DESIGN DATA: Bridge No. 30-152-35.0				
Traffic	Average Daily			
Current	Pass: <100	Trucks: <100	Total: <100	
Forecast	Pass: <100	Trucks: <100	Total: <100	
Clear Zone Distance: 18'		Design Speed: 55 MPH		
Minimum Sight Dist. for Stopping: 495'		Bridges: Sta 102+35		
Sight Dist. for No Passing Zone: N/A		Design Load: HL-93		
Pavement Design Life: N/A				

DESIGN DATA: Bridge No. 30-158-27.0				
Traffic	Average Daily			
Current	Pass: <100	Trucks: <100	Total: <100	
Forecast	Pass: <100	Trucks: <100	Total: <100	
Clear Zone Distance: 18'		Design Speed: 55 MPH		
Minimum Sight Dist. for Stopping: 495'		Bridges: Sta. 2+50		
Sight Dist. for No Passing Zone: N/A		Design Load: HL-93		
Pavement Design Life: N/A				

STATE	PROJECT NO.	PCN	SECTION NO.	SHEET NO.
ND	BRJ-0030(050)	23716	1	1

MORTON COUNTY, NORTH DAKOTA

PLANS FOR

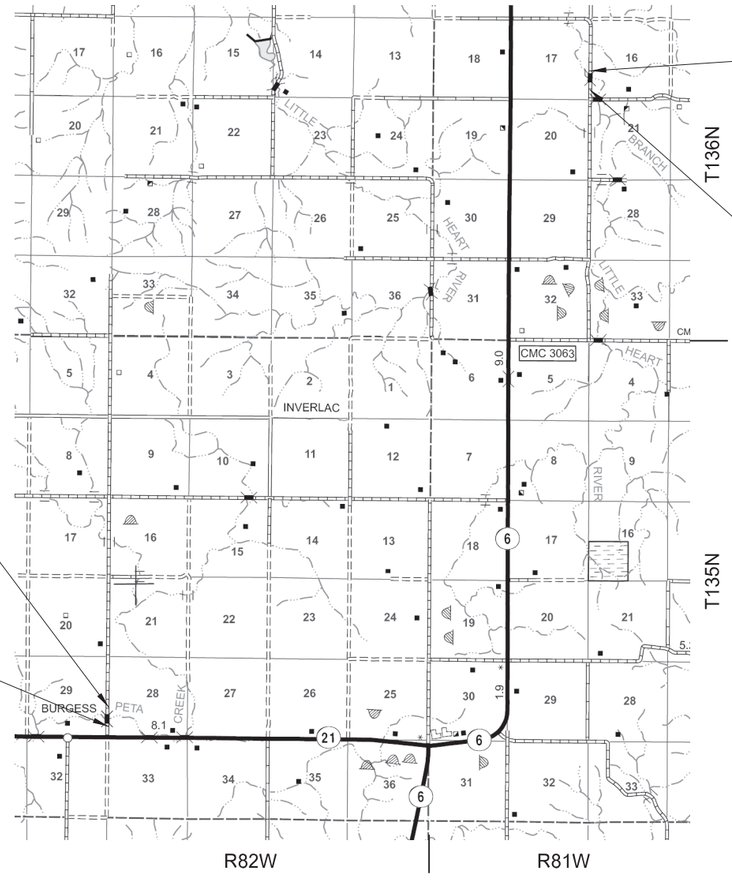
STRUCTURE REPLACEMENT
BRIDGE NO. 30-152-35.0 (30-152-35.1) &
BRIDGE NO. 30-158-27.0 (30-158-27.1)

FEDERAL AID PROJECT NO. BRJ-0030(050)

PROJECT IS LOCATED 1 MILE NORTH AND 10 MILES EAST OF FLASHER, ND
AND 2 MILES SOUTH AND 1 MILE EAST OF SAINT ANTHONY, ND
PROJECT CONSISTS OF REPLACING THE EXISTING BRIDGES WITH NEW
STRUCTURES, MINOR GRADING, AND INCIDENTALS

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

PROJECT NUMBER \ DESCRIPTION	NET MILES	GROSS MILES
BRJ-0030(050)		
Bridge No. 30-152-35.0	0.076	0.076
Bridge No. 30-158-27.0	0.084	0.084
Total	0.160	0.160



End Project
Sta 5+00

A point 1091.88' north and 15.71' east of the
SE 1/4 corner of Section 17, T136N, R81W
Morton County

Begin Project
Sta 0+54

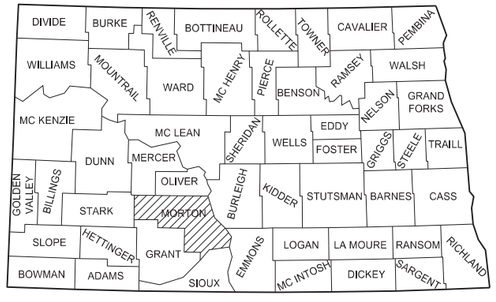
A point 646.50' north and 11.15' east of the
SE 1/4 corner of Section 17, T136N, R81W
Morton County

End Project
Sta 104+00

A point 1503.37' north and 7.24' east of the
SE 1/4 corner of Section 29, T135N, R82W
Morton County

Begin Project
Sta 100+00

A point 1103.03' north and 6.48' east of the
SE 1/4 corner of Section 29, T135N, R82W
Morton County



STATE COUNTY MAP

DESIGNER
Caleb Weisgarber, PE
DESIGNER
Ryan Rykowsky, PE
DESIGNER

APEX ENGINEERING GROUP

REGISTERED PROFESSIONAL ENGINEER
TROY RIPPLINGER
PE-5044
DATE 2025.07.16 14:36:26 -05'00'
NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	BRJ-0030(50)	2	1

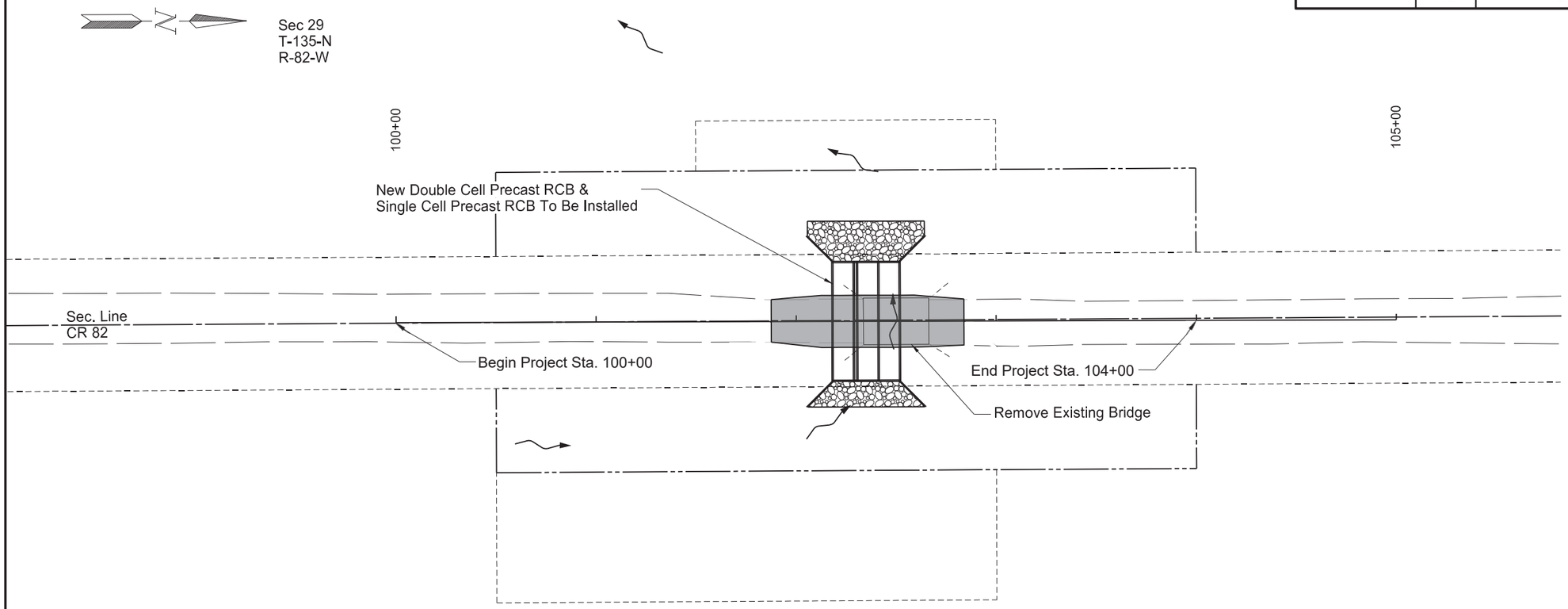
TABLE OF CONTENTS

PLAN SECTIONS

LIST OF STANDARD DRAWINGS

SPECIAL PROVISIONS

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	BRJ-0030(050)	4	1



Legend

Roadway Reconstruction

Morton County Bridge Replacement

Scope of Work

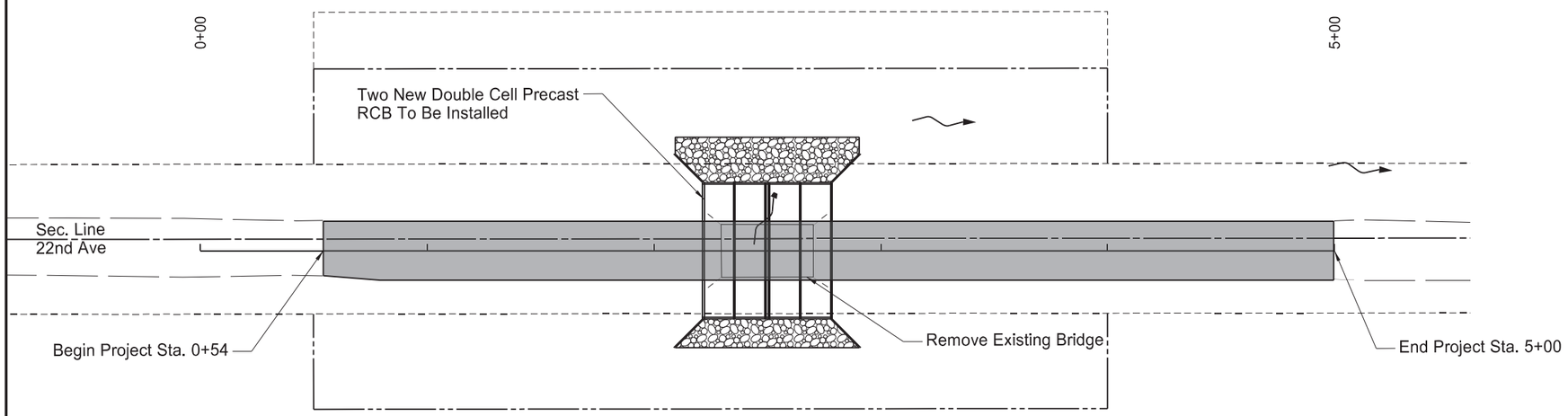
Bridge No. 30-152-35.0

REGISTERED PROFESSIONAL ENGINEER
CALEB L WEISGARBER
PE-40595
DATE 2025.07.16 11:06:04 -05'00'
NORTH DAKOTA

1/22/2025 10:37:53 AM Caleb.Weisgarber\BIS-FS4.apex.local\Shares\Projects\2022\22.517.0189 MOR Bridge 30-152-35 & 30-158-27_NDDOT Proj No\Design\dgn\004SW\004SW_Scope of Work.dgn

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	BRJ-0030(050)	4	2

Sec 17
T-136-N
R-81-W



Sec 16
T-136-N
R-81-W

Legend

Roadway Reconstruction

Morton County Bridge Replacement

Scope of Work

Bridge No. 30-158-27.0

REGISTERED PROFESSIONAL ENGINEER
CALEB L WEISGARBER
PE-40595
DATE 2025.07.16 11:07:41 -05'00'
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	BRJ-0030(50)	6	1

NOTES

GENERAL NOTES

105-P01 UTILITIES: The horizontal utility locations shown in the plans are approximate. Plan locations should not be interpreted as exact for bidding purposes.

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

203-P01 TOPSOIL: Topsoil will be paid at plan quantity.

203-P02 COMMON EXCAVATOIN - TYPE B: Measurement of “Common Excavation – Type B” will be paid at plan quantity. Excess excavation must be disposed of by the Contractor. Furnish the Engineer copies of all agreements with property owners. Include all costs associated with disposing the excess excavation in the price bid for “Common Excavation-Type B”.

203-P03 CHANNEL EXCAVATION: Excavation required to shape the channel shall be included in the Lump Sum Bid item “Channel Excavation.” There is an estimated quantity of 1,701 CY of Channel Excavation at Bridge No. 30-152-35.0 and 334 CY of Channel Excavation at Bridge No. 30-158-27.0.

251-P01 SEEDING & COVER CROP: Measurements for seeding and cover crop will be paid at plan quantity.

253-P01 MULCH: Mulch will be paid at plan quantity.

704-P01 TRAFFIC CONTROL: The traffic control devices list has been developed using the following layout on the Standard Drawing for traffic Control.

1. Standard D-704-19, Type E for Road Closed.

752-P01 TEMPORARY FENCE: Temporary fence to be installed as Barbed Wire 3 Strand fence as specified in Section 752, “Fencing”. Install temporary fence in conjuncture with permanent fence to preserve the continuity of existing fence lines during construction. The cost to install and remove temporary fencing is included in the price bid for “Temporary Fence”.

REGISTERED PROFESSIONAL ENGINEER
CALEB L WEISGARBER
PE-40595
DATE 2025.07.16 11:17:30 -05'00'
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	BRJ-0030(50)	6	2

ENVIRONMENTAL NOTES

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

EN-1 THREATENED AND ENDANGERED SPECIES: The project is located near/within suitable habitat for the species listed in the following table

SPECIES	HABITAT	PRESENCE
Northern Long-Eared Bat	Forested/Wooded Areas/Bridges/Box Culverts/Caves/Mines	Active Season: April 1 - October 31* Inactive Season: November 1 - March 31*

*Time frames can differ slightly, depending on the year

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

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

EN-3 TEMPORARY WETLAND IMPACT: Temporary impact areas within wetlands and or other waters are incorporated into the plans for this project. Remove temporary fill placed and sedimentation in wetlands or other waters. Restore these wetlands to preconstruction contours.

EN-4 WETLAND MITIGATION: Wetland mitigation is required for unavoidable permanent wetland impacts. The wetland mitigation plan is incorporated into the plans for this project. After completion of the mitigation area, the Engineer will complete the Onsite Mitigation Certification Form SFN 61042. Any sedimentation occurring within the mitigation area will be removed.

PERMITS REQUIRED:

United States Army Corp of Engineers – Section 404 Permit
Status: Has been obtained for the project.

North Dakota Department of Environmental Quality – NDPDES Permits
Status: To be obtained by the Contractor prior to construction, owner to be listed as Morton County on the permit.

REGISTERED PROFESSIONAL ENGINEER
CALEB L WEISGARBER
PE-40595
DATE 2025.07.16 11:17:50 -05'00'
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	BRJ-0030(50)	8	1

Estimated Quantities

SPEC	CODE	ITEM DESCRIPTION	UNIT	Mainline: BRJ				TOTAL
103	0100	CONTRACT BOND	L SUM	1				1
202	0104	REMOVAL OF STRUCTURE	EA	2				2
202	0312	REMOVE EXISTING FENCE	LF	679				679
203	0102	COMMON EXCAVATION-TYPE B	CY	1376				1376
203	0109	TOPSOIL	CY	959				959
210	0050	BOX CULVERT EXCAVATION	EA	2				2
210	0128	CHANNEL EXCAVATION-SITE 1	L SUM	1				1
210	0129	CHANNEL EXCAVATION-SITE 2	L SUM	1				1
210	0210	FOUNDATION FILL	CY	320				320
210	0250	BOX CULVERT FOUNDATION AGGREGATE	CY	370				370
210	0405	FOUNDATION PREPARATION-BOX CULVERT	EA	2				2
216	0100	WATER	M GAL	54				54
251	0200	SEEDING CLASS II	ACRE	0.92				0.92
251	1000	WETLAND SEED	ACRE	0.27				0.27
251	2000	TEMPORARY COVER CROP	ACRE	1.19				1.19
253	0101	STRAW MULCH	ACRE	2.11				2.11
256	0200	RIPRAP GRADE II	CY	280				280
260	0200	SILT FENCE SUPPORTED	LF	630				630
260	0201	REMOVE SILT FENCE SUPPORTED	LF	630				630
261	0112	FIBER ROLLS 12IN	LF	480				480
261	0113	REMOVE FIBER ROLLS 12IN	LF	280				280
262	0100	FLOTATION SILT CURTAIN	LF	95				95
262	0101	REMOVE FLOTATION SILT CURTAIN	LF	95				95
350	0500	GRAVEL SURFACING	TON	799				799
606	1007	10FT X 7FT PRECAST RCB CULVERT	LF	60				60
606	3007	DBL 10FT X 7FT PRECAST RCB CULVERT	LF	60				60
606	3304	DBL 13FT X 4FT PRECAST RCB CULVERT	LF	120				120
606	7007	DBL 10FT X 7FT PRECAST RCB END SECTION	EA	2				2
606	7304	DBL 13FT X 4FT PRECAST RCB END SECTION	EA	2				2
702	0100	MOBILIZATION	L SUM	1				1
704	1000	TRAFFIC CONTROL SIGNS	UNIT	353				353
704	1052	TYPE III BARRICADE	EA	16				16
709	0100	GEOSYNTHETIC MATERIAL TYPE G	SY	740				740
709	0155	GEOSYNTHETIC MATERIAL TYPE RR	SY	420				420
752	0100	FENCE BARBED WIRE 3 STRAND	LF	651				651
752	0905	TEMPORARY FENCE	LF	553				553
752	2100	VEHICLE GATE	EA	2				2
752	2120	REMOVE VEHICLE GATE	EA	2				2
752	2995	CORNER ASSEMBLY-WOOD POST	EA	10				10
754	0803	OBJECT MARKERS - TYPE III	EA	8				8
900	1000	TEMPORARY STREAM DIVERSION	EA	2				2

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	BRJ-0030(050)	10	1

Basis of Estimate

Materials

350 0500 GRAVEL SURFACING @ 1.875 TON/CY

216 0100 WATER			
Material	Basis	Basis Quantity	Quantity (MGAL)
Dust Palliative	25 Mgal/Mile	1 Mile	25
Aggregates	20 Gal/Ton	509 Ton	10
Embankment	10 Gal/CY	1,851 CY	19
		Total:	54

Earthwork Summary					
Location	203 0102 COMMON EXCAVATION-TYPE B (CY)	Channel Excavation (CY)	Embankment (CY)	Waste (CY)	203 0109 TOPSOIL (CY)
Bridge No. 30-152-35	45	1,053	547	551	298

Earthwork Summary					
Location	203 0102 COMMON EXCAVATION-TYPE B (CY)	Channel Excavation (CY)	Embankment (CY)	Waste (CY)	203 0109 TOPSOIL (CY)
Bridge No. 30-158-27	1,331	334	1,304	361	661

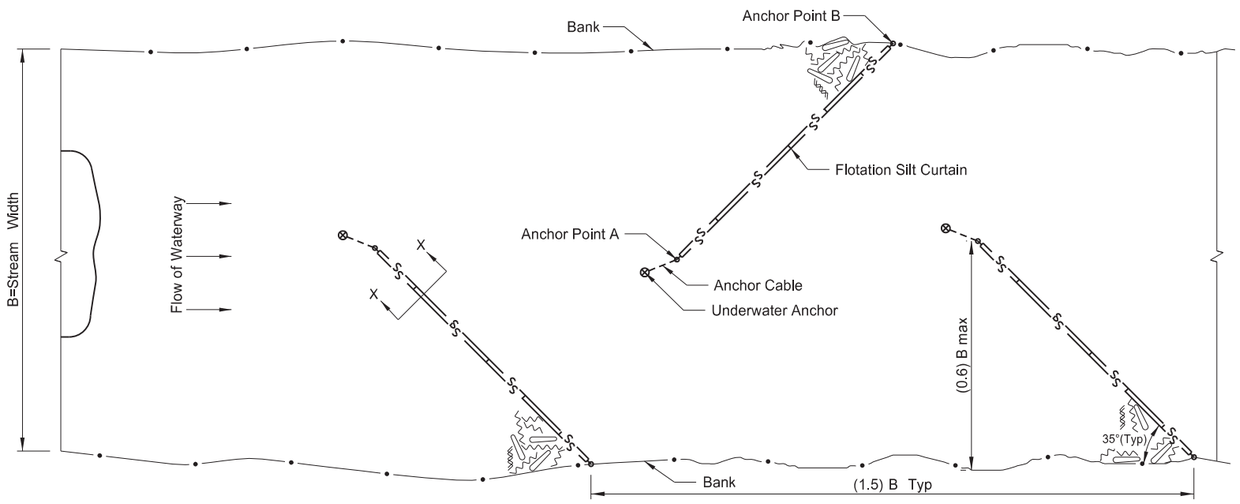
Morton County Bridge Replacement

Basis of Estimate

REGISTERED PROFESSIONAL ENGINEER
CALEB L WEISGARBER
PE-40595
DATE 2025.07.16 11:18:09 -05'00'
NORTH DAKOTA

TYPICAL INSTALLATIONS
May vary with conditions

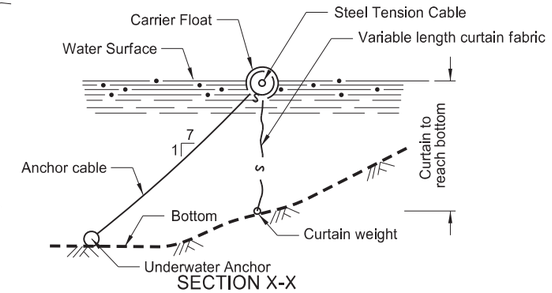
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	BRJ-0030(050)	20	1



PLAN VIEW

FLOTATION SILT CURTAIN - TYPE HERRING BONE PATTERN

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



SECTION X-X

FLOTATION SILT CURTAINS

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

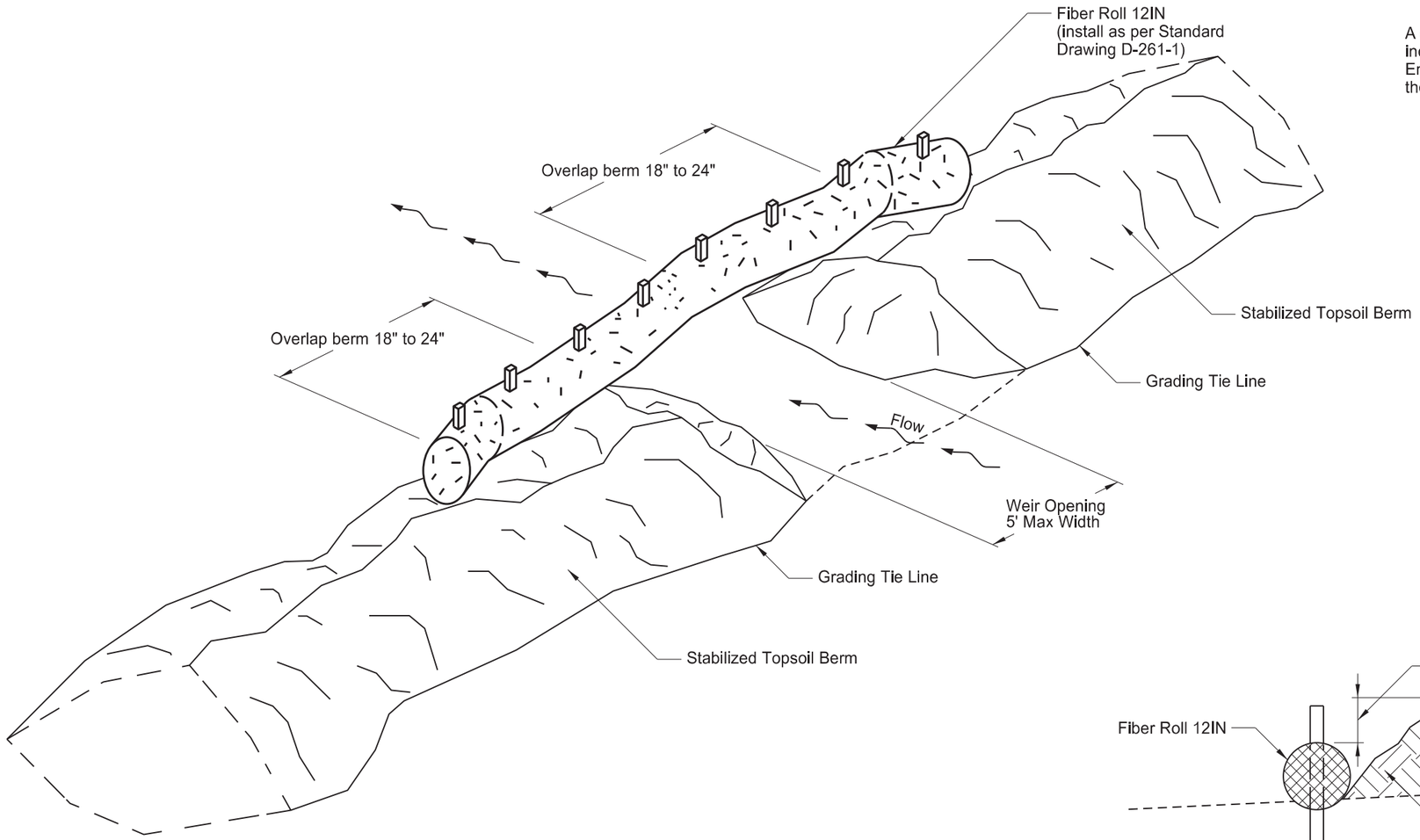
Morton County Bridge Replacement

Temporary Erosion Control - Flotation Silt Curtain

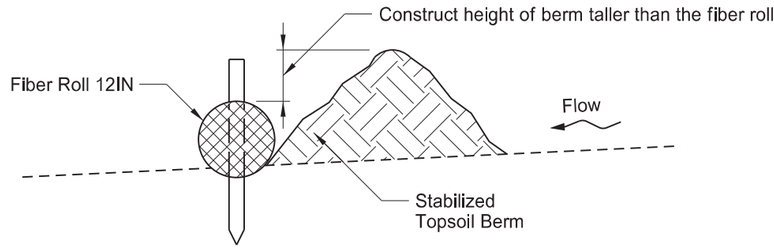
REGISTERED PROFESSIONAL ENGINEER
CALEB L WEISGARBER
PE-40595
DATE 2025.07.16 11:18:30 -05'00'
NORTH DAKOTA

3/10/2025 12:00:20 PM Caleb.Weisgarber I:\Projects\2022\22.517.0189 MOR Bridge 30-152-35 & 30-158-27_NDDOT Proj No\Design\dgn\020GD\020GD_001 SILT CURTAIN.dgn

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	BRJ-0030(050)	20	2



A quantity of 80 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

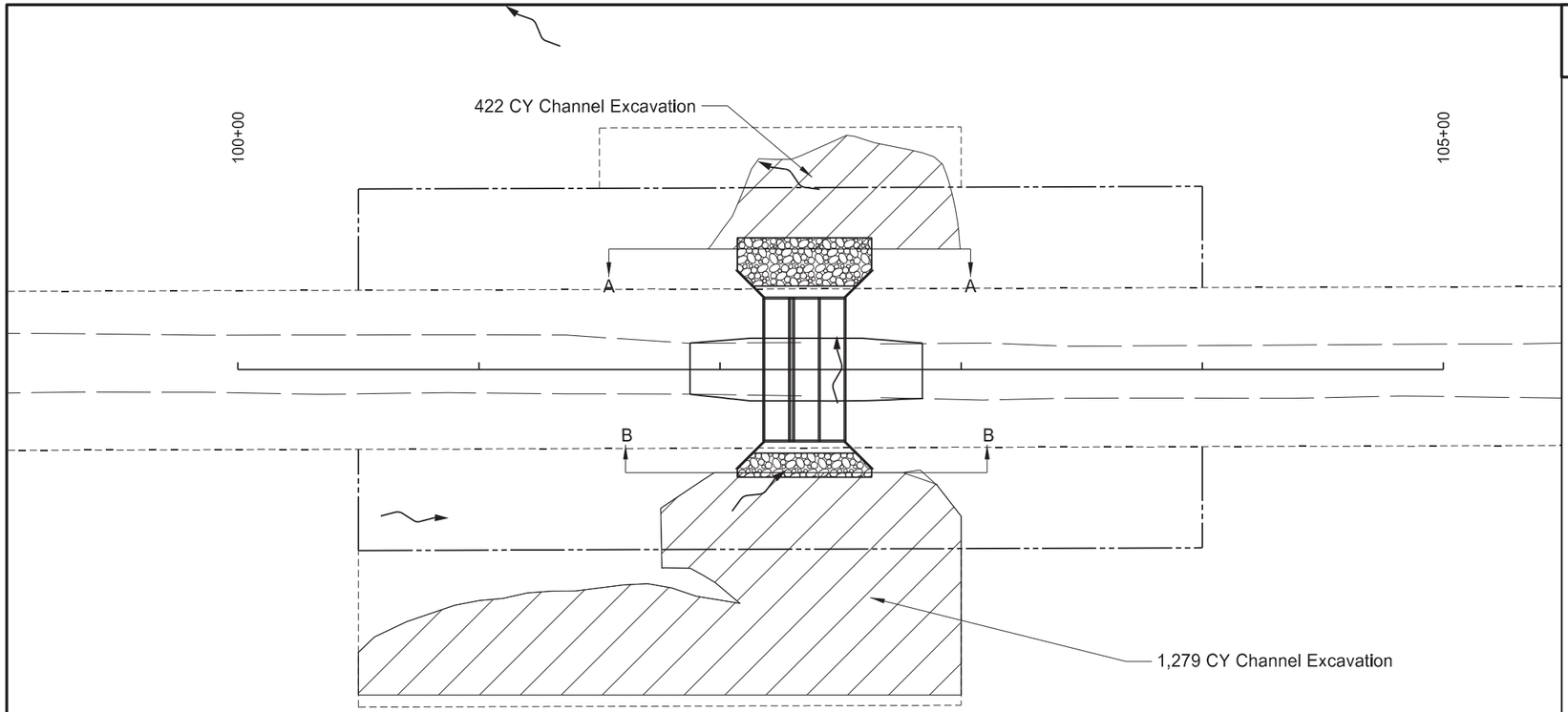
Notes:

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".

Morton County Bridge Replacement

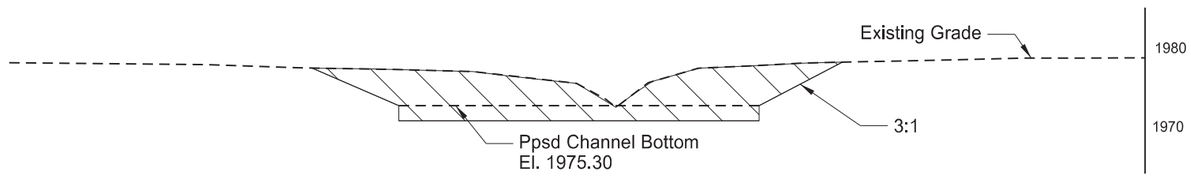
Temporary Topsoil Berm and Weir Detail

REGISTERED PROFESSIONAL ENGINEER
CALEB L WEISGARBER
PE-40595
DATE 2025.07.16 11:18:45 -05'00'
NORTH DAKOTA

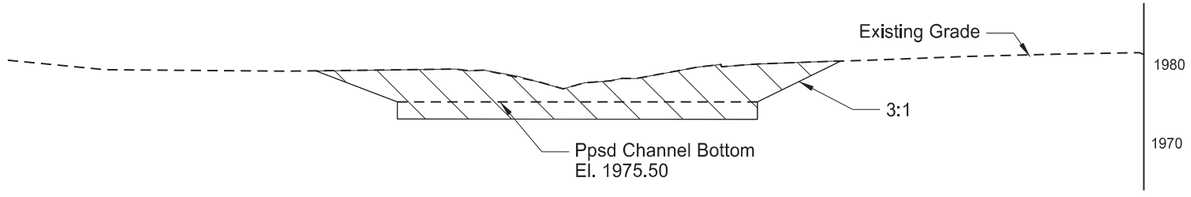


STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	BRJ-0030(50)	20	3

SPEC	CODE	BID ITEM	QTY	UNIT
210	0128	CHANNEL EXCAVATION-SITE 1		
		See Plan View	1	L SUM



SECTION A-A
Channel Excavation Typical Section Lt of ℄



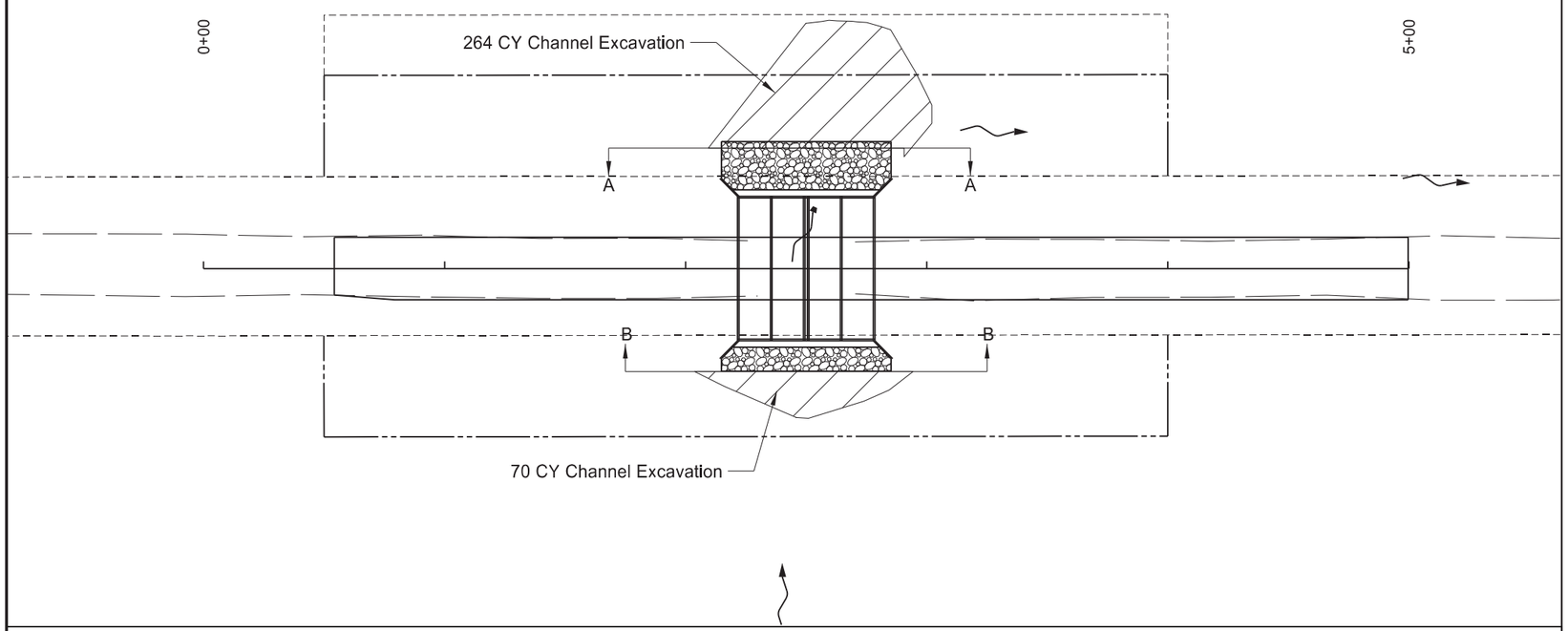
SECTION B-B
Channel Excavation Typical Section Rt of ℄

Morton County Bridge Replacement

Channel Excavation Detail

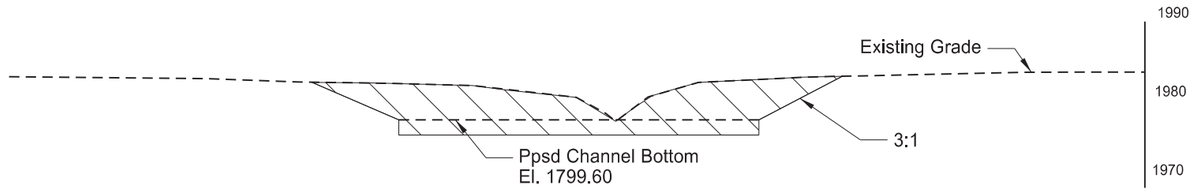
Bridge No. 30-152-35.0

REGISTERED PROFESSIONAL ENGINEER
CALEB L WEISGARBER
PE-40595
DATE 2025.07.16 11:19:01 -05'00'
NORTH DAKOTA

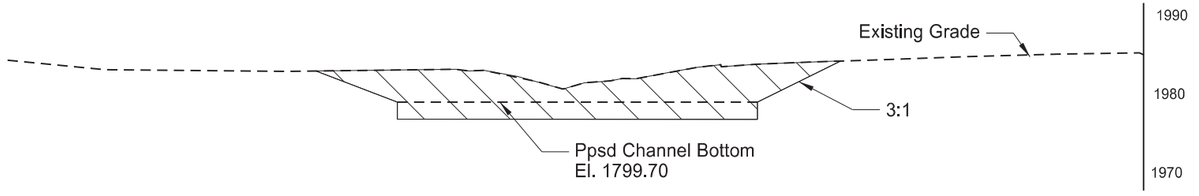


	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	BRJ-0030(50)	20	4

SPEC	CODE	BID ITEM	QTY	UNIT
210	0129	CHANNEL EXCAVATION-SITE 2		
		See Plan View	1	L SUM



SECTION A-A
Channel Excavation Typical Section Lt of ℄



SECTION B-B
Channel Excavation Typical Section Rt of ℄

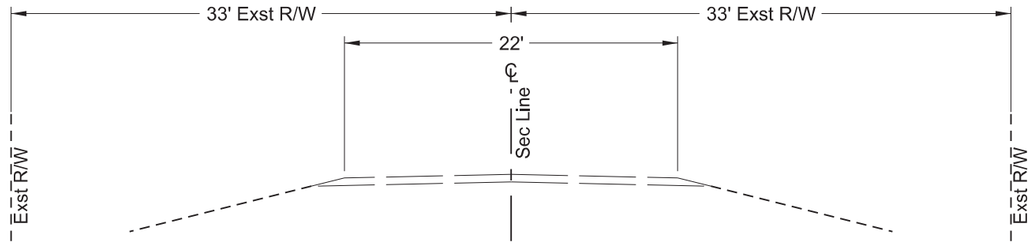
Morton County Bridge Replacement

Channel Excavation Detail

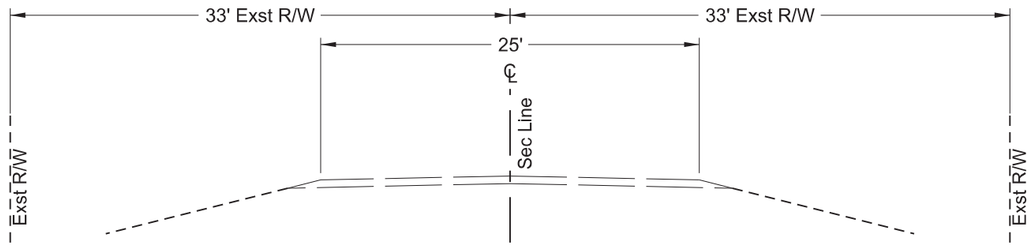
Bridge No. 30-158-27.0

REGISTERED PROFESSIONAL ENGINEER
CALEB L WEISGARBER
PE-40595
DATE 2025.07.16 11:19:20 -05'00'
NORTH DAKOTA

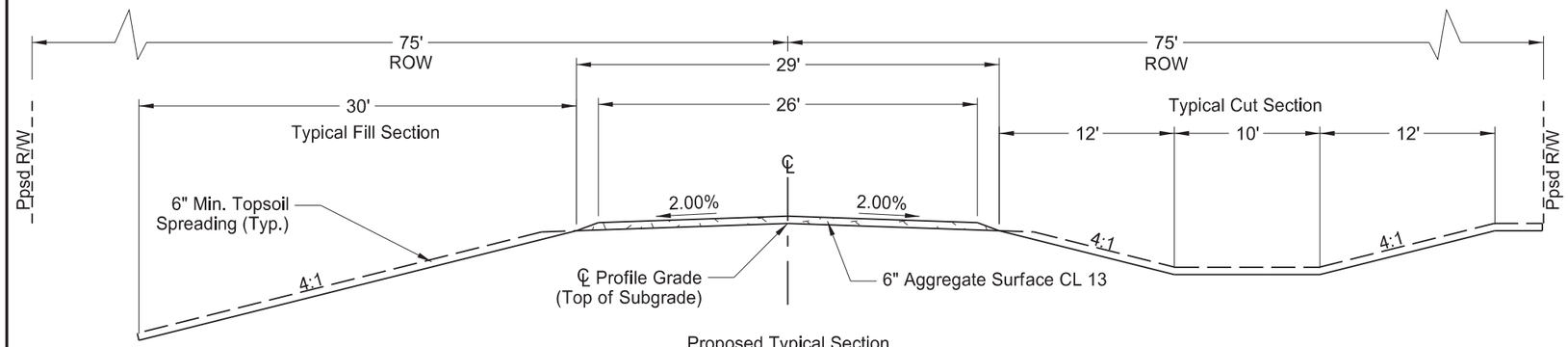
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	BRJ-0030(50)	30	1



Existing Typical Section
Bridge No. 30-152-35.0



Existing Typical Section
Bridge No. 30-158-27.0



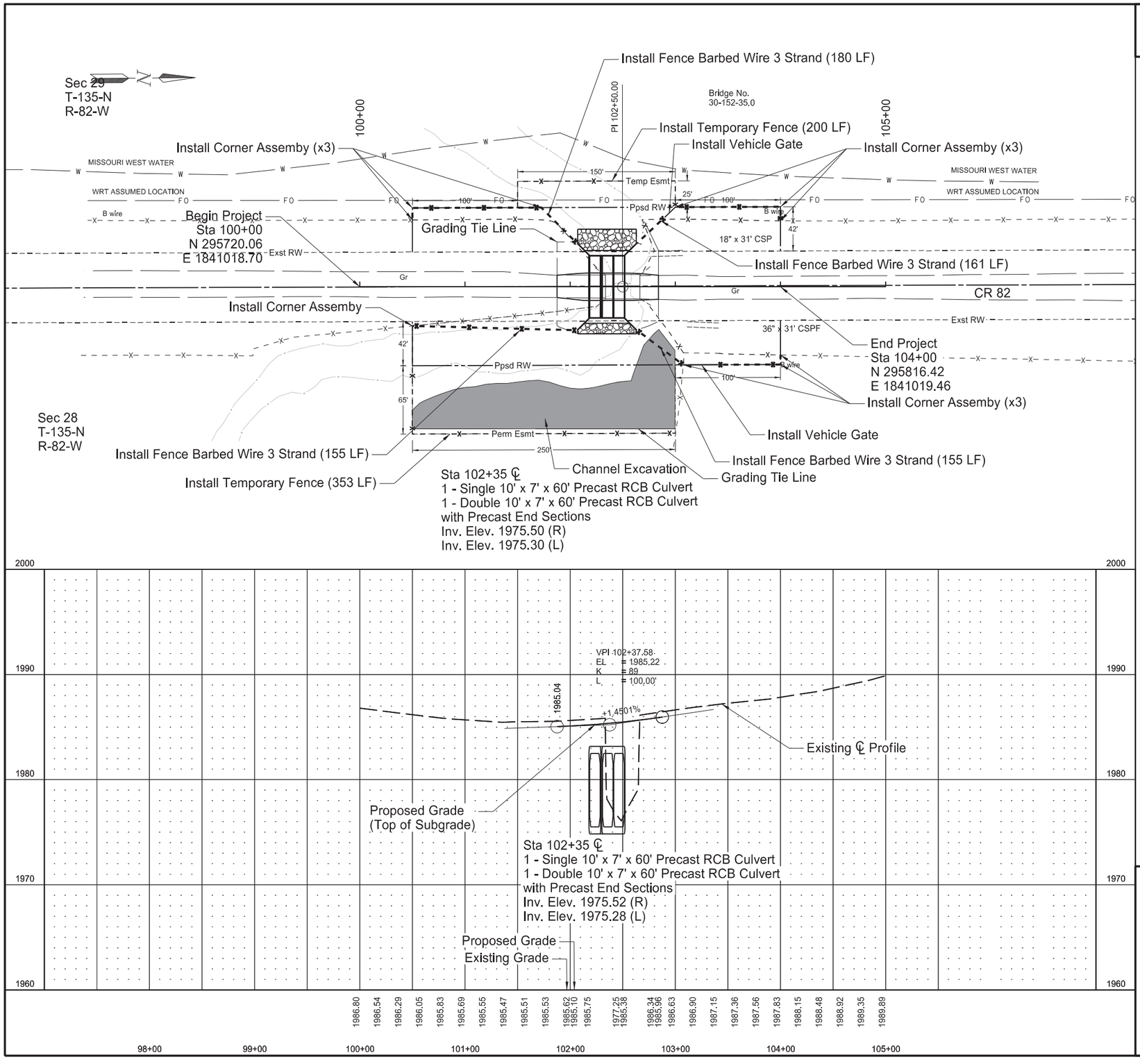
Proposed Typical Section
Bridge No. 30-152-35.0 (Sta 101+88 to Sta 102+84)
Bridge No. 30-158-27.0 (Sta 0+54 to Sta 5+00)

Morton County Bridge Replacement

Typical Sections

REGISTERED PROFESSIONAL ENGINEER
CALEB L WEISGARBER
PE-40595
DATE 2025.07.16 11:19:43 -05'00'
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	BRJ-0030(050)	60	1



SPEC	CODE	BID ITEM	QTY	UNIT
202	0312	REMOVE EXISTING FENCE		
		Sta 100+50 @ 64' Lt to Sta 102+26 @ 18' Lt	195	LF
		Sta 100+50 @ 37' Rt to Sta 102+22 @ 19' Rt	173	LF
		Sta 102+70 @ 15' Lt to Sta 104+00 @ 63' Lt	185	LF
		Sta 102+76 @ 19' Rt to Sta 103+08 @ 75' Rt	66	LF
		Sta 103+40 @ 63' Rt to Sta 104+00 @ 65' Rt	60	LF
350	0500	GRAVEL SURFACING		
		Sta 100+00 to 104+00	378	TON
752	0100	FENCE BARBED WIRE 3 STRAND		
		Sta 100+50 @ 64' Lt to Sta 102+05 @ 43' Lt	180	LF
		Sta 100+50 @ 37' Rt to Sta 102+05 @ 43' Rt	155	LF
		Sta 102+65 @ 43' Lt to Sta 104+00 @ 63' Lt	161	LF
		Sta 102+65 @ 43' Rt to Sta 104+00 @ 65' Rt	155	LF
752	0905	TEMPORARY FENCE		
		Sta 100+50 @ 37' Rt to Sta 103+00 @ 139' Rt	353	LF
		Sta 101+50 @ 75' Lt to Sta 103+00 @ 75' Lt	200	LF
752	2100	VEHICLE GATE		
		Sta 102+95 @ 71' Lt	1	EA
		Sta 103+25 @ 75' Rt	1	EA
752	2120	REMOVE VEHICLE GATE		
		Sta 103+08 @ 64' Lt	1	EA
		Sta 103+24 @ 63' Rt	1	EA
752	2995	CORNER ASSEMBLY-WOOD POST		
		Sta 100+50 @ 75' Lt	1	EA
		Sta 100+50 @ 64' Lt	1	EA
		Sta 100+50 @ 37' Rt	1	EA
		Sta 101+73 @ 75' Lt	1	EA
		Sta 103+00 @ 75' Lt	1	EA
		Sta 103+08 @ 75' Rt	1	EA
		Sta 104+00 @ 75' Lt	1	EA
		Sta 104+00 @ 63' Lt	1	EA
		Sta 104+00 @ 65' Rt	1	EA
		Sta 104+00 @ 75' Rt	1	EA
754	0803	OBJECT MARKERS - TYPE III		
		Parapet Locations	4	EA

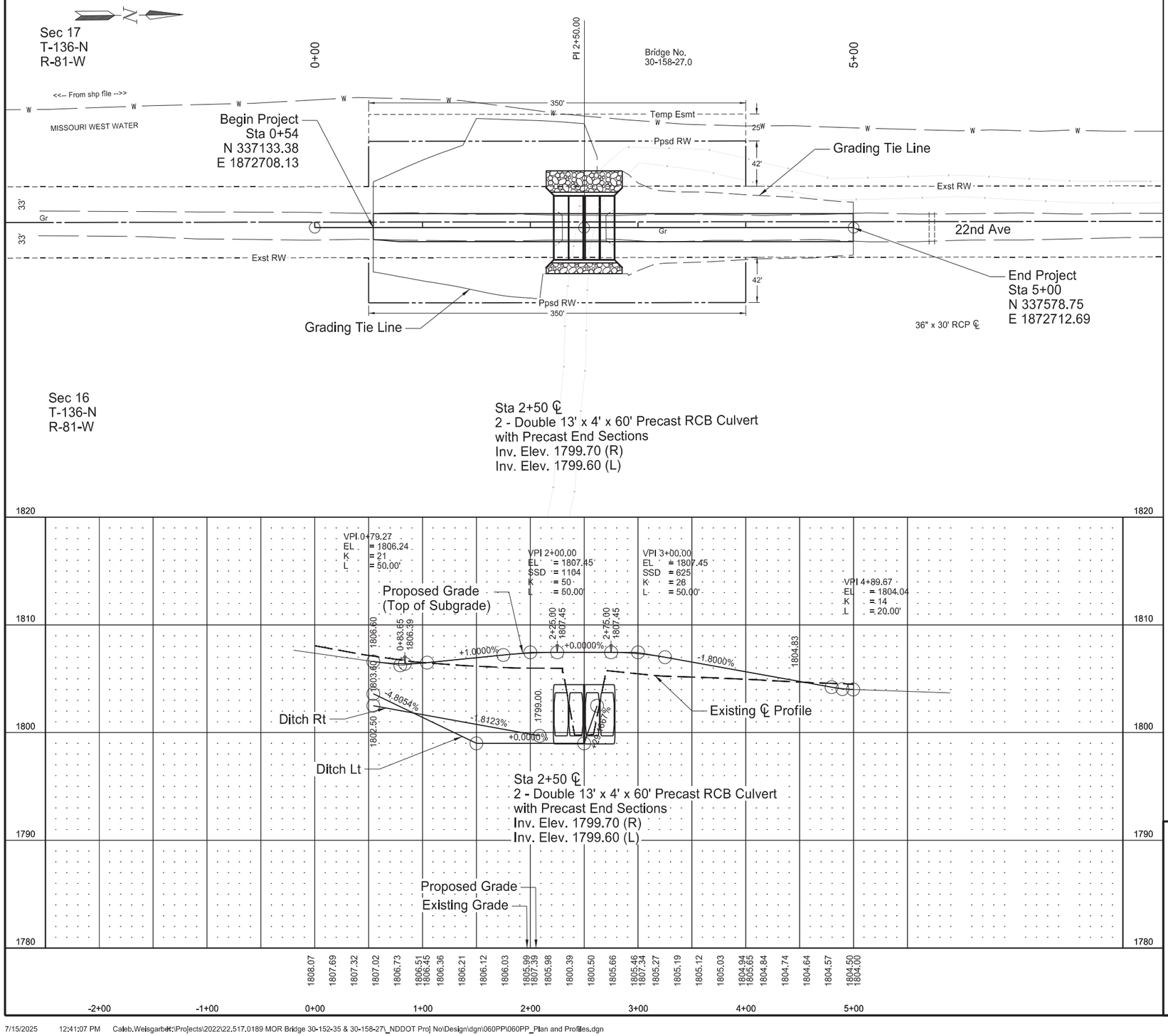
Morton County Bridge Replacement

Plan & Profile

Bridge No. 30-152-35.0

REGISTERED PROFESSIONAL ENGINEER
CALEB L WEISGARBER
PE-40595
DATE 2025.07.16 11:20:01 -05'00'
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	BRJ-0030(050)	60	2



SPEC	CODE	BID ITEM	QTY	UNIT
350	0500	GRAVEL SURFACING		
		Sta 0+54 to Sta 5+00	421	TON
754	0803	OBJECT MARKERS - TYPE III		
		Parapet Locations	4	EA

Morton County Bridge Replacement

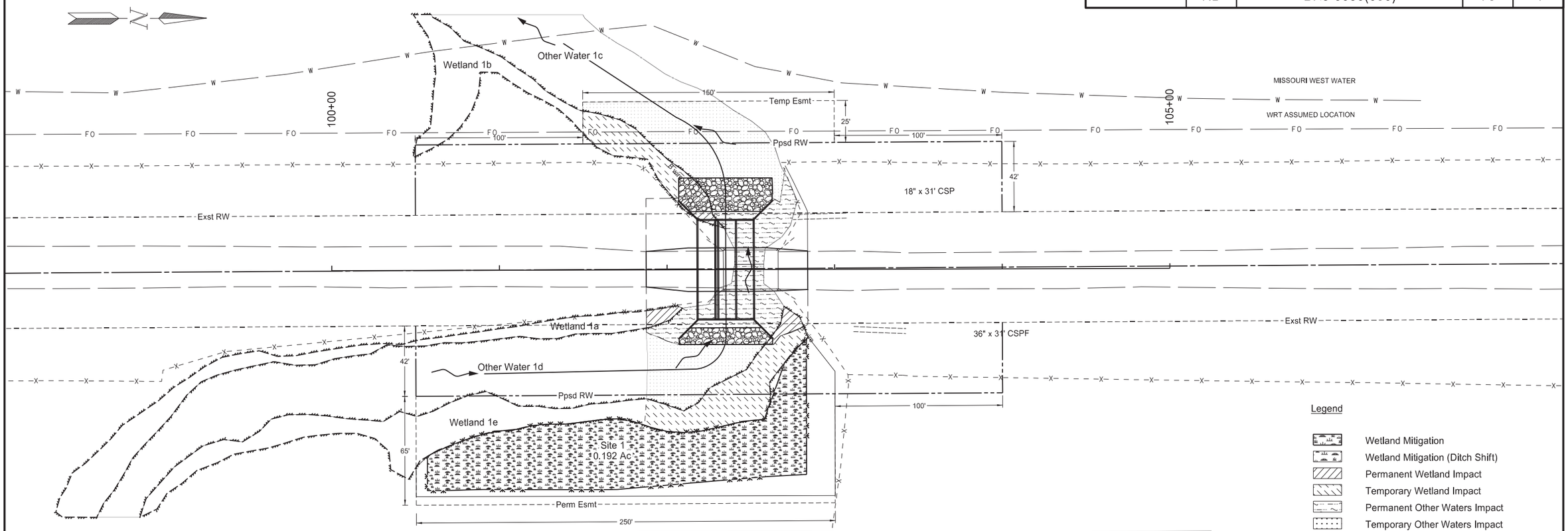
Plan & Profile

Bridge No. 30-158-27.0

REGISTERED PROFESSIONAL ENGINEER
CALEB L WEISGARBER
PE-40595
DATE 2025.07.16 11:20:27 -05'00'
NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	BRJ-0030(050)	75	1

Bridge No.
30-152-35.0



Wetland Impact Table

Wetland Number	Location	Wetland Type	Wetland Feature	USACE Jurisdictional Wetlands[1]	Wetland Impacts Acre(s)					Wetland Mitigation			
										Mitigation Proposed		Mitigation Location; ratio	Onsite Acre(s)
					Temp.		Perm. (Fill/Drain)		Perm. (Cut)	USACE	EO 11990		
1a	Sec.28, T135N, R82W	Fringe	Natural	Y			0.004			N	Y	Site 1; 1:1	0.004
1b	Sec.29, T135N, R82W	Fringe	Natural	Y	0.025		0.009			N	Y	Site 1; 1:1	0.009
1e	Sec.28, T135N, R82W	Fringe	Natural	Y	0.048		0.004			N	Y	Site 1; 1:1	0.004
				Totals	0.073		0.017		0.000				0.017

1 All aquatic resources have been assumed to be jurisdictional due to their proximities to jurisdictional creeks and river.

Mitigation Summary Table

	Wetland #1a	Wetland #1b	Wetland #1e	Other Water #1c	Other Water #1d	Total
Onsite	0.004	0.009	0.004	0.090	0.102	0.209
Onsite Ditch Shift						

Other Waters Impact Table

Number	Location	Type	Feature	USACE Jurisdictional[1]	Impacts to Other Waters						Other Waters Mitigation			
					Acres			Linear Feet			Mitigation Proposed		Mitigation Location; ratio	Onsite Acre(s)
					Temp.	Perm. (Fill/Drain)	Perm.	Temp.	Perm. (Fill/Drain)	Perm.	USACE	EO 1990		
1c	Sec 28 T-135-N R-82-W	Stream	Natural	Y	0.078	0.045		71	50		Y	Y	Site 1; 2:1	0.090
1d	Sec 29 T-135-N R-82-W	Stream	Natural	Y	0.044	0.051		49	50		Y	Y	Site 1; 2:1	0.102
				Totals	0.122	0.096	0.000	120	100	0				0.192

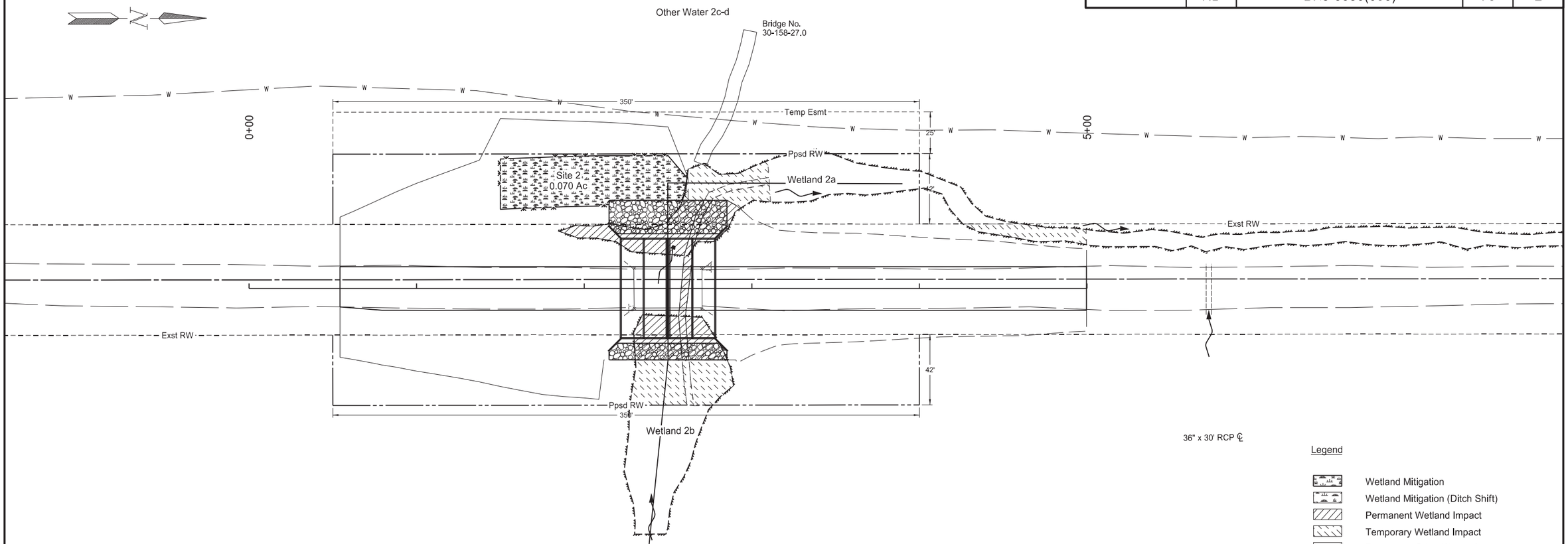
Morton County Bridge Replacement

Wetland Impacts

Bridge No. 30-152-35.0

REGISTERED PROFESSIONAL ENGINEER
CALEB L WEISGARBER
PE-40595
DATE 2025.07.16 11:20:48 -05'00'
NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	BRJ-0030(050)	75	2



Legend

- Wetland Mitigation
- Wetland Mitigation (Ditch Shift)
- Permanent Wetland Impact
- Temporary Wetland Impact
- Permanent Other Waters Impact
- Temporary Other Waters Impact
- Grading Tie Line (Fill)
- Grading Tie Line (Cut)
- Exst Delineated Wetland - JD
- Other Water
- Flow Direction

Wetland Impact Table

Wetland Number	Location	Wetland Type	Wetland Feature	USACE Jurisdictional Wetlands[1]	Wetland Impacts Acre(s)					Wetland Mitigation			
										Mitigation Proposed		Mitigation Location; ratio	Onsite Acre(s)
					Temp.		Perm. (Fill/Drain)		Perm. (Cut)	USACE	EO 11990		
2a	Sec.17, T136N, R81W	Ditch	Natural	Y	0.035	0.004 Ac Channel 0.031 Ac Wetland	0.040	0.005 Ac Channel 0.035 Ac Wetland		N	Y	Site 2; 1:1	0.040
2b	Sec.16, T136N, R81W	Slope	Natural	Y	0.035	0.003 Ac Channel 0.032 Ac Wetland	0.030	0.004 Ac Channel 0.026 Ac Wetland		N	Y	Site 2; 1:1	0.030
				Totals	0.070		0.070		0.000				0.070

1 All aquatic resources have been assumed to be jurisdictional due to their proximities to jurisdictional creeks and river.

Mitigation Summary Table

	Wetland #2a	Wetland #2b	Total
Onsite	0.040	0.030	0.070
Onsite Ditch Shift			

Other Waters - Drainage Impact Table

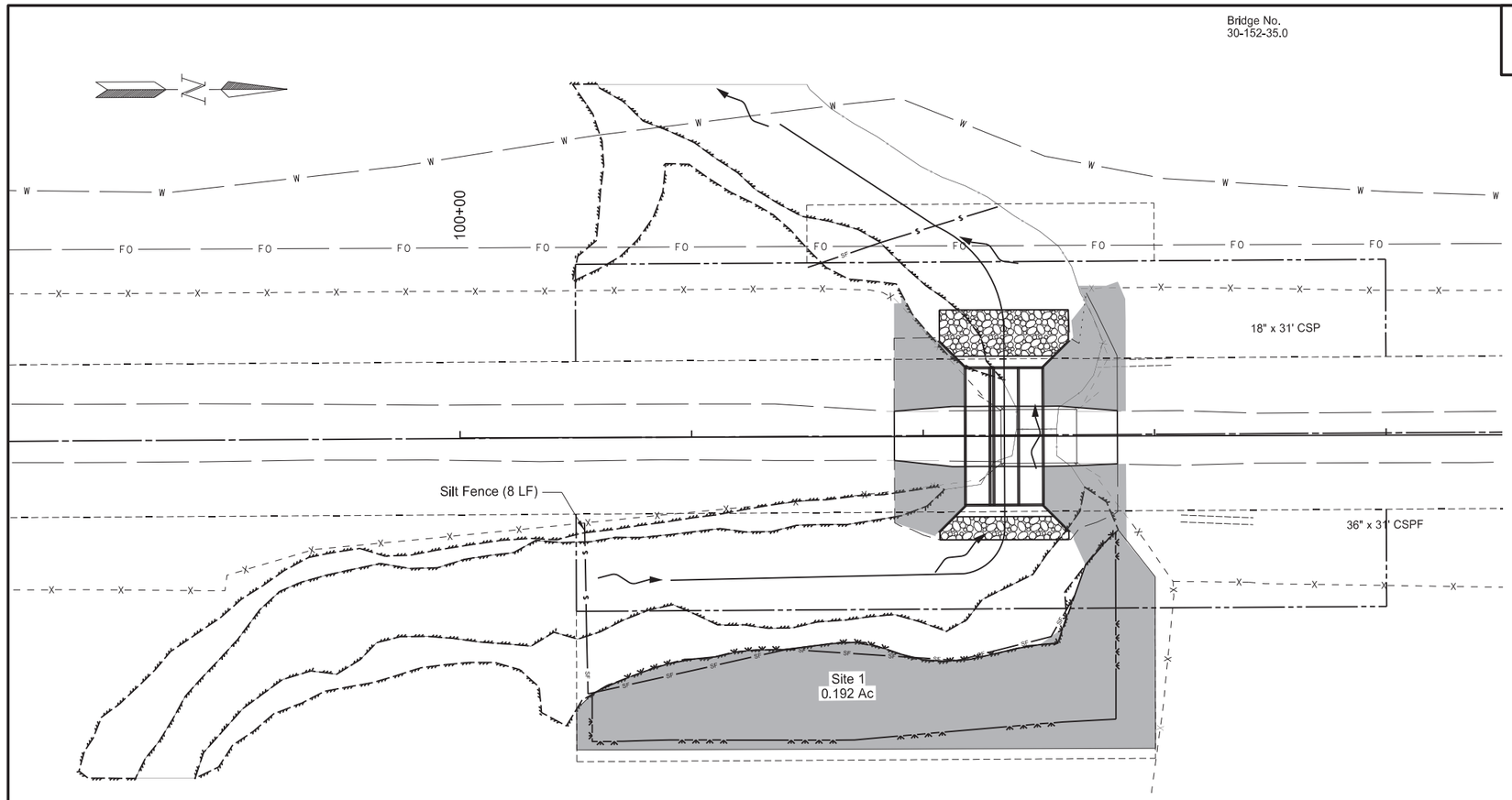
Other Waters					Impacts to Other Waters					
					Acres			Linear Feet		
Number	Location	Type	Feature	USACE Jurisdictional[1]	Temp.	Perm. (Fill/Drain)	Perm. (Cut)	Temp.	Perm. (Fill/Drain)	Perm. (Cut)
OW-2c-d	Sec 17 T-135-N R-82-W	Ephemeral Swale	Natural	Y						
				Totals	0.00	0.00	0.00	0.00	0.00	0.00

Morton County Bridge Replacement

Wetland Impacts

Bridge No. 30-158-27.0

REGISTERED PROFESSIONAL ENGINEER
CALEB L WEISGARBER
PE-40595
DATE 2025.07.16 11:21:05 -05'00'
NORTH DAKOTA



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	BRJ-0030(050)	76	1

SPEC	CODE	BID ITEM	QTY	UNIT
251	2000	TEMPORARY COVER CROP		
		Various Locations	0.37	ACRE
253	0101	STRAW MULCH		
		Various Locations	0.37	ACRE
260	0200	SILT FENCE SUPPORTED		
		Various Locations	296	LF
260	0201	REMOVE SILT FENCE SUPPORTED		
		Various Locations	296	LF
262	0100	FLOTATION SILT CURTAIN		
		Various Locations	95	LF
262	0101	REMOVE FLOTATION SILT CURTAIN		
		Various Locations	95	LF

Legend

- TEMPORARY COVER CROP / STRAW MULCH
- SF — SILT FENCE
- S — FLOTATION SILT CURTAIN
- FIBER ROLLS 12IN

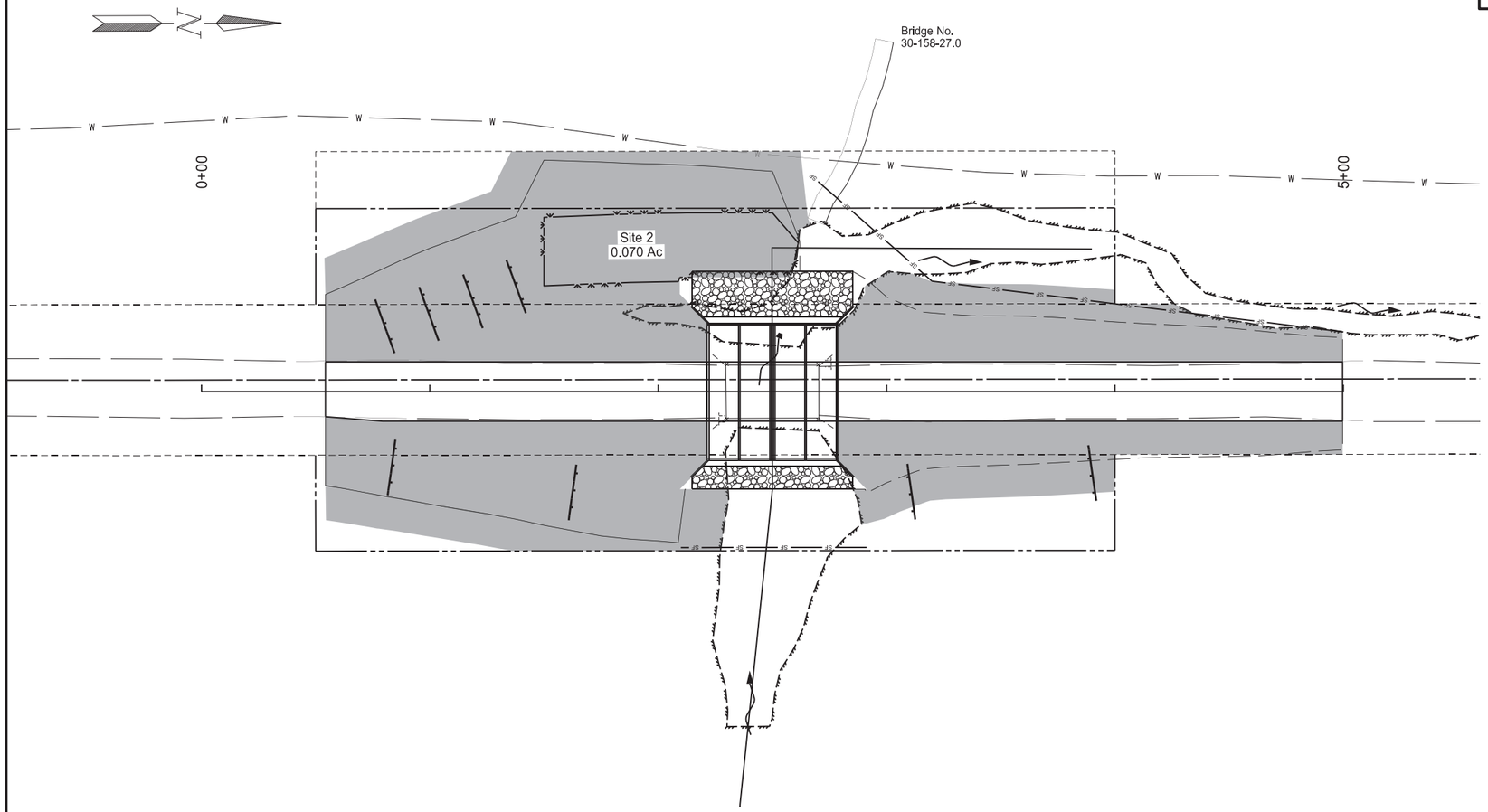
Morton County Bridge Replacement

Temporary Erosion Control

Bridge No. 30-152-35.0

REGISTERED PROFESSIONAL ENGINEER
CALEB L WEISGARBER
PE-40595
DATE 2025.07.16 11:21:26 -05'00'
NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	BRJ-0030(050)	76	2



SPEC	CODE	BID ITEM	QTY	UNIT
251	2000	TEMPORARY COVER CROP		
		Various Locations	0.82	ACRE
253	0101	STRAW MULCH		
		Various Locations	0.82	ACRE
260	0200	SILT FENCE SUPPORTED		
		Various Locations	334	LF
260	0201	REMOVE SILT FENCE SUPPORTED		
		Various Locations	334	LF
261	0112	FIBER ROLLS 12IN		
		Various Locations	200	LF
261	0113	REMOVE FIBER ROLLS 12IN		
		Various Locations	200	LF

Legend

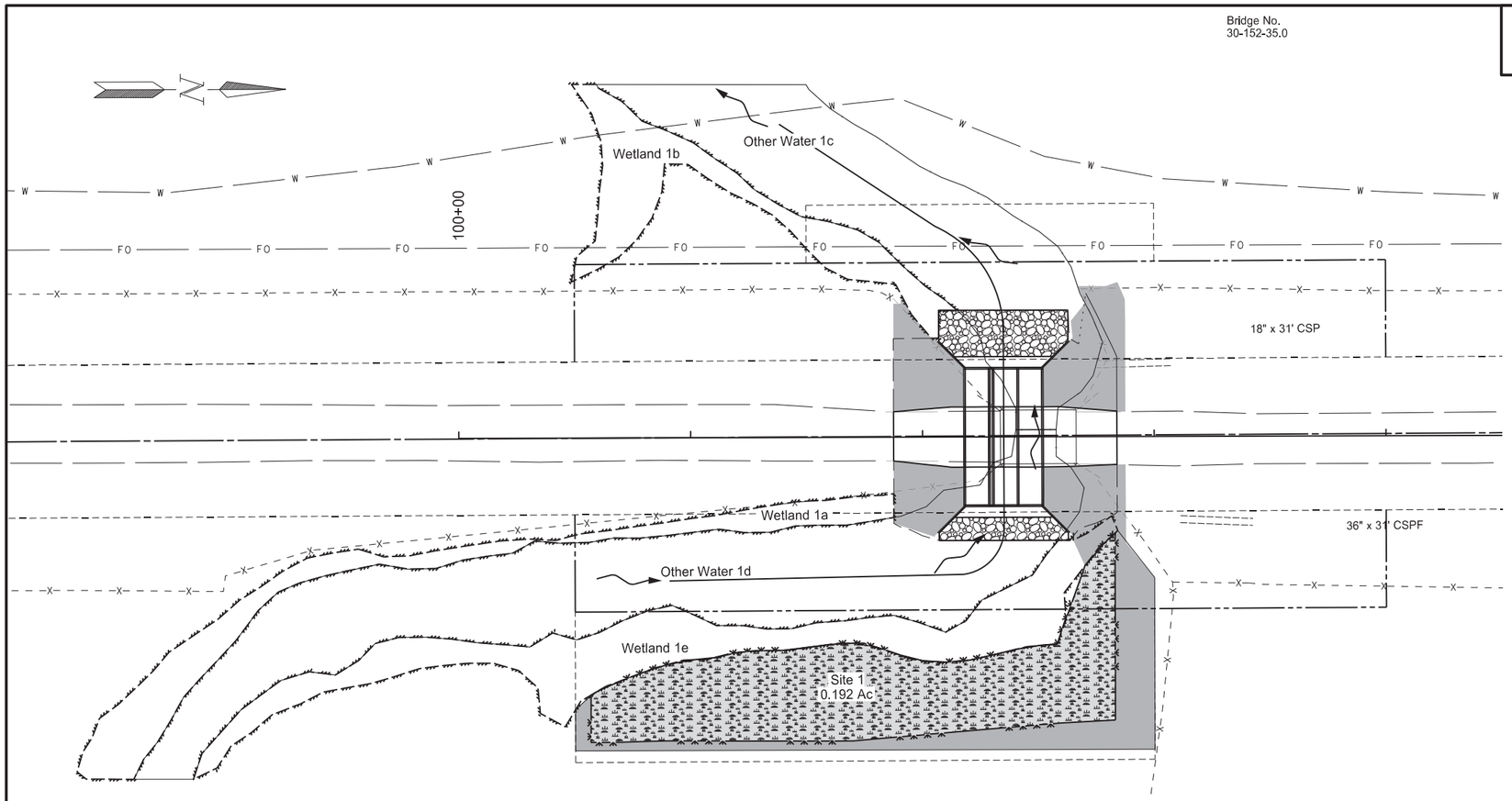
- TEMPORARY COVER CROP / STRAW MULCH
- SF — SILT FENCE
- S — FLOTATION SILT CURTAIN
- FIBER ROLLS 12IN

Morton County Bridge Replacement

Temporary Erosion Control

Bridge No. 30-158-27.0

REGISTERED PROFESSIONAL ENGINEER
CALEB L WEISGARBER
PE-40595
2025.07.16
DATE 11:21:59 -05'00'
NORTH DAKOTA



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	BRJ-0030(050)	77	1

SPEC	CODE	BID ITEM	QTY	UNIT
251	0200	SEEDING CLASS II		
		Various Locations	0.17	ACRE
251	1000	WETLAND SEED		
		Site 1	0.20	ACRE
253	0101	STRAW MULCH		
		Various Locations	0.17	ACRE

Legend

- WETLAND SEED
- SEEDING CLASS II / STRAW MULCH
- SF — SILT FENCE
- S — FLOTATION SILT CURTAIN
- FIBER ROLLS 12IN

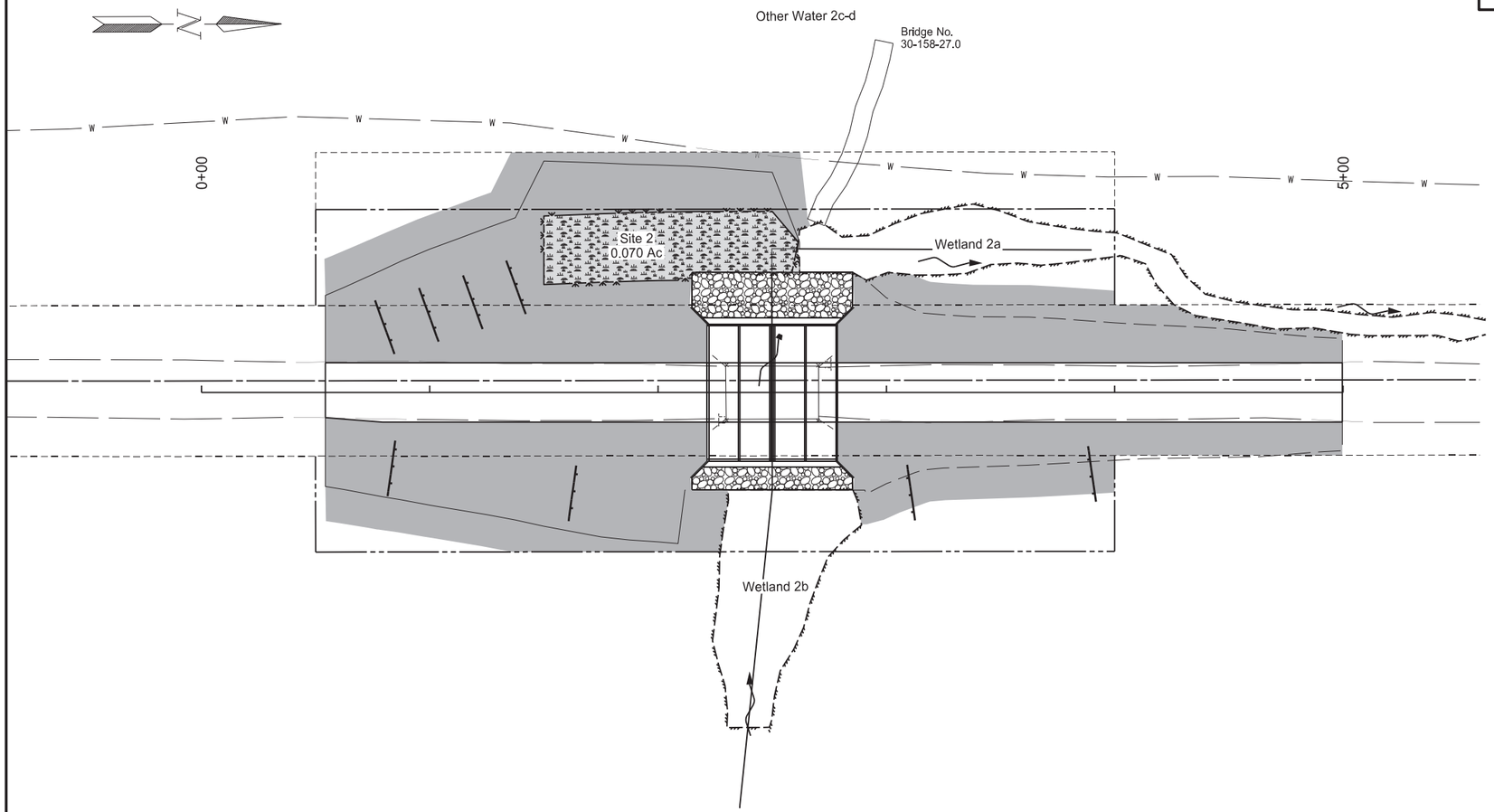
Morton County Bridge Replacement

Permanent Erosion Control

Bridge No. 30-152-35.0

REGISTERED PROFESSIONAL ENGINEER
CALEB L WEISGARBER
PE-40595
DATE 2025.07.16 11:10:13 -05'00'
NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	BRJ-0030(050)	77	2



SPEC	CODE	BID ITEM	QTY	UNIT
251	0200	SEEDING CLASS II		
		Various Locations	0.75	ACRE
251	1000	WETLAND SEED		
		Various Locations	0.07	ACRE
253	0101	STRAW MULCH		
		Various Locations	0.75	ACRE
261	0112	FIBER ROLLS 12IN		
		Various Locations	200	LF

Legend

- WETLAND SEED
- SEEDING CLASS II / STRAW MULCH
- SF — SILT FENCE
- S — FLOTATION SILT CURTAIN
- FIBER ROLLS 12IN

Morton County Bridge Replacement

Permanent Erosion Control

Bridge No. 30-158-27.0

REGISTERED PROFESSIONAL ENGINEER
CALEB L WEISGARBER
PE-40595
DATE 2025.07.16 11:16:23 -05'00'
NORTH DAKOTA

PRELIMINARY SURVEY COORDINATE AND CURVE DATA - Morton County Structure Replacement
Bridge No. 30-152-35.0 & Bridge No. 30-158-27.0

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	BRJ-0030(050)	81	1

HORIZONTAL ALIGNMENT

PNT	STATION	NORTHING	EASTING
CR 82 (Chain: OCL_MOR1)			
Begin	0+00.00	337079.107	1872707.573
PI	2+50.00	337329.094	1872710.132
End	5+00	337579.081	1872712.691
22nd Avenue (Chain: OCL_MOR2)			
Begin	100+00.00	295532.486	1841017.215
PI	102+50.00	295782.478	1841019.190
End	105+00.00	296032.470	1841021.165

CURVE DATA

ARC DEFINITION

US PUBLIC LAND SURVEY DATA

CORNER	IRN	NORTHING	EASTING
T-135-N R 82-W			
NW Cor Sec 28	5-J	299,709.82	1,841,037.36
W Qtr Sec 28	5-K	297,067.86	1,841,024.72
SW Cor Sec 28	5-L	294,429.03	1,841,012.21
T-136-N R 81-W			
NW Cor Sec 16	5-E	341,792.28	1,872,746.32
SW Cor Sec 16	5-G	336,486.88'	1,872,696.98'

SURVEY CONTROL POINTS

PNT	NORTHING	EASTING	ELEV	STATION	OFFSET
MONUMENT DESCRIPTION					
PRIMARY CONTROL					
GPS 50	338146.88	1872700.87	1804.40	10+67.64	18' Lt
# 5 Rebar w/ 1.5" Alum Cap Stamped "GPS 50"				OCL_MOR1	
GPS 51	336779.47	1872680.33	1817.03	-2+99.64	24' Lt
# 5 Rebar w/ 1.5" Alum Cap Stamped "GPS 51"				OCL_MOR1	
GPS 52	296512.80	1841001.76	2015.11	109+80.17	23' Lt
# 5 Rebar w/ 1.5" Alum Cap Stamped "GPS 52"				OCL_MOR2	
GPS 53	294934.56	1841031.49	2014.81	94+20.07	19' Rt
# 5 Rebar w/ 1.5" Alum Cap Stamped "GPS 53"				OCL_MOR2	

NOTES: Sheet 1 of 1

Date Survey Completed 06/09/2023

☐ Assumed Coordinates

☒ All coordinates on this sheet are Morton County ground coordinates. They are derived from the NAD83(2011) reference frame; North Dakota North Zone Combination Factor (cf) = 0.9998485

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

INITIALIZING BENCH MARK
BSMK

☒ NAVD-88
☐ _____

☐ GEOID12A ☐ _____
☒ GEOID18

REGISTERED PROFESSIONAL LAND SURVEYOR
BRETT ZELTINGER
LS-27331
DATE 2025.07.16 15:29:51 -05'00'
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	BRJ-0030(50)	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		28	
G20-1b-60	60"x24"	NO WORK IN PROGRESS (Sign and installation only)		18	
G20-2-48	48"x24"	END ROAD WORK		26	
G20-4-36	36"x18"	PILOT CAR FOLLOW ME (Mounted to back of pilot car)		18	
G20-4b-36	36"x30"	WAIT FOR PILOT CAR		18	
G20-50a-72	72"x36"	ROAD WORK NEXT __ MILES RT & LT ARROWS		43	
G20-52a-72	72"x24"	ROAD WORK NEXT __ MILES RT or LT ARROW		36	
G20-55-96	96"x48"	SPEED LIMIT ENFORCED - MINIMUM FEE $80 WHEN WORKERS PRESENT		59	
M1-1-36	36"x36"	INTERSTATE ROUTE MARKER (Post and installation only)		11	
M1-4-24	24"x24"	U.S. ROUTE MARKER (Post and installation only)		10	
M1-5-24	24"x24"	STATE ROUTE MARKER (Post and installation only)		10	
M3-1-24	24"x12"	NORTH (Mounted on route marker post)		7	
M3-2-24	24"x12"	EAST (Mounted on route marker post)		7	
M3-3-24	24"x12"	SOUTH (Mounted on route marker post)		7	
M3-4-24	24"x12"	WEST (Mounted on route marker post)		7	
M4-8-24	24"x12"	DETOUR (Mounted on route marker post)		7	
M4-9-30	30"x24"	DETOUR ARROW RIGHT or LEFT/AHD AND RT or LT		15	
M4-10-48	48"x18"	DETOUR (INSIDE ARROW) RIGHT or LEFT (Mounted on barricade)		7	
M5-1-21	21"x15"	ADVANCE TURN ARROW RT or LT(Mounted on route marker post)		7	
M5-1-30	30"x21"	ADVANCE TURN ARROW RT or LT(Mounted on route marker post)		9	
M6-1-21	21"x15"	DIRECTIONAL ARROW RT or LT (Mounted on route marker post)		7	
M6-1-30	30"x21"	DIRECTIONAL ARROW RT or LT (Mounted on route marker post)		9	
M6-3-21	21"x15"	DIRECTIONAL ARROW UP (Mounted on route marker post)		7	
R1-1-48	48"x48"	STOP		32	
R1-2-60	60"x60"	YIELD		29	
R2-1-36	36"x48"	SPEED LIMIT __ (Portable only)		30	
R2-1-48	48"x60"	SPEED LIMIT __		39	
R2-1aP-24	24"x18"	MINIMUM FEE $80 (Mounted on Speed Limit post)		10	
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)**	**4**	**12**	**48**
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)**	**4**	**15**	**60**
R11-3c-60	60"x30"	STREET CLOSED __ MILES AHEAD LOCAL TRAFFIC ONLY (Mtd on barricade)		15	
R11-4a-60	60"x30"	STREET CLOSED TO THRU TRAFFIC (Mounted on barricade)		15	
W1-3-48	48"x48"	REVERSE TURN RIGHT or LEFT		35	
W1-4-48	48"x48"	REVERSE CURVE RIGHT or LEFT		35	
W1-4b-48	48"x48"	TWO LANE REVERSE CURVE RIGHT or LEFT		35	
W1-6-48	48"x24"	ONE DIRECTION LARGE ARROW		26	
W3-1-48	48"x48"	STOP AHEAD		35	
W3-3-48	48"x48"	SIGNAL AHEAD		35	
W3-4-48	48"x48"	BE PREPARED TO STOP		35	
W3-5-48	48"x48"	SPEED REDUCTION AHEAD		35	
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		35	
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		35	
W8-55-48	48"x48"	TRUCKS CROSSING AHEAD or __ FT or _ MILE		35	
W8-56-48	48"x48"	TRUCKS EXITING HIGHWAY		35	
W9-3a-48	48"x48"	CENTER LANE CLOSED SYMBOL		35	
W13-1P-30	30"x30"	___ MPH ADVISORY SPEED PLAQUE (Mounted on warning sign post)		14	
W14-3-64	64"x48"	NO PASSING ZONE		28	
W16-2P-30	30"x24"	__ FEET PLAQUE (Mounted on warning sign post)		10	
W20-1-48	48"x48"	ROAD WORK AHEAD or _FT or _ MILE		35	
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**	**7**	**35**	**245**
W20-4-48	48"x48"	ONE LANE ROAD AHEAD or __ FT or _ MILE		35	
W20-5-48	48"x48"	RIGHT or CENTER or LEFT LANE CLOSED AHEAD or __ FT or _ MILE		35	
W20-7-48	48"x48"	FLAGGER		35	
W20-8-18	18"x18"	STOP - SLOW PADDLE Back to Back		5	
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	

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
W21-6-48	48"x48"	SURVEY CREW		35	
W21-50-48	48"x48"	BRIDGE PAINTING AHEAD or __ FT		35	
W21-51-48	48"x48"	MATERIAL ON ROADWAY		35	
W21-52-48	48"x48"	PAVEMENT BREAKS		35	
W21-53-48	48"x48"	RUMBLE STRIPS AHEAD		35	
W22-8-48	48"x48"	FRESH OIL LOOSE ROCK		35	
W24-1-48	48"x48"	DOUBLE REVERSE CURVE		35	

SPECIAL SIGNS

SPEC & CODE

704-1000	**TRAFFIC CONTROL SIGNS**	**TOTAL UNITS**	**353**

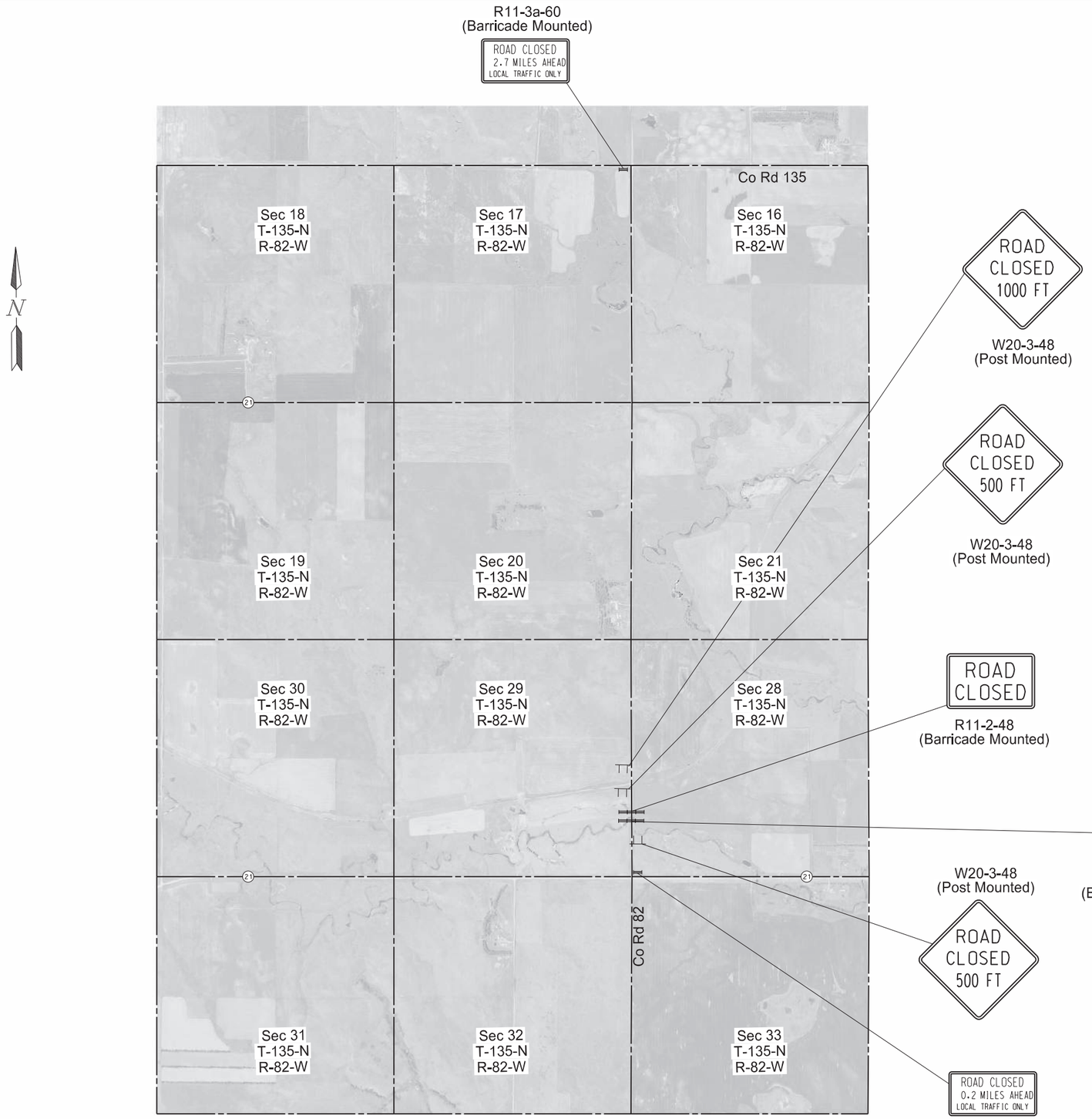
SPEC & CODE	DESCRIPTION	UNIT	QUANTITY
704-0100	FLAGGING	MHR	
704-1048	PORTABLE RUMBLE STRIPS	EACH	
704-1050	TYPE I BARRICADES	EACH	
704-1052	**TYPE III BARRICADES**	**EACH**	**16**
704-1060	DELINEATOR DRUMS	EACH	
704-1065	TRAFFIC CONES	EACH	
704-1067	TUBULAR MARKERS	EACH	
704-1070	DELINEATOR	EACH	
704-1072	FLEXIBLE DELINEATORS	EACH	
704-1080	STACKABLE VERTICAL PANELS	EACH	
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/

REGISTERED PROFESSIONAL ENGINEER
CALEB L WEISGARBER
PE-40595
DATE 2025.07.16 11:08:18 -05'00'
NORTH DAKOTA

Traffic Control Devices List

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	BRJ-0030(50)	100	2



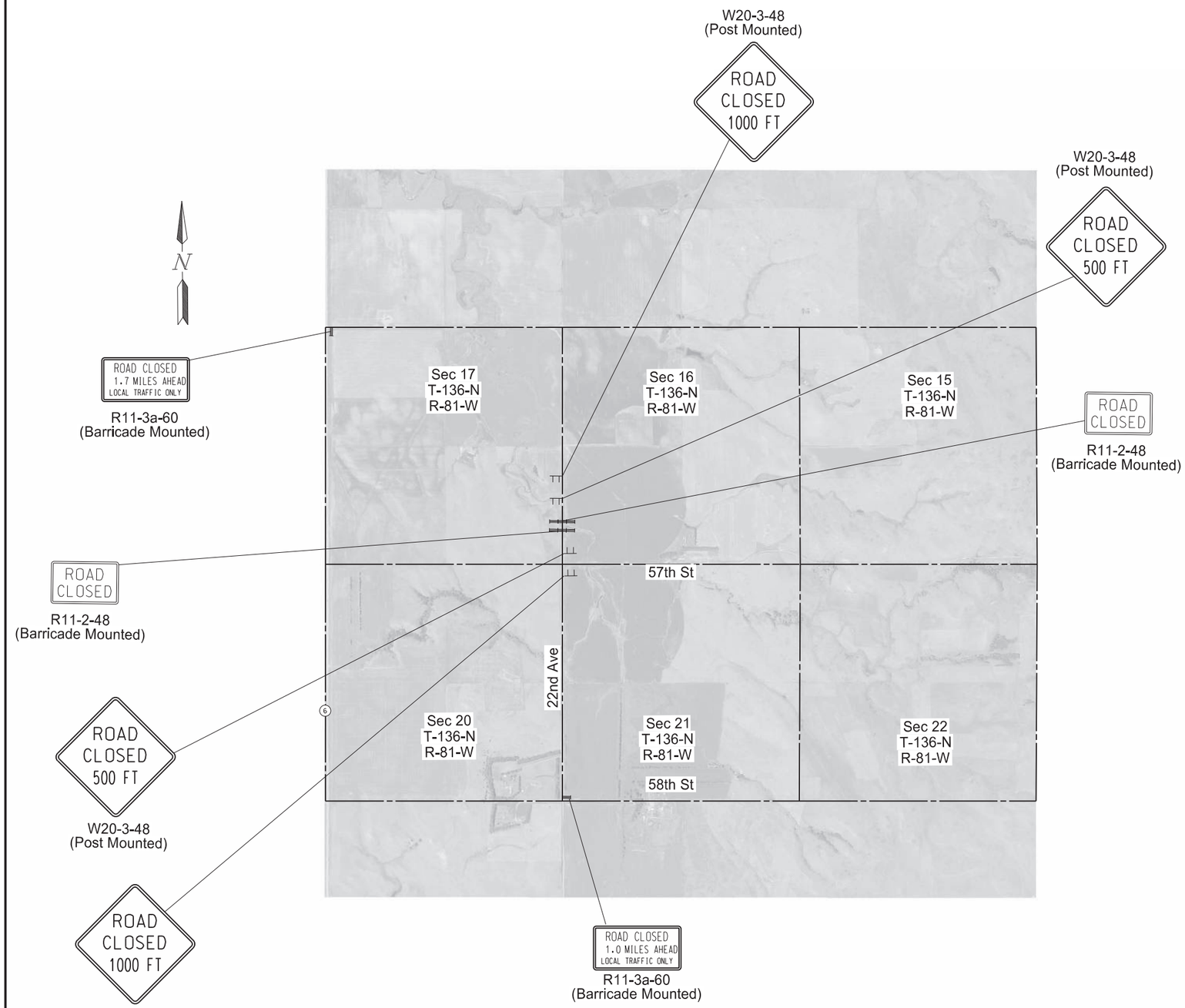
Morton County Bridge Replacement

Work Zone Traffic Control

Bridge No. 30-152-35.0

REGISTERED PROFESSIONAL ENGINEER
CALEB L WEISGARBER
PE-40595
2025.07.16
DATE 11:08:48 -05'00'
NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	BRJ-0030(50)	100	3



Morton County Bridge Replacement

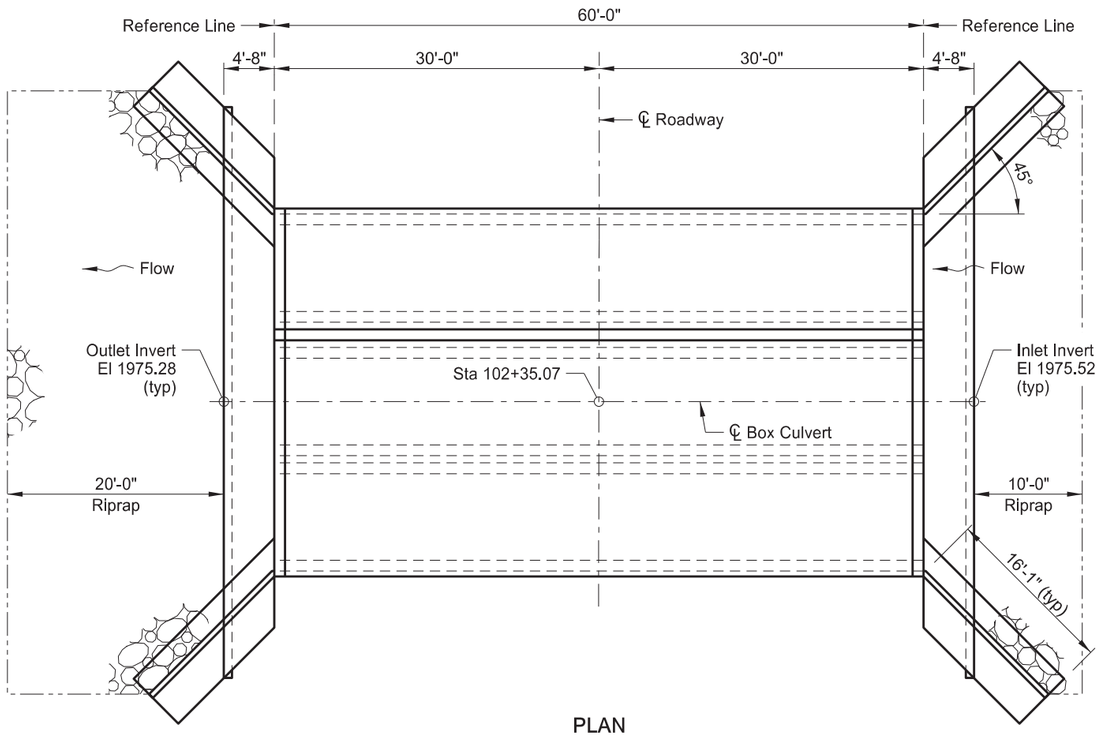
Work Zone Traffic Control

Bridge No. 30-158-27.0

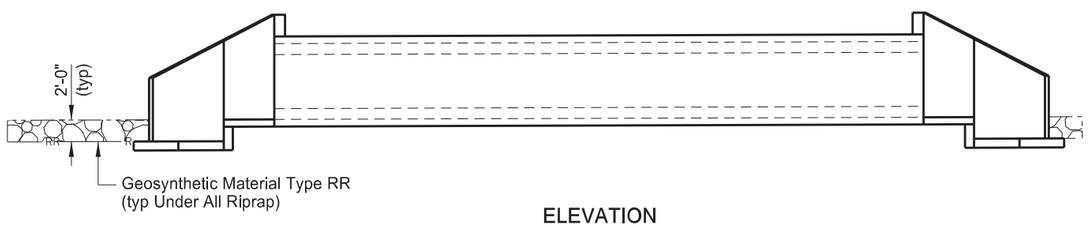
REGISTERED PROFESSIONAL ENGINEER
CALEB L WEISGARBER
PE-40595
DATE 2025.07.16 11:09:26 -05'00'
NORTH DAKOTA

23 U.S.C. 407
NDDOT Reserves All Objections

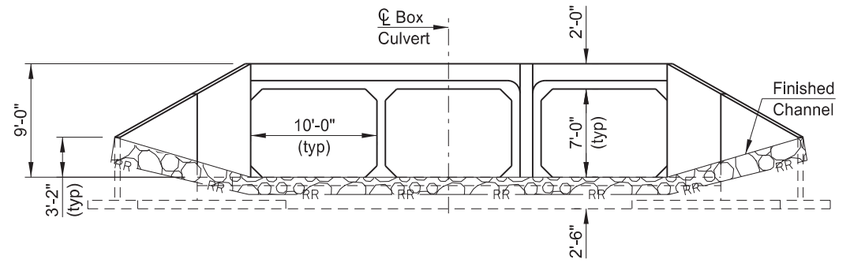
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	BRJ-0030(050)	170	1



PLAN



ELEVATION



(SHOWING FINISHED SECTION)
END VIEW

HYDRAULIC DATA:

Drainage Area	24.8	sq mi
Stream Gradient	0.0015	ft/ft
Design Frequency	25	yr
Design Discharge	814	cfs
Design Headwater Stage	1983.20	ft
Design Tailwater Stage	1982.72	ft
Velocity Through Culvert	4.5	fps
100-Year Frequency Discharge	1296	cfs
100-Year Frequency Headwater	1984.59	ft
Overtopping Stage	1985.55	ft
Overtopping Discharge	1598	cfs

BRIDGE BID ITEMS

SPEC	CODE	ITEM DESCRIPTION	UNIT	QUANTITY
202	0104	REMOVAL OF STRUCTURE	EA	1
210	0050	BOX CULVERT EXCAVATION	EA	1
210	0210	FOUNDATION FILL	CY	215
210	0250	BOX CULVERT FOUNDATION AGGREGATE	CY	150
210	0405	FOUNDATION PREPARATION-BOX CULVERT	EA	1
256	0200	RIPRAP GRADE II	CY	120
606	1007	10FT X 7FT PRECAST RCB CULVERT	LF	60
606	3007	DBL 10FT X 7FT PRECAST RCB CULVERT	LF	60
606	7007	DBL 10FT X 7FT PRECAST RCB END SECTION	EA	2
709	0100	GEOSYNTHETIC MATERIAL TYPE G	SY	300
709	0155	GEOSYNTHETIC MATERIAL TYPE RR	SY	180
900	1000	TEMPORARY STREAM DIVERSION	EA	1

REGISTERED PROFESSIONAL ENGINEER
RYAN A. RYKOWSKY
PE-6691
DATE: 7/16/25
NORTH DAKOTA

SPECIAL PROVISIONS	
SSP 2	MIGRATORY BIRD TREATY ACT
SP 417(24)	STRUC EXCAVATION AND BACKFILL
SP 418(24)	TEMPORARY WATER DIVERSION

STANDARD DRAWINGS
D-714-22

HL-93 DESIGN LOADING

EAST BRANCH CHANTA PETA CREEK
1 MI N AND 10 MI E OF FLASHER

CLEAR SPAN 3 X 10' CLEAR HEIGHT 7'
MIN FILL 2' MAX FILL 6' STATION: 102+35.07

PRECAST CONCRETE TRIPLE BOX CULVERT LAYOUT

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	BRJ-0030(050)	170	2

NOTES

100 SCOPE OF WORK: Work at this site consists of removing an existing structure and building a new triple barrel 10' x 7' x 60'-0" precast concrete box culvert.

202 REMOVAL OF STRUCTURE: The existing structure is a 1-span timber stringer bridge, 32'-3" long with a clear roadway width of 23'-0". The deck and substructures are also made of timber. Include all work required to remove the bridge in the contract unit price for “Removal of Structure.”

210 ORDINARY BACKFILL: Compact material as specified in Section 203.04 G.2.a, “ND T 180.”

606 DESIGN AND LOAD RATING: Design the box culvert and box culvert end sections in accordance with the AASHTO LRFD Bridge Design Specifications, 10th Edition. Design for HL-93 live load and a fill height range from 2 ft to 6ft over the box culvert.

Load rate the box culvert in accordance with both the NDDOT Load Rating Manual and the AASHTO Manual for Bridge Evaluation, 2018 Edition, incorporating the latest Interim Revisions. Provide a box culvert design to achieve a rating factor greater than or equal to 1.0 for the design, legal, and permit trucks over the specified fill range. Include BrR Load Rating Summaries for 1 ft incremental fill depths throughout the fill range in the load rating report. Populate the NDDOT Load Rating Summary for the actual fill depth at the time of construction.

Include with the work drawing submittals a Load Rating Report sealed by a ND registered PE, and an AASHTOWare BrR Model of the structure in XML format.

606 PRECAST SECTION: Do not install lifting holes in walls or floor of box culvert sections. Plug lifting holes in roof with tapered concrete plugs or another method approved by the Engineer.

Tie the barrel sections together with 1"ϕ tie bolts as shown on Standard Drawing D-714-22. Place two ties per exterior wall joint, located at third points of the wall clear height.

A 1 EA payment for “Dbl 10Ft X 7Ft Precast RCB End Section” will be made at each end of the box for the apron, cutoff wall, parapet and wingwalls. Attach the apron to the last barrel section, the wingwalls and the cutoff wall. Attach the wingwalls to the last barrel section. Provide a welded tie type system for the connections of the apron to the box and wingwalls. Connect the wingwalls to the last barrel section by the use of tie bolts, steel-bolted plates or other approved method so the inside corner surface is smooth.

Use ASTM A36 steel for bolts, plates, angles, and studs. Use heavy hex nuts meeting the requirements of ASTM A563 and washers meeting ASTM F436, Type 1. Provide welded pipe sleeves meeting the requirements of ASTM A53, Grade B. Galvanize hardware and structural steel according to Section 854.

Welders are to meet the requirements of Section 105.06 D. Galvanize field welds according to Section 854.02.

Cast holes at 3'-0" centers through the apron and into the cutoff wall to receive ¾" diameter reinforcing bars. Cast holes in the last barrel section at 1'-0" centers for ½" diameter reinforcing bars to attach the parapet. Cast parapet against the section. Install the bars according to the manufacturer’s recommendations, with a high strength adhesive specifically intended for concrete anchorage, in accordance with Section 806.02.

Provide a distance of 1'-0" between separate precast units. Fill this gap with a controlled density backfill. Use a controlled density backfill consisting of cement, water, pozzolanic materials, and fillers. Use a material that is fluid on placement to flow around and fill voids in the backfill area. Use a material that is able to support normal loads after 6 hours and have a compressive strength in the range of 75 psi to 125 psi at 28 days. If the mix design shown is used, no further testing will be required. The mix design yields approximately one cubic yard of flowable mortar.

MIX DESIGNS

Mix Design 1		Mix Design 2 (No Fly Ash)	
Cement	100 lbs	Cement	165 lbs
Fly Ash	300 lbs	Fly Ash	NA
Fine Aggregate	2600 lbs	Fine Aggregate	2600 lbs
Water	70 gals	Water	50 gals

For the 12" cap, use a weatherproof and freeze/thaw resistant, non-shrink cement grout material such as SikaGrout® 212, BASF Masterflow® 928, Euclid NS Grout, or an approved equal which complies with ASTM C1107.

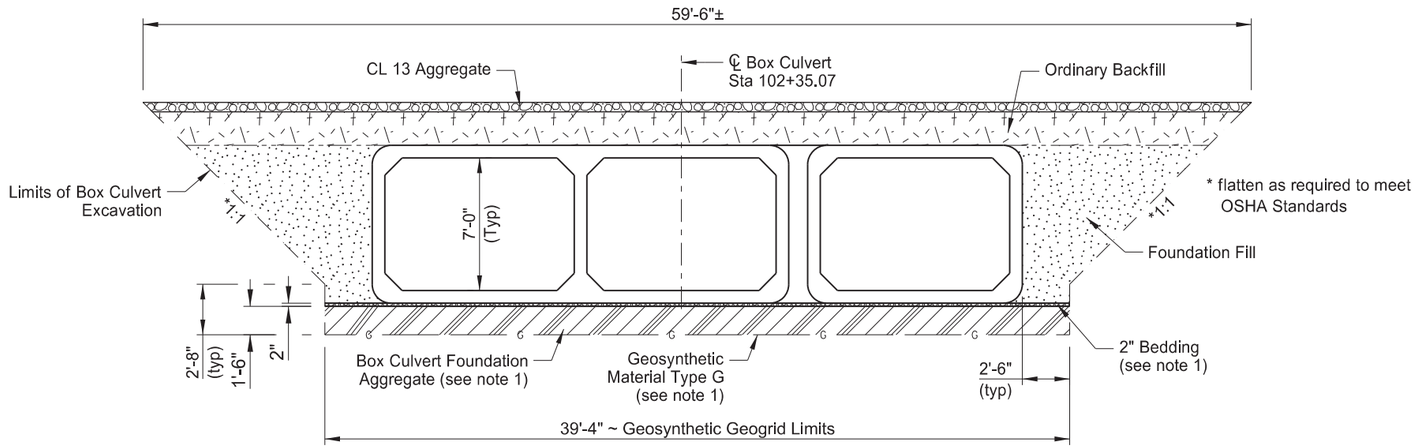
Include the controlled density backfill and material used for the 12” cap in the price bid for “Dbl 10Ft X 7Ft Precast RCB Culvert.”

606 JOINTS: Provide joints in accordance with Section 606.04 E.3, with the exception that a 12” minimum width waterproof membrane is allowable around the exterior surfaces of the box culvert walls and roof.

REGISTERED PROFESSIONAL ENGINEER
RYAN A. RYKOWSKY
PE-6691
DATE: 7/16/25
NORTH DAKOTA

23 U.S.C. 407
NDDOT Reserves All Objections

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	BRJ-0030(050)	170	3



(SHOWING SECTION ALONG ℄ ROADWAY)

GEOSYNTHETIC GEOGRID PLACEMENT AND FOUNDATION FILL
THROUGH EXISTING EMBANKMENT

NOTES:

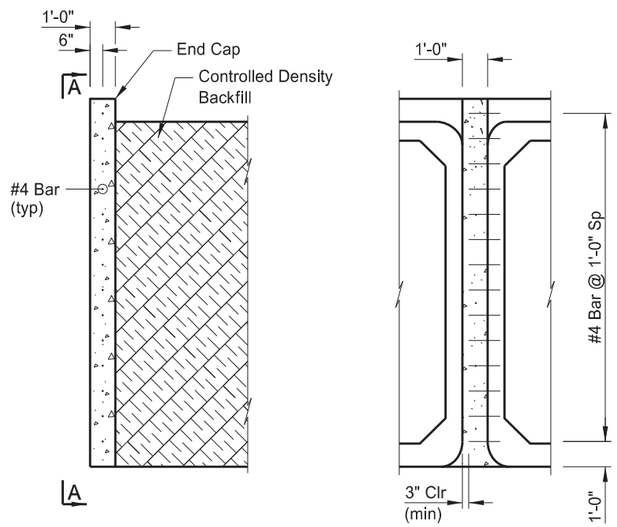
1) Extend the geosynthetic, bedding material and box culvert foundation aggregate material below the box culvert to the end of the apron.

NOTES:

The intent of this detail is to show only the placement of the controlled density backfill between adjacent barrels. The representation of the size of barrels is arbitrary.

Embed the #4 bar 6" into the side of one of the box culvert end sections maintaining a 3" minimum clearance from the other box culvert. Spacing measured 1'-0" from bottom of box and spaced at 1'-0" up the front face.

Install the #4 bars according to the manufacturer's recommendations, with a high strength adhesive specifically intended for concrete anchorage and that meets the requirements of Section 806.02.



ELEVATION A-A

CONTROLLED DENSITY BACKFILL DETAIL

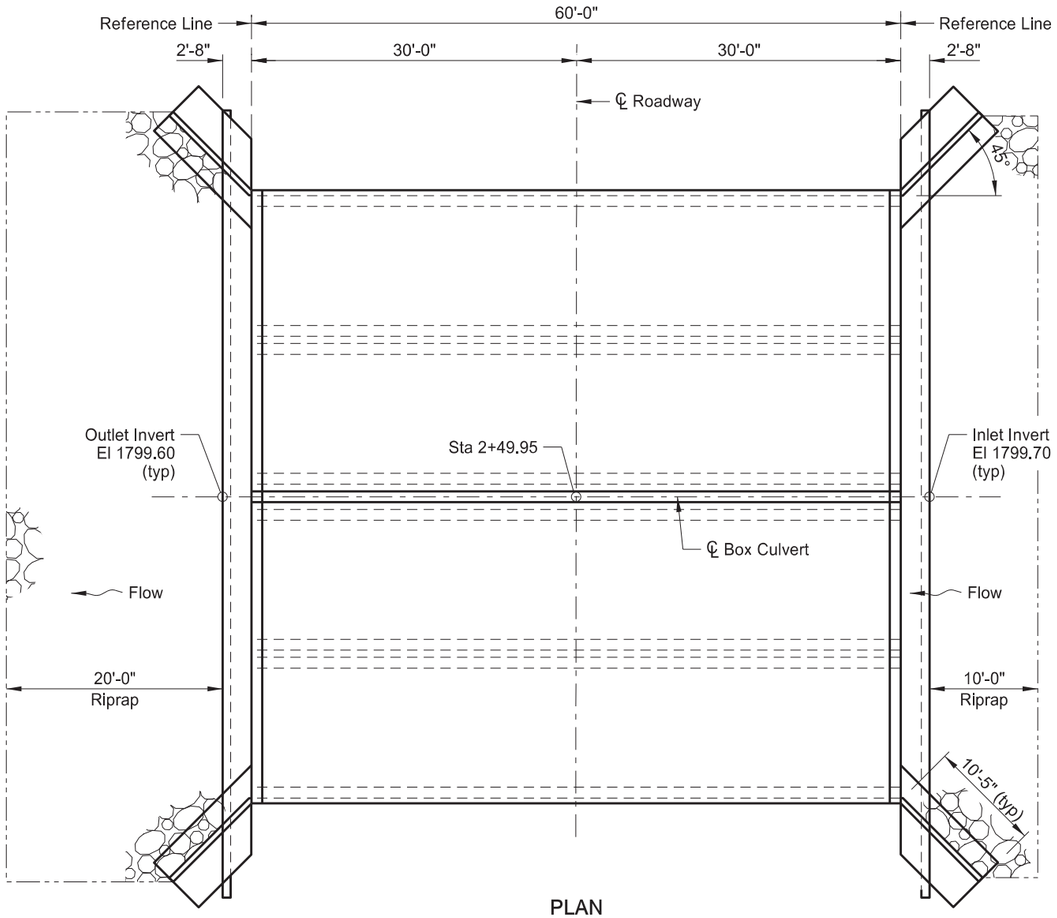
REGISTERED PROFESSIONAL ENGINEER
RYAN A. RYKOWSKY
PE-6691
DATE: 7/16/25
NORTH DAKOTA

EAST BRANCH CHANTA PETA CREEK
1 MI N AND 10 MI E OF FLASHER

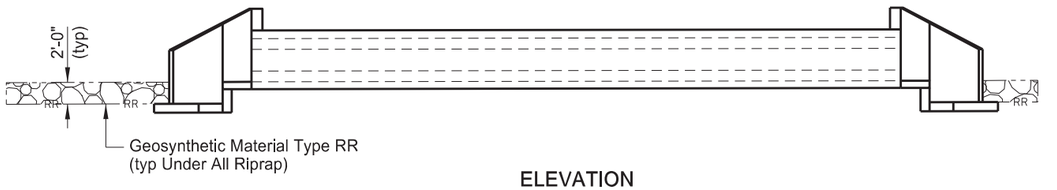
EXCAVATION & BACKFILL DETAIL

23 U.S.C. 407
NDDOT Reserves All Objections

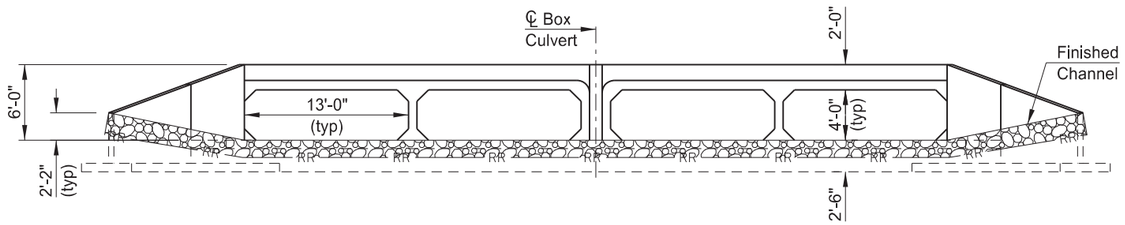
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	BRJ-0030(050)	170	4



PLAN



ELEVATION



(SHOWING FINISHED SECTION)
END VIEW

HYDRAULIC DATA:

Drainage Area	26.4	sq mi
Stream Gradient	0.0019	ft/ft
Design Frequency	15	yr
Design Discharge	1114	cfs
Design Headwater Stage	1804.39	ft
Design Tailwater Stage	1803.15	ft
Velocity Through Culvert	7.2	fps
100-Year Frequency Discharge	2076	cfs
100-Year Frequency Headwater	1804.96	ft
Overtopping Stage	1804.06	ft
Overtopping Discharge	882	cfs

BRIDGE BID ITEMS

SPEC	CODE	ITEM DESCRIPTION	UNIT	QUANTITY
202	0104	REMOVAL OF STRUCTURE	EA	1
210	0050	BOX CULVERT EXCAVATION	EA	1
210	0210	FOUNDATION FILL	CY	105
210	0250	BOX CULVERT FOUNDATION AGGREGATE	CY	220
210	0405	FOUNDATION PREPARATION-BOX CULVERT	EA	1
256	0200	RIPRAP GRADE II	CY	160
606	3304	DBL 13FT X 4FT PRECAST RCB CULVERT	LF	120
606	7304	DBL 13FT X 4FT PRECAST RCB END SECTION	EA	2
709	0100	GEOSYNTHETIC MATERIAL TYPE G	SY	440
709	0155	GEOSYNTHETIC MATERIAL TYPE RR	SY	240
900	1000	TEMPORARY STREAM DIVERSION	EA	1

REGISTERED PROFESSIONAL ENGINEER
RYAN A. RYKOWSKY
PE-6691
DATE: 7/16/25
NORTH DAKOTA

SPECIAL PROVISIONS	
SSP 2	MIGRATORY BIRD TREATY ACT
SP 417(24)	STRUC EXCAVATION AND BACKFILL
SP 418(24)	TEMPORARY WATER DIVERSION

STANDARD DRAWINGS
D-714-22

HL-93 DESIGN LOADING

SE BRANCH LITTLE HEART RIVER
2 MI S AND 1 MI E OF ST. ANTHONY

CLEAR SPAN 4 X 13' CLEAR HEIGHT 4'
MIN FILL 2' MAX FILL 7' STATION: 2+49.95

PRECAST CONCRETE QUADRUPLE BOX CULVERT LAYOUT

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	BRJ-0030(050)	170	5

NOTES

100 SCOPE OF WORK: Work at this site consists of removing an existing structure and building a new quadruple barrel 13' x 4' x 60'-0" precast concrete box culvert.

202 REMOVAL OF STRUCTURE: The existing structure is a 1-span timber stringer bridge, 40'-0" long with a clear roadway width of 23'-4". The deck and substructures are also made of timber. Include all work required to remove the bridge in the contract unit price for “Removal of Structure.”

210 ORDINARY BACKFILL: Compact material as specified in Section 203.04 G.2.a, “ND T 180.”

606 DESIGN AND LOAD RATING: Design the box culvert and box culvert end sections in accordance with the AASHTO LRFD Bridge Design Specifications, 10th Edition. Design for HL-93 live load and a fill height range from 2 ft to 7ft over the box culvert.

Load rate the box culvert in accordance with both the NDDOT Load Rating Manual and the AASHTO Manual for Bridge Evaluation, 2018 Edition, incorporating the latest Interim Revisions. Provide a box culvert design to achieve a rating factor greater than or equal to 1.0 for the design, legal, and permit trucks over the specified fill range. Include BrR Load Rating Summaries for 1 ft incremental fill depths throughout the fill range in the load rating report. Populate the NDDOT Load Rating Summary for the actual fill depth at the time of construction.

Include with the work drawing submittals a Load Rating Report sealed by a ND registered PE, and an AASHTOWare BrR Model of the structure in XML format.

606 PRECAST SECTION: Do not install lifting holes in walls or floor of box culvert sections. Plug lifting holes in roof with tapered concrete plugs or another method approved by the Engineer.

Tie the barrel sections together with 1"ϕ tie bolts as shown on Standard Drawing D-714-22. Place two ties per exterior wall joint, located at third points of the wall clear height.

A 1 EA payment for “Dbl 13Ft X 4Ft Precast RCB End Section” will be made at each end of the box for the apron, cutoff wall, parapet and wingwalls. Attach the apron to the last barrel section, the wingwalls and the cutoff wall. Attach the wingwalls to the last barrel section. Provide a welded tie type system for the connections of the apron to the box and wingwalls. Connect the wingwalls to the last barrel section by the use of tie bolts, steel-bolted plates or other approved method so the inside corner surface is smooth.

Use ASTM A36 steel for bolts, plates, angles, and studs. Use heavy hex nuts meeting the requirements of ASTM A563 and washers meeting ASTM F436, Type 1. Provide welded pipe sleeves meeting the requirements of ASTM A53, Grade B. Galvanize hardware and structural steel according to Section 854.

Welders are to meet the requirements of Section 105.06 D. Galvanize field welds according to Section 854.02.

Cast holes at 3'-0" centers through the apron and into the cutoff wall to receive ¾" diameter reinforcing bars. Cast holes in the last barrel section at 1'-0" centers for ½" diameter reinforcing bars to attach the parapet. Cast parapet against the section. Install the bars according to the manufacturer’s recommendations, with a high strength adhesive specifically intended for concrete anchorage, in accordance with Section 806.02.

Provide a distance of 1'-0" between separate precast units. Fill this gap with a controlled density backfill. Use a controlled density backfill consisting of cement, water, pozzolanic materials, and fillers. Use a material that is fluid on placement to flow around and fill voids in the backfill area. Use a material that is able to support normal loads after 6 hours and have a compressive strength in the range of 75 psi to 125 psi at 28 days. If the mix design shown is used, no further testing will be required. The mix design yields approximately one cubic yard of flowable mortar.

MIX DESIGNS

Mix Design 1		Mix Design 2 (No Fly Ash)	
Cement	100 lbs	Cement	165 lbs
Fly Ash	300 lbs	Fly Ash	NA
Fine Aggregate	2600 lbs	Fine Aggregate	2600 lbs
Water	70 gals	Water	50 gals

For the 12" cap, use a weatherproof and freeze/thaw resistant, non-shrink cement grout material such as SikaGrout® 212, BASF Masterflow® 928, Euclid NS Grout, or an approved equal which complies with ASTM C1107.

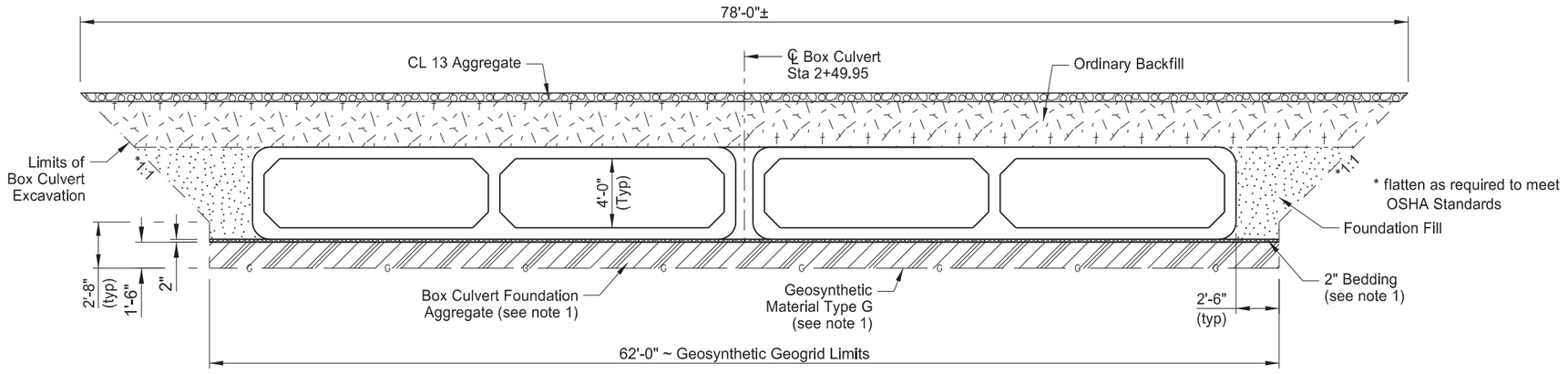
Include the controlled density backfill and material used for the 12” cap in the price bid for “Dbl 13Ft X 4Ft Precast RCB Culvert.”

606 JOINTS: Provide joints in accordance with Section 606.04 E.3, with the exception that a 12” minimum width waterproof membrane is allowable around the exterior surfaces of the box culvert walls and roof.

REGISTERED PROFESSIONAL ENGINEER
RYAN A. RYKOWSKY
PE-6691
DATE: 7/16/25
NORTH DAKOTA

23 U.S.C. 407
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	BRJ-0030(050)	170	6

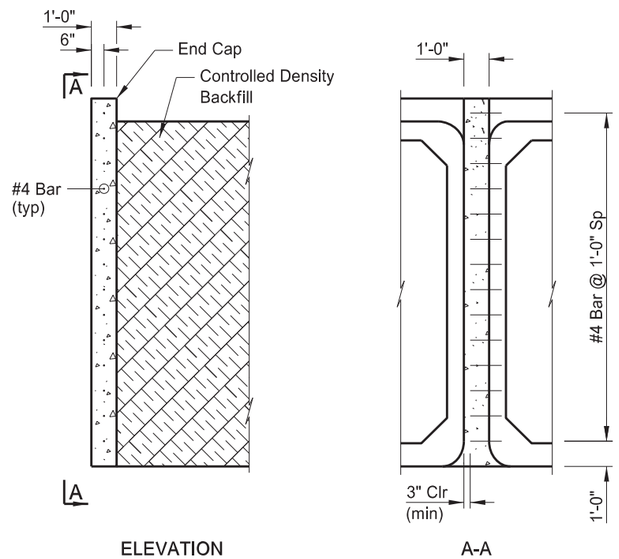


(SHOWING SECTION ALONG ℄ ROADWAY)

GEOSYNTHETIC GEOGRID PLACEMENT AND FOUNDATION FILL
THROUGH EXISTING EMBANKMENT

NOTES:

1) Extend the geosynthetic, bedding material and box culvert foundation aggregate material below the box culvert to the end of the apron.



ELEVATION A-A

CONTROLLED DENSITY BACKFILL DETAIL

NOTES:

The intent of this detail is to show only the placement of the controlled density backfill between adjacent barrels. The representation of the size of barrels is arbitrary.

Embed the #4 bar 6" into the side of one of the box culvert end sections maintaining a 3" minimum clearance from the other box culvert. Spacing measured 1'-0" from bottom of box and spaced at 1'-0" up the front face.

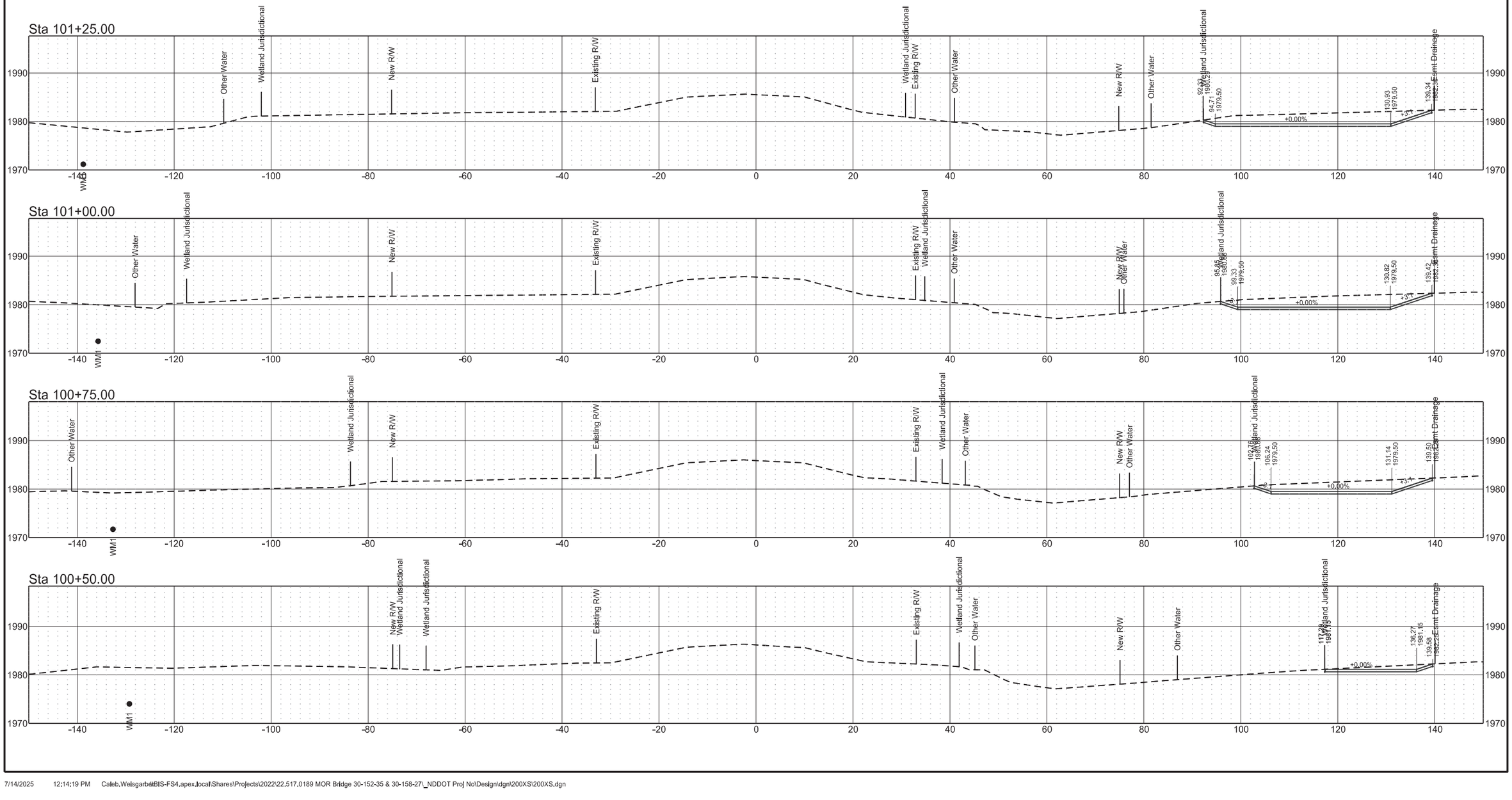
Install the #4 bars according to the manufacturer's recommendations, with a high strength adhesive specifically intended for concrete anchorage and that meets the requirements of Section 806.02.

REGISTERED PROFESSIONAL ENGINEER
RYAN A. RYKOWSKY
PE-6691
DATE: 7/16/25
NORTH DAKOTA

SE BRANCH LITTLE HEART RIVER
2 MI S AND 1 MI E OF ST. ANTHONY

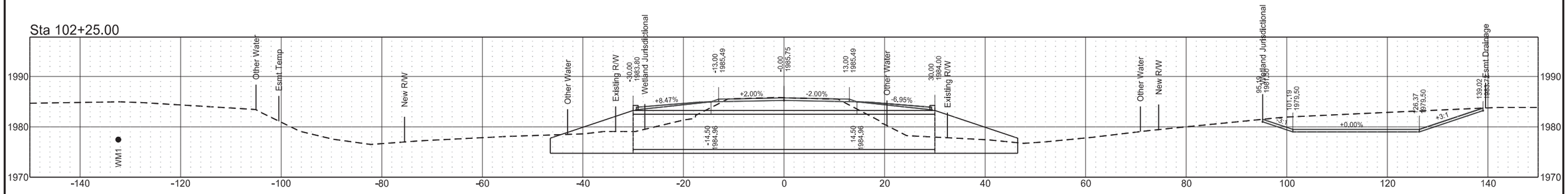
EXCAVATION & BACKFILL DETAIL

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	BRJ-0030(050)	200	1

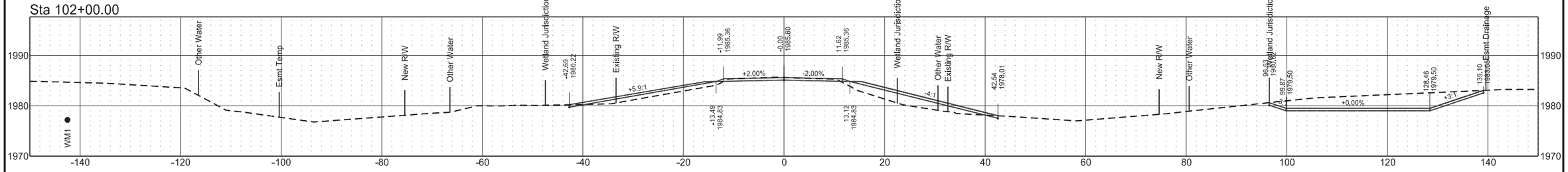


	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	BRJ-0030(050)	200	2

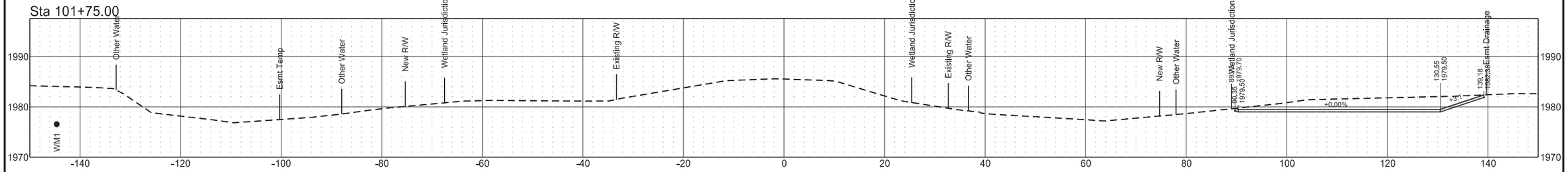
Sta 102+25.00



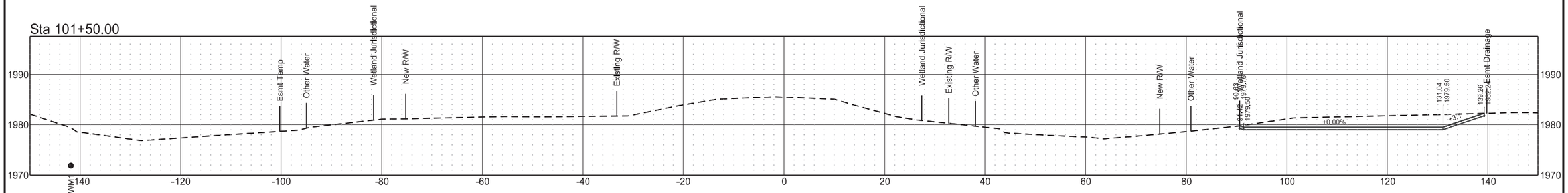
Sta 102+00.00



Sta 101+75.00

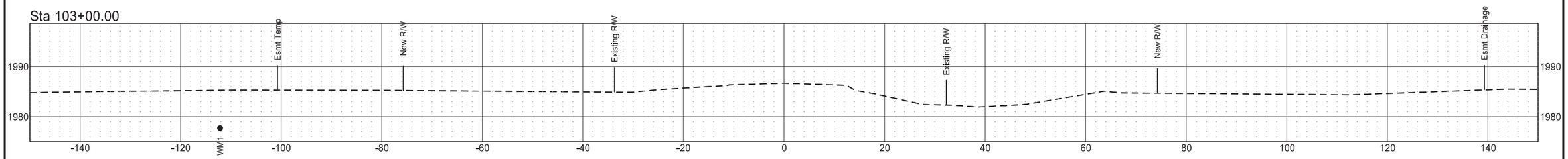


Sta 101+50.00

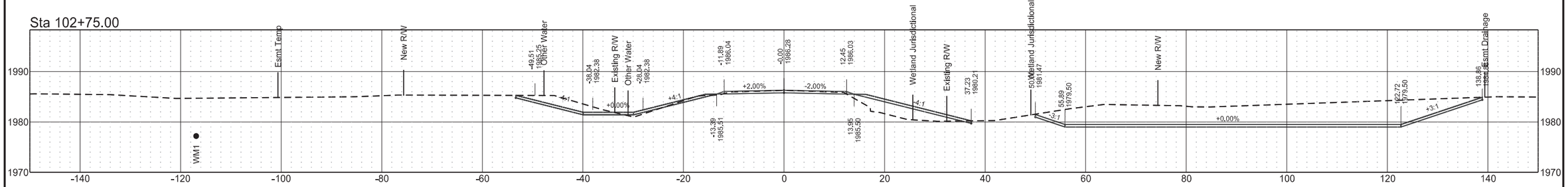


	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	BRJ-0030(050)	200	3

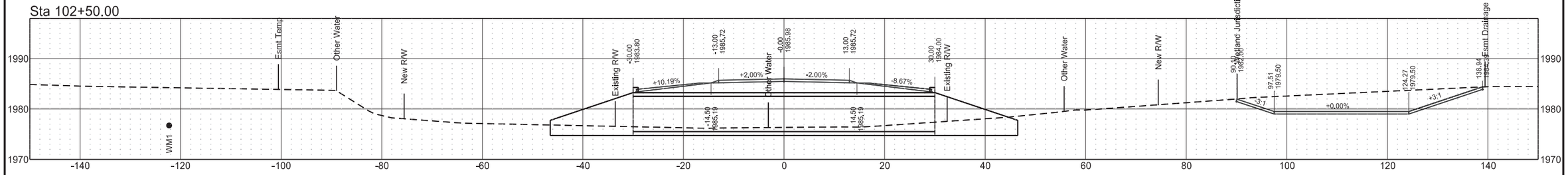
Sta 103+00.00



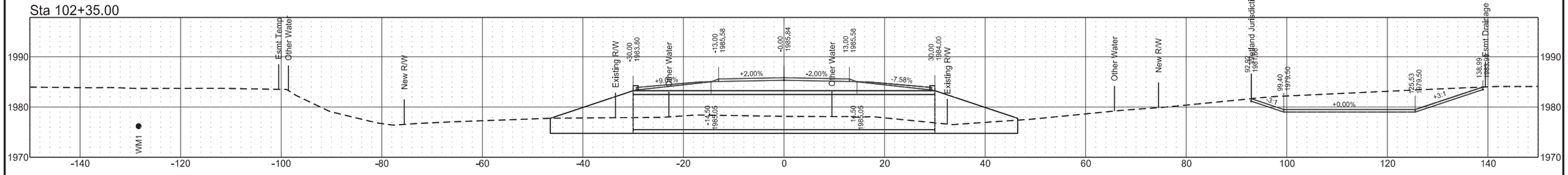
Sta 102+75.00



Sta 102+50.00

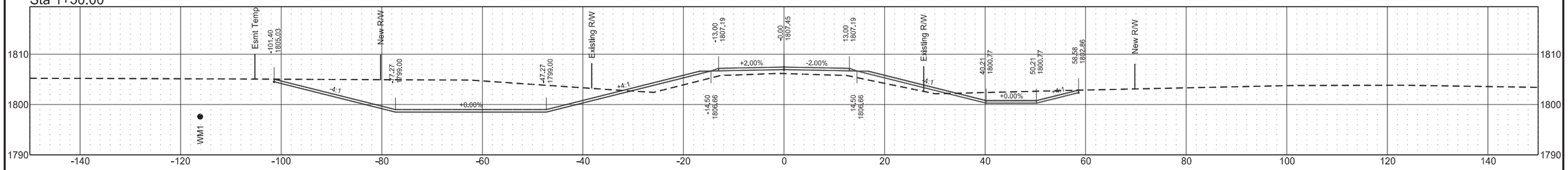


Sta 102+35.00



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	BRJ-0030(050)	200	4

Sta 1+50.00



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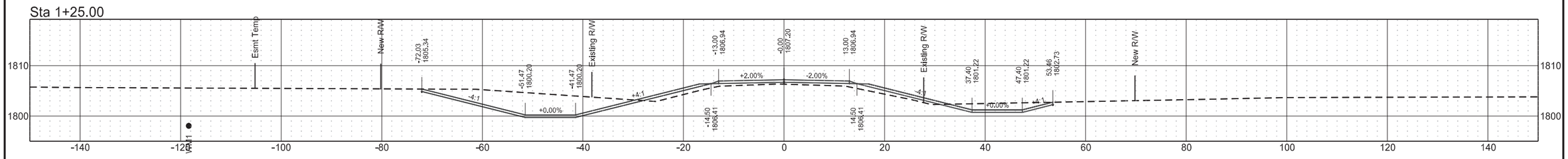

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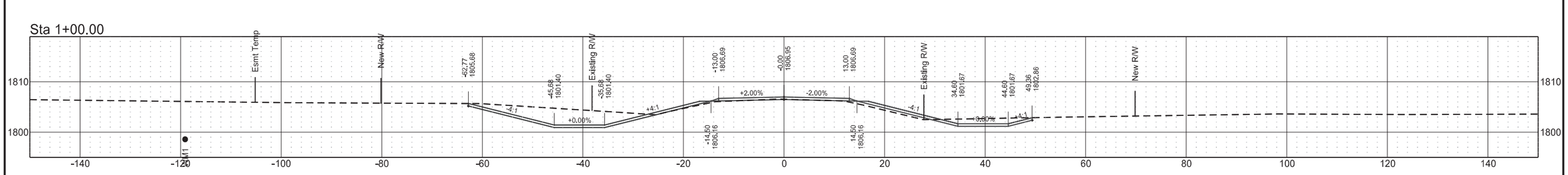

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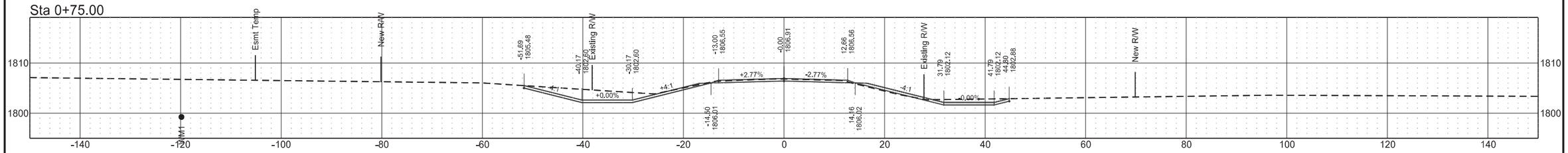

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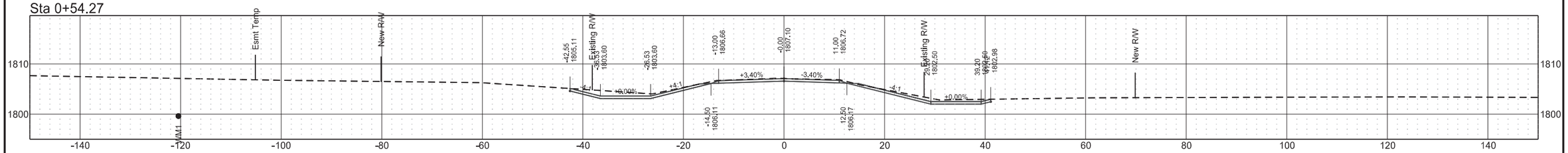

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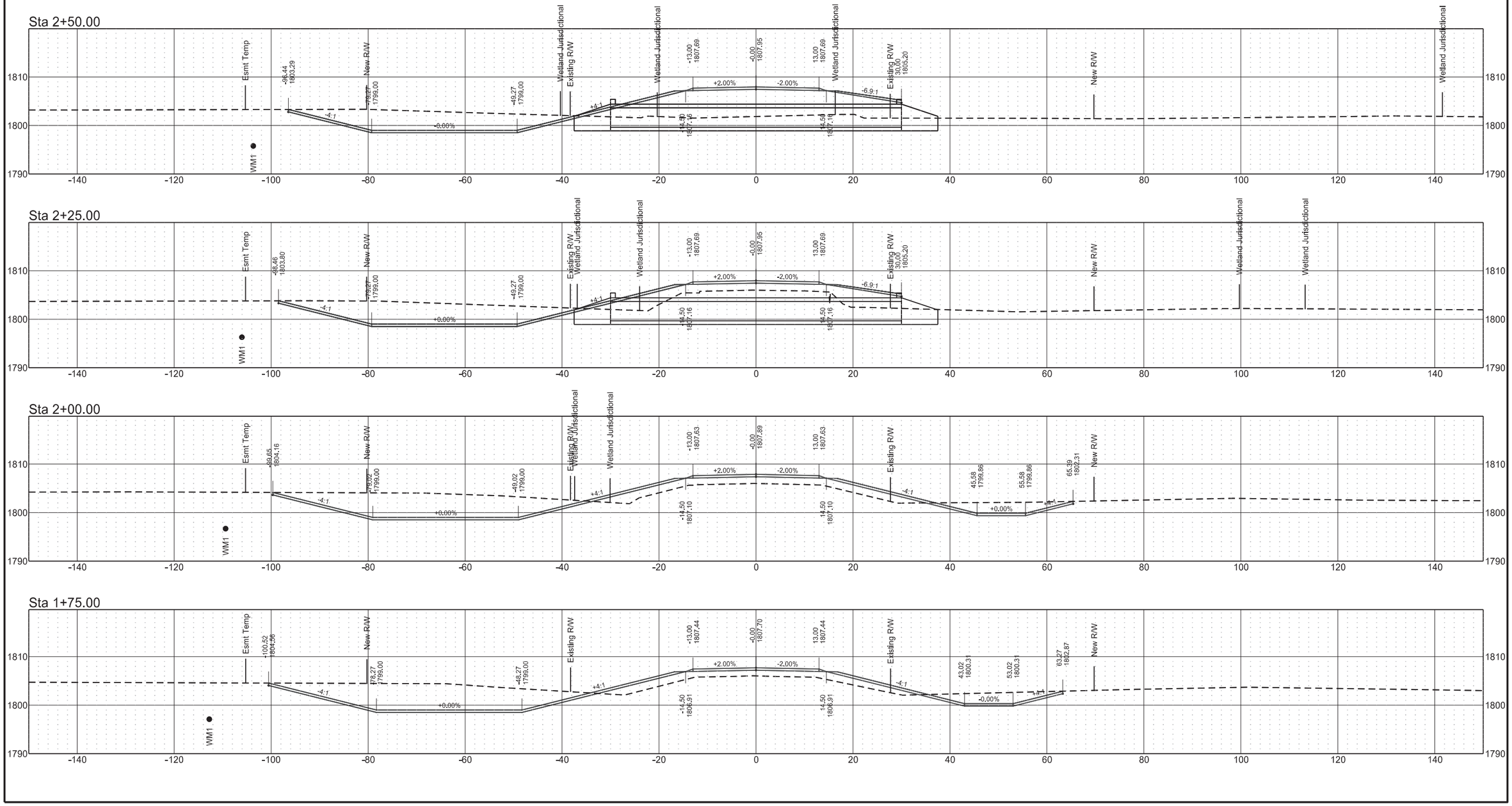
	ND	BRJ-0030(050)	200	5



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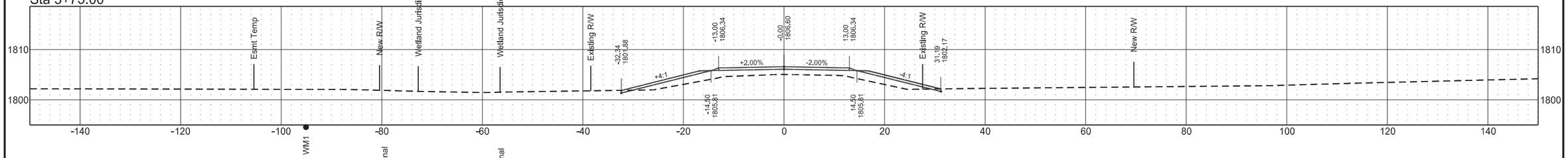
Sta 3+75.00



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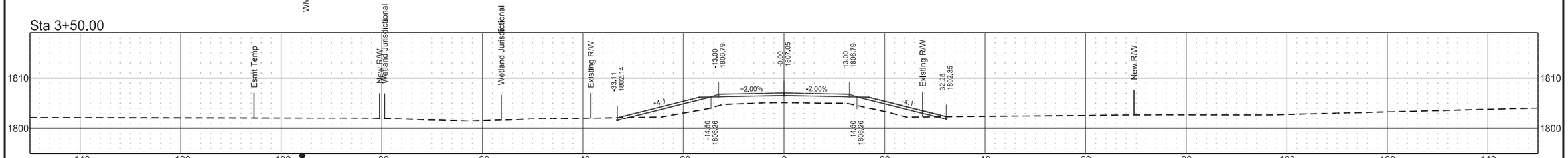

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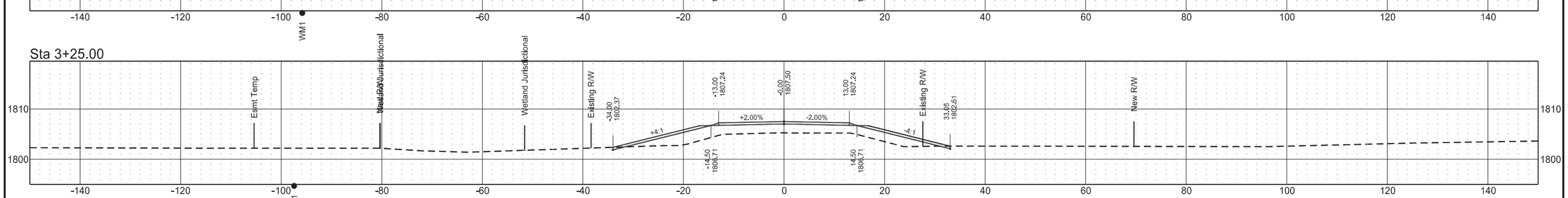

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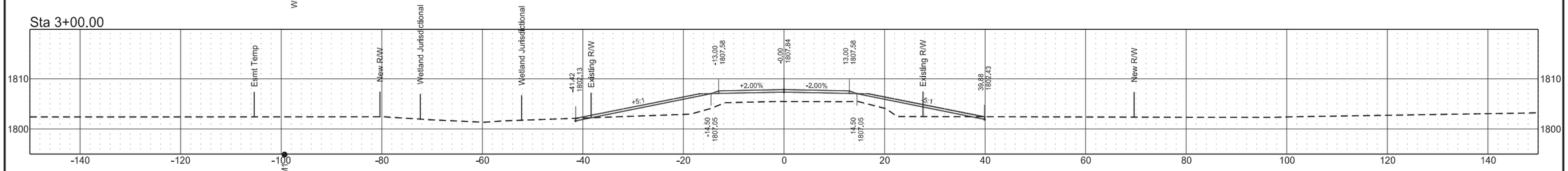

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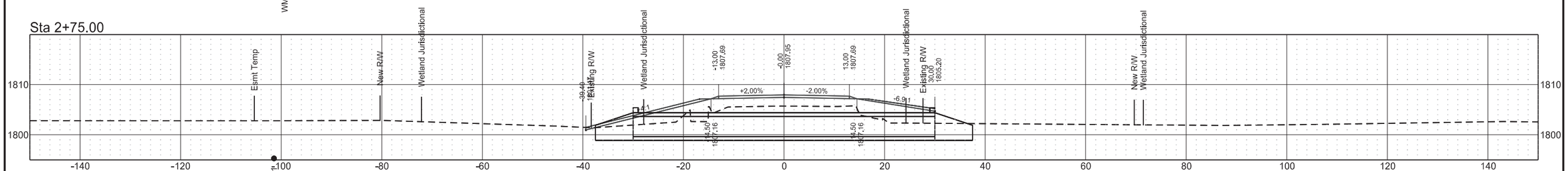
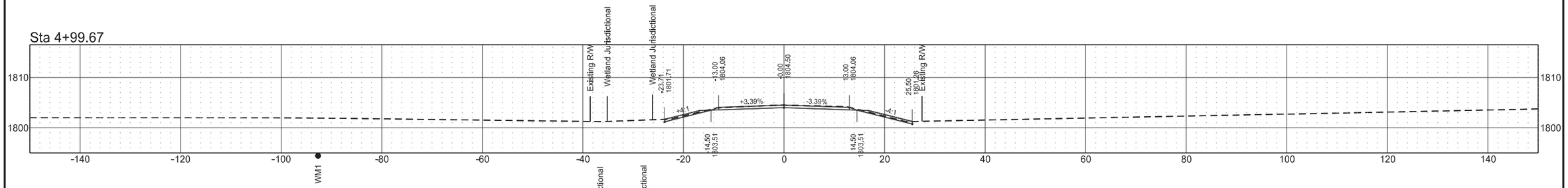


	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	BRJ-0030(050)	200	7

Sta 4+99.67



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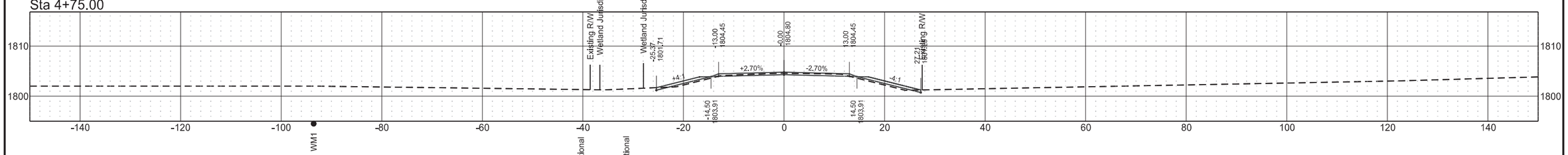

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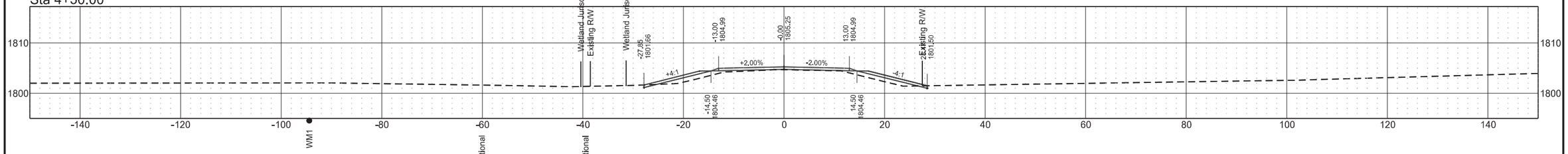

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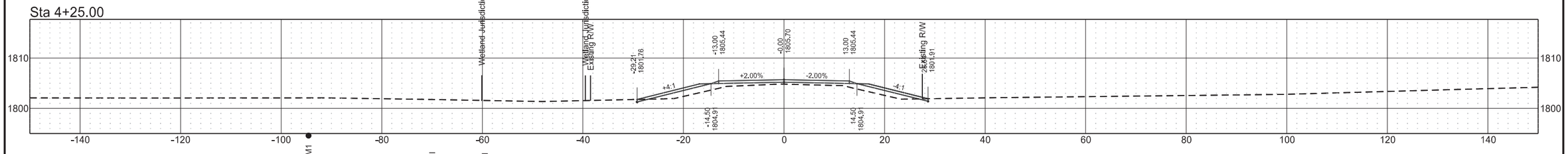

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