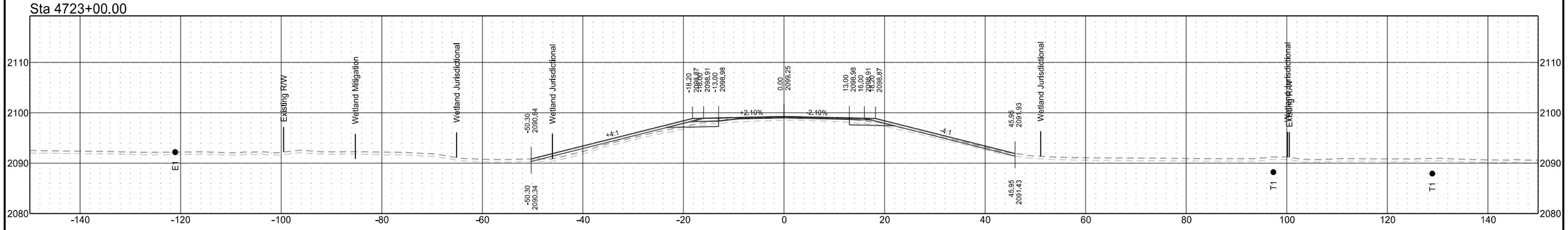
Sta 4724+71.67



Sta 4724+00.00



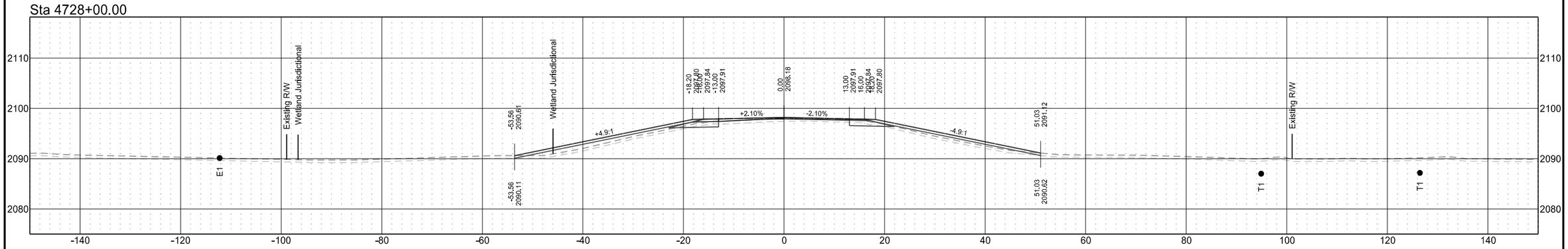
Sta 4723+00.00



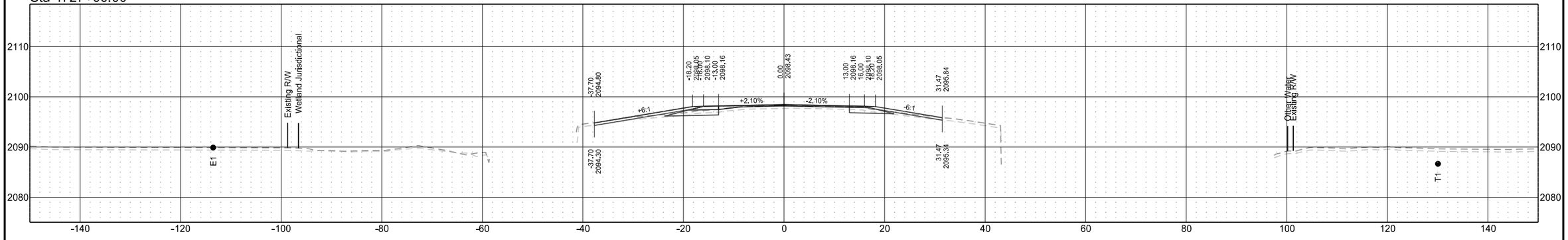
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	212
T4	D4				

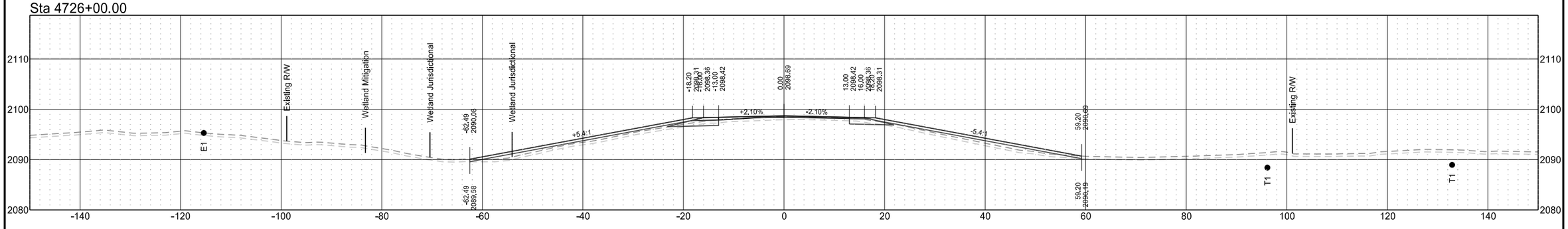
Sta 4728+00.00



Sta 4727+00.00



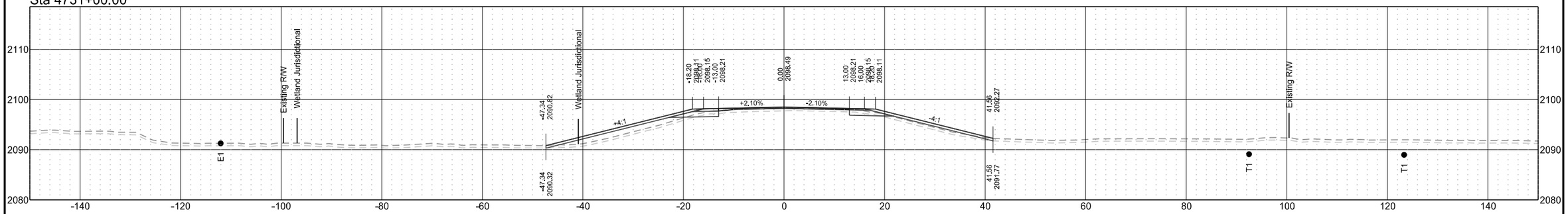
Sta 4726+00.00



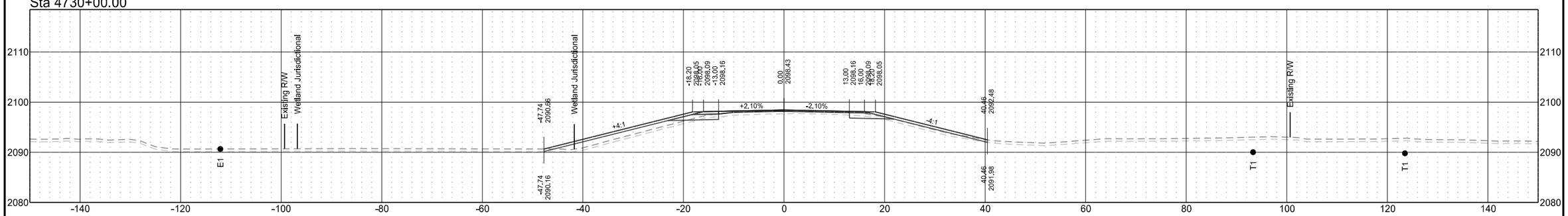
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	213
T4	D4				

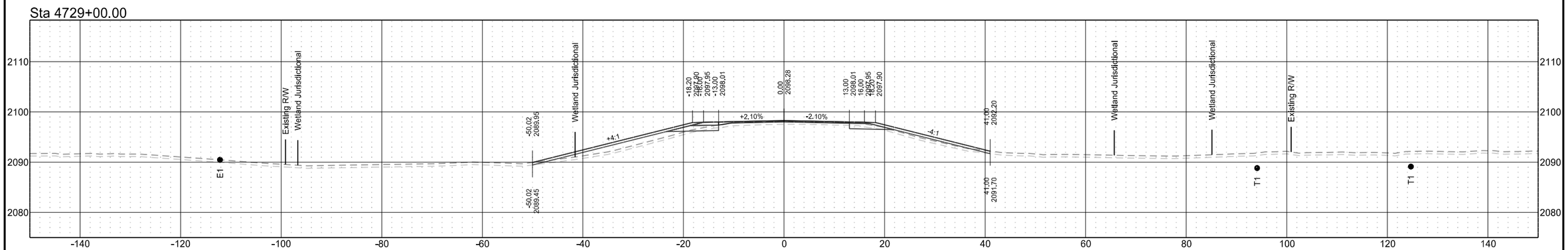
Sta 4731+00.00



Sta 4730+00.00



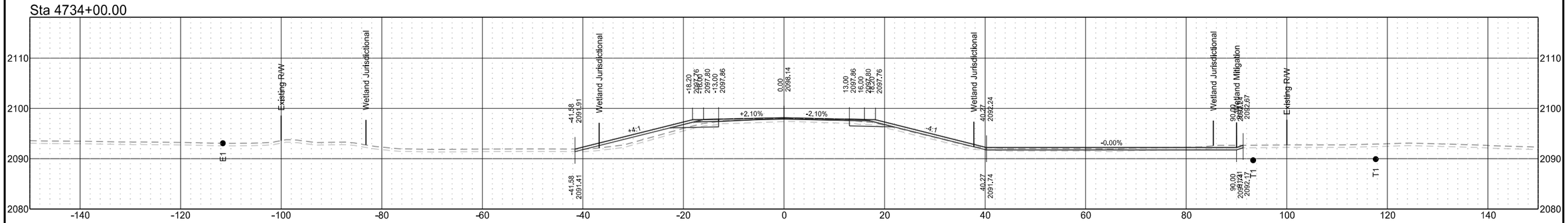
Sta 4729+00.00



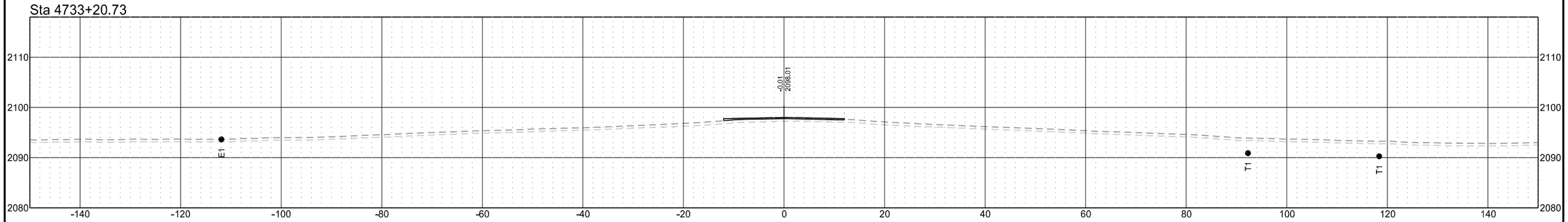
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	214
T4	D4				

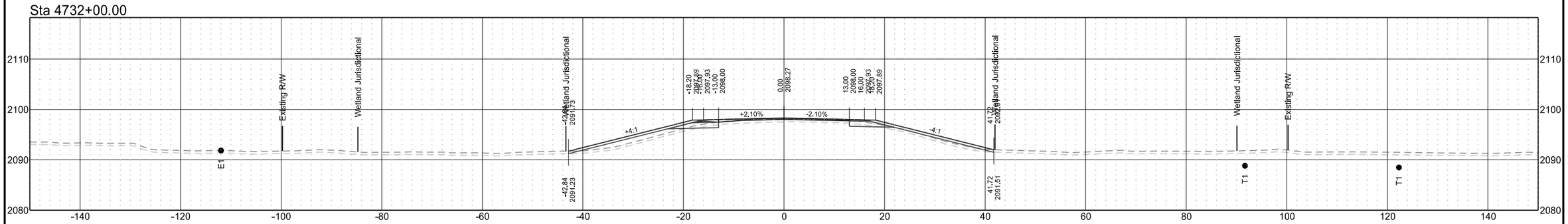
Sta 4734+00.00



Sta 4733+20.73



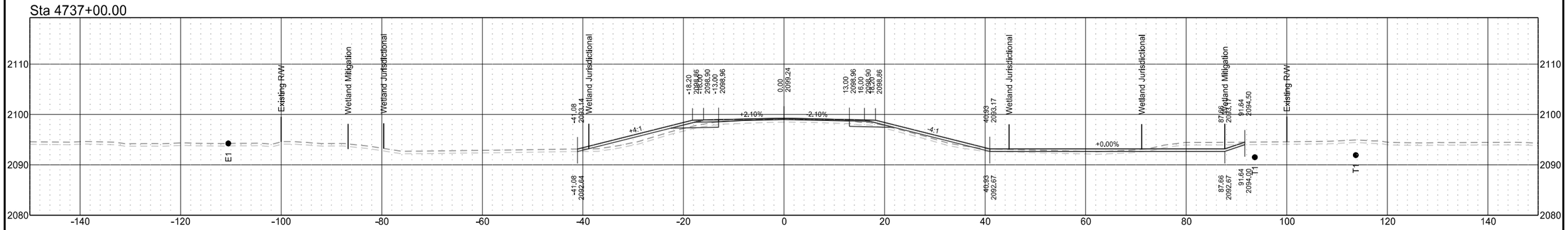
Sta 4732+00.00



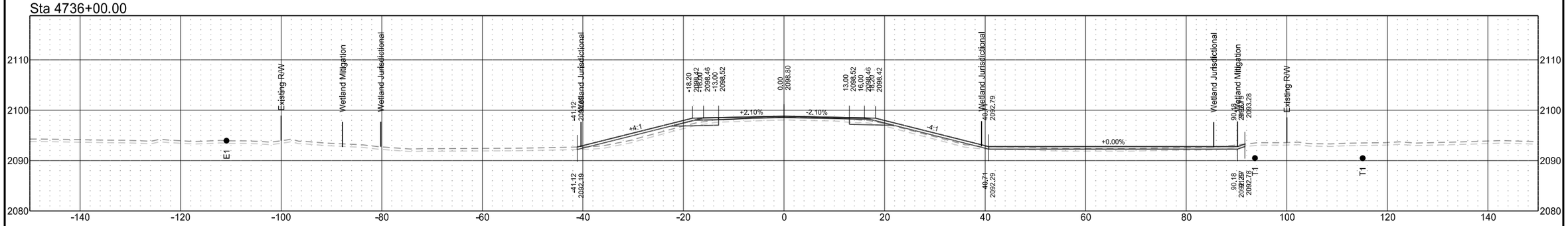
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	215
T4	D4				

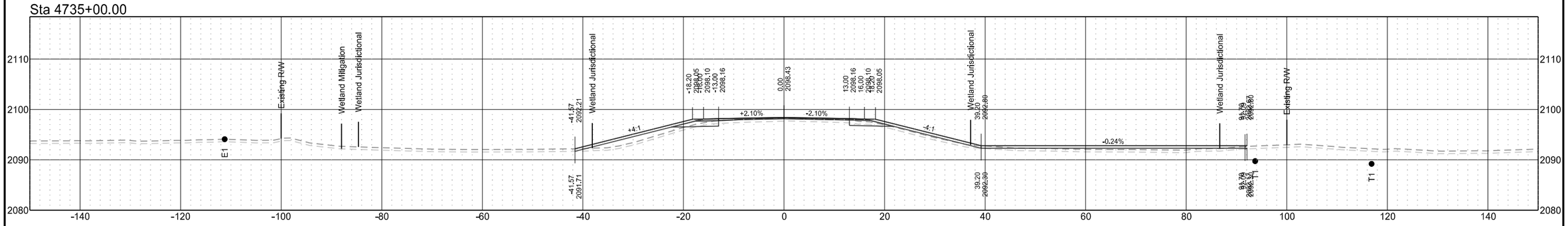
Sta 4737+00.00



Sta 4736+00.00



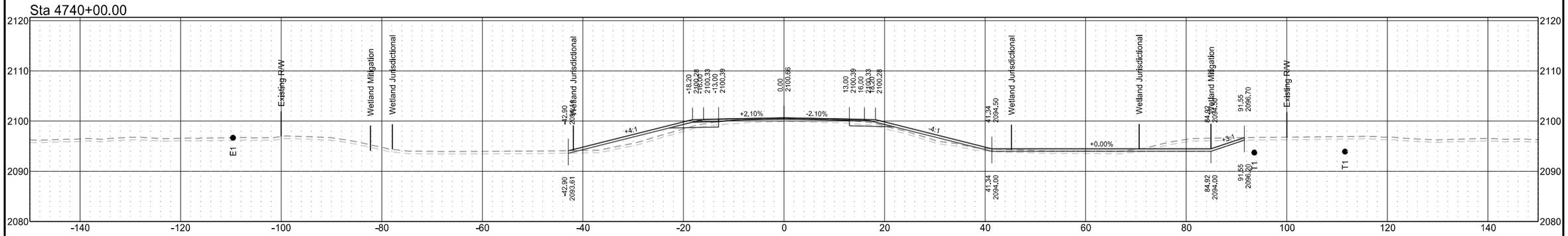
Sta 4735+00.00



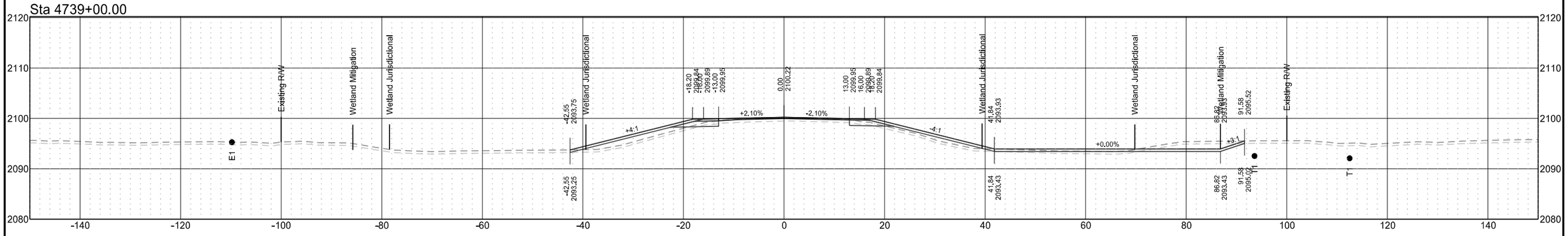
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	216
T4	D4				

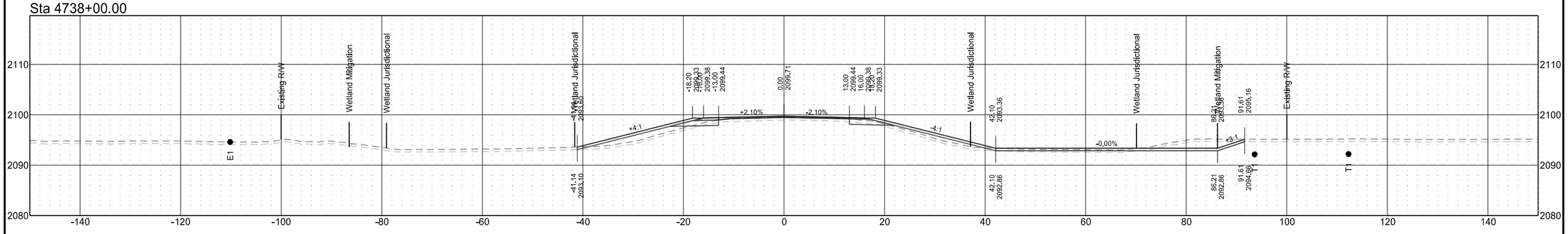
Sta 4740+00.00



Sta 4739+00.00



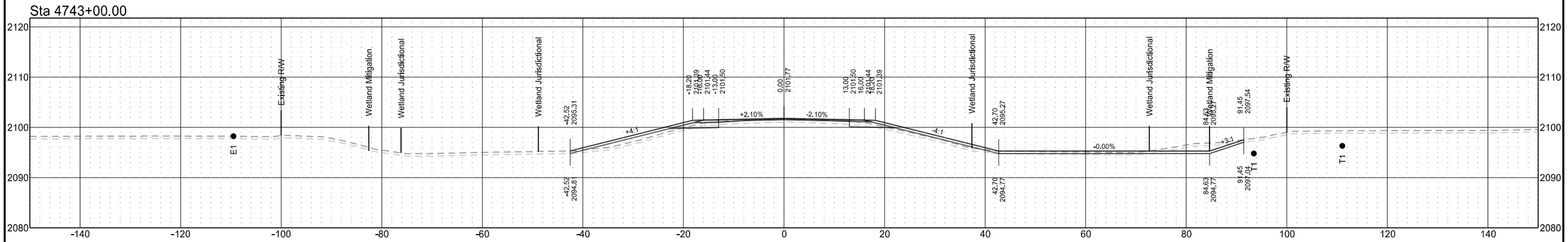
Sta 4738+00.00



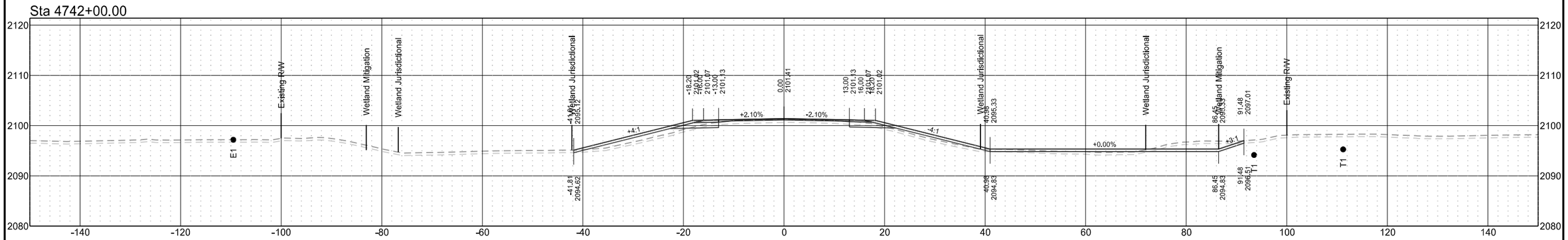
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	217
T4	D4				

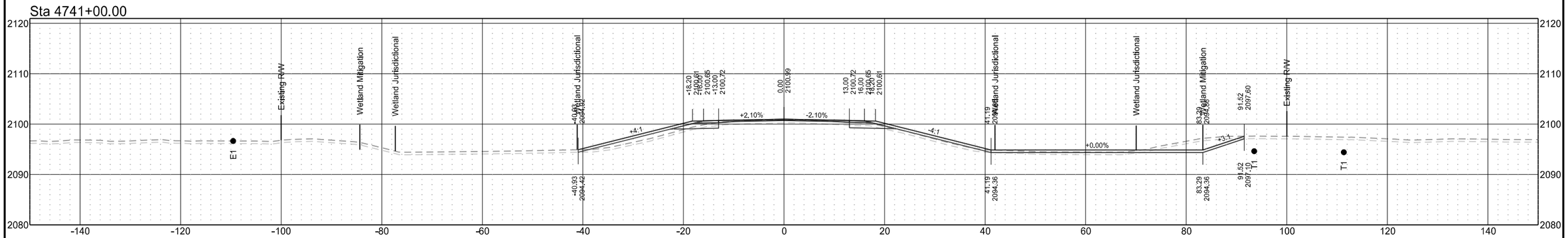
Sta 4743+00.00



Sta 4742+00.00



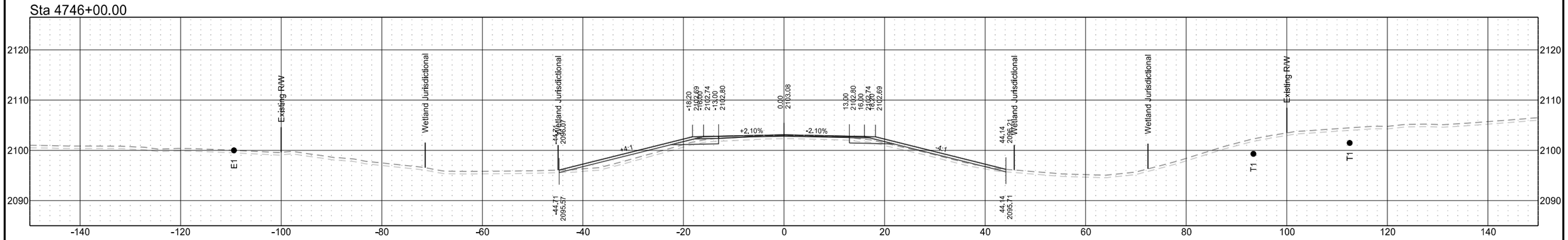
Sta 4741+00.00



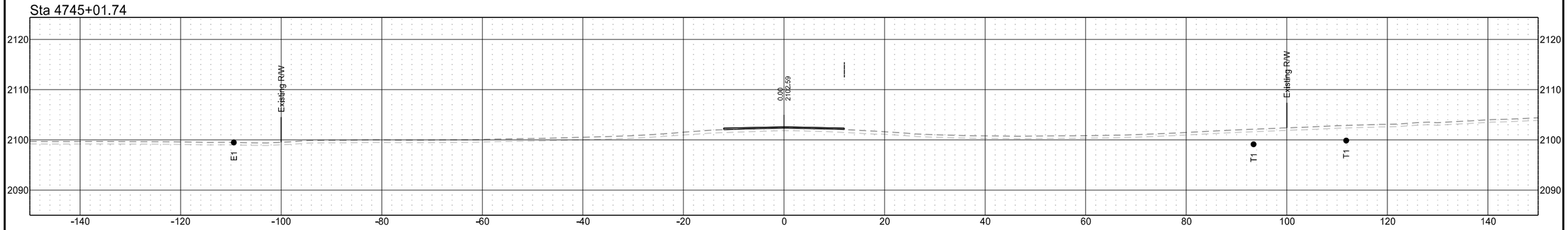
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	218
T4	D4				

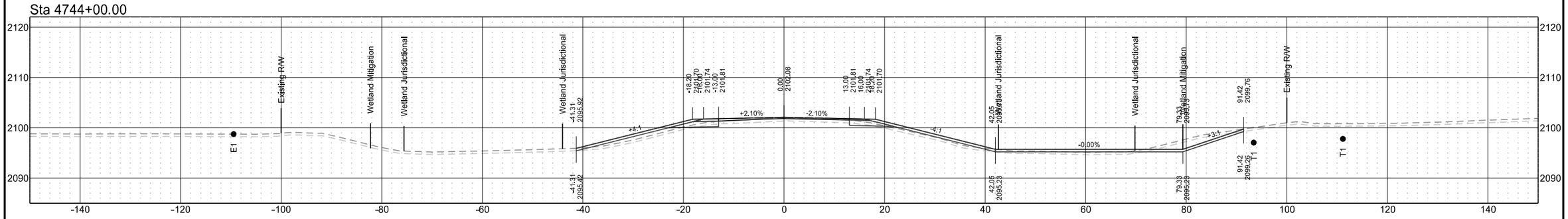
Sta 4746+00.00



Sta 4745+01.74



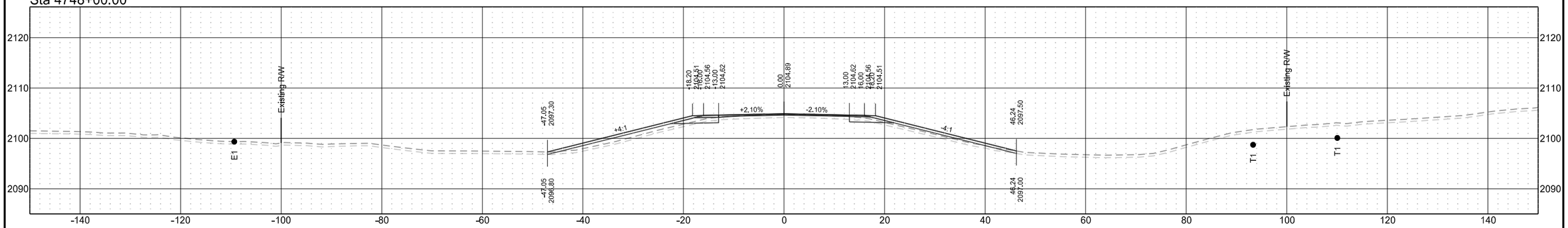
Sta 4744+00.00



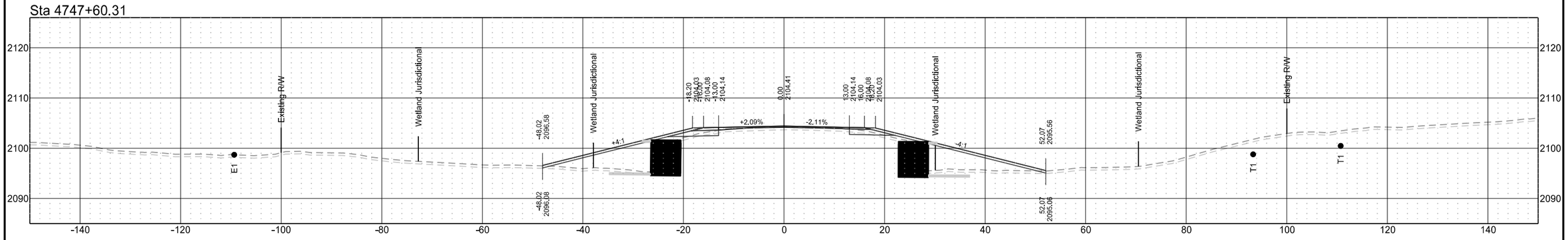
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	219
T4	D4				

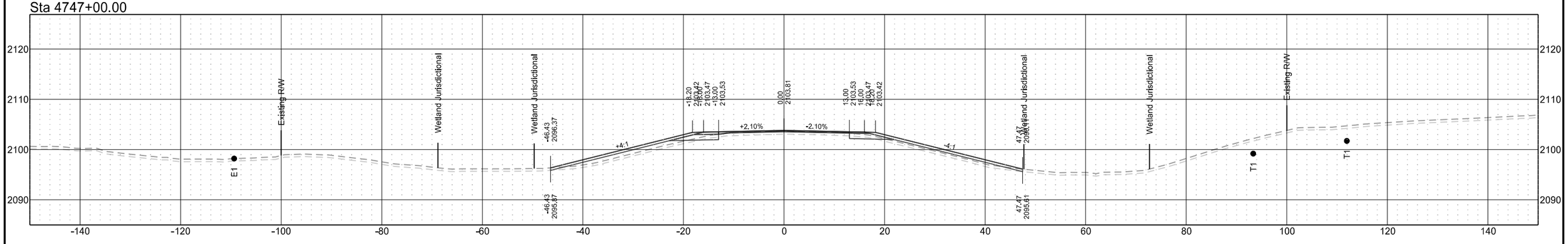
Sta 4748+00.00



Sta 4747+60.31



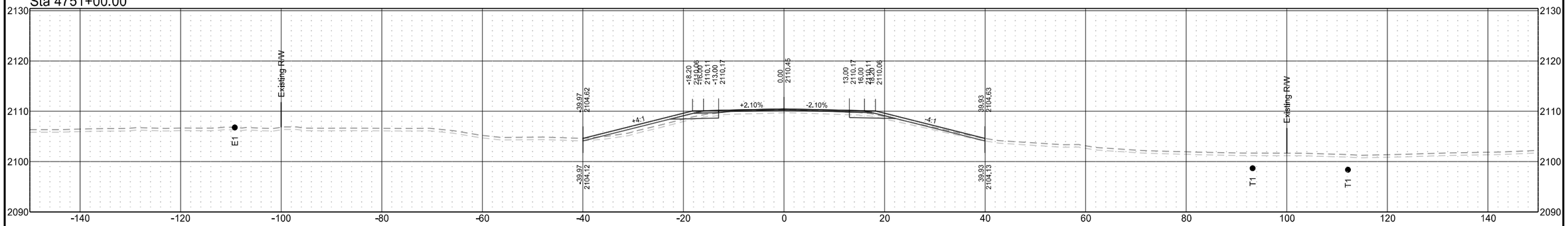
Sta 4747+00.00



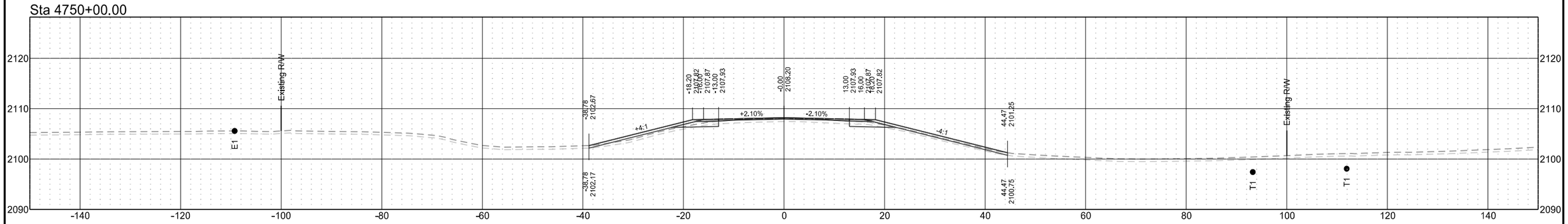
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	220
T4	D4				

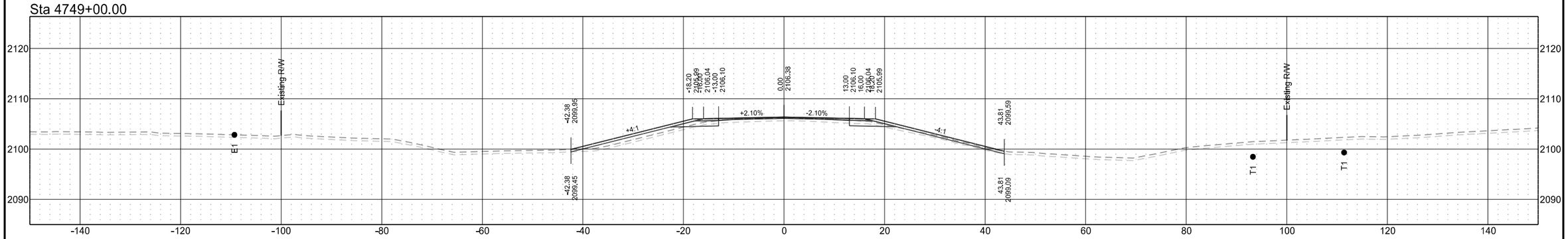
Sta 4751+00.00



Sta 4750+00.00



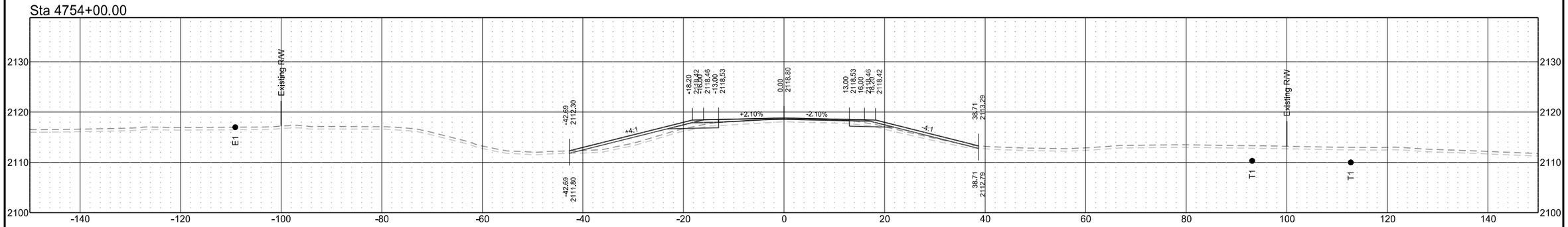
Sta 4749+00.00



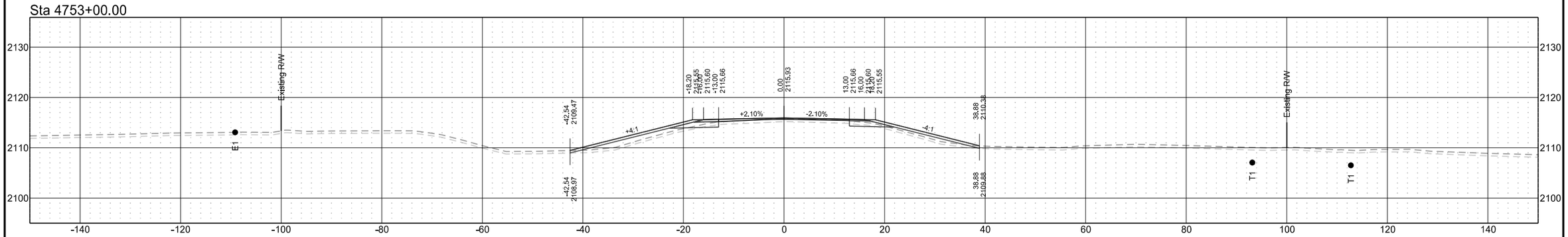
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	221
T4	D4				

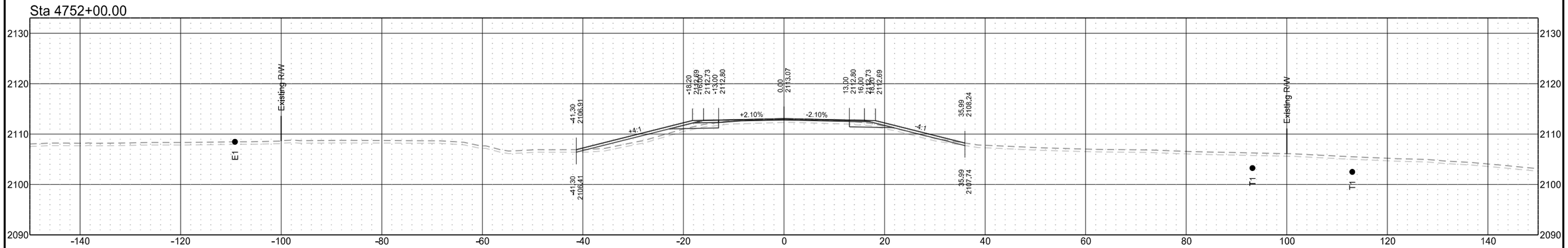
Sta 4754+00.00



Sta 4753+00.00



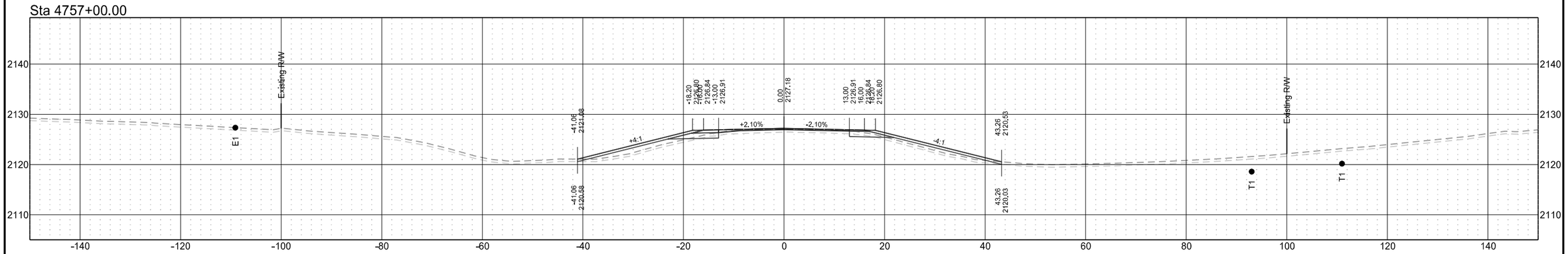
Sta 4752+00.00



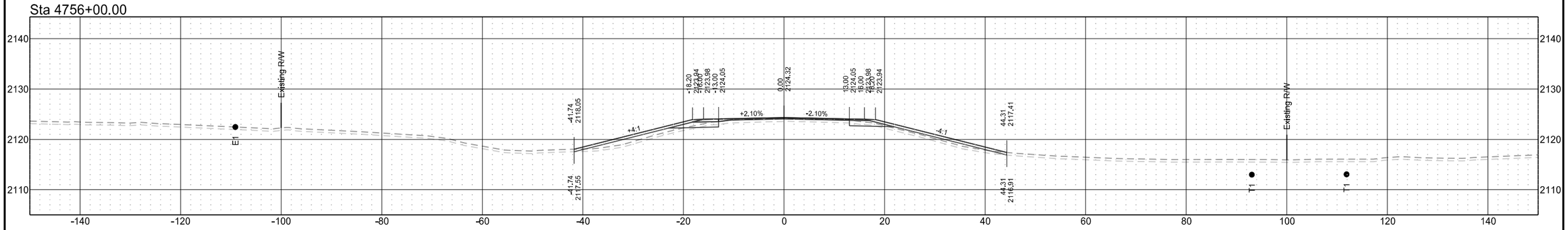
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	222
T4	D4				

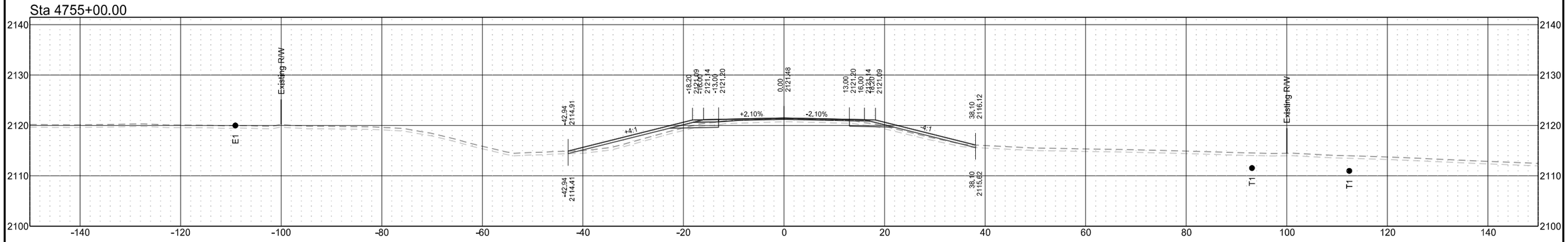
Sta 4757+00.00



Sta 4756+00.00



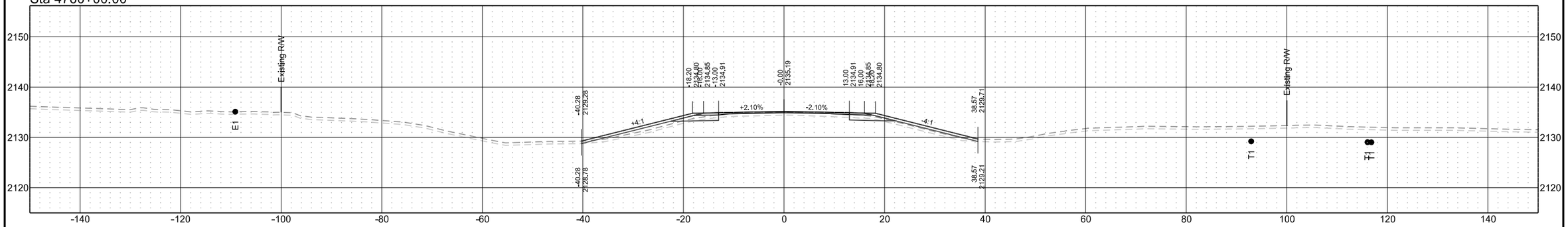
Sta 4755+00.00



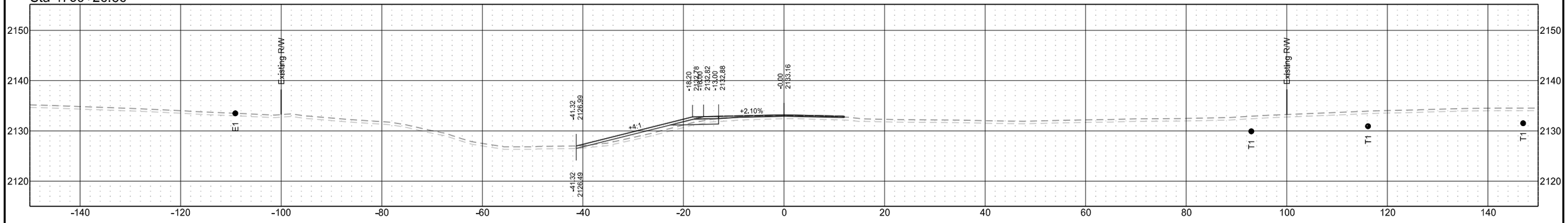
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	223
T4	D4				

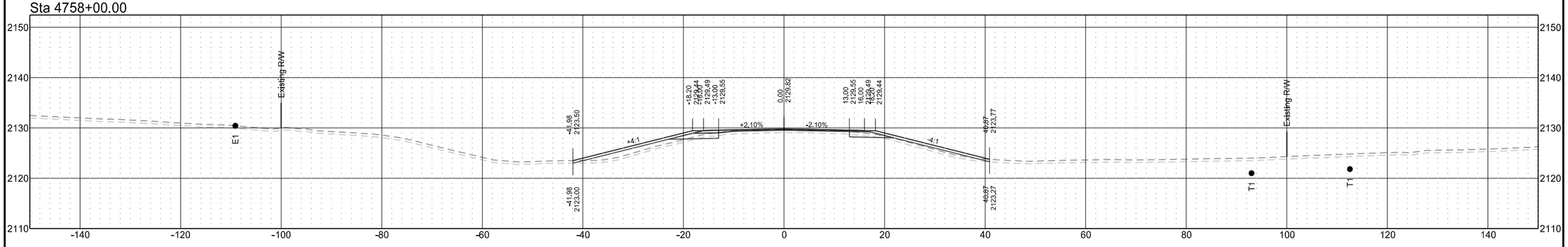
Sta 4760+00.00



Sta 4759+26.86



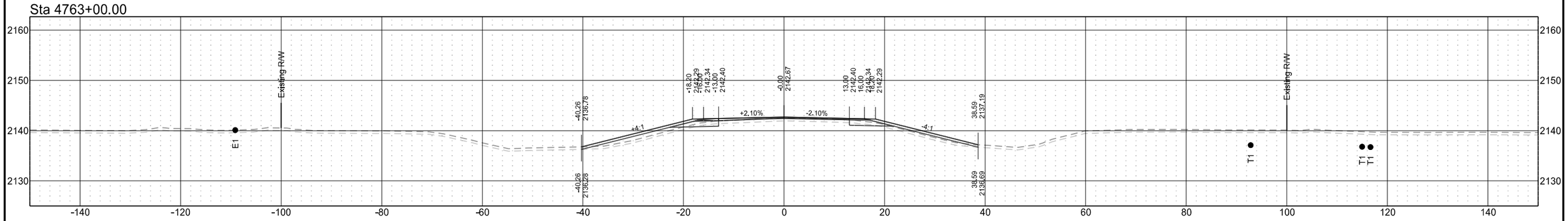
Sta 4758+00.00



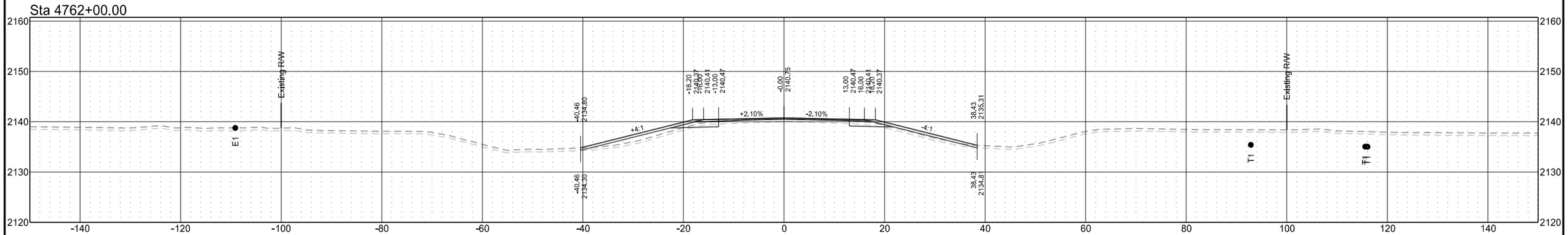
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	224
T4	D4				

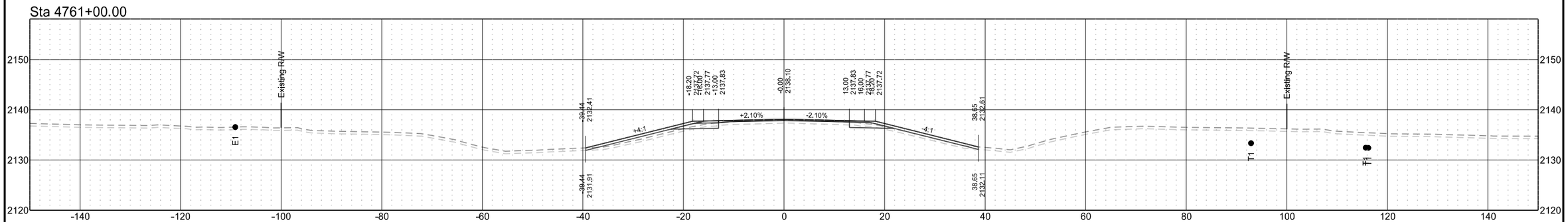
Sta 4763+00.00



Sta 4762+00.00



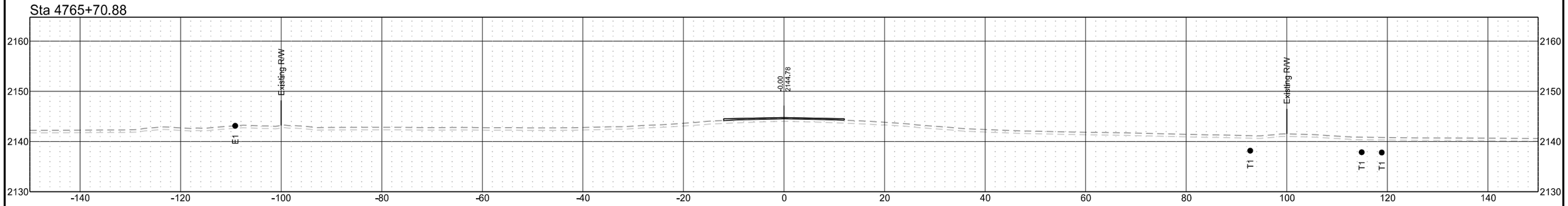
Sta 4761+00.00



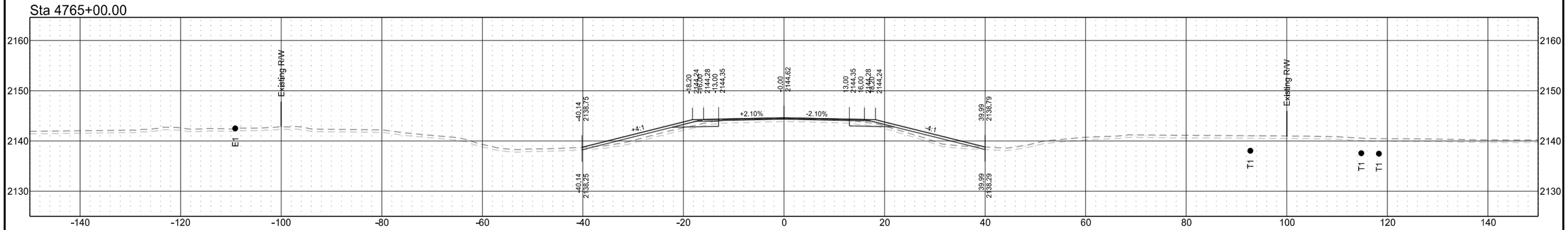
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	225
T4	D4				

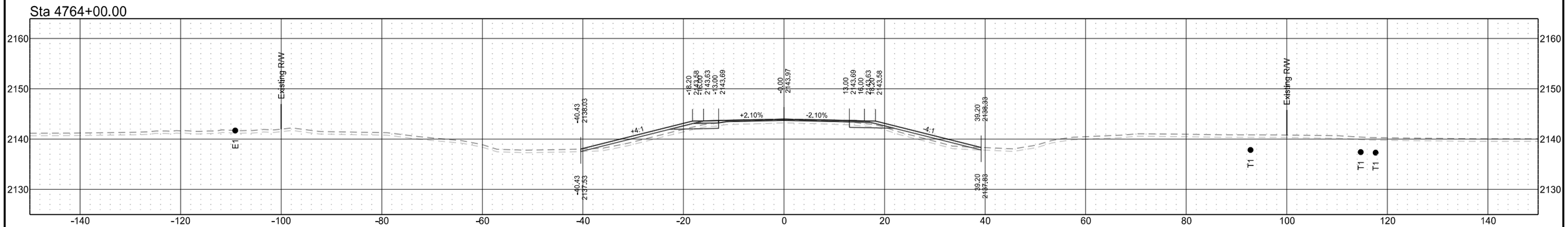
Sta 4765+70.88



Sta 4765+00.00



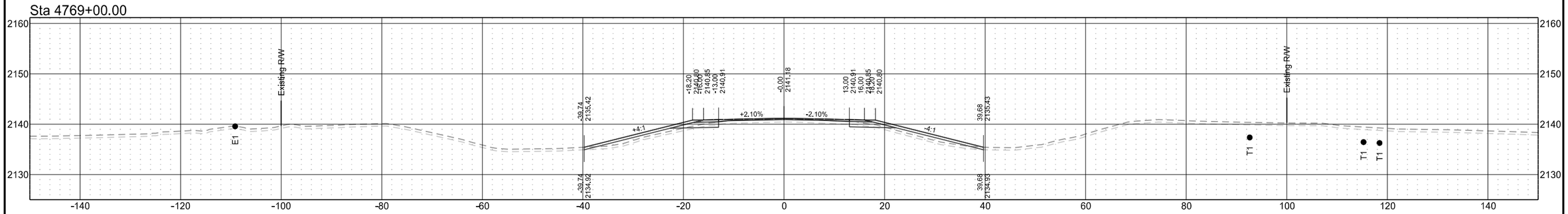
Sta 4764+00.00



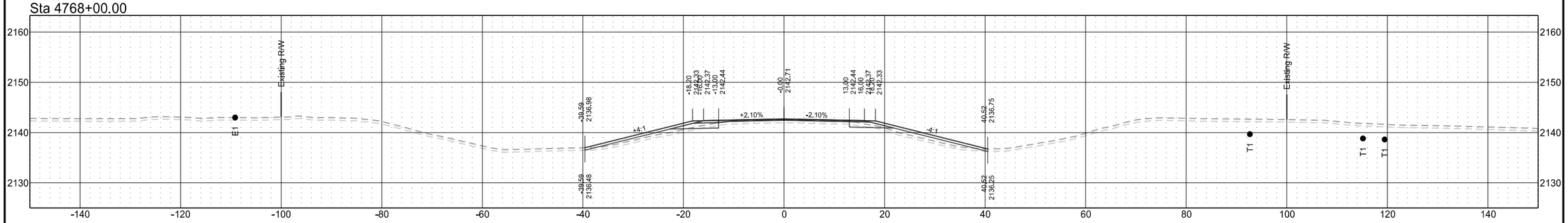
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	226
T4	D4				

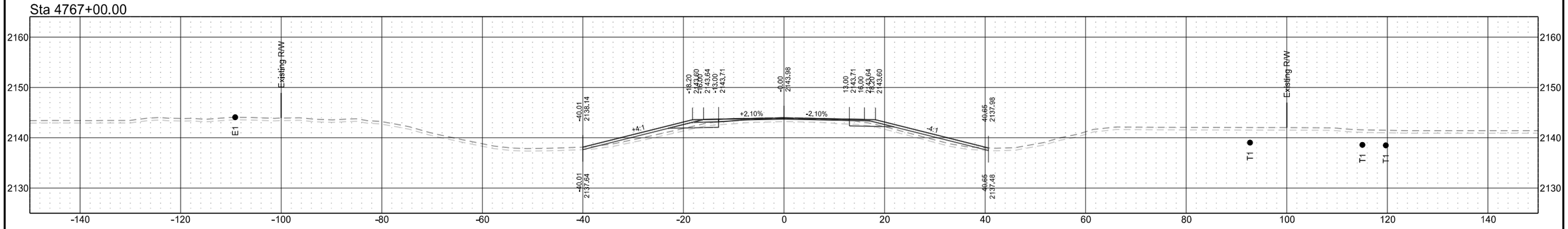
Sta 4769+00.00



Sta 4768+00.00



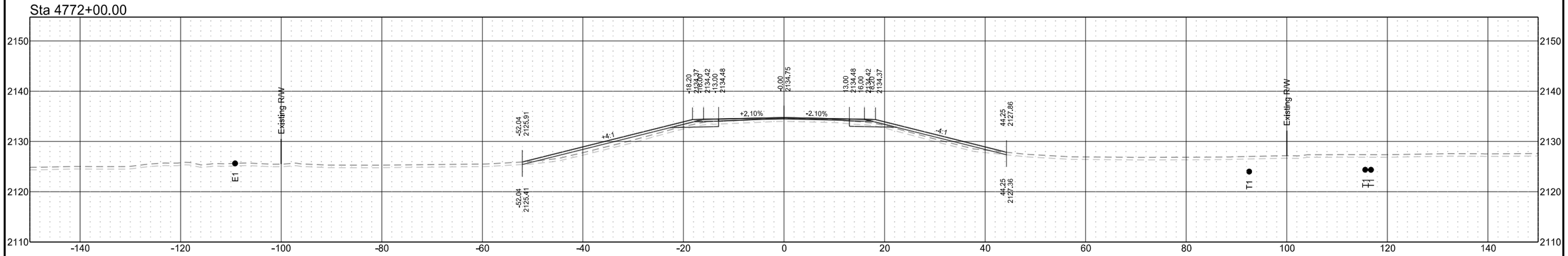
Sta 4767+00.00



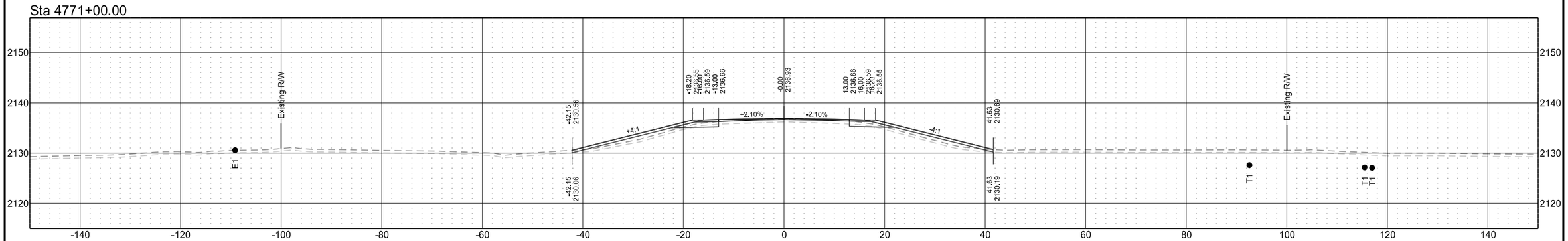
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	227
T4	D4				

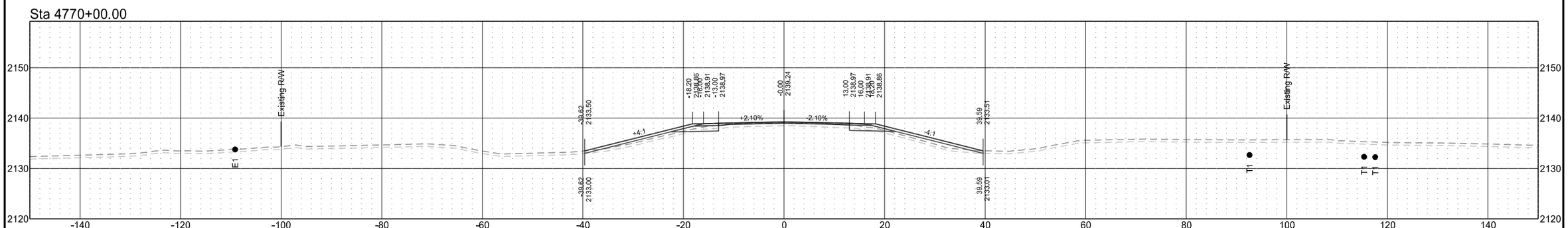
Sta 4772+00.00



Sta 4771+00.00



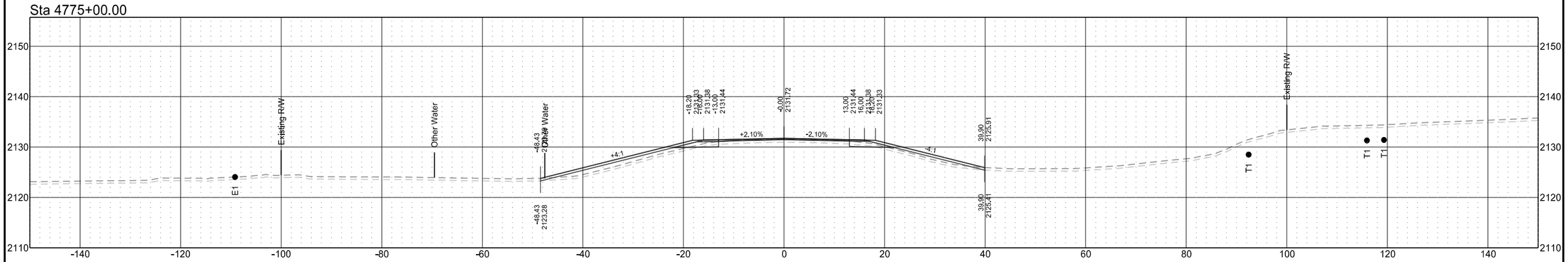
Sta 4770+00.00



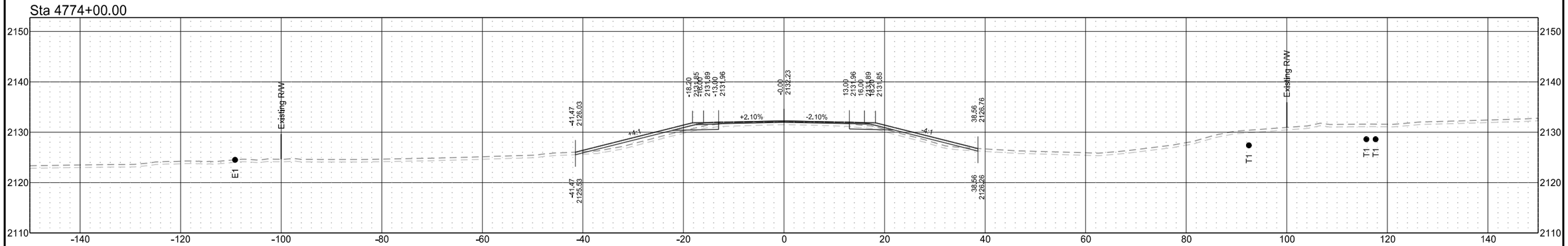
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	228
T4	D4				

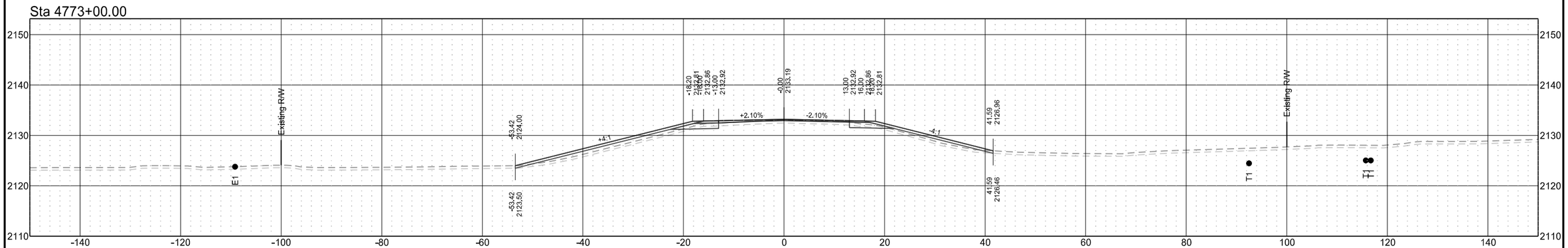
Sta 4775+00.00



Sta 4774+00.00



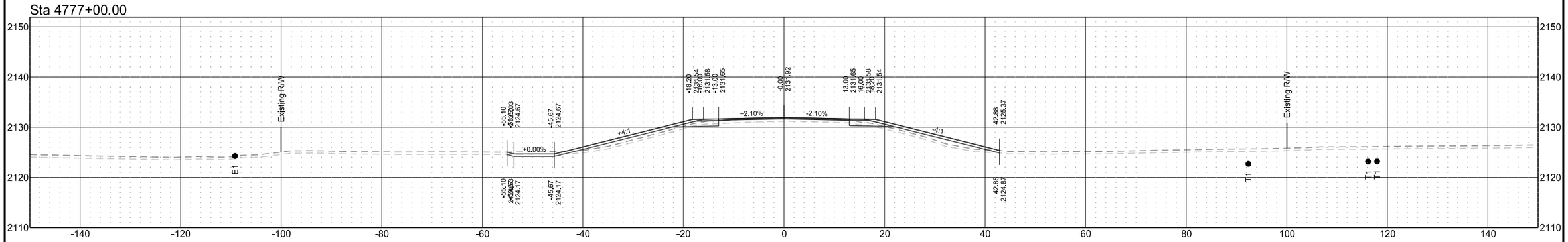
Sta 4773+00.00



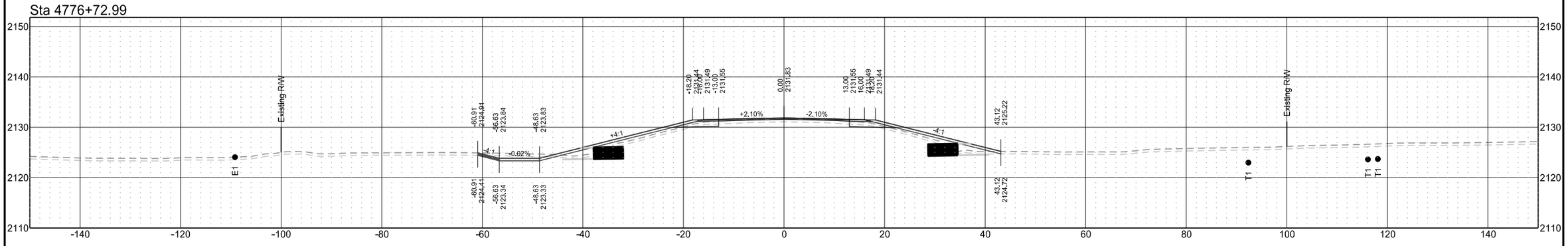
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	229
T4	D4				

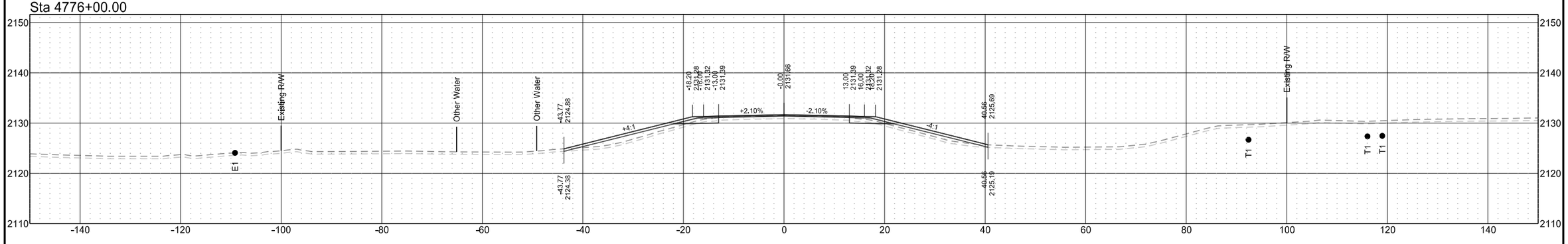
Sta 4777+00.00



Sta 4776+72.99



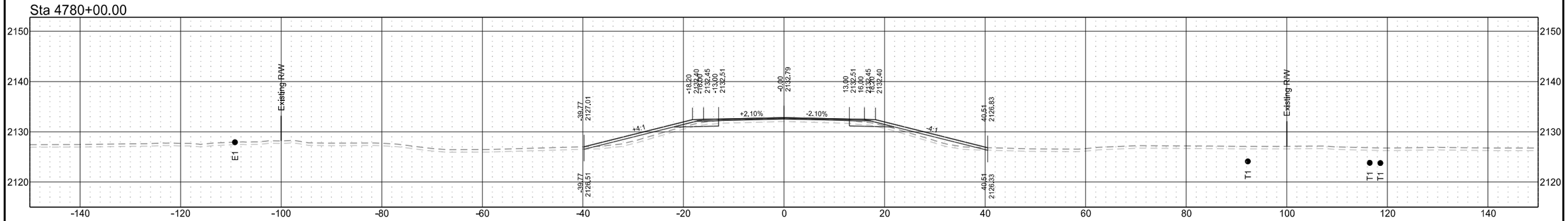
Sta 4776+00.00



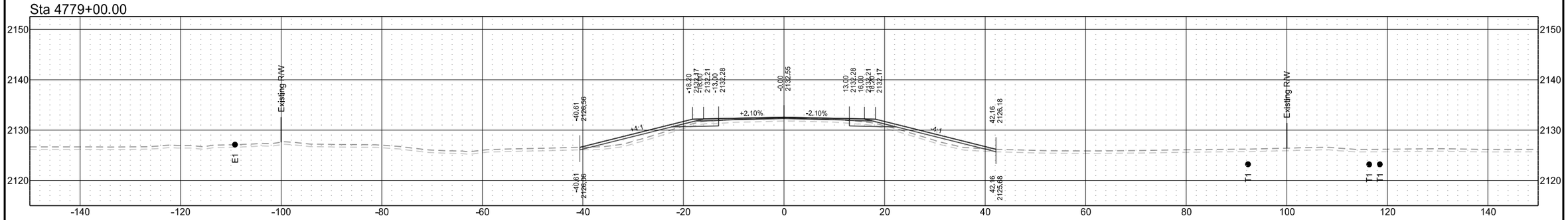
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	230
T4	D4				

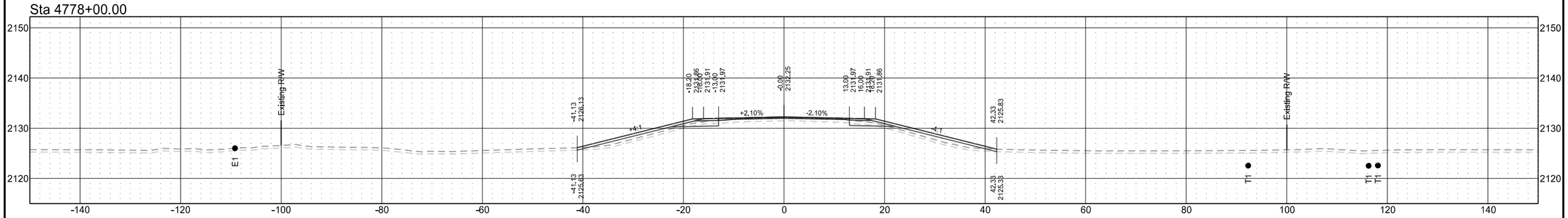
Sta 4780+00.00



Sta 4779+00.00



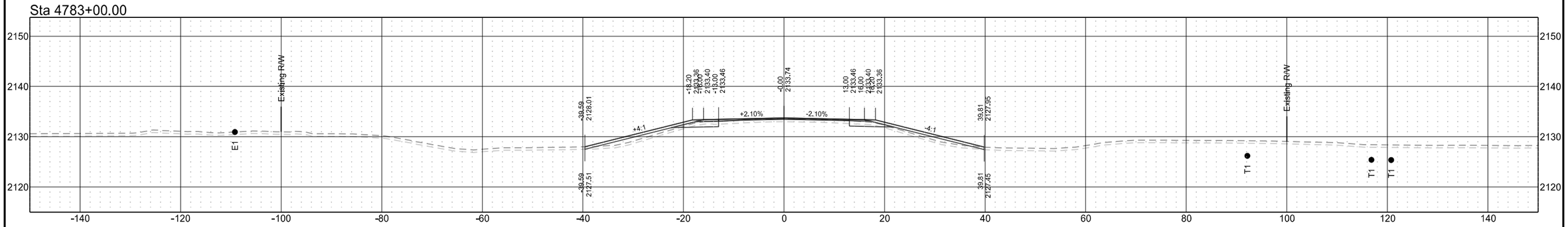
Sta 4778+00.00



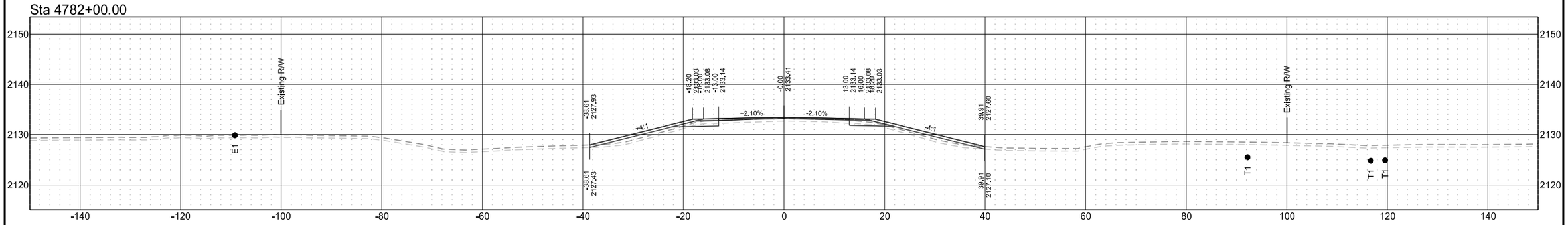
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	231
T4	D4				

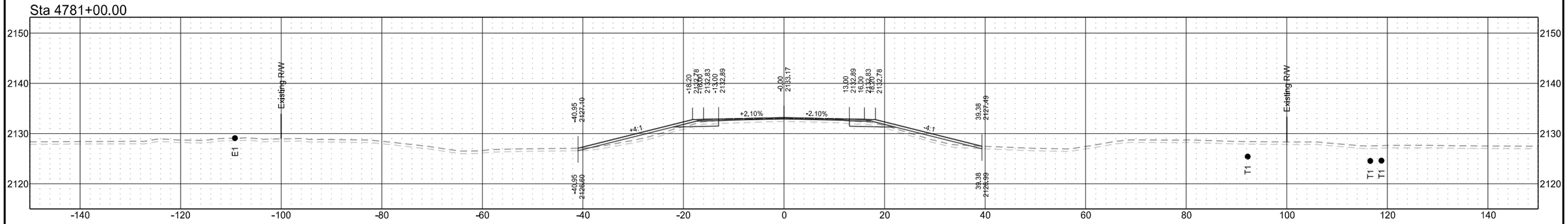
Sta 4783+00.00



Sta 4782+00.00



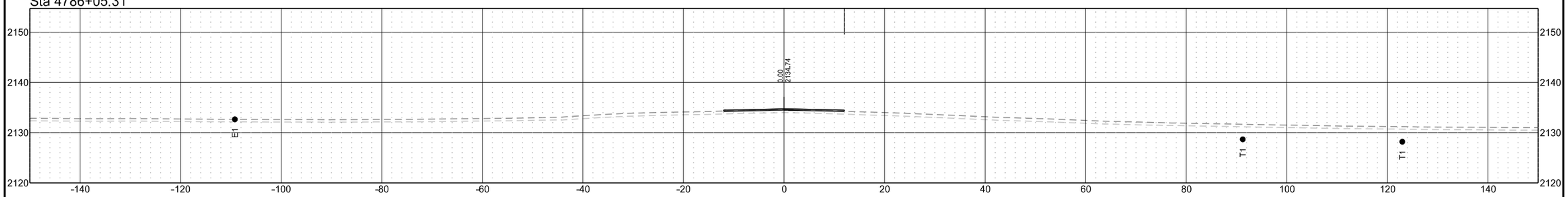
Sta 4781+00.00



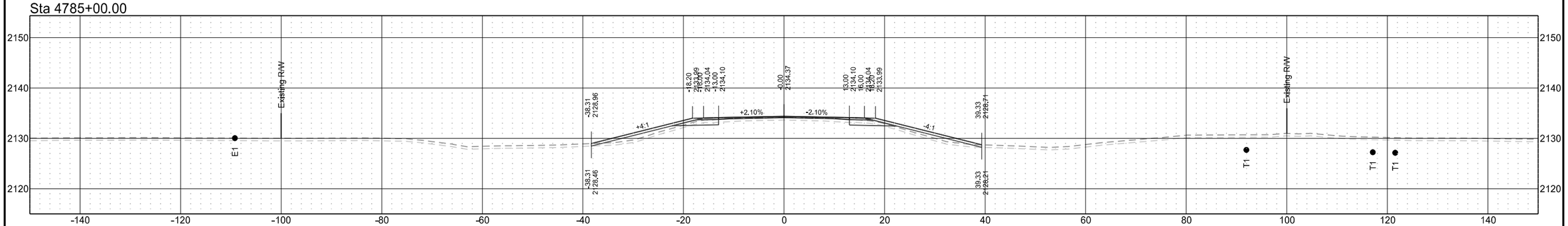
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	232
T4	D4				

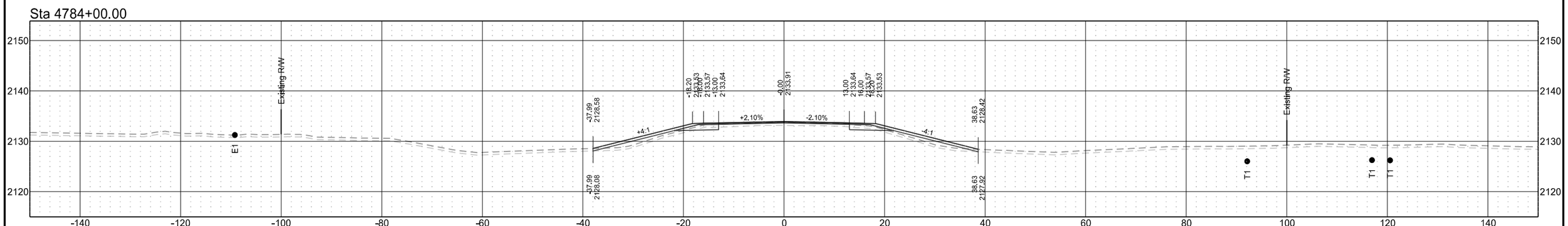
Sta 4786+05.31



Sta 4785+00.00



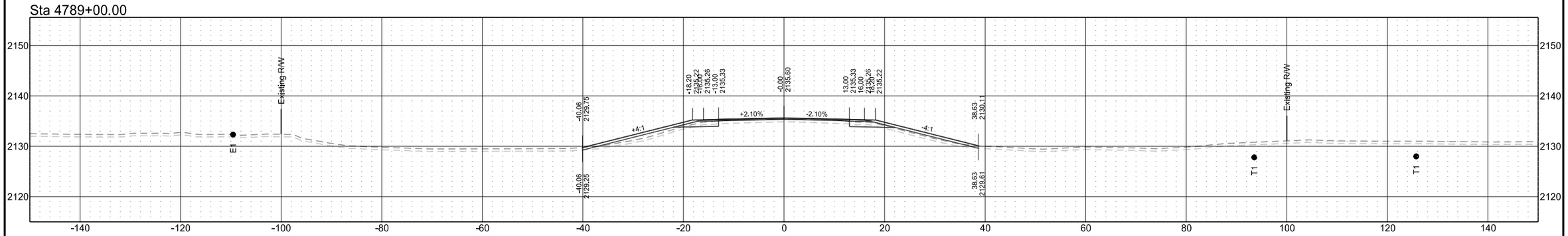
Sta 4784+00.00



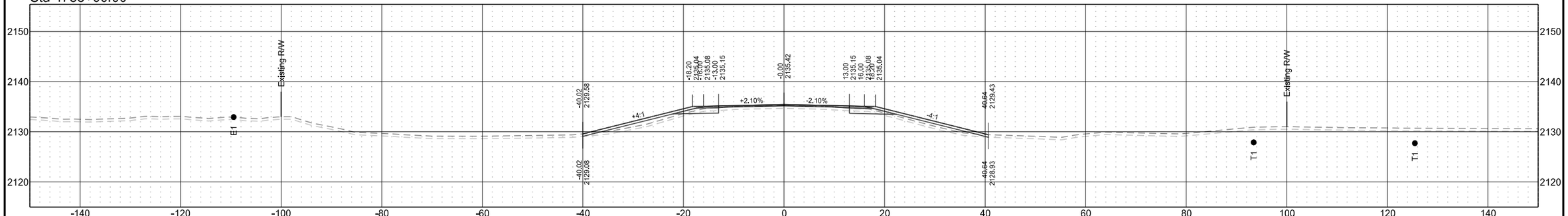
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	233
T4	D4				

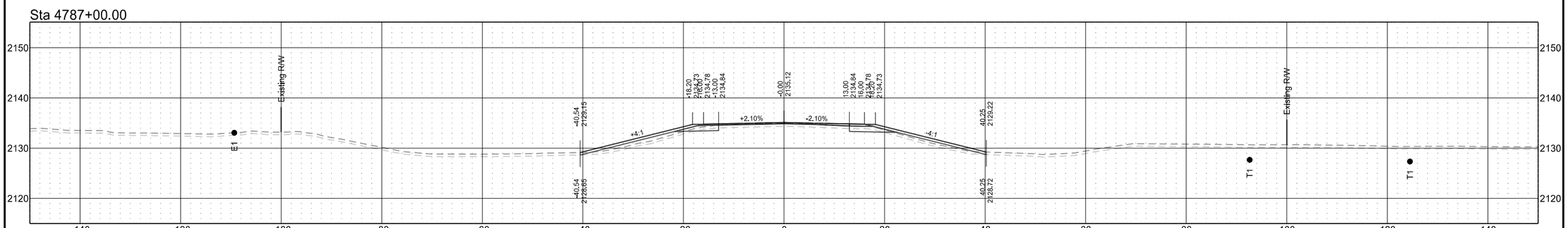
Sta 4789+00.00



Sta 4788+00.00



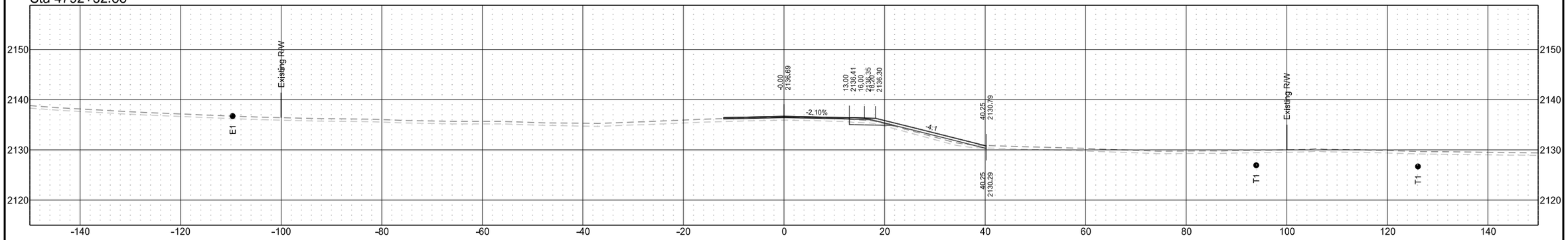
Sta 4787+00.00



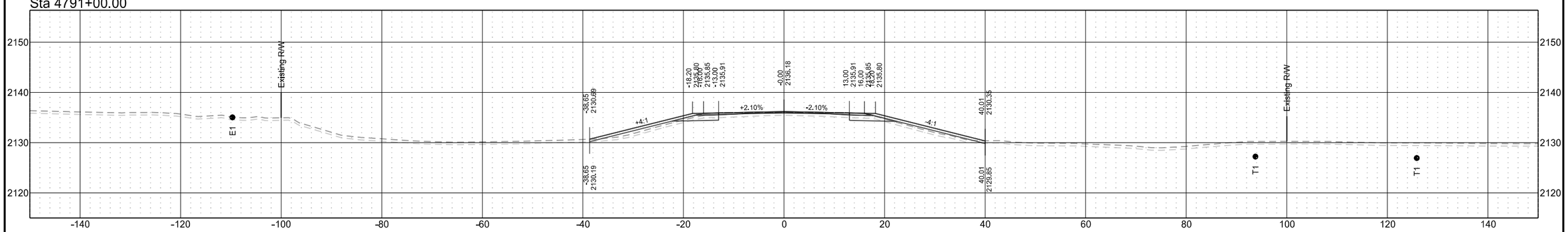
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	234
T4	D4				

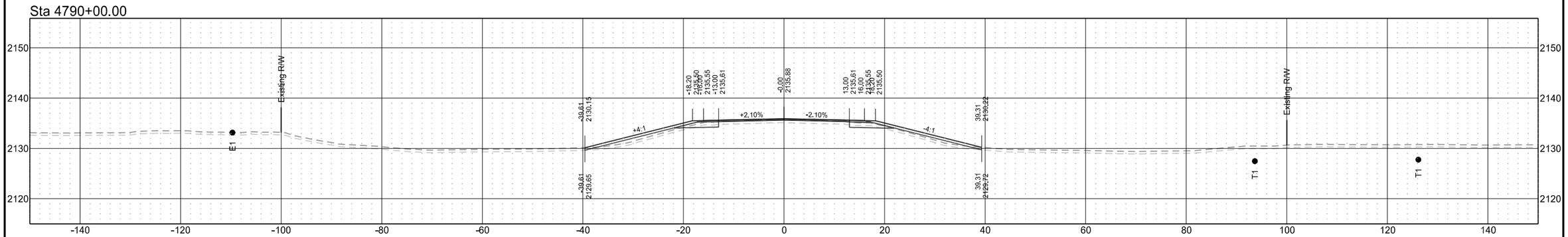
Sta 4792+32.88



Sta 4791+00.00



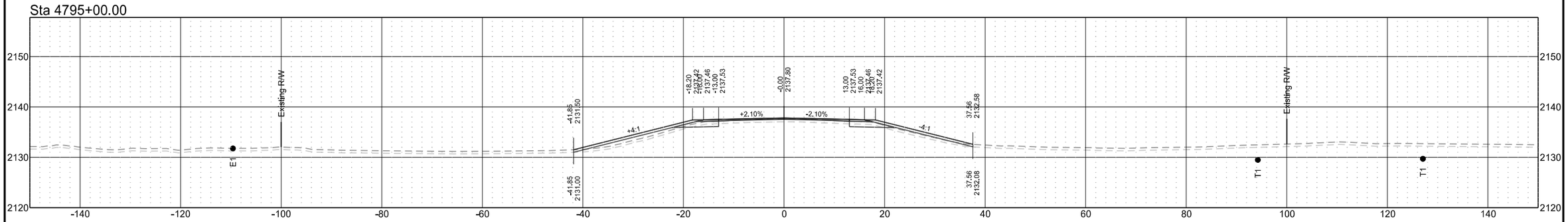
Sta 4790+00.00



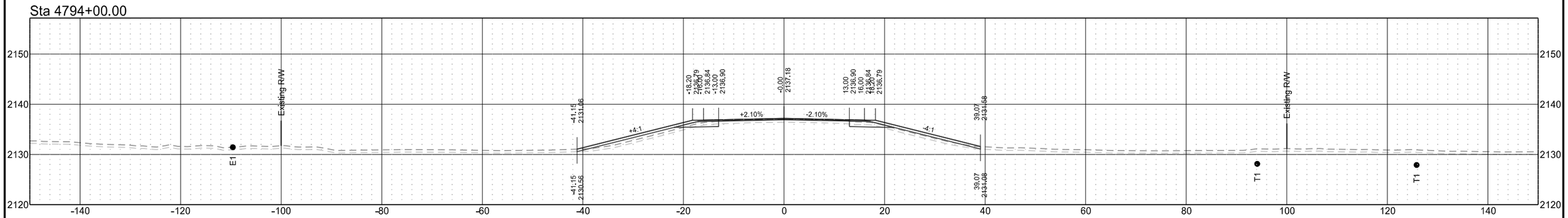
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	235
T4	D4				

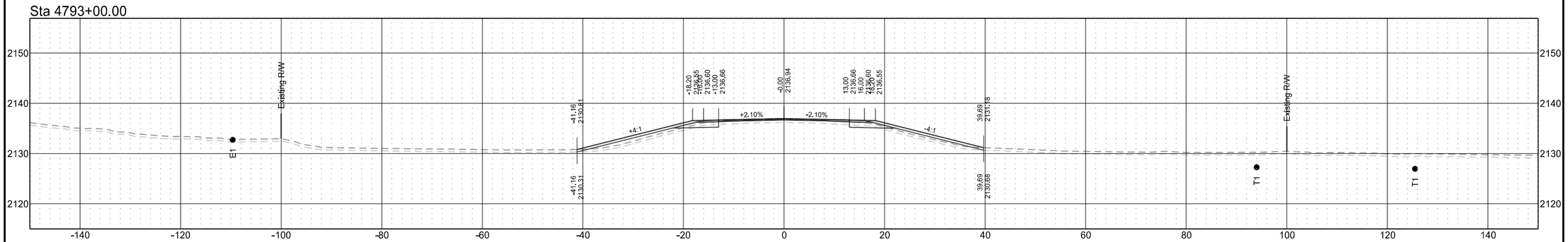
Sta 4795+00.00



Sta 4794+00.00



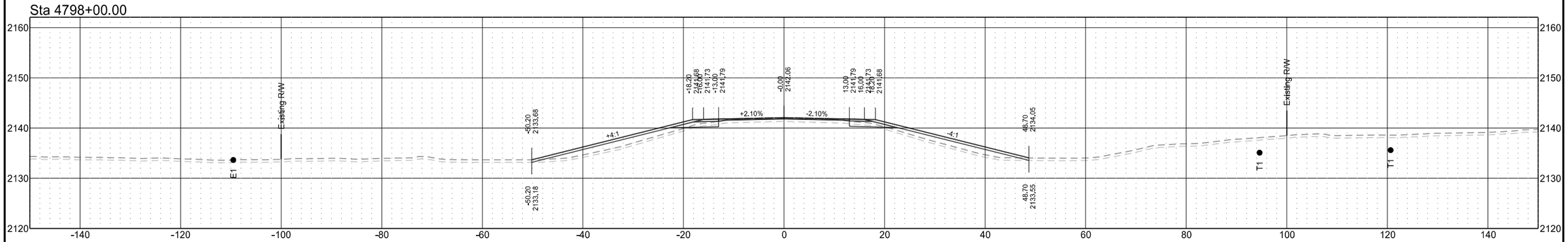
Sta 4793+00.00



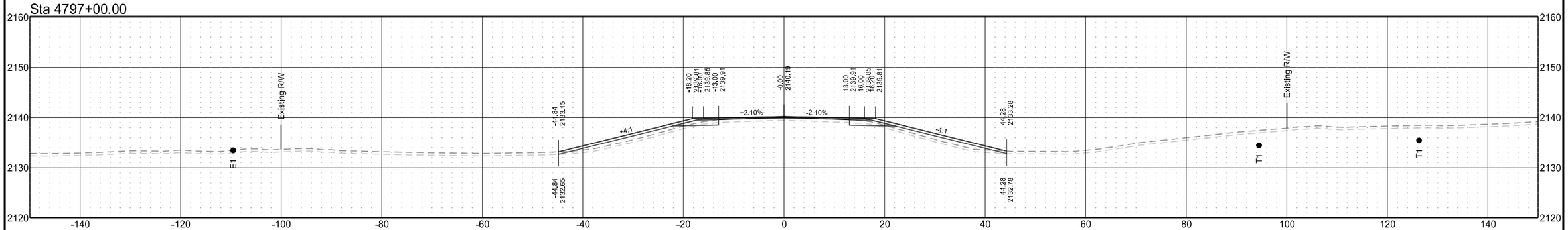
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	236
T4	D4				

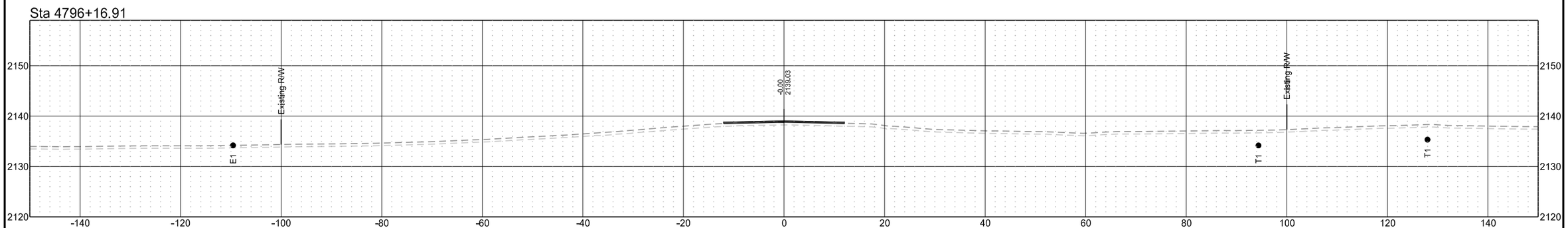
Sta 4798+00.00



Sta 4797+00.00



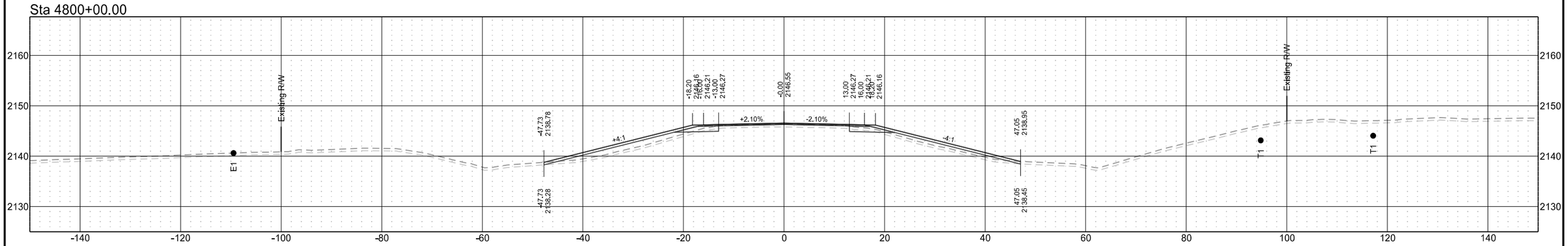
Sta 4796+16.91



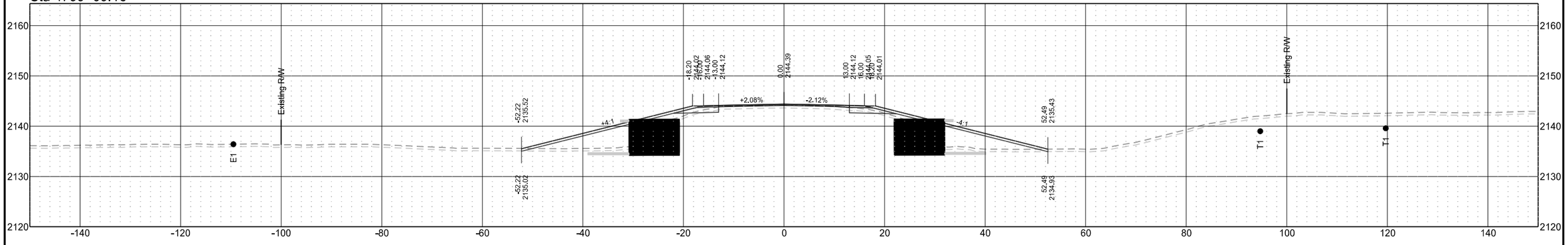
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	237
T4	D4				

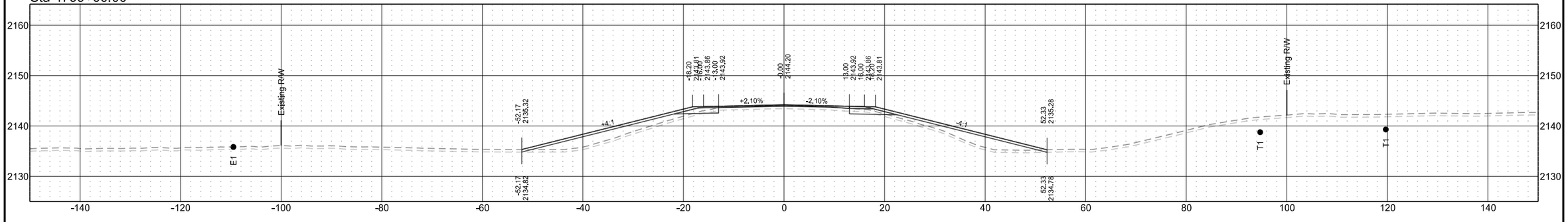
Sta 4800+00.00



Sta 4799+09.16



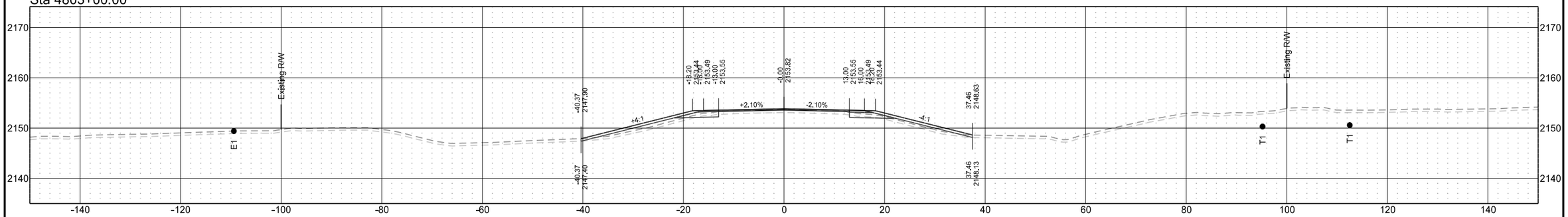
Sta 4799+00.00



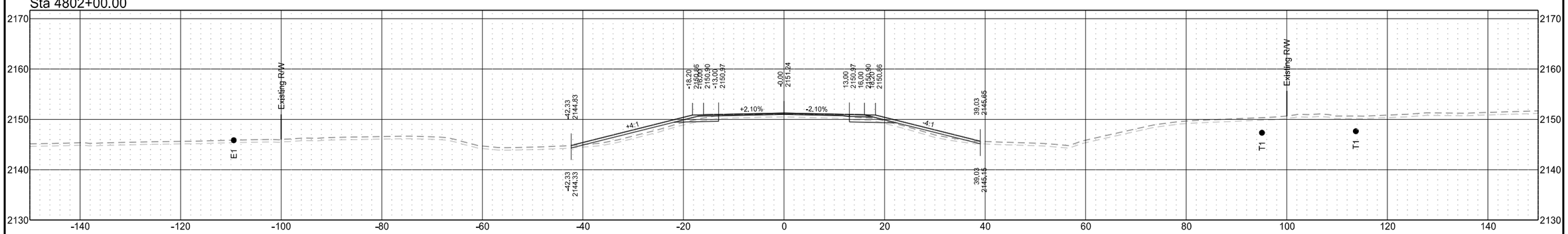
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	238
T4	D4				

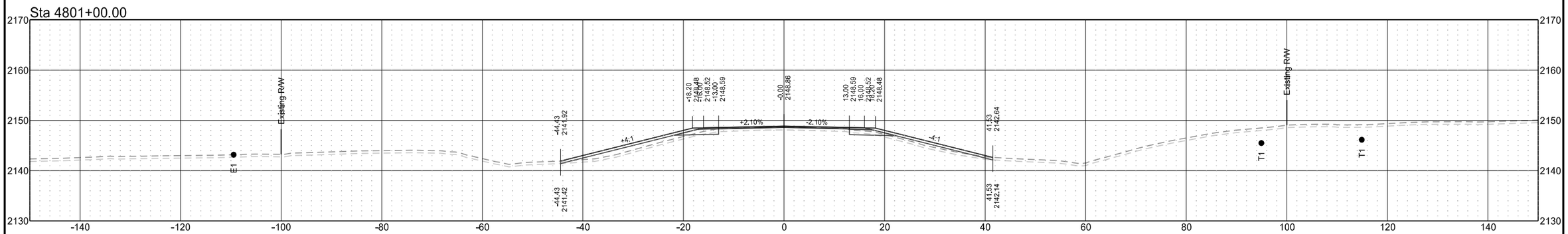
Sta 4803+00.00



Sta 4802+00.00



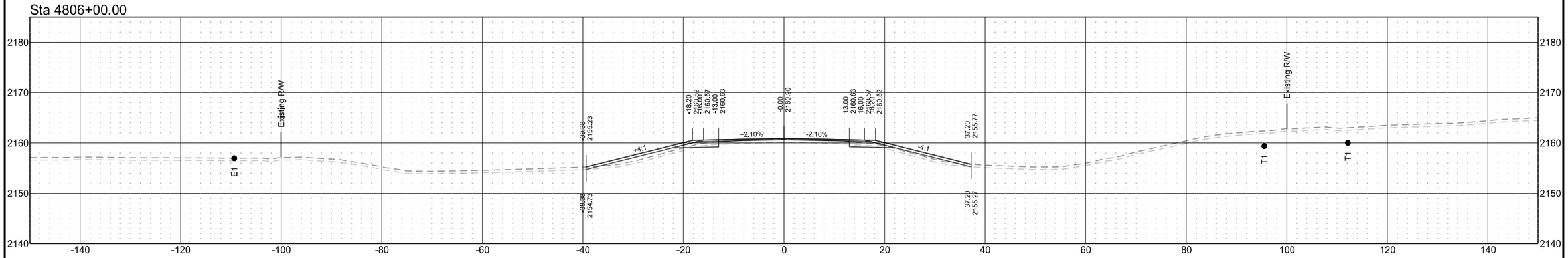
Sta 4801+00.00



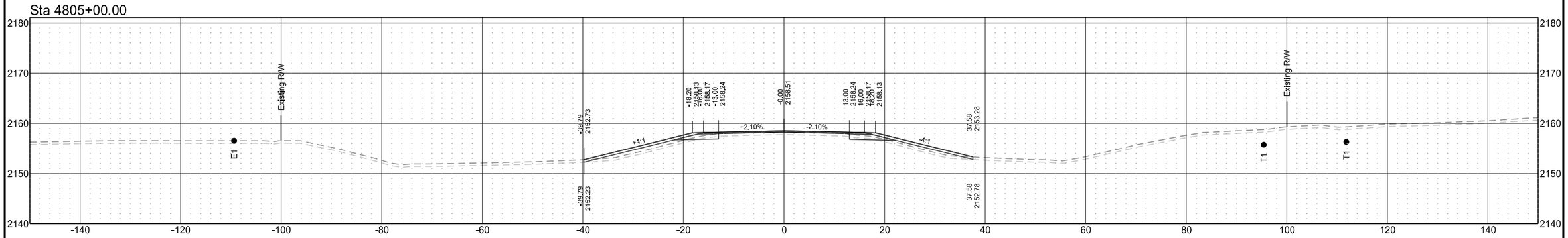
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	239
T4	D4				

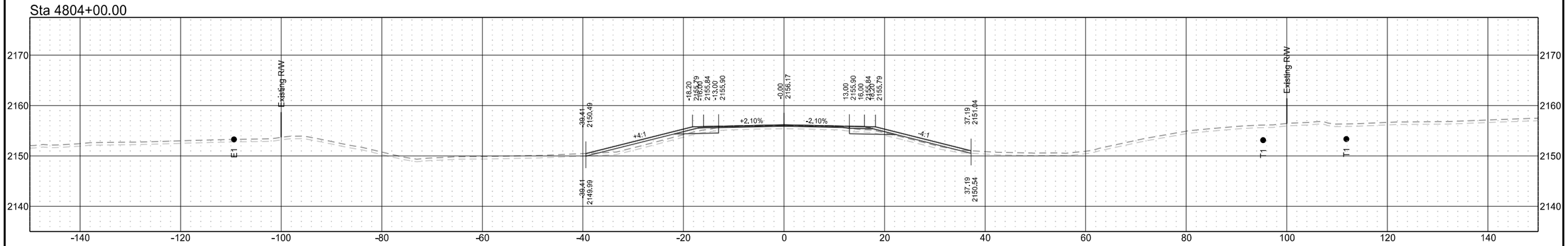
Sta 4806+00.00



Sta 4805+00.00



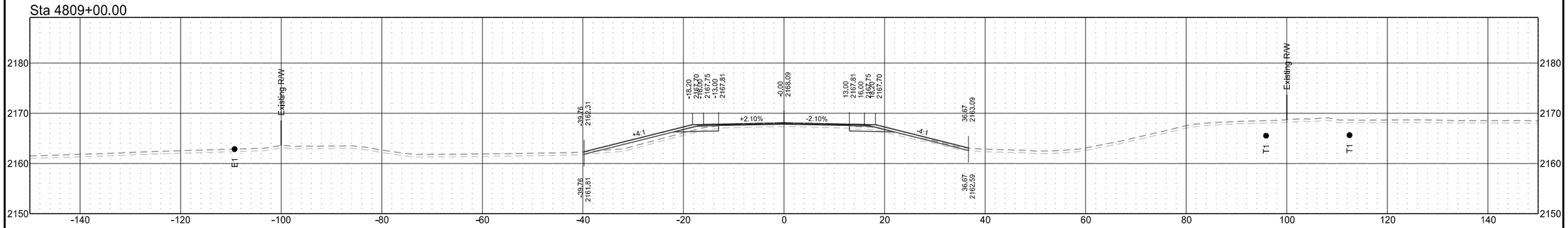
Sta 4804+00.00



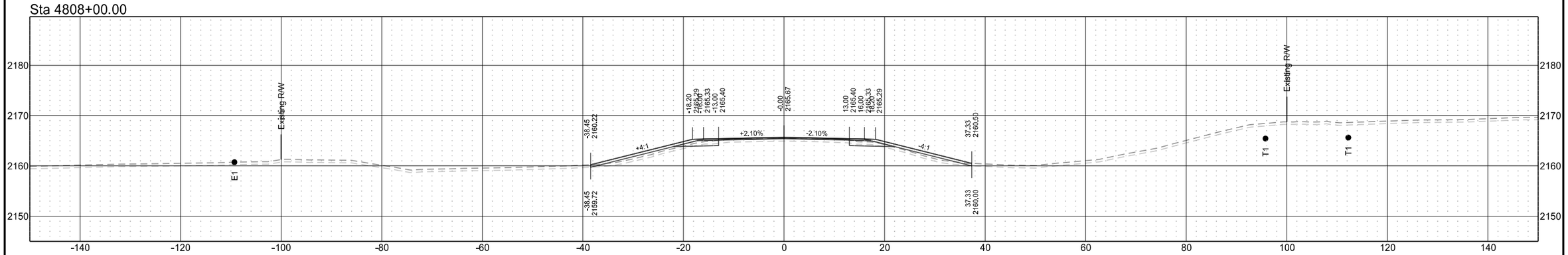
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	240
T4	D4				

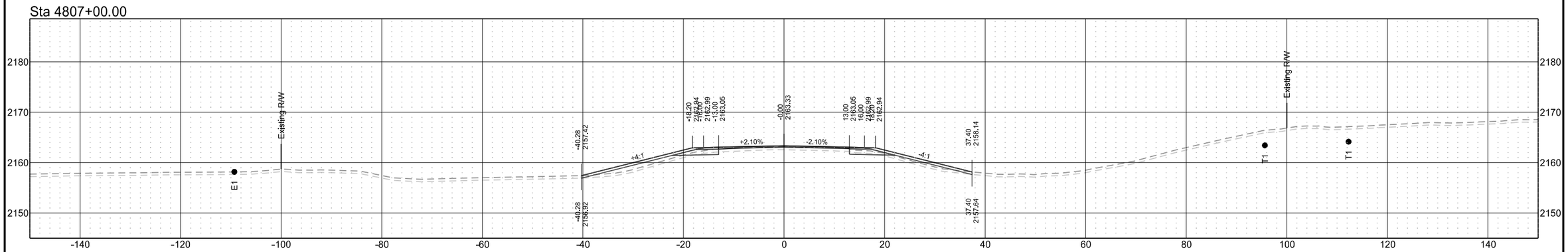
Sta 4809+00.00



Sta 4808+00.00



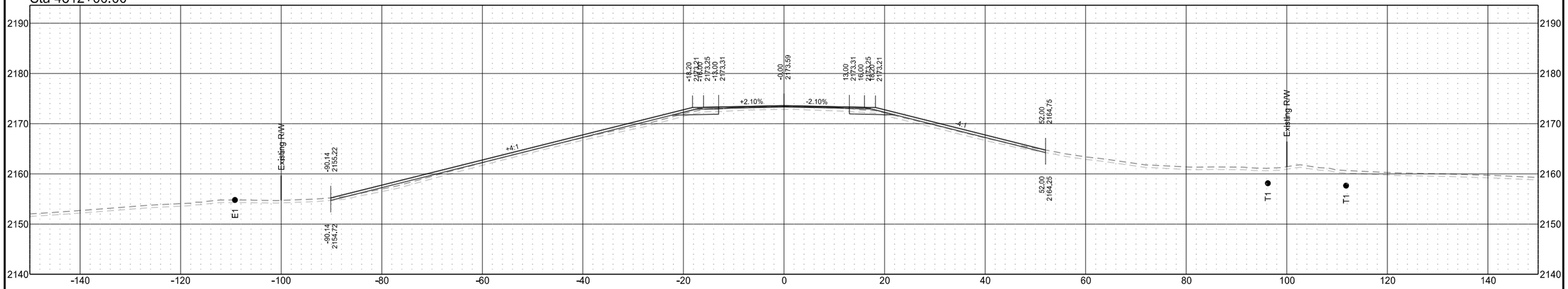
Sta 4807+00.00



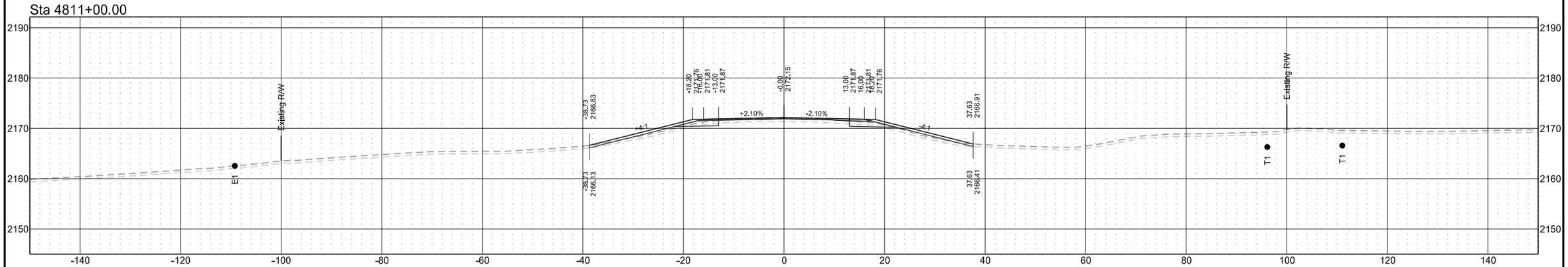
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	241
T4	D4				

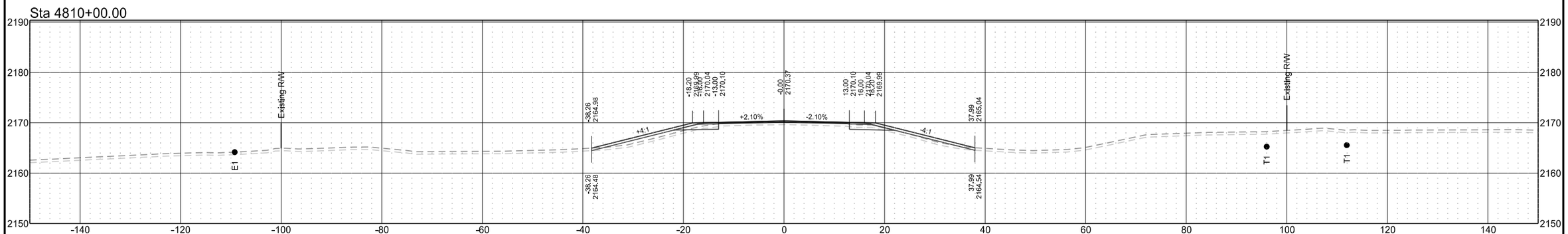
Sta 4812+00.00



Sta 4811+00.00



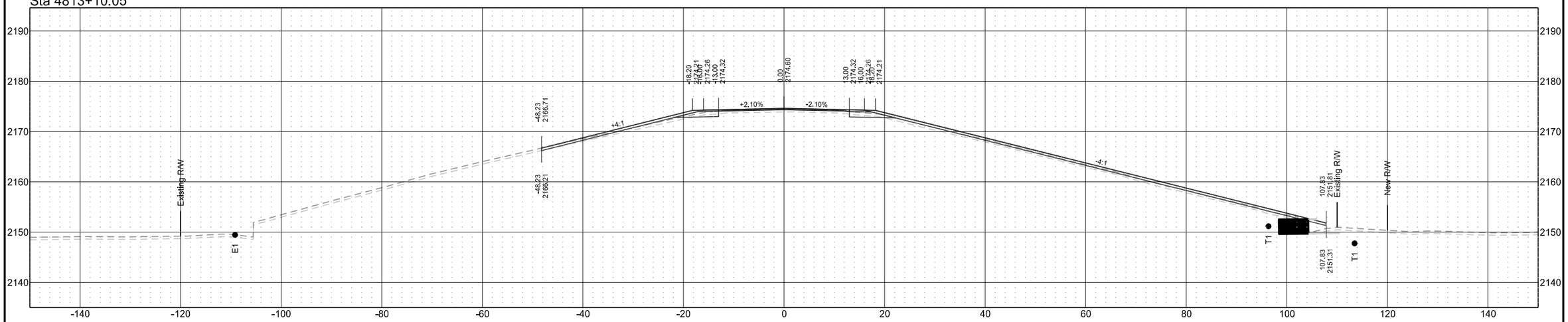
Sta 4810+00.00



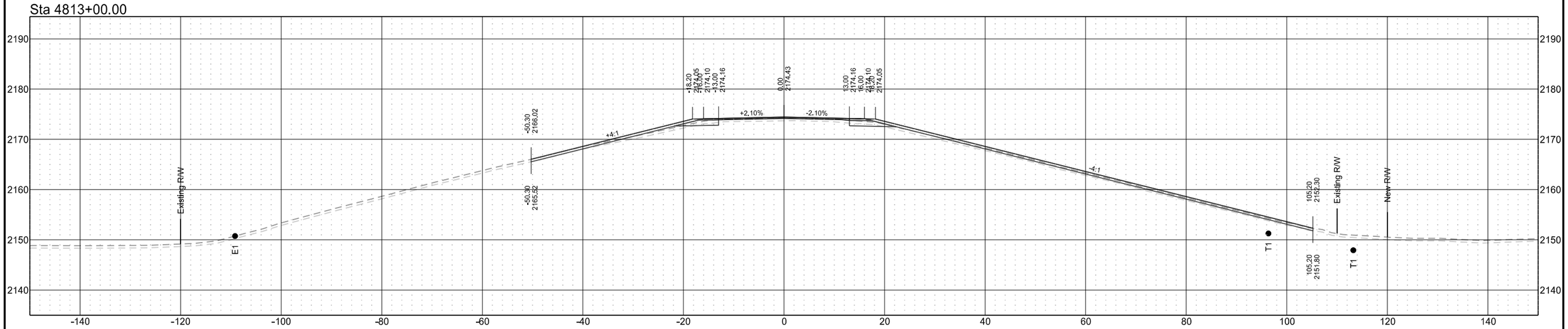
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	242
T4	D4				

Sta 4813+10.05



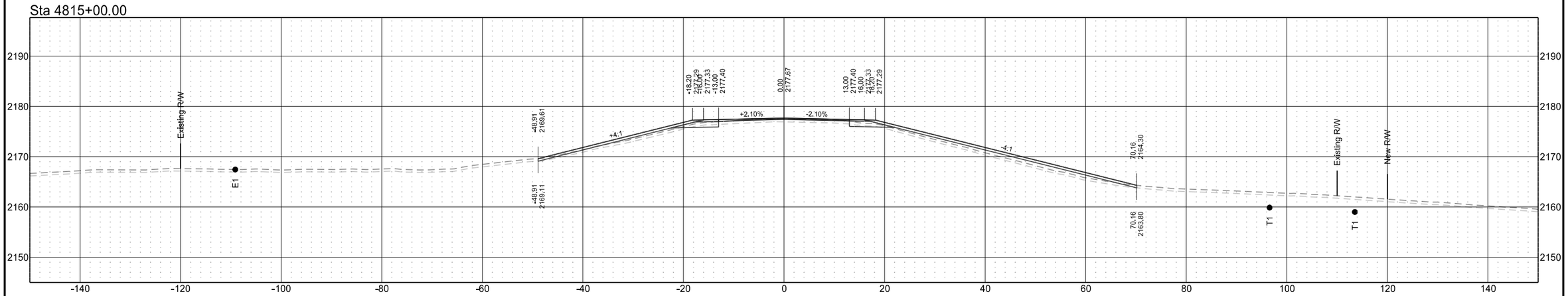
Sta 4813+00.00



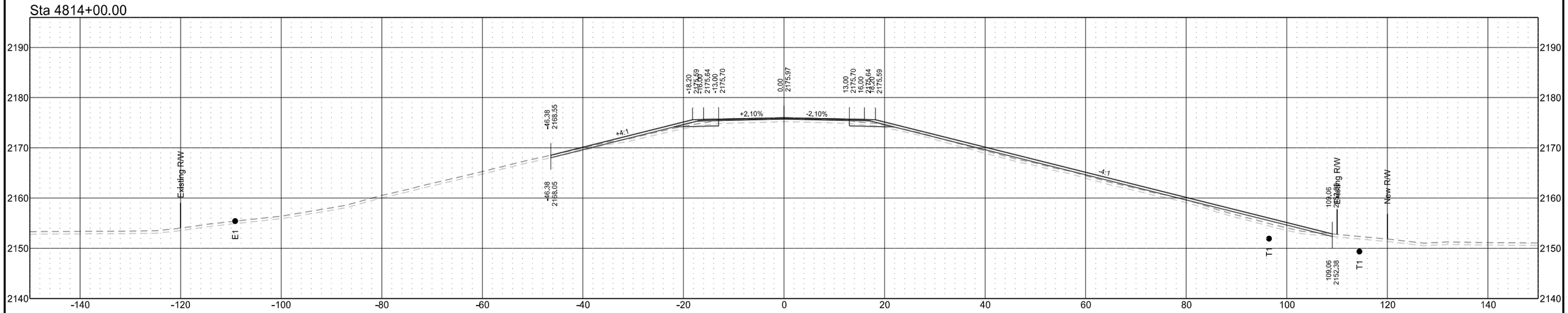
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	243
T4	D4				

Sta 4815+00.00



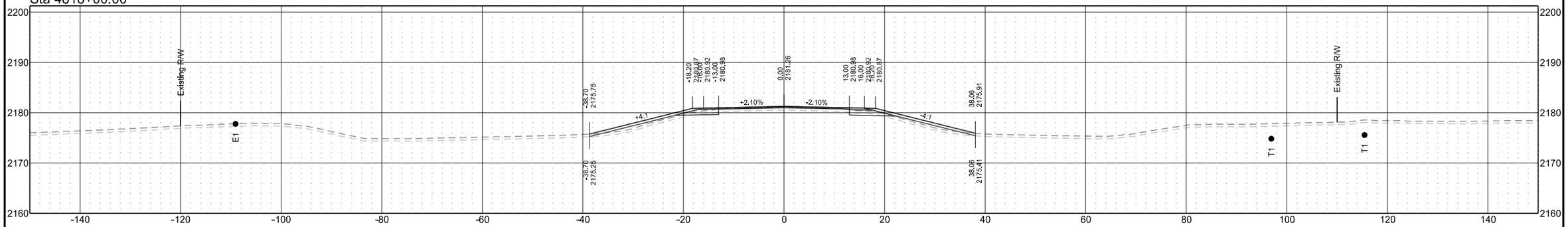
Sta 4814+00.00



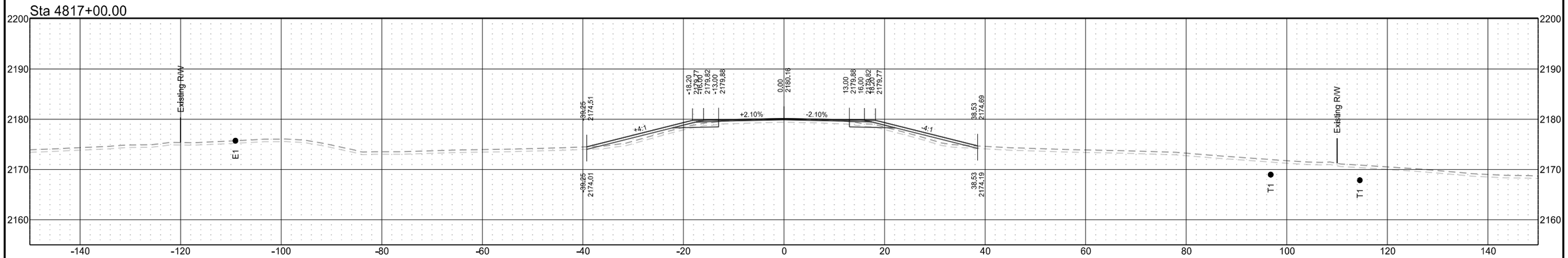
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	244
T4	D4				

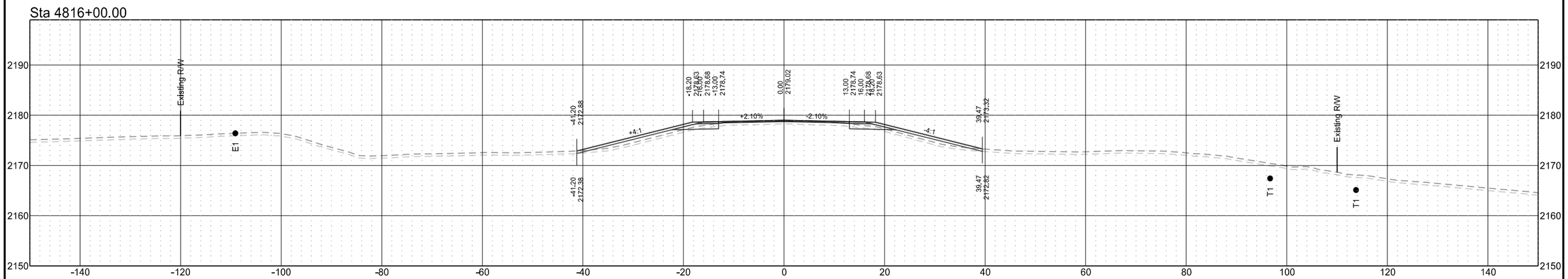
Sta 4818+00.00



Sta 4817+00.00



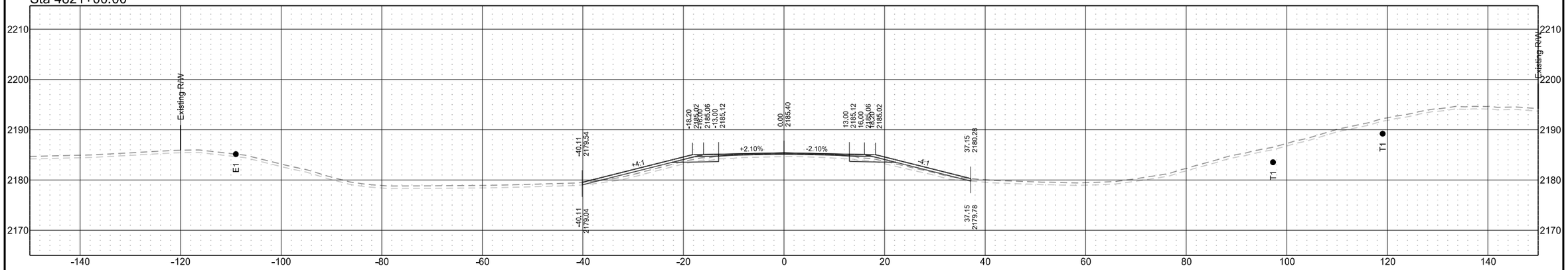
Sta 4816+00.00



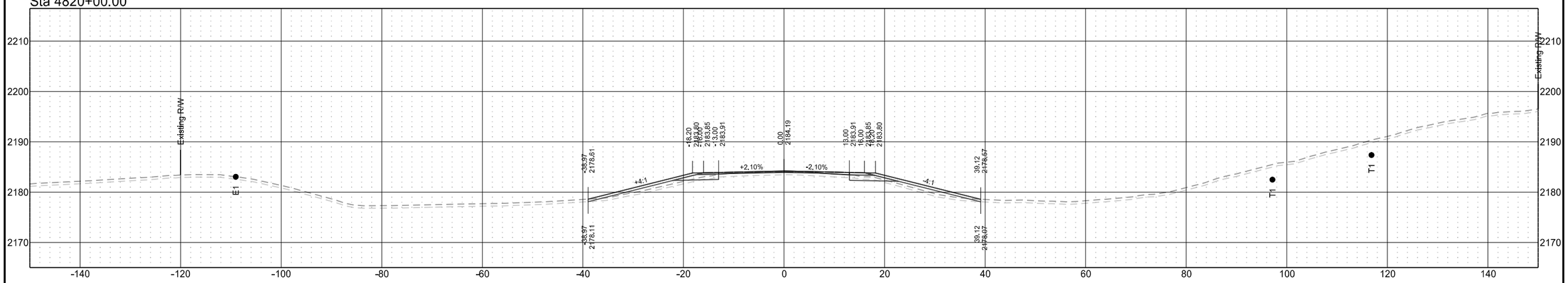
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	245
T4	D4				

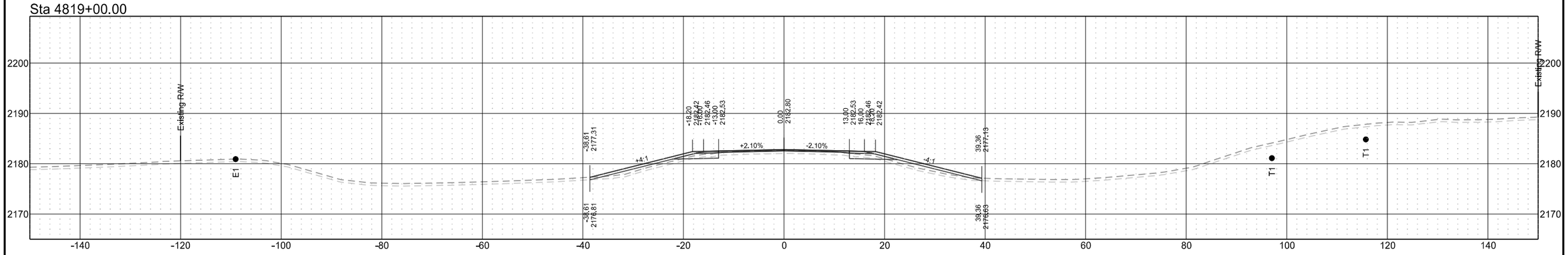
Sta 4821+00.00



Sta 4820+00.00



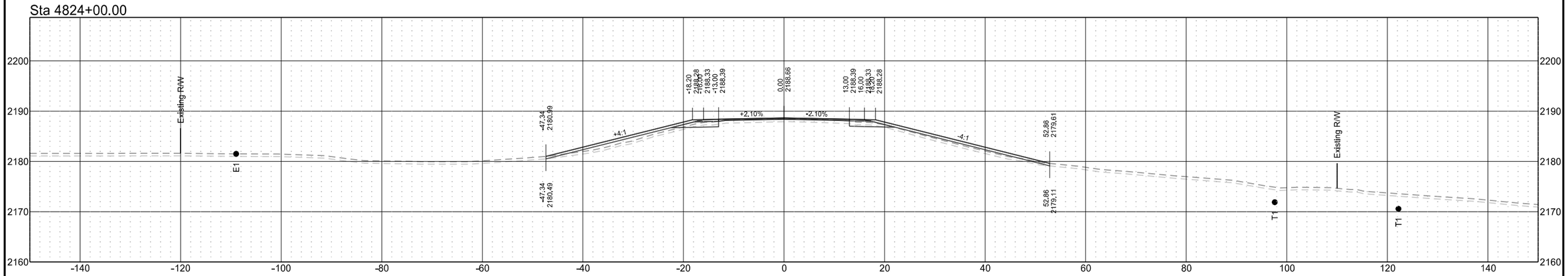
Sta 4819+00.00



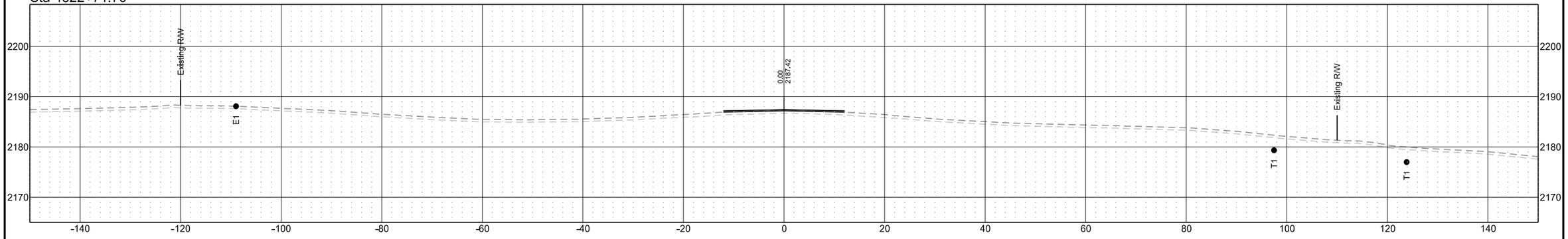
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	246
T4	D4				

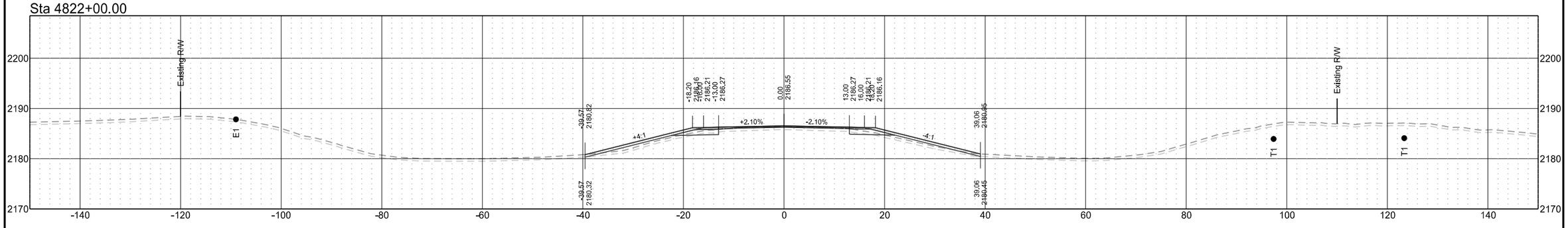
Sta 4824+00.00



Sta 4822+71.79



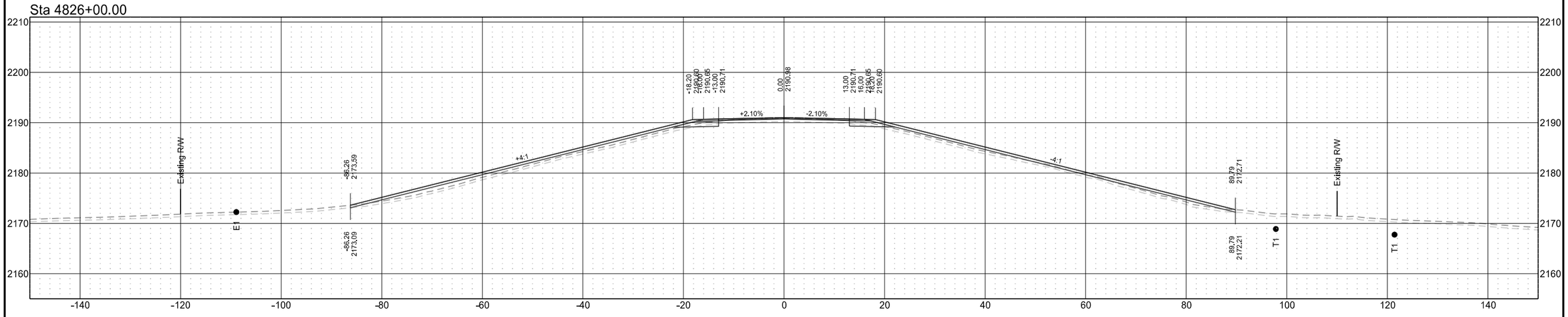
Sta 4822+00.00



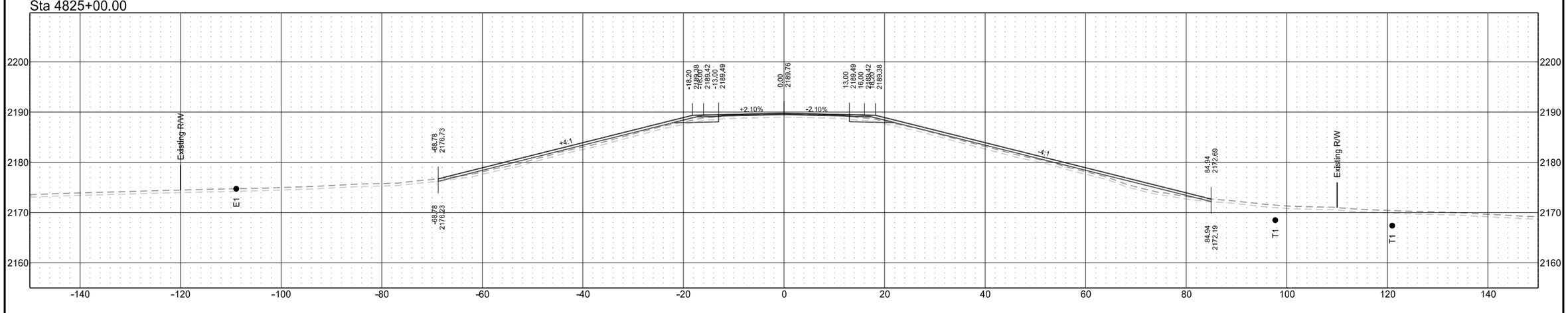
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	247
T4	D4				

Sta 4826+00.00



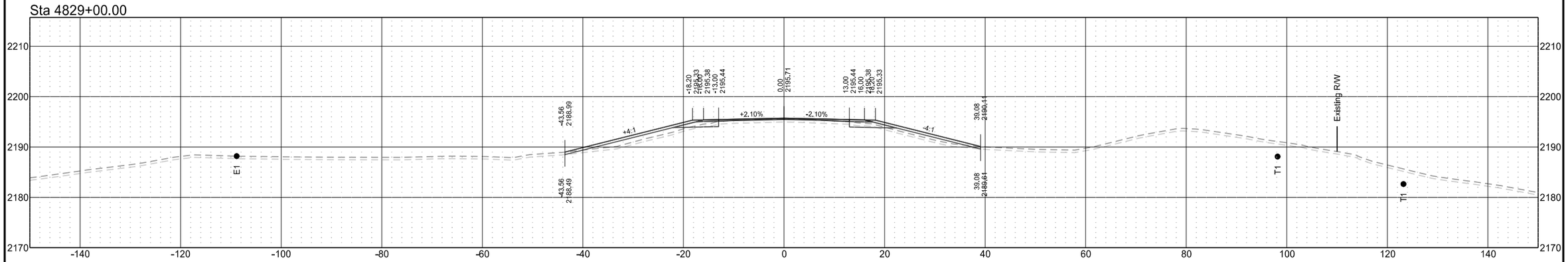
Sta 4825+00.00



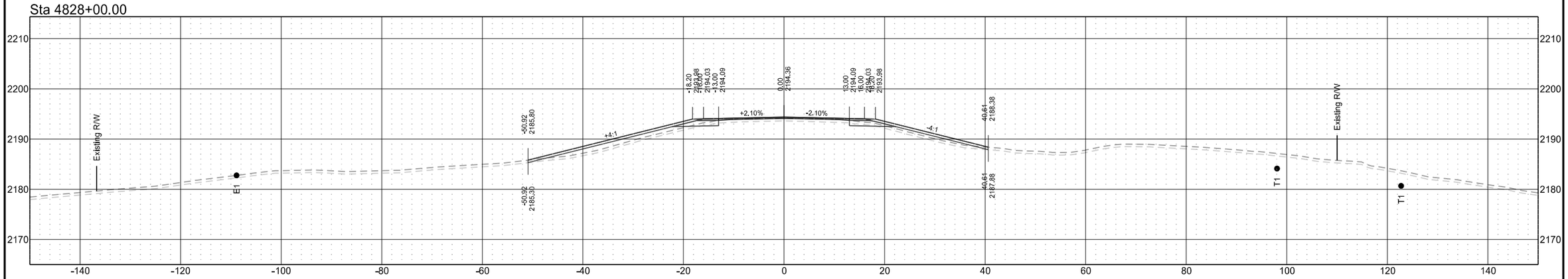
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	248
T4	D4				

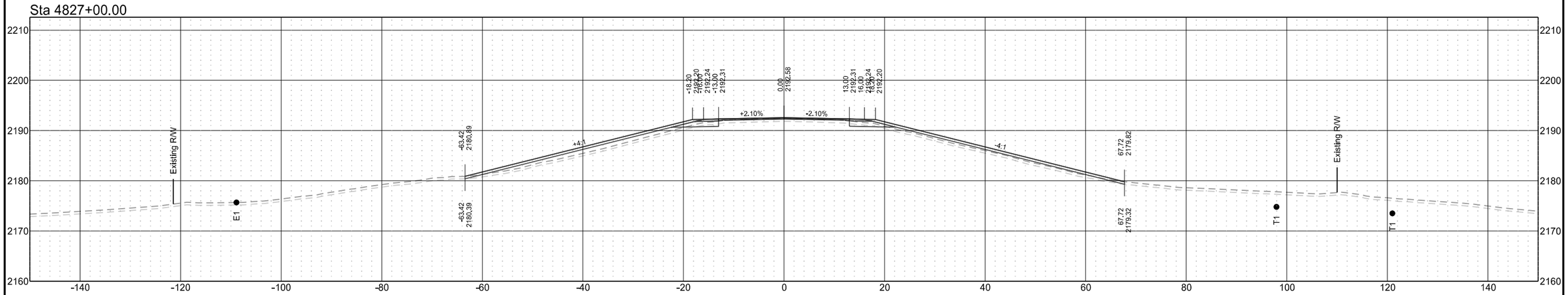
Sta 4829+00.00



Sta 4828+00.00



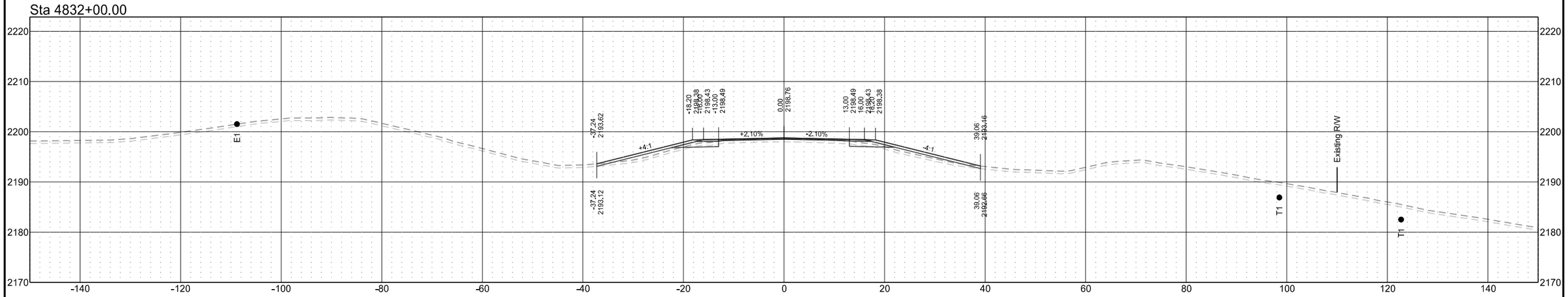
Sta 4827+00.00



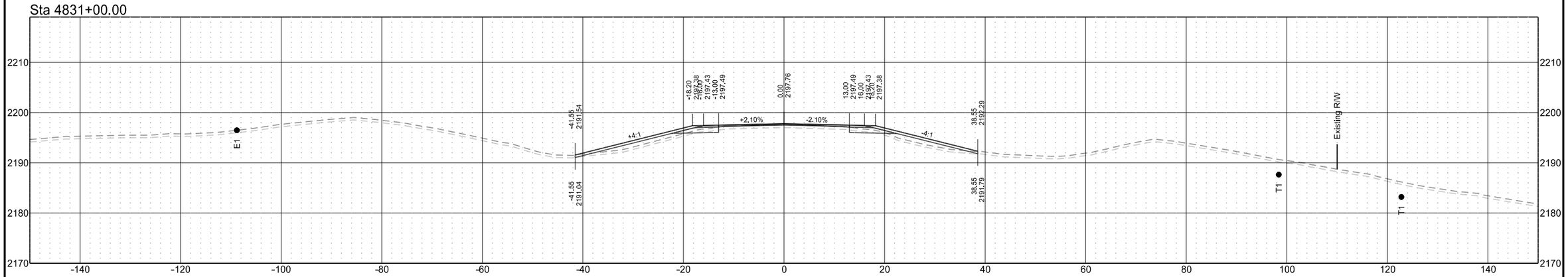
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	249
T4	D4				

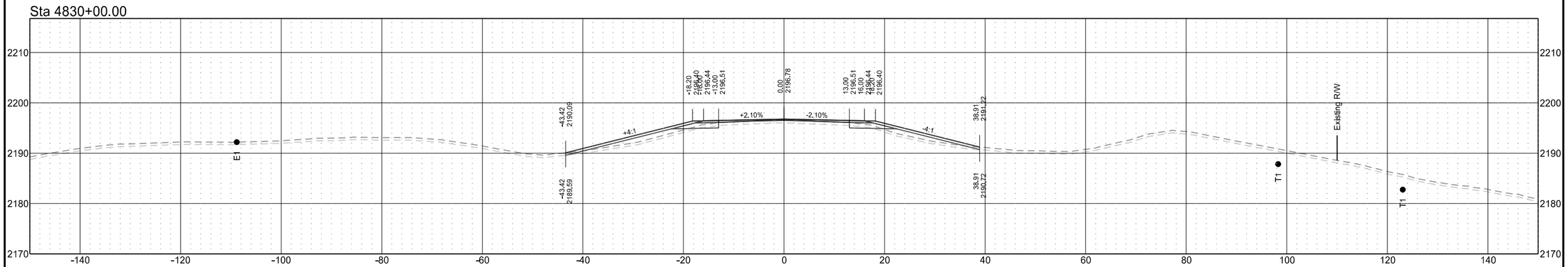
Sta 4832+00.00



Sta 4831+00.00



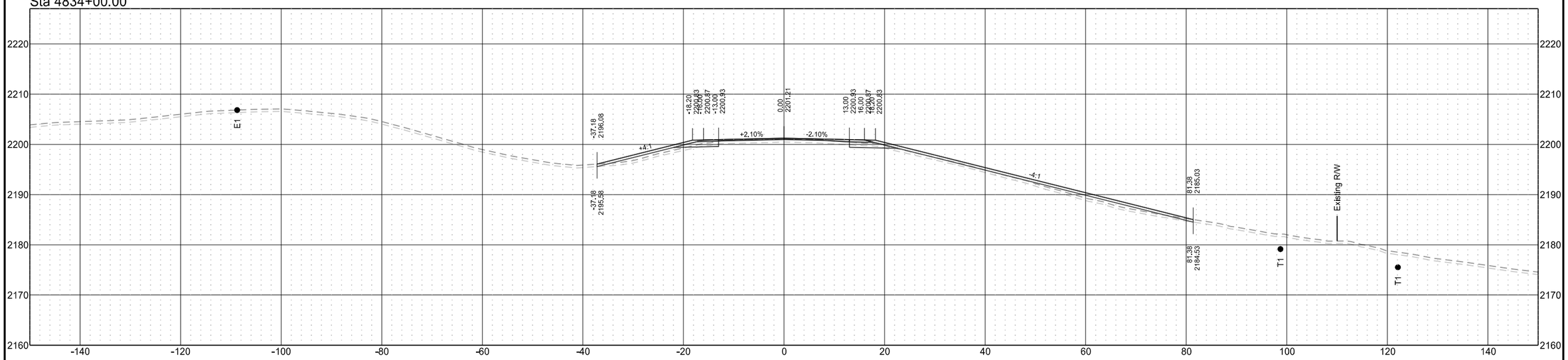
Sta 4830+00.00



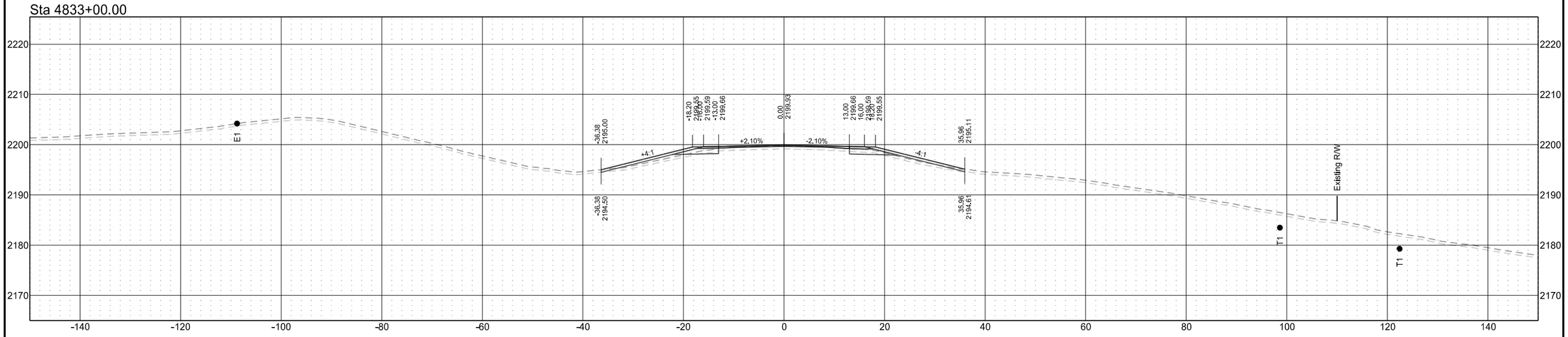
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	250
T4	D4				

Sta 4834+00.00



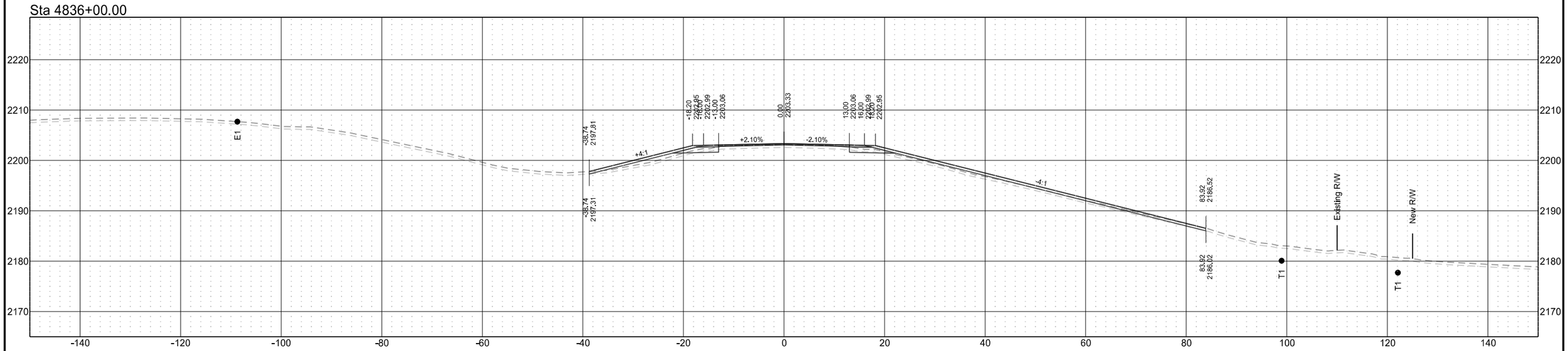
Sta 4833+00.00



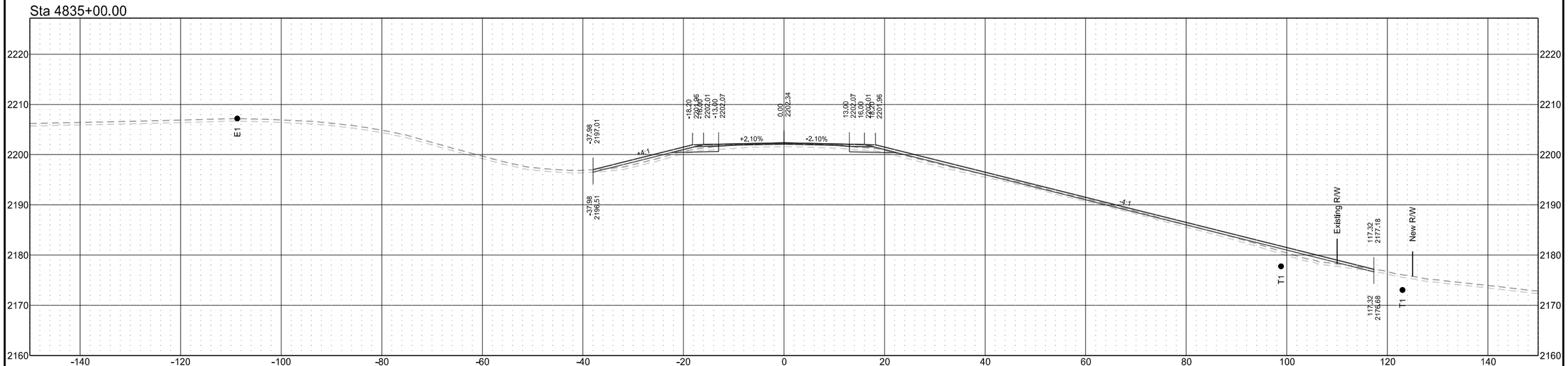
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	251
T4	D4				

Sta 4836+00.00



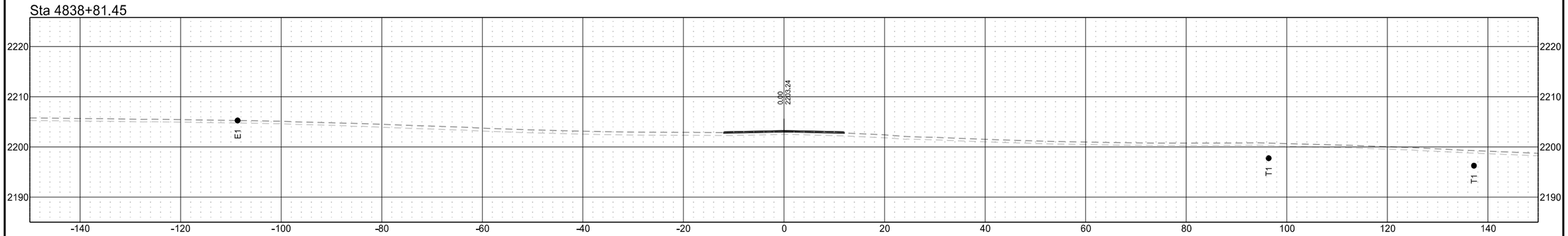
Sta 4835+00.00



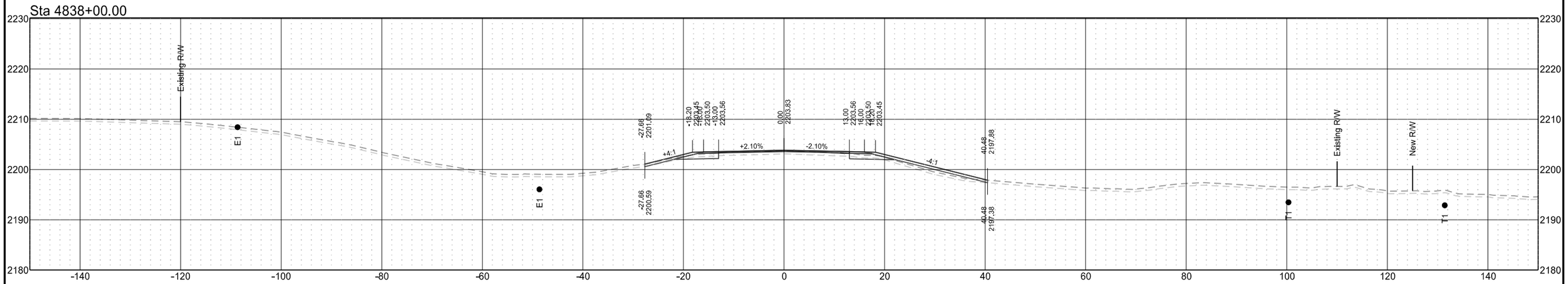
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	252
T4	D4				

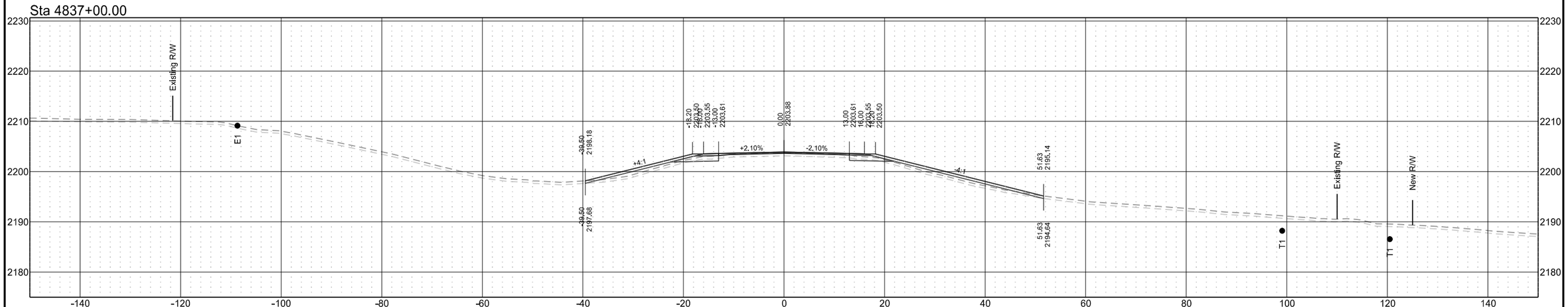
Sta 4838+81.45



Sta 4838+00.00



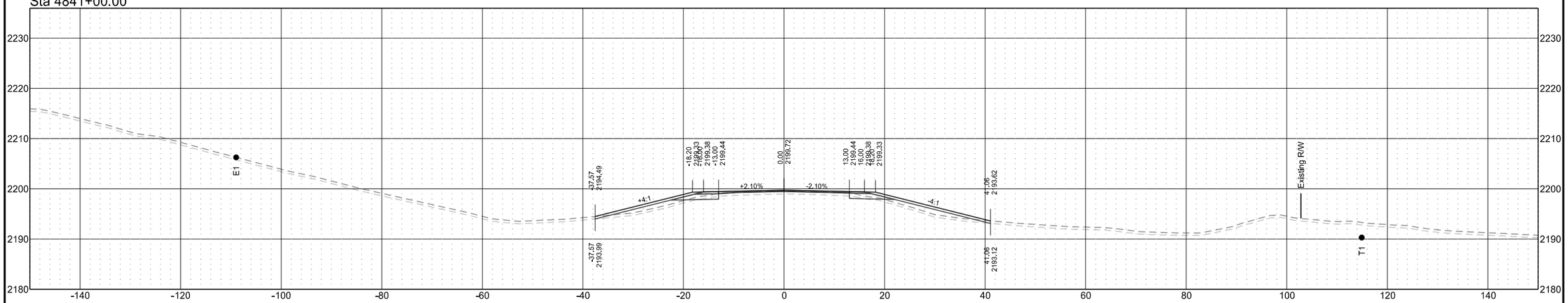
Sta 4837+00.00



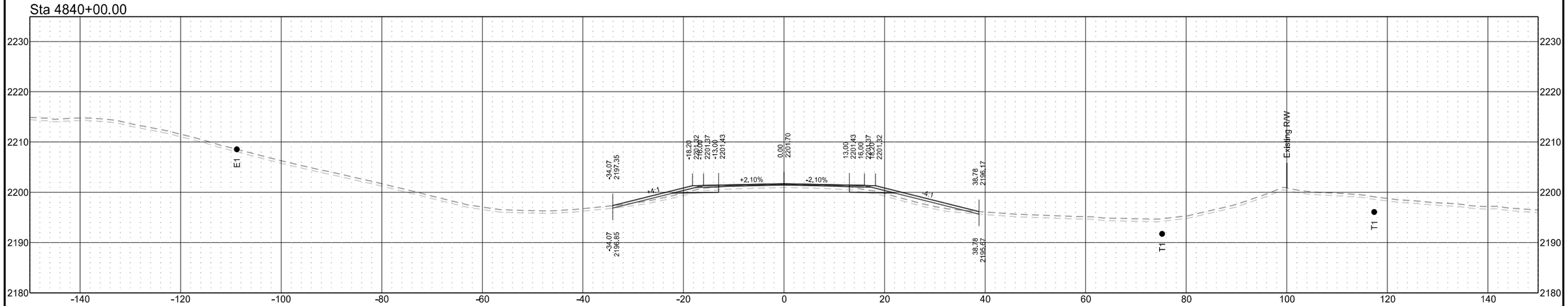
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	253
T4	D4				

Sta 4841+00.00



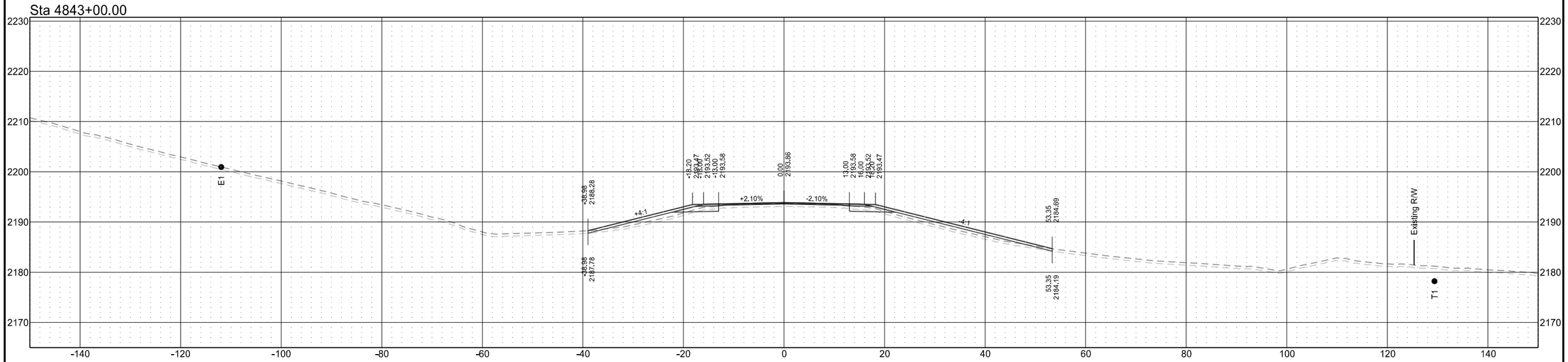
Sta 4840+00.00



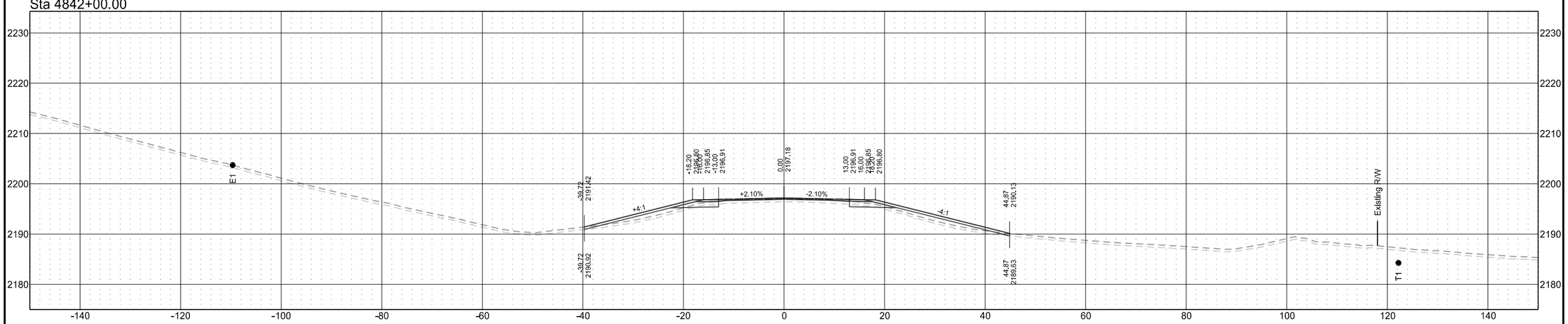
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	254
T4	D4				

Sta 4843+00.00



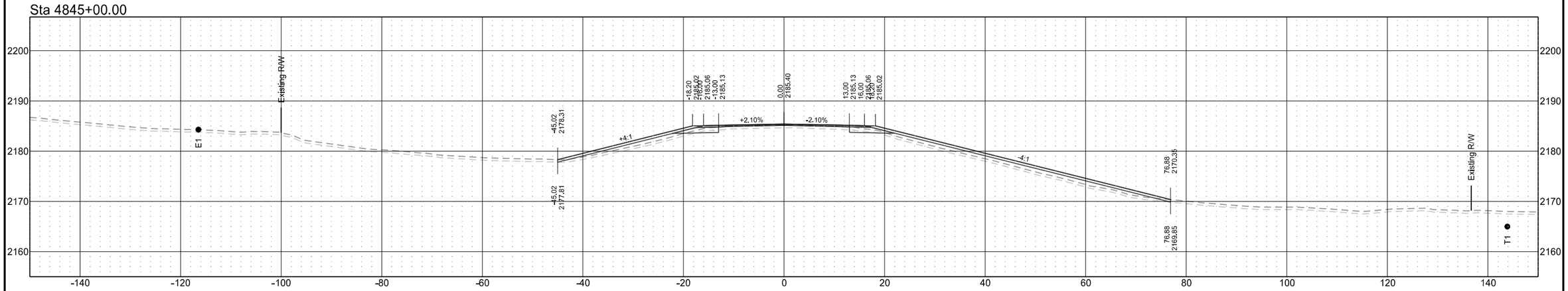
Sta 4842+00.00



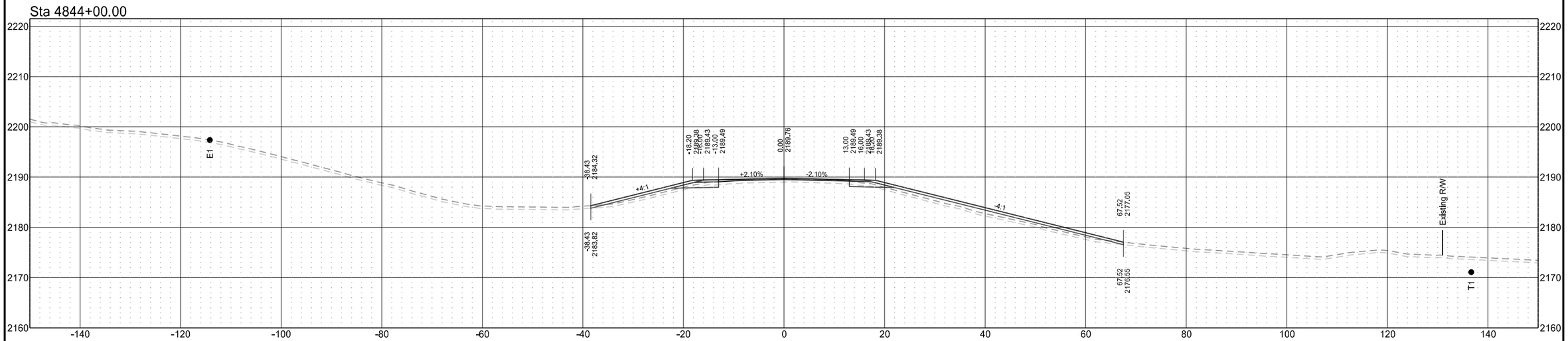
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	255
T4	D4				

Sta 4845+00.00



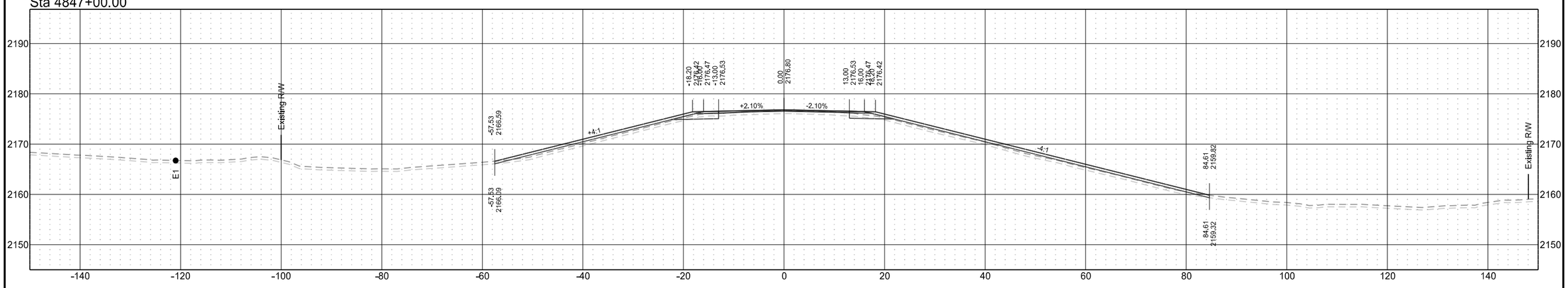
Sta 4844+00.00



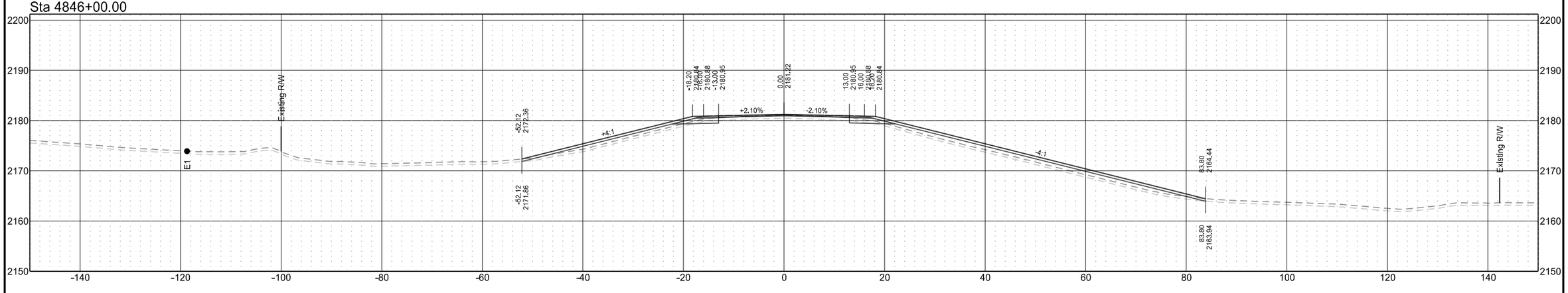
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	256
T4	D4				

Sta 4847+00.00



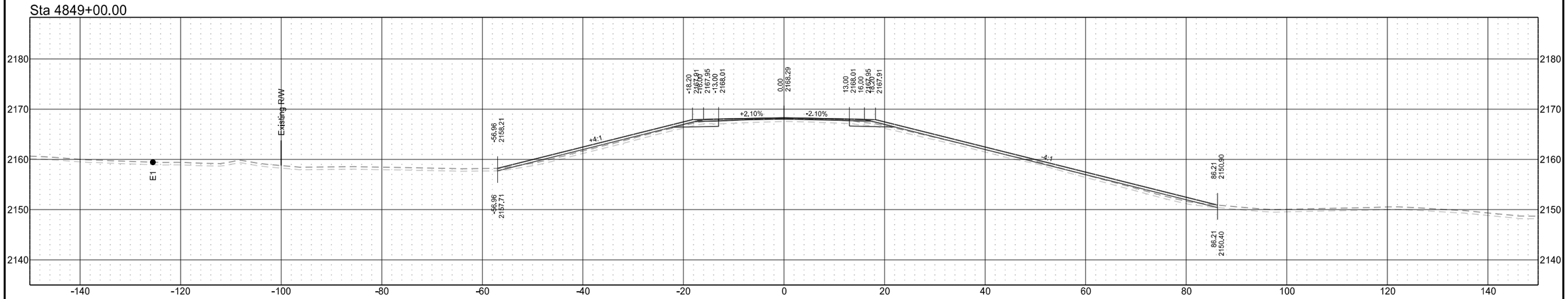
Sta 4846+00.00



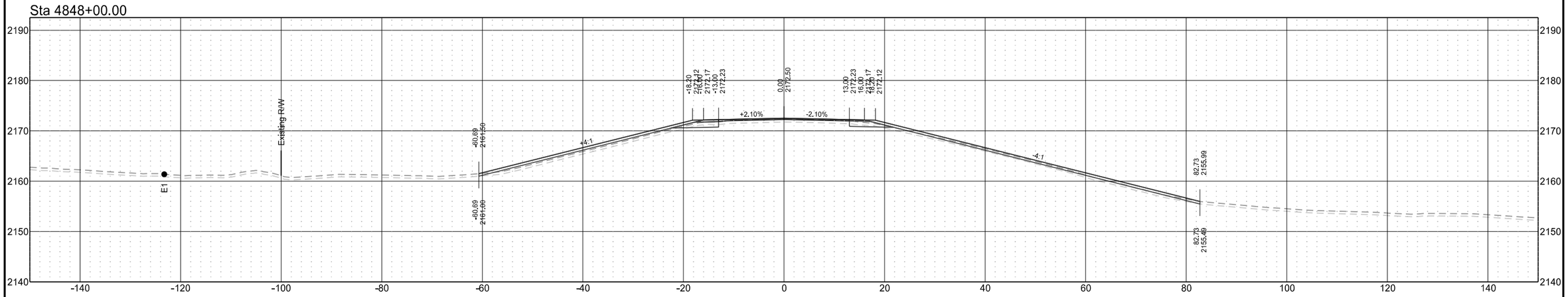
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	257
T4	D4				

Sta 4849+00.00



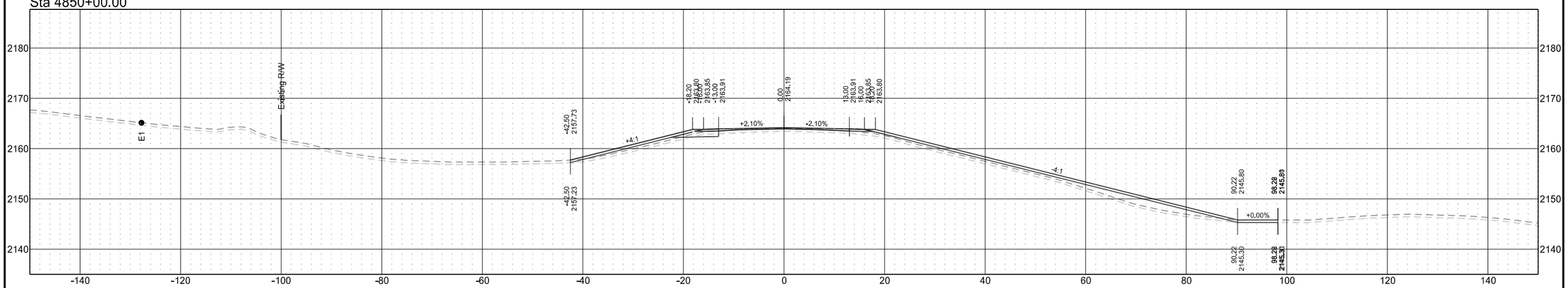
Sta 4848+00.00



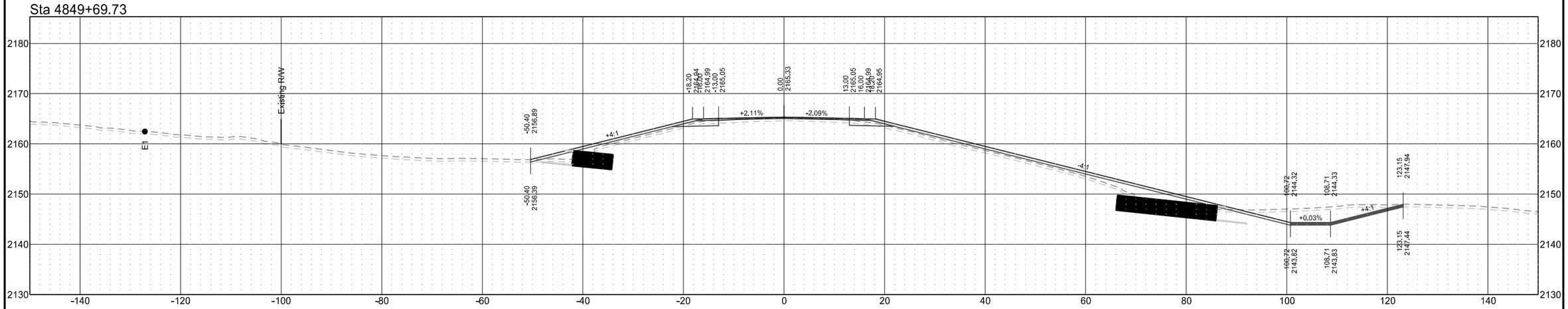
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	258
T4	D4				

Sta 4850+00.00



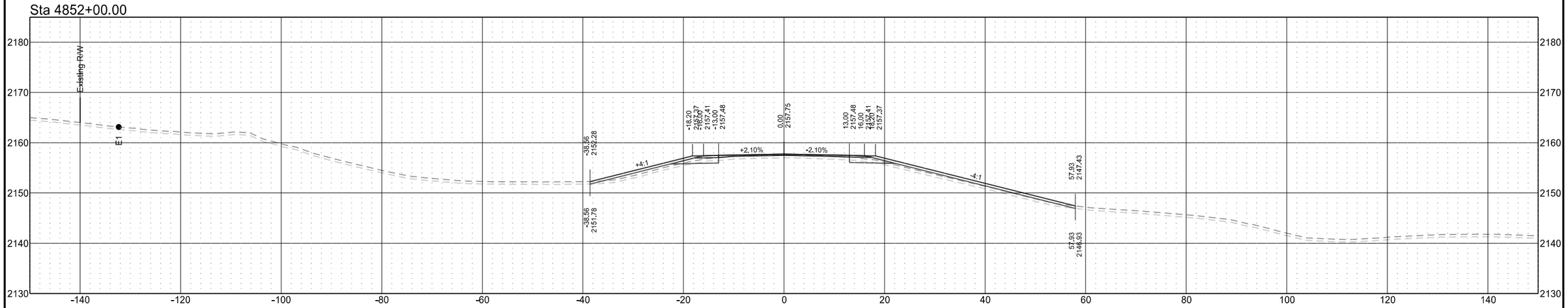
Sta 4849+69.73



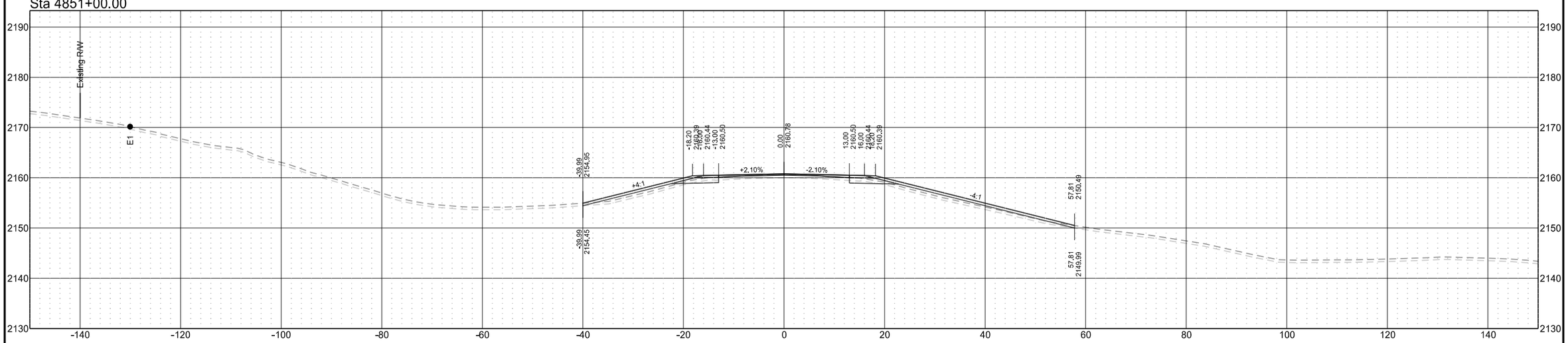
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	259
T4	D4				

Sta 4852+00.00



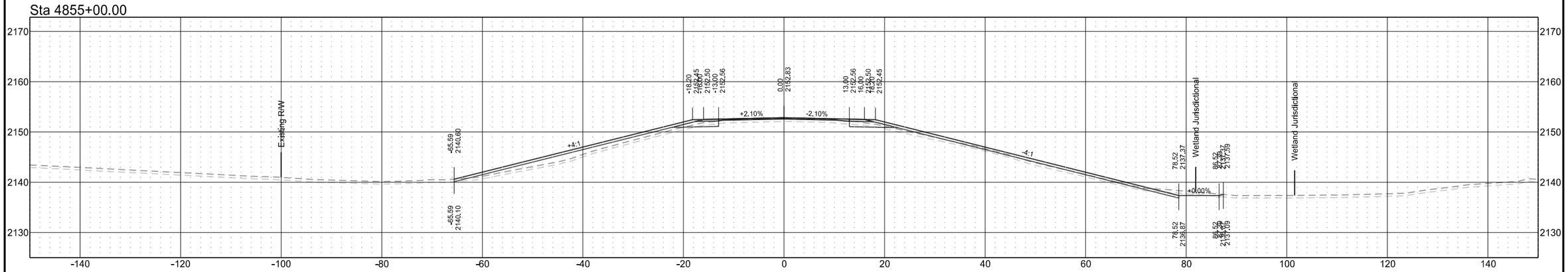
Sta 4851+00.00



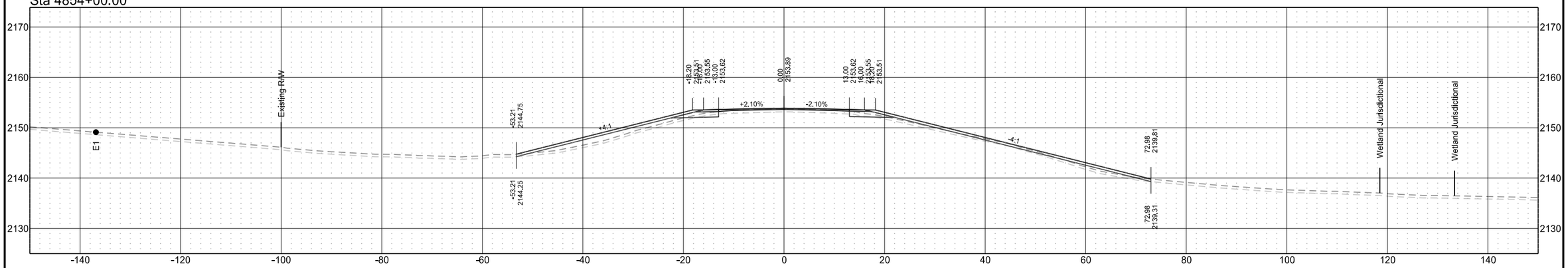
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	260
T4	D4				

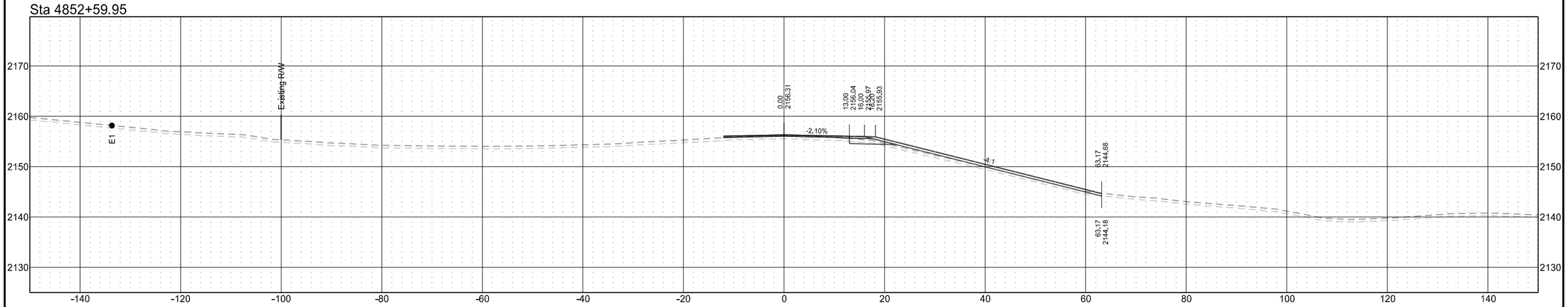
Sta 4855+00.00



Sta 4854+00.00



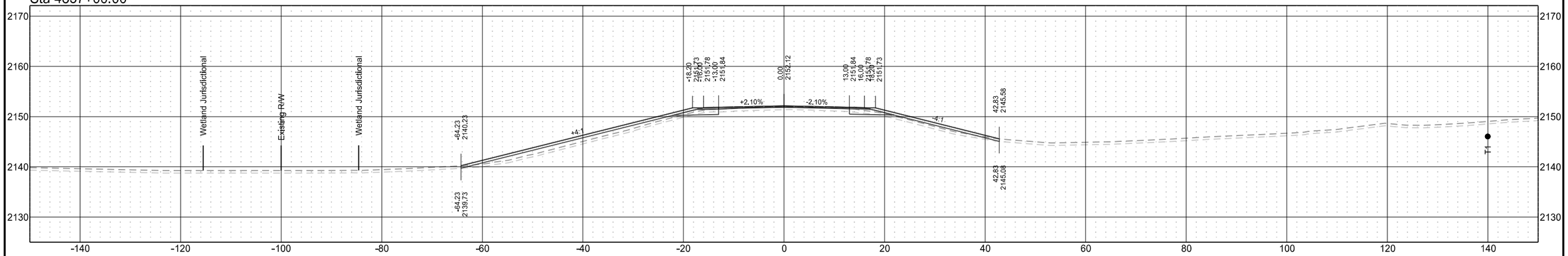
Sta 4852+59.95



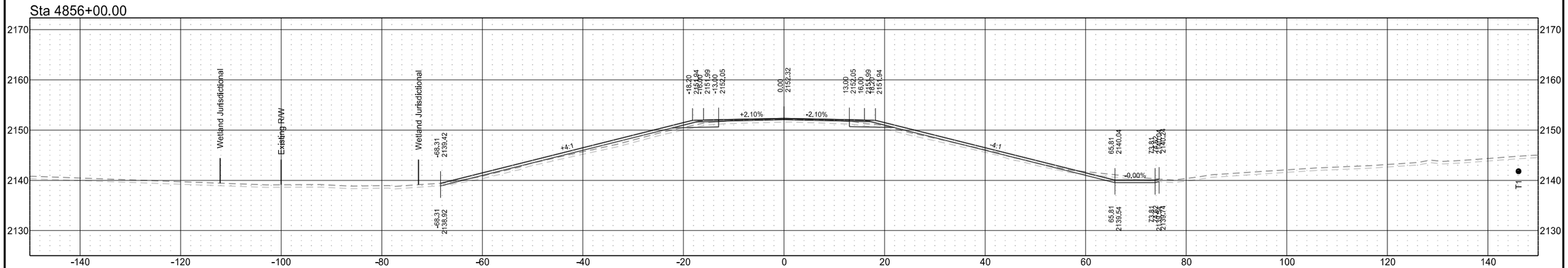
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	261
T4	D4				

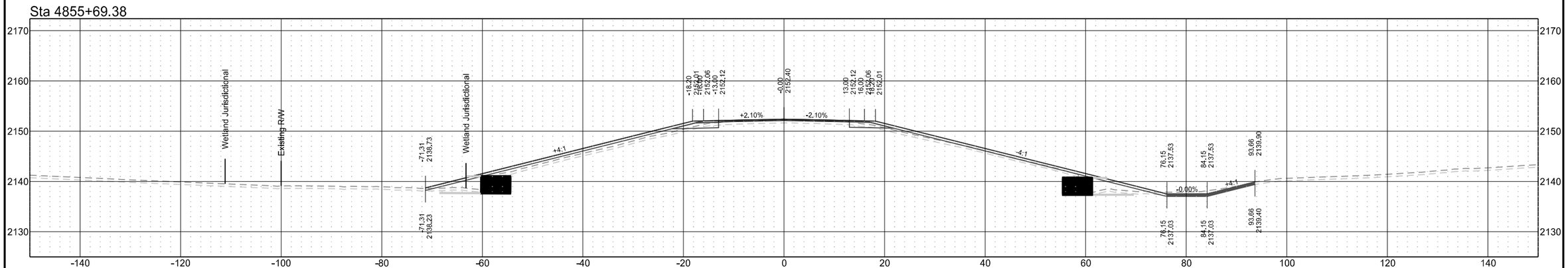
Sta 4857+00.00



Sta 4856+00.00



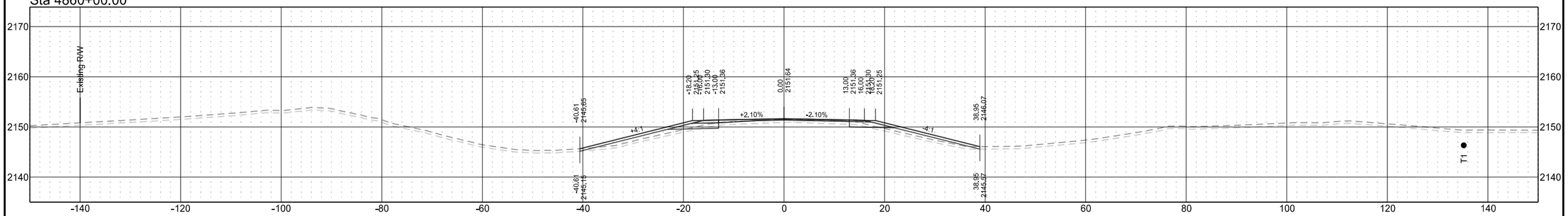
Sta 4855+69.38



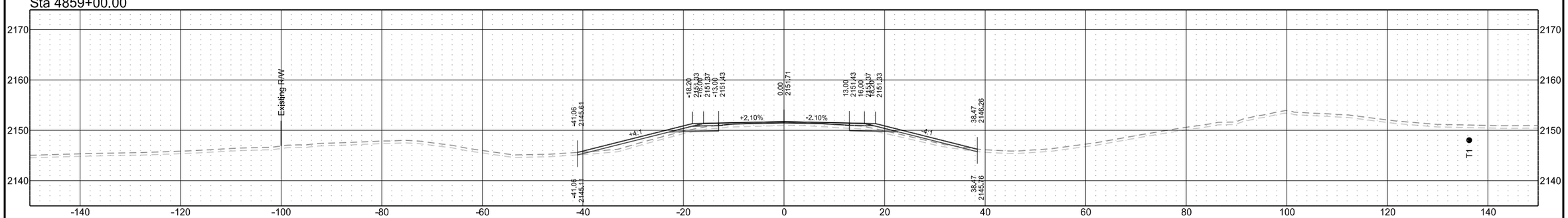
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	262
T4	D4				

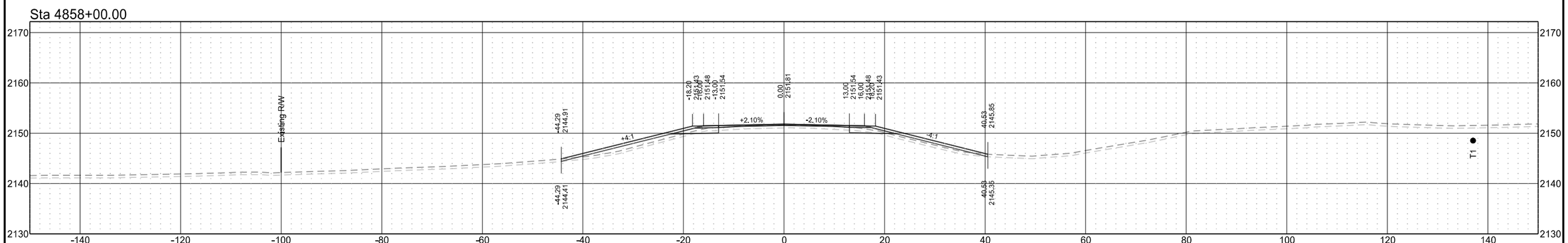
Sta 4860+00.00



Sta 4859+00.00



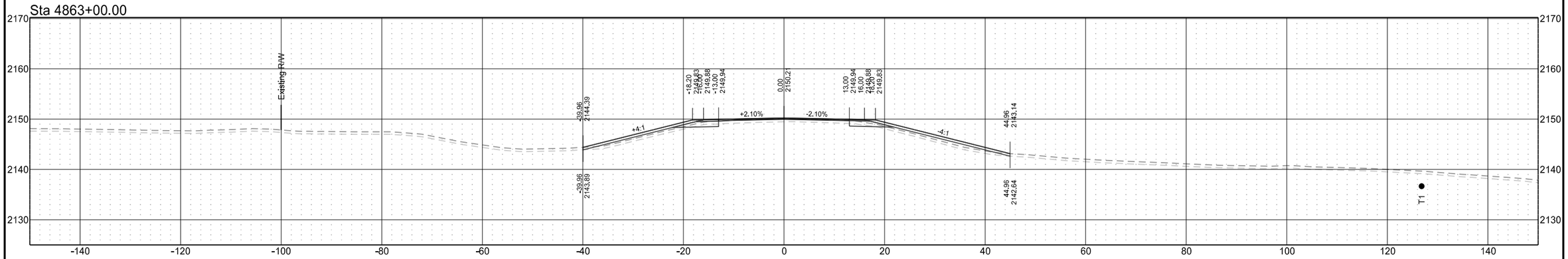
Sta 4858+00.00



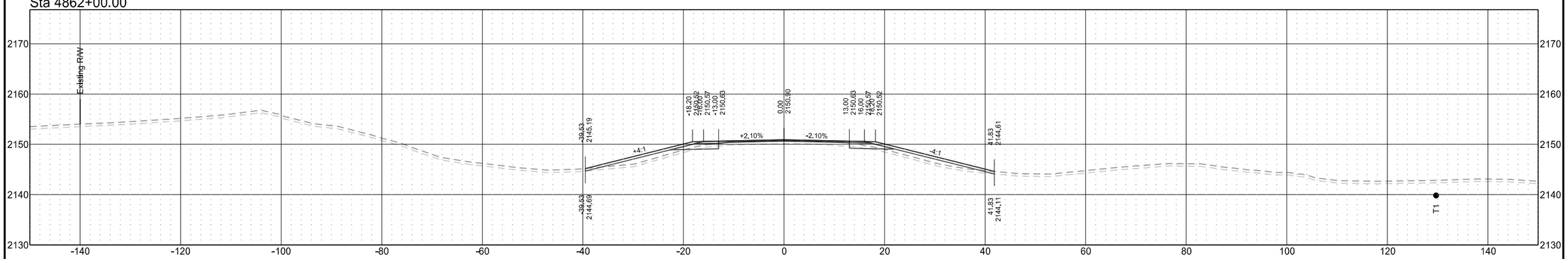
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	263
T4	D4				

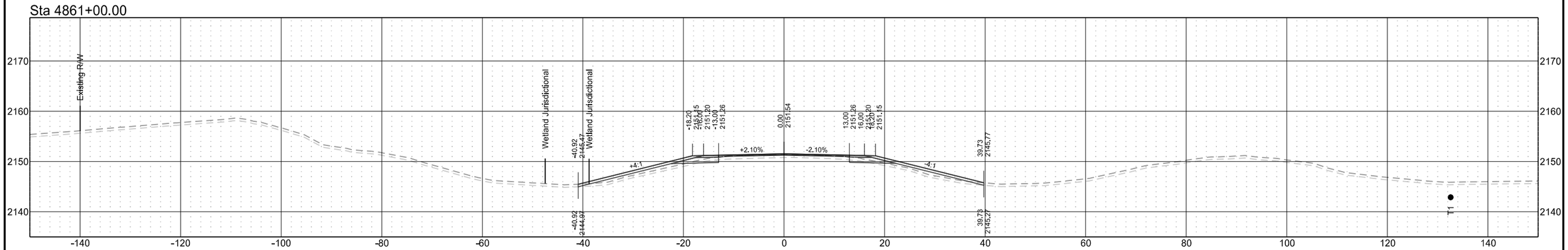
Sta 4863+00.00



Sta 4862+00.00



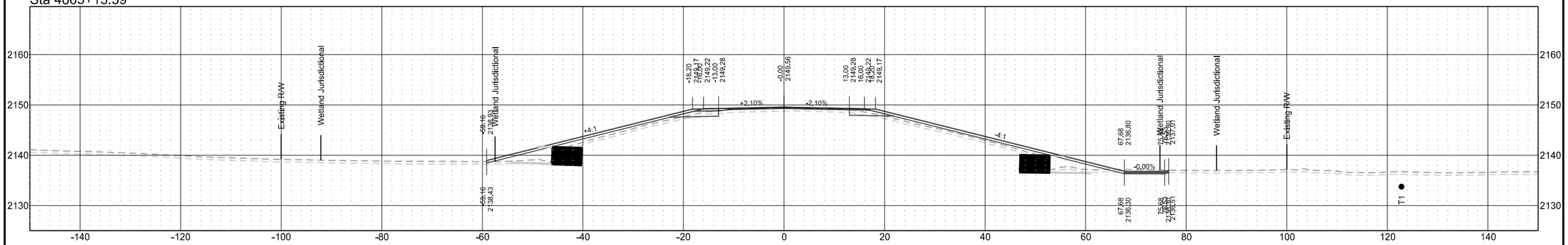
Sta 4861+00.00



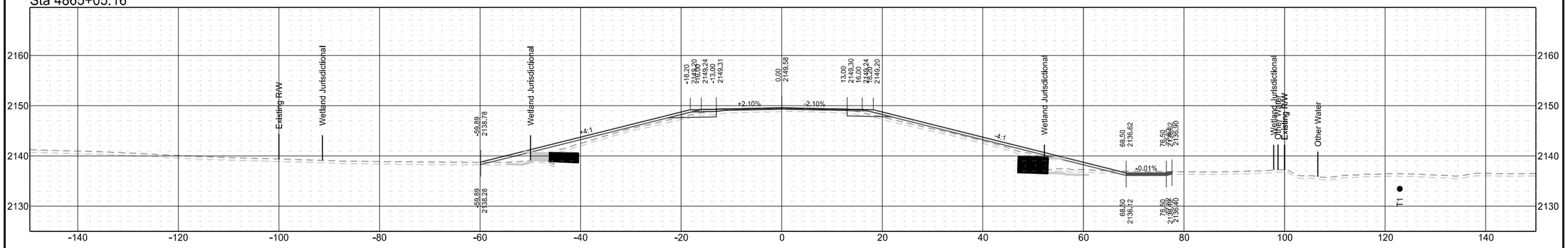
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	264
T4	D4				

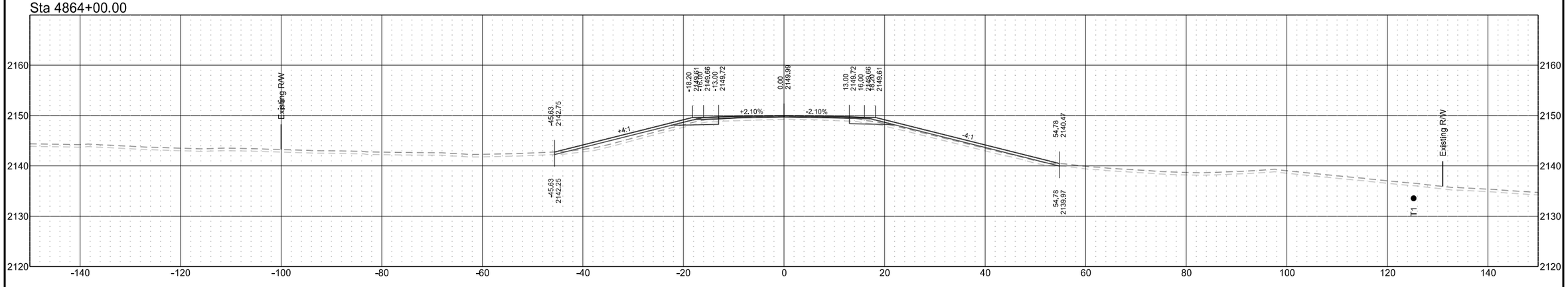
Sta 4865+13.39



Sta 4865+05.16



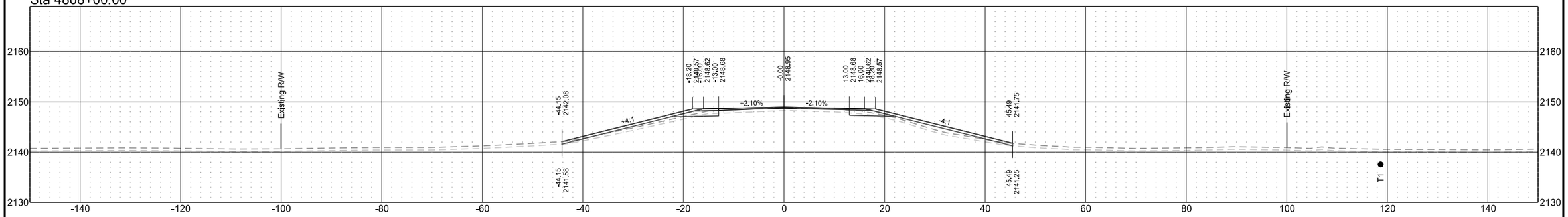
Sta 4864+00.00



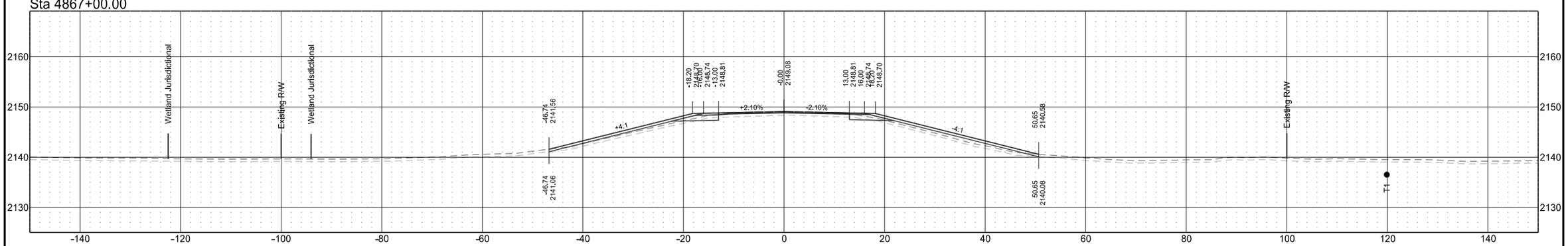
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	265
T4	D4				

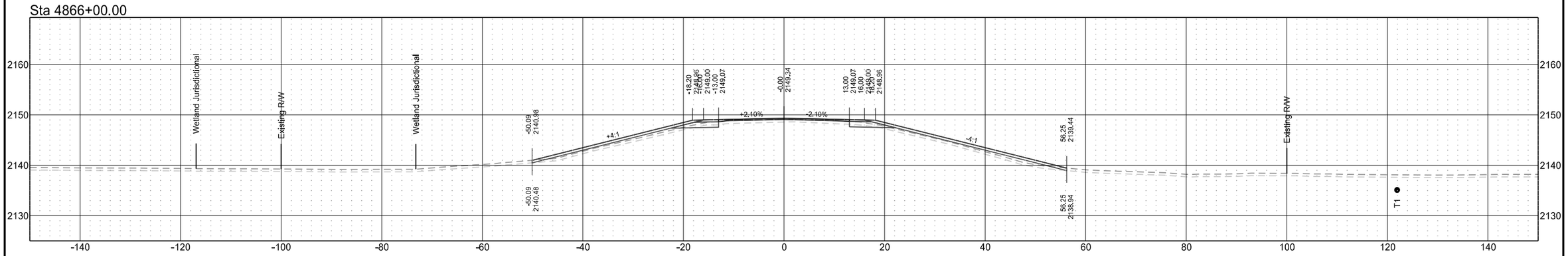
Sta 4868+00.00



Sta 4867+00.00



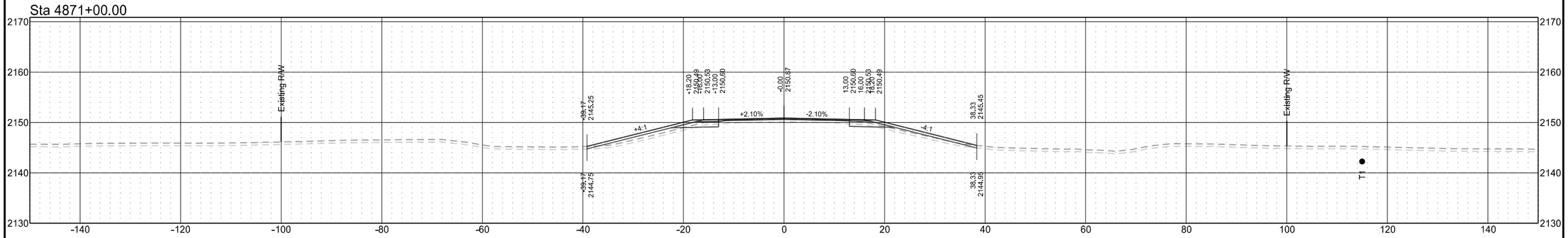
Sta 4866+00.00



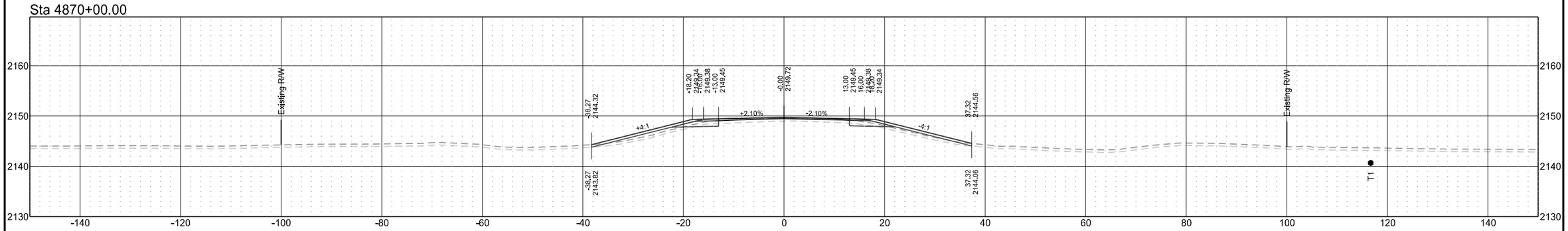
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	266
T4	D4				

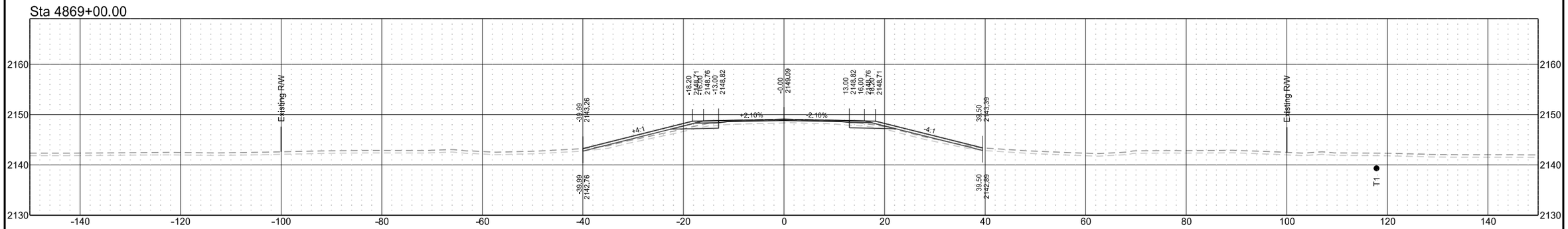
Sta 4871+00.00



Sta 4870+00.00



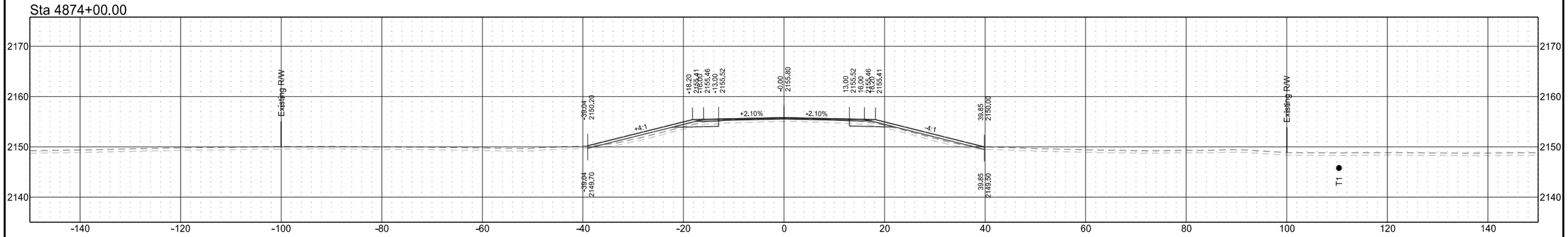
Sta 4869+00.00



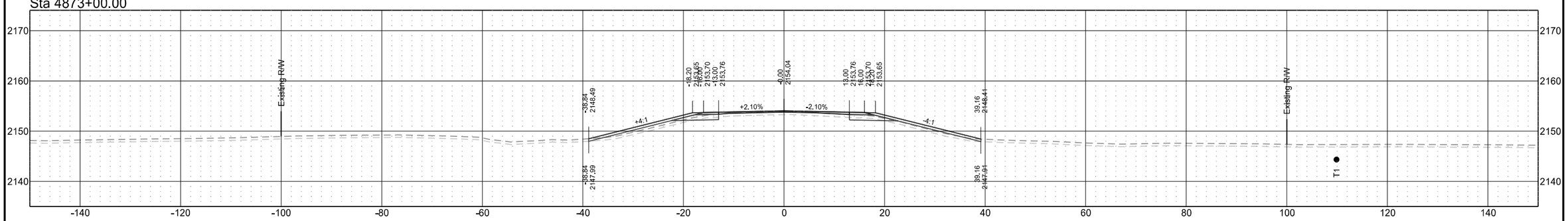
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	267
T4	D4				

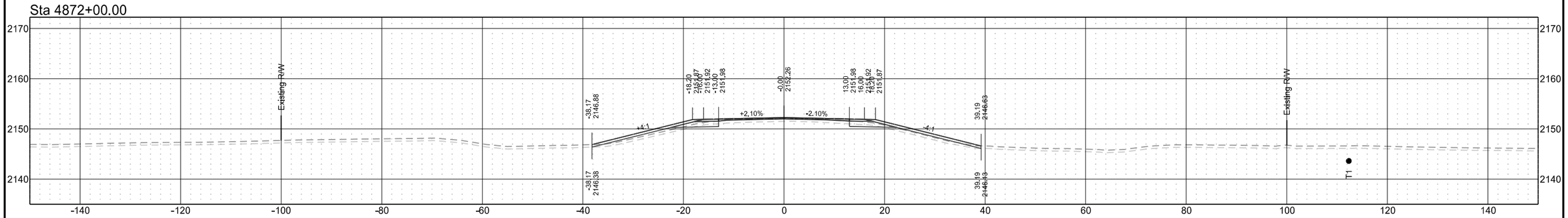
Sta 4874+00.00



Sta 4873+00.00



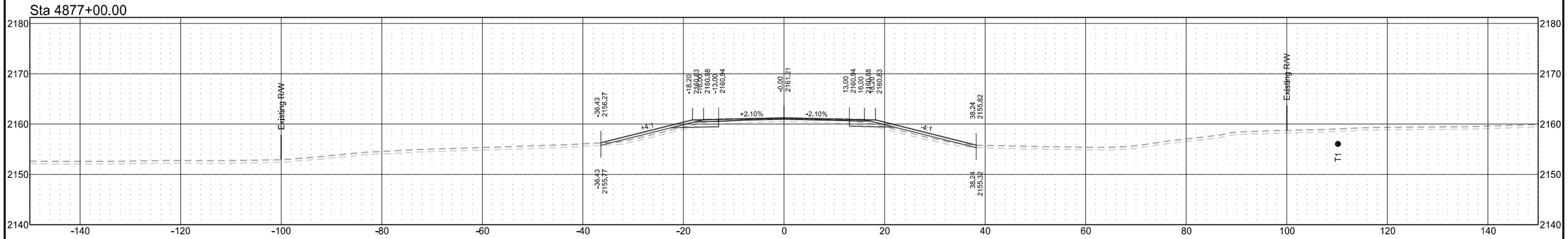
Sta 4872+00.00



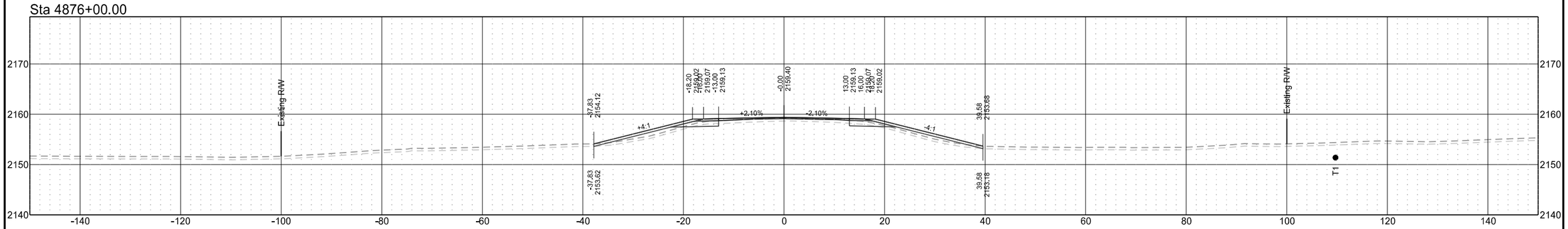
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	268
T4	D4				

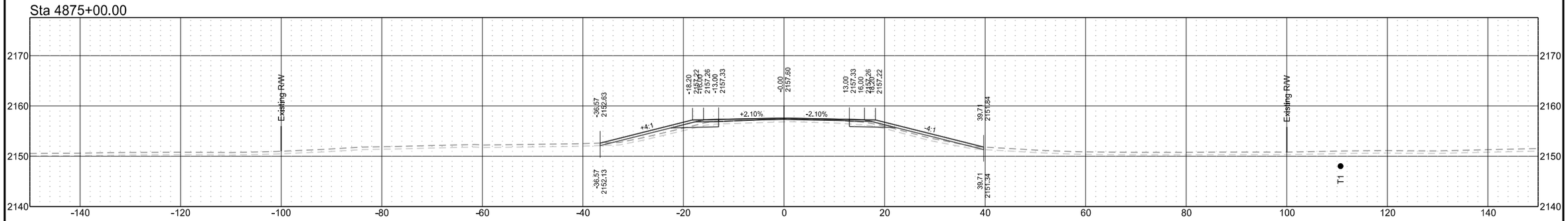
Sta 4877+00.00



Sta 4876+00.00



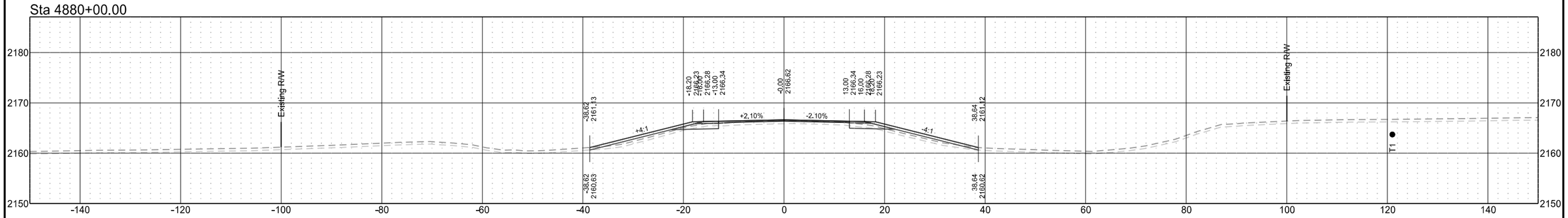
Sta 4875+00.00



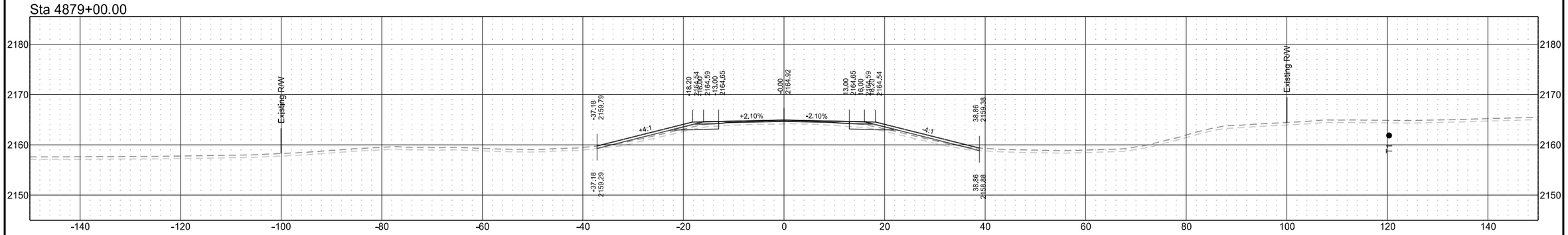
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	269
T4	D4				

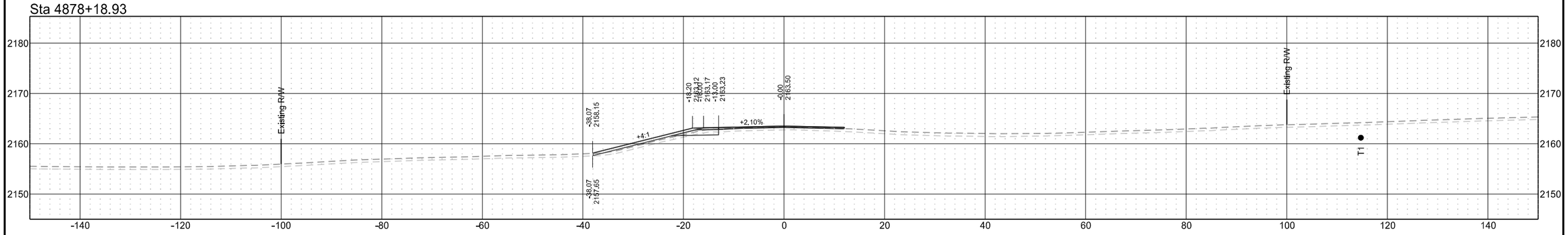
Sta 4880+00.00



Sta 4879+00.00



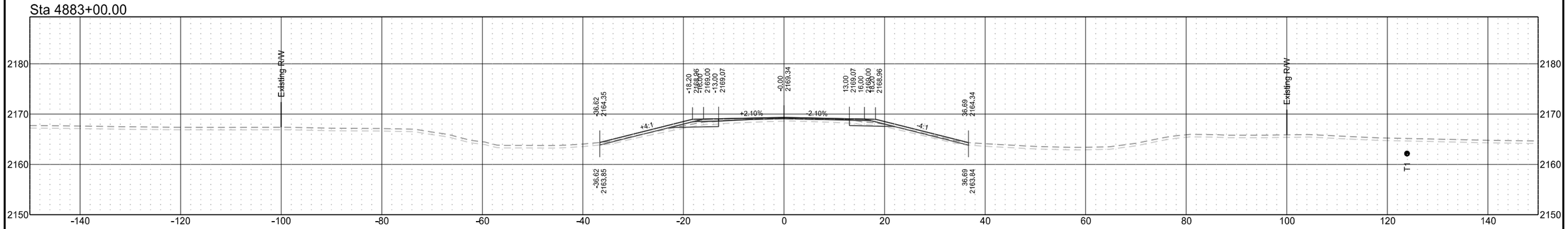
Sta 4878+18.93



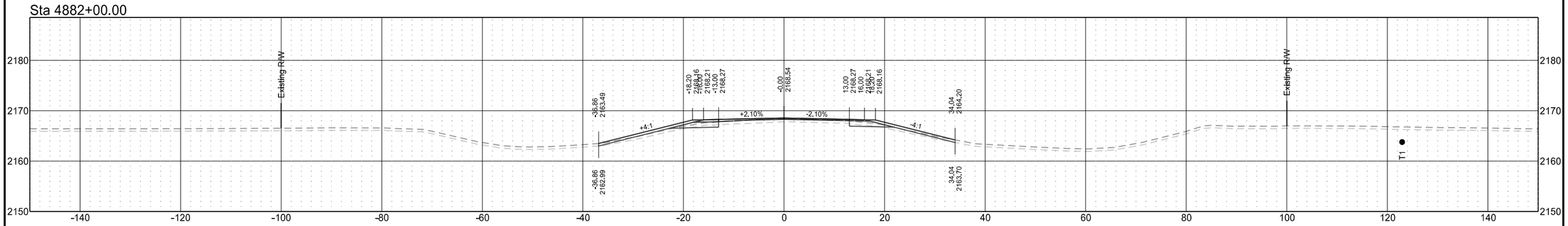
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	270
T4	D4				

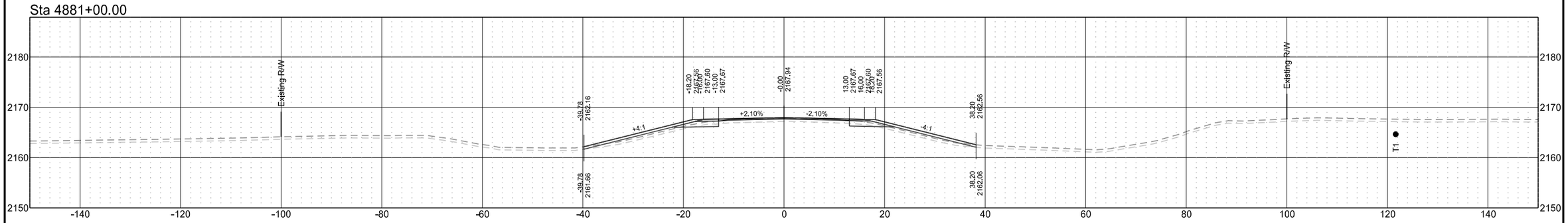
Sta 4883+00.00



Sta 4882+00.00



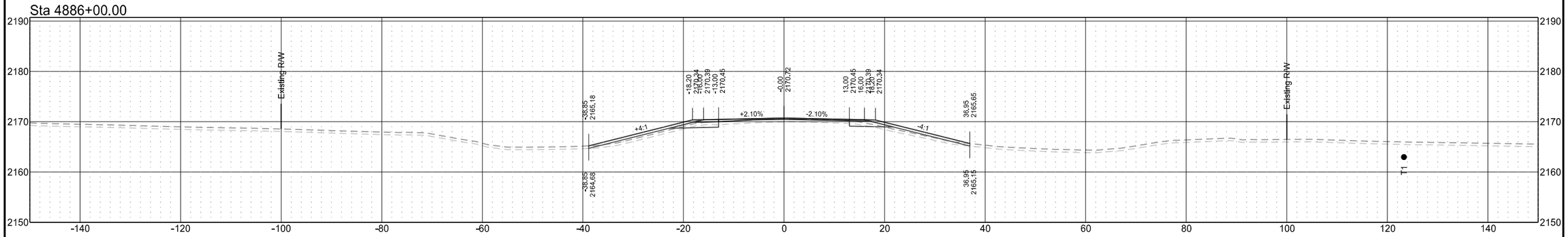
Sta 4881+00.00



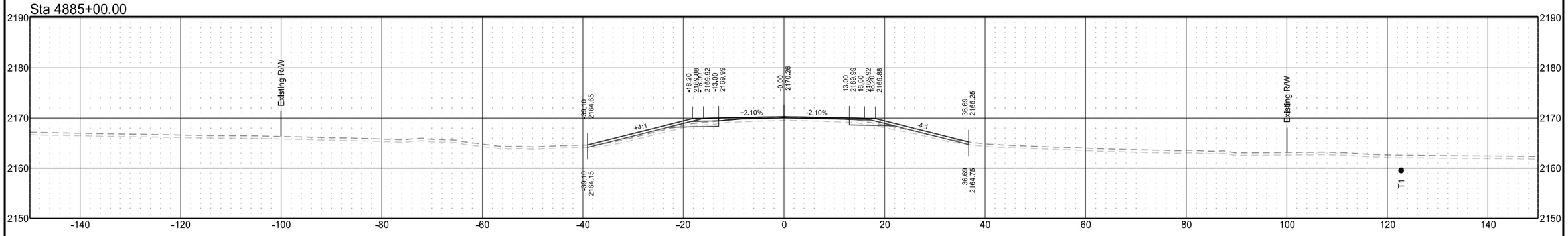
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	271
T4	D4				

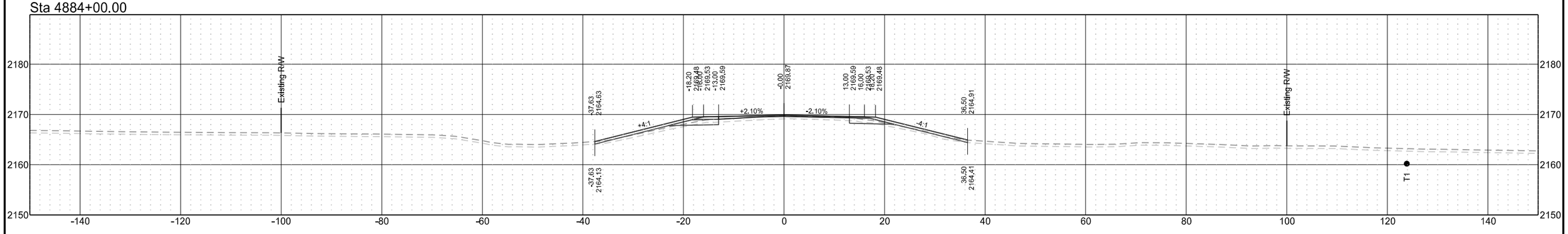
Sta 4886+00.00



Sta 4885+00.00



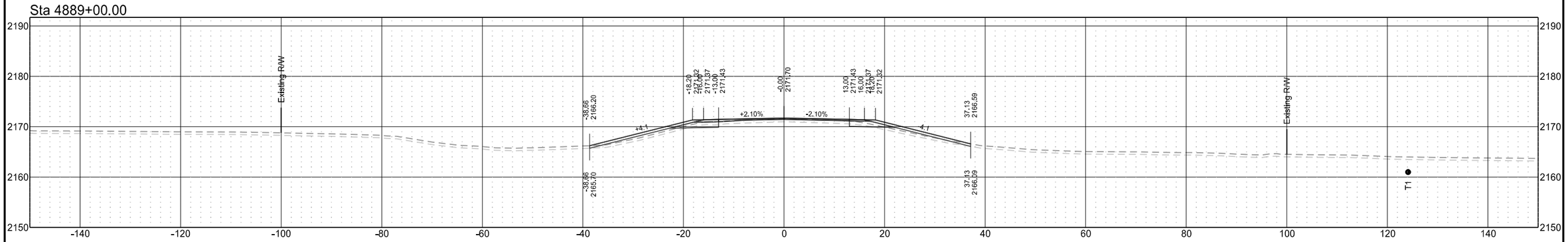
Sta 4884+00.00



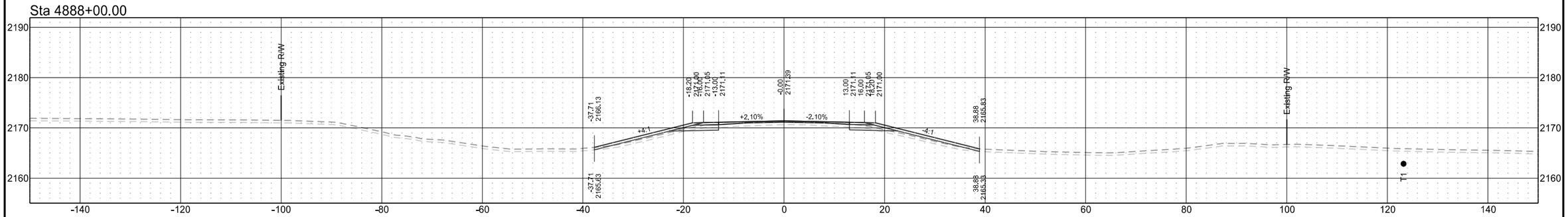
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	272
T4	D4				

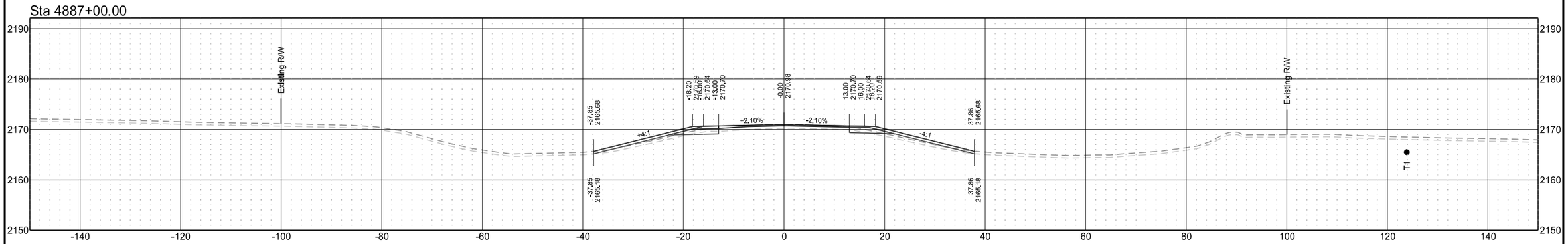
Sta 4889+00.00



Sta 4888+00.00



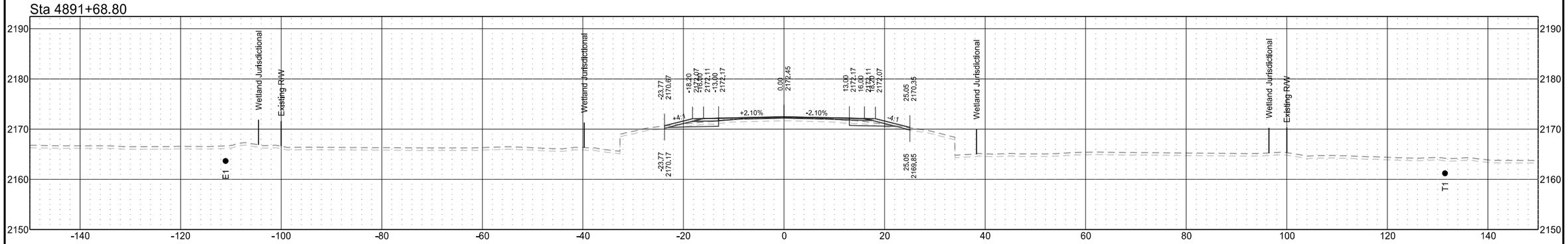
Sta 4887+00.00



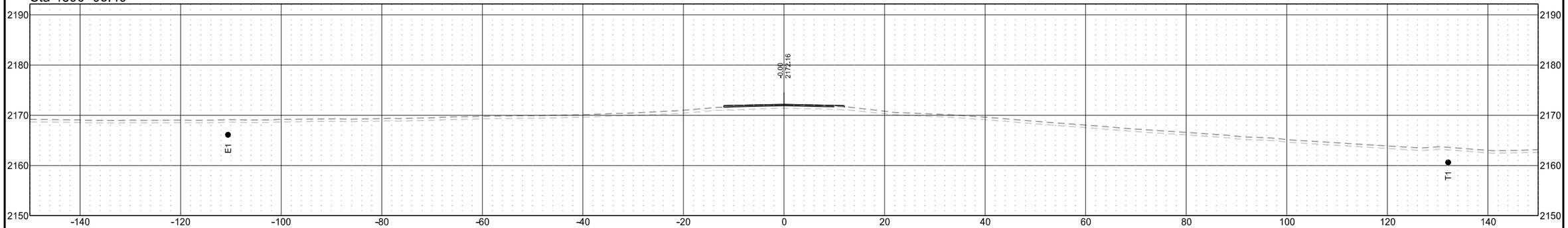
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	273
T4	D4				

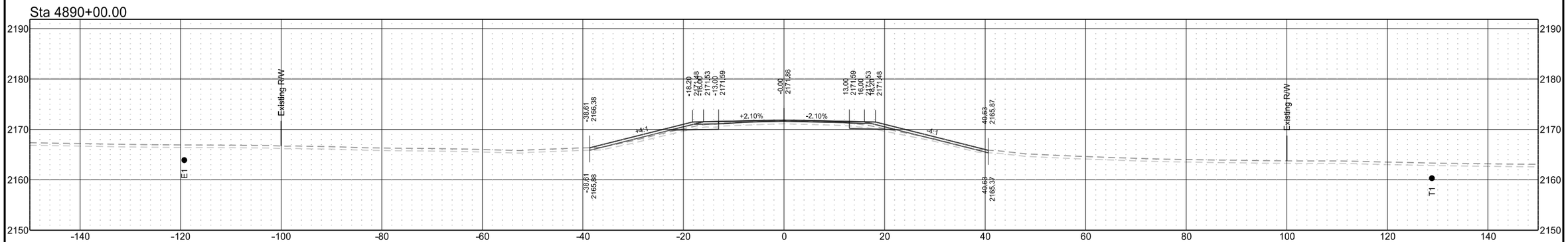
Sta 4891+68.80



Sta 4890+95.49



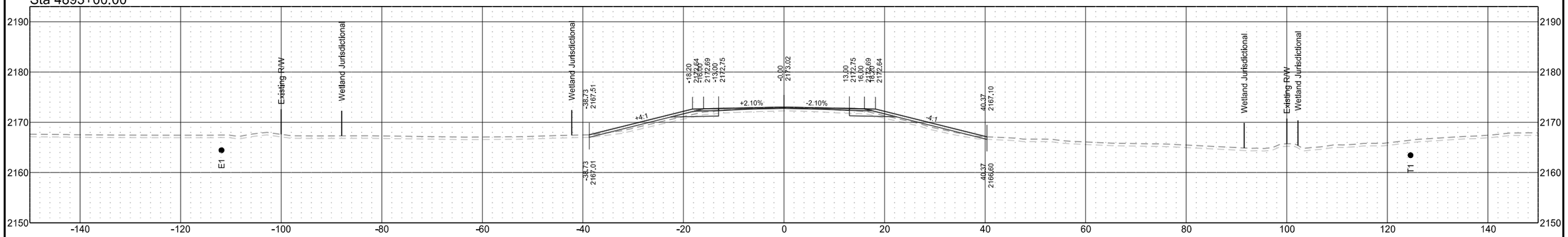
Sta 4890+00.00



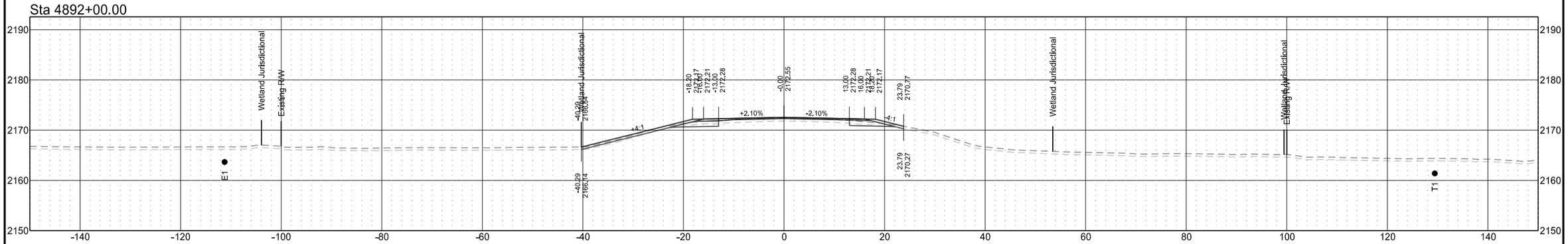
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	274
T4	D4				

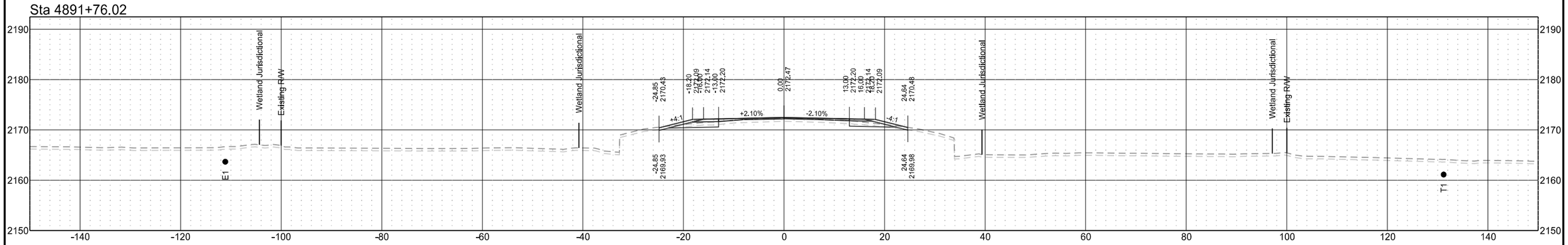
Sta 4893+00.00



Sta 4892+00.00



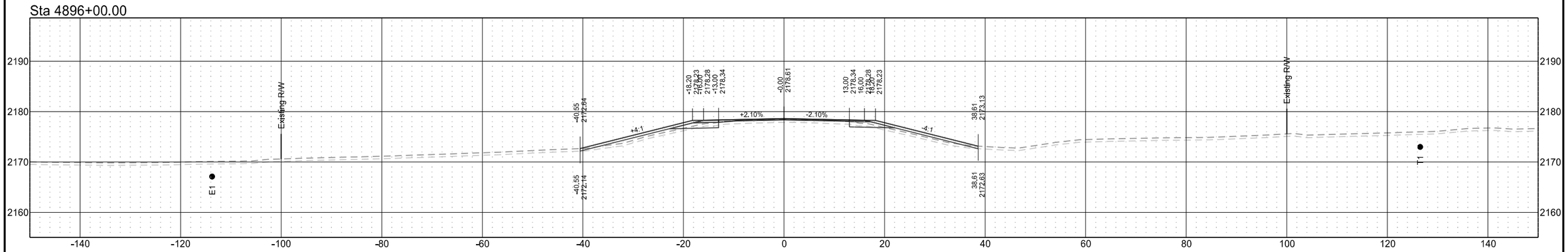
Sta 4891+76.02



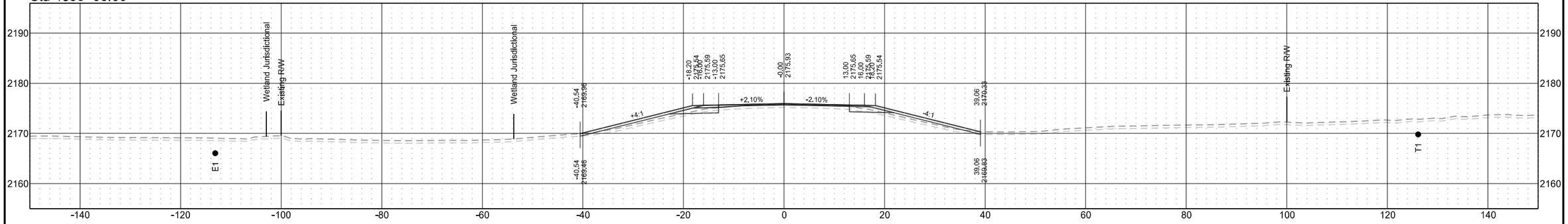
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	275
T4	D4				

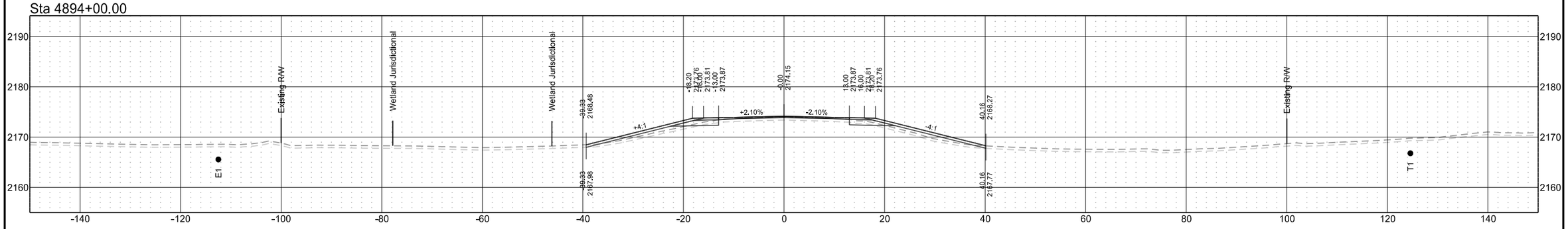
Sta 4896+00.00



Sta 4895+00.00



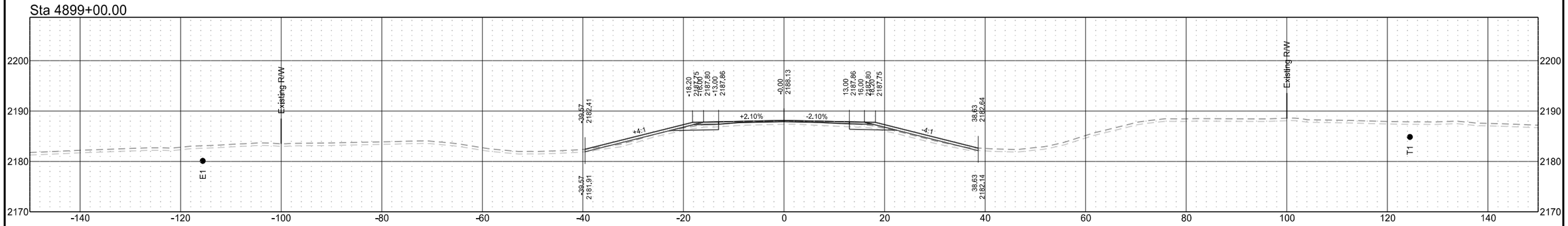
Sta 4894+00.00



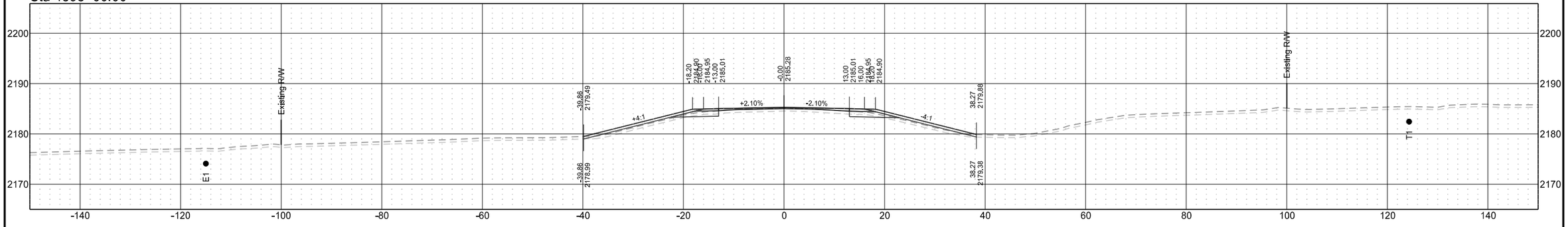
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	276
T4	D4				

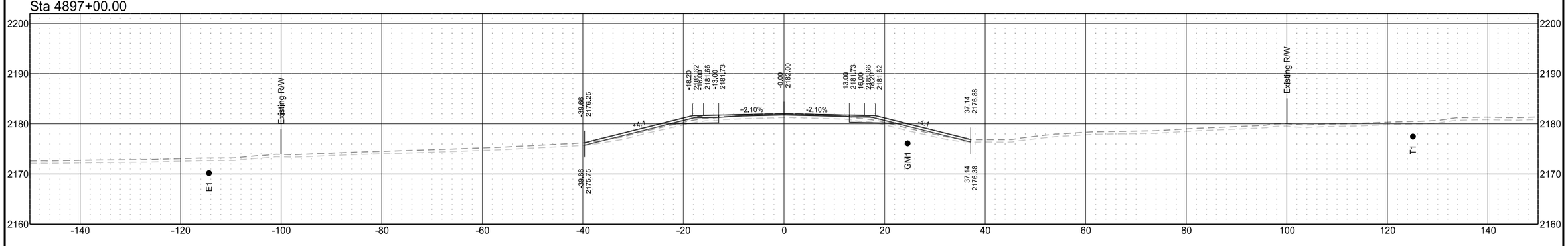
Sta 4899+00.00



Sta 4898+00.00



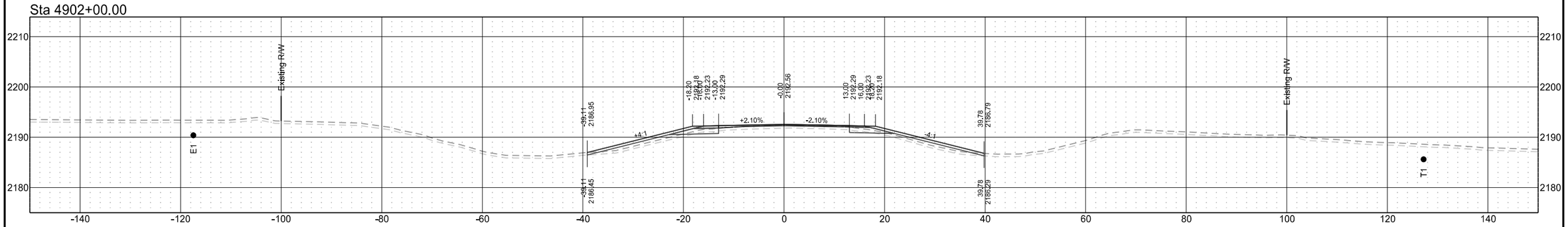
Sta 4897+00.00



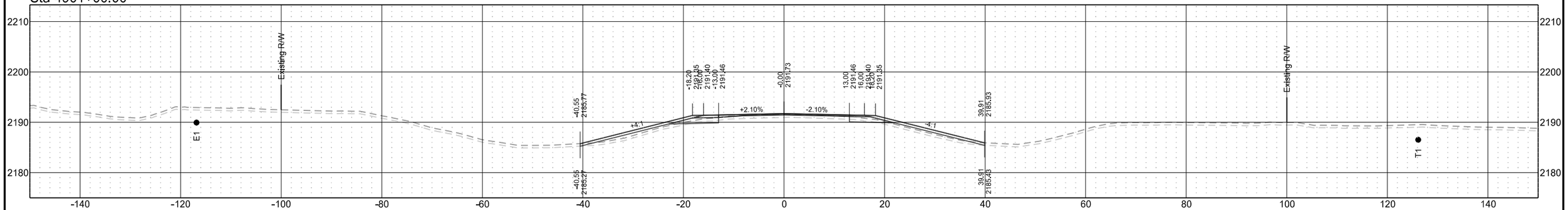
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	277
T4	D4				

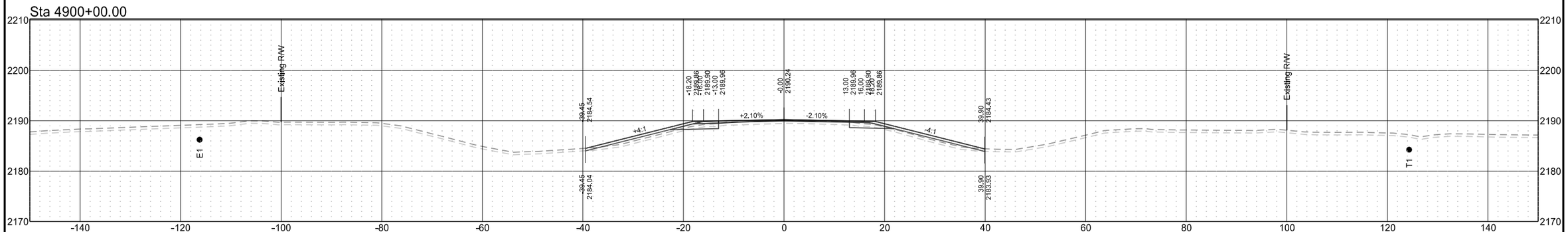
Sta 4902+00.00



Sta 4901+00.00



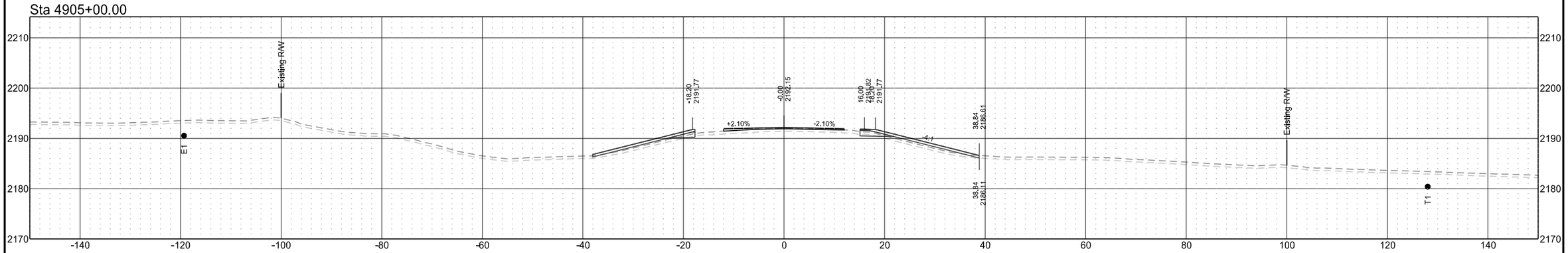
Sta 4900+00.00



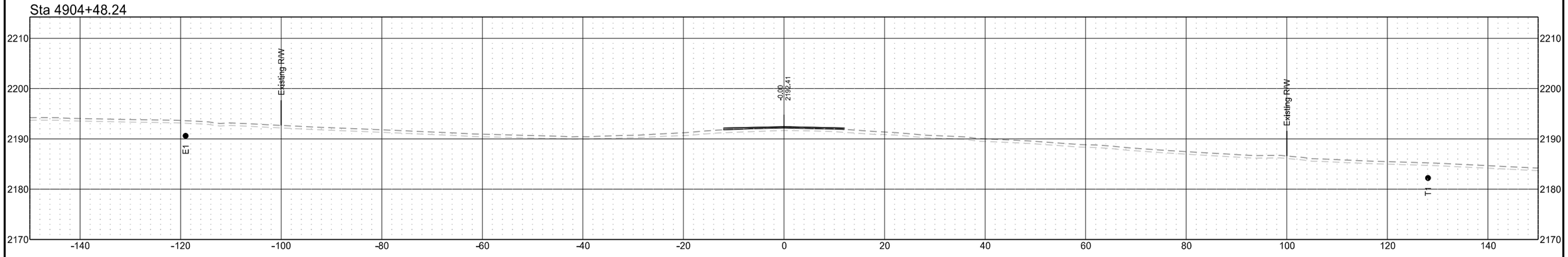
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	278
T4	D4				

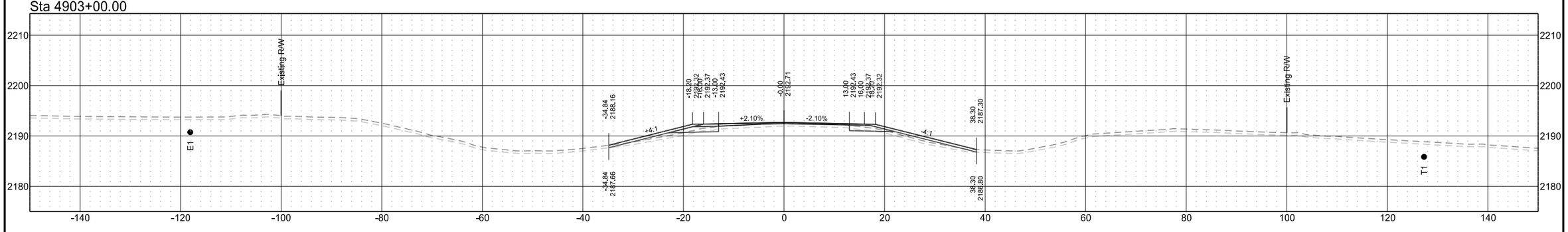
Sta 4905+00.00



Sta 4904+48.24



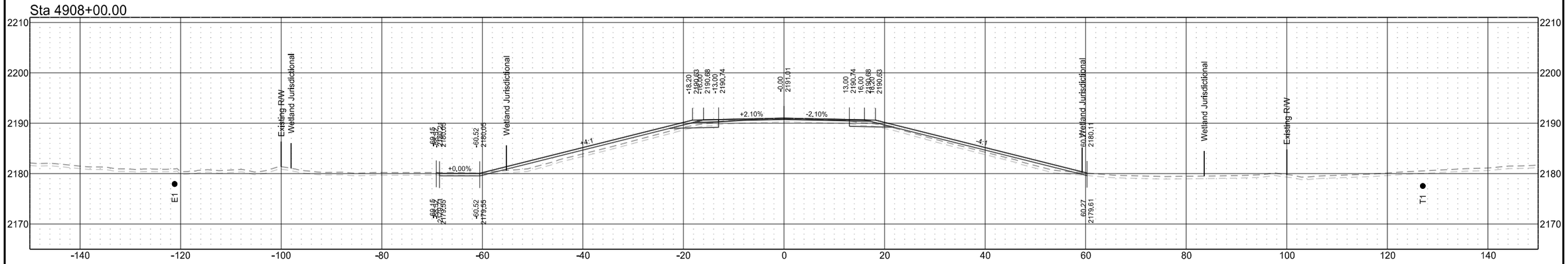
Sta 4903+00.00



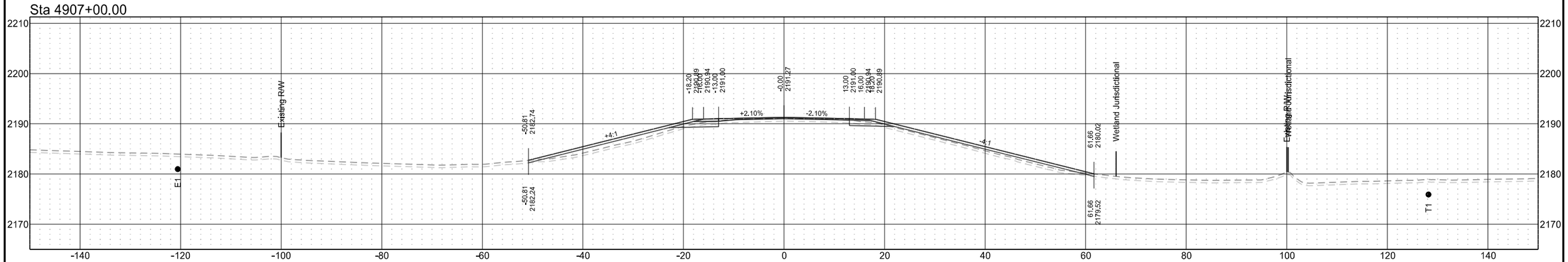
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	279
T4	D4				

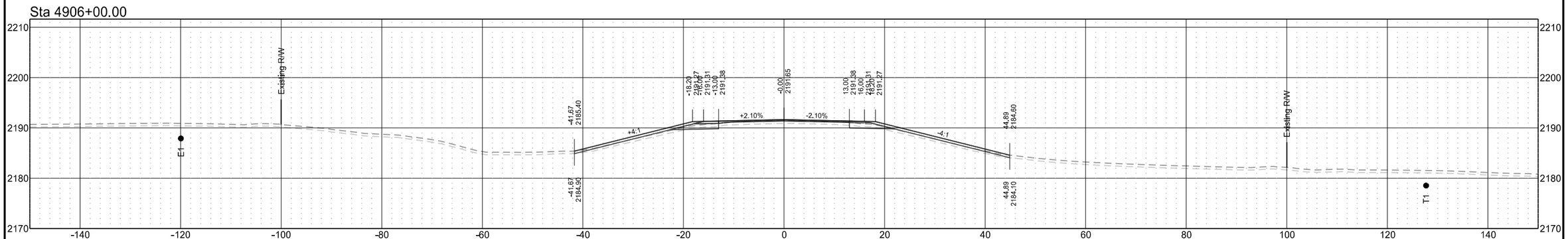
Sta 4908+00.00



Sta 4907+00.00



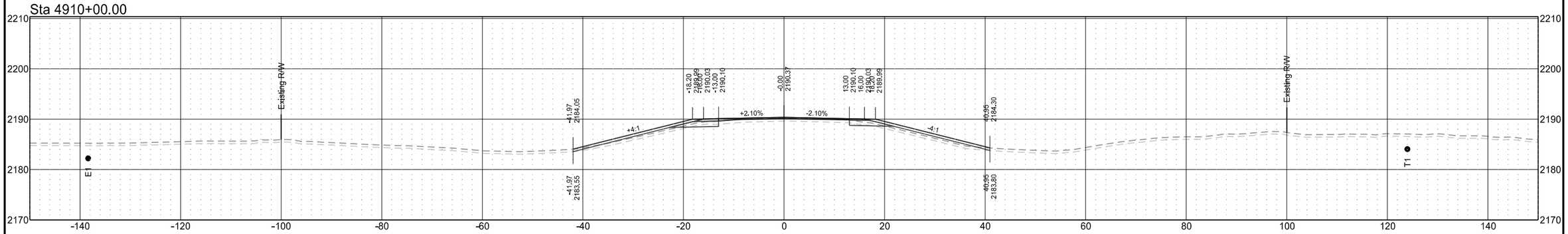
Sta 4906+00.00



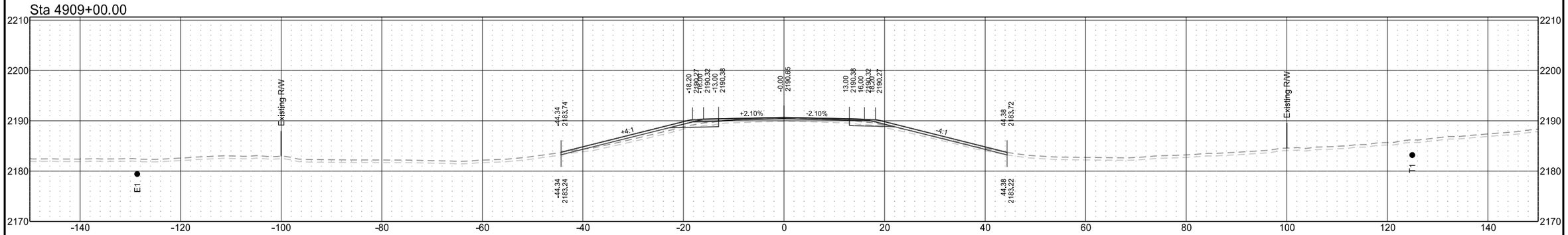
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	280
T4	D4				

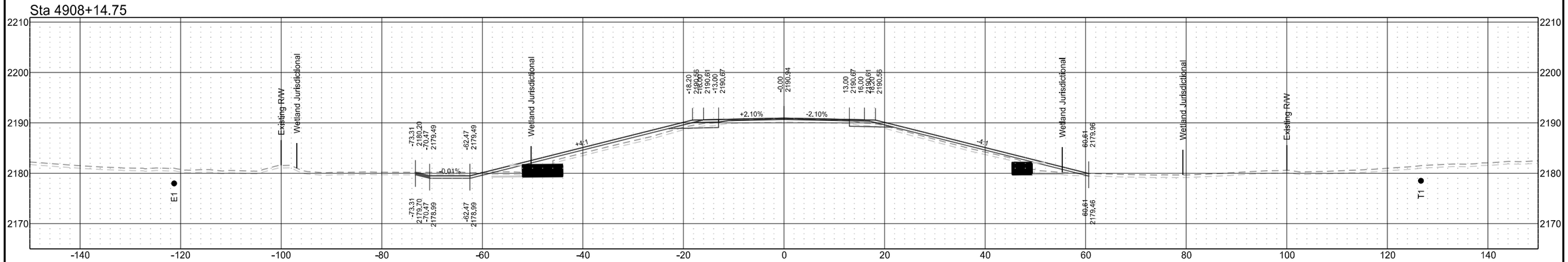
Sta 4910+00.00



Sta 4909+00.00



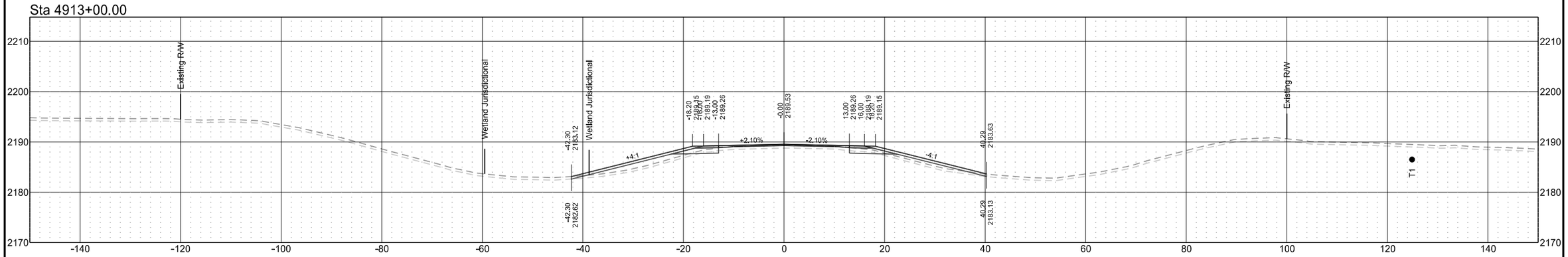
Sta 4908+14.75



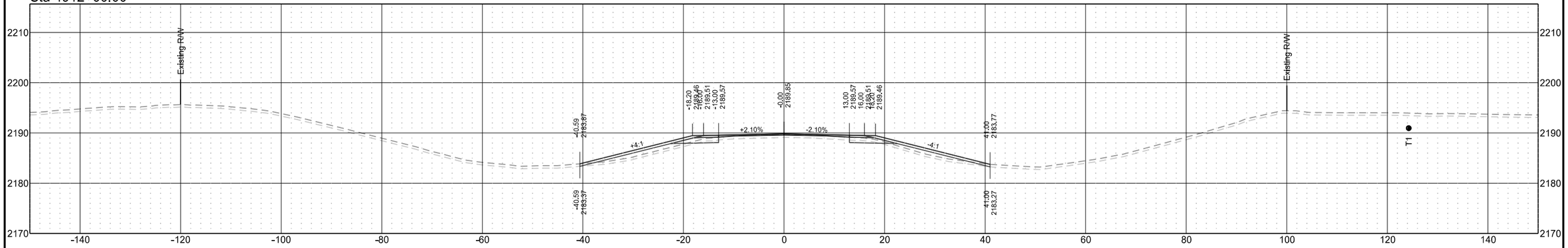
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	281
T4	D4				

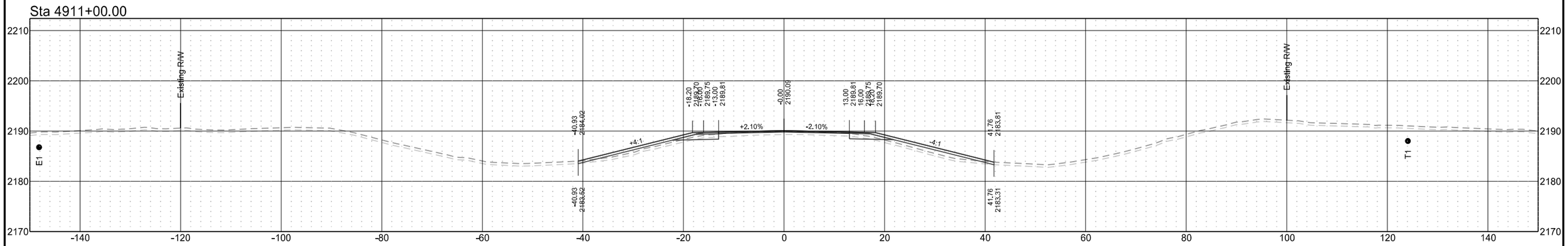
Sta 4913+00.00



Sta 4912+00.00



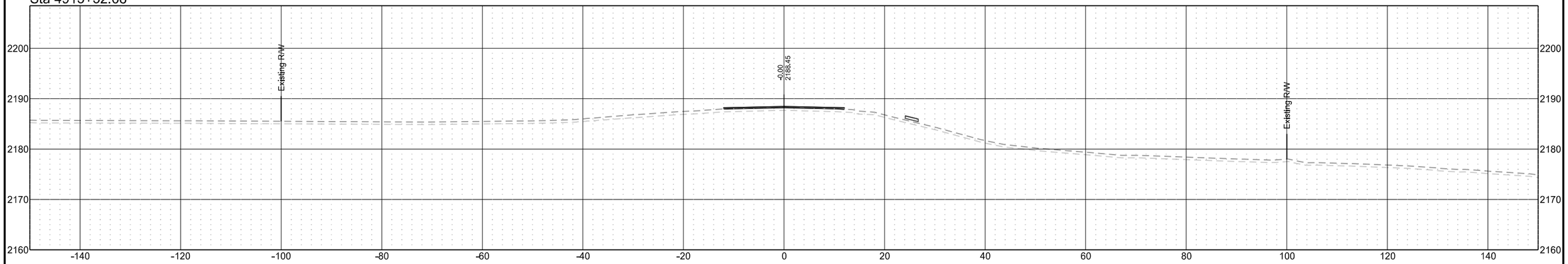
Sta 4911+00.00



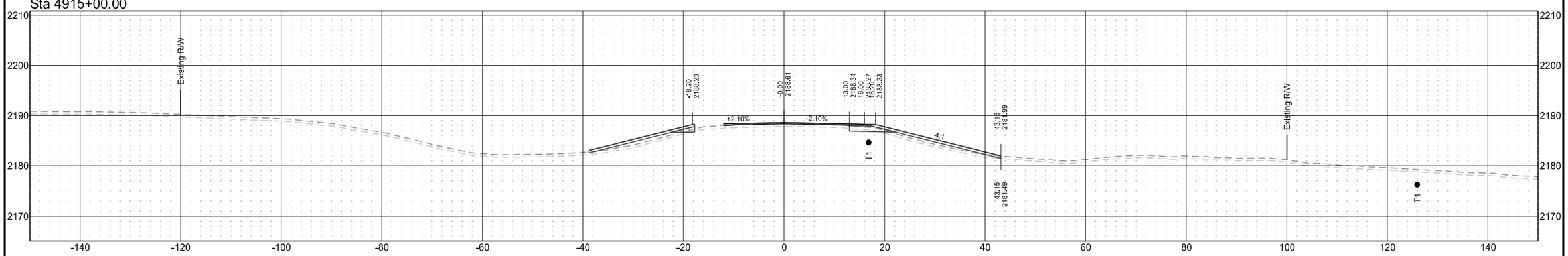
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	282
T4	D4				

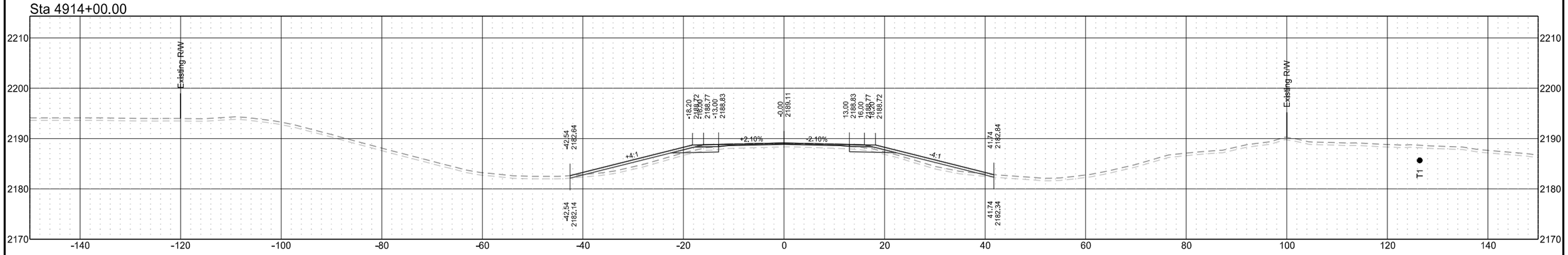
Sta 4915+52.68



Sta 4915+00.00



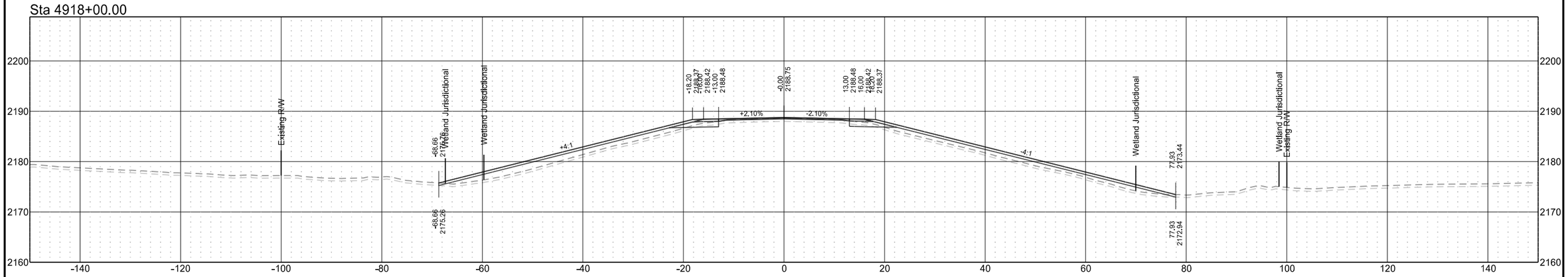
Sta 4914+00.00



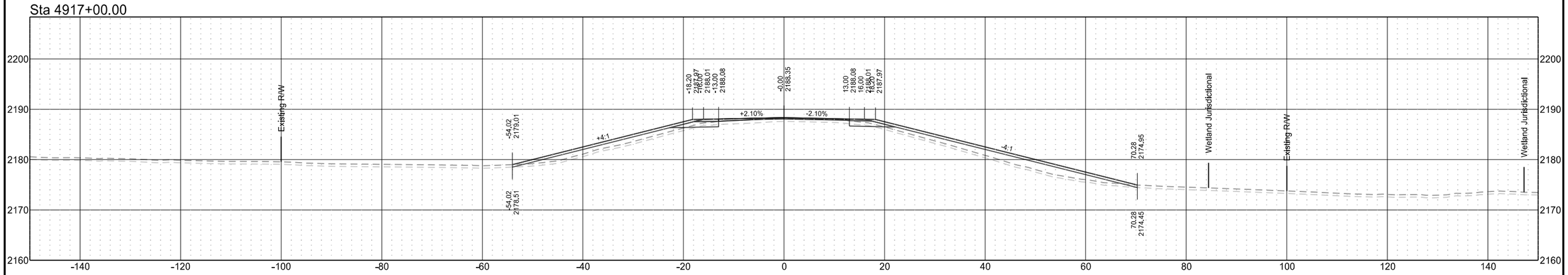
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	283
T4	D4				

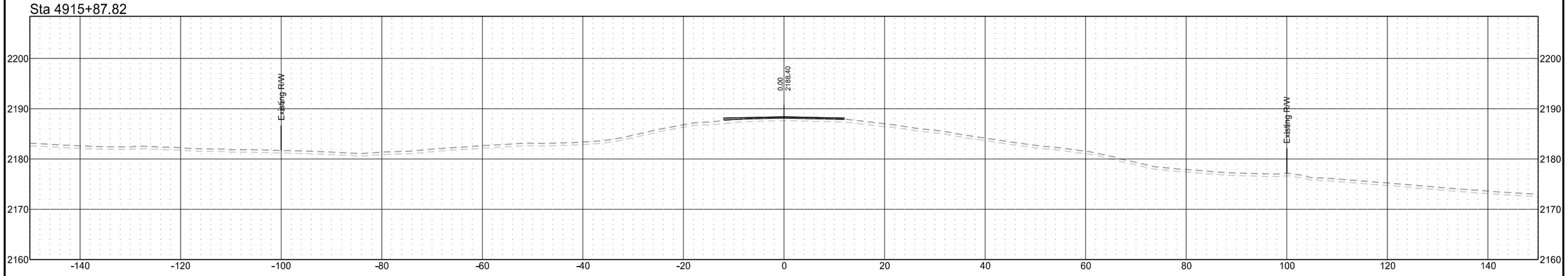
Sta 4918+00.00



Sta 4917+00.00



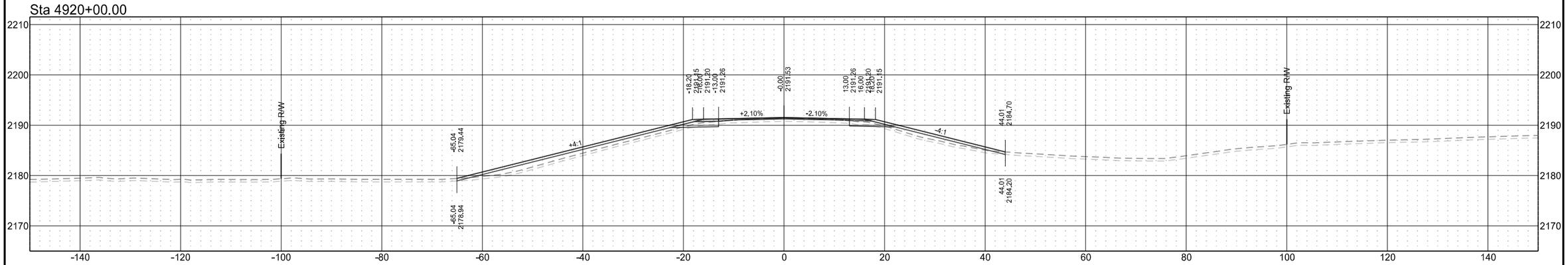
Sta 4915+87.82



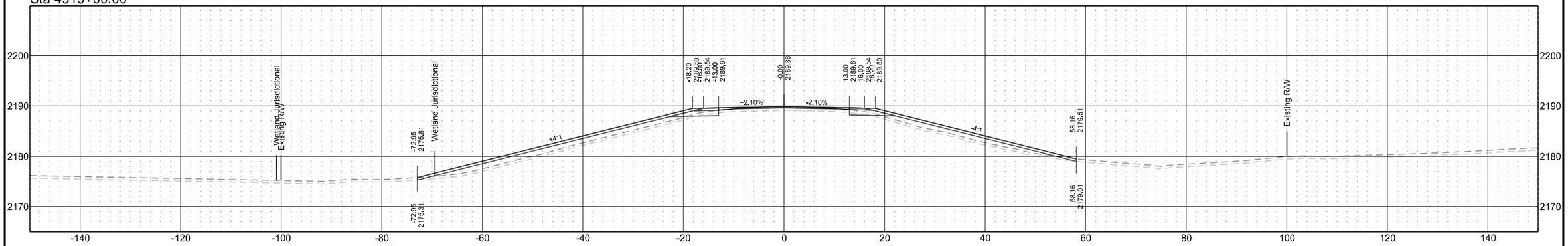
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	284
T4	D4				

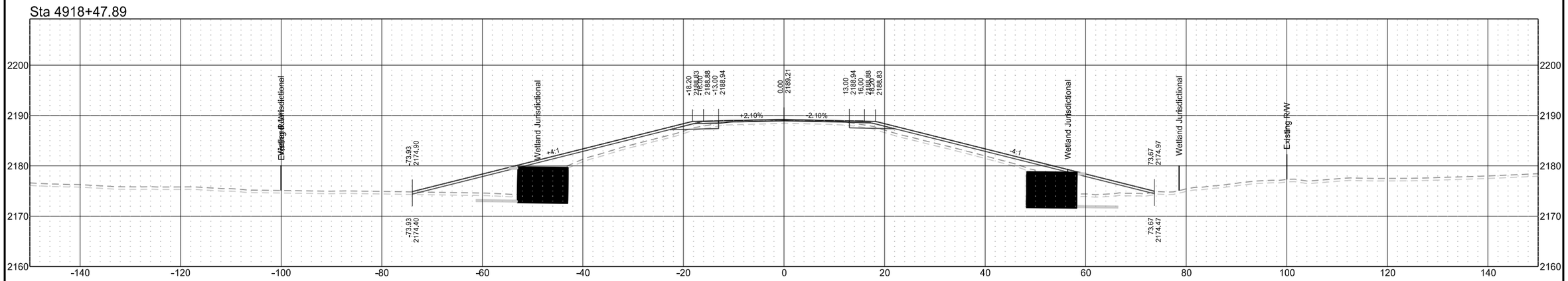
Sta 4920+00.00



Sta 4919+00.00



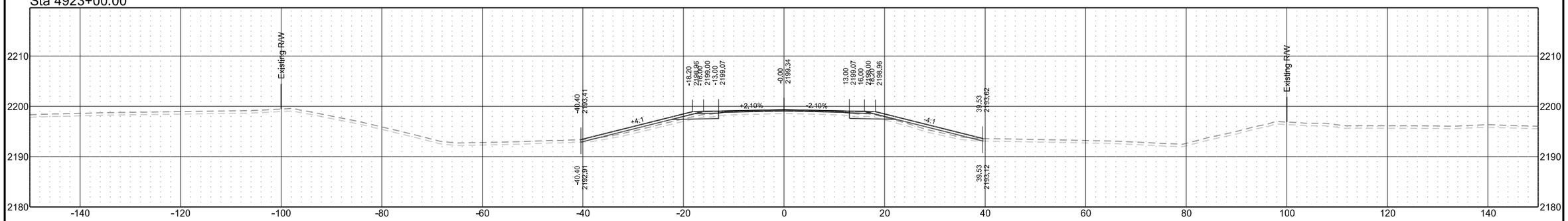
Sta 4918+47.89



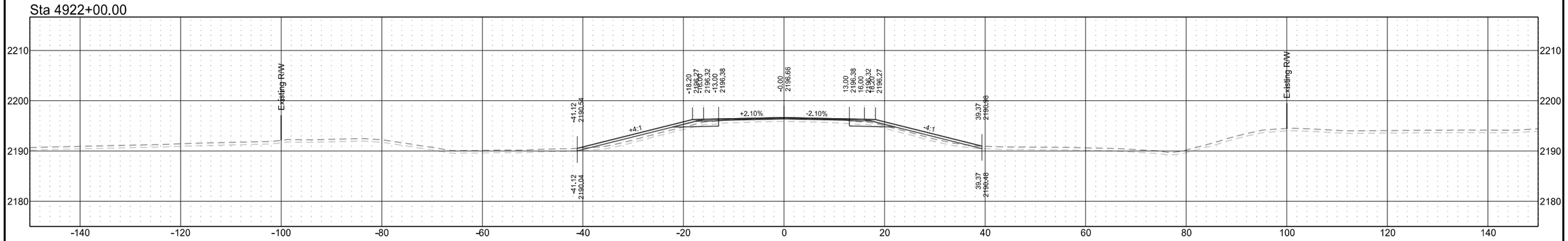
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	285
T4	D4				

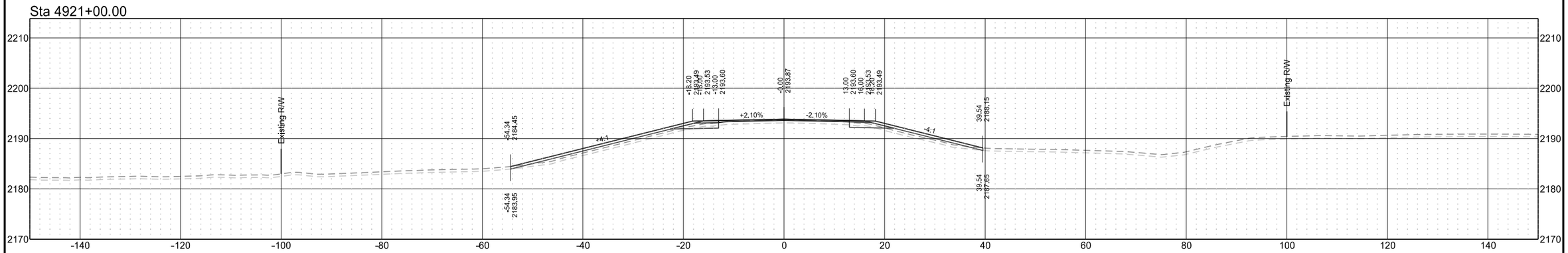
Sta 4923+00.00



Sta 4922+00.00



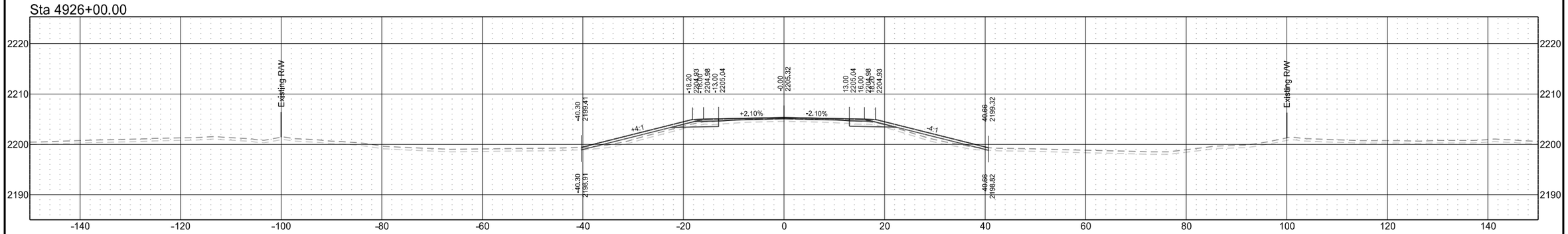
Sta 4921+00.00



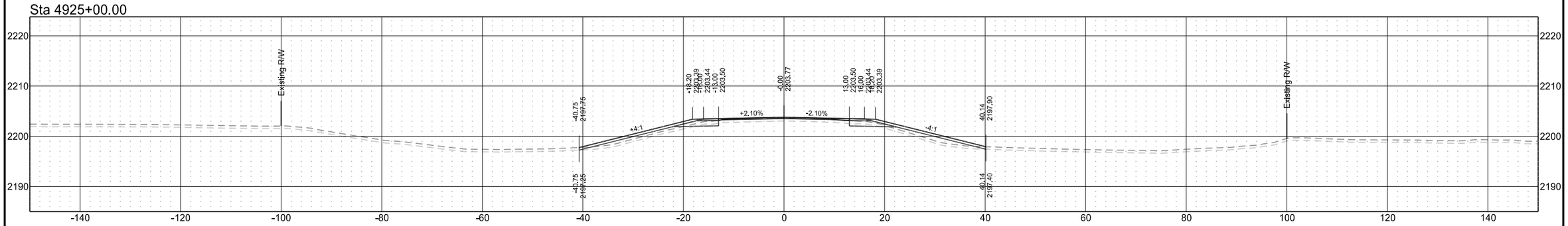
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	286
T4	D4				

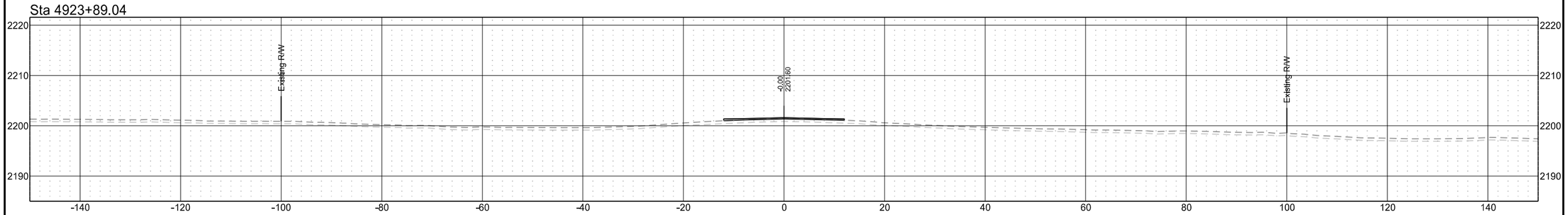
Sta 4926+00.00



Sta 4925+00.00



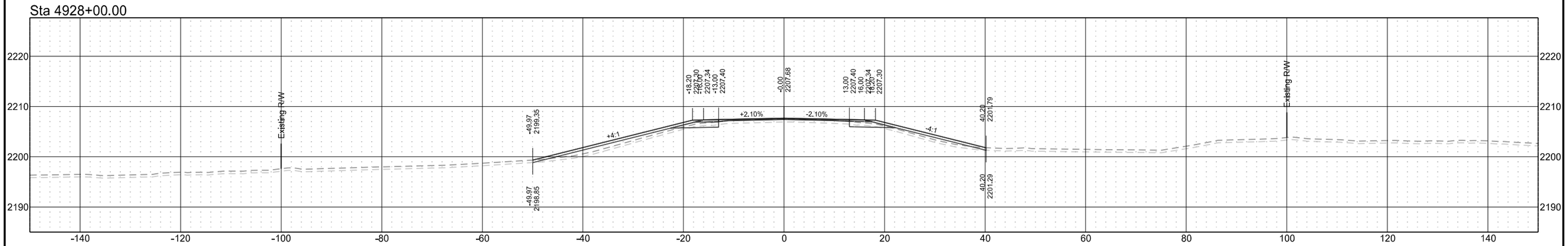
Sta 4923+89.04



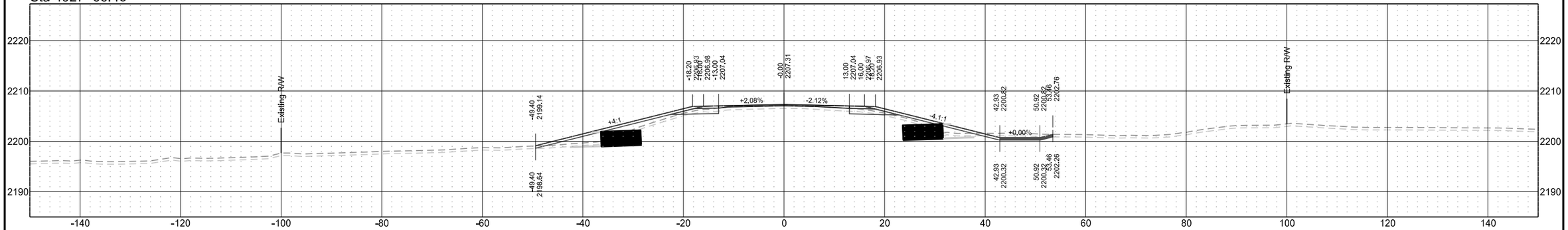
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	287
T4	D4				

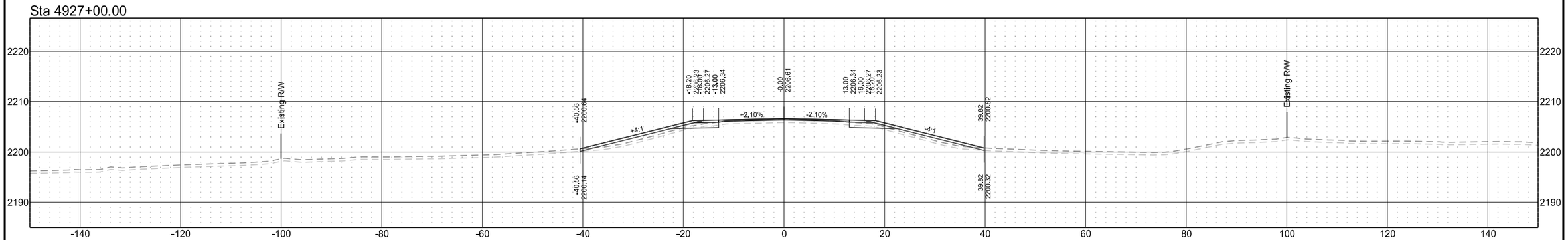
Sta 4928+00.00



Sta 4927+66.45



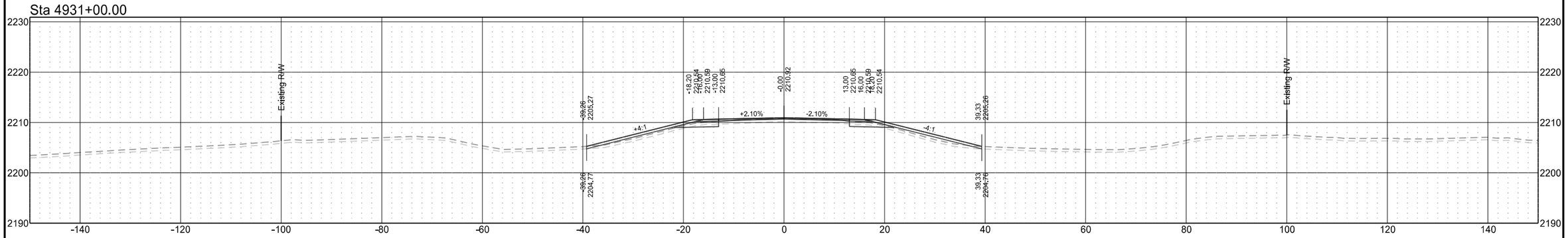
Sta 4927+00.00



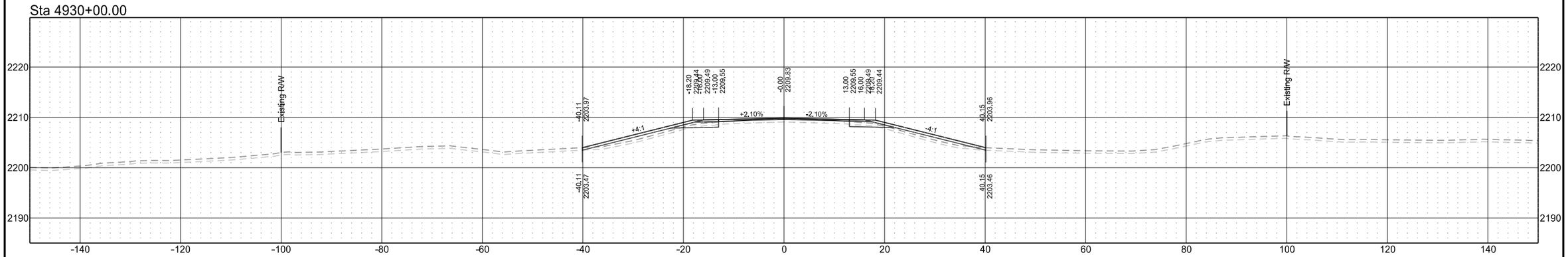
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	288
T4	D4				

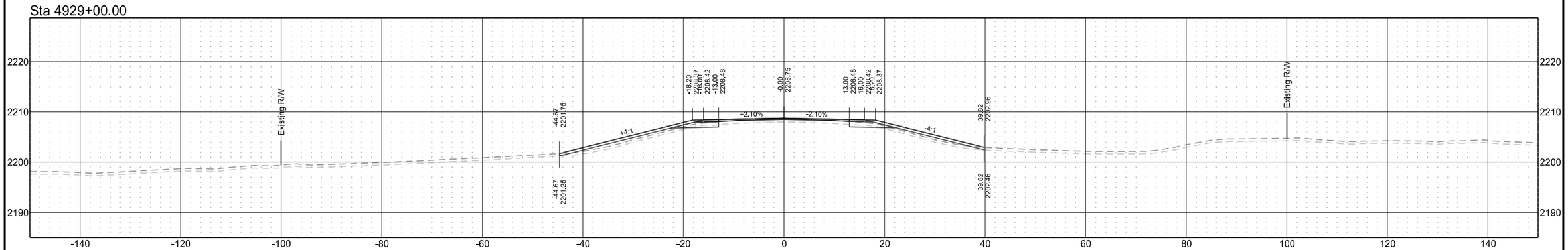
Sta 4931+00.00



Sta 4930+00.00



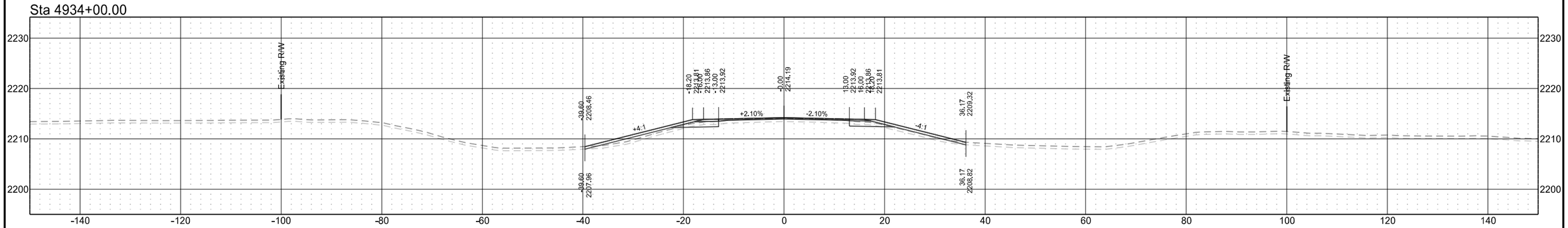
Sta 4929+00.00



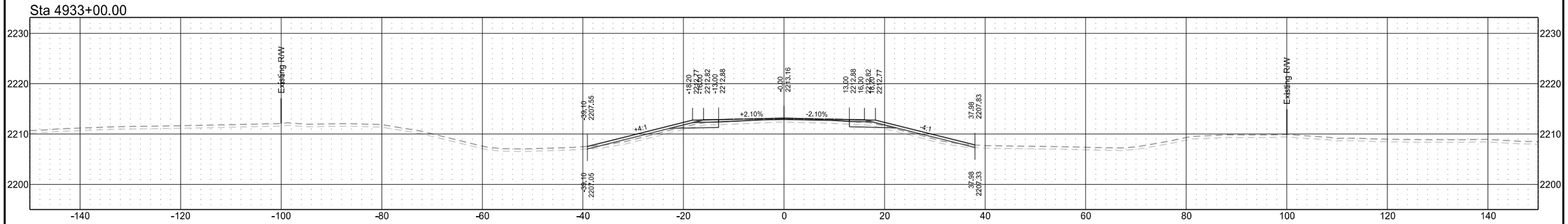
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	289
T4	D4				

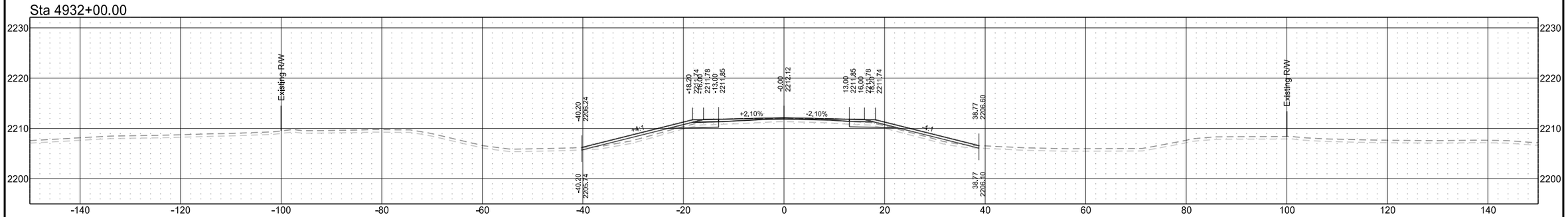
Sta 4934+00.00



Sta 4933+00.00



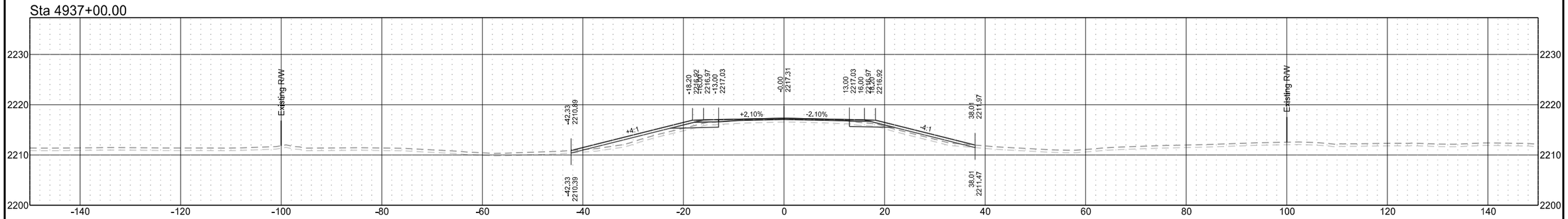
Sta 4932+00.00



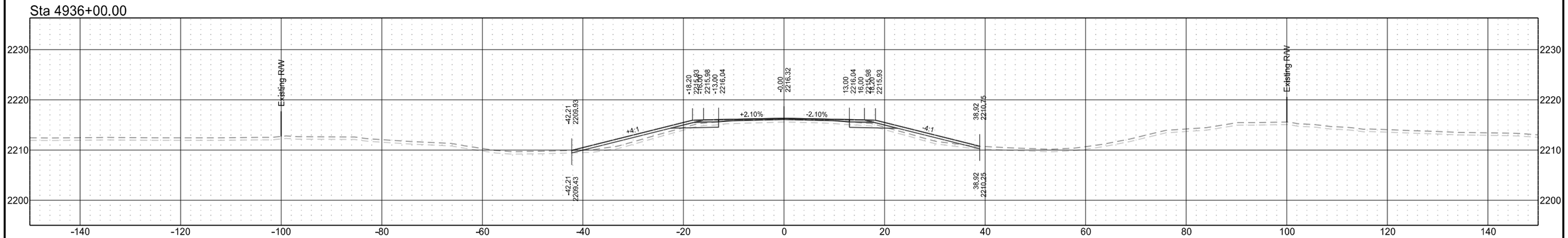
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	290
T4	D4				

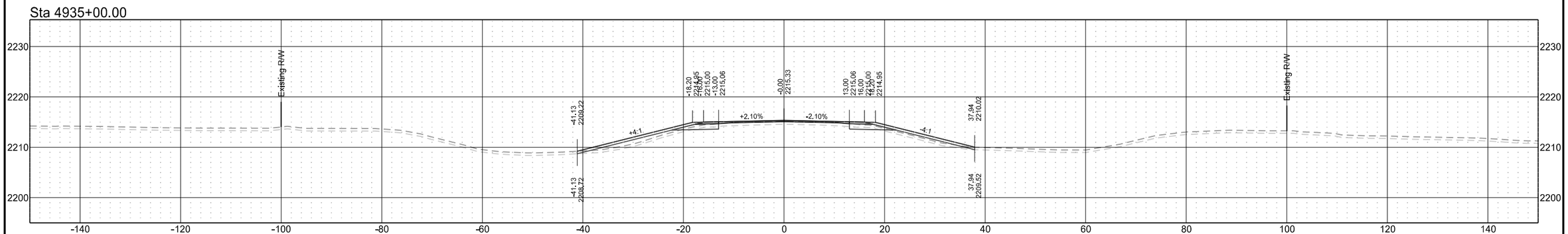
Sta 4937+00.00



Sta 4936+00.00



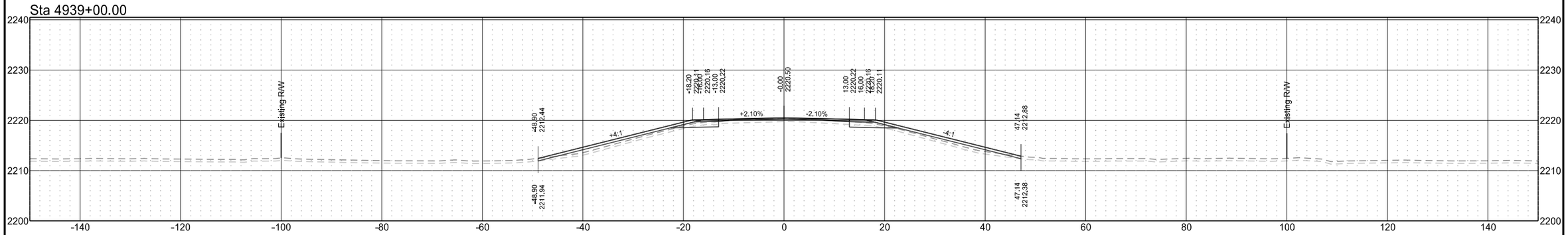
Sta 4935+00.00



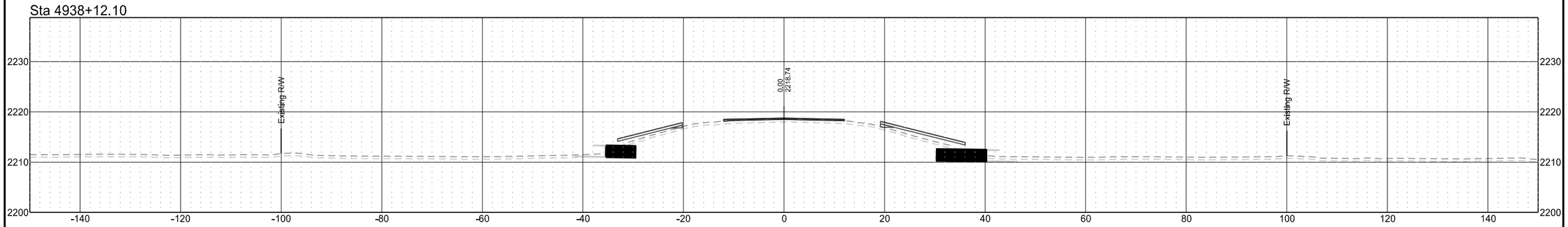
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	291
T4	D4				

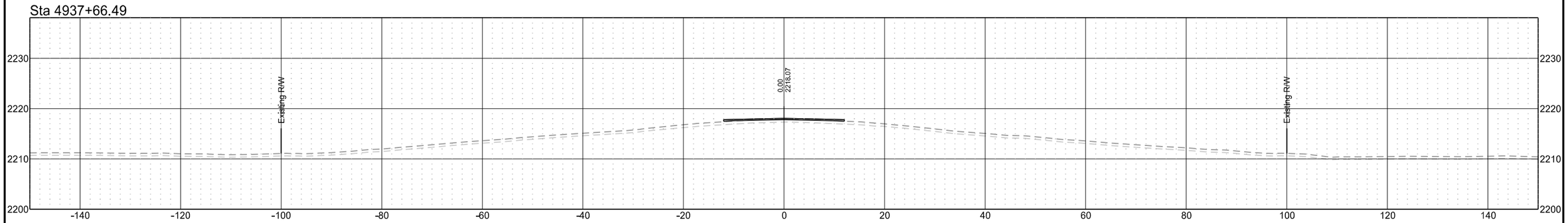
Sta 4939+00.00



Sta 4938+12.10



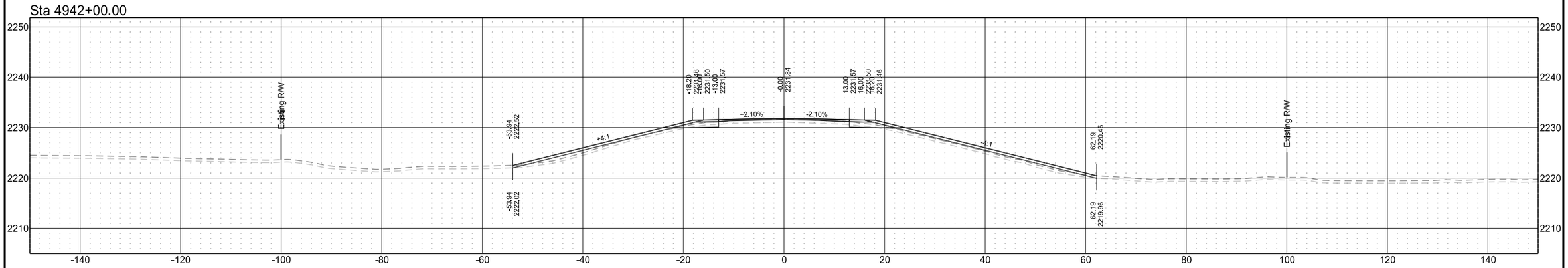
Sta 4937+66.49



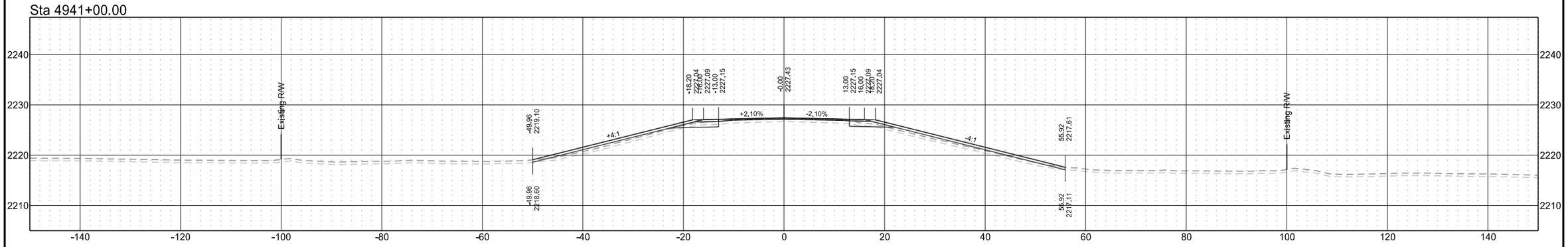
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	292
T4	D4				

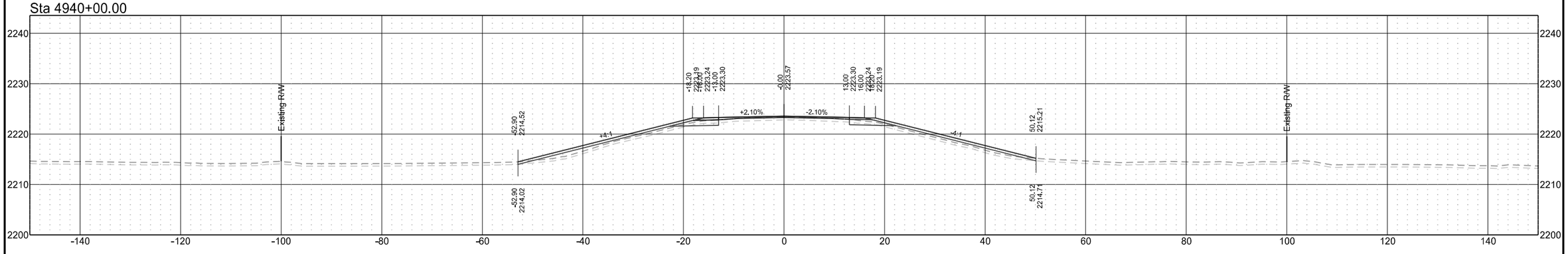
Sta 4942+00.00



Sta 4941+00.00



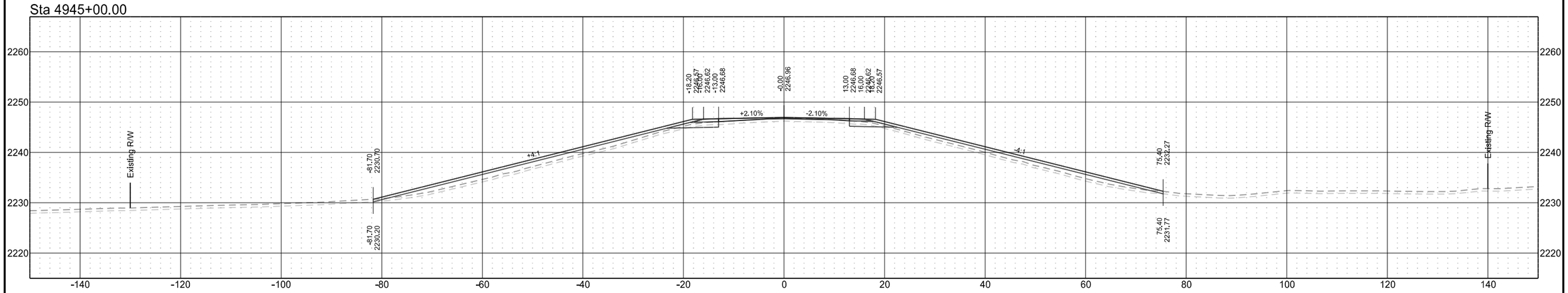
Sta 4940+00.00



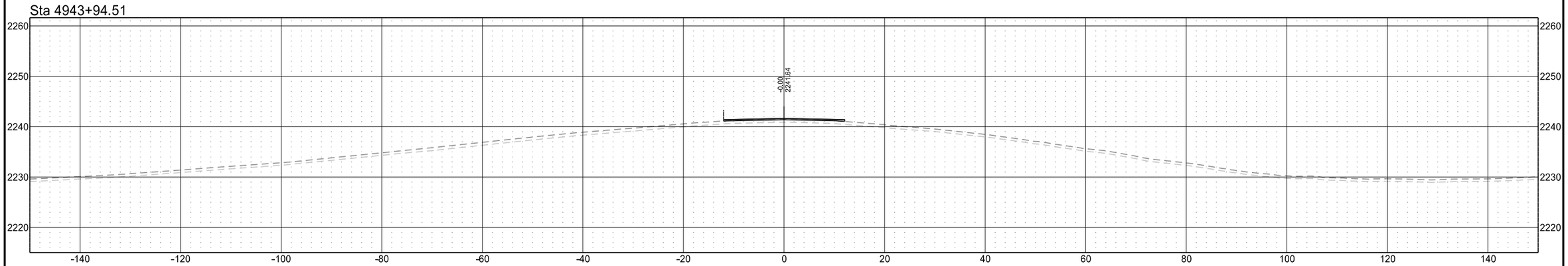
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	293
T4	D4				

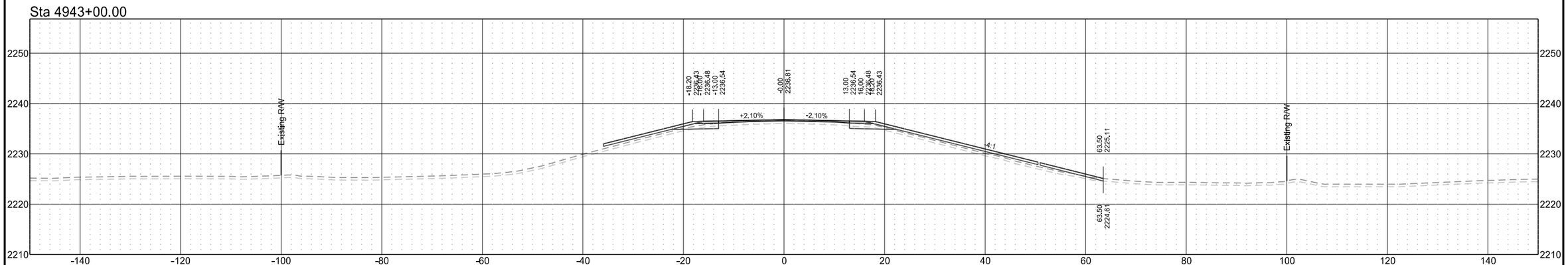
Sta 4945+00.00



Sta 4943+94.51



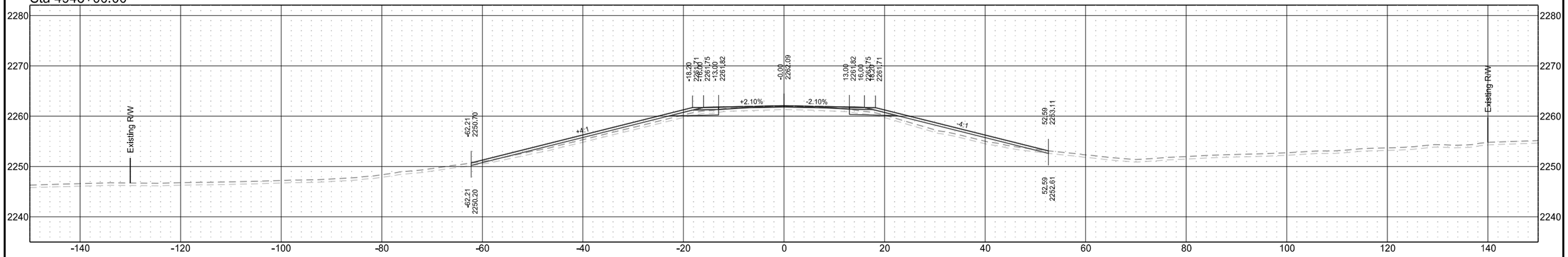
Sta 4943+00.00



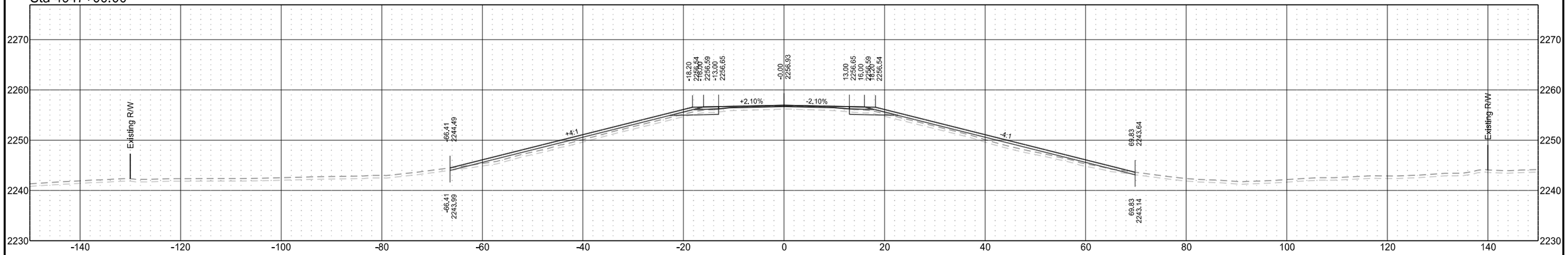
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	294
T4	D4				

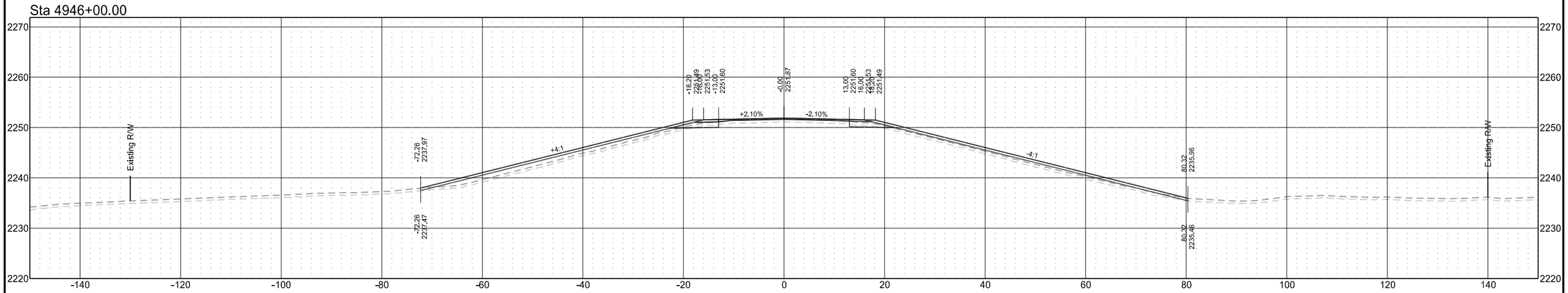
Sta 4948+00.00



Sta 4947+00.00



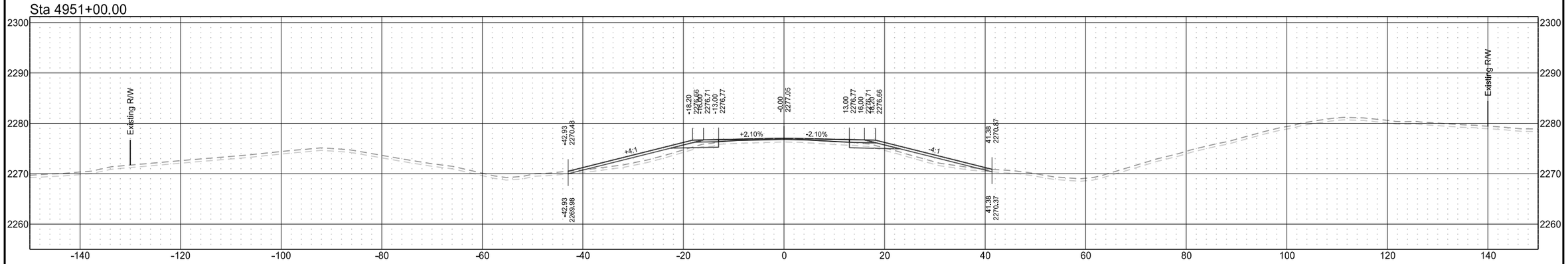
Sta 4946+00.00



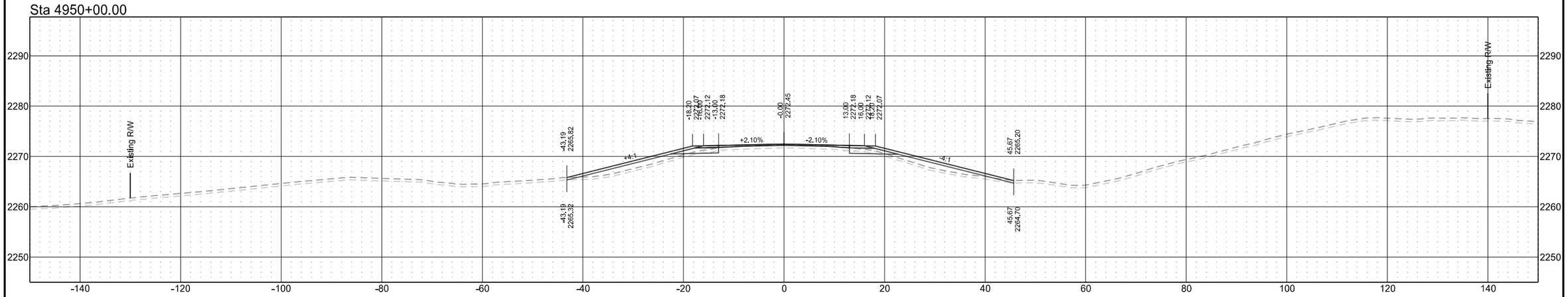
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	295
T4	D4				

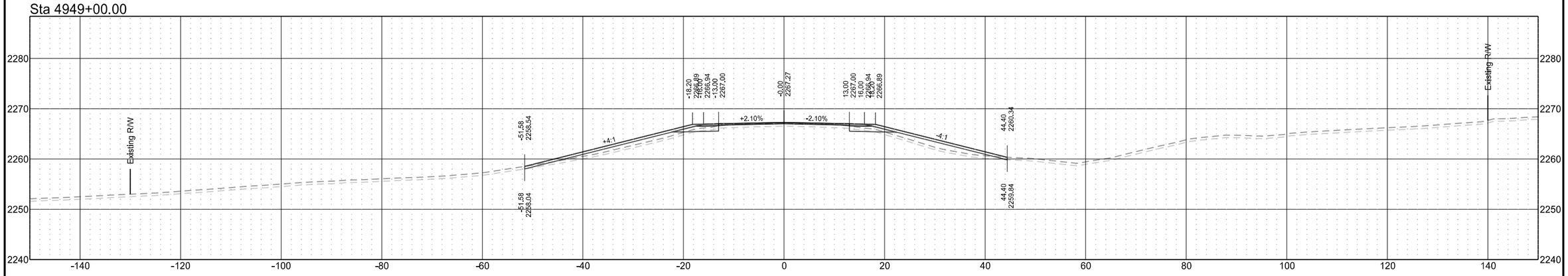
Sta 4951+00.00



Sta 4950+00.00



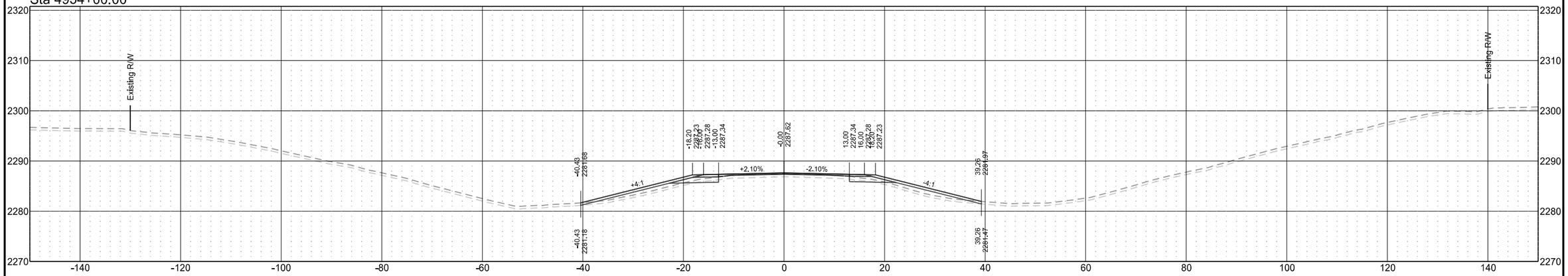
Sta 4949+00.00



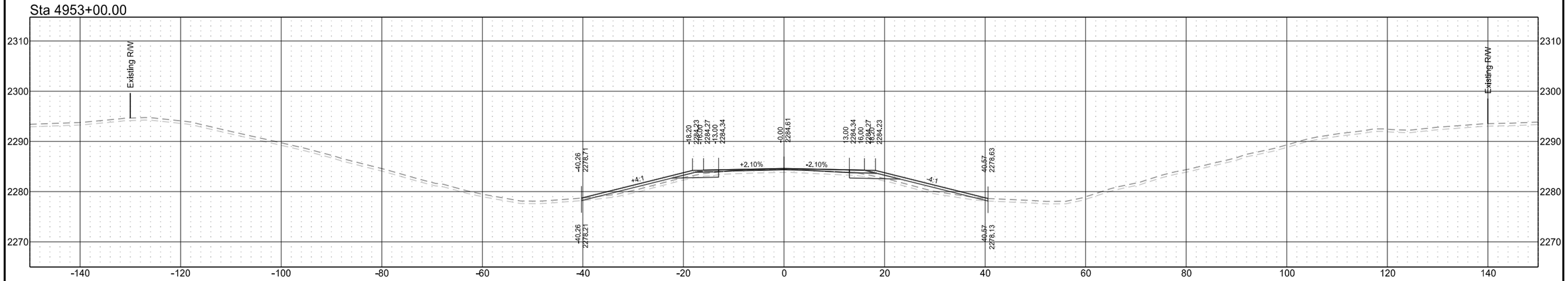
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	296
T4	D4				

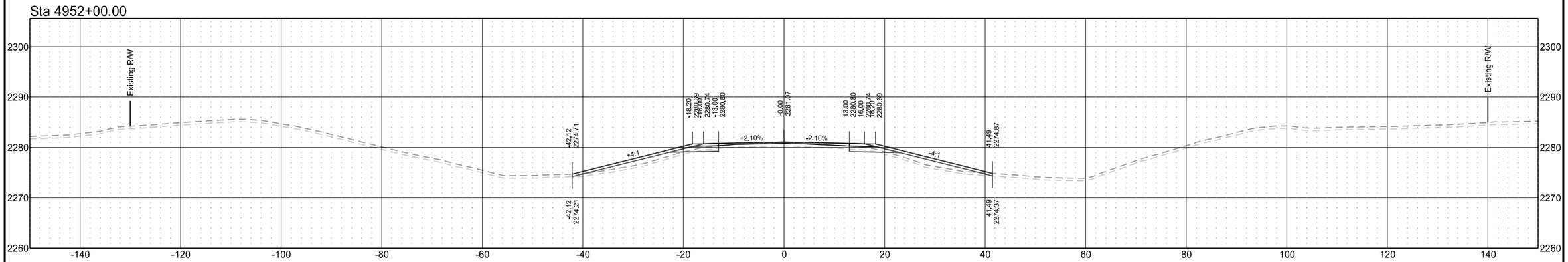
Sta 4954+00.00



Sta 4953+00.00



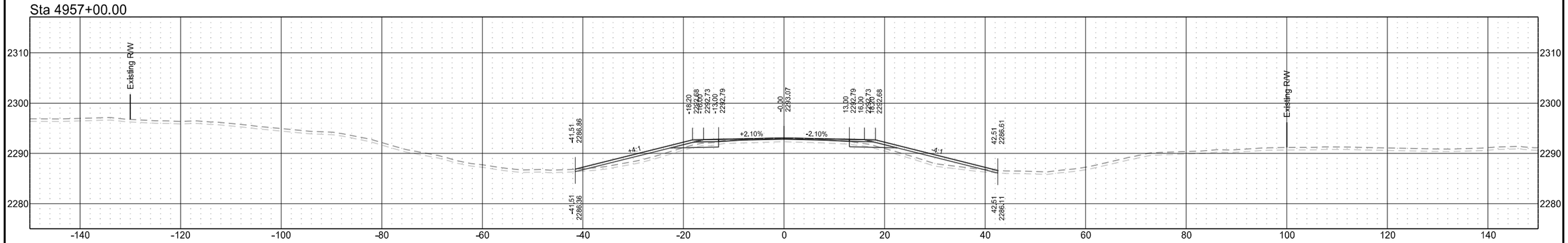
Sta 4952+00.00



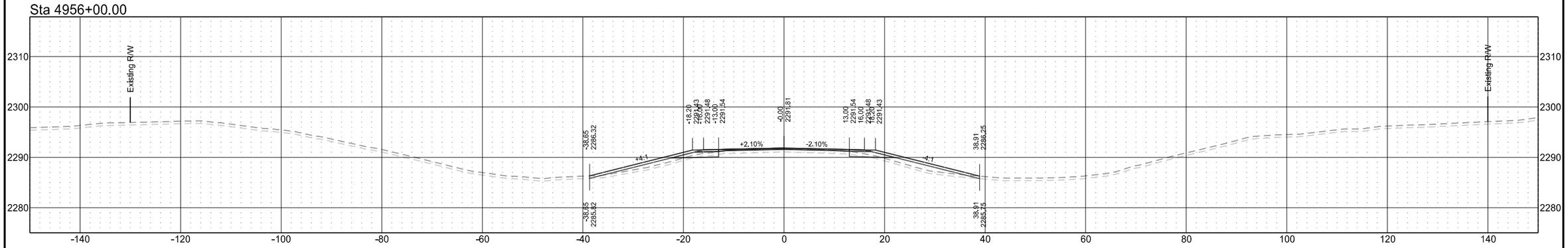
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	297
T4	D4				

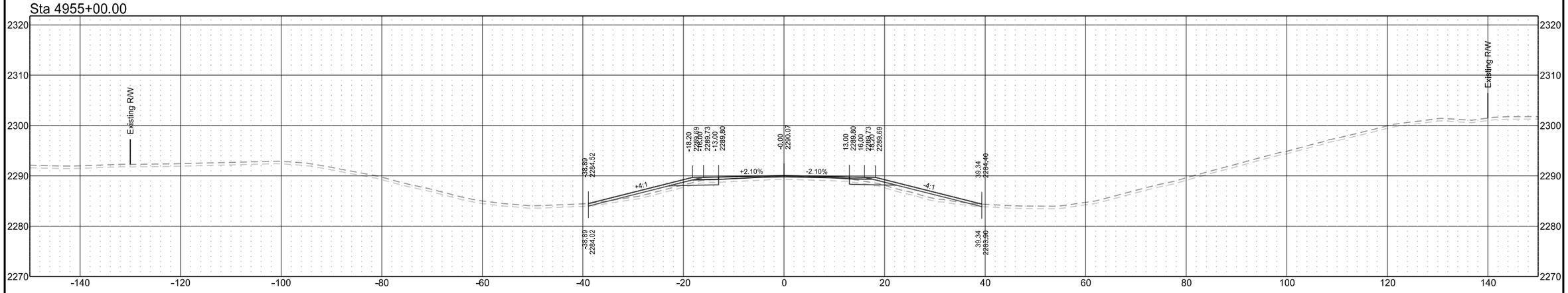
Sta 4957+00.00



Sta 4956+00.00



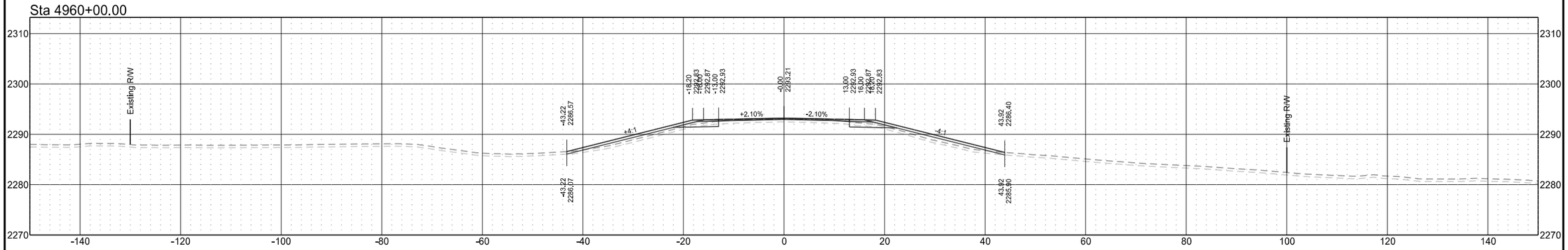
Sta 4955+00.00



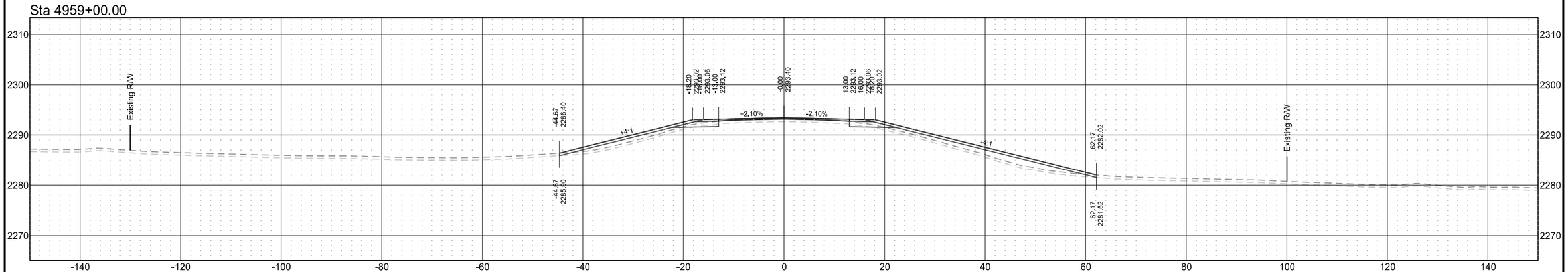
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	298
T4	D4				

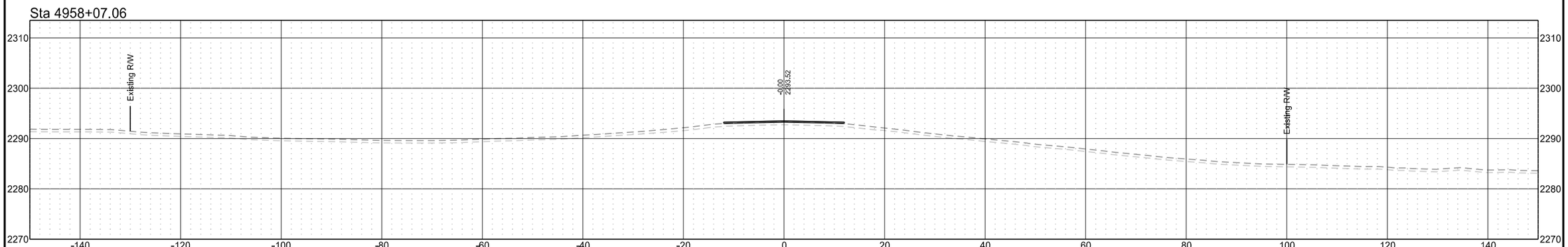
Sta 4960+00.00



Sta 4959+00.00



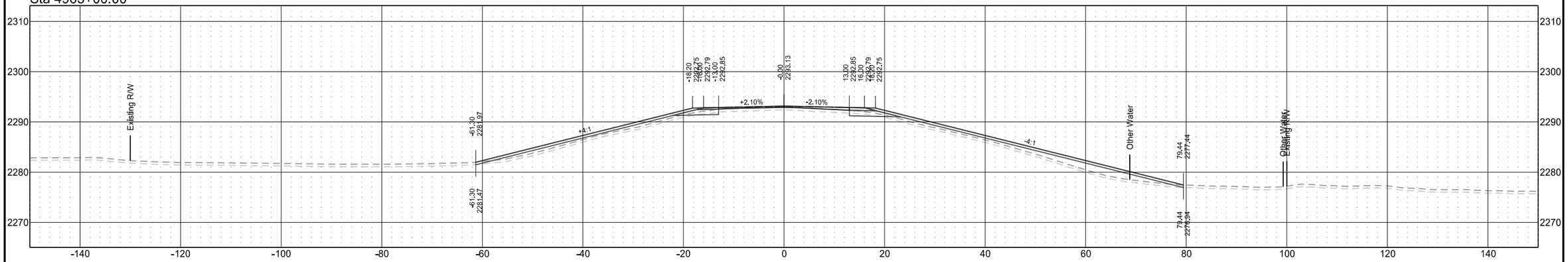
Sta 4958+07.06



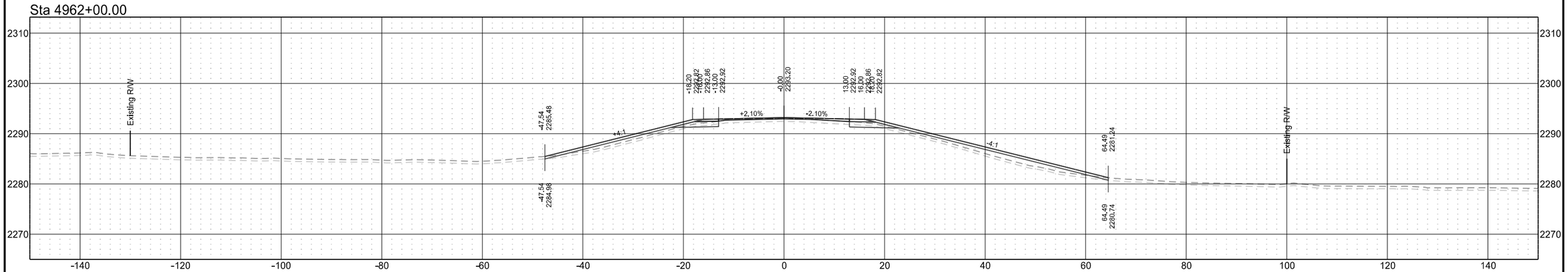
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	299
T4	D4				

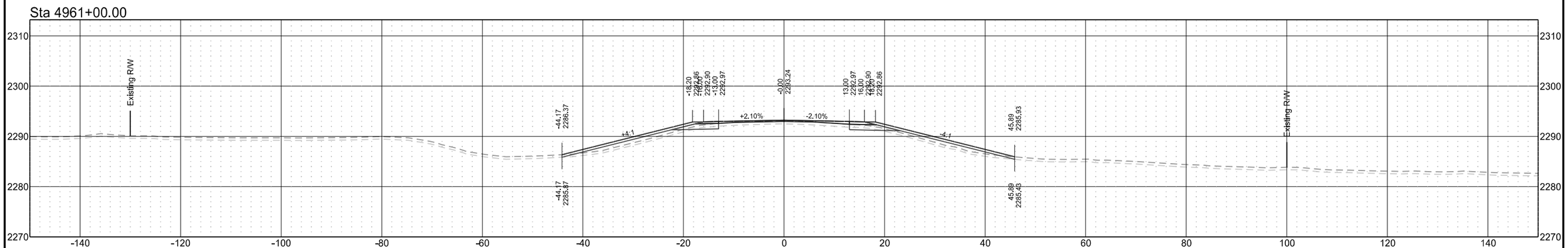
Sta 4963+00.00



Sta 4962+00.00



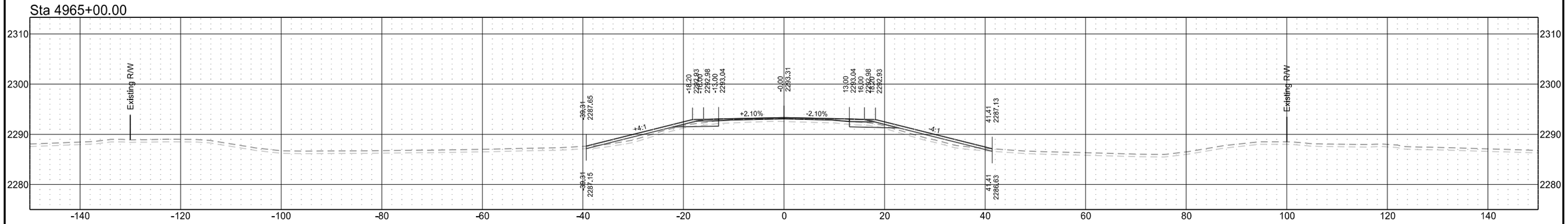
Sta 4961+00.00



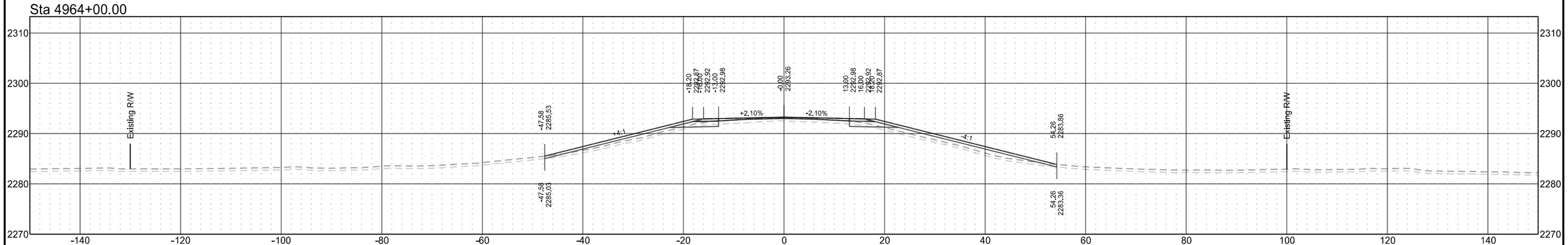
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	300
T4	D4				

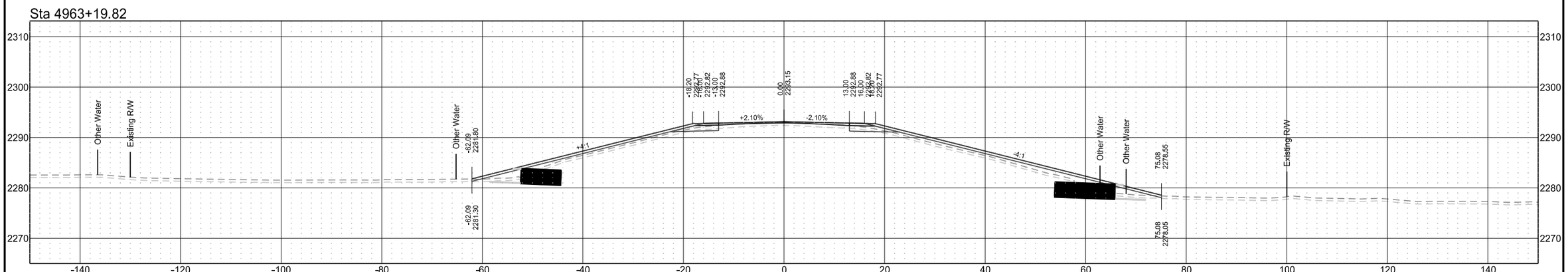
Sta 4965+00.00



Sta 4964+00.00



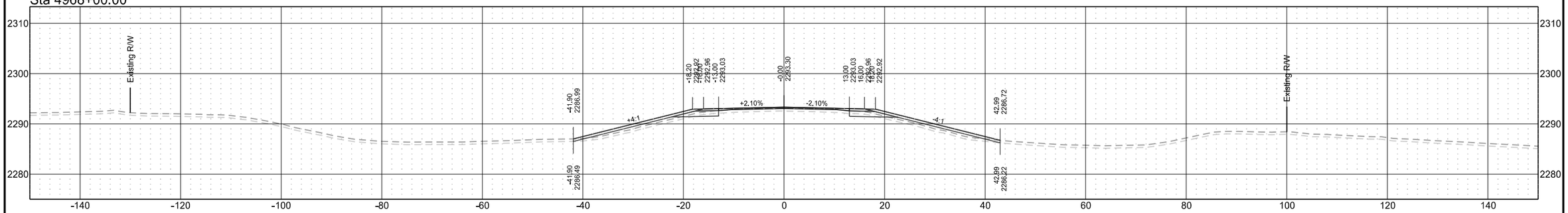
Sta 4963+19.82



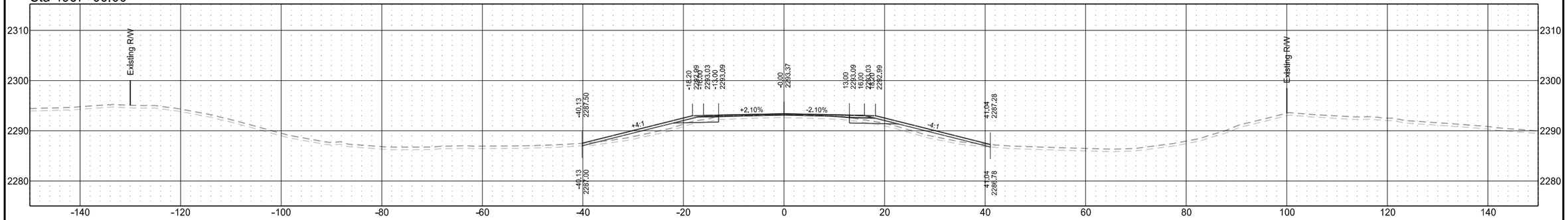
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	301
T4	D4				

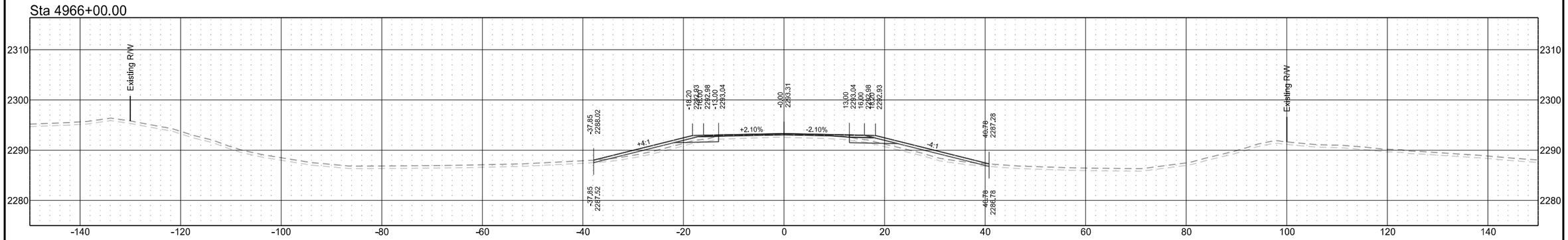
Sta 4968+00.00



Sta 4967+00.00



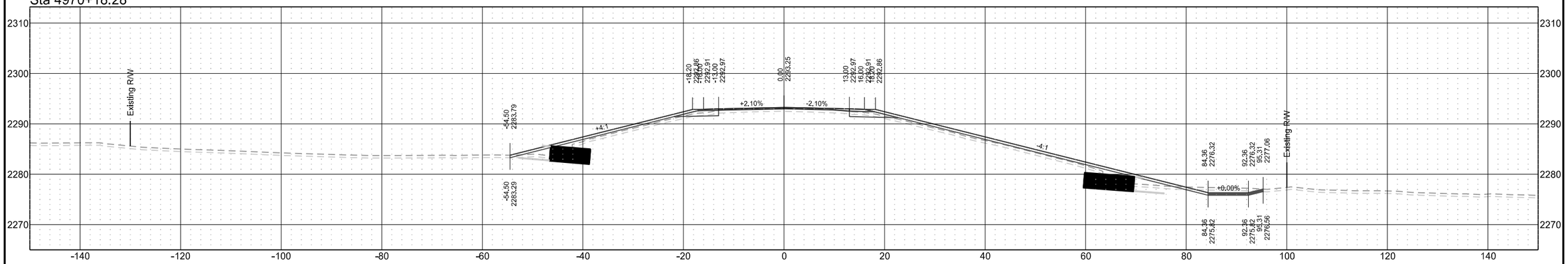
Sta 4966+00.00



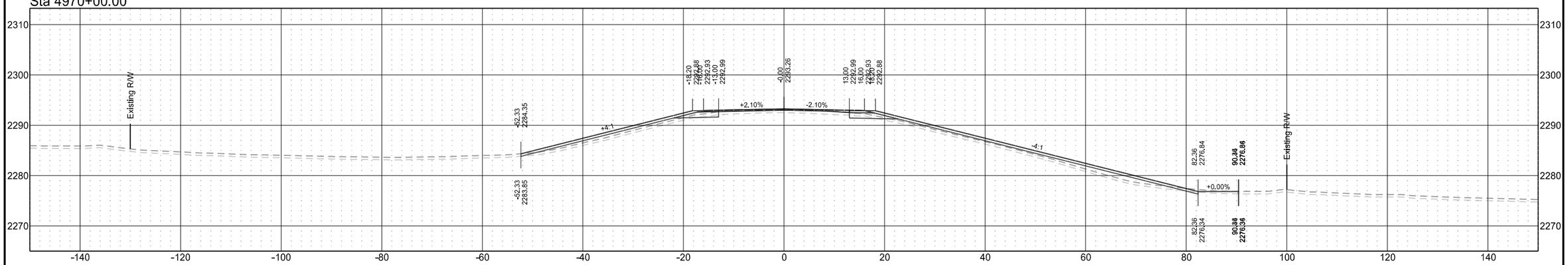
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	302
T4	D4				

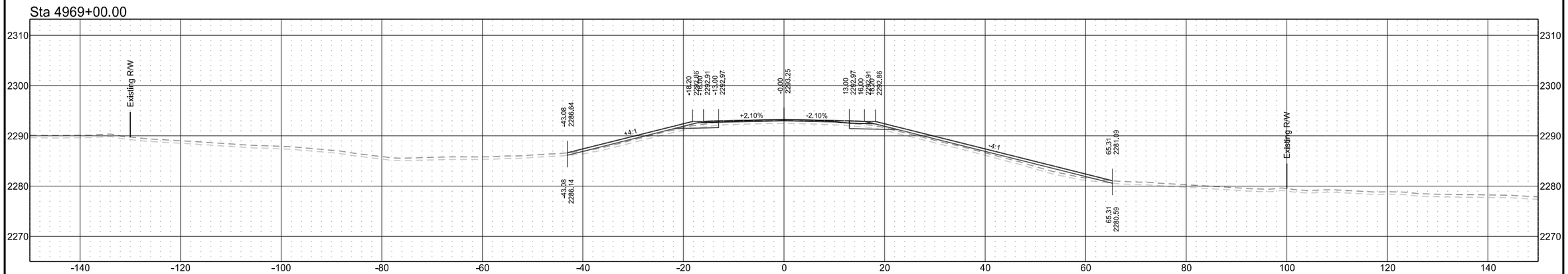
Sta 4970+18.28



Sta 4970+00.00



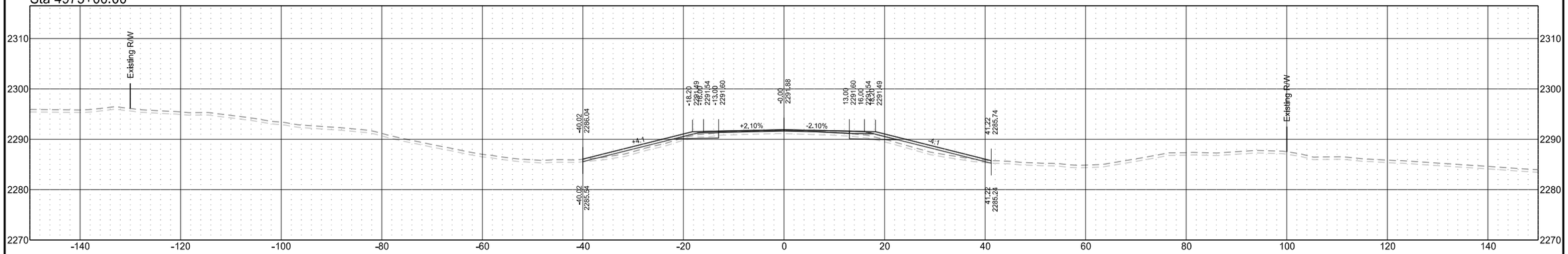
Sta 4969+00.00



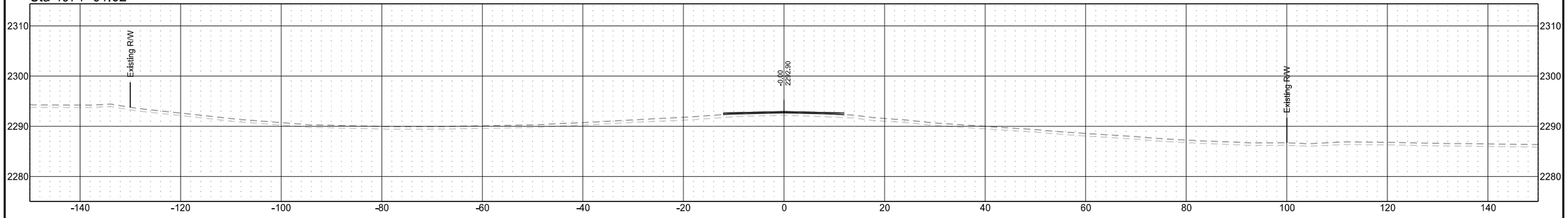
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	303
T4	D4				

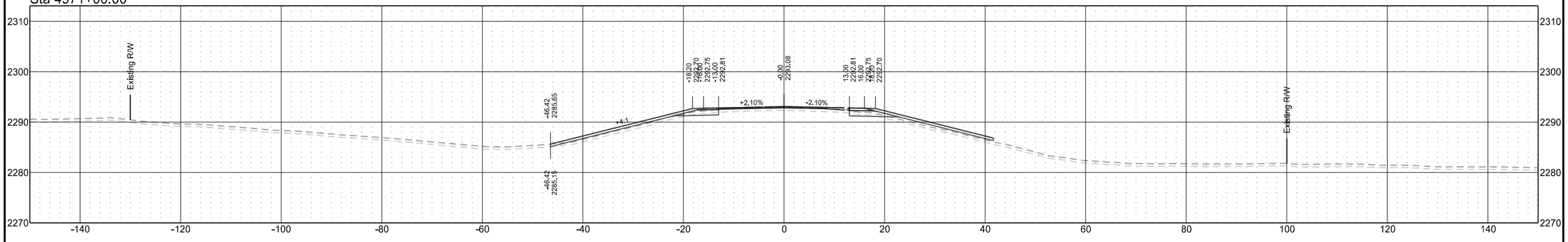
Sta 4973+00.00



Sta 4971+61.52



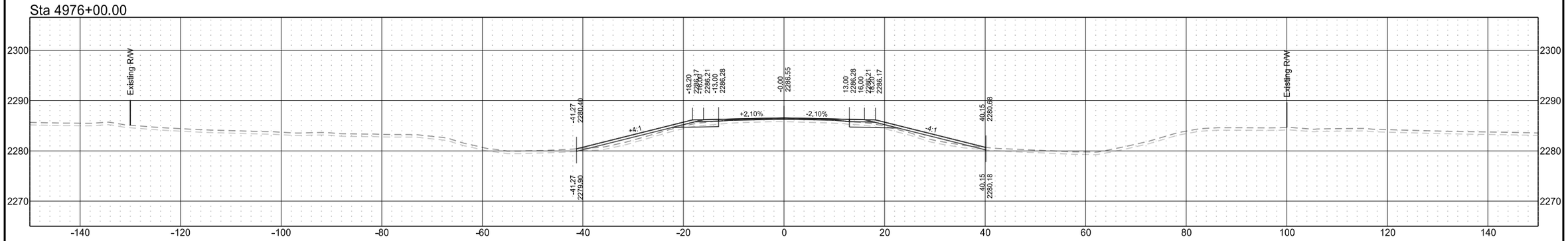
Sta 4971+00.00



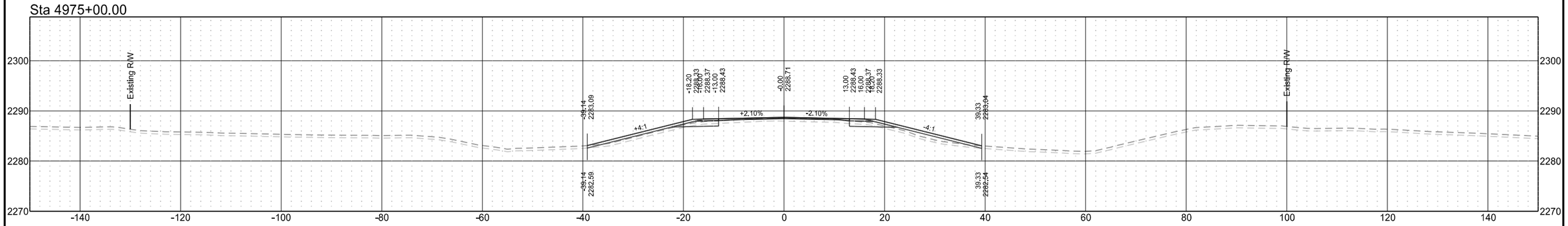
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	304
T4	D4				

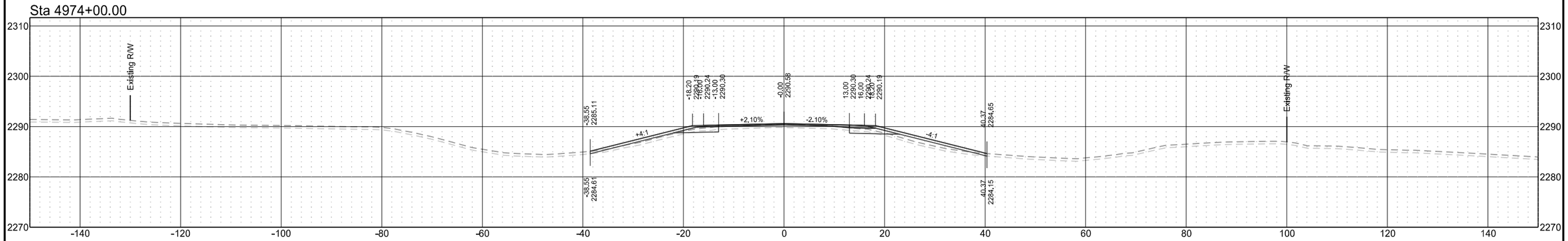
Sta 4976+00.00



Sta 4975+00.00



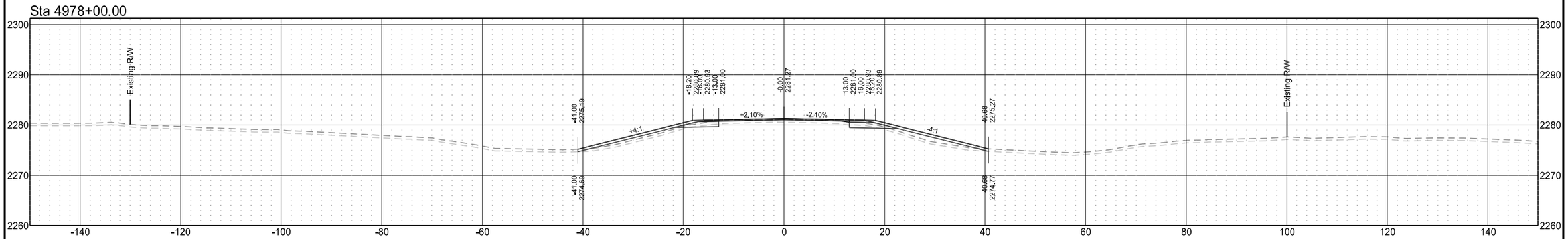
Sta 4974+00.00



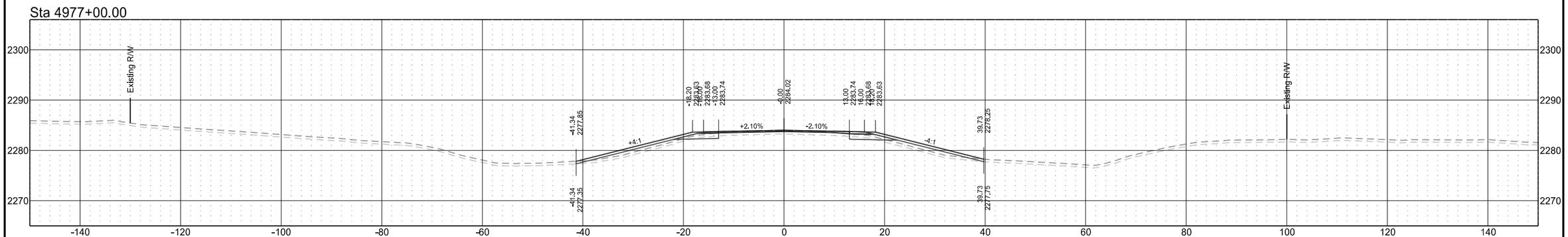
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	305
T4	D4				

Sta 4978+00.00



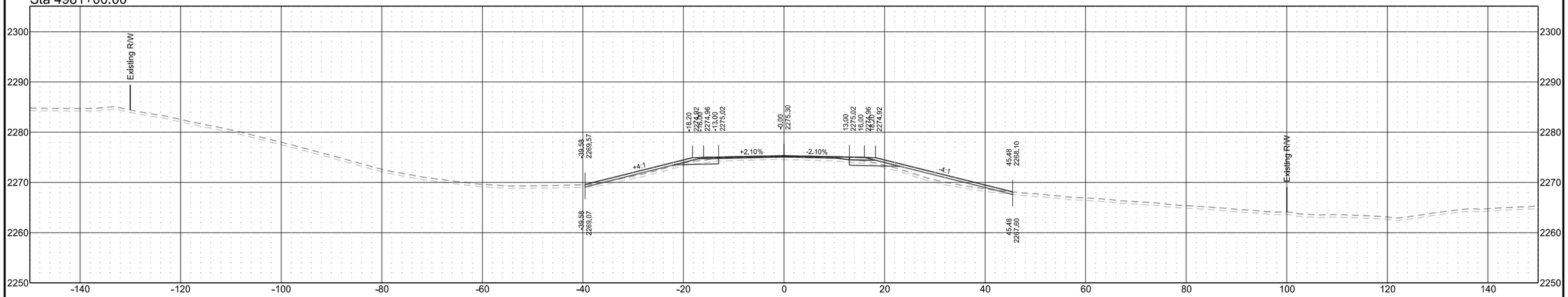
Sta 4977+00.00



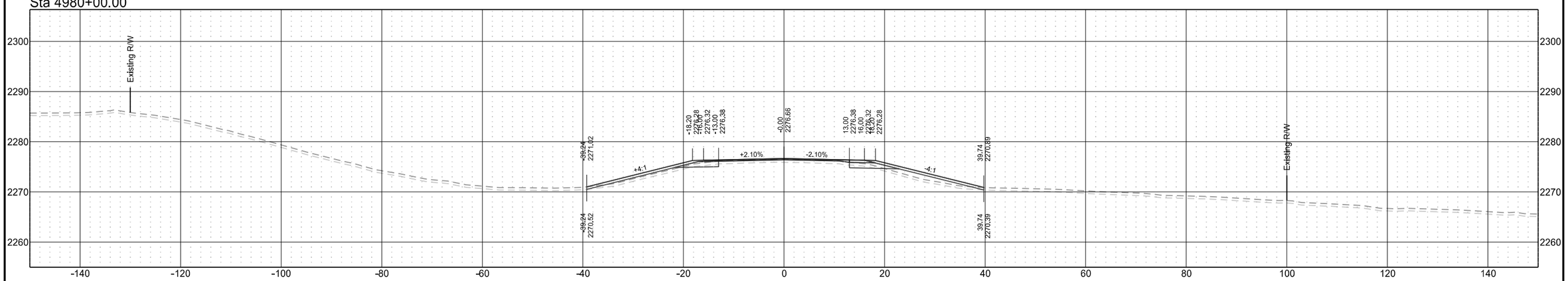
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	306
T4	D4				

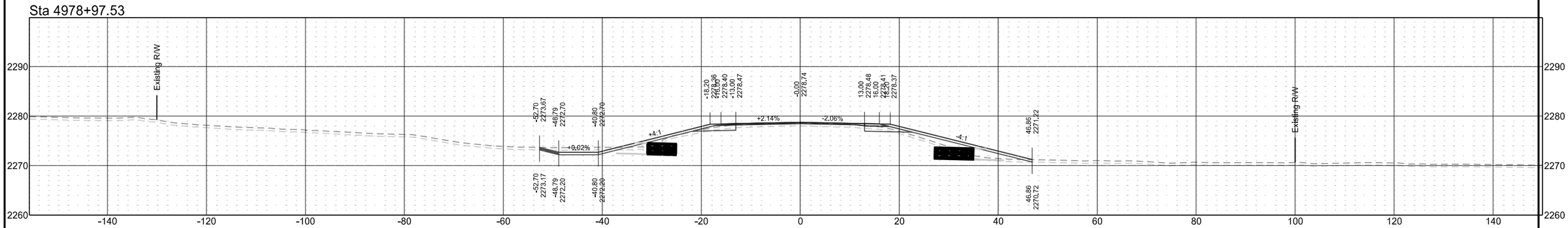
Sta 4981+00.00



Sta 4980+00.00



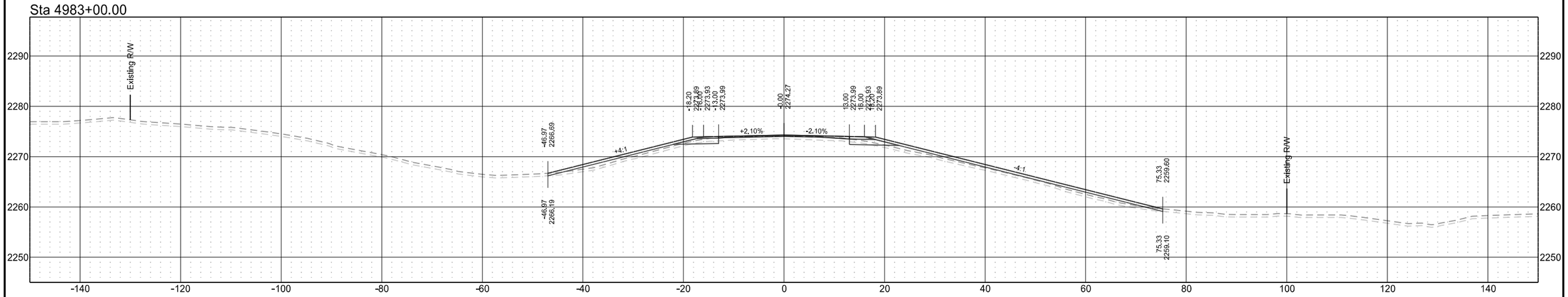
Sta 4978+97.53



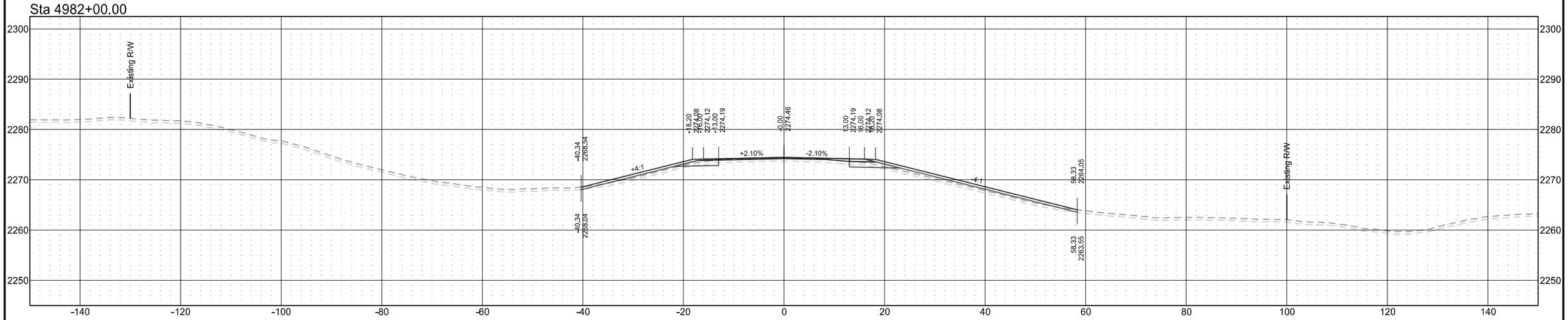
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	307
T4	D4				

Sta 4983+00.00



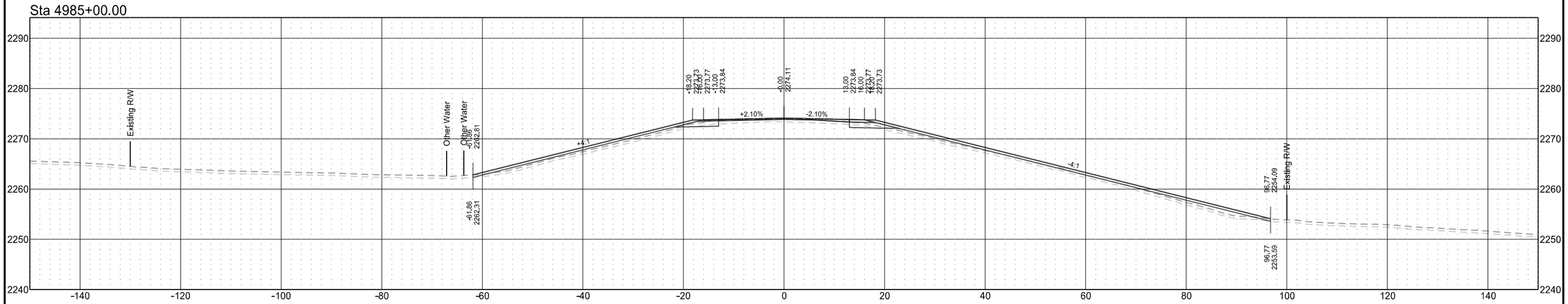
Sta 4982+00.00



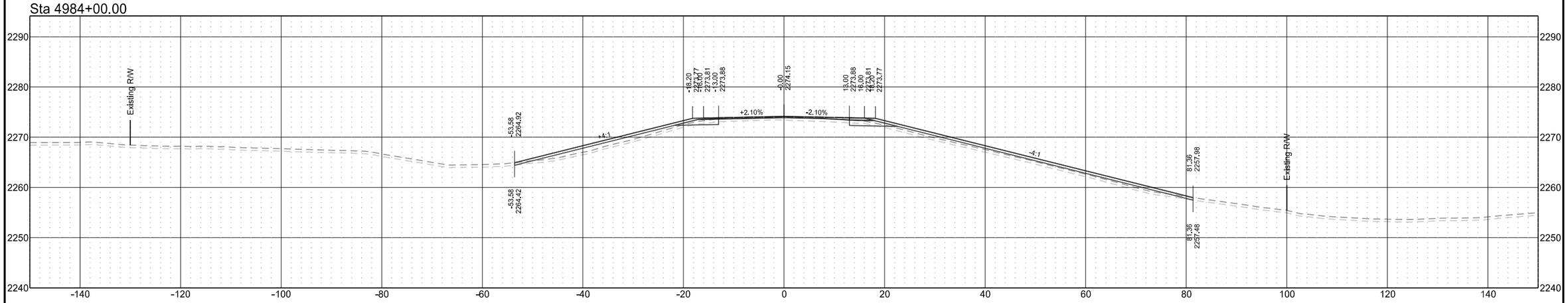
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	308
T4	D4				

Sta 4985+00.00



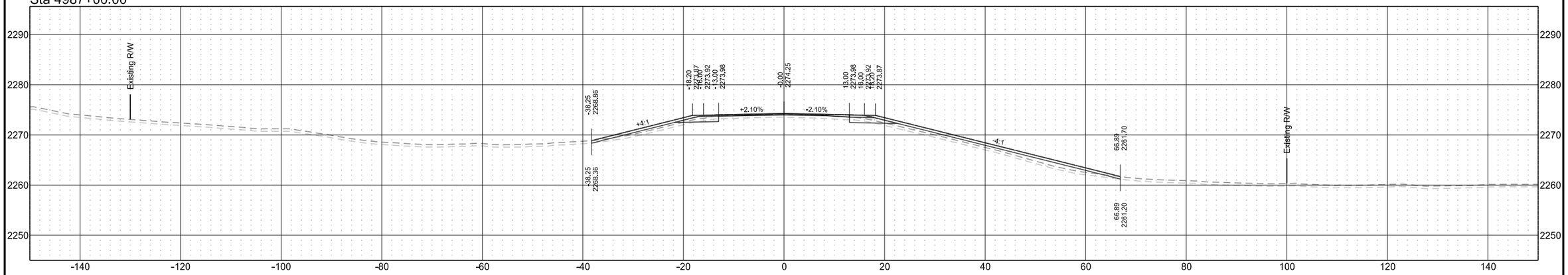
Sta 4984+00.00



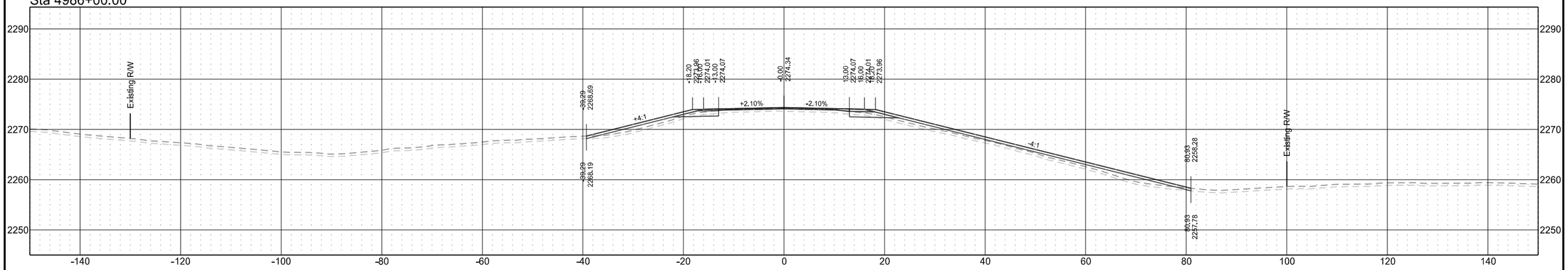
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	309
T4	D4				

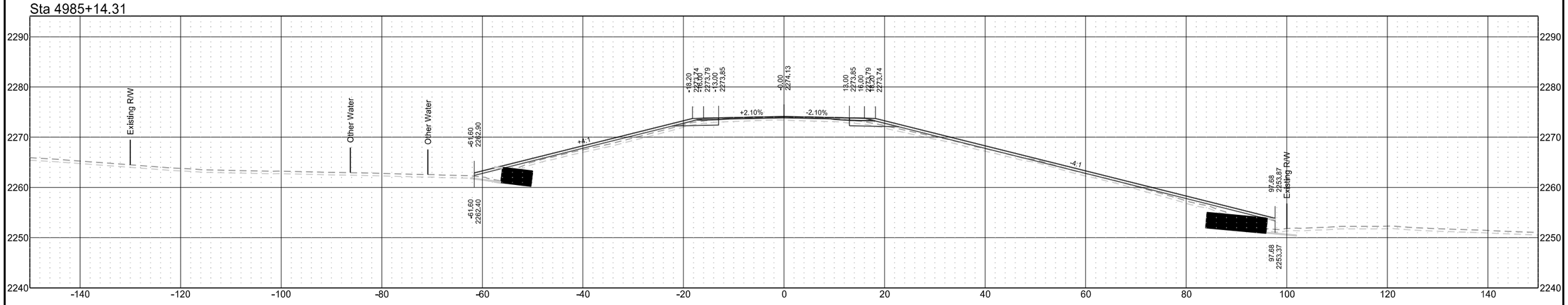
Sta 4987+00.00



Sta 4986+00.00



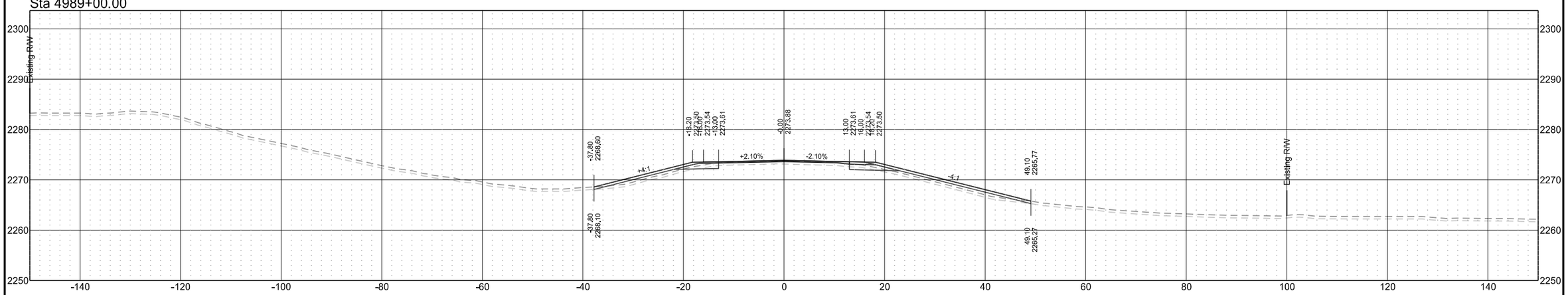
Sta 4985+14.31



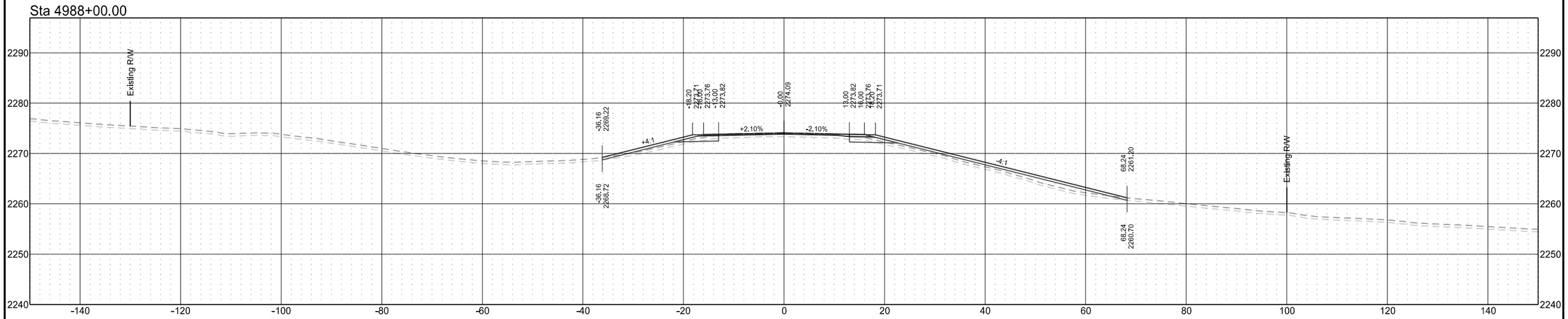
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	310
T4	D4				

Sta 4989+00.00



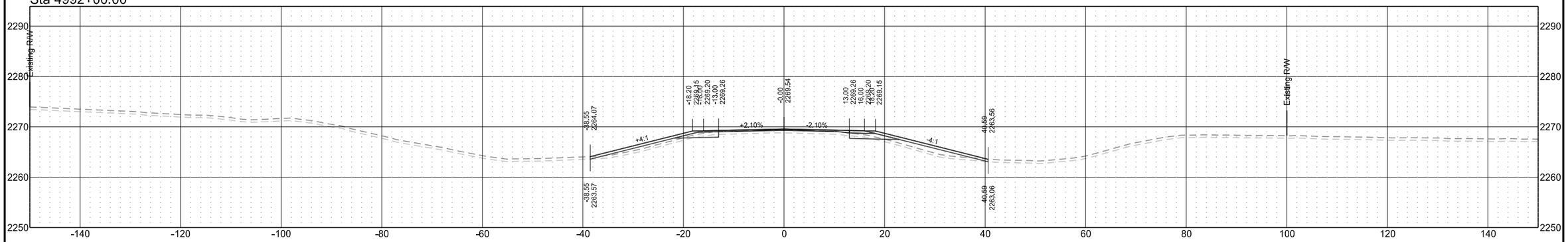
Sta 4988+00.00



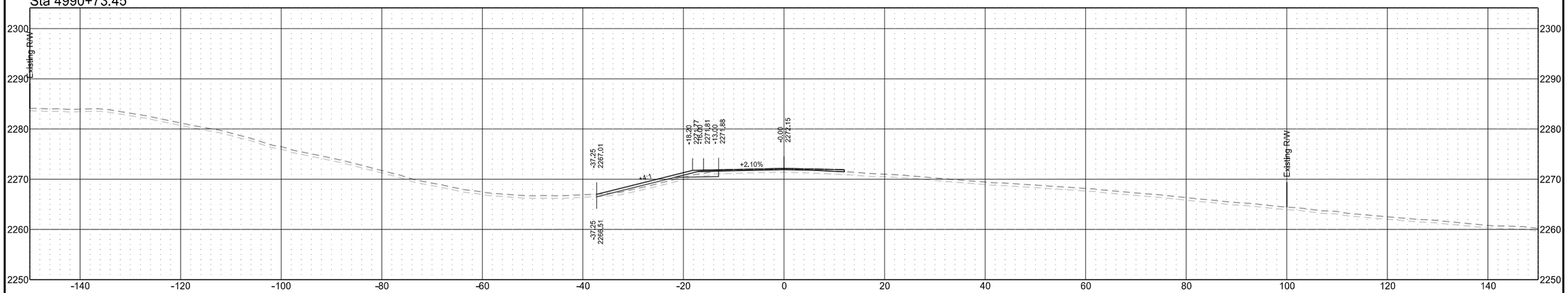
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	311
T4	D4				

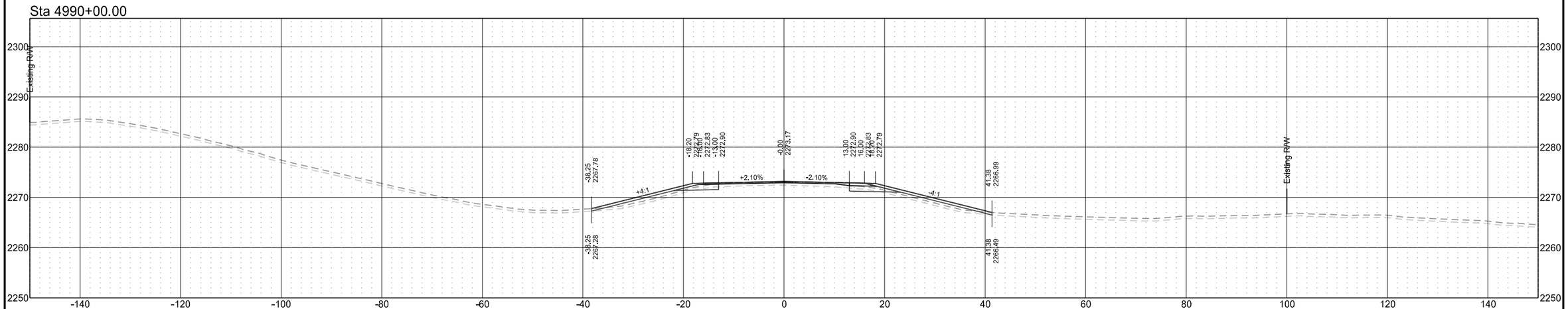
Sta 4992+00.00



Sta 4990+73.45



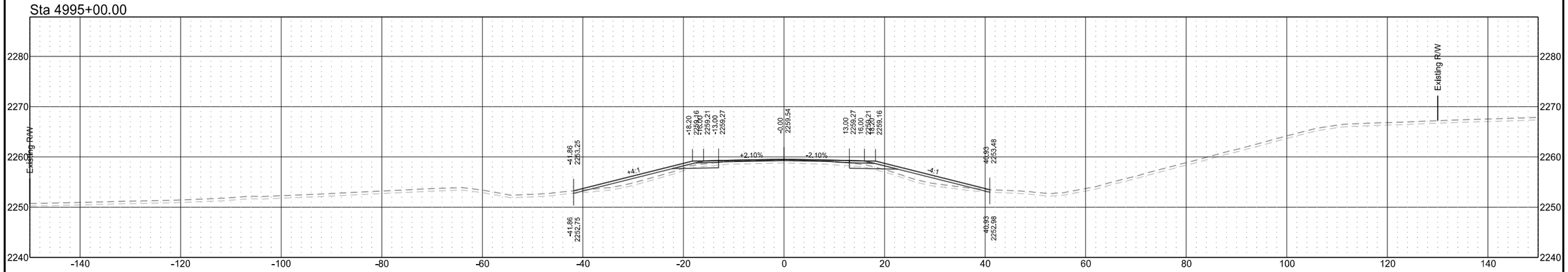
Sta 4990+00.00



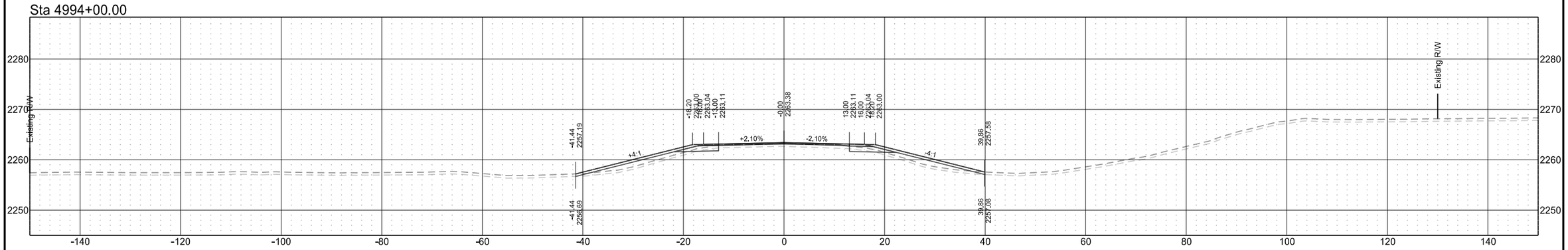
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	312
T4	D4				

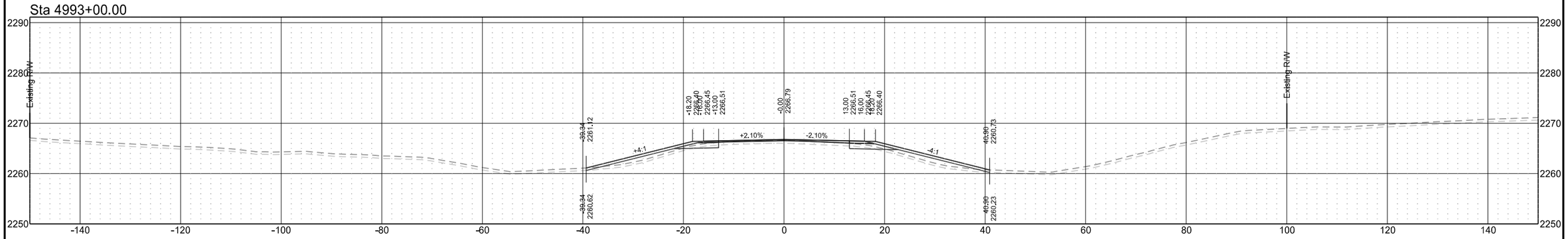
Sta 4995+00.00



Sta 4994+00.00



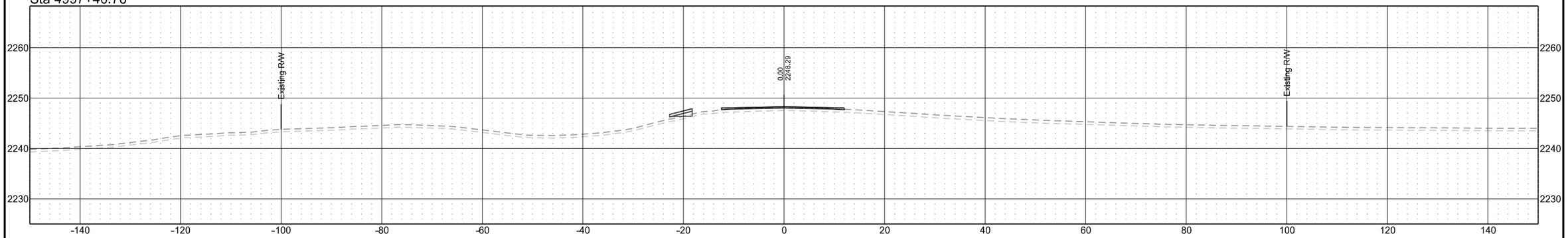
Sta 4993+00.00



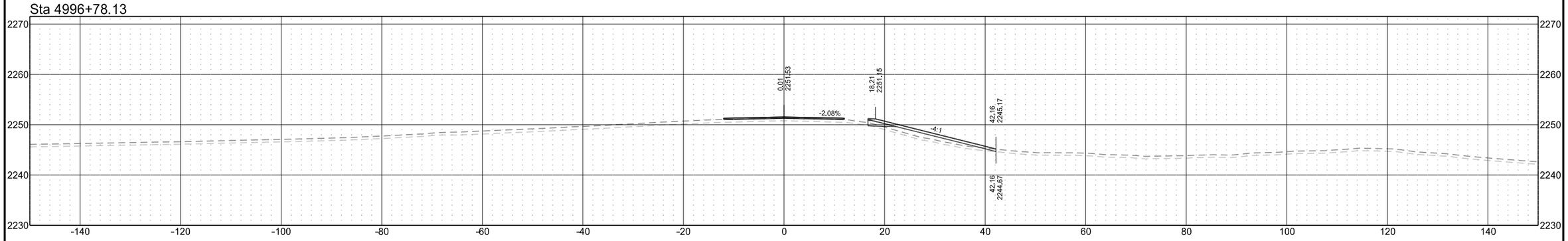
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	313
T4	D4				

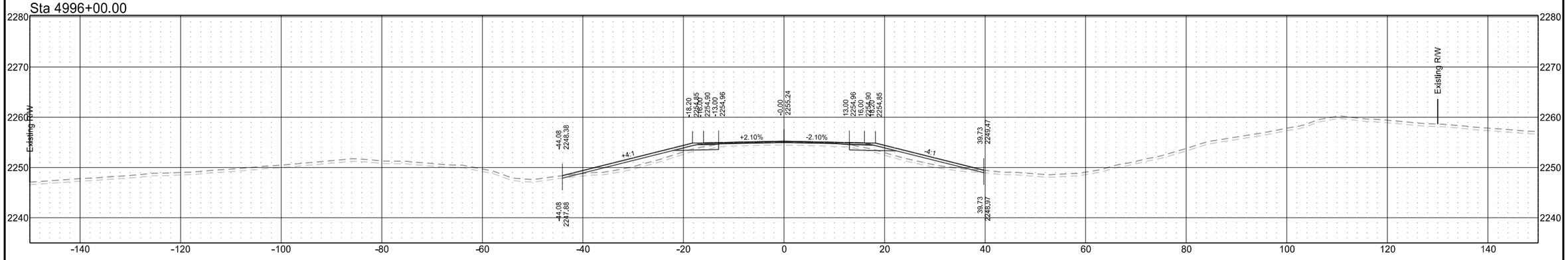
Sta 4997+40.76



Sta 4996+78.13



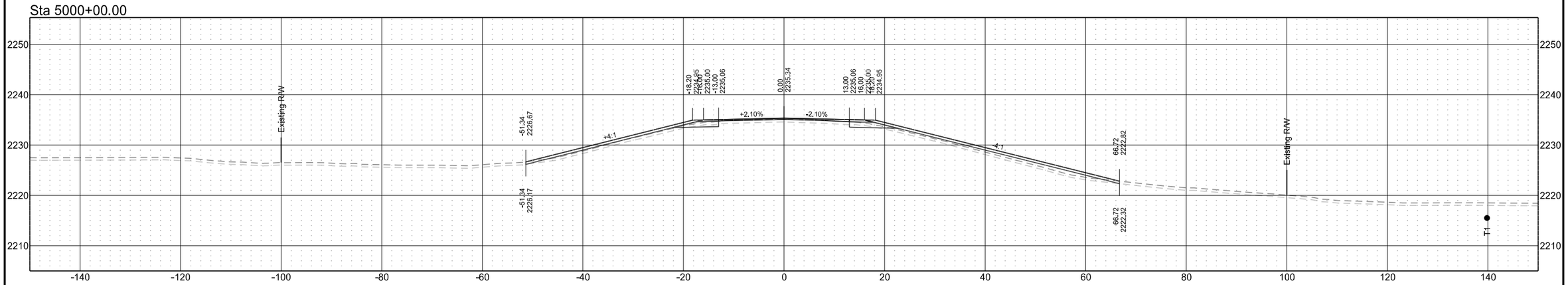
Sta 4996+00.00



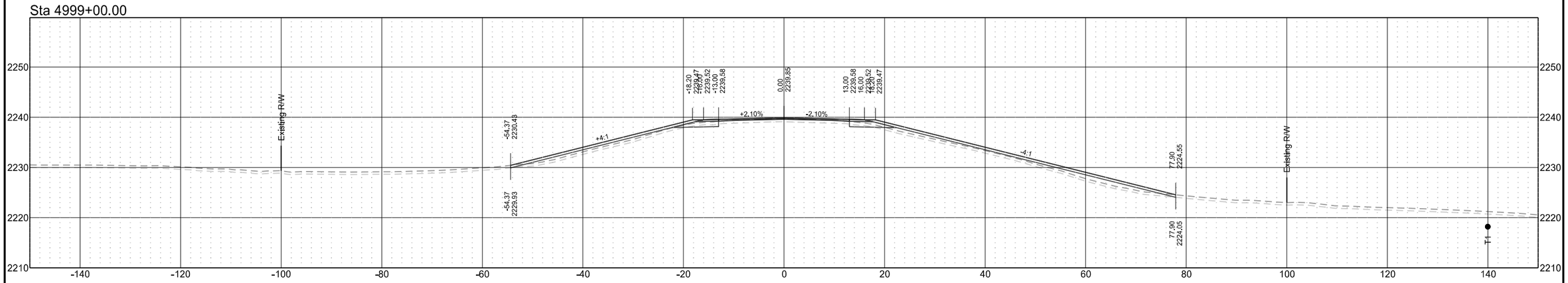
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	314
T4	D4				

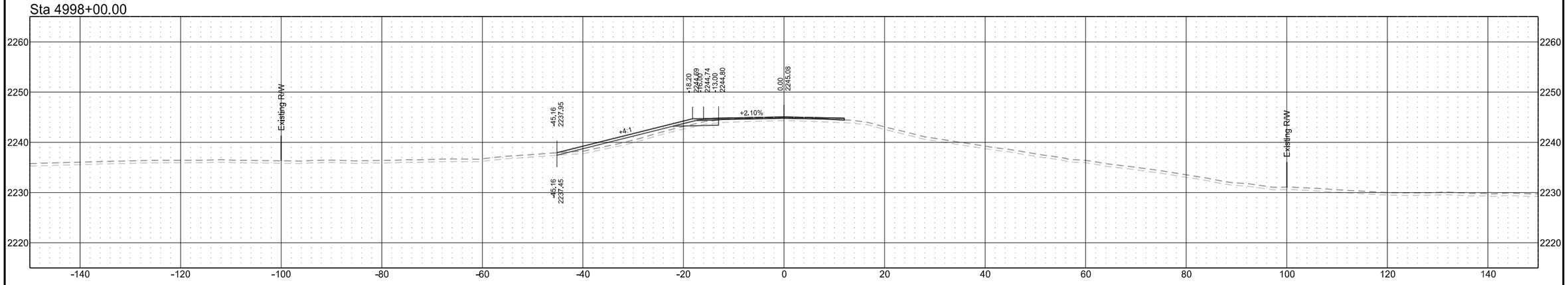
Sta 5000+00.00



Sta 4999+00.00



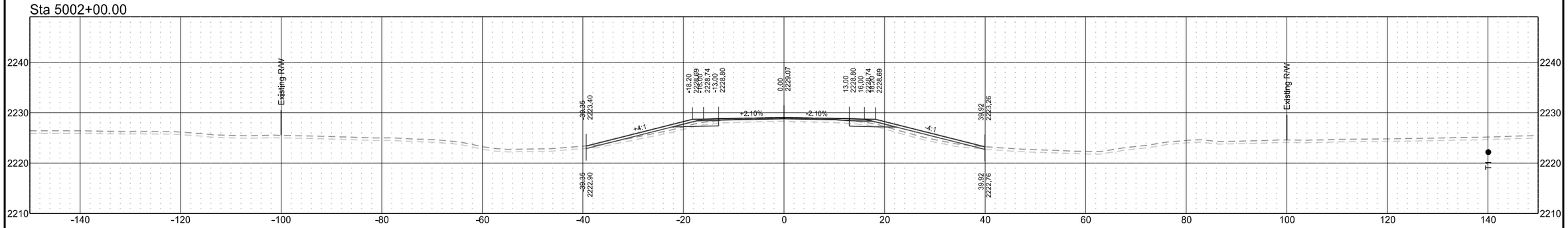
Sta 4998+00.00



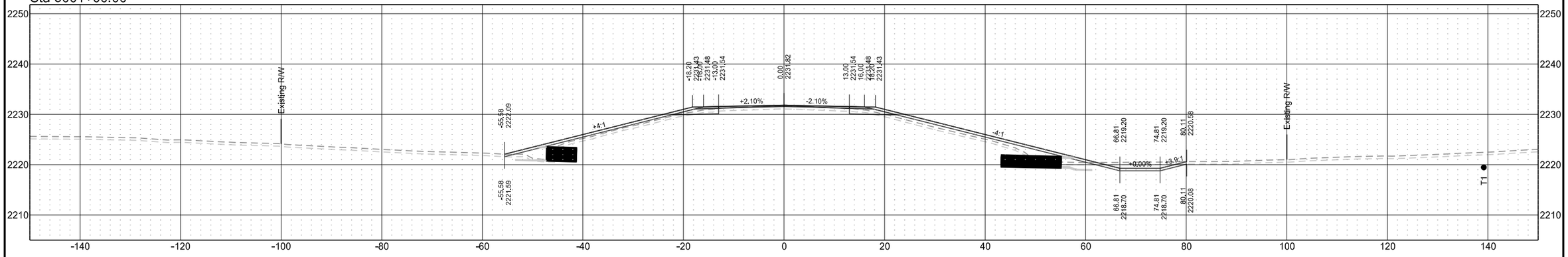
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	315
T4	D4				

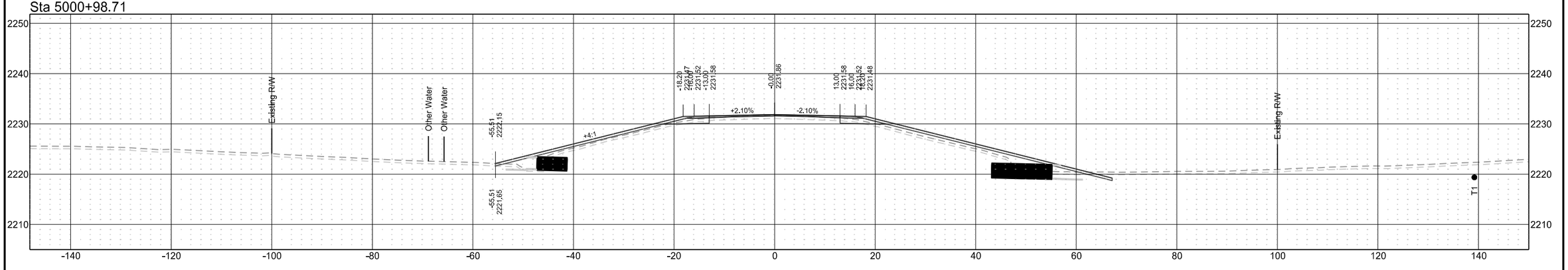
Sta 5002+00.00



Sta 5001+00.00



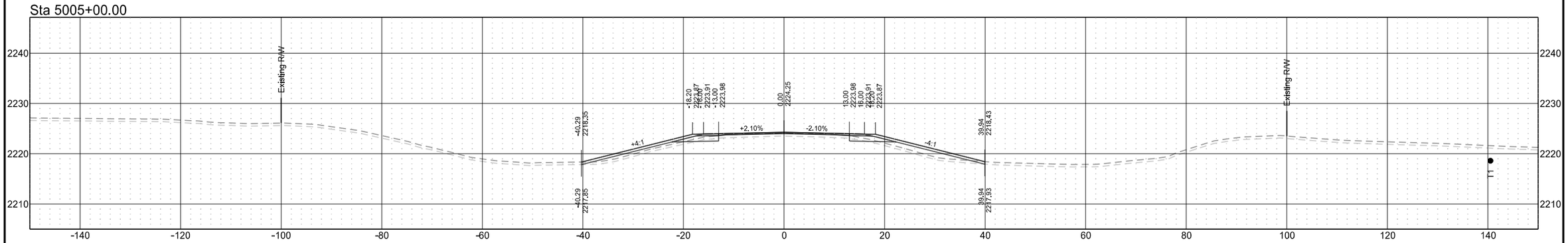
Sta 5000+98.71



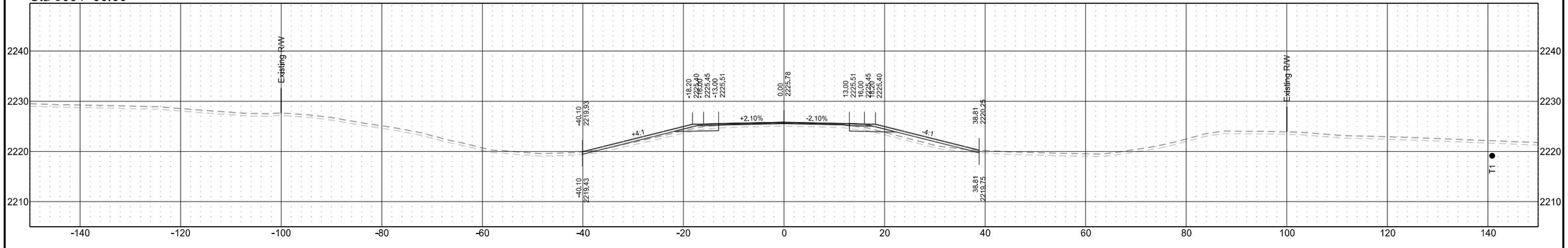
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	316
T4	D4				

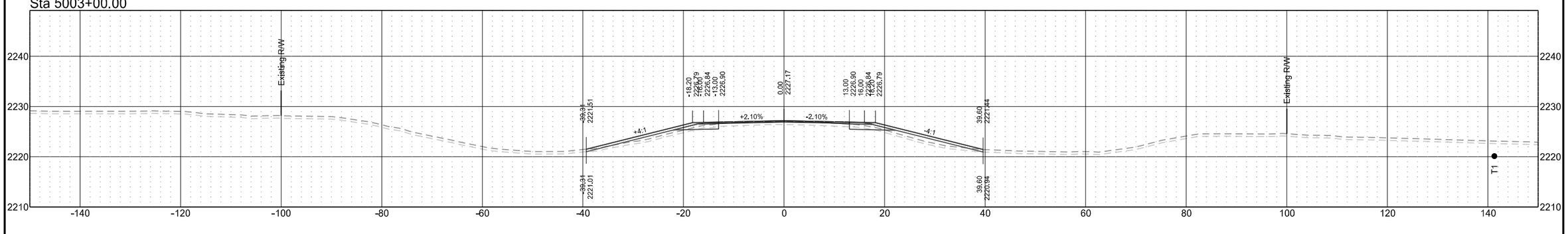
Sta 5005+00.00



Sta 5004+00.00



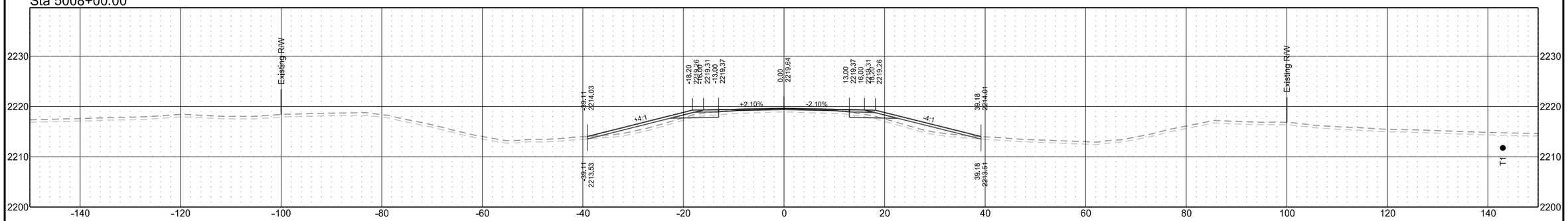
Sta 5003+00.00



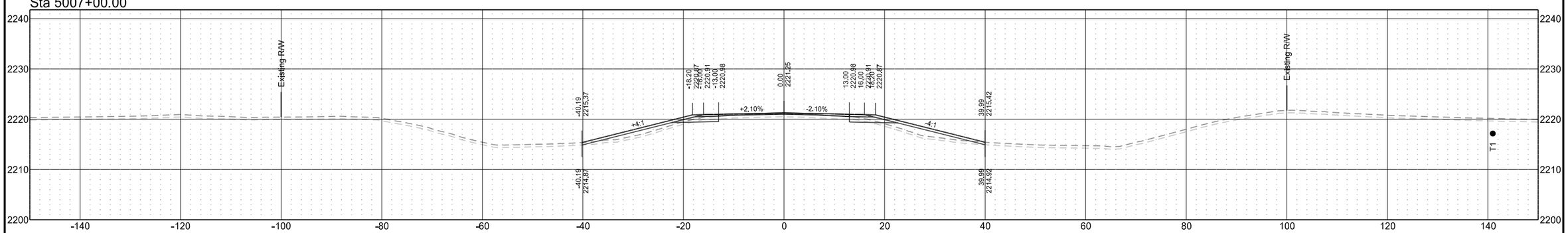
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	317
T4	D4				

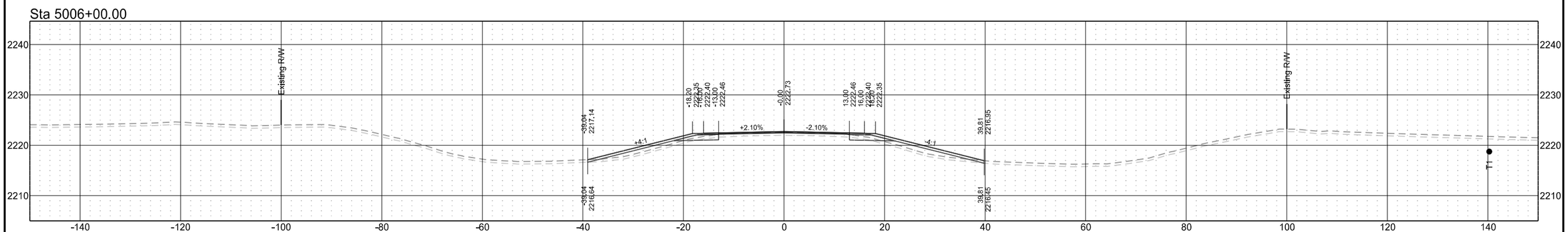
Sta 5008+00.00



Sta 5007+00.00



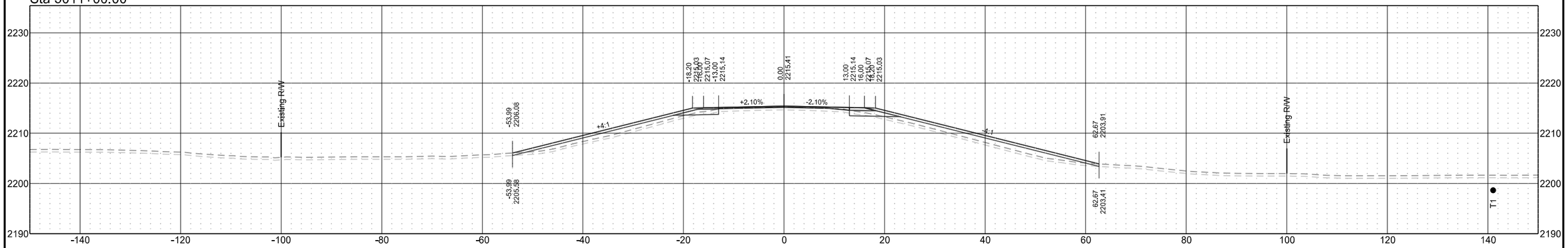
Sta 5006+00.00



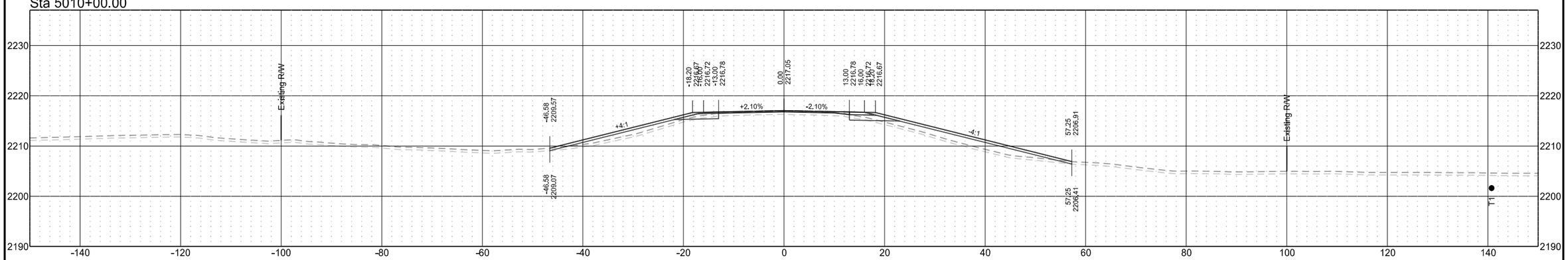
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	318
T4	D4				

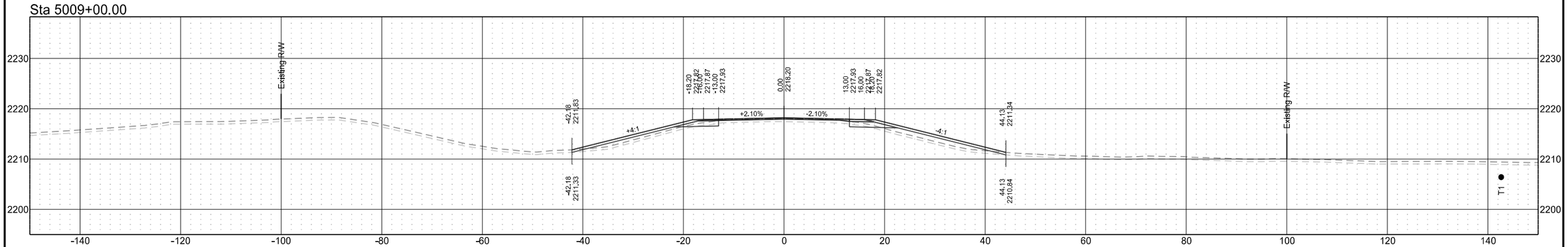
Sta 5011+00.00



Sta 5010+00.00



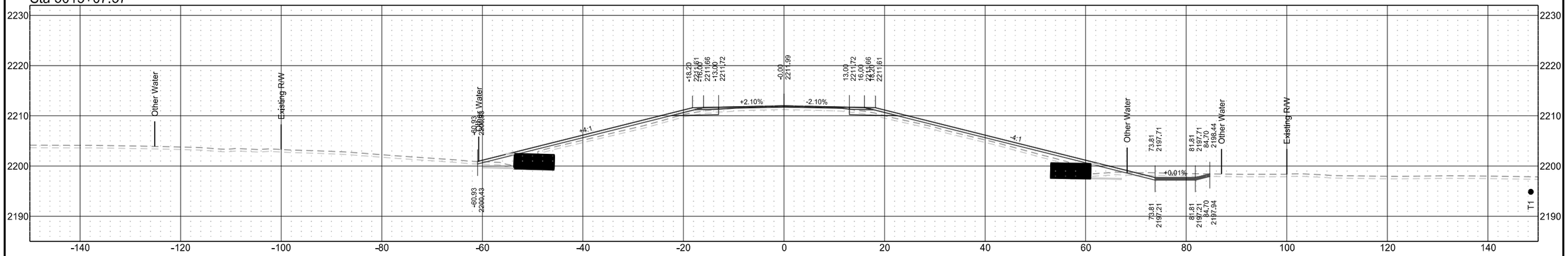
Sta 5009+00.00



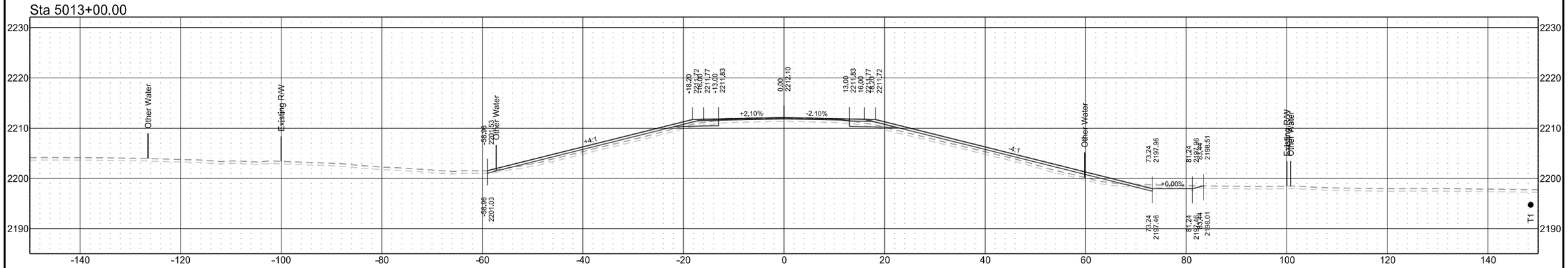
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	319
T4	D4				

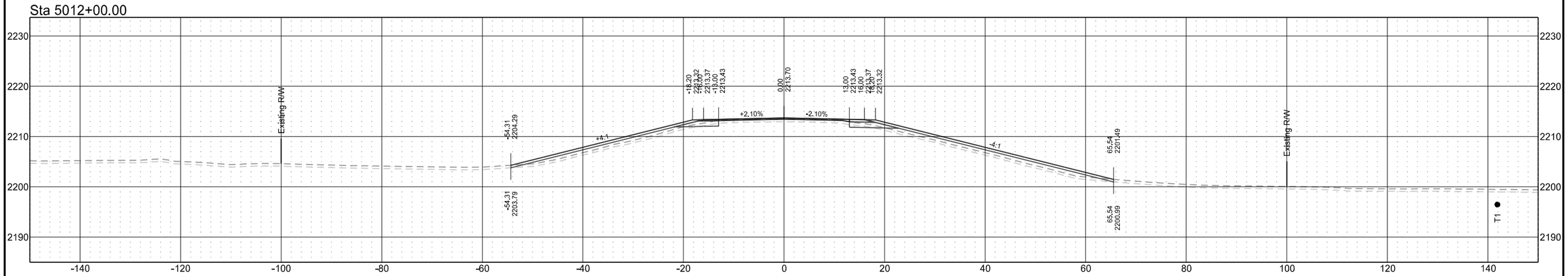
Sta 5013+07.57



Sta 5013+00.00



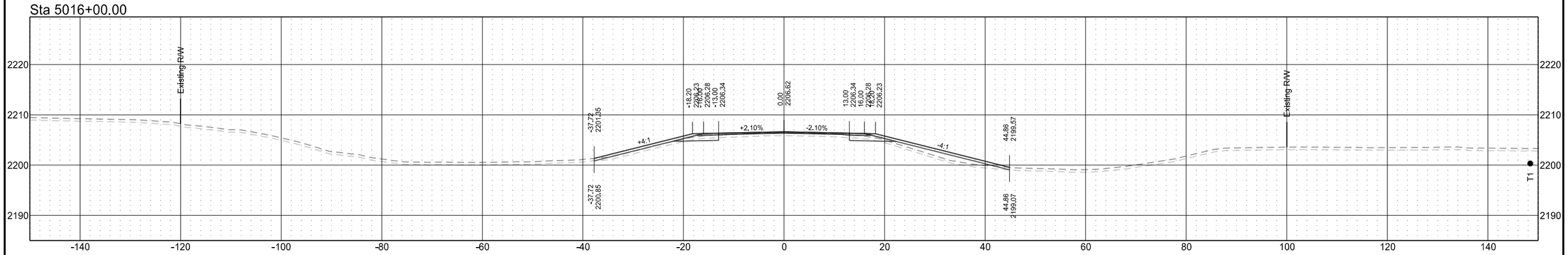
Sta 5012+00.00



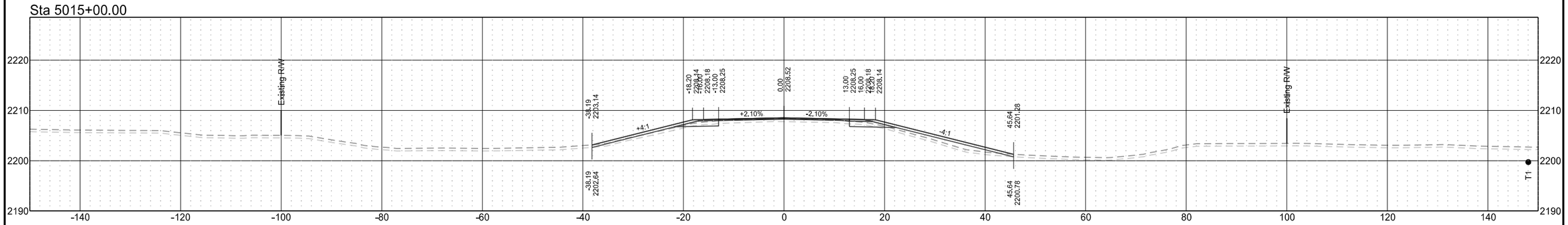
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	320
T4	D4				

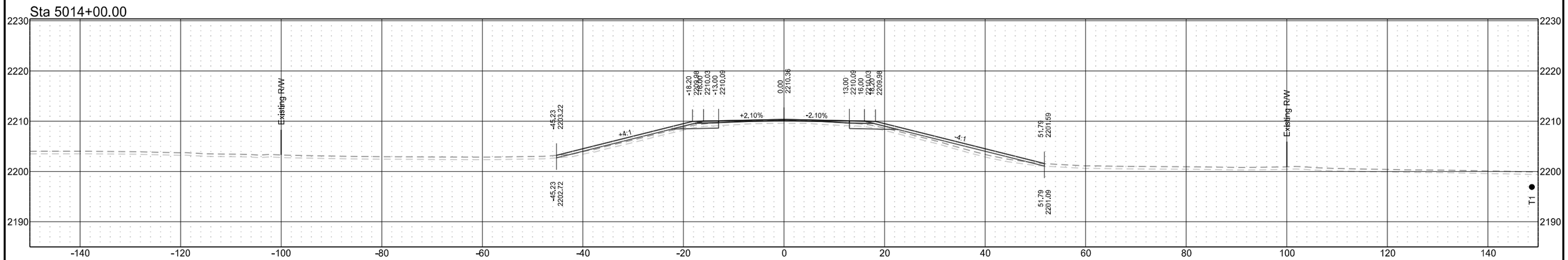
Sta 5016+00.00



Sta 5015+00.00



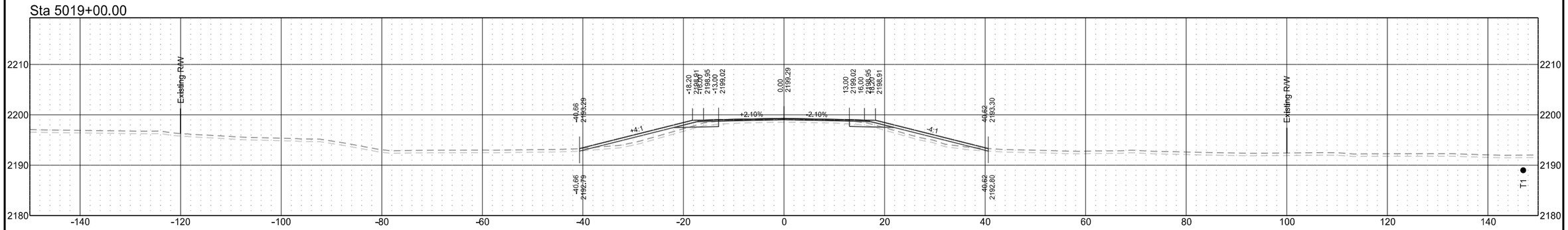
Sta 5014+00.00



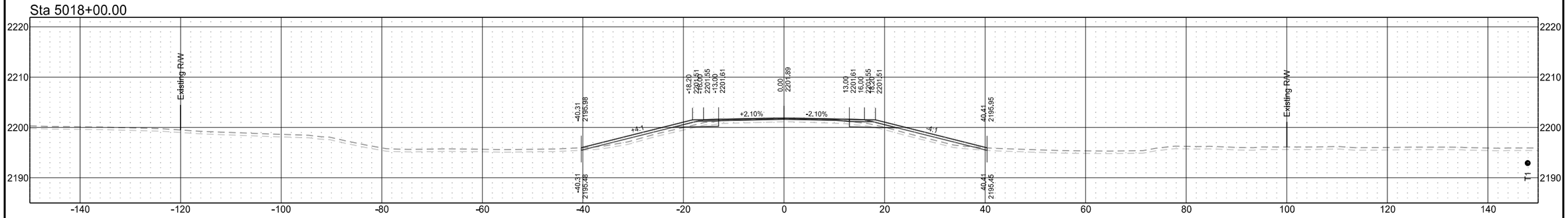
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	321
T4	D4				

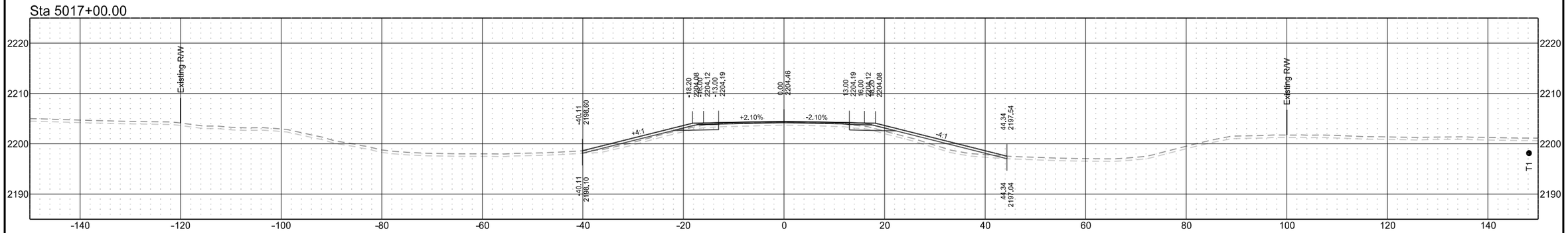
Sta 5019+00.00



Sta 5018+00.00



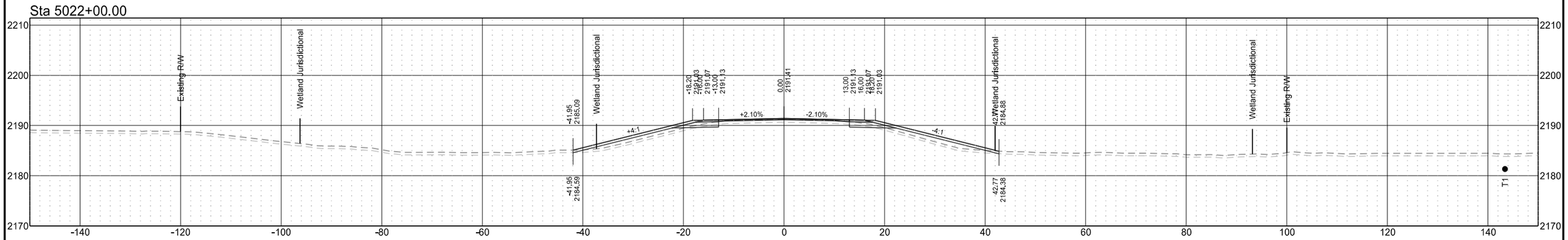
Sta 5017+00.00



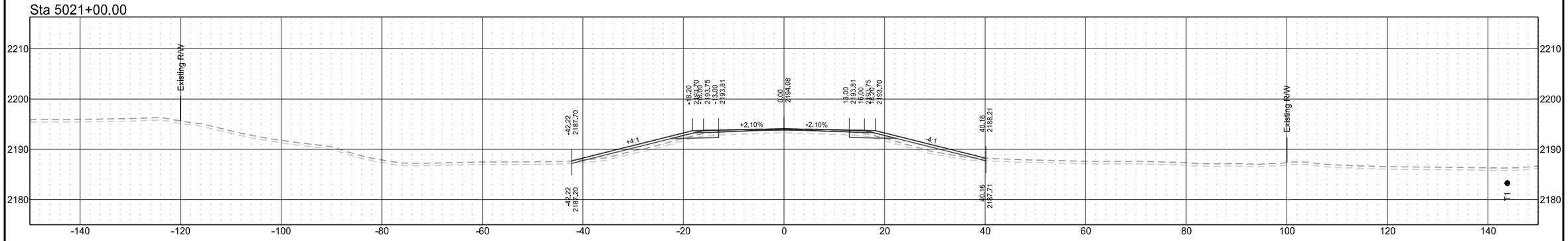
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	322
T4	D4				

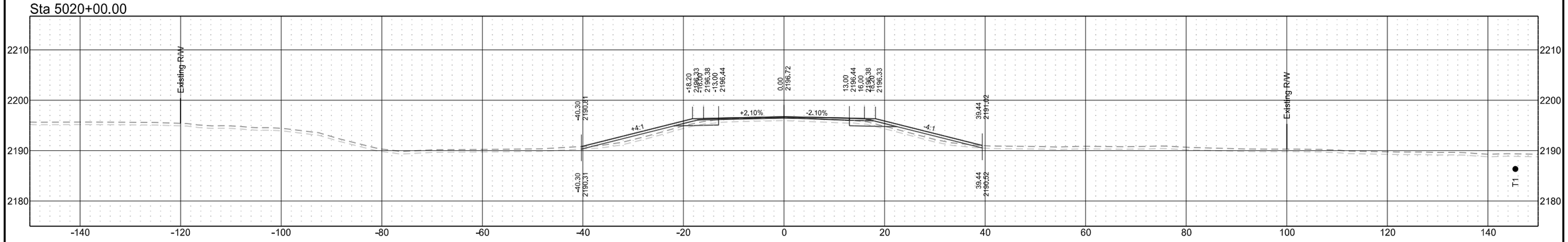
Sta 5022+00.00



Sta 5021+00.00



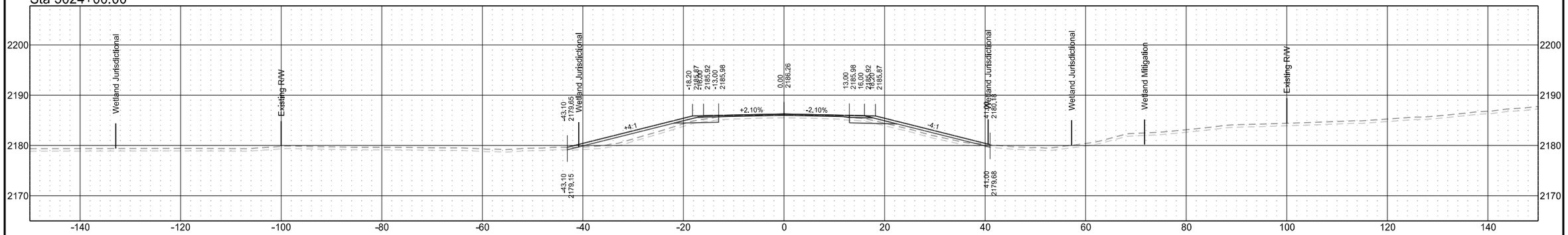
Sta 5020+00.00



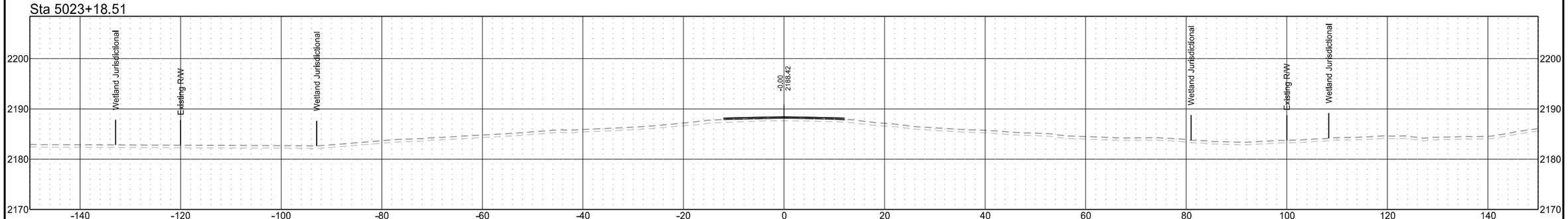
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	323
T4	D4				

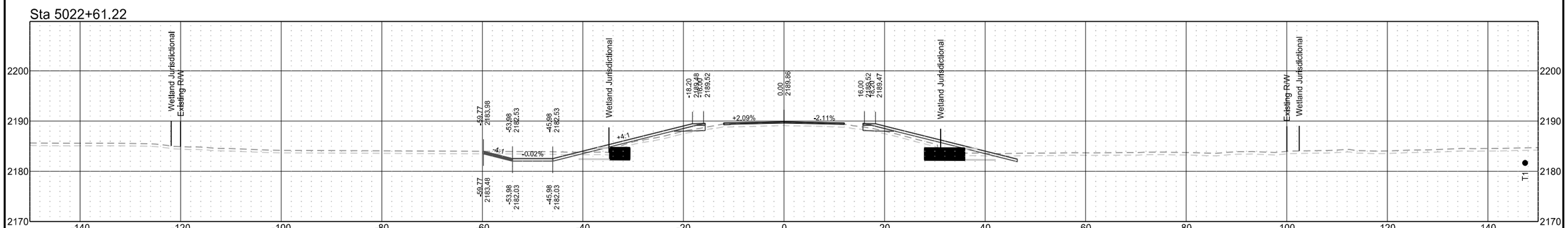
Sta 5024+00.00



Sta 5023+18.51



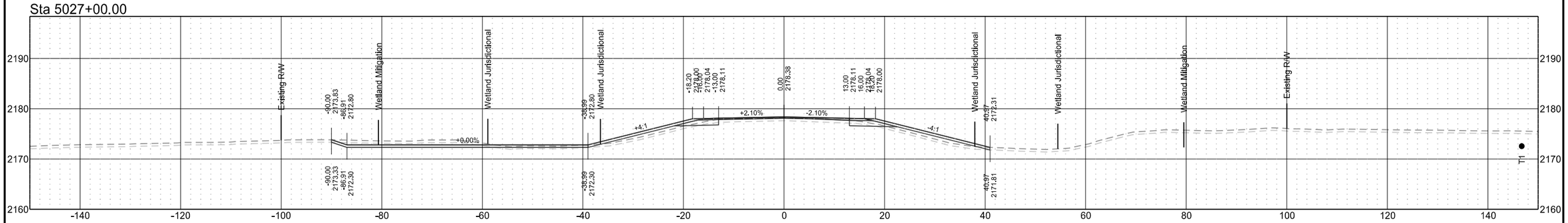
Sta 5022+61.22



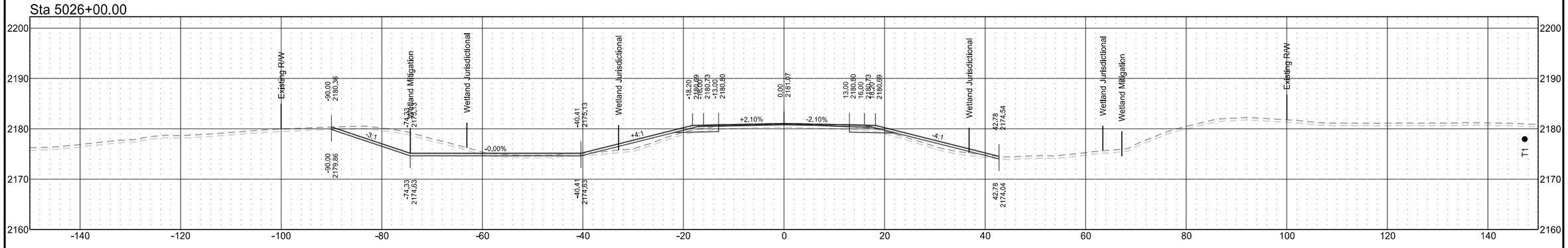
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	324
T4	D4				

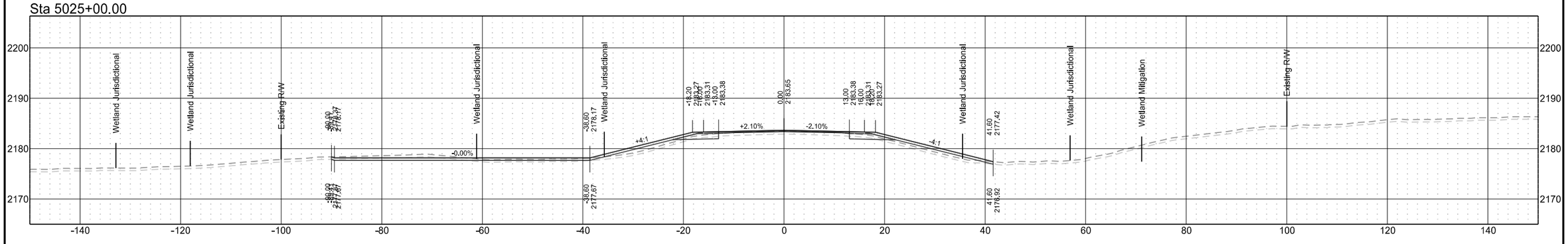
Sta 5027+00.00



Sta 5026+00.00



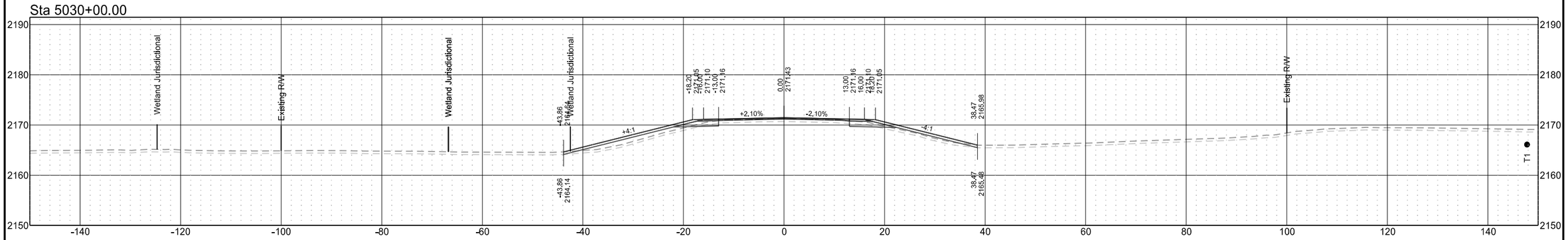
Sta 5025+00.00



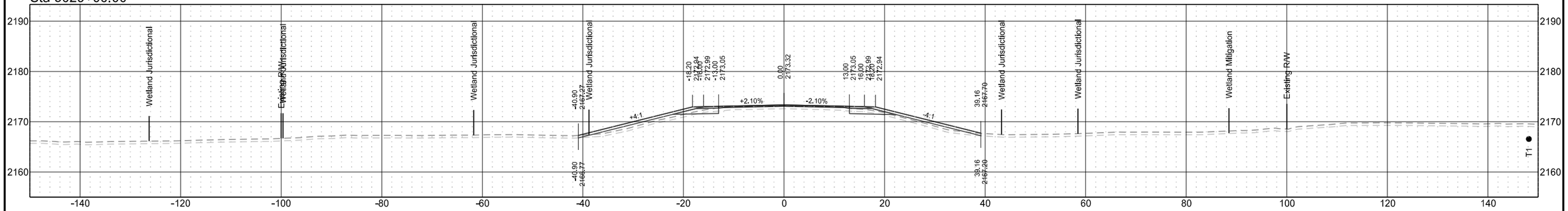
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	325
T4	D4				

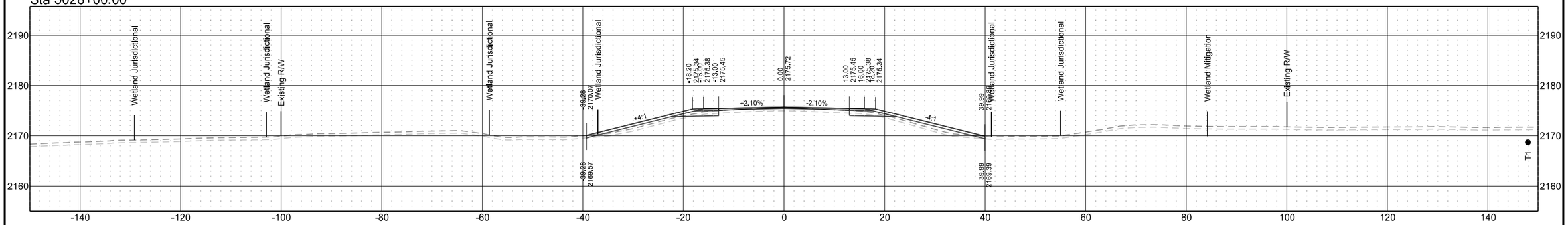
Sta 5030+00.00



Sta 5029+00.00



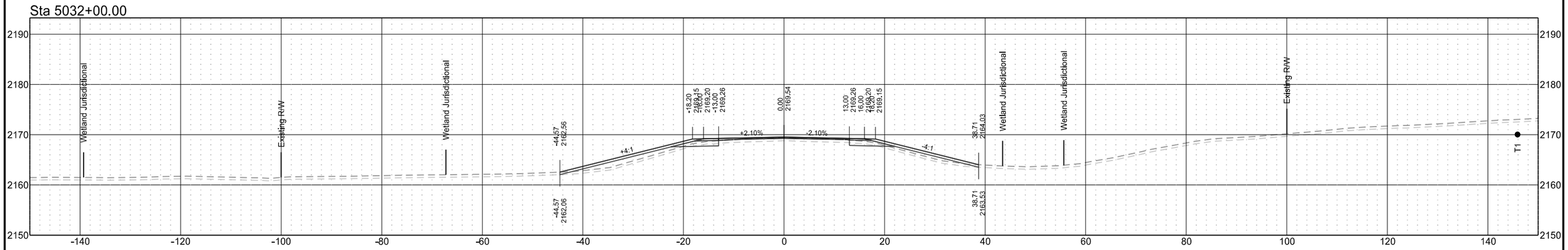
Sta 5028+00.00



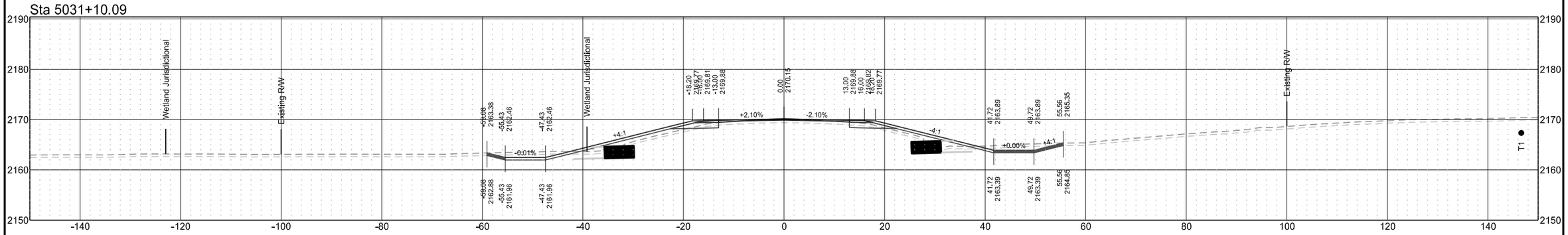
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	326
T4	D4				

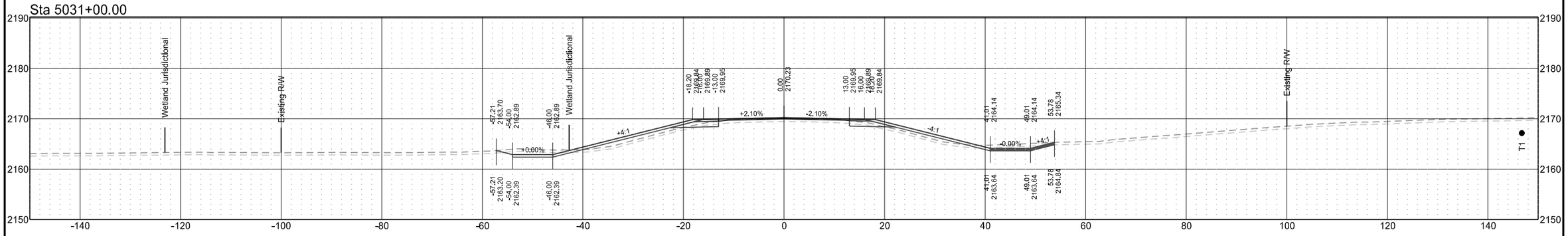
Sta 5032+00.00



Sta 5031+10.09



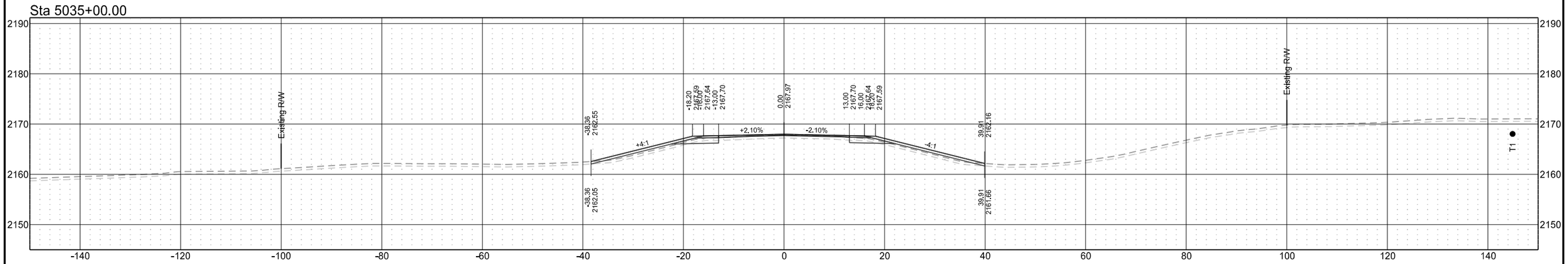
Sta 5031+00.00



ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	327
T4	D4				

Sta 5035+00.00



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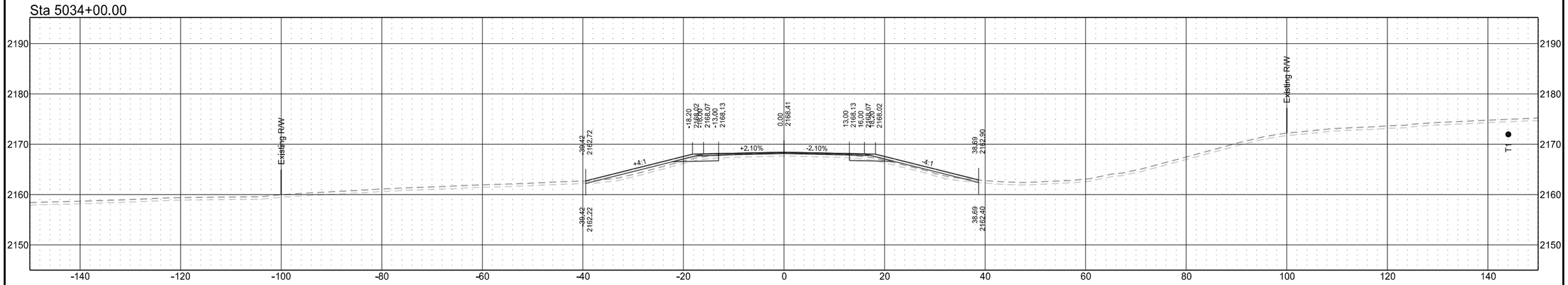
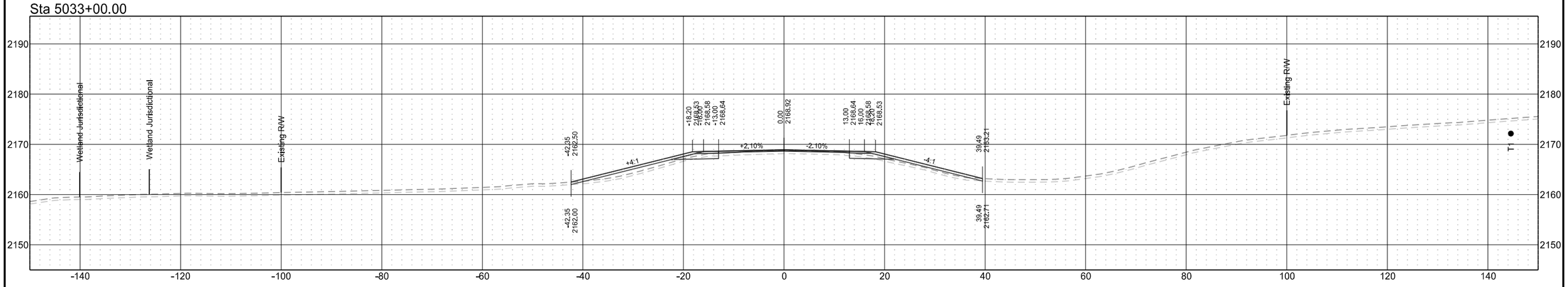


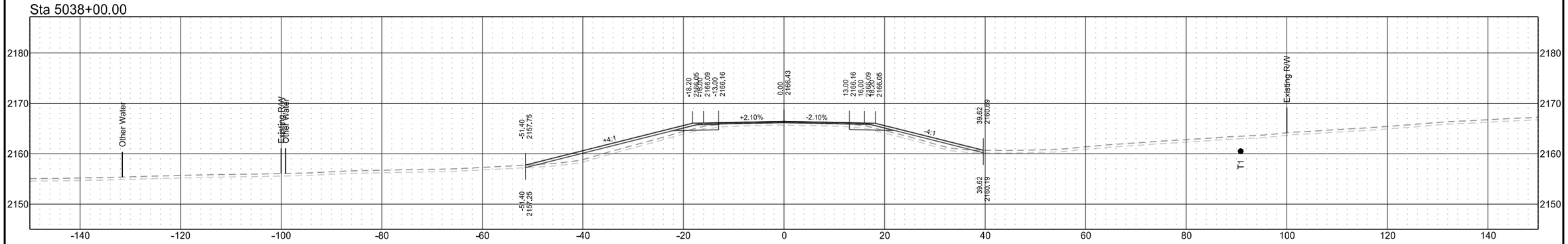
Sta 5033+00.00



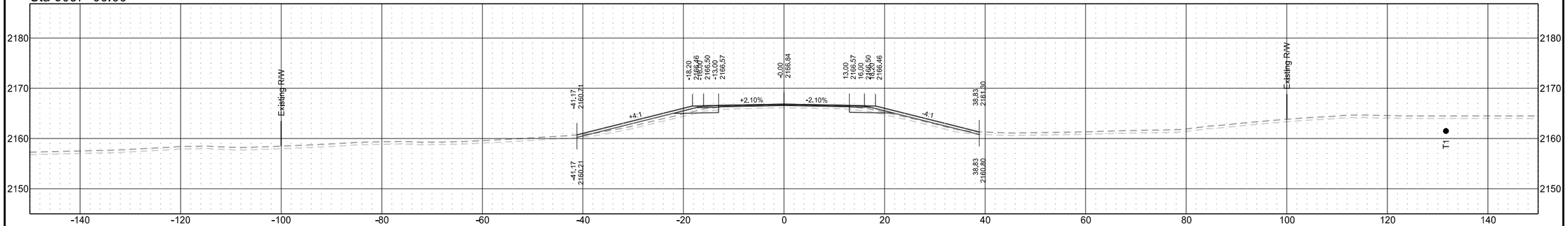
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	328
T4	D4				

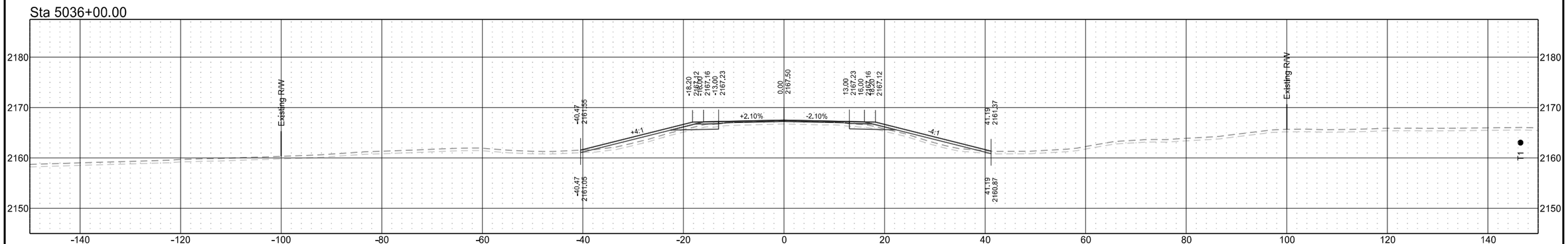
Sta 5038+00.00



Sta 5037+00.00



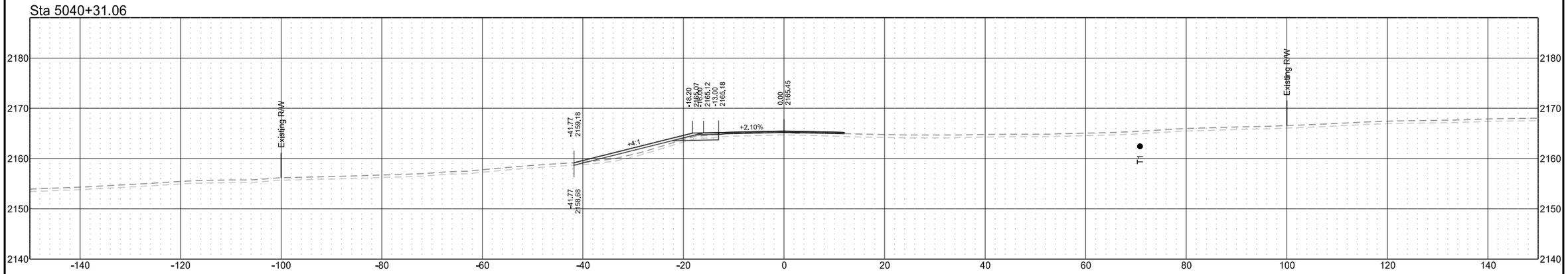
Sta 5036+00.00



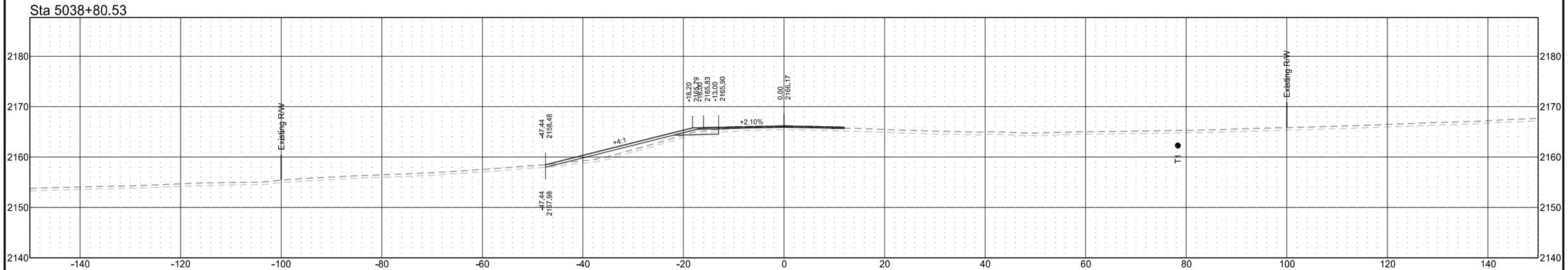
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	329
T4	D4				

Sta 5040+31.06



Sta 5038+80.53



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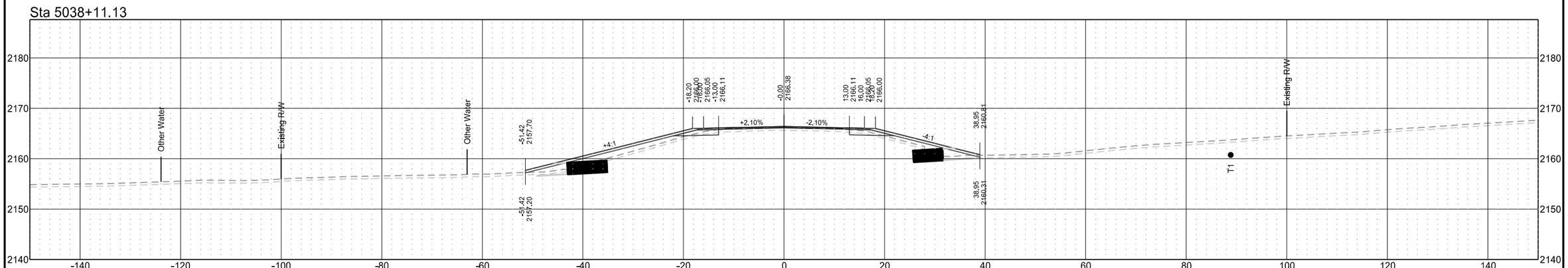

ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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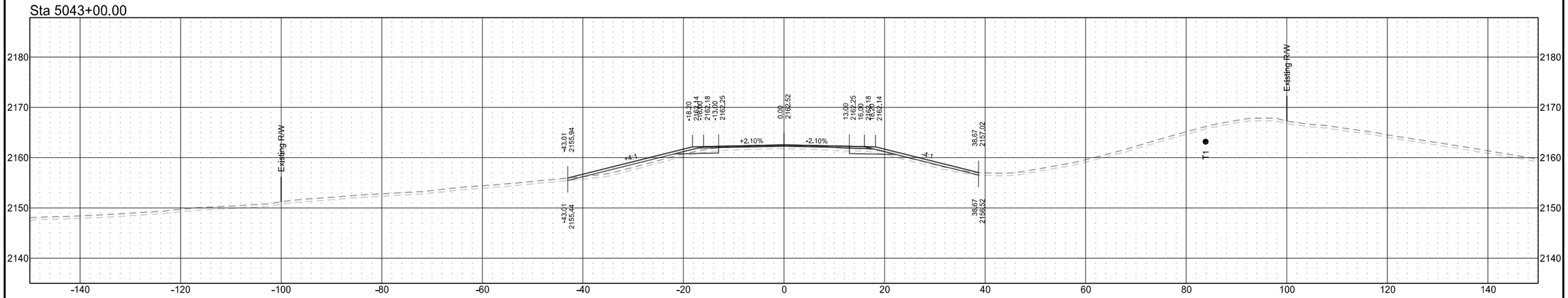
T3	D3	ND	XA-SS-1-031(021)078	200	330
T4	D4				

Sta 5043+00.00



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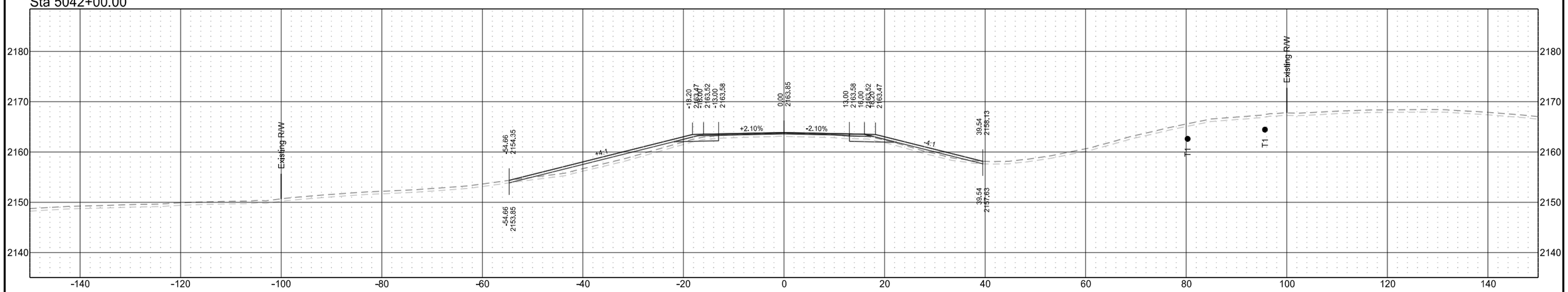

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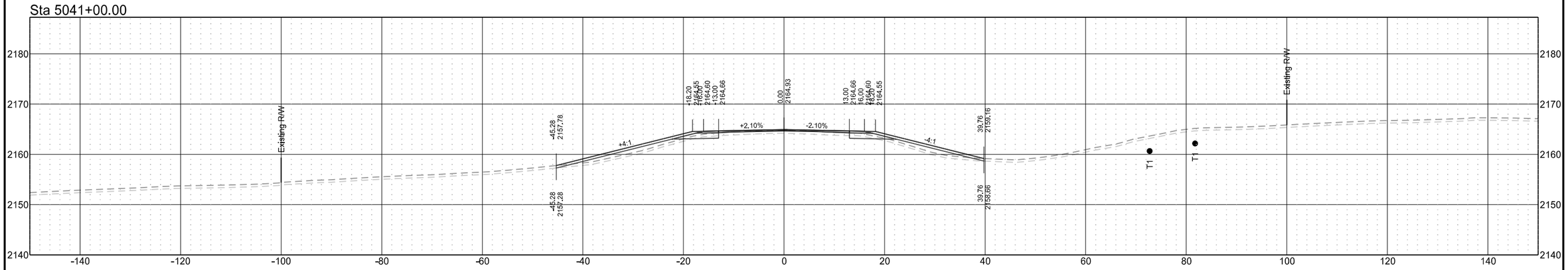
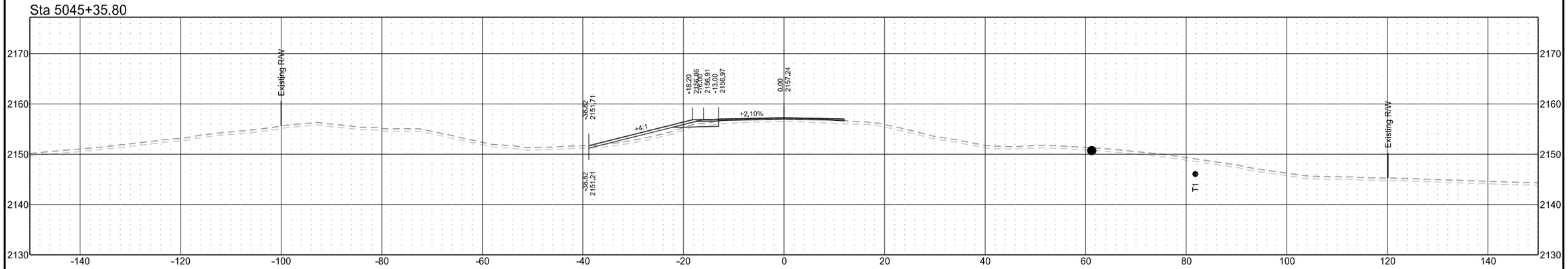


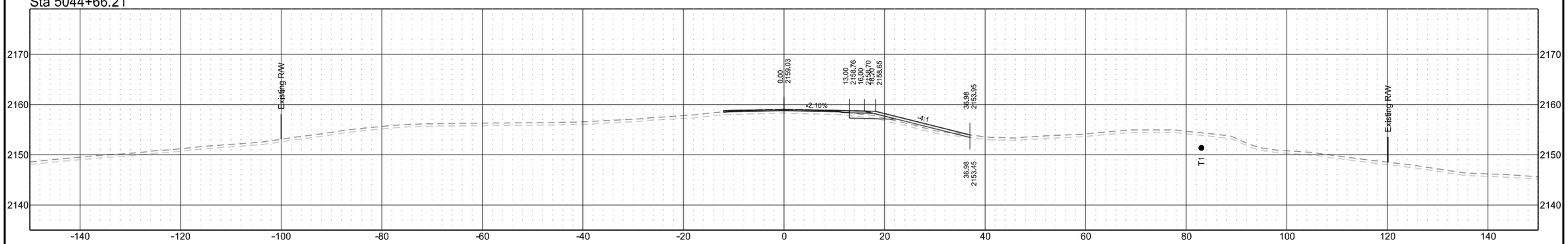
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	331
T4	D4				

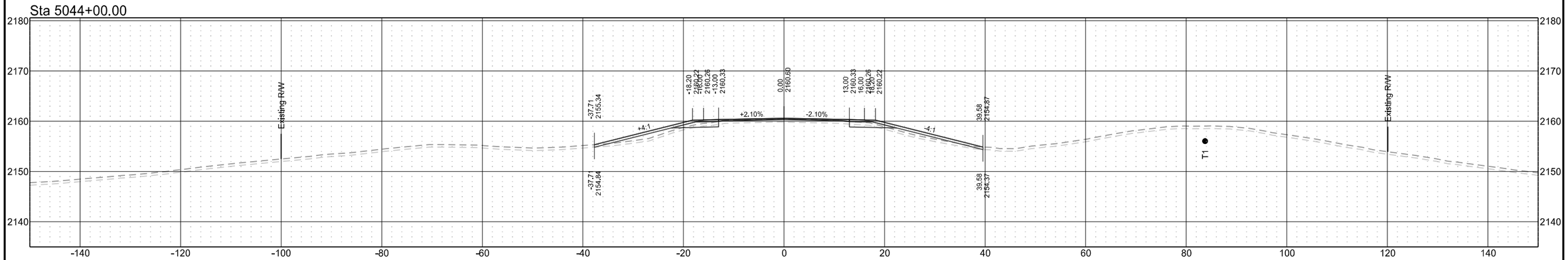
Sta 5045+35.80



Sta 5044+66.21



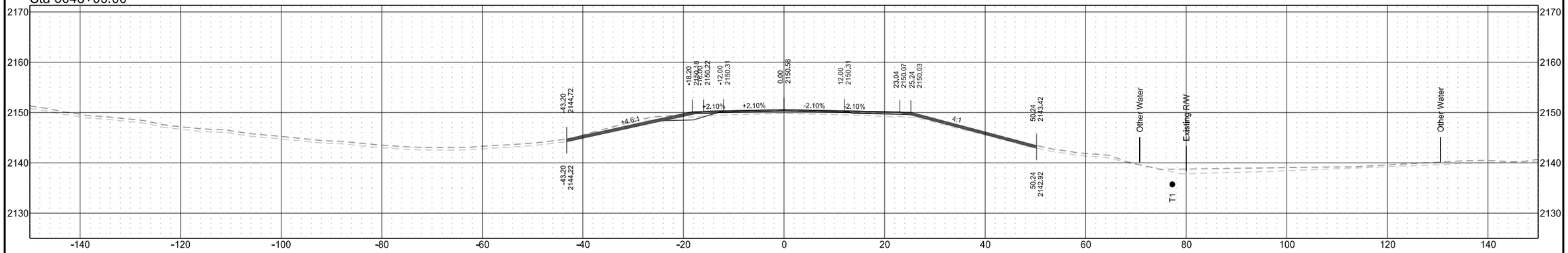
Sta 5044+00.00



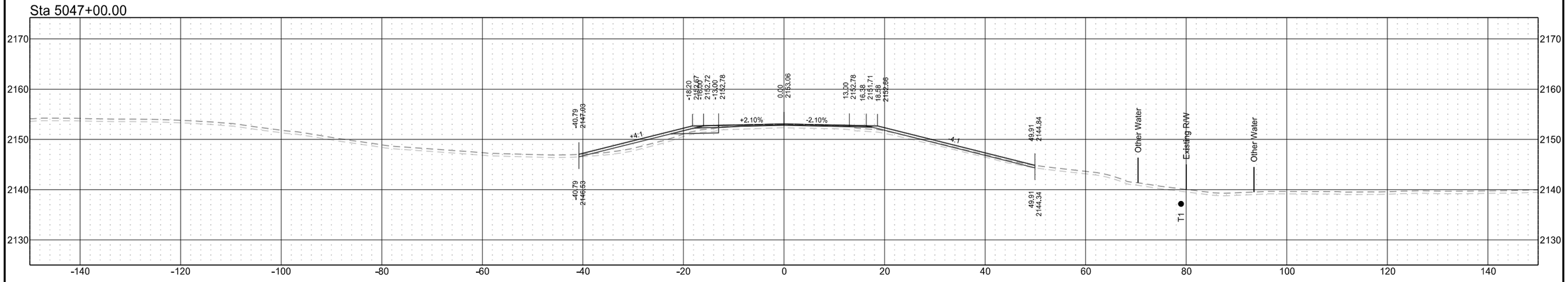
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	332
T4	D4				

Sta 5048+00.00



Sta 5047+00.00



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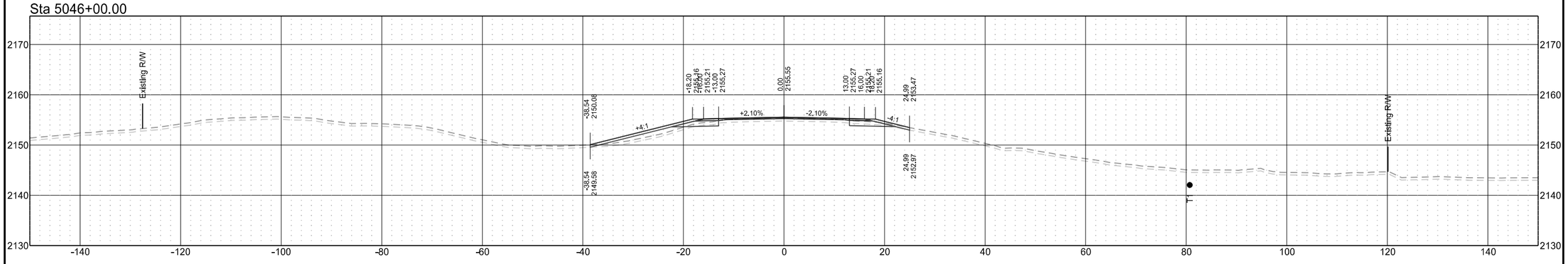
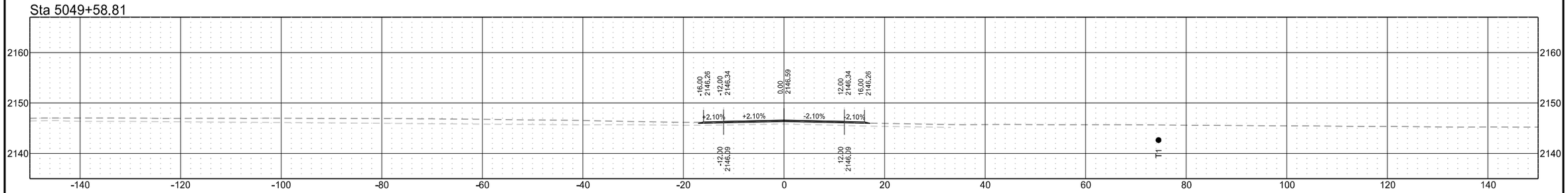


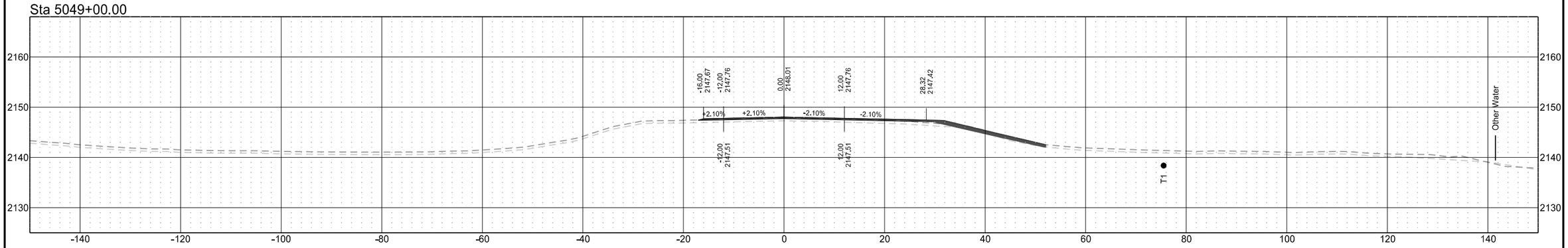
ND 31

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078	200	333
T4	D4				

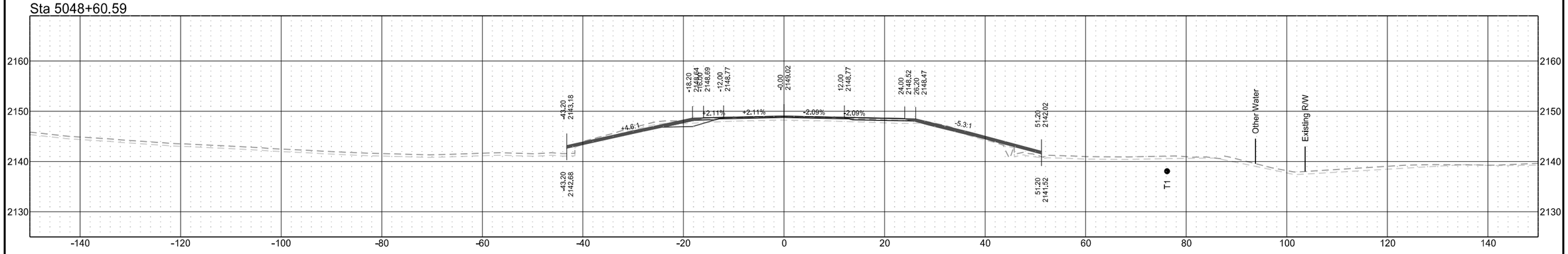
Sta 5049+58.81



Sta 5049+00.00



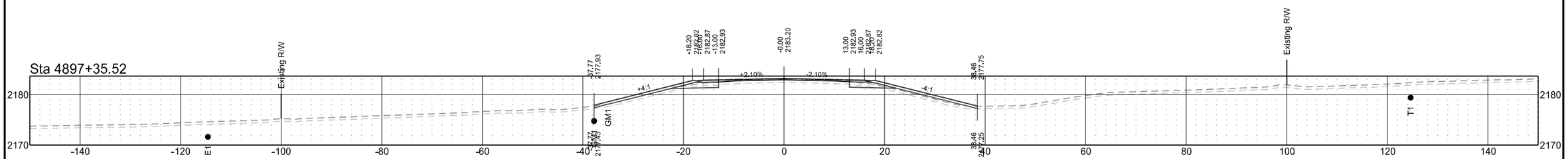
Sta 5048+60.59



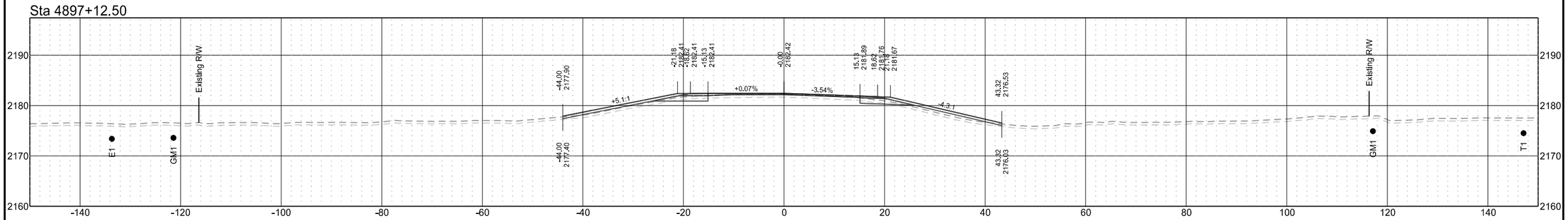
Marathon Petroleum
Utility Conflict
ND 31 - Oliver County

T1	D1	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
T2	D2				
T3	D3	ND	XA-SS-1-031(021)078		
T4	D4				

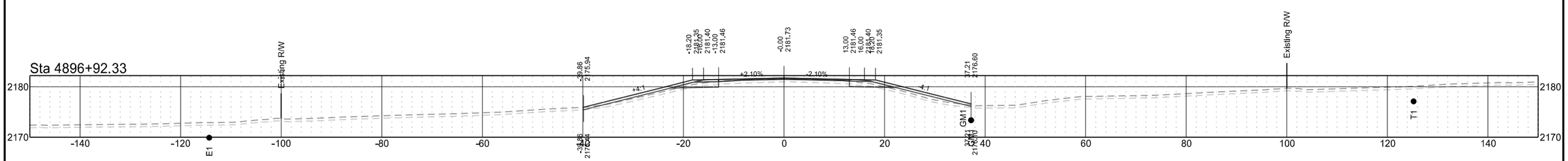
Sta 4897+35.52



Sta 4897+12.50



Sta 4896+92.33



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NDDOT ABBREVIATIONS

D-101-1

?	This is a special text character used in the labeling of existing features. It indicates a feature that has an unknown characteristic, potentially based on: lack of description, location accuracy or purpose.
Abn	abandoned
Abut	abutment
Adj	adjusted
Aggr	aggregate
Ahd	ahead
ARV	air release valve
Align	alignment
Al	alley
Alt	alternate
Alum	aluminum
ADA	Americans with Disabilities Act
&	and
Appr	approach
Approx	approximate
ACP	asbestos cement pipe
Asph	asphalt
AC	asphalt cement
Assmd	assumed
@	at
Atten	attenuation
ATR	automatic traffic recorder
Ave	Avenue
Avg	average
ADT	average daily traffic
Bk	back
BF	back face
Balc	balcony
B Wire	barbed wire
Barr	barricade
Btry	battery
BI	beehive inlet
Beg	begin
BG	below grade
BM	bench mark
Bkwy	bikeway
Bit	bituminous
Blk	block
BH	bore hole
Bot	bottom
Blvd	Boulevard
Bndry	boundary
Brkwy	breakaway
Br	bridge
Bldg	building
Bus.	business
BV	butterfly valve
Byp	bypass
C Gdrl	cable guardrail
Calc	calculate
CIP	cast iron pipe
CB	catch basin
CRS	cationic rapid setting
C Gd	cattle guard
C To C	center to center
CL or ℄	centerline
Ch	chain
Chnlk	chain-link
Ch Blk	channel block
Ch Ch	channel change
Chk	check
Chsld	chiseled
Cir	circle
Cl	class
Clnt	clean-out
Clr	clear
Cl&gr	clearing & grubbing
Comb.	combination
Coml	commercial
Compr	compression
CADD	computer aided drafting & design
Conc	concrete
CECB	concrete erosion control blanket
Cond	conductor
Const	construction
Cont	continuous
CSB	continuous split barrel sample
Contr	contraction
Contr	contractor
CP	control point
Coord	coordinate
Cor	corner
Corr	corrected
CAES	corrugated aluminum end section
CAP	corrugated aluminum pipe
CMES	corrugated metal end section
CMP	corrugated metal pipe
CPVCP	corrugated poly-vinyl chloride pipe
CSES	corrugated steel end section
CSFES	corrugated steel flared end section
CSP	corrugated steel pipe
CSTES	corrugated steel traversable end section
Co	County
Crse	course
Ct	Court
Xarm	cross arm
Xbuck	cross buck
Xsec	cross sections
Xing	crossing
Xrd	crossroad
Crn	crown
Culv	culvert
C&G	curb & gutter
CI	curb inlet
CR	curb ramp
C	cut
Dd Ld	dead load
Defl	deflection
Defm	deformed
DInt	delineate
DIntr	delineator
Depr	depression
Desc	description
Det	detail
DWP	detectable warning panel
Dtr	detour
Dia or ø	diameter
Dir	direction
Dist	distance
DM	disturbed material
DB	ditch block
DG	ditch grade
Dbl	double
Dn	down
Dwg	drawing
Dr	drive
Drwy	driveway
DI	drop inlet
D	dry density
Ea	each
Esmt	easement
E	East
EB	Eastbound
Elast	elastomeric
EL	electric locker
E Mtr	electric meter
EVSE	electric vehicle supply equipment
Elec	electric/al
EDM	electronic distance meter
Elev or El	elevation
Ellipt	elliptical
Emb	embankment
Emuls	emulsion/emulsified
ES	end section
Engr	engineer
ESS	environmental sensor station
Eq	equal
Evgr	evergreen
Exc	excavation
Exst	existing
Exp	expansion
Expy	Expressway
E	external of curve
Extru	extruded
FOS	factor of safety
Fed	Federal
FP	feed point
Fn	fence
Fn P	fence post
FO	fiber optic
FD	field drive
F	fill
FAA	fine aggregate angularity
FH	fire hydrant
Fl	flange
Flrd	flared
FES	flared end section
F Bcn	flashing beacon
FA	flight auger sample
FL	flow line
Ftg	footing
FM	force main
Fnd	found
Fdn	foundation
Frac	fractional
Frwy	freeway
Frt	front
FF	front face
F Disp	fuel dispenser
FFP	fuel filler pipes
FLS	fuel leak sensor
Furn	furnish/ed

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

07-01-14

REVISIONS

DATE	CHANGE
04-23-18	General Revisions
09-20-18	General Revisions
12-18-20	General Revisions
08-16-22	General Revisions
04-14-25	General Revisions

KIRK J. HOFF
REGISTERED
PROFESSIONAL
PE-4683
04/14/25
ENGINEER
NORTH DAKOTA

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NDDOT ABBREVIATIONS

D-101-2

Galv	galvanized
Gar	garage
Gs L	gas line
G Reg	gas line regulator
GMV	gas main valve
G Mtr	gas meter
GSV	gas service valve
GVP	gas vent pipe
GV	gate valve
Ga	gauge
Gov	government
Grd	graded/grade
Grnd	ground
GWM	ground water monitor
Gdrl	guardrail
Gtr	gutter
H Plg	H piling
Hdwl	headwall
Ht	height
Hel	helical
HDPE	high density polyethylene
HM	high mast
HP	high pressure
HPS	high pressure sodium
HTCG	high tension cable guardrail
Hwy	highway
Hor	horizontal
HBP	hot bituminous pavement
HMA	hot mix asphalt
Hyd	hydrant
Ph	hydrogen ion content
Id	identification
Incl	inclinometer tube
IMH	inlet manhole
ID	inside diameter
Inst	instrument
Intchg	interchange
Intmdt	intermediate
Intscn	intersection
Inv	invert
IP	iron pipe
Jt	joint
Jct	junction

Ln	lane
Lg	large
Lat	latitude
Lt	left
Lens	lenses
Lvl	level
Lvlng	leveling
Lht	light
LP	light pole
Ltg	lighting
Liq	liquid
LL	liquid limit
Loc	location
Long.	longitude
Lp	loop
LD	loop detector
Lum	luminaire
Mb	mailbox
ML	main line
MH	manhole
Mkd	marked
Mkr	marker
Mkg	marking
MA	mast arm
Matl	material
Max	maximum
Meas	measure
Mdn	median
MD	median drain
MC	medium curing
MGS	Midwest Guardrail System
MM	mile marker
MP	mile post
Min	minimum
Misc	miscellaneous
Mon	monument
Mnd	mound
Mtbl	mountable
Mtd	mounted
Mtg	mounting
Mk	muck
Neop	neoprene
Ntwk	network
N	North
NE	Northeast
NW	Northwest
NB	Northbound
No. or #	number

Obsc	obscure(d)
Ocpd	occupied
Ocpy	occupy
O/s	offset
OC	on center
C	one dimensional consolidation
OC	organic content
Orig	original
O To O	out to out
OD	outside diameter
OH	overhead
PMT	pad mounted transformer
Pg	pages
Pntd	painted
Pr	pair
Pnl	panel
Pk	park
PSD	passing sight distance
Pvmt	pavement
Ped	pedestal
Ped	pedestrian
PPP	pedestrian pushbutton post
Pen.	penetration
Perf	perforated
Per.	perimeter
Perm	permanent
PL	pipeline
Pl	place
P&P	plan & profile
PL	plastic limit
Pl or ℙ	plate
Pt	point
PE	polyethylene
PVC	polyvinyl chloride
PCC	Portland Cement concrete
PP	power pole
Preempt	preemption
Prefab	prefabricated
Prfmd or Pref	preformed
Prep	preperation
Press.	pressure
PRV	pressure relief valve
Prestr	prestressed
Pvt	private
PD	private drive
Prod.	production/produce
Prog	programmed
Prop.	property
Ppsd	proposed
PB	pull box

Qty	quantity
Qtr	quarter
Rad or R	radius
RR	railroad
Rlwy	railway
Rsd	raised
RC	rapid curing
Rec	record
Rcy	recycle
RAP	recycled asphalt pavement
RPCC	recycled portland cement concrete
Ref	reference
R Mkr	reference marker
RM	reference monument
RP	reference point
Refl	reflectorized
RCB	reinforced concrete box
RCES	reinforced concrete end section
RCFES	reinforced concrete flared end section
RCP	reinforced concrete pipe
RCPS	reinforced concrete pipe sewer
RCTES	reinforced concrete traversable end section
Reinf	reinforcement
Res	reservation
Res	residence
Ret	retaining
Rev	reverse
Rt	right
R/W	right of way
Riv	river
Rd	road
Rdbd	road bed
Rdwy	roadway
RWIS	roadway weather information system
Rk	rock
Rt	route

NORTH DAKOTA
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07-01-14

REVISIONS

DATE	CHANGE
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NDDOT ABBREVIATIONS

D-101-3

Salv	salvage(d)
San	sanitary sewer line
Sec	section
SL	section line
Sep	separation
Seq	sequence
Serv	service
Sht	sheet
Shtng	sheeting
Shldr	shoulder
Sw or Sdwk	sidewalk
SD	sight distance
SN	sign number
Sig	signal
Sgl	single
SRCP	slotted reinforced concrete pipe
SC	slow curing
SS	slow setting
Sm	small
S	South
SE	Southeast
SW	Southwest
SB	Southbound
Sp	spaces
Spcl	special
SA	special assembly
SP	special provisions
G	specific gravity
Spk	spike
SB	split barrel sample
SH	sprinkler head
SV	sprinkler valve
Sq	square
Stk	stake
Std	standard
N	standard penetration test
Std Specs	standard specifications
Stm L	steam line
SEC	steel encased concrete
SMA	stone matrix asphalt
SSD	stopping sight distance
SD	storm drain
St	street
SPP	structural plate pipe
SPPA	structural plate pipe arch
Str	structure
Subd	subdivision
Sub	subgrade
Sub Prep	subgrade preperation
Ss	subsoil
SS	supplement specification
Supp	supplemental
Surf	surfacing
Surv	survey
Sym	symmetrical

Tel	telephone
Tel B	Telephone Booth
Tel P	telephone pole
Tv	television
Temp	temperature
Temp	temporary
TBM	temporary bench mark
T	thinwall tube sample
Ts	topsoil
Traf	traffic
TSCB	traffic signal control box
Tr	trail
Transf	transformer
Trans	transition
TT	transmission tower
TES	traversable end section
Trans	transverse
Trtd	treated
Trmt	treatment
Qc	triaxial compression
TERO	tribal employment rights ordinance
Tpl	triple
Typ	typical
Qu	unconfined compressive strength
Ugrnd	underground
Util	utility
VG	valley gutter
Vap	vapor
Vert	vertical
VCP	vitrified clay pipe
Vol	volume
VSFS	vehicle speed feedback sign
Wkwy	walkway
W	water content
WGV	water gate valve
WL	water line
WM	water main
WMV	water main valve
W Mtr	water meter
WSV	water service valve
WW	water well
Wrng	wearing
WIM	weigh in motion
W	west
WB	westbound
Wrng	wiring
W/	with
W/o	without

NORTH DAKOTA
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NDDOT ABBREVIATIONS

D-101-4

MEASUREMENTS

ac	acres
A	ampere
Bd Ft	board feet
Cd	candela
cm	centimeter
C	coulomb
CF	cubic feet
m3	cubic meter
m3/s	cubic meters per second
CY	cubic yard
CY/mi	cubic yards per mile
D or Deg	degree
F	Fahrenheit
F	farad
ft	feet/foot
Gal	gallon
G	giga
Ha	hectare
H	henry
Hz	hertz
hr	hour(s)
in.	inch
J	joule
K	kelvin
kN	kilo newton
kPa	kilo pascal
kg	kilogram
kg/m3	kilogram per cubic meter
km	kilometer
K	Kip(s)
LF	linear foot
L	litre
Lm	lumen
L sum	lump sum
Lx	lux
M Hr	man hour
M	mega
m	meter
m/s	meters per second
mi	mile
mL	milliliter
mm	millimeter
mm/hr	millimeters per hour
n	nano
N	newton
Pa	pascal
lb	pounds
sec	seconds
S	siemens
SF	square feet
km2	square kilometer
m2	square meter
SY	square yard
Sta Yd	station yards
SI	Systems International
T	tesla
T/mi	tons per mile
V	volt
W	watt
Wb	weber

SURVEY DESCRIPTIONS

Az	azimuth
Bs	backsight
Brg	bearing
BP Cap	blue plastic cap
BS	both sides
BC	brass cap
CC	closing corner
CS	curve to spiral
Eq	equation
E	external of curve
FS	far side
FB	field book
Fs	foresight
Geod	geodetic
GIS	Geographical Information System
GPS	Global Positioning System
HI	height of instrument
IM	iron monument
I Pn	iron pin
LS	Land Surveyor (licensed)
LSIT	Land Surveyor In Training
L	length of curve
LC	long chord
LB	level book
MC	meander corner
Mer	meridian
M	mid ordinate of curve
NGS	National Geodetic Survey
NS	near side
Obsn	observation
Off Loc	office location
OP Cap	orange plastic cap
PK	Parker-Kalon nail
P Cap	plastic cap
PP Cap	pink plastic cap
PCC	point of compound curve
PC	point of curve
PI	point of intersection
PRC	point of reverse curvature
PT	point of tangent
POC	point on curve
POT	point on tangent
RTP	random traverse point
Rge	range
RP Cap	red plastic cap
SC	spiral to curve
SC	standard corner
ST	spiral to tangent
Sta	station
SE	superelevation
Tan	tangent
T	tangent (semi)
TS	tangent to spiral
Twp	township
TB	transit book
TP	traverse point
TP	turning point
USC&G	US Coast & Geodetic Survey
USGS	US Geologic Survey
VC	vertical curve
WC	witness corner
WGS	World Geodetic System
YP Cap	yellow plastic cap
Z	zenith

SOIL TYPES

Cl	clay
Cl F	clay fill
Cl Hvy	clay heavy
Cl Lm	clay loam
Co S	coal slack
C Gr	coarse gravel
CS	coarse sand
FS	fine sand
Gr	gravel
Lig Co	lignite coal
Lig Sl	lignite slack
Lm	loam
Rk	rock
Sd	sand
Sdy Cl	sandy clay
Sdy Cl Lm	sandy clay loam
Sdy Fl	sandy fill
Sdy Lm	sandy loam
Sc	scoria
Sh	shale
Si Cl	silt clay
Si Cl Lm	silty clay loam
Si Lm	silty loam

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

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REVISIONS

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NDDOT UTILITY COMPANY AND ORGANIZATION ABBREVIATIONS

D-101-10

702COM	702 Communications
ACCENT	Accent Communications
AGASSIZ WU	Agassiz Water Users District
AGC	Associated General Contractors of America
ALL PL	Alliance Pipeline
ALL SEAS WU	All Seasons Water Users District
AMOCO PI	Amoco Pipeline Company
AMRDA HESS	Amerada Hess Corporation
AT&T	AT&T Corporation
B PAW	Bear Paw Energy Incorporated
BAKER ELEC	Baker Electric
BASIN ELEC	Basin Electric Cooperative Incorporated
BEK TEL	Bek Communications Cooperative
BELLE PL	Belle Fourche Pipeline Company
BLM	Bureau of Land Management
BNSF	Burlington Northern Santa Fe Railway
BOEING	Boeing
BRNS RWD	Barnes Rural Water District
BURK-DIV ELEC	Burke-Divide Electric Cooperative
BURL WRD	Burleigh County Water Resource District
CABLE ONE	Cable One
CABLE SERV	Cable Services
CAP ELEC	Capital Electric Cooperative Incorporated
CASS CO ELEC	Cass County Electric Cooperative
CASS RWU	Cass Rural Water Users District
CAV ELEC	Cavalier Rural Electric Cooperative
CBLCOM	Cablecom Of Fargo
CENEX PL	Cenex Pipeline
CENT PL WATER DIST	Central Pipe Line Water District
CENT PWR ELEC	Central Power Electric Cooperative
CENTURYLINK	CenturyLink
COE	Corps of Engineers
CONS COMM	Consolidated Communications
CONS TELCOM	Consolidated Telcom
CONT RES	Continental Resource Inc
CPR	Canadian Pacific Railway
D O E	Department Of Energy
DAK CARR	Dakota Carrier Network
DAK CENT TEL	Dakota Central Telephone
DAK RWD	Dakota Rural Water District
DGC	Dakota Gasification Company
DICKEY R NET	Dickey Rural Networks
DICKEY WRD	Dickey County Water Resource District
DICKEY TEL	Dickey Telephone
DNRR	Dakota Northern Railroad
DOME PL	Dome Pipeline Company
DVELEC	Dakota Valley Electric Cooperative
DVMW	Dakota, Missouri Valley & Western
E CENT REG WD	East Central Water District
ENBRDG	Enbridge Pipelines Incorporated
ENVENTIS	Enventis Telephone
EQUINOR	Equinor Pipeline
FALK MNG	Falkirk Mining Company
FHWA	Federal Highway Administration
G FKS-TRL WD	Grand Forks-traill Water District
GETTY TRD & TRAN	Getty Trading & Transportation
GLDN W ELEC	Golden West Electric Cooperative
GTR RAMSEY WD	Greater Ramsey Water District
GT PLNS NAT GAS	Great Plains Natural Gas Company
HALS TEL	Halstad Telephone Company
IDEA1	Idea1
INT-COMM TEL	Inter-Community Telephone Company
KANEB PL	Kaneb Pipeline Company
KEM ELEC	Kem Electric Cooperative Incorporated
KOCH GATH SYS	Koch Gathering Systems Incorporated
LKHD PL	Lakehead Pipeline Company
LWR YELL R ELEC	Lower Yellowstone Rural Electric
LUMEN	Lumen Technologies Incorporated
MCKNZ CON	McKenzie Consolidated Telcom
MCKNZ ELEC	McKenzie Electric Cooperative
MCKNZ WRD	McKenzie County Water Resource District
MCLEOD	McLeod USA
MCLN ELEC	McLean Electric Cooperative
MCLN-SHRDN R WAT	McLean-Sheridan Rural Water District
MDU	Montana-dakota Utilities
MIDCO	MidContinent Communications
MIDSTATE TEL	Midstate Telephone Company
MINOT CABLE	Minot Cable Television
MINOT TEL	Minot Telephone Company
MISS VALL COMM	Missouri Valley Communications Incorporated
MISS W W S	Missouri West Water System
MNKOTA PWR	Minnkota Power
MOR-GRAN-SOU ELEC	Mor-gran-sou Electric Cooperative
MOUNT-WILLI ELEC	Mountrail-williams Electric Cooperative
MLGC	Moore & Liberty - Griggs County
MUNICIPAL	City Water And Sewer
MUNICIPAL	City Of '.....'
N CENT ELEC	North Central Electric Cooperative
N PRAIR REG WD	North Prairie Regional Water District
ND PKS & REC	North Dakota Parks And Recreation
ND TEL	North Dakota Telephone Company
NDDOT	North Dakota Department of Transportation
NE REG WD	Northeast Regional Water District
NDSU SOIL SCI DEPT	NDSU Soil Science Department
NEMONT TEL	Nemont Telephone
NODAK R ELEC	Nodak Rural Electric Cooperative
NOON FRMS TEL	Noonan Farmers Telephone Company
NPR	Northern Plains Railroad
NSP	Northern States Power
NTHN BRDR PL	Northern Border Pipeline
NTHN PLNS ELEC	Northern Plains Electric Cooperative Incorporated
NTHWSTRN REF	Northwestern Refinery Company
NW COMM	Northwest Communication Cooperation
NWRWD	Northwest Rural Water District
ONEOK	Oneok gas
OSHA	Occupational Safety and Health Administration
OTTR TL PWR	Otter Tail Power Company
PAAP	Plains All American Pipeline
P L E M	Prairielands Energy Marketing
POLAR COM	Polar Communications
PVT ELEC	Private Electric
QWEST	Qwest Communications
R&T REG WD	R & T Water District
RED RIV COMM	Red River Communications
RESVTN TEL	Reservation Telephone
ROBRTS TEL	Roberts Company Telephone
R-RIDER ELEC	Roughrider Electric Cooperative
RRVW	Red River Valley & Western Railroad
S CENT REG WD	South Central Regional Water District
SE W U	Southeast Water Users Incorporated
SCOTT CABLE	Scott Cable Television Dickinson
SHERDN ELEC	Sheridan Electric Cooperative
SHEYN VLY ELEC	Sheyenne Valley Electric Cooperative
SKYTECH	Skyland Technologies Incorporated
SLOPE ELEC	Slope Electric Cooperative Incorporated
SOURIS RIV TELCOM	Souris River Telecommunications
ST WAT COMM	State Water Commission
STATE LN WATER	State Line Water Cooperative
STER ENG	Sterling Energy
STUT RWD	Stutsman Rural Water District
SW PL PRJ	Southwest Pipeline Project
SWWA	Southwest Water Authority
SUNOCO	Sunoco LP
T M C	Turtle Mountain Communications
TCI	TCI of North Dakota
TESORO HGH PLNS PL	Tesoro High Plains Pipeline
TRI-CNTY WU	Tri-County Water Users Incorporated
TRL CO WRD	Traill County Water Resource District
UNTD TEL	United Telephone
UPPR SOUR WD	Upper Souris Water District
US SPRINT	U.S. Sprint
USAF MSL CABLE	U.S.A.F. Missile Cable
USFWS	US Fish and Wildlife Service
USW COMM	U.S. West Communications
VRNDRY ELEC	Verendrye Electric Cooperative
W RIV TEL	West River Telephone Incorporated
WAPA	Western Area Power Administration
WAWSA	Western Area Water Supply Authority
WEB	W. E. B. Water Development Association
WILLI WRD	Williams County Water Resource District
WILSTN BAS PL	Williston Basin Interstate Pipeline Company
WLSH RWD	Walsh Water Rural Water District
WOLVRTN TEL	Wolverton Telephone
XLENER	Xcel Energy
YSVR	Yellowstone Valley Railroad

NORTH DAKOTA
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LINE STYLES

D-101-20

Existing Topography

- Existing Ground Void
- Existing Cemetary Boundary
- Existing Box Culvert Bridge
- Existing Concrete Surface
- Existing Drainage Structure
- Existing Gravel Surface
- Existing Riprap
- Existing Dirt Surface
- Existing Asphalt Surface
- Existing Tie Point Line
- Existing Railroad Centerline
- Existing Guardrail Cable
- Existing Guardrail Metal
- Existing Edge of Water
- Existing Fence
- Existing Railroad
- Existing Field Line
- Exst Flow
- Existing Curb
- Existing Valley Gutter
- Existing Driveway Gutter
- Existing Curb and Gutter
- Existing Mountable Curb and Gutter
- Existing 3-Cable w Posts
- Site Boundary
- Existing Berm, Dike, Pit, or Earth Dam
- Existing Ditch Block
- Existing Tree Boundary
- Existing Brush or Shrub Boundary
- Existing Retaining Wall
- Existing Planter or Wall
- Existing W-Beam Guardrail with Posts
- Existing Railroad Switch
- Gravel Pit - Borrow Area
- Existing Wet Area-Vegetation Break
- Existing High Tension Cable Guardrail
- Existing High Tension Cable Guardrail with Posts

Proposed Topography

- 3-Cable w Posts
- Flow
- Fence
- Remove Line
- Wall
- Retaining Wall (Plan View)
- W-Beam w Posts
- High Tension Cable Guardrail with Posts

Existing Utilities

- Existing Electrical
- Existing Fiber Optic Line
- Existing TV Fiber Optic
- Existing Gas Pipe
- Existing Overhead Utility Line
- Existing Power
- Existing Fuel Pipeline
- Existing Undefined Above Ground Pipe Line
- Existing Sanitary Sewer
- Existing Sanitary Force Main
- Existing Storm Drain
- Existing Storm Drain Force Main
- Existing Culvert
- Existing Telephone Line
- Existing TV Line
- Existing Water or Steam Line
- Existing Under Drain
- Existing Slotted Drain
- Existing Conduit
- Existing Conductor
- Existing Down Guy Wire Down Guy
- Existing Underground Vault or Lift Station

Proposed Utilities

- 24 Inch Pipe
- Reinforced Concrete Pipe
- Under Drain
- Edge Drain

Traffic Utilities

- Conductor
- Fiber Optic
- Existing Loop Detector
- Existing Double Micro Loop Detector
- Micro Loop Detector Double
- Existing Micro Loop Detector
- Micro Loop Detector
- Signal Head with Mast Arm
- Existing Signal Head with Mast Arm

Sign Structures

- Existing Overhead Sign Structure
- Existing Overhead Sign Structure Cantilever
- Overhead Sign Structure Cantilever

NORTH DAKOTA
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LINE STYLES

D-101-21

Right Of Way

- Easement
- Existing Easement
- Right of Way
- Existing Right of Way
- Existing Right of Way Railroad
- Existing Right of Way Not State Owned
- Existing Government Lot Line
- Existing Adjacent Block Lines
- Existing Adjacent Lot Lines
- Existing Adjacent Property Line
- Existing Adjacent Subdivision Lines
- Sight Distance Triangle Line
- Dimension Leader

Boundary Control

- Existing City Corporate Limits or Reservation Boundary
- Existing State or International Line
- Existing Township
- Existing County
- Existing Section Line
- Existing Quarter Section Line
- Existing Sixteenth Section Line
- Existing Centerline
- Tangent Line

Cross Sections and Typicals

- Existing Ground
- Existing Topsoil (Cross Section View)
- Existing Ground Void (Not Surveyed) — Void — Void — Void — V
- Existing Concrete
- Existing Aggregate (Cross Section View)
- Existing Curb and Gutter (Cross Section View)
- Existing Asphalt (Cross Section View)
- Existing Reinforcement Rebar

Geotechnical

- Geotextile Fabric Type D — D — D
- Geogrid — Geo — Geo
- Geotextile Fabric Type R — R — R
- Geotextile Fabric Type R1 — R — R
- Geotextile Fabric Type RR — RR — RR
- Geotextile Fabric Type S — S — S
- Subgrade Reinforcement
- Failure Line

Countours

- Depression Contours
- Supplemental Contour

Profile

- Subgrade, Subcut or Ditch Grade
- Topsoil Profile

Striping

- Centerline Pavement Marking
- Barrier with Centerline Pavement Marking
- Barrier Pavement Marking
- Stripe 4 IN Dotted Extension White
- Stripe 8 IN Dotted Extension White
- Stripe 8 IN Lane Drop

Pavement Joints

- Doweled Joint
- Tie Bar 30 Inch 4 Foot Center to Center
- Tie Bar 18 Inch 3 Foot Center to Center
- Tie Bar at Random Spacing

Bridge Details

- Small Hidden Object
- Large Hidden Object
- Phantom Object
- Existing Conditions Object
- Centerline Main
- Centerline Secondary
- Excavation Limits
- Proposed Ground
- Sheet Piling

Erosion Control

- Limits of Const Transition Line
- Bale Check
- Rock Check
- Floating Silt Curtain — S — S
- Silt Fence — SF — SF
- Excavation Limits
- Fiber Rolls

Environmental

- Wetland Mitigation
- Existing Wetland Easement USFWS
- Existing Wetland Jurisdictional
- Existing Wetland
- Tree Row

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SYMBOLS

D-101-30

- North Arrow (Half Scale)
- Alignment Data Point
- Alignment Monument
- Spot Elevation
- Existing Miscellaneous Spot
- Existing Access Control Arrow
- Existing Benchmark
- Reset USGS Marker
- Iron Monument Found
- Iron Pin R/W Monument
- Property Corner
- Iron Pin Reference Monument
- Right of Way Marker (Exst, Ppsd, Reset)
- Existing Federal Reference Corner
- Existing Section Corner (Full, Quarter, Sixteenth, Meander)
- Existing Witness Corner
- Existing Control Point (CP, GPS-RTK, TRI)
- Existing Traverse PI Aerial Panel
- Existing Reference Marker Point NGS
- Existing EFB Misc
- Existing Bush or Shrub
- Existing Large Evergreen Tree
- Existing Small Evergreen Tree
- Existing Large Tree
- Existing Small Tree
- Existing Tree Trunk
- Cairn or Stone Circle
- Existing Artifact
- Existing Satellite Dish
- Existing Weather Station
- Existing Windmill or Tower
- Reinforced Pavement
- CSB — Continuous Split Barrel Sample
- FA — Flight Auger Sample
- SB — Split Barrel Sample
- T — Thinwall Tube Sample
- N — Standard Penetration Test
- Incl — Inclinometer Tube
- Excavation Unit
- Existing Ground Water Well Bore Hole

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SYMBOLS

D-101-31

- Flexible Delineator
- Flexible Delineator Type A (Exst, Ppsd)
- Flexible Delineator Type B (Exst, Ppsd)
- Flexible Delineator Type C (Exst, Ppsd)
- Flexible Delineator Type D (Exst, Ppsd)
- Flexible Delineator Type E (Exst, Ppsd)
- Delineator Type A (Exst, Ppsd, Diamond Grade-Reset)
- Delineator Type B (Exst, Ppsd, Diamond Grade-Reset)
- Delineator Type C (Exst, Ppsd, Diamond Grade)
- Delineator Type D (Exst, Ppsd, Diamond Grade)
- Delineator Type E (Exst, Ppsd, Diamond Grade)
- Barricade (Type I, Type II, Type III}
- Arrow Panel (Caution Mode, Double Direction, Left Directional, Right Directional, Sequencing, Truck Mounted)
- Attenuation Device
- Truck Mounted Attenuator
- Delineator Drums
- Flagger
- Tubular Marker
- Traffic Cone
- Back to Back Vertical Panel Sign
- Highway Sign (Exst, Ppsd)
- Mile Post Type A (Exst-Ppsd-Reset)
- Mile Post Type B (Exst, Ppsd)
- Mile Post Type C (Exst, Ppsd)
- Object Marker Type I (Exst, Ppsd)
- Object Marker Type II (Exst, Ppsd)
- Object Marker Type III (Exst, Ppsd)
- Existing Reference Marker
- Road Closure Gate 18 Ft (Exst, Ppsd)
- Road Closure Gate 28 Ft (Exst, Ppsd)
- Road Closure Gate 40 Ft (Exst, Ppsd)
- Existing Railroad Battery Box
- Existing RR Profile Spot
- Existing Railroad Crossbuck
- Existing Railroad Frog
- Existing Mailbox (Private, Federal)

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

07-01-14

REVISIONS

DATE	CHANGE
12-18-20	General Revisions

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ENGINEER
NORTH DAKOTA

Kirk J Hoff

12 18 2020

SYMBOLS

D-101-32

- Existing Luminaire
- Luminaire LED
- Existing Light Standard Luminaire
- Relocate Light Standard
- Light Standard Light LED Luminaire
- Light Standard 35 Watt High Pressure Sodium Vapor Luminaire
- Light Standard 50 Watt High Pressure Sodium Vapor Luminaire
- Light Standard 70 Watt High Pressure Sodium Vapor Luminaire
- Light Standard 100 Watt High Pressure Sodium Vapor Luminaire
- Light Standard 150 Watt High Pressure Sodium Vapor Luminaire
- Light Standard 200 Watt High Pressure Sodium Vapor Luminaire
- Light Standard 250 Watt High Pressure Sodium Vapor Luminaire
- Light Standard 310 Watt High Pressure Sodium Vapor Luminaire
- Light Standard 400 Watt High Pressure Sodium Vapor Luminaire
- Light Standard 700 Watt High Pressure Sodium Vapor Luminaire
- Light Standard 1000 Watt High Pressure Sodium Vapor Luminaire
- Emergency Vehicle Detector
- Video Detection Camera

- High Mast Light Standard 3 Luminaire (Exst, Ppsd)
- High Mast Light Standard 4 Luminaire (Exst, Ppsd)
- High Mast Light Standard 5 Luminaire (Exst, Ppsd)
- High Mast Light Standard 6 Luminaire (Exst, Ppsd)
- High Mast Light Standard 7 Luminaire (Exst, Ppsd)
- High Mast Light Standard 8 Luminaire (Exst, Ppsd)
- High Mast Light Standard 9 Luminaire (Exst, Ppsd)
- High Mast Light Standard 10 Luminaire (Exst, Ppsd)
- Overhead Sign Structure Load Center (Exst, Ppsd)
- Traffic Signal Controller (Exst, Ppsd)
- Pad Mounted Traffic Signal Controller (Exst, Ppsd)
- Flashing Beacon (Exst, Ppsd)
- Concrete Foundation (Exst, Ppsd)
- Pipe Mounted Flasher (Exst, Ppsd)
- Pad Mounted Feed Point (Exst, Ppsd)
- Pipe Mounted Feed Point with Pad (Exst, Ppsd)
- Pole Mounted Feed Point (Exst, Ppsd)
- Junction Box (Exst, Ppsd)
- Existing Pedestrian Head with Number
- Existing Signal Head
- Pole Mounted Head
- Existing Lighting Standard Pole

- Existing Traffic Signal Standard
- Pull Box (Exst-Ppsd-Undefined)
- Intelligent Transportation Pull Box (Exst, Ppsd)
- Transformer (Exst, Ppsd)
- Power Pole (Exst-Ppsd-with Transformer)
- Wood Pole (Exst, Ppsd)
- Pedestrian Push Button Post (Exst, Ppsd)
- Existing Pole
- Existing Telephone Pole
- Existing Post
- Connection Conductor (Ground, Neutral, Phase 1, Phase 2)

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

07-01-14

REVISIONS

DATE	CHANGE
12-18-20	General Revisions

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SYMBOLS

D-101-33

Existing Manhole (Electrical, Gas, Telephone)

Water Manhole (Exst, Exst with Valve)

Sanitary Sewer Manhole (Exst, Ppsd, Exst with Valve)

Sanitary Force Main Manhole (Exst, Ppsd, Exst with Valve)

Storm Drain Manhole (Exst, Ppsd, Exst with Inlet, Ppsd with Inlet)

Force Main Storm Drain Manhole (Exst, Exst with Valve)

Manhole (Ppsd, Ppsd 48 Inch, Exst Undefined)

Existing Water Appurtenance

Sprinkler Head (Exst, Ppsd)

Fire Hydrant (Exst, Ppsd)

Cleanout (Exst Sanitary, Underdrain)

Existing Catch Basin Inlet (Round, Square)

Existing Curb Inlet (Round, Square)

Existing Slotted Reinforced Concrete Pipe

Catch Basin (Riser 30 Inch, Beehive, Type A)

Inlet Mountable Curb (Type A, Type B)

Inlet Saddle Base (Type 1, Type 2)

Inlet Special (Catch Basin, Type 1, Type A)

Inlet (Tee, Type 1, Type 2, Type 2 Double)

Median Drain

Headwall (Exst, Ppsd, Ppsd Single with Vegitation Barrier,
Ppsd Double with Vegitation Barrier)

Cap or Stub
Exst Gas, Exst Sanitary, Exst Storm Drain, Ppsd Storm Drain, Exst Water

Existing Pedestal
Electrical, Telephone, Fiber Optic Telephone, TV, Fiber Optic TV, Undefined

Existing Pipe Vent
Gas, Fuel, Sanitary, Storm Drain, Water, Undefined

Valve
Exst Gas, Exst Water, Ppsd Water, Exst Undefined

Pump
Sanitary, Storm Drain, Exst Water

Corrugated Metal End Section (18, 24, 30, 36, 42, 48, 54, 60 Inch)

Reinforced Concrete End Section (18, 24, 30, 36, 42, 48, 54, 60 Inch)

Existing Utility Marker

Existing Meter

Existing Fuel Dispensers

Existing Fuel Filler Pipes

Existing Fuel Leak Sensors

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

07-01-14

REVISIONS

DATE	CHANGE
12-18-20	General Revisions Sheet added - Continued from D-101-32

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12 18 2020

Cross Section Legend

D-101-40

Description	Longitudinal Parallel to Roadway	Transverse Perpendicular to Roadway*
Cable Line	CBL1	CBL2
Conduit Line	CDU1	CDU2
Electric Line	E1	E2
Fiber Optic Line	F1	F2
Gas Main Line	GM1	GM2
Gas Service Line	GS1	GS2
Gas Transmission Line	GT1	GT2
Fuel Pipeline	PL1	PL2
Sanitary Sewer Force Main	SSF1	SSF2
Sanitary Sewer	SS1	SS2
Steam Line	STE1	STE2
Storm Drain (Assumed Depth)	SD1	SD2
Telephone Line	T1	T2
TV Line	TV1	TV2
Water Main Line	WM1	WM2
Water Service Line	WS1	WS2

Description	Longitudinal Parallel to Roadway	Transverse Perpendicular to Roadway*
Overhead Power Transmission Line	OHT1	OHT2
Overhead Line	OH1	OH2

Light Standard - Multiple Variations
- Concrete
- Steel
- Wood
- with Traffic Signal

Pole - Multiple Variations
- Utility
- Brace
- Feed Point
- Guy
- Power
- Power Structure
- Power with Light
- Power with Transformer

Manhole - Multiple Variations
- Electric
- Fiber Optic
- Gas
- Inlet
- Sanitary Force Main
- Sanitary
- Sanitary with Valve
- Steam
- Storm
- Storm Force Main
- Storm with Valve
- Telephone
- Water
- Water with Meter
- Water with Valve
- Water with Air Release Valve

Anchor

High Tension Cable Guardrail

HTC Gdrl

* Usually the transverse utilities are shown on a cross section with 2 or more symbols. The utility runs from one symbol to the other, but the connection may not be shown.

E2 E2

Connection to infer that probably will not be displayed

When storm drain invert elevations are NOT used to draw pipe, they will appear as shown to the left. When invert elevations are used to draw pipe, they will be a cross section similar to the graphics shown below.

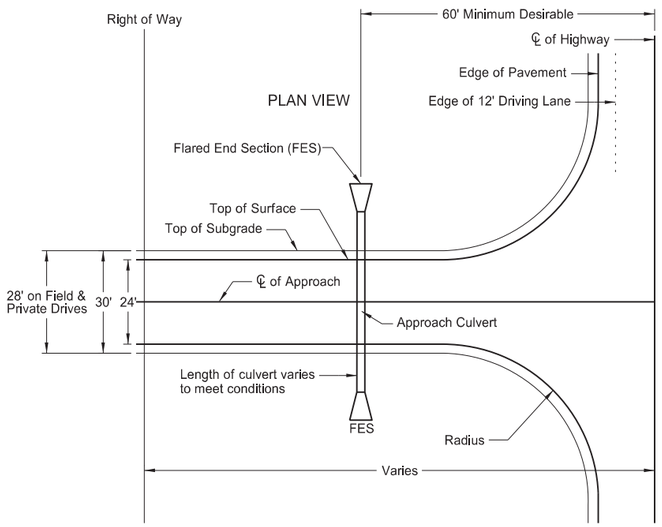
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
9-20-18	
REVISIONS	
DATE	CHANGE
6/14/2023	CADD Standards Update

KIRK J. HOFF REGISTERED PROFESSIONAL ENGINEER PE-4683 NORTH DAKOTA

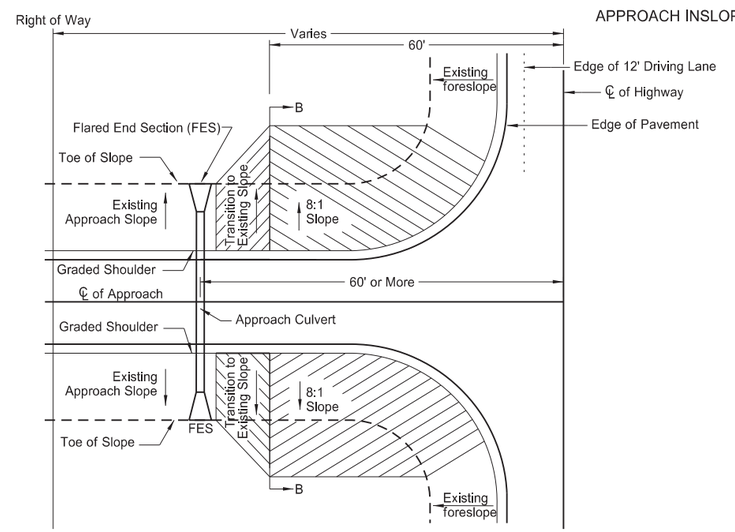
06/14/23

STANDARD RURAL APPROACHES

D-203-8

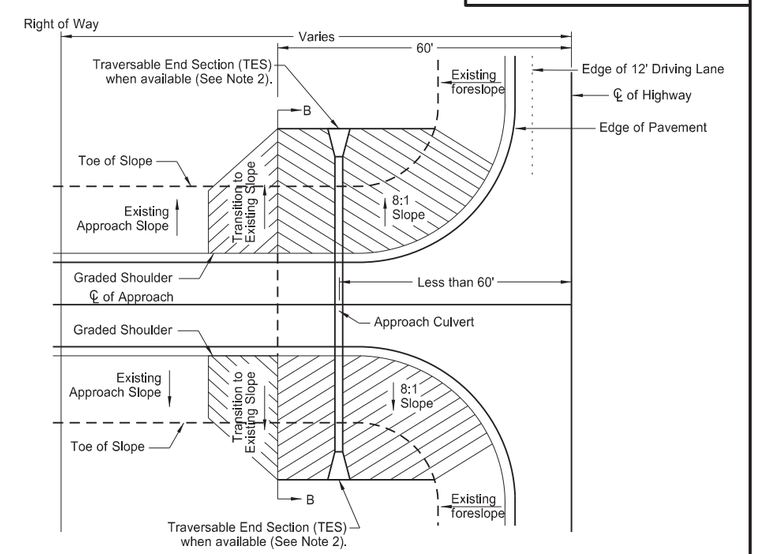


APPROACH INSLOPES



CASE 1

APPROACH PIPE LOCATED 60' OR MORE FROM ℄



CASE 2

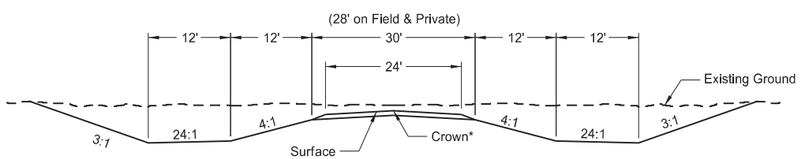
APPROACH PIPE LOCATED LESS THAN 60' FROM ℄

Approach Pipe Traversable End Sections (TES)

RCP	CSP	CSP Arch
15"	15"	
18"	18"	21"x15"
		24"x18"
24"	24"	28"x20"

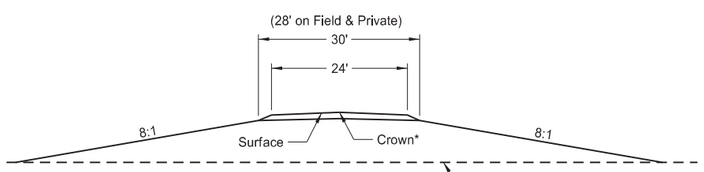
CRITERIA FOR RURAL APPROACH TYPES

	Field Drives	Private Drives	Low Volume Public Roads
Radius	R=40 ft	R=40 ft	R=50 ft
Maximum Grade	10%	7%	7%
Storage Platform	24 ft	24 ft	50 ft
Vertical Curve Length	10 ft	10 ft	Varies (Min. 20 mph)

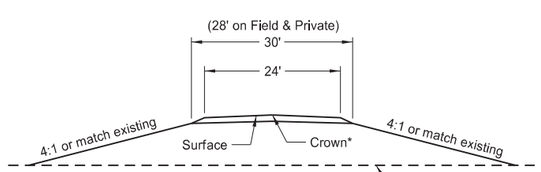


SECTION A-A

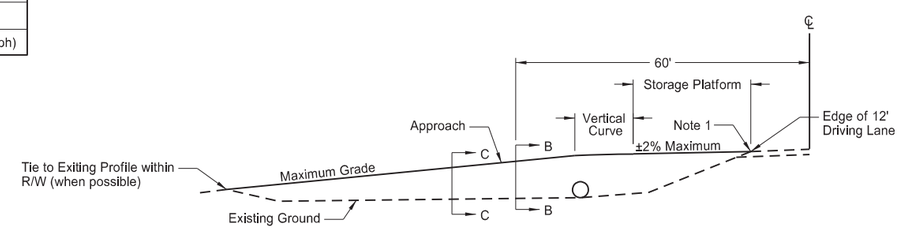
*2.1% crown for paved surface
*3.0% crown for gravel surface



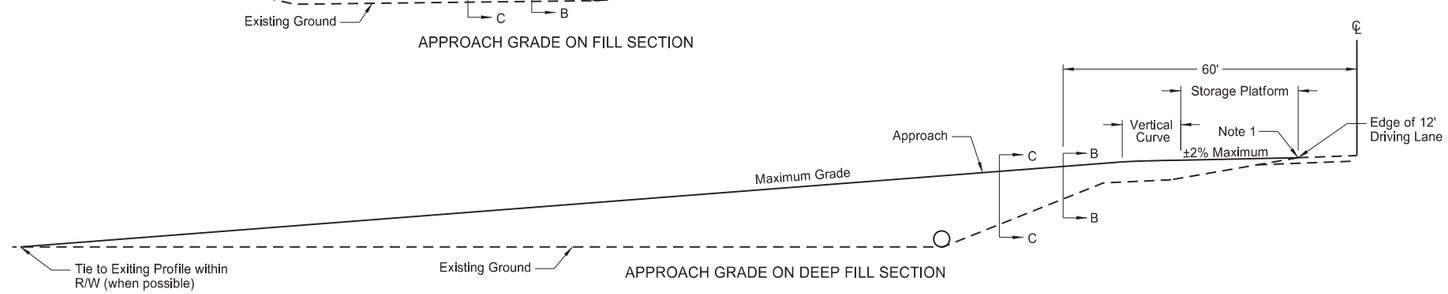
SECTION B-B



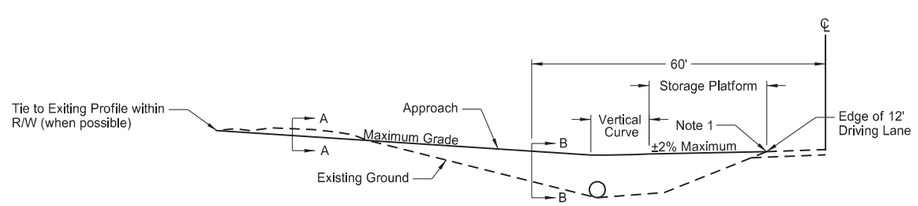
SECTION C-C



APPROACH GRADE ON FILL SECTION



APPROACH GRADE ON DEEP FILL SECTION



APPROACH GRADE ON CUT SECTION

NOTES:

1. 5% Max Rollover between approach storage platform and highway.
2. Approach pipes up to 24" diameter are acceptable (with traversable end sections) for Case 2. Install approach pipes larger than 24" diameter in accordance with Case 1.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

2-25-14

REVISIONS

DATE	CHANGE
06-30-17	Revised Radius, Storage Platform, Inslope dimensions, and Note 1
10-25-19	Changed "Inslope" to "Foreslope"
06-29-22	Added "TES", Table, and Note 2

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06/29/22

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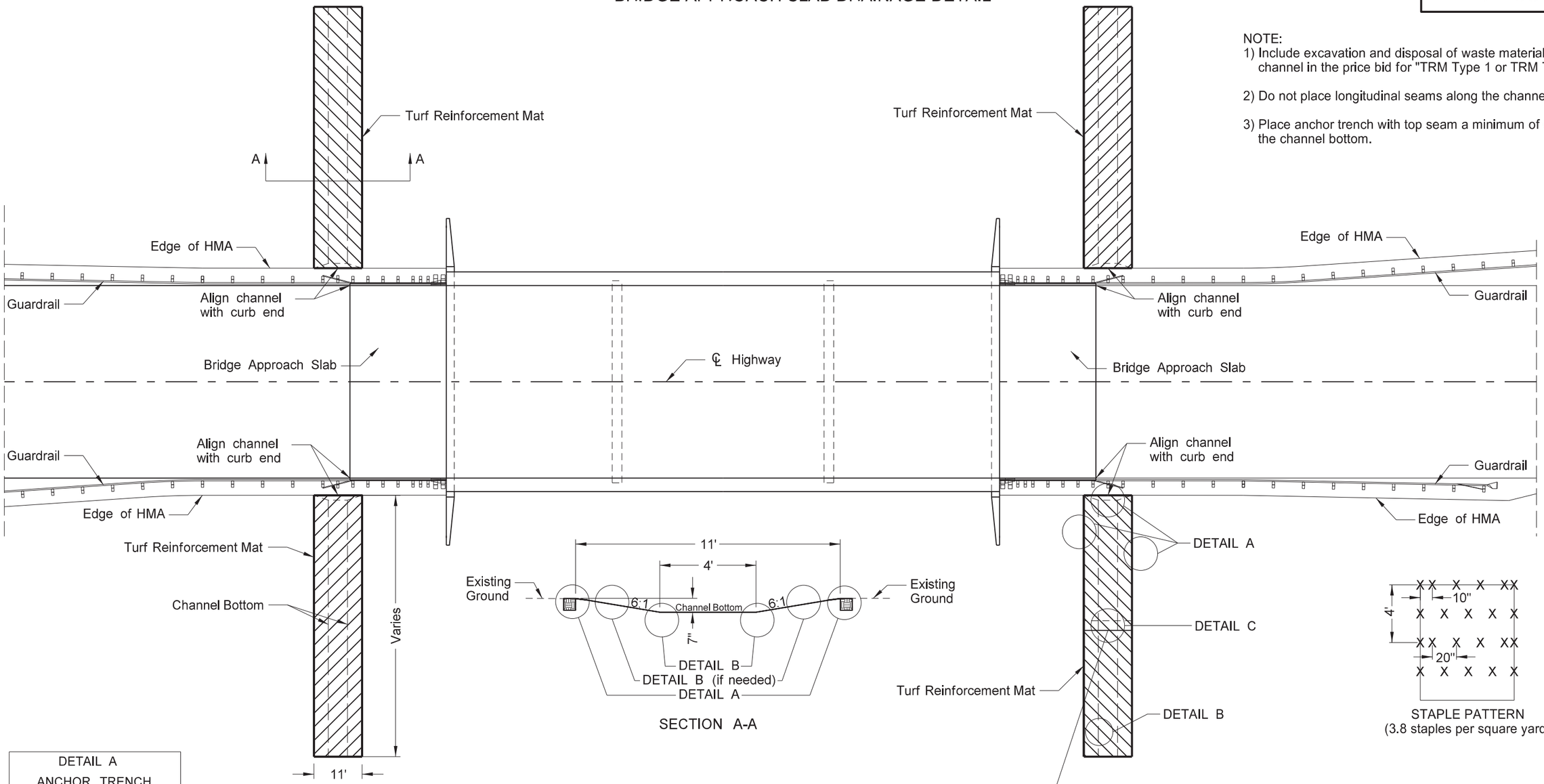
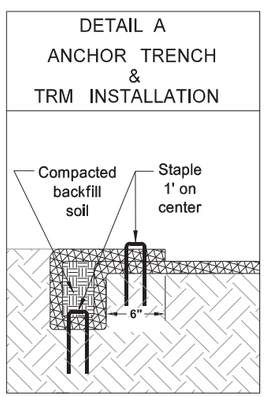
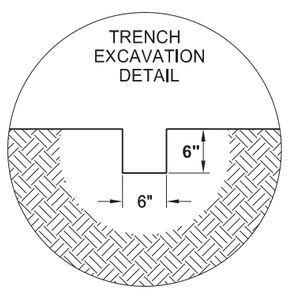
BRIDGE APPROACH SLAB DRAINAGE DETAIL

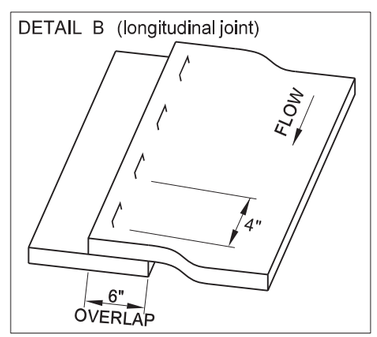
D-255-1

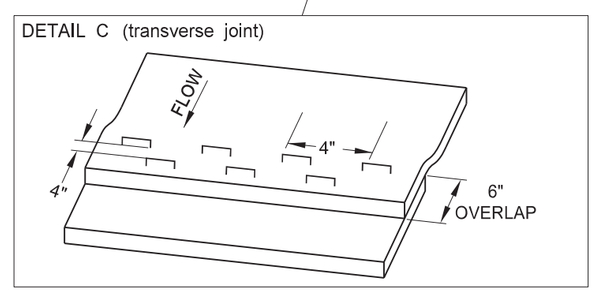
NOTE:
1) Include excavation and disposal of waste material for the channel in the price bid for "TRM Type 1 or TRM Type 2".
2) Do not place longitudinal seams along the channel bottom.
3) Place anchor trench with top seam a minimum of 6" above the channel bottom.











NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

11-23-10

REVISIONS

DATE	CHANGE
06-26-14	Changed standard drawing number from D-708-4 to D-255-1
07-27-15	Changed installation details
08-27-19	New Design Engineer PE Stamp
08-27-25	Minor detail changes for clarity

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08/27/25

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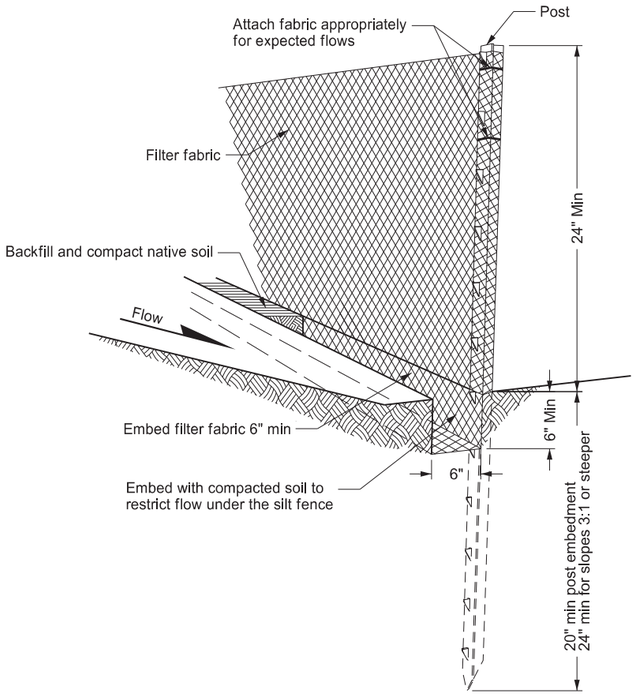
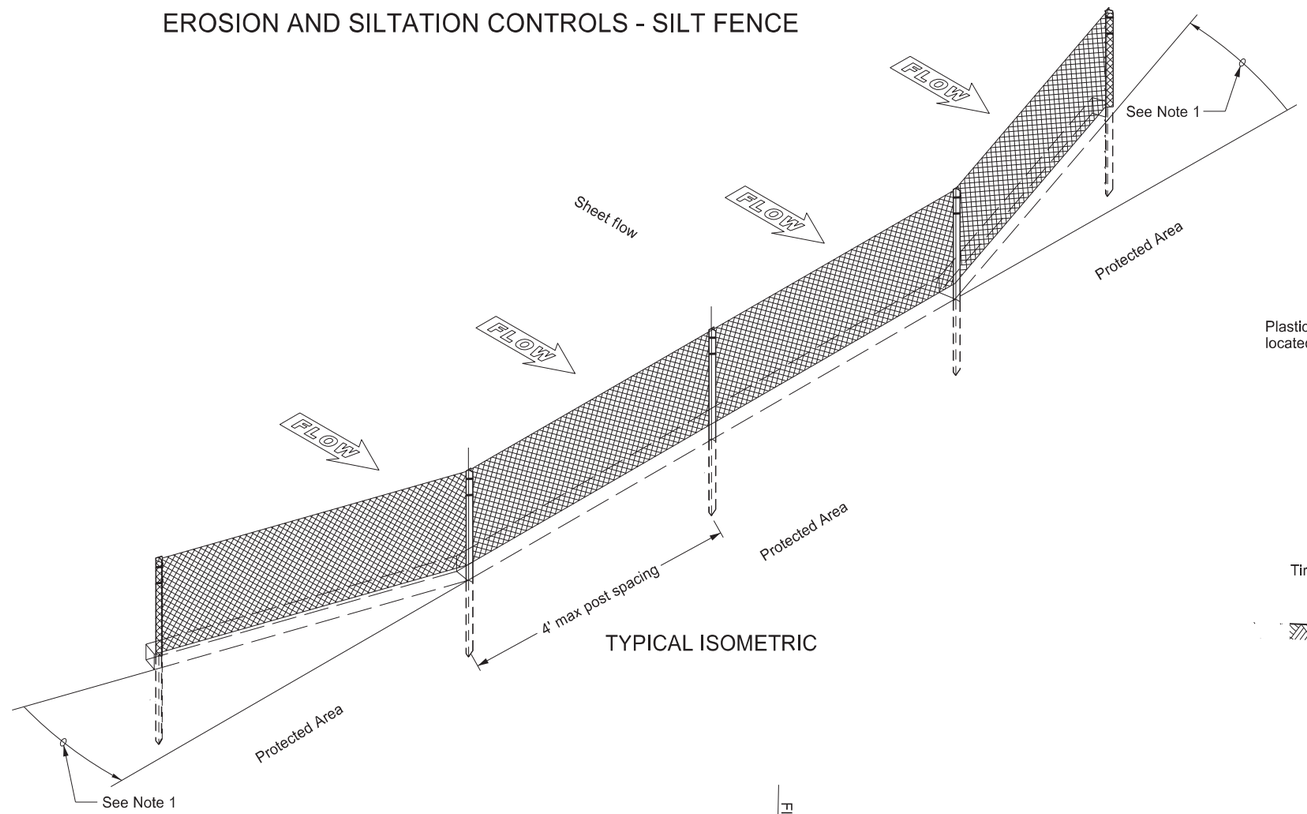
EROSION AND SILTATION CONTROLS - SILT FENCE

D-260-1

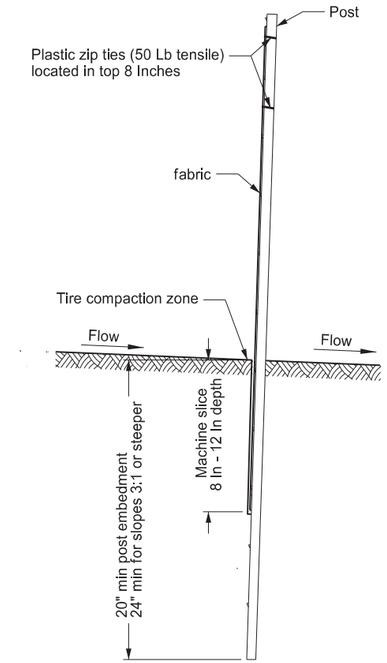


HAND PLACED INSTALLATION DETAIL

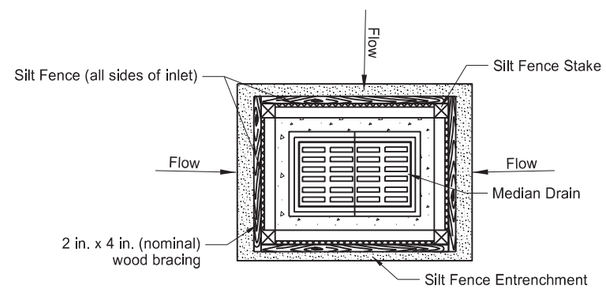
Minimize disturbance of ground around trench and smooth surface after excavation to avoid concentrating flows. Compact to prevent undercutting flows.



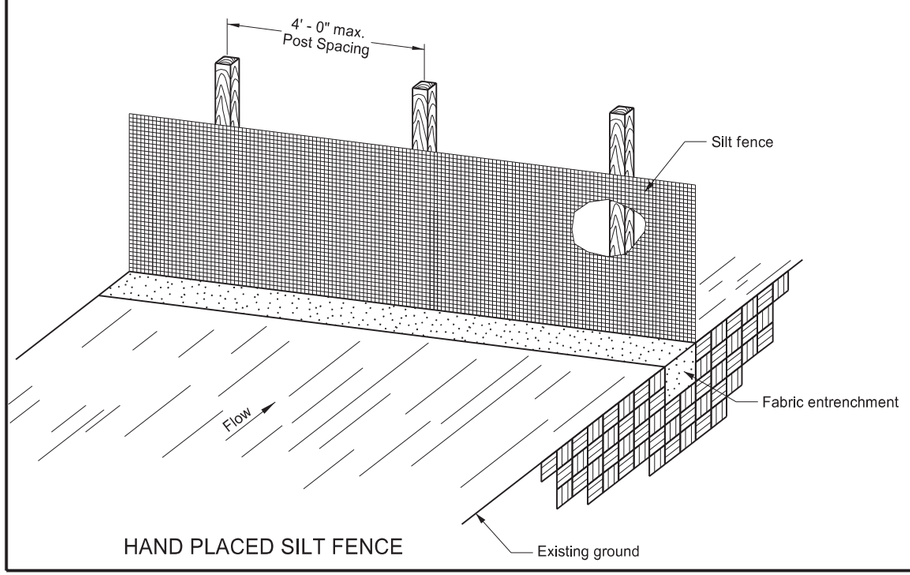
TYPICAL ISOMETRIC



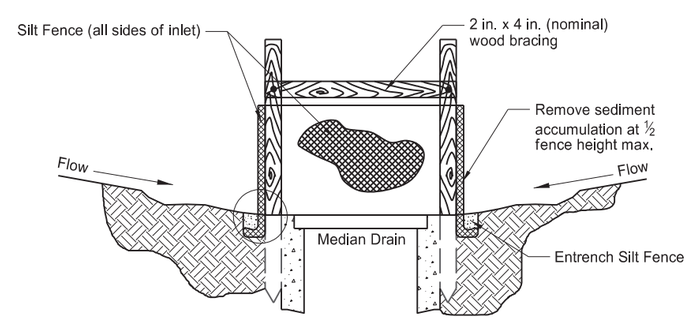
MACHINE SLICED INSTALLATION DETAIL



PLAN VIEW



HAND PLACED SILT FENCE



PROFILE VIEW

SILT FENCE PROTECTION (MEDIAN OR DITCH INLET)

NOTES:
1. Install the ends of the silt fence to point slightly upslope to prevent sediment from flowing around the ends of the fence.
2. Place splices outside low spots.
3. Do not embed silt fence placed in standing water.

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

10-03-13

REVISIONS

DATE	CHANGE
06-26-14	Standard drawing resulted from splitting standard D-708-2
06-27-16	Revised details & added new ones
08-27-19	New Design Engineer PE Stamp
07-22-25	Matched revised silt fence specs
09-04-25	Added median-ditch inlet protection

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09/04/25

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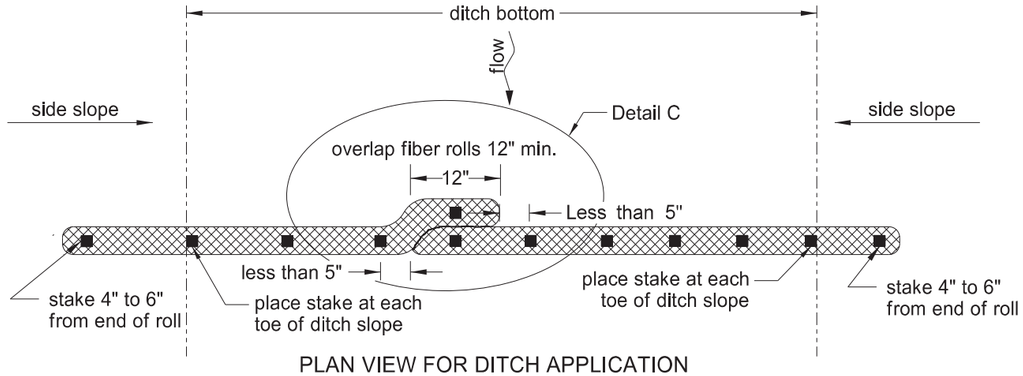
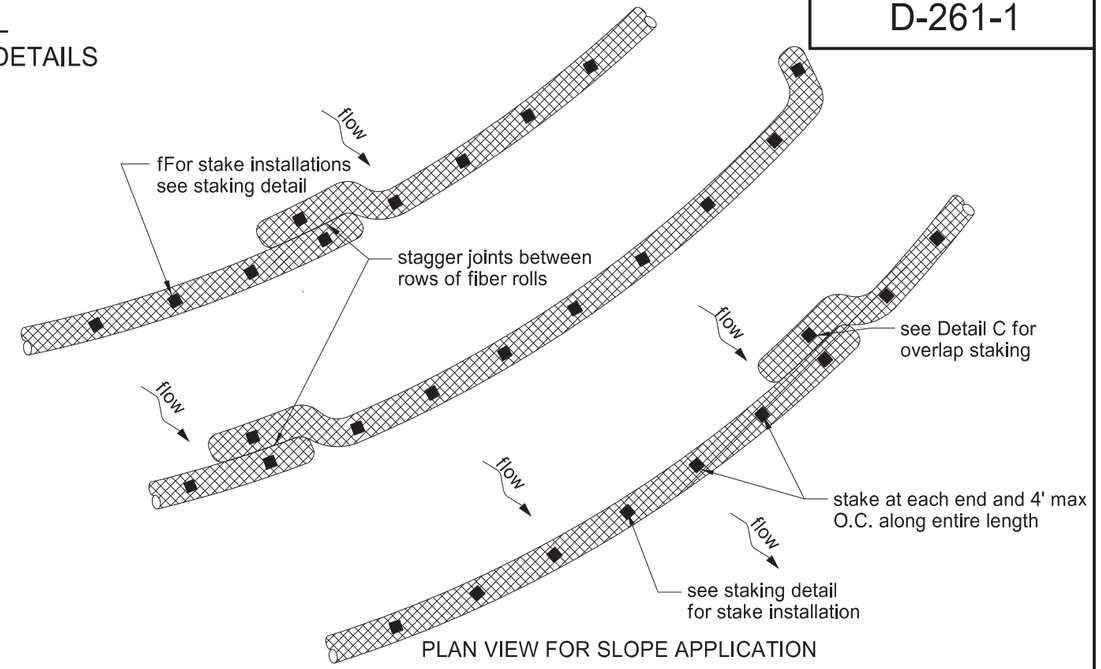
EROSION CONTROL
FIBER ROLL PLACEMENT DETAILS

D-261-1

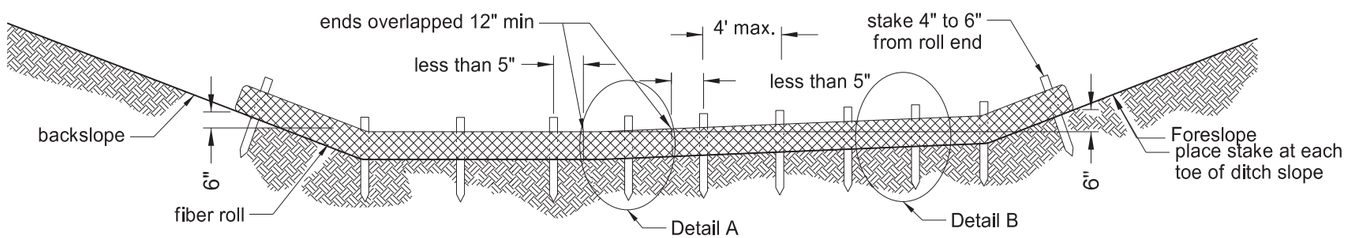


PLAN VIEW FOR DITCH APPLICATION

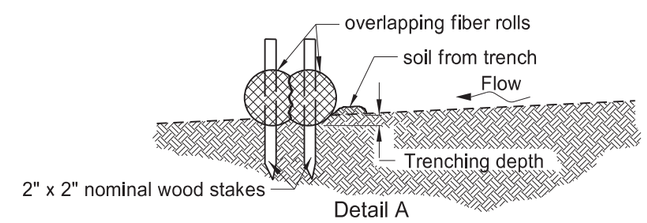


PLAN VIEW FOR SLOPE APPLICATION

Ensure fiber rolls are placed along the contours of the slope.

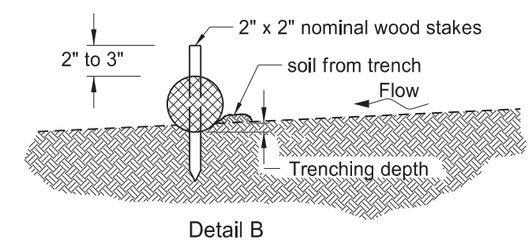


12 OR 20 INCH FIBER ROLL - DITCH BOTTOM



Detail A

FIBER ROLL OVERLAPPING STAKING DETAIL

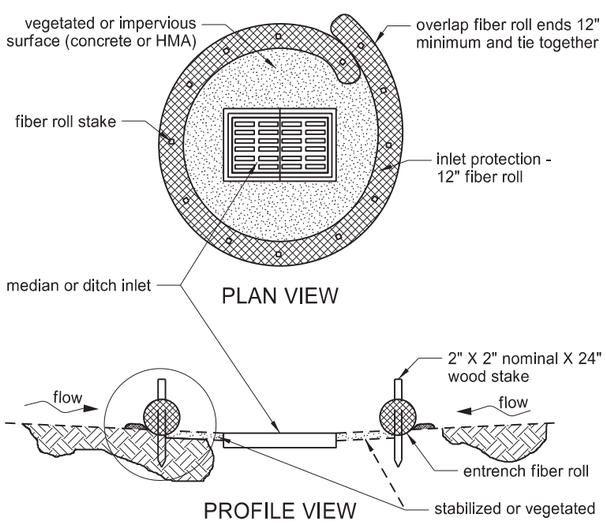


Detail B

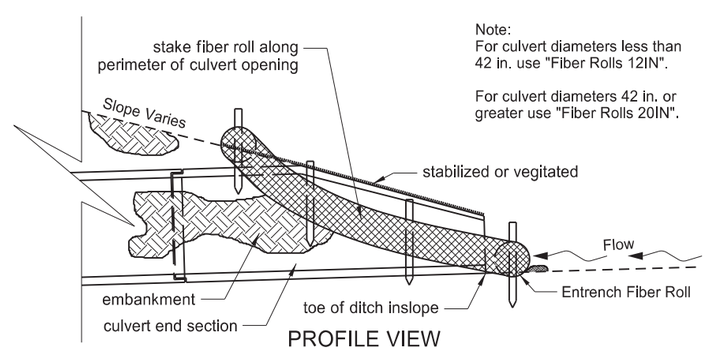
FIBER ROLL STAKING DETAIL

NOTE: Do not allow runoff to run under or around roll.

FIBER ROLL DIAMETER	NOMINAL STAKE SIZE	MINIMUM STAKE LENGTH	TRENCH DEPTH	
			MINIMUM	MAXIMUM
12"	2" x 2"	24"	2"	3"
20"	2" x 2"	36"	3"	5"

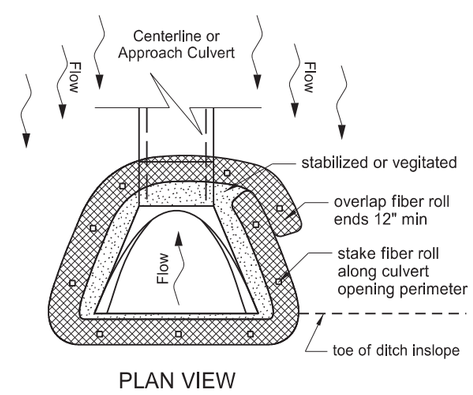


FIBER ROLL PROTECTION (MEDIAN OR DITCH INLET)



Note:
For culvert diameters less than 42 in. use "Fiber Rolls 12IN".

For culvert diameters 42 in. or greater use "Fiber Rolls 20IN".



FIBER ROLL PROTECTION (INLET OF CULVERT)

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

11-18-10

REVISIONS

DATE	CHANGE
06-10-13	Added plan view for ditch and slope application. Added table with values for stake and trench dimensions
10-04-13	Revised fiber roll overlap detail
06-26-14	Changed standard drawing number from D-708-7 to D-261-1
08-27-19	New Design Engineer PE Stamp
04-22-24	Slope Plan View-overlap change
03-13-25	Added D-708-6 Culvert Inlet detail
09-02-25	Added D-708-6 Inlet detail

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09/02/25

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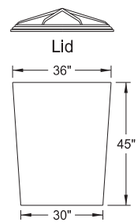
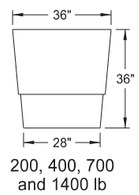
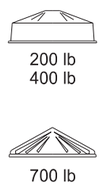
ATTENUATION DEVICE

D-704-1

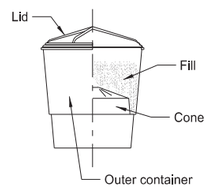




Outer Containers

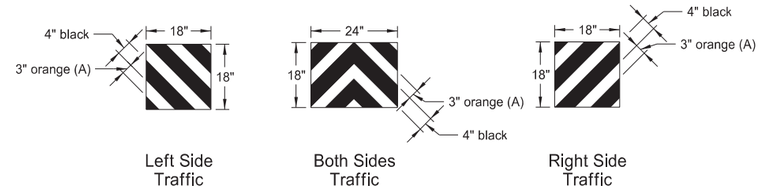


Cones



Typical Assembly

Typical Module
Construction Detail

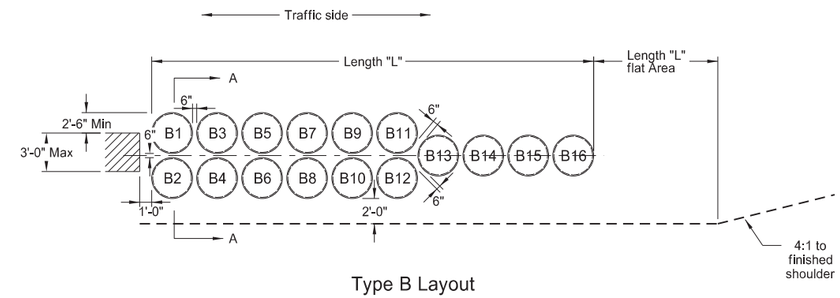


Reflective Sheet Detail

Note:
Apply Type IV reflective sheeting (as specified in the NDDOT Standard Specifications) directly to the outer container of the last attenuation device facing traffic, following the details above. Or apply the sheet to a metallic sheet and attach it to the container with approved fasteners.

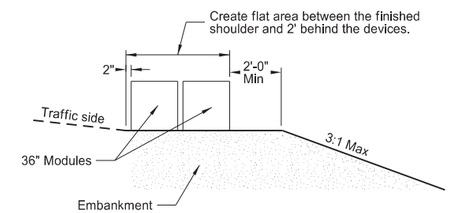
(A) Use 3" orange sheeting for temporary installations, and 3" yellow sheeting for permanent installations.

Fill Chart					
	Module Weights (LBS)				
	200	400	700	1400	2100
Distance from top edge	8½"	5"	4"	3"	0"



Type B Layout

Note:
Angle attenuation devices 10 degrees towards traffic when placed at piers offset from roadway.



Section A-A
(Type B Layout)

Type B Attenuation Device												
Module Number	Dash Number											
	80	75	70	65	60	55	50	45	40	35	30	25
	Module Weights (LBS)											
B1	2100	2100										
B2	2100	2100										
B3	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100		
B4	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100		
B5	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400
B6	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400
B7	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400
B8	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400
B9	700	700	700	700	700	700	700	700	700	700	700	700
B10	700	700	700	700	700	700	700	700	700	700	700	700
B11	700	700	700	700	700	700	700	700	700	700	700	700
B12	700	700	700	700	700	700	700	700	700	700	700	700
B13	700	700	700	700	700	700	700	700	700	700	700	700
B14	400	400	400	400	400	400	400	400	400	400	400	400
B15	400	400	400	400	400	400	400	400	400	400	400	400
B16	200	200	200	200	200	200	200	200	200	200	200	200
Length (L)	34.2'	34.2'	30.7'	30.7'	30.7'	30.7'	30.7'	30.7'	30.7'	30.7'	27.2'	27.2'
Module Weights (LBS)	Replacement Module											
2100	1	1	1	1	1	1	1	1	1	1		
1400	1	1	1	1	1	1	1	1	1	1	1	1
700	2	2	2	2	2	2	2	2	2	2	2	2
400	1	1	1	1	1	1	1	1	1	1	1	1
200	2	2	2	2	1	1	1	1	1	1	1	1

Notes:

1. Materials
   A) Use modules manufactured from frangible polyethylene material which shatters upon impact.
   B) Fill modules with class 43 aggregate meeting NDDOT Standard Specifications aggregate requirements. Use fill with a unit weight of at least 100 pounds per cubic foot. Use fill with a moisture content of 2% or less when left over winter.

2. Modules
   Provide modules in two sizes containing volumes of either 2, 4, 7, 14, or 21 cubic feet minimum.
   A) Provide three components for 2, 4, or 7 cubic foot module containers:
      1) A 14 C.F., yellow outer container.
      2) A black lid securely locking over the top lip of the container.
      3) A variable cone-shaped supporting insert capable of supporting 200, 400, or 700 pounds of sand mass to allow for three sizes of modules. Place cone inserts inside the 14 cubic foot container.
   B) Provide two components for the 14 cubic foot module container:
      1) A 14 C.F., yellow outer container.
      2) A black lid securely locking over the top lip of the container.
   C) Provide two components for the 21 cubic foot module container:
      1) A 36" height X 36" width yellow outer container.
      2) A black lid which locks securely over the top of the container.

3. For temporary installations use Energite or Fitch attenuation barrels manufactured by Energy Absorption Systems of Chicago, IL, TrafFix barrels manufactured by TrafFix Devices, Inc. of San Clemente, CA, or approved equal modules. As an option, place attenuation devices on 3½" maximum thickness pallets to facilitate maintenance.

4. For permanent installations use Barrel Attenuation Device consisting of one-piece outer sand container modules with separate detachable lid. Energite attenuation barrels manufactured by Energy Absorption Systems of Chicago, IL, TrafFix barrels manufactured by TrafFix Devices, Inc. of San Clemente, CA, or approved equal meet these requirements.

5. The Typical Module Construction Detail and Type B Layout are based on the Energite Crash Cushion manufactured by Energy Absorption. Provide any required layouts and details from other sand filled attenuation module manufacturers which differ from those shown here.

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

9-25-12

REVISIONS

DATE	CHANGE
07-18-14	Revised sheeting in reflective sheet detail
09-27-17	Update to active voice
10-03-19	New Design Engr PE Stamp
08-01-24	Electronic Stamp/Signature
06-30-25	Legislative Changes

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06/30/25
ENGINEER
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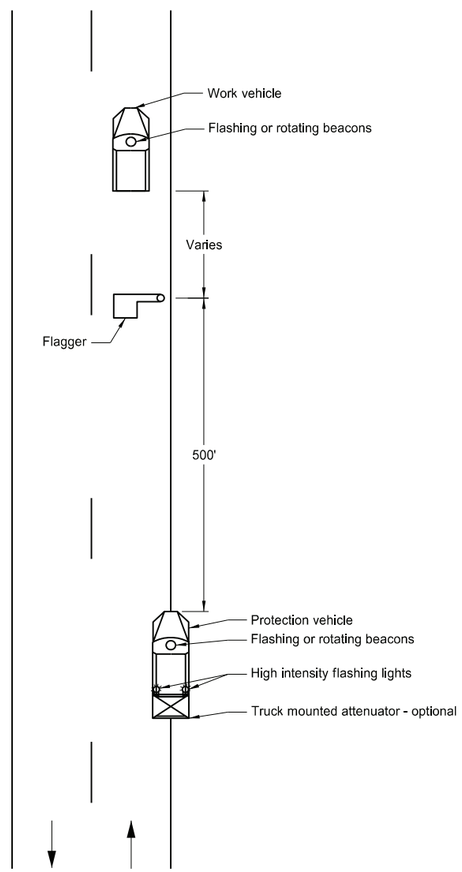
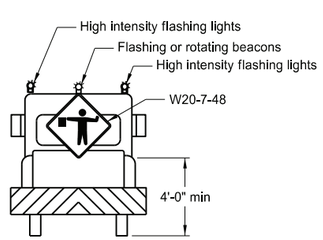
TRAFFIC CONTROL FOR CORING OF HOT BITUMINOUS PAVEMENT

D-704-2

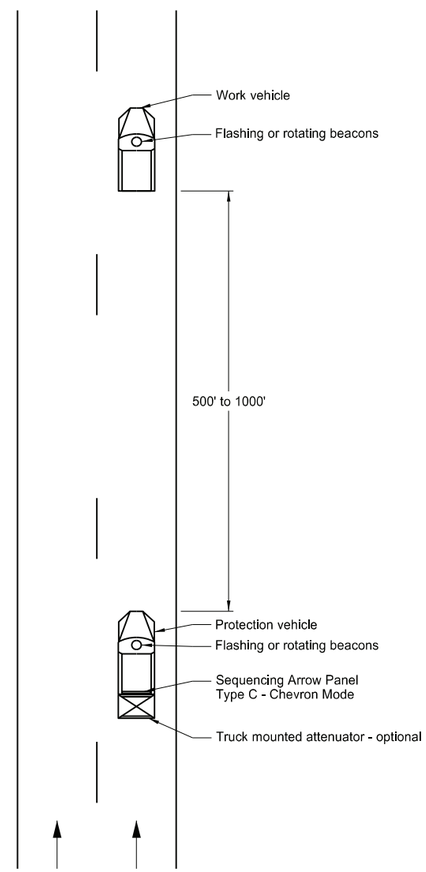
Two Lane, Two Way Roadways

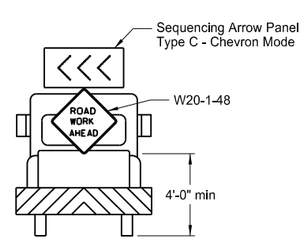




Typical Protection Vehicle

Multilane Roadways





Typical Protection Vehicle

Notes:

1. Display a 360 degree rotating, flashing, oscillating or strobe light on the working vehicle.

2. Display a 360 degree rotating, flashing, oscillating or strobe light on the shadow vehicle. Operate a sequencing arrow panel Type C in chevron mode on the shadow vehicle for Multilane Roadway.

3. Use these layouts during daylight hours and in areas of good visibility only.

4. Use flagger to protect the work area and warn oncoming traffic for two lane, two way roadway.

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

9-25-12

REVISIONS

DATE	CHANGE
9-27-17	Updated to active voice
10-03-19	New Design Engr PE Stamp
8-01-24	Electronic Stamp/Signature

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NORTH DAKOTA

08/01/24

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WORK ZONE BUSINESS SIGN DETAILS

D-704-4

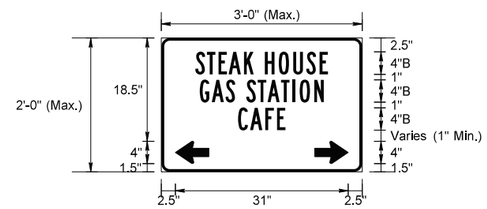
Note:

Ground mounted business name sign area is based on a 36"x 24" sign panel. Determine size needed and exact length required to accommodate message. Use maximum 36"x24" sign size. Use 4" Series B 2000 letters. Use blue background color with white legend and border. Post mount sign and position arrow on right or left side of sign as needed.

SIGN NUMBER	Business_#	
WIDTH X HEIGHT	3'-0" x 2'-0"	
BORDER WIDTH	0.5" (inset 0")	
CORNER RADIUS	1.5"	
MOUNTING	Ground	
BACKGROUND	TYPE:	IV Reflective
	COLOR:	Blue
LEGEND/BORDER	TYPE:	IV Reflective
	COLOR:	White

SYMBOL	X	Y	WID	HT	ANGLE
ND_4IN_TYPE D	2.5	1.5	4	6	90
ND_4IN_TYPE D	27.5	1.5	4	6	270

STATION(S): AREA: 6.0 Sq.Ft.

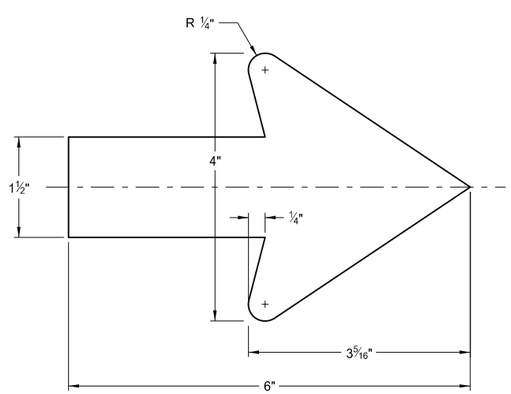


Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_TTC_Business.ssl

LETTER POSITION (X)											LENGTH	SIZE	SERIES
S	T	E	A	K		H	O	U	S	E	23.8	4	B 2000
6.1	8.2	10.2	12.1	14.8	16.6	18.6	21	23.6	26	28.4			
G	A	S		S	T	A	T	I	O	N	22.2	4	B 2000
6.9	9	11.5	13.2	15.2	17.3	19	21.4	23.5	24.8	27.4			
C	A	F	E								8.5	4	B 2000
13.8	15.9	18.6	20.7										



NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
9-25-12	
REVISIONS	
DATE	CHANGE
7-18-14	Revised sheeting to type IV
8-17-17	Revised font & arrow detail
10-03-19	New Design Engineer PE Stamp
8-01-24	Electronic Stamp/Signature

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ENGINEER
NORTH DAKOTA

08/01/24

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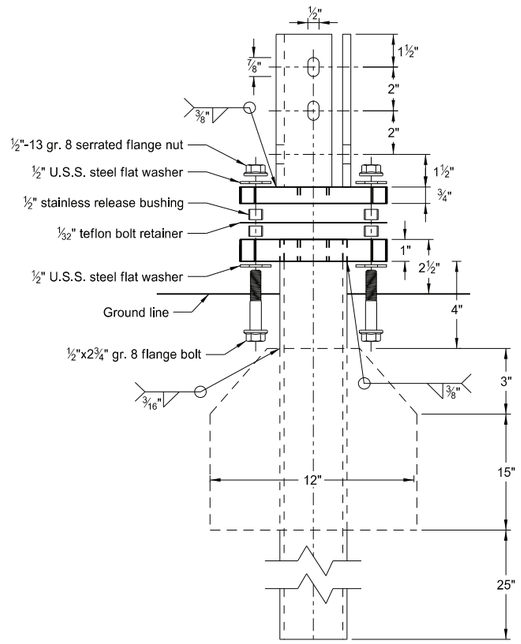
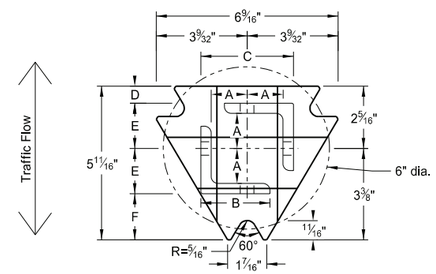
BREAKAWAY SYSTEMS FOR CONSTRUCTION ZONE SIGNS

D-704-7

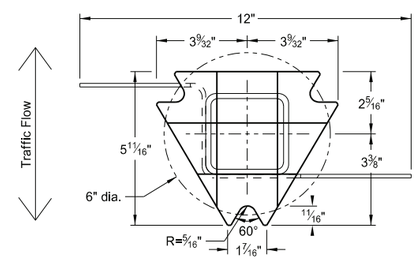
Perforated Tube



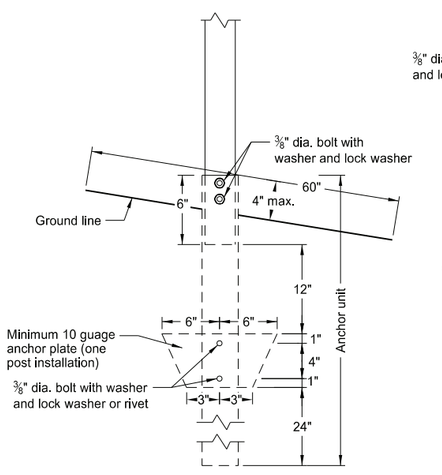
Multi-Directional
Slip Base Assembly



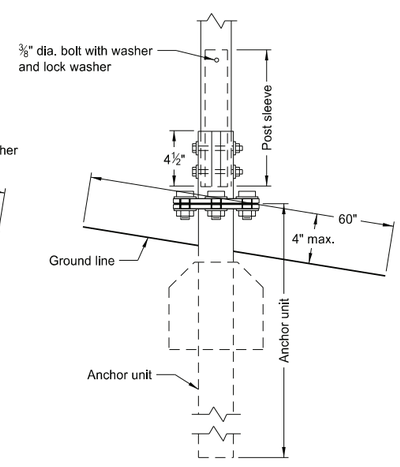
Top Post Receiver
Plate - ASTM A572 grade 50
Angle Receiver - 2½"x2½"x⅜" ASTM A36 structural angle



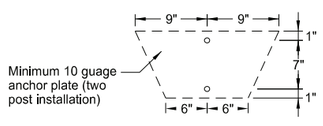
Bottom Soil Stub
Tube - 3"x3"x7 gauge ASTM A500 grade B tube
Stabilizing Wing - 7 gauge H.R.P.O. ASTM A1011
Plate - ASTM A572 grade 50

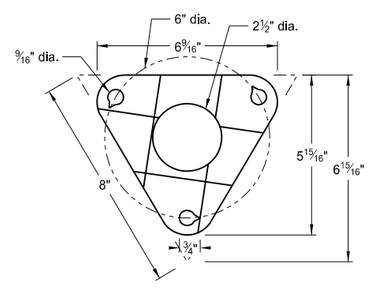


Anchor Unit and Post Assembly



Multi-Directional
Slip Base Anchor Unit
and Post Sleeve Assembly





Bolt Retainer for Base Connection
Bolt Retainer- 1/32" Reprocessed Teflon

Notes:

1. Torque slip base bolts as specified by manufacturer.
2. Use anchor with 43.9 KSI yield strength and 59.3 KSI tensile strength.
3. Provide 4" vertical clearance for anchor or breakaway base. Measure the 4"x60" measurement above and below post location and back and ahead of post.
4. In concrete sidewalk, use same anchor without wings.
5. Provide more than 7' between the first and fourth posts of a four post sign.

Telescoping Perforated Tube

Number of Posts	Post Size in.	Wall Thick-ness Gauge	Sleeve Size in.	Wall Thick-ness Gauge	Slip Base	Anchor Size without Slip Base in.
1	2	12			No	2¼
1	2¼	12			No	2½
1	2½	12			(A)	3
1	2½	10			Yes	
1	2¼	12	2	12	Yes	
1	2½	12	2¼	12	Yes	
2	2	12			No	2¼
2	2¼	12			No	2½
2	2½	12			Yes	
2	2½	12			Yes	
2	2¼	10	2	12	Yes	
2	2½	12	2¼	12	Yes	
3 & 4	2½	12			Yes	
3 & 4	2½	10			Yes	
3 & 4	2½	12	2¼	12	Yes	
3 & 4	2¼	12	2	12	Yes	
3 & 4	2½	10	2 3/16	10	Yes	

(A) Use breakaway base when support is placed in weak soils. Engineer determines if soils are weak.

(B) For additional wind load, insert the 2 3/16"x10 ga. into 2½"x10 ga.

Properties of Telescoping Perforated Tube

Tube Size in.	Wall Thickness in.	U.S. Standard Gauge	Weight per Foot lbs.	Moment of Inertia in.^{4}	Cross Sec. Area in.^{2}	Section Modulus in.^{3}
1½ x 1½	0.105	12	1.702	0.129	0.380	0.172
2 x 2	0.105	12	2.416	0.372	0.590	0.372
2¼ x 2¼	0.105	12	2.773	0.561	0.695	0.499
2 3/16 x 2 3/16	0.135	10	3.432	0.605	0.841	0.590
2½ x 2½	0.105	12	3.141	0.804	0.803	0.643
2½ x 2½	0.135	10	4.006	0.979	1.010	0.785

Top Post Receiver Data Table

Square Post Sizes (B)	A	B	C	D	E	F
2 3/16"x10 ga.	1 9/64"	2½"	3 1/32"	25/32"	1 33/64"	1⅞"
2½"x10 ga.	1 9/32"	2½"	3 5/16"	⅝"	1 21/32"	1¾"

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
2-28-14	
REVISIONS	
DATE	CHANGE
9-27-17	Updated to active voice
10-03-19	New Design Engr PE Stamp
8-01-24	Electronic Stamp/Signature

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08/01/24

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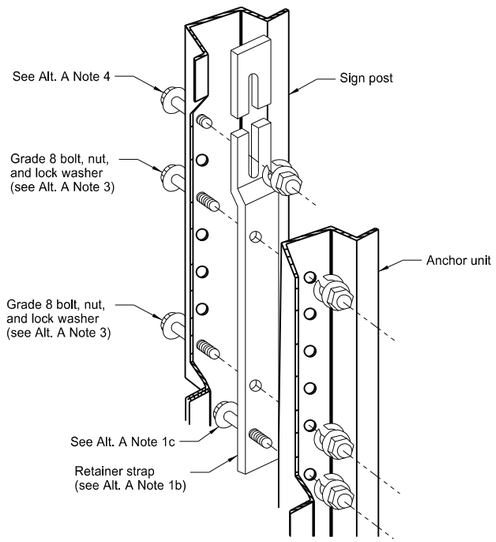
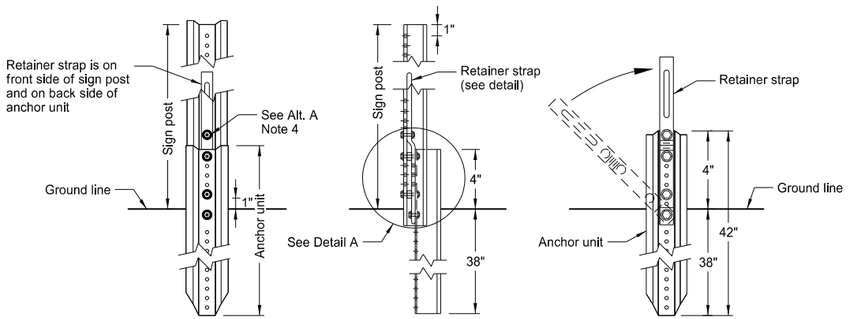
BREAKAWAY SYSTEMS FOR CONSTRUCTION ZONE SIGNS

D-704-8

U-Channel Post



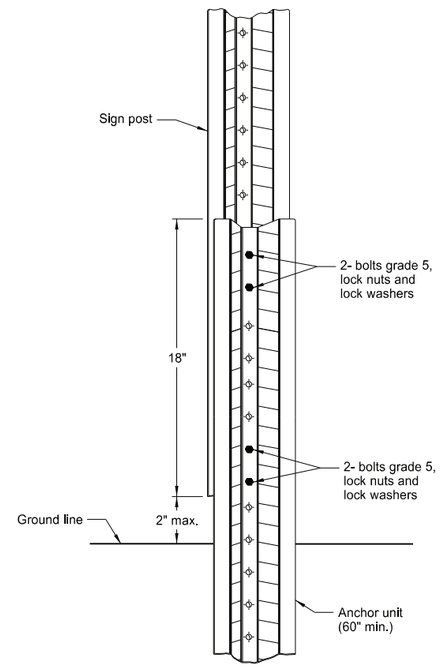
Detail A



Front View | Side View | Back View

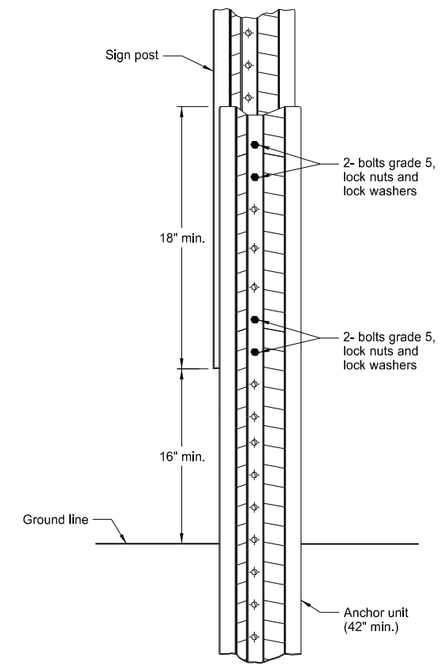
Breakaway U-Channel Detail
Alternate A

Install a maximum of 2 posts within 7'.



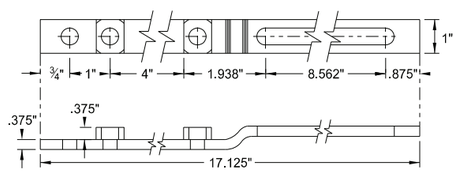
Breakaway U-Channel Splice Detail
Alternate B
(2.5 and 3 lb/ft)

Install a maximum of 3 posts within 7'.



Breakaway U-Channel Splice Detail
Alternate C
(2.5 and 3 lb/ft)

Install a maximum of 3 posts within 7'.



Retainer Strap Detail

Alternate A Steps of Installation:

1. a) Drive anchor unit to within 12" of ground level.
   b) Establish proper assembly by lining up bottom hole of retainer strap with 6th hole from the top of the anchor unit.
   c) Assemble strap to back of anchor unit using 5/16"x2" bolt, lock washer and nut.
   d) Rotate strap 90° to left.
2. a) Drive anchor unit to 4" above ground.
   b) Rotate strap to vertical position.
3. a) Place 5/16"x2" bolt, lock washer and nut in bottom of sign post to facilitate alignment of sign post with proper hole in anchor unit.
   b) Alternately tighten two connector bolts.
4. Complete assembly by tightening 5/16"x2" bolt (this fastens sign post to retainer strap).
5. Properly nest base post, strap, and sign post. Proper nesting occurs when all flat surfaces of the base post, strap, and sign post at the bolts have full contact across the entire width.

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

2-28-14

REVISIONS

DATE	CHANGE
9-27-17	Updated to active voice
10-03-19	New Design Engr PE Stamp
8-01-24	Electronic Stamp/Signature

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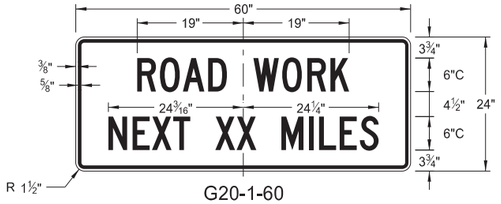
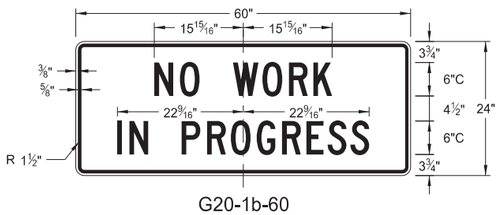
CONSTRUCTION SIGN DETAILS
TERMINAL AND GUIDE SIGNS

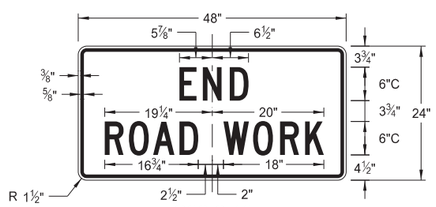
D-704-9



G20-1-60
Legend: black (non-refl)
Background: orange



G20-1b-60
Legend: black (non-refl)
Background: orange



G20-2-48
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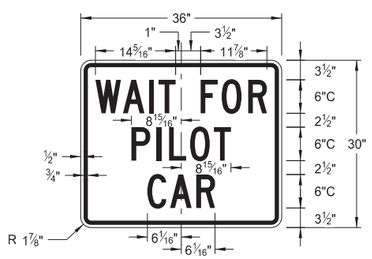
Background: orange



G20-4b-36
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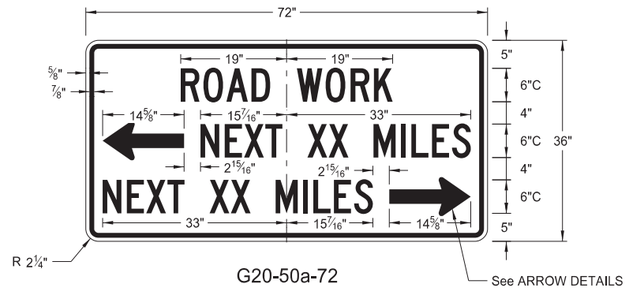
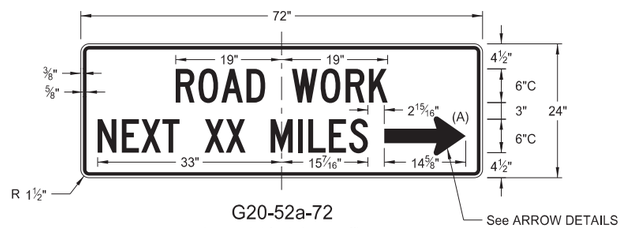
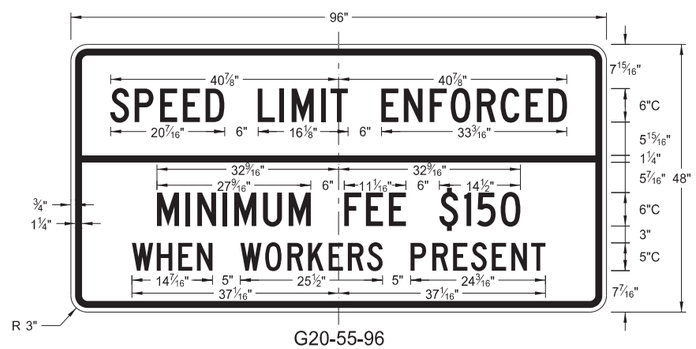
Background: orange



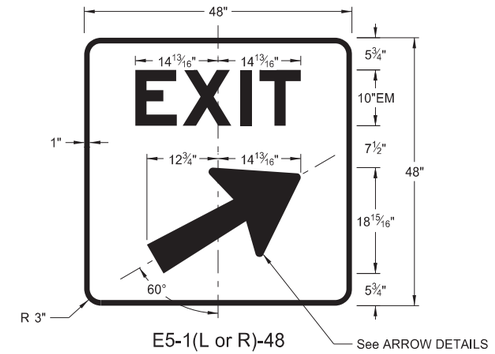
G20-50a-72
Legend: black (non-refl)
Background: orange



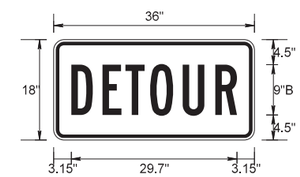
G20-52a-72
Legend: black (non-refl)
Background: orange



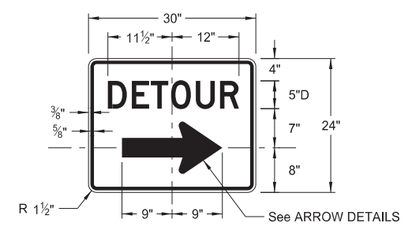
G20-55-96
Legend: black (non-refl)
Background: orange



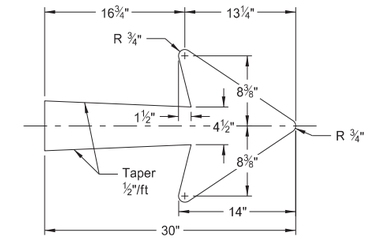
E5-1(L or R)-48
Legend: white
Background: green (orange optional)



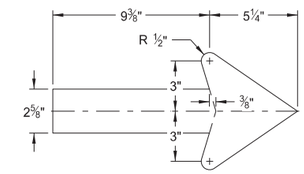
M4-8-36
Legend: black (non-refl)
Background: orange



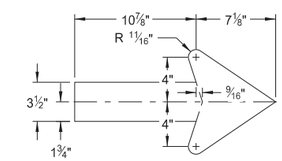
M4-9(L or R)-30 &
M4-9-30
Legend: black (non-refl)
Background: orange



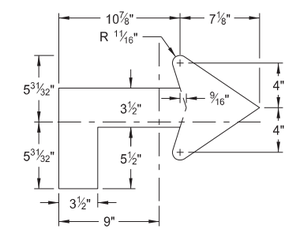
E5-1-48



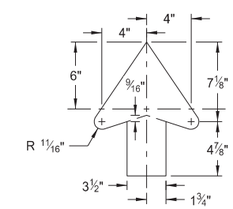
G20-50a-72
G20-52a-72



M4-9(L or R)-30
Right or Left



M4-9(L or R)-30
Advanced Right or Left



M4-9-30
Straight

ARROW DETAILS

NOTES:

(A) Arrow may be right or left of the legend to indicate construction to the right or left.

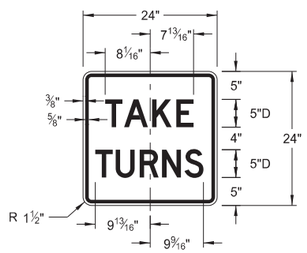
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-13-13	
REVISIONS	
DATE	CHANGE
08-17-17	Added sign & background color
10-03-19	New Design Engineer PE Stamp
08-01-24	Electronic Stamp/Signature
06-30-25	Legislative Changes

KIRK J. HOFF
REGISTERED
PROFESSIONAL
PE-4683
06/30/25
ENGINEER
NORTH DAKOTA

Docusign Envelope ID: 2F5C9714-A0E1-42BB-B36B-42204844BFCB

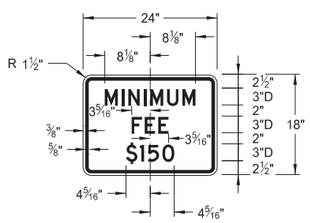
CONSTRUCTION SIGN DETAILS
REGULATORY SIGNS

D-704-10



R1-50P-24
Legend: black (non-refl)
Background: white

R11-3c-60
Legend: black (non-refl)
Background: white



R2-1aP-24
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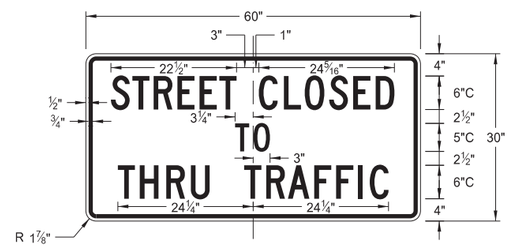

R11-4a-60
Legend: black (non-refl)
Background: white

R11-2a-48
Legend: black (non-refl)
Background: white

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-13-13	
REVISIONS	
DATE	CHANGE
08-17-17	Revised sign number
10-03-19	New Design Engineer PE Stamp
08-01-24	Electronic Stamp/Signature
06-30-25	Legislative Changes

KIRK J. HOFF
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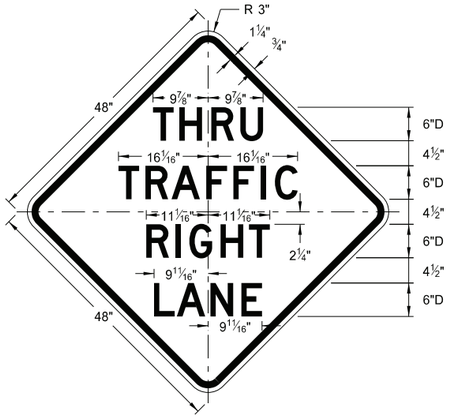
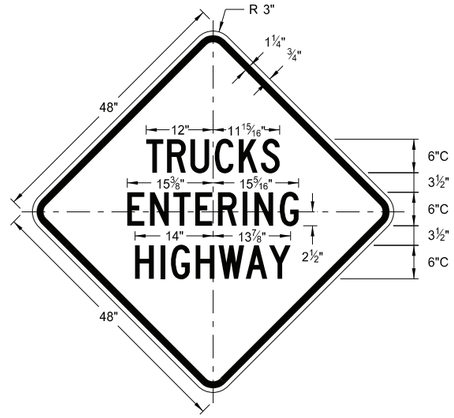
DocuSign Envelope ID: B6D1C72A-6E5E-4E5C-A02F-4D3D1C582775

CONSTRUCTION SIGN DETAILS
WARNING SIGNS

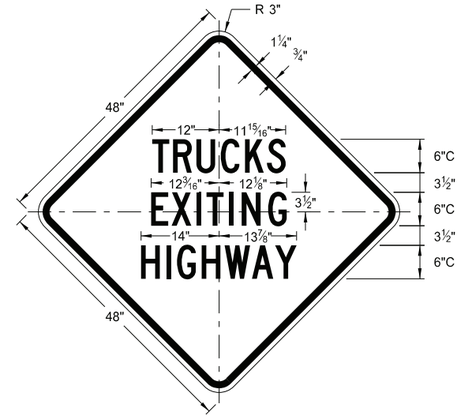
D-704-11



W5-8-48
Legend: black (non-refl)
Background: orange



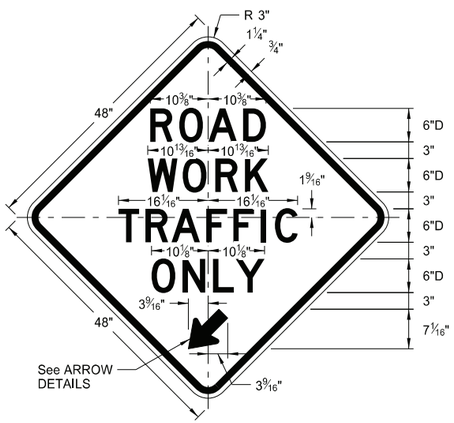
W8-53-48
Legend: black (non-refl)
Background: orange



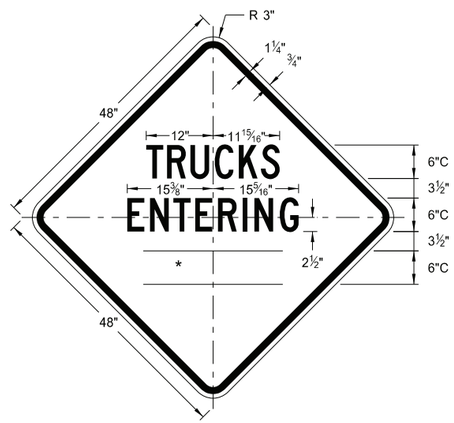
W8-56-48
Legend: black (non-refl)
Background: orange

WORD	LETTER SPACING
AHEAD	Standard
200 FT	Standard
350 FT	Standard
500 FT	Standard
1000 FT	Reduce 40%
1500 FT	Reduce 40%
½ MILE	Reduce 50%
1 MILE	Standard

* DISTANCE MESSAGES



W5-9-48
Legend: black (non-refl)
Background: orange



W8-54-48
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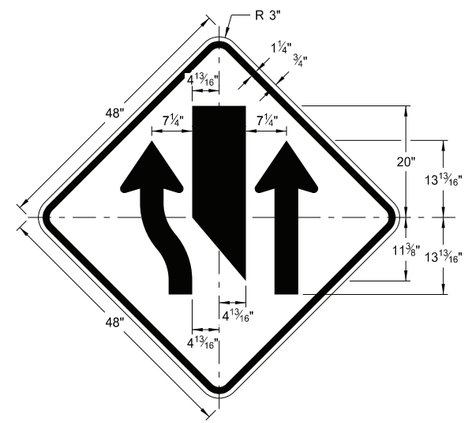
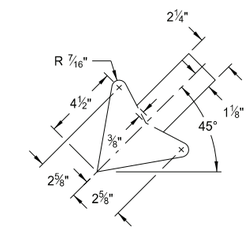
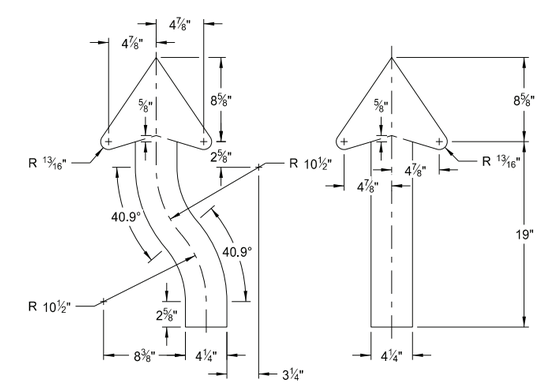
Background: orange



W9-3a-48
Legend: black (non-refl)
Background: orange

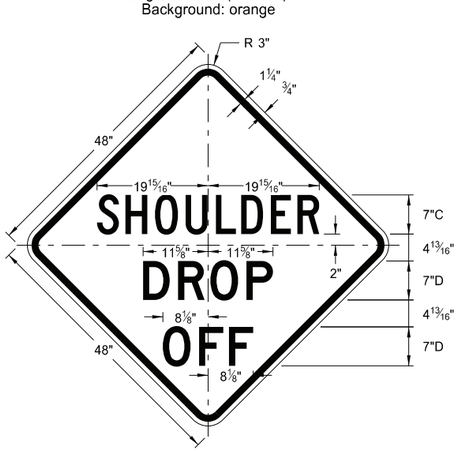


W5-9-48



W9-3a-48

ARROW DETAILS



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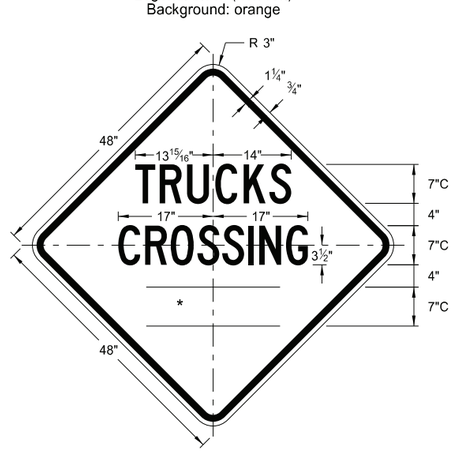
Background: orange



W8-55-48
Legend: black (non-refl)
Background: orange

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-13-13	
REVISIONS	
DATE	CHANGE
8-17-17	Updated sign number
5-31-18	Revised sign and arrow details
10-03-19	New Design Engineer PE Stamp
8-01-24	Electronic Stamp/Signature

KIRK J. HOFF
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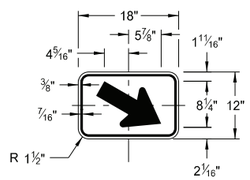
ENGINEER
NORTH DAKOTA

08/01/24

DocuSign Envelope ID: B6D1C72A-6E5E-4E5C-A02F-4D3D1C582775

CONSTRUCTION SIGN DETAILS
WARNING SIGNS

D-704-11A



W16-7aP-18
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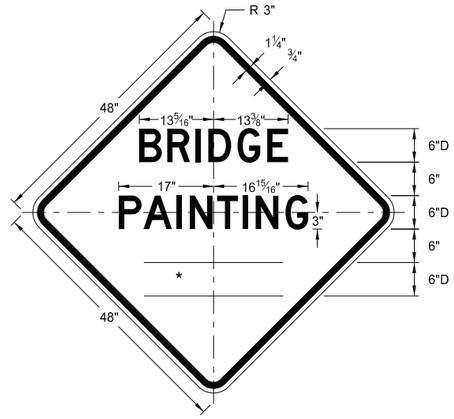
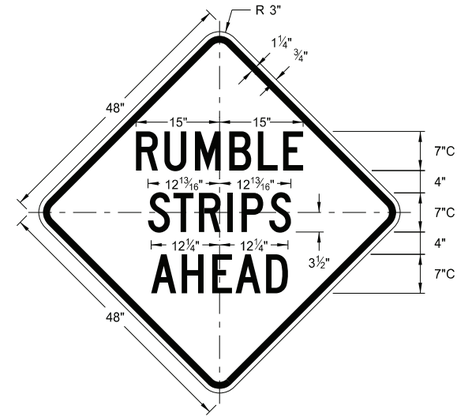
Background: orange



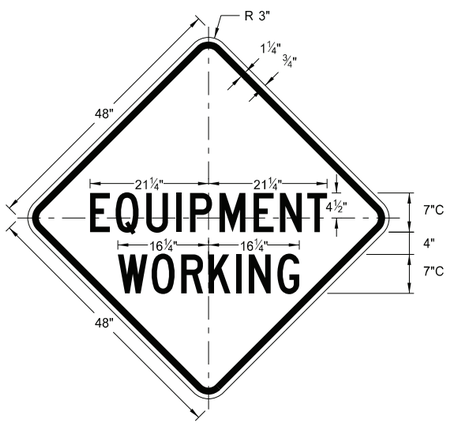
W21-50-48
Legend: black (non-refl)
Background: orange



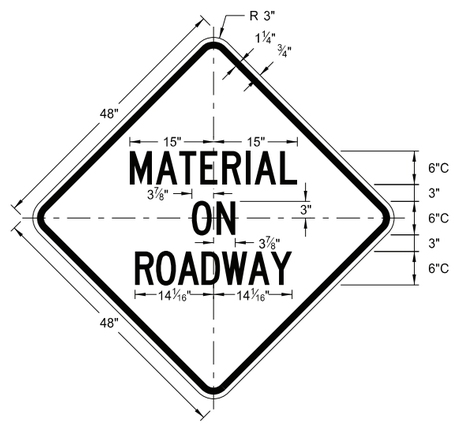
W21-53-48
Legend: black (non-refl)
Background: orange

WORD	LETTER SPACING
AHEAD	Standard
200 FT	Standard
350 FT	Standard
500 FT	Standard
1000 FT	Reduce 40%
1500 FT	Reduce 40%
½ MILE	Reduce 50%
1 MILE	Standard

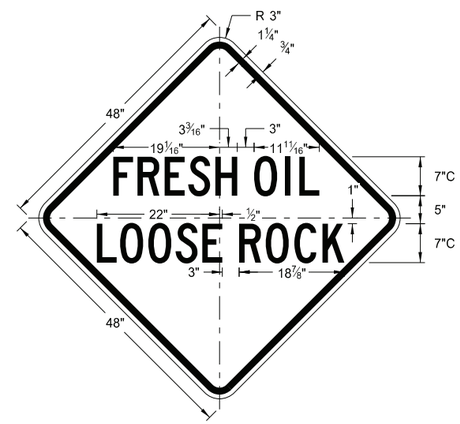
* DISTANCE MESSAGES



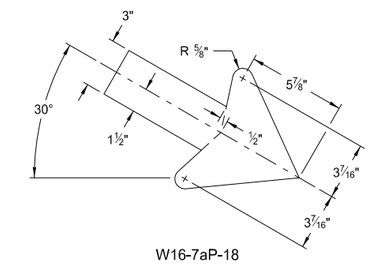
W20-51-48
Legend: black (non-refl)
Background: orange



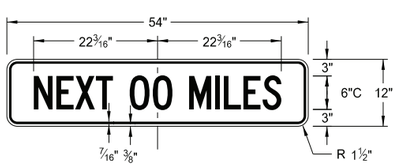
W21-51-48
Legend: black (non-refl)
Background: orange



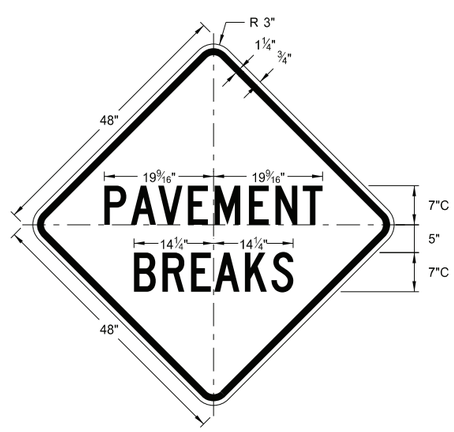
W22-8-48
Legend: black (non-refl)
Background: orange



W16-7aP-18



W20-52P-54
Legend: black (non-refl)
Background: orange



W21-52-48
Legend: black (non-refl)
Background: orange

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
5-31-18	
REVISIONS	
DATE	CHANGE
11-01-19	Added details for sign W16-7aP-18.
8-01-24	Electronic Stamp/Signature.

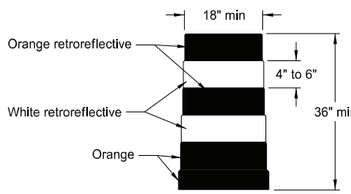
KIRK J. HOFF
REGISTERED
PROFESSIONAL
PE-4683
ENGINEER
NORTH DAKOTA

08/01/24

DocuSign Envelope ID: B6D1C72A-6E5E-4E5C-A02F-4D3D1C582775

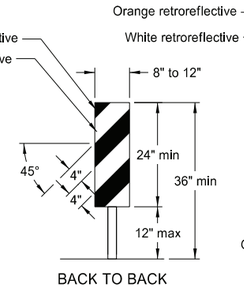
BARRICADE AND CHANNELIZING DEVICE DETAILS

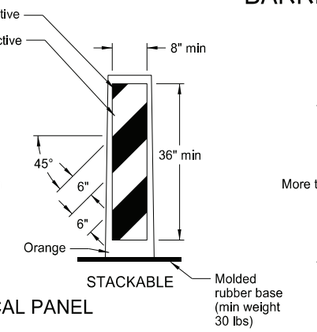
D-704-13



DELINEATOR DRUM

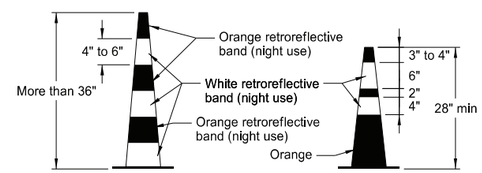
Provide horizontal, circumferential, alternating orange and white retroreflective stripes 4" to 6" wide for drum markings. Use a minimum of two orange and two white stripes with the top stripe being orange for each drum. Do not exceed 3" nonretroreflectorized spaces between the horizontal orange and white stripes. Avoid placement of stripes on drum ribs or indentations. Use closed top drums that will not allow collection of debris. Do not place ballast on the top of drum.





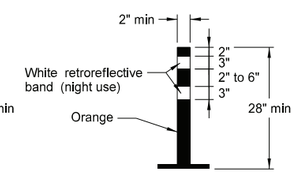
VERTICAL PANEL

Provide alternating orange and white retroreflective stripes, sloping downward in direction vehicular traffic is to pass. Place retroreflective sheeting on both sides of panel with a minimum of 270 square inches of retroreflective area facing vehicular traffic. Where the height of the retroreflective material on the vertical panel is 36 inches or more, use a stripe width of 6 inches.



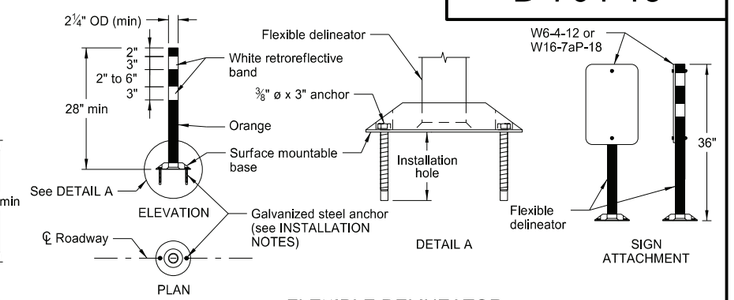
TRAFFIC CONE

Provide retroreflectorization of cones more than 36" in height by alternating orange and white retroreflective stripes. Use a minimum of two orange and two white stripes for each cone with the top stripe being orange. Use maximum 3" nonretroreflectorized space between the orange and white stripes.



TUBULAR MARKER

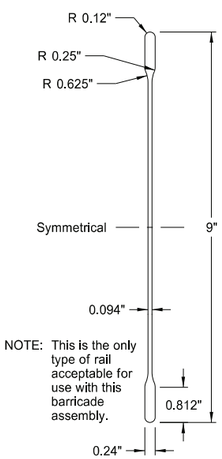
Provide retroreflectorization of tubular markers more than 42" in height by alternating four 4" to 6" wide orange and white stripes with the top stripe being orange.



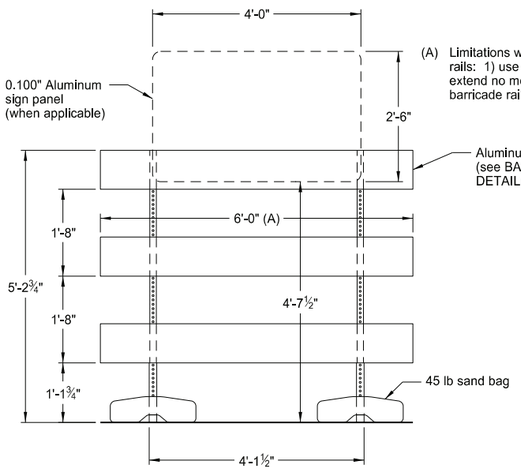
FLEXIBLE DELINEATOR

INSTALLATION NOTES:

1. Drill installation holes to diameter and depth required by manufacturer's specifications.
2. For removal, remove anchors and fill installation hole with an epoxy designed to bond to pavement surface.
3. In lieu of bolted down base, use an 8" x 8" butyl pad or hot melt butyl. Remove butyl as close as possible to pavement surface.

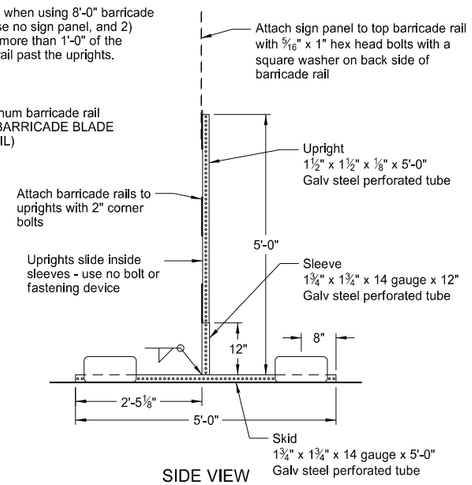


BARRICADE BLADE DETAIL



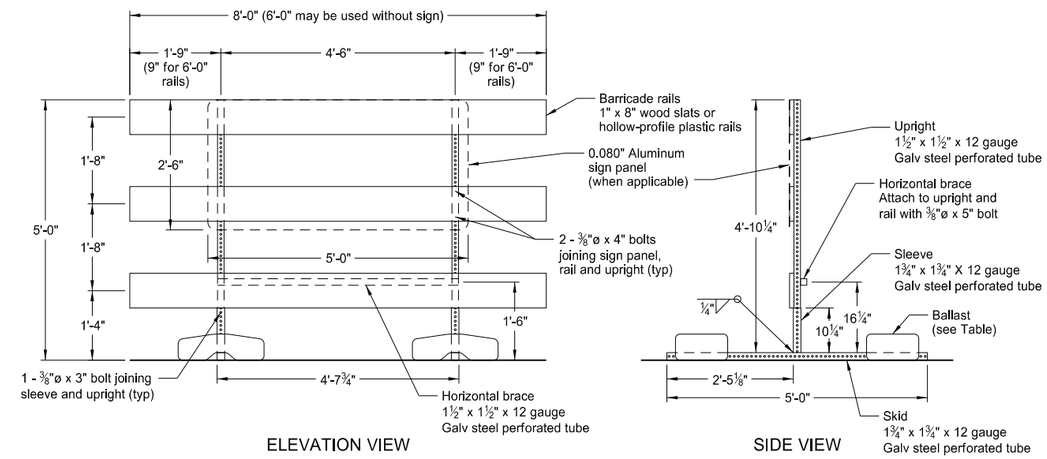
(A) Limitations when using 8'-0" barricade rails: 1) use no sign panel, and 2) extend no more than 1'-0" of the barricade rail past the uprights.

ELEVATION VIEW



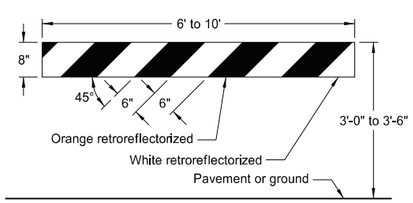
SIDE VIEW

BARRICADE ASSEMBLY DETAIL (Aluminum Barricade Rails)

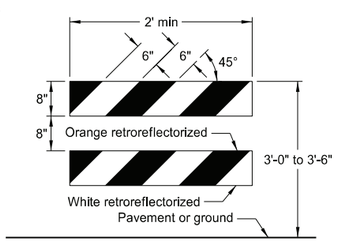


BARRICADE ASSEMBLY DETAIL (Wood or Plastic Rails)

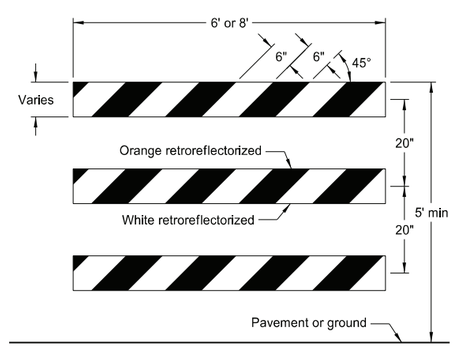
NOTE: For barricade markings use alternating orange and white retroreflective stripes, sloping downward in the direction traffic is to pass. Place retroreflective sheeting on both sides of the rails with a minimum of 270 square inches of visible retroreflective area facing vehicular traffic. When the barricade length is less than 36", use a rail stripe width of 4".



TYPE I BARRICADE

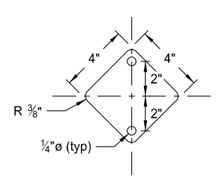


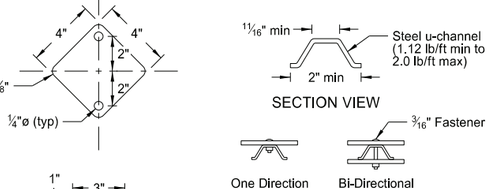
TYPE II BARRICADE

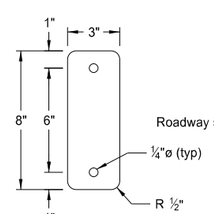


TYPE III BARRICADE

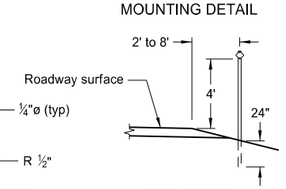
BARRICADE RAIL DETAILS







REFLECTOR DETAIL



ELEVATION

DELINEATORS

MINIMUM BALLAST
(For each side of barricade support)

Without Sign	4 - 25 lb sandbags
With Sign	6 - 25 lb sandbags

Note: Number of sandbags based on a wind speed of 55 MPH. Sandbags assumed to be placed at or near the ends of the skids.

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

10-3-13

REVISIONS

DATE	CHANGE
9-27-17	Updated to active voice
11-01-19	Revised details for Flexible Delineator
8-01-24	Electronic Stamp/Signature

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PE-4683
ENGINEER
NORTH DAKOTA

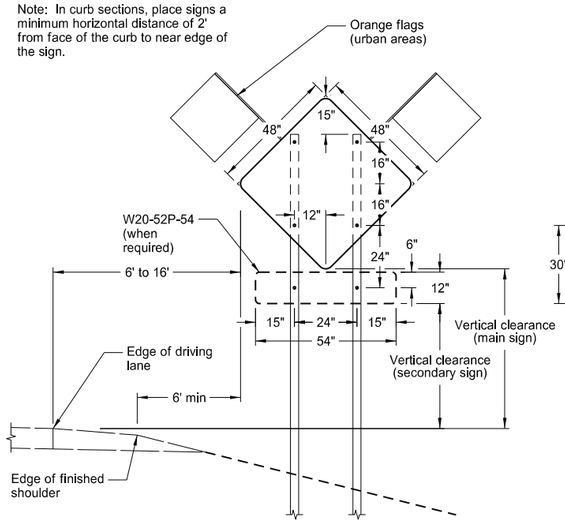
08/01/24

DocuSign Envelope ID: B6D1C72A-6E5E-4E5C-A02F-4D3D1C582775

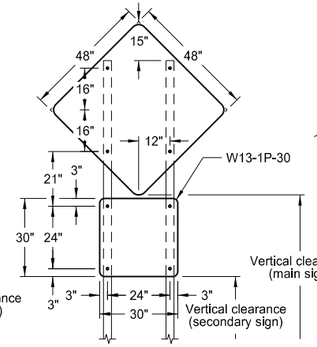
CONSTRUCTION SIGN PUNCHING AND MOUNTING DETAILS

D-704-14

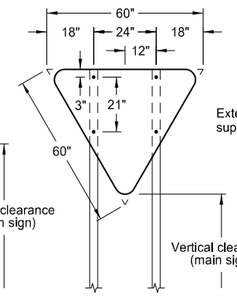
Note: In curb sections, place signs a minimum horizontal distance of 2' from face of the curb to near edge of the sign.



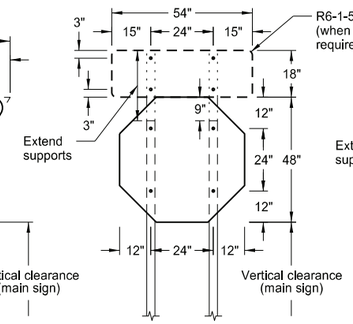
TYPICAL SECTION
(48" x 48" diamond warning sign shown)



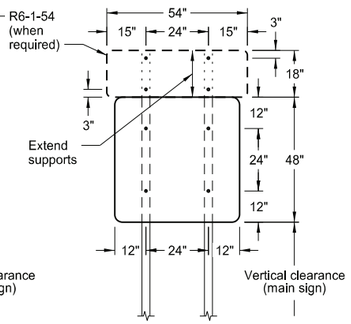
48" x 48" DIAMOND SIGN
(with 30" x 30" secondary sign)



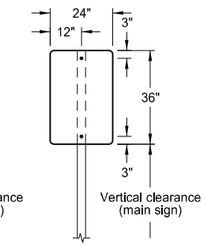
R1-2-60 - YIELD SIGN



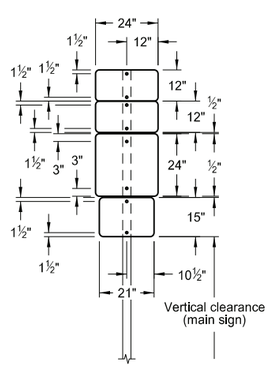
R1-1-48 - STOP SIGN
(with R6-1-54 sign as required)



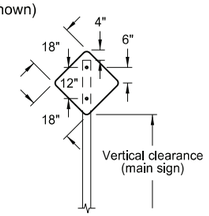
48" x 48" SIGN
(with R6-1-54 sign as required)



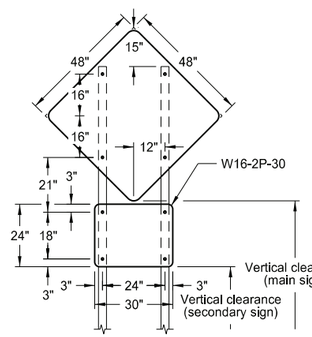
24" x 36" SIGN



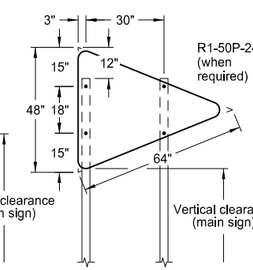
24" x 24"
ROUTE MARKER
ASSEMBLY



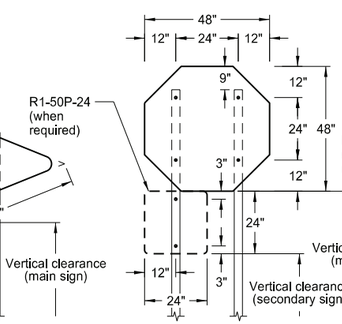
18" x 18"
DIAMOND SIGN



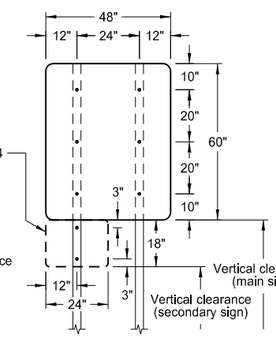
48" x 48" DIAMOND SIGN
(with 30" x 24" secondary sign)



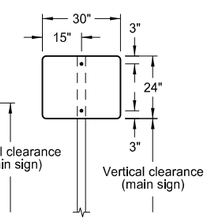
W14-3-64 - PENNANT SIGN



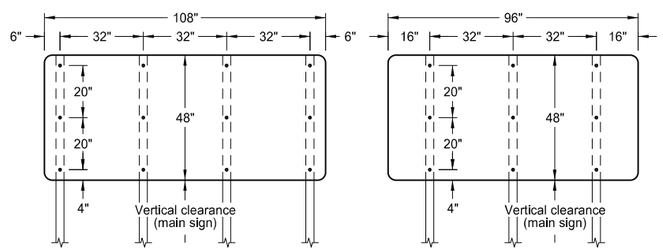
R1-1-48 - STOP SIGN
(with R1-50P-24 sign as required)



48" x 48" SIGN
(with R2-1aP-24 sign as required)

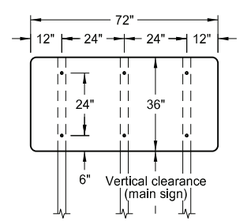


30" x 24" SIGN

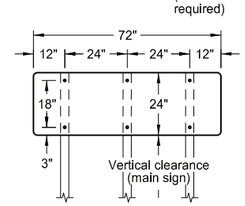


108" x 48" SIGN

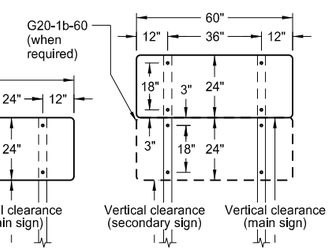
96" x 48" SIGN



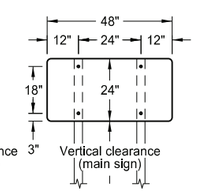
72" x 36" SIGN



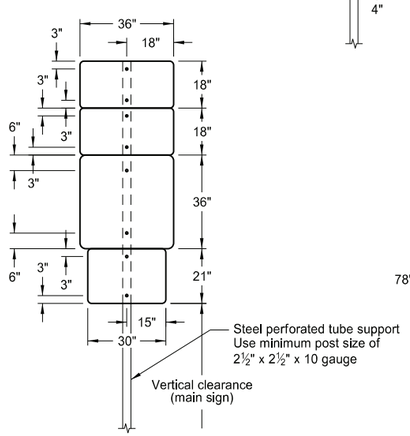
72" x 24" SIGN



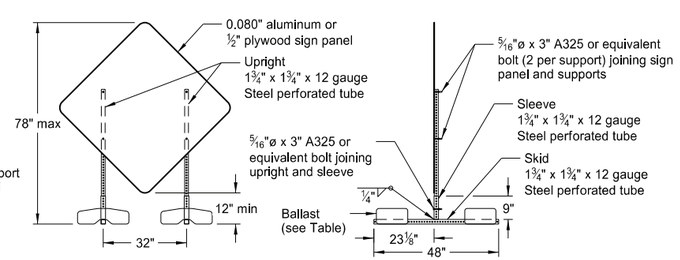
60" x 24" SIGN



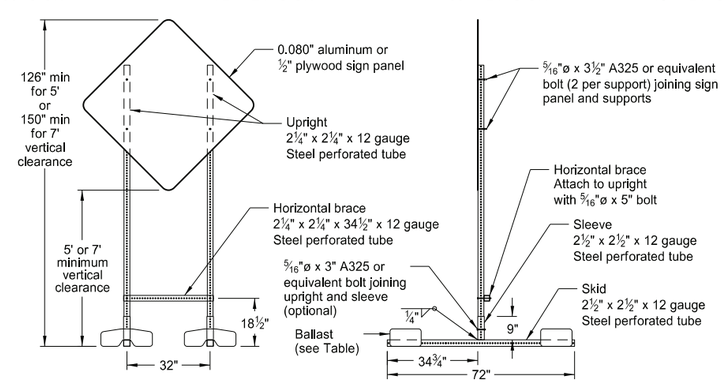
48" x 24" SIGN



36" x 36"
ROUTE MARKER
ASSEMBLY



PORTABLE SIGN SUPPORT
LOW-MOUNTING HEIGHT



PORTABLE SIGN SUPPORT
HIGH-MOUNTING HEIGHT

NOTES:

1. Sign Supports: Galvanize or paint supports. Minimum post sizes are 2.5 lb/ft u-channel or 2" x 2" x 12 gauge steel perforated tube, except where noted. When installing signs on u-channel, minimum post size for assemblies containing a secondary sign is 3.0 lb/ft. Post sizes based on a wind speed of 55 MPH.

   Place signs over 50 square feet on 2½" x 2½" perforated tube supports as a minimum.

   Do not attach guy wires to sign supports. Attach wind beams behind sign panels when used with u-posts.

2. Sign Panels: Provide sign panels made of 0.100" aluminum, ½" plywood, or other approved material, except where noted. Punch all holes round for ⅜" bolts.

3. Alternate Messages: Install and remove alternate message signs on reflectorized plate (without borders) as required. (i.e. "Left" and "Right" message on lane closure sign)

4. Route Marker Auxiliary Signs: Provide route marker auxiliary signs, such as the cardinal direction and directional arrows, with a background and legend that match the route marker they are used with:

   Interstate - white legend on blue background
   Interstate Business Loop - white legend on green background
   US and State - black legend on white background
   County - yellow legend on blue background

5. Vertical Clearance: Install signs with a vertical clearance of 5'-0" (see TYPICAL SECTION.) In areas where parking or pedestrian movements are likely or the view of the sign may be obstructed, install signs with a vertical clearance of 7'-0" from the top of the curb or from the near edge of the driving lane in absence of a curb.

   The vertical clearance to secondary signs is 1'-0" less than the vertical clearance stated above.

   Provide a minimum clearance of 7'-0" from the ground at the post for signs with an area exceeding 50 square feet.

6. Portable Signs: Provide portable signs that meet the vertical clearance stated above when it is necessary to place signs within the pavement surface.

   Use of low-mounting height (minimum 12" vertical clearance) portable signs for 5 days or less, is allowed as long as the view of the sign is not obstructed. Time delays caused by unforseen circumstances, such as equipment breakdown, rain, subgrade failures, etc., will not accrue towards the 5 day period. Use of R9-8 through R9-11a series, W1-6 through W1-8 series, M4-10, and E5-1 is allowed for longer than 5 days.

   Restrict signs mounted on portable sign supports shown in the LOW-MOUNTING HEIGHT and HIGH-MOUNTING HEIGHT details to a maximum surface area of 16 square feet.

MINIMUM BALLAST
(For each side of sign support base)

Sign Panel Mounting Height (ft)	Number of 25 lb sandbags for 4' x 4' sign panel
1'	6
5'	8
7'	10

Note: The number of sandbags are based on a wind speed of 55 MPH. Place sandbags at or near the ends of skids.

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

10-4-13

REVISIONS

DATE	CHANGE
11-14-13	Revised Note 6
9-27-17	Updated to active voice
11-01-19	Revised 60"x24" sign detail
8-01-24	Electronic Stamp/Signature

KIRK J. HOFF
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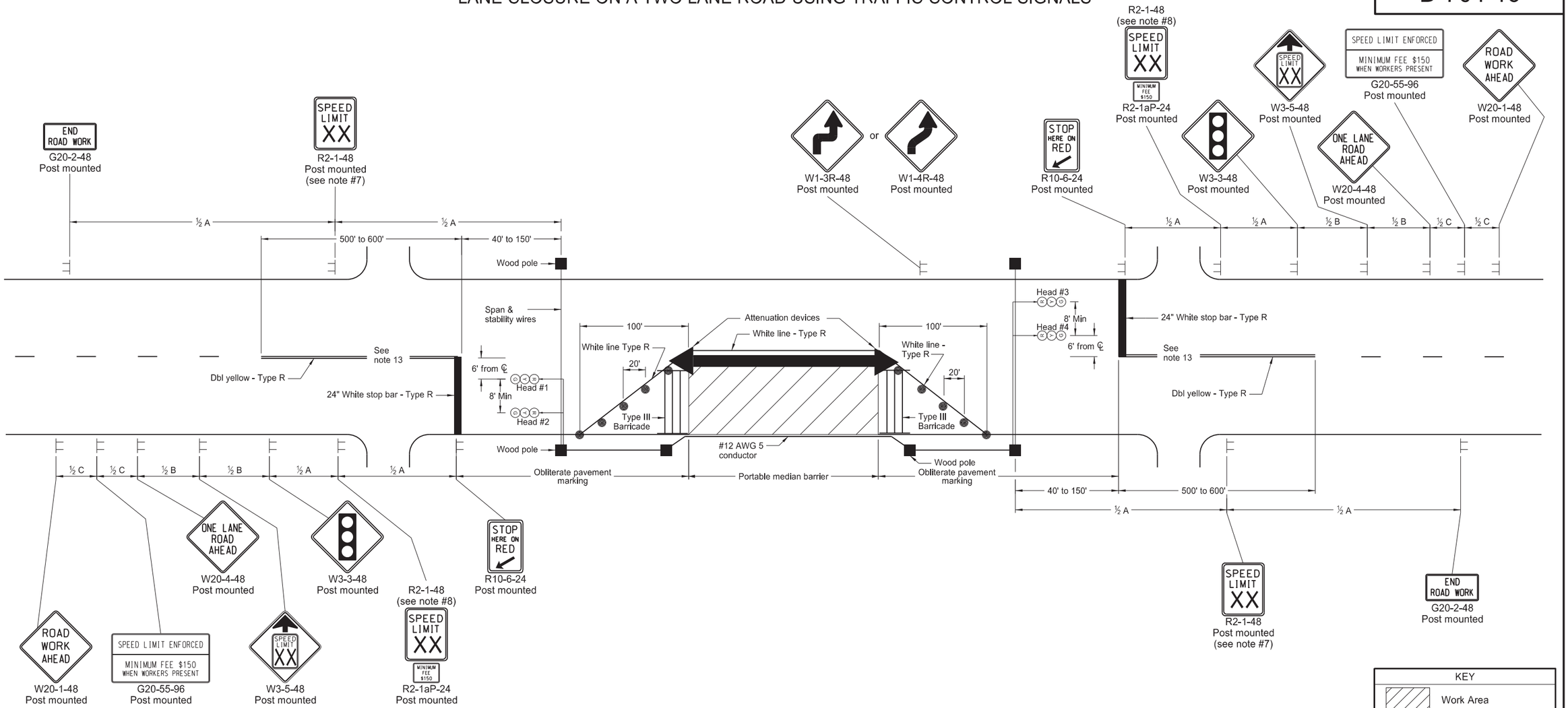
PE-4683
ENGINEER
NORTH DAKOTA

08/01/24

Docusign Envelope ID: 2F5C9714-A0E1-42BB-B36B-42204844BFCB

LANE CLOSURE ON A TWO LANE ROAD USING TRAFFIC CONTROL SIGNALS

D-704-16



KEY	
	Work Area
	Type III Barricade
	Sign
	Delineator Drum
	Wood Pole

Notes:

1. Span conductor overhead between poles except on bridges, where it may alternately be attached and supported by the bridge structure. When conductor is supported by the bridge structure, attach conductor to avoid interference with bridge construction. Attach conductor on either side of bridge as determined by field personnel.
2. Locate controller on a wood pole in the cable run between signal heads for through traffic movements.
3. The timing schedule is suggested trial setting. Check signals in operation frequently to obtain the most efficient timing schedule.
4. Place wood poles a minimum of 16 feet from edge of driving lane. Provide a minimum 16 to 19 feet clearance from the center line of the roadway to the bottom of traffic signal heads suspended over the roadway.
5. Place traffic signal heads with 12 inch red, yellow and green lenses and 5 inch louvered backplates.
6. See standard drawing "Span Wire Mounted Traffic Signals" for interim traffic construction details.
7. Re-establish speed limit. Determine exact speed limit in the field, dependent on location and conditions.
8. Determine the reduced speed limit based on the in-place speed limit before construction. Where speed reductions exceed 30 MPH, install a second speed limit sign with the desired speed reduction (not to exceed 30 MPH.) Place the second speed limit sign at ½ B.
9. Install flags on warning signs in urban areas when signs are not portable. Mount 24 inch square flags perpendicular to the edges of the sign, and at such a distance above the edge that the flag does not touch the sign when limp.
10. Cover existing speed limit signs within a reduced speed zone.
11. Place barricades on moveable assemblies and signs on portable assemblies when located on roadway.
12. As an option, use portable sign supports in lieu of post mounted signs in accordance with NDDOT Standard Drawing D-704-14.
13. Continue double yellow centerline thru private drives.
14. Sign G20-55-96 is not required if this layout is part of other traffic control that contains this sign, or if work is less than 15 days.
15. Recommend using 40 mph speed limit in vicinity of workers, unless location and conditions dictate otherwise.
16. As an option, use solar powered signals instead of wood pole signal system.

ADVANCE WARNING SIGN SPACING

Road Type	Distance Between Signs Min. (ft)		
	A	B	C
Urban - Low Speed (30 mph or less)	150	150	150
Urban - Low Speed (over 30 to 40 mph)	280	280	280
Urban - High Speed (over 40 mph to 50 mph)	360	360	360
Rural - High Speed (over 50 mph to 65 mph)	720	720	720
Urban Expressway and Freeway (55 mph to 60 mph)	850	1350	2200
Rural Expressway and Freeway (70 mph to 80 mph)	1000	1500	2640
Interstate/4-Lane Divided (Maintenance and Surveying)	750	1000	1500

SUGGESTED TIMING AND SIGNAL SEQUENCE

Heads 1 & 2	Green	Yellow	Red			
Heads 3 & 4	Red			Green	Yellow	Red
Time Cycle = 90 seconds	18.0	4.5	22.5	18.0	4.5	22.5
Percent of Cycle	20	5	25	20	5	25

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

9-27-13

REVISIONS

DATE	CHANGE
11-20-15	Revised Note 6 & Renumbered Minimum Fee plaque
08-17-17	Revised notes & added note
11-01-19	Revise sign #s & pvmt mk type
12-08-21	Switched order of Road Work Ahead and Spd Limit Enforced & added Dollars At Work
11-29-22	Removed Dollars At Work
08-31-23	Corrected Note 14 grammar
08-21-24	Pvmt Mkg Width & Med Barrier
06-30-25	Legislative Changes

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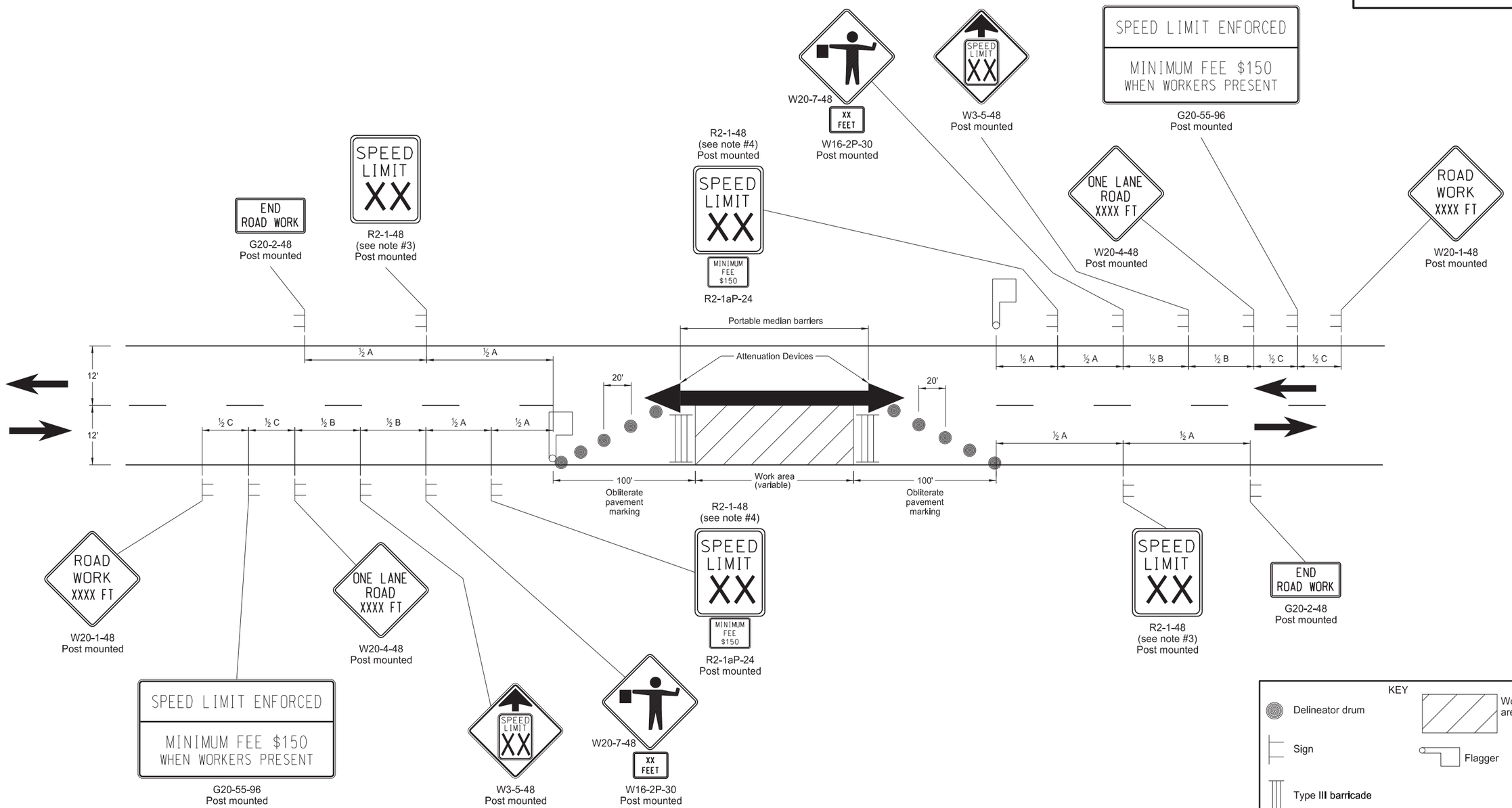
06/30/25
ENGINEER
NORTH DAKOTA

Docusign Envelope ID: 2F5C9714-A0E1-42BB-B36B-42204844BFCB

SIGN LAYOUT FOR ONE LANE CLOSURE TWO LANE ROADWAY

D-704-17



ADVANCE WARNING SIGN SPACING			
Road Type	Distance Between Signs Min. (ft)		
	A	B	C
Urban - Low Speed (30 mph or less)	150	150	150
Urban - Low Speed (over 30 to 40 mph)	280	280	280
Urban - High Speed (over 40 mph to 50 mph)	360	360	360
Rural - High Speed (over 50 mph to 65 mph)	720	720	720
Urban Expressway and Freeway (55 mph to 60 mph)	850	1350	2200
Rural Expressway and Freeway (70 mph to 80 mph)	1000	1500	2640
Interstate/4-Lane Divided (Maintenance and Surveying)	750	1000	1500

Notes:
1. Place barricades on moveable assemblies and signs on portable assemblies when located on roadway.
2. Remove existing striping as required. Use back to back delineators when inslope is 4:1 or flatter and roadway alignment is visible to approaching vehicles. Place back to back vertical panels when roadways have steep slopes and alignment is not visible to approaching traffic.
3. Re-establish speed limit. Determine exact speed limit in the field, dependent on location and conditions.
4. Determine the reduced speed limit based on the in-place speed limit before construction. Where speed reductions exceed 30 MPH, install a second speed limit sign with the desired speed reduction (not to exceed 30 MPH.) Place the second speed limit sign at ½B.
5. Install flags on warning signs in urban areas when signs are not portable. Mount 24 inch square flags perpendicular to the edges of the sign, and at such a distance above the edge that the flag does not touch the sign when limp.
6. As an option, use portable sign supports in lieu of post mounted signs in accordance with NDDOT Standard Drawing D-704-14.
7. Cover existing speed limit signs within a reduced speed zone.
8. Sign G20-55-96 is not required if this layout is part of other traffic control that contains this sign, or if work is less than 15 days.
9. Recommend using 40 mph speed limit in vicinity of workers, unless location and conditions dictate otherwise.

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

9-27-13

REVISIONS

DATE	CHANGE
08-17-17	Note update & sign numbers
11-01-19	Removed signs & revised note
12-08-21	Switched order of Road Work XXXX and Spd Limit Enforced & added Dollars At Work
11-29-22	Removed Dollars At Work
08-21-24	Pvmt Mkg Width & Med Barrier
06-30-25	Legislative Changes

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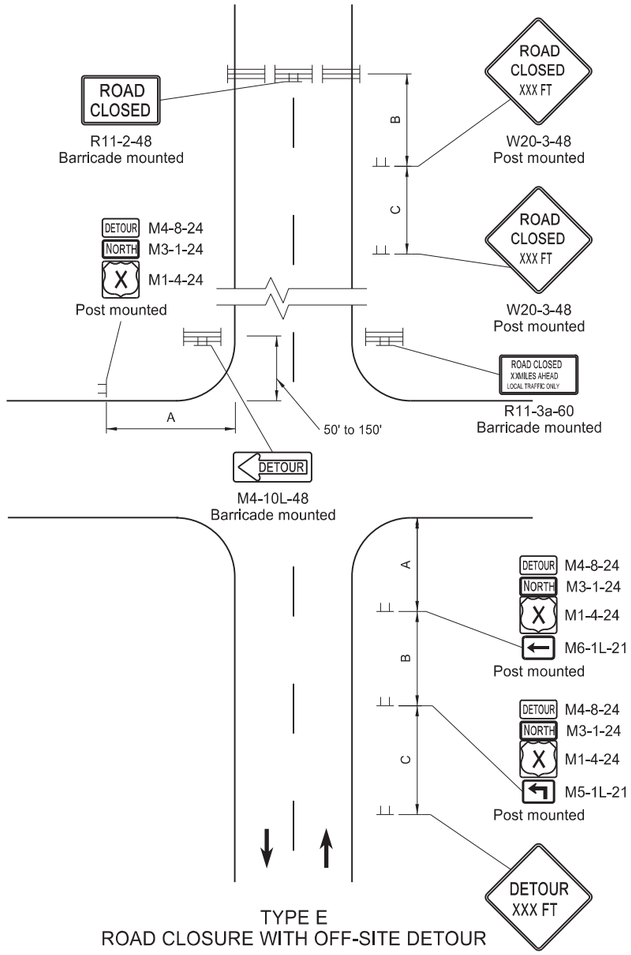
06/30/25
ENGINEER
NORTH DAKOTA

Docusign Envelope ID: 2F5C9714-A0E1-42BB-B36B-42204844BFCB

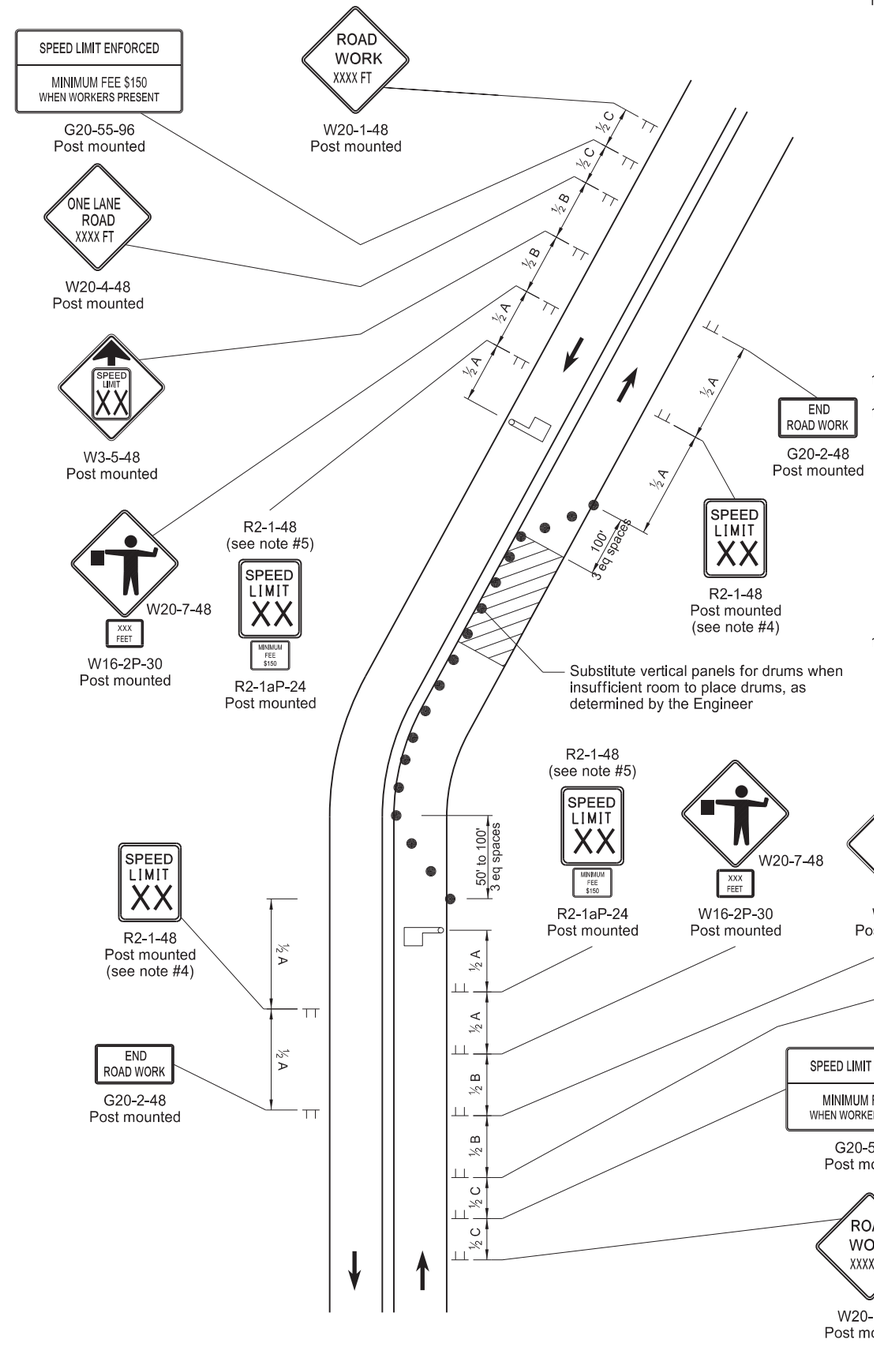
ROAD CLOSURE AND LANE CLOSURE ON A TWO WAY ROAD LAYOUTS

D-704-19



TYPE E
ROAD CLOSURE WITH OFF-SITE DETOUR

Road closed beyond detour point.
Signing shown for one direction only.
Install and maintain signs shown in plans.



TYPE F
LANE CLOSURE ON A TWO LANE ROAD USING FLAGGERS

Two lane highway with one lane closed.
Flagger at point visible to approaching traffic.

Notes:

1. Variables
   S = Numerical value of speed limit or 85th percentile.
   W = The width of taper in feet
   L = Minimum length of taper in feet. S x W for freeways, expressways, and roads with speeds of 45 mph or greater, or W x $S^2/60$ for urban, residential, and streets with speeds of 40 mph or less.
2. Place barricades on moveable assemblies and signs on portable assemblies when located on the roadway.
3. Place delineator drums for tapering traffic at 3 equal spaces and for tangents space them at 2 times dimension "S".
4. Re-establish speed limit. Determine exact speed limit in the field, dependent on location and conditions.
5. Determine the reduced speed limit based on the in place speed limit before construction. Where speed reductions exceed 30 mph, install a second speed limit sign with the desired speed reduction (not to exceed 30 mph.) Place second speed limit sign at ½B.
6. Install flags on warning signs in urban areas when signs are not portable. Mount 24 inch square flags perpendicular to the edges of the sign, and at such a distance above the edge that the flag does not touch the sign when limp.
7. Cover existing speed limit signs within a reduced speed zone.
8. Where necessary, safe speed to be determined by the Engineer.
9. As an option, use portable sign supports in lieu of post mounted signs in accordance with NDDOT Standard Drawing D-704-14.
10. Signs G20-55-96 or R2-1aP-24 are not required when pilot car operation is used, if this layout is part of other traffic control that contains this sign, or if work is less than 15 days.
11. When highway-rail grade crossings exist either within or in the vicinity of the roadway work activities:
    a. Extra care shall be taken to minimize the probability of conditions being created, either by lane restrictions, flagging or other operations, where vehicles might be stopped within the highway-rail grade crossing (considered as being 15 feet on either side of the closest and farthest rail.)
    b. Place "Do Not Stop on Tracks" sign (R8-8-24) near cross buck in each direction while lane closure is near tracks.
    c. Extend buffer space between work zone and lane closure transition upstream of the highway-rail grade crossing to prevent flagging queue from extending across highway-rail grade crossing.
    d. If queuing extends across highway-rail crossing, provide flagger at crossing to prevent vehicles from stopping within the crossing (even when automatic warning devices are in place.)
12. Recommend using 40 mph speed limit in vicinity of workers, unless location and conditions dictate otherwise.

ADVANCE WARNING SIGN SPACING

Road Type	Distance Between Signs Min. (ft)		
	A	B	C
Urban - Low Speed (30 mph or less)	150	150	150
Urban - Low Speed (over 30 to 40mph)	280	280	280
Urban - High Speed (over 40 mph to 50 mph)	360	360	360
Rural - High Speed (over 50 mph to 65 mph)	720	720	720
Urban Expressway and Freeway (55 mph to 60 mph)	850	1350	2200
Rural Expressway and Freeway (70 mph to 80 mph)	1000	1500	2640
Interstate/4-Lane Divided (Maintenance and Surveying)	750	1000	1500

KEY

- Delineator Drum
- Type III Barricade
- Flagger
- Sign
- Work/Hazard Area

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

9-27-13

REVISIONS

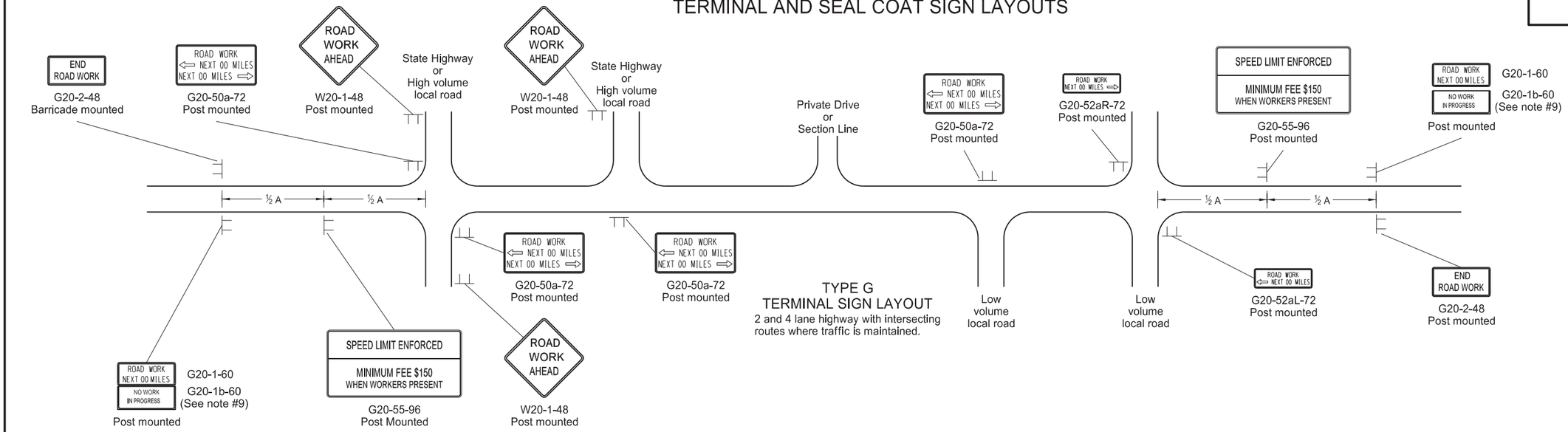
DATE	CHANGE
03-13-14	Revised Sign Cell "ROAD WORK XXX FT"
08-17-17	Update notes & sign numbers
11-01-19	Revised signs, sign #s, & notes
12-08-21	Switched order of Road Work XXX and Spd Limit Enforced & added Dollars At Work
11-29-22	Removed Dollars At Work
06-30-25	Legislative Changes

KIRK J. HOFF
REGISTERED
PROFESSIONAL
PE-4683
06/30/25
ENGINEER
NORTH DAKOTA

Docusign Envelope ID: 2F5C9714-A0E1-42BB-B36B-42204844BFCB

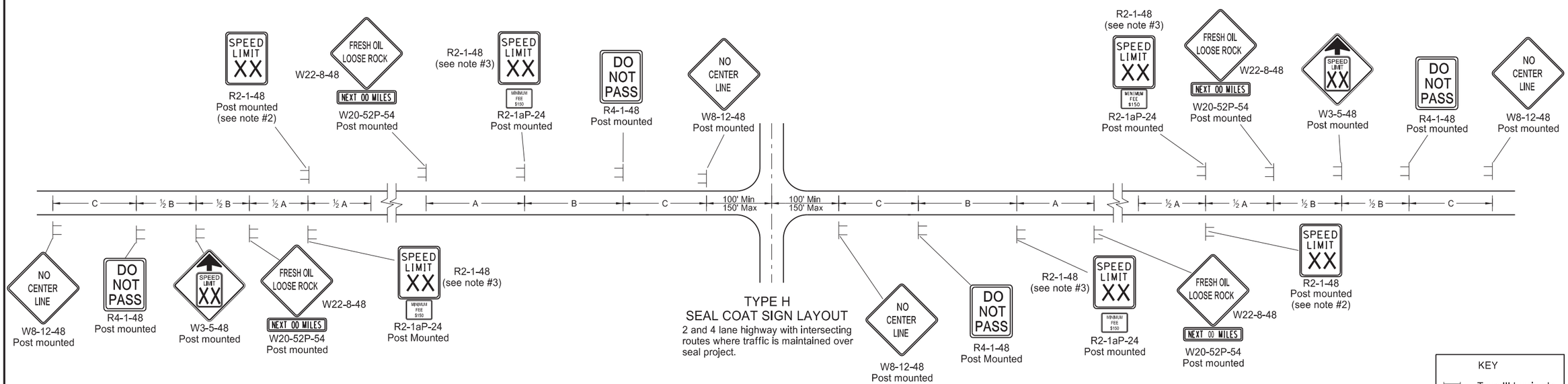
TERMINAL AND SEAL COAT SIGN LAYOUTS

D-704-20



TYPE G
TERMINAL SIGN LAYOUT

2 and 4 lane highway with intersecting routes where traffic is maintained.



TYPE H
SEAL COAT SIGN LAYOUT

2 and 4 lane highway with intersecting routes where traffic is maintained over seal project.

KEY

Type III barricade

Sign

Notes:

1. Place barricades on moveable assemblies and signs on portable assemblies when located on roadway.
2. Determine the exact speed limit in the field, based on location and conditions.
3. Determine the reduced speed limit based on the in place speed limit before construction. Where speed limit reductions exceed 30 MPH, install a second speed limit sign with the desired speed reduction (not to exceed 30 MPH.) Place the second speed limit sign at ½ B.
4. Install flags on warning signs in urban areas when signs are not portable. Mount 24 inch square flags perpendicular to the edges of the sign, and at such a distance above the edge that the flag does not touch the sign when limp.
5. Cover existing speed limit signs within a reduced speed zone.
6. On seal coat projects, place signs R2-1-48, R2-1aP-24, R4-1-48, W22-8-48 and W20-52P-54 after all important intersections and at five mile intervals. Place sign W8-12-48 after all important intersections and at 2 mile intervals until short term center line pavement marking is placed.
7. As an option, use portable sign supports in lieu of post mounted signs in accordance with the NDDOT Standard Drawing D-704-14.
8. Cover or remove speed limit signs from layout Type H when loose aggregate is removed.
9. Install sign G20-1b-60 when work is suspended for winter.
10. Use other traffic control layouts in immediate work areas. Place sign R2-1aP-24 below speed limit signs in reduced speed limit work areas.
11. Sign G20-55-96 is not required if this layout is part of other traffic control that contains this sign, or the work is less than 15 days.
12. Recommend using 40 mph speed limit in vicinity of workers, unless location and conditions dictate otherwise.

ADVANCE WARNING SIGN SPACING

Road Type	Distance Between Signs Min. (ft)		
	A	B	C
Urban - Low Speed (30 mph or less)	150	150	150
Urban - Low Speed (over 30 to 40 mph)	280	280	280
Urban - High Speed (over 40 mph to 50 mph)	360	360	360
Rural - High Speed (over 50 mph to 65 mph)	720	720	720
Urban Expressway and Freeway (55 mph to 60 mph)	850	1350	2200
Rural Expressway and Freeway (70 mph to 80 mph)	1000	1500	2640
Interstate/4-Lane Divided (Maintenance and Surveying)	750	1000	1500

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

9-27-13

REVISIONS

DATE	CHANGE
08-17-17	Updated notes & sign numbers
11-01-19	Updated note & sign
12-08-21	Switched order of Road Work and Spd Limit Enforced & added Dollars At Work
11-29-22	Removed Dollars At Work
06-30-25	Legislative Changes

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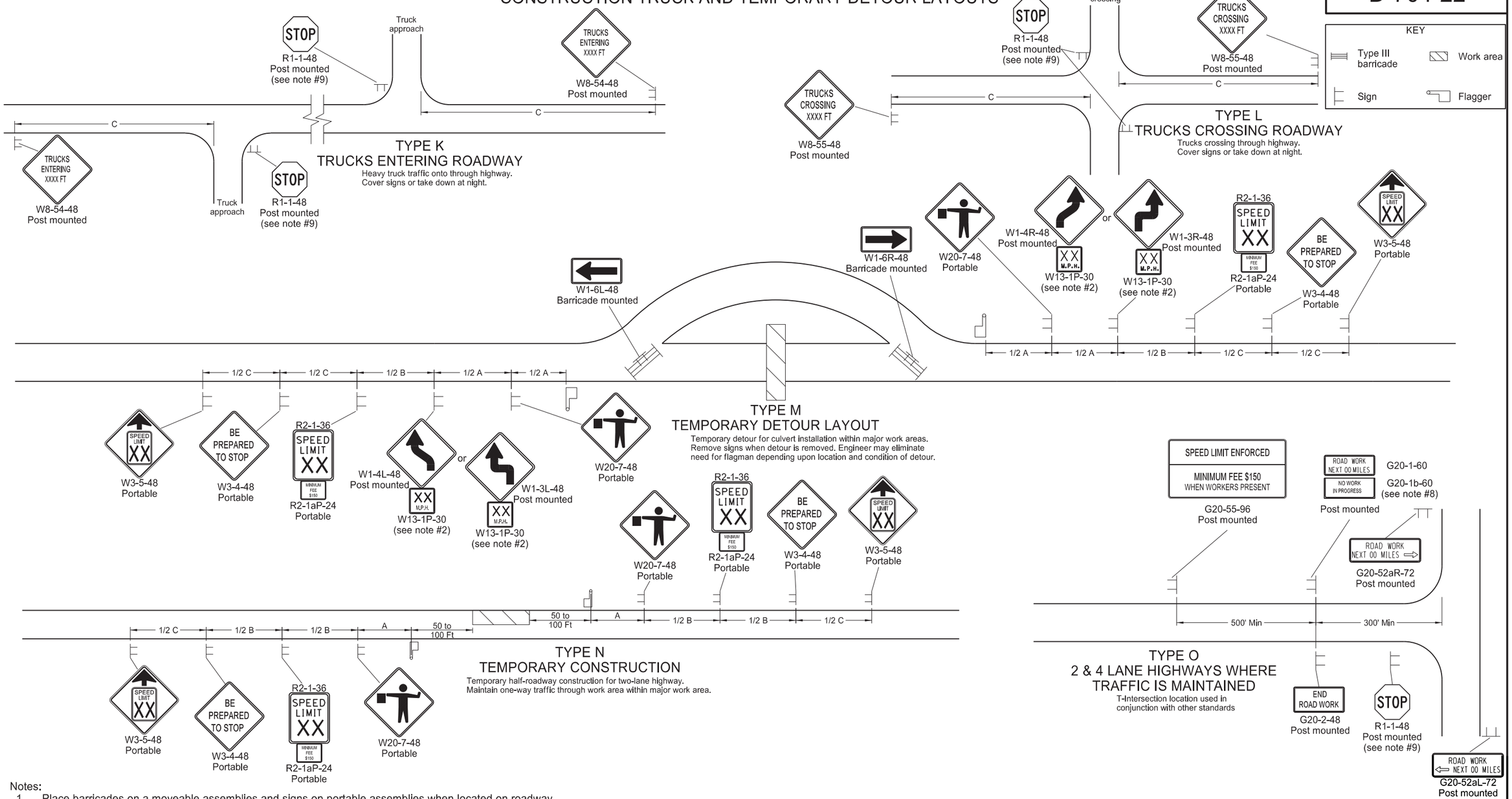
Docusign Envelope ID: 2F5C9714-A0E1-42BB-B36B-42204844BFCB

CONSTRUCTION TRUCK AND TEMPORARY DETOUR LAYOUTS

D-704-22



Notes:

1. Place barricades on a moveable assemblies and signs on portable assemblies when located on roadway.
2. Where necessary, safe speed to be determined by the Engineer.
3. Determine the reduced speed limit based on the in-place speed limit before construction. Where speed reductions exceed 30 mph, install a second speed limit sign with the desired speed reduction (not to exceed 30 mph.) Place the second speed limit sign at ½ B.
4. Install flags on warning signs in urban areas when signs are not portable. Mount 24 inch square flags perpendicular to the edges of the sign, and at such a distance above the edge that the flag does not touch the sign when limp.
5. Cover existing speed limit signs within a reduced speed zone.
6. Covered (when approved by engineer) or obliterated pavement marking measured as Obliteration of Pavement Marking.
7. As an option, use portable sign supports in lieu of post mounted signs in accordance with NDDOT Standard Drawing D-704-14.
8. Install sign G20-1b-60 when work is suspended for winter.
9. If existing stop sign is in place, a 48" stop sign is not required.
10. Sign G20-55-96 is not required if layout is part of other traffic control that contains this sign, or if work is less than 15 days.
11. Recommend using 40 mph speed limit in vicinity of workers, unless location and conditions dictate otherwise.

ADVANCE WARNING SIGN SPACING

Road Type	Distance Between Signs Min. (ft)		
	A	B	C
Urban - Low Speed (30 mph or less)	150	150	150
Urban - Low Speed (over 30 to 40mph)	280	280	280
Urban - High Speed (over 40 mph to 50 mph)	360	360	360
Rural - High Speed (over 50 mph to 65 mph)	720	720	720
Urban Expressway and Freeway (55 mph to 60 mph)	850	1350	2200
Rural Expressway and Freeway (70 mph to 80 mph)	1000	1500	2640
Interstate/4-Lane Divided (Maintenance and Surveying)	750	1000	1500

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

9-27-13

REVISIONS

DATE	CHANGE
08-17-17	Update notes & sign numbers
11-01-19	Revised sign numbers & note 7
12-09-21	Added Speed Limit Enforced and Dollars At Work signs
11-29-22	Removed Dollars At Work
06-30-25	Legislative Changes

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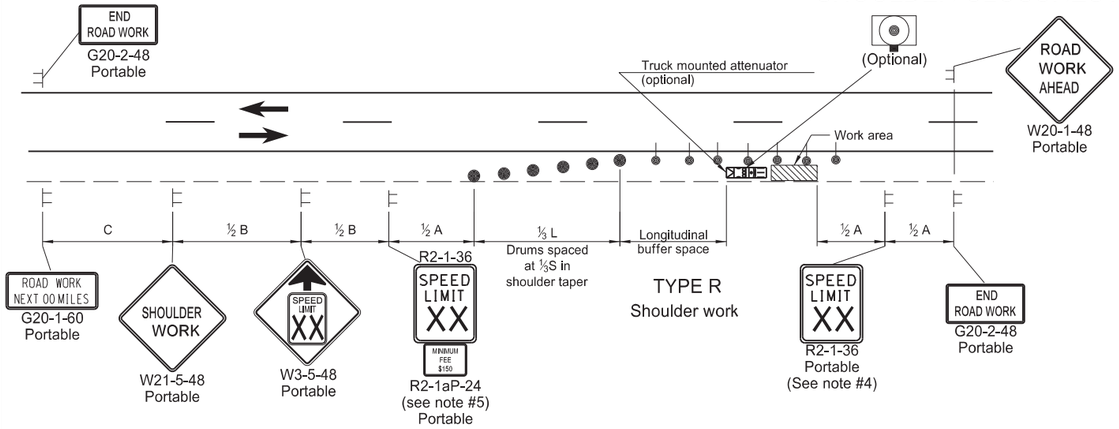
06/30/25
ENGINEER
NORTH DAKOTA

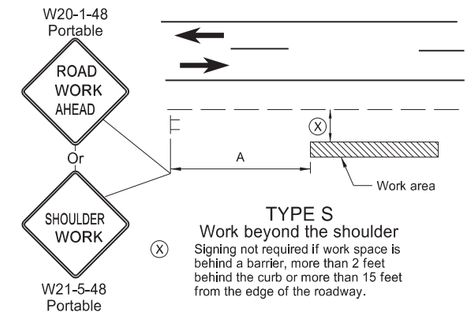
Docusign Envelope ID: 2F5C9714-A0E1-42BB-B36B-42204844BFCB

SHOULDER CLOSURES AND BRIDGE PAINTING LAYOUTS

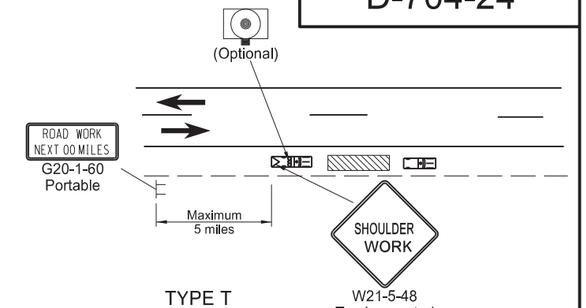
D-704-24



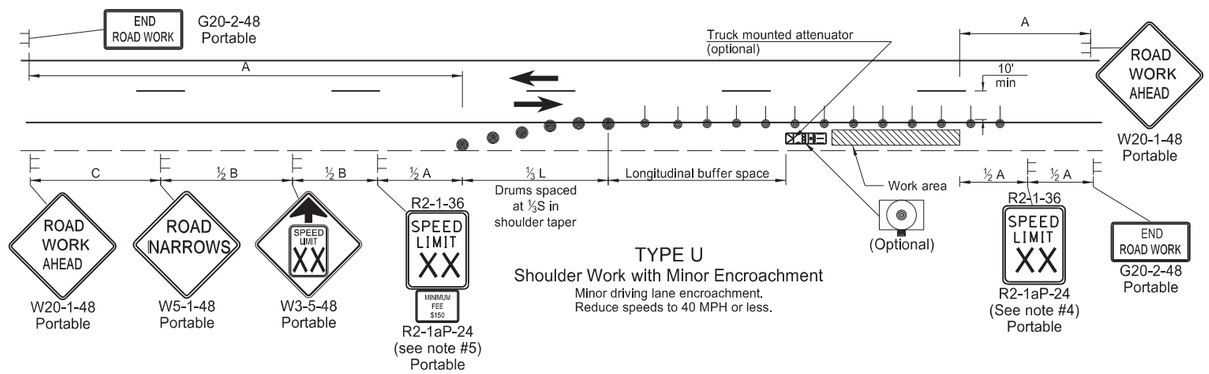
TYPE R
Shoulder work



TYPE S
Work beyond the shoulder
Signing not required if work space is behind a barrier, more than 2 feet behind the curb or more than 15 feet from the edge of the roadway.

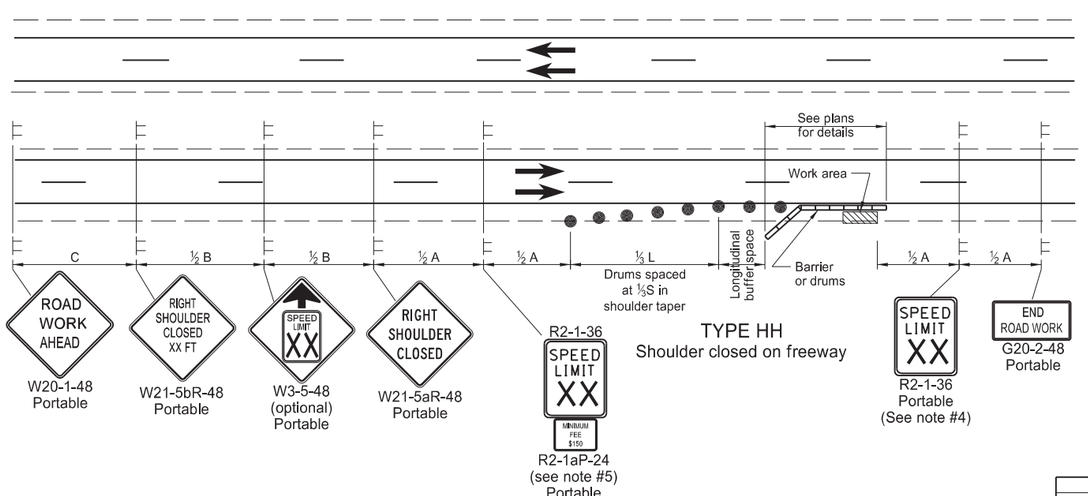


TYPE T
Mobile operation on shoulder

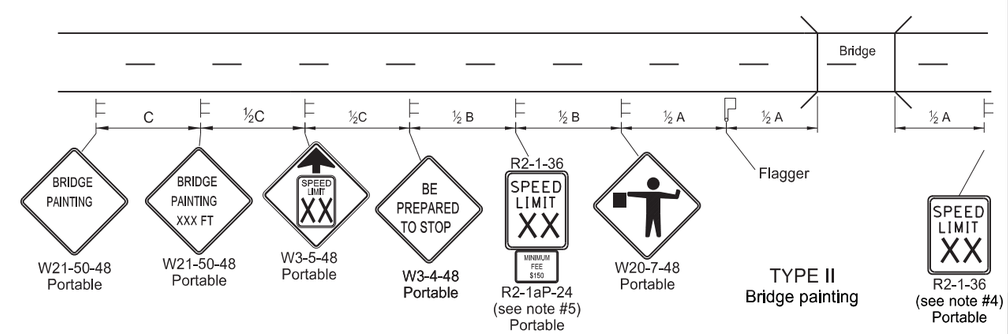


TYPE U
Shoulder Work with Minor Encroachment
Minor driving lane encroachment.
Reduce speeds to 40 MPH or less.

Notes
1. Variables
   S = Numerical value of speed limit or 85th percentile.
   W = The width of the taper in feet.
   L = Minimum length of taper, S x W for freeways, expressways, and all other roads with speeds of 45 mph or greater, or W x S^2 /60 for urban, residential, and other streets with speeds of 40 mph or less.
2. Space delineator drums for tapering traffic at dimension "S". Space delineator drums or tubular markers for tangents at 2 times "S".
3. Sequencing Arrow Panels
   Use Type A on roadways with slow moving traffic speeds and low volume (25 mph or less and 750 ADT or less).
   UseType B on roadways with moderate traffic speeds and volumes (40 mph or less and 5000 ADT or less).
   Use Type C on roadways with high traffic speeds and volumes (over 40 mph or over 5000 ADT).
4. Re-establish speed limit. Determine exact speed limit in the field, dependent on location and conditions.
5. Determine the reduced speed limit based on the in-place speed limit before construction. Where speed reductions exceed 30 MPH, install a second speed limit sign with the desired speed reduction (not to exceed 30 mph.) Place the second speed limit sign at ½B.
6. Install flags on warning signs in urban areas when signs are not portable. Mount 24 inch square flags perpendicular to the edges of the sign, and at such a distance above the edge that the flag does not touch the sign when limp.
7. Cover existing speed limit signs within a reduced speed zone.
8. As an option, use portable sign supports in lieu of post mounted signs in accordance with NDDOT Standard Drawing D-704-14.
9. Recommend 40 mph speed limit in vicinity of workers, unless location and conditions dictate otherwise.



TYPE HH
Shoulder closed on freeway



TYPE II
Bridge painting

KEY

	Sign		Work area
	Delineator Drum		Tubular Marker
	Sequencing Arrow Panel (Caution Mode)		

ADVANCE WARNING SIGN SPACING

Road Type	Distance Between Signs Min. (ft) A	B	C
Urban - Low Speed (30 mph or less)	150	150	150
Urban - Low Speed (over 30 to 40 mph)	280	280	280
Urban - High Speed (over 40 mph to 50 mph)	360	360	360
Rural - High Speed (over 50 mph to 65 mph)	720	720	720
Urban Expressway and Freeway (55 mph to 60 mph)	850	1350	2200
Rural Expressway and Freeway (70 mph to 80 mph)	1000	1500	2640
Interstate/4-Lane Divided (Maintenance and Surveying)	750	1000	1500

Longitudinal Buffer Space

Speed (mph)	Length Min (feet)
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645
70	730
75	820
80	910

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

9-27-13

REVISIONS

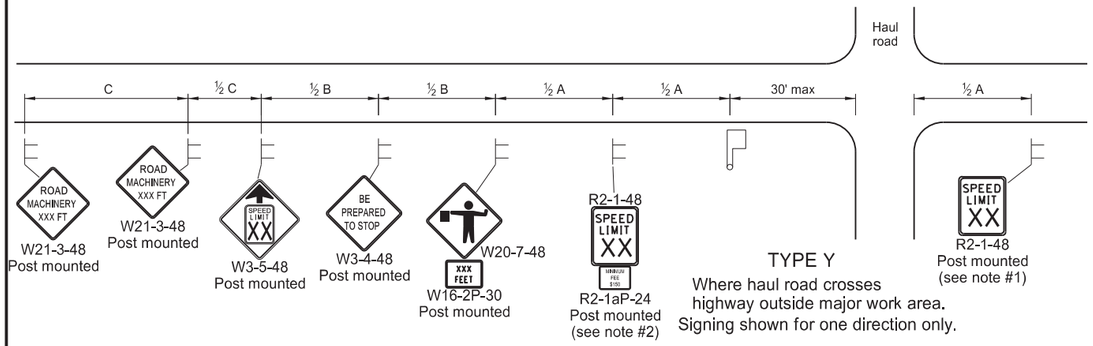
DATE	CHANGE
08-17-17	Updated notes & revised signs
11-01-19	Revised drum spacing & signs nos
08-01-24	Electronic Stamp/Signature
06-30-25	Legislative Changes

KIRK J. HOFF REGISTERED PROFESSIONAL PE-4683 06/30/25 ENGINEER NORTH DAKOTA

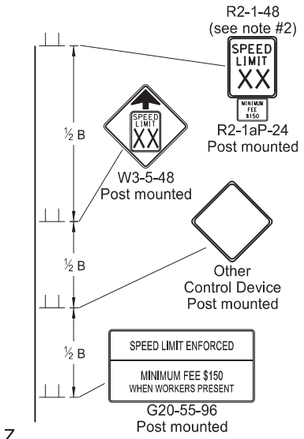
Docusign Envelope ID: 2F5C9714-A0E1-42BB-B36B-42204844BFCB

MISCELLANEOUS SIGN LAYOUTS

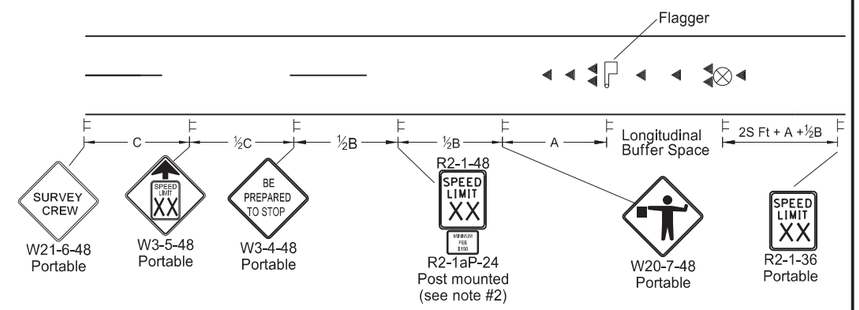
D-704-26



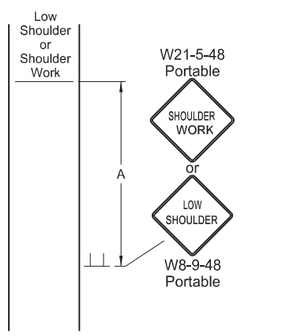
TYPE Y
Where haul road crosses highway outside major work area.
Signing shown for one direction only.



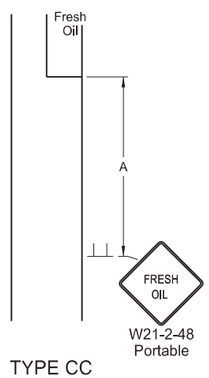
TYPE Z
Where speed zone is needed
Signing shown for one direction only.



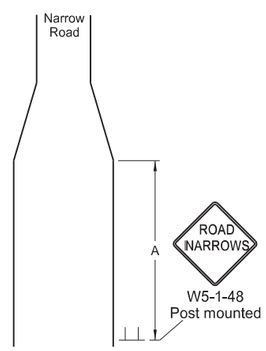
TYPE AA
Where survey crew is used
Signing shown for one direction only.



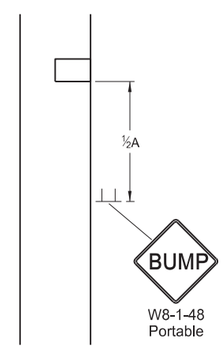
TYPE BB
Within major work area
where sign conditions exist



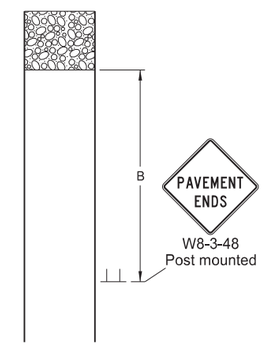
TYPE CC
Where sign conditions exist



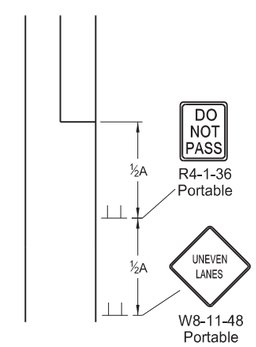
TYPE DD
Where sign conditions exist



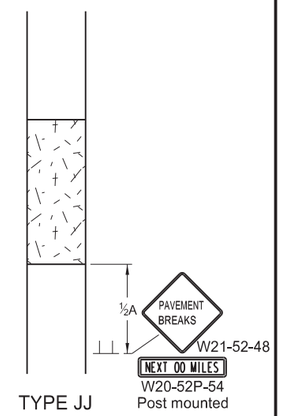
TYPE EE
Where sign conditions exist



TYPE FF
Where sign conditions exist
Signing shown for one direction only.



TYPE GG
Where elevation difference
exists between lanes

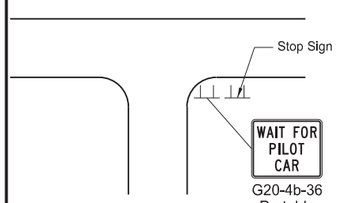


TYPE JJ
For break in pavement.
Install signs when conditions exist
and remove when not applicable.
Signing shown for one direction only.

KEY

Flagger	Sign
Cones	Survey Equipment

S = Numerical value of speed limit or 85th percentile.



TYPE KK
At major intersections
within pilot car control area

Notes
1. Re-establish speed limit. Determine exact speed limit in the field, dependent on location and conditions.
2. Determine reduced speed limit based on in-place speed limit before construction. Where speed reductions exceed 30 mph, install a second speed limit sign with the desired speed reduction (not to exceed 30 mph.) Place the second speed limit sign at ½B.
3. Install flags on warning signs in urban areas when signs are not portable. Mount 24 inch square flags perpendicular to the edges of the sign, and at such a distance above the edge that the flag does not touch the sign when limp.
4. Cover existing speed limit signs within reduced speed zones.
5. As an option, use portable sign supports in lieu of post mounted signs in accordance with NDDOT Standard Drawing D-704-14.
6. Sign G20-55-96 is not required if this standard is part of other traffic control layouts, or work is less than 15 days.
7. When pilot car operation is used, place sign G20-4b-36 "Wait For Pilot Car" at major intersections within pilot car control area.
8. Recommend 40 mph speed limit in vicinity of workers, unless location and conditions dictate otherwise.
9. Layouts shown for one direction only.

ADVANCE WARNING SIGN SPACING

Road Type	Distance Between Signs Min. (ft)		
	A	B	C
Urban - Low Speed (30 mph or less)	150	150	150
Urban - Low Speed (over 30 to 40 mph)	280	280	280
Urban - High Speed (over 40 mph to 50 mph)	360	360	360
Rural - High Speed (over 50 mph to 65 mph)	720	720	720
Urban Expressway and Freeway (55 mph to 60 mph)	850	1350	2200
Rural Expressway and Freeway (70 mph to 80 mph)	1000	1500	2640
Interstate/4-Lane Divided (Maintenance and Surveying)	750	1000	1500

Longitudinal Buffer Space

*Speed (mph)	Length Min (feet)
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645
70	730
75	820
80	910

* Posted speed, off-peak 85th percentile speed prior to work starting, or the anticipated operating speed in mph.

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

9-27-13

REVISIONS

DATE	CHANGE
08-17-17	Added speed limit signs. Updated notes & sign numbers
11-01-19	Revised note 5 & sign numbers
02-23-23	Revised distance & removed signs
06-30-25	Legislative Changes

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06/30/25
ENGINEER
NORTH DAKOTA

Docusign Envelope ID: E17899F0-B912-4482-BF85-7148763D5F5D

Two-Lane Roadway Portable Rumble Strips

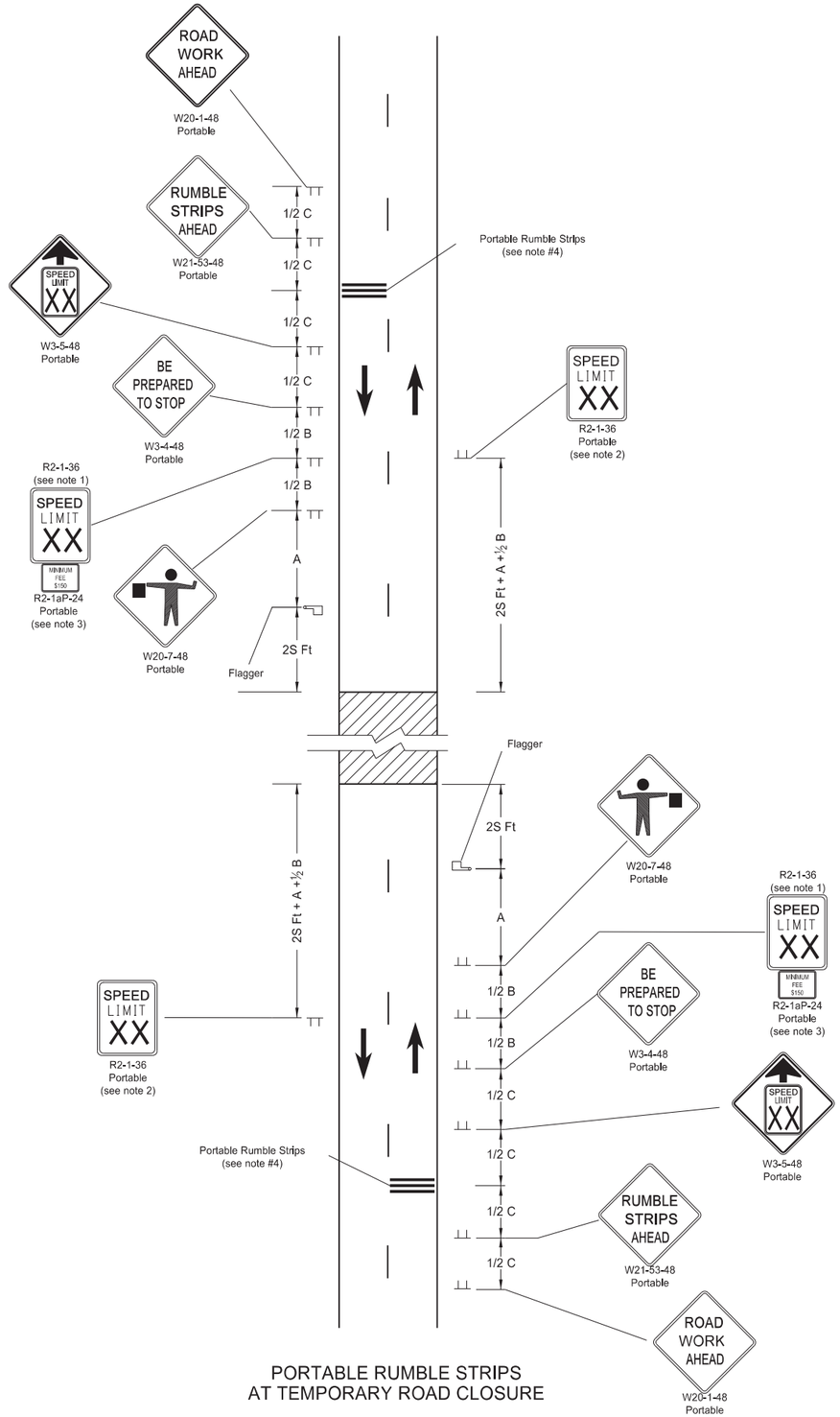
D-704-33

KEY

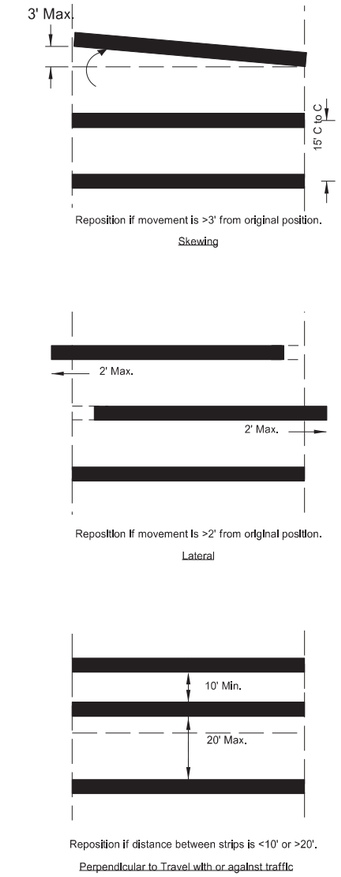
- Work area
- Flagger
- Sign

S = Numerical value of speed limit or 85th percentile.

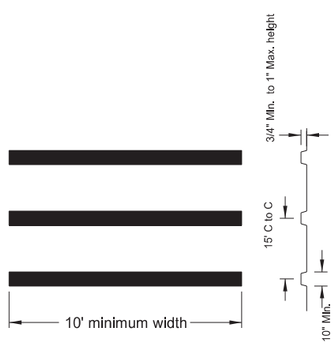
ADVANCE WARNING SIGN SPACING			
Road Type	Distance Between Signs Min. (ft)		
	A	B	C
Urban - High Speed (over 45 mph to 50 mph)	360	360	360
Rural - High Speed (over 50 mph to 65 mph)	720	720	720



PORTABLE RUMBLE STRIPS AT TEMPORARY ROAD CLOSURE



PORTABLE RUMBLE STRIPS ARRAY
TYPES OF MOVEMENT AND MAXIMUM ALLOWANCES



PORTABLE RUMBLE STRIPS ARRAY DETAIL

Notes:

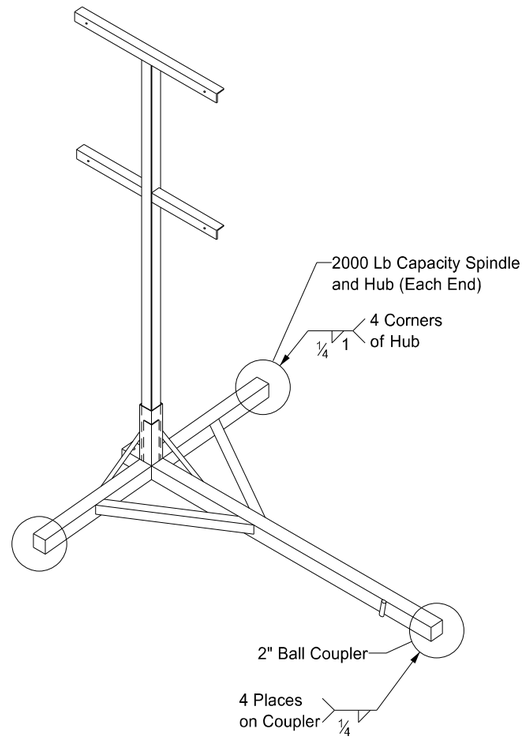
1. Determine speed in the field based on location and conditions.
2. Re-establish the speed limit. Determine the exact speed limit in the field, dependent on location and conditions.
3. Sign R2-1aP-24 is not required when pilot car operation is used.
4. Do not use rumble strips on a non paved surface or in a pre-construction speed zone of 45 mph or less.

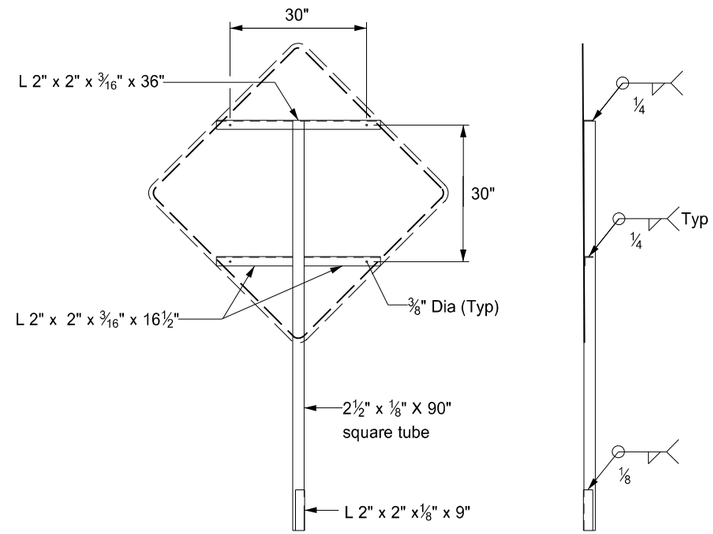
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
02-22-22	
REVISIONS	
DATE	CHANGE
03-07-23	Use changed to min 45 mph
06-30-25	Legislative Changes

KIRK J. HOFF REGISTERED PROFESSIONAL PE-4683 06/30/25 ENGINEER NORTH DAKOTA

PORTABLE SIGN SUPPORT ASSEMBLY

D-704-50

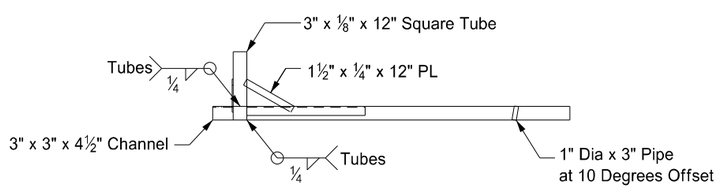


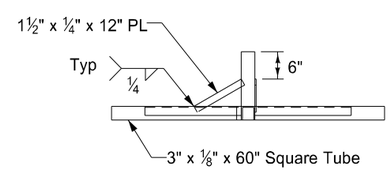


FRONT

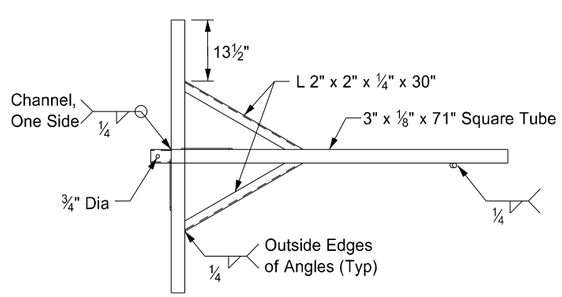
RIGHT

SIGN SUPPORT





RIGHT



TOP

TRAILER

Notes:

1. Maximum 250 pound weight of assembly.
2. Use a 14" wheel and tire.
3. Use no automotive and equipment axle assemblies for trailer-mounted sign supports.
4. Other NCHRP 350 or MASH crash tested assemblies are acceptable.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
11-23-10	
REVISIONS	
DATE	CHANGE
12/02/2020	Updated Note to active voice.

KIRK J. HOFF
REGISTERED
PROFESSIONAL
PE-4683
ENGINEER
NORTH DAKOTA

Kirk J Hoff

12 02 2020

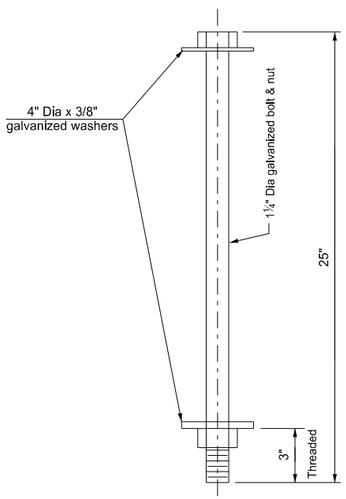
DocuSign Envelope ID: 028FA5AB-97D0-4516-BC9A-38F76BB98B10

CONCRETE MEDIAN BARRIER
(TEMPORARY USAGE)

D-704-51

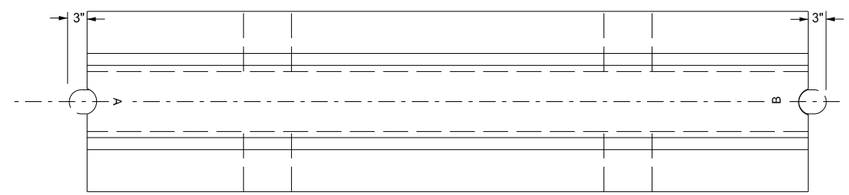
Notes:

1. Barrier ends imprinted with 4 inch letters A and B. Field match A end with B end.
2. Place barrier markers at the center of the barrier at 20' centers.
3. Connect barrier sections with 1 ¼" Dia A-307 double hex connecting bolt. Maintain bottom nut and washer connection for duration of barrier installation.
4. Place barrier to minimize openings between individual sections.

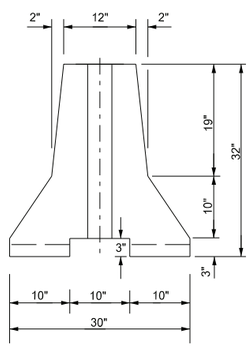


Connecting Bolt Detail

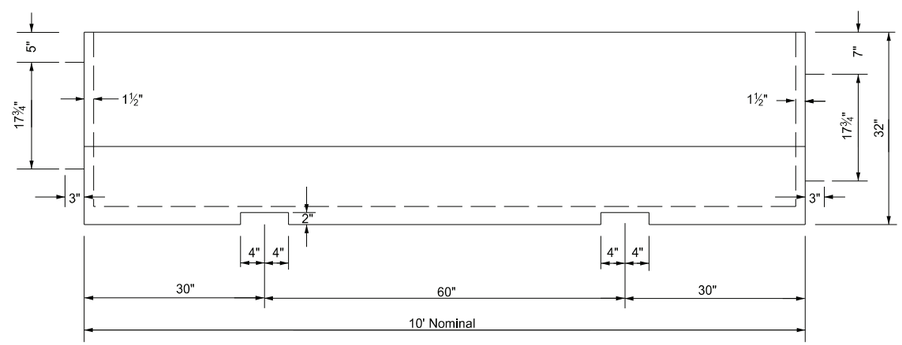
(One per 10 Ft section)



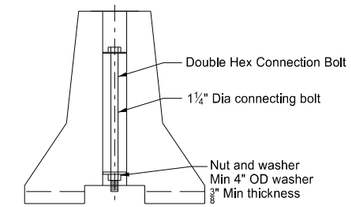
Plan View



End View



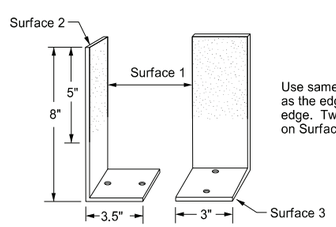
Side View



Bolt Connection Detail

Marker Body
Use high impact,weatherable engineering thermo-plastic material conforming to the following:

Property	Result	ASTM Test Method
Thickness (min)	.090"	——
Tensile strength (min psi) @ yield	5,500	D638
Impact strength @ -20°F (ft-lbs/in of notch)	3.2	D256 Method A
Impact strength @ 73°F (ft-lbs/in of notch)	14.0	D256 Method A
Flexural strength, PSI ¼" @ 73°F	8,000	D790
Flexural modulus, PSI ¼" @ 73°F	300,000	D790
Elongation @ yield	30%	D638



Use same color reflective faces as the edge line along barrier edge. Two way reflective on Surface 1 & 2.

Barrier Marker Detail

Reflective Tape
Use retroreflective, acrylic microprism material with acrylic backing, 3" wide, providing the following minimum optical performance with an observation angle of 0.1' measured in candlepower for the reflector:

Entrance Angle	Specific Intensity
Yellow - 4"	136
White - 4"	200

Adhesive
Use factory applied solid butyl rubber ⅛" thick, 2" wide on 2¼" wide release paper on surface 3 to temporarily mount markers to portable concrete barrier.

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

07-20-12

REVISIONS

DATE	CHANGE
9-27-17	Updated to active voice
11-01-19	New Design Engr PE Stamp
8-21-24	Removed Fabrication Info

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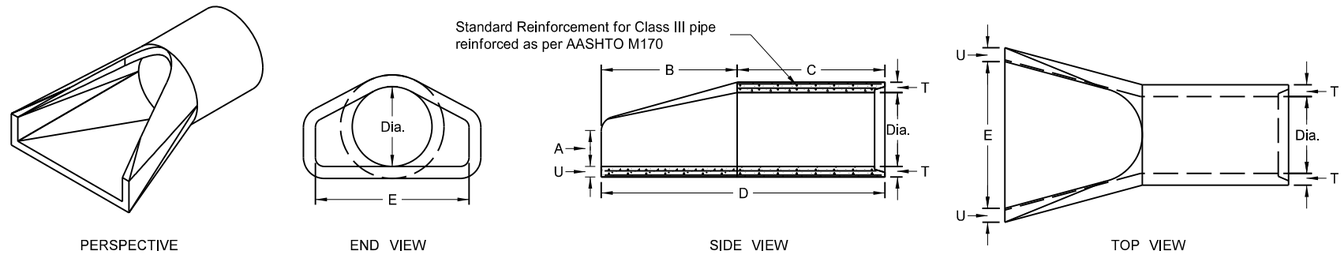
08/21/24

REINFORCED CONCRETE PIPE CULVERTS AND END SECTIONS
(Round Pipe)

D-714-1

FLARED END SECTION						
TERMINAL DIMENSIONS						
DIA	A	B	C	D	E	U
12	0'-4"	2'-0"	4'-0⅞"	6'-0⅞"	2'-0"	2"
15	0'-6"	2'-3"	3'-10"	6'-1"	2'-6"	2¼"
18	0'-9"	2'-3"	3'-10"	6'-1"	3'-0"	2½"
21	0'-9"	3'-0"	3'-1"	6'-1"	3'-6"	2¾"
24	0'-9½"	3'-7½"	2'-6"	6'-1½"	4'-0"	3"
27	0'-10½"	4'-0"	2'-1½"	6'-1½"	4'-6"	3¼"
30	1'-0"	4'-6"	1'-7¾"	6'-1¾"	5'-0"	3½"
36	1'-3"	5'-3"	2'-9"	8'-0"	6'-0"	4"
42	1'-9"	5'-3"	2'-9"	8'-0"	6'-6"	4½"
48	2'-0"	6'-0"	2'-0"	8'-0"	7'-0"	5"
54	2'-3"	5'-5"	2'-9¼"	8'-2¼"	7'-6"	5½"
60	2'-11"	5'-0"	3'-3"	8'-3"	8'-0"	5"
66	2'-6"	6'-0"	2'-3"	8'-3"	8'-6"	5½"
72	3'-0"	6'-6"	1'-9"	8'-3"	9'-0"	6"
78	3'-0"	7'-6"	1'-9"	9'-3"	9'-6"	6½"
84	3'-0"	7'-6½"	1'-9"	9'-3½"	10'-0"	6½"
90	3'-5"	7'-3½"	2'-0"	9'-3½"	11'-0"	6½"



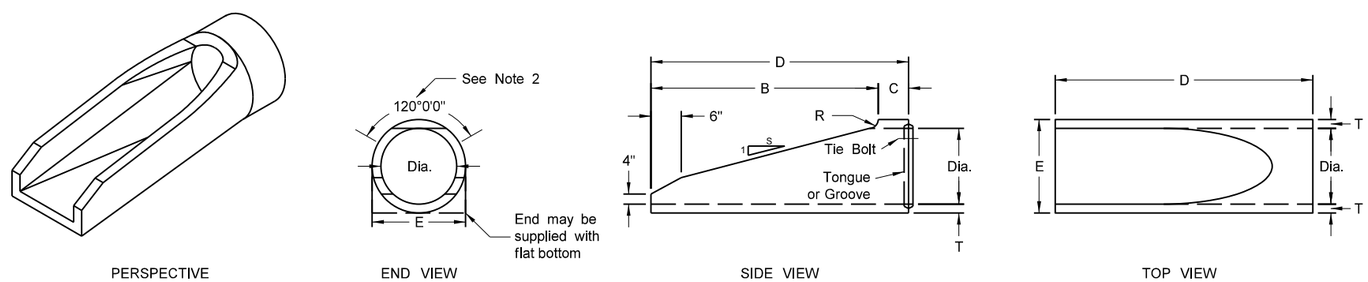
PERSPECTIVE | END VIEW | SIDE VIEW | TOP VIEW

REINFORCED CONCRETE PIPE - FLARED END SECTION
Reinforcement to be equivalent to Class III RCP

NOTES:

1. All reinforcing steel shall meet AASHTO M170 requirements.
2. All circular, longitudinal, and elliptical reinforcement shall be assembled and securely fastened in cage fashion so as to maintain reinforcement in exact shape and correct positions within the forms.
3. Laying length of pipe: 12" to 66" (incl.) = not less than 4 feet
   66" to 108" (incl.) = not less than 6 feet
4. Joints shall be sealed with rubber gaskets or with sealer approved by the engineer whenever pipe are specified for storm drain or sanitary sewers.
5. For Class IV and Class V reinforced concrete pipe and end section sizes which do not have reinforcement specified by AASHTO M170, shop drawings and design calculations shall be prepared and sealed by a Professional Engineer and submitted for the Engineer's review.

TRAVERSABLE END SECTION						
DIA	B	C	D	E	R	S
15"	4'	9"	4'-9"	1'-7½"	3"	6
18"	5'-9"	9"	6'-6"	1'-11"	3"	6
24"	6'	1'	7'	2'-6"	3"	4
30"	7'-6"	1'	8'-6"	3'-1"	3½"	4
36"	7'-3"	15"	8'-6"	3'-8"	3"	4



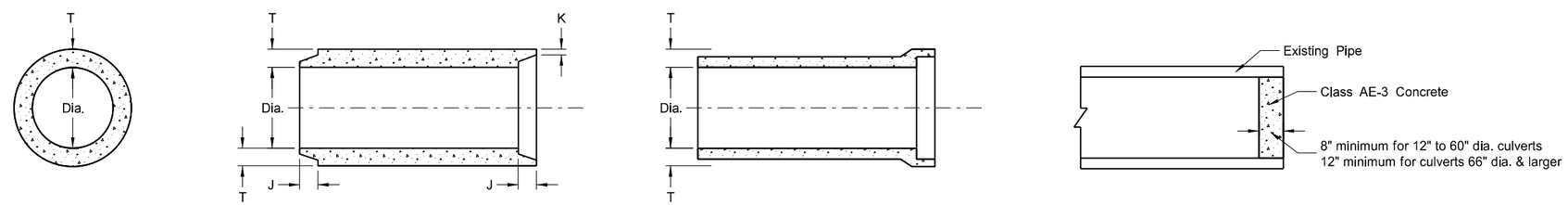
PERSPECTIVE | END VIEW | SIDE VIEW | TOP VIEW

REINFORCED CONCRETE PIPE - TRAVERSABLE END SECTION
Reinforcement to be equivalent to Class III RCP

NOTES (Traversable End Section):

1. Manufactured in accordance with applicable portions of ASTM C76/AASHTO M170.
2. Reinforcement per Class III RCP with double reinforcement in the upper 120° of the full barrel portion.

All Classifications of Round Concrete Pipe					
Internal Dia. of pipe in Inches	Cross-Sectional Water Area	Weight per lin. Foot of Pipe Std. Wall	Joint J Groove End Min./Max.	Joint K Tongue End Min.	Minimum Wall Thickness (T)
Dia	Sq. ft.	Lbs.	In.	In.	In.
12	0.79	92	1⅝-2⅝	¾	2
15	1.23	127	1¾-2¾	⅞	2¼
18	1.77	168	1⅞-2⅞	1	2½
21	2.40	214	1⅞-3⅛	1⅛	2¾
24	3.14	265	2¾-3¾	1⅛	3
27	3.98	322	2¾-4	1¼	3¼
30	4.91	384	3¼-4¼	1¼	3½
33	5.94	452	3¼-4¼	1½	3¾
36	7.07	524	3¼-4¼	1½	4
42	9.62	685	3¾-4¾	1¾	4½
48	12.57	685	3⅞-4¾	1⅞	5
54	15.90	1070	4⅛-5¼	2	5½
60	19.63	1296	4½-5½	2¼	6
66	23.76	1542	5-6	2⅝	6½
72	28.27	1810	5⅝-6¾	2⅞	7
78	33.18	2098	6¼-7¼	2⅞	7½
84	38.48	2410	5⅞-7¾	3⅜	8
90	44.18	2793	6¾-8½	3⅛	8½
96	50.27	3092	7-8¾	3½	9
102	56.75	3466	7-8¾	3½	9½
108	63.62	3864	7¼-8½	3¾	10



END VIEW | TONGUE & GROOVE JOINT | BELL & SPIGOT JOINT | CONCRETE PIPE PLUG

CIRCULAR PIPE

JOINTS FOR REINFORCED CONCRETE PIPE

SEE STANDARD DRAWING D-714-22 FOR DETAILS OF CONCRETE PIPE TIES (TIE BOLTS).

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

05-12-14

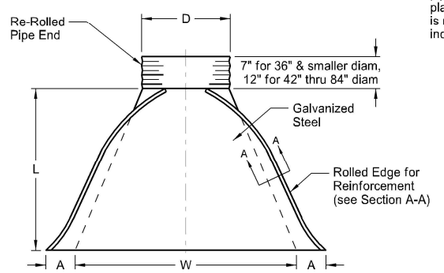
REVISIONS

DATE	CHANGE
01-21-15	Revised Note 5
11-21-16	Revised End Section Dimensions
09-18-19	Updated Perspective View Details

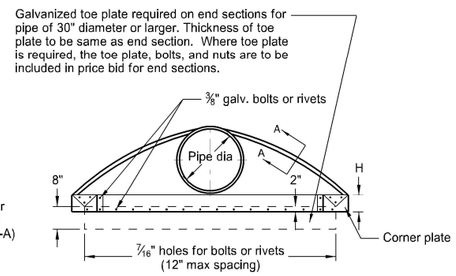
This document was originally issued and sealed by Jon Ketterling Registration Number PE-4684, on 9/18/19 and the original document is stored at the North Dakota Department of Transportation

ROUND CORRUGATED STEEL PIPE CULVERTS AND END SECTIONS

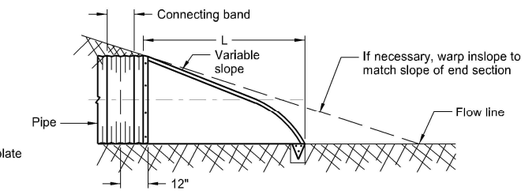
D-714-4



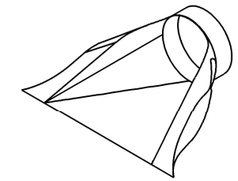
PLAN VIEW



ELEVATION VIEW



TYPICAL CROSS SECTION
(showing connector section)



PERSPECTIVE VIEW

* * PIPE DIA.	GALVANIZED THICKNESS	END SECTION DIMENSIONS					APPROX. SLOPE	BODY
		A	B	H	L	W		
IN	IN	IN	IN	IN	IN	IN	RATE	PIECE
15	0.064 - 0.079	7	8	6	26	30	2½:1	1
18	0.064 - 0.109	8	10	6	31	36	2½:1	1
24	0.064 - 0.109	10	13	6	41	48	2½:1	1
30	0.064 - 0.109	12	16	8	51	60	2½:1	1 or 2
36	0.064 - 0.109	14	19	9	60	72	2½:1	2
42	0.064 - 0.138	16	22	11	69	84	2½:1	2
48	0.064 - 0.168	18	27	12	78	90	2¼:1	2
54	0.064 - 0.168	18	30	12	84	102	2:1	2
* 60	0.064 - 0.168	18	33	12	87	114	1¾:1	3
* 66	0.064 - 0.168	18	36	12	87	120	1½:1	3
* 72	0.064 - 0.168	18	39	12	87	126	1½:1	3
* 78	0.064 - 0.168	18	42	12	87	132	1¼:1	3
* 84	0.064 - 0.168	18	45	12	87	138	1⅛:1	3

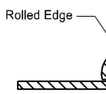
* These sizes have 0.109" sides and 0.138" center panels.

* * Pipe diameter is equal to dimension "D" of end section.

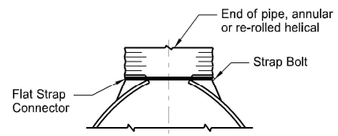
Manufacturers tolerances of above dimensions will be allowed.

Splices to be the lap riveted type.

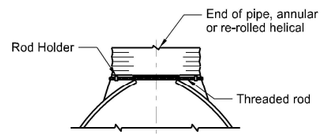
Multiple panel bodies shall have lap seams which are to be tightly joined with ⅜" dia. galv. bolts or rivets. Nuts to be torqued to 25 foot-lbs ±.



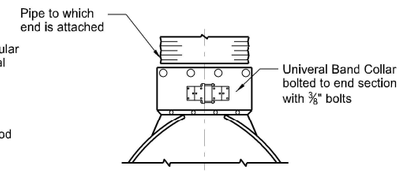
SECTION A-A



TYPE #1
For circular pipes with diameter 24" & smaller

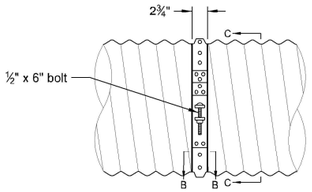


TYPE #2
For circular pipes with diameter 30" through 36"

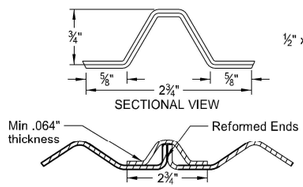


TYPE #3
For all pipe sizes

COUPLING BAND DIMENSIONS				
COUPLING TYPE	CORRUGATION PITCH x DEPTH	PIPE SIZE	COUPLING BAND LENGTH	MIN. BAND THICKNESS
Hat Band	2⅔" x ½"	12" - 48"	2¾"	.064"
Annular Band	2⅔" x ½"	12" - 72"	12"	.052"
		78" - 84"	12"	.079"
	3" x 1"	48" - 120"	14"	.052"
Hugger Band	2⅔" x ½" Rerolled End	12" - 72"	10½"	.052"
		78" - 84"	10½"	.079"
	3" x 1" Rerolled End	48" - 120"	10½"	.052"
	5" x 1" Rerolled End	48" - 120"	12"	.064"



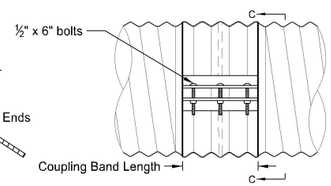
SIDE VIEW



SECTIONAL VIEW

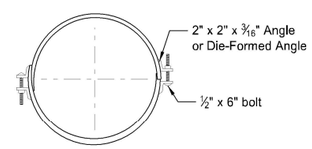
SECTION B-B

HAT BAND FOR FLANGED END PIPE

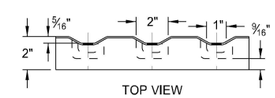


SIDE VIEW

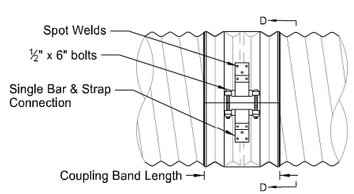
ANNULAR BAND



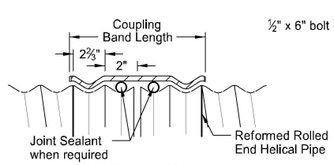
SECTION C-C
Angle Connection



TOP VIEW
Die-Formed Angle Connector

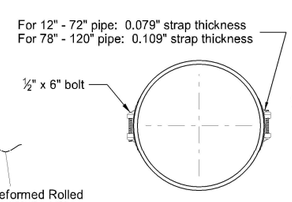


SIDE VIEW

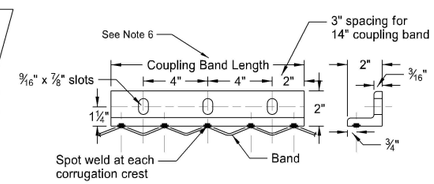


SECTIONAL VIEW

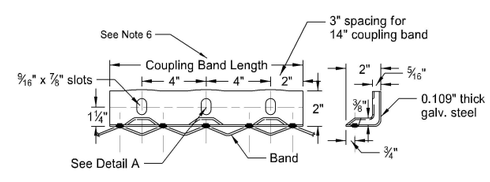
HUGGER COUPLING BAND



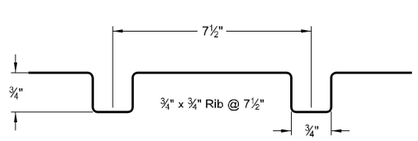
SECTION D-D
Bar & Strap Connection

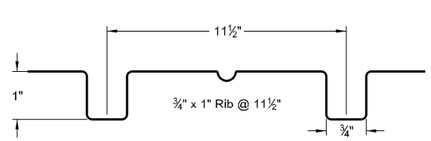


SIDE VIEW
END VIEW
2" x 2" x 3/16" Angle Connector

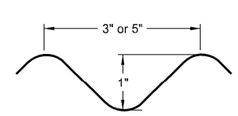


SIDE VIEW
END VIEW
Die-Formed Angle Connector

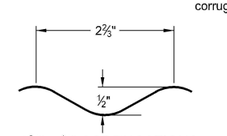




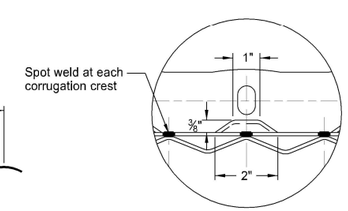
SPIRAL RIB CORRUGATIONS



3" x 1" CORRUGATIONS or
5" x 1" CORRUGATIONS



2⅔" x ½" CORRUGATIONS



Detail A

NOTES:

1. Pipes and connecting bands shall conform to applicable sections of NDDOT Standard Specifications and to AASHTO M-36.
2. Top edge of all end sections to have rolled edges for reinforcement (see Section A-A). The reinforced edges are to be supplemented with 2" x 2" x ¼" galv. angle for 60" through 72" dia. and 2½" x 2½" x ¼" galv. angle for 78" and 84" dia.. Angles to be attached by galv. ⅜" dia. bolts and nuts. Angles are to extend from pipe to the corner wing bend.
3. Elongated pipes shall be factory preformed so that the vertical diameter shall be 5% greater and the horizontal diameter 5% less than a circular pipe.
4. Coupling bands shall be two-piece for pipes larger than 36" as shown in Section C-C & D-D details. For pipes 36" and smaller, a one-piece band is acceptable.
5. ½" x 8" bolts may be used as a substitute for the ½" x 6" bolts shown in the details.
6. Coupling bands wider than 14" may be used if a minimum of four ½" bolts with maximum spacing of 5½" are used for the connection.
7. Length of spot welds shall be minimum ½".

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

08-16-13

REVISIONS

DATE	CHANGE
01-07-14	End Section Plan View
02-27-14	3" x 1" Corrugation Detail
09-18-19	Added Perspective View Detail
09-23-22	Galvanized Thickness Table

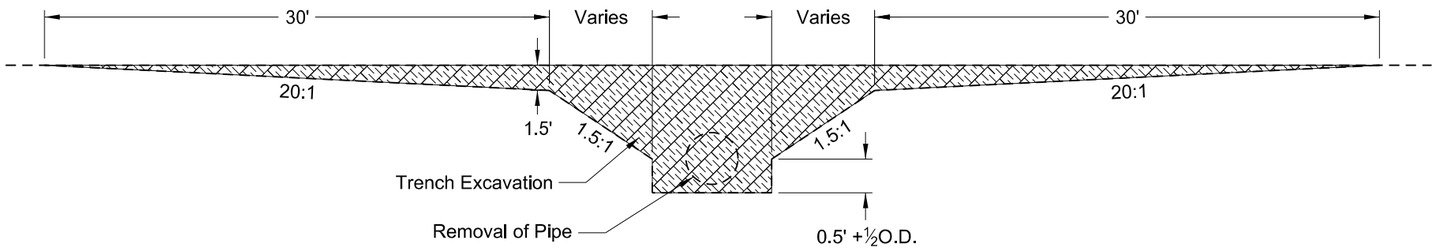
JONATHAN D KETTERING
PROFESSIONAL ENGINEER
PE-4684
NORTH DAKOTA

09/23/22

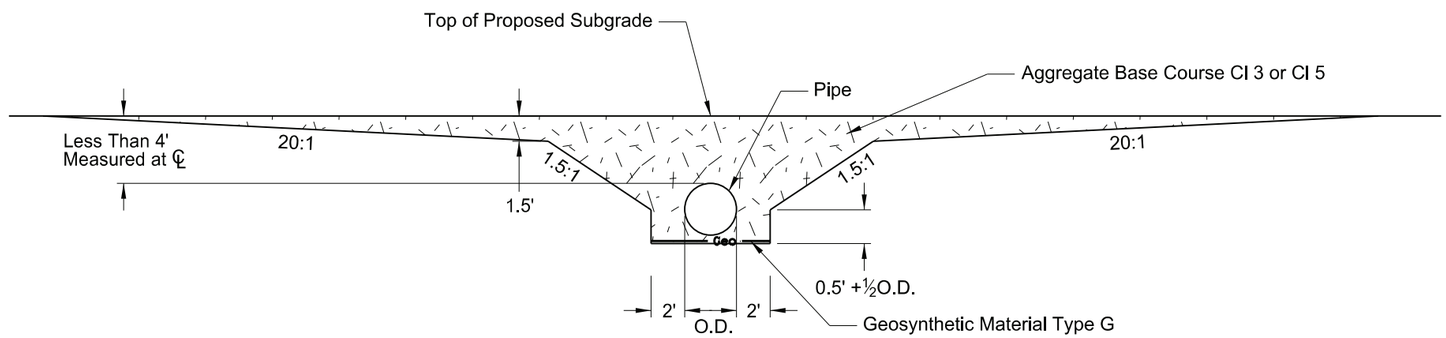
DocuSign

TRANSVERSE MAINLINE PIPE INSTALLATION DETAIL
PIPES 4 FEET OR LESS BELOW TOP OF SUBGRADE

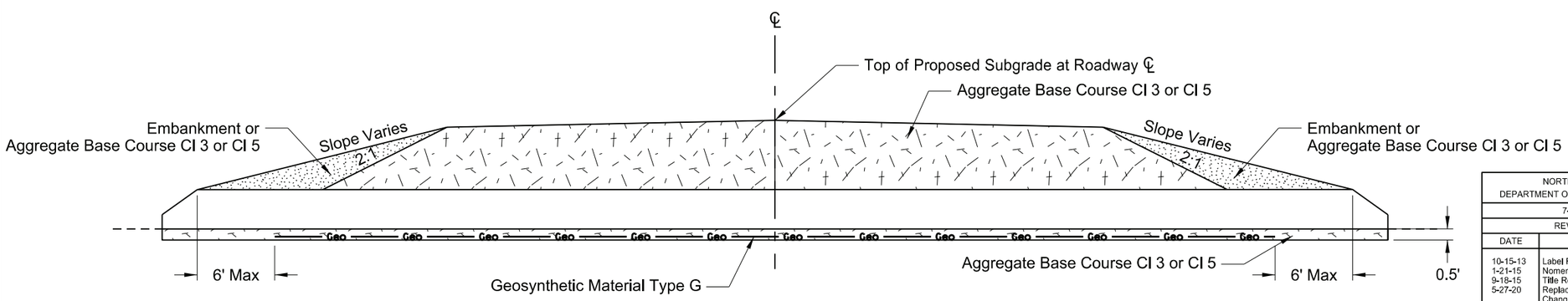
D-714-26



EXCAVATION DETAIL



INSTALLATION DETAIL



CROSS SECTION

Pay Items
1) Pipe*
2) Geosynthetic Material Type G
3) Removal of Pipe (if required)

*Included in Pipe Pay Item
1) Pipe
2) Trench Excavation
3) Aggregate Base Course Cl 3 or Cl 5
4) Embankment

NOTES:

1) This drawing applies to new/replaced mainline and paved intersection roadway pipes only (including ramps). It does not include pipes in approaches.

2) Embankment may be either borrow Excavation or Common Excavation - Type A

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

7-26-13

REVISIONS

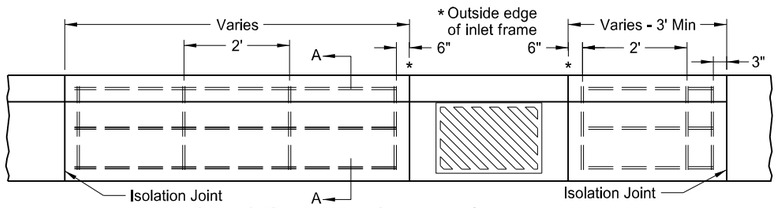
DATE	CHANGE
10-15-13	Label Formatting
1-21-15	Nomenclature
9-18-15	Title Rewording
5-27-20	Replaced R1 Fabric with Geogrid Changed bedding depth

REGISTERED PROFESSIONAL ENGINEER
MATTHEW C KURLE
PE-8777
DATE
05/27/20
NORTH DAKOTA
DocuSign

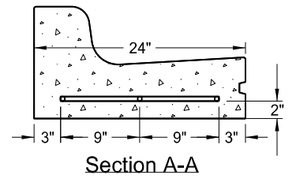
DocuSign Envelope ID: 8071F1C0-4FD3-4297-BAED-6F9FA4C58F28

Curb & Gutter and Valley Gutter

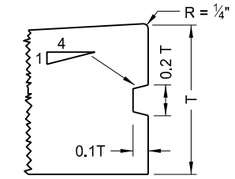
D-748-1



Curb & Gutter Reinforcing at Inlets



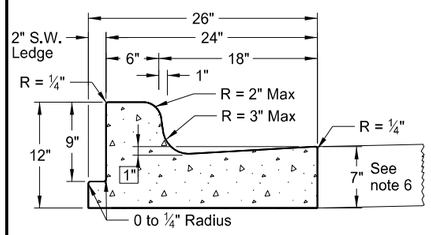
Section A-A



Keyway Detail for Curb & Gutter

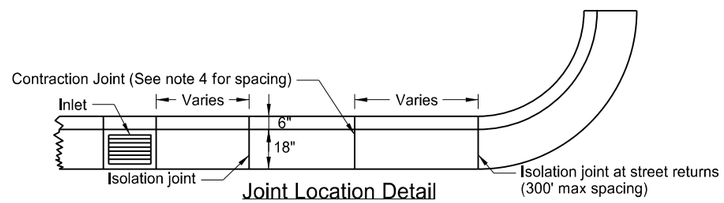
(To be used with PCC Pavement and Drives)

T= Thickness of pavement unless otherwise noted on plans.

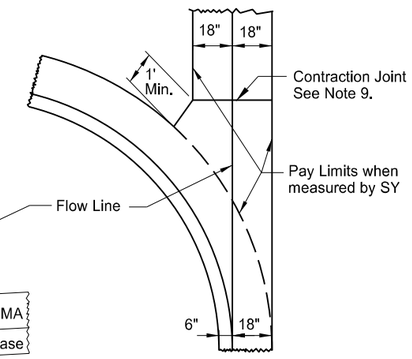


Curb & Gutter Type 1 (Sec. A & B)

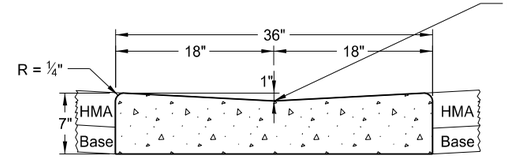
Adjacent to Concrete Sidewalk, Median, or Parking Lot. (Sec. A shown. See Sec B for additional details.)



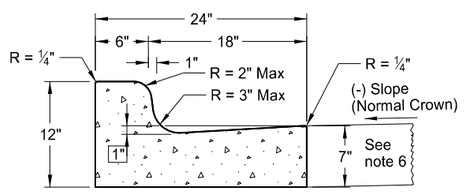
Joint Location Detail



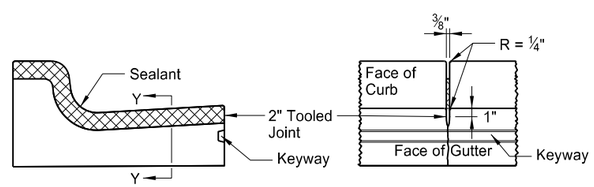
36" Concrete Valley Gutter Plan



36" Concrete Valley Gutter Detail



Curb & Gutter Type 1 (Sec. A)

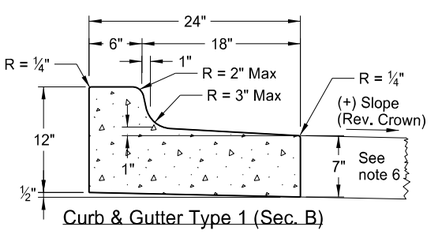


Detail

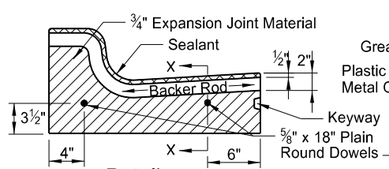
(10' Max Spacing)

Contraction Joint

Section Y-Y

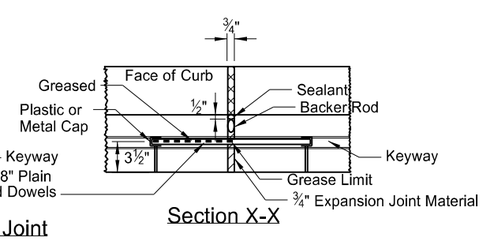


Curb & Gutter Type 1 (Sec. B)

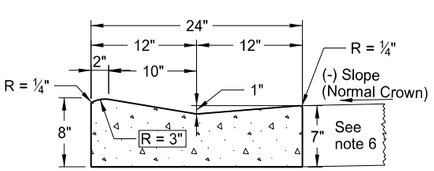


Detail

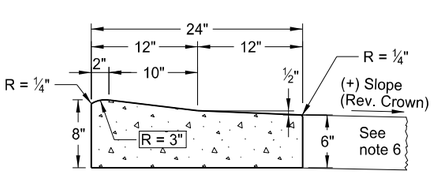
Isolation Joint



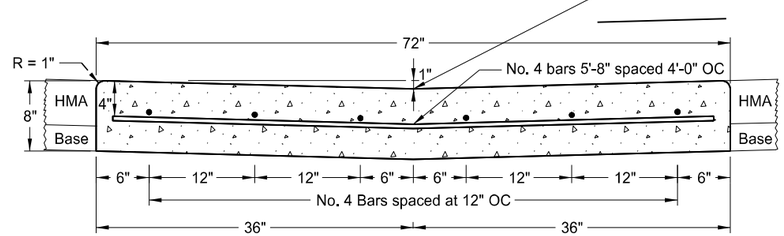
Section X-X



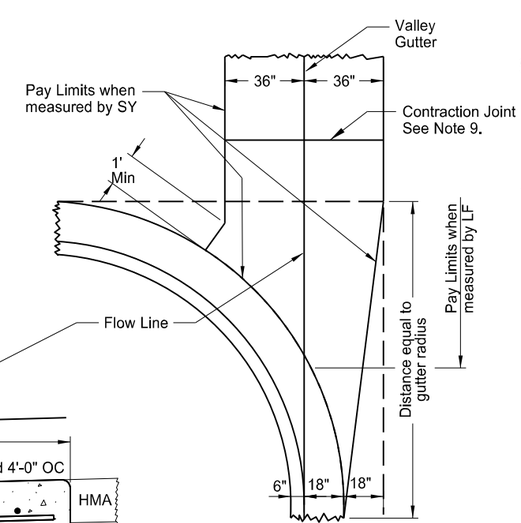
Mountable Curb & Gutter Type 1 (Sec. A)



Mountable Curb & Gutter Type 1 (Sec. B)



72" Concrete Valley Gutter Detail



72" Concrete Valley Gutter Plan

NOTES:

1. Use Curb and Gutter Type 1 (Sec. A & B). Use section "A" with (-) pavement slopes and section "B" with (+) pavement slopes.
2. Contraction Joints: Tool the Curb & Gutter 2" as shown on the contraction joint details.
3. Isolation Joints: Use ¾" expansion joint material for isolation joints. Form the backer rod and joint sealant opening with a pre-cut piece of wood or other material approved by the engineer. Dowel supports are not required on the second pour at a cold joint. Install plastic or metal caps and greased dowels in the cold joint for the second pour.
4. Joint Spacing: For hot mix asphalt pavements use a 10' max joint spacing for the curb and gutter with panels on each side of the inlets. For concrete pavements match the joint spacing for the curb and gutter to the pavement joint on PCC Pavements (approximately 15' spacing.)
5. Joint sealing: For contraction joint, use joint sealant that conforms to section 826.02B. Use sealant for expansion joints specified in note 3 above. Tool and install sealant in accordance with the manufacturer's recommendations.
6. Curb & Gutter-Pavement Interface: For hot mix asphalt pavement use gutter depth shown. For PCC pavements, either match gutter depth to adjacent pavement depth or construct gutter depth shown.
7. Tie curb and gutter to abutting PCC pavement with No. 4 bars, 2'-0" in length, spaced at 3'-9" centers for 15' joint spacing (maximum spacing of 4' centers).
8. On street returns and other locations where new curb and gutter ends and does not abut existing curb and gutter, taper the last two (2) feet of the curb from 6" in height to 0". Install a 1/2" premolded full depth isolation joint (the same shape as the curb and gutter just ahead of the taper) with an 18" plain round bar across the joint.
9. Valley Gutter Joints: Form, saw, or score ⅛" min. to ⅜" max. width contraction joints (a minimum 2" depth) at approx 10' intervals. Seal the joints with hot poured elastic type joint sealer (Section 826.02A.2 of the Standard Specifications.) Include all costs for the joint and sealant in the price bid for Valley Gutter.
10. Reinforcing at Inlets: Use #4 deformed reinforcing bars without splices. Include all costs for reinforcing bars at inlets (even inlets located on radii) in the price bid for "Curb & Gutter - Type 1" or "Curb & Gutter Mountable - Type 1." Extend reinforcement to the second joint (with rebar placed through the first joint) in cases where the 3' minimum panel length can't be obtained.

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

8-7-2013

REVISIONS

DATE	CHANGE
10-17-17	Updated to active voice.
08-27-19	New Design Engr PE Stamp.
10-30-24	Revised bar size & notes.

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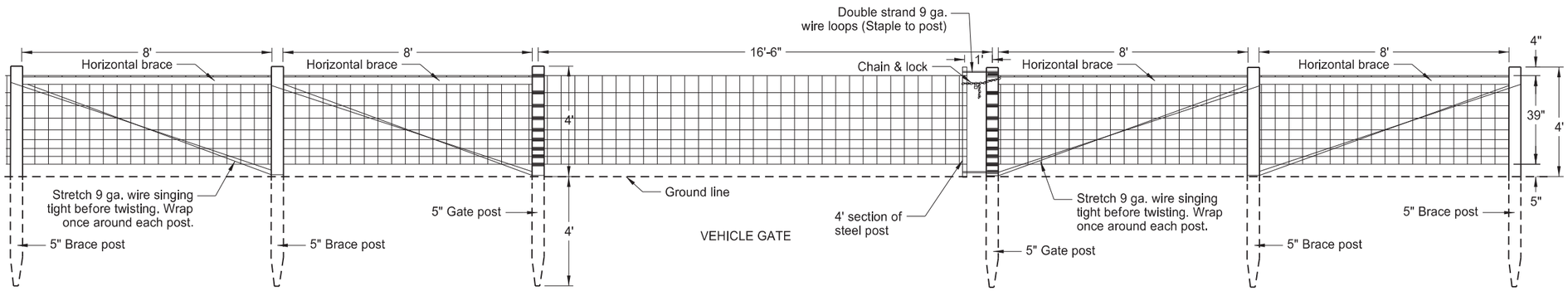
PROFESSIONAL
PE-4683
ENGINEER
NORTH DAKOTA

10/30/24

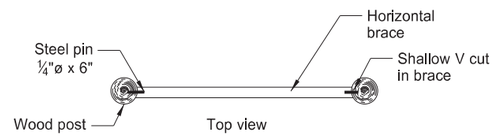
STANDARD WOVEN WIRE FENCE

D-752-3

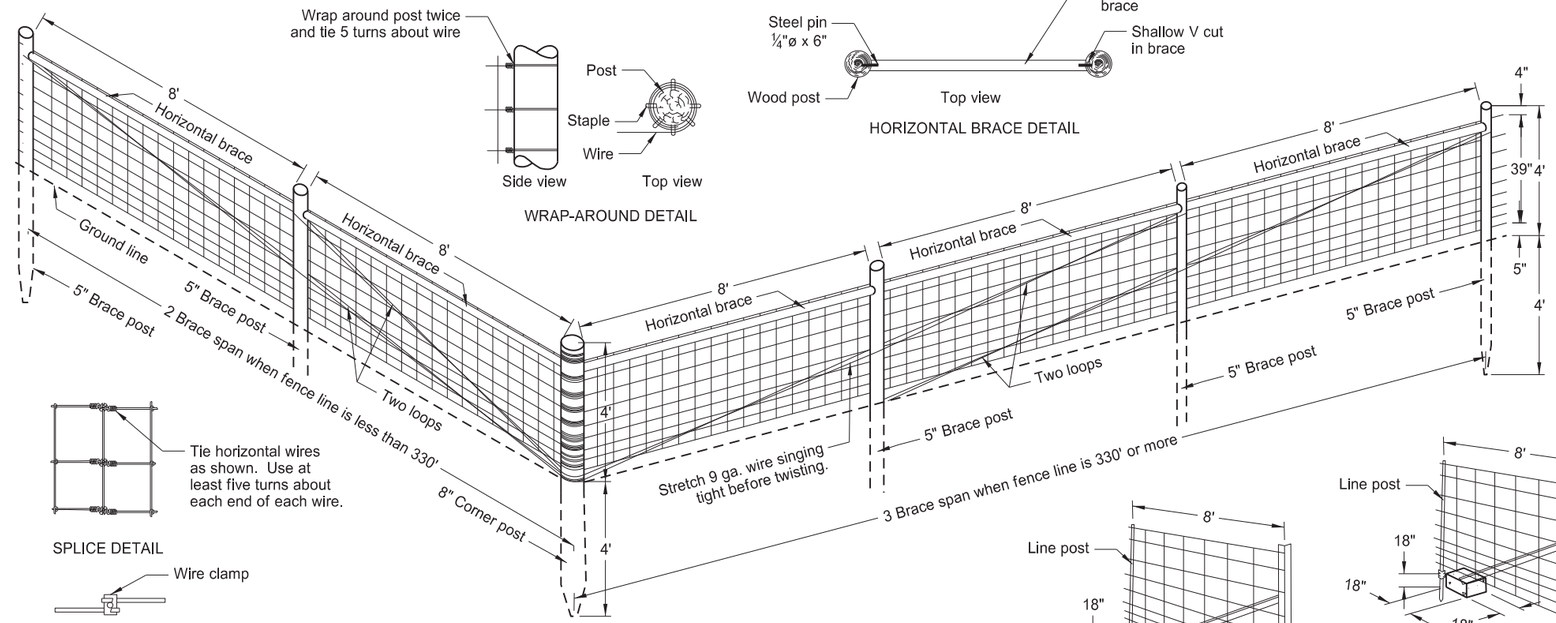


VEHICLE GATE

WRAP-AROUND DETAIL



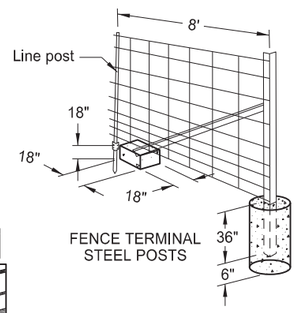
HORIZONTAL BRACE DETAIL



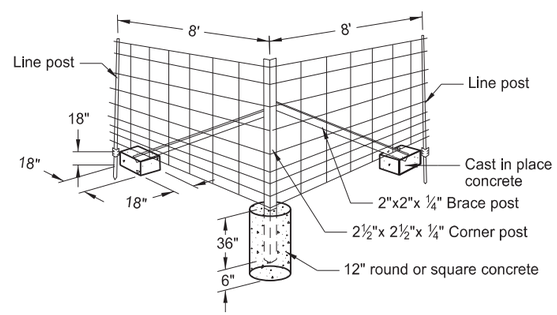
CORNER ASSEMBLY

SPLICE DETAIL

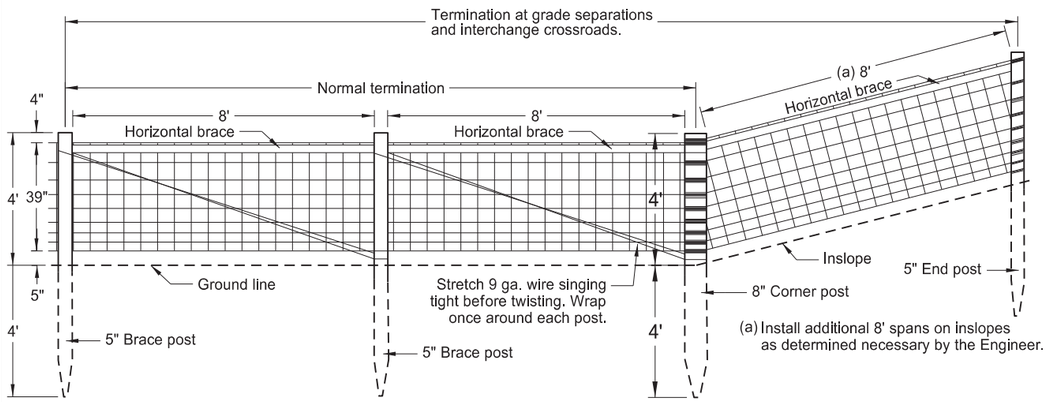
Tie or wire clamp woven wire fence splice as shown.



FENCE TERMINAL STEEL POSTS

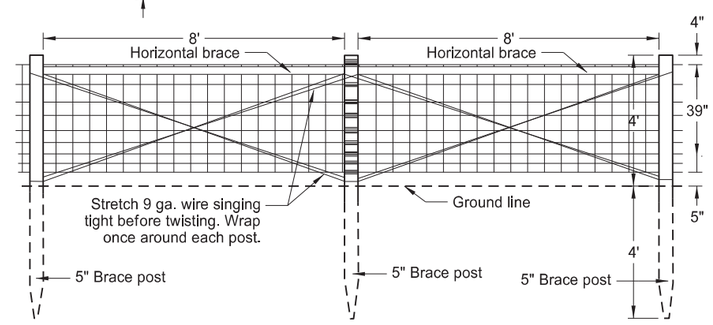


CORNER AND DOUBLE BRACE ASSEMBLY STEEL POSTS



(a) Install additional 8' spans on inslopes as determined necessary by the Engineer.

FENCE TERMINAL



DOUBLE BRACE ASSEMBLY

NOTES

1. No deduction in measured pay length of woven wire fence for gates, corner assemblies, double brace assemblies or fence terminals.

2. Install double brace assembly at locations shown on the plans or established by the Engineer. Space adjacent fence terminals, corner assemblies or double brace assemblies a maximum of 1320 feet.

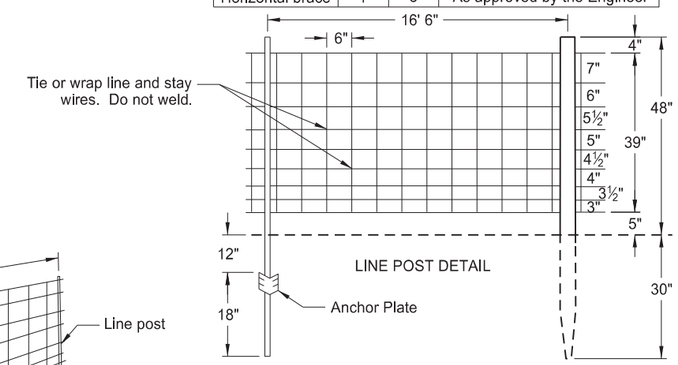
3. Staple the top wire of woven wire fence separately. Staple intermediate wires a maximum spacing of 10" apart. Staple bottom wire.

4. If in the opinion of the Engineer the change in grade is so sharp that woven wire will not conform to the grade, install a double brace.

5. Determine post type used, either wood or steel, unless otherwise specified in the plans.

6. Include the cost of bracing at vehicle gates in the price bid for "Vehicle Gate."

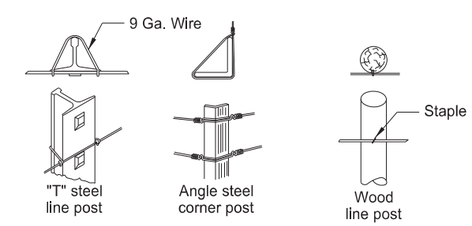
POST SIZES					
	Treated wood		Steel		
USE OF POST	Post dia.	Post length	Post length	Post wt. Lbs/Ft	Anchor wt. Lbs
Line post	3½"	6'-6"	6'-6"	1.33	0.67
Corner post	8"	8'	7'	4.10	(Conc.)
End post	5"	8'			
Brace post	5"	8'	7'	3.19	(Conc.)
Gate post	5"	8'			
Horizontal brace	4"	8'	As approved by the Engineer		



LINE POST DETAIL

STEEL LINE POST (16'-6" Spacing)

WOOD LINE POST (16'-6" Spacing)



FASTENING TO POSTS

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

10-02-12

REVISIONS

DATE	CHANGE
10-17-17	Updated to active voice.
02-09-23	Revised post spacing & brace size

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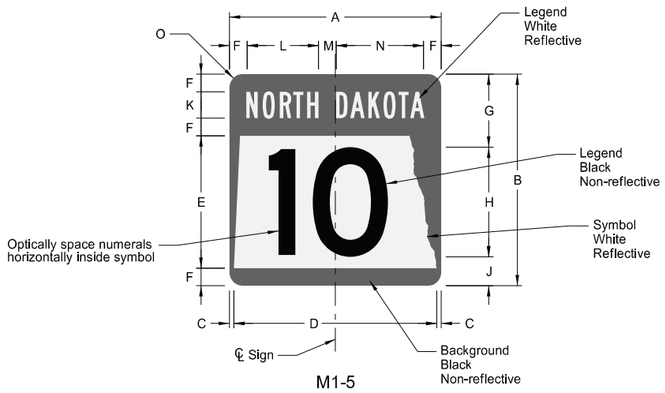
ENGINEER
NORTH DAKOTA

02/09/23

DocuSign Envelope ID: 3BB6949C-35F3-4834-B8EF-90A4185B6E25

STATE HIGHWAY ROUTE SHIELD DETAIL

D-754-11

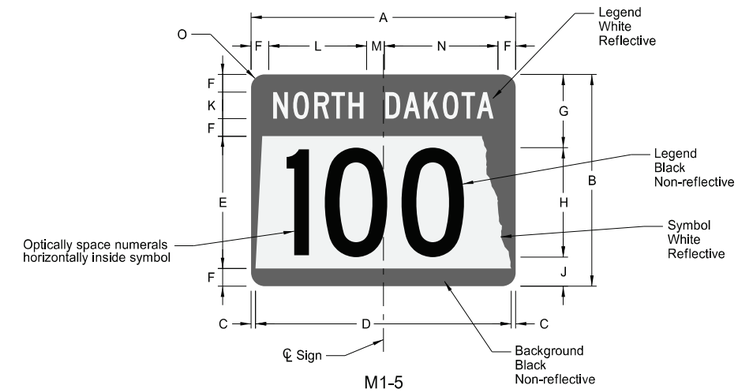


M1-5

STATE ROUTE MARKER

SIGN	DIMENSION (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N	O
1, 2 digits	18*	18*	0.38	17.25	11.25	1.5	6.38	9 D**	2.63	2.25 B	6.1	1.5	7.4	1.5
1, 2 digits	24	24	0.5	23	15	2	8.5	12 D**	3.5	3 B	8.1	2	9.9	1.5
1, 2 digits	36	36	0.75	34.5	22.5	3	12.75	18 D**	5.25	4.5 B	12.1	3	14.9	2.25
1, 2 digits	48*	48*	1	46	30	4	17	24 D**	7	6 B	16.2	4	19.8	3

* Size not for independent use (only for use within a guide sign)
** Reduce numeral spacing by 25%

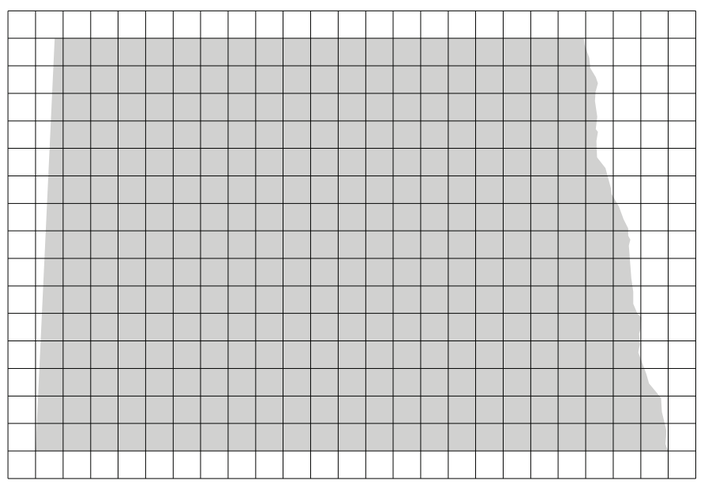


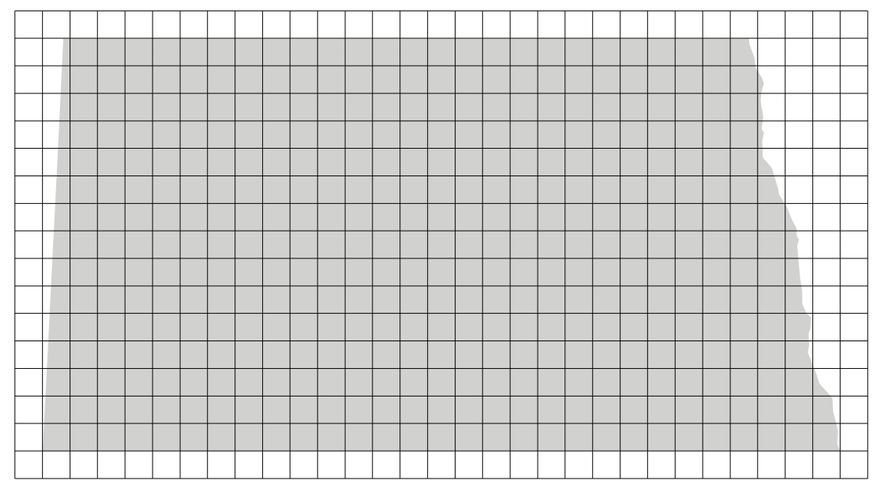
M1-5

STATE ROUTE MARKER

SIGN	DIMENSION (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N	O
3 digits	24*	18*	1.13	21.75	11.25	1.5	6.38	9 C**	2.63	2.25 C	8.8	2	10.2	1.5
3 digits	30	24	0.5	29	15	2	8.5	12 C**	3.5	3 C	10.7	2.5	12.8	1.5
3 digits	45	36	0.75	43.5	22.5	3	12.75	18 C**	5.25	4.5 C	16.1	3.8	19.1	2.25
3 digits	60*	48*	1	58	30	4	17	24 C**	7	6 C	21.5	5	25.5	3
4 digits	24*	18*	1.13	21.75	11.25	1.5	6.38	9 B***	2.63	2.25 C	8.8	2	10.2	1.5
4 digits	30	24	0.5	29	15	2	8.5	12 B***	3.5	3 C	10.7	2.5	12.8	1.5
4 digits	45	36	0.75	43.5	22.5	3	12.75	18 B***	5.25	4.5 C	16.1	3.8	19.1	2.25
4 digits	60*	48*	1	58	30	4	17	24 B***	7	6 C	21.5	5	25.5	3

* Size not for independent use (only for use within a guide sign)
** Reduce numeral spacing by 25%
*** Reduce numeral spacing by 50%





Note: North Dakota symbol graphics file may be obtained from the Design Division of North Dakota Department of Transportation.

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

4-23-18

REVISIONS

DATE	CHANGE
8-29-19	New Design Engineer PE Stamp.
8-05-24	Electronic Stamp/Signature.

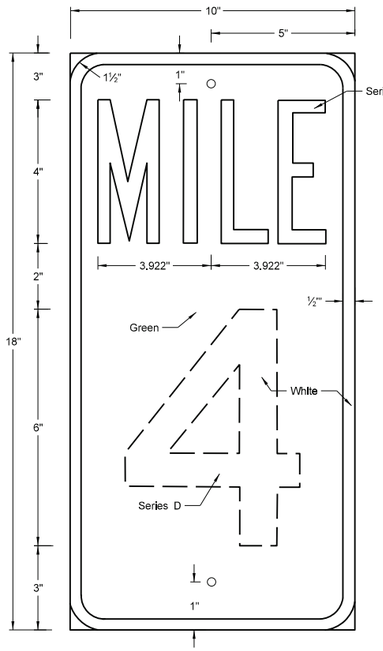
KIRK J. HOFF
REGISTERED
PROFESSIONAL
PE-4683
ENGINEER
NORTH DAKOTA

08/05/24

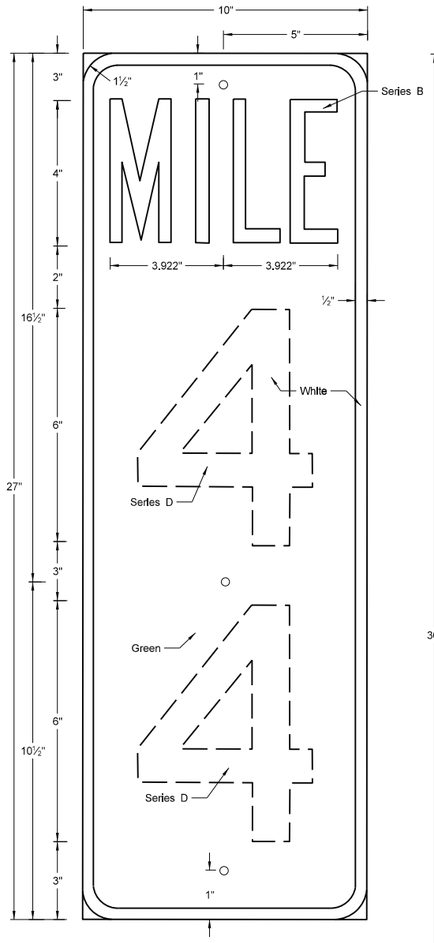
DocuSign Envelope ID: 3BB6949C-35F3-4834-B8EF-90A4185B6E25

(CONVENTIONAL USE) REFERENCE MARKERS

D-754-19



TYPE A
Area = 1.25 S.F.



TYPE B
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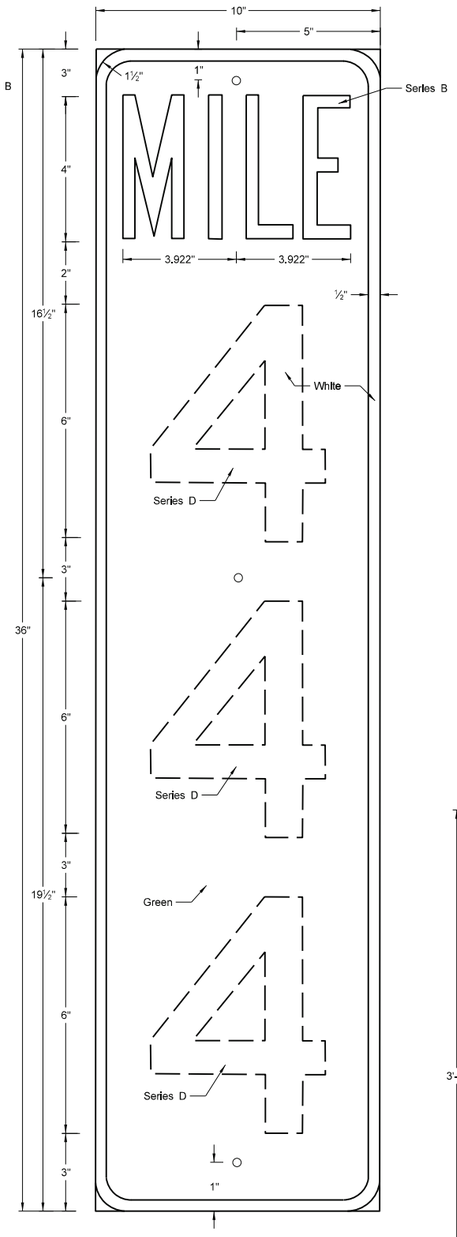

TYPE C
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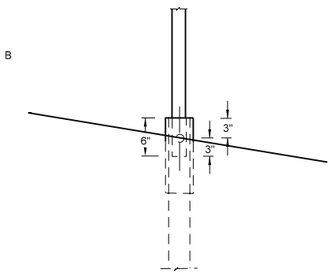
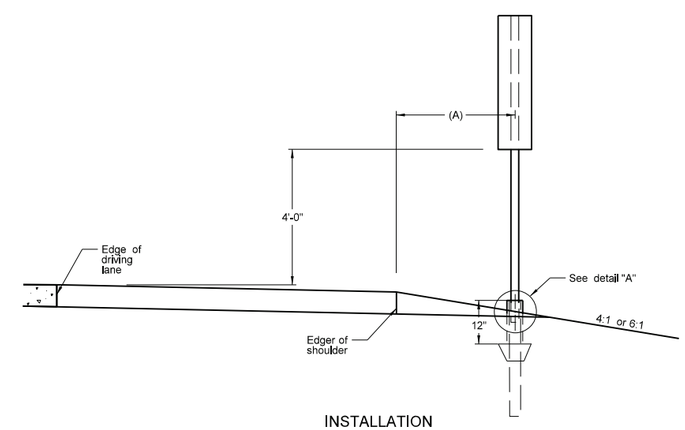
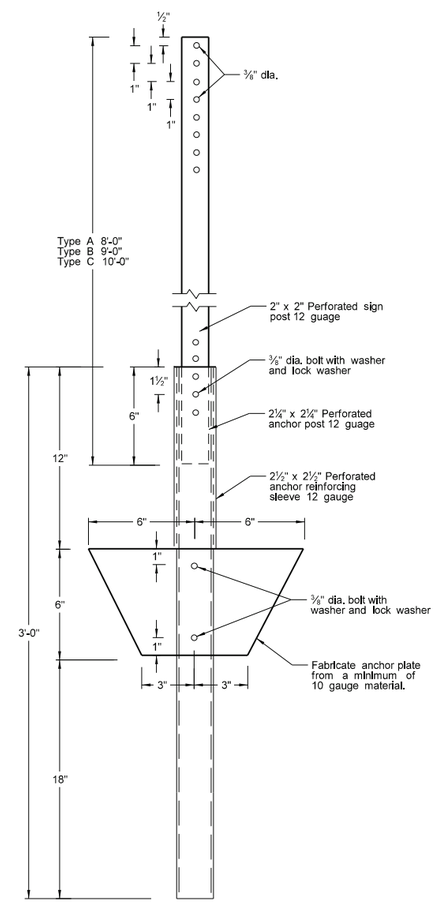


DETAIL "A"

(A) 8' Clearance to finished shoulder or in line with existing delineator posts.



INSTALLATION



POST AND ANCHOR PLATE DETAIL

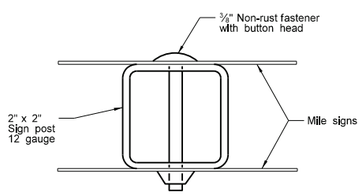
NOTES:
Installation: Install posts along right shoulder.

Sign: Fabricate backing of 0.080 aluminum.

Fasteners: Attach signs to post with tension pin type fastener or other suitable vandal resistant non-rust fastener.

Reflective Sheeting: Use Type IV sheeting.

Numbers: Use screened or applied copy numbers of the series shown.



ASSEMBLY DETAIL
(back to back)

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
12-1-10	
REVISIONS	
DATE	CHANGE
7-8-14	Revised post and reflective sheeting notes
8-30-18	Updated to active voice.
8-29-19	New Design Engineer PE Stamp.
8-05-24	Electronic Stamp/Signature.

KIRK J. HOFF REGISTERED PROFESSIONAL PE-4683 ENGINEER NORTH DAKOTA

08/05/24

DocuSign Envelope ID: 3BB6949C-35F3-4834-B8EF-90A4185B6E25

PERFORATED TUBE ASSEMBLY DETAILS

D-754-23

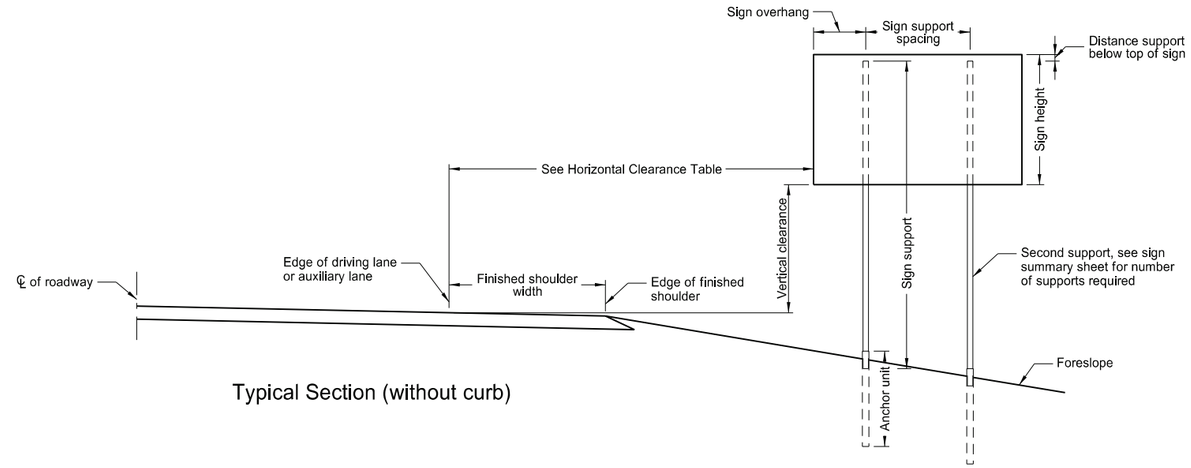
Notes:

1. Curbed Roadways: Use a 3' clearance from face of the curb except where right of way or sidewalk width is limited; Use a minimum 2' clearance. Increase the horizontal clearance if required to maintain a minimum sidewalk clear width of 4' from the sign support, not including any attached curb.
2. Minimum vertical clearance: Provide at least 5' measured from the bottom of the sign to the edge of the driving lane or auxiliary lane at the side of the road in rural districts. Provide at least 7' clearance to the bottom of the sign, where parking or pedestrian movements occur.

   Install signs on expressways a minimum height of 7'.

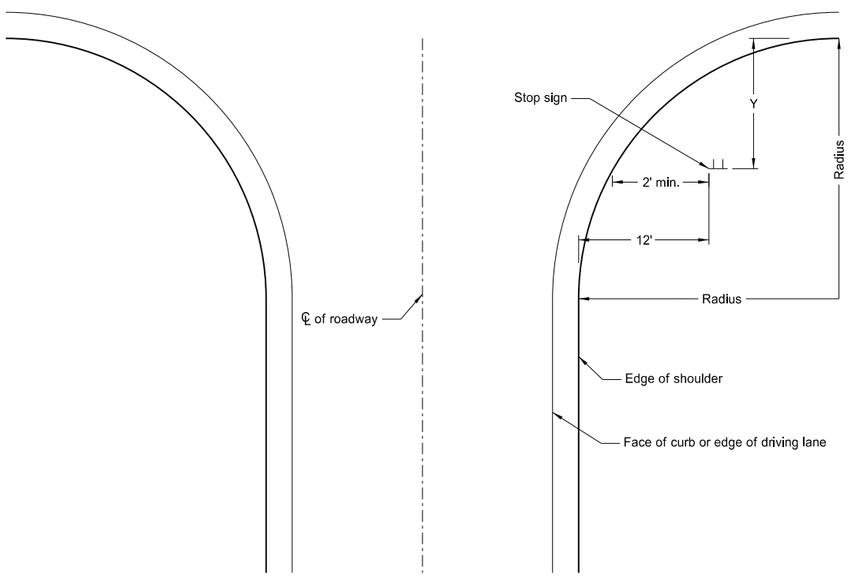
   Install adopt-a-highway signs on Freeways at least 7' above the edge of the driving lane.

   Maximum vertical clearance is 6" greater than the minimum vertical clearance.
3. Offset signs: Use a vertical clearance of 5' above the edge of the driving lane for signs placed 30 feet or more from the edge of the traveled way.
4. Provide a horizontal clearance from edge of shared use path to edge of sign of 3', except where width is limited. Provide a minimum clearance of 2'.



Typical Section (without curb)

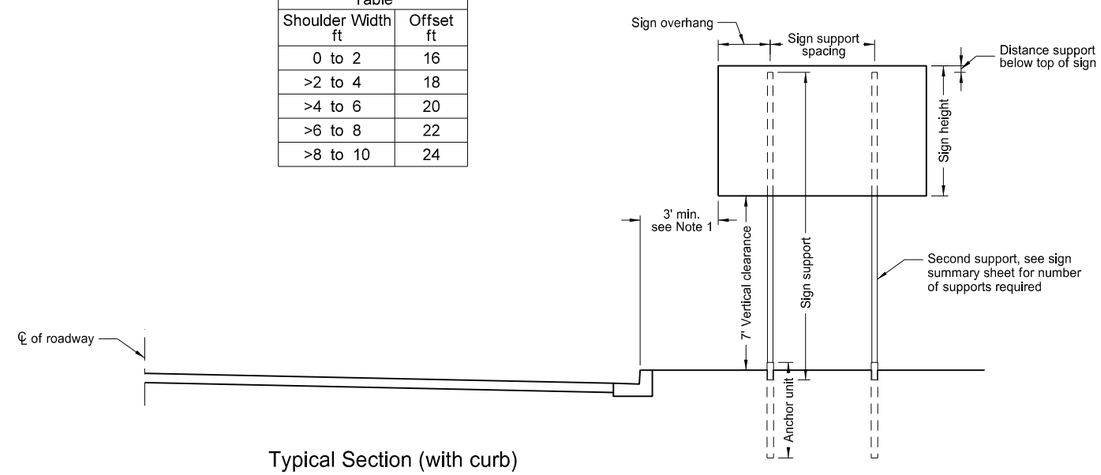
Horizontal Clearance Table	
Shoulder Width ft	Offset ft
0 to 2	16
>2 to 4	18
>4 to 6	20
>6 to 8	22
>8 to 10	24



Stop Sign Location
Wide Throat Intersection

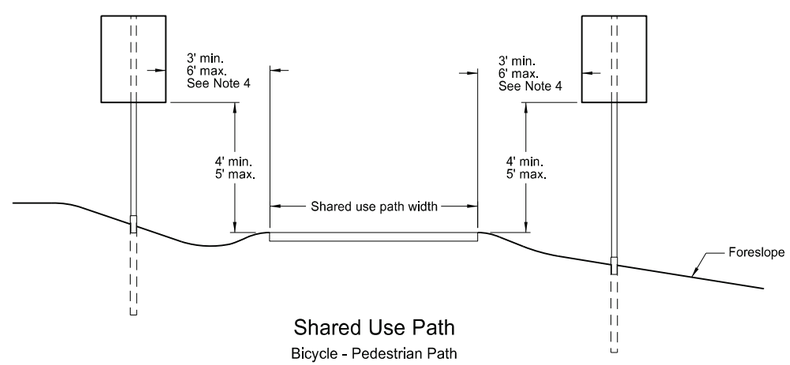
Use layout for the placement of "Stop" signs.

Radius ft.	Y-max. ft.	Y-min. ft.
40	50	15
45	50	18
50	50	21
55	50	25
60	50	28
65	50	32
70	50	35
75	50	39
80	50	43



Typical Section (with curb)

Residential or Business District



Shared Use Path

Bicycle - Pedestrian Path

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

10-3-13

REVISIONS

DATE	CHANGE
7-8-14	Revised note 2, added note 4.
8-30-18	Updated notes to active voice.
8-29-19	New Design Engineer PE Stamp.
8-05-24	Electronic Stamp/Signature.

KIRK J. HOFF
REGISTERED
PROFESSIONAL
PE-4683
ENGINEER
NORTH DAKOTA

08/05/24

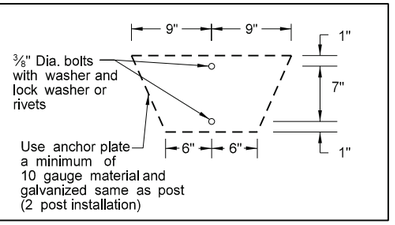
DocuSign Envelope ID: 3BB6949C-35F3-4834-B8EF-90A4185B6E25

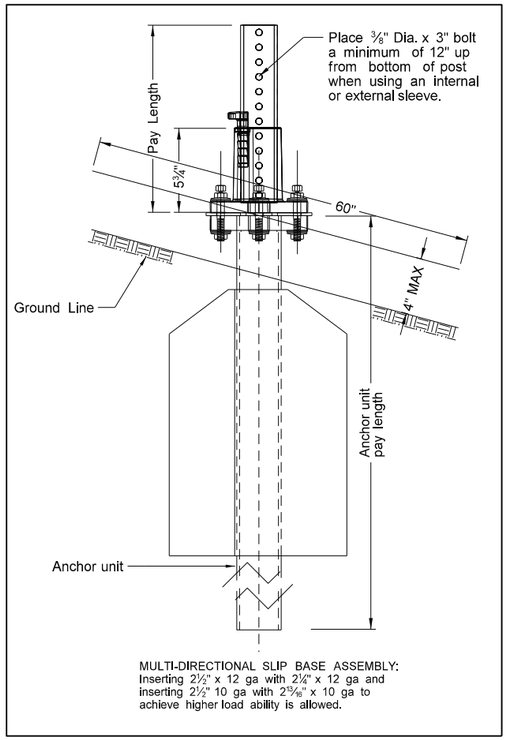
Mounting Details Perforated Tube

D-754-24

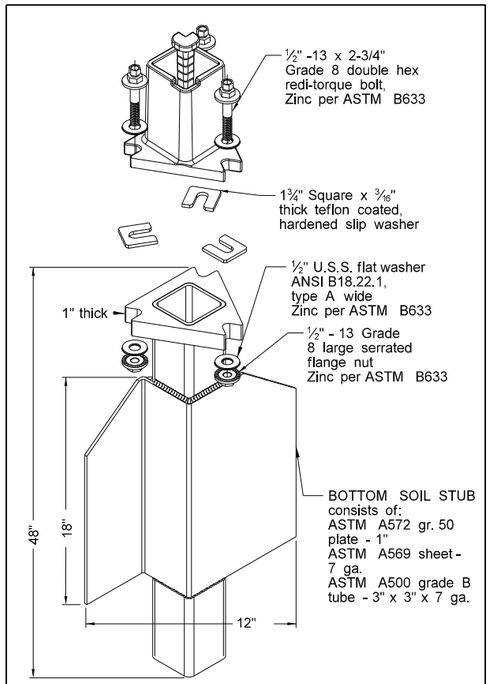
Number of Posts	Telescoping Perforated Tube						
	Post Size In.	Wall Thick-ness Gauge	Sleeve Size In.	Wall Thick-ness Gauge	Slip Base	Anchor Size Without Slip Base In.	Anchor Wall Thick-ness Gauge
1	2	12			No	2¼	12
1	2¼	12			No	2½	12
1	2½	12			(B)	3(C)	7
1	2½	10			Yes		7
1	2¼	12	2½(D)	12	Yes		7
1	2½	12	2¼	12	Yes		7
2	2½	10			Yes		7
2	2¼	12	2½(D)	12	Yes		7
2	2½	12	2¼	12	Yes		7
3 & 4	2½	12			Yes		7
3 & 4	2½	10			Yes		7
3 & 4	2½	12	2¼	12	Yes		7
3 & 4	2¼	12	2½(D)	12	Yes		7
3 & 4	2½	10	2 3/16	10	Yes		7

(B) - Provide a shim as specified by the manufacturer when placing 2½", 12 gauge posts in standard soils without breakaway bases. Provide breakaway base when placing the support in weak soils. The Engineer will determine if the soils are weak. Weak soils are classified as boggy, wet, or loose soil areas.
(C) - 3" anchor unit
(D) - 2½" x 12 ga. x 18" minimum length external sleeve required.

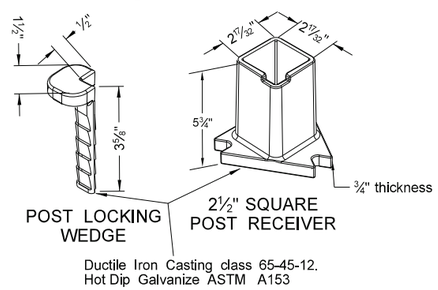


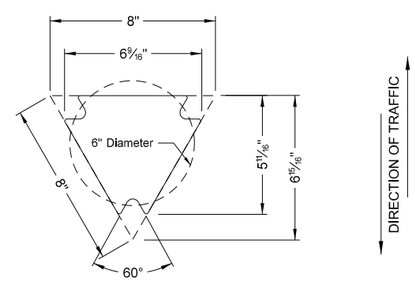


MULTI-DIRECTIONAL SLIP BASE ASSEMBLY:
Inserting 2½" x 12 ga with 2¼" x 12 ga and inserting 2½" 10 ga with 2 15/16" x 10 ga to achieve higher load ability is allowed.



SLIP BASE FOR 2½" POST





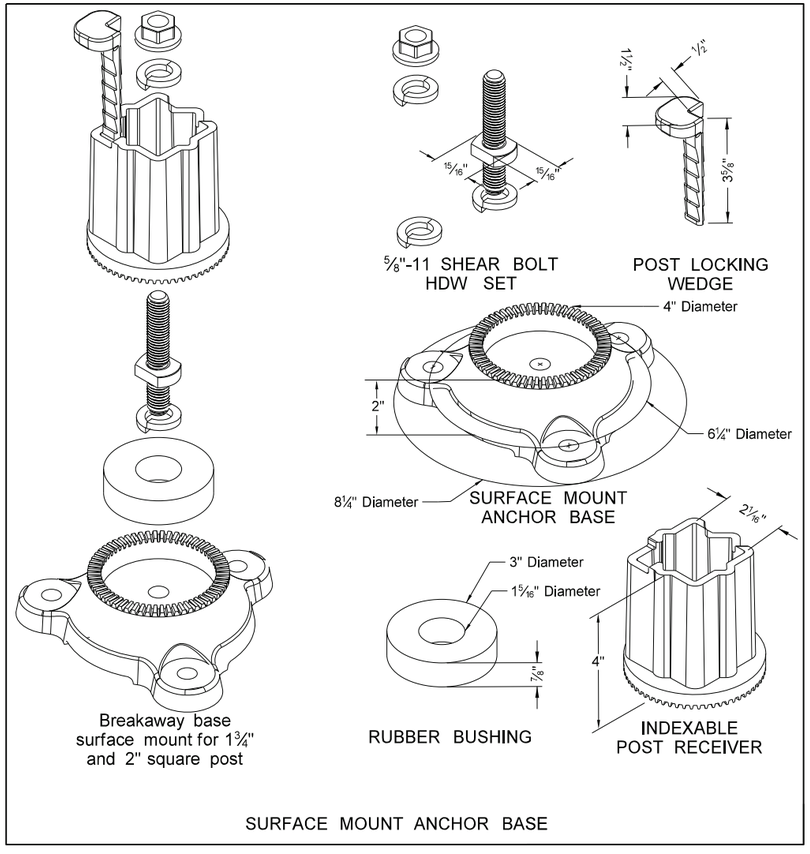
SLIP BASE DETAIL

Properties of Telescoping Perforated Tubes						
Tube Size In.	Wall Thickness In.	U.S. Standard Gauge	Weight Per Foot Lbs.	Moment of Inertia In.⁴	Cross Sect. Area In.²	Section Modulud In.³
1½ x 1½	0.105	12	1.702	0.129	0.380	0.172
2 x 2	0.105	12	2.416	0.372	0.590	0.372
2¼ x 2¼	0.105	12	2.773	0.561	0.695	0.499
2 3/16 x 2 3/16	0.135	10	3.432	0.605	0.841	0.590
2½ x 2½	0.105	12	3.141	0.804	0.803	0.643
2½ x 2½	0.135	10	4.006	0.979	1.010	0.783

The 2 3/16" size 10 gauge is shown as 2.19" size on the plans; The 2½" size is shown as 2.51" size on the plans.

NOTE:

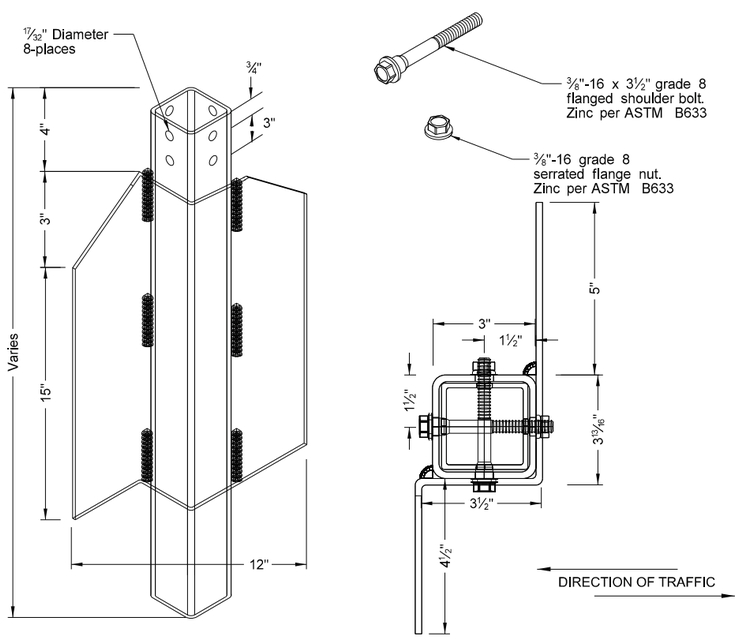
1. 4" Vertical clearance of anchor or breakaway base. The 4" x 60" measurement is above and below post location and also back and ahead of post.
2. Provide 7 guage HRPO commmercial quality ASTM A569 and 3" x 3" x 7" guage ASTM A500 grade B anchor material with 43.9 KSI yield strength and 59.3 KSI tensile strength. Hot dip galvanize anchor per ASTM A123/153. Tolerances on anchor unit and slip base bottom assembly are +/- 0.005" unless ortherwise noted.
3. Eliminate wings when anchor is used in concrete sidewalk.
4. Provide a minimum 8' distance between the first and fourth post on four post signs.
5. Install in accordance with manufacturers recommendation.
6. Use a minimum ½" diameter x 4" grade 8 concrete fastener for surface mount breakaway base.



SURFACE MOUNT ANCHOR BASE

SHOULDER BOLT

Shimming agent to reduce tolerance between 3" anchor unit and 2½" post.
(use standard ⅜" diameter grade 8 bolt with proper shim)



3" ANCHOR UNIT

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-6-09	
REVISIONS	
DATE	CHANGE
8-30-18	Updated notes to active voice & corrected max height of base.
8-29-19	New Design Engineer PE Stamp.
8-05-24	Electronic Stamp/Signature.

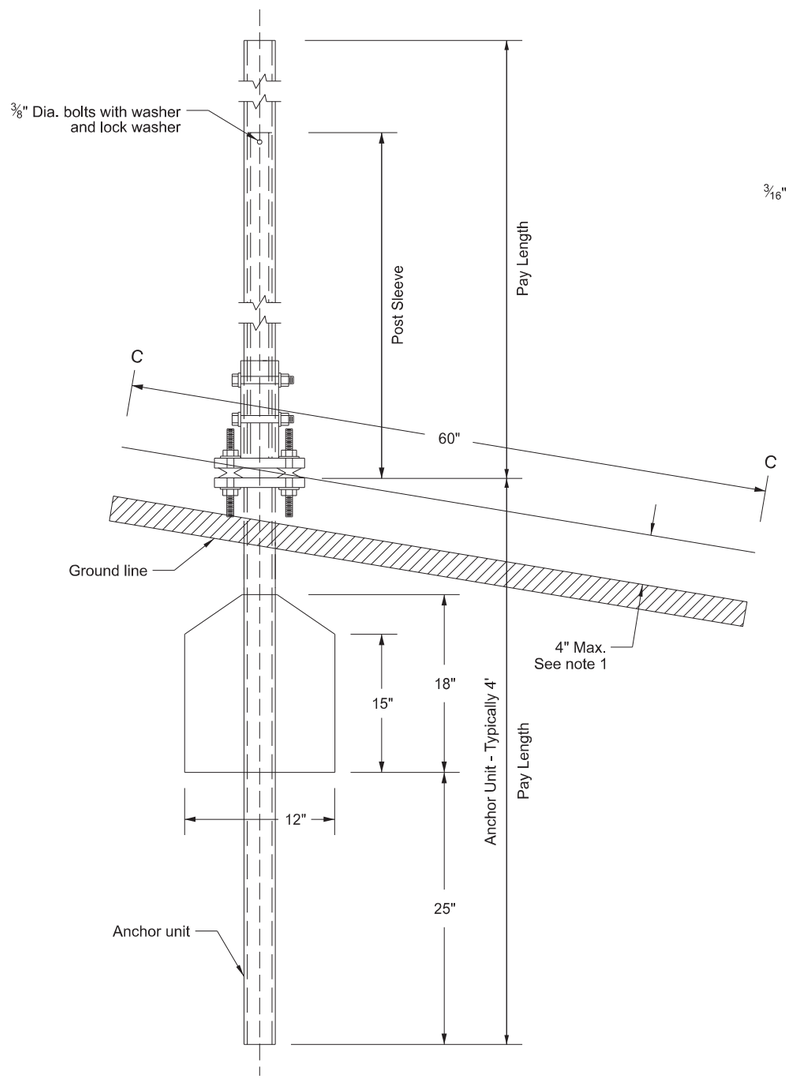
KIRK J. HOFF REGISTERED PROFESSIONAL PE-4683 ENGINEER NORTH DAKOTA

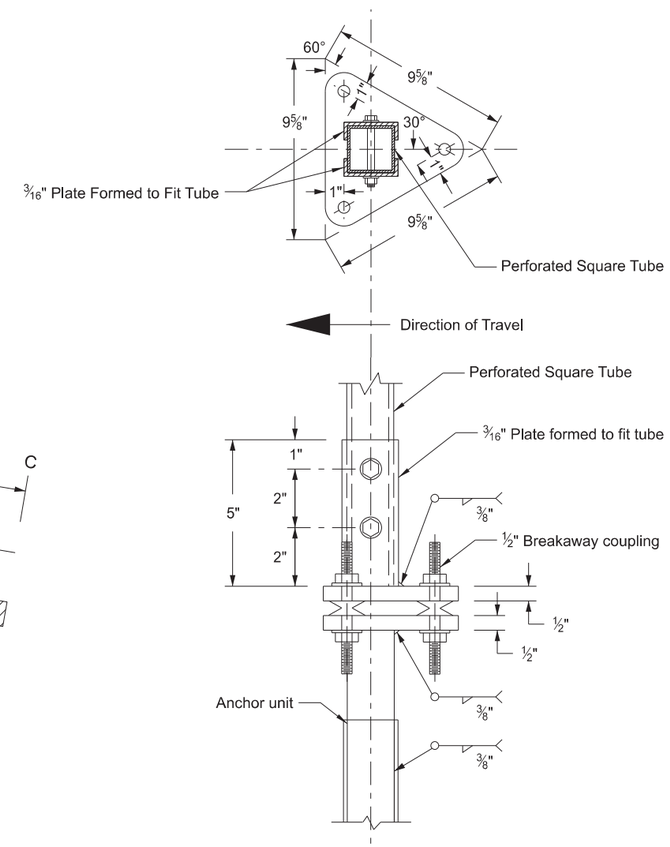
08/05/24

Docusign Envelope ID: B2017174-2071-4D82-BD09-F2B4B86DFDCB

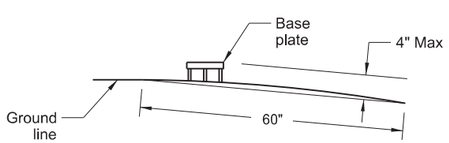
D-754-24A

Breakaway Coupler System for Perforated Tubes





Base Plate with Breakaway Coupler

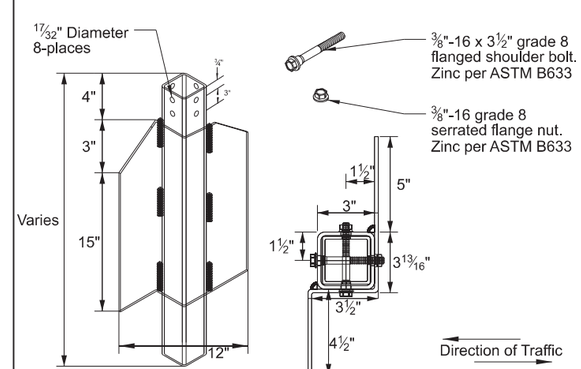


Section C-C

Max projection of the stub post is 4" above a 60" chord aligned radially to the center line of the highway and connecting any point, within the length of the chord, on the ground surface on one side of the support to a point in the ground surface on the other side.

Shoulder Bolt

Shimming agent to reduce tolerance between 3" anchor unit with 2½" post. (use of standard ⅜" diameter grade 8 bolt allowed with proper shim)



3" Anchor Unit

Notes:

1. 4" Vertical clearance of anchor or breakaway base. The 4" x 60" measurement is above and below post location and also back and ahead of post.
2. Use anchor unit of the same size and specification as the post.
3. Provide a minimum 8' distance between the first and fourth post on four post signs.
4. Use the breakaway base system on standard D-754-24 or the breakaway coupling system manufactured from material meeting the requirements of ASTM A325 fasteners with the special requirements specified by DENT BREAKAWAY IND., INC. which meets the test requirements of NCHRP Report 350.

Number of Posts	Telescoping Perforated Tube						
	Post Size In.	Wall Thick-ness Gauge	Sleeve Size In.	Wall Thick-ness Gauge	Slip Base	Anchor Size Without Slip Base In.	Anchor Wall Thickness Guage
1	2	12			No	2¼	12
1	2¼	12			No	2½	12
1	2½	12			(B)	3(C)	7
1	2½	10			Yes		7
1	2¼	12	2	12	Yes		7
1	2½	12	2¼	12	Yes		7
2	2½	10			Yes		7
2	2¼	12	2	12	Yes		7
2	2½	12	2¼	12	Yes		7
3 & 4	2½	12			Yes		7
3 & 4	2½	10			Yes		7
3 & 4	2½	12	2¼	12	Yes		7
3 & 4	2¼	12	2	12	Yes		7
3 & 4	2½	10	2 3/16	10	Yes		7

(B) - 2½" 12 gauge posts do not need breakaway bases unless support is placed in boggy, wet, or loose soil areas.

(C) - 3" anchor unit

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

10-3-2013

REVISIONS

DATE	CHANGE
08-30-18	Updated notes to active voice.
08-30-19	New Design Engr PE Stamp.
08-05-24	Electronic Stamp/Signature.
07-22-25	Corrected "typo" in C-C note.

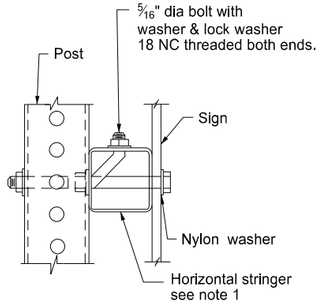
KIRK J. HOFF REGISTERED PROFESSIONAL PE-4683 ENGINEER NORTH DAKOTA

07/22/25

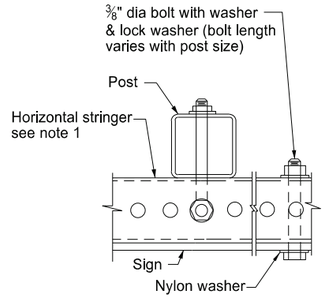
DocuSign Envelope ID: 3BB6949C-35F3-4834-B8EF-90A4185B6E25

Mounting Details Perforated Tube

D-754-25

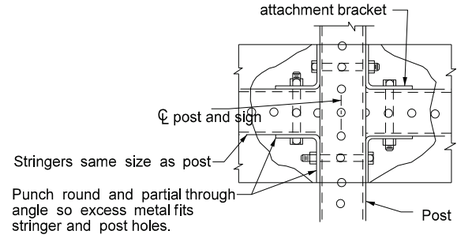


Side View



Top View

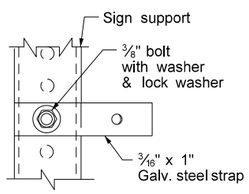
STRINGER MOUNTING
(WITH STRINGER IN FRONT OF POST)



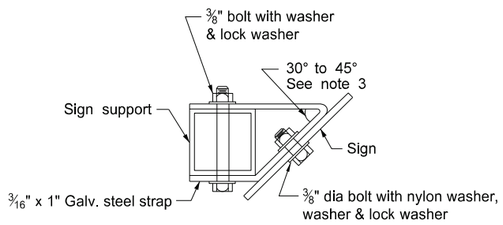
STREET NAME SIGNS AND ONE WAY SIGNS
SINGLE POST ASSEMBLY
ONE STRINGER OR BACK TO BACK MOUNTING

Note:

1. Horizontal stringers - Use perforated tubes or 1¾" x 3/16" thick, 1.08 lbs./ft aluminum or 3.16 lbs./ft steel z bar stringers.
2. Use minimum outside diameter 15/16" ±1/16" and 10 gauge thick metal washers on sign face.
3. Place No Parking signs with directional arrows at a 30 to 45 degree angle with the line of traffic flow. Turning the support to the correct angle for No Parking signs requiring the above angles is allowed. If the No Parking sign is placed with another sign that requires placement at a 90 degree angle with the line of traffic flow, use the detailed angle strap to mount the No Parking sign. Use flat washers and lock washers with all nylon washers.
4. Punching the sign backing and placing the bolt through the sign, the stringer and the post is allowed in lieu of using the bent bolt to attach the post to the stringer.
5. 4" vertical clearance of anchor or breakaway base. The 4" x 60" measurement is above and below post location and also back and ahead of post.

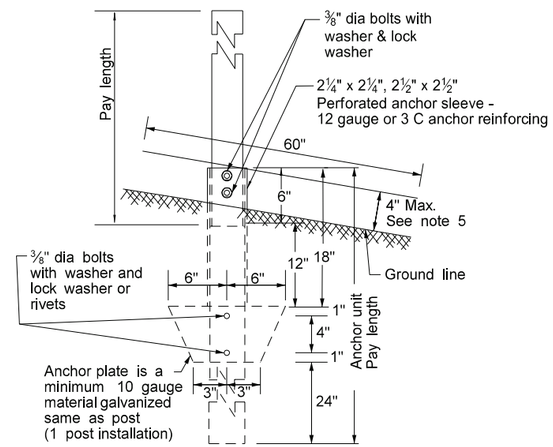


Side View



Top View

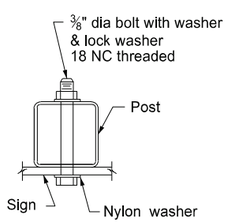
STRAP DETAIL



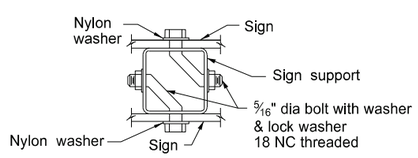
ANCHOR UNIT AND POST ASSEMBLY

Number of Posts	Telescoping Perforated Tube						
	Post Size In.	Wall Thick-ness Gauge	Sleeve Size In.	Wall Thick-ness Gauge	Slip Base	Anchor Size Without Slip Base In.	Anchor Wall Thick-ness Gauge
1	2	12			No	2¼	12
1	2¼	12			No	2½	12
1	2½	12			(B)	3(C)	7
1	2½	10			Yes		7
1	2¼	12	2½(D)	12	Yes		7
1	2½	12	2¼	12	Yes		7
2	2½	10			Yes		7
2	2¼	12	2½(D)	12	Yes		7
2	2½	12	2¼	12	Yes		7
3 & 4	2½	12			Yes		7
3 & 4	2½	10			Yes		7
3 & 4	2½	12	2¼	12	Yes		7
3 & 4	2¼	12	2½(D)	12	Yes		7
3 & 4	2½	10	2 3/16	10	Yes		7

(B) - When placing 2½", 12 gauge posts in standard soils without breakaway bases, provide a shim as specified by the manufacturer. Provide breakaway base when placing the support in weak soils. Engineer will determine if soils are weak. Weak soils are classified as boggy, wet, or loose soil areas.
(C) - 3" anchor unit
(D) - 2½" x 12 ga. x 18" minimum length external sleeve required.

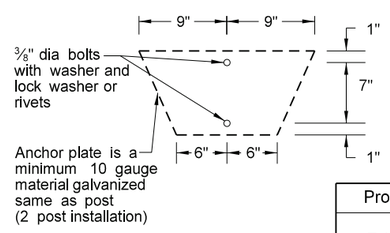


BOLT MOUNTING



Top View

BACK TO BACK MOUNTING



Properties of Telescoping Perforated Tubes						
Tube Size In.	Wall Thickness In.	U.S. Standard Gauge	Weight Per Foot Lbs.	Moment of Inertia $In.^4$	Cross Sect. area $In.^2$	Section Modulus $In.^3$
1½ x 1½	0.105	12	1.702	0.129	0.380	0.172
2 x 2	0.105	12	2.416	0.372	0.590	0.372
2¼ x 2¼	0.105	12	2.773	0.561	0.695	0.499
2 3/16 x 2 3/16	0.135	10	3.432	0.605	0.841	0.590
2½ x 2½	0.105	12	3.141	0.804	0.803	0.643
2½ x 2½	0.135	10	4.006	0.979	1.010	0.783

The 2 3/16" size 10 gauge is shown as 2.19" size on the plans.
The 2½" size is shown as 2.51" size on the plans.

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

8-6-09

REVISIONS

DATE	CHANGE
7-8-14	Revised Note 3.
8-30-18	Updated notes to active voice.
8-30-19	New Design Engr PE Stamp.
8-05-24	Electronic Stamp/Signature.

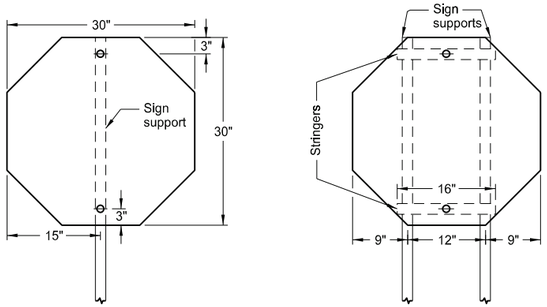
KIRK J. HOFF
REGISTERED
PROFESSIONAL
PE-4683
ENGINEER
NORTH DAKOTA

08/05/24

DocuSign Envelope ID: 3BB6949C-35F3-4834-B8EF-90A4185B6E25

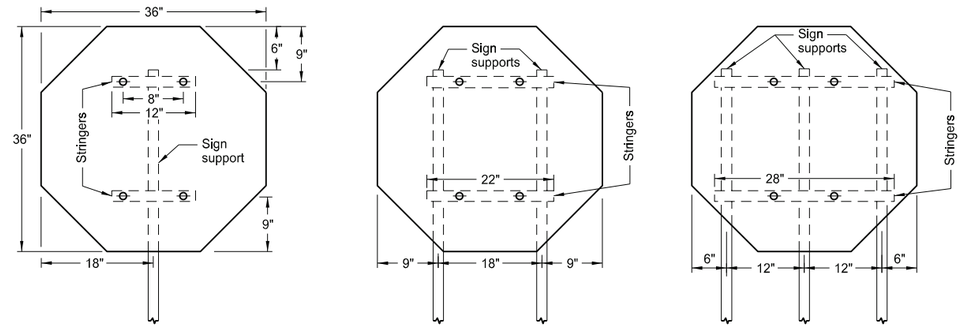
SIGN PUNCHING, STRINGER AND SUPPORT LOCATION DETAILS REGULATORY, WARNING AND GUIDE SIGNS

D-754-26



1 Post 2 Posts

Assembly No. 1

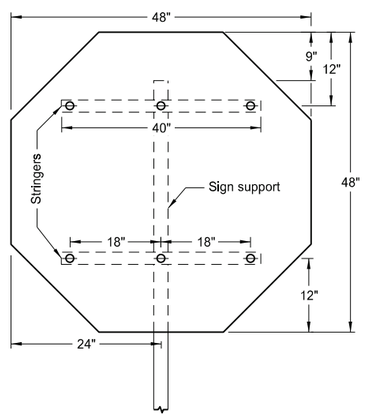


1 Post 2 Posts 3 Posts

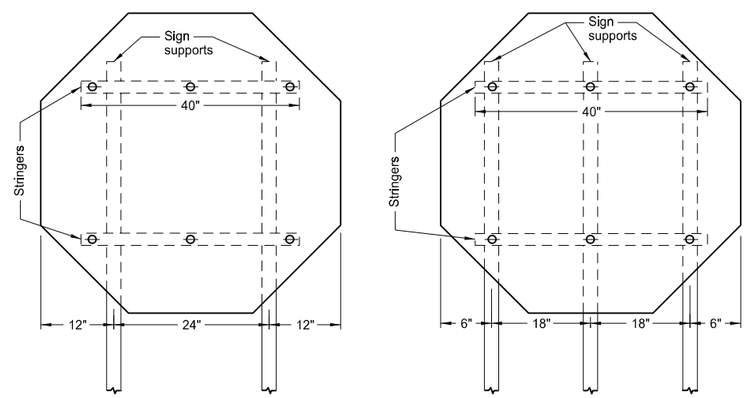
Assembly No. 2

Notes:

1. Use 0.100 inch minimum thickness sign backing material.
2. Use 1½" x 1½" perforated square tube stringers.
3. Punch holes round for ⅜" bolt.

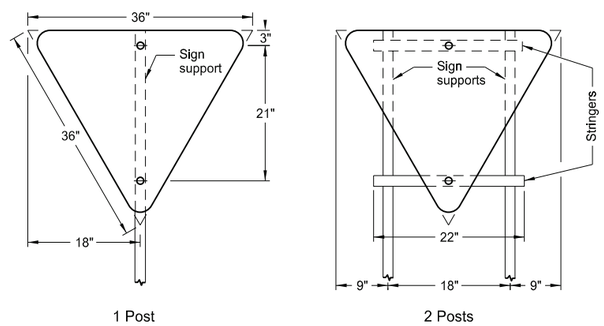


1 Post



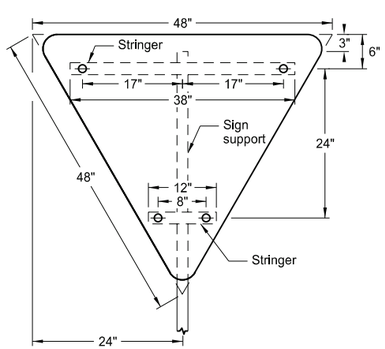
2 Posts 3 Posts

Assembly No. 3



1 Post 2 Posts

Assembly No. 4



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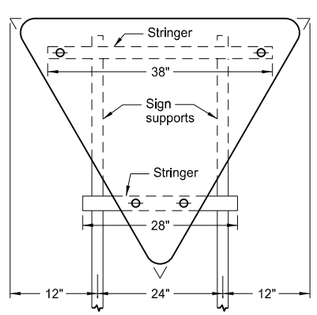
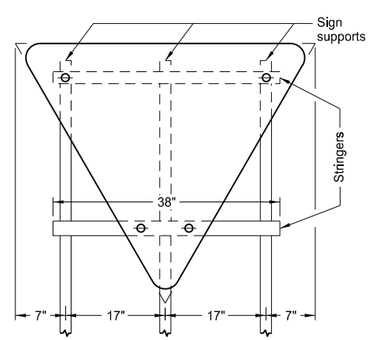


2 Posts



3 Posts

Assembly No. 5

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
12-1-10	
REVISIONS	
DATE	CHANGE
8-30-18 8-30-19 8-05-24	Updated notes to active voice. New Design Engineer PE Stamp. Electronic Stamp/Signature.

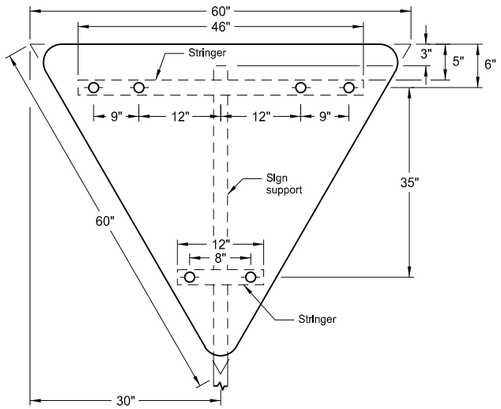
KIRK J. HOFF REGISTERED PROFESSIONAL PE-4683 ENGINEER NORTH DAKOTA

08/05/24

DocuSign Envelope ID: 245AF61F-5CB3-4068-9ABB-3DD8A55F5268

SIGN PUNCHING, STRINGER AND SUPPORT LOCATION DETAILS REGULATORY, WARNING AND GUIDE SIGNS

D-754-27



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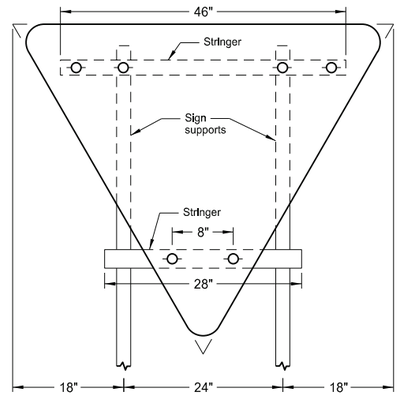
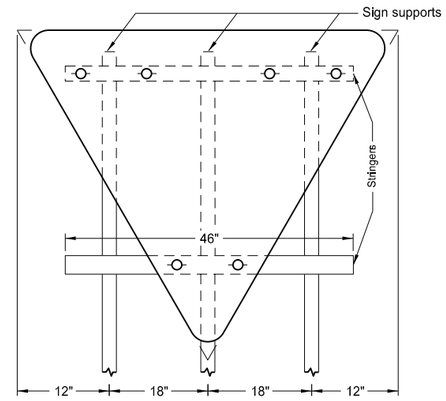


2 Posts

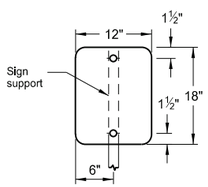


3 Posts

Assembly No. 6

Notes:

1. Use 0.100 inch minimum thickness sign backing material.
2. Use 1½" x 1½" perforated square tube stringers.
3. Punch holes round for ⅜" bolt.



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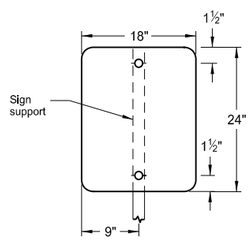

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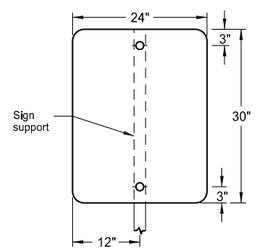

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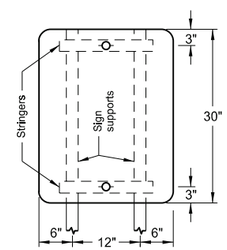
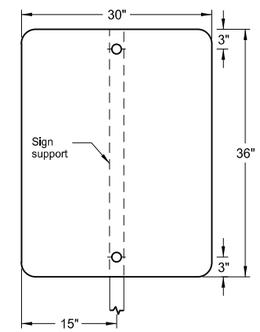


2 Posts

Assembly No. 9



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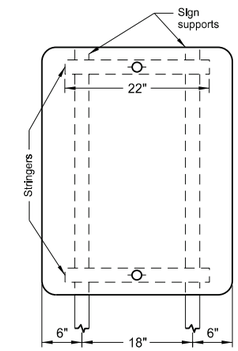
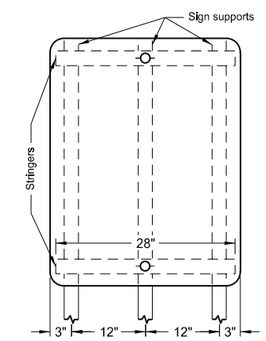
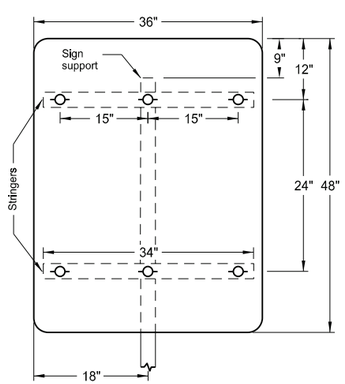


2 Posts

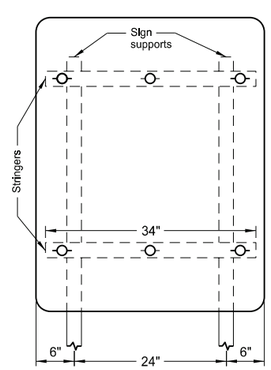


3 Posts

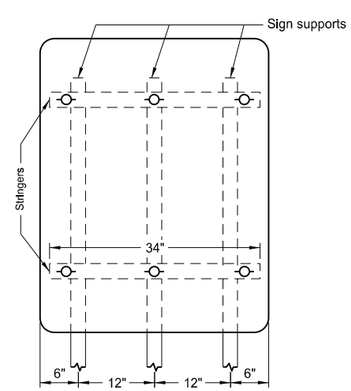
Assembly No. 10



1 Post



2 Posts



3 Posts

Assembly No. 11

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
12-1-10	
REVISIONS	
DATE	CHANGE
8-30-18	Updated notes to active voice.
8-30-19	New Design Engineer PE Stamp.
8-06-24	Electronic Stamp/Signature.

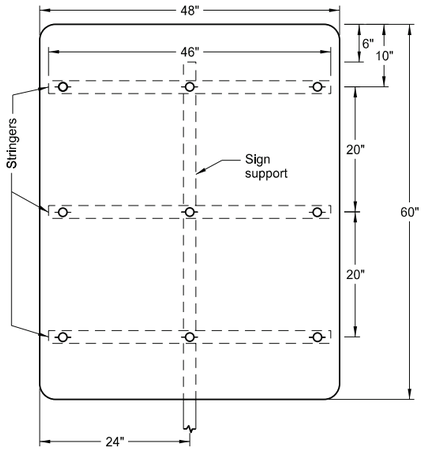
KIRK J. HOFF REGISTERED PROFESSIONAL PE-4683 ENGINEER NORTH DAKOTA

08/06/24

DocuSign Envelope ID: 245AF61F-5CB3-4068-9ABB-3DD8A55F5268

SIGN PUNCHING, STRINGER AND SUPPORT LOCATION DETAILS REGULATORY, WARNING AND GUIDE SIGNS

D-754-28



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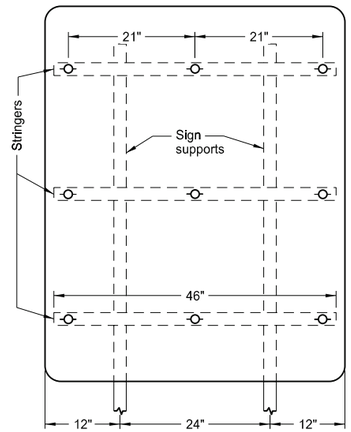
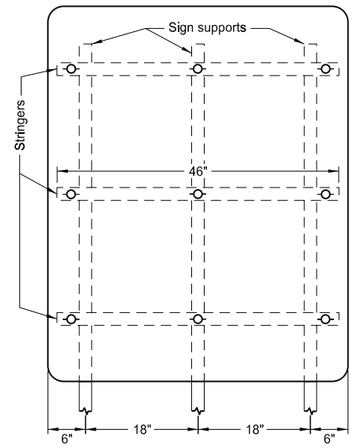
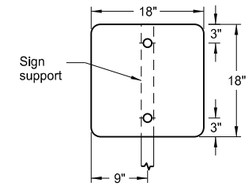


2 Posts



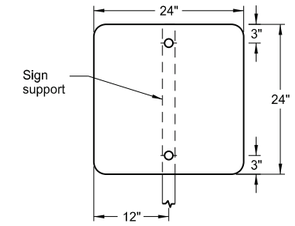
3 Posts

Assembly No. 12



1 Post

Assembly No. 13



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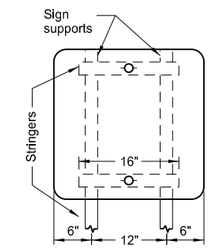
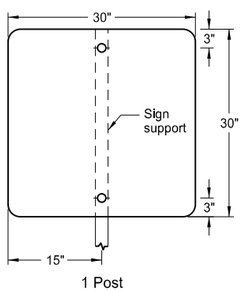


2 Posts

Assembly No. 14



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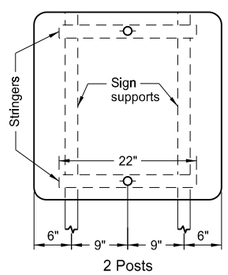
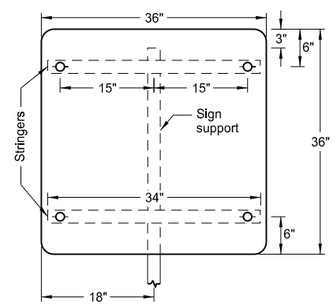
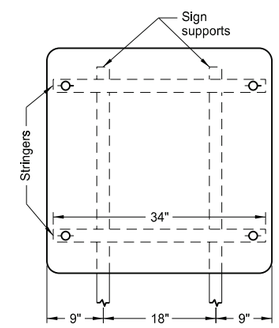


2 Posts

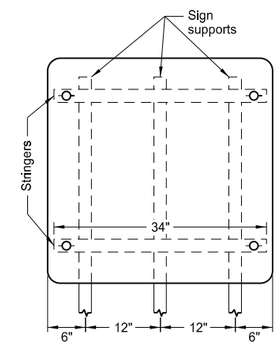
Assembly No. 15



1 Post

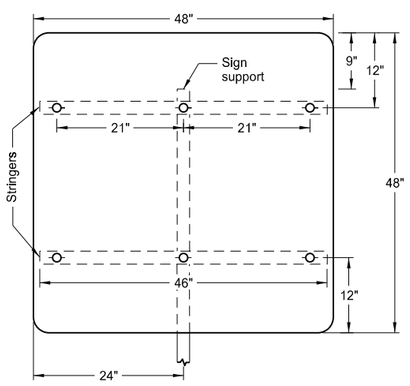


2 Posts

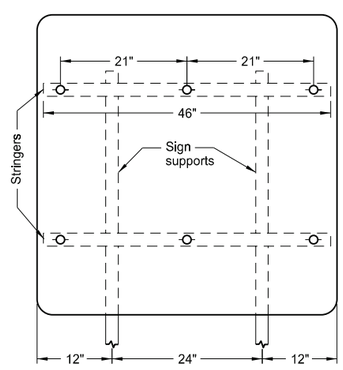


3 Posts

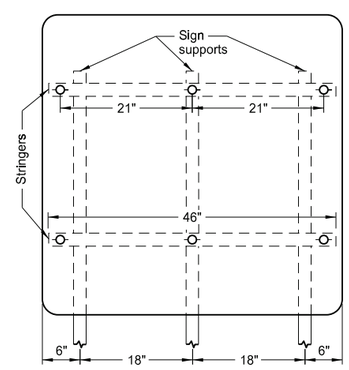
Assembly No. 16



1 Post



2 Posts



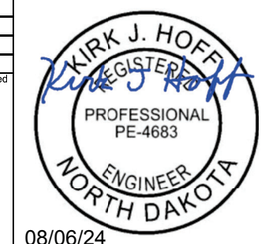
3 Posts

Assembly No. 17

Notes:

1. Use 0.100 inch minimum thickness sign backing material.
2. Use 1½" x 1½" perforated square tube stringers.
3. Punch holes round for ⅜" bolt.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
12-1-10	
REVISIONS	
DATE	CHANGE
8-30-18	Updated to active voice & changed Assembly 16 post spacing.
8-30-19	New Design Engineer PE Stamp.
8-06-24	Electronic Stamp/Signature.

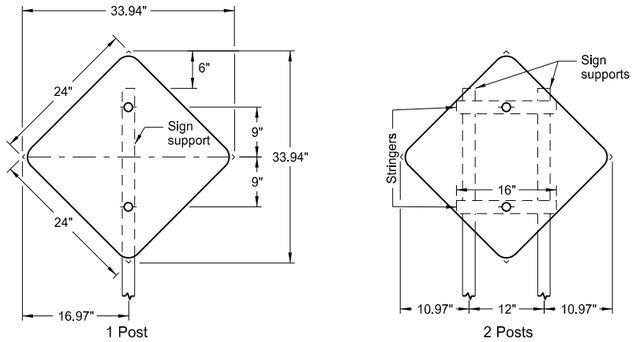


08/06/24

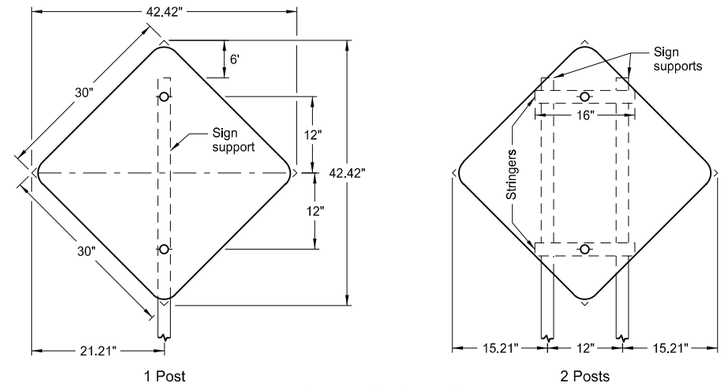
DocuSign Envelope ID: 245AF61F-5CB3-4068-9ABB-3DD8A55F5268

SIGN PUNCHING, STRINGER AND SUPPORT LOCATION DETAILS REGULATORY, WARNING AND GUIDE SIGNS

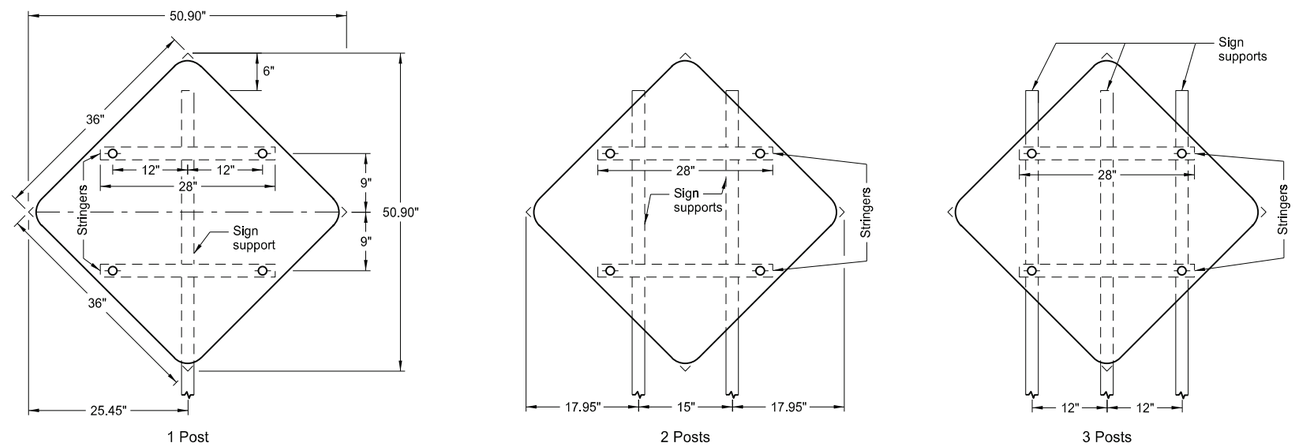
D-754-29



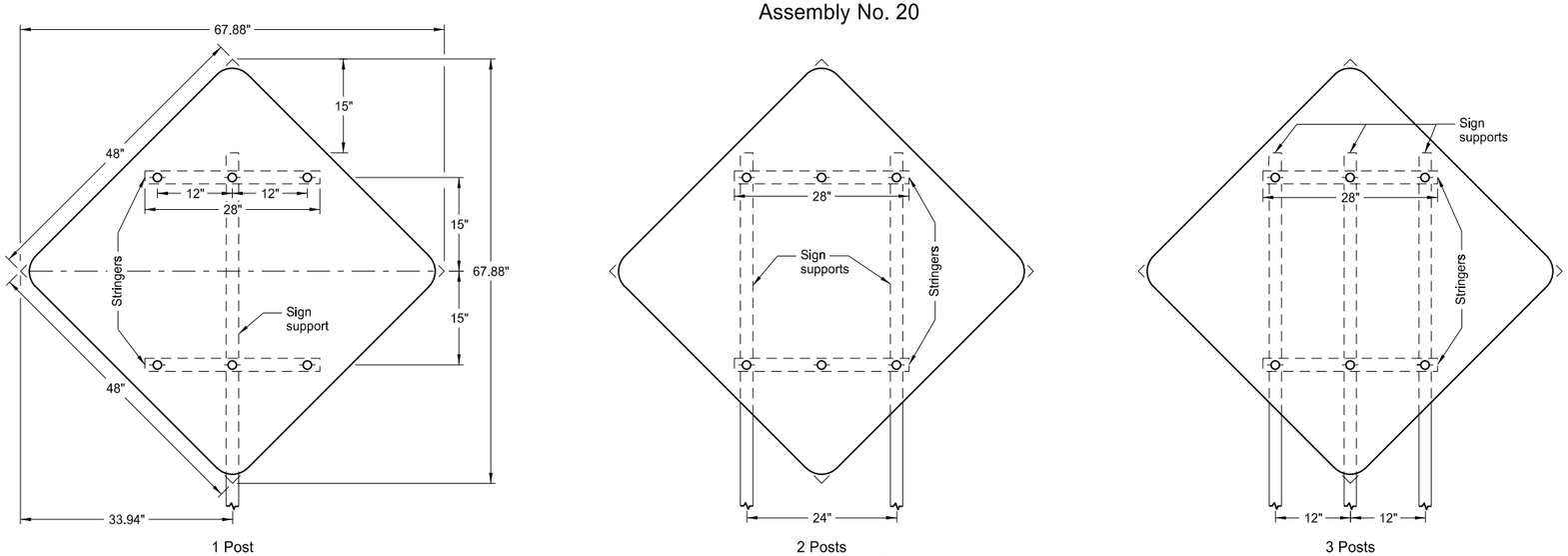
Assembly No. 18



Assembly No. 19



Assembly No. 20



Assembly No. 21

Notes:

1. Use 0.100 inch minimum thickness sign backing material.
2. Use 1½" x 1½" perforated square tube stringers.
3. Punch holes round for ⅜" bolt.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
12-1-10	
REVISIONS	
DATE	CHANGE
8-30-18	Updated notes to active voice.
8-30-19	New Design Engineer PE Stamp.
8-06-24	Electronic Stamp/Signature.

KIRK J. HOFF REGISTERED PROFESSIONAL PE-4683 ENGINEER NORTH DAKOTA

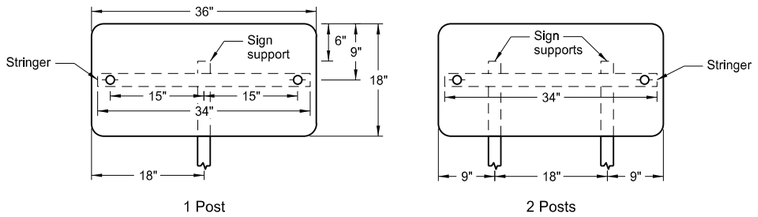
Kirk J Hoff

08/06/24

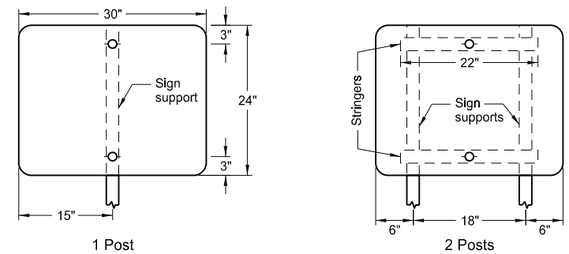
DocuSign Envelope ID: 245AF61F-5CB3-4068-9ABB-3DD8A55F5268

SIGN PUNCHING, STRINGER AND SUPPORT LOCATION DETAILS REGULATORY, WARNING AND GUIDE SIGNS

D-754-32



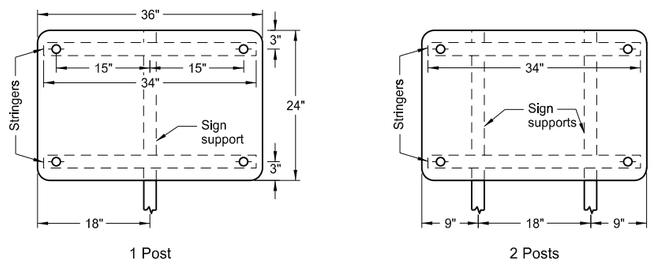
Assembly No. 31



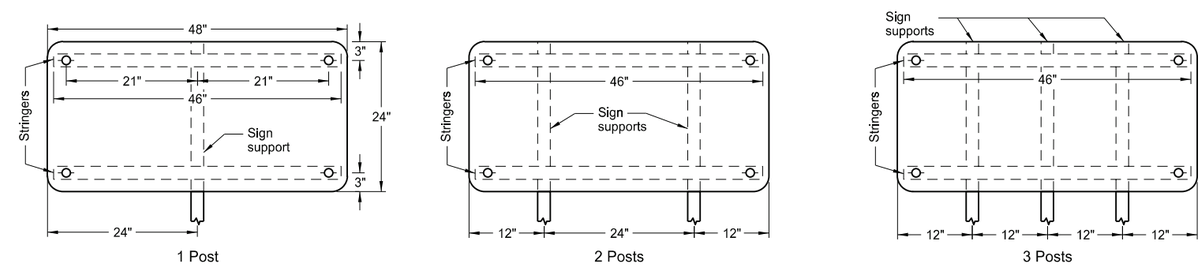
Assembly No. 32

Notes:

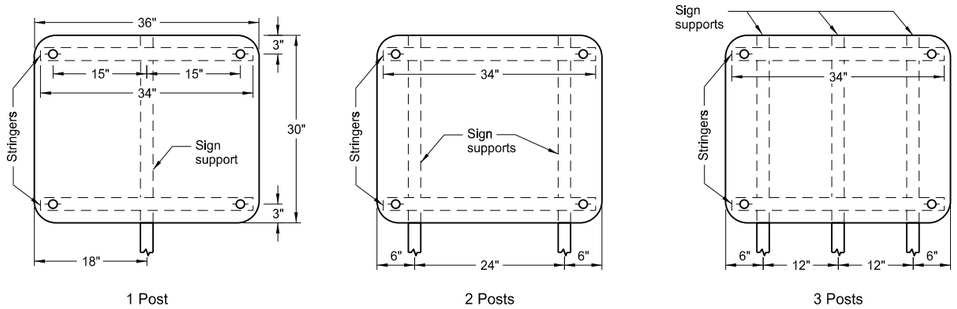
1. Use 0.100 inch minimum thickness sign backing material.
2. Use 1½" x 1½" perforated square tube stringers.
3. Punch holes round for ⅜" bolt.



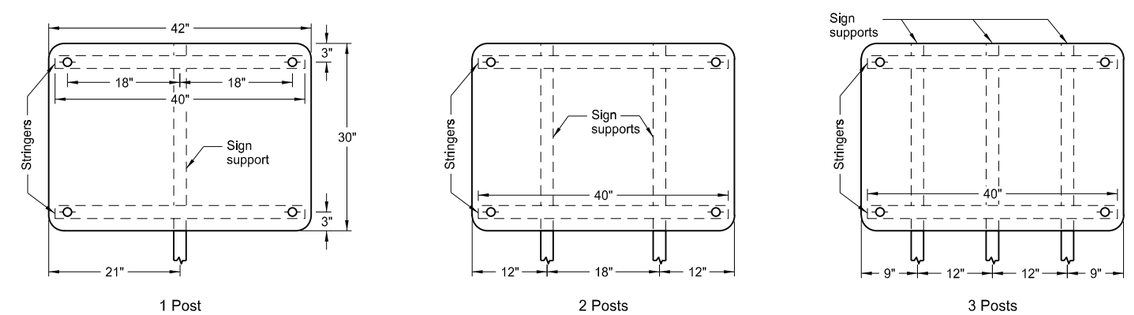
Assembly No. 33



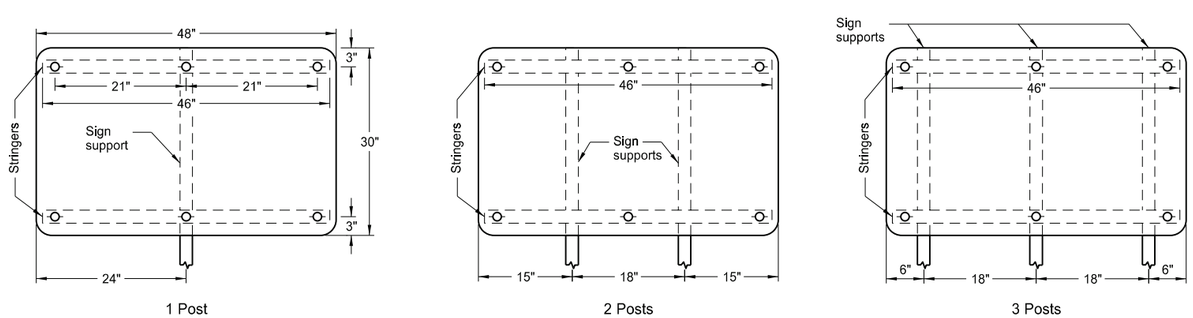
Assembly No. 34



Assembly No. 35



Assembly No. 36



Assembly No. 37

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
12-1-10	
REVISIONS	
DATE	CHANGE
8-30-18	Updated notes to active voice.
8-30-19	New Design Engineer PE Stamp.
8-06-24	Electronic Stamp/Signature.

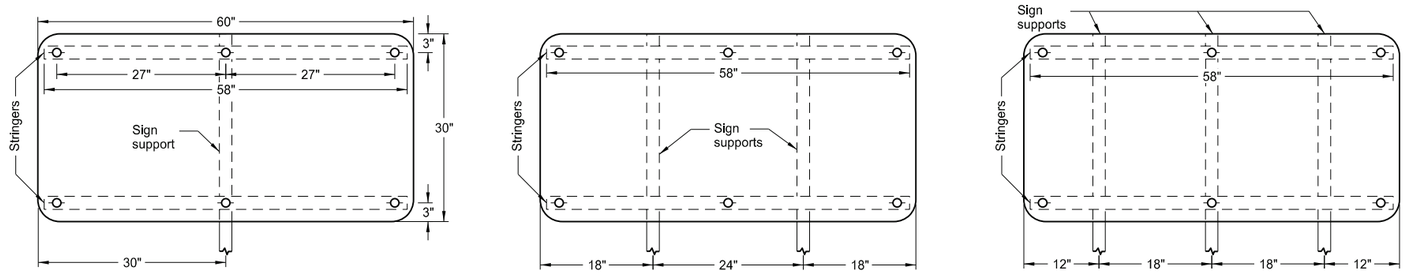
KIRK J. HOFF REGISTERED PROFESSIONAL PE-4683 ENGINEER NORTH DAKOTA

08/06/24

DocuSign Envelope ID: 245AF61F-5CB3-4068-9ABB-3DD8A55F5268

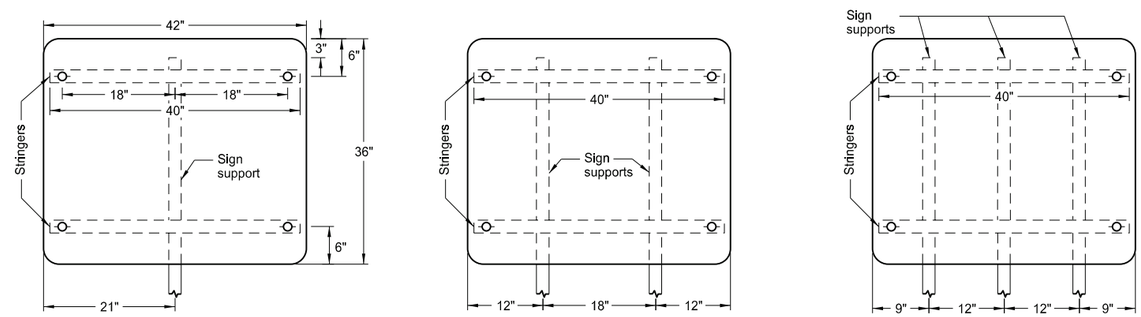
SIGN PUNCHING, STRINGER AND SUPPORT LOCATION DETAILS REGULATORY, WARNING AND GUIDE SIGNS

D-754-33



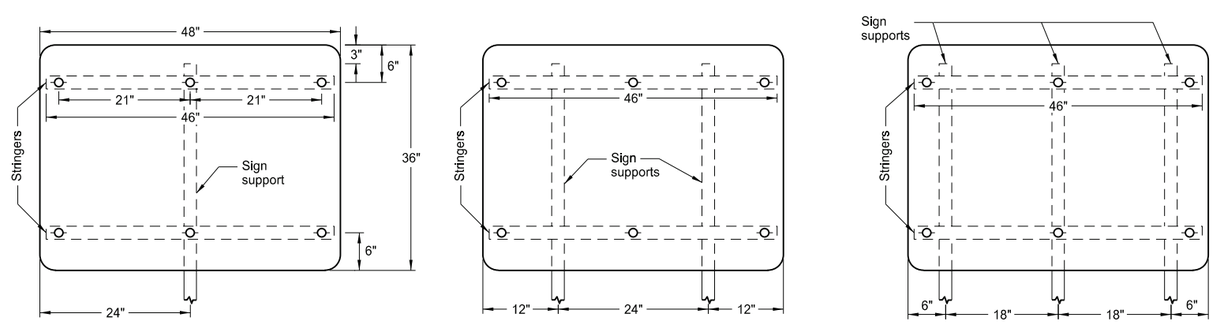
1 Post 2 Posts 3 Posts

Assembly No. 38



1 Post 2 Posts 3 Posts

Assembly No. 39



1 Post 2 Posts 3 Posts

Assembly No. 40

Notes:

1. Use 0.100 inch minimum thickness sign backing material.
2. Use 1½" x 1½" perforated square tube stringers.
3. Punch holes round for ⅜" bolt.

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

12-1-10

REVISIONS

DATE	CHANGE
8-30-18	Updated notes to active voice.
8-30-19	New Design Engineer PE Stamp.
8-06-24	Electronic Stamp/Signature.

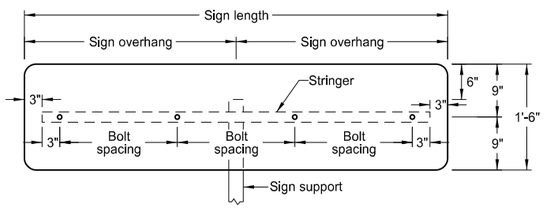
KIRK J. HOFF
REGISTERED
PROFESSIONAL
PE-4683
ENGINEER
NORTH DAKOTA

08/06/24

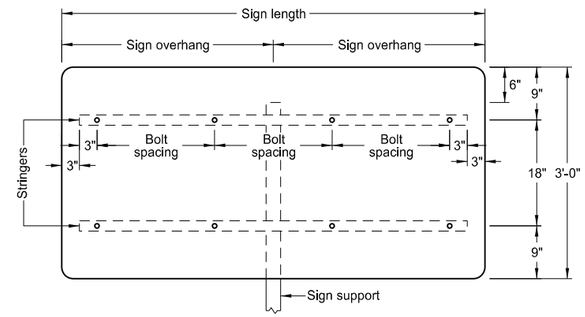
DocuSign Envelope ID: BCB8FF2A-083E-48A1-8BCC-2D048B980E67

SIGN PUNCHING, STRINGER AND SUPPORT LOCATION DETAILS FOR VARIABLE LENGTH SIGNS

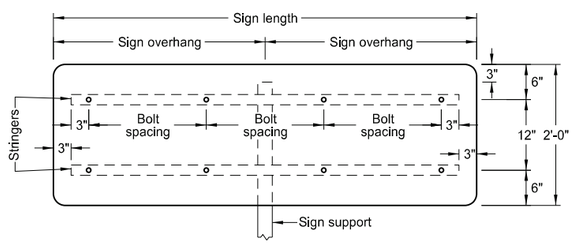
D-754-47



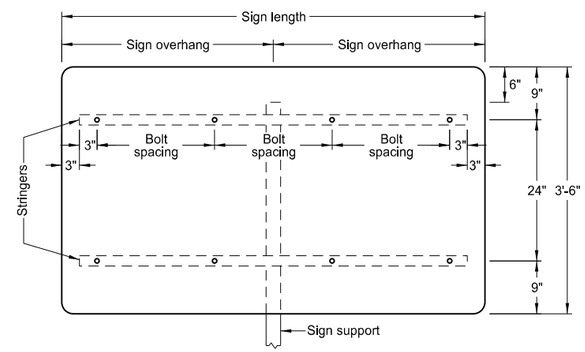
VARIES X 1'-6"



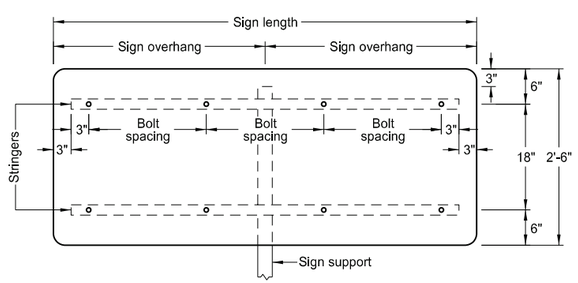
VARIES X 3'-0"



VARIES X 2'-0"



VARIES X 3'-6"



VARIES X 2'-6"

1 POST		
Sign Length	Sign Overhang	Bolt Spacing
4'-0"	2'-0"	18"
4'-6"	2'-3"	21"
5'-0"	2'-6"	24"
5'-6"	2'-9"	18"
6'-0"	3'-0"	20"
6'-6"	3'-3"	22"
7'-0"	3'-6"	24"
7'-6"	3'-9"	2-20" & 2-19"
8'-0"	4'-0"	21"
8'-6"	4'-3"	2-22" & 2-23"
9'-0"	4'-6"	24"
9'-6"	4'-9"	4-20" & 1-22"
10'-0"	5'-0"	2-21" & 3-22"
10'-6"	5'-3"	4-23" & 1-22"
11'-0"	5'-6"	24"
11'-6"	5'-9"	21"
12'-0'	6'-0"	22"

Notes:

1. Use 0.100 inch minimum thickness sign backing material.
2. Use 1½" x 1½" perforated square tube stringers.
3. Punch holes round for ⅜" bolt.
4. Attach single stringer to single post signs with special stringer angle, shown on "Mounting Details Perforated Tube" standard drawing.

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

9-25-12

REVISIONS

DATE	CHANGE
8-30-18	Updated notes to active voice.
9-04-19	New Design Engr PE Stamp.
8-07-24	Electronic Stamp/Signature.

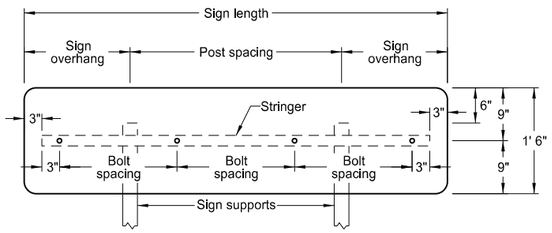
KIRK J. HOFF
REGISTERED
PROFESSIONAL
PE-4683
ENGINEER
NORTH DAKOTA

08/07/24

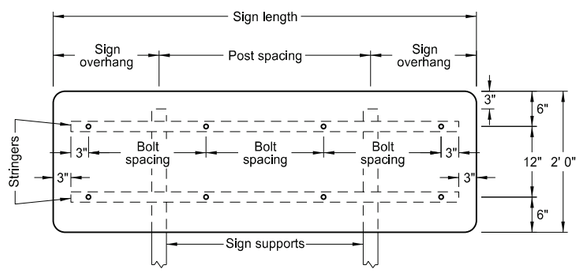
DocuSign Envelope ID: BCB8FF2A-083E-48A1-8BCC-2D048B980E67

SIGN PUNCHING, STRINGER AND SUPPORT LOCATION DETAILS FOR VARIABLE LENGTH SIGNS

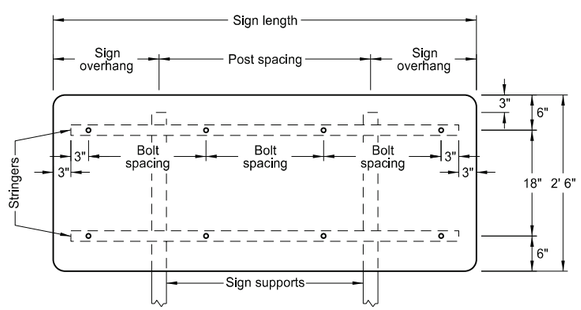
D-754-48



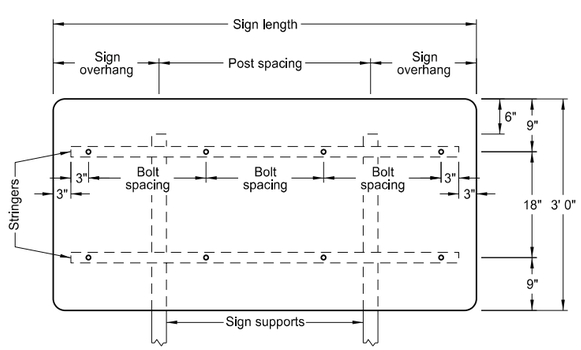
VARIES X 1'-6"



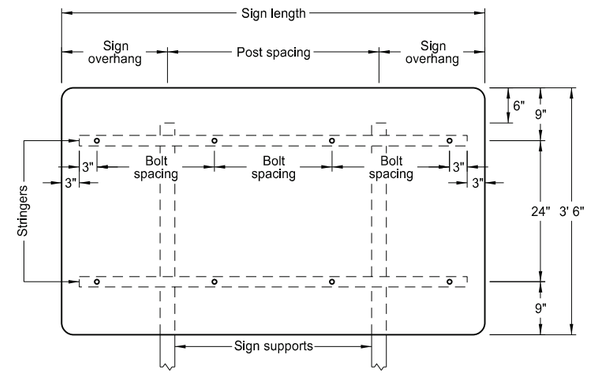
VARIES X 2'-0"



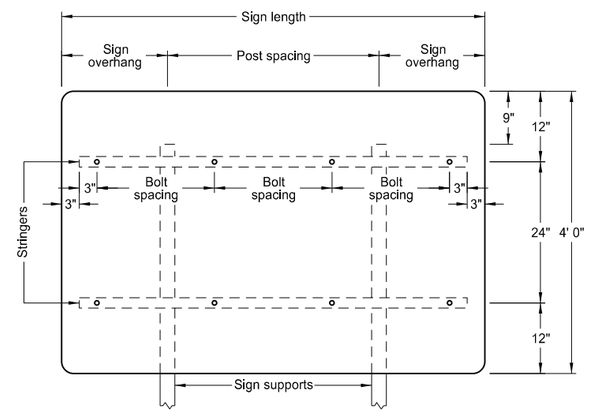
VARIES X 2'-6"



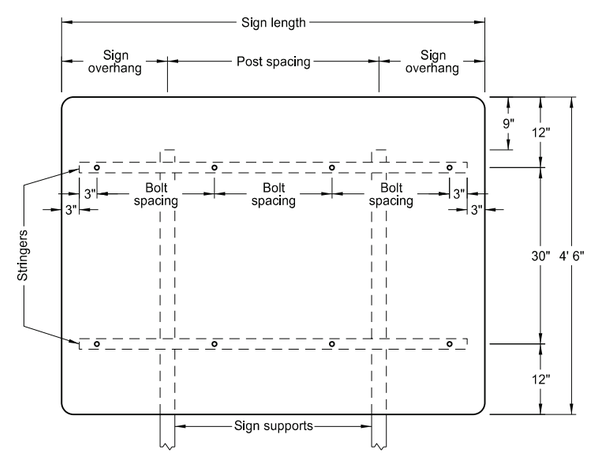
VARIES X 3'-0"



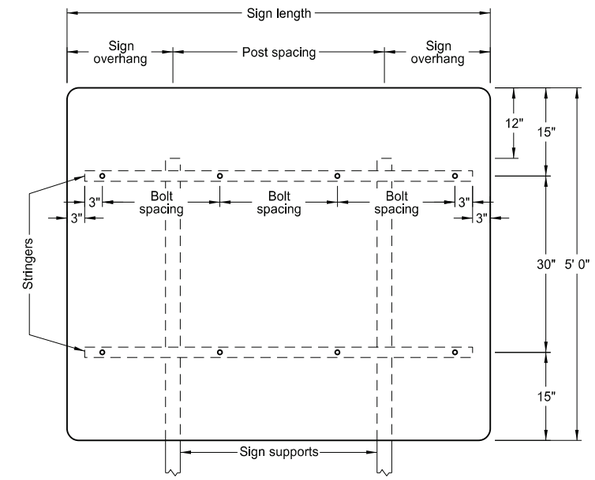
VARIES X 3'-6"



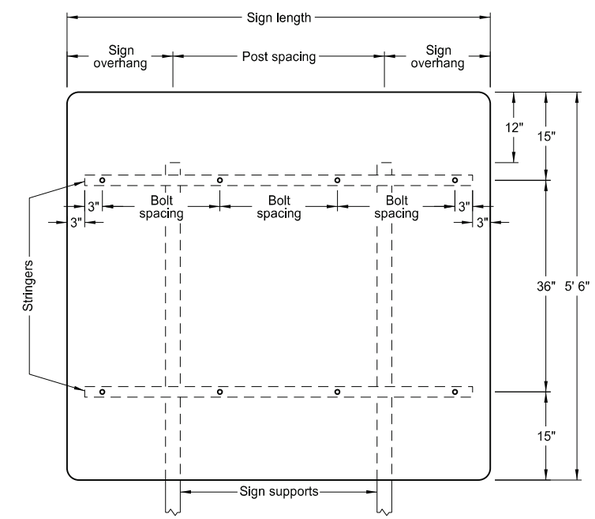
VARIES X 4'-0"



VARIES X 4'-6"



VARIES X 5'-0"



VARIES X 5'-6"

2 POSTS			
Sign Length	Sign Overhang	Post Spacing	Bolt Spacing
4'-0"	1'-0"	2'-0"	18"
4'-6"	1'-3"	2'-0"	21"
5'-0"	1'-0"	3'-0"	24"
5'-6"	1'-3"	3'-0"	18"
6'-0"	1'-6"	3'-0"	20"
6'-6"	1'-3"	4'-0"	22"
7'-0"	1'-6"	4'-0"	24"
7'-6"	1'-9"	4'-0"	2-20" & 2-19"
8'-0"	2'-0"	4'-0"	21"
8'-6"	1'-9"	5'-0"	2-22" & 2-23"
9'-0"	2'-0"	5'-0"	24"
9'-6"	1'-9"	6'-0"	4-20" & 1-22"
10'-0"	2'-0"	6'-0"	2-21" & 3-22"
10'-6"	2'-3"	6'-0"	4-23" & 1-22"
11'-0"	2'-6"	6'-0"	24"
11'-6"	2'-9"	6'-0"	21"
12'-0"	2'-0"	8'-0"	22"
12'-6"	2'-3"	8'-0"	23"
13'-0"	2'-6"	8'-0"	24"
13'-6"	2'-9"	8'-0"	3-22" & 4-21"
14'-0'	3'-0"	8'-0"	2-23" & 5-22"
14'-6"	3'-3"	8'-0"	6-23" & 1-24"
15'-0"	3'-6"	8'-0"	24"
15'-6"	2'-9"	10'-0"	6-22" & 2-21"
16'-0"	3'-0"	10'-0"	4-23" & 4-22"
16'-6"	3'-3"	10'-0"	6-23" & 2-24"
17'-0"	3'-6"	10'-0"	24"
17'-6"	3'-9"	10'-0"	22"
18'-0"	3'-0"	12'-0"	6-23" & 3-22"
18'-6"	3'-3"	12'-0"	6-23" & 3-24"
19'-0"	3'-6"	12'-0"	24"
19'-6"	3'-9"	12'-0"	8-22" & 2-23"
20'-0"	4'-0"	12'-0"	8-23" & 2-22"

Notes:

1. Use 0.100 inch minimum thickness sign backing material.
2. Use 1½" x 1½" perforated square tube stringers.
3. Punch holes round for ⅜" bolt.

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

9-25-12

REVISIONS

DATE	CHANGE
8-30-18	Updated notes to active voice.
9-04-19	New Design Engineer PE Stamp.
8-07-24	Electronic Stamp/Signature.

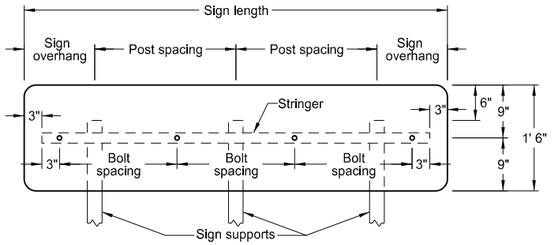
KIRK J. HOFF
REGISTERED
PROFESSIONAL
PE-4683
ENGINEER
NORTH DAKOTA

08/07/24

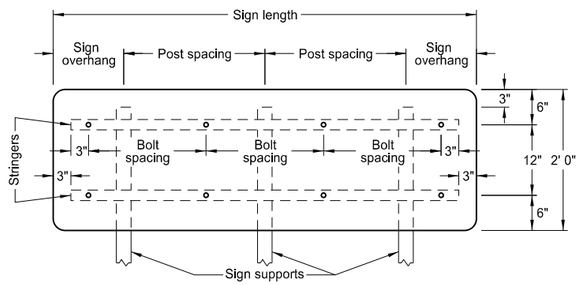
DocuSign Envelope ID: BCB8FF2A-083E-48A1-8BCC-2D048B980E67

SIGN PUNCHING, STRINGER AND SUPPORT LOCATION DETAILS FOR VARIABLE LENGTH SIGNS

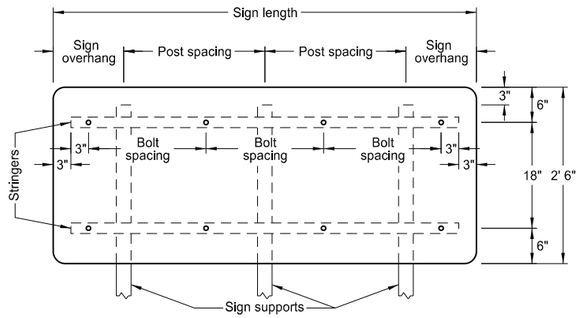
D-754-49



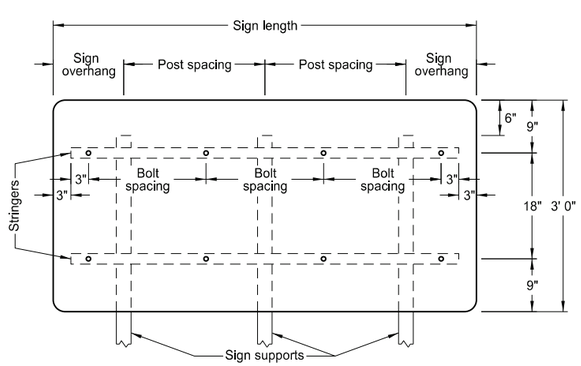
VARIES X 1'-6"



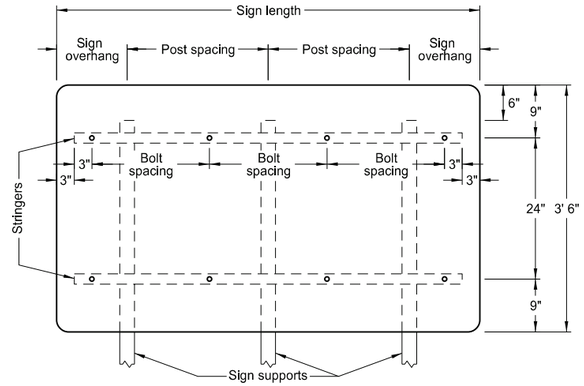
VARIES X 2'-0"



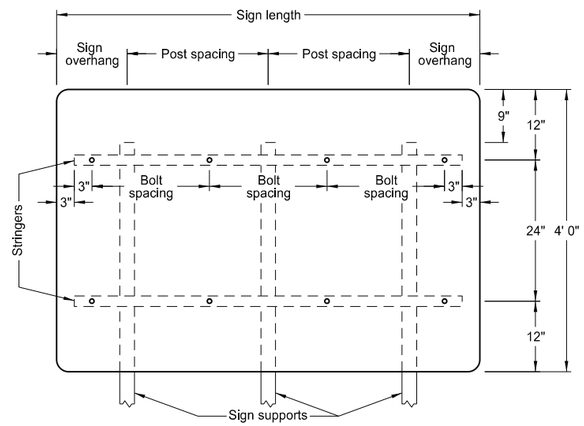
VARIES X 2'-6"



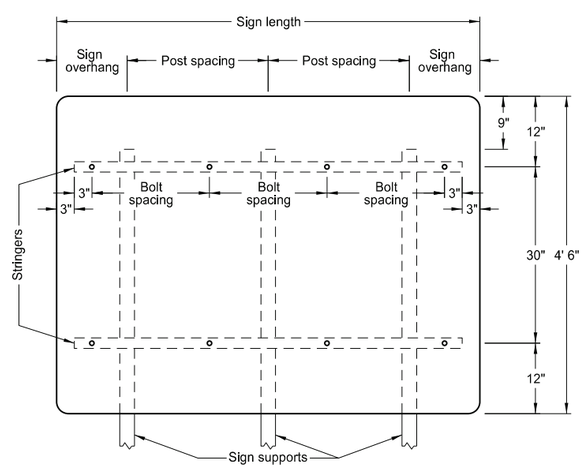
VARIES X 3'-0"



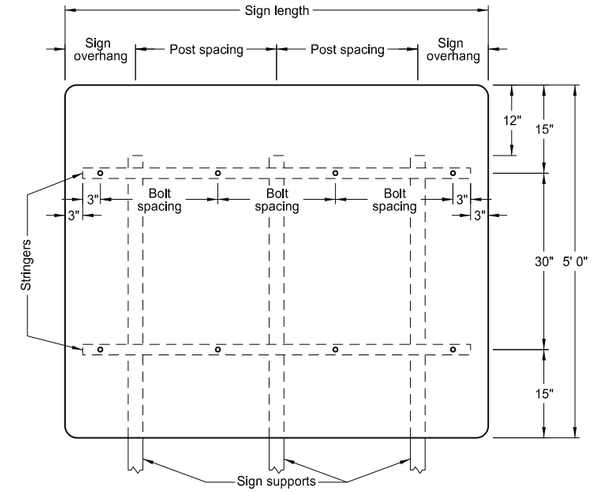
VARIES X 3'-6"



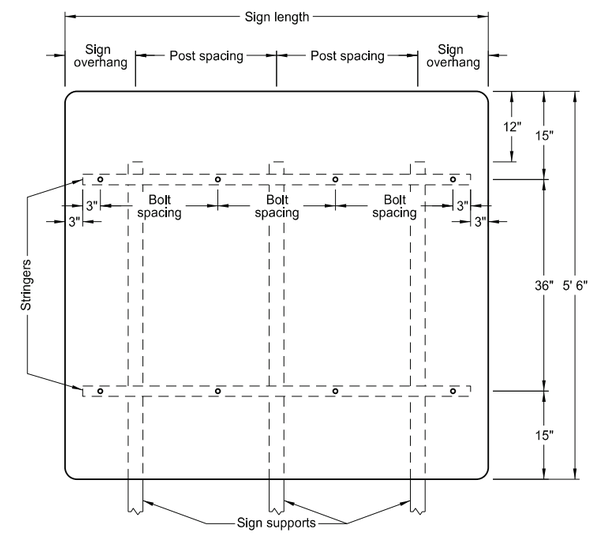
VARIES X 4'-0"



VARIES X 4'-6"



VARIES X 5'-0"



VARIES X 5'-6"

3 POSTS			
Sign Length	Sign Overhang	Post Spacing	Bolt Spacing
4'-0"	0'-6"	1'-6"	18"
4'-6"	0'-6"	1'-9"	21"
5'-0"	0'-6"	2'-0"	24"
5'-6"	1'-3"	1'-6"	18"
6'-0"	1'-0"	2'-0"	20"
6'-6"	1'-3"	2'-0"	22"
7'-0"	1'-6"	2'-0"	24"
7'-6"	1'-6"	2'-3"	2-20" & 2-19"
8'-0"	1'-9"	2'-3"	21"
8'-6"	2'-0"	2'-3"	2-22" & 2-23"
9'-0"	1'-6"	3'-0"	24"
9'-6"	1'-9"	3'-0"	4-20" & 1-22"
10'-0"	1'-9"	3'-3"	2-21" & 3-22"
10'-6"	1'-9"	3'-6"	4-23" & 1-22"
11'-0"	2'-0"	3'-6"	24"
11'-6"	2'-3"	3'-6"	21"
12'-0"	2'-4"	3'-8"	22"
12'-6"	2'-5"	3'-10"	23"
13'-0"	2'-6"	4'-0"	24"
13'-6"	2'-9"	4'-0"	3-22" & 4-21"
14'-0'	3'-0"	4'-0"	2-23" & 5-22"
14'-6"	3'-3"	4'-0"	6-23" & 1-24"
15'-0"	3'-6"	4'-0"	24"
15'-6"	2'-4"	5'-5"	6-22" & 2-21"
16'-0"	2'-5"	5'-7"	4-23" & 4-22"
16'-6"	2'-5"	5'-10"	6-23" & 2-24"
17'-0"	2'-6"	6'-0"	24"
17'-6"	3'-3"	5'-6"	22"
18'-0"	3'-6"	5'-6"	6-23" & 3-22"
18'-6"	3'-9"	5'-6"	6-23" & 3-24"
19'-0"	3'-6"	6'-0"	24"
19'-6"	4'-3"	5'-6"	8-22" & 2-23"
20'-0"	4'-4"	5'-8"	8-23" & 2-22"

Notes:

1. Use 0.100 minimum thickness sign backing material.
2. Use 1½" x 1½" perforated square tube stringers.
3. Punch holes round for ⅜" bolt.

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

9-25-12

REVISIONS

DATE	CHANGE
8-30-18	Updated notes to active voice.
9-04-19	New Design Engineer PE Stamp.
8-07-24	Electronic Stamp/Signature.

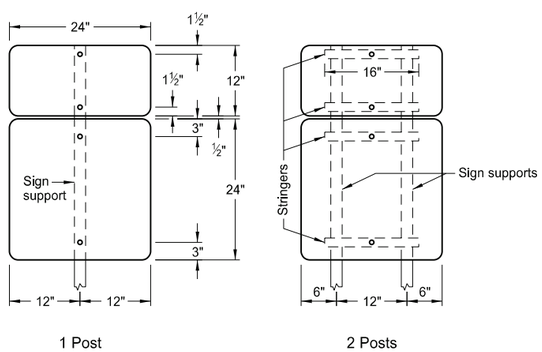
KIRK J. HOFF
REGISTERED
PROFESSIONAL
PE-4683
ENGINEER
NORTH DAKOTA

08/07/24

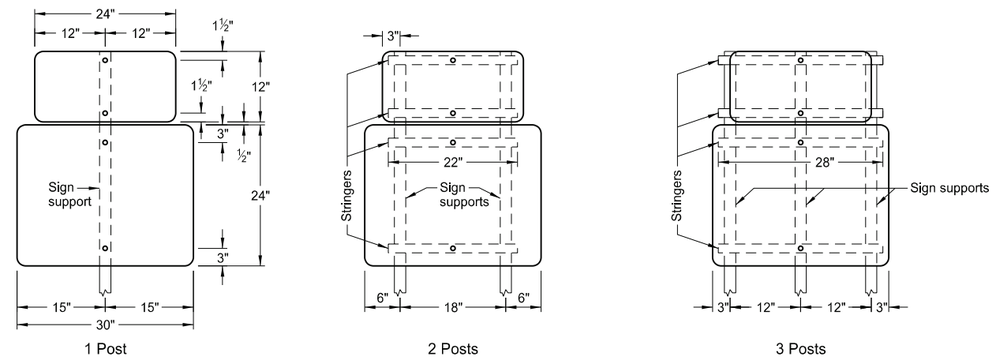
DocuSign Envelope ID: BCB8FF2A-083E-48A1-8BCC-2D048B980E67

SIGN PUNCHING, STRINGER AND SUPPORT LOCATION DETAILS - ROUTE MARKER SIGNS

D-754-51



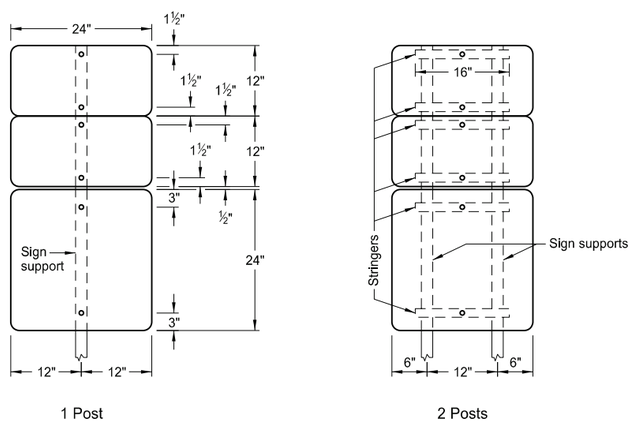
ASSEMBLY NO. 371

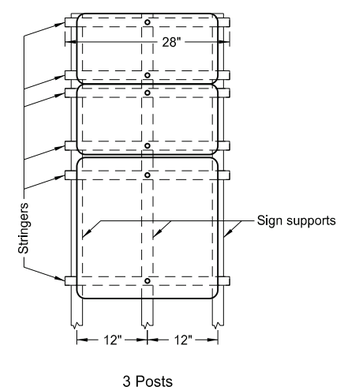


ASSEMBLY NO. 372

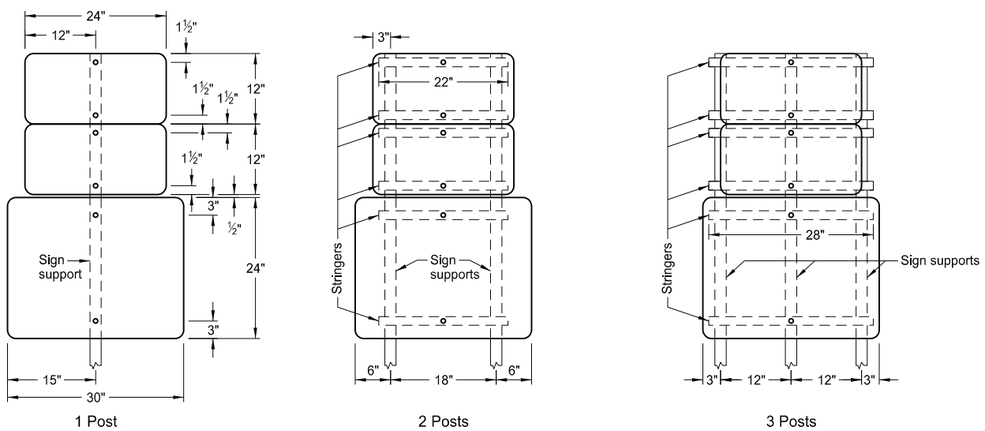
Notes:

1. Use 0.100 inch minimum thickness sign backing material.
2. Use 1½"x1½" perforated square tube stringers.
3. Punch holes round for ⅜" bolt.

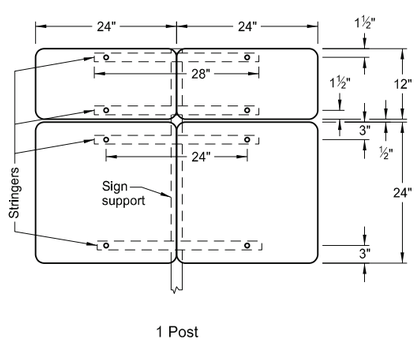


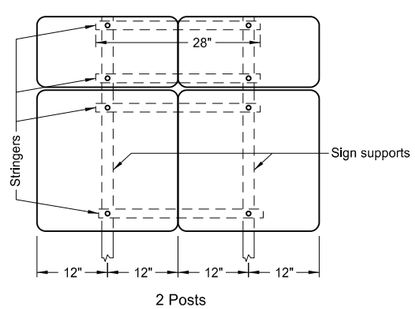


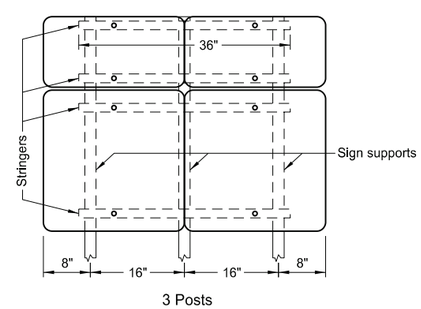
ASSEMBLY NO. 373



ASSEMBLY NO. 374







ASSEMBLY NO. 375

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-22-12	
REVISIONS	
DATE	CHANGE
8-30-18	Updated notes to active voice.
9-04-19	New Design Engineer PE Stamp.
8-07-24	Electronic Stamp/Signature.

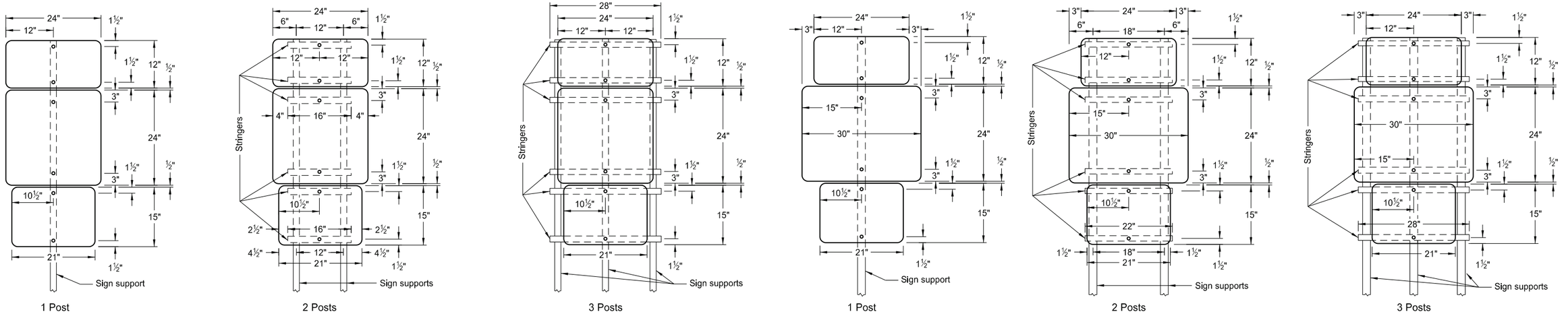
KIRK J. HOFF
REGISTERED
PROFESSIONAL
PE-4683
ENGINEER
NORTH DAKOTA

08/07/24

DocuSign Envelope ID: BCB8FF2A-083E-48A1-8BCC-2D048B980E67

SIGN PUNCHING, STRINGER AND SUPPORT LOCATION DETAILS - ROUTE MARKER SIGNS

D-754-53

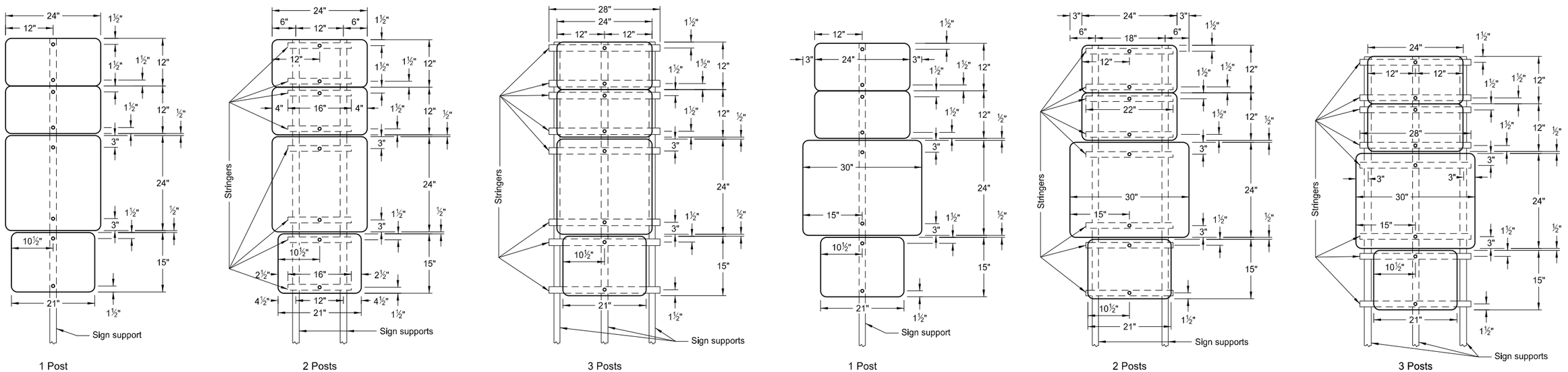


1 Post 2 Posts 3 Posts

ASSEMBLY NO. 379

1 Post 2 Posts 3 Posts

ASSEMBLY NO. 380



1 Post 2 Posts 3 Posts

ASSEMBLY NO. 381

1 Post 2 Posts 3 Posts

ASSEMBLY NO. 382

Notes:

1. Use 0.100 inch minimum thickness sign backing material.
2. Use 1½"x1½" perforated square tube stringers.
3. Punch holes round for ⅜" bolt.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-22-12	
REVISIONS	
DATE	CHANGE
8-30-18	Updated notes to active voice.
9-04-19	New Design Engineer PE Stamp.
8-07-24	Electronic Stamp/Signature.

KIRK J. HOFF REGISTERED PROFESSIONAL PE-4683 ENGINEER NORTH DAKOTA

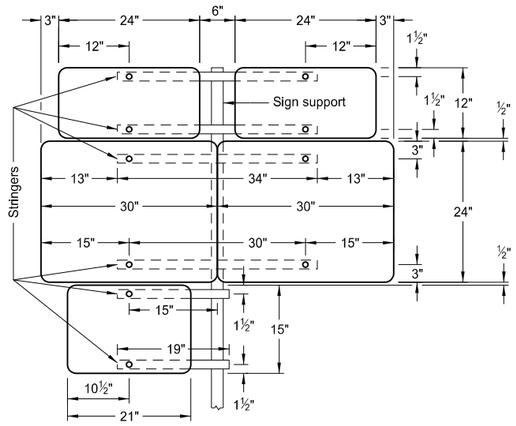
Kirk J Hoff

08/07/24

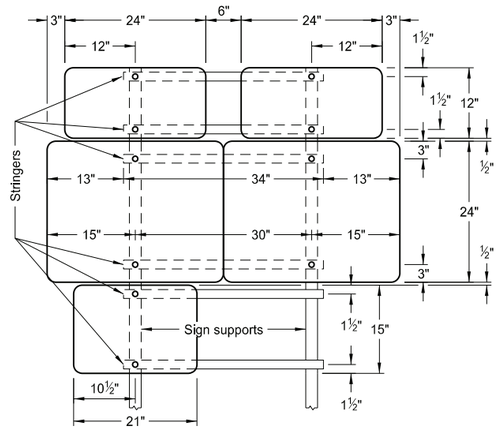
DocuSign Envelope ID: BCB8FF2A-083E-48A1-8BCC-2D048B980E67

SIGN PUNCHING, STRINGER AND SUPPORT LOCATION DETAILS - ROUTE MARKER SIGNS

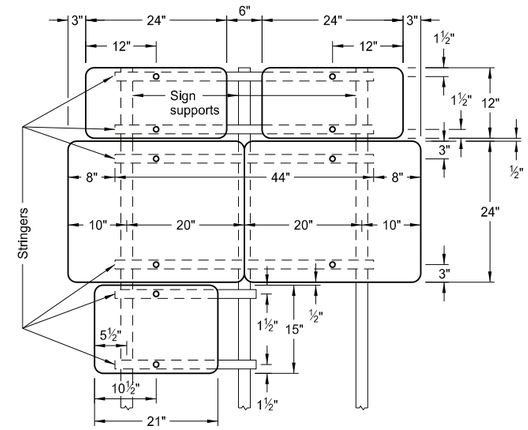
D-754-55



1 Post

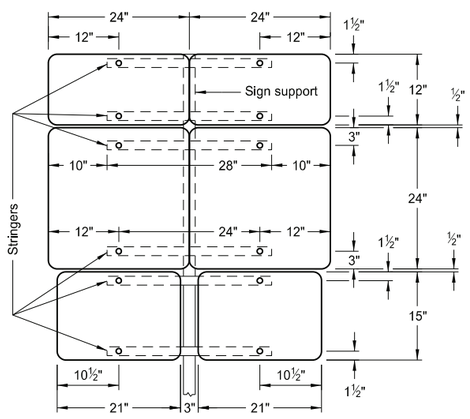


2 Posts

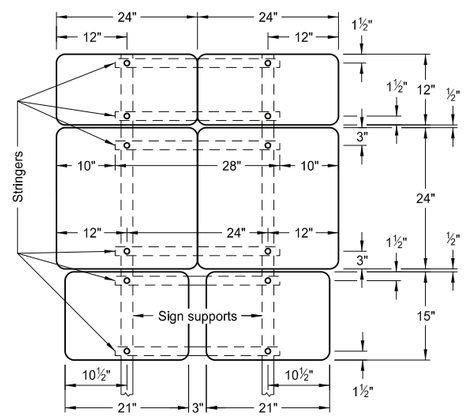


3 Posts

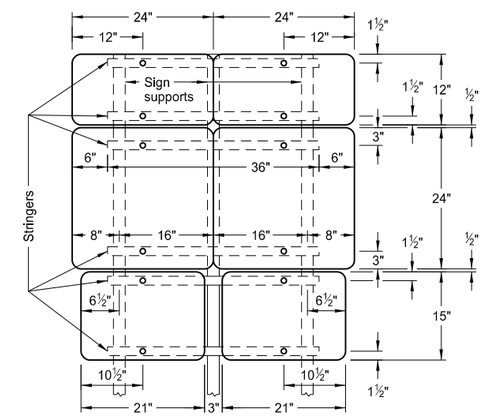
ASSEMBLY 386



1 Post

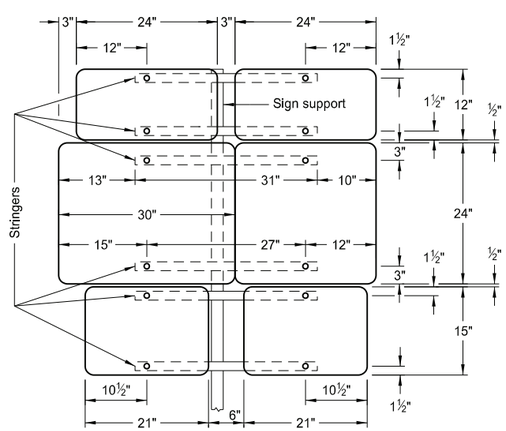


2 Posts

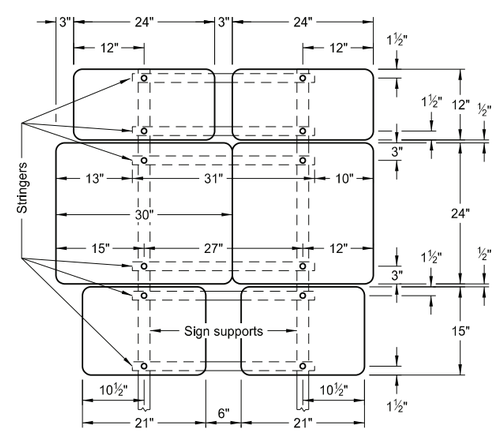


3 Posts

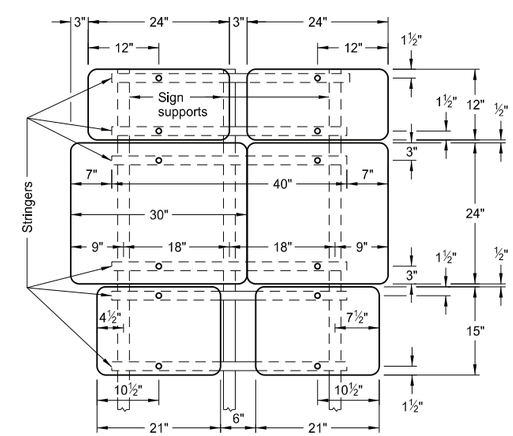
ASSEMBLY 387



1 Post



2 Posts



3 Posts

ASSEMBLY 388

Notes:

1. Use 0.100 inch minimum thickness sign backing material.
2. Use 1½"x1½" perforated square tube stringers.
3. Punch holes round for ⅜" bolt.

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

8-22-12

REVISIONS

DATE	CHANGE
8-30-18	Updated notes to active voice.
9-04-19	New Design Engineer PE Stamp.
8-07-24	Electronic Stamp/Signature.

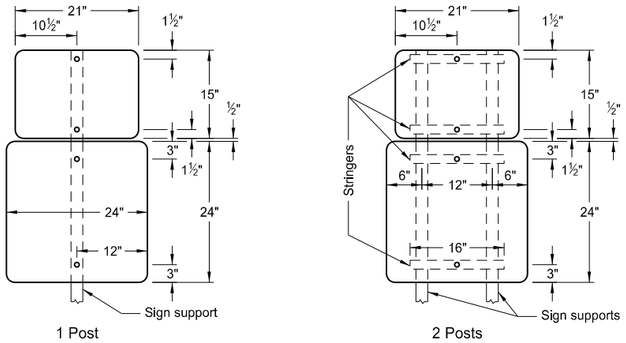
KIRK J. HOFF
REGISTERED
PROFESSIONAL
PE-4683
ENGINEER
NORTH DAKOTA

08/07/24

DocuSign Envelope ID: BCB8FF2A-083E-48A1-8BCC-2D048B980E67

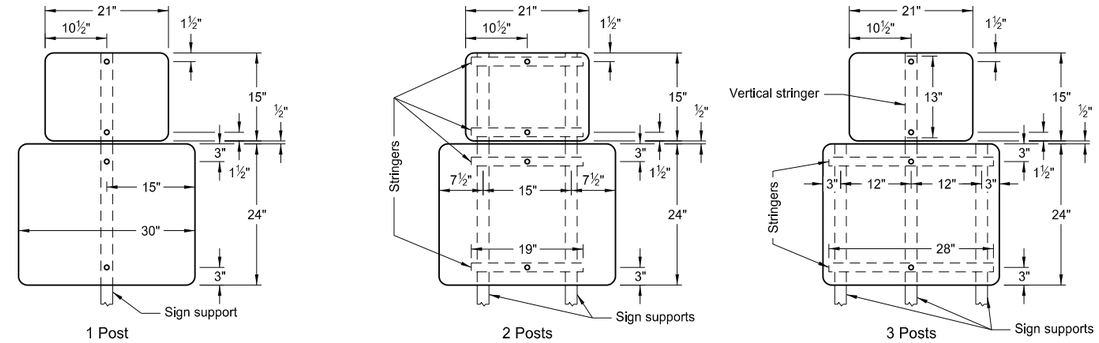
SIGN PUNCHING, STRINGER AND SUPPORT LOCATION DETAILS - ROUTE MARKER SIGNS

D-754-57



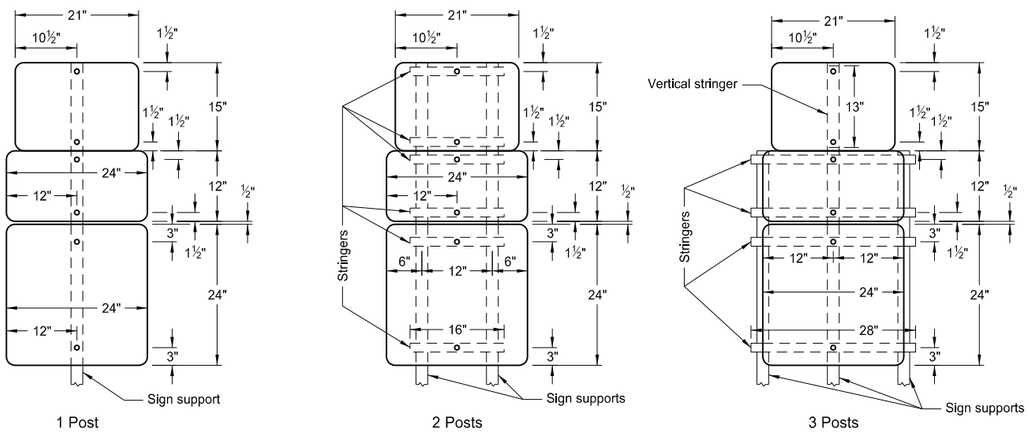
1 Post 2 Posts

ASSEMBLY 391



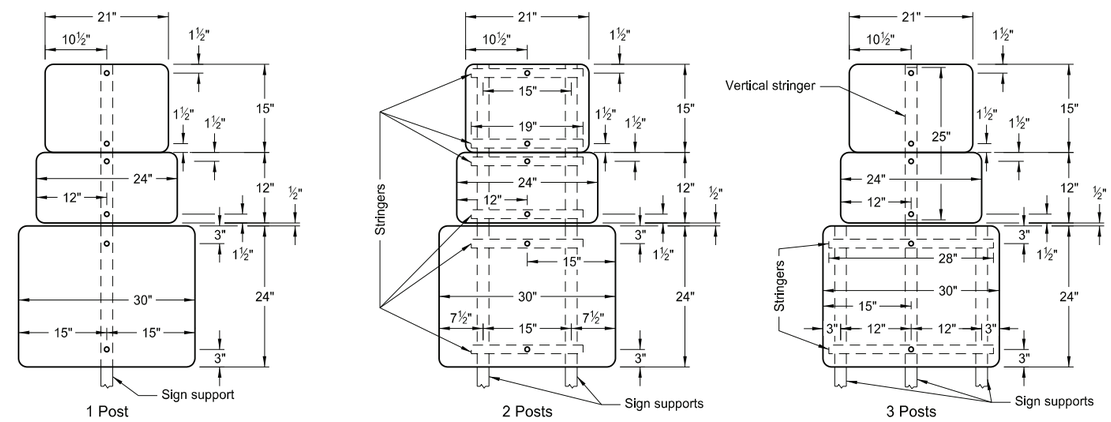
1 Post 2 Posts 3 Posts

ASSEMBLY 392



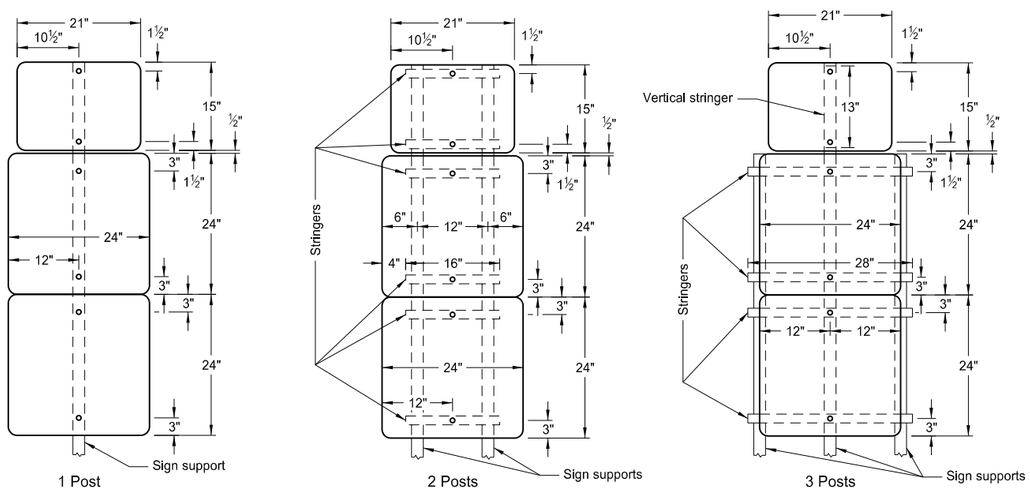
1 Post 2 Posts 3 Posts

ASSEMBLY 393



1 Post 2 Posts 3 Posts

ASSEMBLY 394



1 Post 2 Posts 3 Posts

ASSEMBLY 395

Notes:

1. Use 0.100 inch minimum thickness sign backing material.
2. Use 1½"x1½" perforated square tube stringers.
3. Punch holes round for ⅜" bolt.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-22-12	
REVISIONS	
DATE	CHANGE
8-30-18	Updated to active voice & added dimension to Assembly 393 & 394.
9-04-19	New Design Engineer PE Stamp.
8-07-24	Electronic Stamp/Signature.

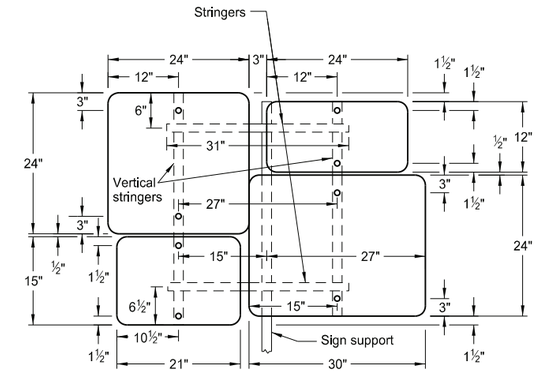
KIRK J. HOFF REGISTERED PROFESSIONAL PE-4683 ENGINEER NORTH DAKOTA

08/07/24

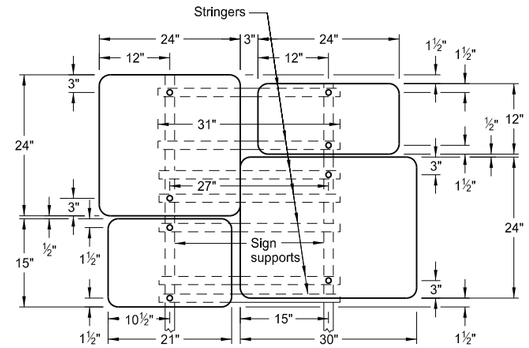
DocuSign Envelope ID: BCB8FF2A-083E-48A1-8BCC-2D048B980E67

SIGN PUNCHING, STRINGER AND SUPPORT LOCATION DETAILS - ROUTE MARKER SIGNS

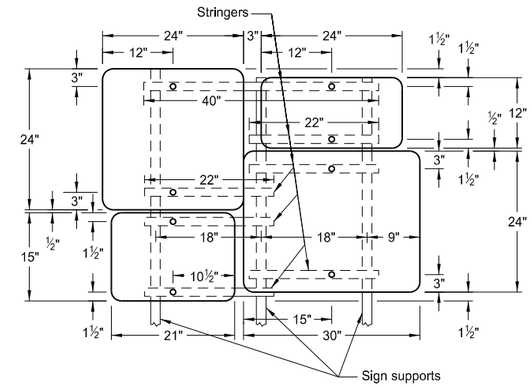
D-754-60



1 Post



2 Posts

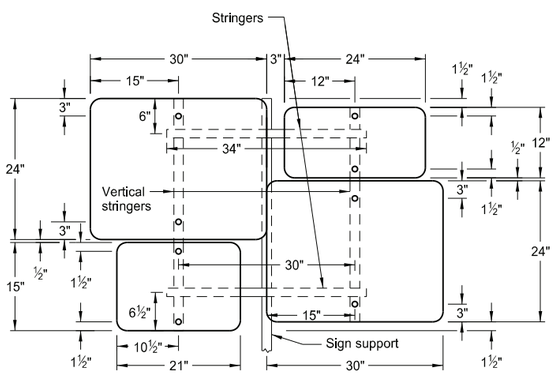


3 Posts

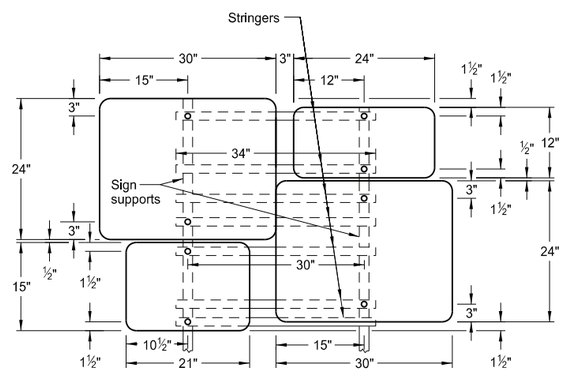
ASSEMBLY NO. 403

Notes:

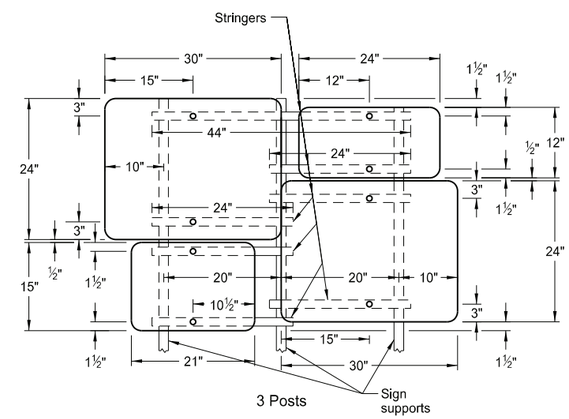
1. Use 0.100 inch minimum thickness sign backing material.
2. Use 1½"x1½" perforated square tube stringers.
3. Punch holes round for ⅜" bolt.



1 Post

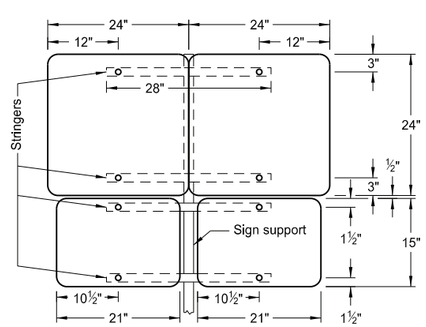


2 Posts

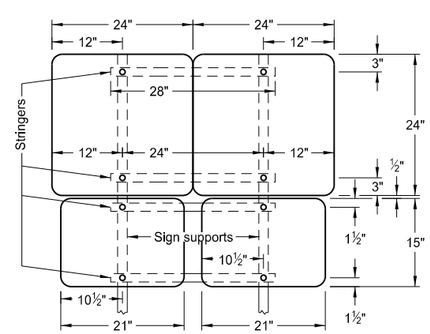


3 Posts

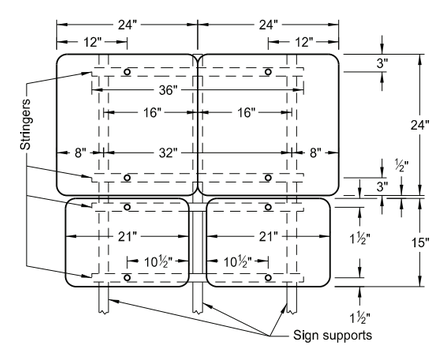
ASSEMBLY NO. 404



1 Post



2 Posts



3 Posts

ASSEMBLY NO. 405

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-22-12	
REVISIONS	
DATE	CHANGE
8-30-18	Updated notes to active voice.
9-04-19	New Design Engineer PE Stamp.
8-07-24	Electronic Stamp/Signature.

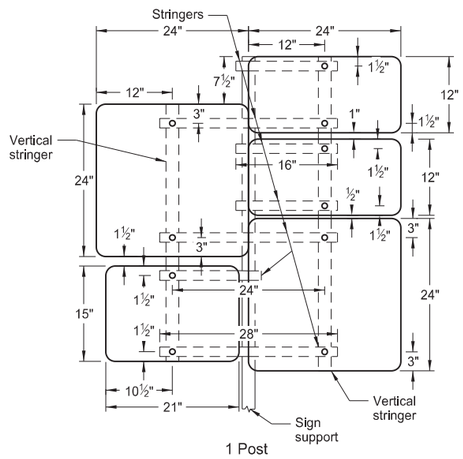
KIRK J. HOFF
REGISTERED
PROFESSIONAL
PE-4683
ENGINEER
NORTH DAKOTA

08/07/24

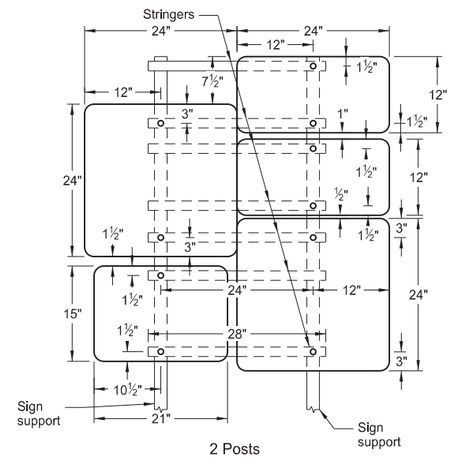
DocuSign Envelope ID: C3490446-F65D-4226-AC76-79FBB84E9BA5

SIGN PUNCHING, STRINGER AND SUPPORT LOCATION DETAILS - ROUTE MARKER SIGNS

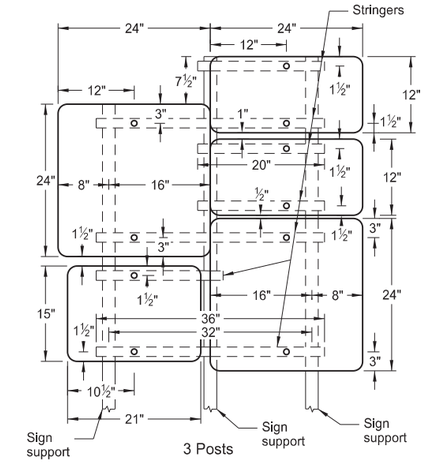
D-754-74



1 Post

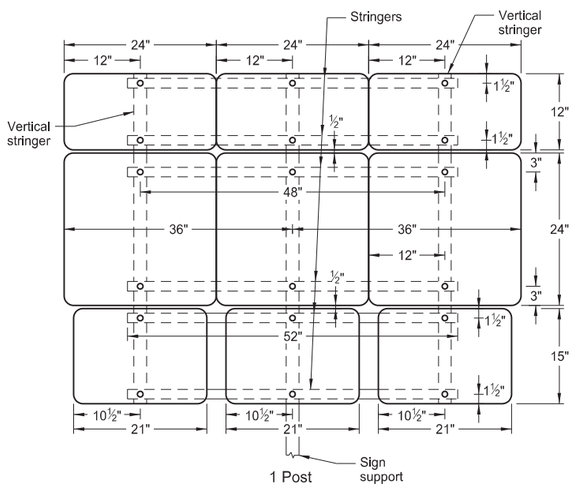


2 Posts

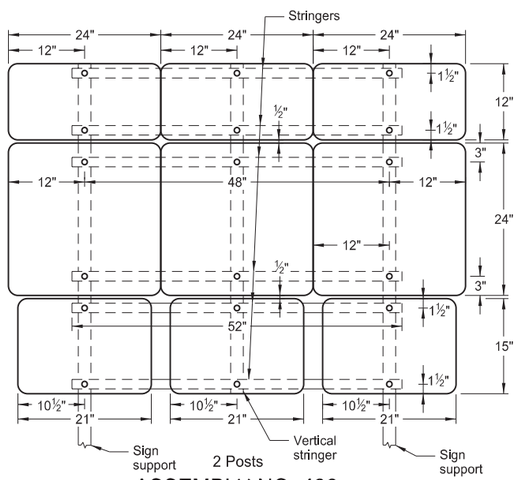


3 Posts

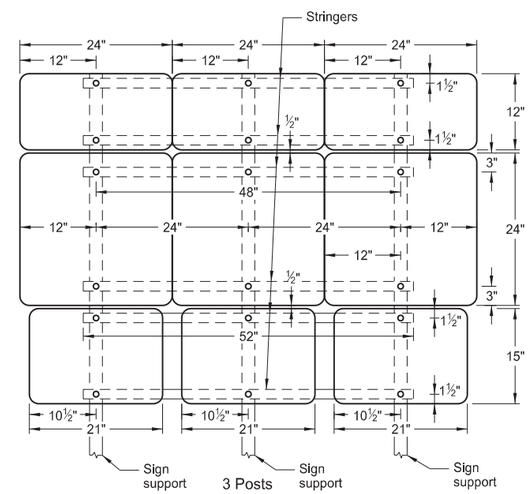
ASSEMBLY NO. 435



1 Post

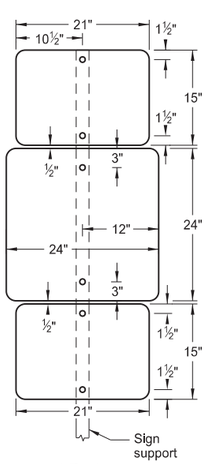


2 Posts

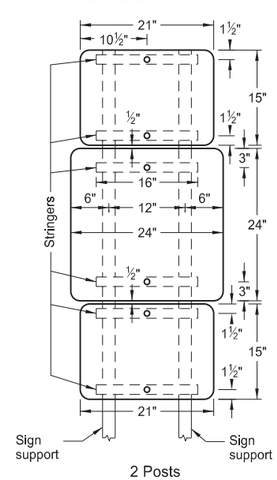


3 Posts

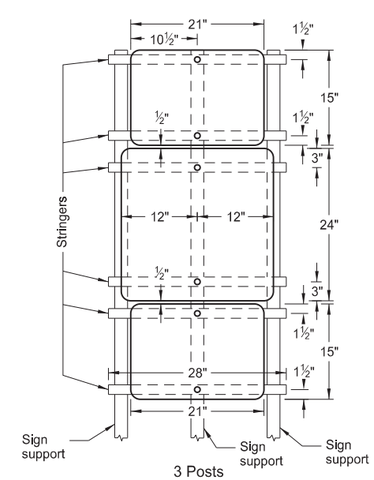
ASSEMBLY NO. 436



1 Post



2 Posts



3 Posts

ASSEMBLY NO. 437

Notes:

1. Use 0.100 inch minimum thickness sign backing material.
2. Use 1½"x1½" perforated square tube stringers.
3. Punch holes round for ⅜" bolt.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
9-25-12	
REVISIONS	
DATE	CHANGE
8-30-18	Updated notes to active voice.
9-05-19	New Design Engineer PE Stamp.
8-08-24	Electronic Stamp/Signature.

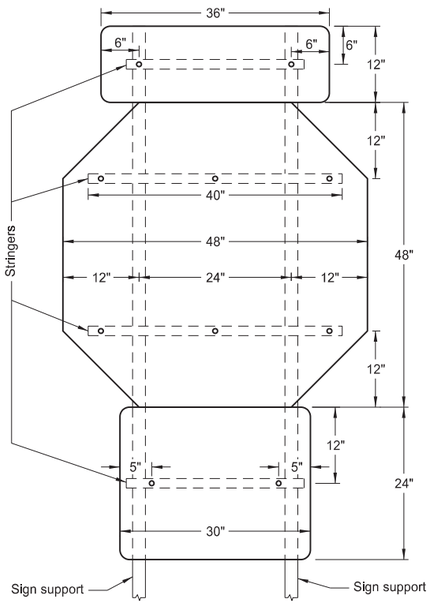
KIRK J. HOFF REGISTERED PROFESSIONAL PE-4683 ENGINEER NORTH DAKOTA

08/08/24

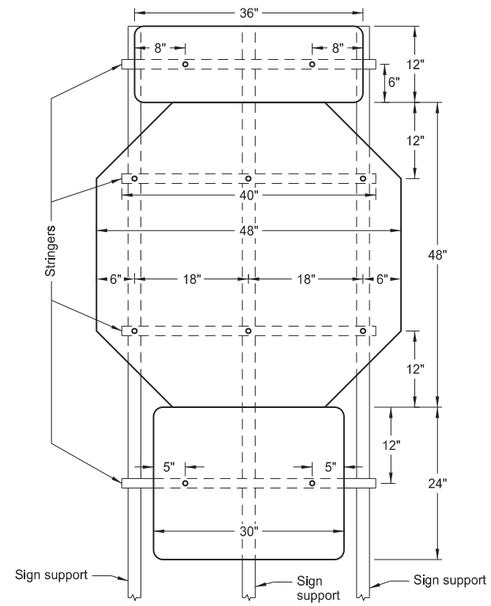
DocuSign Envelope ID: C3490446-F65D-4226-AC76-79FBB84E9BA5

SIGN PUNCHING, STRINGER AND SUPPORT LOCATION DETAILS - DIVIDED HIGHWAY CONTROL SIGNS

D-754-78



2 Posts

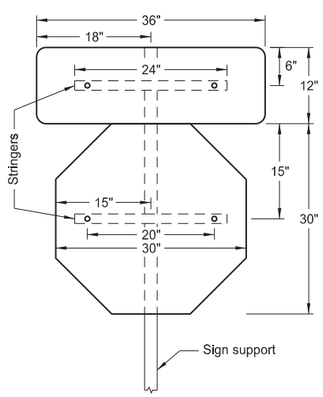


3 Posts

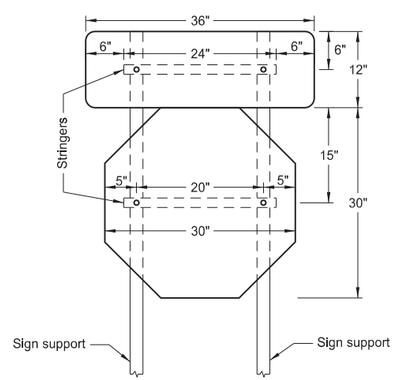
ASSEMBLY NO. 447 & 451

Notes:

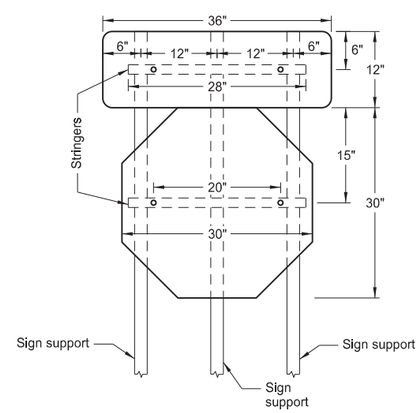
1. Use 0.100 inch minimum thickness sign backing material.
2. Use 1½"x1½" perforated square tube stringers.
3. Punch holes round for ⅜" bolt.
4. Assemblies 447 and 448 have single one way signs. Assemblies 451 and 452 have back to back one way signs.



1 Post



2 Posts



3 Posts

ASSEMBLY NO. 448 & 452

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-22-12	
REVISIONS	
DATE	CHANGE
8-30-18	Updated notes to active voice.
9-05-19	New Design Engineer PE Stamp.
8-08-24	Electronic Stamp/Signature.

KIRK J. HOFF REGISTERED PROFESSIONAL PE-4683 ENGINEER NORTH DAKOTA

08/08/24

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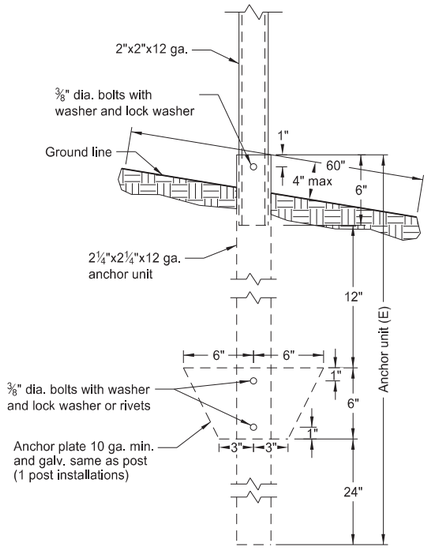
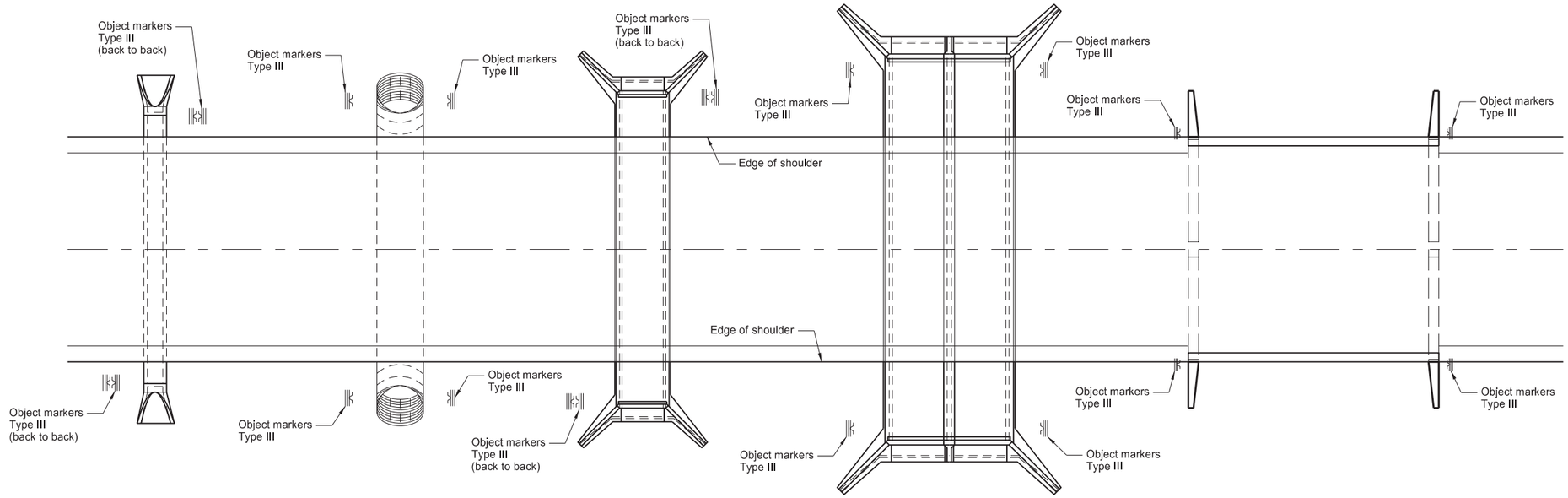
OBJECT MARKERS

D-754-82



Perforated Tube Anchor Unit Assembly



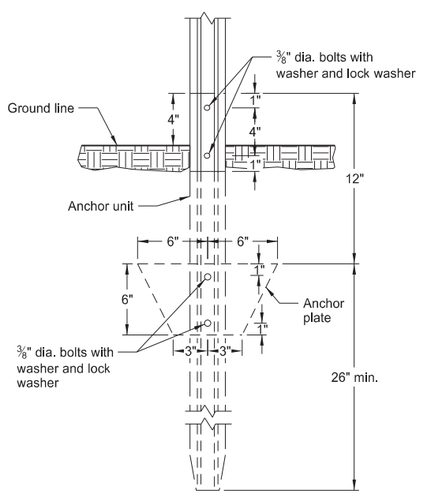
Pipe Culverts 10' max

Pipe Culverts greater than 10'

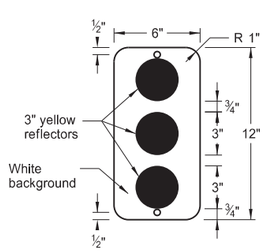
Box Culverts 10' max

Box Culverts greater than 10'

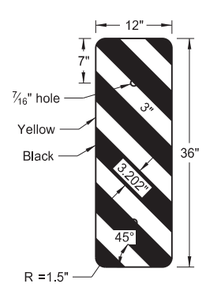
Bridges (B)



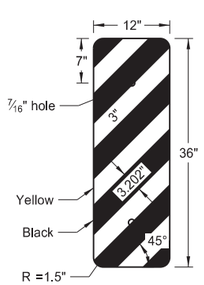
U-Channel Anchor Unit Assembly



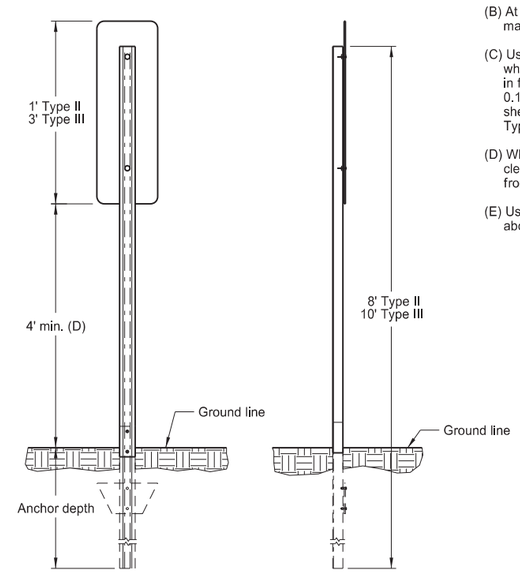
Object Marker
OM2-1V (C)
Type II



Object Marker Left
OM-3L (C)
Type III



Object Marker Right
OM-3R (C)
Type III



Object Marker
Installation Detail

Notes:

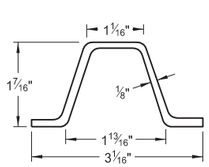
(A) Use ⅜" dia. tension pin type or other non-rust vandal resistant fastener with min. outside dia. 13/16" flat washer.

(B) At locations of approach guardrail with reflectors and end terminal with impact head object markers, do not install object markers.

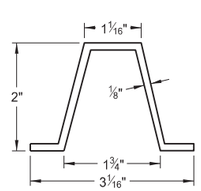
(C) Use two object markers for back to back mountings. On bridges where the distance between wheel guards is less than the approach width, mount object markers vertically on steel posts in front of the bridge railing on each side of highway to mark the horizontal clearance. Use 0.100" minimum thickness sheet aluminum for sign backing material. Use ASTM Type XI sheeting for Type III object markers and ASTM Type IV background sheeting with ASTM Type XI reflectors for Type II object markers.

(D) When object marker is located 8' or less from shoulder or curb, provide 4' minimum vertical clearance from near edge of traveled way to bottom of sign. When located more than 8' from shoulder or curb provide 4' minimum vertical clearance from ground to bottom of sign.

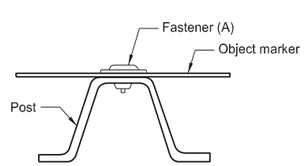
(E) Use 4" vertical clearance for anchor or breakaway base. Provide 4"x60" measurement above and below post location and back and ahead of post.



Steel Post Detail
Approx. 2 lb/ft



Aluminum Post Detail
Approx. 0.88 lb/ft



Fastener Detail

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
10-3-13	
REVISIONS	
DATE	CHANGE
7-18-14	Revised Note C
8-30-18	Updated notes to active voice and removed note.
9-05-19	New Design Engineer PE Stamp.
8-08-24	Electronic Stamp/Signature.

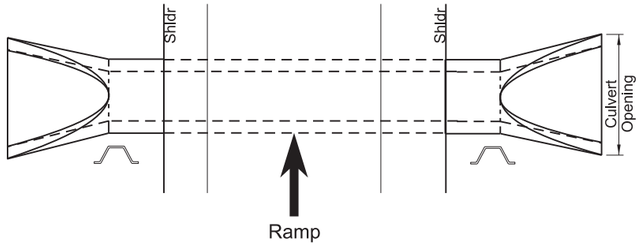
KIRK J. HOFF REGISTERED PROFESSIONAL PE-4683 ENGINEER NORTH DAKOTA

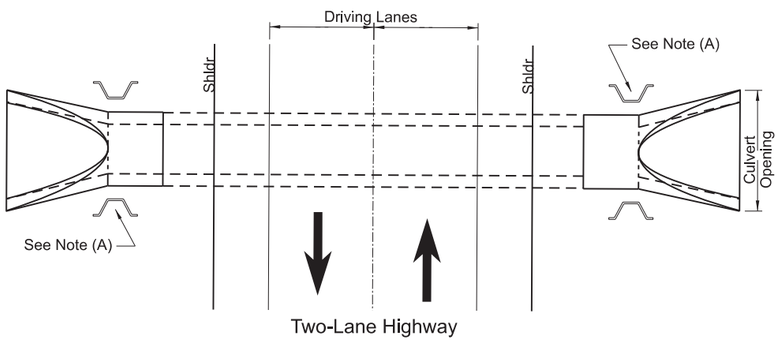
08/08/24

Docusign Envelope ID: 16F7A80B-8DD6-45CC-B8F9-AA9BED01BCFF

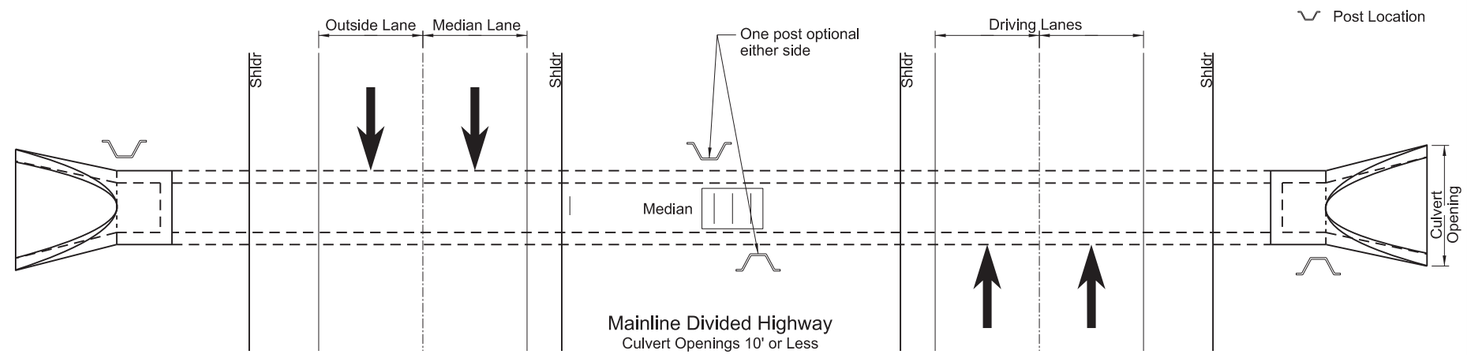
OBJECT MARKERS - CULVERTS

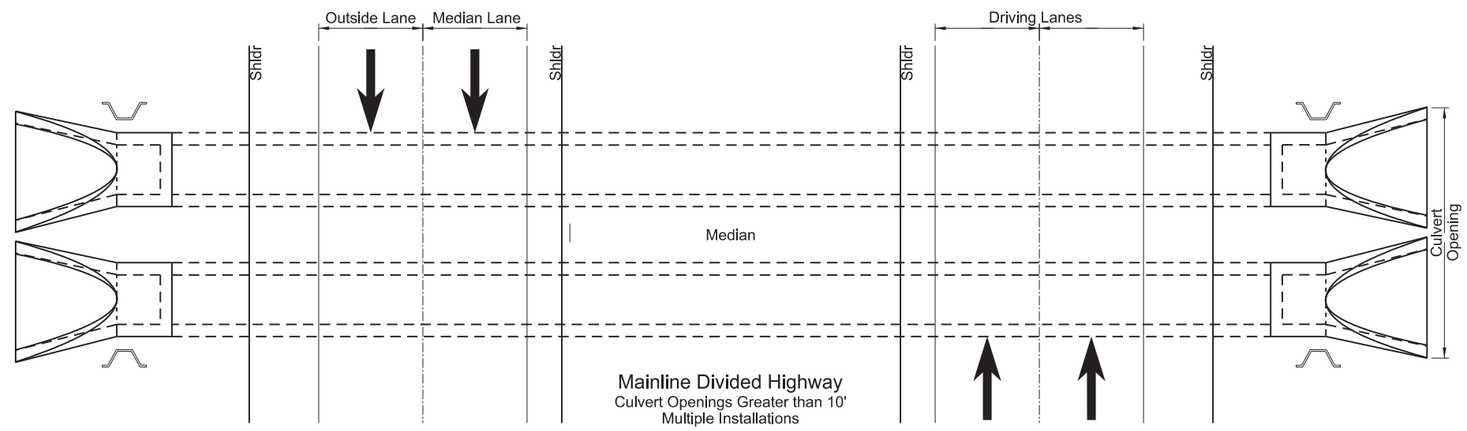
D-754-83

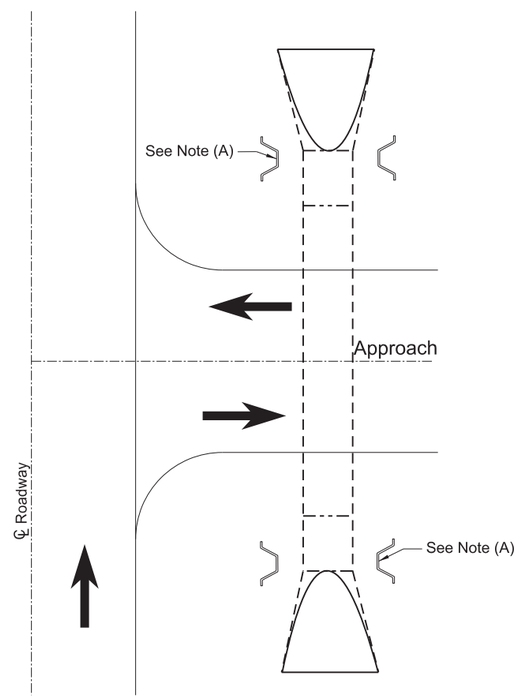


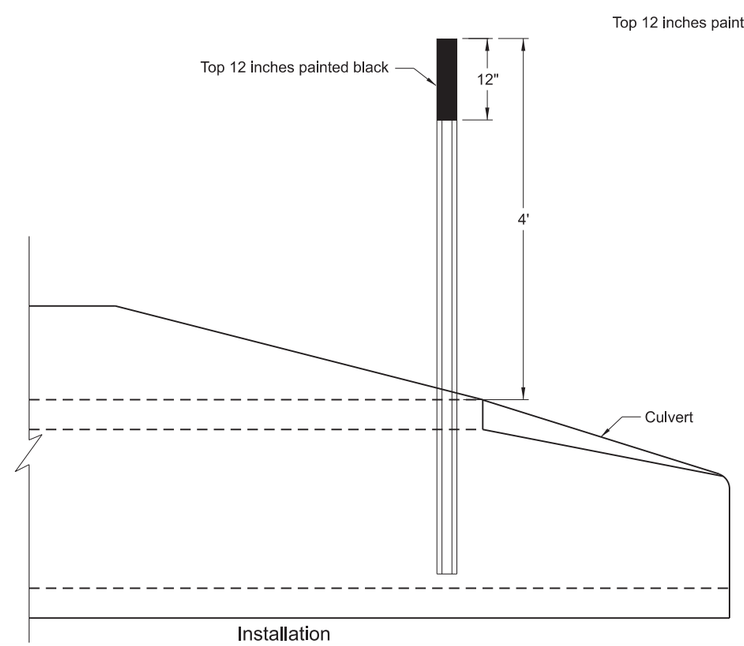


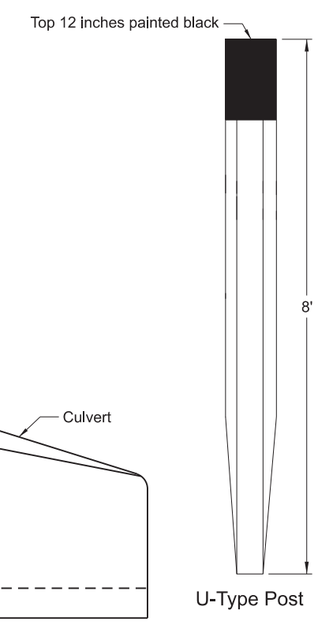
(A) Install additional marker where multiple pipe installations have a width greater than 10'.





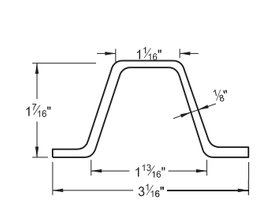




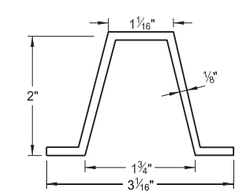


Note:

Mark each end of culverts within the right-of-way with a post. Install posts in front of culvert in direction of travel along the side of culvert and one foot from culvert opening unless shown otherwise in plans.



Steel Post Detail
Approx. 2.0 lbs/ft



Aluminum Post Detail
Approx. 0.88 lbs/ft

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

8-05-13

REVISIONS

DATE	CHANGE
7-7-14	Revised Notes
8-30-18	Updated notes to active voice.
9-05-19	New Design Engineer PE Stamp.
3-13-25	Added Approach Pipe Detail.

KIRK J. HOFF
REGISTERED
PROFESSIONAL
PE-4683
ENGINEER
NORTH DAKOTA

03/13/25

DocuSign Envelope ID: C3490446-F65D-4226-AC76-79FBB84E9BA5

911 SIGN SUPPORT INFORMATION AND SIGN DETAILS

D-754-86

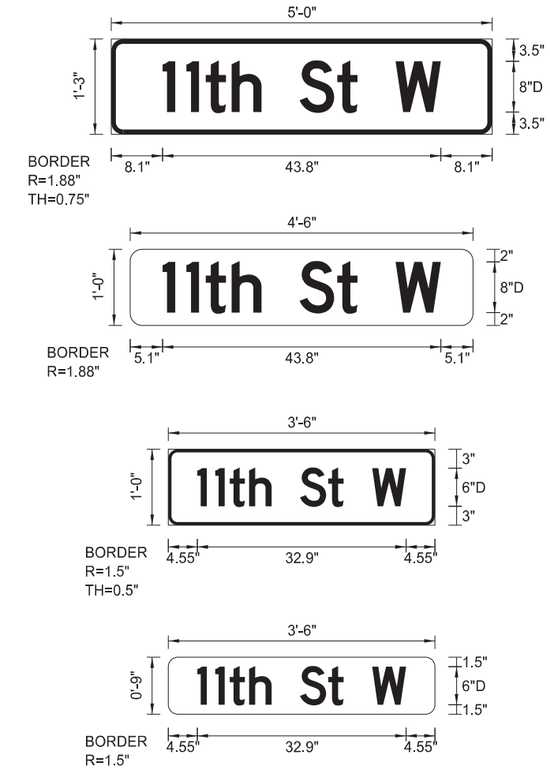
POST INFORMATION FOR VARIOUS SIGN CONFIGURATIONS

ASSEMBLY NUMBER	STREET NAME SIGN SIZE	VERTICAL CLEARANCE	MAXIMUM POST LENGTH	NUMBER OF POSTS	SUPPORT SIZE	SLEEVE LENGTH (A)			SLEEVE SIZE	ANCHOR			BREAKAWAY
						1st	2nd	3rd		NUMBER	LENGTH	SIZE	
	Inches	LF	LF			LF	LF	LF			LF		
Special Assembly 1	48"x15"	7	14.5	1	2.5 x 2.5 12 ga					1	4.0	3 x 3 7 ga	
	54"x15"	7	16.1	1	2.5 x 2.5 12 ga					1	4.0	3 x 3 7 ga	
	60"x15"	7	18.9	1	2.25 x 2.25 12 ga	2.6			2 x 2 12 ga	1	4.0	3 x 3 7 ga	1
	66"x15"	7	15.8	1	2.5 x 2.5 10 ga					1	4.0	3 x 3 7 ga	1
	72"x15"	7	14.6	1	2.5 x 2.5 10 ga					1	4.0	3 x 3 7 ga	1
	78"x15"	7	17.6	2	2.5 x 2.5 12 ga					2	4.0	3 x 3 7 ga	2
	84"x15"	7	15.8	2	2.25 x 2.25 12 ga					2	4.0	2.5 x 2.5 12 ga	
	90"x15"	7	15.3	2	2.5 x 2.5 12 ga					2	4.0	3 x 3 7 ga	2
	96"x15"	7	17.4	2	2.5 x 2.5 10 ga					2	4.0	3 x 3 7 ga	2
	48"x12"	7	17.5	1	2.5 x 2.5 12 ga					1	4.0	3 x 3 7 ga	
	54"x12"	7	15.2	1	2.25 x 2.25 12 ga					1	4.0	2.5 x 2.5 12 ga	
	60"x12"	7	14.2	1	2.5 x 2.5 12 ga					1	4.0	3 x 3 7 ga	
	66"x12"	7	15.9	1	2.5 x 2.5 12 ga					1	4.0	3 x 3 7 ga	
	72"x12"	7	14.7	1	2.5 x 2.5 12 ga					1	4.0	3 x 3 7 ga	
	78"x12"	7	15.7	2	2 x 2 12 ga					2	4.0	2.25 x 2.25 12 ga	
	84"x12"	7	15.6	2	2.25 x 2.25 12 ga					2	4.0	2.5 x 2.5 12 ga	
	90"x12"	7	18.6	2	2.5 x 2.5 12 ga					2	4.0	3 x 3 7 ga	2
	96"x12"	7	17.5	2	2.5 x 2.5 12 ga					2	4.0	3 x 3 7 ga	2
	24"x12"	5	20.3	1	2 x 2 12 ga					1	4.0	2.25 x 2.25 12 ga	
	30"x12"	5	16.4	1	2 x 2 12 ga					1	4.0	2.25 x 2.25 12 ga	
	36"x12"	5	13.8	1	2 x 2 12 ga					1	4.0	2.25 x 2.25 12 ga	
	42"x12"	5	14.7	1	2 x 2 12 ga					1	4.0	2.25 x 2.25 12 ga	
	48"x12"	5	12.9	1	2 x 2 12 ga					1	4.0	2.25 x 2.25 12 ga	
	54"x12"	5	15.2	1	2.25 x 2.25 12 ga					1	4.0	2.5 x 2.5 12 ga	
	60"x12"	5	13.8	1	2.25 x 2.25 12 ga					1	4.0	2.5 x 2.5 12 ga	
	24"x9"	5	24.1	1	2 x 2 12 ga					1	4.0	2.25 x 2.25 12 ga	
	30"x9"	5	21	1	2 x 2 12 ga					1	4.0	2.25 x 2.25 12 ga	
	36"x9"	5	17.3	1	2 x 2 12 ga					1	4.0	2.25 x 2.25 12 ga	
	42"x9"	5	15.4	1	2 x 2 12 ga					1	4.0	2.25 x 2.25 12 ga	
	48"x9"	5	13.5	1	2 x 2 12 ga					1	4.0	2.25 x 2.25 12 ga	
	54"x9"	5	14.8	1	2 x 2 12 ga					1	4.0	2.25 x 2.25 12 ga	
	60"x9"	5	13.3	1	2 x 2 12 ga					1	4.0	2.25 x 2.25 12 ga	
Special Assembly 2	24"x12"	5	17.2	1	2.5 x 2.5 10 ga					1	4.0	3 x 3 7 ga	1
	30"x12"	5	16.3	1	2.5 x 2.5 10 ga					1	4.0	3 x 3 7 ga	1
	36"x12"	5	15.4	1	2.5 x 2.5 10 ga					1	4.0	3 x 3 7 ga	1
	42"x12"	5	14.6	1	2.5 x 2.5 10 ga					1	4.0	3 x 3 7 ga	1
	48"x12"	5	15.2	1	2.25 x 2.25 12 ga	4.5			2 x 2 12 ga	1	4.0	3 x 3 7 ga	1
	54"x12"	5	20.6	1	2.5 x 2.5 10 ga	1.5			2.19 x 2.19 10 ga	1	4.0	3 x 3 7 ga	1
	60"x12"	5	16.7	1	2.5 x 2.5 12 ga	3.9			2.25 x 2.25 12 ga	1	4.0	3 x 3 7 ga	1
	24"x9"	5	15.2	1	2.5 x 2.5 12 ga					1	4.0	3 x 3 7 ga	
	30"x9"	5	14.4	1	2.5 x 2.5 12 ga					1	4.0	3 x 3 7 ga	
	36"x9"	5	16.4	1	2.5 x 2.5 10 ga					1	4.0	3 x 3 7 ga	1
	42"x9"	5	15.8	1	2.5 x 2.5 10 ga					1	4.0	3 x 3 7 ga	1
	48"x9"	5	14.4	1	2.5 x 2.5 10 ga					1	4.0	3 x 3 7 ga	1
	54"x9"	5	15.1	1	2.25 x 2.25 12 ga	4.2			2 x 2 12 ga	1	4.0	3 x 3 7 ga	1
	60"x9"	5	14.5	1	2.25 x 2.25 12 ga	4.7			2 x 2 12 ga	1	4.0	3 x 3 7 ga	1

POST INFORMATION FOR VARIOUS SIGN CONFIGURATIONS

ASSEMBLY NUMBER	STREET NAME SIGN SIZE	VERTICAL CLEARANCE	MAXIMUM POST LENGTH	NUMBER OF POSTS	SUPPORT SIZE	SLEEVE LENGTH (A)			SLEEVE SIZE	ANCHOR			BREAKAWAY
						1st	2nd	3rd		NUMBER	LENGTH	SIZE	
	Inches	LF	LF			LF	LF	LF			LF		
Special Assembly 3	24"x12"	5	16.2	1	2.5 x 2.5 10 ga					1	4.0	3 x 3 7 ga	1
	30"x12"	5	15.3	1	2.5 x 2.5 10 ga					1	4.0	3 x 3 7 ga	1
	36"x12"	5	15.9	1	2.25 x 2.25 12 ga	4.3			2 x 2 12 ga	1	4.0	3 x 3 7 ga	1
	42"x12"	5	15.2	1	2.25 x 2.25 12 ga	4.8			2 x 2 12 ga	1	4.0	3 x 3 7 ga	1
	48"x12"	5	15.2	1	2.5 x 2.5 12 ga	5			2.25 x 2.25 12 ga	1	4.0	3 x 3 7 ga	1
	54"x12"	5	20.6	1	2.5 x 2.5 10 ga	1.9			2.19 x 2.19 10 ga	1	4.0	3 x 3 7 ga	1
	60"x12"	5	16	1	2.5 x 2.5 12 ga	4.7			2.25 x 2.25 12 ga	1	4.0	3 x 3 7 ga	1
	24"x9"	5	16.8	1	2.5 x 2.5 10 ga					1	4.0	3 x 3 7 ga	1
	30"x9"	5	16.1	1	2.5 x 2.5 10 ga					1	4.0	3 x 3 7 ga	1
	36"x9"	5	15.4	1	2.5 x 2.5 10 ga					1	4.0	3 x 3 7 ga	1
	42"x9"	5	14.9	1	2.5 x 2.5 10 ga					1	4.0	3 x 3 7 ga	1
	48"x9"	5	15.7	1	2.25 x 2.25 12 ga	4.2			2 x 2 12 ga	1	4.0	3 x 3 7 ga	1
	54"x9"	5	14.9	1	2.5 x 2.5 12 ga	4.8			2.25 x 2.25 12 ga	1	4.0	3 x 3 7 ga	1
	60"x9"	5	20.5	1	2.5 x 2.5 10 ga	1.6			2.19 x 2.19 10 ga	1	4.0	3 x 3 7 ga	1
Special Assembly 4	24"x12"	5	15.1	1	2.25 x 2.25 12 ga	4.8			2 x 2 12 ga	1	4.0	3 x 3 7 ga	1
	30"x12"	5	15.1	1	2.5 x 2.5 12 ga	5			2.25 x 2.25 12 ga	1	4.0	3 x 3 7 ga	1
	36"x12"	5	17.4	1	2.5 x 2.5 12 ga	3.6			2.25 x 2.25 12 ga	1	4.0	3 x 3 7 ga	1
	42"x12"	5	16.8	1	2.5 x 2.5 12 ga	4.1			2.25 x 2.25 12 ga	1	4.0	3 x 3 7 ga	1
	48"x12"	5	16.1	1	2.5 x 2.5 12 ga	4.5			2.25 x 2.25 12 ga	1	4.0	3 x 3 7 ga	1
	54"x12"	5	15.5	1	2.5 x 2.5 12 ga	4.9			2.25 x 2.25 12 ga	1	4.0	3 x 3 7 ga	1
	60"x12"	5	16.7	1	2.5 x 2.5 10 ga	4.2			2.19 x 2.19 10 ga	1	4.0	3 x 3 7 ga	1
	24"x9"	5	15.5	1	2.25 x 2.25 12 ga	4.2			2 x 2 12 ga	1	4.0	3 x 3 7 ga	1
	30"x9"	5	15	1	2.25 x 2.25 12 ga	4.5			2 x 2 12 ga	1	4.0	3 x 3 7 ga	1
	36"x9"	5	14.5	1	2.25 x 2.25 12 ga	4.8			2 x 2 12 ga	1	4.0	3 x 3 7 ga	1
	42"x9"	5	14.7	1	2.5 x 2.5 12 ga	4.9			2.25 x 2.25 12 ga	1	4.0	3 x 3 7 ga	1
	48"x9"	5	17.2	1	2.5 x 2.5 12 ga	3.5			2.25 x 2.25 12 ga	1	4.0	3 x 3 7 ga	1
	54"x9"	5	15.8	1	2.5 x 2.5 12 ga	4.4			2.25 x 2.25 12 ga	1	4.0	3 x 3 7 ga	1
	60"x9"	5	15.3	1	2.5 x 2.5 12 ga	4.7			2.25 x 2.25 12 ga	1	4.0	3 x 3 7 ga	1
Special Assembly 5	24"x12"	5	17.1	2	2.5 x 2.5 10 ga					2	4.0	3 x 3 7 ga	2
	30"x12"	5	16.7	2	2.5 x 2.5 10 ga					2	4.0	3 x 3 7 ga	2
	36"x12"	5	17.7	2	2.25 x 2.25 12 ga	4	4.5		2 x 2 12 ga	2	4.0	3 x 3 7 ga	2
	42"x12"	5	17.3	2	2.25 x 2.25 12 ga	4.3	4.8		2 x 2 12 ga	2	4.0	3 x 3 7 ga	2
	48"x12"	5	16.8	2	2.25 x 2.25 12 ga	4.5	5		2 x 2 12 ga	2	4.0	3 x 3 7 ga	2
	54"x12"	5	16.5	2	2.25 x 2.25 12 ga	4.8	5.3		2 x 2 12 ga	2	4.0	3 x 3 7 ga	2
	60"x12"	5	17.5	3	2.5 x 2.5 12 ga					3	4.0	3 x 3 7 ga	3
	24"x9"	5	17.3	2	2.5 x 2.5 10 ga					2	4.0	3 x 3 7 ga	2
	30"x9"	5	17	2	2.5 x 2.5 10 ga					2	4.0	3 x 3 7 ga	2
	36"x9"	5	16.6	2	2.5 x 2.5 10 ga					2	4.0	3 x 3 7 ga	2
	42"x9"	5	16.3	2	2.5 x 2.5 10 ga					2	4.0	3 x 3 7 ga	2
	48"x9"	5	16	2	2.5 x 2.5 10 ga					2	4.0	3 x 3 7 ga	2
	54"x9"	5	17.1	2	2.25 x 2.25 12 ga	4	4.6		2 x 2 12 ga	2	4.0	3 x 3 7 ga	2
	60"x9"	5	16.8	2	2.25 x 2.25 12 ga	4.2	4.8		2 x 2 12 ga	2	4.0	3 x 3 7 ga	2

(A) The sleeve length shown is for the maximum post length. The required sleeve length is the "sleeve length" minus the difference between the "maximum post length" and the post length required in the field.



Notes:
Use 6 inch legend except on multi-lane divided roads with speeds of 45 mph or greater.
On divided multi-lane roadways, do not place 911 signs on top of stop sign.

When installing signs on existing supports, check support and sleeve size to determine if they meet table requirements. Measure maximum post length from ground to top of street name sign. If calculated support length is greater than maximum post length shown, recalculate support size.

See Standard Drawing D-754-87 for sign punching, stringer and support location details.

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

10-3-13

REVISIONS

DATE	CHANGE
7-18-14	Revised street name sign layouts.
8-30-18	Revised tables, lettering, & signs and updated notes to active voice.
9-05-19	New Design Engineer PE Stamp.
8-08-24	Electronic Stamp/Signature.

KIRK J. HOFF
REGISTERED
PROFESSIONAL
PE-4683
ENGINEER
NORTH DAKOTA

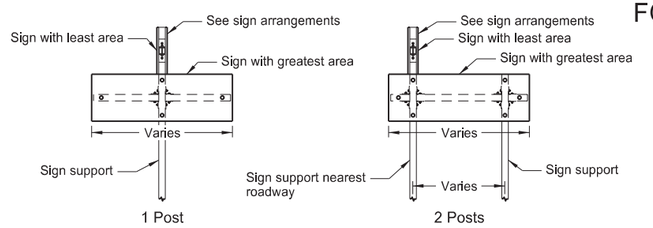
08/08/24

DocuSign Envelope ID: C3490446-F65D-4226-AC76-79FBB84E9BA5

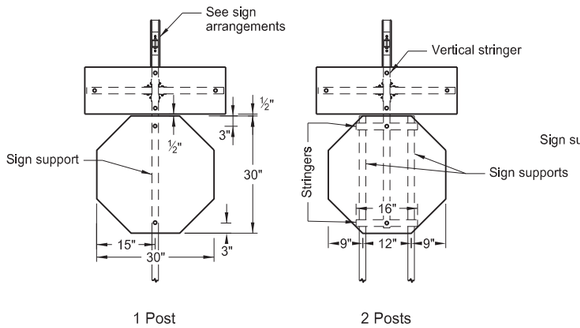
SIGN PUNCHING, STRINGER AND SUPPORT LOCATION DETAILS FOR STREET NAME SIGNS AND 911 SIGNS

D-754-87

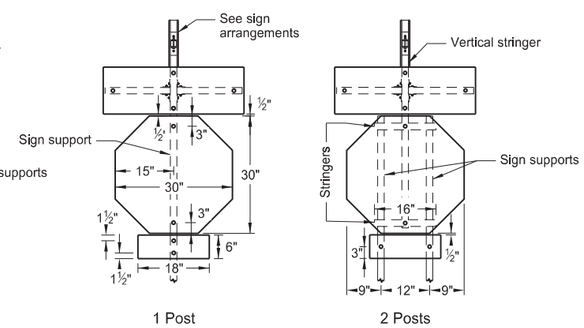
A - Single sign
B - Single sign back to back
C - Single sign each direction
D - Single sign one direction, back to back other direction
E - Back to back both directions



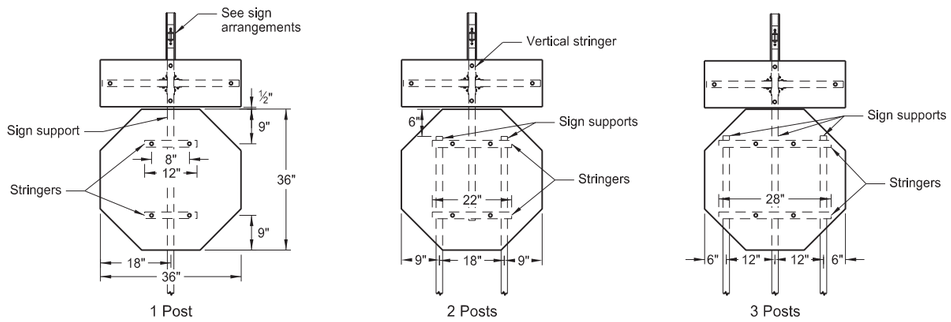
Special Assembly 1 (A, B, C, D or E)



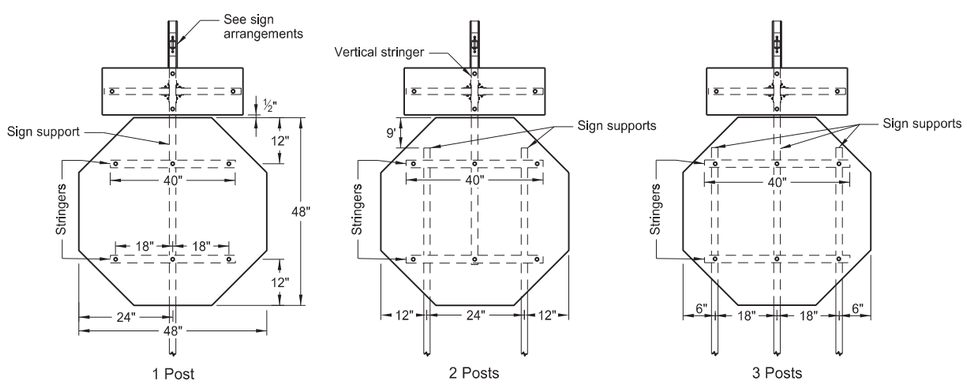
Special Assembly 2 (A, B, C, D or E)



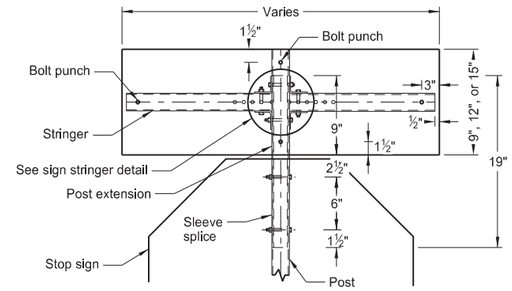
Special Assembly 3 (A, B, C, D or E)



Special Assembly 4 (A, B, C, D or E)

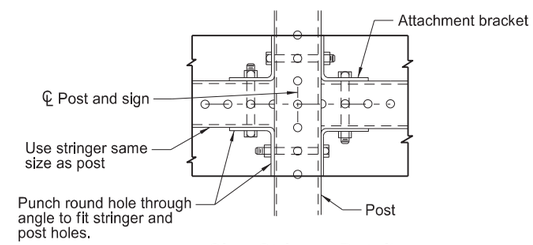


Special Assembly 5 (A, B, C, D or E)



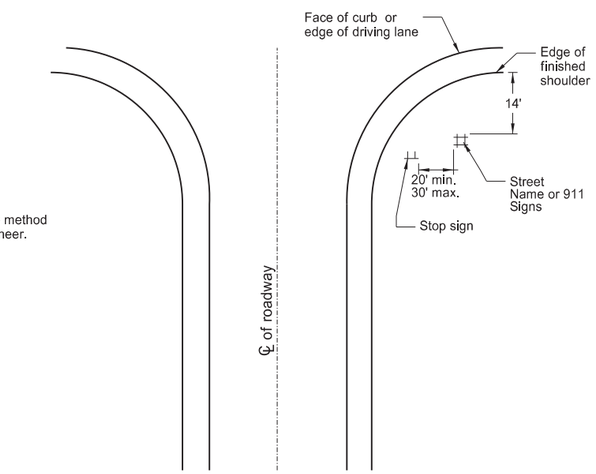
Sleeve Splice Detail

Note: Only use splice method with approval of engineer.



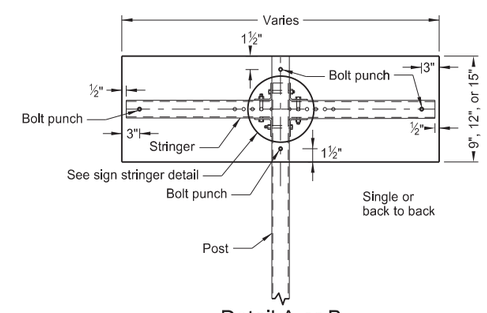
Sign Stringer Detail

Note: See Standard Drawing D-754-86 for 911 support information and sign layout details.

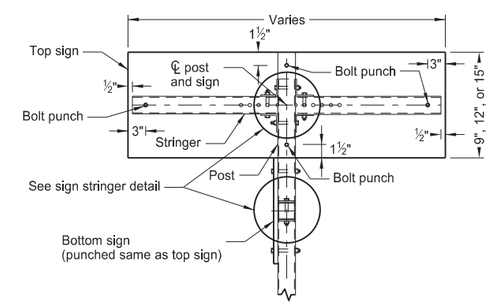


Intersection Layout

Note: Use layout for street name signs or 911 signs with Special Assembly 1 .

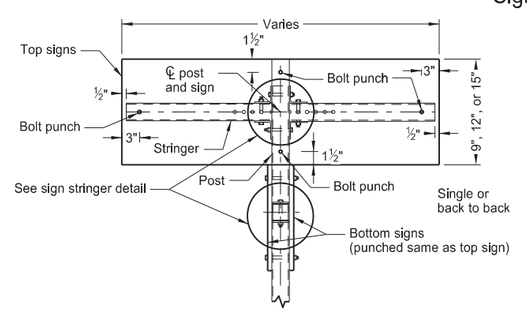


Detail A or B



Detail C

Sign Arrangements



Detail D or E

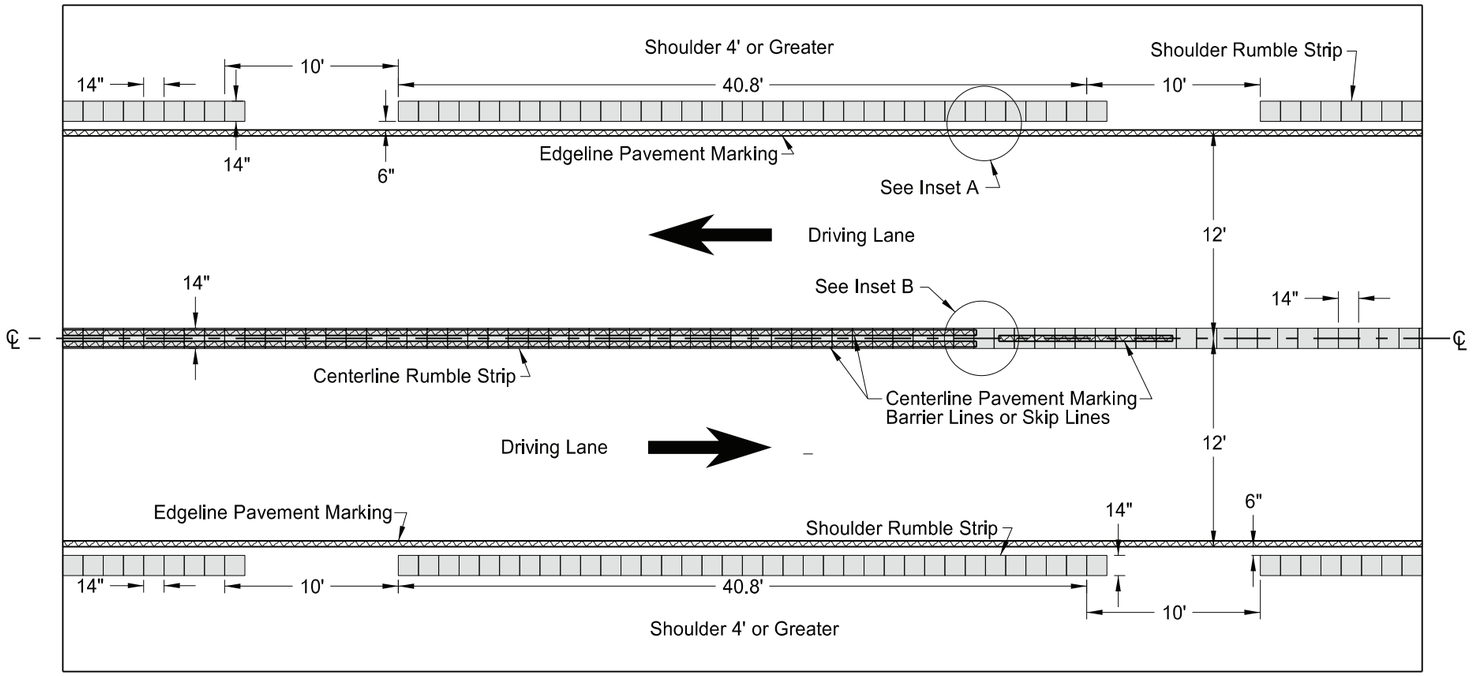
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
10-3-13	
REVISIONS	
DATE	CHANGE
8-30-18	Added 2 post layout for SA1 and Updated notes to active voice.
9-05-19	New Design Engineer PE Stamp.
8-08-24	Electronic Stamp/Signature.

KIRK J. HOFF REGISTERED PROFESSIONAL PE-4683 ENGINEER NORTH DAKOTA

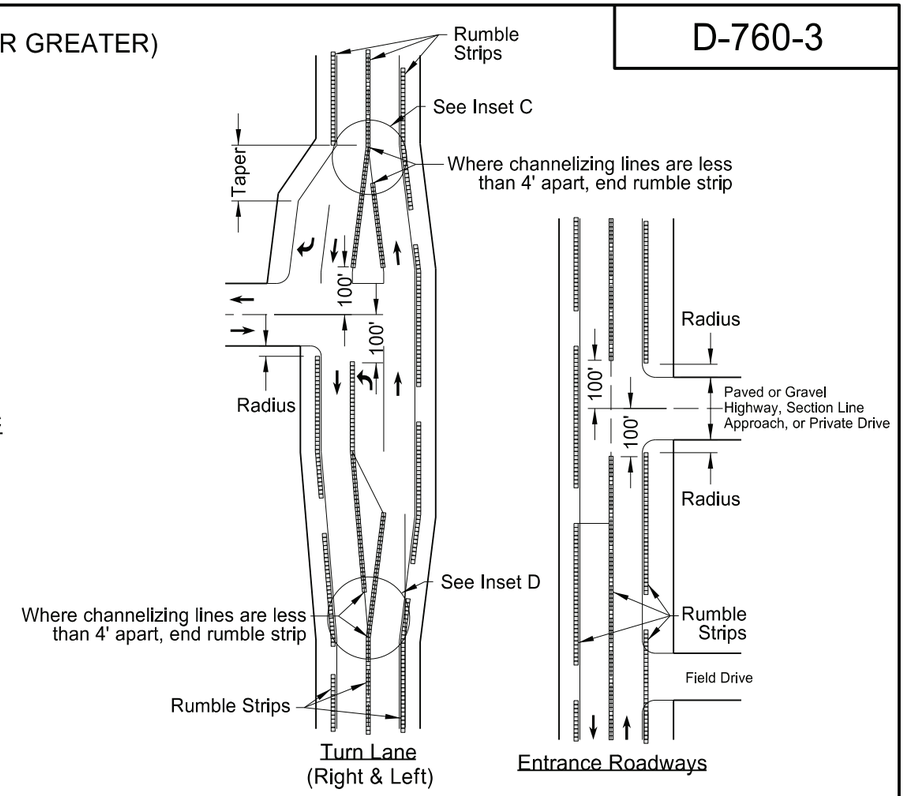
08/08/24

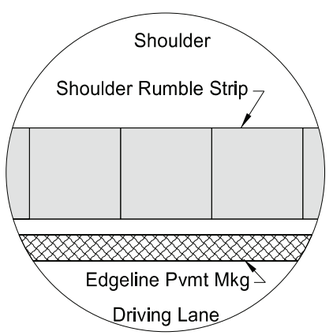
RUMBLE STRIPS UNDIVIDED HIGHWAYS (SHOULDERS 4' OR GREATER)

D-760-3

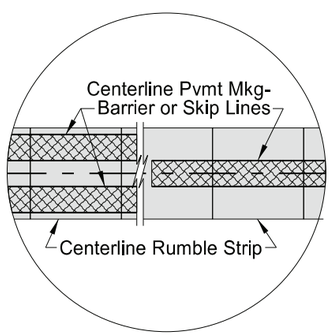


Undivided Highways (Shoulders 4' or Greater)

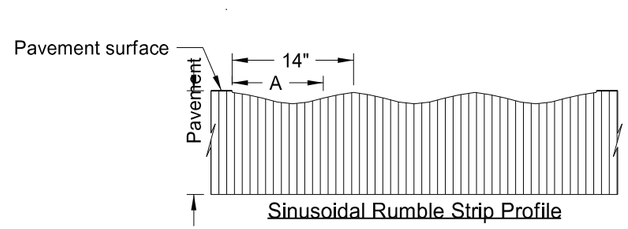




Inset A - Shoulder Rumble Strip
(Layout for opposite shoulder reversed)



Inset B - Centerline Rumble Strip



Sinusoidal Rumble Strip Profile

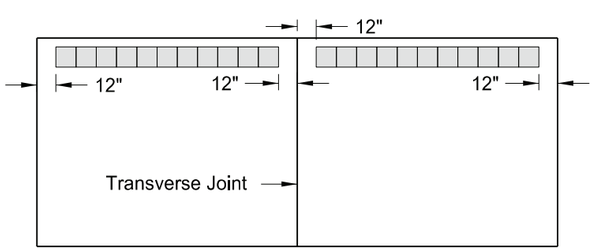
Milling Depths		
Location A (in)	Depth	
	MIL	in
0	62.5	1/16
1 3/4	156	5/32
3 1/2	281	9/32
5 1/4	438	7/16
7	500	1/2
8 3/4	438	7/16
10 1/2	281	9/32
12 1/4	156	5/32
14	62.5	1/16

NOTES:

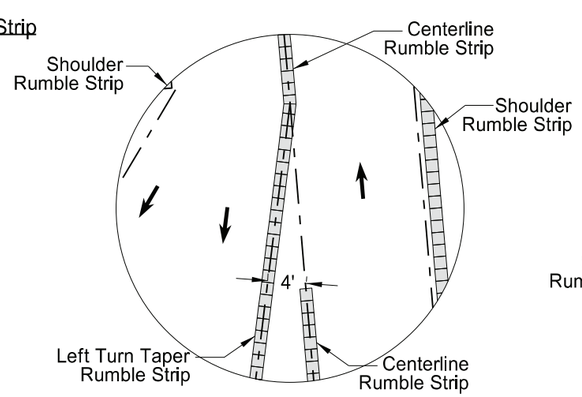
1) Discontinue shoulder rumble strips through the entire length of right turn lanes and tapers, and at the radius of paved or gravel highways, section line approaches, or private drives.

2) Discontinue centerline rumble strips 100' before and after paved or gravel highways, section line approaches, or private drives. Place rumble strips at left turn lanes as shown below.

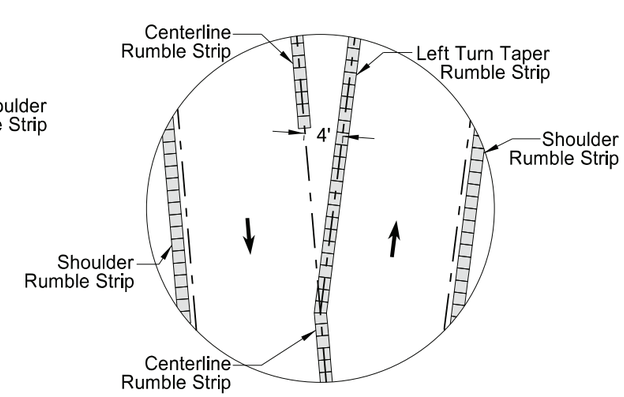
3) No additional quantity provided for centerline rumble strips on left turn tapers. Include all costs for centerline rumble strips on left turn tapers in the price bid for "Sinusoidal Rumble Strip - Asphalt Centerline" or "Sinusoidal Rumble Strip - Concrete Centerline".



Discontinue rumble strip approx. 12" on both sides of PCC transverse joint



Inset C



Inset D

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
12-29-09	
REVISIONS	
DATE	CHANGE
2-25-10	Note 4 was added.
4-19-10	Revised Note 5, Note 6, and Turn Lane (Right & Left).
9-08-11	Revised Notes and D-760-3.
10-25-19	Added missing dimensions.
11-16-21	Changed turn lane rumble layouts.
3-07-23	Added Note 3.
5-26-23	Made rumble strips sinusoidal.

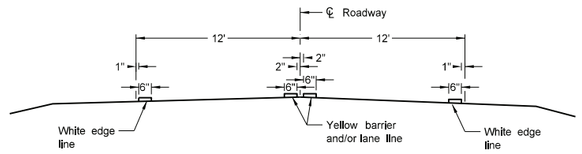
KIRK J. HOFF
REGISTERED
PROFESSIONAL
PE-4683
ENGINEER
NORTH DAKOTA

05/26/23

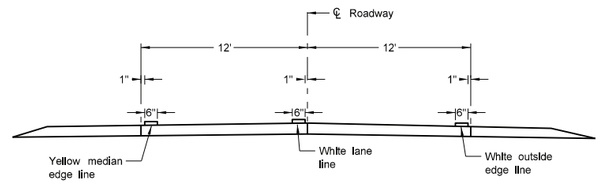
DocuSign Envelope ID: ABCF7EEC-0F0E-43FC-8985-B836A5F8B0CC

PAVEMENT MARKING

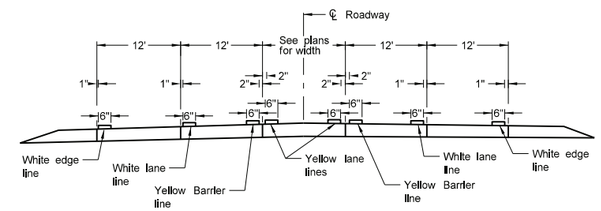
D-762-4



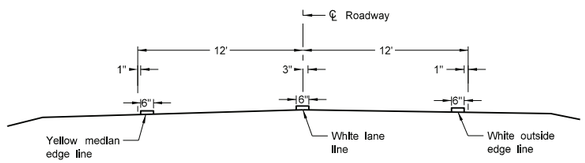
Two Lane Two Way
RURAL ROADWAY



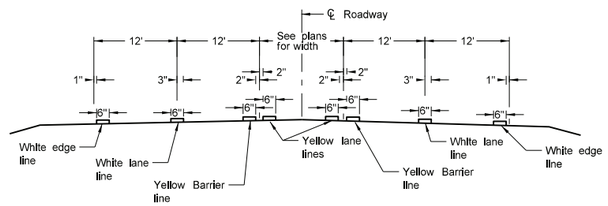
Two Lane Roadway
INTERSTATE HIGHWAY
Concrete Section



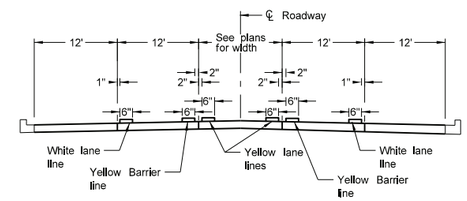
RURAL FIVE LANE ROADWAY
Concrete Section



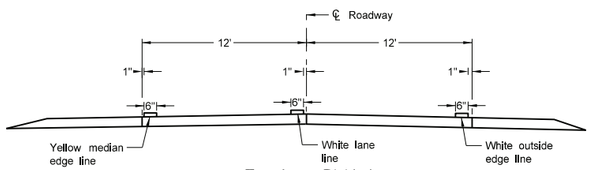
Two Lane Divided
Rural Roadway
PRIMARY HIGHWAY
Asphalt Section



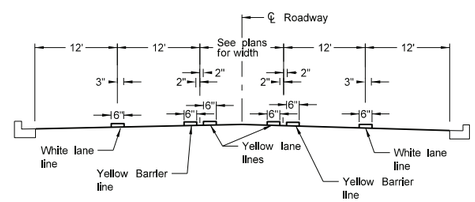
RURAL FIVE LANE ROADWAY
Asphalt Section



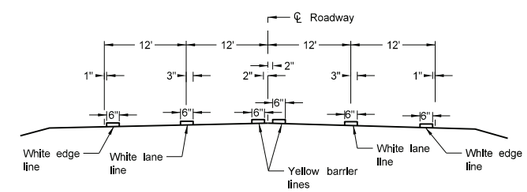
URBAN FIVE LANE SECTION
Concrete Section



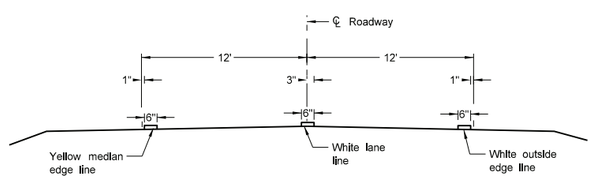
Two Lane Divided
Rural Roadway
PRIMARY HIGHWAY
Concrete Section



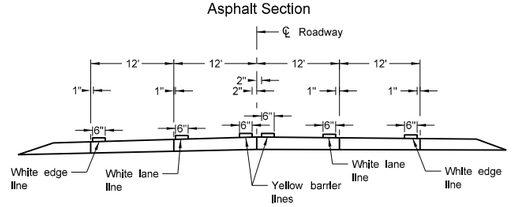
URBAN FIVE LANE SECTION
Asphalt Section



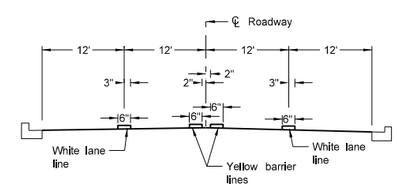
RURAL FOUR LANE ROADWAY
Asphalt Section



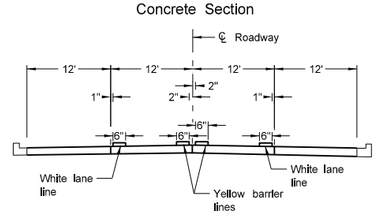
Two Lane Roadway
INTERSTATE HIGHWAY
Asphalt Section



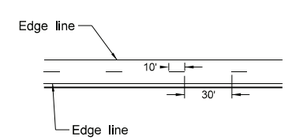
RURAL FOUR LANE ROADWAY
Concrete Section



URBAN FOUR LANE SECTION
Asphalt Section



URBAN FOUR LANE SECTION
Concrete Section



CENTERLINE PAVEMENT MARKING SKIP SPACING DETAIL

NOTES:

1. Continue edge lines through private drives and field drives. Break edge lines for intersections.

   For section lines, county roads, and street approaches, stripe the radii and edge lines of the paved surface within the right of way except where curb and gutter is present.

2. Normal width line - 6 inches wide for freeways, expressways, and ramps; 6 inches for all other roadways with speed limits > 40 mph,

3. Use 4 or 6 inch wide pavement marking for all other roadways with speed limits < 40 mph.

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

12-1-10

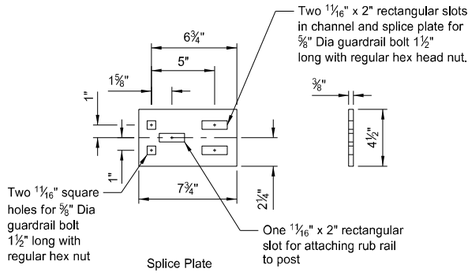
REVISIONS

DATE	CHANGE
10-17-17	Updated to active voice.
08-27-19	New Design Engineer PE Stamp.
11-22-23	Revised pavement marking widths.
07-09-24	Modified Note 1.

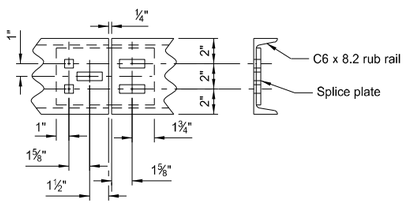
KIRK J. HOFF
REGISTERED
PROFESSIONAL
PE-4683
07/09/24
ENGINEER
NORTH DAKOTA

W-BEAM GUARDRAIL GENERAL DETAILS

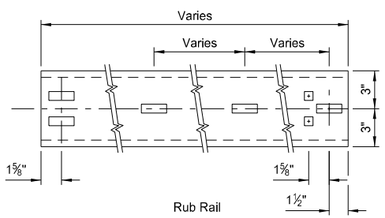
D-764-1



Splice Plate

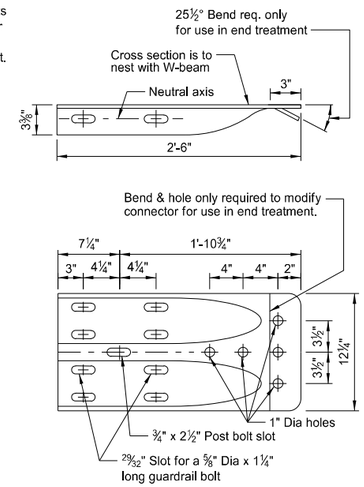


Splice Detail

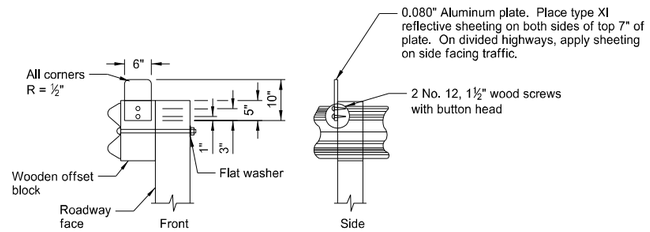


Rub Rail

C6x8 RUB RAIL AND SPLICE PLATE

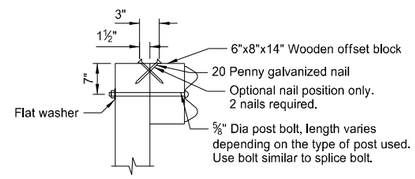


W BEAM TERMINAL CONNECTOR

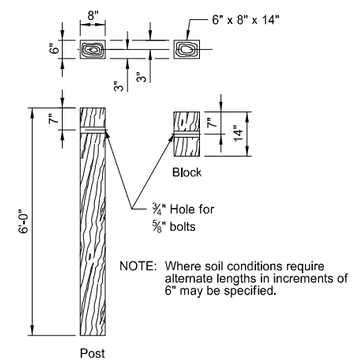


REFLECTORIZED PLATE DETAIL

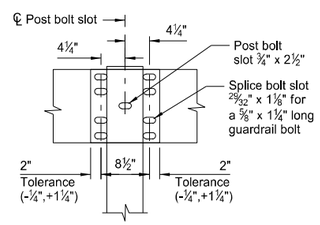
Additional reflectors are added to the W-beam guardrail quantities for placement on end treatment.



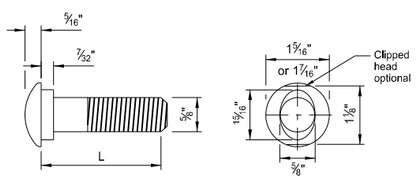
TYPICAL POST ATTACHMENT DETAIL



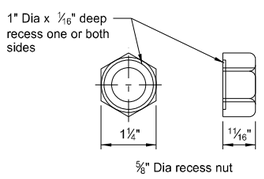
6"x8" TIMBER POST & BLOCK



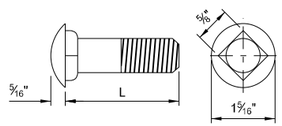
SPLICE DETAIL



5/8" Diameter Guardrail Bolt	
L	Thread Length
1¼"	Full length thread
2"	1¾" Min thread length
9½"	4" Min thread length
18"	4" Min thread length
20"	4" Min thread length
22"	4" Min thread length
25"	4" Min thread length

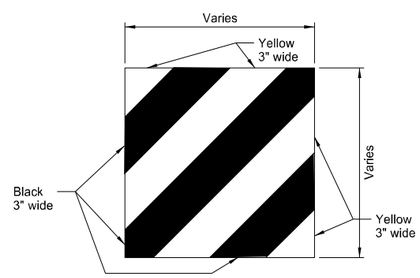


5/8" GUARDRAIL BOLT & RECESS NUT

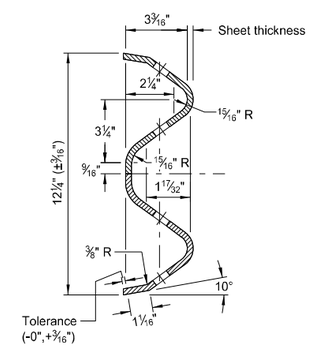


5/8" Diameter Carriage Bolt	
L	Thread Length
1½"	Full length thread
3"	1½" Min thread length
11"	1¾" Min thread length
13"	1¾" Min thread length

5/8" CARRIAGE BOLT & NUT



IMPACT HEAD OBJECT MARKER



W-BEAM CROSS SECTION

NOTES:

1. Place reflector plates at the first post and spaced at 25' centers on guardrail less than 250' in length and at 50' centers for guardrail over 250' in length. Use reflector the same color as the pavement marking adjacent to that reflector unless noted otherwise on the plans.
2. Dispose of excess earth from excavations for guard posts as directed by the engineer. Replace bituminous material where guardrail is installed after mat is placed. Include cost of excavation and replacing of bituminous material in the price bid for other items.
3. Place Object Marker within the vertical edges of the Impact Plate. Use type XI retroreflective sheeting meeting the requirements of Section 894.02.E of the standard specifications. Apply sheeting to 0.100 Aluminum sheeting meeting the requirements Section 894.01.A. Attach the Object Marker to the Impact Head Plate with non-rust rivets or some other non-rust attachment device. Slope stripes downward toward the roadway side.
4. Guardrail installation height tolerance = - ¼" , + 1".
5. Standard W-Beam rail post bolt slot spacing is 6'-3". Post bolt slot spacing of 3'-1½" is acceptable.

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

10-11-13

REVISIONS

DATE	CHANGE
10-25-19	Updated notes to active voice and added Note 5.
12-02-20	Updated clipped head to optional

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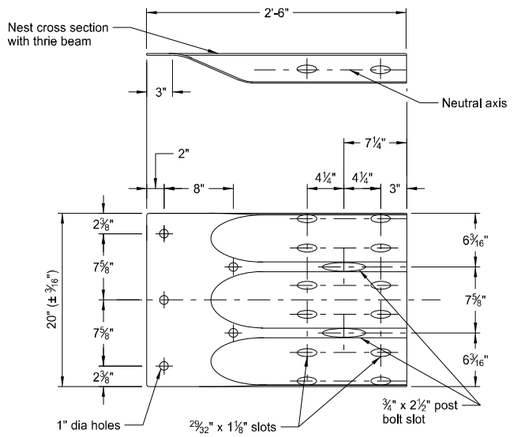
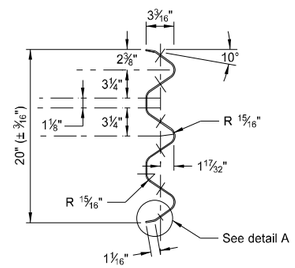
12 02 2020

THRIE BEAM TRANSITION TO DOUBLE BOX BEAM RETROFIT

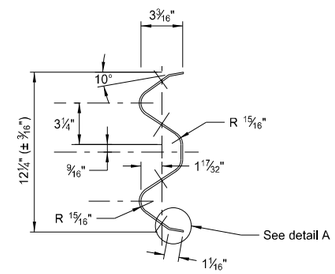
D-764-10



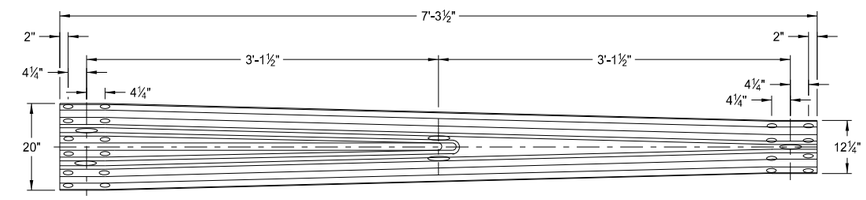
THRIE BEAM TERMINAL CONNECTOR



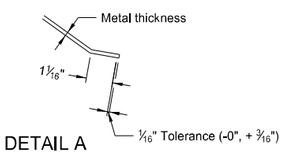
THRIE BEAM END VIEW



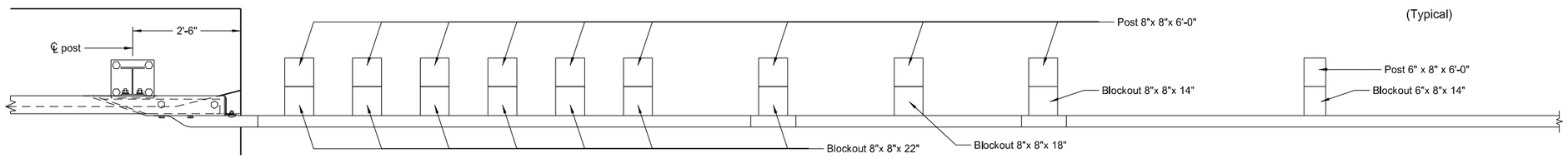
W-BEAM END VIEW



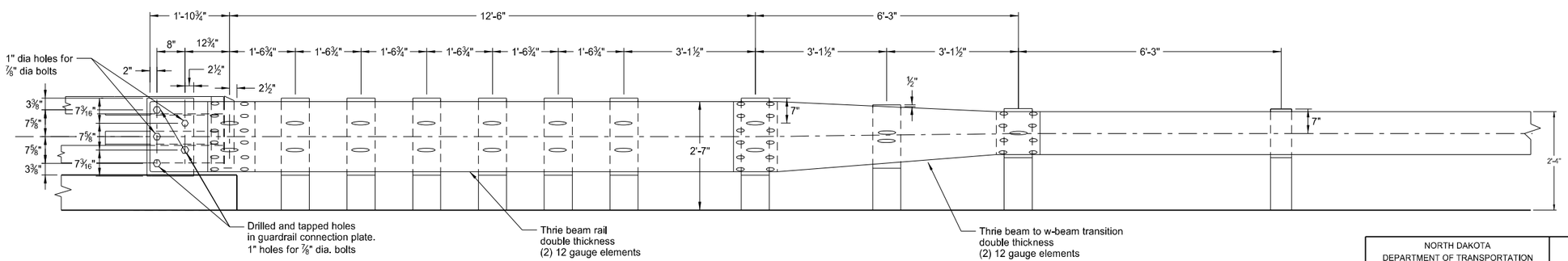
THRIE BEAM TO W-BEAM TRANSITION SECTION



DETAIL A
(Typical)



PLAN



ELEVATION

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
10-11-13	
REVISIONS	
DATE	CHANGE
12/02/20	Updated text to active voice.

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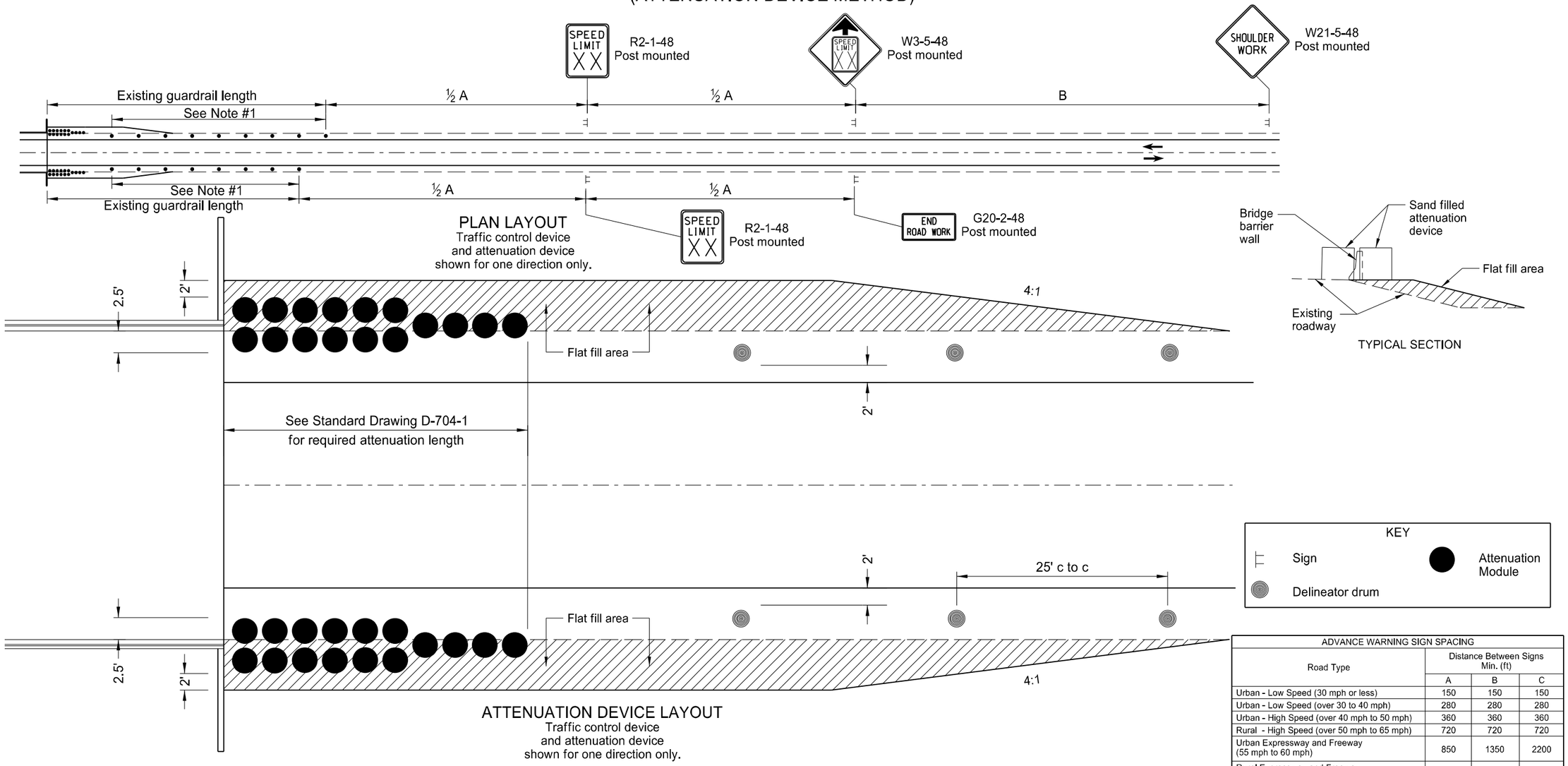
12 02 2020

D-764-20

SHORT TERM END TREATMENT FOR BRIDGES
(ATTENUATION DEVICE METHOD)



ADVANCE WARNING SIGN SPACING			
Road Type	Distance Between Signs Min. (ft)		
	A	B	C
Urban - Low Speed (30 mph or less)	150	150	150
Urban - Low Speed (over 30 to 40 mph)	280	280	280
Urban - High Speed (over 40 mph to 50 mph)	360	360	360
Rural - High Speed (over 50 mph to 65 mph)	720	720	720
Urban Expressway and Freeway (55 mph to 60 mph)	850	1350	2200
Rural Expressway and Freeway (70 mph to 75 mph)	1000	1500	2640
Interstate/4-Lane Divided (Maintenance and Surveying)	750	1000	1500

Notes

1. When the shoulder width is less than 3', use vertical panels placed as far from the driving lane as possible on the finished shoulder. When there is no shoulder, place vertical panels as near as possible to the driving lane on the foreslope of the shoulder.
2. When the bridge is within the construction zone signing, eliminate the reduced speed ahead sign.
3. Determine the reduced speed limit dependent on the in place speed limit before construction. Where total speed reduction exceed 30 mph, reduce the speed limit in two stages with each reduction not exceeding 30 mph. Place the second speed limit sign at ½ B.
4. Re-establish speed limit. Determine exact speed limit in the field, dependent on location and conditions.
5. Cover existing speed limit signs within a reduced speed zone.

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

9-27-13

REVISIONS

DATE	CHANGE
12-02-20	Updated notes to active voice.

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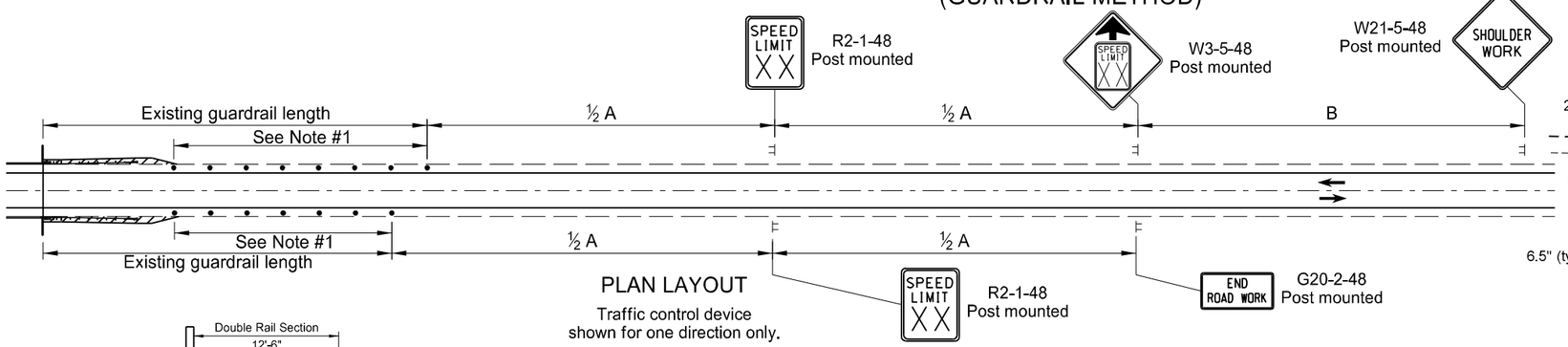
12 02 2020

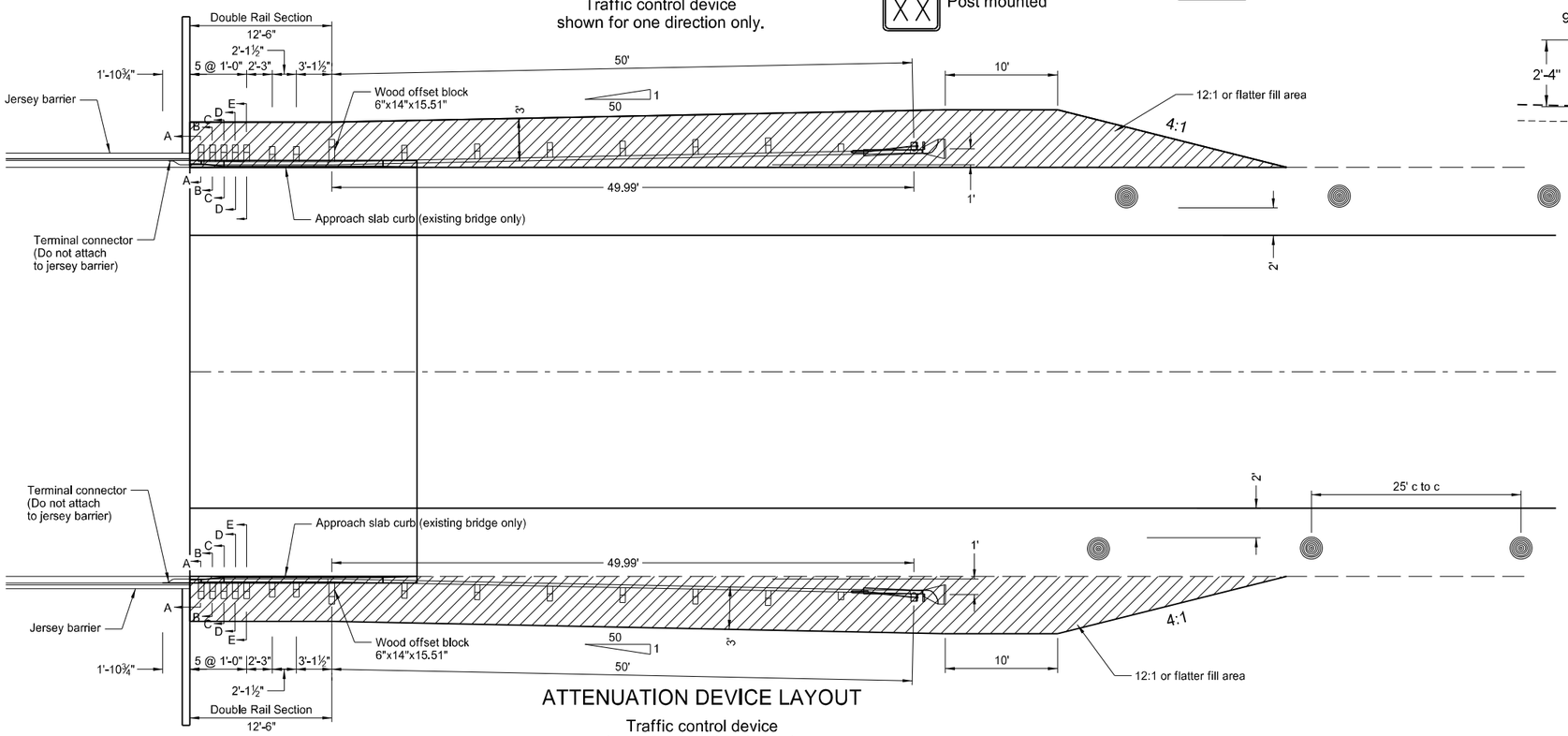
SHORT TERM END TREATMENT FOR BRIDGES
(GUARDRAIL METHOD)

D-764-21



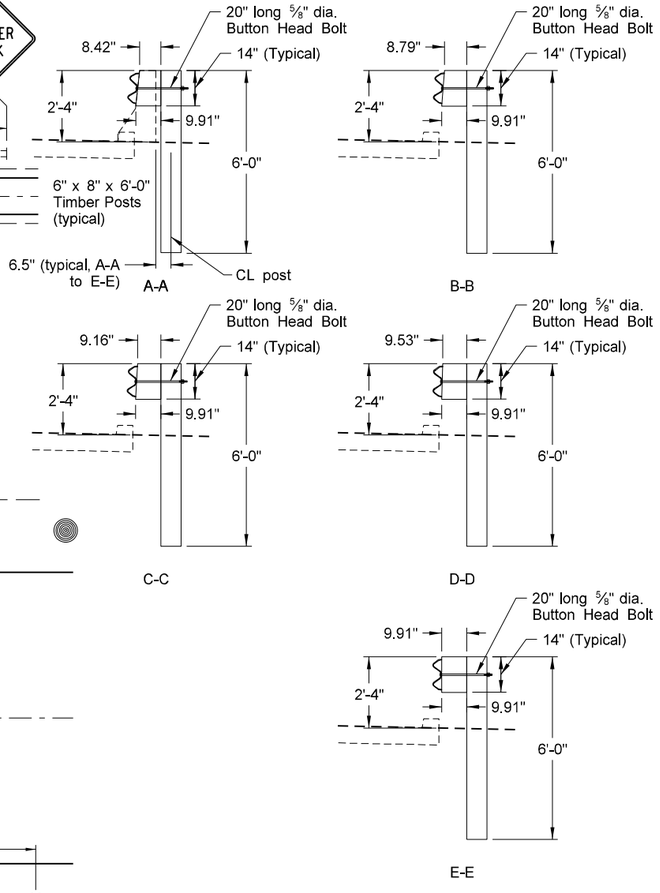
PLAN LAYOUT

Traffic control device
shown for one direction only.



ATTENUATION DEVICE LAYOUT

Traffic control device
shown for one direction only.



ADVANCE WARNING SIGN SPACING			
Road Type	Distance Between Signs Min. (ft)		
	A	B	C
Urban - Low Speed (30 mph or less)	150	150	150
Urban - Low Speed (over 30 to 40 mph)	280	280	280
Urban - High Speed (over 40 mph to 50 mph)	360	360	360
Rural - High Speed (over 50 mph to 65 mph)	720	720	720
Urban Expressway and Freeway (55 mph to 60 mph)	850	1350	2200
Rural Expressway and Freeway (70 mph to 75 mph)	1000	1500	2640
Interstate/4-Lane Divided (Maintenance and Surveying)	750	1000	1500

Notes

1. If the shoulder width is less than 3', use vertical panels placed as far from the driving lane as possible and still be on the finished shoulder. When there is no shoulder, place vertical panels as near as possible to the driving lane on the foreslope of the shoulder.
2. If the bridge is within construction zone signing, eliminate the reduced speed ahead sign.
3. Determine the reduced speed limit dependent on the in place speed limit before construction. Where total speed reduction exceed 30 mph, reduce the speed limit in two stages with each reduction not exceeding 30 mph. Place the second speed limit sign at ½ B.
4. Re-establish speed limit. Determine exact speed limit in the field, dependent on location and conditions.
5. Cover existing speed limit signs within a reduced speed zone.

KEY

Sign

Delineator drum

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

9-27-13

REVISIONS

DATE	CHANGE
12-02-20	Updated notes to active voice.

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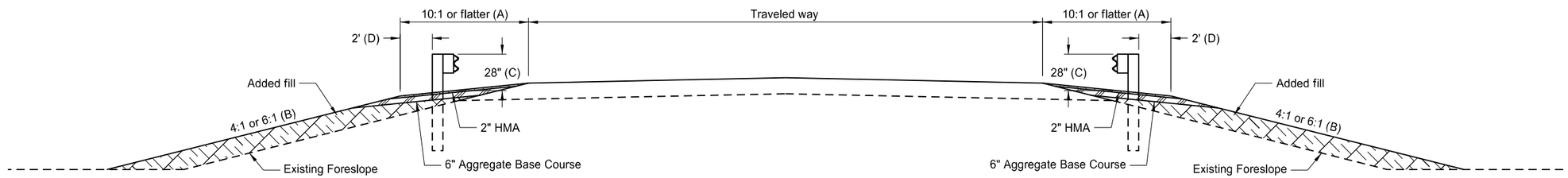
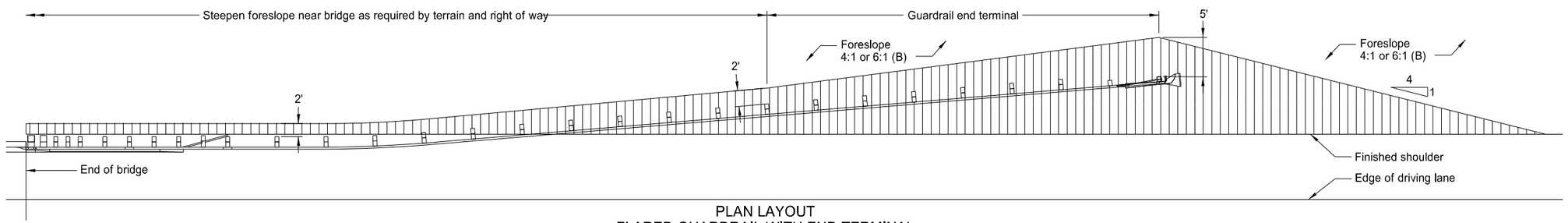
12 02 2020

TYPICAL GRADING AT BRIDGE ENDS WITH W-BEAM GUARDRAIL

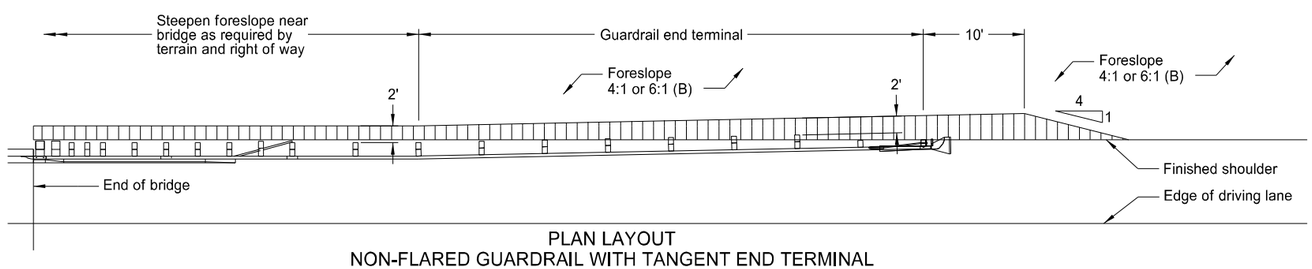
D-764-22



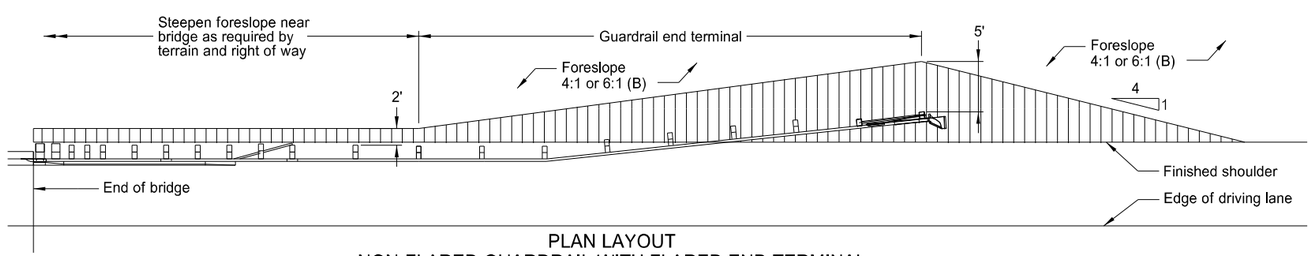
TYPICAL SECTION



PLAN LAYOUT
FLARED GUARDRAIL WITH END TERMINAL



PLAN LAYOUT
NON-FLARED GUARDRAIL WITH TANGENT END TERMINAL



PLAN LAYOUT
NON-FLARED GUARDRAIL WITH FLARED END TERMINAL

NOTES:

(A) Use slope flatter than 10:1 when necessary to provide proper guardrail height.

(B) When normal foreslope is 4:1, use added fill slope of 4:1. When normal foreslope is 6:1, use added fill slope of 6:1.

(C) Measure from top of guardrail to top of surfacing at front face of guardrail.

(D) Dimension at end terminals vary per Plan Layouts shown on this sheet.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
10-3-13	
REVISIONS	
DATE	CHANGE
12-02-20	Updated notes to active voice.

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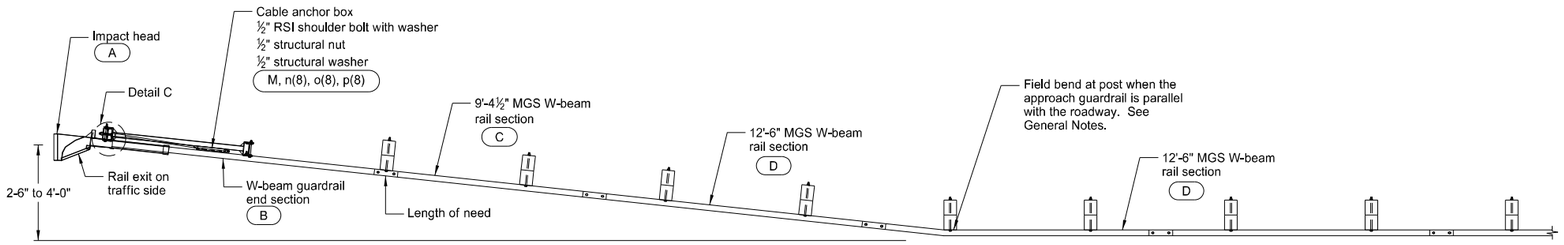
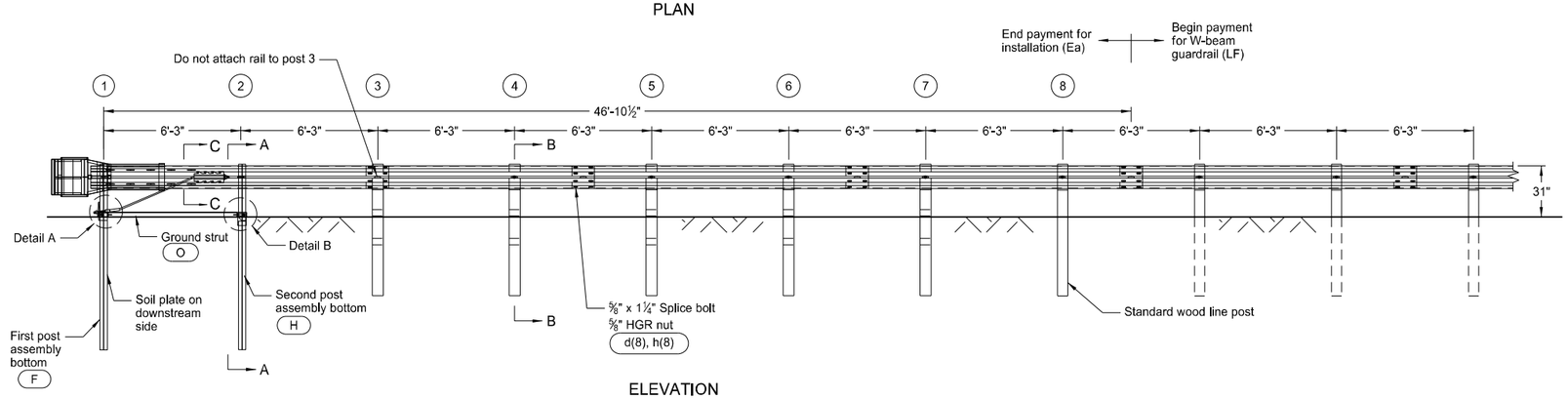
12 02 2020

MGS FLARED ENERGY ABSORBING TERMINAL - WOOD POST

D-764-38



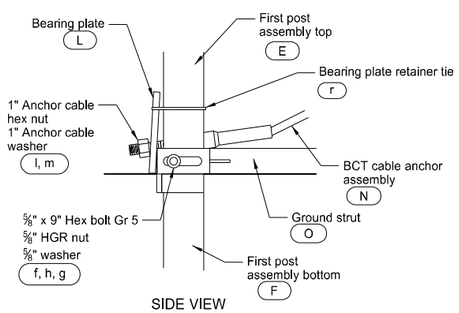
PLAN



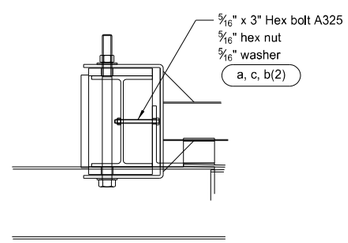
ELEVATION

ITEM	ITEM NO.	BILL OF MATERIALS	QTY
A	F3000	IMPACT HEAD	1
B	SF1303	W-BEAM GUARDRAIL END SECTION, 12 Ga	1
C	G12025	9'-4½" MGS W-BEAM RAIL SECTION, 12 Ga	1
D	G1203A	12'-6" MGS W-BEAM RAIL SECTION, 12 Ga	2
E	UHP1A	FIRST POST ASSEMBLY TOP	1
F	HP1B	FIRST POST ASSEMBLY BOTTOM	1
G	UHP2A	SECOND POST ASSEMBLY TOP	1
H	HP2B	SECOND POST ASSEMBLY BOTTOM	1
J	UP671	WOOD CRT POST	5
K	P675	WOOD BLOCKOUT OR RECYCLE EQUIVALENT	5
L	E750	BEARING PLATE	1
M	S760	CABLE ANCHOR BOX	1
N	E770	BCT CABLE ANCHOR ASSEMBLY	1
O	S785	GROUND STRUT HINGED POST	1
		HARDWARE	
a	B5160304A	5/16" x 3" HEX BOLT A325	2
b	W0516	5/16" WASHER	4
c	N0516	5/16" HEX NUT	2
d	B580122	⅝" Dia x 1¼" SPLICE BOLT	33
e	B581802	⅝" Dia X 18" HGR BOLT	5
f	B580904A	⅝" Dia x 9" HEX BOLT GRD 5	1
g	W050	⅝" WASHER	7
h	N050	⅝" Dia HGR NUT	39
j	B340854A	¾" Dia x 8½" HEX BOLT GRD A449	1
k	N030	¾" Dia HEX NUT	1
l	N100	1" ANCHOR CABLE HEX NUT	2
m	W100	1" ANCHOR CABLE WASHER	2
n	SB12A	½" RSI SHOULDER BOLT WITH WASHER	8
o	N012A	½" STRUCTURAL NUT	8
p	W012A	½" STRUCTURAL WASHER	8
r	CT-100ST	BEARING PLATE RETAINER TIE	1

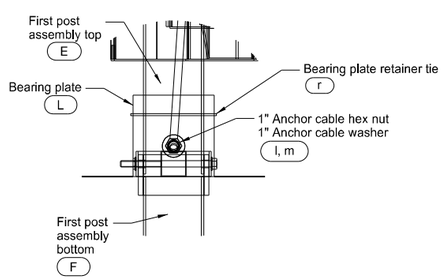
NOTE: Standard wood line post, block, and associated hardware not included in Bill of Materials Table.



SIDE VIEW

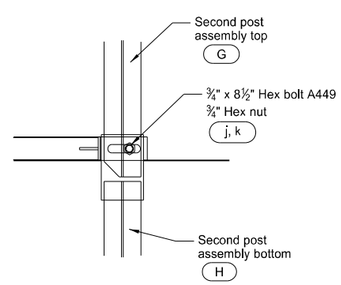


DETAIL C
Post 1 (Impact Head connection)

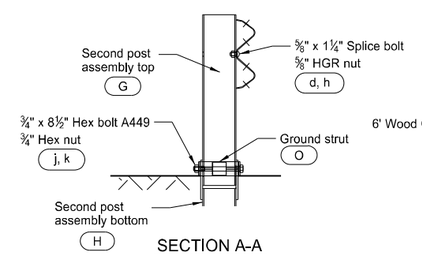


FRONT VIEW

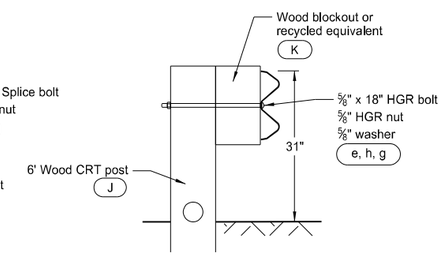
DETAIL A
Post 1



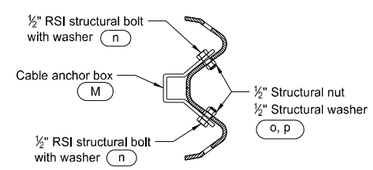
DETAIL B
Post 2



SECTION A-A
Post 2



SECTION B-B
Posts 3 through 7



SECTION C-C

GENERAL NOTES:

1. Wood posts are required with the Flared Energy Absorbing Terminal except posts 1 and 2.
2. Galvanize all bolts, nuts, cable assemblies, cable anchors, and bearing plates.
3. Flare the Flared Energy Absorbing Terminal when the approach guardrail is parallel with the roadway. When the approach guardrail is flared at 16:1 to 10:1, ensure the Flared Energy Absorbing Terminal has only the flare rate of the guardrail. When the guardrail flare is between 10:1 and 7:1, ensure the Flared Energy Absorbing Terminal is turned parallel to the roadway.
4. Site grade as necessary to ensure the lower sections of the posts do not protrude more than 4" above the ground (measured along a 5' cord).
5. Install the lower section of the hinged posts without the upper post attached. If the post is placed in a drilled hole, compact the backfill material to prevent settlement.
6. Install the breakaway cable assembly taut. Use a locking device (vice grips or channel lock pliers) to prevent cable from twisting when tightening nuts.
7. "Toe nail" the wood blockouts to the rectangular wood posts with two 20 penny galvanized nails to prevent them from turning when the wood shrinks.

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

7-14-17

REVISIONS

DATE	CHANGE
12-02-20	Updated notes to active voice.

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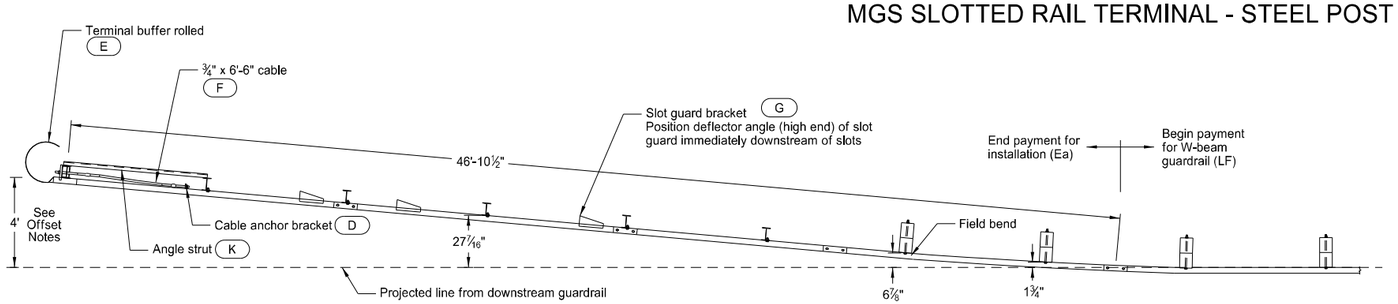
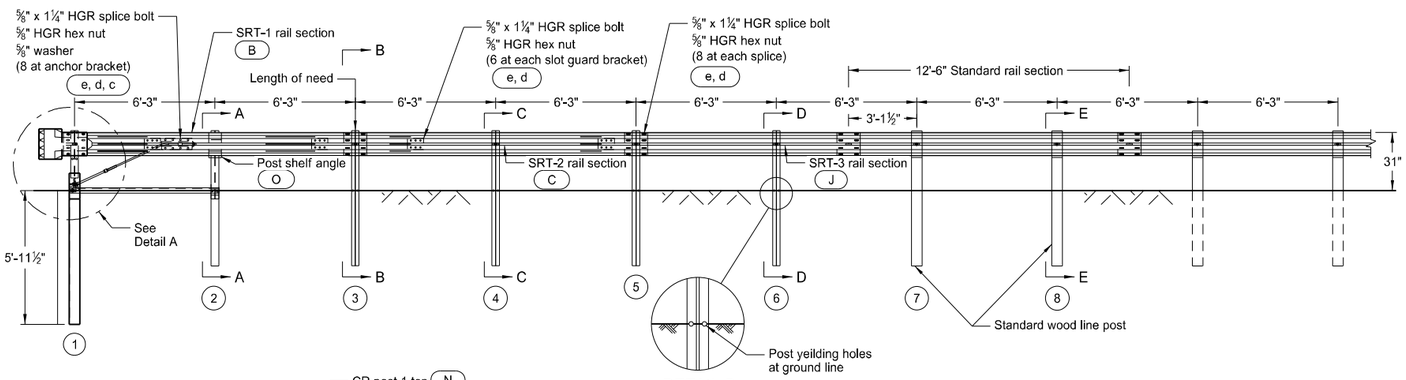
12 02 2020

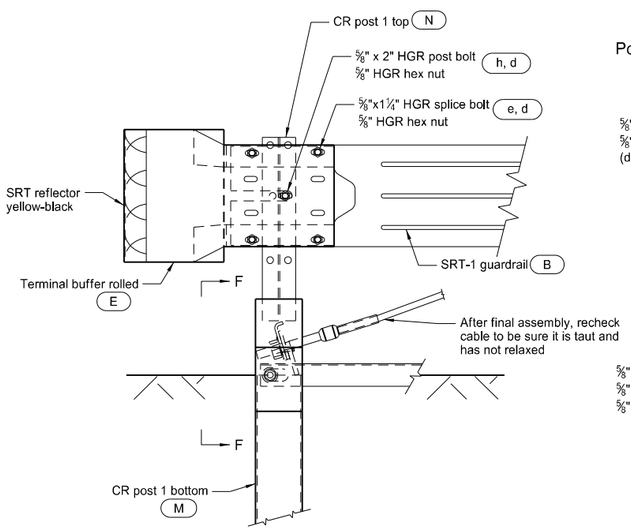
MGS SLOTTED RAIL TERMINAL - STEEL POST

D-764-39

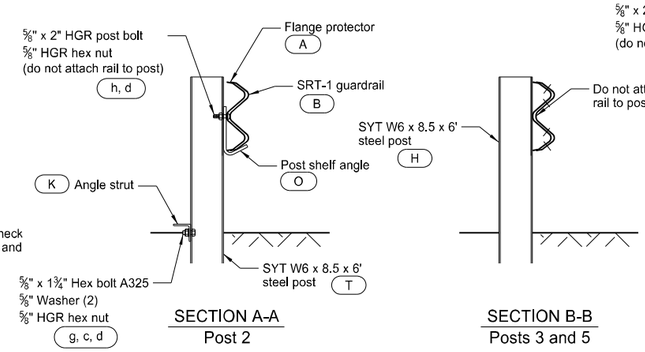




DETAIL B
Posts 3 through 6

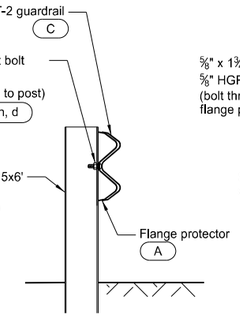


DETAIL A
Post 1

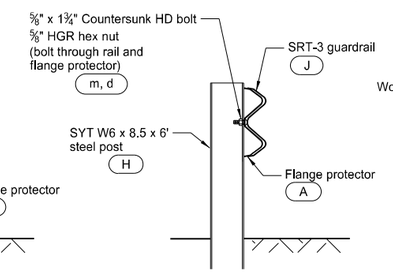


SECTION A-A
Post 2

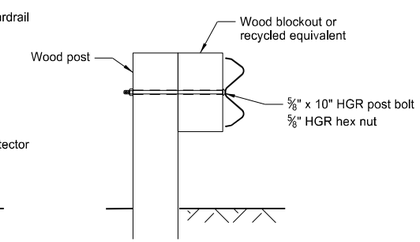
SECTION B-B
Posts 3 and 5



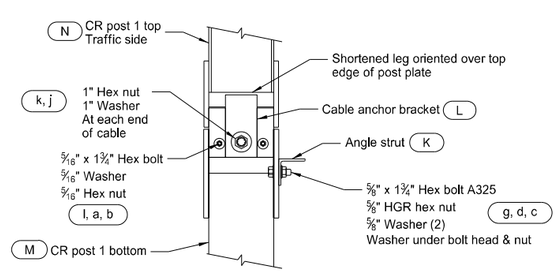
SECTION C-C
Post 4



SECTION D-D
Post 6



SECTION E-E
Posts 7 and 8



SECTION F-F
Post 1

GENERAL NOTES:

1. Galvanize all bolts, nuts, cable assemblies, cable anchors, bearing plates, slot guards, struts, nails, pipes soil tubes and soil plates.
2. Install breakaway cable assembly taut. Use a locking device (vice grips or channel lock pliers) to prevent cable from twisting when tightening nuts.
3. For curb installation, end curb prior to post 7. Where curb extends beyond post 7, do not use the flared Slotted Rail Terminal. Use a straight end treatment at the end of straight guardrail placed at the face of the curb.
4. For details not shown, see the manufacturer's installation manual.
5. Only use the Slotted Rail Terminal as an end terminal when a minimum length of 175 feet, including the length of the end terminal, is provided in advance of fixed objects.

OFFSET NOTES:

1. Post offset dimensions are given to the center of the traffic face of posts, except at posts 7 and 8 where dimensions are to the center of the traffic face of the blockouts.
2. Guardrail between posts 1-7 is on a straight line flare.
3. Install the Slotted Rail Terminal with a 4' flare for either a straight or flared guardrail installation.

ITEM	ITEM NO.	BILL OF MATERIALS	QTY
A	7G	12/6"/FLANGE PROTECTOR (POSTS 2, 4, 6)	3
B	30G	12/12'-6"/S SRT-1 RAIL SECTION	1
C	39G	12/12'-6"/S SRT-2 RAIL SECTION	1
D	700A	CABLE ANCHOR BRACKET	1
E	907G	TERMINAL BUFFER ROLLED	1
F	3000G	¾" x 6'-6" CABLE	1
G	9960G	SLOT GUARD BRACKET	4
H	15000G	SYT W6x8.5 6' STEEL POST	5
J	10967G	12/9'-4½"/3'-1½"/S SRT-3 RAIL SECTION	1
K	33875G	ANGLE STRUT 3" x 3" x ¼"	1
L	33909G	CABLE ANCHOR BRACKET (POST 1)	1
M	34052A	CR POST 1 BOTTOM W6x15	1
N	34053A	CR POST 1 TOP W6x8.5	1
O	34054G	POST SHELF ANGLE (POST 2)	1
		HARDWARE	
a	3240G	5/16" WASHER	2
b	3245G	5/16" HEX NUT	2
c	3300G	⅝" WASHER	12
d	3340G	⅝" HGR HEX NUT	75
e	3360G	⅝" Dia x1¼" HGR SPLICE BOLT	60
f	3380G	⅝" Dia x 1½" HEX HD BOLT	8
g	3391G	⅝" Dia x 1¾" HEX BOLT A325 (AT STRUT)	2
h	3400G	⅝" Dia x 2" HGR POST BOLT (POSTS 1, 2 4)	4
j	3900G	1" WASHER (AT CABLE)	2
k	3910G	1" HEX NUT (AT CABLE)	2
l	4211G	5/16" Dia x 1¾" HEX BOLT (POST 1)	2
m	4419G	⅝" Dia x 1¾" COUNTERSUNK HD BOLT (POST 6)	1

NOTE: Standard rail section and standard wood line posts (including the blocks, and associated hardware) not included in Bill of Materials Table. All splice bolts (including associated nuts) are included in the Bill of Materials Table.

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

7-14-17

REVISIONS

DATE	CHANGE
12-02-20	Updated notes to active voice.

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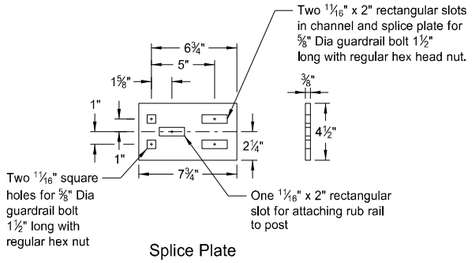
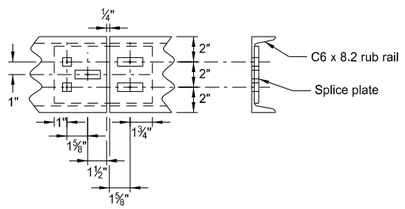
12 02 2020

MGS W-BEAM GUARDRAIL GENERAL DETAILS

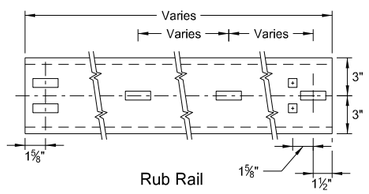
D-764-40



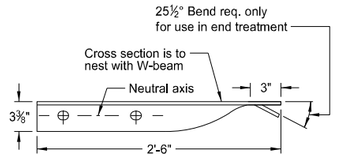
Splice Plate

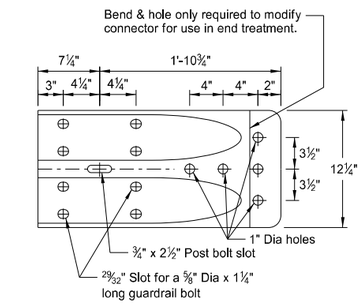


Splice Detail

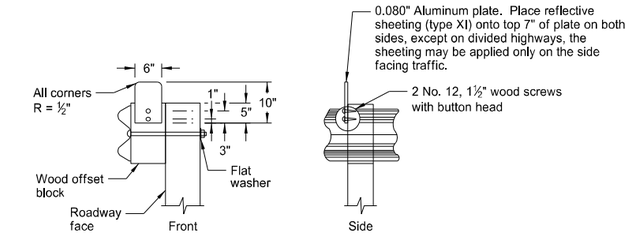


C6x8.2 RUB RAIL AND SPLICE PLATE



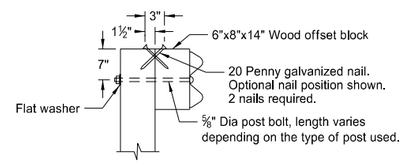


W BEAM TERMINAL CONNECTOR

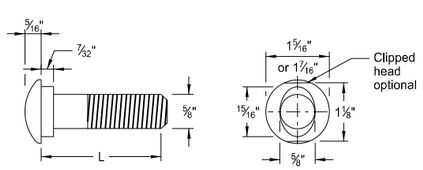


REFLECTORIZED PLATE DETAIL

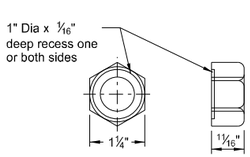
NOTE: Additional reflectors are added to the W-beam guardrail quantities for placement on end treatment.



TYPICAL WOOD POST ATTACHMENT DETAIL

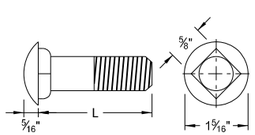


5/8" Diameter Guardrail Bolt	
L	Thread Length
1¼"	Full length thread
2"	1¾" Min thread length
9½"	4" Min thread length
18"	4" Min thread length
20"	4" Min thread length
22"	4" Min thread length
25"	4" Min thread length

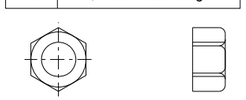


5/8" Dia recess nut

5/8" GUARDRAIL BOLT & RECESS NUT

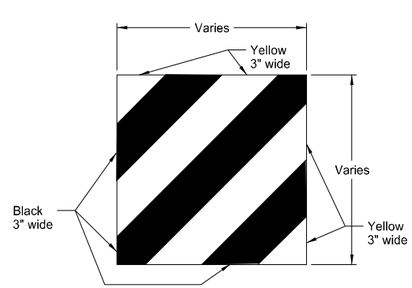


5/8" Diameter Carriage Bolt	
L	Thread Length
1½"	Full length thread
3"	1½" Min thread length
11"	1¾" Min thread length
13"	1¾" Min thread length

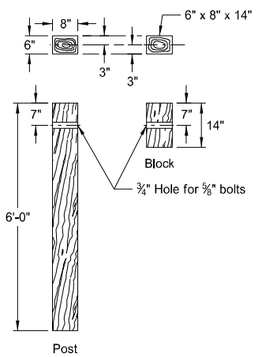


5/8" Dia hex nut

5/8" CARRIAGE BOLT & NUT

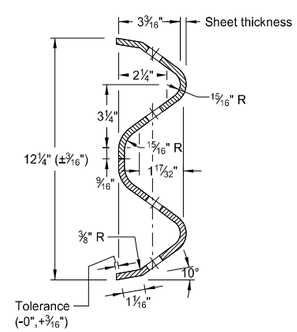


IMPACT HEAD OBJECT MARKER

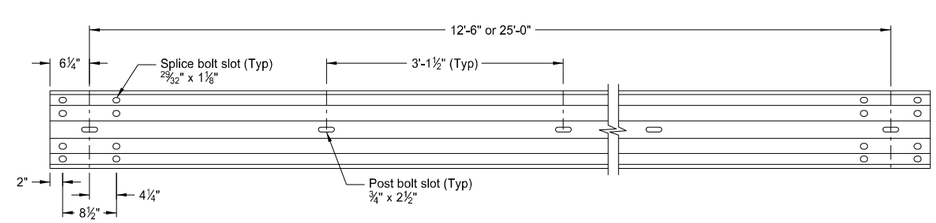


6" x 8" WOOD POST & BLOCK

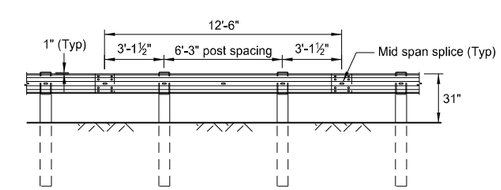
NOTE: Where soil conditions require, alternate lengths may be specified, in 6" increments.



W-BEAM CROSS SECTION



STANDARD MGS GUARDRAIL PANEL



STANDARD MGS GUARDRAIL SYSTEM

NOTES:

1. Begin reflector plates at the first post and space at 25' centers on guardrail less than 250' length and at 50' centers for guardrail over 250' length. Provide the reflector the same color as the pavement marking adjacent to it unless noted otherwise on the plans.
2. Replacing bituminous material at guardrail post: Dispose all excess earth from excavations for guard posts as directed by the engineer. Replace bituminous material wherever guardrail is installed after mat has been laid. Cost of excavation and replacing of bituminous material to be included in the price bid for other items.
3. Fit the Object Marker within the vertical edges of the Impact Plate. Provide type XI retroreflective sheeting meeting the requirements of Section 894.02.E of the standard specifications. Apply the sheeting to 0.100 Aluminum sheeting meeting the requirements of Section 894.01.A. Attach the Object Marker to the Impact Head Plate with rivets or other attachment device. Ensure the rivets or attachment device are non-rust. Slope the stripes downward toward the roadway side.
4. Guardrail installation height tolerance = ±1".

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
7-14-17	
REVISIONS	
DATE	CHANGE
12-02-20	Updated clipped head to optional

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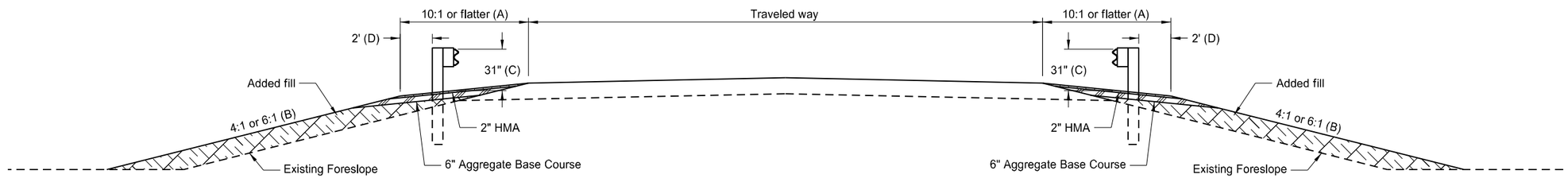
Kirk J Hoff

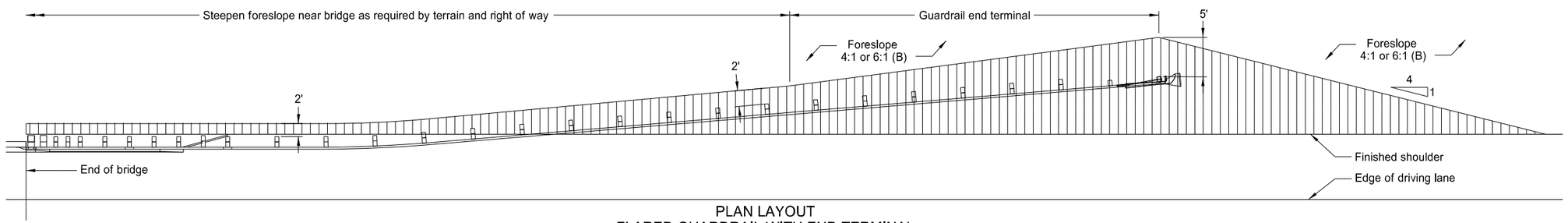
12 02 2020

TYPICAL GRADING AT BRIDGE ENDS WITH MGS W-BEAM GUARDRAIL

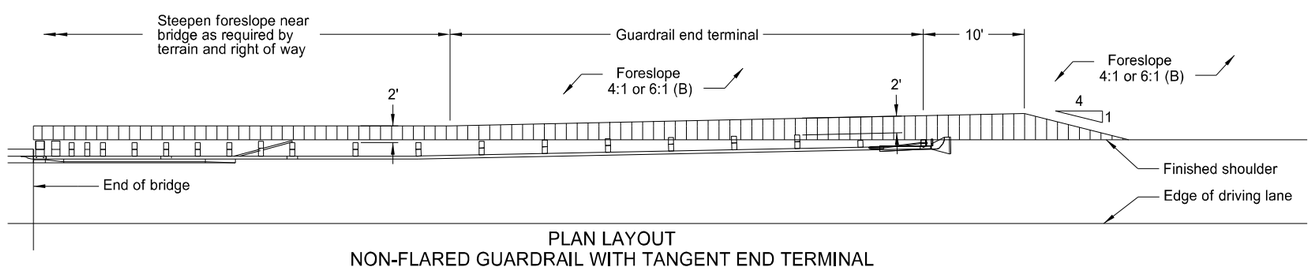
D-764-48



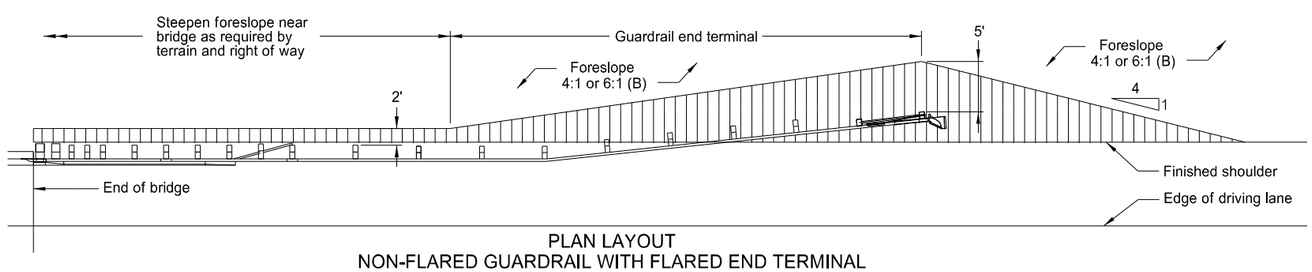
TYPICAL SECTION



PLAN LAYOUT
FLARED GUARDRAIL WITH END TERMINAL



PLAN LAYOUT
NON-FLARED GUARDRAIL WITH TANGENT END TERMINAL



PLAN LAYOUT
NON-FLARED GUARDRAIL WITH FLARED END TERMINAL

NOTES:

(A) Use slope flatter than 10:1 when required to provide proper guardrail height.

(B) When normal foreslope is 4:1, use added fill slope of 4:1. When normal foreslope is 6:1, use added fill slope of 6:1.

(C) Measure from top of guardrail to top of surfacing at front face of guardrail.

(D) Vary dimension at end terminals per Plan Layouts shown on this sheet.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
7-14-17	
REVISIONS	
DATE	CHANGE
12/02/20	Updated notes to active voice.

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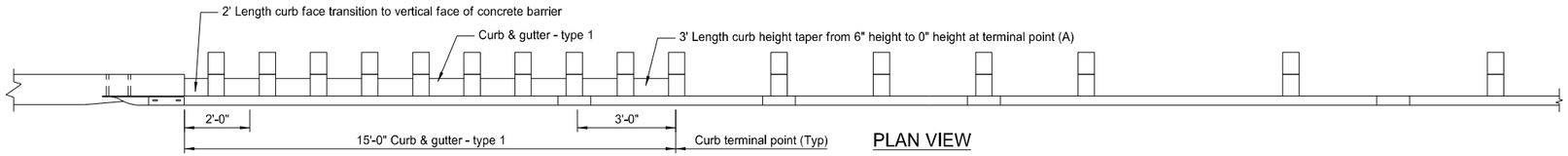
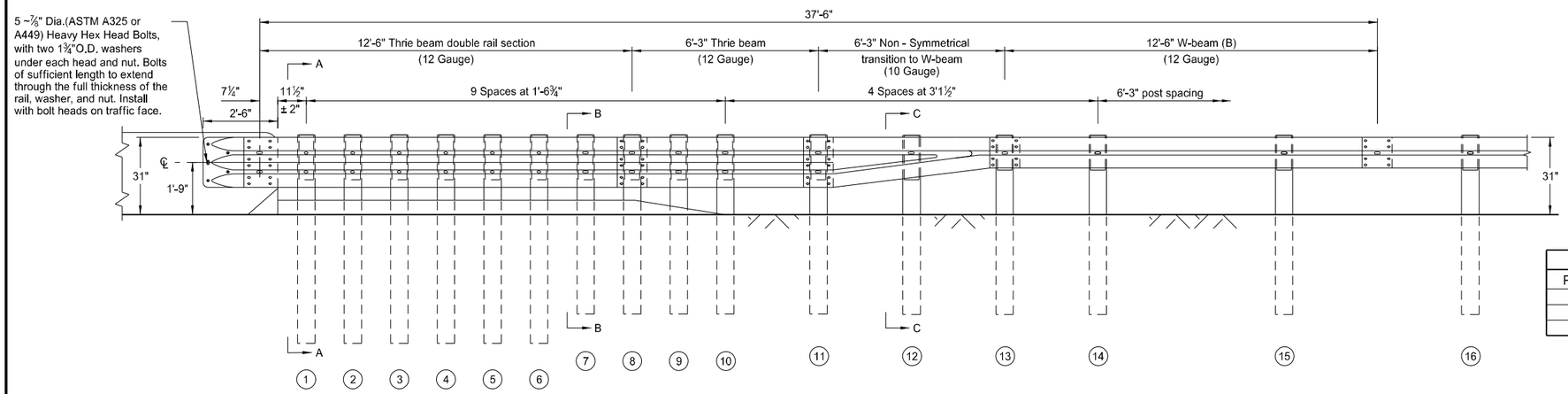
12 02 2020

MGS W-BEAM TRANSITION WITH APPROACH CURB TO CONCRETE SINGLE SLOPE OR JERSEY BARRIER

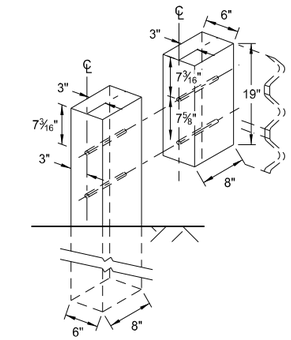
D-764-60



PLAN VIEW

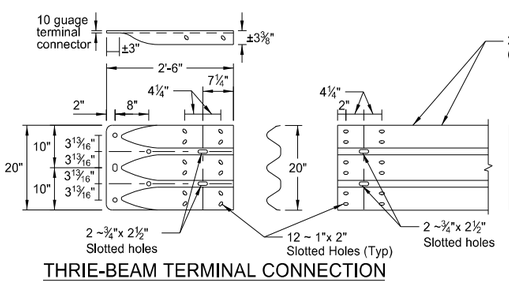


ELEVATION VIEW

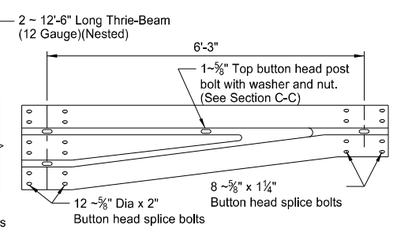


WOOD BLOCK
TO RECTANGULAR WOOD POST
(At posts 1 to 11)

TRANSITION POST AND TIMBER BLOCKOUT SIZING		
POST NO.	POST SIZE	BLOCKOUT SIZE
1-6	6" X 8" X 7'-0" long	6" X 8" X 19"
7-12	6" X 8" X 6'-0" long	6" X 8" X 19"
13-16	6" X 8" X 6'-0" long	6" X 8" X 14"

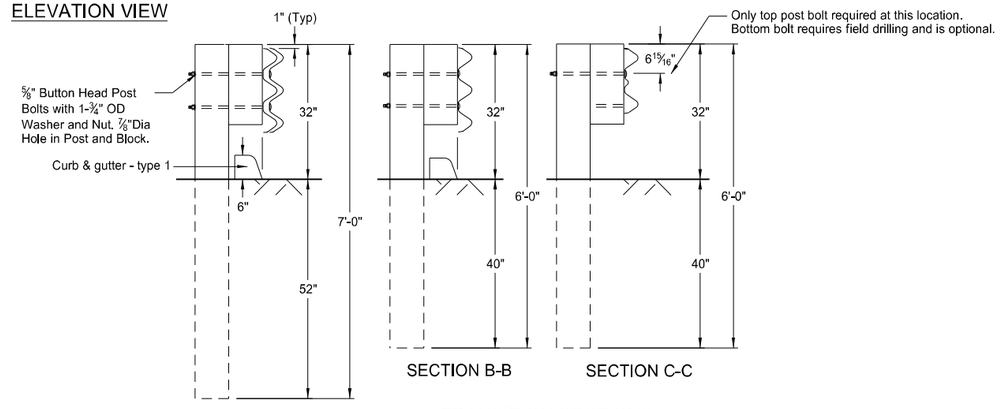


THRIE-BEAM TERMINAL CONNECTION



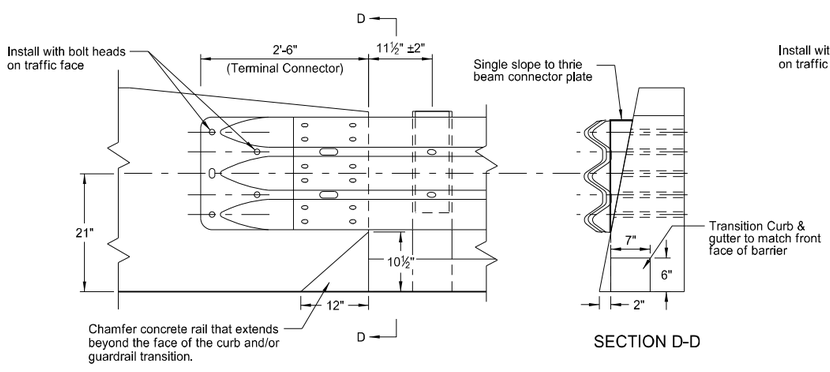
NON - SYMMETRICAL TRANSITION
TO W-BEAM (10 GAUGE)

ELEVATION VIEW



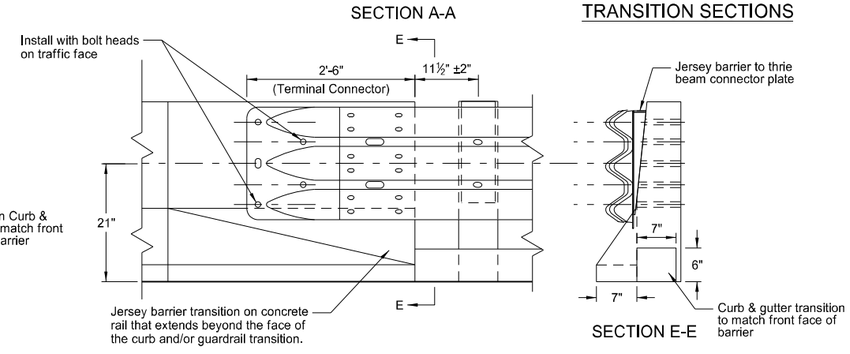
SECTION A-A
SECTION B-B
SECTION C-C

TRANSITION SECTIONS



SECTION D-D

CONNECTION TO CONCRETE SINGLE SLOPE BRIDGE RAIL AND TRAFFIC BARRIERS



SECTION E-E

CONNECTION TO CONCRETE JERSEY BARRIER BRIDGE RAIL AND TRAFFIC BARRIERS

(A) Where curb is required to continue past 15' length, taper the curb down to 3" height at the terminal point shown above, instead of 0" height. Use 3" height curb between posts 10 and 16.

(B) Install 12'-6" length W-beam double rail section at location where curb extends past 15' length.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
7-14-17	
REVISIONS	
DATE	CHANGE
12-02-20	Updated notes to active voice.

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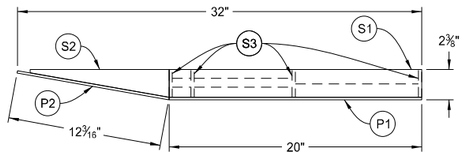
12 02 2020

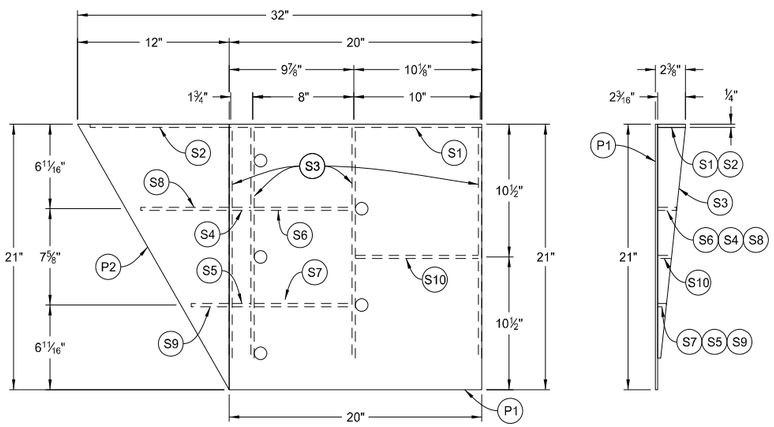
JERSEY BARRIER TO THRIE BEAM CONNECTOR PLATE DETAILS

D-764-62



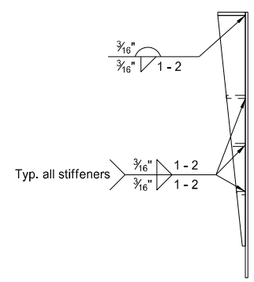
PLAN

NOTE: Assembly Detail is shown for guardrail installation on right hand side of entrance end of bridge barrier. Mirror for opposite side installation.



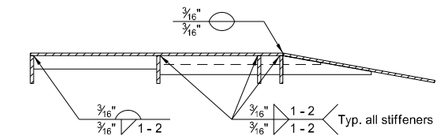
ELEVATION

END

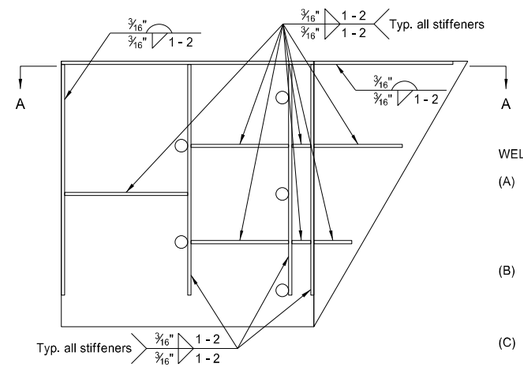


END

ASSEMBLY DETAIL
(Front View)

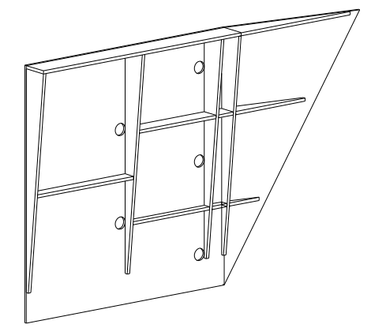


SECTION A-A



ELEVATION

WELDING DETAIL
(Back View)



PICTORIAL DRAWING
(Showing Back of Connector Plate)

WELDING INSTRUCTIONS:

(A) Weld stiffeners located on the outside edges of the cover plates as follows: 3/16" continuous back weld on exterior sides and 3/16" fillet weld 1" long spaced at 2" center-to-center on interior sides.

(B) Weld stiffeners located on the inside of the cover plates as follows: 3/16" fillet weld 1" long spaced at 2" center-to-center.

(C) Weld cover plates P1 and P2 together with a 3/16" continuous back weld on both sides.

(D) Weld components with E60 rod.

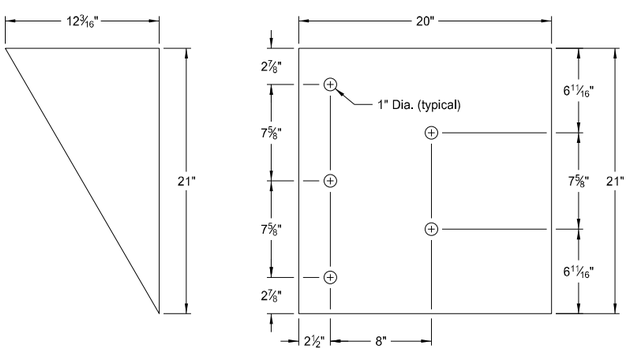
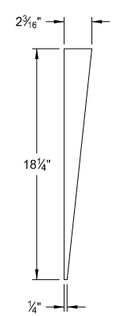


PLATE P2
Quantity: 1

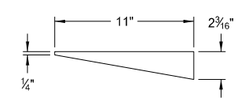
PLATE P1
Quantity: 1

COVER PLATES

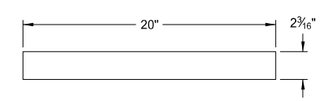


TYPE S3
Quantity: 4

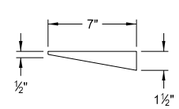
VERTICAL PLATES



TYPE S2
Quantity: 1



TYPE S1
Quantity: 1



TYPE S8
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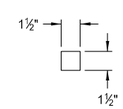

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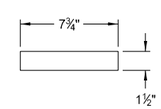

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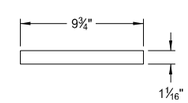

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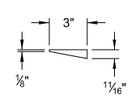

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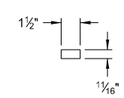
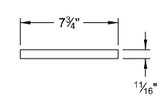


TYPE S5
Quantity: 1



TYPE S7
Quantity: 1

HORIZONTAL PLATES

STIFFENER PLATES

NOTES:

1. Fabricate cover plates P1 and P2 from 3/16" thick ASTM A36 Grade structural steel.
2. Fabricate stiffener plates from ¼" thick ASTM A36 Grade structural steel.
3. Galvanize connector plate in accordance with AASHTO M111.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
7-14-17	
REVISIONS	
DATE	CHANGE
12-02-20	Updated notes to active voice.

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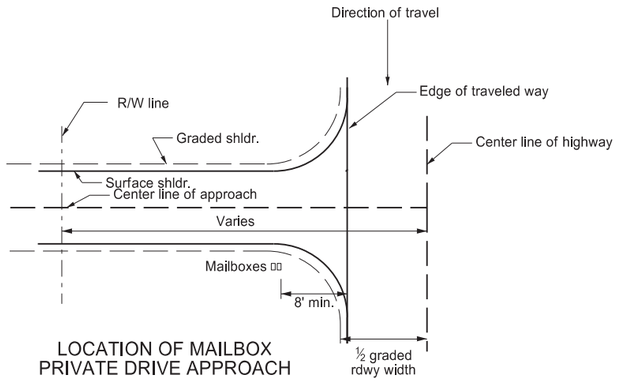
REGISTERED
PROFESSIONAL
PE-4683
ENGINEER
NORTH DAKOTA

Kirk J Hoff

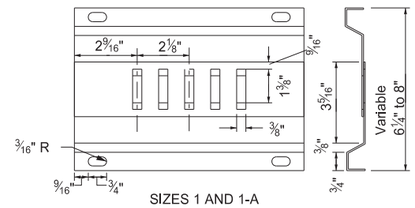
12 02 2020

MAILBOX LOCATION DETAILS

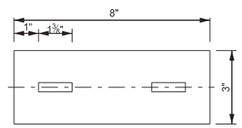
D-766-1



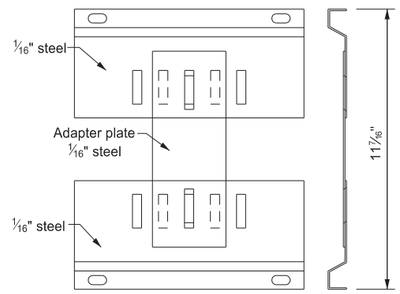
LOCATION OF MAILBOX
PRIVATE DRIVE APPROACH
ALTERNATE "A" LOCATION



SIZES 1 AND 1-A
MOUNTING BRACKET



ADAPTOR PLATE



SIZE 2 WITH ADAPTOR PLATE
MOUNTING BRACKET

Notes:

1. The mailbox support and hardware details consist of the "V-Loc Mailbox Support System" manufactured by:

   Tapco Traffic & Parking Control Co. Inc.

   Use any equal crash tested and Federal Highway Administration approved support system meeting the requirements of NCHRP Report 350 or MASH. Install approved alternate mailbox assemblies in the manner and arrangement crash tested.

2. Install mailboxes in Alternate "A" locations when possible. Install mailboxes in Alternate "B" locations when warranted by existing field conditions.

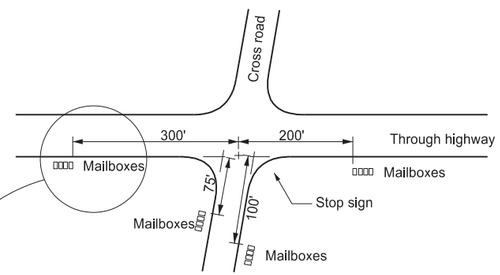
3. Locate mailboxes on the right-hand side of the road in the direction traveled by the carrier. The Engineer will verify the correct direction with the postmaster before installion.

4. Install mailboxes on private drive approaches on the downstream side of the approach.

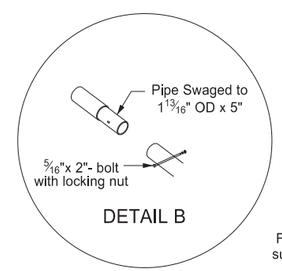
5. Install angle connection parallel to traffic flow for size 2 mailbox mounted on single posts.

6. For Size 2 mailbox mounted on multiple supports, attach the adapter plate to mounting bracket with 2 each, 3/8" by 9/16" bolts with lock washers and nuts. Then attach the unit to the formed tube support frame using 4 angle connections as shown in Detail A.

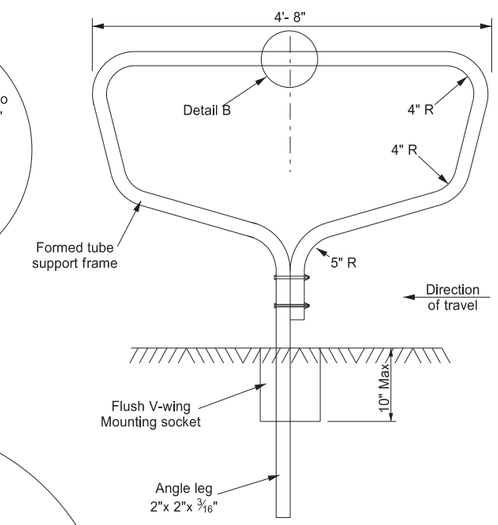
7. Space multiple support frames a minimum of 4 feet apart. Space single support frames a minimum of 3 ft apart. Do not place more than five No. 1 mailboxes, three No. 2 mailboxes, or any combination of four No. 1-A and No. 2 mailboxes on multiple support frames.



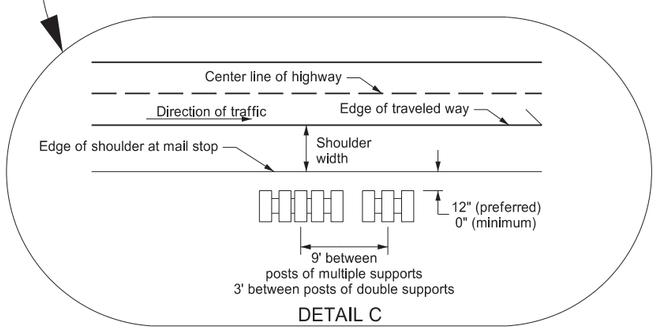
MINIMUM CLEARANCE DISTANCE TO NEAREST
MAILBOX ALONG ROADWAY AT INTERSECTIONS
ALTERNATE "B" LOCATION



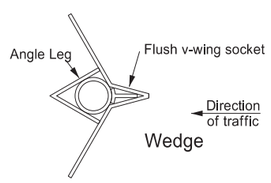
DETAIL B



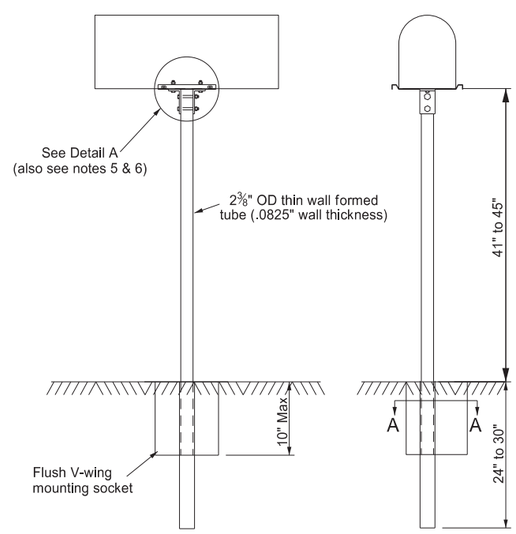
FRONT



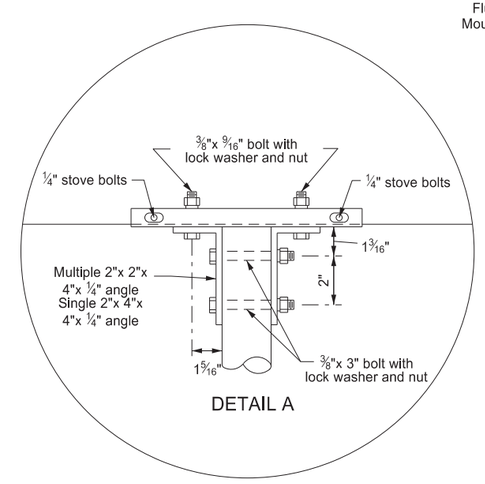
DETAIL C



FLUSH V-WING
POST MOUNTING SOCKET
SECTION A-A



SIDE
FRONT
SINGLE SUPPORT



DETAIL A

TABLE A

TYPICAL MAILBOX DIMENSIONS			
Size	Width	Height	Length
1	6½"	8½"	19"
1-A	8"	10½"	21"
2	11½"	13½"	23½"

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
9-15-2010	
REVISIONS	
DATE	CHANGE
08-25-2023	Dsn Engr stamp/signature update

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08/25/23