DESIGN DATA				
Traffic	Average Daily			
Current 2025	Pass: 25	Trucks: 9	Total: 34	
Forecast 2045	Pass: 37	Trucks: 14	Total: 51	
Clear Zone Distance: 18'		Design Speed: 55 MPH		
Minimum Sight Dist. for Stopping: 495'		Bridges: N/A		
Sight Dist. for No Passing Zone: N/A				
Pavement Design Life: N/A				
Design Life ESALs: N/A				

	STATE	PROJECT NO.	PCN	SECTION NO.	SHEET NO.
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MOUNTRAIL COUNTY, NORTH DAKOTA

PLANS FOR

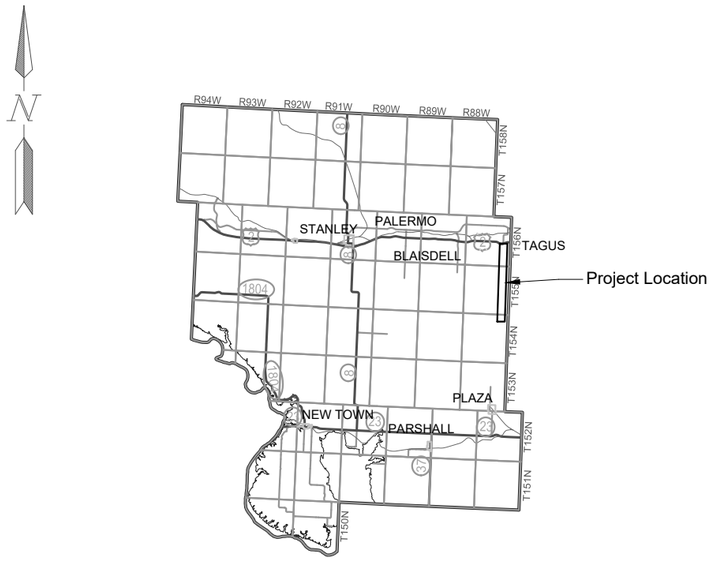
MOUNTRAIL COUNTY ROUTE 1
RECONSTRUCTION

PROJECT NO. 01(62)23
PROJECT IS LOCATED ON COUNTY ROUTE 1
FROM COUNTY ROUTE 10 TO US HIGHWAY 2

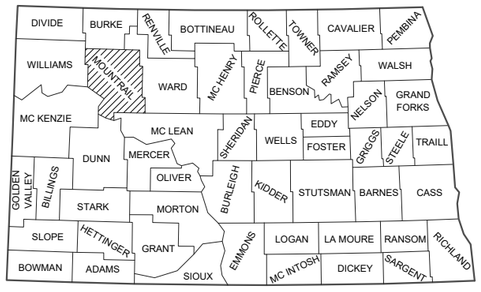
PROJECT CONSISTS OF GRADING, CULVERT REPLACEMENTS, AGGREGATE BASE COURSE, AGGREGATE SURFACE COURSE, SEEDING, AND INCIDENTALS

GOVERNING SPECIFICATIONS	Date Published and Adopted by the North Dakota Department of Transportation
Standard Specifications	7/1/2024

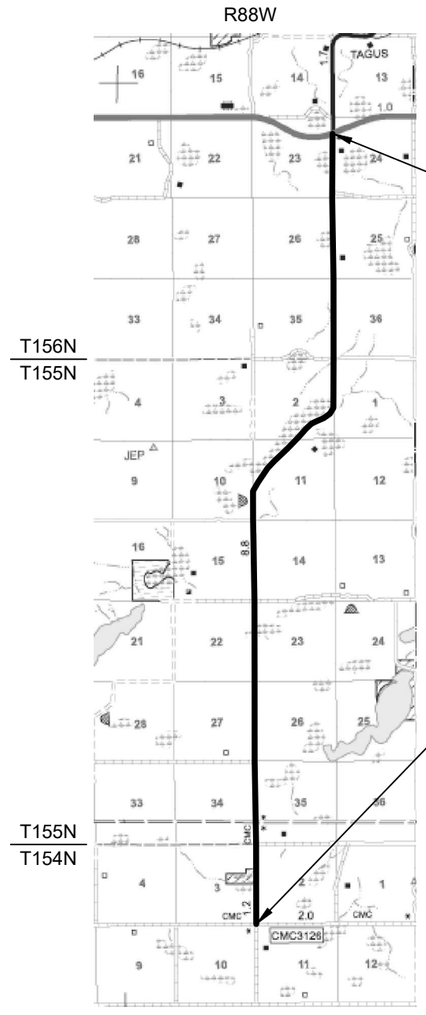
PROJECT NUMBER \ DESCRIPTION	NET MILES	GROSS MILES
01(62)23	10.152	10.152



SKETCH MAP OF MOUNTRAIL COUNTY



STATE COUNTY MAP



Mountrail County Commissioners
John DeGroot
Joan Hollekim
Trudy Ruland
Wayne Olson
Jason Rice

SAUBER ENGINEERING

DESIGNER
John Sauber, Jr., PE/PLS
DESIGNER
Joe Baneck, PE
DESIGNER
Jared Walters

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

APPROVED DATE 1/28/25

Sauber Engineering, Inc

REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-3914
LS-8427
DATE 1/28/25
NORTH DAKOTA

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51	1 - 4	Allowable Pipe List
60	1 - 27	Plan & Profile
76	1 - 14	Temporary Erosion Control
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81	1	Survey Coordinate and Curve Data
100	1 - 2	Work Zone Traffic Control
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200	1 - 209	Cross Sections

SPECIAL PROVISIONS

Number	Description
SC-7.20.B	Haul Roads
SC-7.20.C	Buy America
SC-7.20.D	Gravel Surfacing

LIST OF STANDARD DRAWINGS

Number	Description
D-101-1, 2, 3, 4	NDDOT Abbreviations
D-101-10	NDDOT Utility Company and Organization Abbreviations
D-101-20, 21	Line Styles
D-101-30, 31, 32, 33	Symbols
D-101-40	Cross Section Legend
D-203-8	Standard Rural Approaches
D-255-2	Erosion And Siltation Control - Erosion Control Blanket Installation
D-260-1	Erosion And Siltation Controls - Silt Fence
D-261-1	Erosion Control - Fiber Roll Placement Details
D-704-7	Breakaway Systems For Construction Zone Signs - Perforated Tube
D-704-8	Breakaway Systems For Construction Zone Signs - U-Channel Post
D-704-9	Construction Sign Details - Terminal And Guide Signs
D-704-10	Construction Sign Details - Regulatory Signs
D-704-11, 11A	Construction Sign Details - Warning Signs
D-704-13	Barricade And Channelizing Device Details
D-704-14	Construction Sign Punching And Mounting Details
D-704-15	Road Closure Layouts
D-704-20	Terminal And Seal Coat Sign Layouts
D-704-22	Construction Truck And Temporary Detour Layouts
D-704-26	Miscellaneous Sign Layouts
D-704-30	Windrow Marking
D-704-50	Portable Sign Support Assembly
D-708-6	Erosion And Siltation Controls - Median Or Ditch Inlet Protection
D-714-1	Reinforced Concrete Pipe Culverts And End Sections (Round Pipe)
D-714-4	Round Corrugated Steel Pipe Culverts And End Sections
D-714-22	Concrete Pipe, Cattle Pass, or Precast Concrete Box Culvert Ties
D-714-25	Transverse Mainline Pipe Installation Detail - Pipes More Than 4 Feet Below Top of Subgrade
D-714-26	Transverse Mainline Pipe Installation Detail - Pipes 4 Feet or Less Below Top of Subgrade
D-714-27	Pipe Installation Detail for Longitudinal Mainline Pipe or Pipe Not Under the Roadway
D-720-1	Standard Monuments And Right Of Way Markers
D-752-1	Standard Barbed Wire Fence
D-754-23	Perforated Tube Assembly Details
D-754-24, 25	Mounting Details Perforated Tube
D-754-24A	Breakaway Coupler System For Perforated Tubes
D-754-26, 27, 29	Sign Punching, Stringer and Support Location Details Regulatory, Warning and Guide Signs
D-754-57, 58	Sign Punching, Stringer and Support Location Details - Route Marker Signs
D-754-83	Object Markers - Culverts
D-754-87	Sign Punching, Stringer And Support Location Details For Street Name Signs And 911 Signs
D-766-1	Mailbox Location Details

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D-754-57, 58	Sign Punching, Stringer and Support Location Details - Route Marker Signs
D-754-83	Object Markers - Culverts
D-754-87	Sign Punching, Stringer And Support Location Details For Street Name Signs And 911 Signs
D-766-1	Mailbox Location Details

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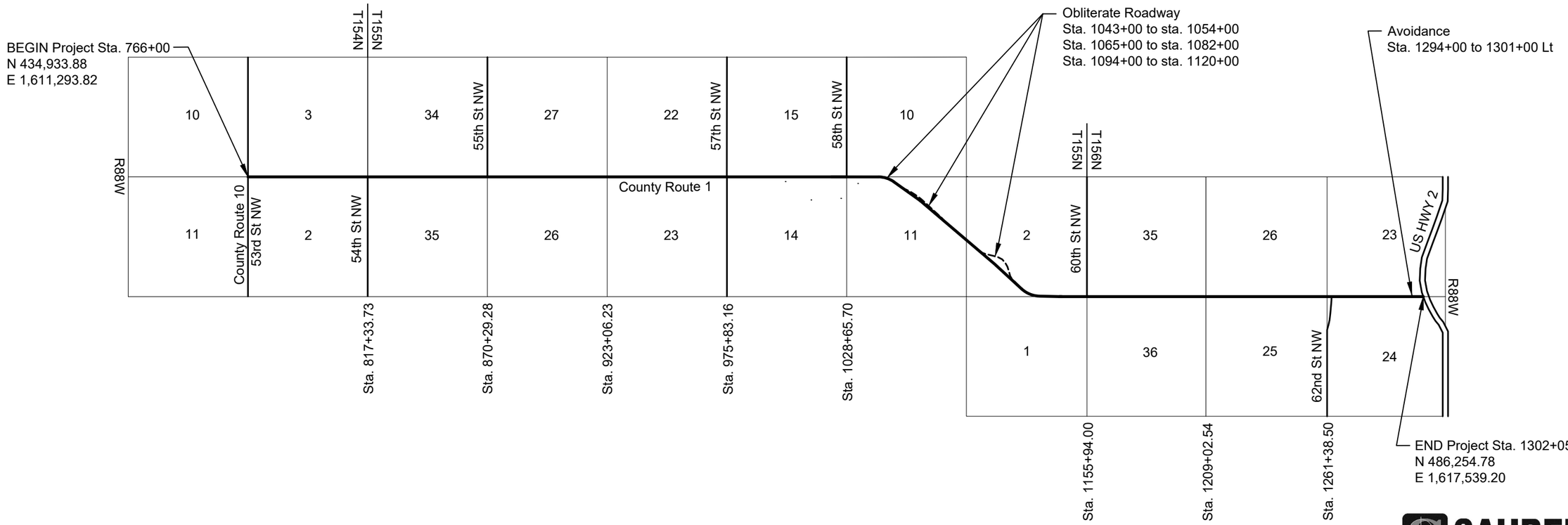

County Route 1 - Scope of Work

Grading
Culvert Replacement
Aggregate Base Course with Geosynthetic Material
Aggregate Surface Course
Seeding

SAUBER ENGINEERING

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JOHN D. SAUBER JR.
PE-3914
LS-5427
DATE 1/28/25
NORTH DAKOTA

Scope of Work

Reconstruction
County Route 1

Mountrail County, ND

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NOTES

100-P01 GENERAL: The scope of the project includes grading, subgrade preparation, culvert replacement, geosynthetic material, aggregate base course, aggregate surface course and incidentals.

105-200 UTILITY COORDINATION: A utility coordination meeting is required.

105- P01 UTILITY COORDINATION: Coordinate work activities with the utility companies.

107-P01 MAINTAINING TRAFFIC – UNEVEN SHOULDER: 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 other items.

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

107-P02 AVOIDANCE AREA: Prior to beginning any work, install a temporary fence around the avoidance area near Sta. 1298+50 Lt as directed by the Engineer. Include all costs for installing temporary fence in other bid items.

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

108-P01 LIMITATION ON OPERATIONS: Limit grading operations, including removal of topsoil to a 3 mile length. Install geosynthetic material, aggregate base, and spread topsoil in the first of the 3 graded miles before extending grading operations to the next mile.

108-P02 MINOT AIR FORCE BASE: Invite the Minot Air Force Base office staff to the preconstruction conference.

Contact:
Michelle Beavers
Missile Engineer
Phone # 701-723-3998
Email: michelle.beavers.2@us.af.mil

201-P01 CLEARING AND GRUBBING: The cost for removal of all trees (all sizes) and brush shall be included in the bid item “Clearing and Grubbing”.

The cost to remove the rock piles at Sta. 813+00 Rt, Sta. 815+00 Rt, Sta. 960+00 Rt, and Sta. 1029+00 Lt shall be included in the bid item “Clearing and Grubbing”.

202-P01 FENCE REMOVAL: Notify landowners in writing, with a copy to the Engineer, a minimum of 30 days in advance of fence removal. Immediately prior to removing fence, coordinate verbally with adjacent landowners. Additional information, including property owners contact information will be available from the Engineer.

Salvage the existing fence posts in a manner acceptable to the Engineer, and stockpile near the right-of-way line at a location designated by the Engineer. Remove all other existing fence items and dispose of in accordance with the specifications. Include all costs for salvaging fence posts in the bid item “Remove Existing Fence”.

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

203-380 AVERAGE HAUL: The average haul shown on the plans does not include the dead haul from the borrow areas to the point of entry into the mass.

203-P01 TOPSOIL: The existing topsoil shall be removed and salvaged. Removal is based upon a 6” depth. Upon completion of the grading operations, the topsoil shall be spread evenly over disturbed areas and permanently stabilized. Measurements for all topsoil shall be Plan Quantity.

203-P02 BORROW-EXCAVATION: All borrow needed for the project shall be furnished by the contractor.

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203-P03 EMBANKMENT COMPACTION CONTROL: Embankment material shall be compacted in accordance with Section 203.04 G.2 of the Standard Specification. In areas not covered by subgrade preparation, scarify the subgrade to a depth of 6 inches within the roadbed and recompact material in accordance with Section 203.04 G.2 of the Standard Specification. Scarify and recompact fill areas prior to placing new embankment and in cut areas after excavation is complete.

Conduct a proof roll of the entire project length to determine areas that are soft or weak. Conduct proof roll on the prepared subgrade after embankment has been constructed to grade.

Perform proof roll under the observation of the Engineer with a fully loaded tandem axle dump truck with an approximate gross weight of 25 tons, or an approved equal. Proof roll at a vehicle speed between 1.5 and 3 miles per hour along the entire project length. The Engineer will require a minimum of three passes and may require enough passes such that unrolled areas between wheel paths are not wider than one (1) foot. Yielding of the subgrade shall be less than 1.5 inches. No permanent deformation of the subgrade will be allowed. Yielding includes pumping and/or rutting.

Re-work areas not meeting the requirements of the proof roll until a passing proof test is obtained. Include all costs for the proof roll and the re-work of failed test areas in bid item “Common Excavation – Type A”.

203-P04 DISCRETIONARY SUBCUT: If the Engineer determines that an area of the roadway is soft or weak, that area shall be subcut according to the discretionary subcut detail.

10,000 LF of discretionary subcut has been added to the quantities to be used at the discretion of the Engineer. For purposes of estimating quantities, it has been assumed there will be (20) separate 500 LF discretionary subcut sections.

230-P01 SUBGRADE PREPARATION – TYPE A – 18IN: Conduct subgrade preparation on the roadbed where the final subgrade elevation is within 4 feet of the existing road surface. Compaction control shall be in accordance with Section 203.04 G.2 of the Standard Specifications. In fill sections complete subgrade preparation on existing roadbed prior to placing new embankment. In cut sections complete subgrade preparation after excavation is complete.

251-P01 SEEDING & COVER CROP: seeding class III mixture shall contain 10 pounds per acre live seed of meadow broom grass, 5 pounds per acre live seed of alfalfa (Lodak) and oats or winter wheat at 10 pounds per acre of live seed. Measurements for seeding and cover crop shall be plan quantity.

253-P01 MULCH: Measurements for mulch shall be plan quantity.

256-P01 RIPRAP: Place riprap and fabric concurrently with embankment. Finished embankment slopes will be protected by riprap and fabric within 24 hours. Unfinished embankment slopes within the water will be limited to 500 lineal feet.

256-P02 EXISTING RIPRAP: The existing riprap may be salvaged and used for riprap on the project. The riprap must meet the specifications of Riprap Grade I. The existing riprap that may be salvaged has an estimated quantity of 3,690 CY. If the contractor does not elect to salvage this material, the removal cost of this material shall be included in other bid items.

261-P01 TEMPORARY EROSION CONTROL: Use the existing topsoil to create an earthen berm at the limits of construction. The topsoil berm in conjunction with the existing vegetation and the devices shown in the plans will serve as the temporary erosion control.

Build the berm to a 1.0 foot minimum height. Allow stormwater to drain through the berm as needed by placing intermittent weirs along the length of the berm. Construct the weirs no more than 5.0 feet wide and place fiber rolls across the weirs on the downstream side of the berm. If stormwater is present at the time of the weir construction, place fiber rolls prior to construction of the weir. 3,000 LF has been added to the quantity of Fiber Rolls 12IN for the weirs and other areas where runoff leaves the site as directed by the Engineer.

When the grading operations are complete, spread the topsoil berm over the disturbed area in preparation for the permanent erosion control measures. The topsoil berm is not a separate pay item. All costs associated with constructing, maintaining, and removing the berm shall be included in the bid item “Topsoil”.

302-P01 TRAFFIC SURFACE AGGREGATE: Provide Traffic Surface Aggregate to maintain traffic during construction. The need and use of this material will be at the discretion of the Engineer.

302-P02 SALVAGE AGGREGATE SURFACE COURSE: The existing aggregate surface may be salvaged and used for traffic surface aggregate, pipe bedding/backfill (needs to meet Cl 3 or Cl 5 Specifications) or aggregate base (needs to meet Cl 5 Specifications). The existing aggregate surface that may be salvaged has an estimated depth of 2 inches for an estimated quantity of 16,000 tons. If the contractor elects to salvage this material, a minimum aggregate surface, as determined by the Engineer, must be maintained on the existing roadway.

704-P01 WORK ZONE TRAFFIC CONTROL: Maintain traffic through the project for the duration of the project. Provide a minimum of one lane for traffic at all times and during all construction operations.

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NOTES

704-P02 TRAFFIC CONTROL: The traffic control devices list has been developed using the following layouts on the Standard Drawings for traffic control:

1. Standard D-704-15, Type A to be used any time conditions exist.
2. Standard D-704-20, use for Terminal Layout
3. Standard D-704-22, Type M use for culvert installation (Quantities based on two (2) concurrent pipe installations.) & Type K and Type L as conditions exist.
4. Standard D-704-26, Type EE as conditions exist.

704-P03 FLAGGING LIMITATIONS: Limit the length of the work zone controlled by flaggers to no more than 3 miles for the earthwork and base items.

704-P04 WORK ZONE SPEED LIMIT: Limit the speed within the work zone to no more than 25 mph.

704-P05 ONE LANE ROAD: Install W20-4-48 signs at the nearest intersection roadways when any construction activity limits the travel way width to less than 28 feet.

706- P01 AGGREGATE LABORATORY: The Engineer will utilize the aggregate laboratory as a field office for the duration of the project. Have the aggregate laboratory on the project site and ready for use 1 week prior to the beginning of construction activities.

714-P01 APPROACH CULVERT: Notify the United States Air Force in writing, with a copy to the Engineer, a minimum of 30 days in advance of replacing the approach culvert at Sta. 860+46 Rt & Sta. 1164+73 Rt.

Contact: Michelle Beavers
Missile Engineer
Address: 5th Civil Engineer Squadron
Minot Air Force Base
300 Minuteman Drive
Minot AFB, ND 58705
Phone # 701-723-3998
Email: michelle.beavers.2@us.af.mil

714-P02 SUBMERSED CENTERLINE PIPE: Include all costs for cofferdams, including embankment, and dewatering for the installation of the submerged centerline pipes in the pipe conduit bid items.

Dewater the pipe trench and work area. After installing the culverts, remove the cofferdam in its entirety. Remove all the cofferdam embankment and do not push the embankment into the water so it is below the water elevation. If the removed embankment is incorporated into other areas of the project, the material will be paid for as “Borrow-Excavation”. If the cofferdam embankment is not incorporated into other areas of the project, haul the material back to the borrow pit prior to final cross sectioning.

752-P01 TEMPORARY FENCE: Install all temporary fence to match the existing fence.

752-P02 FENCE POSTS: Use wood posts for all, Double Brace Assemblies, Fence Terminals, Vehicle Gate, and Corner Brace Assemblies.

All Corner posts, End posts, Brace posts, and Gate posts shall have a post length of 9’ from sta. 817+00 to sta. 897+00.

752-P03 Vehicle Gate: Install the vehicle gate with an opening width as specified on the plan and profile sheet, where applicable. If no width is specified, install the vehicle gate with the width indicated on the standard drawing.

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Estimated Quantities

SAUBER ENGINEERING

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SPEC	CODE	ITEM DESCRIPTION	UNIT	TOTAL
103	0100	CONTRACT BOND	L SUM	1
201	0330	CLEARING & GRUBBING	L SUM	1
202	0170	REMOVAL OF CULVERTS-ALL TYPES & SIZES	LF	1732
202	0312	REMOVE EXISTING FENCE	LF	12455
203	0101	COMMON EXCAVATION-TYPE A	CY	608185
203	0109	TOPSOIL	CY	103351
203	0119	TOPSOIL-IMPORTED	CY	3325
203	0138	COMMON EXCAVATION-SUBCUT	CY	46060
203	0140	BORROW-EXCAVATION	CY	231934
203	0180	ROADWAY OBLITERATION	LF	5400
216	0100	WATER	M GAL	11008
230	0172	SUBGRADE PREPARATION-TYPE A-18IN	STA	370
251	0300	SEEDING CLASS III	ACRE	147.75
251	2000	TEMPORARY COVER CROP	ACRE	147.75
253	0101	STRAW MULCH	ACRE	295.5
255	0103	ECB TYPE 3	SY	58909
255	0202	TRM TYPE 2	SY	5183
255	0310	REMOVE CONCRETE EROSION CONTROL BLANKET	SY	2507
255	0320	RESET CONCRETE EROSION CONTROL BLANKET	SY	2507
256	0100	RIPRAP GRADE I	CY	4184
260	0200	SILT FENCE SUPPORTED	LF	18435
260	0201	REMOVE SILT FENCE SUPPORTED	LF	18435
261	0112	FIBER ROLLS 12IN	LF	7320
261	0113	REMOVE FIBER ROLLS 12IN	LF	5160
261	0120	FIBER ROLLS 20IN	LF	19560
261	0121	REMOVE FIBER ROLLS 20IN	LF	9780
262	0100	FLOTATION SILT CURTAIN	LF	9050
262	0101	REMOVE FLOTATION SILT CURTAIN	LF	9050
302	0120	AGGREGATE BASE COURSE CL 5	TON	70519
302	0241	AGGREGATE FOR SUBGRADE REPAIR	TON	86360
302	0314	TEMPORARY TRAFFIC SURFACE AGGREGATE	TON	10152
350	0500	GRAVEL SURFACING	TON	36965
702	0100	MOBILIZATION	L SUM	1
704	0100	FLAGGING	MHR	3000
704	1000	TRAFFIC CONTROL SIGNS	UNIT	2955
704	1052	TYPE III BARRICADE	EA	4
704	1080	STACKABLE VERTICAL PANELS	EA	240
704	1185	PILOT CAR	HR	1500
706	0500	AGGREGATE LABORATORY	EA	1
709	0100	GEOSYNTHETIC MATERIAL TYPE G	SY	181718
709	0151	GEOSYNTHETIC MATERIAL TYPE R1	SY	51000
709	0155	GEOSYNTHETIC MATERIAL TYPE RR	SY	12669
714	4105	PIPE CONDUIT 24IN	LF	822
714	4106	PIPE CONDUIT 24IN-APPROACH	LF	3596
714	4110	PIPE CONDUIT 30IN	LF	2064
714	4115	PIPE CONDUIT 36IN	LF	1016
714	4125	PIPE CONDUIT 48IN	LF	368

Estimated Quantities

SAUBER ENGINEERING

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202	0170	REMOVAL OF CULVERTS-ALL TYPES & SIZES	LF	1732
202	0312	REMOVE EXISTING FENCE	LF	12455
203	0101	COMMON EXCAVATION-TYPE A	CY	615460
203	0109	TOPSOIL	CY	103394
203	0119	TOPSOIL-IMPORTED	CY	3325
203	0138	COMMON EXCAVATION-SUBCUT	CY	46060
203	0140	BORROW-EXCAVATION	CY	231780
203	0180	ROADWAY OBLITERATION	LF	5400
216	0100	WATER	M GAL	11079
230	0172	SUBGRADE PREPARATION-TYPE A-18IN	STA	358
251	0300	SEEDING CLASS III	ACRE	147.75
251	2000	TEMPORARY COVER CROP	ACRE	147.75
253	0101	STRAW MULCH	ACRE	295.5
255	0103	ECB TYPE 3	SY	61346
255	0202	TRM TYPE 2	SY	5183
255	0310	REMOVE CONCRETE EROSION CONTROL BLANKET	SY	2507
255	0320	RESET CONCRETE EROSION CONTROL BLANKET	SY	2507
256	0100	RIPRAP GRADE I	CY	4184
260	0200	SILT FENCE SUPPORTED	LF	18435
260	0201	REMOVE SILT FENCE SUPPORTED	LF	18435
261	0112	FIBER ROLLS 12IN	LF	7320
261	0113	REMOVE FIBER ROLLS 12IN	LF	5160
261	0120	FIBER ROLLS 20IN	LF	19560
261	0121	REMOVE FIBER ROLLS 20IN	LF	9780
262	0100	FLOTATION SILT CURTAIN	LF	9050
262	0101	REMOVE FLOTATION SILT CURTAIN	LF	9050
302	0120	AGGREGATE BASE COURSE CL 5	TON	70519
302	0241	AGGREGATE FOR SUBGRADE REPAIR	TON	86360
302	0314	TEMPORARY TRAFFIC SURFACE AGGREGATE	TON	10152
350	0500	GRAVEL SURFACING	TON	36965
702	0100	MOBILIZATION	L SUM	1
704	0100	FLAGGING	MHR	3000
704	1000	TRAFFIC CONTROL SIGNS	UNIT	2955
704	1052	TYPE III BARRICADE	EA	4
704	1080	STACKABLE VERTICAL PANELS	EA	240
704	1185	PILOT CAR	HR	1500
706	0500	AGGREGATE LABORATORY	EA	1
709	0100	GEOSYNTHETIC MATERIAL TYPE G	SY	181701
709	0151	GEOSYNTHETIC MATERIAL TYPE R1	SY	51000
709	0155	GEOSYNTHETIC MATERIAL TYPE RR	SY	12669
714	4105	PIPE CONDUIT 24IN	LF	834
714	4106	PIPE CONDUIT 24IN-APPROACH	LF	3608
714	4110	PIPE CONDUIT 30IN	LF	2044
714	4115	PIPE CONDUIT 36IN	LF	1012
714	4125	PIPE CONDUIT 48IN	LF	368

Estimated Quantities

SPEC	CODE	ITEM DESCRIPTION	UNIT	TOTAL
714	4130	PIPE CONDUIT 54IN	LF	98
720	0110	RIGHT OF WAY MARKERS	EA	113
752	0320	FENCE BARBED WIRE 4 STRAND-STEEL POST	LF	4220
752	0400	FENCE BARBED WIRE 5 STRAND	LF	8235
752	0905	TEMPORARY FENCE	LF	12455
752	0993	FENCE TERMINAL	EA	1
752	2100	VEHICLE GATE	EA	7
752	3140	CORNER ASSEMBLY BARBED WIRE	EA	10
752	4100	DOUBLE BRACE ASSEMBLY BARBED WIRE	EA	6
754	0110	FLAT SHEET FOR SIGNS-TYPE XI REFL SHEETING	SF	226.8
754	0112	FLAT SHEET FOR SIGNS-TYPE IV REFL SHEETING	SF	140.4
754	0206	STEEL GALV POSTS-TELESCOPING PERFORATED TUBE	LF	743.7
754	0592	RESET SIGN PANEL	EA	3
754	0593	RESET SIGN SUPPORT	EA	3
754	0805	OBJECT MARKERS - CULVERTS	EA	74
766	0100	MAILBOX-ALL TYPES	EA	3

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	8	2

Estimated Quantities

SPEC	CODE	ITEM DESCRIPTION	UNIT	TOTAL
714	4130	PIPE CONDUIT 54IN	LF	98
720	0110	RIGHT OF WAY MARKERS	EA	106
752	0320	FENCE BARBED WIRE 4 STRAND-STEEL POST	LF	4220
752	0400	FENCE BARBED WIRE 5 STRAND	LF	8235
752	0905	TEMPORARY FENCE	LF	12455
752	0993	FENCE TERMINAL	EA	1
752	2100	VEHICLE GATE	EA	7
752	3140	CORNER ASSEMBLY BARBED WIRE	EA	10
752	4100	DOUBLE BRACE ASSEMBLY BARBED WIRE	EA	6
754	0110	FLAT SHEET FOR SIGNS-TYPE XI REFL SHEETING	SF	226.8
754	0112	FLAT SHEET FOR SIGNS-TYPE IV REFL SHEETING	SF	140.4
754	0206	STEEL GALV POSTS-TELESCOPING PERFORATED TUBE	LF	743.7
754	0592	RESET SIGN PANEL	EA	3
754	0593	RESET SIGN SUPPORT	EA	3
754	0805	OBJECT MARKERS - CULVERTS	EA	74
766	0100	MAILBOX-ALL TYPES	EA	3

SAUBER ENGINEERING

Basis of Estimate

Revised 02/11/25	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	10	1

Materials

Aggregate Base Course Class 5	1.875 Tons/CY
Temporary Traffic Surface Aggregate	1,000 Tons/Mile
Gravel Surfacing	1.875 Tons/CY

Water

Dust Palliative	25 MGal/Mile
Aggregate Base Course Class 5	20 Gal/Ton
Temporary Traffic Surface Aggregate	20 Gal/Ton
Gravel Surfacing	20 Gal/Ton
Embankment	10 Gal/CY

Topsoil

6" Depth - Construction Limits minus existing road surface

Seeding, Mulching, Temporary Cover Crop

Based on a width 10' outside the construction limits.

Fiber Rolls

12IN Inlet Protection	4,320 LF
12IN Weirs/As Directed by Engineer	3,000 LF
20IN Ditch Checks	19,560 LF

Temporary Fence

Install Temporary Fence (actual quantity will be subject to landowner needs)

Traffic Control

Stackable Vertical Panels based on 2 miles of shoulder drop-off

OBJECT MARKERS - CULVERTS

Location	Quantity (EA)
Sta. 782+75 (Lt & Rt)	2
Sta. 795+65 (Lt & Rt)	2
Sta. 803+05 Lt	1
Sta. 803+65 Rt	1
Sta. 814+00 (Lt & Rt)	2
Sta. 820+85 (Lt & Rt)	2
Sta. 827+20 (Lt & Rt)	2
Sta. 857+16 (Lt & Rt)	2
Sta. 865+21 (Lt & Rt)	2
Sta. 869+64 (Lt & Rt)	2
Sta. 884+99 Lt	1
Sta. 885+56 Rt	1
Sta. 892+79 Rt	1
Sta. 893+13 Lt	1
Sta. 908+97 (Lt & Rt)	2
Sta. 924+50 (Lt & Rt)	2
Sta. 939+25 Lt	1
Sta. 939+50 Rt	1
Sta. 951+60 (Lt & Rt)	2
Sta. 959+20 (Lt & Rt)	2
Sta. 985+39 Rt	1
Sta. 986+06 Lt	1
Sta. 991+83 (Lt & Rt)	2
Sta. 1015+00 (Lt & Rt)	2
Sta. 1029+51 (Lt & Rt)	2
Sta. 1043+65 (Lt & Rt)	2
Sta. 1059+80 (Lt & Rt)	2
Sta. 1064+20 (Lt & Rt)	2
Sta. 1074+62 (Lt & Rt)	2
Sta. 1088+00 (Lt & Rt)	2
Sta. 1117+19 (Lt & Rt)	2
Sta. 1125+95 (Lt & Rt)	2
Sta. 1129+17 (Lt & Rt)	2
Sta. 1153+70 Lt	1
Sta. 1153+89 Rt	1
Sta. 1182+35 (Lt & Rt)	2
Sta. 1213+84 (Lt & Rt)	2
Sta. 1218+95 (Lt & Rt)	2
Sta. 1231+15 (Lt & Rt)	2
Sta. 1238+30 (Lt & Rt)	2
Sta. 1268+15 (Lt & Rt)	2
Sta. 1274+68 (Lt & Rt)	2
Sta. 1285+88 (Lt & Rt)	2
Total	74

Subgrade Preperation Location

Station	to	Station	Sta
766+00	to	768+00	2
774+00	to	793+00	19
800+00	to	812+00	12
815+00	to	819+00	4
822+00	to	832+00	10
837+00	to	872+00	35
875+00	to	892+00	17
895+00	to	898+00	3
904+00	to	906+00	2
911+00	to	922+00	11
930+00	to	933+00	3
936+00	to	938+00	2
943+00	to	949+00	6
952+00	to	961+00	9
967+00	to	975+00	8
979+00	to	990+00	11
994+00	to	1023+00	29
1026+00	to	1029+00	3
1034+00	to	1037+00	3
1040+00	to	1042+00	2
1046+00	to	1049+00	3
1052+00	to	1054+00	2
1066+00	to	1071+00	5
1080+00	to	1098+00	18
1106+00	to	1129+00	23
1136+00	to	1148+00	12
1157+00	to	1179+00	22
1184+00	to	1210+00	26
1214+00	to	1223+00	9
1230+00	to	1233+00	3
1236+00	to	1238+00	2
1245+00	to	1262+00	17
1265+00	to	1302+00	37
		Total	370

RIGHT OF WAY MARKERS

Station	Offset	Station	Offset	Station	Offset
765+38.46	75' Rt & Lt	895+00	100' Rt	1046+00	75' Rt
791+01.00	97.65' Lt	895+00	75' Rt	1046+58.33	75' Lt
791+01.77	55.65' Lt	896+67.72	75' Rt & Lt	1055+81.69	85.92' Rt
791+03.53	52.33' Rt	905+00	75' Rt	1055+81.69	85.37' Lt
795+00	45.90' Rt	905+00	95' Rt	1065+68.96	75' Rt & Lt
795+00	65.89' Rt	905+00	75' Lt	1088+72.32	75' Rt & Lt
799+00	47.78' Rt	905+00	90' Lt	1090+38.13	75' Lt
799+00	67.75' Rt	910+00	95' Rt	1091+33.87	75' Lt
800+95.70	53.37' Lt	910+00	75' Rt	1092+03.81	75' Rt
800+97.4	95.33' Lt	911+00	90' Lt	1093+07.67	75' Rt
804+20.27	68.32' Rt	911+00	75' Lt	1095+74.69	75' Rt & Lt
804+26.54	81.58' Lt	922+31.23	75' Rt & Lt	1116+13.96	75' Rt & Lt
813+00	75' Rt	923+81.23	100' Rt	1121+51.13	75' Rt
813+00	85' Rt	923+81.23	85' Lt	1123+28.03	75' Rt
815+00	85'Rt	928+00	100' Rt	1126+17.30	75' Rt & Lt
815+00	75' Rt	928+00	75' Rt	1129+48.86	75' Rt & Lt
816+59.10	75' Rt	928+00	85' Lt	1155+19	75' Rt & Lt
816+59.10	75' Lt	928+00	75' Lt	1156+69	75' Rt & Lt
818+08.74	44.91' Rt	949+44.78	75' Rt & Lt	1182+48.27	75' Rt & Lt
818+08.74	105.09' Lt	975+08.16	75' Rt & Lt	1208+27.54	75' Rt & Lt
843+81.62	75' Rt & Lt	976+58.16	75' Rt & Lt	1209+77.54	75' Rt & Lt
869+54.28	75' Rt & Lt	1002+24.38	75' Rt & Lt	1235+24.07	75' Rt & Lt
871+04.28	75' Rt & Lt	1027+90.70	75' Rt & Lt	1260+63.49	75' Rt & Lt
892+00	75' Rt	1029+40.70	75' Rt & Lt	1262+13.49	75' Rt & Lt
892+00	100' Rt	1037+88.35	75' Rt & Lt	1287+77.89	75' Rt & Lt
892+00	75' Lt	1043+00	75' Rt	1300+34.15	75' Lt
892+00	85' Lt	1043+00	90' Rt	1300+93.56	75' Rt
894+00	85' Lt	1043+30.05	75' Rt		
894+00	75' Lt	1046+00	90' Rt		
				Total	113

MAILBOXES

Station	Type	Number	Work
1219+70 Lt	Single	1	Replace
1295+14 Lt	Single	1	Replace
1295+20 Lt	Single	1	Replace

SAUBER ENGINEERING

REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-3214
LS-6427
DATE 2/11/25
NORTH DAKOTA

Basis of Estimate

Reconstruction
County Route 1

Mountrail County, ND

Basis of Estimate

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	10	1

Materials

Aggregate Base Course Class 5	1.875 Tons/CY
Temporary Traffic Surface Aggregate	1,000 Tons/Mile
Gravel Surfacing	1.875 Tons/CY

Water

Dust Palliative	25 MGal/Mile
Aggregate Base Course Class 5	20 Gal/Ton
Temporary Traffic Surface Aggregate	20 Gal/Ton
Gravel Surfacing	20 Gal/Ton
Embankment	10 Gal/CY

Topsoil

6" Depth - Construction Limits minus existing road surface

Seeding, Mulching, Temporary Cover Crop

Based on a width 10' outside the construction limits.

Fiber Rolls

12IN Inlet Protection	4,320 LF
12IN Weirs/As Directed by Engineer	3,000 LF
20IN Ditch Checks	19,560 LF

Temporary Fence

Install Temporary Fence (actual quantity will be subject to landowner needs)

Traffic Control

Stackable Vertical Panels based on 2 miles of shoulder drop-off

OBJECT MARKERS - CULVERTS

Location	Quantity (EA)
Sta. 782+75 (Lt & Rt)	2
Sta. 795+65 (Lt & Rt)	2
Sta. 802+94 Lt	1
Sta. 803+35 Rt	1
Sta. 814+00 (Lt & Rt)	2
Sta. 820+85 (Lt & Rt)	2
Sta. 827+20 (Lt & Rt)	2
Sta. 857+16 (Lt & Rt)	2
Sta. 865+21 (Lt & Rt)	2
Sta. 869+64 (Lt & Rt)	2
Sta. 884+99 Lt	1
Sta. 885+56 Rt	1
Sta. 892+79 Rt	1
Sta. 893+13 Lt	1
Sta. 908+97 (Lt & Rt)	2
Sta. 924+50 (Lt & Rt)	2
Sta. 939+25 Lt	1
Sta. 939+50 Rt	1
Sta. 951+60 (Lt & Rt)	2
Sta. 959+20 (Lt & Rt)	2
Sta. 985+39 Rt	1
Sta. 986+06 Lt	1
Sta. 991+83 (Lt & Rt)	2
Sta. 1015+00 (Lt & Rt)	2
Sta. 1029+51 (Lt & Rt)	2
Sta. 1043+65 (Lt & Rt)	2
Sta. 1059+80 (Lt & Rt)	2
Sta. 1064+20 (Lt & Rt)	2
Sta. 1074+62 (Lt & Rt)	2
Sta. 1088+00 (Lt & Rt)	2
Sta. 1117+19 (Lt & Rt)	2
Sta. 1125+95 (Lt & Rt)	2
Sta. 1129+17 (Lt & Rt)	2
Sta. 1153+70 Lt	1
Sta. 1153+89 Rt	1
Sta. 1182+35 (Lt & Rt)	2
Sta. 1213+84 (Lt & Rt)	2
Sta. 1218+95 (Lt & Rt)	2
Sta. 1231+15 (Lt & Rt)	2
Sta. 1238+30 (Lt & Rt)	2
Sta. 1268+15 (Lt & Rt)	2
Sta. 1274+68 (Lt & Rt)	2
Sta. 1285+88 (Lt & Rt)	2
Total	74

Subgrade Preperation Location

Station	to	Station	Sta
764+00	to	768+00	4
774+00	to	780+00	6
783+00	to	785+00	2
791+00	to	796+00	5
806+00	to	812+00	6
816+00	to	818+00	2
822+00	to	832+00	10
837+00	to	872+00	35
875+00	to	892+00	17
895+00	to	898+00	3
904+00	to	906+00	2
911+00	to	922+00	11
930+00	to	933+00	3
936+00	to	938+00	2
943+00	to	949+00	6
952+00	to	961+00	9
967+00	to	975+00	8
979+00	to	990+00	11
994+00	to	1023+00	29
1026+00	to	1029+00	3
1034+00	to	1037+00	3
1040+00	to	1042+00	2
1046+00	to	1049+00	3
1052+00	to	1054+00	2
1066+00	to	1071+00	5
1080+00	to	1098+00	18
1106+00	to	1129+00	23
1136+00	to	1148+00	12
1157+00	to	1179+00	22
1184+00	to	1210+00	26
1214+00	to	1223+00	9
1230+00	to	1233+00	3
1236+00	to	1238+00	2
1245+00	to	1262+00	17
1265+00	to	1302+00	37
		Total	358

RIGHT OF WAY MARKERS

Station	Offset	Station	Offset	Station	Offset
765+38.46	75' Rt & Lt	905+00	75' Lt	1055+81.69	85.92' Rt
791+02.46	75' Rt & Lt	905+00	90' Lt	1055+81.69	85.37' Lt
804+22.84	43.72' Rt	910+00	95' Rt	1065+68.96	75' Rt & Lt
804+22.84	63.69' Rt	910+00	75' Rt	1088+72.32	75' Rt & Lt
804+22.84	64.31' Lt	911+00	90' Lt	1090+38.13	75' Lt
804+22.84	106.31' Lt	911+00	75' Lt	1091+33.87	75' Lt
812+00	63' Rt	922+31.23	75' Rt & Lt	1092+03.81	75' Rt
812+00	73' Rt	923+81.23	100' Rt	1093+07.67	75' Rt
816+58.73	73.09' Rt	923+81.23	85' Lt	1095+74.69	75' Rt & Lt
816+58.73	64.91' Lt	928+00	100' Rt	1116+13.96	75' Rt & Lt
818+08.74	44.91' Rt	928+00	75' Rt	1121+51.13	75' Rt
818+08.74	105.09' Lt	928+00	85' Lt	1123+28.03	75' Rt
843+81.62	75' Rt & Lt	928+00	75' Lt	1126+17.30	75' Rt & Lt
869+54.28	75' Rt & Lt	949+44.78	75' Rt & Lt	1129+48.86	75' Rt & Lt
871+04.28	75' Rt & Lt	975+08.16	75' Rt & Lt	1155+19	75' Rt & Lt
892+00	75' Rt	976+58.16	75' Rt & Lt	1156+69	75' Rt & Lt
892+00	100' Rt	1002+24.38	75' Rt & Lt	1182+48.27	75' Rt & Lt
892+00	75' Lt	1027+90.70	75' Rt & Lt	1208+27.54	75' Rt & Lt
892+00	85' Lt	1029+40.70	75' Rt & Lt	1209+77.54	75' Rt & Lt
894+00	85' Lt	1037+88.35	75' Rt & Lt	1235+24.07	75' Rt & Lt
894+00	75' Lt	1043+00	75' Rt	1260+63.49	75' Rt & Lt
895+00	100' Rt	1043+00	90' Rt	1262+13.49	75' Rt & Lt
895+00	75' Rt	1043+30.05	75' Rt	1287+77.89	75' Rt & Lt
896+67.72	75' Rt & Lt	1046+00	90' Rt	1300+34.15	75' Lt
905+00	75' Rt	1046+00	75' Rt	1300+93.56	75' Rt
905+00	95' Rt	1046+58.33	75' Lt		
			Total		106

MAILBOXES

Station	Type	Number	Work
1219+70 Lt	Single	1	Replace
1295+14 Lt	Single	1	Replace
1295+20 Lt	Single	1	Replace

SAUBER ENGINEERING

REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-3914
LS-6427
DATE 1/28/25
NORTH DAKOTA

Basis of Estimate

Reconstruction
County Route 1

Mountrail County, ND

Earthwork Quantities Report

Station	Factor	Cut Area (SF)	Cut Volume (CY)	Fill Area (SF)	Fill Volume (CY)	Facotred Fill Volume (CY)	Mass Ordinate (CY)	Topsoil Area (SF)	Topsoil Volume (CY)
765+00	1.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
766+00	1.25	31.43	58.20	9.53	17.65	22.06	36.14	28.37	52.54
767+00	1.25	192.46	414.61	0.00	17.65	22.06	428.69	36.65	120.41
768+00	1.25	500.65	1283.54	0.00	0.00	0.00	1,712.23	60.71	180.30
769+00	1.25	726.57	2272.63	0.00	0.00	0.00	3,984.86	66.71	235.96
770+00	1.25	823.59	2870.67	0.00	0.00	0.00	6,855.53	65.39	244.63
771+00	1.25	860.43	3118.56	0.00	0.00	0.00	9,974.08	71.86	254.17
772+00	1.25	839.61	3148.22	0.00	0.00	0.00	13,122.31	73.90	269.93
773+00	1.25	886.07	3195.70	0.00	0.00	0.00	16,318.01	73.20	272.41
774+00	1.25	597.40	2747.17	0.00	0.00	0.00	19,065.18	65.93	257.65
775+00	1.25	448.35	1936.57	0.00	0.00	0.00	21,001.75	70.25	252.19
776+00	1.25	104.29	1023.41	1.95	3.61	4.51	22,020.64	39.87	203.93
777+00	1.25	41.92	270.76	76.02	144.39	180.49	22,110.92	43.53	154.44
778+00	1.25	0.00	77.63	234.94	575.85	719.81	21,468.73	39.42	153.61
779+00	1.25	0.00	0.00	305.09	1000.06	1250.07	20,218.66	40.39	147.80
780+00	1.25	0.00	0.00	389.86	1286.94	1608.68	18,609.98	40.36	149.54
781+00	1.25	52.02	96.33	437.30	1531.78	1914.72	16,791.59	53.18	173.22
782+00	1.25	0.00	96.33	533.85	1798.43	2248.03	14,639.89	40.81	174.06
783+00	1.25	0.00	0.00	660.22	2211.24	2764.05	11,875.84	43.27	155.70
784+00	1.25	27.51	50.94	445.91	2048.39	2560.49	9,366.30	50.68	173.98
785+00	1.25	382.24	758.80	11.15	846.41	1058.01	9,067.09	48.65	183.94
786+00	1.25	690.98	1987.44	0.00	20.65	25.81	11,028.72	50.63	183.85
787+00	1.25	459.49	2130.50	1.03	1.91	2.38	13,156.84	47.16	181.09
788+00	1.25	800.17	2332.70	0.00	1.91	2.38	15,487.16	56.21	191.43
789+00	1.25	472.71	2357.19	77.77	144.02	180.02	17,664.32	42.75	183.26
789+81	1.25	-	0.00	-	160.00	200.00	17,464.32	-	-
790+00	1.25	922.63	2583.96	0.00	144.02	180.02	19,868.26	56.78	184.31
791+00	1.25	629.50	2874.31	0.00	400.00	500.00	22,242.57	47.32	192.78
792+00	1.25	189.40	1516.48	63.88	118.30	147.87	23,611.19	38.51	158.94
793+00	1.25	13.00	374.81	261.43	602.43	753.03	23,232.97	31.79	130.19
794+00	1.25	0.00	24.07	355.49	1142.44	1428.06	21,828.99	35.04	123.76
795+00	1.25	0.00	0.00	430.22	1455.02	1818.77	20,010.21	38.77	136.69
796+00	1.25	0.00	0.00	525.83	1770.46	2213.08	17,797.13	42.82	151.09
797+00	1.25	0.00	0.00	712.25	2292.74	2865.93	14,931.21	46.41	165.24
798+00	1.25	0.00	0.00	749.25	2706.48	3383.10	11,548.11	47.09	173.15
799+00	1.25	0.00	0.00	452.58	2225.61	2782.01	8,766.09	41.78	164.57
800+00	1.25	90.24	167.11	152.08	1119.74	1399.68	7,533.53	36.23	144.46
801+00	1.25	457.51	1014.35	30.26	337.67	422.08	8,125.80	49.40	158.57
802+00	1.25	391.79	1572.78	63.45	173.54	216.92	9,481.65	49.48	183.11
803+00	1.25	30.53	782.07	387.39	834.89	1043.61	9,220.12	42.30	169.96
804+00	1.25	0.00	56.54	642.05	1906.37	2382.96	6,893.69	38.38	149.41
805+00	1.25	0.00	0.00	242.94	1638.87	2048.59	4,845.10	25.57	118.43
806+00	1.25	249.58	462.19	14.53	476.80	596.00	4,711.29	53.33	146.11
806+58	1.25	-	0.00	-	160.00	200.00	4,511.29	-	-
807+00	1.25	487.44	1364.85	4.68	35.57	44.47	5,831.68	60.89	211.52
808+00	1.25	138.72	1159.56	157.92	301.11	376.39	6,614.84	56.80	217.94
809+00	1.25	79.04	403.26	69.93	421.94	527.43	6,490.67	37.43	174.50
810+00	1.25	173.33	467.35	4.11	137.11	171.39	6,786.63	47.01	156.37
811+00	1.25	28.86	374.43	66.18	130.17	162.71	6,998.35	33.34	148.80
812+00	1.25	0.00	53.44	548.07	1137.50	1421.88	5,629.92	34.98	126.52
813+00	1.25	0.00	0.00	1566.19	3915.30	4894.12	735.80	58.64	173.37
814+00	1.25	0.00	0.00	1546.73	5764.67	7205.83	-6,470.03	59.74	219.22
815+00	1.25	0.00	0.00	879.87	4493.70	5617.13	-12,087.16	47.16	197.96
816+00	1.25	158.54	293.59	51.15	1724.11	2155.14	-13,948.71	52.40	184.37
817+00	1.25	899.19	1958.76	0.00	94.72	118.40	-12,108.35	57.54	203.59
817+24	1.25	-	0.00	-	160.00	200.00	-12,308.35	-	-
817+29	1.25	-	0.00	-	160.00	200.00	-12,508.35	-	-
818+00	1.25	285.36	2193.61	38.44	71.19	88.98	-10,403.72	58.15	214.24
819+00	1.25	74.63	666.65	540.86	1072.78	1340.97	-11,078.05	54.65	208.89
820+00	1.25	0.00	138.20	982.54	2821.11	3526.39	-14,466.23	47.06	188.35
821+00	1.25	0.00	0.00	1002.32	3675.67	4594.58	-19,060.81	49.11	178.09
822+00	1.25	0.00	0.00	663.19	3084.28	3855.35	-22,916.16	41.34	167.50
823+00	1.25	488.93	905.43	0.00	1228.13	1535.16	-23,545.90	58.03	184.02
824+00	1.25	1121.67	2982.59	0.00	0.00	0.00	-20,563.31	82.29	259.85
824+32	1.25	-	0.00	-	160.00	200.00	-20,763.31	-	-
824+85	1.25	-	0.00	-	160.00	200.00	-20,963.31	-	-
825+00	1.25	336.74	2700.76	0.09	0.17	0.21	-18,262.75	45.88	237.35
826+00	1.25	0.00	623.59	336.24	622.83	778.54	-18,417.70	37.62	154.63
827+00	1.25	0.00	0.00	586.06	1707.96	2134.95	-20,552.66	45.64	154.19
828+00	1.25	0.00	0.00	736.01	2448.28	3060.35	-23,613.00	45.65	169.06
829+00	1.25	0.00	0.00	717.82	2692.28	3365.35	-26,978.35	42.20	162.69
830+00	1.25	36.78	68.11	198.26	1696.44	2120.56	-29,030.80	42.15	156.20
831+00	1.25	487.70	971.26	0.00	367.15	458.94	-28,518.47	57.84	185.17
832+00	1.25	782.28	2351.81	0.00	0.00	0.00	-26,166.66	63.03	223.83
833+00	1.25	642.25	2638.02	0.00	0.00	0.00	-23,528.64	53.45	215.70
834+00	1.25	816.75	2701.85	0.00	0.00	0.00	-20,826.79	59.60	209.35
834+89	1.25	-	0.00	-	400.00	500.00	-21,326.79	-	-
835+00	1.25	1039.37	3437.26	0.00	0.00	0.00	-17,889.53	64.19	229.24
836+00	1.25	925.34	3638.35	0.00	0.00	0.00	-14,251.18	67.15	243.22
836+95	1.25	-	0.00	-	400.00	500.00	-14,751.18	-	-

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
Revised 02/11/25	ND	01(62)23	11	1

SAUBER ENGINEERING

REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-3914
LS-8427
DATE 2/11/25
NORTH DAKOTA

Earthwork Summary

Reconstruction
County Route 1

Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	11	1

Earthwork Quantities Report

Station	Factor	Cut Area (SF)	Cut Volume (CY)	Fill Area (SF)	Fill Volume (CY)	Facotred Fill Volume (CY)	Mass Ordinate (CY)	Topsoil Area (SF)	Topsoil Volume (CY)
765+00	1.25	0	0.00	0	0.00	0.00	0.00	0.00	0.00
766+00	1.25	31.43	58.20	9.53	17.65	22.06	36.14	28.37	52.54
767+00	1.25	180.85	393.11	0	17.65	22.06	407.19	36.13	119.44
768+00	1.25	467.84	1201.28	0	0.00	0.00	1,608.47	59.63	177.33
769+00	1.25	675.99	2118.20	0	0.00	0.00	3,726.68	56.90	215.80
770+00	1.25	755.63	2651.15	0	0.00	0.00	6,377.82	59.72	215.96
771+00	1.25	769.48	2824.28	0	0.00	0.00	9,202.10	66.81	234.31
772+00	1.25	732.6	2781.63	0	0.00	0.00	11,983.73	65.65	245.30
773+00	1.25	761.66	2767.15	0	0.00	0.00	14,750.88	70.37	251.89
774+00	1.25	577.22	2479.41	0	0.00	0.00	17,230.29	70.47	260.81
775+00	1.25	311.07	1644.98	0	0.00	0.00	18,875.27	66.88	254.35
776+00	1.25	38.04	646.50	25.44	47.11	58.89	19,462.88	36.60	191.63
777+00	1.25	19.78	107.07	187.44	394.22	492.78	19,077.18	46.01	152.98
778+00	1.25	0	36.63	336.02	969.37	1211.71	17,902.09	42.40	163.72
779+00	1.25	0	0.00	425.14	1409.56	1761.94	16,140.15	42.65	157.50
780+00	1.25	0	0.00	465.25	1648.87	2061.09	14,079.06	42.73	158.11
781+00	1.25	54.95	101.76	460.89	1715.07	2143.84	12,036.98	52.60	176.54
782+00	1.25	0	101.76	500.17	1779.74	2224.68	9,914.06	38.16	168.07
783+00	1.25	0	0.00	530.13	1907.96	2384.95	7,529.11	39.62	144.04
784+00	1.25	35.3	65.37	266.14	1474.57	1843.22	5,751.26	44.79	156.31
785+00	1.25	677.8	1320.56	0	492.85	616.06	6,455.75	57.29	189.04
786+00	1.25	1056.47	3211.61	0	0.00	0.00	9,667.36	62.37	221.59
787+00	1.25	867.98	3563.80	0	0.00	0.00	13,231.16	62.84	231.87
788+00	1.25	1463.14	4316.89	0	0.00	0.00	17,548.05	89.61	282.31
789+00	1.25	1000.88	4563.00	0	0.00	0.00	22,111.05	71.85	299.00
789+81	1.25	-	0.00	-	160.00	200.00	21,911.05	-	-
790+00	1.25	1398.85	4443.94	0	0.00	0.00	26,354.99	63.26	250.20
791+00	1.25	746.88	3973.57	0	400.00	500.00	29,828.56	50.60	210.85
792+00	1.25	160.77	1680.83	116.98	216.63	270.79	31,238.61	47.09	180.91
793+00	1.25	0	297.72	321.83	812.61	1015.76	30,520.57	36.17	154.19
794+00	1.25	0	0.00	470.77	1467.78	1834.72	28,685.85	41.71	144.22
795+00	1.25	0	0.00	537.74	1867.61	2334.51	26,351.33	43.54	157.87
796+00	1.25	0	0.00	660.17	2218.35	2772.94	23,578.39	49.96	173.15
797+00	1.25	0	0.00	885.45	2862.26	3577.82	20,000.57	52.11	189.02
798+00	1.25	0	0.00	1010.49	3511.00	4388.75	15,611.82	52.33	193.41
799+00	1.25	0	0.00	735.45	3233.22	4041.53	11,570.29	46.08	182.24
800+00	1.25	4.62	8.56	330.96	1974.83	2468.54	9,110.31	34.78	149.74
801+00	1.25	233.3	440.59	134.08	861.19	1076.48	8,474.42	41.58	141.41
802+00	1.25	280.77	951.98	171.19	565.31	706.64	8,719.75	45.91	162.02
803+00	1.25	28.55	572.81	459.14	1167.28	1459.10	7,833.47	46.42	170.98
804+00	1.25	0	52.87	796.63	2325.50	2906.88	4,979.47	43.65	166.80
805+00	1.25	42.39	78.50	393.66	2204.24	2755.30	2,302.67	40.72	156.24
806+00	1.25	133.47	325.67	163.12	1031.07	1288.84	1,339.49	32.72	136.00
806+58	1.25	-	0.00	-	160.00	200.00	1,139.49	-	-
807+00	1.25	249.18	708.61	54.95	403.83	504.79	1,343.31	41.67	137.76
808+00	1.25	163.86	764.89	429.71	897.52	1121.90	986.30	41.79	154.56
809+00	1.25	202.7	678.81	136.39	1048.33	1310.42	354.70	30.77	134.37
810+00	1.25	615.64	1515.44	0.46	253.43	316.78	1,553.36	51.92	153.13
811+00	1.25	405.37	1890.76	27.02	50.89	63.61	3,380.51	45.86	181.07
812+00	1.25	31.11	808.30	311.99	627.80	784.75	3,404.06	33.65	147.24
813+00	1.25	0	57.61	1332.82	3045.94	3807.43	-345.76	54.91	164.00
814+00	1.25	0	0.00	1425.08	5107.22	6384.03	-6,729.79	55.27	204.04
815+00	1.25	0	0.00	984.72	4462.59	5578.24	-12,308.03	49.66	194.31
816+00	1.25	150.71	279.09	121.75	2049.02	2561.27	-14,590.21	42.46	170.59
817+00	1.25	588.86	1369.57	0	225.46	281.83	-13,502.46	41.46	155.41
817+24	1.25	-	0.00	-	160.00	200.00	-13,702.46	-	-
817+29	1.25	-	0.00	-	160.00	200.00	-13,902.46	-	-
818+00	1.25	167.27	1400.24	189.7	351.30	439.12	-12,941.34	37.51	146.24
819+00	1.25	61.53	423.70	520.88	1315.89	1644.86	-14,162.50	56.44	173.98
820+00	1.25	0	113.94	808.87	2462.50	3078.13	-17,126.68	44.16	186.30
821+00	1.25	0	0.00	822.97	3021.93	3777.41	-20,904.09	44.44	164.07
822+00	1.25	2.41	4.46	381.05	2229.67	2787.08	-23,686.71	24.54	127.74
823+00	1.25	580.94	1080.28	0	705.65	882.06	-23,488.49	65.17	166.13
824+00	1.25	1068.3	3054.15	0	0.00	0.00	-20,434.34	81.21	271.07
824+32	1.25	-	0.00	-	160.00	200.00	-20,634.34	-	-
824+85	1.25	-	0.00	-	160.00	200.00	-20,834.34	-	-
825+00	1.25	315.71	2562.98	33.24	61.56	76.94	-18,348.31	44.57	232.93
826+00	1.25	2.07	588.48	348.39	706.72	883.40	-18,643.23	37.27	151.56
827+00	1.25	0	3.83	555.75	1674.33	2092.92	-20,732.31	44.28	151.02
828+00	1.25	0	0.00	735.54	2391.28	2989.10	-23,721.41	45.54	166.33
829+00	1.25	0	0.00	695.9	2650.81	3313.52	-27,034.93	41.65	161.46
830+00	1.25	39.66	73.44	192.42	1645.04	2056.30	-29,017.78	42.21	155.30
831+00	1.25	495.47	990.98	0	356.33	445.42	-28,472.21	57.99	185.56
832+00	1.25	790.41	2381.26	0	0.00	0.00	-26,090.95	63.23	224.48
833+00	1.25	647.94	2663.61	0	0.00	0.00	-23,427.34	53.60	216.35
834+00	1.25	821.37	2720.94	0	0.00	0.00	-20,706.40	59.71	209.83
834+89	1.25	-	0.00	-	400.00	500.00	-21,206.40	-	-
835+00	1.25	1042.98	3452.50	0	0.00	0.00	-17,753.90	64.27	229.59
836+00	1.25	927.87	3649.72	0	0.00	0.00	-14,104.18	67.20	243.46
836+95	1.25	-	0.00	-	400.00	500.00	-14,604.18	-	-

SAUBER ENGINEERING

REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-3914
LS-6427
DATE 1/28/25
NORTH DAKOTA

Earthwork Summary

Reconstruction
County Route 1

Mountrail County, ND

Earthwork Quantities Report

Station	Factor	Cut Area (SF)	Cut Volume (CY)	Fill Area (SF)	Fill Volume (CY)	Facotred Fill Volume (CY)	Mass Ordinate (CY)	Topsoil Area (SF)	Topsoil Volume (CY)
837+00	1.25	679.10	2971.19	0.00	0.00	0.00	-11,779.99	61.77	238.74
838+00	1.25	275.95	1768.61	0.00	0.00	0.00	-10,011.38	46.77	201.00
839+00	1.25	141.21	772.52	42.63	78.94	98.68	-9,337.54	36.13	153.52
840+00	1.25	274.27	769.41	10.43	98.26	122.82	-8,690.96	46.94	153.83
841+00	1.25	457.96	1355.98	0.00	19.31	24.14	-7,359.12	50.37	180.20
842+00	1.25	428.30	1641.22	0.00	0.00	0.00	-5,717.90	51.04	187.80
843+00	1.25	355.61	1451.69	0.00	0.00	0.00	-4,266.21	48.12	183.63
843+90	1.25	-	0.00	-	400.00	500.00	-4,766.21	-	-
844+00	1.25	662.86	1886.06	0.00	0.00	0.00	-2,880.16	58.36	197.19
845+00	1.25	696.56	2517.44	0.00	0.00	0.00	-362.71	56.23	212.20
845+78	1.25	-	0.00	-	160.00	200.00	-562.71	-	-
846+00	1.25	869.87	2900.80	0.00	0.00	0.00	2,338.08	63.15	221.07
847+00	1.25	374.41	2304.22	0.00	0.00	0.00	4,642.31	51.69	212.67
848+00	1.25	12.32	716.17	75.87	140.50	175.63	5,182.85	32.77	156.41
848+20	1.25	-	0.00	-	400.00	500.00	4,682.85	-	-
849+00	1.25	0.00	22.81	283.51	665.52	831.90	3,873.76	33.96	123.57
850+00	1.25	4.16	7.70	297.81	1076.52	1345.65	2,535.82	38.38	133.96
851+00	1.25	76.33	149.06	165.85	858.63	1073.29	1,611.59	58.79	179.94
852+00	1.25	463.04	998.83	41.17	383.37	479.21	2,131.21	66.69	232.37
853+00	1.25	458.37	1706.31	52.86	174.13	217.66	3,619.86	78.91	269.63
854+00	1.25	31.82	907.76	225.94	516.30	645.37	3,882.25	37.61	215.78
855+00	1.25	0.00	58.93	492.39	1330.24	1662.80	2,278.37	34.47	133.48
856+00	1.25	0.00	0.00	719.61	2244.44	2805.56	-527.18	42.13	141.85
857+00	1.25	0.00	0.00	702.46	2633.46	3291.83	-3,819.01	43.33	158.26
858+00	1.25	0.00	0.00	321.22	1895.70	2369.63	-6,188.64	31.04	137.72
859+00	1.25	163.42	302.63	12.30	617.63	772.04	-6,658.05	46.12	142.89
860+00	1.25	807.71	1798.39	0.00	22.78	28.47	-4,888.13	68.03	211.39
860+31	1.25	-	0.00	-	160.00	200.00	-5,088.13	-	-
860+46	1.25	-	0.00	-	160.00	200.00	-5,288.13	-	-
861+00	1.25	665.60	2728.35	0.00	0.00	0.00	-2,559.78	64.83	246.04
862+00	1.25	103.64	1424.52	63.08	116.81	146.02	-1,281.28	38.99	192.26
863+00	1.25	28.79	245.24	328.85	725.80	907.25	-1,943.28	43.11	152.04
864+00	1.25	5.76	63.98	561.59	1648.96	2061.20	-3,940.50	42.15	157.89
865+00	1.25	5.15	20.20	634.03	2214.11	2767.64	-6,687.94	44.55	160.56
866+00	1.25	8.84	25.91	524.31	2145.07	2681.34	-9,343.38	42.98	162.09
867+00	1.25	149.20	292.67	148.28	1245.54	1556.92	-10,607.63	49.15	170.61
868+00	1.25	198.57	644.02	60.81	387.20	484.00	-10,447.62	49.27	182.26
869+00	1.25	28.28	420.09	190.20	464.83	581.04	-10,608.56	41.59	168.26
870+00	1.25	8.37	67.87	145.60	621.85	777.31	-11,318.01	34.96	141.76
870+29	1.25	-	0.00	-	160.00	200.00	-11,518.01	-	-
870+36	1.25	-	0.00	-	160.00	200.00	-11,718.01	-	-
871+00	1.25	286.58	546.20	19.98	306.63	383.29	-11,555.09	49.70	156.78
872+00	1.25	734.28	1890.48	0.00	37.00	46.25	-9,710.86	64.67	211.80
873+00	1.25	987.70	3188.85	0.00	0.00	0.00	-6,522.01	69.12	247.76
874+00	1.25	931.88	3554.78	0.00	0.00	0.00	-2,967.23	68.23	254.35
875+00	1.25	831.59	3265.69	0.00	0.00	0.00	298.45	66.02	248.61
876+00	1.25	471.02	2412.24	0.00	0.00	0.00	2,710.69	55.52	225.07
877+00	1.25	183.31	1211.72	55.19	102.20	127.75	3,794.66	46.22	188.41
878+00	1.25	123.08	567.39	150.96	381.76	477.20	3,884.85	54.11	185.80
879+00	1.25	329.40	837.93	29.53	334.24	417.80	4,304.98	56.05	204.00
880+00	1.25	798.81	2089.28	0.00	54.69	68.36	6,325.90	76.15	244.81
881+00	1.25	1533.32	4318.76	0.00	0.00	0.00	10,644.66	90.76	309.09
882+00	1.25	381.55	3546.06	0.00	0.00	0.00	14,190.71	60.32	279.78
883+00	1.25	0.00	706.57	312.24	578.22	722.78	14,174.51	30.94	169.00
884+00	1.25	128.25	237.50	379.46	1280.93	1601.16	12,810.85	53.10	155.63
884+80	1.25	-	0.00	-	400.00	500.00	12,310.85	-	-
885+00	1.25	0.00	237.50	270.79	1204.17	1505.21	11,043.14	23.15	141.20
886+00	1.25	110.28	204.22	207.76	886.20	1107.75	10,139.61	53.58	142.09
887+00	1.25	295.16	750.81	27.85	436.31	545.39	10,345.03	54.49	200.13
888+00	1.25	401.93	1290.91	2.71	56.59	70.74	11,565.20	52.35	197.85
889+00	1.25	236.30	1181.91	71.28	137.02	171.27	12,575.83	57.87	204.11
889+90	1.25	-	0.00	-	400.00	500.00	12,075.83	-	-
890+00	1.25	192.35	793.80	125.89	365.13	456.41	12,413.22	51.31	202.19
891+00	1.25	106.37	553.19	281.25	753.96	942.45	12,023.95	48.55	184.93
892+00	1.25	14.02	222.94	876.33	2143.67	2679.58	9,567.31	52.34	186.83
893+00	1.25	0.00	25.96	2118.07	5545.19	6931.48	2,661.79	69.44	225.52
894+00	1.25	0.00	0.00	1561.97	6814.89	8518.61	-5,856.82	58.53	236.98
895+00	1.25	0.00	0.00	543.02	3898.13	4872.66	-10,729.48	33.25	169.96
896+00	1.25	146.75	271.76	101.50	1193.56	1491.94	-11,949.67	44.21	143.44
896+20	1.25	-	0.00	-	160.00	200.00	-12,149.67	-	-
896+71	1.25	-	0.00	-	160.00	200.00	-12,349.67	-	-
897+00	1.25	764.37	1687.26	0.00	187.96	234.95	-10,897.36	66.27	204.59
897+57	1.25	-	0.00	-	160.00	200.00	-11,097.36	-	-
898+00	1.25	1110.55	3472.07	0.00	0.00	0.00	-7,625.29	69.04	250.57
899+00	1.25	976.12	3864.20	0.00	0.00	0.00	-3,761.08	65.85	249.80
900+00	1.25	577.29	2876.69	0.00	0.00	0.00	-884.40	47.13	209.22
901+00	1.25	955.34	2838.20	0.00	0.00	0.00	1,953.81	61.33	200.85
902+00	1.25	2261.42	5956.96	0.00	0.00	0.00	7,910.77	94.82	289.17
903+00	1.25	3366.23	10421.57	0.00	0.00	0.00	18,332.34	105.89	371.69
904+00	1.25	2796.26	11412.02	0.00	0.00	0.00	29,744.36	102.11	385.19

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
Revised 02/11/25	ND	01(62)23	11	2

SAUBER ENGINEERING

REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-6914
LS-8427
DATE 2/11/25
NORTH DAKOTA

Earthwork Summary

Reconstruction
County Route 1

Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	11	2

Earthwork Quantities Report

Station	Factor	Cut Area (SF)	Cut Volume (CY)	Fill Area (SF)	Fill Volume (CY)	Facotred Fill Volume (CY)	Mass Ordinate (CY)	Topsoil Area (SF)	Topsoil Volume (CY)
837+00	1.25	680.59	2978.63	0	0.00	0.00	-11,625.55	61.81	238.91
838+00	1.25	276.6	1772.57	0	0.00	0.00	-9,852.97	46.79	201.11
839+00	1.25	141.37	774.02	42.57	78.83	98.54	-9,177.50	36.14	153.57
840+00	1.25	274.33	769.81	10.43	98.15	122.69	-8,530.37	46.94	153.85
841+00	1.25	457.96	1356.09	0	19.31	24.14	-7,198.42	50.37	180.20
842+00	1.25	428.29	1641.20	0	0.00	0.00	-5,557.21	51.04	187.80
843+00	1.25	355.61	1451.67	0	0.00	0.00	-4,105.55	48.12	183.63
843+90	1.25	-	0.00	-	400.00	500.00	-4,605.55	-	-
844+00	1.25	662.86	1886.06	0	0.00	0.00	-2,719.49	58.36	197.19
845+00	1.25	696.56	2517.44	0	0.00	0.00	-202.05	56.23	212.20
845+78	1.25		0.00	-	160.00	200.00	-402.05	-	-
846+00	1.25	869.86	2900.78	0	0.00	0.00	2,498.73	63.15	221.07
847+00	1.25	374.39	2304.17	0	0.00	0.00	4,802.90	51.69	212.67
848+00	1.25	12.32	716.13	75.87	140.50	175.63	5,343.40	32.77	156.41
848+20	1.25	-	0.00	-	400.00	500.00	4,843.40	-	-
849+00	1.25	0	22.81	283.52	665.54	831.92	4,034.30	33.96	123.57
850+00	1.25	4.16	7.70	297.82	1076.56	1345.69	2,696.31	38.38	133.96
851+00	1.25	76.33	149.06	165.86	858.67	1073.33	1,772.03	58.78	179.93
852+00	1.25	463.04	998.83	41.18	383.41	479.26	2,291.60	66.69	232.35
853+00	1.25	458.35	1706.28	52.87	174.17	217.71	3,780.17	78.91	269.63
854+00	1.25	31.82	907.72	225.95	516.33	645.42	4,042.48	37.61	215.78
855+00	1.25	0	58.93	492.4	1330.28	1662.85	2,438.56	34.47	133.48
856+00	1.25	0	0.00	719.61	2244.46	2805.58	-367.02	42.13	141.85
857+00	1.25	0	0.00	702.46	2633.46	3291.83	-3,658.85	43.33	158.26
858+00	1.25	0	0.00	321.22	1895.70	2369.63	-6,028.48	31.04	137.72
859+00	1.25	163.43	302.65	12.3	617.63	772.04	-6,497.87	46.12	142.89
860+00	1.25	807.72	1798.43	0	22.78	28.47	-4,727.92	68.03	211.39
860+31	1.25	-	0.00	-	160.00	200.00	-4,927.92	-	-
860+46	1.25	-	0.00	-	160.00	200.00	-5,127.92	-	-
861+00	1.25	665.58	2728.33	0	0.00	0.00	-2,399.58	64.83	246.04
862+00	1.25	103.63	1424.46	63.08	116.81	146.02	-1,121.14	38.99	192.26
863+00	1.25	28.78	245.20	328.85	725.80	907.25	-1,783.18	43.11	152.04
864+00	1.25	5.76	63.96	561.59	1648.96	2061.20	-3,780.42	42.15	157.89
865+00	1.25	5.15	20.20	634.03	2214.11	2767.64	-6,527.86	44.55	160.56
866+00	1.25	8.84	25.91	524.3	2145.06	2681.32	-9,183.27	42.98	162.09
867+00	1.25	149.2	292.67	148.27	1245.50	1556.88	-10,447.48	49.15	170.61
868+00	1.25	198.57	644.02	60.81	387.19	483.98	-10,287.44	49.27	182.26
869+00	1.25	28.28	420.09	190.2	464.83	581.04	-10,448.39	41.59	168.26
870+00	1.25	8.37	67.87	145.58	621.81	777.27	-11,157.79	34.96	141.76
870+29	1.25	-	0.00	-	160.00	200.00	-11,357.79	-	-
870+36	1.25	-	0.00	-	160.00	200.00	-11,557.79	-	-
871+00	1.25	286.6	546.24	19.98	306.59	383.24	-11,394.79	49.70	156.78
872+00	1.25	734.29	1890.54	0	37.00	46.25	-9,550.50	64.67	211.80
873+00	1.25	987.71	3188.89	0	0.00	0.00	-6,361.61	69.12	247.76
874+00	1.25	931.88	3554.80	0	0.00	0.00	-2,806.81	68.23	254.35
875+00	1.25	831.6	3265.70	0	0.00	0.00	458.89	66.02	248.61
876+00	1.25	471.02	2412.26	0	0.00	0.00	2,871.15	55.52	225.07
877+00	1.25	183.31	1211.72	55.19	102.20	127.75	3,955.12	46.22	188.41
878+00	1.25	123.08	567.39	150.96	381.76	477.20	4,045.31	54.11	185.80
879+00	1.25	329.41	837.94	29.53	334.24	417.80	4,465.45	56.05	204.00
880+00	1.25	798.82	2089.31	0	54.69	68.36	6,486.41	76.15	244.81
881+00	1.25	1533.32	4318.78	0	0.00	0.00	10,805.19	90.75	309.07
882+00	1.25	381.52	3546.00	0	0.00	0.00	14,351.19	60.32	279.76
883+00	1.25	0	706.52	312.25	578.24	722.80	14,334.90	30.94	169.00
884+00	1.25	128.25	237.50	379.46	1280.94	1601.18	12,971.22	53.09	155.61
884+80	1.25	-	0.00	-	400.00	500.00	12,471.22	-	-
885+00	1.25	0	237.50	270.8	1204.19	1505.23	11,203.49	23.15	141.19
886+00	1.25	110.29	204.24	207.76	886.22	1107.78	10,299.95	53.58	142.09
887+00	1.25	295.16	750.83	27.84	436.30	545.37	10,505.42	54.48	200.11
888+00	1.25	401.94	1290.93	2.71	56.57	70.72	11,725.63	52.35	197.83
889+00	1.25	236.3	1181.93	71.28	137.02	171.27	12,736.28	57.87	204.11
889+90	1.25		0.00	-	400.00	500.00	12,236.28	-	-
890+00	1.25	192.36	793.81	125.89	365.13	456.41	12,573.68	51.31	202.19
891+00	1.25	106.37	553.20	281.25	753.96	942.45	12,184.43	48.55	184.93
892+00	1.25	14.01	222.93	876.33	2143.67	2679.58	9,727.77	52.34	186.83
893+00	1.25	0	25.94	2118.07	5545.19	6931.48	2,822.24	69.44	225.52
894+00	1.25	0	0.00	1561.94	6814.83	8518.54	-5,696.31	58.53	236.98
895+00	1.25	0	0.00	543.01	3898.06	4872.57	-10,568.88	33.25	169.96
896+00	1.25	146.76	271.78	101.5	1193.54	1491.92	-11,789.02	44.21	143.44
896+20	1.25	-	0.00	-	160.00	200.00	-11,989.02	-	-
896+71	1.25	-	0.00	-	160.00	200.00	-12,189.02	-	-
897+00	1.25	764.37	1687.28	0	187.96	234.95	-10,736.69	66.27	204.59
897+57	1.25	-	0.00	-	160.00	200.00	-10,936.69	-	-
898+00	1.25	1110.55	3472.07	0	0.00	0.00	-7,464.62	69.04	250.57
899+00	1.25	976.1	3864.17	0	0.00	0.00	-3,600.45	65.85	249.80
900+00	1.25	577.28	2876.63	0	0.00	0.00	-723.82	47.13	209.22
901+00	1.25	955.35	2838.20	0	0.00	0.00	2,114.38	61.33	200.85
902+00	1.25	2261.44	5957.02	0	0.00	0.00	8,071.40	94.82	289.17
903+00	1.25	3366.23	10421.61	0	0.00	0.00	18,493.01	105.89	371.69
904+00	1.25	2796.21	11411.93	0	0.00	0.00	29,904.94	102.11	385.19

SAUBER ENGINEERING

REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-9914
LS-8427
DATE 1/28/25
NORTH DAKOTA

Earthwork Summary

Reconstruction
County Route 1

Mountrail County, ND

Earthwork Quantities Report

Station	Factor	Cut Area (SF)	Cut Volume (CY)	Fill Area (SF)	Fill Volume (CY)	Facotred Fill Volume (CY)	Mass Ordinate (CY)	Topsoil Area (SF)	Topsoil Volume (CY)
905+00	1.25	594.87	6279.87	0.00	0.00	0.00	36,024.23	54.11	289.30
906+00	1.25	0.00	1101.61	1584.21	2933.72	3667.15	33,458.69	65.28	221.09
907+00	1.25	0.00	0.00	2391.12	7361.72	9202.15	24,256.54	71.49	253.28
908+00	1.25	0.00	0.00	2449.53	8964.17	11205.21	13,051.33	71.64	265.06
909+00	1.25	0.00	0.00	2359.68	8905.94	11132.43	1,918.90	71.71	265.46
910+00	1.25	0.00	0.00	1561.94	7262.26	9077.82	-7,158.93	57.90	240.02
911+00	1.25	81.18	150.33	438.26	3704.07	4630.09	-11,638.69	45.28	191.07
912+00	1.25	67.93	276.13	115.84	1026.11	1282.64	-12,645.19	33.93	146.69
913+00	1.25	222.88	538.54	20.25	252.02	315.02	-12,421.68	38.12	133.43
914+00	1.25	178.50	743.30	19.77	74.11	92.64	-11,771.02	38.31	141.54
914+53	1.25	-	0.00	-	320.00	400.00	-12,171.02	-	-
915+00	1.25	1.16	332.70	412.31	800.15	1000.19	-12,838.50	41.37	147.56
916+00	1.25	0.00	2.15	560.30	1801.13	2251.41	-15,087.77	38.20	147.35
917+00	1.25	0.00	0.00	221.57	1447.91	1809.88	-16,897.65	27.37	121.43
918+00	1.25	315.33	583.94	0.46	411.17	513.96	-16,827.67	42.39	129.19
918+36	1.25	-	0.00	-	160.00	200.00	-17,027.67	-	-
919+00	1.25	975.63	2390.67	0.00	0.85	1.06	-14,638.06	62.56	194.35
920+00	1.25	1563.48	4702.06	0.00	0.00	0.00	-9,936.01	81.54	266.85
921+00	1.25	1038.59	4818.65	0.00	0.00	0.00	-5,117.36	76.62	292.89
922+00	1.25	63.82	2041.50	526.68	975.33	1219.17	-4,295.03	69.89	271.31
923+00	1.25	0.00	118.19	1535.01	3817.94	4772.43	-8,949.27	61.19	242.74
924+00	1.25	0.00	0.00	1799.15	6174.37	7717.96	-16,667.24	64.02	231.87
925+00	1.25	0.00	0.00	1707.78	6494.31	8117.89	-24,785.13	61.14	231.78
926+00	1.25	0.00	0.00	1505.45	5950.43	7438.03	-32,223.16	61.26	226.67
927+00	1.25	0.00	0.00	1302.96	5200.76	6500.95	-38,724.11	56.18	217.48
928+00	1.25	0.00	0.00	1085.12	4422.37	5527.96	-44,252.07	48.80	194.41
929+00	1.25	1.67	3.09	820.76	3529.41	4411.76	-48,660.74	47.56	178.44
930+00	1.25	0.00	3.09	640.33	2705.72	3382.15	-52,039.80	39.24	160.74
931+00	1.25	0.00	0.00	413.68	1951.87	2439.84	-54,479.64	34.47	136.50
932+00	1.25	103.35	191.39	69.50	894.78	1118.47	-55,406.72	27.44	114.65
933+00	1.25	1347.77	2687.26	0.00	128.70	160.88	-52,880.34	77.98	195.22
934+00	1.25	3670.78	9293.61	0.00	0.00	0.00	-43,586.73	114.37	356.20
935+00	1.25	3950.19	14112.91	0.00	0.00	0.00	-29,473.82	112.45	420.04
936+00	1.25	2250.66	11483.06	0.00	0.00	0.00	-17,990.77	102.16	397.43
937+00	1.25	246.00	4623.44	44.94	83.22	104.03	-13,471.35	48.06	278.19
938+00	1.25	0.00	455.56	748.03	1468.46	1835.58	-14,851.38	40.85	164.65
939+00	1.25	0.00	0.00	1283.21	3761.56	4701.94	-19,553.32	51.87	171.70
940+00	1.25	0.00	0.00	1376.36	4925.13	6156.41	-25,709.73	53.37	194.89
941+00	1.25	0.00	0.00	1166.76	4709.48	5886.85	-31,596.58	28.01	150.70
942+00	1.25	0.00	0.00	992.29	3998.24	4997.80	-36,594.38	47.61	140.04
943+00	1.25	0.00	0.00	425.53	2625.59	3281.99	-39,876.38	33.46	150.13
943+50	1.25	-	0.00	-	1360.00	1700.00	-41,576.38	-	-
944+00	1.25	427.28	791.26	0.00	788.02	985.02	-41,770.14	60.75	174.46
945+00	1.25	1284.14	3169.30	0.00	0.00	0.00	-38,600.84	80.92	262.35
946+00	1.25	1459.68	5081.15	0.00	0.00	0.00	-33,519.69	79.61	297.28
947+00	1.25	1063.97	4673.43	0.00	0.00	0.00	-28,846.27	63.98	265.91
948+00	1.25	335.25	2591.15	0.00	0.00	0.00	-26,255.12	47.97	207.31
949+00	1.25	9.55	638.52	402.48	745.33	931.67	-26,548.27	39.85	162.63
950+00	1.25	0.00	17.69	1087.70	2759.59	3449.49	-29,980.07	50.42	167.17
951+00	1.25	0.00	0.00	1045.89	3951.09	4938.87	-34,918.94	79.65	240.87
952+00	1.25	0.00	0.00	783.11	3387.04	4233.80	-39,152.74	128.63	385.70
953+00	1.25	0.00	0.00	431.42	2249.13	2811.41	-41,964.15	80.04	386.43
954+00	1.25	0.00	0.00	205.48	1179.44	1474.31	-43,438.45	37.10	216.93
955+00	1.25	42.04	77.85	46.48	466.59	583.24	-43,943.84	31.25	126.57
956+00	1.25	186.83	423.83	0.00	86.07	107.59	-43,627.60	41.64	134.98
956+36	1.25	-	0.00	-	160.00	200.00	-43,827.60	-	-
957+00	1.25	183.93	686.59	0.05	0.09	0.12	-43,141.13	39.28	149.85
958+00	1.25	70.26	470.72	27.24	50.54	63.17	-42,733.57	36.80	140.89
959+00	1.25	0.00	130.11	106.25	247.20	309.00	-42,912.47	26.15	116.57
960+00	1.25	45.54	84.33	40.31	271.41	339.26	-43,167.39	24.45	93.70
961+00	1.25	977.36	1894.26	0.00	74.65	93.31	-41,366.44	64.66	165.02
962+00	1.25	1804.65	5151.87	0.00	0.00	0.00	-36,214.57	84.27	275.80
962+43	1.25	-	0.00	-	160.00	200.00	-36,414.57	-	-
963+00	1.25	1289.86	5730.57	0.00	0.00	0.00	-30,684.00	79.06	302.46
964+00	1.25	822.25	3911.31	0.00	0.00	0.00	-26,772.69	64.97	266.72
965+00	1.25	1103.98	3567.09	0.00	0.00	0.00	-23,205.59	70.26	250.43
966+00	1.25	1562.74	4938.37	0.00	0.00	0.00	-18,267.22	80.65	279.46
966+15	1.25	-	0.00	-	160.00	200.00	-18,467.22	-	-
966+40	1.25	-	0.00	-	160.00	200.00	-18,667.22	-	-
967+00	1.25	845.29	4459.31	0.00	0.00	0.00	-14,207.91	71.25	281.30
968+00	1.25	54.63	1666.52	14.01	25.94	32.43	-12,573.82	34.19	195.26
969+00	1.25	0.00	101.17	124.69	256.85	321.06	-12,793.72	23.23	106.33
970+00	1.25	0.37	0.69	192.91	588.15	735.19	-13,528.22	27.43	93.81
971+00	1.25	0.00	0.69	203.58	734.24	917.80	-14,445.33	25.48	97.98
972+00	1.25	2.82	5.22	124.24	607.07	758.84	-15,198.95	29.80	102.37
973+00	1.25	76.15	146.24	20.44	267.93	334.91	-15,387.62	37.21	124.09
973+92	1.25	-	0.00	-	400.00	500.00	-15,887.62	-	-
974+00	1.25	402.33	886.07	0.00	37.85	47.31	-15,048.86	47.43	156.74
975+00	1.25	412.91	1509.70	0.00	0.00	0.00	-13,539.16	46.96	174.80
975+81	1.25	-	0.00	-	160.00	200.00	-13,739.16	-	-

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
Revised 02/11/25	ND	01(62)23	11	3

SAUBER ENGINEERING

REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-4214
LS-8427
DATE 2/11/25
NORTH DAKOTA

Earthwork Summary

Reconstruction
County Route 1

Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	11	3

Earthwork Quantities Report

Station	Factor	Cut Area (SF)	Cut Volume (CY)	Fill Area (SF)	Fill Volume (CY)	Facotred Fill Volume (CY)	Mass Ordinate (CY)	Topsoil Area (SF)	Topsoil Volume (CY)
905+00	1.25	594.83	6279.70	0	0.00	0.00	36,184.64	54.11	289.30
906+00	1.25	0	1101.54	1584.25	2933.80	3667.25	33,618.93	65.28	221.09
907+00	1.25	0	0.00	2391.13	7361.81	9202.27	24,416.66	71.49	253.28
908+00	1.25	0	0.00	2449.53	8964.19	11205.23	13,211.43	71.64	265.06
909+00	1.25	0	0.00	2359.67	8905.93	11132.41	2,079.02	71.71	265.46
910+00	1.25	0	0.00	1561.92	7262.20	9077.75	-6,998.73	57.90	240.02
911+00	1.25	81.19	150.35	438.24	3704.00	4630.00	-11,478.38	45.28	191.07
912+00	1.25	67.93	276.15	115.84	1026.07	1282.59	-12,484.82	33.93	146.69
913+00	1.25	222.89	538.56	20.24	252.00	315.00	-12,261.27	38.12	133.43
914+00	1.25	178.5	743.31	19.77	74.09	92.62	-11,610.57	38.31	141.54
914+53	1.25	-	0.00	-	320.00	400.00	-12,010.57	-	-
915+00	1.25	1.16	332.70	412.31	800.15	1000.19	-12,678.05	41.37	147.56
916+00	1.25	0	2.15	560.29	1801.11	2251.39	-14,927.29	38.20	147.35
917+00	1.25	0	0.00	221.56	1447.87	1809.84	-16,737.13	27.37	121.43
918+00	1.25	315.35	583.98	0.46	411.15	513.94	-16,667.08	42.39	129.19
918+36	1.25	-	0.00	-	160.00	200.00	-16,867.08	-	-
919+00	1.25	975.66	2390.76	0	0.85	1.06	-14,477.39	62.56	194.35
920+00	1.25	1563.5	4702.15	0	0.00	0.00	-9,775.24	81.54	266.85
921+00	1.25	1038.56	4818.63	0	0.00	0.00	-4,956.61	76.62	292.89
922+00	1.25	63.81	2041.43	526.7	975.37	1219.21	-4,134.40	69.89	271.31
923+00	1.25	0	118.17	1534.99	3817.94	4772.43	-8,788.66	61.19	242.74
924+00	1.25	0	0.00	1799.16	6174.35	7717.94	-16,506.60	64.02	231.87
925+00	1.25	0	0.00	1707.79	6494.35	8117.94	-24,624.54	61.14	231.78
926+00	1.25	0	0.00	1505.45	5950.44	7438.06	-32,062.60	61.26	226.67
927+00	1.25	0	0.00	1302.96	5200.76	6500.95	-38,563.55	56.18	217.48
928+00	1.25	0	0.00	1085.12	4422.37	5527.96	-44,091.51	48.80	194.41
929+00	1.25	1.67	3.09	820.76	3529.41	4411.76	-48,500.18	47.56	178.44
930+00	1.25	0	3.09	640.32	2705.70	3382.13	-51,879.21	39.24	160.74
931+00	1.25	0	0.00	413.67	1951.83	2439.79	-54,319.00	34.47	136.50
932+00	1.25	103.36	191.41	69.49	894.74	1118.43	-55,246.02	27.44	114.65
933+00	1.25	1347.82	2687.37	0	128.69	160.86	-52,719.51	77.98	195.22
934+00	1.25	3670.83	9293.80	0	0.00	0.00	-43,425.71	114.37	356.20
935+00	1.25	3950.2	14113.02	0	0.00	0.00	-29,312.69	112.45	420.04
936+00	1.25	2250.61	11482.98	0	0.00	0.00	-17,829.71	102.16	397.43
937+00	1.25	245.99	4623.33	44.94	83.22	104.03	-13,310.41	48.06	278.19
938+00	1.25	0	455.54	748.04	1468.48	1835.60	-14,690.47	40.85	164.65
939+00	1.25	0	0.00	1283.22	3761.59	4701.99	-19,392.46	51.87	171.70
940+00	1.25	0	0.00	1376.36	4925.15	6156.44	-25,548.90	53.37	194.89
941+00	1.25	0	0.00	1166.76	4709.48	5886.85	-31,435.75	28.01	150.70
942+00	1.25	0	0.00	992.28	3998.22	4997.78	-36,433.53	47.61	140.04
943+00	1.25	0	0.00	425.52	2625.56	3281.94	-39,715.47	33.47	150.15
943+50	1.25	-	0.00	-	1360.00	1700.00	-41,415.47	-	-
944+00	1.25	427.29	791.28	0	788.00	985.00	-41,609.19	60.75	174.48
945+00	1.25	1284.14	3169.31	0	0.00	0.00	-38,439.88	80.92	262.35
946+00	1.25	1459.66	5081.11	0	0.00	0.00	-33,358.77	79.61	297.28
947+00	1.25	1063.94	4673.33	0	0.00	0.00	-28,685.44	63.97	265.89
948+00	1.25	335.23	2591.06	0	0.00	0.00	-26,094.38	47.97	207.30
949+00	1.25	9.55	638.48	402.5	745.37	931.71	-26,387.61	39.85	162.63
950+00	1.25	0	17.69	1087.71	2759.65	3449.56	-29,819.49	50.42	167.17
951+00	1.25	0	0.00	1045.89	3951.11	4938.89	-34,758.38	79.65	240.87
952+00	1.25	0	0.00	783.12	3387.06	4233.82	-38,992.19	128.63	385.70
953+00	1.25	0	0.00	431.42	2249.15	2811.44	-41,803.63	80.04	386.43
954+00	1.25	0	0.00	205.48	1179.44	1474.31	-43,277.94	37.10	216.93
955+00	1.25	42.04	77.85	46.48	466.59	583.24	-43,783.32	31.25	126.57
956+00	1.25	186.83	423.83	0	86.07	107.59	-43,467.08	41.64	134.98
956+36	1.25	-	0.00	-	160.00	200.00	-43,667.08	-	-
957+00	1.25	183.93	686.59	0.05	0.09	0.12	-42,980.61	39.29	149.87
958+00	1.25	70.26	470.72	27.24	50.54	63.17	-42,573.06	36.80	140.91
959+00	1.25	0	130.11	106.25	247.20	309.00	-42,751.95	26.15	116.57
960+00	1.25	45.54	84.33	40.3	271.39	339.24	-43,006.85	24.44	93.69
961+00	1.25	977.4	1894.33	0	74.63	93.29	-41,205.81	64.66	165.00
962+00	1.25	1804.65	5151.94	0	0.00	0.00	-36,053.86	84.27	275.80
962+43	1.25		0.00	-	160.00	200.00	-36,253.86	-	-
963+00	1.25	1289.85	5730.56	0	0.00	0.00	-30,523.31	79.06	302.46
964+00	1.25	822.25	3911.30	0	0.00	0.00	-26,612.01	64.97	266.72
965+00	1.25	1103.99	3567.11	0	0.00	0.00	-23,044.90	70.26	250.43
966+00	1.25	1562.75	4938.41	0	0.00	0.00	-18,106.49	80.65	279.46
966+15	1.25	-	0.00	-	160.00	200.00	-18,306.49	-	-
966+40	1.25	-	0.00	-	160.00	200.00	-18,506.49	-	-
967+00	1.25	845.27	4459.30	0	0.00	0.00	-14,047.19	71.24	281.28
968+00	1.25	54.63	1666.48	14.01	25.94	32.43	-12,413.14	34.20	195.26
969+00	1.25	0	101.17	124.69	256.85	321.06	-12,633.04	23.23	106.35
970+00	1.25	0.37	0.69	192.91	588.15	735.19	-13,367.54	27.43	93.81
971+00	1.25	0	0.69	203.57	734.22	917.78	-14,284.63	25.49	98.00
972+00	1.25	2.82	5.22	124.23	607.04	758.80	-15,038.21	29.80	102.39
973+00	1.25	76.16	146.26	20.44	267.91	334.88	-15,226.83	37.21	124.09
973+92	1.25		0.00	-	400.00	500.00	-15,726.83	-	-
974+00	1.25	402.34	886.11	0	37.85	47.31	-14,888.04	47.43	156.74
975+00	1.25	412.92	1509.74	0	0.00	0.00	-13,378.30	46.96	174.80
975+81	1.25	-	0.00	-	160.00	200.00	-13,578.30	-	-

SAUBER ENGINEERING

REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-8214
LS-8427
DATE 1/28/25
NORTH DAKOTA

Earthwork Summary

Reconstruction
County Route 1

Mountrail County, ND

Earthwork Quantities Report

Station	Factor	Cut Area (SF)	Cut Volume (CY)	Fill Area (SF)	Fill Volume (CY)	Facotred Fill Volume (CY)	Mass Ordinate (CY)	Topsoil Area (SF)	Topsoil Volume (CY)
975+85	1.25	-	0.00	-	160.00	200.00	-13,939.16	-	-
976+00	1.25	903.71	2438.19	0.00	0.00	0.00	-11,500.97	36.16	153.93
977+00	1.25	1134.49	3774.44	0.00	0.00	0.00	-7,726.53	70.13	196.83
978+00	1.25	895.12	3758.54	0.00	0.00	0.00	-3,967.99	58.47	238.15
979+00	1.25	612.13	2791.20	0.00	0.00	0.00	-1,176.79	56.73	213.33
979+48	1.25	-	0.00	-	160.00	200.00	-1,376.79	-	-
980+00	1.25	309.36	1706.46	0.00	0.00	0.00	329.68	45.51	189.33
981+00	1.25	208.62	959.22	0.00	0.00	0.00	1,288.90	39.78	157.94
982+00	1.25	149.92	663.96	1.56	2.89	3.61	1,949.25	37.88	143.81
983+00	1.25	113.65	488.09	11.17	23.57	29.47	2,407.87	38.63	141.69
984+00	1.25	169.21	523.81	4.69	29.37	36.71	2,894.98	50.42	164.91
985+00	1.25	0.00	313.35	165.95	316.00	395.00	2,813.33	25.74	141.04
986+00	1.25	31.14	57.67	134.97	557.26	696.57	2,174.42	43.84	128.85
987+00	1.25	80.26	206.30	39.68	323.43	404.28	1,976.44	38.68	152.81
988+00	1.25	116.77	364.87	95.68	250.67	313.33	2,027.97	44.25	153.57
989+00	1.25	6.54	228.35	261.01	660.54	825.67	1,430.65	32.54	142.20
990+00	1.25	126.59	246.54	676.51	1736.15	2170.19	-493.00	60.93	173.09
991+00	1.25	20.72	272.80	1121.16	3329.02	4161.27	-4,381.47	59.10	222.28
992+00	1.25	0.00	38.37	1277.92	4442.74	5553.43	-9,896.53	50.95	203.80
993+00	1.25	0.00	0.00	1168.49	4530.39	5662.99	-15,559.51	49.66	186.31
994+00	1.25	0.00	0.00	419.31	2940.37	3675.46	-19,234.98	32.26	151.70
995+00	1.25	361.74	669.89	0.00	776.50	970.63	-19,535.71	51.24	154.63
996+00	1.25	822.09	2192.28	0.00	0.00	0.00	-17,343.44	60.26	206.48
997+00	1.25	447.60	2351.28	1.56	2.89	3.61	-14,995.77	49.75	203.72
998+00	1.25	31.08	886.44	184.02	343.67	429.58	-14,538.91	40.67	167.44
999+00	1.25	11.97	79.72	358.45	1004.57	1255.72	-15,714.90	41.99	153.07
1000+00	1.25	33.01	83.30	267.26	1158.72	1448.40	-17,080.01	43.81	158.89
1001+00	1.25	0.00	61.13	194.73	855.54	1069.42	-18,088.30	26.56	130.31
1002+00	1.25	308.03	570.43	18.93	395.67	494.58	-18,012.46	57.62	155.89
1002+29	1.25	-	0.00	-	160.00	200.00	-18,212.46	-	-
1002+36	1.25	-	0.00	-	160.00	200.00	-18,412.46	-	-
1003+00	1.25	377.54	1269.57	8.83	51.41	64.26	-17,207.14	60.80	219.30
1004+00	1.25	3.99	706.54	230.03	442.33	552.92	-17,053.52	34.63	176.72
1005+00	1.25	0.00	7.39	370.00	1111.17	1388.96	-18,435.09	37.42	133.43
1006+00	1.25	38.99	72.20	200.07	1055.69	1319.61	-19,682.50	37.67	139.06
1007+00	1.25	347.07	714.93	47.86	459.13	573.91	-19,541.48	50.71	163.67
1008+00	1.25	83.59	797.52	56.30	192.89	241.11	-18,985.07	38.34	164.91
1009+00	1.25	0.00	154.80	192.02	459.85	574.81	-19,405.09	28.55	123.87
1010+00	1.25	60.80	112.59	50.17	448.50	560.63	-19,853.13	35.19	118.04
1011+00	1.25	471.60	985.93	0.00	92.91	116.13	-18,983.33	52.66	162.69
1012+00	1.25	1029.92	2780.59	0.00	0.00	0.00	-16,202.74	71.06	229.11
1013+00	1.25	538.39	2904.28	0.00	0.00	0.00	-13,298.46	65.09	252.13
1014+00	1.25	25.27	1043.81	119.01	220.39	275.49	-12,530.13	34.18	183.83
1015+00	1.25	0.00	46.80	183.11	559.48	699.35	-13,182.69	89.45	228.94
1016+00	1.25	99.70	184.63	54.82	440.61	550.76	-13,548.82	45.56	250.02
1017+00	1.25	648.08	1384.78	0.00	101.52	126.90	-12,290.94	63.26	201.52
1018+00	1.25	518.55	2160.43	0.00	0.00	0.00	-10,130.52	57.86	224.30
1019+00	1.25	19.04	995.54	121.62	225.22	281.53	-9,416.51	31.19	164.91
1020+00	1.25	0.00	35.26	389.70	946.89	1183.61	-10,564.86	33.69	120.15
1021+00	1.25	0.00	0.00	366.66	1400.67	1750.83	-12,315.69	34.01	125.37
1022+00	1.25	215.87	399.76	17.37	711.17	888.96	-12,804.89	50.63	156.74
1023+00	1.25	882.85	2034.67	0.00	32.17	40.21	-10,810.44	64.09	212.44
1024+00	1.25	1012.79	3510.44	0.00	0.00	0.00	-7,299.99	70.77	249.74
1024+97	1.25	-	0.00	-	400.00	500.00	-7,799.99	-	-
1025+00	1.25	1318.06	4316.39	0.00	0.00	0.00	-3,483.60	70.81	262.19
1025+05	1.25	-	0.00	-	400.00	500.00	-3,983.60	-	-
1026+00	1.25	1075.32	4432.19	0.00	0.00	0.00	448.58	71.06	262.72
1027+00	1.25	335.94	2613.44	0.00	0.00	0.00	3,062.03	56.68	236.56
1028+00	1.25	0.00	622.11	259.43	480.43	600.53	3,083.61	29.05	158.76
1028+38	1.25	-	0.00	-	400.00	500.00	2,583.61	-	-
1029+00	1.25	0.00	0.00	803.63	1968.63	2460.79	122.82	50.65	147.59
1030+00	1.25	2.33	4.31	891.58	3139.28	3924.10	-3,796.96	105.63	289.41
1031+00	1.25	86.14	163.83	755.36	3049.89	3812.36	-7,445.49	61.84	310.13
1032+00	1.25	84.11	315.28	375.11	2093.46	2616.83	-9,747.04	45.49	198.76
1033+00	1.25	37.70	225.57	363.74	1368.24	1710.30	-11,231.77	51.84	180.24
1034+00	1.25	15.25	98.06	504.79	1608.39	2010.49	-13,144.20	49.86	188.33
1035+00	1.25	0.00	28.24	550.70	1954.61	2443.26	-15,559.22	38.11	162.91
1036+00	1.25	246.41	456.31	0.00	1019.81	1274.77	-16,377.68	48.18	159.80
1037+00	1.25	1208.73	2694.70	0.00	0.00	0.00	-13,682.97	67.96	215.07
1038+00	1.25	1459.18	4940.57	0.00	0.00	0.00	-8,742.40	75.37	265.43
1039+00	1.25	1670.07	5781.61	0.00	0.00	0.00	-2,960.79	83.15	293.56
1039+36	1.25	-	0.00	-	160.00	200.00	-3,160.79	-	-
1039+39	1.25	-	0.00	-	160.00	200.00	-3,360.79	-	-
1040+00	1.25	1150.10	5222.82	0.00	0.00	0.00	1,862.03	71.32	286.06
1041+00	1.25	410.72	2895.62	0.00	0.00	0.00	4,757.65	49.85	224.39
1042+00	1.25	24.24	807.54	212.95	393.72	492.15	5,073.04	27.34	142.94
1043+00	1.25	18.64	80.41	1172.04	2553.79	3192.23	1,961.22	55.85	154.06
1044+00	1.25	39.51	109.56	1821.70	5519.13	6898.91	-4,828.13	68.06	229.46
1045+00	1.25	64.29	196.29	1379.61	5904.36	7380.46	-12,012.30	73.29	261.76
1046+00	1.25	167.29	439.28	838.94	4090.01	5112.51	-16,685.52	81.47	286.59

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
Revised 02/11/25	ND	01(62)23	11	4

SAUBER ENGINEERING

REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-3914
LS-6427
DATE 2/11/25
NORTH DAKOTA

Earthwork Summary

Reconstruction
County Route 1

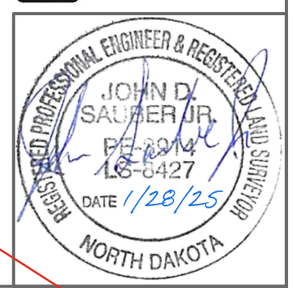
Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	11	4

Earthwork Quantities Report

Station	Factor	Cut Area (SF)	Cut Volume (CY)	Fill Area (SF)	Fill Volume (CY)	Facotred Fill Volume (CY)	Mass Ordinate (CY)	Topsoil Area (SF)	Topsoil Volume (CY)
975+85	1.25	-	0.00	-	160.00	200.00	-13,778.30	-	-
976+00	1.25	903.7	2438.19	0	0.00	0.00	-11,340.11	36.16	153.93
977+00	1.25	1134.5	3774.44	0	0.00	0.00	-7,565.67	70.13	196.83
978+00	1.25	895.12	3758.56	0	0.00	0.00	-3,807.11	58.47	238.15
979+00	1.25	612.13	2791.20	0	0.00	0.00	-1,015.91	56.73	213.33
979+48	1.25	-	0.00	-	160.00	200.00	-1,215.91	-	-
980+00	1.25	309.36	1706.46	0	0.00	0.00	490.56	45.51	189.33
981+00	1.25	208.62	959.22	0	0.00	0.00	1,449.78	39.78	157.94
982+00	1.25	149.93	663.98	1.56	2.89	3.61	2,110.15	37.88	143.81
983+00	1.25	113.65	488.11	11.17	23.57	29.47	2,568.79	38.63	141.69
984+00	1.25	169.22	523.83	4.68	29.35	36.69	3,055.94	50.42	164.91
985+00	1.25	0	313.37	165.95	315.98	394.98	2,974.33	25.74	141.04
986+00	1.25	31.14	57.67	134.96	557.24	696.55	2,335.44	43.84	128.85
987+00	1.25	80.26	206.30	39.68	323.41	404.26	2,137.48	38.68	152.81
988+00	1.25	116.77	364.87	95.68	250.67	313.33	2,189.02	44.25	153.57
989+00	1.25	6.54	228.35	261.01	660.54	825.67	1,591.70	32.54	142.20
990+00	1.25	126.59	246.54	676.51	1736.15	2170.19	-331.95	60.93	173.09
991+00	1.25	20.72	272.80	1121.17	3329.04	4161.30	-4,220.45	59.10	222.28
992+00	1.25	0	38.37	1277.93	4442.78	5553.47	-9,735.55	50.95	203.80
993+00	1.25	0	0.00	1168.48	4530.39	5662.99	-15,398.54	49.66	186.31
994+00	1.25	0	0.00	419.29	2940.31	3675.39	-19,073.93	32.26	151.70
995+00	1.25	361.75	669.91	0	776.46	970.58	-19,374.60	51.24	154.63
996+00	1.25	822.09	2192.30	0	0.00	0.00	-17,182.31	60.26	206.48
997+00	1.25	447.59	2351.26	1.56	2.89	3.61	-14,834.66	49.75	203.72
998+00	1.25	31.08	886.43	184.03	343.69	429.61	-14,377.84	40.67	167.44
999+00	1.25	11.97	79.72	358.45	1004.59	1255.74	-15,553.86	41.99	153.07
1000+00	1.25	33.01	83.30	267.26	1158.72	1448.40	-16,918.96	43.81	158.89
1001+00	1.25	0	61.13	194.73	855.54	1069.42	-17,927.25	26.56	130.31
1002+00	1.25	308.05	570.46	18.93	395.67	494.58	-17,851.38	57.63	155.91
1002+29	1.25	-	0.00	-	160.00	200.00	-18,051.38	-	-
1002+36	1.25	-	0.00	-	160.00	200.00	-18,251.38	-	-
1003+00	1.25	377.53	1269.59	8.83	51.41	64.26	-17,046.04	60.80	219.31
1004+00	1.25	3.98	706.50	230.04	442.35	552.94	-16,892.48	34.63	176.72
1005+00	1.25	0	7.37	370	1111.19	1388.98	-18,274.09	37.42	133.43
1006+00	1.25	39	72.22	200.06	1055.67	1319.58	-19,521.45	37.67	139.06
1007+00	1.25	347.08	714.96	47.86	459.11	573.89	-19,380.38	50.71	163.67
1008+00	1.25	83.59	797.54	56.3	192.89	241.11	-18,823.95	38.34	164.91
1009+00	1.25	0	154.80	192.02	459.85	574.81	-19,243.97	28.55	123.87
1010+00	1.25	60.81	112.61	50.17	448.50	560.63	-19,691.99	35.20	118.06
1011+00	1.25	471.61	985.96	0	92.91	116.13	-18,822.16	52.66	162.70
1012+00	1.25	1029.92	2780.61	0	0.00	0.00	-16,041.55	71.06	229.11
1013+00	1.25	538.37	2904.24	0	0.00	0.00	-13,137.31	65.08	252.11
1014+00	1.25	25.26	1043.76	119.02	220.41	275.51	-12,369.06	34.18	183.81
1015+00	1.25	0	46.78	183.11	559.50	699.38	-13,021.65	89.45	228.94
1016+00	1.25	99.7	184.63	54.81	440.59	550.74	-13,387.76	45.56	250.02
1017+00	1.25	648.08	1384.78	0	101.50	126.88	-12,129.86	63.26	201.52
1018+00	1.25	518.54	2160.41	0	0.00	0.00	-9,969.45	57.86	224.30
1019+00	1.25	19.04	995.52	121.63	225.24	281.55	-9,255.49	31.19	164.91
1020+00	1.25	0	35.26	389.71	946.93	1183.66	-10,403.88	33.69	120.15
1021+00	1.25	0	0.00	366.66	1400.69	1750.86	-12,154.74	34.01	125.37
1022+00	1.25	215.89	399.80	17.37	711.17	888.96	-12,643.90	50.63	156.74
1023+00	1.25	882.86	2034.72	0	32.17	40.21	-10,649.39	64.09	212.44
1024+00	1.25	1012.79	3510.46	0	0.00	0.00	-7,138.93	70.77	249.74
1024+97	1.25	-	0.00	-	400.00	500.00	-7,638.93	-	-
1025+00	1.25	1318.06	4316.39	0	0.00	0.00	-3,322.54	70.81	262.19
1025+05	1.25	-	0.00	-	400.00	500.00	-3,822.54	-	-
1026+00	1.25	1075.3	4432.15	0	0.00	0.00	609.61	71.06	262.72
1027+00	1.25	335.93	2613.39	0	0.00	0.00	3,223.00	56.67	236.54
1028+00	1.25	0	622.09	259.43	480.43	600.53	3,244.56	29.04	158.72
1028+38	1.25	-	0.00	-	400.00	500.00	2,744.56	-	-
1029+00	1.25	0	0.00	803.63	1968.63	2460.79	283.77	50.65	147.57
1030+00	1.25	2.34	4.33	891.57	3139.26	3924.07	-3,635.97	105.62	289.39
1031+00	1.25	86.15	163.87	755.36	3049.87	3812.34	-7,284.44	61.84	310.11
1032+00	1.25	84.12	315.31	375.1	2093.44	2616.81	-9,585.93	45.49	198.76
1033+00	1.25	37.7	225.59	363.74	1368.22	1710.28	-11,070.61	51.84	180.24
1034+00	1.25	15.25	98.06	504.79	1608.39	2010.49	-12,983.04	49.86	188.33
1035+00	1.25	0	28.24	550.69	1954.59	2443.24	-15,398.04	38.11	162.91
1036+00	1.25	246.44	456.37	0	1019.80	1274.75	-16,216.42	48.18	159.80
1037+00	1.25	1208.75	2694.80	0	0.00	0.00	-13,521.62	67.96	215.07
1038+00	1.25	1459.19	4940.63	0	0.00	0.00	-8,580.99	75.37	265.43
1039+00	1.25	1670.08	5781.65	0	0.00	0.00	-2,799.34	83.15	293.56
1039+36	1.25	-	0.00	-	160.00	200.00	-2,999.34	-	-
1039+39	1.25	-	0.00	-	160.00	200.00	-3,199.34	-	-
1040+00	1.25	1150.09	5222.82	0	0.00	0.00	2,023.48	71.32	286.06
1041+00	1.25	410.71	2895.58	0	0.00	0.00	4,919.06	49.85	224.39
1042+00	1.25	24.23	807.50	212.96	393.74	492.17	5,234.39	27.34	142.94
1043+00	1.25	18.65	80.41	1172.05	2553.82	3192.28	2,122.52	55.85	154.06
1044+00	1.25	39.51	109.58	1821.69	5519.13	6898.91	-4,666.81	68.06	229.46
1045+00	1.25	64.29	196.29	1379.6	5904.33	7380.41	-11,850.93	73.29	261.76
1046+00	1.25	167.3	439.30	838.92	4089.95	5112.44	-16,524.07	81.47	286.59

SAUBER ENGINEERING



Earthwork Summary

Reconstruction
County Route 1

Mountrail County, ND

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
Revised 02/11/25	ND	01(62)23	11	5

Earthwork Quantities Report

Station	Factor	Cut Area (SF)	Cut Volume (CY)	Fill Area (SF)	Fill Volume (CY)	Facotred Fill Volume (CY)	Mass Ordinate (CY)	Topsoil Area (SF)	Topsoil Volume (CY)
1047+00	1.25	255.70	804.84	667.13	2774.97	3468.72	-19,349.40	85.32	308.87
1048+00	1.25	519.16	1473.27	118.92	1450.00	1812.50	-19,688.63	80.74	307.52
1048+57	1.25	-	0.00	-	160.00	200.00	-19,888.63	-	-
1049+00	1.25	1444.64	3698.44	0.00	219.72	274.65	-16,464.84	94.73	324.94
1050+00	1.25	2988.91	8263.69	0.00	0.00	0.00	-8,201.15	107.36	374.24
1051+00	1.25	2846.86	10831.00	0.00	0.00	0.00	2,629.85	91.92	369.04
1052+00	1.25	1708.09	8447.33	0.00	0.00	0.00	11,077.18	77.31	313.39
1053+00	1.25	842.45	4722.71	0.00	0.00	0.00	15,799.89	64.28	262.20
1054+00	1.25	165.40	1859.47	192.21	356.53	445.66	17,213.71	47.53	207.06
1055+00	1.25	0.00	304.28	658.59	1578.70	1973.37	15,544.62	36.06	154.80
1056+00	1.25	0.00	0.00	960.65	3006.86	3758.57	11,786.05	47.66	155.04
1057+00	1.25	0.00	0.00	831.79	3328.95	4161.18	7,624.86	41.83	165.72
1058+00	1.25	0.00	0.00	635.75	2723.33	3404.17	4,220.70	38.10	148.02
1059+00	1.25	0.00	0.00	773.06	2616.04	3270.05	950.65	43.88	151.81
1060+00	1.25	0.00	0.00	750.61	2833.97	3542.46	-2,591.81	46.27	166.94
1060+31	1.25	-	0.00	-	400.00	500.00	-3,091.81	-	-
1061+00	1.25	39.13	71.34	584.70	2484.73	3105.91	-6,126.38	57.49	192.15
1062+00	1.25	39.40	143.19	538.07	2087.42	2609.27	-8,592.46	55.38	209.02
1063+00	1.25	1.62	74.81	626.38	2162.27	2702.84	-11,220.49	47.81	191.09
1064+00	1.25	0.00	2.96	575.44	2227.85	2784.82	-14,002.34	34.09	151.67
1065+00	1.25	10.56	19.92	620.16	2215.07	2768.84	-16,751.26	48.96	153.80
1066+00	1.25	108.66	222.19	334.74	1771.02	2213.77	-18,742.84	66.13	213.13
1067+00	1.25	718.03	1530.91	0.25	620.35	775.44	-17,987.37	92.89	294.48
1068+00	1.25	859.53	2921.41	0.00	0.46	0.58	-15,066.54	94.66	347.31
1069+00	1.25	727.68	2939.28	32.86	60.85	76.06	-12,203.33	89.78	341.56
1070+00	1.25	473.25	2223.94	158.80	354.93	443.66	-10,423.04	90.85	334.50
1071+00	1.25	266.97	1370.78	348.76	939.93	1174.91	-10,227.17	82.59	321.19
1072+00	1.25	317.53	1082.41	421.97	1427.28	1784.10	-10,928.86	80.68	302.35
1073+00	1.25	258.58	1066.87	492.16	1692.83	2116.04	-11,978.03	74.20	286.81
1074+00	1.25	62.12	593.89	591.36	2006.52	2508.15	-13,892.29	54.79	238.87
1075+00	1.25	64.75	234.94	632.96	2267.26	2834.07	-16,491.42	56.66	206.39
1076+00	1.25	33.57	182.07	662.61	2399.20	2999.00	-19,308.35	50.59	198.61
1077+00	1.25	26.21	110.70	589.90	2319.46	2899.33	-22,096.98	52.77	191.41
1078+00	1.25	65.52	169.87	480.29	1981.83	2477.29	-24,404.40	61.21	211.07
1079+00	1.25	184.09	462.24	310.87	1465.11	1831.39	-25,773.55	67.88	239.06
1080+00	1.25	262.93	827.81	179.22	907.57	1134.47	-26,080.20	73.78	262.33
1081+00	1.25	352.10	1138.94	118.62	551.56	689.44	-25,630.70	70.46	267.11
1082+00	1.25	180.84	986.93	137.22	473.78	592.22	-25,236.00	55.63	233.50
1083+00	1.25	53.20	433.41	145.92	524.33	655.42	-25,458.01	36.78	171.13
1084+00	1.25	77.56	242.15	158.48	563.70	704.63	-25,920.49	39.51	141.28
1085+00	1.25	145.56	413.19	200.52	664.81	831.02	-26,338.32	58.82	182.09
1086+00	1.25	253.46	738.93	223.48	785.19	981.48	-26,580.88	71.04	240.48
1087+00	1.25	210.43	859.06	201.34	786.70	983.38	-26,705.20	70.06	261.30
1088+00	1.25	326.46	994.24	150.11	650.83	813.54	-26,524.50	69.18	257.85
1089+00	1.25	587.42	1692.37	0.00	277.98	347.48	-25,179.61	59.24	237.81
1090+00	1.25	806.12	2553.87	0.00	0.00	0.00	-22,625.74	66.00	231.93
1091+00	1.25	843.59	3030.66	0.00	0.00	0.00	-19,595.08	52.02	218.56
1092+00	1.25	953.07	3307.62	0.00	0.00	0.00	-16,287.46	24.45	141.61
1093+00	1.25	758.26	3153.04	0.00	0.00	0.00	-13,134.42	57.08	150.98
1093+17	1.25	-	0.00	-	160.00	200.00	-13,334.42	-	-
1094+00	1.25	672.28	2641.17	1.36	2.52	3.15	-10,696.40	65.57	227.13
1095+00	1.25	518.38	2205.20	61.24	116.20	145.26	-8,636.46	67.38	246.20
1096+00	1.25	357.62	1625.97	156.05	403.12	503.90	-7,514.39	70.07	254.54
1097+00	1.25	270.86	1163.85	199.54	658.50	823.13	-7,173.66	77.00	272.35
1098+00	1.25	176.05	827.61	315.36	953.52	1191.90	-7,537.95	83.98	298.11
1099+00	1.25	163.72	629.20	527.33	1560.54	1950.67	-8,859.41	95.02	331.48
1100+00	1.25	198.93	671.57	837.94	2528.28	3160.35	-11,348.19	103.77	368.13
1101+00	1.25	162.69	669.67	1567.56	4454.63	5568.29	-16,246.81	106.84	390.02
1102+00	1.25	171.60	619.06	1778.17	6195.80	7744.75	-23,372.50	123.84	427.19
1103+00	1.25	170.78	634.04	1757.75	6548.00	8185.00	-30,923.46	129.64	469.41
1104+00	1.25	153.24	600.04	1549.15	6123.89	7654.86	-37,978.28	137.89	495.43
1105+00	1.25	171.67	601.69	742.15	4243.15	5303.94	-42,680.53	140.75	516.00
1106+00	1.25	204.25	696.15	384.86	2087.06	2608.82	-44,593.20	141.46	522.61
1107+00	1.25	337.30	1002.87	247.50	1171.04	1463.80	-45,054.13	150.64	540.93
1108+00	1.25	734.29	1984.43	114.84	671.00	838.75	-43,908.45	155.85	567.57
1109+00	1.25	1248.38	3671.61	67.49	337.65	422.06	-40,658.90	150.93	568.11
1110+00	1.25	1695.08	5450.85	1.64	128.02	160.02	-35,368.08	141.71	541.93
1111+00	1.25	1550.45	6010.24	2.81	8.24	10.30	-29,368.14	130.32	503.76
1111+50	1.25	-	0.00	-	160.00	200.00	-29,568.14	-	-
1112+00	1.25	804.89	4361.74	16.81	36.33	45.42	-25,251.81	102.18	430.56
1113+00	1.25	667.59	2726.81	16.92	62.46	78.08	-22,603.08	85.20	347.00
1114+00	1.25	683.21	2501.48	53.92	131.19	163.98	-20,265.58	87.14	319.15
1115+00	1.25	584.78	2348.13	83.16	253.85	317.31	-18,234.76	83.78	316.52
1116+00	1.25	484.46	1980.07	165.62	460.70	575.88	-16,830.57	86.63	315.57
1117+00	1.25	179.89	1199.25	207.09	686.44	858.05	-16,489.36	67.56	285.54
1118+00	1.25	326.05	896.29	109.20	585.29	731.61	-16,324.68	74.70	263.44
1119+00	1.25	627.31	1744.16	28.14	252.68	315.85	-14,896.37	79.01	284.65
1120+00	1.25	679.83	2432.50	15.76	80.66	100.83	-12,564.70	68.23	272.67
1121+00	1.25	528.68	2256.27	0.00	29.22	36.53	-10,344.96	52.21	223.04
1122+00	1.25	554.14	2039.68	0.00	480.00	600.00	-8,905.28	53.94	196.57

SAUBER ENGINEERING

REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
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PE-3914
LS-8427
DATE 2/11/25
NORTH DAKOTA

Earthwork Summary

Reconstruction
County Route 1

Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	11	5

Earthwork Quantities Report

Station	Factor	Cut Area (SF)	Cut Volume (CY)	Fill Area (SF)	Fill Volume (CY)	Facotred Fill Volume (CY)	Mass Ordinate (CY)	Topsoil Area (SF)	Topsoil Volume (CY)
1047+00	1.25	255.7	804.86	667.13	2774.94	3468.67	-19,187.88	85.32	308.87
1048+00	1.25	519.18	1473.31	118.91	1449.98	1812.48	-19,527.05	80.74	307.52
1048+57	1.25	-	0.00	-	160.00	200.00	-19,727.05	-	-
1049+00	1.25	1444.66	3698.52	0	219.70	274.63	-16,303.16	94.73	324.94
1050+00	1.25	2988.94	8263.78	0	0.00	0.00	-8,039.38	107.36	374.24
1051+00	1.25	2846.83	10831.00	0	0.00	0.00	2,791.62	91.92	369.04
1052+00	1.25	1708.07	8447.24	0	0.00	0.00	11,238.86	77.31	313.39
1053+00	1.25	842.42	4722.62	0	0.00	0.00	15,961.48	64.28	262.20
1054+00	1.25	165.39	1859.40	192.22	356.54	445.68	17,375.20	47.53	207.06
1055+00	1.25	0	304.26	658.61	1578.75	1973.44	15,706.02	36.06	154.80
1056+00	1.25	0	0.00	960.66	3006.91	3758.64	11,947.38	47.66	155.04
1057+00	1.25	0	0.00	831.8	3328.98	4161.23	7,786.15	41.83	165.72
1058+00	1.25	0	0.00	635.75	2723.35	3404.19	4,381.96	38.10	148.02
1059+00	1.25	0	0.00	773.07	2616.06	3270.07	1,111.89	43.88	151.81
1060+00	1.25	0	0.00	750.61	2833.98	3542.48	-2,430.59	46.28	166.96
1060+31	1.25	-	0.00	-	400.00	500.00	-2,930.59	-	-
1061+00	1.25	39.13	71.34	584.7	2484.73	3105.91	-5,965.16	57.49	192.17
1062+00	1.25	39.4	143.19	538.07	2087.42	2609.27	-8,431.24	55.38	209.02
1063+00	1.25	1.62	74.81	626.38	2162.27	2702.84	-11,059.27	47.81	191.09
1064+00	1.25	0	2.96	575.45	2227.87	2784.84	-13,841.15	34.09	151.67
1065+00	1.25	10.56	19.92	620.16	2215.09	2768.86	-16,590.09	48.96	153.80
1066+00	1.25	108.67	222.21	334.73	1771.00	2213.75	-18,581.63	66.13	213.13
1067+00	1.25	718.05	1530.96	0.25	620.33	775.42	-17,826.08	92.89	294.48
1068+00	1.25	857.08	2916.91	0	0.46	0.58	-14,909.75	94.66	347.31
1069+00	1.25	727.68	2934.74	32.86	60.85	76.06	-12,051.08	89.78	341.56
1070+00	1.25	473.25	2223.94	158.8	354.93	443.66	-10,270.79	90.85	334.50
1071+00	1.25	266.97	1370.78	348.76	939.93	1174.91	-10,074.92	82.59	321.19
1072+00	1.25	317.53	1082.41	421.97	1427.28	1784.10	-10,776.61	80.68	302.35
1073+00	1.25	258.57	1066.85	492.17	1692.85	2116.06	-11,825.82	74.20	286.81
1074+00	1.25	62.12	593.87	591.36	2006.54	2508.17	-13,740.12	54.79	238.87
1075+00	1.25	64.75	234.94	632.96	2267.26	2834.07	-16,339.25	56.66	206.39
1076+00	1.25	33.58	182.09	662.61	2399.20	2999.00	-19,156.17	50.59	198.61
1077+00	1.25	26.21	110.72	589.89	2319.44	2899.31	-21,944.75	52.77	191.41
1078+00	1.25	65.52	169.87	480.29	1981.81	2477.27	-24,252.15	61.21	211.07
1079+00	1.25	184.09	462.24	310.87	1465.11	1831.39	-25,621.30	67.88	239.06
1080+00	1.25	262.93	827.81	179.22	907.57	1134.47	-25,927.95	73.78	262.33
1081+00	1.25	352.09	1138.93	118.62	551.56	689.44	-25,478.47	70.46	267.11
1082+00	1.25	180.84	986.91	137.22	473.78	592.22	-25,083.78	55.63	233.50
1083+00	1.25	53.19	433.39	145.92	524.33	655.42	-25,305.81	36.78	171.13
1084+00	1.25	77.56	242.13	158.48	563.70	704.63	-25,768.31	39.51	141.28
1085+00	1.25	145.56	413.19	200.52	664.81	831.02	-26,186.14	58.82	182.09
1086+00	1.25	253.46	738.93	223.48	785.19	981.48	-26,428.70	71.03	240.46
1087+00	1.25	210.43	859.06	201.34	786.70	983.38	-26,553.02	70.06	261.28
1088+00	1.25	326.47	994.26	150.1	650.81	813.52	-26,372.28	69.19	257.87
1089+00	1.25	587.43	1692.41	0	277.96	347.45	-25,027.33	59.24	237.83
1090+00	1.25	806.12	2553.89	0	0.00	0.00	-22,473.44	66.00	231.93
1091+00	1.25	843.59	3030.66	0	0.00	0.00	-19,442.78	52.02	218.56
1092+00	1.25	953.07	3307.62	0	0.00	0.00	-16,135.16	24.45	141.61
1093+00	1.25	758.26	3153.04	0	0.00	0.00	-12,982.12	57.08	150.98
1093+17	1.25	-	0.00	-	160.00	200.00	-13,182.12	-	-
1094+00	1.25	672.33	2641.26	1.25	2.31	2.89	-10,543.75	65.57	227.13
1095+00	1.25	518.38	2205.29	61.24	116.00	145.00	-8,483.46	67.38	246.20
1096+00	1.25	357.62	1625.97	156.05	403.12	503.90	-7,361.39	70.07	254.54
1097+00	1.25	270.86	1163.85	199.54	658.50	823.13	-7,020.66	77.00	272.35
1098+00	1.25	176.05	827.61	315.36	953.52	1191.90	-7,384.95	83.98	298.11
1099+00	1.25	163.72	629.20	527.34	1560.56	1950.69	-8,706.44	95.02	331.48
1100+00	1.25	198.93	671.57	837.95	2528.31	3160.39	-11,195.26	103.77	368.13
1101+00	1.25	162.69	669.67	1567.56	4454.65	5568.31	-16,093.91	106.84	390.02
1102+00	1.25	171.6	619.06	1778.17	6195.80	7744.75	-23,219.60	123.84	427.19
1103+00	1.25	170.78	634.04	1757.75	6548.00	8185.00	-30,770.56	129.64	469.41
1104+00	1.25	153.23	600.02	1549.14	6123.87	7654.84	-37,825.38	137.89	495.43
1105+00	1.25	171.67	601.67	742.13	4243.09	5303.87	-42,527.58	140.75	516.00
1106+00	1.25	204.25	696.15	384.86	2087.02	2608.77	-44,440.20	141.46	522.61
1107+00	1.25	337.31	1002.89	247.49	1171.02	1463.77	-44,901.09	150.64	540.93
1108+00	1.25	734.3	1984.46	114.84	670.98	838.73	-43,755.35	155.85	567.57
1109+00	1.25	1248.39	3671.65	67.49	337.65	422.06	-40,505.76	150.93	568.11
1110+00	1.25	1695.08	5450.87	1.64	128.02	160.02	-35,214.91	141.71	541.93
1111+00	1.25	1550.45	6010.24	2.81	8.24	10.30	-29,214.97	130.32	503.76
1111+50	1.25	-	0.00	-	160.00	200.00	-29,414.97	-	-
1112+00	1.25	804.88	4361.72	16.81	36.33	45.42	-25,098.67	102.18	430.56
1113+00	1.25	667.59	2726.80	16.92	62.46	78.08	-22,449.95	85.20	347.00
1114+00	1.25	683.21	2501.48	53.92	131.19	163.98	-20,112.45	87.13	319.13
1115+00	1.25	584.78	2348.13	83.17	253.87	317.34	-18,081.66	83.78	316.50
1116+00	1.25	484.47	1980.09	165.62	460.72	575.90	-16,677.47	86.63	315.57
1117+00	1.25	179.88	1199.25	207.1	686.46	858.07	-16,336.29	67.56	285.54
1118+00	1.25	326.05	896.27	109.2	585.30	731.63	-16,171.65	74.70	263.44
1119+00	1.25	627.32	1744.18	28.14	252.68	315.85	-14,743.32	79.01	284.65
1120+00	1.25	679.83	2432.52	15.76	80.66	100.83	-12,411.63	68.23	272.67
1121+00	1.25	528.68	2256.27	0	29.22	36.53	-10,191.89	52.21	223.04
1122+00	1.25	554.14	2039.68	0	480.00	600.00	-8,752.21	53.94	196.57

SAUBER ENGINEERING

REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-3914
LS-6427
DATE 1/28/25
NORTH DAKOTA

Earthwork Summary

Reconstruction
County Route 1

Mountrail County, ND

Earthwork Quantities Report

Station	Factor	Cut Area (SF)	Cut Volume (CY)	Fill Area (SF)	Fill Volume (CY)	Facotred Fill Volume (CY)	Mass Ordinate (CY)	Topsoil Area (SF)	Topsoil Volume (CY)
1123+00	1.25	324.97	1679.03	26.73	48.54	60.68	-7,286.93	35.98	166.52
1124+00	1.25	42.96	706.39	215.52	439.95	549.94	-7,130.48	36.37	133.98
1125+00	1.25	0.00	82.24	361.63	1054.74	1318.43	-8,366.67	35.50	133.09
1126+00	1.25	0.00	0.00	406.19	1412.94	1766.17	-10,132.84	34.67	129.94
1127+00	1.25	0.00	0.00	363.48	1425.31	1781.64	-11,914.48	33.71	126.63
1128+00	1.25	0.00	0.00	336.95	1297.09	1621.37	-13,535.85	31.76	121.24
1129+00	1.25	0.00	0.00	402.73	1369.78	1712.22	-15,248.07	33.55	120.94
1130+00	1.25	0.00	0.00	483.96	1642.02	2052.52	-17,300.59	37.84	132.20
1131+00	1.25	0.00	0.00	613.18	2031.74	2539.68	-19,840.27	40.58	145.22
1131+99	1.25	-	0.00	-	400.00	500.00	-20,340.27	-	-
1132+00	1.25	0.00	0.00	742.28	2510.11	3137.64	-23,477.91	41.66	152.30
1133+00	1.25	0.00	0.00	842.82	2935.37	3669.21	-27,147.12	45.55	161.50
1134+00	1.25	0.00	0.00	799.61	3041.54	3801.92	-30,949.04	44.49	166.74
1135+00	1.25	0.00	0.00	751.80	2872.98	3591.23	-34,540.27	42.97	161.96
1136+00	1.25	0.00	0.00	686.38	2663.30	3329.12	-37,869.39	41.90	157.17
1137+00	1.25	0.00	0.00	347.96	1915.44	2394.31	-40,263.70	33.48	139.59
1138+00	1.25	0.09	0.17	142.46	908.19	1135.23	-41,398.76	29.42	116.48
1139+00	1.25	0.00	0.17	166.43	572.02	715.02	-42,113.62	23.61	98.20
1139+07	1.25	-	0.00	-	400.00	500.00	-42,613.62	-	-
1140+00	1.25	0.00	0.00	716.23	1634.56	2043.19	-44,656.81	43.27	123.85
1141+00	1.25	0.00	0.00	985.28	3150.94	3938.68	-48,595.49	49.42	171.65
1142+00	1.25	0.00	0.00	882.46	3458.78	4323.47	-52,918.97	44.49	173.91
1143+00	1.25	0.00	0.00	463.46	2492.44	3115.56	-56,034.52	33.69	144.78
1144+00	1.25	10.29	19.06	76.73	1000.35	1250.44	-57,265.91	31.22	120.20
1145+00	1.25	278.81	535.37	0.00	142.09	177.62	-56,908.15	43.13	137.69
1146+00	1.25	484.04	1412.69	0.00	0.00	0.00	-55,495.47	50.07	172.59
1146+15	1.25	-	0.00	-	160.00	200.00	-55,695.47	-	-
1147+00	1.25	35.20	961.56	58.82	108.93	136.16	-54,870.07	30.31	148.85
1148+00	1.25	0.00	65.19	518.13	1068.43	1335.53	-56,140.41	36.18	123.13
1149+00	1.25	0.00	0.00	914.27	2652.59	3315.74	-59,456.16	45.41	151.09
1150+00	1.25	0.00	0.00	1218.06	3948.76	4935.95	-64,392.10	50.22	177.09
1151+00	1.25	0.00	0.00	1466.71	4971.80	6214.75	-70,606.85	53.08	191.30
1152+00	1.25	0.00	0.00	1565.50	5615.20	7019.00	-77,625.85	53.78	197.89
1153+00	1.25	0.00	0.00	1608.47	5877.72	7347.15	-84,973.01	55.65	202.65
1154+00	1.25	0.00	0.00	1469.00	5699.02	7123.77	-92,096.78	54.05	203.15
1155+00	1.25	0.00	0.00	1060.67	4684.57	5855.72	-97,952.50	47.30	187.69
1155+92	1.25	-	0.00	-	800.00	1000.00	-98,952.50	-	-
1155+94	1.25	-	0.00	-	400.00	500.00	-99,452.50	-	-
1156+00	1.25	0.00	0.00	497.30	2885.13	3606.41	-103,058.91	4.13	95.24
1157+00	1.25	0.00	0.00	379.20	1623.15	2028.94	-105,087.84	29.71	62.67
1158+00	1.25	0.00	0.00	218.28	1106.44	1383.06	-106,470.90	24.61	100.59
1159+00	1.25	5.24	9.70	106.07	600.65	750.81	-107,212.01	26.18	94.06
1160+00	1.25	39.54	82.93	35.93	262.96	328.70	-107,457.78	35.97	115.09
1161+00	1.25	48.15	162.39	25.18	113.17	141.46	-107,436.85	35.56	132.46
1162+00	1.25	44.19	171.00	31.32	104.63	130.79	-107,396.64	35.90	132.33
1163+00	1.25	63.86	200.09	16.39	88.35	110.44	-107,306.99	37.60	136.11
1164+00	1.25	132.69	363.98	3.37	36.59	45.74	-106,988.75	39.37	142.54
1164+73	1.25	-	0.00	-	160.00	200.00	-107,188.75	-	-
1165+00	1.25	230.11	671.85	0.12	6.46	8.08	-106,524.97	32.29	132.70
1166+00	1.25	195.78	788.69	0.00	0.22	0.28	-105,736.57	38.78	131.61
1167+00	1.25	76.35	503.94	17.51	32.43	40.53	-105,273.16	28.32	124.26
1168+00	1.25	54.22	241.80	40.53	107.48	134.35	-105,165.71	30.45	108.83
1169+00	1.25	34.58	164.44	56.08	178.91	223.63	-105,224.90	31.30	114.35
1170+00	1.25	56.13	167.98	44.88	186.96	233.70	-105,290.62	35.24	123.22
1171+00	1.25	99.44	288.09	11.92	105.19	131.48	-105,134.01	29.95	120.72
1172+00	1.25	228.55	607.39	0.00	22.07	27.59	-104,554.22	39.34	128.31
1172+58	1.25	-	0.00	-	160.00	200.00	-104,754.22	-	-
1172+74	1.25	-	0.00	-	160.00	200.00	-104,954.22	-	-
1173+00	1.25	412.75	1187.59	0.00	0.00	0.00	-103,766.62	46.47	158.91
1174+00	1.25	428.05	1557.04	0.00	0.00	0.00	-102,209.59	48.03	175.00
1175+00	1.25	419.57	1569.67	0.00	0.00	0.00	-100,639.92	46.92	175.83
1176+00	1.25	358.73	1441.30	0.00	0.00	0.00	-99,198.62	45.64	171.41
1177+00	1.25	1.66	667.39	54.38	100.70	125.88	-98,657.11	20.53	122.54
1178+00	1.25	0.00	3.07	473.72	977.96	1222.45	-99,876.49	38.62	109.54
1179+00	1.25	0.00	0.00	551.31	1898.20	2372.75	-102,249.25	36.18	138.52
1180+00	1.25	0.00	0.00	485.62	1920.24	2400.30	-104,649.55	33.82	129.63
1181+00	1.25	0.00	0.00	560.21	1936.72	2420.90	-107,070.45	34.68	126.85
1182+00	1.25	0.00	0.00	601.73	2151.74	2689.68	-109,760.13	38.86	136.19
1183+00	1.25	0.00	0.00	565.42	2161.39	2701.74	-112,461.86	36.63	139.80
1184+00	1.25	0.00	0.00	486.61	1948.20	2435.25	-114,897.12	35.97	134.44
1185+00	1.25	9.73	18.02	313.00	1480.76	1850.95	-116,730.05	42.12	144.61
1186+00	1.25	140.72	278.61	20.79	618.13	772.66	-117,224.10	43.11	157.83
1187+00	1.25	233.16	692.37	1.32	40.94	51.18	-116,582.91	38.54	151.20
1188+00	1.25	123.89	661.20	33.74	64.93	81.16	-116,002.86	36.12	138.26
1189+00	1.25	35.25	294.70	63.71	180.46	225.58	-115,933.74	29.99	122.43
1189+52	1.25	-	0.00	-	160.00	200.00	-116,133.74	-	-
1190+00	1.25	6.09	76.56	165.70	424.83	531.04	-116,588.22	31.91	114.63
1191+00	1.25	0.00	11.28	257.80	784.26	980.32	-117,557.27	26.38	107.94
1192+00	1.25	0.00	0.00	269.29	976.09	1220.12	-118,777.39	24.90	94.96
1193+00	1.25	0.00	0.00	229.23	923.19	1153.98	-119,931.37	22.80	88.33

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
Revised 02/11/25	ND	01(62)23	11	6

SAUBER ENGINEERING

REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-3914
LS-6427
DATE 2/11/25
NORTH DAKOTA

Earthwork Summary

Reconstruction
County Route 1

Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	11	6

Earthwork Quantities Report

Station	Factor	Cut Area (SF)	Cut Volume (CY)	Fill Area (SF)	Fill Volume (CY)	Facotred Fill Volume (CY)	Mass Ordinate (CY)	Topsoil Area (SF)	Topsoil Volume (CY)
1123+00	1.25	324.96	1679.01	26.73	48.54	60.68	-7,133.88	35.98	166.52
1124+00	1.25	42.95	706.35	215.53	439.97	549.96	-6,977.49	36.37	133.98
1125+00	1.25	0	82.22	361.63	1054.76	1318.45	-8,213.72	35.50	133.09
1126+00	1.25	0	0.00	406.19	1412.94	1766.17	-9,979.89	34.67	129.94
1127+00	1.25	0	0.00	363.48	1425.31	1781.64	-11,761.54	33.71	126.63
1128+00	1.25	0	0.00	336.95	1297.09	1621.37	-13,382.90	31.76	121.24
1129+00	1.25	0	0.00	402.73	1369.78	1712.22	-15,095.13	33.55	120.94
1130+00	1.25	0	0.00	483.96	1642.02	2052.52	-17,147.65	37.84	132.20
1131+00	1.25	0	0.00	613.18	2031.74	2539.68	-19,687.32	40.58	145.22
1131+99	1.25	-	0.00	-	400.00	500.00	-20,187.32	-	-
1132+00	1.25	0	0.00	742.28	2510.11	3137.64	-23,324.96	41.66	152.30
1133+00	1.25	0	0.00	842.82	2935.37	3669.21	-26,994.18	45.55	161.50
1134+00	1.25	0	0.00	799.6	3041.52	3801.90	-30,796.07	44.49	166.74
1135+00	1.25	0	0.00	751.79	2872.94	3591.18	-34,387.25	42.97	161.96
1136+00	1.25	0	0.00	686.36	2663.24	3329.05	-37,716.31	41.90	157.17
1137+00	1.25	0	0.00	347.95	1915.39	2394.24	-40,110.54	33.48	139.59
1138+00	1.25	0.09	0.17	142.45	908.15	1135.19	-41,245.56	29.42	116.48
1139+00	1.25	0	0.17	166.42	571.98	714.98	-41,960.37	23.61	98.20
1139+07	1.25	-	0.00	-	400.00	500.00	-42,460.37	-	-
1140+00	1.25	0	0.00	716.23	1634.54	2043.17	-44,503.54	43.27	123.85
1141+00	1.25	0	0.00	985.27	3150.93	3938.66	-48,442.20	49.42	171.65
1142+00	1.25	0	0.00	882.44	3458.72	4323.40	-52,765.60	44.48	173.89
1143+00	1.25	0	0.00	463.44	2492.37	3115.46	-55,881.07	33.69	144.76
1144+00	1.25	10.3	19.07	76.72	1000.30	1250.37	-57,112.36	31.22	120.20
1145+00	1.25	278.83	535.43	0	142.07	177.59	-56,754.53	43.13	137.69
1146+00	1.25	484.08	1412.80	0	0.00	0.00	-55,341.73	50.07	172.59
1146+15	1.25	-	0.00	-	160.00	200.00	-55,541.73	-	-
1147+00	1.25	35.21	961.65	58.8	108.89	136.11	-54,716.19	30.31	148.85
1148+00	1.25	0	65.20	518.07	1068.28	1335.35	-55,986.34	36.18	123.13
1149+00	1.25	0	0.00	914.27	2652.48	3315.60	-59,301.94	45.41	151.09
1150+00	1.25	0	0.00	1218.06	3948.76	4935.95	-64,237.89	50.22	177.09
1151+00	1.25	0	0.00	1466.71	4971.80	6214.75	-70,452.63	53.08	191.30
1152+00	1.25	0	0.00	1565.5	5615.20	7019.00	-77,471.64	53.78	197.89
1153+00	1.25	0	0.00	1608.48	5877.74	7347.18	-84,818.82	55.65	202.65
1154+00	1.25	0	0.00	1469	5699.04	7123.80	-91,942.61	54.05	203.15
1155+00	1.25	0	0.00	1060.67	4684.57	5855.72	-97,798.33	47.30	187.69
1155+92	1.25	-	0.00	-	800.00	1000.00	-98,798.33	-	-
1155+94	1.25	-	0.00	-	400.00	500.00	-99,298.33	-	-
1156+00	1.25	0	0.00	497.3	2885.13	3606.41	-102,904.74	4.13	95.24
1157+00	1.25	0	0.00	379.2	1623.15	2028.94	-104,933.68	29.71	62.67
1158+00	1.25	0	0.00	218.28	1106.44	1383.06	-106,316.73	24.61	100.59
1159+00	1.25	5.24	9.70	106.06	600.63	750.79	-107,057.82	26.18	94.06
1160+00	1.25	39.54	82.93	35.93	262.94	328.68	-107,303.57	35.97	115.09
1161+00	1.25	48.16	162.41	25.18	113.17	141.46	-107,282.62	35.55	132.44
1162+00	1.25	44.19	171.02	31.31	104.61	130.76	-107,242.37	35.90	132.31
1163+00	1.25	63.86	200.09	16.38	88.31	110.39	-107,152.67	37.60	136.11
1164+00	1.25	132.7	364.00	3.37	36.57	45.72	-106,834.38	39.37	142.54
1164+73	1.25	-	0.00	-	160.00	200.00	-107,034.38	-	-
1165+00	1.25	230.1	671.85	0.12	6.46	8.08	-106,370.61	32.29	132.70
1166+00	1.25	195.78	788.67	0	0.22	0.28	-105,582.22	38.78	131.61
1167+00	1.25	76.35	503.94	17.51	32.43	40.53	-105,118.81	28.32	124.26
1168+00	1.25	54.22	241.80	40.53	107.48	134.35	-105,011.37	30.45	108.83
1169+00	1.25	34.58	164.44	56.08	178.91	223.63	-105,070.56	31.30	114.35
1170+00	1.25	56.13	167.98	44.87	186.94	233.68	-105,136.25	35.24	123.22
1171+00	1.25	99.44	288.09	11.92	105.17	131.46	-104,979.62	29.95	120.72
1172+00	1.25	228.55	607.39	0	22.07	27.59	-104,399.82	39.34	128.31
1172+58	1.25	-	0.00	-	160.00	200.00	-104,599.82	-	-
1172+74	1.25	-	0.00	-	160.00	200.00	-104,799.82	-	-
1173+00	1.25	412.74	1187.57	0	0.00	0.00	-103,612.25	46.47	158.91
1174+00	1.25	428.05	1557.02	0	0.00	0.00	-102,055.23	48.03	175.00
1175+00	1.25	419.56	1569.65	0	0.00	0.00	-100,485.58	46.92	175.83
1176+00	1.25	358.72	1441.26	0	0.00	0.00	-99,044.32	45.64	171.41
1177+00	1.25	1.66	667.37	54.39	100.72	125.90	-98,502.86	20.54	122.56
1178+00	1.25	0	3.07	473.73	978.00	1222.50	-99,722.28	38.62	109.56
1179+00	1.25	0	0.00	551.31	1898.22	2372.78	-102,095.06	36.18	138.52
1180+00	1.25	0	0.00	485.62	1920.24	2400.30	-104,495.36	33.82	129.63
1181+00	1.25	0	0.00	560.21	1936.72	2420.90	-106,916.26	34.68	126.85
1182+00	1.25	0	0.00	601.73	2151.74	2689.68	-109,605.94	38.86	136.19
1183+00	1.25	0	0.00	565.41	2161.37	2701.71	-112,307.65	36.63	139.80
1184+00	1.25	0	0.00	486.6	1948.17	2435.21	-114,742.86	35.97	134.44
1185+00	1.25	9.73	18.02	312.99	1480.72	1850.90	-116,575.75	42.12	144.61
1186+00	1.25	140.73	278.63	20.79	618.11	772.64	-117,069.75	43.11	157.83
1187+00	1.25	233.16	692.39	1.32	40.94	51.18	-116,428.55	38.54	151.20
1188+00	1.25	123.89	661.20	33.74	64.93	81.16	-115,848.50	36.12	138.26
1189+00	1.25	35.25	294.70	63.71	180.46	225.58	-115,779.38	29.99	122.43
1189+52	1.25	-	0.00	-	160.00	200.00	-115,979.38	-	-
1190+00	1.25	6.09	76.56	165.7	424.83	531.04	-116,433.86	31.91	114.63
1191+00	1.25	0	11.28	257.8	784.26	980.32	-117,402.91	26.38	107.94
1192+00	1.25	0	0.00	269.29	976.09	1220.12	-118,623.02	24.90	94.96
1193+00	1.25	0	0.00	229.23	923.19	1153.98	-119,777.00	22.79	88.31

SAUBER ENGINEERING

REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-3914
LS-8427
DATE 1/28/25
NORTH DAKOTA

Earthwork Summary

Reconstruction
County Route 1

Mountrail County, ND

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
Revised 02/11/25	ND	01(62)23	11	7

Earthwork Quantities Report

Station	Factor	Cut Area (SF)	Cut Volume (CY)	Fill Area (SF)	Fill Volume (CY)	Facotred Fill Volume (CY)	Mass Ordinate (CY)	Topsoil Area (SF)	Topsoil Volume (CY)
1194+00	1.25	0.00	0.00	143.51	690.26	862.82	-120,794.19	18.55	76.57
1195+00	1.25	17.52	32.44	38.32	336.72	420.90	-121,182.65	32.24	94.06
1196+00	1.25	163.70	335.59	0.00	70.96	88.70	-120,935.76	37.91	129.91
1197+00	1.25	327.18	909.04	0.00	0.00	0.00	-120,026.72	41.89	147.78
1198+00	1.25	389.01	1326.28	0.00	0.00	0.00	-118,700.45	43.87	158.81
1199+00	1.25	323.51	1319.48	0.00	0.00	0.00	-117,380.97	41.88	158.80
1199+61	1.25	-	0.00	-	160.00	200.00	-117,580.97	-	-
1200+00	1.25	131.33	842.30	0.00	0.00	0.00	-116,738.67	34.59	141.61
1201+00	1.25	47.95	332.00	26.82	49.67	62.08	-116,468.75	28.22	116.31
1202+00	1.25	67.71	214.19	10.17	68.50	85.63	-116,340.19	26.98	102.22
1203+00	1.25	114.01	336.52	1.31	21.26	26.57	-116,030.25	34.15	113.20
1204+00	1.25	203.41	587.81	0.00	2.43	3.03	-115,445.47	40.31	137.89
1205+00	1.25	272.94	882.13	0.00	0.00	0.00	-114,563.34	42.75	153.81
1206+00	1.25	207.19	889.13	0.00	0.00	0.00	-113,674.21	40.50	154.17
1207+00	1.25	62.13	498.74	11.57	21.43	26.78	-113,202.25	34.16	138.26
1208+00	1.25	18.17	148.70	146.06	291.91	364.88	-113,418.43	29.94	118.70
1209+00	1.25	0.00	33.65	330.48	882.48	1103.10	-114,487.88	27.23	105.87
1210+00	1.25	0.00	0.00	482.34	1505.22	1881.53	-116,369.41	33.08	111.69
1211+00	1.25	0.00	0.00	516.67	1850.02	2312.52	-118,681.93	34.35	124.87
1212+00	1.25	0.00	0.00	443.33	1777.78	2222.22	-120,904.16	31.65	122.22
1213+00	1.25	0.00	0.00	511.35	1767.93	2209.91	-123,114.06	33.20	120.09
1214+00	1.25	0.00	0.00	632.92	2119.02	2648.77	-125,762.84	37.81	131.50
1214+48	1.25	-	0.00	-	400.00	500.00	-126,262.84	-	-
1215+00	1.25	0.00	0.00	525.58	2145.37	2681.71	-128,944.55	35.61	135.96
1215+19	1.25	-	0.00	-	400.00	500.00	-129,444.55	-	-
1216+00	1.25	11.04	20.44	189.70	1324.59	1655.74	-131,079.84	36.56	133.65
1217+00	1.25	94.60	195.63	93.25	523.98	654.98	-131,539.19	45.61	152.17
1218+00	1.25	84.84	332.30	134.55	421.85	527.31	-131,734.21	43.31	164.67
1219+00	1.25	10.97	177.43	466.00	1112.13	1390.16	-132,946.95	40.25	154.74
1219+56	1.25	-	0.00	-	160.00	200.00	-133,146.95	-	-
1220+00	1.25	352.73	673.52	6.54	875.07	1093.84	-133,567.27	46.48	160.61
1221+00	1.25	630.16	1820.17	0.00	12.11	15.14	-131,762.24	58.70	194.78
1222+00	1.25	186.63	1512.57	84.10	155.74	194.68	-130,444.34	50.10	201.48
1223+00	1.25	0.00	345.61	652.57	1364.20	1705.25	-131,803.99	38.20	163.52
1224+00	1.25	0.00	0.00	1439.24	3873.72	4842.15	-136,646.14	53.66	170.11
1225+00	1.25	0.00	0.00	1706.24	5824.96	7281.20	-143,927.34	56.29	203.61
1226+00	1.25	1.15	2.13	1752.85	6405.72	8007.15	-151,932.37	61.03	217.26
1227+00	1.25	0.94	3.87	1559.94	6134.80	7668.50	-159,596.99	57.86	220.17
1228+00	1.25	60.44	113.67	1136.87	4994.09	6242.62	-165,725.94	77.25	250.20
1229+00	1.25	68.30	238.41	822.61	3628.67	4535.83	-170,023.37	55.67	246.15
1230+00	1.25	139.35	384.54	515.58	2478.13	3097.66	-172,736.49	57.68	209.91
1231+00	1.25	0.00	258.06	396.59	1689.20	2111.50	-174,589.94	39.04	179.11
1232+00	1.25	155.12	287.26	0.00	734.43	918.03	-175,220.72	20.73	110.69
1233+00	1.25	1076.67	2281.09	0.00	0.00	0.00	-172,939.62	59.21	148.04
1234+00	1.25	2164.64	6002.43	0.00	0.00	0.00	-166,937.20	87.38	271.46
1235+00	1.25	2406.90	8465.81	0.00	0.00	0.00	-158,471.38	92.07	332.31
1236+00	1.25	1321.15	6903.80	0.00	0.00	0.00	-151,567.59	82.16	322.65
1237+00	1.25	0.00	2446.57	217.01	401.87	502.34	-149,623.35	34.78	216.56
1238+00	1.25	0.00	0.00	961.77	2182.93	2728.66	-152,352.01	92.94	236.52
1239+00	1.25	0.00	0.00	1204.72	4012.02	5015.02	-157,367.03	51.19	266.91
1240+00	1.25	0.00	0.00	1333.21	4699.87	5874.84	-163,241.87	49.84	187.09
1241+00	1.25	0.00	0.00	1325.29	4923.15	6153.94	-169,395.80	48.45	182.02
1242+00	1.25	5.82	10.78	1178.92	4637.43	5796.78	-175,181.81	51.50	185.09
1243+00	1.25	0.00	10.78	1212.53	4428.61	5535.76	-180,706.79	46.97	182.35
1244+00	1.25	0.00	0.00	1008.20	4112.46	5140.58	-185,847.37	44.79	169.93
1245+00	1.25	25.66	47.52	462.47	2723.46	3404.33	-189,204.18	48.52	172.80
1246+00	1.25	86.57	207.83	102.45	1046.15	1307.69	-190,304.03	35.17	154.98
1247+00	1.25	774.62	1594.80	0.00	189.72	237.15	-188,946.39	69.61	194.04
1248+00	1.25	922.45	3142.72	0.00	800.00	1000.00	-186,803.67	50.47	222.37
1249+00	1.25	647.30	2906.94	0.00	0.00	0.00	-183,896.72	58.04	200.94
1250+00	1.25	316.23	1784.31	1.57	2.91	3.63	-182,116.04	51.09	202.09
1251+00	1.25	0.08	585.76	204.53	381.67	477.08	-182,007.37	25.94	142.65
1252+00	1.25	5.81	10.91	729.94	1730.50	2163.13	-184,159.59	49.90	140.44
1253+00	1.25	0.00	10.76	1031.79	3262.46	4078.08	-188,226.91	52.51	189.65
1254+00	1.25	0.00	0.00	869.05	3520.07	4400.09	-192,627.00	48.22	186.54
1255+00	1.25	0.00	0.00	276.93	2122.19	2652.73	-195,279.73	33.29	150.94
1256+00	1.25	280.20	518.89	0.00	512.83	641.04	-195,401.88	37.24	130.61
1257+00	1.25	703.57	1821.80	0.00	0.00	0.00	-193,580.09	47.74	157.37
1258+00	1.25	782.94	2752.80	0.00	0.00	0.00	-190,827.29	51.35	183.50
1259+00	1.25	560.28	2487.44	0.00	0.00	0.00	-188,339.84	52.11	191.59
1260+00	1.25	59.96	1148.59	4.45	8.24	10.30	-187,201.55	22.71	138.56
1261+00	1.25	0.00	111.04	606.66	1131.69	1414.61	-188,505.12	47.54	130.09
1262+00	1.25	0.00	0.00	1264.89	3465.83	4332.29	-192,837.41	60.14	199.41
1263+00	1.25	0.00	0.00	1276.32	4705.94	5882.43	-198,719.84	59.10	220.81
1264+00	1.25	0.00	0.00	785.46	3818.11	4772.64	-203,492.48	42.86	188.81
1264+29	1.25	-	0.00	-	800.00	1000.00	-204,492.48	-	-
1264+37	1.25	-	0.00	-	400.00	500.00	-204,992.48	-	-
1265+00	1.25	0.00	0.00	469.42	2323.85	2904.81	-207,897.30	40.75	154.83
1266+00	1.25	0.00	0.00	363.13	1541.76	1927.20	-209,824.50	53.88	175.24
1267+00	1.25	0.00	0.00	254.07	1142.96	1428.70	-211,253.20	62.17	214.91

SAUBER ENGINEERING

REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-3914
LS-6427
DATE 2/11/25
NORTH DAKOTA

Earthwork Summary

Reconstruction
County Route 1

Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	11	7

Earthwork Quantities Report

Station	Factor	Cut Area (SF)	Cut Volume (CY)	Fill Area (SF)	Fill Volume (CY)	Facotred Fill Volume (CY)	Mass Ordinate (CY)	Topsoil Area (SF)	Topsoil Volume (CY)
1194+00	1.25	0	0.00	143.51	690.26	862.82	-120,639.83	18.55	76.56
1195+00	1.25	17.52	32.44	38.31	336.70	420.88	-121,028.26	32.24	94.06
1196+00	1.25	163.71	335.61	0	70.94	88.68	-120,781.33	37.91	129.91
1197+00	1.25	327.19	909.07	0	0.00	0.00	-119,872.26	41.89	147.78
1198+00	1.25	389.01	1326.30	0	0.00	0.00	-118,545.96	43.87	158.81
1199+00	1.25	323.51	1319.48	0	0.00	0.00	-117,226.48	41.88	158.80
1199+61	1.25	-	0.00	-	160.00	200.00	-117,426.48	-	-
1200+00	1.25	131.33	842.30	0	0.00	0.00	-116,584.19	34.59	141.61
1201+00	1.25	47.95	332.00	26.82	49.67	62.08	-116,314.27	28.22	116.31
1202+00	1.25	67.71	214.19	10.17	68.50	85.63	-116,185.71	26.98	102.22
1203+00	1.25	114.01	336.52	1.31	21.26	26.57	-115,875.76	34.15	113.20
1204+00	1.25	203.41	587.81	0	2.43	3.03	-115,290.98	40.31	137.89
1205+00	1.25	272.94	882.13	0	0.00	0.00	-114,408.85	42.75	153.81
1206+00	1.25	207.18	889.11	0	0.00	0.00	-113,519.74	40.50	154.17
1207+00	1.25	62.12	498.70	11.57	21.43	26.78	-113,047.82	34.16	138.26
1208+00	1.25	18.17	148.69	146.07	291.93	364.91	-113,264.04	29.94	118.70
1209+00	1.25	0	33.65	330.48	882.50	1103.13	-114,333.52	27.23	105.87
1210+00	1.25	0	0.00	482.34	1505.22	1881.53	-116,215.05	33.08	111.69
1211+00	1.25	0	0.00	516.67	1850.02	2312.52	-118,527.57	34.35	124.87
1212+00	1.25	0	0.00	443.33	1777.78	2222.22	-120,749.79	31.65	122.22
1213+00	1.25	0	0.00	511.36	1767.94	2209.93	-122,959.72	33.20	120.09
1214+00	1.25	0	0.00	632.92	2119.04	2648.80	-125,608.52	37.81	131.50
1214+48	1.25	-	0.00	-	400.00	500.00	-126,108.52	-	-
1215+00	1.25	0	0.00	525.58	2145.37	2681.71	-128,790.23	35.61	135.96
1215+19	1.25	-	0.00	-	400.00	500.00	-129,290.23	-	-
1216+00	1.25	11.04	20.44	189.69	1324.57	1655.72	-130,925.50	36.56	133.65
1217+00	1.25	94.6	195.63	93.25	523.96	654.95	-131,384.83	45.61	152.17
1218+00	1.25	84.84	332.30	134.56	421.87	527.34	-131,579.87	43.31	164.67
1219+00	1.25	10.97	177.43	465.99	1112.13	1390.16	-132,792.61	40.25	154.74
1219+56	1.25	-	0.00	-	160.00	200.00	-132,992.61	-	-
1220+00	1.25	352.73	673.52	6.54	875.06	1093.82	-133,412.91	46.48	160.61
1221+00	1.25	630.15	1820.15	0	12.11	15.14	-131,607.90	58.70	194.78
1222+00	1.25	186.61	1512.52	84.11	155.76	194.70	-130,290.08	50.10	201.48
1223+00	1.25	0	345.57	652.6	1364.28	1705.35	-131,649.85	38.20	163.52
1224+00	1.25	0	0.00	1439.26	3873.81	4842.27	-136,492.12	53.67	170.13
1225+00	1.25	0	0.00	1706.26	5825.04	7281.30	-143,773.42	56.29	203.63
1226+00	1.25	1.15	2.13	1752.86	6405.78	8007.22	-151,778.51	61.03	217.26
1227+00	1.25	0.94	3.87	1559.94	6134.81	7668.52	-159,443.16	57.86	220.17
1228+00	1.25	60.43	113.65	1136.87	4994.09	6242.62	-165,572.13	77.25	250.20
1229+00	1.25	68.3	238.39	822.61	3628.67	4535.83	-169,869.57	55.67	246.15
1230+00	1.25	139.34	384.52	515.59	2478.15	3097.69	-172,582.74	57.68	209.91
1231+00	1.25	0	258.04	396.59	1689.22	2111.53	-174,436.23	39.04	179.11
1232+00	1.25	155.13	287.28	0	734.43	918.03	-175,066.98	20.73	110.69
1233+00	1.25	1076.7	2281.17	0	0.00	0.00	-172,785.82	59.21	148.04
1234+00	1.25	2164.65	6002.50	0	0.00	0.00	-166,783.32	87.38	271.46
1235+00	1.25	2406.91	8465.85	0	0.00	0.00	-158,317.46	92.07	332.31
1236+00	1.25	1321.11	6903.74	0	0.00	0.00	-151,413.72	82.15	322.63
1237+00	1.25	0	2446.50	217.02	401.89	502.36	-149,469.58	34.78	216.54
1238+00	1.25	0	0.00	961.77	2182.94	2728.68	-152,198.26	92.94	236.52
1239+00	1.25	0	0.00	1204.72	4012.02	5015.02	-157,213.29	51.19	266.91
1240+00	1.25	0	0.00	1333.2	4699.85	5874.81	-163,088.10	49.84	187.09
1241+00	1.25	0	0.00	1325.28	4923.11	6153.89	-169,241.99	48.45	182.02
1242+00	1.25	5.82	10.78	1178.91	4637.39	5796.74	-175,027.95	51.50	185.09
1243+00	1.25	0	10.78	1212.52	4428.57	5535.72	-180,552.89	46.97	182.35
1244+00	1.25	0	0.00	1008.19	4112.43	5140.53	-185,693.42	44.79	169.93
1245+00	1.25	25.67	47.54	462.46	2723.43	3404.28	-189,050.17	48.52	172.80
1246+00	1.25	86.57	207.85	102.44	1046.11	1307.64	-190,149.95	35.17	154.98
1247+00	1.25	774.64	1594.83	0	189.70	237.13	-188,792.25	69.61	194.04
1248+00	1.25	922.46	3142.78	0	800.00	1000.00	-186,649.47	50.47	222.37
1249+00	1.25	647.3	2906.96	0	0.00	0.00	-183,742.51	58.04	200.94
1250+00	1.25	316.22	1784.30	1.57	2.91	3.63	-181,961.85	51.09	202.09
1251+00	1.25	0.08	585.74	204.54	381.69	477.11	-181,853.21	25.94	142.65
1252+00	1.25	5.81	10.91	729.95	1730.54	2163.17	-184,005.48	49.90	140.44
1253+00	1.25	0	10.76	1031.8	3262.50	4078.13	-188,072.84	52.51	189.65
1254+00	1.25	0	0.00	869.06	3520.11	4400.14	-192,472.98	48.22	186.54
1255+00	1.25	0	0.00	276.93	2122.20	2652.75	-195,125.74	33.29	150.94
1256+00	1.25	280.2	518.89	0	512.83	641.04	-195,247.89	37.24	130.61
1257+00	1.25	703.56	1821.78	0	0.00	0.00	-193,426.11	47.74	157.37
1258+00	1.25	782.92	2752.74	0	0.00	0.00	-190,673.37	51.35	183.50
1259+00	1.25	560.26	2487.37	0	0.00	0.00	-188,186.00	52.11	191.59
1260+00	1.25	59.95	1148.54	4.45	8.24	10.30	-187,047.76	22.71	138.56
1261+00	1.25	0	111.02	606.68	1131.72	1414.65	-188,351.40	47.54	130.09
1262+00	1.25	0	0.00	1264.91	3465.91	4332.38	-192,683.78	60.14	199.41
1263+00	1.25	0	0.00	1276.33	4706.00	5882.50	-198,566.28	59.10	220.81
1264+00	1.25	0	0.00	785.45	3818.11	4772.64	-203,338.92	42.86	188.81
1264+29	1.25	-	0.00	-	800.00	1000.00	-204,338.92	-	-
1264+37	1.25	-	0.00	-	400.00	500.00	-204,838.92	-	-
1265+00	1.25	0	0.00	469.43	2323.85	2904.81	-207,743.74	40.75	154.83
1266+00	1.25	0	0.00	363.13	1541.78	1927.22	-209,670.96	53.88	175.24
1267+00	1.25	0	0.00	254.07	1142.96	1428.70	-211,099.66	62.17	214.91

SAUBER ENGINEERING

Earthwork Summary

Reconstruction
County Route 1

Mountrail County, ND

Earthwork Quantities Report

Station	Factor	Cut Area (SF)	Cut Volume (CY)	Fill Area (SF)	Fill Volume (CY)	Facotred Fill Volume (CY)	Mass Ordinate (CY)	Topsoil Area (SF)	Topsoil Volume (CY)
1268+00	1.25	0.00	0.00	138.35	726.70	908.38	-212,161.58	31.01	172.56
1269+00	1.25	10.88	20.15	53.16	354.65	443.31	-212,584.74	20.17	94.78
1270+00	1.25	9.09	36.98	38.98	170.63	213.29	-212,761.05	19.32	73.13
1271+00	1.25	24.26	61.76	25.12	118.70	148.38	-212,847.67	23.48	79.26
1272+00	1.25	12.77	68.57	36.64	114.37	142.96	-212,922.06	17.38	75.67
1273+00	1.25	6.75	36.15	73.09	203.20	254.00	-213,139.91	24.15	76.91
1274+00	1.25	7.32	26.06	79.85	283.22	354.03	-213,467.89	25.91	92.70
1275+00	1.25	6.96	26.44	75.95	288.52	360.65	-213,802.09	25.40	95.02
1276+00	1.25	11.16	33.56	112.40	348.80	436.00	-214,204.53	30.12	102.81
1277+00	1.25	9.03	37.39	149.61	485.20	606.50	-214,773.65	34.60	119.85
1278+00	1.25	7.84	31.24	119.59	498.52	623.15	-215,365.55	27.94	115.81
1279+00	1.25	4.57	22.98	152.40	503.69	629.61	-215,972.18	29.19	105.80
1280+00	1.25	87.22	169.98	131.30	525.37	656.71	-216,458.91	60.60	166.28
1281+00	1.25	266.01	654.13	95.23	419.50	524.38	-216,329.16	68.51	239.09
1282+00	1.25	341.81	1125.59	68.36	302.94	378.68	-215,582.24	64.27	245.89
1283+00	1.25	379.00	1334.83	0.00	126.59	158.24	-214,405.65	42.84	198.35
1284+00	1.25	313.76	1282.89	0.00	0.00	0.00	-213,122.76	37.43	148.65
1285+00	1.25	45.25	664.83	39.59	73.31	91.64	-212,549.57	32.18	128.91
1286+00	1.25	0.00	83.80	324.93	675.04	843.80	-213,309.57	37.64	129.30
1287+00	1.25	0.00	0.00	553.27	1626.30	2032.87	-215,342.44	42.70	148.78
1288+00	1.25	2.33	4.31	712.94	2344.83	2931.04	-218,269.17	47.97	167.91
1289+00	1.25	2.16	8.31	615.00	2459.15	3073.94	-221,334.79	40.77	164.33
1290+00	1.25	5.00	13.26	492.98	2051.81	2564.77	-223,886.30	32.35	135.41
1291+00	1.25	5.05	18.61	337.70	1538.30	1922.87	-225,790.56	29.49	114.52
1292+00	1.25	0.00	9.35	206.05	1006.94	1258.68	-227,039.89	10.14	73.39
1292+06	1.25	-	0.00	-	400.00	500.00	-227,539.89	-	-
1292+10	1.25	-	0.00	-	400.00	500.00	-228,039.89	-	-
1293+00	1.25	7.60	14.07	319.84	973.87	1217.34	-229,243.15	33.38	80.59
1294+00	1.25	4.59	22.57	296.25	1140.91	1426.13	-230,646.71	38.81	133.69
1295+00	1.25	35.23	73.74	116.01	763.44	954.31	-231,527.28	20.72	110.24
1295+10	1.25	-	0.00	-	400.00	500.00	-232,027.28	-	-
1296+00	1.25	6.01	76.37	57.92	322.09	402.62	-232,353.52	27.95	90.13
1297+00	1.25	163.47	313.85	8.18	122.41	153.01	-232,192.68	28.79	105.07
1297+76	1.25	-	0.00	-	160.00	200.00	-232,392.68	-	-
1298+00	1.25	180.28	636.57	0.00	15.15	18.94	-231,775.04	20.45	91.19
1298+63	1.25	-	0.00	-	160.00	200.00	-231,975.04	-	-
1299+00	1.25	15.83	363.17	76.06	140.85	176.06	-231,787.94	23.25	80.93
1300+00	1.25	4.28	37.24	83.82	296.07	370.09	-232,120.79	23.30	86.20
1301+00	1.25	2.35	12.28	24.73	201.02	251.27	-232,359.78	24.59	88.69
1302+00	1.25	129.33	243.85	0.08	45.94	57.43	-232,173.36	33.68	107.91
1303+00	1.25	0.00	239.50	0.00	0.15	0.19	-231,934.05	0.00	62.37
			608185.47		Total	840119.52		Total	103350.85

203 0119 Topsoil Imported (CY)	
Station	CY
791+70 to 798+70 Lt	246
794+00 to 798+50 Rt	158
825+05 to 829+00 Rt	139
905+85 to 909+75 Rt	137
906+10 to 910+50 Lt	155
922+05 to 927+30 Lt	185
922+75 to 928+30 Rt	195
949+90 to 955+05 Rt	181
950+15 to 959+70 Lt	336
1027+80 to 1030+60 Rt	99
1059+90 to 1065+70 Lt	204
1082+20 to 1089+20 Lt	246
1099+05 to 1101+00 Lt	69
1123+70 to 1131+00 Lt	257
1266+30 to 1282+90 Lt	584
1285+15 to 1288+95 Lt	134
Total	**3325**

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
Revised 02/11/25	ND	01(62)23	11	8

Approach Quantities			
Station	Factored Fill Volume (CY)	Station	Factored Fill Volume (CY)
789+81 Lt	200	1002+36 Rt	200
791+00 Rt	500	1024+97 Lt	500
806+58 Lt	200	1025+05 Rt	500
817+24 Lt	200	1028+38 Lt	500
817+29 Rt	200	1039+36 Rt	200
824+32 Rt	200	1039+39 Lt	200
824+85 Lt	200	1048+57 Lt	200
834+89 Lt	500	1060+31 Rt	500
836+95 Rt	500	1093+17 Rt	200
843+90 Lt	500	1111+50 Lt	200
845+78 Rt	200	1122+00 Rt	600
848+20 Lt	500	1131+99 Lt	500
860+31 Lt	200	1139+07 Rt	500
860+46 Rt	200	1146+15 Lt	200
870+29 Lt	200	1155+92 Lt	1000
870+36 Rt	200	1155+94 Rt	500
884+80 Rt	500	1164+73 Rt	200
889+90 Lt	500	1172+58 Rt	200
896+20 Lt	200	1172+74 Lt	200
896+71 Rt	200	1189+52 Lt	200
897+57 Lt	200	1199+61 Rt	200
914+53 Lt & Rt	400	1214+48 Lt	500
918+36 Lt	200	1215+19 Rt	500
943+50 Lt & Rt	1700	1219+56 Rt	200
956+36 Rt	200	1248+00 Lt & Rt	1000
962+43 Rt	200	1264+29 Lt	1000
966+15 Rt	200	1264+37 Rt	500
966+40 Lt	200	1292+06 Lt	500
973+92 Rt	500	1292+10 Rt	500
975+81 Rt	200	1295+10 Rt	500
975+85 Lt	200	1297+76 Rt	200
979+48 Lt	200	1298+63 Lt	200
1002+29 Lt	200	Total	23800

*Approach quantities are included in the earthwork summary table and mass diagram

SAUBER ENGINEERING

REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-3014
LS-8427
DATE 2/11/25
NORTH DAKOTA

Earthwork Summary

Reconstruction
County Route 1

Mountrail County, ND

Earthwork Quantities Report

Station	Factor	Cut Area (SF)	Cut Volume (CY)	Fill Area (SF)	Fill Volume (CY)	Facotred Fill Volume (CY)	Mass Ordinate (CY)	Topsoil Area (SF)	Topsoil Volume (CY)
1268+00	1.25	0	0.00	138.34	726.69	908.36	-212,008.02	31.01	172.56
1269+00	1.25	10.88	20.15	53.16	354.63	443.29	-212,431.16	20.17	94.78
1270+00	1.25	9.09	36.98	38.98	170.63	213.29	-212,607.46	19.32	73.13
1271+00	1.25	24.27	61.78	25.12	118.70	148.38	-212,694.07	23.49	79.28
1272+00	1.25	12.77	68.59	36.64	114.37	142.96	-212,768.44	17.38	75.69
1273+00	1.25	6.75	36.15	73.09	203.20	254.00	-212,986.29	24.15	76.91
1274+00	1.25	7.32	26.06	79.85	283.22	354.03	-213,314.26	25.91	92.70
1275+00	1.25	6.96	26.44	75.95	288.52	360.65	-213,648.47	25.40	95.02
1276+00	1.25	11.16	33.56	112.4	348.80	436.00	-214,050.91	30.12	102.81
1277+00	1.25	9.03	37.39	149.62	485.22	606.53	-214,620.05	34.60	119.85
1278+00	1.25	7.84	31.24	119.58	498.52	623.15	-215,211.95	27.94	115.81
1279+00	1.25	4.57	22.98	152.4	503.67	629.58	-215,818.56	29.19	105.80
1280+00	1.25	87.22	169.98	131.3	525.37	656.71	-216,305.29	60.60	166.28
1281+00	1.25	266.01	654.13	95.23	419.50	524.38	-216,175.53	68.51	239.09
1282+00	1.25	341.81	1125.59	68.36	302.94	378.68	-215,428.62	64.26	245.87
1283+00	1.25	379	1334.83	0	126.59	158.24	-214,252.03	42.84	198.33
1284+00	1.25	313.76	1282.89	0	0.00	0.00	-212,969.14	37.43	148.65
1285+00	1.25	45.24	664.81	39.59	73.31	91.64	-212,395.97	32.18	128.91
1286+00	1.25	0	83.78	324.93	675.04	843.80	-213,155.99	37.64	129.30
1287+00	1.25	0	0.00	553.27	1626.30	2032.87	-215,188.86	42.70	148.78
1288+00	1.25	2.33	4.31	712.94	2344.83	2931.04	-218,115.58	47.97	167.91
1289+00	1.25	2.16	8.31	614.99	2459.13	3073.91	-221,181.18	40.77	164.33
1290+00	1.25	5	13.26	492.97	2051.78	2564.72	-223,732.64	32.35	135.41
1291+00	1.25	5.05	18.61	337.69	1538.26	1922.82	-225,636.86	29.49	114.52
1292+00	1.25	0	9.35	206.05	1006.93	1258.66	-226,886.16	10.14	73.39
1292+06	1.25	-	0.00	-	400.00	500.00	-227,386.16	-	-
1292+10	1.25	-	0.00	-	400.00	500.00	-227,886.16	-	-
1293+00	1.25	7.6	14.07	319.83	973.85	1217.31	-229,089.40	33.38	80.59
1294+00	1.25	4.59	22.57	296.24	1140.87	1426.09	-230,492.92	38.81	133.69
1295+00	1.25	35.24	73.76	116	763.41	954.26	-231,373.42	20.72	110.24
1295+10	1.25	-	0.00	-	400.00	500.00	-231,873.42	-	-
1296+00	1.25	6.01	76.39	57.91	322.06	402.57	-232,199.60	27.94	90.11
1297+00	1.25	163.48	313.87	8.18	122.39	152.99	-232,038.71	28.79	105.06
1297+76	1.25	-	0.00	-	160.00	200.00	-232,238.71	-	-
1298+00	1.25	180.28	636.59	0	15.15	18.94	-231,621.06	20.44	91.17
1298+63	1.25	-	0.00	-	160.00	200.00	-231,821.06	-	-
1299+00	1.25	15.83	363.17	76.06	140.85	176.06	-231,633.95	23.25	80.91
1300+00	1.25	4.28	37.24	83.81	296.06	370.07	-231,966.78	23.30	86.20
1301+00	1.25	2.35	12.28	24.73	201.00	251.25	-232,205.75	24.59	88.69
1302+00	1.25	129.35	243.89	0.07	45.93	57.41	-232,019.27	33.68	107.91
1303+00	1.25	0	239.54	0	0.13	0.16	-231,779.90	0.00	62.37
			615460.36		Total	847240.26		Total	103393.93

203 0119 Topsoil Imported (CY)	
Station	CY
791+70 to 798+70 Lt	246
794+00 to 798+50 Rt	158
825+05 to 829+00 Rt	139
905+85 to 909+75 Rt	137
906+10 to 910+50 Lt	155
922+05 to 927+30 Lt	185
922+75 to 928+30 Rt	195
949+90 to 955+05 Rt	181
950+15 to 959+70 Lt	336
1027+80 to 1030+60 Rt	99
1059+90 to 1065+70 Lt	204
1082+20 to 1089+20 Lt	246
1099+05 to 1101+00 Lt	69
1123+70 to 1131+00 Lt	257
1266+30 to 1282+90 Lt	584
1285+15 to 1288+95 Lt	134
Total	**3325**

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	11	8

Approach Quantities			
Station	Factored Fill Volume (CY)	Station	Factored Fill Volume (CY)
789+81 Lt	200	1002+36 Rt	200
791+00 Rt	500	1024+97 Lt	500
806+58 Lt	200	1025+05 Rt	500
817+24 Lt	200	1028+38 Lt	500
817+29 Rt	200	1039+36 Rt	200
824+32 Rt	200	1039+39 Lt	200
824+85 Lt	200	1048+57 Lt	200
834+89 Lt	500	1060+31 Rt	500
836+95 Rt	500	1093+17 Rt	200
843+90 Lt	500	1111+50 Lt	200
845+78 Rt	200	1122+00 Rt	600
848+20 Lt	500	1131+99 Lt	500
860+31 Lt	200	1139+07 Rt	500
860+46 Rt	200	1146+15 Lt	200
870+29 Lt	200	1155+92 Lt	1000
870+36 Rt	200	1155+94 Rt	500
884+80 Rt	500	1164+73 Rt	200
889+90 Lt	500	1172+58 Rt	200
896+20 Lt	200	1172+74 Lt	200
896+71 Rt	200	1189+52 Lt	200
897+57 Lt	200	1199+61 Rt	200
914+53 Lt & Rt	400	1214+48 Lt	500
918+36 Lt	200	1215+19 Rt	500
943+50 Lt & Rt	1700	1219+56 Rt	200
956+36 Rt	200	1248+00 Lt & Rt	1000
962+43 Rt	200	1264+29 Lt	1000
966+15 Rt	200	1264+37 Rt	500
966+40 Lt	200	1292+06 Lt	500
973+92 Rt	500	1292+10 Rt	500
975+81 Rt	200	1295+10 Rt	500
975+85 Lt	200	1297+76 Rt	200
979+48 Lt	200	1298+63 Lt	200
1002+29 Lt	200	Total	23800

*Approach quantities are included in the earthwork summary table and mass diagram

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REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-3914
LS-6427
DATE 1/28/25
NORTH DAKOTA

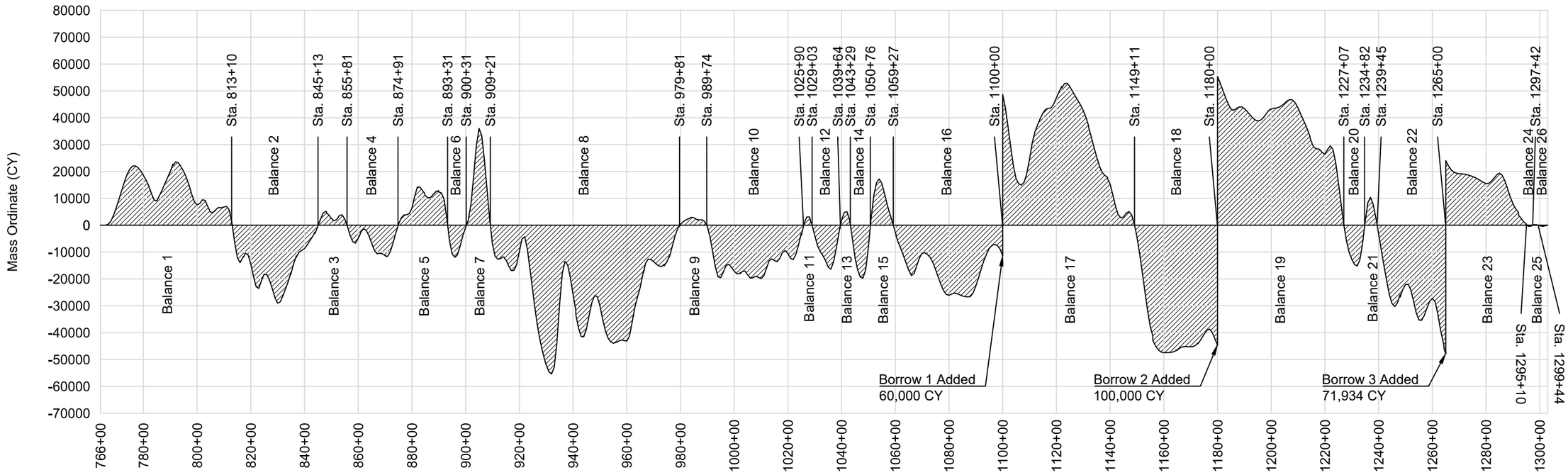
Earthwork Summary

Reconstruction
County Route 1

Mountrail County, ND

Revised 02/11/25	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	11	9

CR 1 Mass Diagram



Balance 1
Haul = 589,757 CY Sta
Excavation Hauled = 41,914 CY
Average Haul for Balance = 14.07 Sta

Balance 2
Haul = 493,992 CY Sta
Excavation Hauled = 40,159 CY
Average Haul for Balance = 12.30 Sta

Balance 3
Haul = 31,628 CY Sta
Excavation Hauled = 7,650 CY
Average Haul for Balance = 4.13 Sta

Balance 4
Haul = 121,342 CY Sta
Excavation Hauled = 17,655 CY
Average Haul for Balance = 6.87 Sta

Balance 5
Haul = 164,774 CY Sta
Excavation Hauled = 16,964 CY
Average Haul for Balance = 9.71 Sta

Balance 6
Haul = 50,445 CY Sta
Excavation Hauled = 12,550 CY
Average Haul for Balance = 4.02 Sta

Balance 7
Haul = 165,589 CY Sta
Excavation Hauled = 36,024 CY
Average Haul for Balance = 4.60 Sta

Balance 8
Haul = 1,827,558 CY Sta
Excavation Hauled = 120,219 CY
Average Haul for Balance = 15.20 Sta

Balance 9
Haul = 18,977 CY Sta
Excavation Hauled = 2,947 CY
Average Haul for Balance = 6.44 Sta

Balance 10
Haul = 511,573 CY Sta
Excavation Hauled = 32,389 CY
Average Haul for Balance = 15.79 Sta

Balance 11
Haul = 6,396 CY Sta
Excavation Hauled = 3,084 CY
Average Haul for Balance = 2.07 Sta

Balance 12
Haul = 102,077 CY Sta
Excavation Hauled = 16,777 CY
Average Haul for Balance = 6.08 Sta

Balance 13
Haul = 12,358 CY Sta
Excavation Hauled = 5,073 CY
Average Haul for Balance = 2.44 Sta

Balance 14
Haul = 95,520 Sta
Excavation Hauled = 19,888 CY
Average Haul for Balance = 4.80 Sta

Balance 15
Haul = 85,506 CY Sta
Excavation Hauled = 17,214 CY
Average Haul for Balance = 4.97 Sta

Balance 16
Haul = 675,909 CY Sta
Excavation Hauled = 40,439 CY
Average Haul for Balance = 16.71 Sta

Balance 17
Haul = 1,460,582 CY Sta
Excavation Hauled = 89,772 CY
Average Haul for Balance = 16.27 Sta

Balance 18
Haul = 1,216,890 CY Sta
Excavation Hauled = 54,175 CY
Average Haul for Balance = 22.46 Sta

Balance 19
Haul = 1,797,703 CY Sta
Excavation Hauled = 67,945 CY
Average Haul for Balance = 26.46 Sta

Balance 20
Haul = 77,357 CY Sta
Excavation Hauled = 15,211 CY
Average Haul for Balance = 5.08 Sta

Balance 21
Haul = 29,266 CY Sta
Excavation Hauled = 10,377 CY
Average Haul for Balance = 2.82 Sta

Balance 22
Haul = 699,841 CY Sta
Excavation Hauled = 64,395 CY
Average Haul for Balance = 10.70 Sta

Balance 23
Haul = 459,539 CY Sta
Excavation Hauled = 27,947 CY
Average Haul for Balance = 16.44 Sta

Balance 24
Haul = 638 CY Sta
Excavation Hauled = 419 CY
Average Haul for Balance = 1.52 Sta

Balance 25
Haul = 267 CY Sta
Excavation Hauled = 546 CY
Average Haul for Balance = 0.49 Sta

Balance 26
Haul = 810 Sta
Excavation Hauled = 425 CY
Average Haul for Balance = 1.91 Sta

Haul for Project
Haul = 10,696,294 CY Sta
Excavation Hauled = 763,168 CY
Average Haul for Balance = 14.02 Sta

SAUBER ENGINEERING

REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-3914
LS-5427
DATE 2/11/25
NORTH DAKOTA

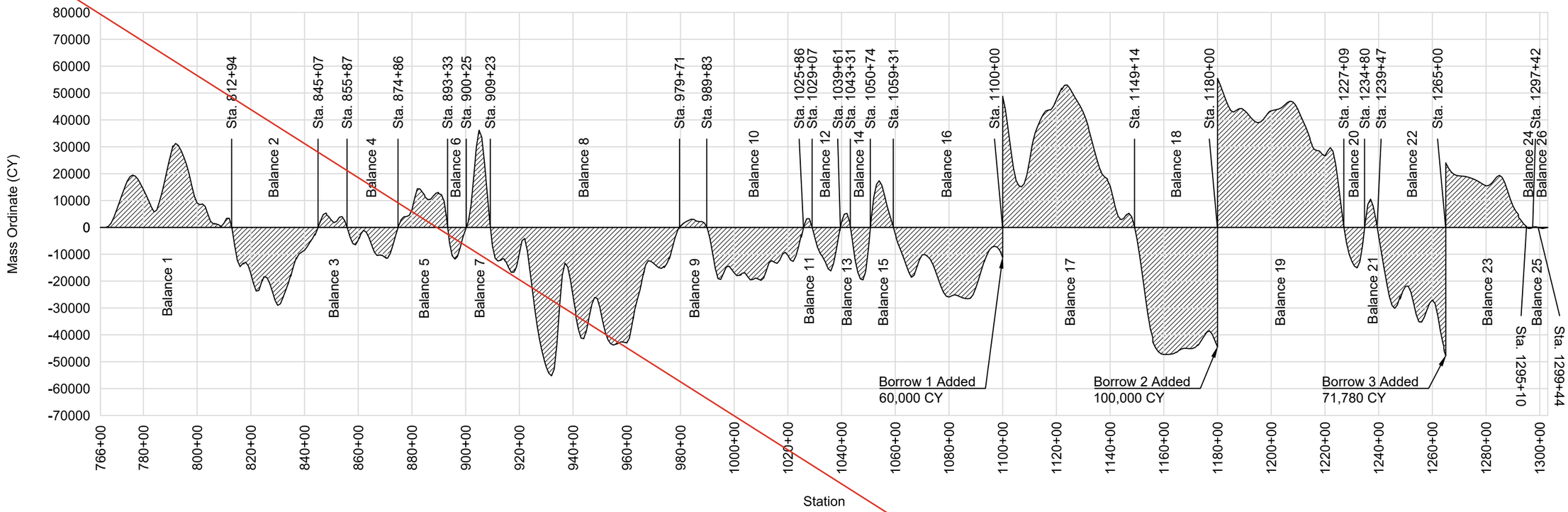
Mass Diagram

Reconstruction
County Route 1

Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	11	9

CR 1 Mass Diagram



Balance 1
Haul = 572,738 CY Sta
Excavation Hauled = 49,148 CY
Average Haul for Balance = 11.65 Sta

Balance 2
Haul = 506,373 CY Sta
Excavation Hauled = 38,486 CY
Average Haul for Balance = 13.16 Sta

Balance 3
Haul = 33,277 CY Sta
Excavation Hauled = 7,815 CY
Average Haul for Balance = 4.26 Sta

Balance 4
Haul = 118,270 CY Sta
Excavation Hauled = 17,495 CY
Average Haul for Balance = 6.76 Sta

Balance 5
Haul = 167,736 CY Sta
Excavation Hauled = 17,125 CY
Average Haul for Balance = 9.79 Sta

Balance 6
Haul = 49,326 CY Sta
Excavation Hauled = 12,389 CY
Average Haul for Balance = 3.98 Sta

Balance 7
Haul = 167,025 CY Sta
Excavation Hauled = 36,185 CY
Average Haul for Balance = 4.62 Sta

Balance 8
Haul = 1,816,208 CY Sta
Excavation Hauled = 120,058 CY
Average Haul for Balance = 15.13 Sta

Balance 9
Haul = 20,592 CY Sta
Excavation Hauled = 3,107 CY
Average Haul for Balance = 6.63 Sta

Balance 10
Haul = 505,752 CY Sta
Excavation Hauled = 32,227 CY
Average Haul for Balance = 15.69 Sta

Balance 11
Haul = 6,907 CY Sta
Excavation Hauled = 3,245 CY
Average Haul for Balance = 2.13 Sta

Balance 12
Haul = 100,372 CY Sta
Excavation Hauled = 16,616 CY
Average Haul for Balance = 6.04 Sta

Balance 13
Haul = 12,951 CY Sta
Excavation Hauled = 5,235 CY
Average Haul for Balance = 2.47 Sta

Balance 14
Haul = 94,317 Sta
Excavation Hauled = 19,727 CY
Average Haul for Balance = 4.78 Sta

Balance 15
Haul = 86,884 CY Sta
Excavation Hauled = 17,376 CY
Average Haul for Balance = 5.00 Sta

Balance 16
Haul = 669,634 CY Sta
Excavation Hauled = 40,279 CY
Average Haul for Balance = 16.62 Sta

Balance 17
Haul = 1,468,103 CY Sta
Excavation Hauled = 90,125 CY
Average Haul for Balance = 16.29 Sta

Balance 18
Haul = 1,212,074 CY Sta
Excavation Hauled = 54,021 CY
Average Haul for Balance = 22.44 Sta

Balance 19
Haul = 1,804,943 CY Sta
Excavation Hauled = 68,099 CY
Average Haul for Balance = 26.50 Sta

Balance 20
Haul = 76,170 CY Sta
Excavation Hauled = 15,067 CY
Average Haul for Balance = 5.06 Sta

Balance 21
Haul = 29,979 CY Sta
Excavation Hauled = 10,530 CY
Average Haul for Balance = 2.85 Sta

Balance 22
Haul = 695,918 CY Sta
Excavation Hauled = 65,241 CY
Average Haul for Balance = 10.67 Sta

Balance 23
Haul = 459,524 CY Sta
Excavation Hauled = 27,946 CY
Average Haul for Balance = 16.44 Sta

Balance 24
Haul = 638 CY Sta
Excavation Hauled = 420 CY
Average Haul for Balance = 1.52 Sta

Balance 25
Haul = 267 CY Sta
Excavation Hauled = 546 CY
Average Haul for Balance = 0.49 Sta

Balance 26
Haul = 810 Sta
Excavation Hauled = 426 CY
Average Haul for Balance = 1.90 Sta

Haul for Project
Haul = 10,676,788 CY Sta
Excavation Hauled = 768,934 CY
Average Haul for Balance = 13.89 Sta

SAUBER ENGINEERING

REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-8214
LS-8427
DATE 1/28/25
NORTH DAKOTA

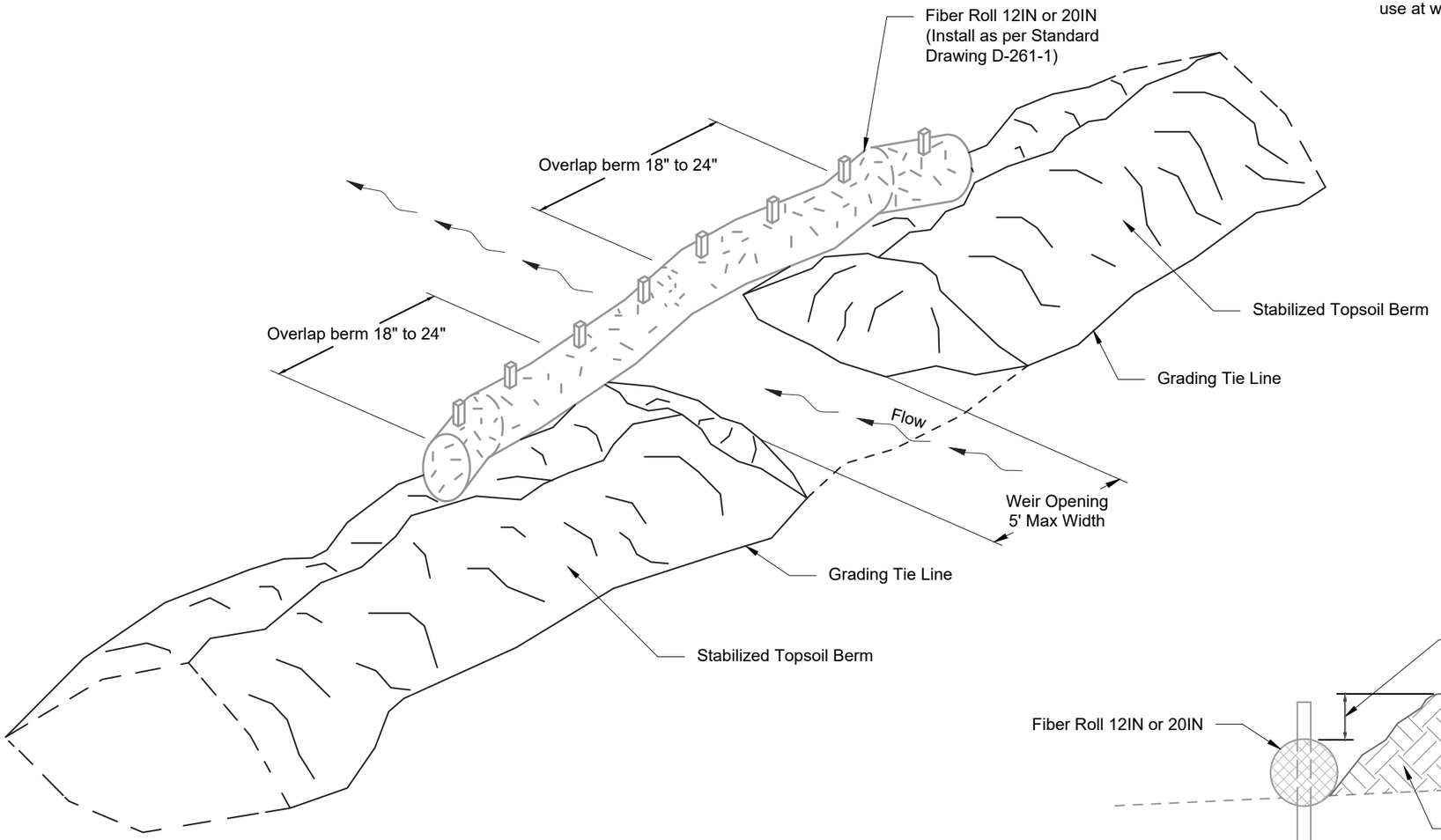
Mass Diagram

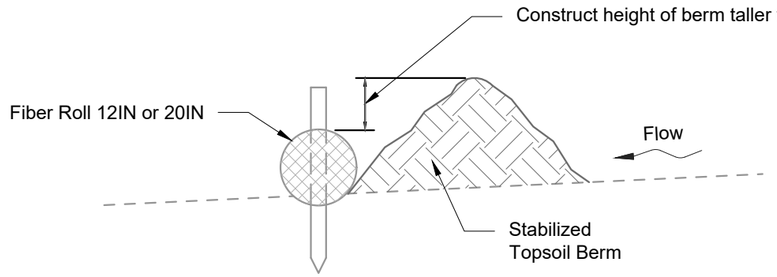
Reconstruction
County Route 1

Mountrail County, ND

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	20	1

A quantity of 3,000 LF of Fiber Roll 12IN has been included in the quantities for use at weirs. The Engineer will measure the actual quantity 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" or "Fiber Rolls 20IN".

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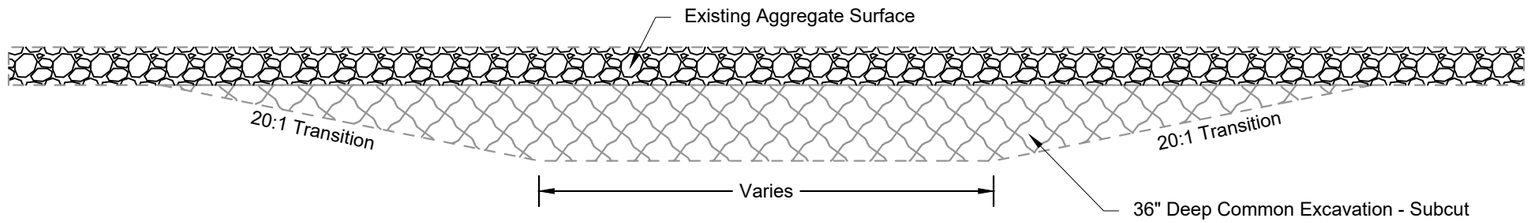
Temporary Topsoil Berm & Weir Detail

Reconstruction
County Route 1

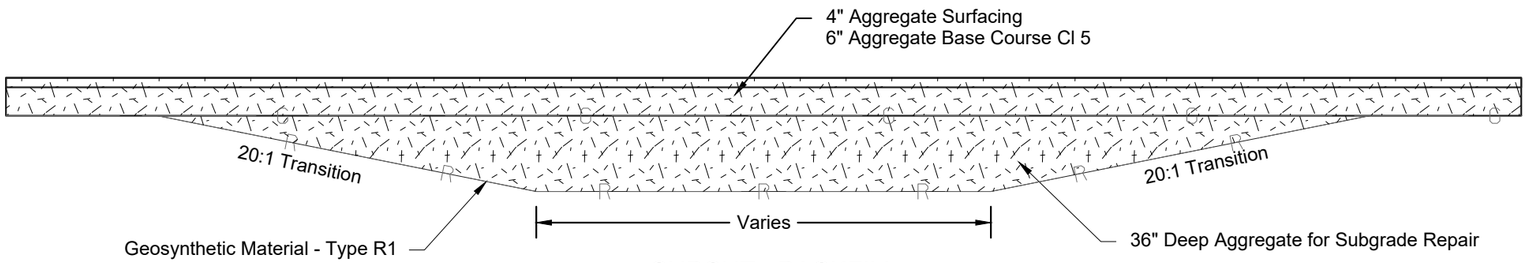
Mountrail County, ND

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	20	2

Discretionary Subcut Estimates					
	[1] Width	Length	Common Excavation-Subcut	[2,4] Aggregate for subgrade Repair	[3] Geosynthetic Material - Type R1
	LF	LF	CY	Ton	SY
Full Depth	37	500	2,056	3,855	2,056
Transition	37	120	247	463	494
Total (20 Locations)			46,060	86,360	51,000
Note: for estimating purposes, it has been assumed there will be 2 - 500' subcut per mile					
	[1] Width is based on a 37' wide subgrade once base is removed				
	[2] Aggregate for Subgrade Repair calculated using 1.875 Ton/CY				
	[3] Geosynthetic Material - Type R1 will be placed in 37' widths.				
	[4] Can be either Class 3 or Class 5				



SUBCUT - REMOVAL



SUBCUT - BACKFILL

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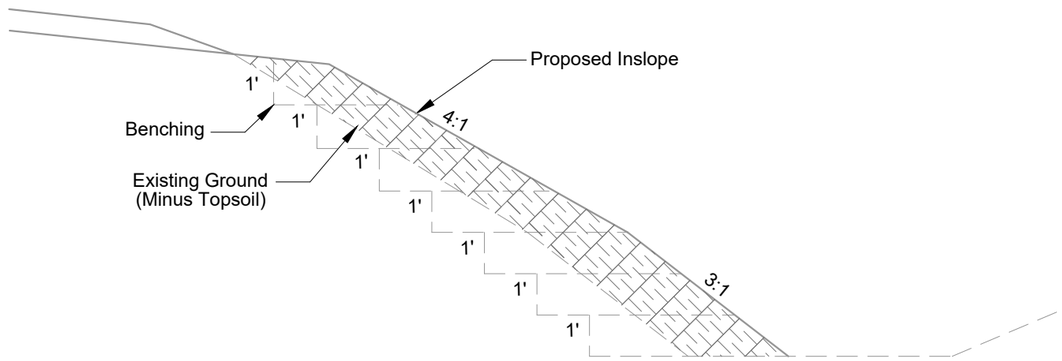
JOHN D. SAUBER JR.
PE-3914
LS-6427
DATE 1/28/25
NORTH DAKOTA

Subcut Details

Reconstruction
County Route 1

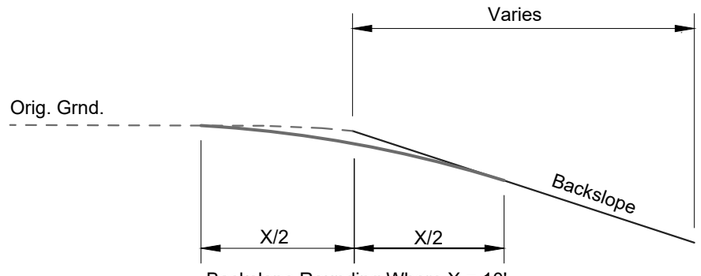
Mountrail County, ND

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	20	3



BENCHING TYPICAL SECTION

Not to Scale



Backslope Rounding Where X = 10'
Unless Restricted By Height Of Backslope

BACKSLOPE ROUNDING

Not to Scale

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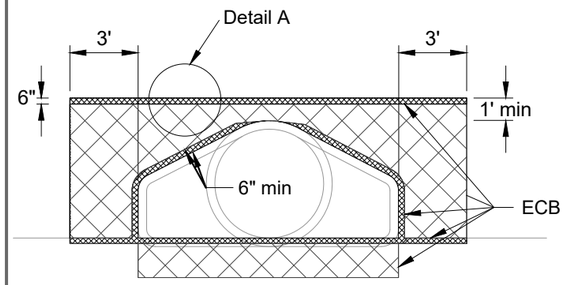
REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-3914
LS-8427
DATE 1/28/25
NORTH DAKOTA

Benching & Backslope Detail

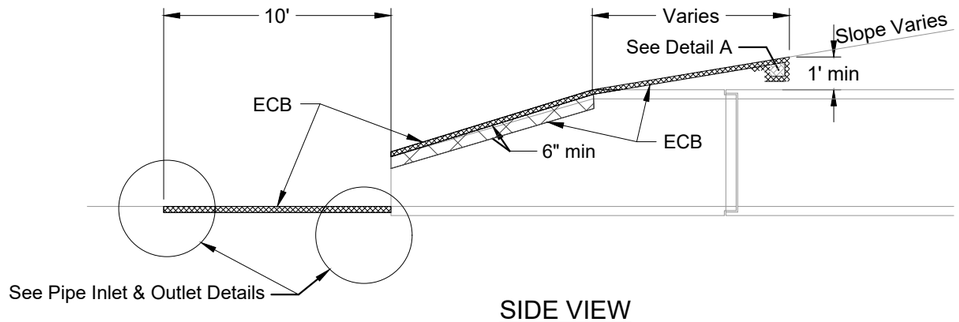
Reconstruction
County Route 1

Mountrail County, ND

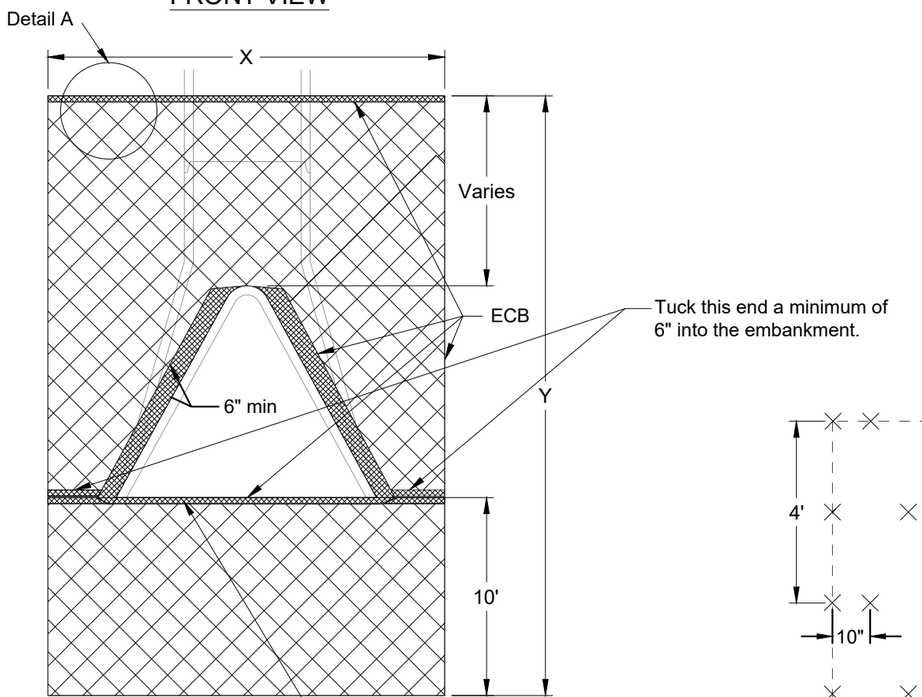
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	20	4



FRONT VIEW



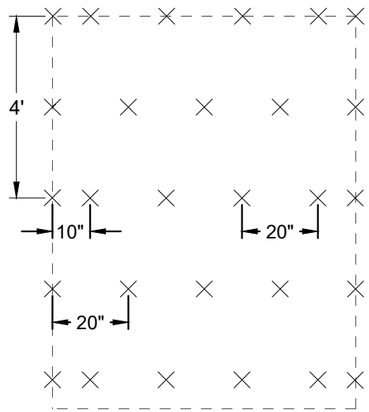
SIDE VIEW



TOP VIEW

Inlet side - see applicable detail for pipe inlet.
Oulet side - see applicable detail for pipe outlet.

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

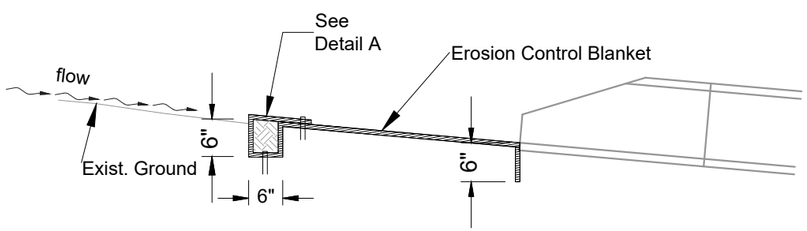


STAPLE PATTERN

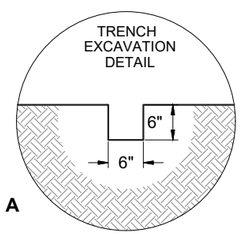
APPROACH CULVERTS				
DIA	X	Y	Surface area to be protected	ECB
In	Ft	Ft	SF	SY
15	9.0	20.0	176.0	20
18	9.5	20.7	190.7	22
21	9.5	21.0	190.9	22
24	10.5	21.6	214.1	24
27	11.0	22.0	226.3	25
30	11.6	22.5	241.5	27
36	12.7	23.3	268.8	30
42	13.3	23.3	279.7	31
48	13.8	24.0	293.2	33
54	14.5	23.4	300.6	34
60	15.0	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.				

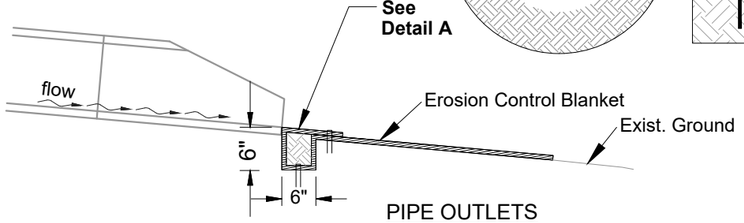
CENTERLINE CULVERTS									
DIA	X	Y	Surface area to be protected	ECB	DIA	X	Y	Surface area to be protected	ECB
In	Ft	Ft	SF	SY	In	Ft	Ft	SF	SY
24	10.5	19.6	193.1	22	24	10.5	17.6	172.1	20
27	11.0	20.0	204.3	23	27	11.0	18.0	182.3	21
30	11.6	20.5	218.3	25	30	11.6	18.5	195.1	22
36	12.7	21.2	242.1	27	36	12.7	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.				

SAUBER ENGINEERING

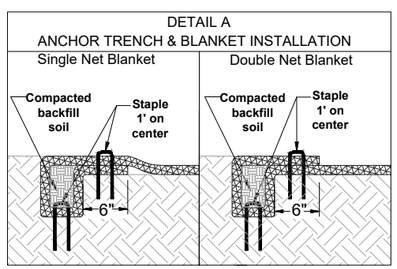


PIPE INLETS





PIPE OUTLETS



Erosion Control at Culvert Flared End Sections

Reconstruction
County Route 1

Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	20	5

Erosion Control Blanket (ECB)								
Location to be Protected Station	Culvert Type Appr/CL	Pipe Diam (Inch)	No.	Unit Quantity (SY)	Total Quantity Type 1 (SY)	Type 2 (SY)	Type 3 (SY)	Type 4 (SY)
782+75	CL	30	1	22			22	
789+81 L	APPR	24	2	24			48	
791+00 R	APPR	24	2	24			48	
803+18	CL	36	2	24			48	
806+58 L	APPR	24	2	24			48	
817+24 L	APPR	24	2	24			48	
817+29 R	APPR	24	2	24			48	
820+85	CL	30	1	22			22	
824+32 R	APPR	24	2	24			48	
834+89 L	APPR	24	2	24			48	
836+95 R	APPR	24	2	24			48	
843+90 L	APPR	24	2	24			48	
845+78 R	APPR	24	2	24			48	
848+20 L	APPR	24	2	24			48	
857+16	CL	54	2	28			56	
860+31 L	APPR	24	2	24			48	
860+46 R	APPR	24	2	24			48	
865+21	CL	24	2	20			40	
869+64	CL	24	2	20			40	
870+36 R	APPR	24	2	24			48	
884+80 R	APPR	24	2	24			48	
885+23	CL	30	2	22			44	
889+90 L	APPR	24	2	24			48	
892+97	CL	30	1	22			22	
897+57 L	APPR	24	2	24			48	
914+53 L	APPR	24	2	24			48	
918+36 L	APPR	24	2	24			48	
939+37	CL	30	1	22			22	
951+60	CL	30	2	22			44	
956+36 R	APPR	24	2	24			48	
959+20	CL	24	2	20			40	
962+43 R	APPR	24	2	24			48	
966+15 R	APPR	24	2	24			48	
966+40 L	APPR	24	2	24			48	
973+92 R	APPR	24	2	24			48	
975+81 R	APPR	24	2	24			48	
975+85 L	APPR	24	2	24			48	
979+48 L	APPR	24	2	24			48	
958+70	CL	30	2	22			44	
991+83	CL	36	2	24			48	

Erosion Control Blanket (ECB)								
Location to be Protected Station	Culvert Type Appr/CL	Pipe Diam (Inch)	No.	Unit Quantity (SY)	Total Quantity Type 1 (SY)	Type 2 (SY)	Type 3 (SY)	Type 4 (SY)
1002+29 L	APPR	24	2	24			48	
1002+36 R	APPR	24	2	24			48	
1015+00	CL	24	1	20			20	
1024+97 L	APPR	24	2	24			48	
1025+05 R	APPR	24	2	24			48	
1029+51	CL	36	1	24			24	
1039+36 R	APPR	24	2	24			48	
1039+39 L	APPR	24	2	24			48	
1043+65	CL	30	2	22			44	
1048+57 L	APPR	24	2	24			48	
1059+80	CL	30	2	22			44	
1064+20	CL	36	2	24			48	
1074+62	CL	24	2	20			40	
1088+00	CL	30	2	22			44	
1117+19	CL	24	2	20			40	
1122+00 R	APPR	24	2	24			48	
1125+95	CL	36	1	24			24	
1129+17	CL	36	2	24			48	
1131+99 L	APPR	24	2	24			48	
1153+80	CL	36	2	24			48	
1155+94 R	APPR	24	2	24			48	
1164+73 R	APPR	24	2	24			48	
1172+58 R	APPR	24	2	24			48	
1172+74 L	APPR	24	2	24			48	
1182+35	CL	36	2	24			48	
1189+52 L	APPR	24	2	24			48	
1199+61 R	APPR	24	2	24			48	
1213+84	CL	30	2	22			44	
1218+95	CL	30	2	22			44	
1231+15	CL	48	2	27			54	
1238+30	CL	30	1	22			22	
1248+00 L	APPR	24	2	24			48	
1248+00 R	APPR	24	2	24			48	
1264+29 L	APPR	24	1	24			24	
1264+37 R	APPR	24	1	24			24	
1268+15	CL	36	1	24			24	
1274+68	CL	36	1	24			24	
1292+06 L	APPR	24	2	24			48	
1292+10 R	APPR	24	2	24			48	
1297+76 R	APPR	24	2	24			48	
						Total (Sys)		3480

SAUBER ENGINEERING

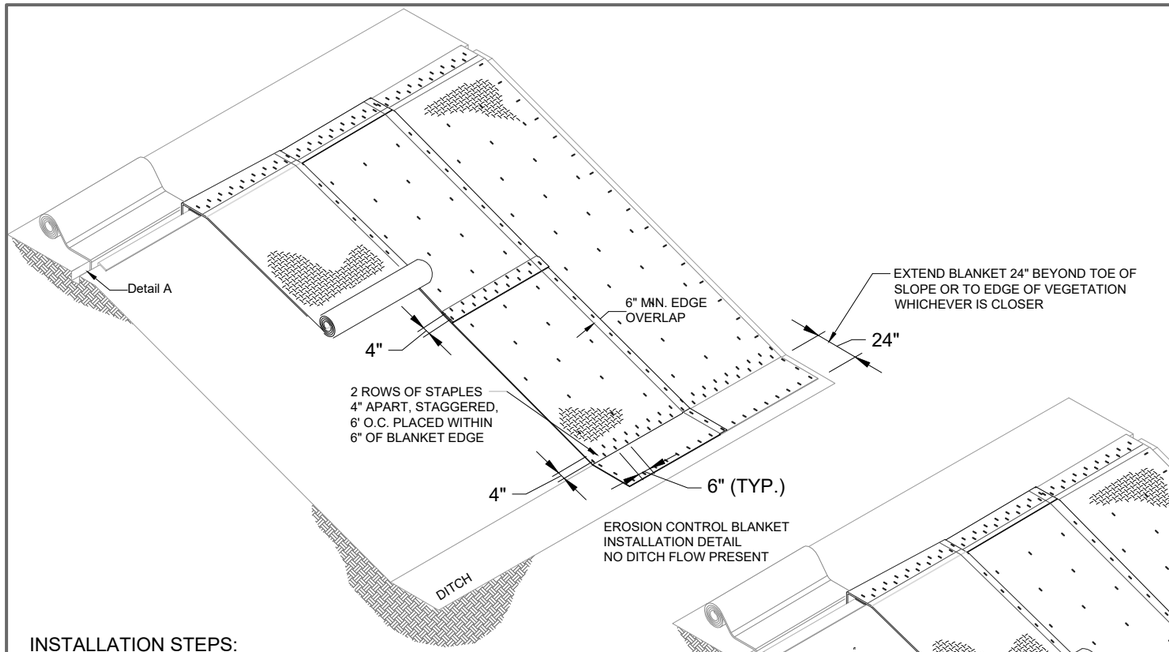
REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-8914
LS-8427
DATE 1/28/25
NORTH DAKOTA

Erosion Control Locations

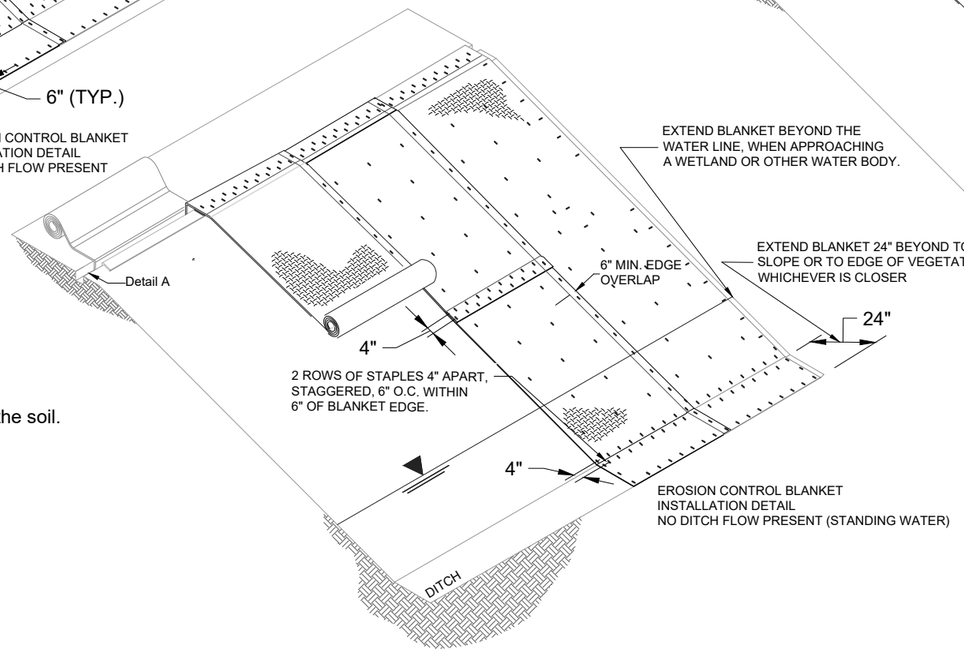
Reconstruction
County Route 1

Mountrail County, ND

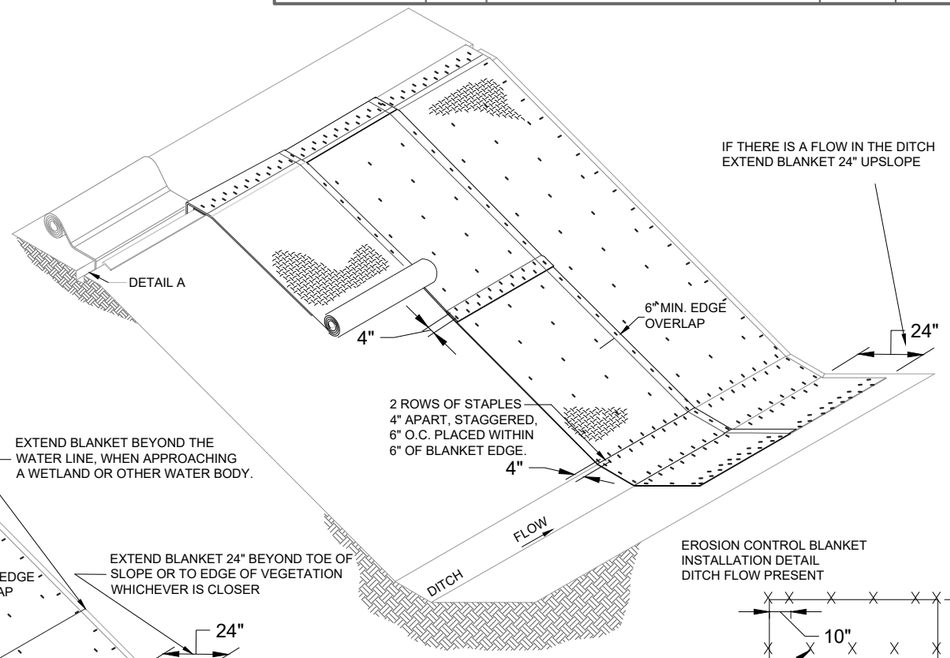
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
Revised 02/11/25	ND	01(62)23	20	6



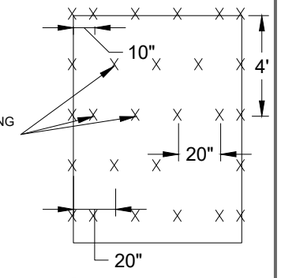
EROSION CONTROL BLANKET INSTALLATION DETAIL
NO DITCH FLOW PRESENT



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



EROSION CONTROL BLANKET INSTALLATION DETAIL
DITCH FLOW PRESENT

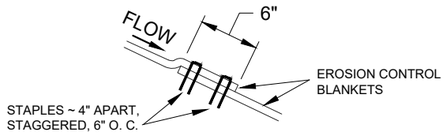


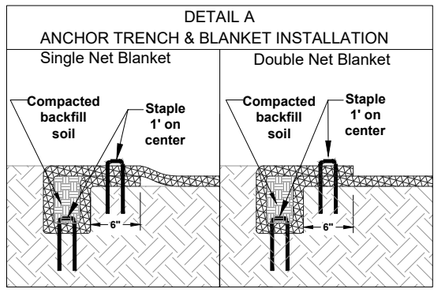
3.8 STAPLES PER SQUARE YARD USING 8-INCH 11 GAUGE WIRE "U" STAPLES

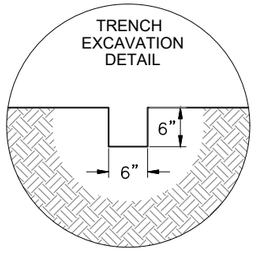
STAPLE PATTERN

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.







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

Erosion Control Blanket	
Location to be Protected Station	Total Quantity Type 3 (SY)
777+50 - 778+50 Rt	256
782+50 - 783+50 Rt	244
796+50 - 798+50 Lt	511
796+50 - 797+50 Rt	233
812+50 - 815+50 Rt	1,067
812+50 - 814+50 Lt	667
819+50 - 822+50 Lt	867
826+50 - 828+50 Rt	467
828+50 - 829+50 Lt	222
851+50 - 852+50 Rt	383
852+50 - 853+50 Lt	383
856+50 - 857+50 Rt	215
863+50 - 866+50 Lt	710

Erosion Control Blanket	
Location to be Protected Station	Total Quantity Type 3 (SY)
877+50 - 878+50 Rt	201
891+50 - 894+50 Rt	1,333
892+50 - 894+50 Lt	722
902+50 - 903+50 Rt	393
902+50 - 904+50 Lt	767
905+50 - 910+50 Lt	2,499
905+50 - 910+50 Rt	2,917
914+50 - 916+50 Rt	587
919+50 - 921+50 Rt	777
921+50 - 928+50 Lt	2,548
922+50 - 928+50 Rt	2,096
934+50 - 936+50 Rt	780
937+50 - 941+50 Lt	964
938+50 - 942+50 Rt	1,328
949+50 - 952+50 Rt	930
949+50 - 952+50 Lt	757
989+50 - 993+50 Lt	1,059
990+50 - 993+50 Rt	839

Erosion Control Blanket	
Location to be Protected Station	Total Quantity Type 3 (SY)
998+50 - 999+50 Lt	216
1028+50 - 1031+50 Rt	829
1028+50 - 1031+50 Lt	788
1034+50 - 1035+50 Rt	234
1042+50 - 1047+50 Rt	2,071
1054+50 - 1063+50 Lt	3,030
1067+50 - 1070+50 Rt	1,167
1139+50 - 1142+50 Rt	866
1148+50 - 1155+50 Lt	2,743
1149+50 - 1154+50 Rt	1,317
1181+50 - 1183+50 Lt	422
1213+50 - 1215+50 Lt	502
1218+50 - 1219+50 Lt	344
1219+50 - 1221+50 Rt	778
1223+50 - 1231+50 Lt	2,439
1223+50 - 1227+50 Rt	1,281
1237+50 - 1244+50 Lt	2,018
1237+50 - 1241+50 Rt	1,323

Erosion Control Blanket	
Location to be Protected Station	Total Quantity Type 3 (SY)
1242+50 - 1244+50 Rt	473
1251+50 - 1254+50 Lt	1,012
1252+50 - 1254+50 Rt	578
1260+50 - 1264+50 Rt	1,171
1260+50 - 1265+50 Lt	1,638
1286+50 - 1288+50 Lt	467
Total SY	55,429

Note: Place ECB on all disturbed slopes steeper than 3:1

SAUBER ENGINEERING

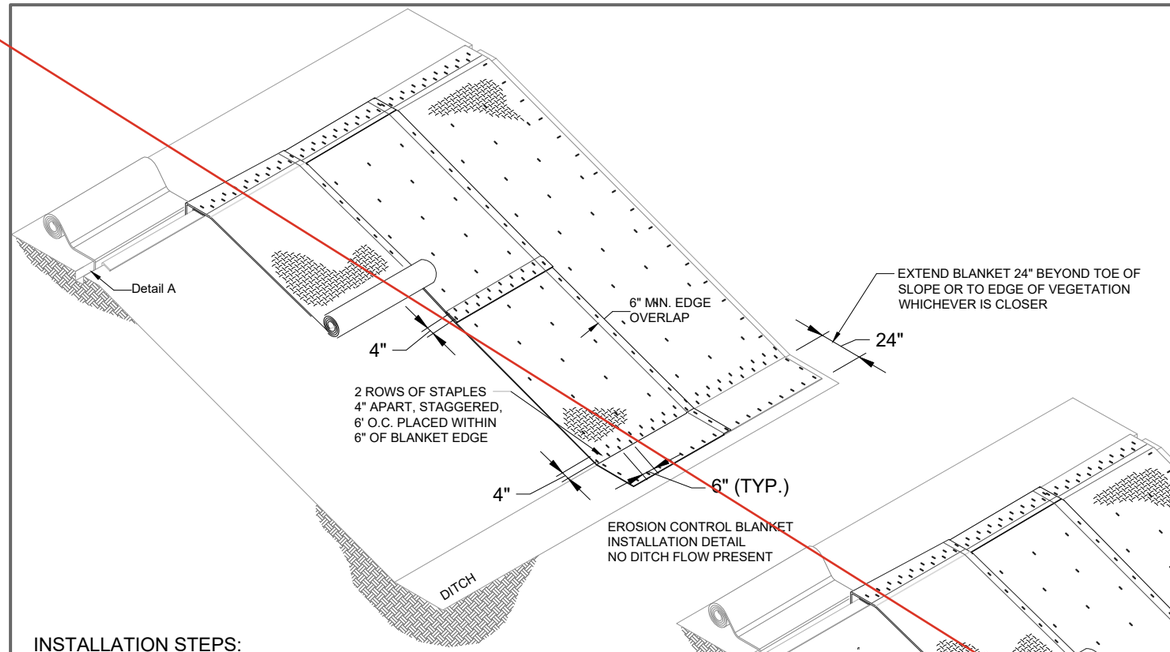
REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-8214
LS-8427
DATE 2/11/25
NORTH DAKOTA

Slope Erosion Control Blanket Installation Details

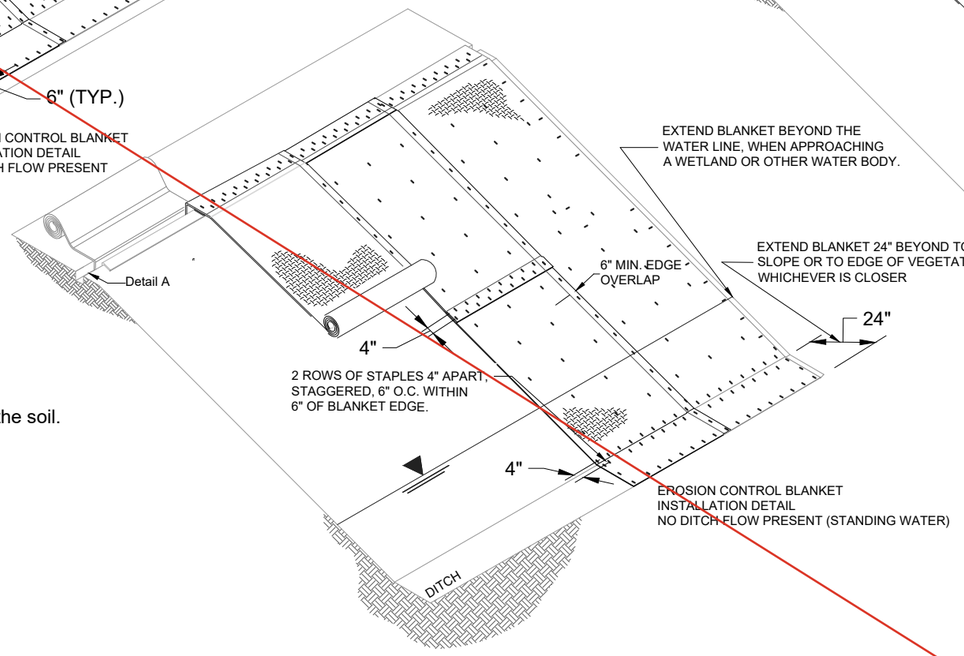
Reconstruction
County Route 1

Mountrail County, ND

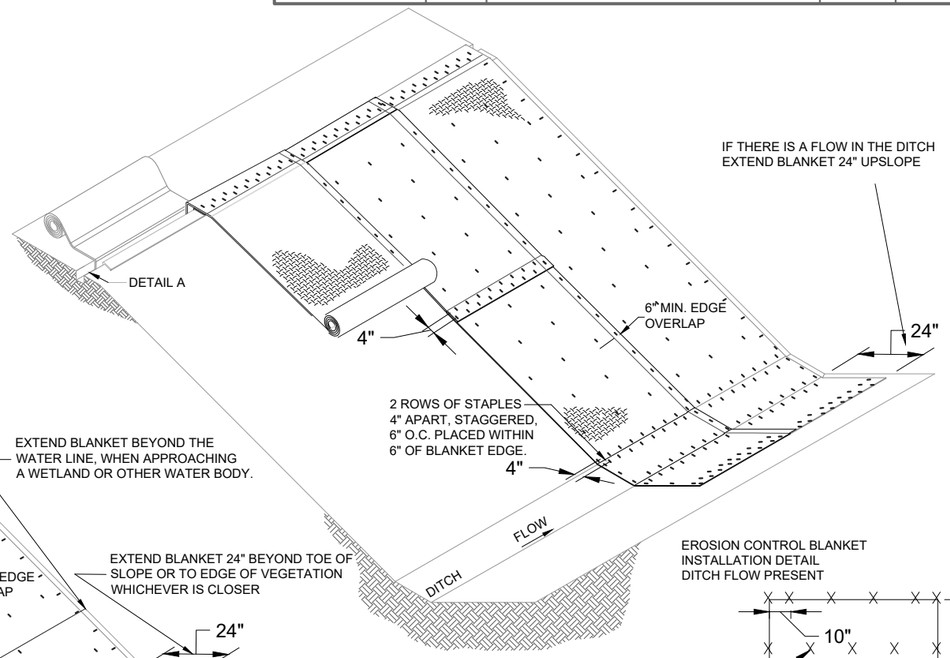
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	20	6



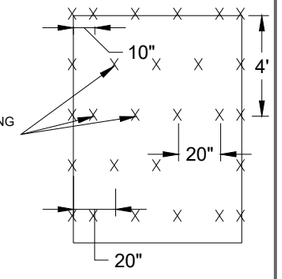
EROSION CONTROL BLANKET INSTALLATION DETAIL
NO DITCH FLOW PRESENT



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



EROSION CONTROL BLANKET INSTALLATION DETAIL
DITCH FLOW PRESENT

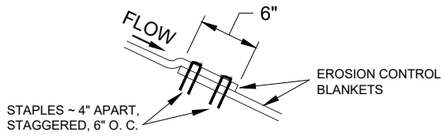


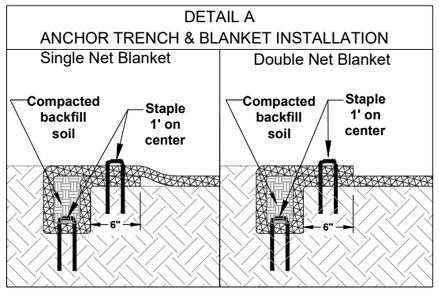
3.8 STAPLES PER SQUARE YARD USING 8-INCH 11 GAUGE WIRE "U" STAPLES

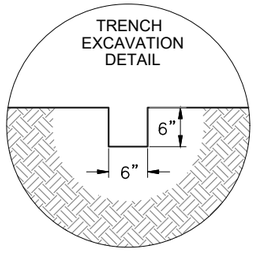
STAPLE PATTERN

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.







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

Erosion Control Blanket	
Location to be Protected Station	Total Quantity Type 3 (SY)
776+50 - 779+50 Rt	662
793+50 - 799+50 Lt	1,668
796+50 - 798+50 Rt	474
803+50 - 804+50 Lt	234
804+50 - 805+50 Rt	122
806+50 - 807+50 Lt	267
807+50 - 808+50 Rt	172
811+50 - 815+50 Rt	1,047
812+50 - 815+50 Lt	770
816+50 - 817+50 Lt	261
819+50 - 821+50 Lt	527
822+50 - 824+50 Rt	333
827+50 - 828+50 Rt	228
828+50 - 829+50 Lt	206
851+50 - 852+50 Rt	383
852+50 - 853+50 Lt	383
856+50 - 857+50 Rt	215
863+50 - 866+50 Lt	710

Erosion Control Blanket	
Location to be Protected Station	Total Quantity Type 3 (SY)
877+50 - 878+50 Rt	201
891+50 - 894+50 Rt	1,333
892+50 - 894+50 Lt	722
902+50 - 903+50 Rt	393
902+50 - 904+50 Lt	767
905+50 - 910+50 Lt	2,499
905+50 - 910+50 Rt	2,917
914+50 - 916+50 Rt	587
919+50 - 921+50 Rt	777
921+50 - 928+50 Lt	2,548
922+50 - 928+50 Rt	2,096
934+50 - 936+50 Rt	780
937+50 - 941+50 Lt	964
938+50 - 942+50 Rt	1,328
949+50 - 952+50 Rt	930
949+50 - 952+50 Lt	757
989+50 - 993+50 Lt	1,059
990+50 - 993+50 Rt	839

Erosion Control Blanket	
Location to be Protected Station	Total Quantity Type 3 (SY)
998+50 - 999+50 Lt	216
1028+50 - 1031+50 Rt	829
1028+50 - 1031+50 Lt	788
1034+50 - 1035+50 Rt	234
1042+50 - 1047+50 Rt	2,071
1054+50 - 1063+50 Lt	3,030
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1181+50 - 1183+50 Lt	422
1213+50 - 1215+50 Lt	502
1218+50 - 1219+50 Lt	344
1219+50 - 1221+50 Rt	778
1223+50 - 1231+50 Lt	2,439
1223+50 - 1227+50 Rt	1,281
1237+50 - 1244+50 Lt	2,018
1237+50 - 1241+50 Rt	1,323

Erosion Control Blanket	
Location to be Protected Station	Total Quantity Type 3 (SY)
1242+50 - 1244+50 Rt	473
1251+50 - 1254+50 Lt	1,012
1252+50 - 1254+50 Rt	578
1260+50 - 1264+50 Rt	1,174
1260+50 - 1265+50 Lt	1,638
1286+50 - 1288+50 Lt	467
Total SY	57,866

Note: Place ECB on all disturbed slopes steeper than 3:1

SAUBER ENGINEERING

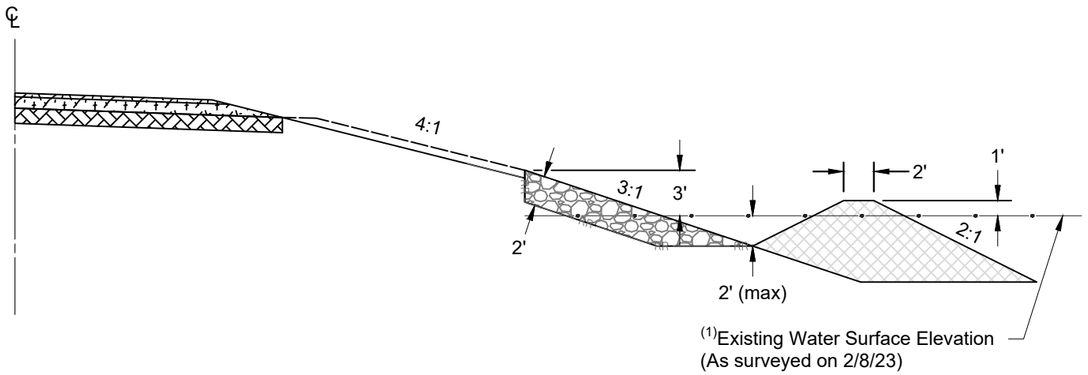
REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-8914
LS-8427
DATE 1/28/25
NORTH DAKOTA

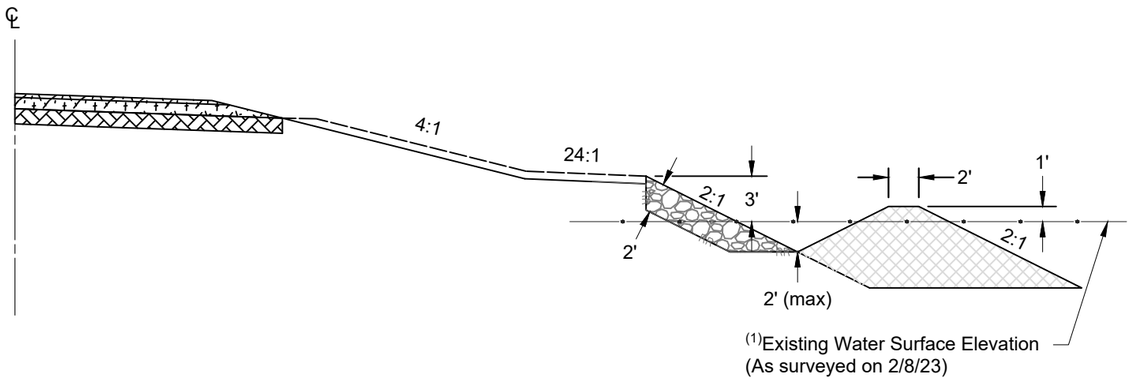
Slope Erosion Control Blanket Installation Details

Reconstruction
County Route 1

Mountrail County, ND

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	20	7





Water Surface Elevation and Riprap Table			
		256 0100	709 0155
Station	(1)Water Surface Elevation	Riprap Grade I (CY)	Geosynthetic Material Type RR (SY)
791+70 to 798+70 Lt	2072.0	389	1244
794+00 to 798+50 Rt	2072.0	250	800
825+05 to 829+00 Rt	2106.8	249	746
905+85 to 909+75 Rt	2041.2	217	693
906+10 to 910+50 Lt	2042.2	244	782
922+05 to 927+30 Lt	2088.5	292	933
922+75 to 928+30 Rt	2092.3	308	987
949+90 to 955+05 Rt	2083.1	286	916
950+15 to 959+70 Lt	2083.1	424	1167
1027+80 to 1030+60 Rt	2112.6	156	498
1059+90 to 1065+70 Lt	2105.7	172	516
1082+20 to 1089+20 Lt	2105.7	389	1244
1099+05 to 1101+00 Lt	2105.7	108	347
1123+70 to 1131+00 Lt	2105.7	324	892
1266+30 to 1272+45 Lt	2133.0	365	888
	Total	4,173	12,653

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PE-8914
LS-8427
DATE 1/28/25
NORTH DAKOTA

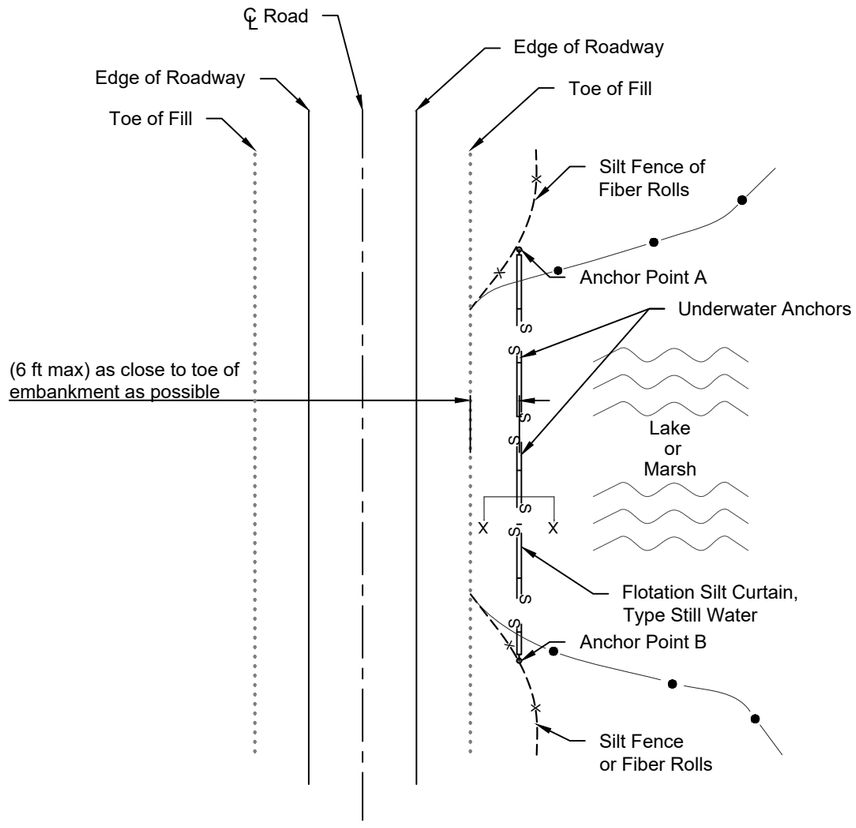
Riprap Placement Detail

Reconstruction
County Route 1

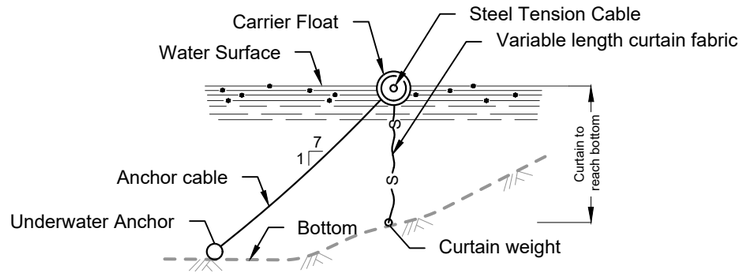
Mountrail County, ND

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	20	8

TYPICAL INSTALLATIONS
May vary with conditions



FLOTATION SILT CURTAIN - TYPE STILL WATER
Extend silt curtain onto shore and anchor there also.



FLOTATION SILT CURTAINS
SECTION X-X

SAUBER ENGINEERING

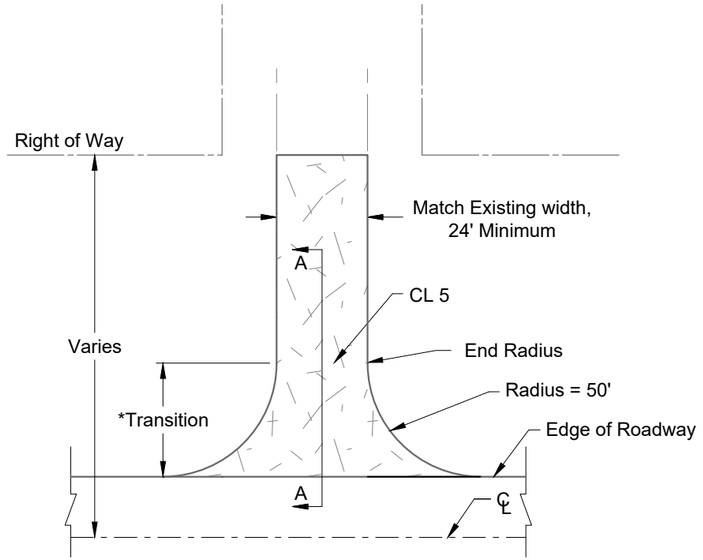
REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-8214
LS-5427
DATE 1/28/25
NORTH DAKOTA

Temporary Erosion Control - Flotation Silt Curtain

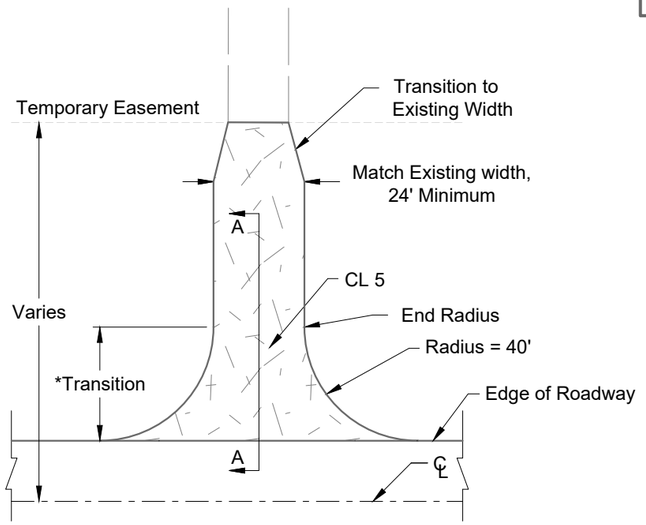
Reconstruction
County Route 1

Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	20	9



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

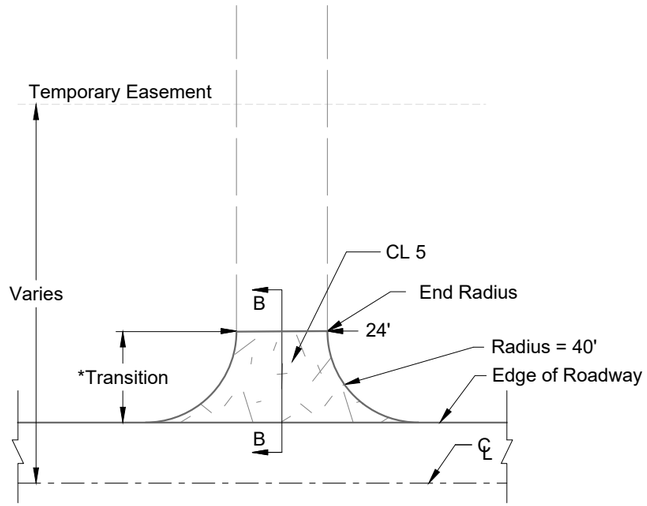


(2) Gravel Private Drive Approach

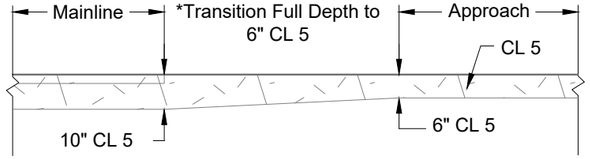
Notes:

1. Actual aggregate surface locations may vary in the field, as approved by the Engineer.

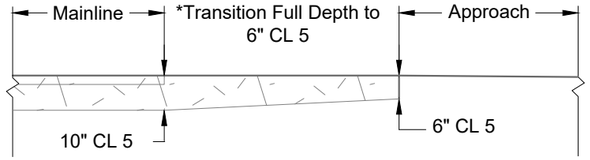
2. Quantity totals have been included in the bid items of the "Estimate of Quantities" of the plans.



(3) Field Drive Approach



Section A-A



Section B-B

SAUBER ENGINEERING

REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-3214
LS-8427
DATE 1/28/25
NORTH DAKOTA

BASIS OF ESTIMATE		(1)	(2)	(3)	
ITEM	UNIT	Gravel Section Line	Gravel Private Drive	Field Drive	TOTALS
Number of Locations	#	7	7	54	68
Aggregate Base Course CL 5	TON	1,050	875	4,752	6,677

Approach Detail

Reconstruction
County Route 1

Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	20	10

Curve PCL-CR1-5

P.C. Station	1037+88.35
P.I. Station	1052+53.93
Delta =	44°45'07" (RT)
Degree =	1°36'34"
Tangent =	1,465.58'
Length =	2,780.61'
Radius =	3,560.00'
P.T. Station	1065+68.96

Station	Left Slope	Right Slope
1036+28.27	-4.0	-4.0
1037+24.27	0.0	-4.0
1038+20.27	4.0	-4.0
1065+37.04	4.0	-4.0
1066+33.04	0.0	-4.0
1067+29.04	-4.0	-4.0

Curve PCL-CR1-6

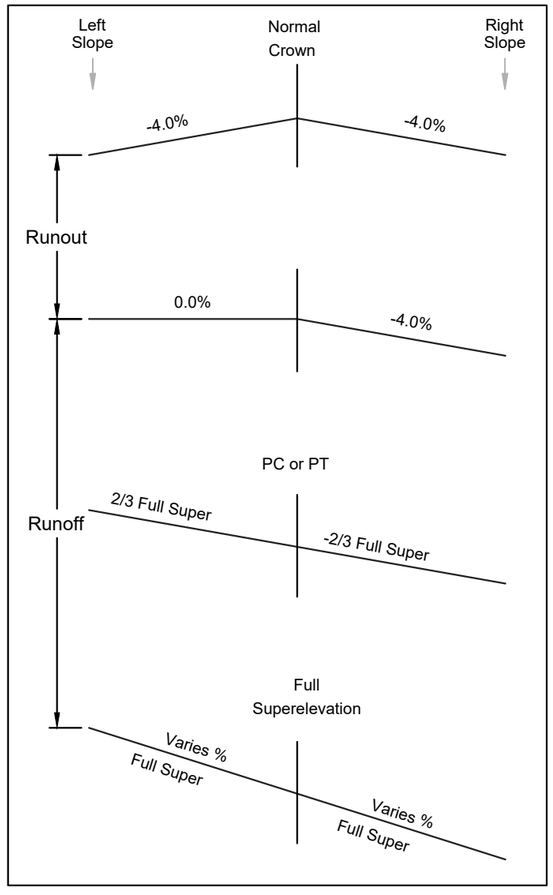
P.C. Station	1088+72.32
P.I. Station	1092+24.33
Delta =	9°34'54" (RT)
Degree =	1°21'51"
Tangent =	352.01'
Length =	702.37'
Radius =	4,200.00'
P.T. Station	1095+74.69

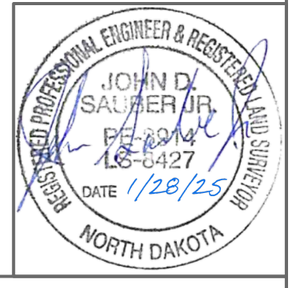
Station	Left Slope	Right Slope
1087+12.24	-4.0	-4.0
1088+08.24	0.0	-4.0
1089+04.24	4.0	-4.0
1095+42.77	4.0	-4.0
1096+38.77	0.0	-4.0
1097+34.77	-4.0	-4.0

Curve PCL-CR1-7

P.C. Station	1116+13.96
P.I. Station	1121+56.78
Delta =	54°13'59" (LT)
Degree =	5°24'19"
Tangent =	542.82'
Length =	1,003.34'
Radius =	1,060.00'
P.T. Station	1126+17.30

Station	Left Slope	Right Slope
1114+21.96	-4.0	-4.0
1115+17.96	-4.0	0.0
1116+13.96	-4.0	4.0
1116+61.96	-6.0	6.0
1125+69.31	-6.0	6.0
1126+17.31	-4.0	4.0
1127+13.31	-4.0	0.0
1128+09.31	-4.0	-4.0





Note:

Calculations based on AASHTO method five. A design speed of 55 mph and maximum superelevation of 6% were used.

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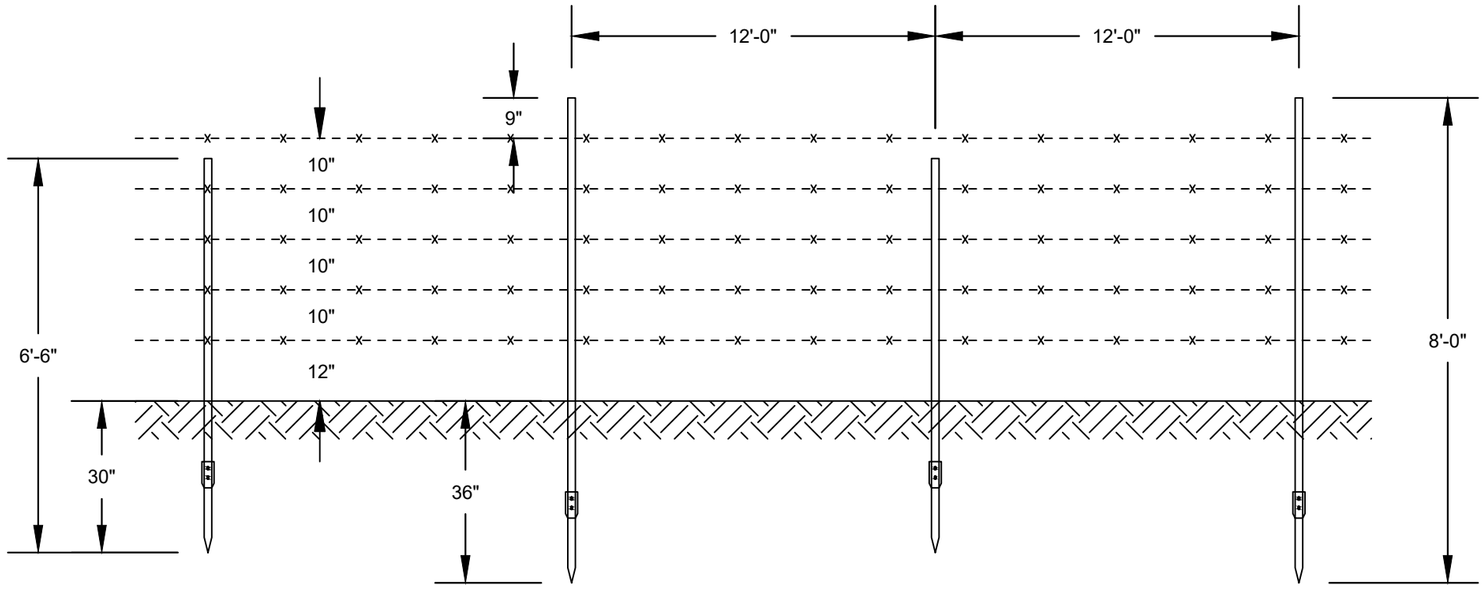
Superelevation Table

Reconstruction
County Route 1

Mountrail County, ND

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	20	11



Fence Barbed Wire 5 Strand
Line Post Detail

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DATE 1/28/25
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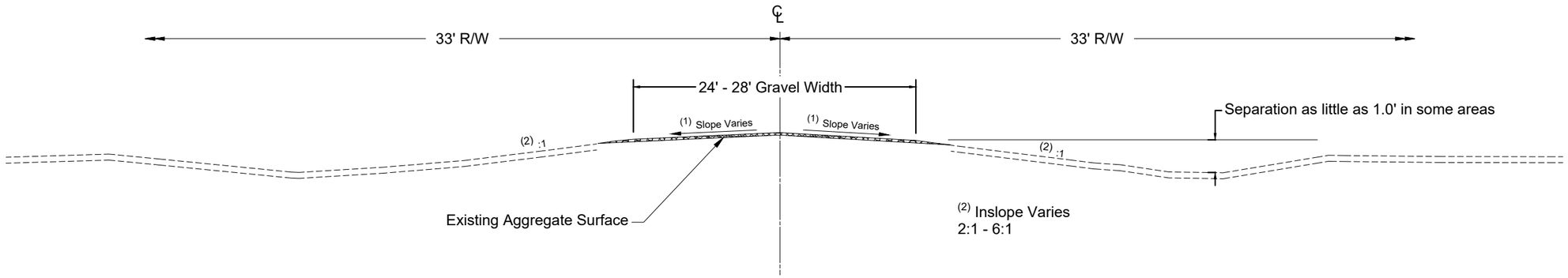
Fence Barbed Wire 5 Strand Detail

Reconstruction
County Route 1

Mountrail County, ND

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	30	1



Existing Section

County Route 1

Sta. 766+00 to Sta. 1302+05
(1) Cross Slope Varies Between 3% - 5%

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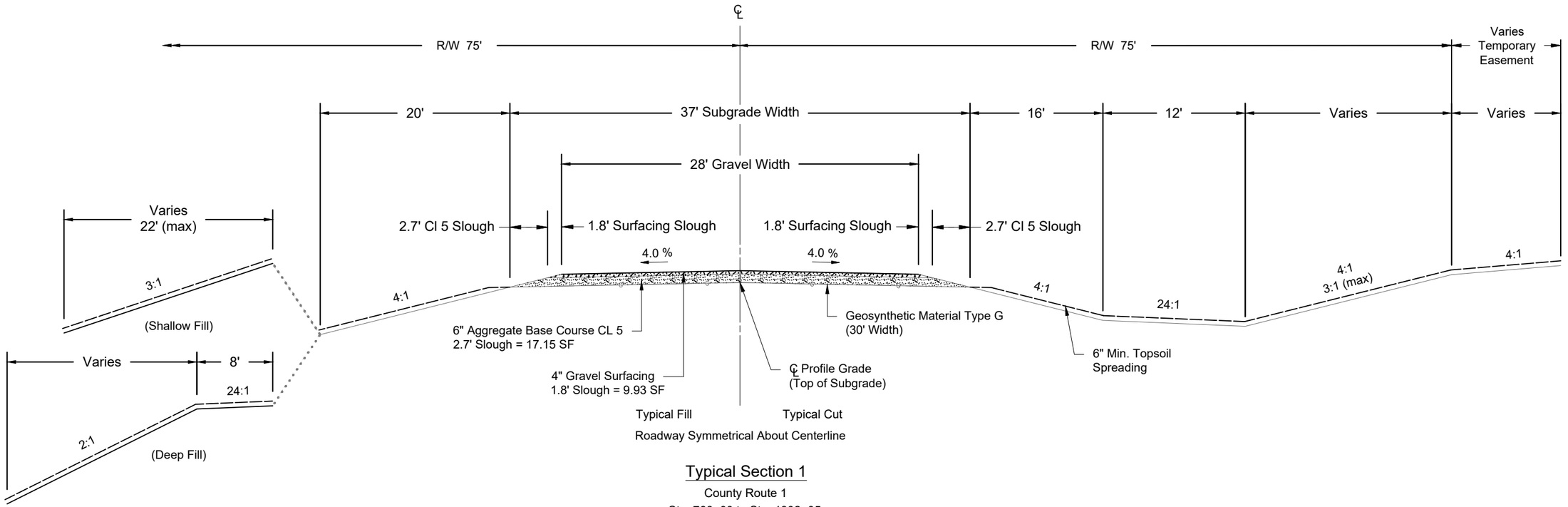
Existing Typical Section

Reconstruction
County Route 1

Mountrail County, ND

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	30	2



Typical Section 1

County Route 1
Sta. 766+00 to Sta. 1302+05

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Proposed Typical Section

Reconstruction
County Route 1

Mountrail County, ND

Revised 02/11/25	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	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	Geosythetic Material - Type G (Pay Item)	(*) End Sections		Applicable Backfill
				In	Bid Item	LF		In	Type		In	SY	Begin EA	End EA	
782+75	46' Lt	782+75	58' Rt	30	Pipe Conduit	104'	Reinforced Concrete Pipe - Class II **(barrel length = 101 LF)**	30				75	FES	FES	Standard D-714-25
							Corrugated Steel Pipe	30	P	2	0.064				
							Spiral Rib Steel Pipe	30	P	3/4, 1	0.064				
789+50	45' Lt	790+36	45' Lt	24	Pipe Conduit - Approach	86'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
790+74	45' Rt	791+44	45' Rt	24	Pipe Conduit - Approach	70'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
795+65	52' Lt	795+65	52' Rt	30	Pipe Conduit	104'	Reinforced Concrete Pipe - Class III **(barrel length = 101 LF)**	30				75	FES	FES	Standard D-714-25
							Corrugated Steel Pipe	30	P	2	0.064				
							Spiral Rib Steel Pipe	30	P	3/4, 1	0.064				
803+05	46' Lt	803+65	44' Rt	36	Pipe Conduit	108'	Reinforced Concrete Pipe - Class II **(barrel length = 103 LF)**	36				84	FES	FES	Standard D-714-25
							Corrugated Steel Pipe	36	P	2	0.064				
							Spiral Rib Steel Pipe	36	P	3/4, 1	0.064				
806+01	45' Lt	806+93	45' Lt	24	Pipe Conduit - Approach	92'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
814+00	68' Lt	814+00	70' Rt	30	Pipe Conduit	138'	Reinforced Concrete Pipe - Class III **(barrel length = 135 LF)**	30				100	FES	FES	Standard D-714-25
							Corrugated Steel Pipe	30	P	2	0.064				
							Spiral Rib Steel Pipe	30	P	3/4, 1	0.064				
816+82	45' Lt	817+84	45' Lt	24	Pipe Conduit - Approach	102'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
816+92	45' Rt	817+82	45' Rt	24	Pipe Conduit	90'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Standard D-714-27
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
820+85	64' Lt	820+85	54' Rt	30	Pipe Conduit	118'	Reinforced Concrete Pipe - Class II **(barrel length = 115 LF)**	30				85	FES	FES	Standard D-714-25
							Corrugated Steel Pipe	30	P	2	0.064				
							Spiral Rib Steel Pipe	30	P	3/4, 1	0.064				
823+92	45' Rt	824+64	45' Rt	24	Pipe Conduit - Approach	72'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
827+20	56' Lt	827+20	58' Rt	30	Pipe Conduit	114'	Reinforced Concrete Pipe - Class III **(barrel length = 111 LF)**	30				82	FES	FES	Standard D-714-25
							Corrugated Steel Pipe	30	P	2	0.064				
							Spiral Rib Steel Pipe	30	P	3/4, 1	0.064				
834+58	45' Lt	835+18	45' Lt	24	Pipe Conduit - Approach	60'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
836+58	45' Rt	837+30	45' Rt	24	Pipe Conduit - Approach	72'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
843+52	45' Lt	844+42	45' Lt	24	Pipe Conduit - Approach	90'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
845+53	45' Rt	846+19	45' Rt	24	Pipe Conduit - Approach	66'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
847+97	45' Lt	848+67	45' Lt	24	Pipe Conduit - Approach	70'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
857+16	44' Lt	857+16	54' Rt	54	Pipe Conduit	98'	Reinforced Concrete Pipe - Class II **(barrel length = 93 LF)**	54				93	FES	FES	Standard D-714-25
							Corrugated Steel Pipe	54	P	2	0.079				
							Corrugated Steel Pipe	54	P	3, 5	0.064				
							Spiral Rib Steel Pipe	54	P	3/4	0.079				
							Spiral Rib Steel Pipe	54	P	1	0.064				
859+96	45' Lt	860+70	45' Lt	24	Pipe Conduit - Approach	74'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
860+10	45' Rt	860+88	45' Rt	24	Pipe Conduit - Approach	78'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
865+21	62' Lt	865+21	36' Rt	24	Pipe Conduit	98'	Reinforced Concrete Pipe - Class III **(barrel length = 93 LF)**	24				65	FES	FES	Standard D-714-25
							Corrugated Steel Pipe	24	P	2	0.064				
							Spiral Rib Steel Pipe	24	P	3/4, 1	0.064				
869+64	56' Lt	869+64	32' Rt	24	Pipe Conduit	88'	Reinforced Concrete Pipe - Class III **(barrel length = 83 LF)**	24				59	FES	FES	Standard D-714-25
							Corrugated Steel Pipe	24	P	2	0.064				
							Spiral Rib Steel Pipe	24	P	3/4, 1	0.064				
870+06	45' Rt	870+60	45' Rt	24	Pipe Conduit - Approach	54'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
884+35	45' Rt	885+16	68' Rt	24	Pipe Conduit - Approach	84'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				

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

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"

(*) End sections are measured and paid for separately for pipe extensions.
FES = Flared End Section
TES = Traversable End Section
(^) Culvert lengths adjusted around the horizontal curve.

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JOHN D. SAUBER JR.
PE-3914
LS-5427
DATE 2/11/25
NORTH DAKOTA

Allowable Pipe List

Reconstruction
County Route 1

Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	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	Geosythetic Material - Type G (Pay Item)	(*) End Sections		Applicable Backfill
				In	Bid Item	LF		In	Type		In	SY	Begin EA	End EA	
782+75	44' Lt	782+75	54' Rt	30	Pipe Conduit	98'	Reinforced Concrete Pipe - Class II **(barrel length = 95 LF)**	30				71	FES	FES	Standard D-714-25
							Corrugated Steel Pipe	30	P	2	0.064				
							Spiral Rib Steel Pipe	30	P	3/4, 1	0.064				
789+49	45' Lt	790+35	45' Lt	24	Pipe Conduit - Approach	86'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
790+71	45' Rt	791+45	45' Rt	24	Pipe Conduit - Approach	74'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
795+65	56' Lt	795+65	56' Rt	30	Pipe Conduit	112'	Reinforced Concrete Pipe - Class III **(barrel length = 109 LF)**	30				81	FES	FES	Standard D-714-25
							Corrugated Steel Pipe	30	P	2	0.064				
							Spiral Rib Steel Pipe	30	P	3/4, 1	0.064				
802+94	56' Lt	803+35	39' Rt	36	Pipe Conduit	104'	Reinforced Concrete Pipe - Class II **(barrel length = 99 LF)**	36				81	FES	FES	Standard D-714-25
							Corrugated Steel Pipe	36	P	2	0.064				
							Spiral Rib Steel Pipe	36	P	3/4, 1	0.064				
806+04	45' Lt	806+96	45' Lt	24	Pipe Conduit - Approach	92'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
814+00	60' Lt	814+00	68' Rt	30	Pipe Conduit	128'	Reinforced Concrete Pipe - Class III **(barrel length = 125 LF)**	30				92	FES	FES	Standard D-714-25
							Corrugated Steel Pipe	30	P	2	0.064				
							Spiral Rib Steel Pipe	30	P	3/4, 1	0.064				
816+82	45' Lt	817+88	45' Lt	24	Pipe Conduit - Approach	106'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
816+89	41' Rt	817+91	41' Rt	24	Pipe Conduit	102'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Standard D-714-27
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
820+85	59' Lt	820+85	47' Rt	30	Pipe Conduit	106'	Reinforced Concrete Pipe - Class II **(barrel length = 103 LF)**	30				77	FES	FES	Standard D-714-25
							Corrugated Steel Pipe	30	P	2	0.064				
							Spiral Rib Steel Pipe	30	P	3/4, 1	0.064				
823+90	45' Rt	824+66	45' Rt	24	Pipe Conduit - Approach	76'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
827+20	56' Lt	827+20	58' Rt	30	Pipe Conduit	114'	Reinforced Concrete Pipe - Class III **(barrel length = 111 LF)**	30				82	FES	FES	Standard D-714-25
							Corrugated Steel Pipe	30	P	2	0.064				
							Spiral Rib Steel Pipe	30	P	3/4, 1	0.064				
834+58	45' Lt	835+18	45' Lt	24	Pipe Conduit - Approach	60'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
836+58	45' Rt	837+30	45' Rt	24	Pipe Conduit - Approach	72'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
843+52	45' Lt	844+42	45' Lt	24	Pipe Conduit - Approach	90'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
845+53	45' Rt	846+19	45' Rt	24	Pipe Conduit - Approach	66'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
847+97	45' Lt	848+67	45' Lt	24	Pipe Conduit - Approach	70'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
857+16	44' Lt	857+16	54' Rt	54	Pipe Conduit	98'	Reinforced Concrete Pipe - Class II **(barrel length = 93 LF)**	54				93	FES	FES	Standard D-714-25
							Corrugated Steel Pipe	54	P	2	0.079				
							Corrugated Steel Pipe	54	P	3, 5	0.064				
							Spiral Rib Steel Pipe	54	P	3/4	0.079				
							Spiral Rib Steel Pipe	54	P	1	0.064				
859+96	45' Lt	860+70	45' Lt	24	Pipe Conduit - Approach	74'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
860+10	45' Rt	860+88	45' Rt	24	Pipe Conduit - Approach	78'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
865+21	62' Lt	865+21	36' Rt	24	Pipe Conduit	98'	Reinforced Concrete Pipe - Class III **(barrel length = 93 LF)**	24				65	FES	FES	Standard D-714-25
							Corrugated Steel Pipe	24	P	2	0.064				
							Spiral Rib Steel Pipe	24	P	3/4, 1	0.064				
869+64	56' Lt	869+64	32' Rt	24	Pipe Conduit	88'	Reinforced Concrete Pipe - Class III **(barrel length = 83 LF)**	24				59	FES	FES	Standard D-714-25
							Corrugated Steel Pipe	24	P	2	0.064				
							Spiral Rib Steel Pipe	24	P	3/4, 1	0.064				
870+06	45' Rt	870+60	45' Rt	24	Pipe Conduit - Approach	54'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
884+35	45' Rt	885+16	68' Rt	24	Pipe Conduit - Approach	84'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				

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

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"

(*) End sections are measured and paid for separately for pipe extensions.
FES = Flared End Section
TES = Traversable End Section
(^) Culvert lengths adjusted around the horizontal curve.

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JOHN D. SAUBER JR.
PE-8214
LS-8427
DATE 1/28/25
NORTH DAKOTA

Allowable Pipe List

Reconstruction
County Route 1

Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	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	Geosythetic Material - Type G (Pay Item)	(*) End Sections		Applicable Backfill
													Begin	End	
				In	Bid Item	LF		In	Type		In	SY	EA	EA	
884+99	42' Lt	885+56	57' Rt	30	Pipe Conduit	114'	Reinforced Concrete Pipe - Class II **(barrel length = 111 LF)**	30				82	FES	FES	Standard D-714-25
							Corrugated Steel Pipe	30	P	2	0.064				
							Spiral Rib Steel Pipe	30	P	3/4, 1	0.064				
889+44	45' Lt	890+20	45' Lt	24	Pipe Conduit - Approach	76'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
893+13	74' Lt	892+79	92' Rt	30	Pipe Conduit	170'	Reinforced Concrete Pipe - Class IV **(barrel length = 167 LF)**	30				123	FES	FES	Standard D-714-25
							Corrugated Steel Pipe	30	P	2	0.064				
							Spiral Rib Steel Pipe	30	P	3/4, 1	0.064				
897+20	45' Lt	897+98	45' Lt	24	Pipe Conduit - Approach	78'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
908+97	82' Lt	908+97	80' Rt	48	Pipe Conduit	162'	Reinforced Concrete Pipe - Class IV **(barrel length = 158 LF)**	48				144	FES	FES	Standard D-714-25
							Corrugated Steel Pipe	48	P	2, 3, 5	0.064				
							Spiral Rib Steel Pipe	48	P	3/4, 1	0.064				
914+02	45' Lt	914+76	45' Lt	24	Pipe Conduit - Approach	74'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
917+73	45' Lt	918+65	45' Lt	24	Pipe Conduit - Approach	92'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
924+50	72' Lt	924+50	72' Rt	30	Pipe Conduit	144'	Reinforced Concrete Pipe - Class IV **(barrel length = 141 LF)**	30				104	FES	FES	Standard D-714-25
							Corrugated Steel Pipe	30	P	2	0.064				
							Spiral Rib Steel Pipe	30	P	3/4, 1	0.064				
939+25	64' Lt	939+50	70' Rt	30	Pipe Conduit	136'	Reinforced Concrete Pipe - Class IV **(barrel length = 133 LF)**	30				98	FES	FES	Standard D-714-25
							Corrugated Steel Pipe	30	P	2	0.064				
							Spiral Rib Steel Pipe	30	P	3/4, 1	0.064				
951+60	62' Lt	951+60	62' Rt	30	Pipe Conduit	124'	Reinforced Concrete Pipe - Class IV **(barrel length = 121 LF)**	30				90	FES	FES	Standard D-714-25
							Corrugated Steel Pipe	30	P	2	0.064				
							Spiral Rib Steel Pipe	30	P	3/4, 1	0.064				
956+10	45' Rt	956+64	45' Rt	24	Pipe Conduit - Approach	54'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
959+20	34' Lt	959+20	38' Rt	24	Pipe Conduit	72'	Reinforced Concrete Pipe - Class III **(barrel length = 67 LF)**	24				48	FES	FES	Standard D-714-25
							Corrugated Steel Pipe	24	P	2	0.064				
							Spiral Rib Steel Pipe	24	P	3/4, 1	0.064				
961+90	45' Rt	962+80	45' Rt	24	Pipe Conduit - Approach	90'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
965+58	45' Rt	966+58	45' Rt	24	Pipe Conduit - Approach	100'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
965+87	45' Lt	966+81	45' Lt	24	Pipe Conduit - Approach	94'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
973+48	45' Rt	974+28	45' Rt	24	Pipe Conduit - Approach	80'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
975+40	45' Rt	976+14	45' Rt	24	Pipe Conduit	74'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Standard D-714-27
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
975+40	45' Lt	976+22	45' Lt	24	Pipe Conduit	82'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Standard D-714-27
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
979+08	45' Lt	979+82	45' Lt	24	Pipe Conduit - Approach	74'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
986+06	50' Lt	985+39	42' Rt	30	Pipe Conduit	114'	Reinforced Concrete Pipe - Class II **(barrel length = 111 LF)**	30				82	FES	FES	Standard D-714-25
							Corrugated Steel Pipe	30	P	2	0.064				
							Spiral Rib Steel Pipe	30	P	3/4, 1	0.064				
991+83	62' Lt	991+83	62' Rt	36	Pipe Conduit	124'	Reinforced Concrete Pipe - Class III **(barrel length = 119 LF)**	36				96	FES	FES	Standard D-714-25
							Corrugated Steel Pipe	36	P	2	0.064				
							Spiral Rib Steel Pipe	36	P	3/4, 1	0.064				
1001+79	45' Lt	1002+71	45' Lt	24	Pipe Conduit - Approach	92'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
1001+99	45' Rt	1002+67	45' Rt	24	Pipe Conduit - Approach	68'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
1015+00	42' Lt	1015+00	38' Rt	24	Pipe Conduit	80'	Reinforced Concrete Pipe - Class III **(barrel length = 75 LF)**	24				53	FES	FES	Standard D-714-25
							Corrugated Steel Pipe	24	P	2	0.064				
							Spiral Rib Steel Pipe	24	P	3/4, 1	0.064				
1024+54	45' Lt	1025+42	45' Lt	24	Pipe Conduit - Approach	88'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				

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

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"

(*) End sections are measured and paid for separately for pipe extensions.
FES = Flared End Section
TES = Traversable End Section
(^) Culvert lengths adjusted around the horizontal curve.

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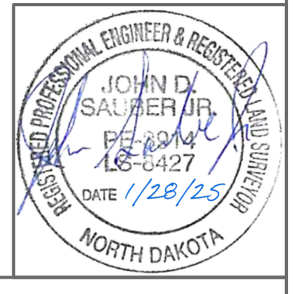


Allowable Pipe List

Reconstruction
County Route 1

Mountrail County, ND

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	51	3

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	Geosythetic Material - Type G (Pay Item)	(*) End Sections		Applicable Backfill
													Begin	End	
				In	Bid Item	LF		In	Type		In	SY	EA	EA	
1024+70	45' Rt	1025+46	45' Rt	24	Pipe Conduit - Approach	76'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
1029+51	64' Lt	1029+51	60' Rt	36	Pipe Conduit	124'	Reinforced Concrete Pipe - Class III **(barrel length = 119 LF)**	36				96	FES	FES	Standard D-714-25
							Corrugated Steel Pipe	36	P	2	0.064				
							Spiral Rib Steel Pipe	36	P	3/4, 1	0.064				
1038+87	45' Rt	1039+69	45' Rt	24	Pipe Conduit - Approach	82'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
1038+76	45' Lt	1039+80	45' Lt	24	Pipe Conduit - Approach	^106'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
1043+65	58' Lt	1043+65	80' Rt	30	Pipe Conduit	138'	Reinforced Concrete Pipe - Class III **(barrel length = 135 LF)**	30				100	FES	FES	Standard D-714-25
							Corrugated Steel Pipe	30	P	2	0.064				
							Spiral Rib Steel Pipe	30	P	3/4, 1	0.064				
1048+06	45' Lt	1049+04	45' Lt	24	Pipe Conduit - Approach	^100'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
1059+80	70' Lt	1059+80	42' Rt	30	Pipe Conduit	112'	Reinforced Concrete Pipe - Class III **(barrel length = 109 LF)**	30				81	FES	FES	Standard D-714-25
							Corrugated Steel Pipe	30	P	2	0.064				
							Spiral Rib Steel Pipe	30	P	3/4, 1	0.064				
1064+20	62' Lt	1064+20	42' Rt	36	Pipe Conduit	104'	Reinforced Concrete Pipe - Class II **(barrel length = 99 LF)**	36				81	FES	FES	Standard D-714-25
							Corrugated Steel Pipe	36	P	2	0.064				
							Spiral Rib Steel Pipe	36	P	3/4, 1	0.064				
1074+62	62' Lt	1074+62	32' Rt	24	Pipe Conduit	94'	Reinforced Concrete Pipe - Class III **(barrel length = 89 LF)**	24				63	FES	FES	Standard D-714-25
							Corrugated Steel Pipe	24	P	2	0.064				
							Spiral Rib Steel Pipe	24	P	3/4, 1	0.064				
1088+00	54' Lt	1088+00	36' Rt	30	Pipe Conduit	90'	Reinforced Concrete Pipe - Class II **(barrel length = 87 LF)**	30				65	FES	FES	Standard D-714-25
							Corrugated Steel Pipe	30	P	2	0.064				
							Spiral Rib Steel Pipe	30	P	3/4, 1	0.064				
1117+19	32' Lt	1117+19	34' Rt	24	Pipe Conduit	66'	Reinforced Concrete Pipe - Class III **(barrel length = 61 LF)**	24				48	FES	FES	Standard D-714-26
							Corrugated Steel Pipe	24	P	2	0.064				
							Spiral Rib Steel Pipe	24	P	3/4, 1	0.064				
1121+68	45' Rt	1122+36	45' Rt	24	Pipe Conduit - Approach	^72'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
1125+95	44' Lt	1125+95	42' Rt	36	Pipe Conduit	86'	Reinforced Concrete Pipe - Class II **(barrel length = 81 LF)**	36				67	FES	FES	Standard D-714-26
							Corrugated Steel Pipe	36	P	2	0.064				
							Spiral Rib Steel Pipe	36	P	3/4, 1	0.064				
1129+17	44' Lt	1129+17	44' Rt	36	Pipe Conduit	88'	Reinforced Concrete Pipe - Class III **(barrel length = 83 LF)**	36				68	FES	FES	Standard D-714-26
							Corrugated Steel Pipe	36	P	2	0.064				
							Spiral Rib Steel Pipe	36	P	3/4, 1	0.064				
1131+60	45' Lt	1132+28	45' Lt	24	Pipe Conduit - Approach	68'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
1153+70	69' Lt	1153+89	63' Rt	36	Pipe Conduit	134'	Reinforced Concrete Pipe - Class IV **(barrel length = 129 LF)**	36				104	FES	FES	Standard D-714-25
							Corrugated Steel Pipe	36	P	2	0.064				
							Spiral Rib Steel Pipe	36	P	3/4, 1	0.064				
1155+36	56' Rt	1156+42	56' Rt	24	Pipe Conduit - Approach	106'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
1164+27	45' Rt	1165+07	45' Rt	24	Pipe Conduit - Approach	80'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
1172+22	45' Rt	1173+06	45' Rt	24	Pipe Conduit - Approach	84'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
1172+40	45' Lt	1173+14	45' Lt	24	Pipe Conduit - Approach	74'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
1182+35	64' Lt	1182+35	42' Rt	36	Pipe Conduit	106'	Reinforced Concrete Pipe - Class IV **(barrel length = 101 LF)**	36				82	FES	FES	Standard D-714-25
							Corrugated Steel Pipe	36	P	2	0.064				
							Spiral Rib Steel Pipe	36	P	3/4, 1	0.064				
1189+13	50' Lt	1189+85	50' Lt	24	Pipe Conduit - Approach	72'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
1199+17	45' Rt	1199+99	45' Rt	24	Pipe Conduit - Approach	82'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
1213+84	64' Lt	1213+84	42' Rt	30	Pipe Conduit	106'	Reinforced Concrete Pipe - Class II **(barrel length = 103 LF)**	30				77	FES	FES	Standard D-714-25
							Corrugated Steel Pipe	30	P	2	0.064				
							Spiral Rib Steel Pipe	30	P	3/4, 1	0.064				

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

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"

(*) End sections are measured and paid for separately for pipe extensions.
FES = Flared End Section
TES = Traversable End Section
(^) Culvert lengths adjusted around the horizontal curve.

SAUBER ENGINEERING

REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-3214
LS-8427
DATE 1/28/25
NORTH DAKOTA

Allowable Pipe List

Reconstruction
County Route 1

Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	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	Geosythetic Material - Type G (Pay Item)	(*) End Sections		Applicable Backfill
													Begin	End	
				In	Bid Item	LF		In	Type		In	SY	EA	EA	
1218+95	68' Lt	1218+95	38' Rt	30	Pipe Conduit	106'	Reinforced Concrete Pipe - Class II **(barrel length = 103 LF)**	30				77	FES	FES	Standard D-714-25
							Corrugated Steel Pipe	30	P	2	0.064				
							Spiral Rib Steel Pipe	30	P	3/4, 1	0.064				
1231+15	60' Lt	1231+15	46' Rt	48	Pipe Conduit	106'	Reinforced Concrete Pipe - Class II **(barrel length = 102 LF)**	48				94	FES	FES	Standard D-714-25
							Corrugated Steel Pipe	48	P	2	0.064				
							Spiral Rib Steel Pipe	48	P	3/4, 1	0.064				
1238+30	66' Lt	1238+30	66' Rt	30	Pipe Conduit	132'	Reinforced Concrete Pipe - Class IV **(barrel length = 129 LF)**	30				95	FES	FES	Standard D-714-25
							Corrugated Steel Pipe	30	P	2	0.064				
							Spiral Rib Steel Pipe	30	P	3/4, 1	0.064				
1247+53	45' Rt	1248+43	45' Rt	24	Pipe Conduit - Approach	90'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
1247+57	45' Lt	1248+39	45' Lt	24	Pipe Conduit - Approach	82'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
1263+97	62' Lt	1264+69	62' Lt	24	Pipe Conduit - Approach	72'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
1263+97	70' Rt	1264+75	70' Rt	24	Pipe Conduit	78'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Standard D-714-27
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
1268+15	38' Lt	1268+15	38' Rt	36	Pipe Conduit	76'	Reinforced Concrete Pipe - Class II **(barrel length = 71 LF)**	36				59	FES	FES	Standard D-714-25
							Corrugated Steel Pipe	36	P	2	0.064				
							Spiral Rib Steel Pipe	36	P	3/4, 1	0.064				
1274+68	34' Lt	1274+68	32' Rt	36	Pipe Conduit	66'	Reinforced Concrete Pipe - Class II **(barrel length = 61 LF)**	36				51	FES	FES	Standard D-714-26
							Corrugated Steel Pipe	36	P	2	0.064				
							Spiral Rib Steel Pipe	36	P	3/4, 1	0.064				
1285+88	54' Lt	1285+88	46' Rt	48	Pipe Conduit	100'	Reinforced Concrete Pipe - Class II **(barrel length = 96 LF)**	48				89	FES	FES	Standard D-714-25
							Corrugated Steel Pipe	48	P	2, 3, 5	0.064				
							Spiral Rib Steel Pipe	48	P	3/4, 1	0.064				
1291+66	45' Lt	1292+30	45' Lt	24	Pipe Conduit - Approach	64'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
1291+71	45' Rt	1292+39	45' Rt	24	Pipe Conduit - Approach	68'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				
1297+26	45' Rt	1298+14	45' Rt	24	Pipe Conduit - Approach	88'	Corrugated Steel Pipe	24	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	24	Z, A, P	3/4, 1	0.064				

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

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"

(*) End sections are measured and paid for separately for pipe extensions.
FES = Flared End Section
TES = Traversable End Section
(^) Culvert lengths adjusted around the horizontal curve.

SAUBER ENGINEERING

REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-3914
LS-8427
DATE 1/28/25
NORTH DAKOTA

Allowable Pipe List

Reconstruction
County Route 1

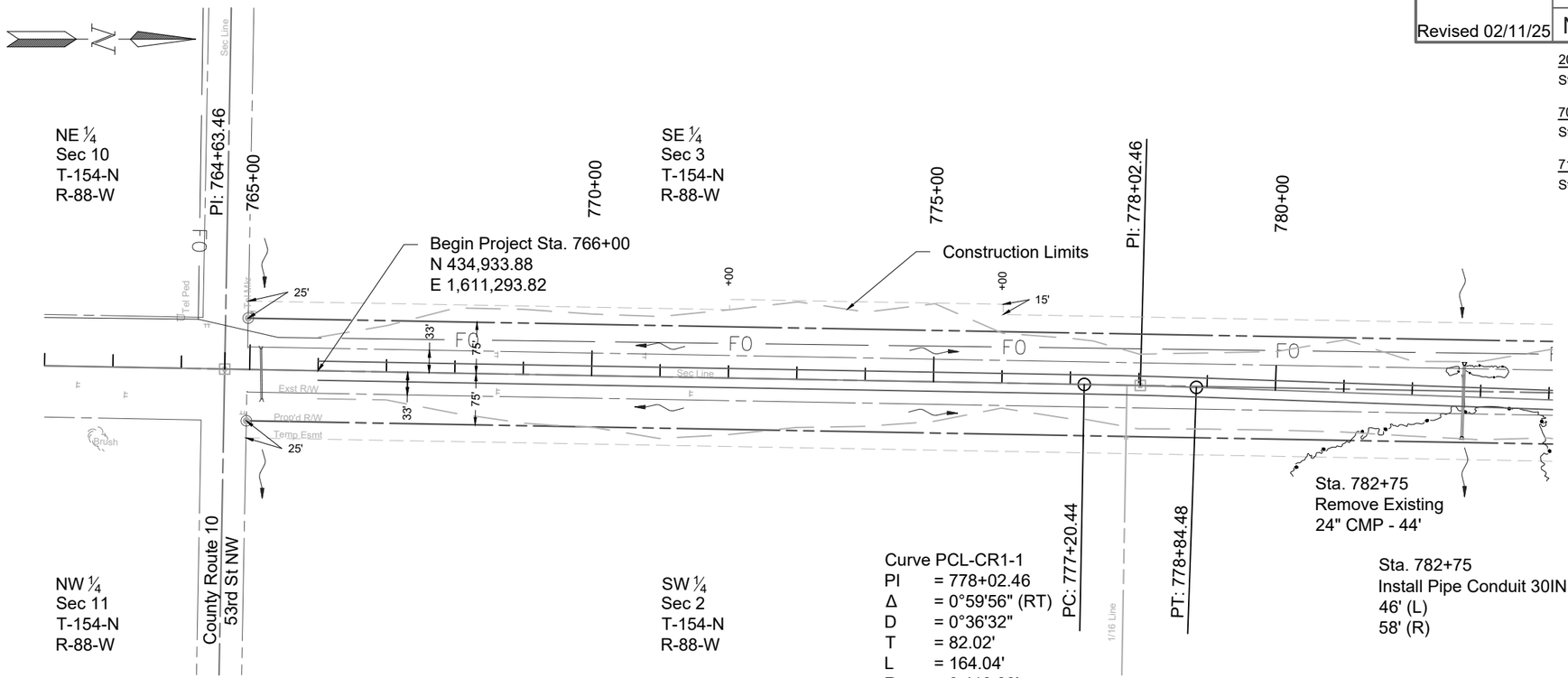
Mountrail County, ND

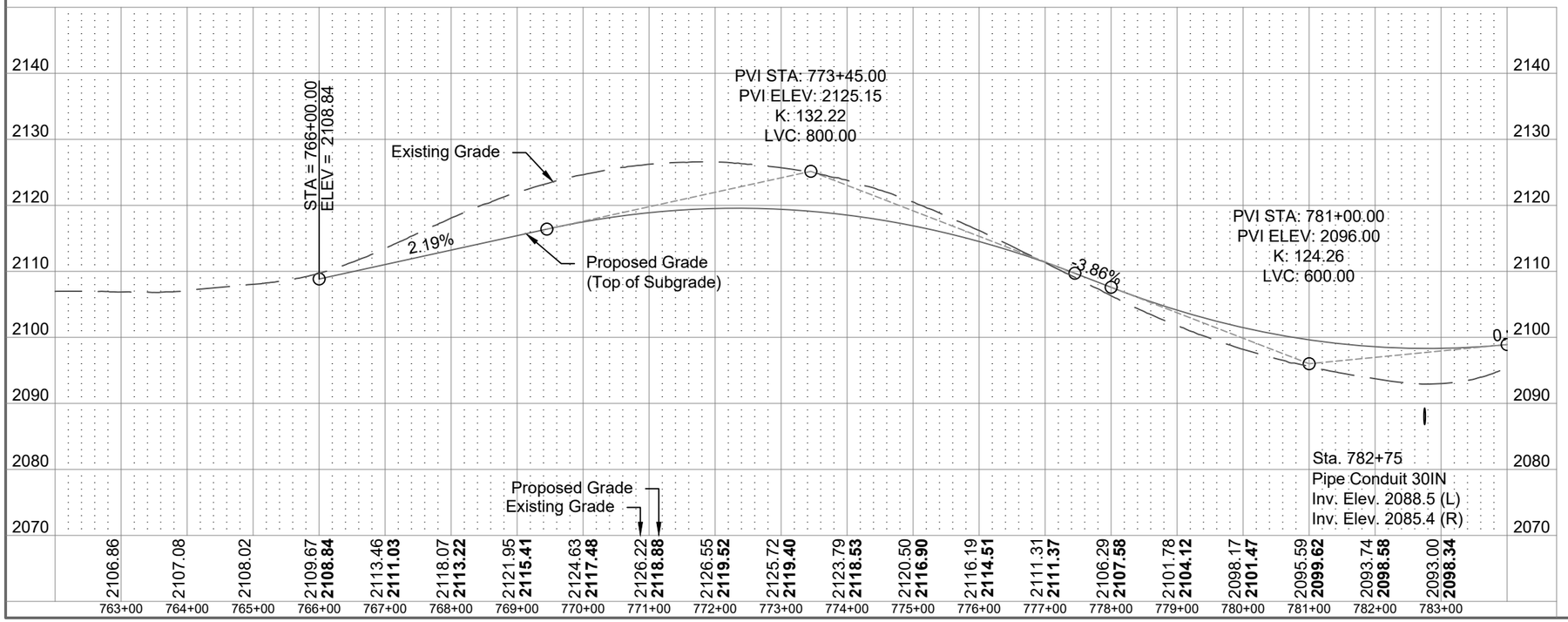
Revised 02/11/25	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	60	1

202 0170 REMOVAL OF CULVERTS-ALL TYPES AND SIZES
Sta. 782+75 44 LF

709 0100 GEOSYNTHETIC MATERIAL TYPE G
Sta. 782+75 75 SY

714 4110 PIPE CONDUIT 30IN
Sta. 782+75 104 LF





SAUBER ENGINEERING

REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-3914
LS-5427
DATE 2/11/25
NORTH DAKOTA

Plan & Profile
Sta. 763+00 to Sta. 783+00
Reconstruction
County Route 1

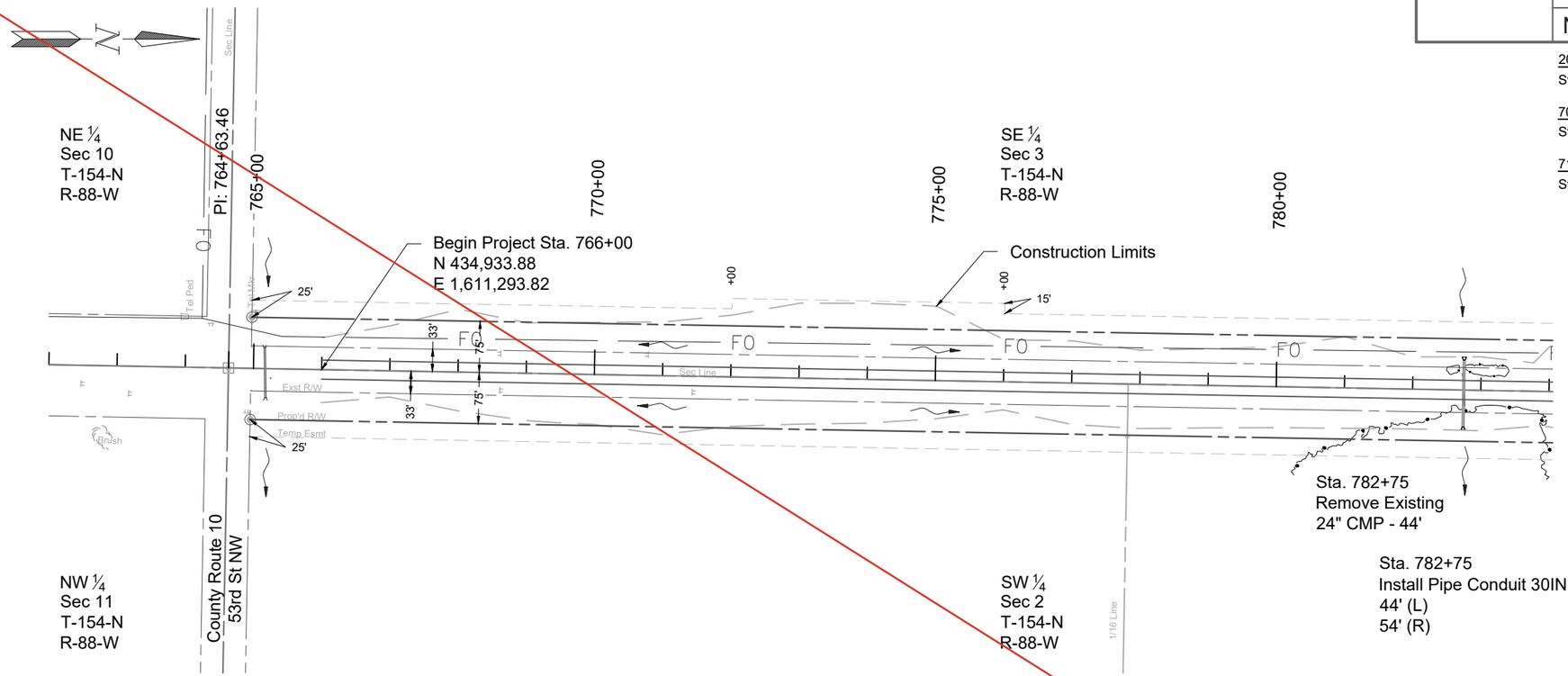
Mountrail County, ND

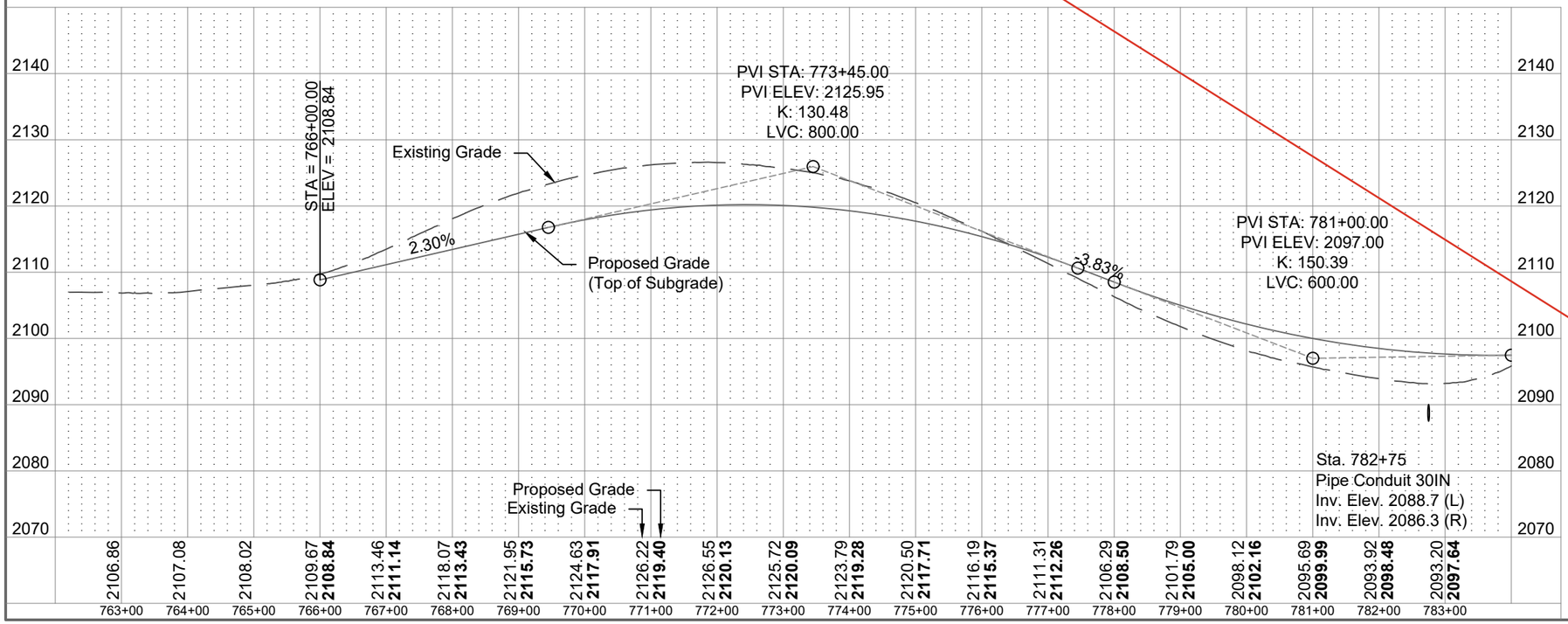
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	60	1

202 0170 REMOVAL OF CULVERTS-ALL TYPES AND SIZES
Sta. 782+75 44 LF

709 0100 GEOSYNTHETIC MATERIAL TYPE G
Sta. 782+75 71 SY

714 4110 PIPE CONDUIT 30IN
Sta. 782+75 98 LF





SAUBER ENGINEERING

REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-3914
LS-6427
DATE 1/28/25
NORTH DAKOTA

Plan & Profile
Sta. 763+00 to Sta. 783+00
Reconstruction
County Route 1

Mountrail County, ND

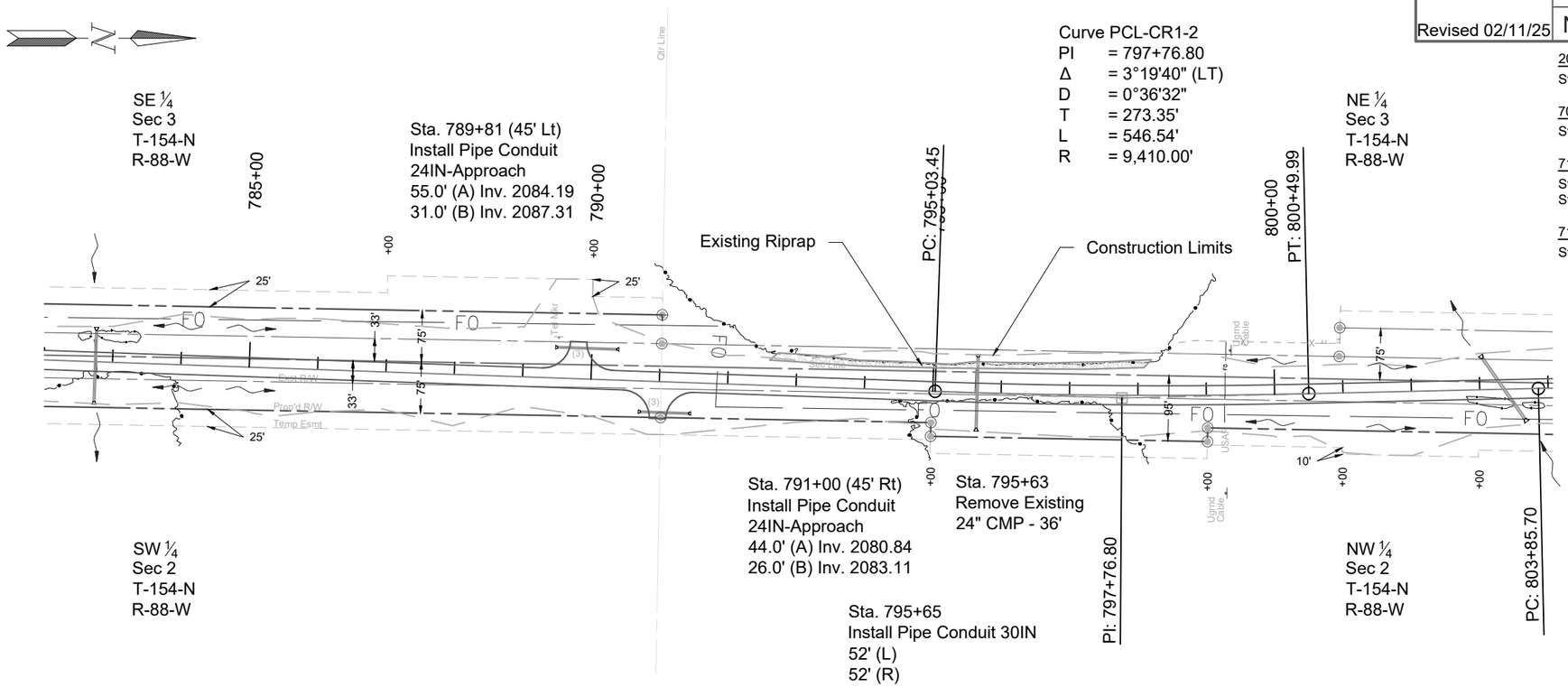
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
Revised 02/11/25	ND	01(62)23	60	2

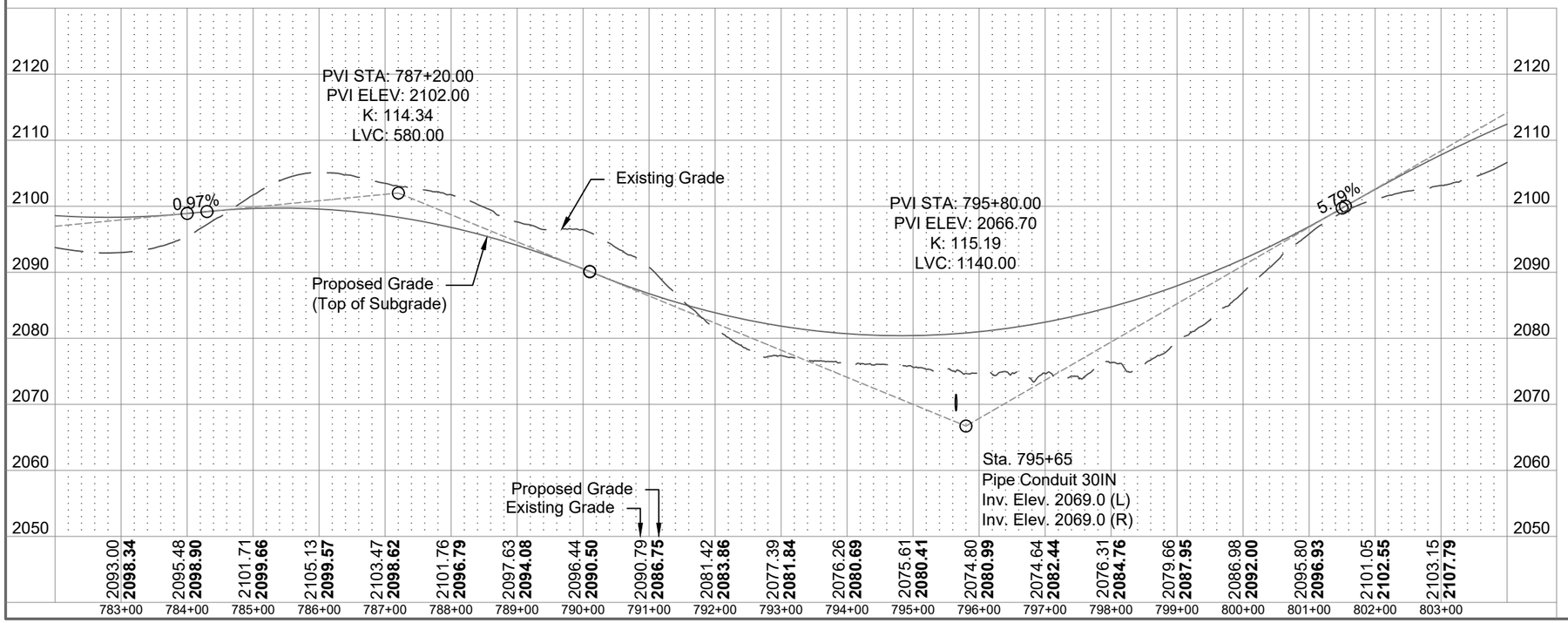
202 0170 REMOVAL OF CULVERTS-ALL TYPES AND SIZES
Sta. 795+63 36 LF

709 0100 GEOSYNTHETIC MATERIAL TYPE G
Sta. 795+65 75 SY

714 4106 PIPE CONDUIT 24IN-APPROACH
Sta. 789+81 Lt 86 LF
Sta. 791+00 Rt 70 LF

714 4110 PIPE CONDUIT 30IN
Sta. 795+65 104 LF





SAUBER ENGINEERING

REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-3914
LS-8427
DATE 2/11/25
NORTH DAKOTA

Plan & Profile
Sta. 783+00 to Sta. 803+00
Reconstruction
County Route 1

Mountrail County, ND

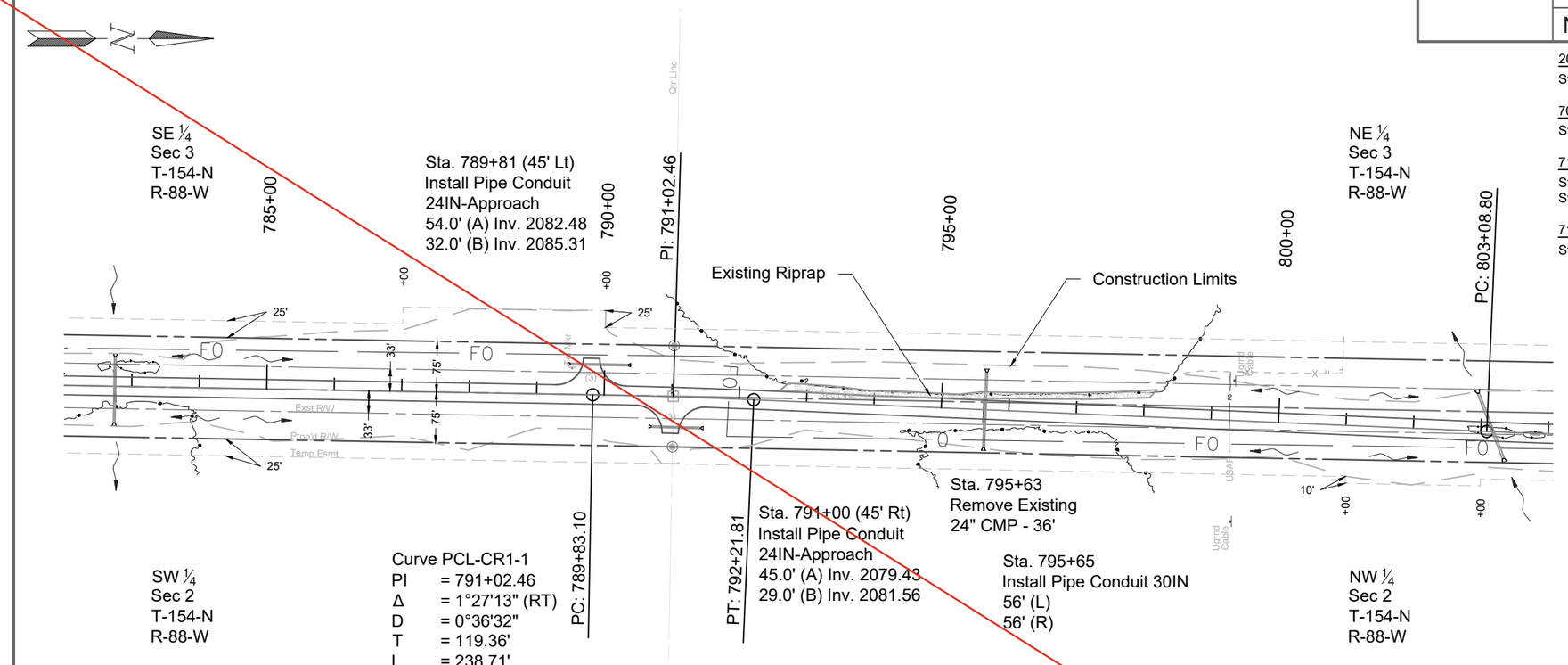
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	60	2

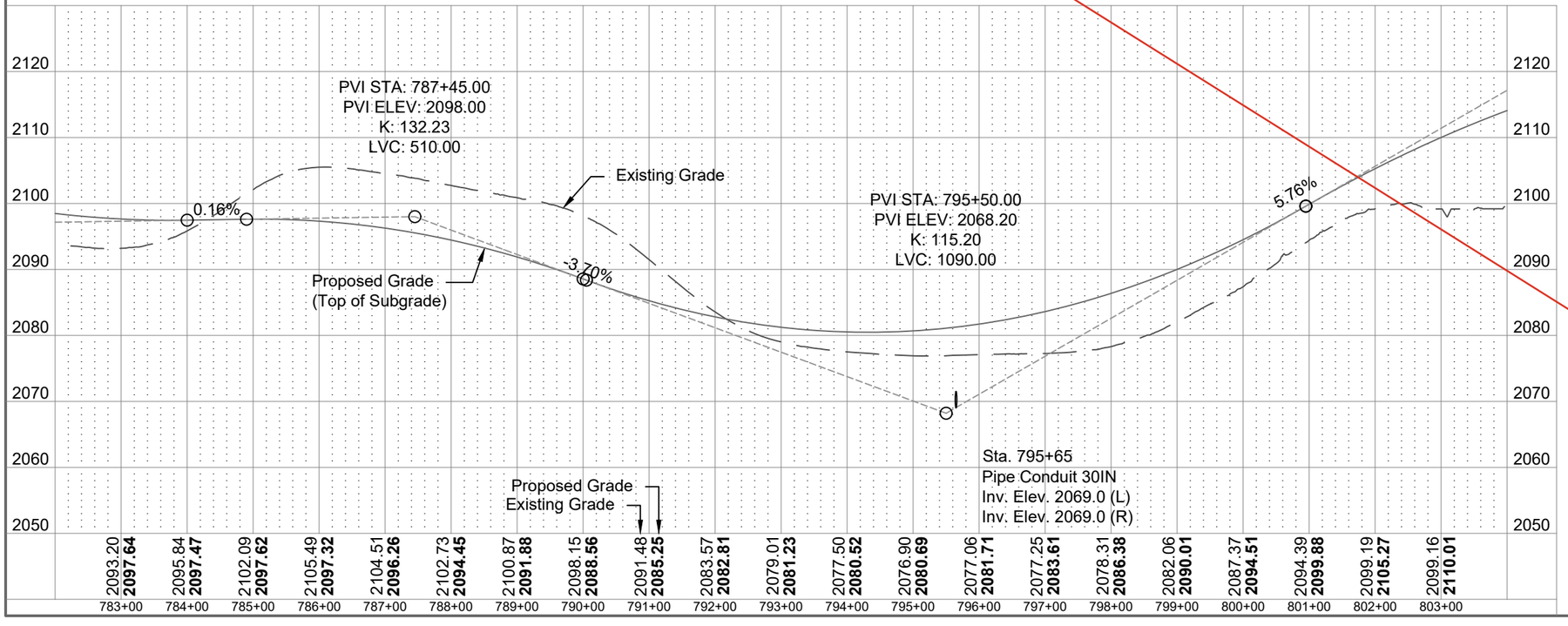
202 0170 REMOVAL OF CULVERTS-ALL TYPES AND SIZES
Sta. 795+63 36 LF

709 0100 GEOSYNTHETIC MATERIAL TYPE G
Sta. 795+65 81 SY

714 4106 PIPE CONDUIT 24IN-APPROACH
Sta. 789+81 Lt 86 LF
Sta. 791+00 Rt 74 LF

714 4110 PIPE CONDUIT 30IN
Sta. 795+65 112 LF





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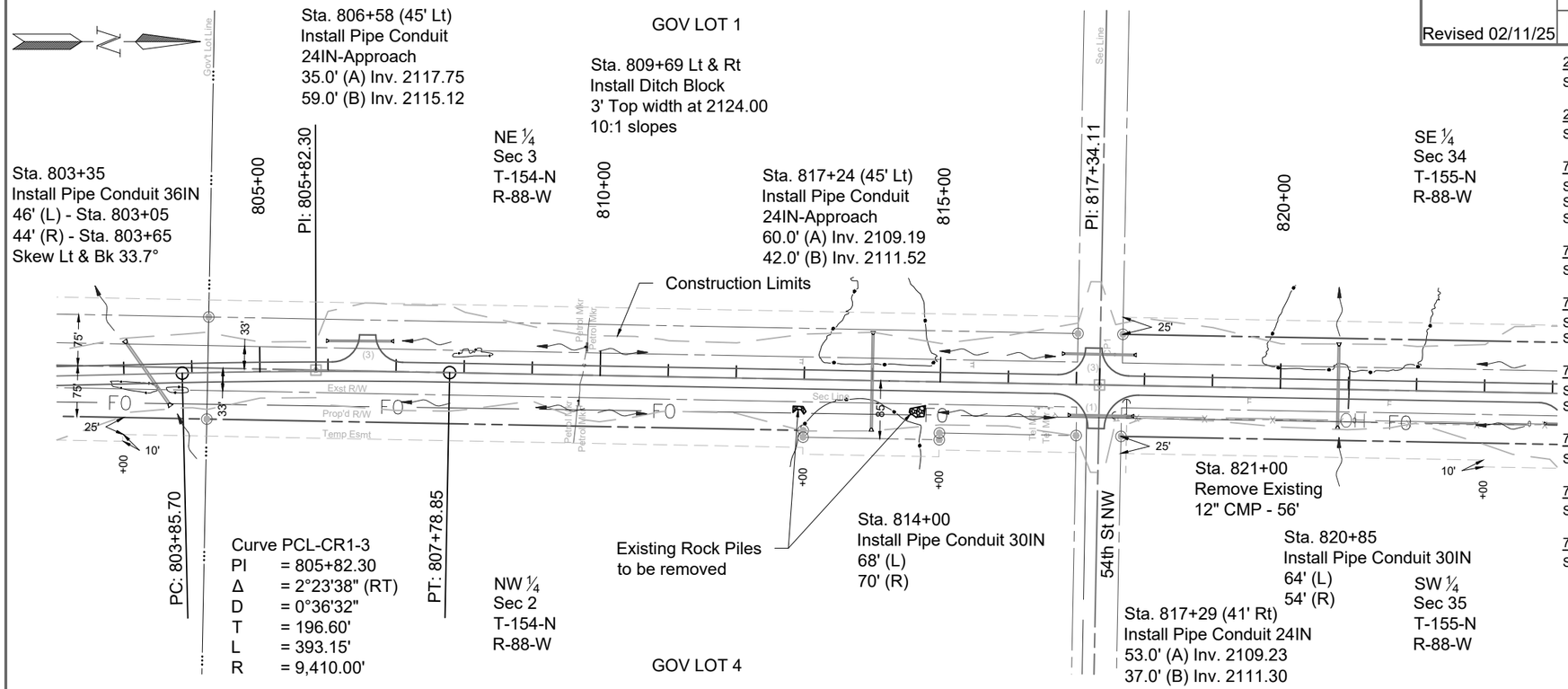
REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-3914
LS-6427
DATE 1/28/25
NORTH DAKOTA

Plan & Profile
Sta. 783+00 to Sta. 803+00
Reconstruction
County Route 1

Mountrail County, ND

Revised 02/11/25	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	60	3



202 0170 REMOVAL OF CULVERTS-ALL TYPES AND SIZES
Sta. 821+00 56 LF

202 0312 REMOVE EXISTING FENCE
Sta. 817+73 to Sta. 823+00 Rt 580 LF

709 0100 GEOSYNTHETIC MATERIAL TYPE G
Sta. 803+35 84 SY
Sta. 814+00 100 SY
Sta. 820+85 85 SY

714 4105 PIPE CONDUIT 24IN
Sta. 817+29 Rt 90 LF

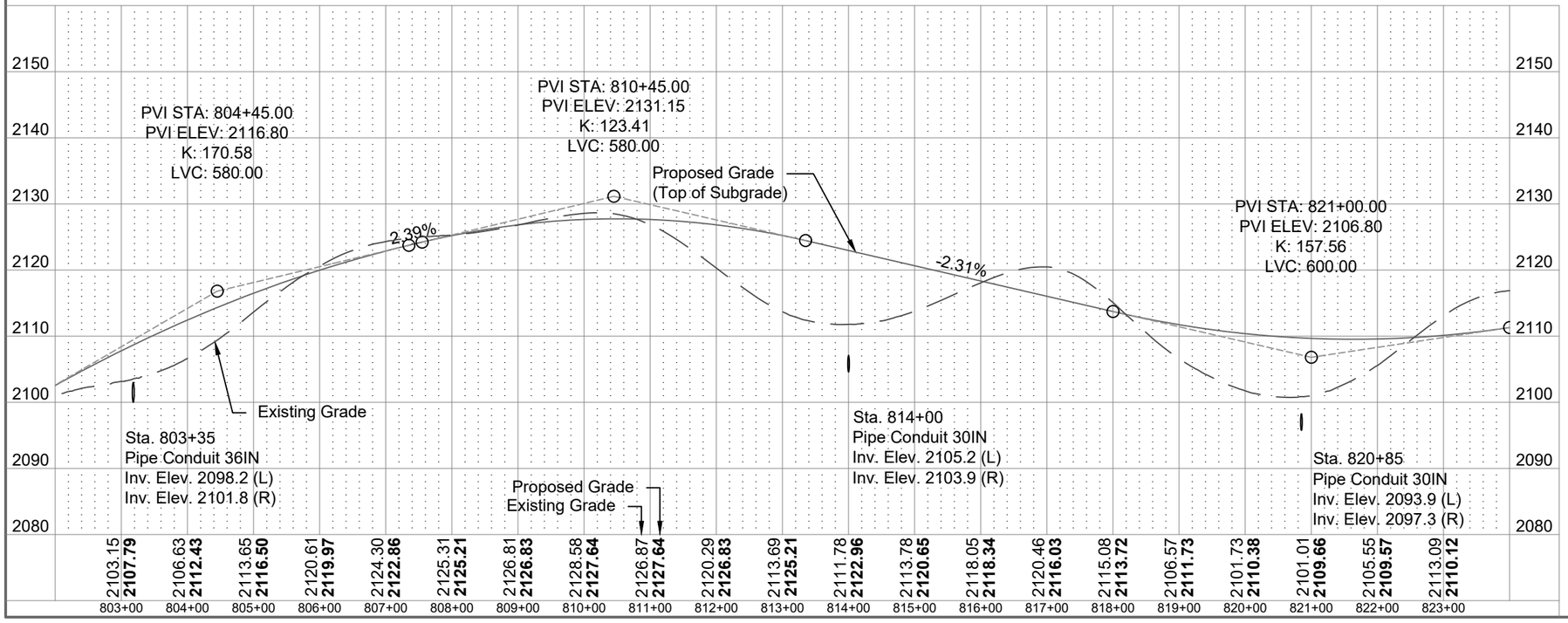
714 4106 PIPE CONDUIT 24IN-APPROACH
Sta. 806+58 Lt 92 LF
Sta. 817+24 Lt 102 LF

714 4110 PIPE CONDUIT 30IN
Sta. 814+00 138 LF
Sta. 820+85 118 LF

714 4115 PIPE CONDUIT 36IN
Sta. 803+35 108 LF

752 0400 FENCE BARBED WIRE 5 STRAND
Sta. 817+73 to Sta. 823+00 Rt 580 LF

752 3140 CORNER ASSEMBLY BARBED WIRE
Sta. 817+74 Rt 1 EA



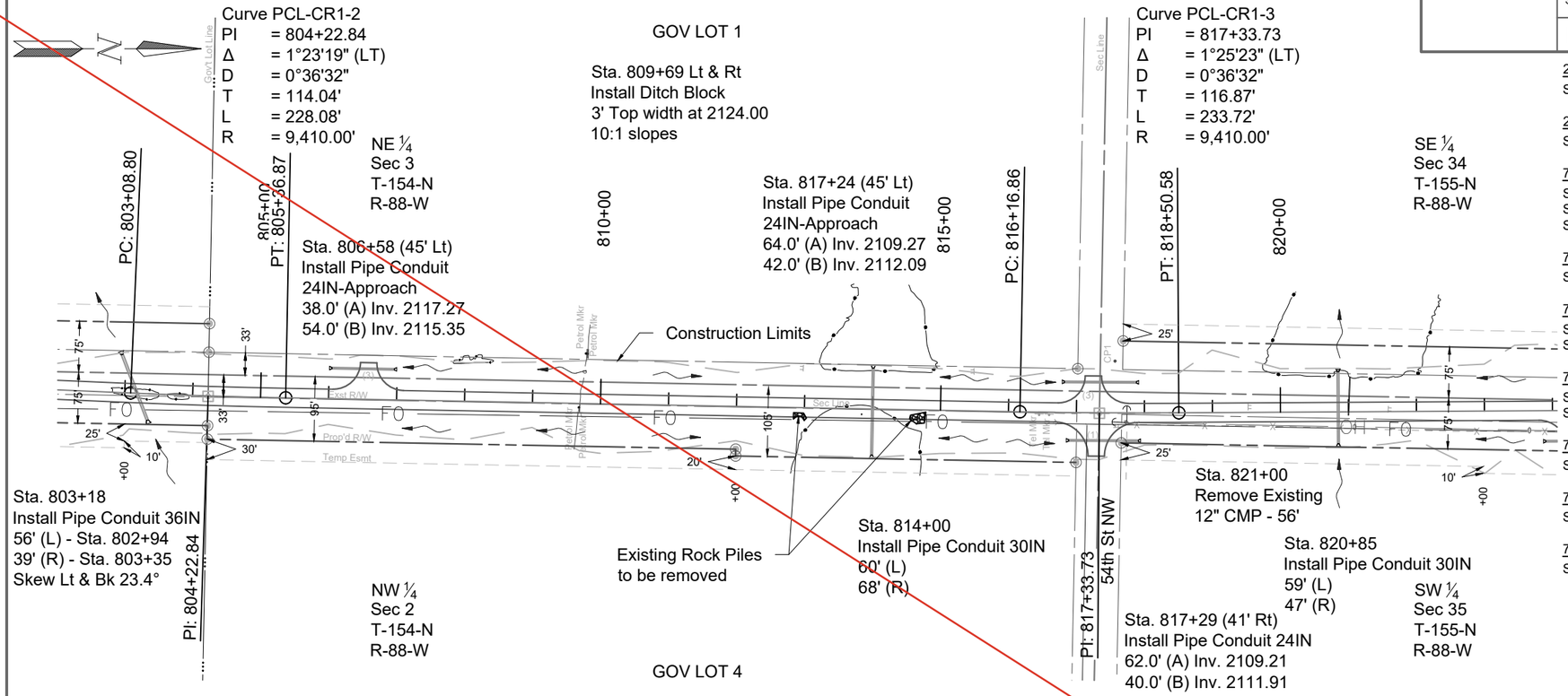
SAUBER ENGINEERING

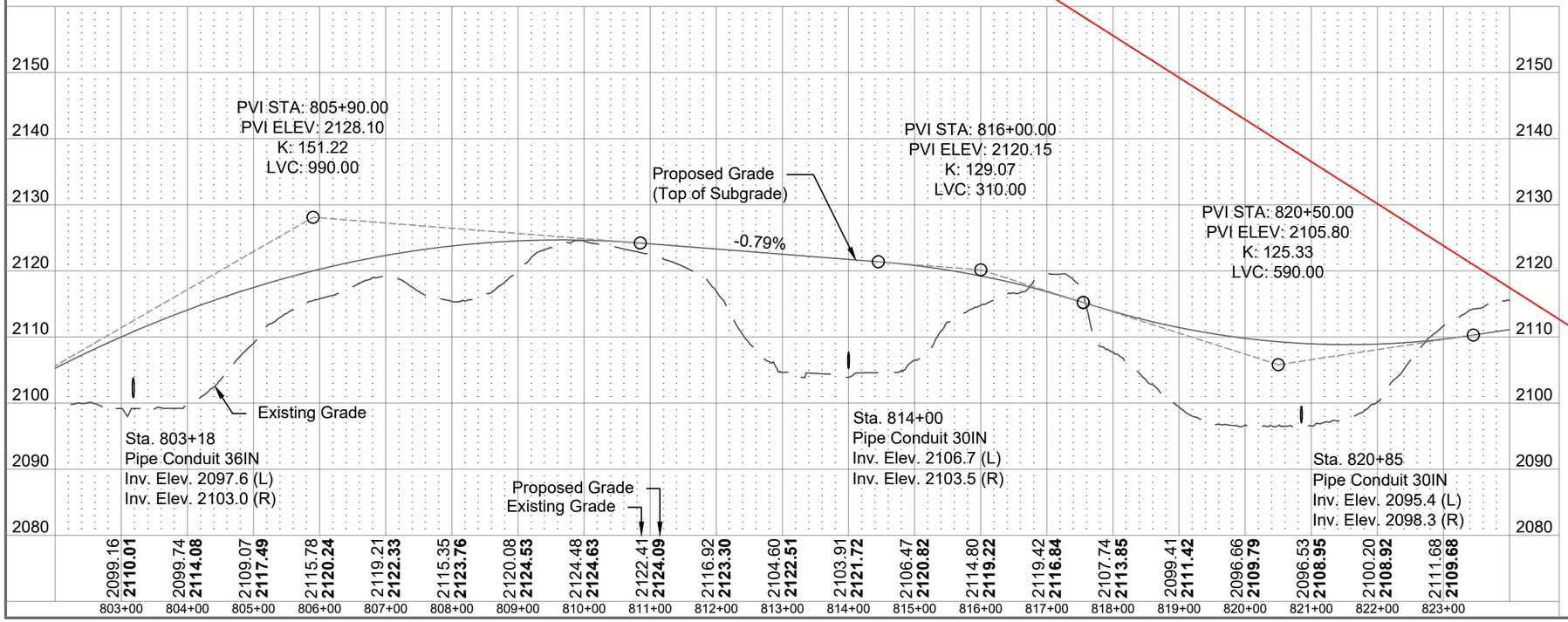
REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-8214
LS-8427
DATE 2/11/25
NORTH DAKOTA

Plan & Profile
Sta. 803+00 to Sta. 823+00
Reconstruction
County Route 1

Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	60	3





202 0170 REMOVAL OF CULVERTS-ALL TYPES AND SIZES
Sta. 821+00 56 LF

202 0312 REMOVE EXISTING FENCE
Sta. 817+73 to Sta. 823+00 Rt 580 LF

709 0100 GEOSYNTHETIC MATERIAL TYPE G
Sta. 803+18 81 SY
Sta. 814+00 92 SY
Sta. 820+85 77 SY

714 4105 PIPE CONDUIT 24IN
Sta. 817+29 Rt 102 LF

714 4106 PIPE CONDUIT 24IN-APPROACH
Sta. 806+58 Lt 92 LF
Sta. 817+24 Lt 106 LF

714 4110 PIPE CONDUIT 30IN
Sta. 814+00 128 LF
Sta. 820+85 106 LF

714 4115 PIPE CONDUIT 36IN
Sta. 803+18 104 LF

752 0400 FENCE BARBED WIRE 5 STRAND
Sta. 817+73 to Sta. 823+00 Rt 580 LF

752 3140 CORNER ASSEMBLY BARBED WIRE
Sta. 817+74 Rt 1 EA

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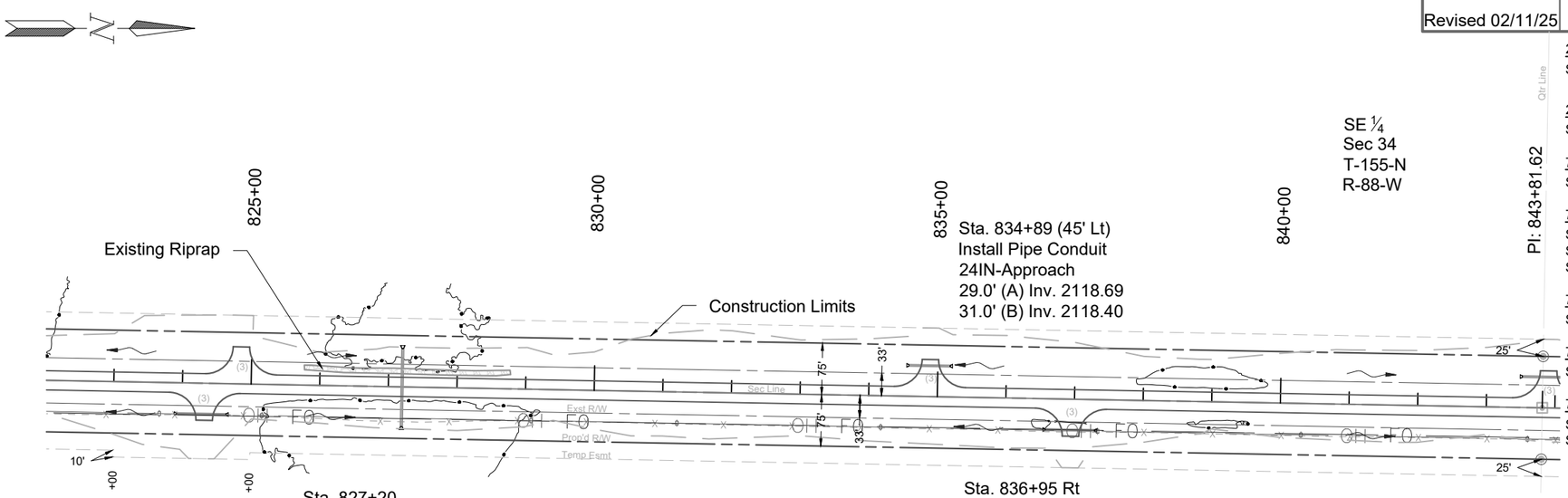
REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-3914
LS-5427
DATE 1/28/25
NORTH DAKOTA

Plan & Profile
Sta. 803+00 to Sta. 823+00
Reconstruction
County Route 1

Mountrail County, ND

Revised 02/11/25	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	60	4



202 0170 REMOVAL OF CULVERTS-ALL TYPES AND SIZES
Sta. 836+95 Rt 44 LF

202 0312 REMOVE EXISTING FENCE
Sta. 823+00 to Sta. 843+00 Rt 2,000 LF

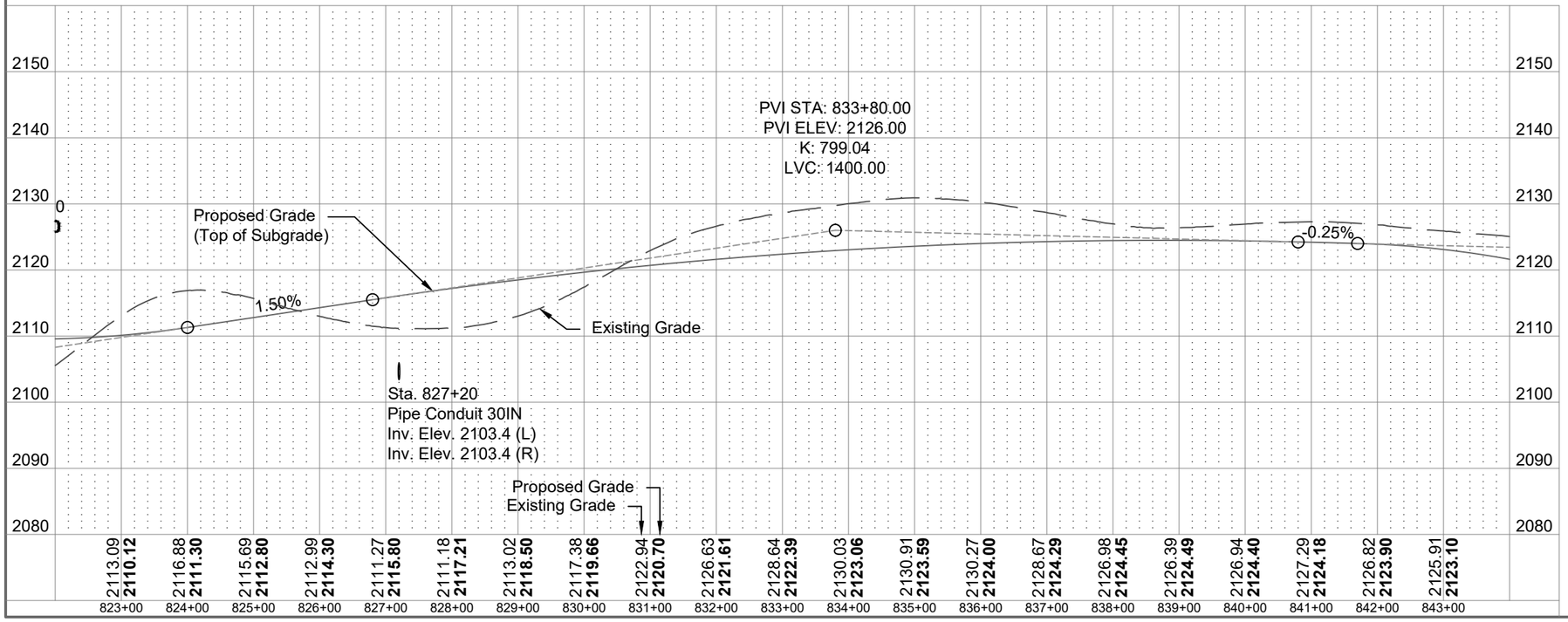
709 0100 GEOSYNTHETIC MATERIAL TYPE G
Sta. 827+20 82 SY

714 4106 PIPE CONDUIT 24IN-APPROACH
Sta. 824+32 Rt 72 LF
Sta. 834+89 Lt 60 LF
Sta. 836+95 Rt 72 LF

714 4110 PIPE CONDUIT 30IN
Sta. 827+20 114 LF

752 0400 FENCE BARBED WIRE 5 STRAND
Sta. 823+00 to Sta. 843+00 Rt 2,000 LF

752 2100 VEHICLE GATE
Sta. 824+32 Rt 1 EA
Sta. 836+95 Rt 1 EA



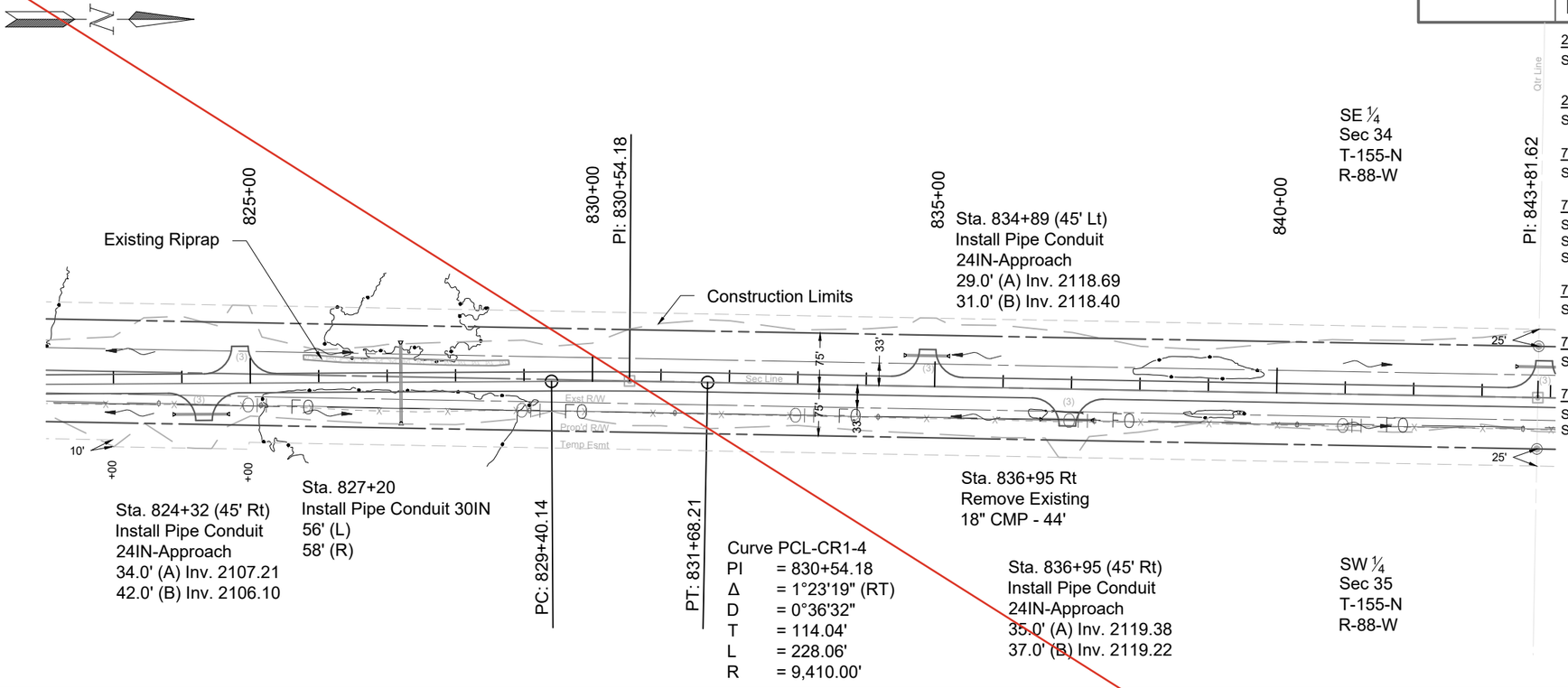
SAUBER ENGINEERING

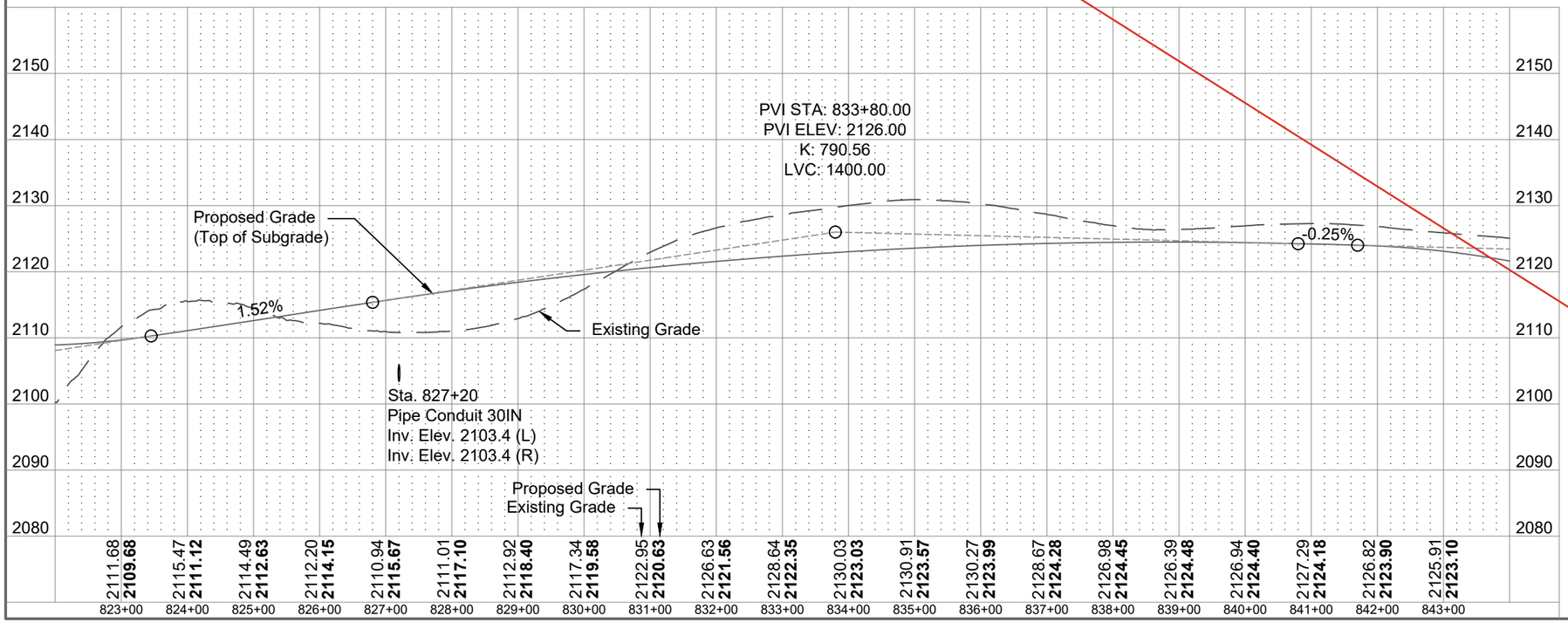
REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-3914
LS-8427
DATE 2/11/25
NORTH DAKOTA

Plan & Profile
Sta. 823+00 to Sta. 843+00
Reconstruction
County Route 1

Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	60	4





202 0170 REMOVAL OF CULVERTS-ALL TYPES AND SIZES
Sta. 836+95 Rt 44 LF

202 0312 REMOVE EXISTING FENCE
Sta. 823+00 to Sta. 843+00 Rt 2,000 LF

709 0100 GEOSYNTHETIC MATERIAL TYPE G
Sta. 827+20 82 SY

714 4106 PIPE CONDUIT 24IN-APPROACH
Sta. 824+32 Rt 76 LF
Sta. 834+89 Lt 60 LF
Sta. 836+95 Rt 72 LF

714 4110 PIPE CONDUIT 30IN
Sta. 827+20 114 LF

752 0400 FENCE BARBED WIRE 5 STRAND
Sta. 823+00 to Sta. 843+00 Rt 2,000 LF

752 2100 VEHICLE GATE
Sta. 824+32 Rt 1 EA
Sta. 836+95 Rt 1 EA

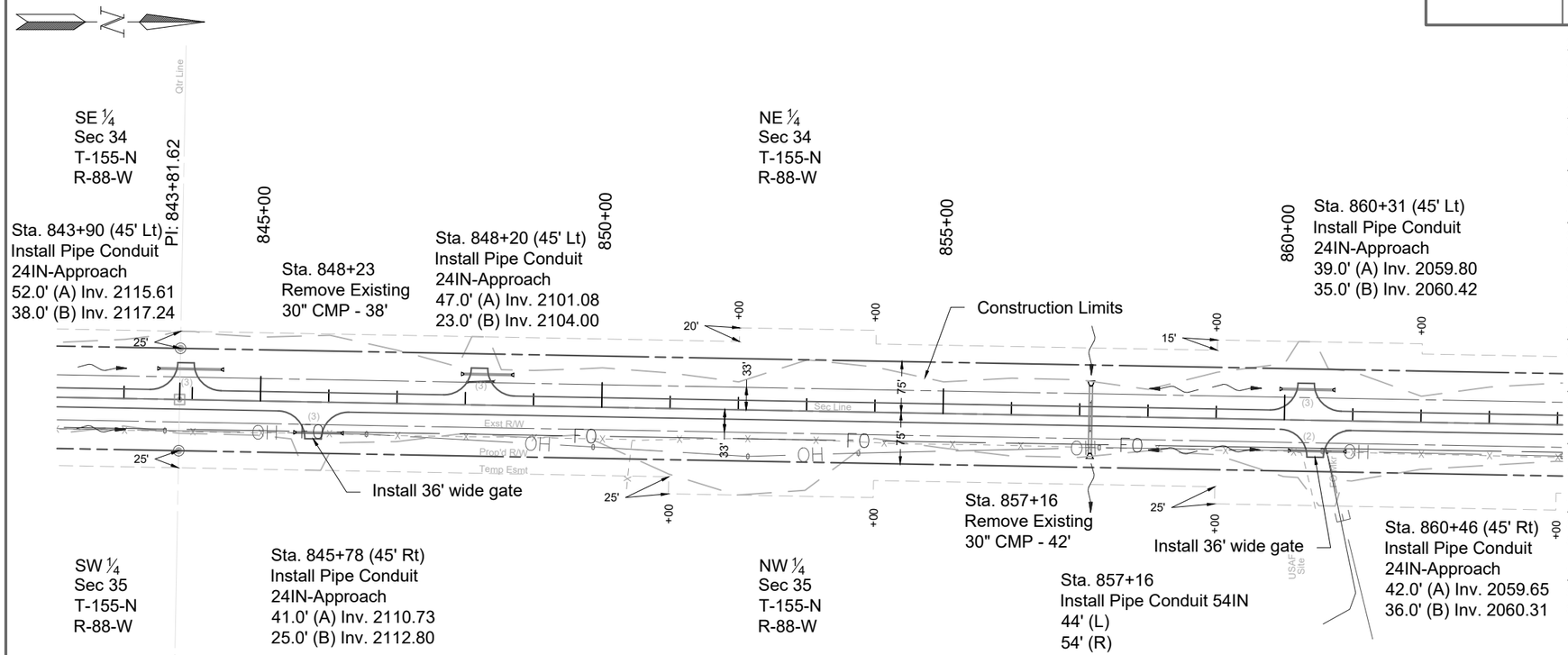
SAUBER ENGINEERING

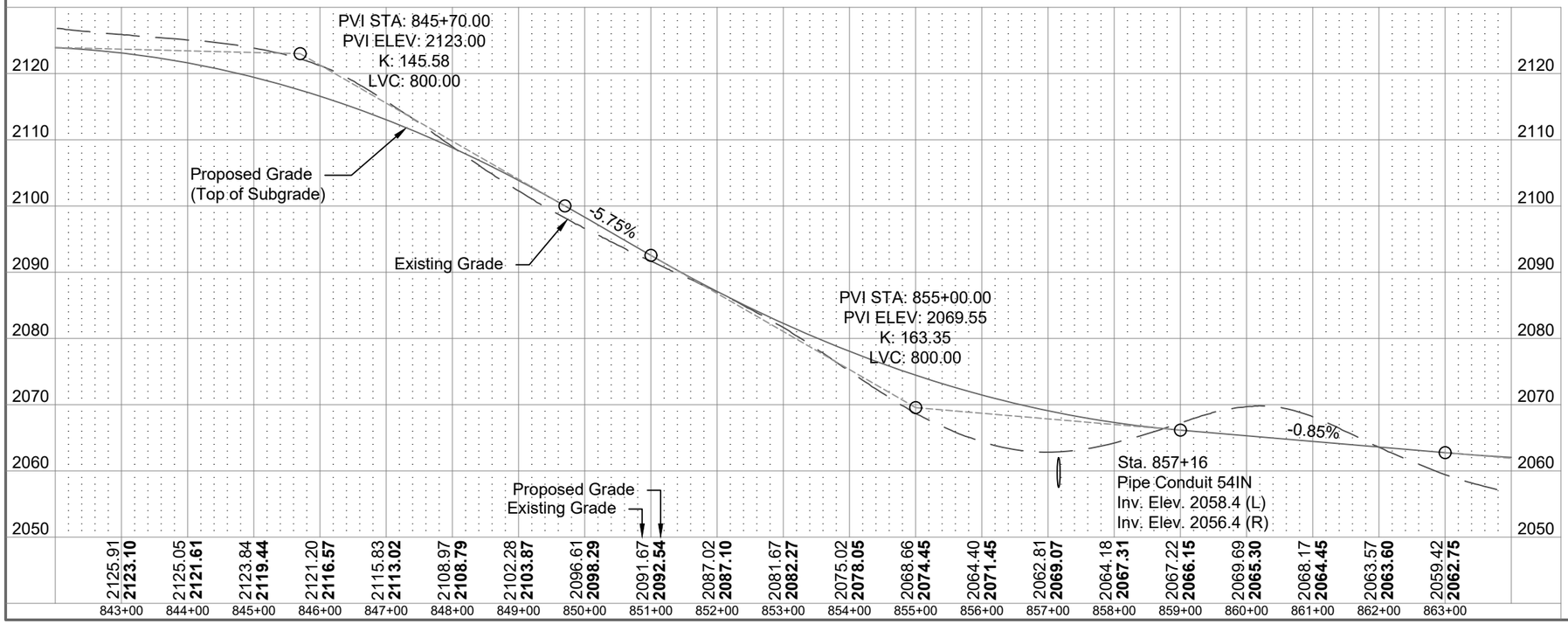
REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-3214
LS-6427
DATE 1/28/25
NORTH DAKOTA

Plan & Profile
Sta. 823+00 to Sta. 843+00
Reconstruction
County Route 1

Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	60	5





202 0170 REMOVAL OF CULVERTS-ALL TYPES AND SIZES

Sta. 848+23 Lt	38 LF
Sta. 857+16	42 LF

202 0312 REMOVE EXISTING FENCE

Sta. 843+00 to Sta. 863+00 Rt	2,130 LF

709 0100 GEOSYNTHETIC MATERIAL TYPE G

Sta. 857+16	93 SY

714 4106 PIPE CONDUIT 24IN-APPROACH

Sta. 843+90 Lt	90 LF
Sta. 845+78 Rt	66 LF
Sta. 848+20 Lt	70 LF
Sta. 860+31 Lt	74 LF
Sta. 860+46 Rt	78 LF

714 4130 PIPE CONDUIT 54IN

Sta. 857+16	98 LF

752 0400 FENCE BARBED WIRE 5 STRAND

Sta. 843+00 to Sta. 863+00 Rt	2,130 LF

752 2100 VEHICLE GATE

Sta. 845+78 Rt	1 EA
Sta. 860+46 Rt	1 EA

752 3140 CORNER ASSEMBLY BARBED WIRE

Sta. 850+45 Rt	1 EA
Sta. 860+25 Rt	1 EA

752 4100 DOUBLE BRACE ASSEMBLY BARBED WIRE

Sta. 843+00 Rt	1 EA
Sta. 856+00 Rt	1 EA

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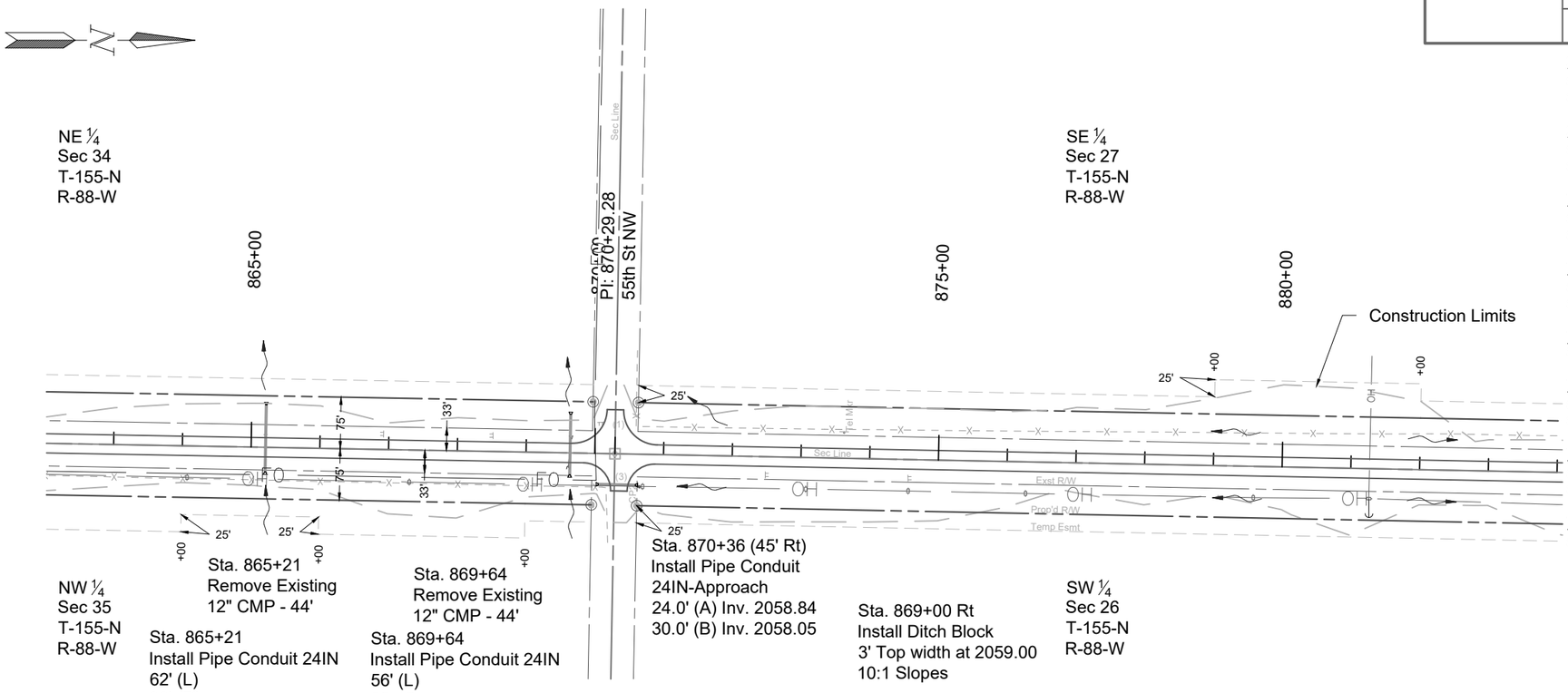
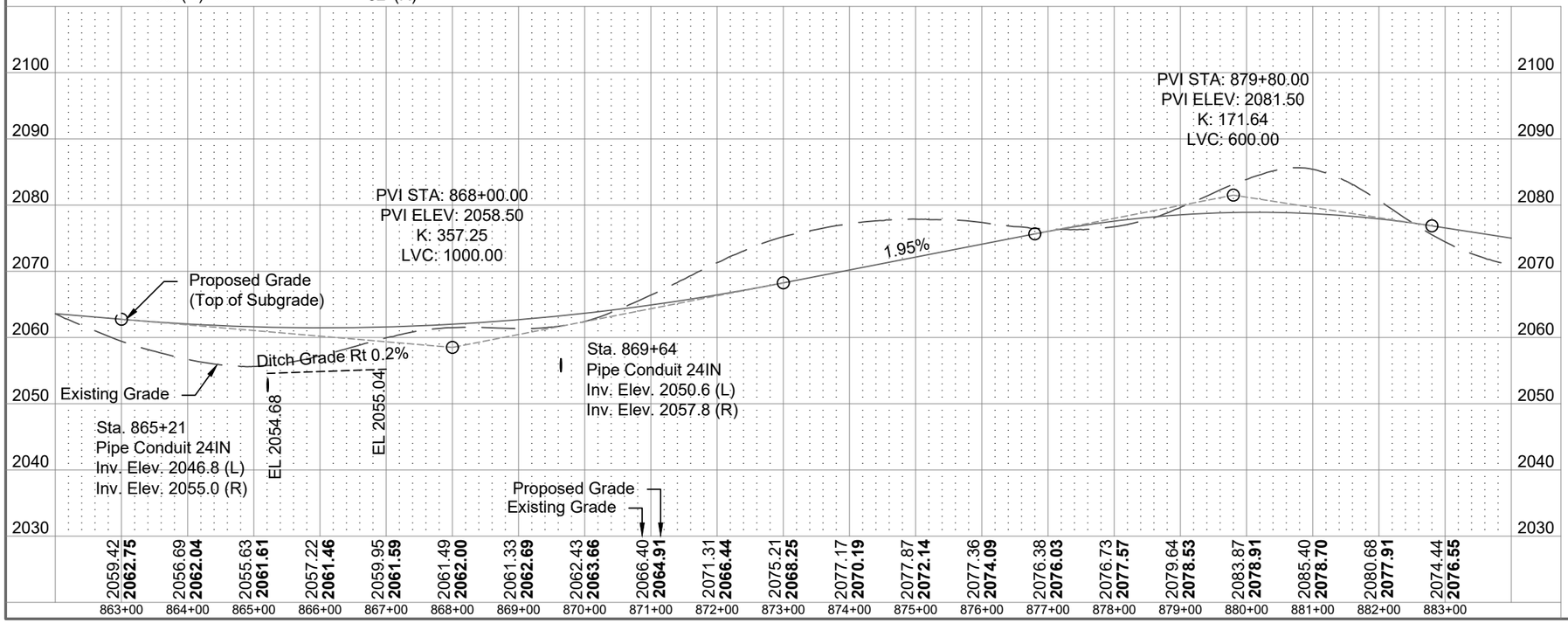
Plan & Profile
Sta. 843+00 to Sta. 863+00
Reconstruction
County Route 1

Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	60	6





202 0170 REMOVAL OF CULVERTS-ALL TYPES AND SIZES

Sta. 865+21	44 LF
Sta. 869+64	44 LF

202 0312 REMOVE EXISTING FENCE

Sta. 863+00 to Sta. 870+20 Rt	770 LF
Sta. 870+59 to Sta. 883+00 Lt	1,300 LF

709 0100 GEOSYNTHETIC MATERIAL TYPE G

Sta. 865+21	65 SY
Sta. 869+64	59 SY

714 4105 PIPE CONDUIT 24IN

Sta. 865+21	98 LF
Sta. 869+64	88 LF

714 4106 PIPE CONDUIT 24IN-APPROACH

Sta. 870+36 Rt	54 LF

752 0400 FENCE BARBED WIRE 5 STRAND

Sta. 863+00 to Sta. 870+20 Rt	770 LF
Sta. 870+59 to Sta. 883+00 Lt	1,300 LF

752 3140 CORNER ASSEMBLY BARBED WIRE

Sta. 870+17 Rt	1 EA
Sta. 870+59 Lt	1 EA

752 4100 DOUBLE BRACE ASSEMBLY BARBED WIRE

Sta. 880+00 Lt	1 EA

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JOHN D. SAUBER JR.
PE-3914
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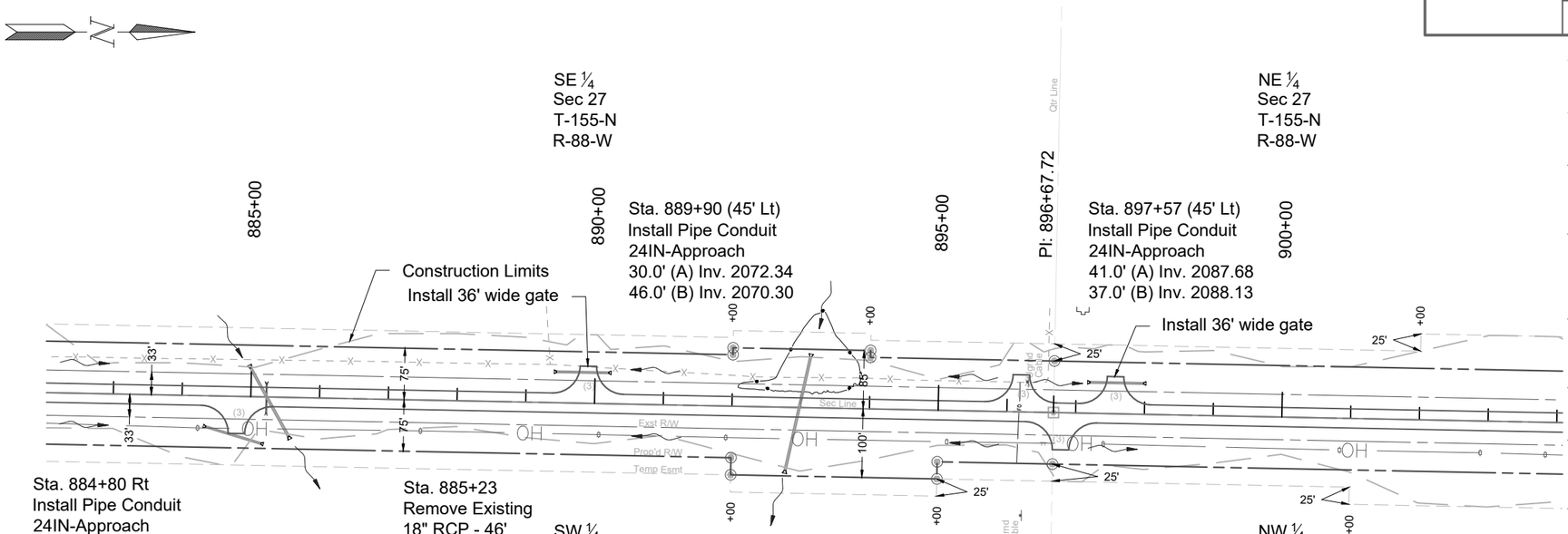
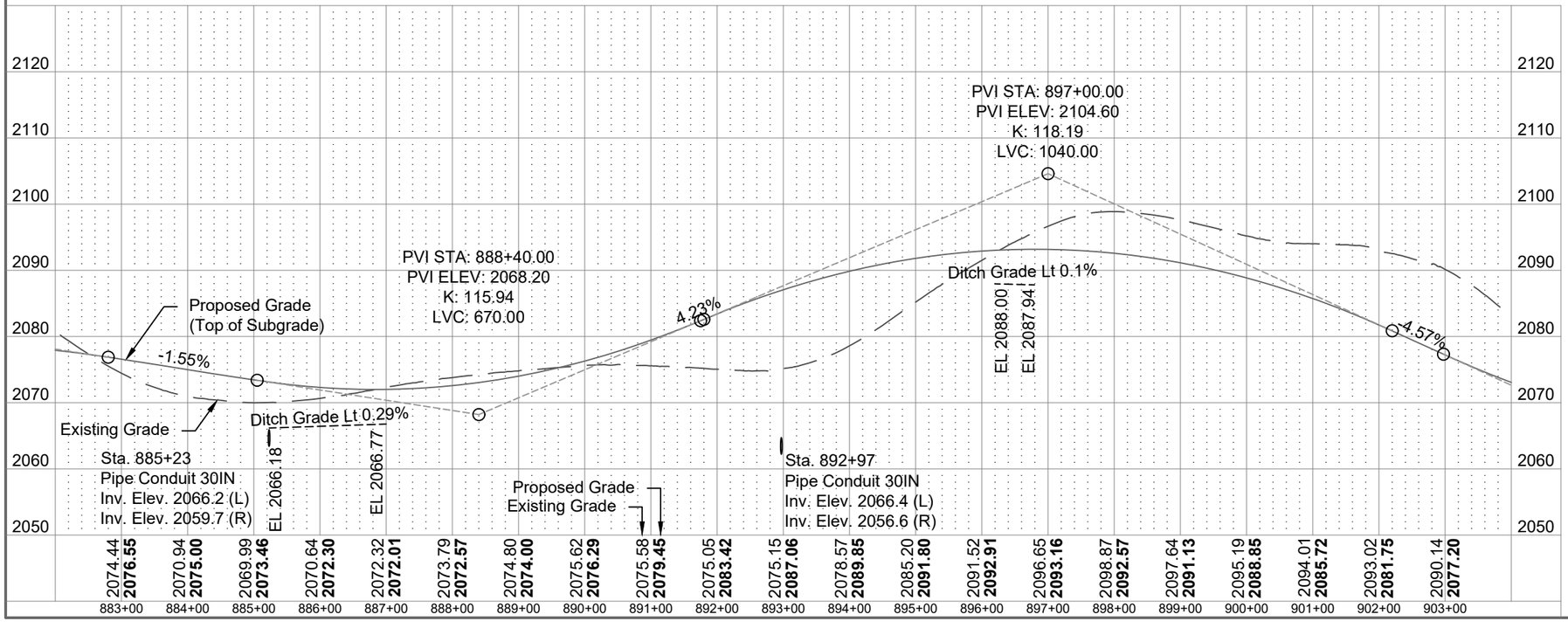
Plan & Profile
Sta. 863+00 to Sta. 883+00
Reconstruction
County Route 1

Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	60	7





202 0170 REMOVAL OF CULVERTS-ALL TYPES AND SIZES
Sta. 885+23 46 LF

202 0312 REMOVE EXISTING FENCE
Sta. 883+00 to Sta. 896+59 Lt 1,455 LF

709 0100 GEOSYNTHETIC MATERIAL TYPE G
Sta. 885+23 82 SY
Sta. 892+97 123 SY

714 4106 PIPE CONDUIT 24IN-APPROACH
Sta. 884+80 Rt 84 LF
Sta. 889+90 Lt 76 LF
Sta. 897+57 Lt 78 LF

714 4110 PIPE CONDUIT 30IN
Sta. 885+23 114 LF
Sta. 892+97 170 LF

752 0400 FENCE BARBED WIRE 5 STRAND
Sta. 883+00 to Sta. 896+59 Lt 1,455 LF

752 2100 VEHICLE GATE
Sta. 889+90 Lt 1 EA
Sta. 896+20 Lt 1 EA

752 3140 CORNER ASSEMBLY BARBED WIRE
Sta. 889+34 Lt 1 EA
Sta. 896+57 Lt 1 EA

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JOHN D. SAUBER JR.
PE-8214
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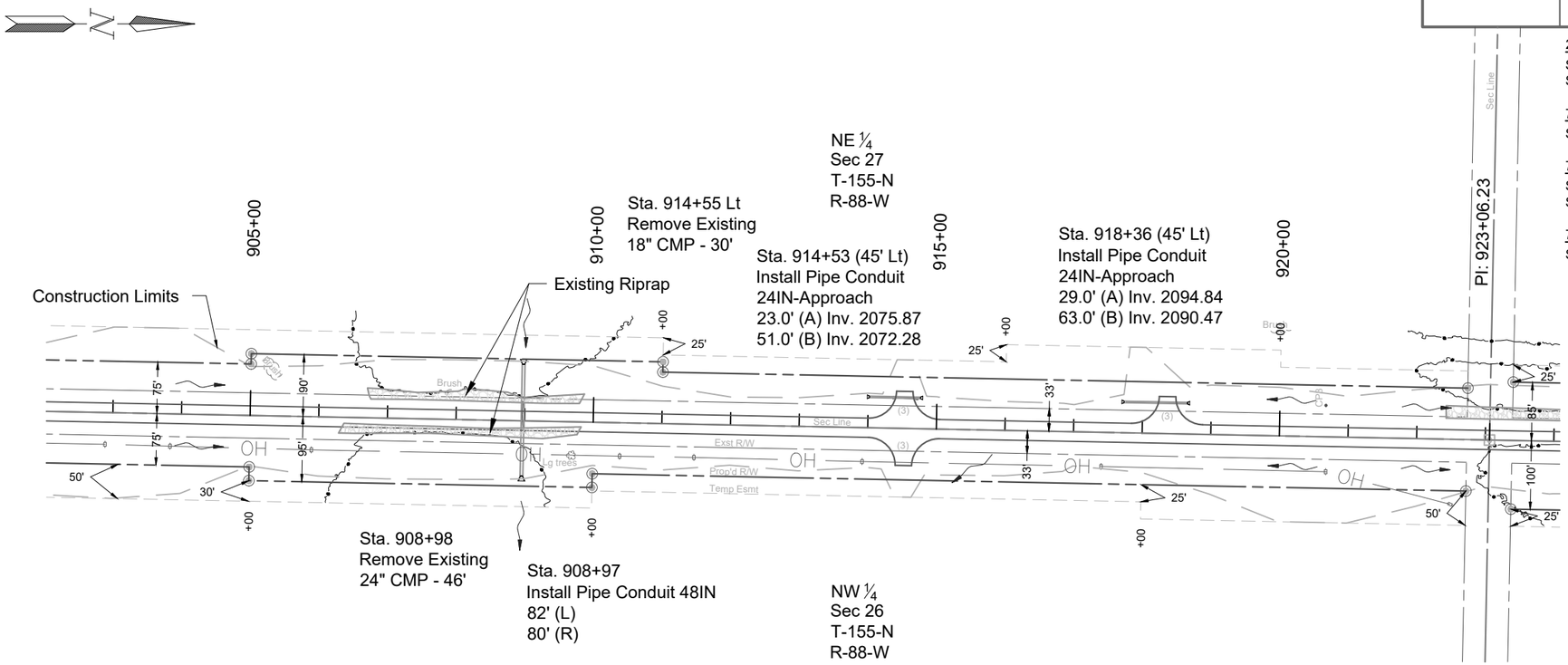
Plan & Profile
Sta. 883+00 to Sta. 903+00
Reconstruction
County Route 1

Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	60	8



202 0170 REMOVAL OF CULVERTS-ALL TYPES AND SIZES

Sta. 908+98	46 LF
Sta. 914+55 Lt	30 LF

709 0100 GEOSYNTHETIC MATERIAL TYPE G

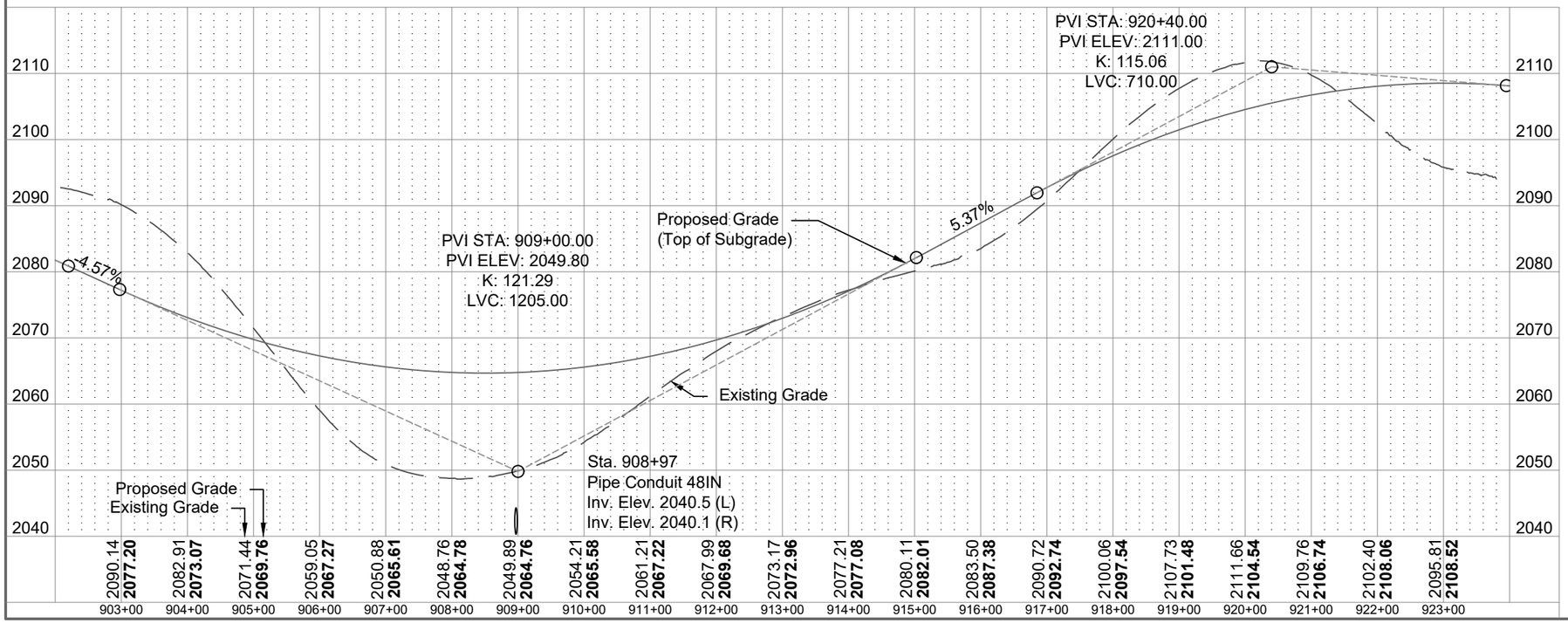
Sta. 908+97	144 SY

714 4106 PIPE CONDUIT 24IN-APPROACH

Sta. 914+53 Lt	74 LF
Sta. 918+36 Lt	92 LF

714 4125 PIPE CONDUIT 48IN

Sta. 908+97	162 LF



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JOHN D. SAUBER JR.
PE-3914
LS-6427
DATE 1/28/25
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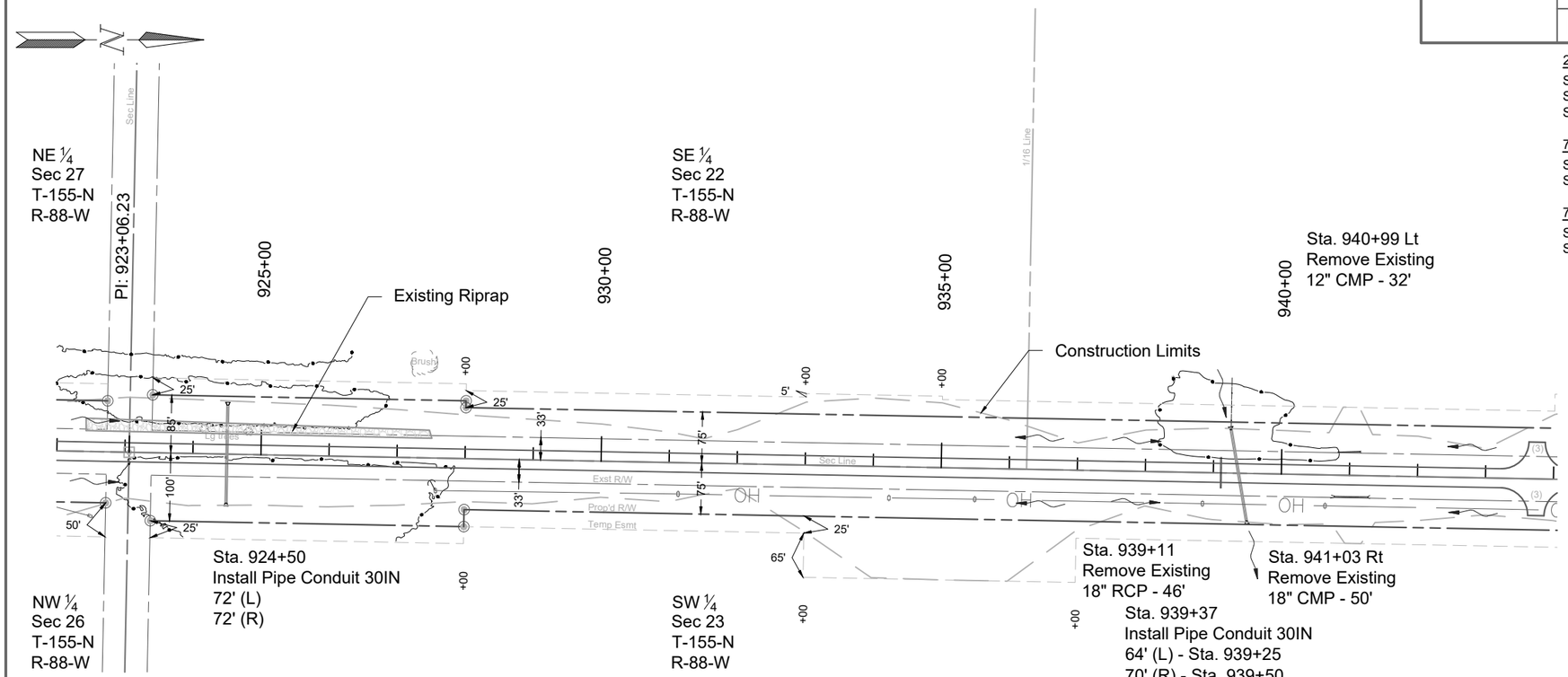
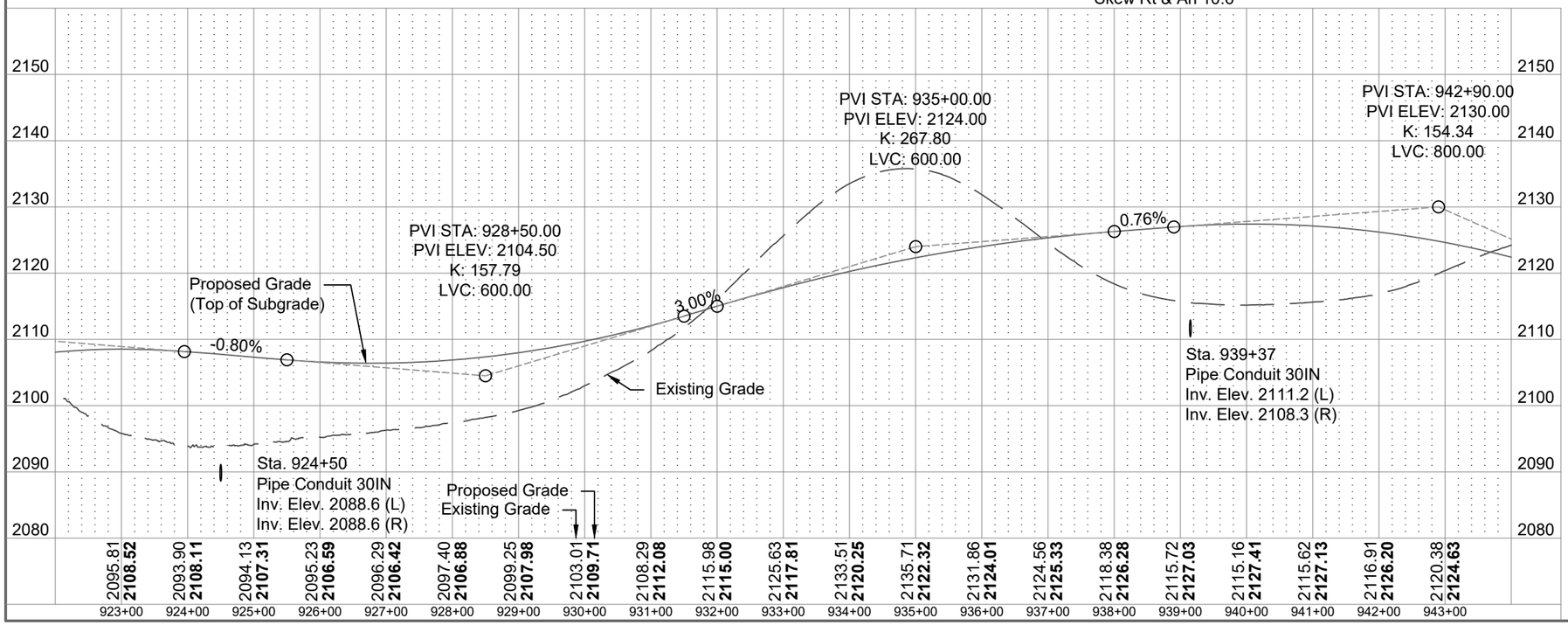
Plan & Profile
Sta. 903+00 to Sta. 923+00
Reconstruction
County Route 1

Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	60	9





202 0170 REMOVAL OF CULVERTS-ALL TYPES AND SIZES

Sta. 939+11	46 LF
Sta. 940+99 Lt	32 LF
Sta. 941+03 Rt	50 LF

709 0100 GEOSYNTHETIC MATERIAL TYPE G

Sta. 924+50	104 SY
Sta. 939+37	98 SY

714 4110 PIPE CONDUIT 30IN

Sta. 924+50	144 LF
Sta. 939+37	136 LF

SAUBER ENGINEERING

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JOHN D. SAUBER JR.
PE-3914
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NORTH DAKOTA

Plan & Profile
Sta. 923+00 to Sta. 943+00
Reconstruction
County Route 1

Mountrail County, ND

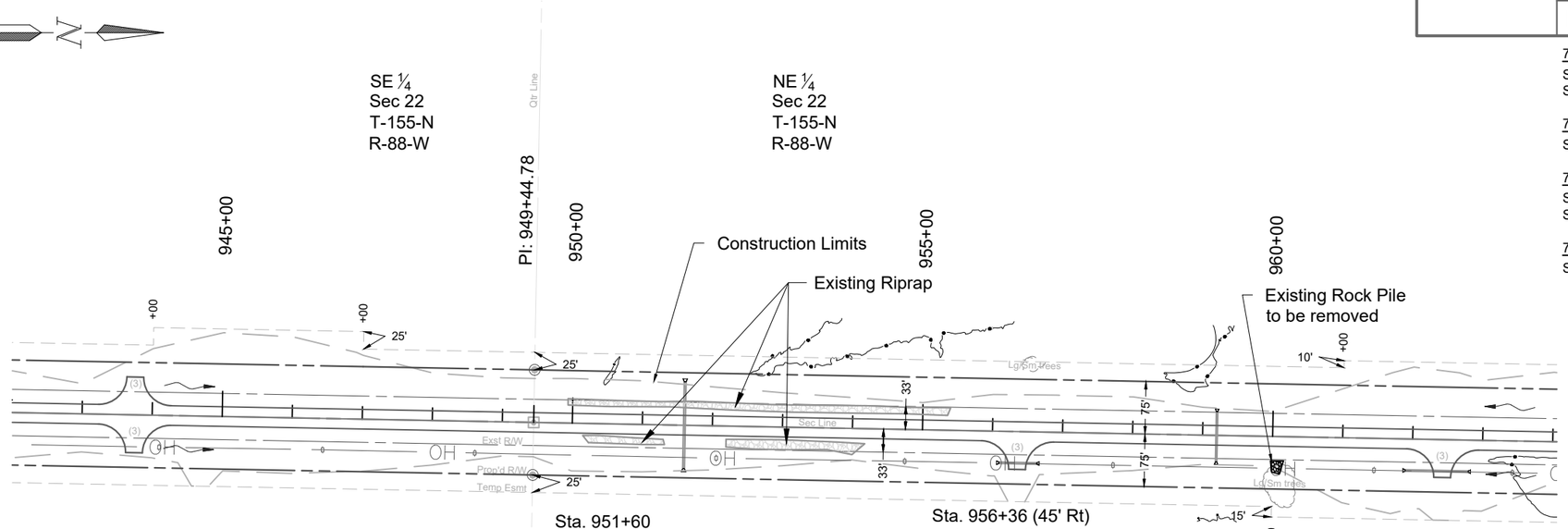
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	60	10

SE ¼
Sec 22
T-155-N
R-88-W

NE ¼
Sec 22
T-155-N
R-88-W

SW ¼
Sec 23
T-155-N
R-88-W

NW ¼
Sec 23
T-155-N
R-88-W



Sta. 951+60
Install Pipe Conduit 30IN
62' (L)
62' (R)

Sta. 956+36 (45' Rt)
Install Pipe Conduit
24IN-Approach
28.0' (A) Inv. 2083.68
26.0' (B) Inv. 2083.90

Sta. 959+20
Install Pipe Conduit 24IN
34' (L)
38' (R)

Sta. 962+43 (45' Rt)
Install Pipe Conduit
24IN-Approach
37.0' (A) Inv. 2091.51
53.0' (B) Inv. 2089.47

709 0100 GEOSYNTHETIC MATERIAL TYPE G

Sta. 951+60	90 SY
Sta. 959+20	48 SY

714 4105 PIPE CONDUIT 24IN

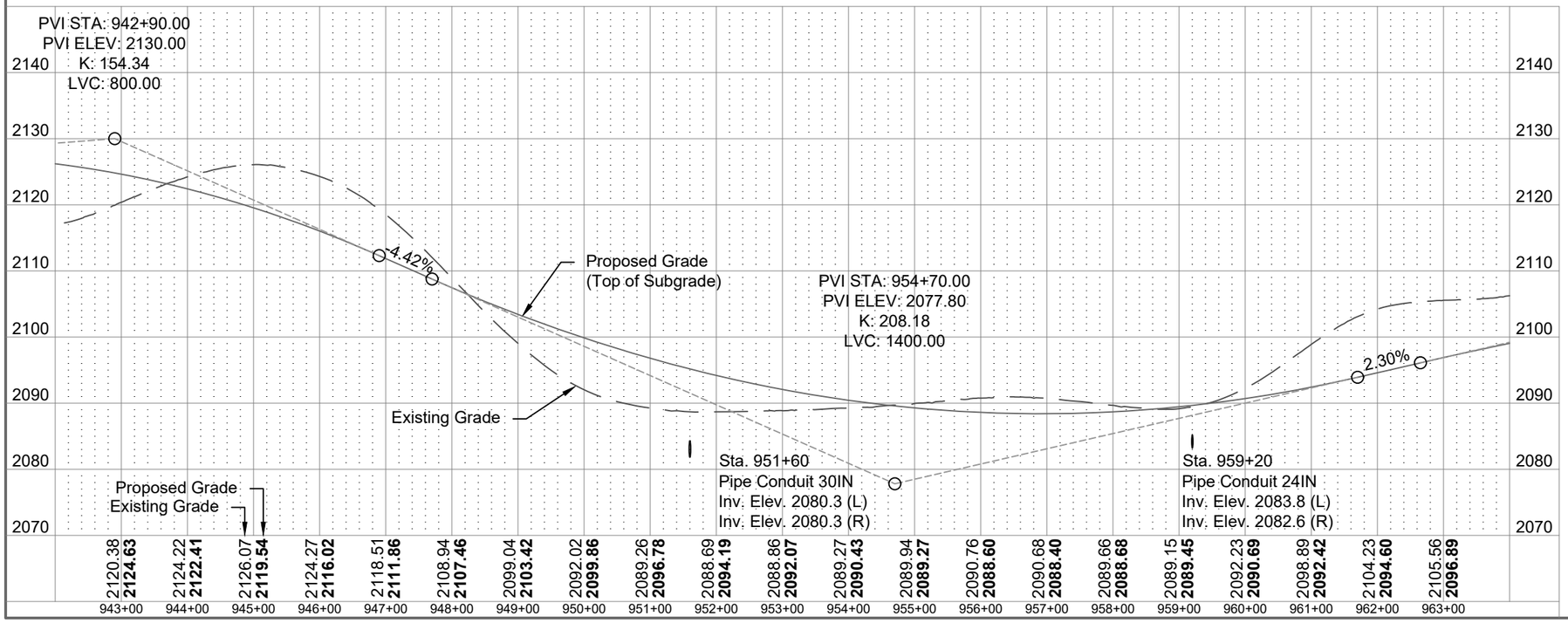
Sta. 959+20	72 LF

714 4106 PIPE CONDUIT 24IN-APPROACH

Sta. 956+36 Rt	54 LF
Sta. 962+43 Rt	90 LF

714 4110 PIPE CONDUIT 30IN

Sta. 951+60	124 LF



SAUBER ENGINEERING

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PE-3914
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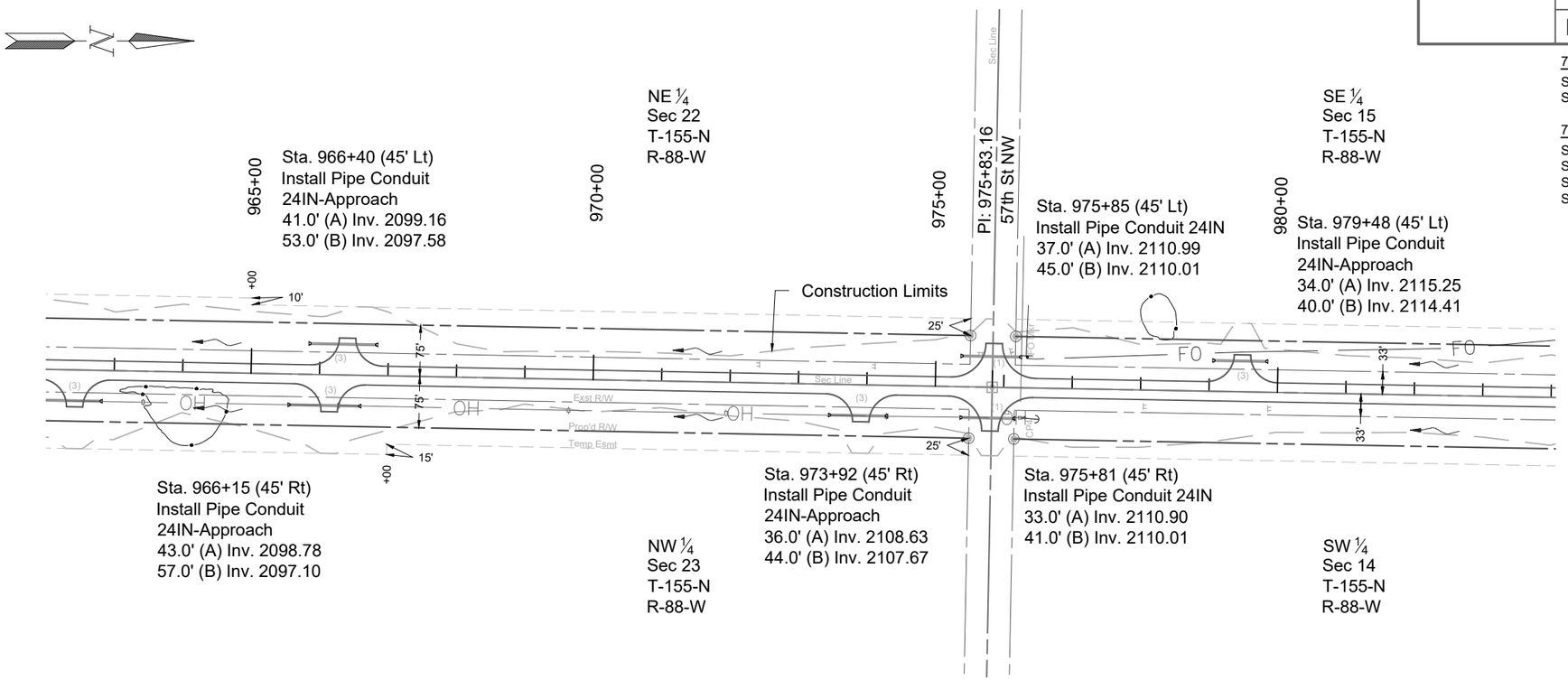
Plan & Profile
Sta. 943+00 to Sta. 963+00
Reconstruction
County Route 1

Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	60	11

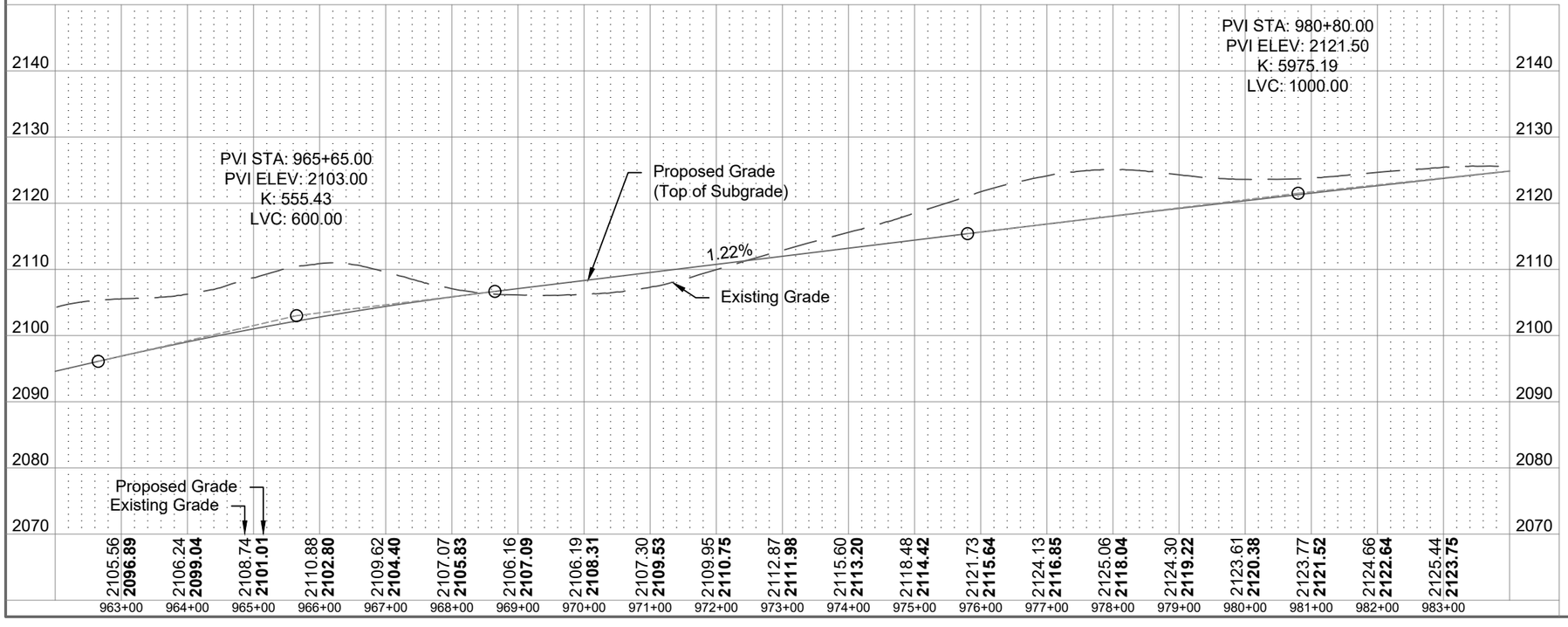


714 4105 PIPE CONDUIT 24IN

Sta. 975+81 Rt	74 LF
Sta. 975+85 Lt	82 LF

714 4106 PIPE CONDUIT 24IN-APPROACH

Sta. 966+15 Rt	100 LF
Sta. 966+40 Lt	94 LF
Sta. 973+92 Rt	80 LF
Sta. 979+48 Lt	74 LF



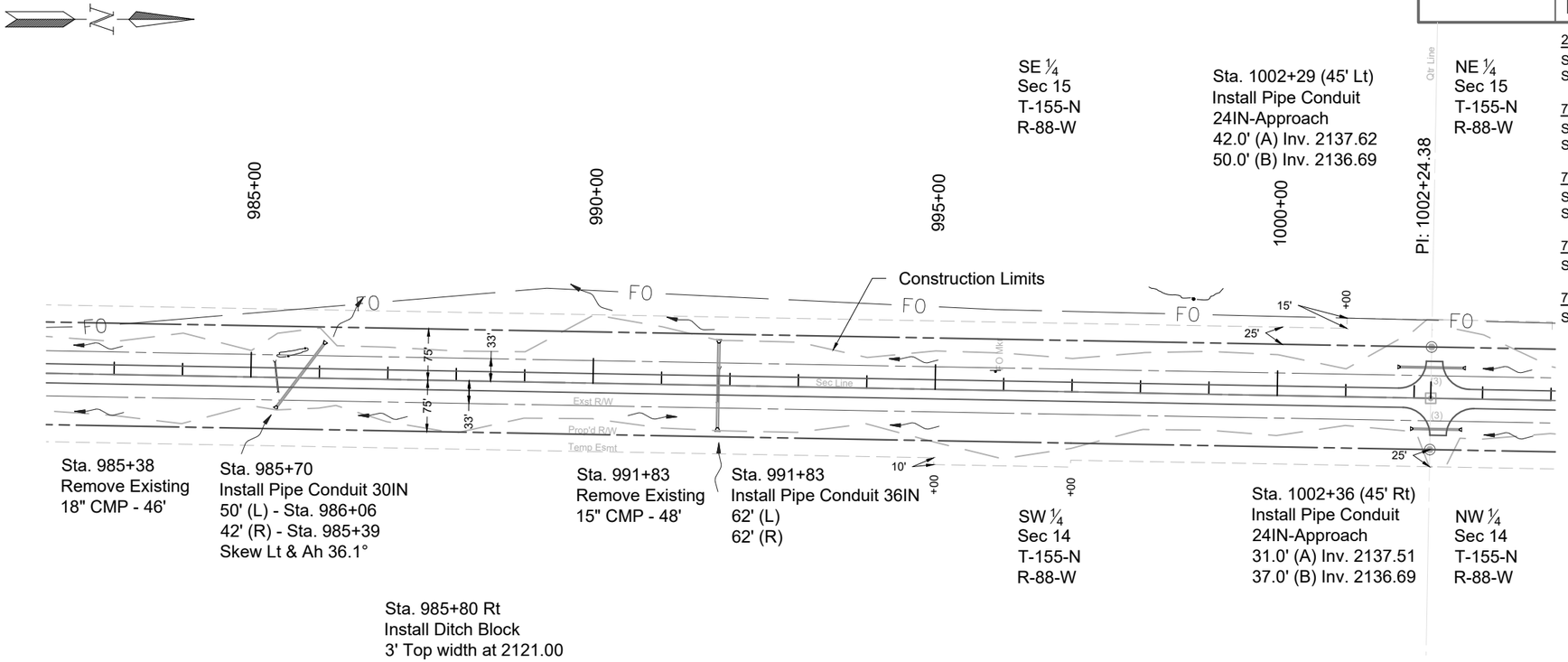
SAUBER ENGINEERING

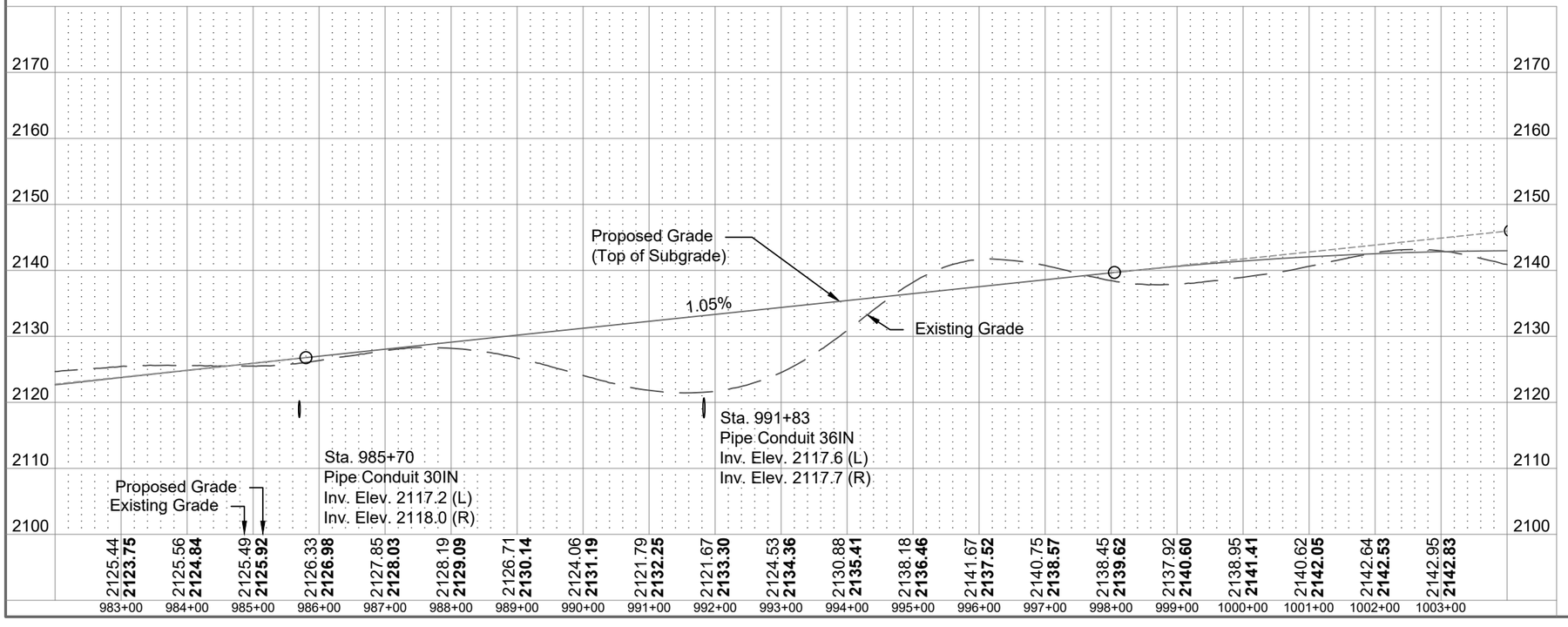
REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-3914
LS-6427
DATE 1/28/25
NORTH DAKOTA

Plan & Profile
Sta. 963+00 to Sta. 983+00
Reconstruction
County Route 1

Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	60	12





202 0170 REMOVAL OF CULVERTS-ALL TYPES AND SIZES

Sta. 985+38	46 LF
Sta. 991+83	48 LF

709 0100 GEOSYNTHETIC MATERIAL TYPE G

Sta. 985+70	82 SY
Sta. 991+83	96 SY

714 4106 PIPE CONDUIT 24IN-APPROACH

Sta. 1002+29 Lt	92 LF
Sta. 1002+36 Rt	68 LF

714 4110 PIPE CONDUIT 30IN

Sta. 985+70	114 LF

714 4115 PIPE CONDUIT 36IN

Sta. 991+83	124 LF

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REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-2914
LS-6427
DATE 1/28/25
NORTH DAKOTA

Plan & Profile
Sta. 983+00 to Sta. 1003+00
Reconstruction
County Route 1

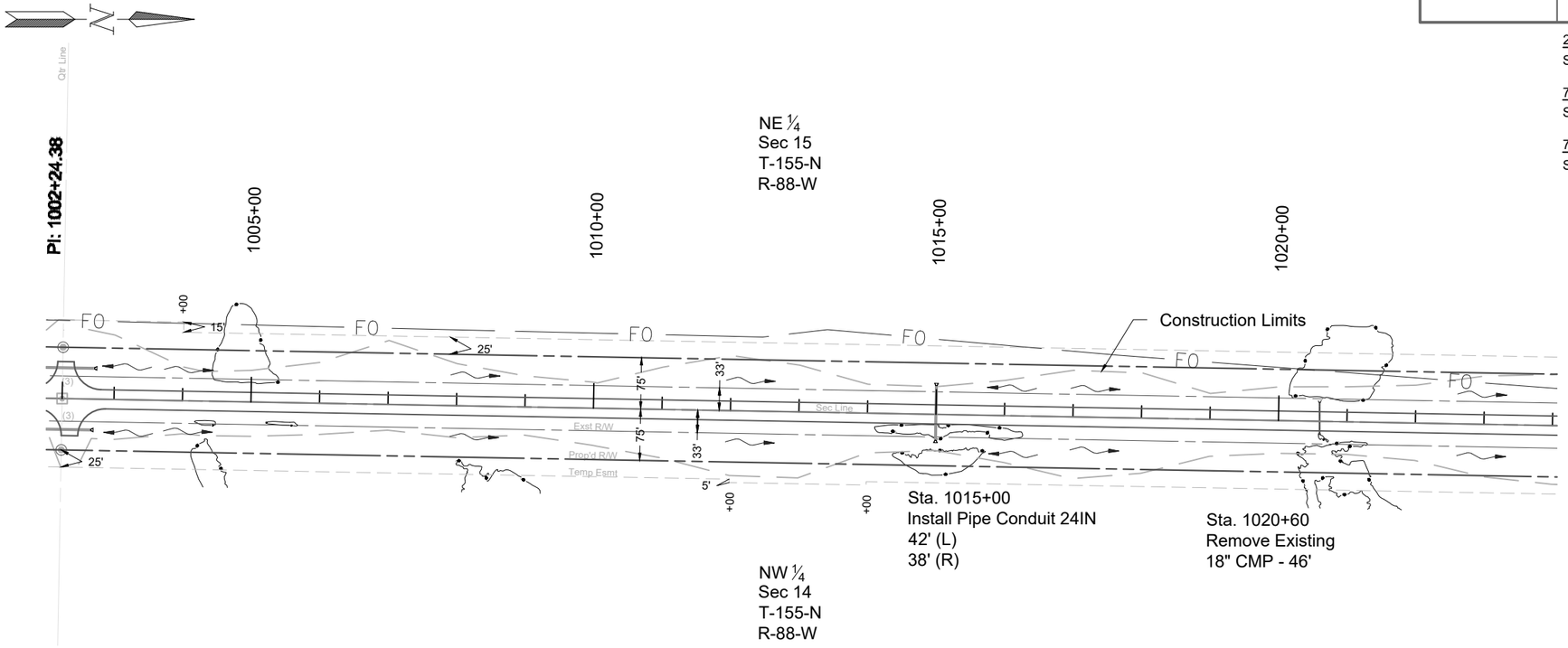
Mountrail County, ND

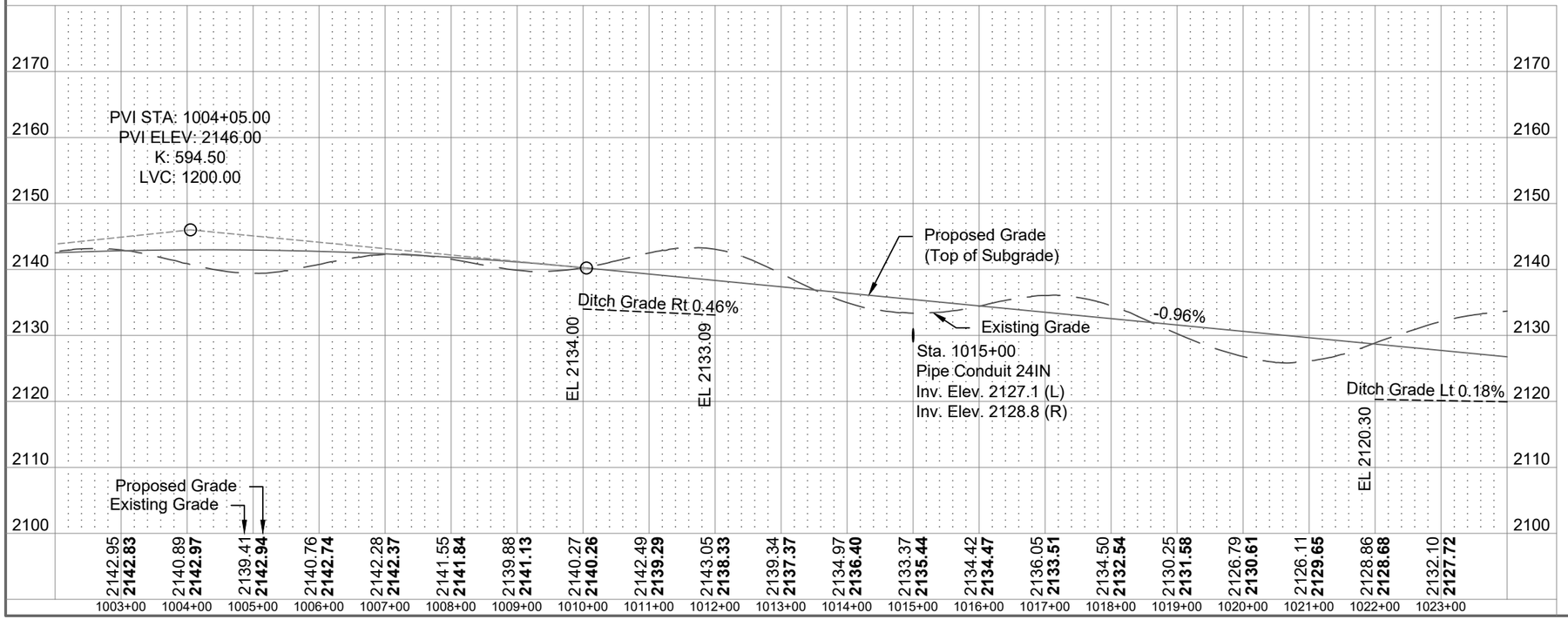
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	60	13

202 0170 REMOVAL OF CULVERTS-ALL TYPES AND SIZES
Sta. 1020+60 46 LF

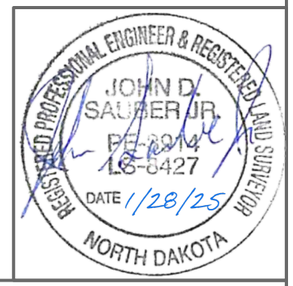
709 0100 GEOSYNTHETIC MATERIAL TYPE G
Sta. 1015+00 53 SY

714 4105 PIPE CONDUIT 24IN
Sta. 1015+00 80 LF





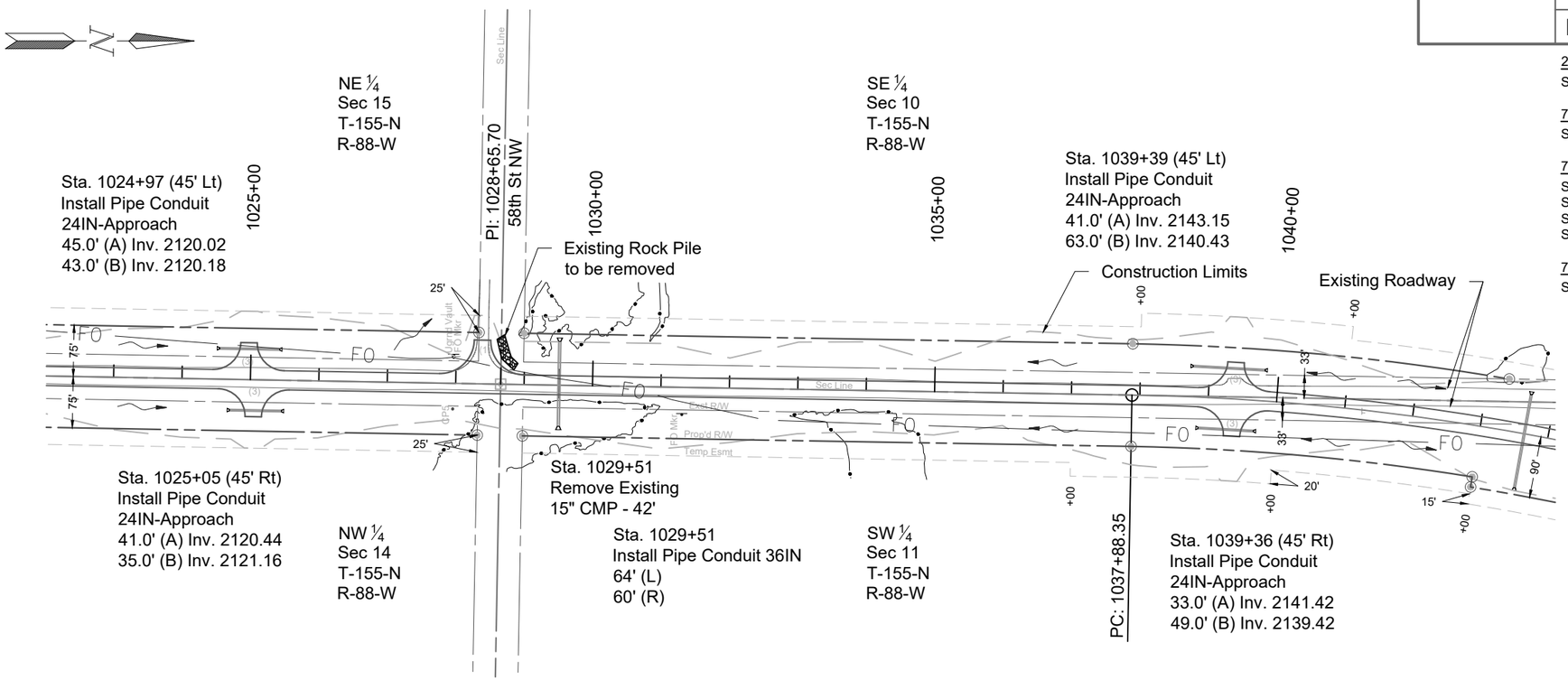
SAUBER ENGINEERING

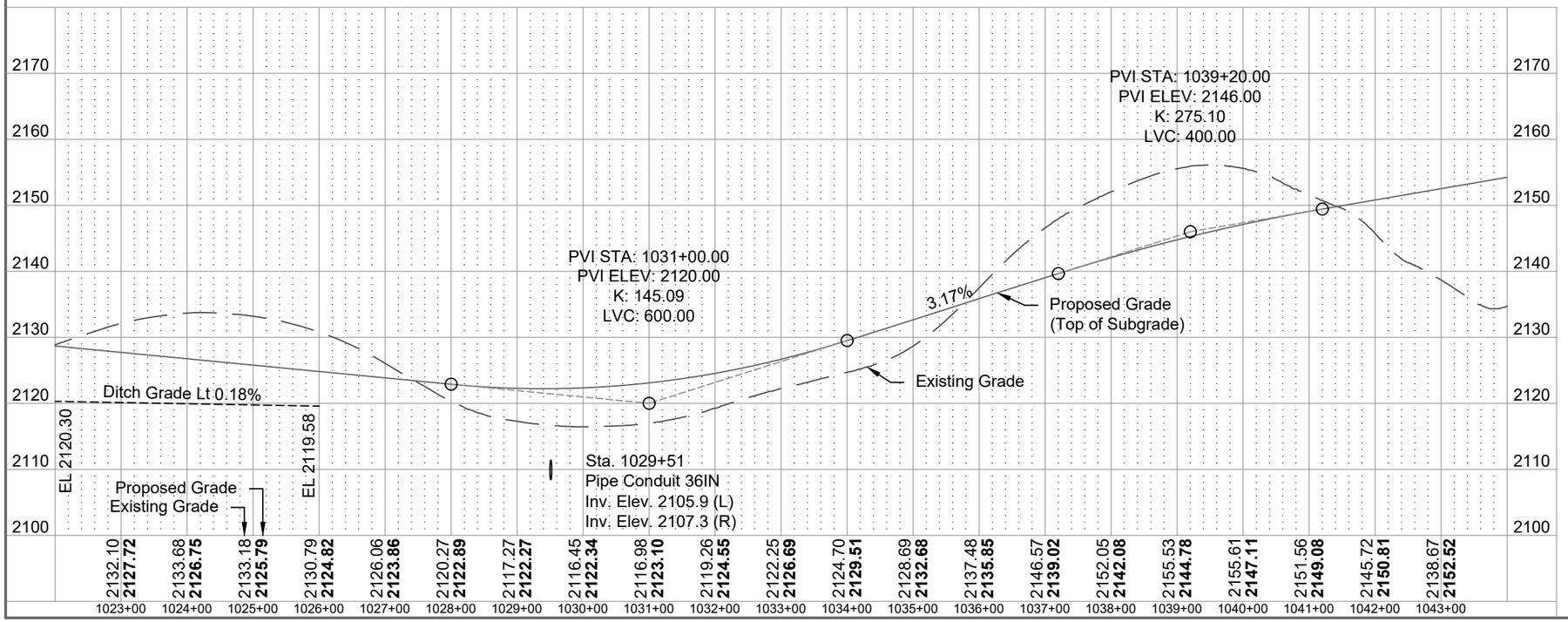


Plan & Profile
Sta. 1003+00 to Sta. 1023+00
Reconstruction
County Route 1

Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	60	14





202 0170 REMOVAL OF CULVERTS-ALL TYPES AND SIZES

Sta. 1029+51	42 LF

709 0100 GEOSYNTHETIC MATERIAL TYPE G

Sta. 1029+51	96 SY

714 4106 PIPE CONDUIT 24IN-APPROACH

Sta. 1024+97 Lt	88 LF
Sta. 1025+05 Rt	76 LF
Sta. 1039+36 Rt	82 LF
Sta. 1039+39 Lt	106 LF

714 4115 PIPE CONDUIT 36IN

Sta. 1029+51	124 LF

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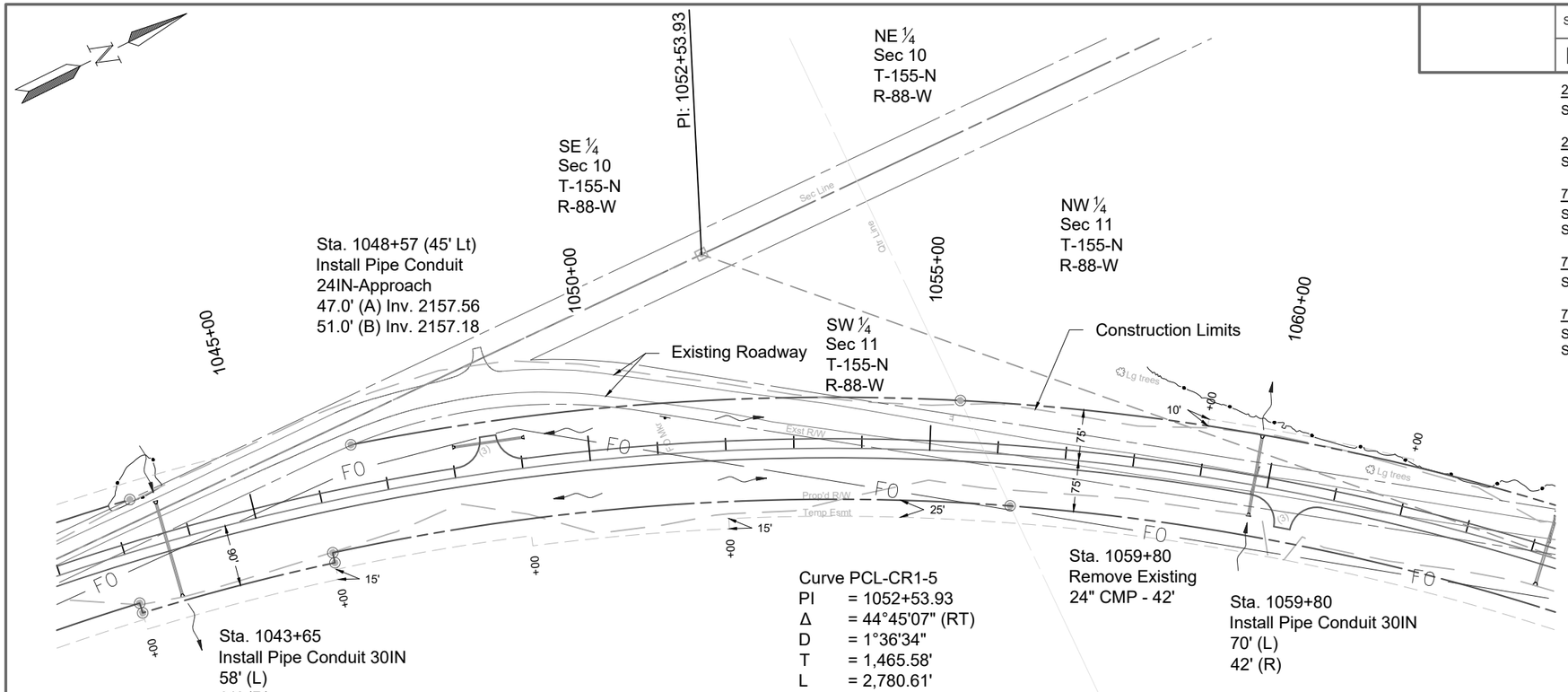
JOHN D. SAUBER JR.
PE-3914
LS-8427
DATE 1/28/25
NORTH DAKOTA

Plan & Profile
Sta. 1023+00 to Sta. 1043+00
Reconstruction
County Route 1

Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	60	15



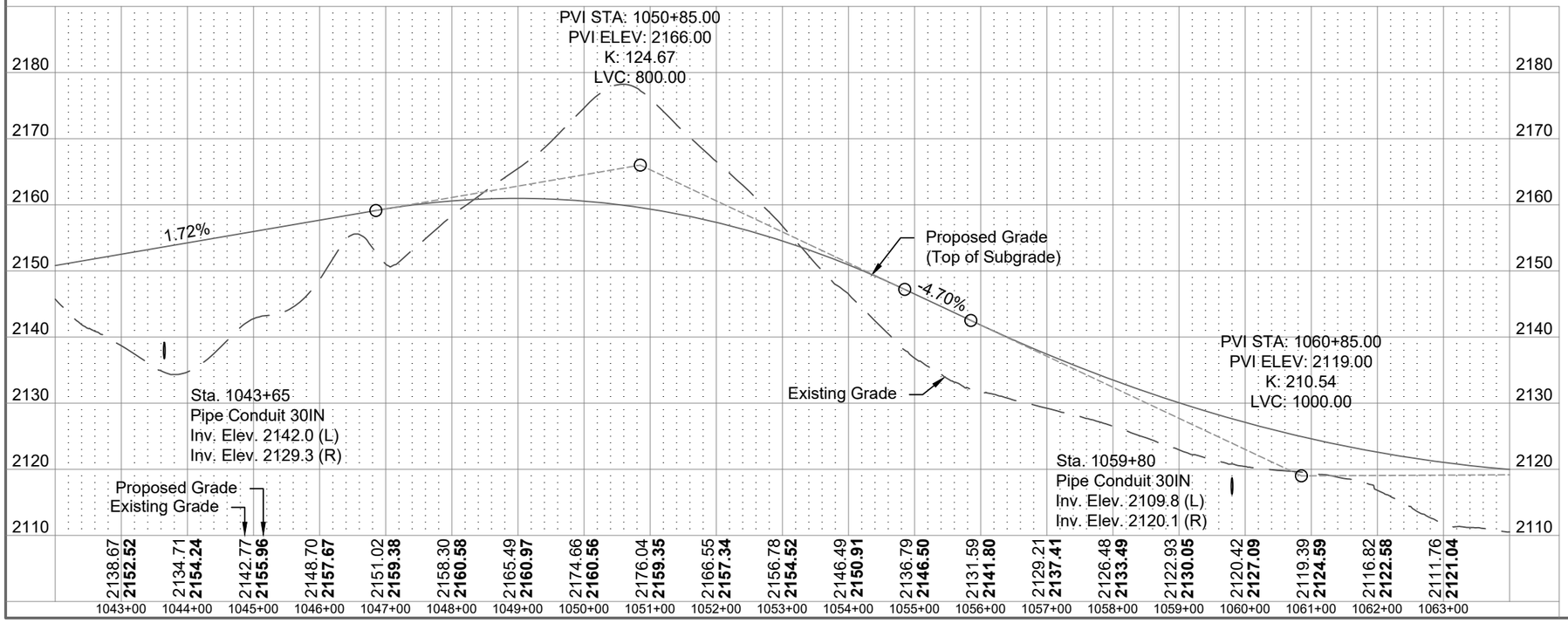
202 0170 REMOVAL OF CULVERTS-ALL TYPES AND SIZES
Sta. 1059+80 42 LF

203 0180 ROADWAY OBLITERATION
Sta. 1043+00 to Sta. 1054+00 1,100 LF

709 0100 GEOSYNTHETIC MATERIAL TYPE G
Sta. 1043+65 100 SY
Sta. 1059+80 81 SY

714 4106 PIPE CONDUIT 24IN-APPROACH
Sta. 1048+57 Lt 100 LF

714 4110 PIPE CONDUIT 30IN
Sta. 1043+65 138 LF
Sta. 1059+80 112 LF



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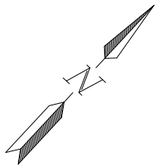
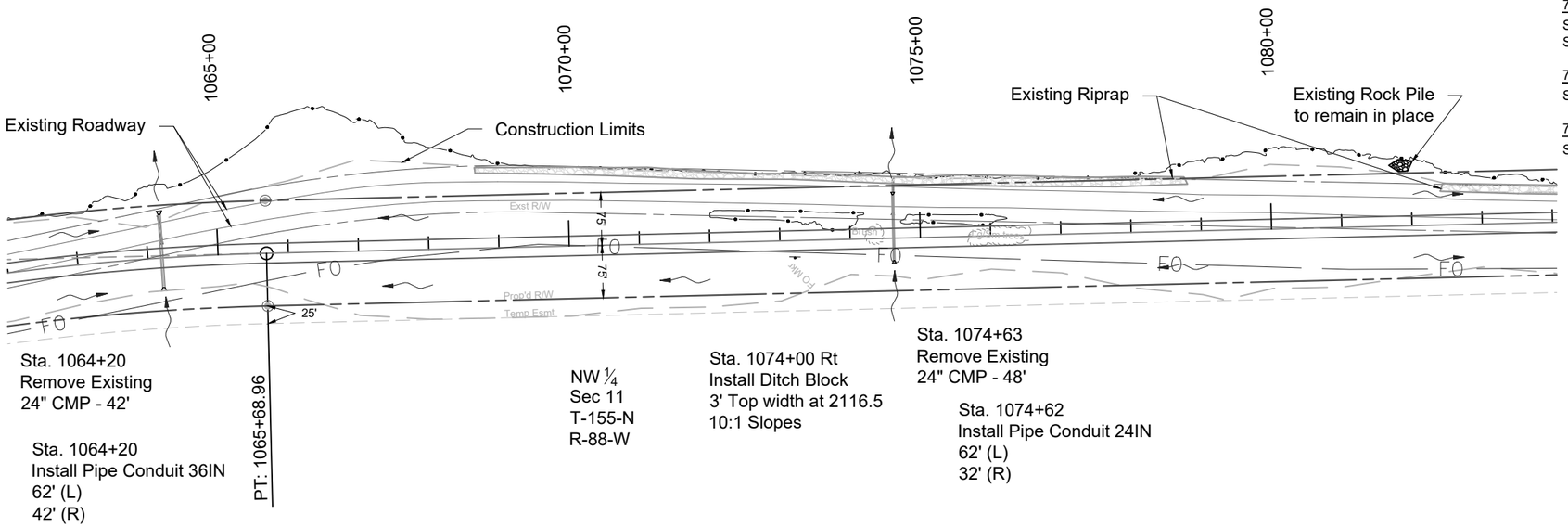
REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-3914
LS-6427
DATE 1/28/25
NORTH DAKOTA

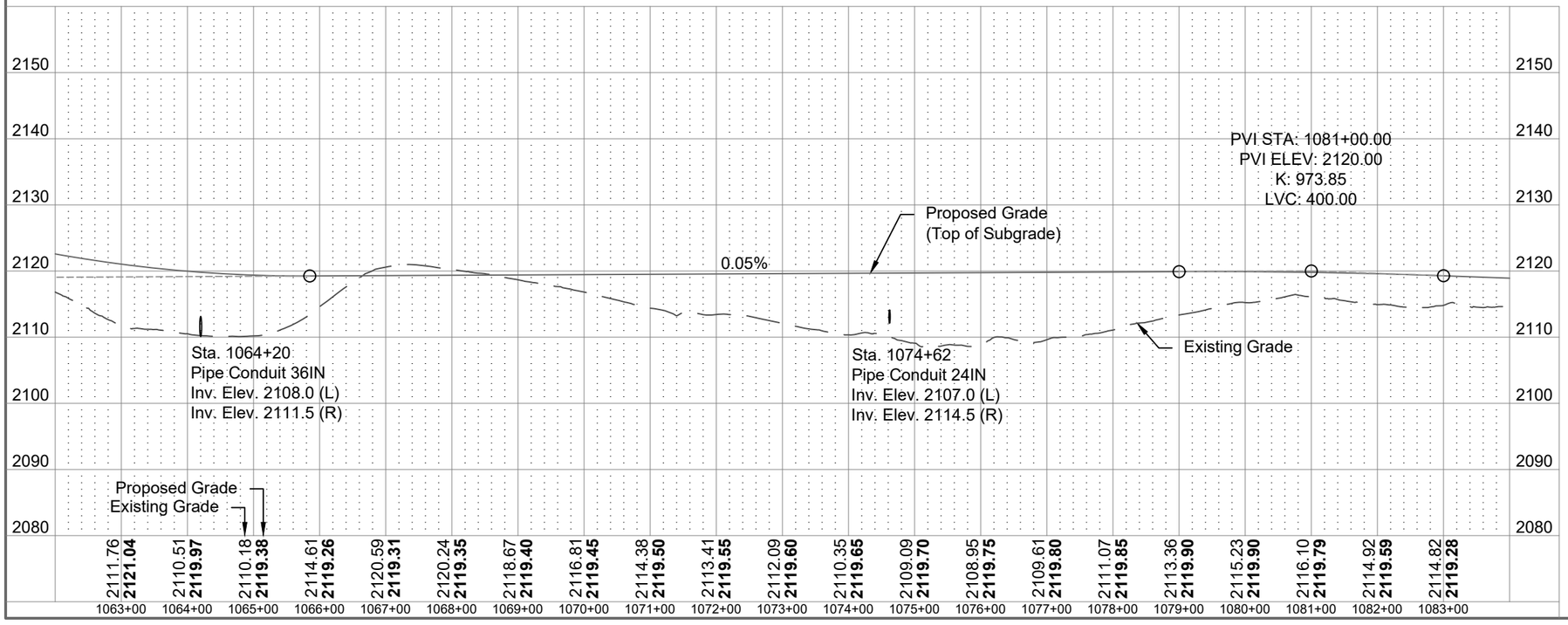
Plan & Profile
Sta. 1043+00 to Sta. 1063+00
Reconstruction
County Route 1

Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	60	16







202 0170 REMOVAL OF CULVERTS-ALL TYPES AND SIZES

Sta. 1064+20	42 LF
Sta. 1074+63	48 LF

203 0180 ROADWAY OBLITERATION

Sta. 1065+00 to Sta. 1082+00	1,700 LF

709 0100 GEOSYNTHETIC MATERIAL TYPE G

Sta. 1064+20	81 SY
Sta. 1074+62	63 SY

714 4105 PIPE CONDUIT 24IN

Sta. 1074+62	94 LF

714 4115 PIPE CONDUIT 36IN

Sta. 1064+20	104 LF

SAUBER ENGINEERING

REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-3914
LS-6427
DATE 1/28/25
NORTH DAKOTA

Plan & Profile
Sta. 1063+00 to Sta. 1083+00
Reconstruction
County Route 1

Mountrail County, ND

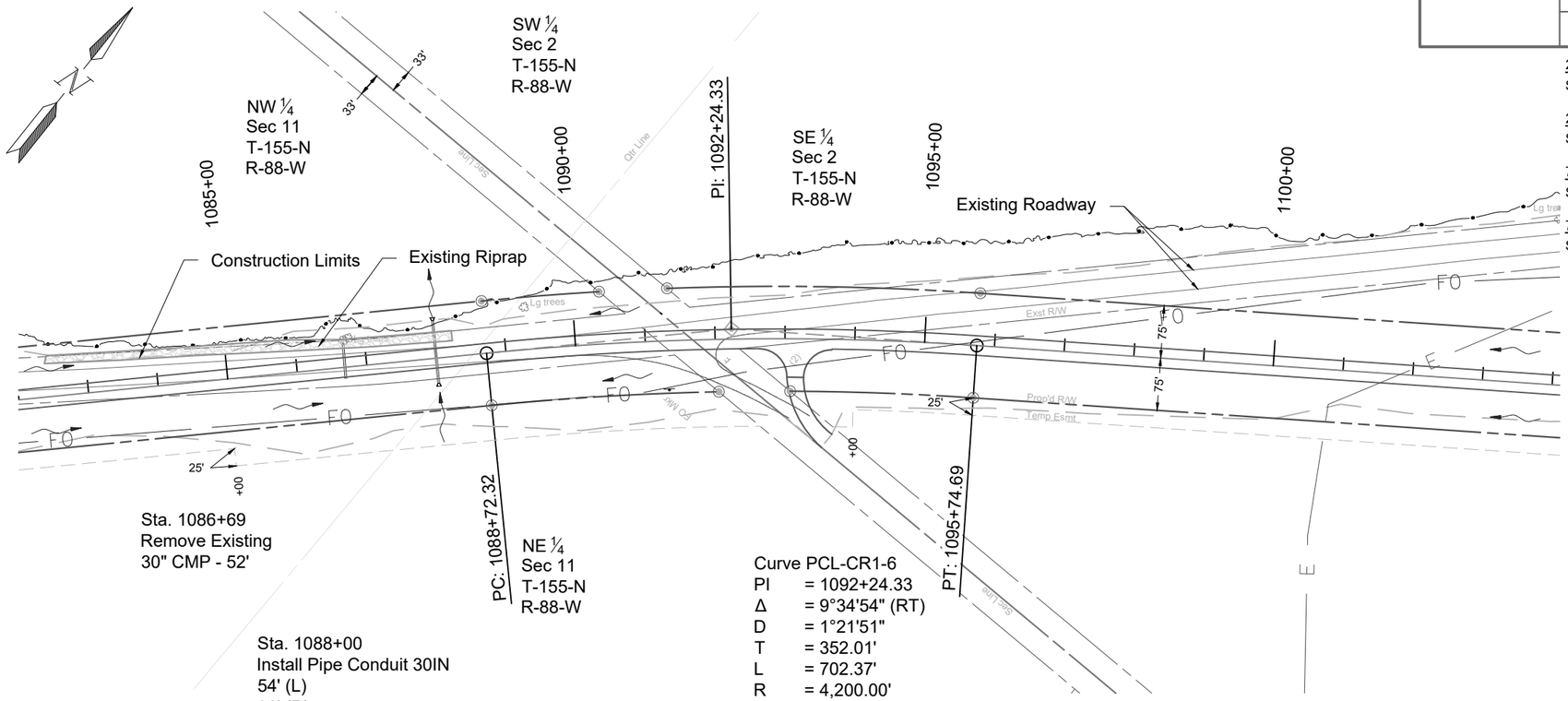
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	60	17

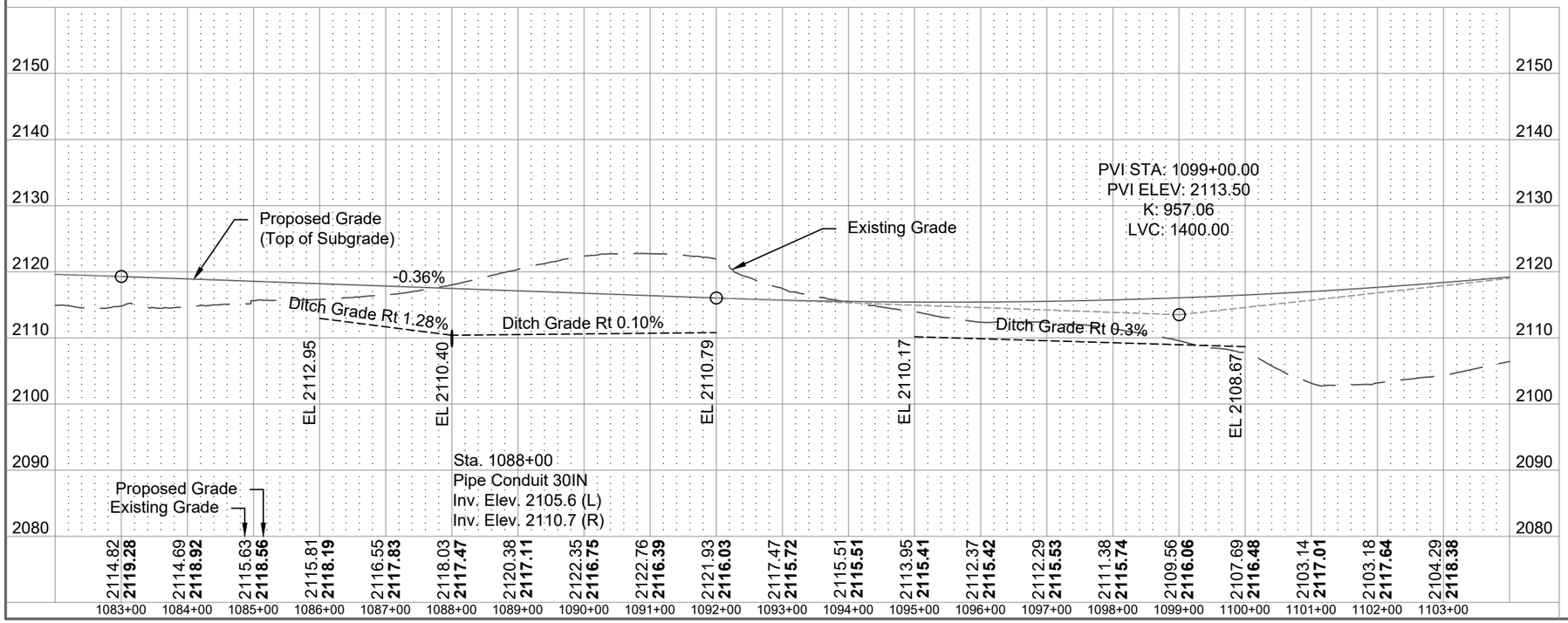
202 0170 REMOVAL OF CULVERTS-ALL TYPES AND SIZES
Sta. 1086+69 52 LF

203 0180 ROADWAY OBLITERATION
Sta. 1094+00 to Sta. 1103+00 900 LF

709 0100 GEOSYNTHETIC MATERIAL TYPE G
Sta. 1088+00 65 SY

714 4110 PIPE CONDUIT 30IN
Sta. 1088+00 90 LF





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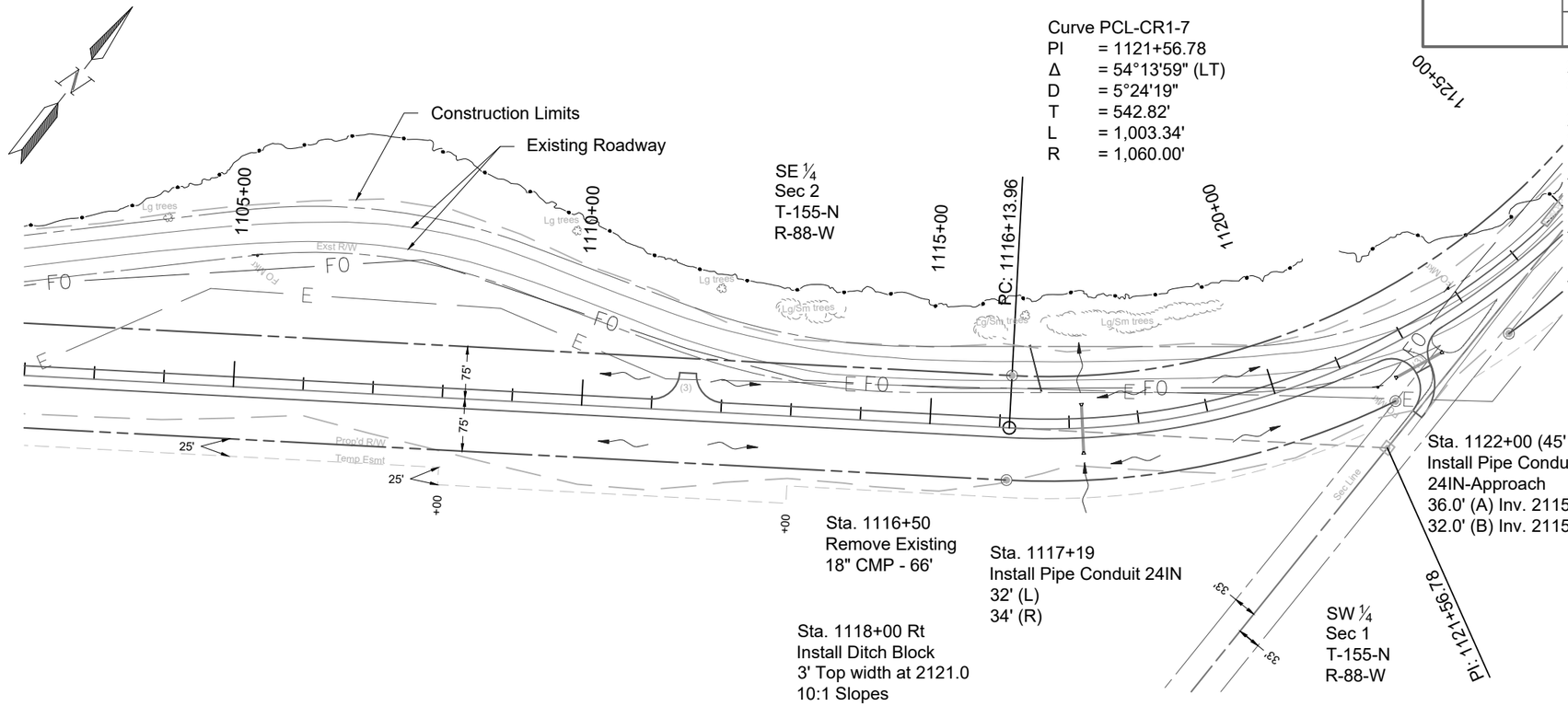
JOHN D. SAUBER JR.
PE-3914
LS-6427
DATE 1/28/25
NORTH DAKOTA

Plan & Profile
Sta. 1083+00 to Sta. 1103+00
Reconstruction
County Route 1

Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	60	18



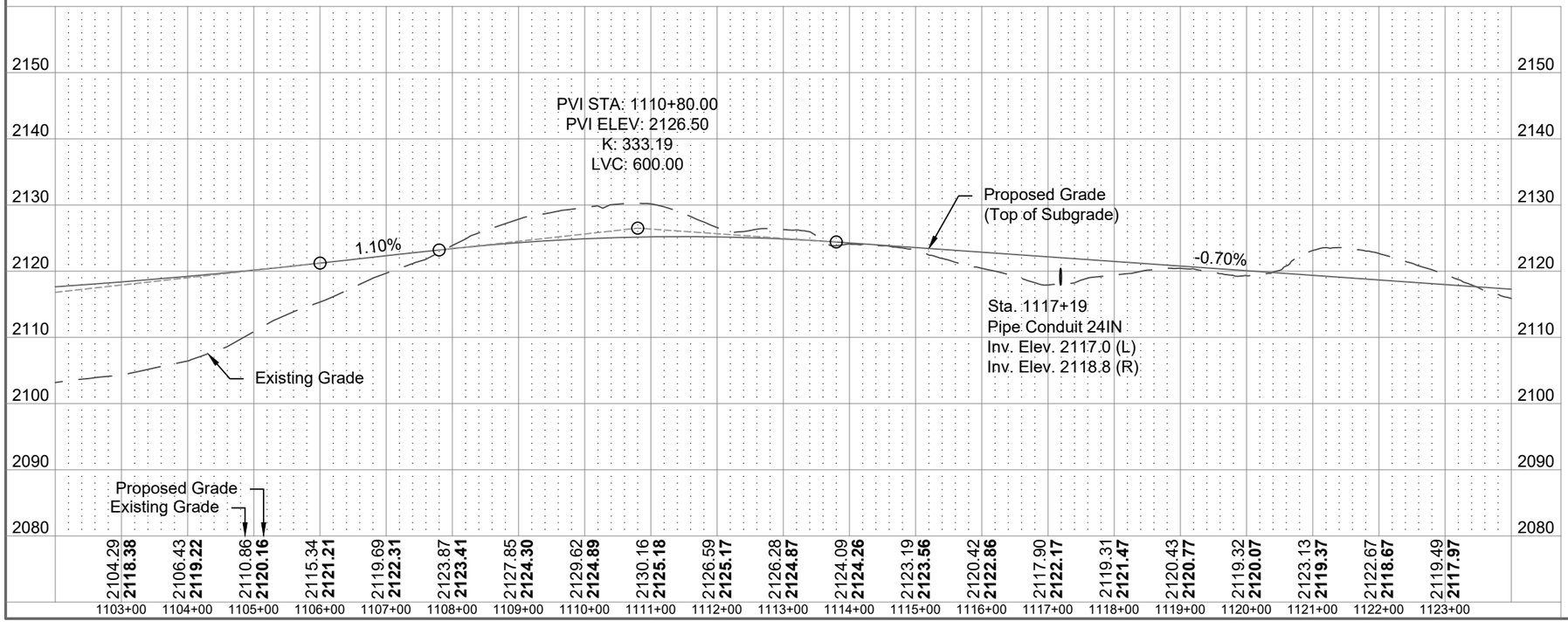
202 0170 REMOVAL OF CULVERTS-ALL TYPES AND SIZES
Sta. 1116+50 66 LF

203 0180 ROADWAY OBLITERATION
Sta. 1103+00 to Sta. 1120+00 1,700 LF

709 0100 GEOSYNTHETIC MATERIAL TYPE G
Sta. 1117+19 48 SY

714 4105 PIPE CONDUIT 24IN
Sta. 1117+19 66 LF

714 4106 PIPE CONDUIT 24IN-APPROACH
Sta. 1122+00 Rt 72 LF



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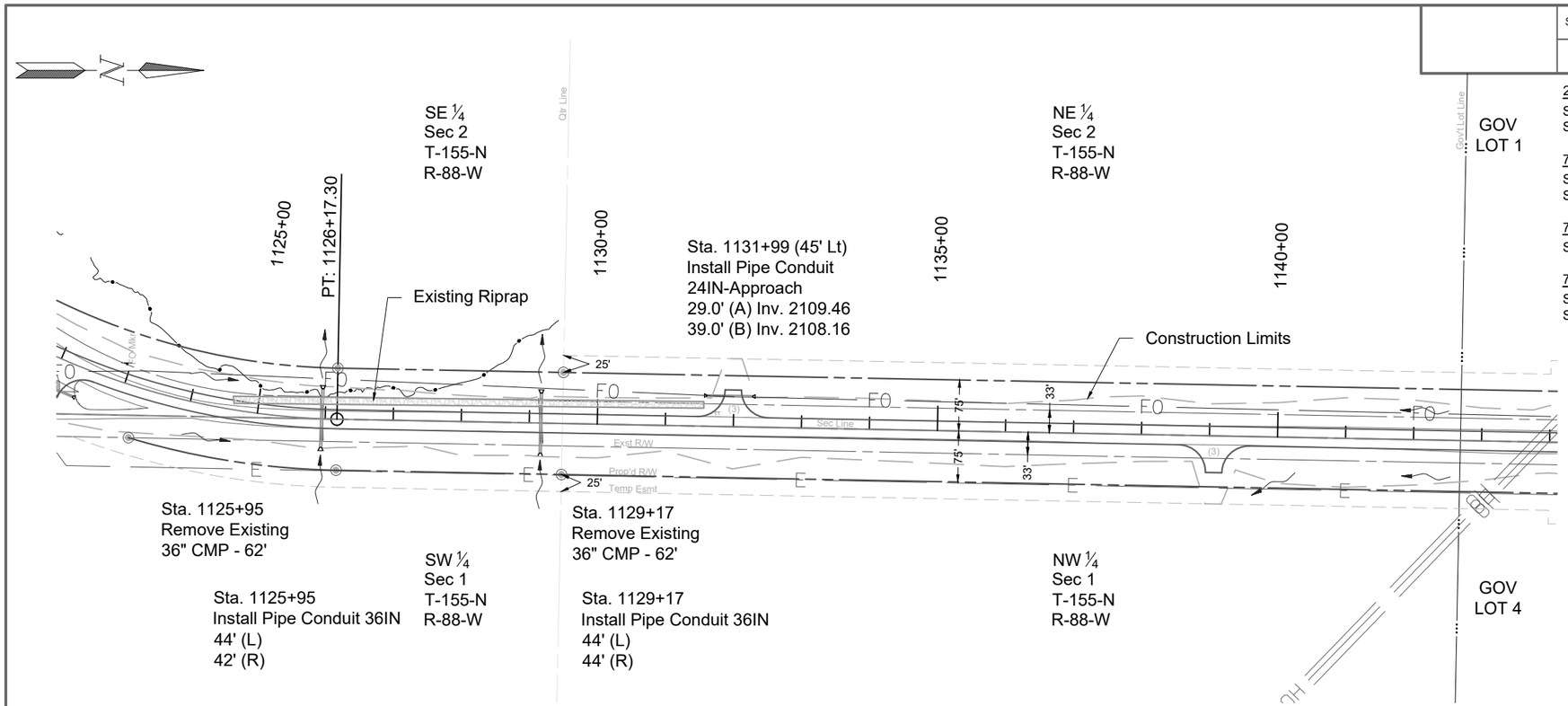
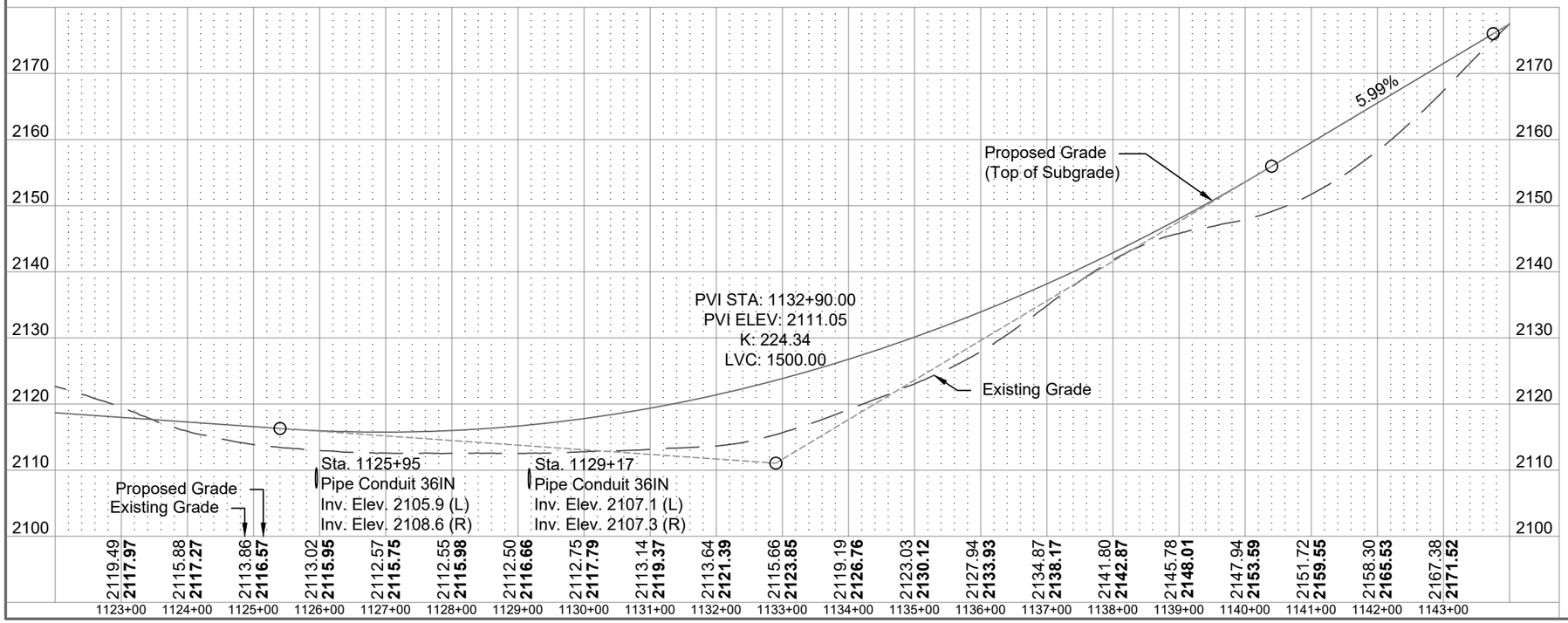
JOHN D. SAUBER JR.
PE-3914
LS-6427
DATE 1/28/25
NORTH DAKOTA

Plan & Profile
Sta. 1103+00 to Sta. 1123+00
Reconstruction
County Route 1

Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	60	19





202 0170 REMOVAL OF CULVERTS-ALL TYPES AND SIZES

Sta. 1125+95	62 LF
Sta. 1129+17	62 LF

709 0100 GEOSYNTHETIC MATERIAL TYPE G

Sta. 1125+95	67 SY
Sta. 1129+17	68 SY

714 4106 PIPE CONDUIT 24IN-APPROACH

Sta. 1131+99 Lt	68 LF

714 4115 PIPE CONDUIT 36IN

Sta. 1125+95	86 LF
Sta. 1129+17	88 LF

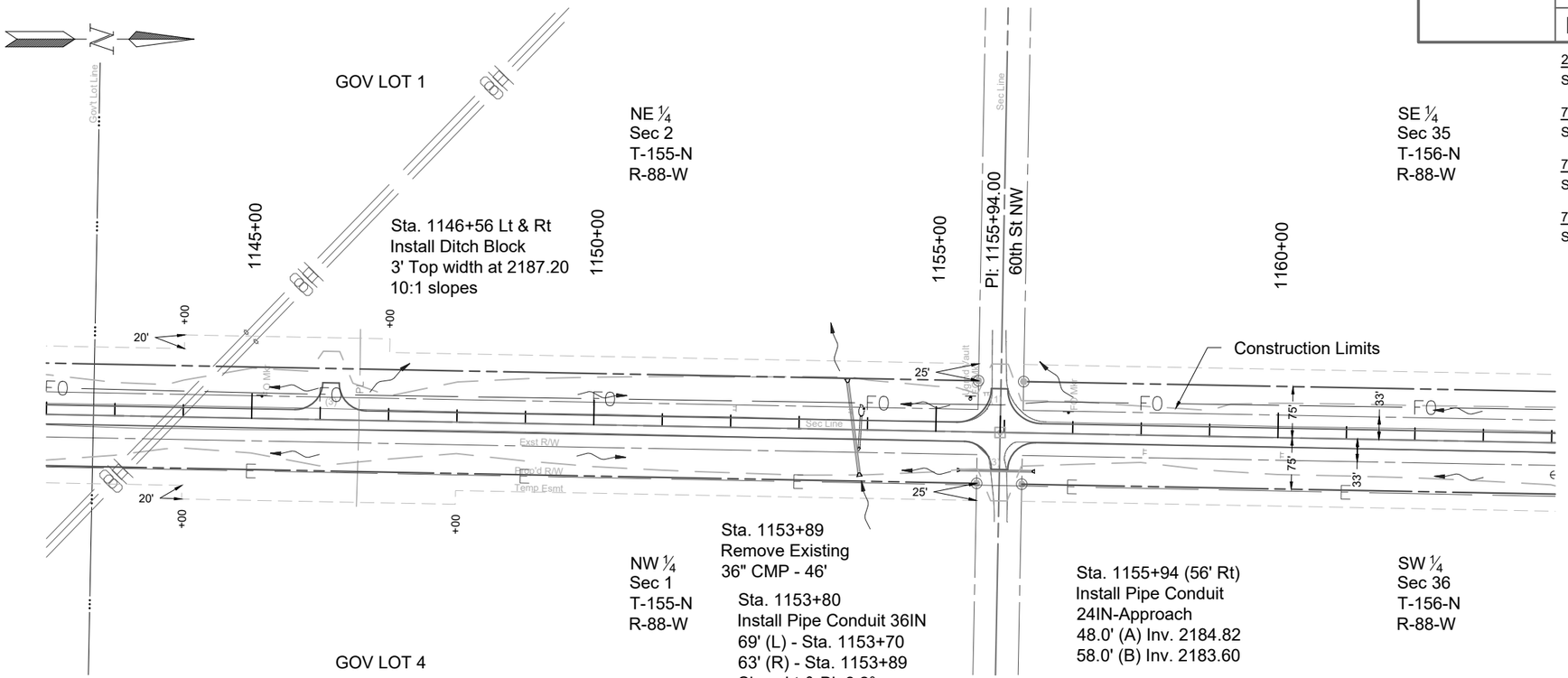
SAUBER ENGINEERING

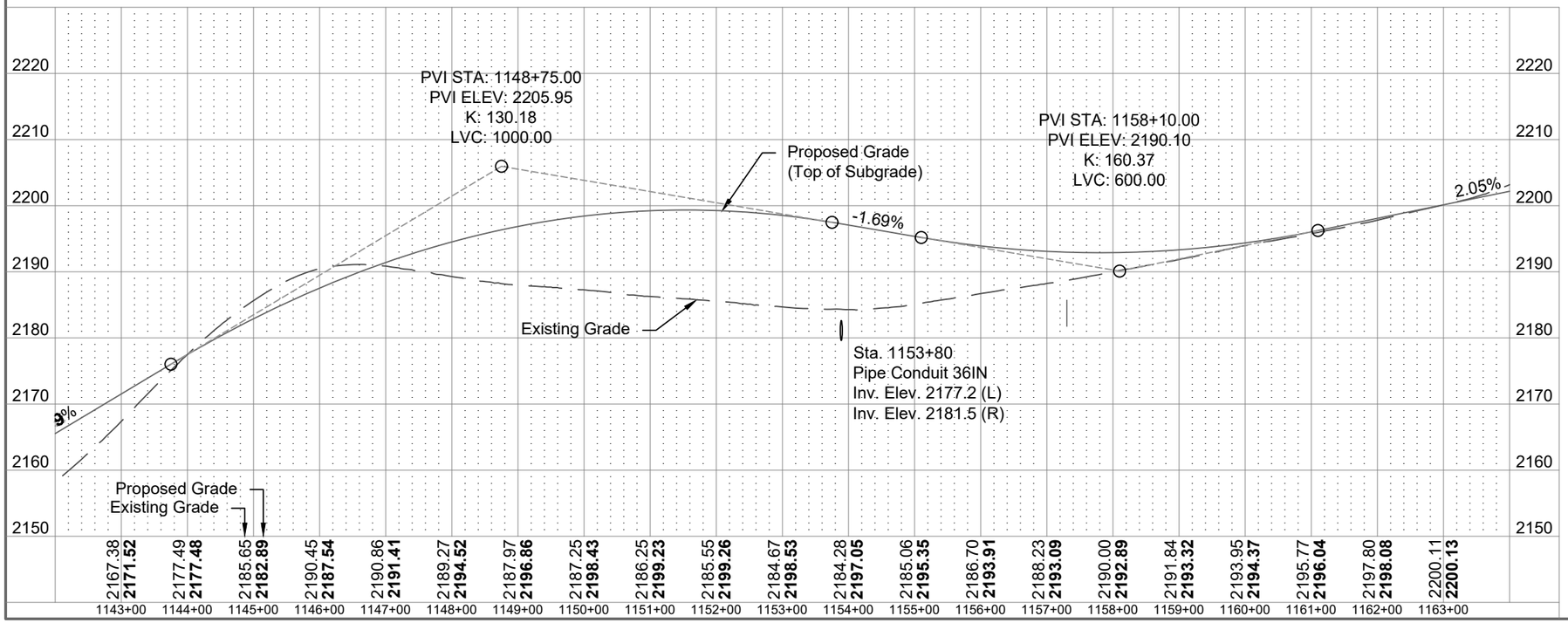
REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-2914
LS-5427
DATE 1/28/25
NORTH DAKOTA

Plan & Profile
Sta. 1123+00 to Sta. 1143+00
Reconstruction
County Route 1

Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	60	20





202 0170 REMOVAL OF CULVERTS-ALL TYPES AND SIZES
Sta. 1153+89 46 LF

709 0100 GEOSYNTHETIC MATERIAL TYPE G
Sta. 1153+80 104 SY

714 4106 PIPE CONDUIT 24IN-APPROACH
Sta. 1155+94 Rt 106 LF

714 4115 PIPE CONDUIT 36IN
Sta. 1153+80 134 LF

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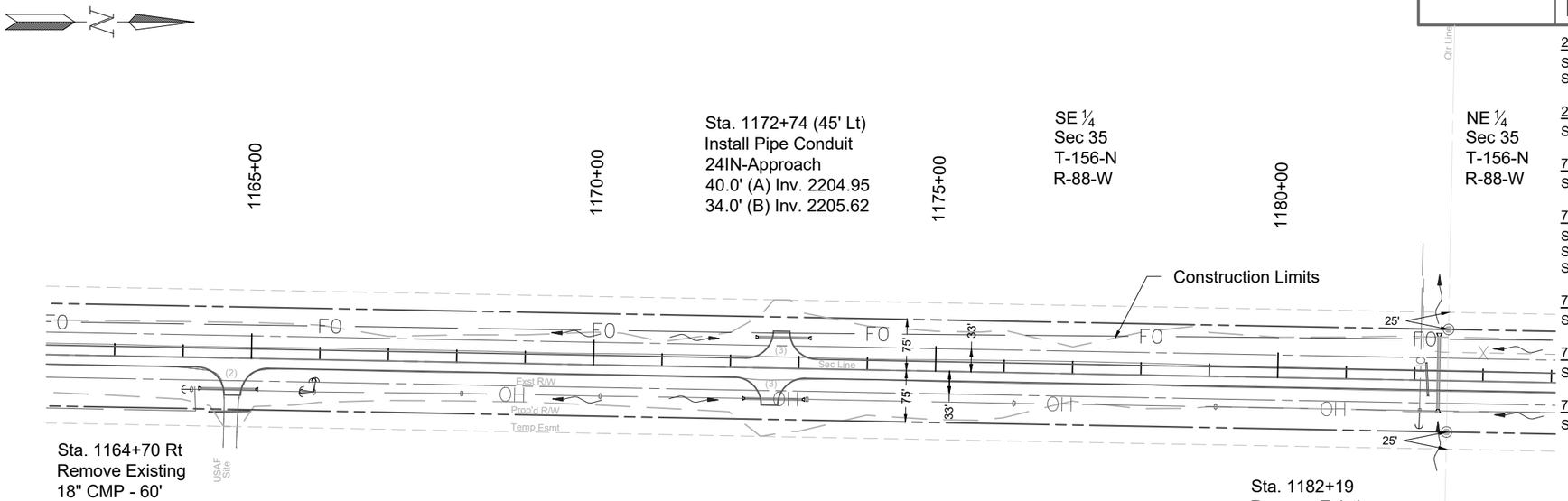
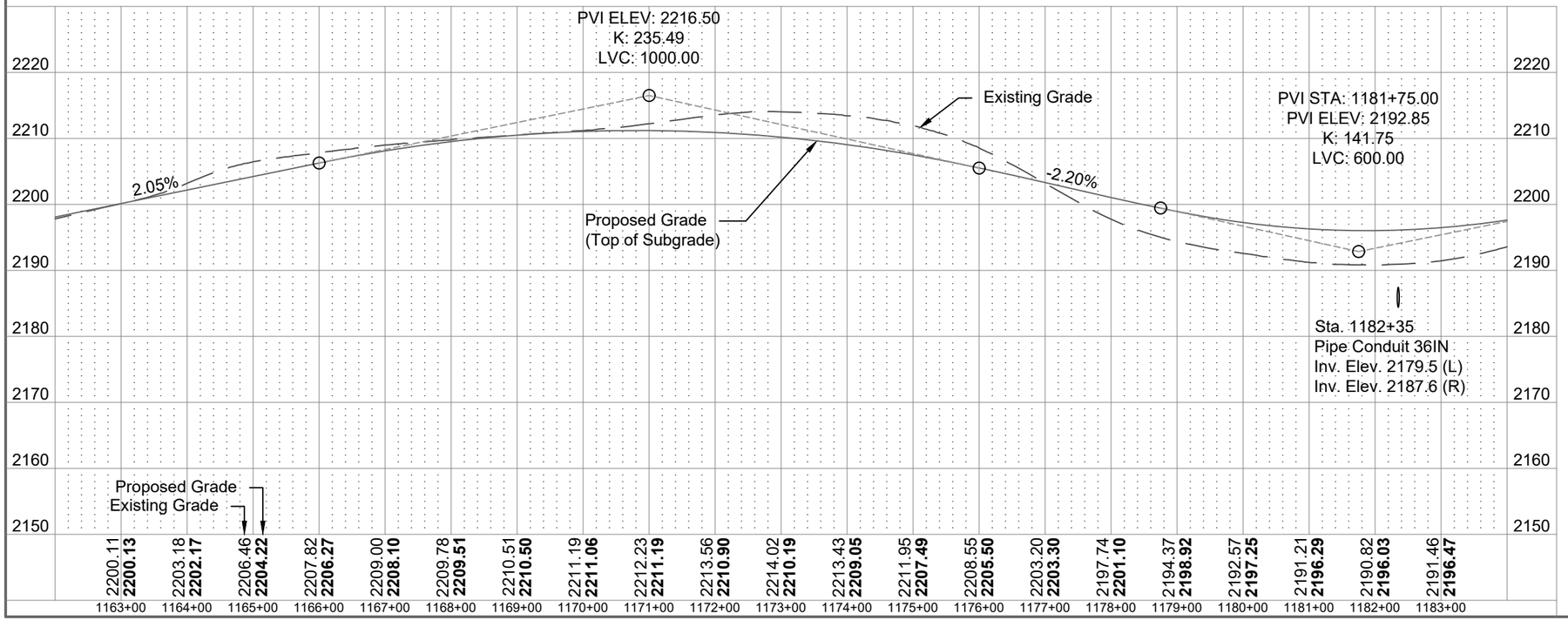
REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-3914
LS-6427
DATE 1/28/25
NORTH DAKOTA

Plan & Profile
Sta. 1143+00 to Sta. 1163+00
Reconstruction
County Route 1

Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	60	21





202 0170 REMOVAL OF CULVERTS-ALL TYPES AND SIZES

Sta. 1164+70 Rt	60 LF
Sta. 1182+19	48 LF

202 0312 REMOVE EXISTING FENCE

Sta. 1182+11 to Sta. 1183+00 Lt	140 LF

709 0100 GEOSYNTHETIC MATERIAL TYPE G

Sta. 1182+35	82 SY

714 4106 PIPE CONDUIT 24IN-APPROACH

Sta. 1164+73 Rt	80 LF
Sta. 1172+58 Rt	84 LF
Sta. 1172+74 Lt	74 LF

714 4115 PIPE CONDUIT 36IN

Sta. 1182+35	106 LF

752 0320 FENCE BARBED WIRE 4 STRAND-STEEL POST

Sta. 1182+11 to Sta. 1183+00 Lt	140 LF

752 3140 CORNER ASSEMBLY BARBED WIRE

Sta. 1182+12 Lt	1 EA

SAUBER ENGINEERING

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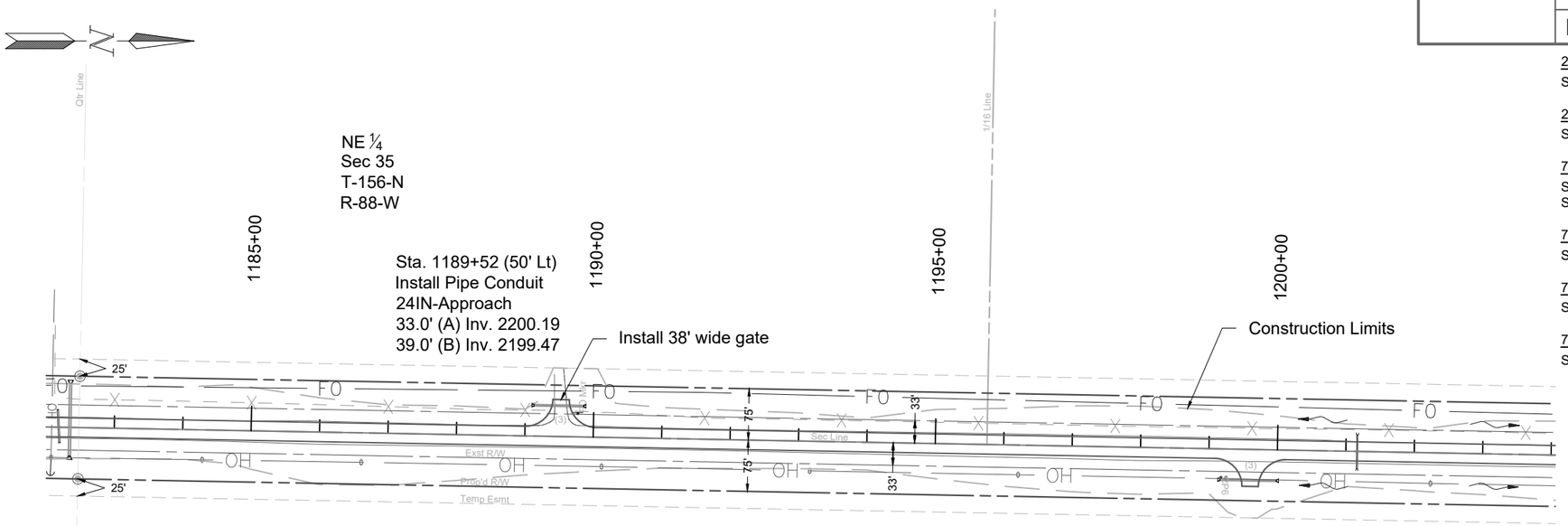
Plan & Profile
Sta. 1163+00 to Sta. 1183+00
Reconstruction
County Route 1

Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	60	22



202 0170 REMOVAL OF CULVERTS-ALL TYPES AND SIZES
Sta. 1201+16 50 LF

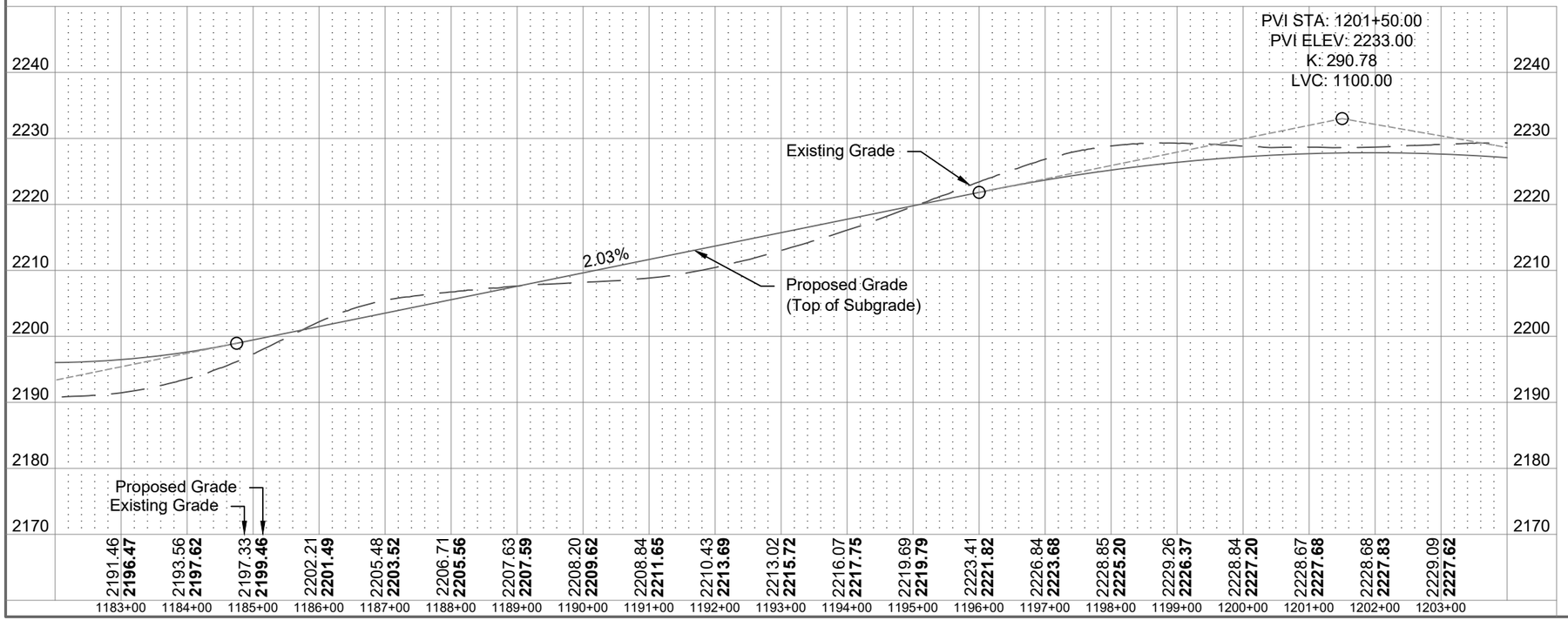
202 0312 REMOVE EXISTING FENCE
Sta. 1183+00 to Sta. 1195+75 Lt 1,275 LF

714 4106 PIPE CONDUIT 24IN-APPROACH
Sta. 1189+52 Lt 72 LF
Sta. 1199+61 Rt 82 LF

752 0320 FENCE BARBED WIRE 4 STRAND-STEEL POST
Sta. 1183+00 to Sta. 1195+75 Lt 1,275 LF

752 2100 VEHICLE GATE
Sta. 1189+52 Lt 1 EA

752 4100 DOUBLE BRACE ASSEMBLY BARBED WIRE
Sta. 1195+75 Lt 1 EA



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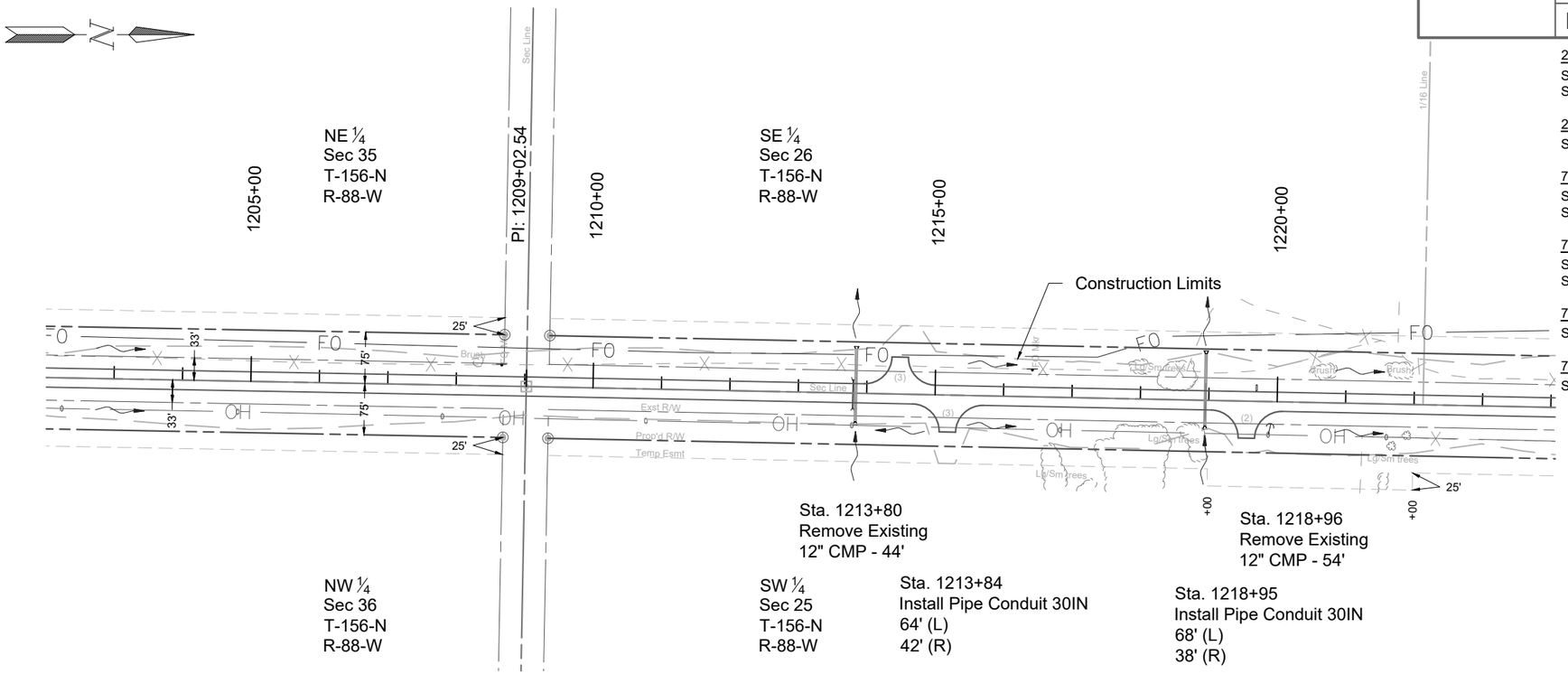
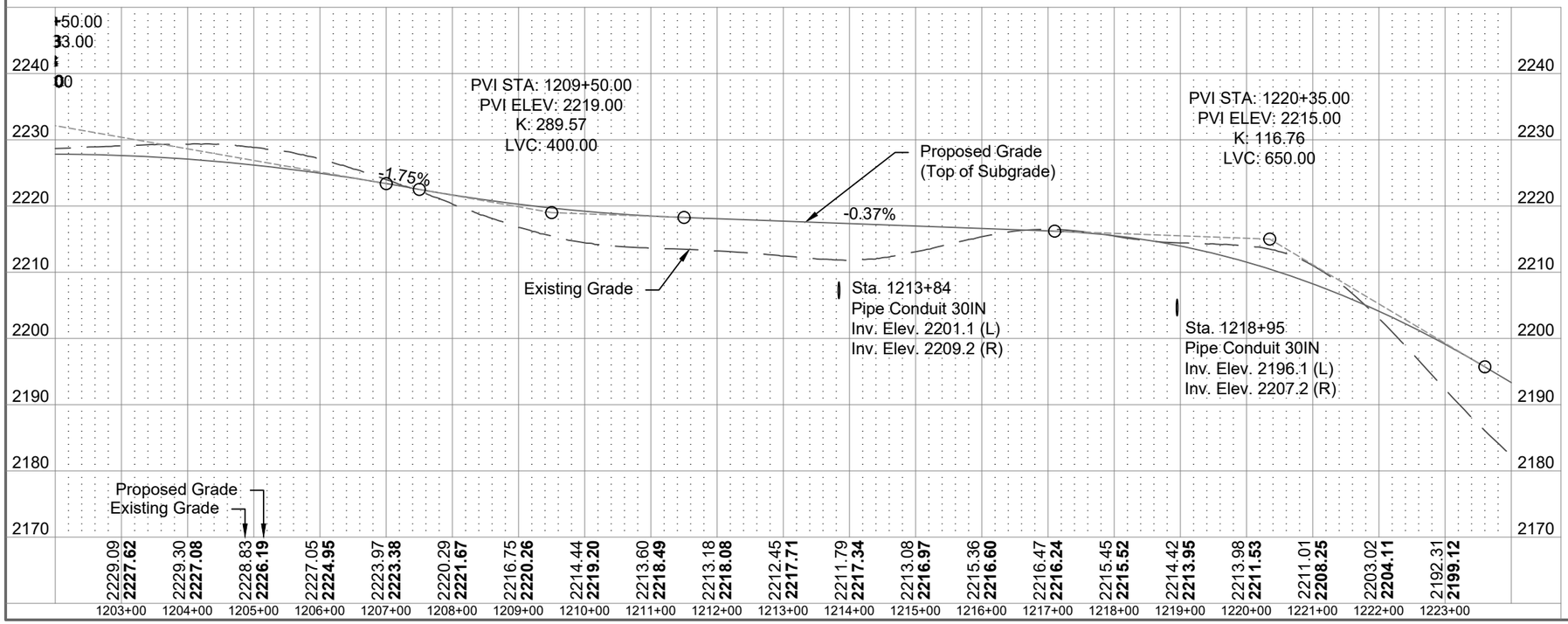
REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-2914
LS-6427
DATE 1/28/25
NORTH DAKOTA

Plan & Profile
Sta. 1183+00 to Sta. 1203+00
Reconstruction
County Route 1

Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	60	23





202 0170 REMOVAL OF CULVERTS-ALL TYPES AND SIZES

Sta. 1213+80	44 LF
Sta. 1218+96	54 LF

202 0312 REMOVE EXISTING FENCE

Sta. 1221+23 to Sta. 1223+00 Rt	250 LF

709 0100 GEOSYNTHETIC MATERIAL TYPE G

Sta. 1213+84	77 SY
Sta. 1218+95	77 SY

714 4110 PIPE CONDUIT 30IN

Sta. 1213+84	106 LF
Sta. 1218+95	106 LF

752 0320 FENCE BARBED WIRE 4 STRAND-STEEL POST

Sta. 1221+23 to Sta. 1223+00 Rt	250 LF

752 3140 CORNER ASSEMBLY BARBED WIRE

Sta. 1221+25 Rt	1 EA

SAUBER ENGINEERING

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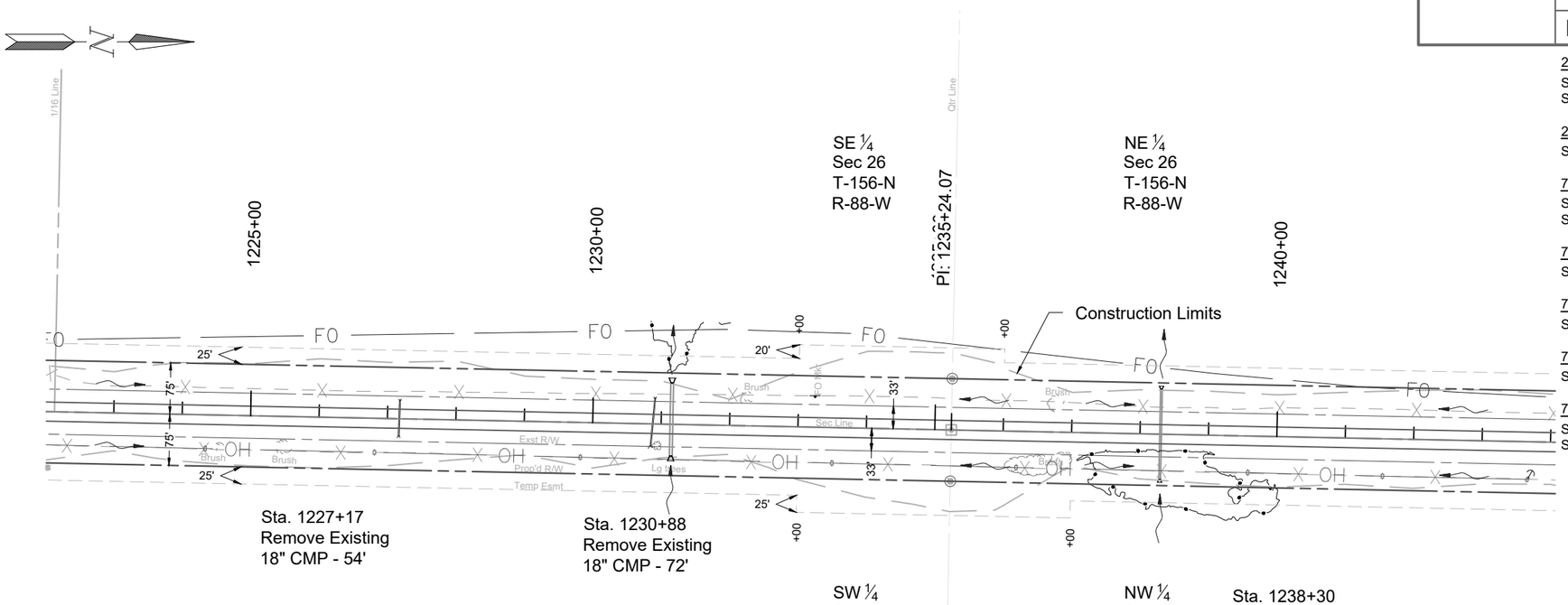
Plan & Profile
Sta. 1203+00 to Sta. 1223+00
Reconstruction
County Route 1

Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	60	24



202 0170 REMOVAL OF CULVERTS-ALL TYPES AND SIZES

Sta. 1227+17	54 LF
Sta. 1230+88	72 LF

202 0312 REMOVE EXISTING FENCE

Sta. 1223+00 to Sta. 1243+00 Rt	2,000 LF

709 0100 GEOSYNTHETIC MATERIAL TYPE G

Sta. 1231+15	94 SY
Sta. 1238+30	95 SY

714 4110 PIPE CONDUIT 30IN

Sta. 1238+30	132 LF

714 4125 PIPE CONDUIT 48IN

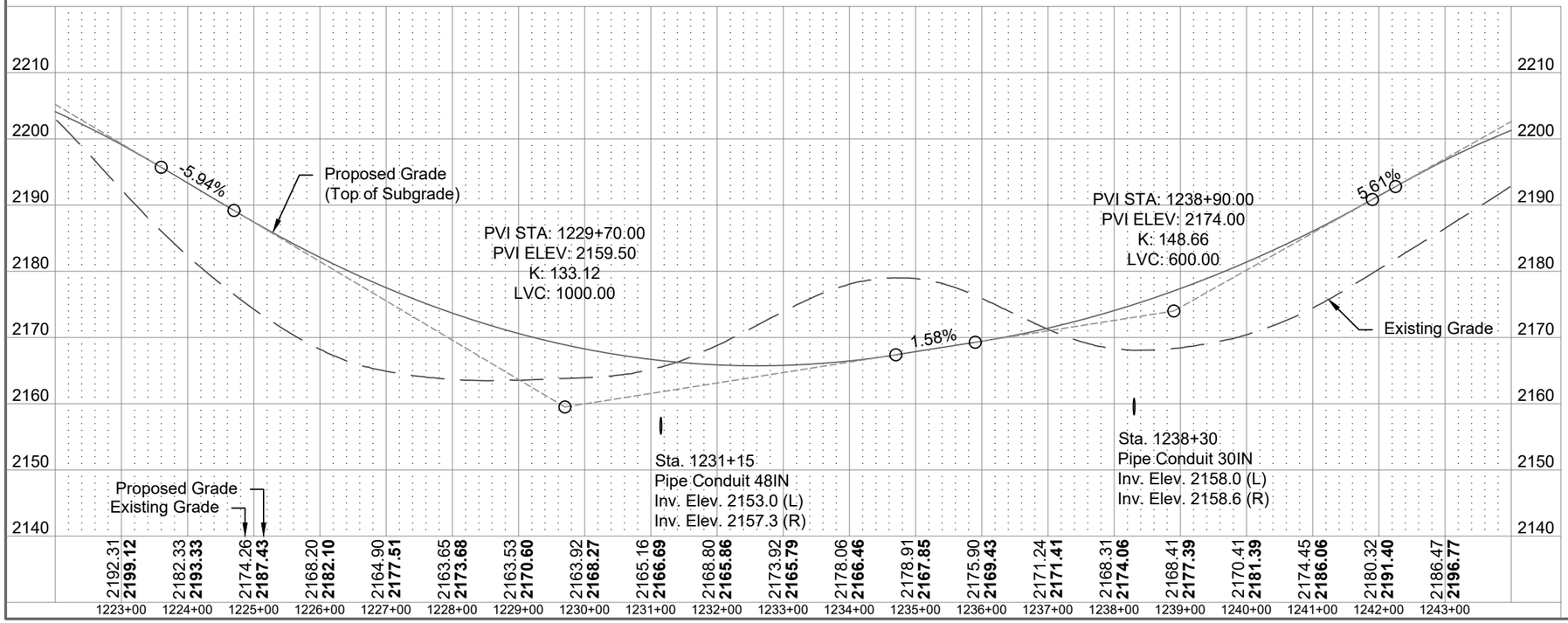
Sta. 1231+15	106 LF

752 0320 FENCE BARBED WIRE 4 STRAND-STEEL POST

Sta. 1223+00 to Sta. 1243+00 Rt	2,000 LF

752 4100 DOUBLE BRACE ASSEMBLY BARBED WIRE

Sta. 1230+21 Rt	1 EA
Sta. 1239+17 Rt	1 EA



SAUBER ENGINEERING

REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-2914
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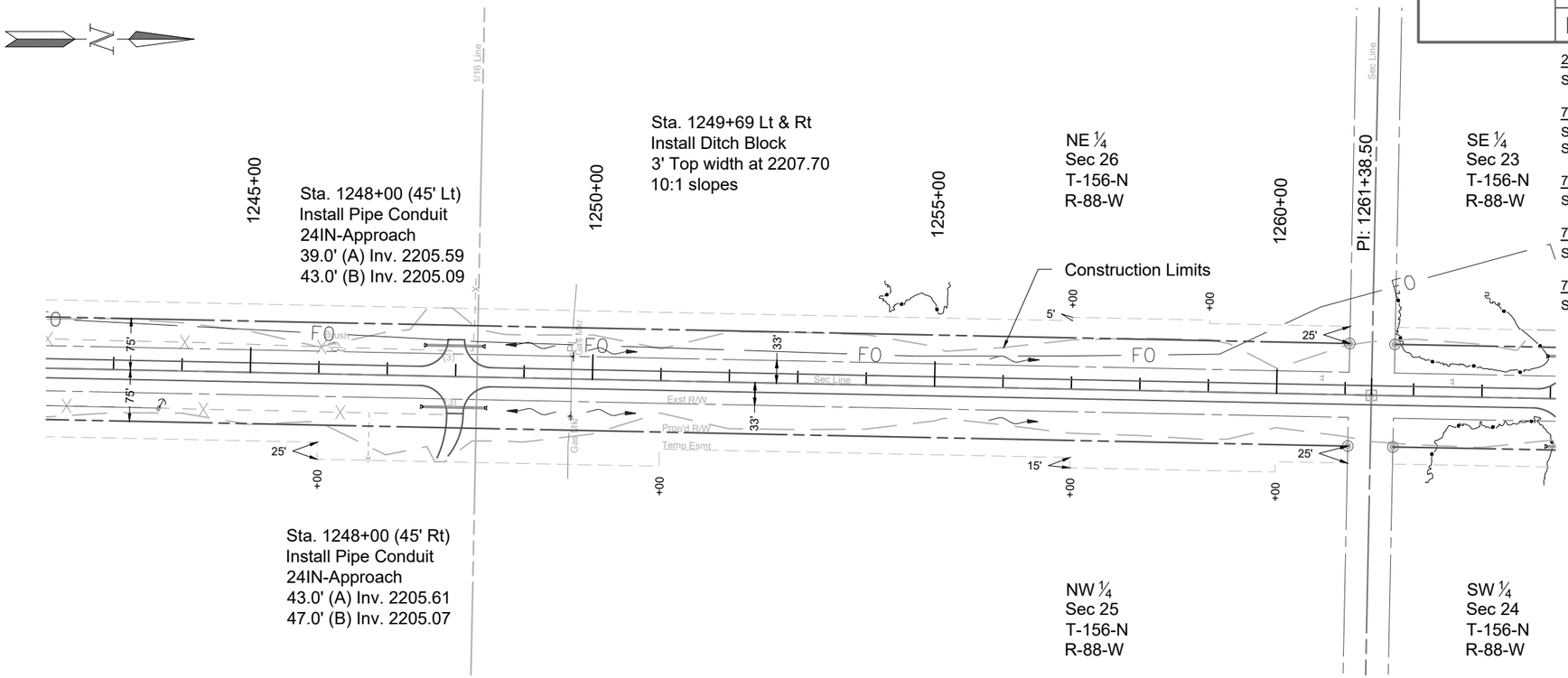
Plan & Profile
Sta. 1223+00 to Sta. 1243+00
Reconstruction
County Route 1

Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	60	25



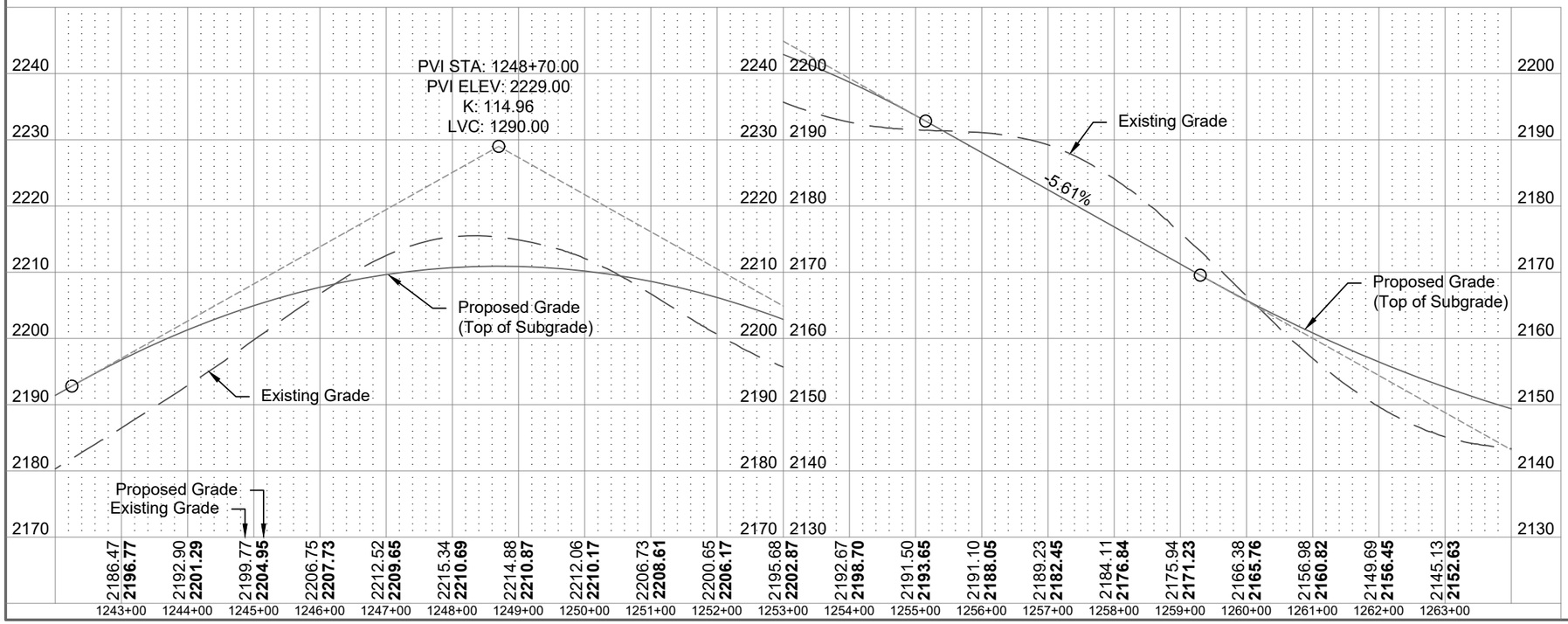
202 0312 REMOVE EXISTING FENCE
Sta. 1243+00 to Sta. 1247+85 Rt 555 LF

714 4106 PIPE CONDUIT 24IN-APPROACH
Sta. 1248+00 Lt 82 LF
Sta. 1248+00 Rt 90 LF

752 0320 FENCE BARBED WIRE 4 STRAND-STEEL POST
Sta. 1243+00 to Sta. 1247+85 Rt 555 LF

752 0993 FENCE TERMINAL
Sta. 1247+85 Rt 1 EA

752 3140 CORNER ASSEMBLY BARBED WIRE
Sta. 1246+74 Rt 1 EA



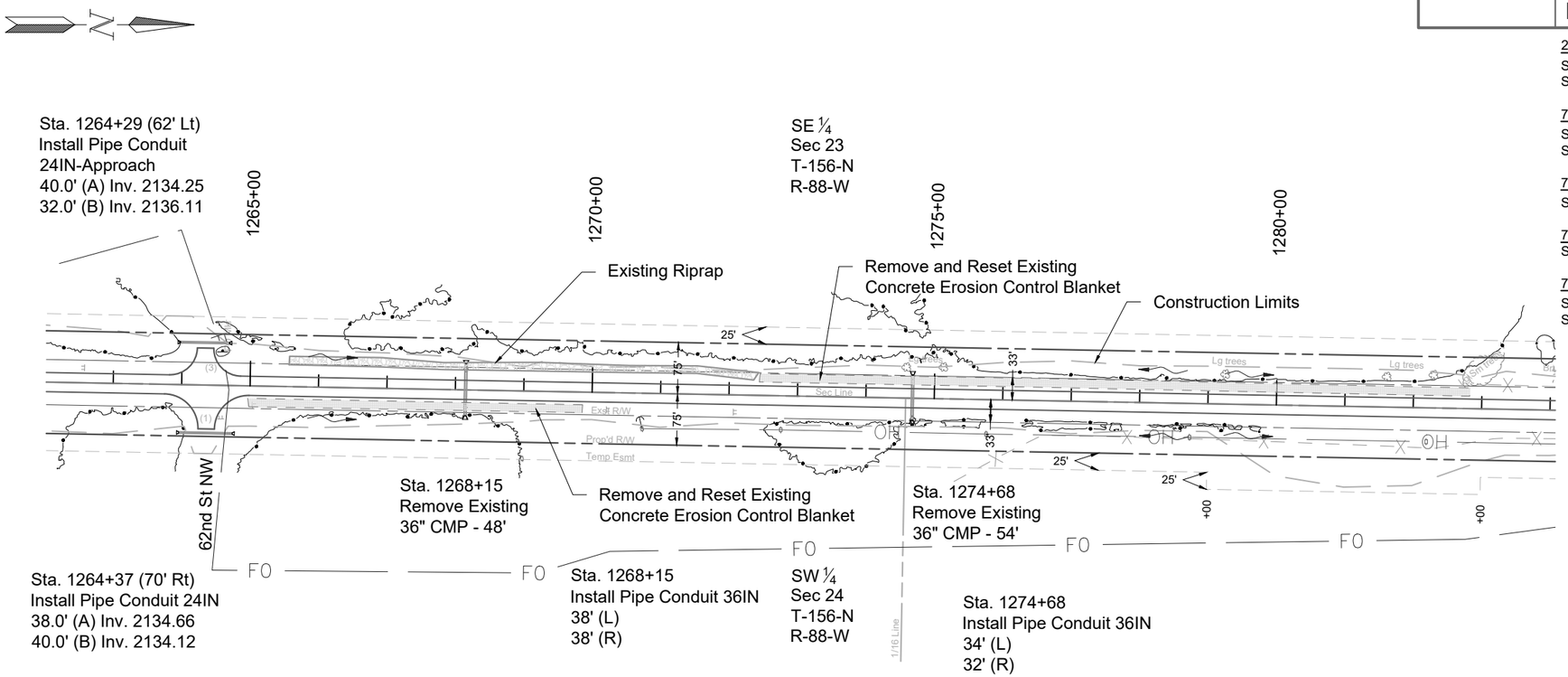
SAUBER ENGINEERING

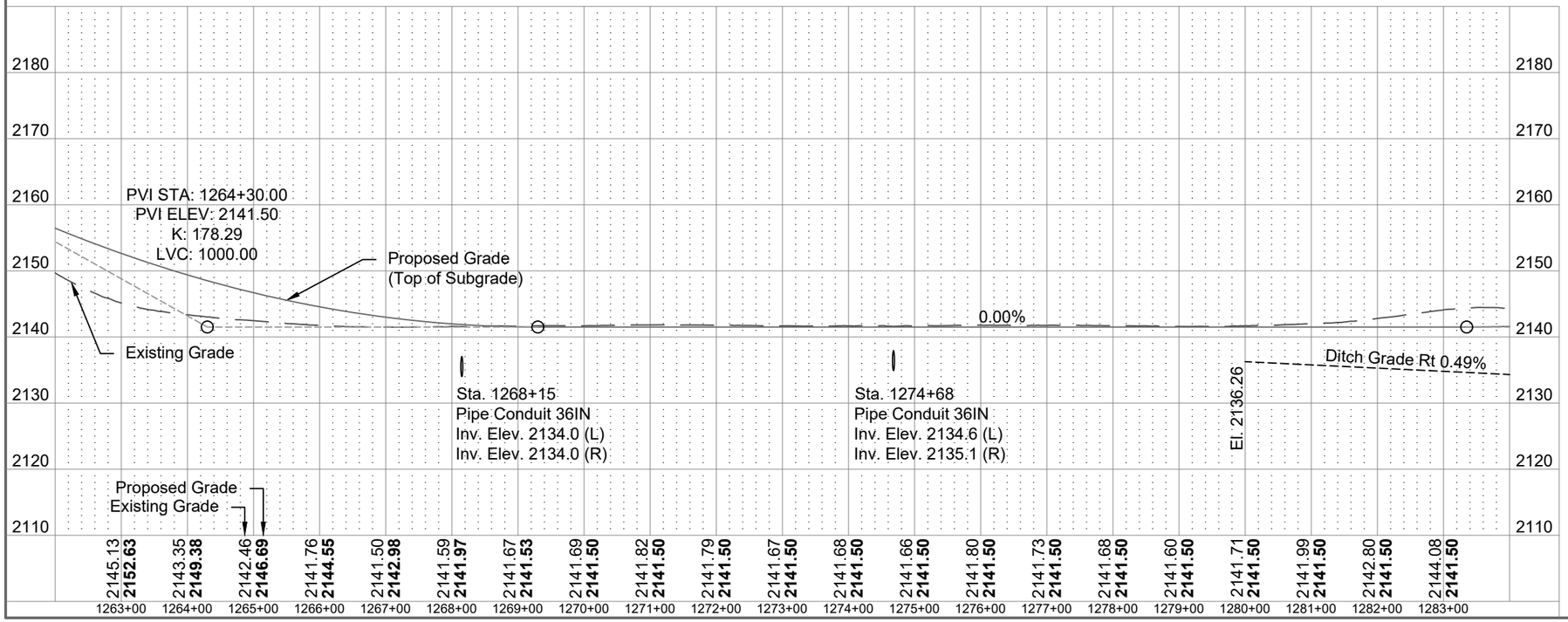
REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-2914
LS-6427
DATE 1/28/25
NORTH DAKOTA

Plan & Profile
Sta. 1243+00 to Sta. 1263+00
Reconstruction
County Route 1

Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	60	26





202 0170 REMOVAL OF CULVERTS-ALL TYPES AND SIZES

Sta. 1268+15	48 LF
Sta. 1274+68	54 LF

709 0100 GEOSYNTHETIC MATERIAL TYPE G

Sta. 1268+15	59 SY
Sta. 1274+68	51 SY

714 4105 PIPE CONDUIT 24IN

Sta. 1264+37 Rt	78 LF

714 4106 PIPE CONDUIT 24IN-APPROACH

Sta. 1264+29 Lt	72 LF

714 4115 PIPE CONDUIT 36IN

Sta. 1268+15	76 LF
Sta. 1274+68	66 LF

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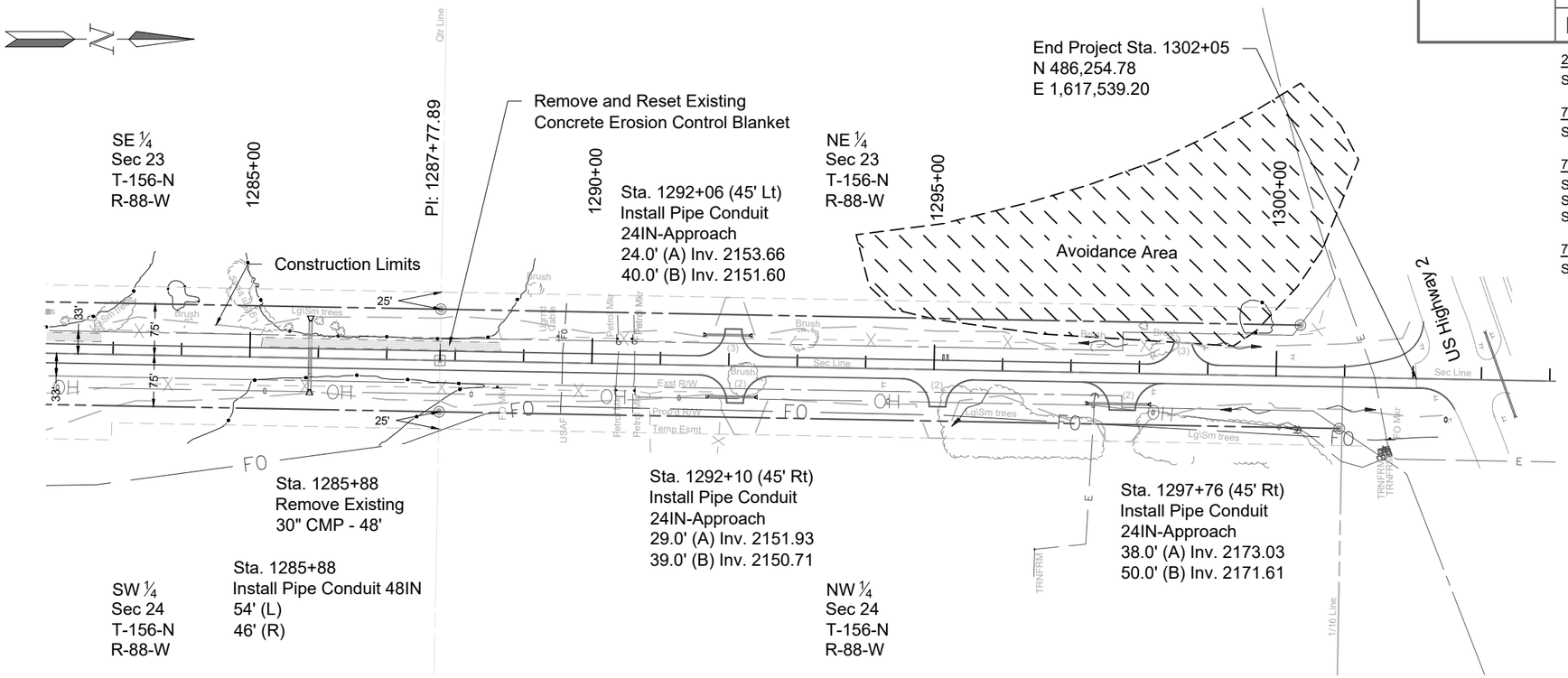
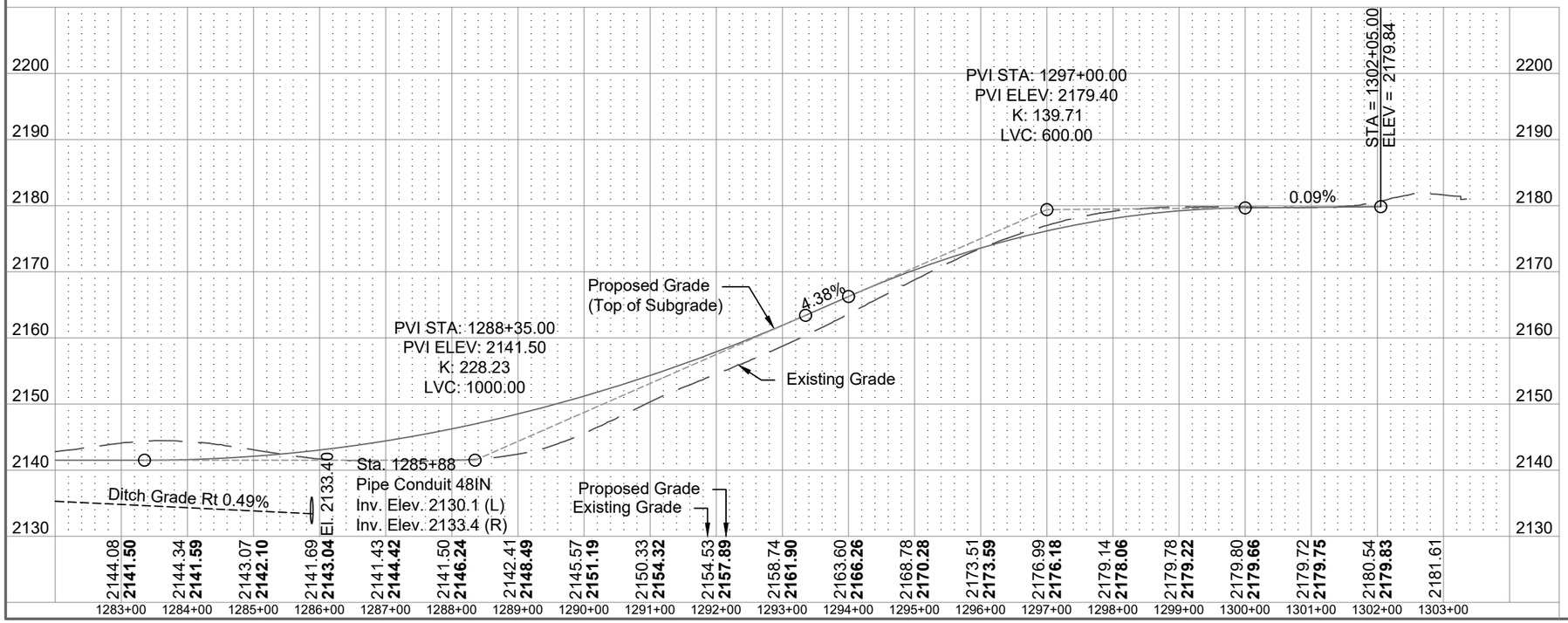
REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-3914
LS-6427
DATE 1/28/25
NORTH DAKOTA

Plan & Profile
Sta. 1263+00 to Sta. 1283+00
Reconstruction
County Route 1

Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	60	27





202 0170 REMOVAL OF CULVERTS-ALL TYPES AND SIZES

Sta. 1285+88	48 LF

709 0100 GEOSYNTHETIC MATERIAL TYPE G

Sta. 1285+88	89 SY

714 4106 PIPE CONDUIT 24IN-APPROACH

Sta. 1292+06 Lt	64 LF
Sta. 1292+10 Rt	68 LF
Sta. 1297+76 Rt	88 LF

714 4125 PIPE CONDUIT 48IN

Sta. 1285+88	100 LF

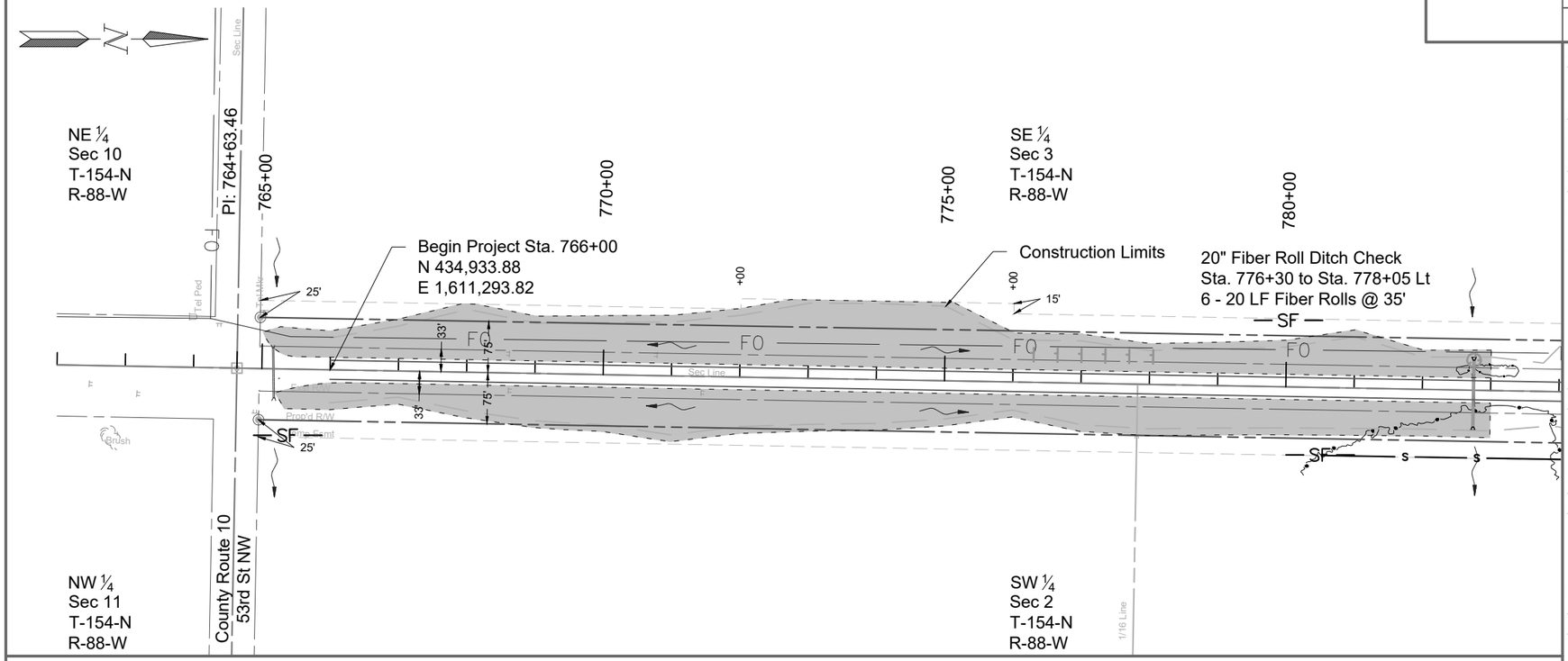
SAUBER ENGINEERING

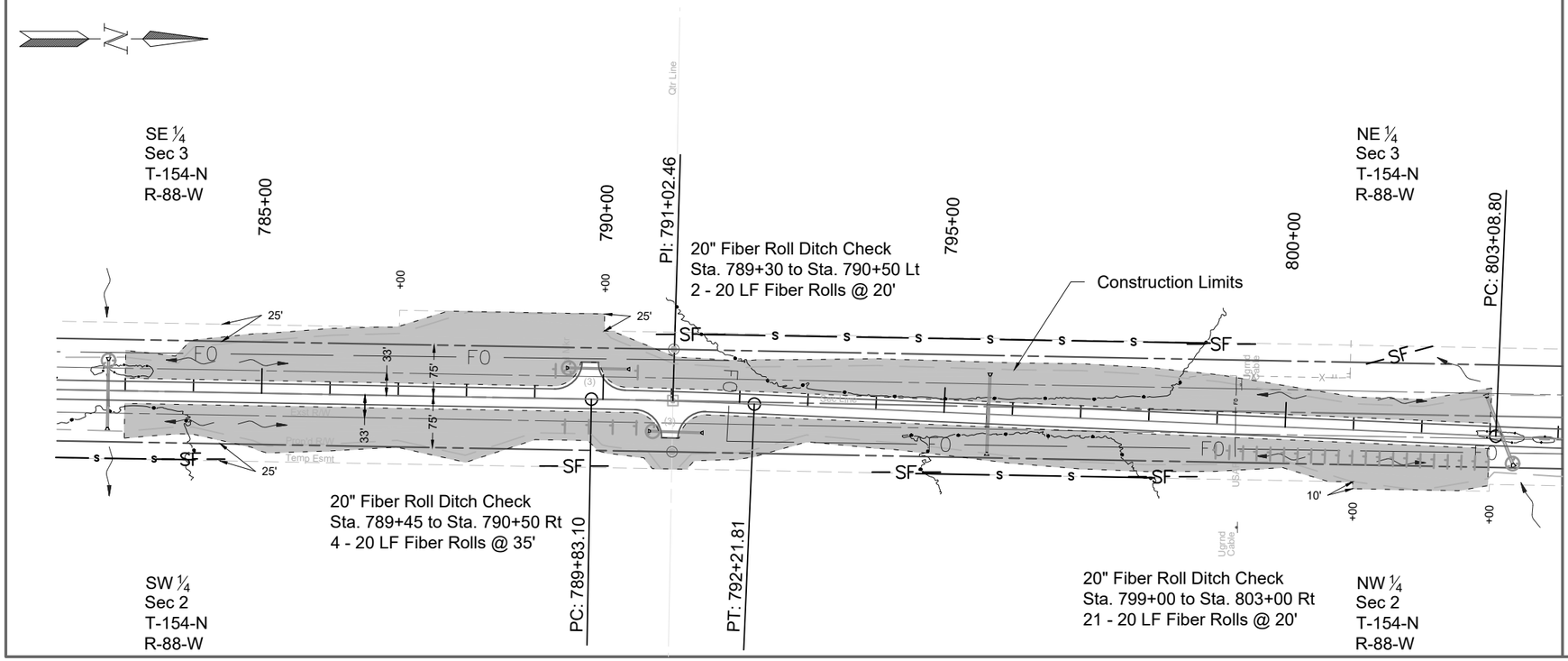
REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-2914
LS-6427
DATE 1/28/25
NORTH DAKOTA

Plan & Profile
Sta. 1283+00 to Sta. 1303+00
Reconstruction
County Route 1

Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	76	1





251 2000 TEMPORARY COVER CROP

Sta. 765+00 to Sta. 803+00	10.34 Acre

253 0101 STRAW MULCH

Sta. 765+00 to Sta. 803+00	10.34 Acre

260 0200 SILT FENCE SUPPORTED &
260 0201 REMOVE SILT FENCE SUPPORTED

Sta. 765+17 Rt	135 LF
Sta. 780+05 Lt	150 LF
Sta. 780+50 Rt	30 LF
Sta. 784+00 Rt	30 LF
Sta. 789+50 Rt	150 LF
Sta. 791+50 Lt	30 LF
Sta. 794+50 Rt	30 LF
Sta. 798+00 Rt	30 LF
Sta. 799+00 Lt	30 LF
Sta. 801+50 Lt	80 LF

261 0112 FIBER ROLLS 12IN &
261 0113 REMOVE FIBER ROLLS 12IN

Sta. 782+75 Lt	30 LF
Sta. 789+49 Lt	30 LF
Sta. 790+71 Rt	30 LF

261 0120 FIBER ROLLS 20IN &
261 0121 REMOVE FIBER ROLLS 20IN

Sta. 776+30 to Sta. 778+05 Lt	120 LF
Sta. 789+30 to Sta. 790+50 Lt	40 LF
Sta. 789+45 to Sta. 790+50 Rt	80 LF
Sta. 799+00 to Sta. 803+00 Rt	420 LF

262 0100 FLOTATION SILT CURTAIN &
262 0101 REMOVE FLOTATION SILT CURTAIN

Sta. 782+00 Rt	350 LF
Sta. 795+00 Lt	750 LF
Sta. 796+00 Rt	350 LF

SAUBER ENGINEERING

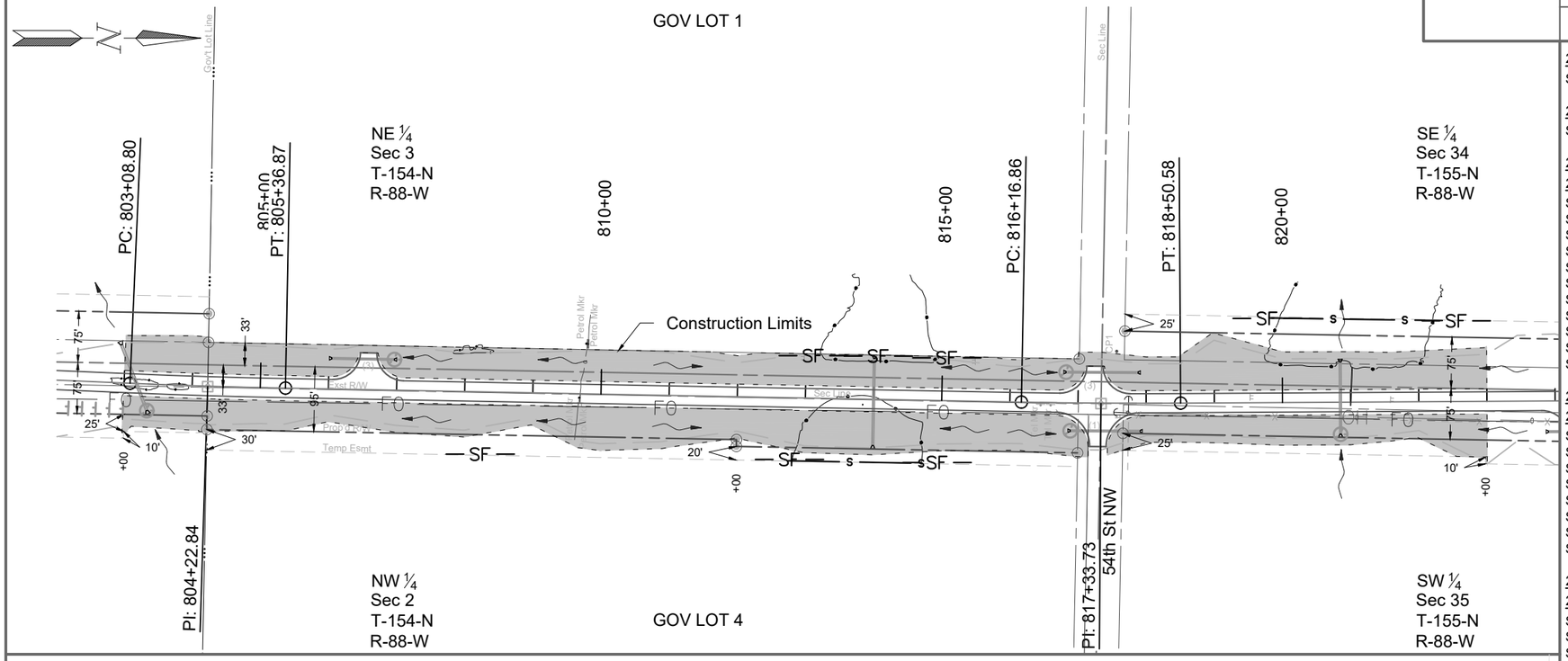
REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-3914
LS-6427
DATE 1/28/25
NORTH DAKOTA

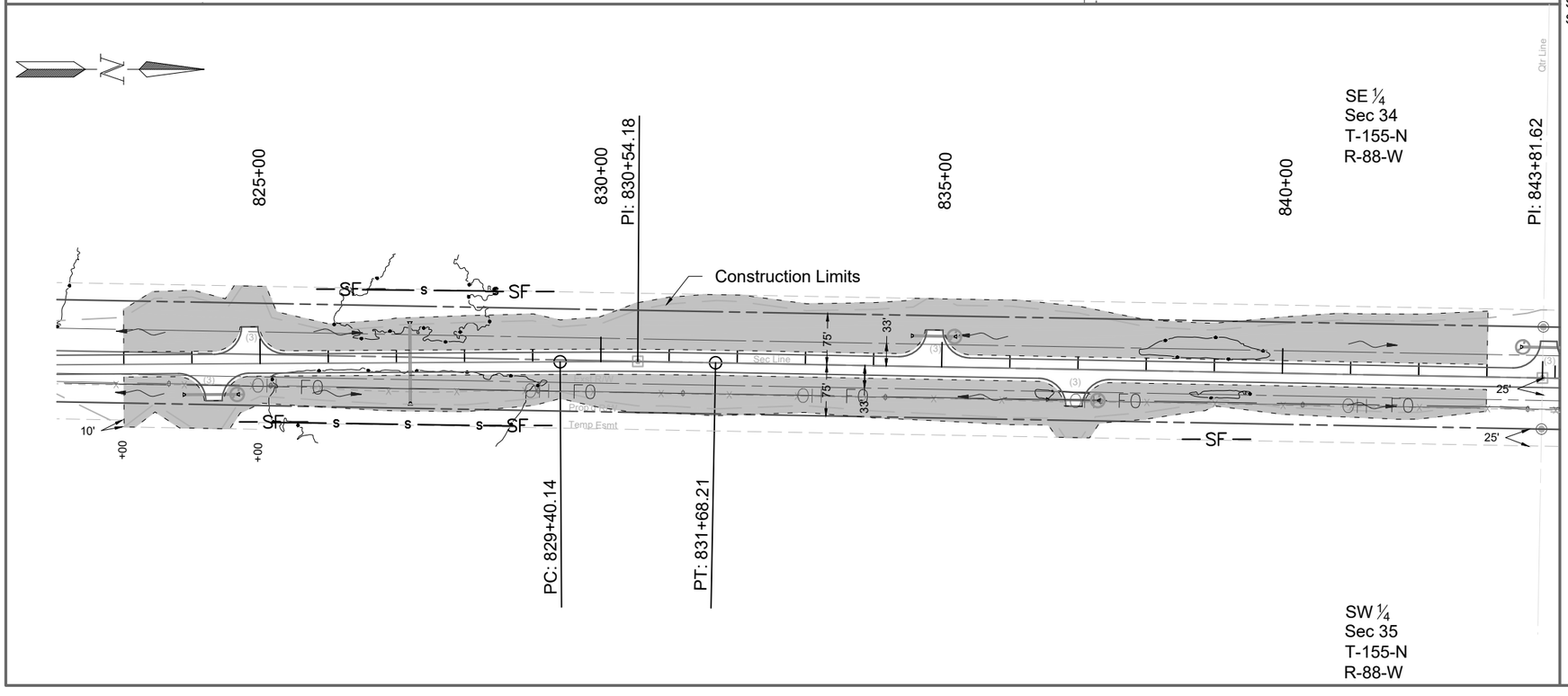
Temporary Erosion Control

Reconstruction
County Route 1

Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	76	2





251 2000 TEMPORARY COVER CROP

Sta. 803+00 to Sta. 843+00	9.75 Acre

253 0101 STRAW MULCH

Sta. 803+00 to Sta. 843+00	9.75 Acre

260 0200 SILT FENCE SUPPORTED &
260 0201 REMOVE SILT FENCE SUPPORTED

Sta. 808+20 Rt	175 LF
Sta. 813+00 Rt	30 LF
Sta. 814+50 Lt	235 LF
Sta. 815+00 Rt	30 LF
Sta. 820+00 Lt	30 LF
Sta. 822+00 Lt	30 LF
Sta. 825+00 Rt	30 LF
Sta. 826+00 Lt	30 LF
Sta. 829+00 Lt	30 LF
Sta. 829+00 Rt	30 LF
Sta. 839+00 Rt	200 LF

261 0112 FIBER ROLLS 12IN &
261 0113 REMOVE FIBER ROLLS 12IN

Sta. 803+40 Rt	30 LF
Sta. 806+96 Lt	30 LF
Sta. 816+82 Lt	30 LF
Sta. 816+89 Rt	30 LF
Sta. 820+85 Rt	30 LF
Sta. 824+66 Rt	30 LF
Sta. 835+18 Lt	30 LF
Sta. 837+30 Rt	30 LF

262 0100 FLOTATION SILT CURTAIN &
262 0101 REMOVE FLOTATION SILT CURTAIN

Sta. 814+00 Rt	200 LF
Sta. 821+00 Lt	250 LF
Sta. 827+50 Lt	200 LF
Sta. 827+00 Rt	350 LF

SAUBER ENGINEERING

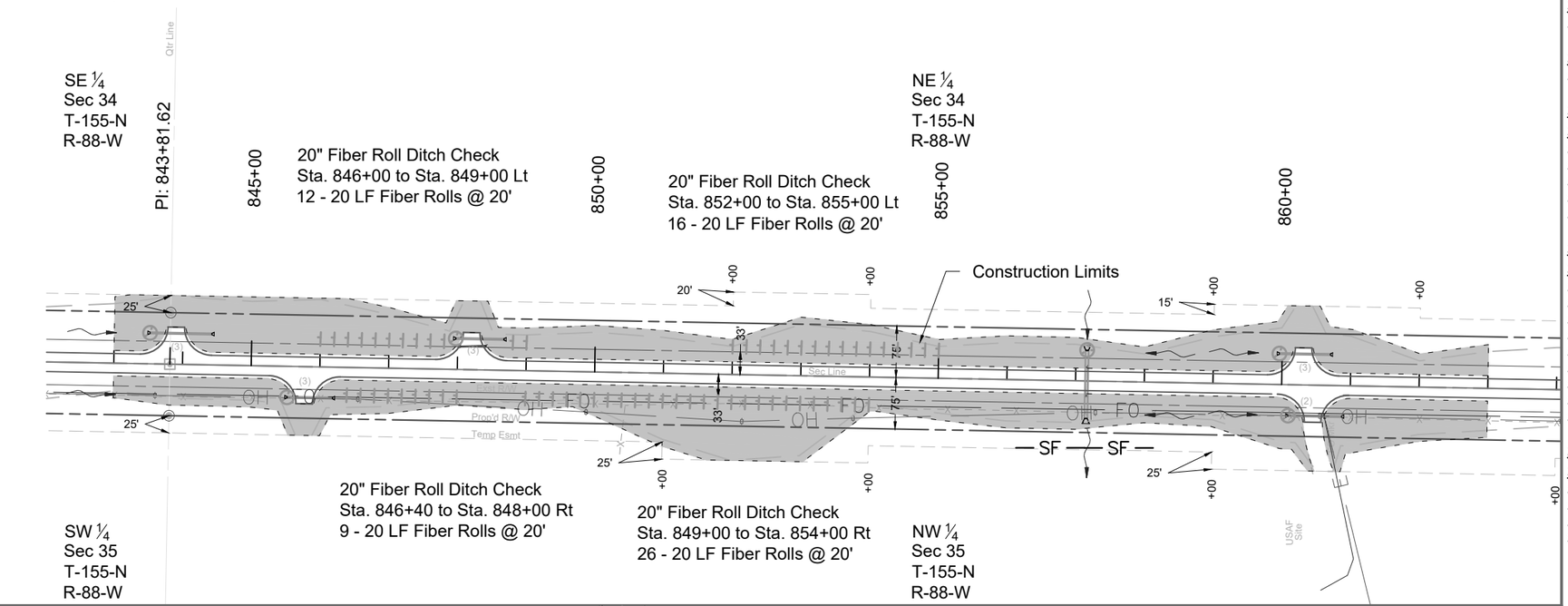
REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-3214
LS-6427
DATE 1/28/25
NORTH DAKOTA

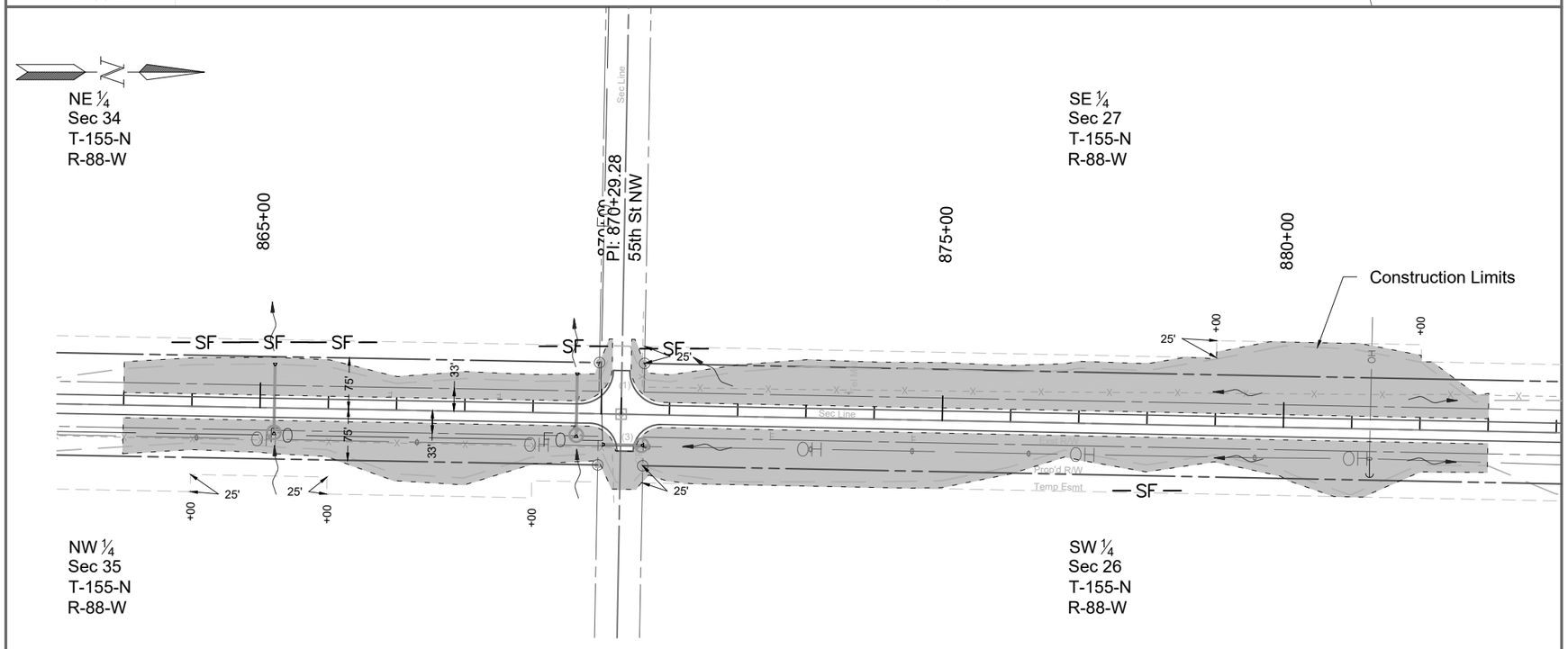
Temporary Erosion Control

Reconstruction
County Route 1

Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	76	3





251 2000 TEMPORARY COVER CROP

Sta. 843+00 to Sta. 883+00	10.72 Acre

253 0101 STRAW MULCH

Sta. 843+00 to Sta. 883+00	10.72 Acre

260 0200 SILT FENCE SUPPORTED &
260 0201 REMOVE SILT FENCE SUPPORTED

Sta. 857+16 Rt	250 LF
Sta. 865+21 Lt	300 LF
Sta. 869+64 Lt	130 LF
Sta. 870+60 Lt	50 LF
Sta. 878+00 Rt	160 LF

261 0112 FIBER ROLLS 12IN &
261 0113 REMOVE FIBER ROLLS 12IN

Sta. 843+52 Lt	30 LF
Sta. 845+53 Rt	30 LF
Sta. 847+97 Lt	30 LF
Sta. 857+16 Lt	30 LF
Sta. 859+96 Lt	30 LF
Sta. 860+10 Rt	30 LF
Sta. 865+21 Rt	30 LF
Sta. 869+64 Rt	30 LF
Sta. 870+60 Rt	30 LF

261 0120 FIBER ROLLS 20IN &
261 0121 REMOVE FIBER ROLLS 20IN

Sta. 846+00 to Sta. 849+00 Lt	240 LF
Sta. 846+40 to Sta. 848+00 Rt	180 LF
Sta. 849+00 to Sta. 854+00 Rt	520 LF
Sta. 852+00 to Sta. 855+00 Lt	320 LF

SAUBER ENGINEERING

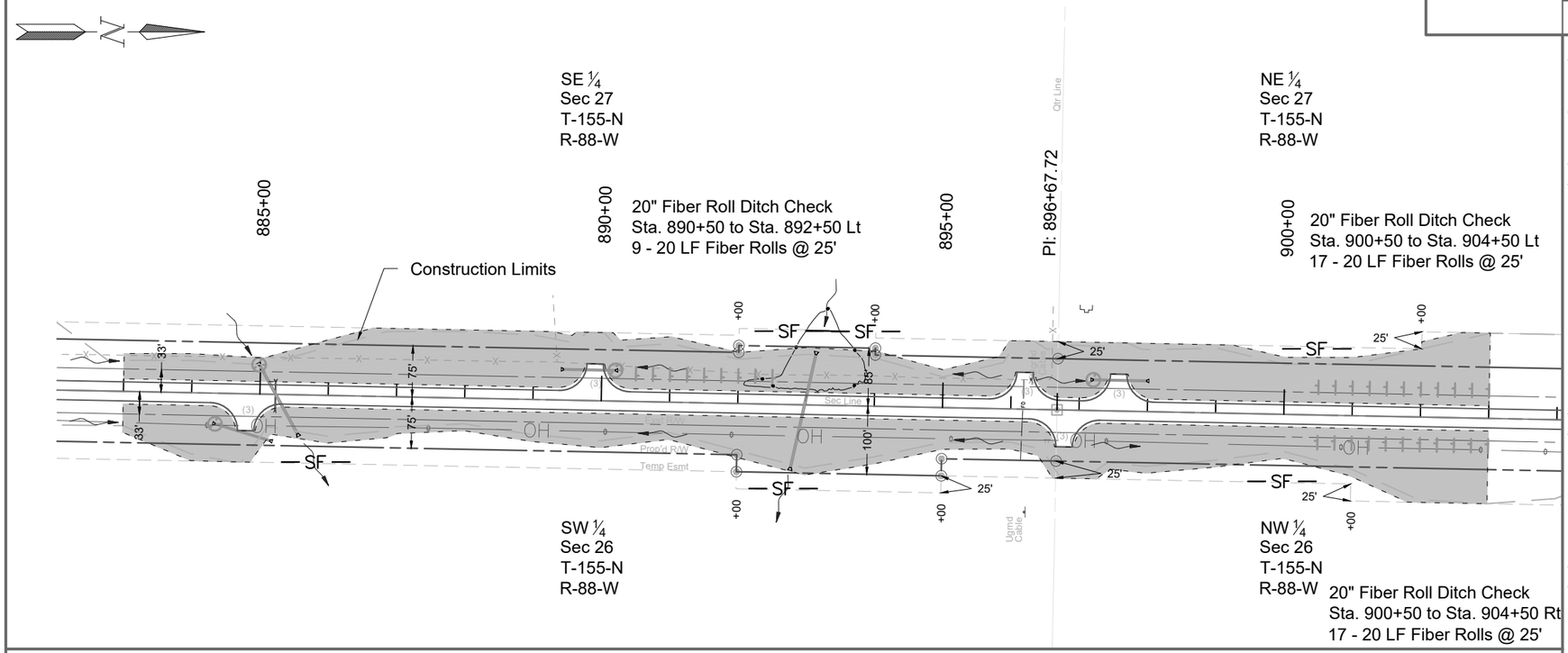
REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-3214
LS-8427
DATE 1/28/25
NORTH DAKOTA

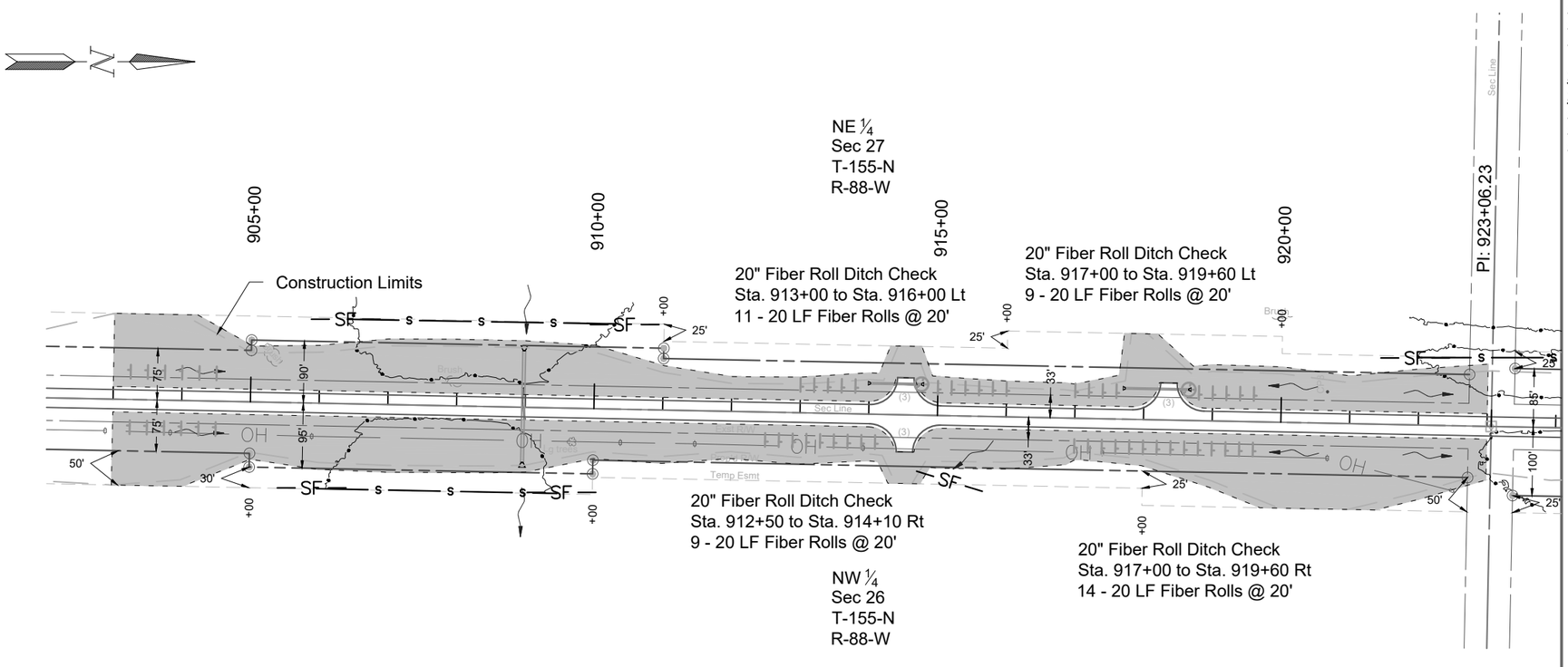
Temporary Erosion Control

Reconstruction
County Route 1

Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	76	4





251 2000 TEMPORARY COVER CROP

Sta. 883+00 to Sta. 923+00	11.81 Acre

253 0101 STRAW MULCH

Sta. 883+00 to Sta. 923+00	11.81 Acre

260 0200 SILT FENCE SUPPORTED &
260 0201 REMOVE SILT FENCE SUPPORTED

Sta. 885+56 Rt	135 LF
Sta. 892+80 Lt	30 LF
Sta. 893+13 Rt	50 LF
Sta. 893+30 Lt	30 LF
Sta. 900+00 Rt	140 LF
Sta. 900+50 Lt	110 LF
Sta. 906+00 Rt	30 LF
Sta. 906+50 Lt	30 LF
Sta. 909+50 Rt	30 LF
Sta. 910+50 Lt	30 LF
Sta. 915+00 Rt	50 LF
Sta. 922+00 Lt	30 LF

261 0112 FIBER ROLLS 12IN &
261 0113 REMOVE FIBER ROLLS 12IN

Sta. 884+46 Rt	30 LF
Sta. 884+99 Lt	30 LF
Sta. 890+20 Lt	30 LF
Sta. 897+20 Lt	30 LF
Sta. 914+76 Lt	30 LF
Sta. 918+65 Lt	30 LF

261 0120 FIBER ROLLS 20IN &
261 0121 REMOVE FIBER ROLLS 20IN

Sta. 890+50 to Sta. 892+50 Lt	180 LF
Sta. 900+50 to Sta. 904+50 Lt	340 LF
Sta. 900+50 to Sta. 904+50 Rt	340 LF
Sta. 912+50 to Sta. 914+10 Rt	180 LF
Sta. 913+00 to Sta. 916+00 Lt	220 LF
Sta. 917+00 to Sta. 919+60 Lt	180 LF
Sta. 917+00 to Sta. 919+60 Rt	280 LF

262 0100 FLOTATION SILT CURTAIN &
262 0101 REMOVE FLOTATION SILT CURTAIN

Sta. 893+05 Lt	50 LF
Sta. 908+00 Rt	350 LF
Sta. 908+50 Lt	400 LF

SAUBER ENGINEERING

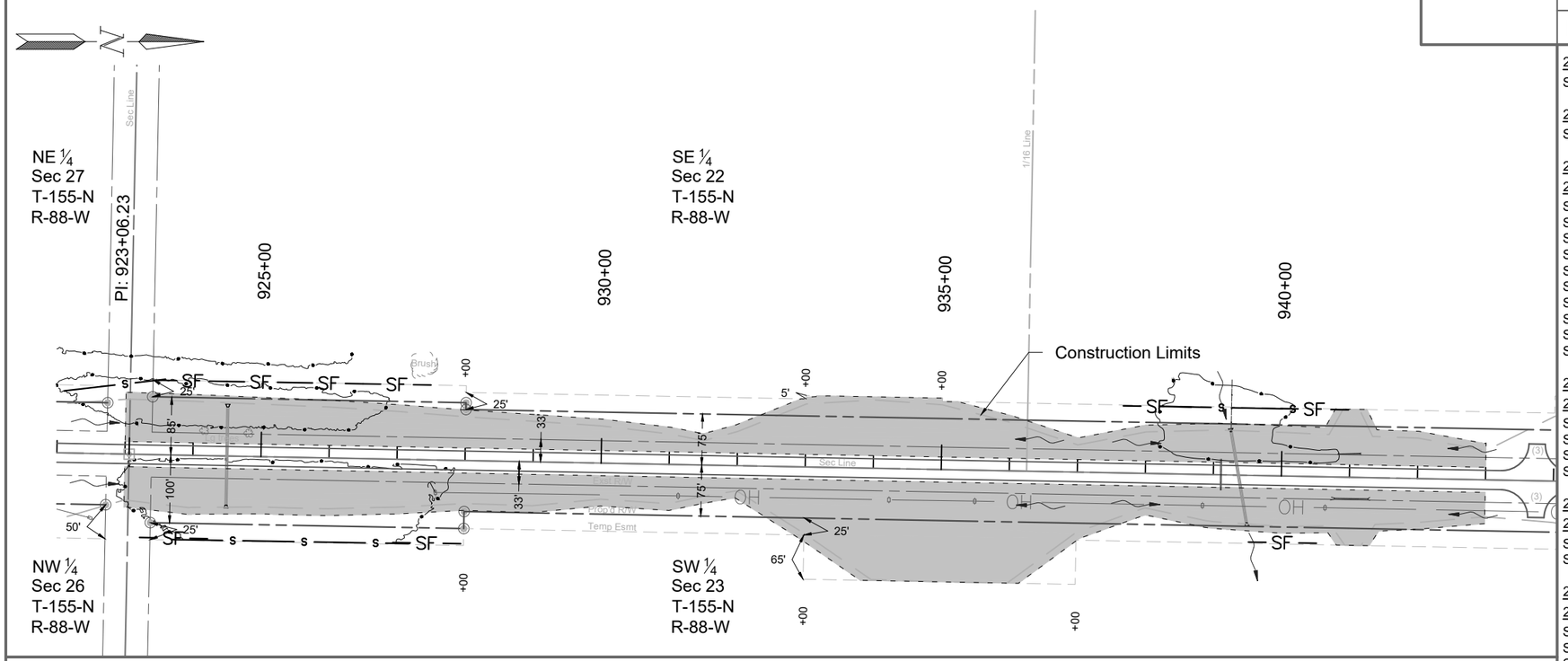
REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-3914
LS-8427
DATE 1/28/25
NORTH DAKOTA

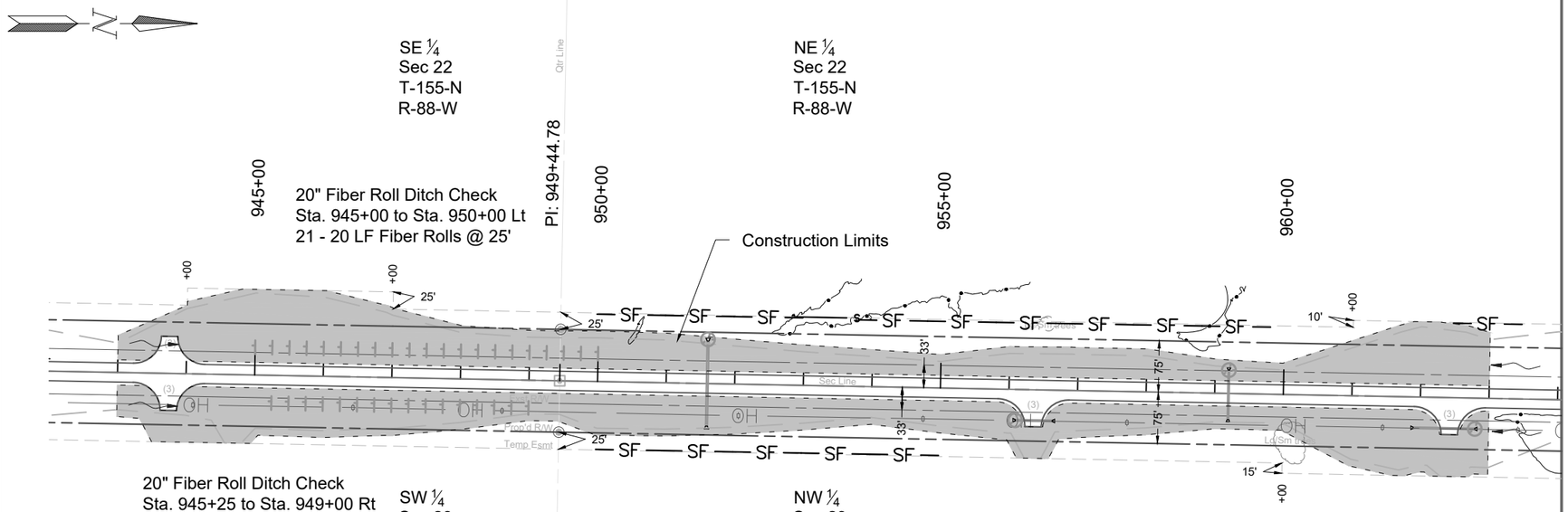
Temporary Erosion Control

Reconstruction
County Route 1

Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	76	5





251 2000 TEMPORARY COVER CROP

Sta. 923+00 to Sta. 963+00	11.23 Acre

253 0101 STRAW MULCH

Sta. 923+00 to Sta. 963+00	11.23 Acre

260 0200 SILT FENCE SUPPORTED &
260 0201 REMOVE SILT FENCE SUPPORTED

Sta. 923+50 Rt	30 LF
Sta. 926+50 Lt	350 LF
Sta. 927+00 Rt	30 LF
Sta. 938+00 Lt	30 LF
Sta. 940+00 Lt	30 LF
Sta. 940+00 Rt	200 LF
Sta. 951+50 Lt	300 LF
Sta. 952+00 Rt	455 LF
Sta. 957+00 Lt	550 LF
Sta. 962+90 Lt	85 LF

261 0112 FIBER ROLLS 12IN &
261 0113 REMOVE FIBER ROLLS 12IN

Sta. 951+60 Lt	30 LF
Sta. 956+10 Rt	30 LF
Sta. 959+20 Lt	30 LF
Sta. 962+80 Rt	30 LF

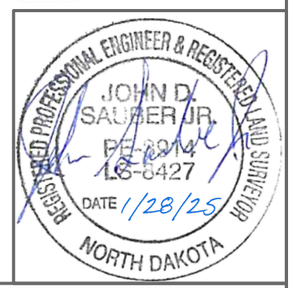
261 0120 FIBER ROLLS 20IN &
261 0121 REMOVE FIBER ROLLS 20IN

Sta. 945+00 to Sta. 950+00 Lt	420 LF
Sta. 945+25 to Sta. 949+00 Rt	320 LF

262 0100 FLOTATION SILT CURTAIN &
262 0101 REMOVE FLOTATION SILT CURTAIN

Sta. 923+00 Lt	150 LF
Sta. 925+50 Rt	350 LF
Sta. 939+00 Lt	200 LF
Sta. 953+25 Lt	100 LF

SAUBER ENGINEERING

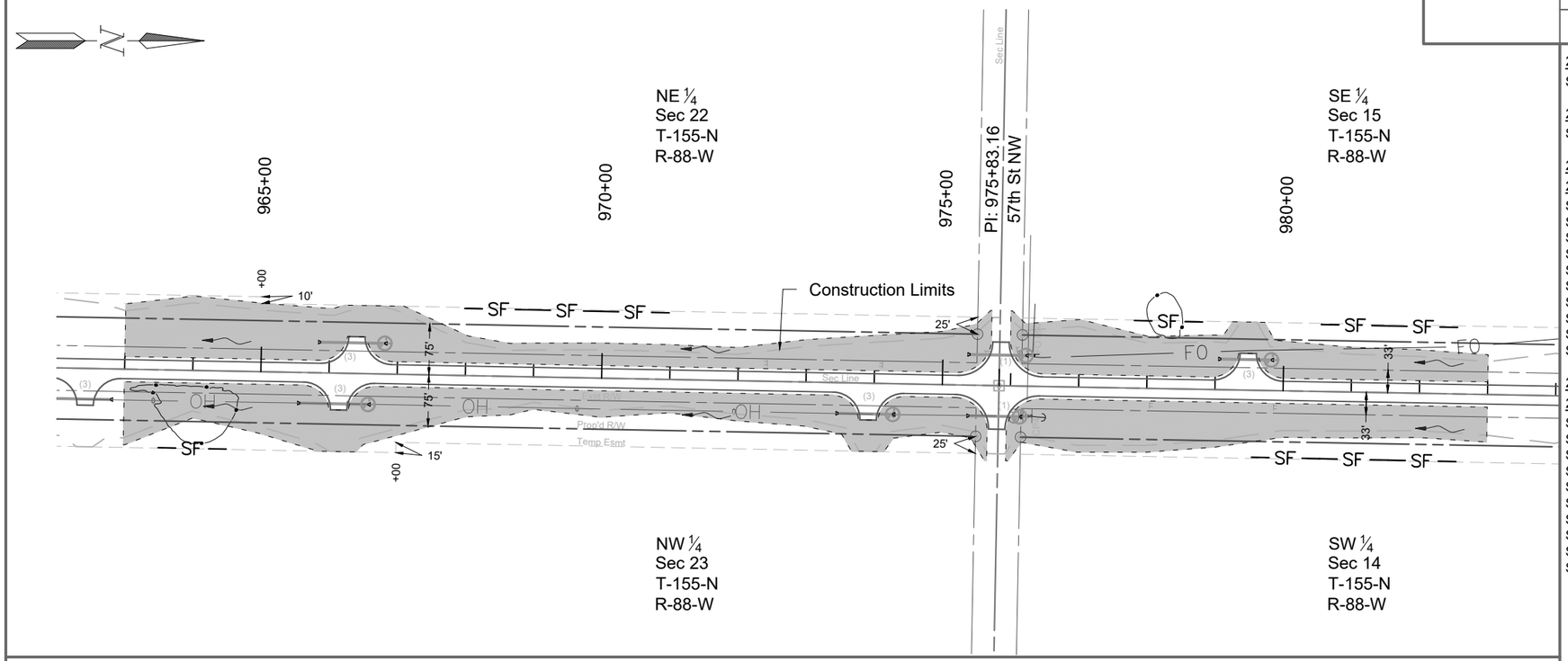


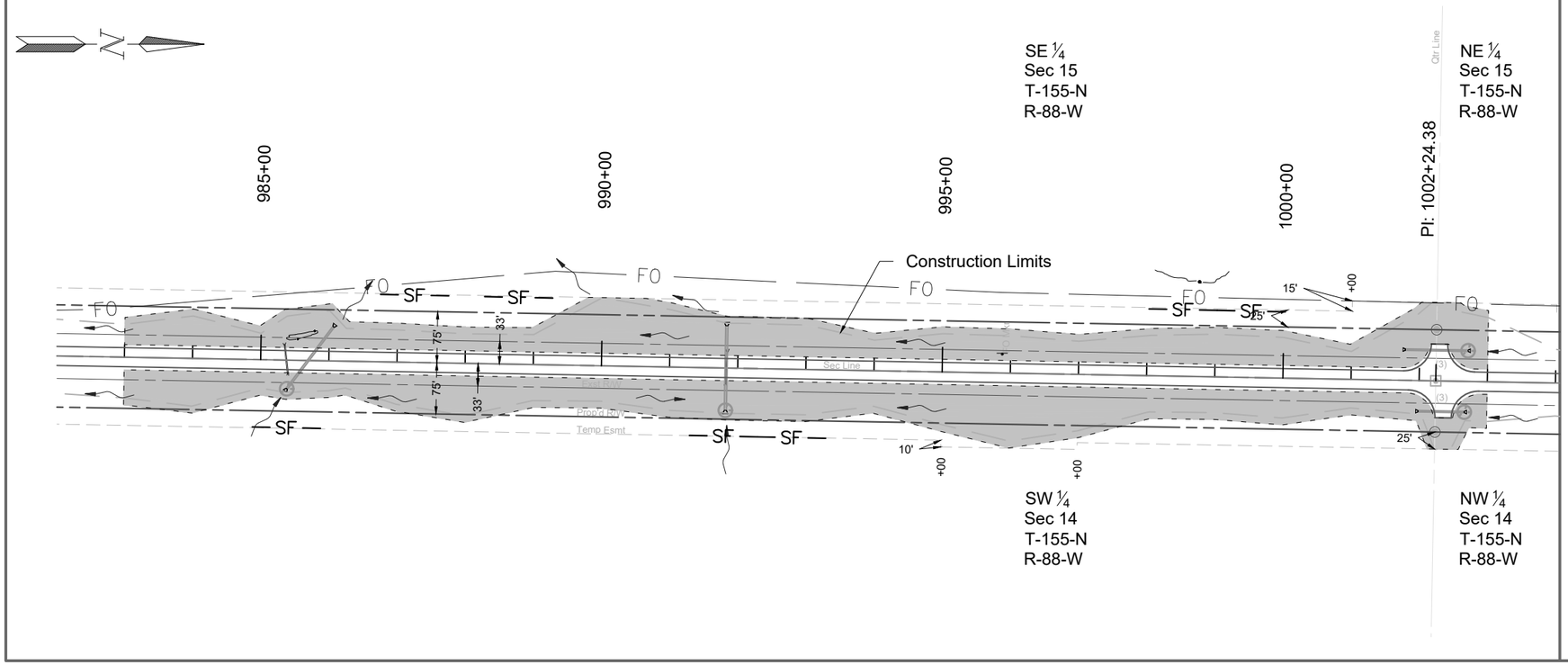
Temporary Erosion Control

Reconstruction
County Route 1

Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	76	6





251 2000 TEMPORARY COVER CROP

Sta. 963+00 to Sta. 1003+00	9.84 Acre

253 0101 STRAW MULCH

Sta. 963+00 to Sta. 1003+00	9.84 Acre

260 0200 SILT FENCE SUPPORTED &
260 0201 REMOVE SILT FENCE SUPPORTED

Sta. 964+00 Rt	100 LF
Sta. 969+50 Lt	350 LF
Sta. 978+50 Lt	110 LF
Sta. 981+00 Rt	320 LF
Sta. 981+50 Lt	260 LF
Sta. 985+50 Rt	140 LF
Sta. 987+20 Lt	105 LF
Sta. 988+70 Lt	50 LF
Sta. 992+00 Rt	275 LF
Sta. 999+00 Lt	250 LF

261 0112 FIBER ROLLS 12IN &
261 0113 REMOVE FIBER ROLLS 12IN

Sta. 966+58 Rt	30 LF
Sta. 966+81 Lt	30 LF
Sta. 974+28 Rt	30 LF
Sta. 976+14 Rt	30 LF
Sta. 976+22 Lt	30 LF
Sta. 979+82 Lt	30 LF
Sta. 985+39 Rt	30 LF
Sta. 991+83 Rt	30 LF
Sta. 1002+67 Rt	30 LF
Sta. 1002+71 Lt	30 LF

SAUBER ENGINEERING

REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
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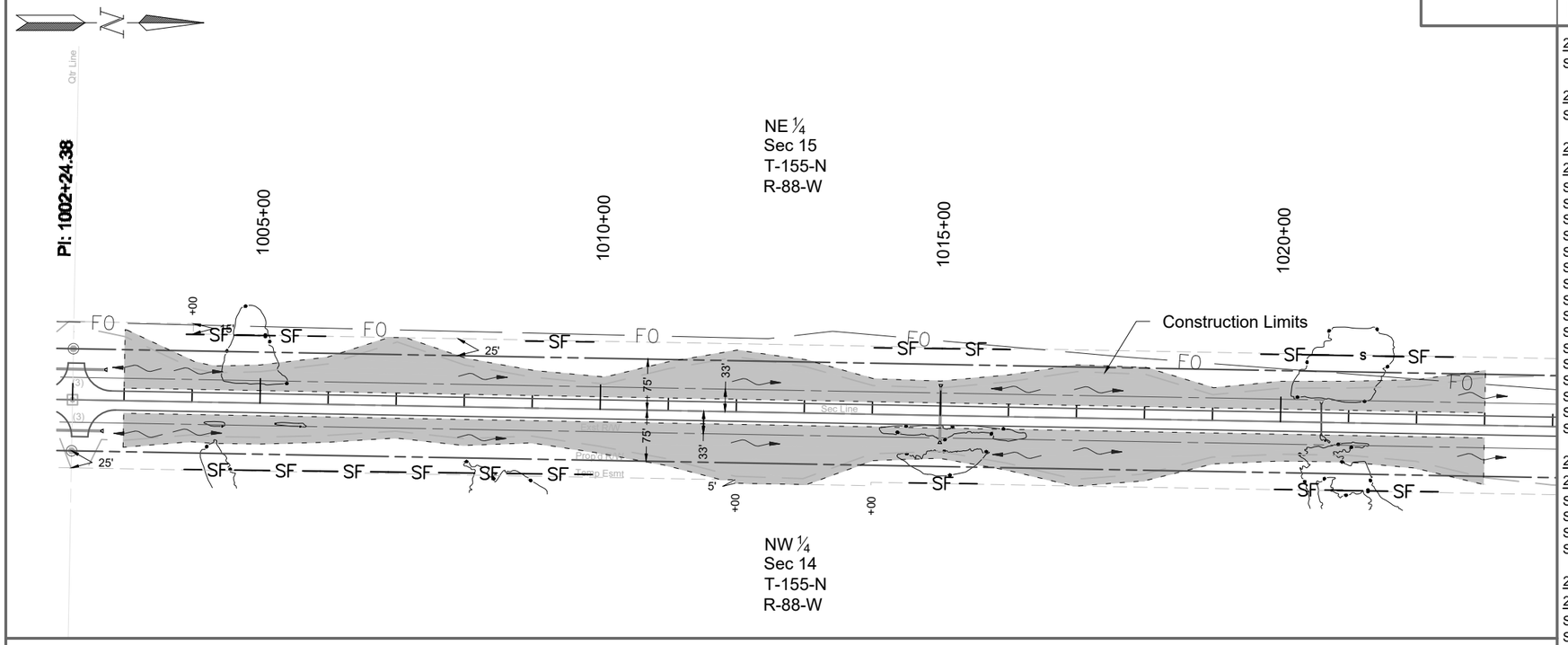
NORTH DAKOTA

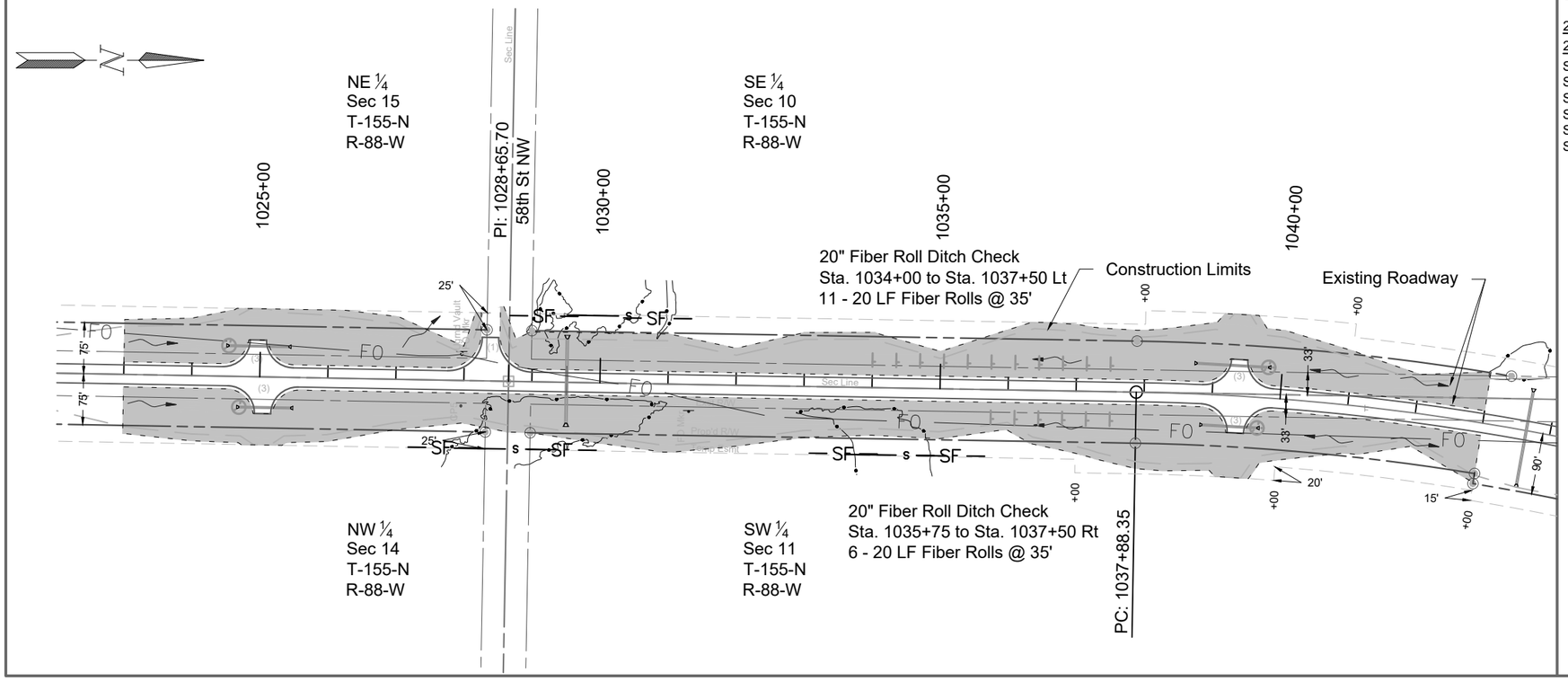
Temporary Erosion Control

Reconstruction
County Route 1

Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	76	7





251 2000 TEMPORARY COVER CROP

Sta. 1003+00 to Sta. 1043+00	10.38 Acre

253 0101 STRAW MULCH

Sta. 1003+00 to Sta. 1043+00	10.38 Acre

260 0200 SILT FENCE SUPPORTED &
260 0201 REMOVE SILT FENCE SUPPORTED

Sta. 1004+60 Lt	30 LF
Sta. 1005+10 Lt	30 LF
Sta. 1006+50 Rt	580 LF
Sta. 1009+50 Lt	135 LF
Sta. 1015+00 Lt	240 LF
Sta. 1015+00 Rt	130 LF
Sta. 1020+50 Lt	30 LF
Sta. 1020+50 Rt	90 LF
Sta. 1021+50 Lt	30 LF
Sta. 1021+50 Rt	30 LF
Sta. 1028+00 Rt	30 LF
Sta. 1029+50 Lt	70 LF
Sta. 1029+50 Rt	30 LF
Sta. 1030+50 Lt	70 LF
Sta. 1033+50 Rt	30 LF
Sta. 1035+00 Rt	30 LF

261 0112 FIBER ROLLS 12IN &
261 0113 REMOVE FIBER ROLLS 12IN

Sta. 1024+54 Lt	30 LF
Sta. 1024+70 Rt	30 LF
Sta. 1039+69 Rt	30 LF
Sta. 1039+80 Lt	30 LF

261 0120 FIBER ROLLS 20IN &
261 0121 REMOVE FIBER ROLLS 20IN

Sta. 1034+00 to Sta. 1037+50 Lt	220 LF
Sta. 1035+75 to Sta. 1037+50 Rt	120 LF

262 0100 FLOTATION SILT CURTAIN &
262 0101 REMOVE FLOTATION SILT CURTAIN

Sta. 1004+80 Lt	50 LF
Sta. 1020+70 Lt	100 LF
Sta. 1021+20 Rt	50 LF
Sta. 1028+50 Rt	150 LF
Sta. 1030+00 Lt	100 LF
Sta. 1034+00 Rt	150 LF

SAUBER ENGINEERING

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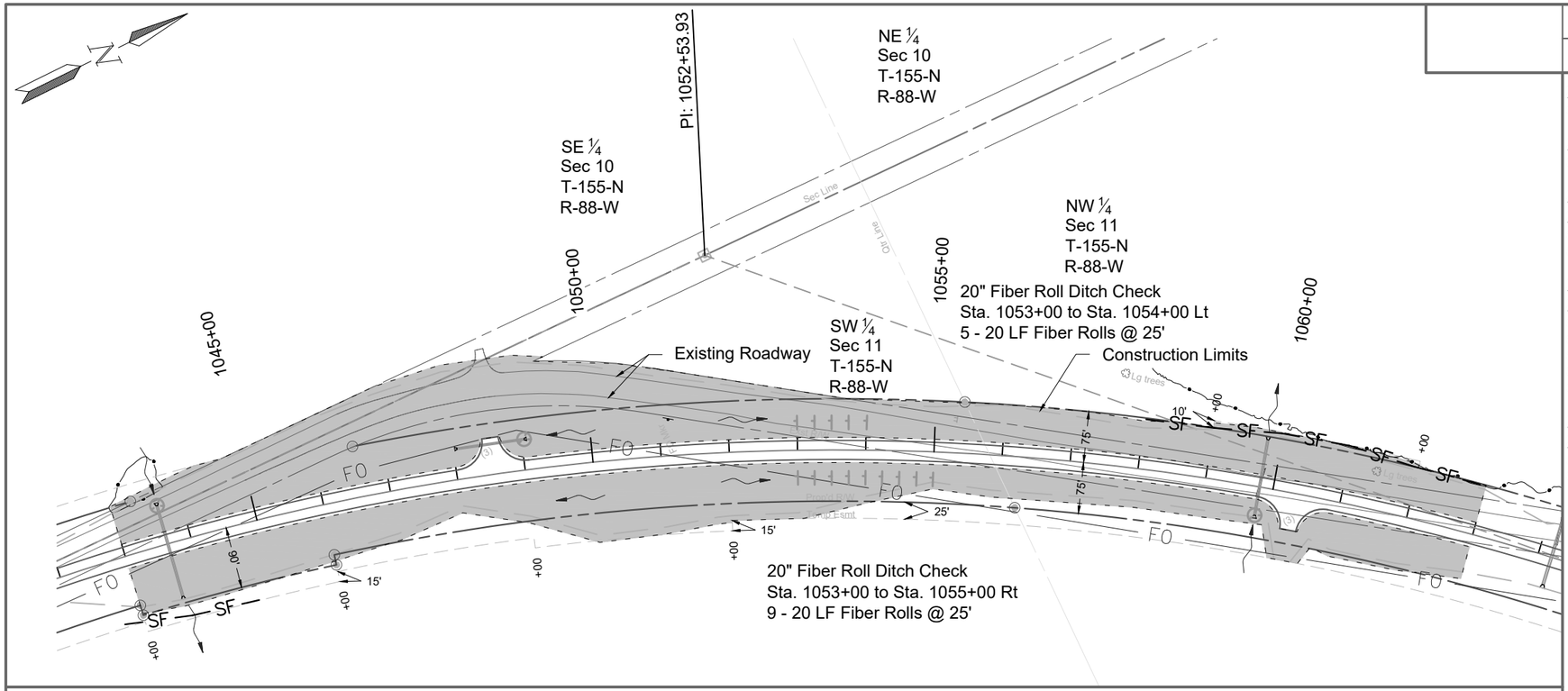
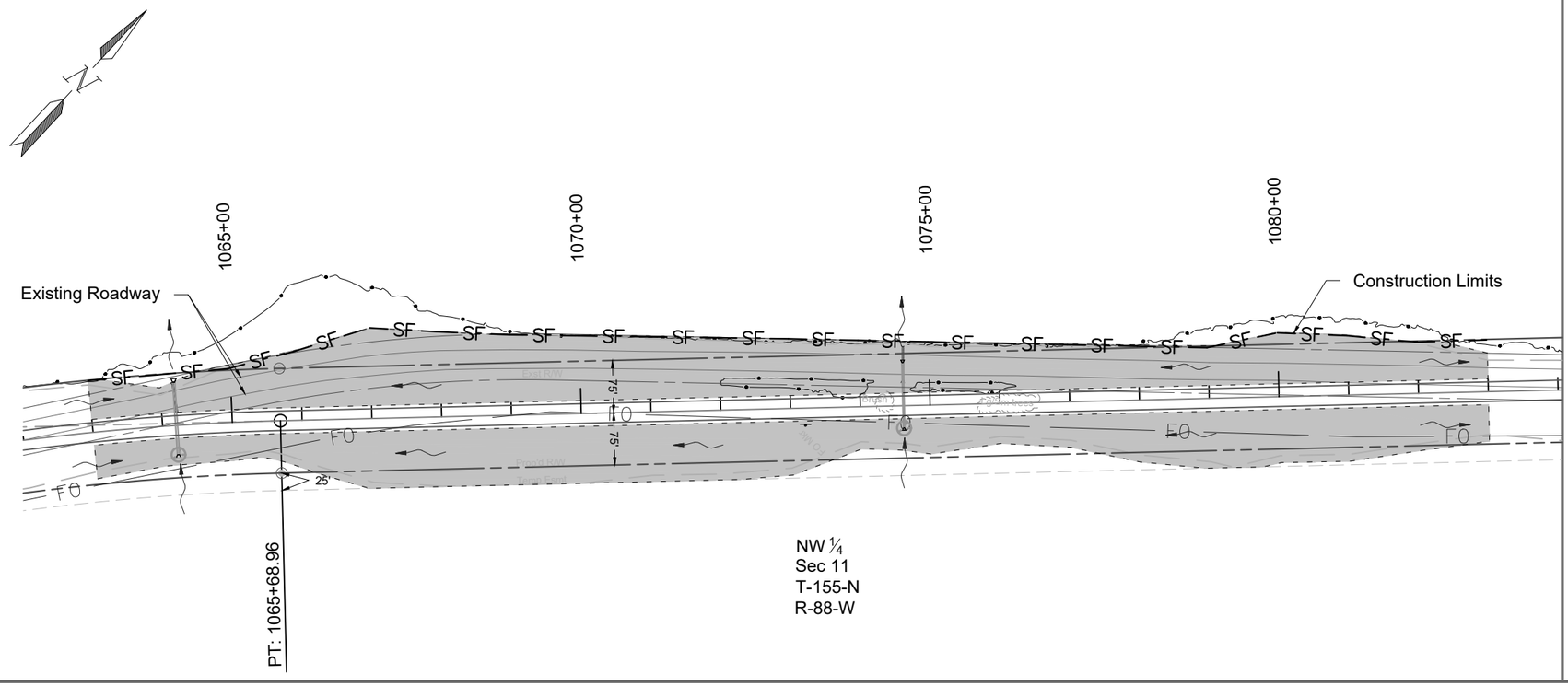
Temporary Erosion Control

Reconstruction
County Route 1

Mountrail County, ND





STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	76	8

251 2000 TEMPORARY COVER CROP

Sta. 1043+00 to Sta. 1083+00	13.03 Acre

253 0101 STRAW MULCH

Sta. 1043+00 to Sta. 1083+00	13.03 Acre

260 0200 SILT FENCE SUPPORTED &
260 0201 REMOVE SILT FENCE SUPPORTED

Sta. 1043+50 Rt	200 LF
Sta. 1058+00 to Sta. 1083+00 Lt	2,525 LF

261 0112 FIBER ROLLS 12IN &
261 0113 REMOVE FIBER ROLLS 12IN

Sta. 1043+65 Lt	30 LF
Sta. 1049+04 Lt	30 LF
Sta. 1059+80 Rt	30 LF
Sta. 1064+20 Rt	30 LF
Sta. 1074+62 Rt	30 LF

261 0120 FIBER ROLLS 20IN &
261 0121 REMOVE FIBER ROLLS 20IN

Sta. 1053+00 to Sta. 1054+00 Lt	100 LF
Sta. 1053+00 to Sta. 1055+00 Rt	180 LF

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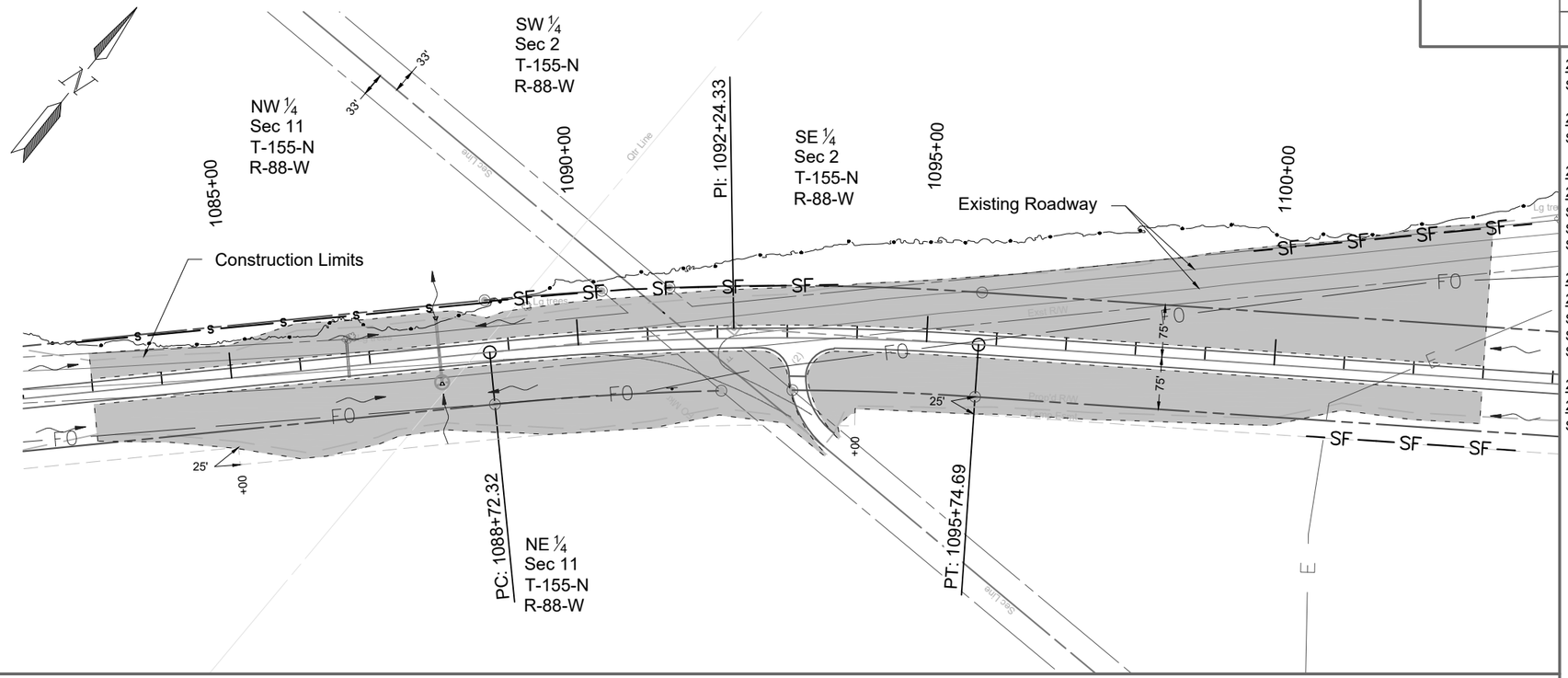
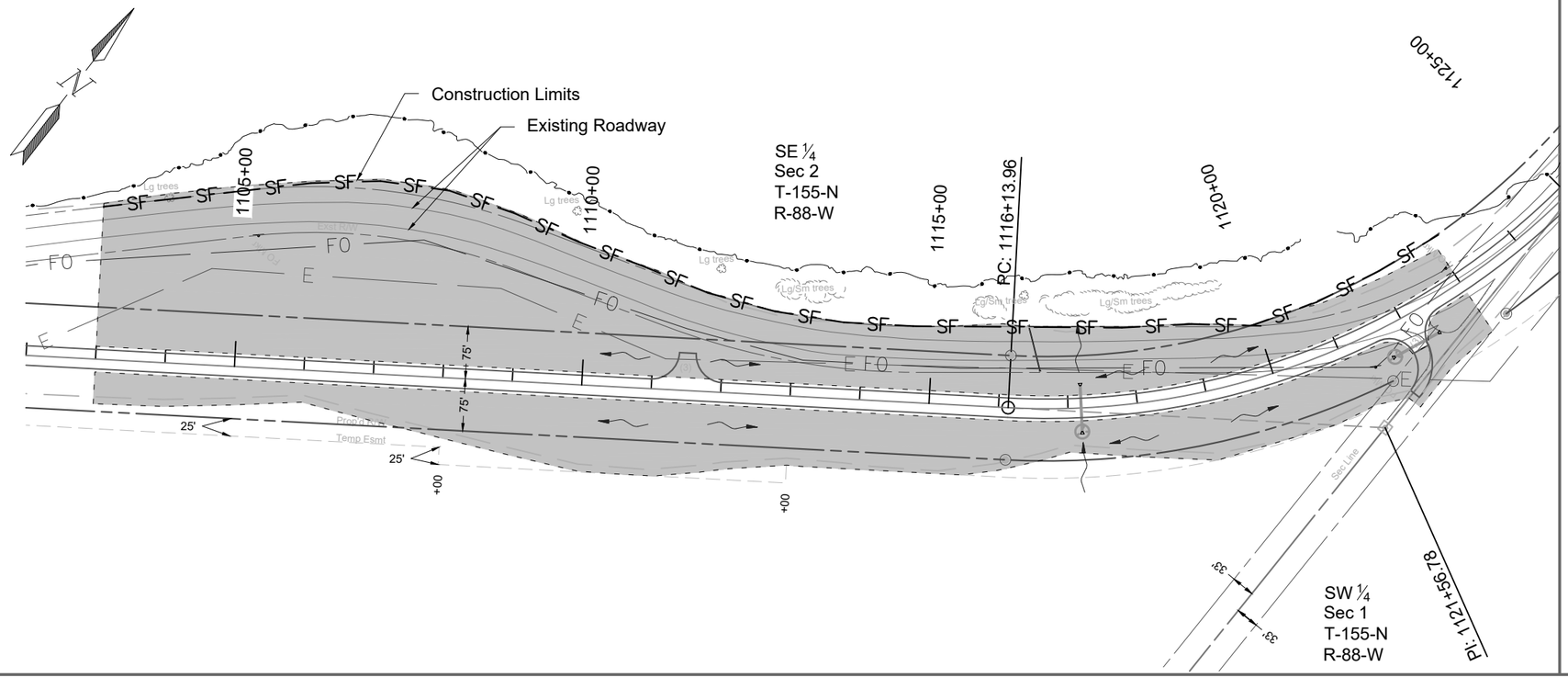
Temporary Erosion Control

Reconstruction
County Route 1

Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	76	9





251 2000 TEMPORARY COVER CROP

Sta. 1083+00 to Sta. 1123+00	17.16 Acre

253 0101 STRAW MULCH

Sta. 1083+00 to Sta. 1123+00	17.16 Acre

260 0200 SILT FENCE SUPPORTED &
260 0201 REMOVE SILT FENCE SUPPORTED

Sta. 1091+50 Lt	525 LF
Sta. 1102+00 Rt	300 LF
Sta. 1109+50 to Sta. 1123+00 Lt	2,300 LF

261 0112 FIBER ROLLS 12IN &
261 0113 REMOVE FIBER ROLLS 12IN

Sta. 1088+00 Rt	30 LF
Sta. 1117+19 Rt	30 LF
Sta. 1121+68 Rt	30 LF

262 0100 FLOTATION SILT CURTAIN &
262 0101 REMOVE FLOTATION SILT CURTAIN

Sta. 1086+00 Lt	600 LF

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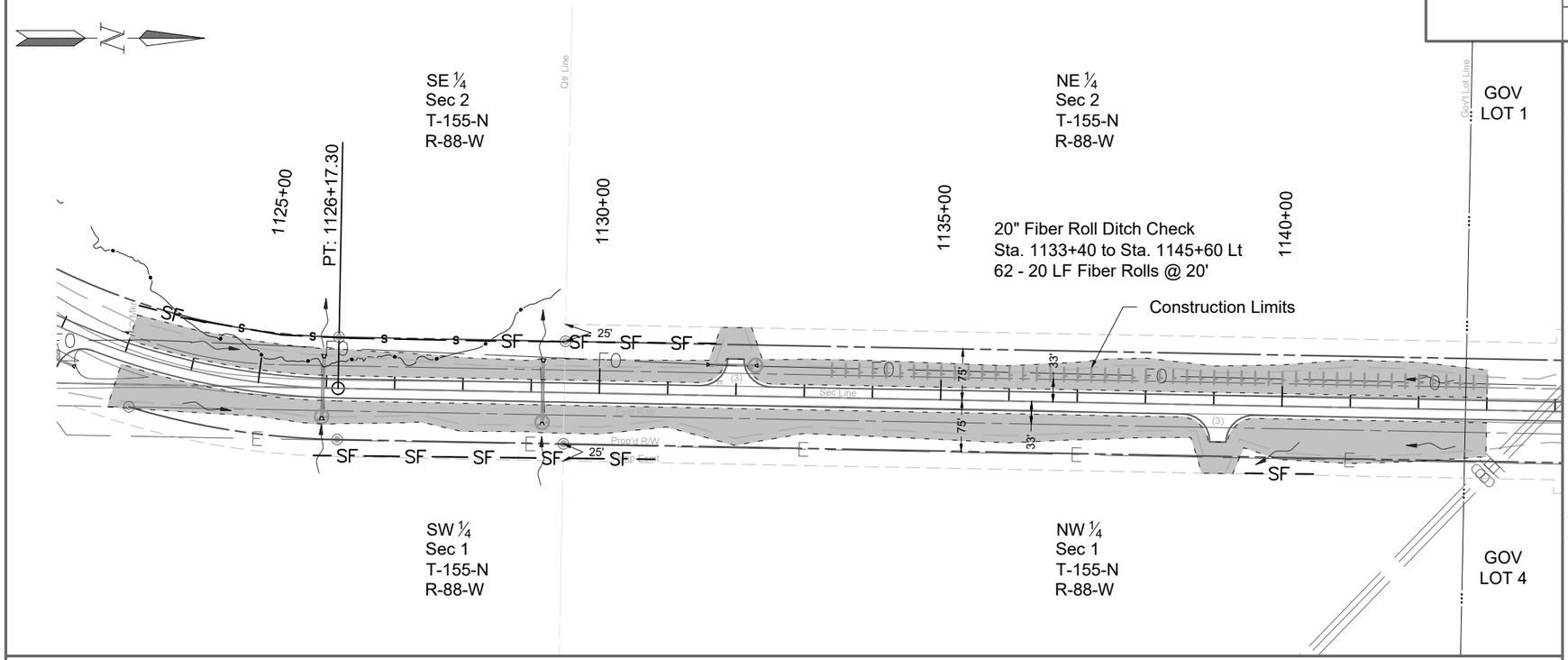
PE-2914
LS-6427
DATE 1/28/25
NORTH DAKOTA

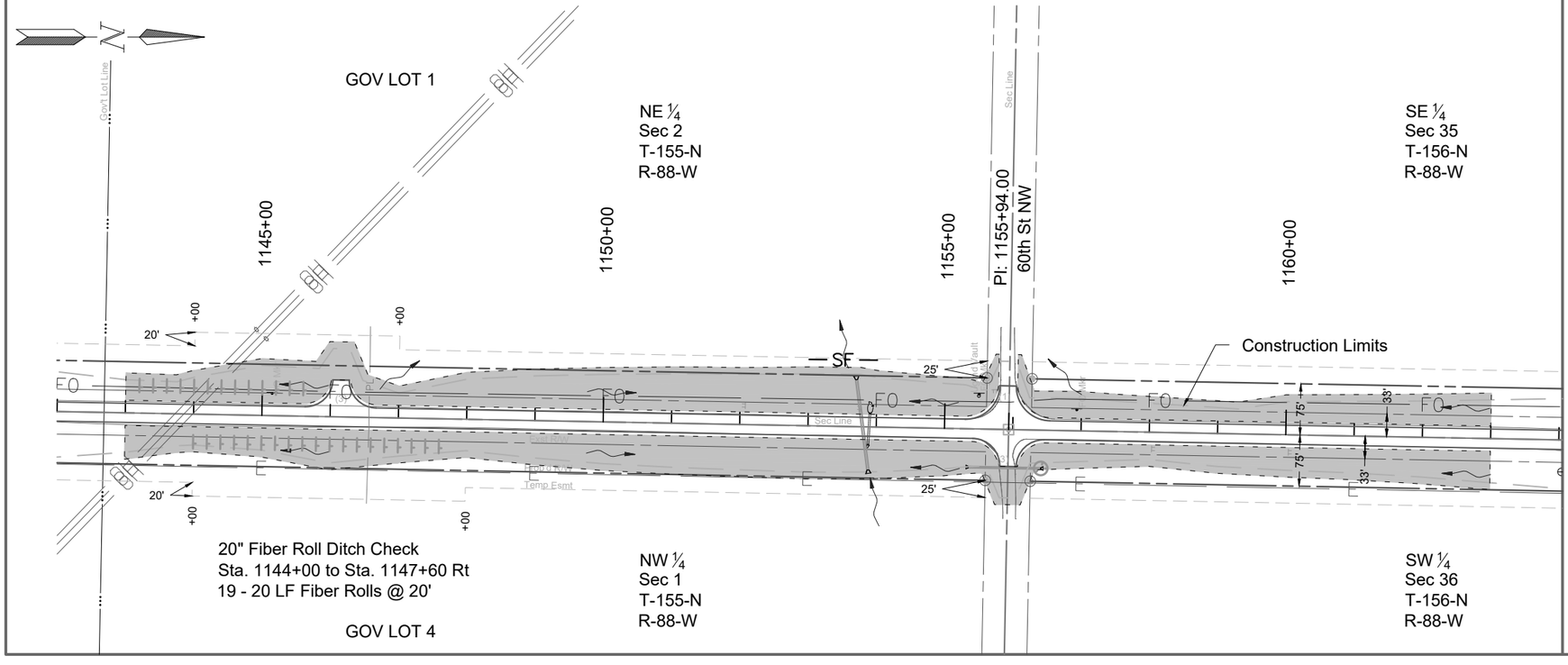
Temporary Erosion Control

Reconstruction
County Route 1

Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	76	10





251 2000 TEMPORARY COVER CROP

Sta. 1123+00 to Sta. 1163+00	8.19 Acre

253 0101 STRAW MULCH

Sta. 1123+00 to Sta. 1163+00	8.19 Acre

260 0200 SILT FENCE SUPPORTED &
260 0201 REMOVE SILT FENCE SUPPORTED

Sta. 1123+50 Lt	70 LF
Sta. 1128+00 Rt	520 LF
Sta. 1130+00 Lt	350 LF
Sta. 1140+00 Rt	100 LF
Sta. 1153+50 Lt	100 LF

261 0112 FIBER ROLLS 12IN &
261 0113 REMOVE FIBER ROLLS 12IN

Sta. 1125+95 Rt	30 LF
Sta. 1129+17 Rt	30 LF
Sta. 1132+28 Lt	30 LF
Sta. 1156+42 Rt	30 LF

261 0120 FIBER ROLLS 20IN &
261 0121 REMOVE FIBER ROLLS 20IN

Sta. 1133+40 to Sta. 1145+60 Lt	1,240 LF
Sta. 1144+00 to Sta. 1147+60 Rt	380 LF

262 0100 FLOTATION SILT CURTAIN &
262 0101 REMOVE FLOTATION SILT CURTAIN

Sta. 1126+00 Lt	450 LF

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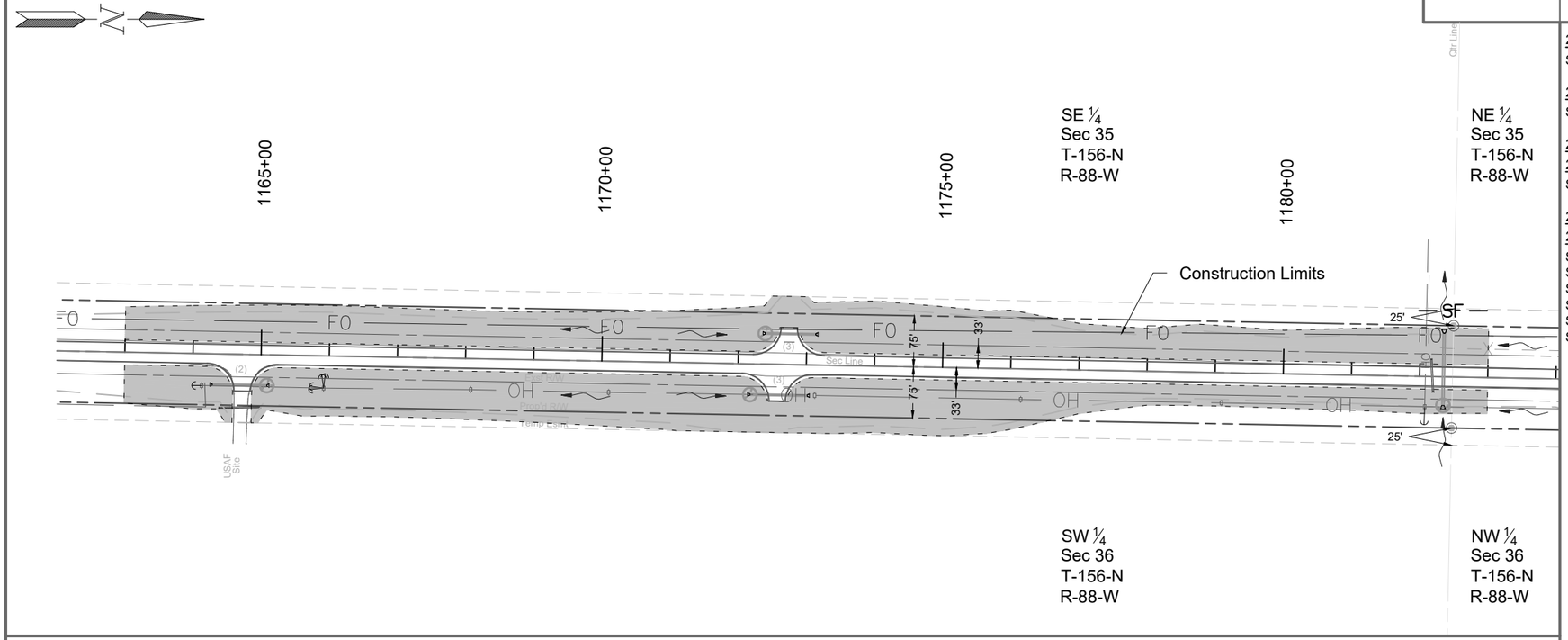
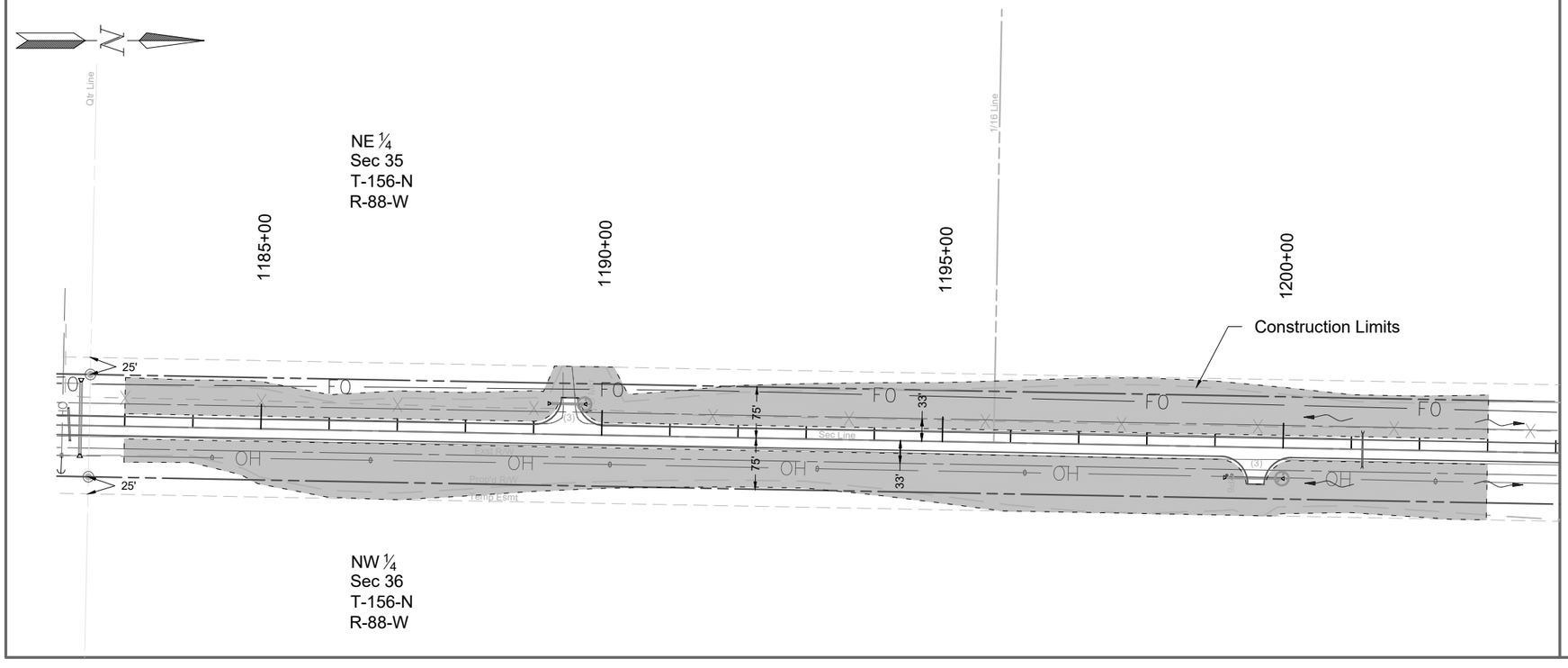
Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	76	11





251 2000 TEMPORARY COVER CROP

Sta. 1163+00 to Sta. 1203+00	11.10 Acre

253 0101 STRAW MULCH

Sta. 1163+00 to Sta. 1203+00	11.10 Acre

260 0200 SILT FENCE SUPPORTED &
260 0201 REMOVE SILT FENCE SUPPORTED

Sta. 1182+50 Lt	50 LF

261 0112 FIBER ROLLS 12IN &
261 0113 REMOVE FIBER ROLLS 12IN

Sta. 1165+09 Rt	30 LF
Sta. 1172+18 Rt	30 LF
Sta. 1172+39 Lt	30 LF
Sta. 1182+35 Rt	30 LF
Sta. 1189+74 Lt	30 LF
Sta. 1199+99 Rt	30 LF

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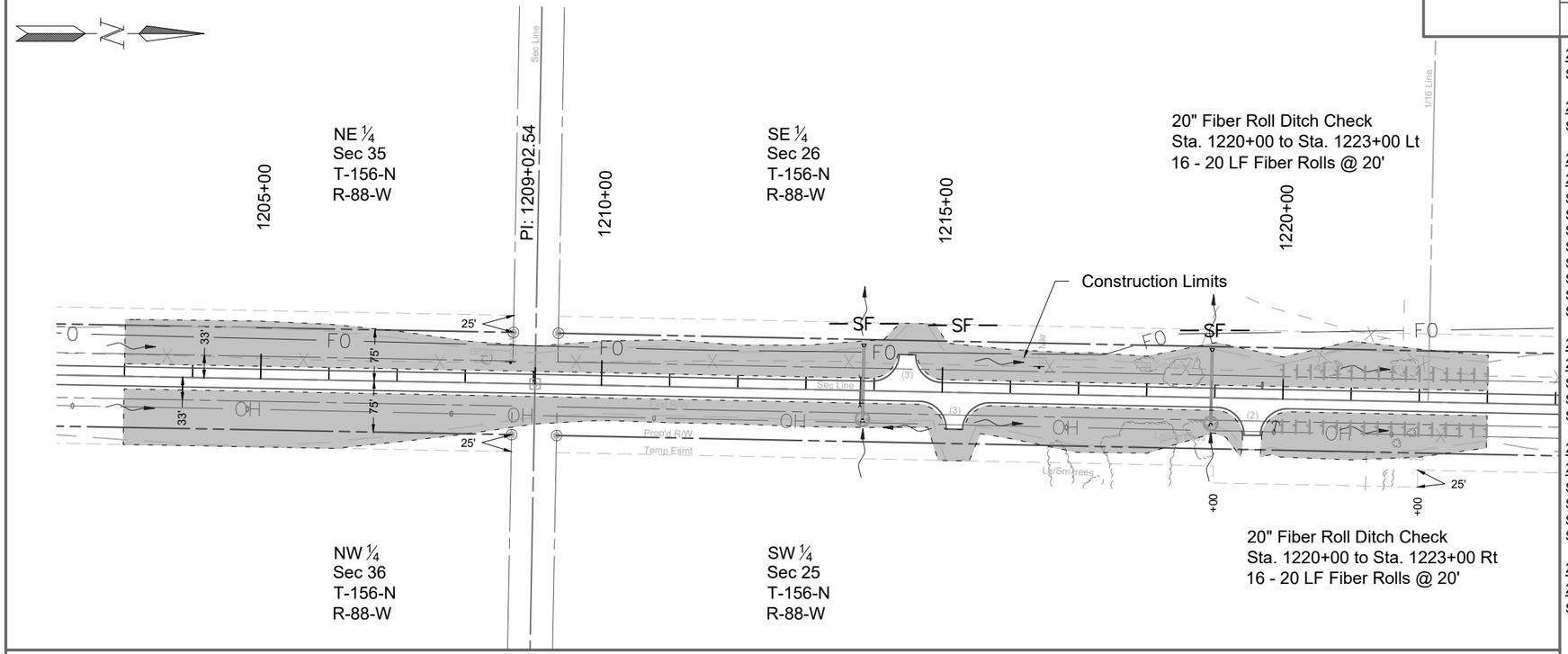
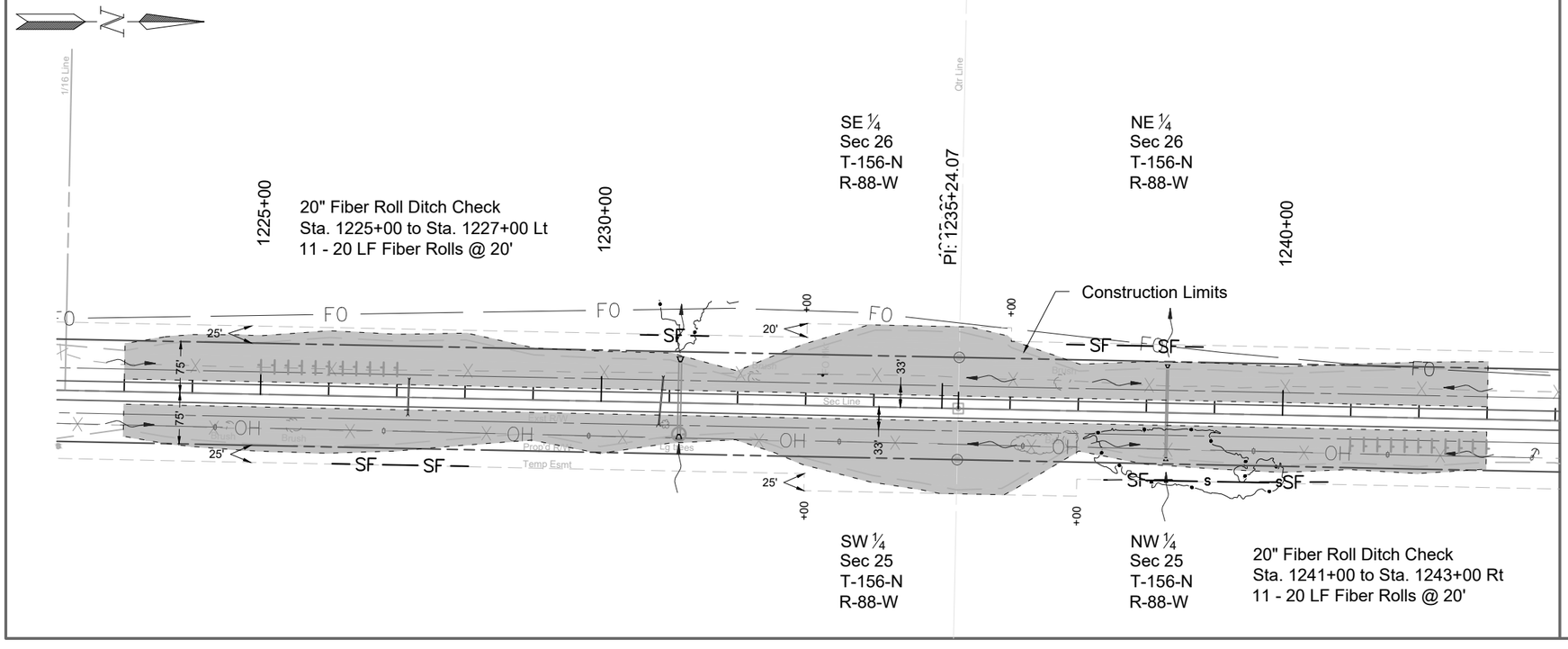
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	76	12





251 2000 TEMPORARY COVER CROP

Sta. 1203+00 to Sta. 1243+00	10.80 Acre

253 0101 STRAW MULCH

Sta. 1203+00 to Sta. 1243+00	10.80 Acre

260 0200 SILT FENCE SUPPORTED &
260 0201 REMOVE SILT FENCE SUPPORTED

Sta. 1213+80 Lt	60 LF
Sta. 1215+50 Lt	100 LF
Sta. 1219+00 Lt	80 LF
Sta. 1227+00 Rt	220 LF
Sta. 1231+00 Lt	100 LF
Sta. 1238+00 Lt	180 LF
Sta. 1238+00 Rt	30 LF
Sta. 1240+00 Rt	30 LF

261 0112 FIBER ROLLS 12IN &
261 0113 REMOVE FIBER ROLLS 12IN

Sta. 1213+84 Rt	30 LF
Sta. 1218+95 Rt	30 LF
Sta. 1231+15 Rt	30 LF

261 0120 FIBER ROLLS 20IN &
261 0121 REMOVE FIBER ROLLS 20IN

Sta. 1220+00 to Sta. 1223+00 Lt	320 LF
Sta. 1220+00 to Sta. 1223+00 Rt	320 LF
Sta. 1225+00 to Sta. 1227+00 Lt	220 LF
Sta. 1241+00 to Sta. 1243+00 Rt	220 LF

262 0100 FLOTATION SILT CURTAIN &
262 0101 REMOVE FLOTATION SILT CURTAIN

Sta. 1239+00 Rt	200 LF

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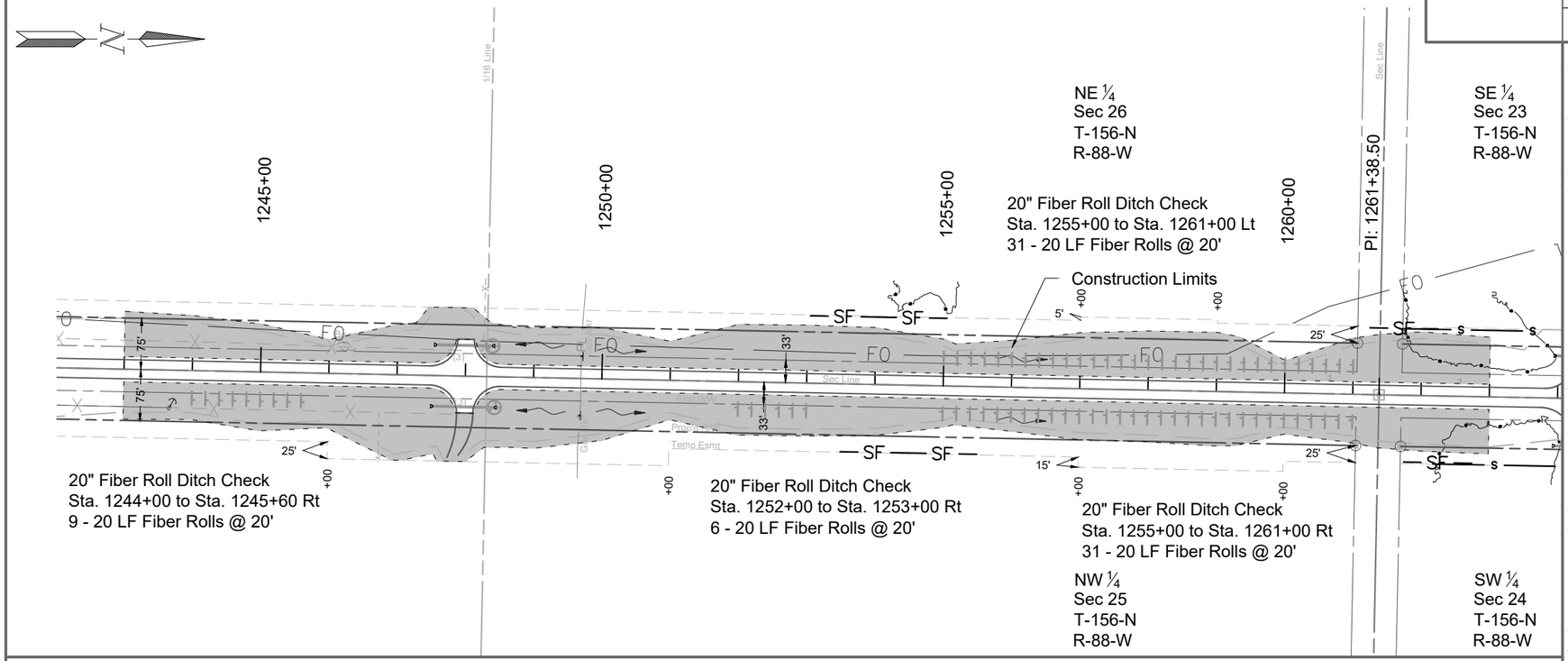

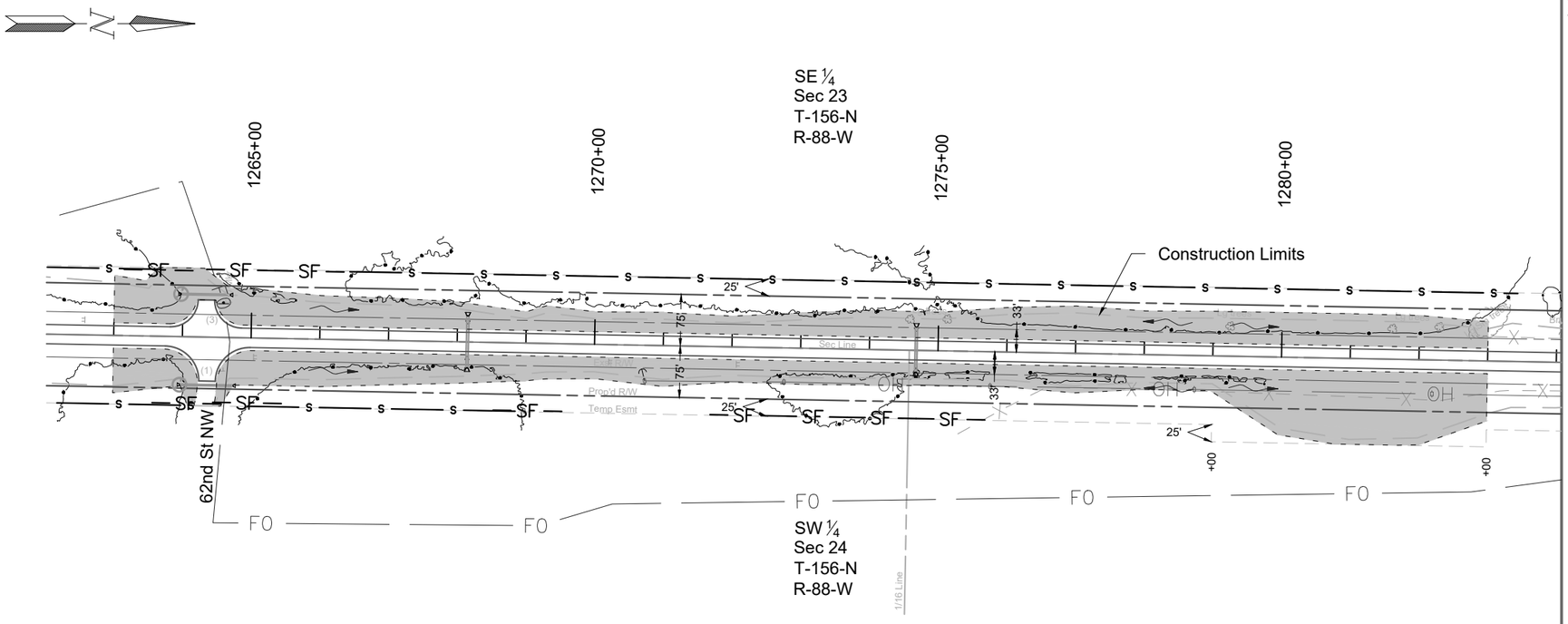

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251 2000 TEMPORARY COVER CROP

Sta. 1243+00 to Sta. 1283+00	9.63 Acre

253 0101 STRAW MULCH

Sta. 1243+00 to Sta. 1283+00	9.63 Acre

260 0200 SILT FENCE SUPPORTED &
260 0201 REMOVE SILT FENCE SUPPORTED

Sta. 1254+00 Lt	270 LF
Sta. 1254+50 Rt	200 LF
Sta. 1261+50 Lt	30 LF
Sta. 1262+00 Rt	30 LF
Sta. 1263+50 Lt	30 LF
Sta. 1264+00 Rt	30 LF
Sta. 1265+00 Rt	50 LF
Sta. 1265+50 Lt	240 LF
Sta. 1269+00 Rt	30 LF
Sta. 1273+50 Rt	400 LF

261 0112 FIBER ROLLS 12IN &
261 0113 REMOVE FIBER ROLLS 12IN

Sta. 1248+39 Lt	30 LF
Sta. 1248+43 Rt	30 LF
Sta. 1263+97 Lt	30 LF
Sta. 1263+97 Rt	30 LF

261 0120 FIBER ROLLS 20IN &
261 0121 REMOVE FIBER ROLLS 20IN

Sta. 1244+00 to Sta. 1245+60 Rt	180 LF
Sta. 1252+00 to Sta. 1253+00 Rt	120 LF
Sta. 1255+00 to Sta. 1261+00 Lt	620 LF
Sta. 1255+00 to Sta. 1261+00 Rt	620 LF

262 0100 FLOTATION SILT CURTAIN &
262 0101 REMOVE FLOTATION SILT CURTAIN

Sta. 1262+50 Lt	200 LF
Sta. 1263+00 Rt	200 LF
Sta. 1267+00 Rt	400 LF
Sta. 1266+00 to Sta. 1283+00 Lt	1,700 LF

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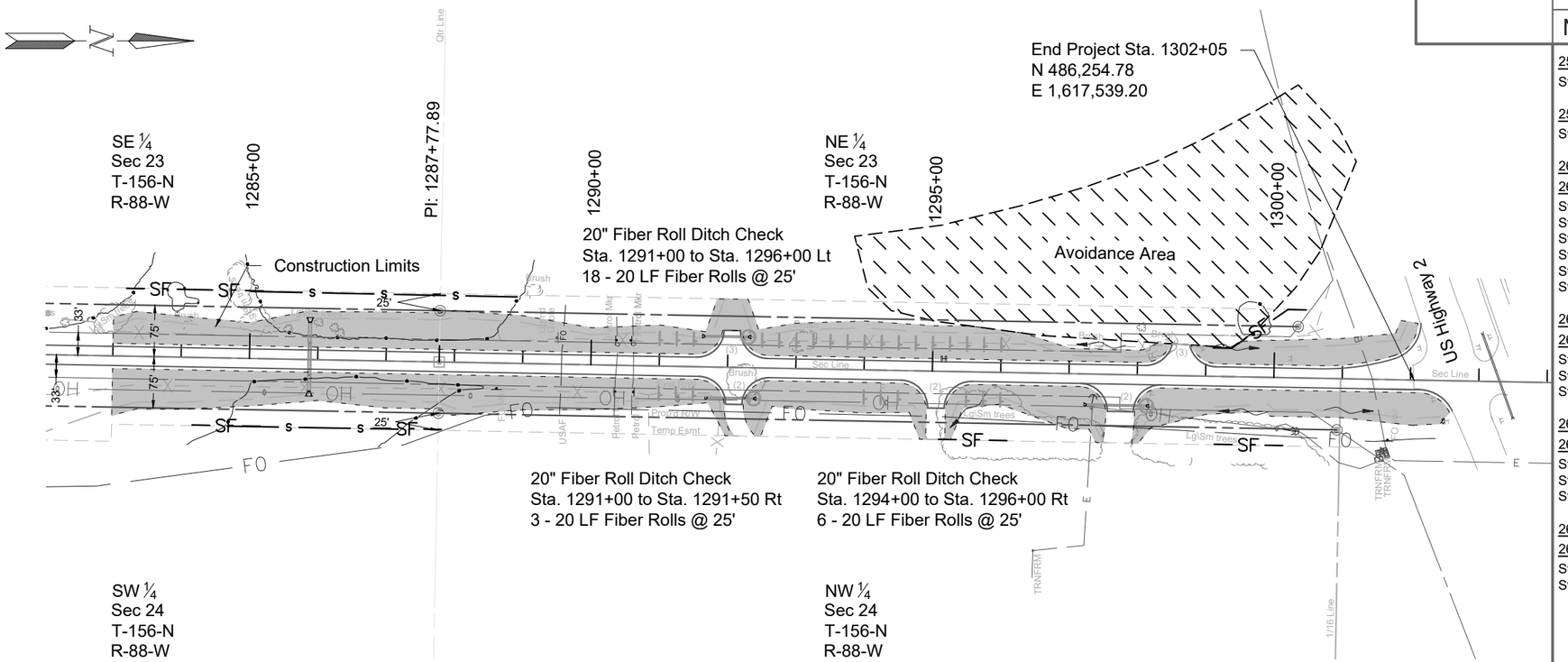
ND	01(62)23	76	14



251 2000 TEMPORARY COVER CROP

Sta. 1283+00 to Sta. 1303+00	3.77 Acre

253 0101 STRAW MULCH

Sta. 1283+00 to Sta. 1303+00	3.77 Acre

260 0200 SILT FENCE SUPPORTED &
260 0201 REMOVE SILT FENCE SUPPORTED

Sta. 1284+00 Lt	190 LF
Sta. 1285+00 Rt	30 LF
Sta. 1287+50 Rt	30 LF
Sta. 1295+50 Rt	50 LF
Sta. 1299+50 Lt	130 LF
Sta. 1299+50 Rt	120 LF

261 0112 FIBER ROLLS 12IN &
261 0113 REMOVE FIBER ROLLS 12IN

Sta. 1292+30 Lt	30 LF
Sta. 1292+39 Rt	30 LF
Sta. 1298+14 Rt	30 LF

261 0120 FIBER ROLLS 20IN &
261 0121 REMOVE FIBER ROLLS 20IN

Sta. 1291+00 to Sta. 1296+00 Lt	360 LF
Sta. 1291+00 to Sta. 1291+50 Rt	60 LF
Sta. 1294+00 to Sta. 1296+00 Rt	120 LF

262 0100 FLOTATION SILT CURTAIN &
262 0101 REMOVE FLOTATION SILT CURTAIN

Sta. 1286+00 Rt	250 LF
Sta. 1287+00 Lt	400 LF

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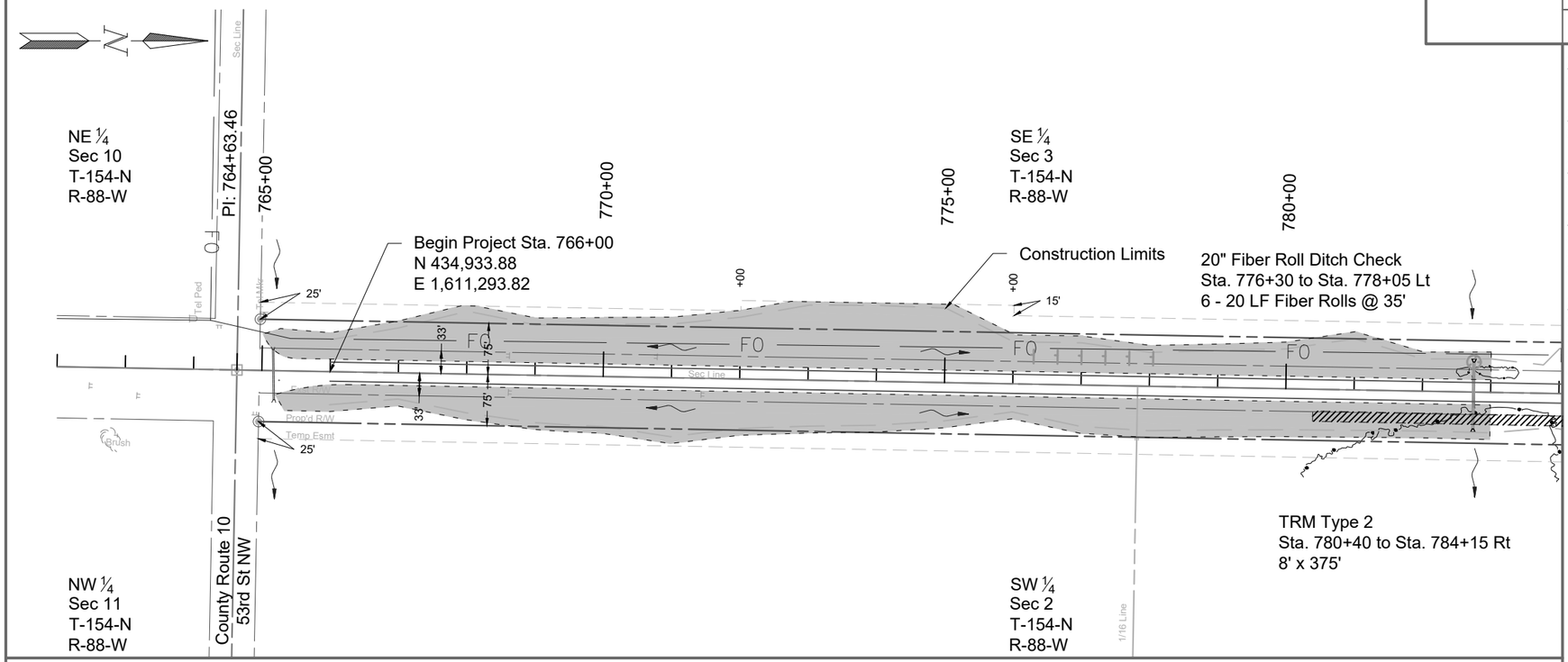
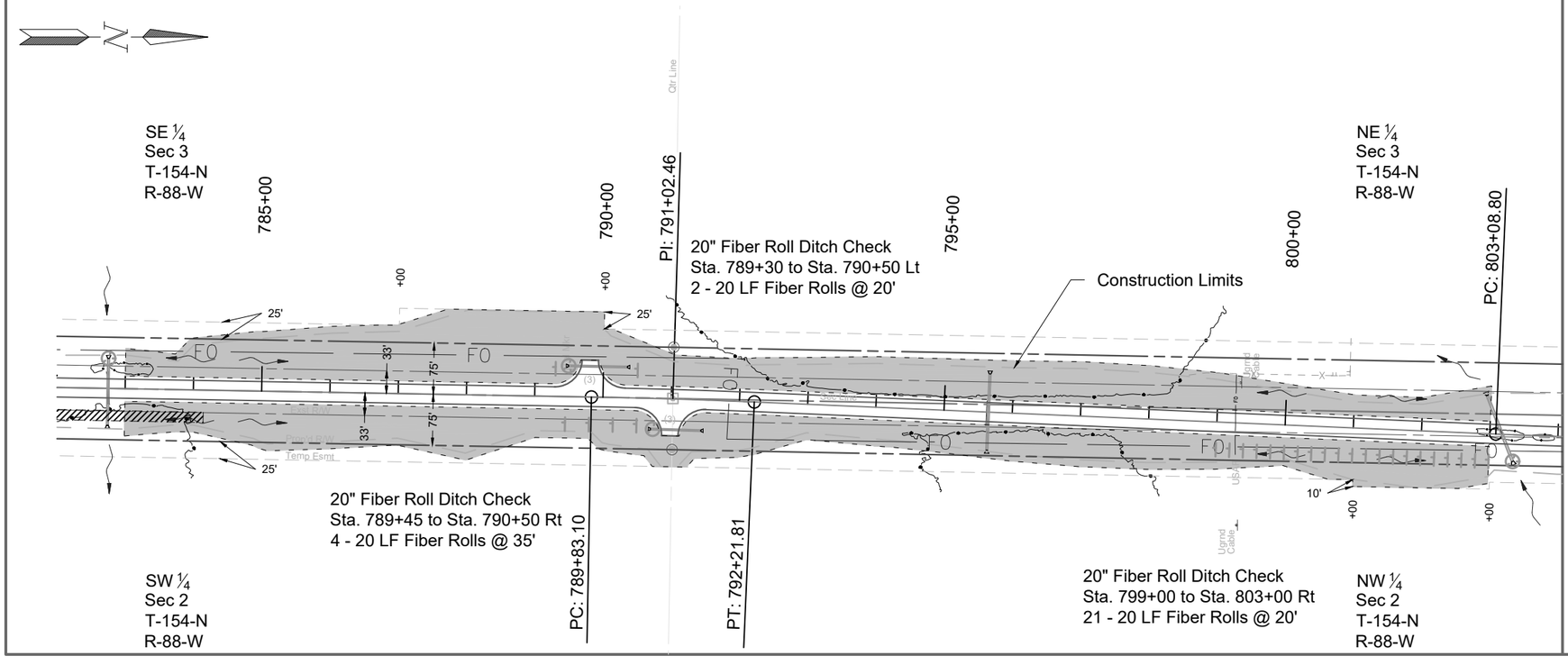
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	77	1





251 0300 SEEDING CLASS III

Sta. 765+00 to Sta. 803+00	10.34 Acre

253 0101 STRAW MULCH

Sta. 765+00 to Sta. 803+00	10.34 Acre

255 0202 TRM TYPE 2

Sta. 780+40 to Sta. 784+15 Rt	333 SY

261 0112 FIBER ROLLS 12IN

Sta. 782+75 Lt	30 LF
Sta. 789+49 Lt	30 LF
Sta. 790+71 Rt	30 LF

261 0120 FIBER ROLLS 20IN

Sta. 776+30 to Sta. 778+05 Lt	120 LF
Sta. 789+30 to Sta. 790+50 Lt	40 LF
Sta. 789+45 to Sta. 790+50 Rt	80 LF
Sta. 799+00 to Sta. 803+00 Rt	420 LF

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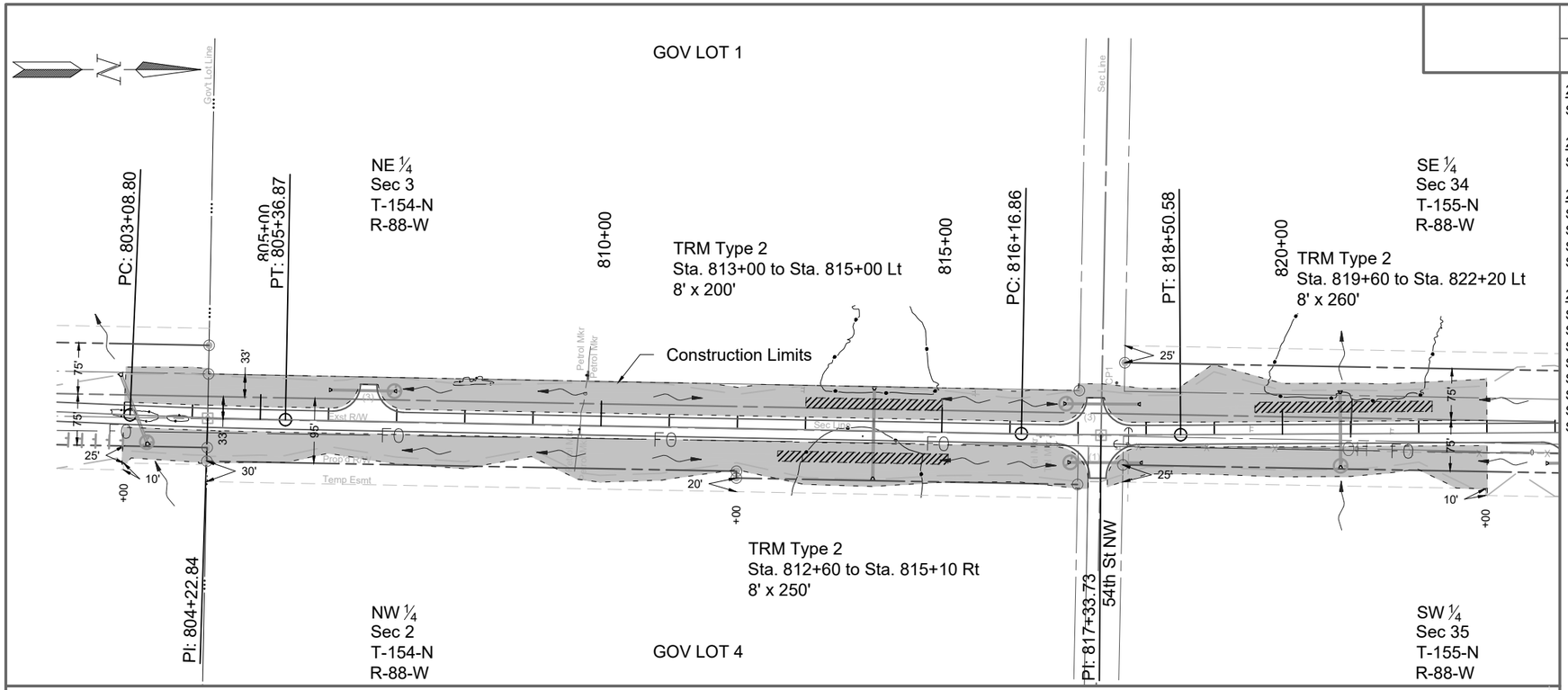
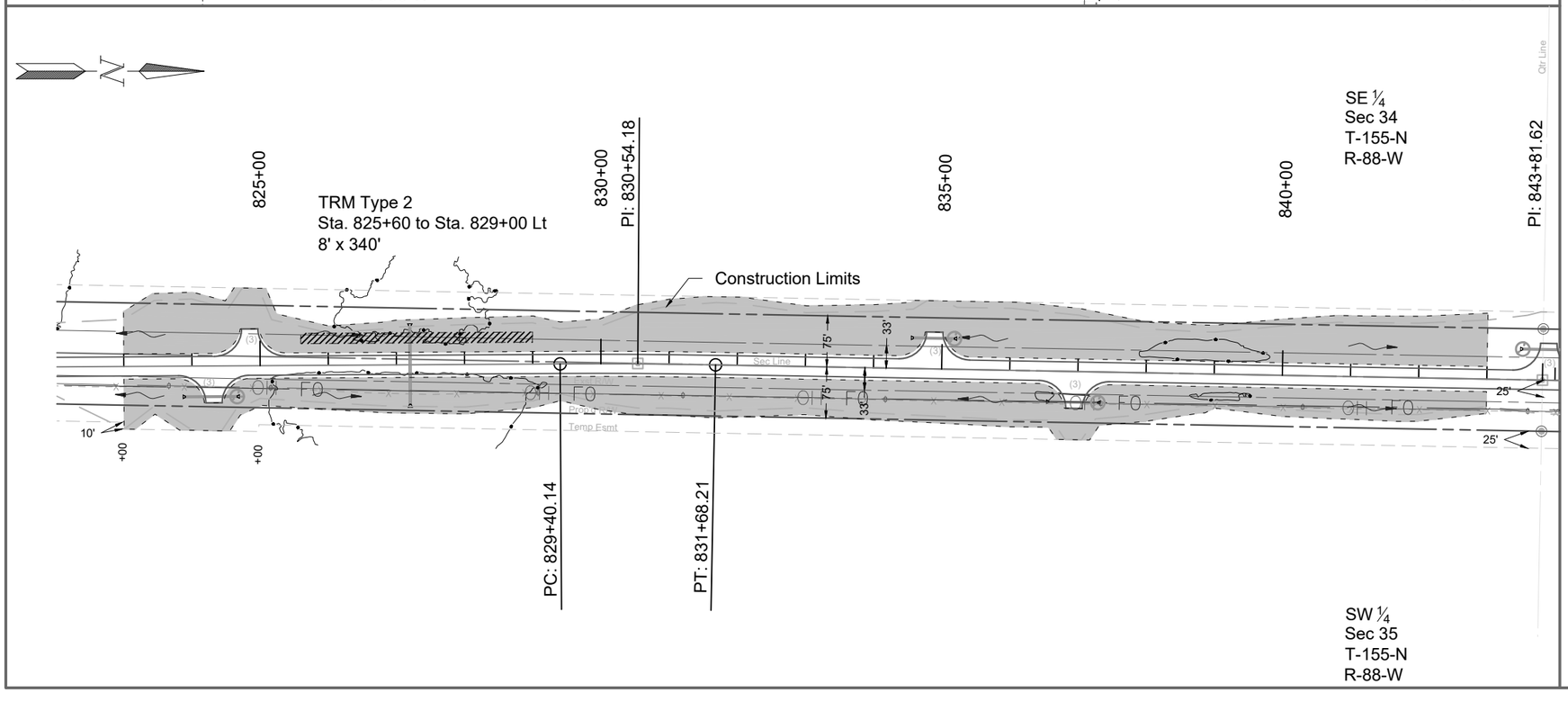
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	77	2





251 0300 SEEDING CLASS III

Sta. 803+00 to Sta. 843+00	9.75 Acre

253 0101 STRAW MULCH

Sta. 803+00 to Sta. 843+00	9.75 Acre

255 0202 TRM TYPE 2

Sta. 812+60 to Sta. 815+10 Rt	222 SY
Sta. 813+00 to Sta. 815+00 Lt	178 SY
Sta. 819+60 to Sta. 822+20 Lt	231 SY
Sta. 825+60 to Sta. 829+00 Lt	302 SY

261 0112 FIBER ROLLS 12IN

Sta. 803+40 Rt	30 LF
Sta. 806+96 Lt	30 LF
Sta. 816+82 Lt	30 LF
Sta. 816+89 Rt	30 LF
Sta. 820+85 Rt	30 LF
Sta. 824+66 Rt	30 LF
Sta. 835+18 Lt	30 LF
Sta. 837+30 Rt	30 LF

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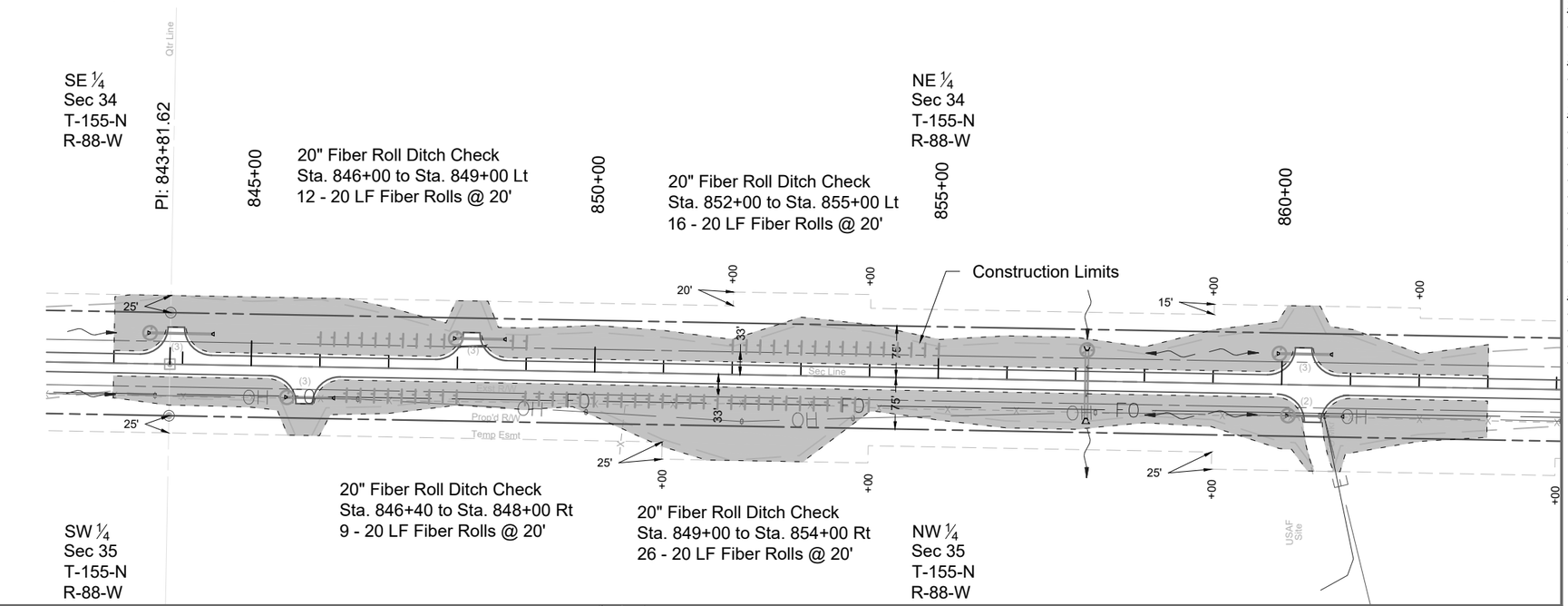
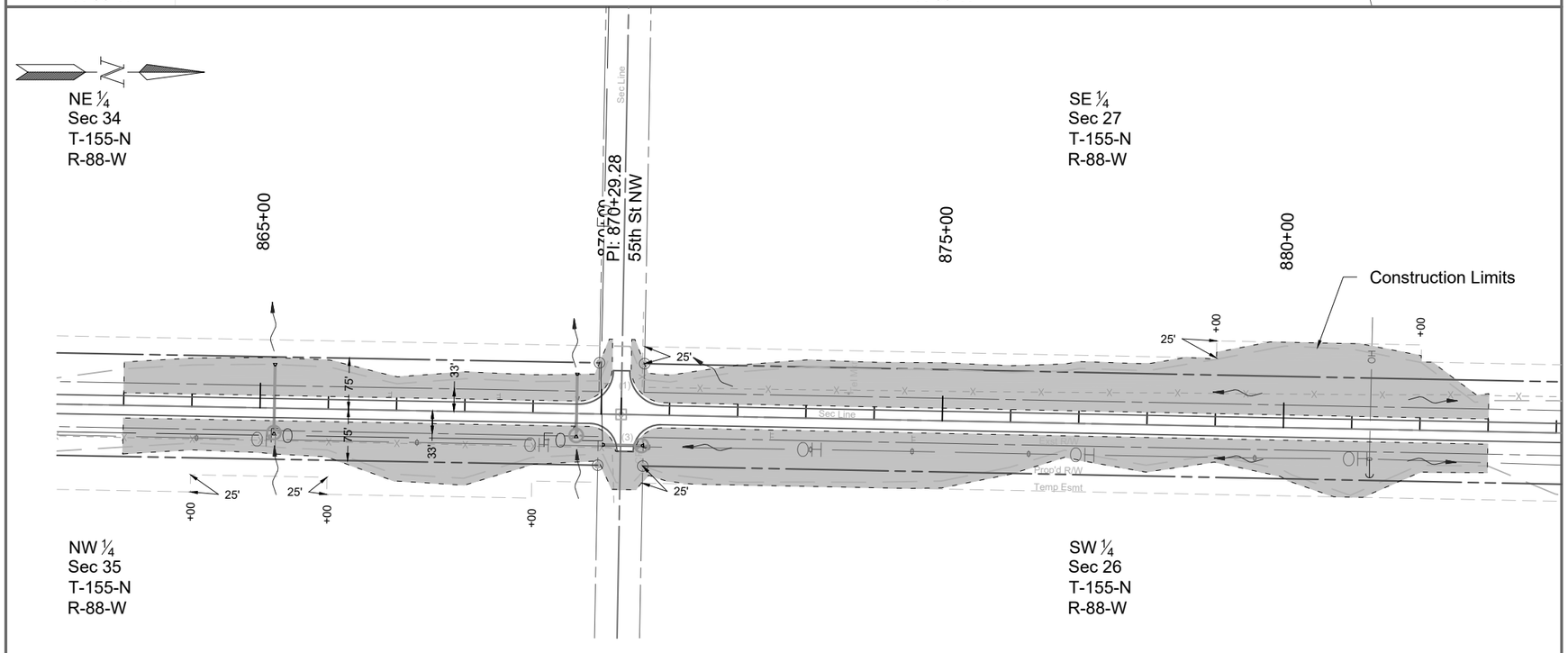
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	77	3





251 0300 SEEDING CLASS III

Sta. 843+00 to Sta. 883+00	10.72 Acre

253 0101 STRAW MULCH

Sta. 843+00 to Sta. 883+00	10.72 Acre

261 0112 FIBER ROLLS 12IN

Sta. 843+52 Lt	30 LF
Sta. 845+53 Rt	30 LF
Sta. 847+97 Lt	30 LF
Sta. 857+16 Lt	30 LF
Sta. 859+96 Lt	30 LF
Sta. 860+10 Rt	30 LF
Sta. 865+21 Rt	30 LF
Sta. 869+64 Rt	30 LF
Sta. 870+60 Rt	30 LF

261 0120 FIBER ROLLS 20IN

Sta. 846+00 to Sta. 849+00 Lt	240 LF
Sta. 846+40 to Sta. 848+00 Rt	180 LF
Sta. 849+00 to Sta. 854+00 Rt	520 LF
Sta. 852+00 to Sta. 855+00 Lt	320 LF

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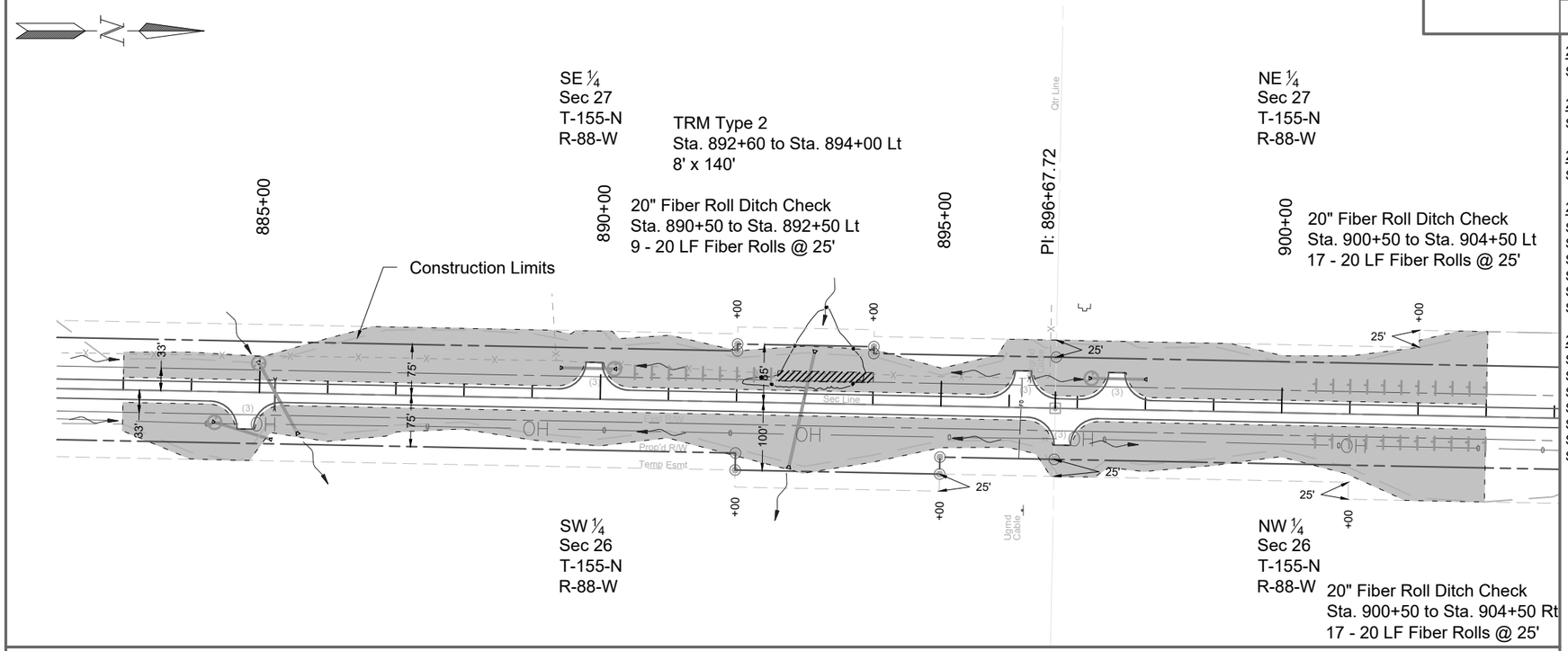
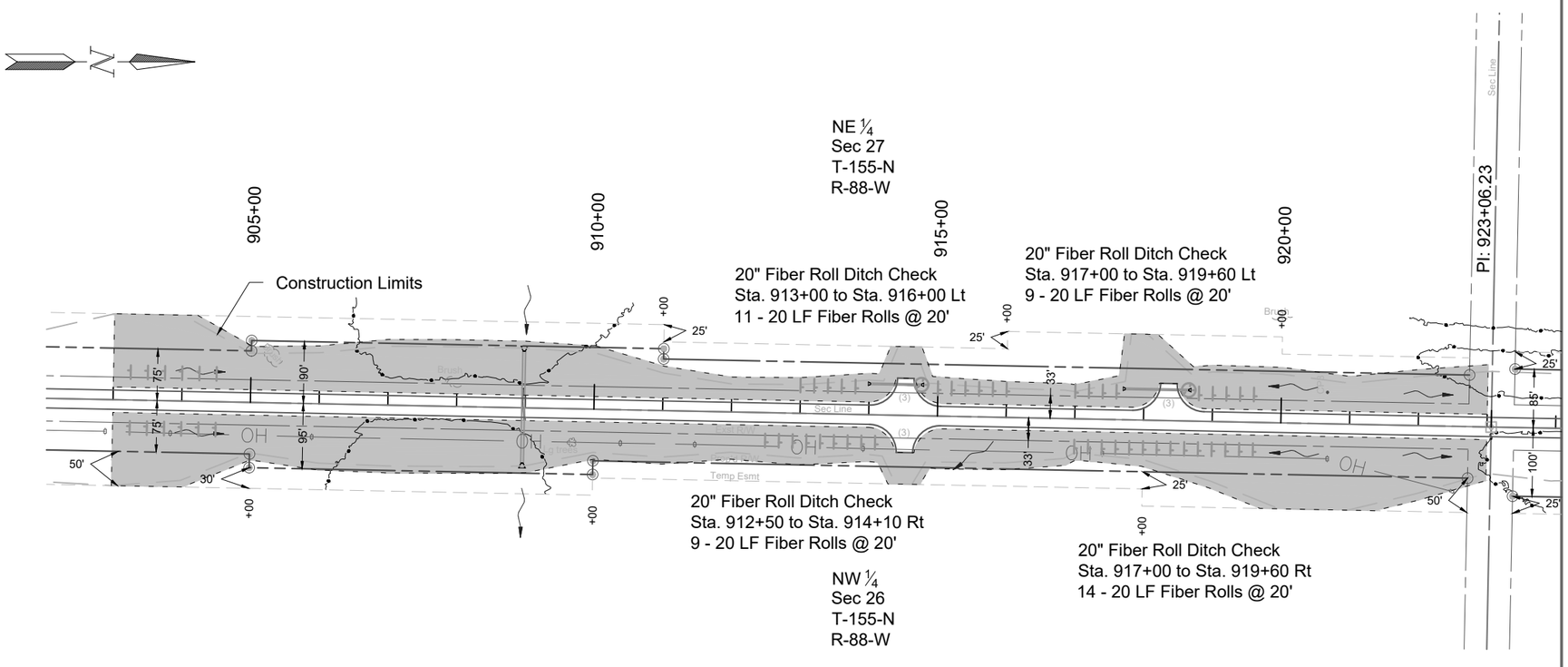
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	77	4





251 0300 SEEDING CLASS III

Sta. 883+00 to Sta. 923+00	11.81 Acre

253 0101 STRAW MULCH

Sta. 883+00 to Sta. 923+00	11.81 Acre

255 0202 TRM TYPE 2

Sta. 892+60 to Sta. 894+00 Lt	124 SY

261 0112 FIBER ROLLS 12IN

Sta. 884+46 Rt	30 LF
Sta. 884+99 Lt	30 LF
Sta. 890+20 Lt	30 LF
Sta. 897+20 Lt	30 LF
Sta. 914+76 Lt	30 LF
Sta. 918+65 Lt	30 LF

261 0120 FIBER ROLLS 20IN

Sta. 890+50 to Sta. 892+50 Lt	180 LF
Sta. 900+50 to Sta. 904+50 Lt	340 LF
Sta. 900+50 to Sta. 904+50 Rt	340 LF
Sta. 912+50 to Sta. 914+10 Rt	180 LF
Sta. 913+00 to Sta. 916+00 Lt	220 LF
Sta. 917+00 to Sta. 919+60 Lt	180 LF
Sta. 917+00 to Sta. 919+60 Rt	280 LF

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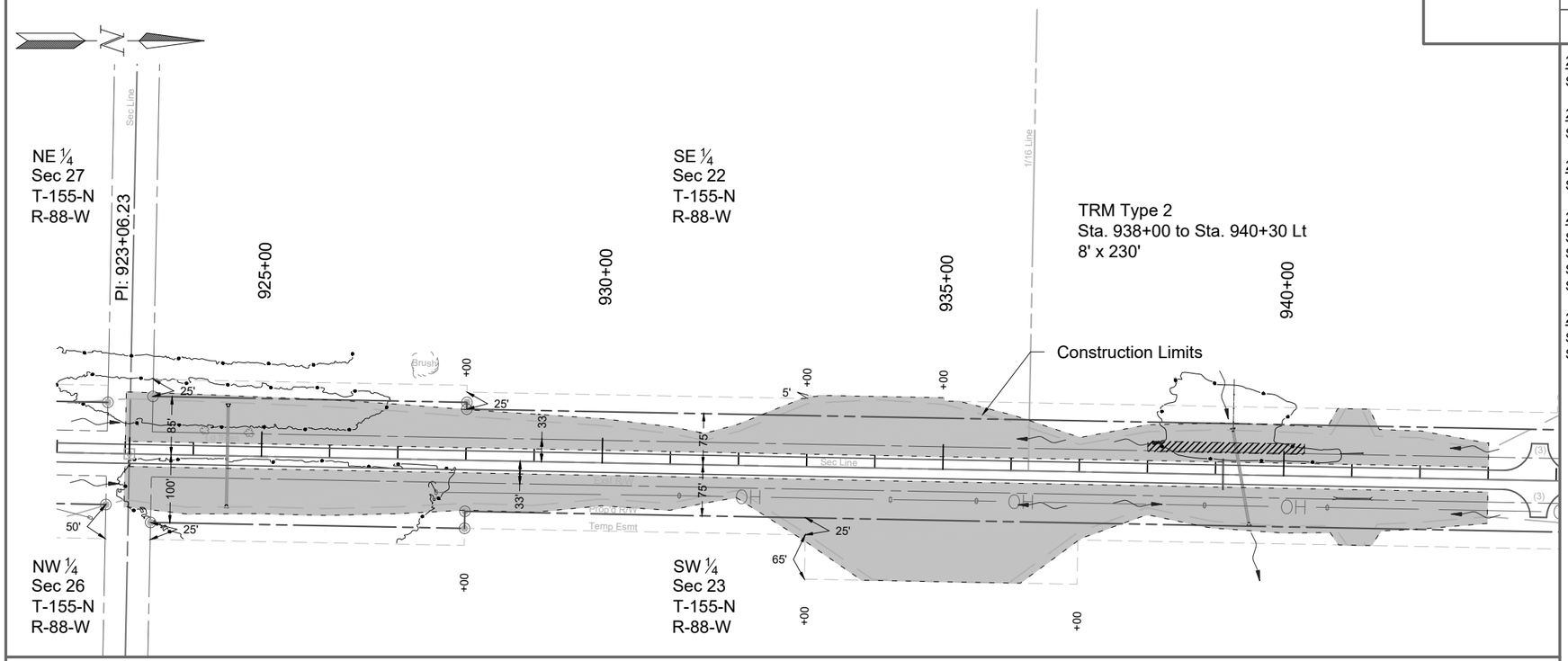
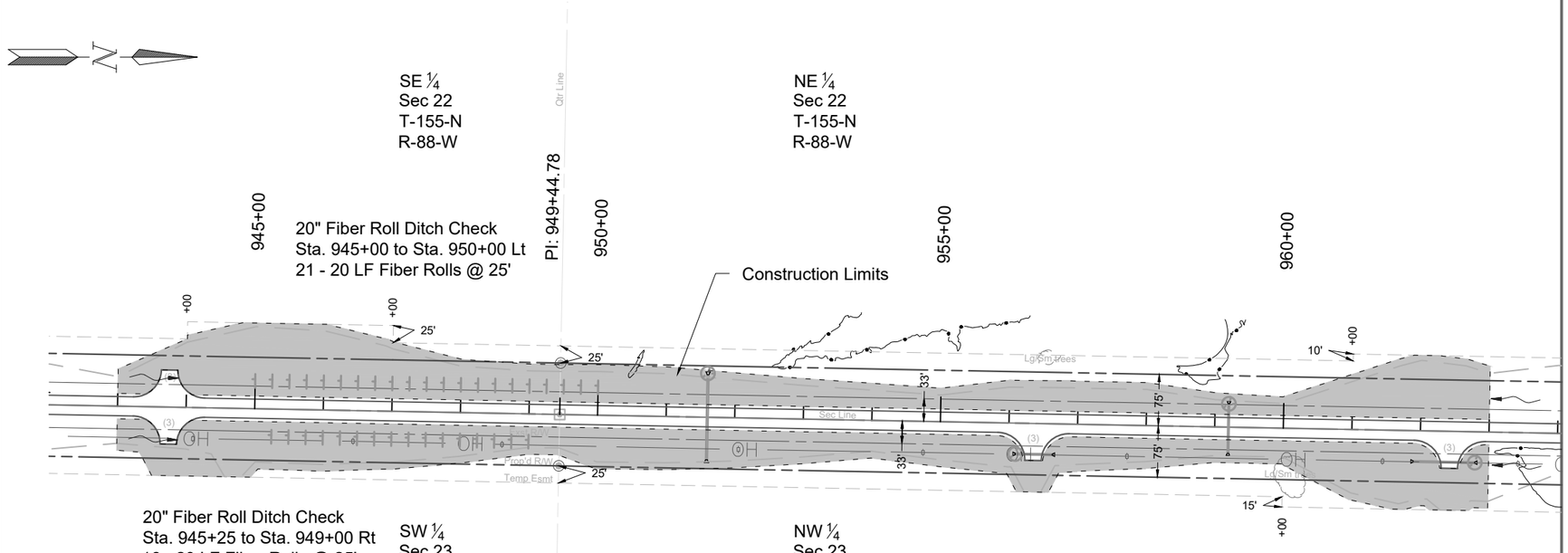
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	77	5





251 0300 SEEDING CLASS III
Sta. 923+00 to Sta. 963+00 — 11.23 Acre

253 0101 STRAW MULCH
Sta. 923+00 to Sta. 963+00 — 11.23 Acre

255 0202 TRM TYPE 2
Sta. 938+00 to Sta. 940+30 Lt — 204 SY

261 0112 FIBER ROLLS 12IN
Sta. 951+60 Lt — 30 LF
Sta. 956+10 Rt — 30 LF
Sta. 959+20 Lt — 30 LF
Sta. 962+80 Rt — 30 LF

261 0120 FIBER ROLLS 20IN
Sta. 945+00 to Sta. 950+00 Lt — 420 LF
Sta. 945+25 to Sta. 949+00 Rt — 320 LF

SAUBER ENGINEERING

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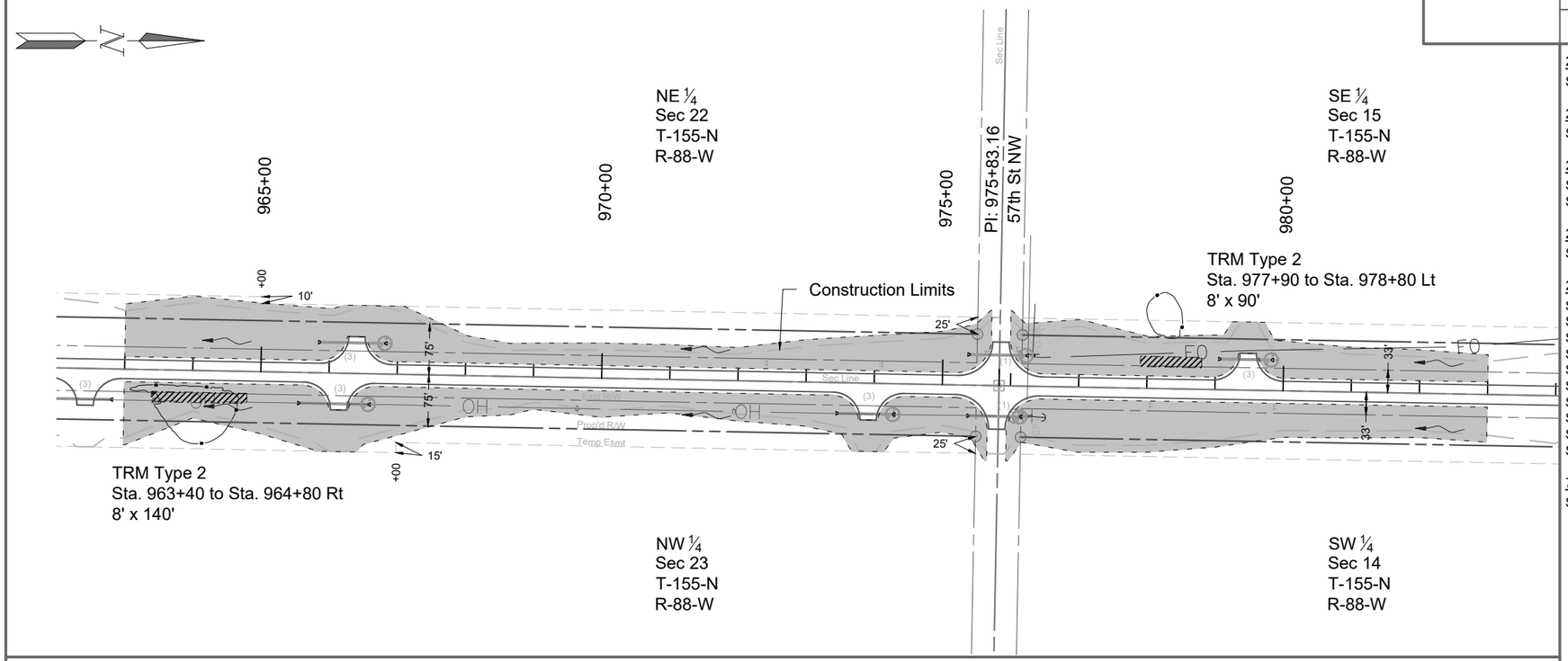
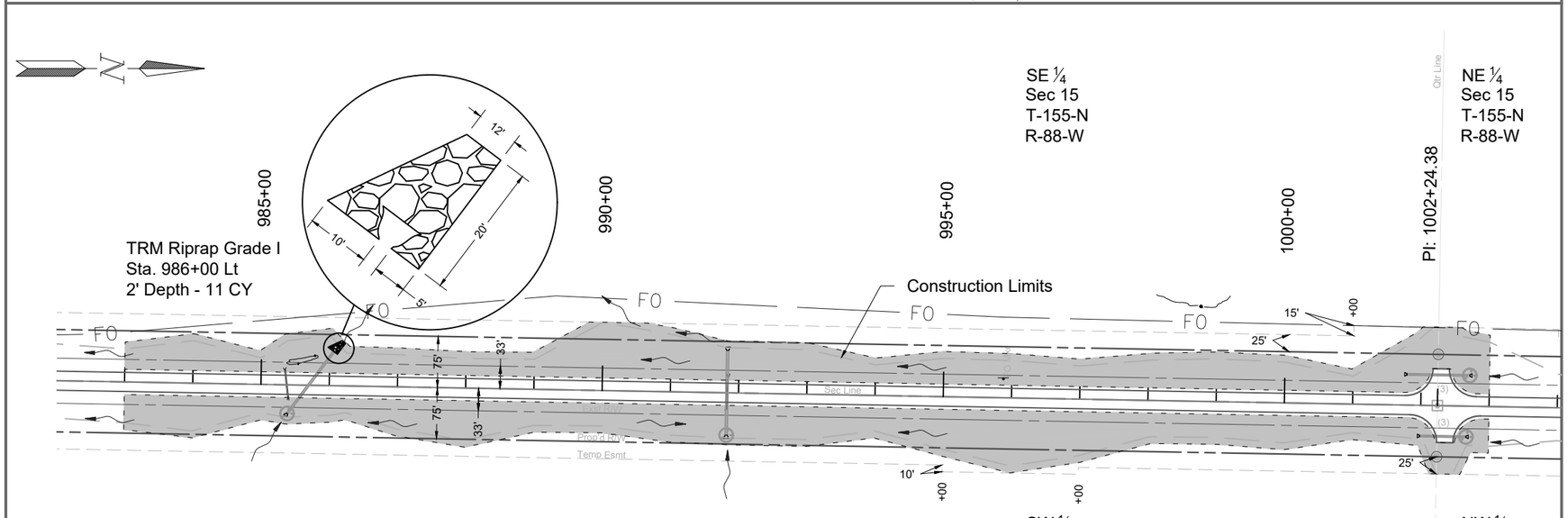
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	77	6





251 0300 SEEDING CLASS III

Sta. 963+00 to Sta. 1003+00	9.84 Acre

253 0101 STRAW MULCH

Sta. 963+00 to Sta. 1003+00	9.84 Acre

255 0202 TRM TYPE 2

Sta. 963+40 to Sta. 964+80 Rt	124 SY
Sta. 977+90 to Sta. 978+80 Lt	80 SY

256 0100 RIPRAP GRADE I

Sta. 986+00 Lt	11 CY

261 0112 FIBER ROLLS 12IN

Sta. 966+58 Rt	30 LF
Sta. 966+81 Lt	30 LF
Sta. 974+28 Rt	30 LF
Sta. 976+14 Rt	30 LF
Sta. 976+22 Lt	30 LF
Sta. 979+82 Lt	30 LF
Sta. 985+39 Rt	30 LF
Sta. 991+83 Rt	30 LF
Sta. 1002+67 Rt	30 LF
Sta. 1002+71 Lt	30 LF

709 0155 Geosynthetic Material Type RR

Sta. 986+00 Lt	16 SY

SAUBER ENGINEERING

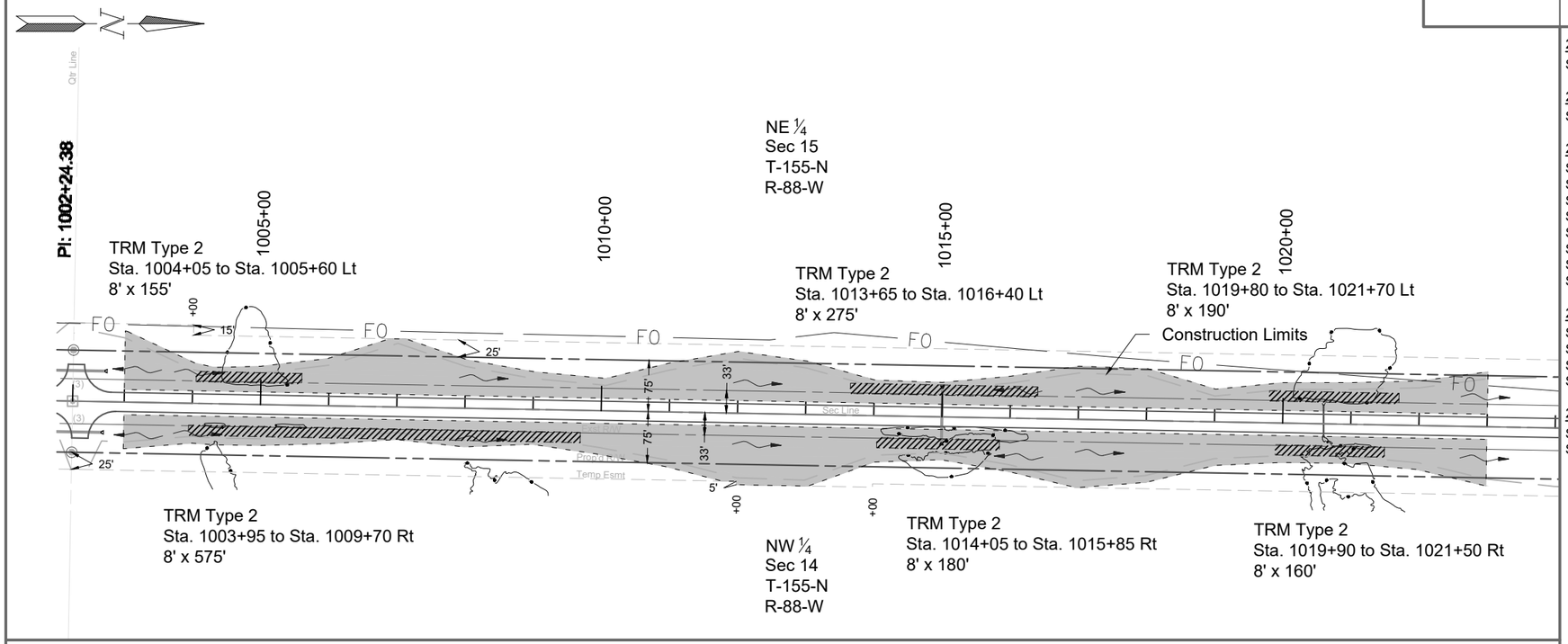
REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-3914
LS-8427
DATE 1/28/25
NORTH DAKOTA

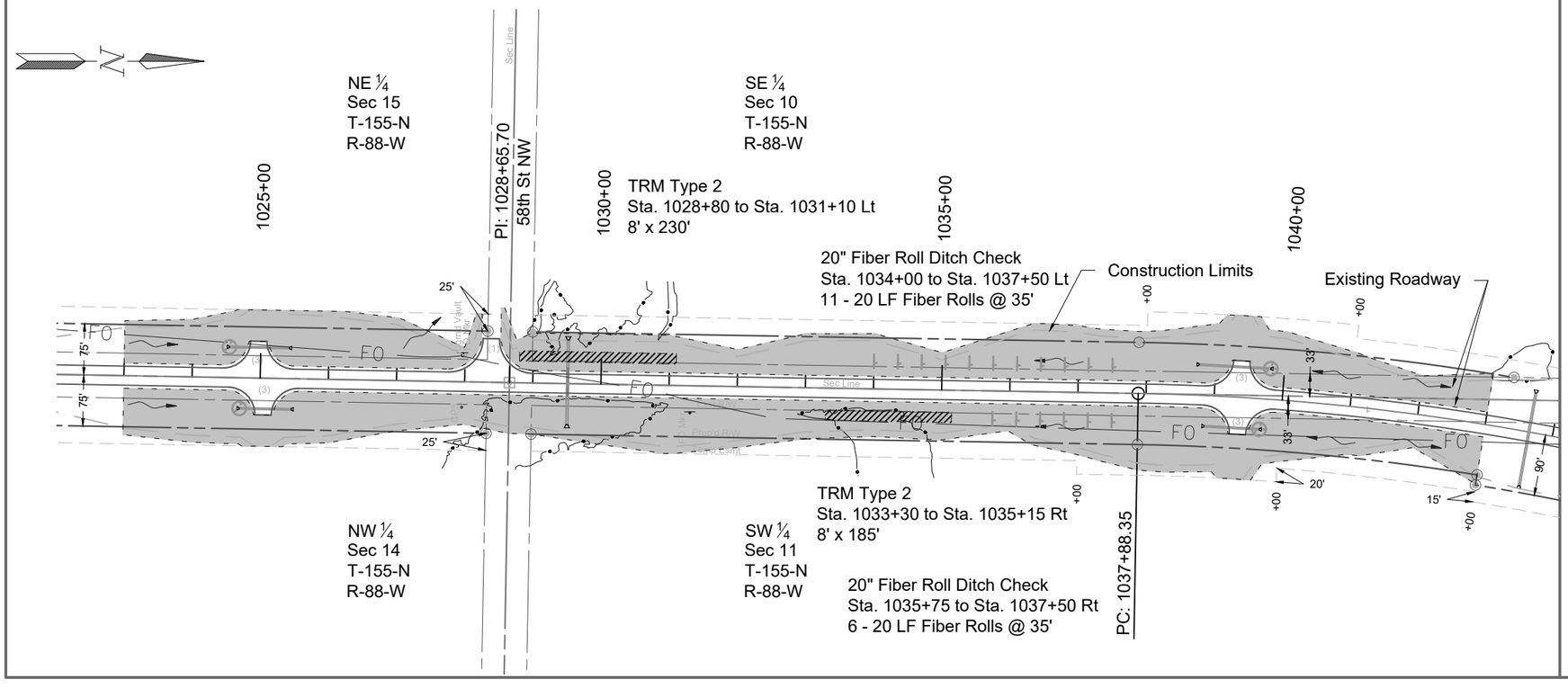
Permanent Erosion Control

Reconstruction
County Route 1

Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	77	7





251 0300 SEEDING CLASS III

Sta. 1003+00 to Sta. 1043+00	10.38 Acre

253 0101 STRAW MULCH

Sta. 1003+00 to Sta. 1043+00	10.38 Acre

255 0202 TRM TYPE 2

Sta. 1003+95 to Sta. 1009+70 Rt	511 SY
Sta. 1004+05 to Sta. 1005+60 Lt	138 SY
Sta. 1013+65 to Sta. 1016+40 Lt	244 SY
Sta. 1014+05 to Sta. 1015+85 Rt	160 SY
Sta. 1019+80 to Sta. 1021+70 Lt	169 SY
Sta. 1019+90 to Sta. 1021+50 Rt	142 SY
Sta. 1028+80 to Sta. 1031+10 Lt	204 SY
Sta. 1033+30 to Sta. 1035+15 Rt	164 SY

261 0112 FIBER ROLLS 12IN

Sta. 1024+54 Lt	30 LF
Sta. 1024+70 Rt	30 LF
Sta. 1039+69 Rt	30 LF
Sta. 1039+80 Lt	30 LF

261 0120 FIBER ROLLS 20IN

Sta. 1034+00 to Sta. 1037+50 Lt	220 LF
Sta. 1035+75 to Sta. 1037+50 Rt	120 LF

SAUBER ENGINEERING

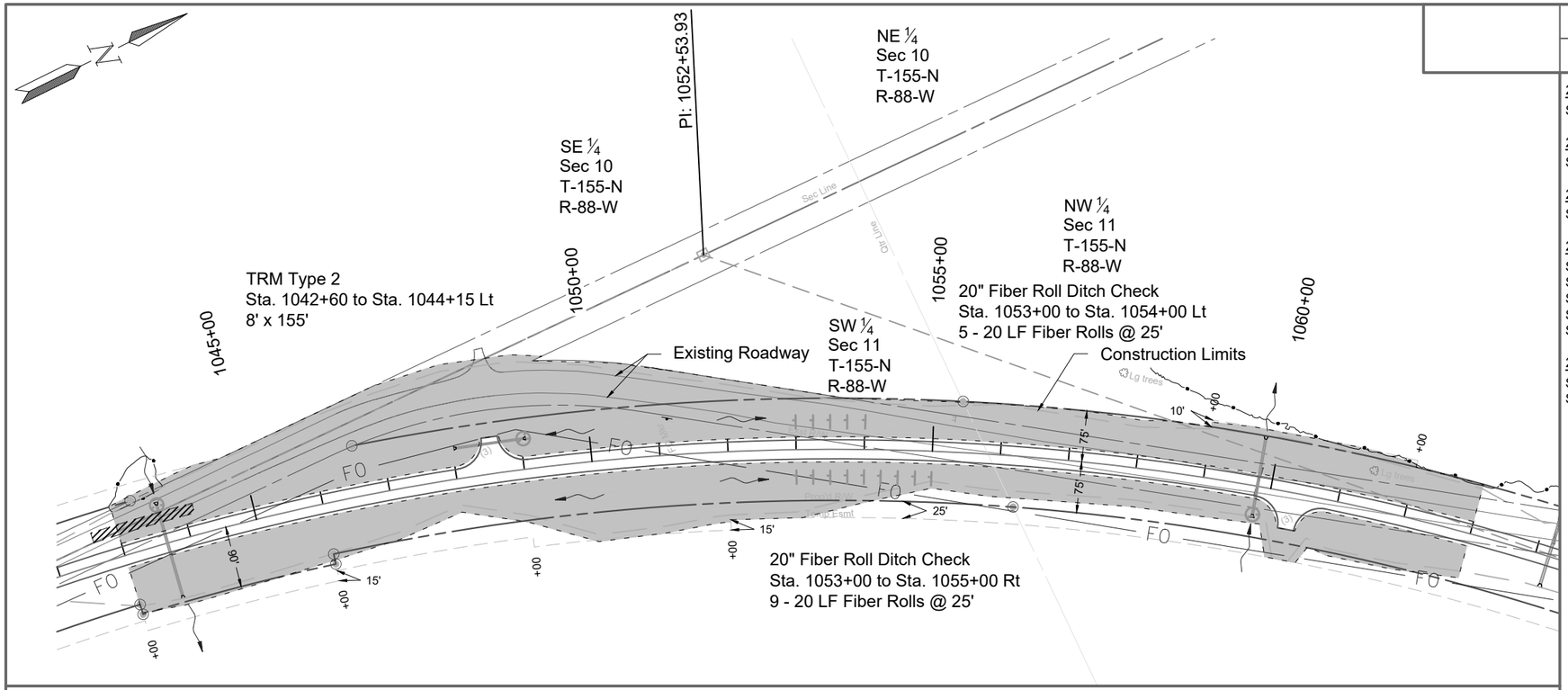
REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-3914
LS-8427
DATE 1/28/25
NORTH DAKOTA

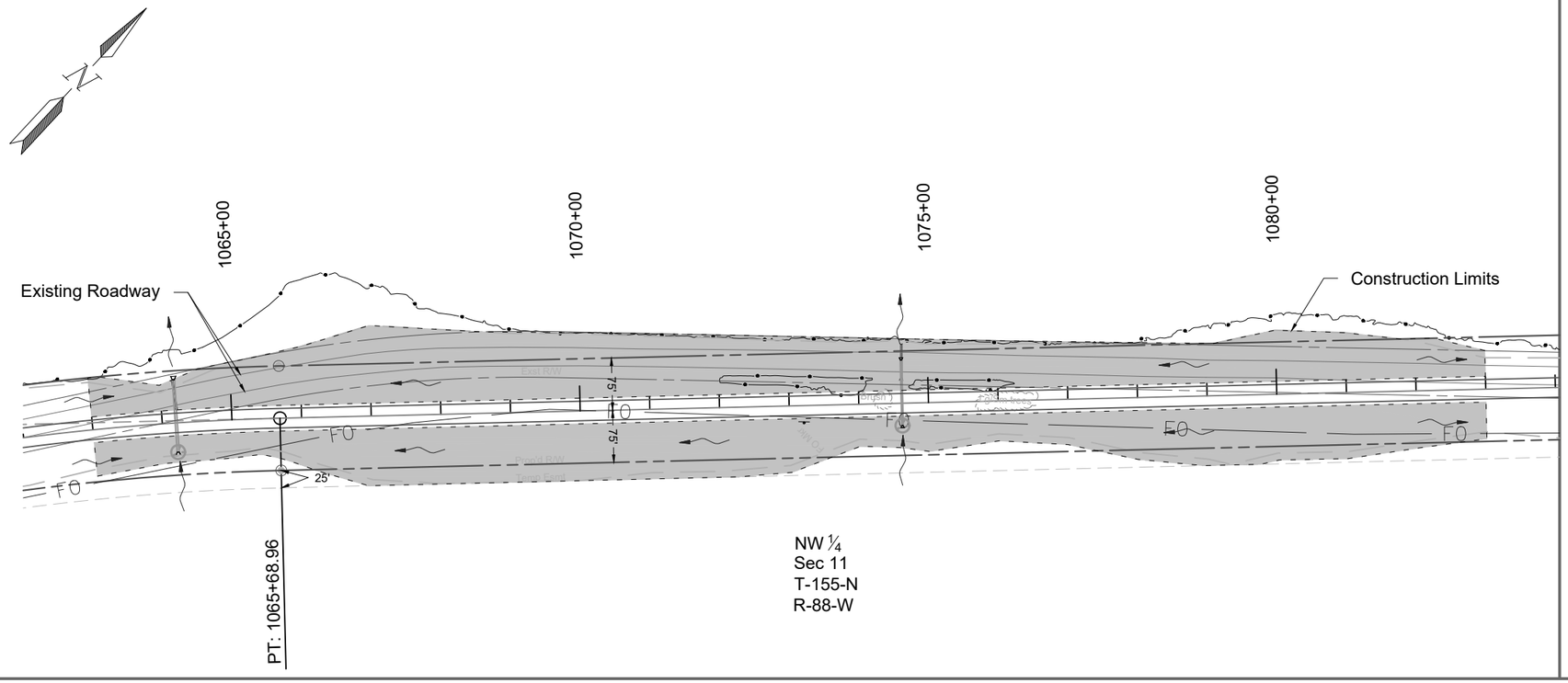
Permanent Erosion Control

Reconstruction
County Route 1

Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	77	8





251 0300 SEEDING CLASS III

Sta. 1043+00 to Sta. 1083+00	13.03 Acre

253 0101 STRAW MULCH

Sta. 1043+00 to Sta. 1083+00	13.03 Acre

255 0202 TRM TYPE 2

Sta. 1042+60 to Sta. 1044+15 Lt	138 SY

261 0112 FIBER ROLLS 12IN

Sta. 1043+65 Lt	30 LF
Sta. 1049+04 Lt	30 LF
Sta. 1059+80 Rt	30 LF
Sta. 1064+20 Rt	30 LF
Sta. 1074+62 Rt	30 LF

261 0120 FIBER ROLLS 20IN

Sta. 1053+00 to Sta. 1054+00 Lt	100 LF
Sta. 1053+00 to Sta. 1055+00 Rt	180 LF

SAUBER ENGINEERING

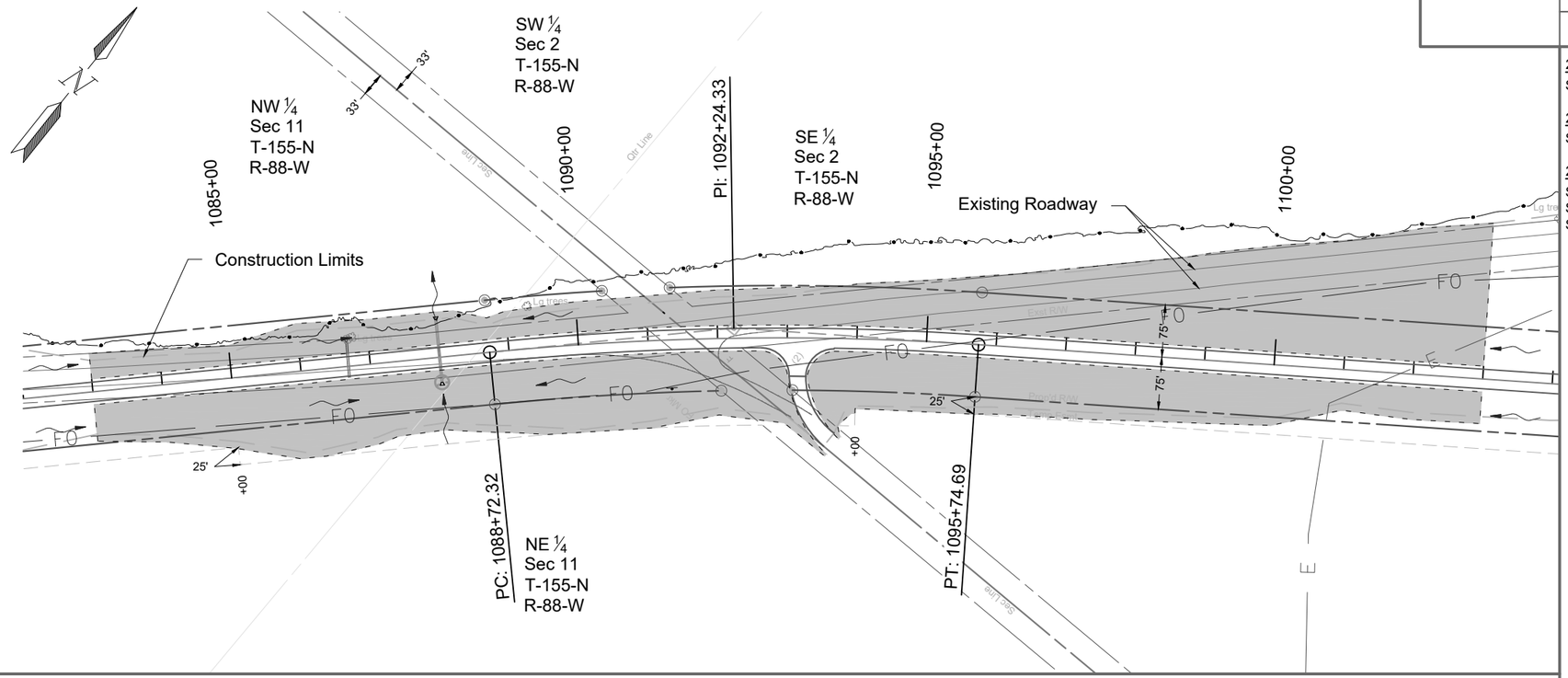
REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-3914
LS-6427
DATE 1/28/25
NORTH DAKOTA

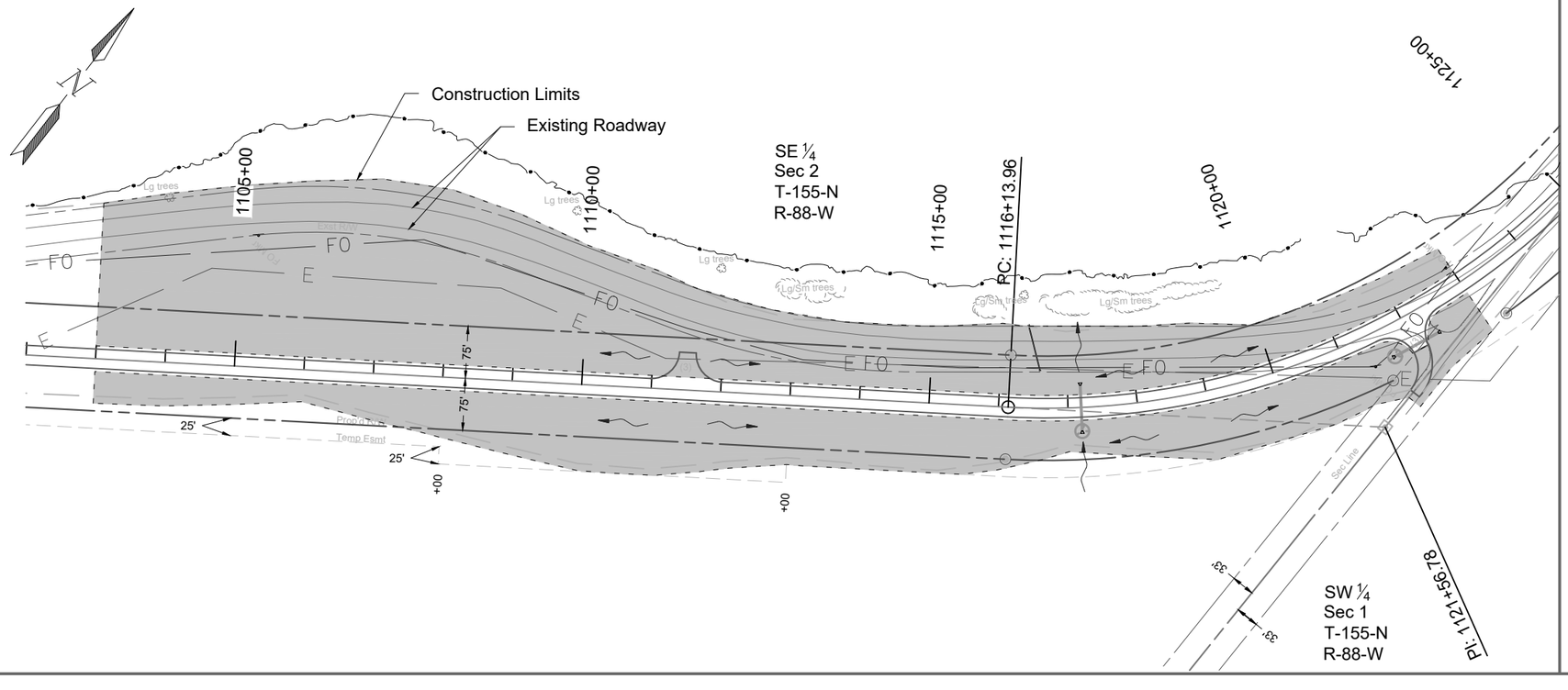
Permanent Erosion Control

Reconstruction
County Route 1

Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	77	9





251 0300 SEEDING CLASS III

Sta. 1083+00 to Sta. 1123+00	17.16 Acre

253 0101 STRAW MULCH

Sta. 1083+00 to Sta. 1123+00	17.16 Acre

261 0112 FIBER ROLLS 12IN

Sta. 1088+00 Rt	30 LF
Sta. 1117+19 Rt	30 LF
Sta. 1121+68 Rt	30 LF

SAUBER ENGINEERING

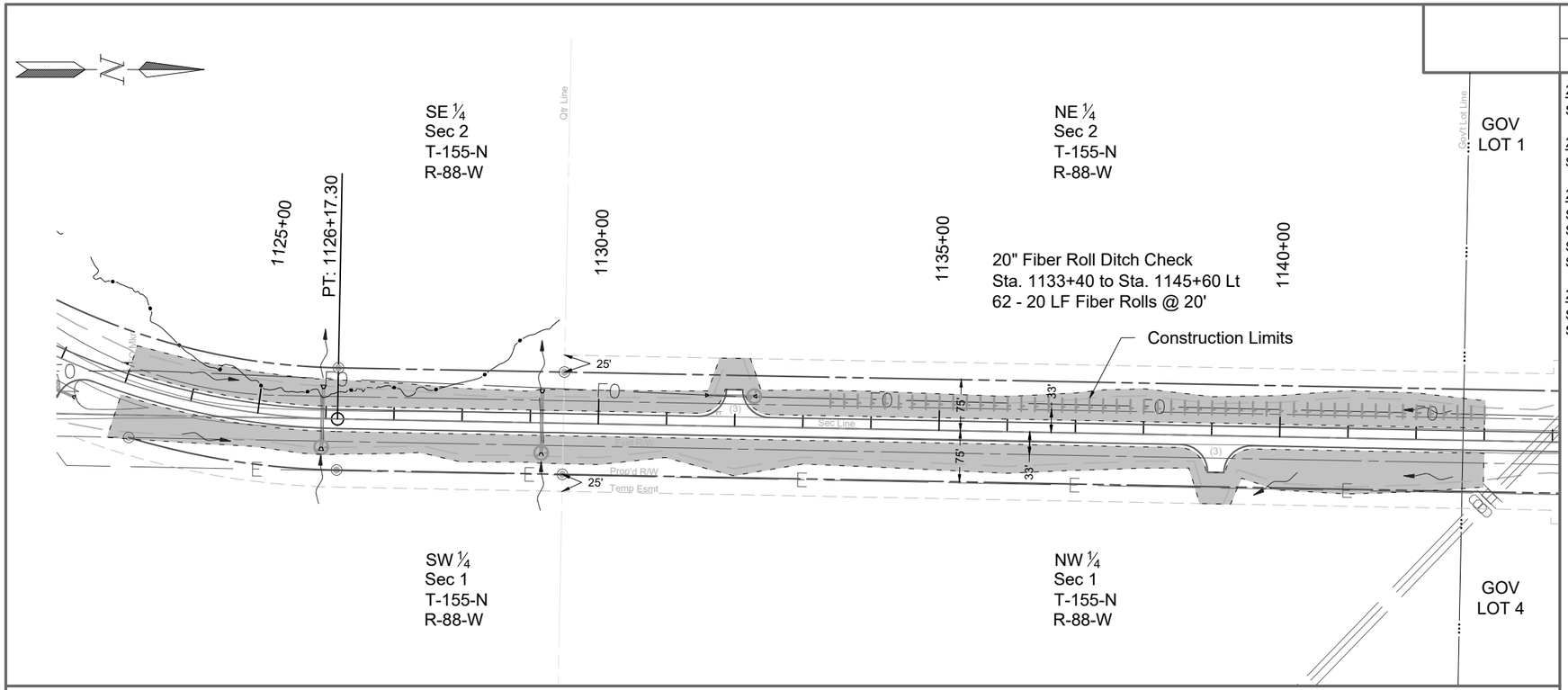
REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-3914
LS-6427
DATE 1/28/25
NORTH DAKOTA

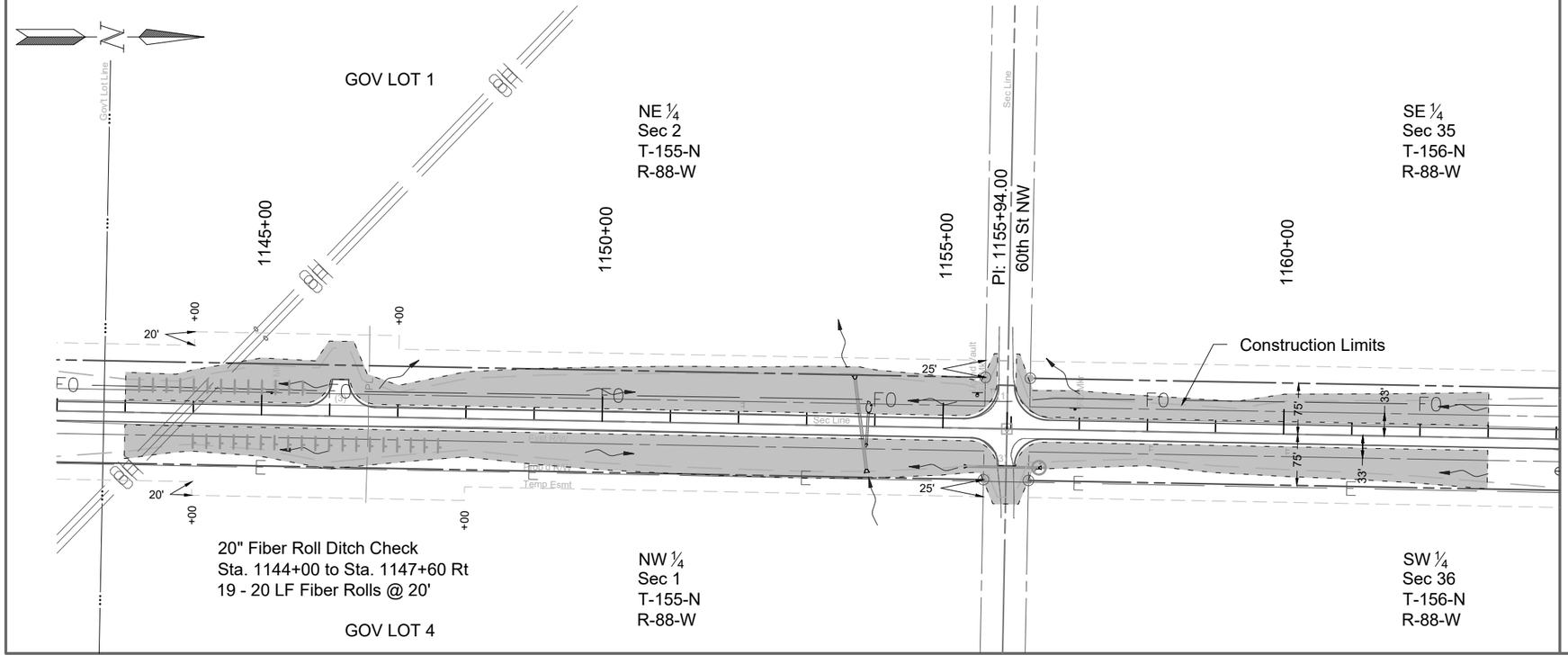
Permanent Erosion Control

Reconstruction
County Route 1

Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	77	10





251 0300 SEEDING CLASS III

Sta. 1123+00 to Sta. 1163+00	8.19 Acre

253 0101 STRAW MULCH

Sta. 1123+00 to Sta. 1163+00	8.19 Acre

261 0112 FIBER ROLLS 12IN

Sta. 1125+95 Rt	30 LF
Sta. 1129+17 Rt	30 LF
Sta. 1132+28 Lt	30 LF
Sta. 1156+42 Rt	30 LF

261 0120 FIBER ROLLS 20IN

Sta. 1133+40 to Sta. 1145+60 Lt	1,240 LF
Sta. 1144+00 to Sta. 1147+60 Rt	380 LF

SAUBER ENGINEERING

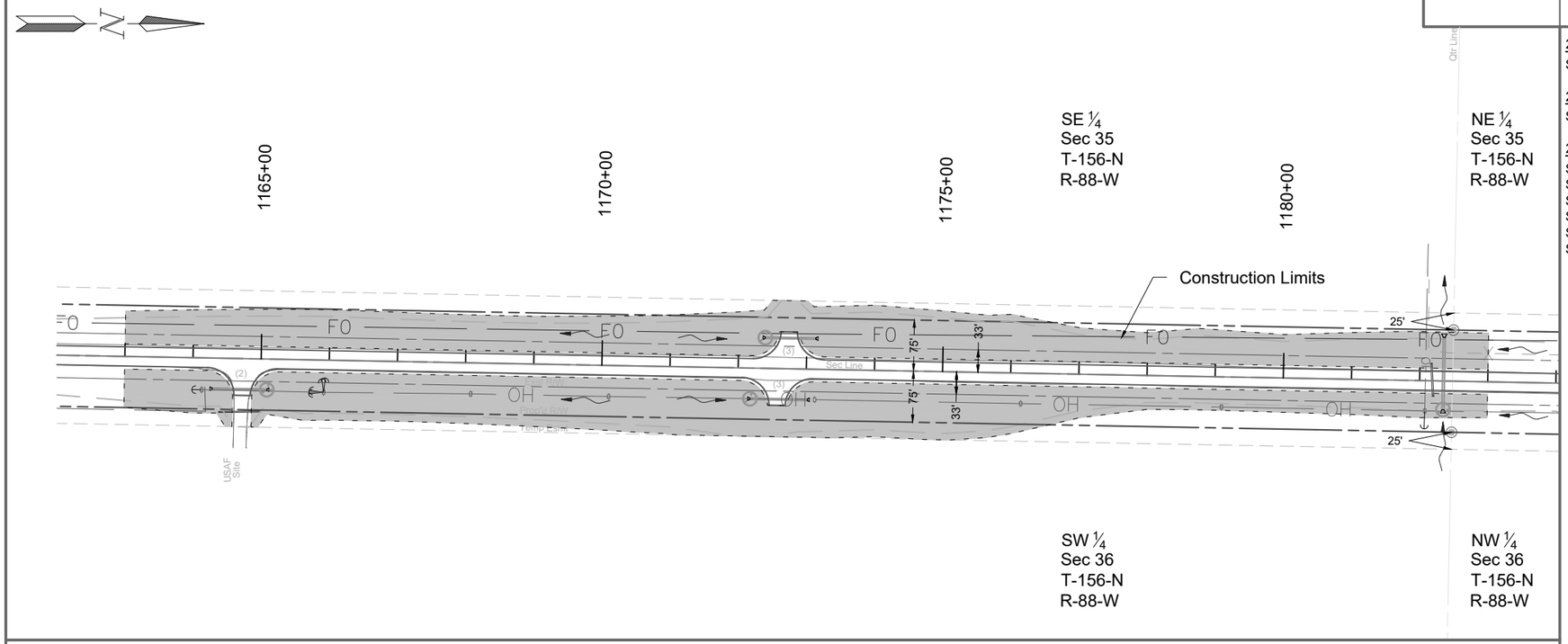
REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-3914
LS-6427
DATE 1/28/25
NORTH DAKOTA

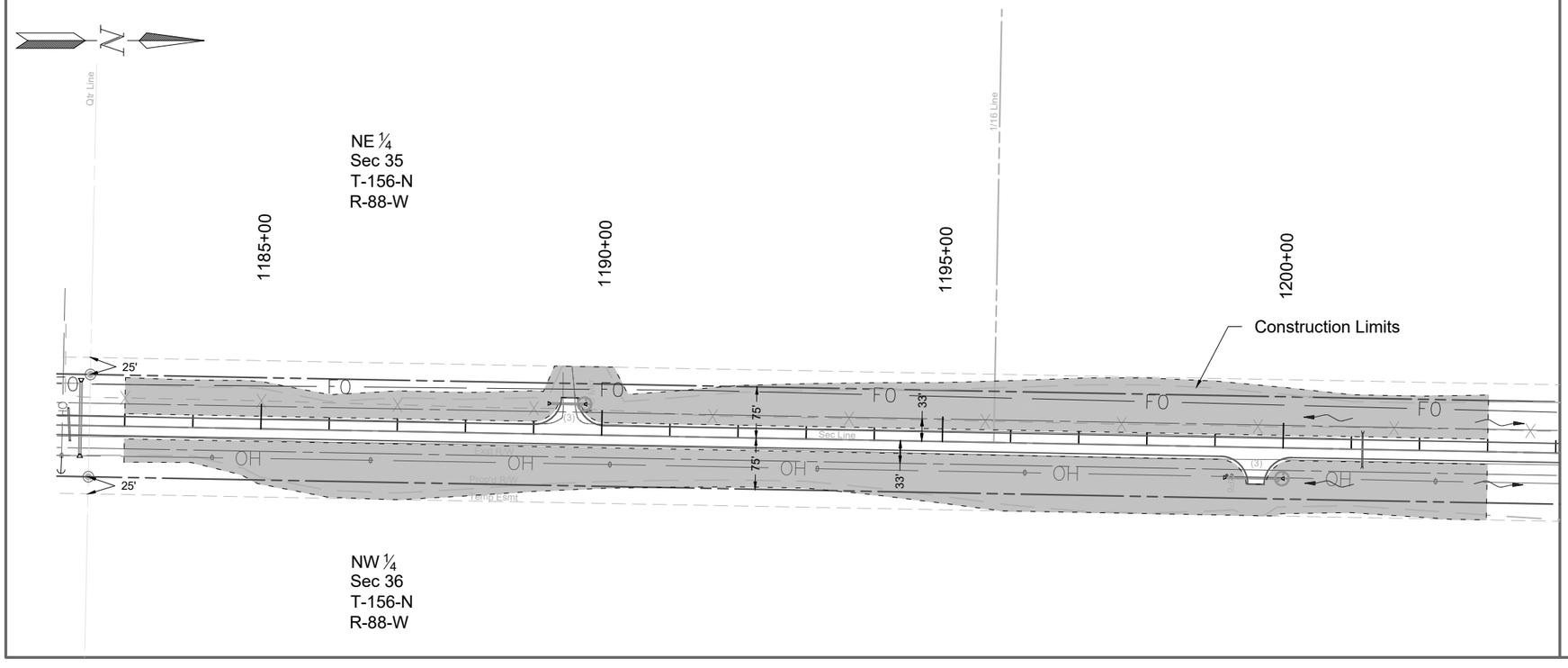
Permanent Erosion Control

Reconstruction
County Route 1

Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	77	11





251 0300 SEEDING CLASS III

Sta. 1163+00 to Sta. 1203+00	11.10 Acre

253 0101 STRAW MULCH

Sta. 1163+00 to Sta. 1203+00	11.10 Acre

261 0112 FIBER ROLLS 12IN

Sta. 1165+09 Rt	30 LF
Sta. 1172+18 Rt	30 LF
Sta. 1172+39 Lt	30 LF
Sta. 1182+35 Rt	30 LF
Sta. 1189+74 Lt	30 LF
Sta. 1199+99 Rt	30 LF

SAUBER ENGINEERING

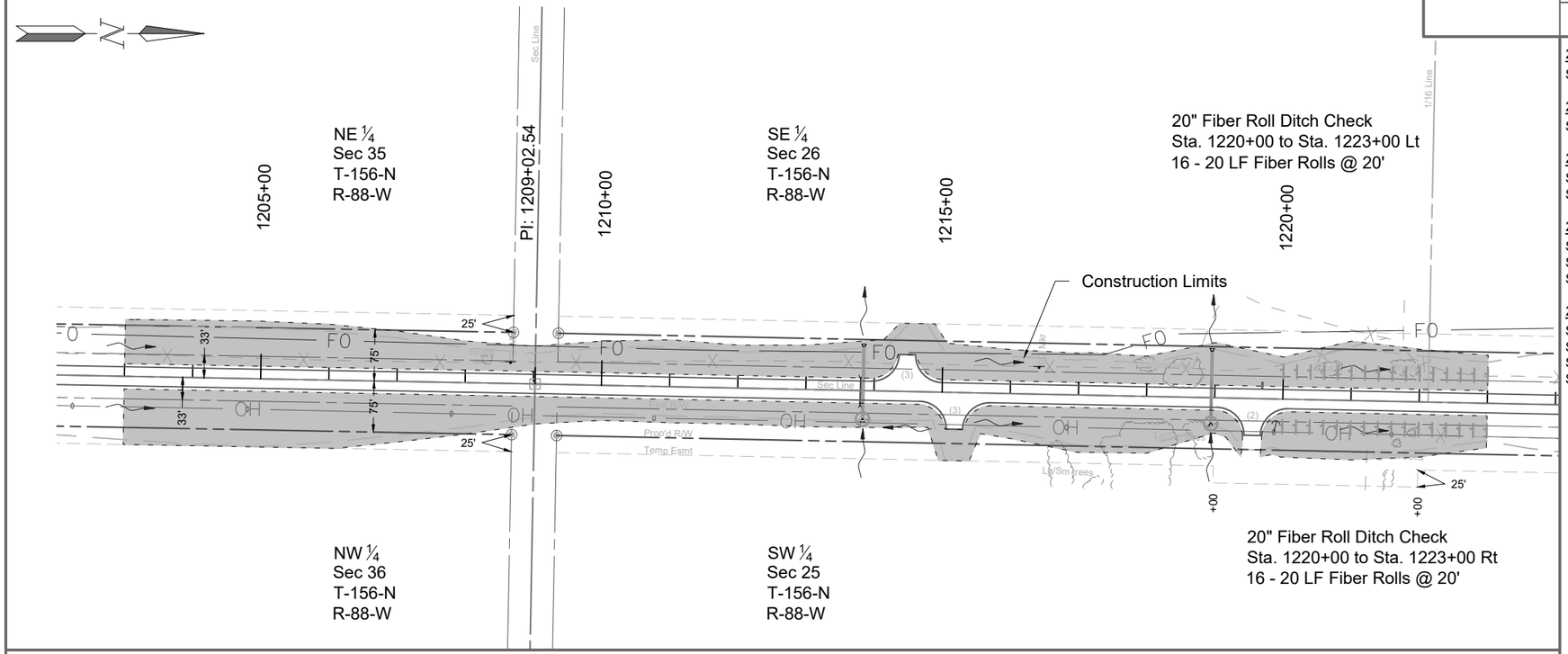
REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-6214
LS-6427
DATE 1/28/25
NORTH DAKOTA

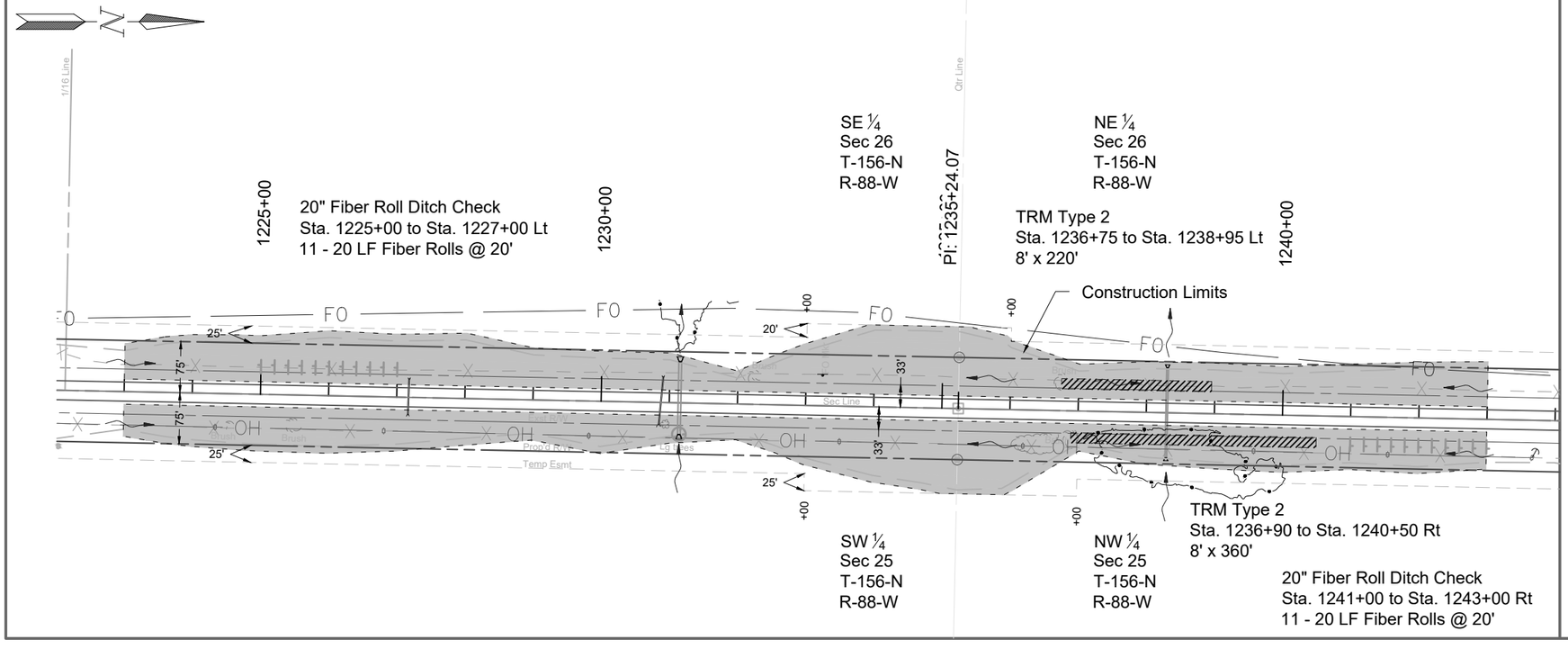
Permanent Erosion Control

Reconstruction
County Route 1

Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	77	12





251 0300 SEEDING CLASS III

Sta. 1203+00 to Sta. 1243+00	10.80 Acre

253 0101 STRAW MULCH

Sta. 1203+00 to Sta. 1243+00	10.80 Acre

255 0202 TRM TYPE 2

Sta. 1236+75 to Sta. 1238+95 Lt	196 LF
Sta. 1236+90 to Sta. 1240+50 Rt	320 LF

261 0112 FIBER ROLLS 12IN

Sta. 1213+84 Rt	30 LF
Sta. 1218+95 Rt	30 LF
Sta. 1231+15 Rt	30 LF

261 0120 FIBER ROLLS 20IN

Sta. 1220+00 to Sta. 1223+00 Lt	320 LF
Sta. 1220+00 to Sta. 1223+00 Rt	320 LF
Sta. 1225+00 to Sta. 1227+00 Lt	220 LF
Sta. 1241+00 to Sta. 1243+00 Rt	220 LF

SAUBER ENGINEERING

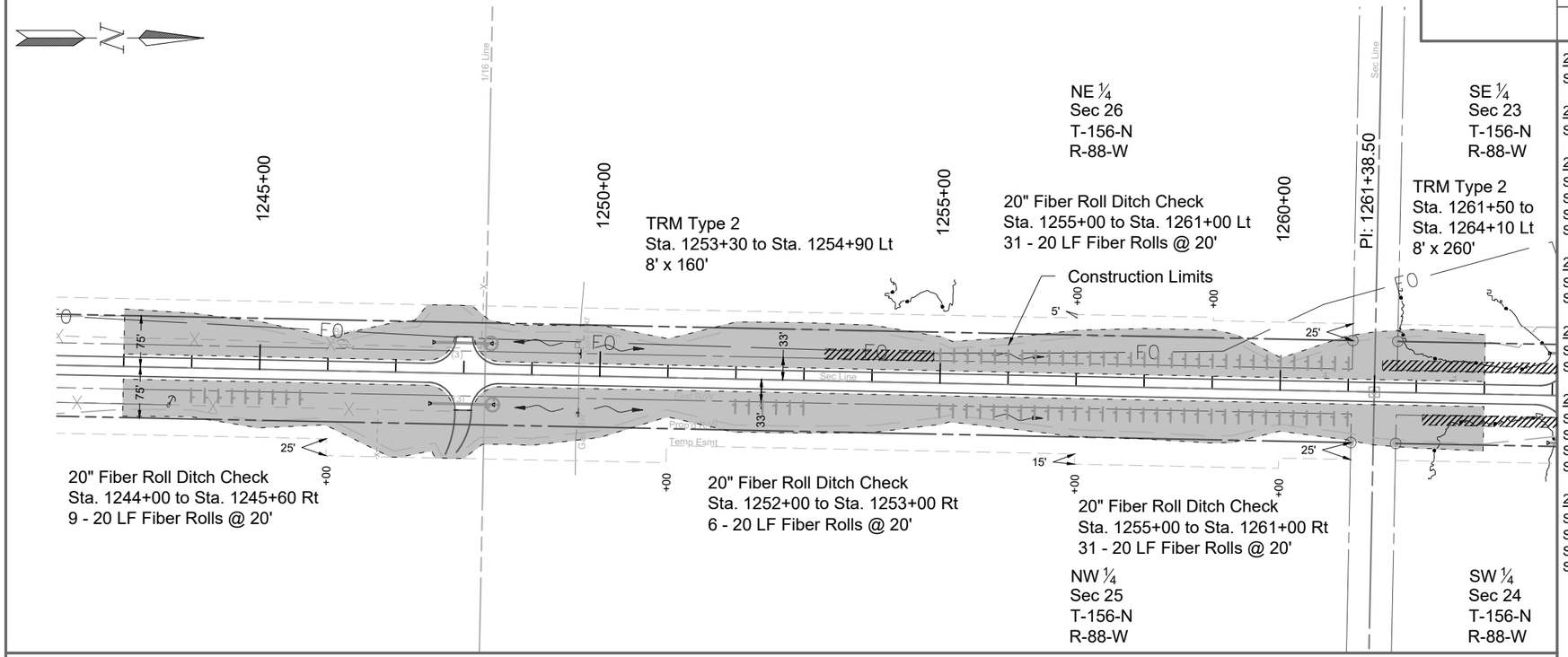
REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-3914
LS-5427
DATE 1/28/25
NORTH DAKOTA

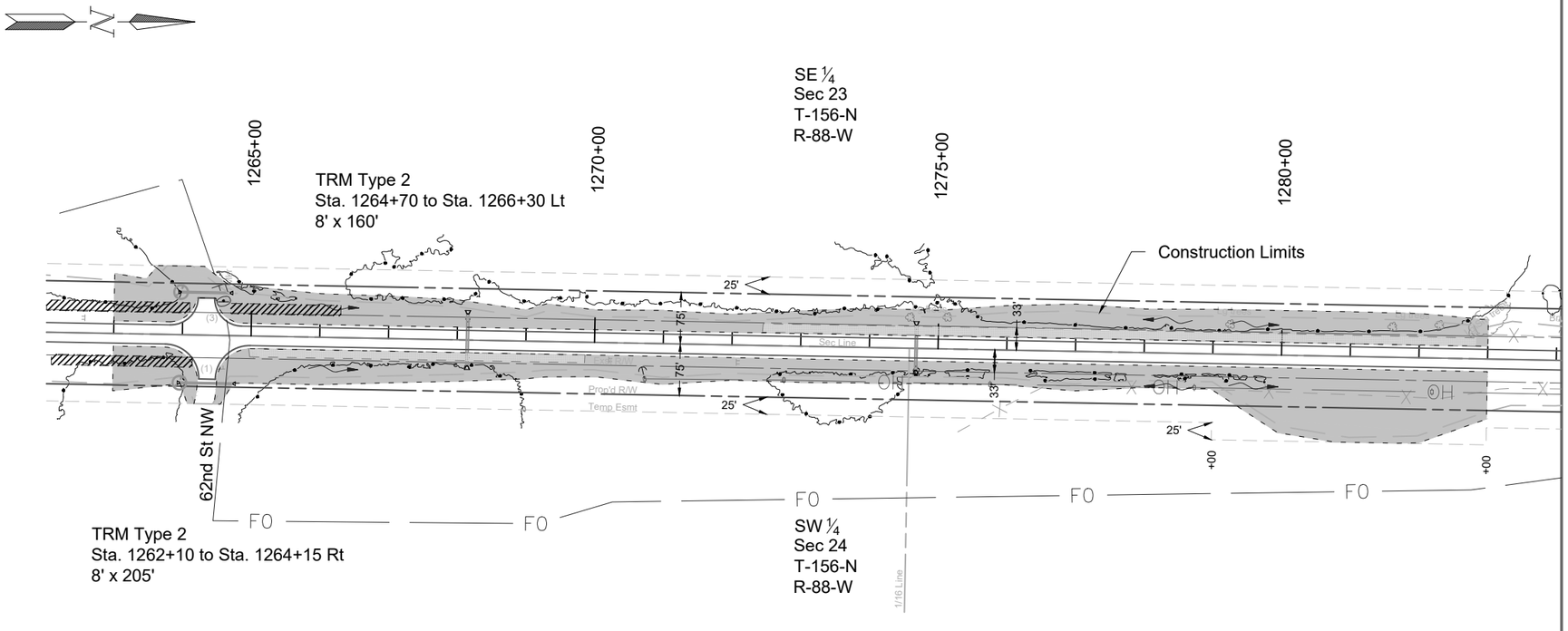
Permanent Erosion Control

Reconstruction
County Route 1

Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	77	13





251 0300 SEEDING CLASS III

Sta. 1243+00 to Sta. 1283+00	9.63 Acre

253 0101 STRAW MULCH

Sta. 1243+00 to Sta. 1283+00	9.63 Acre

255 0202 TRM TYPE 2

Sta. 1253+30 to Sta. 1254+90 Lt	142 SY
Sta. 1261+50 to Sta. 1264+10 Lt	231 SY
Sta. 1262+10 to Sta. 1264+15 Rt	182 SY
Sta. 1264+70 to Sta. 1266+30 Lt	142 SY

255 0310 REMOVE CONCRETE EROSION CONTROL BLANKET

Sta. 1265+00 to Sta. 1269+90 Rt	653 SY
Sta. 1272+45 to Sta. 1282+85 Lt	1,387 SY

255 0320 RESET CONCRETE EROSION CONTROL BLANKET

Sta. 1265+00 to Sta. 1269+90 Rt	653 SY
Sta. 1272+45 to Sta. 1282+85 Lt	1,387 SY

261 0112 FIBER ROLLS 12IN

Sta. 1248+39 Lt	30 LF
Sta. 1248+43 Rt	30 LF
Sta. 1263+97 Lt	30 LF
Sta. 1263+97 Rt	30 LF

261 0120 FIBER ROLLS 20IN

Sta. 1244+00 to Sta. 1245+60 Rt	180 LF
Sta. 1252+00 to Sta. 1253+00 Rt	120 LF
Sta. 1255+00 to Sta. 1261+00 Lt	620 LF
Sta. 1255+00 to Sta. 1261+00 Rt	620 LF

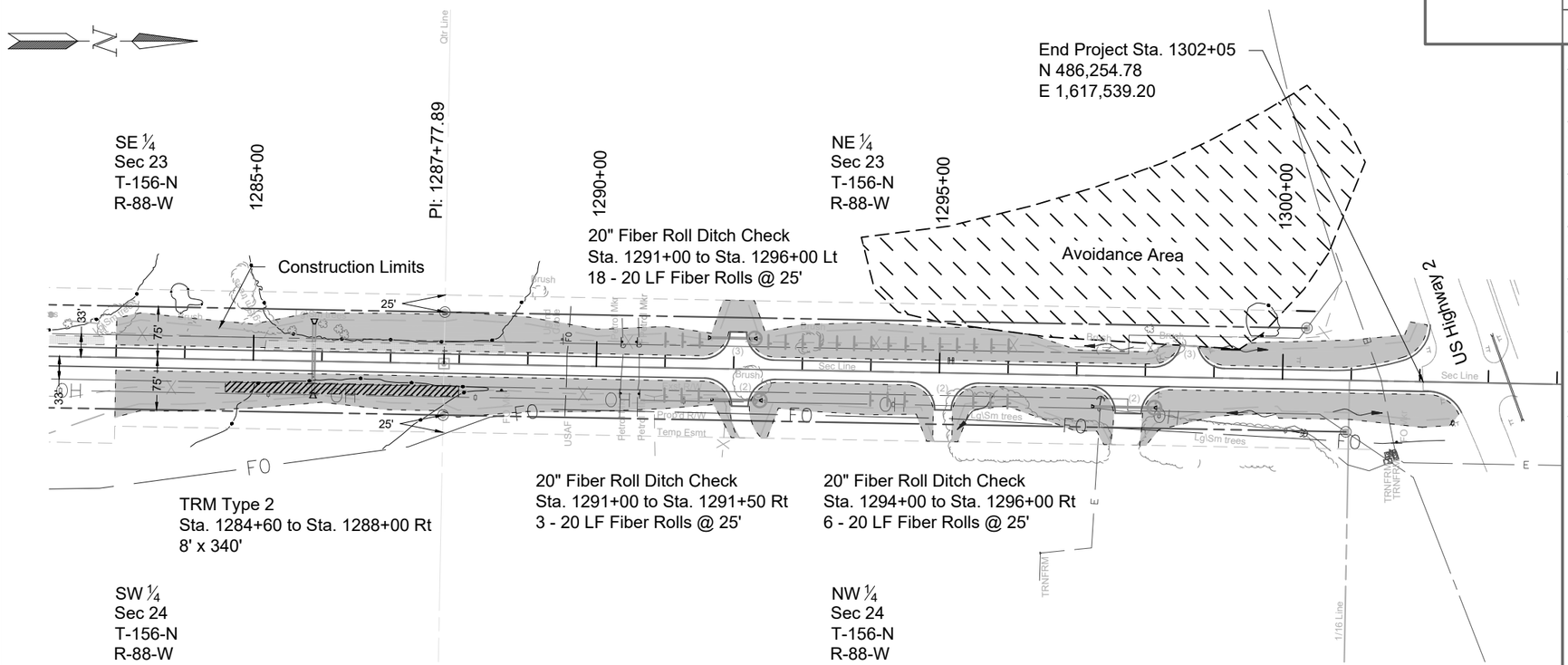
SAUBER ENGINEERING

REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-3914
LS-6427
DATE 1/28/25
NORTH DAKOTA

Permanent Erosion Control

Reconstruction
County Route 1

Mountrail County, ND



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	77	14

251 0300 SEEDING CLASS III
Sta. 1283+00 to Sta. 1303+00 — 3.77 Acre

253 0101 STRAW MULCH
Sta. 1283+00 to Sta. 1303+00 — 3.77 Acre

255 0202 TRM TYPE 2
Sta. 1284+60 to Sta. 1288+00 Rt — 302 SY

255 0310 REMOVE CONCRETE EROSION CONTROL BLANKET
Sta. 1285+15 to Sta. 1288+65 Lt — 467 SY

255 0320 RESET CONCRETE EROSION CONTROL BLANKET
Sta. 1285+15 to Sta. 1288+65 Lt — 467 SY

261 0112 FIBER ROLLS 12IN
Sta. 1292+30 Lt — 30 LF
Sta. 1292+39 Rt — 30 LF
Sta. 1298+14 Rt — 30 LF

261 0120 FIBER ROLLS 20IN
Sta. 1291+00 to Sta. 1296+00 Lt — 360 LF
Sta. 1291+00 to Sta. 1291+50 Rt — 60 LF
Sta. 1294+00 to Sta. 1296+00 Rt — 120 LF

SAUBER ENGINEERING

REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-8214
LS-8427
DATE 1/28/25
NORTH DAKOTA

Permanent Erosion Control

Reconstruction
County Route 1

Mountrail County, ND

PRELIMINARY SURVEY COORDINATE AND CURVE DATA - COUNTY ROUTE 1

Revised 02/11/25

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	81	1

HORIZONTAL ALIGNMENT

PNT	STATION	NORTHING	EASTING
PI	764+63.46	434,797.36	1,611,291.38
PC	777+20.44	436,054.14	1,611,313.83
PI	778+02.46	436,136.15	1,611,315.30
PT	778+84.48	436,218.12	1,611,318.19
PC	795+03.45	437,836.08	1,611,375.32
PI	797+76.80	438,109.26	1,611,384.96
PT	800+49.99	438,382.54	1,611,378.73
PC	803+85.70	438,718.16	1,611,371.08
PI	805+82.30	438,914.71	1,611,366.60
PT	807+78.85	439,111.28	1,611,370.33
PI	817+34.11	440,066.37	1,611,388.48
PI	843+81.62	442,713.43	1,611,437.16
PI	870+29.28	445,360.64	1,611,485.69
PI	896+67.72	447,998.57	1,611,537.95
PI	923+06.23	450,636.56	1,611,590.33
PI	949+44.78	453,274.64	1,611,640.22
PI	975+83.16	455,912.54	1,611,690.23
PI	1002+24.38	458,553.33	1,611,737.91
PI	1028+65.70	461,194.22	1,611,785.74
PC	1037+88.35	462,116.73	1,611,801.65
PI	1052+53.93	463,582.10	1,611,826.91
PT	1065+68.96	464,604.96	1,612,876.52
PC	1088+72.32	466,212.52	1,614,526.13
PI	1092+24.33	466,458.19	1,614,778.23
PT	1095+74.69	466,658.47	1,615,067.71
PC	1116+13.96	467,818.76	1,616,744.71
PI	1121+56.78	468,127.61	1,617,191.10
PT	1126+17.30	468,670.33	1,617,201.41
PI	1155+94.00	471,646.49	1,617,257.94
PI	1209+02.54	476,954.11	1,617,356.86
PI	1235+24.07	479,575.10	1,617,410.14
PI	1261+38.50	482,188.98	1,617,463.51
PI	1287+77.89	484,827.92	1,617,512.72
PI	1314+17.33	487,466.90	1,617,561.69

CURVE DATA

ARC DEFINITION

Curve PCL-CR1-1	Curve PCL-CR1-5
PI Sta = 778+02.46	PI Sta = 1052+53.93
Delta = 0°59'56" (RT)	Delta = 44°45'07" (RT)
Da = 0°36'32"	Da = 1°36'34"
R = 9,410.00'	R = 3,560.00'
T = 82.02'	T = 1,465.58'
L = 164.04'	L = 2,780.61'
Curve PCL-CR1-2	**Curve PCL-CR1-6**
PI Sta = 797+76.80	PI Sta = 1092+24.33
Delta = 03°19'40" (LT)	Delta = 09°34'54" (RT)
Da = 0°36'32"	Da = 1°21'51"
R = 9,410.00'	R = 4,200.00'
T = 273.35'	T = 352.01'
L = 546.54'	L = 702.37'
Curve PCL-CR1-3	**Curve PCL-CR1-7**
PI Sta = 805+82.30	PI Sta = 1121+56.78
Delta = 02°23'38" (RT)	Delta = 54°13'59" (LT)
Da = 0°36'32"	Da = 5°24'19"
R = 9,410.00'	R = 1,060.00'
T = 196.60'	T = 542.82'
L = 393.15'	L = 1,003.34'

NOTES:

Date Survey Completed: 9/7/23

US PUBLIC LAND SURVEY DATA

DESC.	SEC-TWP-RGE	NORTHING	EASTING
SE Sec Cor	3-154-88	434,797.36	1,611,291.38
E Qtr Cor	3-154-88	437,435.94	1,611,338.52
NE Sec Cor	3-154-88	440,066.37	1,611,388.47
E Qtr Cor	34-155-88	442,713.43	1,611,437.16
NE Sec Cor	34-155-88	445,360.64	1,611,485.69
E Qtr Cor	27-155-88	447,998.57	1,611,537.95
NE Sec Cor	27-155-88	450,636.56	1,611,590.33
E Qtr Cor	22-155-88	453,274.64	1,611,640.22
NE Sec Cor	22-155-88	455,912.54	1,611,690.23
E Qtr Cor	15-155-88	458,553.33	1,611,737.91
NE Sec Cor	15-155-88	461,194.22	1,611,785.74
E Qtr Cor	10-155-88	463,834.93	1,611,831.26
N Qtr Wit.Cor	11-155-88	466,413.04	1,614,667.07
NE Sec Wit.Cor	11-155-88	466,577.12	1,617,161.65
NE Sec Cor	2-155-88	471,646.49	1,617,257.94
NE Sec Cor	35-156-88	476,954.11	1,617,356.86
E Qtr Cor	26-156-88	479,575.10	1,617,410.14
NE Sec Cor	26-156-88	482,188.98	1,617,463.51
E Qtr Cor	23-156-88	484,827.92	1,617,512.72
NE Sec Cor	23-156-88	487,466.90	1,617,561.69

☐ Assumed Coordinates

☒ All coordinates on this sheet are Mountrail County ground coordinates. They are derived from the "North Dakota Coordinate System of 1983", NAD83 (2011), North Zone Combination Factor (cf) = 1.0001650272

SURVEY CONTROL POINTS

PNT	NORTHING	EASTING	ELEV	STATION	OFFSET
CP1	440,088.76	1,611,343.73	2119.92	817+56	45.2 (LT)
CP2	445,395.96	1,611,533.81	2064.23	870+66	47.4 (RT)
CP3	450,398.29	1,611,539.84	2108.63	920+67	45.8 (LT)
CP4	455,959.92	1,611,734.59	2119.69	976+31	43.5 (RT)
CP5	461,124.08	1,611,821.84	2113.23	1027+96	37.4 (RT)
CP6	475,969.09	1,617,380.26	2225.73	1199+18	41.8 (RT)

SAUBER ENGINEERING

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

INITIALIZING BENCH MARK

☒ NAVD-88

☐ _____

☐ GEOID12B ☐ _____

☒ GEOID18

REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-2914
LS-8427
DATE 2/11/25
NORTH DAKOTA

PRELIMINARY SURVEY COORDINATE AND CURVE DATA - COUNTY ROUTE 1

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	81	1

HORIZONTAL ALIGNMENT

PNT	STATION	NORTHING	EASTING
PI	738+20.26	432,154.60	1,611,242.92
PI	764+63.46	434,797.36	1,611,291.38
PC	789+83.10	437,316.60	1,611,336.38
PI	791+02.46	437,435.94	1,611,338.52
PT	792+21.81	437,555.19	1,611,343.67
PC	803+08.80	438,641.16	1,611,390.65
PI	804+22.84	438,755.10	1,611,395.58
PT	805+36.87	438,869.12	1,611,397.74
PC	816+16.86	439,948.92	1,611,418.25
PI	817+33.73	440,065.76	1,611,420.47
PT	818+50.58	440,182.63	1,611,419.78
PC	829+40.14	441,272.17	1,611,413.41
PI	830+54.18	441,386.20	1,611,412.75
PT	831+68.21	441,500.22	1,611,414.84
PI	843+81.62	442,713.43	1,611,437.16
PI	870+29.28	445,360.64	1,611,485.69
PI	896+67.72	447,998.57	1,611,537.95
PI	923+06.23	450,636.56	1,611,590.33
PI	949+44.78	453,274.64	1,611,640.22
PI	975+83.16	455,912.54	1,611,690.23
PI	1002+24.38	458,553.33	1,611,737.91
PI	1028+65.70	461,194.22	1,611,785.74
PC	1037+88.35	462,116.73	1,611,801.65
PI	1052+53.93	463,582.10	1,611,826.91
PT	1065+68.96	464,604.96	1,612,876.52
PC	1088+72.32	466,212.52	1,614,526.13
PI	1092+24.33	466,458.19	1,614,778.23
PT	1095+74.69	466,658.47	1,615,067.71
PC	1116+13.96	467,818.76	1,616,744.71
PI	1121+56.78	468,127.61	1,617,191.10
PT	1126+17.30	468,670.33	1,617,201.41
PI	1155+94.00	471,646.49	1,617,257.94
PI	1209+02.54	476,954.11	1,617,356.86
PI	1235+24.07	479,575.10	1,617,410.14
PI	1261+38.50	482,188.98	1,617,463.51
PI	1287+77.89	484,827.92	1,617,512.72
PI	1314+17.33	487,466.90	1,617,561.69

CURVE DATA

ARC DEFINITION

Curve PCL-CR1-1	Curve PCL-CR1-5
PI Sta = 791+02.46	PI Sta = 1052+53.93
Delta = 01°27'13" (RT)	Delta = 44°45'07" (RT)
Da = 0°36'32"	Da = 1°36'34"
R = 9,410.00'	R = 3,560.00'
T = 119.36'	T = 1,465.58'
L = 238.71'	L = 2,780.61'
Curve PCL-CR1-2	**Curve PCL-CR1-6**
PI Sta = 804+22.84	PI Sta = 1092+24.33
Delta = 01°23'19" (LT)	Delta = 09°34'54" (RT)
Da = 0°36'32"	Da = 1°21'51"
R = 9,410.00'	R = 4,200.00'
T = 114.04'	T = 352.01'
L = 228.06'	L = 702.37'
Curve PCL-CR1-3	**Curve PCL-CR1-7**
PI Sta = 817+33.73	PI Sta = 1121+56.78
Delta = 01°25'23" (LT)	Delta = 54°13'59" (LT)
Da = 0°36'32"	Da = 5°24'19"
R = 9,410.00'	R = 1,060.00'
T = 116.87'	T = 542.82'
L = 233.72'	L = 1,003.34'
Curve PCL-CR1-4	
PI Sta = 830+54.18	
Delta = 01°23'19" (RT)	
Da = 0°36'32"	
R = 9,410.00'	
T = 114.04'	
L = 228.06'	

NOTES:

Date Survey Completed: 9/7/23

US PUBLIC LAND SURVEY DATA

DESC.	SEC-TWP-RGE	NORTHING	EASTING
SE Sec Cor	3-154-88	434,797.36	1,611,291.38
E Qtr Cor	3-154-88	437,435.94	1,611,338.52
NE Sec Cor	3-154-88	440,066.37	1,611,388.47
E Qtr Cor	34-155-88	442,713.43	1,611,437.16
NE Sec Cor	34-155-88	445,360.64	1,611,485.69
E Qtr Cor	27-155-88	447,998.57	1,611,537.95
NE Sec Cor	27-155-88	450,636.56	1,611,590.33
E Qtr Cor	22-155-88	453,274.64	1,611,640.22
NE Sec Cor	22-155-88	455,912.54	1,611,690.23
E Qtr Cor	15-155-88	458,553.33	1,611,737.91
NE Sec Cor	15-155-88	461,194.22	1,611,785.74
E Qtr Cor	10-155-88	463,834.93	1,611,831.26
N Qtr Wit.Cor	11-155-88	466,413.04	1,614,667.07
NE Sec Wit.Cor	11-155-88	466,577.12	1,617,161.65
NE Sec Cor	2-155-88	471,646.49	1,617,257.94
NE Sec Cor	35-156-88	476,954.11	1,617,356.86
E Qtr Cor	26-156-88	479,575.10	1,617,410.14
NE Sec Cor	26-156-88	482,188.98	1,617,463.51
E Qtr Cor	23-156-88	484,827.92	1,617,512.72
NE Sec Cor	23-156-88	487,466.90	1,617,561.69

☐ Assumed Coordinates

☒ All coordinates on this sheet are Mountrail County ground coordinates. They are derived from the "North Dakota Coordinate System of 1983", NAD83 (2011), North Zone Combination Factor (cf) = 1.0001650272

SURVEY CONTROL POINTS

PNT	NORTHING	EASTING	ELEV	STATION	OFFSET
CP1	440,088.76	1,611,343.73	2119.92	817+56	76.1 (LT)
CP2	445,395.96	1,611,533.81	2064.23	870+66	47.4 (RT)
CP3	450,398.29	1,611,539.84	2108.63	920+67	45.8 (LT)
CP4	455,959.92	1,611,734.59	2119.69	976+31	43.5 (RT)
CP5	461,124.08	1,611,821.84	2113.23	1027+96	37.4 (RT)
CP6	475,969.09	1,617,380.26	2225.73	1199+18	41.8 (RT)

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

INITIALIZING BENCH MARK

☒ NAVD-88

☐ _____

☐ GEOID12B ☐ _____

☒ GEOID18

SAUBER ENGINEERING

REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-6214
LS-6427
DATE 1/28/25
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	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**	**2**	**26**	**52**
G20-4-36	36"x18"	PILOT CAR FOLLOW ME (Mounted to back of pilot car)		18	
G20-10-108	108"x48"	CONTRACTOR SIGN		70	
G20-50a-72	**72"x36"**	**ROAD WORK NEXT __ MILES RT & LT ARROWS**	**5**	**43**	**215**
G20-52a-72	**72"x24"**	**ROAD WORK NEXT __ MILES RT or LT ARROW**	**6**	**36**	**216**
G20-55-96	**96"x48"**	**SPEED LIMIT ENFORCED - MINIMUM FEE $80 WHEN WORKERS PRESENT**	**2**	**59**	**118**
I2-5-96	96"x48"	YOUR HIGHWAY DOLLARS AT WORK		59	
M1-1-36	36"x36"	INTERSTATE ROUTE MARKER (Post and installation only)		10	
M1-4-24	24"x24"	U.S. ROUTE MARKER (Post and installation only)		10	
M1-5-24	24"x24"	STATE ROUTE MARKER (Post and installation only)		10	
M3-1-24	24"x12"	NORTH (Mounted on route marker post)		7	
M3-2-24	24"x12"	EAST (Mounted on route marker post)		7	
M3-3-24	24"x12"	SOUTH (Mounted on route marker post)		7	
M3-4-24	24"x12"	WEST (Mounted on route marker post)		7	
M4-8-24	24"x12"	DETOUR (Mounted on route marker post)		7	
M4-9-30	30"x24"	DETOUR ARROW RIGHT or LEFT/AHD AND RT or LT		15	
M4-10-48	48"x18"	DETOUR (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)**	**8**	**30**	**240**
R2-1-48	48"x60"	SPEED LIMIT __		39	
R2-1aP-24	**24"x18"**	**MINIMUM FEE $80 (Mounted on Speed Limit post)**	**6**	**10**	**60**
R3-2-48	48"x48"	NO LEFT TURN		35	
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		16	
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**	**4**	**35**	**140**
W1-4-48	48"x48"	REVERSE CURVE RIGHT or LEFT		35	
W1-4b-48	48"x48"	TWO LANE REVERSE CURVE RIGHT or LEFT		35	
W1-6-48	**48"x24"**	**ONE DIRECTION LARGE ARROW**	**4**	**26**	**104**
W3-1-48	48"x48"	STOP AHEAD		35	
W3-3-48	48"x48"	SIGNAL AHEAD		35	
W3-4-48	**48"x48"**	**BE PREPARED TO STOP**	**6**	**35**	**210**
W3-5-48	**48"x48"**	**SPEED REDUCTION AHEAD**	**6**	**35**	**210**
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**	**4**	**35**	**140**
W8-3-48	48"x48"	PAVEMENT ENDS		35	
W8-7-48	48"x48"	LOOSE GRAVEL		35	
W8-11-48	48"x48"	UNEVEN LANES		35	
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**	**4**	**35**	**140**
W8-55-48	**48"x48"**	**TRUCKS CROSSING AHEAD or __ FT or _ MILE**	**4**	**35**	**140**
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)**	**4**	**14**	**56**
W14-3-64	64"x48"	NO PASSING ZONE		28	
W16-2P-30	30"x24"	__ FEET PLAQUE (Mounted on warning sign post)		10	
W20-1-48	**48"x48"**	**ROAD WORK AHEAD or _FT or _ MILE**	**8**	**35**	**280**
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**	**6**	**35**	**210**
W20-8-18	**18"x18"**	**STOP - SLOW PADDLE Back to Back**	**6**	**5**	**30**
W20-52P-54	54"x12"	NEXT __ MILES (Mounted on warning sign post)		12	
W21-1-48	48"x48"	WORKERS		35	
W21-2-48	48"x48"	FRESH OIL		35	
W21-3-48	48"x48"	ROAD MACHINERY AHEAD or __ FT or _ MILE		35	
W21-5-48	48"x48"	SHOULDER WORK		35	
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**	**2**	**35**	**70**
W21-52-48	48"x48"	PAVEMENT BREAKS		35	
W21-53-48	48"x48"	RUMBLE STRIPS AHEAD		35	
W22-8-48	48"x48"	FRESH OIL LOOSE ROCK		35	

SPECIAL SIGNS

SPEC & CODE

704-1000	**TRAFFIC CONTROL SIGNS**	**TOTAL UNITS**	**2955**

SPEC & CODE	DESCRIPTION	UNIT	QUANTITY
704-0100	**FLAGGING**	**MHR**	**3000**
704-1048	PORTABLE RUMBLE STRIPS	EACH	
704-1050	TYPE I BARRICADES	EACH	
704-1052	**TYPE III BARRICADES**	**EACH**	**4**
704-1060	DELINEATOR DRUMS	EACH	
704-1065	TRAFFIC CONES	EACH	
704-1067	TUBULAR MARKERS	EACH	
704-1070	DELINEATOR	EACH	
704-1072	FLEXIBLE DELINEATORS	EACH	
704-1080	**STACKABLE VERTICAL PANELS**	**EACH**	**240**
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	
704-1500	OBLITERATION OF PVMT MK	SF	
704-3501	PORTABLE PRECAST CONCRETE MED BARRIER	LF	
704-3510	PRECAST CONCRETE MED BARRIER - STATE FURNISHED	EACH	
762-0200	RAISED PAVEMENT MARKERS	EACH	
762-0420	SHORT TERM 4IN LINE - TYPE R	LF	
762-0430	SHORT TERM 4IN LINE - TYPE NR	LF	

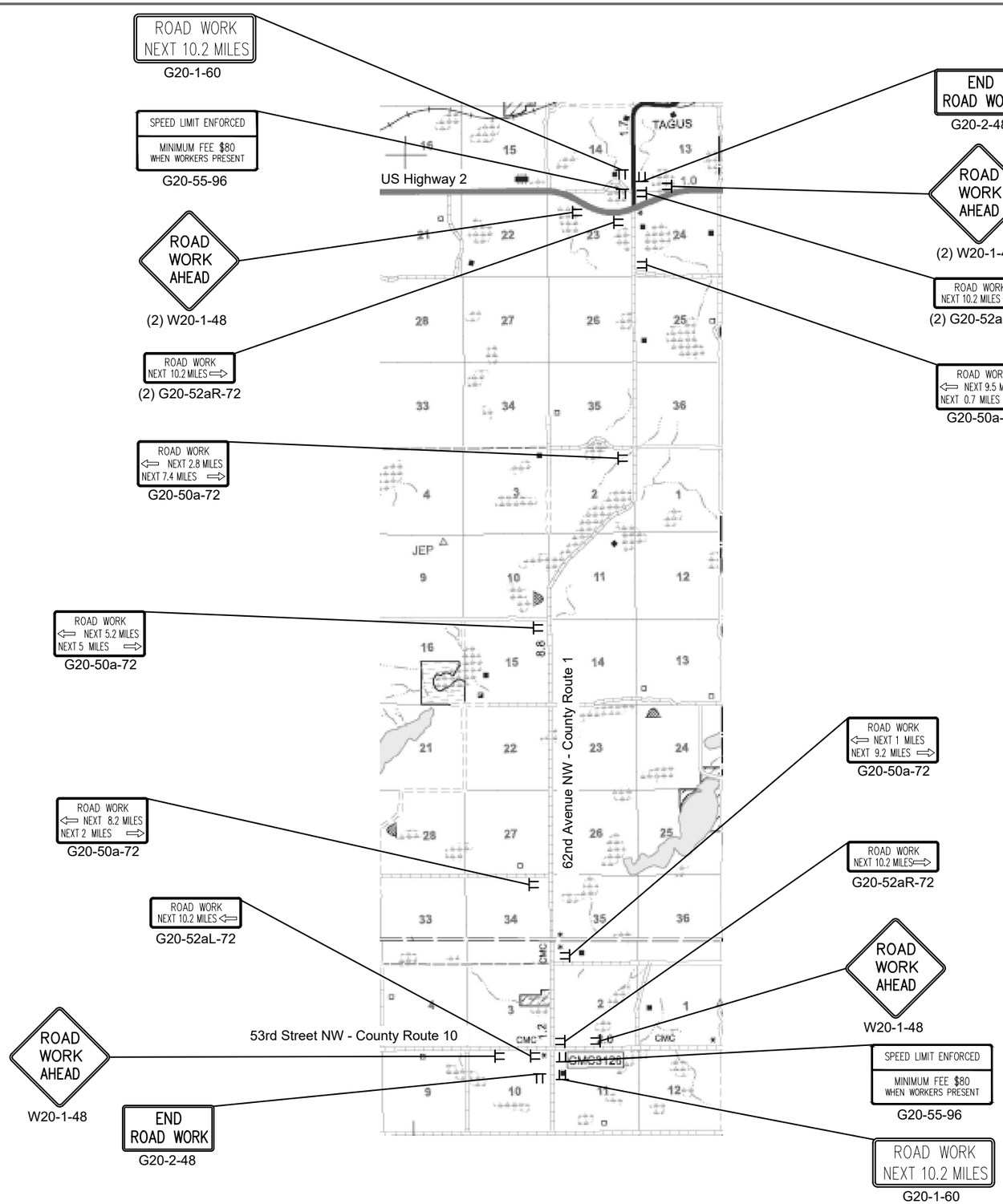
NOTE:
If additional signs are required, units will be calculated using the formula from Section III-18.06 of the Design Manual.
http://www.dot.nd.gov/

SAUBER ENGINEERING

REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-5914
LS-8427
DATE 1/28/25
NORTH DAKOTA

Traffic Control Devices List
Reconstruction
County Route 1
Mountrail County, ND

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	100	2



SAUBER ENGINEERING

REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-8214
LS-8427
DATE 1/28/25
NORTH DAKOTA

Traffic Control Layout

Reconstruction
County Route 1

Mountrail County, ND

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	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	2nd LF	3rd LF	4th LF	Verticle Clearance FT	Support Size	Max Post Len LF	Sleeve Length 1st LF	2nd LF	3rd LF	4th LF	Sleeve Size	Anchor EA	Anchor EA	Anchor Size	Reset Sign Panel EA	Reset Sign Support Ea	Break-away EA	Comments
766+80 Rt	M1-6-24 & R12-2-24	Special Assembly A	4.0	5.0	13.2				5.0	2.5 X 2.5 10 ga	14.2						1	4	3 x 3 7 ga			1	
768+80 Lt	M1-6-24 & M6-4-21	399	6.2		12.5				5.0	2.25 x 2.25 12 ga	12.7						1	4	2.5 x 2.5 12 ga				
770+80 Rt	R2-1-24	9		5.0	11.7				5.0	2.25 x 2.25 12 ga	15.0						1	4	2.5 x 2.5 12 ga				
772+80 Lt	W2-1-30	19		6.3	12.4				5.0	2.5 x 2.5 12 ga	14.5						1	4	3 x 3 7 ga				
800+69 Lt	WPA																			1	1		
800+92 Lt	WPA																			1	1		
811+12 Lt	R2-1-24	9		5.0	11.7				5.0	2.25 x 2.25 12 ga	15.0						1	4	2.5 x 2.5 12 ga				
815+12 Lt	M1-6-24 & R12-2-24	Special Assembly A	4.0	5.0	13.2				5.0	2.5 X 2.5 10 ga	14.2						1	4	3 x 3 7 ga			1	
817+55 Rt	R1-1-30 & D3-1-36	Special Assembly 2	12.0	5.2	13.3				5.0	2.5 x 2.5 10 ga	15.9						1	4	3 x 3 7 ga			1	
819+41 Rt	M1-6-24 & R12-2-24	Special Assembly A	4.0	5.0	13.2				5.0	2.5 X 2.5 10 ga	14.2						1	4	3 x 3 7 ga			1	
823+41 Rt	R2-1-24	9		5.0	11.7				5.0	2.25 x 2.25 12 ga	15.0						1	4	2.5 x 2.5 12 ga				
864+17 Lt	R2-1-24	9		5.0	11.7				5.0	2.25 x 2.25 12 ga	15.0						1	4	2.5 x 2.5 12 ga				
868+17 Lt	M1-6-24 & R12-2-24	Special Assembly A	4.0	5.0	13.2				5.0	2.5 X 2.5 10 ga	14.2						1	4	3 x 3 7 ga			1	
870+03 Lt	R1-1-30 & D3-1-36	Special Assembly 2	12.0	5.2	13.3				5.0	2.5 x 2.5 10 ga	15.9						1	4	3 x 3 7 ga			1	
872+48 Rt	M1-6-24 & R12-2-24	Special Assembly A	4.0	5.0	13.2				5.0	2.5 X 2.5 10 ga	14.2						1	4	3 x 3 7 ga			1	
876+48 Rt	R2-1-24	9		5.0	11.7				5.0	2.25 x 2.25 12 ga	15.0						1	4	2.5 x 2.5 12 ga				
969+73 Lt	R2-1-24	9		5.0	11.7				5.0	2.25 x 2.25 12 ga	15.0						1	4	2.5 x 2.5 12 ga				
973+73 Lt	M1-6-24 & R12-2-24	Special Assembly A	4.0	5.0	13.2				5.0	2.5 X 2.5 10 ga	14.2						1	4	3 x 3 7 ga			1	
975+59 Lt	R1-1-30 & D3-1-36	Special Assembly 2	12.0	5.2	13.3				5.0	2.5 x 2.5 10 ga	15.9						1	4	3 x 3 7 ga			1	
976+07 Rt	R1-1-30	1		5.2	11.7				5.0	2.25 x 2.25 12 ga	13.7						1	4	2.5 x 2.5 12 ga				
976+09 Lt	BREDAHL'S																			1	1		
977+93 Rt	M1-6-24 & R12-2-24	Special Assembly A	4.0	5.0	13.2				5.0	2.5 X 2.5 10 ga	14.2						1	4	3 x 3 7 ga			1	
981+93 Rt	R2-1-24	9		5.0	11.7				5.0	2.25 x 2.25 12 ga	15.0						1	4	2.5 x 2.5 12 ga				
1022+26 Lt	R2-1-24	9		5.0	11.7				5.0	2.25 x 2.25 12 ga	15.0						1	4	2.5 x 2.5 12 ga				
1026+26 Lt	M1-6-24 & R12-2-24	Special Assembly A	4.0	5.0	13.2				5.0	2.5 X 2.5 10 ga	14.2						1	4	3 x 3 7 ga			1	
1028+12 Lt	R1-1-30 & D3-1-36	Special Assembly 2	12.0	5.2	13.3				5.0	2.5 x 2.5 10 ga	15.9						1	4	3 x 3 7 ga			1	
1030+58 Rt	M1-6-24 & R12-2-24	Special Assembly A	4.0	5.0	13.2				5.0	2.5 X 2.5 10 ga	14.2						1	4	3 x 3 7 ga			1	
1034+58 Rt	R2-1-24	9		5.0	11.7				5.0	2.25 x 2.25 12 ga	15.0						1	4	2.5 x 2.5 12 ga				
1037+85 Rt	W1-2R-30	19		6.3	12.4				5.0	2.5 x 2.5 12 ga	14.5						1	4	3 x 3 7 ga				
1065+70 Lt	W1-2L-30	19		6.3	12.2				5.0	2.5 x 2.5 12 ga	14.5						1	4	3 x 3 7 ga				

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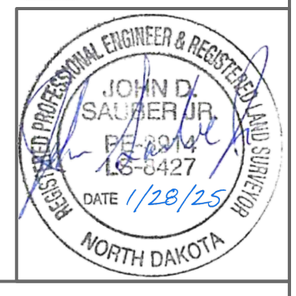

Sign Summary

Reconstruction
County Route 1

Mountrail County, ND

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	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	Verticle Clearance 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 EA	Anchor Size	Reset Sign Panel EA	Reset Sign Support Ea	Break-away EA	Comments
1088+70 Rt	W1-2R-30	19		6.3	12.4				5.0	2.5 x 2.5 12 ga	14.5						1	4	3 x 3 7 ga				
1095+75 Lt	W1-2L-30	19		6.3	12.2				5.0	2.5 x 2.5 12 ga	14.5						1	4	3 x 3 7 ga				
1116+10 Rt	W1-2L-30	19		6.3	12.2				5.0	2.5 x 2.5 12 ga	14.5						1	4	3 x 3 7 ga				
1126+20 Lt	W1-2R-30	19		6.3	12.4				5.0	2.5 x 2.5 12 ga	14.5						1	4	3 x 3 7 ga				
1149+80 Lt	R2-1-24	9		5.0	11.7				5.0	2.25 x 2.25 12 ga	15.0						1	4	2.5 x 2.5 12 ga				
1153+80 Lt	M1-6-24 & R12-2-24	Special Assembly A	4.0	5.0	13.2				5.0	2.5 X 2.5 10 ga	14.2						1	4	3 x 3 7 ga			1	
1155+66 Lt	R1-1-30 & D3-1-36	Special Assembly 2	12.0	5.2	13.3				5.0	2.5 x 2.5 10 ga	15.9						1	4	3 x 3 7 ga			1	
1158+06 Rt	M1-6-24 & R12-2-24	Special Assembly A	4.0	5.0	13.2				5.0	2.5 X 2.5 10 ga	14.2						1	4	3 x 3 7 ga			1	
1162+06 Rt	R2-1-24	9		5.0	11.7				5.0	2.25 x 2.25 12 ga	15.0						1	4	2.5 x 2.5 12 ga				
1258+22 Lt	R2-1-24	9		5.0	11.7				5.0	2.25 x 2.25 12 ga	15.0						1	4	2.5 x 2.5 12 ga				
1262+22 Lt	M1-6-24 & R12-2-24	Special Assembly A	4.0	5.0	13.2				5.0	2.5 X 2.5 10 ga	14.2						1	4	3 x 3 7 ga			1	
1264+63 Rt	R1-1-30 & D3-1-36	Special Assembly 2	12.0	5.2	13.3				5.0	2.5 x 2.5 10 ga	15.9						1	4	3 x 3 7 ga			1	
1266+49 Rt	M1-6-24 & R12-2-24	Special Assembly A	4.0	5.0	13.2				5.0	2.5 X 2.5 10 ga	14.2						1	4	3 x 3 7 ga			1	
1270+49 Rt	R2-1-24	9		5.0	11.7				5.0	2.25 x 2.25 12 ga	15.0						1	4	2.5 x 2.5 12 ga				
1289+95 Rt	W3-1-30	19		6.3	12.4				5.0	2.5 X 2.5 12 ga	14.5						1	4	3 x 3 7 ga				
1293+95 Rt	M1-4-24 & M2-1-21	391	6.2		12.5				5.0	2.25 x 2.25 12 ga	12.7						1	4	2.5 x 2.5 12 ga				
1296+11 Lt	R2-1-24	9		5.0	11.7				5.0	2.25 x 2.25 12 ga	15.0						1	4	2.5 x 2.5 12 ga				
1300+11 Lt	M1-6-24 & R12-2-24	Special Assembly A	4.0	5.0	13.2				5.0	2.5 X 2.5 10 ga	14.2						1	4	3 x 3 7 ga			1	
Sub Total			140.4	226.8	Total	563.7											Total	180		3	3	20	
Grand Total			140.4	226.8	Total	563.7											Total	180		3	3	20	

SAUBER ENGINEERING

REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-3214
LS-8427
DATE 1/28/25
NORTH DAKOTA

Sign Summary

Reconstruction
County Route 1

Mountrail County, ND

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	110	3

NE ¼
Sec 10
T-154-N
R-88-W

STOP
R1-1-48
Sta. 764+32 Lt
Leave in Place
Panel & Support

MORTON 10 COUNTY
M1-6-24
M6-4-21
Sta. 768+61 Lt
Remove Sign
Panels & Support

SE ¼
Sec 3
T-154-N
R-88-W

MORTON 10 COUNTY
M1-6-24
M6-4-21
Sta. 768+80 Lt
New Sign
Panels & Support

W2-1-30
Sta. 770+79 Lt
Remove Sign
Panel & Support

W2-1-30
Sta. 772+80 Lt
New Sign
Panel & Support

Sec Line
PI: 764+63.46
765+00
770+00
775+00
780+00
FO
Exst R/W
Prop'd R/W
Temp Esmt
Sec Line

NW ¼
Sec 11
T-154-N
R-88-W

G-2
Sta. 763+17 Rt
Leave in Place
Panel & Support

County Route 10
53rd St NW

53RD ST NW
62ND AVE NW
D3-1-36

STOP
R1-1-48
Sta. 764+94 Rt
Leave in Place
Panels & Support

SW ¼
Sec 2
T-154-N
R-88-W

MOUNTRAIL 1 COUNTY
M1-6-24
By Legal Weight 105,500 LBS MAX
R12-2-24
Sta. 766+80 Rt
New Sign
Panels & Support

MOUNTRAIL 1 COUNTY
M1-6-24
By Legal Weight 105,500 LBS MAX
R12-2-24
Sta. 768+61 Rt
Remove Sign
Panels & Support

1/16 Line

SPEED LIMIT 45
R2-1-24
Sta. 770+80 Rt
New Sign
Panel & Support

SPEED LIMIT 45
R2-1-24
TRUCKS 35
R2-2P-36
Sta. 771+43 Rt
Remove Sign
Panels & Support

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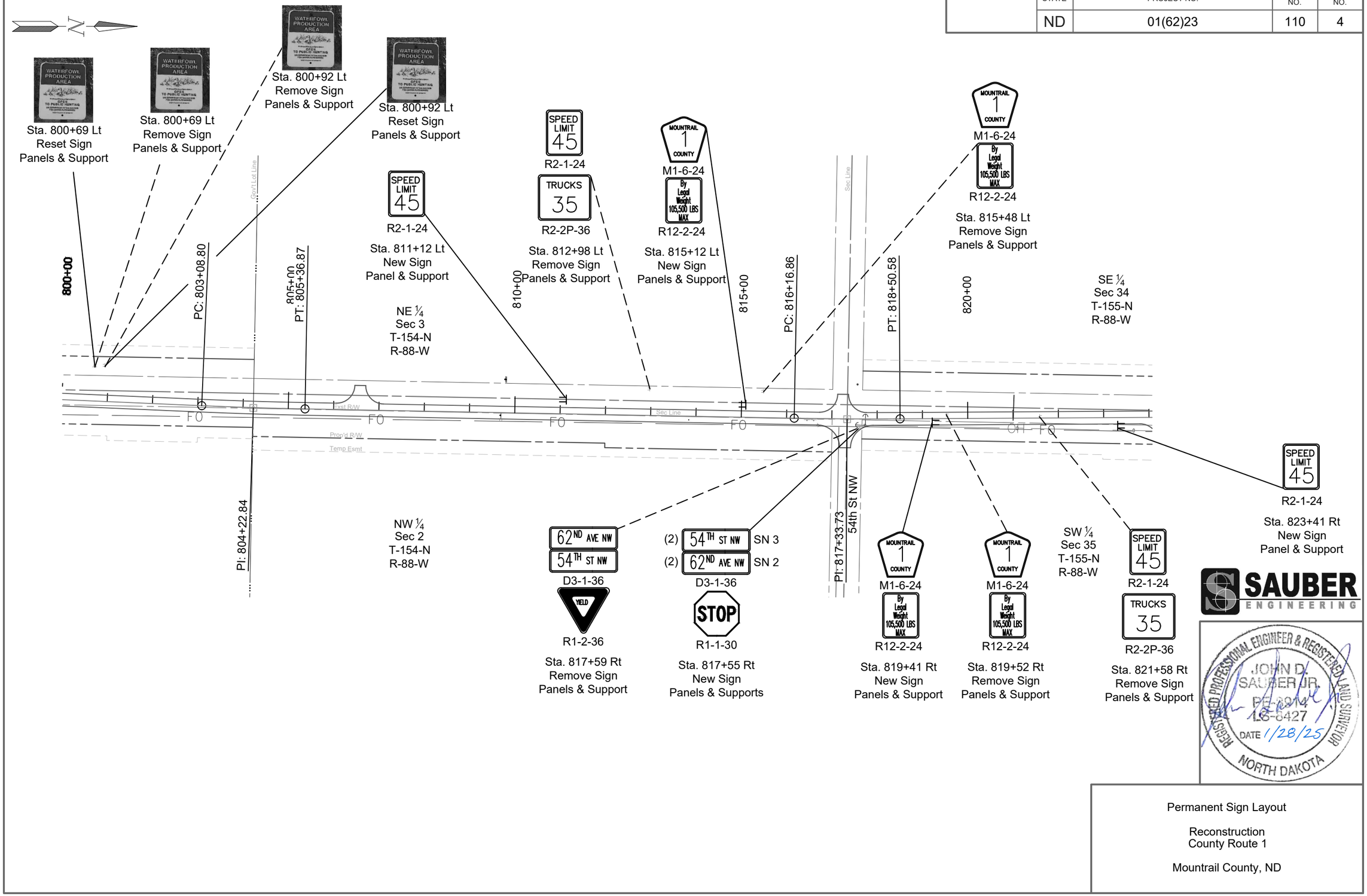
JOHN D. SAUBER JR.
PE-3214
LS-6427
DATE 1/28/25
NORTH DAKOTA

Permanent Sign Layout

Reconstruction
County Route 1

Mountrail County, ND

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	110	4



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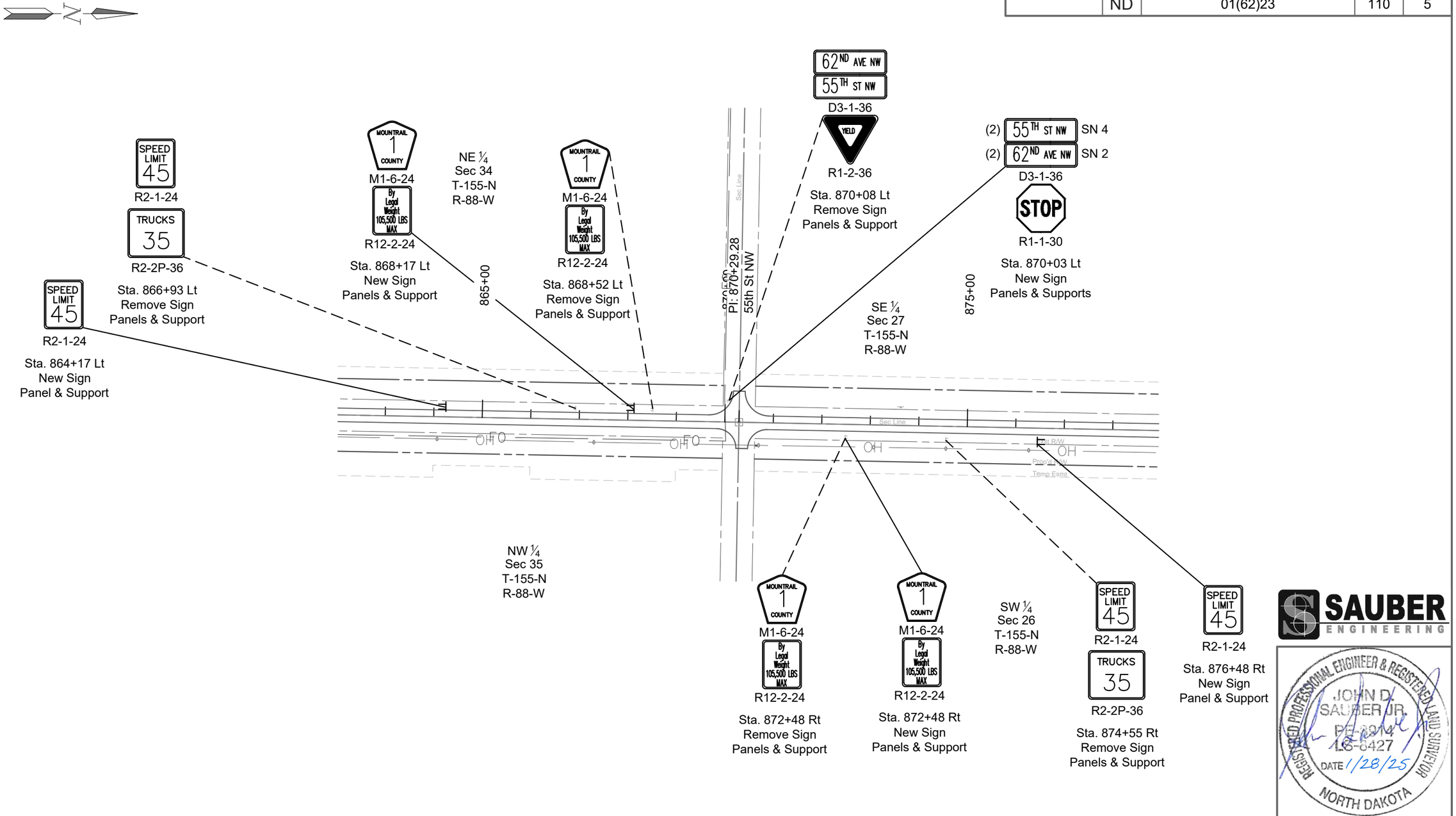
JOHN D. SAUBER JR.
PE-3914
LS-8427
DATE 1/28/25
NORTH DAKOTA

Permanent Sign Layout

Reconstruction
County Route 1

Mountrail County, ND

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	110	5



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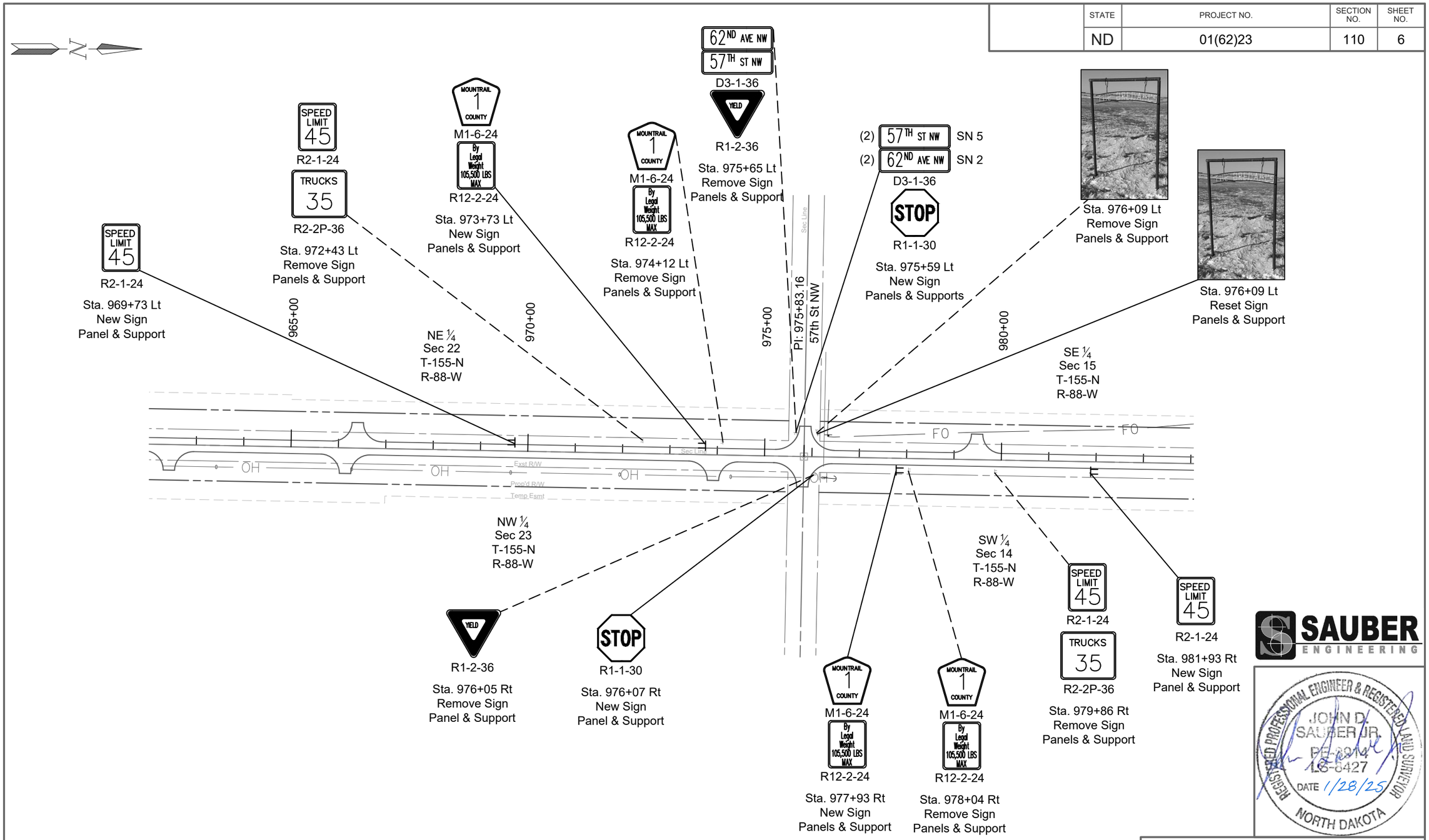
JOHN D. SAUBER JR.
PE-3914
LS-8427
DATE 1/28/25
NORTH DAKOTA

Permanent Sign Layout

Reconstruction
County Route 1

Mountrail County, ND

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	110	6



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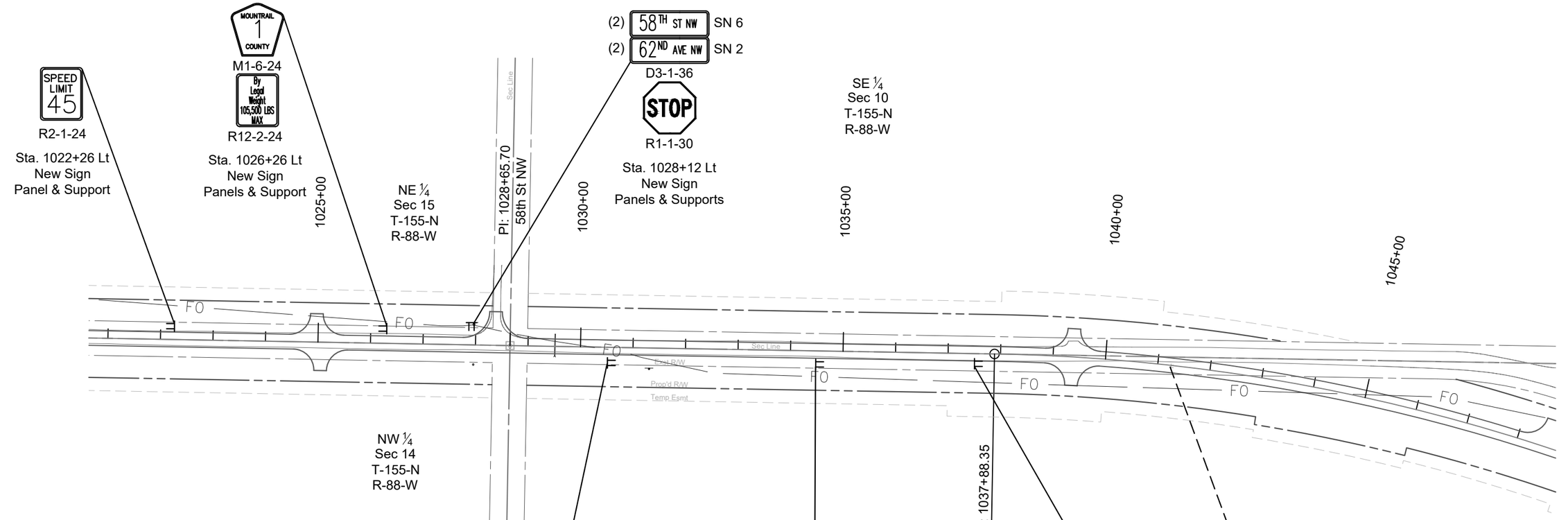
JOHN D. SAUBER JR.
PE-3914
LS-6427
DATE 1/28/25
NORTH DAKOTA

Permanent Sign Layout

Reconstruction
County Route 1

Mountrail County, ND

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	110	7



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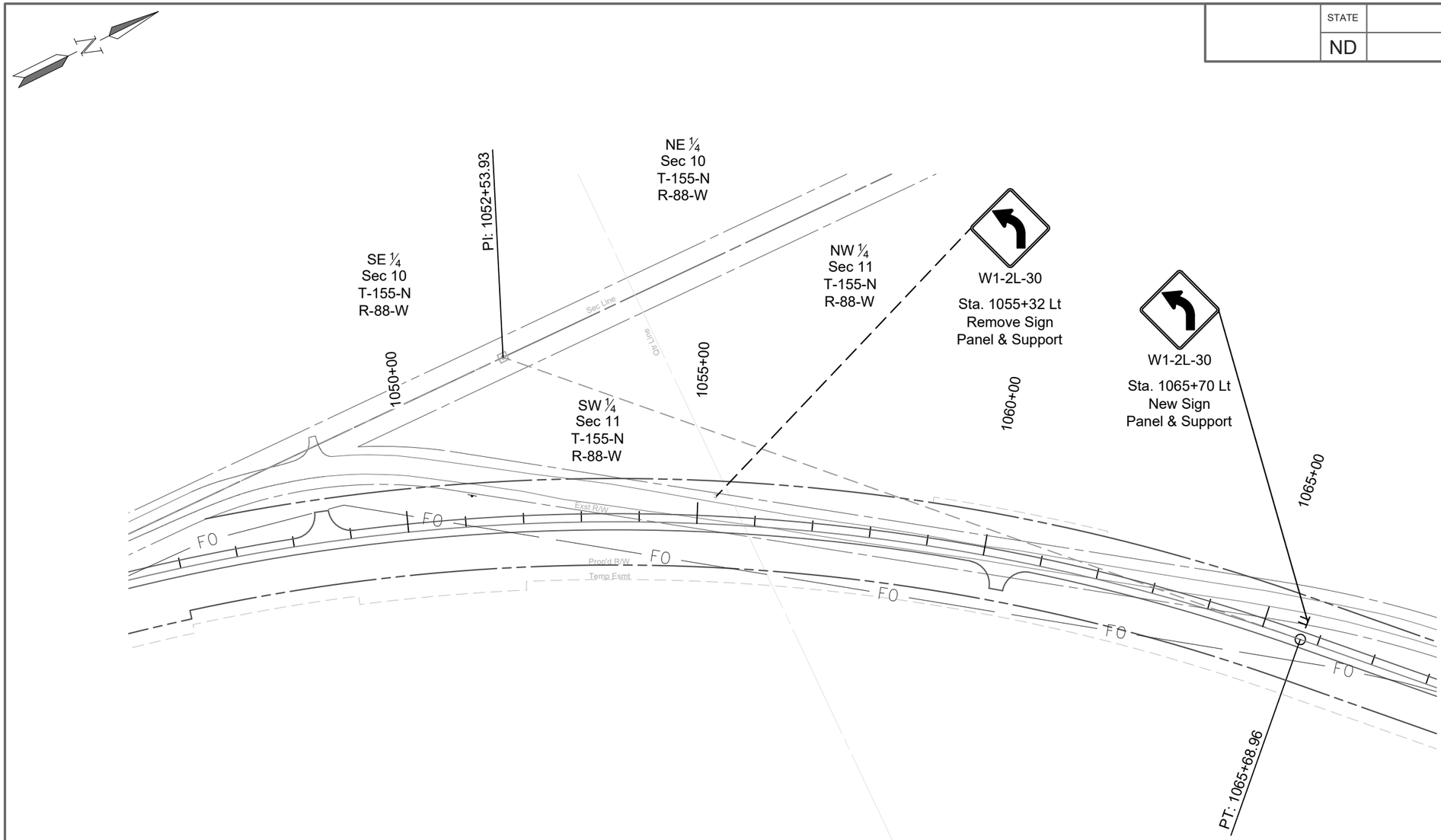
JOHN D. SAUBER JR.
PE-3914
LS-6427
DATE 1/28/25
NORTH DAKOTA

Permanent Sign Layout

Reconstruction
County Route 1

Mountrail County, ND

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	110	8



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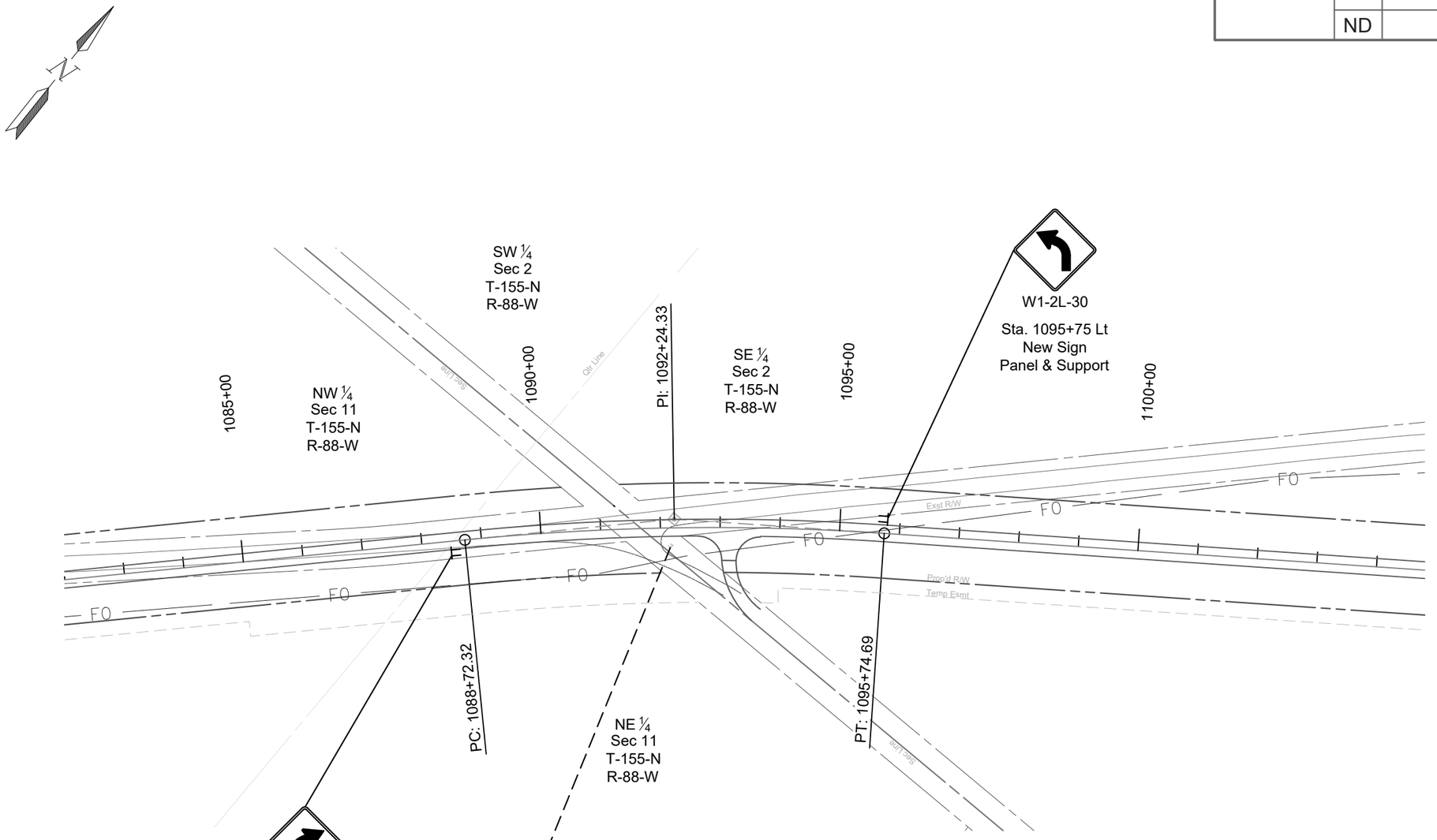
JOHN D. SAUBER JR.
PE-3914
LS-6427
DATE 1/28/25
NORTH DAKOTA

Permanent Sign Layout

Reconstruction
County Route 1

Mountrail County, ND

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	110	9



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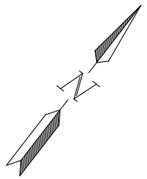
PE-3914
LS-6427
DATE 1/28/25
NORTH DAKOTA

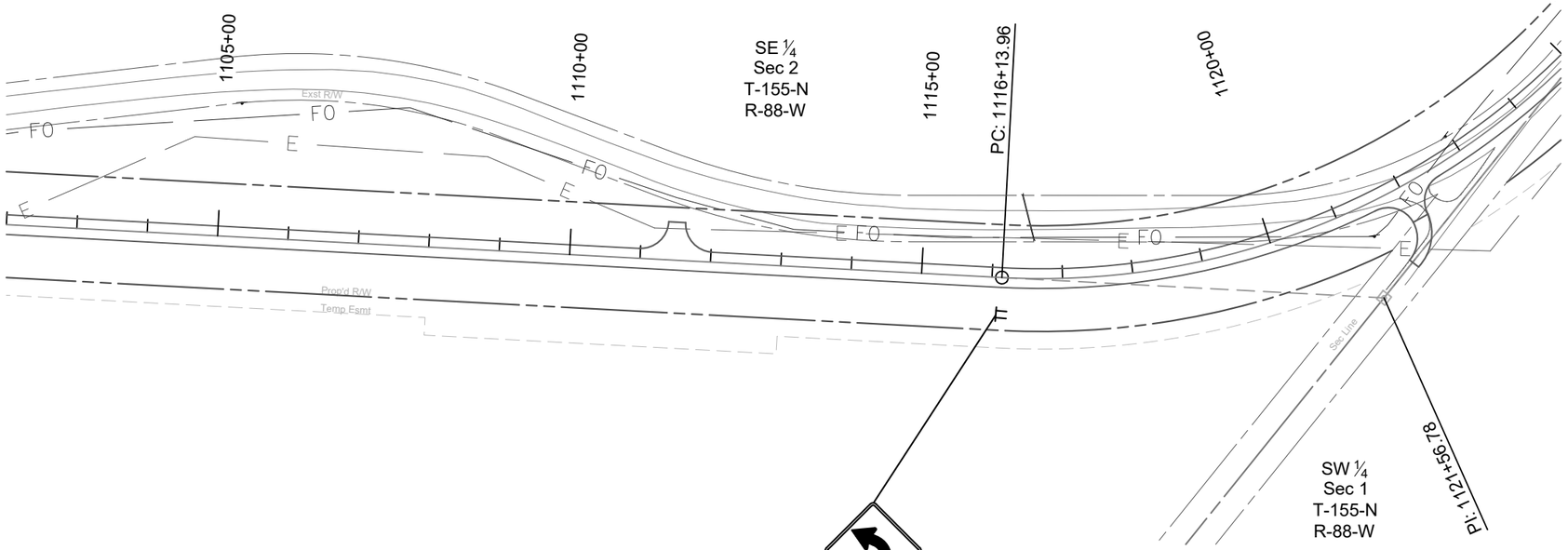
Permanent Sign Layout

Reconstruction
County Route 1

Mountrail County, ND

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	110	10





W1-2L-30

Sta. 1116+10 Rt
New Sign
Panel & Support

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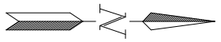
JOHN D. SAUBER JR.
PE-3914
LS-6427
DATE 1/28/25
NORTH DAKOTA

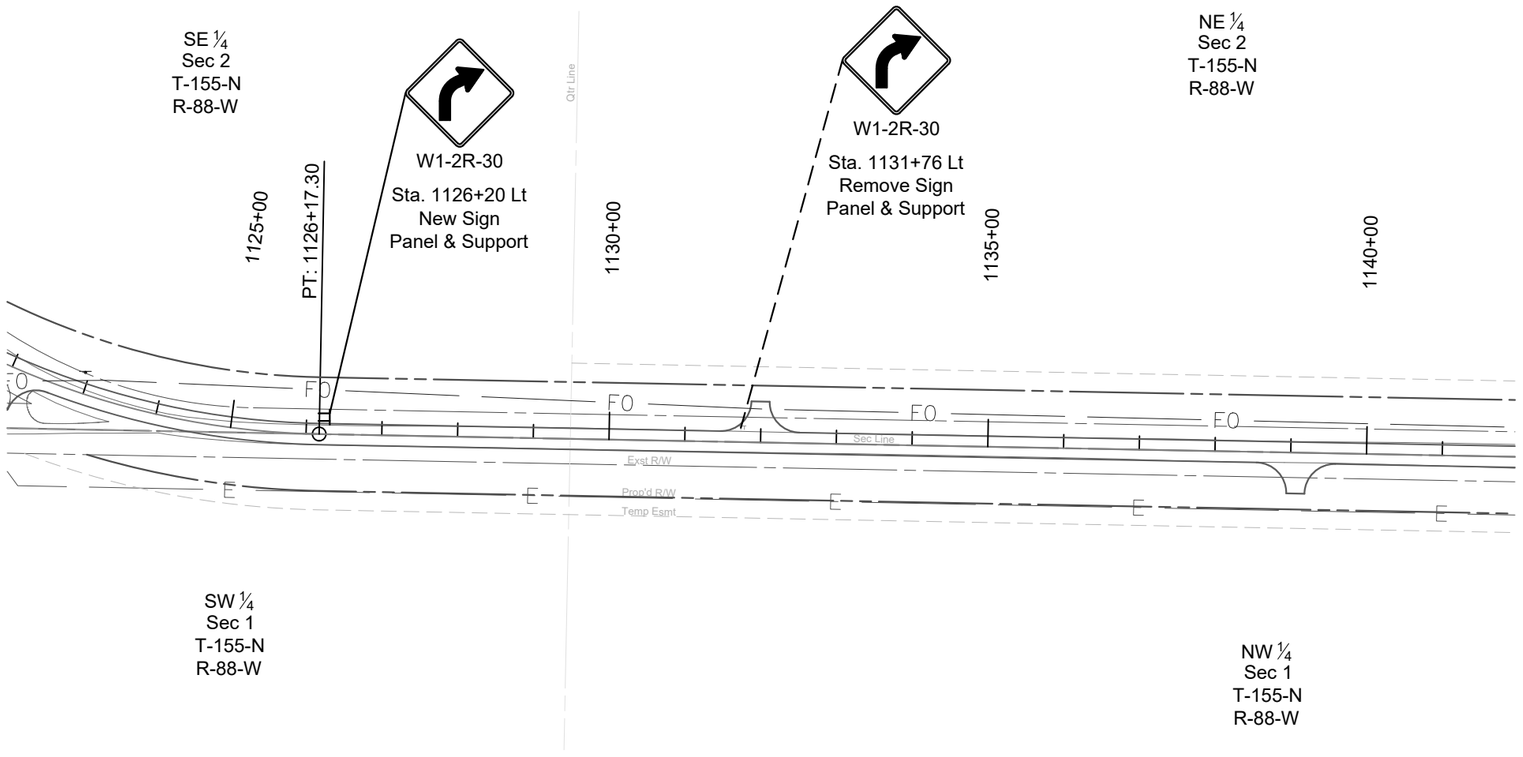
Permanent Sign Layout

Reconstruction
County Route 1

Mountrail County, ND

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	110	11





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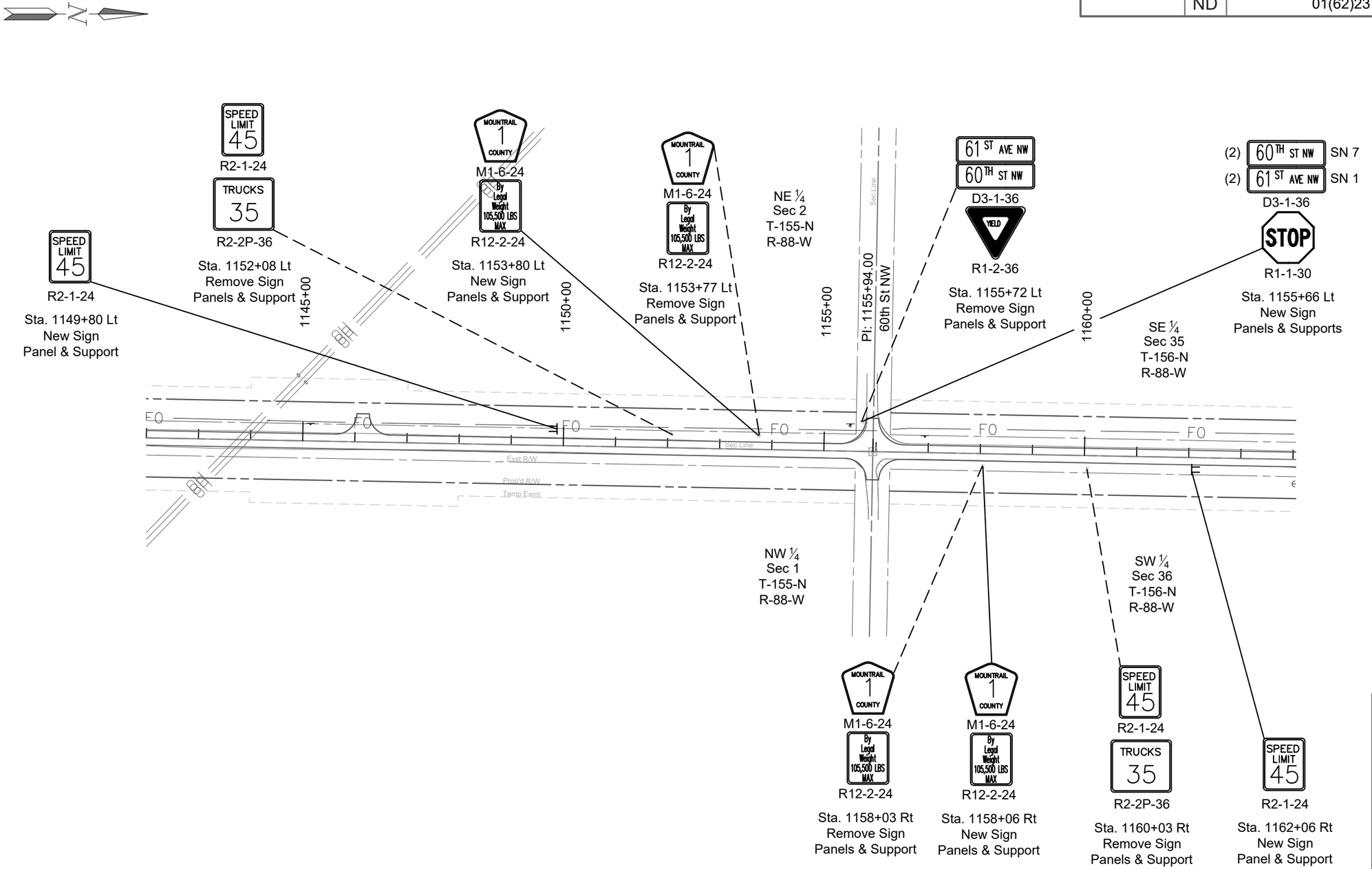
JOHN D. SAUBER JR.
PE-8914
LS-6427
DATE 1/28/25
NORTH DAKOTA

Permanent Sign Layout

Reconstruction
County Route 1

Mountrail County, ND

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	110	12



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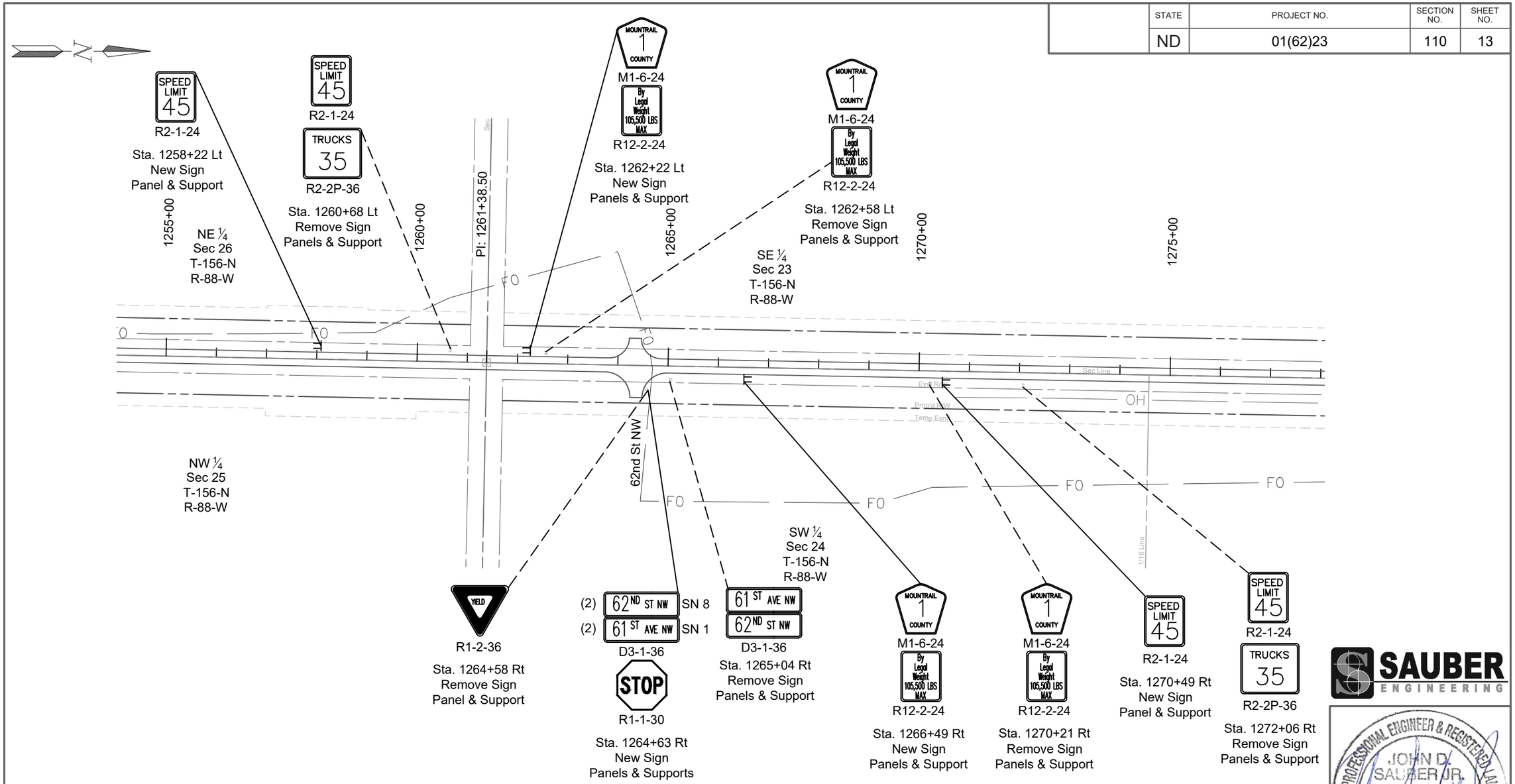
JOHN D. SAUBER JR.
PE-3814
LS-5427
DATE 1/28/25
NORTH DAKOTA

Permanent Sign Layout

Reconstruction
County Route 1

Mountrail County, ND

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	110	13



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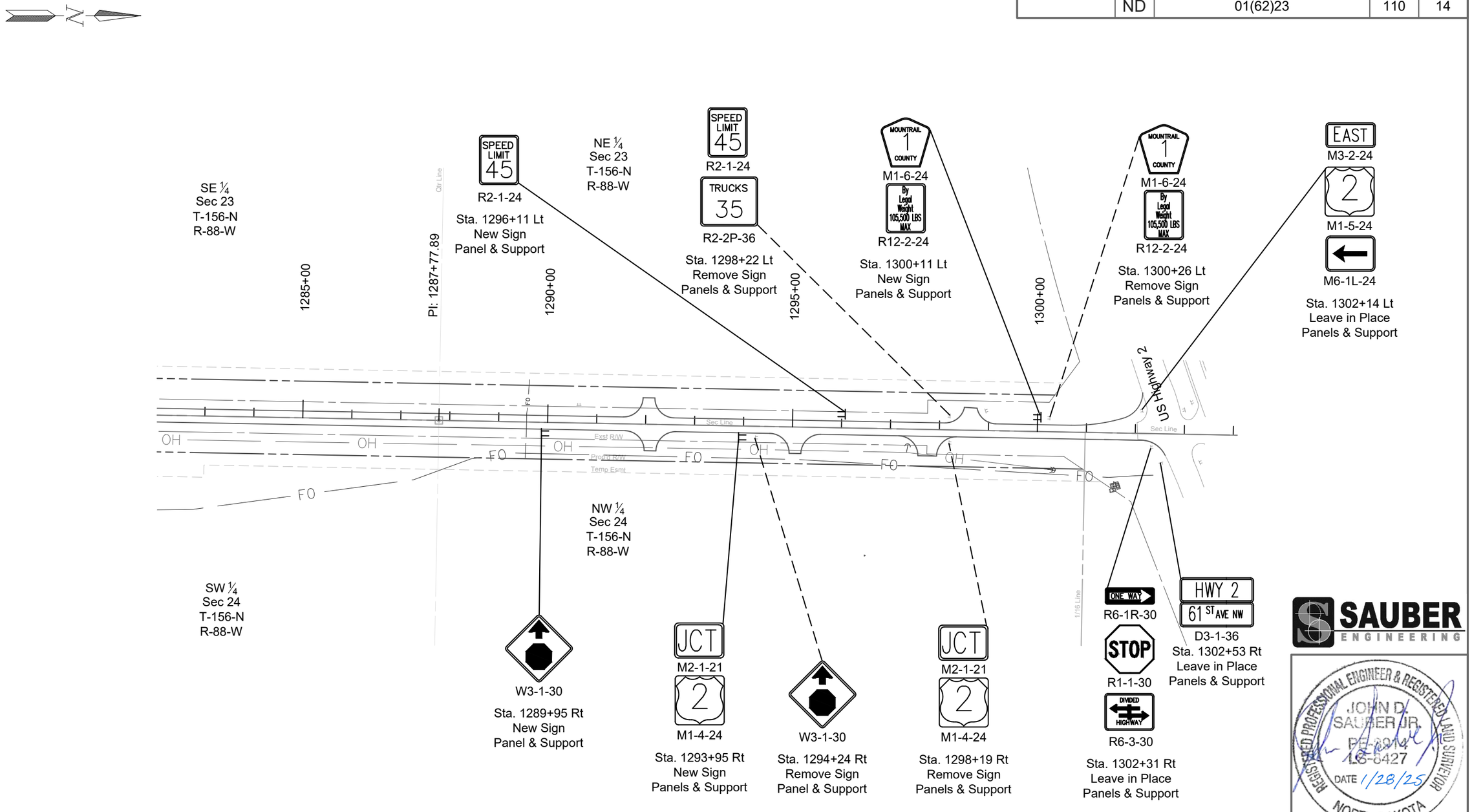
REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-2914
LS-6427
DATE 1/28/25
NORTH DAKOTA

Permanent Sign Layout

Reconstruction
County Route 1

Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	110	14



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JOHN D. SAUBER JR.
PE-3214
LS-8427
DATE 1/28/25
NORTH DAKOTA

Permanent Sign Layout

Reconstruction
County Route 1

Mountrail County, ND

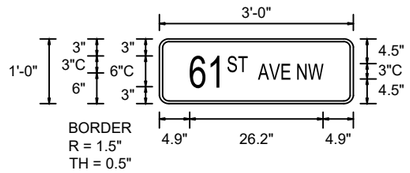
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	110	15

SIGN NUMBER	SN 1
WIDTH X HEIGHT	3'-0" x 1'-0"
BORDER WIDTH	0.5"
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White/White

SYMBOL	X	Y	WID	HT	ANGLE

AREA: 3.0 Sq.Ft.

STATION(S): 1155+66 Lt (2), 1264+63 Rt (2)



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: Street Name 6-1.ssi

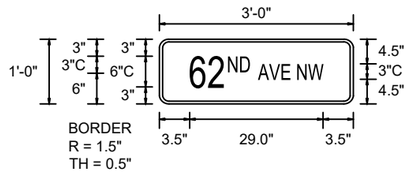
LETTER POSITION (X)																			LENGTH	SIZE	SERIES
6	1	S	T		A	V	E		N	W									26.2	6	C 2000
4.9	9.3	11.6	13.8		18.3	20.6	23.3		26.3	28.8											

SIGN NUMBER	SN 2
WIDTH X HEIGHT	3'-0" x 1'-0"
BORDER WIDTH	0.5"
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White/White

SYMBOL	X	Y	WID	HT	ANGLE

AREA: 3.0 Sq.Ft.

STATION(S): 817+55 Rt (2), 870+03 Lt (2), 975+59 Rt (2), 1028+12 Lt (2)



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: Street Name 6-2.ssi

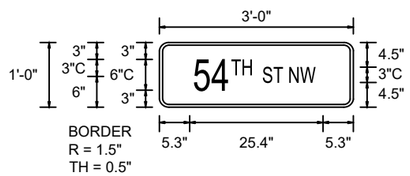
LETTER POSITION (X)																			LENGTH	SIZE	SERIES
6	2	N	D		A	V	E		N	W									29.0	6	C 2000
3.5	7.8	12.1	15.1		19.7	22.0	24.7		27.7	30.2											

SIGN NUMBER	SN 3
WIDTH X HEIGHT	3'-0" x 1'-0"
BORDER WIDTH	0.5"
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White/White

SYMBOL	X	Y	WID	HT	ANGLE

AREA: 3.0 Sq.Ft.

STATION(S): 817+55 Rt (2)



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: Street Name 5-4.ssi

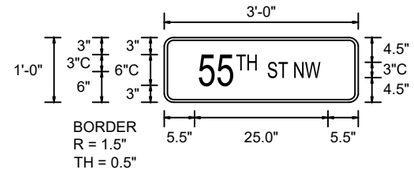
LETTER POSITION (X)																			LENGTH	SIZE	SERIES
5	4	T	H		S	T		N	W										25.4	6	C 2000
5.3	9.2	13.6	16.0		20.7	22.9		25.9	28.4												

SIGN NUMBER	SN 4
WIDTH X HEIGHT	3'-0" x 1'-0"
BORDER WIDTH	0.5"
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White/White

SYMBOL	X	Y	WID	HT	ANGLE

AREA: 3.0 Sq.Ft.

STATION(S): 870+03 Lt (2)



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: Street Name 5-5.ssi

LETTER POSITION (X)																			LENGTH	SIZE	SERIES
5	5	T	H		S	T		N	W										25.0	6	C 2000
5.5	9.6	13.5	15.9		20.4	22.7		25.7	28.2												

SAUBER ENGINEERING

REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-3914
LS-5427
DATE 1/28/25
NORTH DAKOTA

Sign Details

Reconstruction
County Route 1

Mountrail County, ND

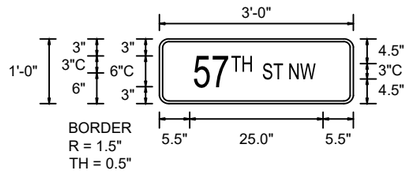
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	110	16

SIGN NUMBER	SN 5
WIDTH X HEIGHT	3'-0" x 1'-0"
BORDER WIDTH	0.5"
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	**TYPE:** IV Reflective
	COLOR: Green
LEGEND/BORDER	**TYPE:** IV Reflective
	COLOR: White/White

SYMBOL	X	Y	WID	HT	ANGLE

AREA: 3.0 Sq.Ft.

STATION(S): 975+59 Lt (2)



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: Street Name 5-7.ssi

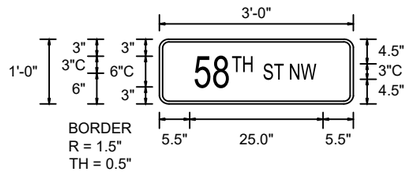
LETTER POSITION (X)																			LENGTH	SIZE	SERIES
5	7	T	H		S	T		N	W										25.0	6	C 2000
5.5	9.4	13.5	15.9		20.4	22.7		25.7	28.2												

SIGN NUMBER	SN 6
WIDTH X HEIGHT	3'-0" x 1'-0"
BORDER WIDTH	0.5"
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	**TYPE:** IV Reflective
	COLOR: Green
LEGEND/BORDER	**TYPE:** IV Reflective
	COLOR: White/White

SYMBOL	X	Y	WID	HT	ANGLE

AREA: 3.0 Sq.Ft.

STATION(S): 1028+12 Lt (2)



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: Street Name 6-0.ssi

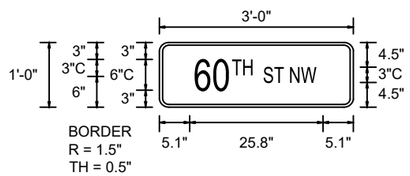
LETTER POSITION (X)																			LENGTH	SIZE	SERIES
5	8	T	H		S	T		N	W										25.0	6	C 2000
5.5	9.6	13.5	15.9		20.4	22.7		25.7	28.2												

SIGN NUMBER	SN 7
WIDTH X HEIGHT	3'-0" x 1'-0"
BORDER WIDTH	0.5"
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	**TYPE:** IV Reflective
	COLOR: Green
LEGEND/BORDER	**TYPE:** IV Reflective
	COLOR: White/White

SYMBOL	X	Y	WID	HT	ANGLE

AREA: 3.0 Sq.Ft.

STATION(S): 1155+66 Lt (2)



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: Street Name 6-0.ssi

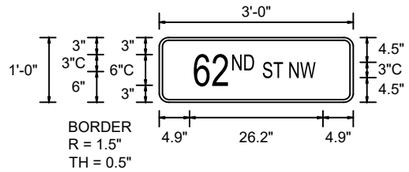
LETTER POSITION (X)																			LENGTH	SIZE	SERIES
6	0	T	H		S	T		N	W										25.8	6	C 2000
5.1	9.5	13.8	16.2		20.9	23.1		26.1	28.6												

SIGN NUMBER	SN 8
WIDTH X HEIGHT	3'-0" x 1'-0"
BORDER WIDTH	0.5"
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	**TYPE:** IV Reflective
	COLOR: Green
LEGEND/BORDER	**TYPE:** IV Reflective
	COLOR: White/White

SYMBOL	X	Y	WID	HT	ANGLE

AREA: 3.0 Sq.Ft.

STATION(S): 1264+63 Rt (2)



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: Street Name 6-2(2).ssi

LETTER POSITION (X)																			LENGTH	SIZE	SERIES
6	2	N	D		S	T		N	W										26.2	6	C 2000
4.9	9.2	13.5	16.5		21.1	23.3		26.3	28.9												

SAUBER ENGINEERING

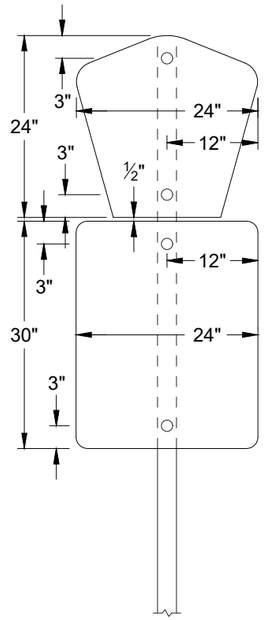
REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-8914
LS-8427
DATE 1/28/25
NORTH DAKOTA

Sign Details

Reconstruction
County Route 1

Mountrail County, ND

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	110	17



Special Assembly A

SAUBER ENGINEERING

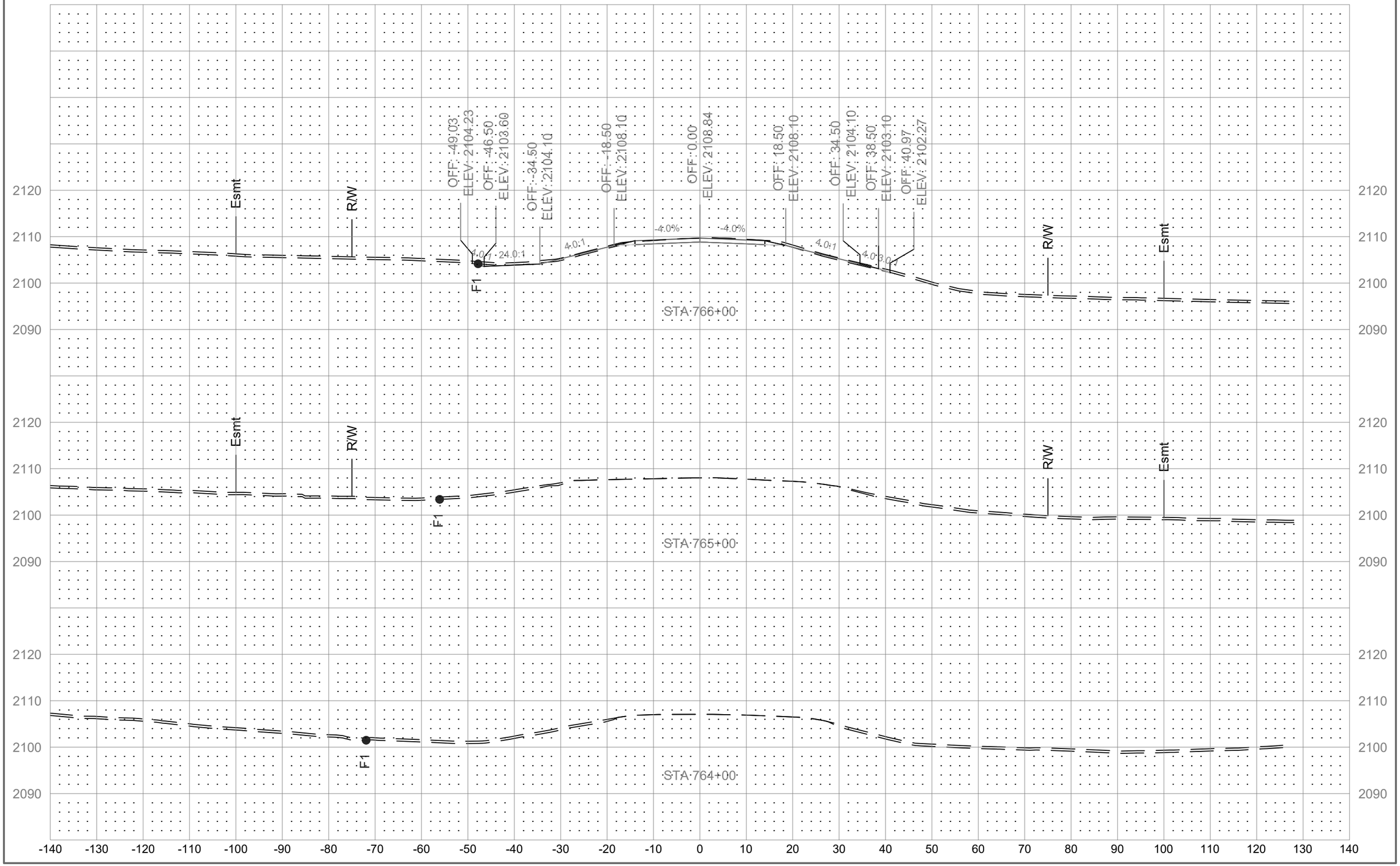
REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR
JOHN D. SAUBER JR.
PE-3914
LS-6427
DATE 1/28/25
NORTH DAKOTA

Sign Special Assembly

Reconstruction
County Route 1

Mountrail County, ND

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	1



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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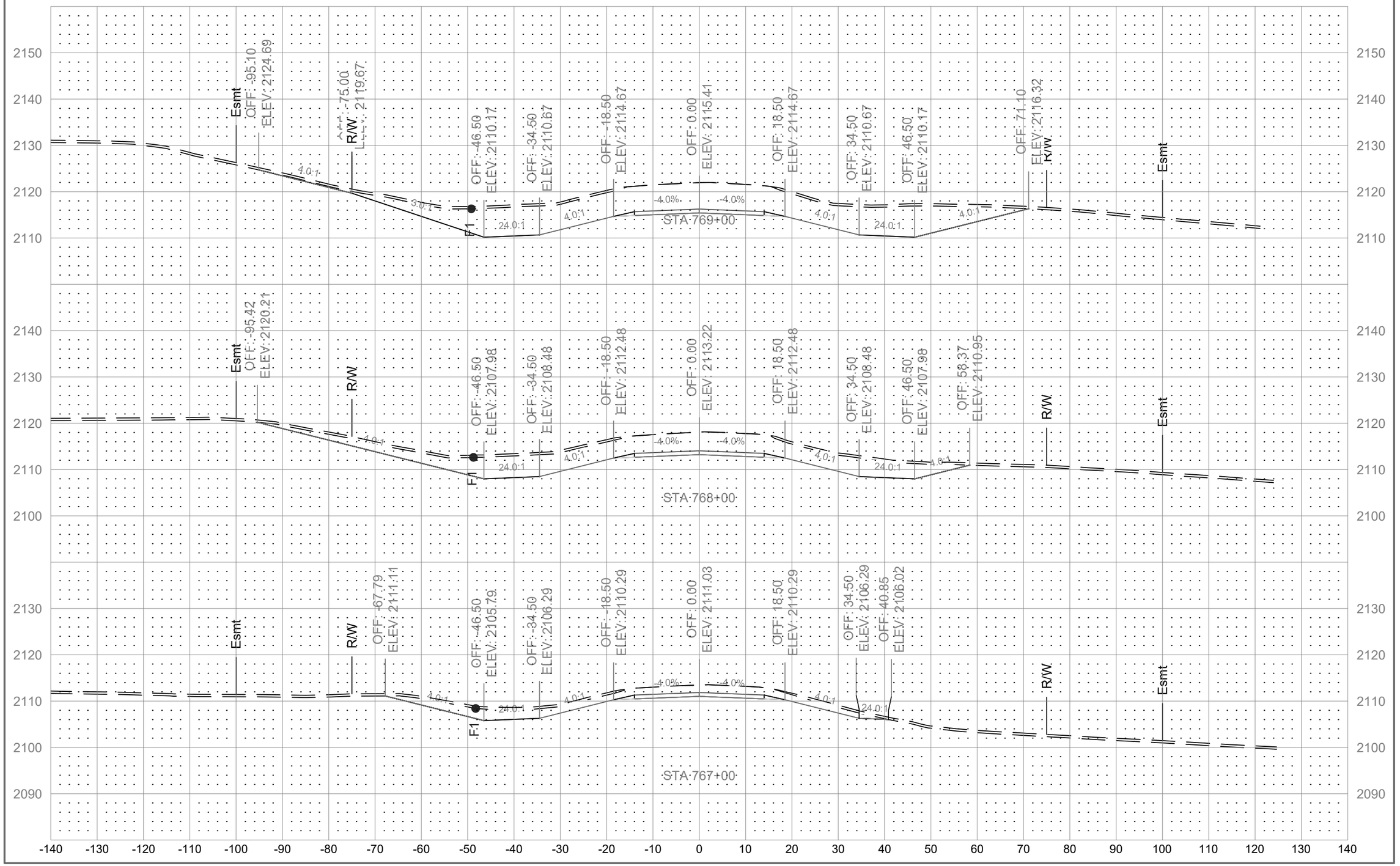
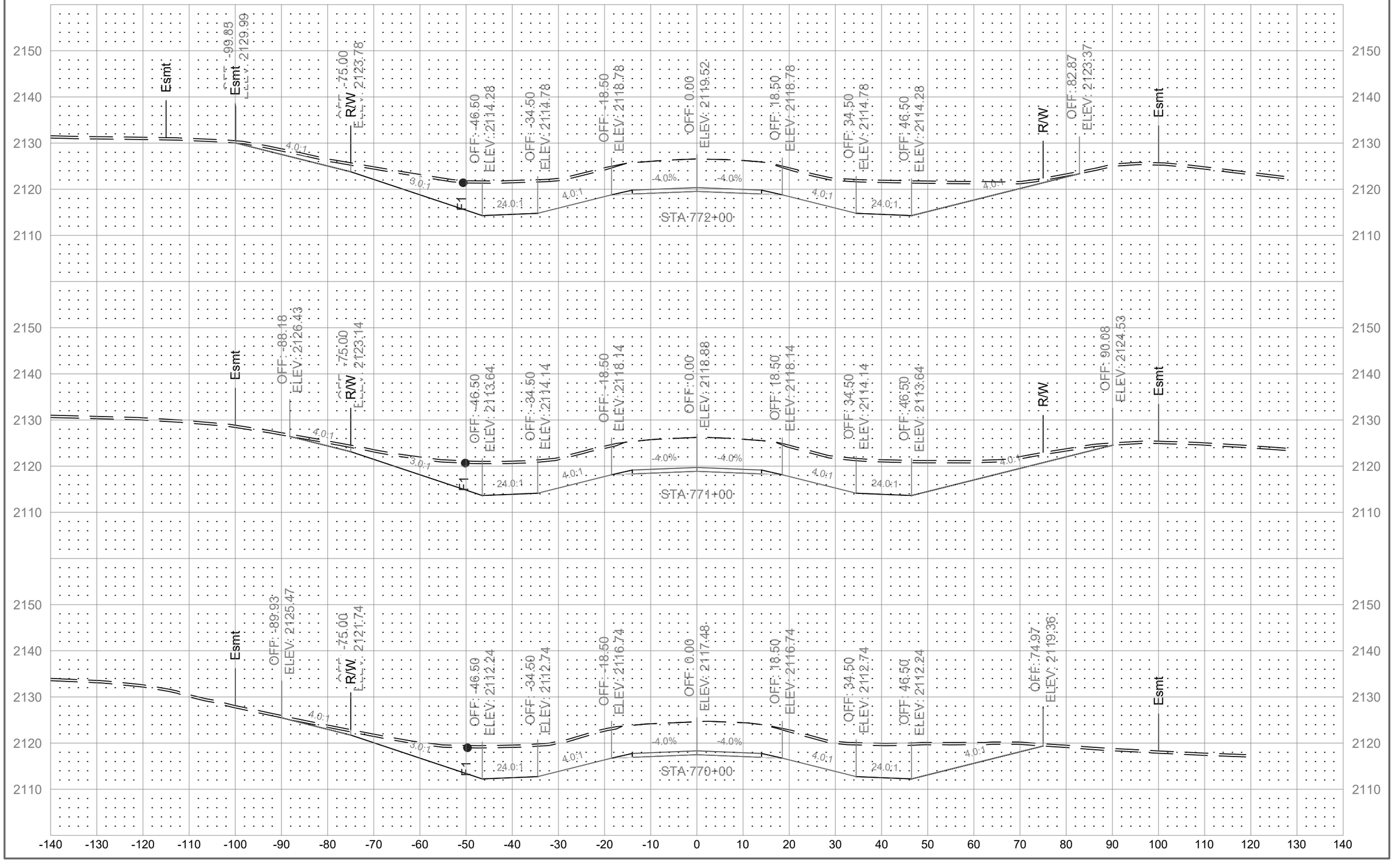
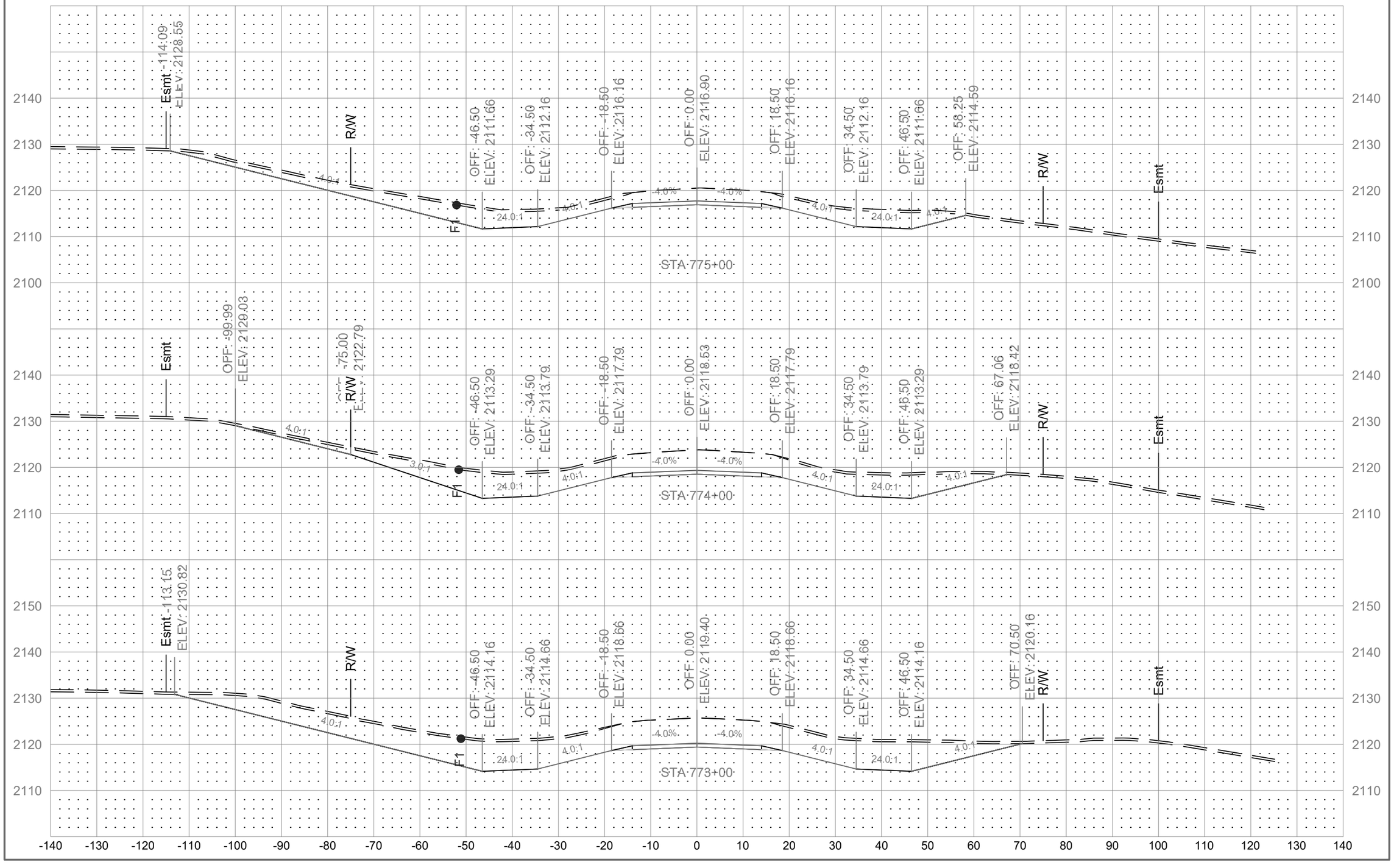


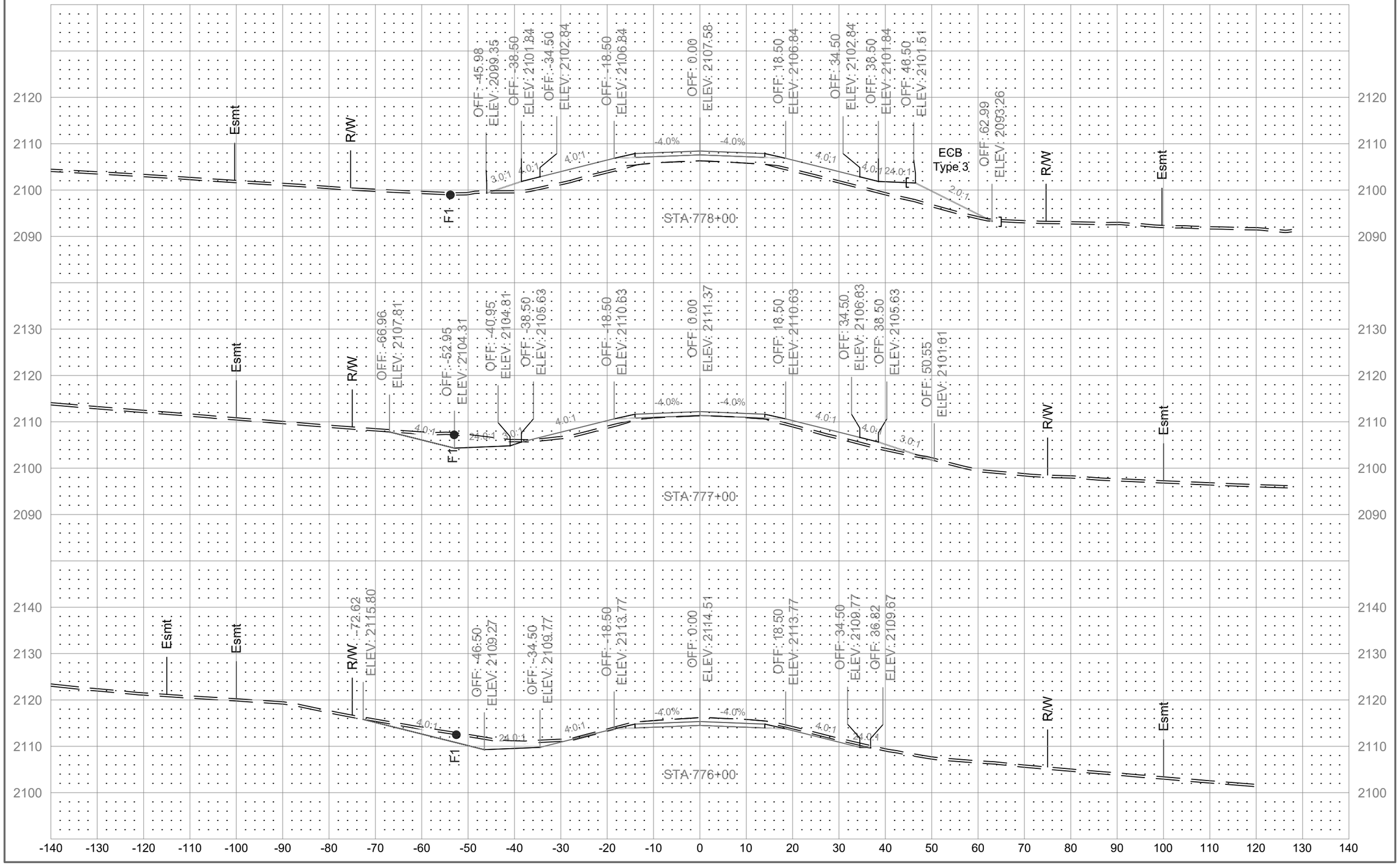
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	3



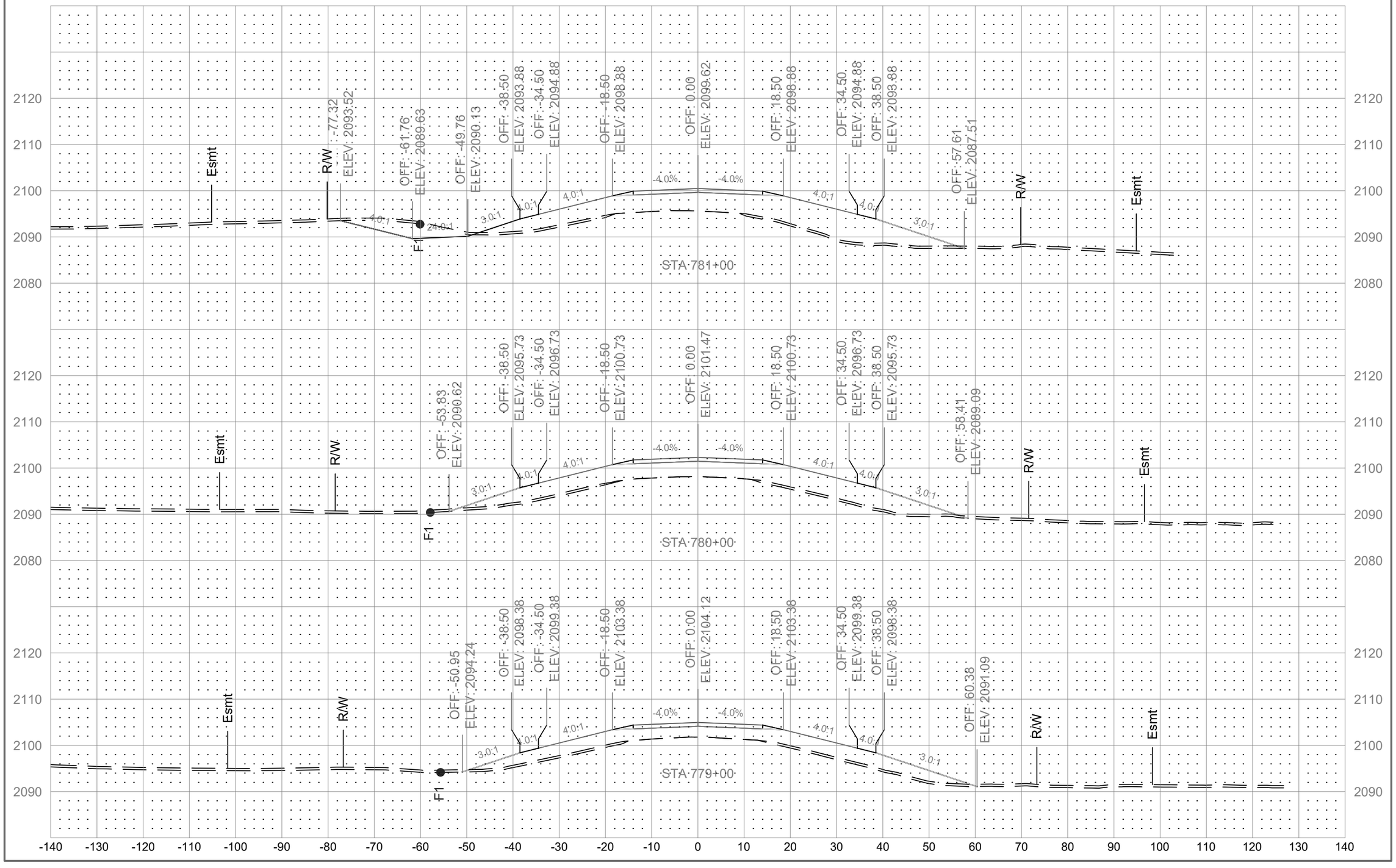
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	4



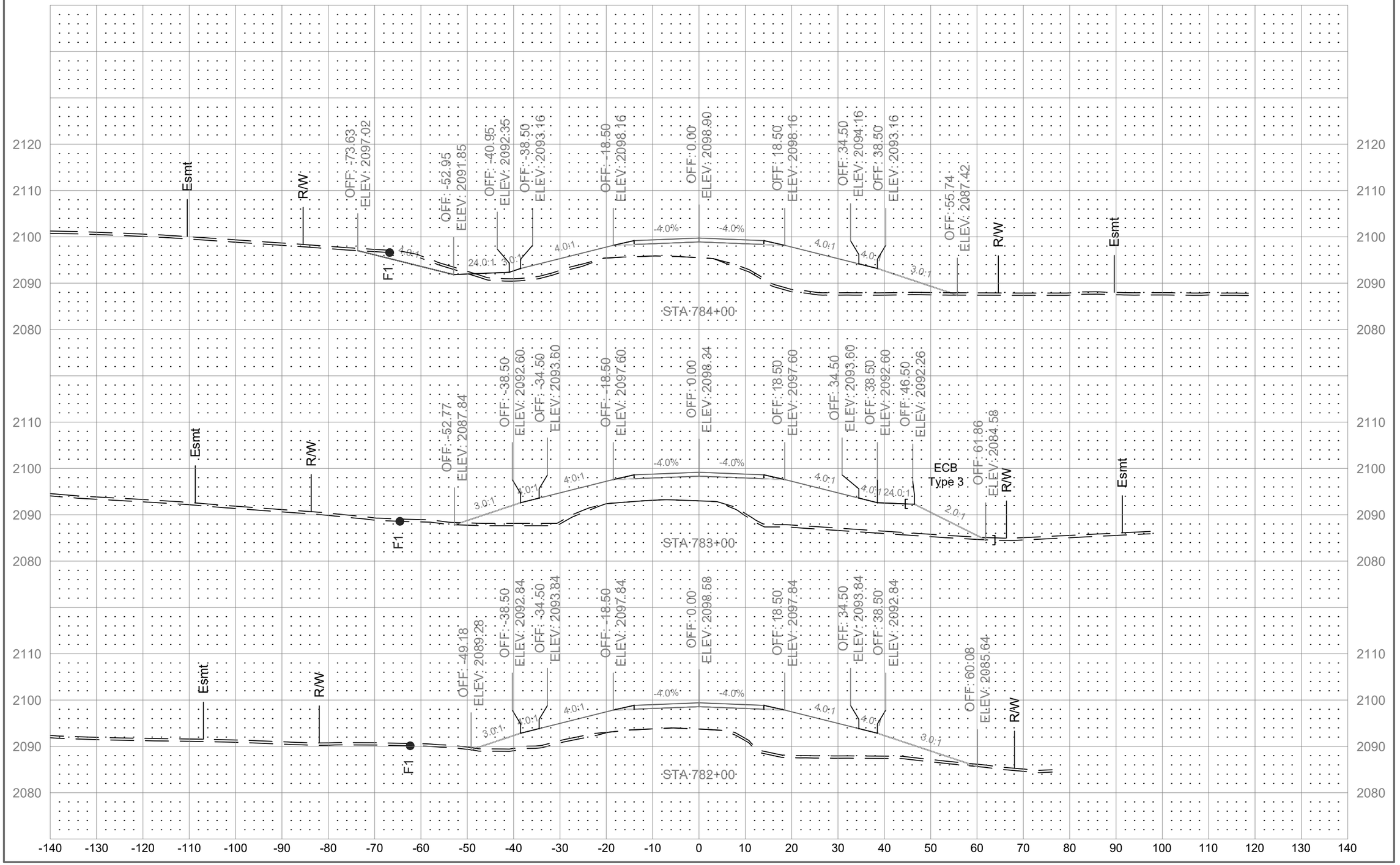
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	5



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	6



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	7



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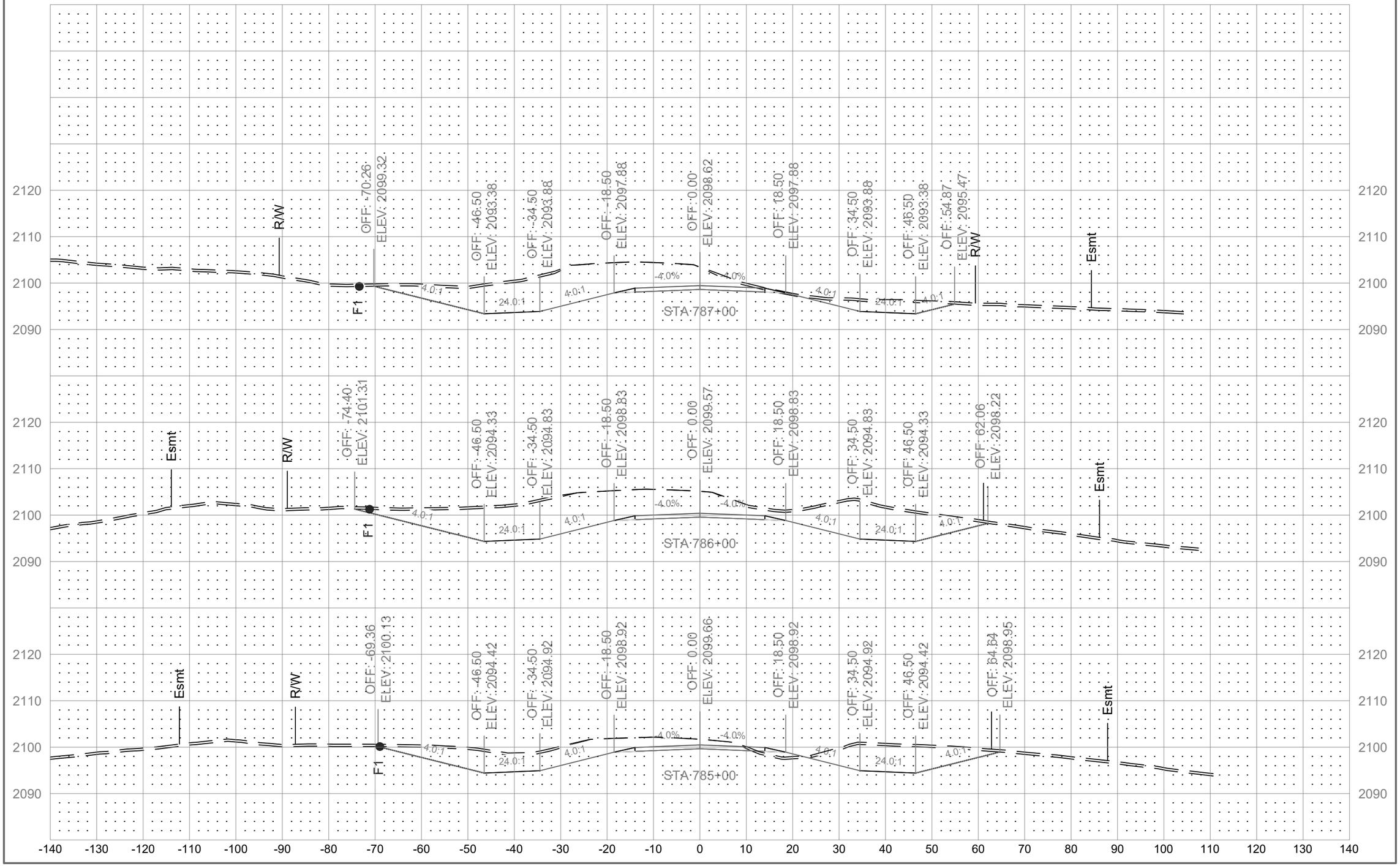
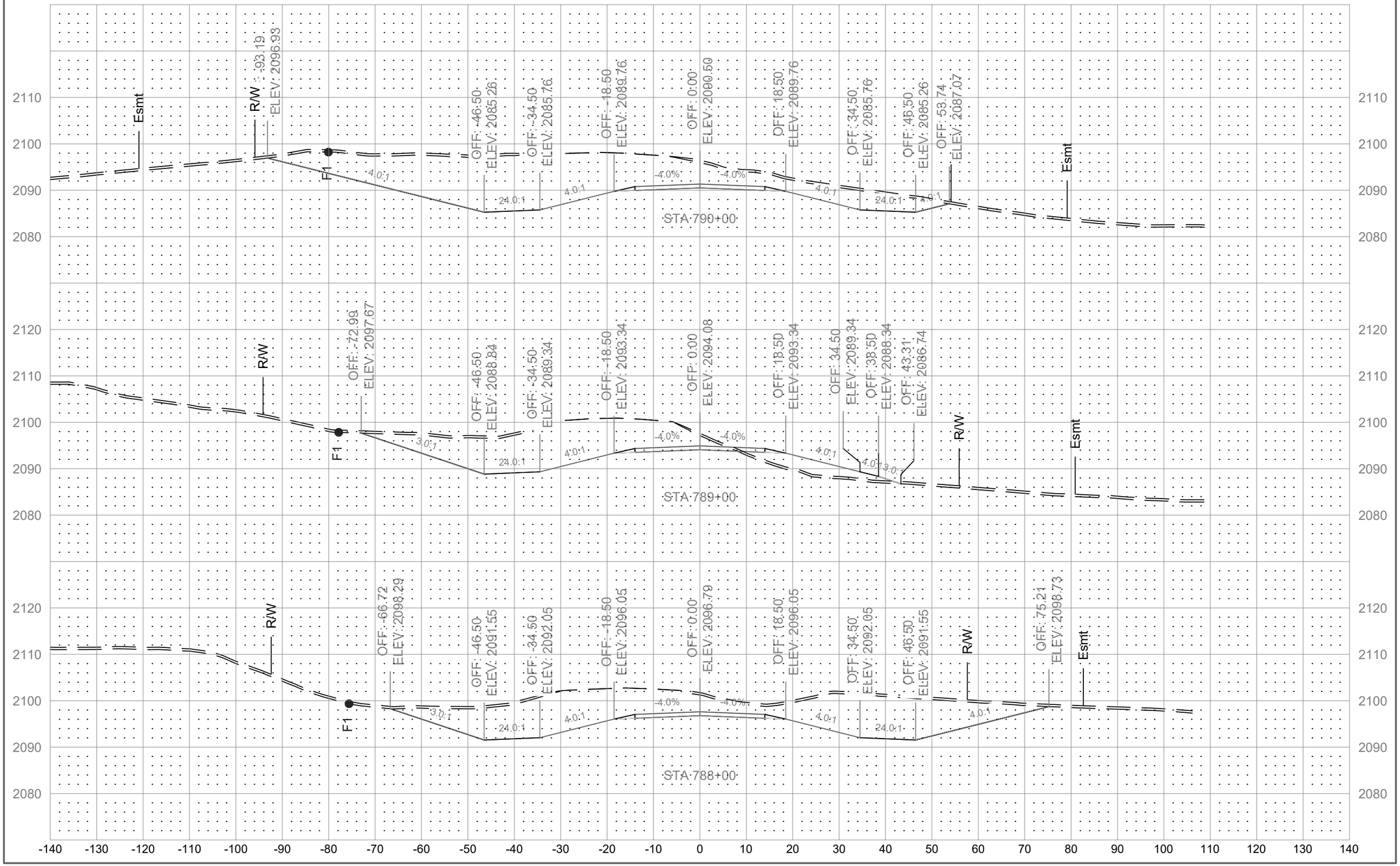
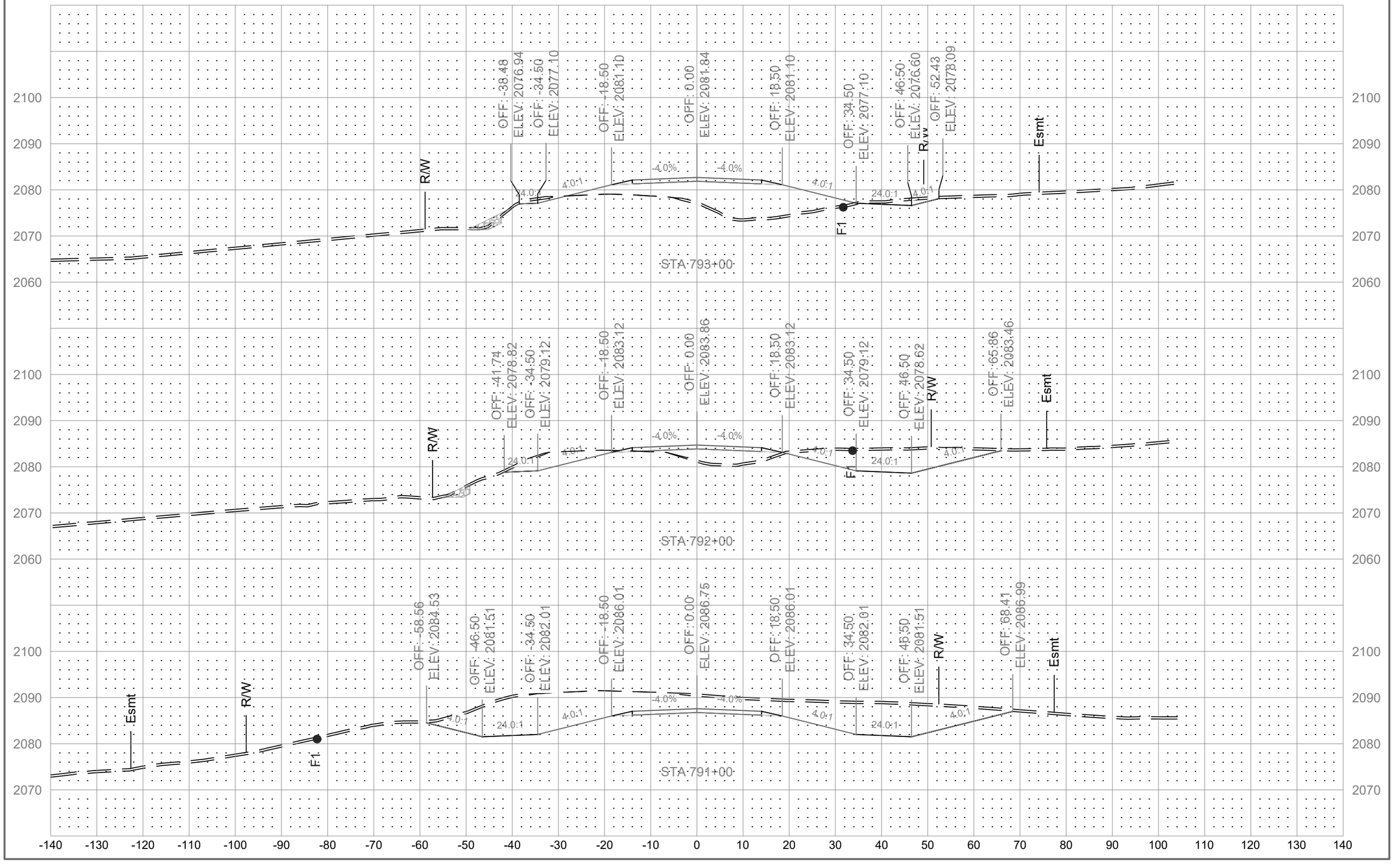
	ND	01(62)23	200	8



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	9



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	10



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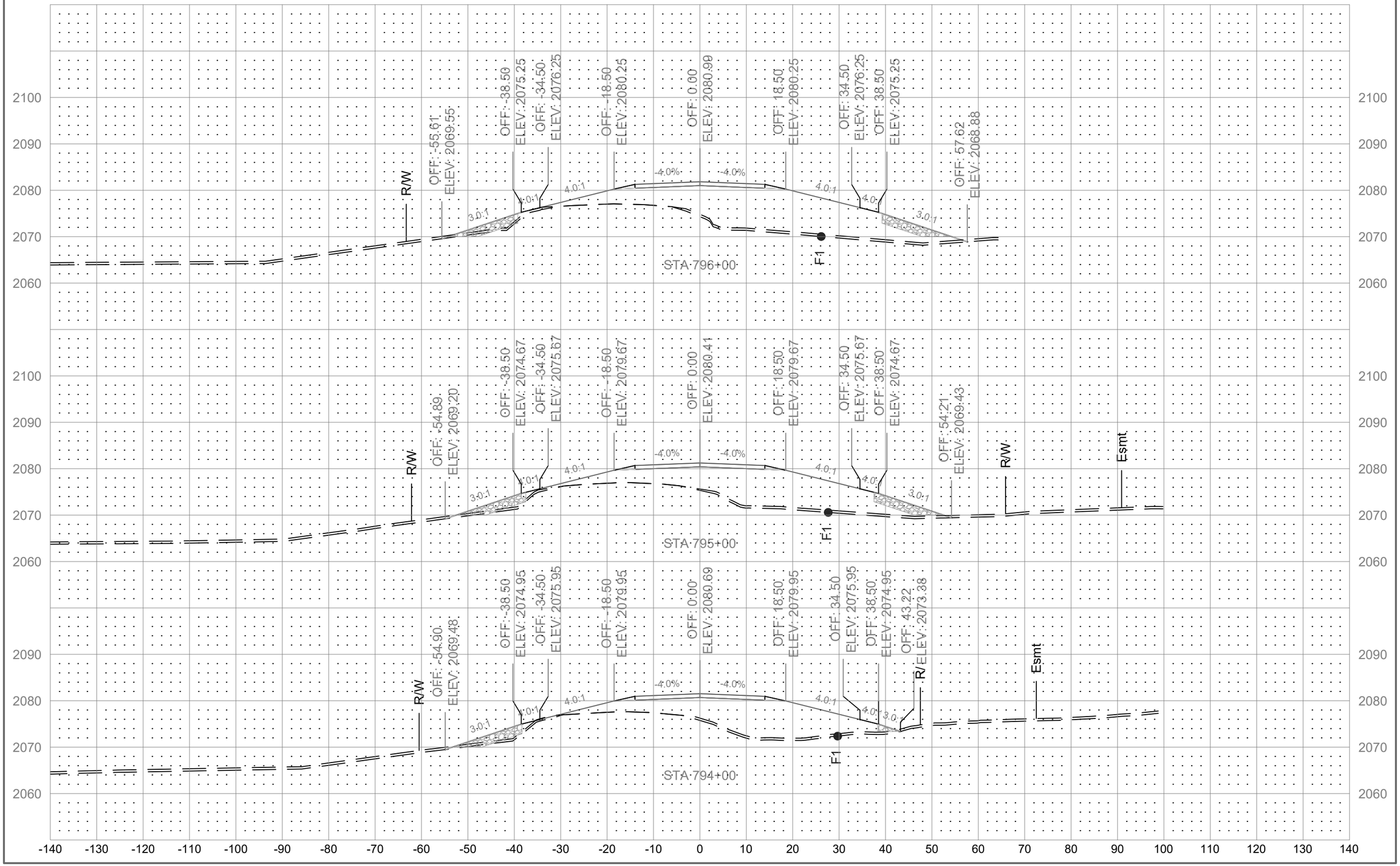
	ND	01(62)23	200	11



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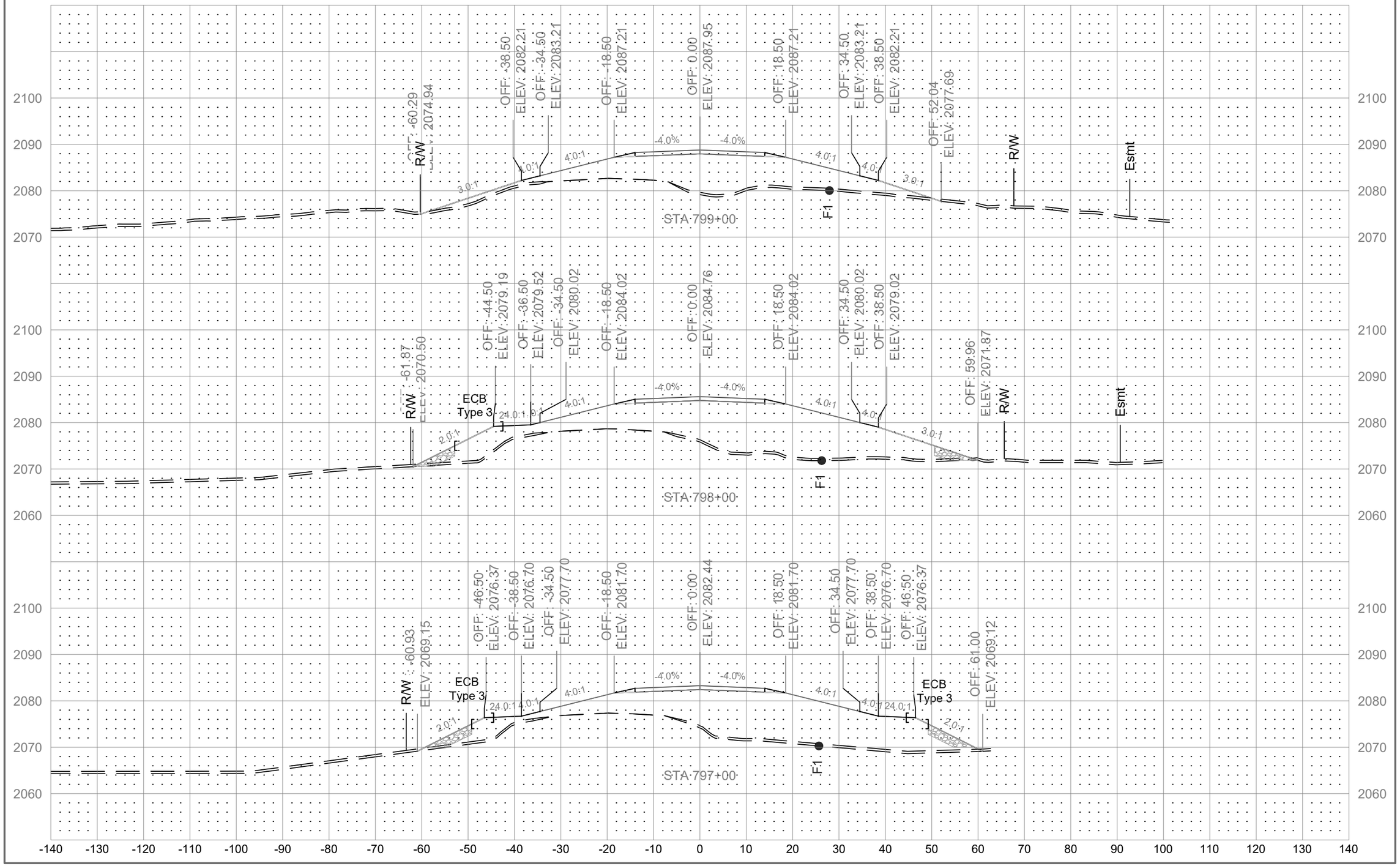
	ND	01(62)23	200	12



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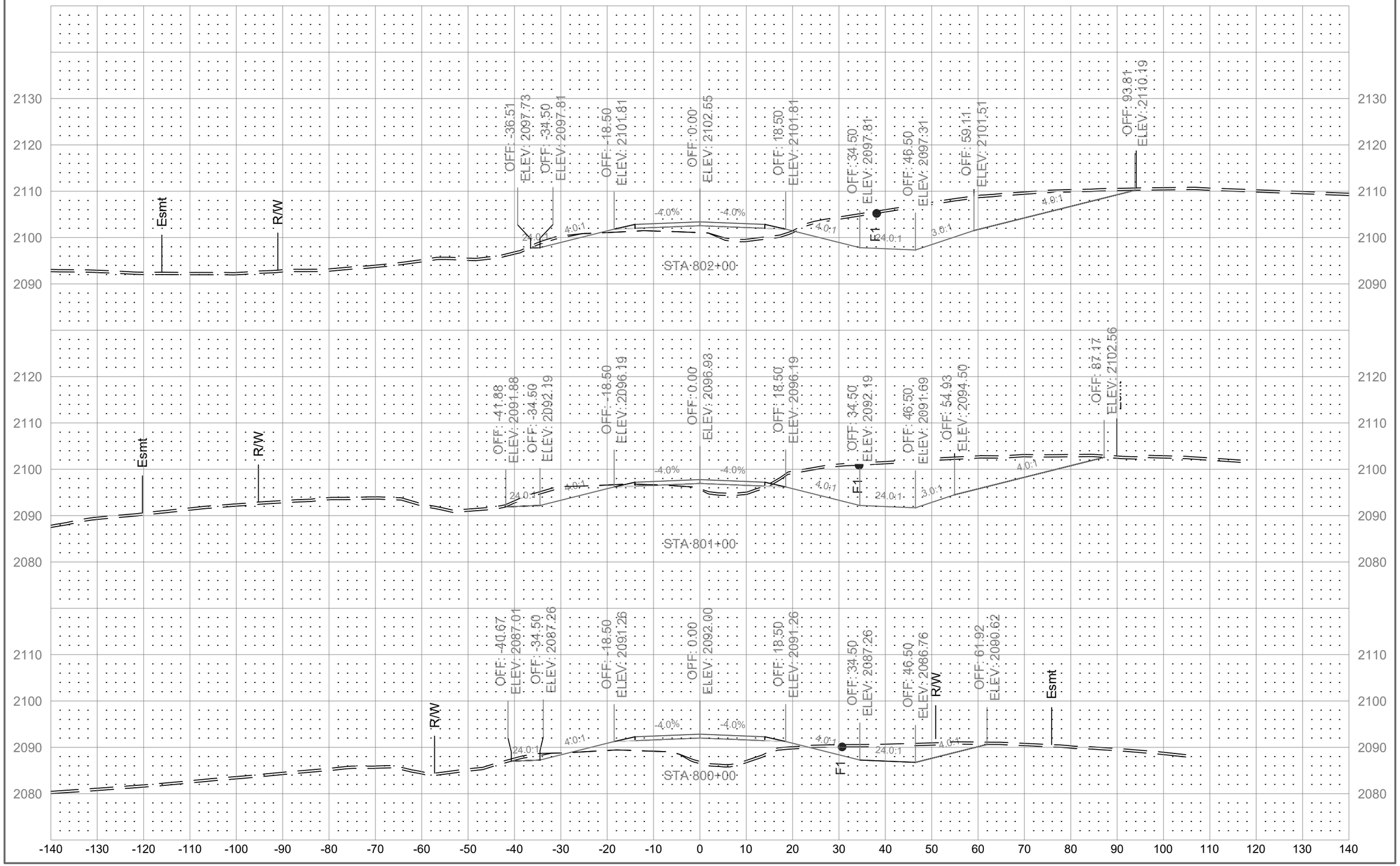

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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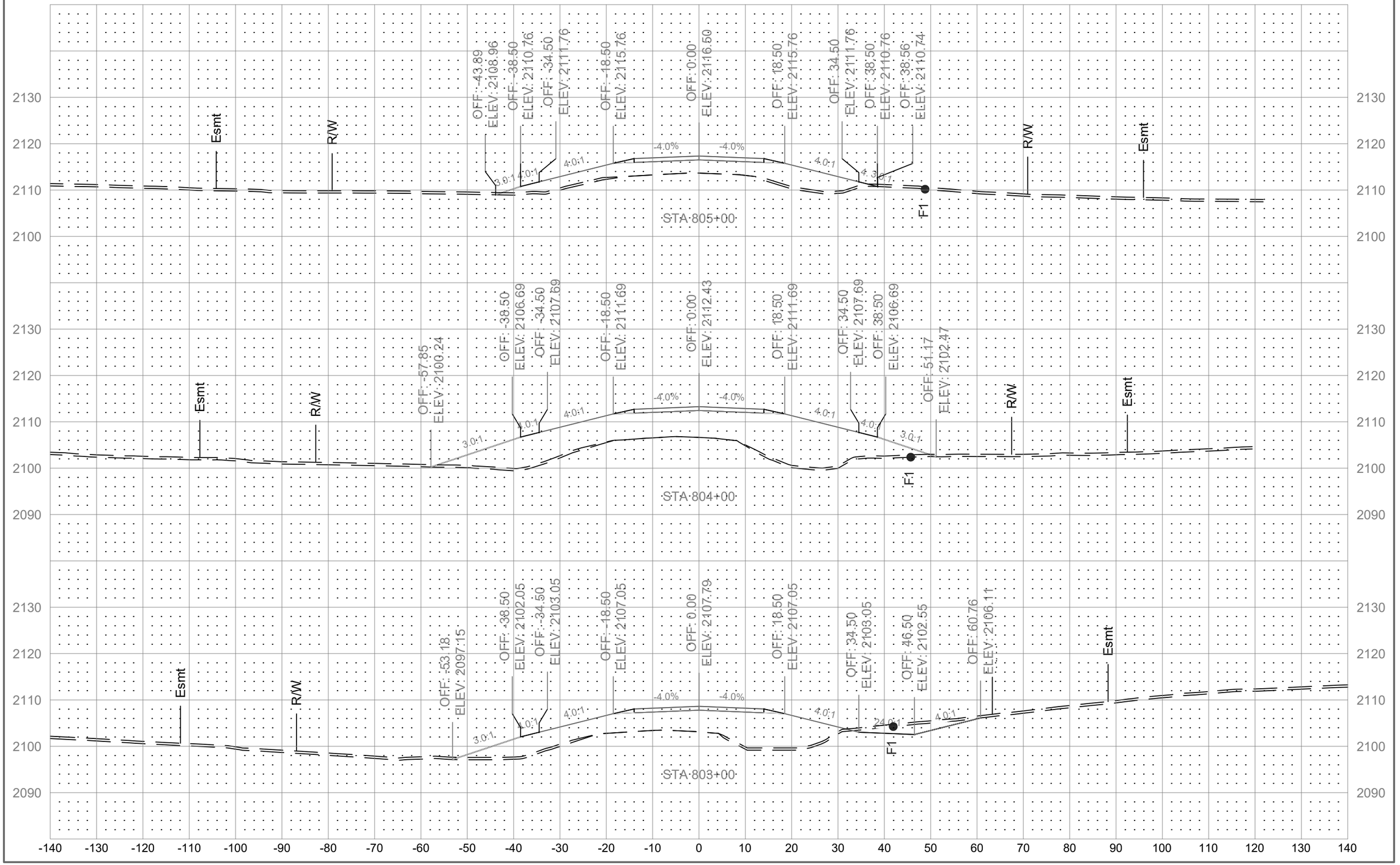

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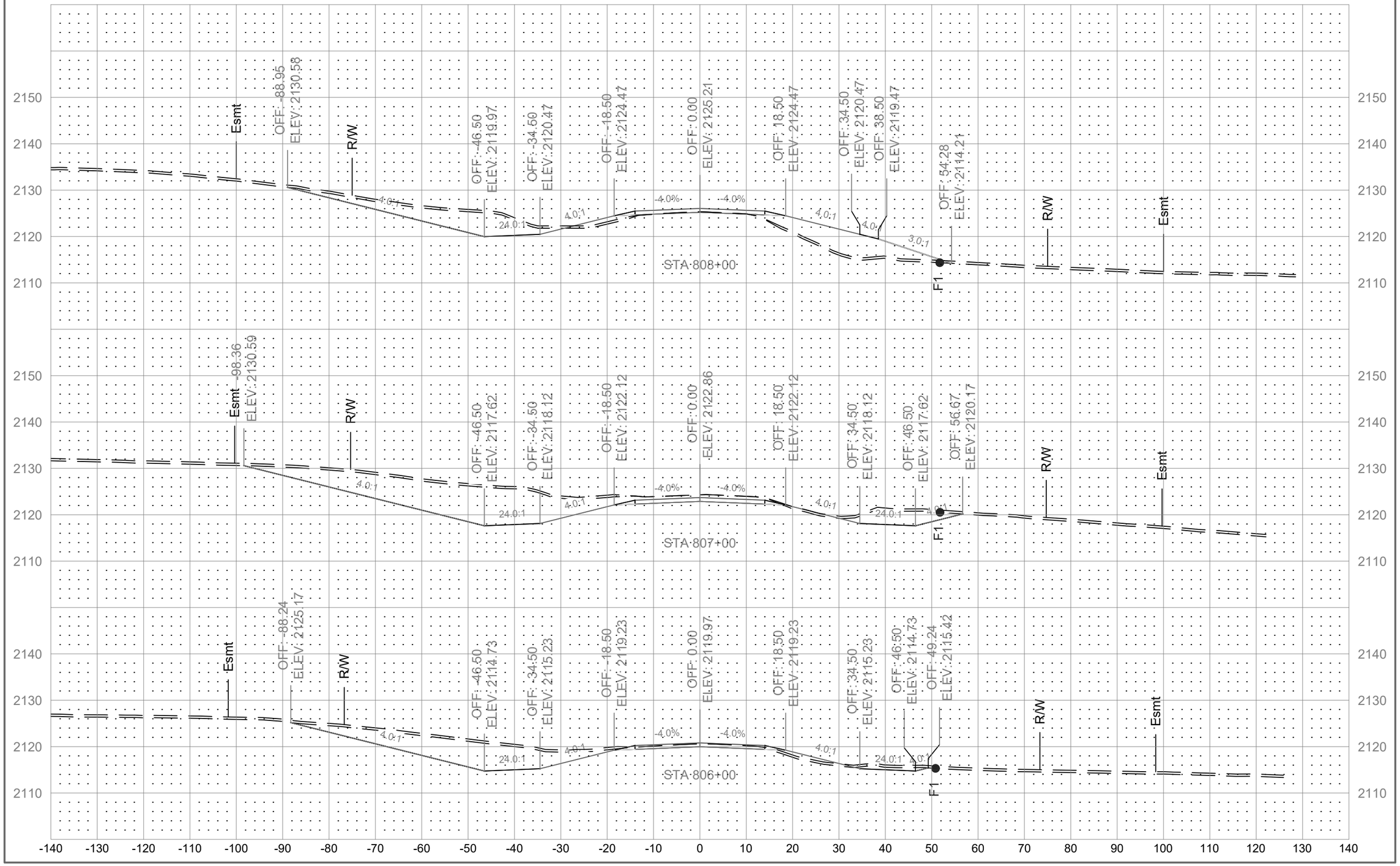

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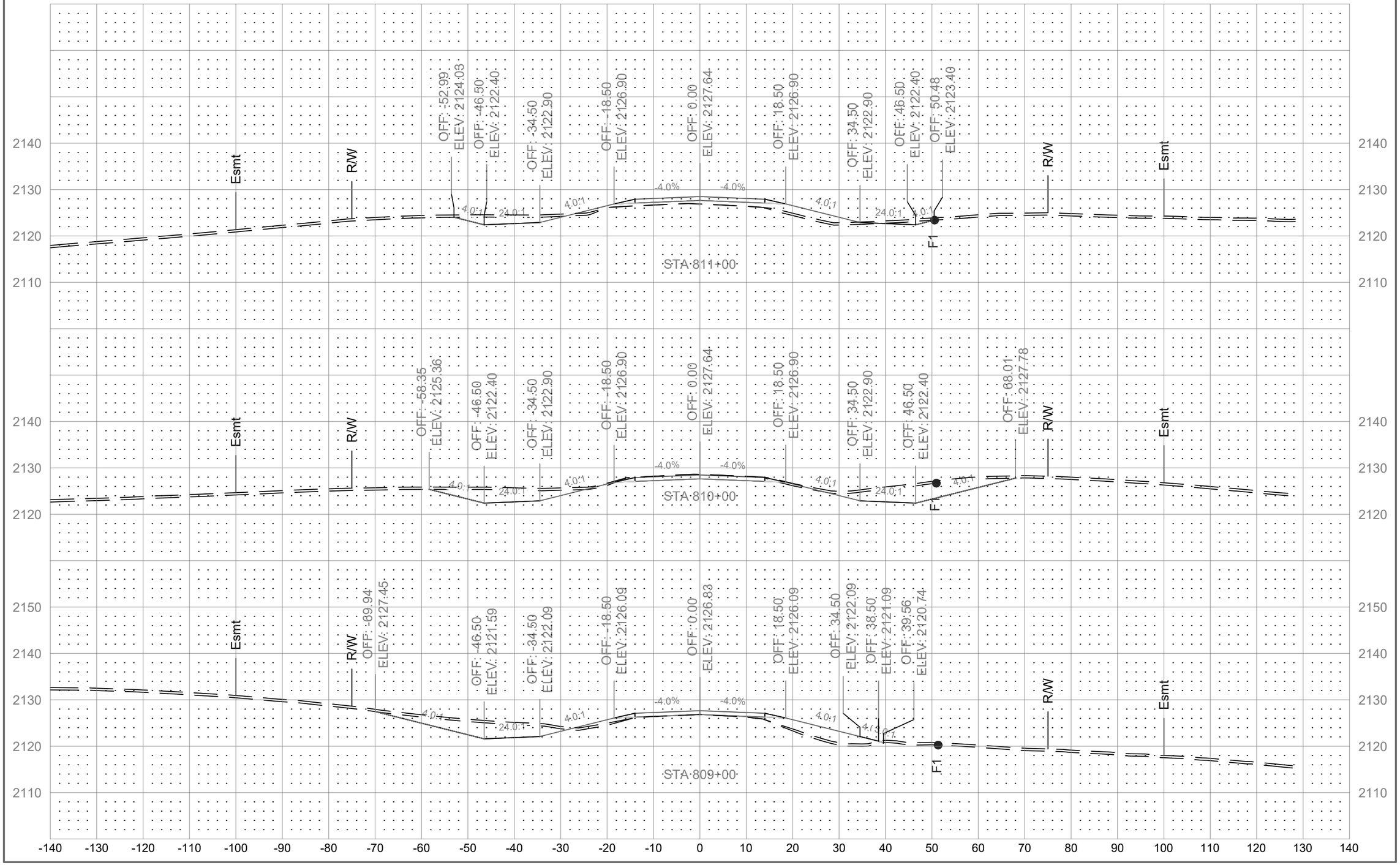
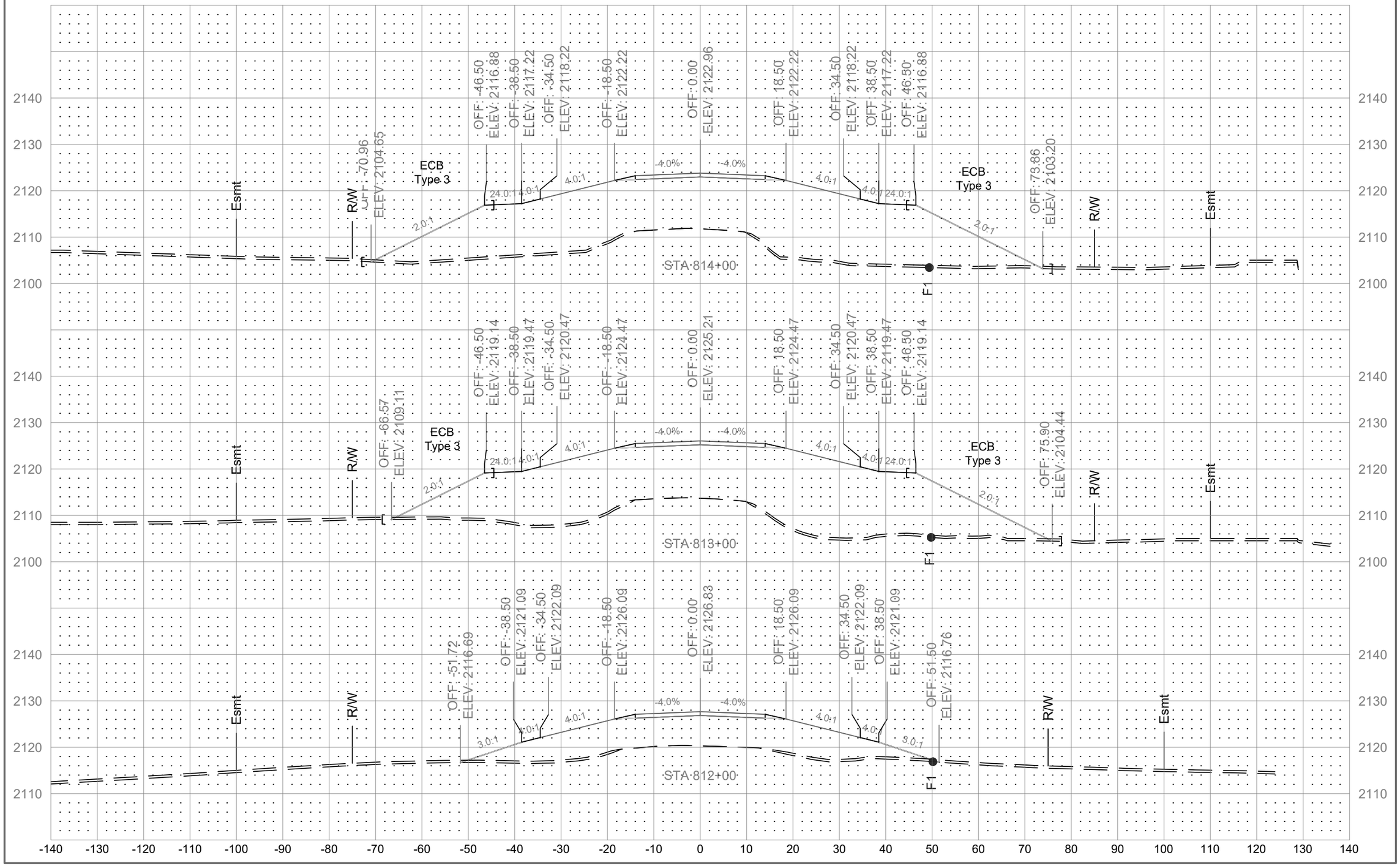
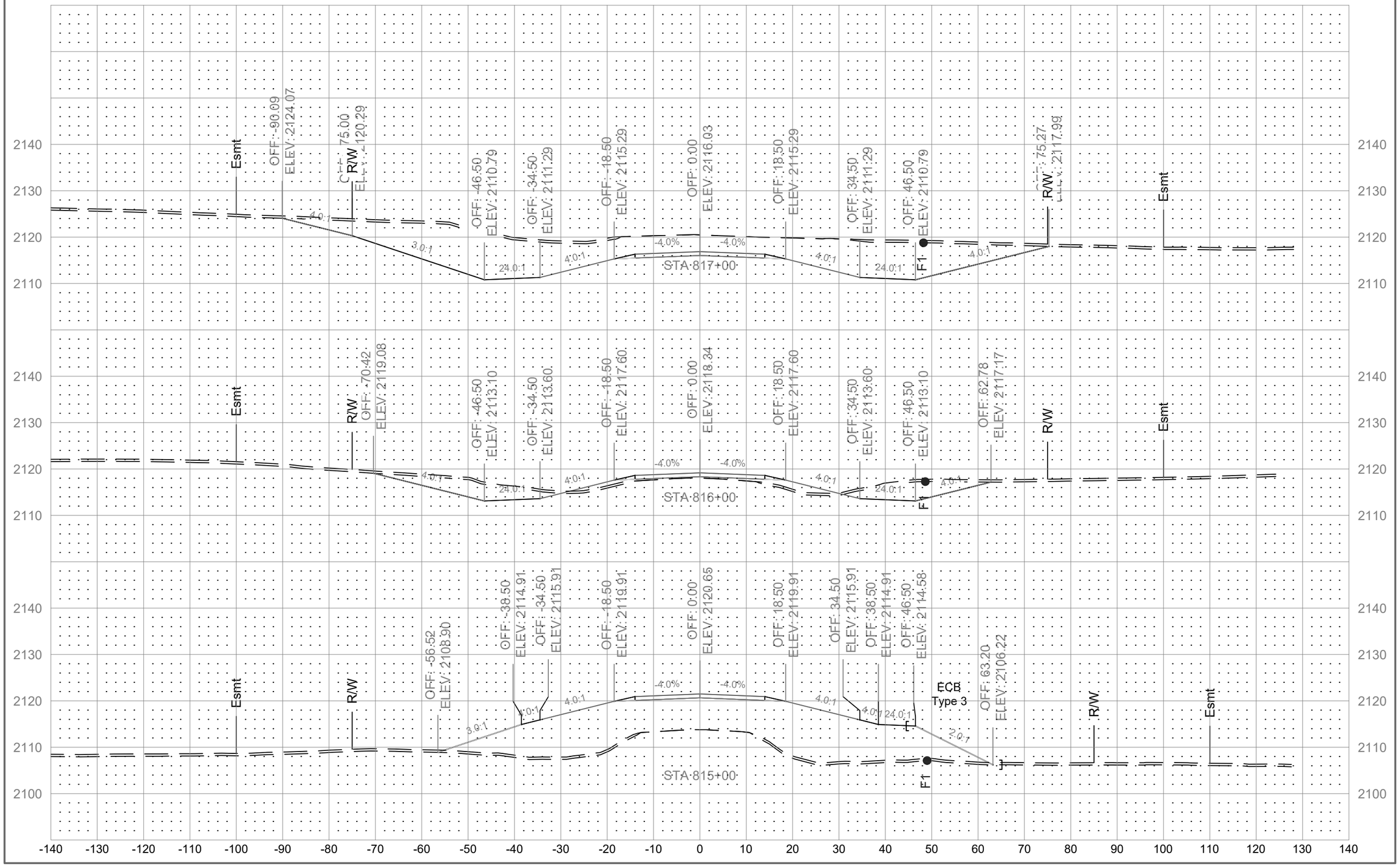


STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	200	17



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	18



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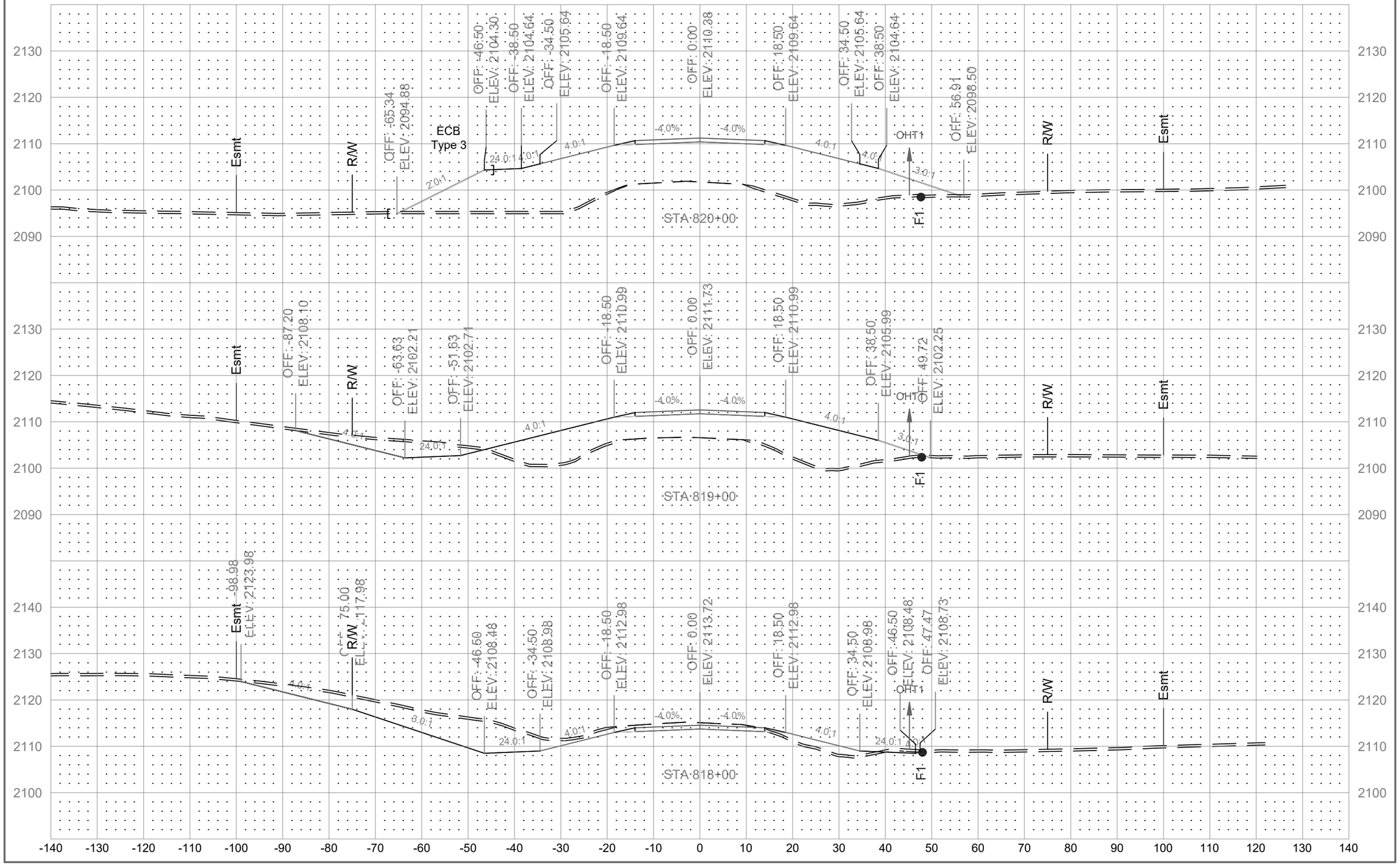
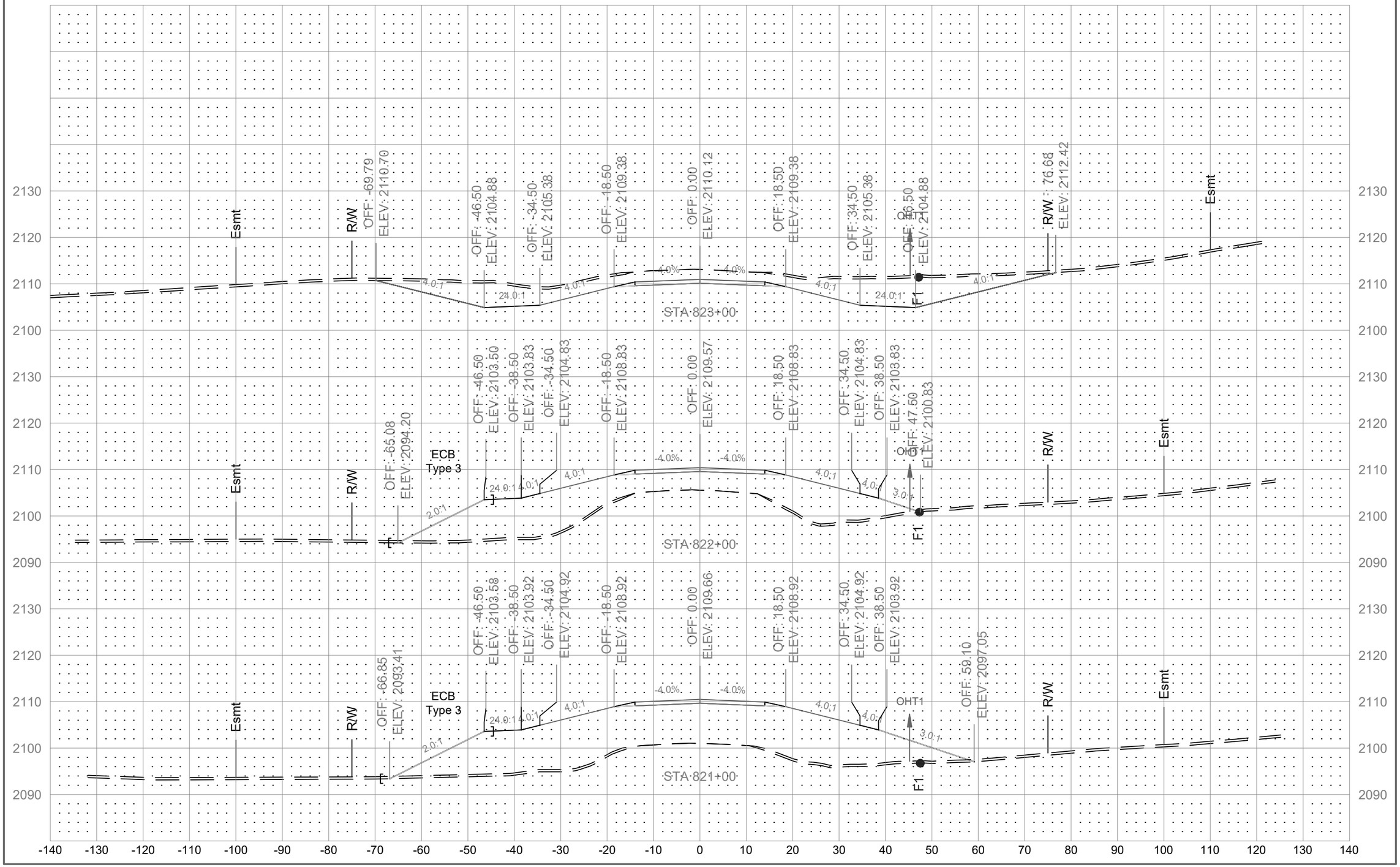
	ND	01(62)23	200	19



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	20



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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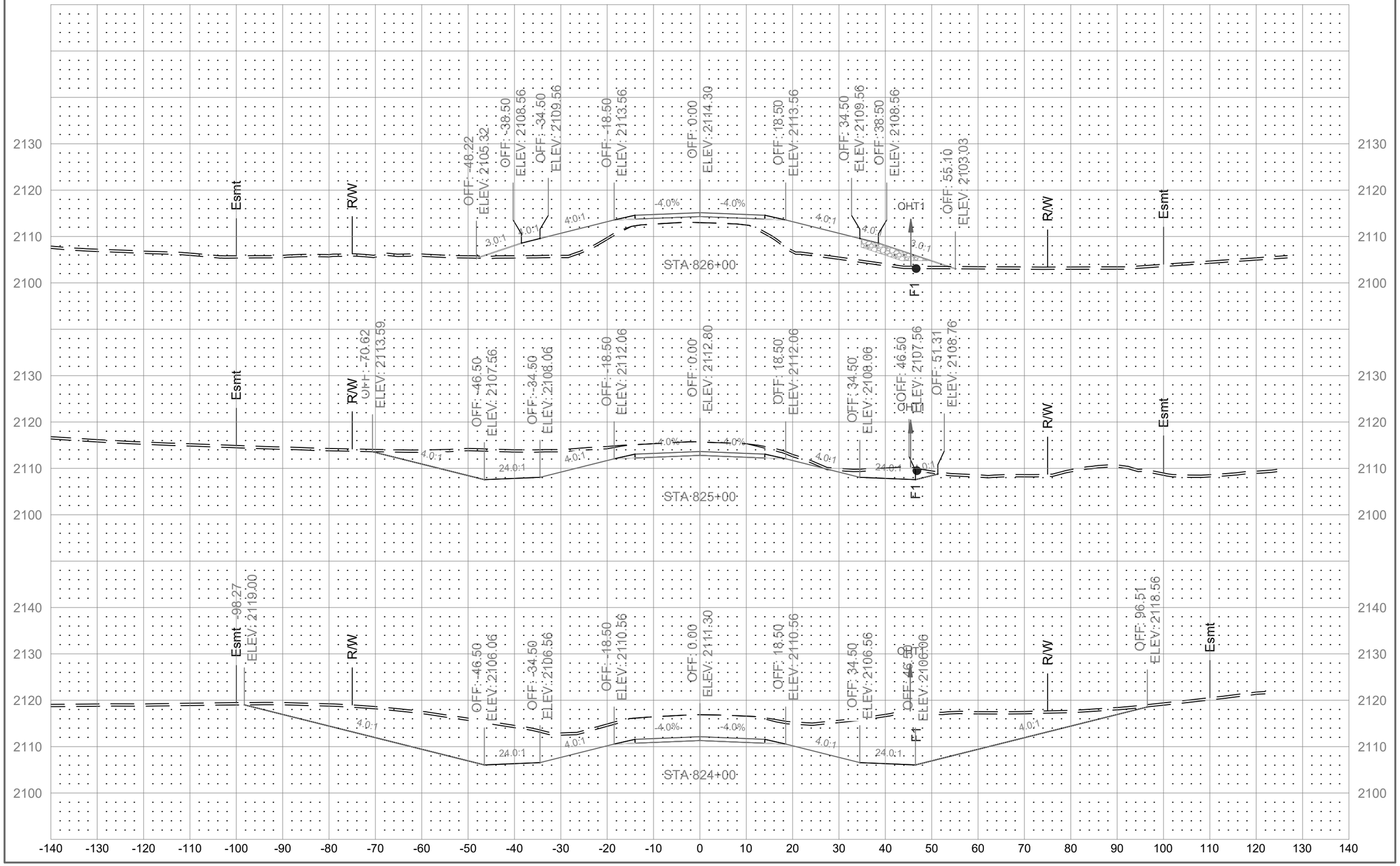
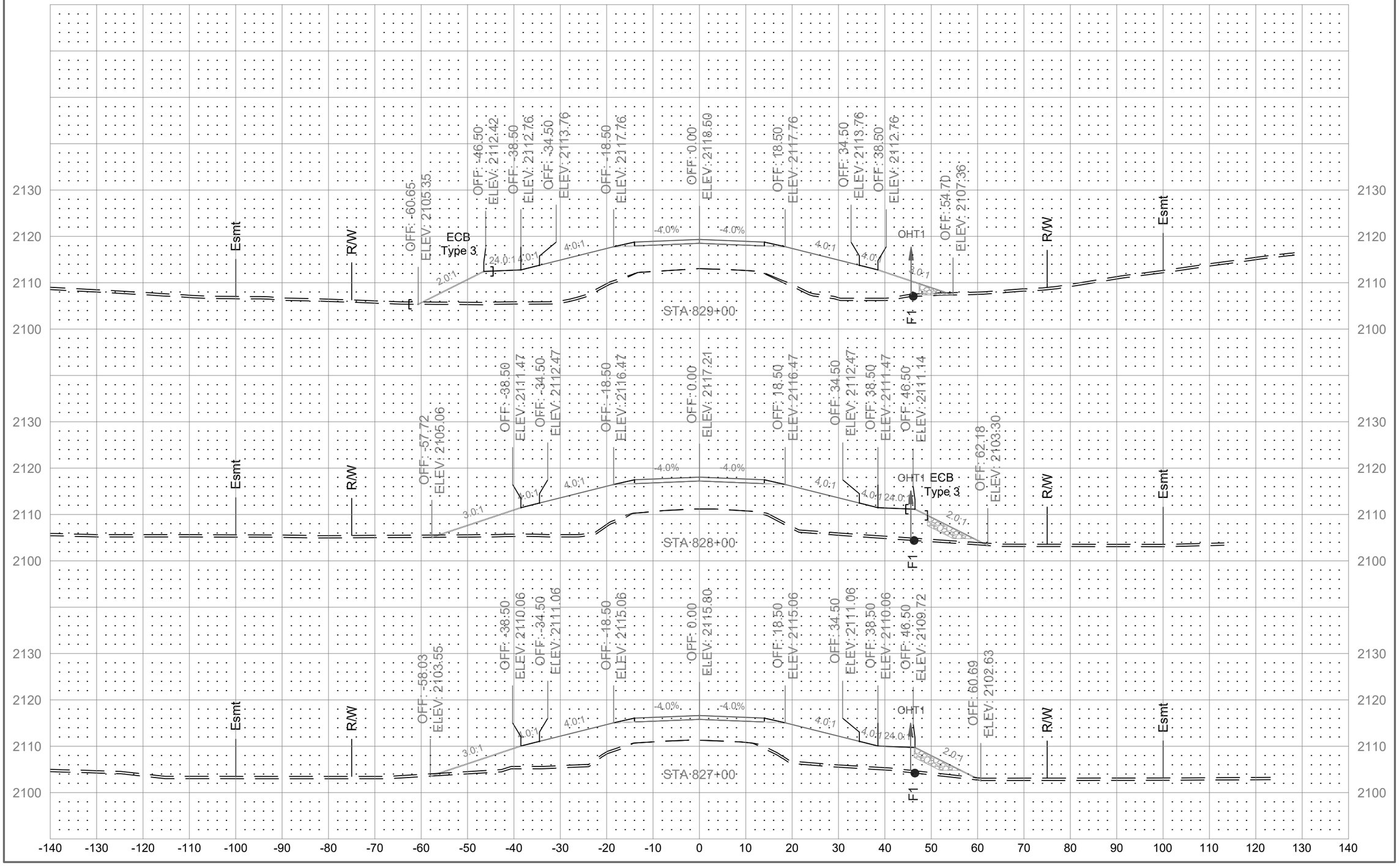
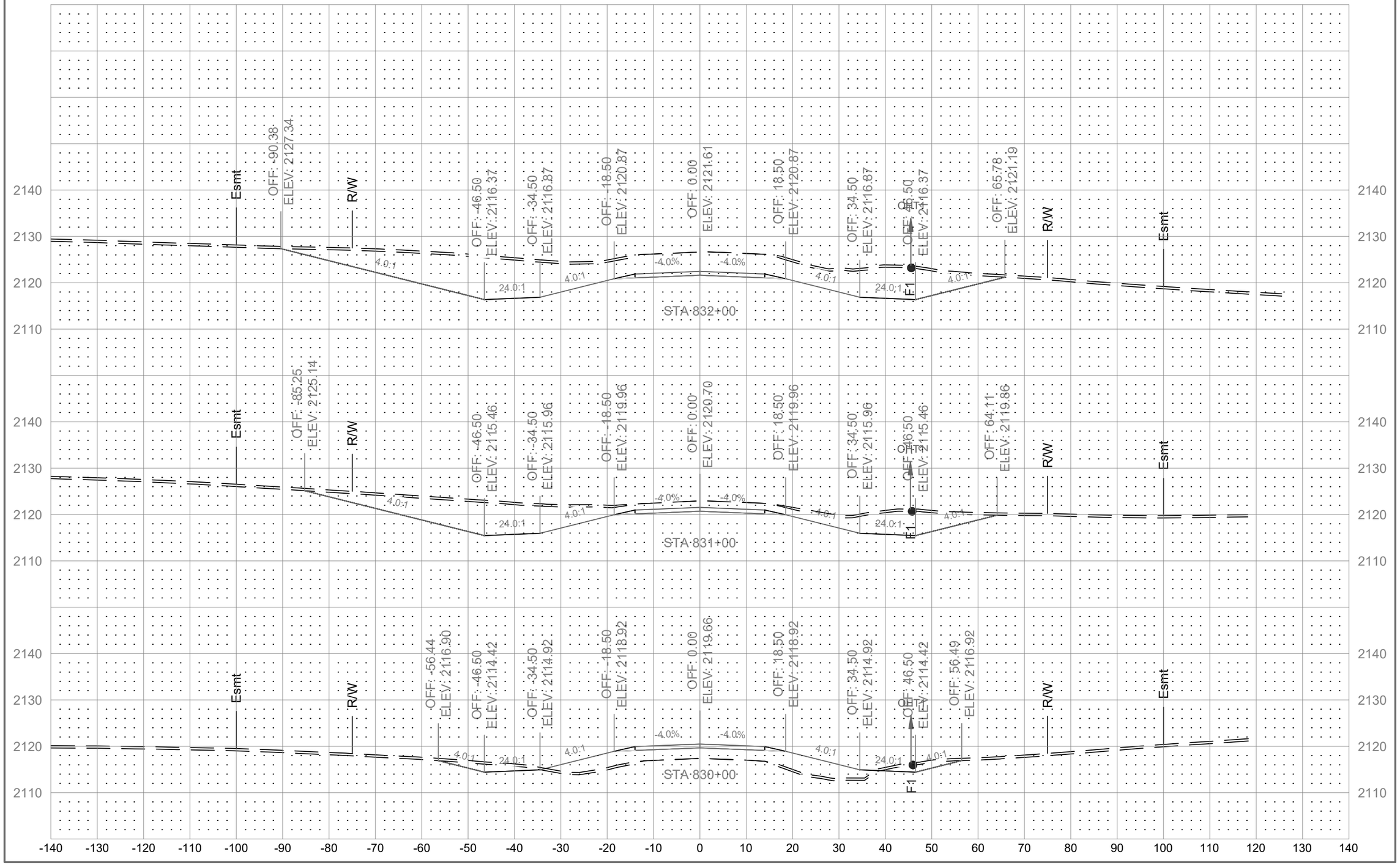


	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	22



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	23



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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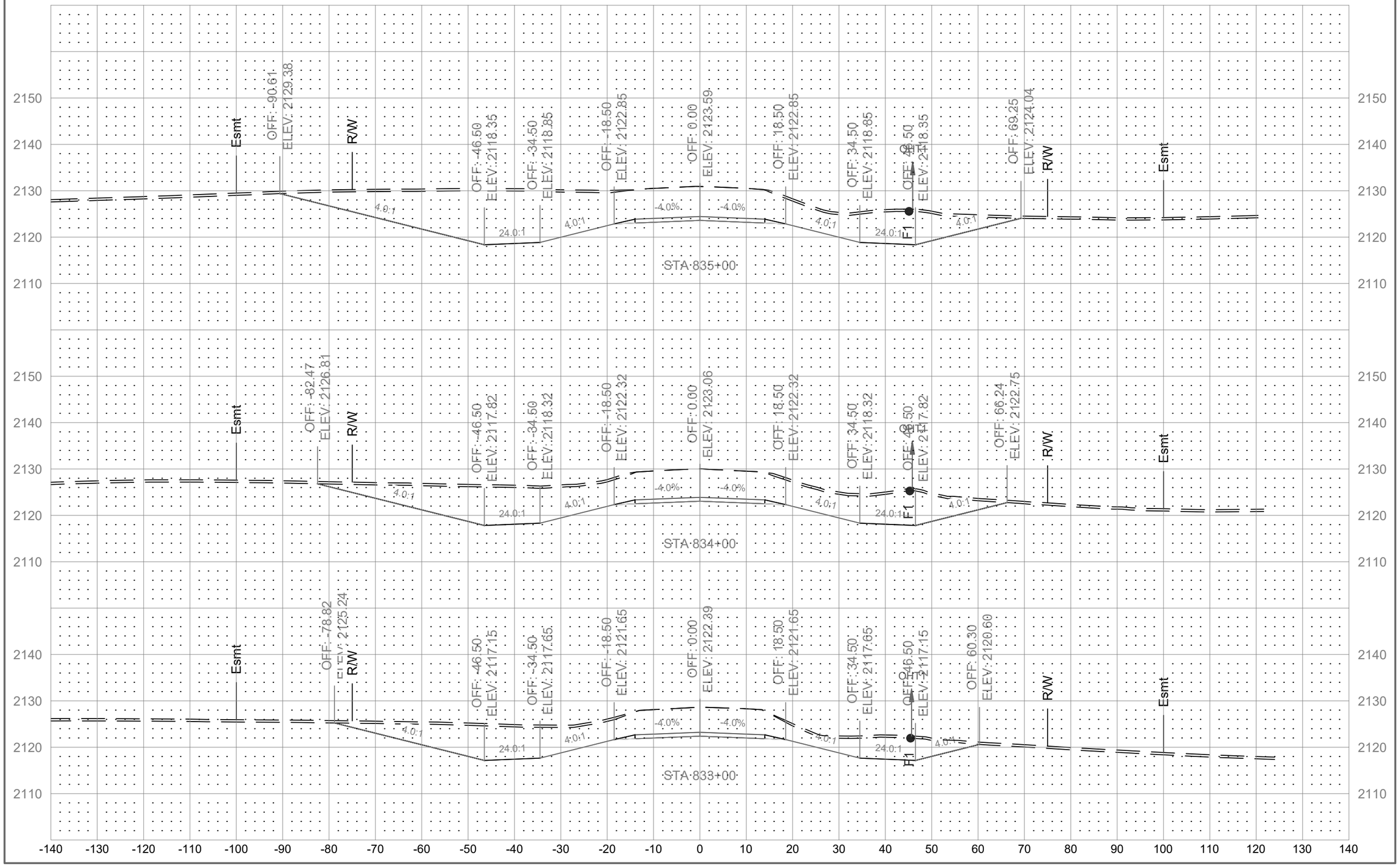

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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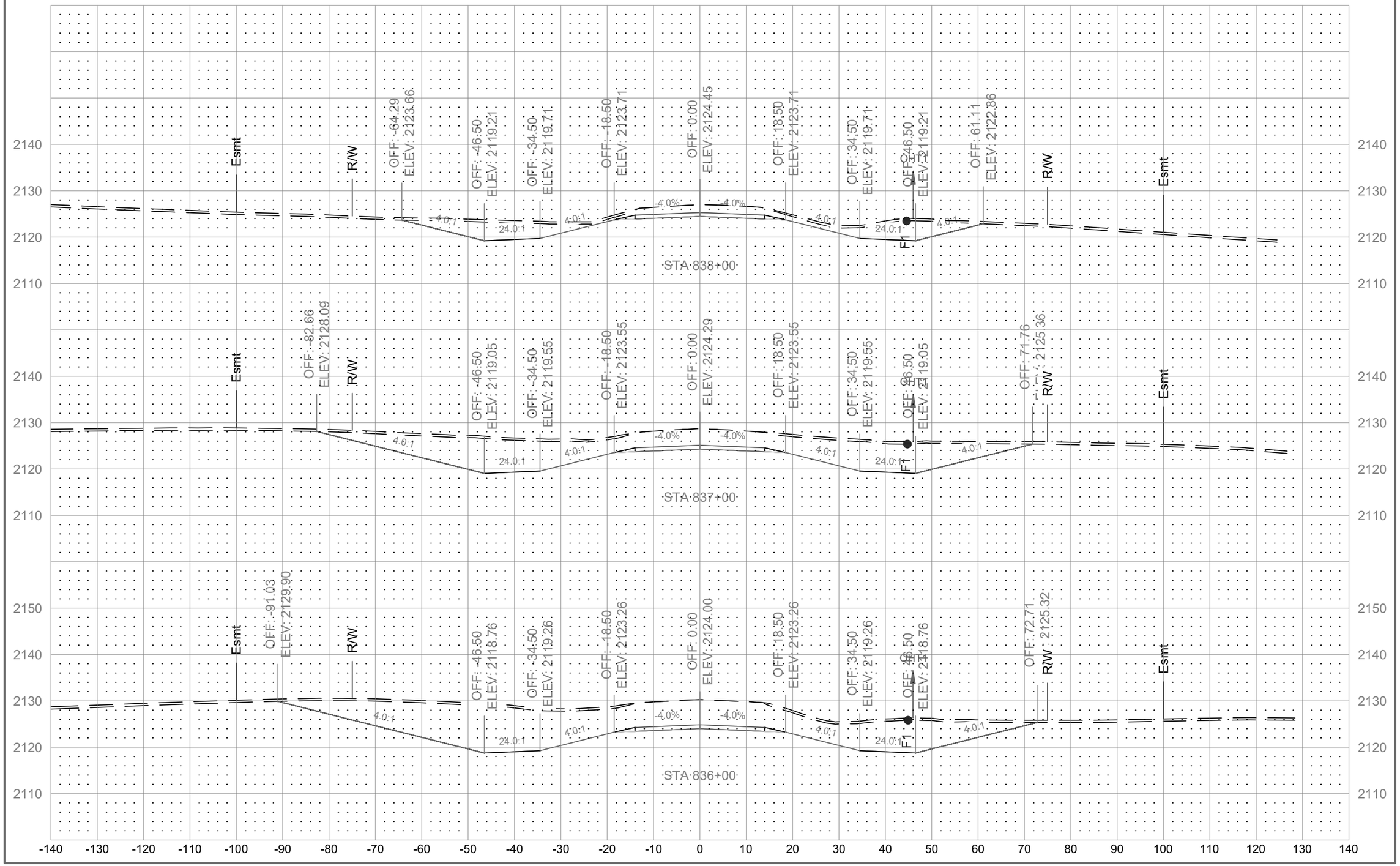

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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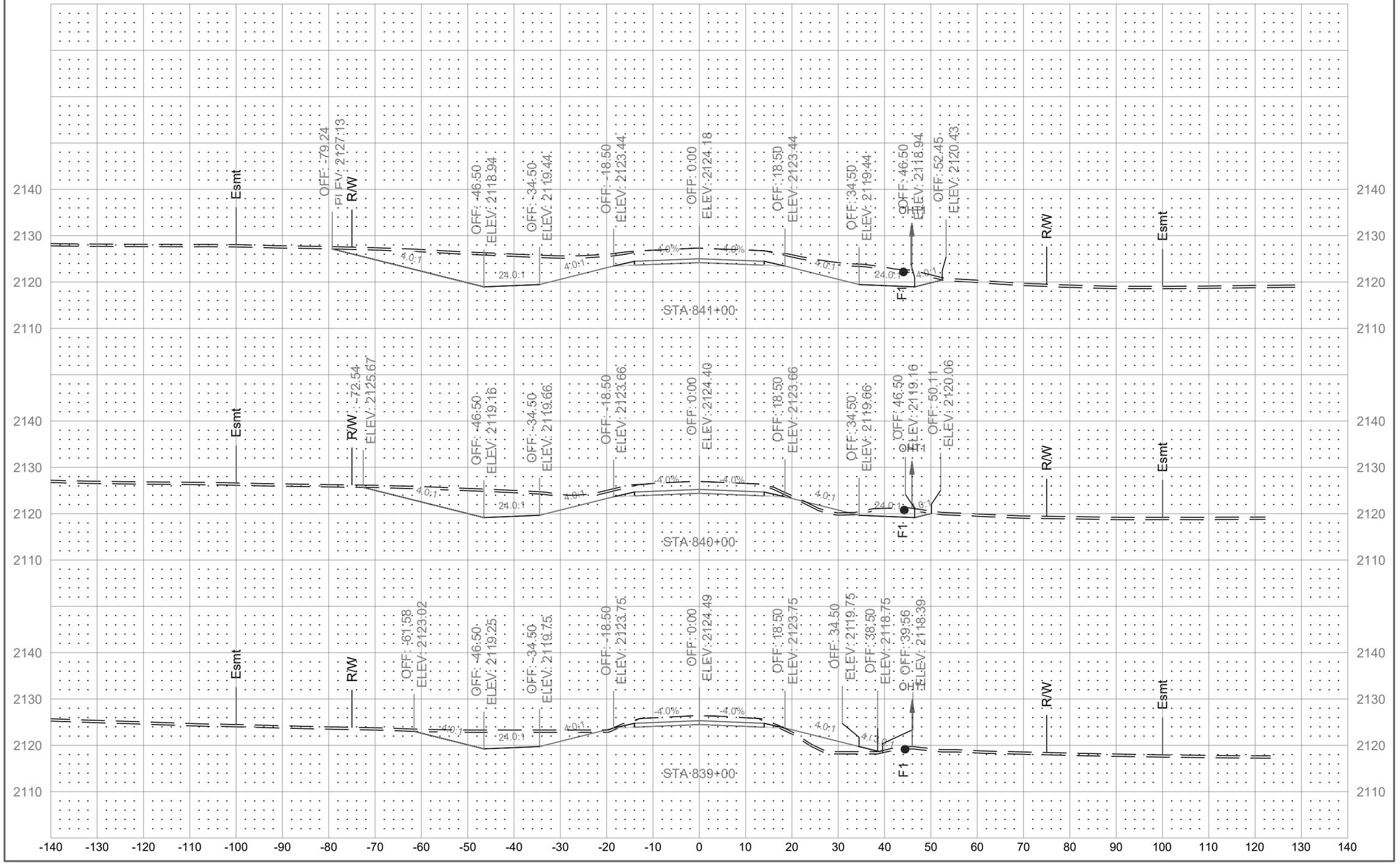

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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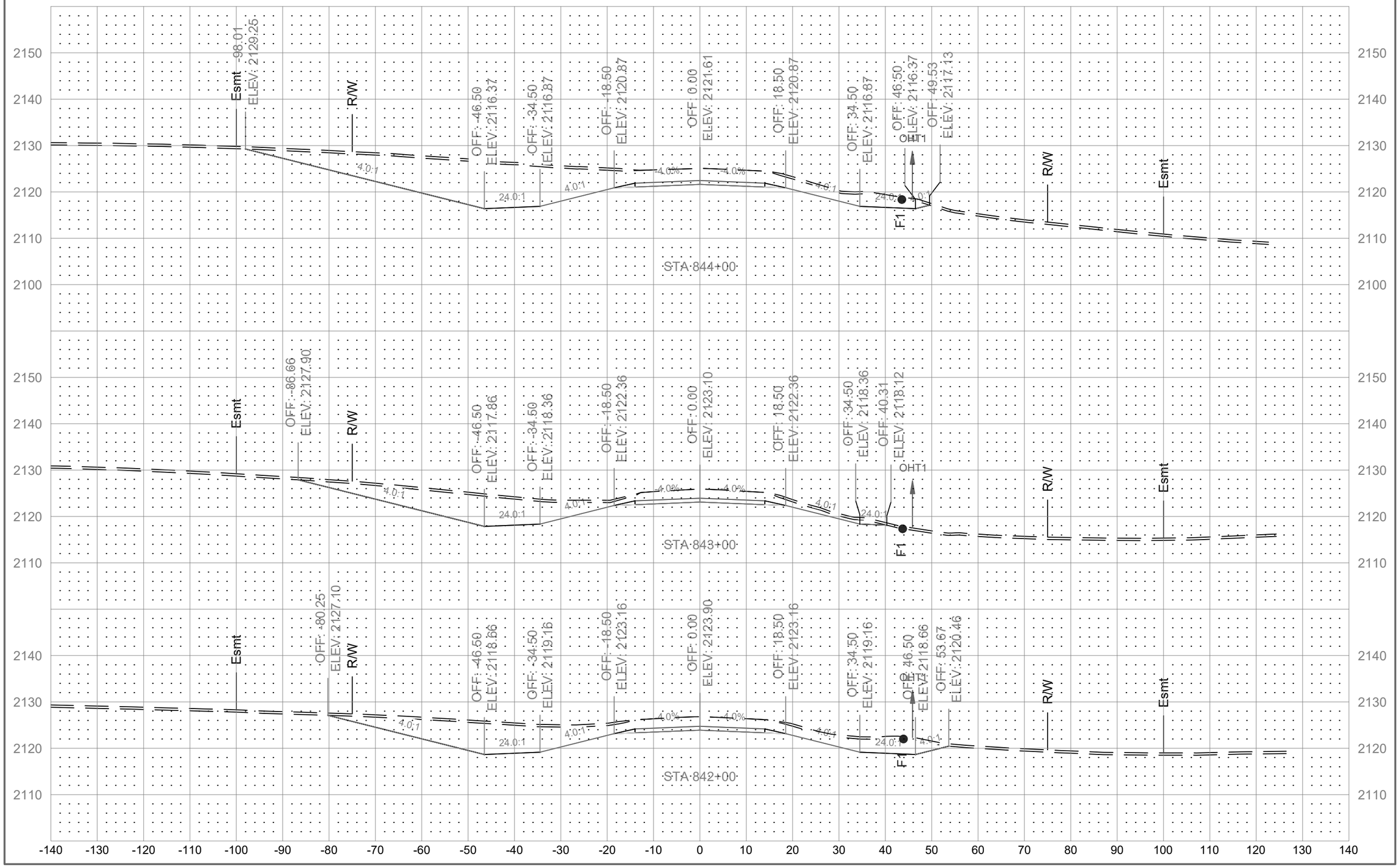
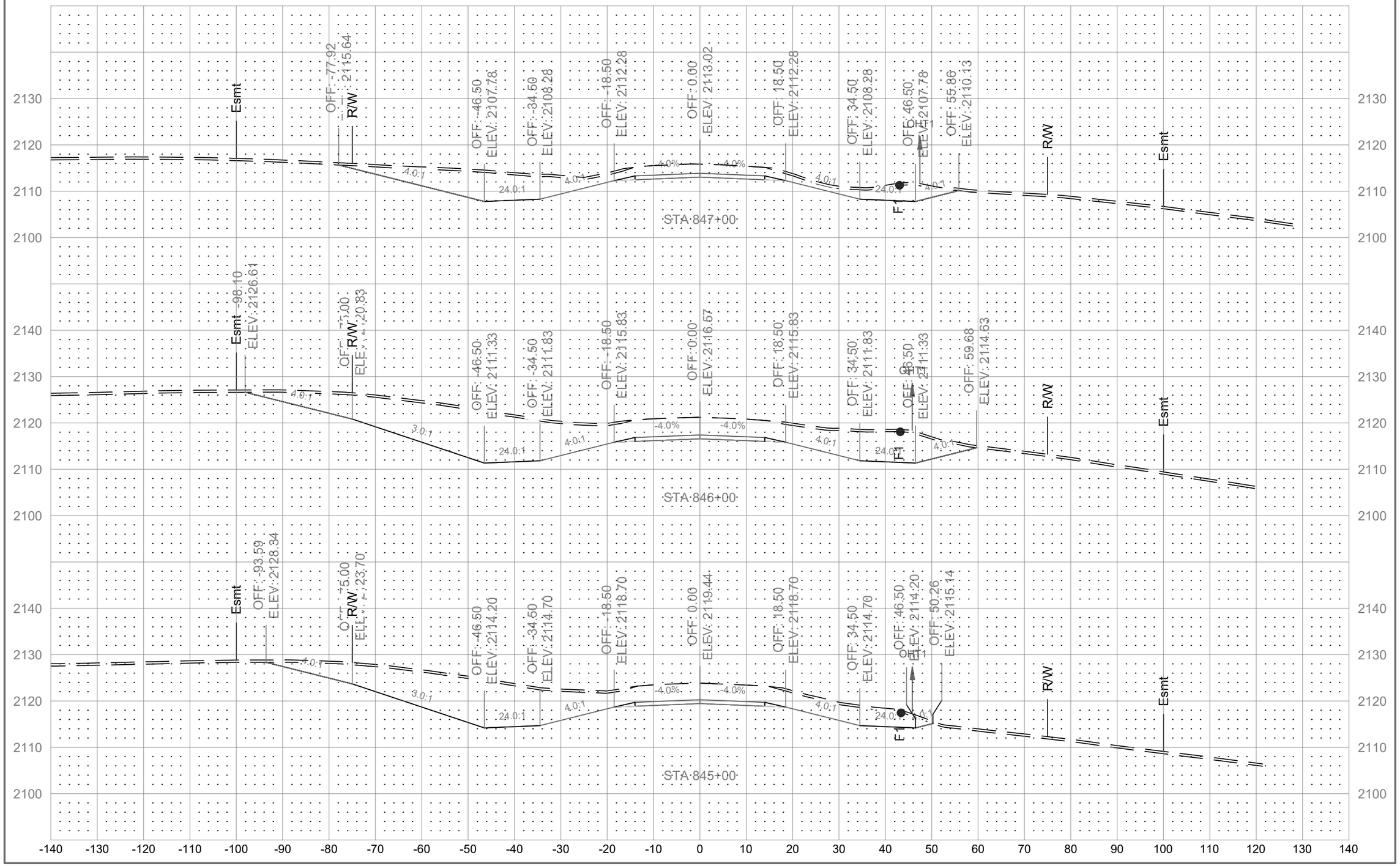
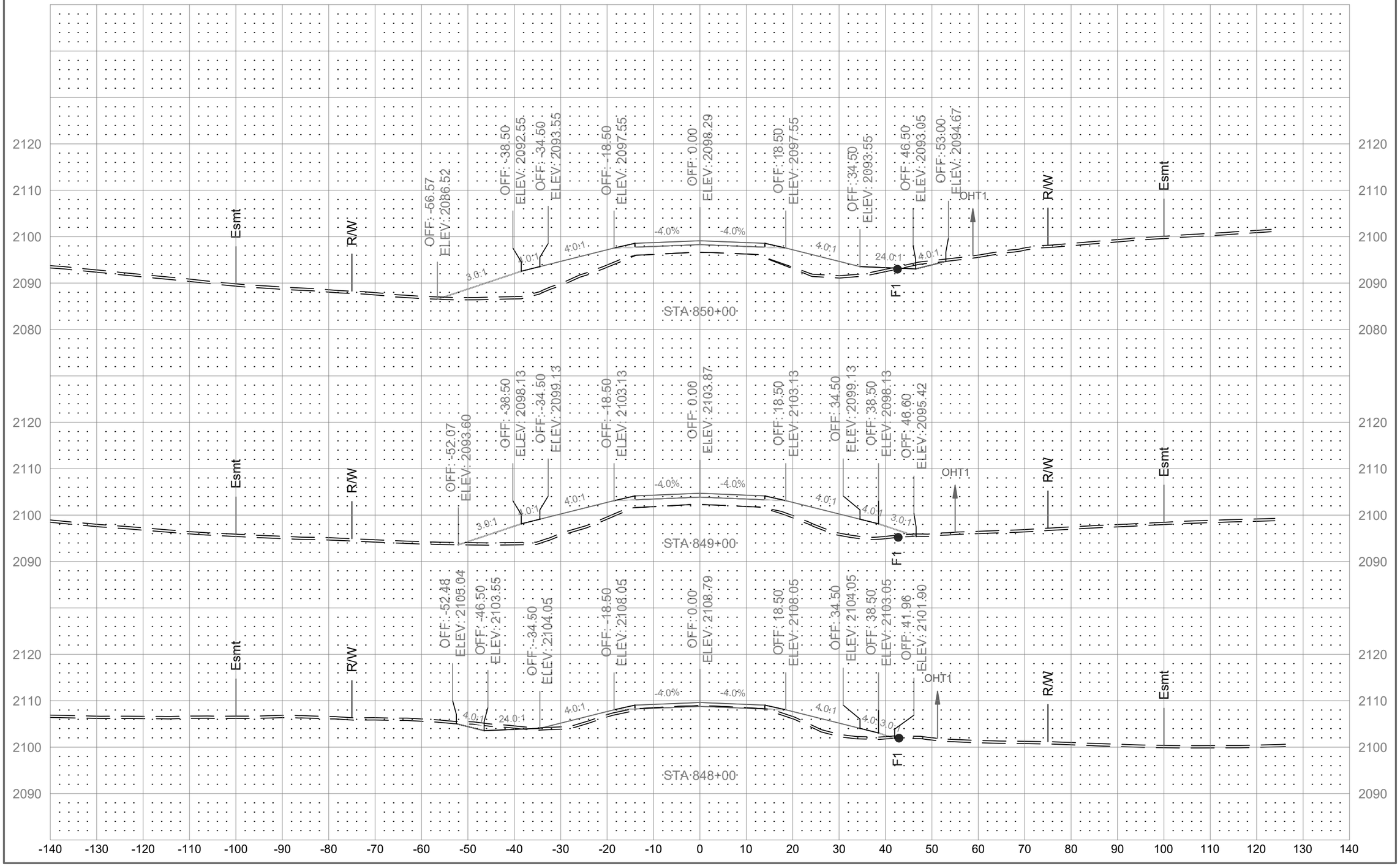


	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	28



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	29



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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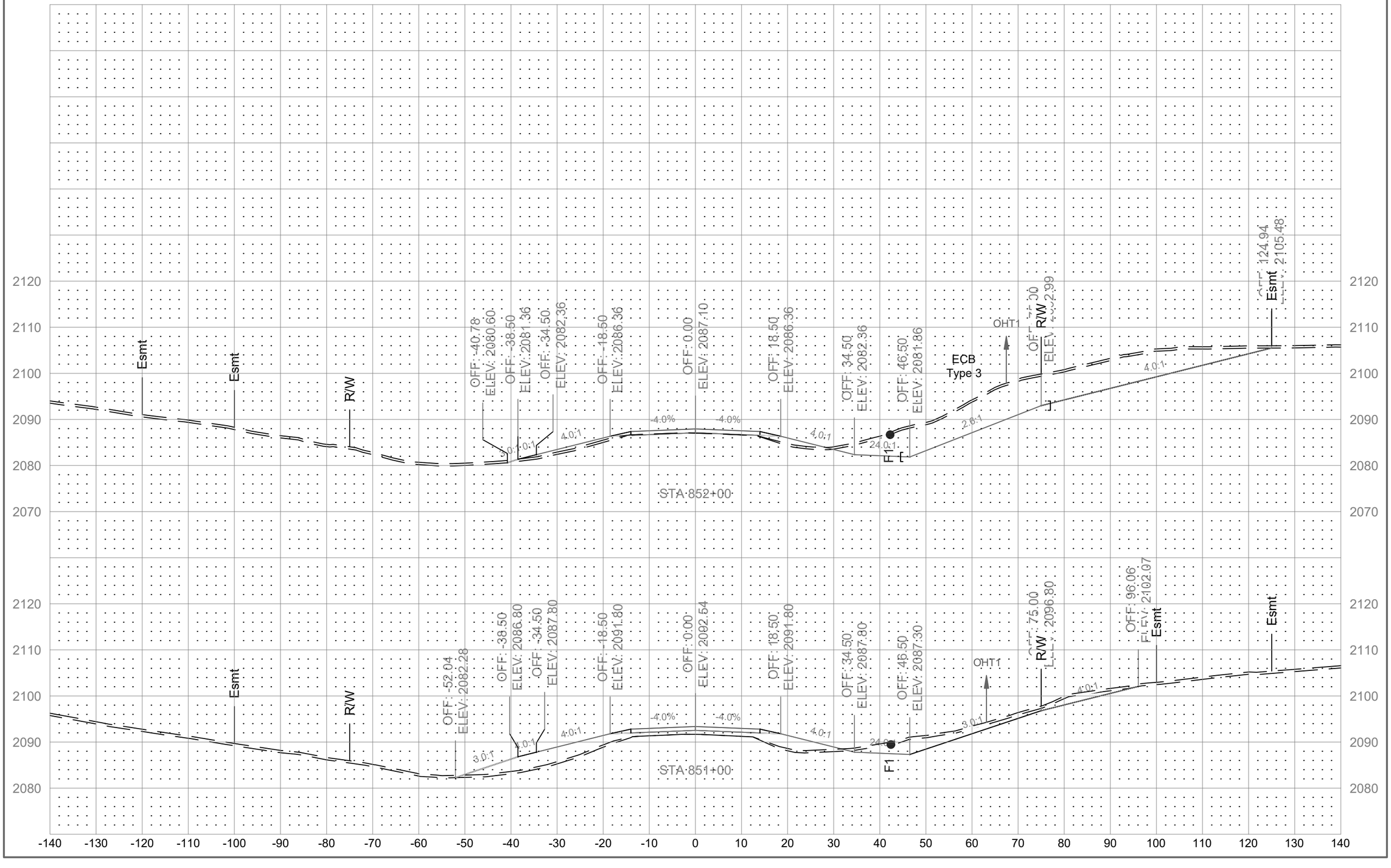
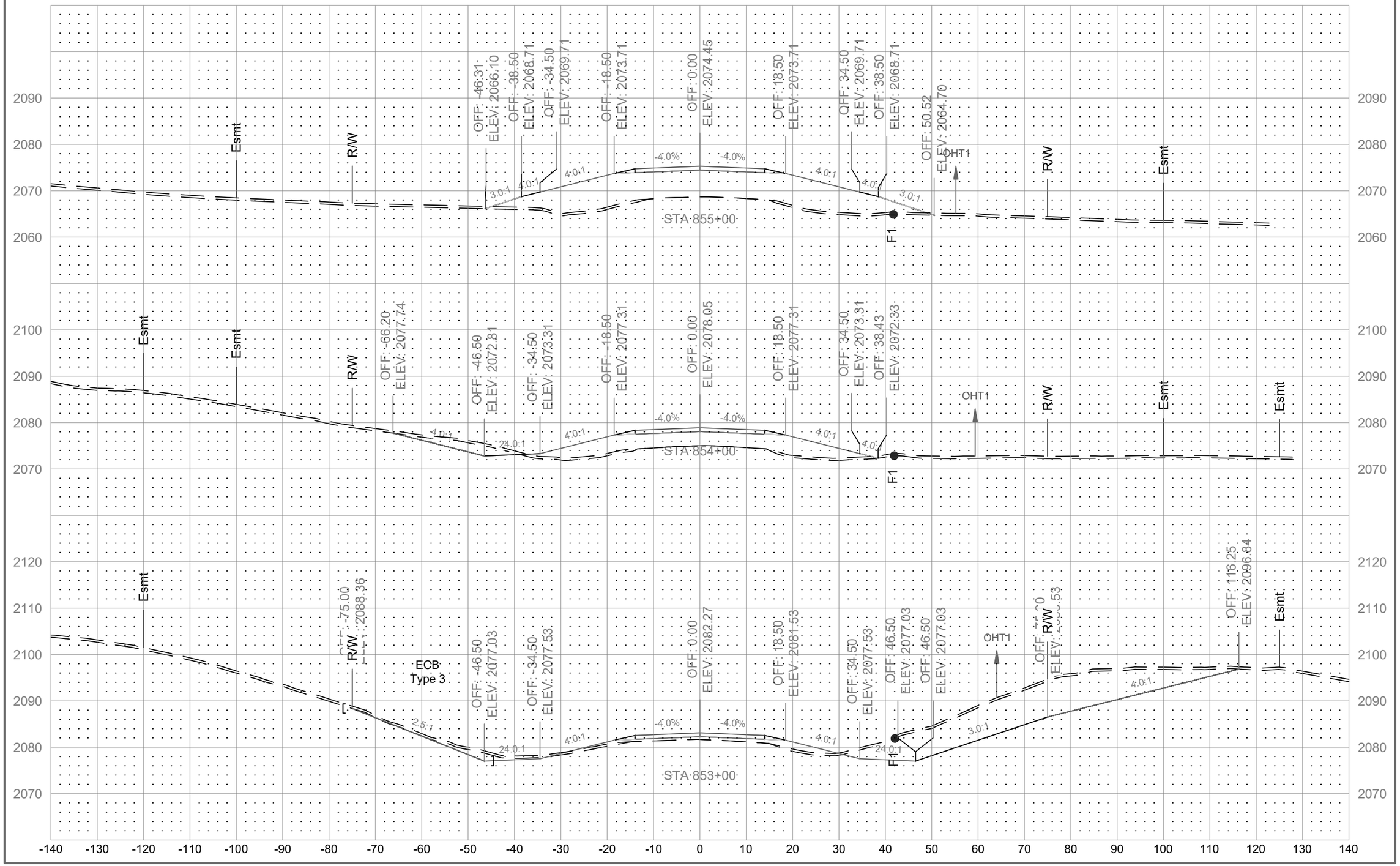


	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	31



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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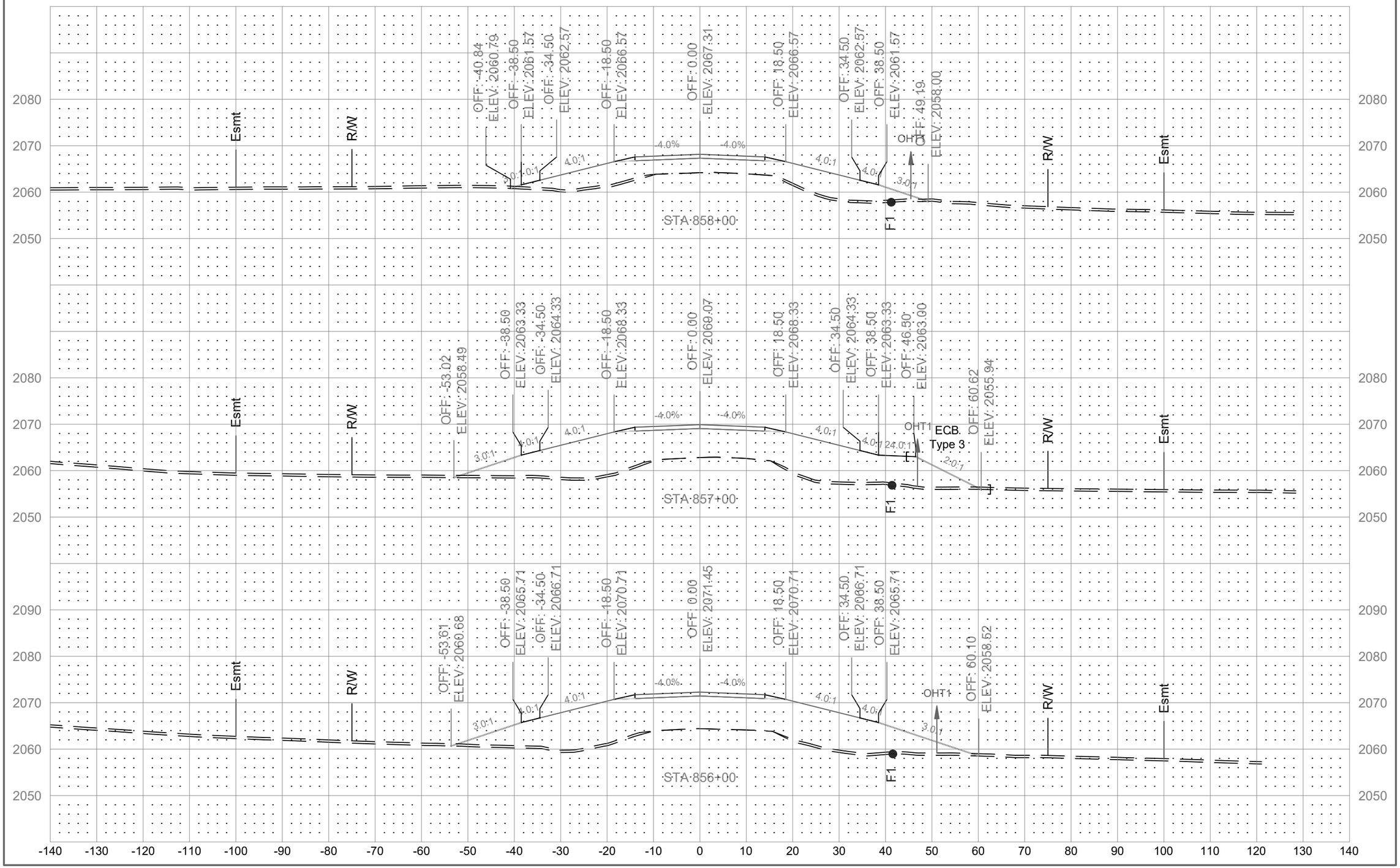
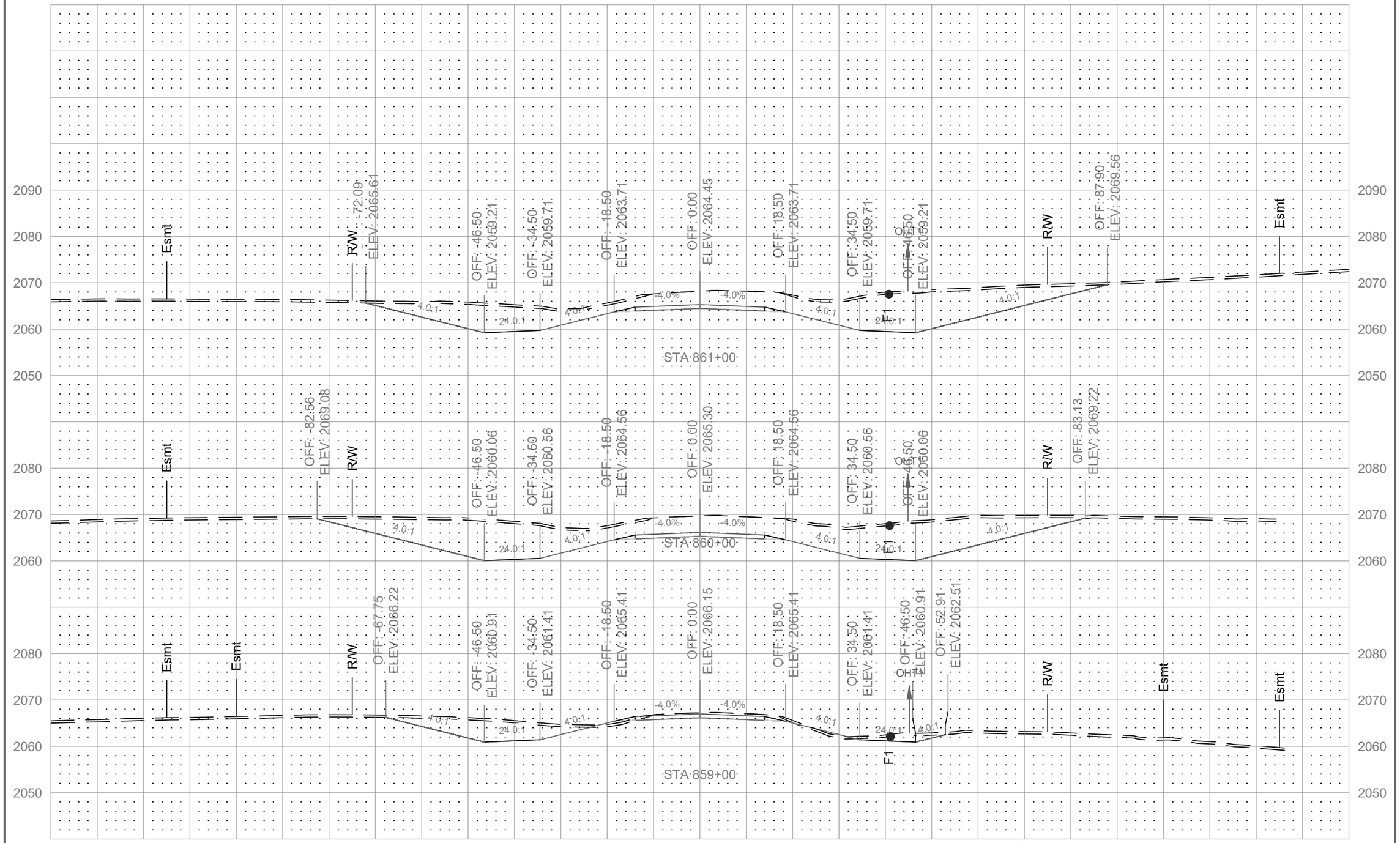


	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	33



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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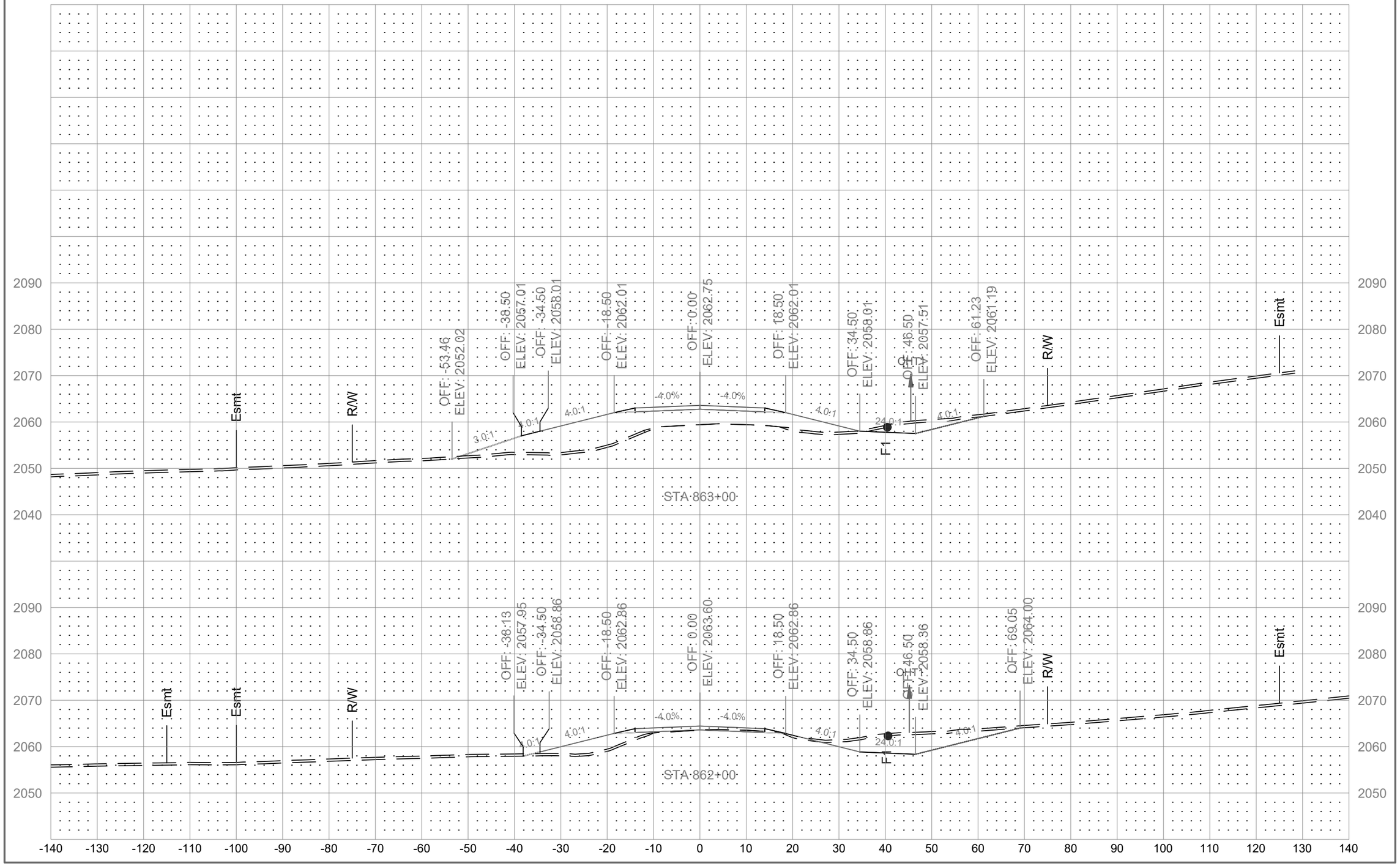

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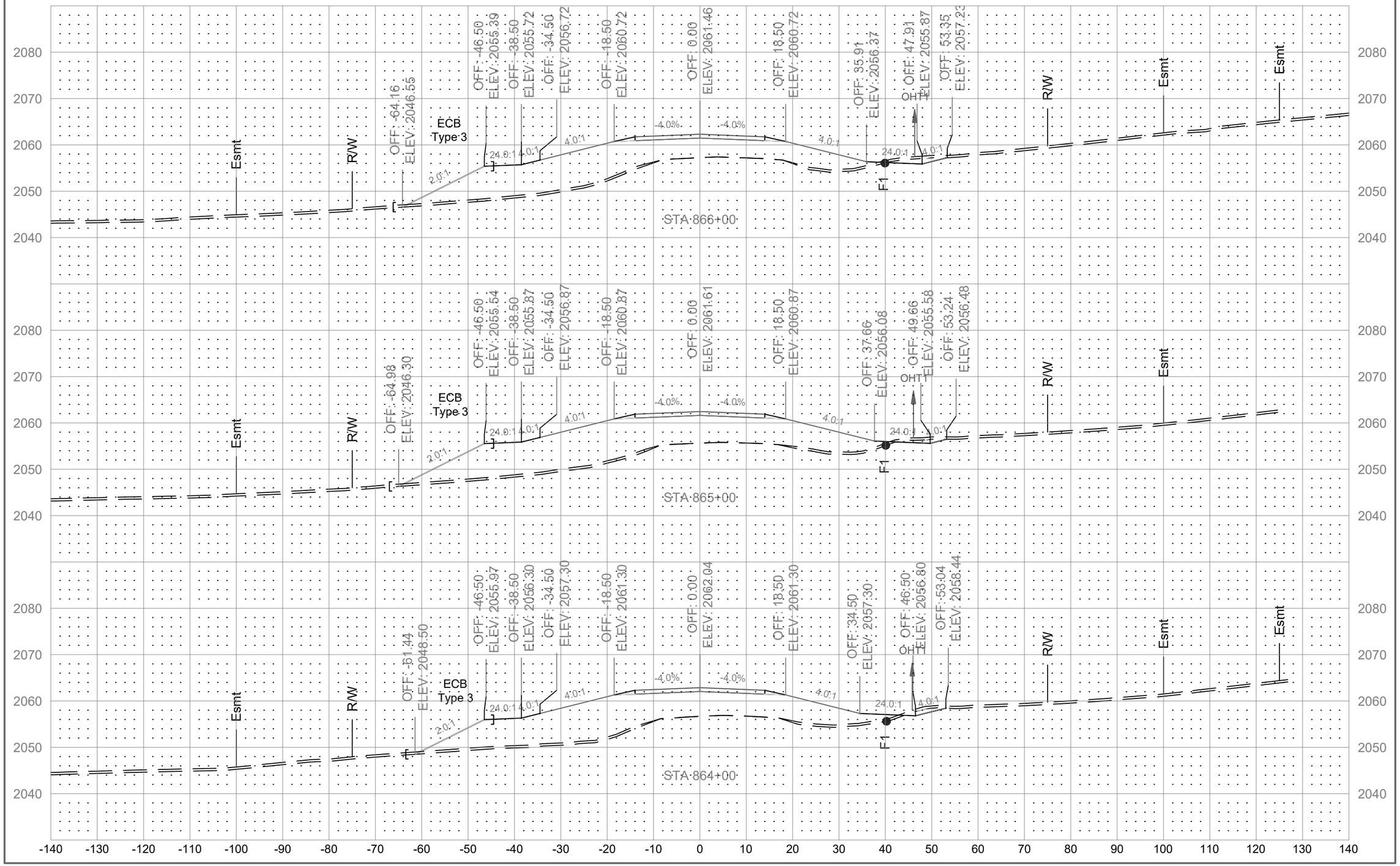
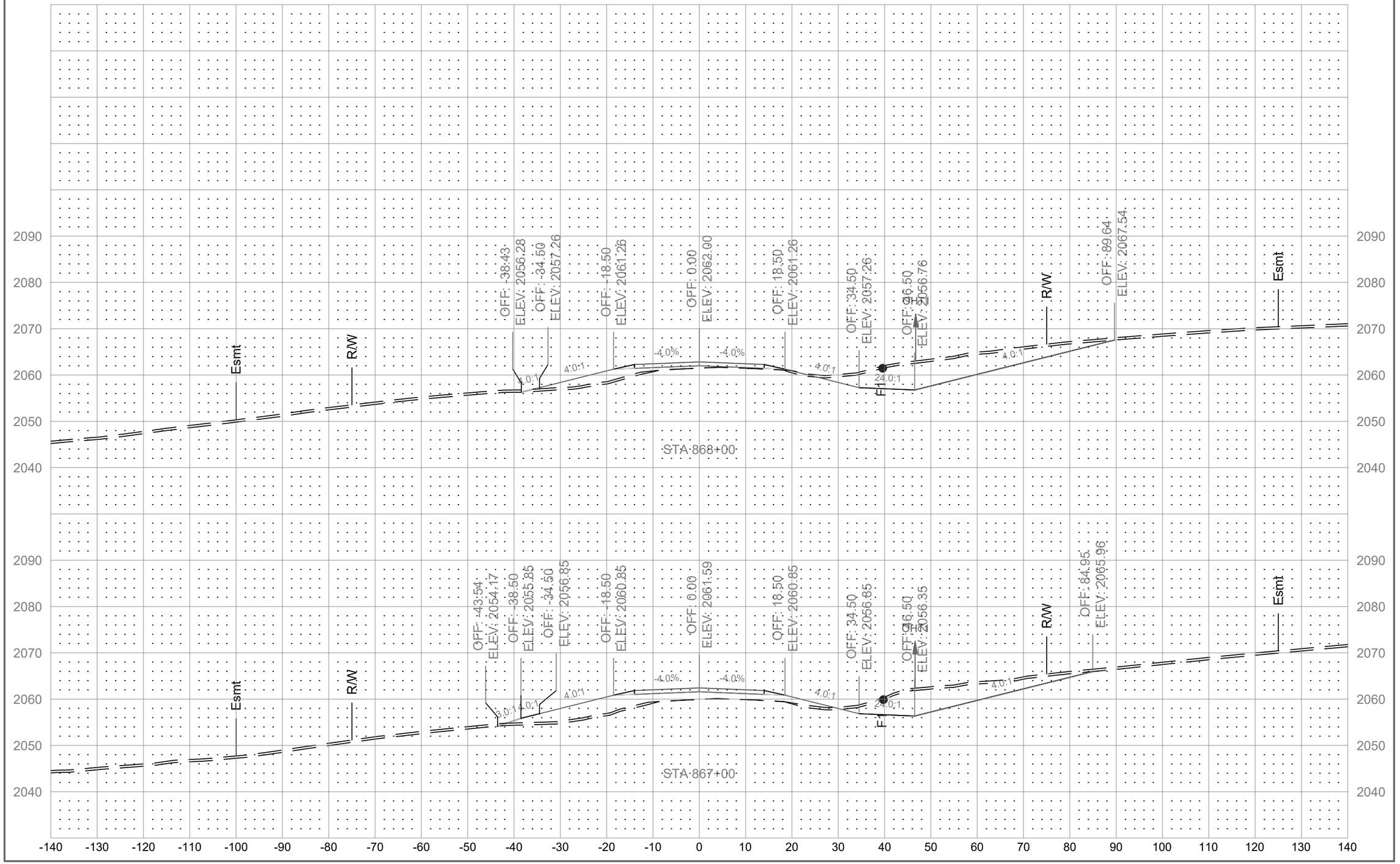
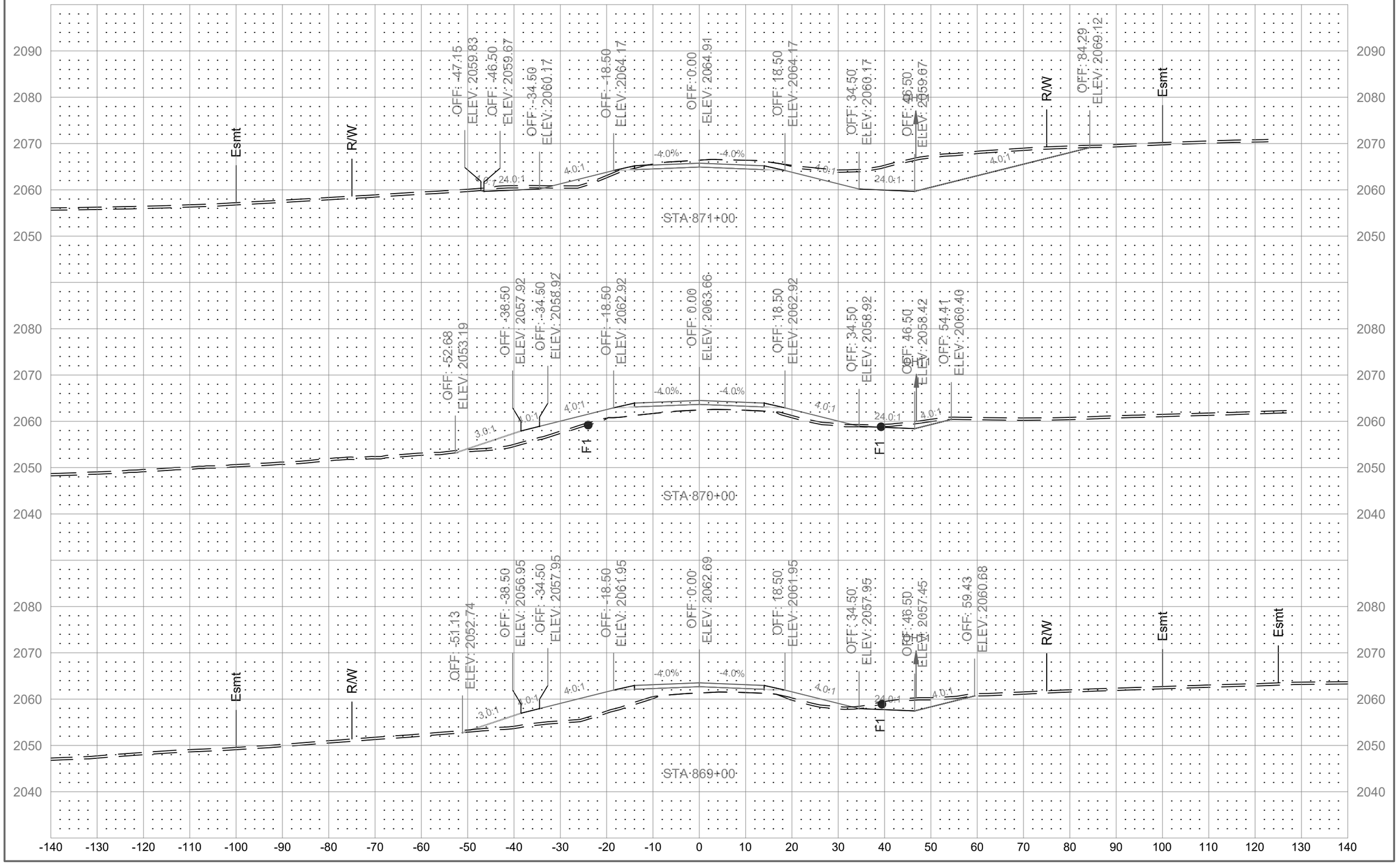


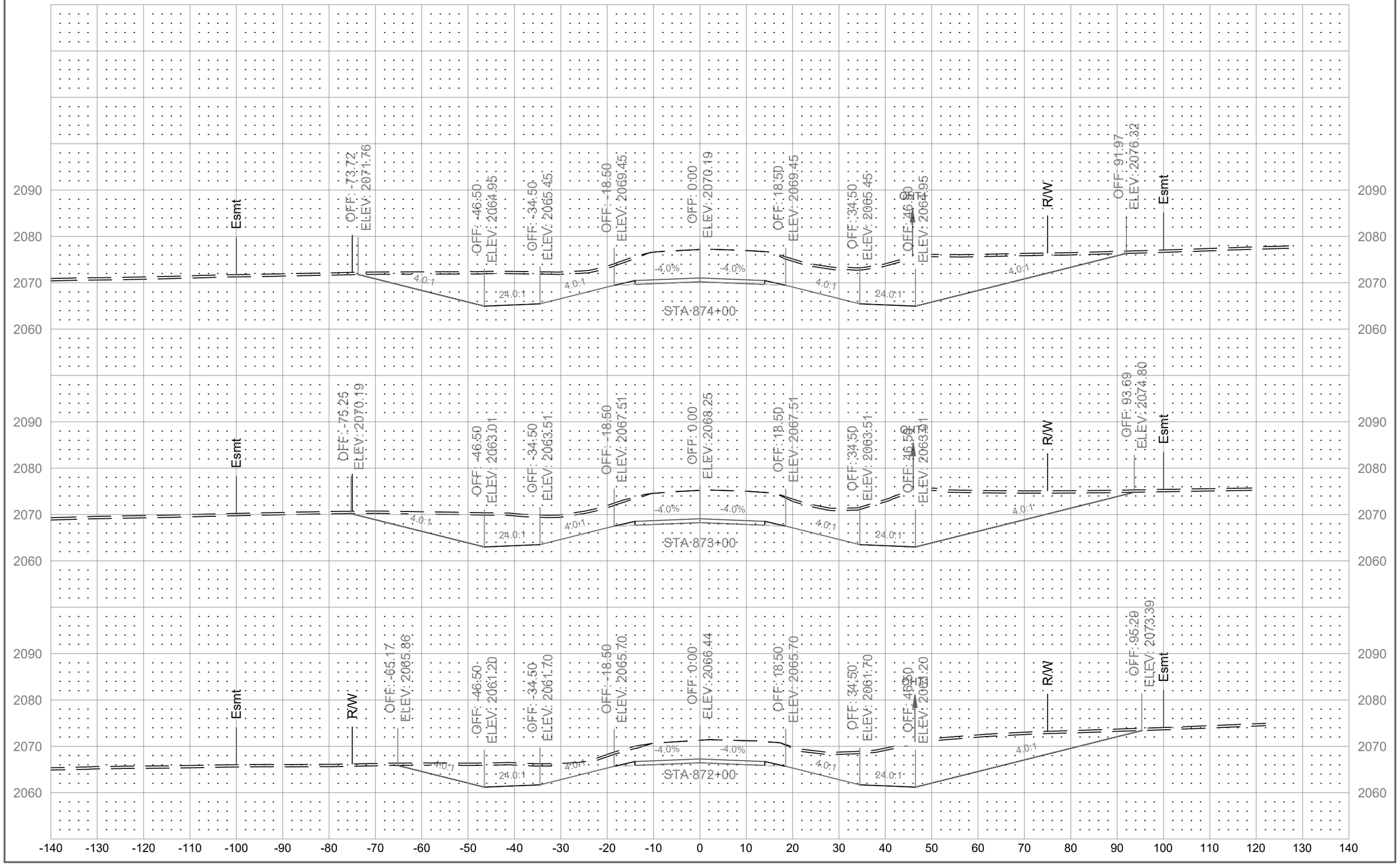
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	36



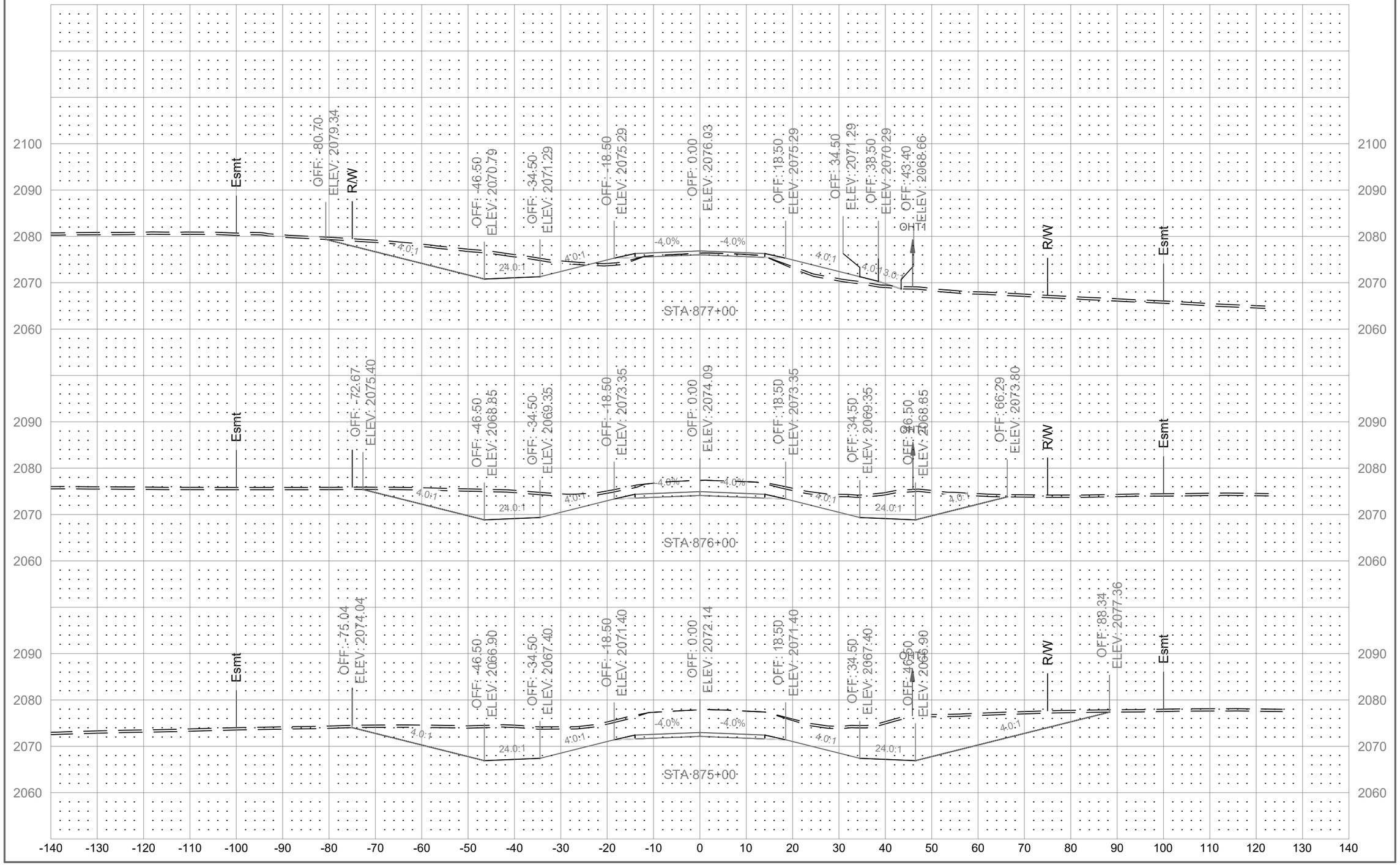
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	37



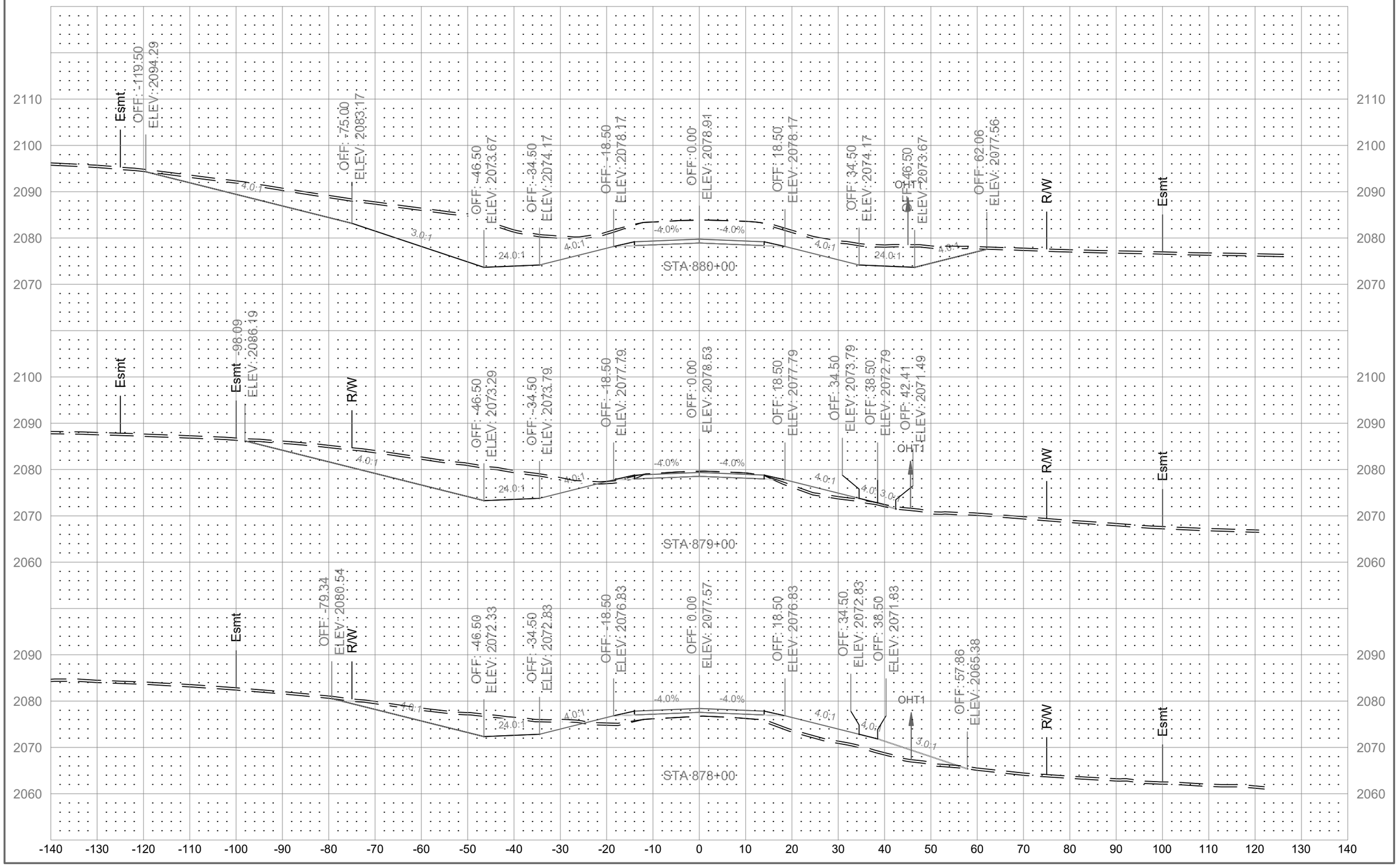
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	38



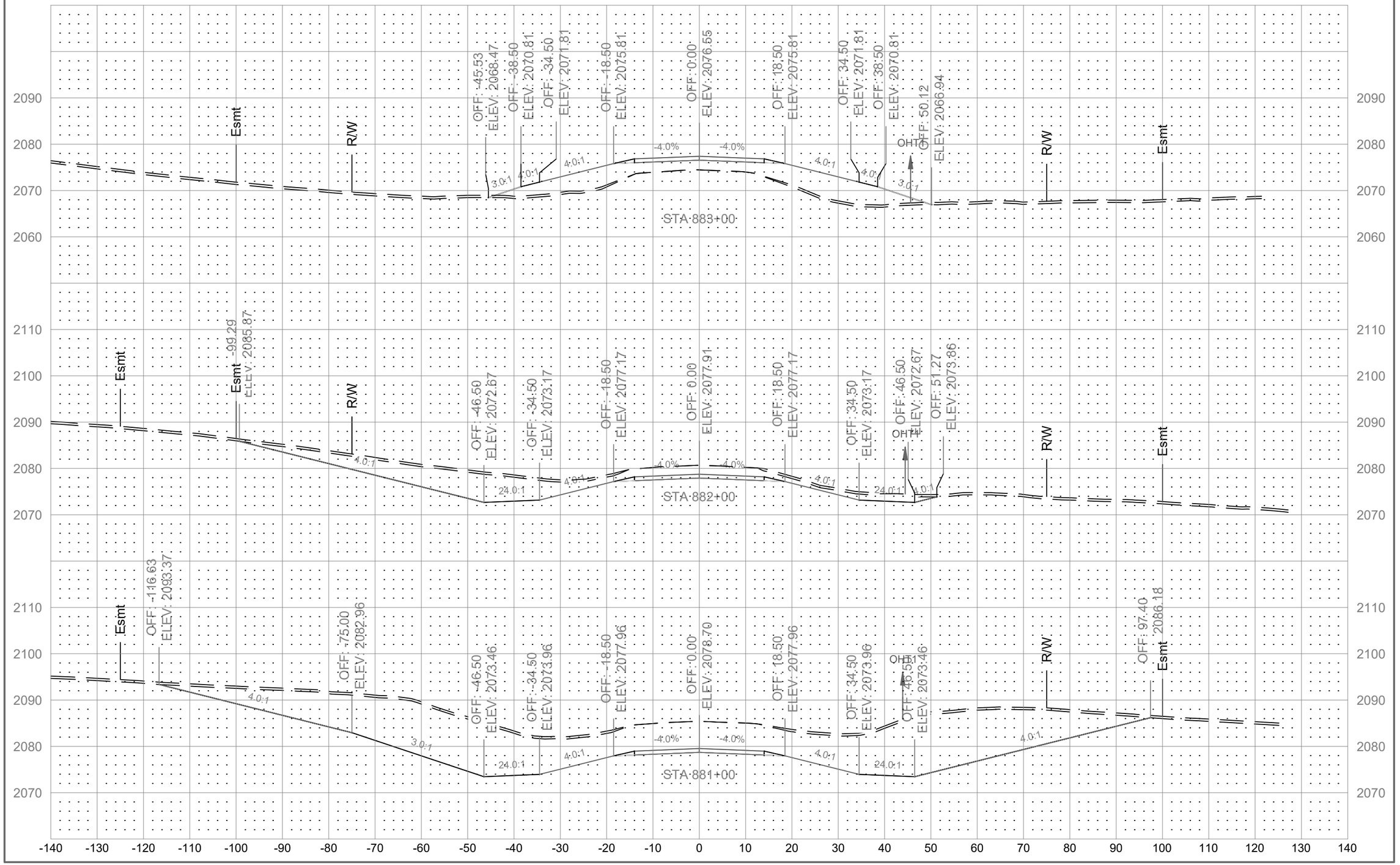
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	39



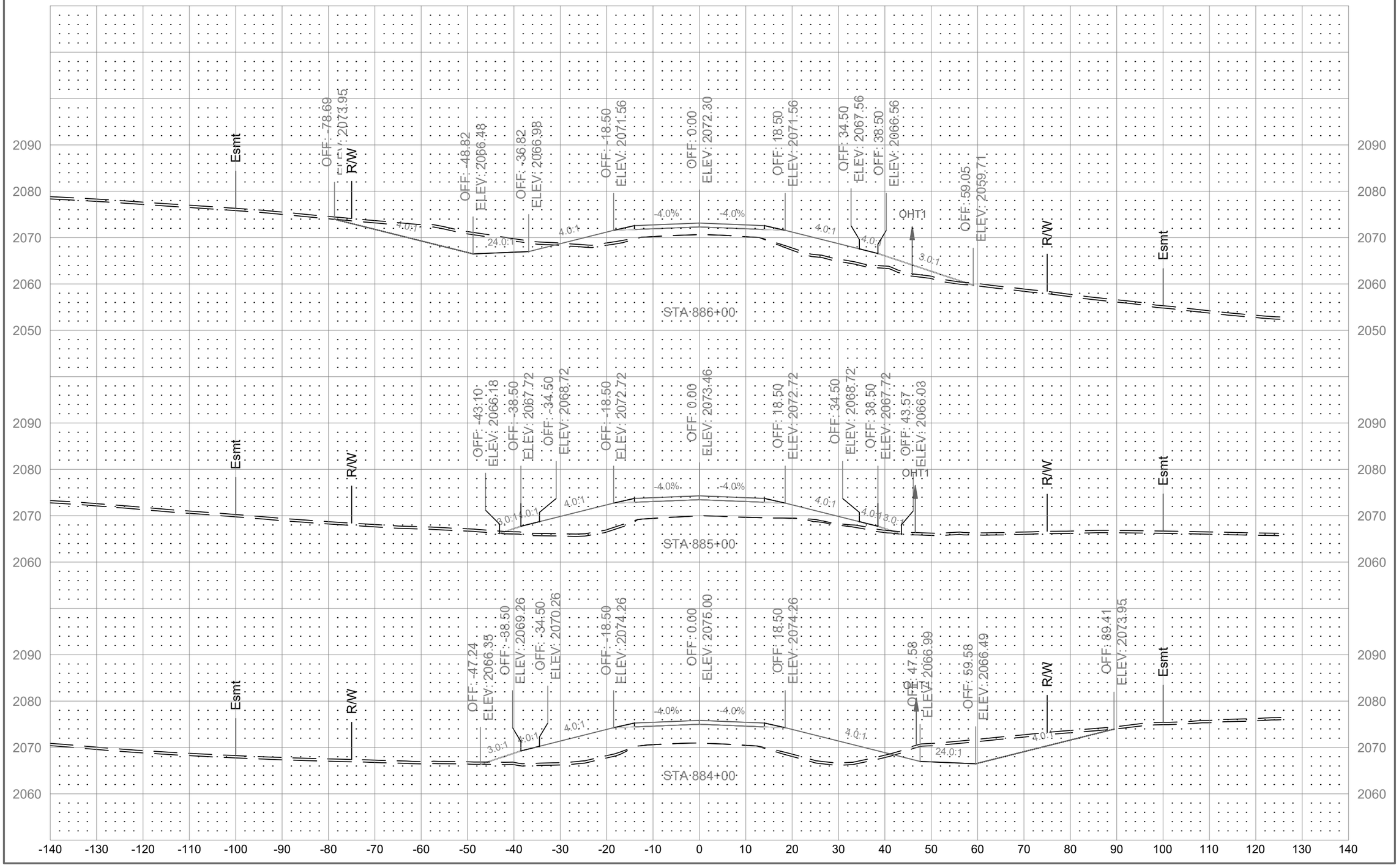
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	40



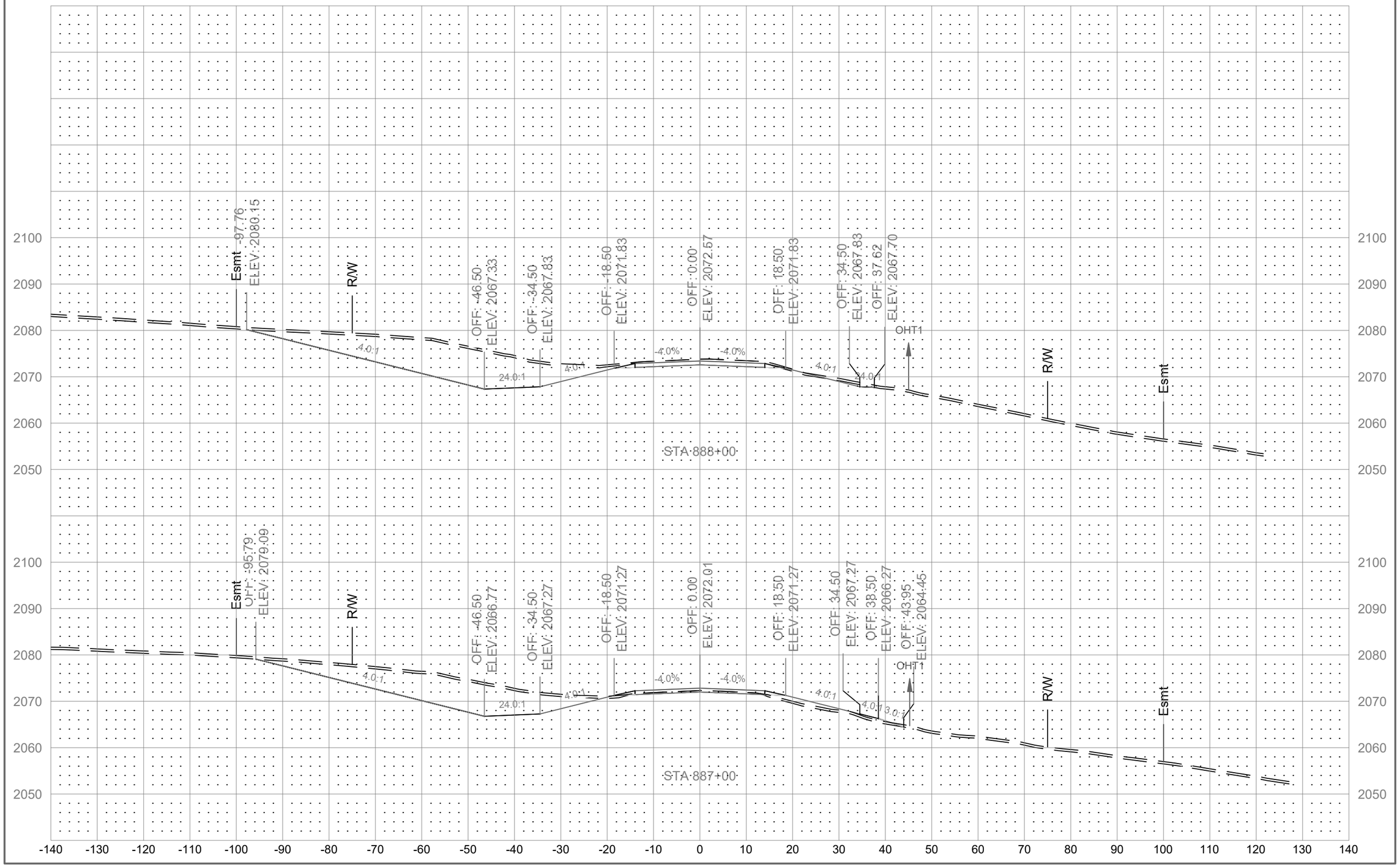
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	41



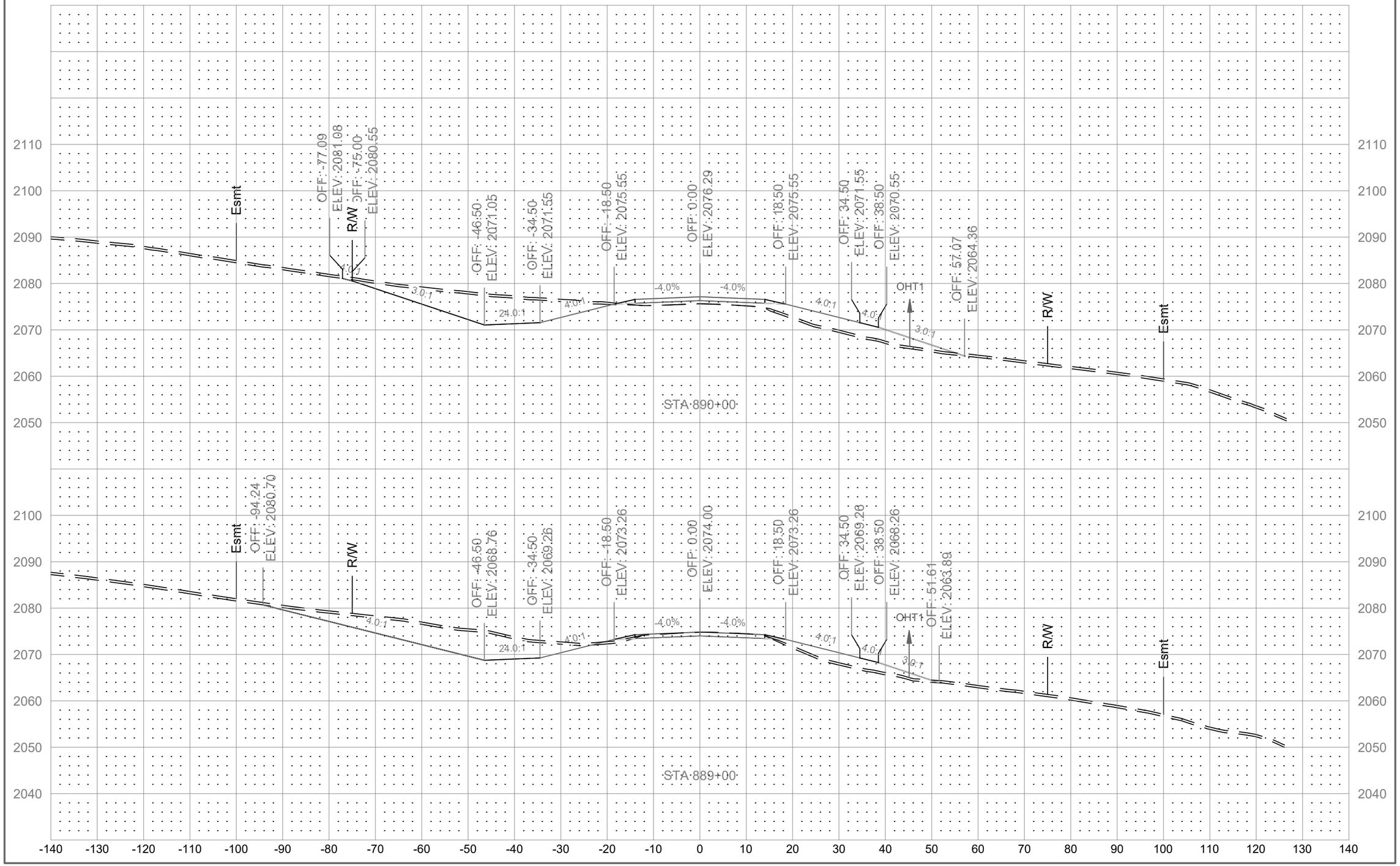
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	42



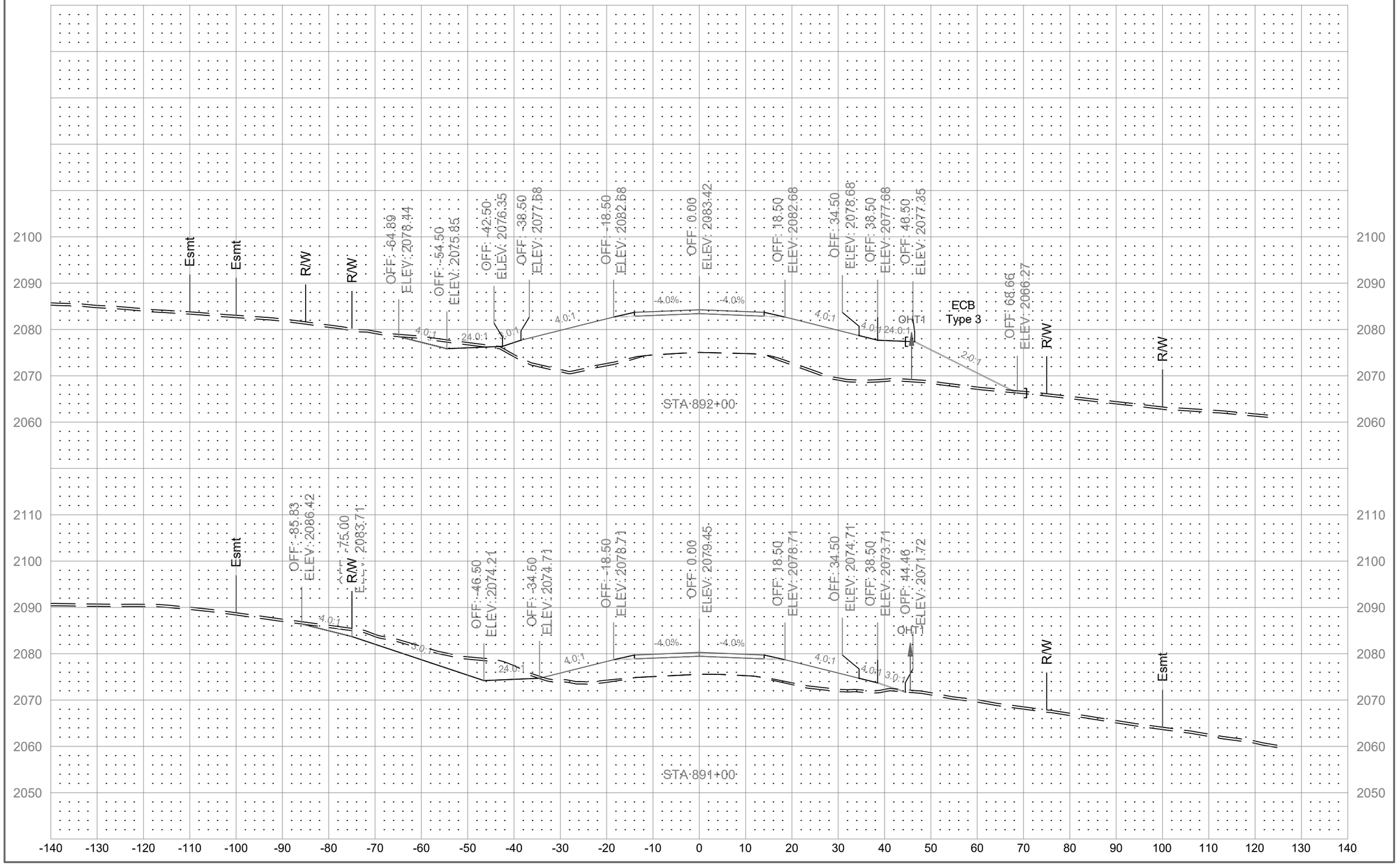
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	43



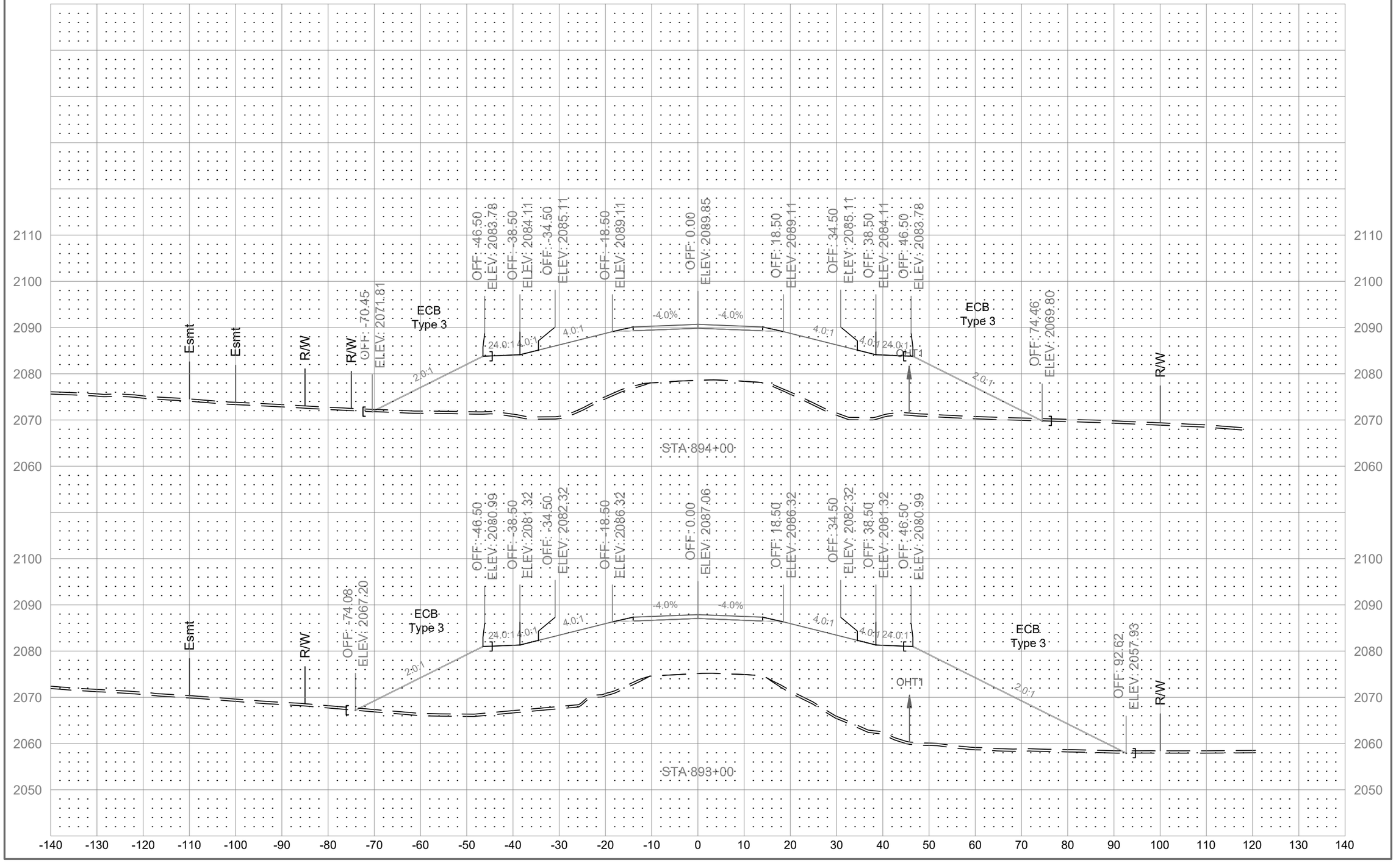
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	44



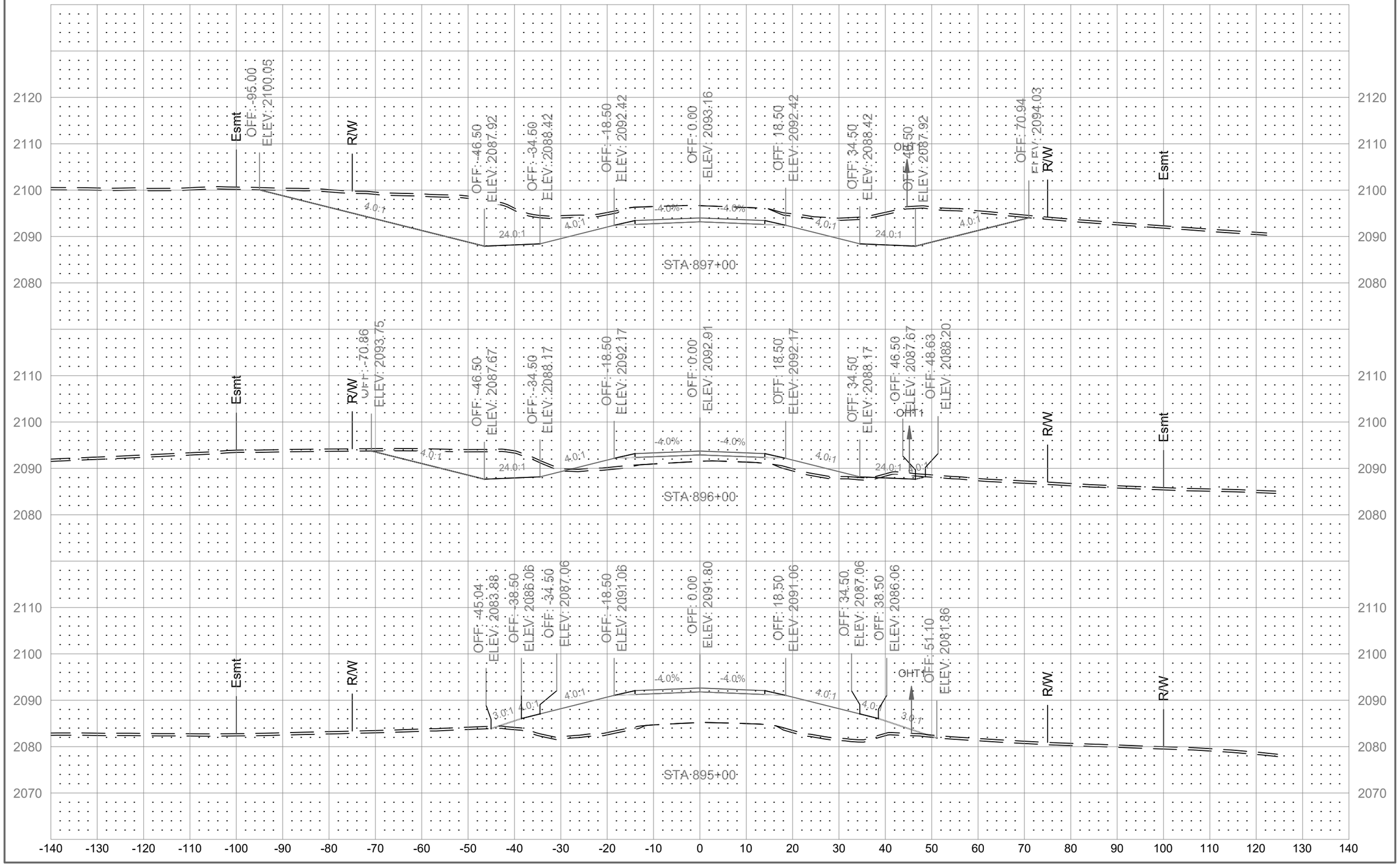
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	45



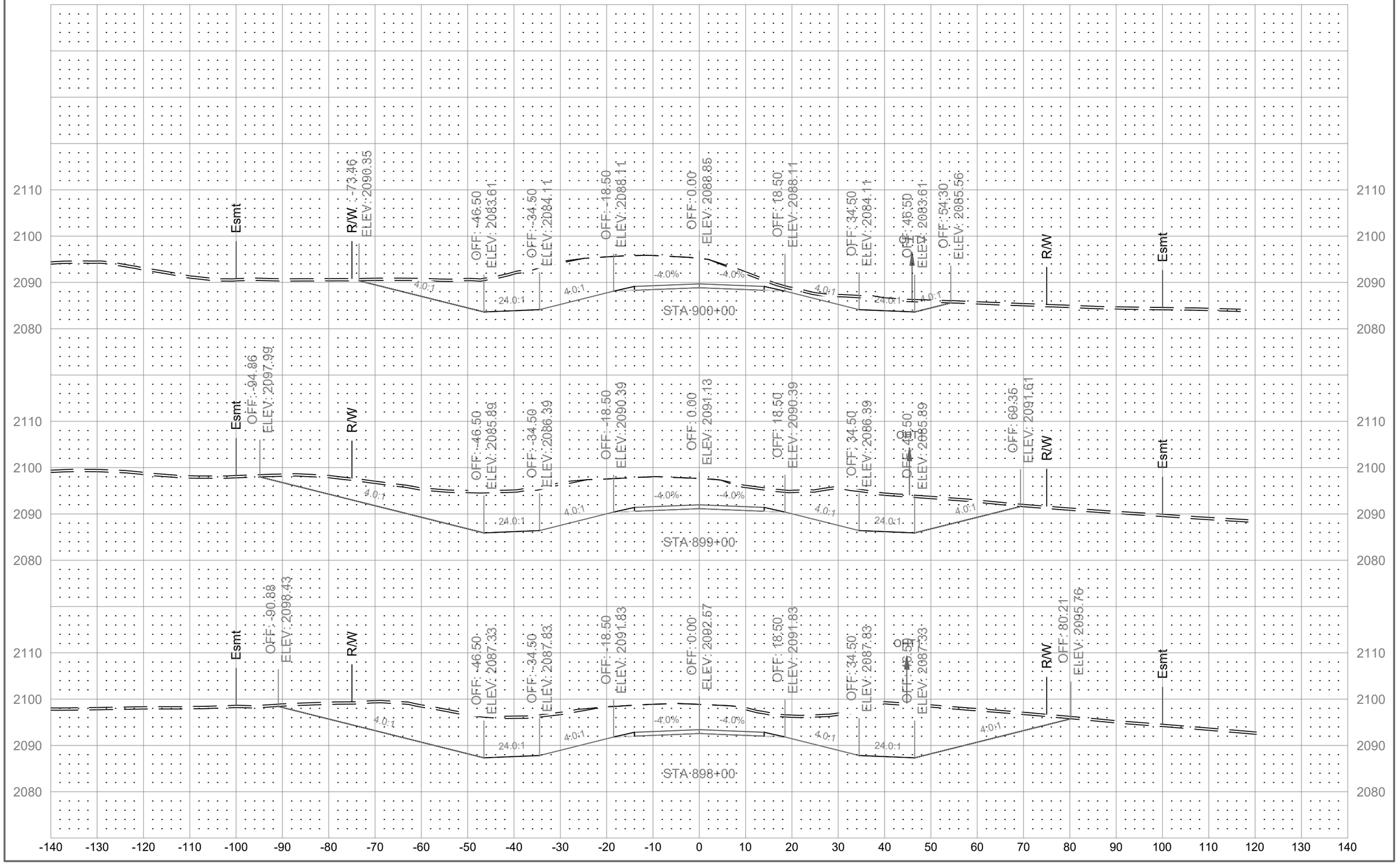
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	46



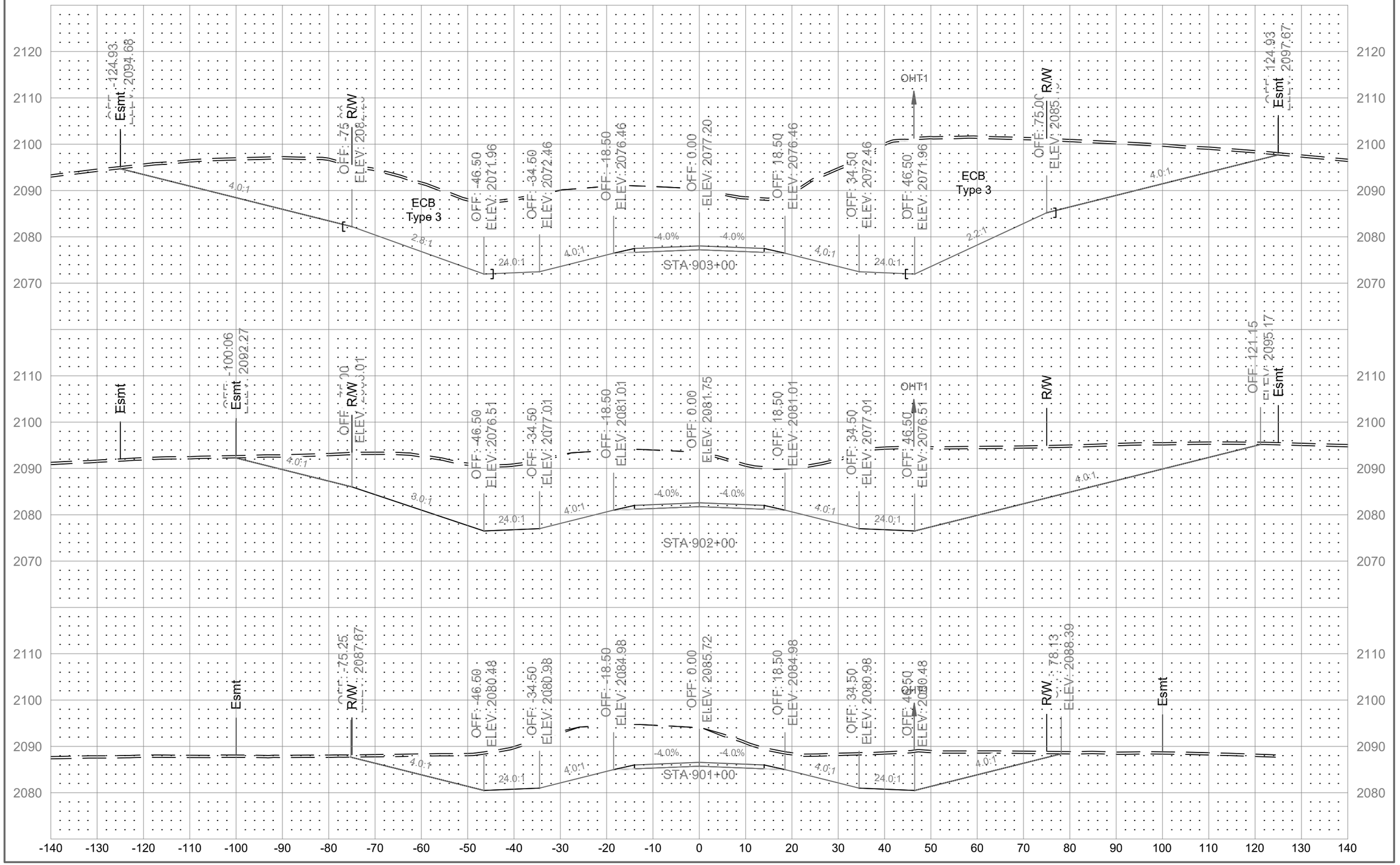
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	47



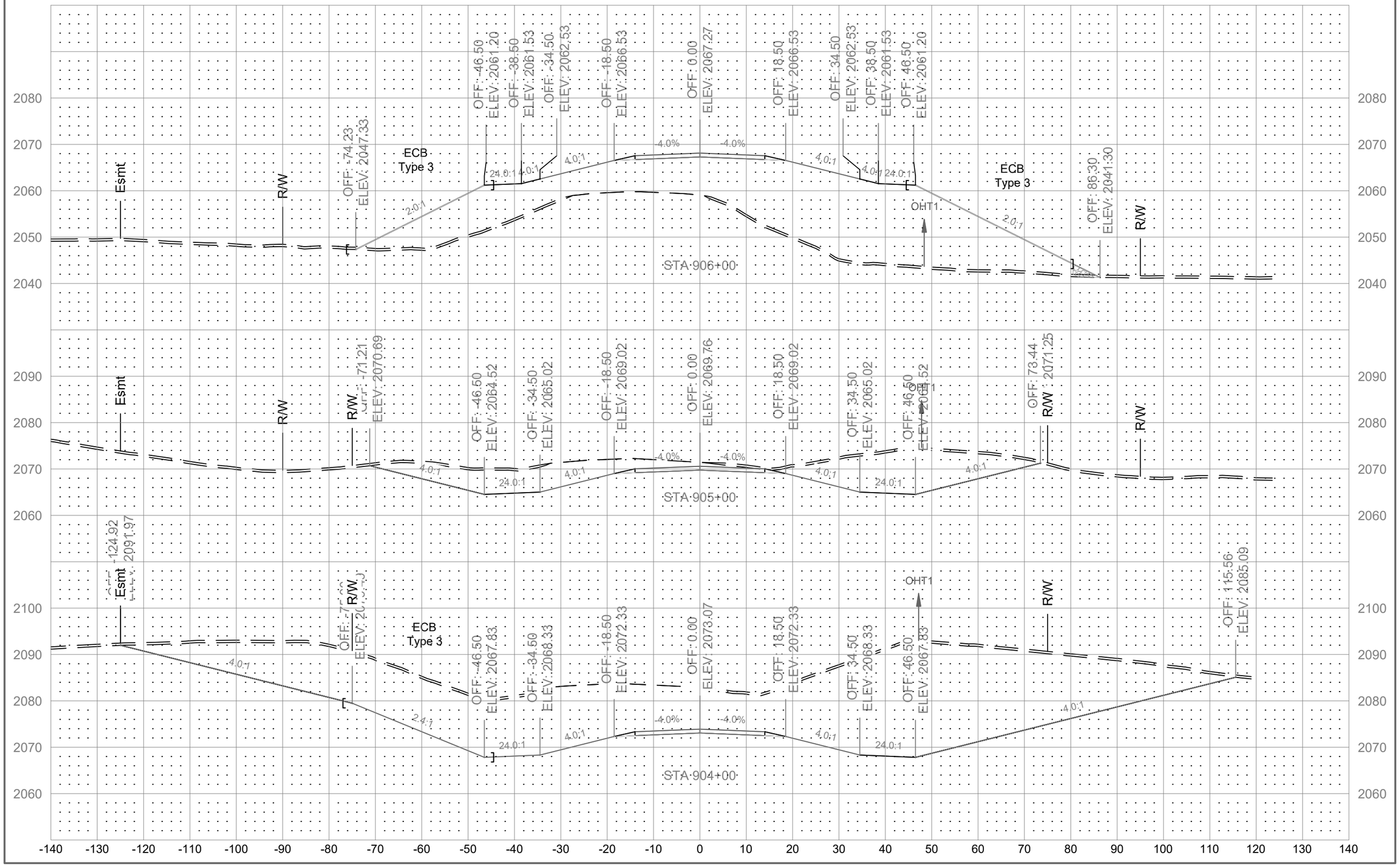
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	48



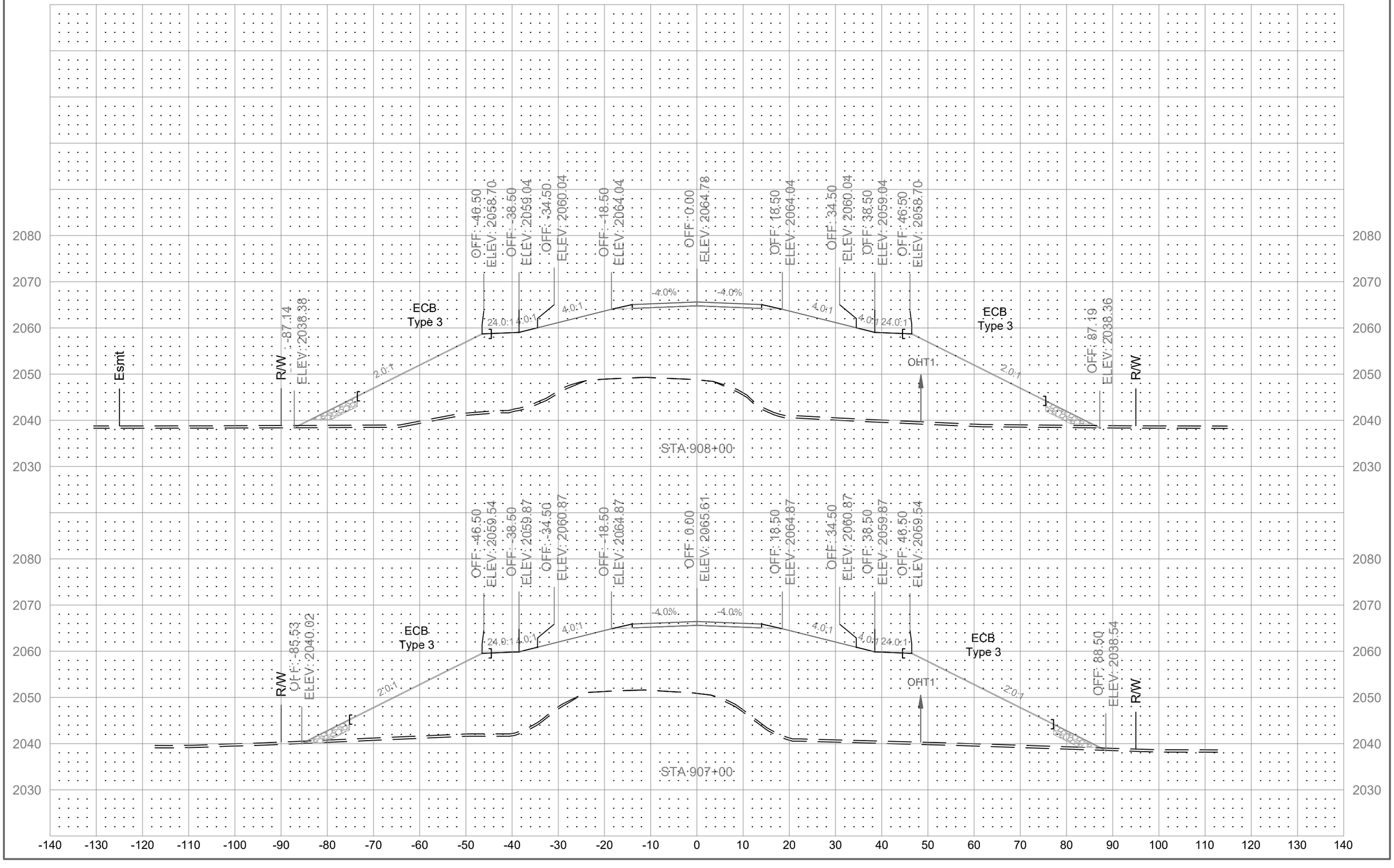
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	49



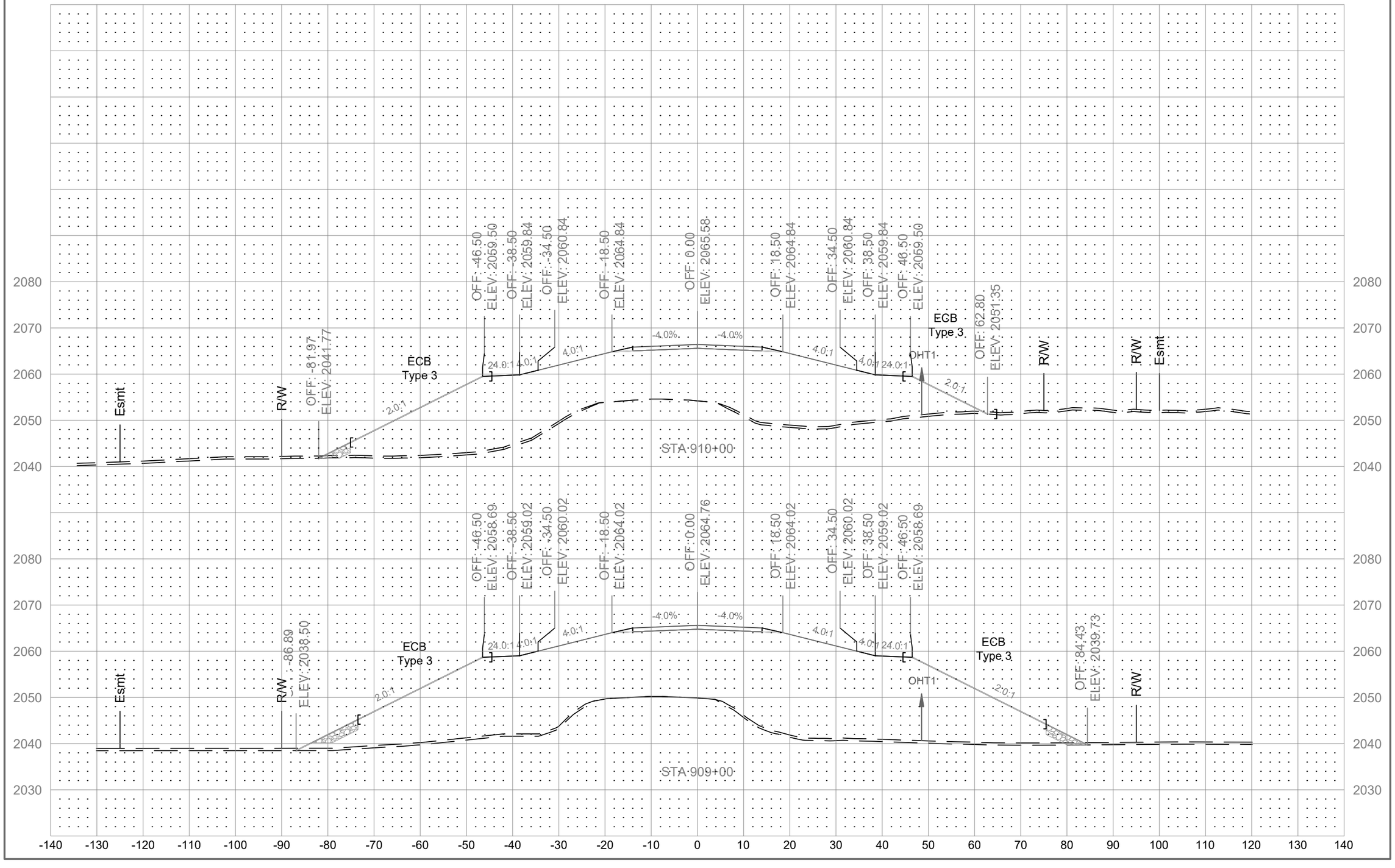
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	50



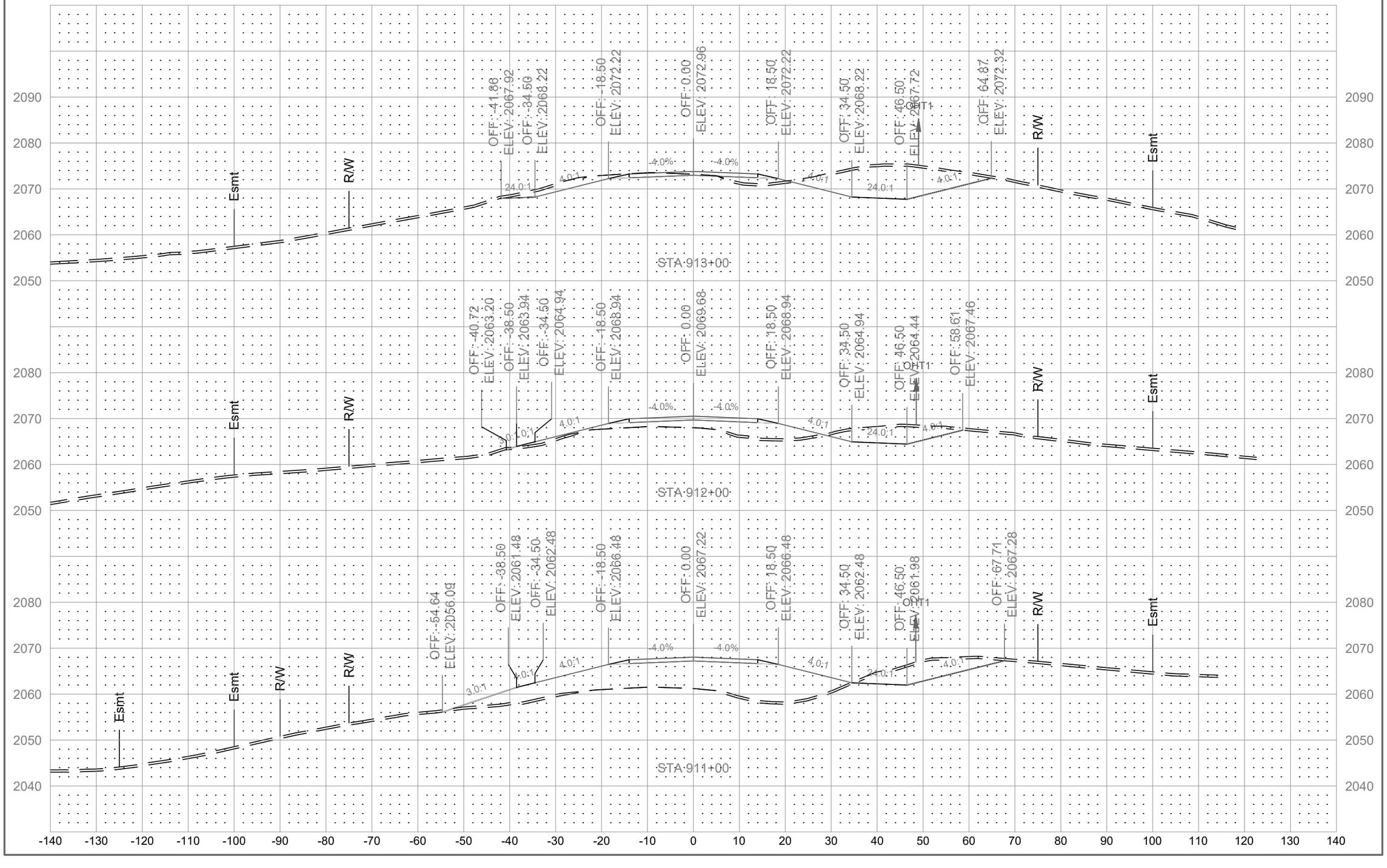
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	51



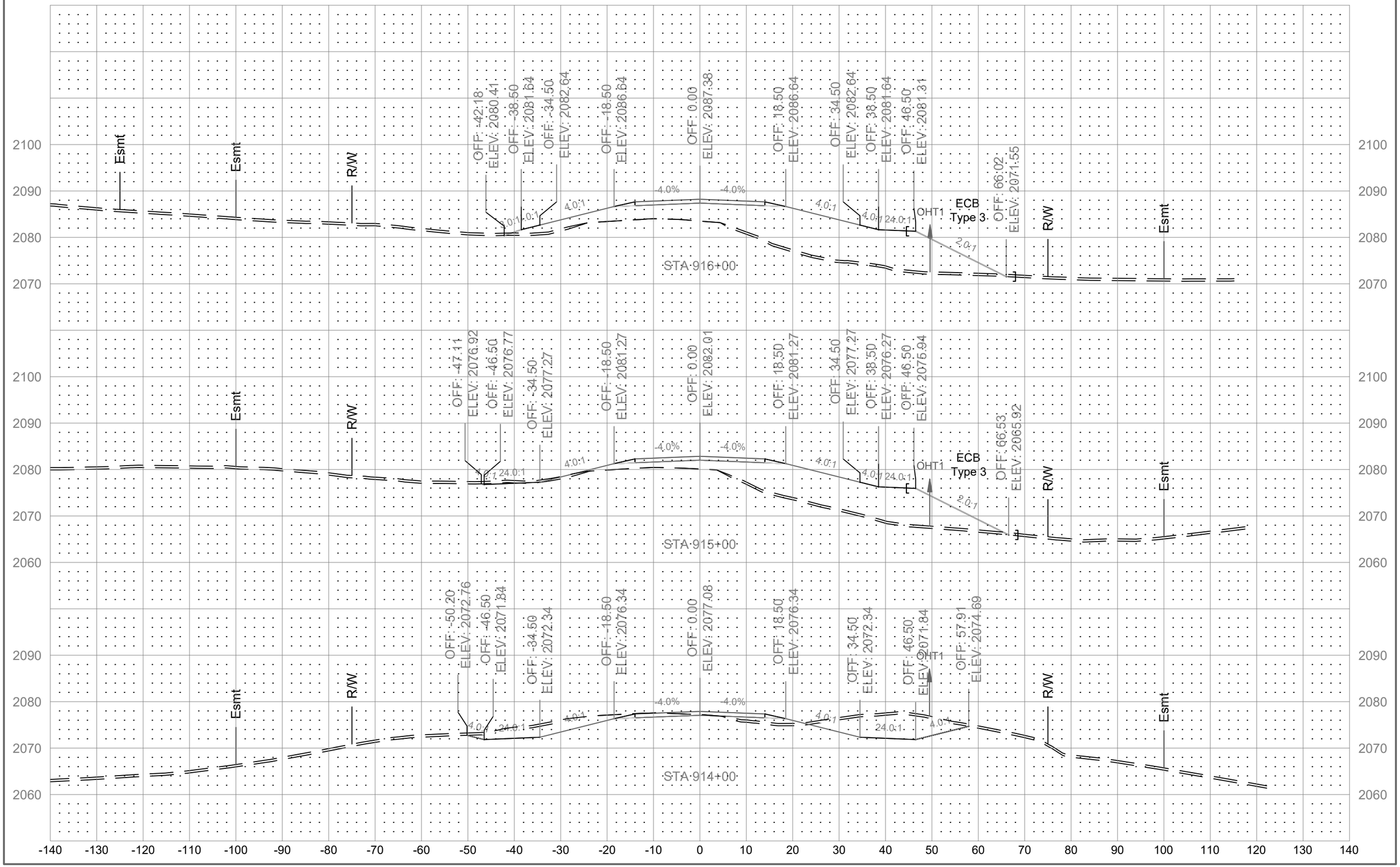
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	52



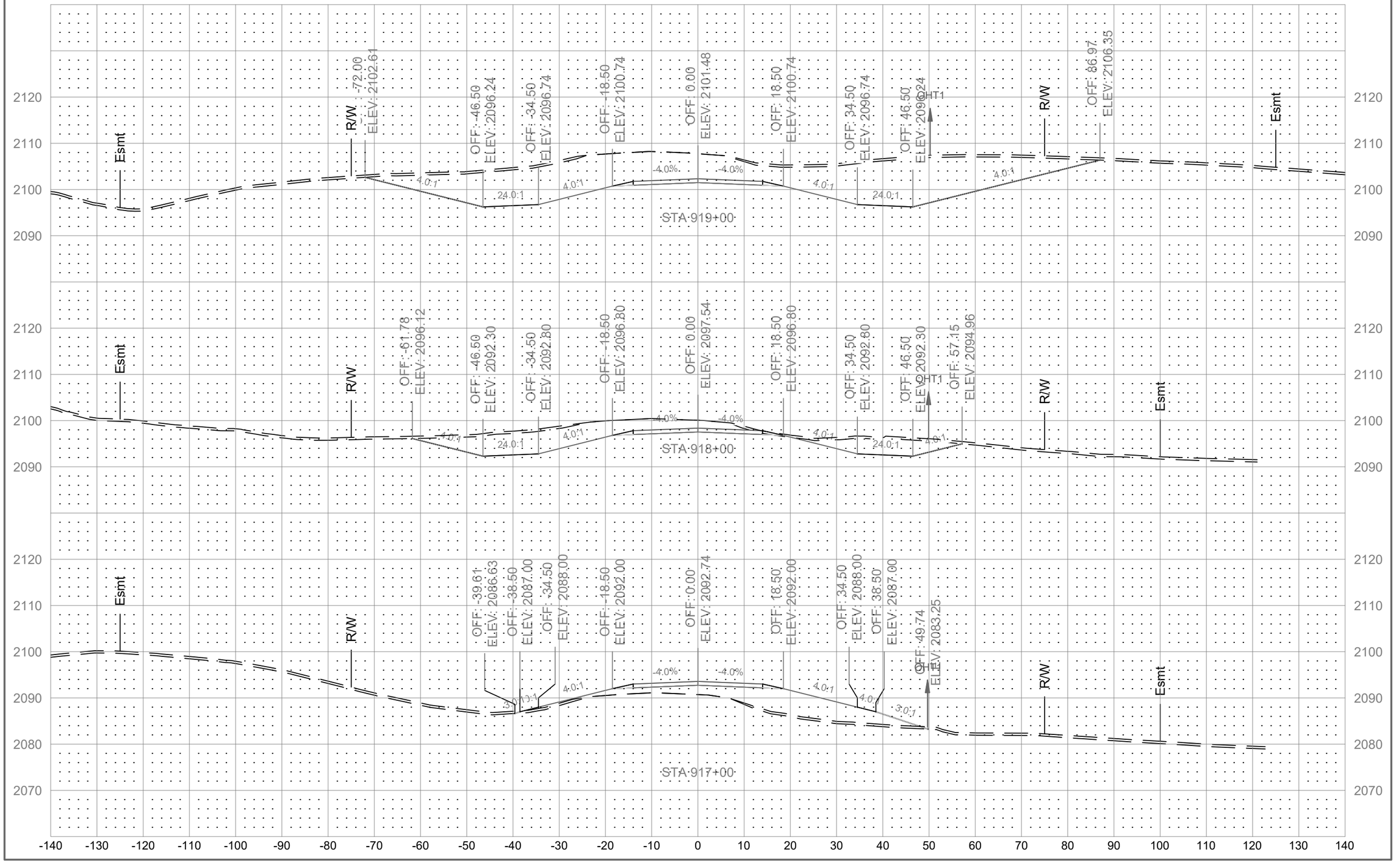
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	53



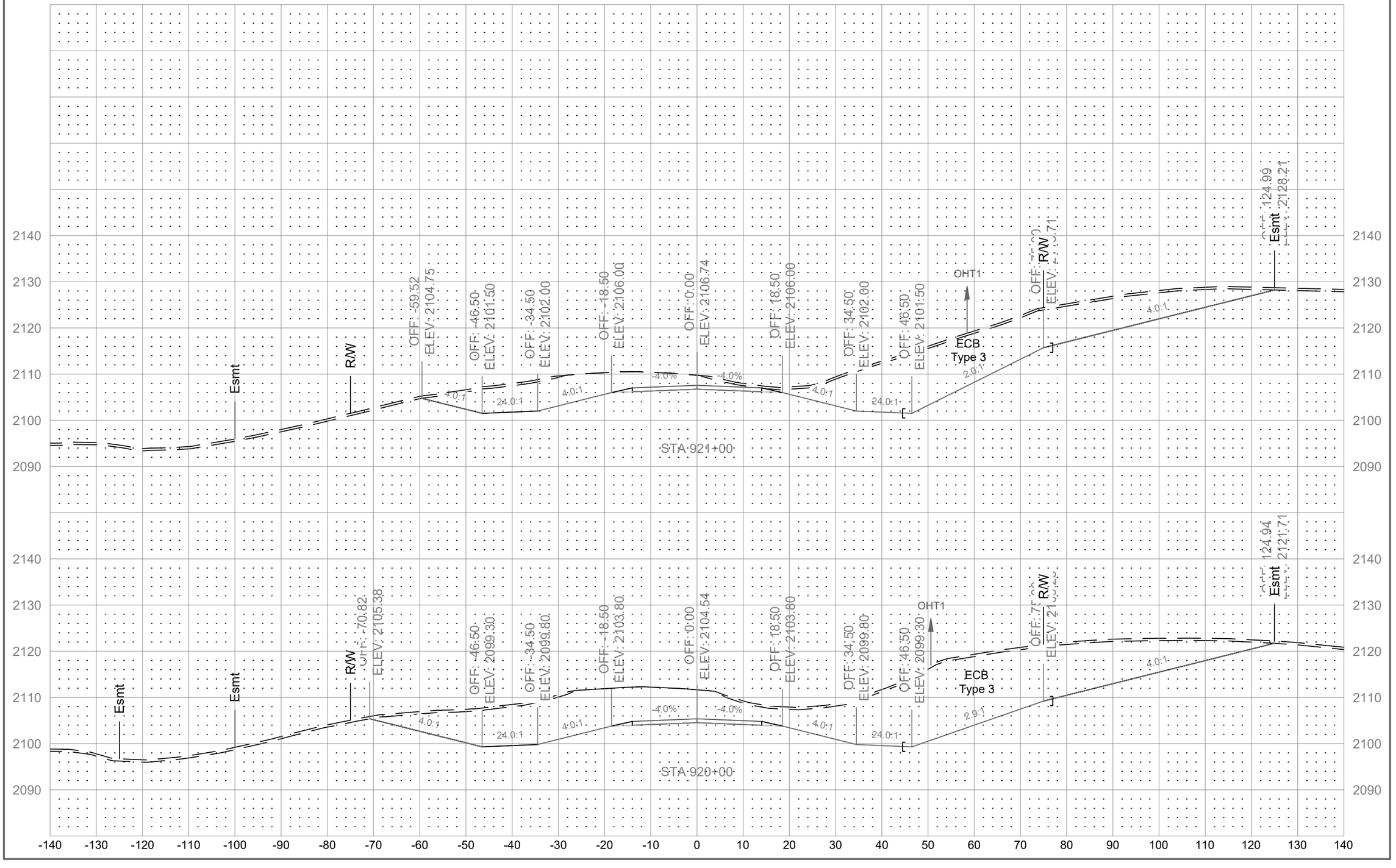
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	54



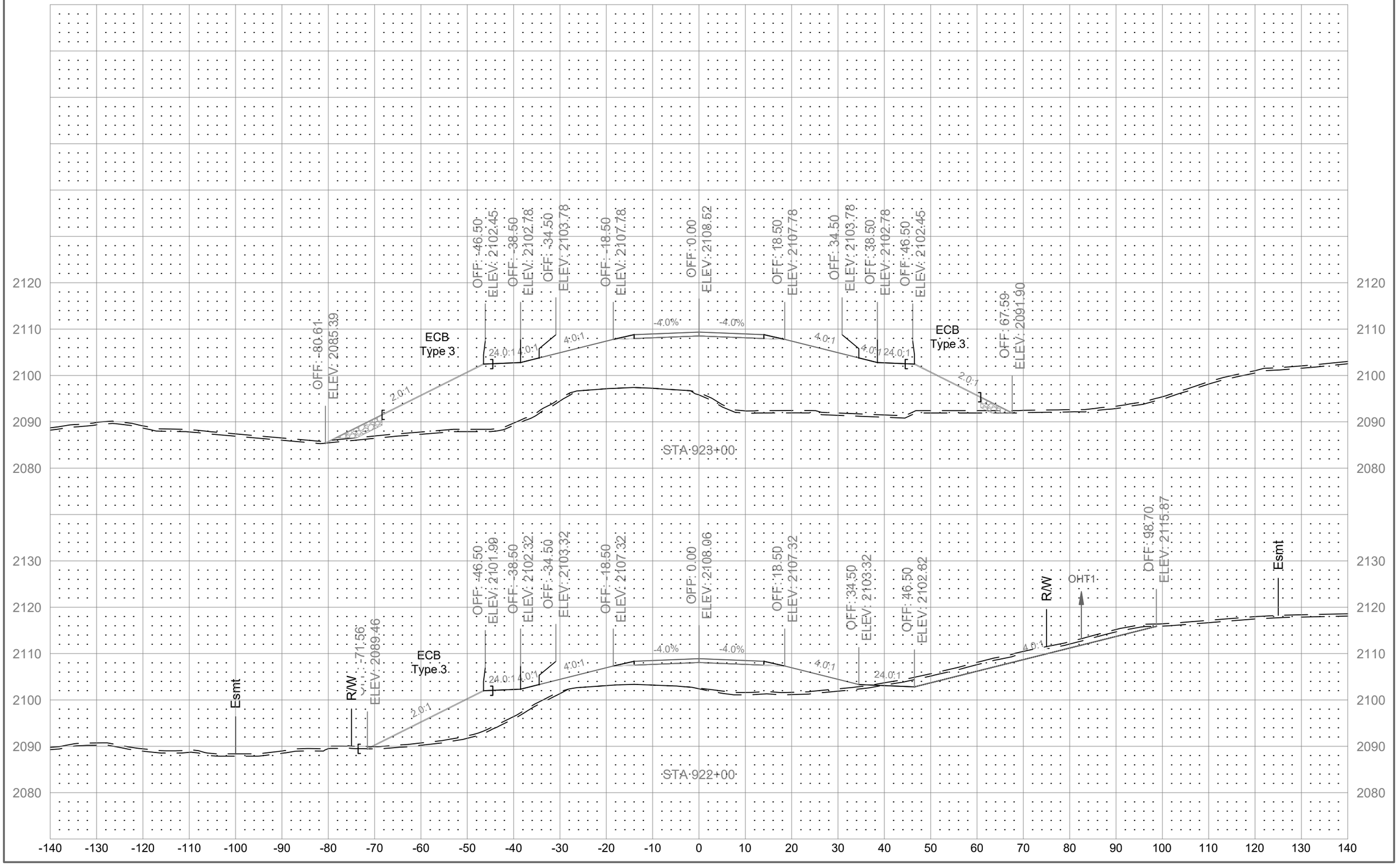
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	55



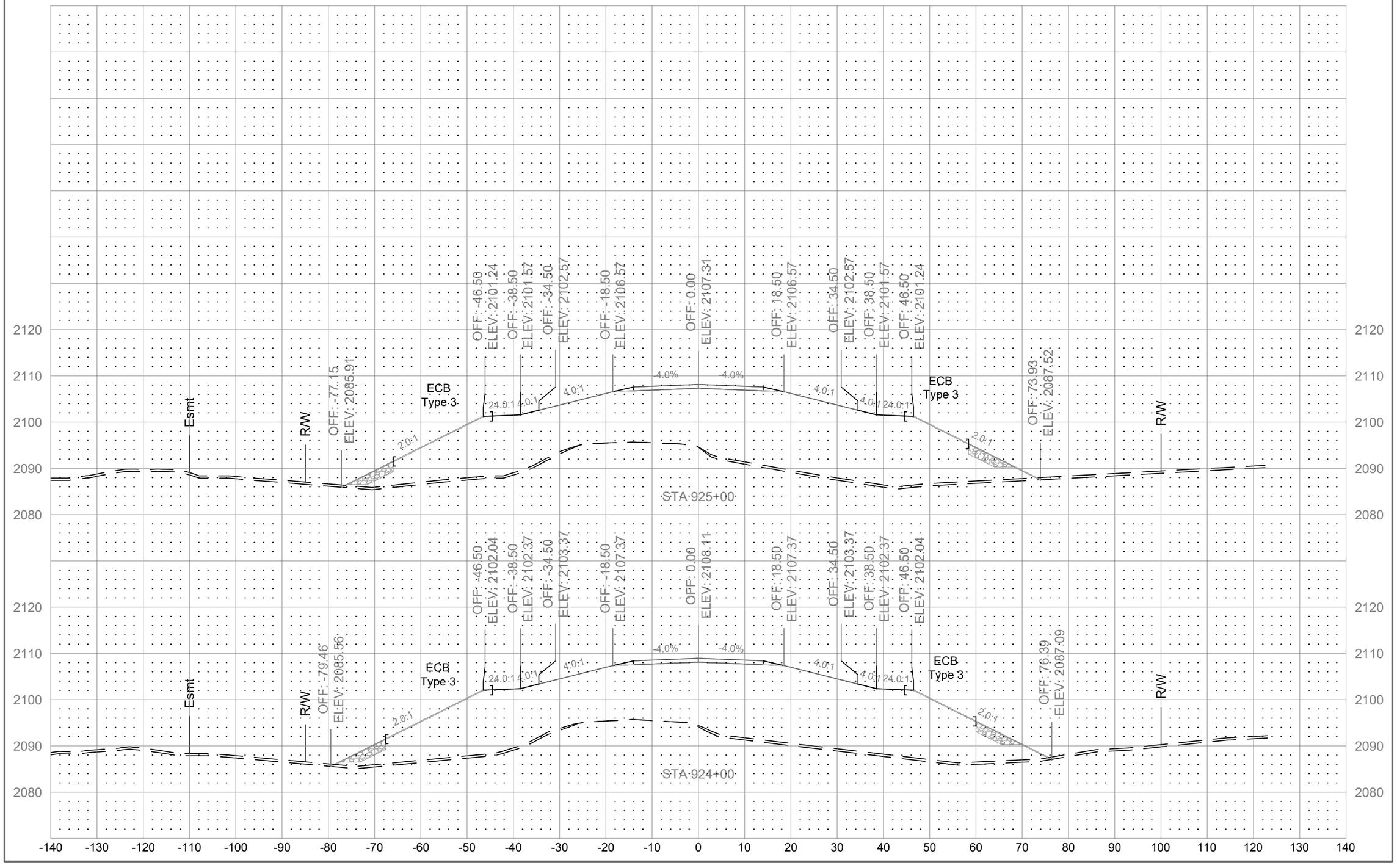
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	56



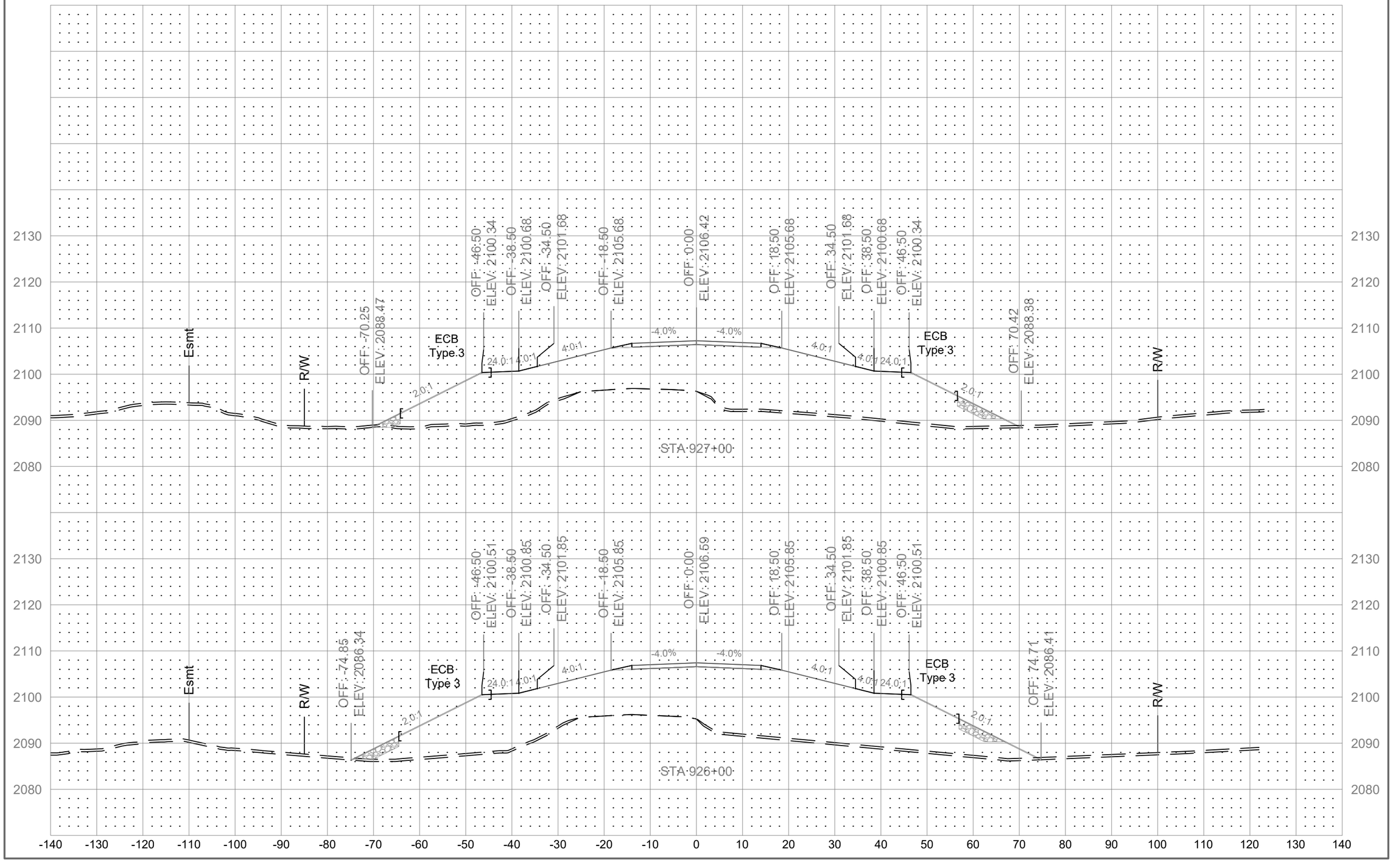
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	57



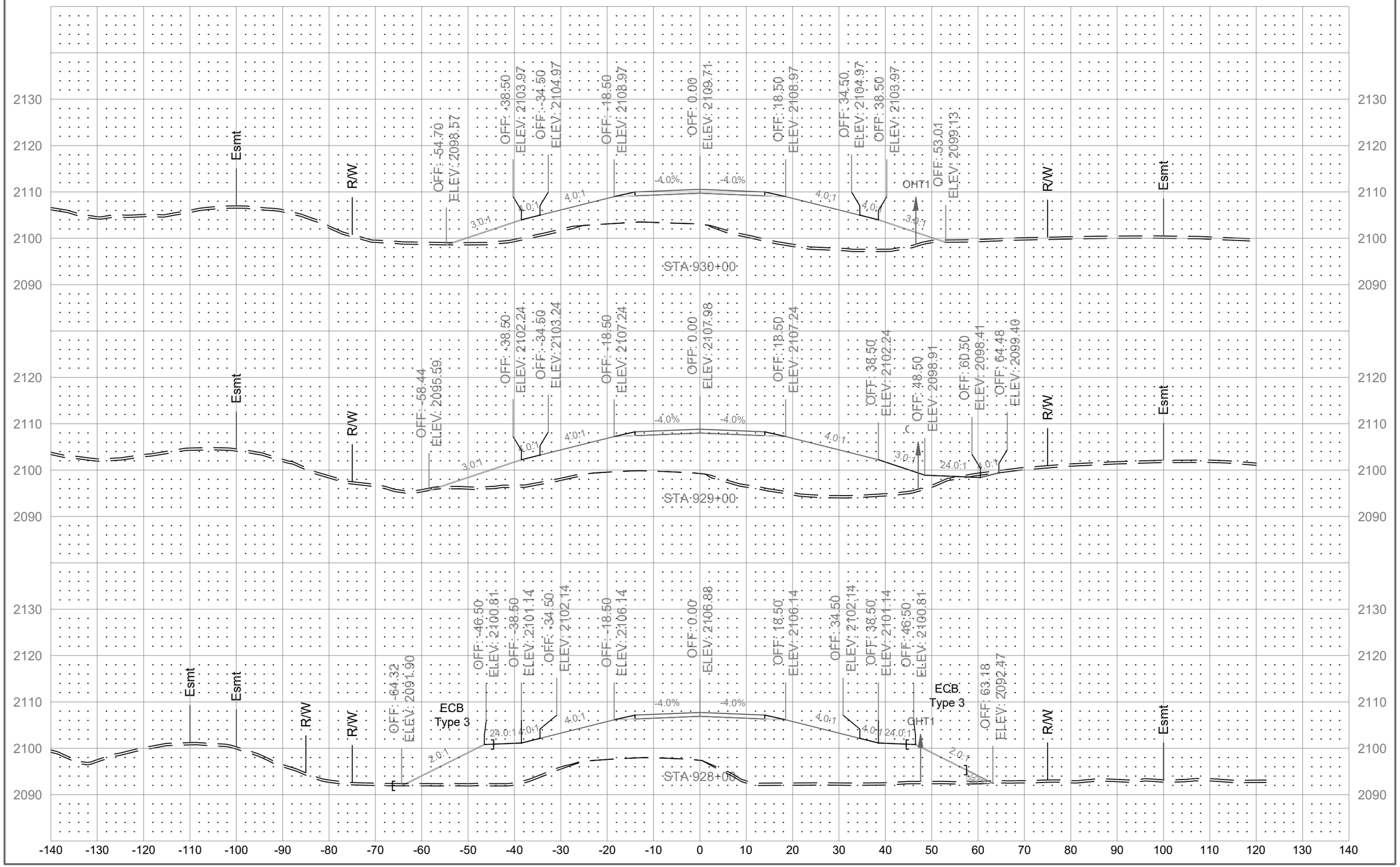
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	58



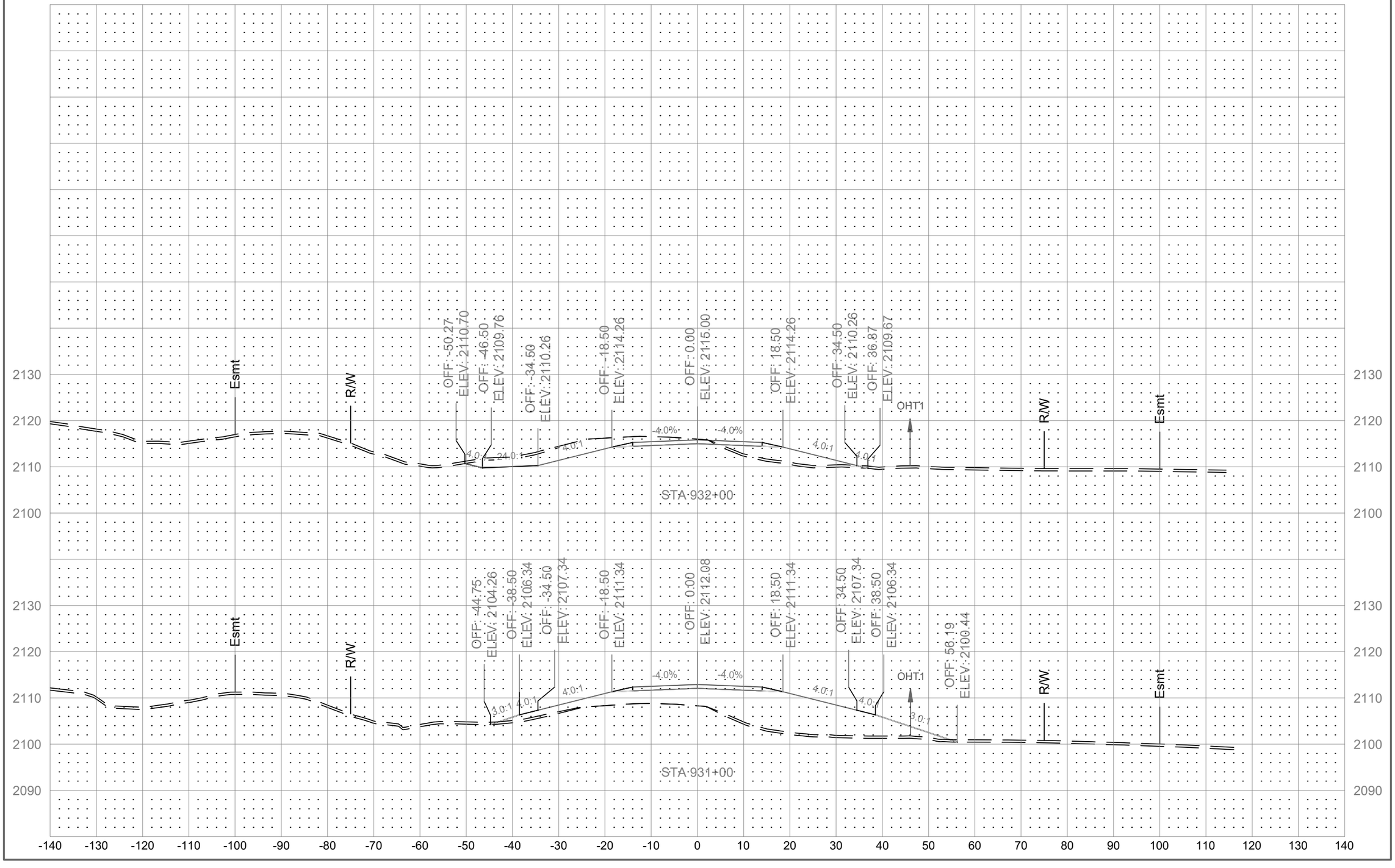
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	59



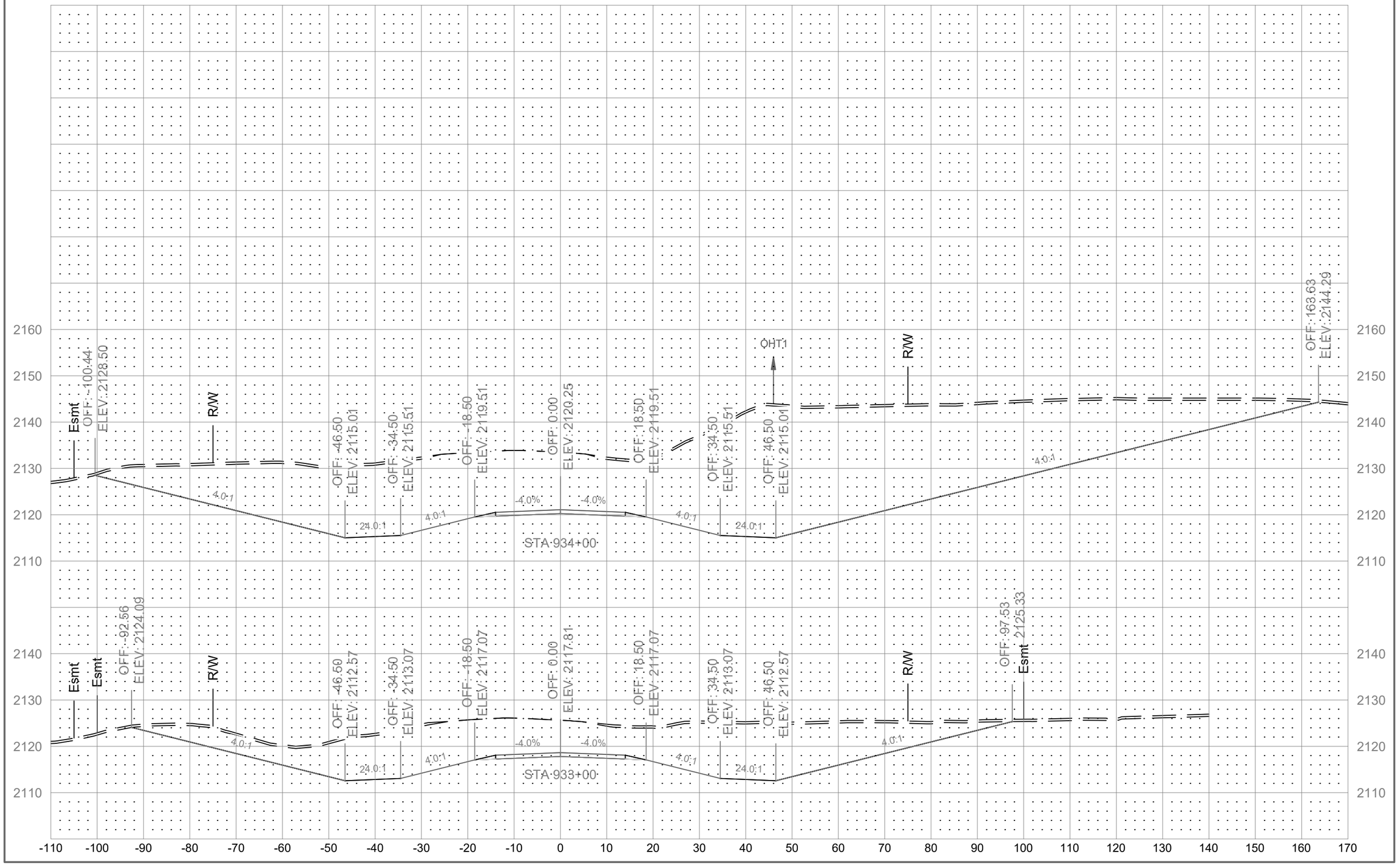
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	60



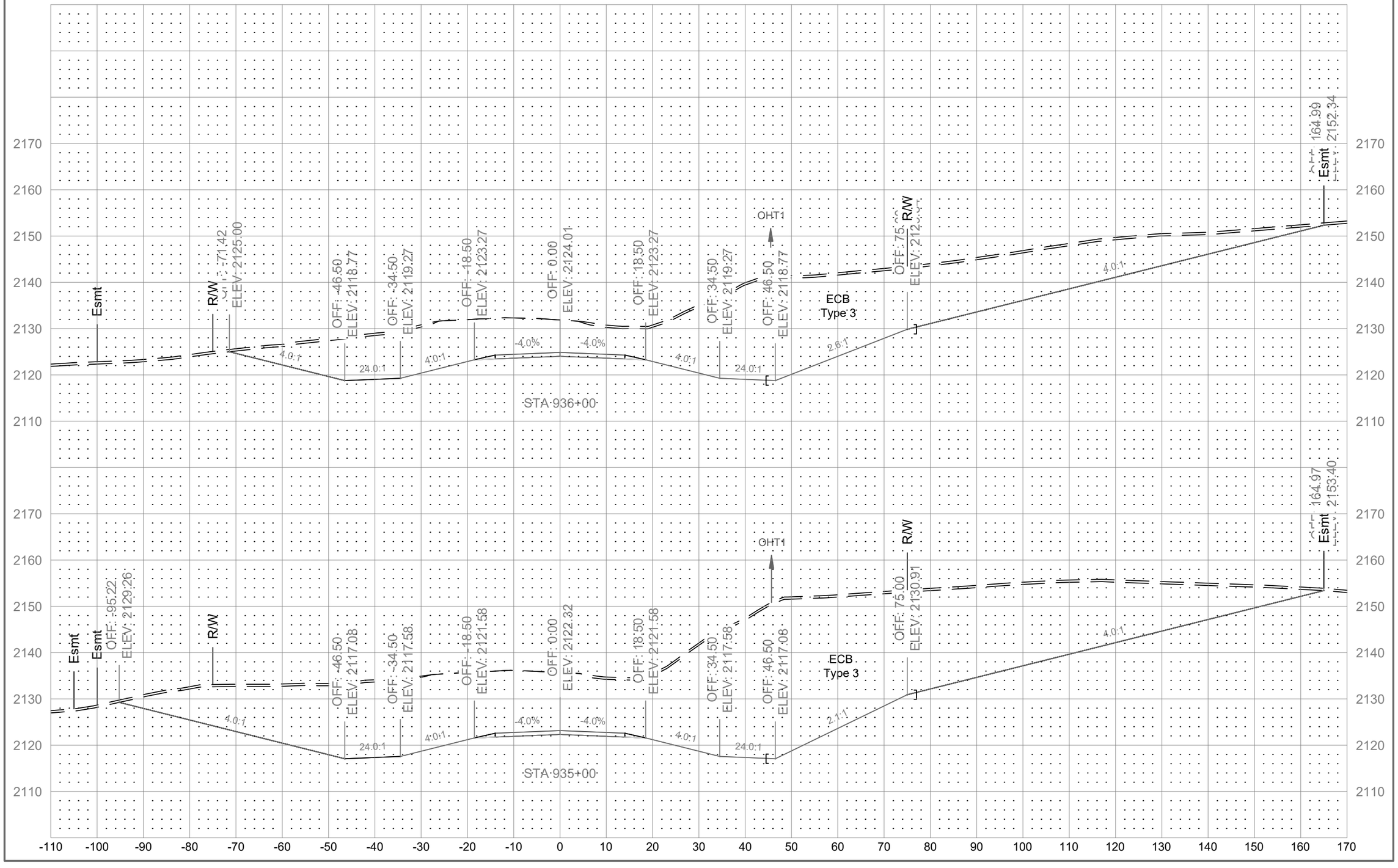
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	61



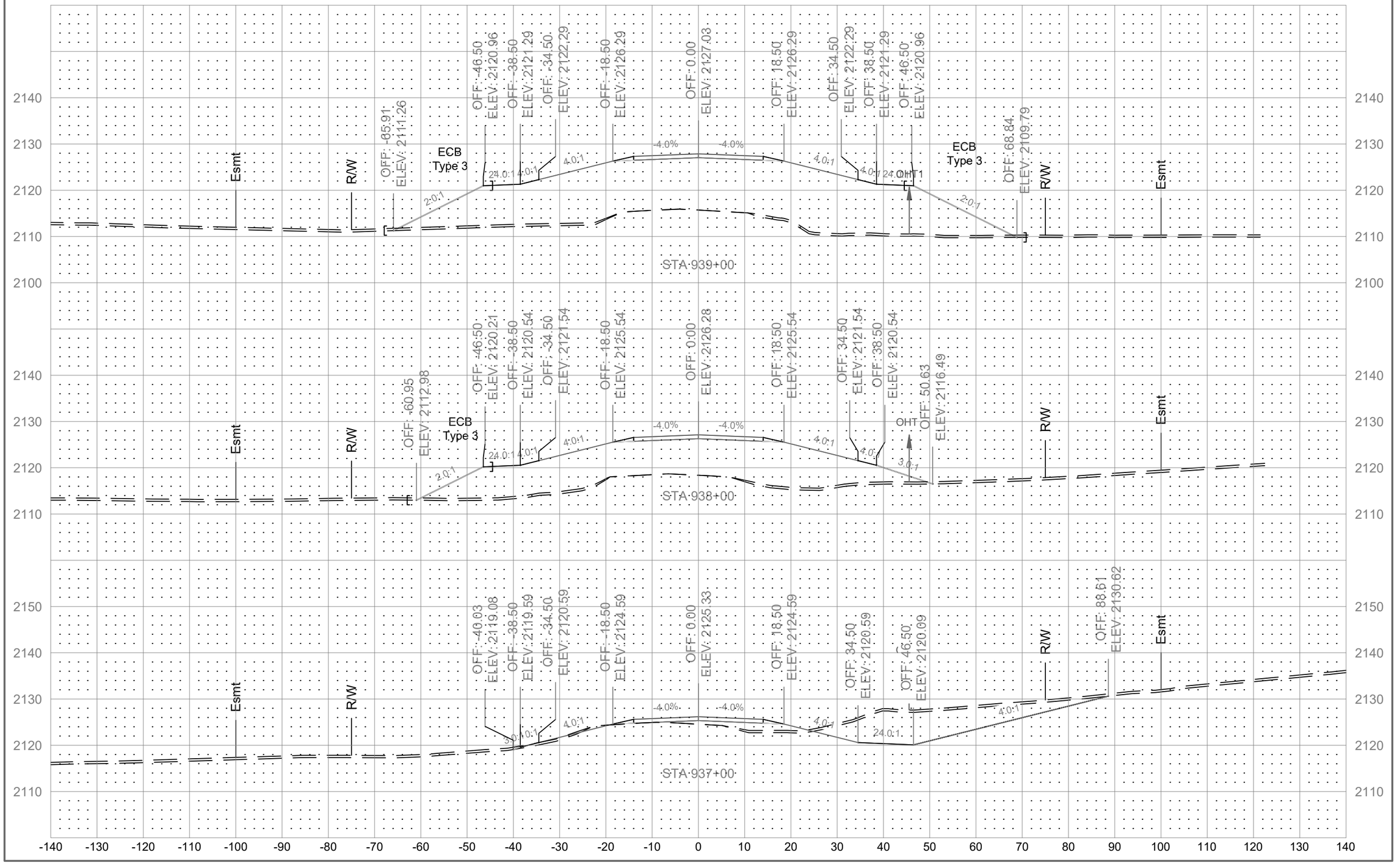
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	62



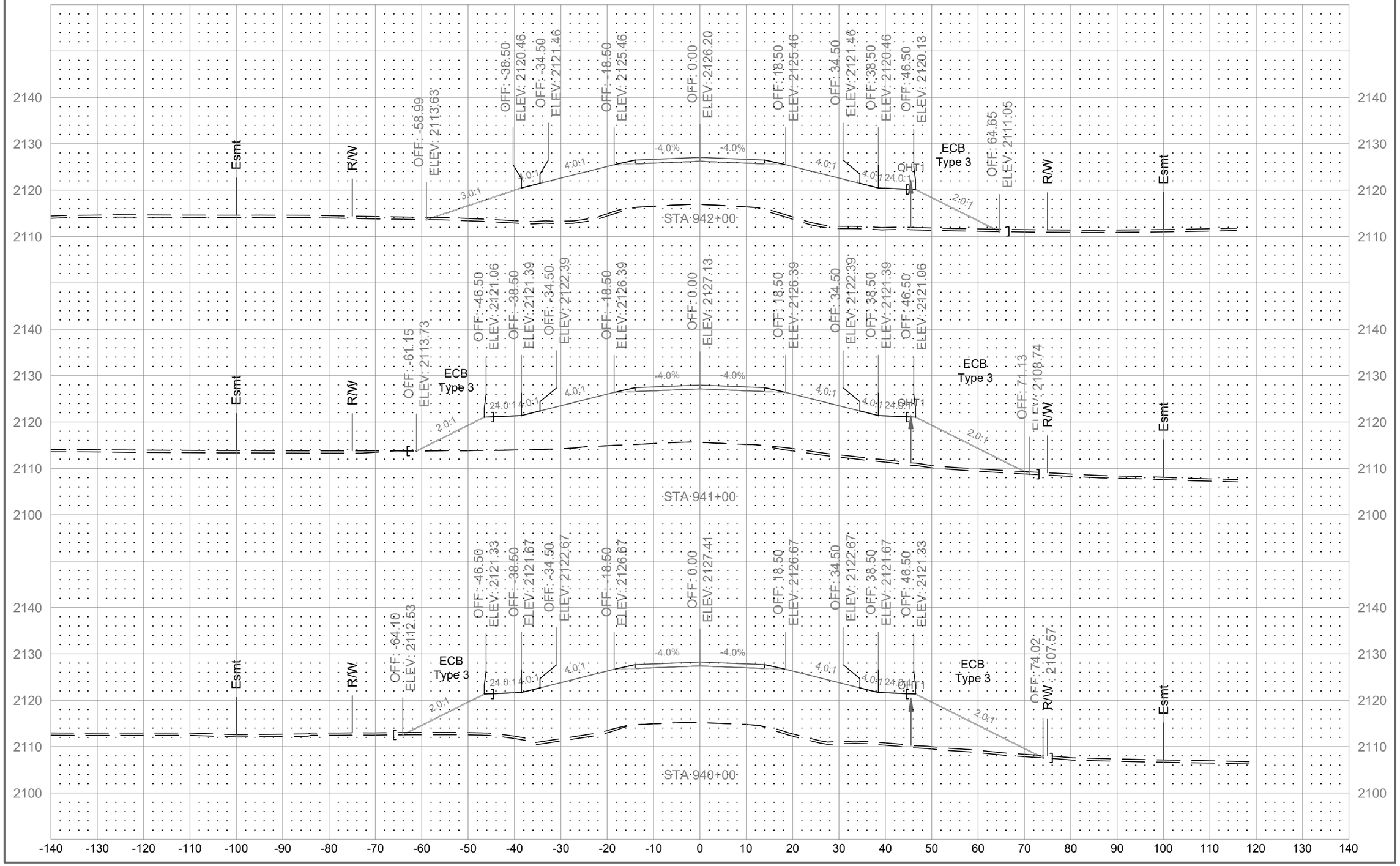
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	63



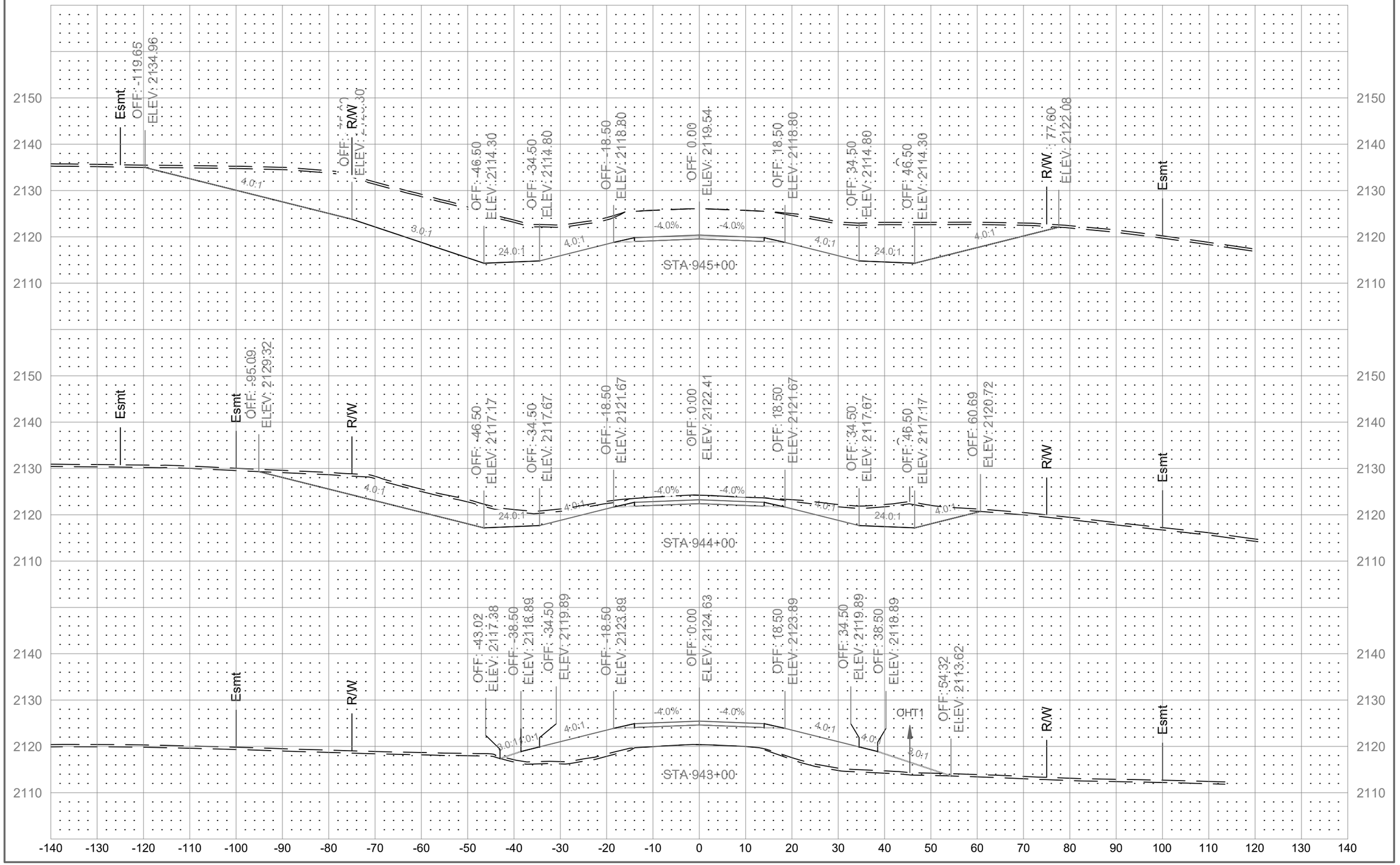
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	64



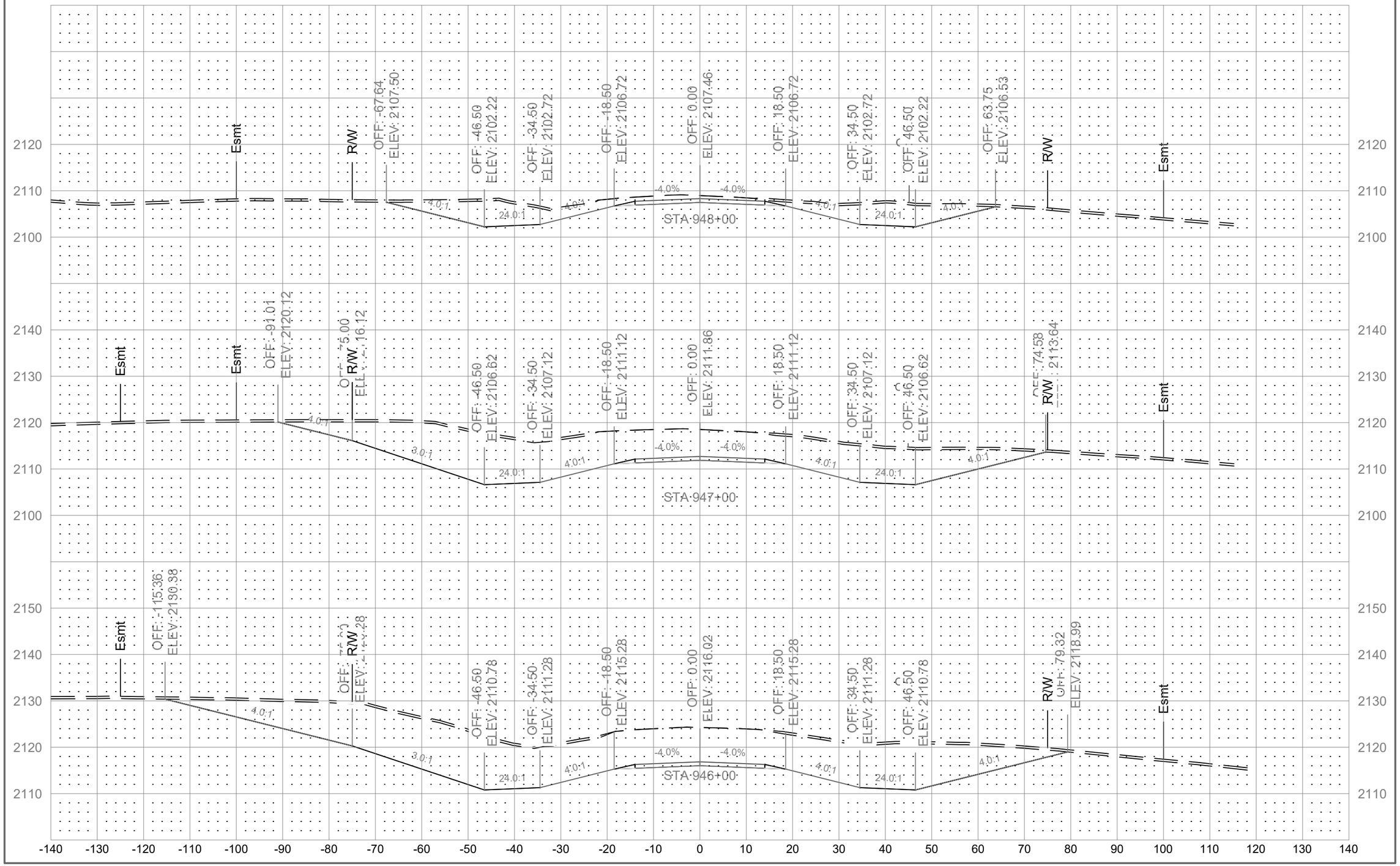
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	65



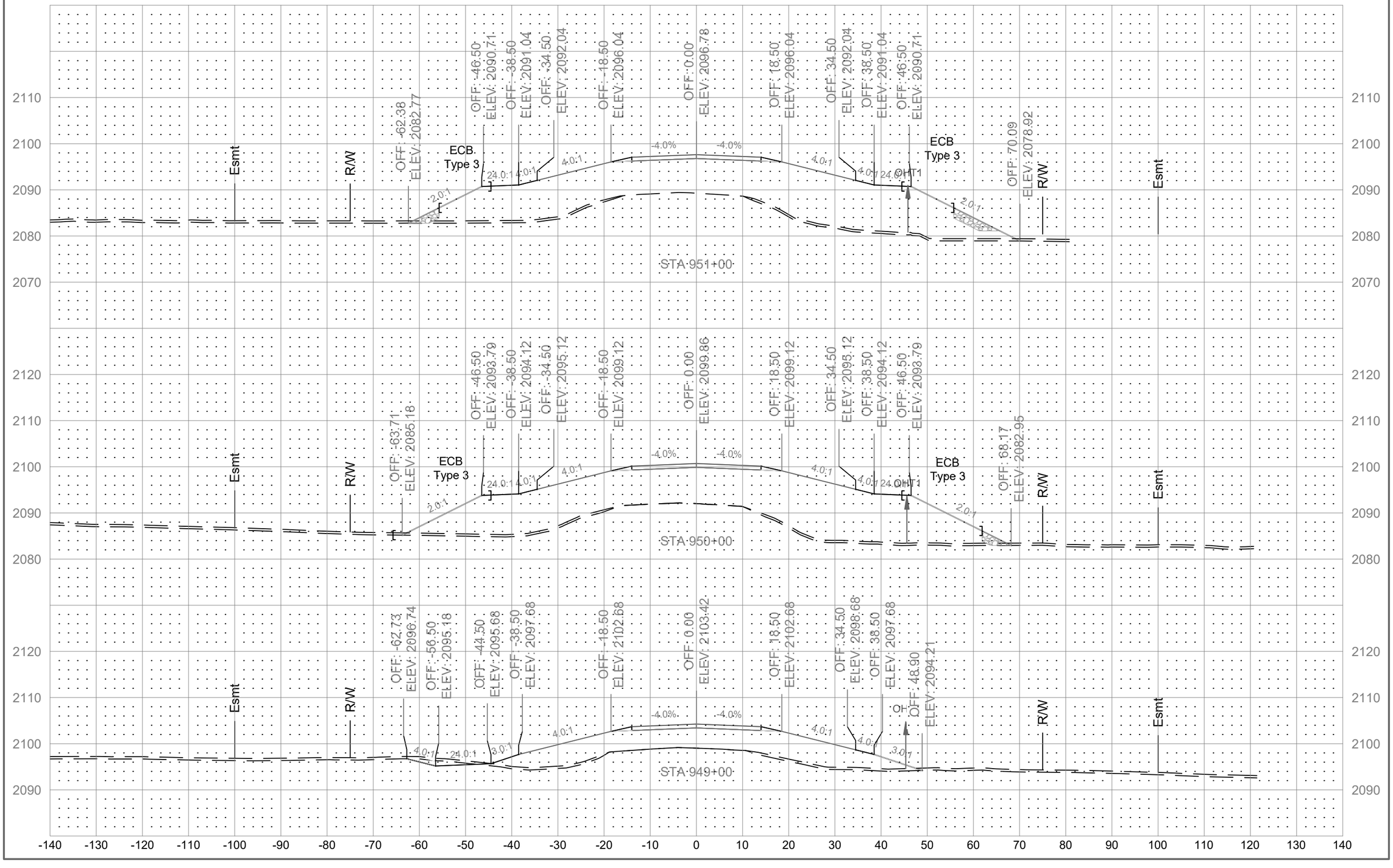
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	66



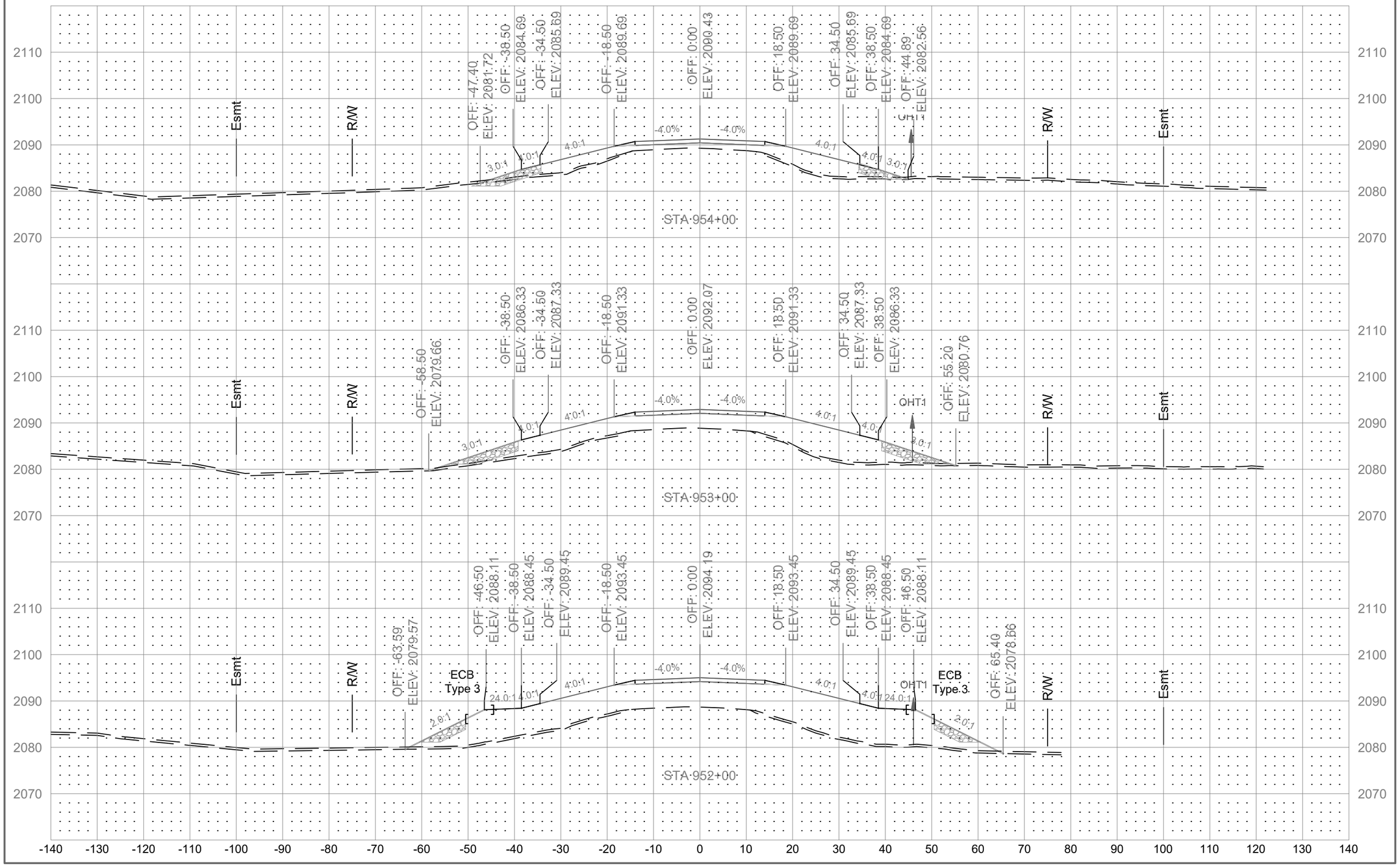
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	67



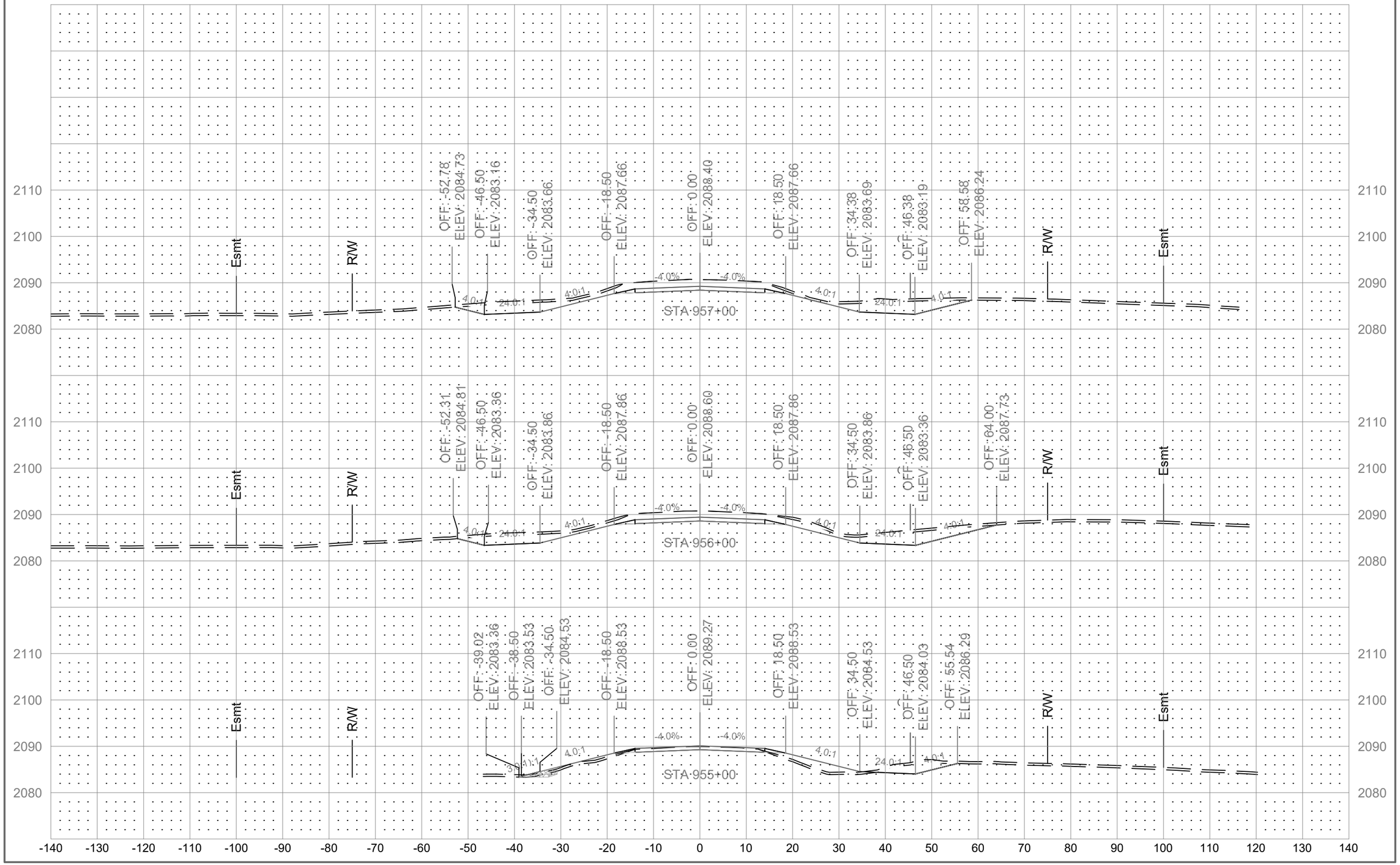
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	68



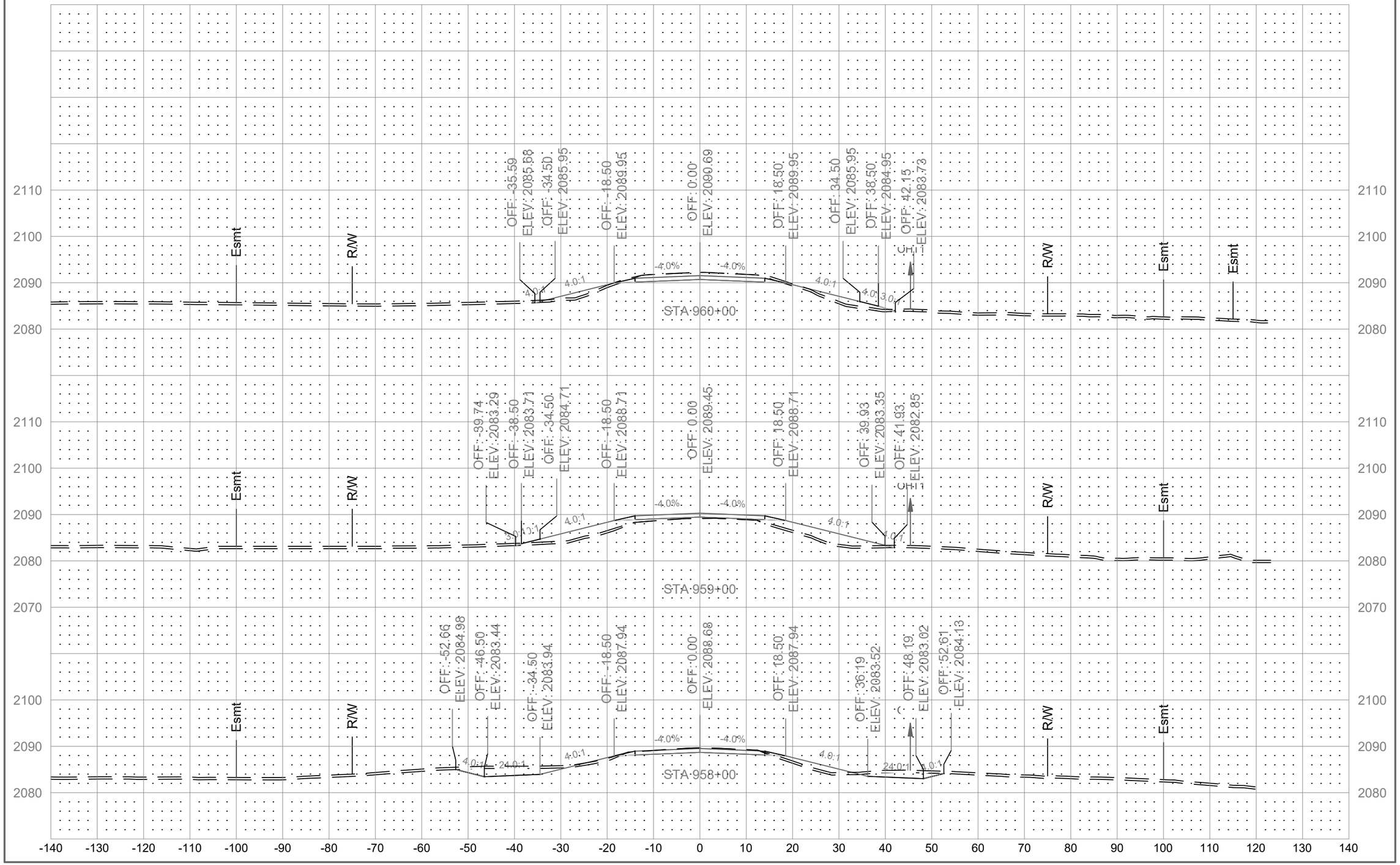
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	69



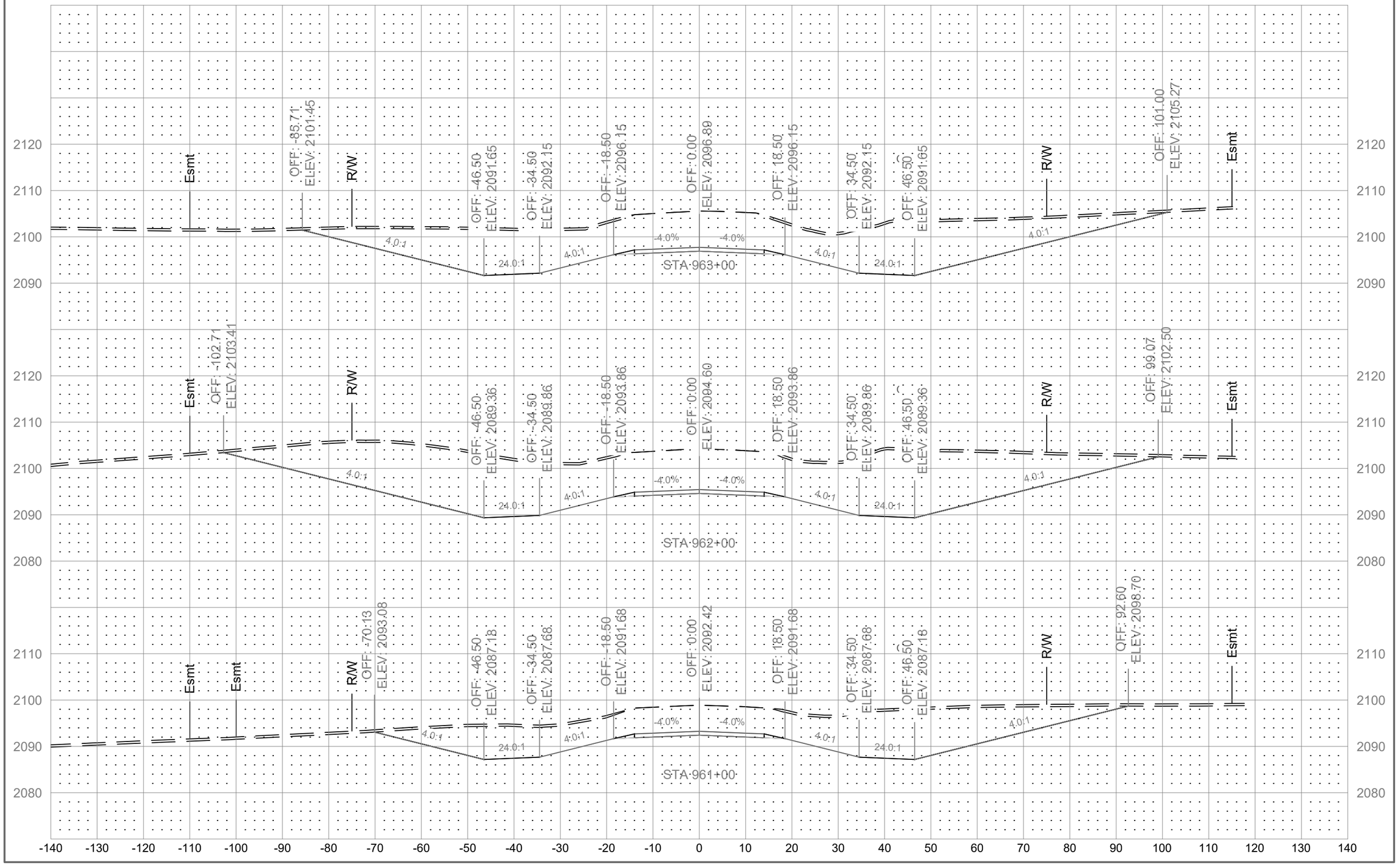
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	70



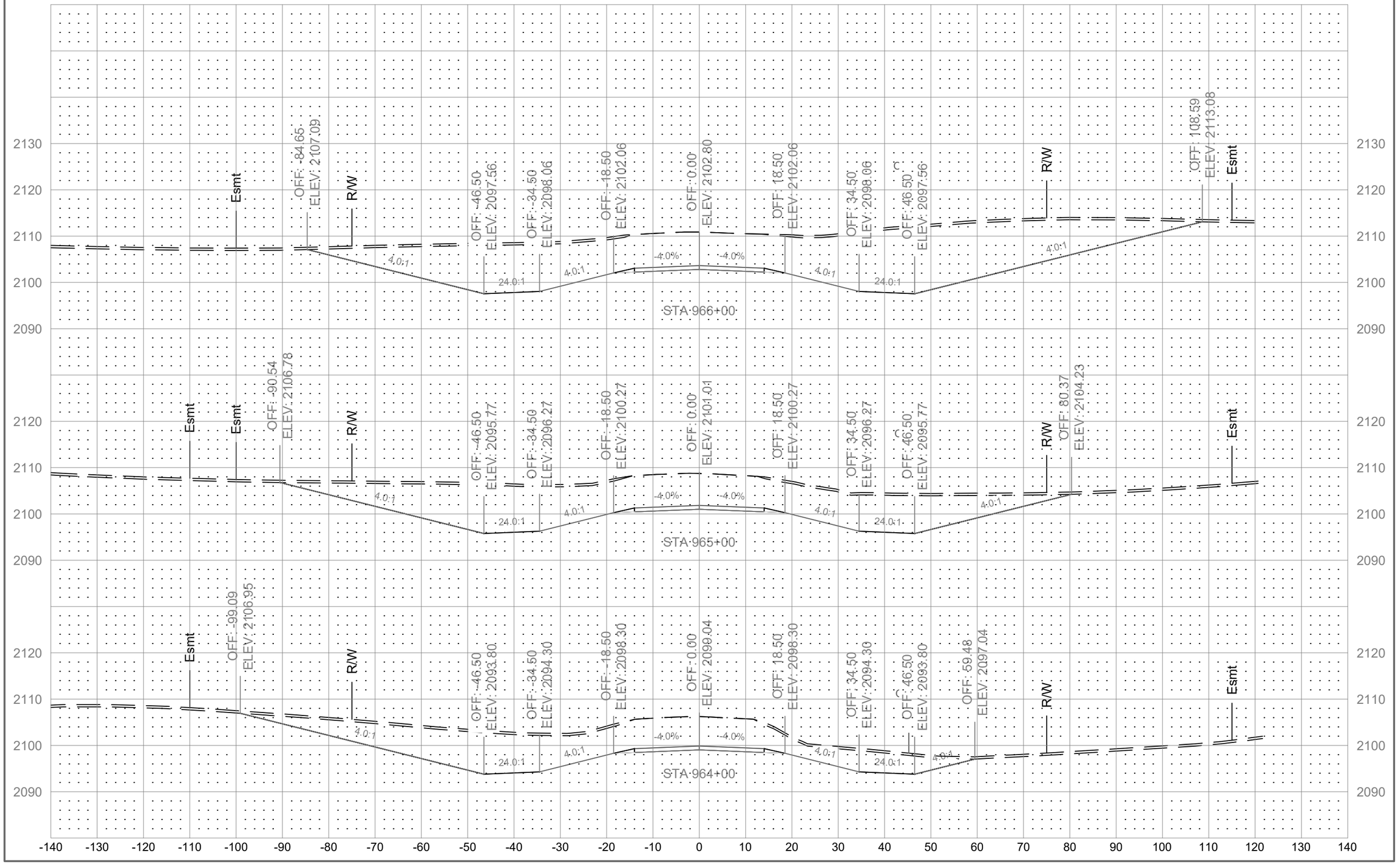
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	71



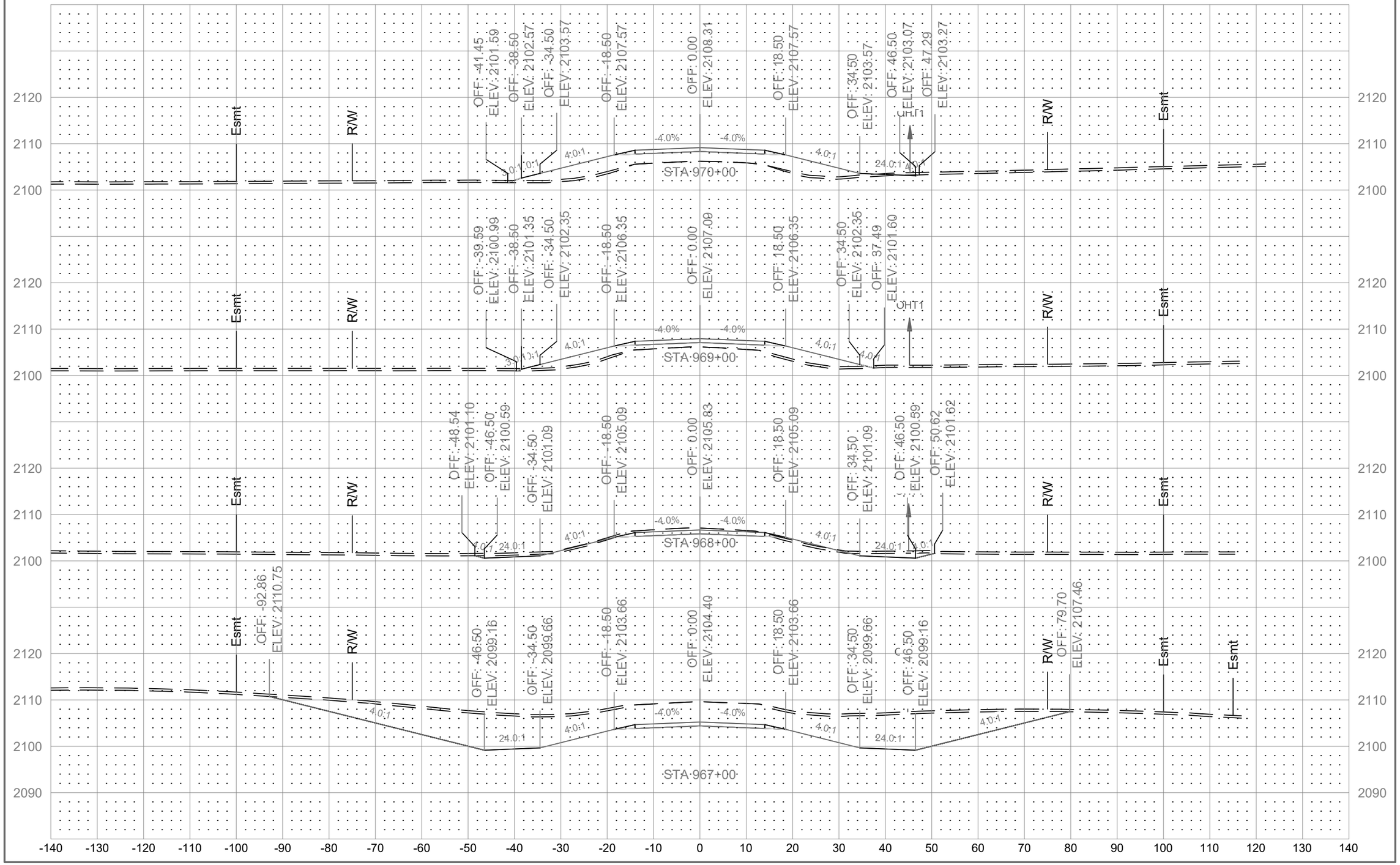
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	72



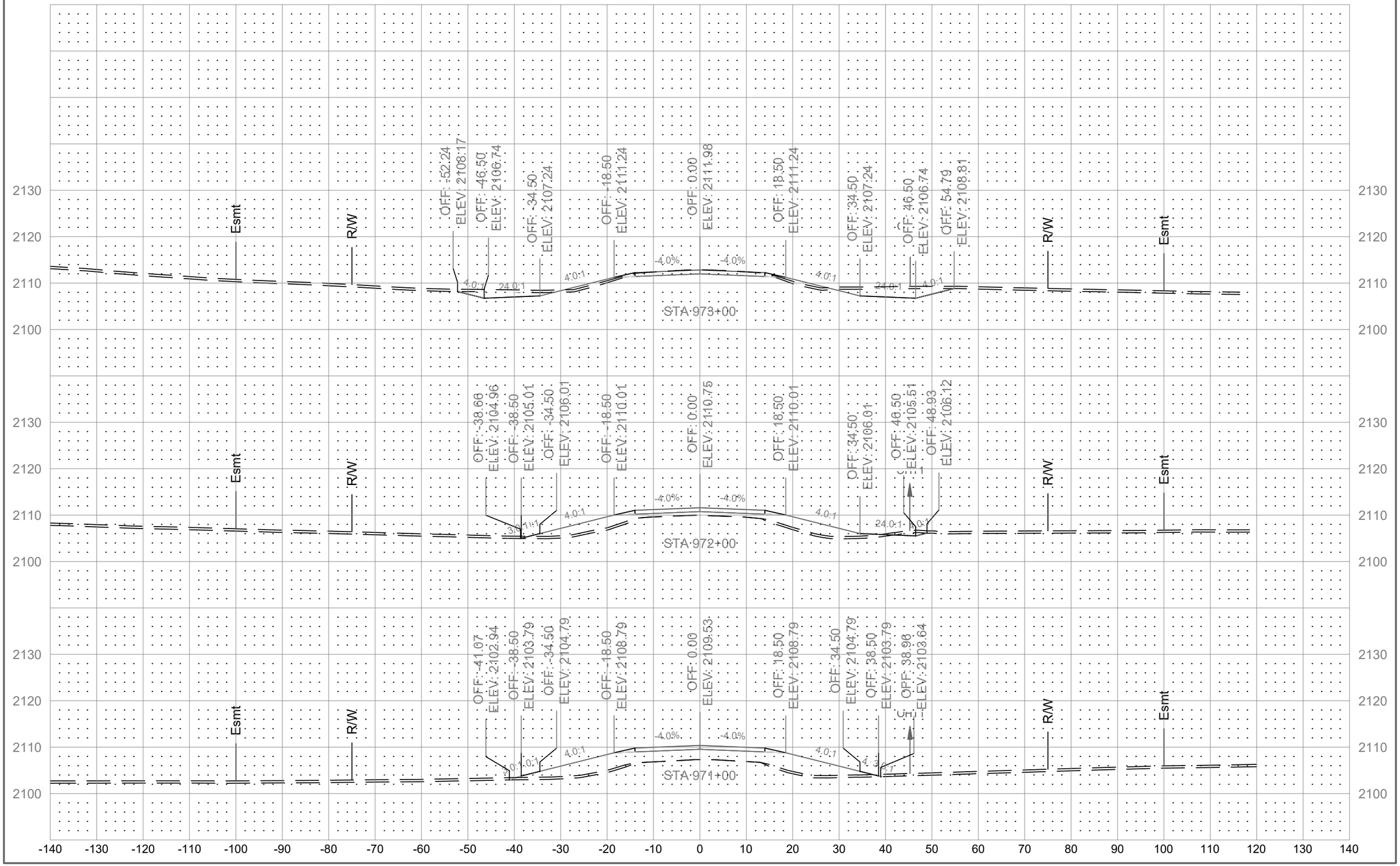
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	73



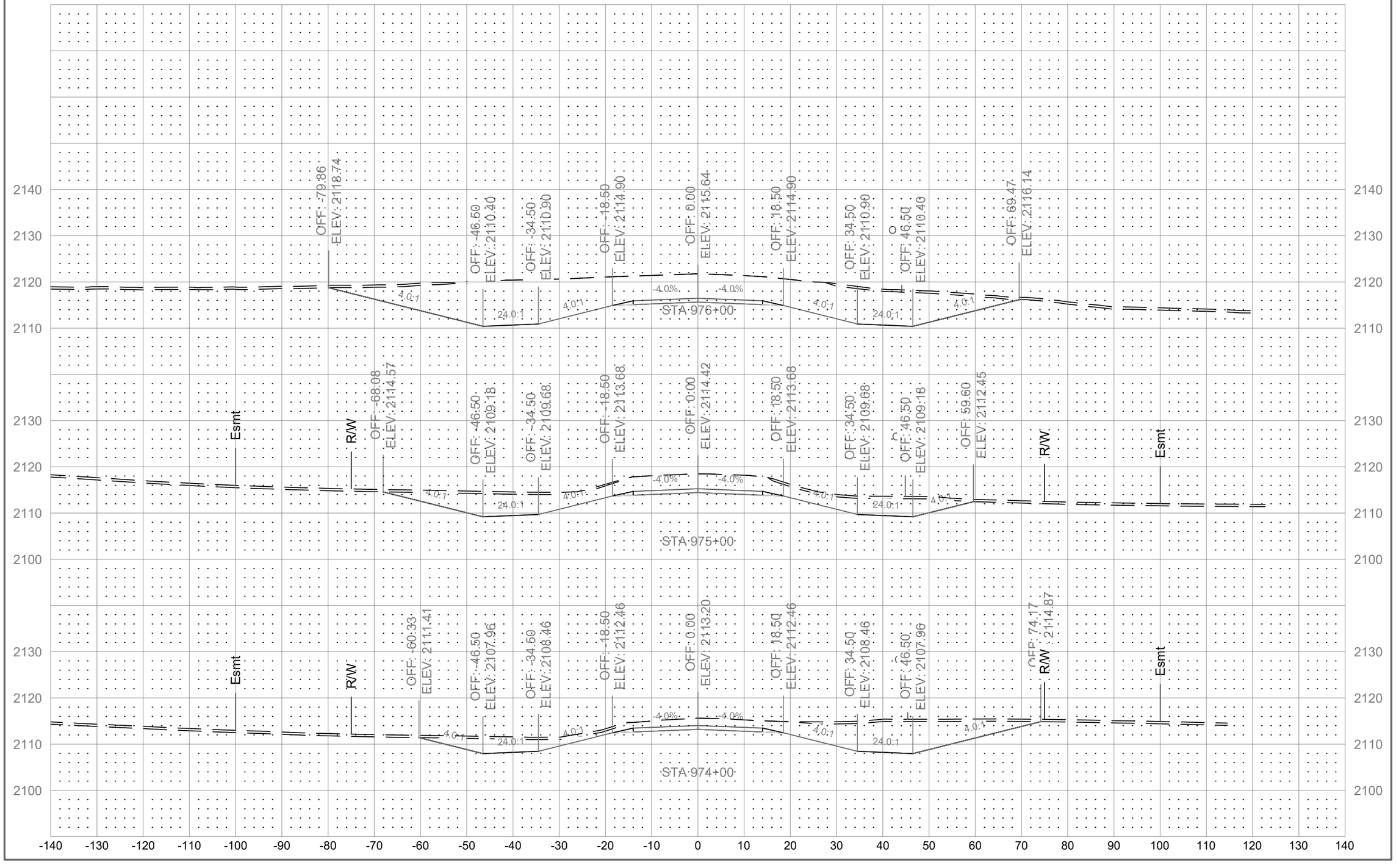
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	74



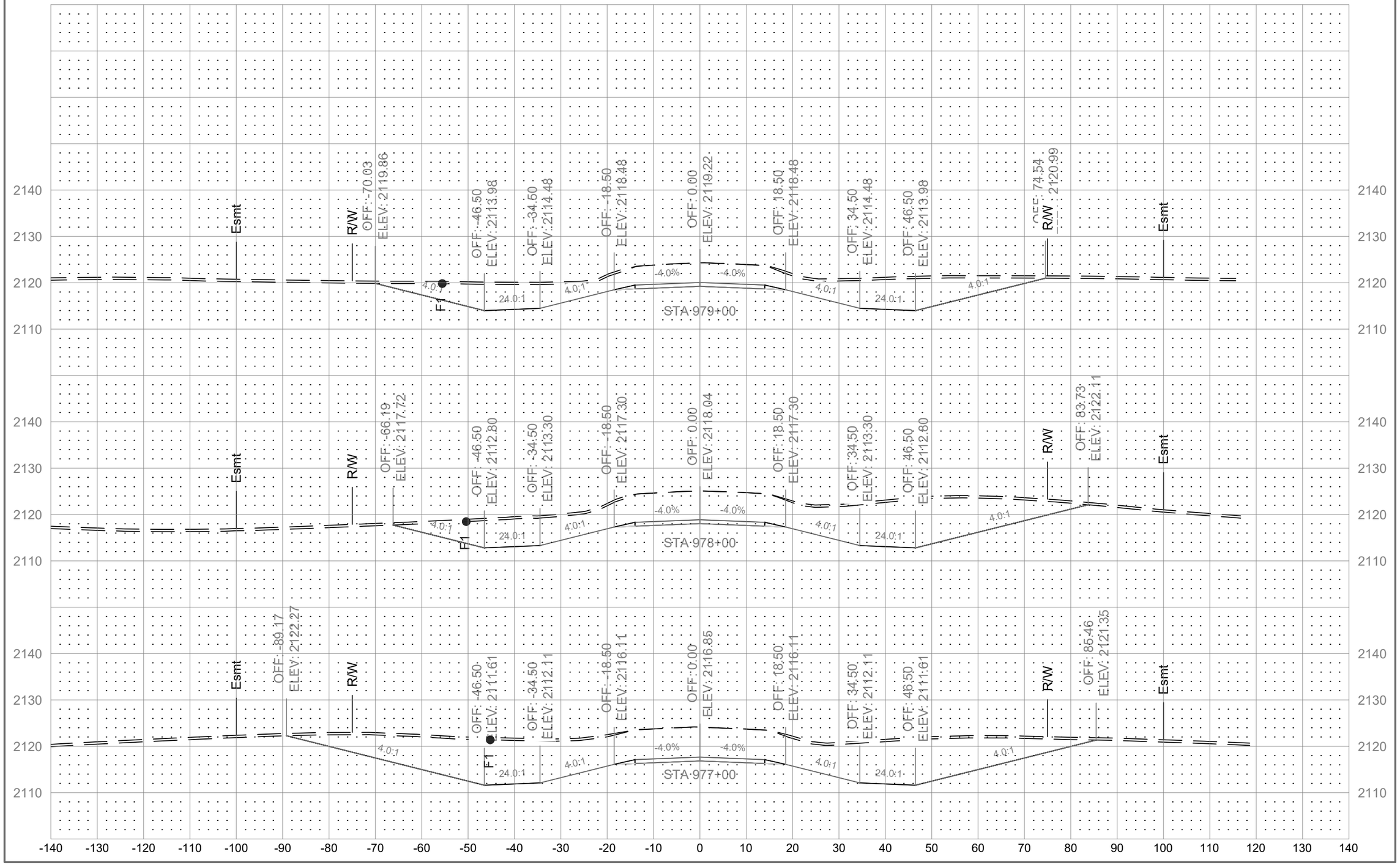
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	75



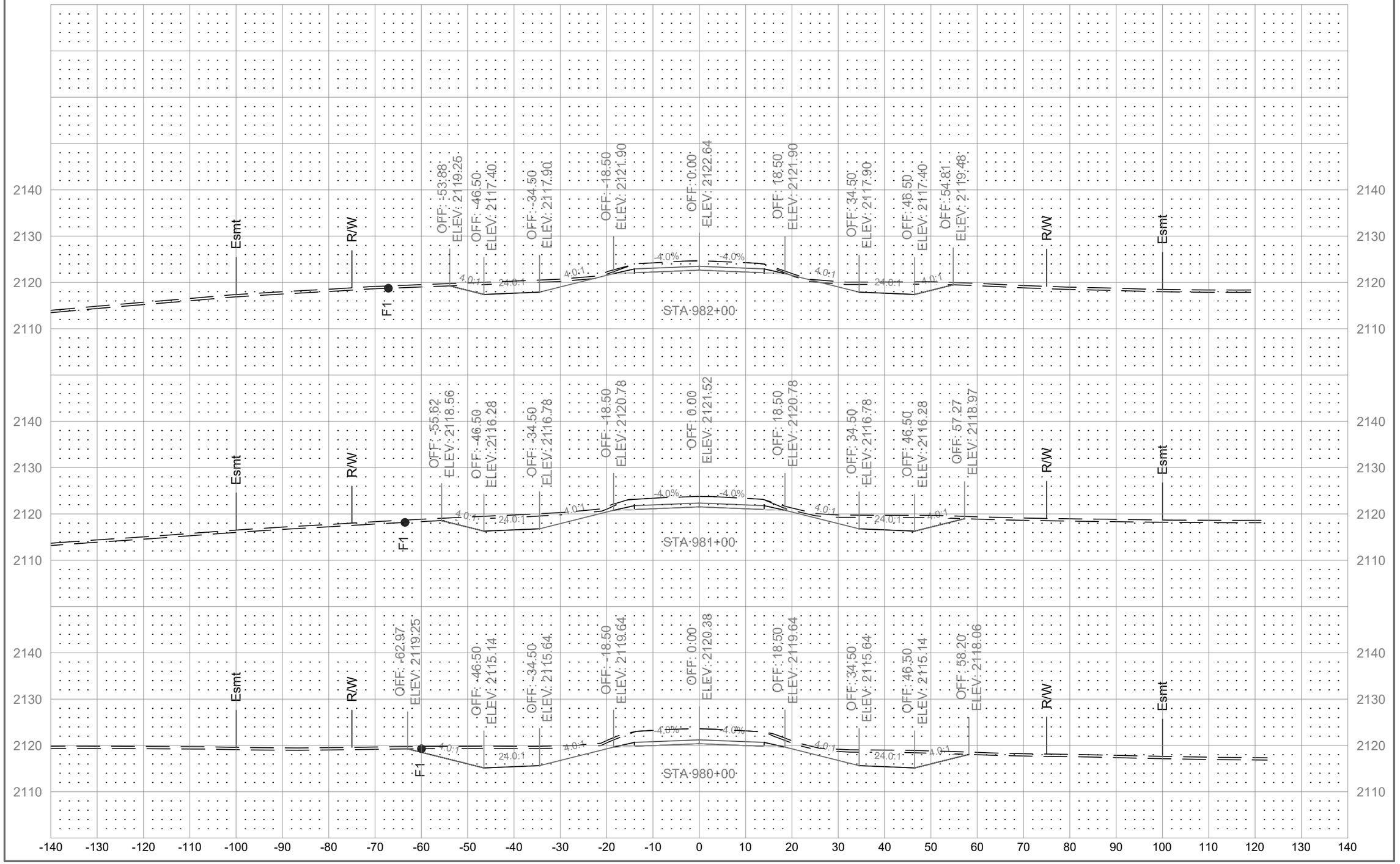
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	76



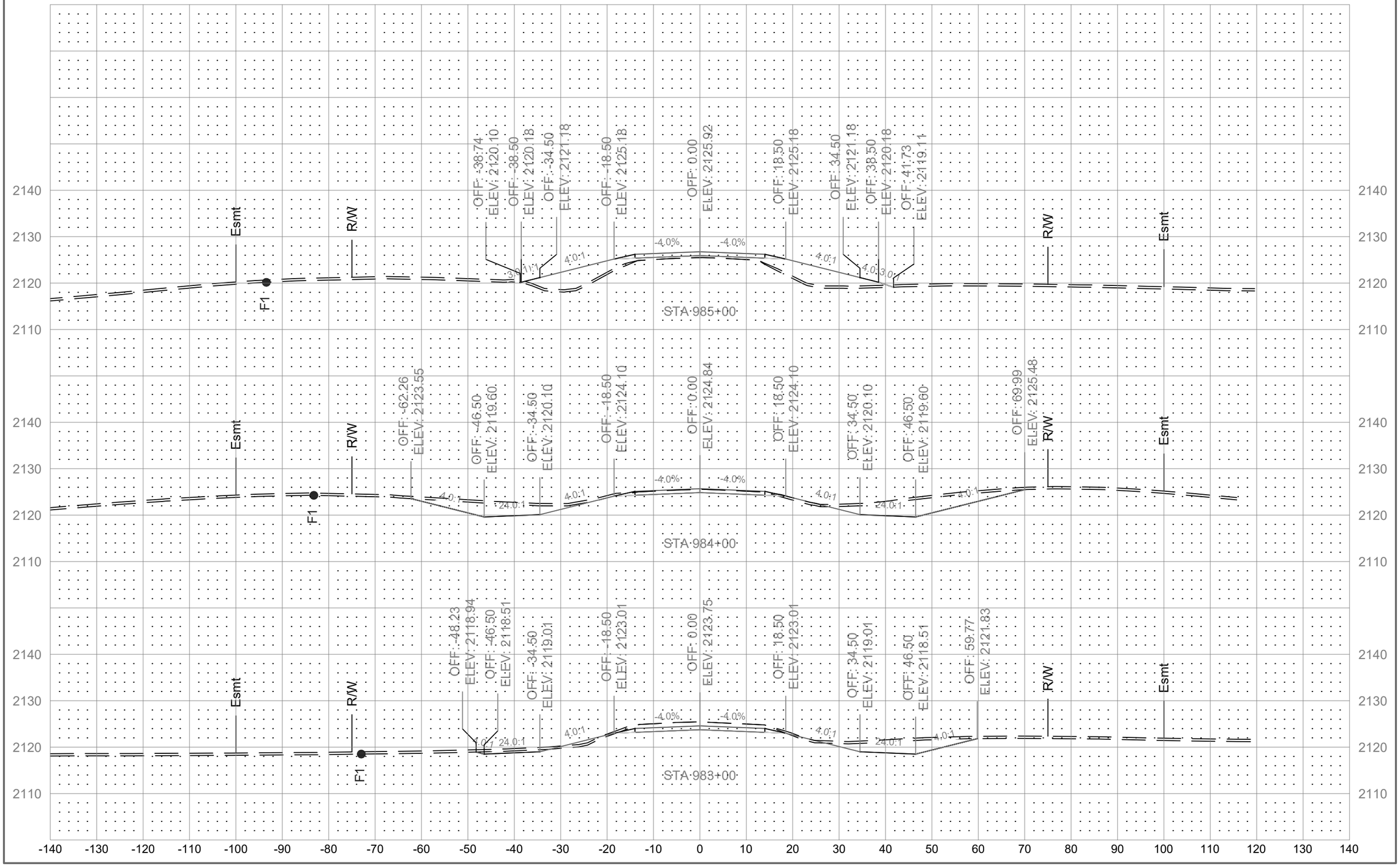
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	77



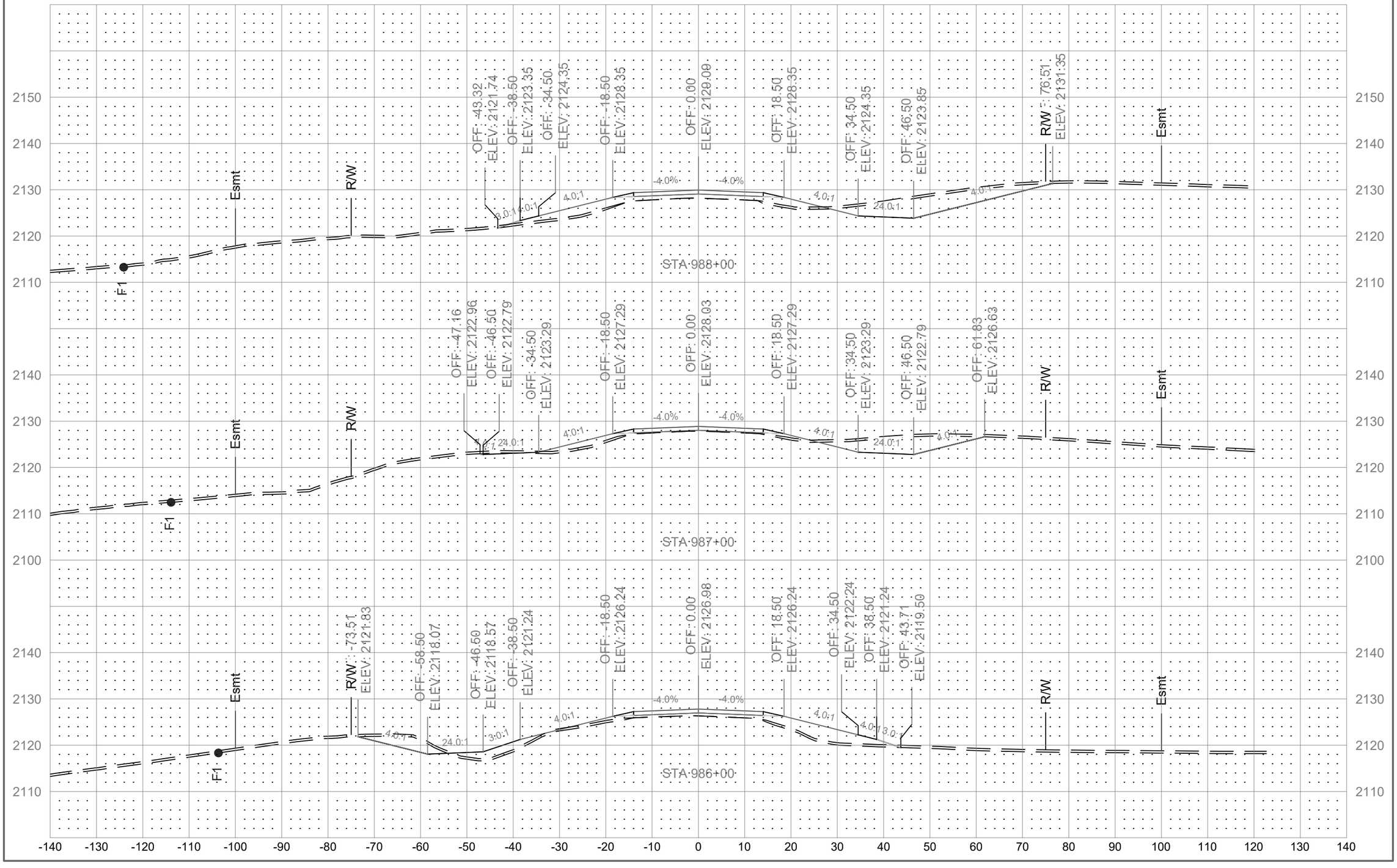
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	78



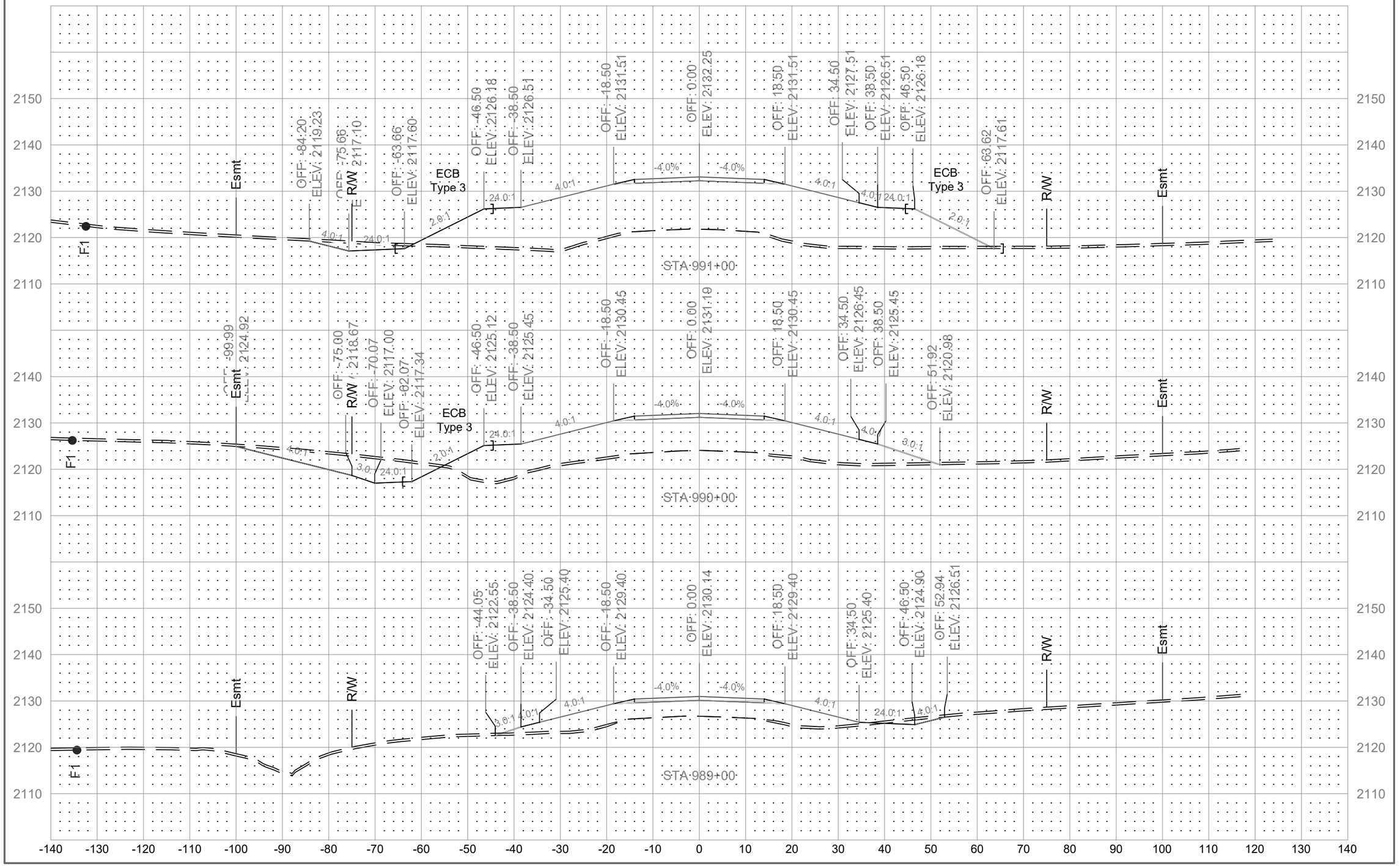
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	79



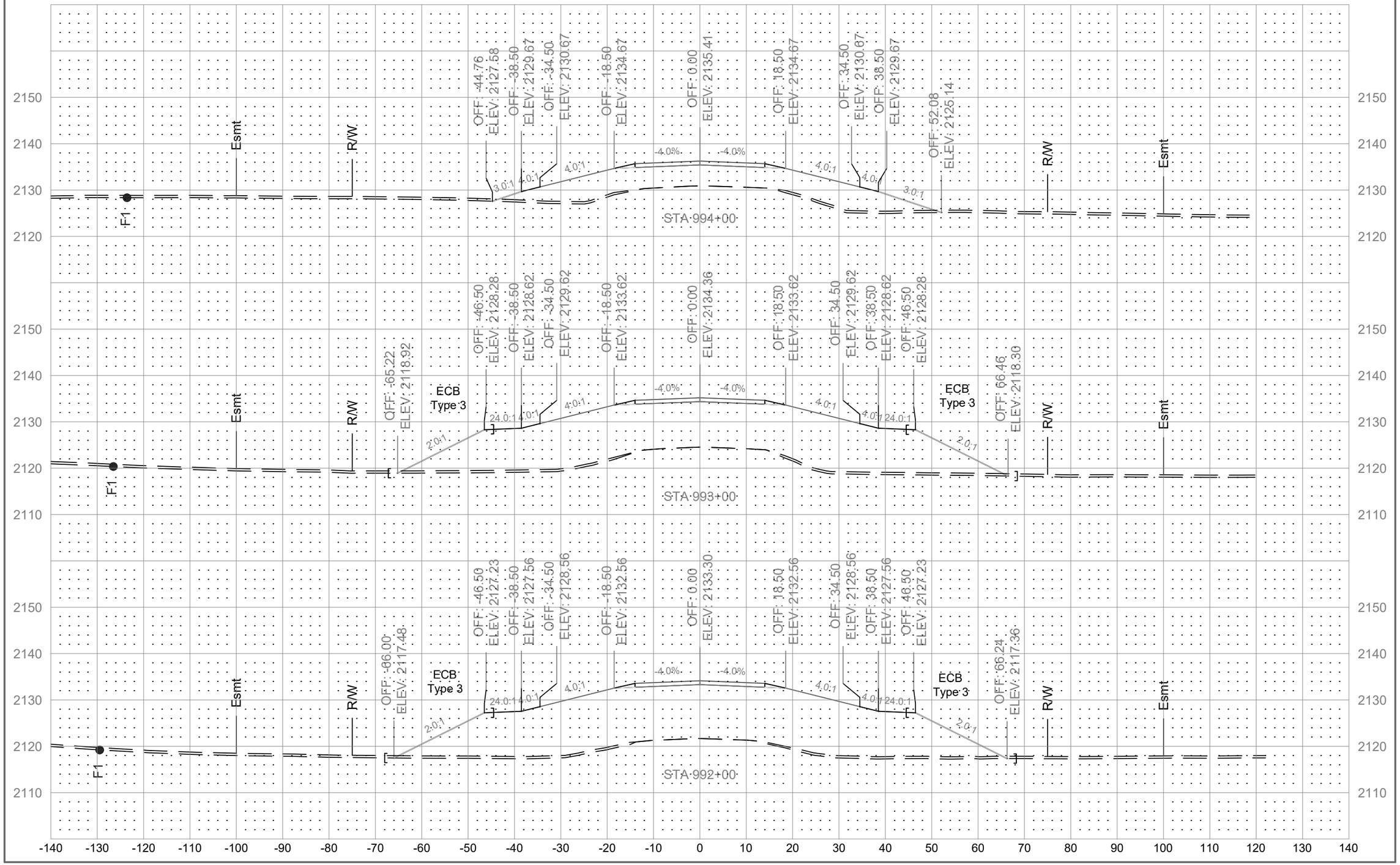
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	80



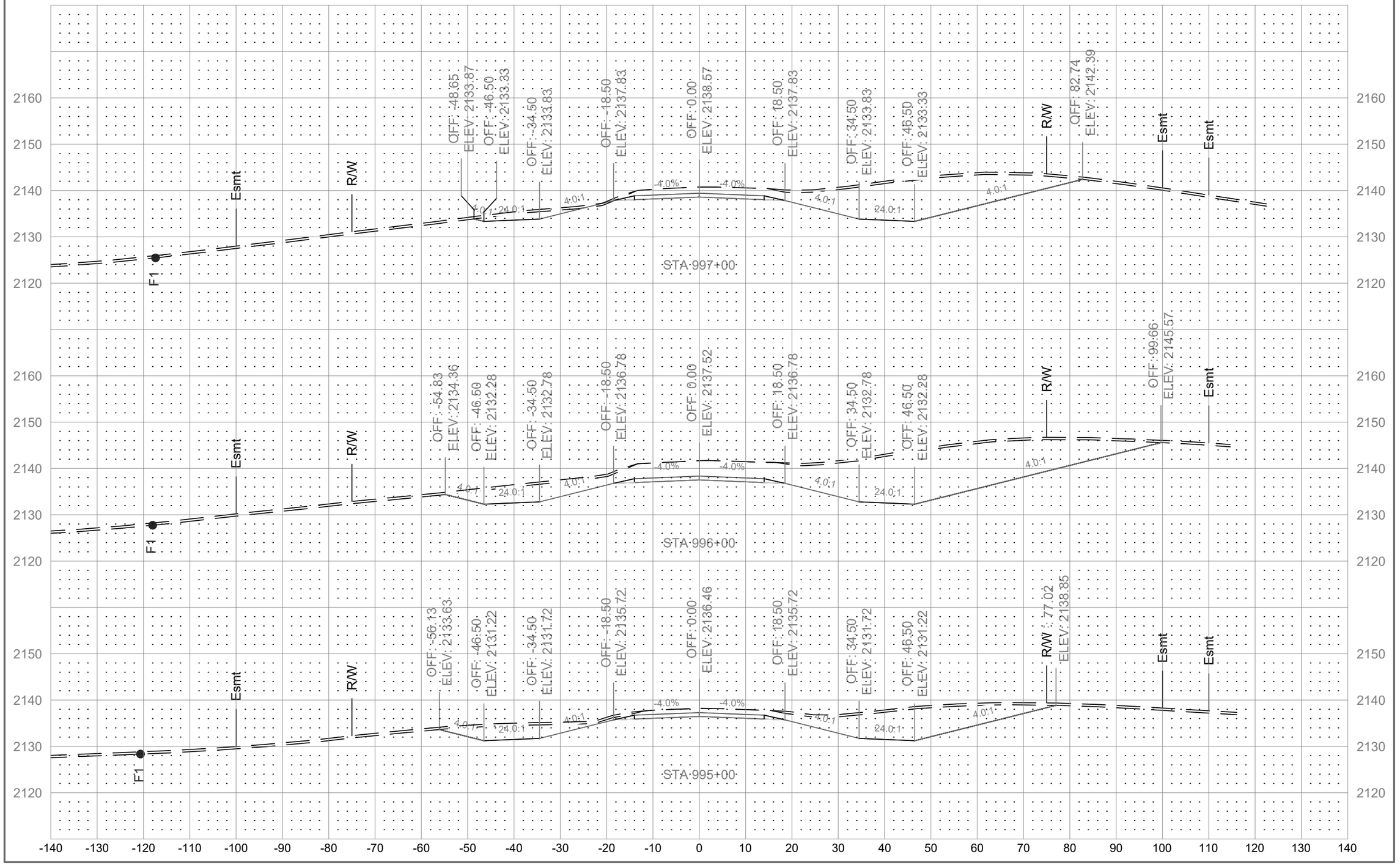
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	81



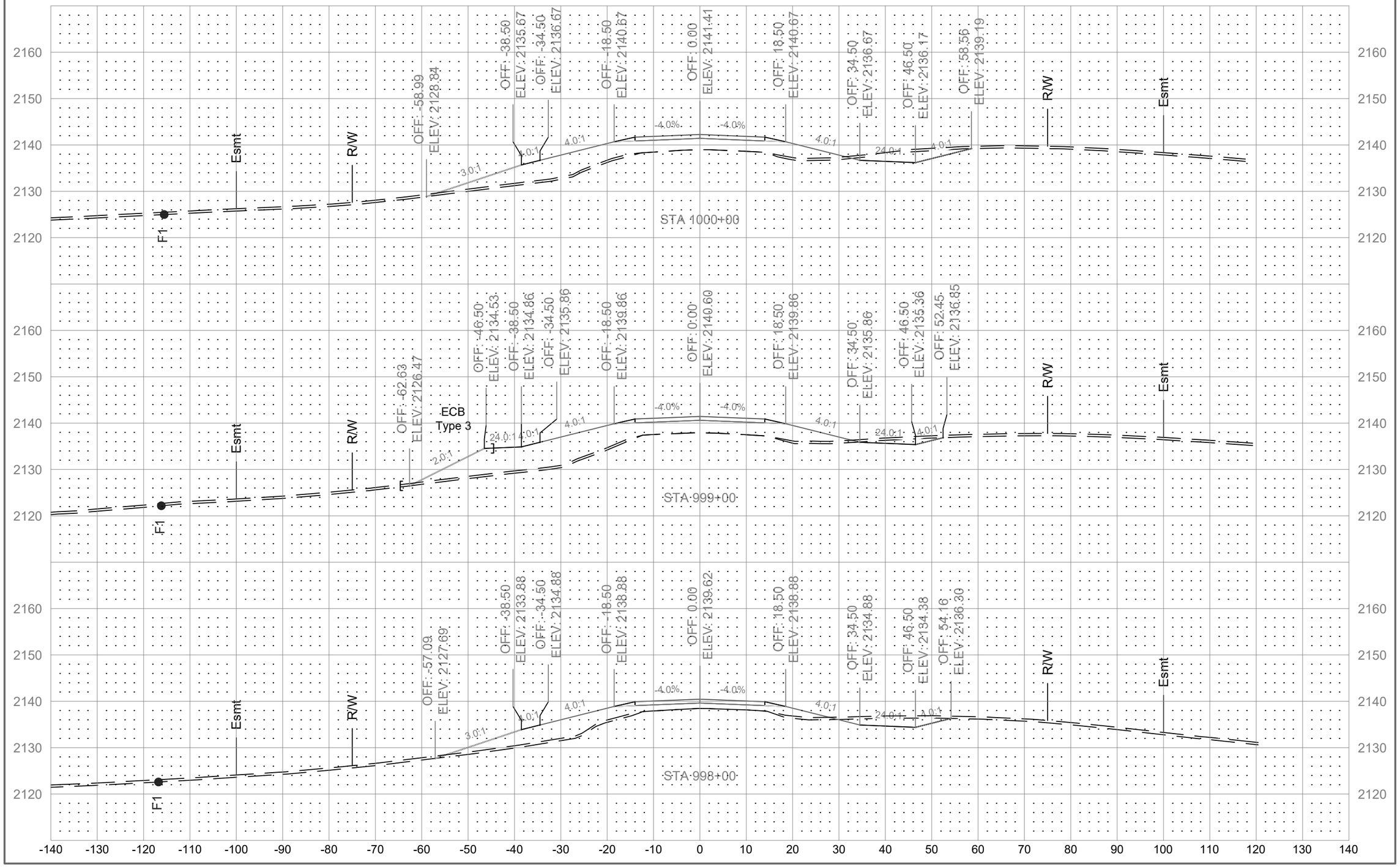
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	82



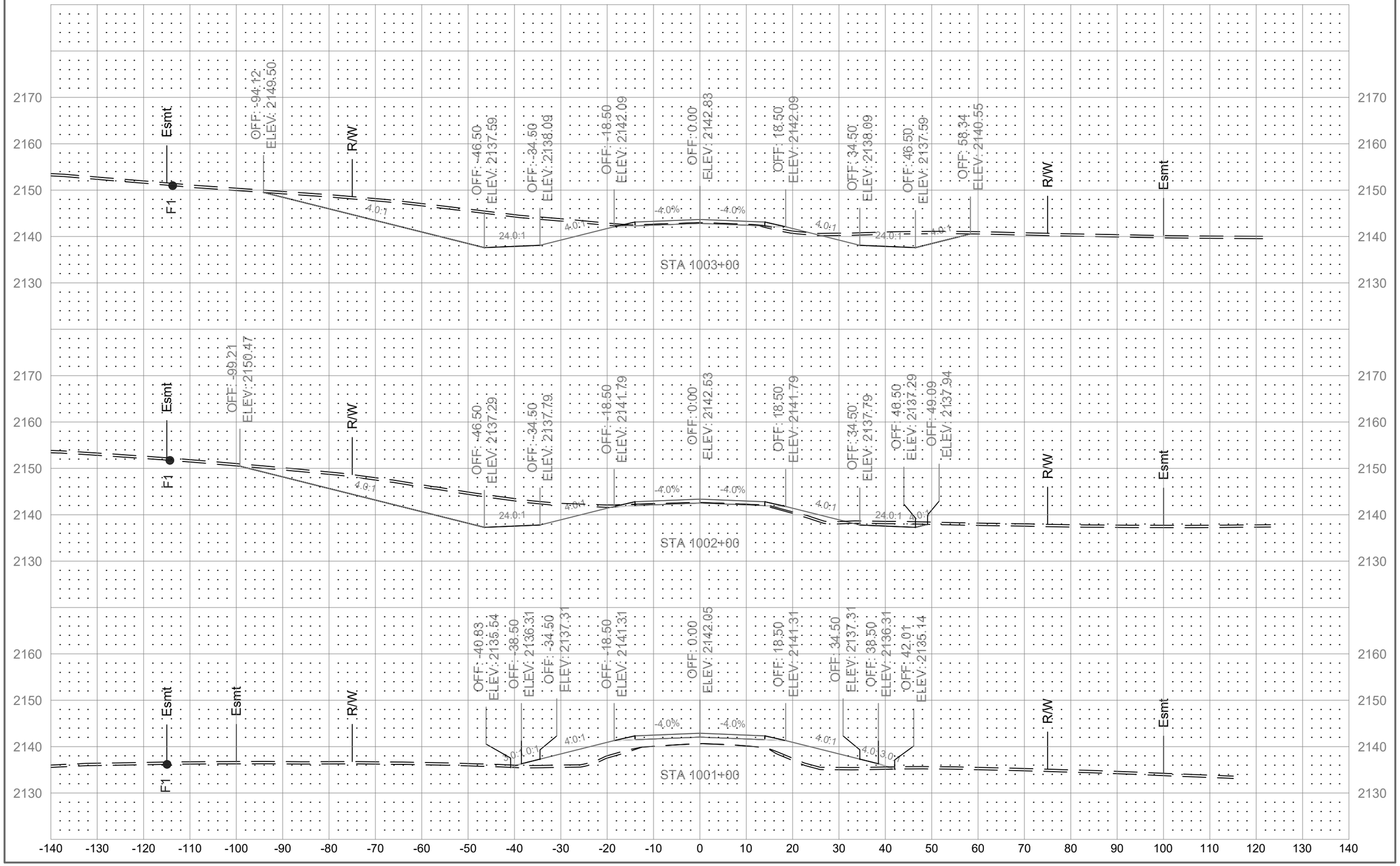
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	83



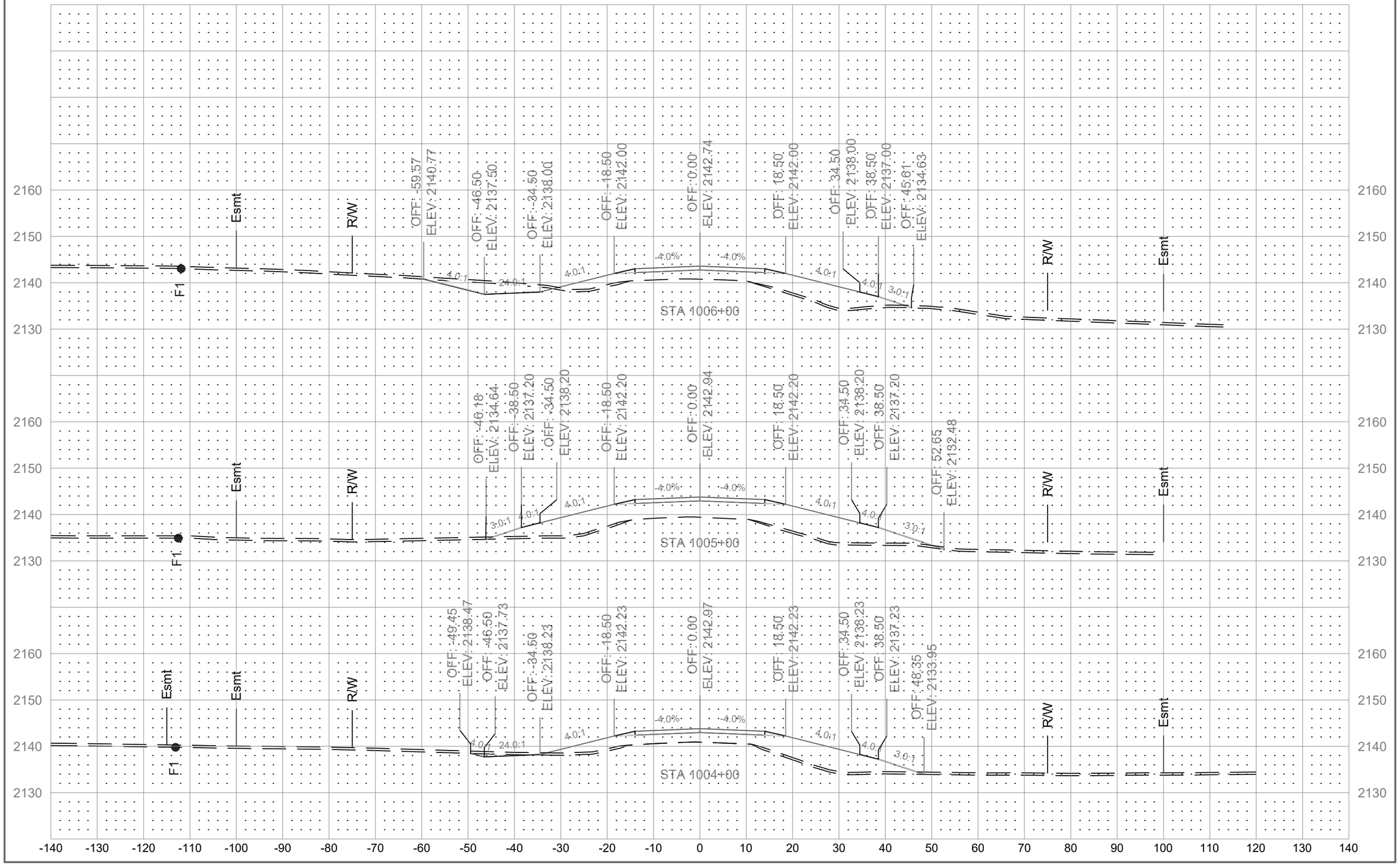
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	84



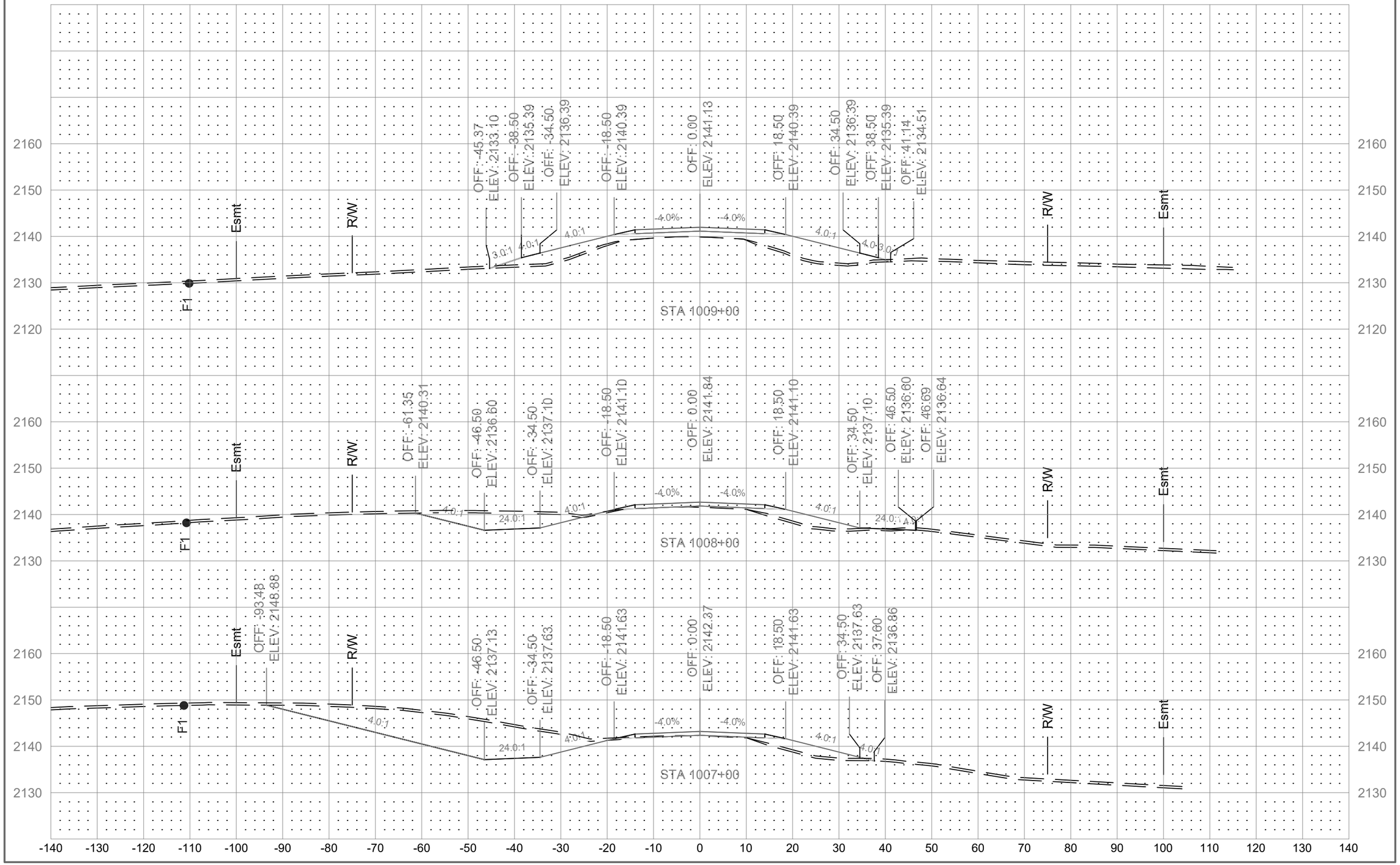
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	85



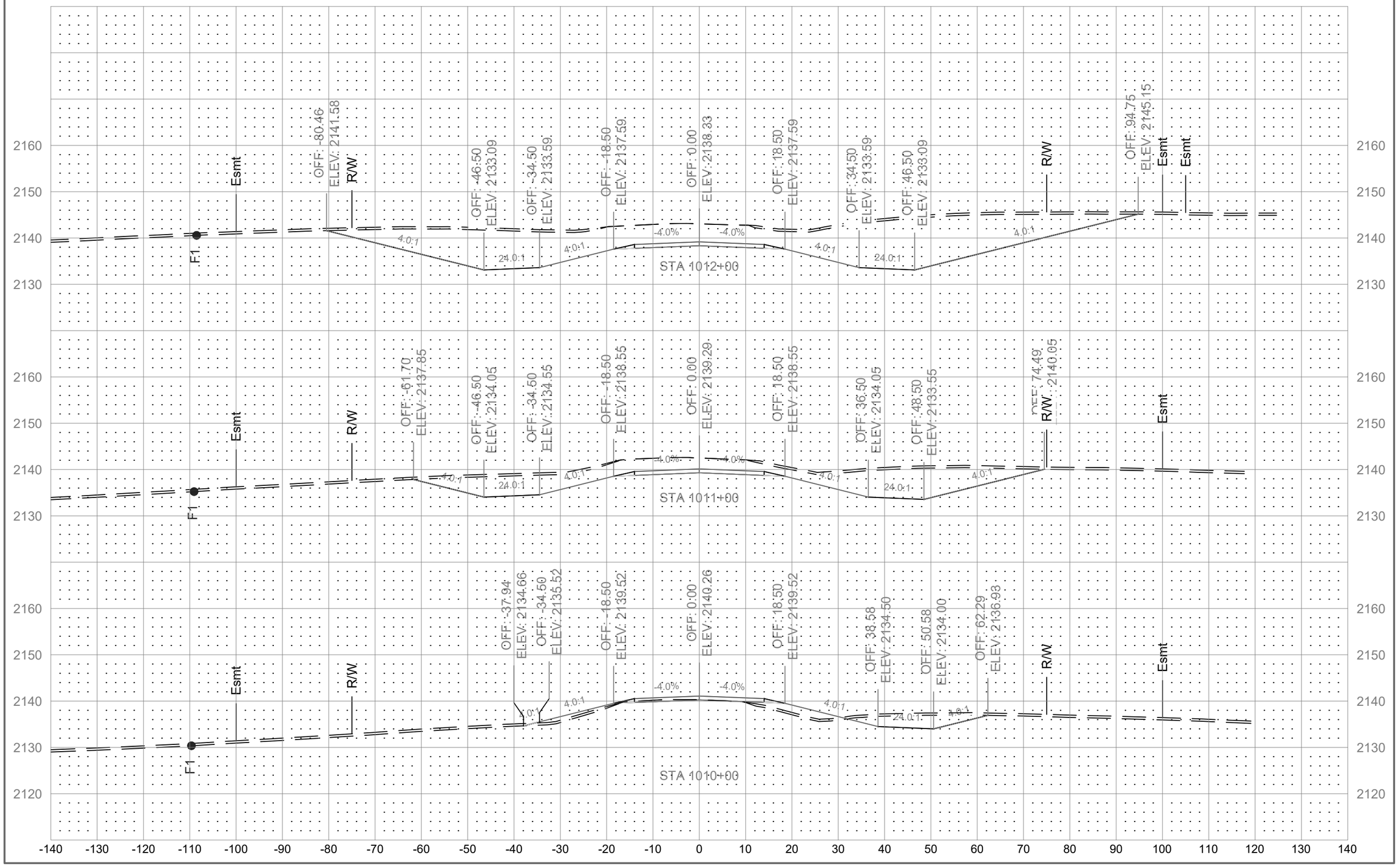
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	86



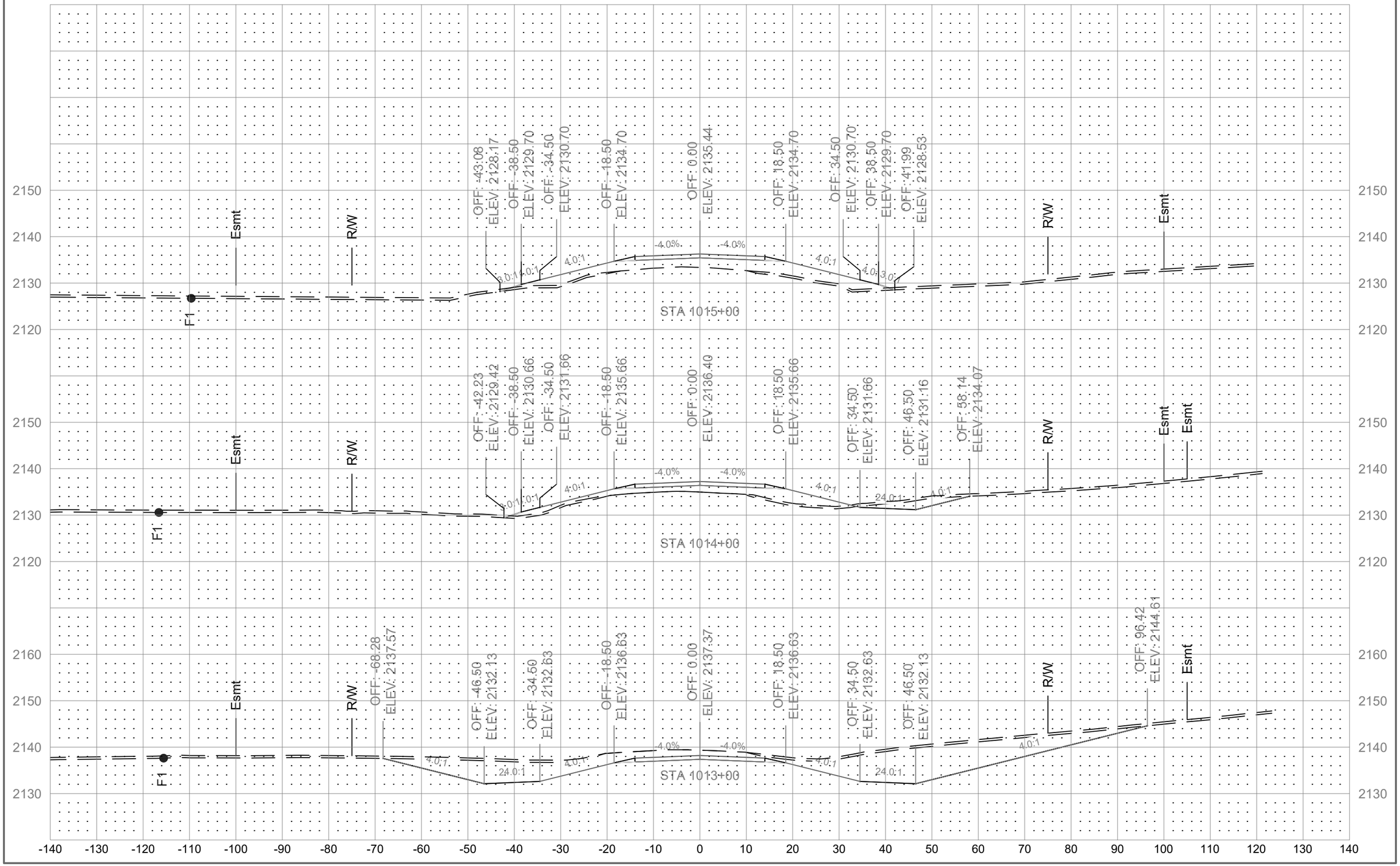
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	87



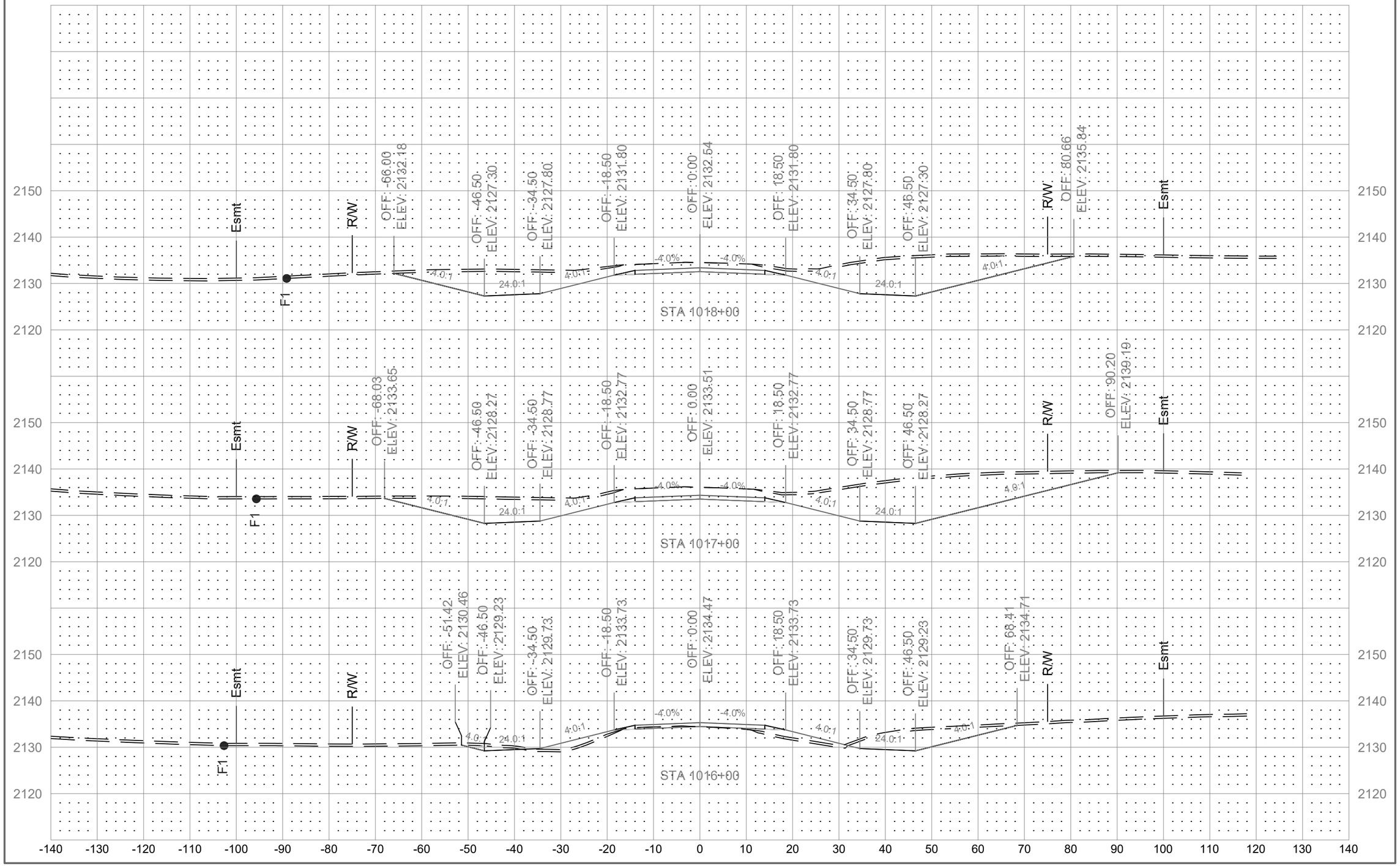
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	88



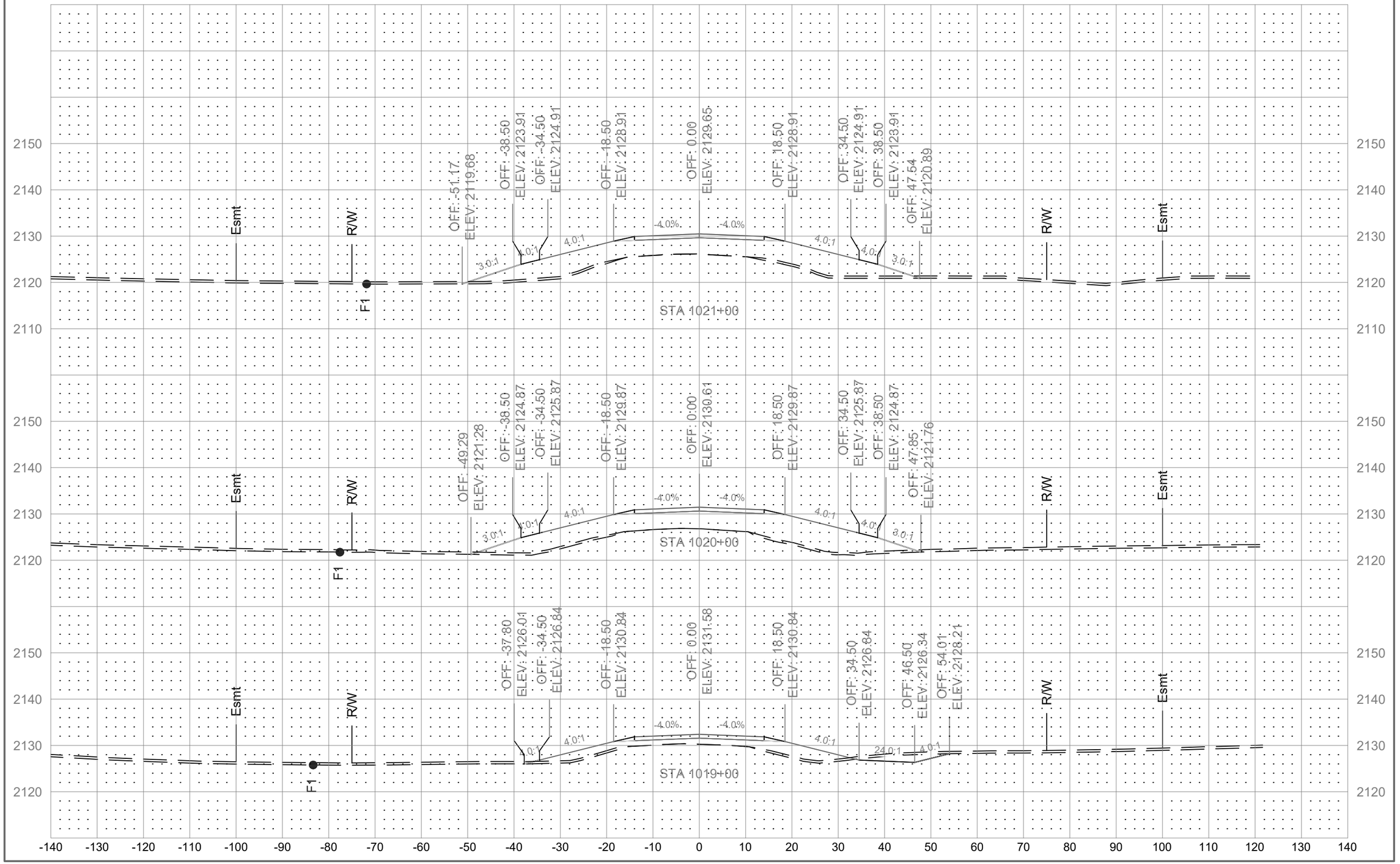
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	89



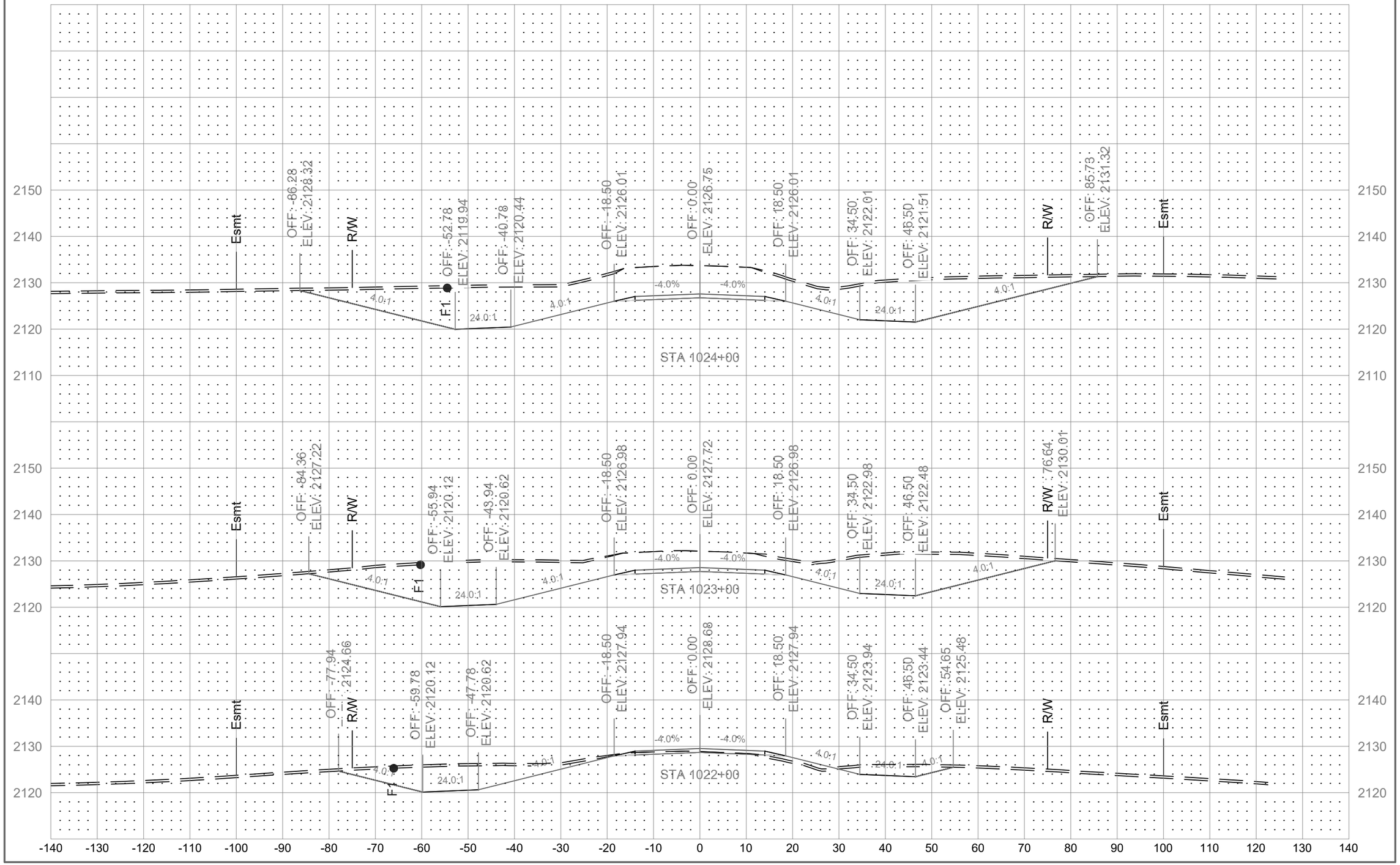
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	90



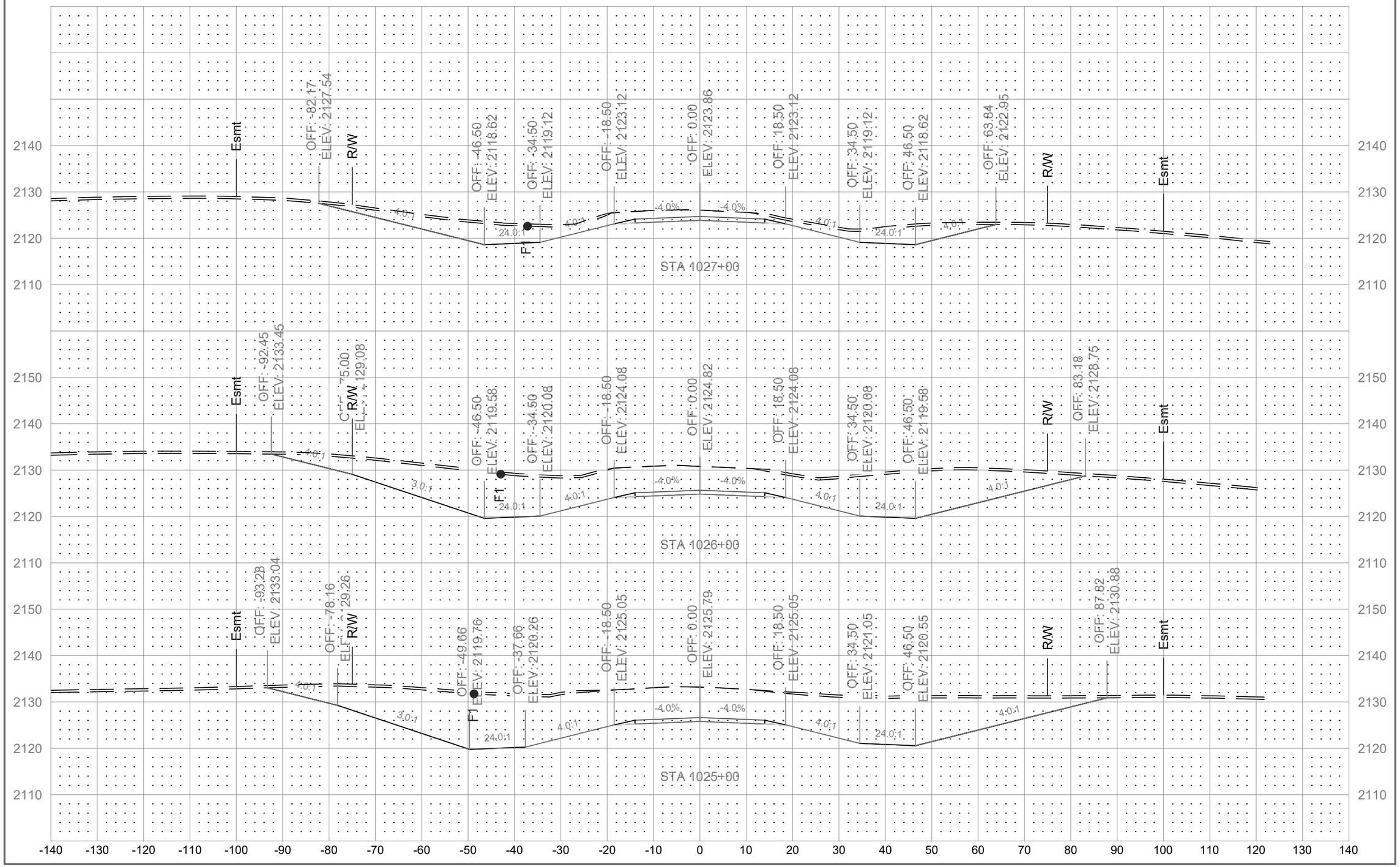
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	91



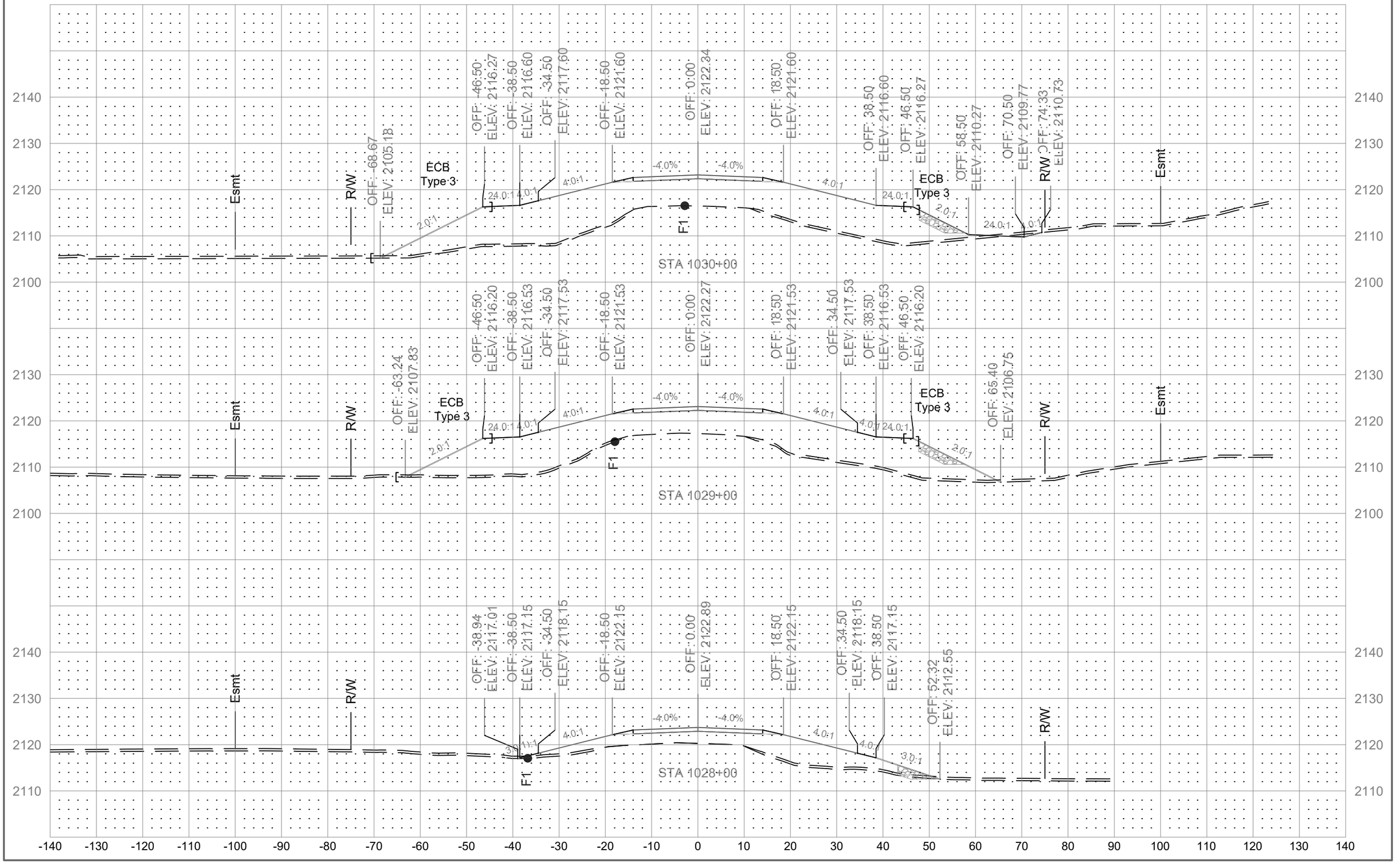
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	92



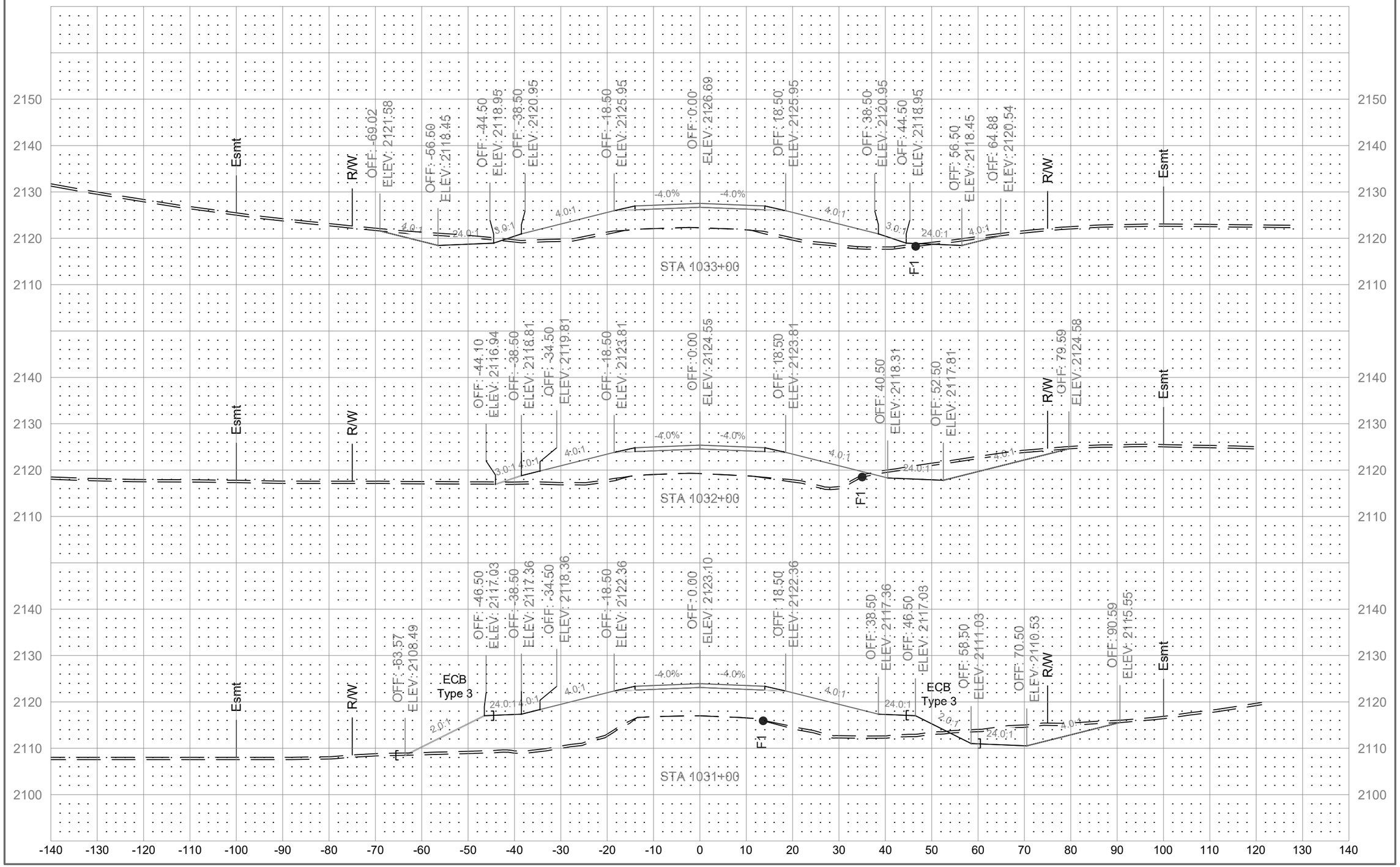
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	93



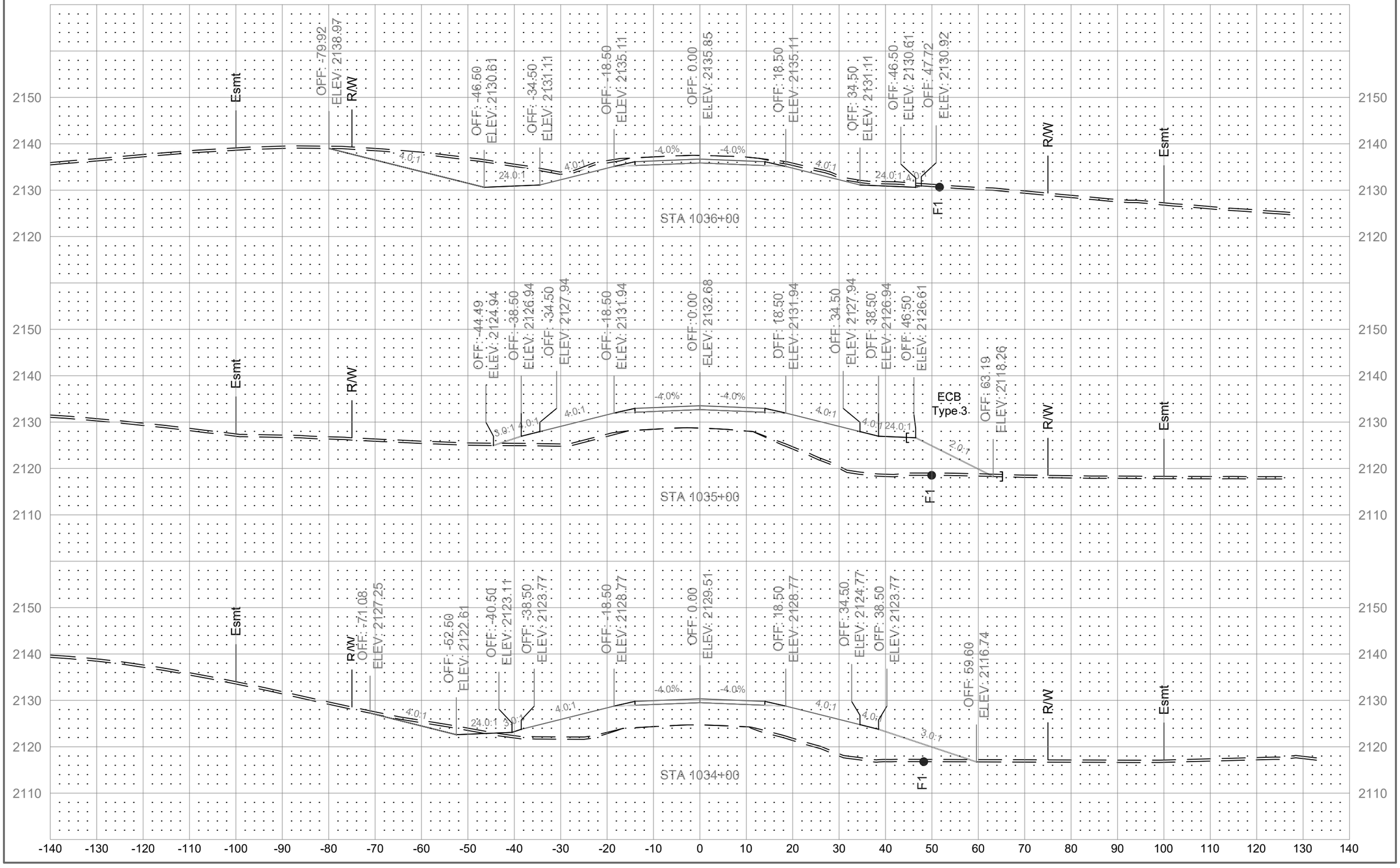
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	94



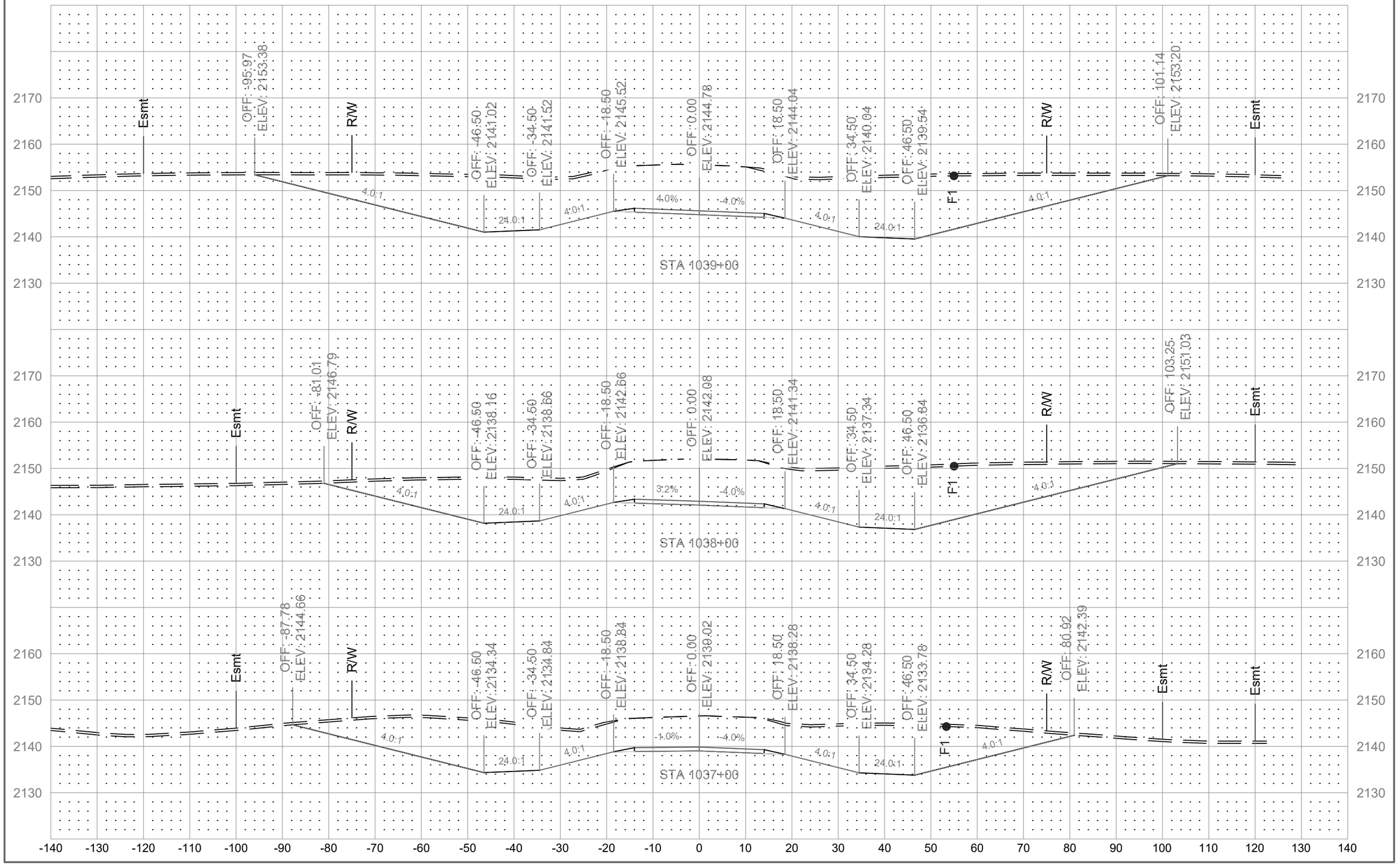
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	95



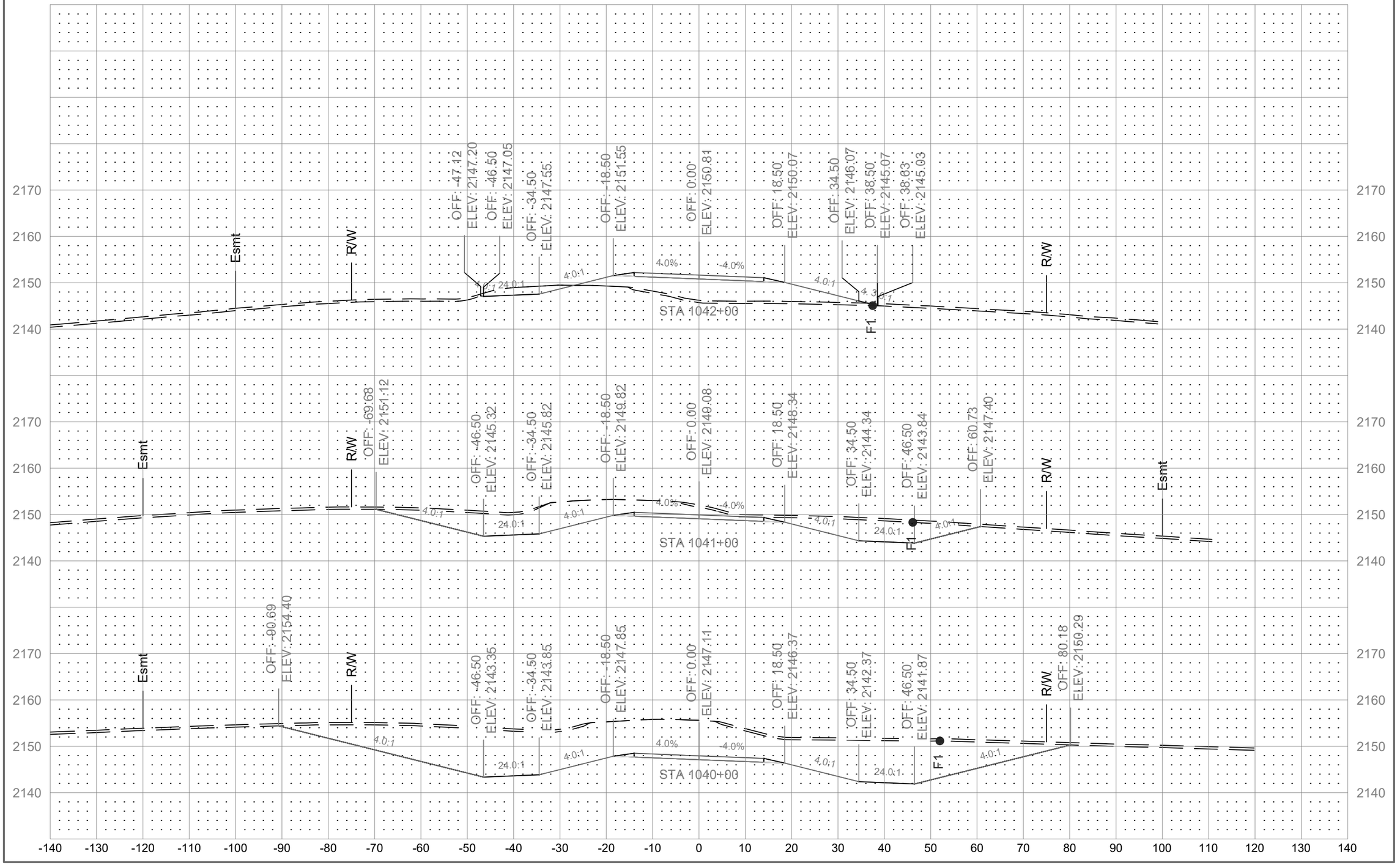
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	96



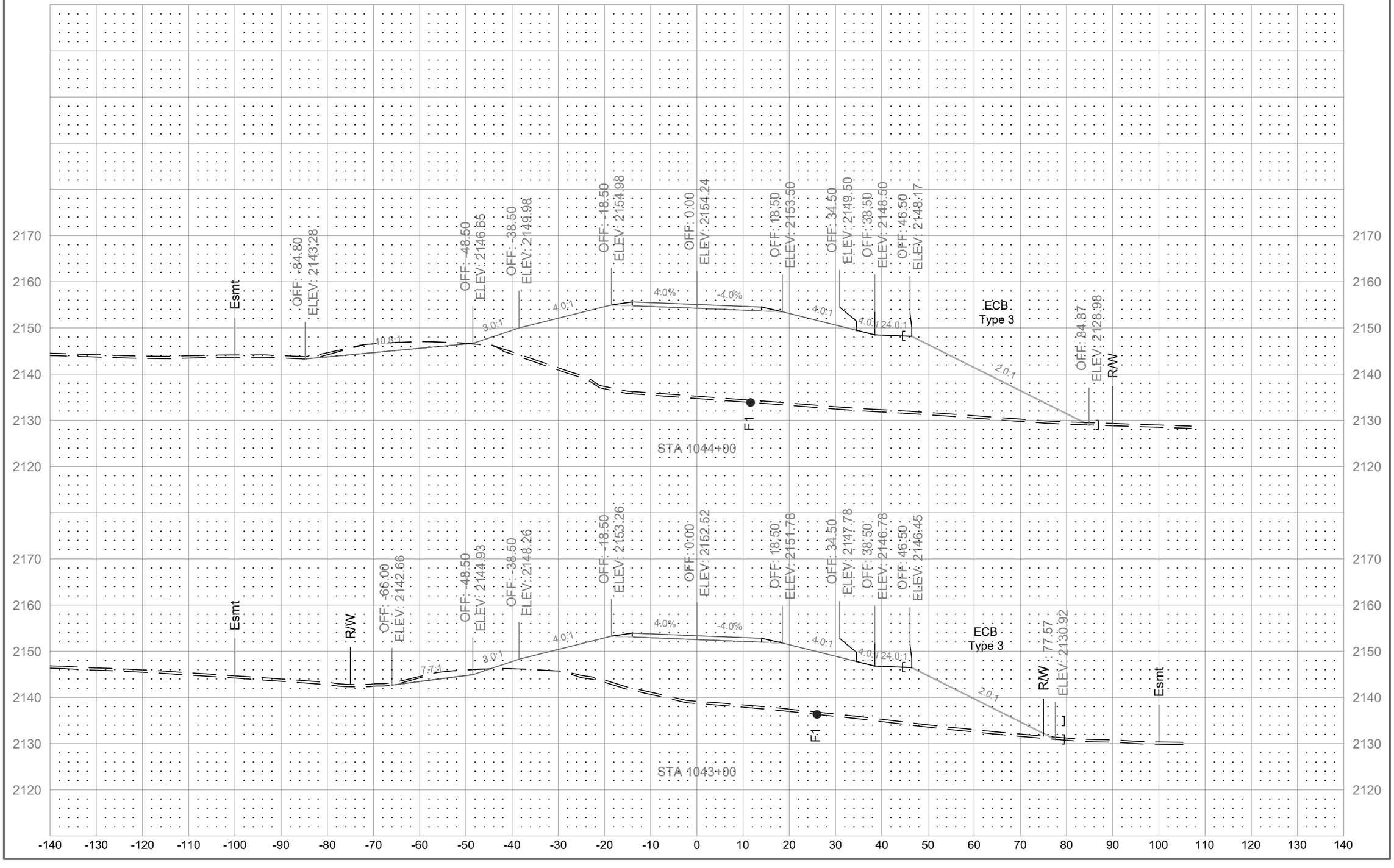
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	97



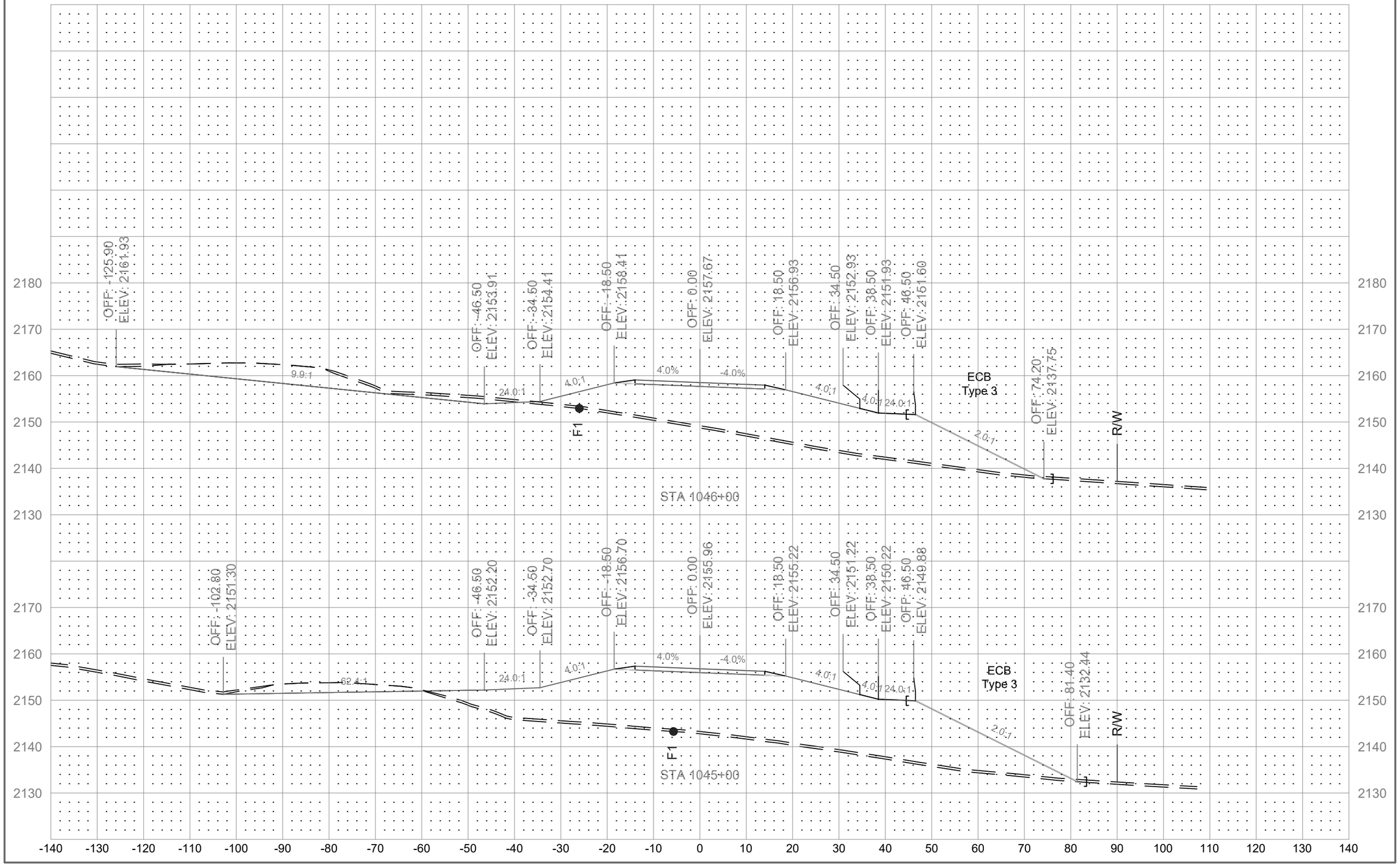
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	98



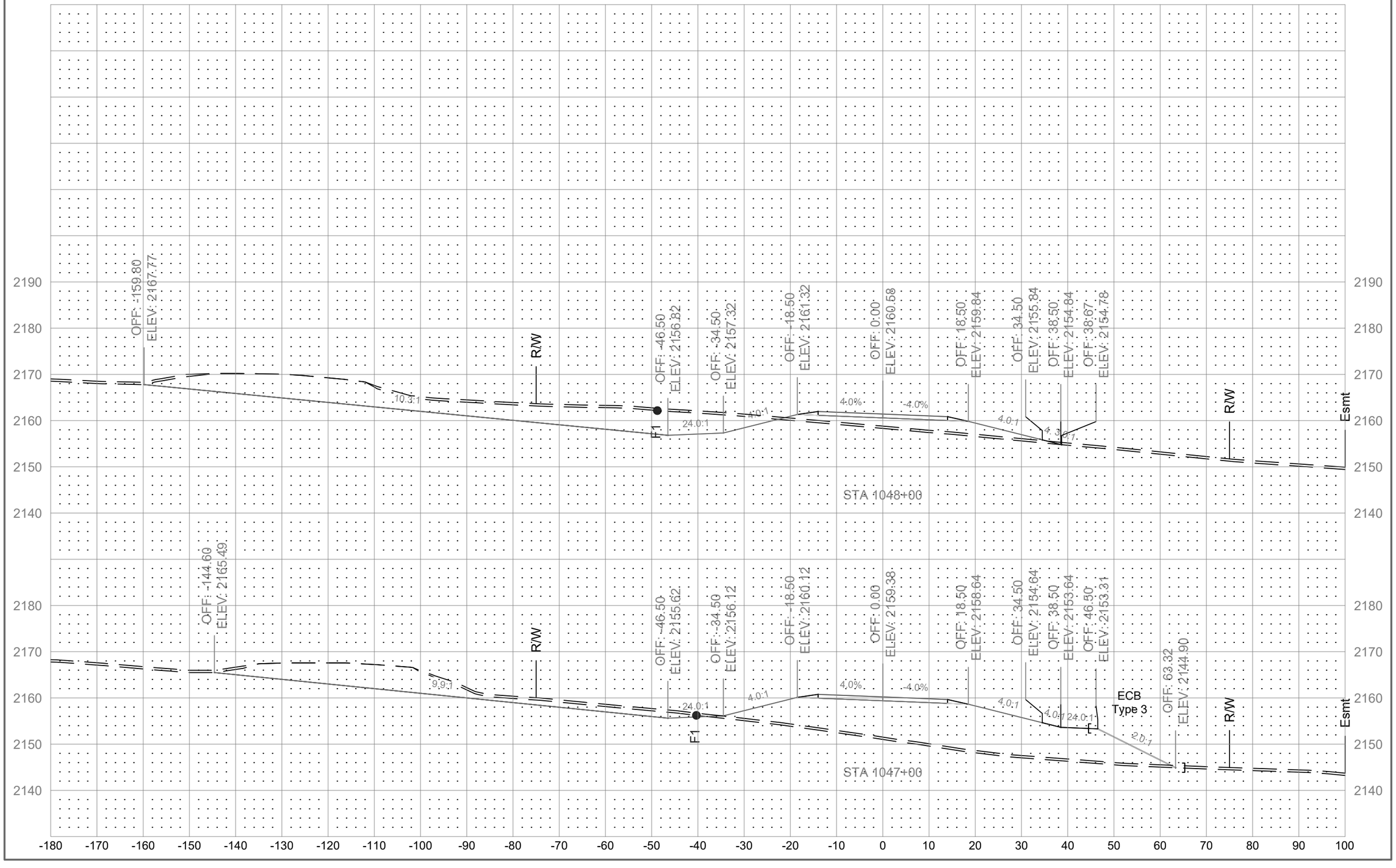
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	99



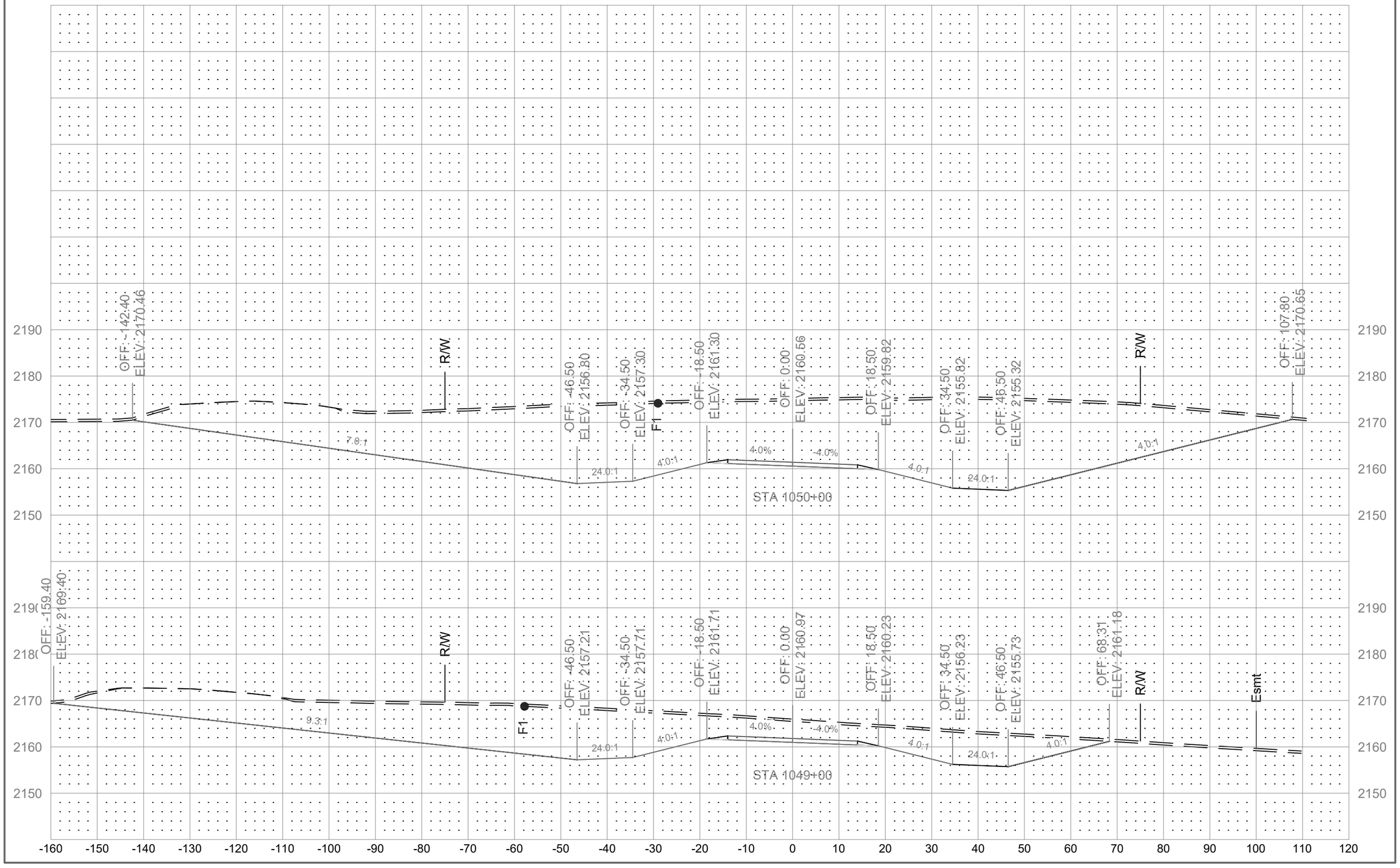
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	100



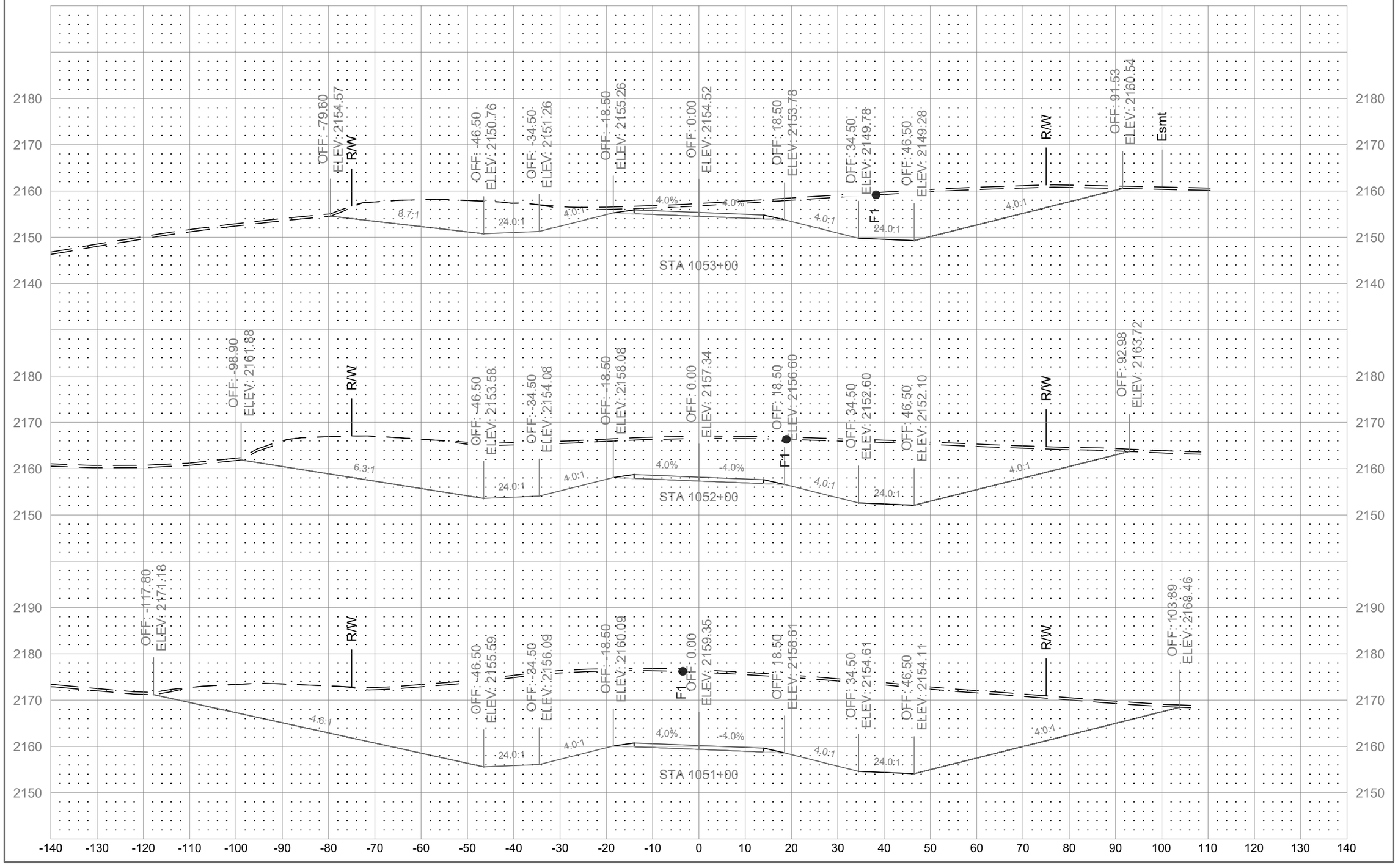
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	101



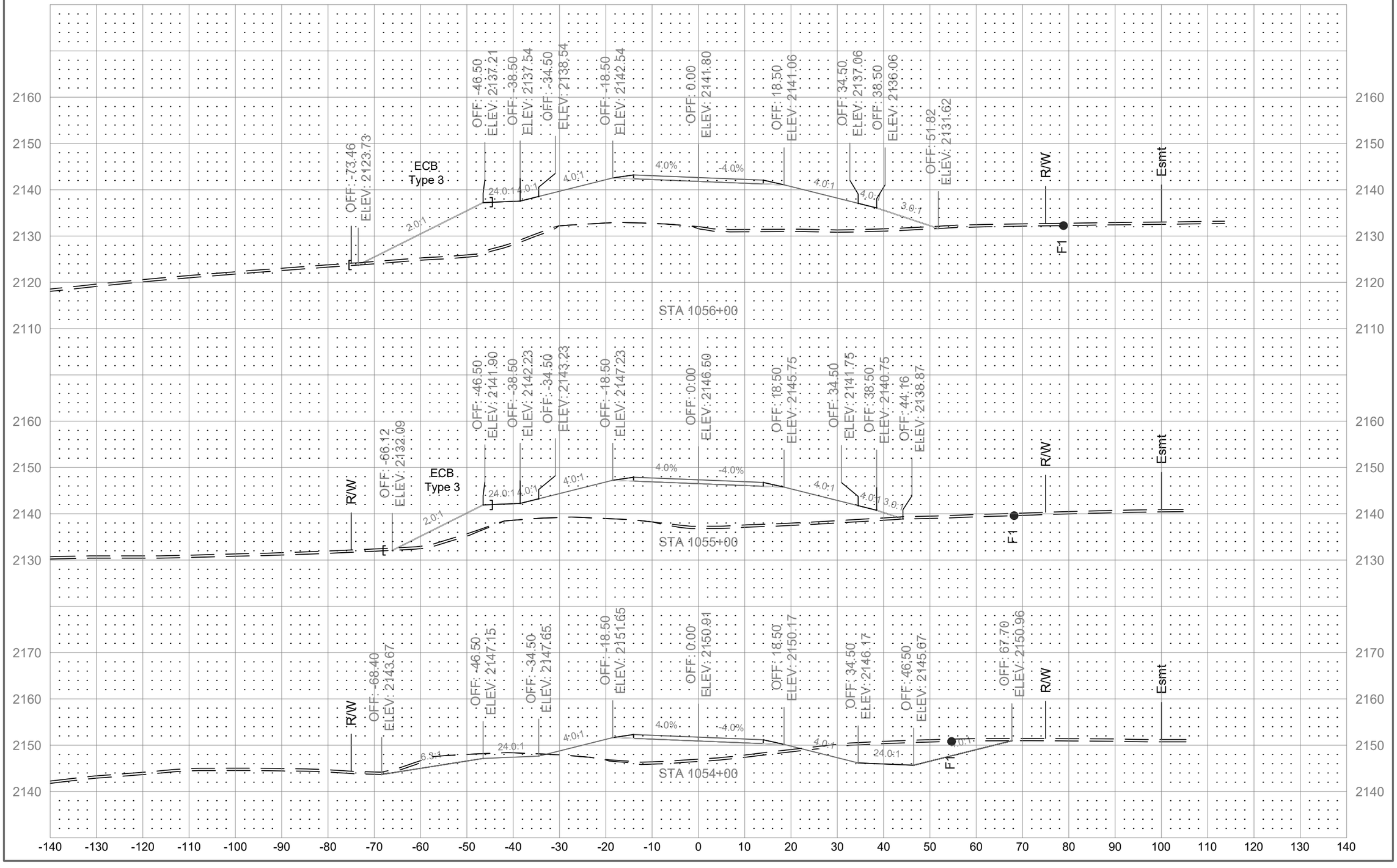
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	102



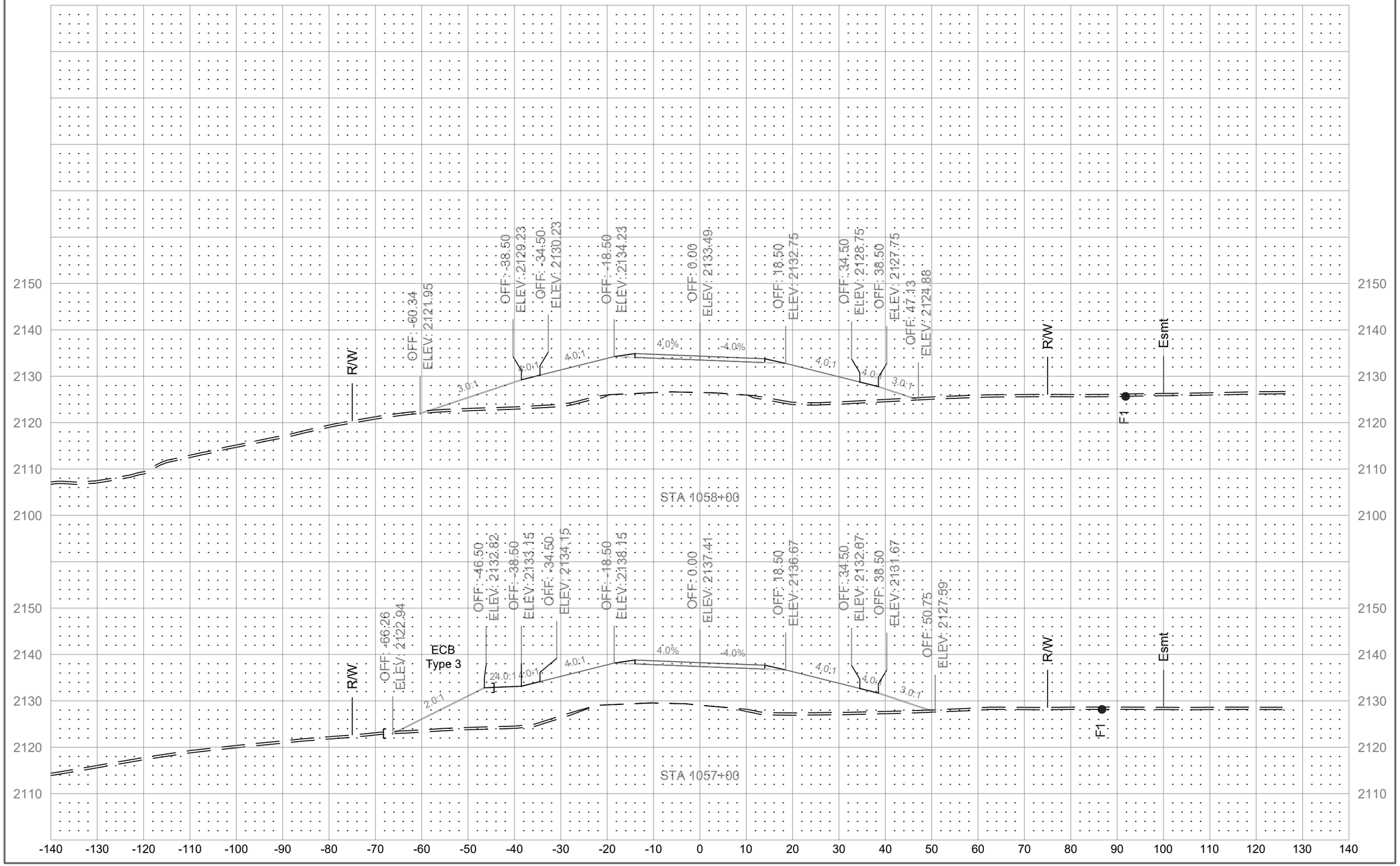
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	103



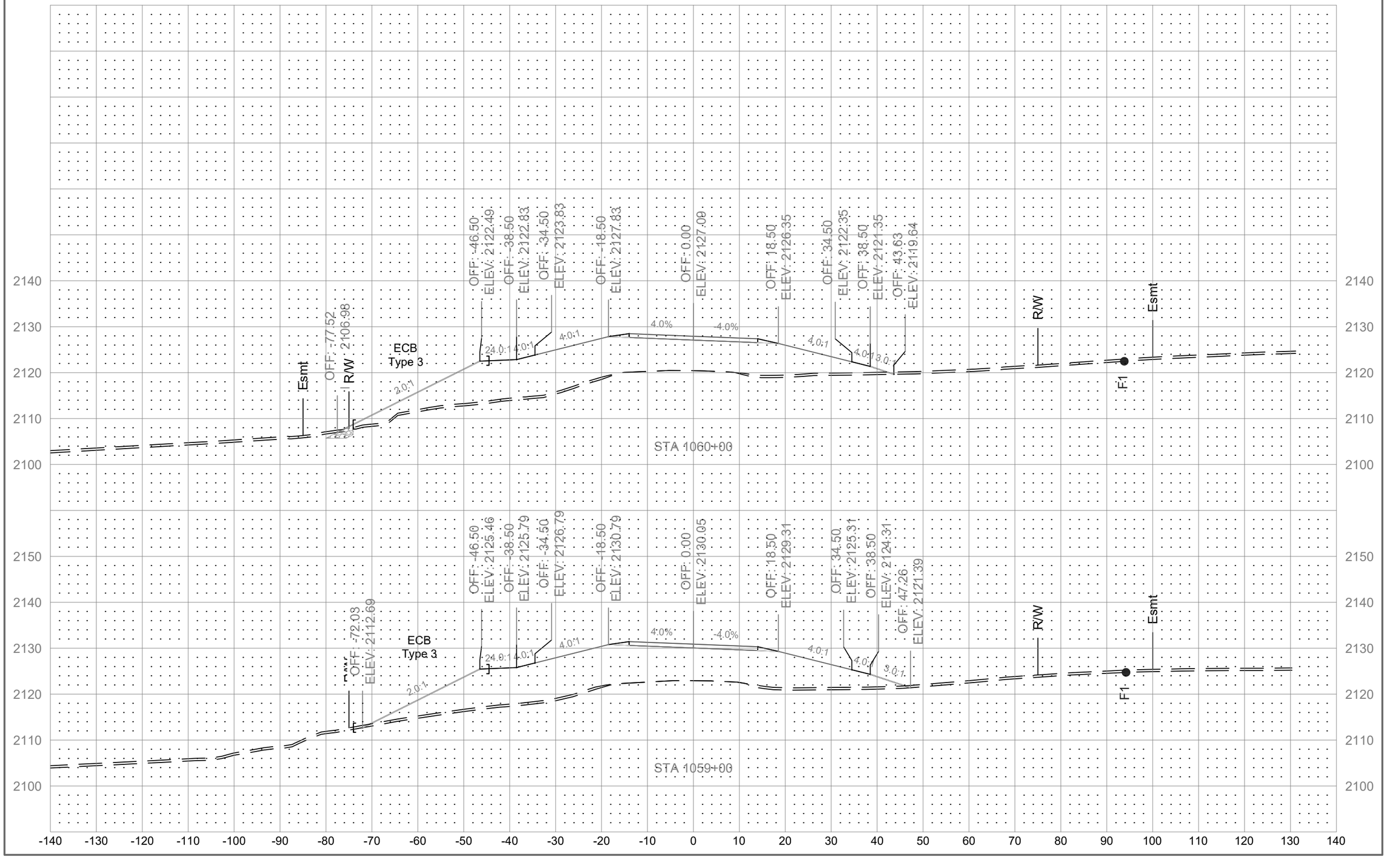
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	104



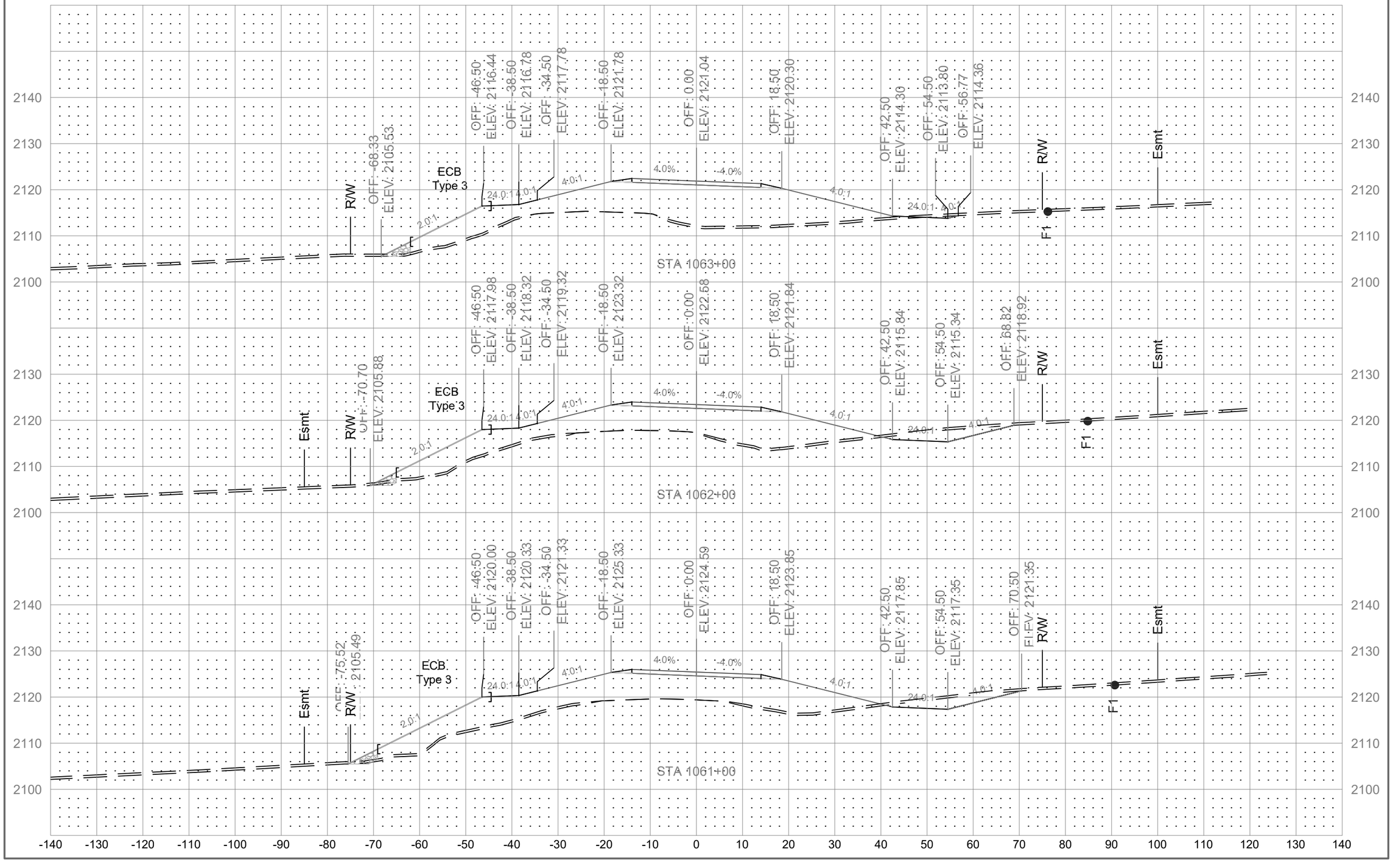
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	105



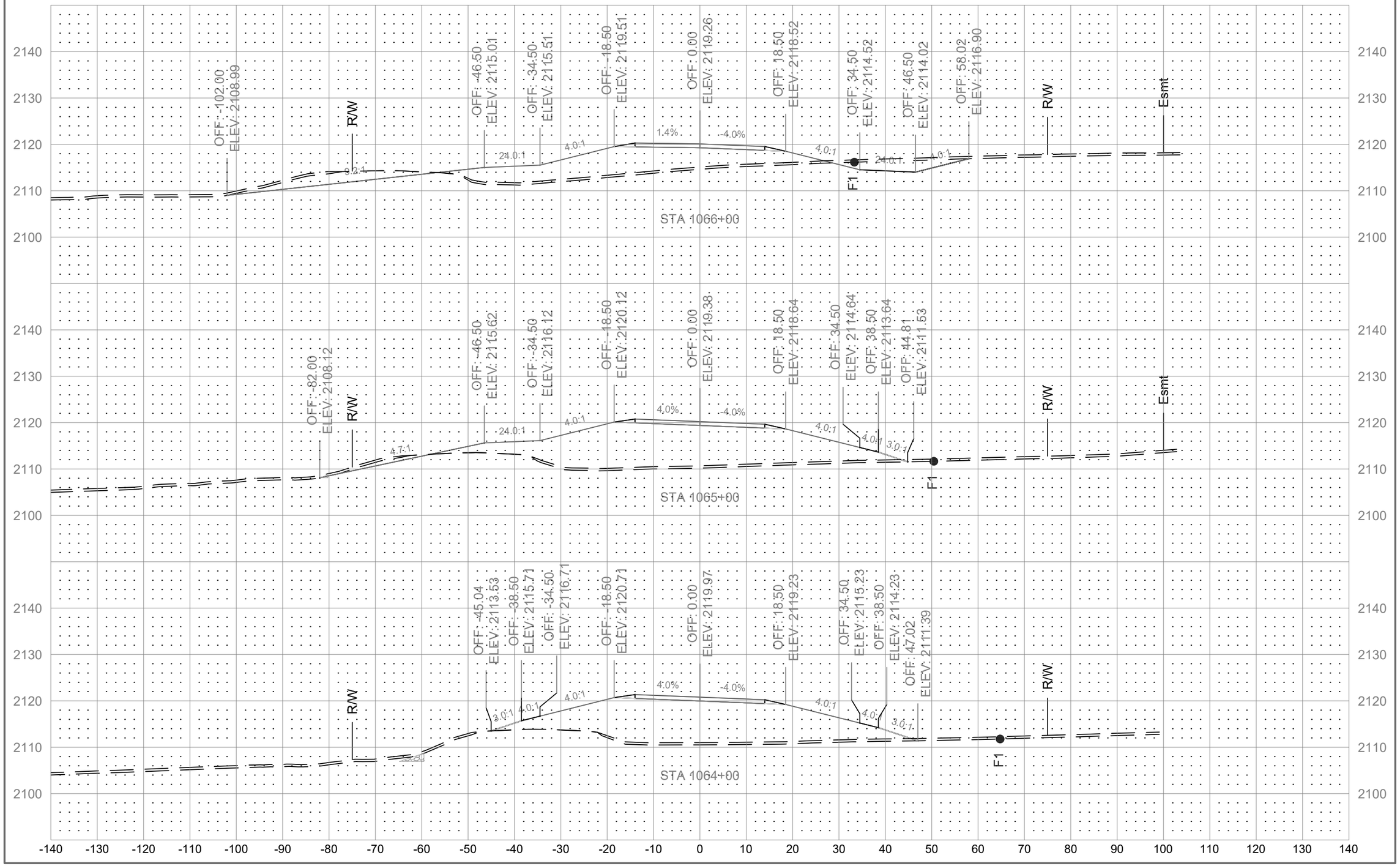
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	106



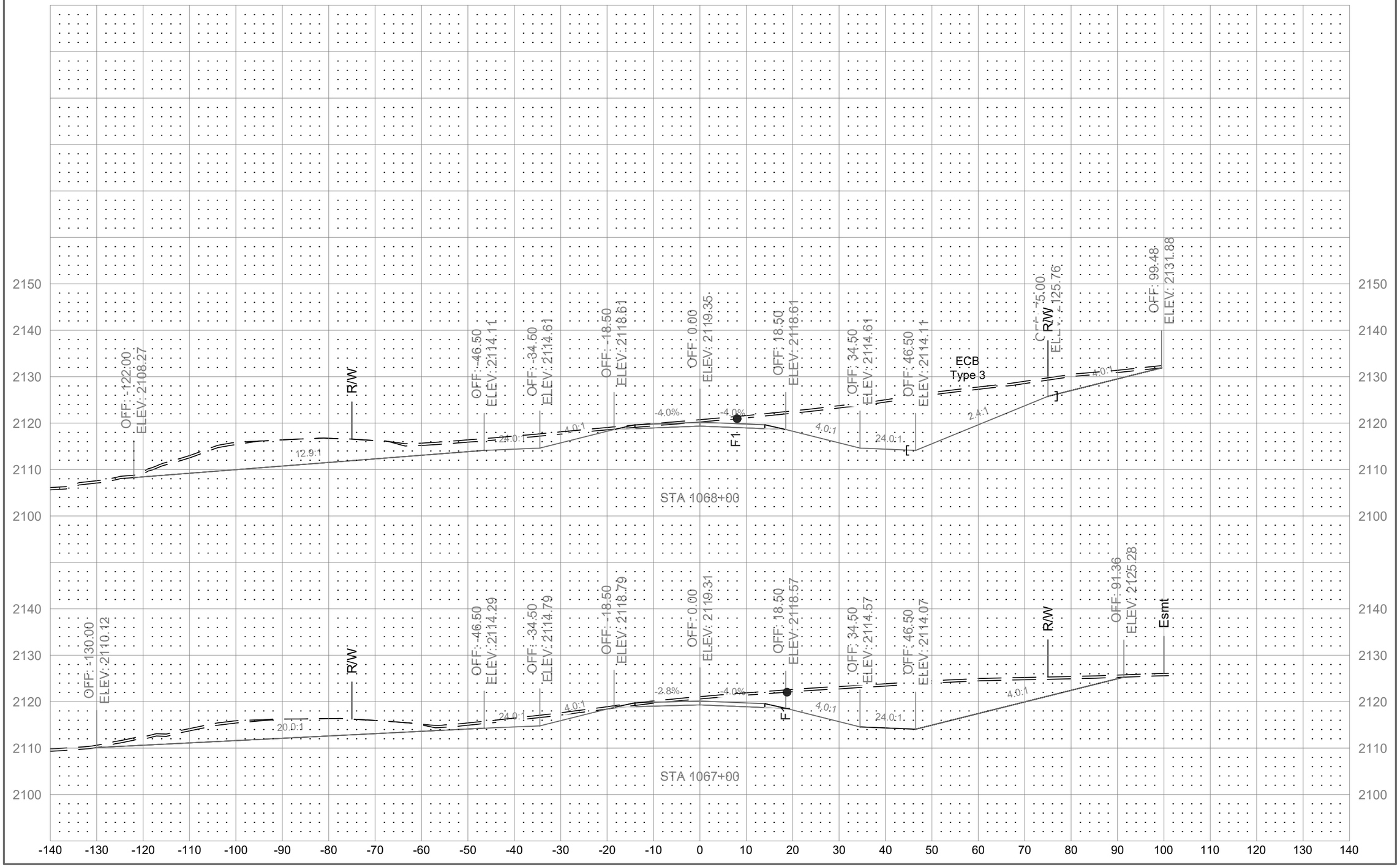
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	107



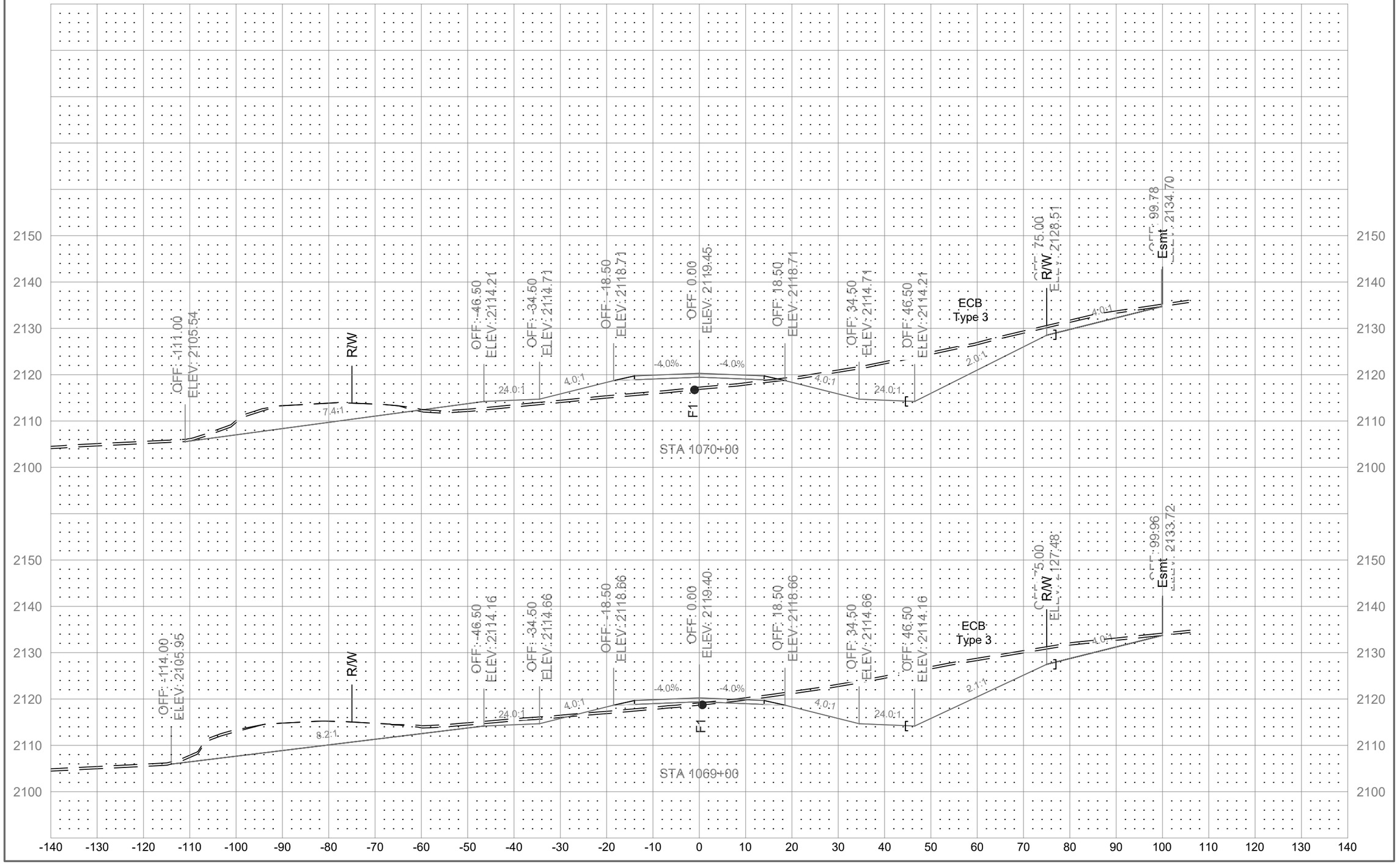
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	108



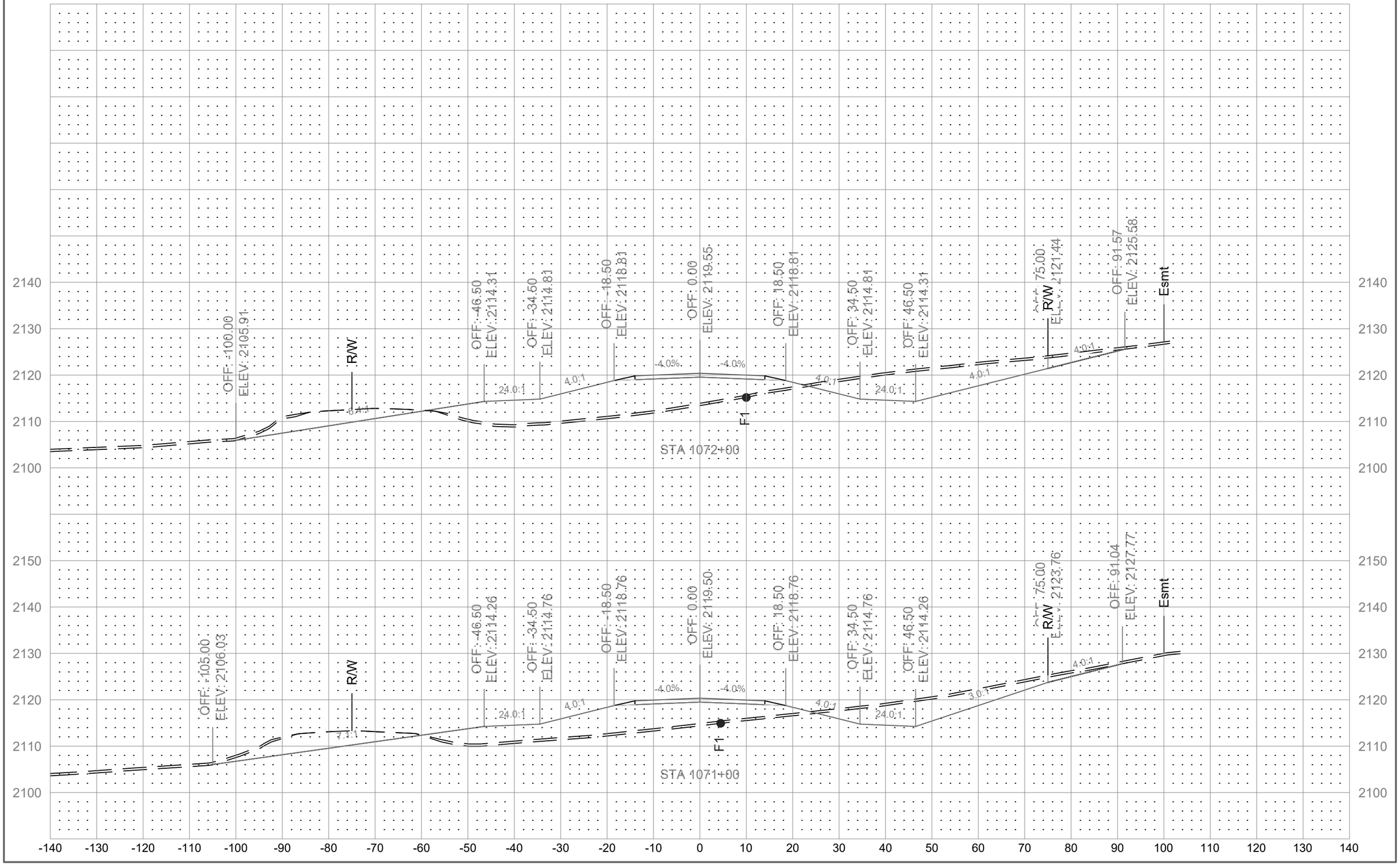
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	109



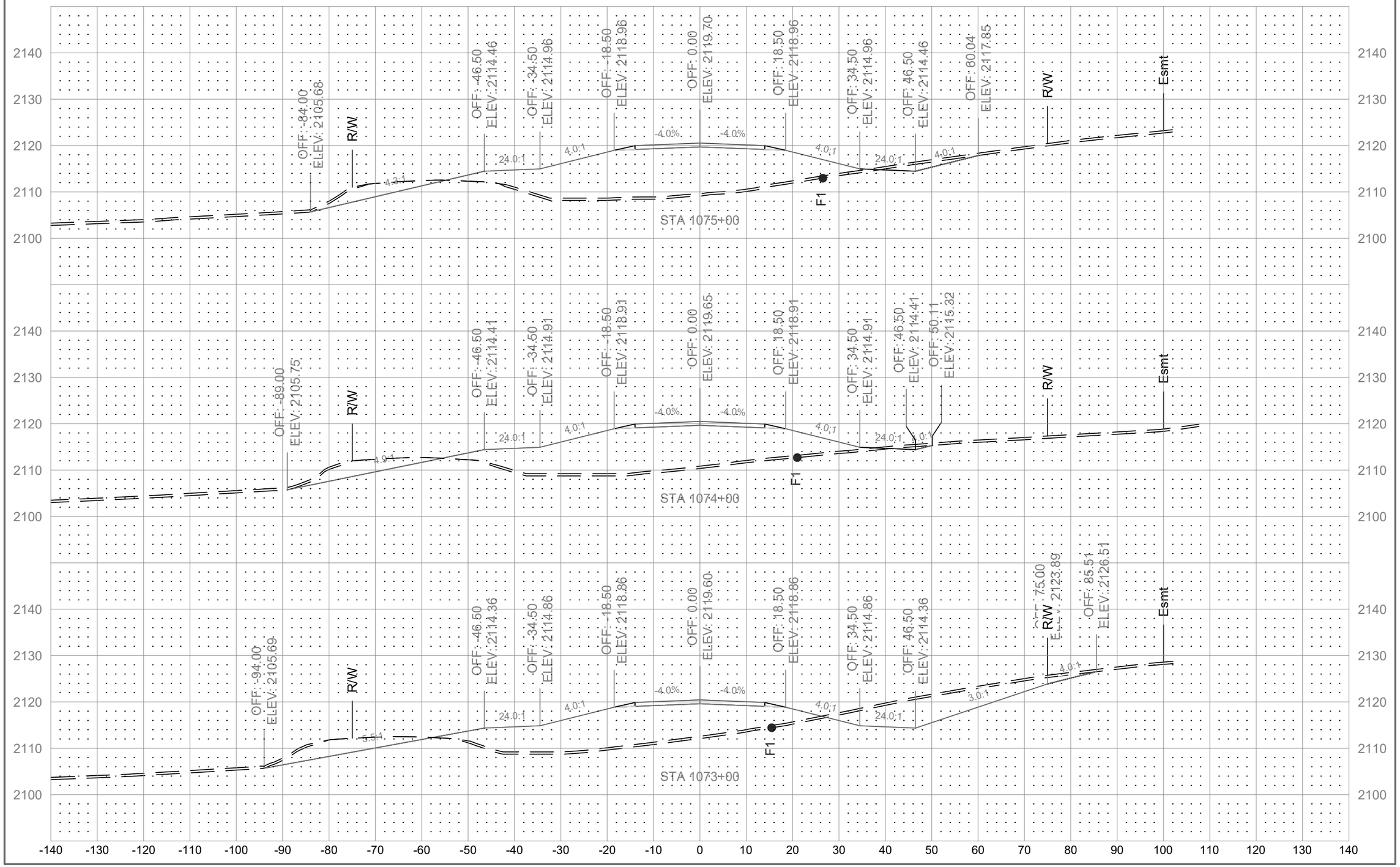
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	110



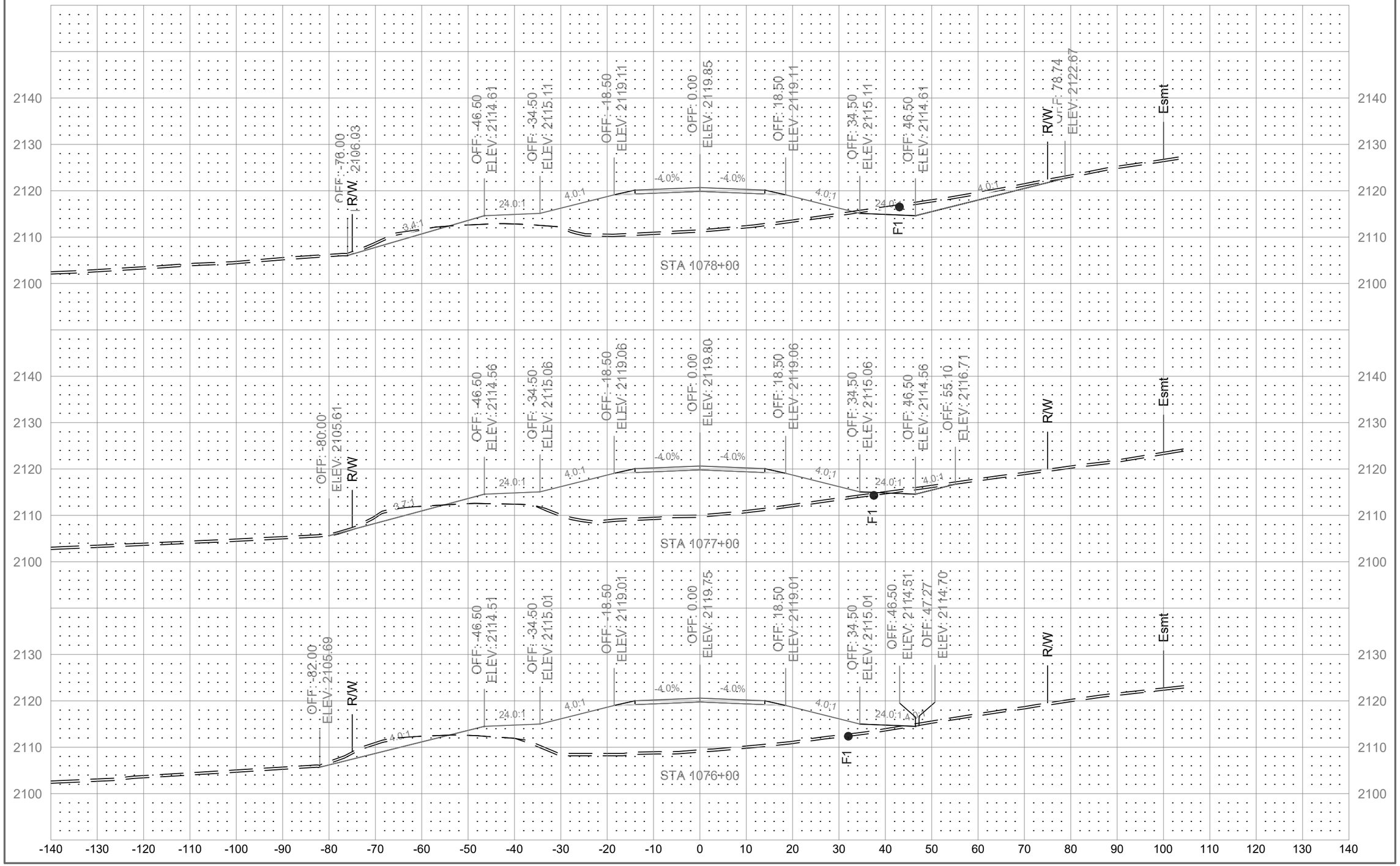
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	111



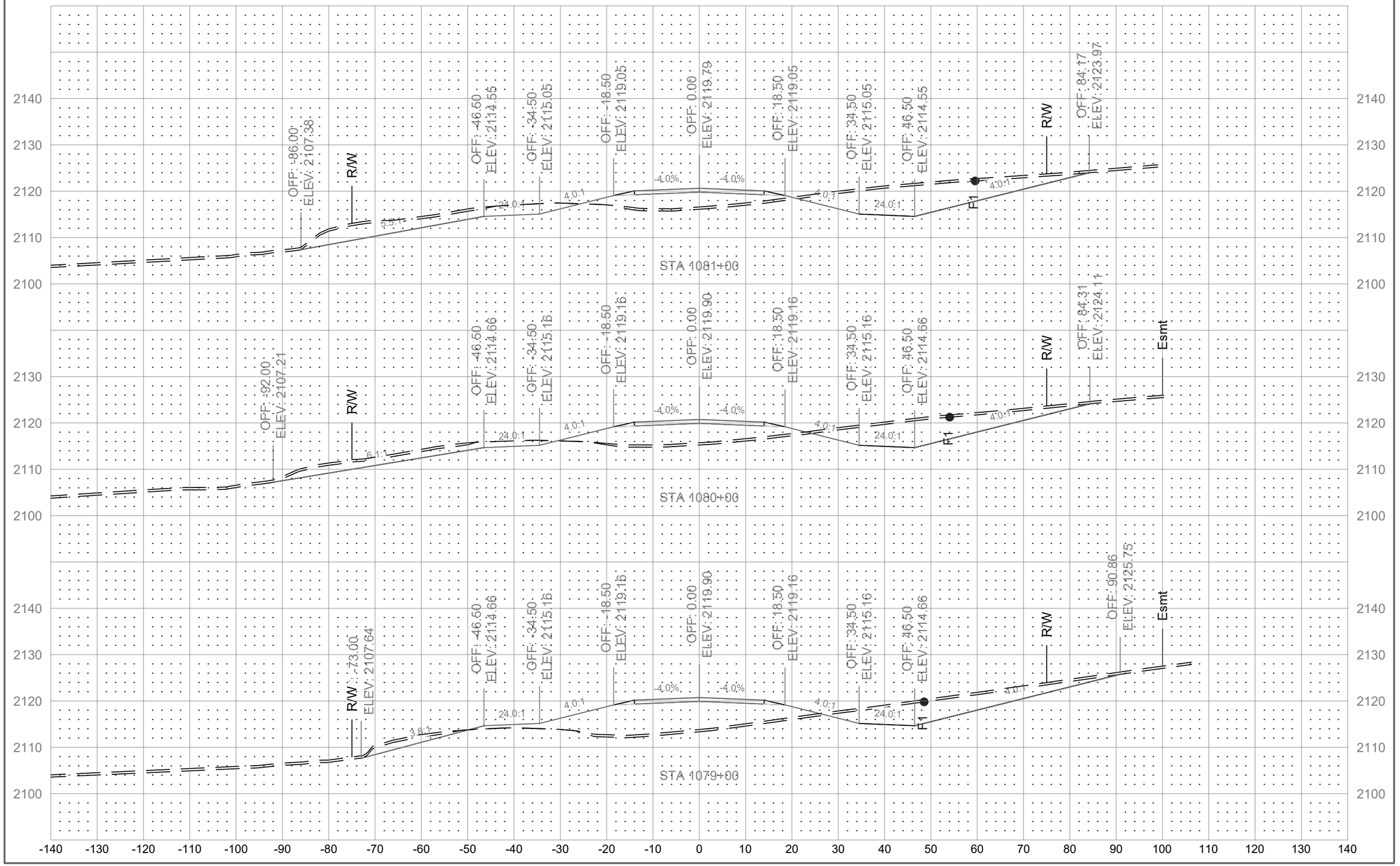
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	112



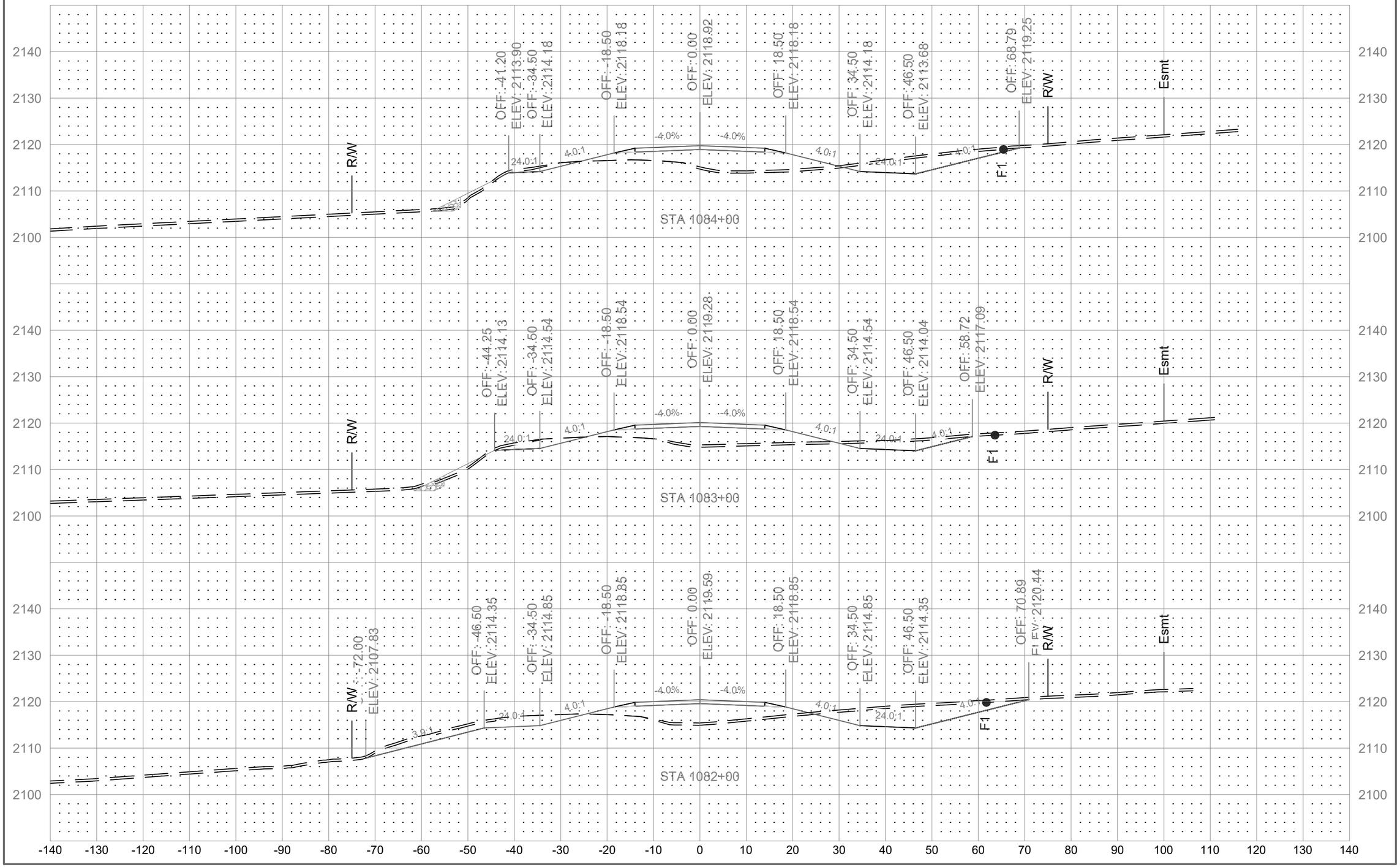
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	113



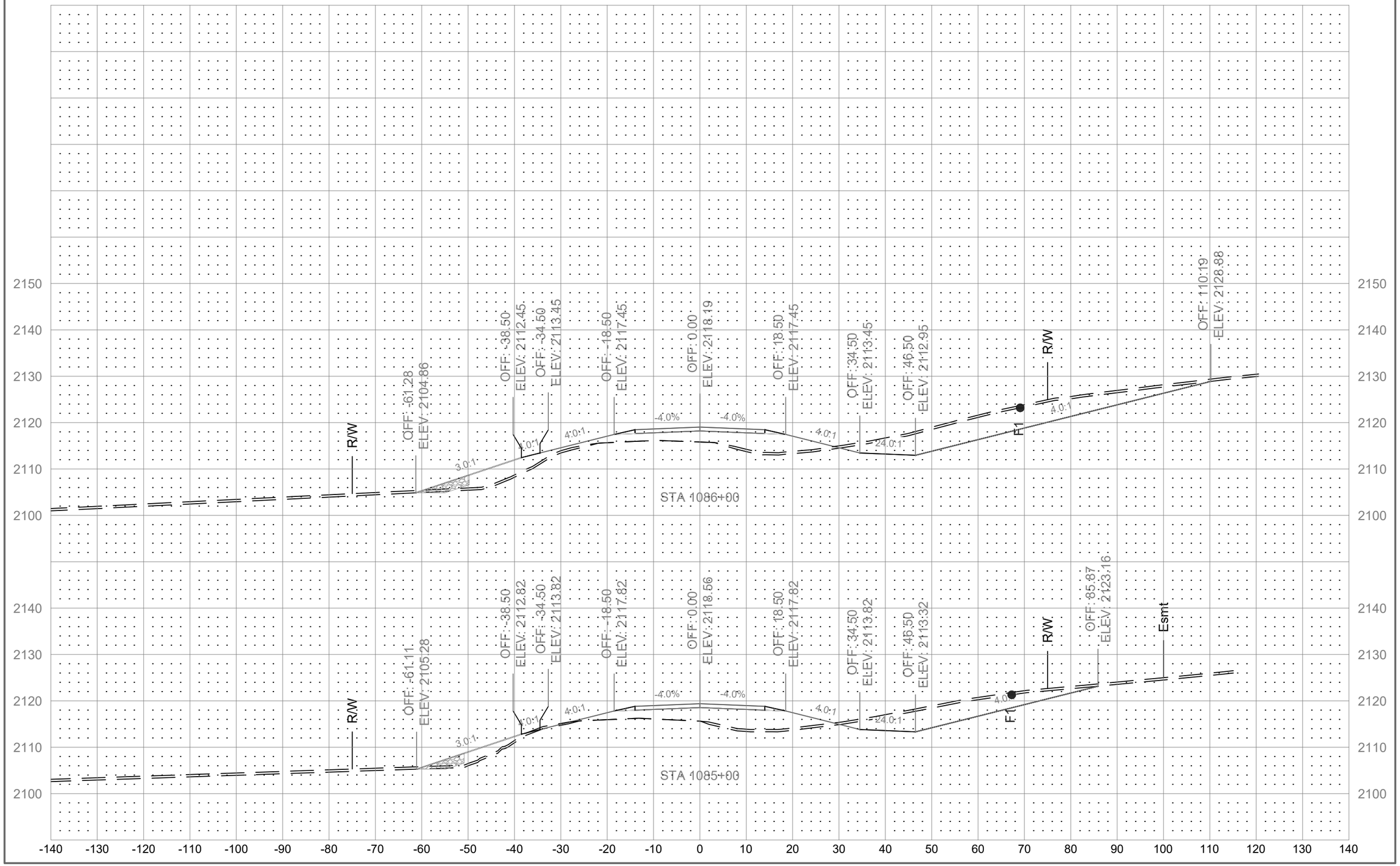
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	114



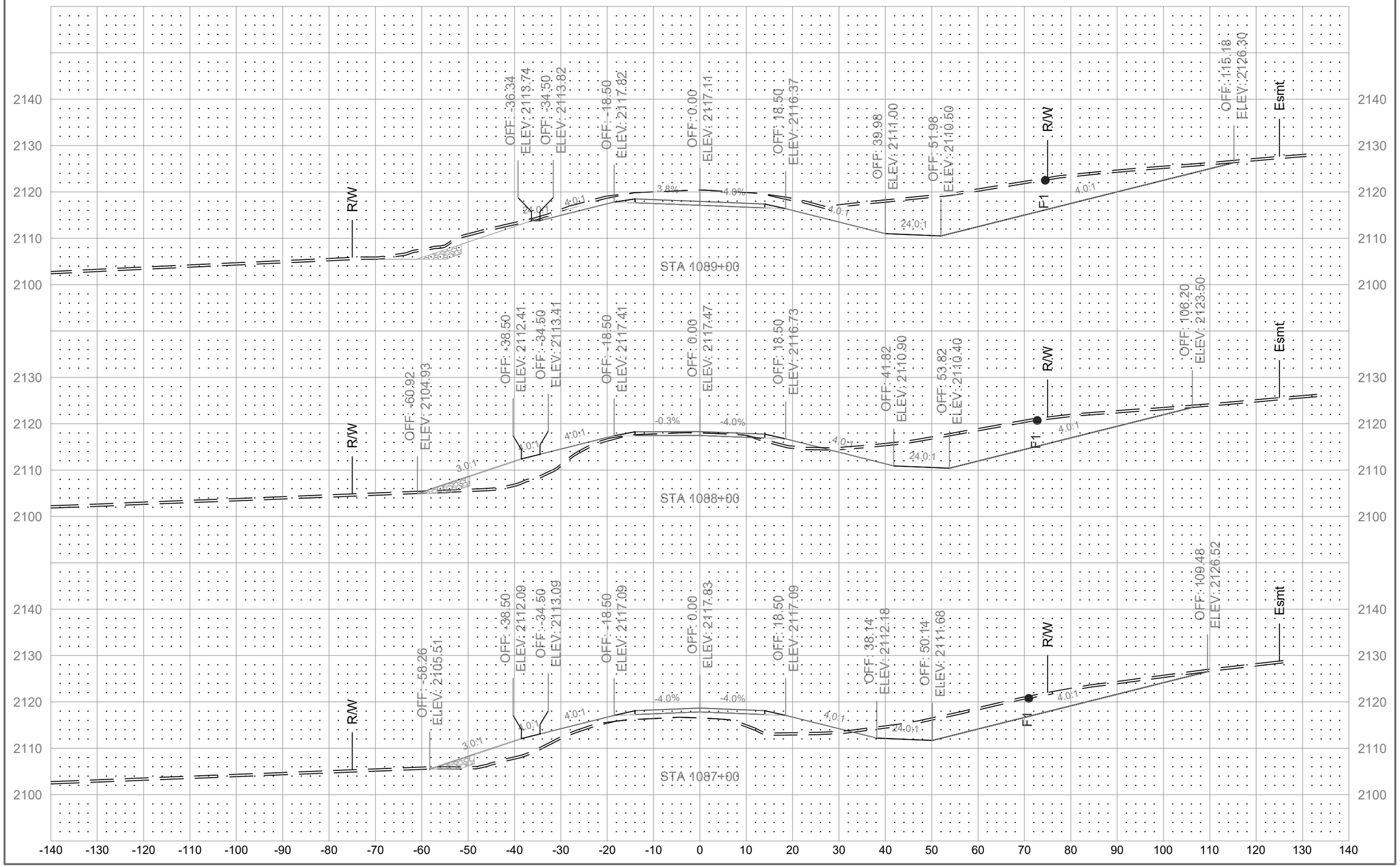
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	115



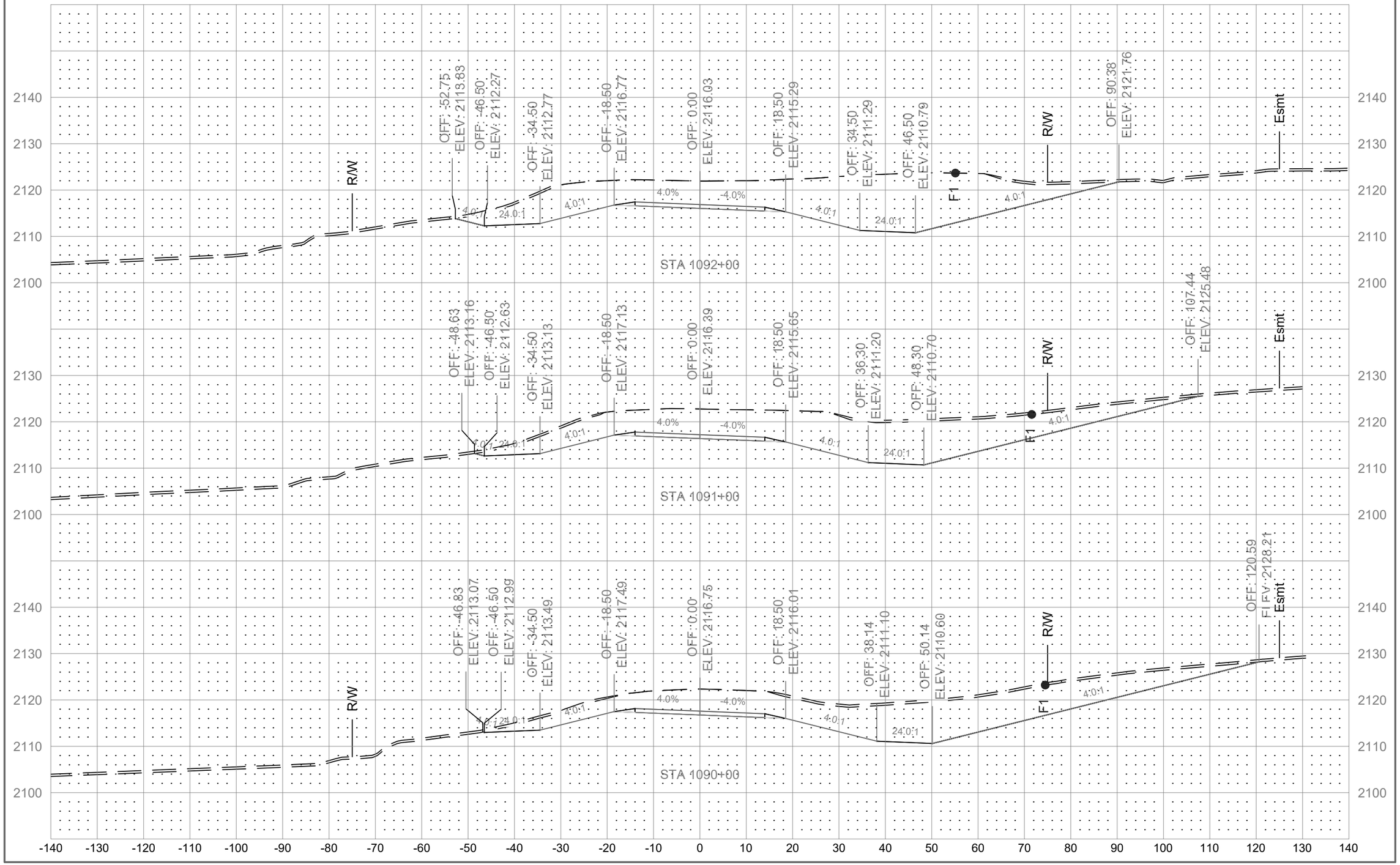
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	116



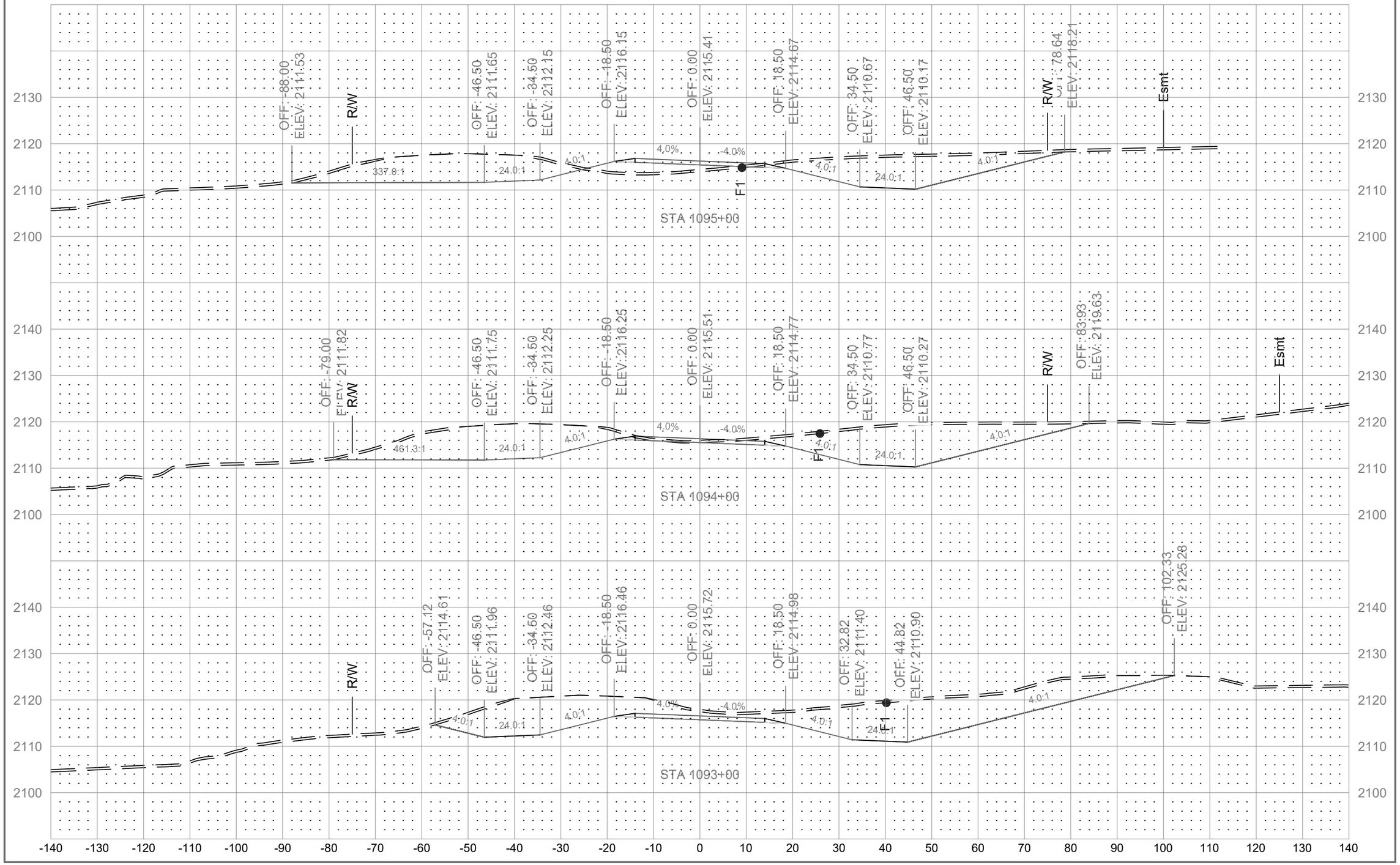
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	117



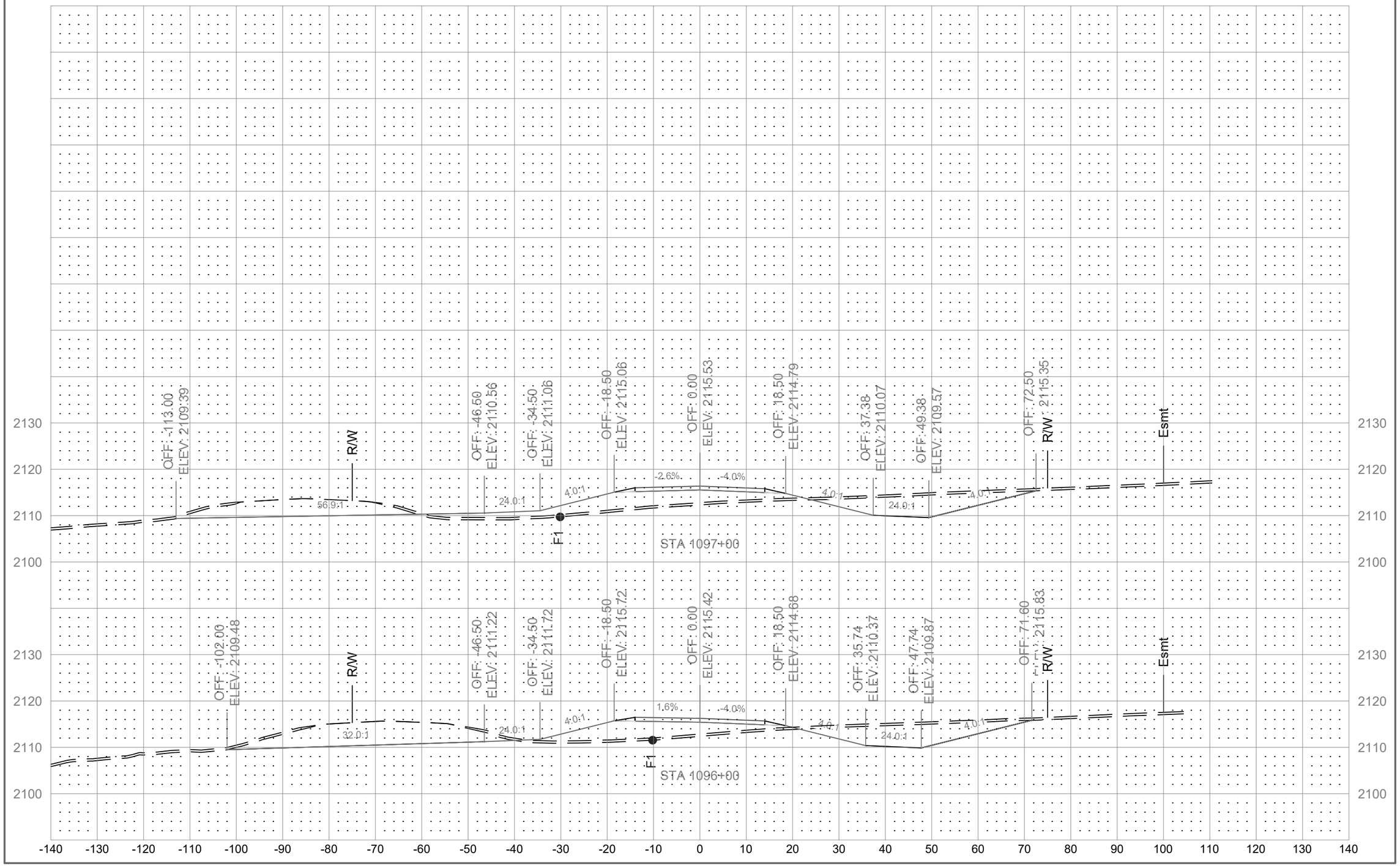
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	118



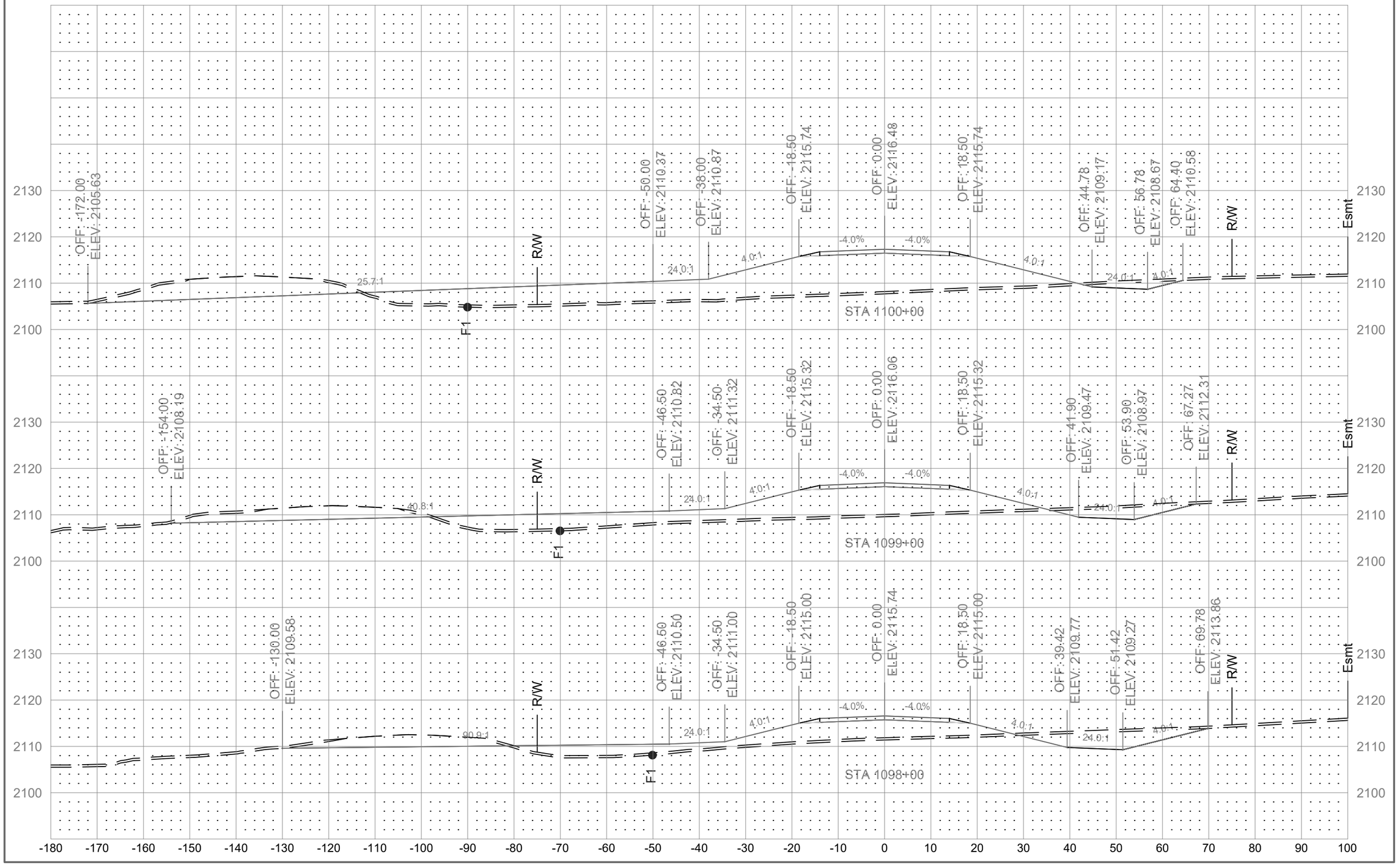
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	119



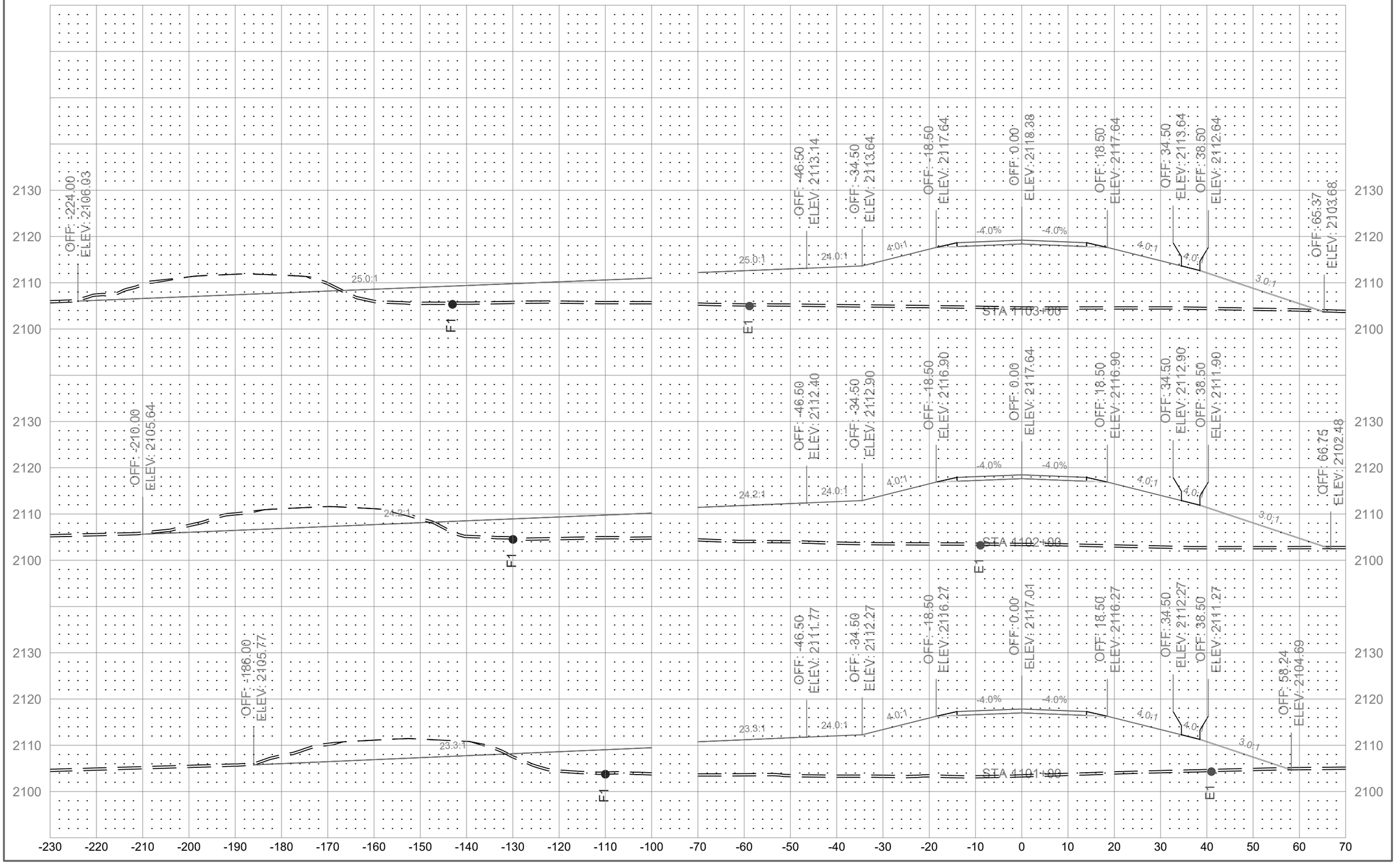
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	120



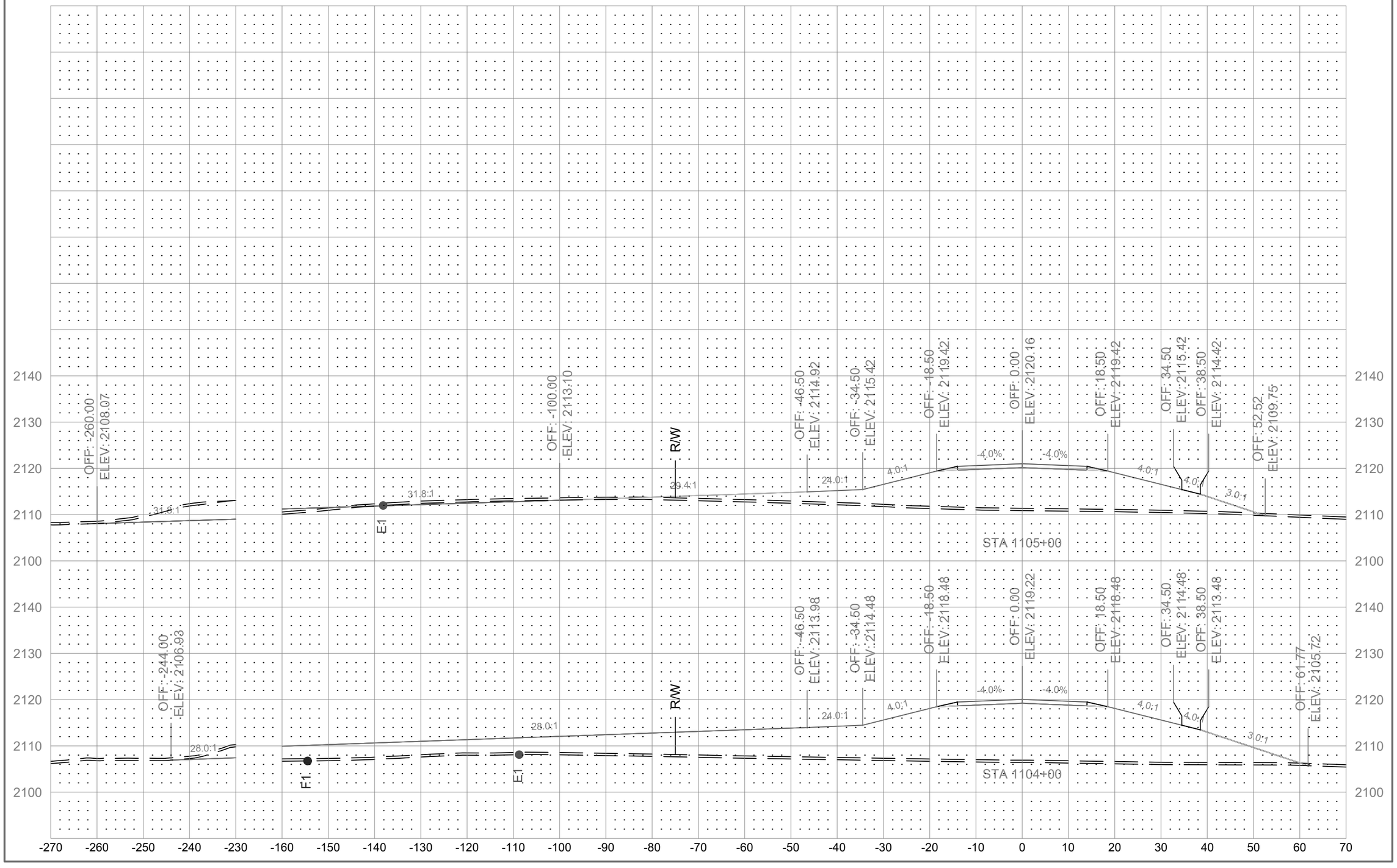
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	121



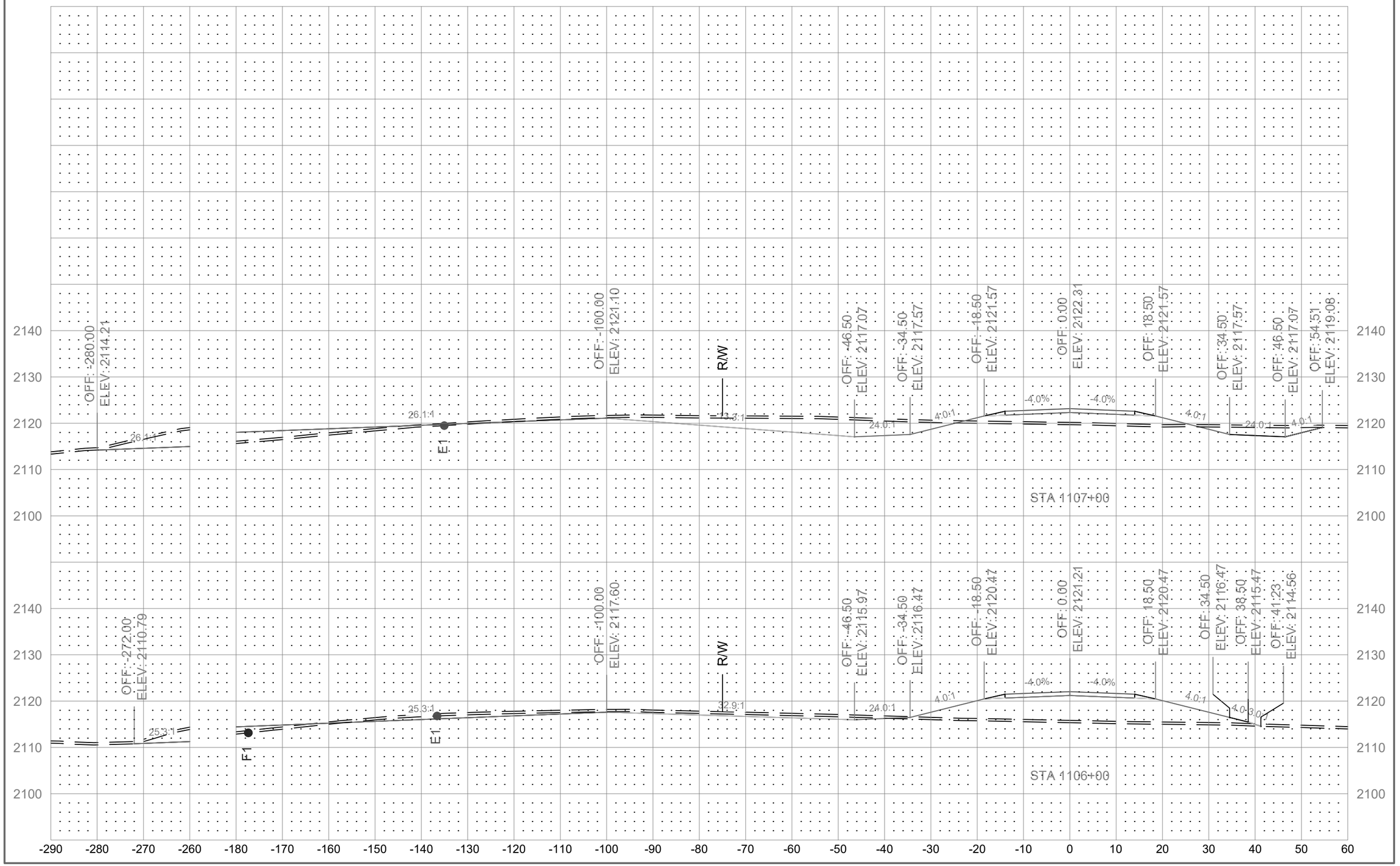
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	122



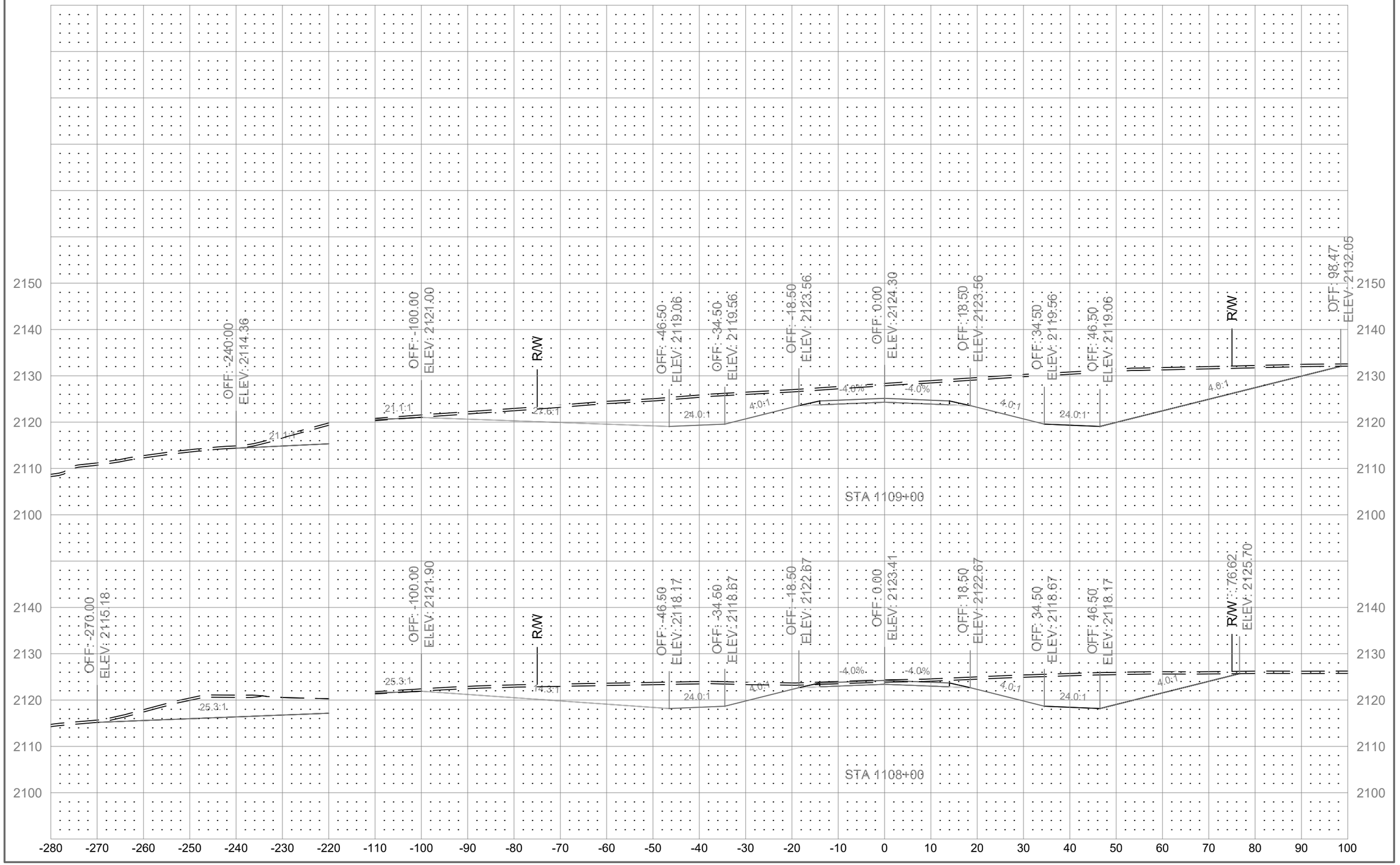
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	123



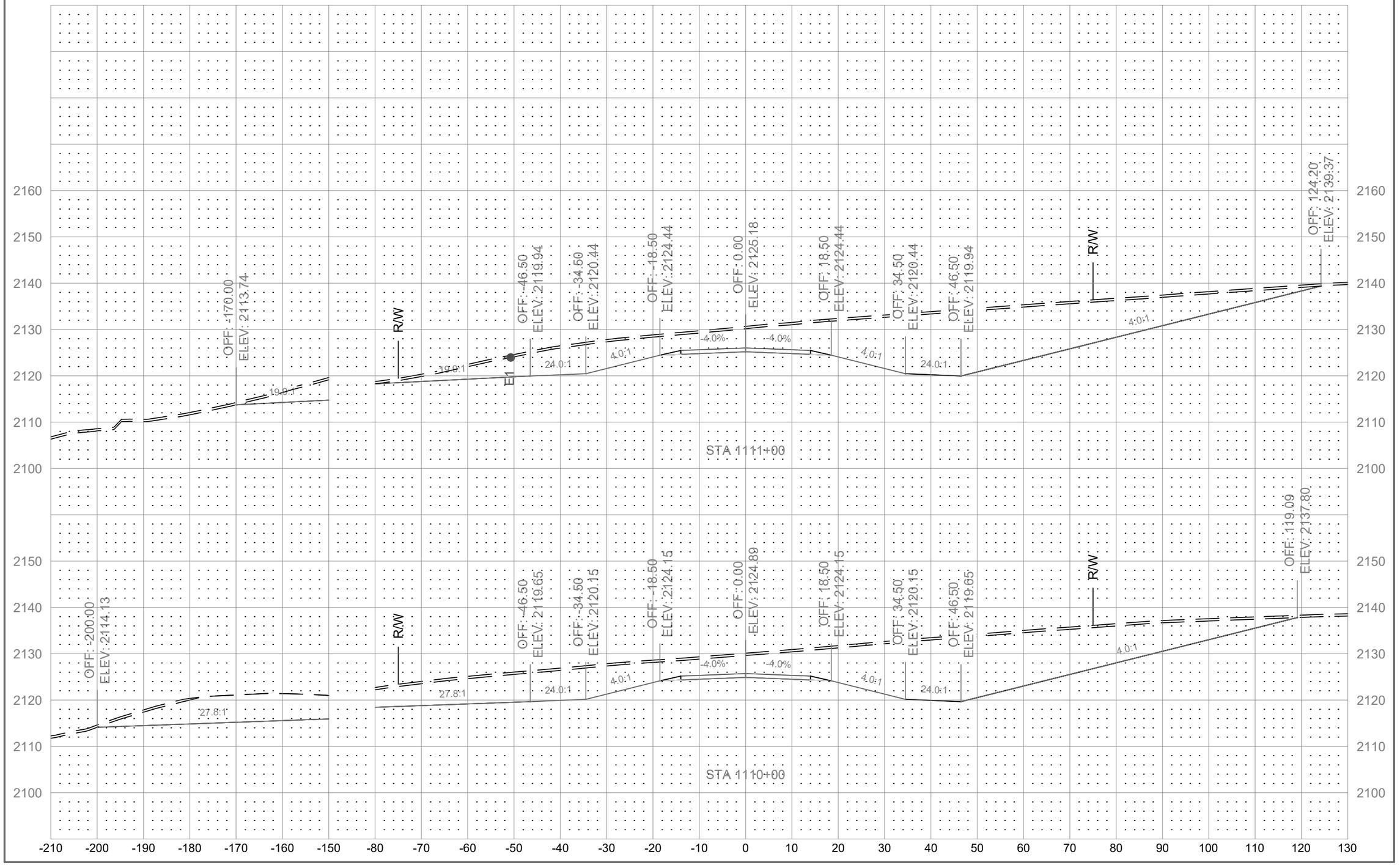
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	124



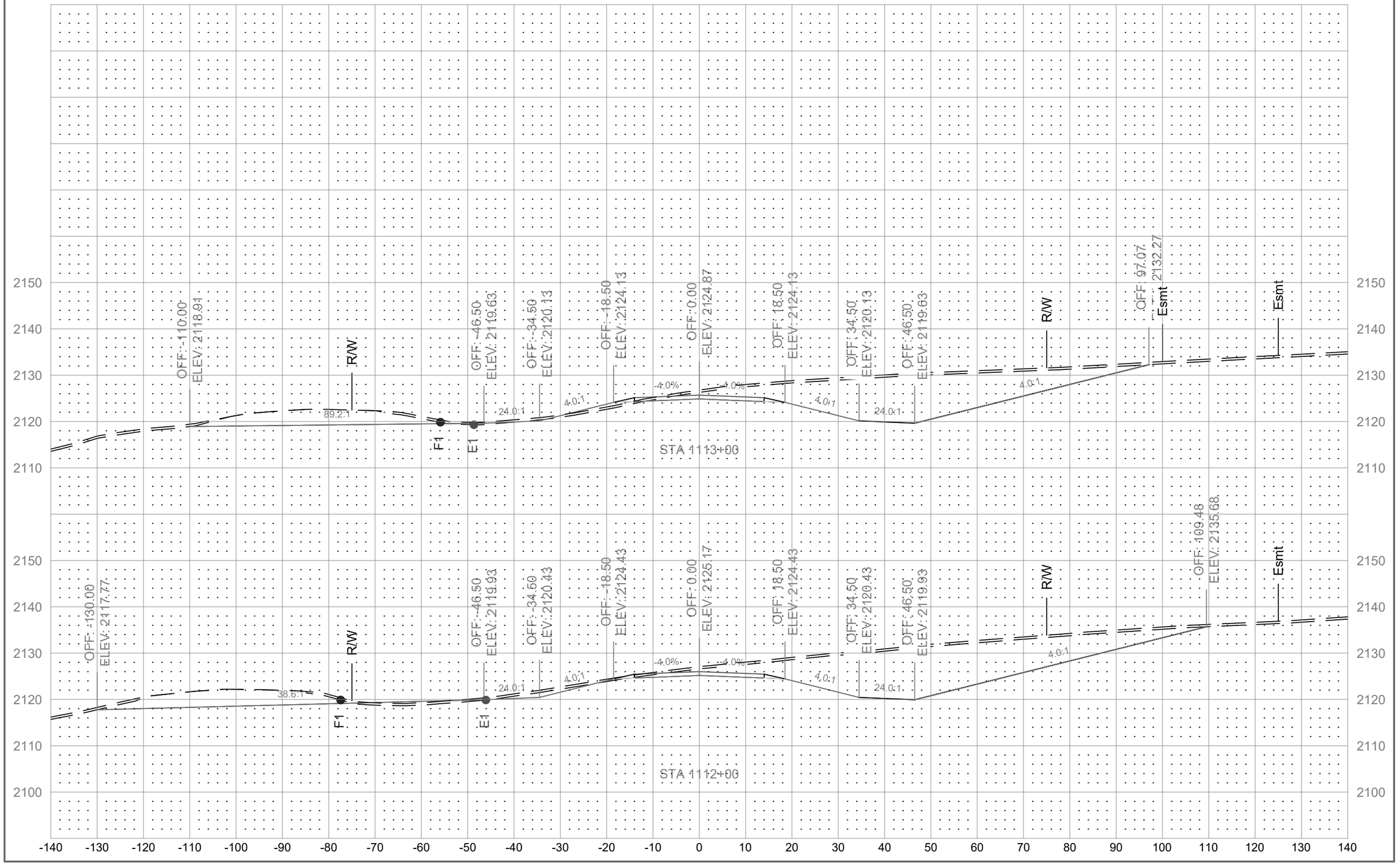
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	125



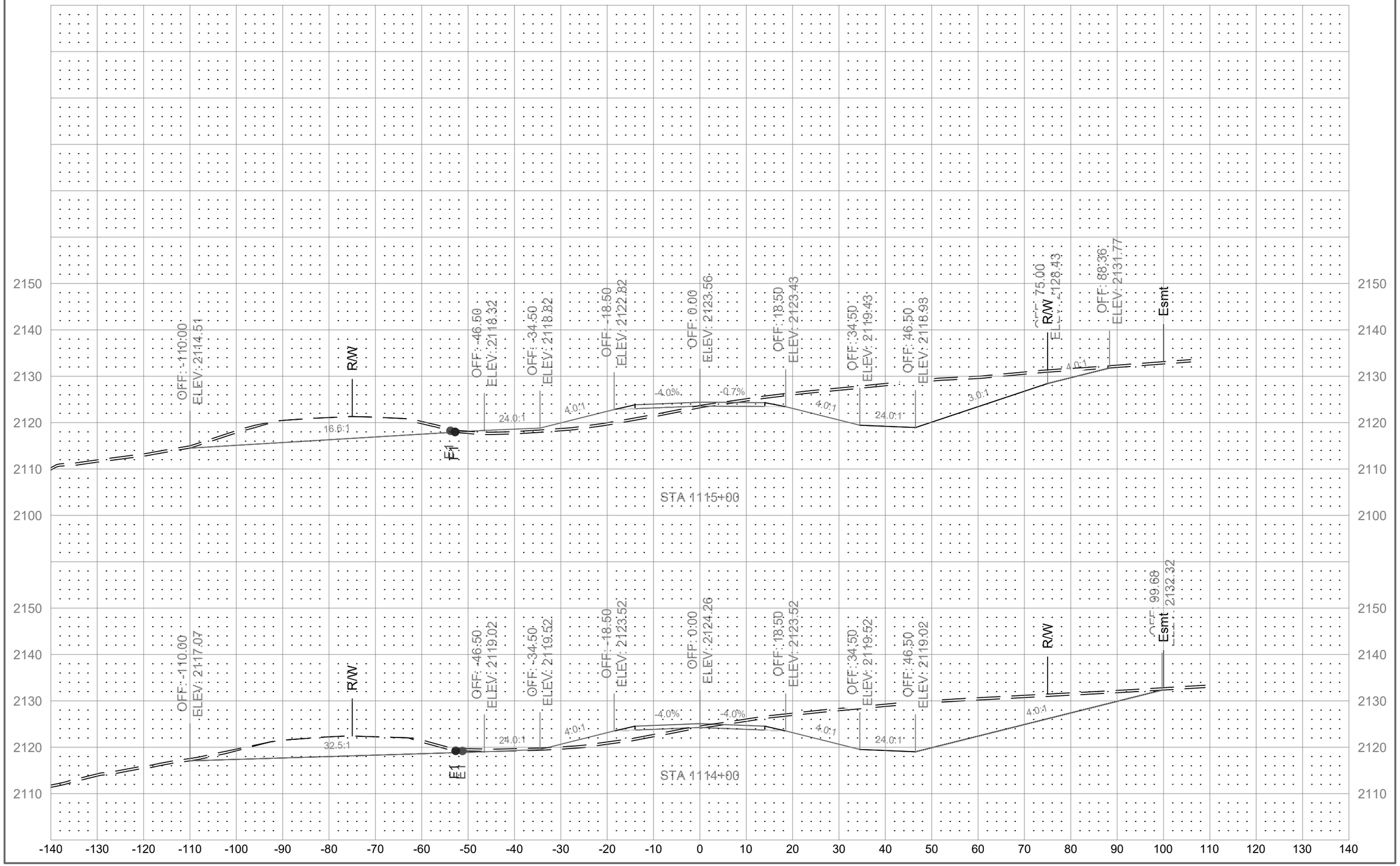
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	126



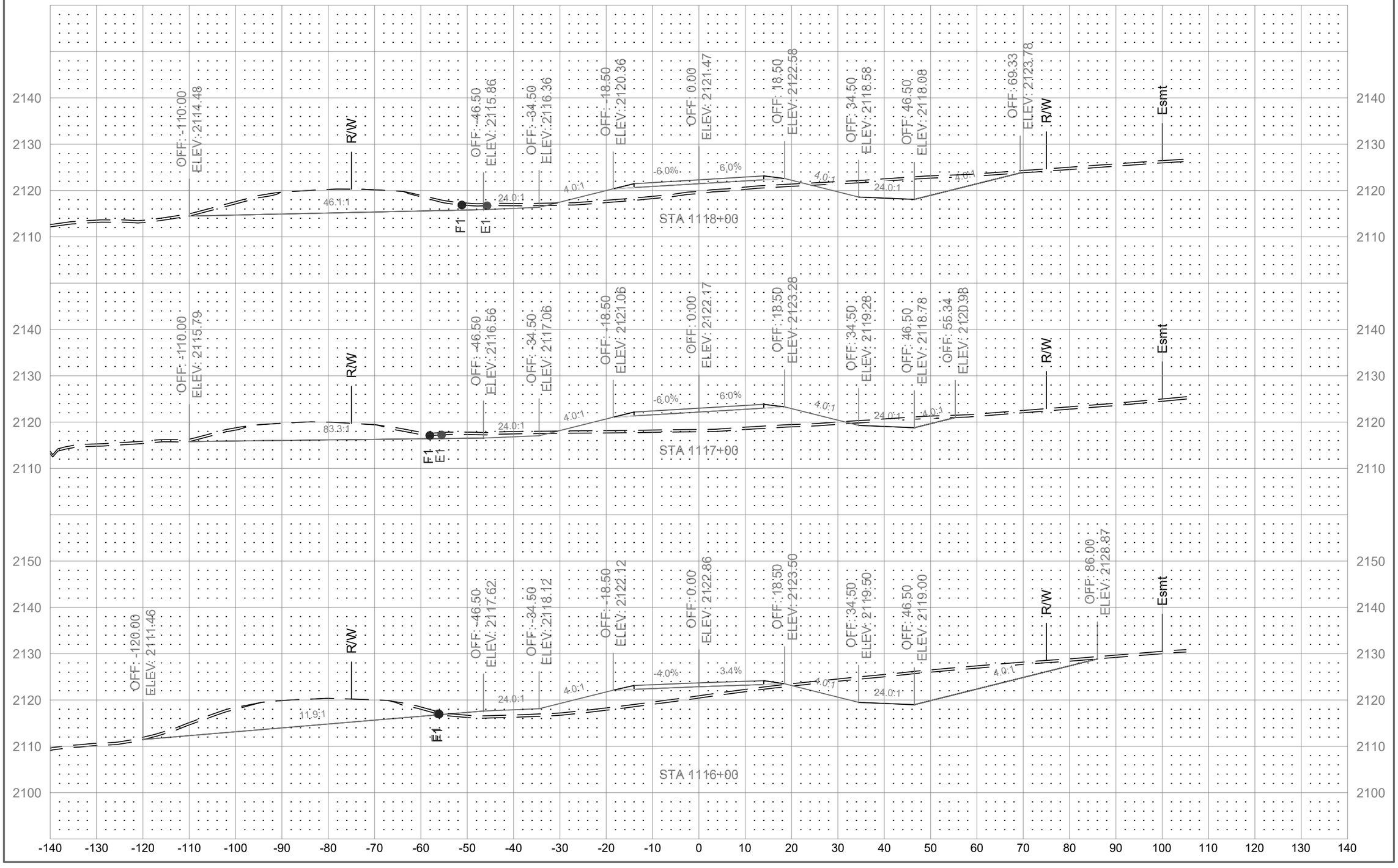
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	127



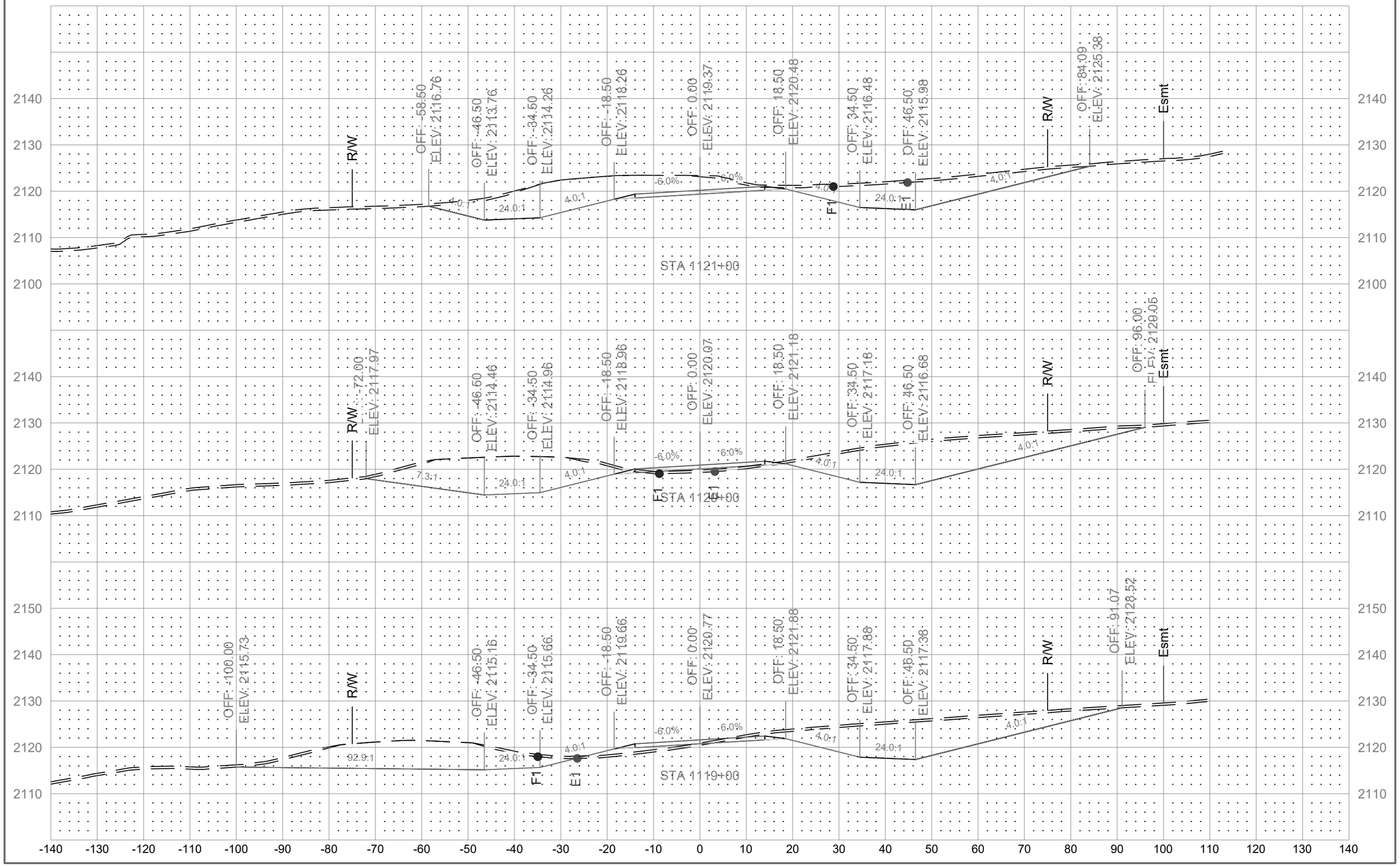
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	128



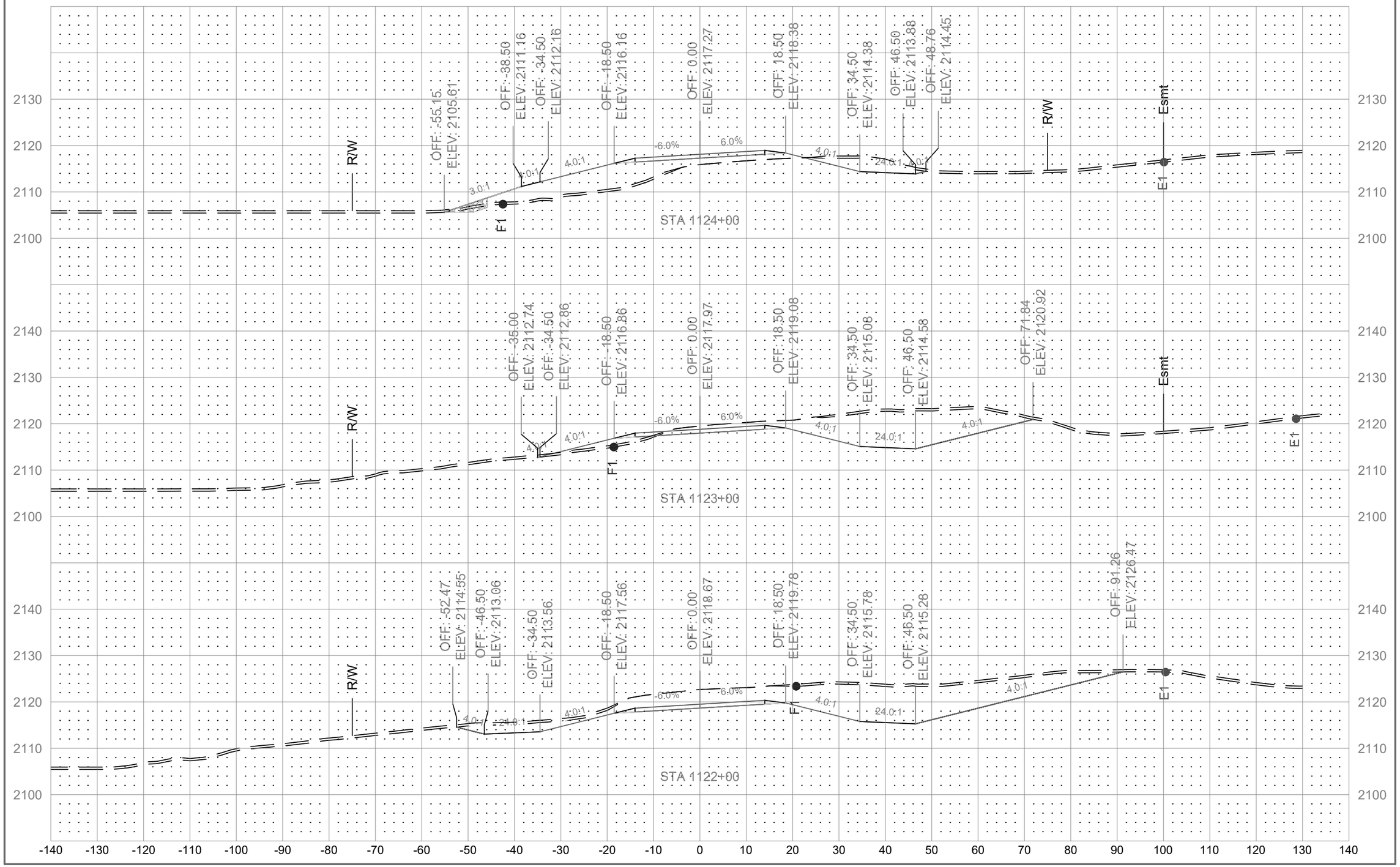
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	129



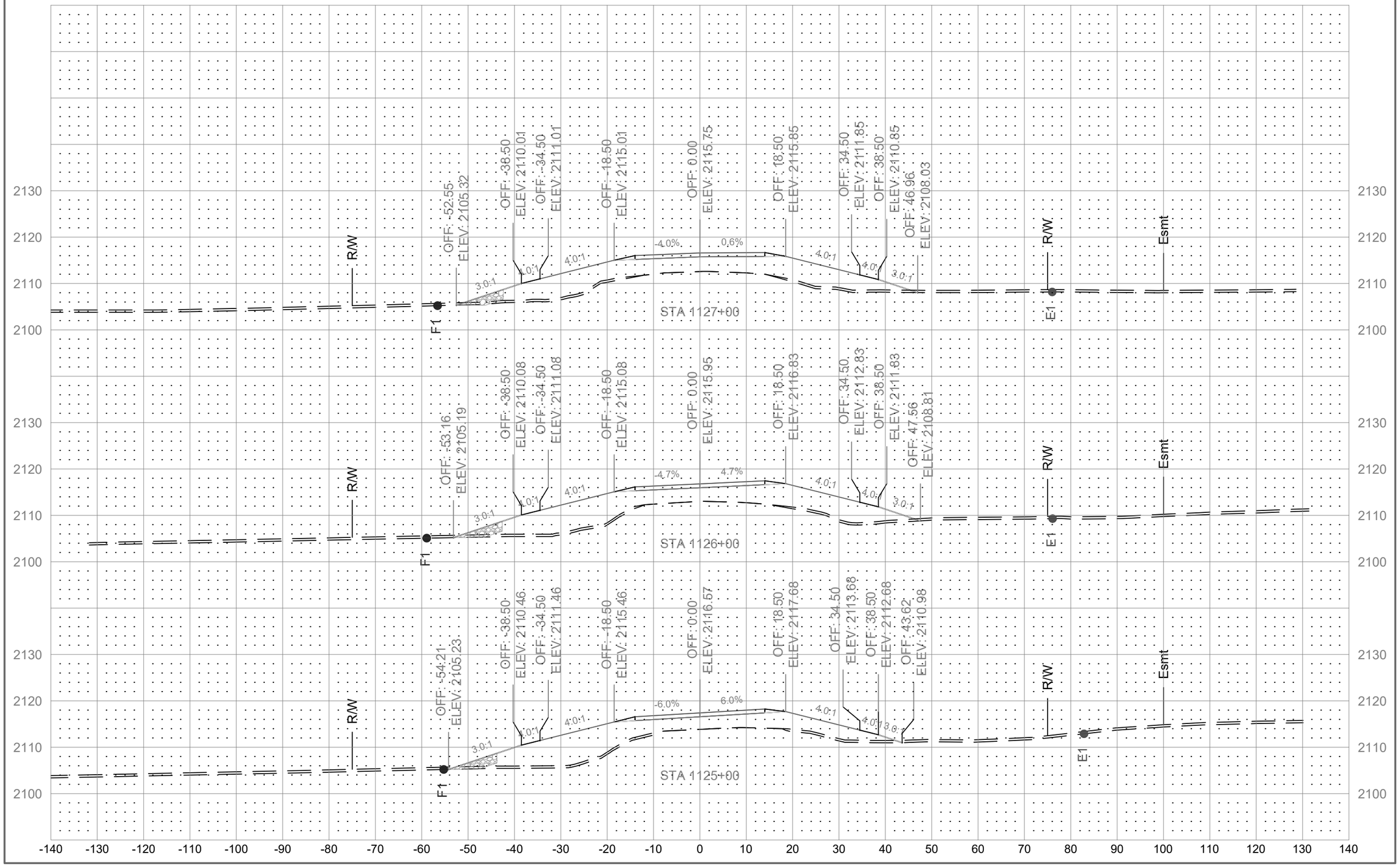
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	130



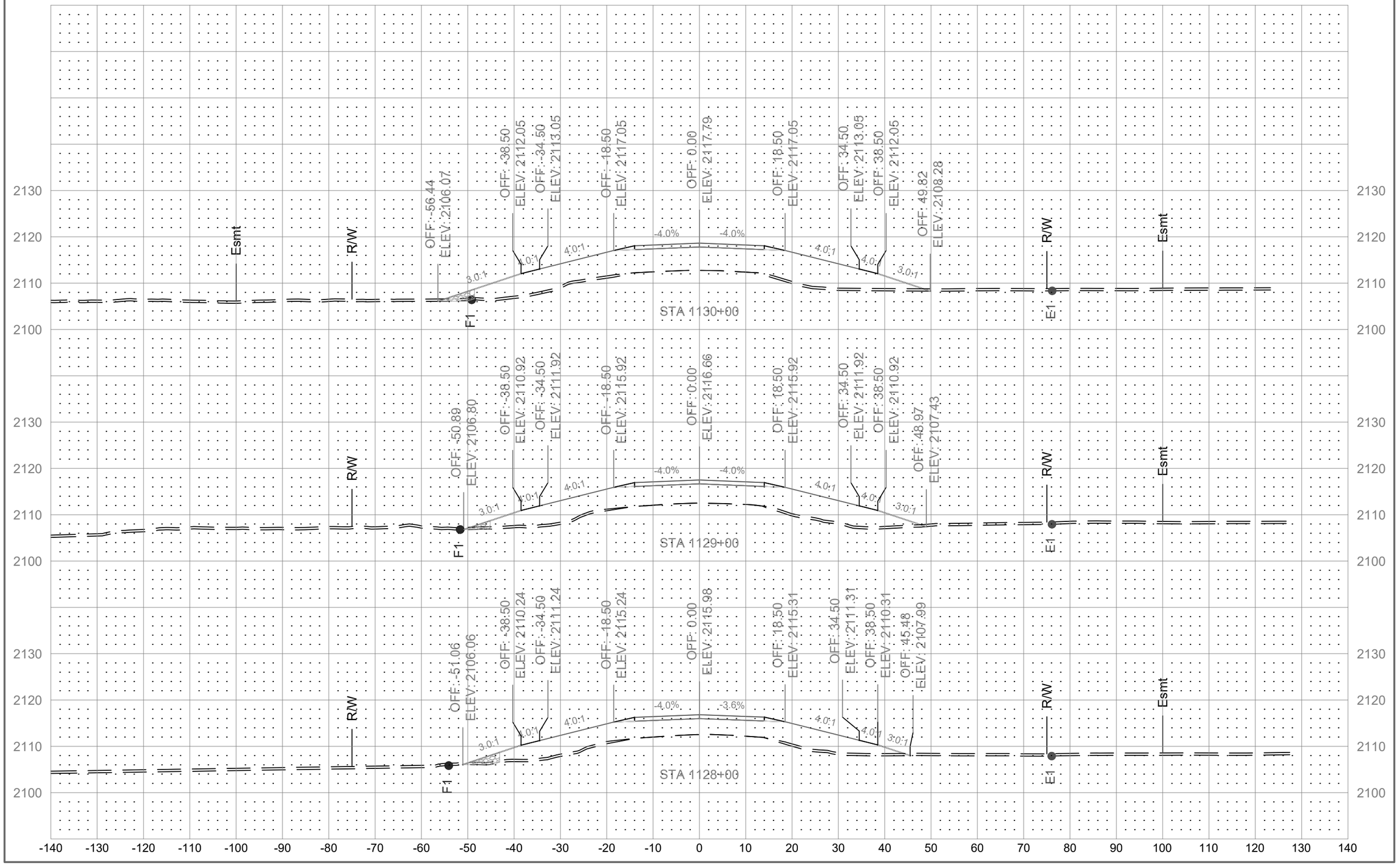
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	131



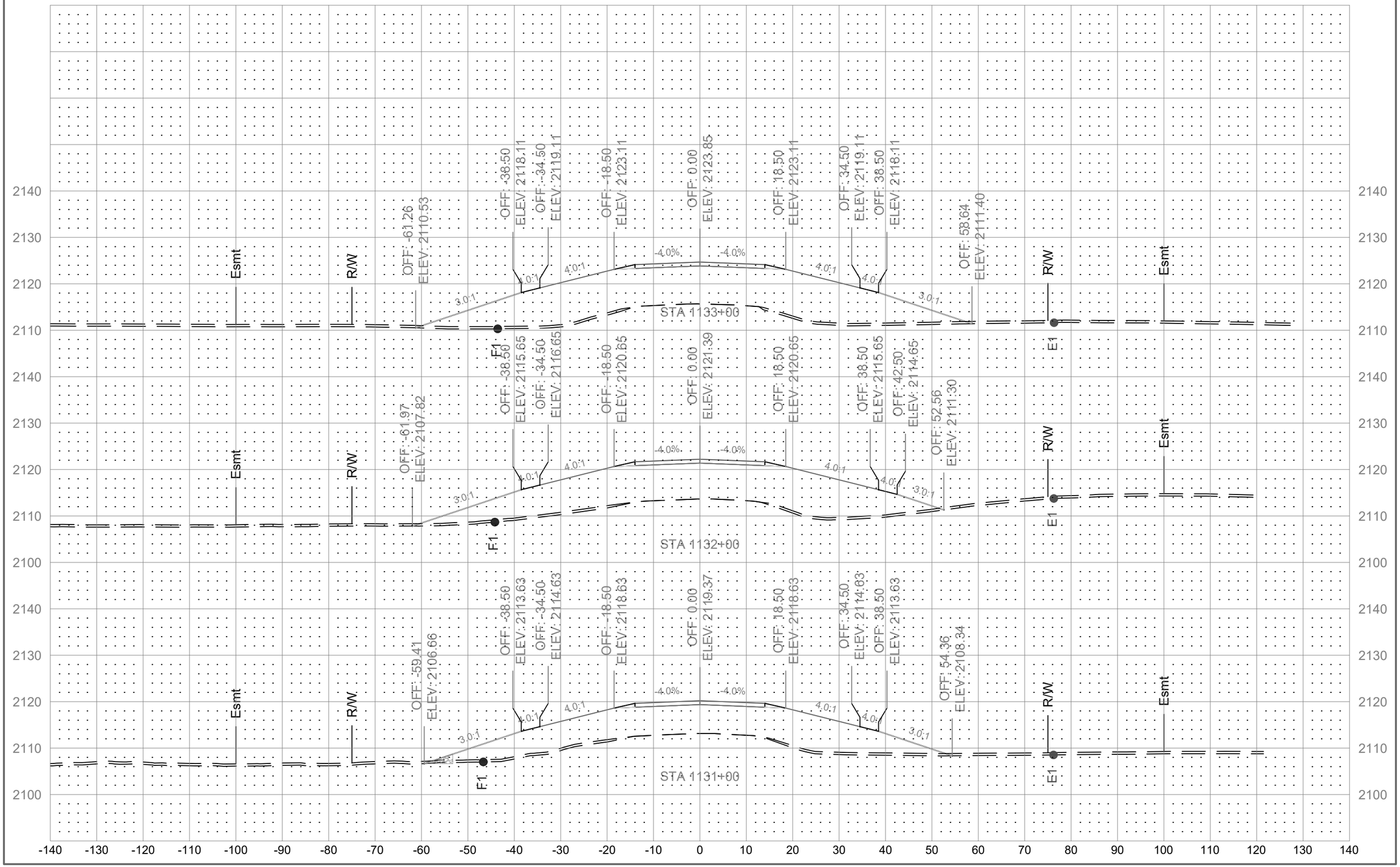
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	132



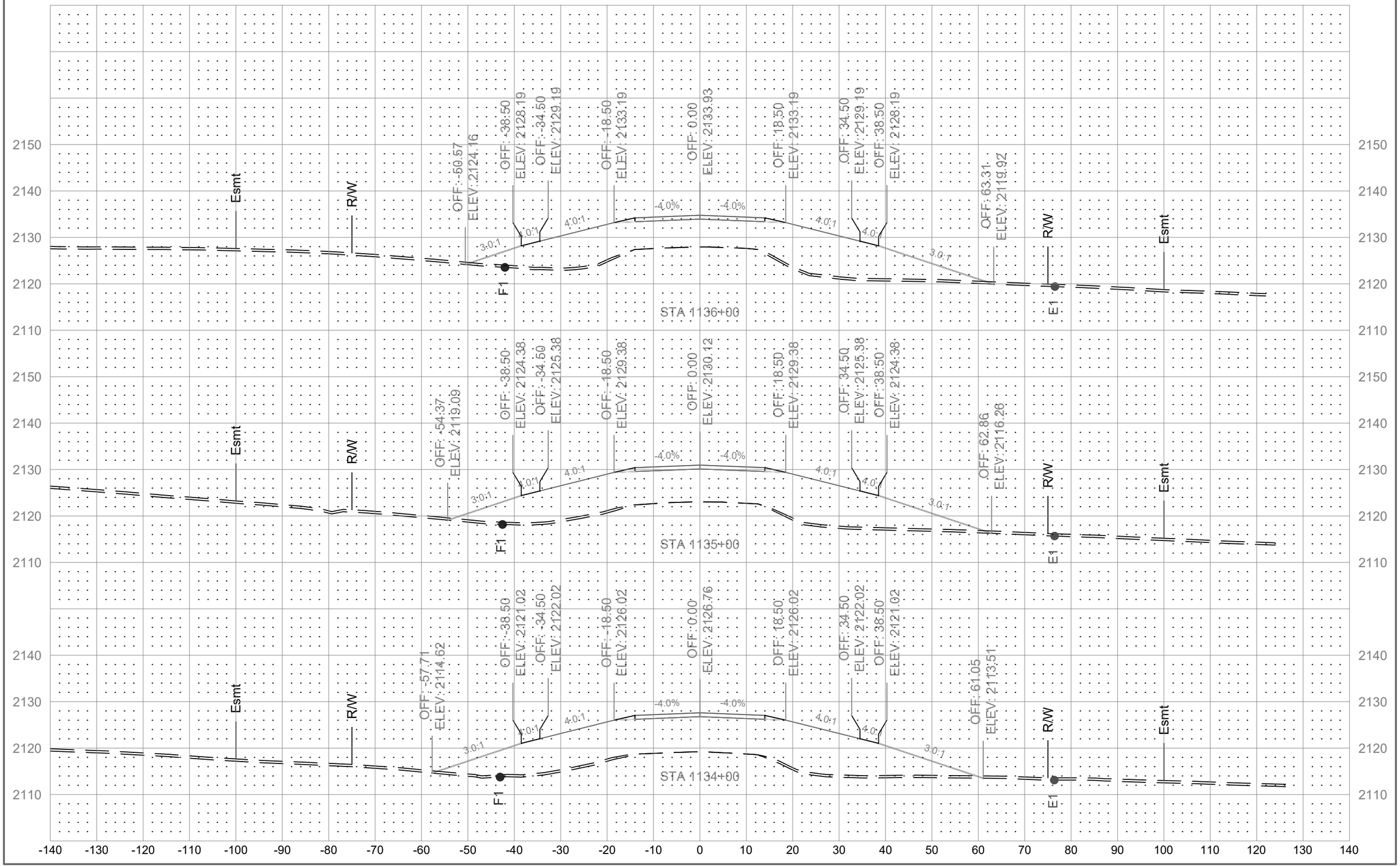
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	133



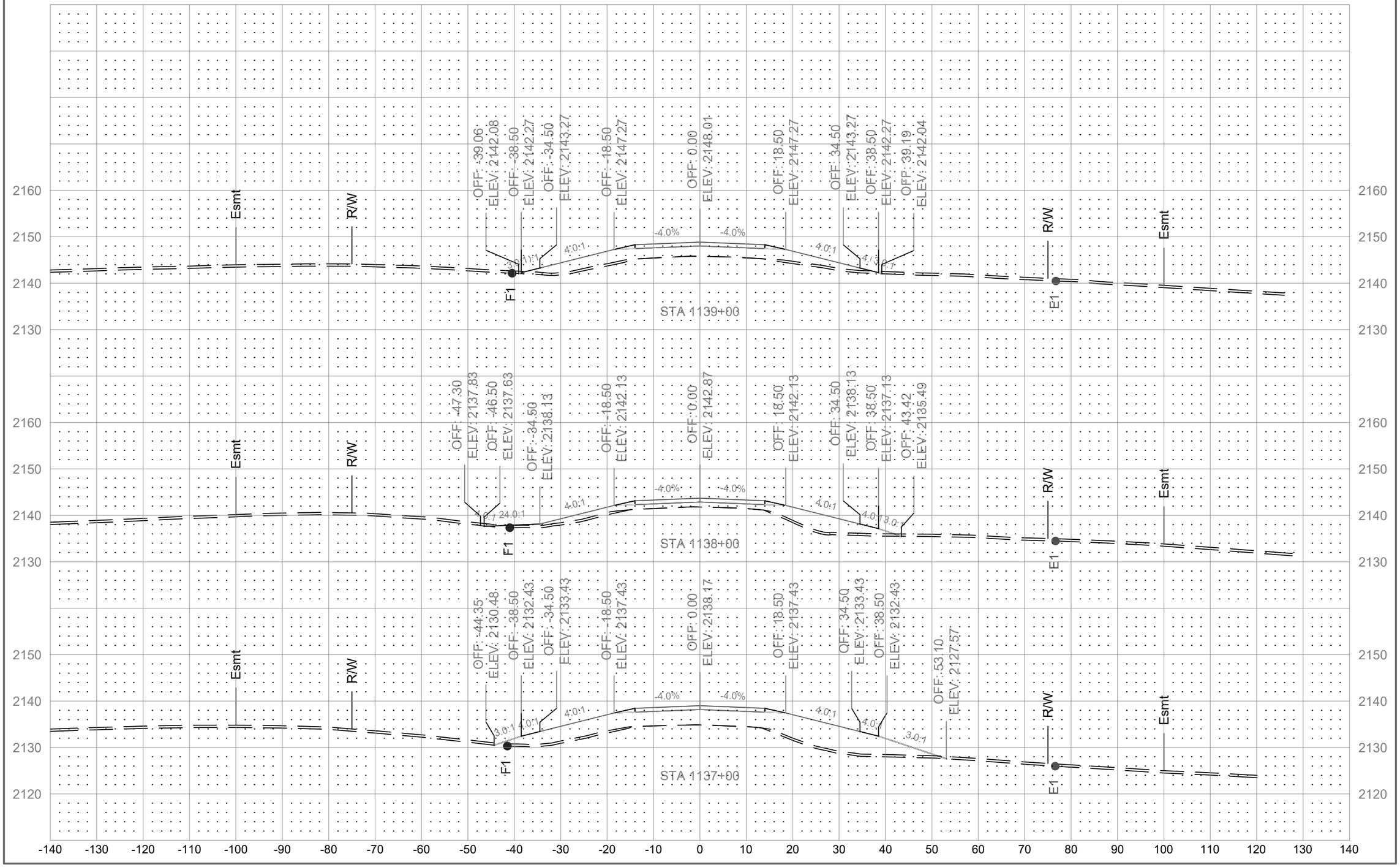
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	134



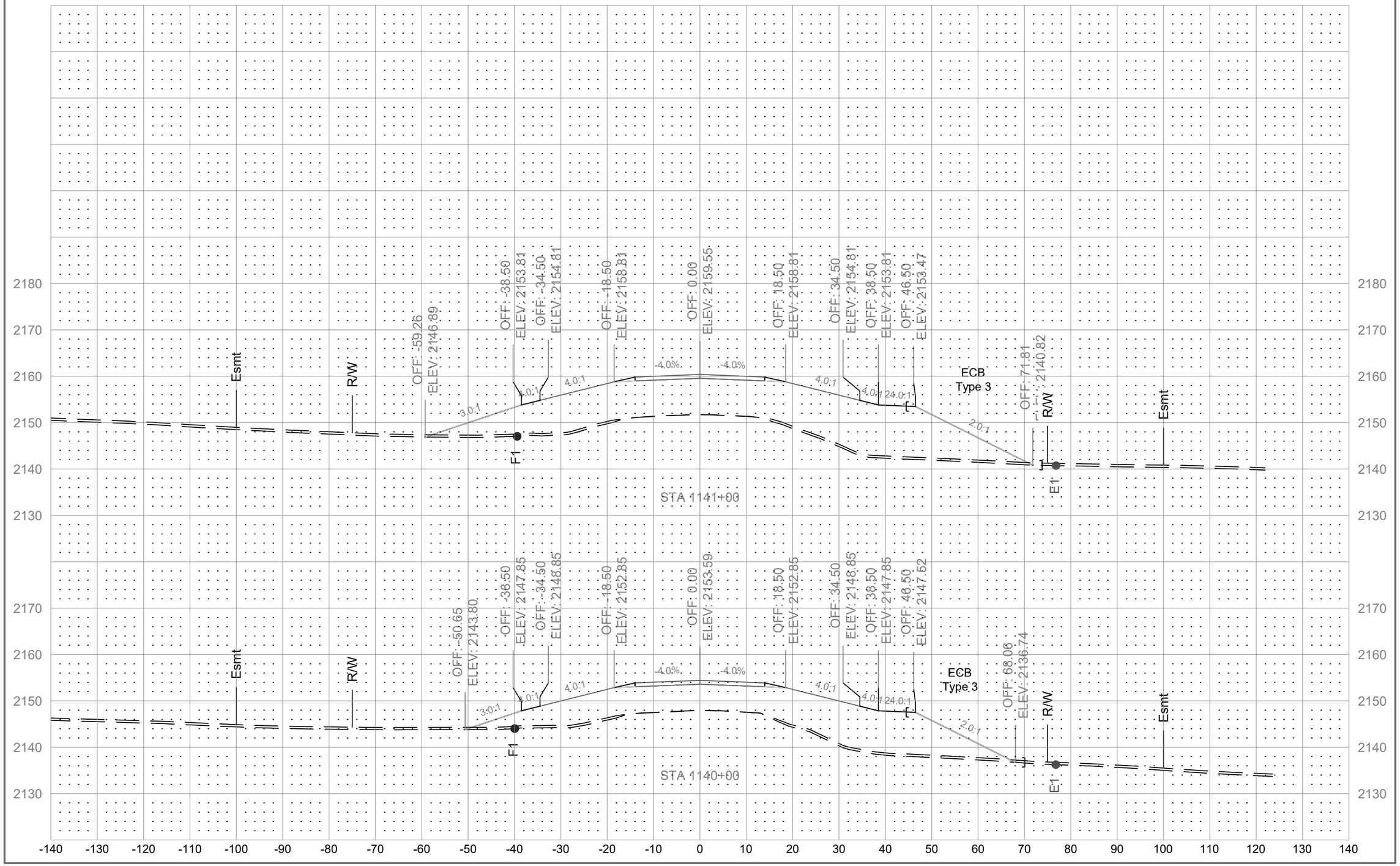
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	135



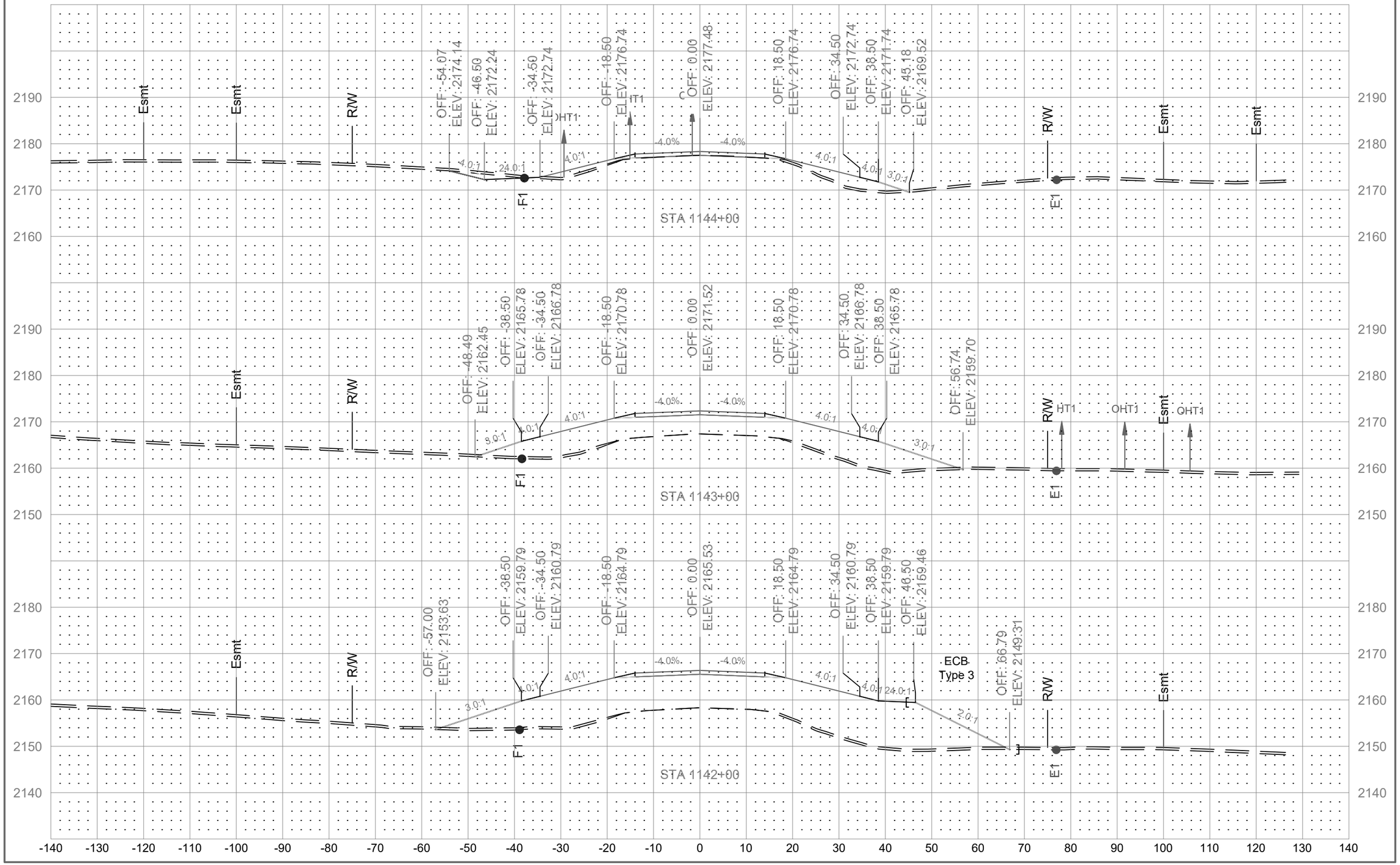
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	136



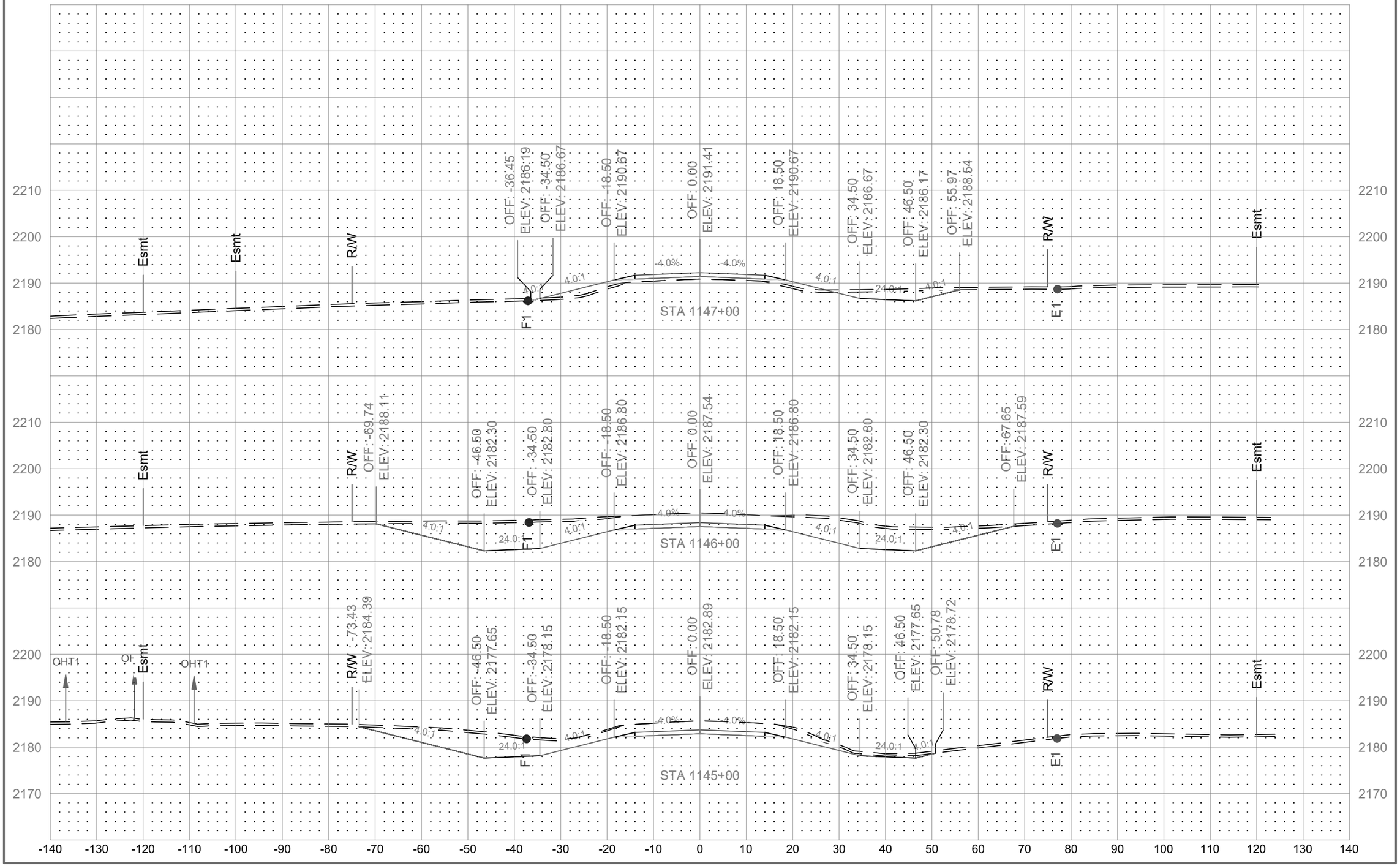
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	137



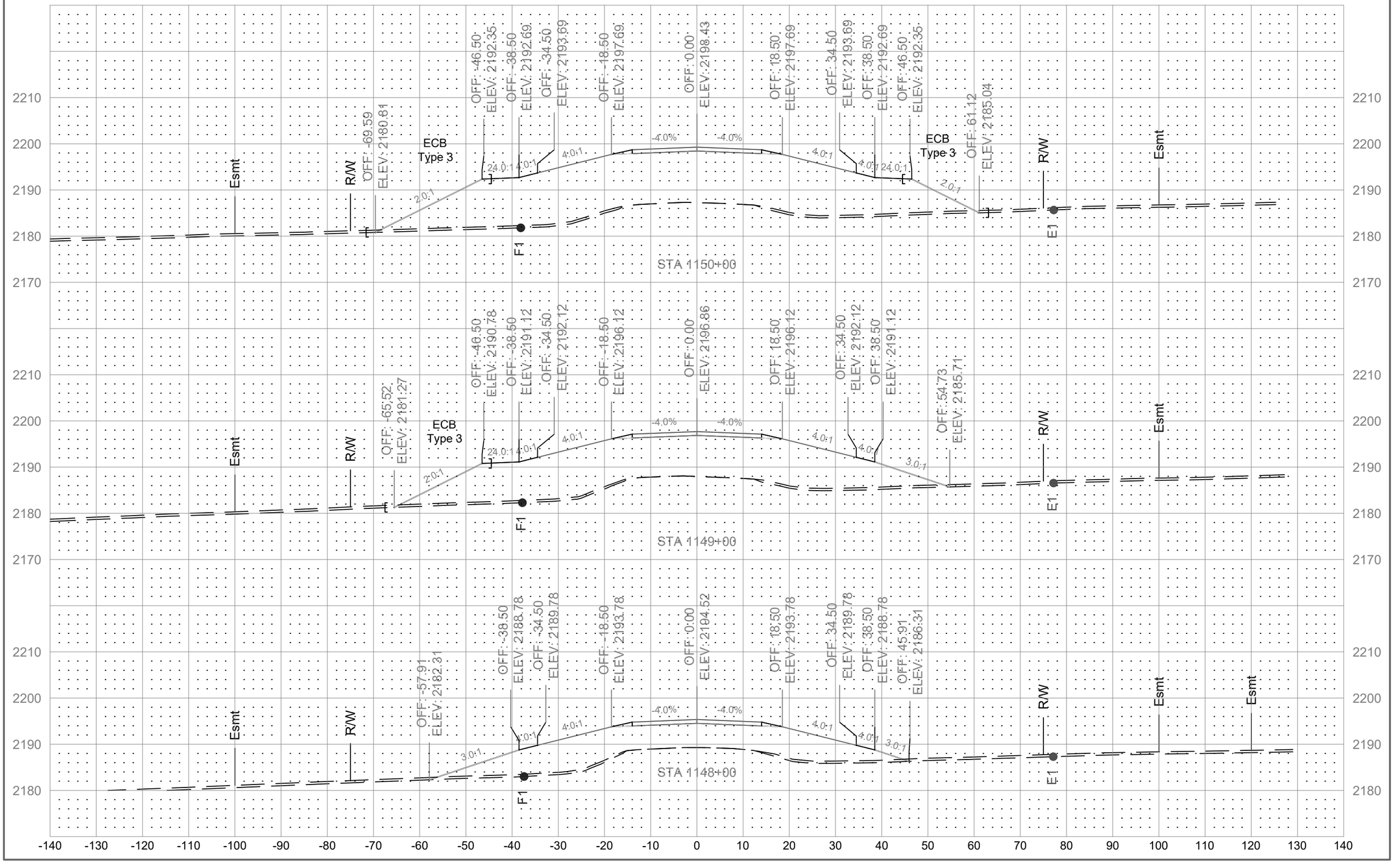
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	138



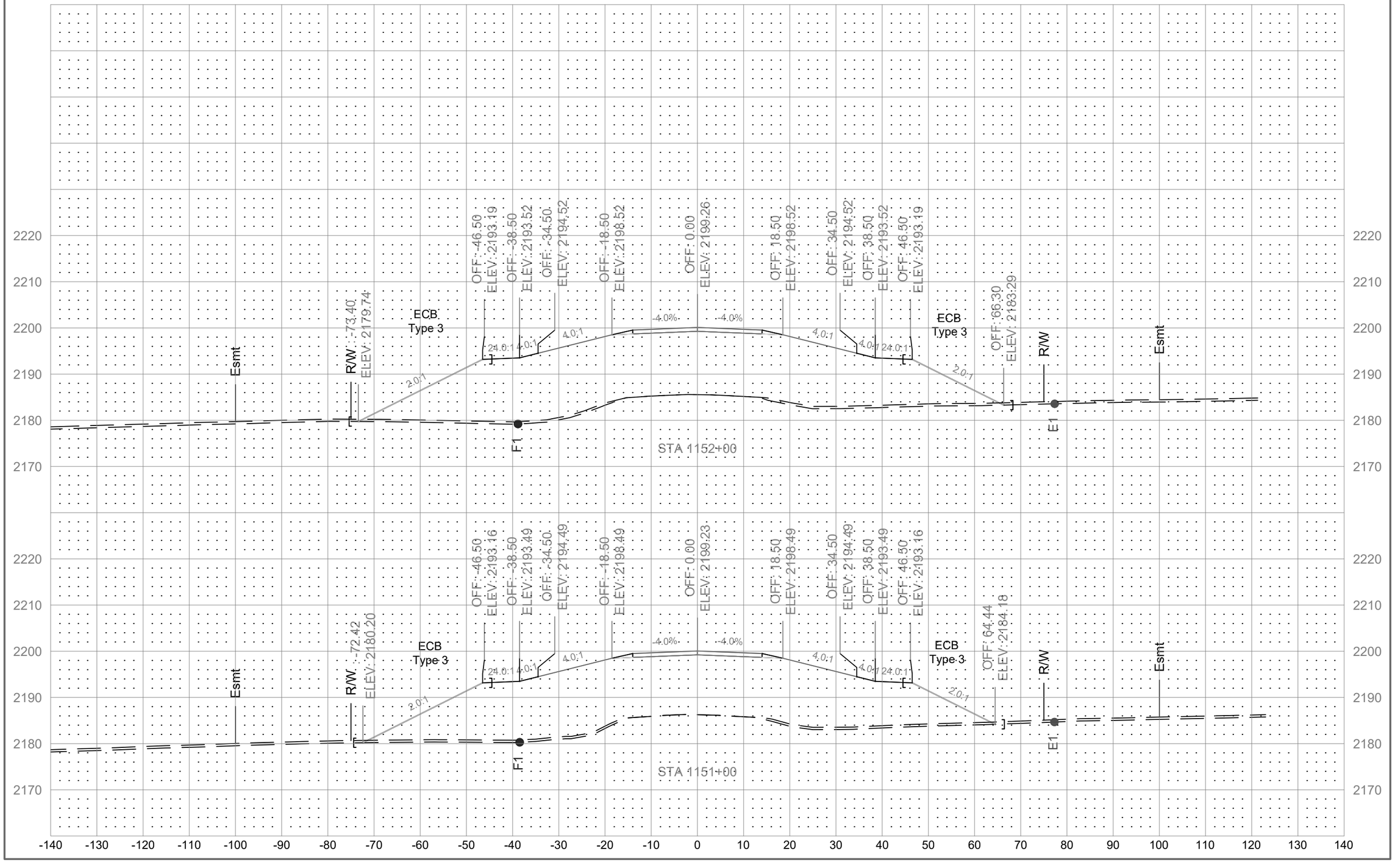
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	139



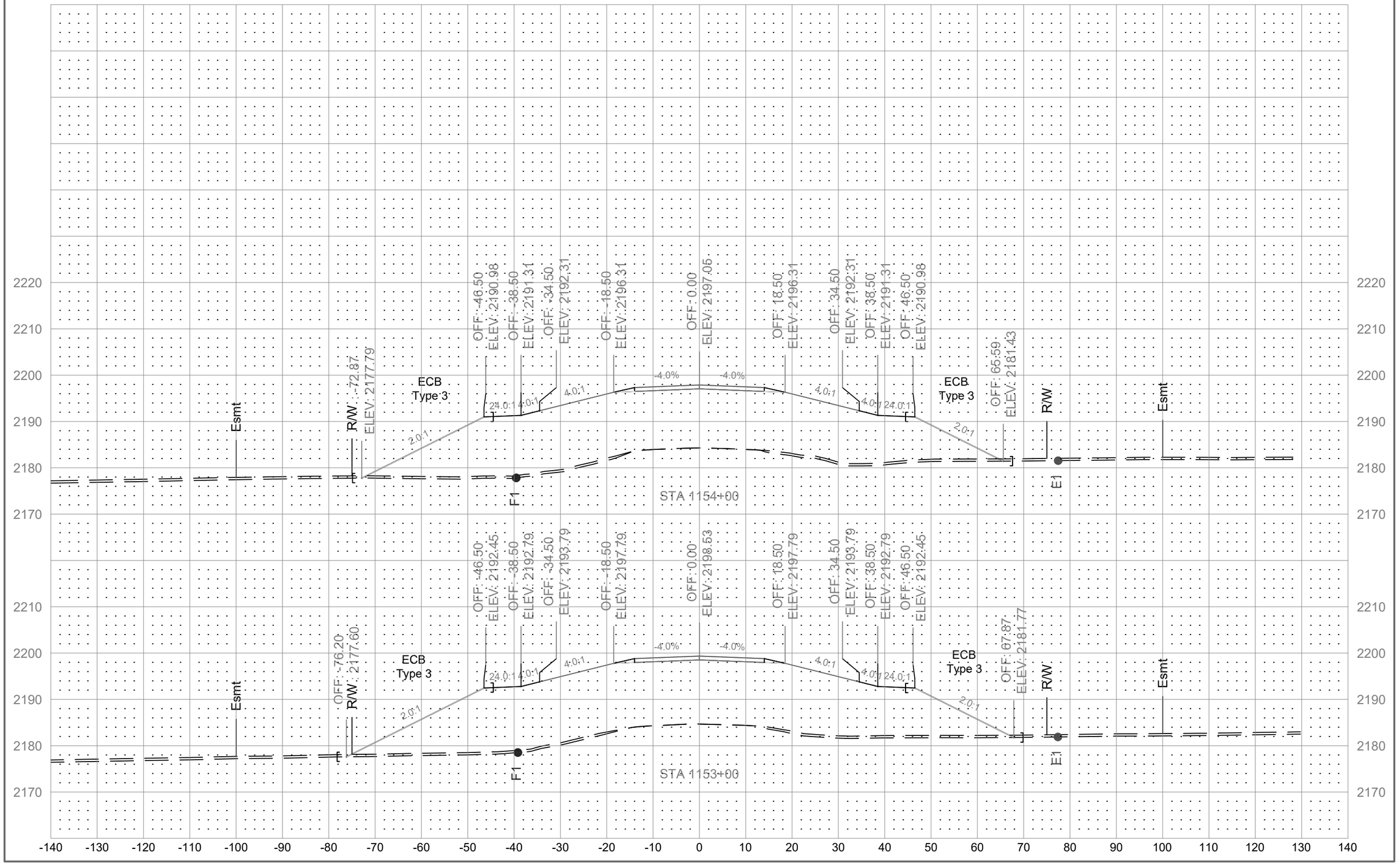
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	140



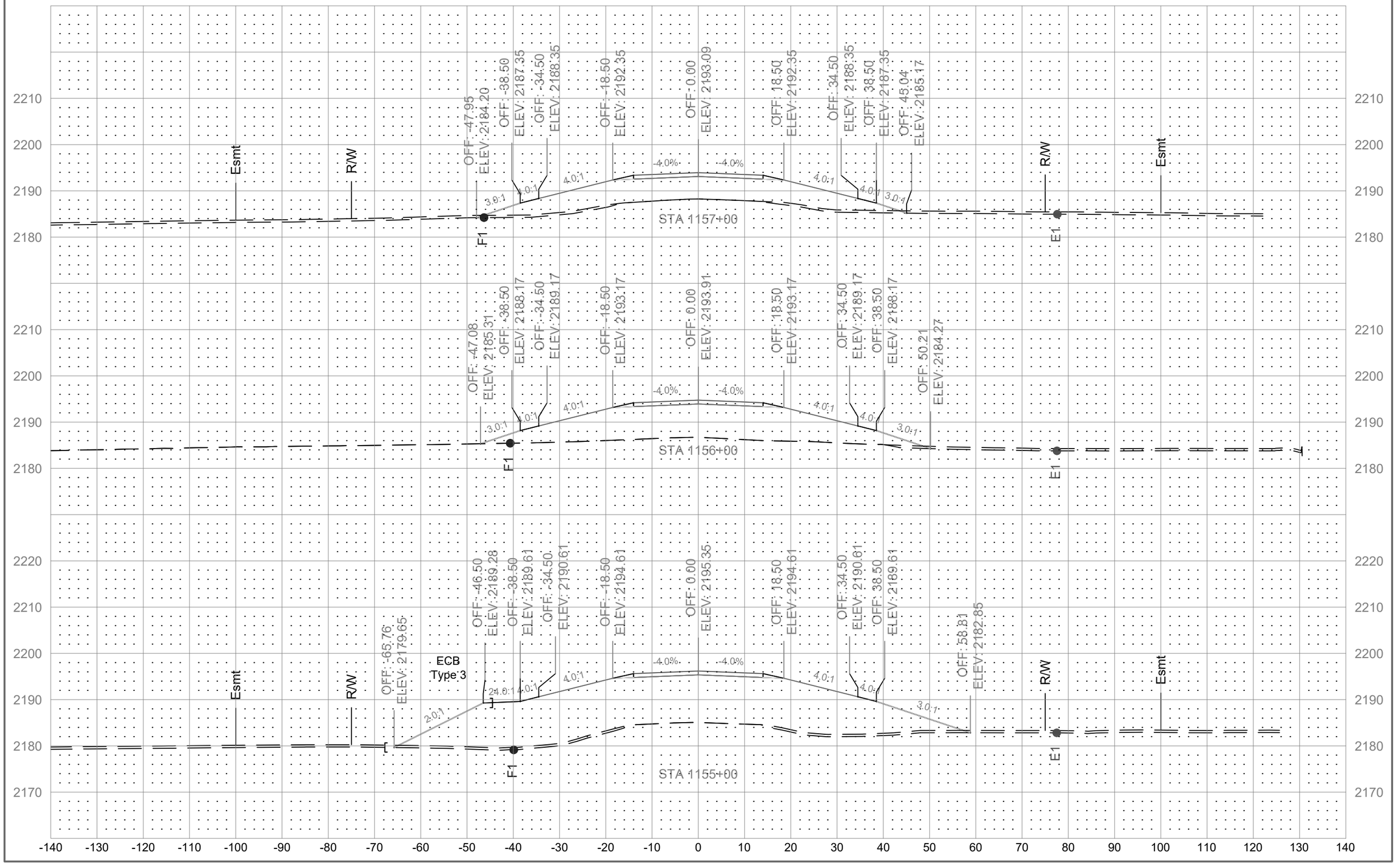
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	141



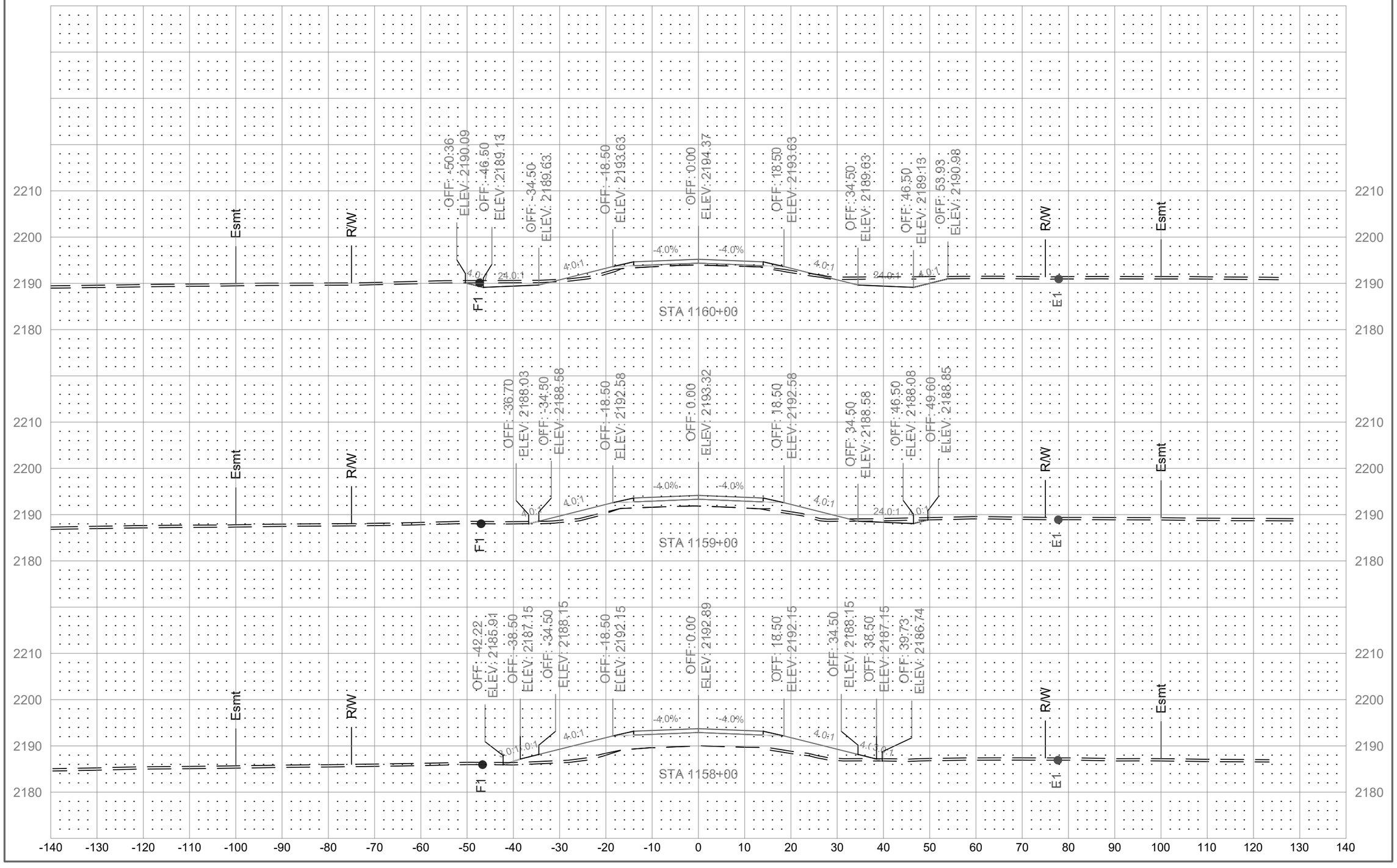
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	142



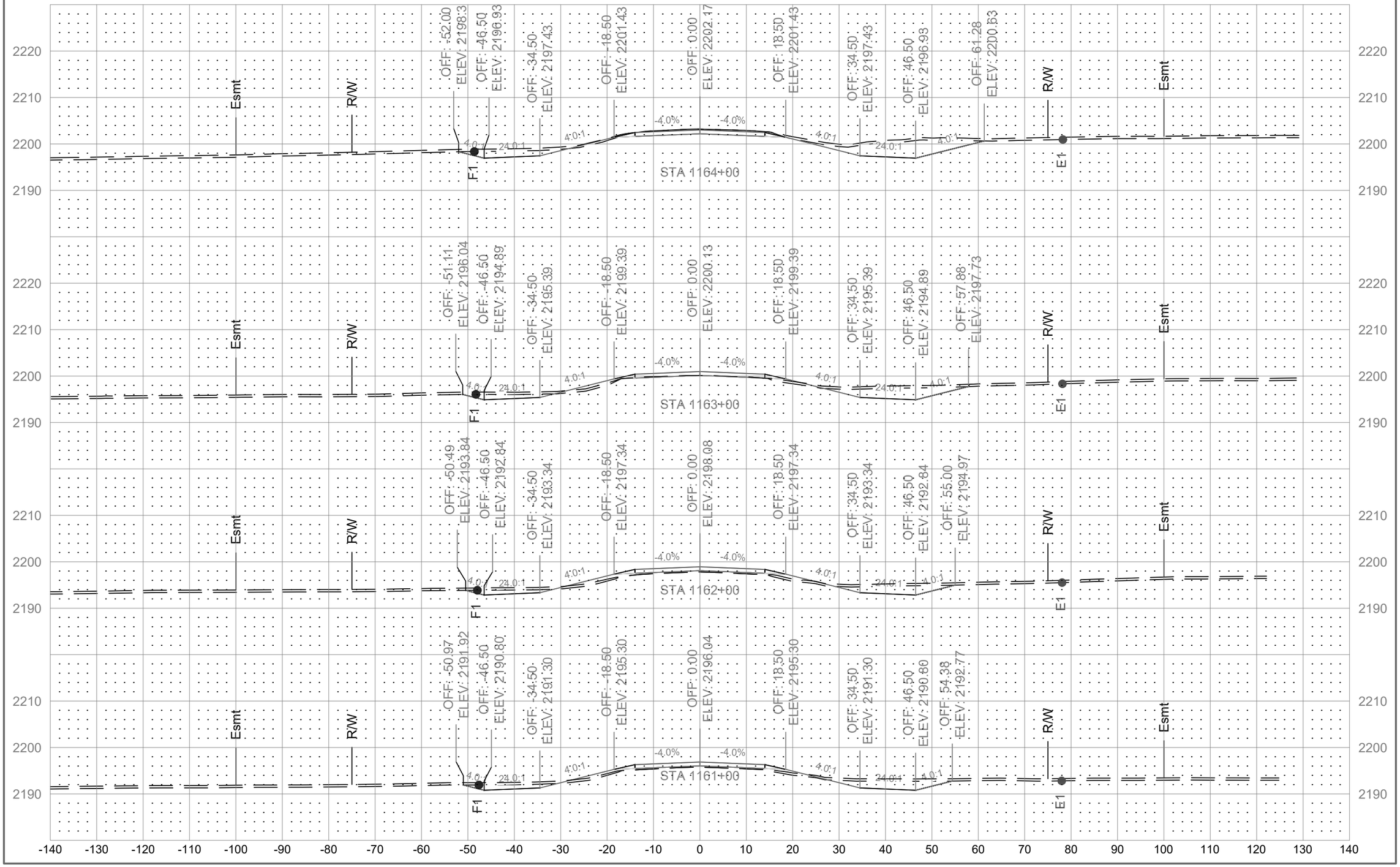
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	143



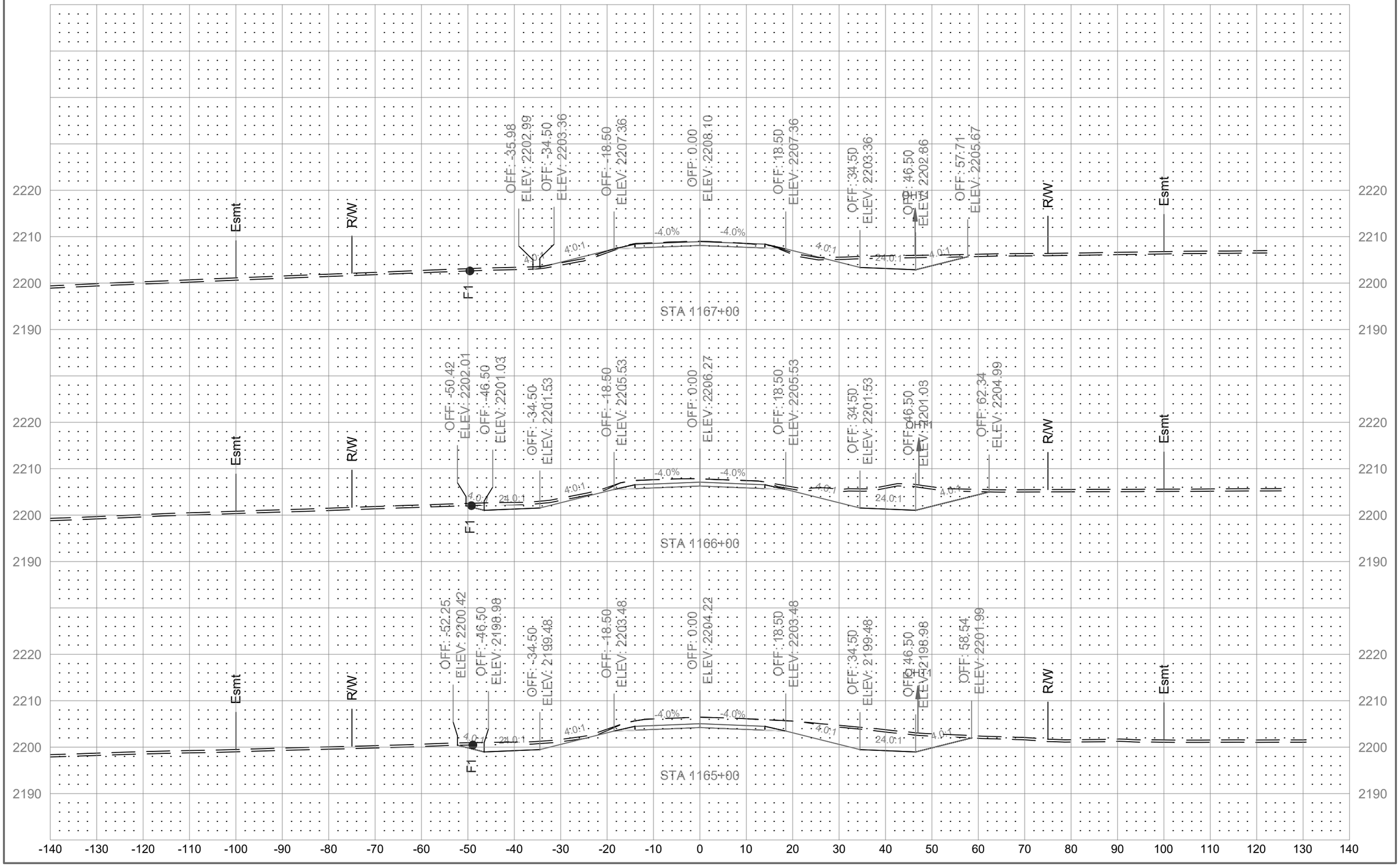
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	144



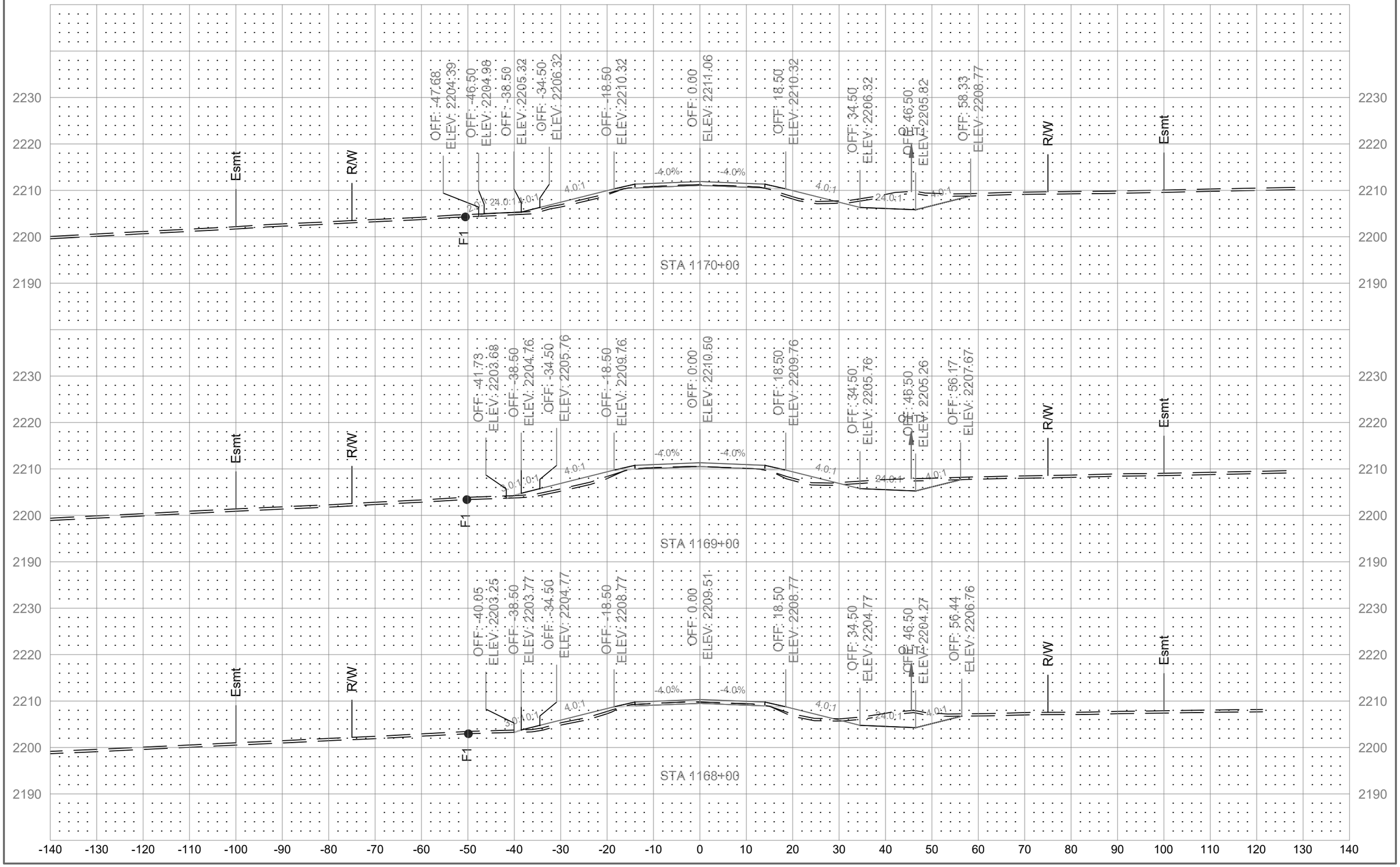
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	145



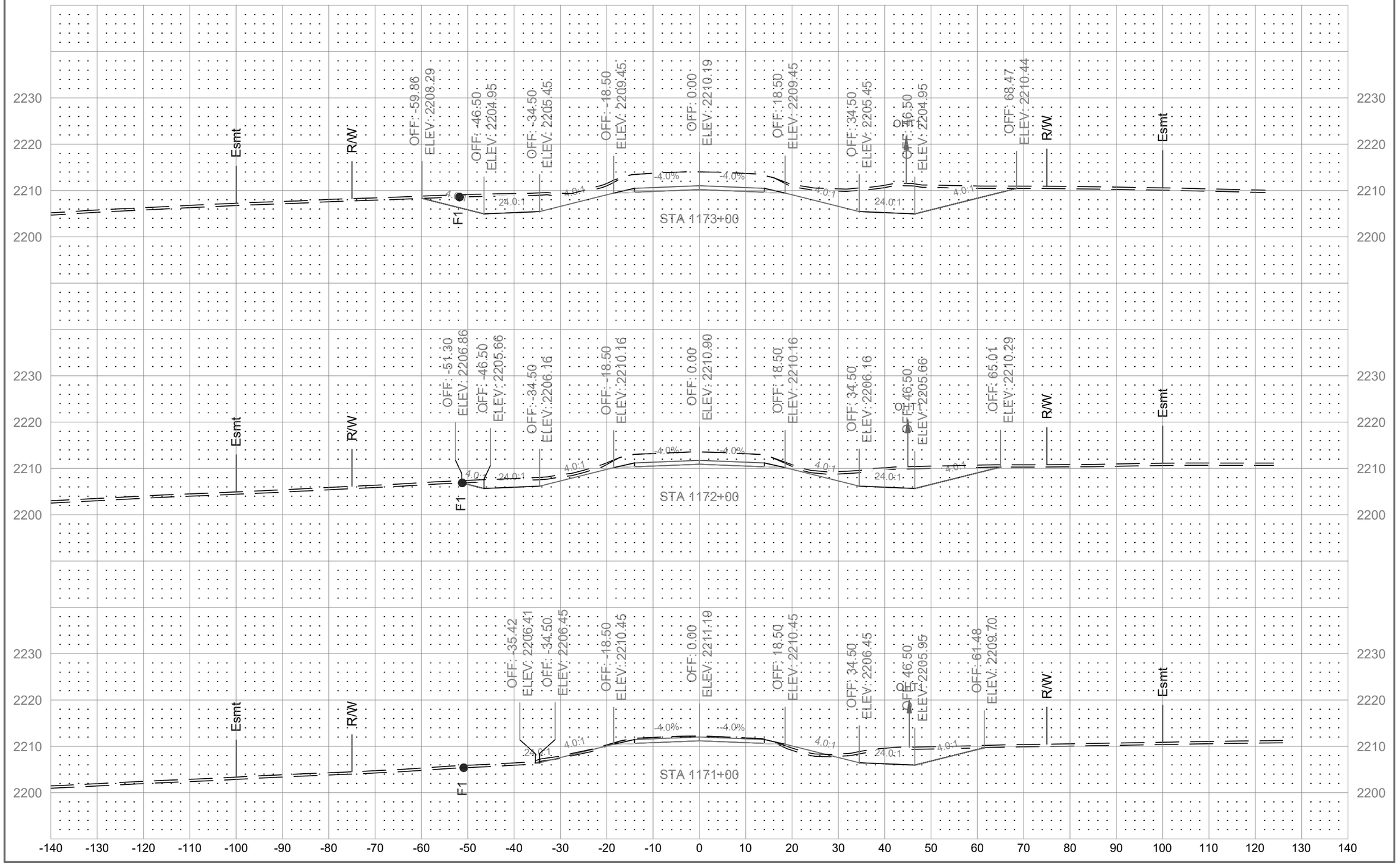
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	146



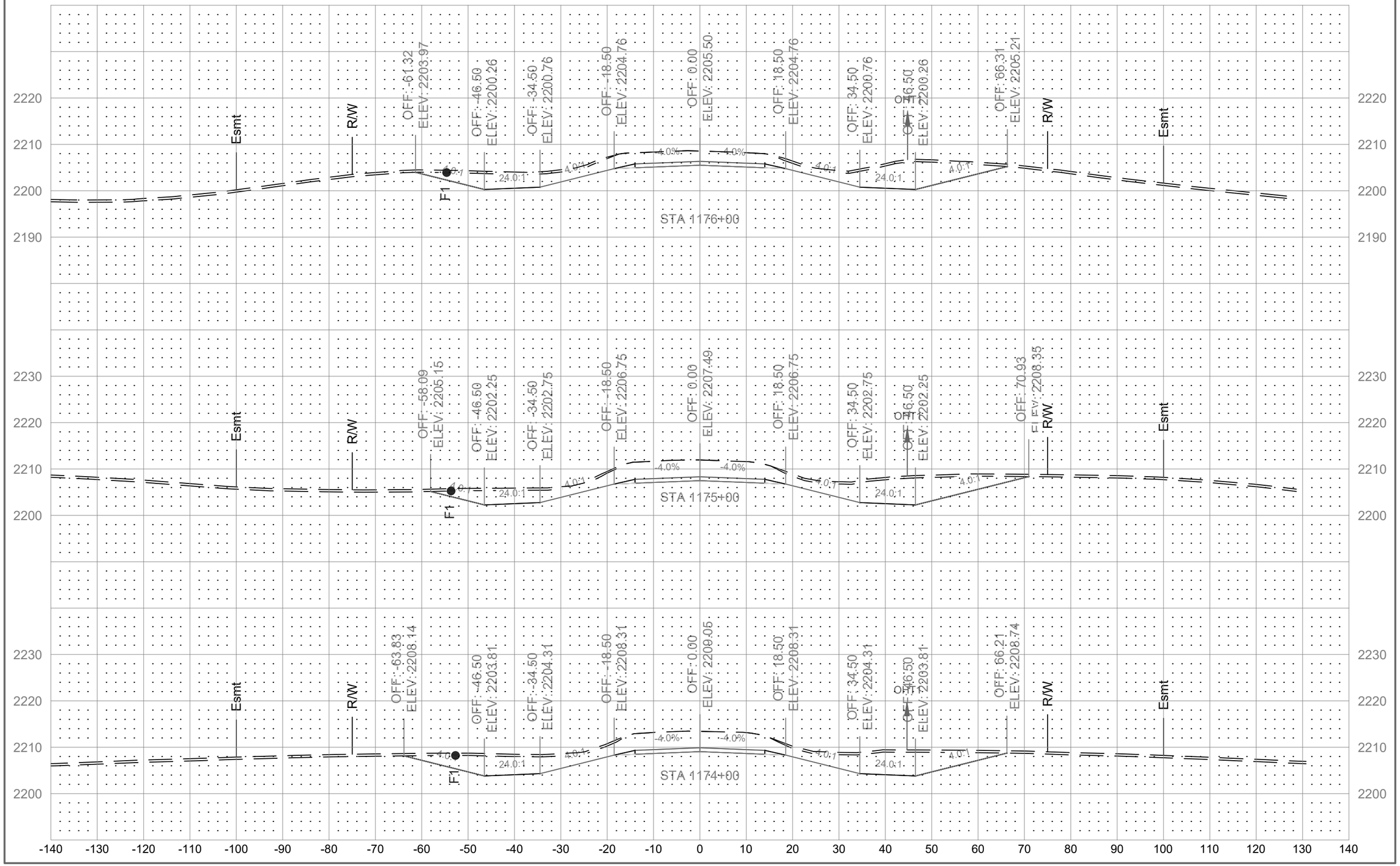
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	147



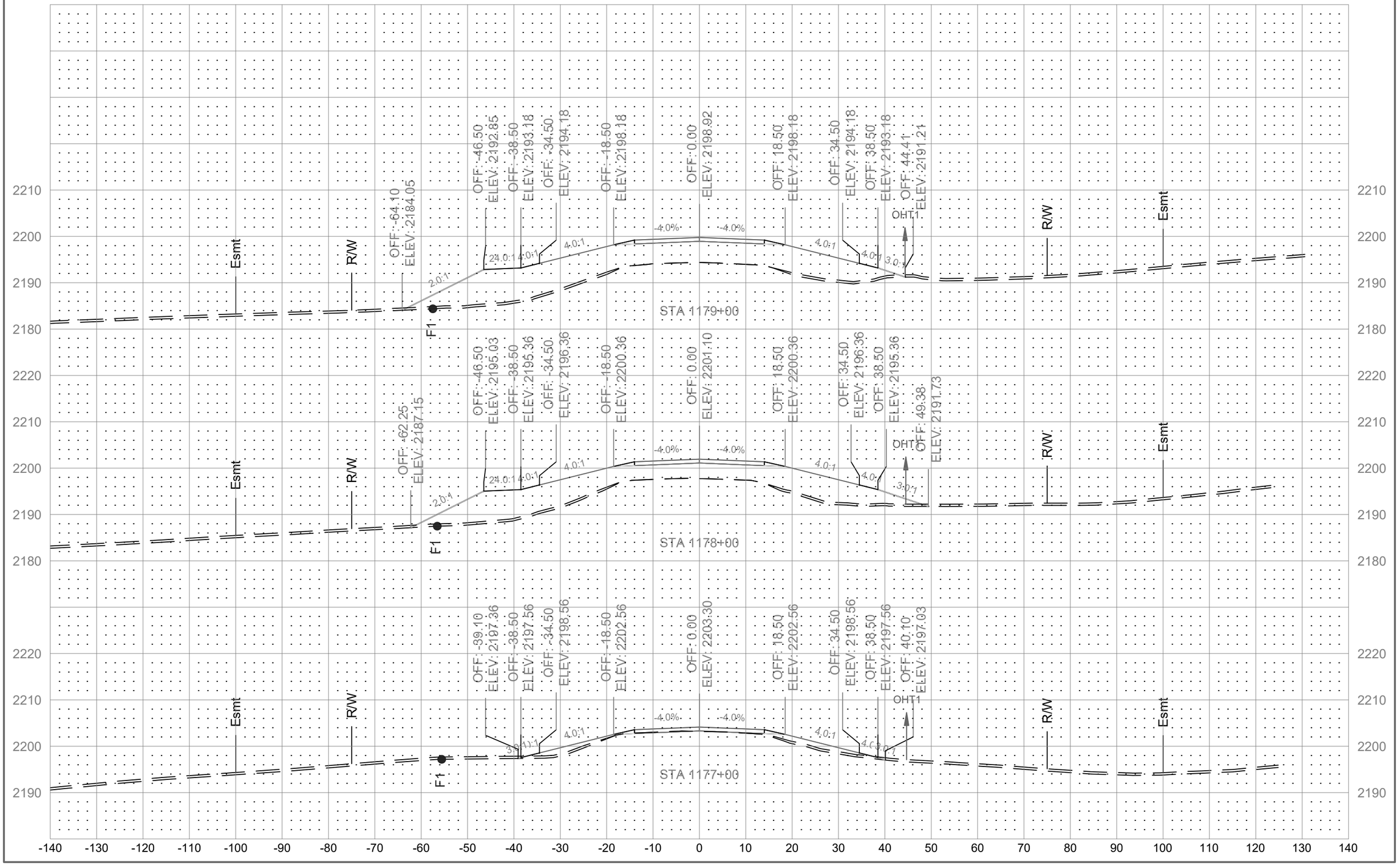
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	148



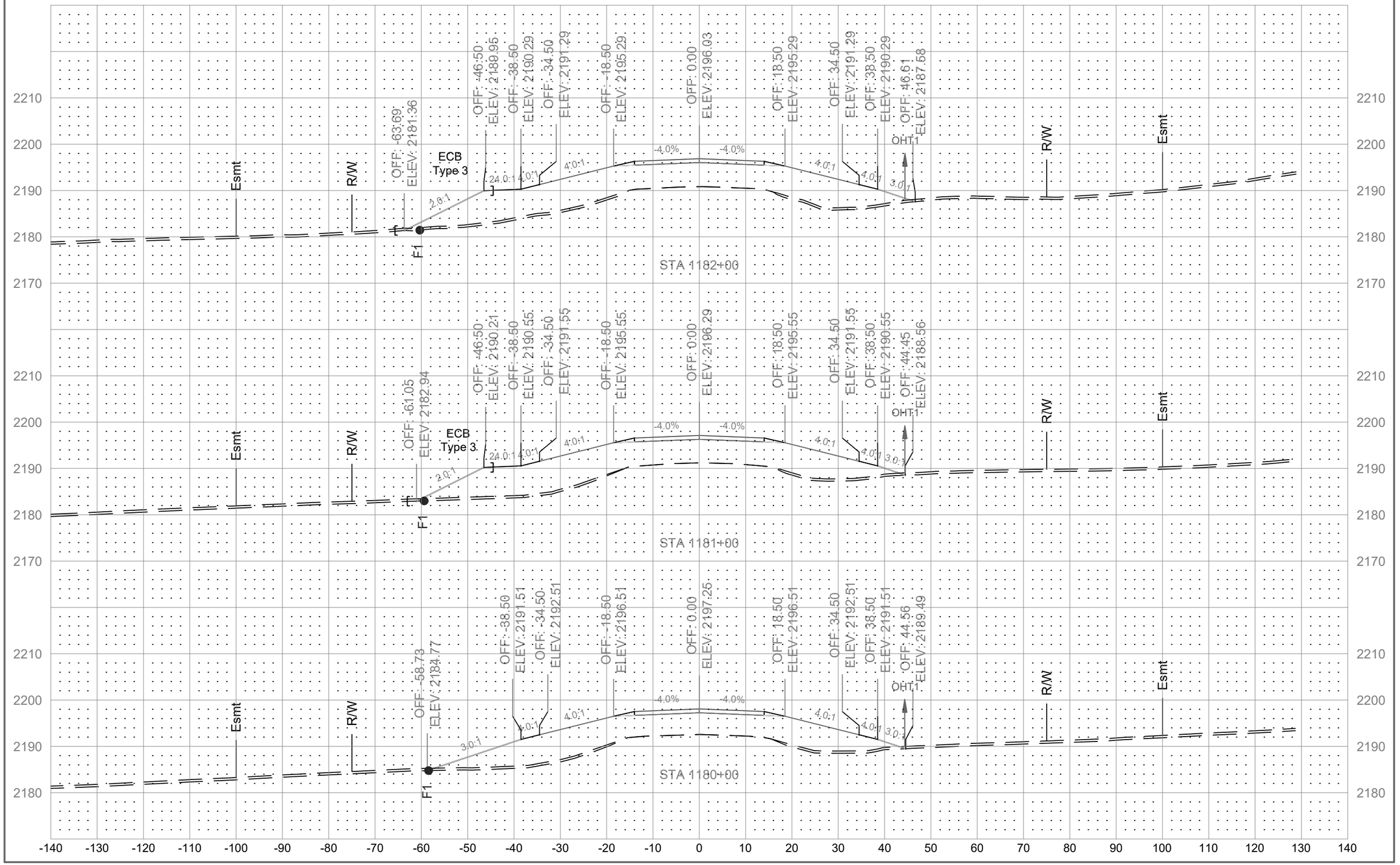
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	149



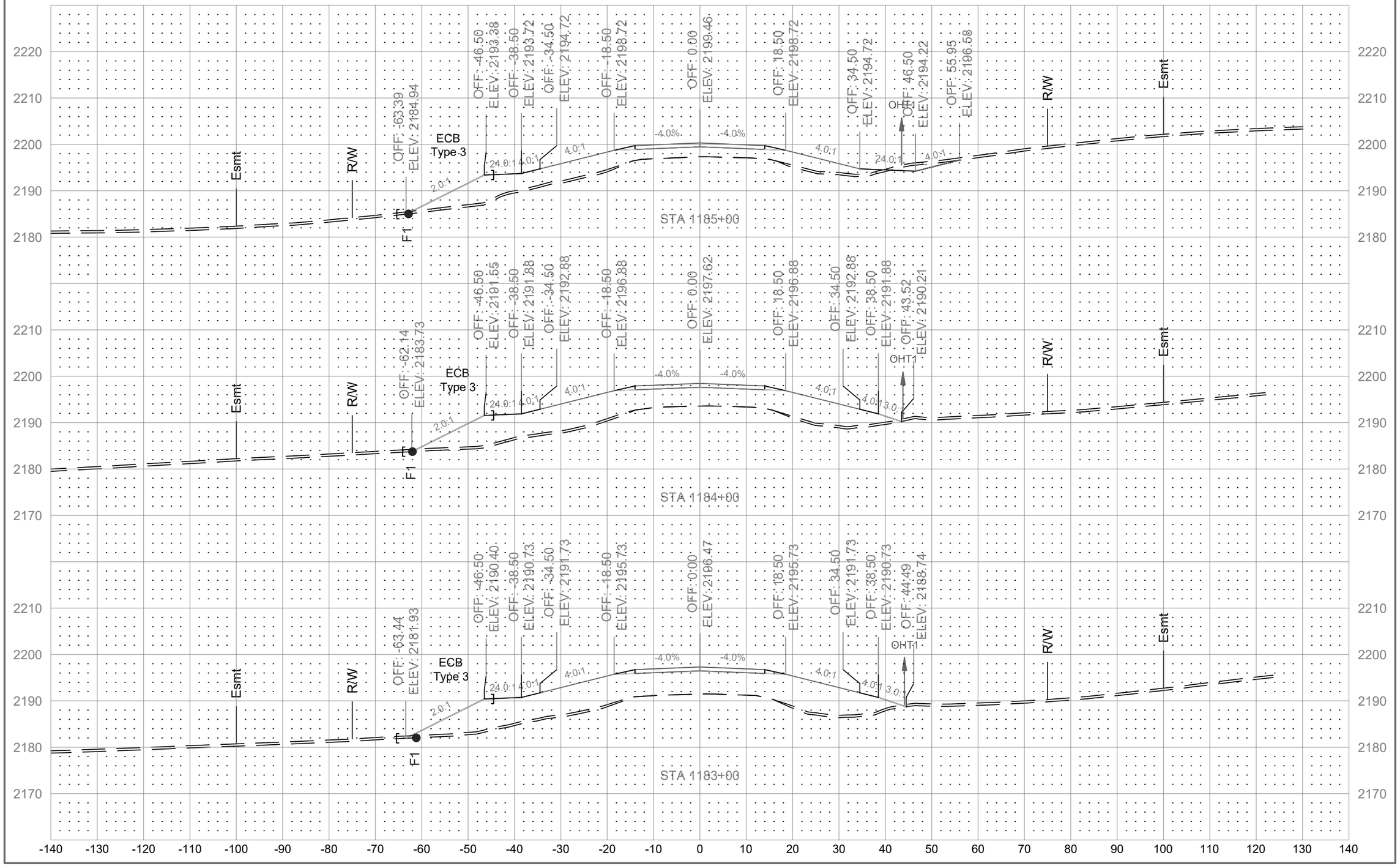
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	150



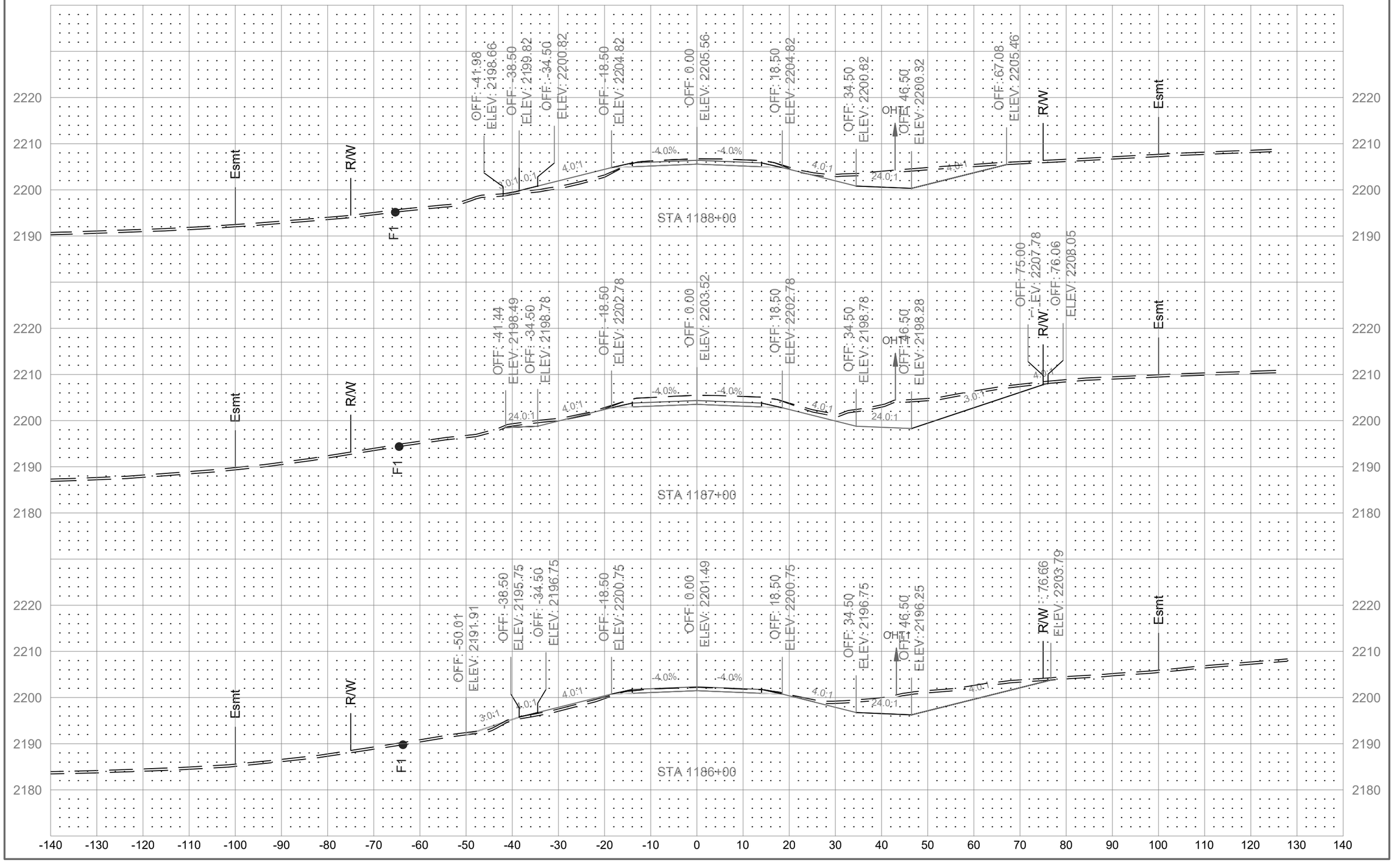
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	151



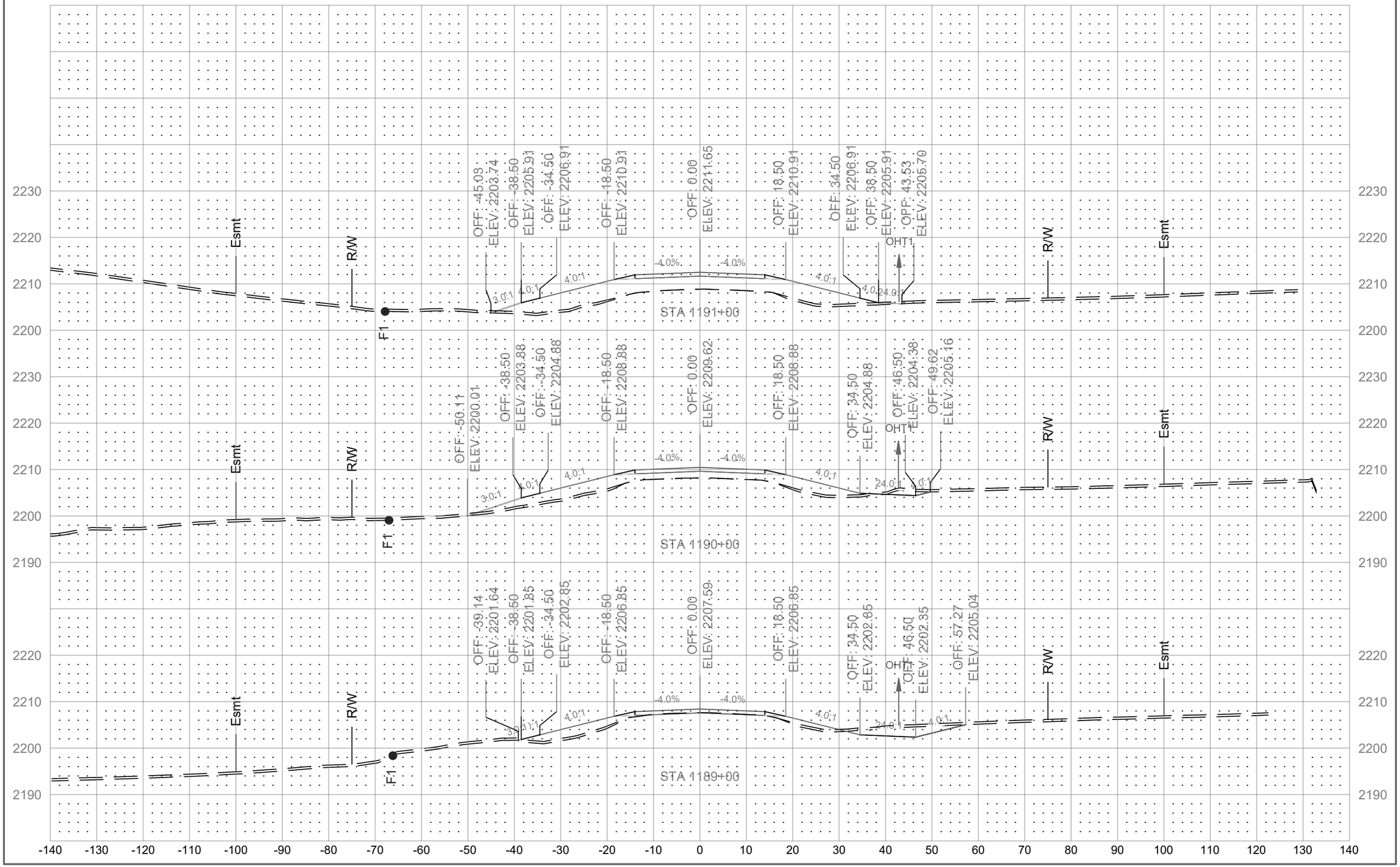
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	152



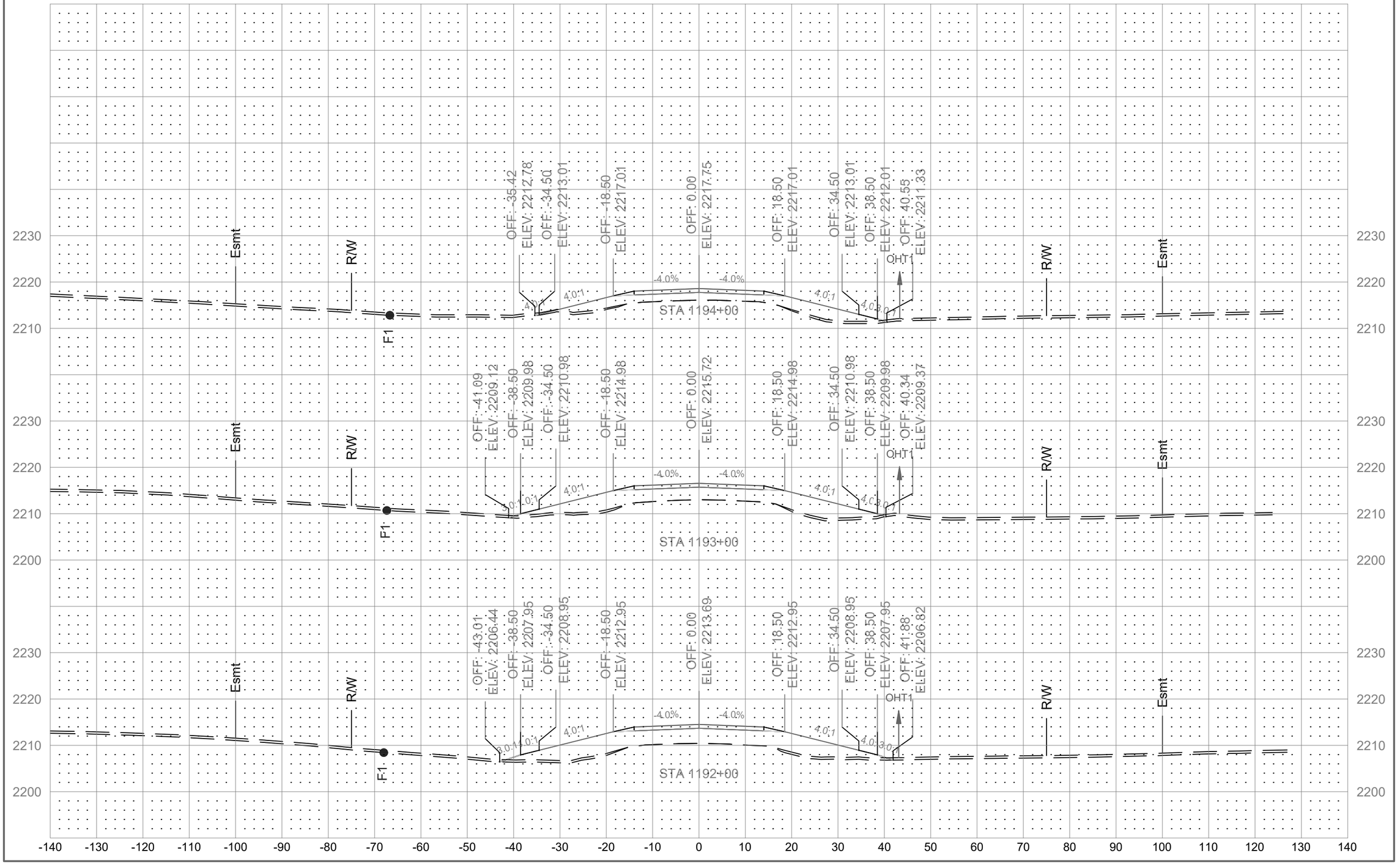
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	153



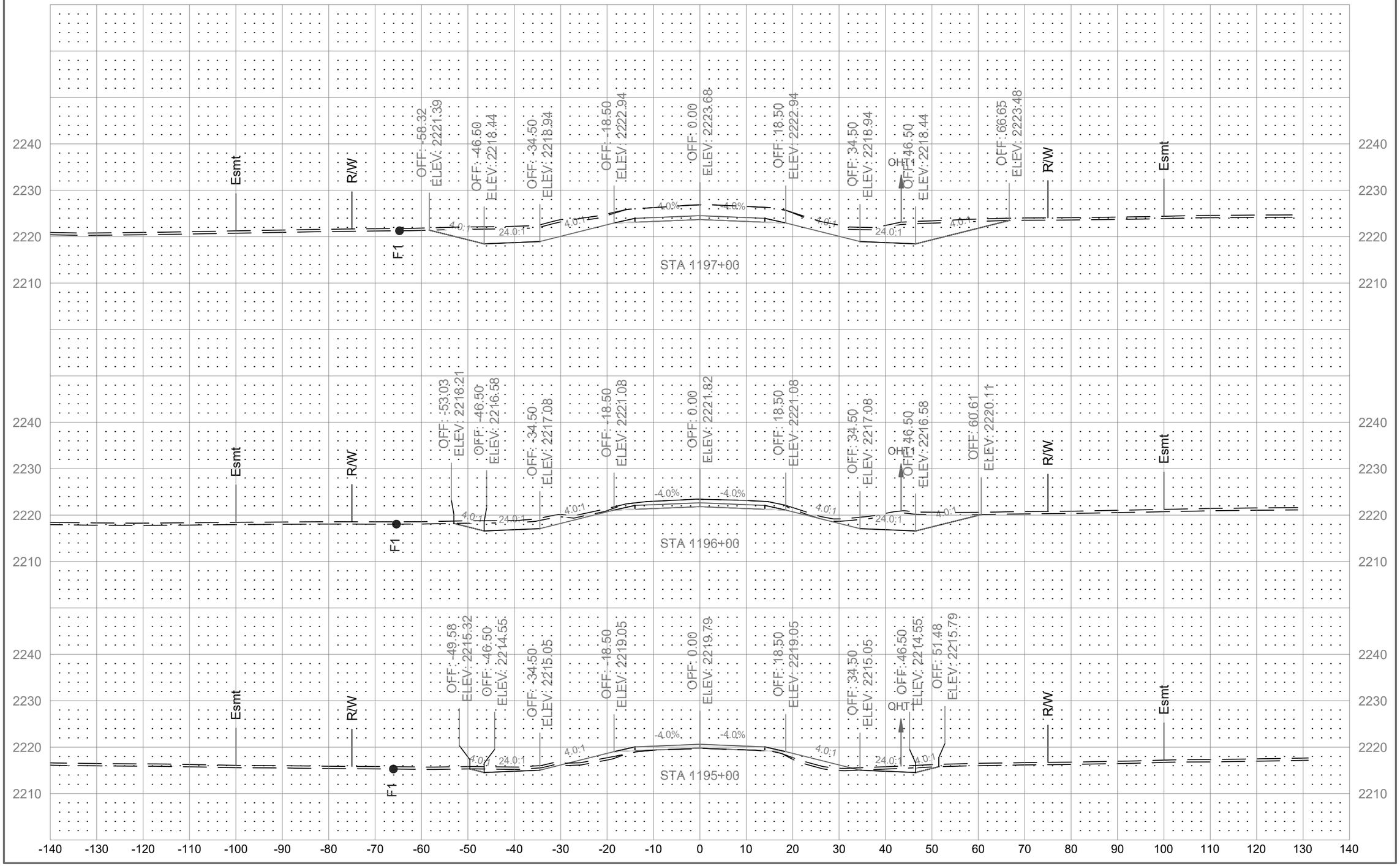
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	154



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	155

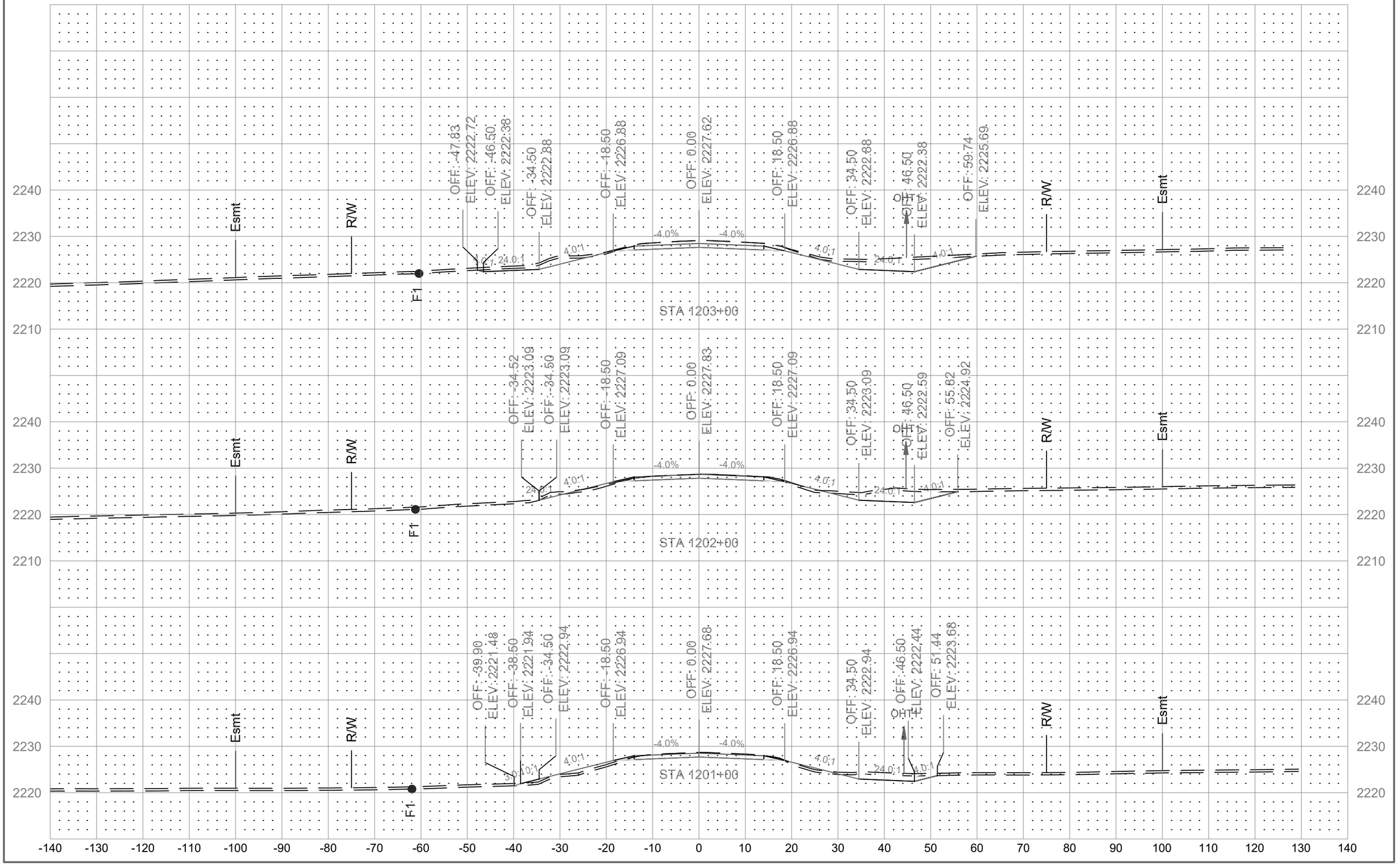


	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	156

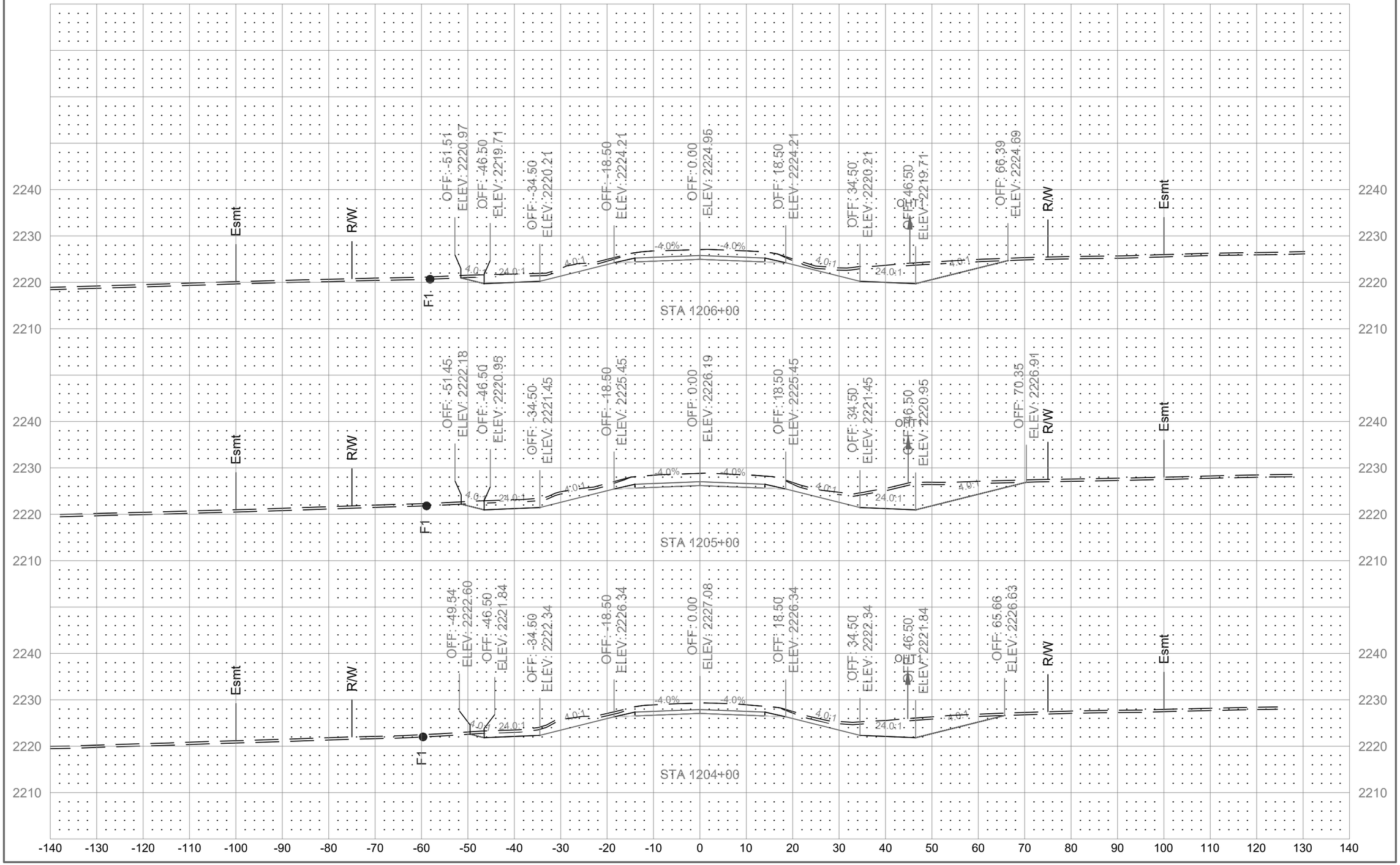


	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	157

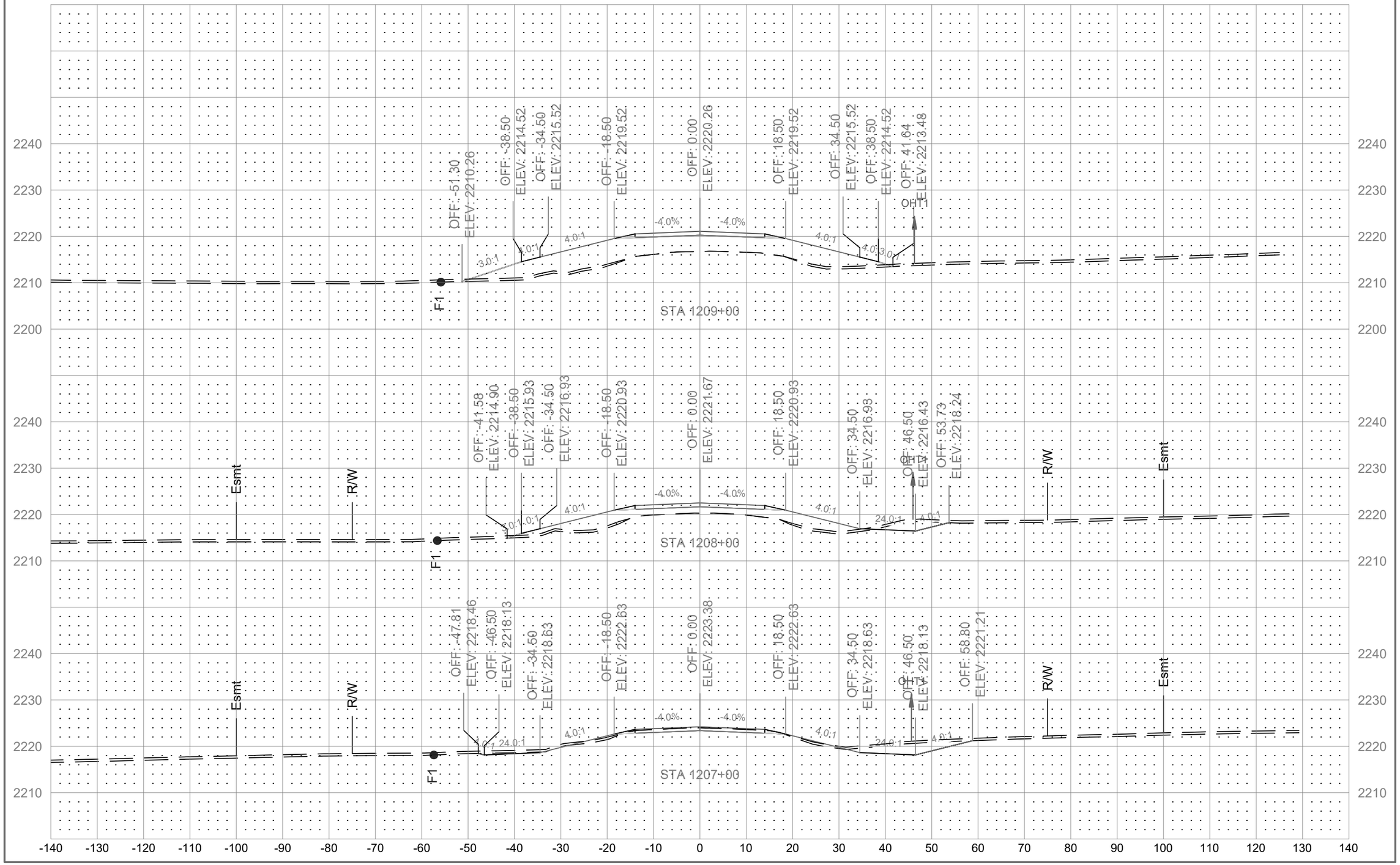
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	158



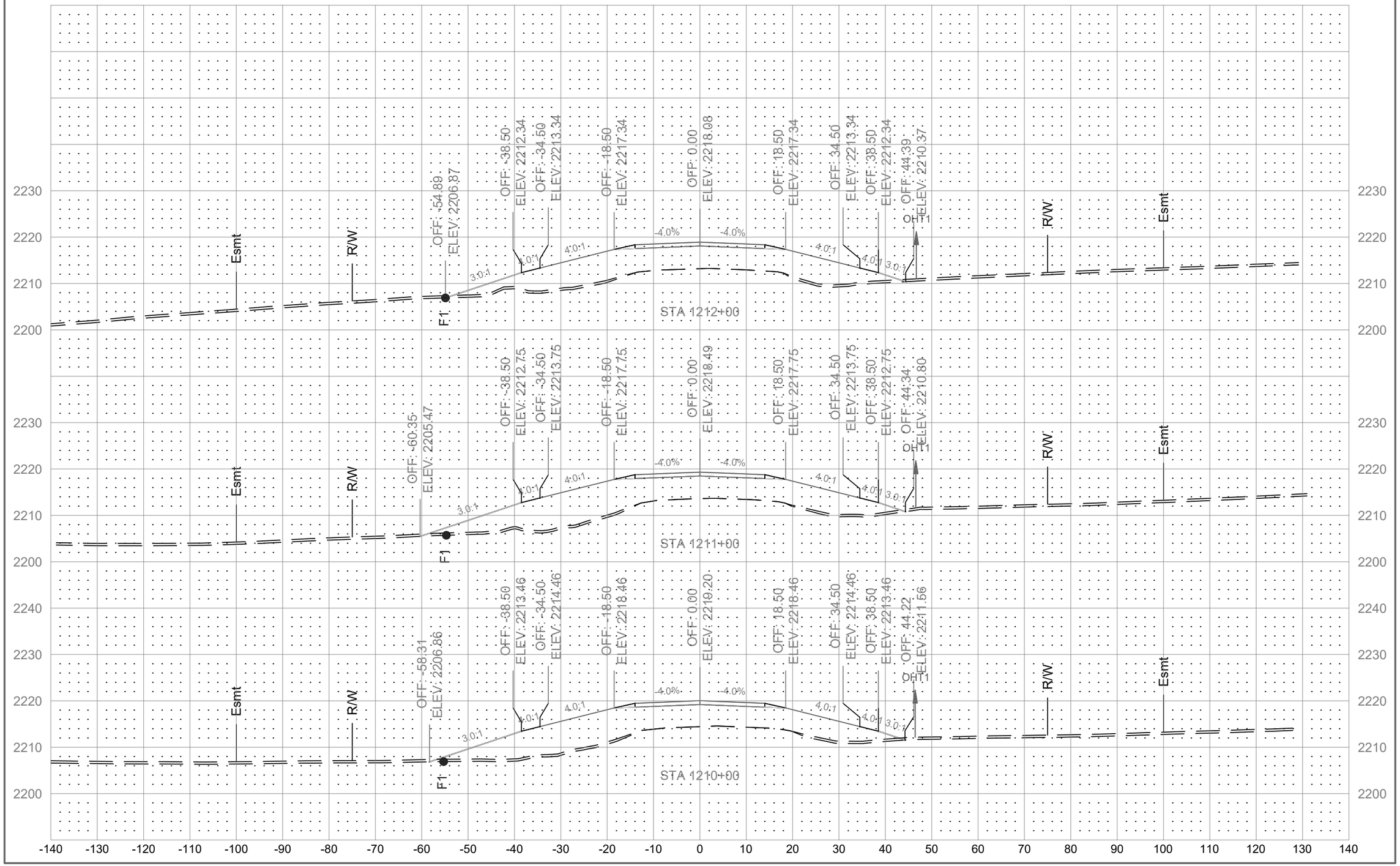
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	159



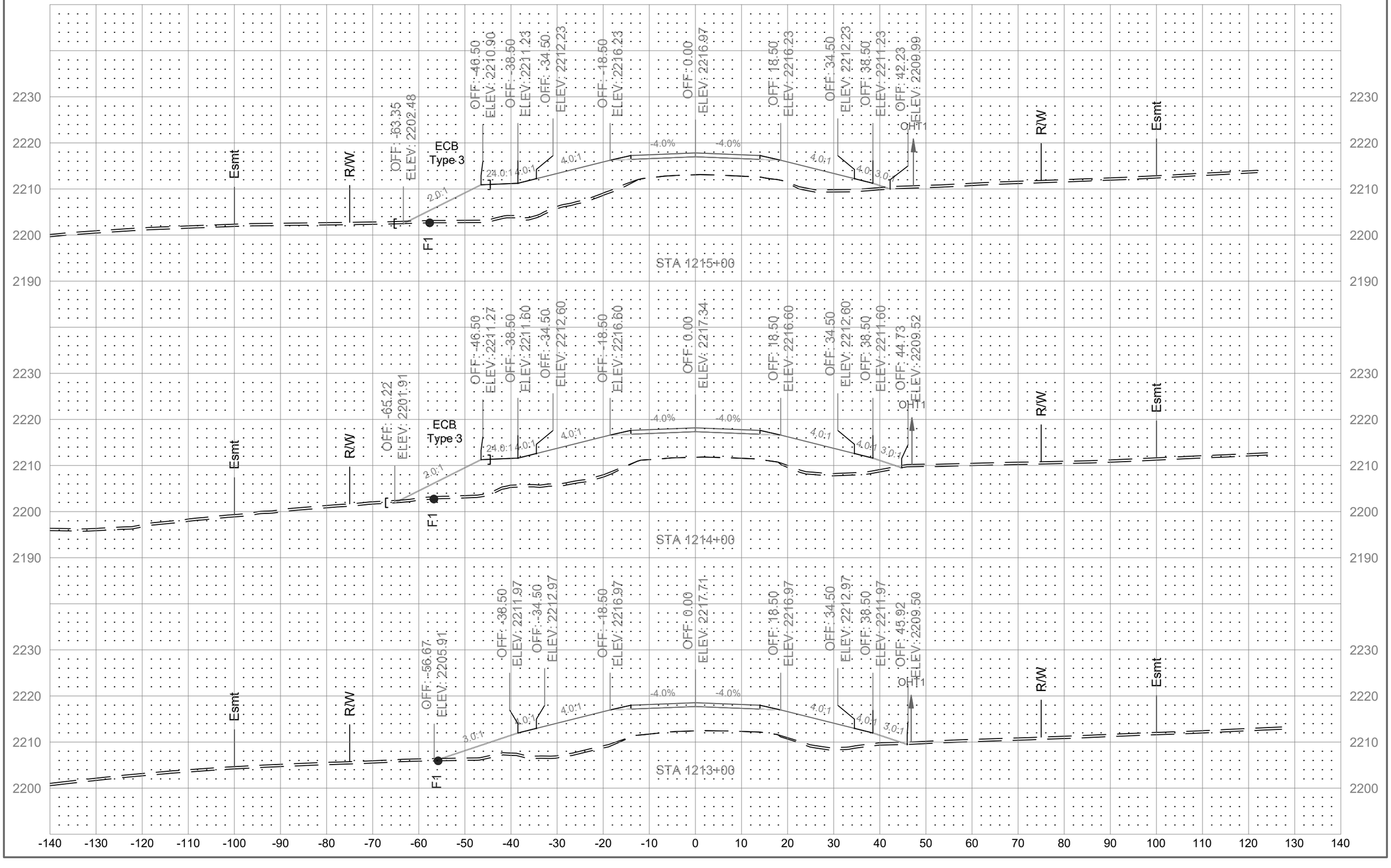
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	160



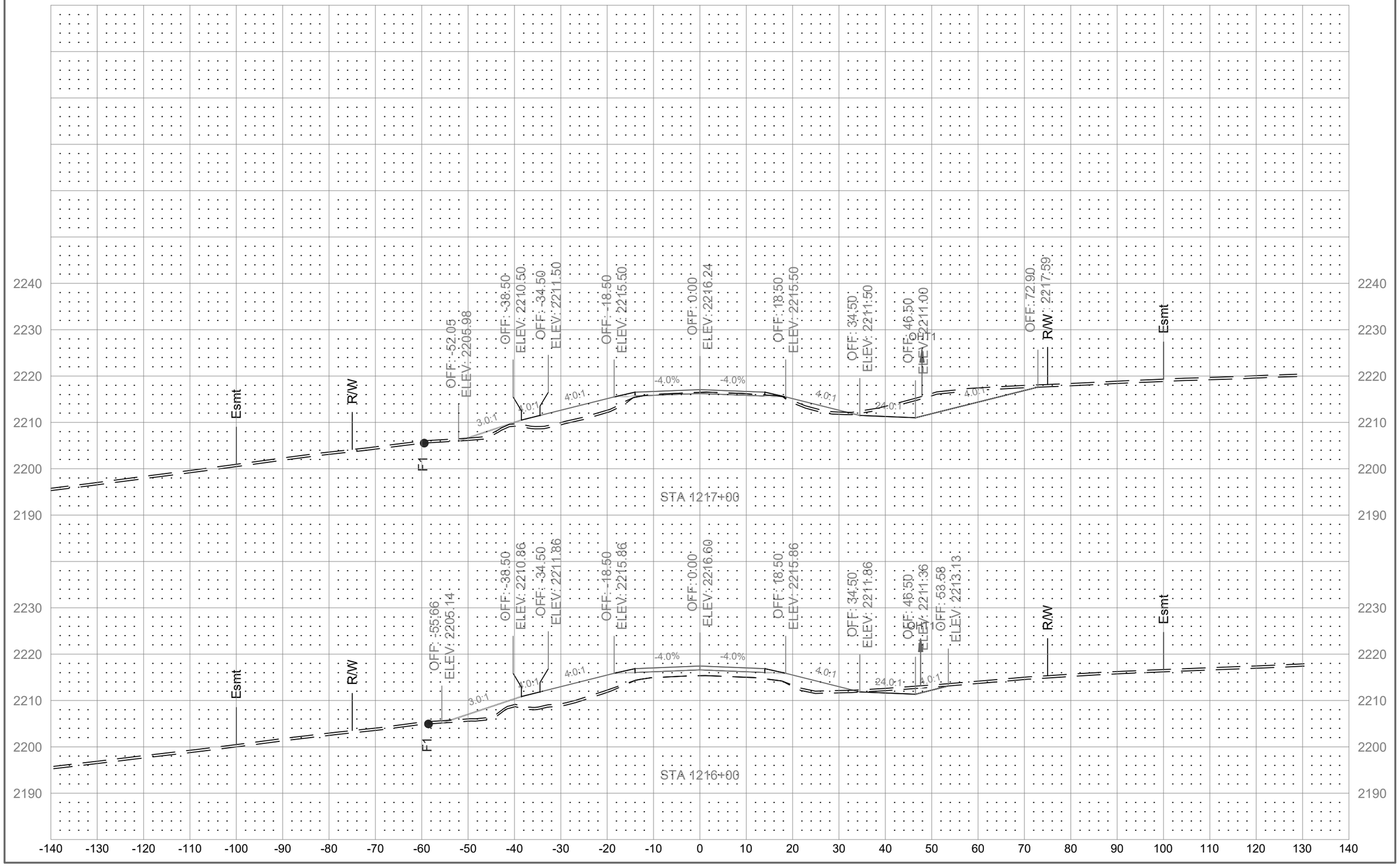
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	161



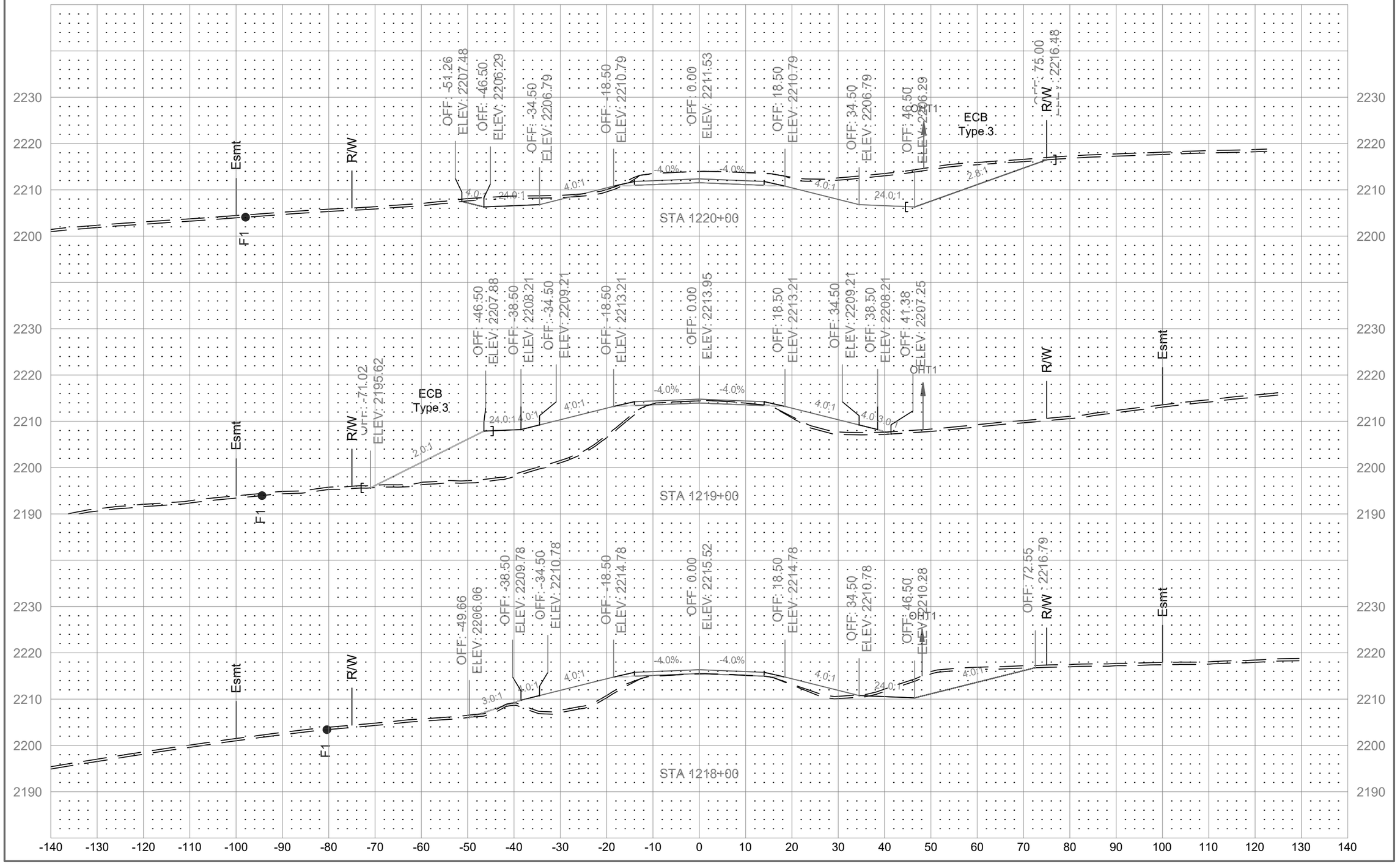
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	162



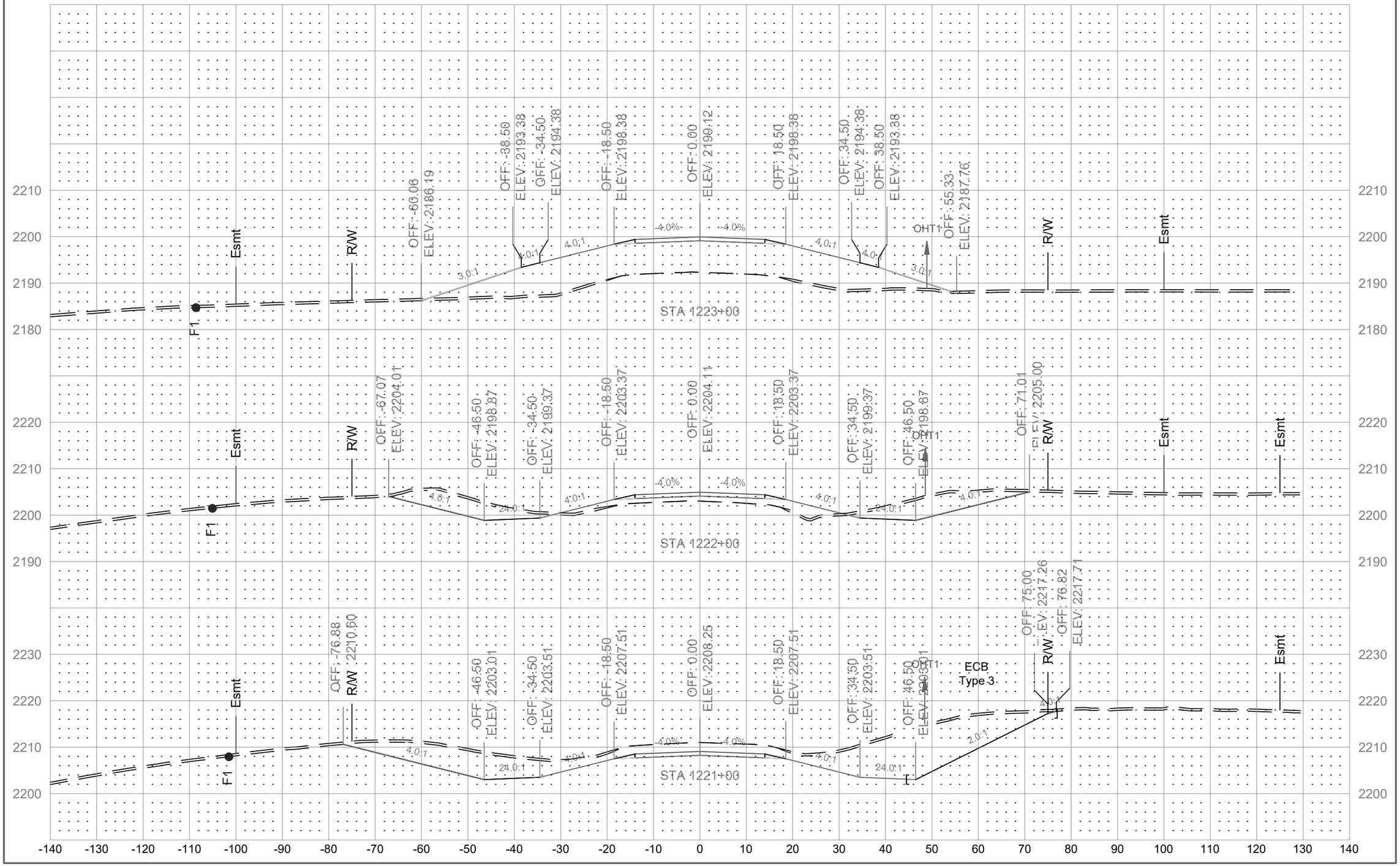
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	163



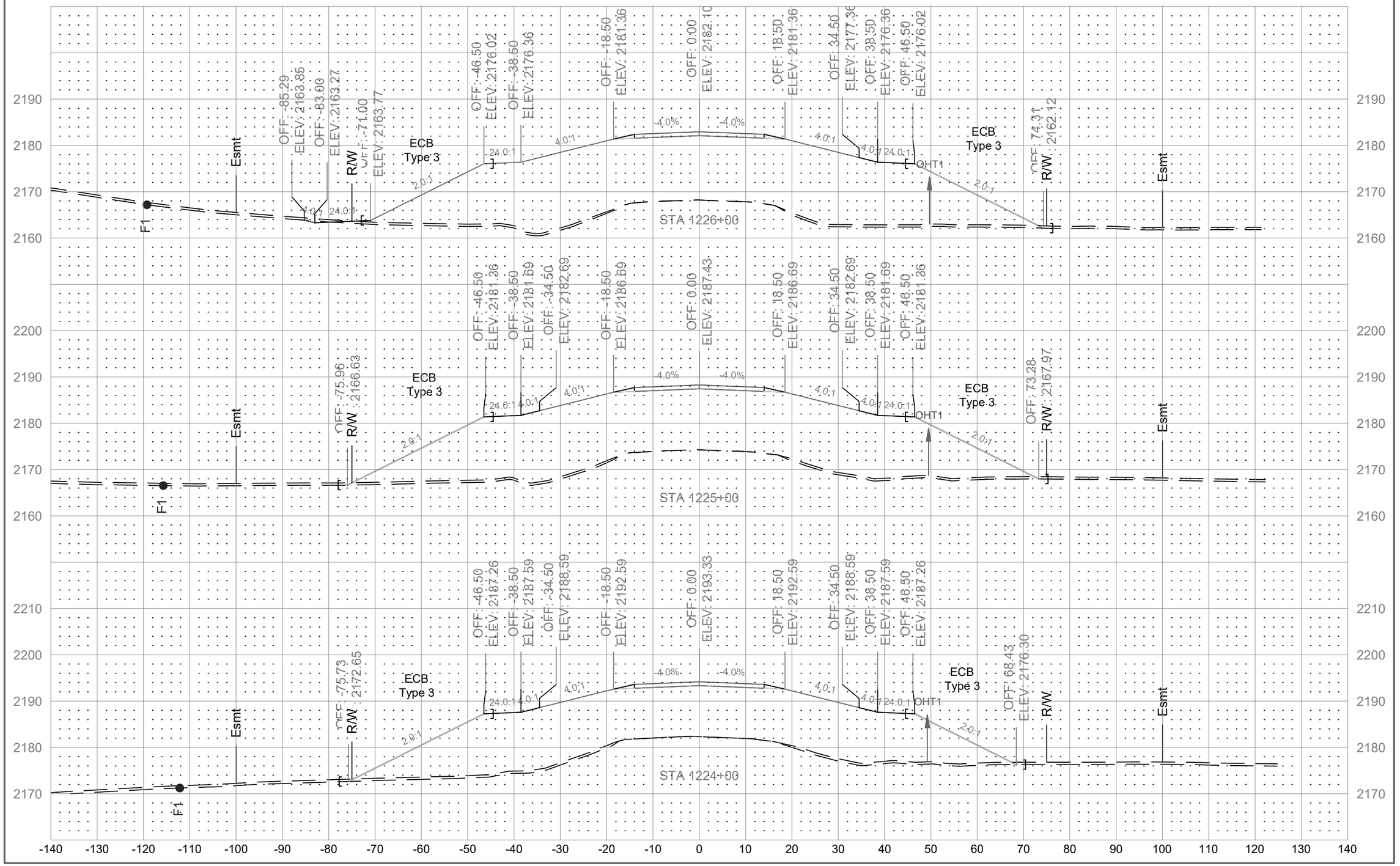
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	164



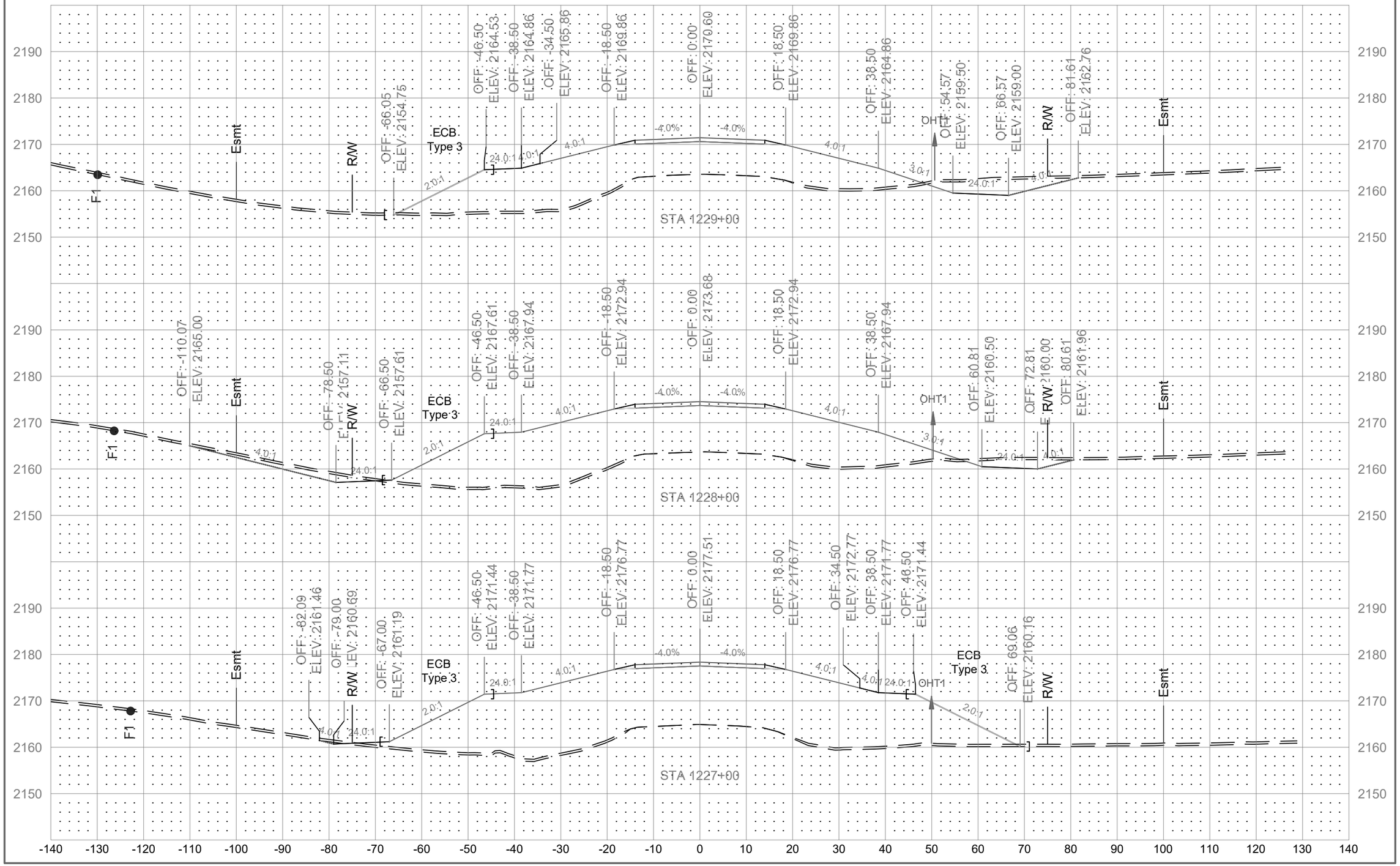
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	165



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	166



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	167



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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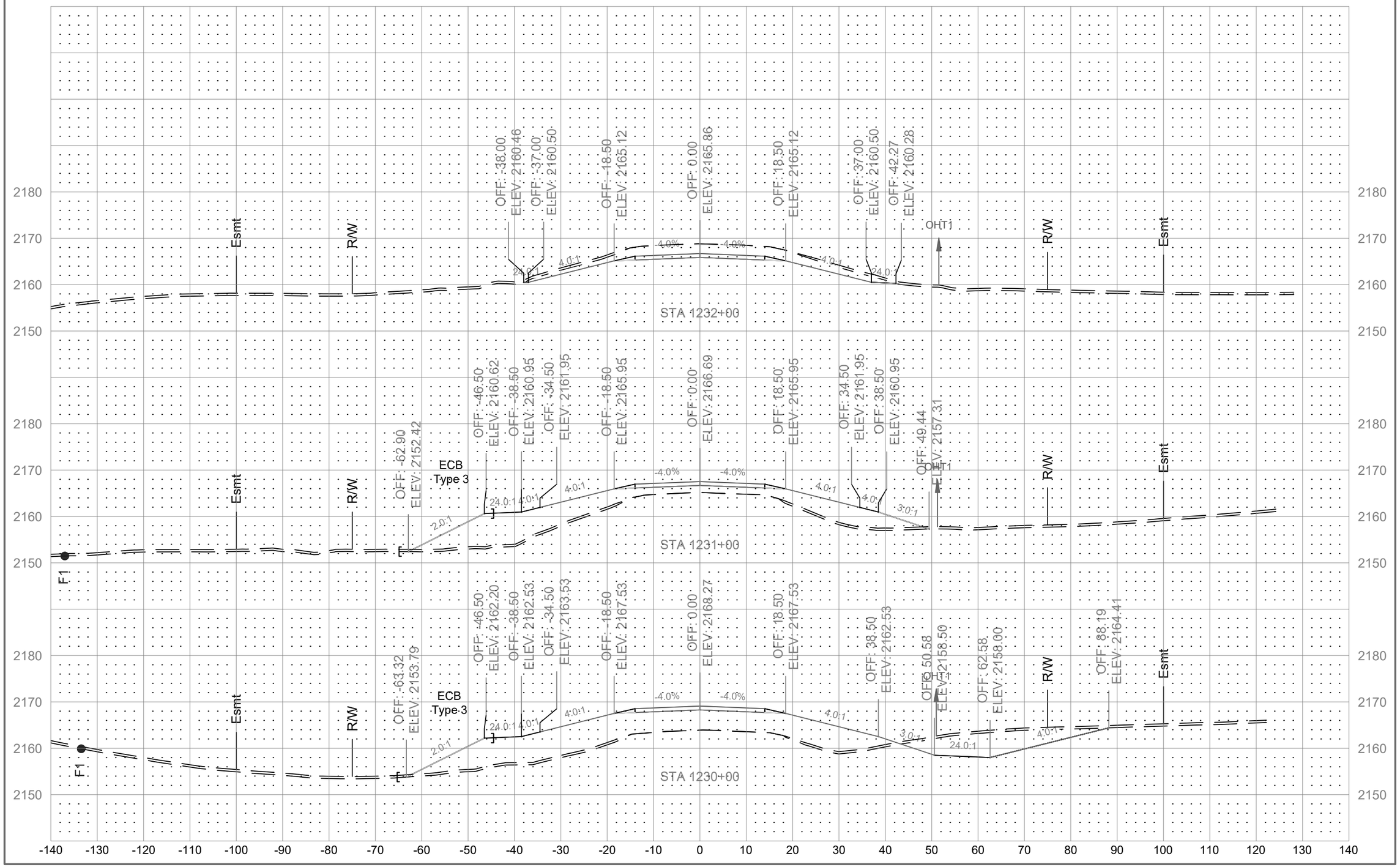
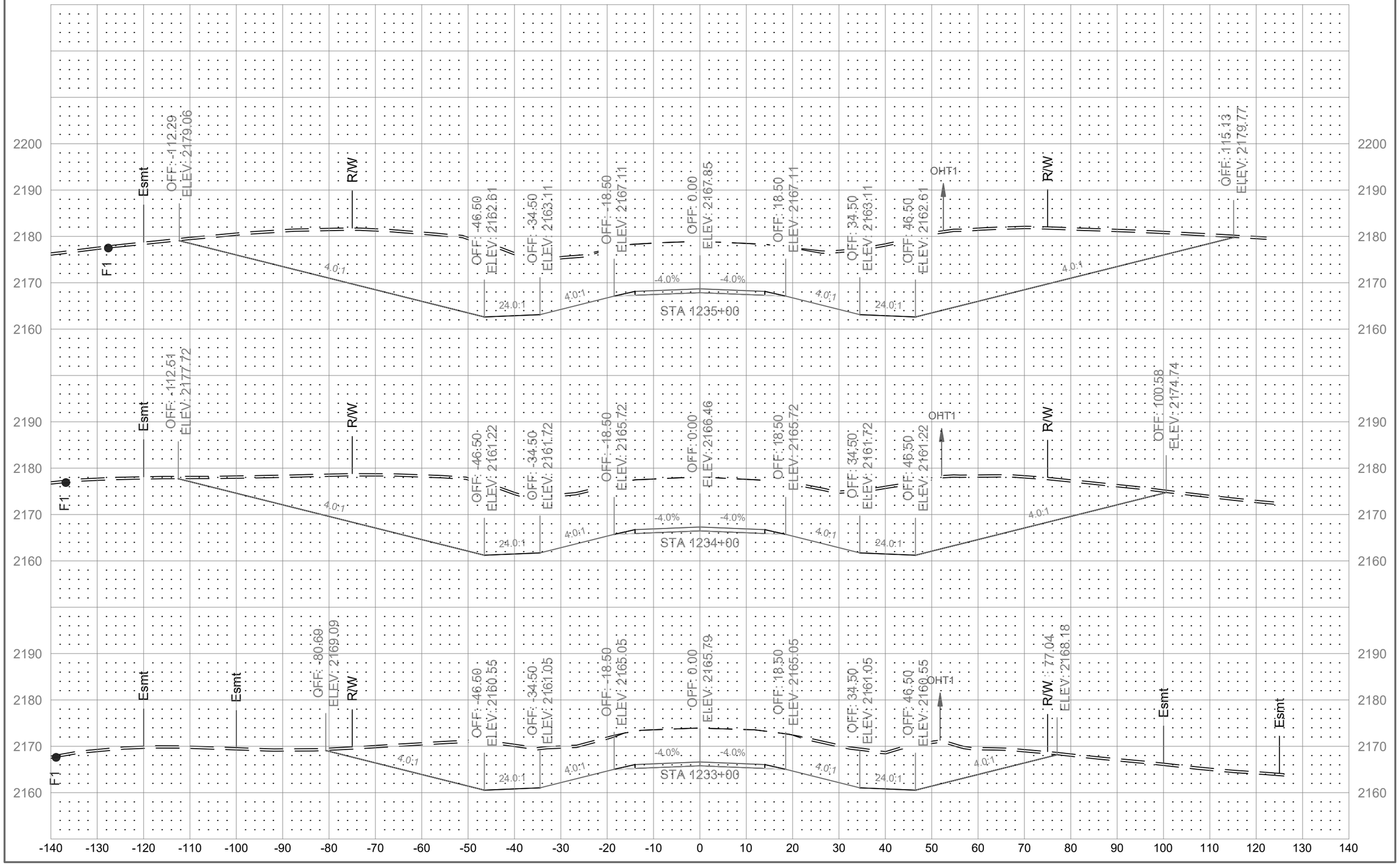
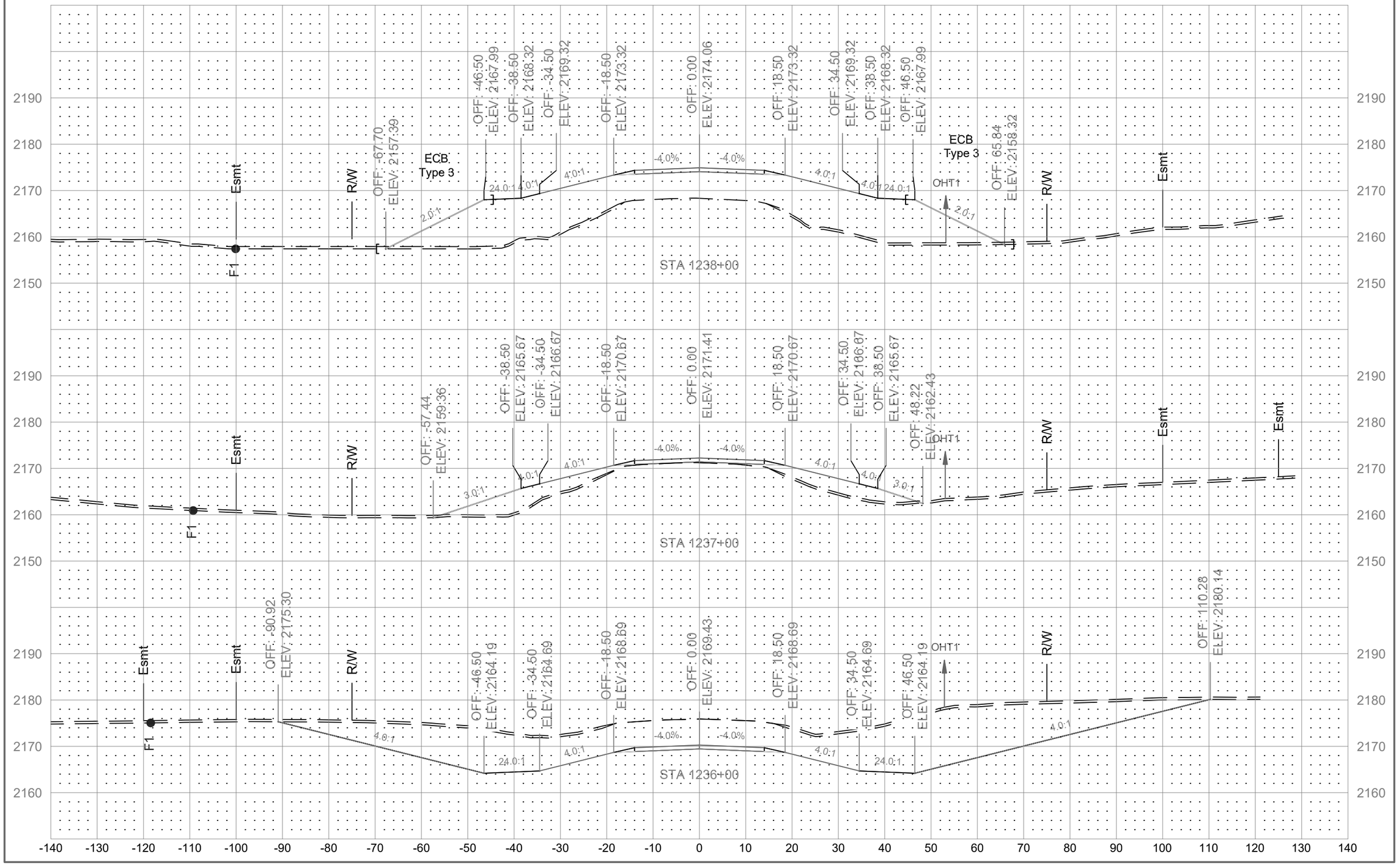


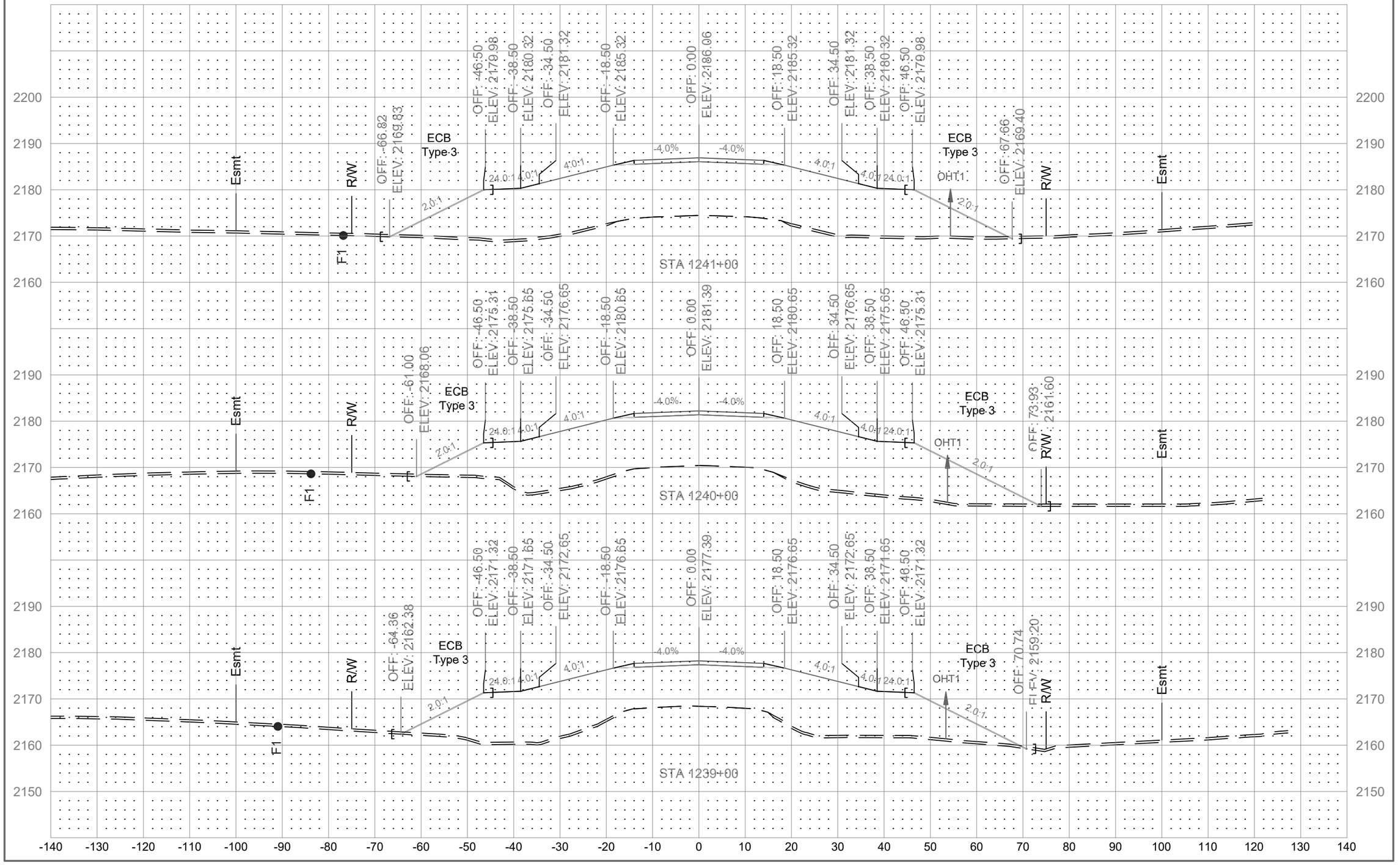
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	169



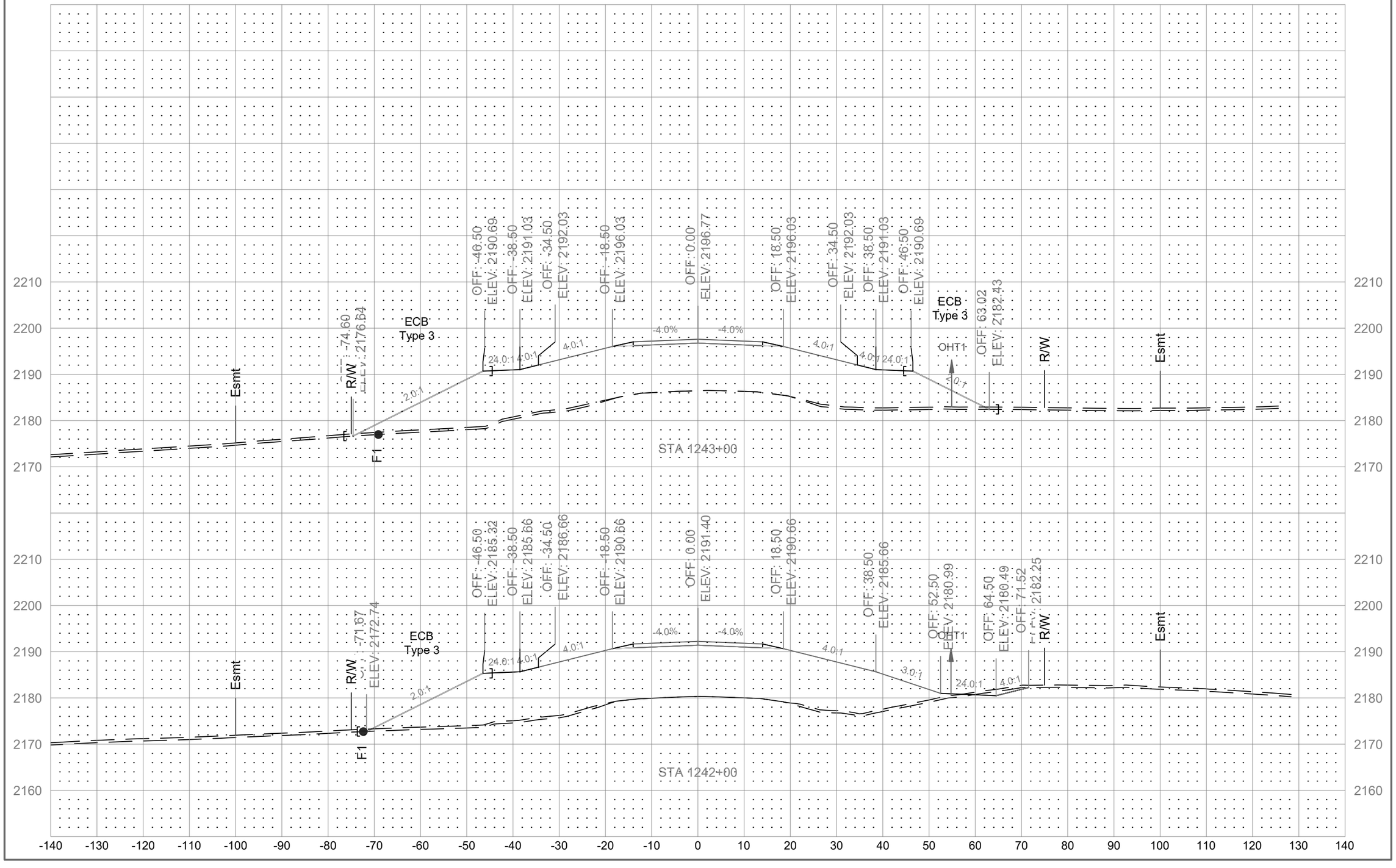
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	170



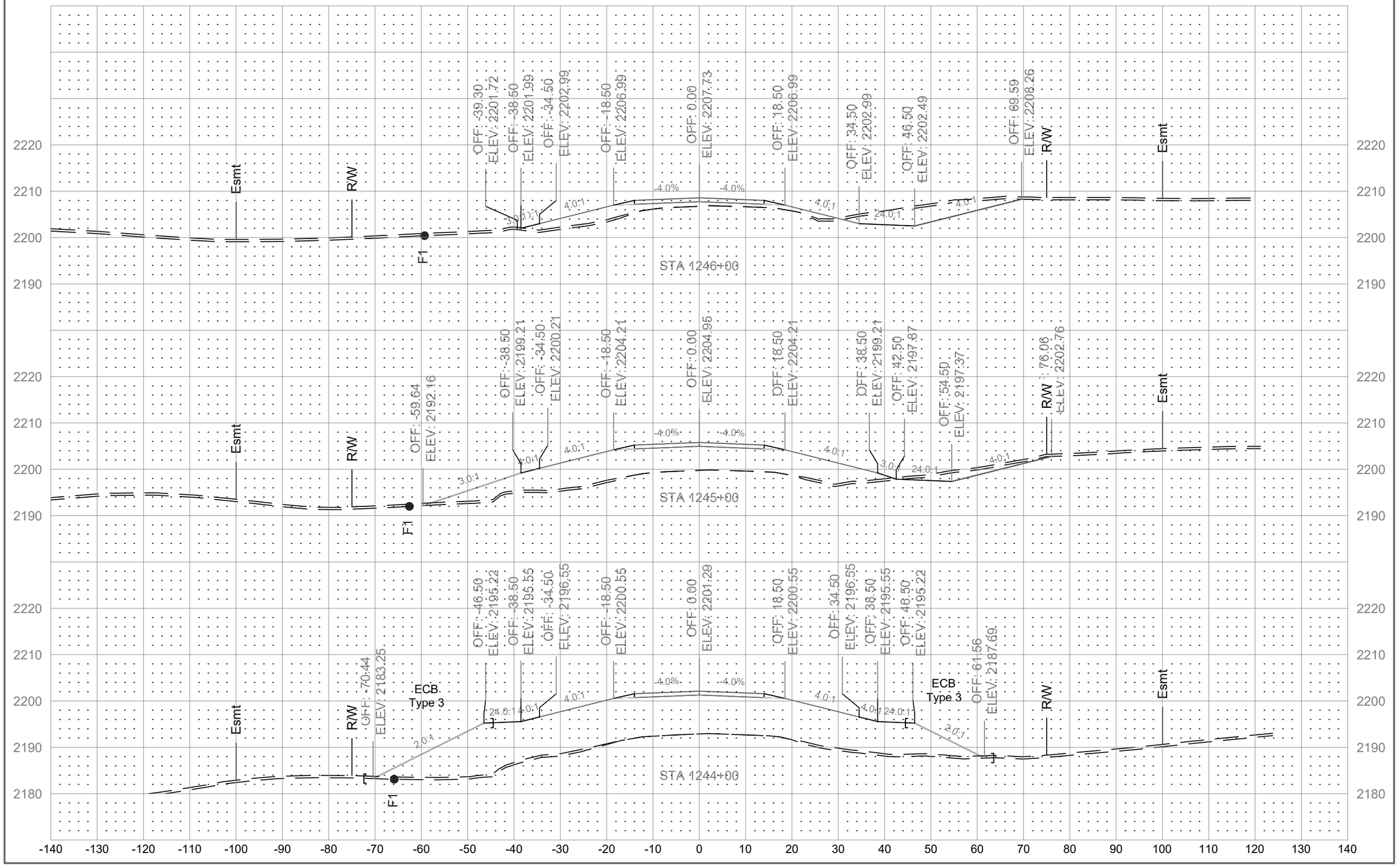
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	171



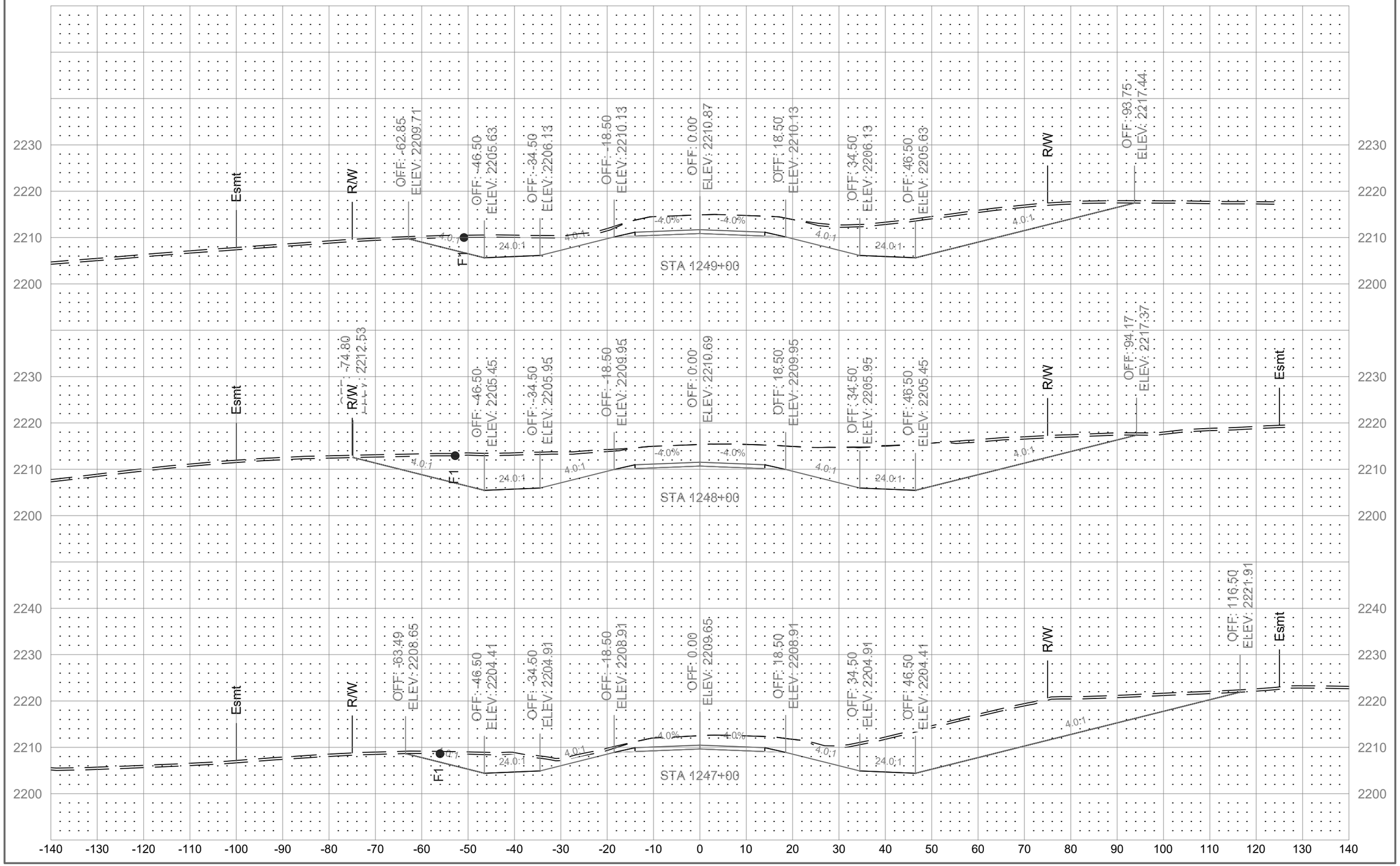
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	172



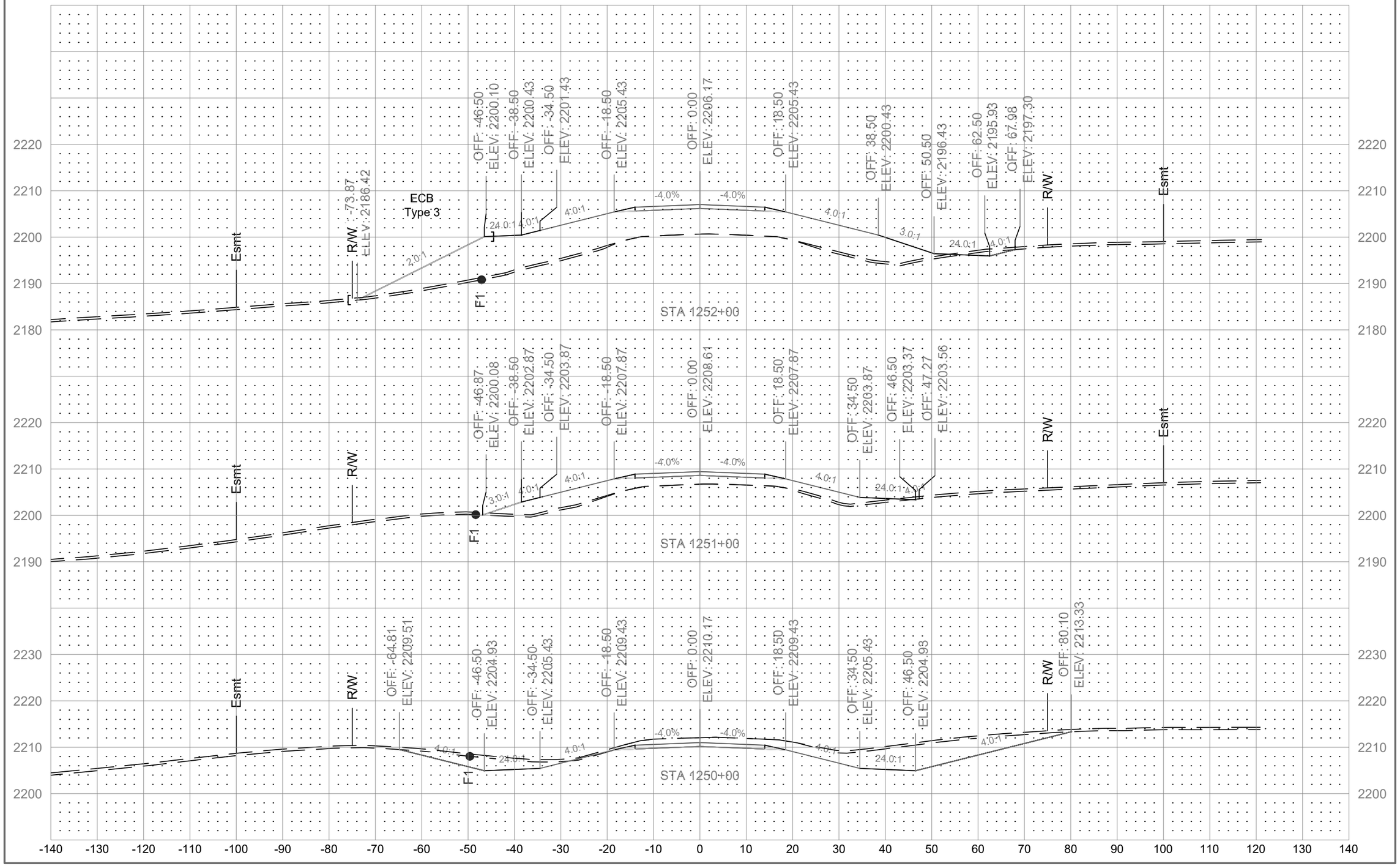
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	173



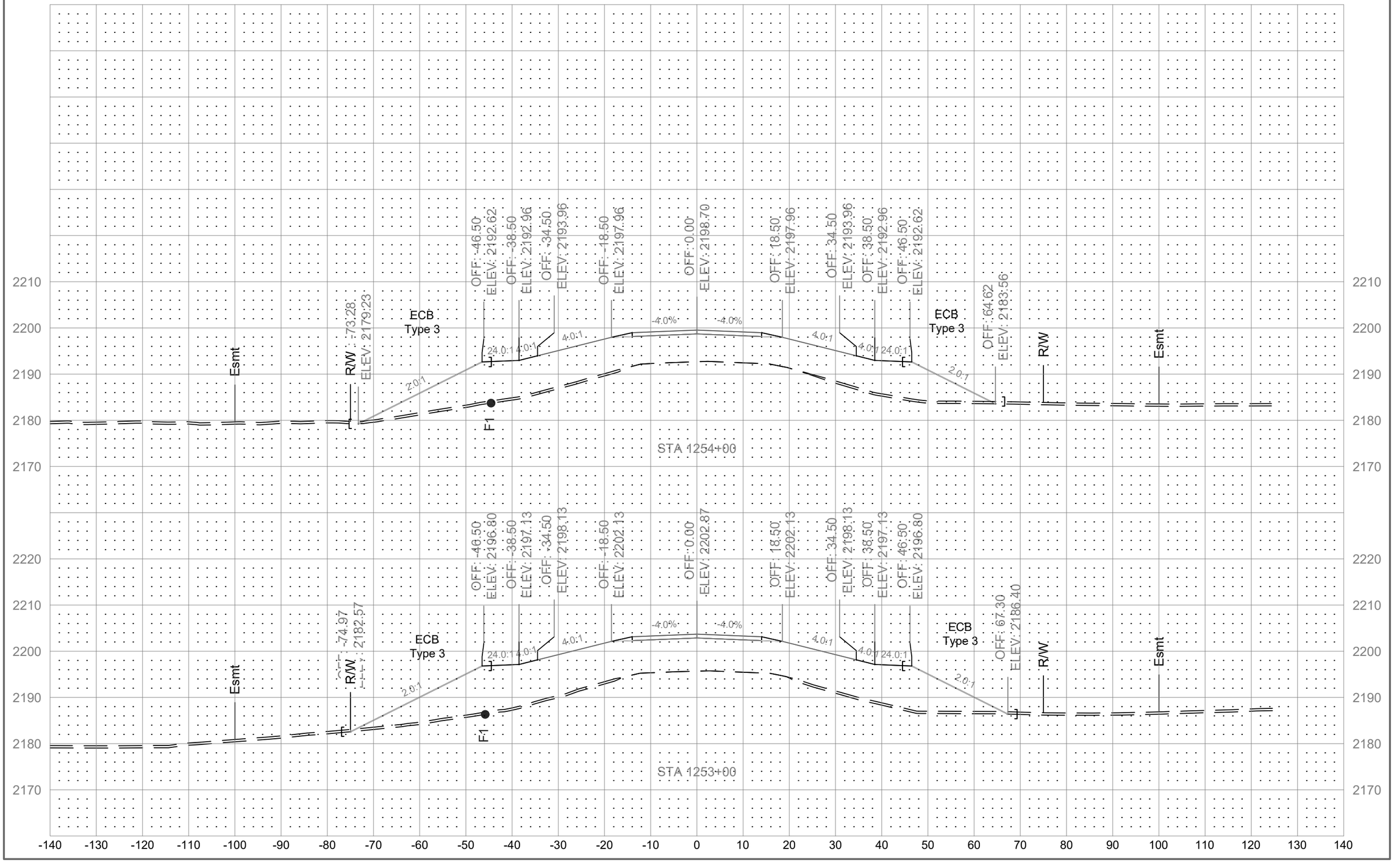
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	174



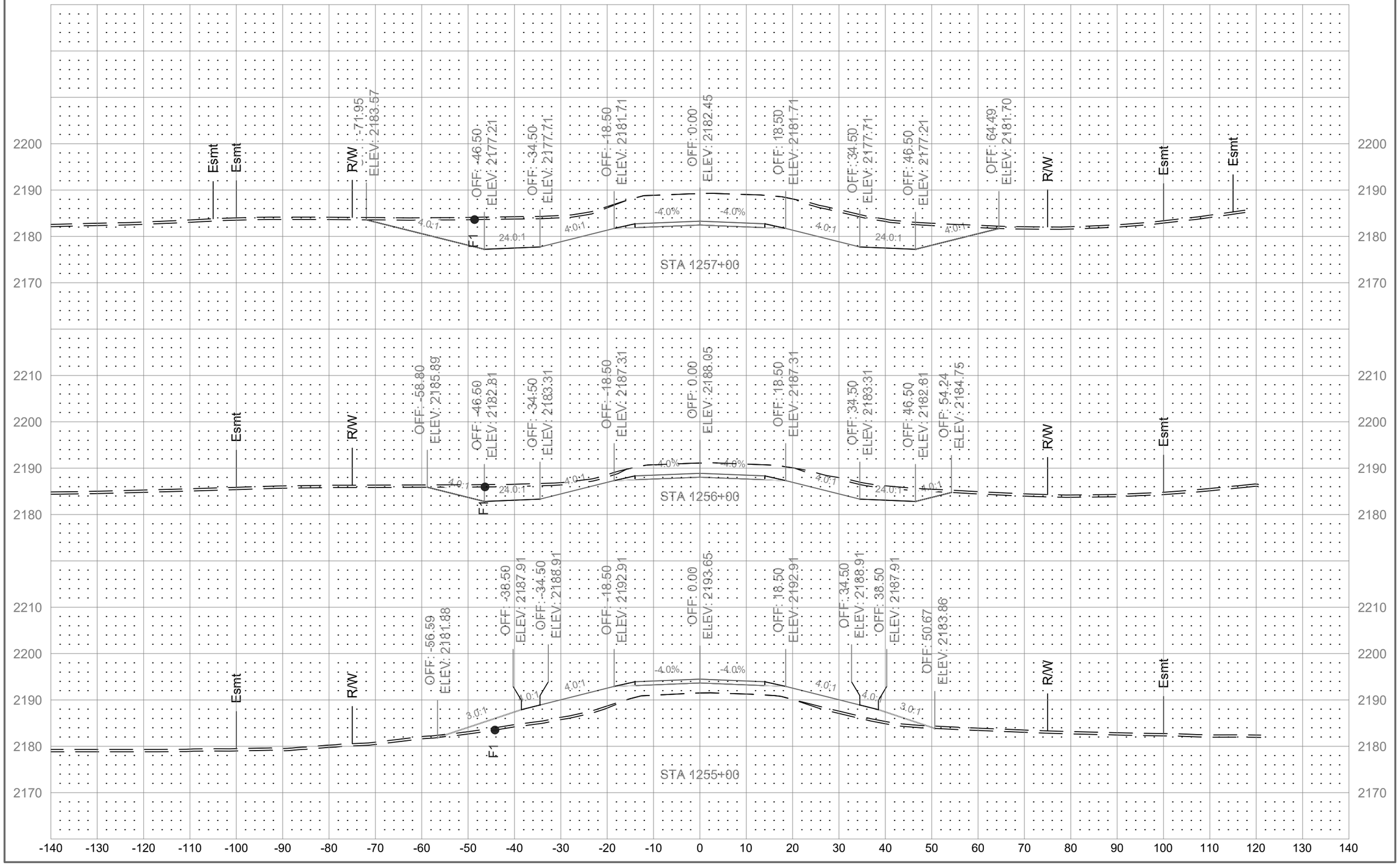
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	175



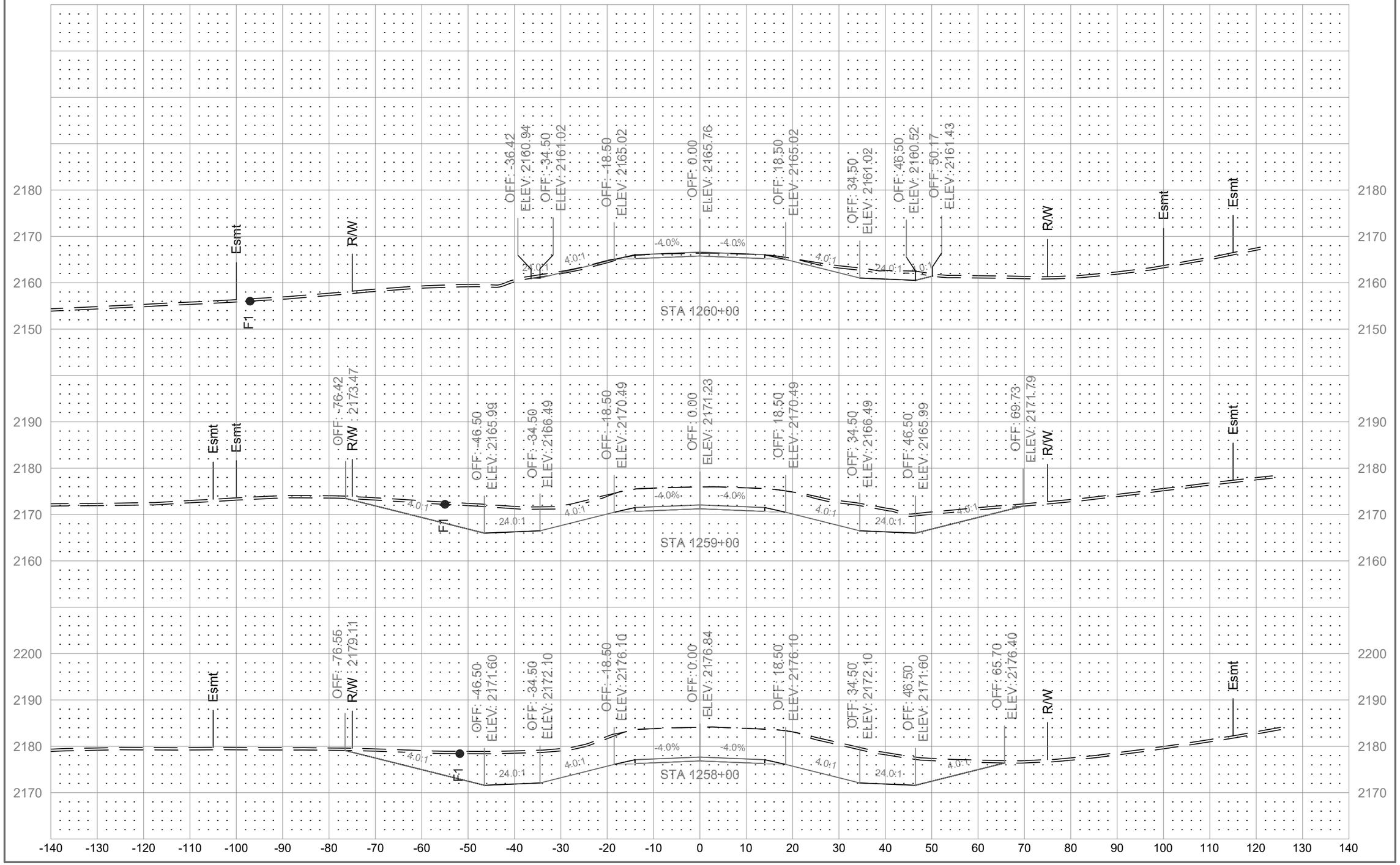
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	176



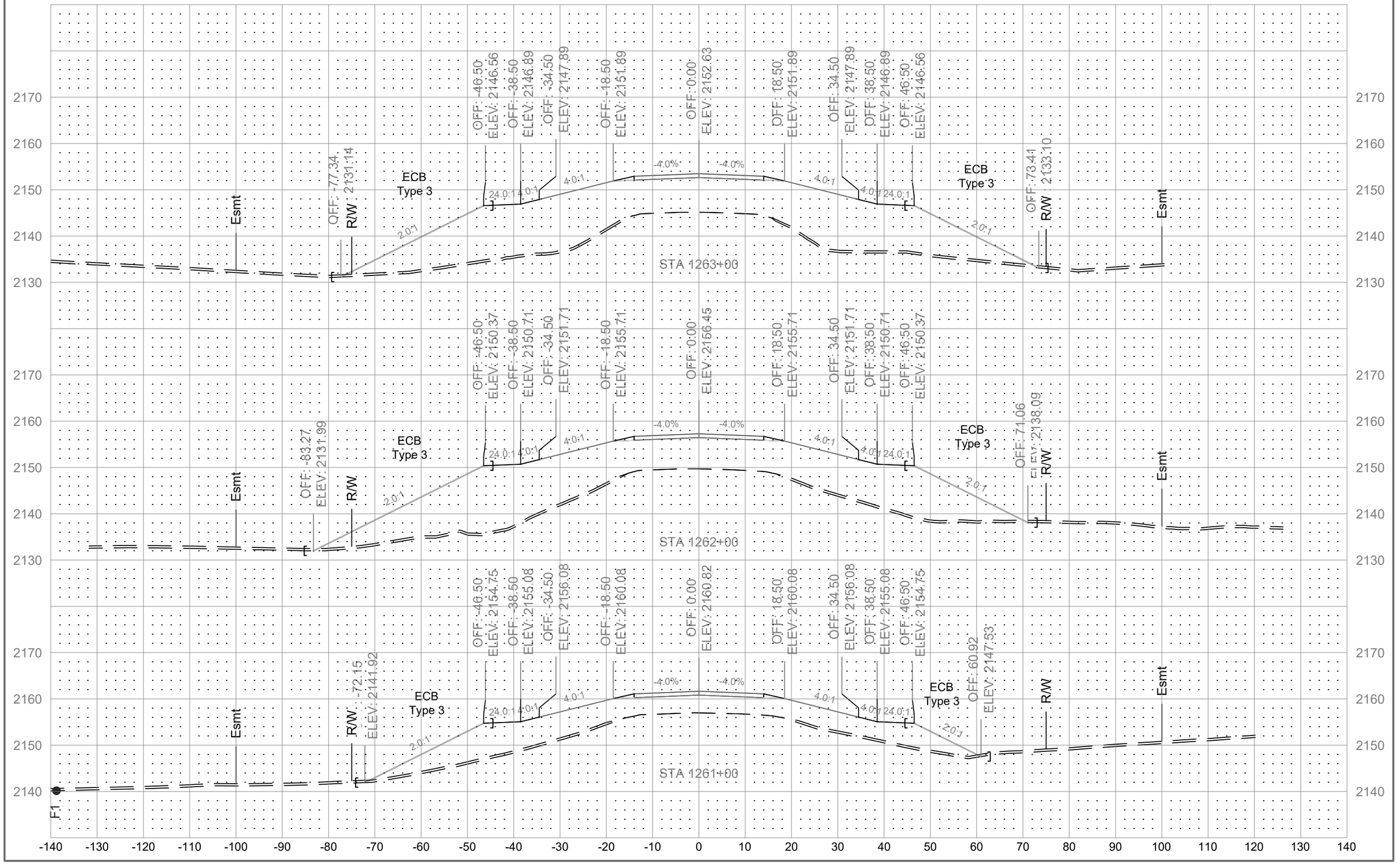
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	177



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	178



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	179



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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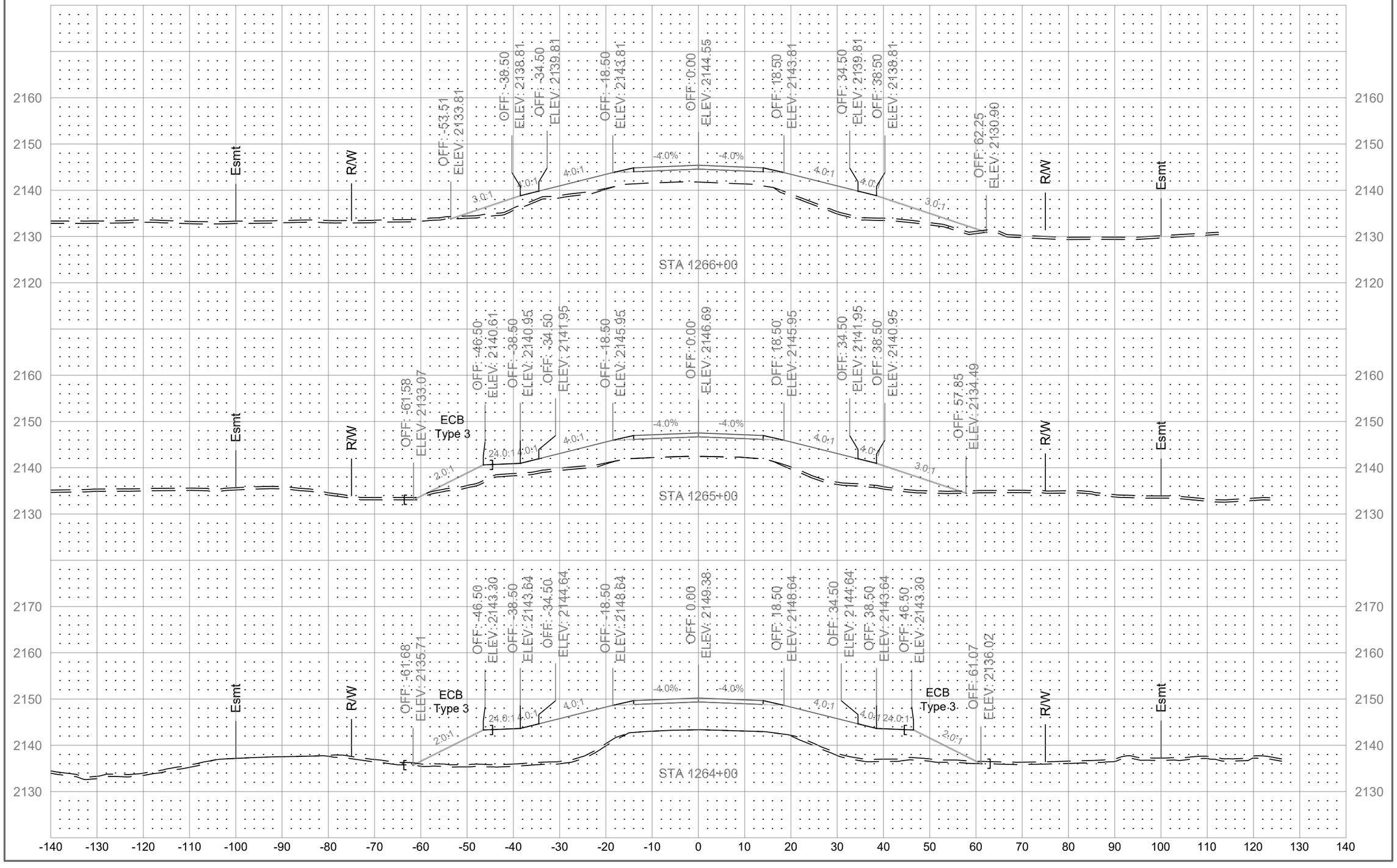

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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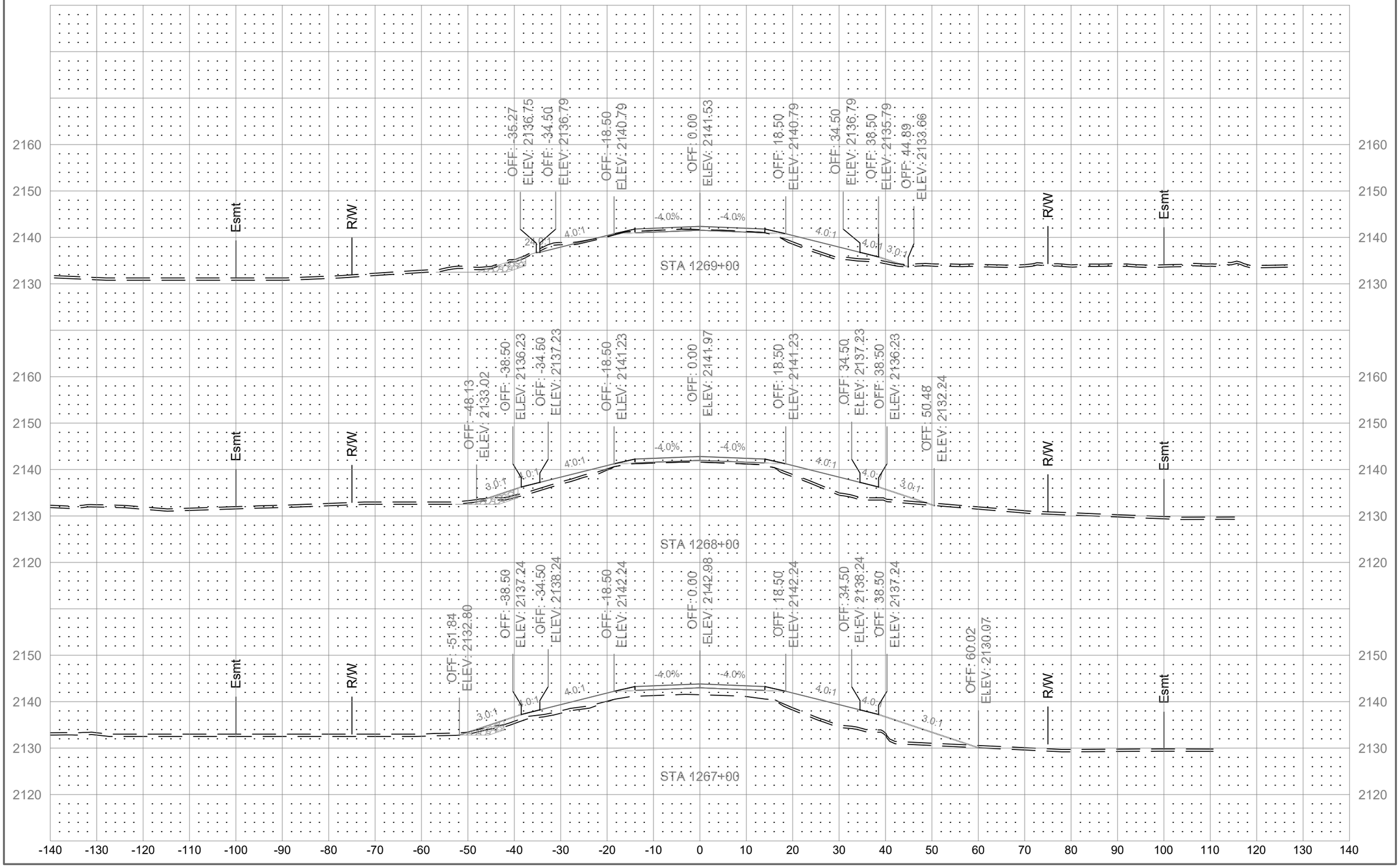

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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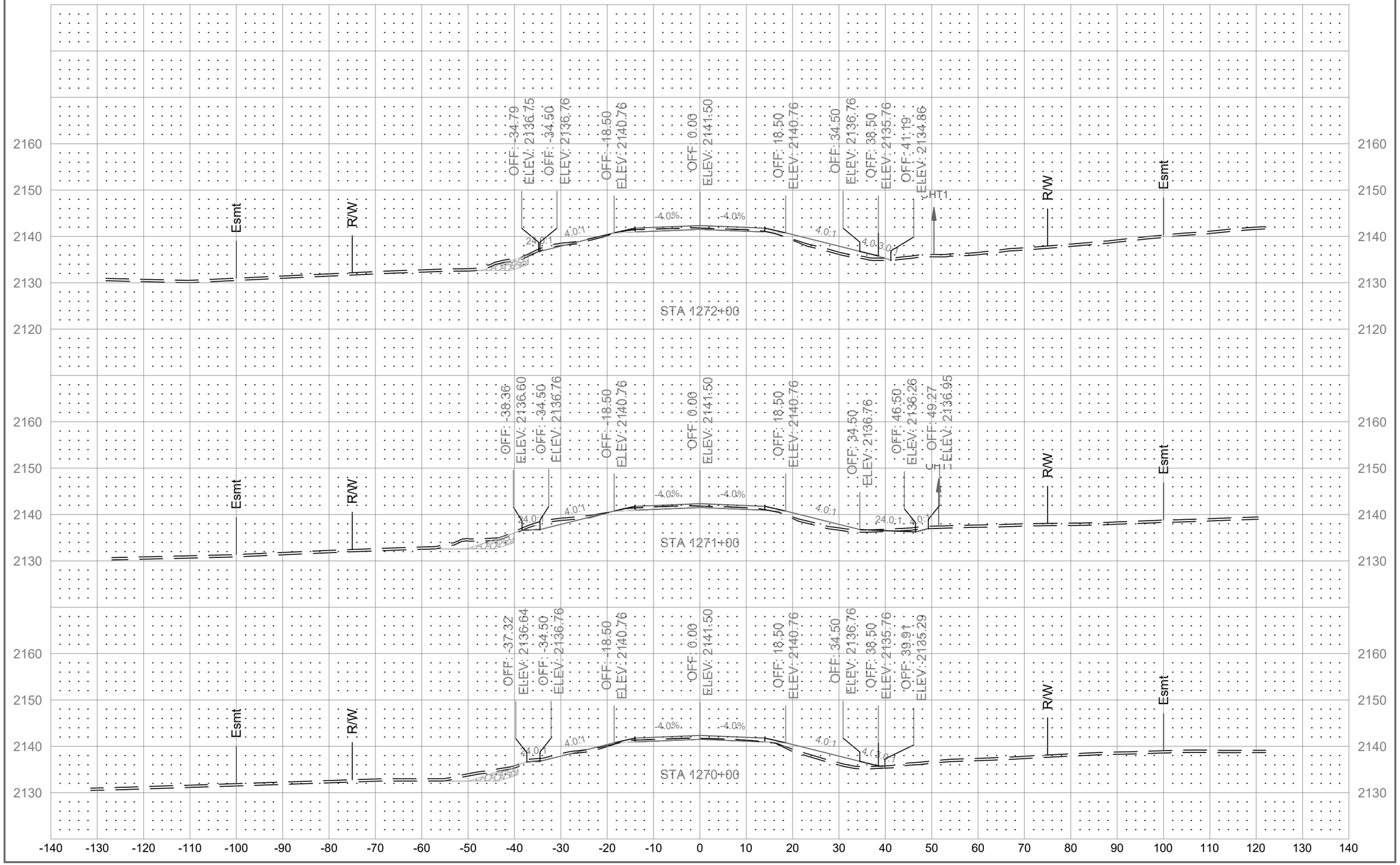

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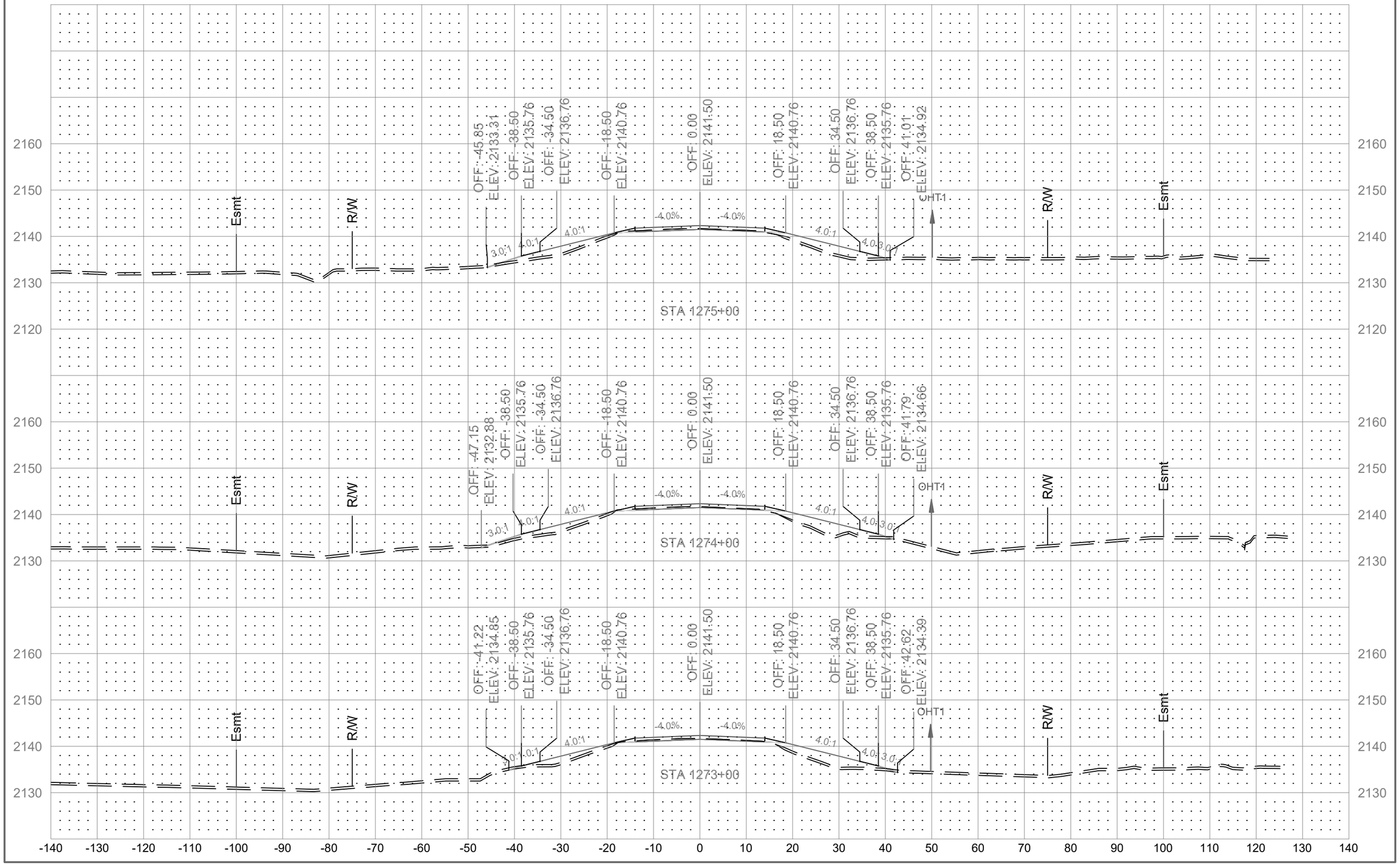

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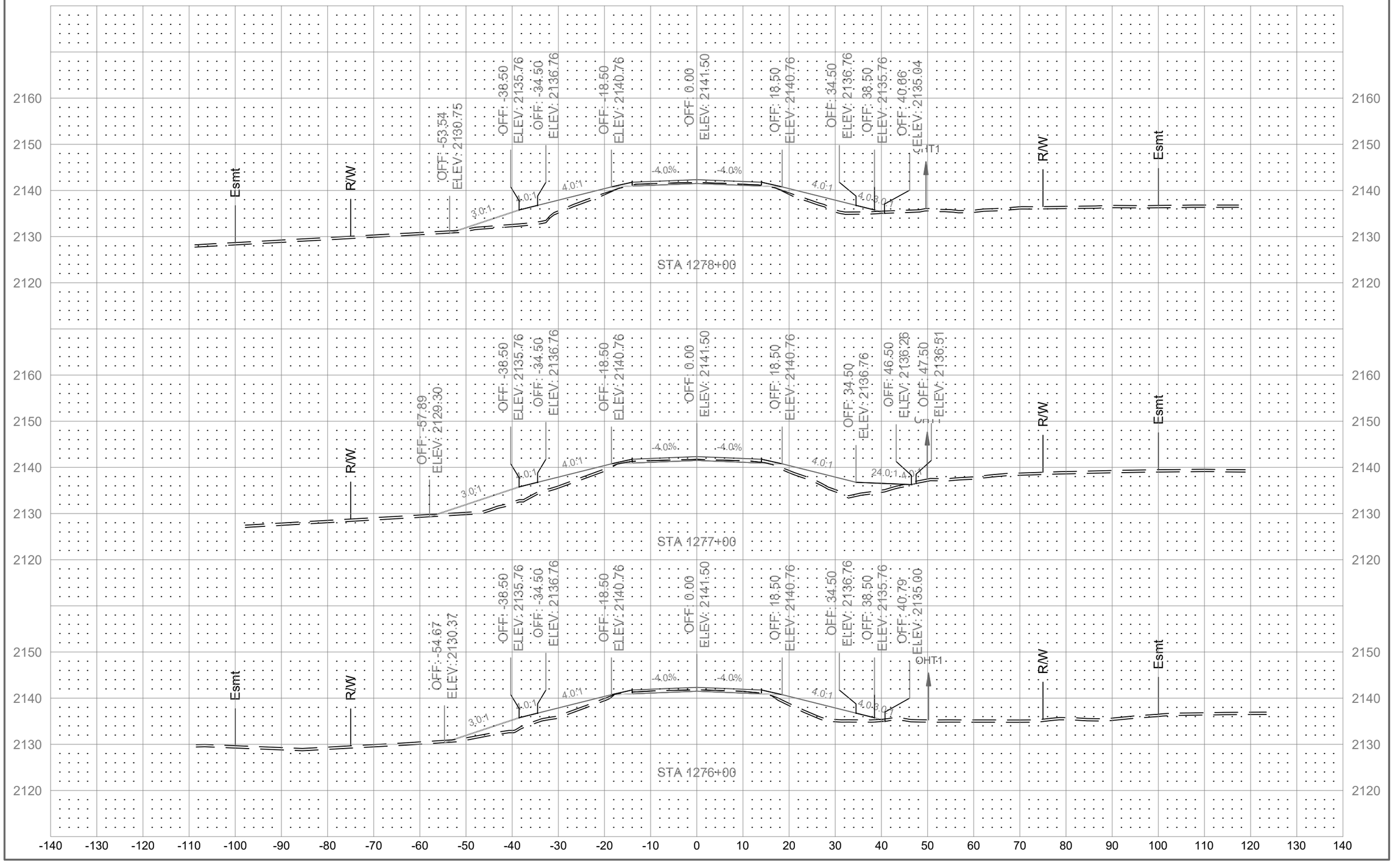

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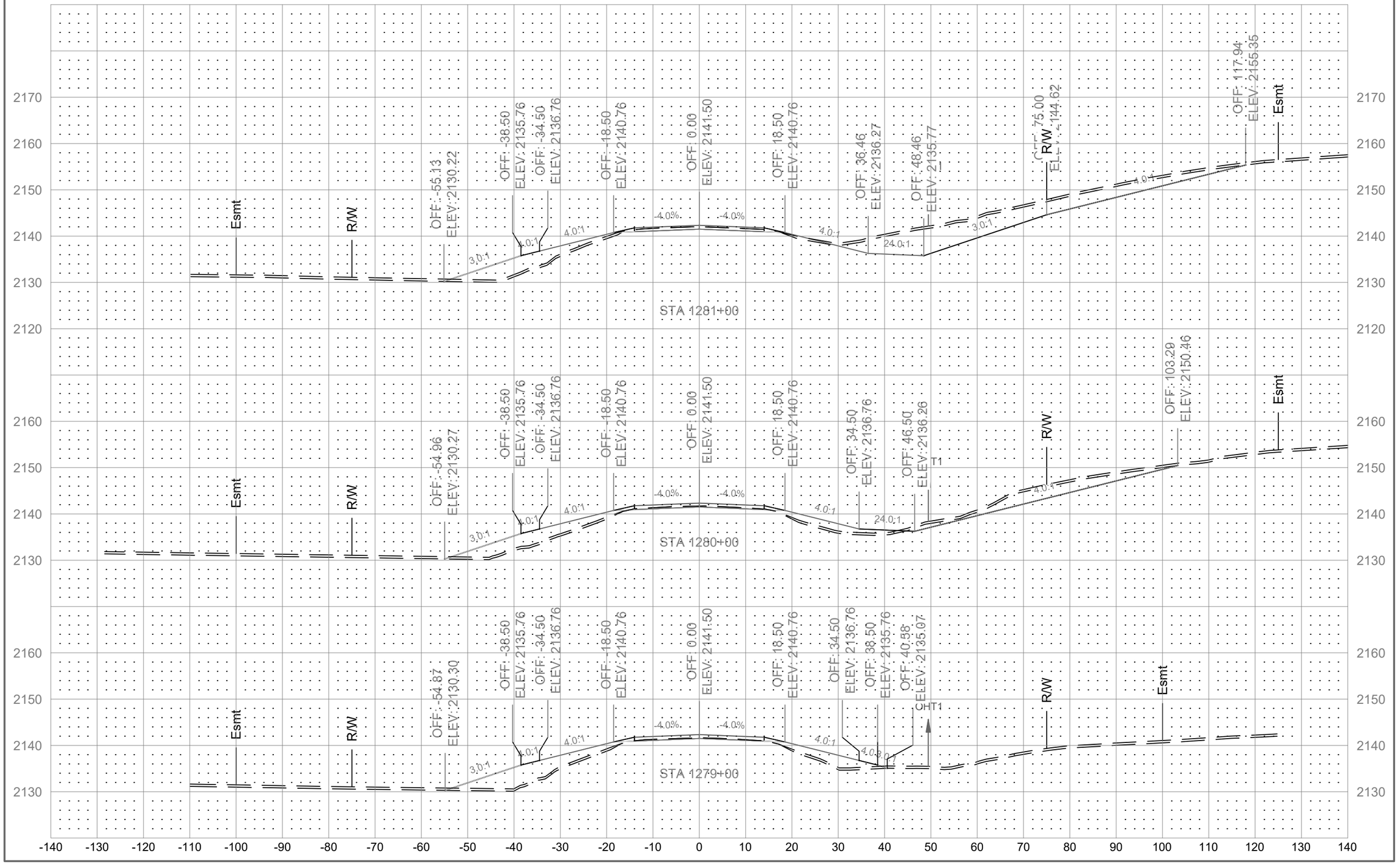

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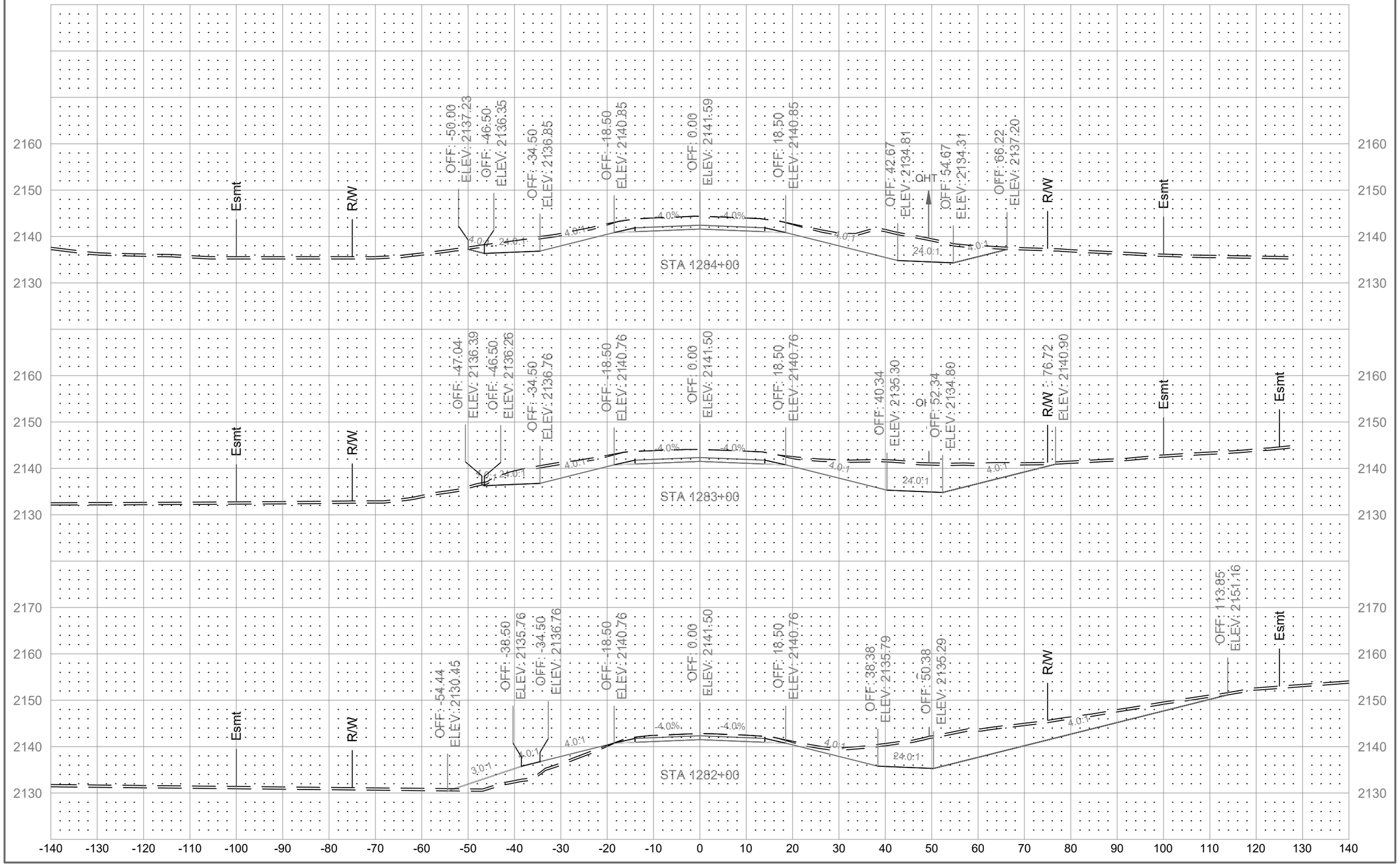

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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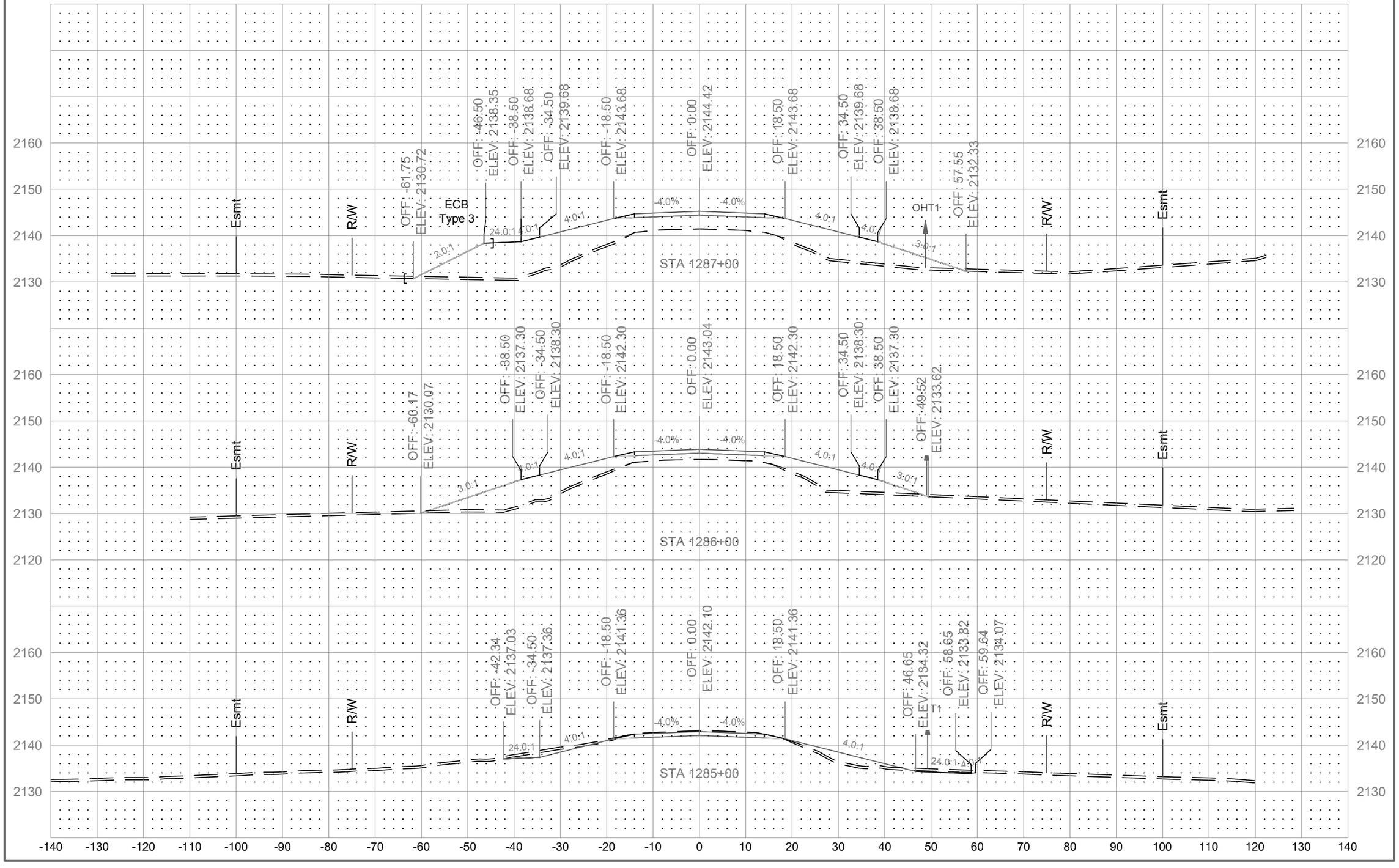

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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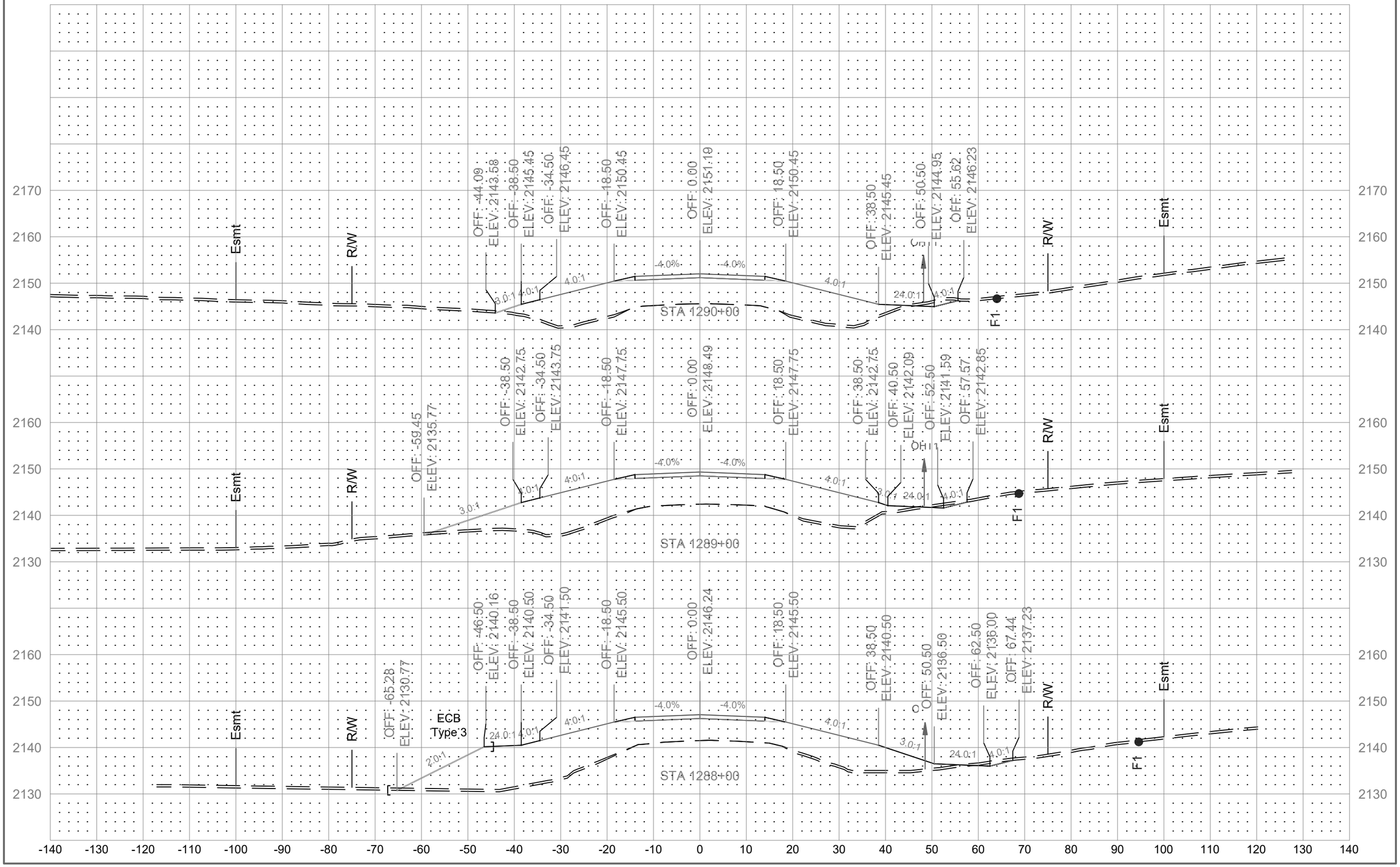

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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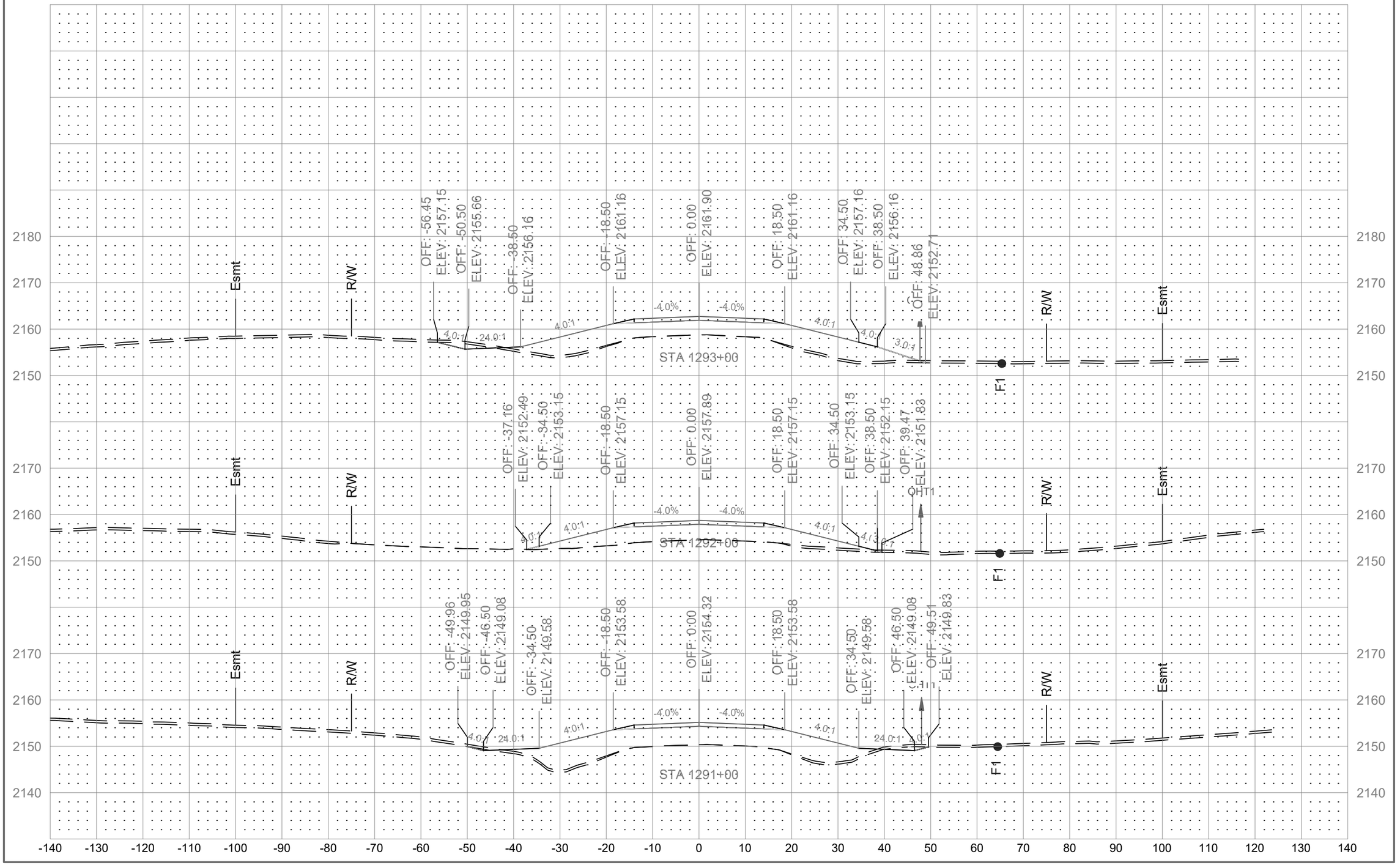

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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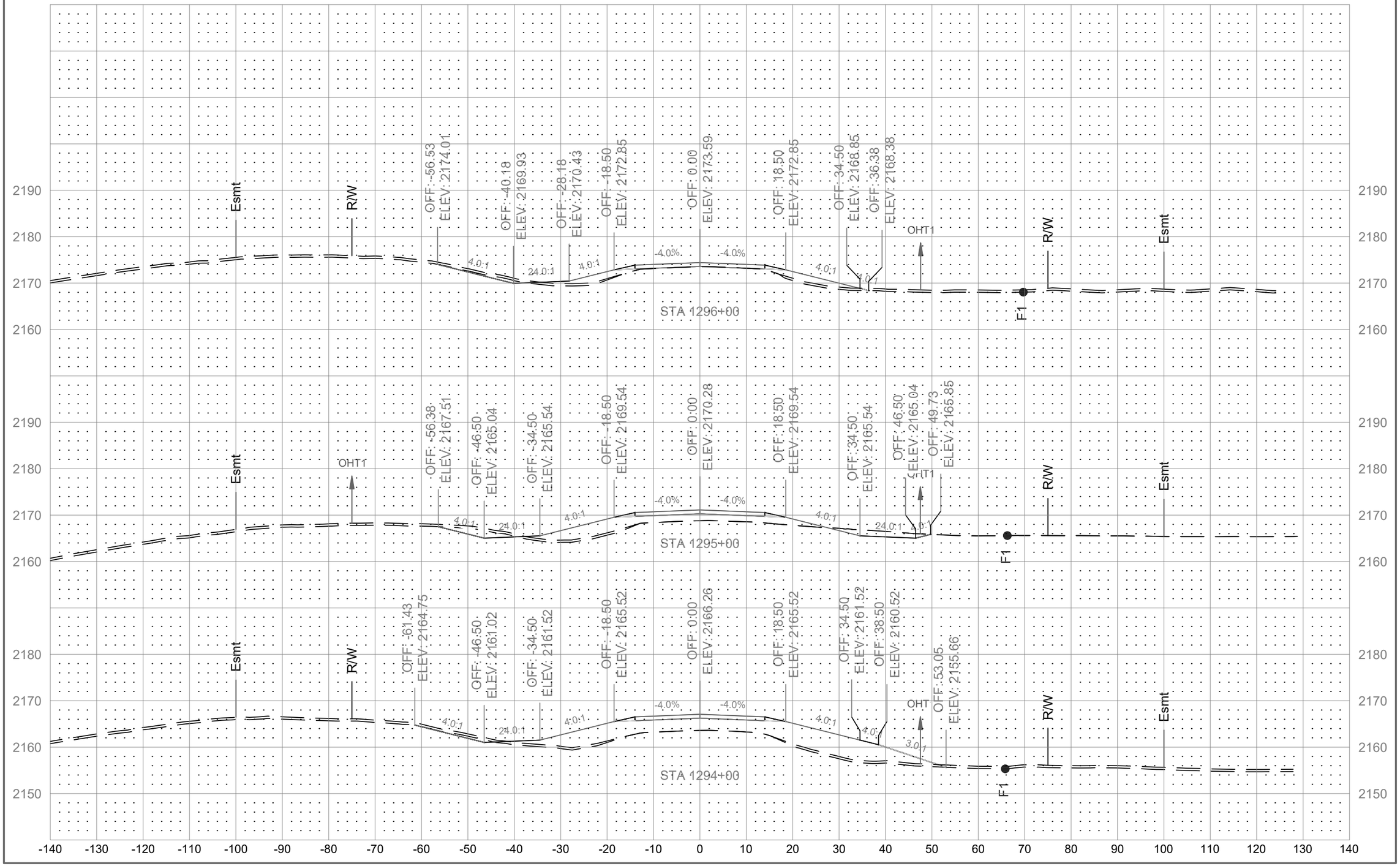

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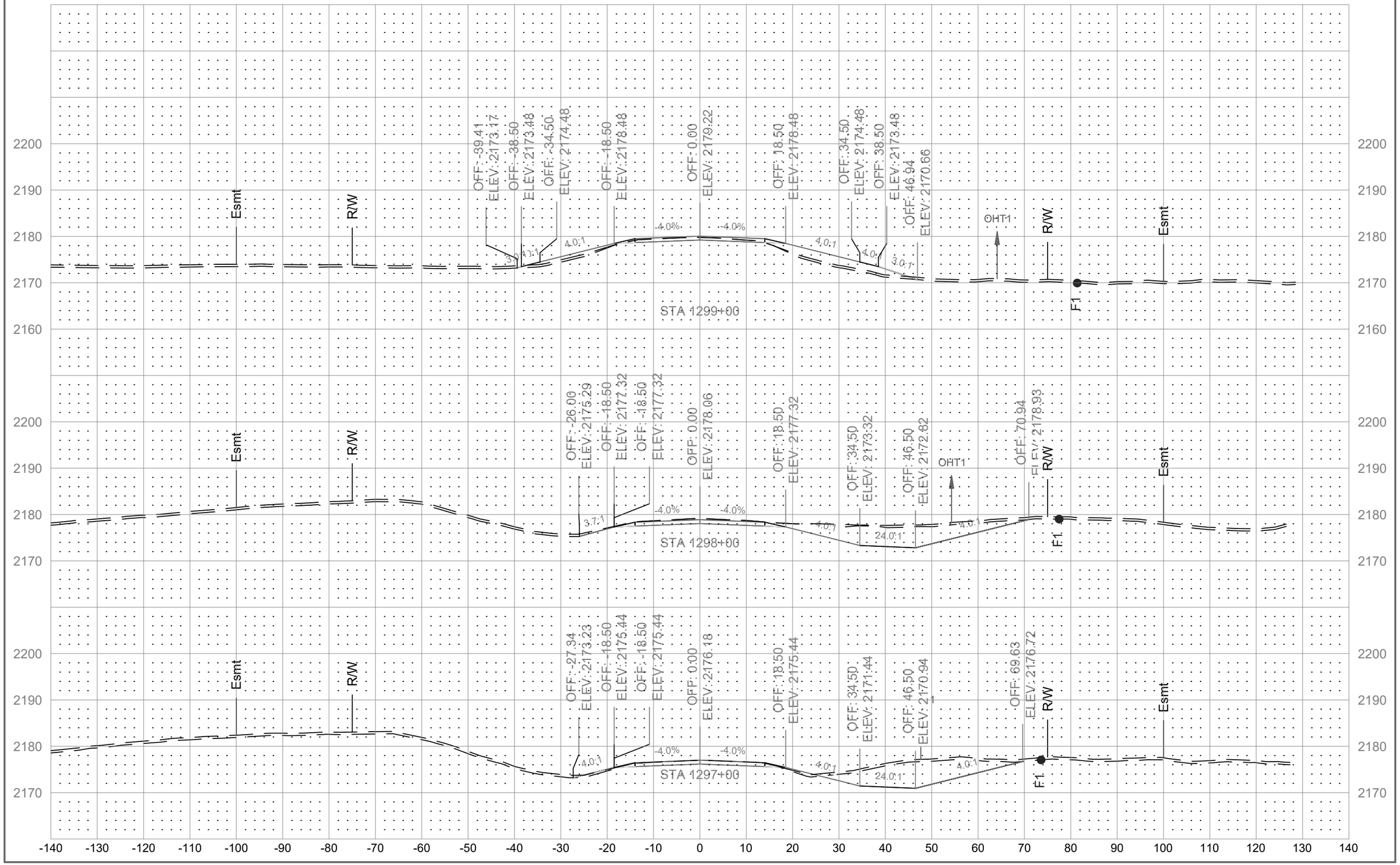

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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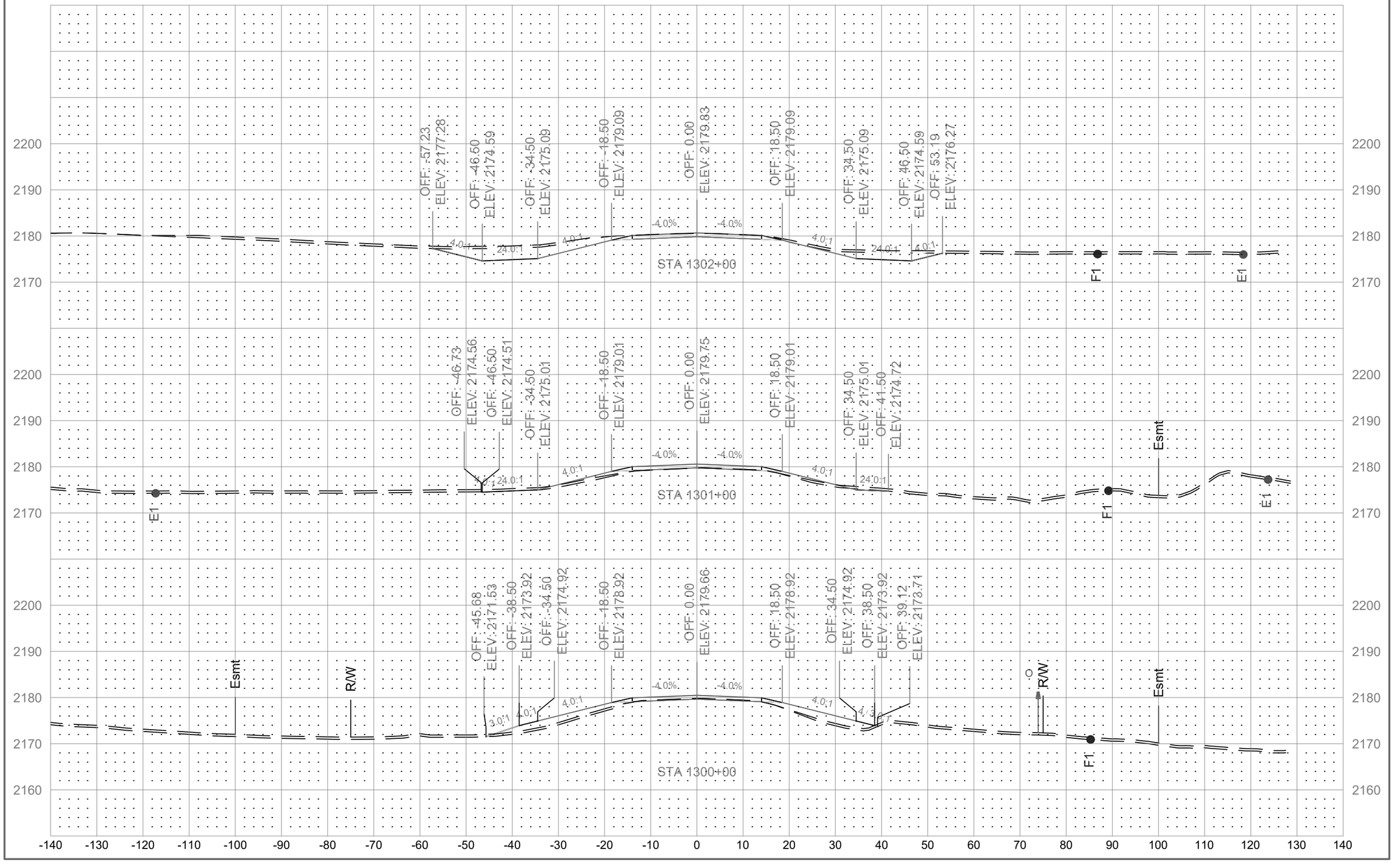

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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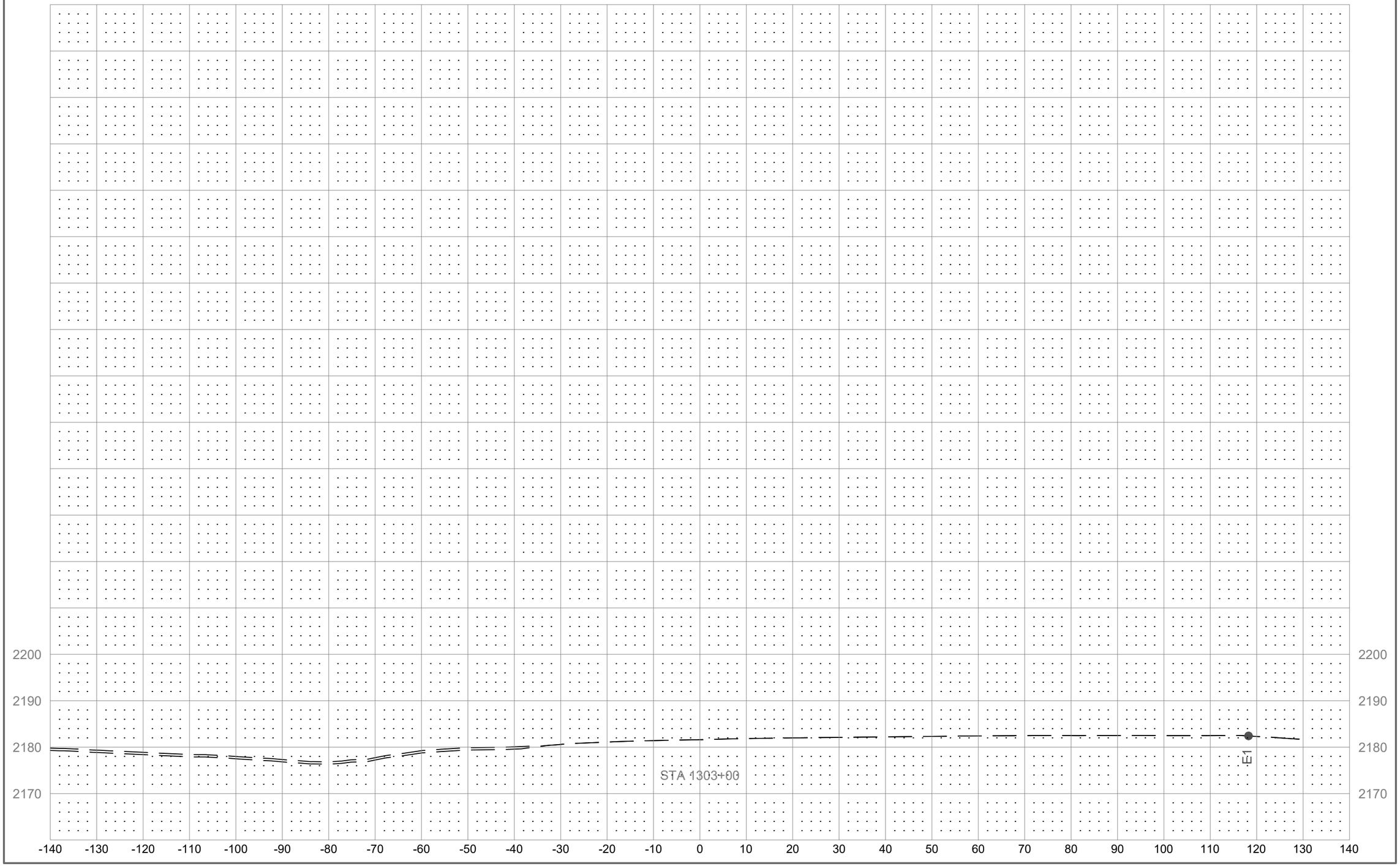

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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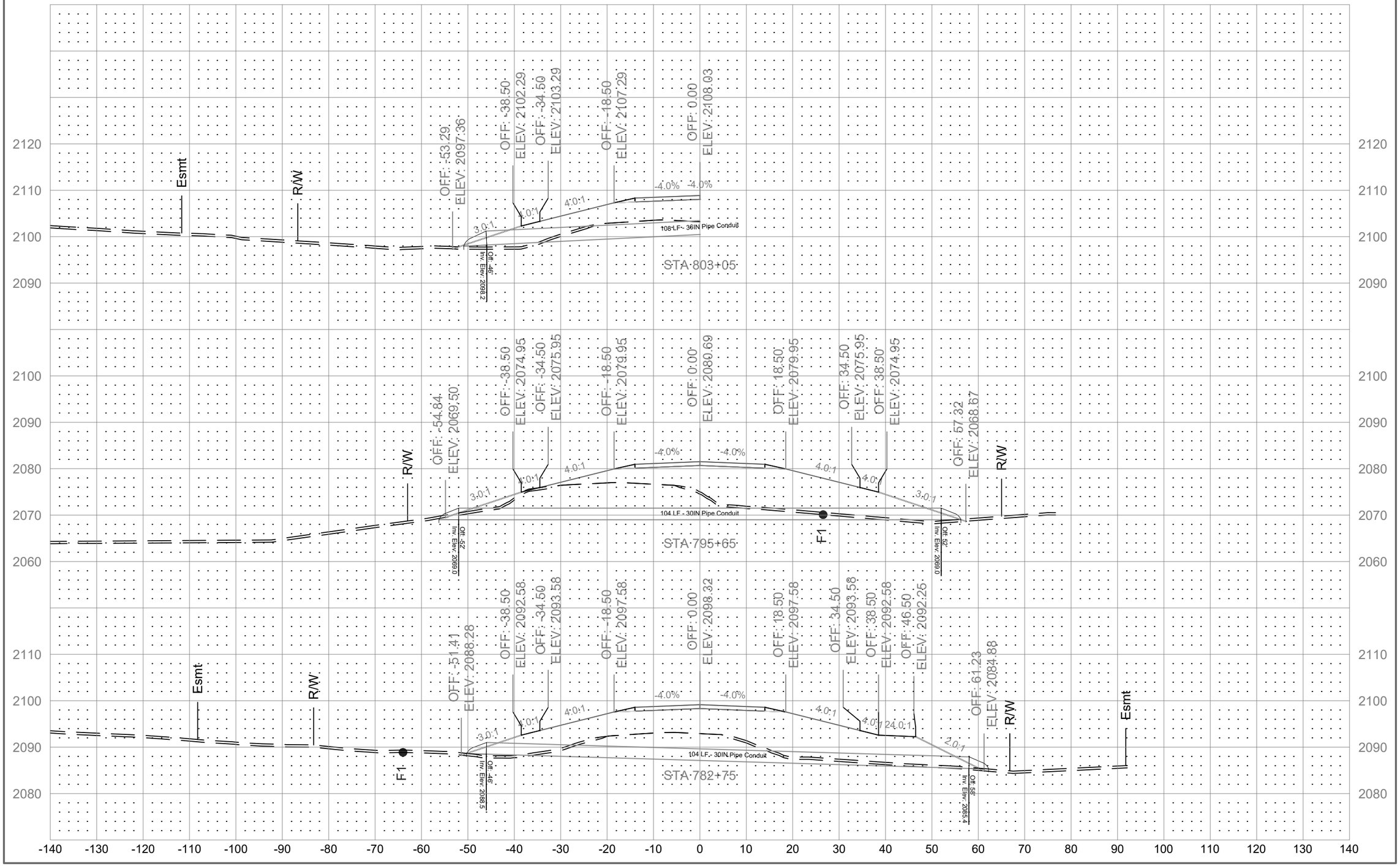

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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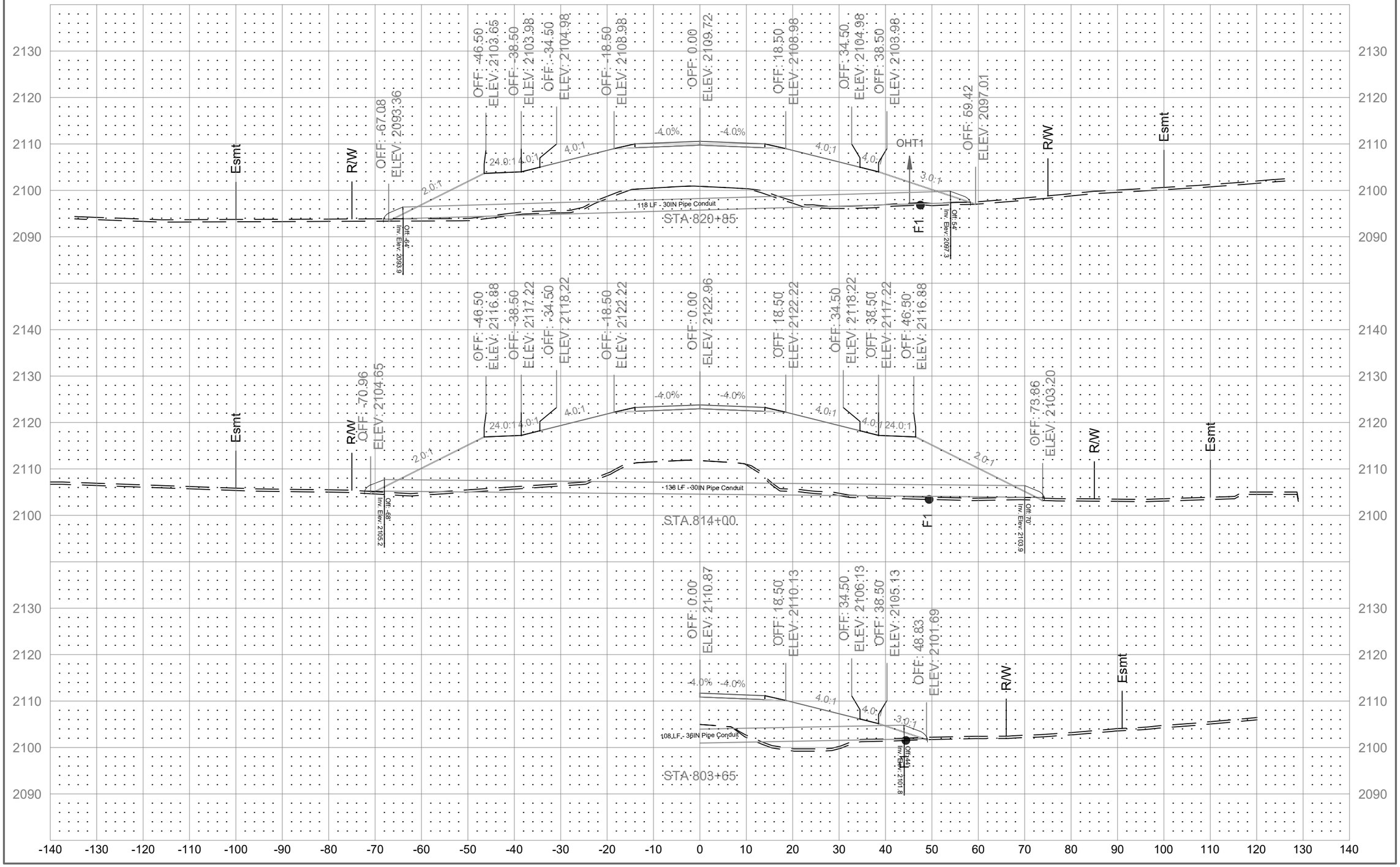

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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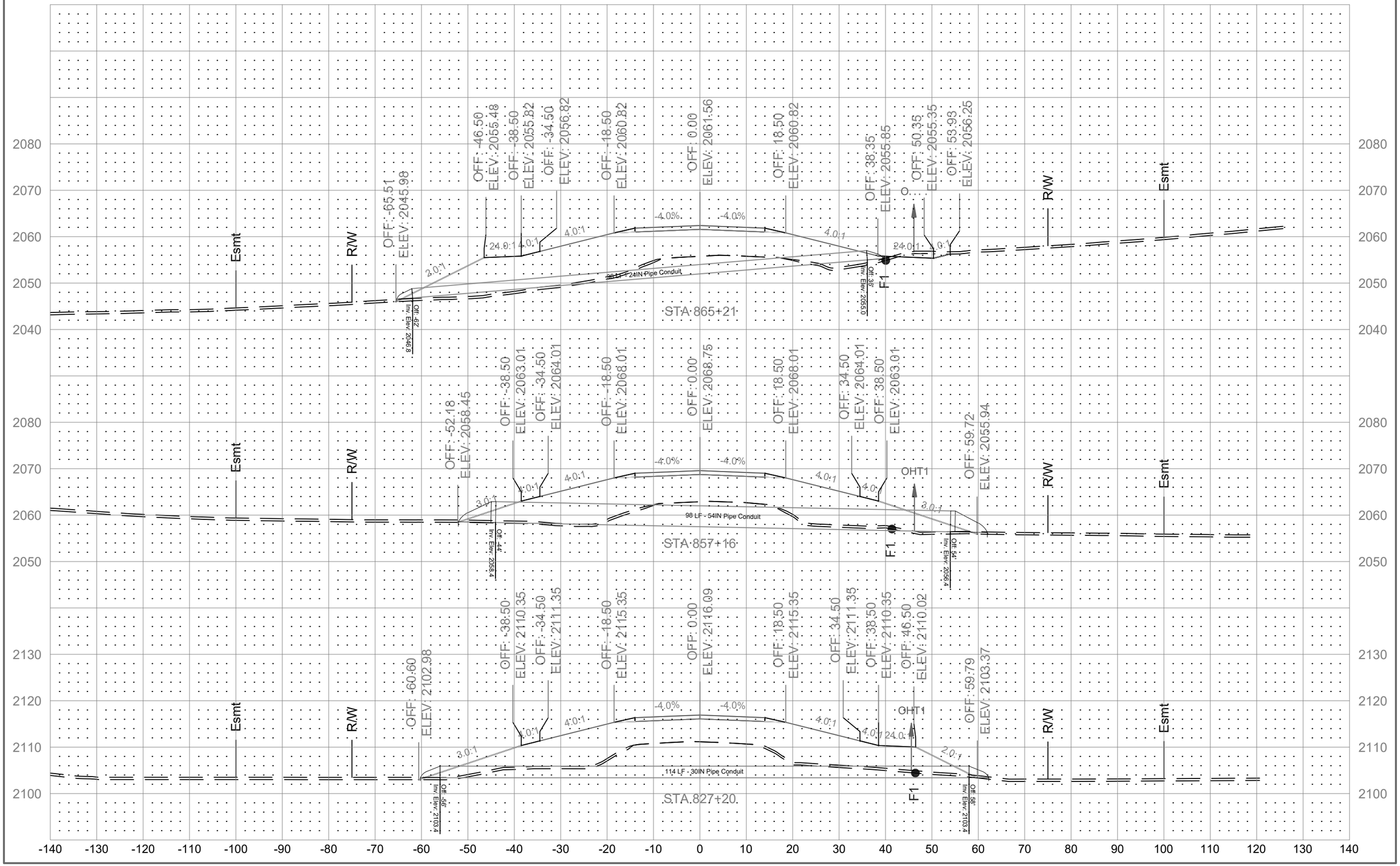

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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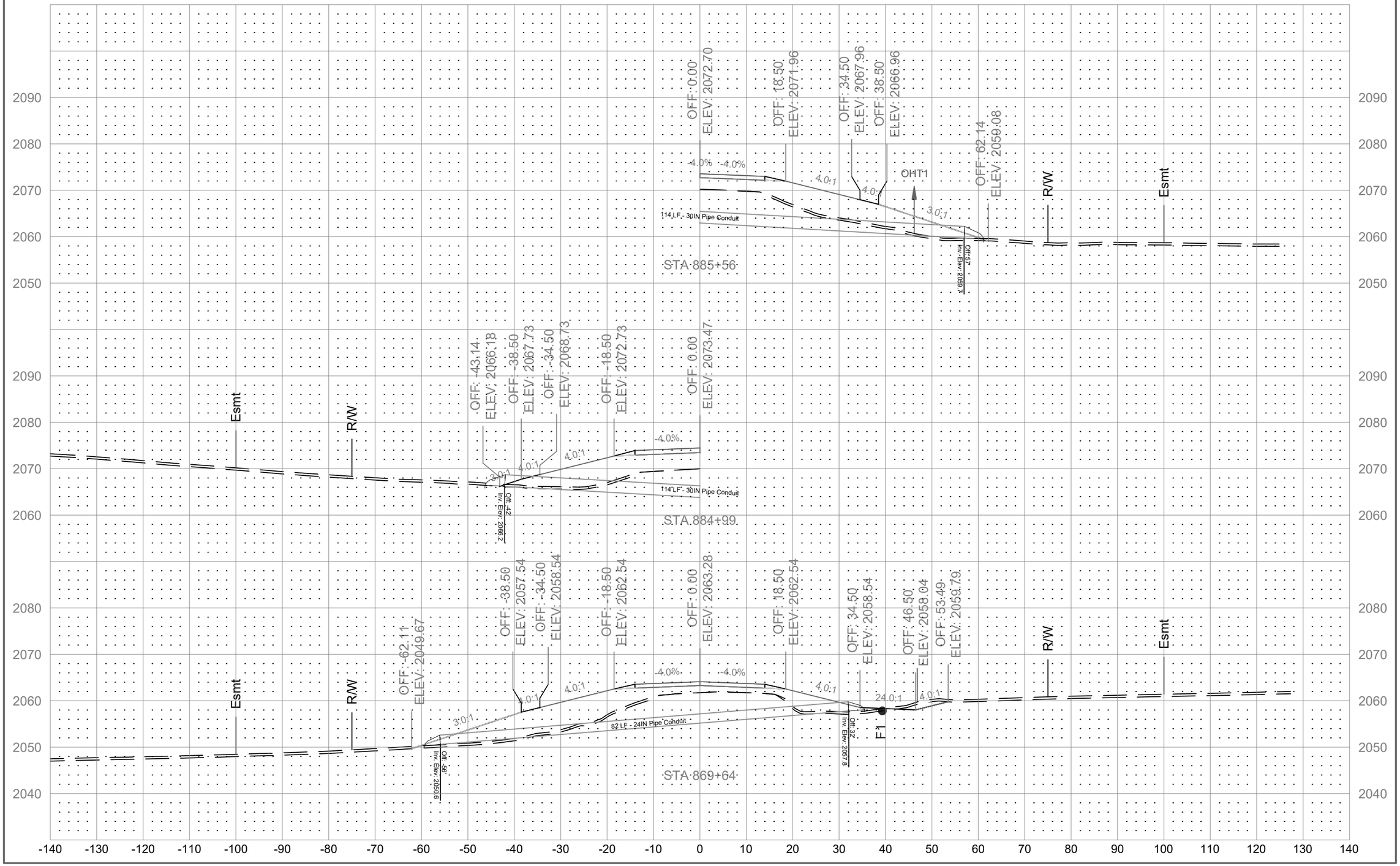

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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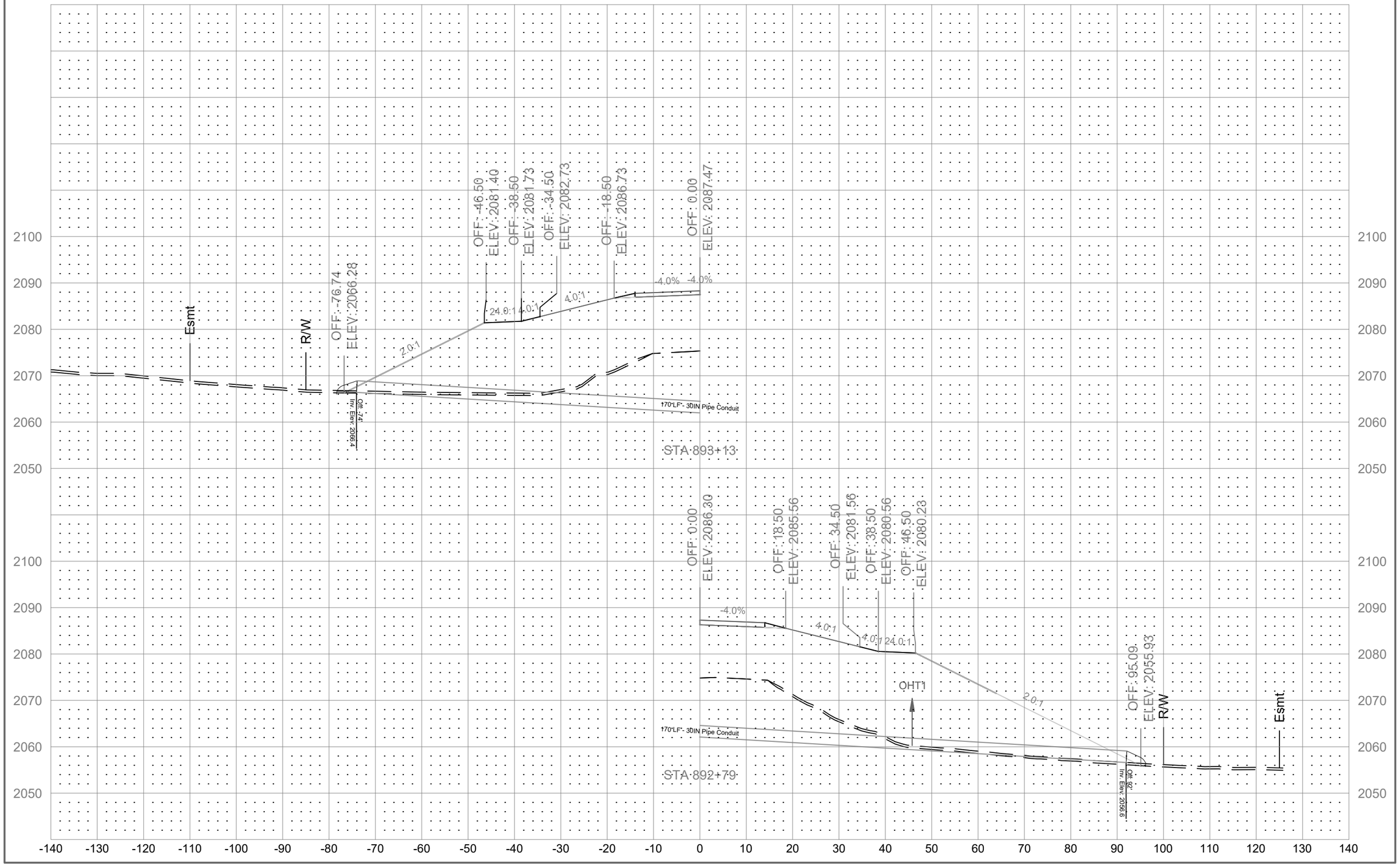
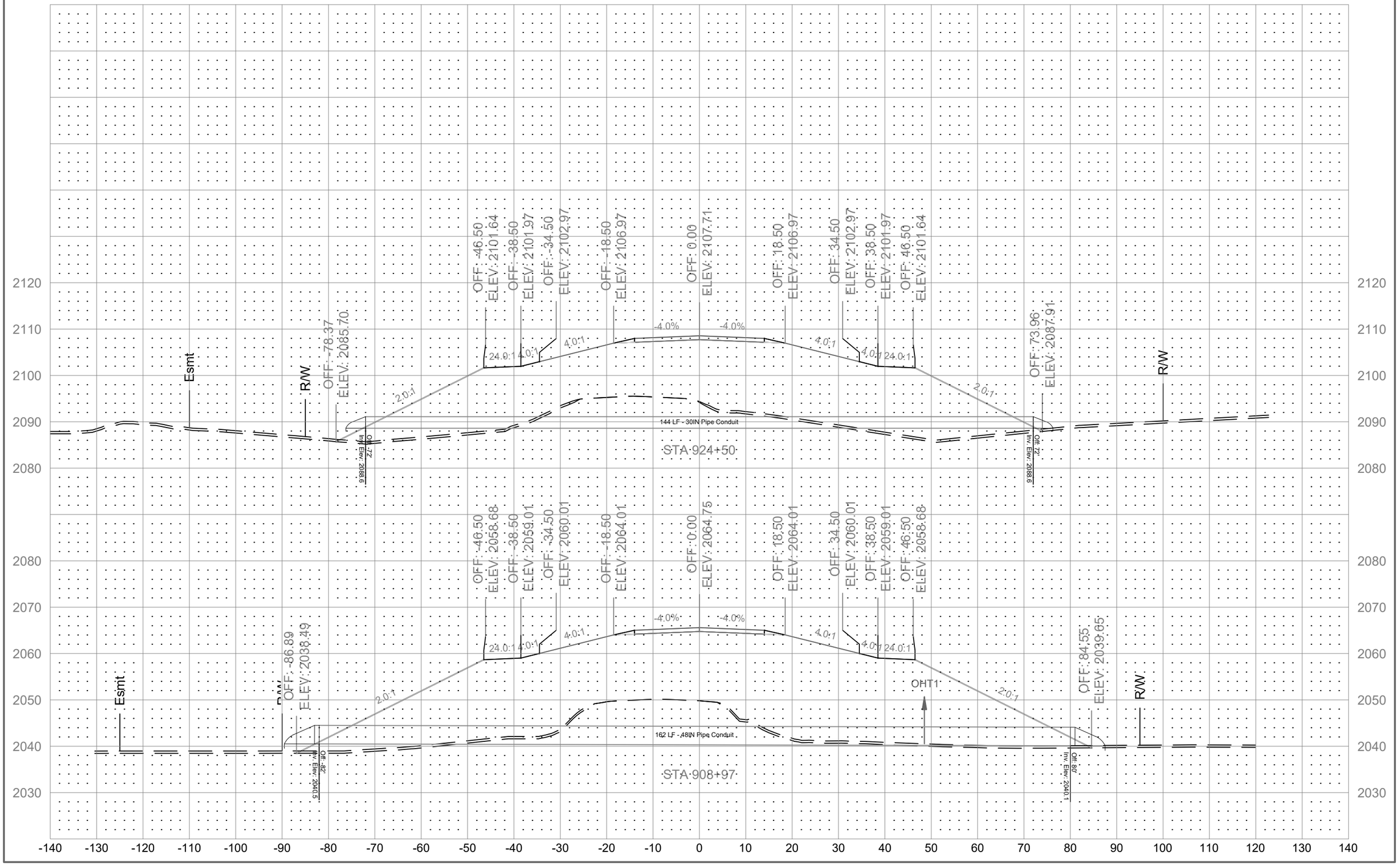
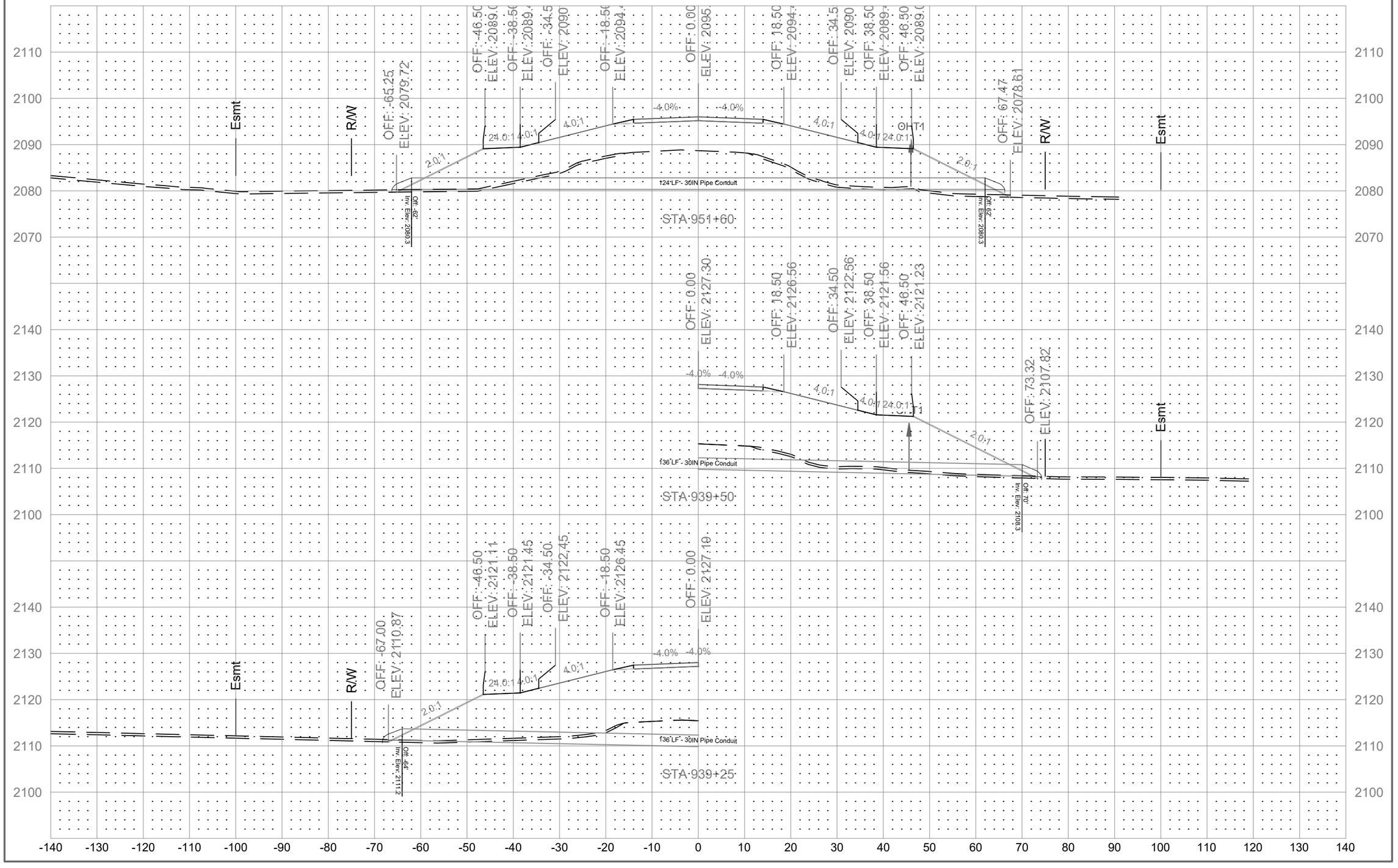


	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	199



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	200	200



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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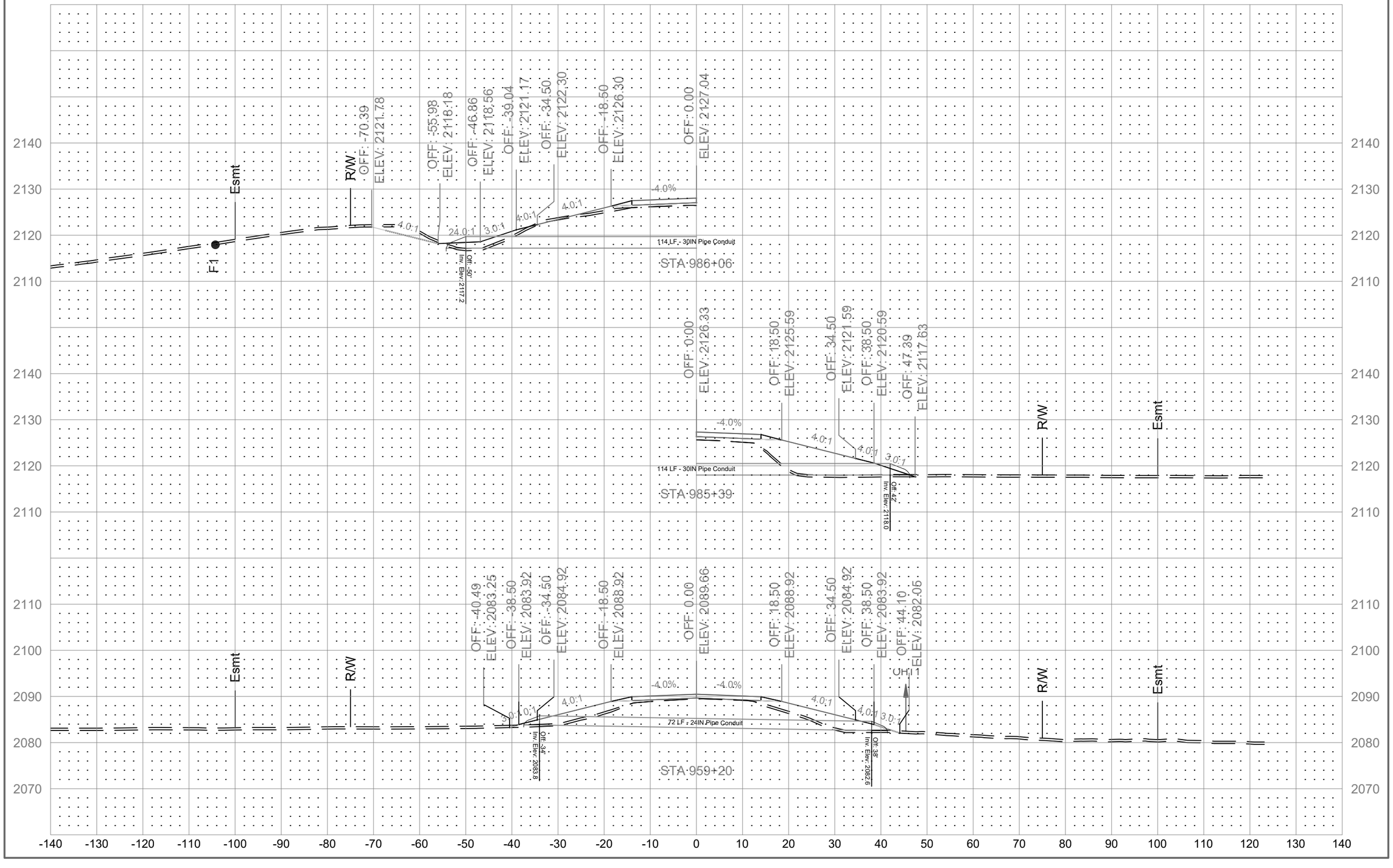

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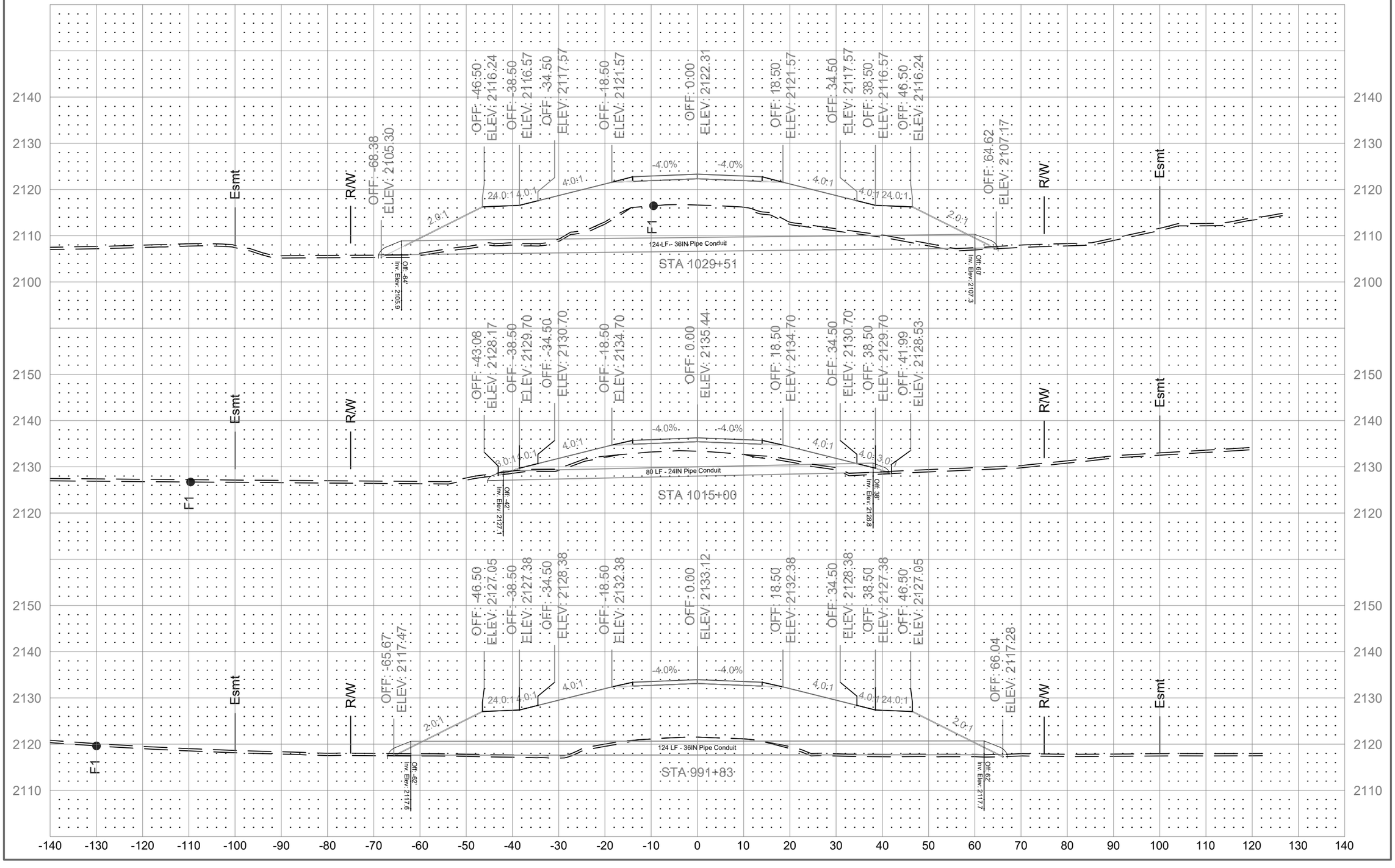

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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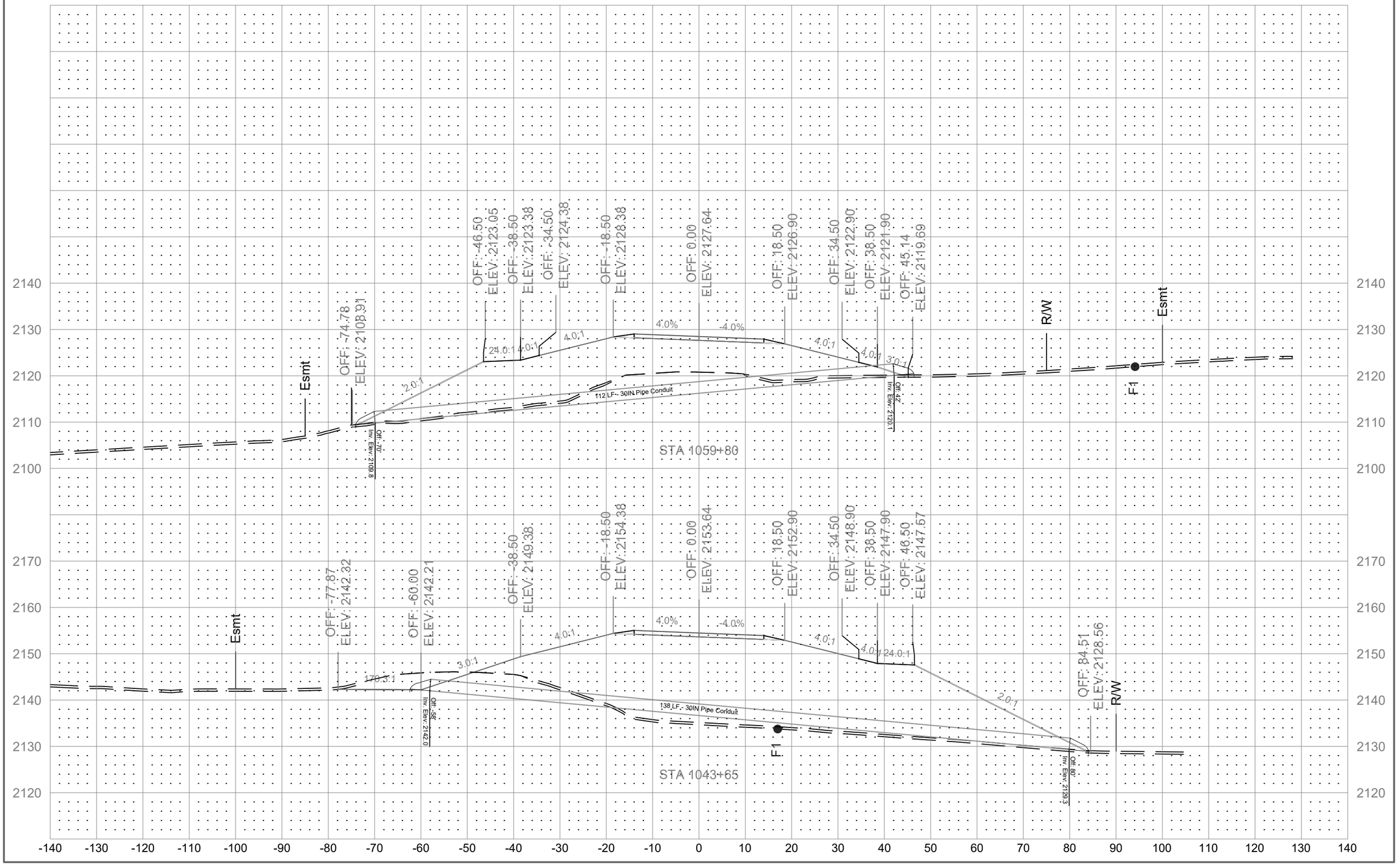

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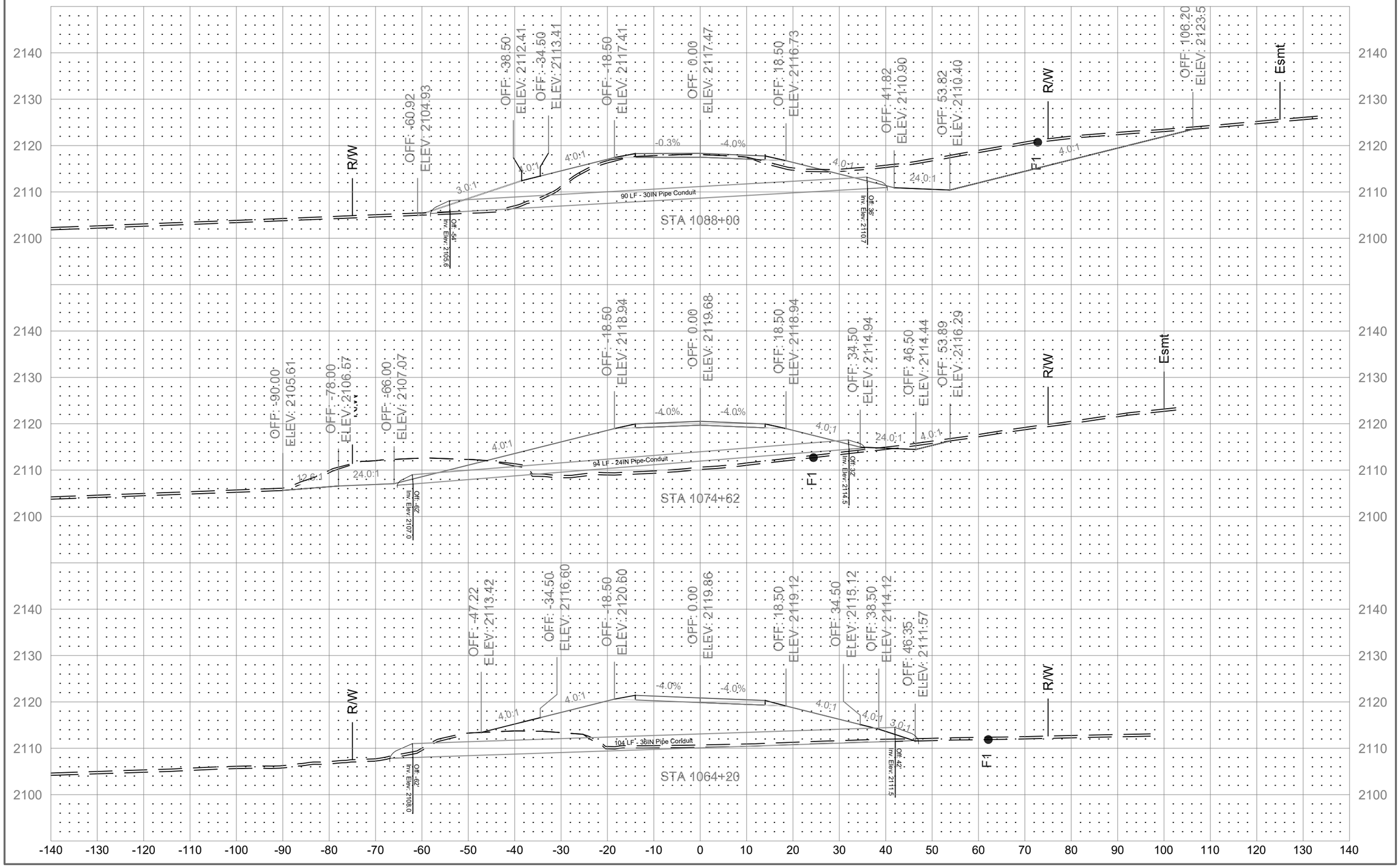

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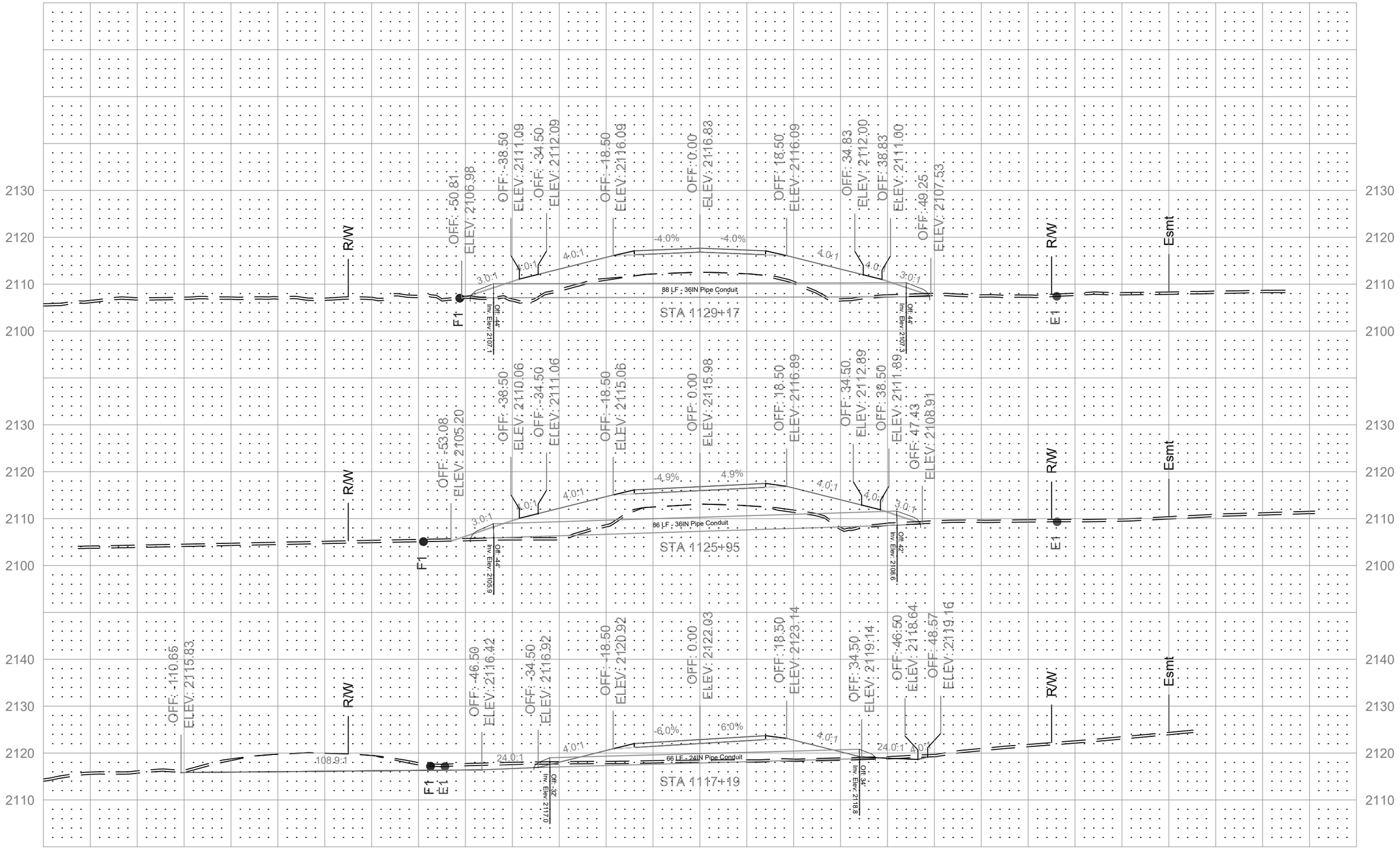

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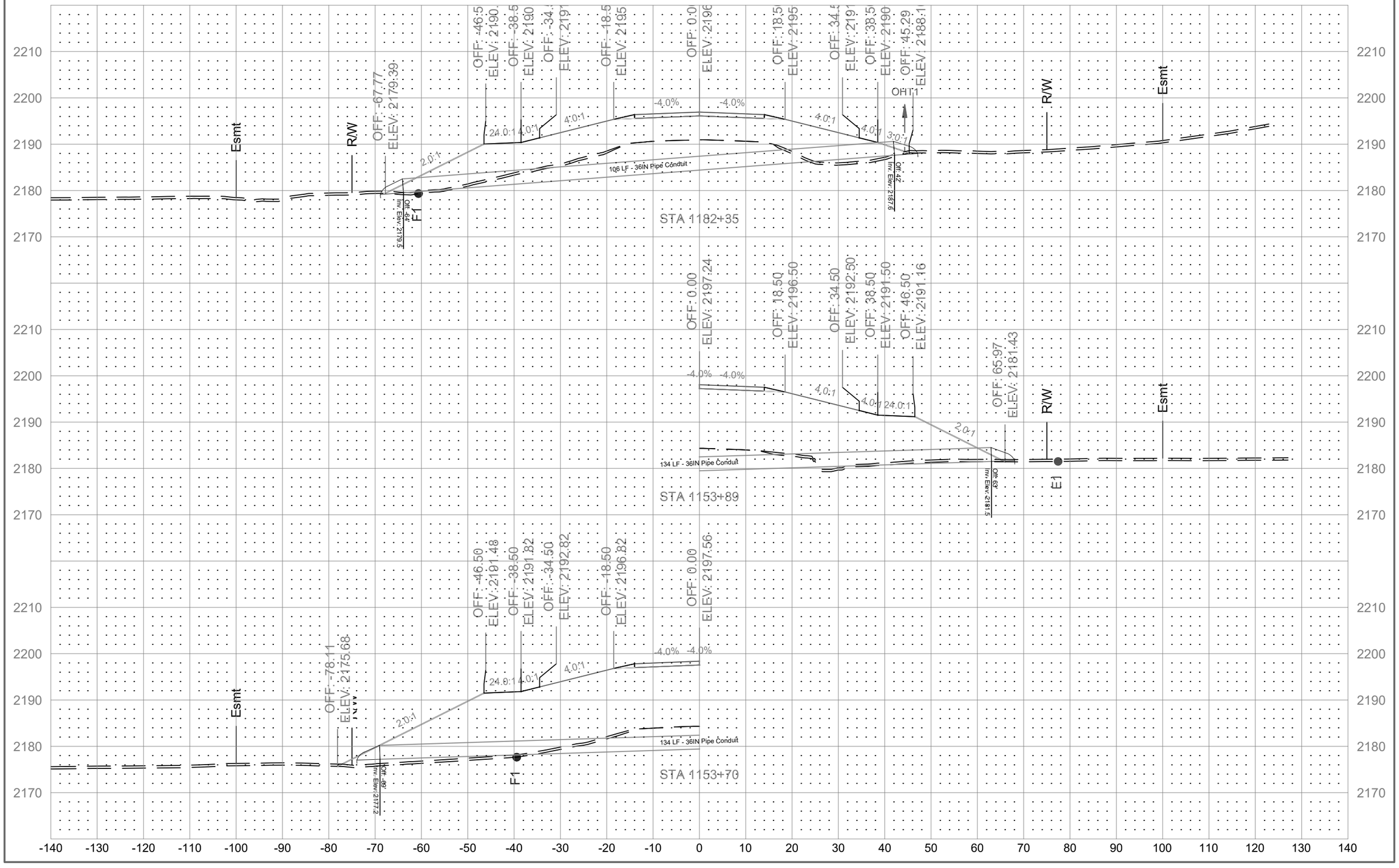

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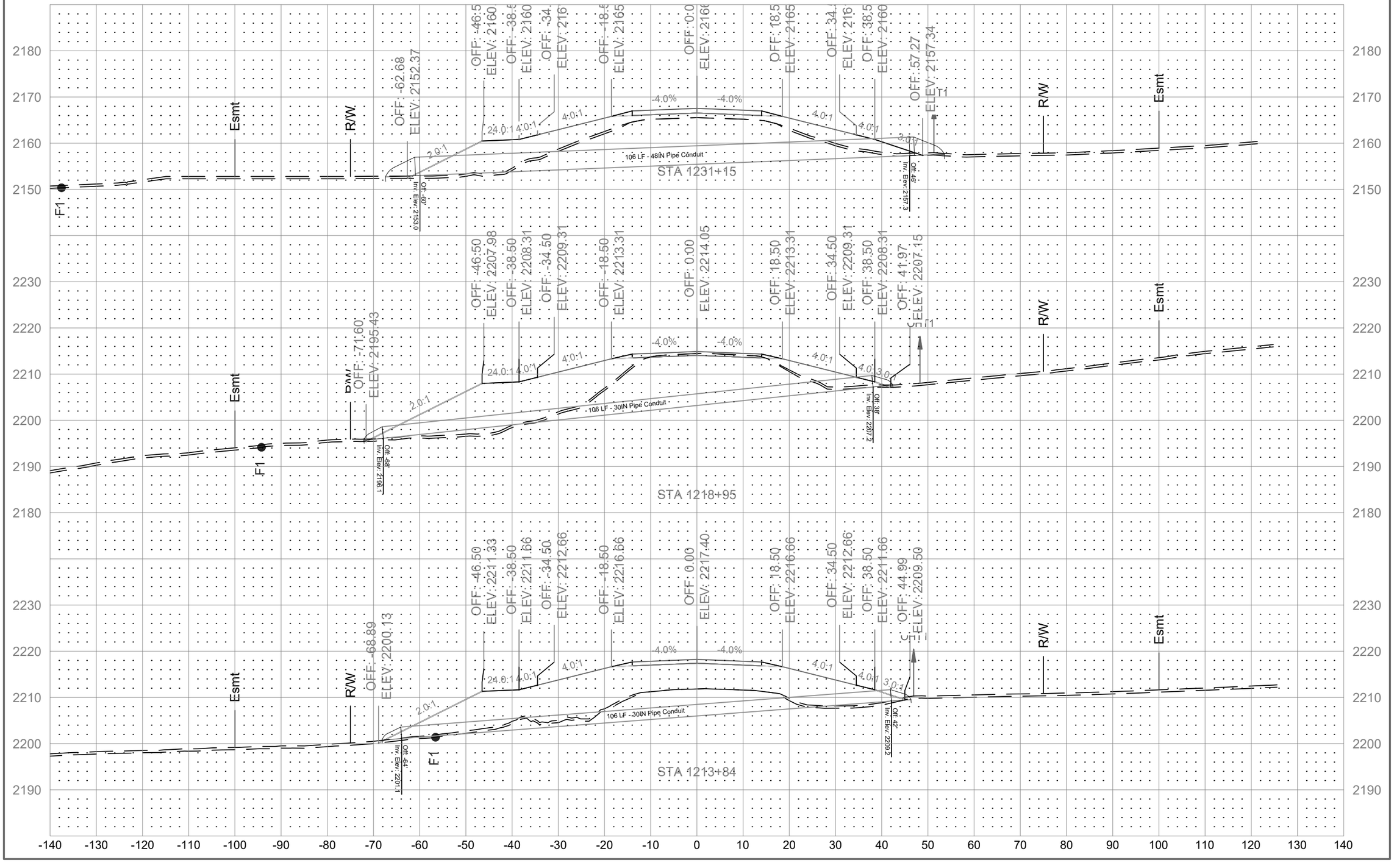

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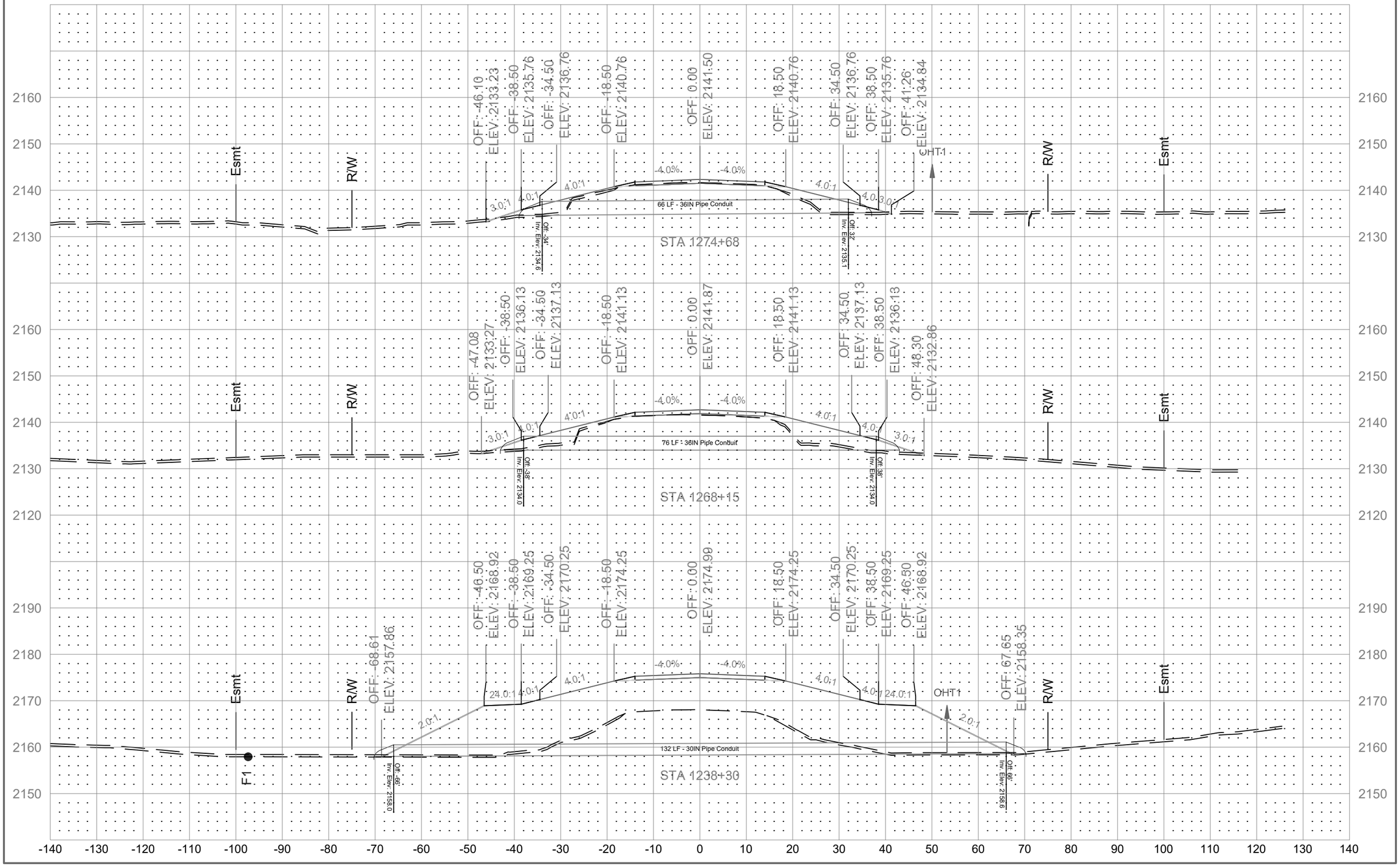

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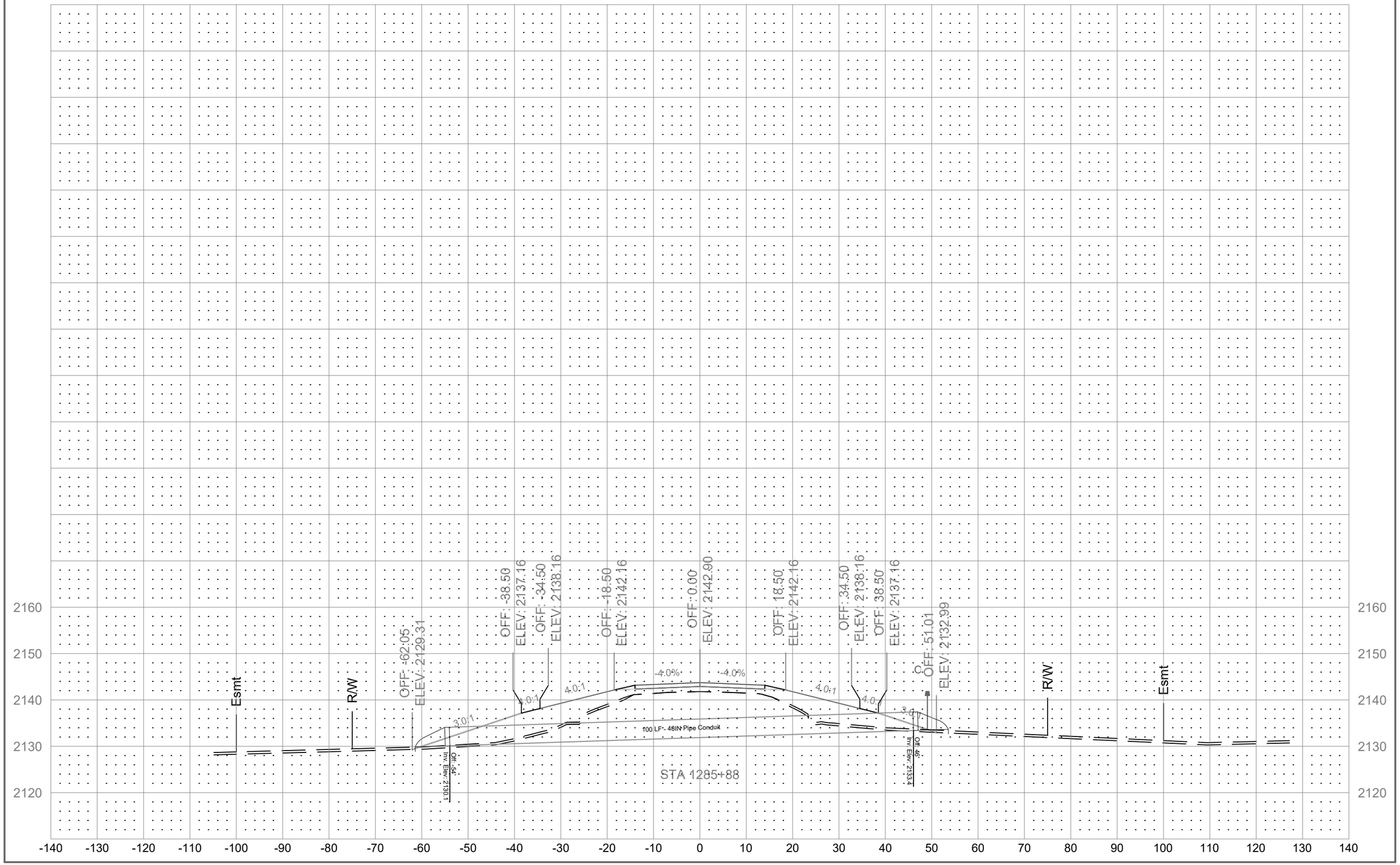

NDDOT ABBREVIATIONS

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
Dlnt	delineate
Dlntr	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
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

KIRK J. HOFF
REGISTERED
PROFESSIONAL
PE-4683
ENGINEER
NORTH DAKOTA
08/16/22

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
MC	meander corner
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	North East
NW	North West
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 ℄	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
Prop Ln	property line
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 DEPARTMENT OF TRANSPORTATION	
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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	South East
SW	South West
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
WC	witness corner

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NDDOT ABBREVIATIONS

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
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
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
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
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

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NDDOT UTILITY COMPANY AND ORGANIZATION ABBREVIATIONS

D-101-10

702COM	702 Communications
ACCENT	Accent Communications
AGASSIZ WU	Agassiz Water Users Incorporated
AGC	Assiociated General Contractors of America
ALL PL	Alliance Pipeline
ALL SEAS WU	All Seasons Water Users Association
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 WU	Burleigh Water Users
CABLE ONE	Cable One
CABLE SERV	Cable Services
CAP ELEC	Capital Electric Cooperative Incorporat
CASS CO ELEC	Cass County Electric Cooperative
CASS RWU	Cass Rural Water Users Incorporated
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 TEL	Consolidated Telephone
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 RWU	Dickey Rural Water Users Association
DICKEY TEL	Dickey Telephone
DNRR	Dakota Northern Railroad
DOME PL	Dome Pipeline Company
DVELEC	Dakota Valley Electric Cooperative
DVMW	Dakota, Missouri Valley & Western
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
GRGS CO TEL	Griggs County Telephone
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
LNGDN RWU	Langdon Rural Water Users Incorporated
LWR YELL R ELEC	Lower Yellowstone Rural Electric
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
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
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
MRE LBTY TEL	Moore & Liberty Telephone
MUNICIPAL	City Water And Sewer
MUNICIPAL	City Of '.....'
N CENT ELEC	North Central Electric Cooperative
N VALL W DIST	North Valley Water District
ND PKS & REC	North Dakota Parks And Recreation
ND TEL	North Dakota Telephone Company
NDDOT	North Dakota Department of Transportation
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
NTH PRAIR RW	Northern Prairie Rural Water Association
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 W SUPPLY	R & T Water Supply Association
RED RIV COMM	Red River Rural 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
S E W U	South East 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 RWU	Stutsman Rural Water Users
SW PL PRJ	Southwest Pipeline Project
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 RWU	Traill County Rural Water Users
UNTD TEL	United Telephone
UPPR SOUR WUA	Upper Souris Water Users Association
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 RWA	Williams Rural Water Association
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

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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

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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

Countours

- Failure Line
- 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)

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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)

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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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Kirk J Hoff
12 18 2020

Cross Section Legend

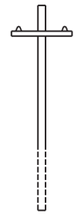
D-101-40

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

* 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.

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

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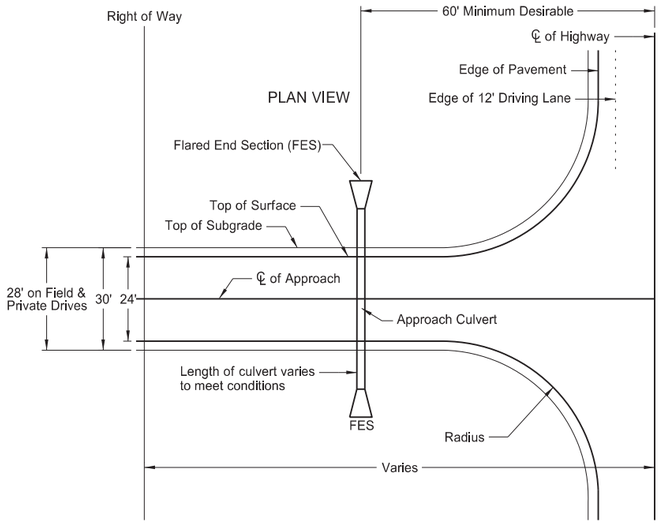
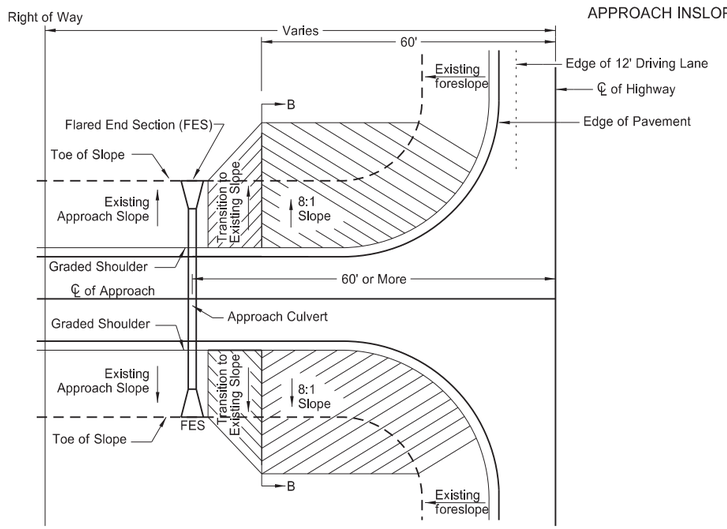
06/14/23

STANDARD RURAL APPROACHES

D-203-8

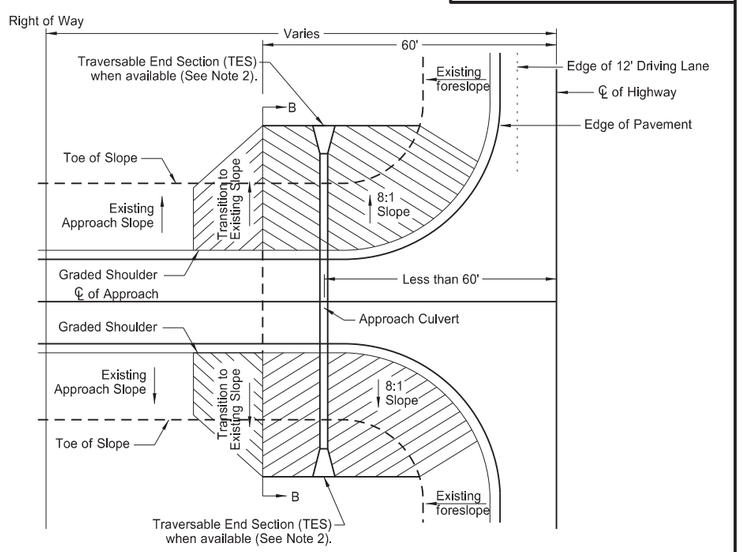


APPROACH INSLOPES



CASE 1

APPROACH PIPE LOCATED
60' OR MORE FROM ℄



CASE 2

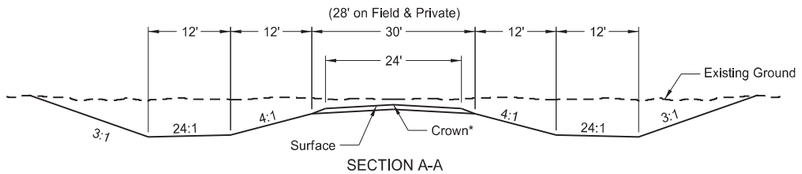
APPROACH PIPE LOCATED
LESS THAN 60' FROM ℄

Approach Pipe Traversable End Sections (TES)

RCP	CSP	CSP Arch
15"	15"	
18"	18"	21"x15"
		24"x18"
24"	24"	28"x20"

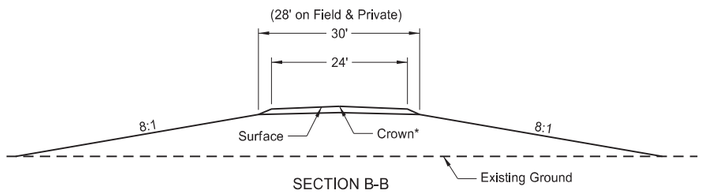
CRITERIA FOR RURAL APPROACH TYPES

	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)

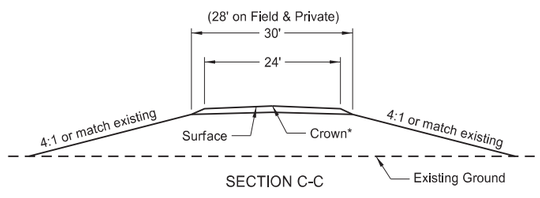


SECTION A-A

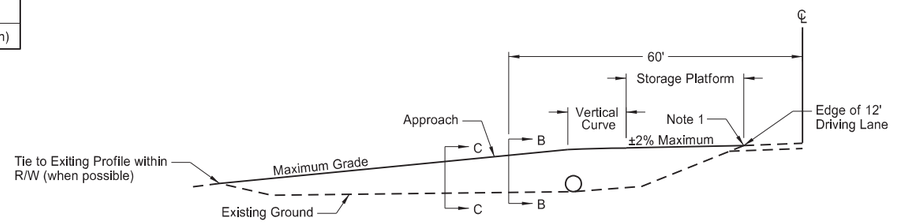
*2.1% crown for paved surface
*3.0% crown for gravel surface



SECTION B-B



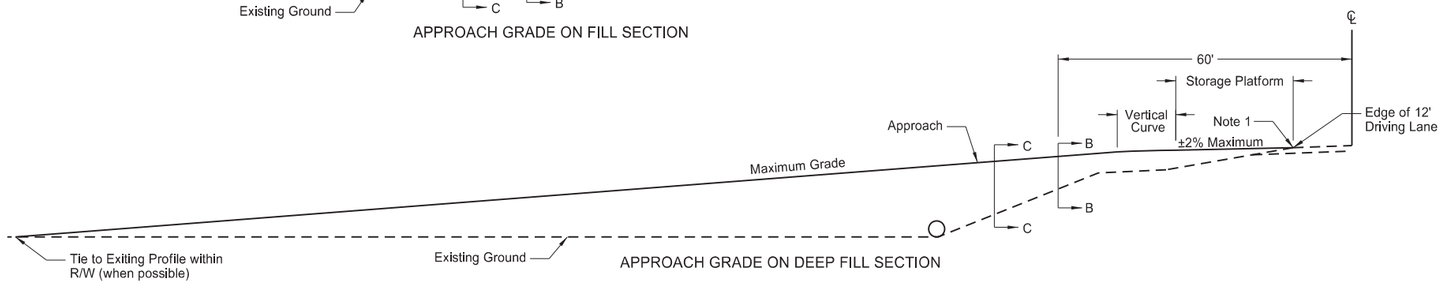
SECTION C-C



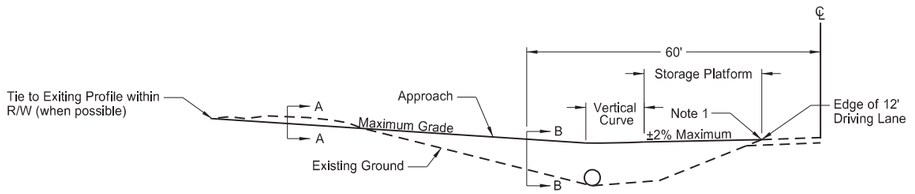
APPROACH GRADE ON FILL SECTION

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.



APPROACH GRADE ON DEEP FILL SECTION



APPROACH GRADE ON CUT SECTION

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 06-29-22	Changed "Inslope" to "Foreslope" Added "TES", Table, and Note 2

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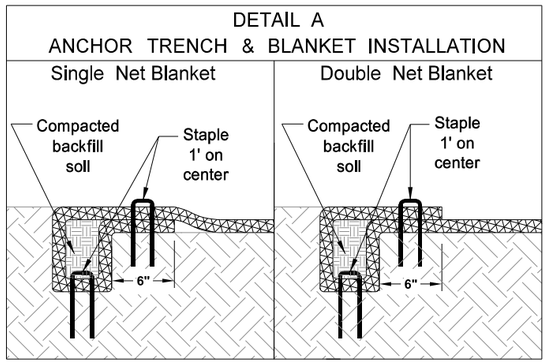
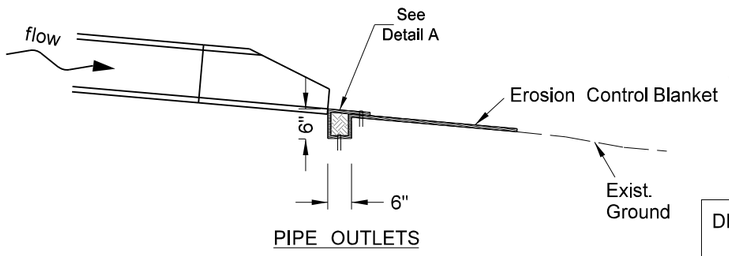
06/29/22

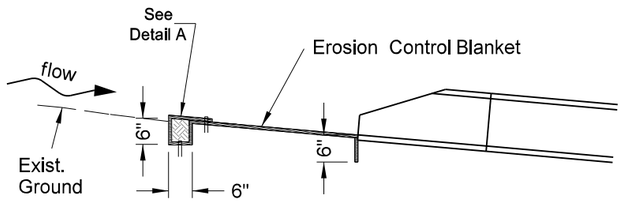
EROSION AND SILTATION CONTROL
EROSION CONTROL BLANKET INSTALLATION



NOTE:
If a Single Net Blanket is used the side with the netting should be on the top once the blanket is installed.

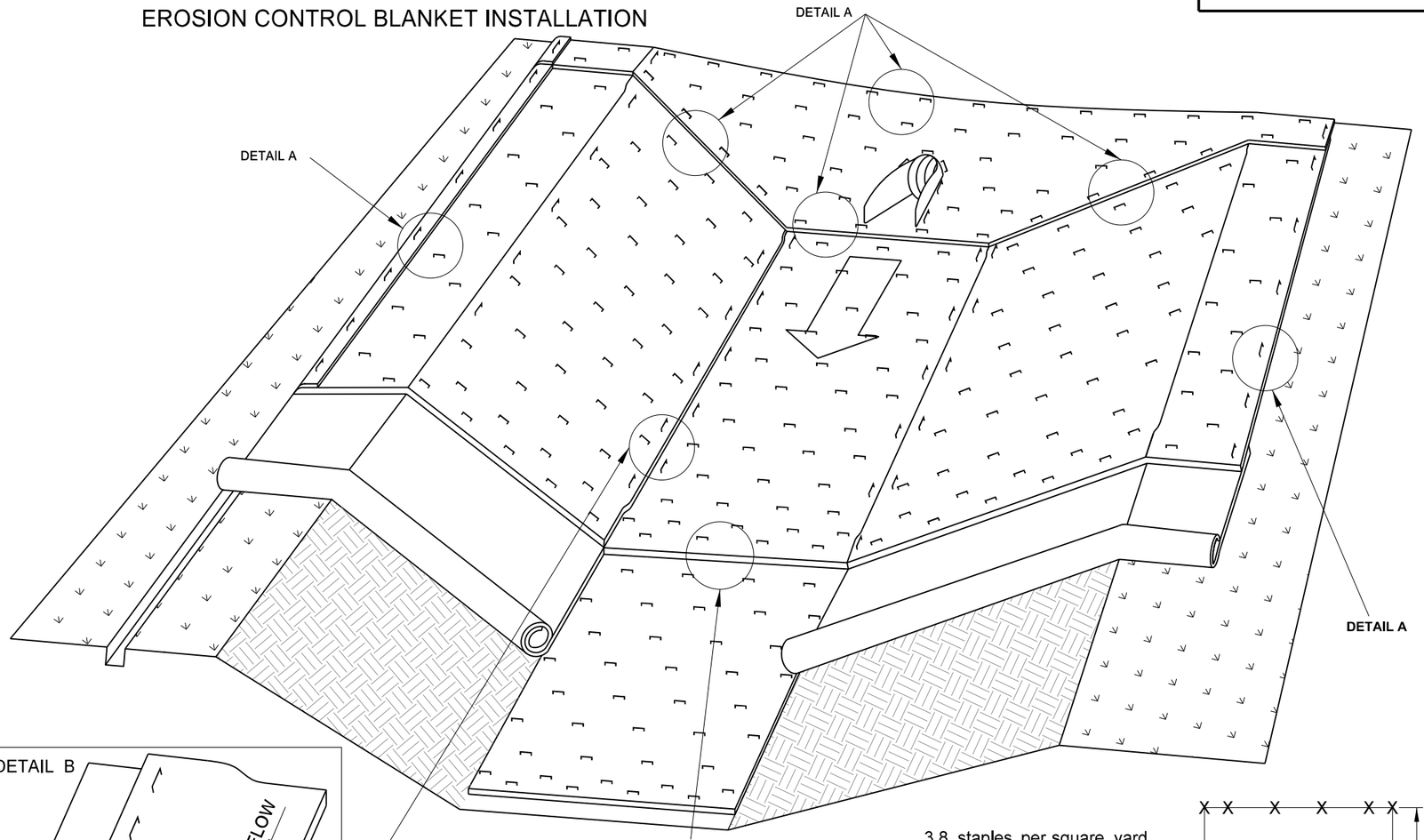


PIPE OUTLETS

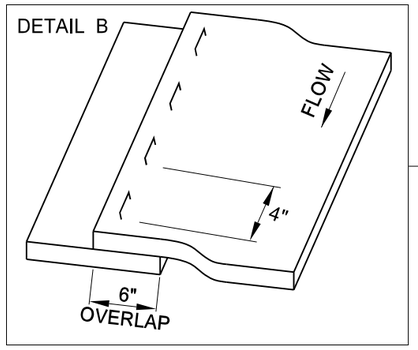


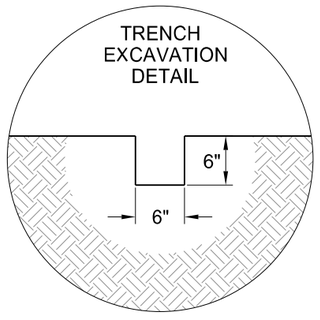
PIPE INLETS

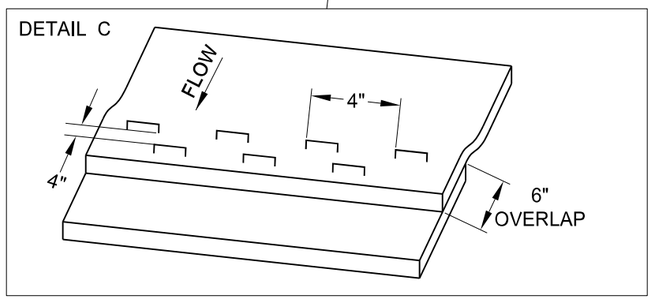
INSTALLATION AT PIPE ENDS



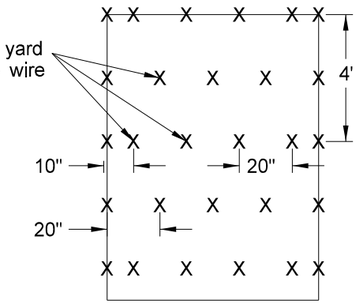
BLANKET LAYOUT
CHANNEL OR SLOPE INSTALLATION







3.8 staples per square yard using 8-inch 11 gauge wire "u" staples.



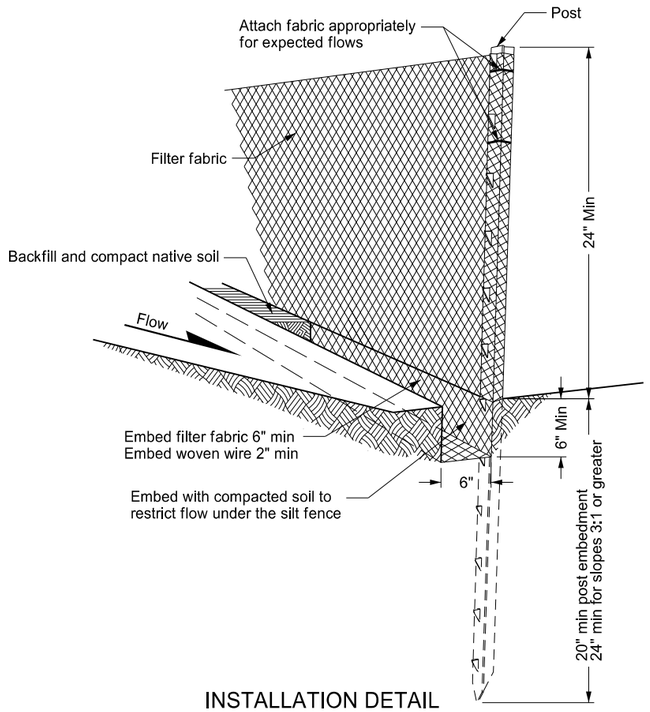
STAPLE PATTERN

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
10-03-13	
REVISIONS	
DATE	CHANGE
06-26-14	Changed standard drawing number from D-708-5 to D-255-2.
07-27-15	Changed Installation details such as trench depth and overlap dimensions.
08-27-19	New Design Engineer PE Stamp.

This document was originally issued and sealed by Kirk J Hoff, Registration Number PE-4683, on 08/27/19 and the original document is stored at the North Dakota Department of Transportation

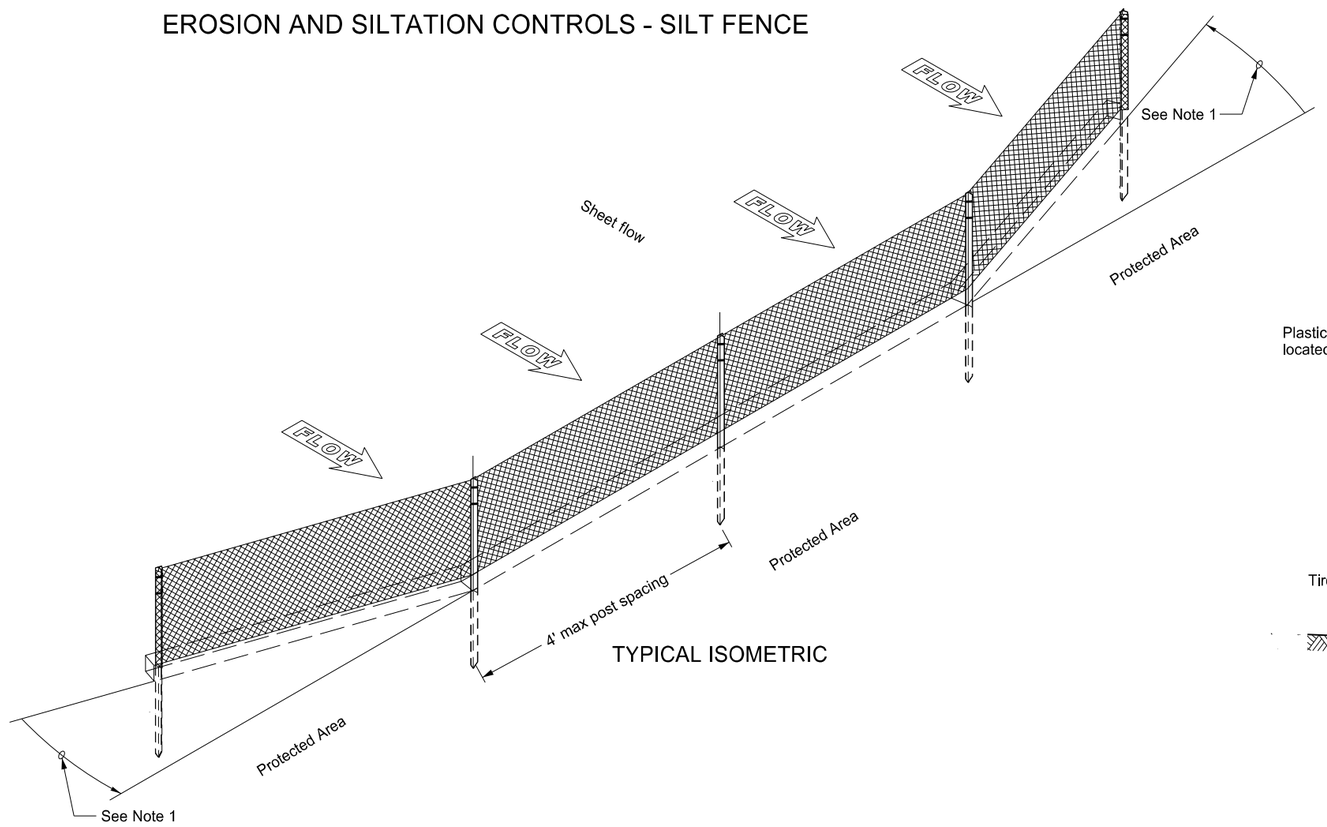
EROSION AND SILTATION CONTROLS - SILT FENCE

D-260-1

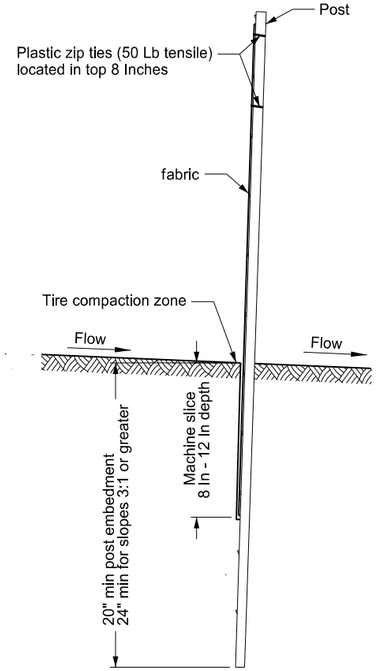


INSTALLATION DETAIL

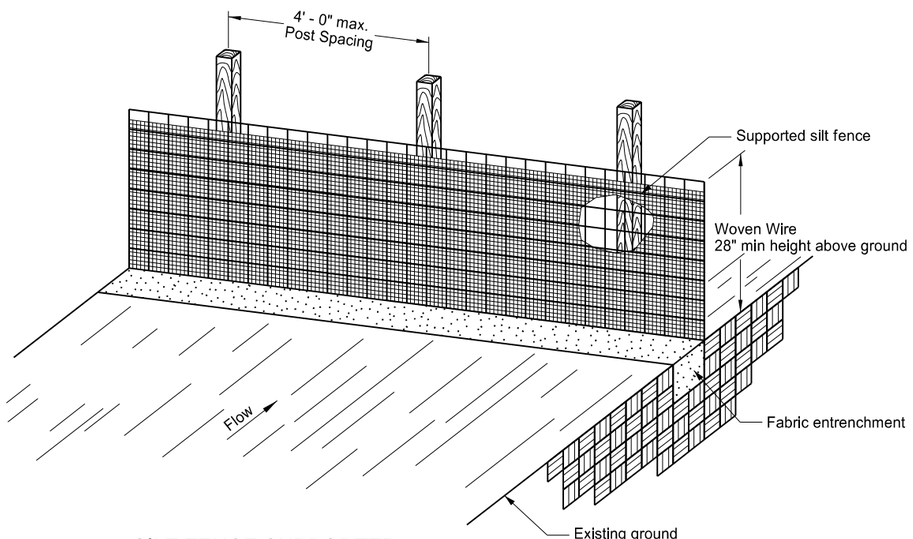
Minimize disturbance of ground around trench and smooth surface after excavation to avoid concentrating flows. Compact to prevent undercutting flows.



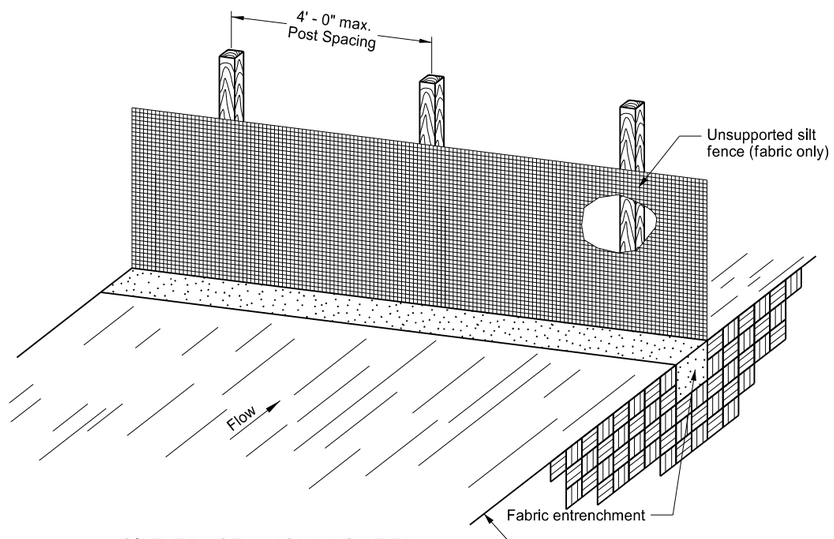
TYPICAL ISOMETRIC



MACHINE SLICED SILT FENCE



SILT FENCE SUPPORTED



SILT FENCE UNSUPPORTED

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. Install silt fencing parallel to contour lines.
4. Do not embed silt fence when placed in standing water.
5. Silt fence material does not need to reach the top of woven wire support.

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 08-27-19	Revised details & added new ones. New Design Engineer PE Stamp.

This document was originally issued and sealed by Kirk J Hoff, Registration Number PE-4683, on 08/27/19 and the original document is stored at the North Dakota Department of Transportation

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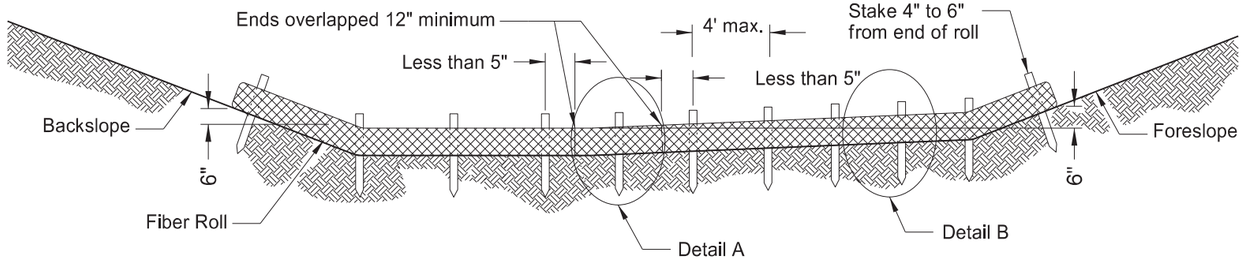
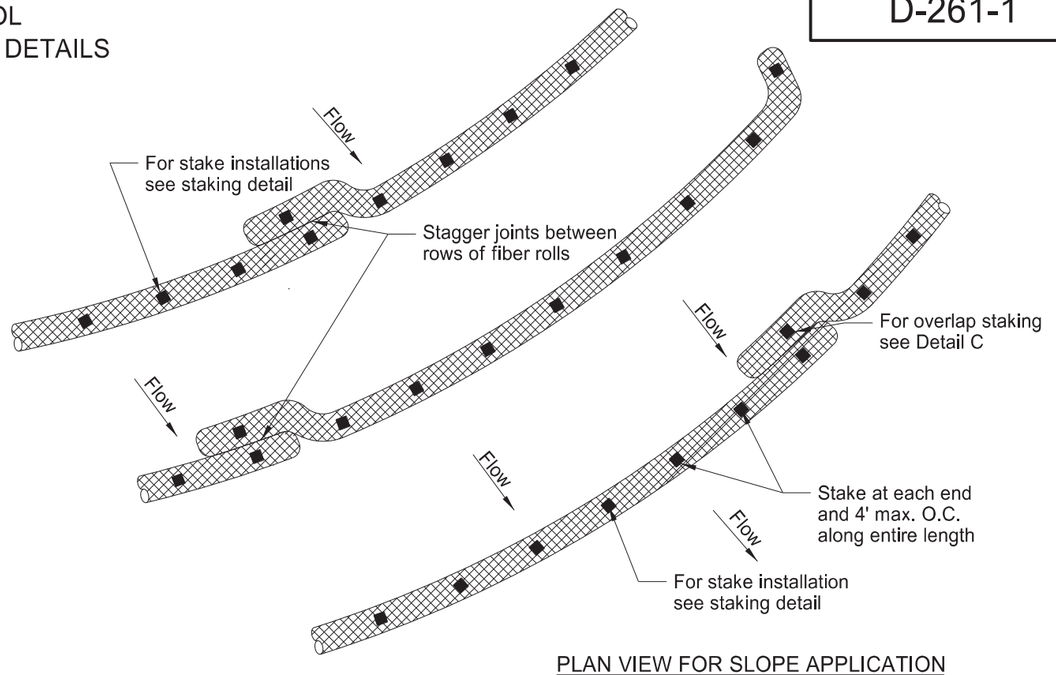
D-261-1

EROSION CONTROL
FIBER ROLL PLACEMENT DETAILS

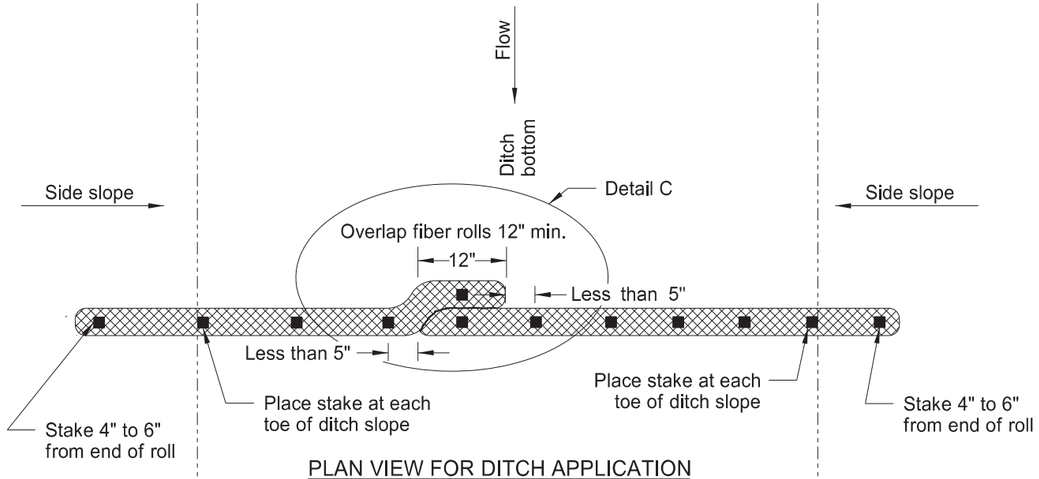


12 OR 20 INCH FIBER ROLL - DITCH BOTTOM



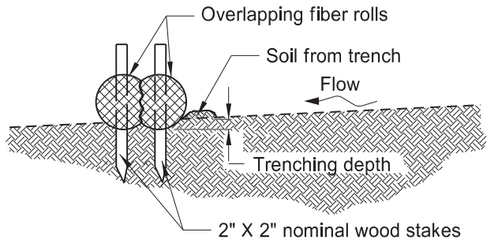
PLAN VIEW FOR SLOPE APPLICATION

Ensure fiber rolls are placed along the contours of the slope.



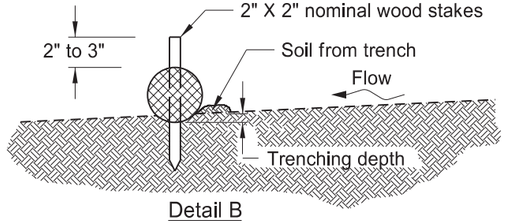
PLAN VIEW FOR DITCH APPLICATION

FIBER ROLL DIAMETER	NOMINAL STAKE SIZE	MINIMUM STAKE LENGTH	MINIMUM TRENCH DEPTH	MAXIMUM TRENCH DEPTH
6"	2" x 2"	18"	2"	2"
12"	2" x 2"	24"	2"	3"
20"	2" x 2"	36"	3"	5"



Detail A

Fiber Roll Overlapping Staking Detail



Detail B

Fiber Roll Staking Detail

NOTE: Runoff must not be allowed to run under or around roll.

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.

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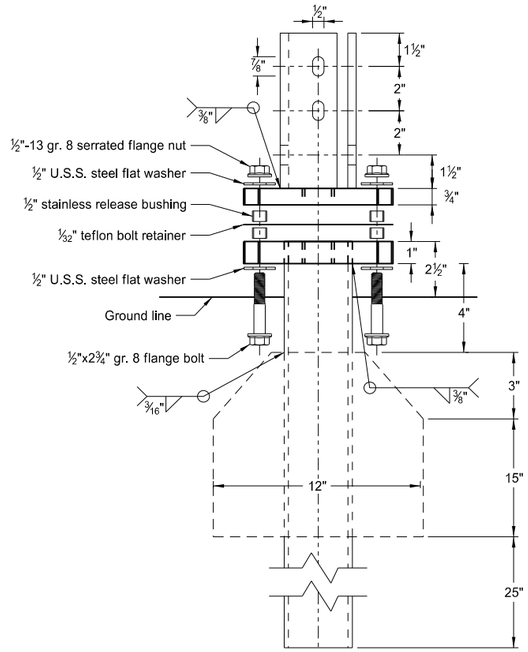
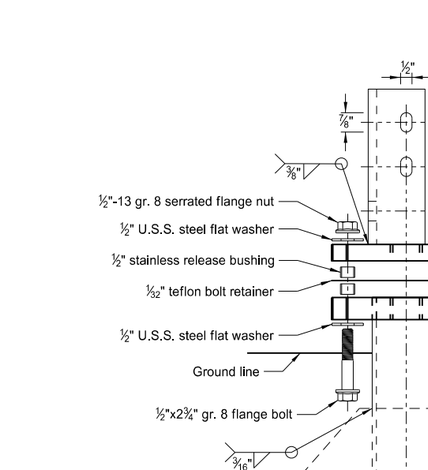
04/22/24

BREAKAWAY SYSTEMS FOR CONSTRUCTION ZONE SIGNS

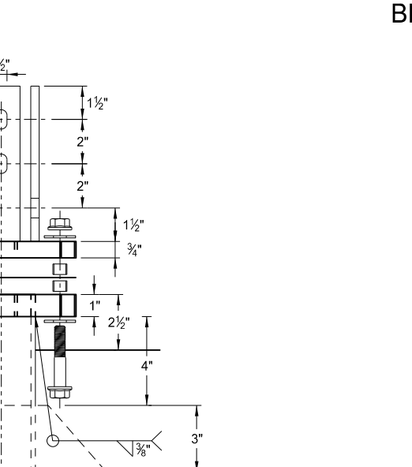
D-704-7



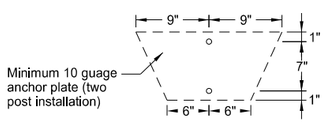
Multi-Directional
Slip Base Assembly



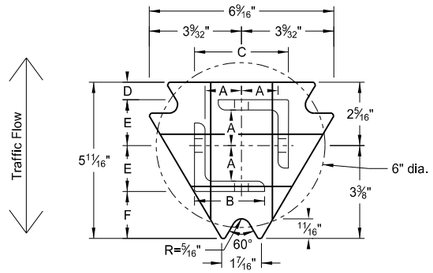
Anchor Unit and Post Assembly



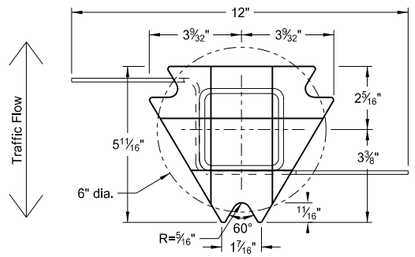
Multi-Directional
Slip Base Anchor Unit
and Post Sleeve Assembly



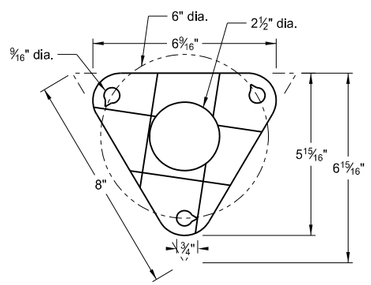
Perforated Tube



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



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	2³/16	10	Yes	

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
2³/16 x 2³/16	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
2³/16"x10 ga.	1⁹/64"	2½"	3¹/32"	2⁵/32"	1³³/64"	1⅞"
2½"x10 ga.	1⁹/32"	2½"	3⁵/16"	⅝"	1²¹/32"	1¾"

(A) Use breakaway base when support is placed in weak soils. Engineer determines if soils are weak.

(B) For additional wind load, insert the 2³/16"x10 ga. into 2½"x10 ga.

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

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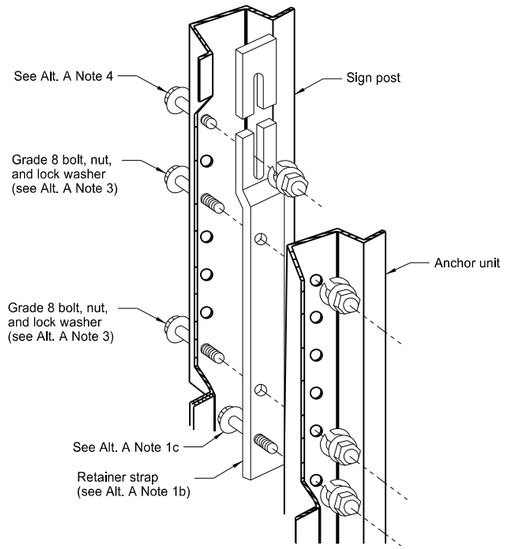
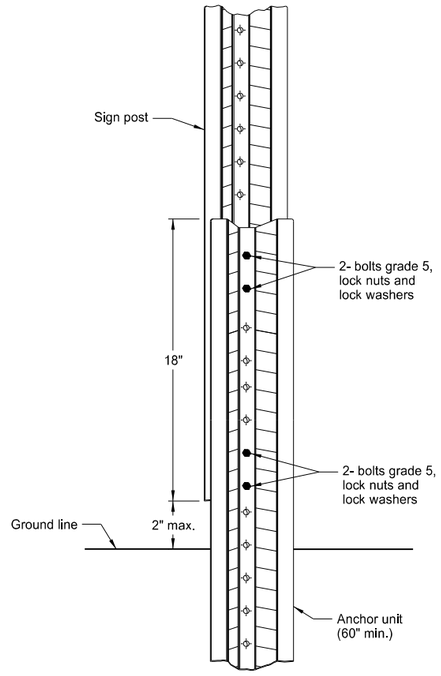
BREAKAWAY SYSTEMS FOR CONSTRUCTION ZONE SIGNS

D-704-8

U-Channel Post

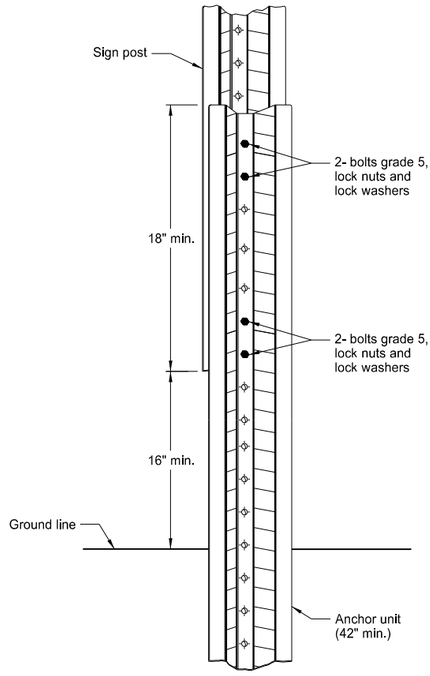


Detail A



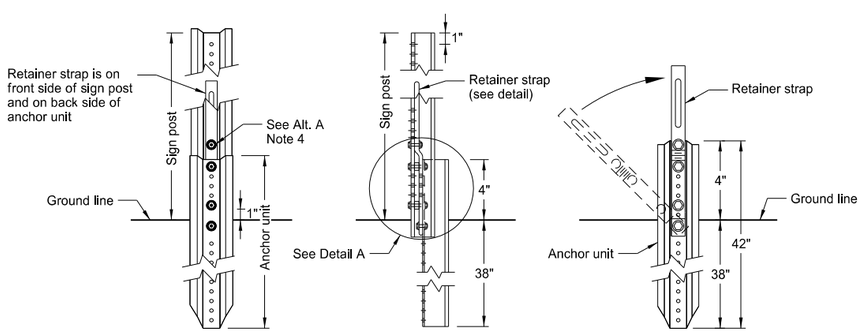
Breakaway U-Channel Splice Detail
Alternate B
(2.5 and 3 lb/ft)

Install a maximum of 3 posts within 7'.



Breakaway U-Channel Splice Detail
Alternate C
(2.5 and 3 lb/ft)

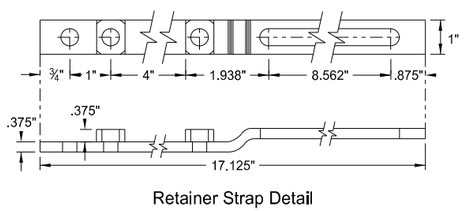
Install a maximum of 3 posts within 7'.



Front View Side View Back View

Breakaway U-Channel Detail
Alternate A

Install a maximum of 2 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

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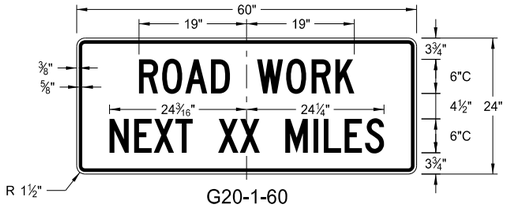
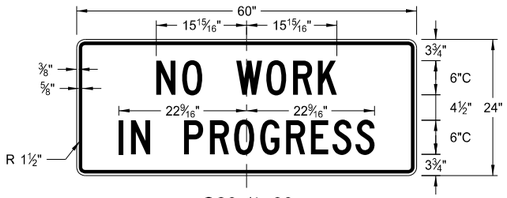
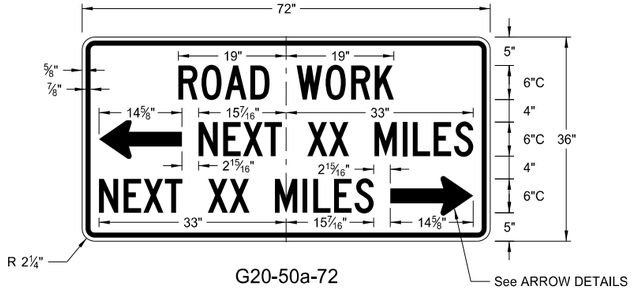
CONSTRUCTION SIGN DETAILS
TERMINAL AND GUIDE SIGNS



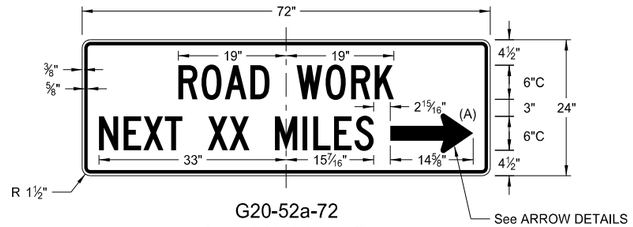
G20-1-60
Legend: black (non-refl)
Background: orange



G20-1b-60
Legend: black (non-refl)
Background: orange



G20-50a-72
Legend: black (non-refl)
Background: orange



G20-52a-72
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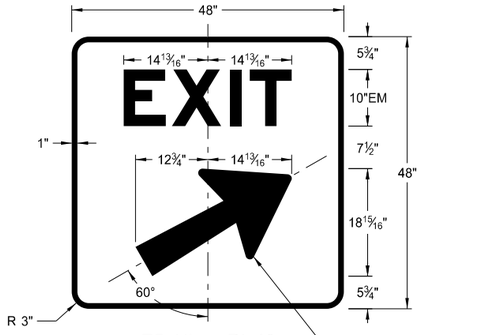
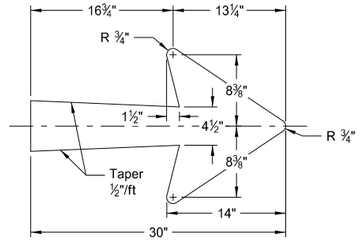
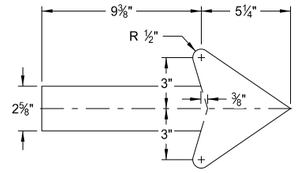
Background: orange



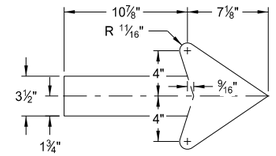
E5-1(L or R)-48
Legend: white
Background: green (orange optional)



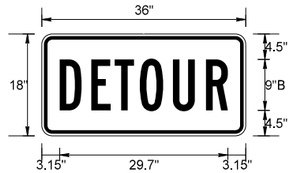
E5-1-48



G20-50a-72
G20-52a-72



M4-9(L or R)-30
Right or Left



M4-8-36
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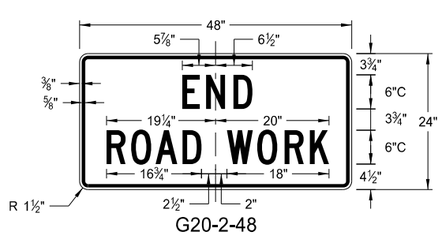
Background: orange



G20-2-48
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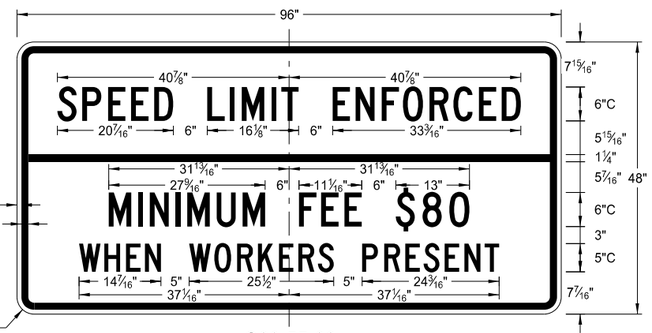
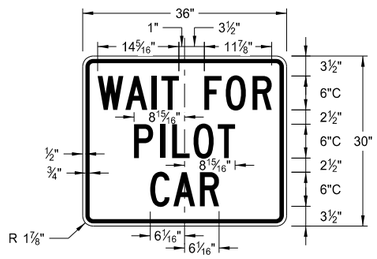
Background: orange



G20-55-96
Legend: black (non-refl)
Background: orange



G20-4b-36
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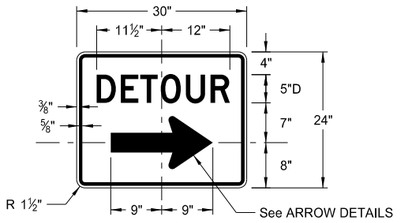
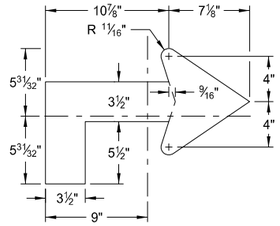
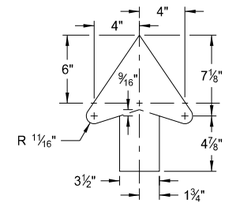


M4-9(L or R)-30 &
M4-9-30
Legend: black (non-refl)
Background: orange



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
8-17-17 10-03-19	Added sign & background color New Design Engineer PE Stamp

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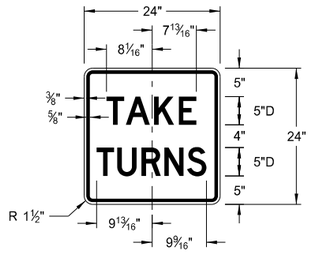
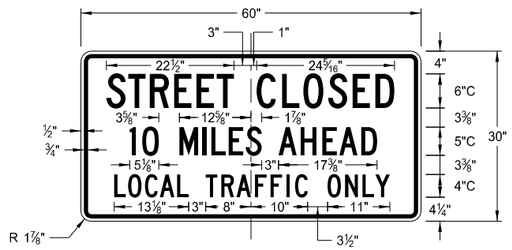
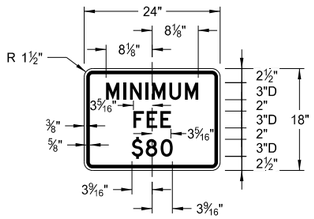
CONSTRUCTION SIGN DETAILS
REGULATORY SIGNS



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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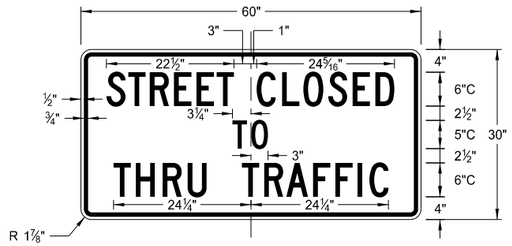
Background: white



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
8-17-17	Revised sign number
10-03-19	New Design Engineer PE Stamp

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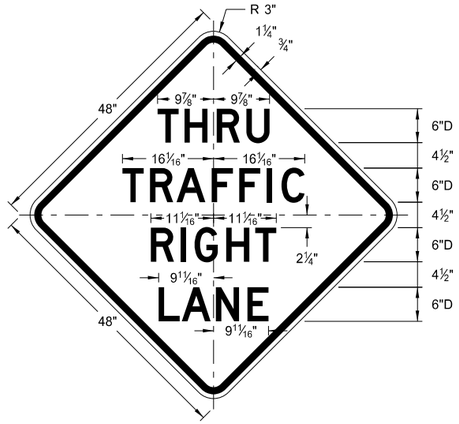
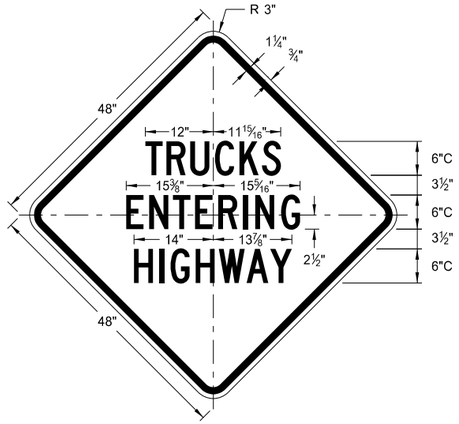
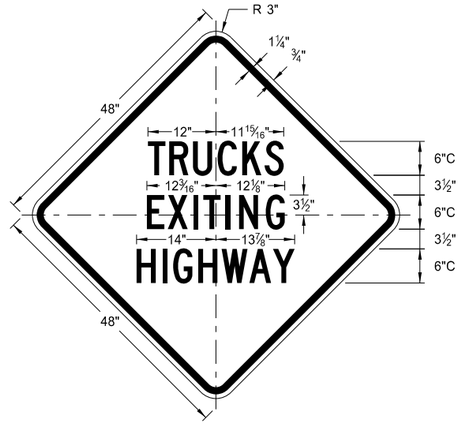
CONSTRUCTION SIGN DETAILS
WARNING SIGNS



W5-8-48
Legend: black (non-refl)
Background: orange



W8-53-48
Legend: black (non-refl)
Background: orange



W8-56-48
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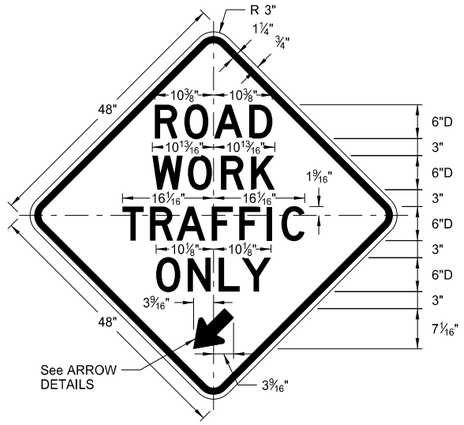
Background: orange



W5-9-48
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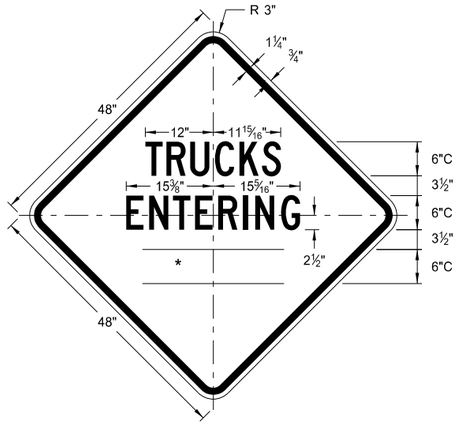

W8-54-48
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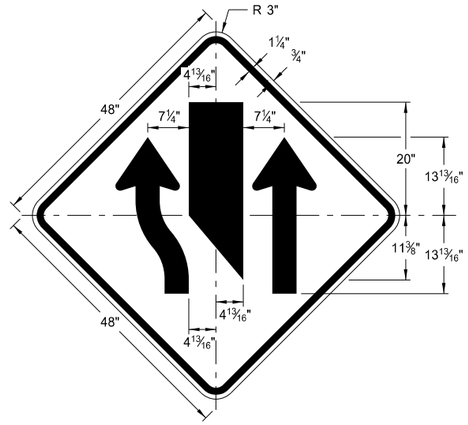
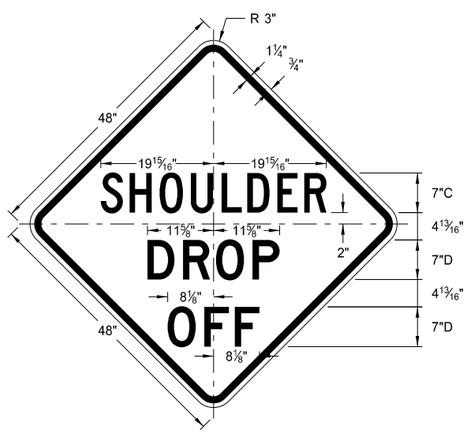


W9-3a-48
Legend: black (non-refl)
Background: orange



W8-9a-48
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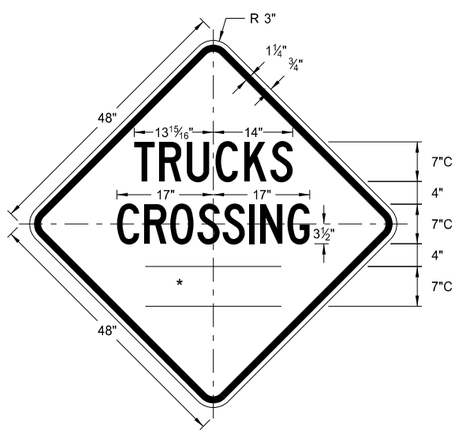
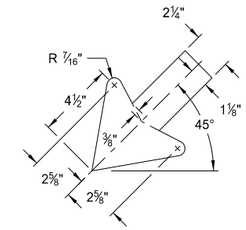


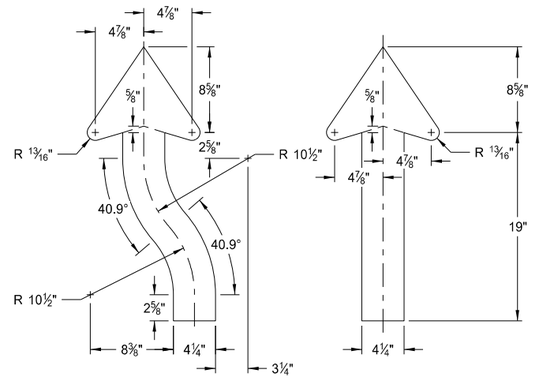
W8-55-48
Legend: black (non-refl)
Background: orange

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



W9-3a-48

ARROW DETAILS

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

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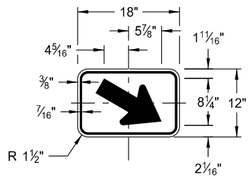
CONSTRUCTION SIGN DETAILS
WARNING SIGNS



W16-7aP-18
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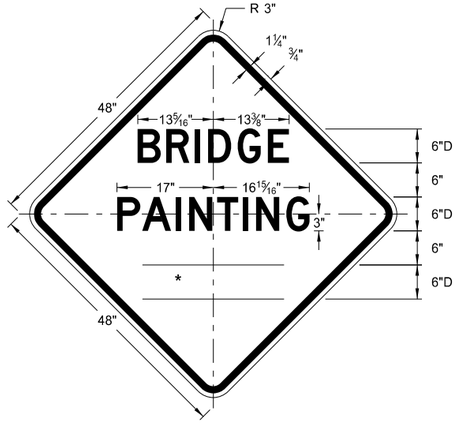
Background: orange



W21-50-48
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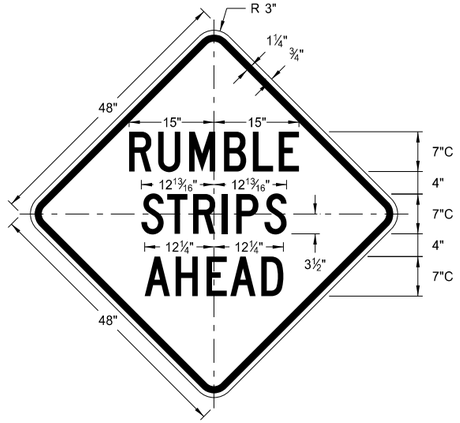
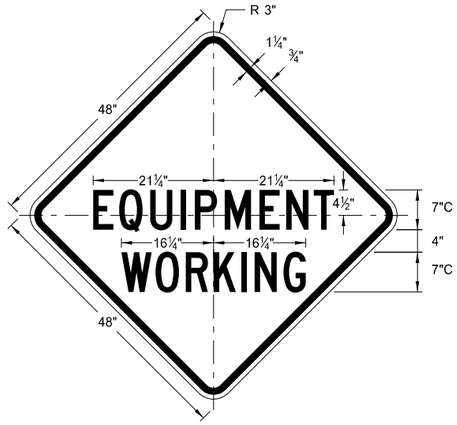
Background: orange



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
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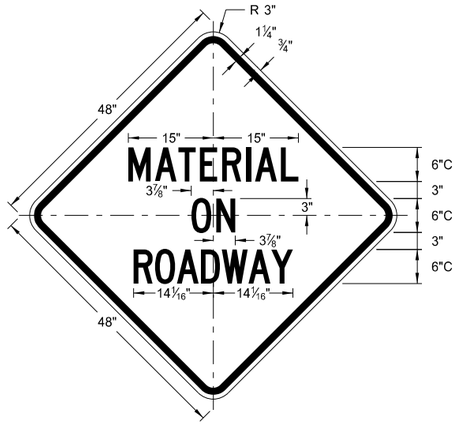
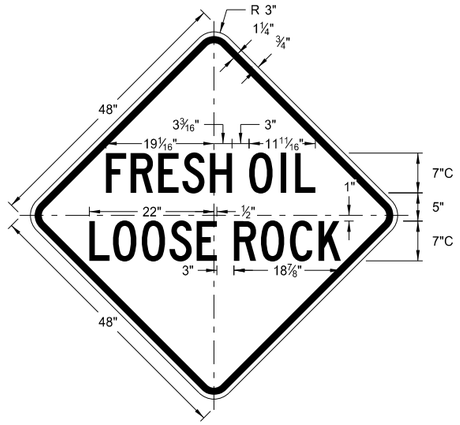
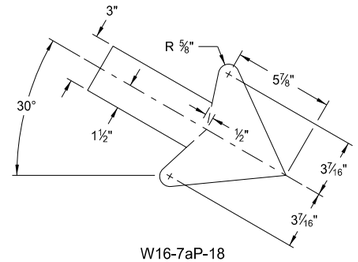
Background: orange



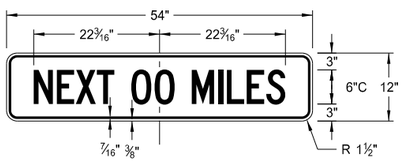
W21-51-48
Legend: black (non-refl)
Background: orange



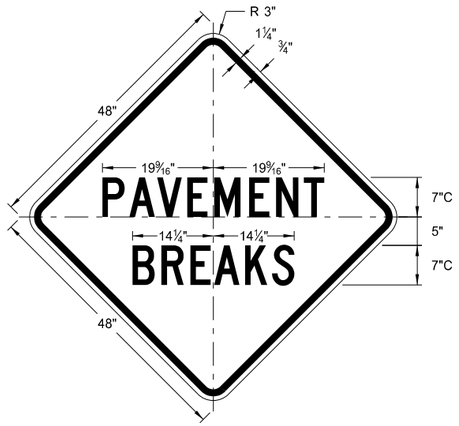
W22-8-48
Legend: black (non-refl)
Background: orange



W16-7aP-18



W20-52P-54
Legend: black (non-refl)
Background: orange



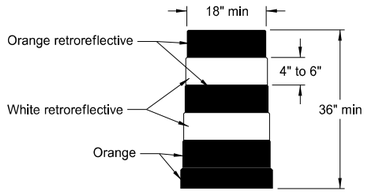
W21-52-48
Legend: black (non-refl)
Background: orange

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
5-31-18	
REVISIONS	
DATE	CHANGE
11-01-19	Added details for sign W16-7aP-18.

This document was originally issued and sealed by Kirk J Hoff, Registration Number PE-4683, on 11/1/19 and the original document is stored at the North Dakota Department of Transportation

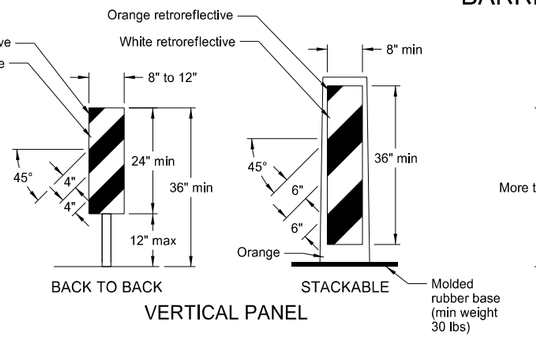
BARRICADE AND CHANNELIZING DEVICE DETAILS

D-704-13



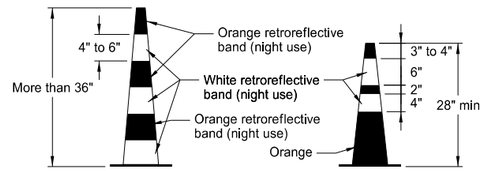
DELINEATOR DRUM

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.



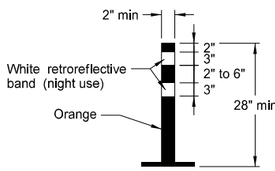
VERTICAL PANEL

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.



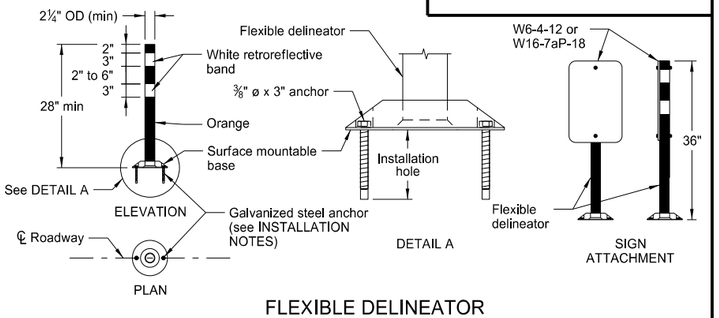
TRAFFIC CONE

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

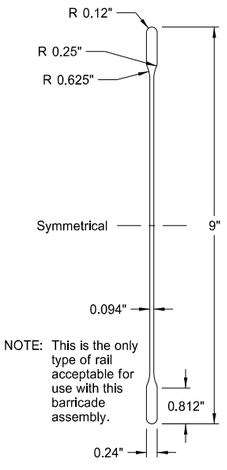
Provide retroreflectorization of tubular markers more than 42" in height by alternating four 4" to 6" wide orange and white stripes with the top stripe being orange.



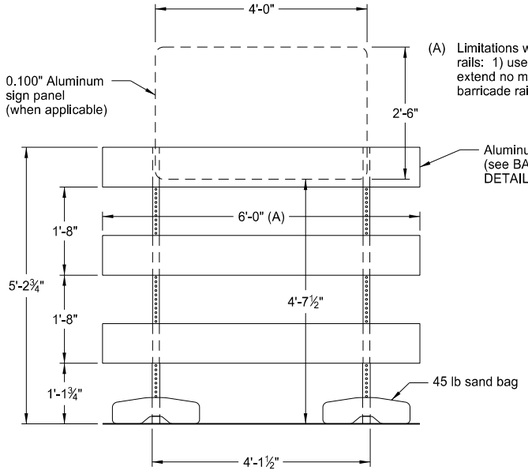
FLEXIBLE DELINEATOR

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.

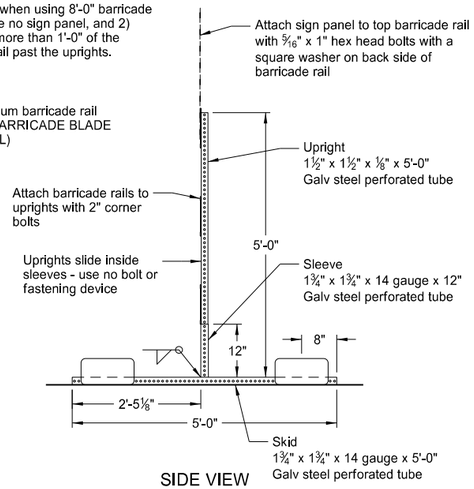


BARRICADE BLADE DETAIL



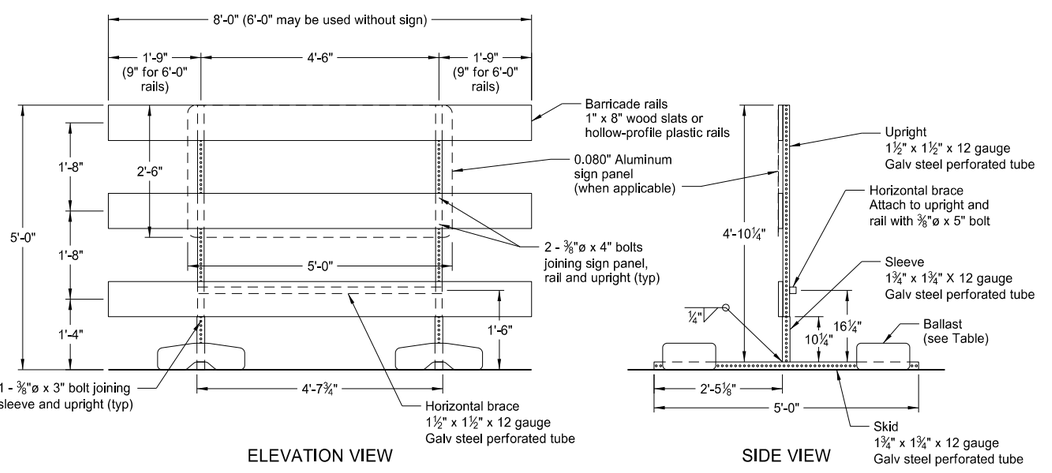
ELEVATION VIEW

(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.



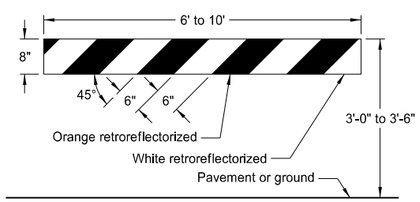
SIDE VIEW

BARRICADE ASSEMBLY DETAIL (Aluminum Barricade Rails)

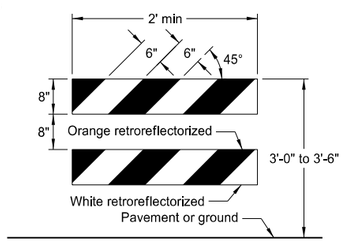


BARRICADE ASSEMBLY DETAIL (Wood or Plastic Rails)

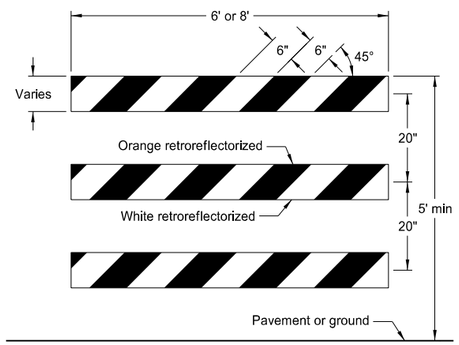
NOTE: For barricade markings use alternating orange and white retroreflective stripes, sloping downward in the direction traffic is to pass. Place retroreflective sheeting on both sides of the rails with a minimum of 270 square inches of visible retroreflective area facing vehicular traffic. When the barricade length is less than 36", use a rail stripe width of 4".



TYPE I BARRICADE

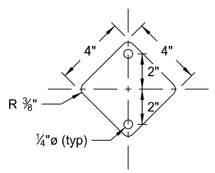


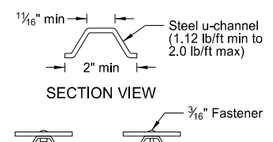
TYPE II BARRICADE

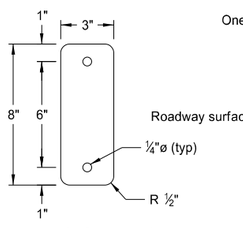


TYPE III BARRICADE

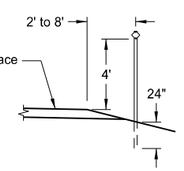
BARRICADE RAIL DETAILS







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.

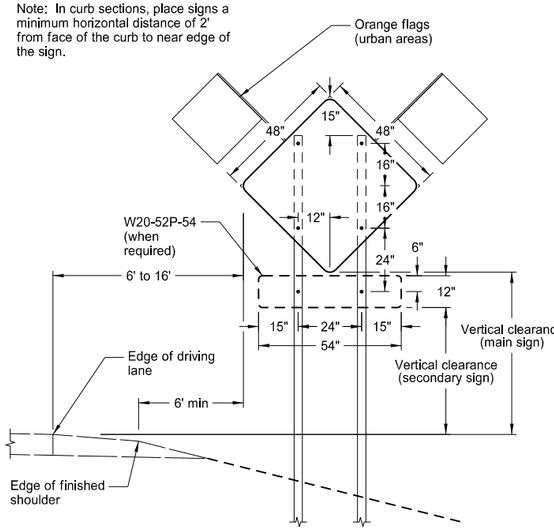
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
10-3-13	
REVISIONS	
DATE	CHANGE
9-27-17 11-01-19	Updated to active voice Revised details for Flexible Delineator

This document was originally issued and sealed by Kirk J Hoff, Registration Number PE-4683, on 11/1/19 and the original document is stored at the North Dakota Department of Transportation

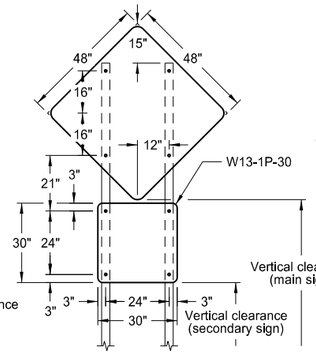
CONSTRUCTION SIGN PUNCHING AND MOUNTING DETAILS

D-704-14

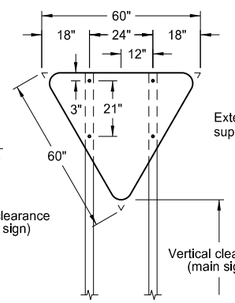
Note: In curb sections, place signs a minimum horizontal distance of 2' from face of the curb to near edge of the sign.



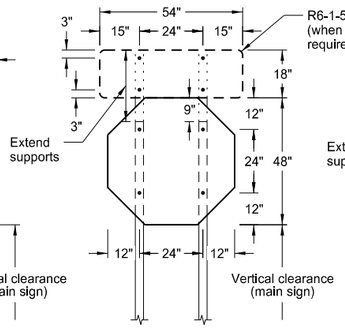
TYPICAL SECTION
(48" x 48" diamond warning sign shown)



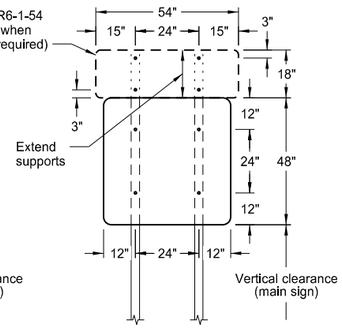
48" x 48" DIAMOND SIGN
(with 30" x 30" secondary sign)



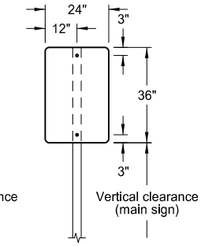
R1-2-60 - YIELD SIGN



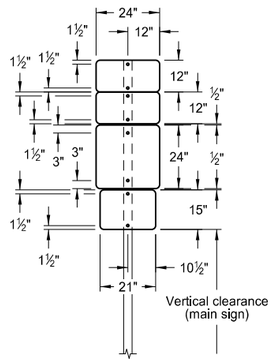
R1-1-48 - STOP SIGN
(with R6-1-54 sign as required)



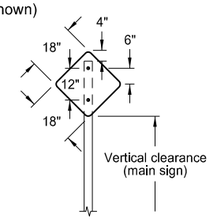
48" x 48" SIGN
(with R6-1-54 sign as required)



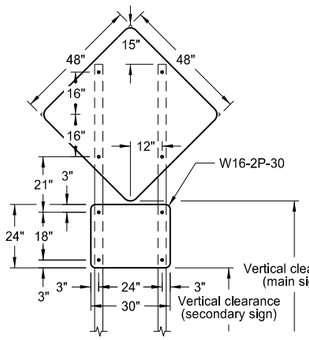
24" x 36" SIGN



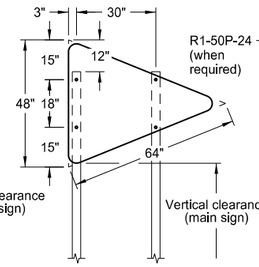
24" x 24"
ROUTE MARKER
ASSEMBLY



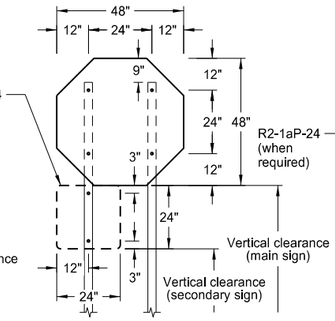
18" x 18"
DIAMOND SIGN



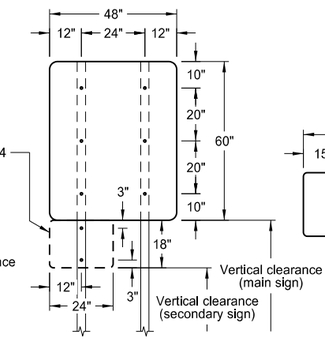
48" x 48" DIAMOND SIGN
(with 30" x 24" secondary sign)



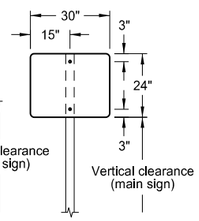
W14-3-64 - PENNANT SIGN



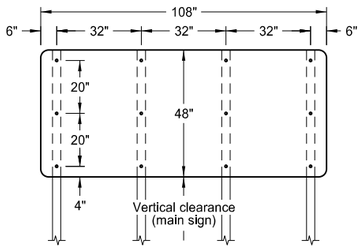
R1-1-48 - STOP SIGN
(with R1-50P-24 sign as required)



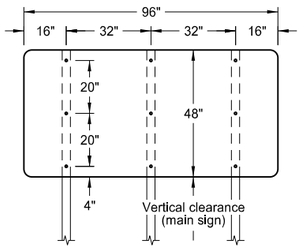
48" x 48" SIGN
(with R2-1aP-24 sign as required)



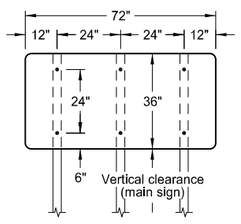
30" x 24" SIGN



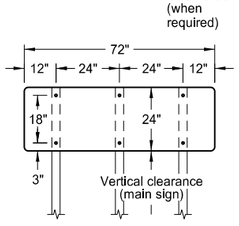
108" x 48" SIGN



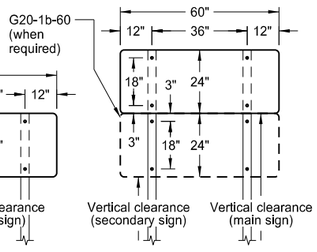
96" x 48" SIGN



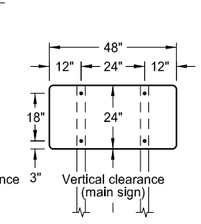
72" x 36" SIGN



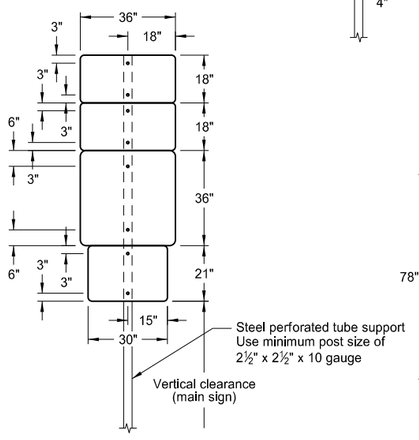
72" x 24" SIGN



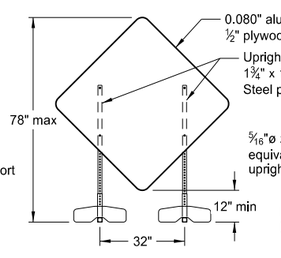
60" x 24" SIGN



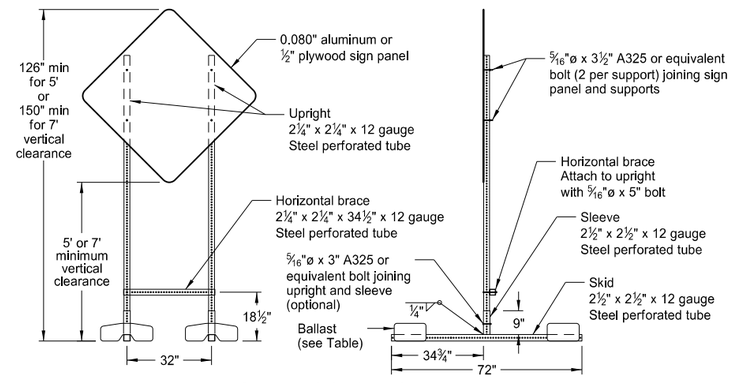
48" x 24" SIGN



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

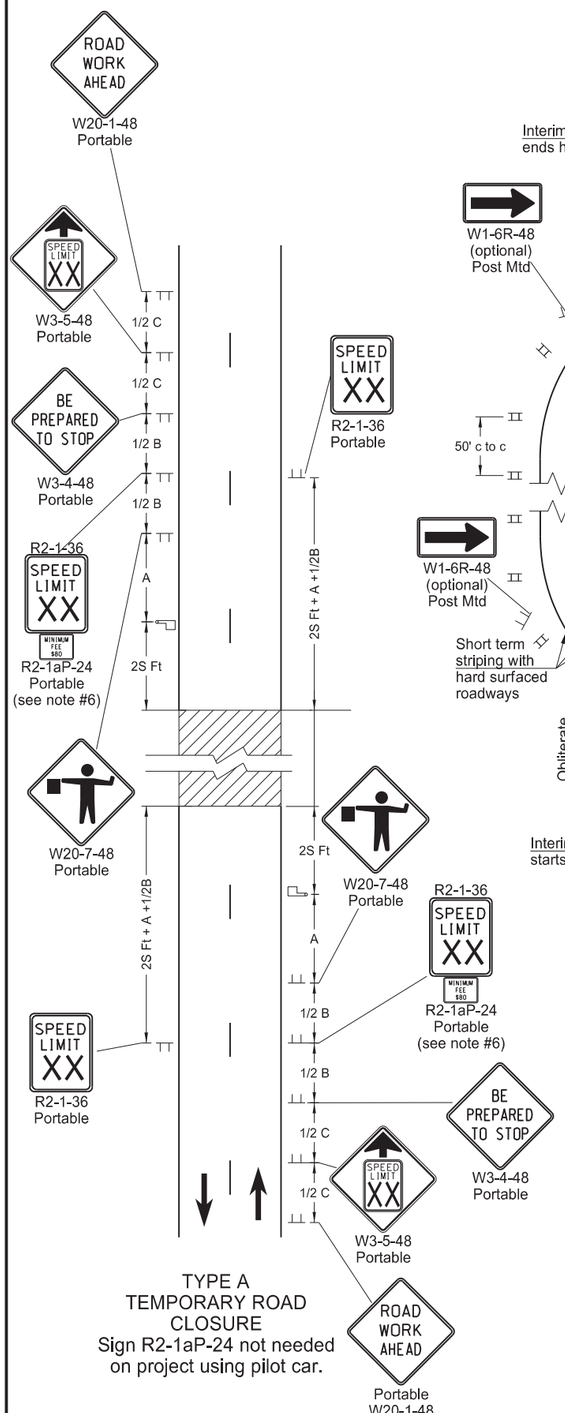
Note: The number of sandbags are based on a wind speed of 55 MPH. Place sandbags at or near the ends of skids.

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

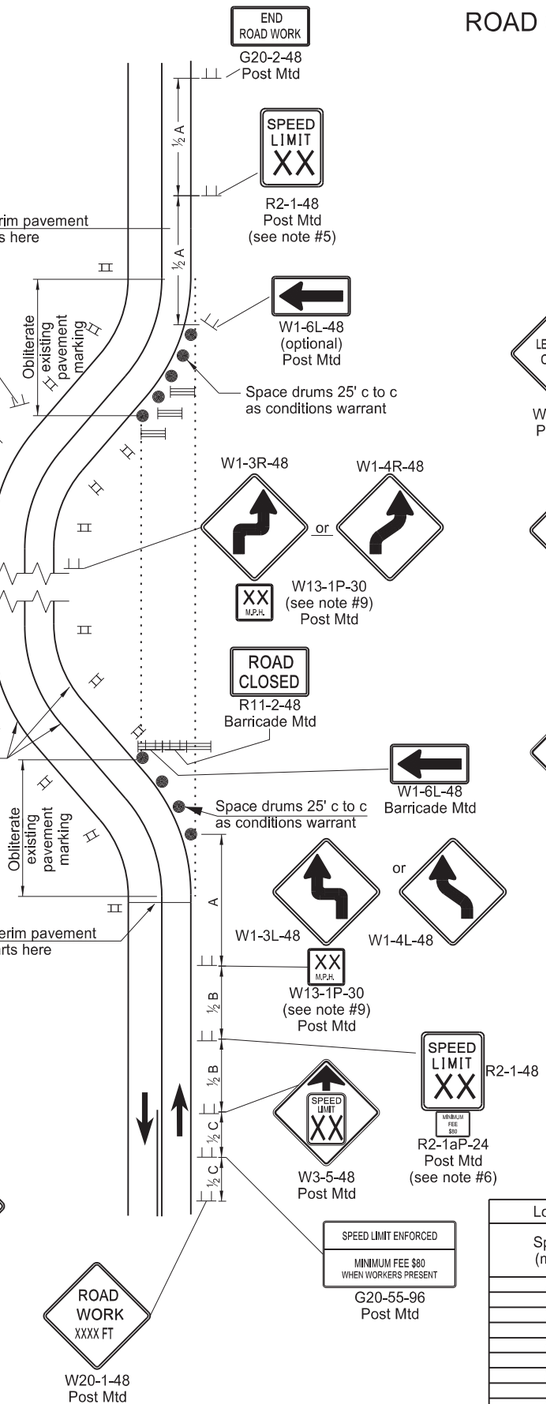
This document was originally issued and sealed by Kirk J Hoff, Registration Number PE-4683, on 11/1/19 and the original document is stored at the North Dakota Department of Transportation

ROAD CLOSURE LAYOUTS

D-704-15



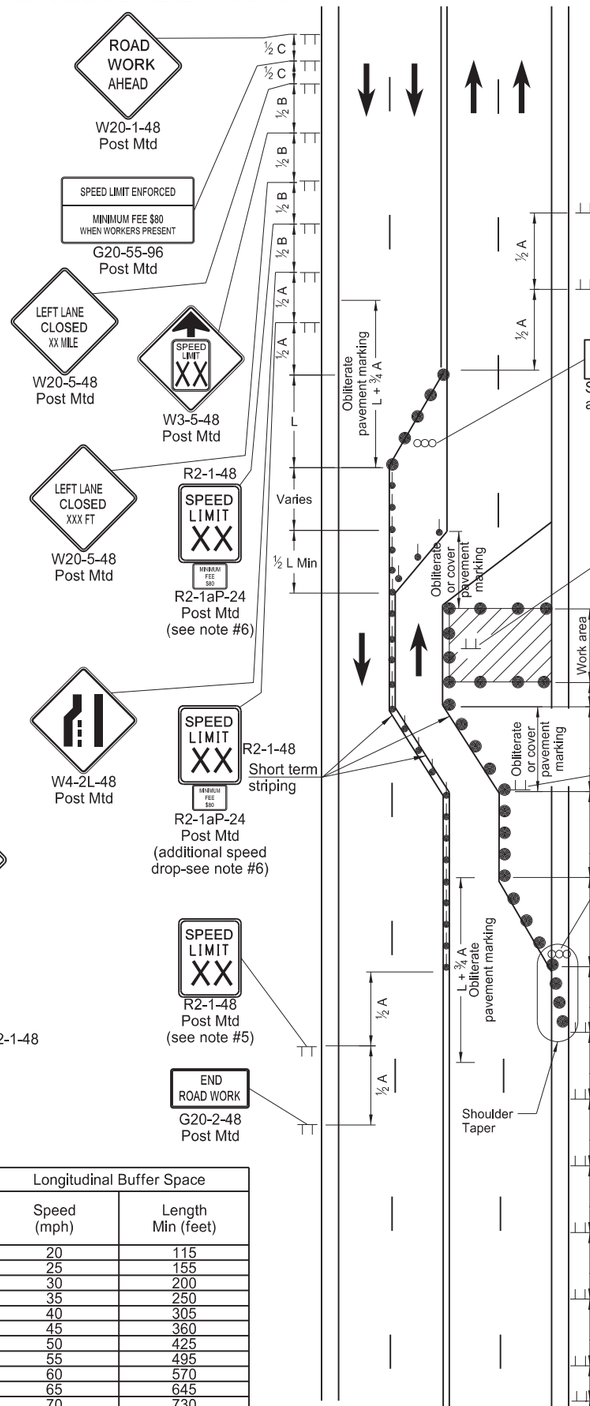
TYPE A
TEMPORARY ROAD CLOSURE
Sign R2-1aP-24 not needed on project using pilot car.

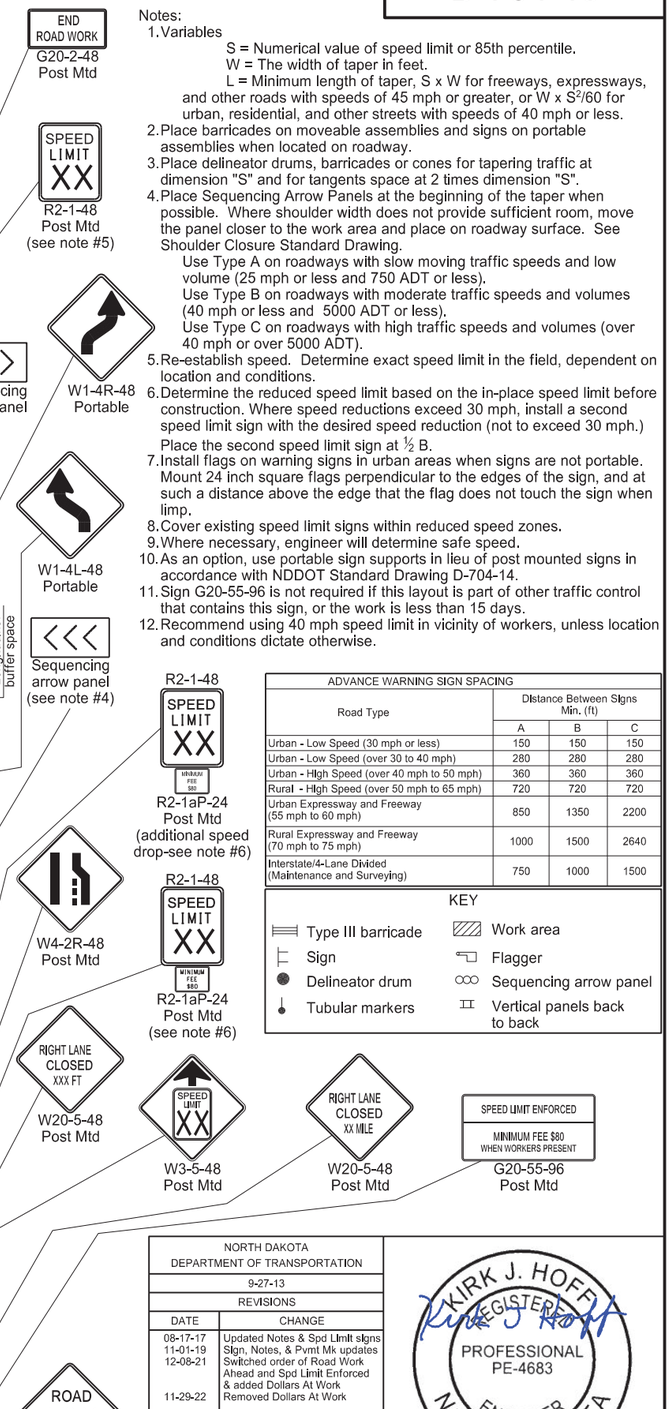


TYPE B
ROAD CLOSURE WITH A DIVERSION

Two lane highway where roadway is closed and detour provided (signing shown for one direction only). Use on bridge and culvert installation with ½ mile or less closure.

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





TYPE C
HALF ROAD CLOSURE ON A MULTI-LANE, HIGH SPEED HIGHWAY

4 lane undivided highway with half the roadway closed.

Notes:

1. Variables
   S = Numerical value of speed limit or 85th percentile.
   W = The width of taper in feet.
   L = Minimum length of taper, S x W for freeways, expressways, and 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. Place barricades on moveable assemblies and signs on portable assemblies when located on roadway.
3. Place delineator drums, barricades or cones for tapering traffic at dimension "S" and for tangents space at 2 times dimension "S".
4. Place Sequencing Arrow Panels at the beginning of the taper when possible. Where shoulder width does not provide sufficient room, move the panel closer to the work area and place on roadway surface. See Shoulder Closure Standard Drawing.
   Use Type A on roadways with slow moving traffic speeds and low volume (25 mph or less and 750 ADT or less).
   Use Type 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).
5. Re-establish speed. Determine exact speed limit in the field, dependent on location and conditions.
6. 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.
7. 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.
8. Cover existing speed limit signs within reduced speed zones.
9. Where necessary, engineer will determine safe speed.
10. As an option, use portable sign supports in lieu of post mounted signs in accordance with NDDOT Standard Drawing D-704-14.
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 75 mph)	1000	1500	2640
Interstate/4-Lane Divided (Maintenance and Surveying)	750	1000	1500

KEY

- Type III barricade
- Sign
- Delineator drum
- Tubular markers
- Work area
- Flagger
- Sequencing arrow panel
- Vertical panels back to back

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

9-27-13

REVISIONS

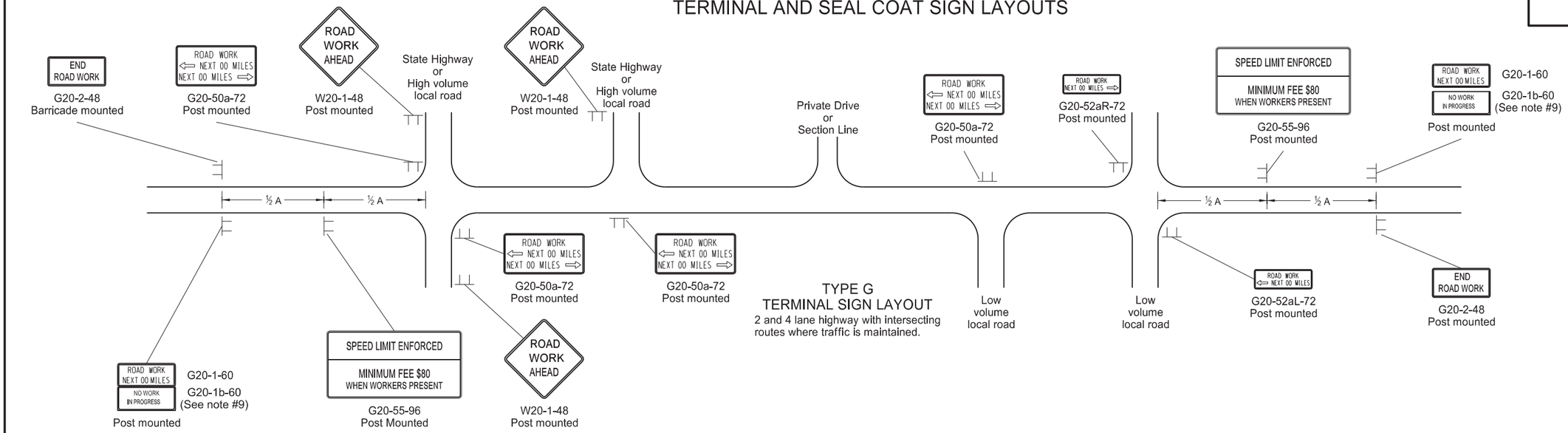
DATE	CHANGE
08-17-17	Updated Notes & Spd Limit signs
11-01-19	Sign, Notes, & Pvmt Mk updates
12-08-21	Switched order of Road Work Ahead and Spd Limit Enforced & added Dollars At Work
11-29-22	Removed Dollars At Work

KIRK J. HOFF
REGISTERED
PROFESSIONAL
PE-4683
ENGINEER
NORTH DAKOTA

11/29/22

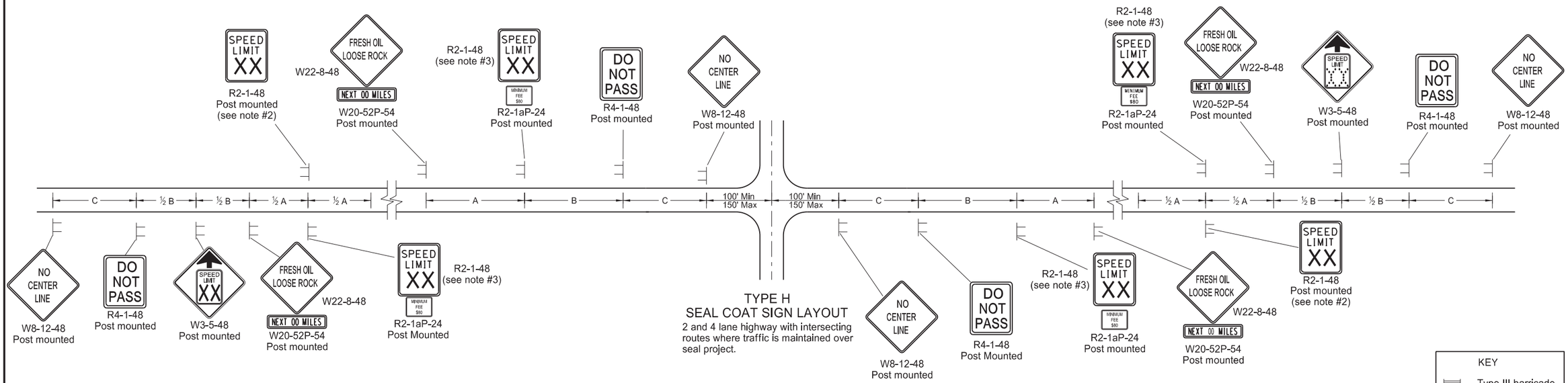
TERMINAL AND SEAL COAT SIGN LAYOUTS

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 75 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

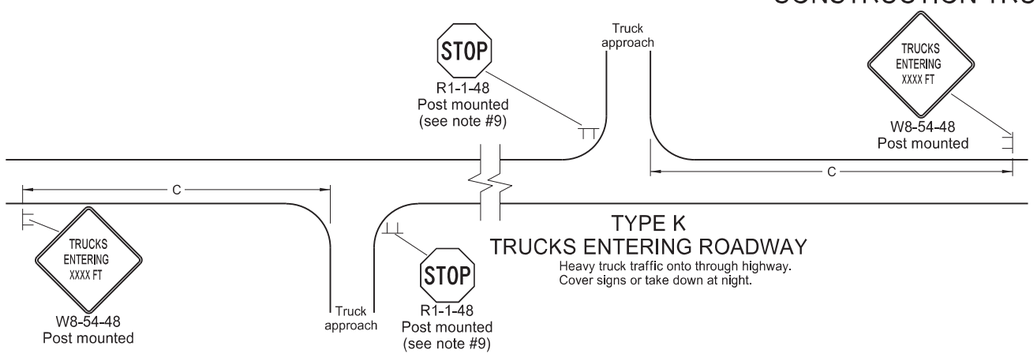
KIRK J. HOFF REGISTERED PROFESSIONAL PE-4683 ENGINEER NORTH DAKOTA

11/29/22

CONSTRUCTION TRUCK AND TEMPORARY DETOUR LAYOUTS

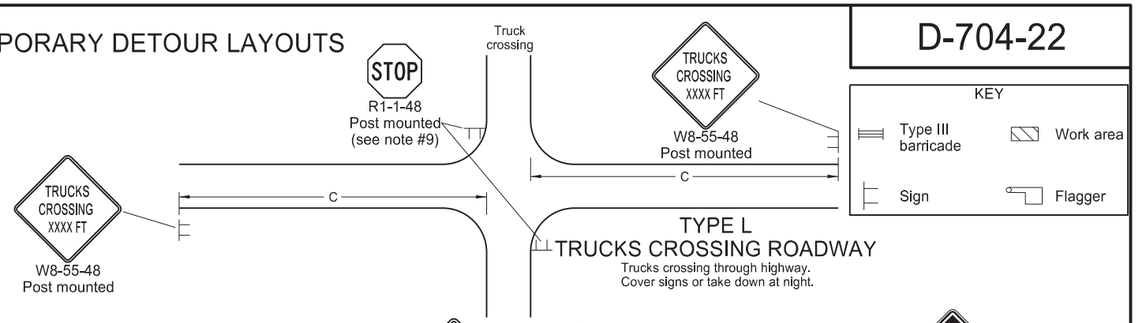
D-704-22

KEY
- Type III barricade
- Work area
- Sign
- Flagger



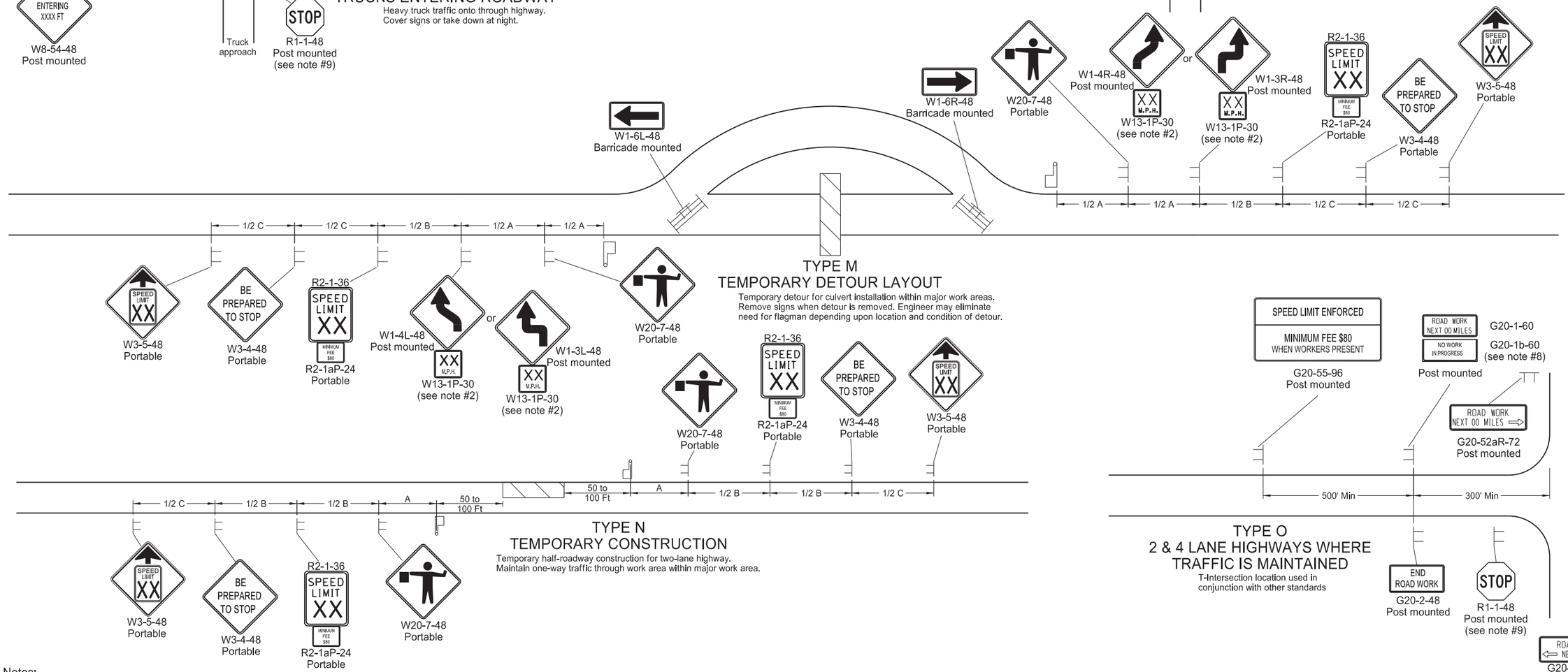
TYPE K
TRUCKS ENTERING ROADWAY

Heavy truck traffic onto through highway.
Cover signs or take down at night.



TYPE L
TRUCKS CROSSING ROADWAY

Trucks crossing through highway.
Cover signs or take down at night.



TYPE M
TEMPORARY DETOUR LAYOUT

Temporary detour for culvert installation within major work areas.
Remove signs when detour is removed. Engineer may eliminate need for flagman depending upon location and condition of detour.

TYPE N
TEMPORARY CONSTRUCTION

Temporary half-roadway construction for two-lane highway.
Maintain one-way traffic through work area within major work areas.

TYPE O
2 & 4 LANE HIGHWAYS WHERE TRAFFIC IS MAINTAINED

T-Intersection location used in conjunction with other standards

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 75 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

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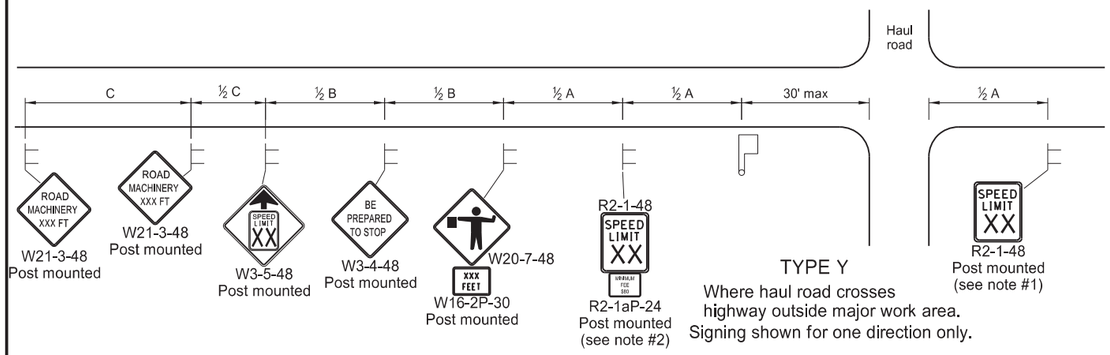
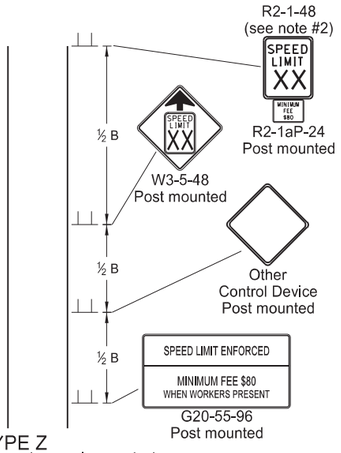
11/29/22

MISCELLANEOUS SIGN LAYOUTS

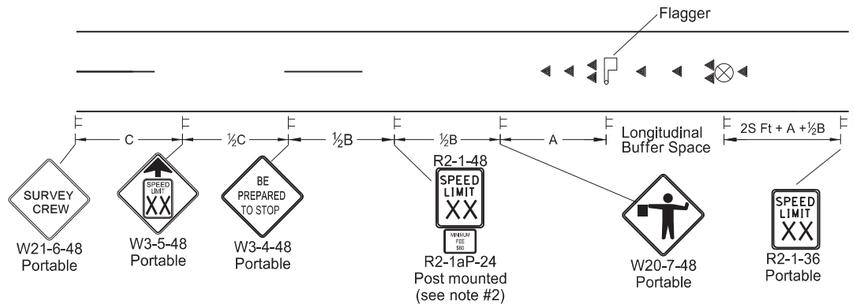
D-704-26



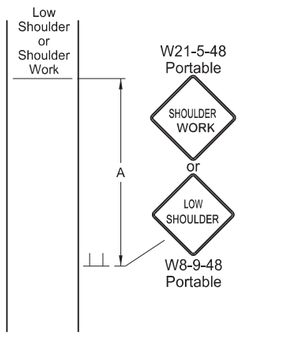
TYPE Y
Where haul road crosses highway outside major work area.
Signing shown for one direction only.



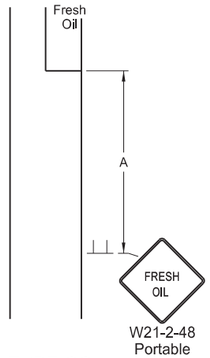
TYPE Z
Where speed zone is needed
Signing shown for one direction only.



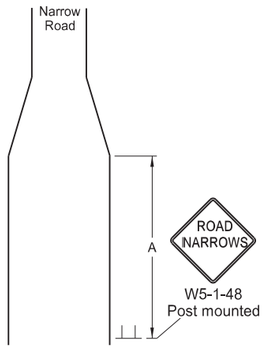
TYPE AA
Where survey crew is used
Signing shown for one direction only.



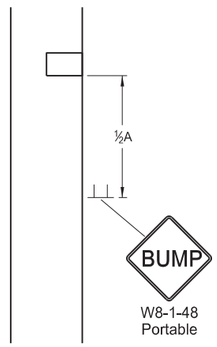
TYPE BB
Within major work area where sign conditions exist



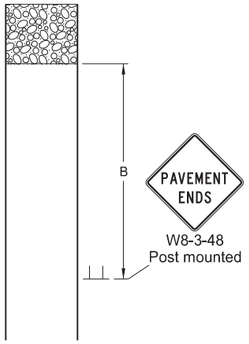
TYPE CC
Where sign conditions exist



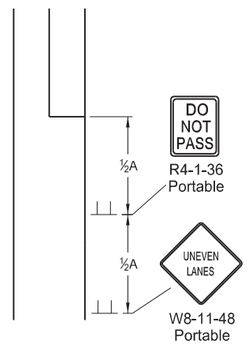
TYPE DD
Where sign conditions exist



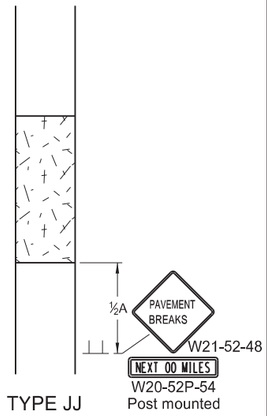
TYPE EE
Where sign conditions exist



TYPE FF
Where sign conditions exist
Signing shown for one direction only.



TYPE GG
Where elevation difference exists between lanes

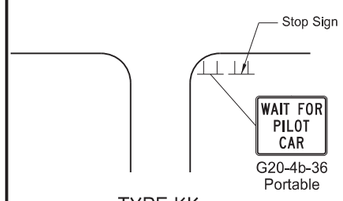


TYPE JJ
For break in pavement.
Install signs when conditions exist and remove when not applicable.
Signing shown for one direction only.

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 75 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

* 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
8-17-17	Added speed limit signs. Updated notes & sign numbers.
11-01-19	Revised note 5 & sign numbers.
2-23-23	Revised distance & removed signs.

KIRK J. HOFF
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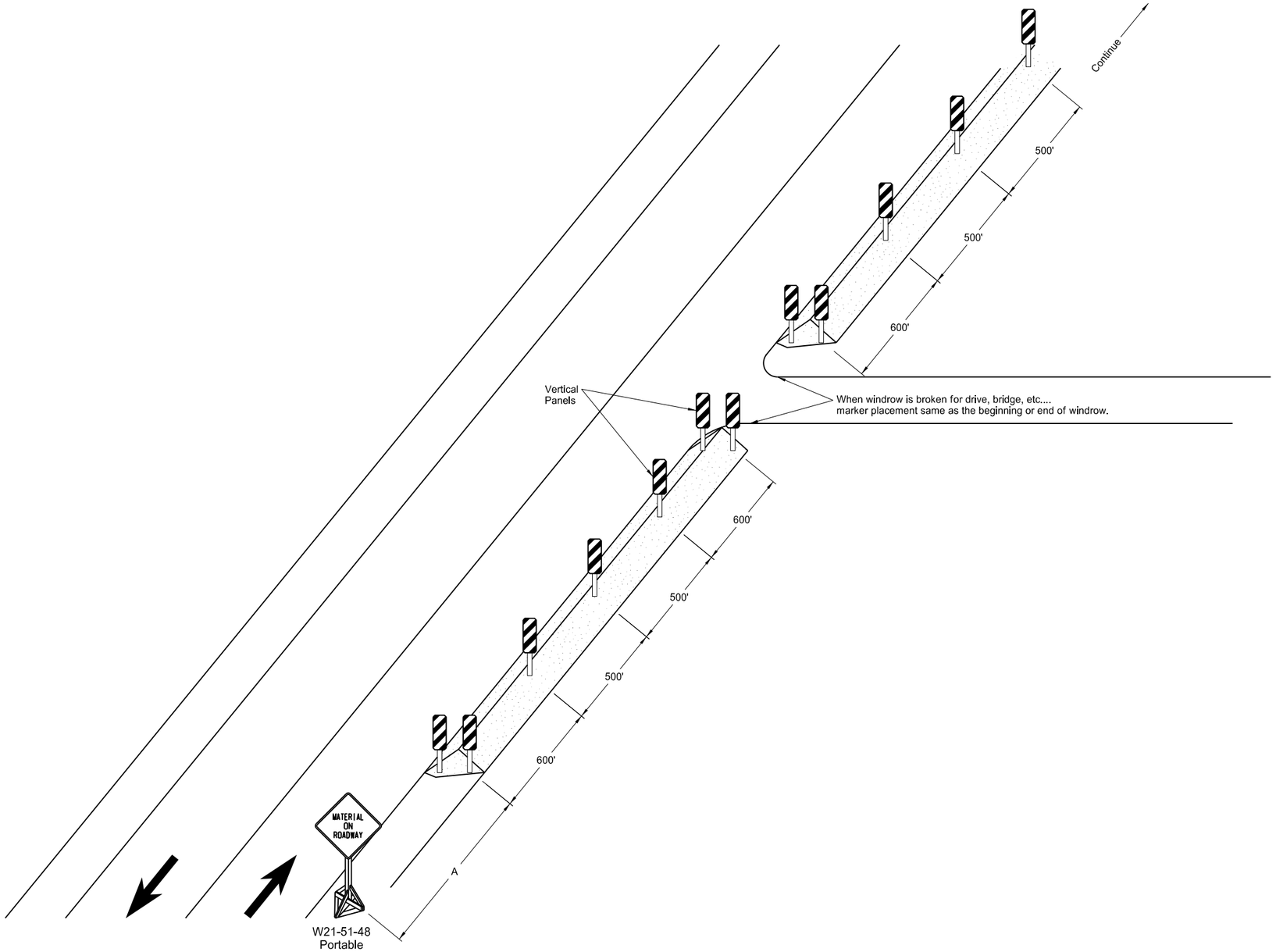
NORTH DAKOTA

02/23/23

WINDROW MARKING

D-704-30



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 (55 mph to 60 mph)	1000	1500	2640
Interstate/4-Lane Divided (Maintenance and Surveying)	750	1000	1500

Notes:
As an option, use portable sign supports in lieu of post mounted sign in accordance with NDDOT Standard Drawing D-704-14.

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

9-27-13

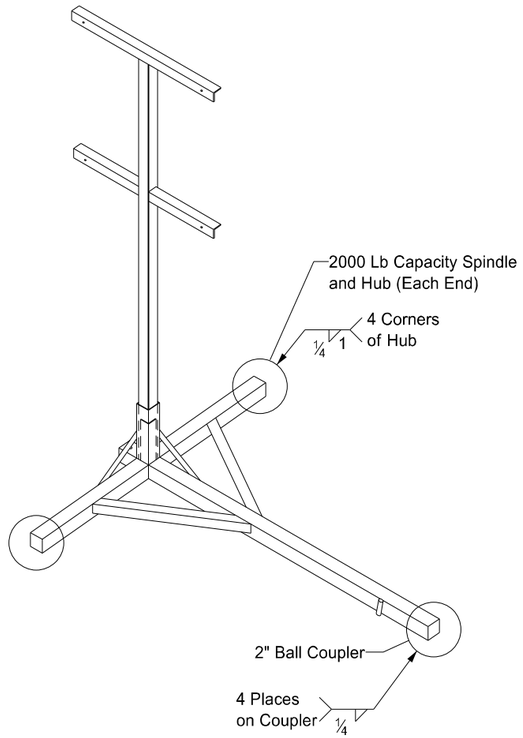
REVISIONS

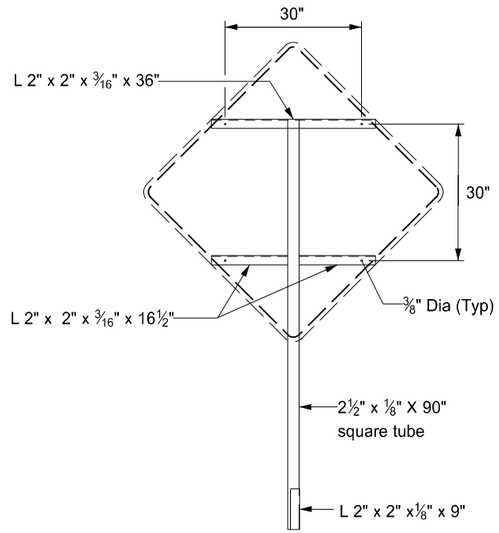
DATE	CHANGE
6-24-14	Revised Note
8-17-17	Updated notes & sign support
11-01-19	Revised note

This document was originally issued and sealed by Kirk J Hoff, Registration Number PE-4683, on 11/1/19 and the original document is stored at the North Dakota Department of Transportation

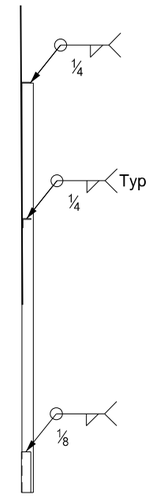
PORTABLE SIGN SUPPORT ASSEMBLY

D-704-50





FRONT

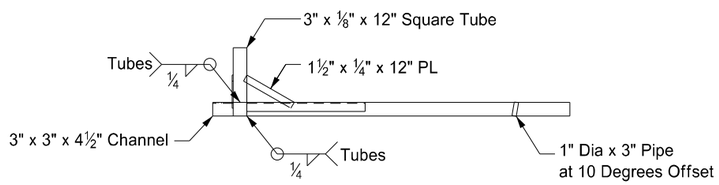


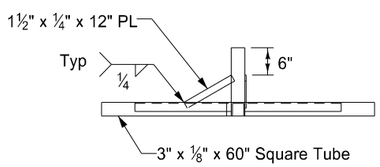
RIGHT

SIGN SUPPORT

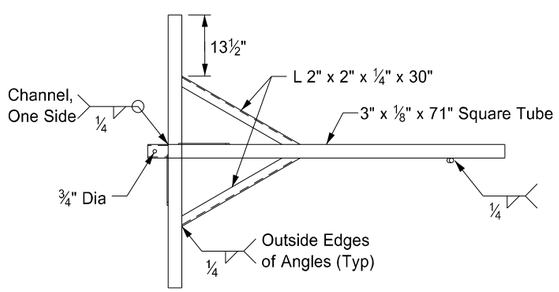
Notes:

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.





RIGHT



TOP

TRAILER

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
11-23-10	
REVISIONS	
DATE	CHANGE
12/02/2020	Updated Note to active voice.

KIRK J. HOFF
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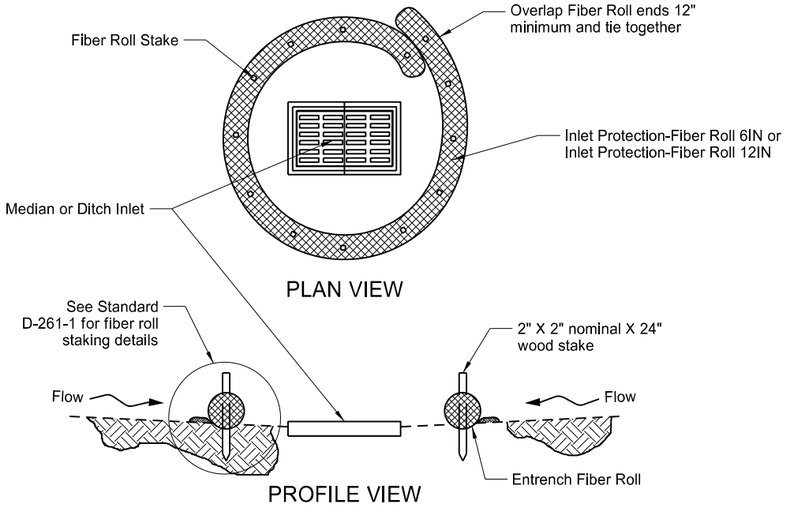
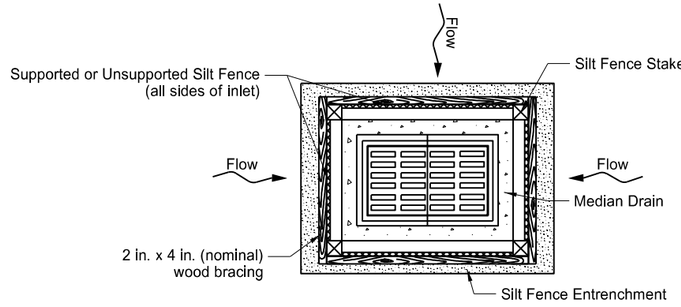
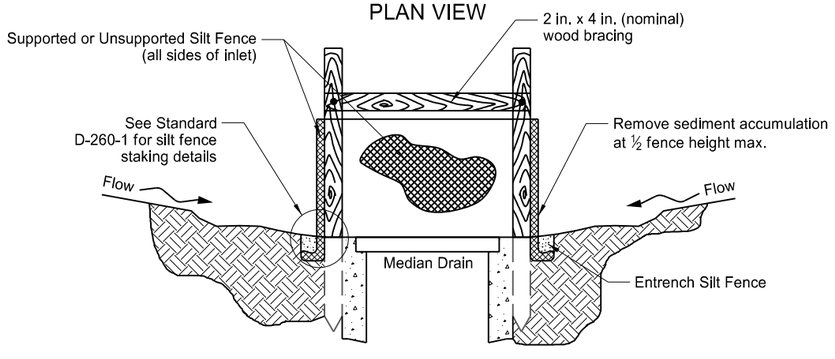
Kirk J Hoff
12 02 2020

EROSION AND SILTATION CONTROLS
MEDIAN OR DITCH INLET PROTECTION

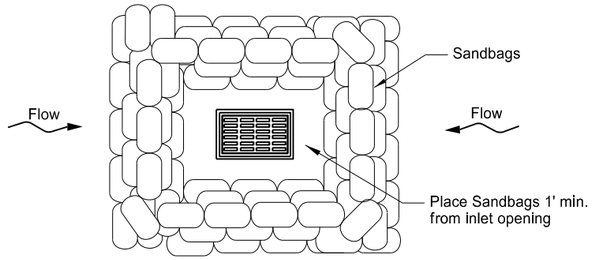


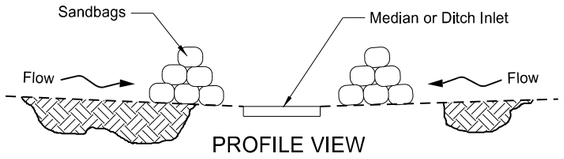
FIBER ROLL PROTECTION (MEDIAN OR DITCH INLET)



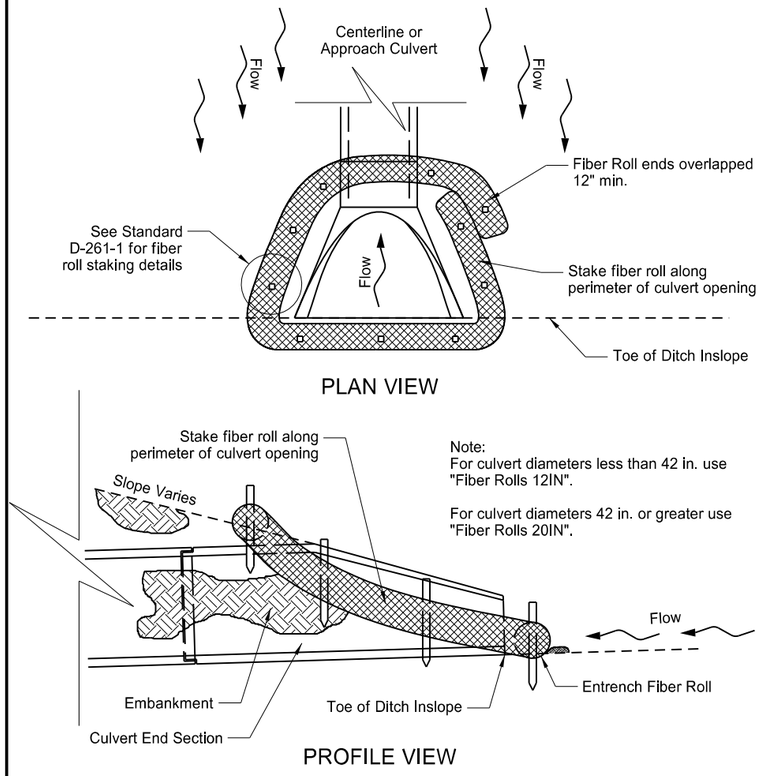


SILT FENCE PROTECTION (MEDIAN OR DITCH INLET)

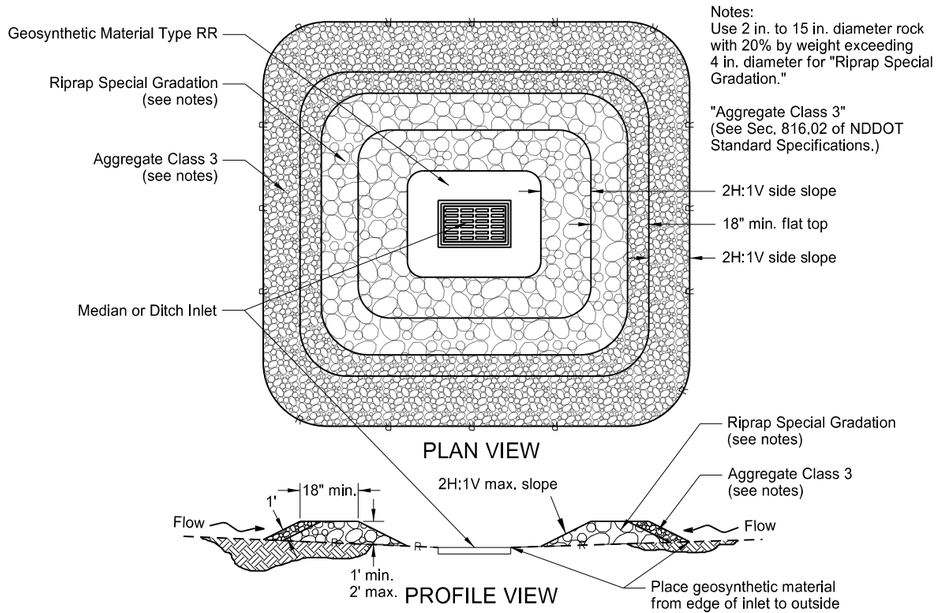




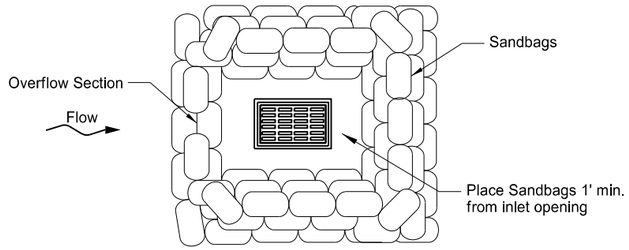
SANDBAG PROTECTION (LOW POINT)

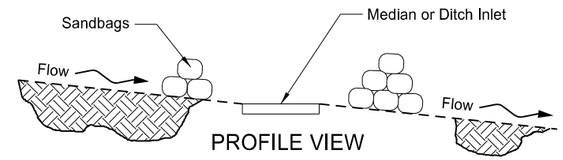


FIBER ROLL PROTECTION (INLET OF CULVERT)



GRAVEL INLET PROTECTION (MEDIAN OR DITCH INLET)





SANDBAG PROTECTION (ON SLOPE)

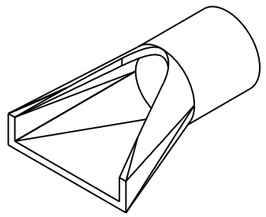
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
10-03-13	
REVISIONS	
DATE	CHANGE
06-26-14	Updated reference to standard drawing number for fiber roll staking details.
10-01-14	Updated reference to standard drawing number for silt fence.
10-17-17	Updated to active voice.
08-27-19	New Design Engineer PE Stamp.

This document was originally issued and sealed by Kirk J Hoff, Registration Number PE-4683, on 8-27-19 and the original document is stored at the North Dakota Department of Transportation

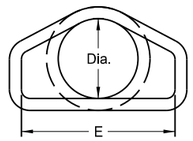
REINFORCED CONCRETE PIPE CULVERTS AND END SECTIONS
(Round Pipe)

D-714-1

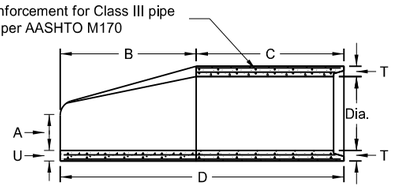
FLARED END SECTION						
TERMINAL DIMENSIONS						
DIA	A	B	C	D	E	U
12	0'-4"	2'-0"	4'-0⅞"	6'-0⅞"	2'-0"	2"
15	0'-6"	2'-3"	3'-10"	6'-1"	2'-6"	2¼"
18	0'-9"	2'-3"	3'-10"	6'-1"	3'-0"	2½"
21	0'-9"	3'-0"	3'-1"	6'-1"	3'-6"	2¾"
24	0'-9½"	3'-7½"	2'-6"	6'-1½"	4'-0"	3"
27	0'-10½"	4'-0"	2'-1½"	6'-1½"	4'-6"	3¼"
30	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"



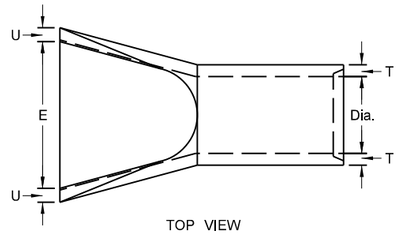
PERSPECTIVE



END VIEW



SIDE VIEW



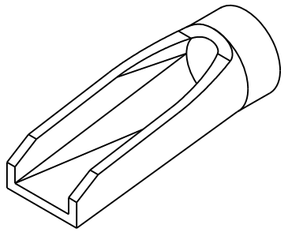
TOP VIEW

REINFORCED CONCRETE PIPE - FLARED END SECTION
Reinforcement to be equivalent to Class III RCP

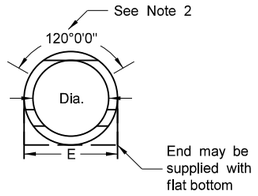
NOTES:

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.

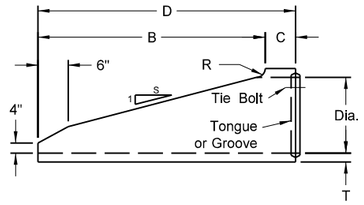
TRAVERSABLE END SECTION						
DIA	B	C	D	E	R	S
15"	4'	9"	4'-9"	1'-7½"	3"	6
18"	5'-9"	9"	6'-6"	1'-11"	3"	6
24"	6'	1'	7'	2'-6"	3"	4
30"	7'-6"	1'	8'-6"	3'-1"	3½"	4
36"	7'-3"	15"	8'-6"	3'-8"	3"	4



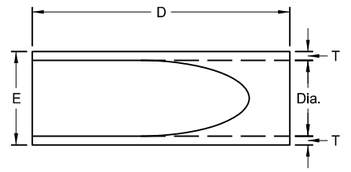
PERSPECTIVE



END VIEW



SIDE VIEW



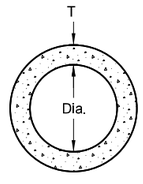
TOP VIEW

REINFORCED CONCRETE PIPE - TRAVERSABLE END SECTION
Reinforcement to be equivalent to Class III RCP

NOTES (Traversable End Section):

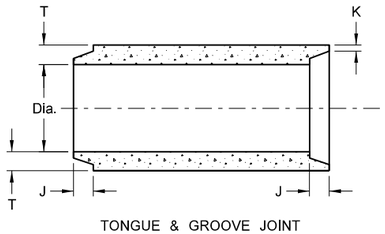
1. Manufactured in accordance with applicable portions of ASTM C76/AASHTO M170.
2. Reinforcement per Class III RCP with double reinforcement in the upper 120° of the full barrel portion.

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	1⅛-2⅛	¾	2
15	1.23	127	1⅛-2¼	⅞	2¼
18	1.77	168	1⅛-2⅛	1	2½
21	2.40	214	1⅛-3⅛	1⅛	2¾
24	3.14	265	2¼-3¼	1⅛	3
27	3.98	322	2¼-4	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	5⅛-6¾	2⅞	7
78	33.18	2098	6¼-7¼	2⅞	7½
84	38.48	2410	5⅛-7¾	3⅜	8
90	44.18	2793	6¾-8½	3⅛	8½
96	50.27	3092	7-8¼	3½	9
102	56.75	3466	7-8¼	3½	9½
108	63.62	3864	7¼-8½	3¾	10

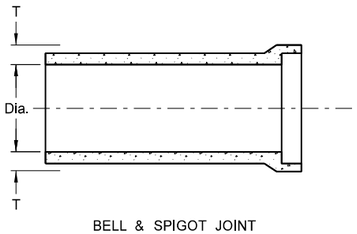


END VIEW

CIRCULAR PIPE

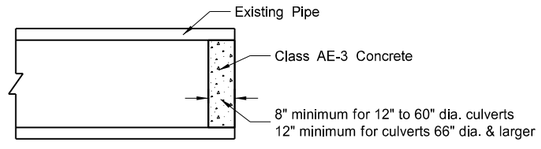


TONGUE & GROOVE JOINT



BELL & SPIGOT JOINT

JOINTS FOR REINFORCED CONCRETE PIPE



CONCRETE PIPE PLUG

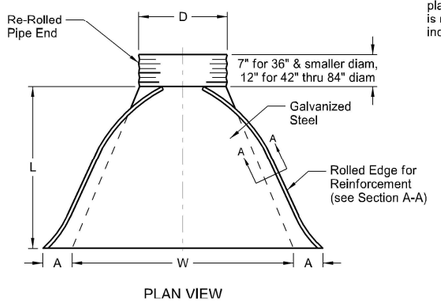
SEE STANDARD DRAWING D-714-22 FOR DETAILS OF CONCRETE PIPE TIES (TIE BOLTS).

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

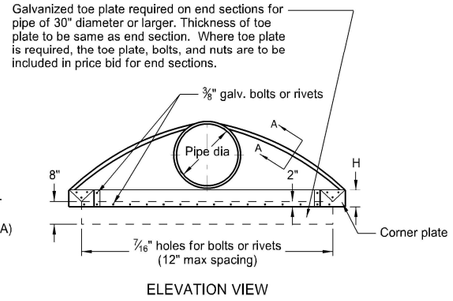
This document was originally issued and sealed by Jon Ketterling Registration Number PE-4684, on 9/18/19 and the original document is stored at the North Dakota Department of Transportation

ROUND CORRUGATED STEEL PIPE CULVERTS AND END SECTIONS

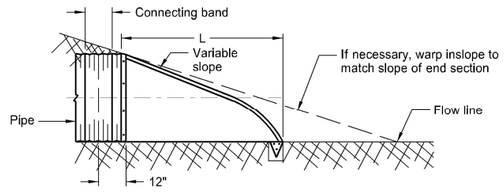
D-714-4



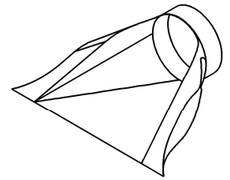
PLAN VIEW



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

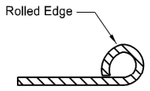
* These sizes have 0.109" sides and 0.138" center panels.

** Pipe diameter is equal to dimension "D" of end section.

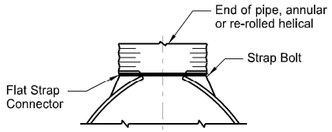
Manufacturers tolerances of above dimensions will be allowed.

Splices to be the lap riveted type.

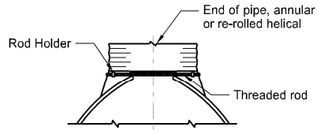
Multiple panel bodies shall have lap seams which are to be tightly joined with ⅜" dia. galv. bolts or rivets. Nuts to be torqued to 25 foot-lbs ±.



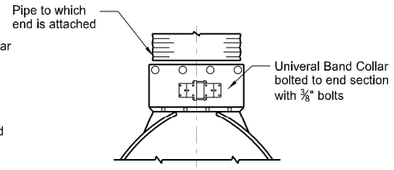
SECTION A-A



TYPE #1
For circular pipes with diameter 24" & smaller



TYPE #2
For circular pipes with diameter 30" through 36"

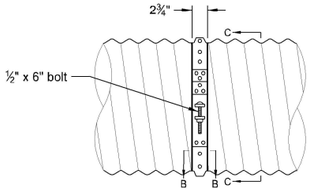


TYPE #3
For all pipe sizes

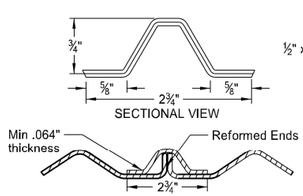
COUPLING BAND DIMENSIONS				
COUPLING TYPE	CORRUGATION PITCH x DEPTH	PIPE SIZE	COUPLING BAND LENGTH	MIN. BAND THICKNESS
Hat Band	2⅔" x ½"	12" - 48"	2¾"	.064"
Annular Band	2⅔" x ½"	12" - 72"	12"	.052"
		78" - 84"	12"	.079"
	3" x 1"	48" - 120"	14"	.052"
Hugger Band	2⅔" x ½" Rerolled End	12" - 72"	10½"	.052"
		78" - 84"	10½"	.079"
	3" x 1" Rerolled End	48" - 120"	10½"	.052"
	5" x 1" Rerolled End	48" - 120"	12"	.064"

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".

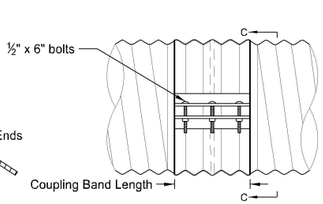


SIDE VIEW

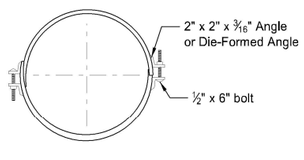


SECTION B-B

HAT BAND FOR FLANGED END PIPE

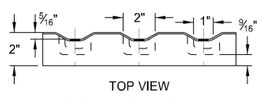


SIDE VIEW

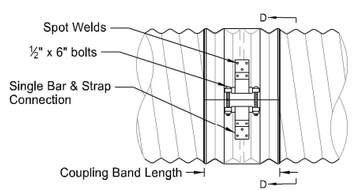


SECTION C-C
Angle Connection

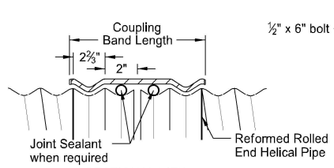
ANNULAR BAND



TOP VIEW
Die-Formed Angle Connector

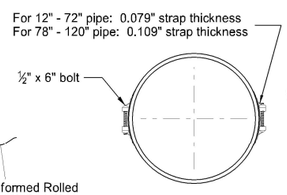


SIDE VIEW

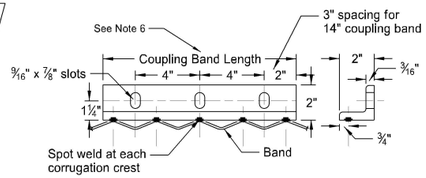


SECTIONAL VIEW

HUGGER COUPLING BAND

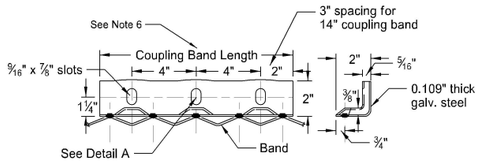


SECTION D-D
Bar & Strap Connection



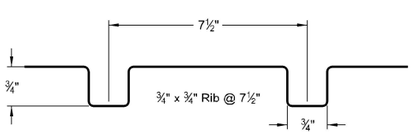
SIDE VIEW END VIEW

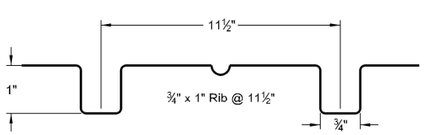
2" x 2" x 3/16" Angle Connector



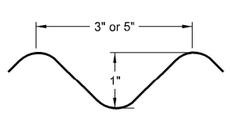
SIDE VIEW END VIEW

Die-Formed Angle Connector

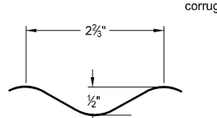




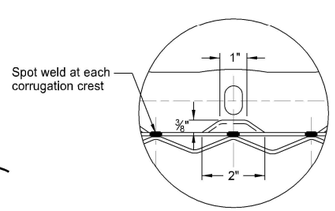
SPIRAL RIB CORRUGATIONS



3" x 1" CORRUGATIONS or
5" x 1" CORRUGATIONS



2⅔" x ½" CORRUGATIONS



Detail A

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

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09/23/22

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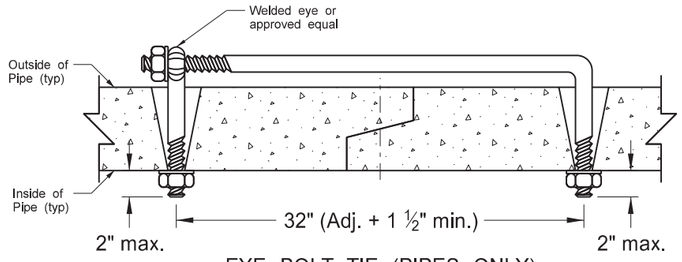
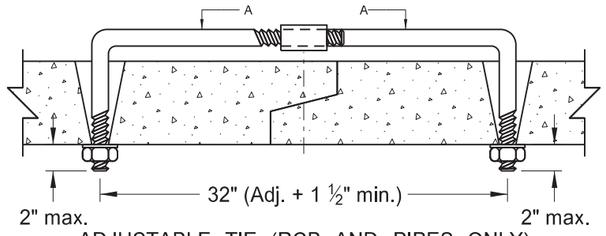
CONCRETE PIPE, CATTLE PASS, OR PRECAST CONCRETE BOX CULVERT TIES

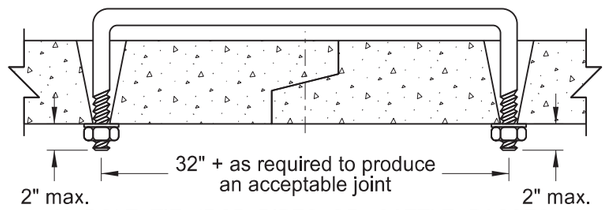
D-714-22



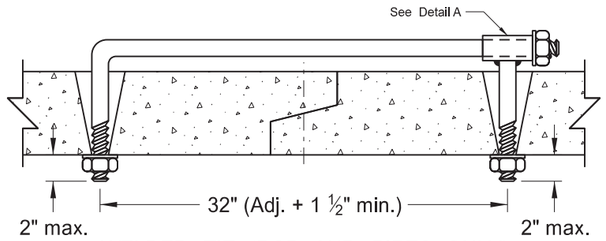
EYE BOLT TIE (PIPES ONLY)



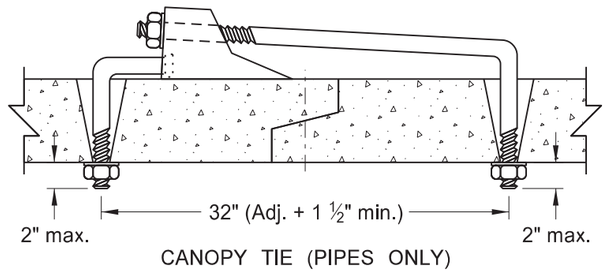
ADJUSTABLE TIE (RCB AND PIPES ONLY)



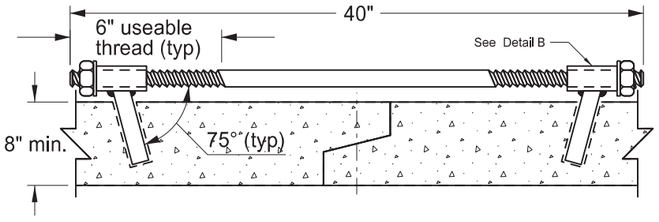
U BOLT TIE (RCB, PIPES, OR CATTLE PASSES)



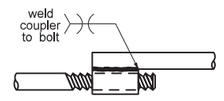
WELDED TIE (RCB AND PIPES ONLY)



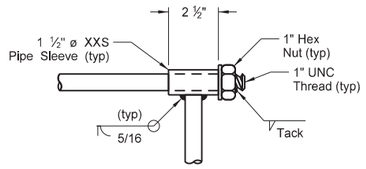
CANOPY TIE (PIPES ONLY)



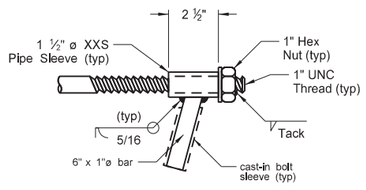
HIDDEN TIE (RCB ONLY)



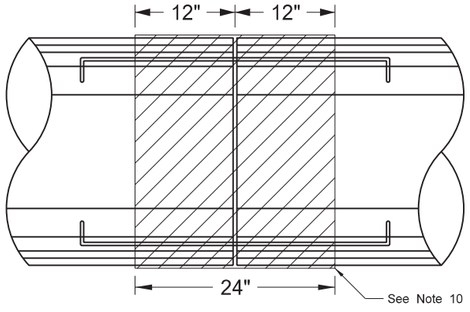
SECTION A-A



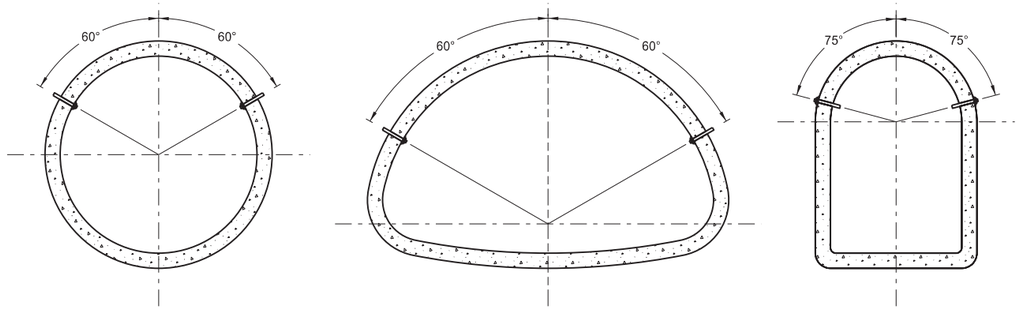
DETAIL A



DETAIL B



PLAN VIEW (PIPES ONLY)



END VIEW

REQUIRED SIZE OF TIE BOLTS		
Pipe Size	Thread ø	XXS Pipe Sleeve Inner ø
18" - 24"	⅝" See note 3	¾"
30" - 66"	¾"	1"
72" - 120"	1"	1 ¼"
RCB/Cattle Pass		

NOTES:

1. The pipe size listed is the inside diameter of round pipe or the equivalent diameter of pipe arch.
2. Insert pipe ties from the inside of the pipes and grout into place for Cattle Pass and Jacked and Bored pipes. Jacked and bored pipes with a diameter of 24" or less do not require pipe ties.
3. Nuts and washers are not required on Jacked and Bored pipes or pipes with a 24" diameter or less. Insert and grout tie bars into place where nuts and washers are not used.
4. Do not use pipe ties to pull the pipe or RCB sections tight. The ties are only for holding sections together.
5. Use only tie bolt assemblies that have been hot dip galvanized in accordance with ASTM A 153.
6. Holes in pipes to accommodate tie bolts can be precast or drilled. Tapered holes are permitted when precast. Use holes that have a diameter ¼" larger than the diameter of the thread. In precast RCB's, use holes that contain cast-in bolt sleeves with an inside diameter of 1 ¼".
7. Select the type of tie bolt used from those shown.
8. Include the cost of precasting or drilling the required holes and furnishing and installing the tie bolts in the price bid for the appropriate conduit or RCB pay item.
9. Tie all centerline and approach RCP culvert joints. Tie the first three joints including the end section of all free ends of storm drain systems. Free ends are defined as any storm drain end which does not terminate at an inlet or manhole. Outfall culverts with end sections which drain adjacent ditches are examples of free ends.
10. Place joint wrap prior to installing ties. Firmly secure the wrap around the full perimeter. For concrete pipes, overlap the joint by 12" in both directions. For box culverts, use a waterproof membrane that meets ASTM C877 (Type III). Provide a membrane that is a minimum of 12" wide and center it at the joint. Provide a minimum overlap of 2.5" at the seams.
11. Use tie bolts that conform to ASTM A 36. Use heavy hex nuts that conform to ASTM A 563. Use washers that conform to ASTM F 436, Type 1. Use welded pipe sleeves and cast-in bolt sleeves that conform to ASTM A 53, Grade B.
12. Tie RCB's at locations shown on the plans.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
3-18-14	
REVISIONS	
DATE	CHANGE
7-21-15	Note 8
6-6-17	Notes 2-11, Table, Title, Lables
8-11-21	Notes 2-12, Table, Lable

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08/11/21

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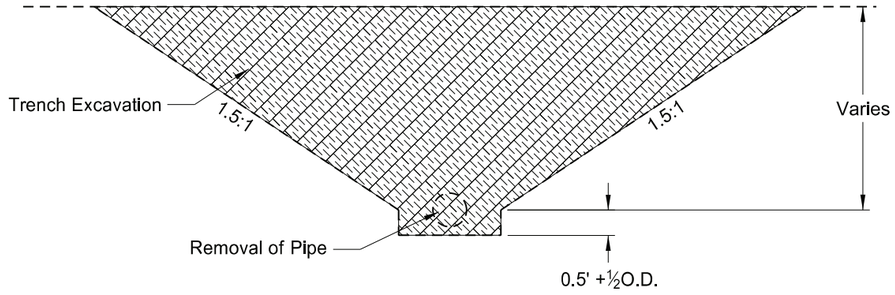
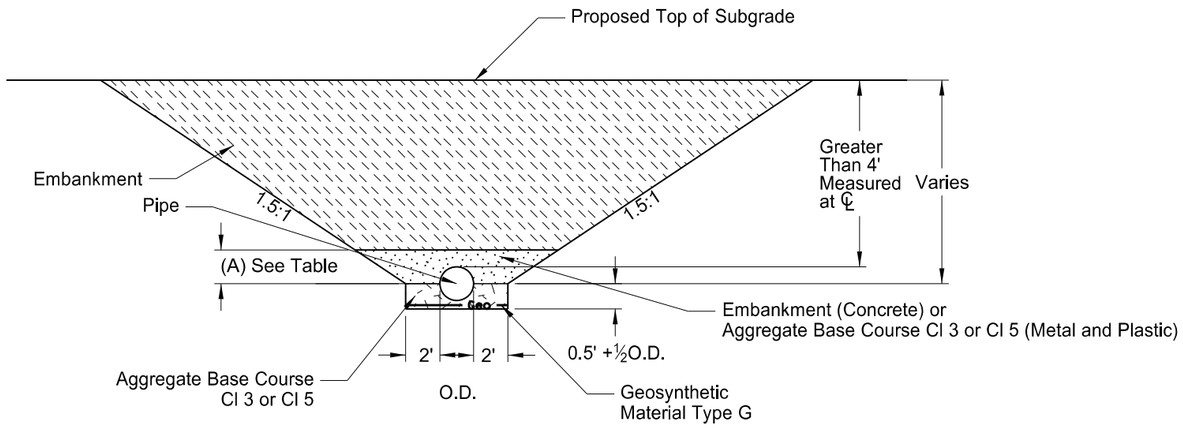
TRANSVERSE MAINLINE PIPE INSTALLATION DETAIL
PIPES MORE THAN 4 FEET BELOW TOP OF SUBGRADE

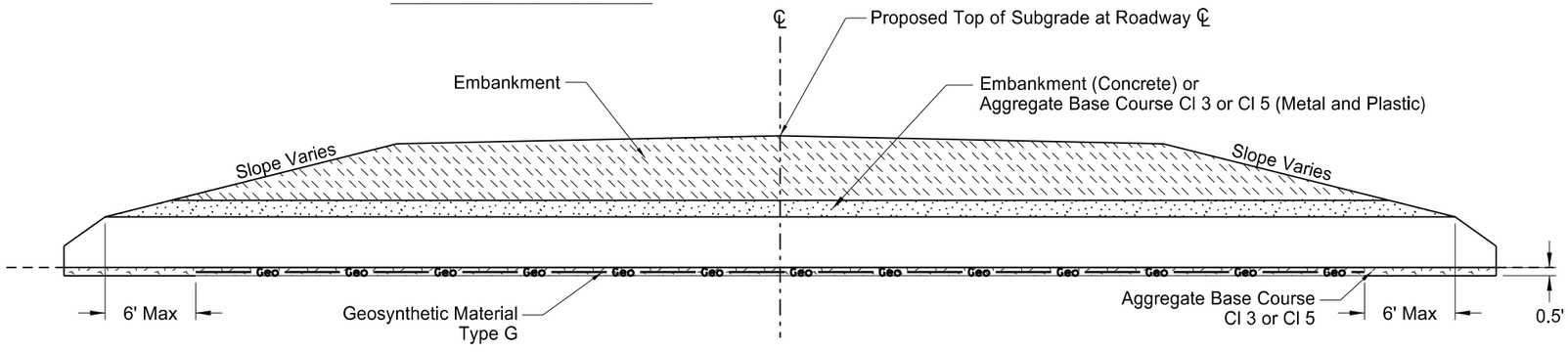
D-714-25



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 roadways (including ramps). It does not include pipes in approaches.

2) Embankment may be either Borrow Excavation or Common Excavation - Type A.

Backfill Dimensions	
Pipe Materials	Dimension (A)
Concrete	0.5 O.D.
Metal and Plastic	0.5 O.D. + 1 Foot

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

7-26-13

REVISIONS

DATE	CHANGE
10-15-13	Label Formatting
1-21-14	Nomenclature
9-18-15	Title Rewording
12-10-15	Added Plastic Pipe
5-27-20	Replaced R1 Fabric with Geogrid Changed bedding depth

REGISTERED PROFESSIONAL ENGINEER
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PE-8777
DATE
05/27/20
NORTH DAKOTA
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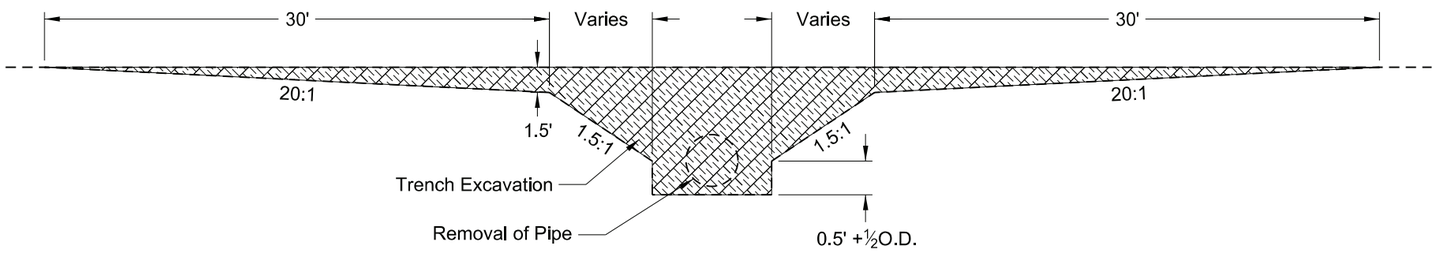
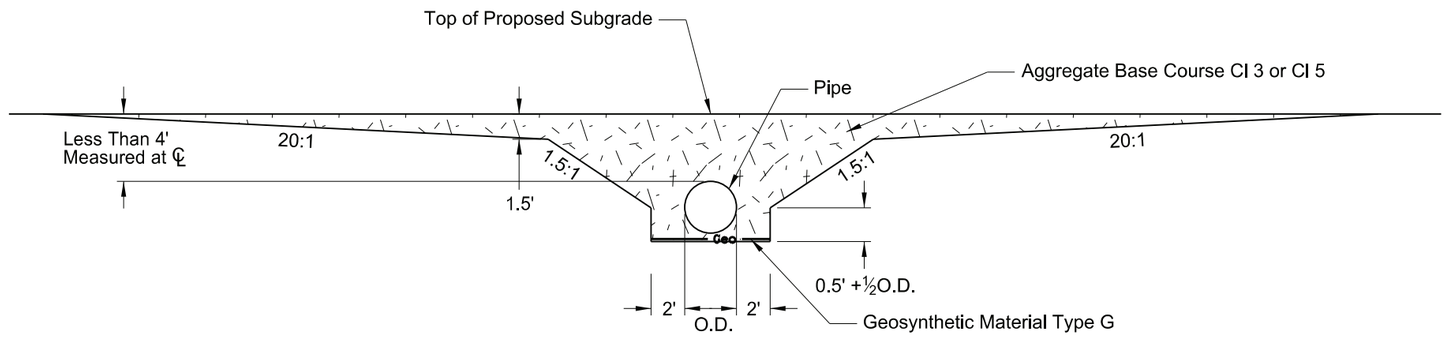
TRANSVERSE MAINLINE PIPE INSTALLATION DETAIL
PIPES 4 FEET OR LESS BELOW TOP OF SUBGRADE

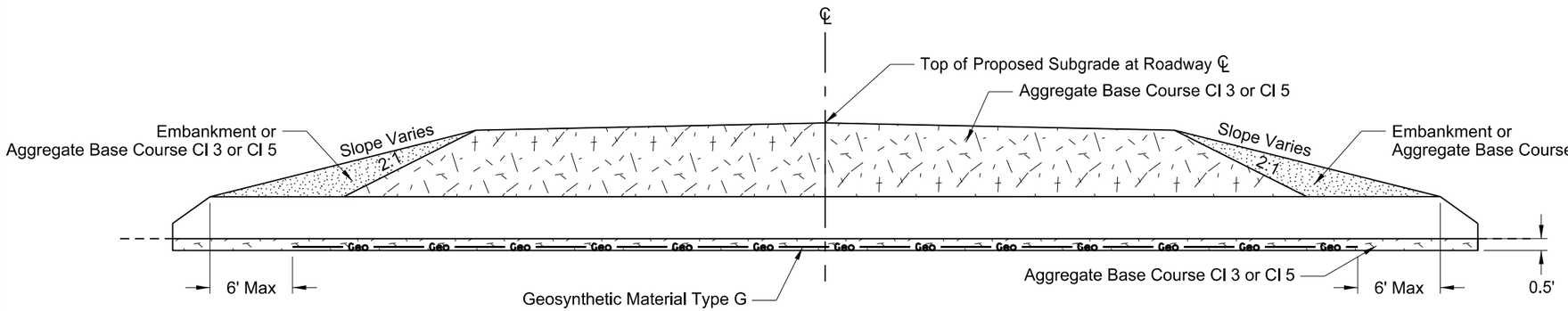
D-714-26



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
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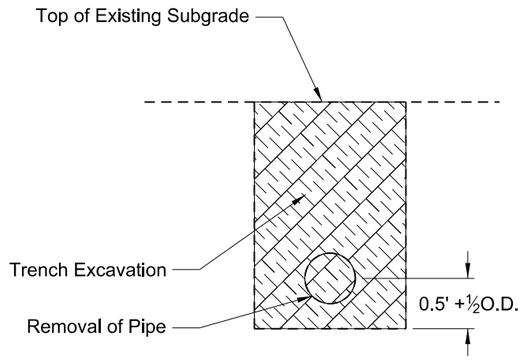
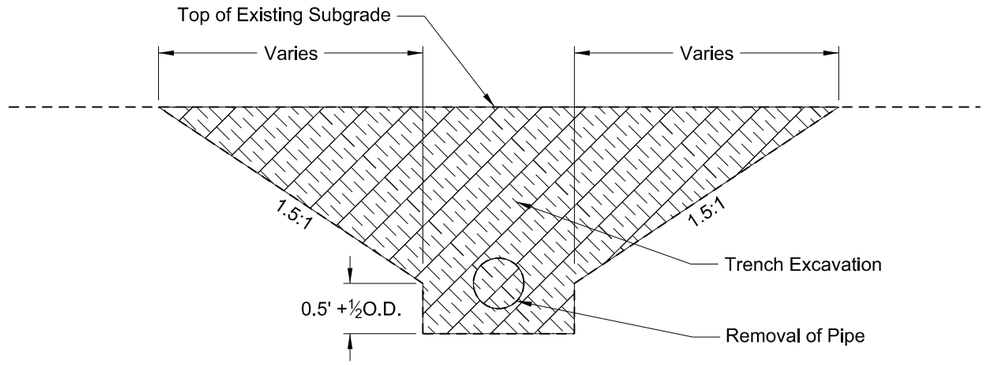
PIPE INSTALLATION DETAIL FOR LONGITUDINAL MAINLINE PIPE OR PIPE NOT UNDER THE ROADWAY

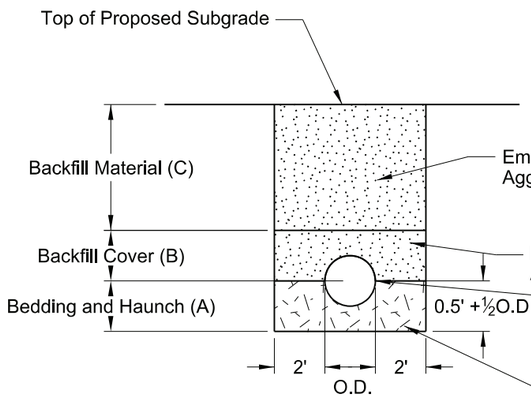
D-714-27



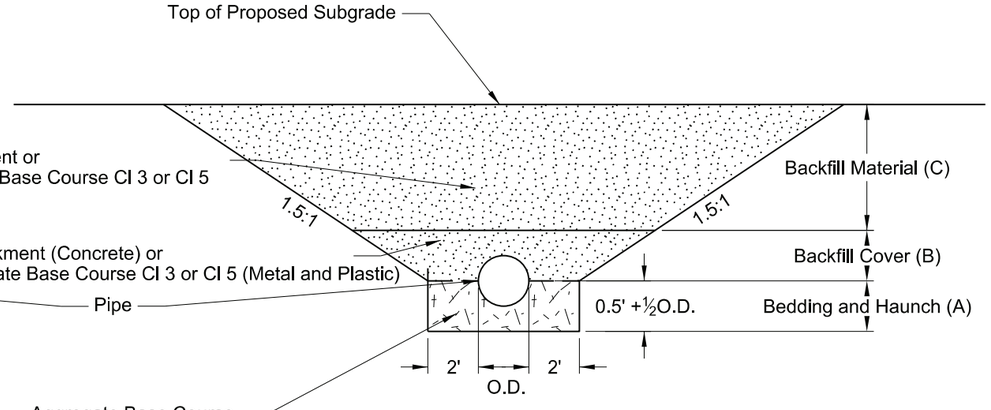
EXCAVATION DETAIL A



EXCAVATION DETAIL B



BACKFILL DETAIL A



BACKFILL DETAIL B

Pay Items
1) Pipe*
2) 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 does not apply to pipes in approaches.
2) It is the contactor's option to select Detail A or B.
3) Embankment may be either Borrow Excavation or Common Excavation - Type A

Bedding and Haunch (A)
Pipes Not Under Roadway = 0.5 O.D. + 0.5 Feet
Pipes Under the Roadway = 0.5 O.D. + 0.5 Feet
Backfill Cover (B)
Concrete Pipe = 0.5 O.D.
Metal and Plastic = 0.5 O.D. + 1 Foot
Backfill Material (C)
Top of Pipe 4 Feet or Less Below the Top of Proposed Subgrade = Aggregate Base Course Cl3 or Cl 5
Top of Pipe Greater than 4 Feet Below the Top of Proposed Subgrade = Common Excavation - Type A
Pipe Not Under Roadway = Common Excavation - Type B

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

7-26-13

REVISIONS

DATE	CHANGE
10-15-13	Label Formatting
1-21-15	Nomenclature
12-10-15	Added Plastic Pipe
5-27-20	Changed bedding depth and updated table

REGISTERED PROFESSIONAL ENGINEER
MATTHEW C KURLE
PE-8777
DATE
05/27/20
NORTH DAKOTA
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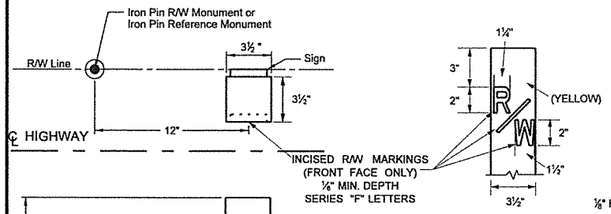
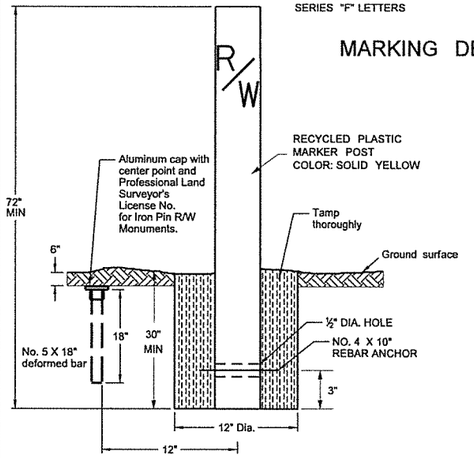
STANDARD MONUMENTS AND RIGHT OF WAY MARKERS

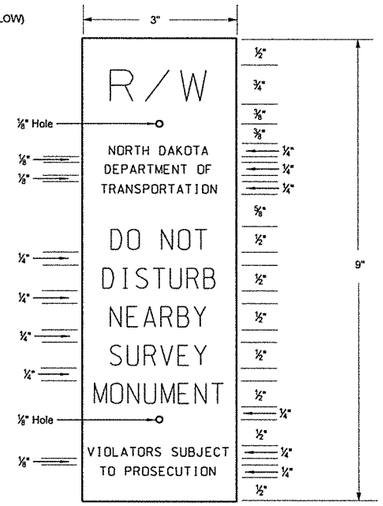
D-720-1



MARKING DETAIL



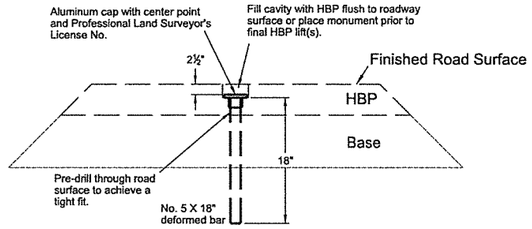
RECYCLED PLASTIC RIGHT OF WAY MARKER (WITNESS POST) DETAILS & IRON PIN REFERENCE AND R/W MONUMENT DETAILS



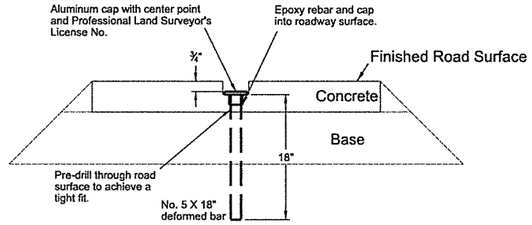
SIGN DETAIL

Black letters on orange high intensity background sheeting meeting ASTM D-4956 Type III or higher on 80 gauge 5052-H38 aluminum. Silk screen graphics. One color print. Attach sign by drilling two holes in the face of the post (side facing the private owner, away from the Department of Transportation right of way). Put inserts into the holes and mount the sign with #4 vandal proof screws. Install sign 2" from top of post.

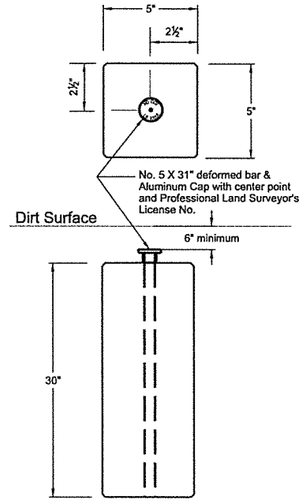
ALIGNMENT MONUMENT DETAILS



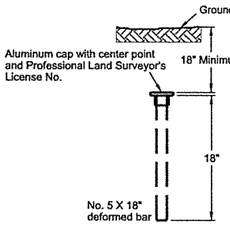
IRON PIN
(Within Finished Roadway Surface)



IRON PIN
(Within Finished Roadway Surface)



PRECAST CONCRETE
(Outside Finished Roadway Surface)
(Inside R/W Limits)



IRON PIN
(Outside Finished Roadway Surface)
(Outside R/W Limits)

NOTES:

Construct and install Alignment Monuments, Iron Pin Reference Monuments, Iron Pin R/W Monuments, and Right of Way Markers (witness posts) according to Section 720 of the Standard Specifications.

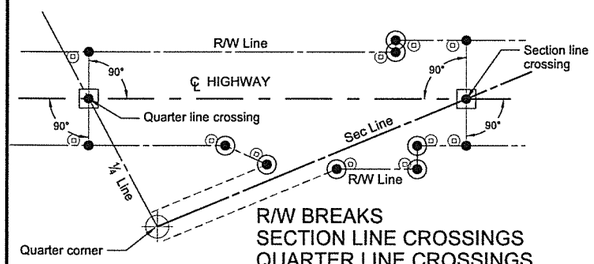
ALIGNMENT MONUMENTS: Place Iron Pin or Precast Concrete Alignment Monuments with aluminum caps on the centerline alignment PI's, section corners, quarter corners, section line crossings, quarter line crossings, and at curve points (PC's, PT's, TS's, and ST's) on the centerline.

IRON PIN R/W MONUMENT: Place Iron Pns with aluminum caps (No. 5 X 18") at breaks on the Right of Way line, and at curve points (PC's, PT's, TS's and ST's) on the Right of Way line.

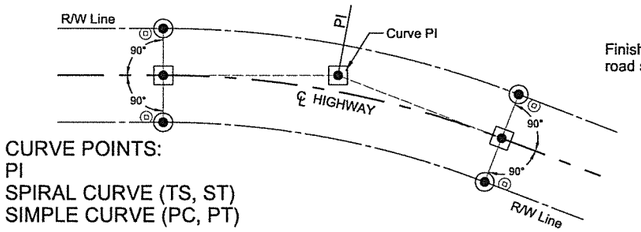
IRON PIN REFERENCE MONUMENT: Place Iron Pins without aluminum caps (No. 5 X 18") as reference monuments on the Right of Way line at section corners, quarter corners, section line crossings, and quarter line crossings.

R/W MARKERS (WITNESS POST) WITHIN DRIVEWAYS: If a single iron Pin R/W or Reference Monument is within a driveway, place right of way marker (witness post) 50 feet back, in stationing, from the Iron Pin Monument along the R/W line. If R/W break is within a driveway, place right of way markers (witness posts) 50 feet back, or ahead from respective Iron Pin R/W Monuments along the R/W lines. Maintain Iron Pin R/W or Reference Monument original position within driveway.

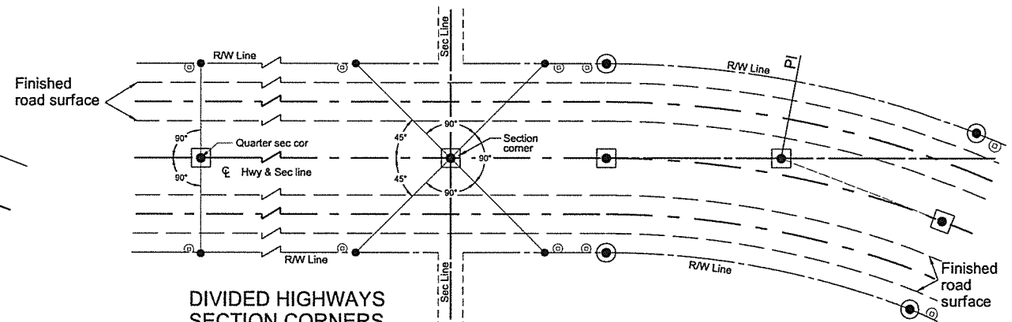
VARIOUS MONUMENT AND MARKER PLACEMENTS



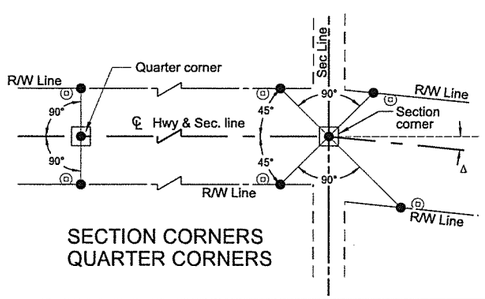
R/W BREAKS
SECTION LINE CROSSINGS
QUARTER LINE CROSSINGS



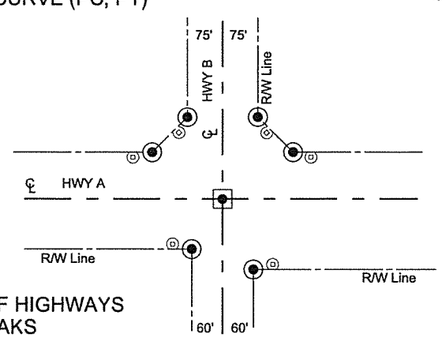
CURVE POINTS:
PI
SPIRAL CURVE (TS, ST)
SIMPLE CURVE (PC, PT)



DIVIDED HIGHWAYS
SECTION CORNERS
QUARTER CORNERS



SECTION CORNERS
QUARTER CORNERS



INTERSECTION OF HIGHWAYS
FLARED R/W BREAKS

LEGEND

- Iron Pin Reference Monument
- R/W Marker (witness post)
- Alignment Monument
- Iron Pin R/W Monument

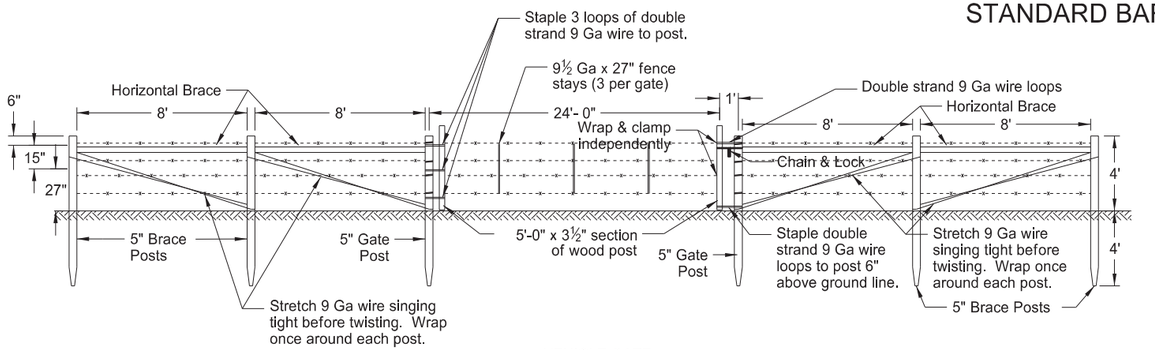
NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION
10-3-2013
REVISIONS

DATE	CHANGE
11/12/13	Note for SIGN DETAIL modified to meet ASTM D-4956 Type III or higher on 80 gauge 5052-H38
10/17/17	Updated to active voice.
08/27/19	New Design Engr PE Stamp.

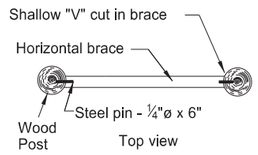
KIRK J. HOFF
REGISTERED
PROFESSIONAL
PE 4583
ENGINEER
NORTH DAKOTA
8/27/19

STANDARD BARBED WIRE FENCE

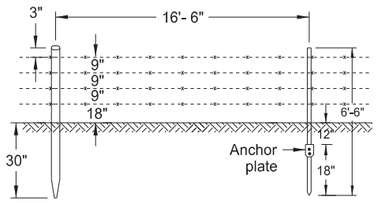
D-752-1



VEHICLE GATE



HORIZONTAL BRACE DETAIL



NOTES

1. No deduction in measured pay length of fence made for gates, corner assemblies, double brace assemblies, fence terminals, or depression fencing. Include all costs for abutment fencing in the price bid for fencing bid items.

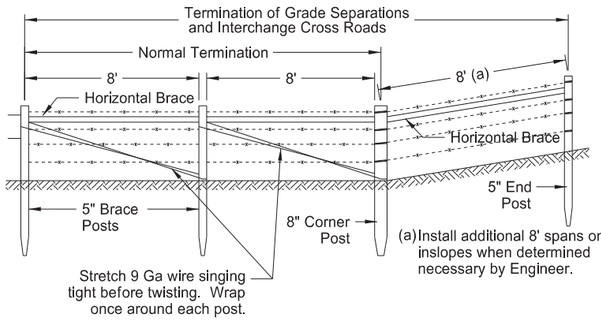
2. Install double brace assemblies at locations shown on the plans or established by the Engineer. Place adjacent fence terminals, corner assemblies, or double brace assemblies at a maximum spacing of 1,320 feet.

3. Include all costs of furnishing and installing inserts and eyebolts in the unit price bid for fencing bid items. Use eyebolts galvanized according to AASHTO designation M-30; inserts of corrosion resistant material do not require galvanization. Use concrete inserts capable of developing the full strength of the ⅝" diameter threaded eyebolt, when installed in concrete.

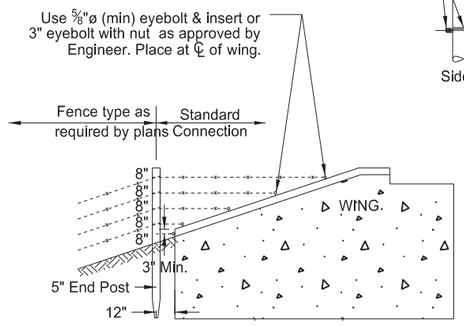
4. Determine post type used, either wood or steel, unless otherwise specified in the plans.

5. Include the cost of bracing at vehicle gates in the price bid for "Vehicle Gate."

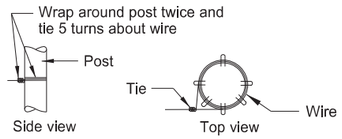
POST SIZES					
	TREATED WOOD		STEEL		
USE OF POST	Post dia.	Post length	Post length	Post wt. Lbs/Ft	Anchor wt. Lbs.
Line post	3½"	6'-6"	6'-6"	1.33	0.67
Corner post	8"	8'	7'	4.10	(Conc.)
End post	5"	8'			
Brace post	5"	8'	7'	3.19	(Conc.)
Gate post	5"	8'			
Horizontal brace	4"	8'	As appoved by the Engineer		



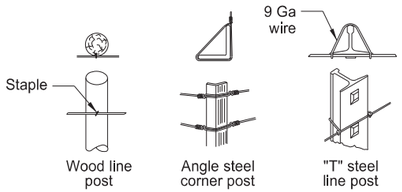
FENCE TERMINAL



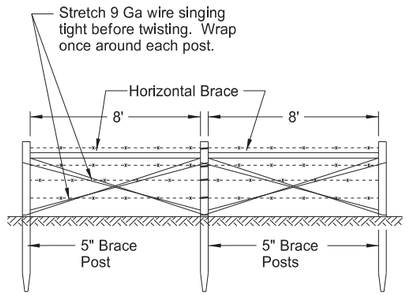
DETAIL FOR TYING FENCE TO WINGS OF ABUTMENTS



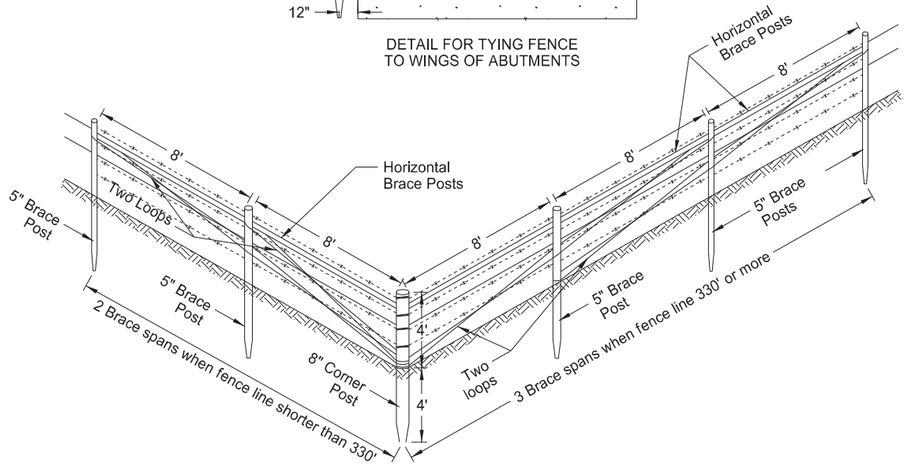
WRAP-AROUND DETAIL



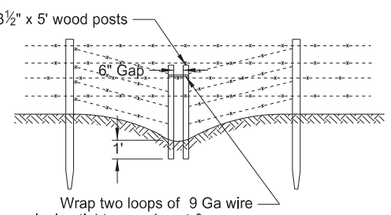
FASTENING TO POSTS



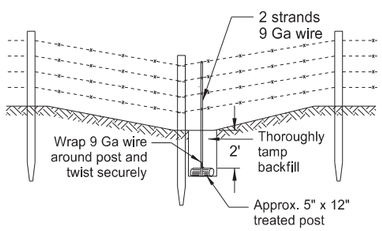
DOUBLE BRACE ASSEMBLY



CORNER ASSEMBLY

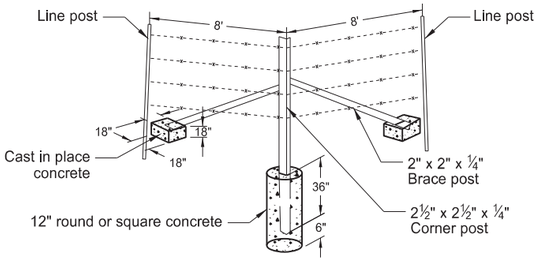


BREAK-AWAY FENCE FOR NARROW DEPRESSIONS SUBJECT TO FLOODING

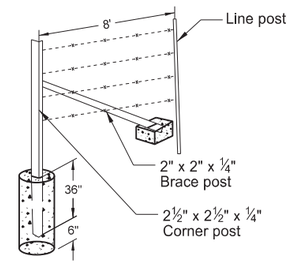


DETAIL FOR ANCHORING FENCES IN DEPRESSIONS*

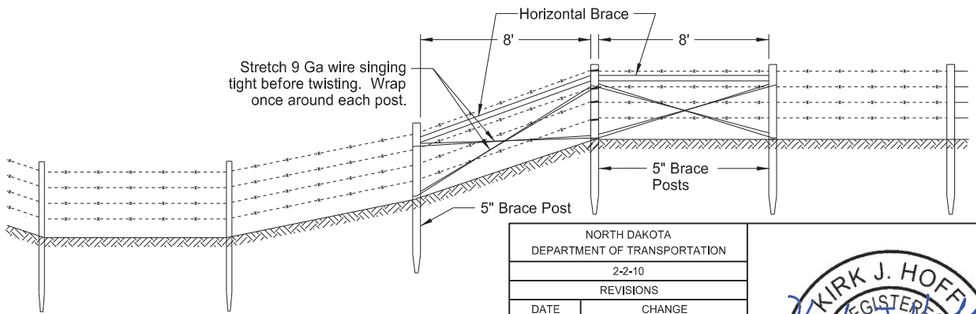
*Determine locations in the field and include in price bid for fencing. Use other methods of anchoring fence if approved by the Engineer.



CORNER AND DOUBLE BRACE ASSEMBLY STEEL POSTS



FENCE TERMINAL STEEL POSTS



FENCING FOR WIDE DEPRESSIONS

Use double brace installation, as shown, on opposite side of depression.

Decrease line post spacing as needed due to terrain.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
2-2-10	
REVISIONS	
DATE	CHANGE
10-02-12	Notes, steel assemblies/posts.
11-25-13	Revised Vehicle Gate.
10-17-17	Updated to active voice.
02-23-23	Revised post spacing/brace size.

KIRK J. HOFFMANN
REGISTERED
PROFESSIONAL
PE-4683
ENGINEER
NORTH DAKOTA

02/23/23

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.

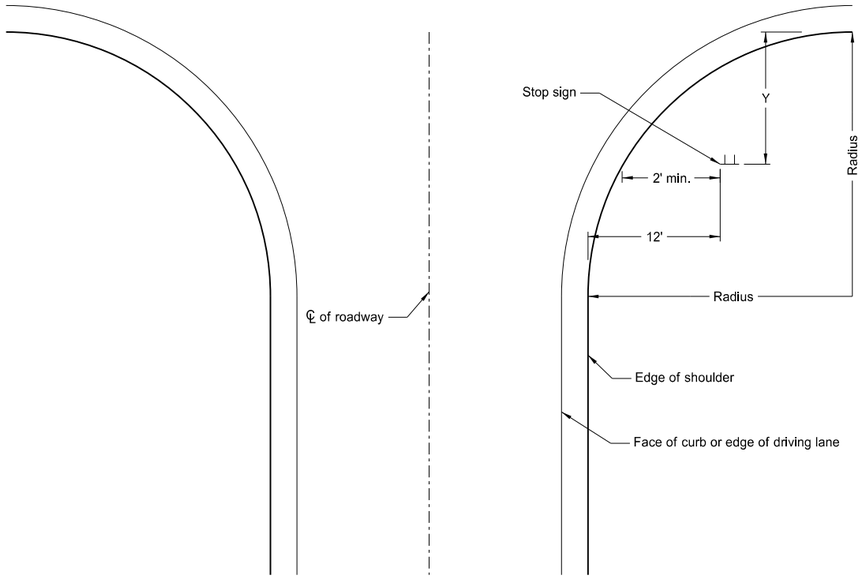
   Install signs on expressways a minimum height of 7'.

   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.

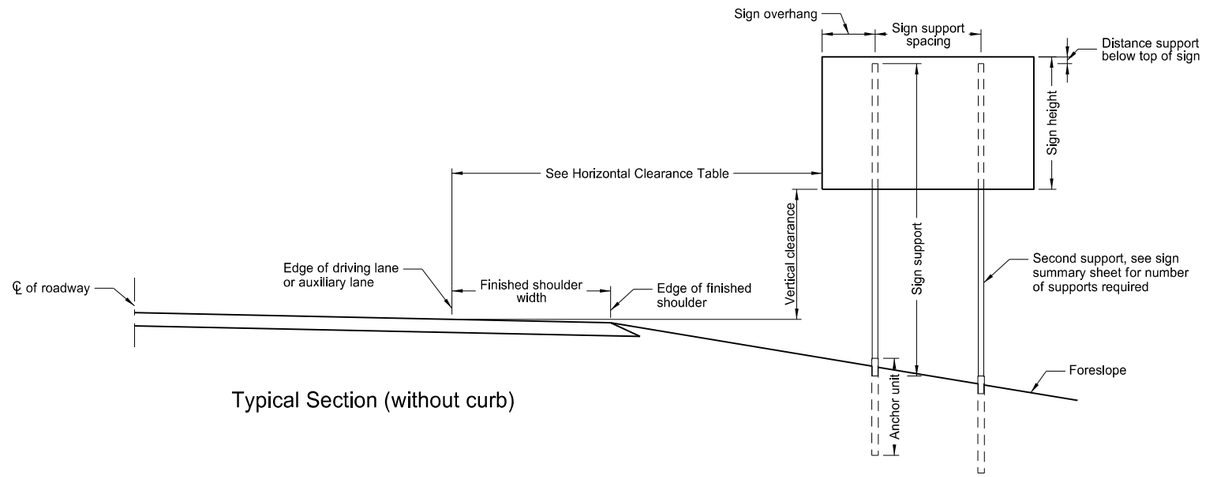
4. Provide a horizontal clearance from edge of shared use path to edge of sign of 3', except where width is limited. Provide a minimum clearance of 2'.



Stop Sign Location
Wide Throat Intersection

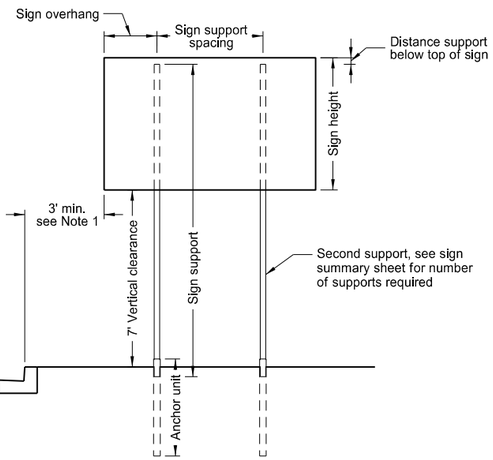
Use layout for the placement of "Stop" signs.

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



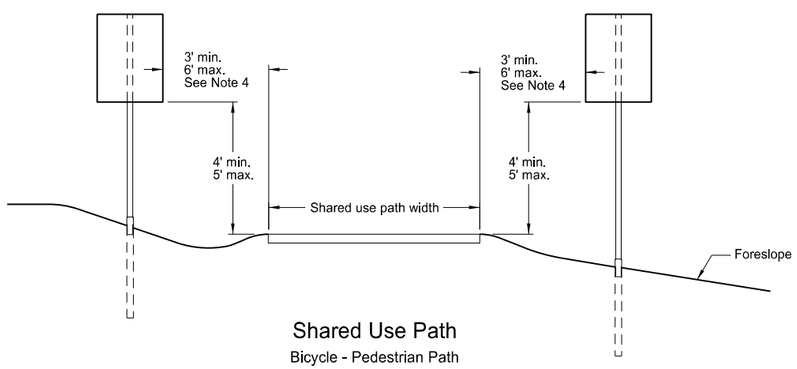
Typical Section (without curb)

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



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.

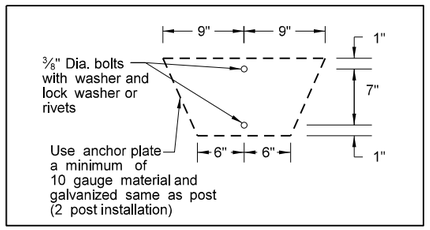
This document was originally issued and sealed by Kirk J Hoff, Registration Number PE-4683, on 8/29/19 and the original document is stored at the North Dakota Department of Transportation

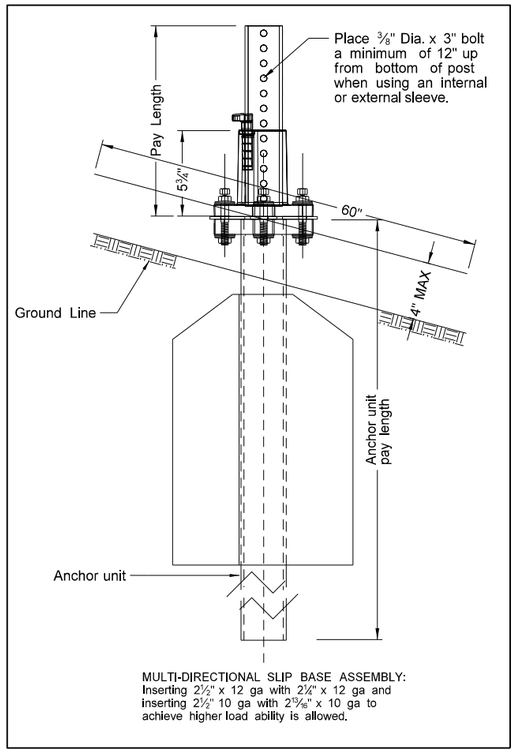
Mounting Details Perforated Tube

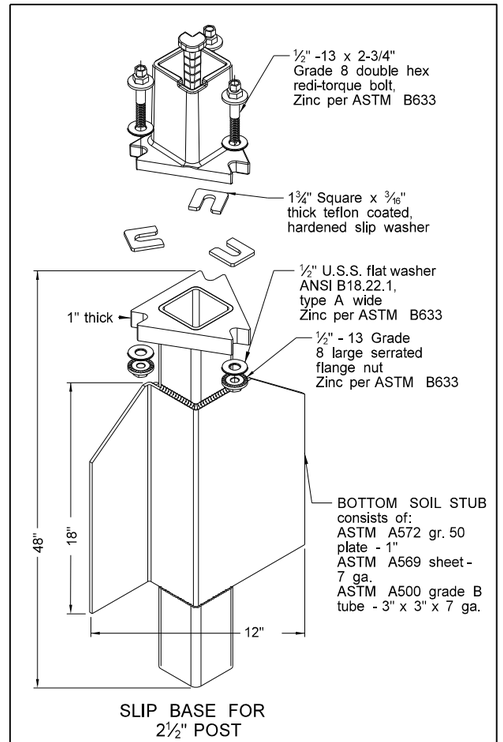
D-754-24

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	2⅜16	10	Yes		7

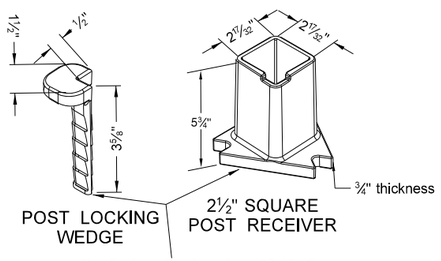
(B) - Provide a shim as specified by the manufacturer when placing 2½", 12 gauge posts in standard soils without breakaway bases. Provide breakaway base when placing the support in weak soils. The Engineer will determine if the soils are weak. Weak soils are classified as boggy, wet, or loose soil areas.
(C) - 3" anchor unit
(D) - 2½" x 12 ga. x 18" minimum length external sleeve required.

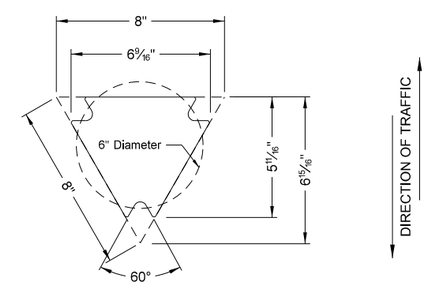






SLIP BASE FOR 2½" POST





SLIP BASE DETAIL

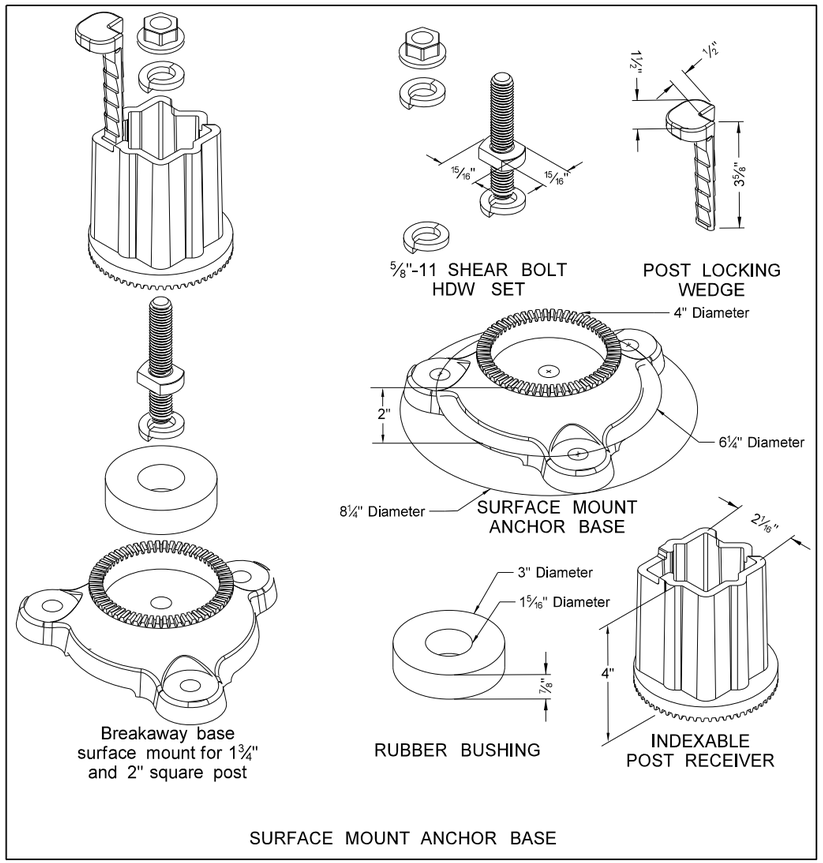
Properties of Telescoping Perforated Tubes

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
2⅜16 x 2⅜16	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 ⅜16" 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:

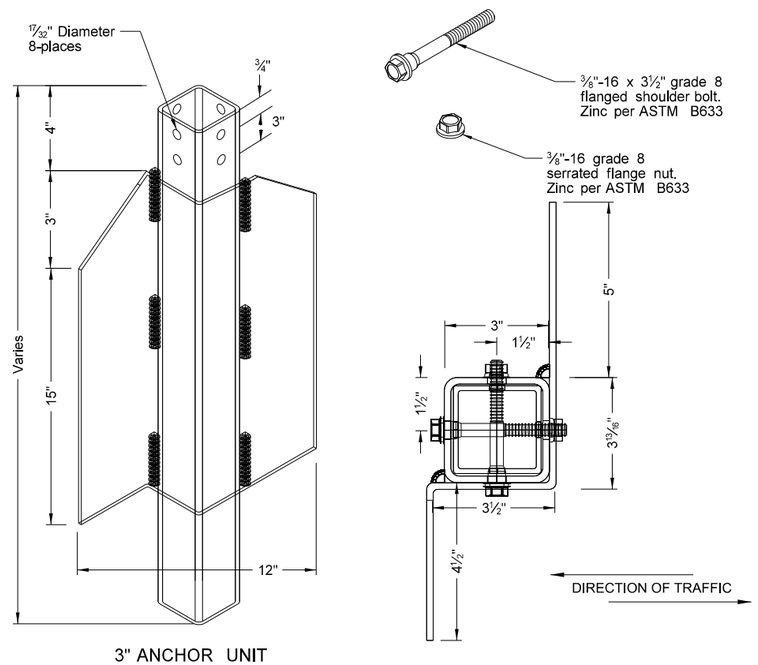
1. 4" Vertical clearance of anchor or breakaway base. The 4" x 60" measurement is above and below post location and also back and ahead of post.
2. Provide 7 guage HRPO commmercial quality ASTM A569 and 3" x 3" x 7" guage ASTM A500 grade B anchor material with 43.9 KSI yield strength and 59.3 KSI tensile 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)



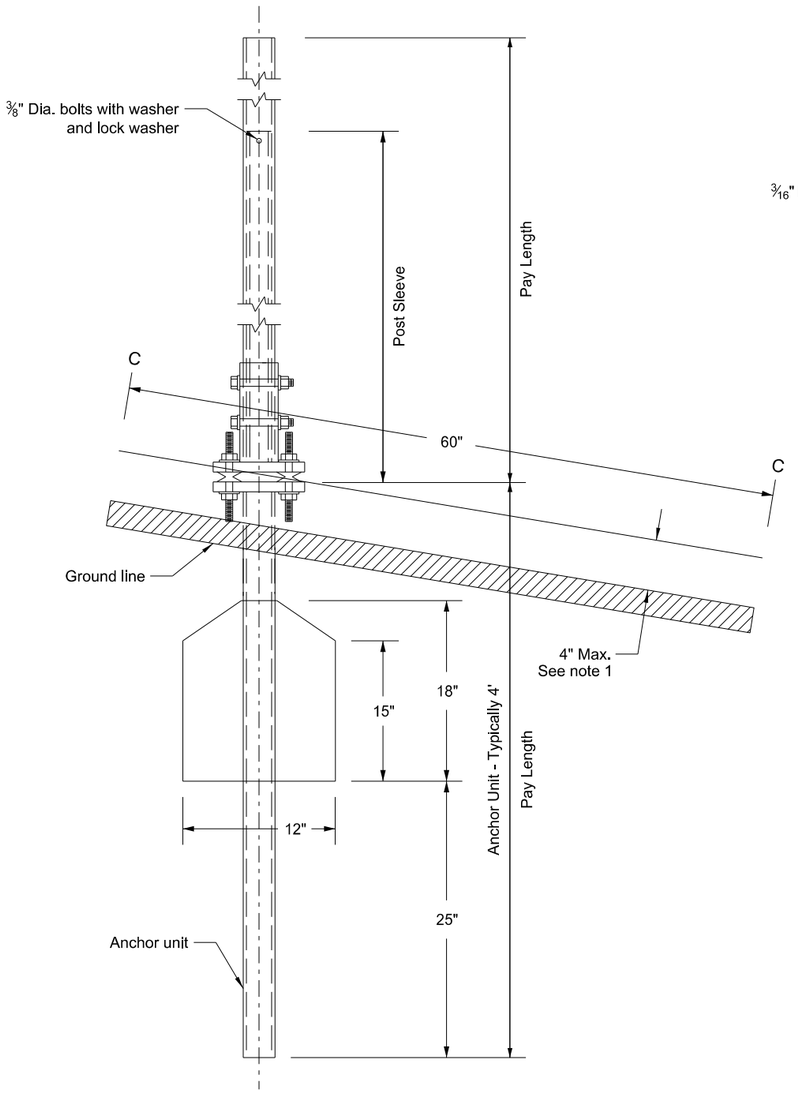
3" ANCHOR UNIT

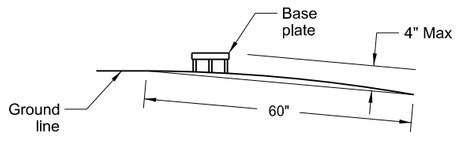
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-6-09	
REVISIONS	
DATE	CHANGE
8-30-18	Updated notes to active voice & corrected max height of base.
8-29-19	New Design Engineer PE Stamp.

This document was originally issued and sealed by Kirk J Hoff, Registration Number PE- 4683 on 8/29/19 and the original document is stored at the North Dakota Department of Transportation

D-754-24A

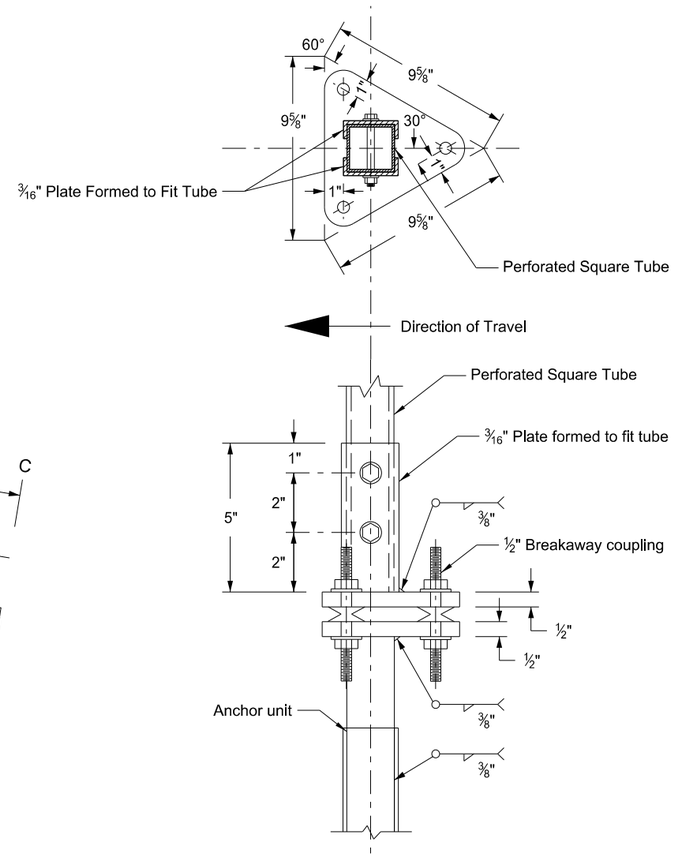
Breakaway Coupler System for Perforated Tubes



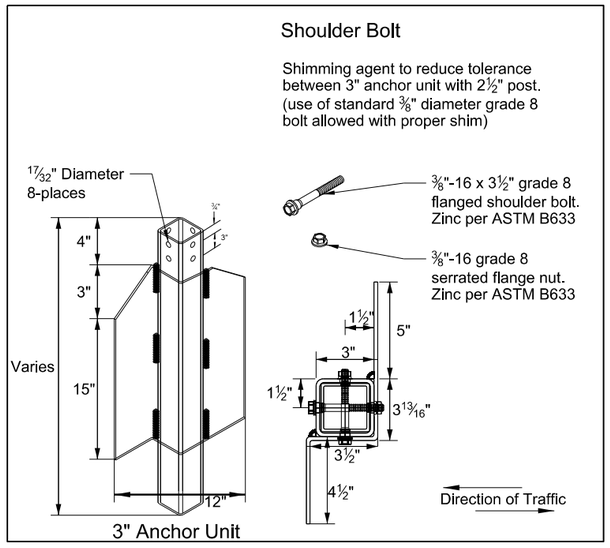


Section C-C

Max protection 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.



Base Plate with Breakaway Coupler



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.

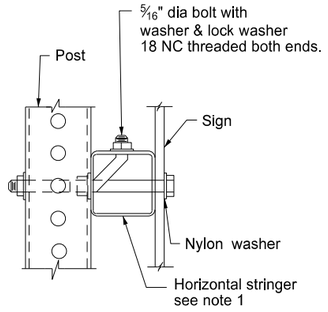
(C) - 3" anchor unit

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
10-3-2013	
REVISIONS	
DATE	CHANGE
8-30-18	Updated notes to active voice.
8-30-19	New Design Engr PE Stamp.

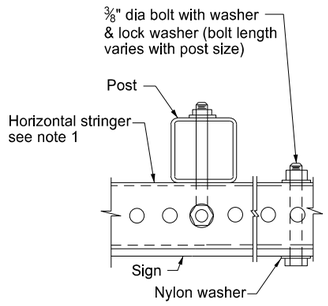
This document was originally issued and sealed by Kirk J Hoff, Registration Number PE-4683, on 8/30/19 and the original document is stored at the North Dakota Department of Transportation

Mounting Details Perforated Tube

D-754-25

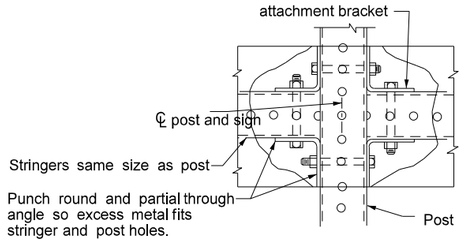


Side View



Top View

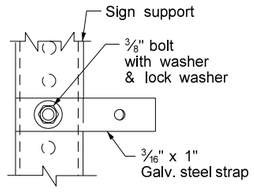
STRINGER MOUNTING
(WITH STRINGER IN FRONT OF POST)



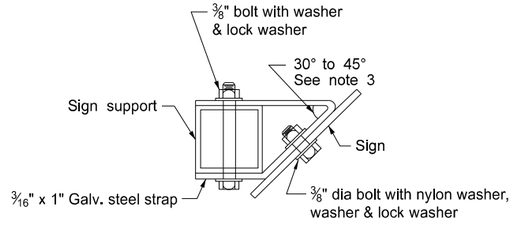
STREET NAME SIGNS AND ONE WAY SIGNS
SINGLE POST ASSEMBLY
ONE STRINGER OR BACK TO BACK MOUNTING

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.

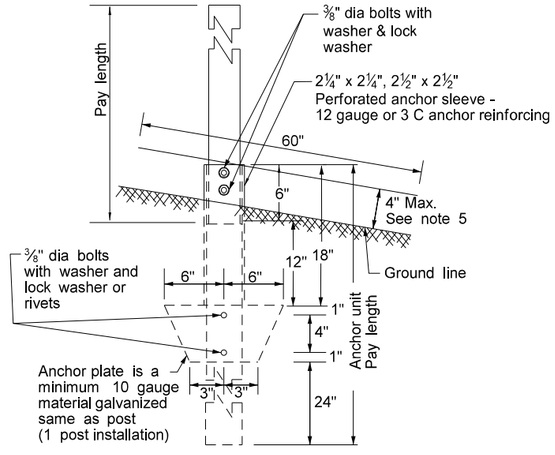


Side View



Top View

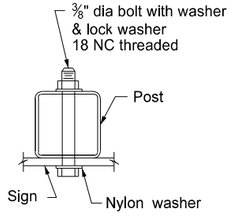
STRAP DETAIL



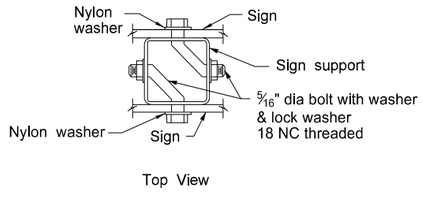
ANCHOR UNIT AND POST ASSEMBLY

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.

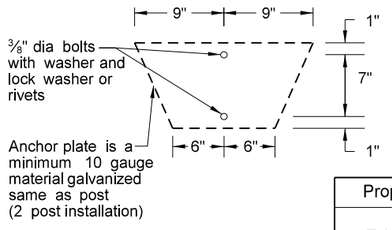


BOLT MOUNTING



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

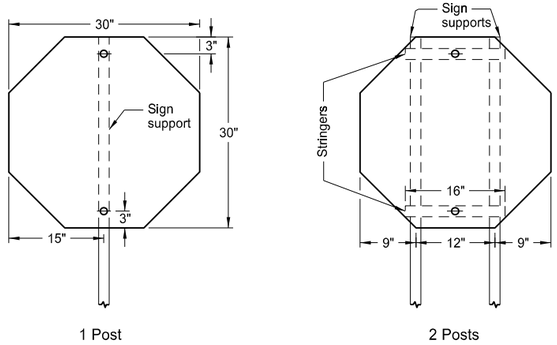
The 2 3/16" size 10 gauge is shown as 2.19" size on the plans.
The 2½" size is shown as 2.51" size on the plans.

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.

This document was originally issued and sealed by Kirk J Hoff, Registration Number PE- 4683 , on 8/30/19 and the original document is stored at the North Dakota Department of Transportation

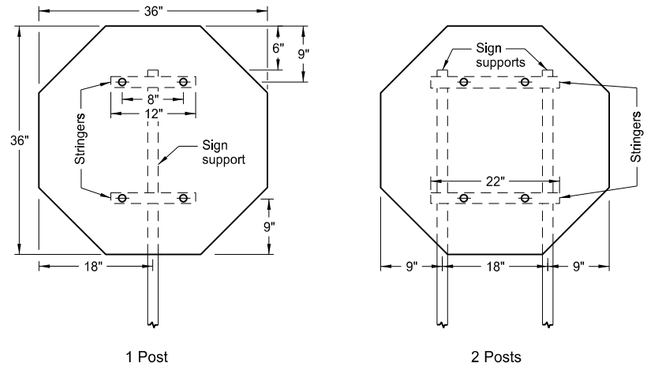
SIGN PUNCHING, STRINGER AND SUPPORT LOCATION DETAILS REGULATORY, WARNING AND GUIDE SIGNS

D-754-26



1 Post 2 Posts

Assembly No. 1

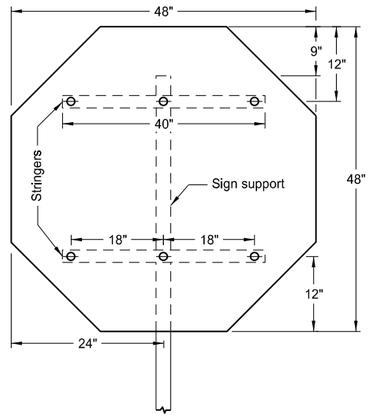


1 Post 2 Posts 3 Posts

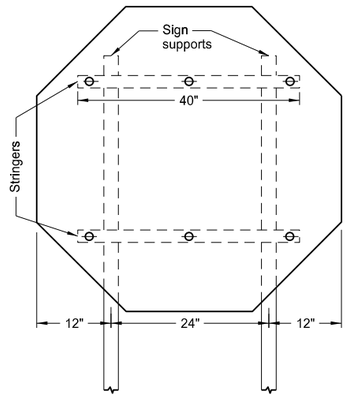
Assembly No. 2

Notes:

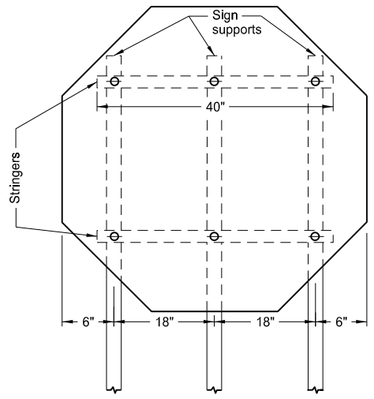
1. Use 0.100 inch minimum thickness sign backing material.
2. Use 1½" x 1½" perforated square tube stringers.
3. Punch holes round for ⅜" bolt.



1 Post

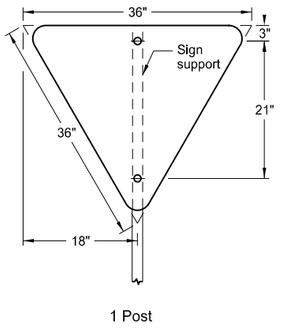


2 Posts



3 Posts

Assembly No. 3



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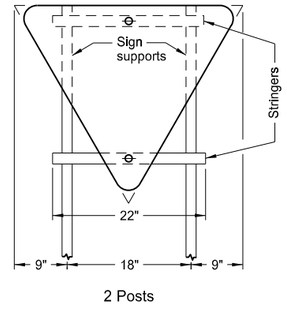
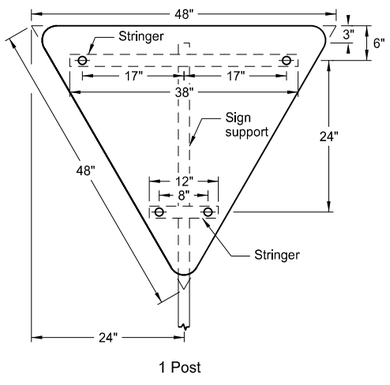


2 Posts

Assembly No. 4



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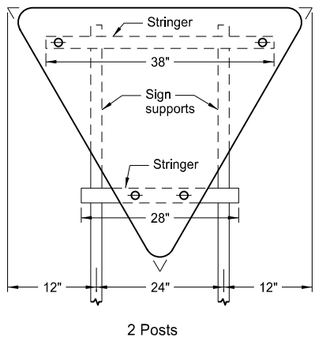
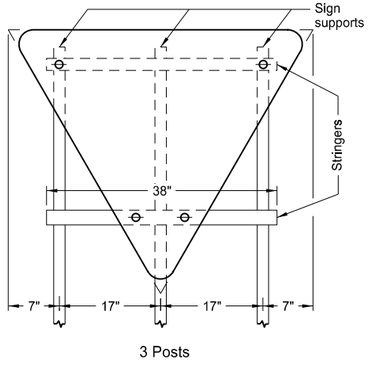


2 Posts



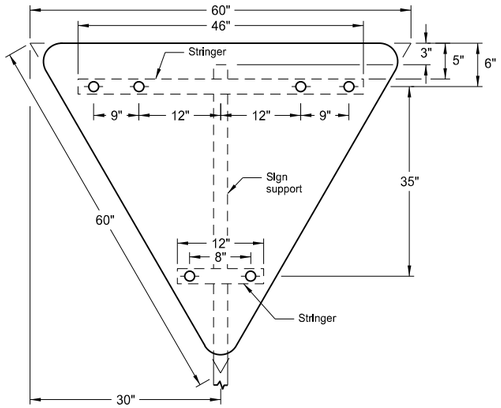
3 Posts

Assembly No. 5

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
12-1-10	
REVISIONS	
DATE	CHANGE
8-30-18 8-30-19	Updated notes to active voice. New Design Engineer PE Stamp.

This document was originally issued and sealed by Kirk J Hoff, Registration Number PE-4683, on 8/30/19 and the original document is stored at the North Dakota Department of Transportation

SIGN PUNCHING, STRINGER AND SUPPORT LOCATION
DETAILS REGULATORY, WARNING AND GUIDE SIGNS



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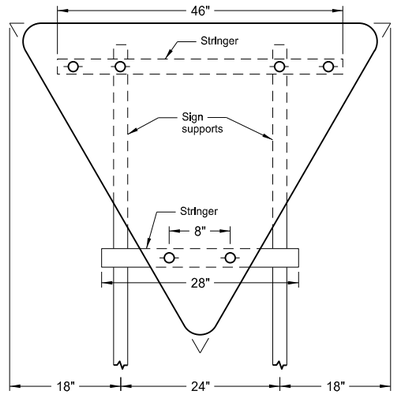
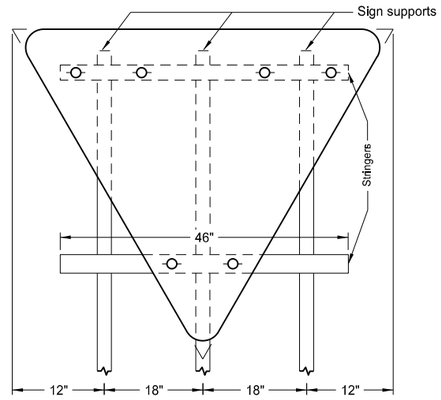


2 Posts

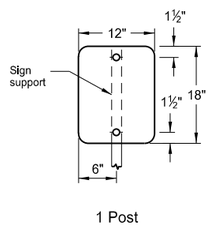


3 Posts

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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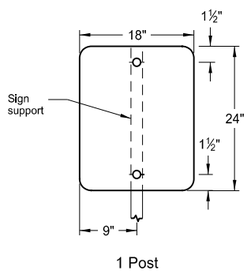
Assembly No. 7



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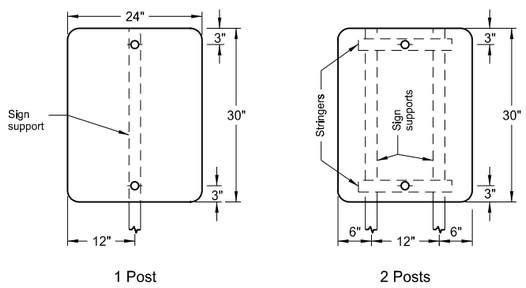
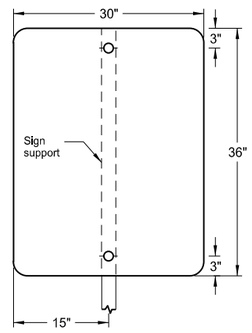


1 Post

2 Posts

Assembly No. 9



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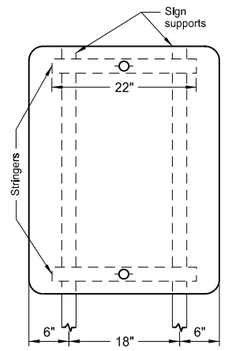
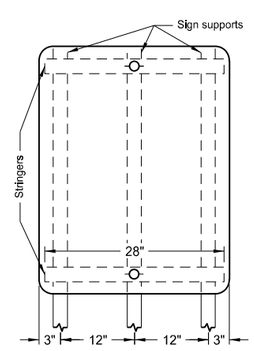
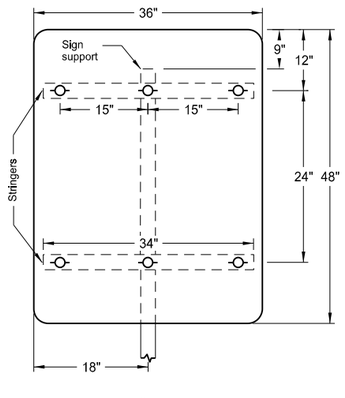


2 Posts



3 Posts

Assembly No. 10



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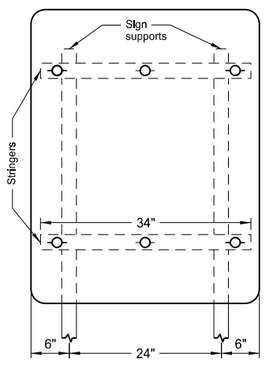
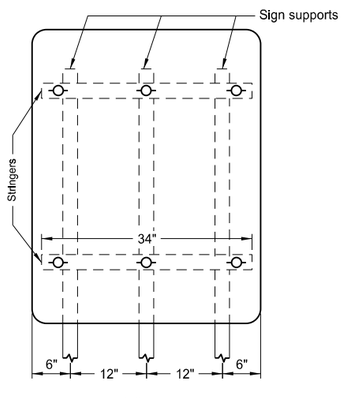


2 Posts



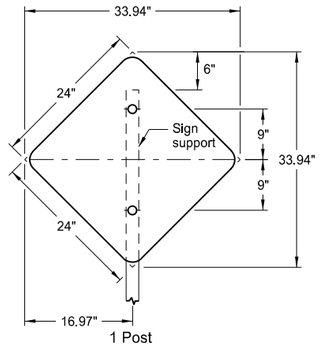
3 Posts

Assembly No. 11

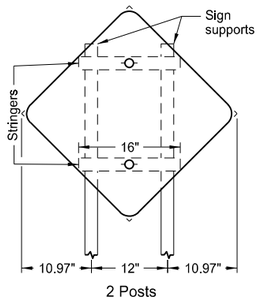
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
12-1-10	
REVISIONS	
DATE	CHANGE
8-30-18 8-30-19	Updated notes to active voice. New Design Engineer PE Stamp.

This document was originally issued and sealed by Kirk J Hoff, Registration Number PE-4683, on 8/30/19 and the original document is stored at the North Dakota Department of Transportation

SIGN PUNCHING, STRINGER AND SUPPORT LOCATION DETAILS REGULATORY, WARNING AND GUIDE SIGNS

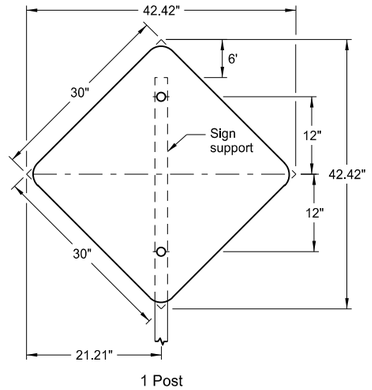


1 Post

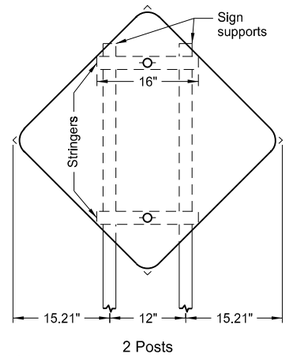


2 Posts

Assembly No. 18

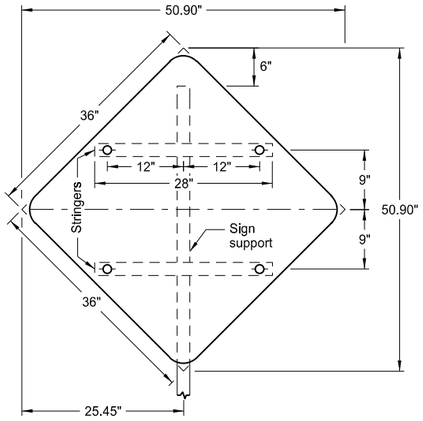


1 Post

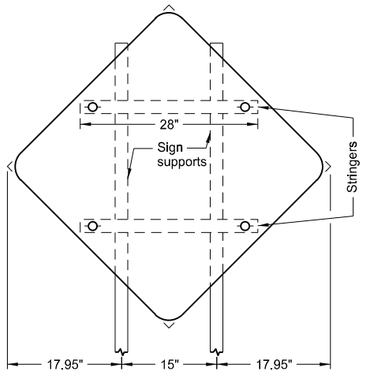


2 Posts

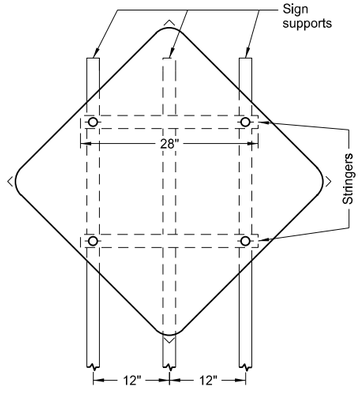
Assembly No. 19



1 Post

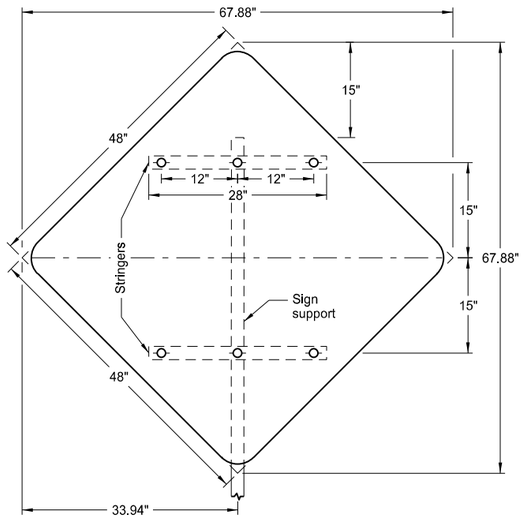


2 Posts

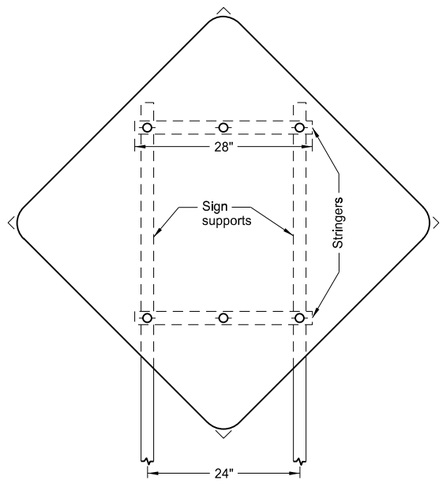


3 Posts

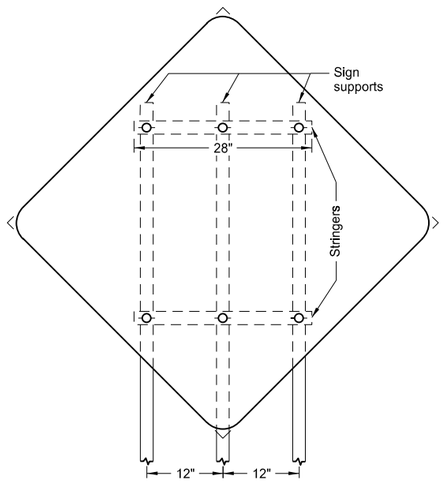
Assembly No. 20



1 Post



2 Posts



3 Posts

Assembly No. 21

Notes:

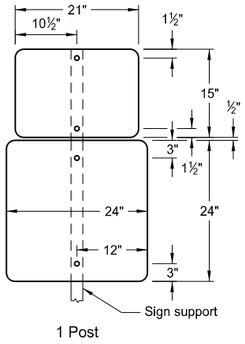
1. Use 0.100 inch minimum thickness sign backing material.
2. Use 1½" x 1½" perforated square tube stringers.
3. Punch holes round for ⅜" bolt.

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.

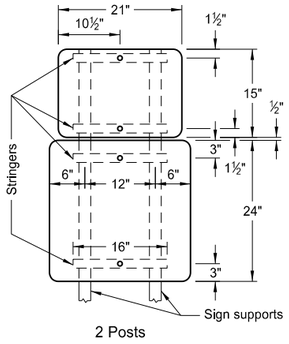
This document was originally issued and sealed by Kirk J Hoff, Registration Number PE-4683, on 8/30/19 and the original document is stored at the North Dakota Department of Transportation

SIGN PUNCHING, STRINGER AND SUPPORT LOCATION DETAILS - ROUTE MARKER SIGNS

D-754-57

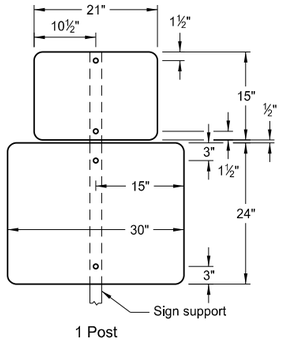


1 Post

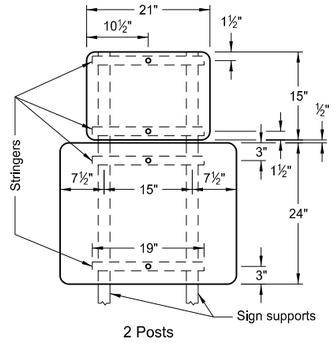


2 Posts

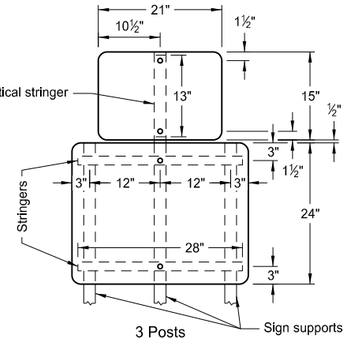
ASSEMBLY 391



1 Post



2 Posts



3 Posts

ASSEMBLY 392

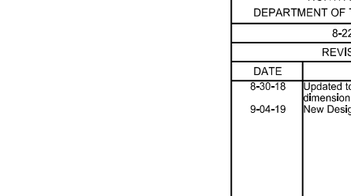
1 Post

2 Posts

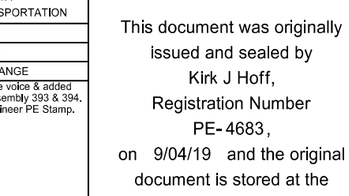
3 Posts

ASSEMBLY 393

1 Post

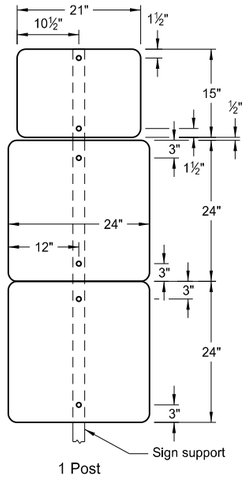


2 Posts

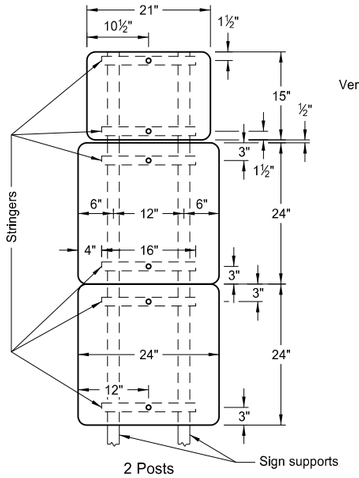


3 Posts

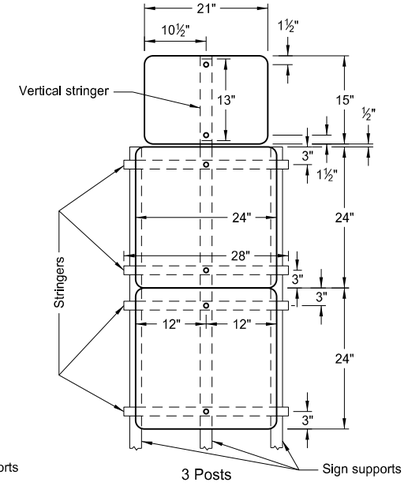
ASSEMBLY 394



1 Post



2 Posts



3 Posts

ASSEMBLY 395

Notes:

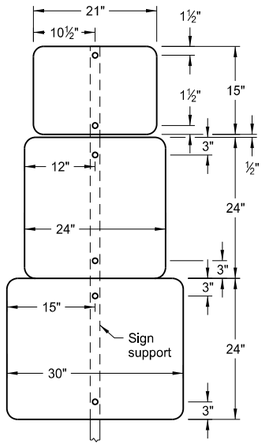
1. Use 0.100 inch minimum thickness sign backing material.
2. Use 1½"x1½" perforated square tube stringers.
3. Punch holes round for ⅜" bolt.

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.

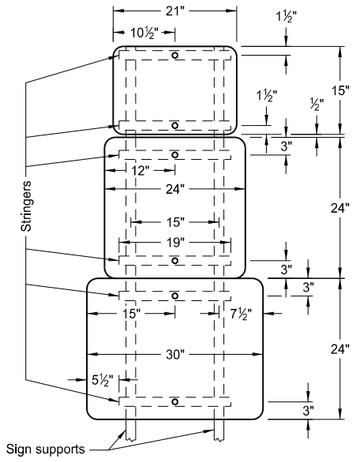
This document was originally issued and sealed by Kirk J Hoff, Registration Number PE-4683, on 9/04/19 and the original document is stored at the North Dakota Department of Transportation

SIGN PUNCHING, STRINGER AND SUPPORT LOCATION DETAILS - ROUTE MARKER SIGNS

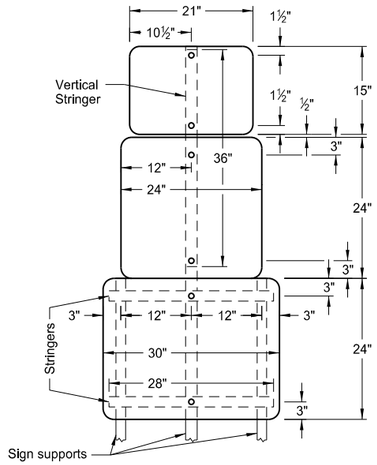
D-754-58



1 Post

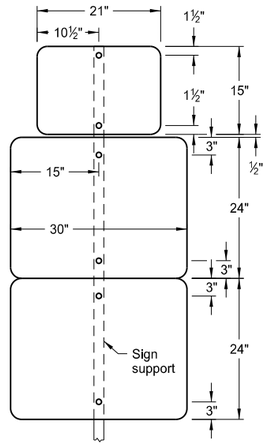


2 Posts

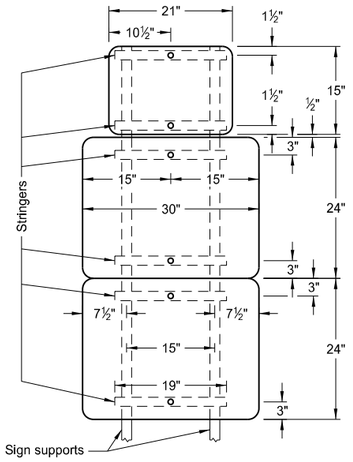


3 Posts

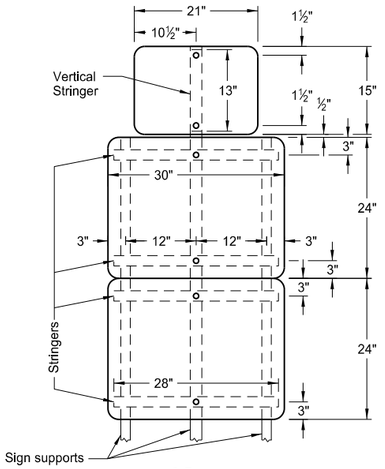
ASSEMBLY 396



1 Post

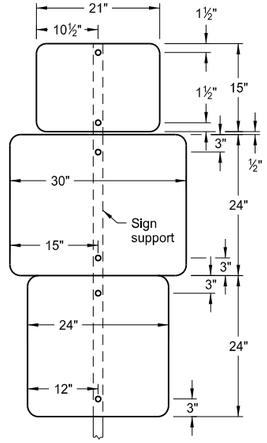


2 Posts

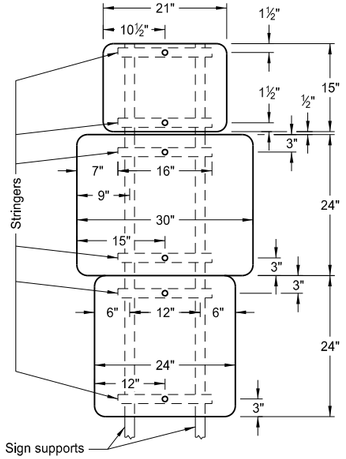


3 Posts

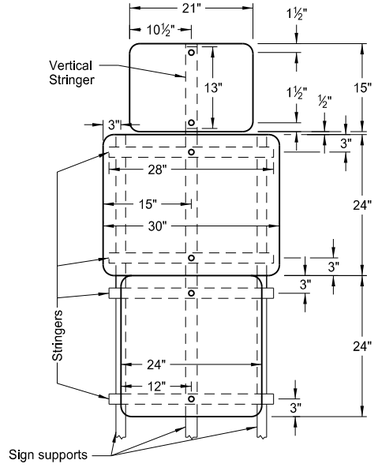
ASSEMBLY 397



1 Post

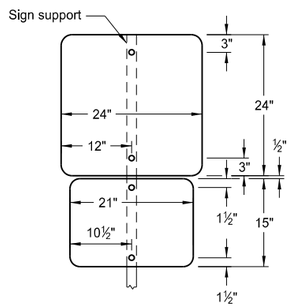


2 Posts

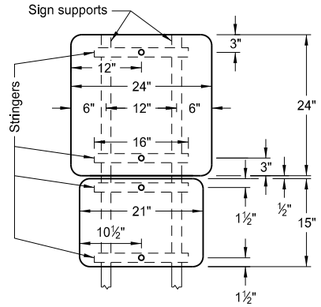


3 Posts

ASSEMBLY 398



1 Post



2 Posts

ASSEMBLY 399

Notes:

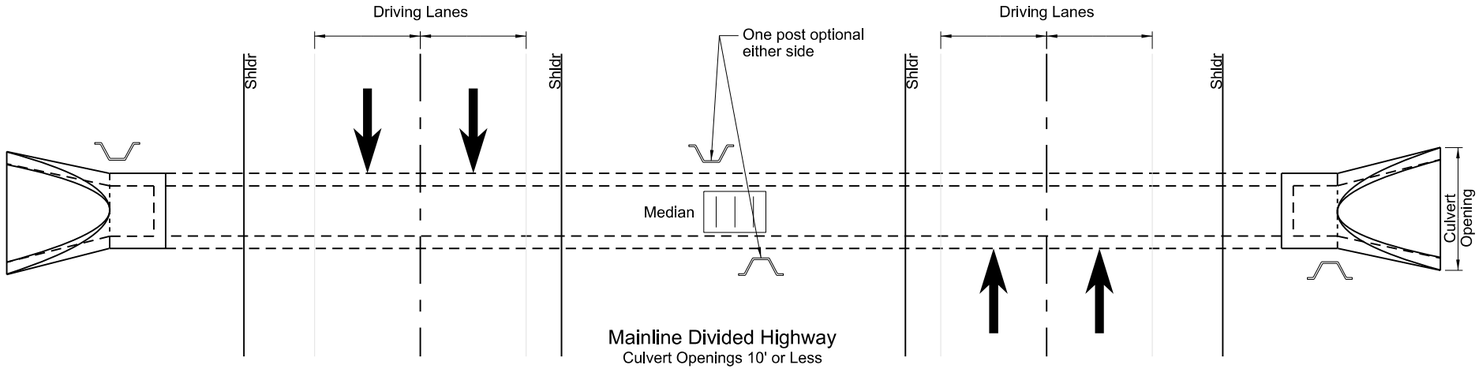
1. Use 0.100 inch minimum thickness sign backing material.
2. Use 1½"x1½" perforated square tube stringers.
3. Punch holes round for ⅜" bolt.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-22-12	
REVISIONS	
DATE	CHANGE
8-30-18	Updated to active voice & added Assembly 398 dimension.
9-04-19	New Design Engineer PE Stamp.

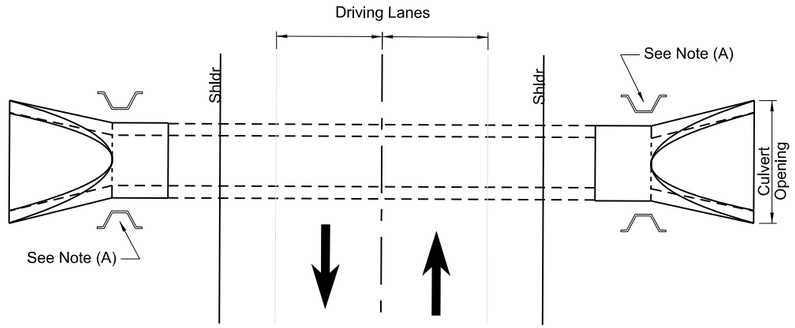
This document was originally issued and sealed by Kirk J Hoff, Registration Number PE-4683, on 9/04/19 and the original document is stored at the North Dakota Department of Transportation

OBJECT MARKERS - CULVERTS

D-754-83

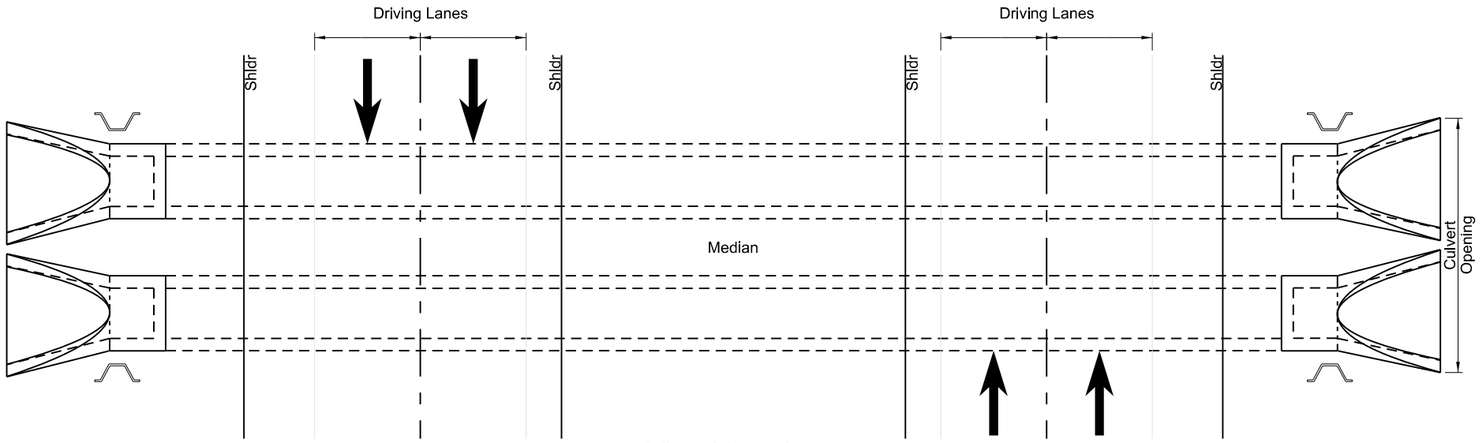


Mainline Divided Highway
Culvert Openings 10' or Less

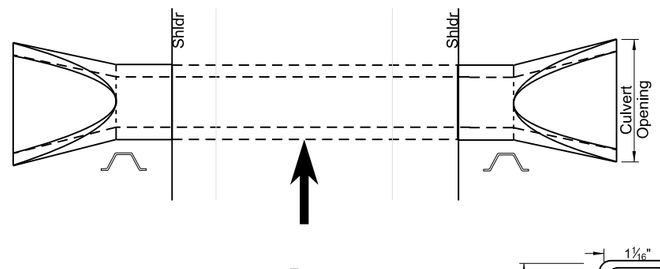


Two-Lane Highway

(A) Install additional marker where multiple pipe installations have a width of greater than 10'.

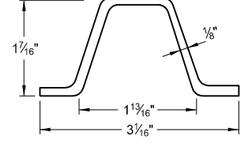


Mainline Divided Highway
Culvert Openings Greater than 10'
Multiple Installations

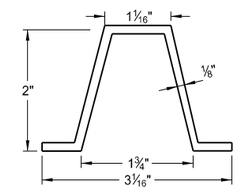


Ramp

Post Location



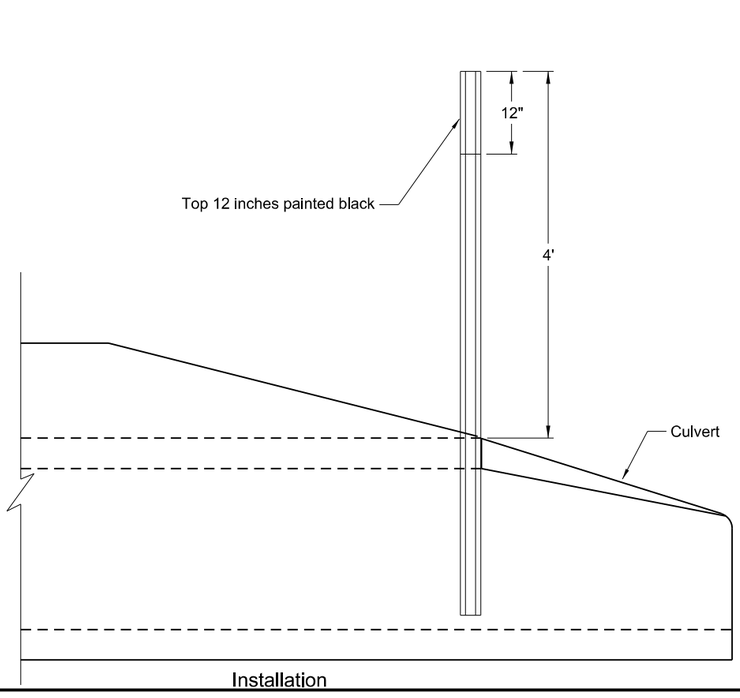
Steel Post Detail
Approx. 2.0 lbs/ft



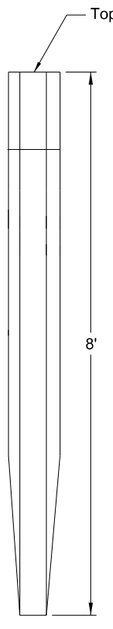
Aluminum Post Detail
Approx. 0.88 lbs/ft

Notes:

Mark each end of culverts crossing the roadway 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.



Installation



U-Type Post

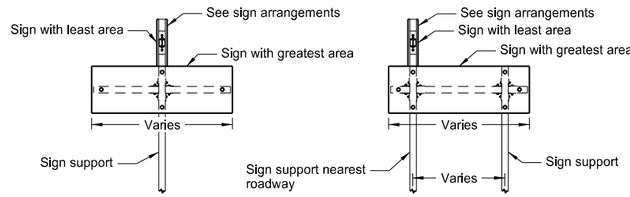
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-05-13	
REVISIONS	
DATE	CHANGE
7-7-14	Revised Notes
8-30-18	Updated notes to active voice.
9-05-19	New Design Engineer PE Stamp.

This document was originally issued and sealed by Kirk J Hoff, Registration Number PE-4683, on 9/05/19 and the original document is stored at the North Dakota Department of Transportation

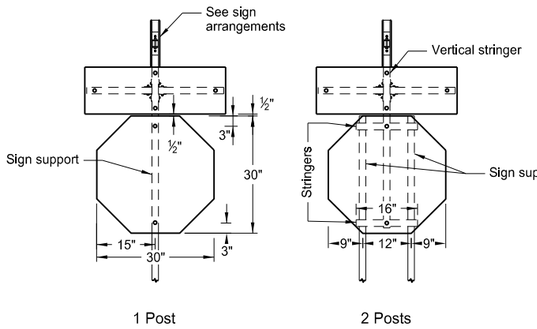
SIGN PUNCHING, STRINGER AND SUPPORT LOCATION DETAILS FOR STREET NAME SIGNS AND 911 SIGNS

D-754-87

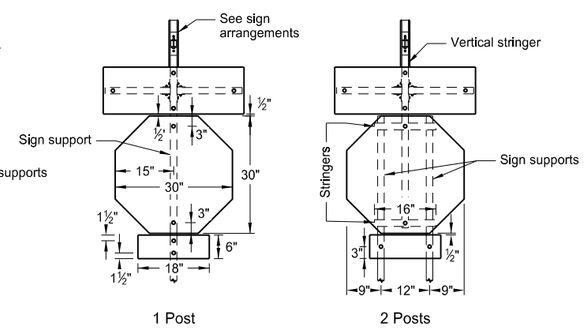
A - Single sign
B - Single sign back to back
C - Single sign each direction
D - Single sign one direction, back to back other direction
E - Back to back both directions



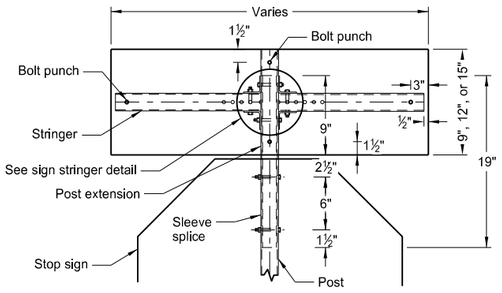
Special Assembly 1 (A, B, C, D or E)



Special Assembly 2 (A, B, C, D or E)

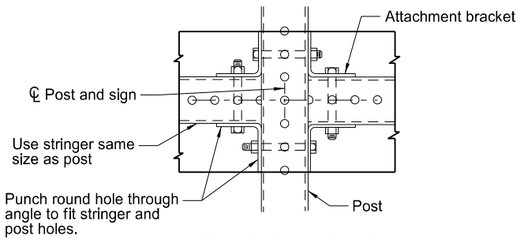


Special Assembly 3 (A, B, C, D or E)



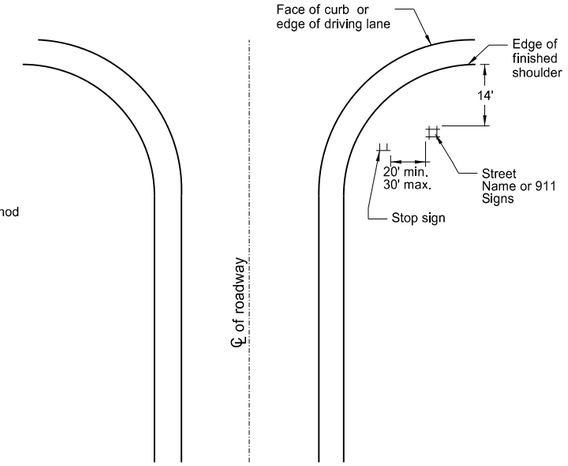
Sleeve Splice Detail

Note: Only use splice method with approval of engineer.



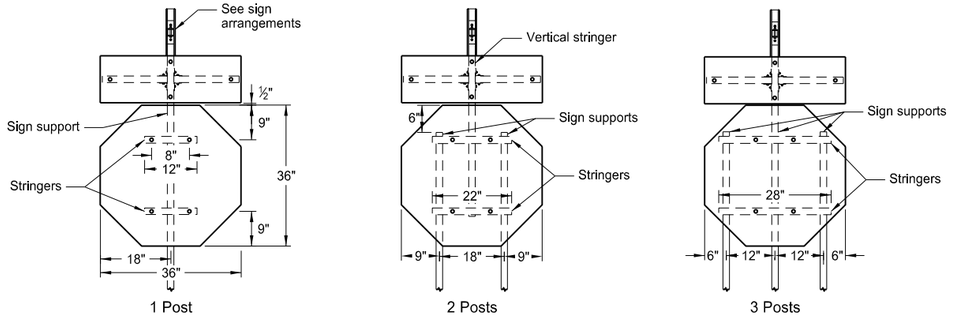
Sign Stringer Detail

Note: See Standard Drawing D-754-86 for 911 support information and sign layout details.

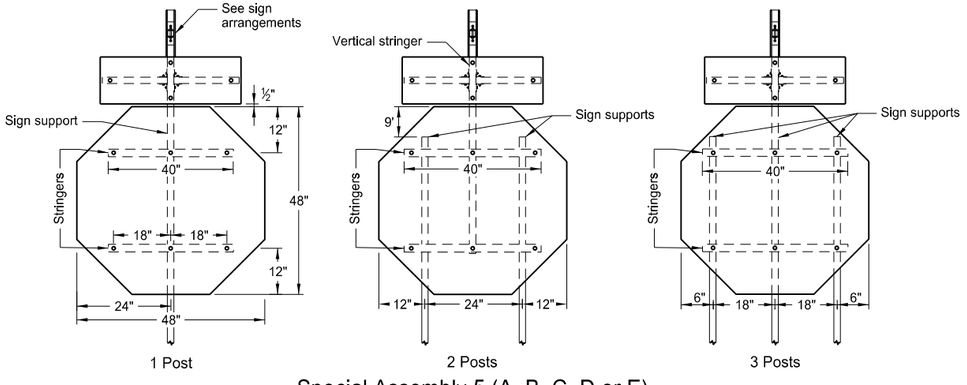


Intersection Layout

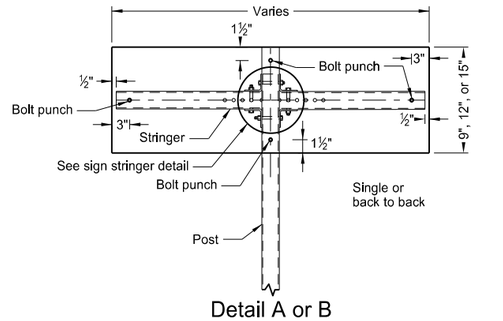
Note: Use layout for street name signs or 911 signs with Special Assembly 1 .



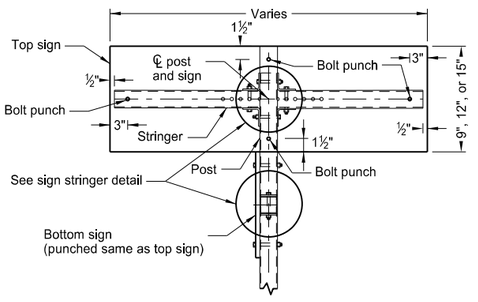
Special Assembly 4 (A, B, C, D or E)



Special Assembly 5 (A, B, C, D or E)

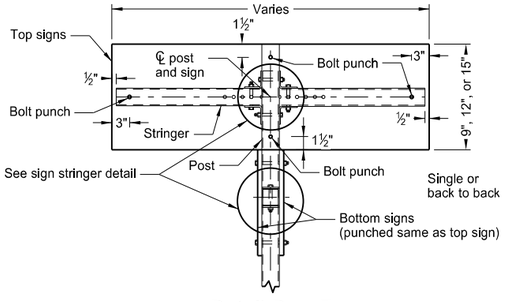


Detail A or B



Detail C

Sign Arrangements



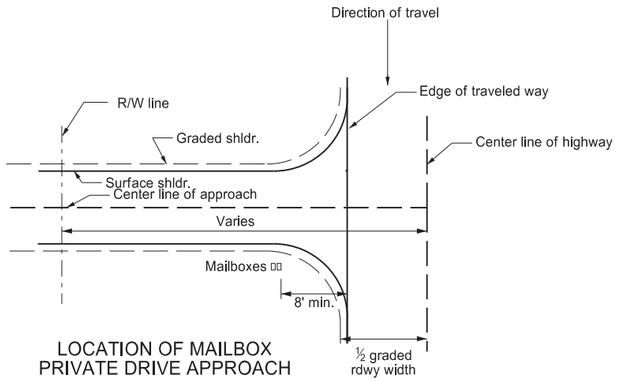
Detail D or E

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.

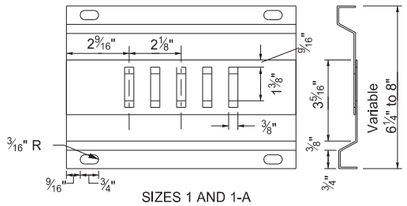
This document was originally issued and sealed by Kirk J Hoff, Registration Number PE-4683, on 9/05/19 and the original document is stored at the North Dakota Department of Transportation

MAILBOX LOCATION DETAILS

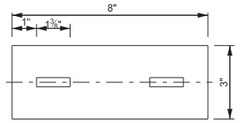
D-766-1



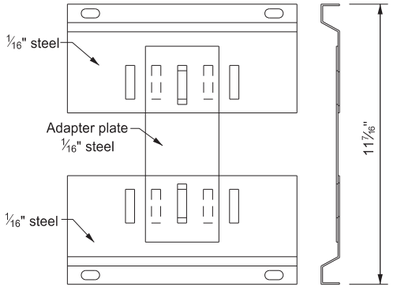
LOCATION OF MAILBOX
PRIVATE DRIVE APPROACH
ALTERNATE "A" LOCATION



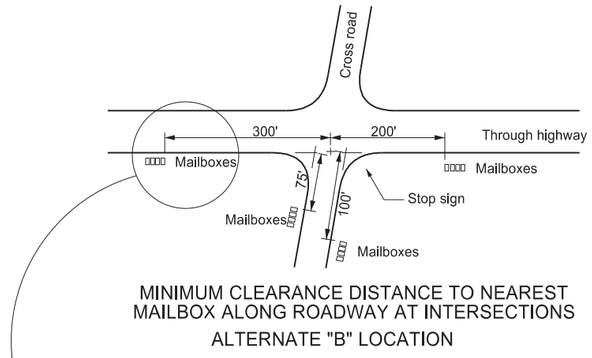
SIZES 1 AND 1-A
MOUNTING BRACKET



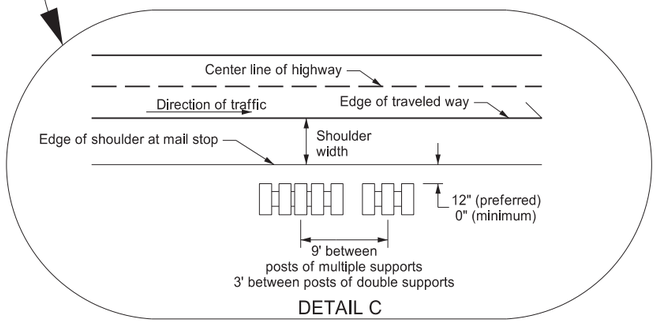
ADAPTOR PLATE



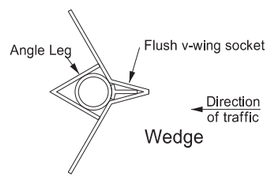
SIZE 2 WITH ADAPTOR PLATE
MOUNTING BRACKET



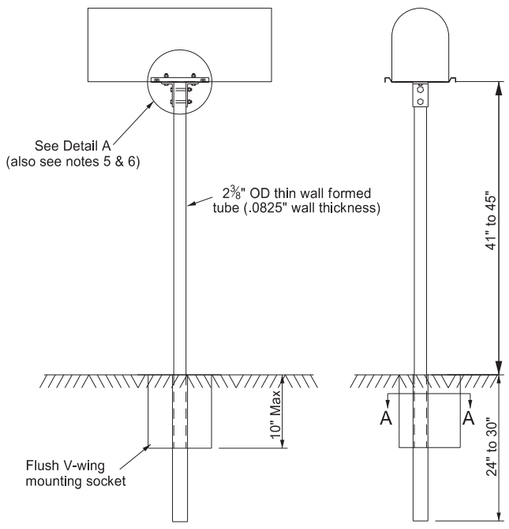
MINIMUM CLEARANCE DISTANCE TO NEAREST
MAILBOX ALONG ROADWAY AT INTERSECTIONS
ALTERNATE "B" LOCATION



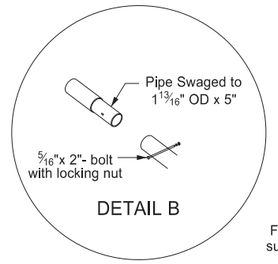
DETAIL C



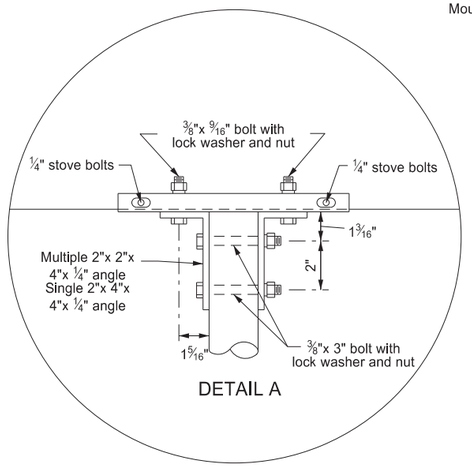
FLUSH V-WING
POST MOUNTING SOCKET
SECTION A-A



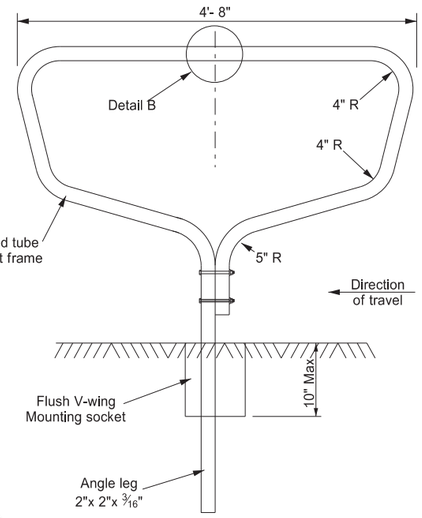
SIDE FRONT
SINGLE SUPPORT



DETAIL B



DETAIL A



FRONT

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.

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