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SP 451(14)	Flexible Pavement Surface Tolerance
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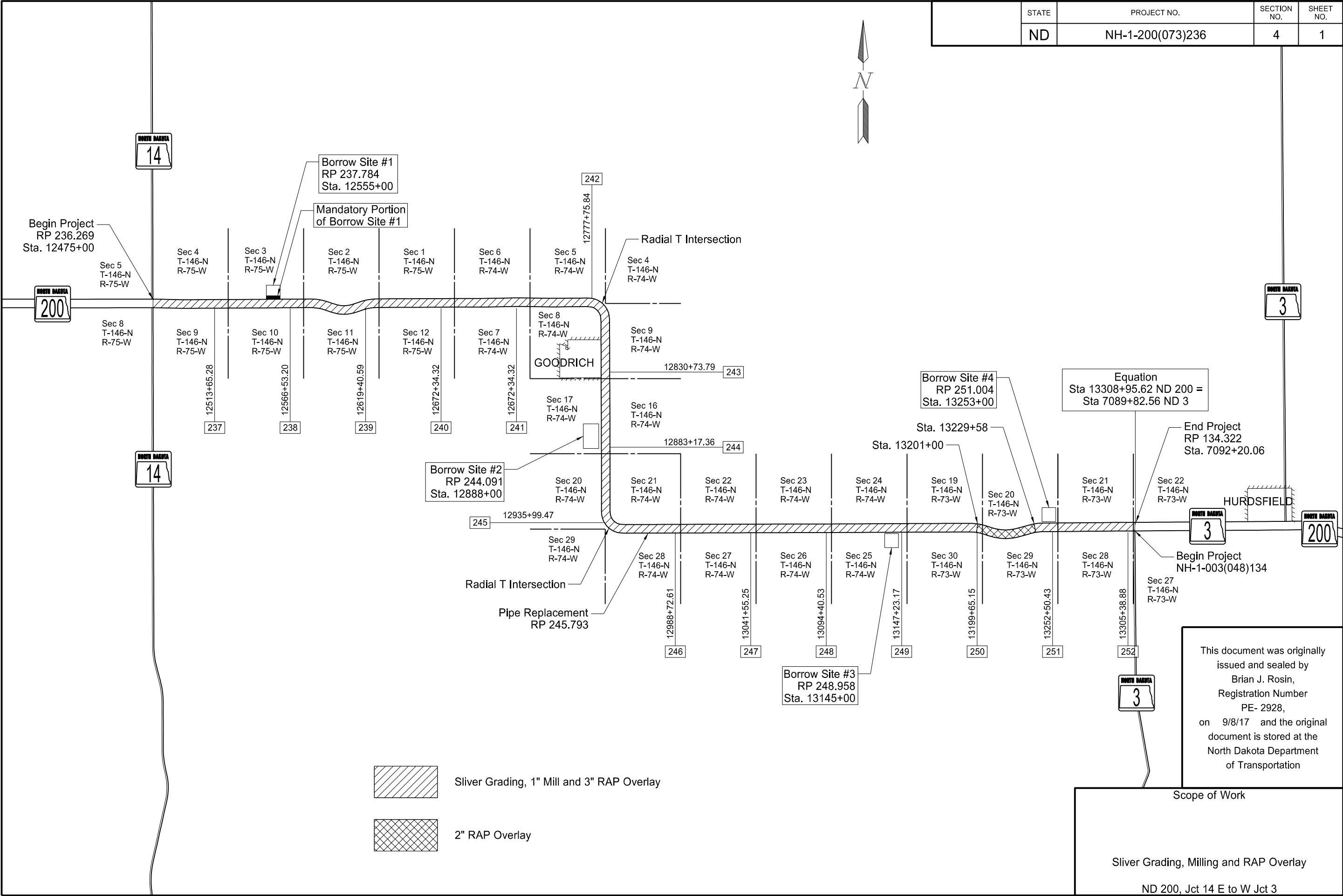
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NOTES

GENERAL NOTES

- 100-P01 COORDINATION OF PROJECTS: Other projects in the vicinity scheduled to be under contract during the 2018 construction season: NH-1-200(074)213 between Mercer and McClusky and NH-3-200(025)254 between Hurdsfield and Jct US 52.
- 107-P01 MAINTAINING TRAFFIC –DROP-OFFS: If, at the end of the work day, drop-offs greater than 2 inches and less than 18 inches or slopes steeper than 4:1 exist between the edge of a traffic lane and the outside edge of the proposed roadway, perform one of the following actions:
 - Construct a traversable wedge in the area of the drop-off or steep slope; or
 - Close the lane adjacent to the drop-off or steep slope and provide 24-hour flagging or pilot car operations.

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

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

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

The Engineer will not measure material used to construct the wedge. Include the cost of materials, equipment, labor, and incidentals required for this operation in the price bid for “Aggregate Base Course CI 5” or “Borrow-Excavation.”

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

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

202-P01 REMOVAL OF PAVEMENT: For the modification of intersections at Jct ND 200 and ND 3 (west intersection), and ND 200 and 2nd St. E. at Goodrich, include all costs to remove the existing pavement, reshape, and re-compact the aggregate slough in the unit price bid for “Removal of Bituminous Surfacing.” “Removal of Bituminous Surfacing” is paid at plan quantity.
- 202-P02 REMOVAL OF RIPRAP: In areas where riprap will be covered by the sliver grading, remove the riprap and dispose of it. Include all costs to remove and dispose of the existing riprap in the unit price bid for “Removal of Riprap-Loose Rock.” The following areas are included:

RP 239.210 to RP 239.400 Lt	8’ wide x 1000’ long	592 CY
RP 242.955 to RP 242.983 Lt	8’ wide x 150’ long	89 CY
RP 243.078 to RP 243.090 Rt	10’ wide x 60’ long	44 CY

202-P03 REMOVAL OF CONCRETE REVETMENT BLANKET: In areas where concrete revetment blanket will be covered by the sliver grading, remove the blanket and dispose of it. Include all costs to remove and dispose of the blanket in the unit price bid for “Removal of Riprap-Loose Rock.” The following locations are included:

RP 239.209 to RP 239.395 Lt	16’ wide x 982’ long	291 CY
RP 245.795 to RP 245.804 Lt	8’ wide x 50’ long	7 CY

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

203-P01 BORROW EXCAVATION: Furnish borrow needed to complete construction. The following locations along the backslope of Hwy 200 are borrow pit clues:

RP 236.07 to RP 236.20 LT Jct ND 14
RP 236.51 to RP 236.60 LT
RP 236.91 to RP 237.03 LT
RP 237.23 to RP 237.33 LT
RP 238.08 to RP 238.14 LT
RP 238.92 to RP 239.13 LT
RP 244.15 to RP 244.23 RT
RP 245.71 to RP 245.76 LT
RP 249.19 to RP 249.30 LT
RP 251.51 to RP 251.60 LT
RP 252.29 to RP 252.33 LT

These areas are located just outside of NDDOT Right of Way. Obtain Certificate of Approval on all borrow sites in accordance with Section 107.05 of the Standard Specifications. If using any of these locations, the backslopes in the ROW are also available as “Common Excavation-Type B”. Return backslopes to 3:1 slope or flatter and as dictated for utility locations. Do not operate earth-moving equipment (scraper hauled dirt) on the highway. The engineer will measure erosion control required for operation in the right-of-way at correlating unit bid prices. For these locations (except RP 244.15 to RP 244.23 RT), follow the requirements of the Mandatory Borrow Site.
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- 203-P02 COMPACTION AND DENSITY CONTROL: Compact material for the construction of the radial T intersections and for the centerline pipe replacement at Sta. 12979+60 as specified in Section 203.04 E.2, Compaction Control, Type A. Compact material for sliver grading as specified in Section 203.04 E.3, Compaction Control, Type B.
- 203-P03 MANDATORY BORROW SITE: The first 100' outside the right of way of borrow site #1 is the mandatory borrow portion of that site. The portion of borrow site #1 outside the mandatory area remains a Department Optioned Borrow Site. Remove mandatory borrow before using other borrow. Leave a minimum elevation at the right of way of 2' above the ditch bottom. Leave a maximum elevation at the right of way of 1' above the existing roadway centerline. Maintain the existing drainage pattern. Provide a backslope at the right of way between 4:1 and 3:1 (within the right of way.) The engineer will measure material removed from within the right of way at this location as "Common Excavation-Type B."
- 261-P01 TEMPORARY EROSION CONTROL: In widened areas, use the existing topsoil to create an earthen berm at the bottom of the foreslope. Use the earthen berm, along with the grass remaining in the ditch, fiber rolls, or silt fence as the temporary erosion control. Include all costs to create, maintain, and dismantle the berm in the unit price bid for "Topsoil".

Shape the berm uniformly to a 12" minimum height in such a way that it will not fail when pressure from stormwater is applied. When the foreslope reaches final grade, remove the earthen berm and spread the soil on the foreslope before the permanent seeding and mulching work begins. Place weirs intermittently as needed throughout the length of the berm to allow stormwater to drain through the berm. Restrict the weir widths to a maximum of 5 feet each and install fiber rolls across the weir on the downslope side of the berm. To create a weir during conditions that would allow stormwater to flow through immediately, install the fiber roll before the weir in the earthen berm. Include all costs for fiber rolls for this purpose in the "Fiber Rolls 12in" pay item; 100 LF provided.
- 261-P02 PERMANENT FIBER ROLLS: If fiber rolls are to remain on the project, use fiber rolls that are composed of netting that meets either of the following:
 - Plastic or natural fiber photodegradable netting that has a life expectancy between 12 to 24 months. If the photodegradable netting is plastic, the netting color must be either clear or green. Use no black plastic netting.
 - 100 percent biodegradable jute netting that has a life expectancy between 6 to 12 months.
- 262-P01 SILT CURTAIN: The quantity for Flotation Silt Curtain and Remove Flotation Silt Curtain shown on the quantity sheet are based on a 3 mile work area.

- 411-P01 MILLING: "Milling Pavement Surface" is paid at plan quantity. The quantity shown includes the entire length of the project, excluding Sta. 12978+10 to Sta. 12981+10 and Sta. 13201+00 to Sta. 13229+58, at a width of 24 feet, even when no milling is required for cross-slope correction. Other milling, such as transitions, is also included as detailed.
- 411-P02 MILLED MATERIAL: An estimated 15,684 Ton of milled material is available from the project; this would be enough for 25% RAP. Stockpile excess milled material not used on this project at the State owned pit in Denhoff; located on the north side of ND 200 at RP 234.400. Material will meet a maximum size of 1 ½", with 90% passing the 1" sieve. Upon stockpiling at the pit, the material becomes the property of the state.
- 704-P01 TRAFFIC CONTROL FOR BITUMINOUS PAVEMENT: Provide traffic control consisting of a temporary road closure, flagging, and a pilot car.

Traffic control device quantities are based on a 6 mile limitation and the list below. Provide additional devices at no additional cost to the Department.
 - 1. Standard D-704-15, layout A;
 - 2. Standard D-704-19, layout F;
 - 3. Standard D-704-20, layout G;
 - 4. Standard D-704-22, layout K;
 - 5. Standard D-704-24, layouts S;
 - 6. Standard D-704-26, layouts EE, GG, and KK;
 - 7. Standard D-704-30Place flaggers and traffic control devices as shown on Standard D-704-15, layout A at the Jct ND 3 when the lane closure spans across.

Twelve type III barricades and four R11-2-48 signs are included for tangential approach closures during the north and south radial T intersection construction.
- 704-P02 TRAFFIC CONTROL FOR PIPE REPLACEMENT: Bring traffic lanes even and open both lanes of traffic by end of the day at Sta. 12979+60 or continue flagging.
- 714-P01 PIPE CLEANOUT: Clean out all centerline and approach culverts designated in the plans for extension before extending them. When necessary, remove material 50 feet beyond the end of the pipe. Include the cost of cleaning the extended pipes in the price bid for the appropriate pipe bid item.
- 714-P02 CAP PIPE: Cap pipe ends on existing 12" CIP centerline pipe at Sta. 12978+48. Include all costs associated with capping the pipe in the unit price bid for "Plug Pipe-All Types & Sizes".

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- 714-P03 COFFERDAM/PIPE CONDUIT: The pipe conduit at Sta 12979+60 currently has invert elevations approximately 3’ below the elevation of the adjacent water bodies. If needed, place a cofferdam to aid in the installation of the pipe replacement. If placing a cofferdam in the adjacent water body, remove it to original contours.
- Include costs for construction, dewatering, removal, and disposal of the cofferdam in the price bid for “Pipe Conduit – 24 IN”.
- 754-P01 STOP SIGNS – REFLECTIVE STRIPS: Install 2 inch wide red reflective strips on the side of the support that faces the same direction as the stop sign.
- Use reflective material that meets the requirements of Section 894.02 E, “Type XI Retroreflective Sheeting”.
- Install the strips to all new STOP signs at stations:
Sta 12788+04 Lt
Sta 12939+57 Rt
- Include the cost of furnishing and installing retroreflective strips in the contract unit price for “Steel Galvanized Posts – Telescoping Perforated Tube”.
- 754-P02 CHEVRON SIGNS: Provide fluorescent yellow background with black legend for chevrons.
- 762-050 PAVEMENT MARKING: If the Engineer and Contractor agree, use plan quantity as the measurement for payment for pavement marking items.

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ENVIRONMENTAL NOTES

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

EN-1 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.

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ESTIMATE OF QUANTITIES

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SPEC	CODE	ITEM DESCRIPTION	UNIT	MAINLINE	TOTAL
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103	0100	CONTRACT BOND	L SUM	0.95	0.95
202	0132	REMOVAL OF BITUMINOUS SURFACING	SY	3,397	3,397
202	0169	REMOVAL OF END SECTION-ALL TYPES & SIZES	EA	31	31
202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES	LF	482	482
202	0400	REMOVAL OF RIPRAP - LOOSE ROCK	CY	1,023	1,023
203	0101	COMMON EXCAVATION-TYPE A	CY	17,133	17,133
203	0102	COMMON EXCAVATION-TYPE B	CY	3,825	3,825
203	0109	TOPSOIL	CY	98,292	98,292
203	0122	TOPSOIL-DEPT OPTION BORROW AREA	CY	82,102	82,102
203	0140	BORROW-EXCAVATION	CY	212,554	212,554
216	0100	WATER	M GAL	3,212	3,212
251	0200	SEEDING CLASS II	ACRE	178	178
251	2000	TEMPORARY COVER CROP	ACRE	178	178
253	0101	STRAW MULCH	ACRE	458	458
255	0102	ECB TYPE 2	SY	3,774	3,774
260	0200	SILT FENCE SUPPORTED	LF	22,094	22,094
260	0201	REMOVE SILT FENCE SUPPORTED	LF	22,094	22,094
261	0112	FIBER ROLLS 12IN	LF	135,695	135,695
261	0113	REMOVE FIBER ROLLS 12IN	LF	61,565	61,565
262	0100	FLOTATION SILT CURTAIN	LF	1,348	1,348
262	0101	REMOVE FLOTATION SILT CURTAIN	LF	1,348	1,348
265	0100	STABILIZED CONSTRUCTION ACCESS	EA	4	4
265	0101	REMOVE STABILIZED CONSTRUCTION ACCESS	EA	4	4
302	0120	AGGREGATE BASE COURSE CL 5	TON	32,627	32,627
401	0050	TACK COAT	GAL	26,776	26,776
401	0060	PRIME COAT	GAL	14,272	14,272
411	0105	MILLING PAVEMENT SURFACE	SY	217,027	217,027
430	0143	RAP - SUPERPAVE FAA 43	TON	47,459	47,459
430	1000	CORED SAMPLE	EA	361	361
430	5803	PG 58S-28 ASPHALT CEMENT	TON	2,040	2,040
702	0100	MOBILIZATION	L SUM	0.95	0.95
704	0100	FLAGGING	MHR	2,000	2,000
704	1000	TRAFFIC CONTROL SIGNS	UNIT	2,940	2,940

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SPEC CODE	ITEM DESCRIPTION	UNIT	MAINLINE	TOTAL
704	1052 TYPE III BARRICADE	EA	12	12
704	1060 DELINEATOR DRUMS	EA	16	16
704	1067 TUBULAR MARKERS	EA	352	352
704	1081 VERTICAL PANELS-BACK TO BACK	EA	63	63
704	1185 PILOT CAR	HR	1,000	1,000
706	0500 AGGREGATE LABORATORY	EA	0.95	0.95
706	0550 BITUMINOUS LABORATORY	EA	0.95	0.95
706	0600 CONTRACTOR'S LABORATORY	EA	0.95	0.95
709	0151 GEOSYNTHETIC MATERIAL TYPE R1	SY	300	300
714	0615 PIPE CONC REINF 24IN CL III	LF	584	584
714	0618 PIPE CONC REINF 24IN CL III-30DEG BEND	EA	1	1
714	0820 PIPE CONC REINF 30IN CL III	LF	192	192
714	3020 END SECT-CONC REINF 24IN	EA	3	3
714	4099 PIPE CONDUIT 18IN-APPROACH	LF	168	168
714	4105 PIPE CONDUIT 24IN	LF	179	179
714	4106 PIPE CONDUIT 24IN-APPROACH	LF	76	76
714	4113 PIPE CONDUIT 30IN-APPROACH	LF	161	161
714	4116 PIPE CONDUIT 36IN-APPROACH	LF	99	99
714	4122 PIPE CONDUIT 42IN-APPROACH	LF	96	96
714	5015 PIPE CORR STEEL .064IN 18IN	LF	1,038	1,038
714	5025 PIPE CORR STEEL .064IN 21IN	LF	22	22
714	5035 PIPE CORR STEEL .064IN 24IN	LF	84	84
714	5040 PIPE CORR STEEL .064IN 30IN	LF	36	36
714	5810 END SECT CORR STEEL .064IN 18IN	EA	25	25
714	9200 CATTLE PASS CONC INTERMED SECTION	LF	56	56
714	9660 REMOVE & RELAY END SECTION-ALL TYPE & SIZES	EA	132	132
714	9680 PLUG PIPE-ALL TYPES & SIZES	EA	1	1
720	0110 RIGHT OF WAY MARKERS	EA	113	113
720	0125 ALIGNMENT MONUMENTS	EA	43	43
720	0130 IRON PIN R/W MONUMENTS	EA	75	75
720	0135 IRON PIN REFERENCE MONUMENTS	EA	40	40
754	0110 FLAT SHEET FOR SIGNS-TYPE XI REFL SHEETING	SF	468	468
754	0112 FLAT SHEET FOR SIGNS-TYPE IV REFL SHEETING	SF	78	78

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SPEC CODE	ITEM DESCRIPTION	UNIT	MAINLINE	TOTAL
754	0206 STEEL GALV POSTS-TELESCOPING PERFORATED TUBE	LF	1,417	1,417
754	0563 REFERENCE MARKER-TYPE C	EA	16	16
754	0592 RESET SIGN PANEL	EA	32	32
754	0593 RESET SIGN SUPPORT	EA	3	3
754	0803 OBJECT MARKERS - TYPE III	EA	6	6
754	0805 OBJECT MARKERS - CULVERTS	EA	98	98
760	0005 RUMBLE STRIPS - ASPHALT SHOULDER	MILE	32	32
760	0007 RUMBLE STRIPS - ASPHALT CENTERLINE	MILE	16	16
762	0430 SHORT TERM 4IN LINE-TYPE NR	LF	250,027	250,027
762	1104 PVMT MK PAINTED 4IN LINE	LF	233,783	233,783
762	1108 PVMT MK PAINTED 8IN LINE	LF	61	61
762	1124 PVMT MK PAINTED 24IN LINE	LF	96	96
766	0100 MAILBOX-ALL TYPES	EA	5	5

		Sta. 12475+00 to Sta. 12619+45.88 Sta. 12638+51.63 to Sta. 12978+10.00 Sta. 12981+10.00 to Sta. 13149+01.40		Sta. 12619+45.88 to Sta. 12638+51.63		Sta. 12978+10.00 to Sta. 12981+10.00 (Pipe Replacement)		Sta. 13149+01.40 to Sta. 13201+00.00 Sta. 13229+58 to Sta. 13308+95.62 Bk= Sta. 7089+82.56 Ahd to Sta. 7092+20.06		Sta. 13201+00.00 to Sta. 13229+58.00	
		Total Stations = 652.81		Total Stations = 19.06		Total Stations = 2.15		Total Stations = 133.74		Total Stations = 28.58	
BID ITEM	UNIT	Width	Quantity per Station	Width	Quantity per Station	Width	Quantity per Station	Width	Quantity per Station	Width	Quantity per Station
		(ft)		(ft)		(ft)		(ft)		(ft)	
Milling Pavement Surface	SY	24	266.7	24	266.7	0	0.0	24	266.7	0	0.0
Aggregate Base Course Cl 5 @ 1.5 Ton/CY + 25%	TON	3' - 3'	25.0	3' - 3'	34.6	42.2	346.7	3' - 3'	41.4	3' - 3'	3.9
Prime Coat @ 0.25 Gal/SY	GAL	3' - 3'	16.7	3' - 3'	16.7	31.3	86.9	3' - 3'	16.7	0	0.0
Tack Coat @ 0.05 Gal/SY (1st Lift)	GAL	25.1	13.9	26.4	14.7	0	0.0	24.7	13.7	29.5	16.4
Tack Coat @ 0.05 Gal/SY (2nd Lift)	GAL	29.1	16.2	29.1	16.2	32.2	17.9	29.1	16.2	28.7	15.9
Tack Coat @ 0.05 Gal/SY (3rd Lift)	GAL	0	0.0	0	0.0	29	16.1	0	0.0	0	0.0
RAP - Superpave FAA 43 @ 2.0 Ton/CY	TON	28	53.9	28	53.9	28	82.3	28	53.9	28	35.5
PG 58S-28 Asphalt Cement @ 4.3%	TON	-	2.32	-	2.32	-	3.54	-	2.32	-	1.53

Short Term 4IN Line - Type NR			
Location	Basis	Quantity	
ND 200			
Centerline - Top of Milled Surface	Centerline Skips	19,347	LF
	Barrier Stripes	43,160	LF
Centerline - Top of 1st Lift	Centerline Skips	19,347	LF
	Barrier Stripes	43,160	LF
Centerline - Top of 2nd Lift	Centerline Skips	19,347	LF
	Barrier Stripes	43,160	LF
Centerline - Top of Fogged CL Mill	Centerline Skips	19,347	LF
	Barrier Stripes	43,160	LF

Permanent Pavement Marking				
Location - Type		Basis	Quantity	
ND 200				
Centerline - Pvmt MK 4IN Line		Centerline Skips	19,347	LF
		Barrier Stripes	43,160	LF
Edge Line - Pvmt MK 4IN Line		Edge Line	166,775	LF
North Radial T				
Stop Bars - Pvmt MK 24IN Line		Stop Bars	42	LF
Dbl Barrier Stripe 4 IN Line - Pvmt MK 4 IN Line		Barrier Stripe	430	LF
Edge Line - Pvmt MK 4IN Line		Edge Line	860	LF
South Radial T				
Stop Bars - Pvmt MK 24IN Line		Stop Bars	42	LF
Dbl Barrier Stripe 4 IN Line - Pvmt MK 4 IN Line		Barrier Stripe	430	LF
Edge Line - Pvmt MK 4IN Line		Edge Line	860	LF
ND 3 Intersection				
Stop Bar - Pvmt MK 24IN Line		Stop Bar	12	LF
Dbl Barrier Stripe 4 IN Line - Pvmt MK 4 IN Line		Barrier Stripes	135	LF
Barrier Stripe 4 IN Line - Pvmt MK 4 IN Line		Barrier Stripes	1,382	LF
Edge Line - Pvmt MK 4IN Line		Edge Line	404	LF
8 IN Line - Pvmt MK 8 IN Line		Diagonal, 10' Spacing, 45°	61	LF

HMA Cored Samples							
ND 200							
	A	B	C	D			
Specification Section	Distance (Ft)/2000	Lanes	Lifts	Sublots (A x B x C)	Quantity (D x 2)	Quantity (1 per mile)	Unit
430.04 I.2.b(1), "General"	42	2	2	168	336	N/A	EA
430.04 I.2.b(2), "Pavement Thickness Determination Cores"					N/A	16	EA
North Radial T Intersection							
430.04 I.2.b(1), "General"	1	2	2	4	8	N/A	EA
430.04 I.2.b(2), "Pavement Thickness Determination Cores"					N/A	1	EA
Total					344	17	EA

Mailboxes		
Station:	Type:	Work:
12837+68 - RT	Double	Replace
12837+70 - RT	Double	Replace
13100+99 - RT	Double	Replace
13157+96 - RT	Single	Replace
13287+52 - LT	Single	Replace

Rumble Strips
Centerline 16 Miles
Shoulder 32 Miles

Water
25 MGal/Mile for Dust Palliative
20 Gal/Ton for Aggregates
10 Gal/CY for Embankment

	Topsoil-Dept Option Borrow Area	Straw Mulch	Silt Fence Supported
	CY	ACRE	LF
Borrow Site #1	16667	20.661	3800
Borrow Site #2	16204	20.087	3900
Borrow Site #3	16819	20.851	3830
Borrow Site #4	32413	40.181	5300

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Basis of Estimate

Sliver Grading, Milling and RAP Overlay

ND 200, Jct 14 E to W Jct 3

Approaches						
RP	Lt/Rt	Paved Section Line	Gravel Section Line	Paved Private Drive	Gravel Private Drive	Field Drive
236.55	Lt					1
236.55	Rt				1	
236.7	Lt					1
236.7	Rt					1
236.91	Rt					1
237.22	Rt					1
237.22	Lt					1
237.39	Rt					1
237.71	Lt					1
238.22	Lt		1			
238.22	Rt		1			
238.35	Lt					1
238.67	Lt					1
238.67	Rt					1
238.86	Lt					1
238.86	Rt					1
239.11	Lt					1
239.11	Rt					1
239.66	Lt				1	
239.66	Rt					1
239.69	Lt					1
239.95	Rt					1
240.09	Lt					1
240.24	Lt		1			
240.24	Rt		1			
240.31	Lt					1
240.42	Rt					1
240.42	Lt					1
240.63	Lt				1	
241.08	Rt					1
241.22	Lt		1			
241.22	Rt					1
241.57	Lt					1
241.73	Lt					1
241.73	Rt		1			
242.36	Rt					1
242.36	Lt					1
242.5	Lt				1	
242.56	Lt			1		
242.66	Rt		1			
242.74	Rt		1			
242.85	Rt				1	
242.85	Lt					1
242.87	Lt					1
242.98	Rt	1				
243.12	Rt					1
243.12	Lt		1			
243.37	Lt					1
243.37	Rt					1
243.55	Lt					1
243.75	Lt				1	
243.96	Rt					1
244.13	Lt					1
244.13	Rt				1	

Approaches						
RP	Lt/Rt	Paved Section Line	Gravel Section Line	Paved Private Drive	Gravel Private Drive	Field Drive
244.2	Lt					1
244.2	Rt					1
244.41	Rt					1
244.85	Rt					1
244.91	Lt				1	
245.32	Lt					1
245.32	Rt				1	
245.54	Lt					1
245.68	Lt					1
245.68	Rt					1
246.04	Lt					1
246.04	Rt		1			
246.09	Lt				1	
246.16	Lt					1
246.16	Rt					1
246.54	Lt					1
246.54	Rt					1
246.81	Lt					1
246.81	Rt					1
247.05	Lt		1			
247.05	Rt		1			
247.27	Lt					1
247.41	Rt				1	
247.55	Lt					1
247.64	Rt					1
248.04	Rt					1
248.04	Lt					1
248.11	Rt				1	
248.46	Rt					1
248.46	Lt					1
249.05	Lt		1			
249.05	Rt					1
249.19	Rt				1	
249.19	Lt					1
249.54	Lt					1
249.54	Rt					1
250.04	Lt					1
250.04	Rt					1
250.55	Lt				1	
250.55	Rt					1
251.04	Lt		1			
251.04	Rt					1
251.29	Rt					1
251.54	Lt					1
251.64	Lt				1	
251.7	Rt				1	
251.72	Lt					1

Culvert Markers	
Station:	#
12478+25	2
12504+35	2
12521+10	2
12526+09	2
12545+67	2
12551+42	2
12562+67	2
12567+58	2
12577+52	2
12580+68	2
12593+58	2
12601+22	2
12607+63	2
12633+16	2
12664+56	2
12682+55	2
12706+47	2
12735+55	2
12754+61	2
12800+28	2
12809+82	2
12822+07	2
12832+83	2
12837+94	2
12856+09	2
12866+83	2
12897+92	2
12922+61	2
12934+89	2
12939+91	2
12978+49	2
12992+19	2
13017+32	2
13024+91	2
13032+32	2
13042+33	2
13084+27	2
13106+70	2
13129+85	2
13137+85	2
13150+57	2
13167+07	2
13186+05	2
13195+33	2
13247+57	2
13264+23	2
13277+32	2
13288+61	2
13303+63	2
Total	98

Centerline Barrier Stripe Locations				
Station		Station	Direction	Length
12473+40	to	12482+00	WB	860
12482+00		12494+00	DBL	1200
12494+00		12502+00	WB	800
12502+00		12505+50	DBL	350
12505+50		12509+50	EB	400
12513+00		12521+00	WB	800
12521+50		12532+00	EB	1050
12532+00		12536+00	DBL	400
12536+00		12547+00	WB	1100
12611+00		12617+50	EB	650
12621+00		12629+00	WB	800
12640+00		12650+00	EB	1000
12650+00		12652+00	DBL	200
12652+00		12662+00	WB	1000
12666+00		12671+00	EB	500
12675+00		12682+50	WB	750
12811+00		12821+00	EB	1000
12822+00		12832+00	WB	1000
12839+00		12849+00	EB	1000
12850+00		12860+00	WB	1000
12870+00		12879+00	EB	900
12880+00		12890+50	WB	1050
12924+00		12930+00	EB	600
12935+00		12941+00	WB	600
12945+50		12956+00	EB	1050
12956+00		12961+00	DBL	500
12961+00		12972+00	WB	1100
12996+00		13007+00	EB	1100
13007+00		13008+50	DBL	150
13008+50		13019+00	WB	1050
13050+00		13056+00	EB	600
13061+00		13067+00	WB	600
13091+00		13096+00	EB	500
13103+00		13107+00	WB	400
13108+00		13118+00	EB	1000
13118+00		13123+00	DBL	500
13123+00		13134+00	WB	1100
13151+00		13161+00	EB	1000
13161+00		13172+00	DBL	1100
13172+00		13183+00	WB	1100
13229+00		13239+00	EB	1000
13240+00		13250+00	WB	1000
13276+00		13287+00	EB	1100
13287+00		13303+00	DBL	1600
13303+00		13309+00	EB	600

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Basis of Estimate

Sliver Grading, Milling and RAP Overlay

ND 200, Jct 14 E to W Jct 3

EARTHWORK SUMMARY

Location	203-0101 COMMON EXCAVATION - TYPE A	203-0102 COMMON EXCAVATION - TYPE B	EMBANKMENT	203-0140 BORROW EXCAVATION
	Pay Item	Pay Item		Pay Item
	(CY)	(CY)	(CY)	(CY)
	A	B	C	D = C - (A+B)
ND 200 Sliver Grading				
Sta. 12475+00 to Sta. 13201+00 and Sta. 13229+58 to Sta. 7092+20.06	0	3,825	209,981	206,156
North Radial T Connection				
Proposed North Radial T Connection	3,349	0	9,157	5,808
Proposed North Recovery Approach	0	0	218	218
Removal of Existing 20th Ave NE	3,850	0	0	-3,850
Removal of Existing 5th St NE	2,226	0	0	-2,226
South Radial T Connection				
Proposed South Radial T Connection	485	0	13,723	13,238
Proposed South Recovery Approach	0	0	433	433
Removal of Existing 20th Ave NE	6,152	0	0	-6,152
Removal of Existing 5th St NE	1,071	0	0	-1,071
TOTAL	17,133	3,825	233,512	212,554

NOTES:
1. This computation report is not a balance sheet. The Contractor will calculate his own balance of materials.
2. An additional volume of 25% to allow for shrinkage is included in all embankment quantities.

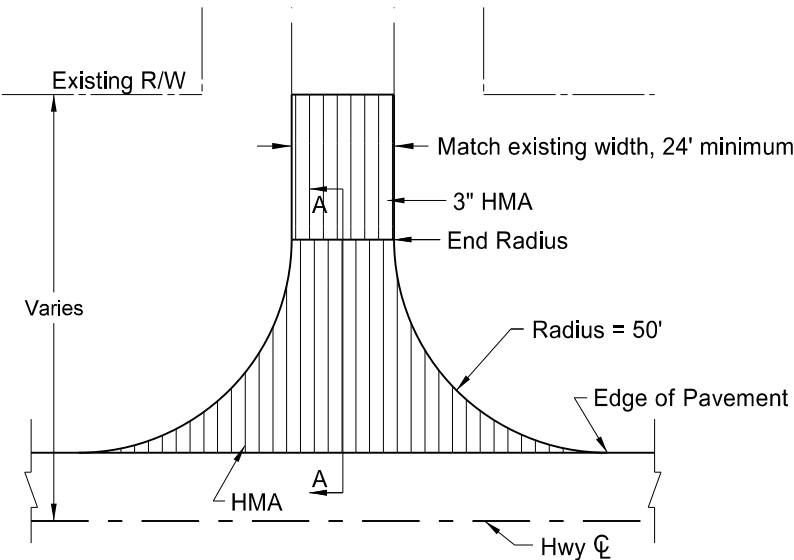
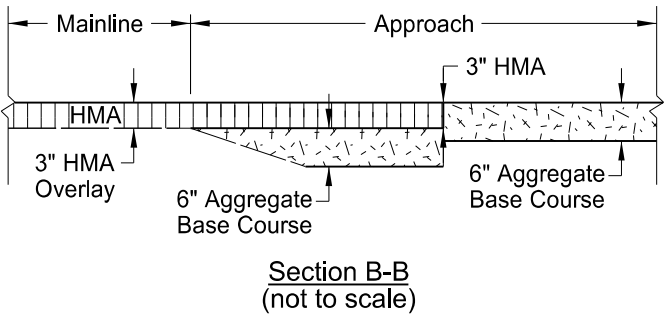
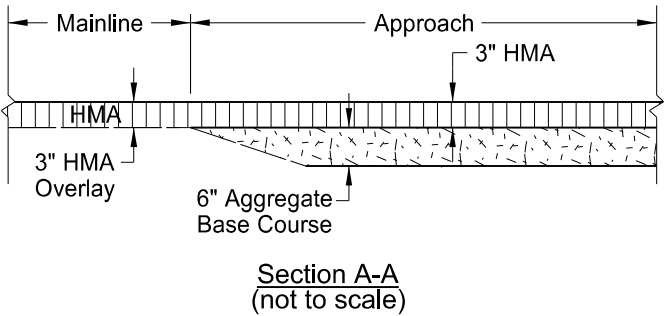
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Earthwork Summary

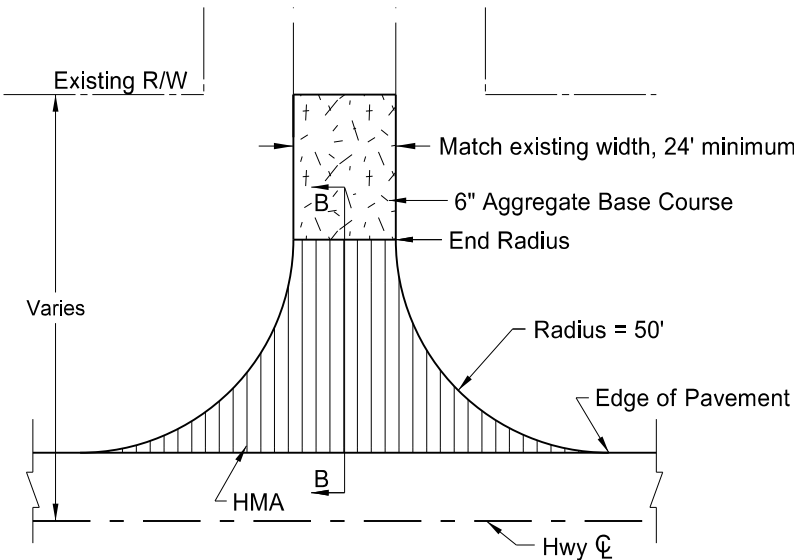
Sliver Grading, Milling and RAP Overlay

ND 200, Jct 14 E to W Jct 3

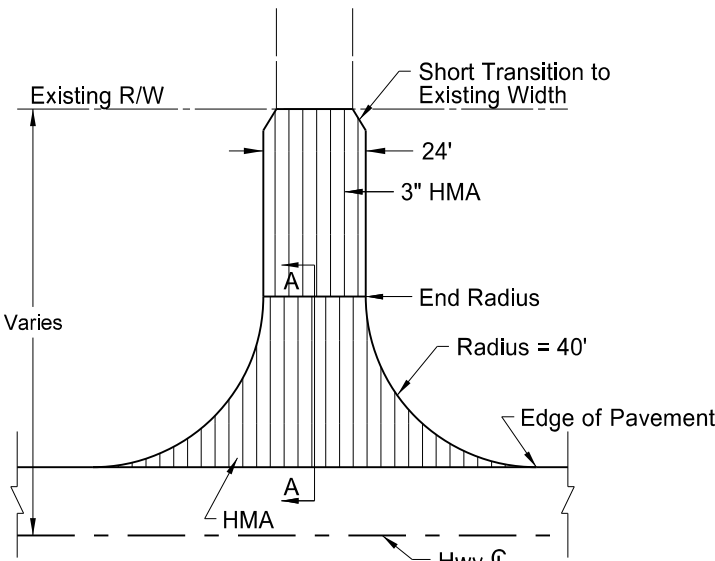
- Notes:
- Actual HMA paving and aggregate base course locations may vary in the field, as approved by the Engineer.
 - Quantity totals have been included in the bid items of the "Estimate of Quantities" of the plans.



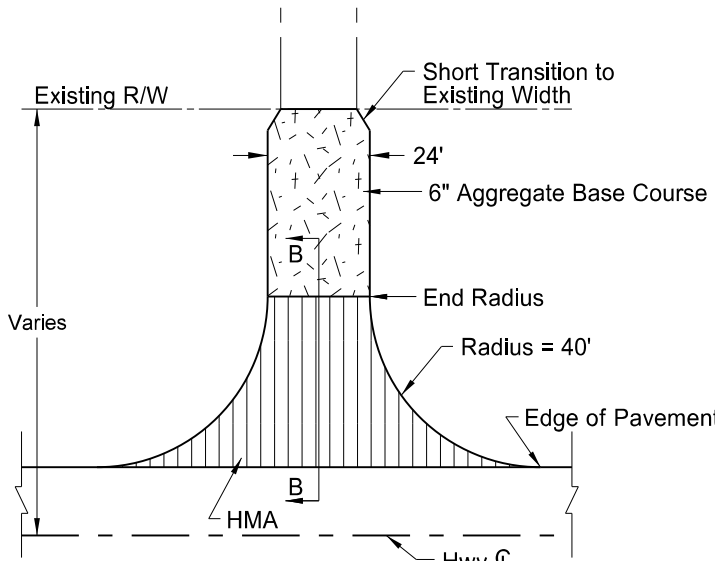
(1) Paved Section Line, County Road, or Street Approach



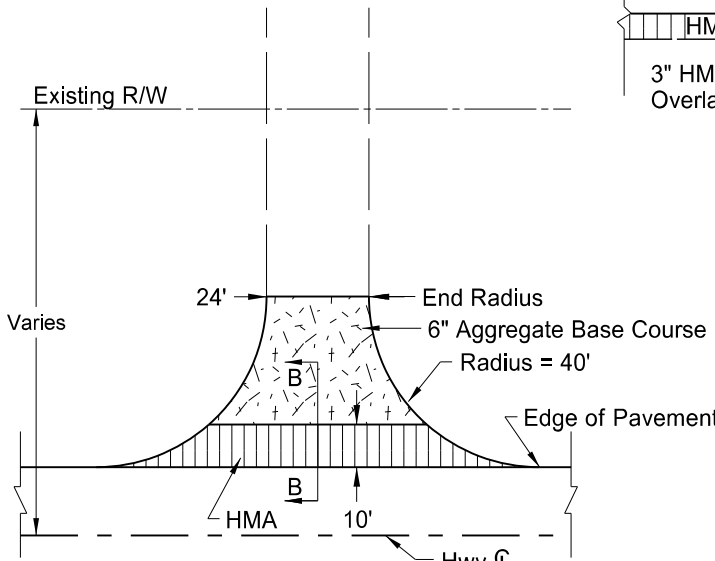
(2) Gravel Section Line, County Road, or Street Approach



(3) Paved Private Drive Approach



(4) Gravel Private Drive Approach



(5) Field Drive Approach

BASIS OF ESTIMATE		(1)	(2)	(3)	(4)	(5)	TOTALS
ITEM	UNIT	Paved Section Line	Gravel Section Line	Paved Private Drive	Gravel Private Drive	Field Drive	
Number of Locations	#	1	14	1	16	69	101
Aggregate Base Course CL 5	TON	0	107.3	93.3	93.3	57.2	7034.2
Tack Coat	GAL	34.3	25.3	29.9	18.3	7.5	1230.4
Superpave FAA 43	TON	57.2	42.1	49.8	30.5	12.6	2050.6
PG 58S-28 Asphalt Cement	TON	2.5	1.8	2.1	1.3	0.5	88.2

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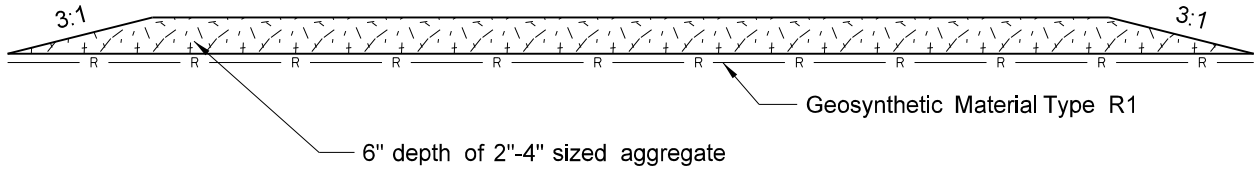
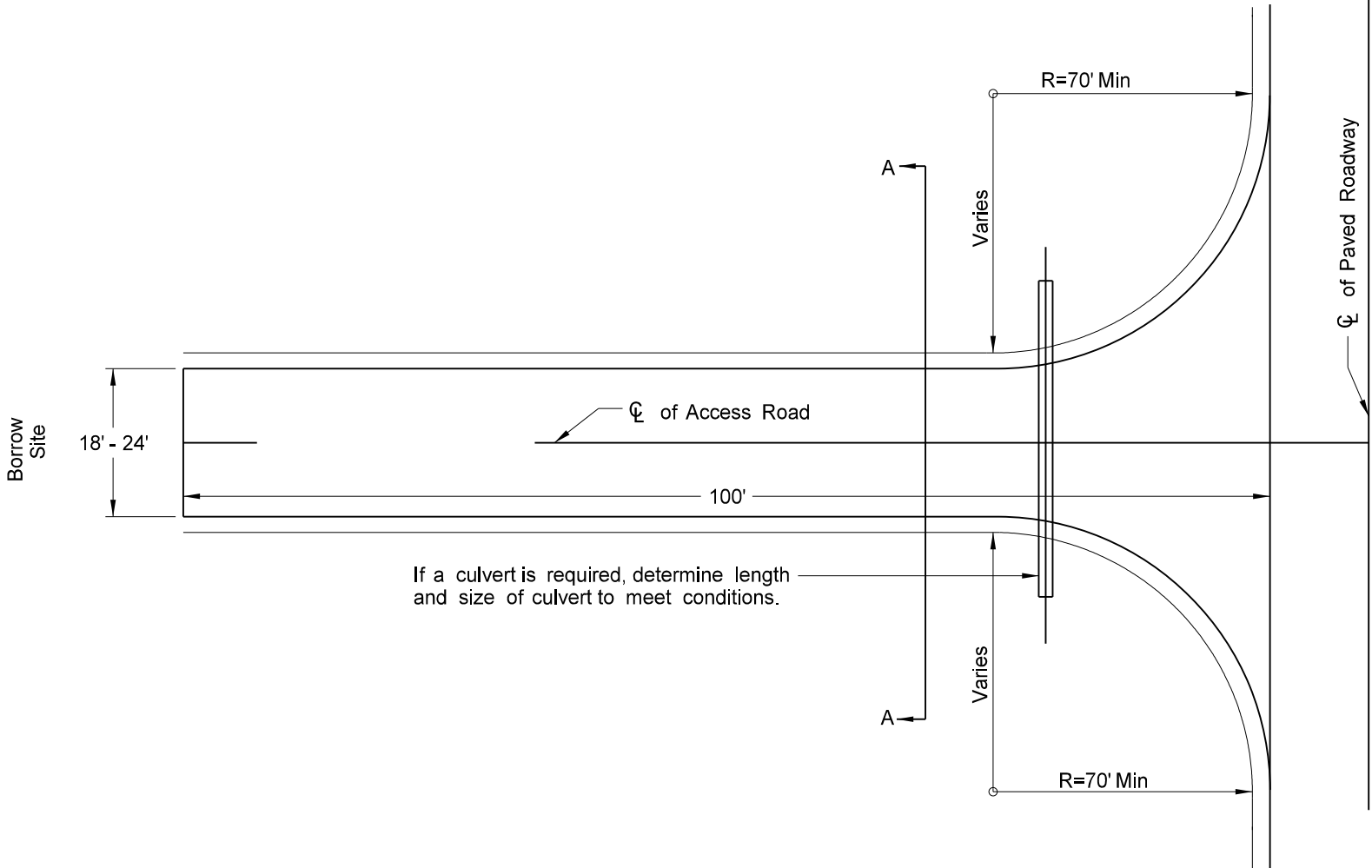
Approach Paving Details for
New or Regrading Rural Approaches

Sliver Grading, Milling and RAP Overlay

ND 200, Jct 14 to W Jct 3

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-1-200(073)236	20	2

SPEC	CODE	BID ITEM	UNIT	QUANTITY
265	0100	Stabilized Construction Access		
		Borrow Site #1	EA	1
		Borrow Site #2	EA	1
		Borrow Site #3	EA	1
		Borrow Site #4	EA	1
265	0101	Remove Stabilized Construction Access		
		Borrow Site #1	EA	1
		Borrow Site #2	EA	1
		Borrow Site #3	EA	1
		Borrow Site #4	EA	1



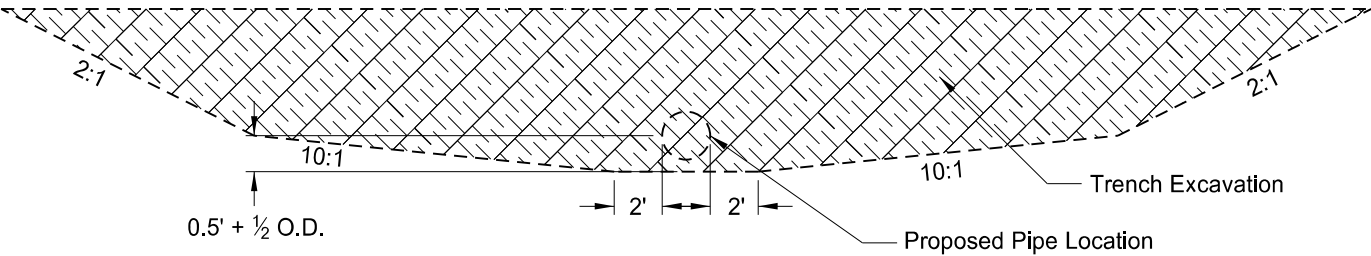
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Stabilized Construction Access

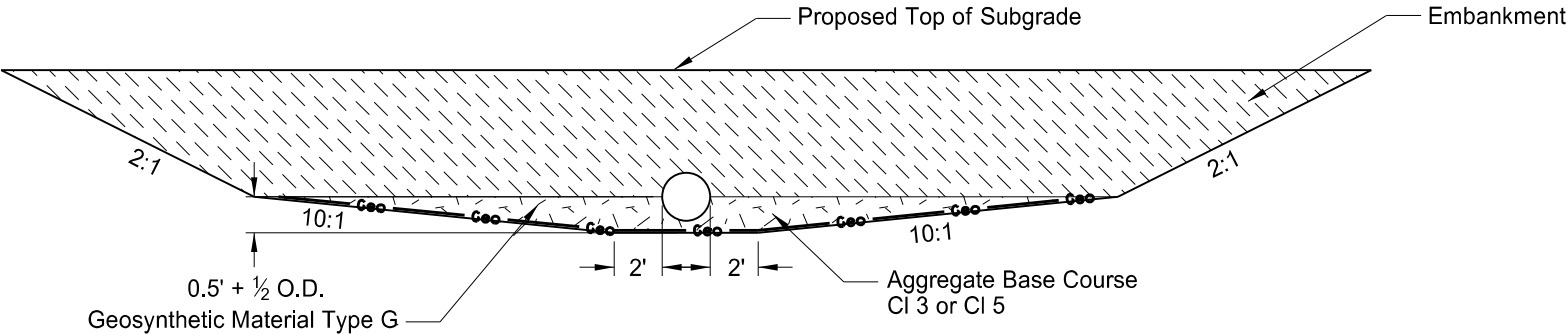
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ND 200, Jct 14 E to W Jct 3

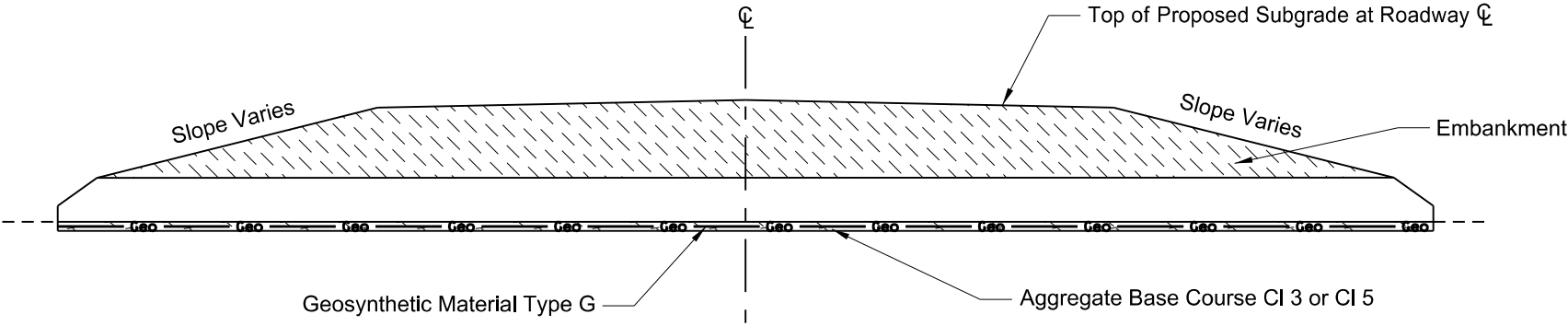
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-1-200(073)236	20	3



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 CI 3 or CI 5
 - 4) Embankment

NOTES:

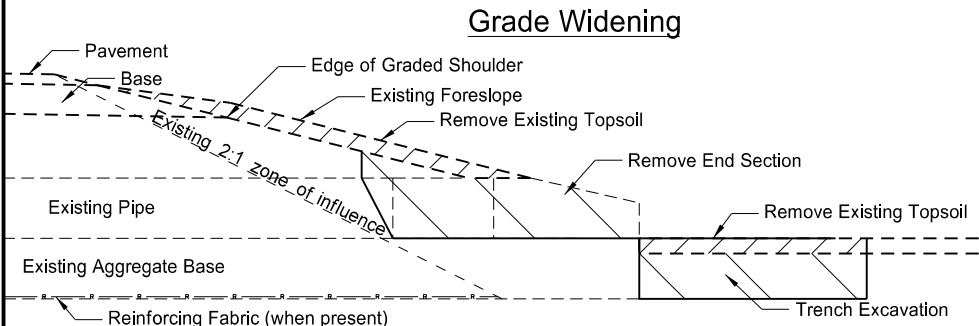
1) Embankment may be either Borrow Excavation or Common Excavation - Type A. Borrow Excavation is required to have a Group and Subgroup Classification the same as the excavated material as defined by AASHTO M 145. Common Excavation - Type A is required to be the material excavated during trench excavation.

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Pipe Backfill Detail
for Centerline Pipes

Sliver grading, Milling and RAP Overlay

ND 200, Jct 14 E to W Jct 3



Removal Section

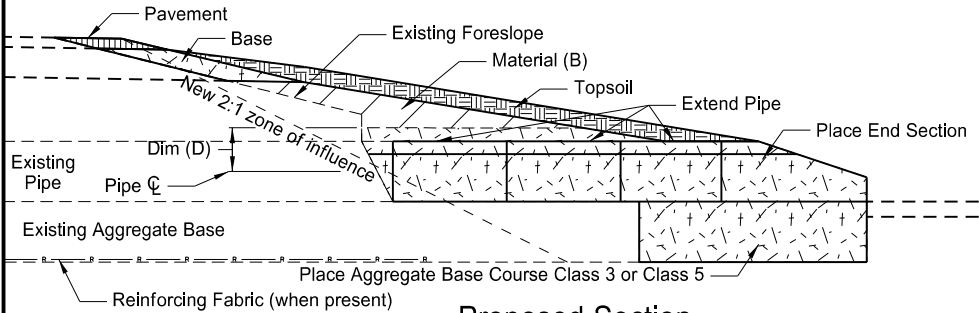
Cross Section View

Pay Items

- 1) Pipe*
- 2) Remove & Relay Pipe - All Types & Sizes (when required)
- 3) Remove & Reset End Section or new End Section
- 4) Borrow Excavation (Compaction Control Type A) or Common Excavation-Type A
- 5) Topsoil
- 6) Seeding
- 7) Mulching

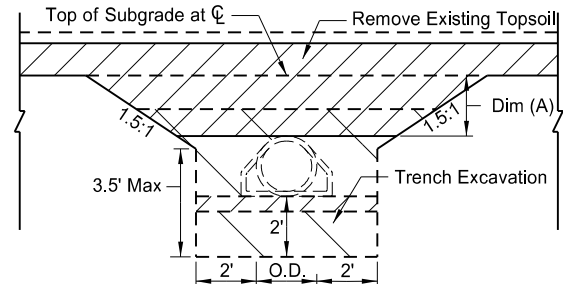
*Included in Pipe Pay Item

- 1) Pipe
- 2) Trench excavation
- 3) Aggregate Base Course Class 3 or Class 5



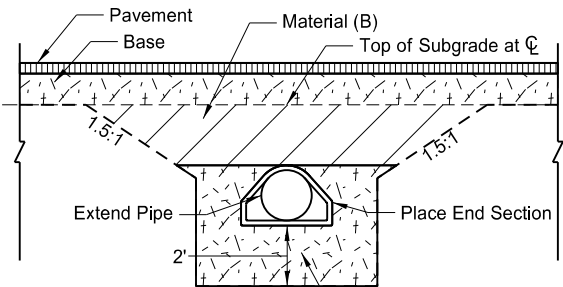
Proposed Section

Cross Section View



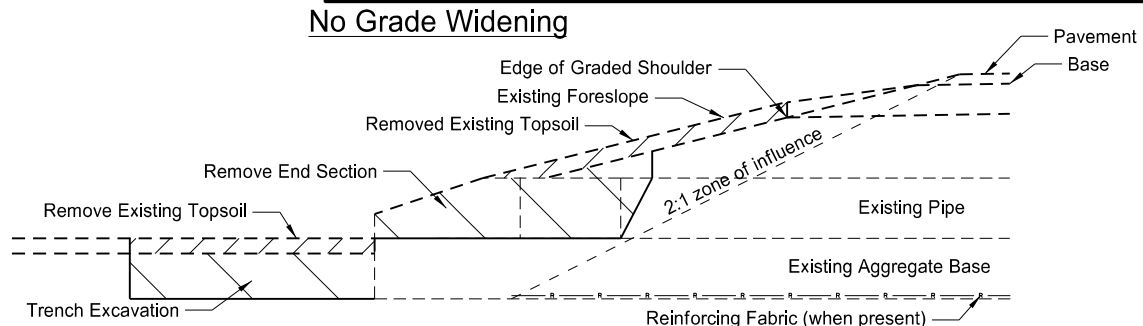
Removal Detail

Side View



Backfill Detail

Side View (Topsoil not shown)



Removal Section

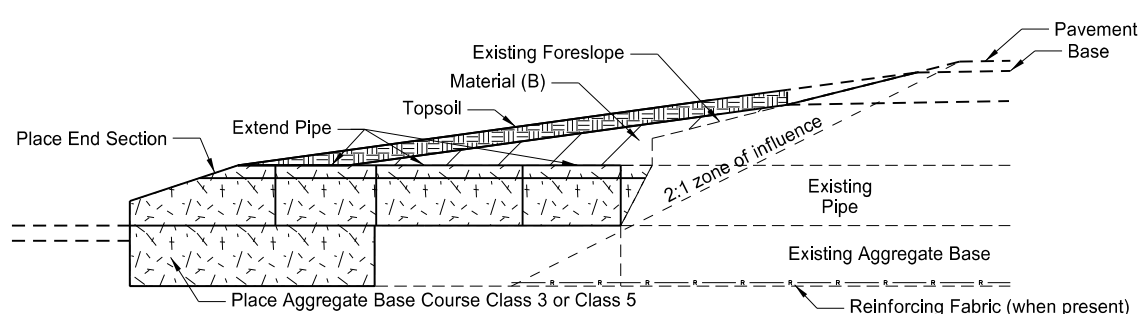
Cross Section View

Pay Items

- 1) Pipe*
- 2) Remove & Reset End Section or Remove End Section and Place New End Section

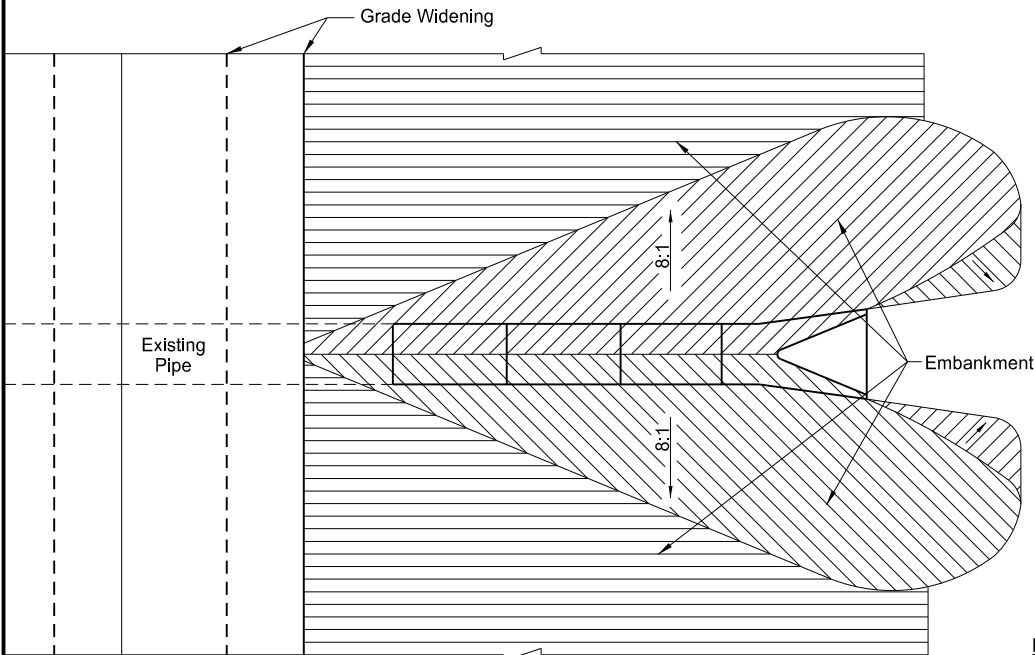
*Included in Pipe Pay Item

- 1) Pipe
- 2) Trench excavation
- 3) Aggregate Base Course Class 3 or Class 5
- 4) Embankment (Compaction Control Type A)
- 5) Topsoil
- 6) Seeding
- 7) Mulch



Proposed Section

Cross Section View



Proposed Section

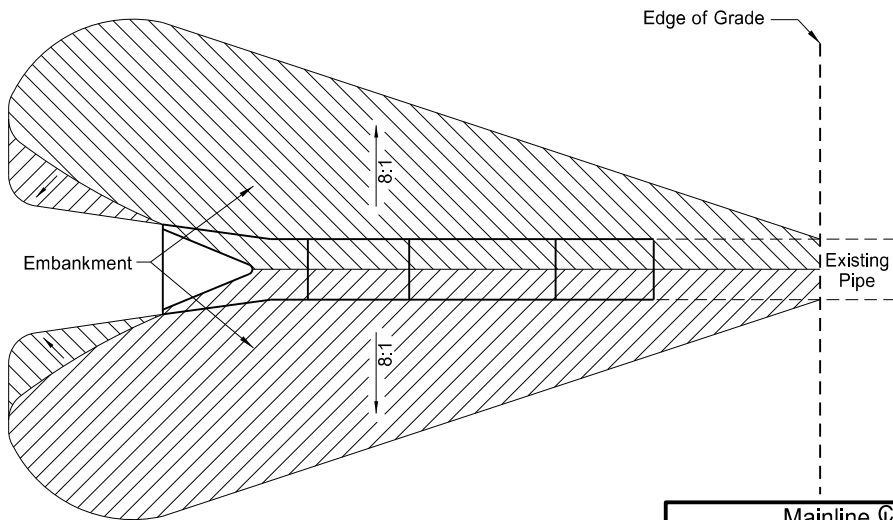
Plan View

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

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

NOTES:

1. Embankment may be either Borrow Excavation (Compaction Control - Type A) or Common Excavation - Type A.
2. Aggregate may be either Class 3 or Class 5 Aggregate Base Course.



Proposed Section

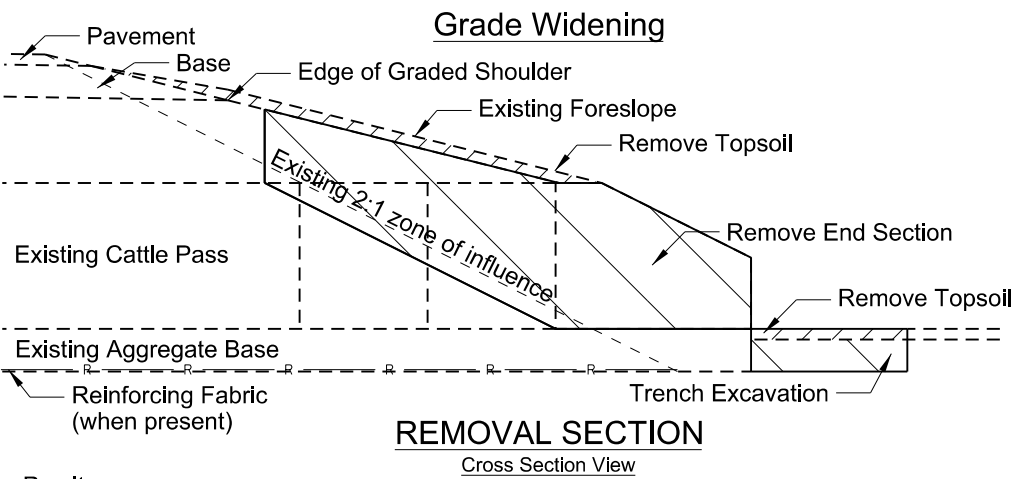
Plan View

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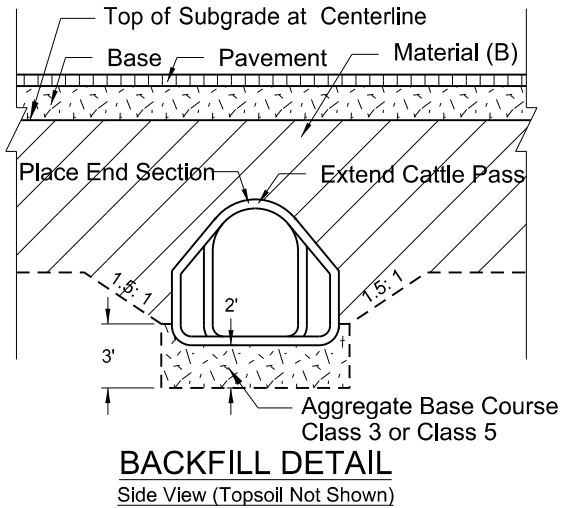
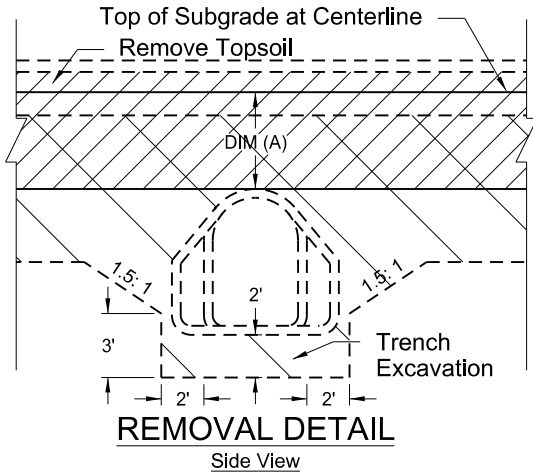
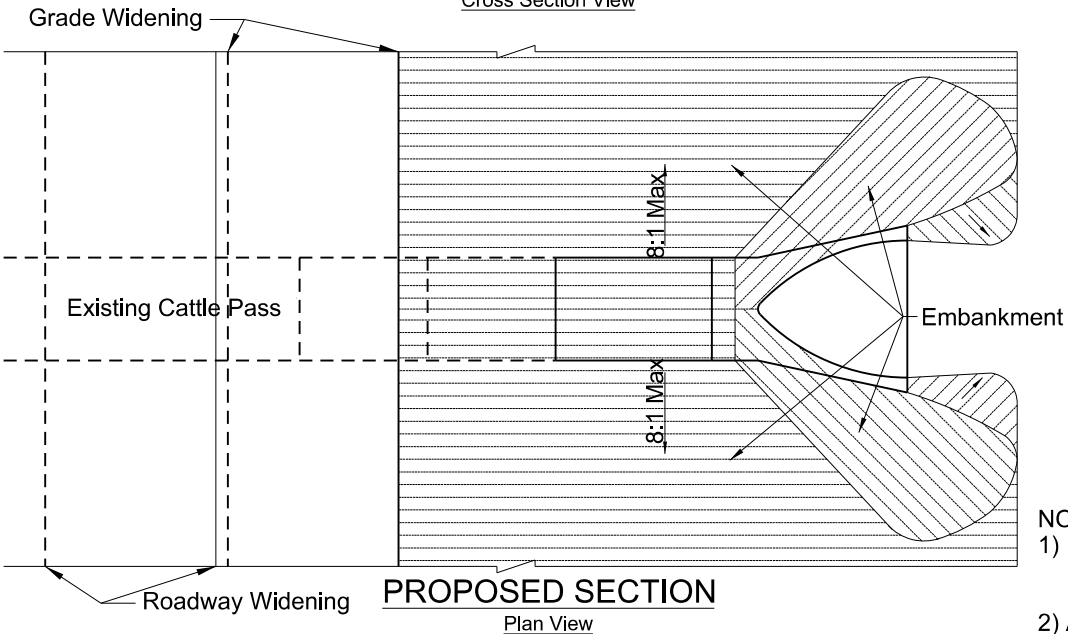
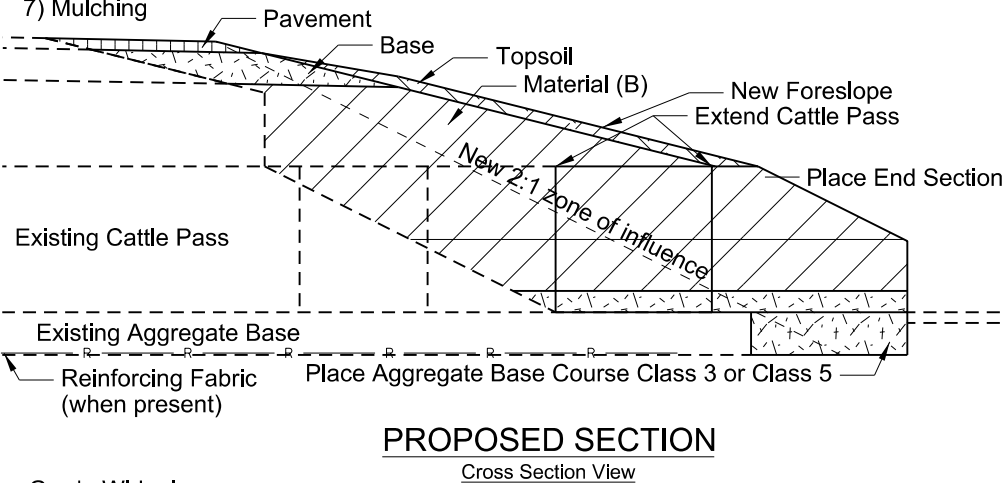
Mainline $\varnothing$ Pipe Extension Detail

Sliver Grading, Milling and RAP Overlay

ND 200, Jct 14 E to W Jct 3

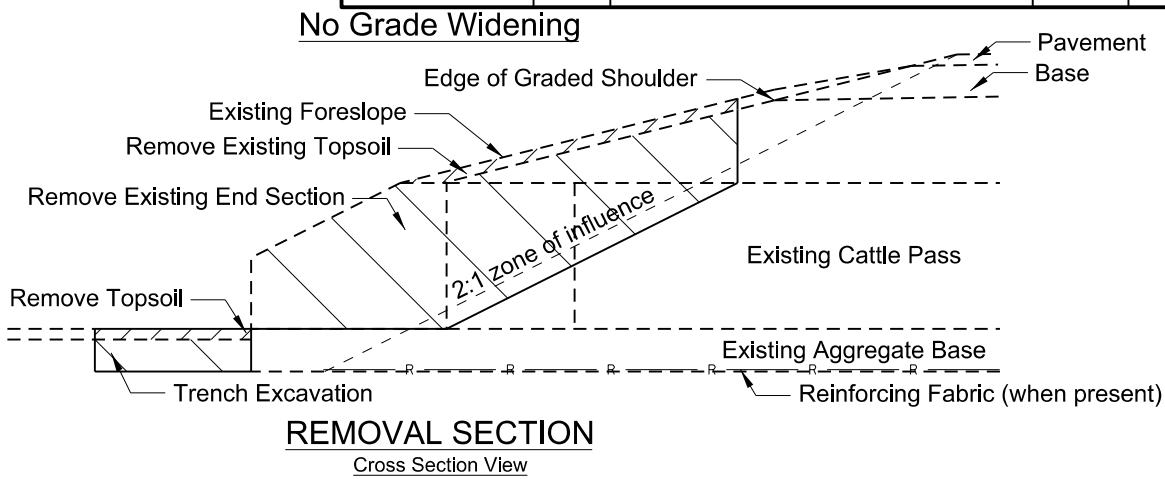


- Pay Items**
- 1) Cattle Pass Conc Intermed Section*
 - 2) Remove and Relay Conc Cattle Pass (If Required)
 - 3) Remove and Relay End Section or Remove End Section and Place New End Section
 - 4) Borrow Excavation (Compaction Control Type A) or Common Excavation-Type A
 - 5) Topsoil
 - 6) Seeding
 - 7) Mulching
- *Included in Cattle Pass Pay Item**
- 1) Cattle Pass
 - 2) Trench excavation
 - 3) Aggregate Base Course Class 3 or Class 5

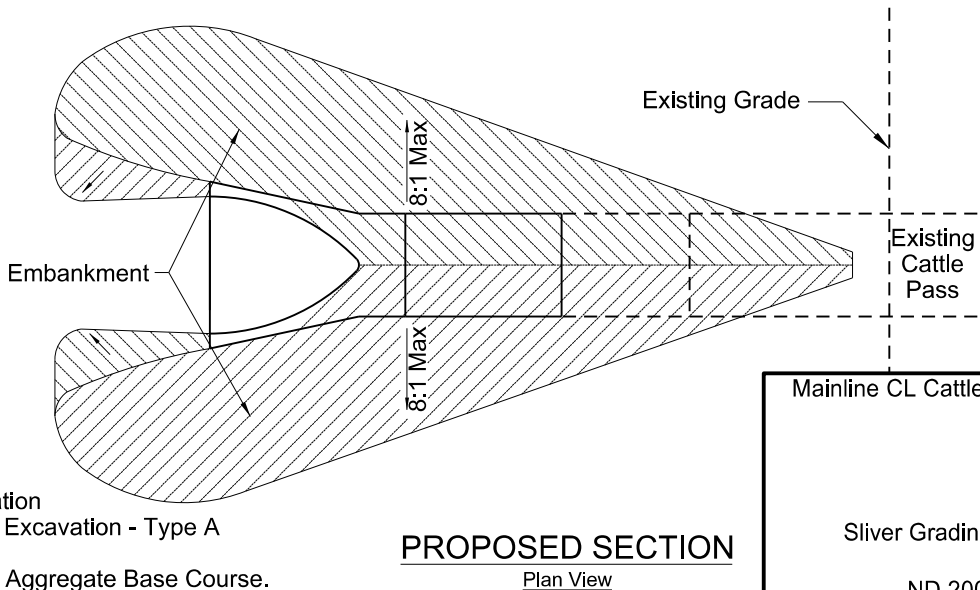
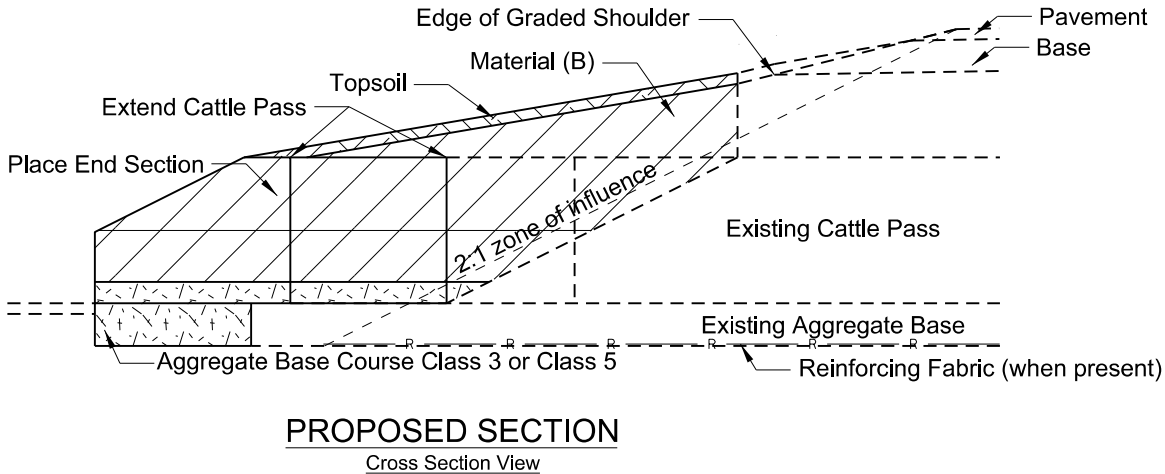


Concrete Cattle Pass	
Dim (A)	Material (B)
< = 4 Feet	Embankment or Aggregate
> 4 Feet	Embankment

- NOTES:**
- 1) Embankment may be either Borrow Excavation (Compaction Control - Type A) or Common Excavation - Type A
 - 2) Aggregate may be either Class 3 or Class 5 Aggregate Base Course.



- Pay Items**
- 1) Cattle Pass Conc Intermed Section*
 - 2) Remove and Relay End Section or Remove End Section and Place New End Section
- *Included in Cattle Pass Pay Item**
- 1) Cattle Pass
 - 2) Trench excavation
 - 3) Aggregate Base Course Class 3 or Class 5
 - 4) Embankment (Compaction Control Type A)
 - 5) Topsoil
 - 6) Seeding
 - 7) Mulch

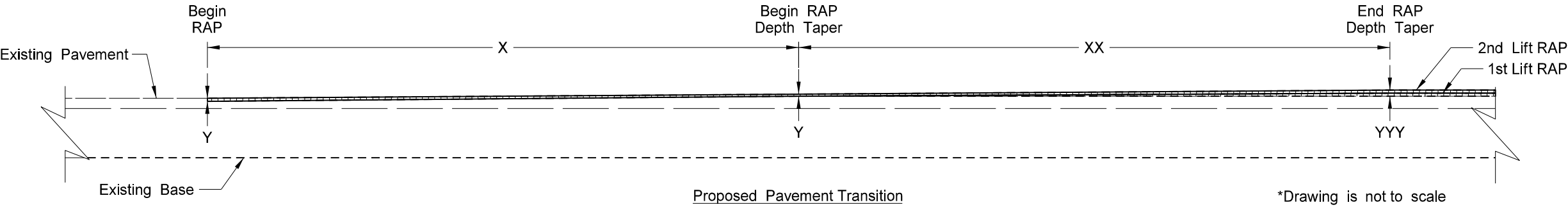
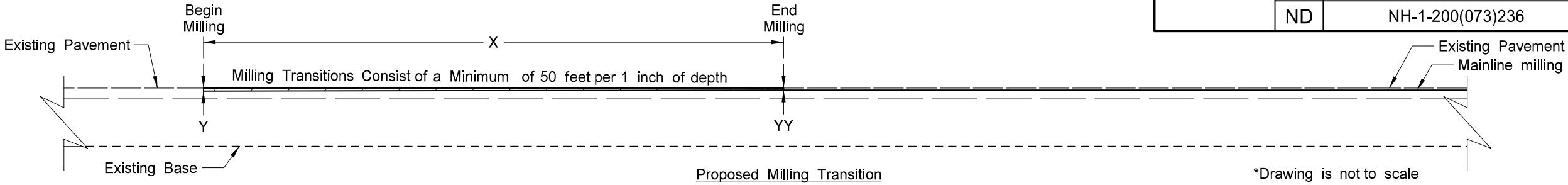


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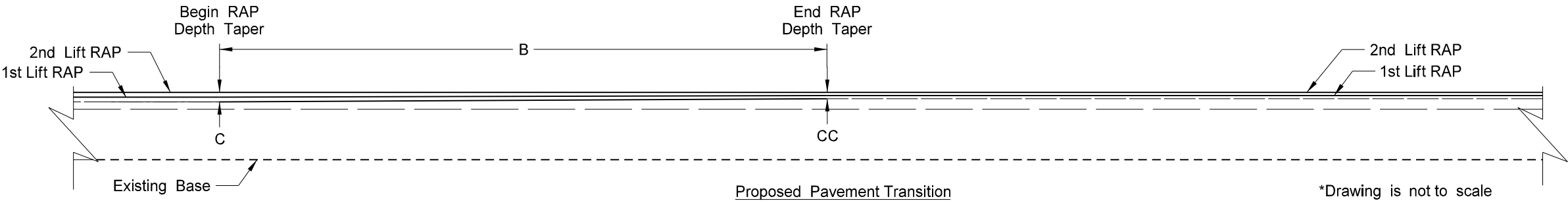
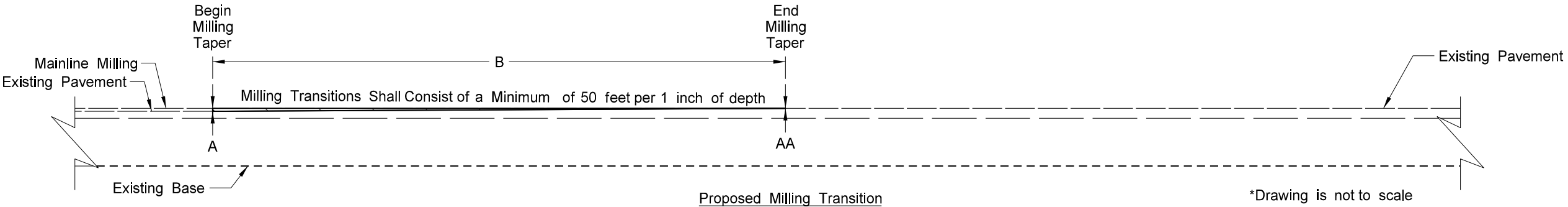
Mainline CL Cattle or Stock Pass Extension Detail

Sliver Grading, Milling and RAP Overlay

ND 200, Jct 14 E to W Jct 3



Milling and Paving Transitions												
Location	X	Begin Milling/Paving Station	Y	YY	End Milling Station	XX	YYY	End RAP Depth Taper Station	Mill (SY)	Tack (Gal)	RAP (Ton)	AC (Ton)
Start of Project	25 ft	12475+00	1.5 in	1 in	12475+25	75 ft	3.0 in	12476+00	66.7	27.2	35.7	1.5



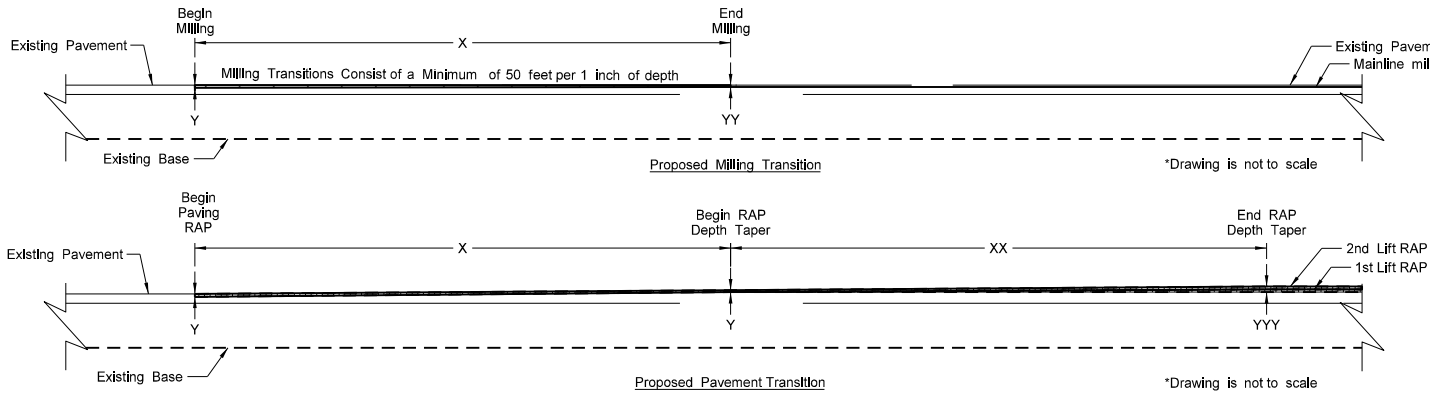
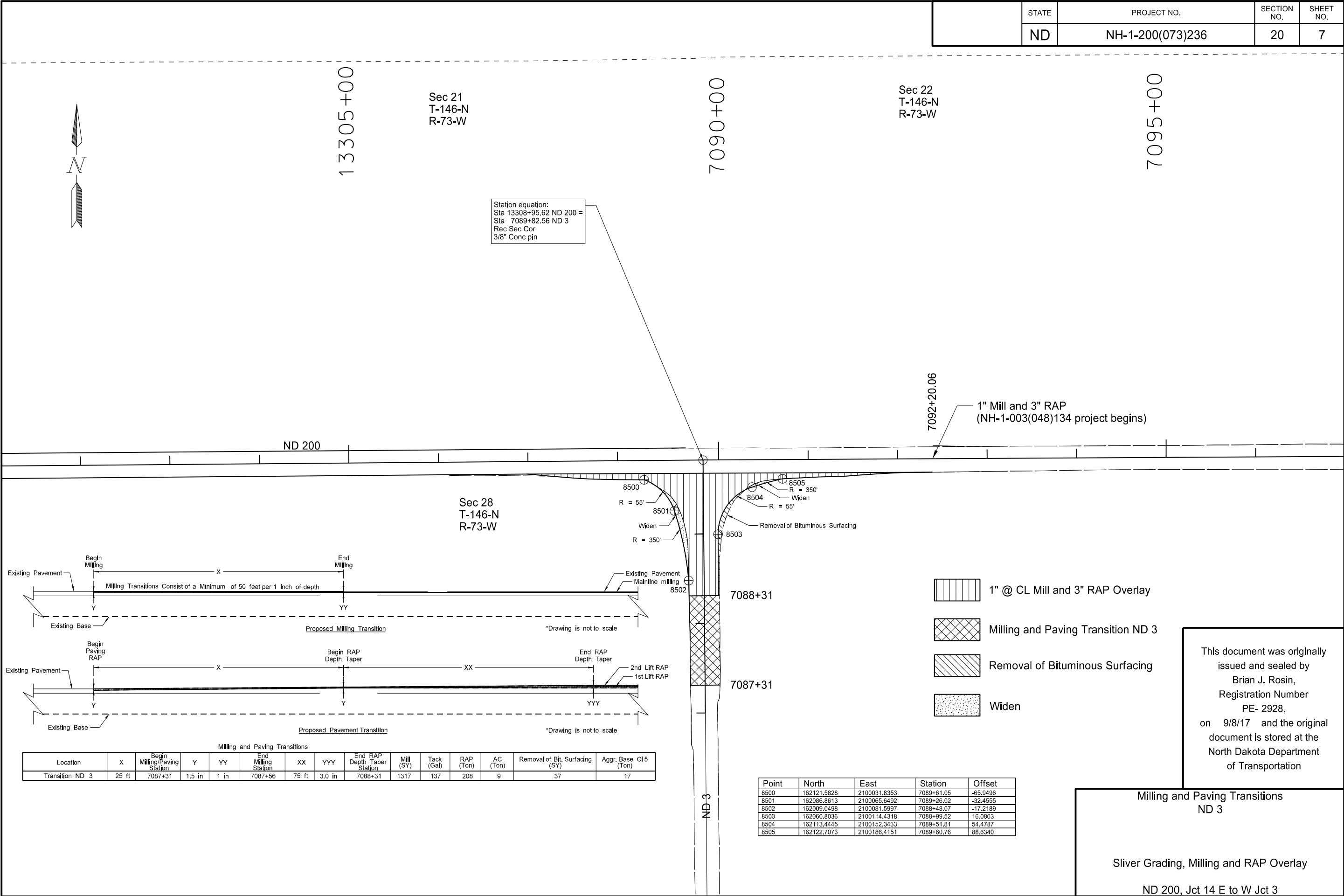
Milling and Paving Transitions													
Location	B	Begin Milling Taper Station	A	AA	End Milling Taper Station	Begin RAP Depth Taper Station	C	CC	End RAP Depth Taper Station	Mill (SY)	Tack (Gal)	RAP (Ton)	AC (Ton)
Start of Exst Grade Raise	50 ft	13200+50	1 in	0 in	13201+00	13200+50	3 in	2 in	13201+00	133.3	15.6	21.6	0.9
End of Exst Grade Raise	50 ft	13230+08	1 in	0 in	13229+58	13230+08	3 in	2 in	13229+58	133.3	15.6	21.6	0.9

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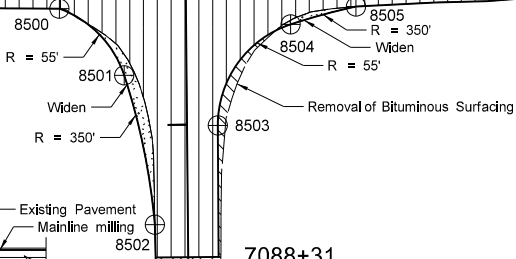
Milling and Paving End Transitions

Sliver Grading, Milling and RAP Overlay

ND 200, Jct 14 E to W Jct 3



Milling and Paving Transitions													
Location	X	Begin Milling/Paving Station	Y	YY	End Milling Station	XX	YYY	End RAP Depth Taper Station	Mill (SY)	Tack (Gal)	RAP (Ton)	AC (Ton)	Removal of Bit. Surfacing (SY)
Transition ND 3	25 ft	7087+31	1.5 in	1 in	7087+56	75 ft	3.0 in	7088+31	1317	137	208	9	37



- 1" @ CL Mill and 3" RAP Overlay
- Milling and Paving Transition ND 3
- Removal of Bituminous Surfacing
- Widen

Point	North	East	Station	Offset
8500	162121.5828	2100031.8353	7089+61.05	-65.9496
8501	162086.8613	2100065.6492	7089+26.02	-32.4555
8502	162009.0498	2100081.5997	7088+48.07	-17.2189
8503	162060.8036	2100114.4318	7088+98.52	16.0863
8504	162113.4445	2100152.3433	7089+51.81	54.4787
8505	162122.7073	2100186.4151	7089+60.76	88.6340

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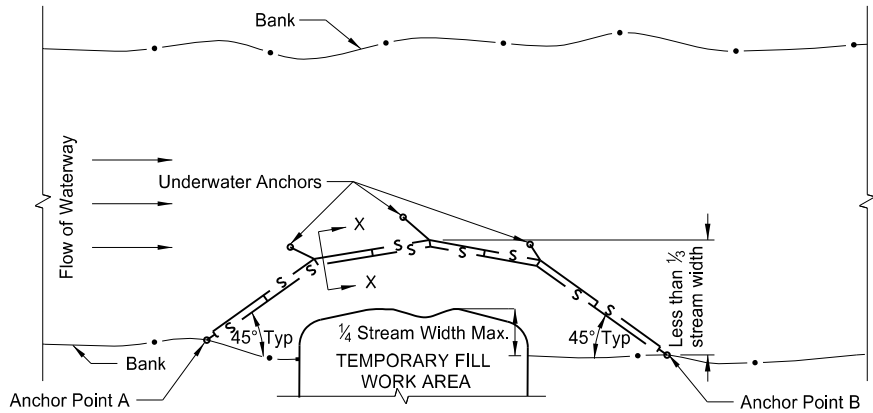
Milling and Paving Transitions
ND 3

Sliver Grading, Milling and RAP Overlay

ND 200, Jct 14 E to W Jct 3

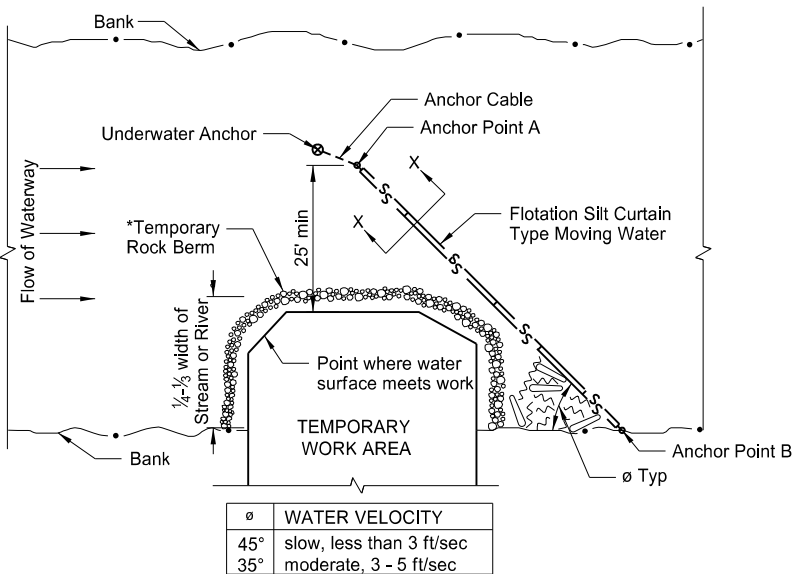
TYPICAL INSTALLATIONS
May vary with conditions

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-1-200(073)236	20	8



PLAN VIEW
FLOTATION SILT CURTAIN - TYPE WORK AREA

DESIGN GUIDELINES:
When temporary work encroaches less than $\frac{1}{4}$ of the width of stream.

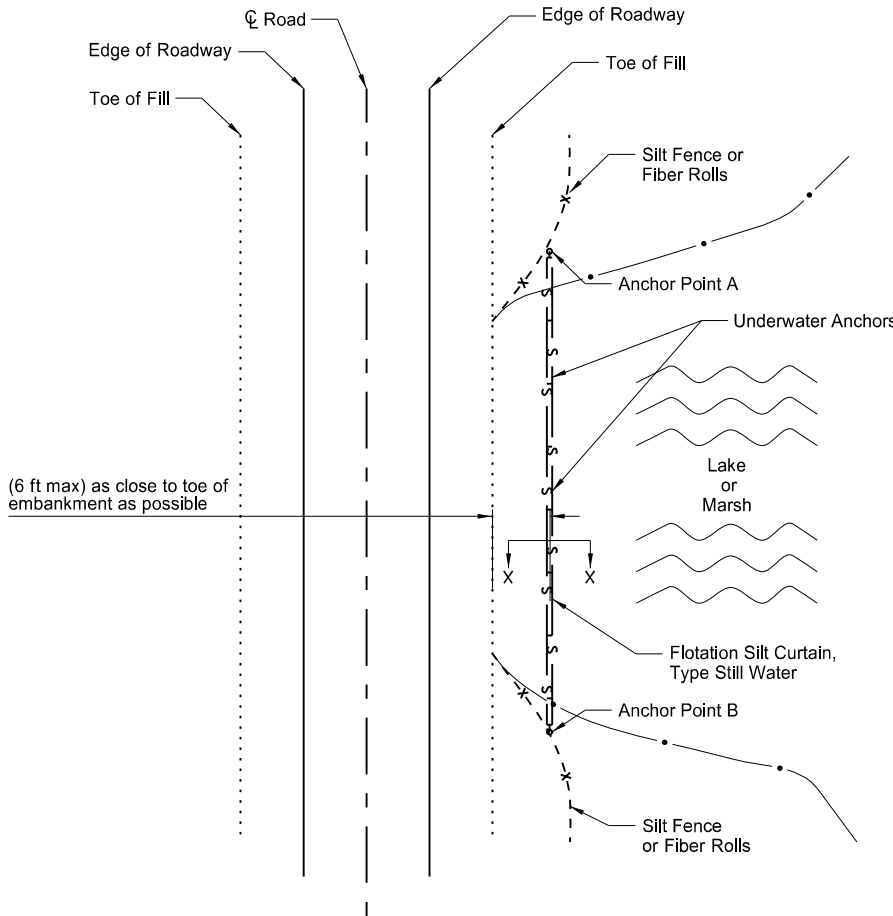


PLAN VIEW
FLOTATION SILT CURTAIN - TYPE MOVING WATER

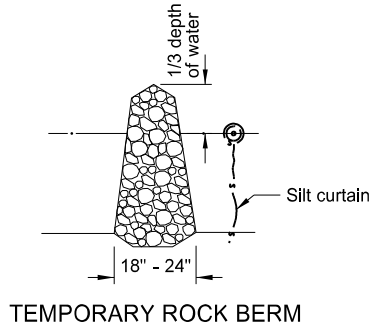
DESIGN GUIDELINES:
When temporary work encroaches more than $\frac{1}{4}$ but less than $\frac{1}{3}$ width of the stream.

For narrow waterways, the curtain may be placed 1 foot above the bottom of waterway to allow water flow.

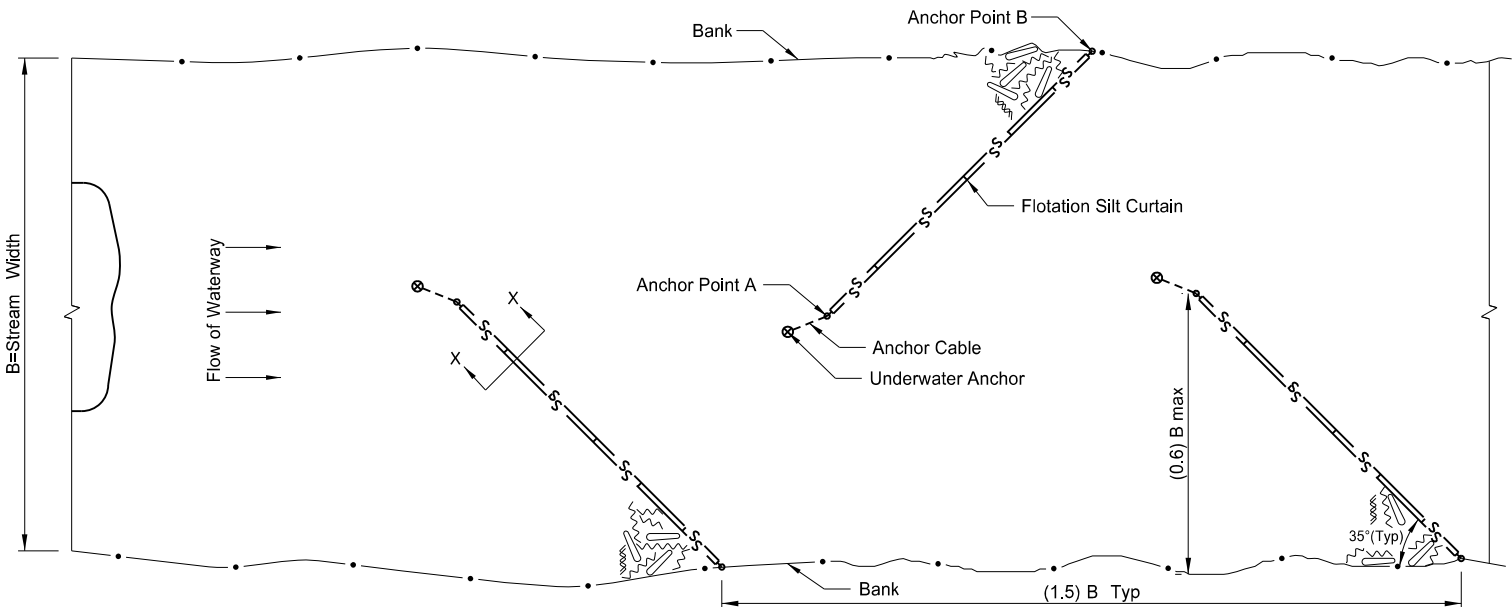
*In areas where the plans call for riprap at the bridge, provide a temporary rock berm. Include all costs for the temporary rock berm in price bid for the "Riprap".



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

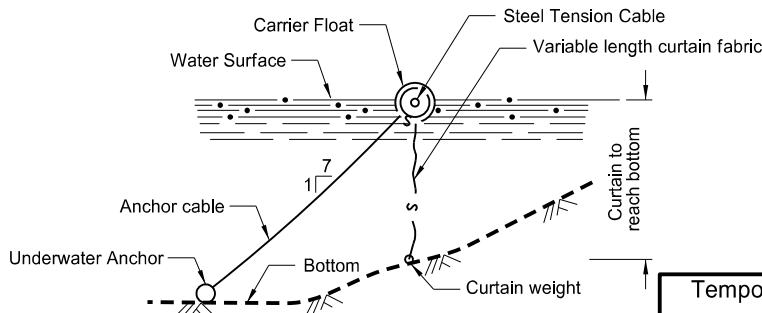


TEMPORARY ROCK BERM



PLAN VIEW
FLOTATION SILT CURTAIN - TYPE HERRING BONE PATTERN

DESIGN GUIDELINES:
When temporary work encroaches more than $\frac{1}{3}$ width of the stream
Or where stream width doesn't allow use of Type Moving Water



SECTION X-X
FLOTATION SILT CURTAINS

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

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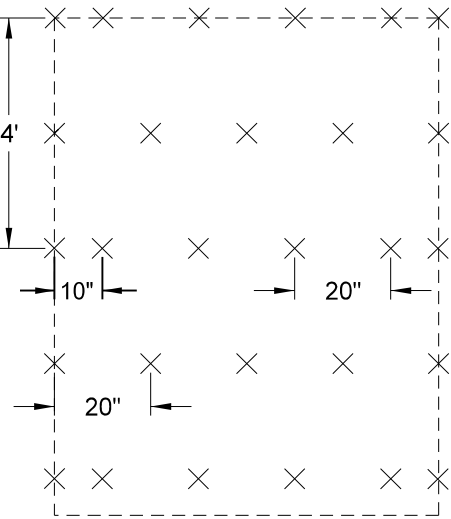
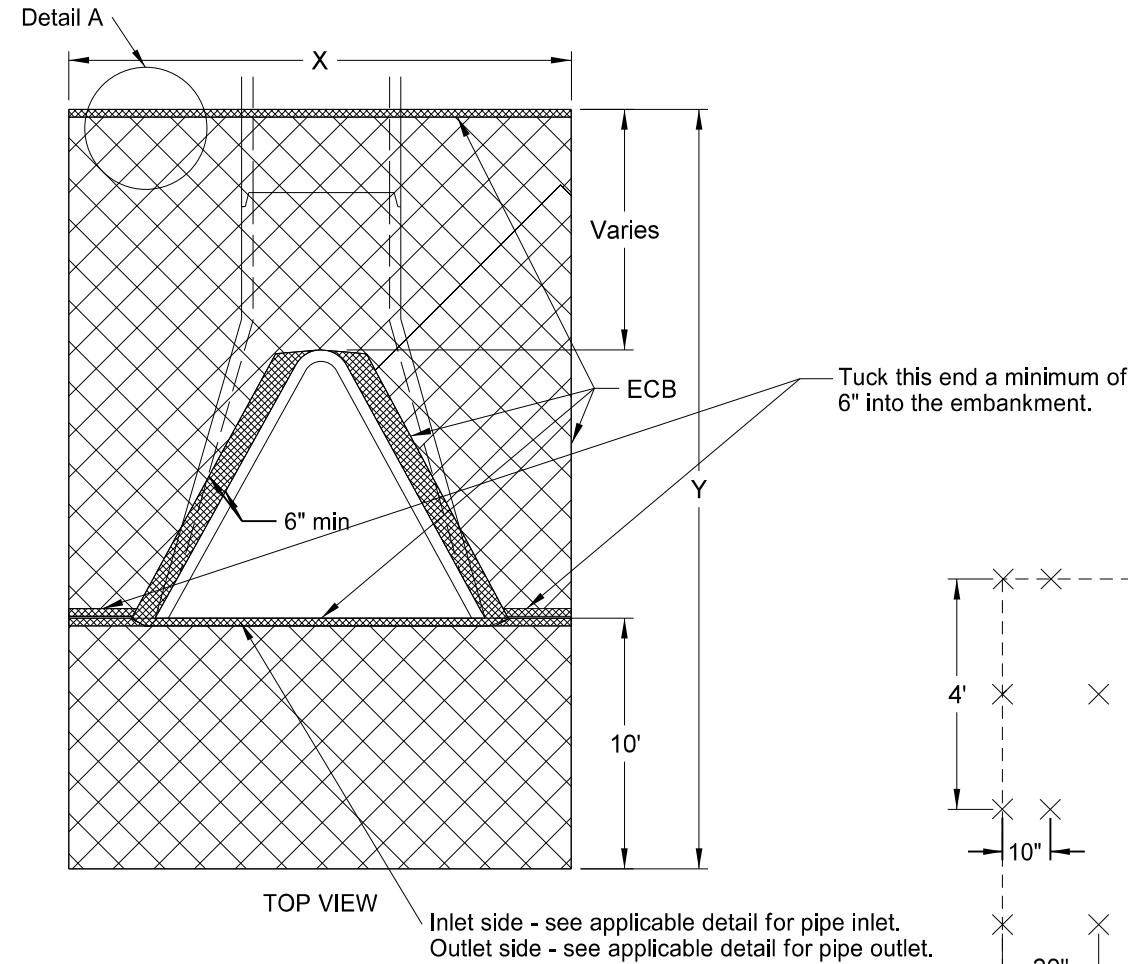
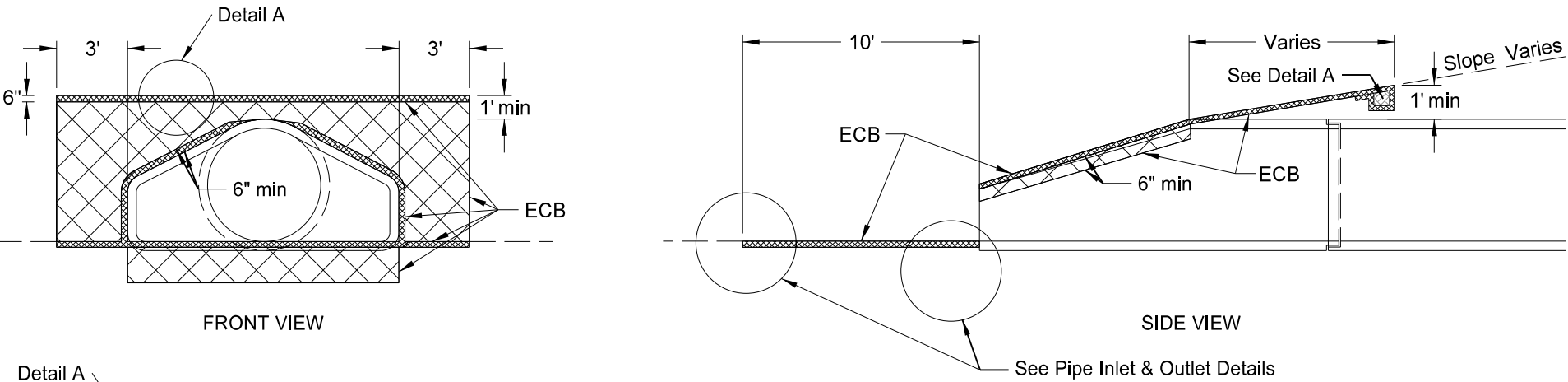
Temporary Erosion Control - Flotation Silt Curtain

Sliver Grading, Milling and RAP Overlay

ND 200, Jct 14 E to W Jct 3

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-1-200(073)236	20	9

See Section 20 Sheet 10 for ECB Locations

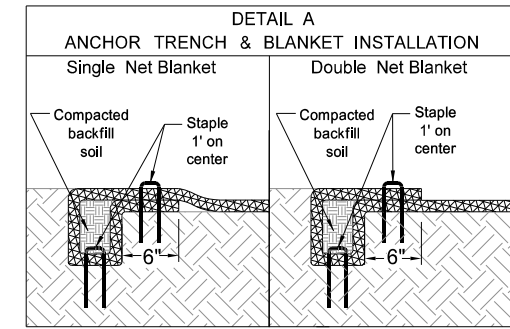


APPROACH CULVERTS				
DIA	X	Y	Surface area to be protected	ECB
In	Ft	Ft	SF	SY
15	9.0	20.0	176.0	20
18	9.5	20.7	190.7	22
21	9.5	21.0	190.9	22
24	10.5	21.6	214.1	24
27	11.0	22.0	226.3	25
30	11.6	22.5	241.5	27
36	12.7	23.3	268.8	30
42	13.3	23.3	279.7	31
48	13.8	24.0	293.2	33
54	14.5	23.4	300.6	34
60	15.0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

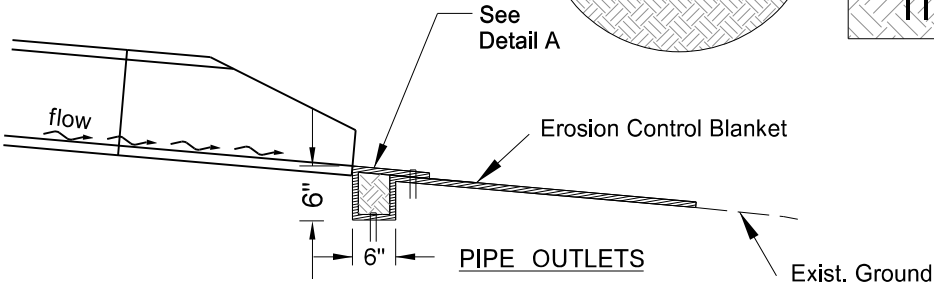
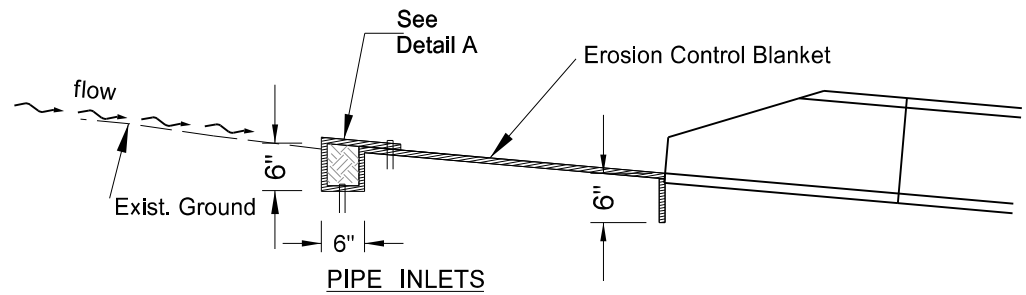
CENTERLINE CULVERTS				
DIA	X	Y	Surface area to be protected	ECB
In	Ft	Ft	SF	SY
24	10.5	19.6	193.1	22
27	11.0	20.0	204.3	23
30	11.6	20.5	218.3	25
36	12.7	21.2	242.1	27
42	13.3	21.2	251.8	28
48	13.8	22.0	265.6	30
54	14.5	21.5	273.7	31
60	15.0	21.0	278.3	31
66	15.6	22.0	295.7	33
72	16.2	22.5	309.2	35

Note: Quantities based on 4:1 slope.



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



Erosion Control at Culvert Flared End Sections

Sliver Grading, Milling and RAP Overlay

ND 200, Jct 14 E to W Jct 3

Erosion Control Blanket (ECB)								
Location to be protected	Culvert Type	Pipe Diameter	No	Total Quantity				
				Unit Quantity	Type 1	Type 2	Type 3	Type 4
Station	Appr/CL	(Inch)		(SY)	(SY)	(SY)	(SY)	(SY)
12478+25	CL	30	2	22		44		
12497+89 RT	Appr	18	2	22		44		
12497+97 LT	Appr	18	2	22		44		
12504+35	CL	30	2	22		44		
12521+13 RT	CL	24	1	20		20		
12526+09	CL	24	2	20		40		
12545+67	CL	24	2	20		40		
12551+42	CL	24	2	20		40		
12562+67	CL	24	2	20		40		
12567+57 LT	CL	24	1	20		20		
12577+52	CL	24	2	20		40		
12578+26 RT	Appr	24	2	24		48		
12580+68	CL	30	2	22		44		
12593+57	CL	24	2	20		40		
12601+22	CL	24	2	20		40		
12607+63	CL	24	2	20		40		
12625+24 LT	Appr	18	2	22		44		
12654+56 RT	Appr	18	2	22		44		
12654+60 LT	Appr	18	2	22		44		
12669+79 RT	Appr	30	2	27		54		
12685+08 RT	Appr	18	2	22		44		
12685+10 LT	Appr	18	2	22		44		
12685+15 RT	Appr	18	2	22		44		
12688+94 LT	Appr	18	2	22		44		
12694+86 RT	Appr	18	2	22		44		
12694+88 LT	Appr	18	2	22		44		
12737+14 RT	Appr	18	2	22		44		
12747+88 LT	Appr	18	2	22		44		
12763+58 RT	Appr	18	2	22		44		
2+07 LT (PR20AVE N)	Appr	24	4	24		96		
6+50 LT (PR20AVE N)	Appr	24	2	24		48		
8+50 RT (PR20AVE N)	Appr	18	2	22		44		
12803+83 RT	Appr	18	2	22		44		
12809+82	CL	24	2	20		40		
12812+98 RT	Appr	18	2	22		44		
12822+08	CL	24	2	20		40		
12822+80 RT	Appr	24	2	24		48		
12823+90 LT	Appr	18	2	22		44		
12837+94	CL	24	2	20		40		
12856+09	CL	24	2	20		40		
12866+83	CL	24	2	20		40		
12870+13 LT	Appr	18	2	22		44		
12890+31 LT	Appr	18	2	22		44		
12890+35 RT	Appr	18	2	22		44		
12894+10 RT	Appr	18	2	22		44		
12894+12 LT	Appr	18	2	22		44		
12922+61	CL	24	1	20		20		
12934+89	CL	30	1	22		22		
5+00 RT (PR20AVE S)	Appr	24	2	24		48		
8+60 LT (PR20AVE S)	Appr	18	2	22		44		
12953+39 LT	Appr	18	2	22		44		
12953+50 RT	Appr	18	2	22		44		

Erosion Control Blanket (ECB)								
Location to be protected	Culvert Type	Pipe Diameter	No	Total Quantity				
				Unit Quantity	Type 1	Type 2	Type 3	Type 4
Station	Appr/CL	(Inch)		(SY)	(SY)	(SY)	(SY)	(SY)
12992+20	CL	24	2	20		40		
12993+95 LT	Appr	18	2	22		44		
12997+79 RT	Appr	18	2	22		44		
12997+79 LT	Appr	18	1	22		22		
13017+32	CL	24	2	20		40		
13024+91	CL	24	2	20		40		
13032+32	CL	24	2	20		40		
1342+33	CL	24	1	20		20		
13044+24 LT	Appr	18	2	22		44		
13044+28 RT	Appr	18	2	22		44		
13063+48 RT	Appr	18	2	22		44		
1370+70 LT	Appr	18	2	22		44		
13084+27	CL	24	2	20		40		
13097+10 LT	Appr	18	2	22		44		
13097+14 RT	Appr	18	2	22		44		
13106+70	CL	24	2	20		40		
13137+84	CL	24	2	20		40		
13149+92 LT	Appr	24	2	24		48		
13150+05 RT	Appr	18	2	22		44		
13150+57	CL	24	2	20		40		
13157+68 LT	Appr	18	2	22		44		
13157+74 RT	Appr	18	2	22		44		
13167+07	CL	24	2	20		40		
13176+28 RT	Appr	18	2	22		44		
13186+05	CL	24	2	20		40		
13195+33	CL	30	2	22		44		
13201+81 LT	Appr	21	2	22		44		
13202+36 RT	Appr	18	2	22		44		
13229+12 RT	Appr	24	2	24		48		
13229+41 LT	Appr	24	2	24		48		
13247+57	CL	30	2	22		44		
13256+12 RT	Appr	24	2	24		48		
13269+25 RT	Appr	18	2	22		44		
13277+32	CL	30	2	22		44		
13287+68 LT	Appr	18	2	22		44		
13288+61	CL	24	2	20		40		
13303+63	CL	30	2	22		44		

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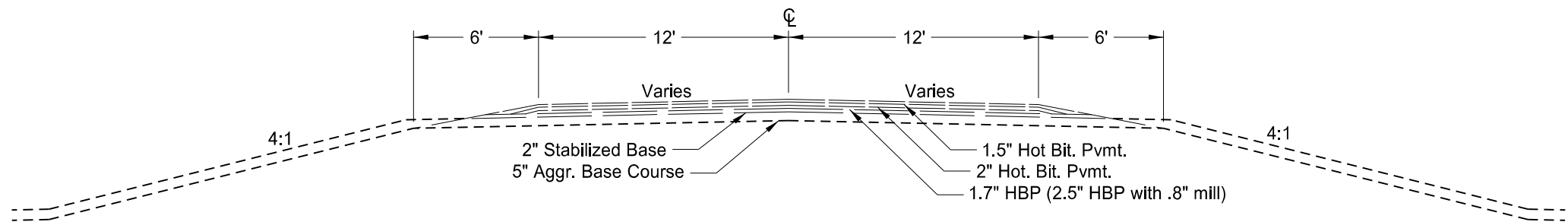
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Erosion Control at Culvert Flared End Sections
Locations

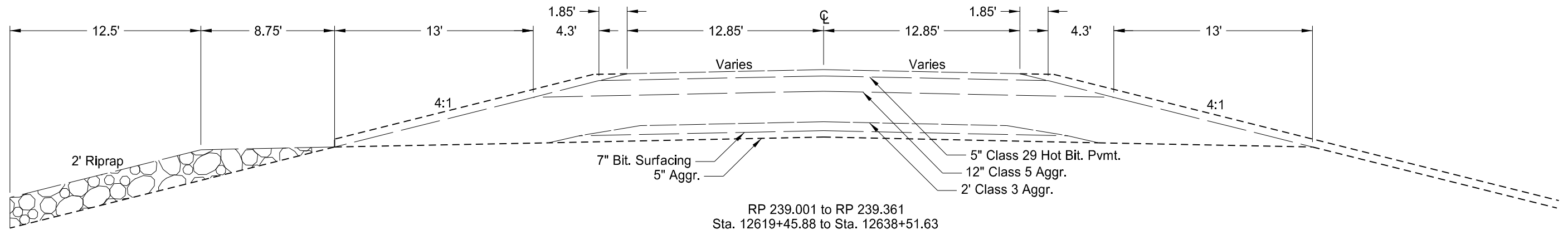
Sliver Grading, Milling and RAP Overlay

ND 200, Jct 14 E to W Jct 3

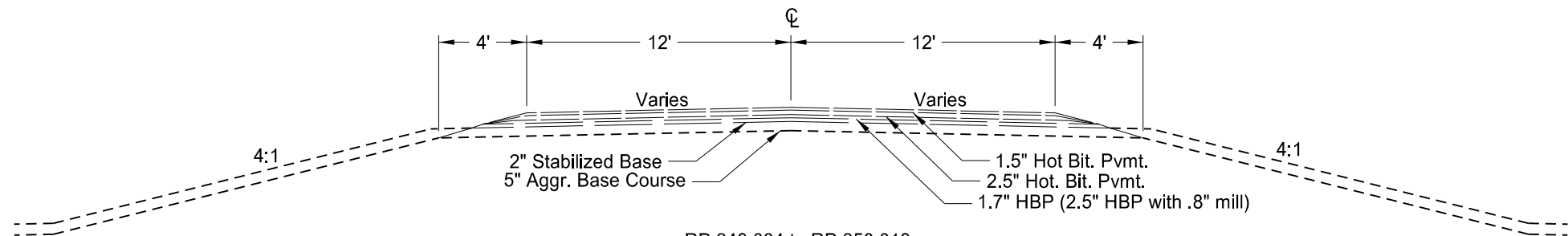
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RP 236.269 to RP 239.001
Sta. 12475+00.00 to Sta. 12619+45.88
RP 239.361 to RP 249.034
Sta. 12638+51.63 to Sta. 13149+01.40



RP 239.001 to RP 239.361
Sta. 12619+45.88 to Sta. 12638+51.63



RP 249.034 to RP 250.019
Sta. 13149+01.40 to Sta. 13201+00
RP 250.560 to RP 134.322
Sta. 13229+58 to Sta. 7092+20.06

Equation
Sta 13308+95.62 ND 200 =
Sta 7089+82.56 ND 3

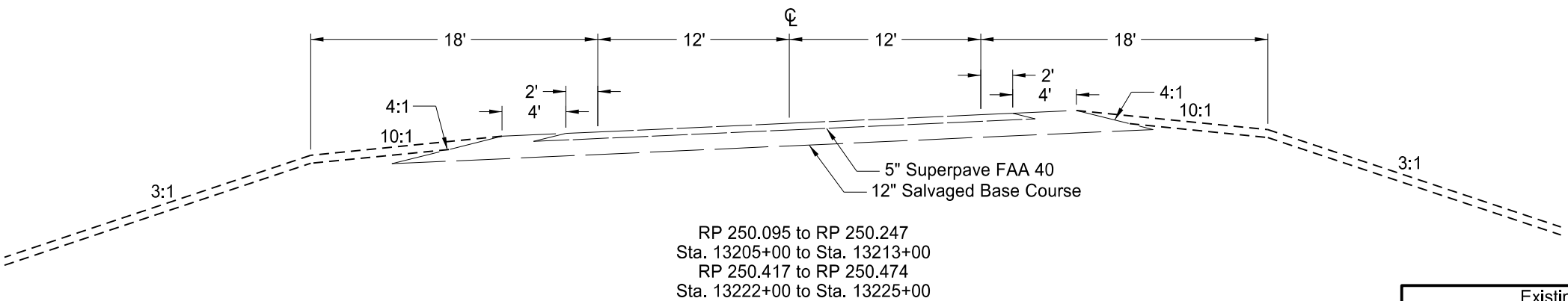
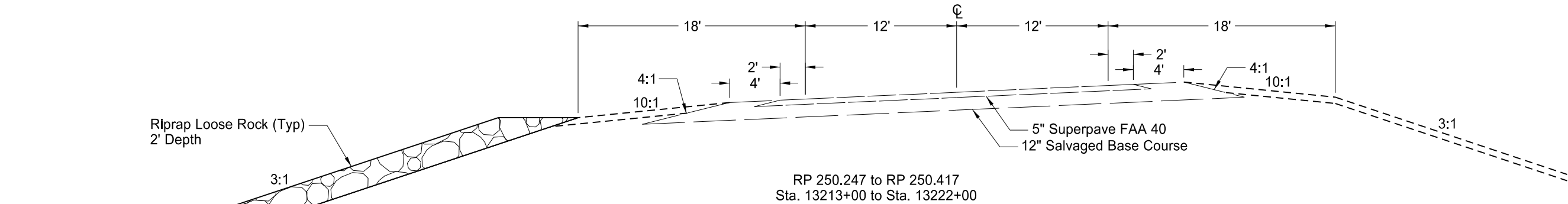
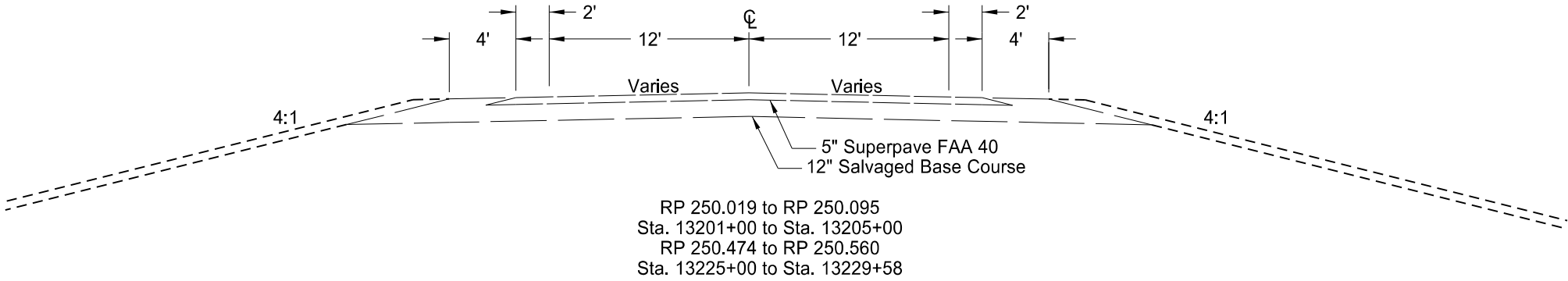
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Existing Typical Sections

Sliver Grading, Milling and RAP Overlay

ND 200, Jct 14 E to W Jct 3

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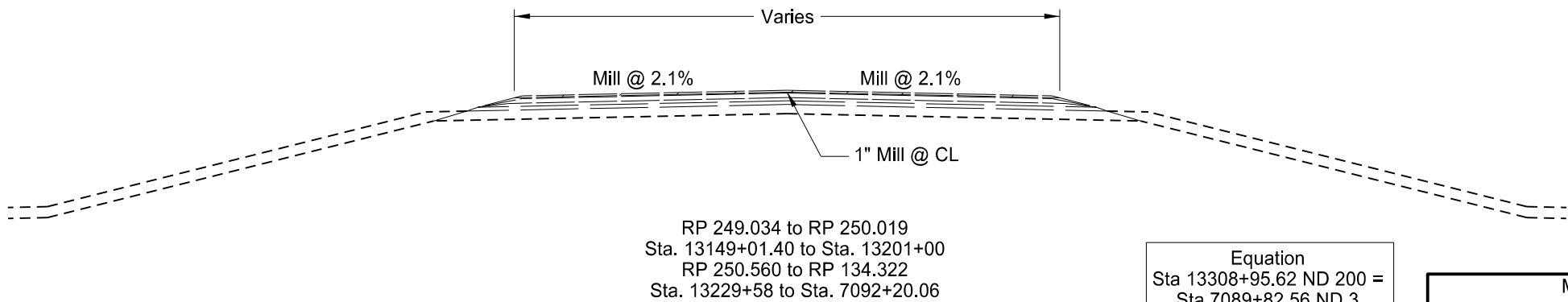
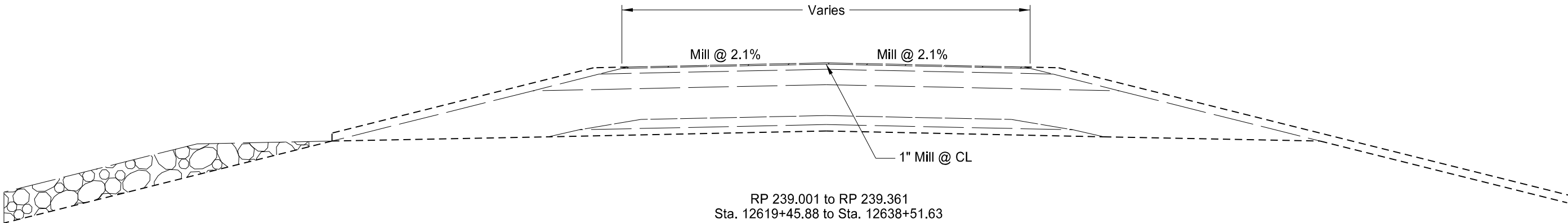
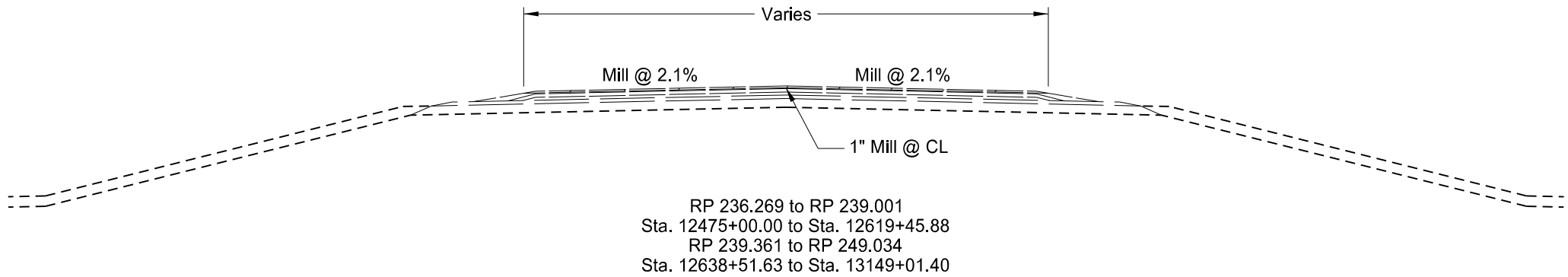
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Existing Typical Sections

Sliver Grading, Milling and RAP Overlay

ND 200, Jct 14 E to W Jct 3

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-1-200(073)236	30	3



Equation
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Sta 7089+82.56 ND 3

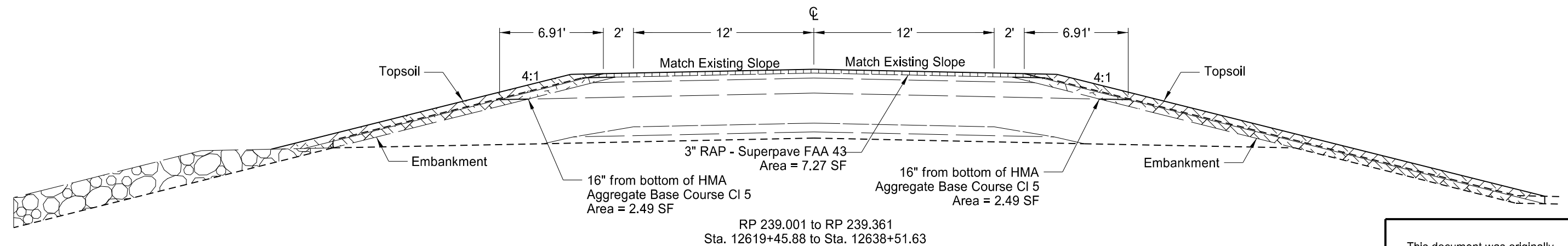
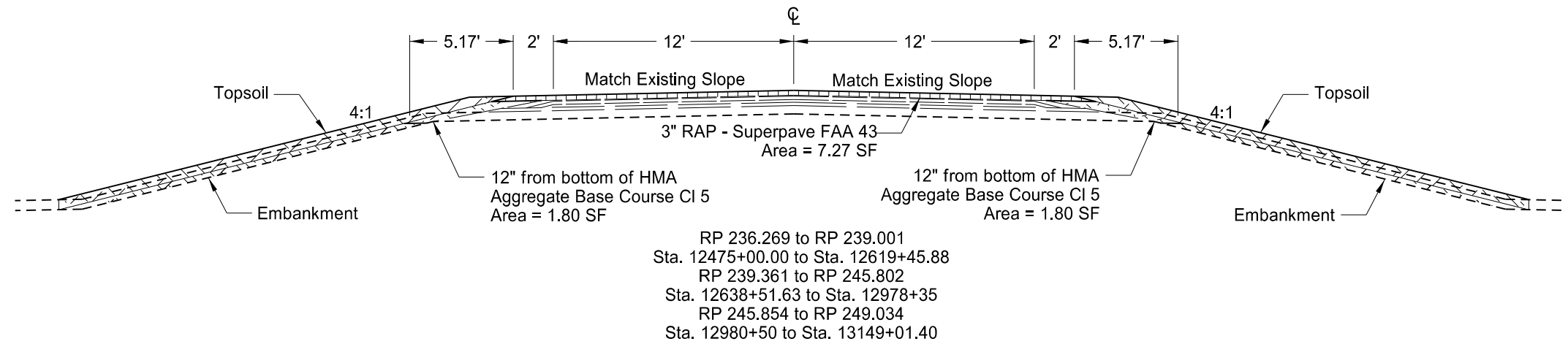
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Milling Typical Sections

Sliver Grading, Milling and RAP Overlay

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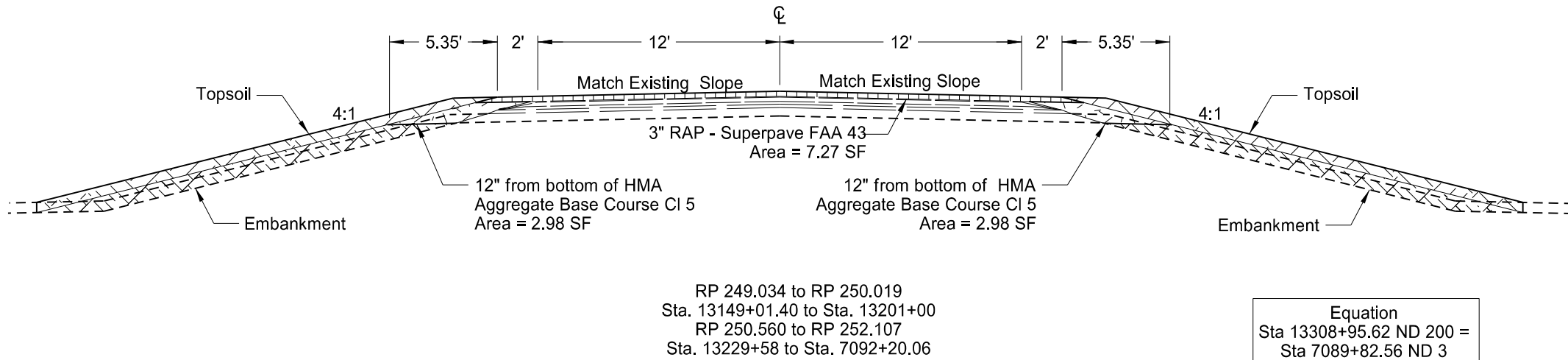
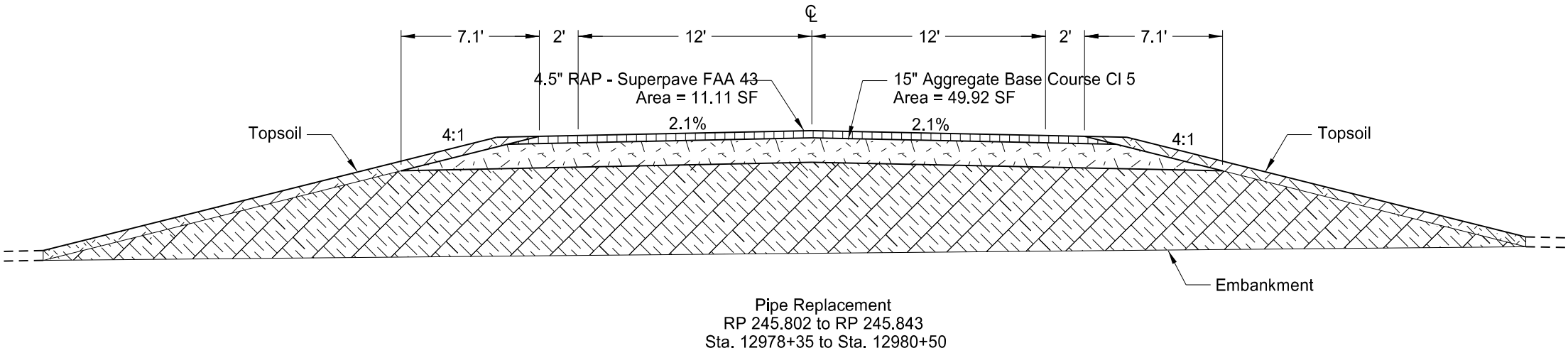
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Proposed Typical Sections

Sliver Grading, Milling and RAP Overlay

ND 200, Jct 14 E to W Jct 3

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ND	NH-1-200(073)236	30	5



Equation
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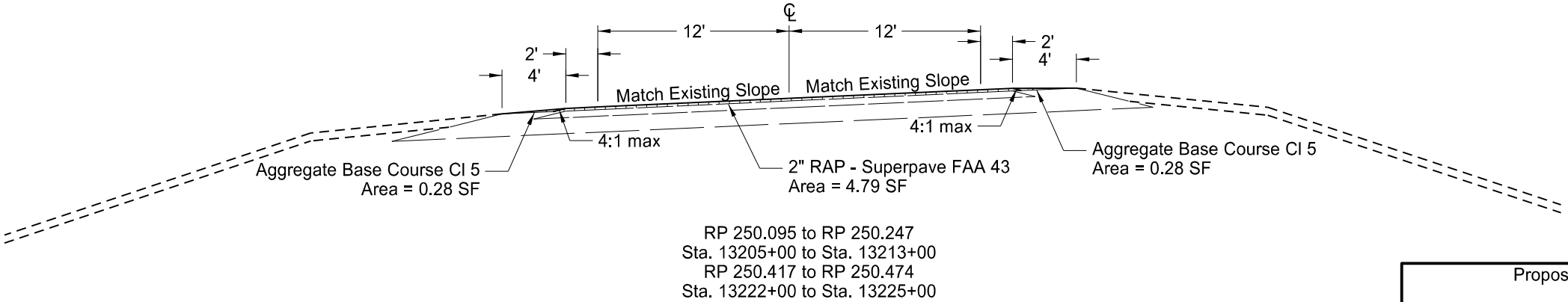
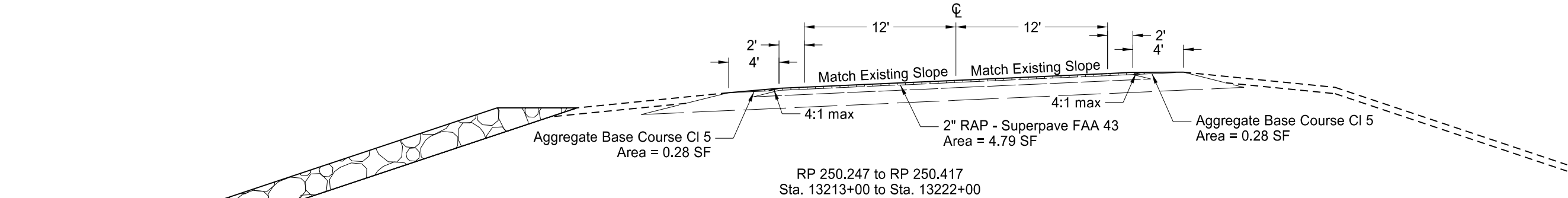
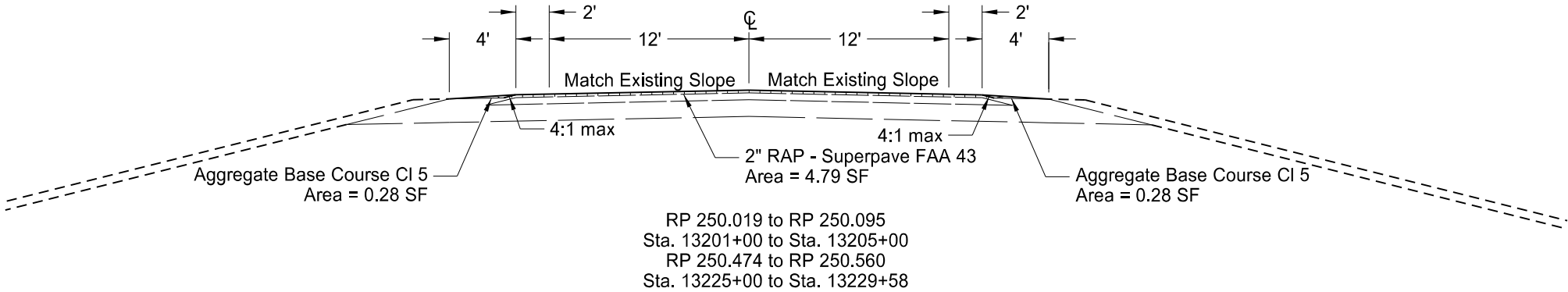
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Proposed Typical Sections

Sliver Grading, Milling and RAP Overlay

ND 200, Jct 14 E to W Jct 3

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ND	NH-1-200(073)236	30	6



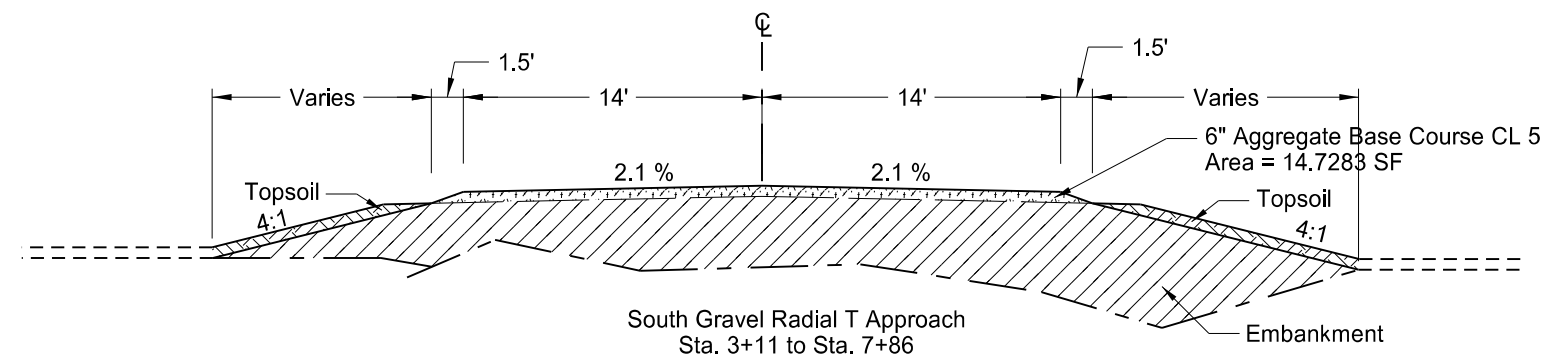
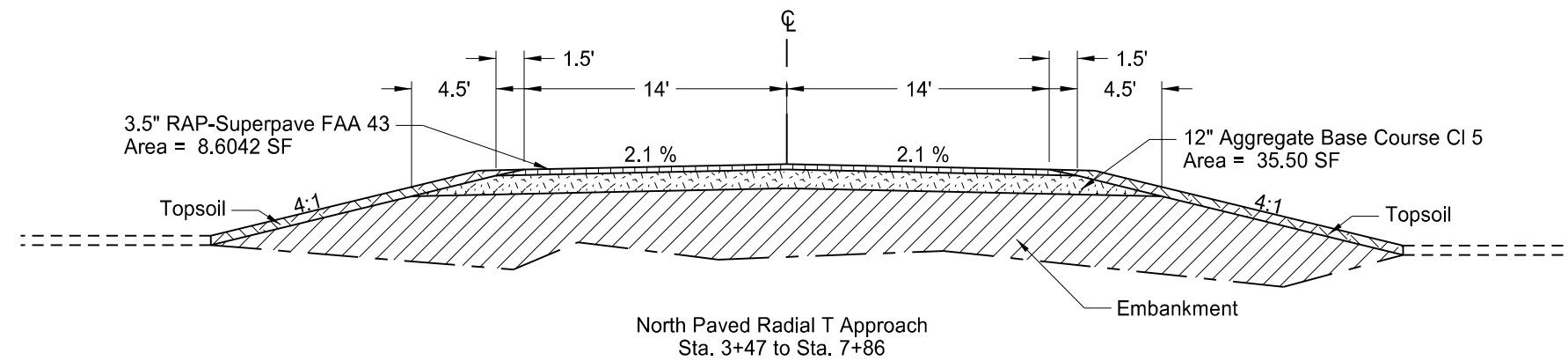
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Proposed Typical Sections

Sliver Grading, Milling and RAP Overlay

ND 200, Jct 14 E to W Jct 3

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	ND	NH-1-200(073)236	30	7



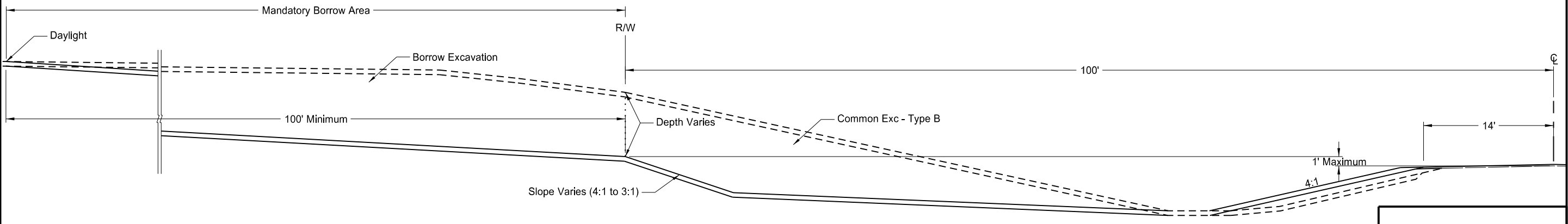
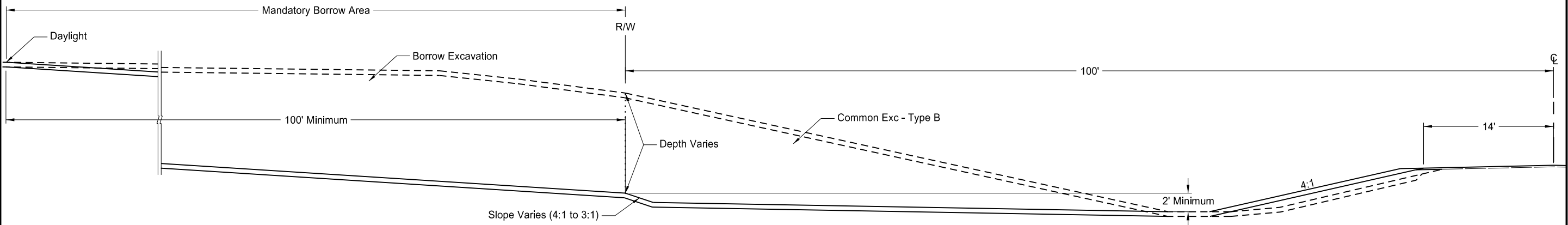
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Proposed Typical Sections

Sliver Grading, Milling and RAP Overlay

ND 200, Jct 14 E to W Jct 3

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-1-200(073)236	30	8



- Notes:
In order to minimize the snow drifting impact to the roadway at this location, the following applies to Mandatory Borrow Site #1:
1. Mandatory area of borrow site #1 extends perpendicular to Roadway Centerline, 100' beyond the right of way. The area of borrow site #1 outside the mandatory area remains a Department Optioned Borrow Site.
 2. Leave backslope elevation at right of way at least 2' above the elevation of the ditch bottom.
 3. Leave backslope elevation at right of way no more than 1' above the existing Roadway Centerline elevation.
 4. Maintain existing drainage pattern.
 5. Provide a backslope within the right of way of between 4:1 and 3:1.
 6. Use Mandatory borrow before using other borrow.
 7. Engineer will measure material removed from within the right of way as "Common Excavation-Type B."

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Mandatory Borrow Site Typical Section

Sliver Grading, Milling, and RAP Overlay

ND 200, Jct 14 E to W Jct 3

HYDRAULIC DATA FOR NH-1-200(073)236 (A)									
STATION	EXISTING PIPE	PROPOSED PIPE SIZE	DRAINAGE AREA (ACRES)	25-YEAR DATA				100-YEAR DATA	
				DESIGN DISCHARGE (CFS)	DESIGN HEADWATER (FT)	DESIGN VELOCITY (FPS)	DESIGN STAGE (NAVD 88)	100-YEAR DISCHARGE (CFS)	100-YEAR STAGE (NAVD 88)
12979+60 (B)	-	24"	584.8	-	-	-	-	-	-
(A) Hydraulic data provided is for smooth-walled (Manning's n=0.012) type conduits. (B) Centerline culvert at Station 12979+60 acts as an equalizer and is not evaluated as a conventional culvert.									

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Culvert Hydraulic Data

ND 200, Jct 14 E to W Jct 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	R1 Fabric (Pay Item)	(*) End Sections		Applicable Backfill Detail
													Begin	End	
				In	Bid Item	LF		In	Type		In	SY	EA	EA	
12478+25	-36' LT	12478+25	-26' LT	30	Pipe Conc Reinf 30IN CL III (Extension)	10	Reinforced Concrete Pipe - Class III (barrel length = 10)	30				N/A	Remove & Relay		See Section 20
12478+25	24' RT	12478+25	40' RT	30	Pipe Conc Reinf 30IN CL III (Extension)	16	Reinforced Concrete Pipe - Class III (barrel length = 16)	30				N/A		Remove & Relay	See Section 20
12497+43	-42' LT	12497+52	-42' LT	18	Pipe Corr. Steel .064IN 18IN (Extension)	9	Corrugated Steel Pipe	18	Z,A,P	2	0.064	N/A	Remove & Relay		See Section 20
12497+49	41' RT	12497+63	41' RT	18	Pipe Corr. Steel .064IN 18IN (Extension)	14	Corrugated Steel Pipe	18	Z,A,P	2	0.064	N/A	Remove & Relay		See Section 20
12498+16	41' RT	12498+30	41' RT	18	Pipe Corr. Steel .064IN 18IN (Extension)	24	Corrugated Steel Pipe	18	Z,A,P	2	0.064	N/A		Remove & Relay	See Section 20
12504+35	-94' LT	12504+35	-64' LT	30	Pipe Conc Reinf 30IN CL III (Extension)	30	Reinforced Concrete Pipe - Class III (barrel length = 30)	30				N/A	Remove & Relay		See Section 20
12504+35	62' RT	12504+35	94' RT	30	Pipe Conc Reinf 30IN CL III (Extension)	32	Reinforced Concrete Pipe - Class III (barrel length = 32)	30				N/A		Remove & Relay	See Section 20
12521+16	-62' LT	12521+16	-40' LT	24	Pipe Conc Reinf 24IN CL III (Extension)	22	Reinforced Concrete Pipe - Class III (barrel length = 22)	24				N/A	Remove & Relay		See Section 20
12521+10	47' RT	12521+10	57' RT	24	Pipe Conc Reinf 24IN CL III (Extension)	10	Reinforced Concrete Pipe - Class III (barrel length = 10)	24				N/A		Remove & Relay	See Section 20
12526+10	-32' LT	12526+10	-26' LT	24	Pipe Conc Reinf 24IN CL III (Extension)	6	Reinforced Concrete Pipe - Class III (barrel length = 6)	24				N/A	Remove & Relay		See Section 20
12526+09	27' RT	12526+09	35' RT	24	Pipe Conc Reinf 24IN CL III (Extension)	8	Reinforced Concrete Pipe - Class III (barrel length = 8)	24				N/A		Remove & Relay	See Section 20
12551+42	-31' LT	12551+42	-25' LT	24	Pipe Conc Reinf 24IN CL III (Extension)	6	Reinforced Concrete Pipe - Class III (barrel length = 6)	24				N/A	Remove & Relay		See Section 20
12551+42	27' RT	12551+42	33' RT	24	Pipe Conc Reinf 24IN CL III (Extension)	6	Reinforced Concrete Pipe - Class III (barrel length = 6)	24				N/A		Remove & Relay	See Section 20
12562+66	-51' LT	12562+66	-45' LT	24	Pipe Conc Reinf 24IN CL III (Extension)	6	Reinforced Concrete Pipe - Class III (barrel length = 6)	24				N/A	Remove & Relay		See Section 20
12562+67	55' RT	12562+67	61' RT	24	Pipe Conc Reinf 24IN CL III (Extension)	6	Reinforced Concrete Pipe - Class III (barrel length = 6)	24				N/A		Remove & Relay	See Section 20
12567+55	-53' LT	12567+55	-45' LT	24	Pipe Conc Reinf 24IN CL III (Extension)	8	Reinforced Concrete Pipe - Class III (barrel length = 8)	24				N/A	Remove & Relay		See Section 20
12577+52	-66' LT	12577+52	-58' LT	24	Pipe Conc Reinf 24IN CL III (Extension)	8	Reinforced Concrete Pipe - Class III (barrel length = 8)	24				N/A	Remove & Relay		See Section 20

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

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Allowable Pipe List

Sliver Grading, Milling and RAP Overlay

ND 200, Jct 14 E to W Jct 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	R1 Fabric (Pay Item)	(*) End Sections		Applicable Backfill Detail
													Begin	End	
				In	Bid Item	LF		In	Type		In	SY	EA	EA	
12577+52	40' RT	12577+52	64' RT	24	Pipe Conc Reinf 24IN CL III (Extension)	24	Reinforced Concrete Pipe - Class III (barrel length = 24)	24				N/A		Remove & Relay	See Section 20
12580+69	-65' LT	12580+69	-59' LT	30	Pipe Conc Reinf 30IN CL III (Extension)	6	Reinforced Concrete Pipe - Class III (barrel length = 6)	30				N/A	Remove & Relay		See Section 20
12580+68	43' RT	12580+68	77' RT	30	Pipe Conc Reinf 30IN CL III (Extension)	34	Reinforced Concrete Pipe - Class III (barrel length = 34)	30				N/A		Remove & Relay	See Section 20
12593+55	-41' LT	12593+55	-33' LT	24	Pipe Conc Reinf 24IN CL III (Extension)	8	Reinforced Concrete Pipe - Class III (barrel length = 8)	24				N/A	Remove & Relay		See Section 20
12593+58	33' RT	12593+58	37' RT	24	Pipe Conc Reinf 24IN CL III (Extension)	4	Reinforced Concrete Pipe - Class III (barrel length = 4)	24				N/A		Remove & Relay	See Section 20
12601+22	-33' LT	12601+22	-27' LT	24	Pipe Conc Reinf 24IN CL III (Extension)	6	Reinforced Concrete Pipe - Class III (barrel length = 6)	24				N/A	Remove & Relay		See Section 20
12601+22	25' RT	12601+22	35' RT	24	Pipe Conc Reinf 24IN CL III (Extension)	10	Reinforced Concrete Pipe - Class III (barrel length = 10)	24				N/A		Remove & Relay	See Section 20
12607+63	-46' LT	12607+63	-40' LT	24	Pipe Conc Reinf 24IN CL III (Extension)	6	Reinforced Concrete Pipe - Class III (barrel length = 6)	24				N/A	Remove & Relay		See Section 20
12607+63	44' RT	12607+63	50' RT	24	Pipe Conc Reinf 24IN CL III (Extension)	6	Reinforced Concrete Pipe - Class III (barrel length = 6)	24				N/A		Remove & Relay	See Section 20
12624+79	-42' LT	12625+03	-42' LT	18	Pipe Corr. Steel .064IN 18IN (Extension)	24	Corrugated Steel Pipe	18	Z,A,P	2	0.064	N/A	Install		See Section 20
12625+45	-42' LT	12625+67	-43' LT	18	Pipe Corr. Steel .064IN 18IN (Extension)	22	Corrugated Steel Pipe	18	Z,A,P	2	0.064	N/A		Install	See Section 20
12654+09	-43' LT	12654+31	-43' LT	18	Pipe Corr. Steel .064IN 18IN (Extension)	22	Corrugated Steel Pipe	18	Z,A,P	2	0.064	N/A	Remove & Relay		See Section 20
12654+90	-44' LT	12655+02	-44' LT	18	Pipe Corr. Steel .064IN 18IN (Extension)	12	Corrugated Steel Pipe	18	Z,A,P	2	0.064	N/A		Remove & Relay	See Section 20
12654+09	43' RT	12654+33	42' RT	18	Pipe Corr. Steel .064IN 18IN (Extension)	24	Corrugated Steel Pipe	18	Z,A,P	2	0.064	N/A	Remove & Relay		See Section 20
12654+80	41' RT	12655+04	41' RT	18	Pipe Corr. Steel .064IN 18IN (Extension)	24	Corrugated Steel Pipe	18	Z,A,P	2	0.064	N/A		Remove & Relay	See Section 20
12664+55	-60' LT	12664+55	-38' LT	30	Pipe Conc Reinf 30IN CL III (Extension)	22	Reinforced Concrete Pipe - Class III (barrel length = 22)	30				N/A	Remove & Relay		See Section 20
12664+56	40' RT	12664+56	58' RT	30	Pipe Conc Reinf 30IN CL III (Extension)	18	Reinforced Concrete Pipe - Class III (barrel length = 18)	30				N/A		Remove & Relay	See Section 20

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Allowable Pipe List

Sliver Grading, Milling and RAP Overlay

ND 200, Jct 14 E to W Jct 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	R1 Fabric (Pay Item)	(*) End Sections		Applicable Backfill Detail
													Begin	End	
				In	Bid Item	LF		In	Type		In	SY	EA	EA	
12669+31	59' RT	12669+55	59' RT	30	Pipe Corr. Steel .064IN 30IN (Extension)	24	Corrugated Steel Pipe	30	Z,A,P	2	0.064	N/A	Remove & Relay		See Section 20
12670+03	58' RT	12670+27	58' RT	30	Pipe Corr. Steel .064IN 30IN (Extension)	12	Corrugated Steel Pipe	30	Z,A,P	2	0.064	N/A		Remove & Relay	See Section 20
12682+55	-52' LT	12682+55	-42' LT	30	Pipe Conc Reinf 30IN CL III (Extension)	10	Reinforced Concrete Pipe - Class III (barrel length = 10)	30				N/A	Remove & Relay		See Section 20
12682+55	43' RT	12682+55	49' RT	30	Pipe Conc Reinf 30IN CL III (Extension)	6	Reinforced Concrete Pipe - Class III (barrel length = 6)	30				N/A		Remove & Relay	See Section 20
12685+59	-60' LT	12685+69	-60' LT	18	Pipe Corr. Steel .064IN 18IN (Extension)	10	Corrugated Steel Pipe	18	Z,A,P	2	0.064	N/A		Install	See Section 20
12684+55	43' RT	12684+71	43' RT	18	Pipe Corr. Steel .064IN 18IN (Extension)	16	Corrugated Steel Pipe	18	Z,A,P	2	0.064	N/A	Install		See Section 20
12685+59	44' RT	12685+69	44' RT	18	Pipe Corr. Steel .064IN 18IN (Extension)	10	Corrugated Steel Pipe	18	Z,A,P	2	0.064	N/A		Install	See Section 20
12684+75	79' RT	12684+82	79' RT	18	Pipe Corr. Steel .064IN 18IN (Extension)	7	Corrugated Steel Pipe	18	Z,A,P	2	0.064	N/A	Install		See Section 20
12685+34	80' RT	12685+42	80' RT	18	Pipe Corr. Steel .064IN 18IN (Extension)	8	Corrugated Steel Pipe	18	Z,A,P	2	0.064	N/A		Install	See Section 20
12694+45	46' RT	12694+65	46' RT	18	Pipe Corr. Steel .064IN 18IN (Extension)	20	Corrugated Steel Pipe	18	Z,A,P	2	0.064	N/A	Remove & Relay		See Section 20
12695+06	46' RT	12695+30	46' RT	18	Pipe Corr. Steel .064IN 18IN (Extension)	24	Corrugated Steel Pipe	18	Z,A,P	2	0.064	N/A		Remove & Relay	See Section 20
12705+32	-63' LT	12705+46	-63' LT	18	Pipe Corr. Steel .064IN 18IN (Extension)	14	Corrugated Steel Pipe	18	Z,A,P	2	0.064	N/A	Install		See Section 20
12706+11	-62' LT	12706+25	-62' LT	18	Pipe Corr. Steel .064IN 18IN (Extension)	14	Corrugated Steel Pipe	18	Z,A,P	2	0.064	N/A		Install	See Section 20
12735+54	-44' LT	12735+54	-40' LT	24	Pipe Conc Reinf 24IN CL III (Extension)	4	Reinforced Concrete Pipe - Class III (barrel length = 4)	24				N/A	Remove & Relay		See Section 20
12735+55	36' RT	12735+55	44' RT	24	Pipe Conc Reinf 24IN CL III (Extension)	8	Reinforced Concrete Pipe - Class III (barrel length = 8)	24				N/A		Remove & Relay	See Section 20
12736+69	43' RT	12736+91	43' RT	18	Pipe Corr. Steel .064IN 18IN (Extension)	22	Corrugated Steel Pipe	18	Z,A,P	2	0.064	N/A	Install		See Section 20
12737+37	43' RT	12737+57	43' RT	18	Pipe Corr. Steel .064IN 18IN (Extension)	20	Corrugated Steel Pipe	18	Z,A,P	2	0.064	N/A		Install	See Section 20

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Allowable Pipe List

Sliver Grading, Milling and RAP Overlay

ND 200, Jct 14 E to W Jct 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	R1 Fabric (Pay Item)	(*) End Sections		Applicable Backfill Detail
													Begin	End	
				In	Bid Item	LF		In	Type		In	SY	EA	EA	
12747+37	-43' LT	12747+67	-43' LT	18	Pipe Conc Reinf 18IN CL III (Extension)	30	Reinforced Concrete Pipe - Class III (barrel length = 30)	18				N/A	Install		See Section 20
12748+08	-43' LT	12748+32	-43' LT	18	Pipe Conc Reinf 18IN CL III (Extension)	24	Reinforced Concrete Pipe - Class III (barrel length = 24)	18				N/A		Install	See Section 20
12754+55	-45' LT	12754+55	-41' LT	24	Pipe Conc Reinf 24IN CL III (Extension)	4	Reinforced Concrete Pipe - Class III (barrel length = 4)	24				N/A	Remove & Relay		See Section 20
12763+06	47' RT	12763+24	47' RT	18	Pipe Corr. Steel .064IN 18IN (Extension)	18	Corrugated Steel Pipe	18	Z,A,P	2	0.064	N/A	Install		See Section 20
12763+92	48' RT	12764+02	48' RT	18	Pipe Corr. Steel .064IN 18IN (Extension)	10	Corrugated Steel Pipe	18	Z,A,P	2	0.064	N/A		Install	See Section 20
12800+30	-51' LT	12800+30	-43' LT	24	Pipe Conc Reinf 24IN CL III (Extension)	8	Reinforced Concrete Pipe - Class III (barrel length = 8)	24				N/A	Remove & Relay		See Section 20
12800+28	44' RT	12800+28	50' RT	24	Pipe Conc Reinf 24IN CL III (Extension)	6	Reinforced Concrete Pipe - Class III (barrel length = 6)	24				N/A		Remove & Relay	See Section 20
12803+34	44' RT	12803+61	44' RT	18	Pipe Corr. Steel .064IN 18IN (Extension)	27	Corrugated Steel Pipe	18	Z,A,P	2	0.064	N/A	Remove & Relay		See Section 20
12804+04	44' RT	12804+29	44' RT	18	Pipe Corr. Steel .064IN 18IN (Extension)	25	Corrugated Steel Pipe	18	Z,A,P	2	0.064	N/A		Remove & Relay	See Section 20
12809+82	-46' LT	12809+82	-38' LT	24	Pipe Conc Reinf 24IN CL III (Extension)	8	Reinforced Concrete Pipe - Class III (barrel length = 8)	24				N/A	Remove & Relay		See Section 20
12809+82	36' RT	12809+82	46' RT	24	Pipe Conc Reinf 24IN CL III (Extension)	10	Reinforced Concrete Pipe - Class III (barrel length = 10)	24				N/A		Remove & Relay	See Section 20
12812+51	43' RT	12812+63	43' RT	18	Pipe Corr. Steel .064IN 18IN (Extension)	12	Corrugated Steel Pipe	18	Z,A,P	2	0.064	N/A	Remove & Relay		See Section 20
12813+33	44' RT	12813+41	44' RT	18	Pipe Corr. Steel .064IN 18IN (Extension)	8	Corrugated Steel Pipe	18	Z,A,P	2	0.064	N/A		Remove & Relay	See Section 20
12822+08	-36' LT	12822+08	-28' LT	24	Pipe Conc Reinf 24IN CL III (Extension)	8	Reinforced Concrete Pipe - Class III (barrel length = 8)	24				N/A	Remove & Relay		See Section 20
12822+07	26' RT	12822+07	38' RT	24	Pipe Conc Reinf 24IN CL III (Extension)	12	Reinforced Concrete Pipe - Class III (barrel length = 12)	24				N/A		Remove & Relay	See Section 20
12822+21	53' RT	12822+31	53' RT	24	Pipe Conc Reinf 24IN CL III (Extension)	10	Reinforced Concrete Pipe - Class III (barrel length = 10)	24				N/A	Remove & Relay		See Section 20
12832+84	-48' LT	12832+84	-44' LT	30	Pipe Conc Reinf 30IN CL III (Extension)	4	Reinforced Concrete Pipe - Class III (barrel length = 4)	30				N/A	Remove & Relay		See Section 20

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Allowable Pipe List

Sliver Grading, Milling and RAP Overlay
ND 200, Jct 14 E to W Jct 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	R1 Fabric (Pay Item)	(*) End Sections		Applicable Backfill Detail
													Begin	End	
				In	Bid Item	LF		In	Type		In	SY	EA	EA	
12832+83	44' RT	12832+83	48' RT	30	Pipe Conc Reinf 30IN CL III (Extension)	4	Reinforced Concrete Pipe - Class III (barrel length = 4)	30				N/A		Remove & Relay	See Section 20
12837+94	-50' LT	12837+94	-26' LT	24	Pipe Conc Reinf 24IN CL III (Extension)	24	Reinforced Concrete Pipe - Class III (barrel length = 24)	24				N/A	Remove & Relay		See Section 20
12837+94	26' RT	12837+94	44' RT	24	Pipe Conc Reinf 24IN CL III (Extension)	18	Reinforced Concrete Pipe - Class III (barrel length = 18)	24				N/A		Remove & Relay	See Section 20
12856+09	-49' LT	12856+09	-41' LT	24	Pipe Conc Reinf 24IN CL III (Extension)	8	Reinforced Concrete Pipe - Class III (barrel length = 8)	24				N/A	Remove & Relay		See Section 20
12856+09	38' RT	12856+09	46' RT	24	Pipe Conc Reinf 24IN CL III (Extension)	8	Reinforced Concrete Pipe - Class III (barrel length = 8)	24				N/A		Remove & Relay	See Section 20
12866+83	-39' LT	12866+83	-33' LT	24	Pipe Conc Reinf 24IN CL III (Extension)	6	Reinforced Concrete Pipe - Class III (barrel length = 6)	24				N/A	Remove & Relay		See Section 20
12866+83	29' RT	12866+83	37' RT	24	Pipe Conc Reinf 24IN CL III (Extension)	8	Reinforced Concrete Pipe - Class III (barrel length = 8)	24				N/A		Remove & Relay	See Section 20
12869+65	-41' LT	12869+70	-41' LT	18	Pipe Corr. Steel .064IN 18IN (Extension)	5	Corrugated Steel Pipe	18	Z,A,P	2	0.064	N/A	Remove & Relay		See Section 20
12870+56	-41' LT	12870+65	-41' LT	18	Pipe Corr. Steel .064IN 18IN (Extension)	9	Corrugated Steel Pipe	18	Z,A,P	2	0.064	N/A		Remove & Relay	See Section 20
12889+98	46' RT	12890+07	46' RT	18	Pipe Corr. Steel .064IN 18IN (Extension)	22	Corrugated Steel Pipe	18	Z,A,P	2	0.064	N/A	Remove & Relay		See Section 20
12890+63	46' RT	12890+81	46' RT	18	Pipe Corr. Steel .064IN 18IN (Extension)	18	Corrugated Steel Pipe	18	Z,A,P	2	0.064	N/A		Remove & Relay	See Section 20
12889+98	-61' LT	12890+08	-61' LT	18	Pipe Corr. Steel .064IN 18IN (Extension)	10	Corrugated Steel Pipe	18	Z,A,P	2	0.064	N/A	Remove & Relay		See Section 20
12545+67	42' RT	12545+67	64' RT	24	Pipe Conc Reinf 24IN CL III (Extension)	22	Reinforced Concrete Pipe - Class III (barrel length = 22)	24				N/A		Remove & Relay	See Section 20
12688+49	-47' LT	12688+73	-47' LT	18	Pipe Corr. Steel .064IN 18IN (Extension)	24	Corrugated Steel Pipe	18	Z,A,P	2	0.064	N/A	INSTALL		See Section 20
12689+15	-47' LT	12689+37	-47' LT	18	Pipe Corr. Steel .064IN 18IN (Extension)	22	Corrugated Steel Pipe	18	Z,A,P	2	0.064	N/A		INSTALL	See Section 20
12694+49	-51' LT	12694+71	-51' LT	18	Pipe Corr. Steel .064IN 18IN (Extension)	22	Corrugated Steel Pipe	18	Z,A,P	2	0.064	N/A	INSTALL		See Section 20
12695+05	-51' LT	12695+27	-51' LT	18	Pipe Corr. Steel .064IN 18IN (Extension)	22	Corrugated Steel Pipe	18	Z,A,P	2	0.064	N/A		INSTALL	See Section 20

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

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

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

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

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Allowable Pipe List

Sliver Grading, Milling and RAP Overlay
ND 200, Jct 14 E to W Jct 3

STATE

PROJECT NO.

SECTION NO.

SHEET NO.

ND

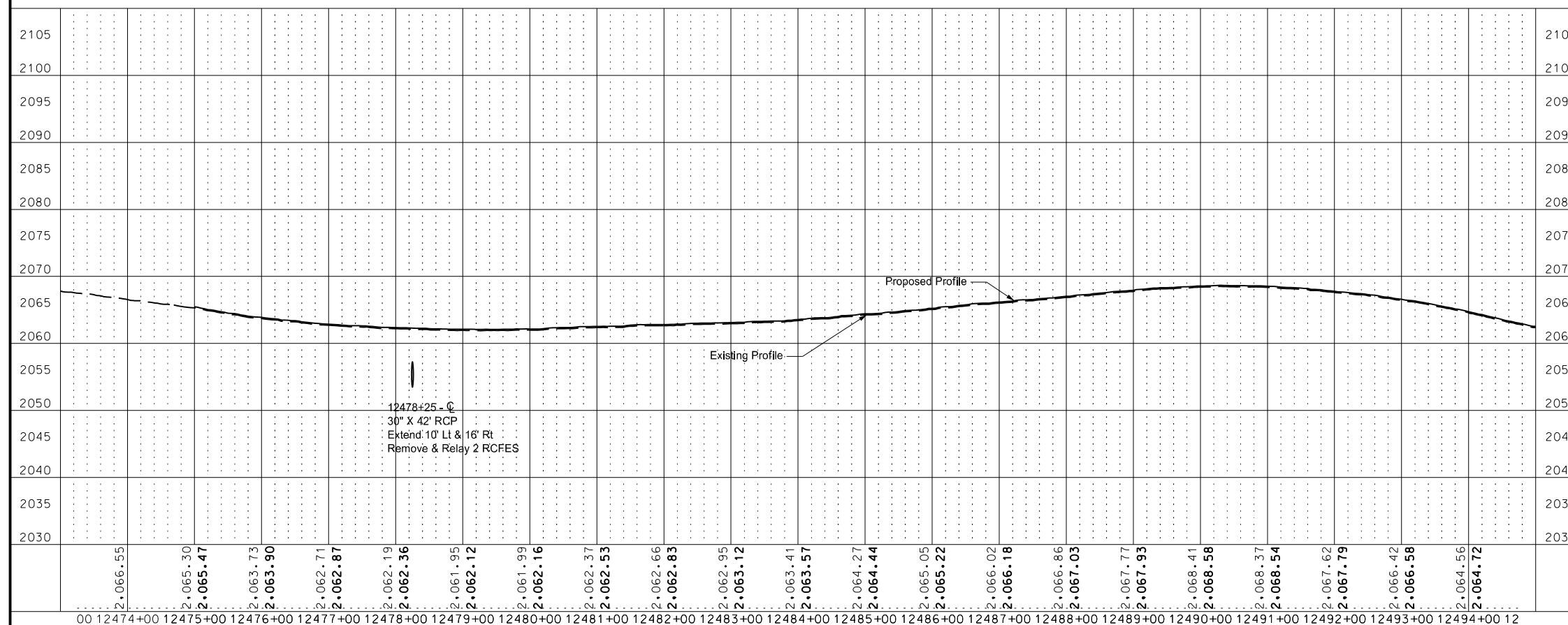
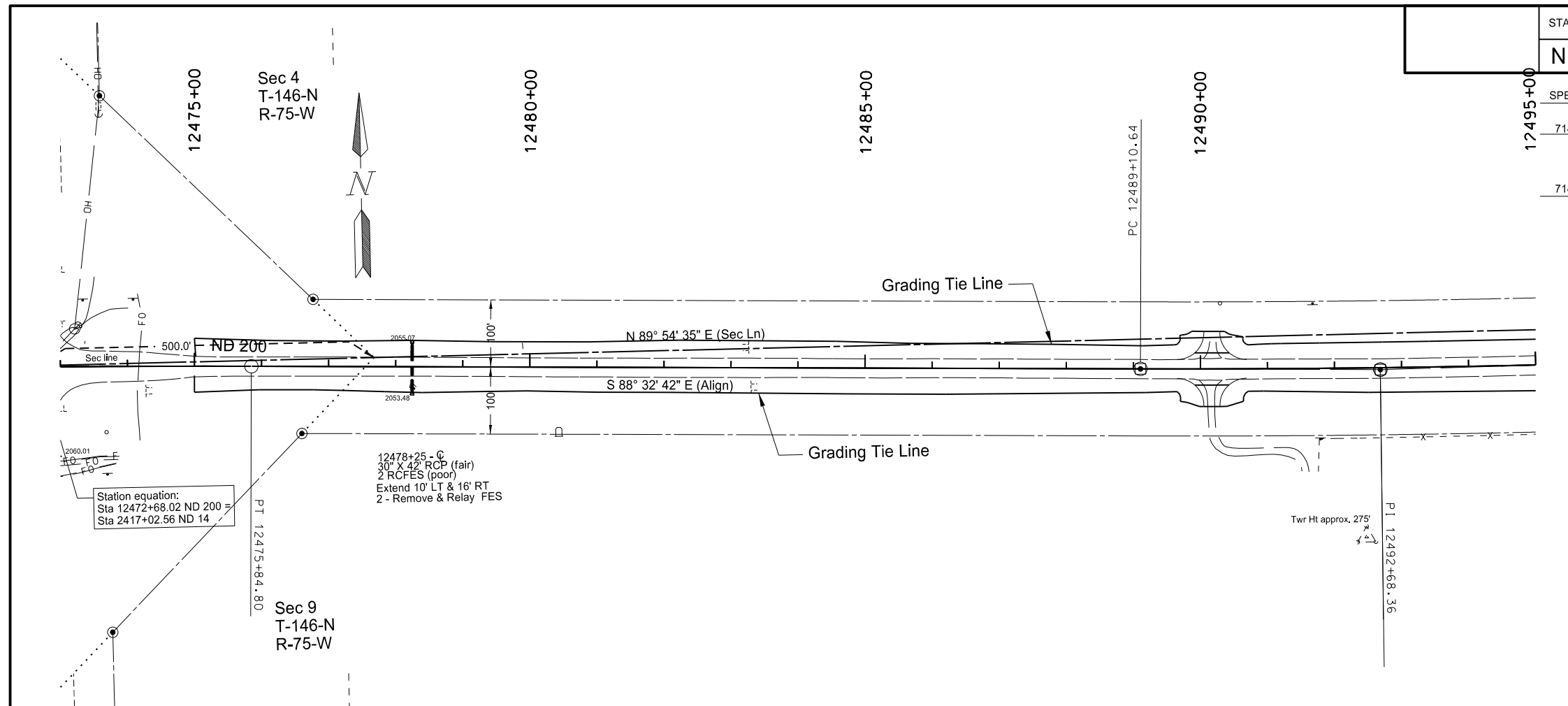
NH-1-200(073)236

60

1

12495+00

SPEC	CODE	BID ITEM	UNIT	QUANTITY
714	0820	PIPE CONC REINF 30IN CL III		
		12478+25 - LT	LF	10
		12478+25 - RT	LF	16
714	9660	REMOVE & RELAY END SECTIONS-ALL TYPES & SIZES		
		12478+25 LT & RT	EA	2

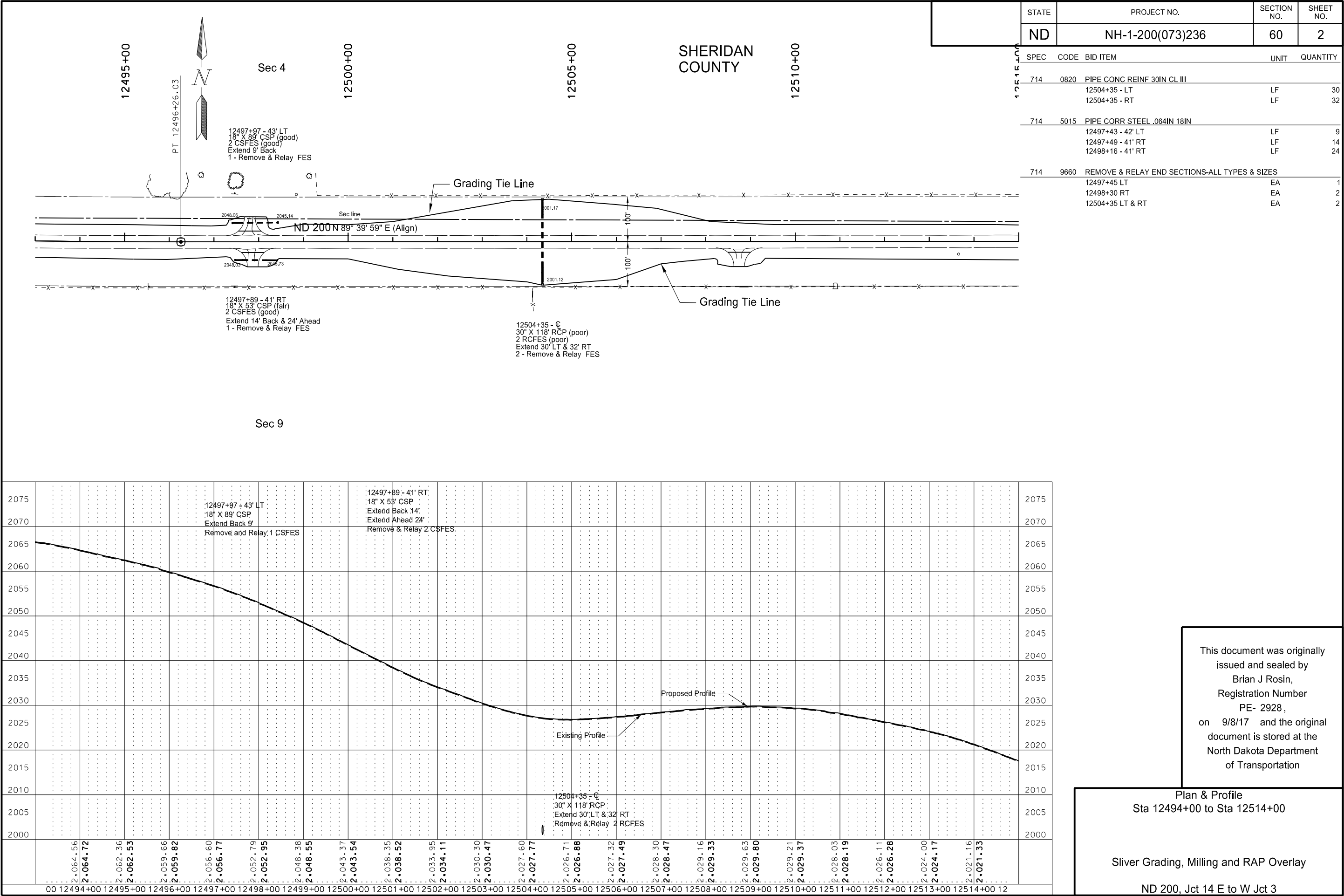


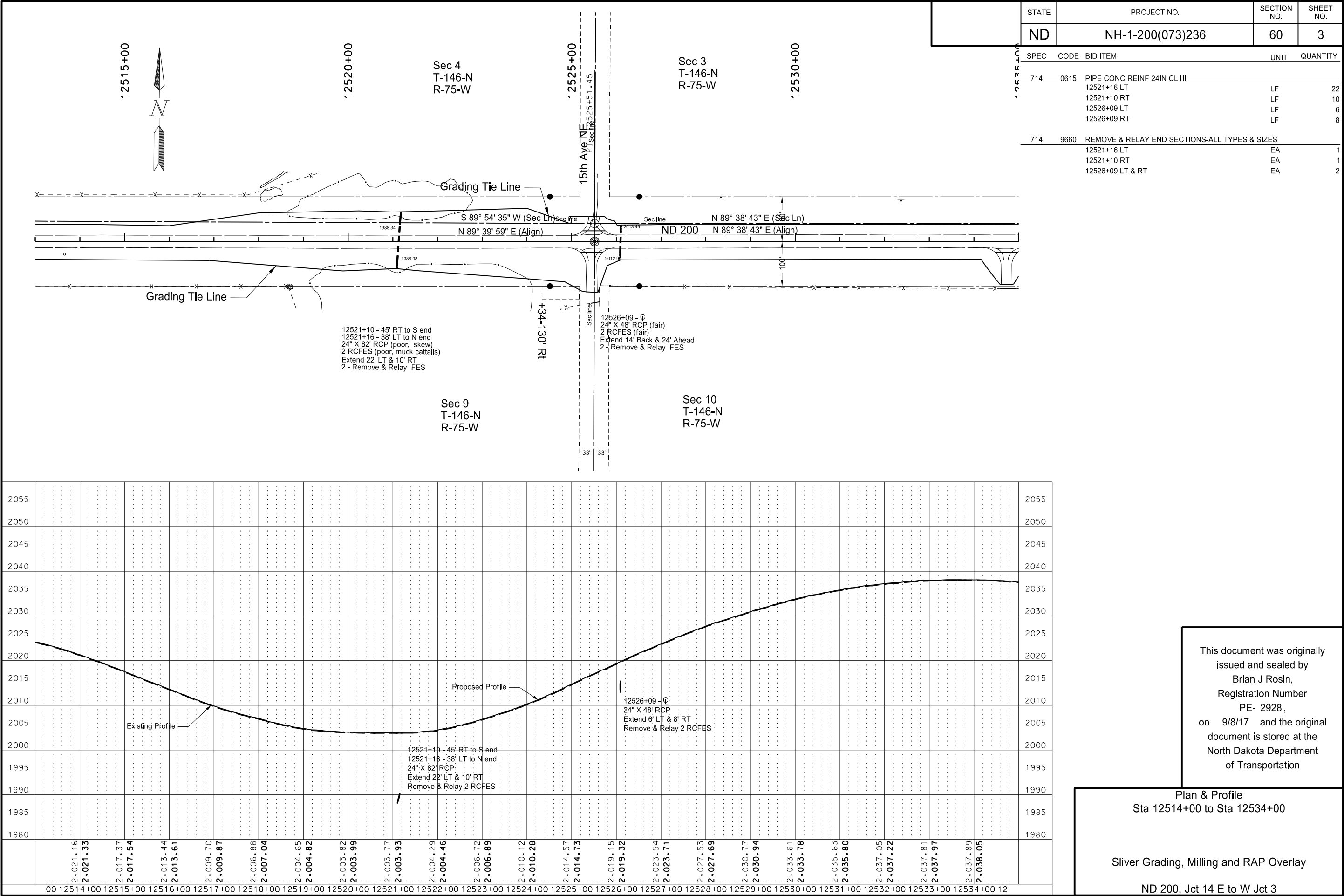
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Plan and Profile
Sta 12475+00 to Sta 12494+00

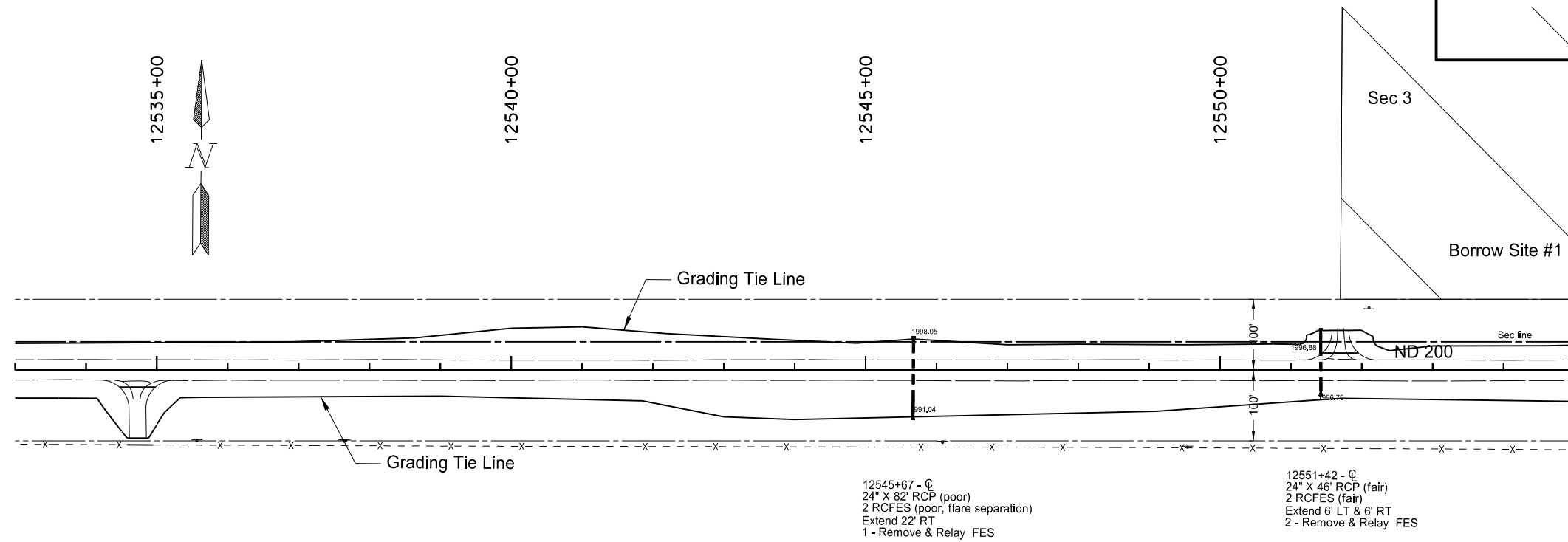
Sliver Grading, Milling and RAP Overlay

ND 200, Jct 14 E to W Jct 3

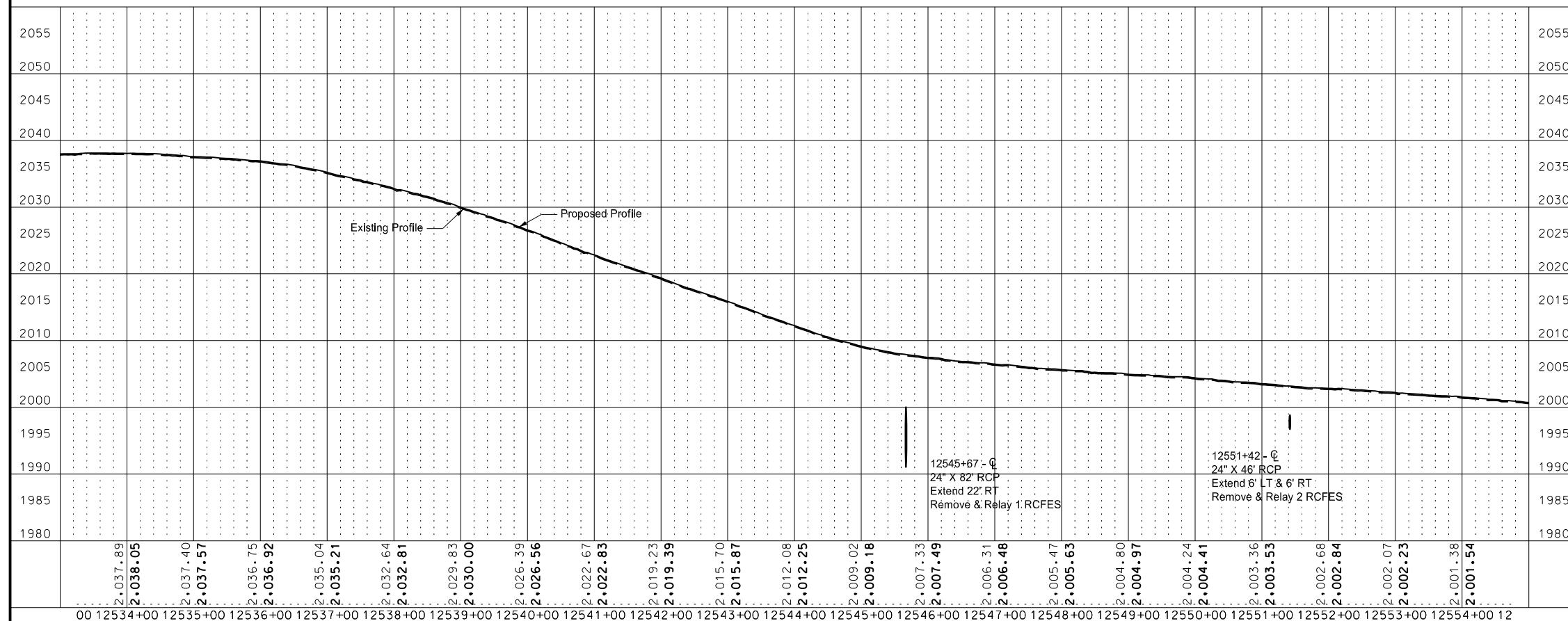




STATE	PROJECT NO.		SECTION NO.	SHEET NO.
NH	NH-1-200(073)236		60	4
SPEC	CODE	BID ITEM	UNIT	QUANTITY
714	0615	PIPE CONC REINF 24IN CL III		
		12545+67 RT	LF	22
		12551+42 LT	LF	6
		12551+42 RT	LF	6
714	9660	REMOVE & RELAY END SECTIONS-ALL TYPES & SIZES		
		12545+67 RT	EA	1
		12551+42 LT & RT	EA	2



Sec 10



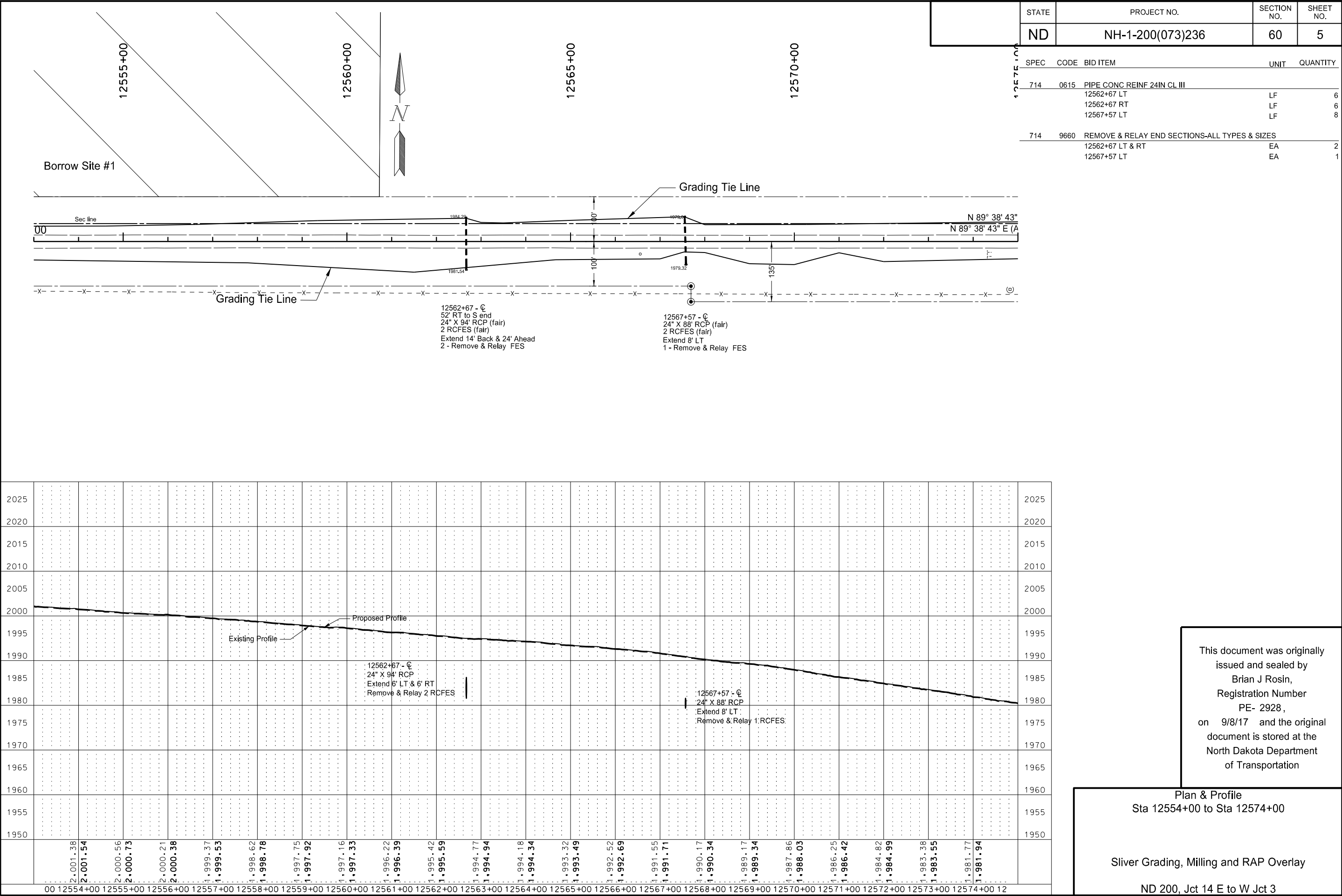
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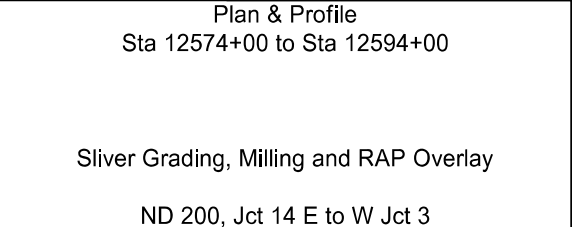
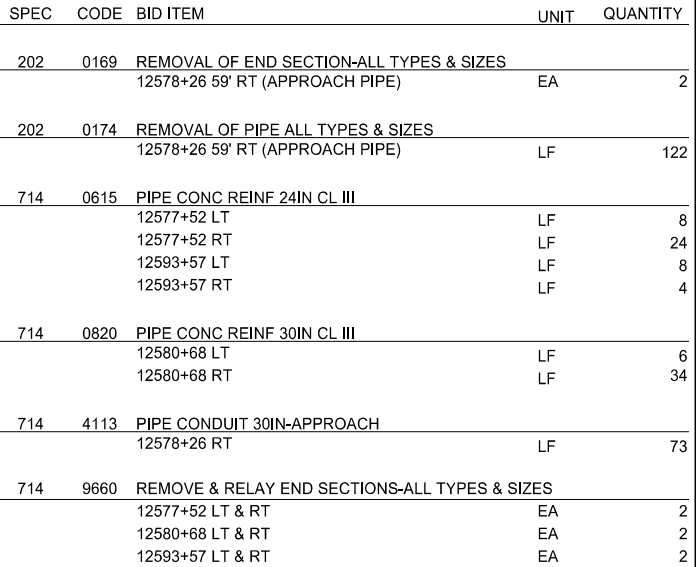
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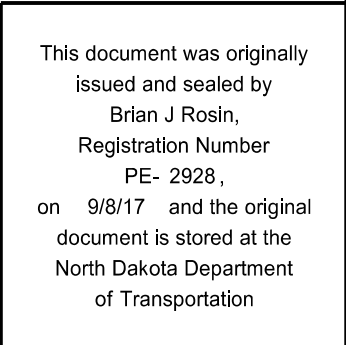
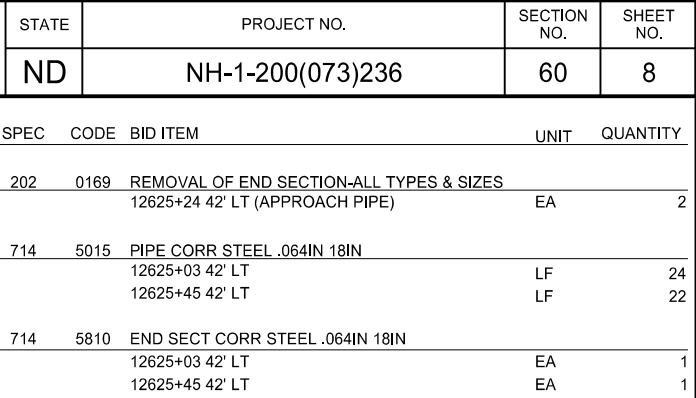
Sta 12534+00 to Sta 12554+00

Sliver Grading, Milling and RAP Overlay

ND 200, Jct 14 E to W Jct 3





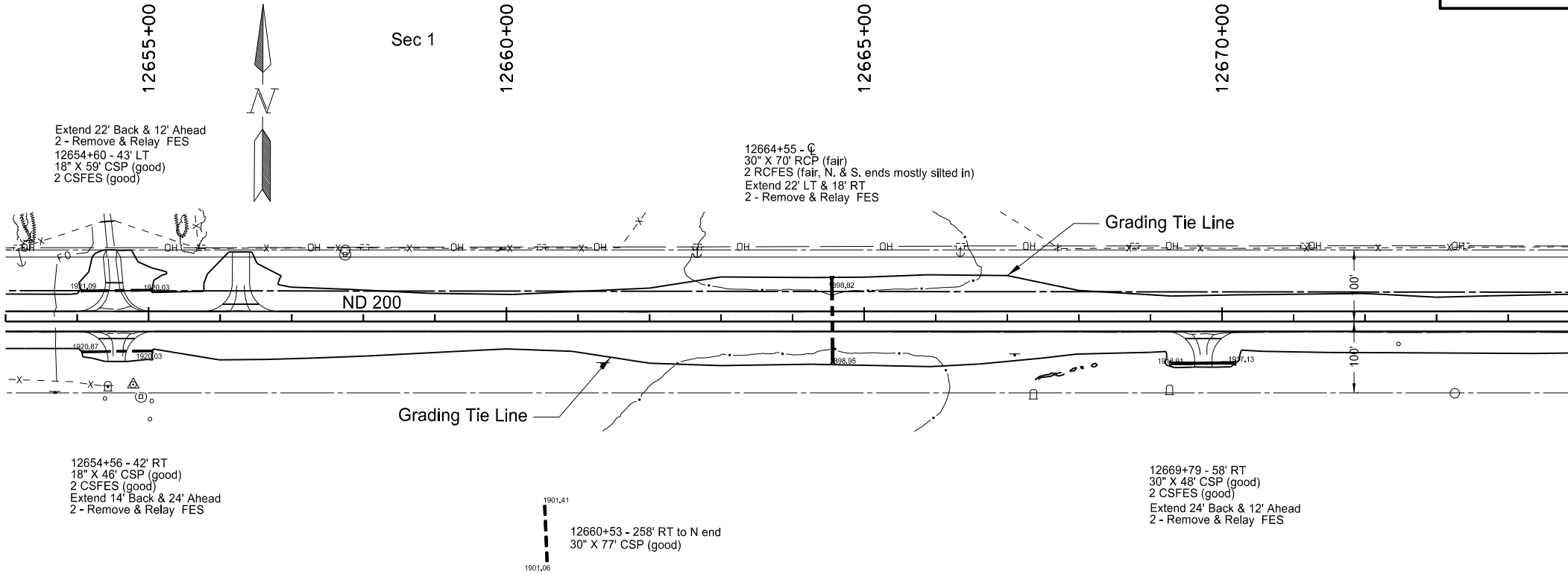


Plan & Profile
Sta 12614+00 to Sta 12634+00

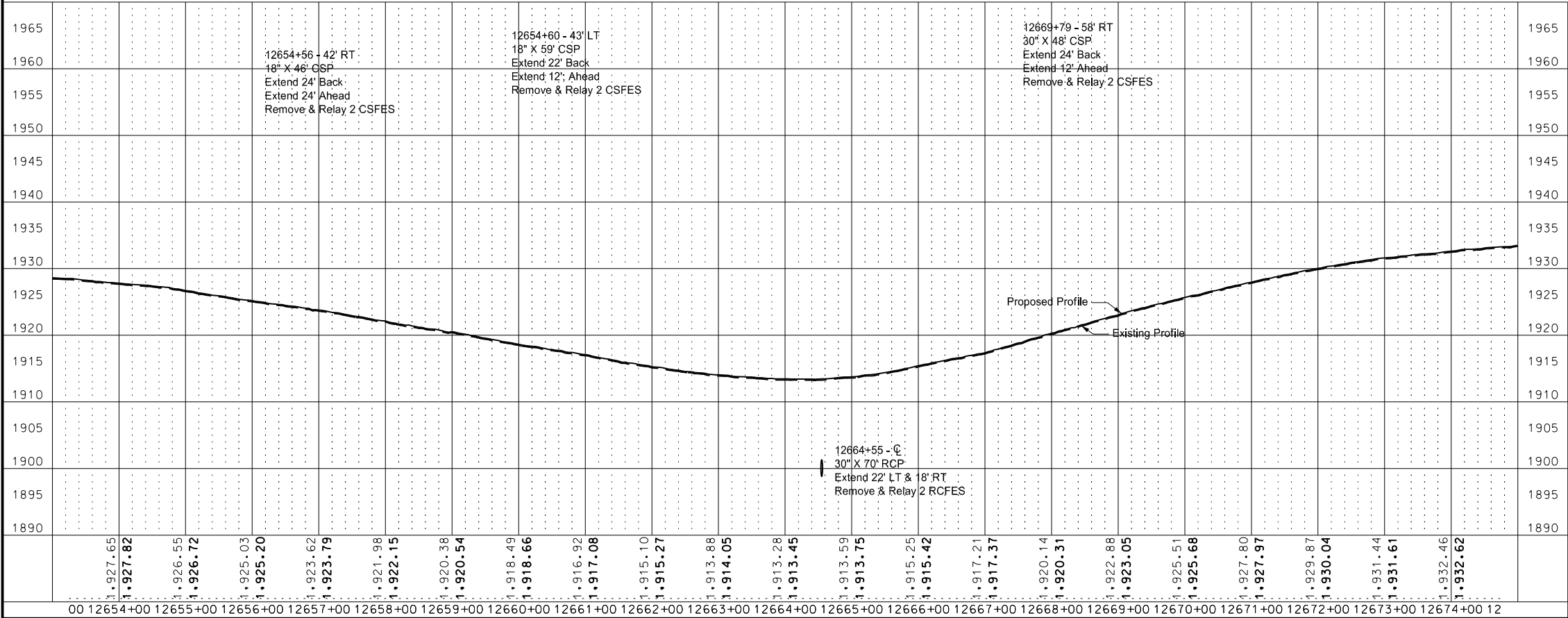
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ND 200, Jct 14 E to W Jct 3

STATE	PROJECT NO.		SECTION NO.	SHEET NO.
	ND		60	10
SPEC	CODE	BID ITEM	UNIT	QUANTITY
714	0820	PIPE CONC REINF 30IN CL III		
		12664+55 LT	LF	22
		12664+55 RT	LF	18
714	5015	PIPE CORR STEEL .064IN 18IN		
		12654+31 LT	LF	22
		12654+90 LT	LF	12
		12654+33 RT	LF	24
		12654+80 RT	LF	24
714	5040	PIPE CORR STEEL .064IN 30IN		
		12669+55 RT	LF	24
		12670+03 RT	LF	12
714	9660	REMOVE & RELAY END SECTIONS-ALL TYPES & SIZES		
		12654+31 LT	EA	1
		12654+33 RT	EA	1
		12654+90 LT	EA	1
		12654+80 RT	EA	1
		12664+55 LT & RT	EA	2
		12669+55 RT	EA	1
		12670+03 RT	EA	1



Sec 12

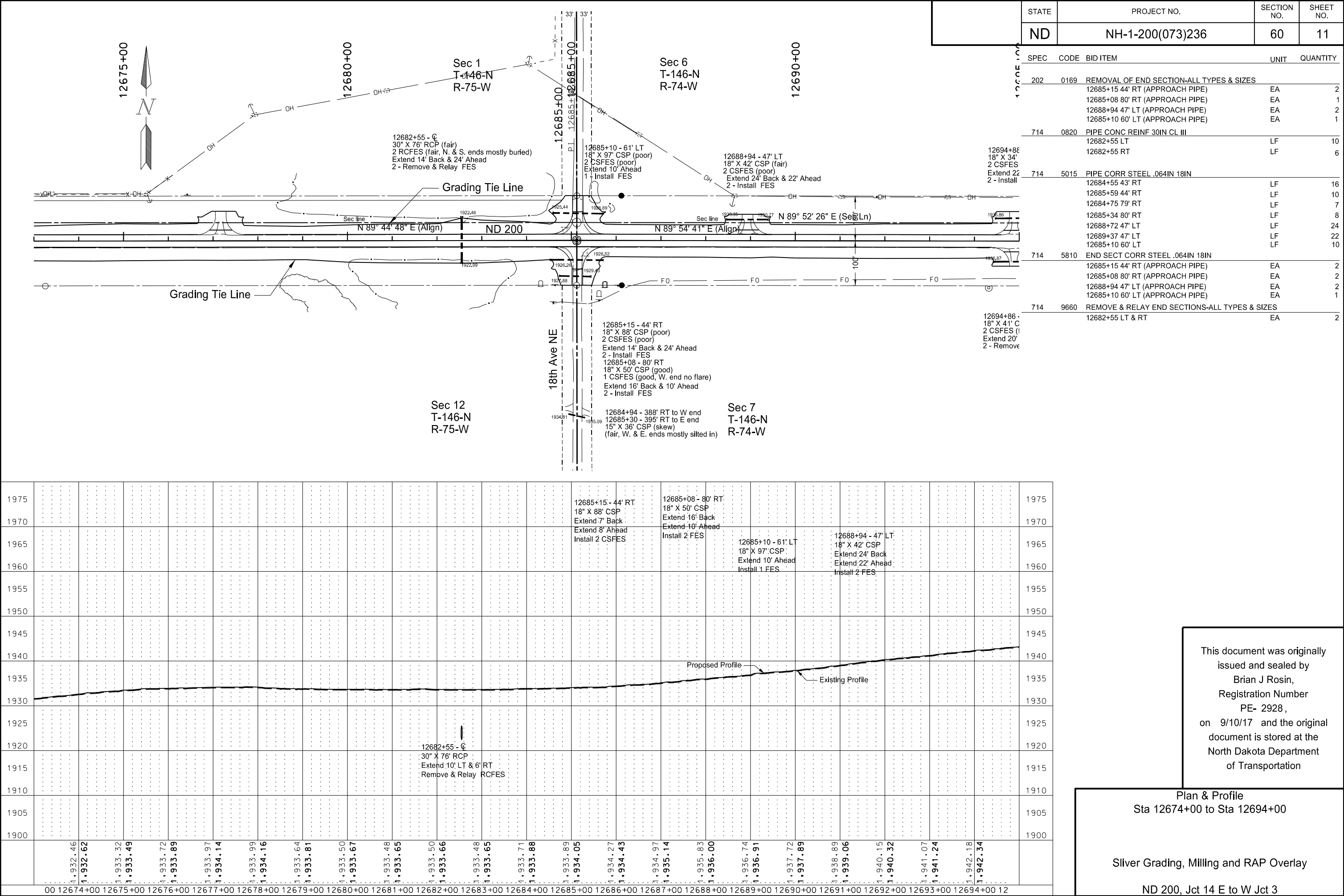


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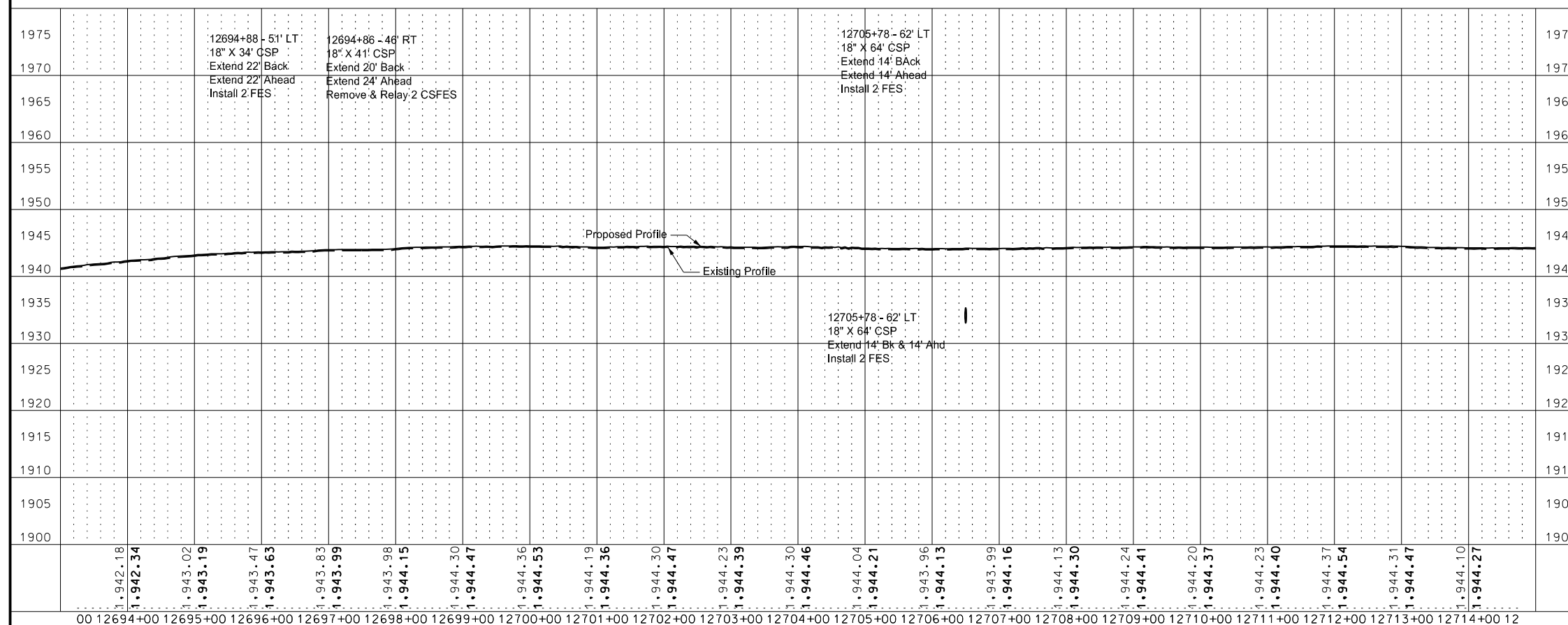
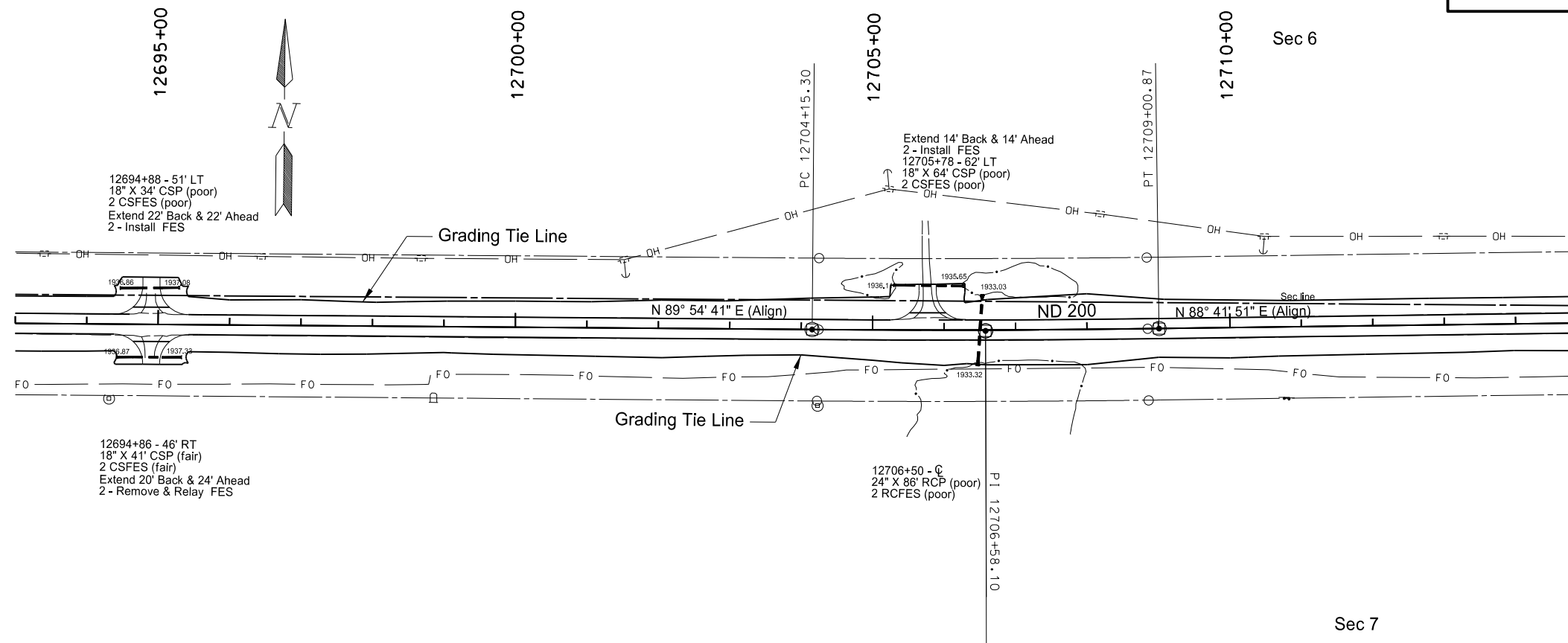
Sliver Grading, Milling and RAP Overlay

ND 200, Jct 14 E to W Jct 3



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-1-200(073)236	60	12

SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0169	REMOVAL OF END SECTION-ALL TYPES & SIZES		
		12694+88 51' LT (APPROACH PIPE)	EA	2
		12705+78 62' LT (APPROACH PIPE)	EA	2
714	5015	PIPE CORR STEEL .064IN 18IN		
		12694+49 51' LT	LF	22
		12695+05 51' LT	LF	22
		12694+45 46' RT	LF	20
		12695+06 46' RT	LF	24
		12705+32 63' LT	LF	14
		12706+11 62' LT	LF	14
714	5810	END SECT CORR STEEL .064IN 18IN		
		12694+88 51' LT (APPROACH PIPE)	EA	2
		12705+78 62' LT (APPROACH PIPE)	EA	2
714	9660	REMOVE & RELAY END SECTIONS-ALL TYPES & SIZES		
		12694+86 46' RT (APPROACH PIPE)	EA	2

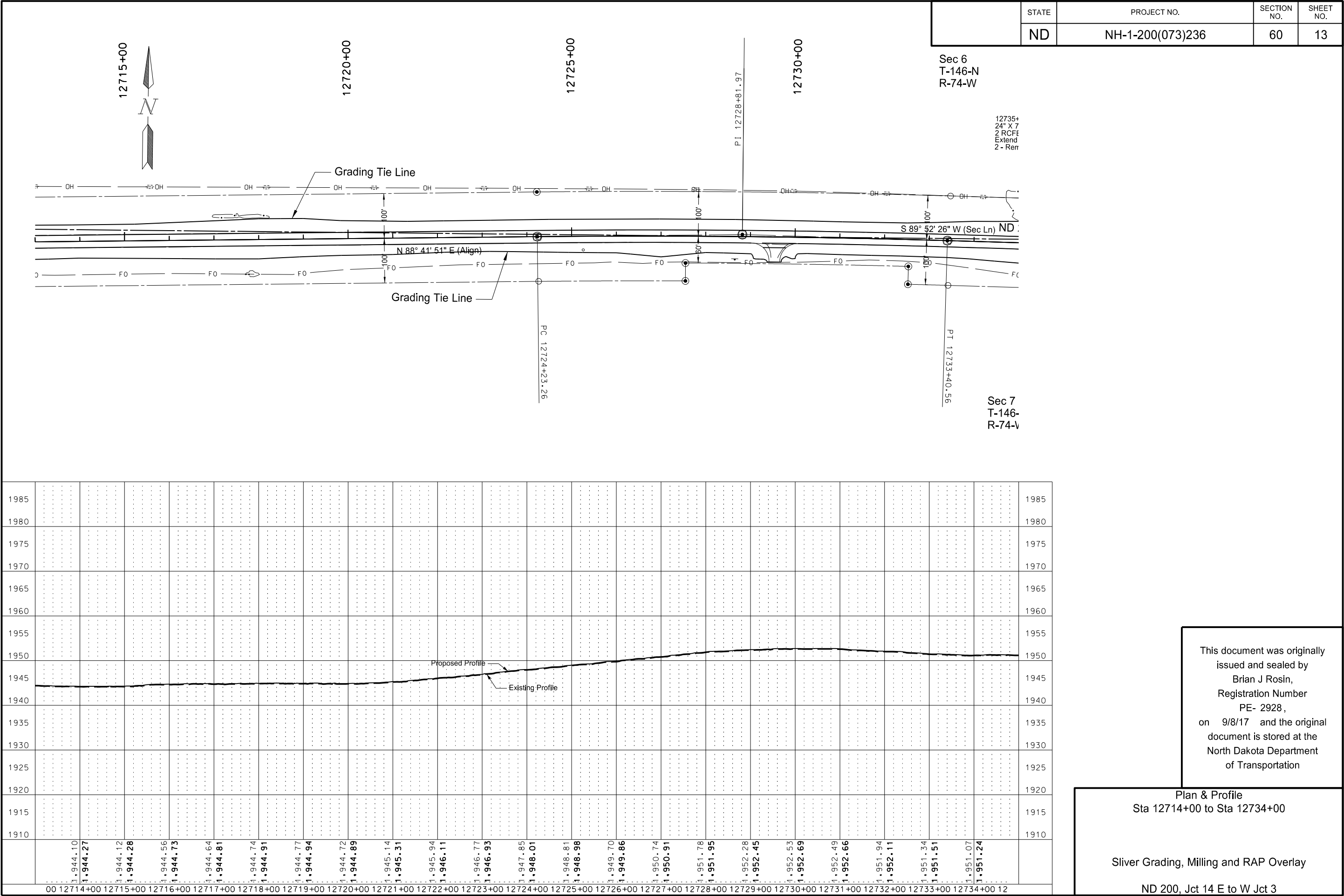


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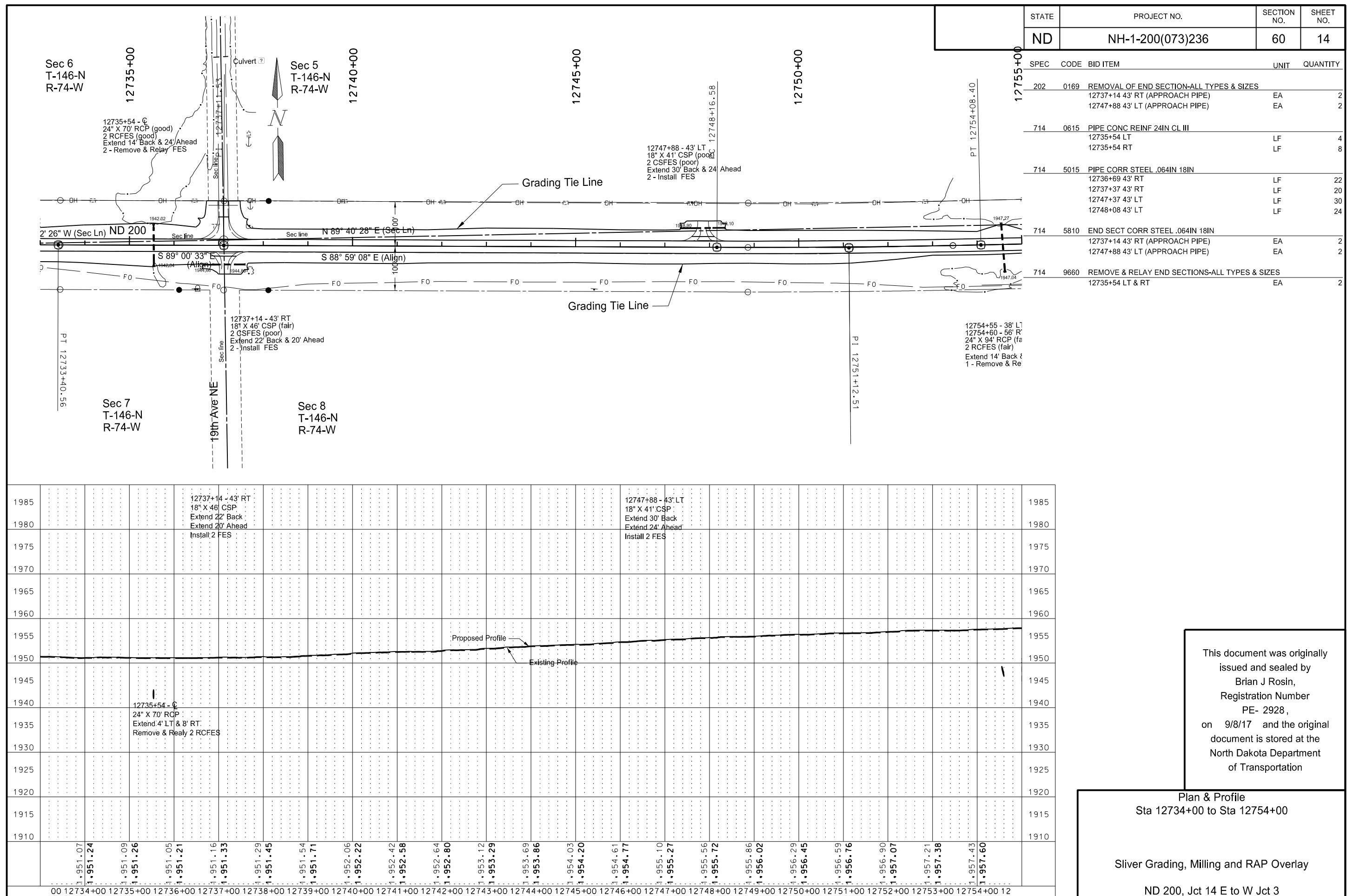
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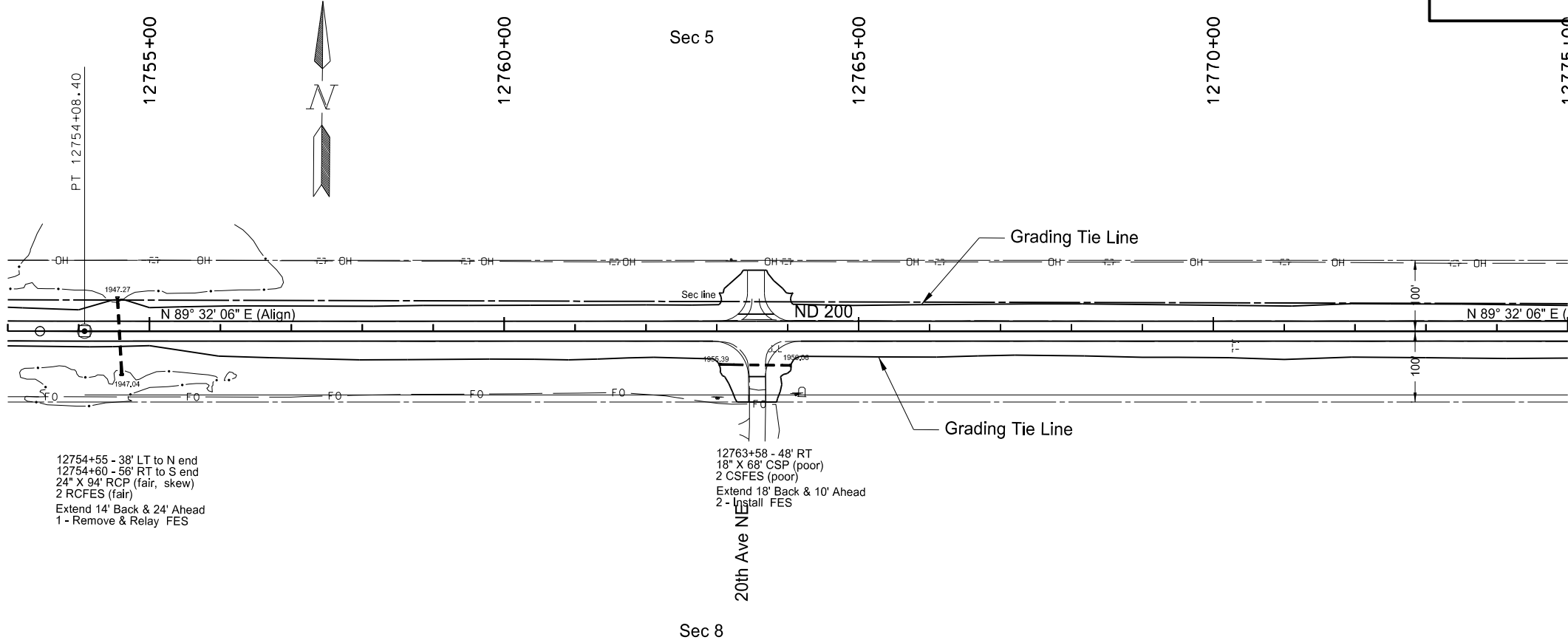
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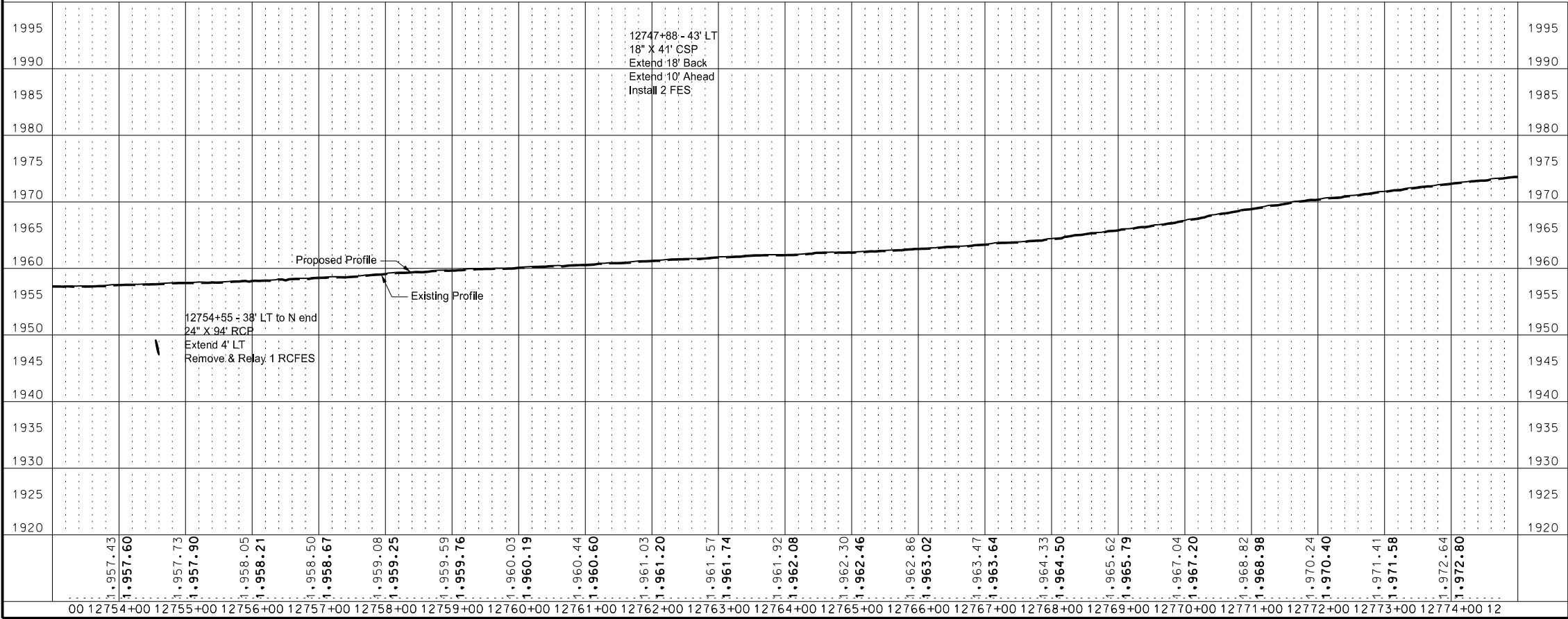
STATE	PROJECT NO.		SECTION NO.	SHEET NO.
ND	NH-1-200(073)236		60	15
SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0169	REMOVAL OF END SECTION-ALL TYPES & SIZES 12763+58 48' RT (APPROACH PIPE)	EA	2
714	0615	PIPE CONC REINF 24IN CL III 12754+55 LT	LF	4
714	5015	PIPE CORR STEEL .064IN 18IN 12763+06 47' RT 12763+92 48' RT	LF LF	18 10
714	5810	END SECT CORR STEEL .064IN 18IN 12763+58 48' RT (APPROACH PIPE)	EA	2
714	9660	REMOVE & RELAY END SECTIONS-ALL TYPES & SIZES 12754+55 LT	EA	1



12754+55 - 38' LT to N end
12754+60 - 56' RT to S end
24" X 94" RCP (fair, skew)
2 RCFES (fair)
Extend 14' Back & 24' Ahead
1 - Remove & Relay FES

12763+58 - 48' RT
18" X 68" CSP (poor)
2 CSFES (poor)
Extend 18' Back & 10' Ahead
2 - Install FES

12747+88 - 43' LT
18" X 41' CSP
Extend 18' Back
Extend 10' Ahead
Install 2 FES



12754+55 - 38' LT to N end
24" X 94" RCP
Extend 4' LT
Remove & Relay 1 RCFES

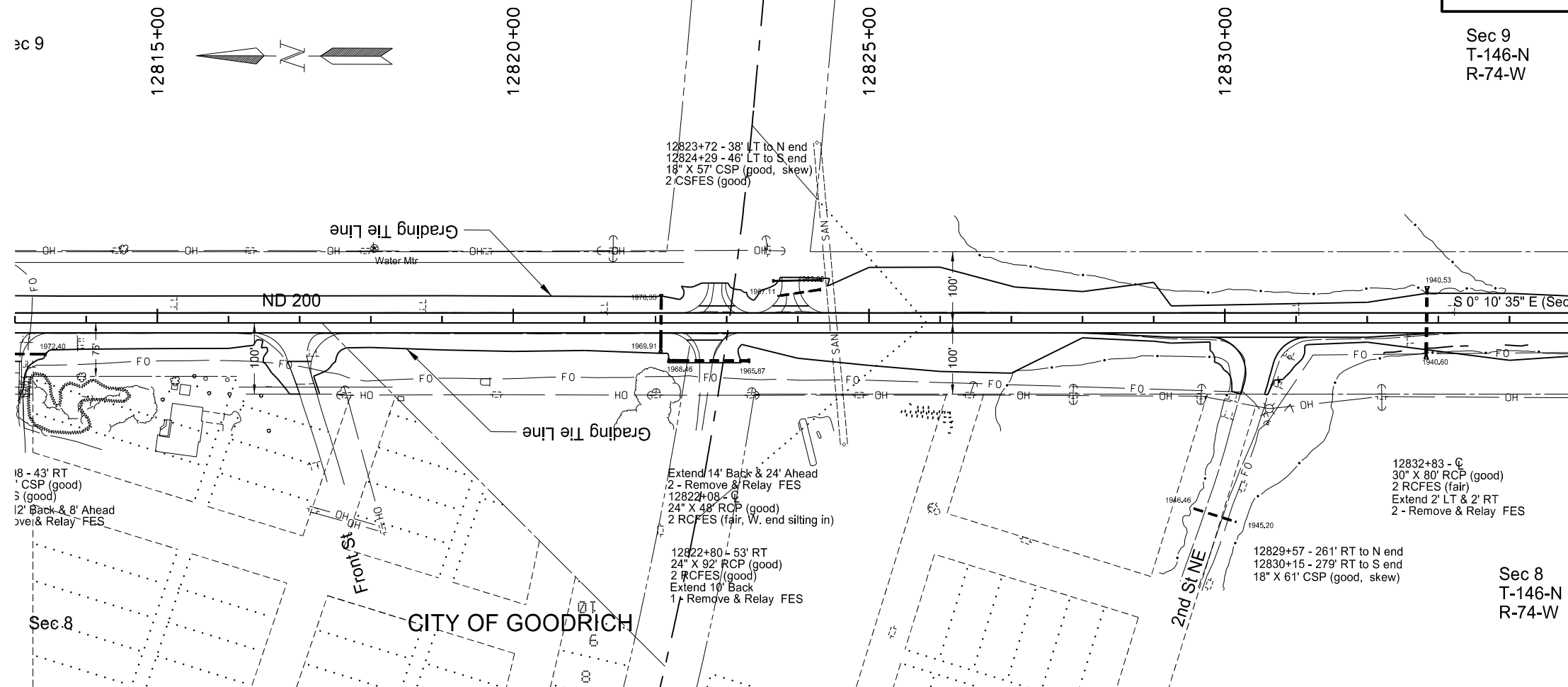
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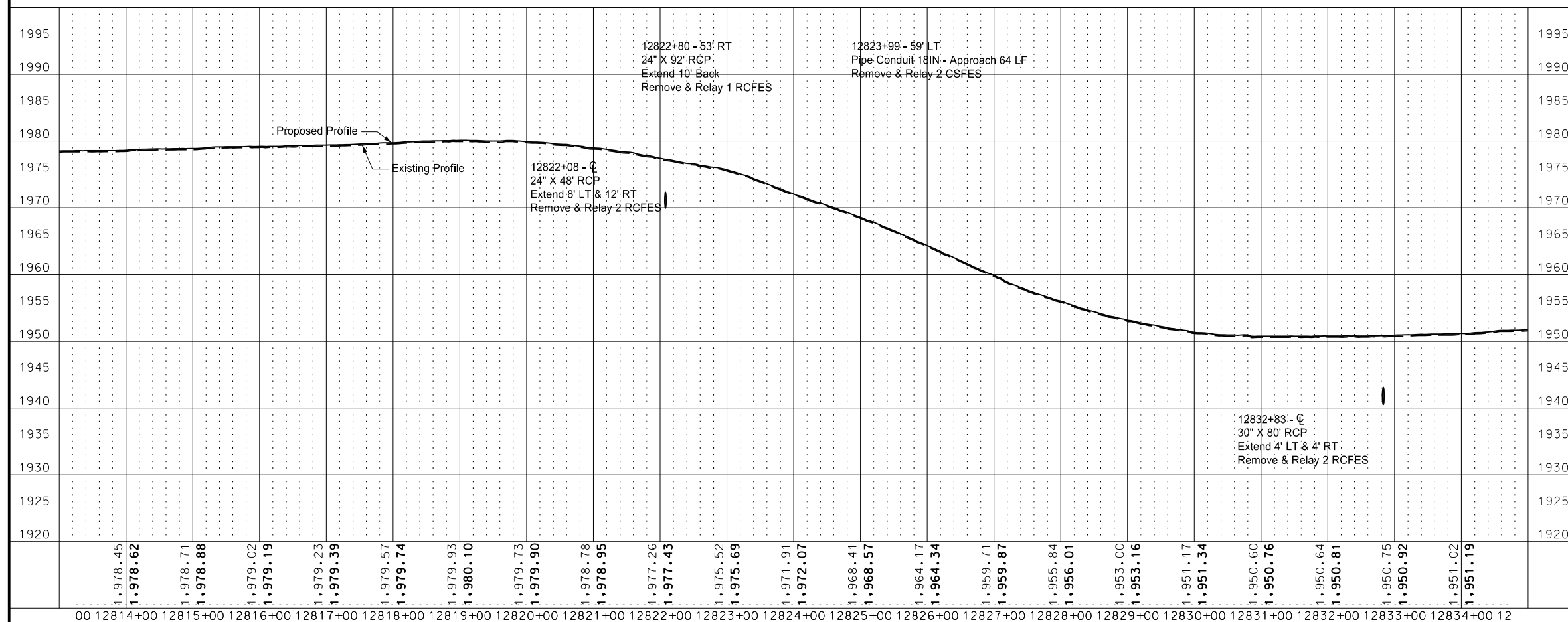
Sliver Grading, Milling and RAP Overlay

ND 200, Jct 14 E to W Jct 3

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-1-200(073)236	60	18



SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0169	REMOVAL OF END SECTION-ALL TYPES & SIZES		
		12823+72 38' LT (APPROACH PIPE)	EA	1
		12824+29 46' LT (APPROACH PIPE)	EA	1
202	0174	REMOVAL OF PIPE ALL TYPES & SIZES		
		12824+10 42' LT	LF	57
714	0615	PIPE CONC REINF 24IN CL III		
		12822+08 LT	LF	8
		12822+08 RT	LF	12
		12822+21 RT	LF	10
714	0820	PIPE CONC REINF 30IN CL III		
		12832+83 LT	LF	4
		12832+83 RT	LF	4
714	4099	PIPE CONDUIT 18IN-APPROACH		
		12823+99 59' LT APPROACH (PIPE)	LF	64
714	5015	PIPE CORR STEEL .064IN 18IN		
		12823+60 38' LT	LF	12
		12824+29 46' LT	LF	12
714	9660	REMOVE & RELAY END SECTIONS-ALL TYPES & SIZES		
		12822+08 LT & RT	EA	2
		12832+83 LT & RT	EA	2
		12822+80 53' RT (APPROACH PIPE)	EA	1
		12823+72 38' LT (APPROACH PIPE)	EA	1
		12824+29 46' LT (APPROACH PIPE)	EA	1

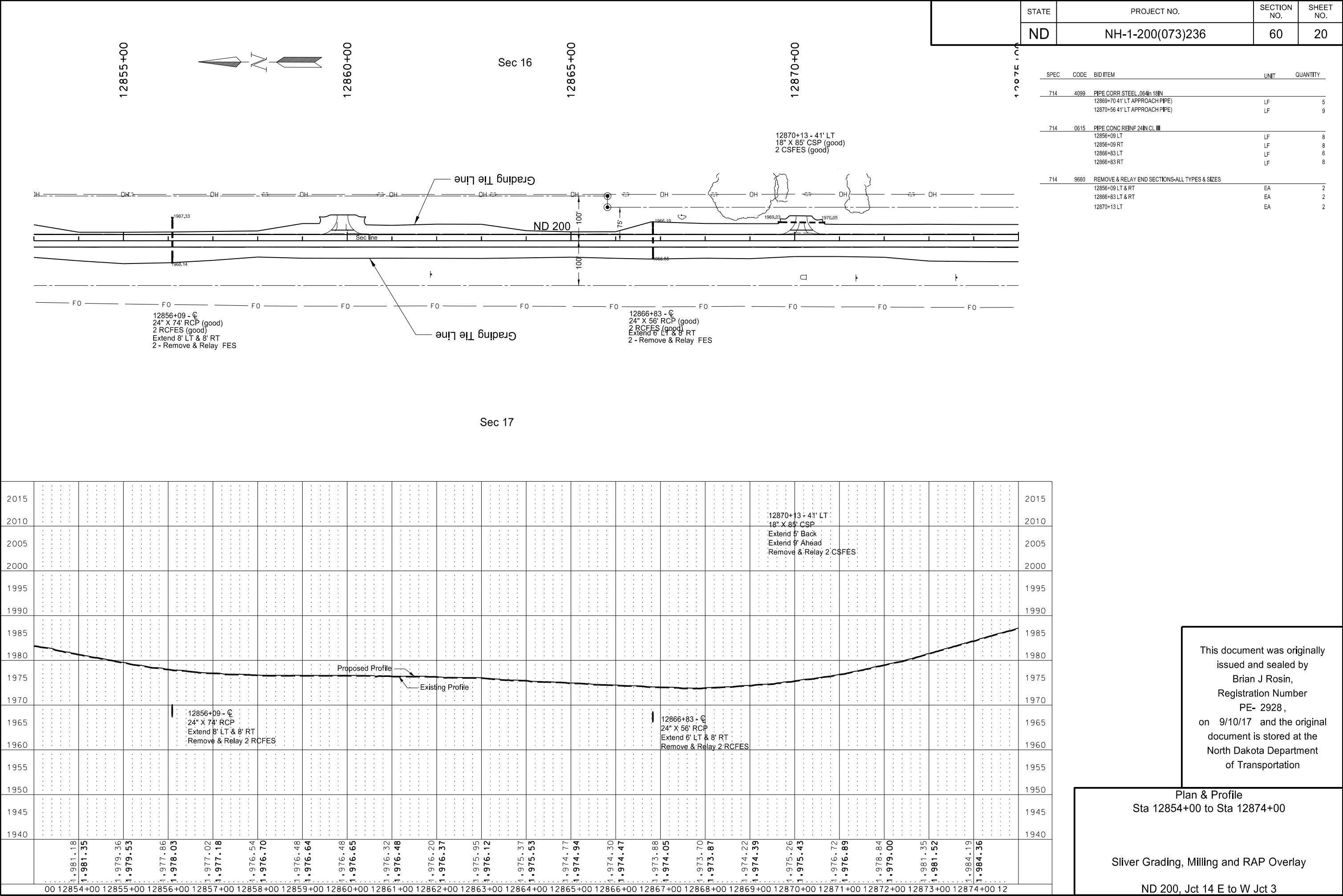


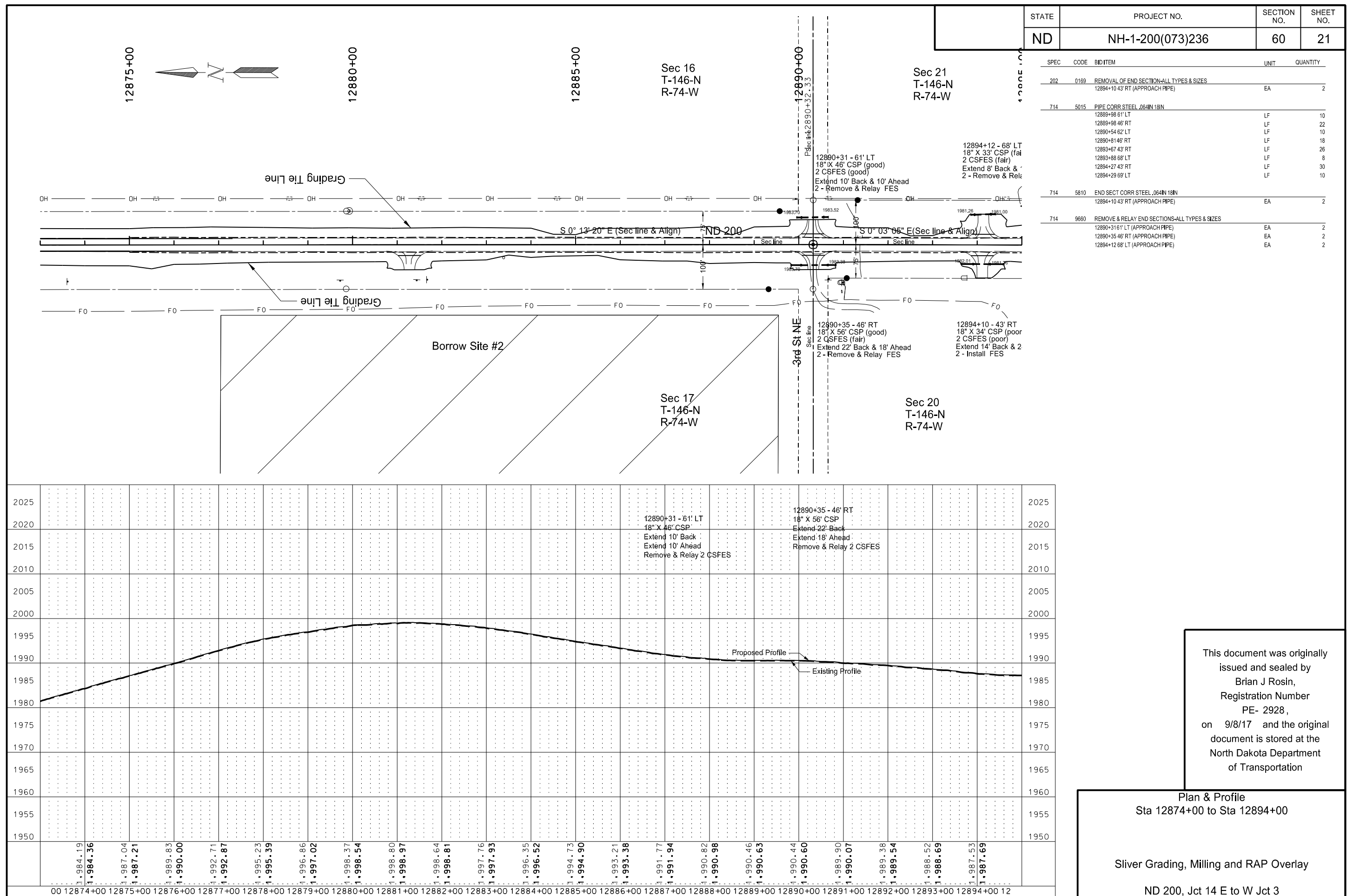
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Plan & Profile
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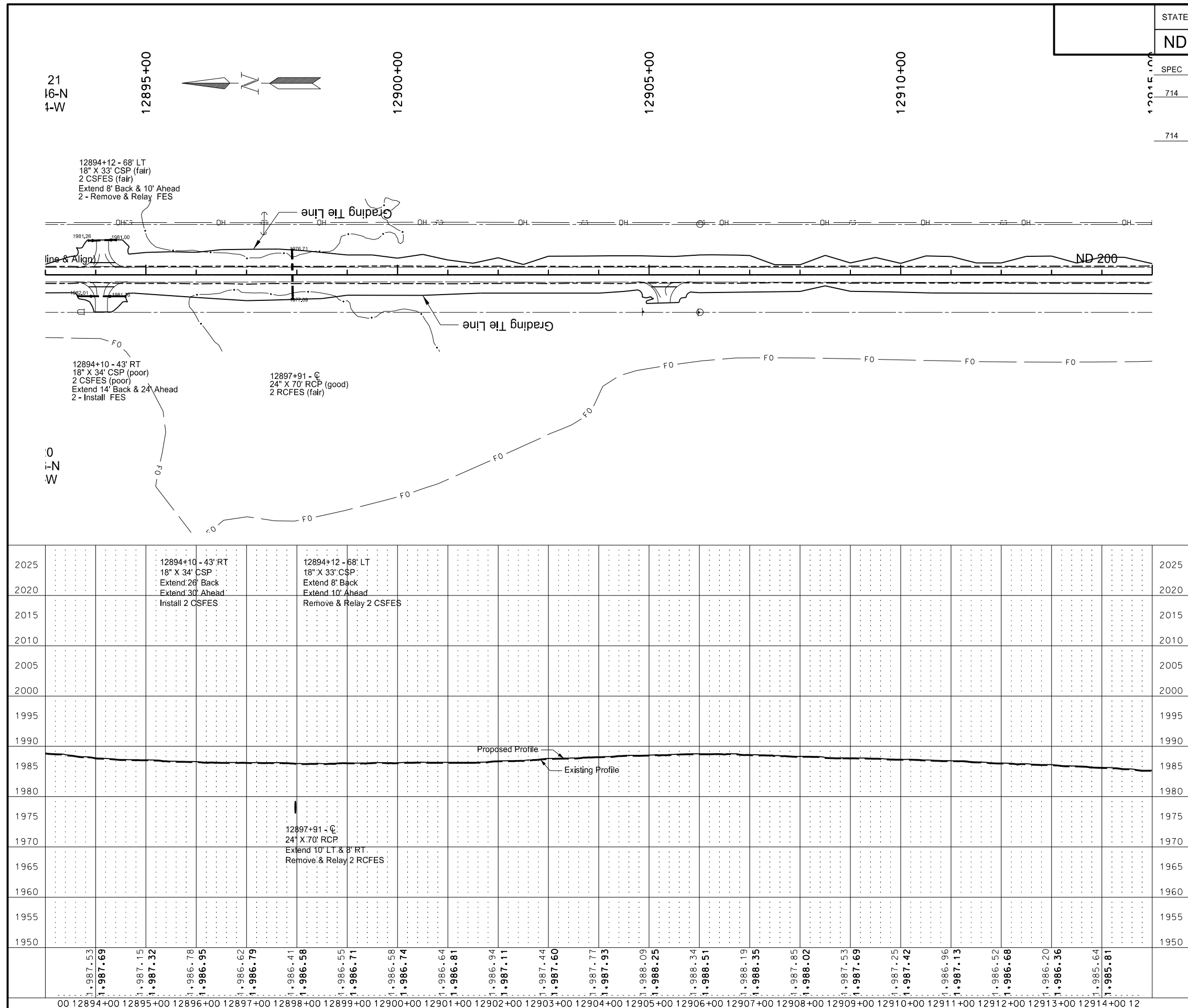
ND 200, Jct 14 E to W Jct 3





	STATE	PROJECT NO.		SECTION NO.	SHEET NO.
	ND	NH-1-200(073)236		60	22

1001	SPEC	CODE	BID ITEM	UNIT	QUANTITY
	714	0615	PIPE CONC REINF 24IN CL III		
			12897+91 LT	LF	10
			12897+91 RT	LF	8
	714	9660	REMOVE & RELAY END SECTIONS-ALL TYPES & SIZES		
			12897+91 LT & RT	EA	2

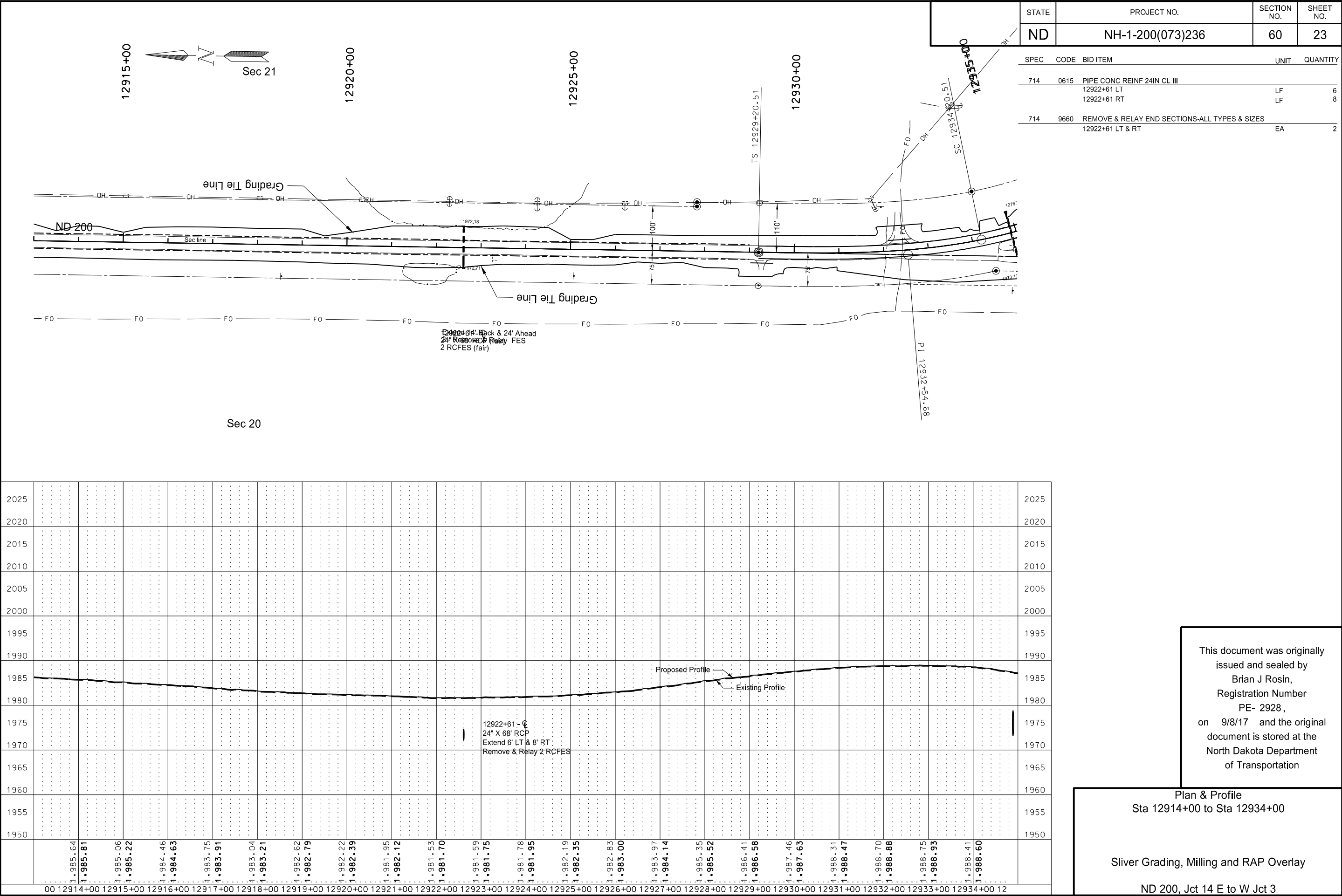


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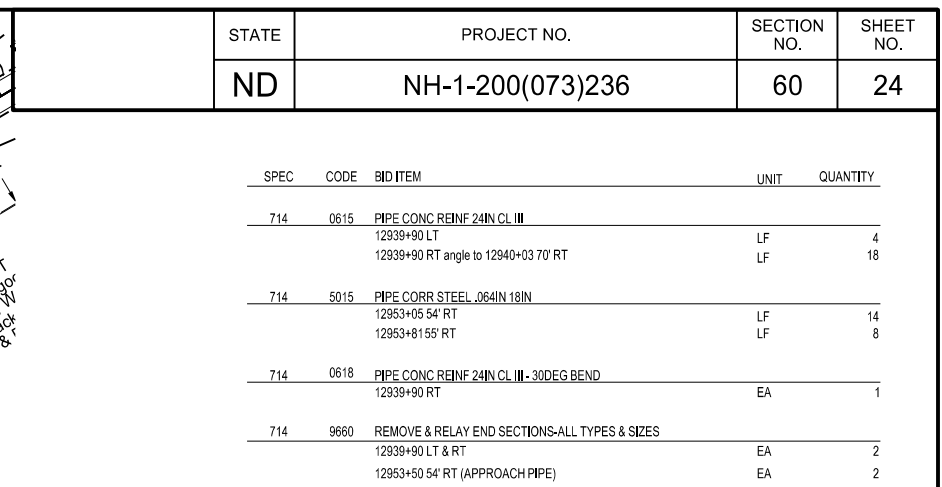
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ND 200, Jct 14 E to W Jct 3



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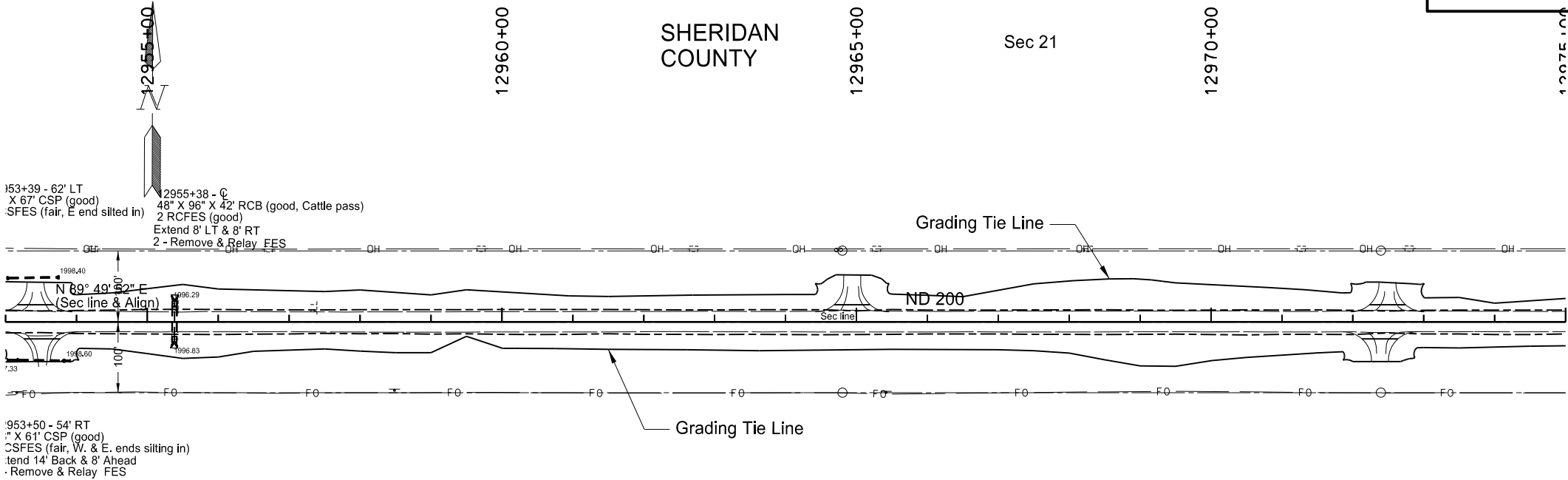


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Plan & Profile Sta 12934+00 to Sta 12954+00 Sliver Grading, Milling and RAP Overlay ND 200, Jct 14 E to W Jct 3	

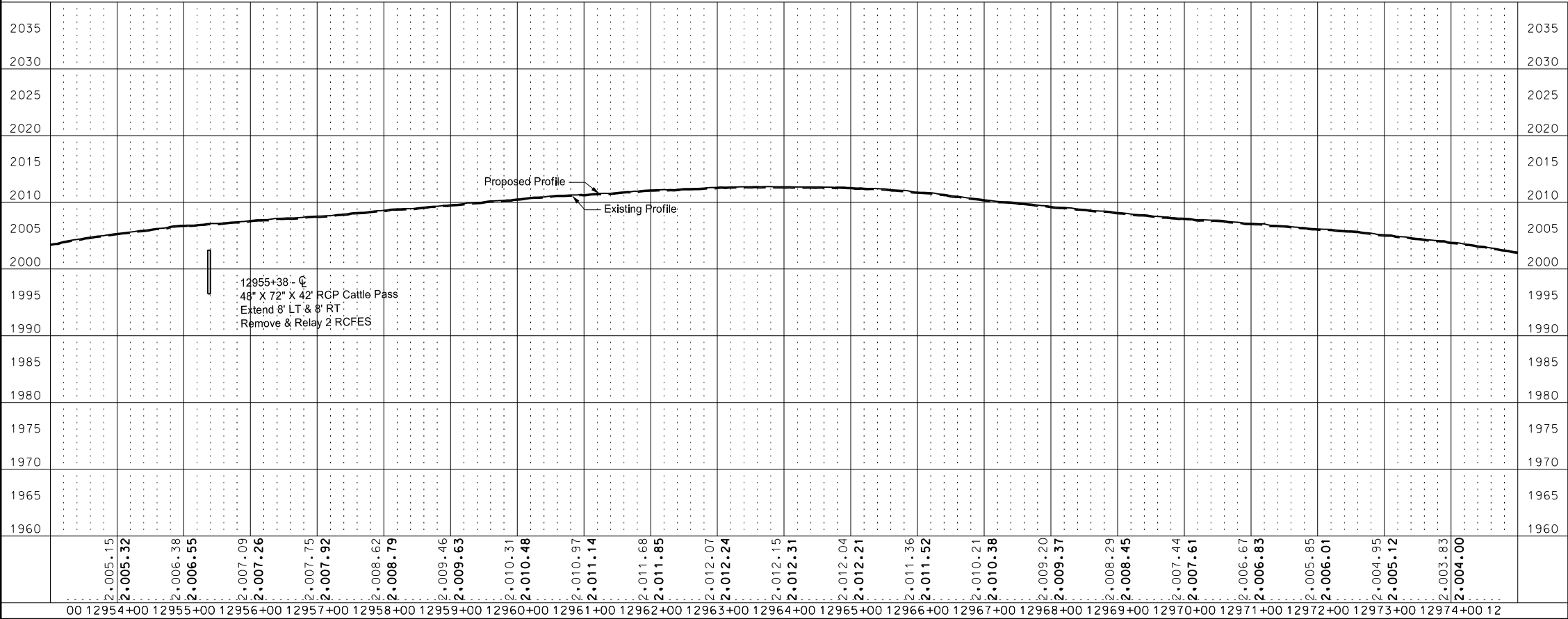
ND 200, Jct 14 E to W Jct 3

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-1-200(073)236	60	25

SPEC	CODE	BID ITEM	UNIT	QUANTITY
714	9200	Cattle Pass Conc Intermed Section		
		12955+38 LT	LF	8
		12955+38 RT	LF	8
714	9660	REMOVE & RELAY END SECTIONS-ALL TYPES & SIZES		
		12955+38 LT & RT	EA	2



Sec 28



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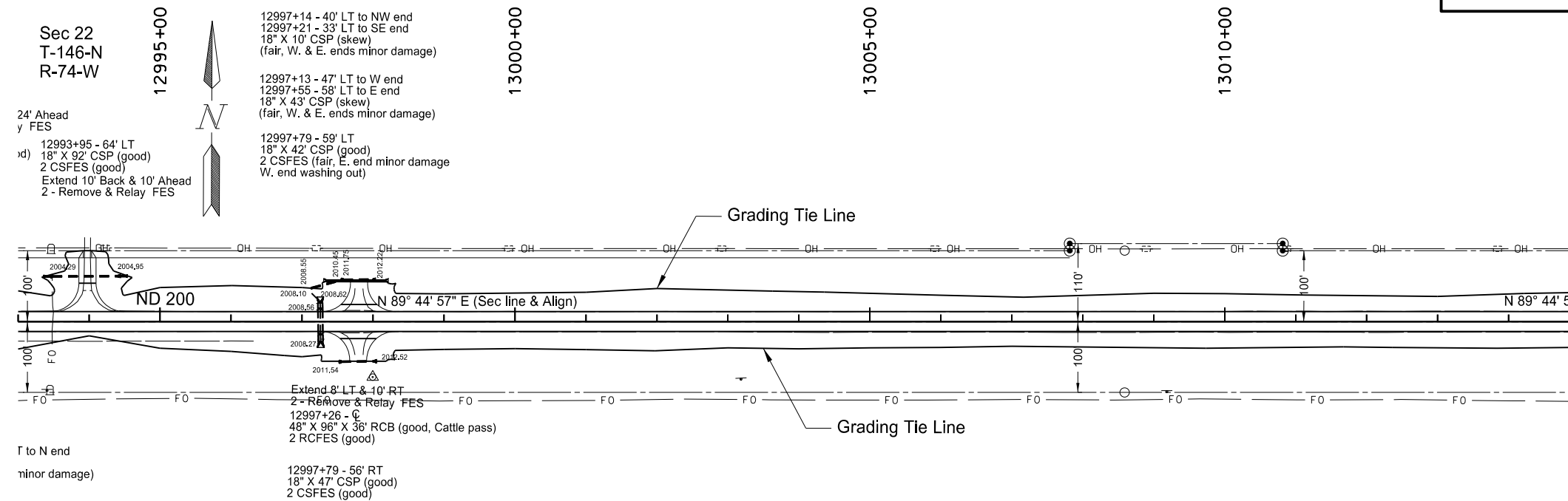
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Sliver Grading, Milling and RAP Overlay

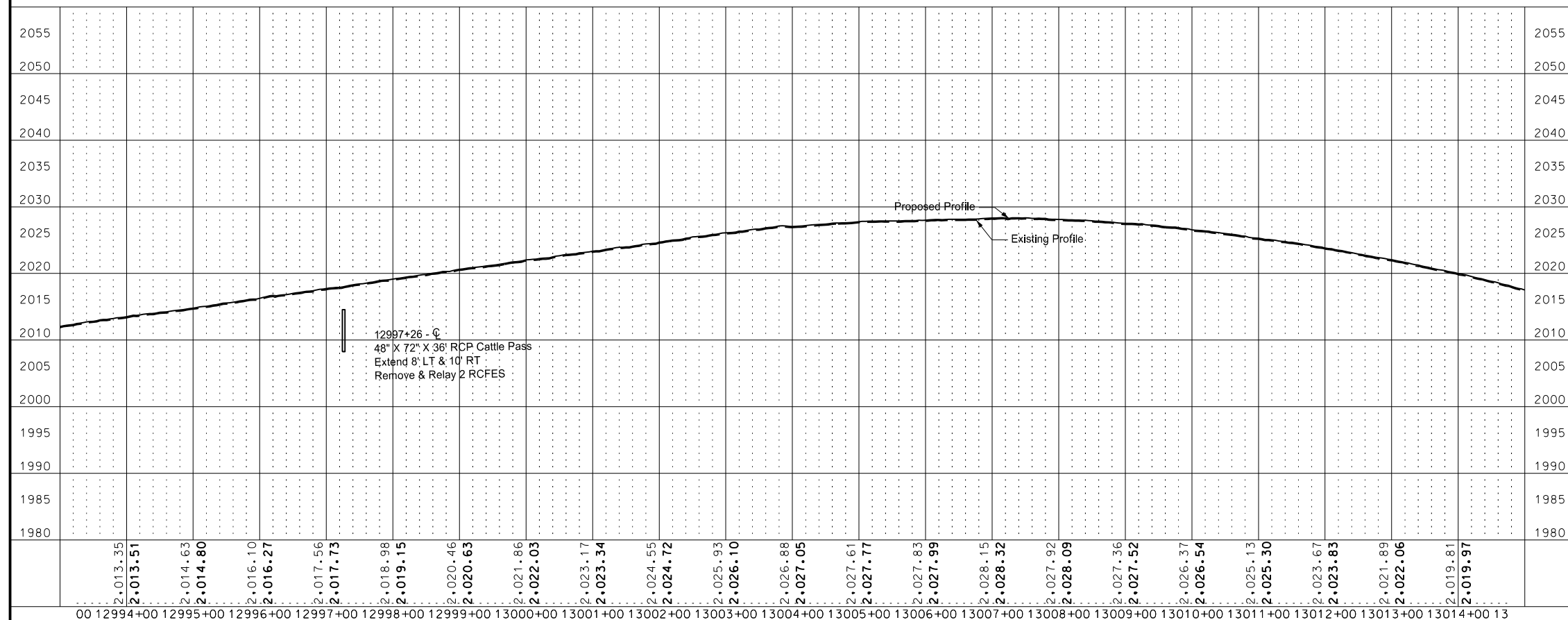
ND 200, Jct 14 E to W Jct 3

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-1-200(073)236	60	27

SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0169	REMOVAL OF END SECTION-ALL TYPES & SIZES 12997+79 - 59' LT (APPROACH PIPE)	EA	2
202	0174	REMOVAL OF PIPE ALL TYPES & SIZES 12997+14 - 40' LT (APPROACH PIPE) 12997+13 - 47' LT (APPROACH PIPE) 12997+79 - 59' LT (APPROACH PIPE)	LF LF LF	33 43 42
714	4105	PIPE CONDUIT 24IN-APPROACH 12997+76 - LT	LF	84
714	9200	Cattle Pass Conc Intermed Section 12997+26 LT 12997+26 RT	LF LF	8 10
714	9660	REMOVE & RELAY END SECTIONS-ALL TYPES & SIZES 12997+26 LT & RT	EA	2



Sec 27
T-146-N
R-74-W



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Sliver Grading, Milling and RAP Overlay

ND 200, Jct 14 E to W Jct 3

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.		
	ND	NH-1-200(073)236	60	31		
Sec 23 T-146-N R-74-W	C O N T E N T S	SPEC	CODE	BID ITEM	UNIT	QUANTITY
		714	0615	PIPE CONC REINF 24IN CL III		
				13084+27 LT	LF	6
				13084+27 RT	LF	8
		714	9660	REMOVE & RELAY END SECTIONS-ALL TYPES & SIZES		
		13084+27 LT & RT	EA	2		

Sec 23
T-146-N
R-74-W

13075+00

13080+00

13085+00

13090+00

13095+00

13100+00

13105+00

13110+00

13115+00

13120+00

13125+00

13130+00

13135+00

13140+00

13145+00

13150+00

13155+00

13160+00

13165+00

13170+00

13175+00

13180+00

13185+00

13190+00

13195+00

13200+00

13205+00

13210+00

13215+00

13220+00

13225+00

13230+00

13235+00

13240+00

13245+00

13250+00

13255+00

13260+00

13265+00

13270+00

13275+00

13280+00

13285+00

13290+00

13295+00

13300+00

13305+00

13310+00

13315+00

13320+00

13325+00

13330+00

13335+00

13340+00

13345+00

13350+00

13355+00

13360+00

13365+00

13370+00

13375+00

13380+00

13385+00

13390+00

13395+00

13400+00

13405+00

13410+00

13415+00

13420+00

13425+00

13430+00

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13485+00

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13495+00

13500+00

13505+00

13510+00

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13520+00

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13550+00

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13690+00

13695+00

13700+00

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13710+00

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13735+00

13740+00

13745+00

13750+00

13755+00

13760+00

13765+00

13770+00

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13780+00

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13790+00

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13805+00

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13825+00

13830+00

13835+00

13840+00

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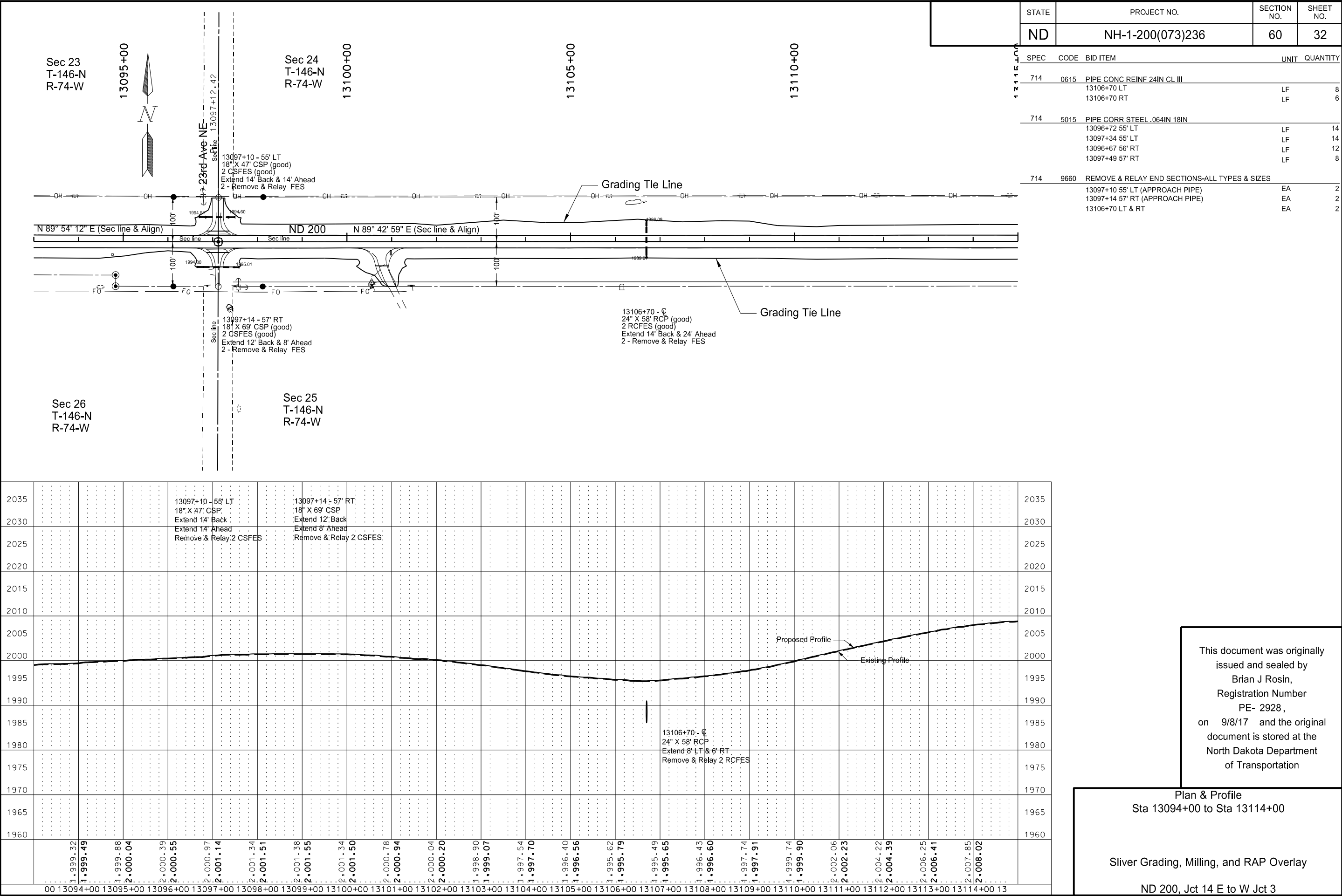
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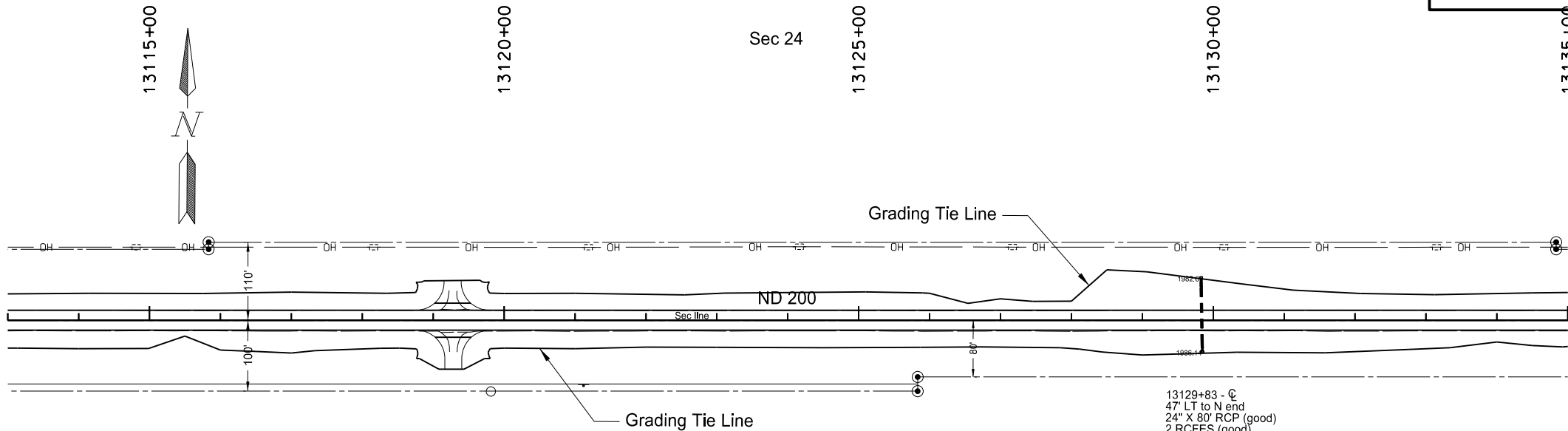
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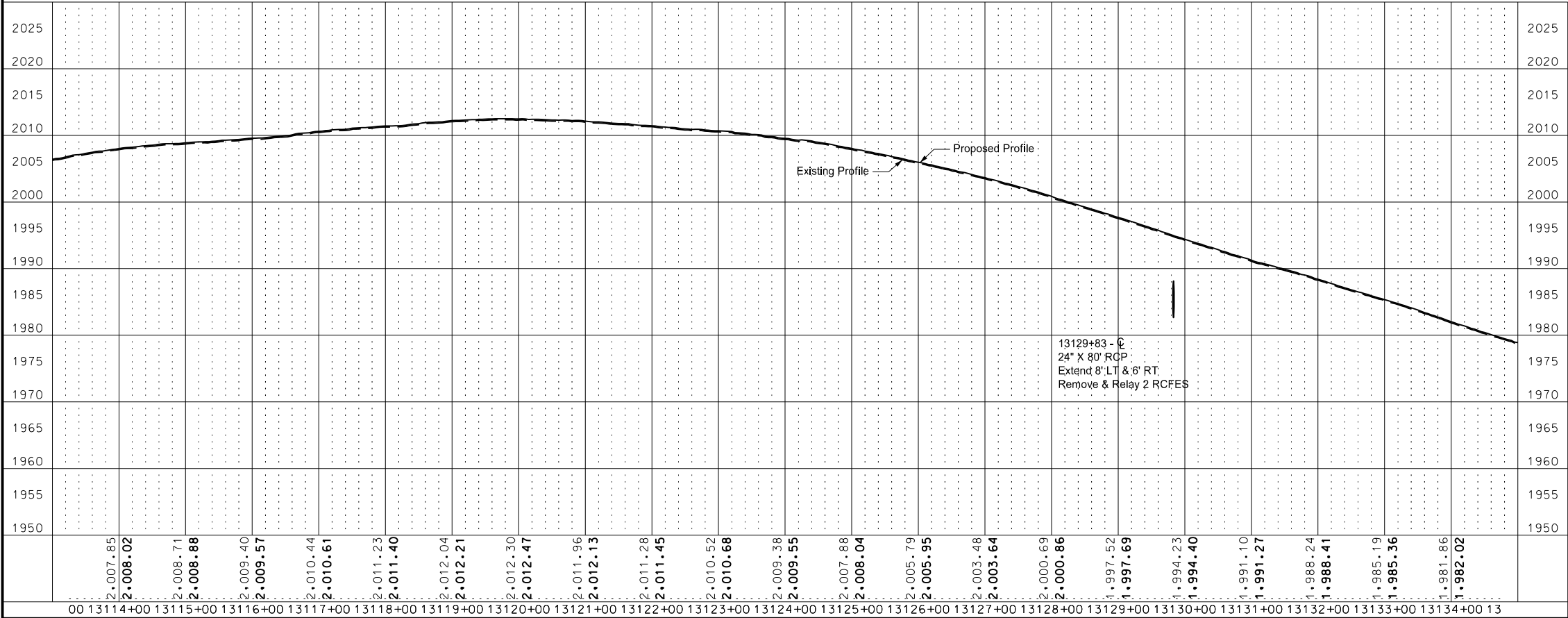


1313E

STATE	PROJECT NO.		SECTION NO.	SHEET NO.
ND	NH-1-200(073)236		60	33
SPEC	CODE	BID ITEM	UNIT	QUANTITY
714	0615	PIPE CONC REINF 24IN CL III		
		13129+83 LT	LF	8
		13129+83 RT	LF	6
714	9660	REMOVE & RELAY END SECTIONS-ALL TYPES & SIZES		
		13129+83 LT & RT	EA	2



Sec 25

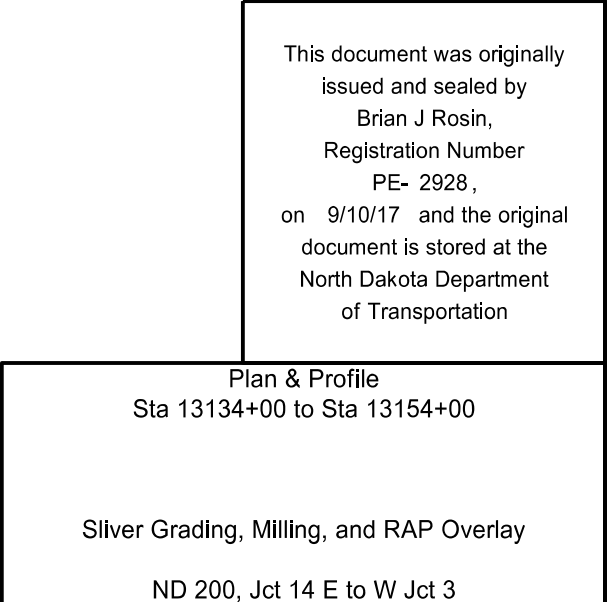
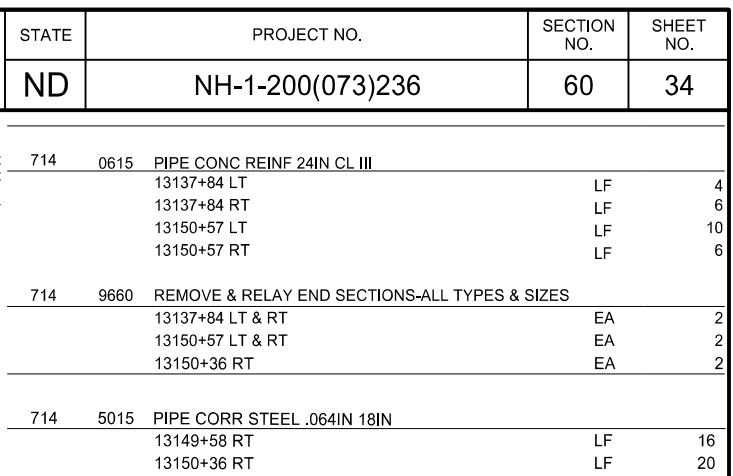


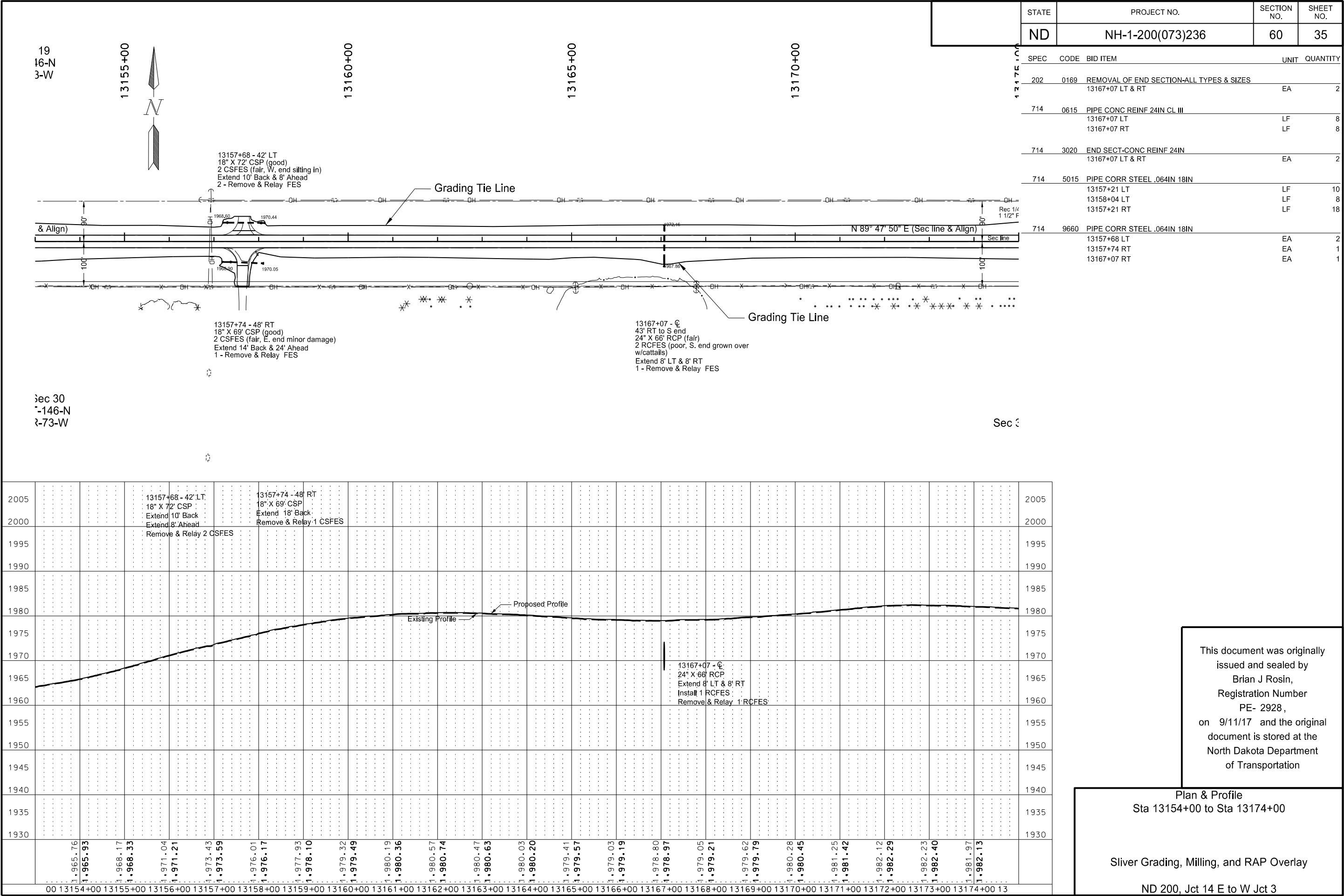
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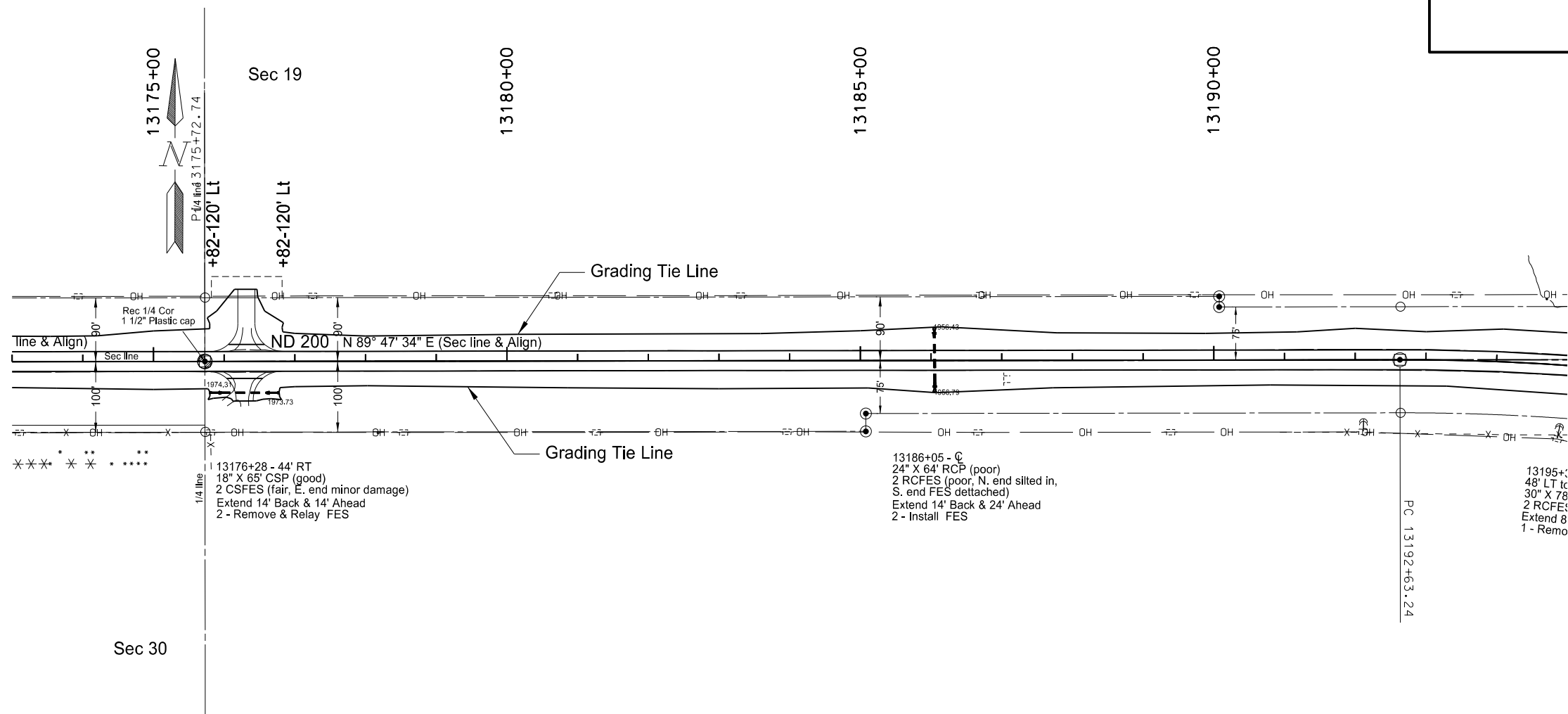
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ND 200, Jct 14 E to W Jct 3

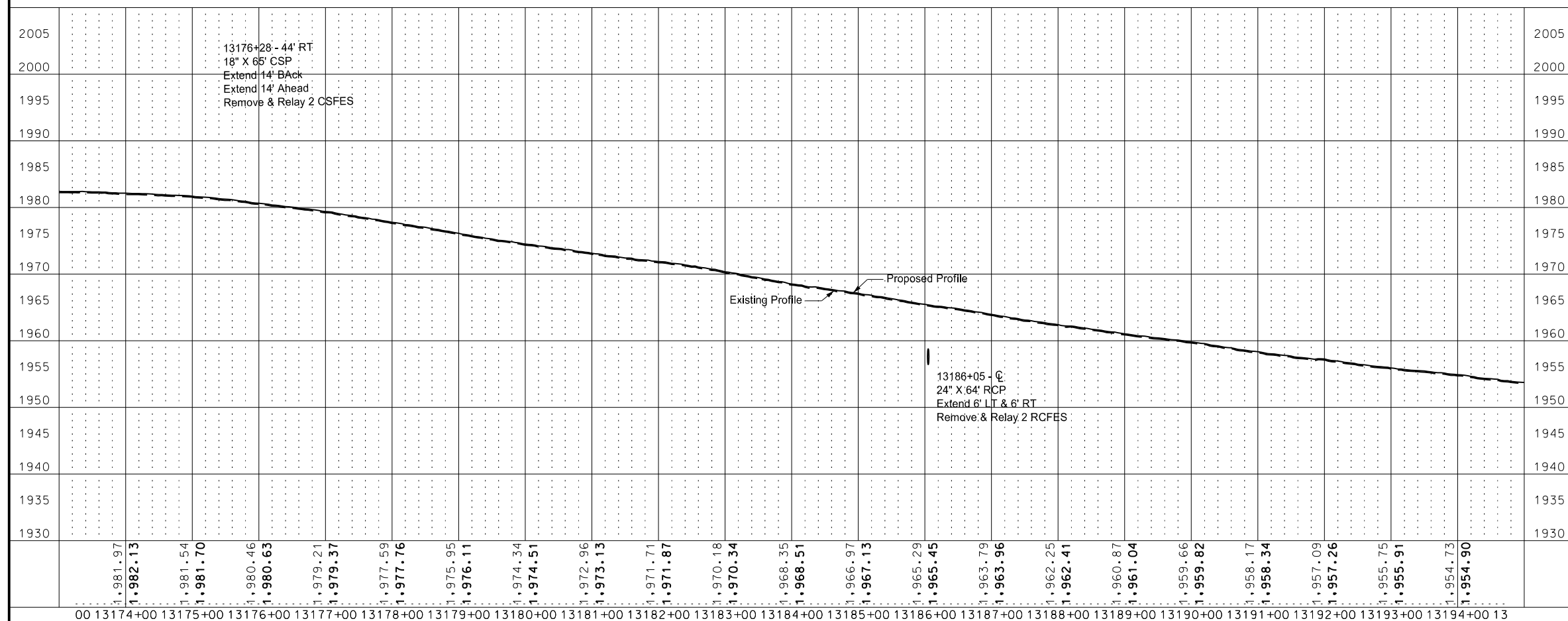




STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-1-200(073)236	60	36



SPEC	CODE	BID ITEM	UNIT	QUANTITY
714	0615	PIPE CONC REINF 24IN CL III		
		13186+05 LT	LF	6
		13186+05 RT	LF	6
714	9660	REMOVE & RELAY END SECTIONS-ALL TYPES & SIZES		
		13186+05 LT & RT	EA	2
		13176+28 RT	EA	2
714	5015	PIPE CORR STEEL .064IN18IN		
		13176+28 RT	LF	14
		13176+28 RT	LF	14

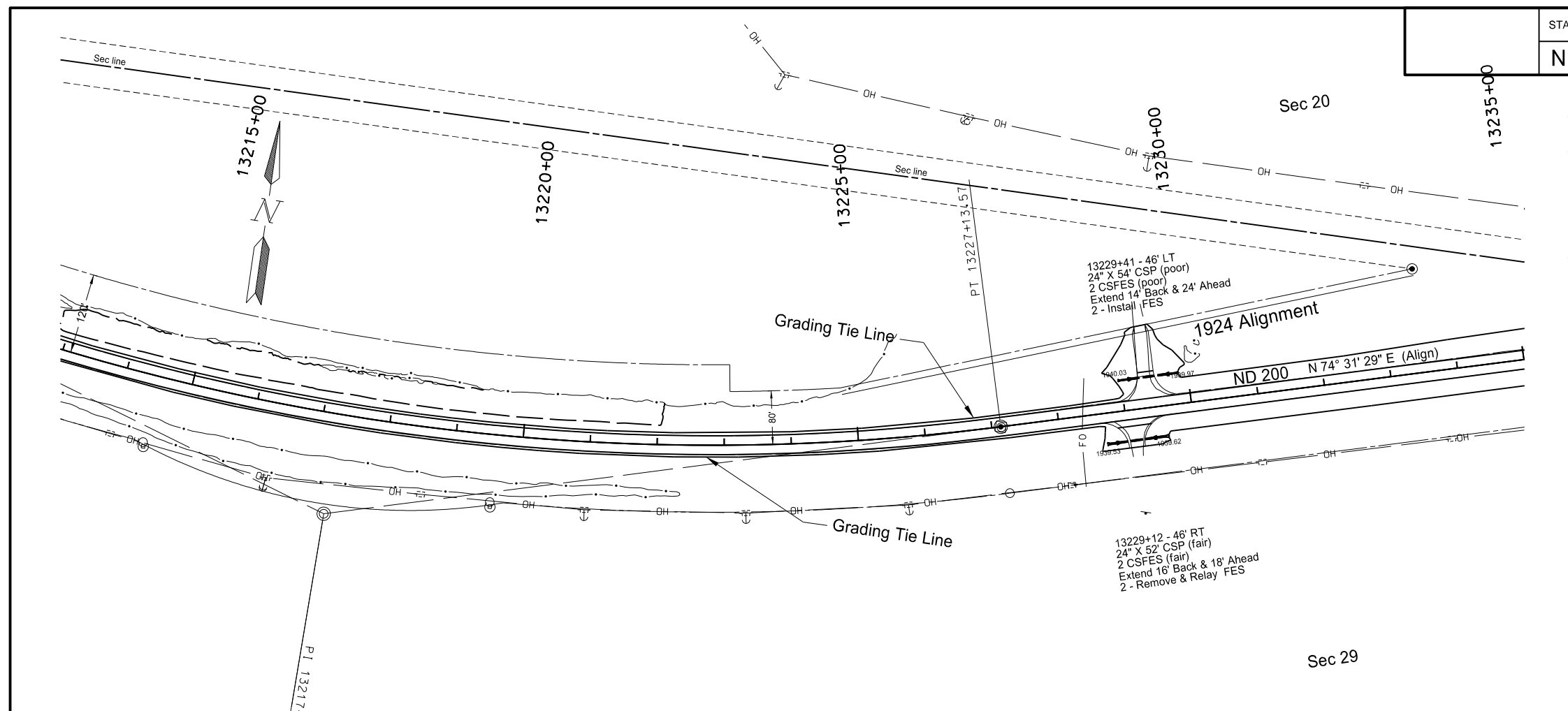


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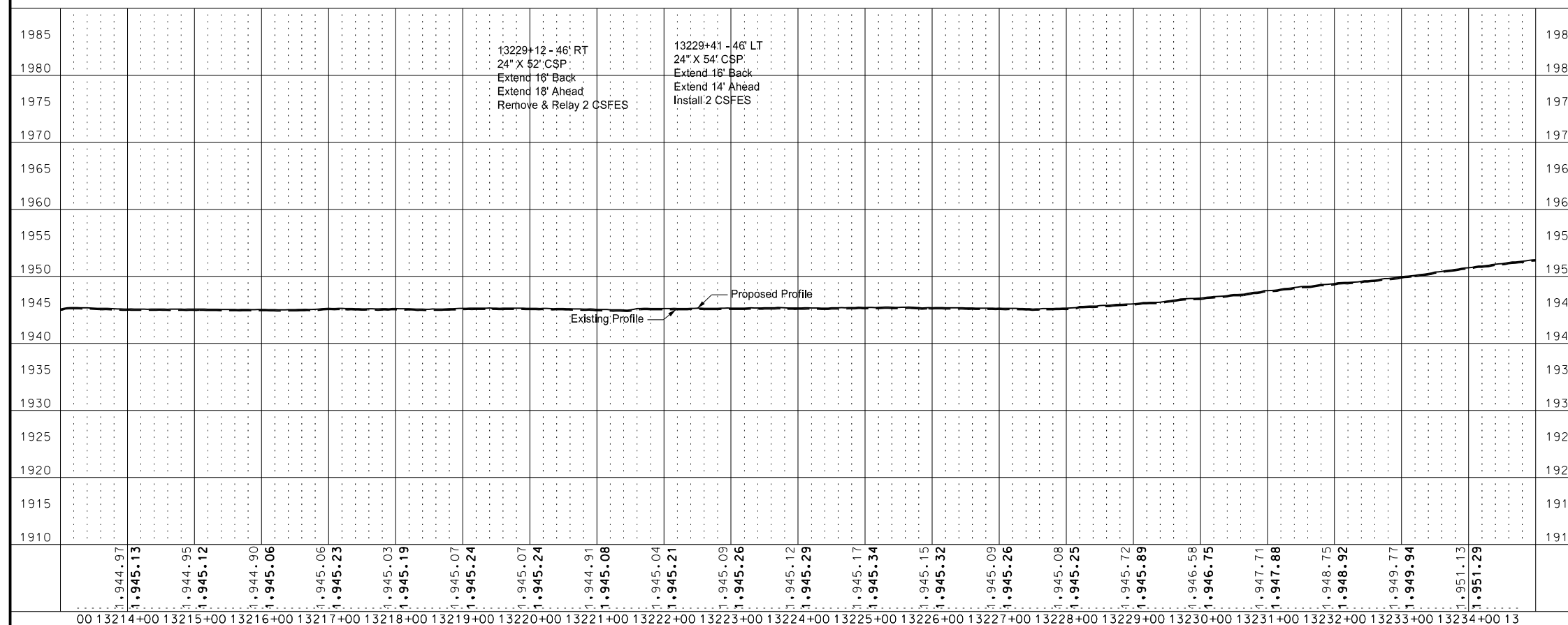
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ND 200, Jct 14 E to W Jct 3



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-1-200(073)236	60	38

SPEC	CODE	BID ITEM	UNIT	QUANTITY
714	5035	PIPE CORR STEEL .064IN 24IN		
		13228+86 46' Rt	LF	16
		13229+20 46' Rt	LF	18
		13229+14 46' Lt	LF	16
		13229+83 46' Lt	LF	14
714	9660	REMOVE & RELAY END SECTIONS-ALL TYPES & SIZES		
		13229+41 46' LT (APPROACH PIPE)	EA	2
		13229+12 46' RT (APPROACH PIPE)	EA	2



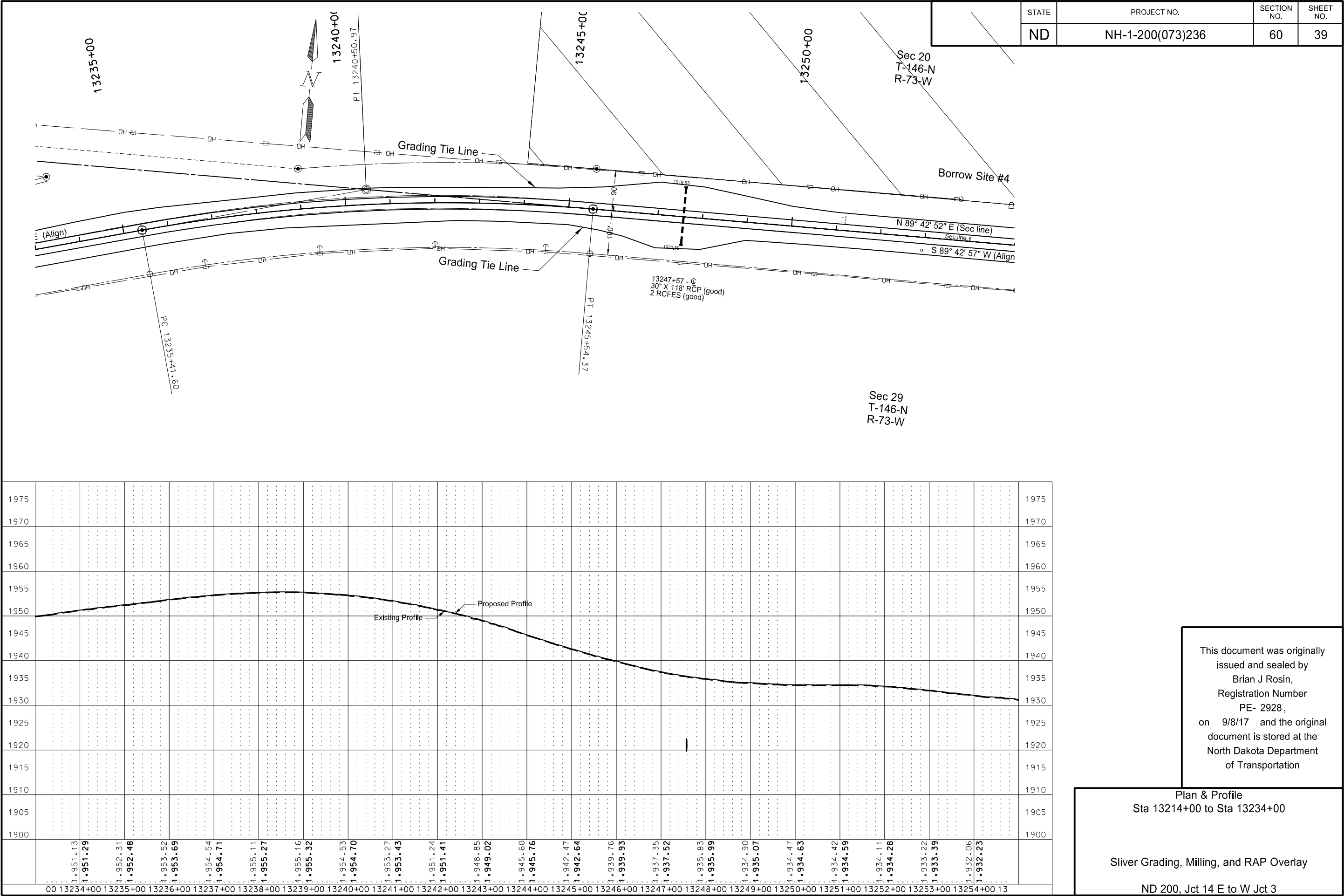
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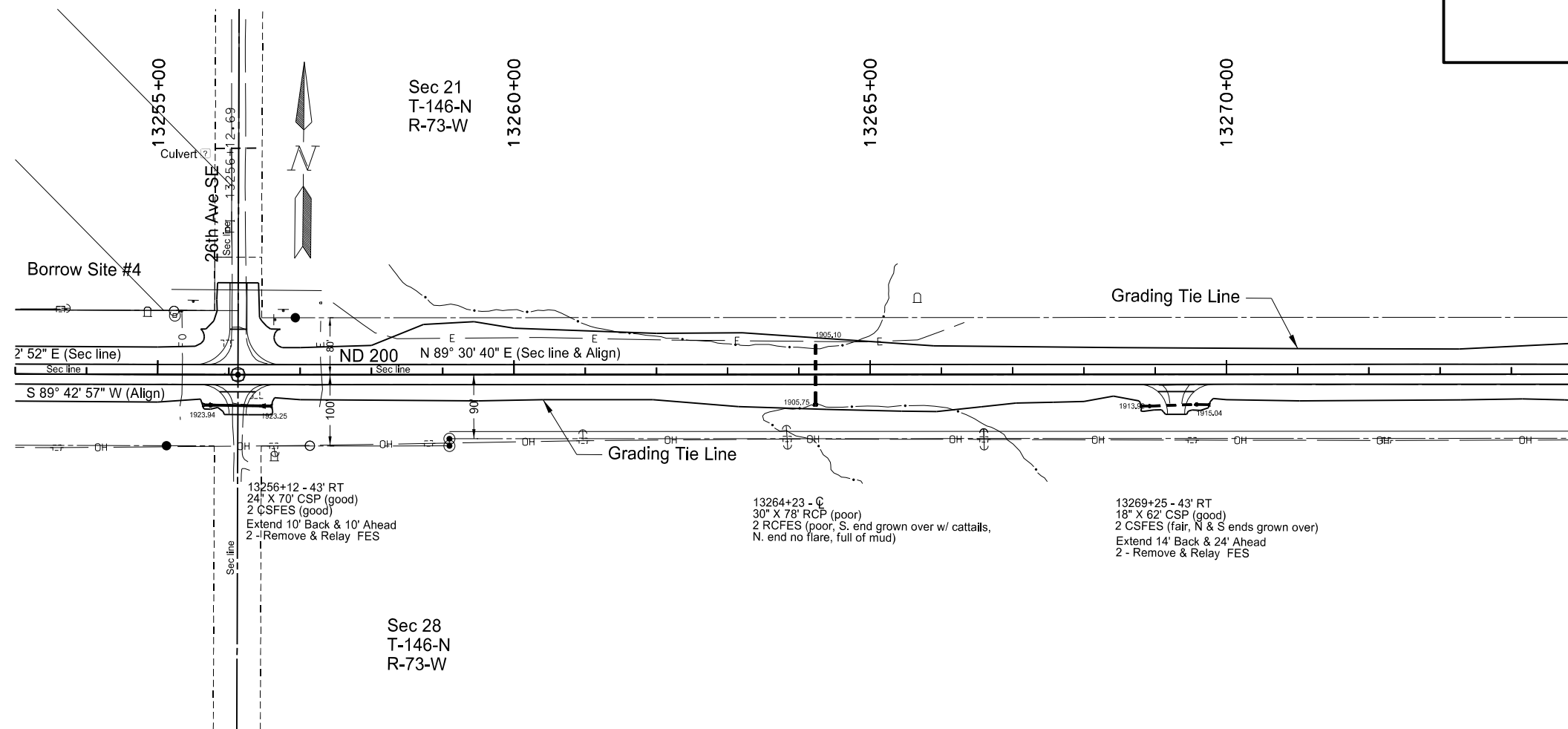
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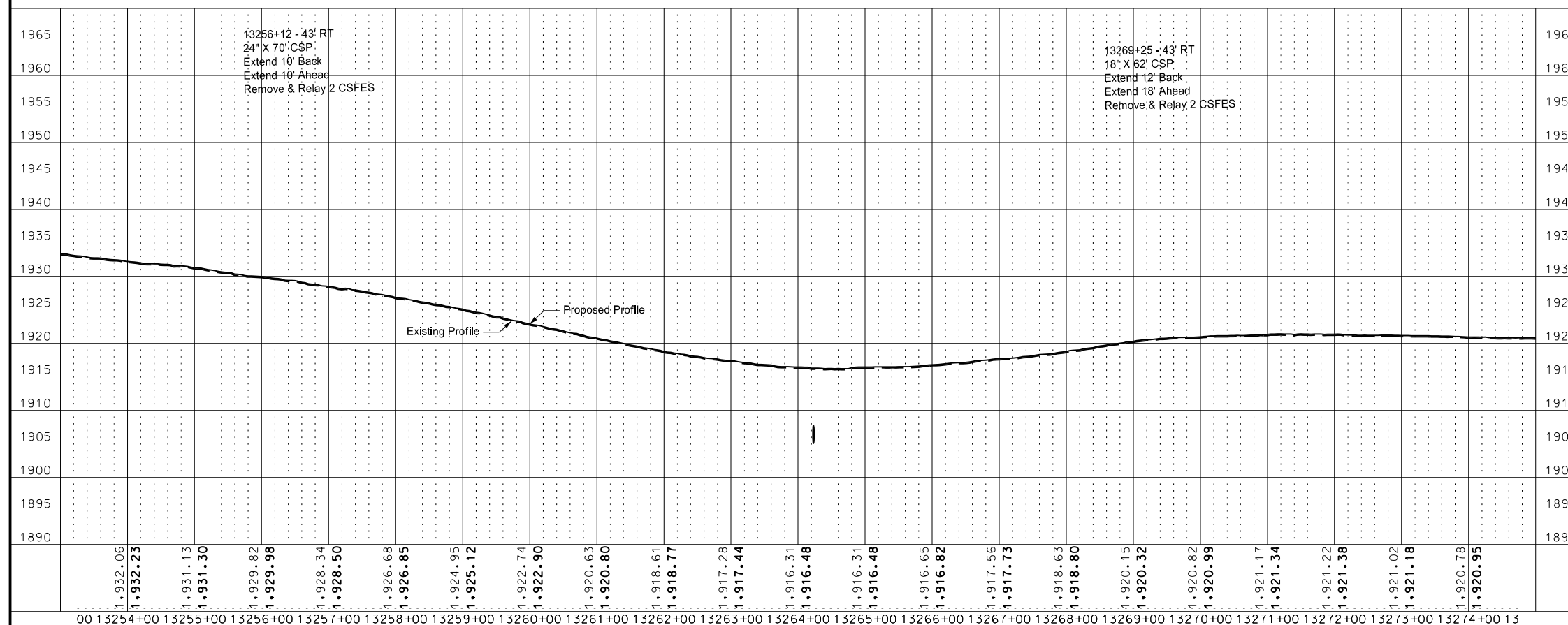
ND 200, Jct 14 E to W Jct 3



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-1-200(073)236	60	40



SPEC	CODE	BID ITEM	UNIT	QUANTITY
714	5015	PIPE CORR STEEL .064IN 18IN		
		13268+94 44' Rt	LF	12
		13269+56 44' Rt	LF	18
714	5035	PIPE CORR STEEL .064IN 24IN		
		13255+77 43' Rt	LF	10
		13256+47 44' Rt	LF	10
714	9660	REMOVE & RELAY END SECTIONS-ALL TYPES & SIZES		
		13256+12 43' Rt (APPROACH PIPE)	EA	2
		13269+25 44' Rt (APPROACH PIPE)	EA	2



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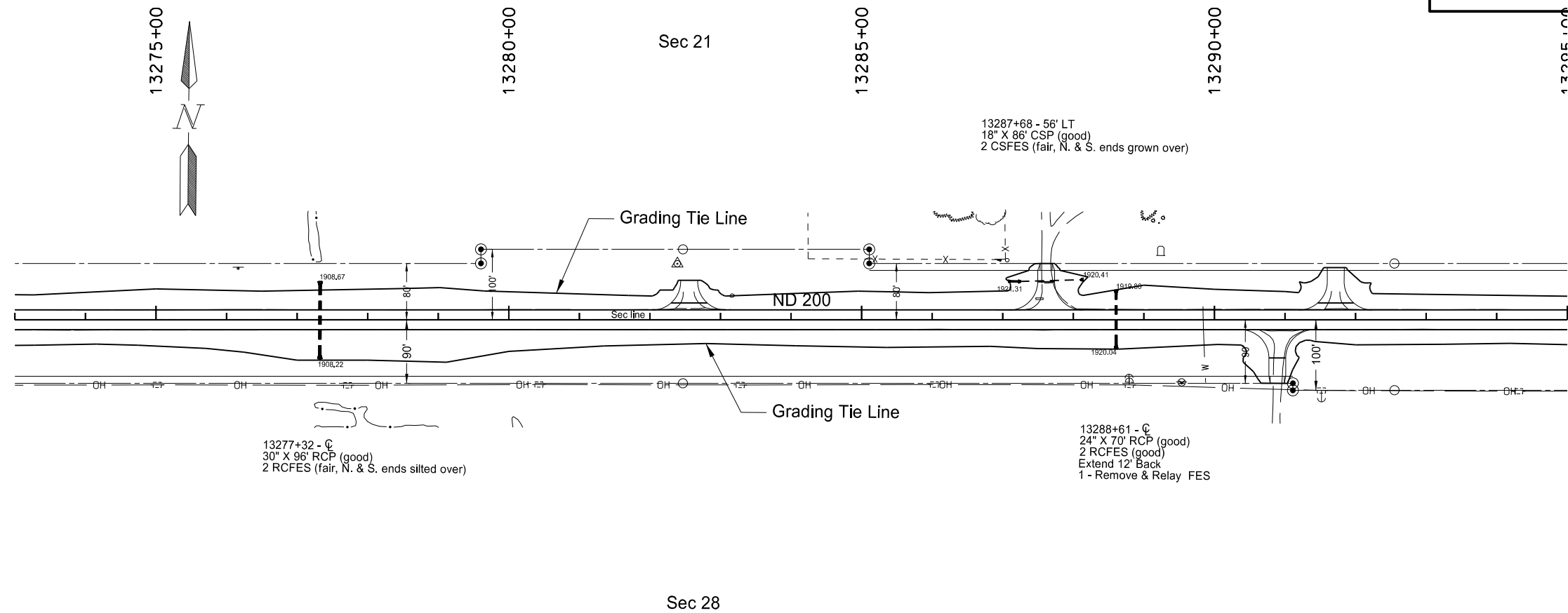
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Sta 13254+00 to Sta 13274+00

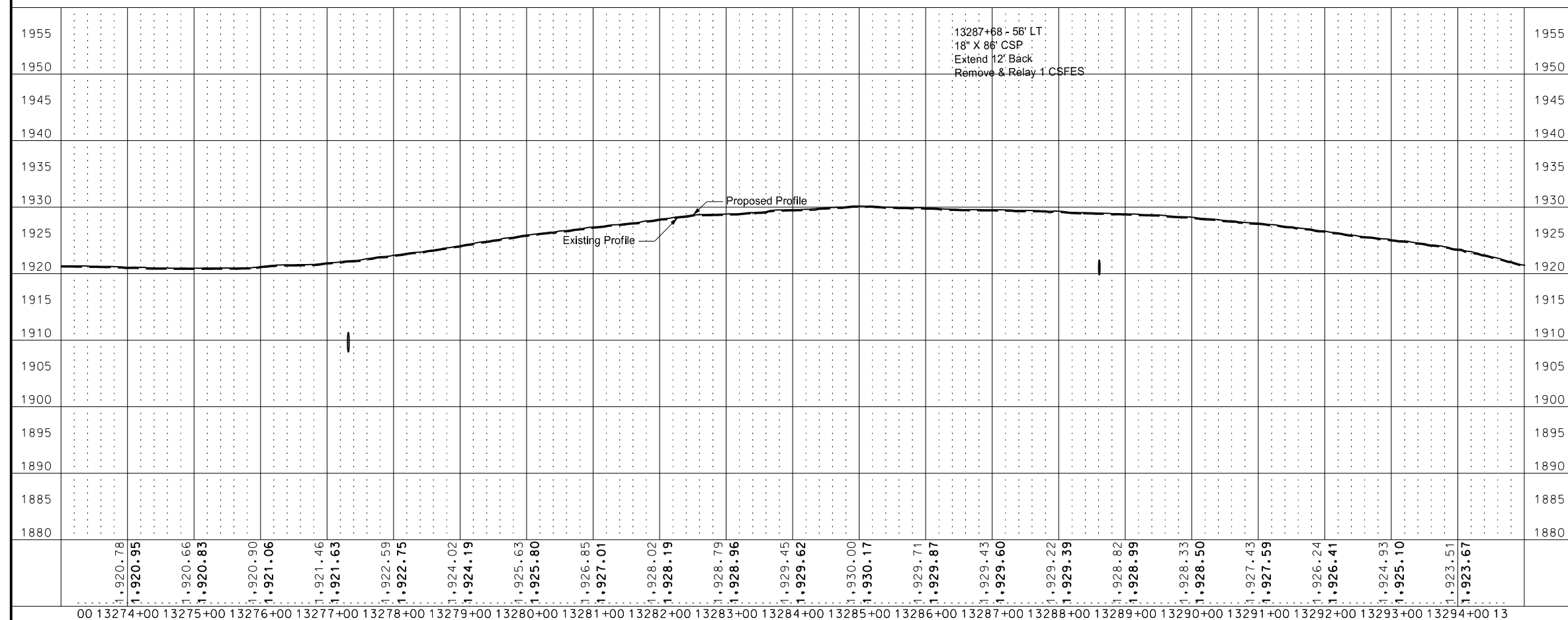
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ND 200, Jct 14 E to W Jct 3

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-1-200(073)236	60	41



SPEC	CODE	BID ITEM	UNIT	QUANTITY
714	5015	PIPE CORR STEEL .064IN 18IN 13287+25 54' LT	LF	12
714	9660	REMOVE & RELAY END SECTIONS-ALL TYPES & SIZES 13287+68 56' Lt (APPROACH PIPE)	EA	1



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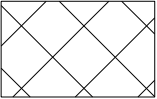
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ND 200, Jct 14 E to W Jct 3

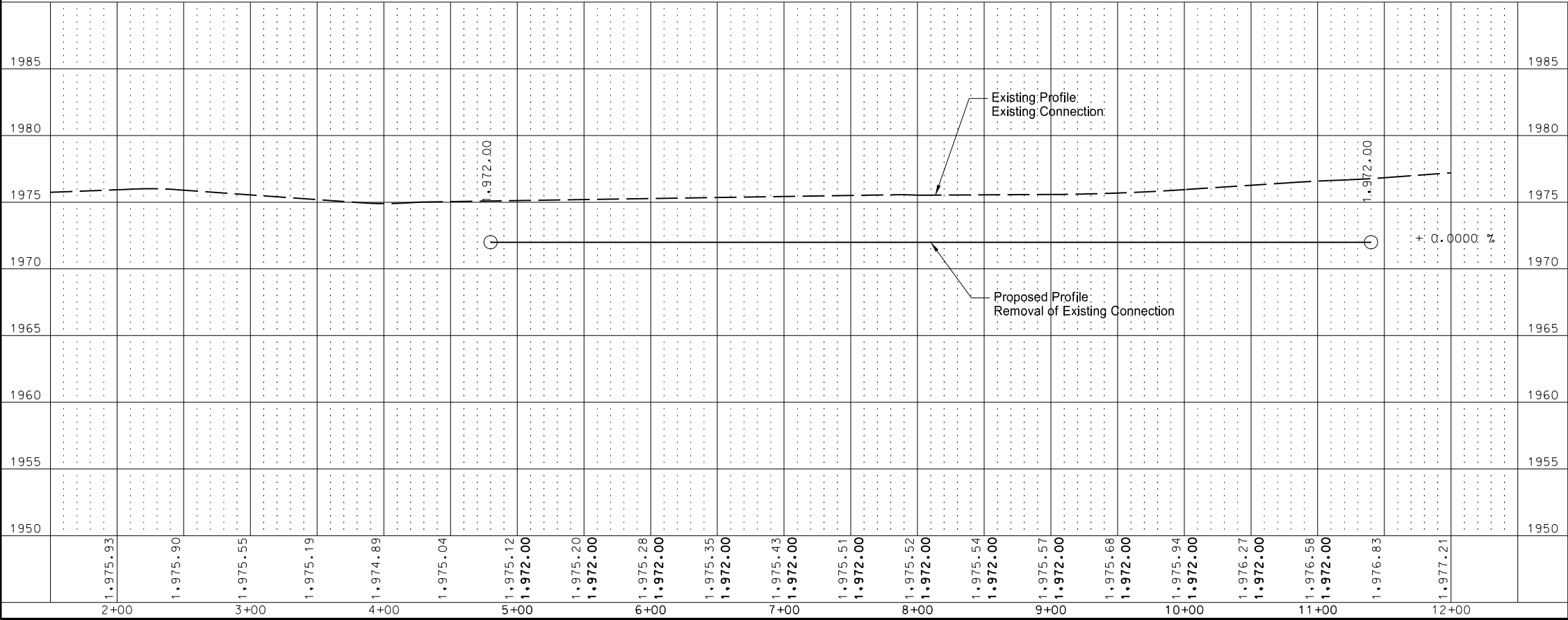
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-1-200(073)236	60	44

SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0132	REMOVAL OF BITUMINOUS SURFACING		
Sta 2+53 to Sta 12+00			SY	3360

- Notes:
1. Stationing listed to Chain EX20AVE_N.
 2. See previous sheet for pipe information and quantities.
 3. Removal of Existing Roadway Embankment paid for as "Common Excavation - Type A" and included in Earthwork Summary.



Removal of Bituminous Surfacing &
Removal of Existing Roadway Embankment



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Plan & Profile
Sta 2+00 to Sta 12+00

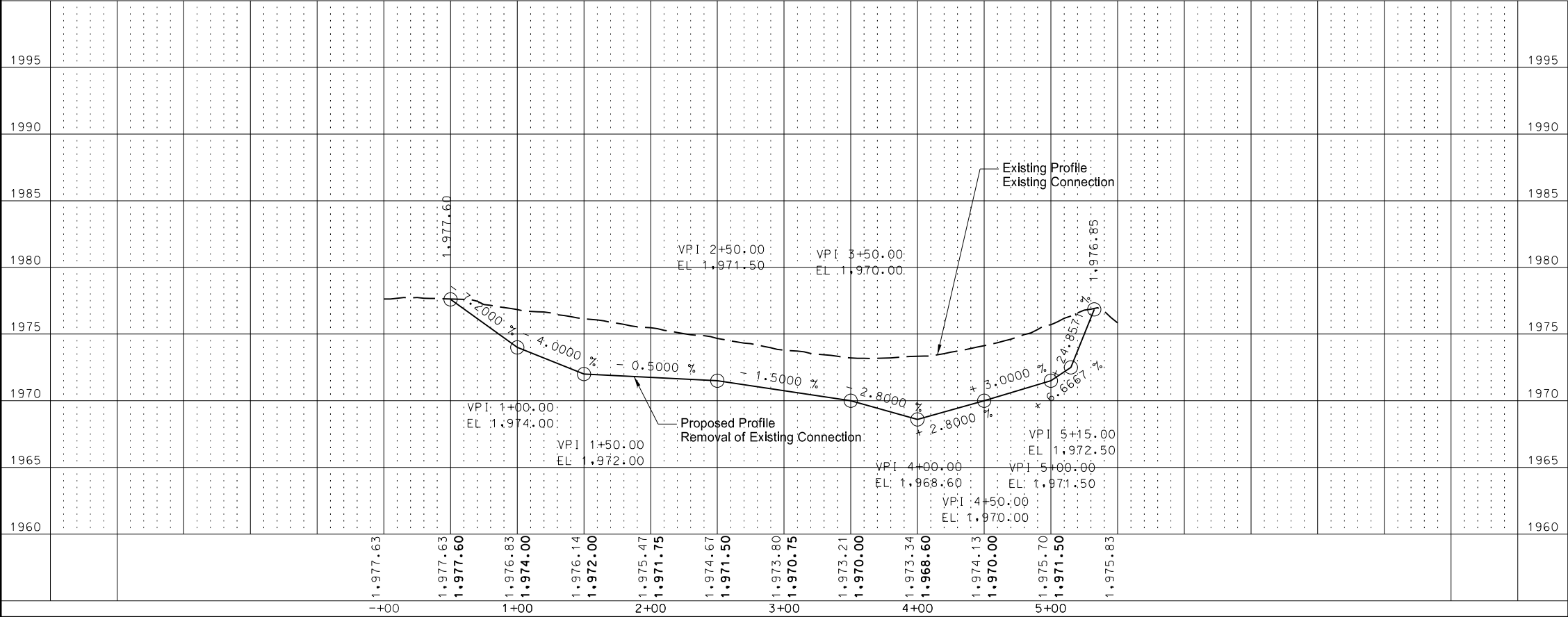
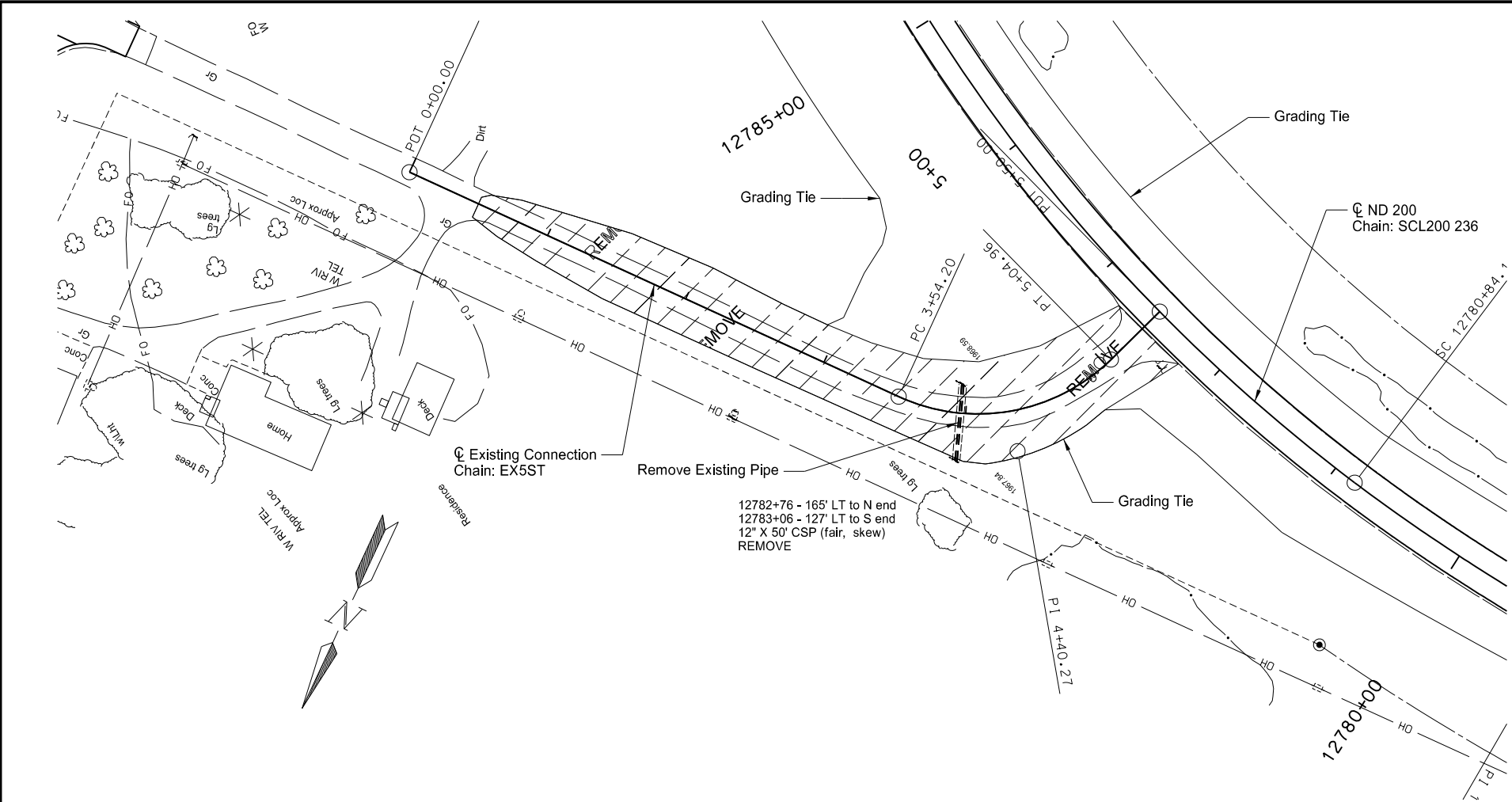
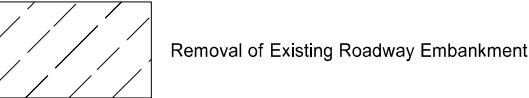
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ND 200, Jct 14 E to W Jct 3

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-1-200(073)236	60	45

SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0174	REMOVAL OF PIPE ALL TYPES & SIZES		
		Sta 3+96.50	LF	51

- Notes:
- Stationing listed to Chain EX5ST.
 - Removal of Existing Roadway Embankment includes existing aggregate surfacing. Paid for as "Common Excavation - Type A" and included in Earthwork Summary.



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Sta 0+00 to Sta 5+50

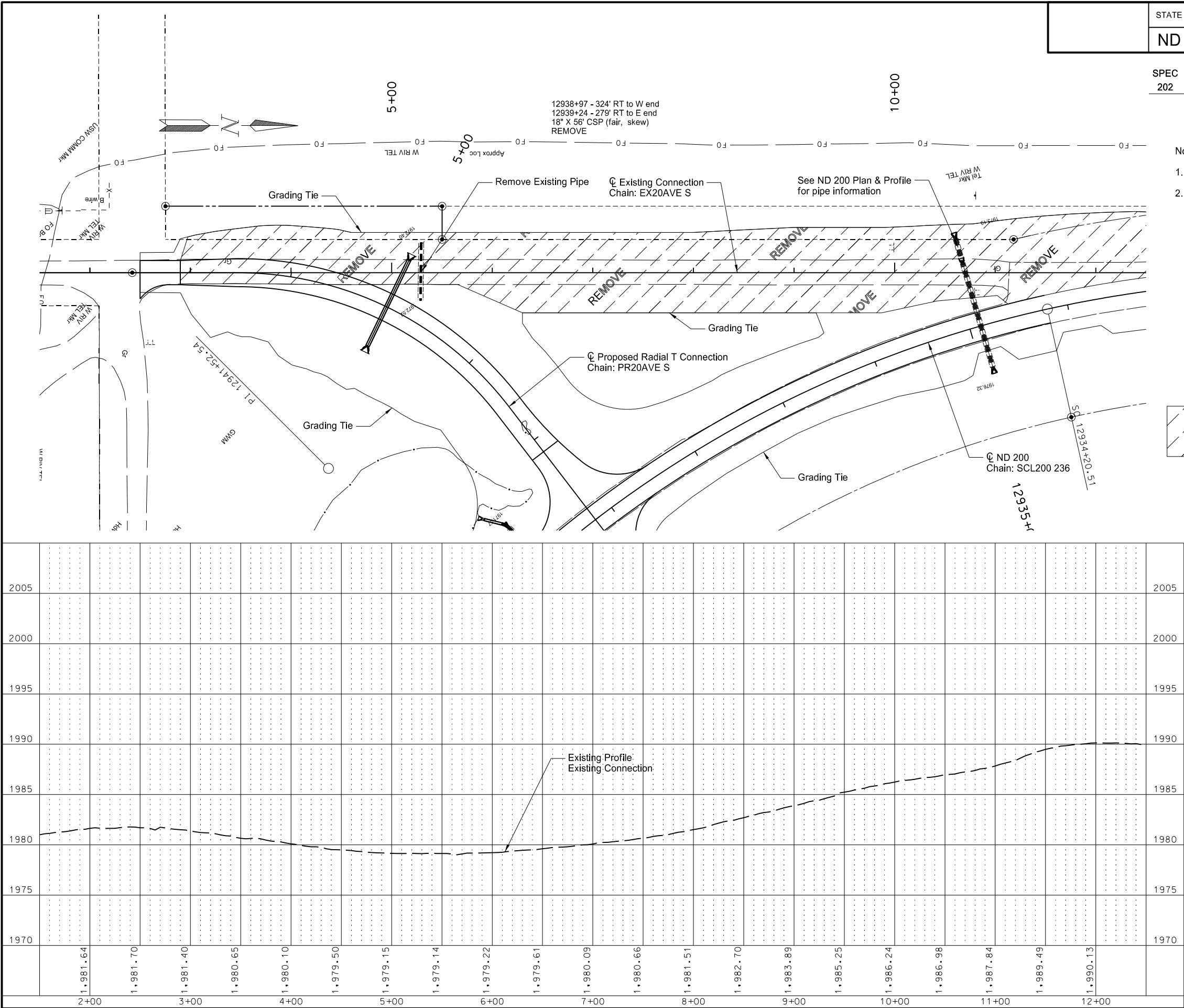
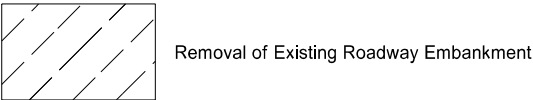
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ND 200, Jct 14 E to W Jct 3

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-1-200(073)236	60	47

SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0174	REMOVAL OF PIPE ALL TYPES & SIZES		
		Sta 5+29	LF	57

- Notes:
1. Stationing listed to Chain EX20AVE_S.
 2. Removal of Existing Roadway Embankment includes existing aggregate surfacing. Paid for as "Common Excavation - Type A" and included in Earthwork Summary.



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Plan & Profile
Sta 2+00 to Sta 12+50

Sliver Grading, Milling, and RAP Overlay

ND 200, Jct 14 E to W Jct 3

Wetland Impact Table																	
Wetland Number	Location	Wetland Type	Wetland Feature	USACE Jurisdictional Wetlands	Wetland Impacts Acre(s)		USFWS Easement Impacts Acre(s)		Wetland Mitigation								
					Temp.	Perm.	Temp.	Perm.	Mitigation Required			USACE/11990 Bank		Onsite			
									EO 11990	USACE	USFWS	Location	Acre(s)	Mitigation Location; Ratio	Acre(s)	Constructed Site #	Constructed Size Acre(s)
1a	Sec. 4, T146N, R75W	Drainage	Natural	No	0.04	0.11	0	0	N	N	N						
1b	Sec. 9, T146N, R75W	Drainage	Natural	No	0.01	0.02	0	0	N	N	N						
2a	Sec. 4, T146N, R75W	Basin	Natural	No	0.22	0.17	0	0	Y	N	N	Vollrath 16/17 Bank	0.17				
2b	Sec. 9, T146N, R75W	Basin	Natural	No	0.15	0.22	0	0	Y	N	N	Vollrath 16/17 Bank	0.22				
3	Sec. 10, T146N, R75W	Ditch	Artificial	No	0.03	0.01	0	0	N	N	N						
4a	Sec. 3, T146N, R75W	Ditch	Artificial	No	0.23	0.03	0	0	N	N	N						
4b	Sec. 10, T146N, R75W	Ditch	Artificial	No	0.20	0.07	0	0	N	N	N						
4c	Sec. 11, T146N, R75W	Basin	Natural	No	0.08	0.18	0	0	Y	N	N	Vollrath 16/17 Bank	0.18				
5a	Sec. 2 & 11, T146N, R75W	Ditch	Artificial	No	0.26	0.05	0	0	N	N	N						
5b	Sec. 11, T146N, R75W	Basin	Natural	No	0.07	0.00	0	0	Y	N	N						
6a	Sec. 11, T146N, R75W	Basin	Natural	No	0.23	0.06	0	0	Y	N	N	Vollrath 16/17 Bank	0.06				
6b	Sec. 11, T146N, R75W	Basin	Natural	No	0.11	0.03	0	0	Y	N	N	Vollrath 16/17 Bank	0.03				
7	Sec. 11, T146N, R75W	Ditch	Artificial	No	0.02	0.02	0	0	N	N	N						
8a	Sec. 2, T146N, R75W	Fringe	Natural	No	0.01	0.01	0	0	Y	N	N	Vollrath 16/17 Bank	0.01				
8c	Sec. 1, T146N, R75W	Fringe	Natural	No	0.02	0.00	0	0	Y	N	N						
8d	Sec. 11 & 12, T146N, R75W	Basin	Natural	No	0.25	0.06	0	0	Y	N	N	Vollrath 16/17 Bank	0.06				
8e	Sec. 12, T146N, R75W	Ditch	Artificial	No	0.05	0.00	0	0	N	N	N						
10a	Sec. 1, T146N, R75W	Basin	Natural	No	0.15	0.19	0	0	Y	N	N	Vollrath 16/17 Bank	0.19				
10b	Sec. 12, T146N, R75W	Basin	Natural	No	0.17	0.18	0	0	Y	N	N	Vollrath 16/17 Bank	0.18				
10c	Sec. 12, T146N, R75W	Ditch	Artificial	No	0.02	0.01	0	0	N	N	N						
10d	Sec. 12, T146N, R75W	Ditch	Artificial	No	0.15	0.01	0	0	N	N	N						
10e	Sec. 12, T146N, R75W	Basin	Natural	No	0.15	0.09	0	0	Y	N	N	Vollrath 16/17 Bank	0.09				
10f	Sec. 7, T146N, R74W	Ditch	Artificial	No	0.04	0.01	0	0	N	N	N						
10g	Sec. 1, T146N, R75W	Basin	Natural	No	0.10	0.01	0	0	Y	N	N	Vollrath 16/17 Bank	0.01				
10h	Sec. 6, T146N, R74W	Ditch	Artificial	No	0.00	0.00	0	0	N	N	N						
11	Sec. 6, T146N, R74W	Ditch	Artificial	No	0.01	0.00	0	0	N	N	N						
12a	Sec. 7, T146N, R74W	Ditch	Artificial	No	0.05	0.00	0	0	N	N	N						
12b	Sec. 7, T146N, R74W	Basin	Natural	No	0.15	0.08	0	0	Y	N	N	Vollrath 16/17 Bank	0.08				

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Wetland Impact Table

Sliver Grading, Milling and RAP Overlay

ND 200, Jct 14 E to W Jct 3

Wetland Impact Table																	
Wetland Number	Location	Wetland Type	Wetland Feature	USACE Jurisdictional Wetlands	Wetland Impacts Acre(s)		USFWS Easement Impacts Acre(s)		Wetland Mitigation								
					Temp.	Perm.	Temp.	Perm.	Mitigation Required			USACE/11990 Bank		Onsite			
									EO 11990	USACE	USFWS	Location	Acre(s)	Mitigation Location; Ratio	Acre(s)	Constructed Site #	Constructed Size Acre(s)
12c	Sec. 6, T146N, R74W	Ditch	Artificial	No	0.10	0.04	0	0	N	N	N						
12d	Sec. 6, T146N, R74W	Ditch	Artificial	No	0.07	0.05	0	0	N	N	N						
13	Sec. 6, T146N, R74W	Ditch	Artificial	No	0.02	0.00	0	0	N	N	N						
14	Sec. 7, T146N, R74W	Ditch	Artificial	No	0.06	0.30	0	0	N	N	N						
15	Sec. 7, T146N, R74W	Basin	Natural	No	0.00	0.00	0	0	N	N	N						
16	Sec. 6, T146N, R74W	Ditch	Artificial	No	0.01	0.00	0	0	N	N	N						
17a	Sec. 6, T146N, R74W	Basin	Natural	No	0.11	0.06	0	0	Y	N	N	Vollrath 16/17 Bank	0.06				
17b	Sec. 7, T146N, R74W	Basin	Natural	No	0.15	0.04	0	0	Y	N	N	Vollrath 16/17 Bank	0.04				
17c	Sec. 8, T146N, R74W	Ditch	Artificial	No	0.07	0.01	0	0	N	N	N						
18	Sec. 5, T146N, R74W	Ditch	Artificial	No	0.09	0.02	0	0	N	N	N						
19a	Sec. 5, T146N, R74W	Ditch	Artificial	No	0.09	0.03	0	0	N	N	N						
19b	Sec. 5, T146N, R74W	Basin	Natural	No	0.13	0.00	0	0	Y	N	N						
19c	Sec. 8, T146N, R74W	Ditch	Artificial	No	0.00	0.00	0	0	N	N	N						
20	Sec. 5, T146N, R74W	Ditch	Artificial	No	0.03	0.00	0	0	N	N	N						
21	Sec. 8, T146N, R74W	Ditch	Artificial	No	0.02	0.01	0	0	N	N	N						
22a	Sec. 8, T146N, R74W	Ditch	Artificial	No	0.25	0.10	0	0	N	N	N						
22b	Sec. 8, T146N, R74W	Basin	Natural	No	0.06	0.04	0	0	Y	N	N	Vollrath 16/17 Bank	0.04				
22c	Sec. 8, T146N, R74W	Ditch	Artificial	No	0.06	0.01	0	0	N	N	N						
23	Sec. 5, T146N, R74W	Basin	Natural	No	0.00	0.00	0	0	N	N	N						
24a	Sec. 8, T146N, R74W	Basin	Natural	No	0.14	0.46	0	0	Y	N	N	Vollrath 16/17 Bank	0.46				
24b	Sec. 8, T146N, R74W	Ditch	Artificial	No	0.04	0.12	0	0	N	N	N						
25a	Sec. 9, T146N, R74W	Ditch	Artificial	No	0.15	0.00	0	0	N	N	N						
25b	Sec. 9, T146N, R74W	Ditch	Artificial	No	0.06	0.00	0	0	N	N	N						
26a	Sec. 8, T146N, R74W	Ditch	Artificial	No	0.08	0.02	0	0	N	N	N						
26b	Sec. 9, T146N, R74W	Basin	Natural	No	0.10	0.05	0	0	Y	N	N	Vollrath 16/17 Bank	0.05				
27a	Sec. 8, T146N, R74W	Ditch	Artificial	No	0.02	0.01	0	0	N	N	N						
27b	Sec. 8, T146N, R74W	Basin	Natural	No	0.01	0.01	0	0	Y	N	N	Vollrath 16/17 Bank	0.01				
28	Sec. 9, T146N, R74W	Basin	Natural	No	0.05	0.00	0	0	N	N	N						

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Wetland Impact Table

Sliver Grading, Milling and RAP Overlay

ND 200, Jct 14 E to W Jct 3

Wetland Impact Table																	
Wetland Number	Location	Wetland Type	Wetland Feature	USACE Jurisdictional Wetlands	Wetland Impacts Acre(s)		USFWS Easement Impacts Acre(s)		Wetland Mitigation								
					Temp.	Perm.	Temp.	Perm.	Mitigation Required			USACE/11990 Bank		Onsite			
									EO 11990	USACE	USFWS	Location	Acre(s)	Mitigation Location; Ratio	Acre(s)	Constructed Site #	Constructed Size Acre(s)
29	Sec. 8, T146N, R74W	Basin	Natural	No	0.03	0.03	0	0	Y	N	N	Vollrath 16/17 Bank	0.03				
30a	Sec. 9, T146N, R74W	Basin	Natural	No	0.08	0.00	0	0	Y	N	N						
30b	Sec. 8, T146N, R74W	Basin	Natural	No	0.00	0.00	0	0	Y	N	N						
32	Sec. 17, T146N, R74W	Ditch	Artificial	No	0.01	0.00	0	0	N	N	N						
33	Sec. 17, T146N, R74W	Ditch	Artificial	No	0.03	0.01	0	0	N	N	N						
34a	Sec. 21, T146N, R74W	Ditch	Artificial	No	0.01	0.00	0	0	N	N	N						
34b	Sec. 21, T146N, R74W	Basin	Natural	No	0.18	0.09	0	0	Y	N	N	Vollrath 16/17 Bank	0.09				
34c	Sec. 21, T146N, R74W	Ditch	Artificial	No	0.03	0.01	0	0	N	N	N						
34d	Sec. 20, T146N, R74W	Basin	Natural	No	0.20	0.08	0	0	Y	N	N	Vollrath 16/17 Bank	0.08				
34e	Sec. 20, T146N, R74W	Ditch	Artificial	No	0.01	0.00	0	0	N	N	N						
35	Sec. 21, T146N, R74W	Basin	Natural	No	0.00	0.00	0	0	N	N	N						
36a	Sec. 21, T146N, R74W	Ditch	Artificial	No	0.01	0.00	0	0	N	N	N						
36b	Sec. 21, T146N, R74W	Basin	Natural	No	0.16	0.11	0	0	Y	N	N	Vollrath 16/17 Bank	0.11				
36c	Sec. 20, T146N, R74W	Basin	Artificial	No	0.11	0.04	0	0	N	N	N						
37a	Sec. 21, T146N, R74W	Ditch	Artificial	No	0.01	0.03	0	0	N	N	N						
37b	Sec. 21, T146N, R74W	Basin	Natural	No	0.07	0.63	0	0	Y	N	N	Vollrath 16/17 Bank	0.63				
37c	Sec. 21, T146N, R74W	Ditch	Artificial	No	0.04	0.00	0	0	N	N	N						
37d	Sec. 21, T146N, R74W	Basin	Natural	No	0.04	0.00	0	0	N	N	N						
37e	Sec. 21, T146N, R74W	Ditch	Artificial	No	0.14	0.00	0	0	N	N	N						
38	Sec. 21, T146N, R74W	Ditch	Artificial	No	0.02	0.01	0	0	N	N	N						
39	Sec. 28, T146N, R74W	Basin	Natural	No	0.00	0.00	0	0	N	N	N						
40a	Sec. 21, T146N, R74W	Basin	Natural	No	0.01	0.01	0	0	Y	N	N	Vollrath 16/17 Bank	0.01				
40c	Sec. 21, T146N, R74W	Basin	Natural	No	0.01	0.00	0	0	Y	N	N						
40d	Sec. 21, T146N, R74W	Ditch	Artificial	No	0.02	0.00	0	0	N	N	N						
40e	Sec. 28, T146N, R74W	Basin	Natural	No	0.15	0.08	0	0	Y	N	N	Vollrath 16/17 Bank	0.08				
40f	Sec. 28, T146N, R74W	Ditch	Artificial	No	0.02	0.00	0	0	N	N	N						
41	Sec. 22, T146N, R74W	Ditch	Artificial	No	0.02	0.01	0	0	N	N	N						
42	Sec. 27, T146N, R74W	Basin	Natural	No	0.10	0.06	0	0	Y	N	N	Vollrath 16/17 Bank	0.06				

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Wetland Impact Table

Sliver Grading, Milling and RAP Overlay

ND 200, Jct 14 E to W Jct 3

Wetland Impact Table																	
Wetland Number	Location	Wetland Type	Wetland Feature	USACE Jurisdictional Wetlands	Wetland Impacts Acre(s)		USFWS Easement Impacts Acre(s)		Wetland Mitigation								
					Temp.	Perm.	Temp.	Perm.	Mitigation Required			USACE/11990 Bank		Onsite			
									EO 11990	USACE	USFWS	Location	Acre(s)	Mitigation Location; Ratio	Acre(s)	Constructed Site #	Constructed Size Acre(s)
43	Sec. 22, T146N, R74W	Ditch	Artificial	No	0.02	0.01	0	0	N	N	N						
44a	Sec. 22, T146N, R74W	Basin	Natural	No	0.10	0.03	0	0	Y	N	N	Vollrath 16/17 Bank	0.03				
44b	Sec. 23, T146N, R74W	Ditch	Artificial	No	0.01	0.00	0	0	N	N	N						
44c	Sec. 27, T146N, R74W	Basin	Natural	No	0.06	0.01	0	0	Y	N	N	Vollrath 16/17 Bank	0.01				
44d	Sec. 26, T146N, R74W	Ditch	Artificial	No	0.01	0.00	0	0	N	N	N						
45a	Sec. 23, T146N, R74W	Basin	Natural	No	0.04	0.01	0	0	Y	N	N	Vollrath 16/17 Bank	0.01				
45b	Sec. 26, T146N, R74W	Ditch	Artificial	No	0.01	0.01	0	0	N	N	N						
46	Sec. 26, T146N, R74W	Basin	Natural	No	0.00	0.00	0	0	N	N	N						
47	Sec. 24, T146N, R74W	Ditch	Artificial	No	0.01	0.00	0	0	N	N	N						
48a	Sec. 24, T146N, R74W	Basin	Natural	No	0.06	0.01	0	0	Y	N	N	Vollrath 16/17 Bank	0.01				
48b	Sec. 25, T146N, R74W	Ditch	Artificial	No	0.06	0.00	0	0	N	N	N						
49	Sec. 25, T146N, R74W	Ditch	Artificial	No	0.02	0.01	0	0	N	N	N						
50a	Sec. 24, T146N, R74W	Basin	Natural	No	0.07	0.01	0	0	Y	N	N	Vollrath 16/17 Bank	0.01				
50b	Sec. 25, T146N, R74W	Basin	Natural	No	0.12	0.02	0	0	Y	N	N	Vollrath 16/17 Bank	0.02				
51	Sec. 24, T146N, R74W	Ditch	Artificial	No	0.01	0.00	0	0	N	N	N						
52a	Sec. 24, T146N, R74W	Ditch	Artificial	Yes	0.01	0.00	0	0	N	N	N						
52b	Sec. 19, T146N, R73W	Basin	Natural	Yes	0.04	0.01	0	0	Y	N	N	Vollrath 16/17 Bank	0.01				
52c	Sec. 30, T146N, R73W	Ditch	Artificial	Yes	0.03	0.00	0	0	N	N	N						
53	Sec. 30, T146N, R73W	Basin	Natural	No	0.04	0.00	0	0	N	N	N						
54a	Sec. 19 & 30, T146N, R73W	Baisn	Natural	Yes	0.06	0.00	0	0	Y	N	N						
54b	Sec. 30, T146N, R73W	Ditch	Artificial	Yes	0.00	0.00	0	0	N	N	N						
54c	Sec. 29, T146N, R73W	Basin	Natural	Yes	0.00	0.00	0	0	Y	N	N						
54d	Sec. 29, T146N, R73W	Ditch	Artificial	Yes	0.00	0.00	0	0	N	N	N						
54f	Sec. 29, T146N, R73W	Ditch	Artificial	Yes	0.00	0.00	0	0	N	N	N						
54g	Sec. 29, T146N, R73W	Ditch	Artificial	Yes	0.00	0.00	0	0	N	N	N						
54i	Sec. 30, T146N, R73W	Ditch	Artificial	Yes	0.00	0.00	0	0	N	N	N						
54h	Sec. 29, T146N, R73W	Ditch	Artificial	Yes	0.00	0.00	0	0	N	N	N						
56	Sec. 29, T146N, R73W	Ditch	Artificial	No	0.07	0.06	0	0	N	N	N						

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Wetland Impact Table

Sliver Grading, Milling and RAP Overlay

ND 200, Jct 14 E to W Jct 3

Wetland Impact Table																	
Wetland Number	Location	Wetland Type	Wetland Feature	USACE Jurisdictional Wetlands ¹	Wetland Impacts Acre(s)		USFWS Easement Impacts Acre(s)		Wetland Mitigation								
									Mitigation Required			USACE/11990 Bank		Onsite			
					Temp.	Perm.	Temp.	Perm.	EO 11990	USACE	USFWS	Location	Acre(s)	Mitigation Location; Ratio	Acre(s)	Constructed Site #	Constructed Size Acre(s)
57a	Sec. 20, T146N, R73W	Ditch	Artificial	No	0.00	0.00	0	0	N	N	N						
57b	Sec. 29, T146N, R73W	Ditch	Artificial	No	0.05	0.01	0	0	N	N	N						
58	Sec. 29, T146N, R73W	Ditch	Artificial	Yes	0.01	0.01	0	0	N	N	N						
59a	Sec. 21, T146N, R73W	Basin	Natural	Yes	0.14	0.02	0	0	Y	N	N	Vollrath 16/17 Bank	0.02				
59b	Sec. 28, T146N, R73W	Basin	Natural	Yes	0.14	0.04	0	0	Y	N	N	Vollrath 16/17 Bank	0.04				
60a	Sec. 21, T146N, R73W	Basin	Natural	Yes	0.03	0.00	0	0	N	N	N						
60b	Sec. 28, T146N, R73W	Baisn	Natural	Yes	0.06	0.00	0	0	Y	N	N						
61a	Sec. 21, T146N, R73W	Ditch	Artificial	No	0.03	0.00	0	0	N	N	N						
61b	Sec. 28, T146N, R73W	Ditch	Artificial	No	0.01	0.00	0	0	N	N	N						
62	Sec. 28, T146N, R73W	Ditch	Artificial	No	0.03	0.01	0	0	N	N	N						
63a	Sec. 21, T146N, R73W	Basin	Natural	Yes	0.00	0.00	0	0	Y	Y	N						
63b	Sec. 21, T146N, R73W	Basin	Natural	Yes	0.00	0.00	0	0	Y	Y	N						
63c	Sec. 28, T146N, R73W	Basin	Natural	No	0.00	0.00	0	0	Y	N	N						
Totals					7.80	4.48	0.00	0.00					3.19		0.00		0.00

Other Waters Impact Table															
Other Waters												Other Water Mitigation			
Number	Location	Type	Size		Feature	USACE Jurisdictional	Impacts to Other Waters				Mitigation Required			Mitigation Location; ratio	Method
			Acre(s)	Linear Feet			Temp	Acre(s) Perm	Linear Feet Perm		EO 11990	USACE	USFWS		
OW8b	Sec. 1 & 2, T146N, R75W	-	2.11		Lake	No	0.16	0.00	10.00	16.00	N	N	N		
OW30c	Sec. 8, T146N, R74W	-	0.66		Lake	No	0.10	0.04	10.00	11.00	N	N	N		
OW40b	Sec. 21, T146N, R74W	-	0.67		Lake	No	0.11	0.00	58.00	0.00	N	N	N		
OW54e	Sec. 29, T146N, R73W	-	1.56		Lake	Yes	0.00	0.00	0.00	0.00	N	N	N		
Totals			5.00				0.37	0.04	78.00	27.00					

¹ A wetland Jurisdictional Determination was issued by the USACE on 12/29/2016; NWO-2010-2737-BIS.

² All impacts to natural wetlands (natural/jurisdictional and natural/non-jurisdictional), regardless of size, as well as impacts greater than 0.10 acre to artificial/jurisdictional wetlands require mitigation.

³ All artificial/non-jurisdictional, deep water (impacts greater than 6.6 feet), Other Waters less than 300 linear feet (determined by the USACE on a case by case), and temporary impacts do not require mitigation.

Impact Summary Table			
Permanent Impact Summary		Temporary Impacts and additional information	
Wetland Type	Total (Acres)	Wetland Type	Total (Acres/Lf)
Natural/JD	0.07	Temporary JD	0.52
Natural/Non-JD	3.25	Non-JD Temporary	7.28
Artificial/JD	0.01	Permanent JD > 0.10	0.06
Artificial/Non-JD	1.15	Permanent OW	0.04
Total	4.48	Temporary OW	0.37

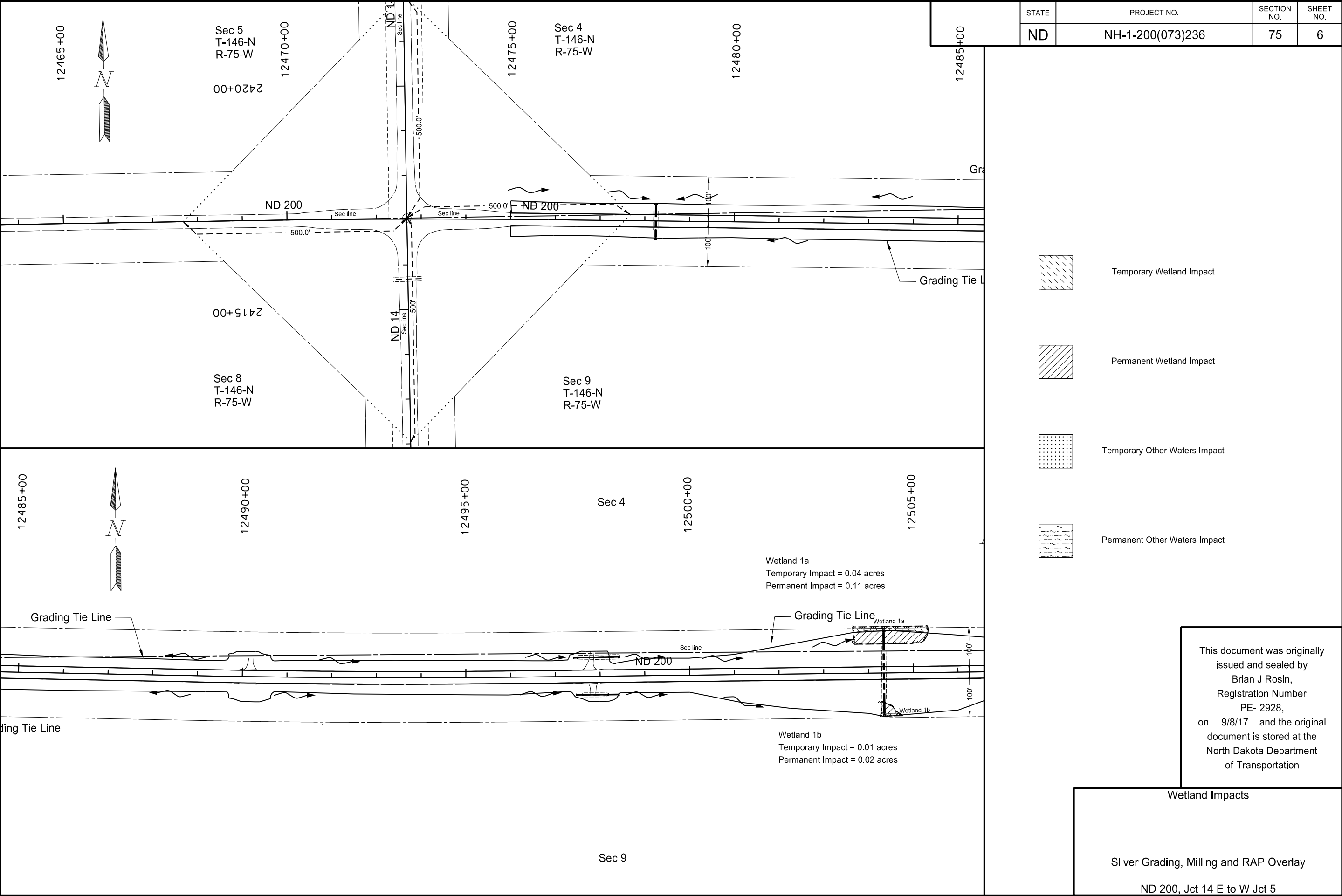
Mitigation Summary Table					
	Location	Onsite Acre(s)	11990 Bank Acre(s)	USACE/11990 Bank Acre(s)	USFWS Bank Acre(s)
EO 11990 Only	Vollrath 16/17 Bank	N/A	N/A	3.19	N/A
USACE/11990	Onsite	0.00	N/A	N/A	N/A
Total		0.00	0	3.19	0

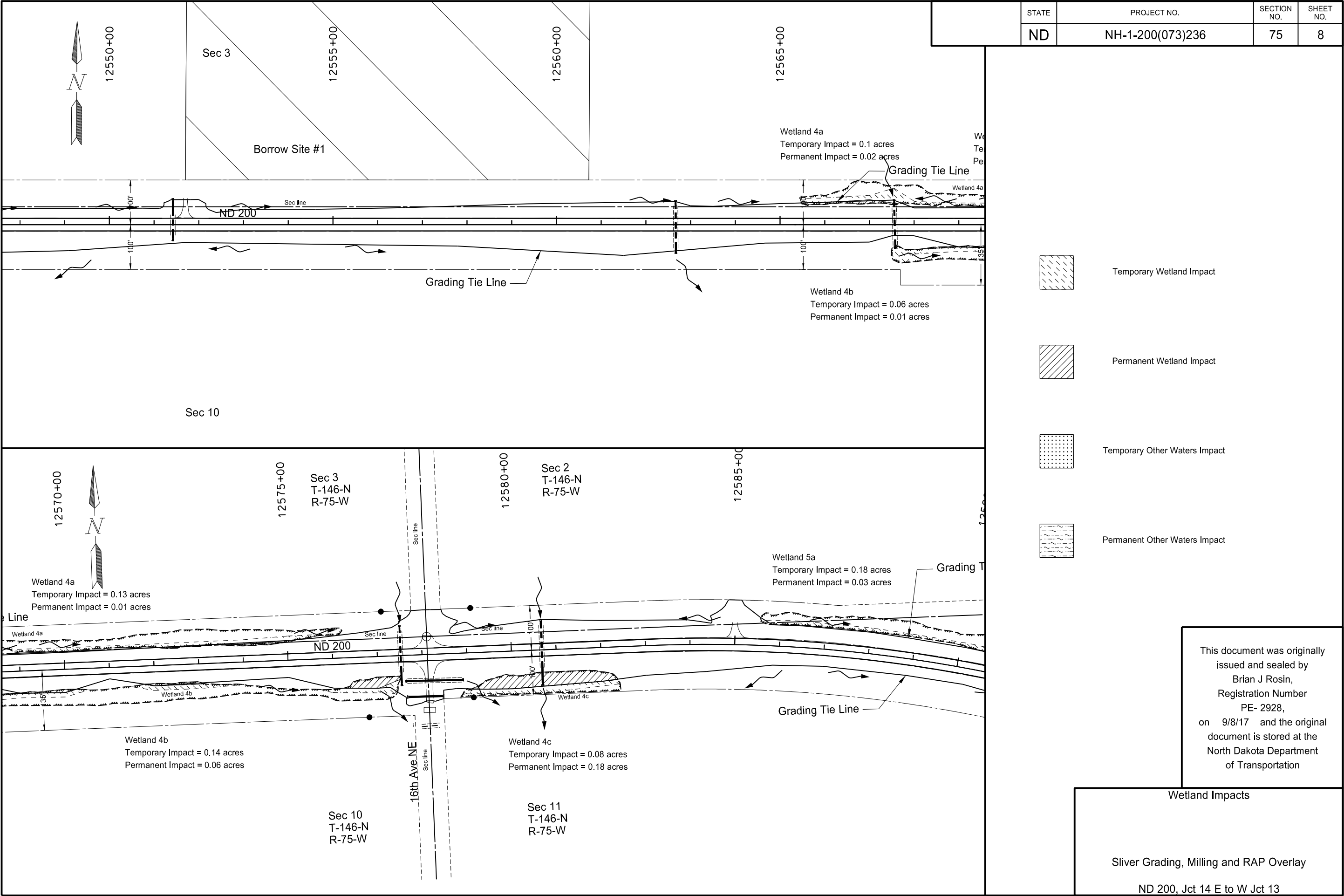
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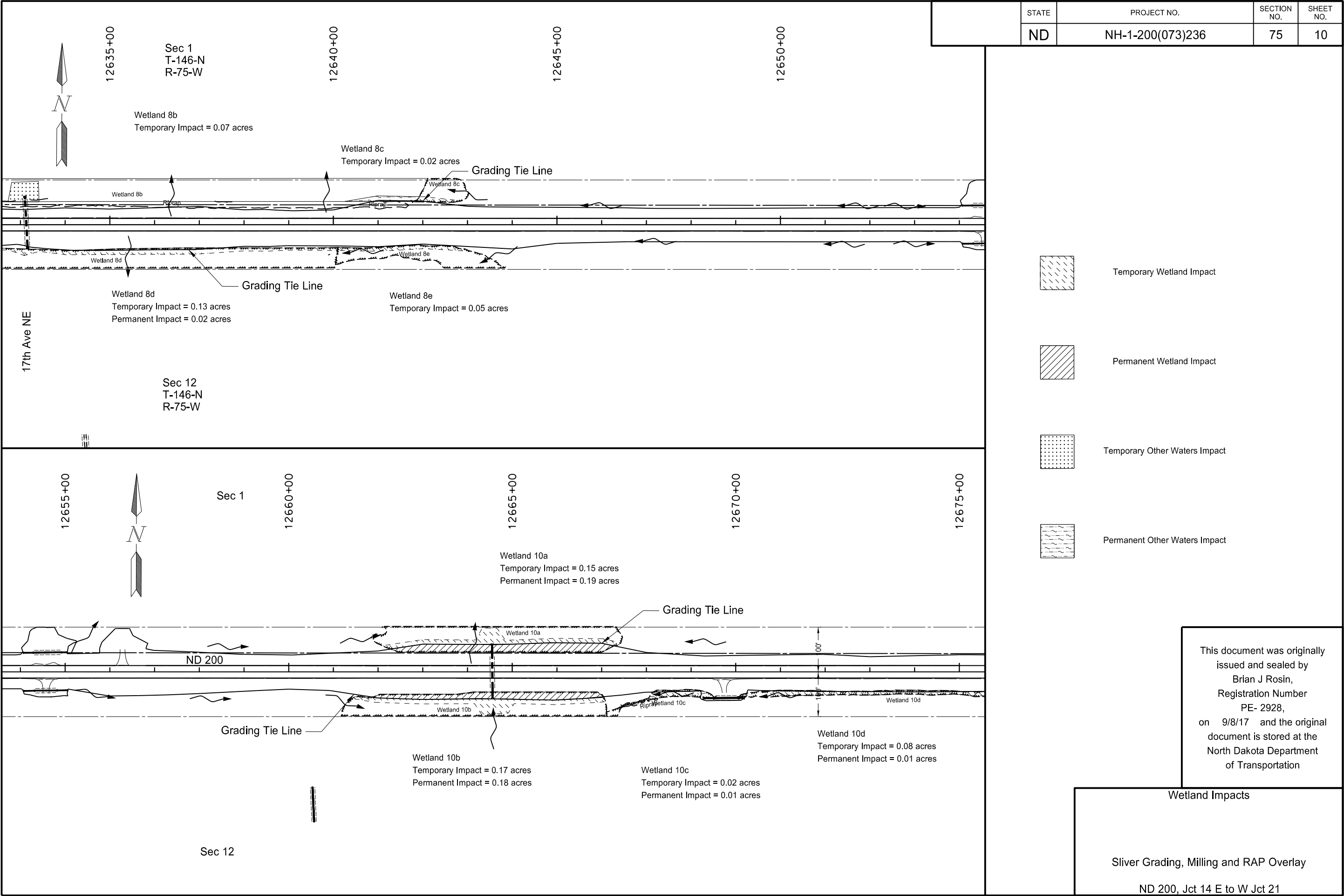
Wetland Impact Table

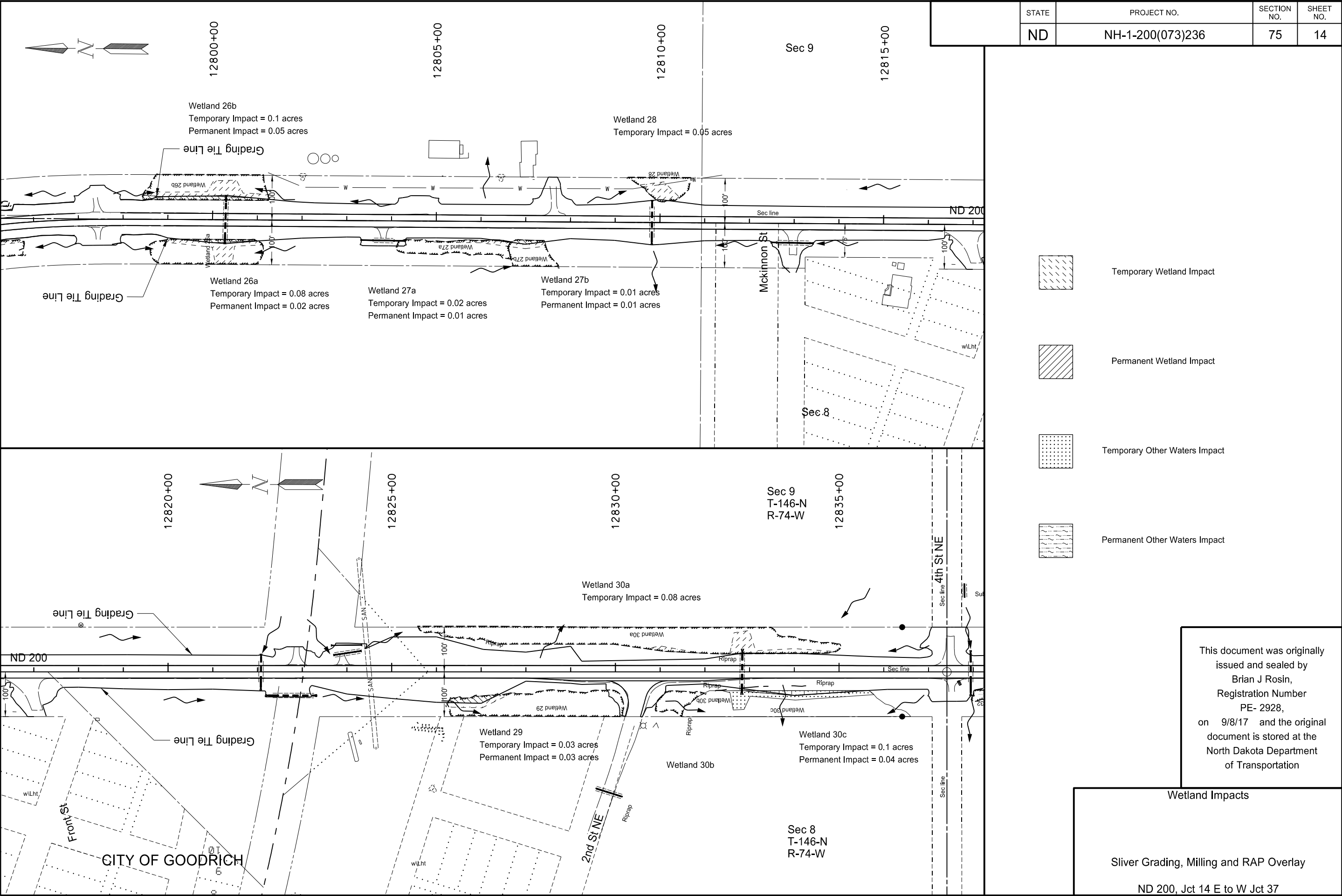
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ND 200, Jct 14 E to W Jct 3





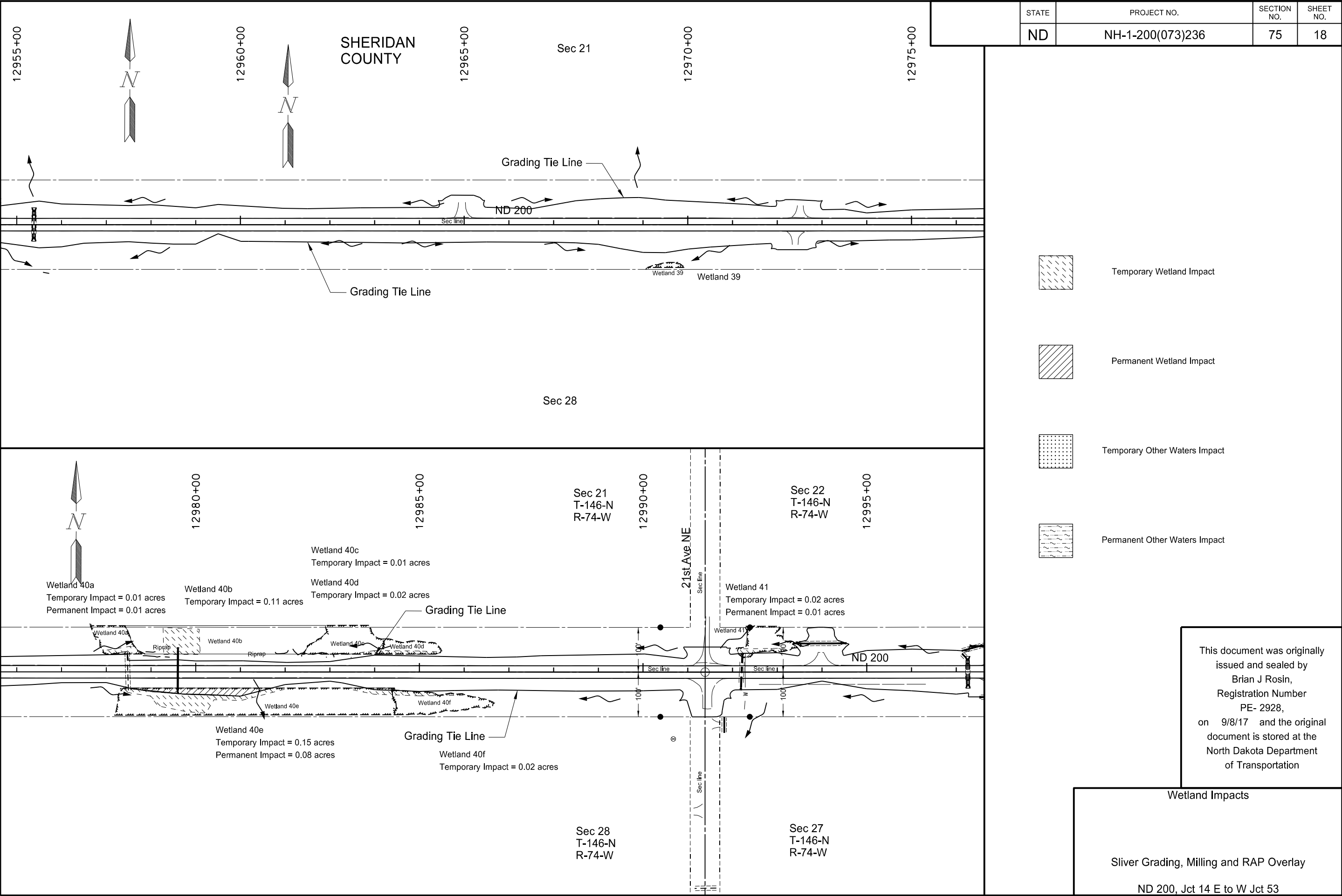


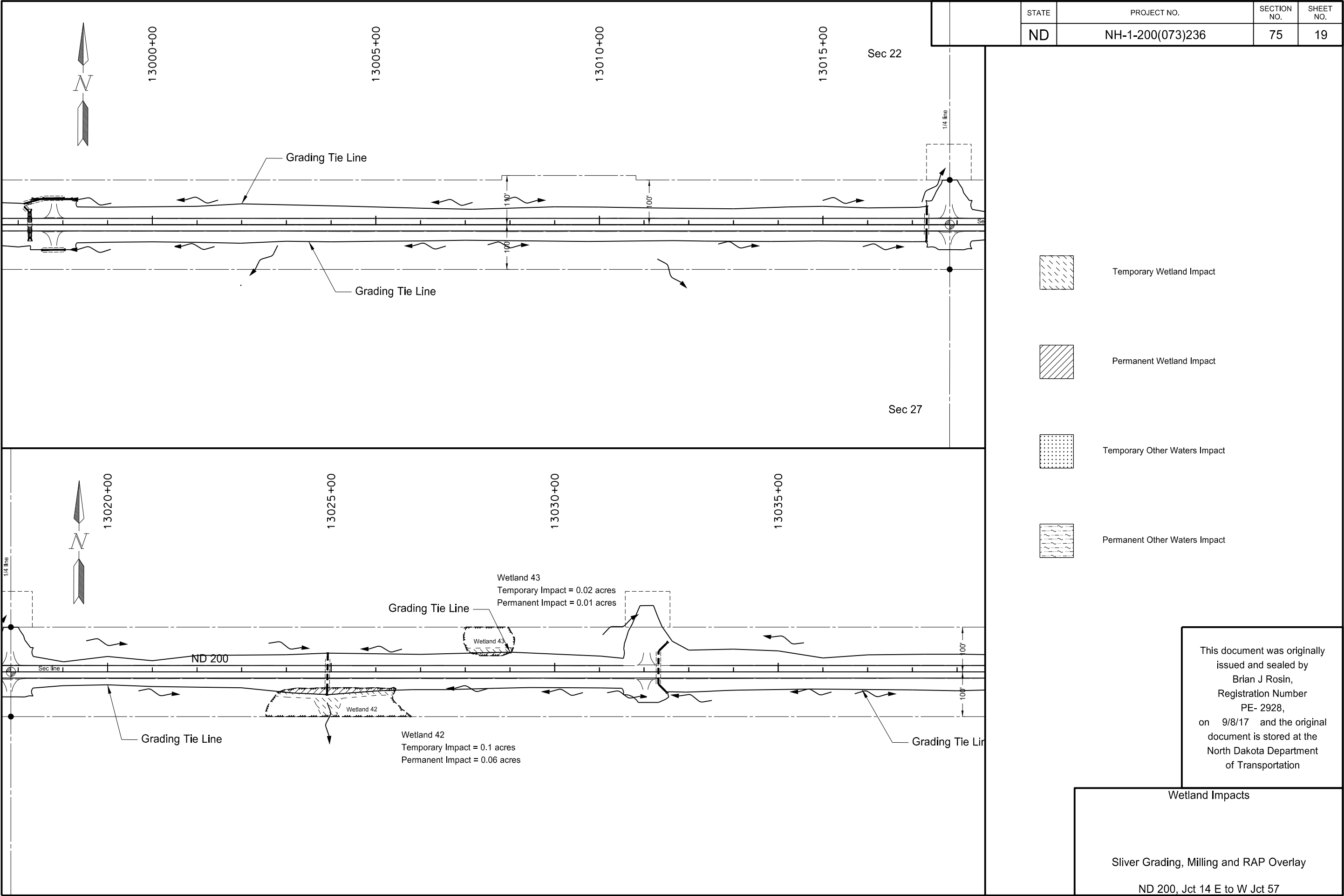


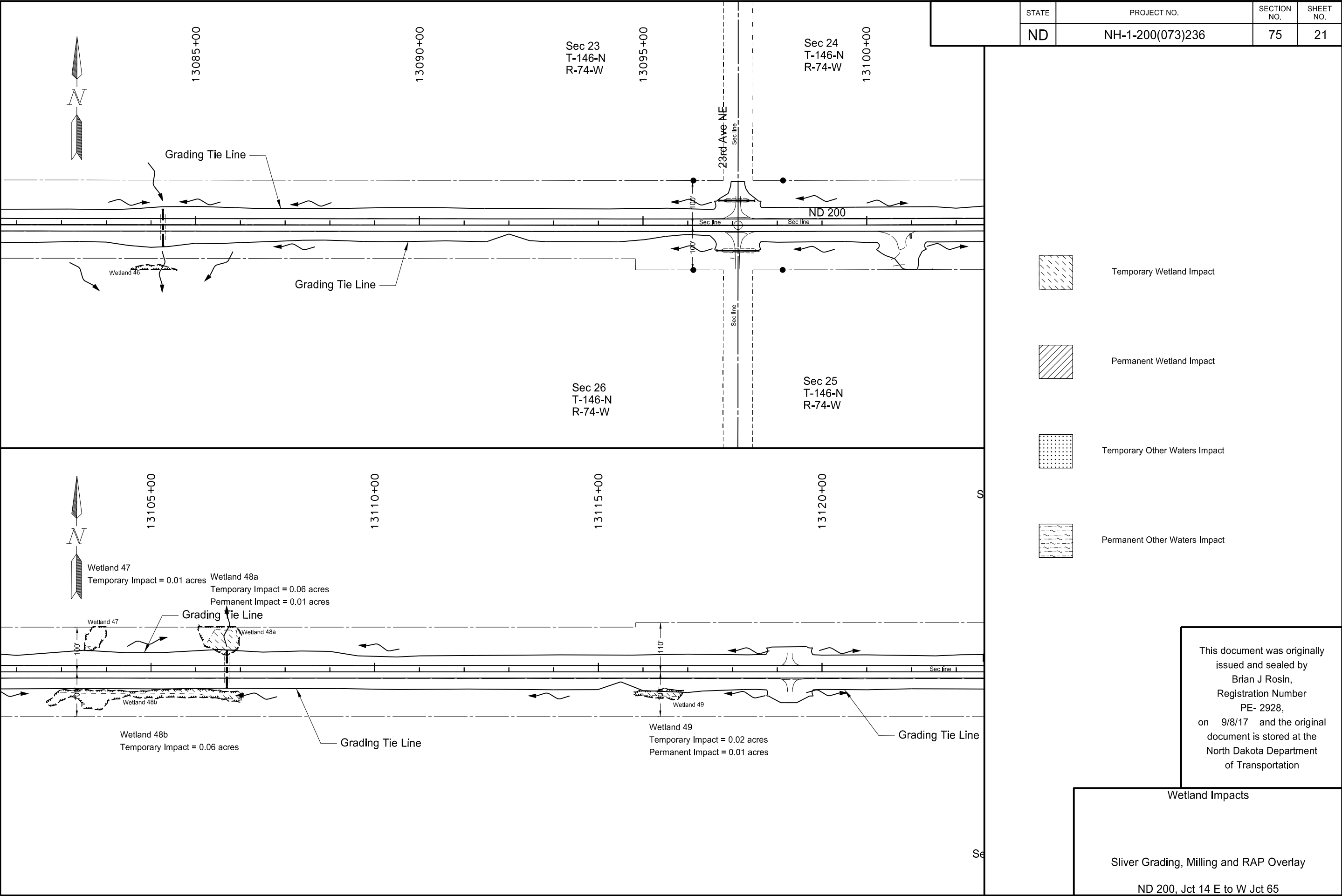
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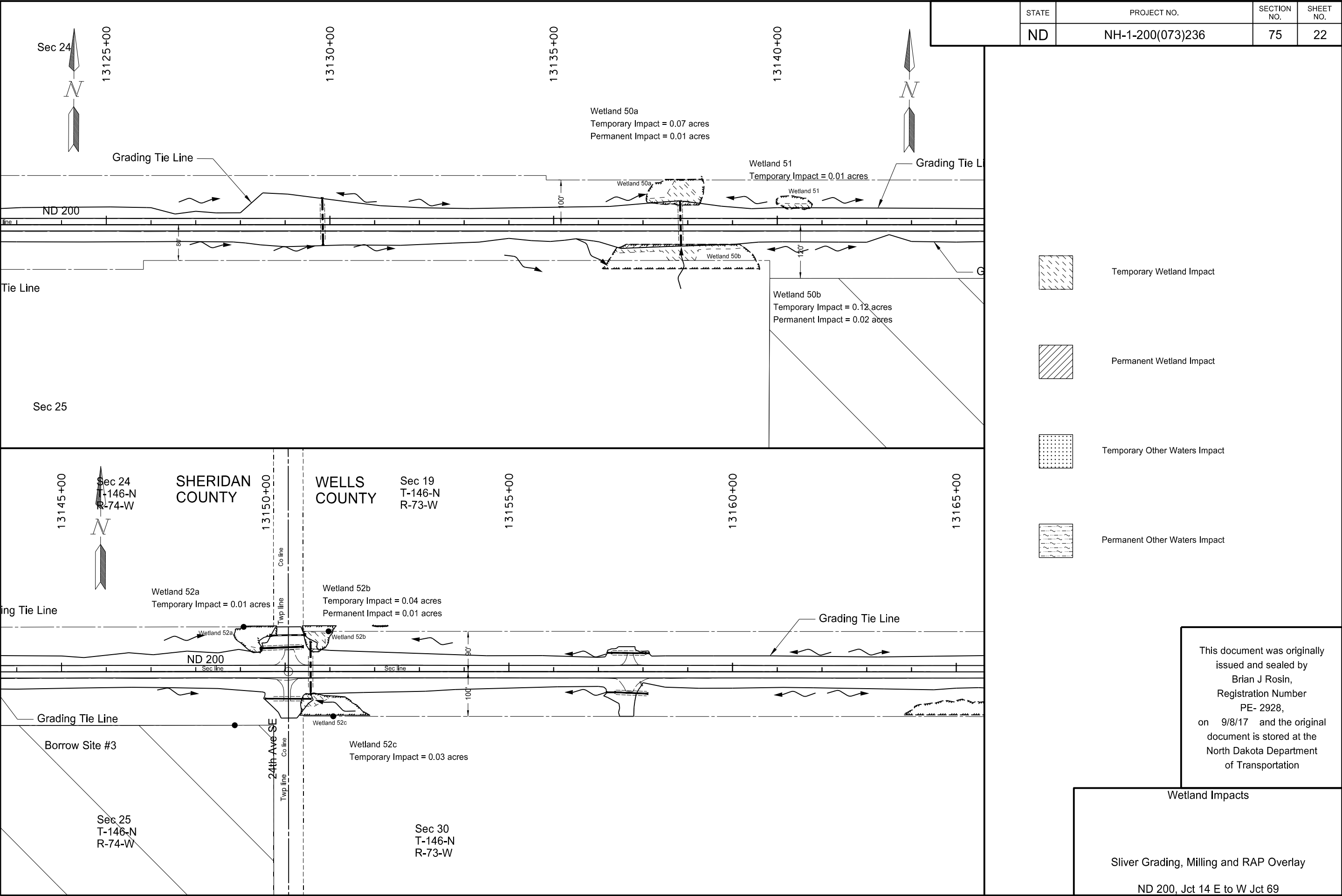
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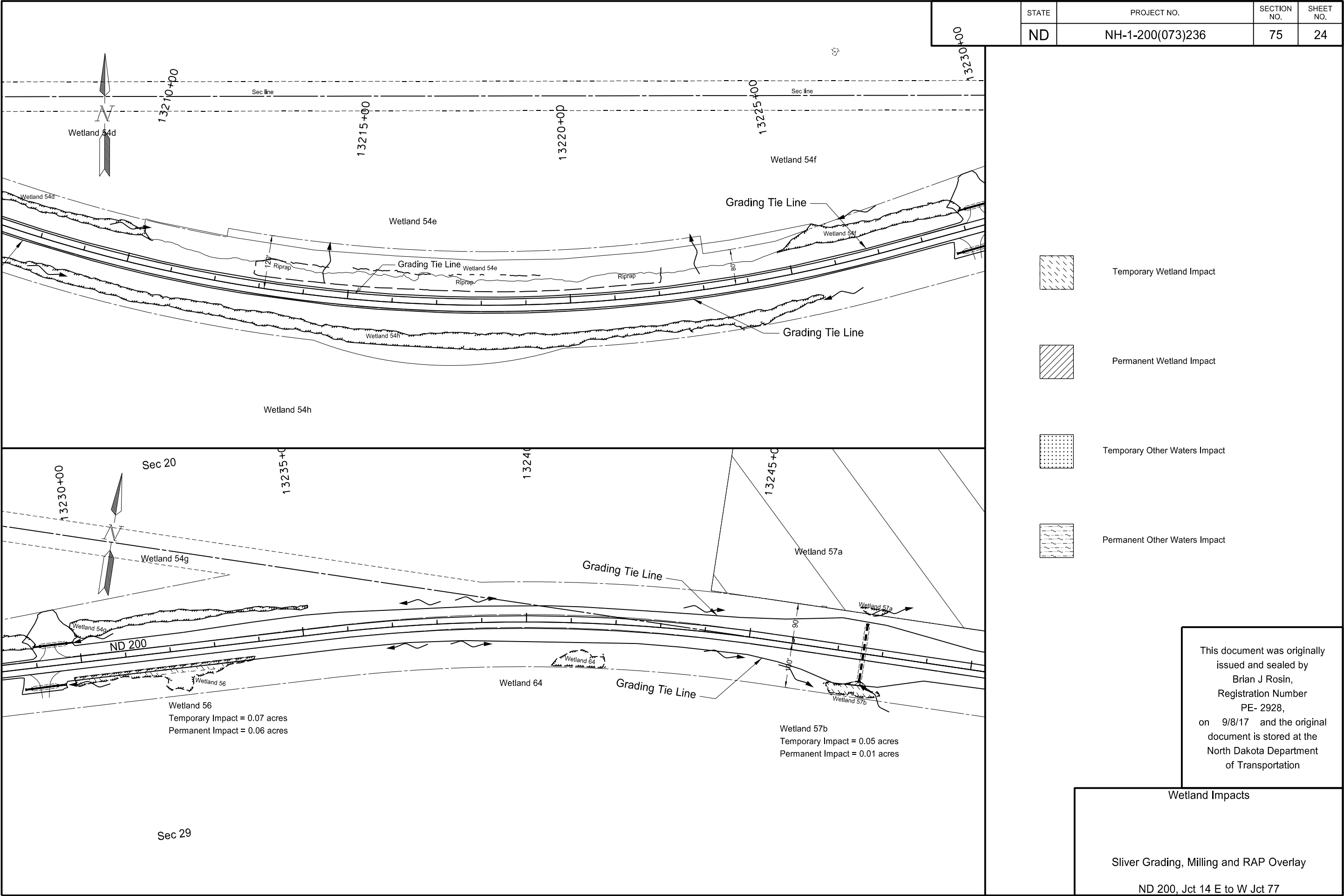
ND 200, Jct 14 E to W Jct 37

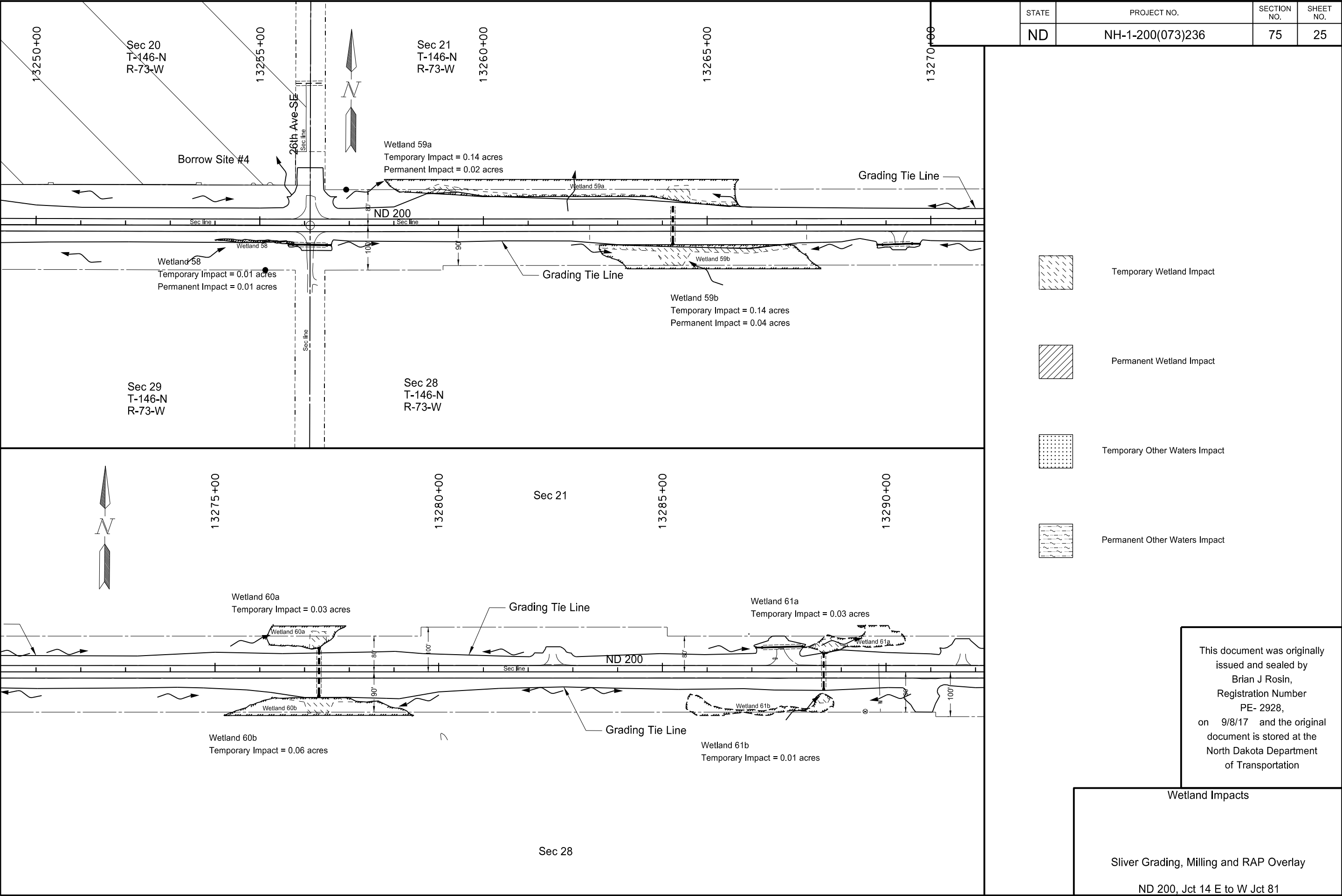


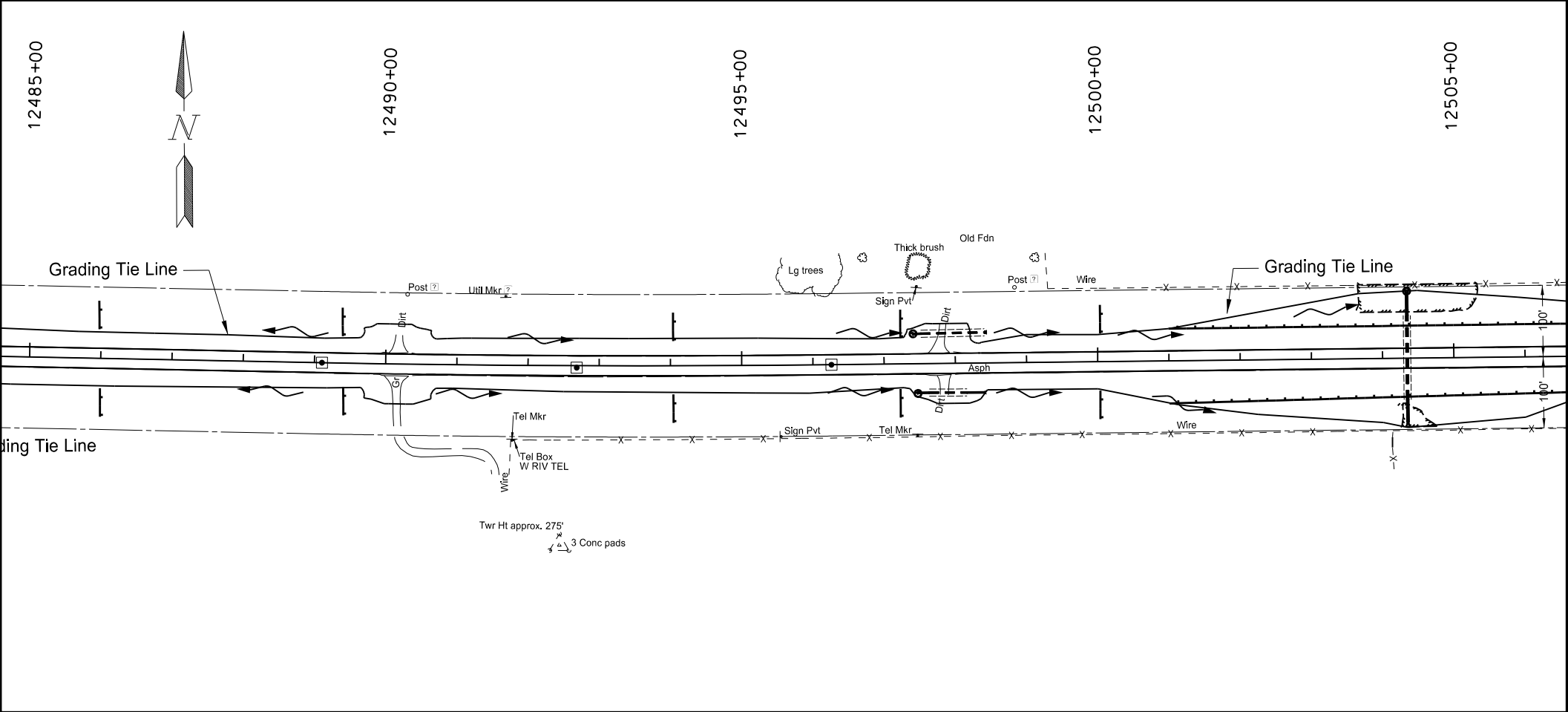
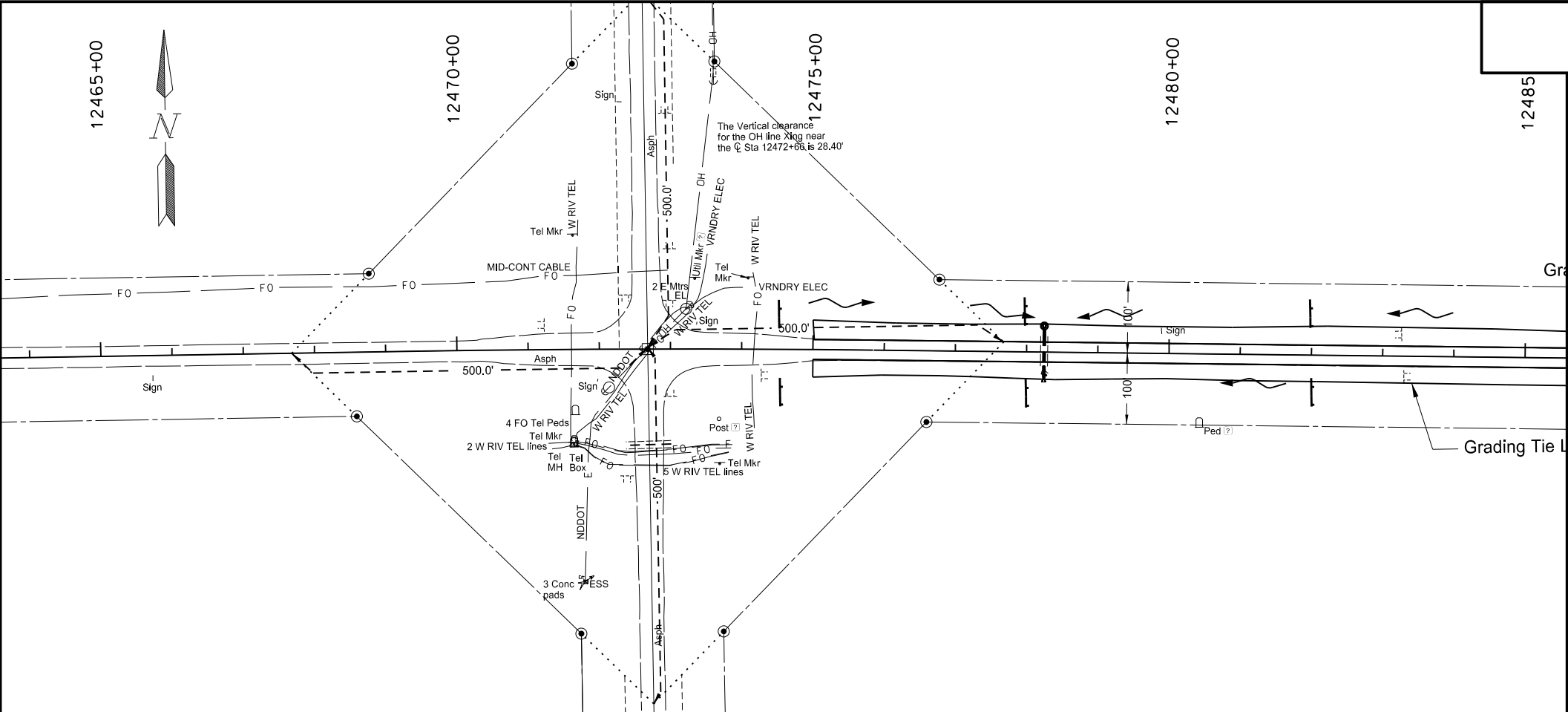












STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-1-200(073)236	76	1

Spec	Code	Description	Quantity
261	0112	Fiber Rolls 12IN	2060 LF
261	0113	Remove Fiber Rolls 12IN	2060 LF

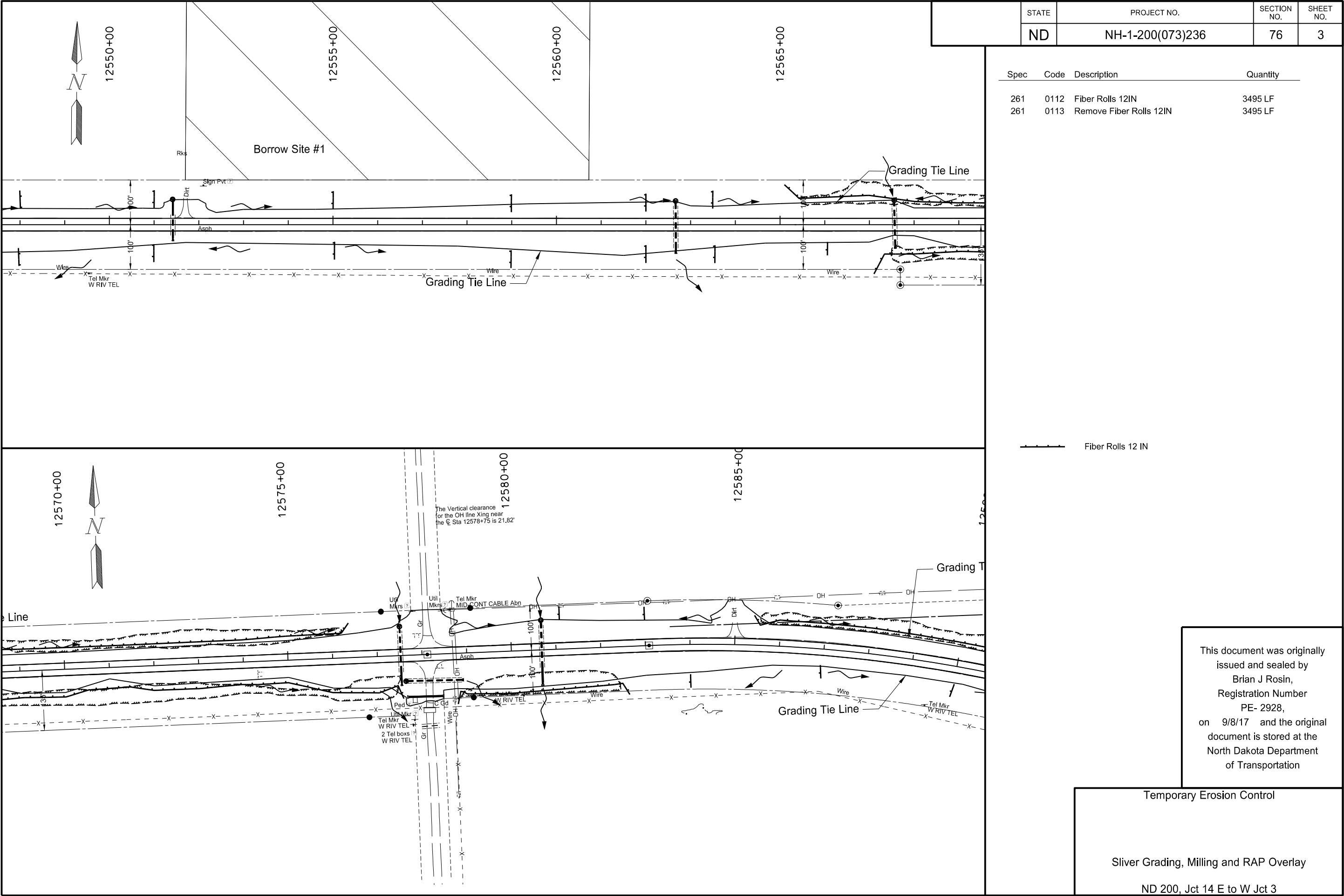
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Temporary Erosion Control

Sliver Grading, Milling and RAP Overlay

ND 200, Jct 14 E to W Jct 3

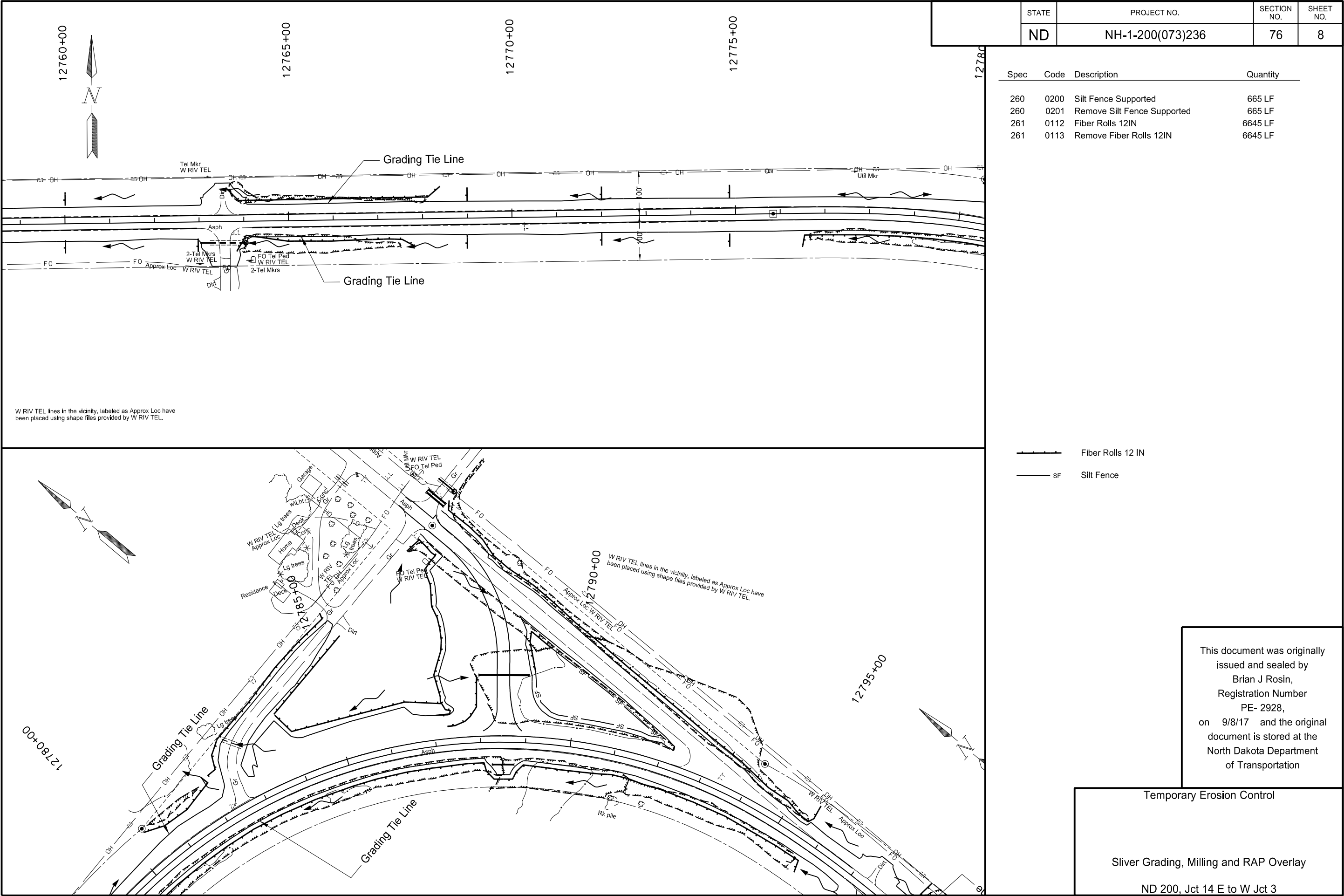


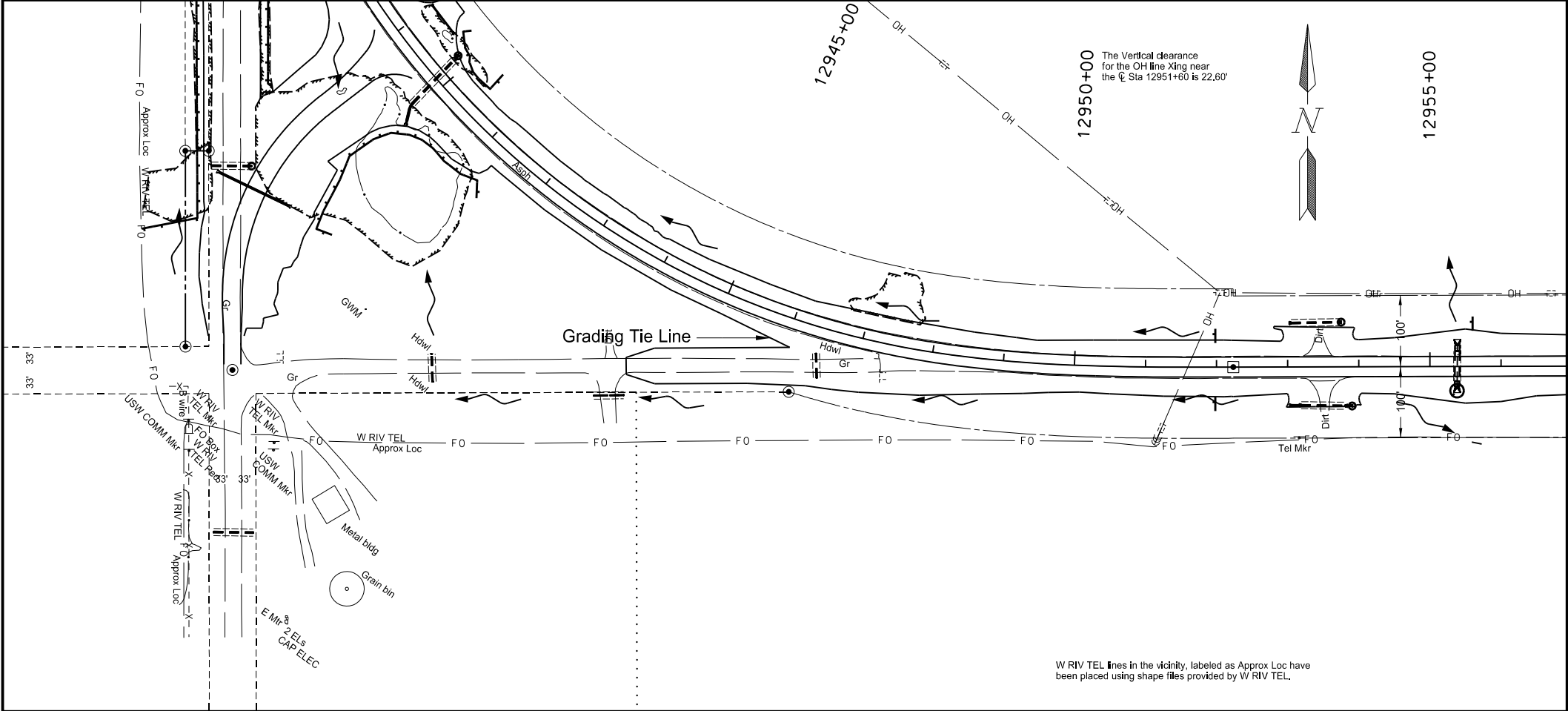
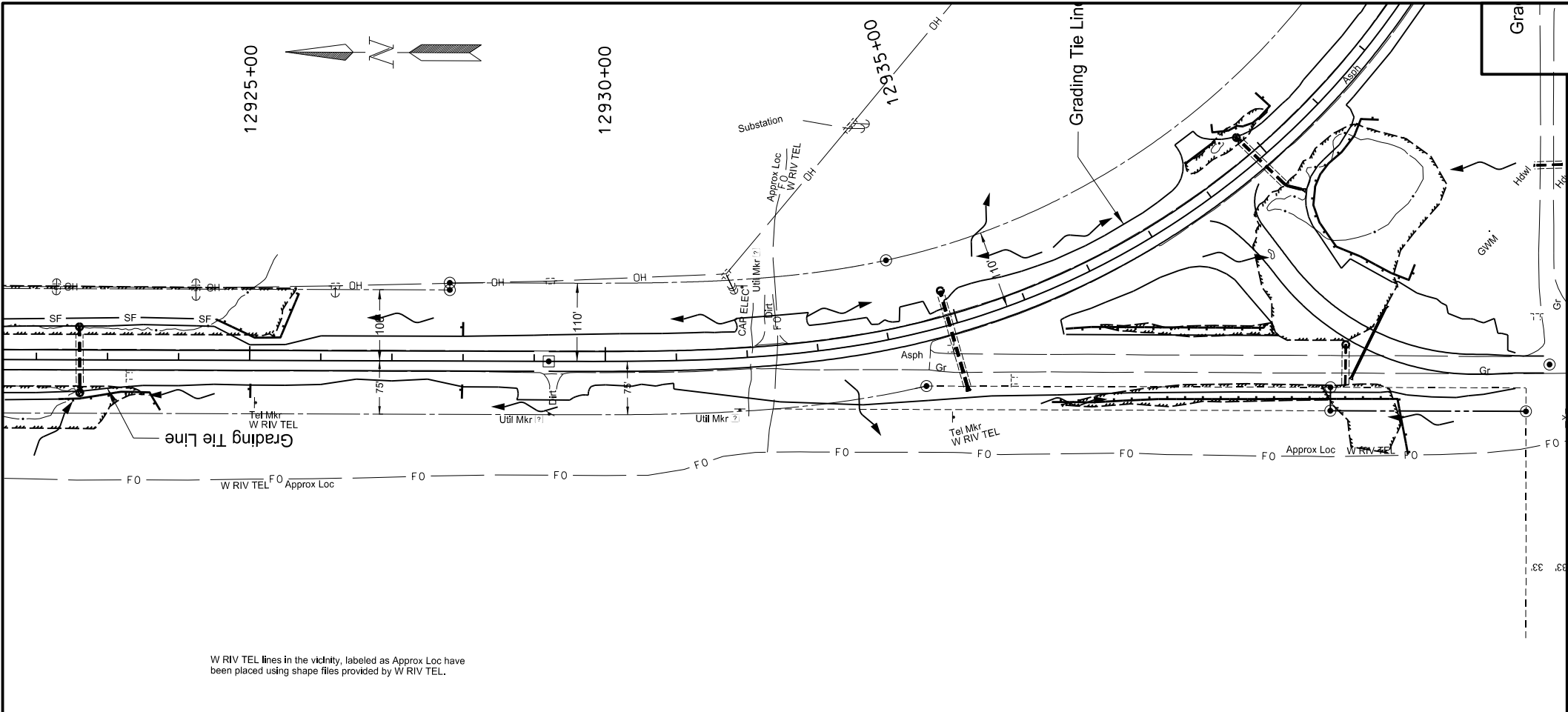
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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-1-200(073)236	76	12

Spec	Code	Description	Quantity
260	0200	Silt Fence Supported	397 LF
260	0201	Remove Silt Fence Supported	397 LF
261	0112	Fiber Rolls 12IN	2068 LF
261	0113	Remove Fiber Rolls 12IN	2068 LF

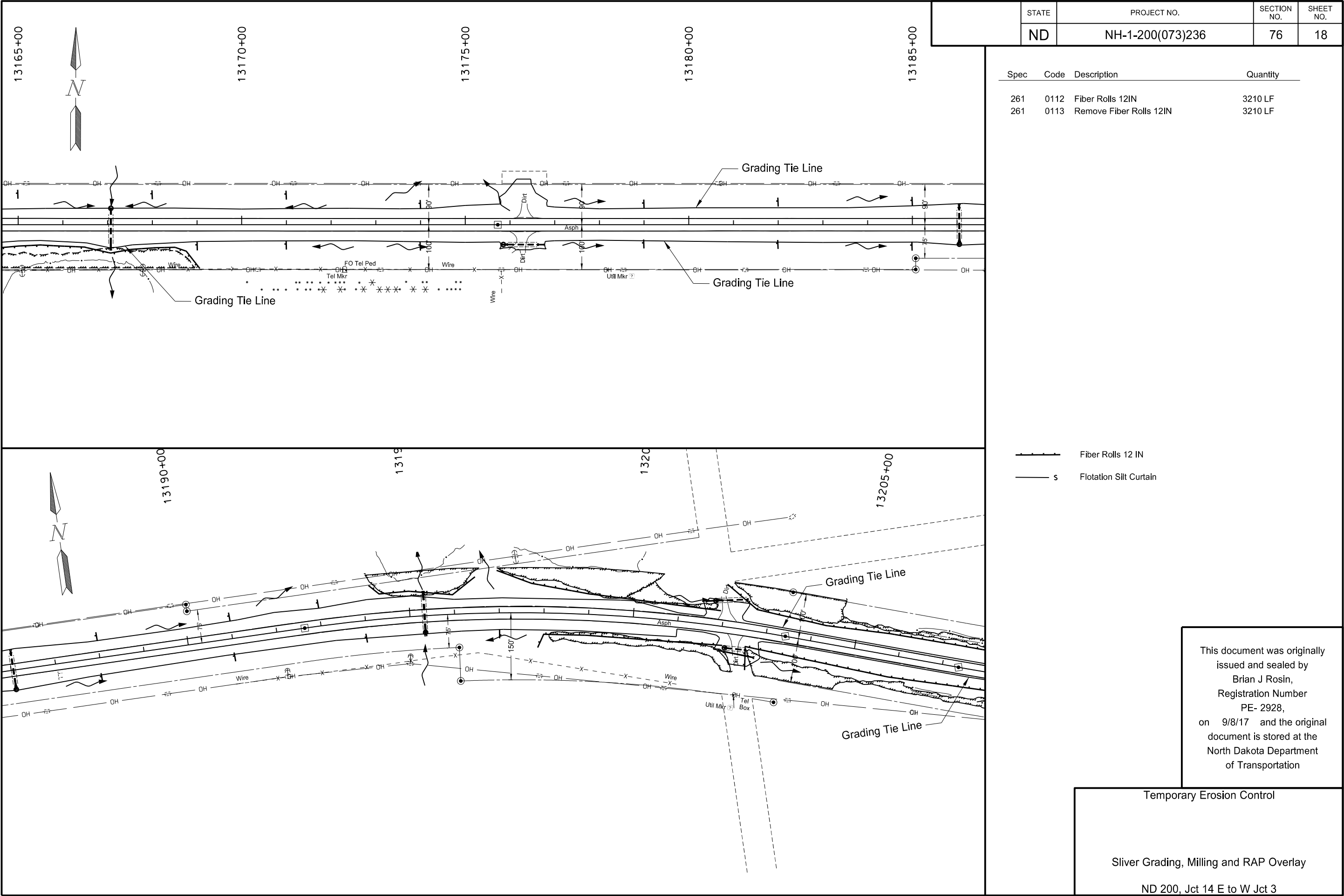
- Fiber Rolls 12 IN
- SF Silt Fence

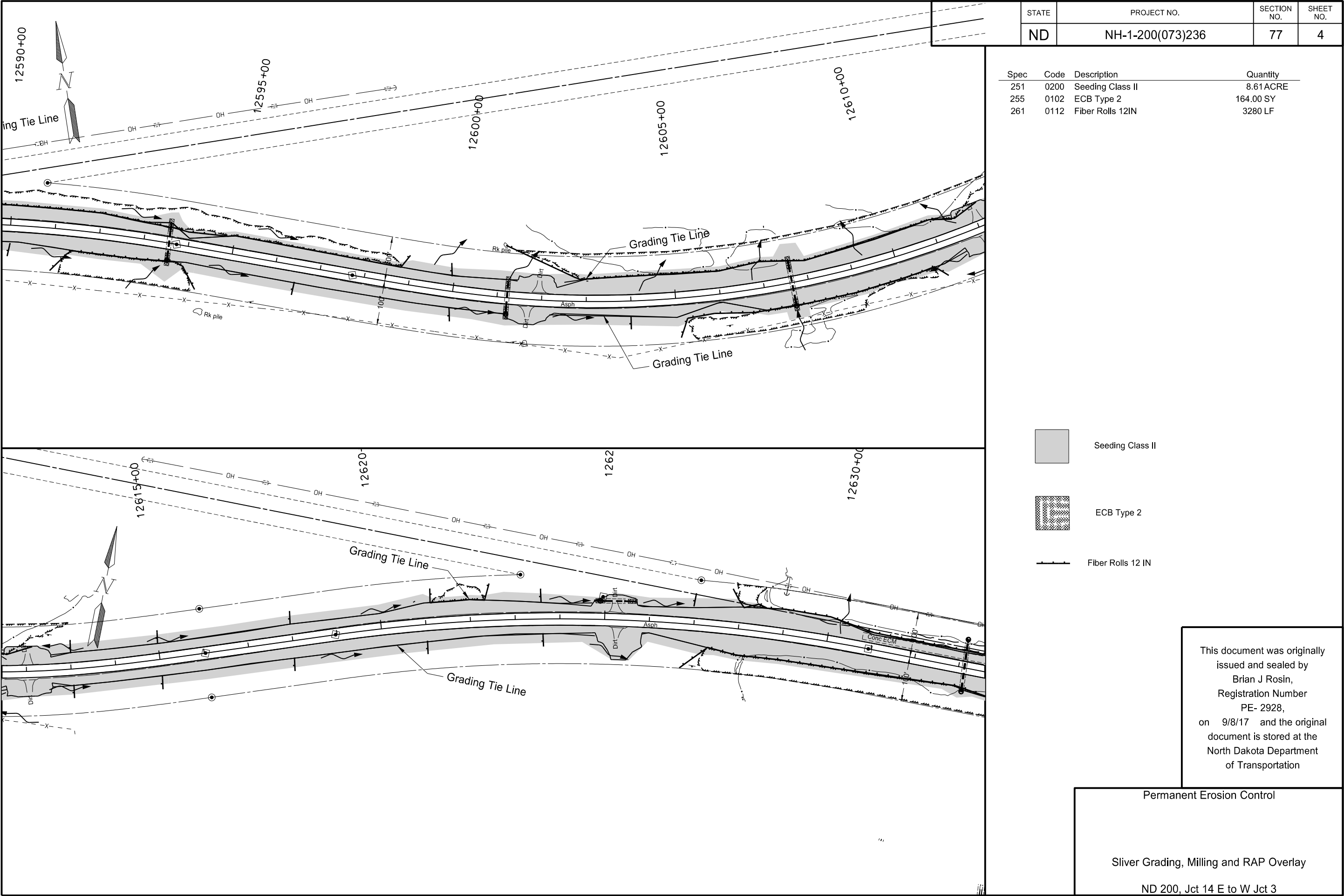
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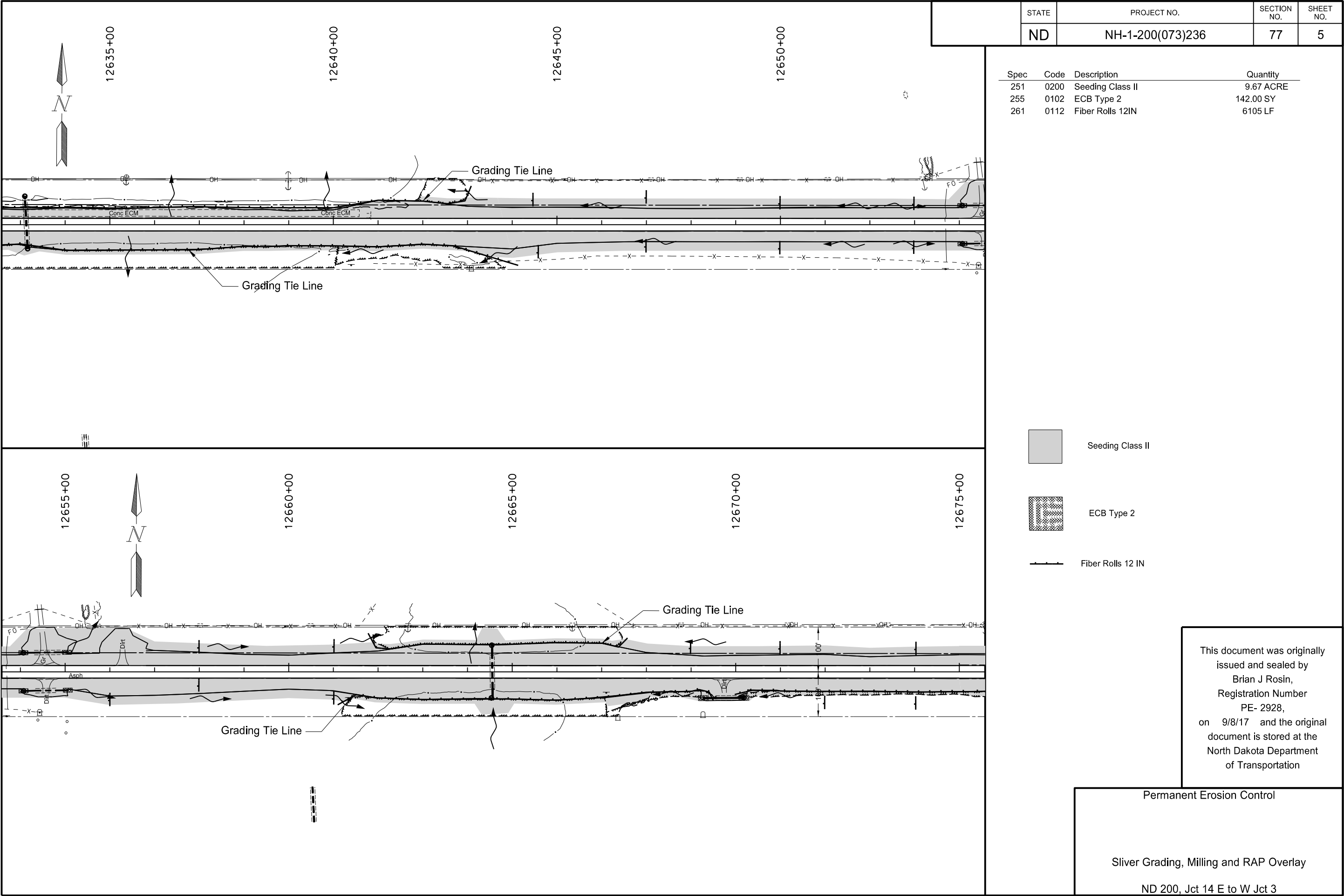
Temporary Erosion Control

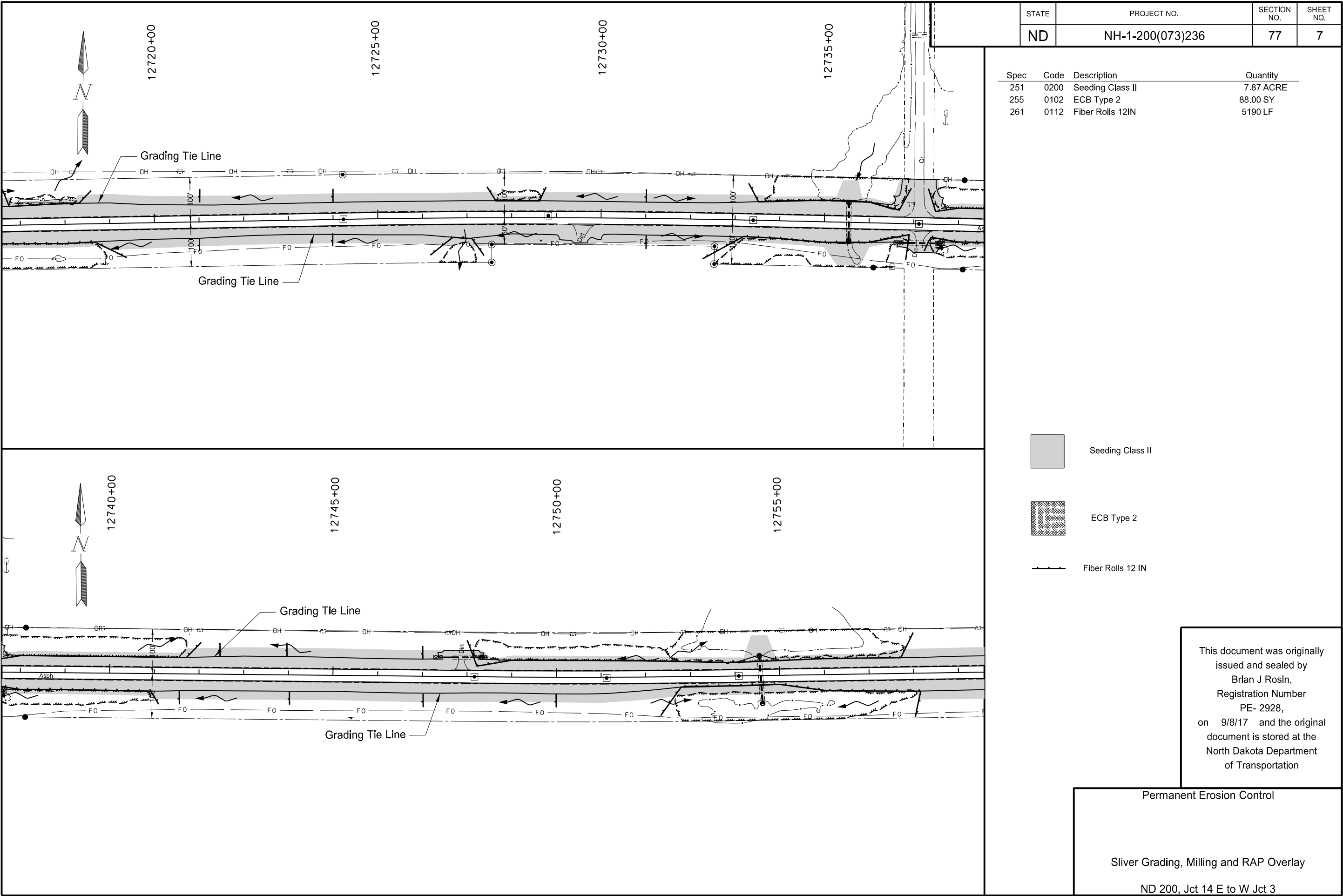
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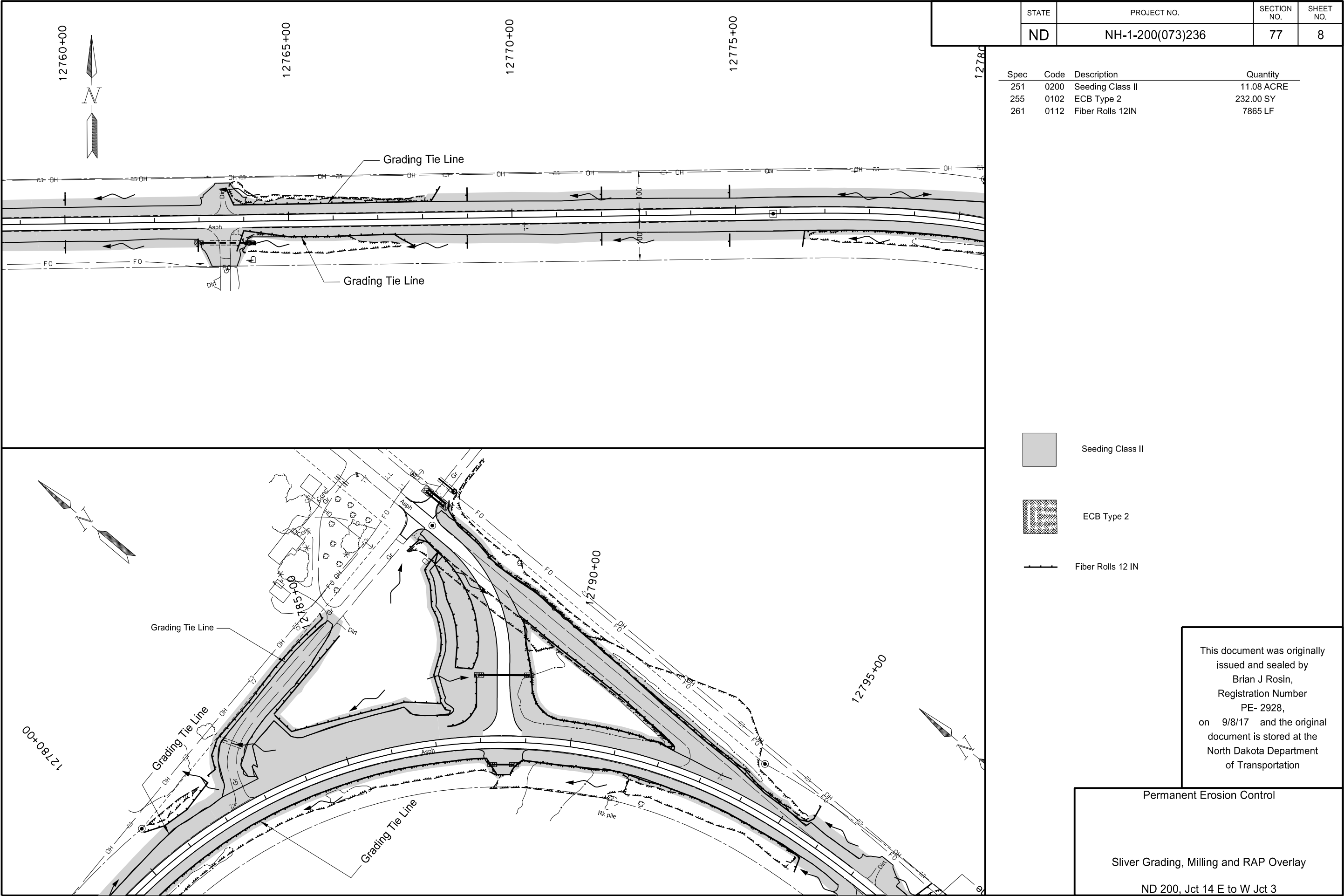
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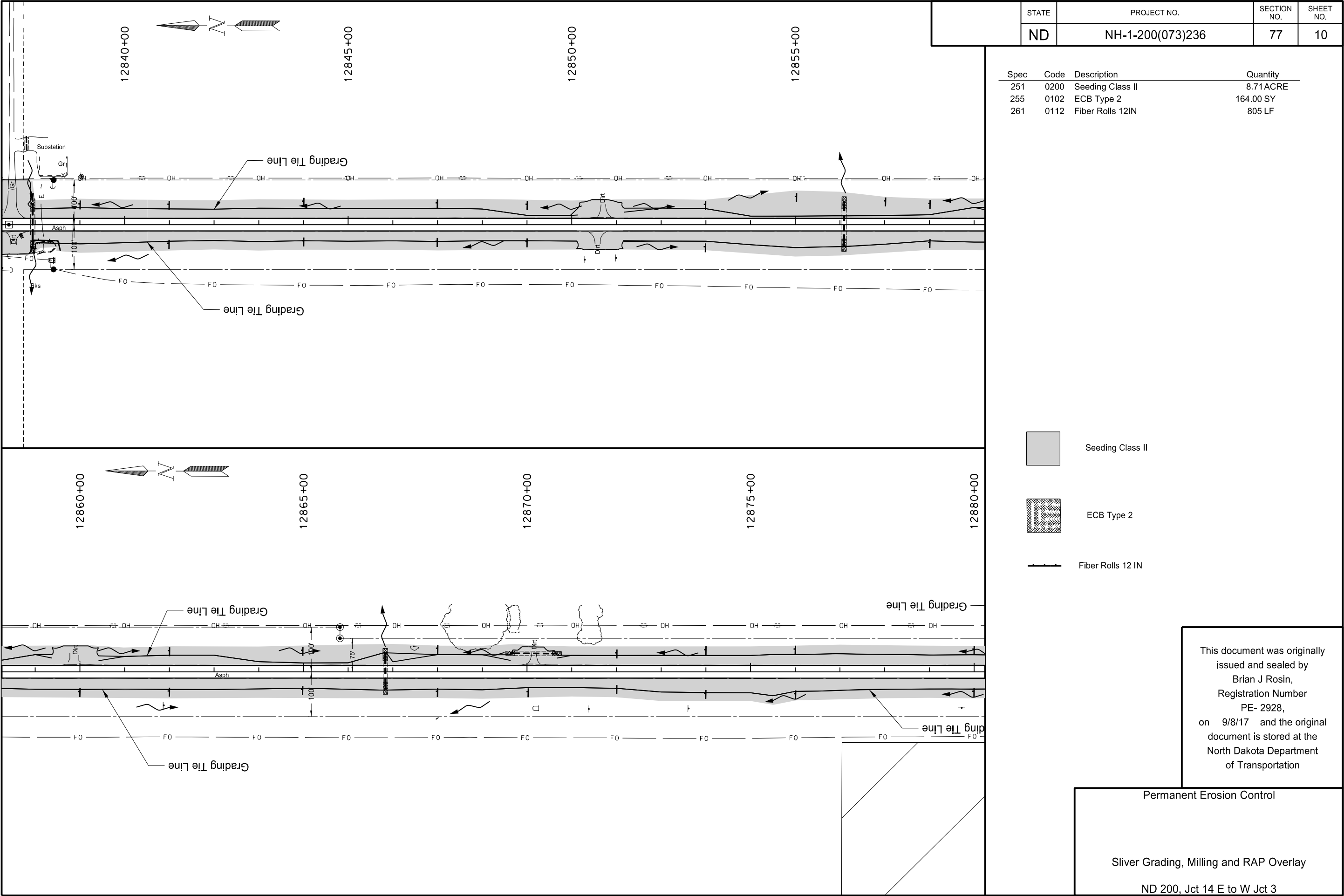


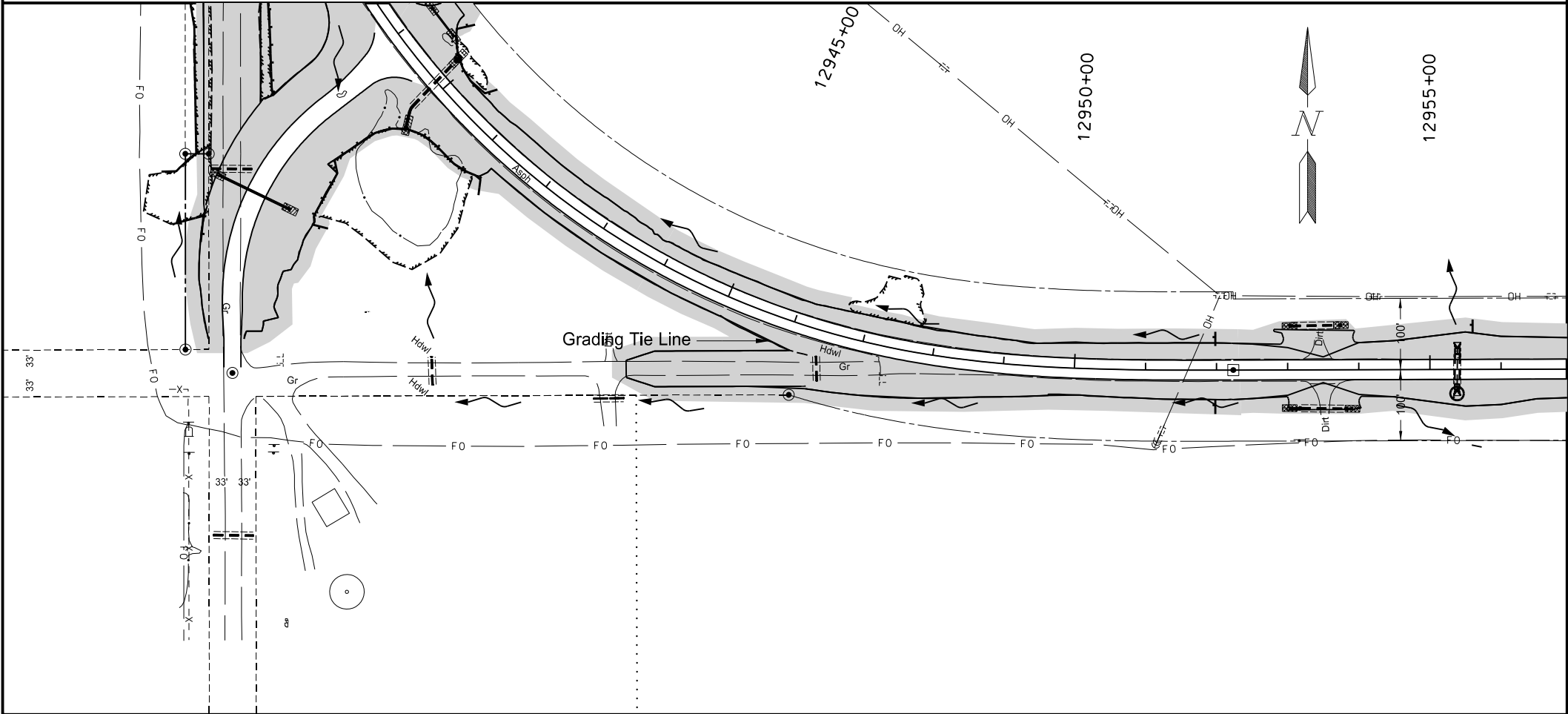
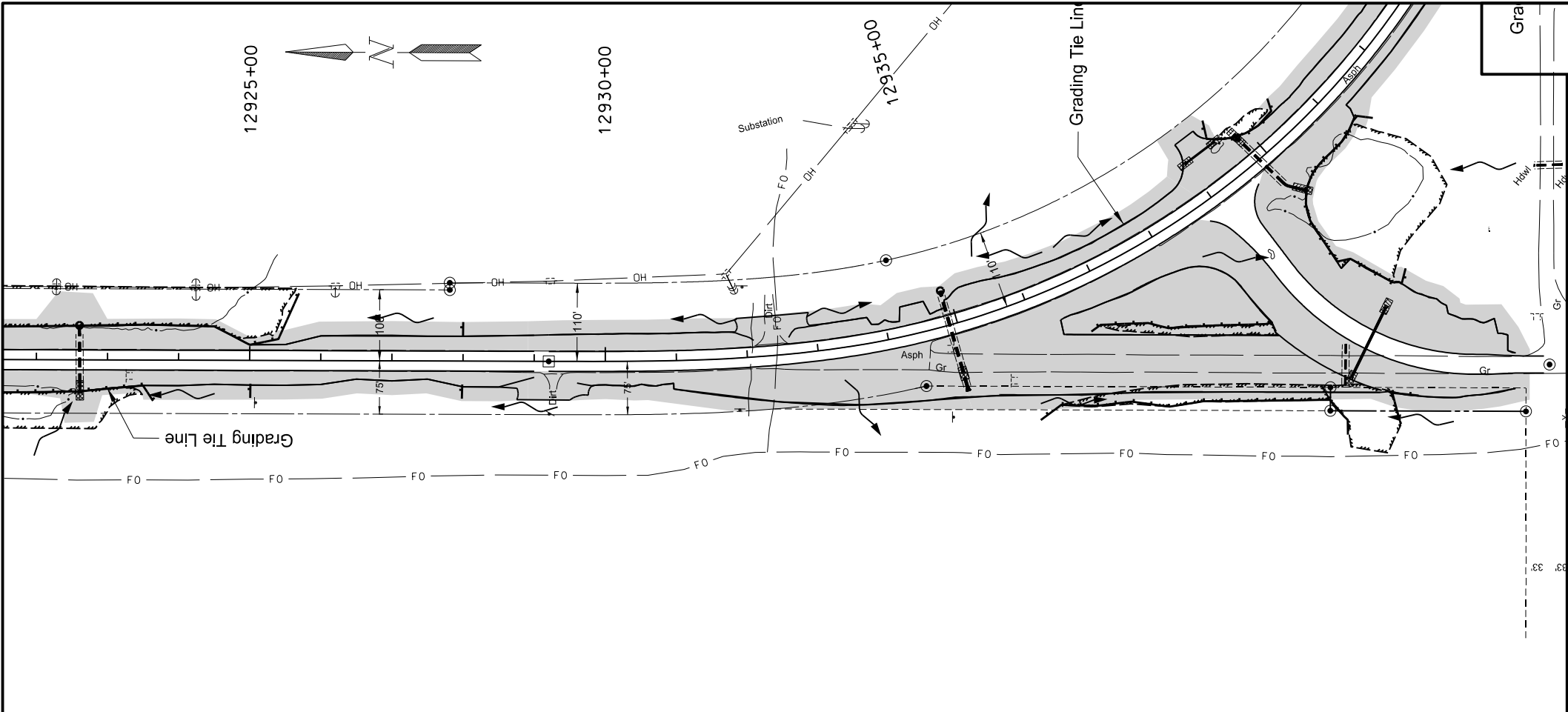












STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-1-200(073)236	77	12

Spec	Code	Description	Quantity
251	0200	Seeding Class II	10.47 ACRE
255	0102	ECB Type 2	222.00 SY
261	0112	Fiber Rolls 12IN	1730 LF

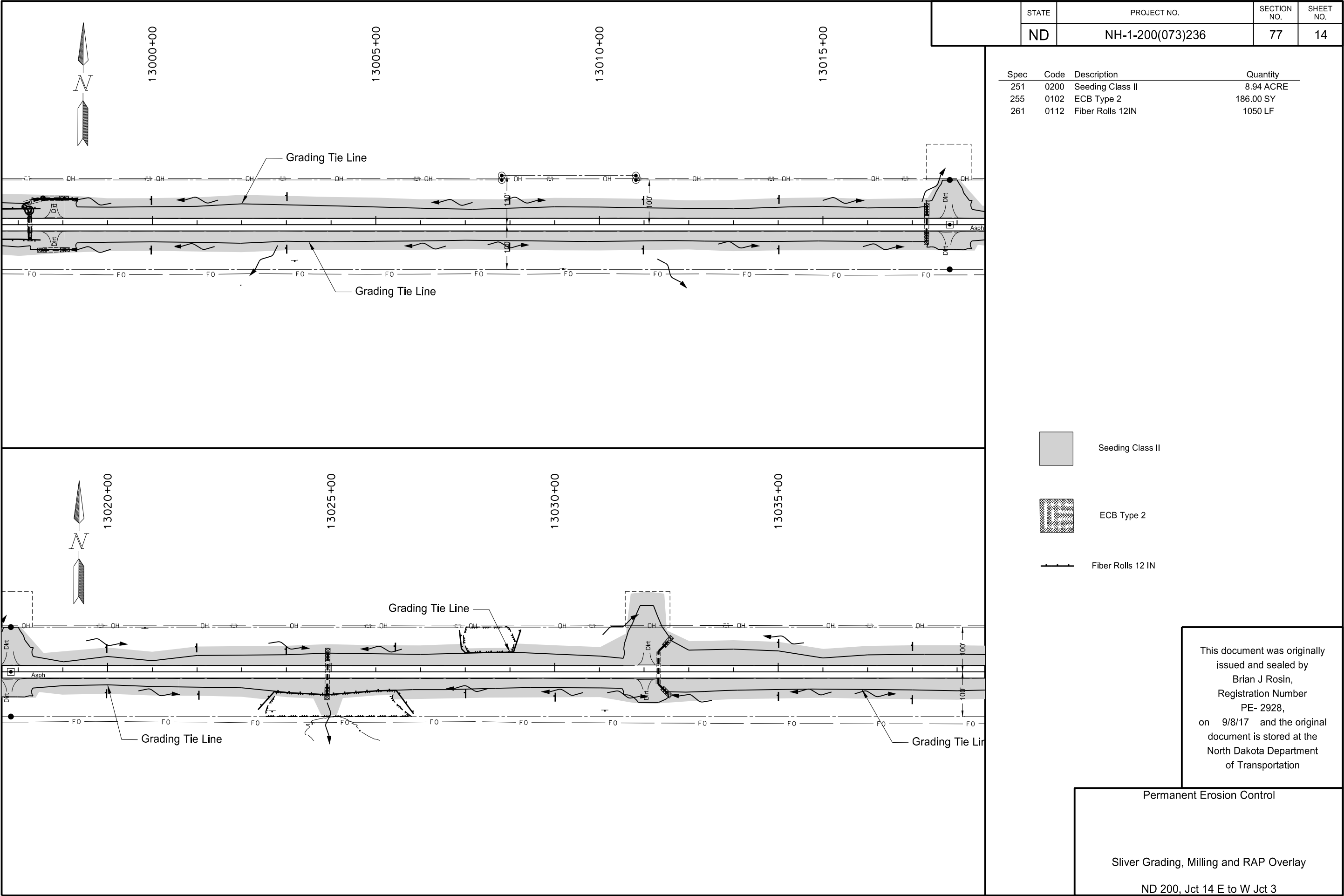
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-  ECB Type 2
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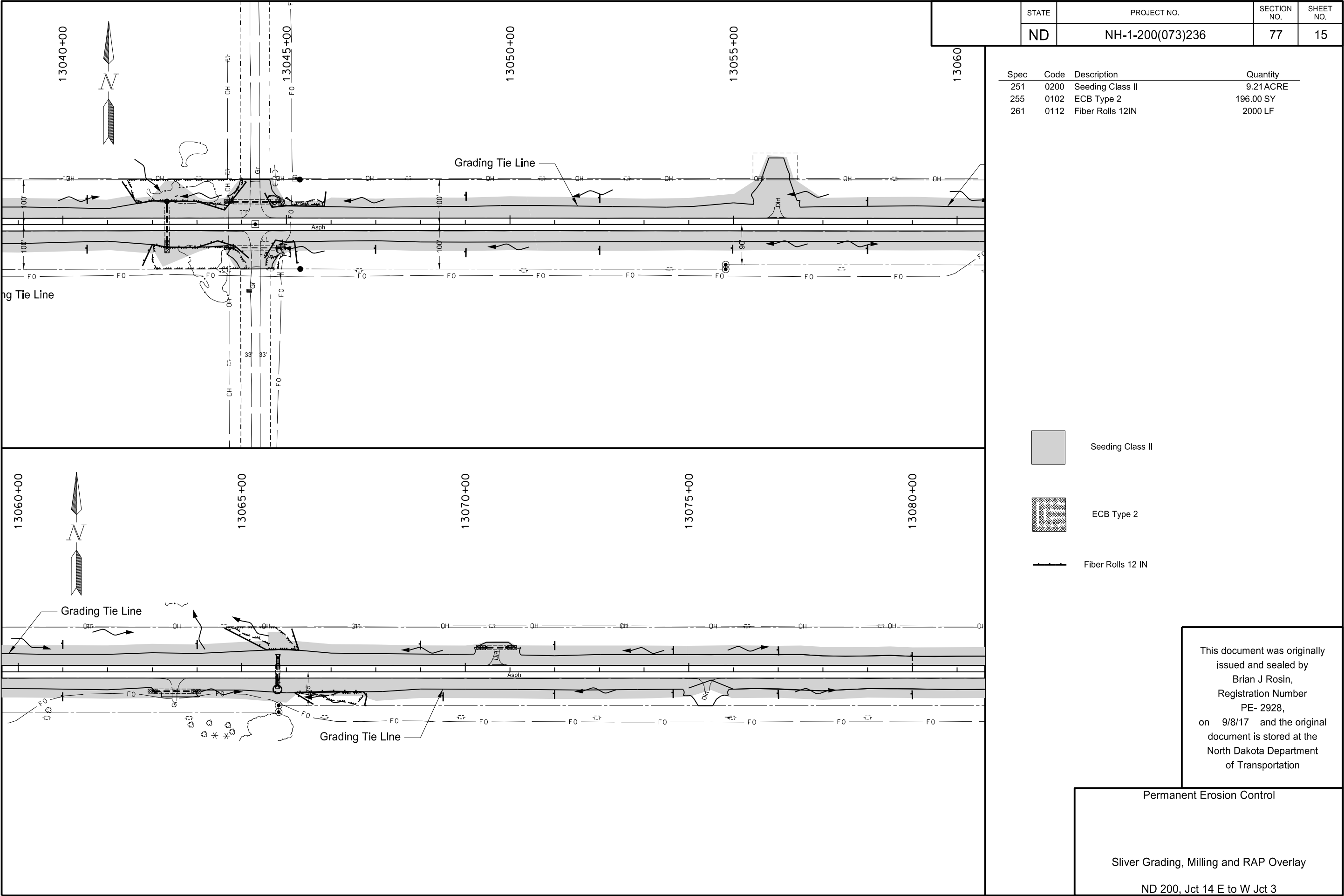
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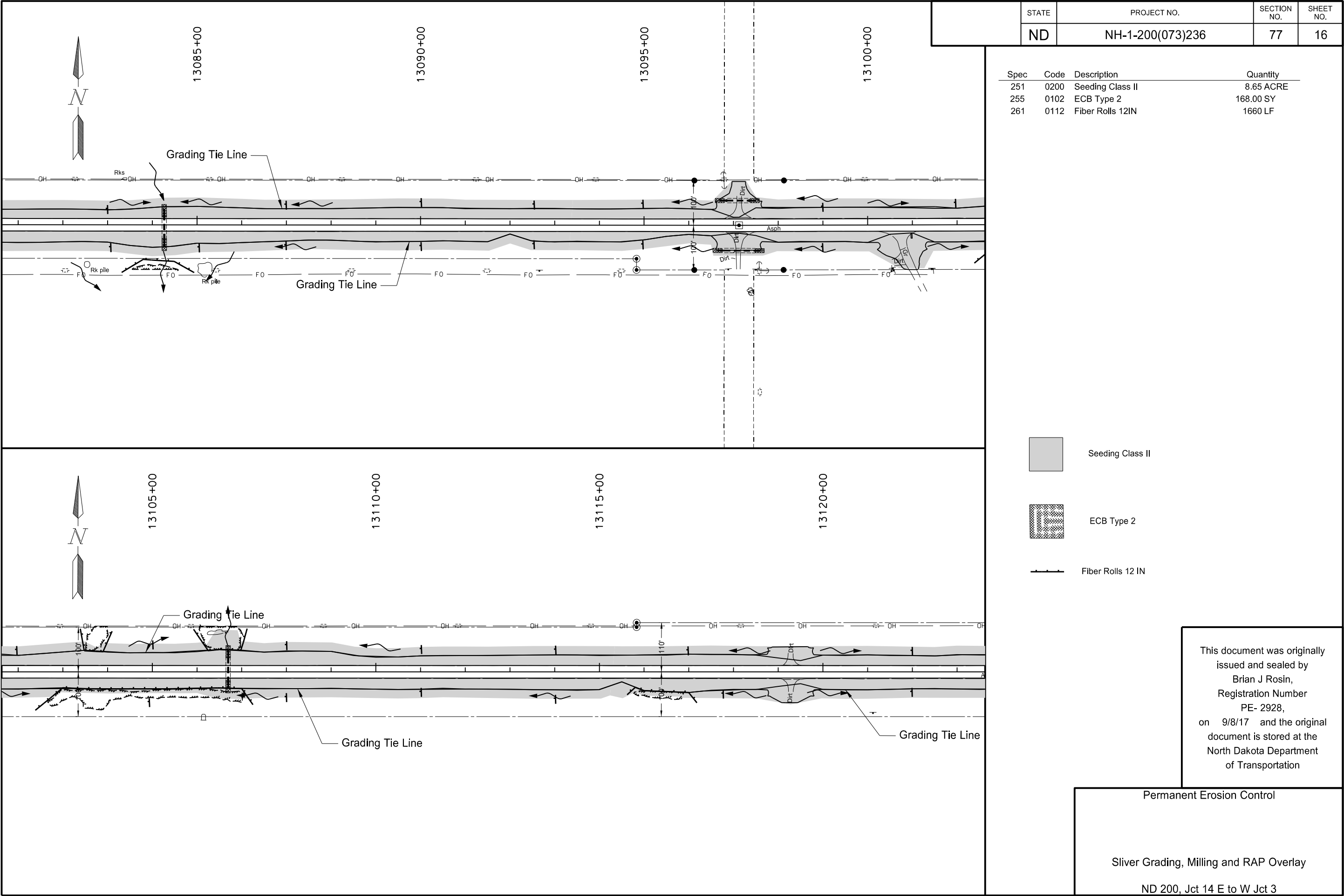
Permanent Erosion Control

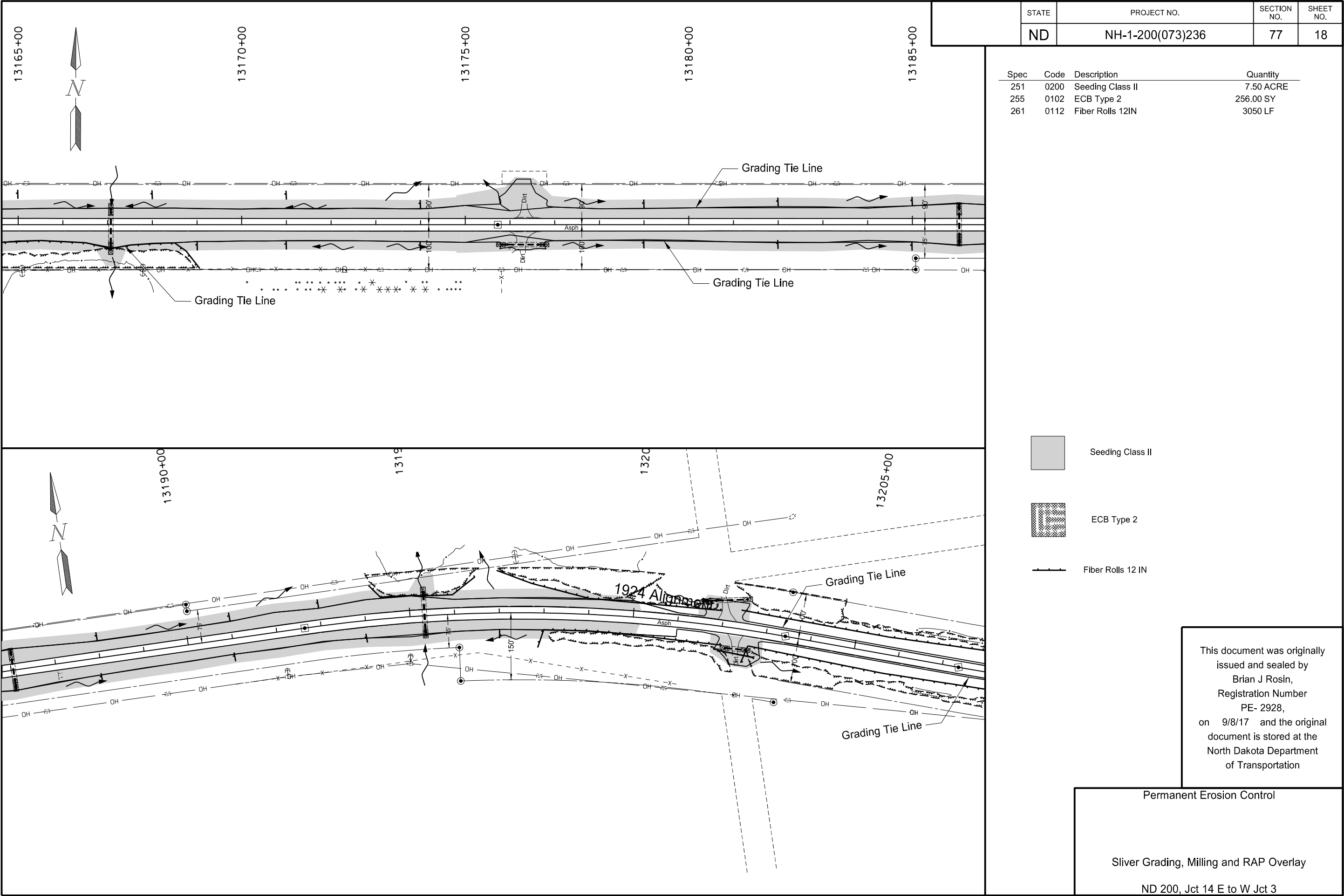
Sliver Grading, Milling and RAP Overlay

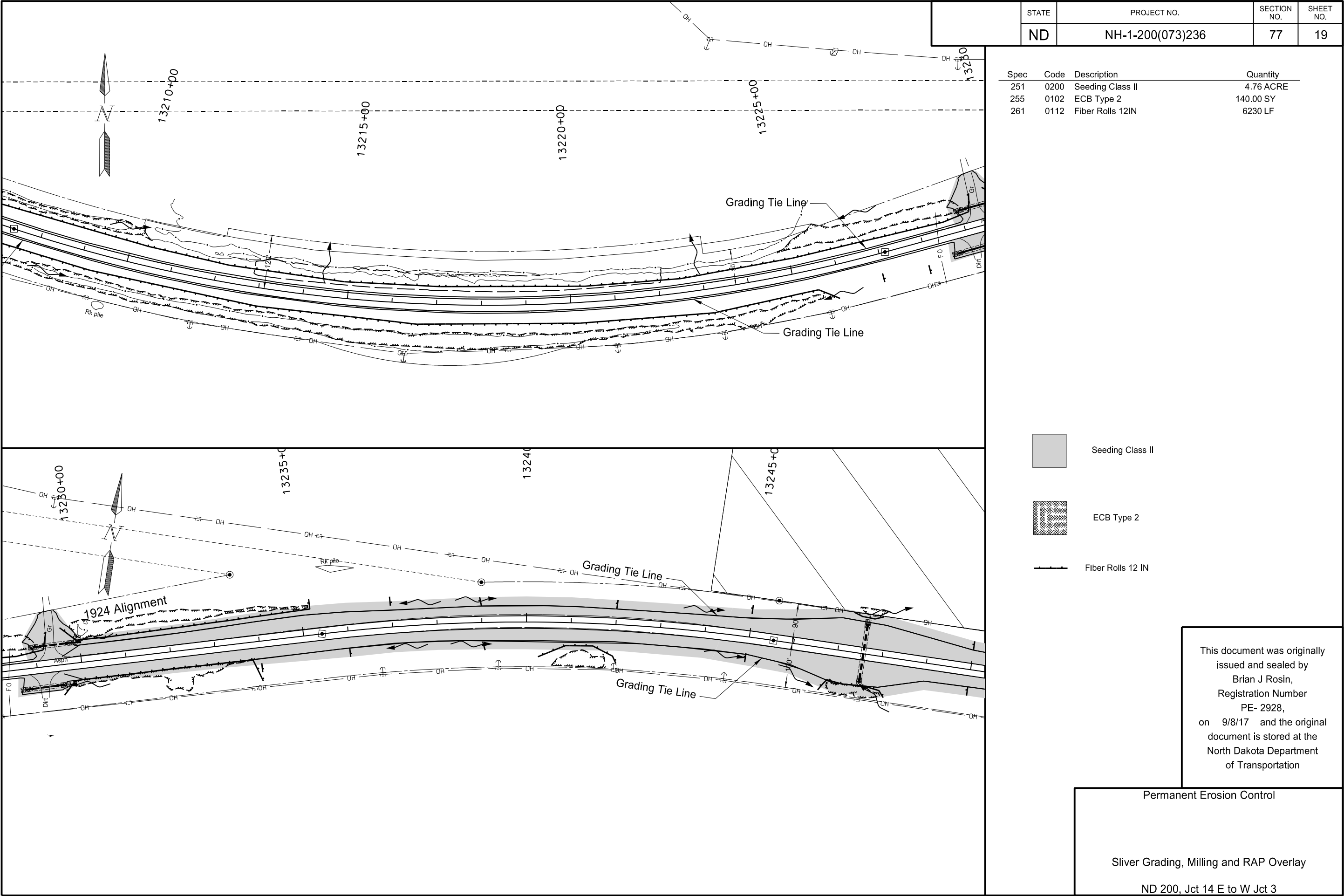
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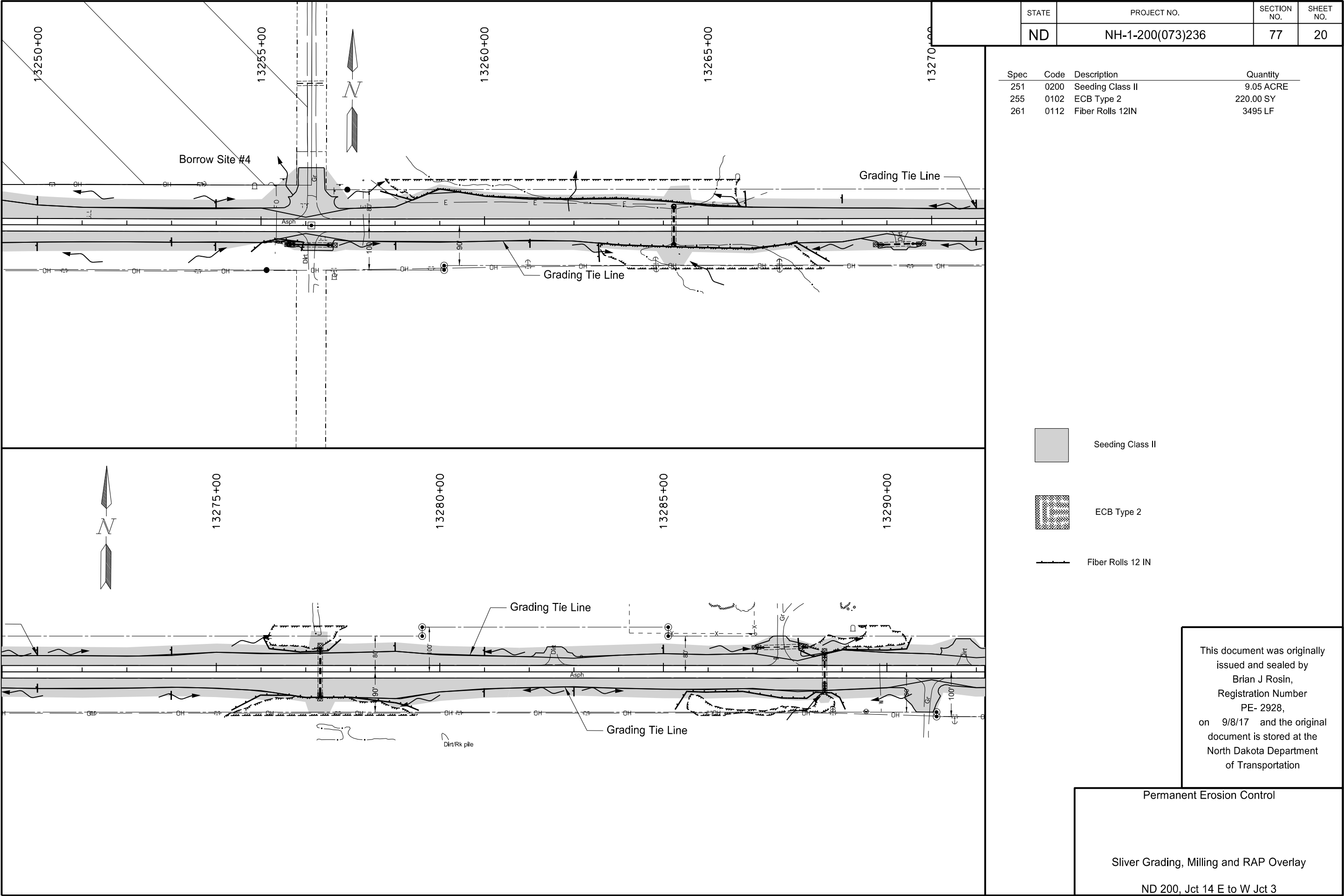


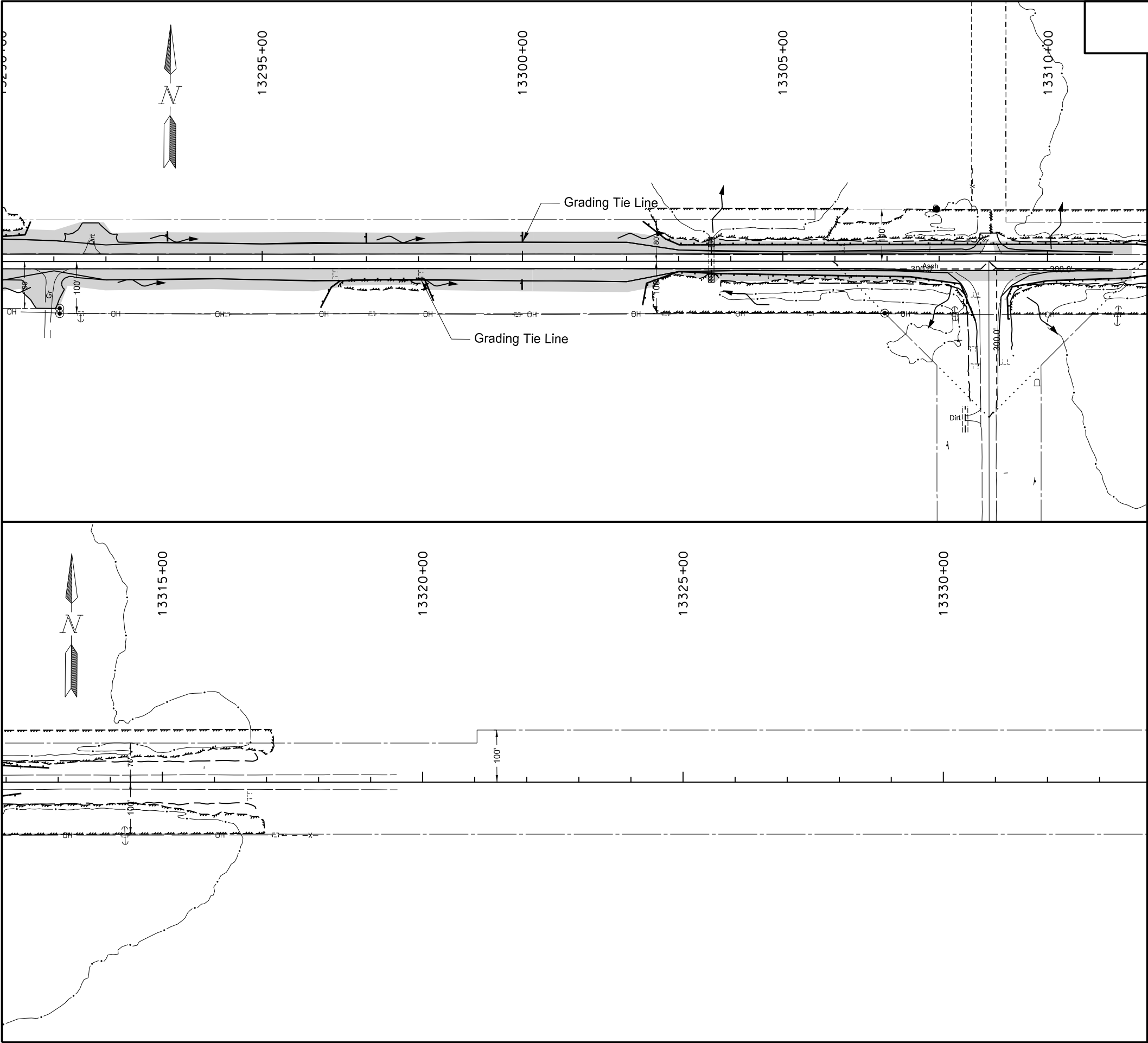












STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-1-200(073)236	77	21

Spec	Code	Description	Quantity
251	0200	Seeding Class II	3.28 ACRE
255	0102	ECB Type 2	44.00 SY
261	0112	Fiber Rolls 12IN	2585 LF

-  Seeding Class II
-  ECB Type 2
-  Fiber Rolls 12 IN

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Permanent Erosion Control

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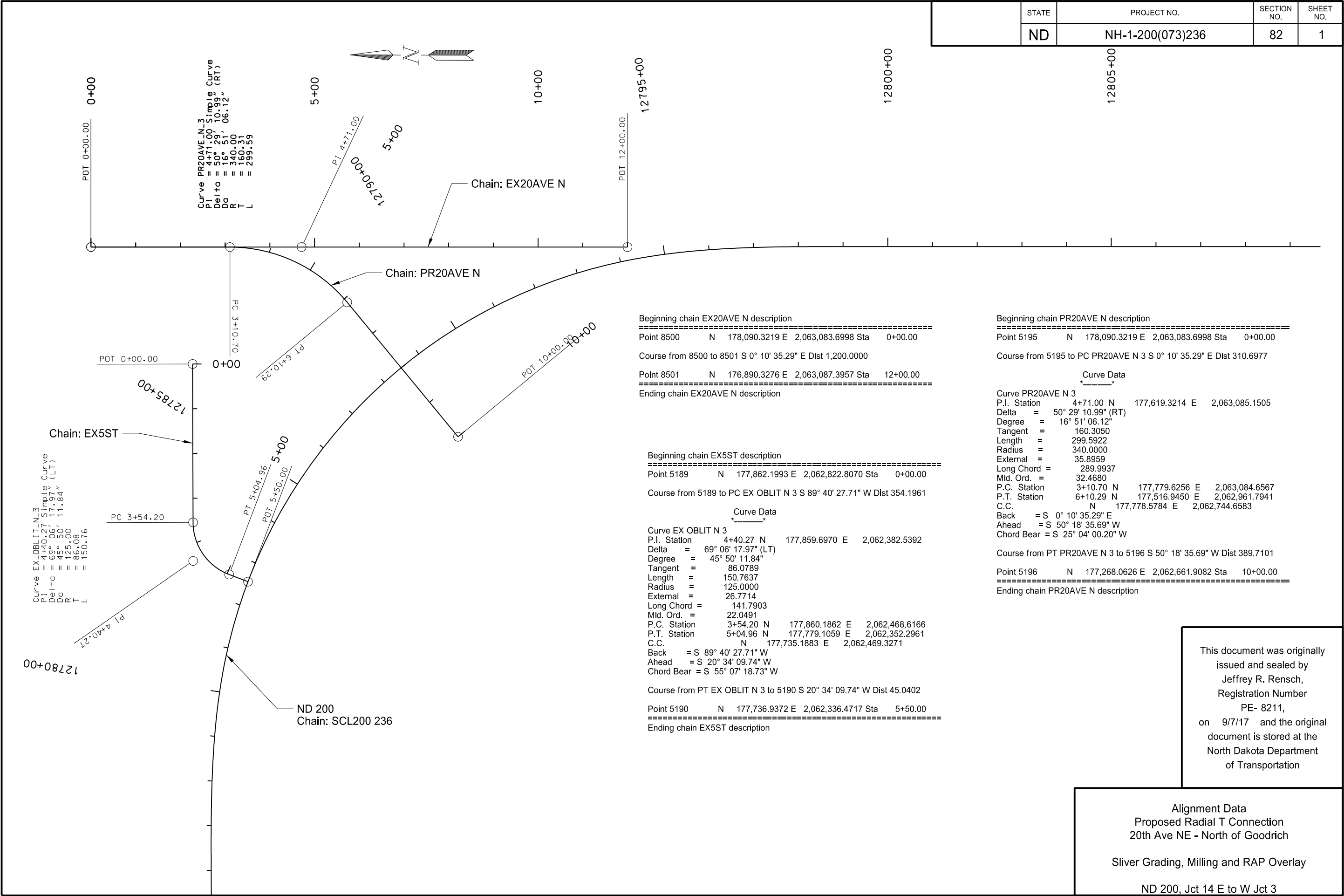
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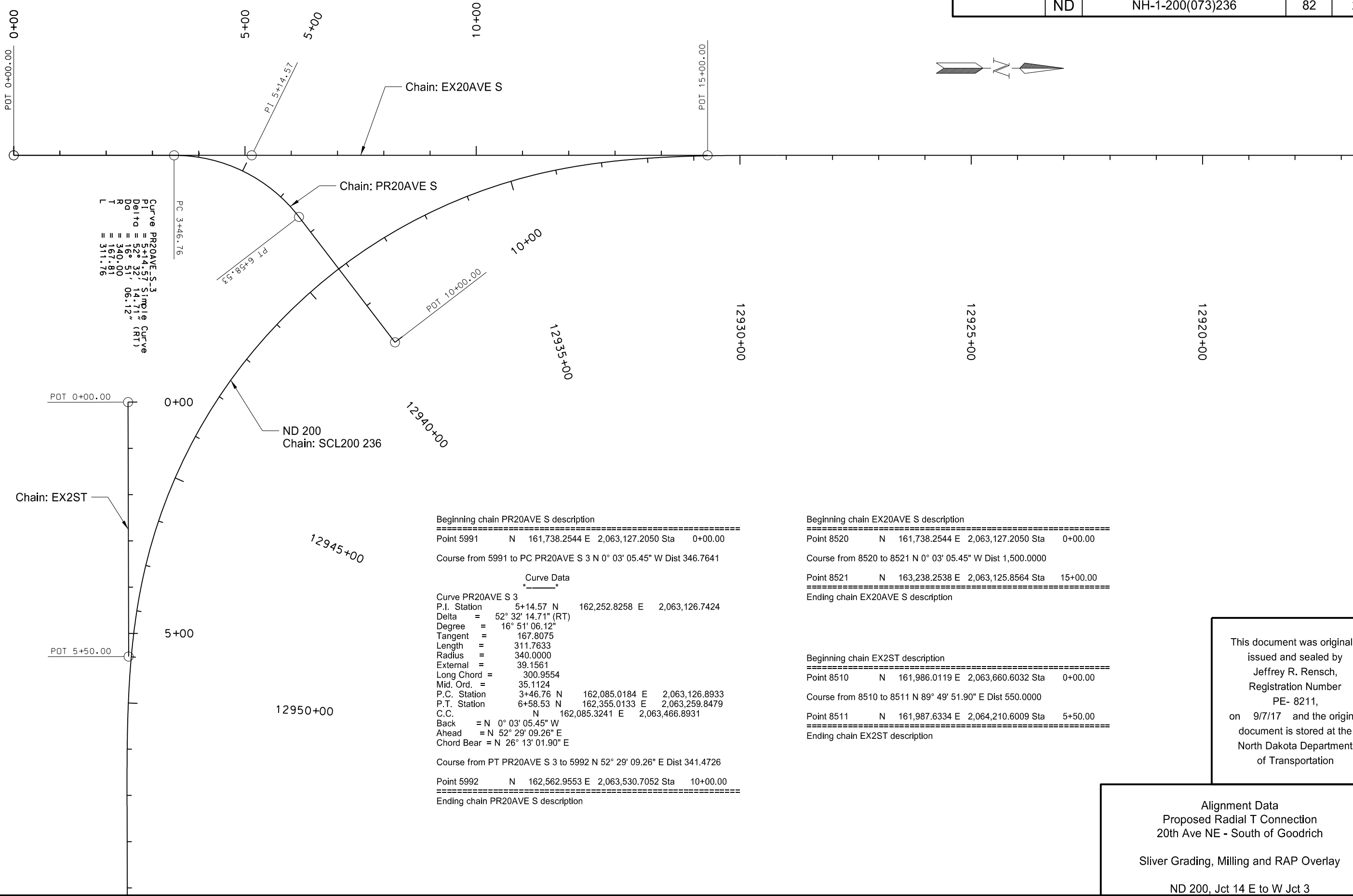
PRELIMINARY SURVEY COORDINATE AND CURVE DATA - ND 200, JCT 14 E TO W JCT 3											STATE	PROJECT NO.			SECTION NO.	SHEET NO.
										ND	NH-1-200(073)236			81	1	
HORIZONTAL ALIGNMENT				CURVE DATA		US PUBLIC LAND SURVEY DATA				SURVEY CONTROL POINTS						
PNT	STATION	NORTHING	EASTING	ARC DEFINITION		DESC.	SEC-TWP-RGE	NORTHING	EASTING	PNT	NORTHING	EASTING	ELEV	STATION	OFFSET	ALIGNMENT
ND 200 (Chain: SCL200_236)				C702	C1528	NE Cor Sec 7 T-146-N R-75-W		177731.62	2026188.01	CONTROL POINT DESCRIPTION						
Begin Rec Sec Cor	12419+72.12	177731.62	2026188.01	PI STA = 12472+68.00	PI STA = 12625+01.05	NE Cor Sec 5 T-146-N R-75-W		183017.92	2031473.57							
PC	12469+51.16	177742.85	2031167.05	Delta = 1° 35' 03" RT	Delta = 19° 09' 32" RT	NE Cor Sec 8 T-146-N R-75-W		177743.56	2031483.89	PRIMARY CONTROL						
PI C702 Sec Cor	12472+68.00	177743.56	2031483.89	D _a = 0° 15' 00"	D _a = 1° 36' 00"	NE Cor Sec 17 T-146-N R-75-W		172451.94	2031499.86	GPS 7	177820.65	2014673.04	1965.15	N/A	N/A	N/A
Station Equation ND 200 & ND 14				R = 22918.33'	R = 3581.10'	SW Cor Sec 3 T-146-N R-75-W		177751.89	2036766.50	30" #5 Rebar w/ 1 1/2" Alum cap stamped "NDDOT GPS CONTROL"						
ND 200	12472+68.02	177741.37	2031483.89	T = 316.84'	T = 604.38'	SE Cor Sec 3 T-146-N R-75-W		177784.45	2042026.79	GPS 8	178526.26	2031426.29	2070.66	12472+03.55	784' Lt	SCL200_236
ND 14	2417+02.56	177741.37	2031483.89	L = 633.64'	L = 1197.47'	NE Cor Sec 12 T-146-N R-75-W		177822.23	2052603.34	30" #5 Rebar w/ 1 1/2" Alum cap stamped "NDDOT GPS CONTROL"						
PT	12475+84.80	177735.52	2031800.62			NE Cor Sec 7 T-146-N R-74-W		177833.67	2057802.60	GPS 9	177680.40	2049570.29	1925.43	12654+78.46	88' Rt	SCL200_236
PC	12489+10.64	177701.85	2033126.04	C704	C705	NE Cor Sec 8 T-146-N R-74-W		177863.69	2063085.40	30" #5 Rebar w/ 1 1/2" Alum cap stamped "NDDOT GPS CONTROL"						
PI C704	12492+68.36	177692.77	2033483.64	PI STA = 12492+68.36	PI STA = 12706+58.10	NE Cor Sec 17 T-146-N R-74-W		172567.11	2063101.71	GPS 10	171237.03	2063031.59	1985.67	12850+70.92	75' Rt	SCL200_236
PT	12496+26.03	177694.85	2033841.36	Delta = 1° 47' 18" LT	Delta = 1° 12' 50" LT	NE Cor Sec 20 T-146-N R-74-W		167275.94	2063122.23	30" #5 Rebar w/ 1 1/2" Alum cap stamped "NDDOT GPS CONTROL"						
PI	12525+51.45	177711.89	2036766.73	D _a = 0° 15' 00"	D _a = 0° 15' 00"	SW Cor Sec 21 T-146-N R-74-W		161980.44	2063126.99	GPS 11	161937.42	2079366.48	1998.44	13100+55.23	92' Rt	SCL200_236
PI	12578+11.93	177744.45	2042027.11	R = 22918.33'	R = 22918.33'	NE Cor Sec 28 T-146-N R-74-W		161996.13	2068449.57	30" #5 Rebar w/ 1 1/2" Alum cap stamped "NDDOT GPS CONTROL"						
PC	12583+08.52	177747.35	2042523.69	T = 357.72'	T = 242.79'	N 1/4 Cor Sec 27 T-146-N R-74-W		162007.70	2071094.51	GPS 12	162200.57	2097440.21	1930.33	13282+38.83	80' Lt	SCL200_236
PI C1525	12588+46.07	177750.50	2043061.23	L = 715.38'	L = 485.57'	NE Cor Sec 27 T-146-N R-74-W		162018.48	2073741.20	30" #5 Rebar w/ 1 1/2" Alum cap stamped "NDDOT GPS CONTROL"						
PT	12593+73.58	177576.96	2043570.01			NE Cor Sec 26 T-146-N R-74-W		162027.38	2079023.22							
TS	12597+72.78	177448.08	2043947.83	C1525	C713	NE Cor Sec 25 T-146-N R-74-W		162053.59	2084317.95	SECONDARY CONTROL						
SC	12600+72.78	177357.46	2044233.76	PI STA = 12588+46.07	PI STA = 12728+81.97	N 1/4 Cor Sec 30 T-146-N R-73-W		162062.67	2086883.46	RTK 21474	161920.71	2069110.80	2016.19	12997+99.61	78' Rt	SCL200_236
PI SCS1282	12607+18.06	177142.91	2044842.49	Delta = 19° 10' 13" RT	Delta = 2° 17' 36" RT	NE Cor Sec 30 T-146-N R-73-W		162072.17	2089508.76							
CS	12613+02.78	177363.59	2045449.03	D _a = 1° 48' 00"	D _a = 0° 15' 00"	NE Cor Sec 29 T-146-N R-73-W		162098.61	2094814.84							
ST	12616+02.78	177457.08	2045734.03	R = 3183.23'	R = 22918.33'	NE Cor Sec 28 T-146-N R-73-W		162143.69	2100097.59							
PC	12618+96.67	177554.76	2046011.22	T = 537.56'	T = 458.71'	NE Cor Sec 33 T-146-N R-73-W		156858.09	2100146.04							
PI C1528	12625+01.05	177755.63	2046581.24	L = 1065.07'	L = 917.30'	SE Cor Sec 33 T-146-N R-73-W		151573.08	2100194.65							
PT	12630+94.14	177758.31	2047185.61			NE Cor Sec 27 T-146-N R-73-W		162173.06	2105397.49							
Sec line Xing	12685+12.09	177782.25	2052603.50	SCS1282												
PC	12704+15.30	177785.19	2054506.72	PI STA = 12607+18.06												
PI C705	12706+58.10	177785.57	2054749.51	Delta = 38° 14' 49" LT												
PT	12709+00.87	177791.09	2054992.24	D _a = 2° 29' 59"												
PC	12724+23.26	177825.69	2056514.23	R = 2292.01'												
PI C713	12728+81.97	177836.12	2056972.83	L _s = -300.00'						All coordinates and measurements on this document derived from the International Foot definition. INITIALIZING BENCH MARK NDGPS Stations (OPUS) ☒ NAVD-88☐ NGVD-29☐ GEOID 09☒ GEOID 12B☐ GEOID 12A This document was originally issued and sealed by Robert D. Zahn Registration Number LS- 3659 , on 07/11/17 and the original document is stored at the North Dakota Department of Transportation						
PT	12733+40.56	177828.18	2057431.47	S _c = 3° 44' 59"												
Sec line Xing	12737+11.53	177821.77	2057802.38	T _s = 945.28'												
				L = 1230.00'												
ND 200 alignment defintion continued on sheet 2						☐ Assumed Coordinates ☐ All coordinates on this sheet are Sheridan County ground coordinates. They are derived from the NAD83(2011) reference frame; North Dakota North Zone Combination Factor (cf) = 0.9998895										
NOTES: Sheet 1 of 3				Date Survey Completed 05/01/17												

PRELIMINARY SURVEY COORDINATE AND CURVE DATA - ND 200, JCT 14 E TO W JCT 3											STATE	PROJECT NO.		SECTION NO.	SHEET NO.			
											ND	NH-1-200(073)236		81	2			
HORIZONTAL ALIGNMENT				CURVE DATA			REFERENCE MARKERS					SURVEY CONTROL POINTS						
PNT	STATION	NORTHING	EASTING	ARC DEFINITION			R Mkr #	NORTHING	EASTING	STATION	OFFSET	ALIGNMENT	PNT	NORTHING	EASTING	ELEV	STATION	OFFSET
				C714		C1442		237	177676.62	2035581.11	12513+66	28' Rt	SCL200_236	CONTROL POINT DESCRIPTION				
ND 200 alignment defintion continued from sheet 1				PI STA = 12751+12.51		PI STA = 13198+07.77		238	177709.05	2040871.14	12566+56	28' Rt	SCL200_236					
PC	12748+16.58	177802.20	2058907.26	Delta = 1° 28' 46" LT		Delta = 18° 21' 17" RT		239	177544.46	2046075.02	12619+54	30' Rt	SCL200_236					
PI C714	12751+12.51	177796.96	2059203.14	D _a = 0° 15' 00"		D _a = 1° 42' 00"		240	177745.19	2051338.21	12672+47	31' Rt	SCL200_236					
PT	12754+08.40	177799.37	2059499.05	R = 22918.33'		R = 3370.46'		241	177797.35	2056617.32	12725+26	30' Rt	SCL200_236					
TS	12775+84.18	177817.02	2061674.76	T = 295.92'		T = 544.53'		242	177788.85	2061881.32	12777+92	27' Rt	SCL200_236					
SC	12780+84.18	177784.84	2062172.67	L = 591.81'		L = 1079.73'		243	173217.26	2063051.45	12830+91	48' Rt	SCL200_236					
PI SCS707	12789+94.97	177828.47	2063085.51					244	167969.45	2063090.47	12883+39	29' Rt	SCL200_236					
CS	12793+90.52	176915.20	2063052.09	SCS707		C1470		245	162688.98	2063197.32	12936+21	29' Rt	SCL200_236					
ST	12798+90.52	176417.69	2063089.85	PI STA = 12789+94.97		PI STA = 13217+54.33		246	161966.39	2068214.62	12989+04	29' Rt	SCL200_236					
Rec Sec Cor	12837+41.12	172567.11	2063101.71	Delta = 90° 17' 19" RT		Delta = 33° 36' 41" LT		247	161988.15	2073499.79	13041+89	29' Rt	SCL200_236					
Rec Sec Cor	12890+32.33	167275.94	2063122.23	D _a = 4° 59' 54"		D _a = 1° 42' 00"		248	161997.83	2078786.95	13094+76	29' Rt	SCL200_236					
TS	12929+20.51	163387.76	2063125.72	R = 1146.28'		R = 3370.46'		249	162023.30	2084072.55	13147+62	29' Rt	SCL200_236					
SC	12934+20.51	162890.17	2063162.40	L _s = 500.00'		T = 1017.96'		250	161961.41	2089307.25	13200+09	29' Rt	SCL200_236					
PI SCS1309 Rec Sec Cor	12943+27.84	161980.44	2063126.99	S _c = 12° 29' 46"		L = 1977.20'		251	162068.39	2094496.51	13252+94	29' Rt	SCL200_236					
CS	12947+23.43	162019.35	2064036.58	T _s = 1410.79'				252	162111.36	2099785.12	13305+83	30' Rt	SCL200_236					
ST	12952+23.43	161984.59	2064534.31	L = 1306.35'		C1490												
Rec Sec Cor	12991+38.71	161996.13	2068449.57			PI STA = 13240+50.97												
Rec ¼ Cor	13017+83.68	162007.70	2071094.51	SCS1309		Delta = 15° 11' 28" RT												
Rec Sec Cor	13044+30.39	162018.48	2073741.20	PI STA = 12943+27.84		D _a = 1° 30' 00"												
Rec Sec Cor	13097+12.42	162027.38	2079023.22	Delta = 90° 07' 03" LT		R = 3819.83'												
Rec Sec Cor Co line	13150+07.21	162053.59	2084317.95	D _a = 4° 59' 54"		T = 509.37'												
Rec ¼ Cor	13175+72.74	162062.67	2086883.46	R = 1146.28'		L = 1012.77'												
PC	13192+63.24	162069.12	2088573.95	L _s = 500.00'														
PI C1442	13198+07.77	162071.20	2089118.48	S _c = 12° 29' 46"														
Sec line Xing	Ahd Tan 411.18' from PI	161943.21	2089509.23	T _s = 1407.33'														
PT	13203+42.97	161901.70	2089635.96	L = 1302.92'														
PC	13207+36.37	161779.25	2090009.81															
PI C1470	13217+54.33	161462.38	2090977.20															
PT	13227+13.57	161733.99	2091958.26															
PC	13235+41.60	161954.93	2092756.26															
PI C1490	13240+50.97	162090.84	2093247.17															
PT	13245+54.37	162093.36	2093756.53															
ND 200 alignment defintion continued on sheet 3																		
NOTES: Sheet 2 of 3						Date Survey Completed 05/01/17												
								</										

[illegible]

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-1-200(073)236	82	1





Curve PR20AVE-S-3
PI = 5+14.57
Delta = 52° 32' 14.71" (RT)
D = 16° 51' 06.12"
R = 340.00
T = 167.81
L = 311.76
PC 3+46.76
PT 6+58.53
POT 10+00.00

Beginning chain PR20AVE S description
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Point 5991	N	161,738.2544	E	2,063,127.2050	Sta	0+00.00
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Course from 5991 to PC PR20AVE S 3 N 0° 03' 05.45" W Dist 346.7641

Curve Data

Curve PR20AVE S 3						
P.I. Station	5+14.57	N	162,252.8258	E	2,063,126.7424	
Delta	=	52° 32' 14.71"	(RT)			
Degree	=	16° 51' 06.12"				
Tangent	=	167.8075				
Length	=	311.7633				
Radius	=	340.0000				
External	=	39.1561				
Long Chord	=	300.9554				
Mid. Ord.	=	35.1124				
P.C. Station	3+46.76	N	162,085.0184	E	2,063,126.8933	
P.T. Station	6+58.53	N	162,355.0133	E	2,063,259.8479	
C.C.		N	162,085.3241	E	2,063,466.8931	
Back	=	N 0° 03' 05.45" W				
Ahead	=	N 52° 29' 09.26" E				
Chord Bear	=	N 26° 13' 01.90" E				

Course from PT PR20AVE S 3 to 5992 N 52° 29' 09.26" E Dist 341.4726

Point 5992	N	162,562.9553	E	2,063,530.7052	Sta	10+00.00
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Ending chain PR20AVE S description
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Beginning chain EX20AVE S description
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Point 8520	N	161,738.2544	E	2,063,127.2050	Sta	0+00.00
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Course from 8520 to 8521 N 0° 03' 05.45" W Dist 1,500.0000

Point 8521	N	163,238.2538	E	2,063,125.8564	Sta	15+00.00
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Ending chain EX20AVE S description
=====

Beginning chain EX2ST description
=====

Point 8510	N	161,986.0119	E	2,063,660.6032	Sta	0+00.00
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Course from 8510 to 8511 N 89° 49' 51.90" E Dist 550.0000

Point 8511	N	161,987.6334	E	2,064,210.6009	Sta	5+50.00
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Ending chain EX2ST description
=====

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Alignment Data
Proposed Radial T Connection
20th Ave NE - South of Goodrich

Sliver Grading, Milling and RAP Overlay

ND 200, Jct 14 E to W Jct 3

Point	North	East	Station	Offset
9101	177837.3985	2063108.9662	2+53.00	-24.4873
9102	177810.3663	2063098.5621	2+80.00	-14.0000
9103	177810.4895	2063138.5619	2+80.00	-54.0000
9104	177837.2705	2063067.4108	2+53.00	17.0683
9105	177825.2800	2063070.5160	2+65.00	14.0000
9106	177825.2030	2063045.5162	2+65.00	39.0000
9107	177779.5825	2063070.6568	3+10.70	14.0000
9108	177779.6688	2063098.6567	3+10.70	-14.0000
9109	177527.7182	2062952.8532	6+10.29	14.0000
9110	177506.1719	2062970.7350	6+10.29	-14.0000
9111	177473.2283	2062931.0403	6+61.87	-14.0000
9112	177410.9035	2062872.3400	7+46.85	-24.4716
9113	177346.0319	2062872.2037	7+88.38	-74.3039
9114	177378.3743	2062916.6893	7+33.49	-77.8260
9115	177203.8997	2063154.5624	6+61.87	-364.0000
9116	177454.2228	2062864.2965	7+25.37	14.0000
9117	177450.2046	2062799.5493	7+77.76	52.2577
9118	177494.5021	2062743.7216	7+92.43	121.9986
9119	177496.5459	2062829.1716	7+25.37	69.0000
9120	177745.1040	2062988.0548	3+58.21	94.3125
9121	177435.4872	2062762.2633	8+15.85	64.7447
9122	177365.8344	2062757.7946	8+63.77	14.0000
9123	177402.7708	2062727.1401	8+63.77	62.0000
9124	177359.3038	2062749.9257	8+74.00	14.0000
9125	177337.7575	2062767.8074	8+74.00	-14.0000
9126	177344.2881	2062775.6764	8+63.77	-14.0000
9127	177335.8438	2062844.9597	8+15.85	-64.7447
9128	177307.3516	2062806.3308	8+63.77	-62.0000

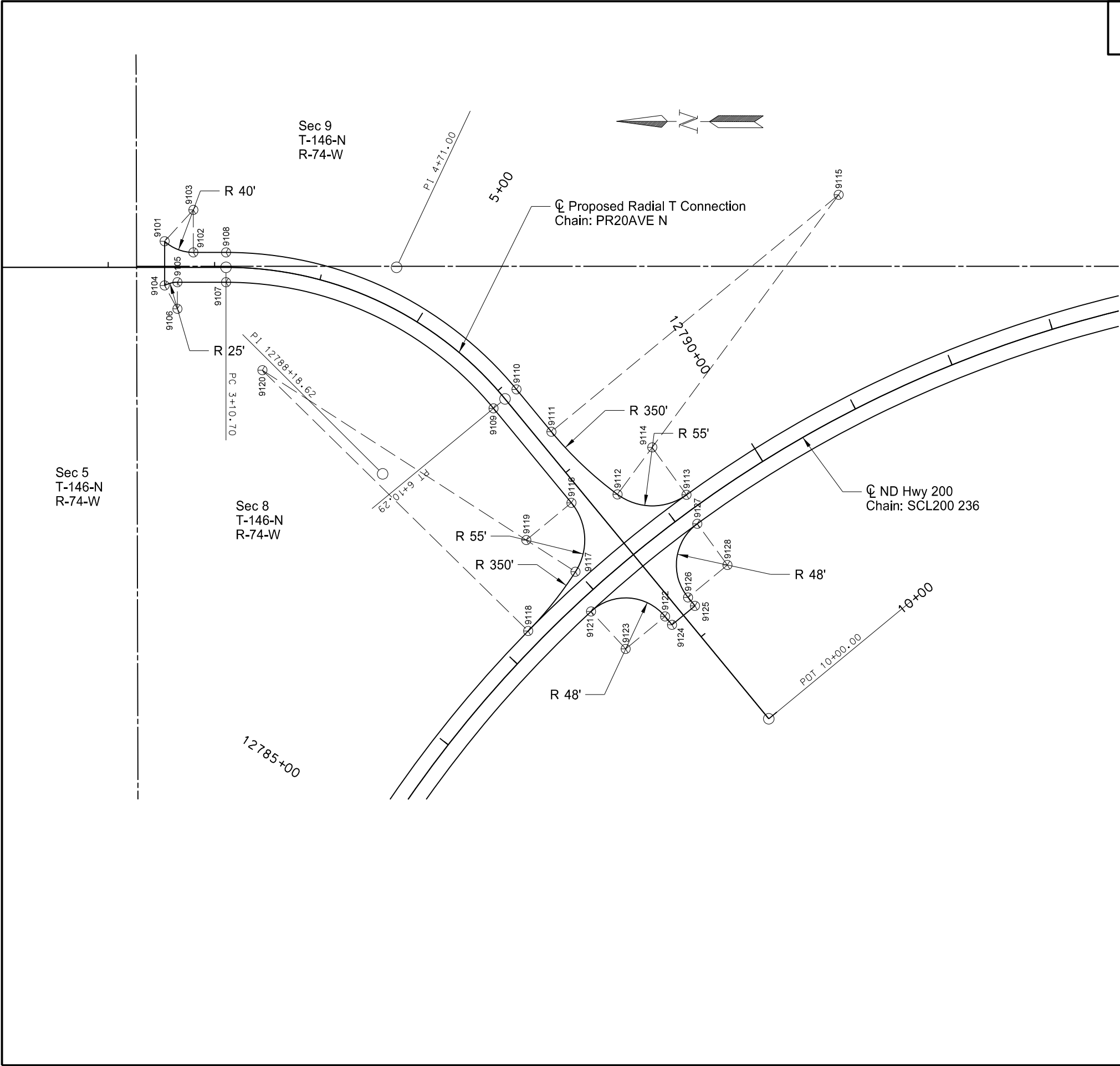
Notes:
1. Stations and offsets listed to Chain PR20AVE N

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Survey Data
Proposed Radial T Connection
20th Ave NE - North of Goodrich

Sliver Grading, Milling and RAP Overlay

ND 200, Jct 14 E to W Jct 3



Point	North	East	Station	Offset
9201	162028.2435	2063114.9443	2+90.00	-12.0000
9202	162028.2651	2063138.9443	2+90.00	12.0000
9203	162085.0310	2063140.8933	3+46.76	14.0000
9204	162085.0058	2063112.8933	3+46.76	-14.0000
9205	162343.9084	2063268.3733	6+58.53	14.0000
9206	162366.1181	2063251.3225	6+58.53	-14.0000
9207	162368.1563	2063253.9773	6+61.87	-14.0000
9208	162403.7242	2063293.6472	7+15.00	-18.0554
9209	162428.2073	2063315.0016	7+46.85	-24.4716
9210	162493.0270	2063317.6010	7+88.38	-74.3039
9211	162462.3969	2063271.9195	7+33.49	-77.8260
9212	162645.7775	2063040.8425	6+61.87	-364.0000
9213	162378.2978	2063313.1675	7+15.00	14.0000
9214	162384.6138	2063321.3945	7+25.37	14.0000
9215	162386.1708	2063386.2476	7+77.76	52.2577
9216	162339.7854	2063440.3531	7+92.43	121.9986
9217	162340.9876	2063354.8871	7+25.37	69.0000
9218	162098.6414	2063186.6810	3+63.22	59.4716
9219	162399.4618	2063424.0655	8+15.85	64.7447
9220	162468.8948	2063431.1757	8+63.77	14.0000
9221	162430.8210	2063460.4056	8+63.77	62.0000
9222	162484.8652	2063451.9782	8+90.00	14.0000
9223	162507.0749	2063434.9274	8+90.00	-14.0000
9224	162491.1045	2063414.1249	8+63.77	-14.0000
9225	162502.1732	2063345.2121	8+15.85	-64.7447
9226	162529.1782	2063384.8950	8+63.77	-62.0000

Notes:

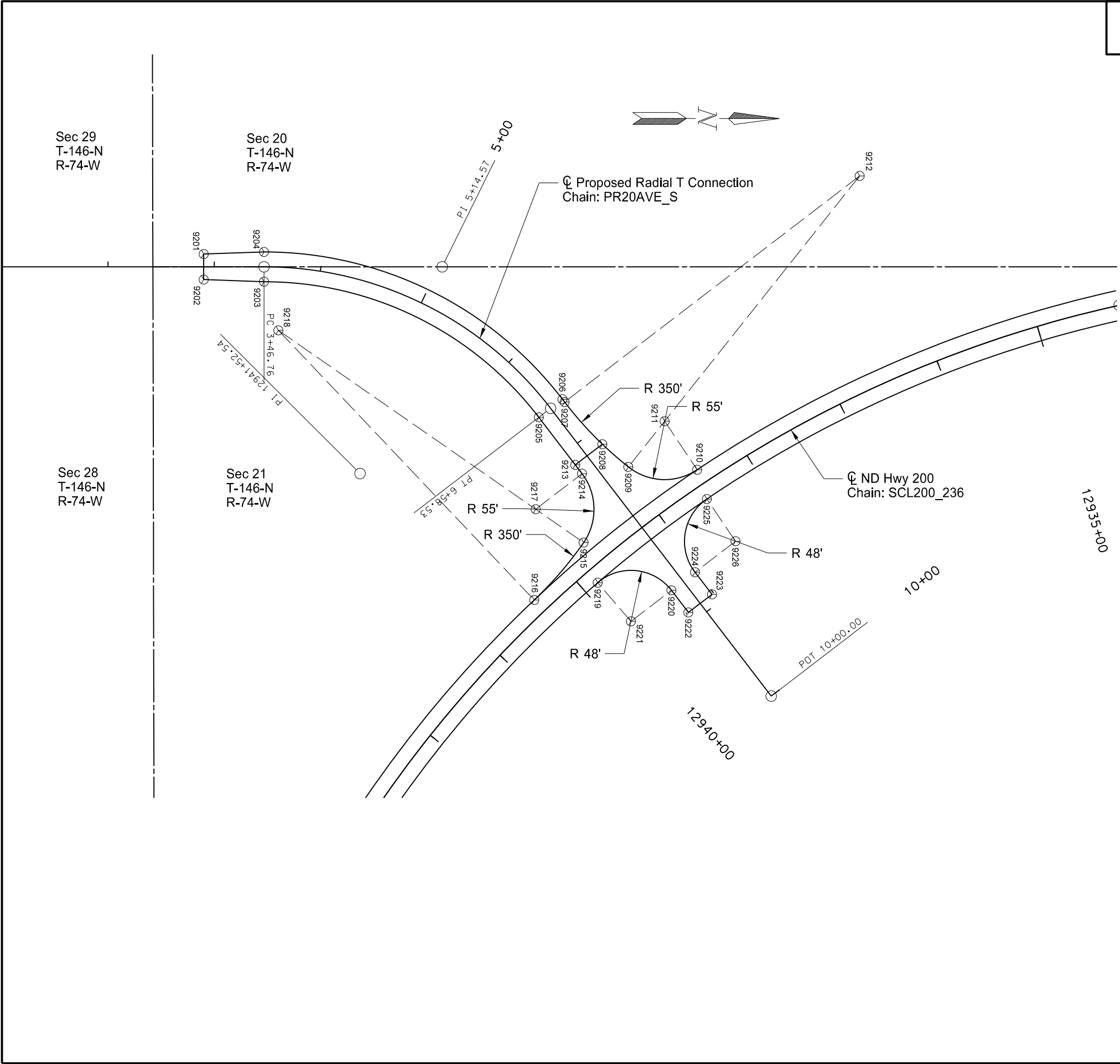
1. Stations and offsets listed to Chain PR20AVE S

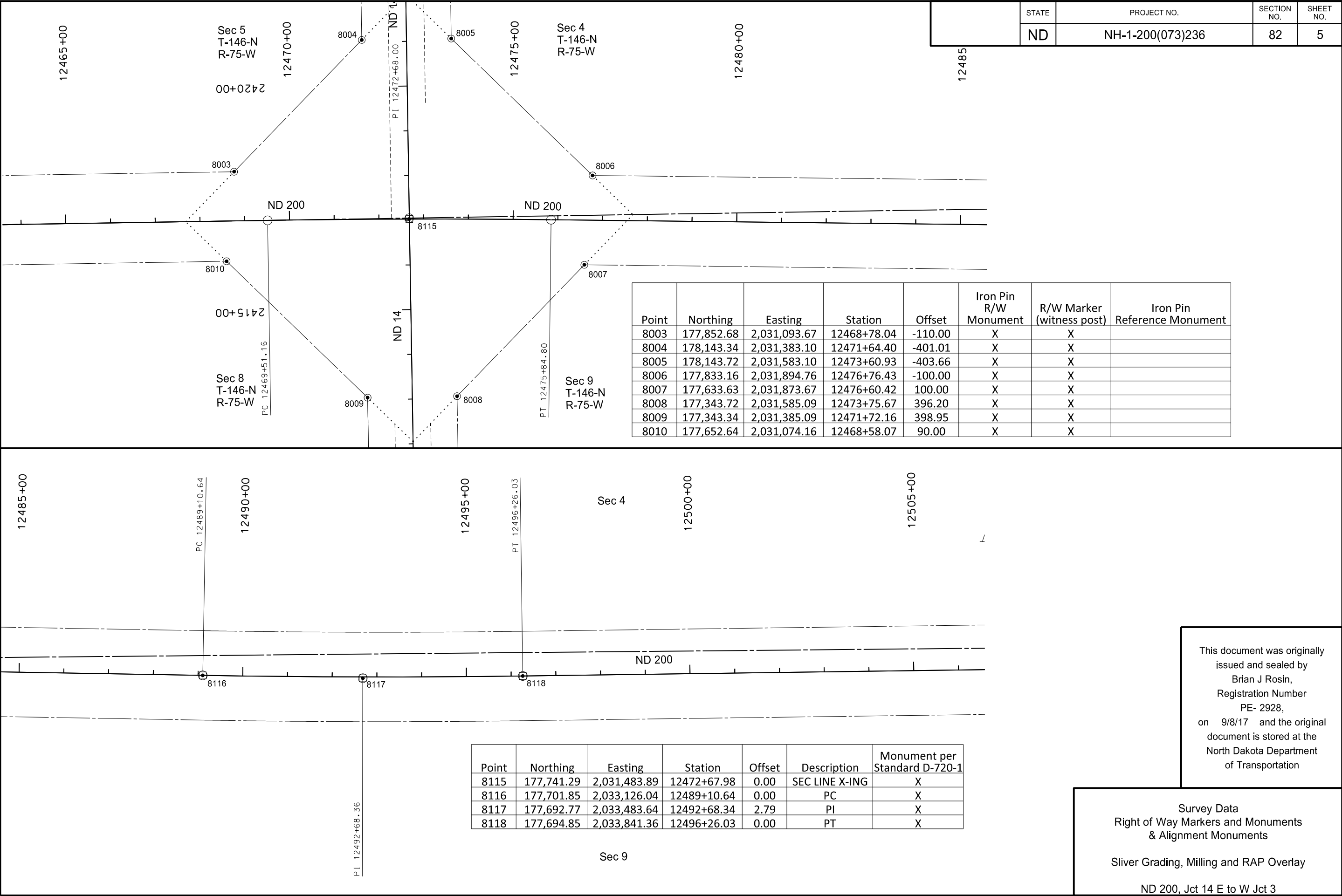
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Survey Data
Proposed Radial T Connection
20th Ave NE - South of Goodrich

Sliver Grading, Milling and RAP Overlay

ND 200, Jct 14 E to W Jct 3



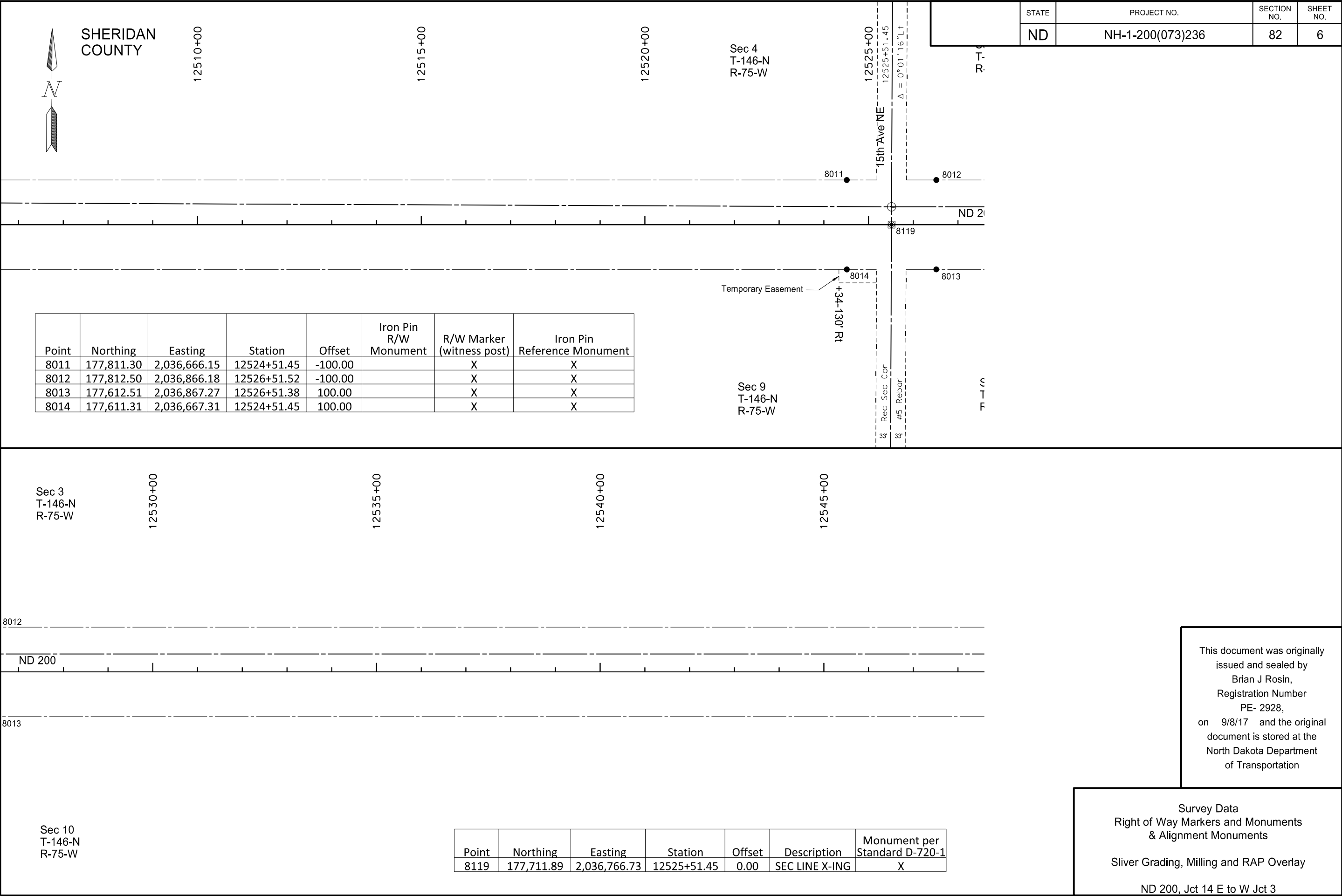


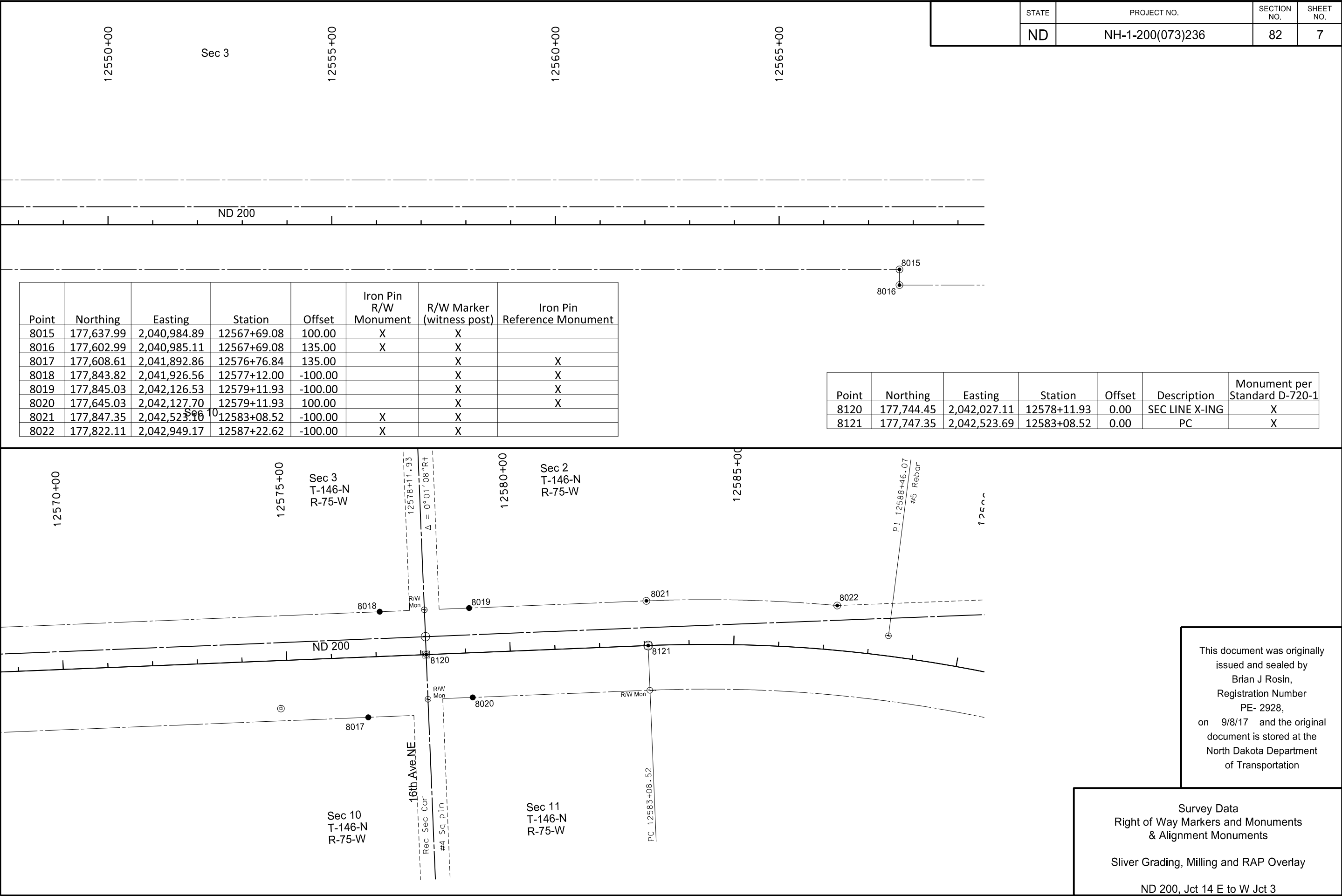
9/8/2017

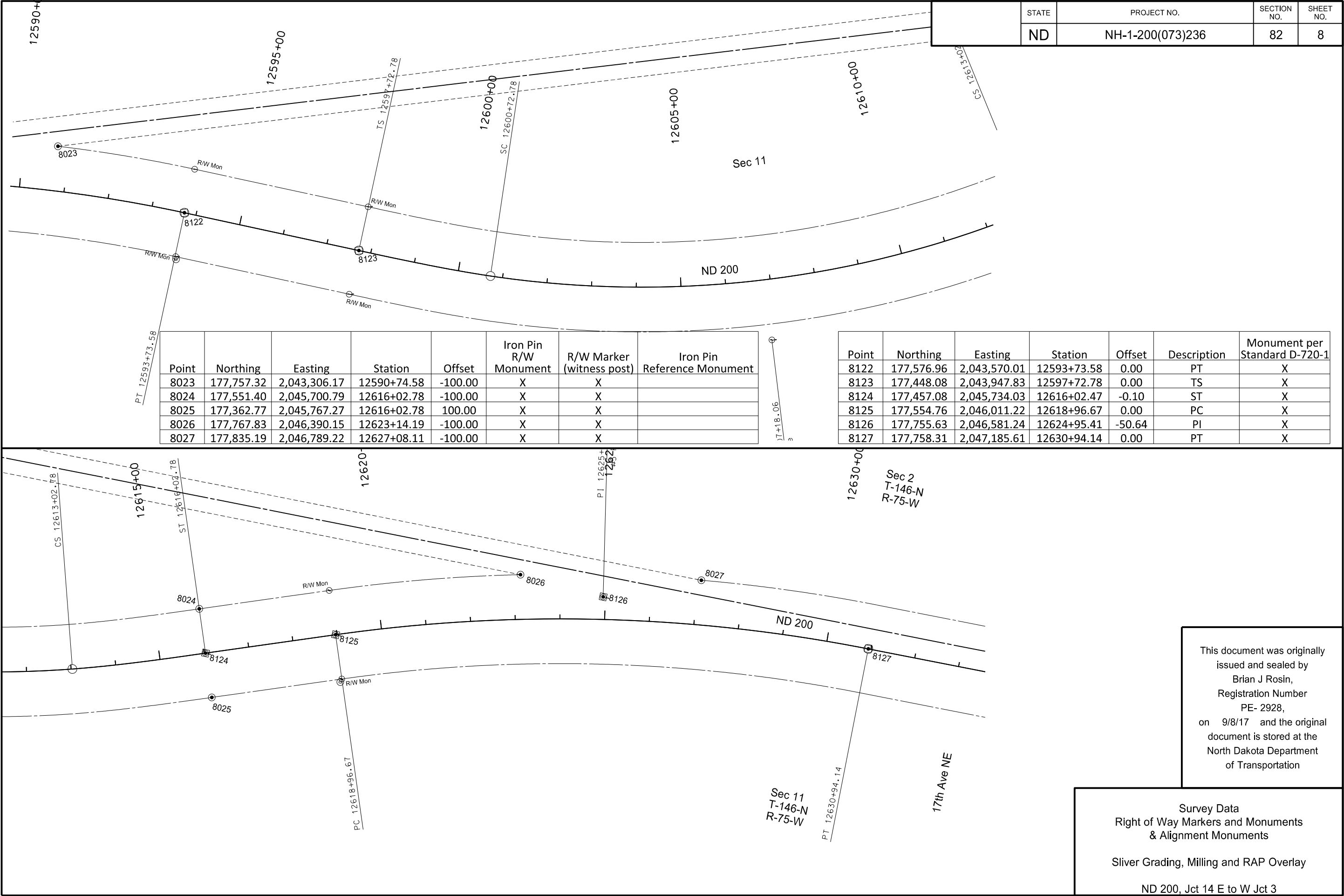
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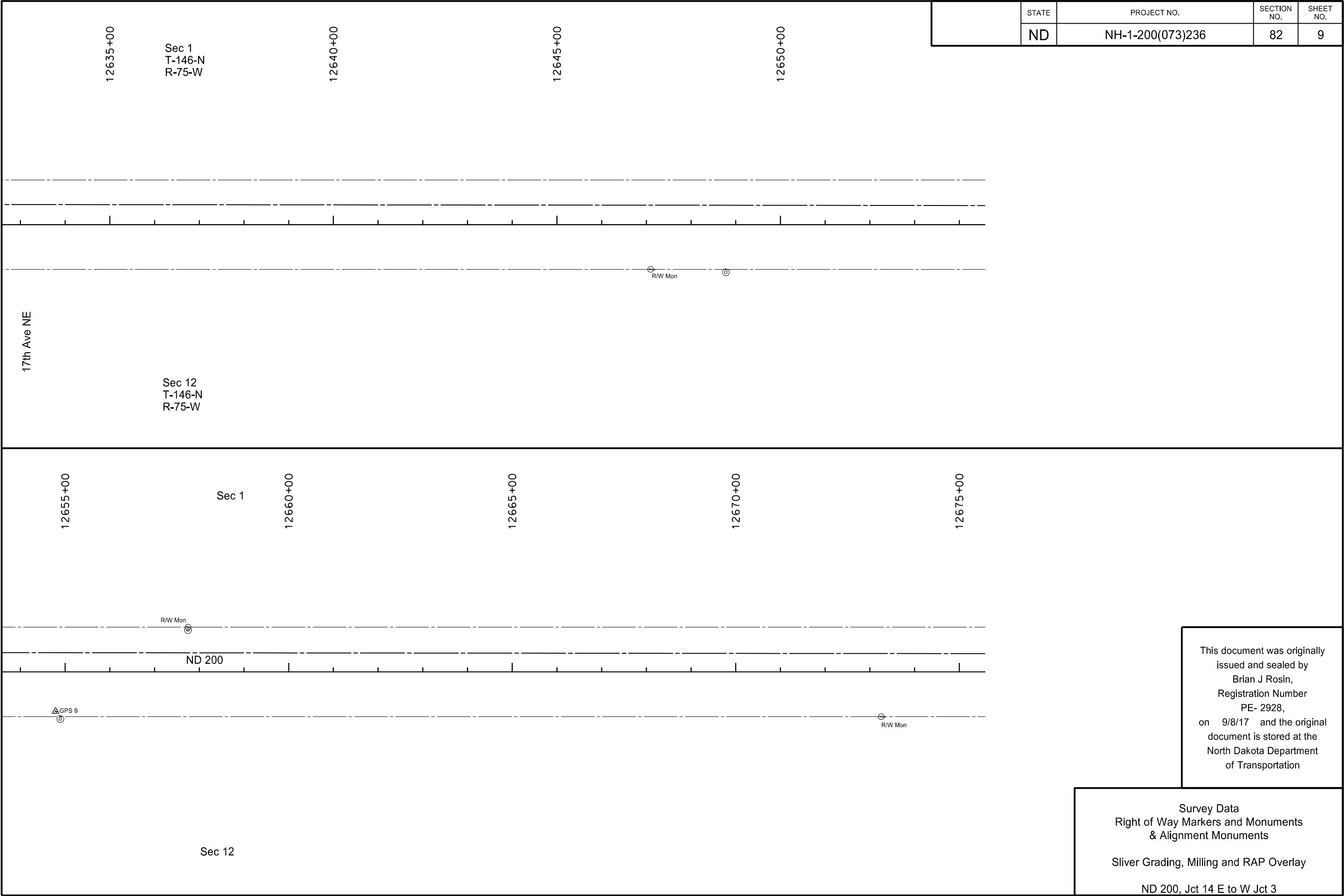


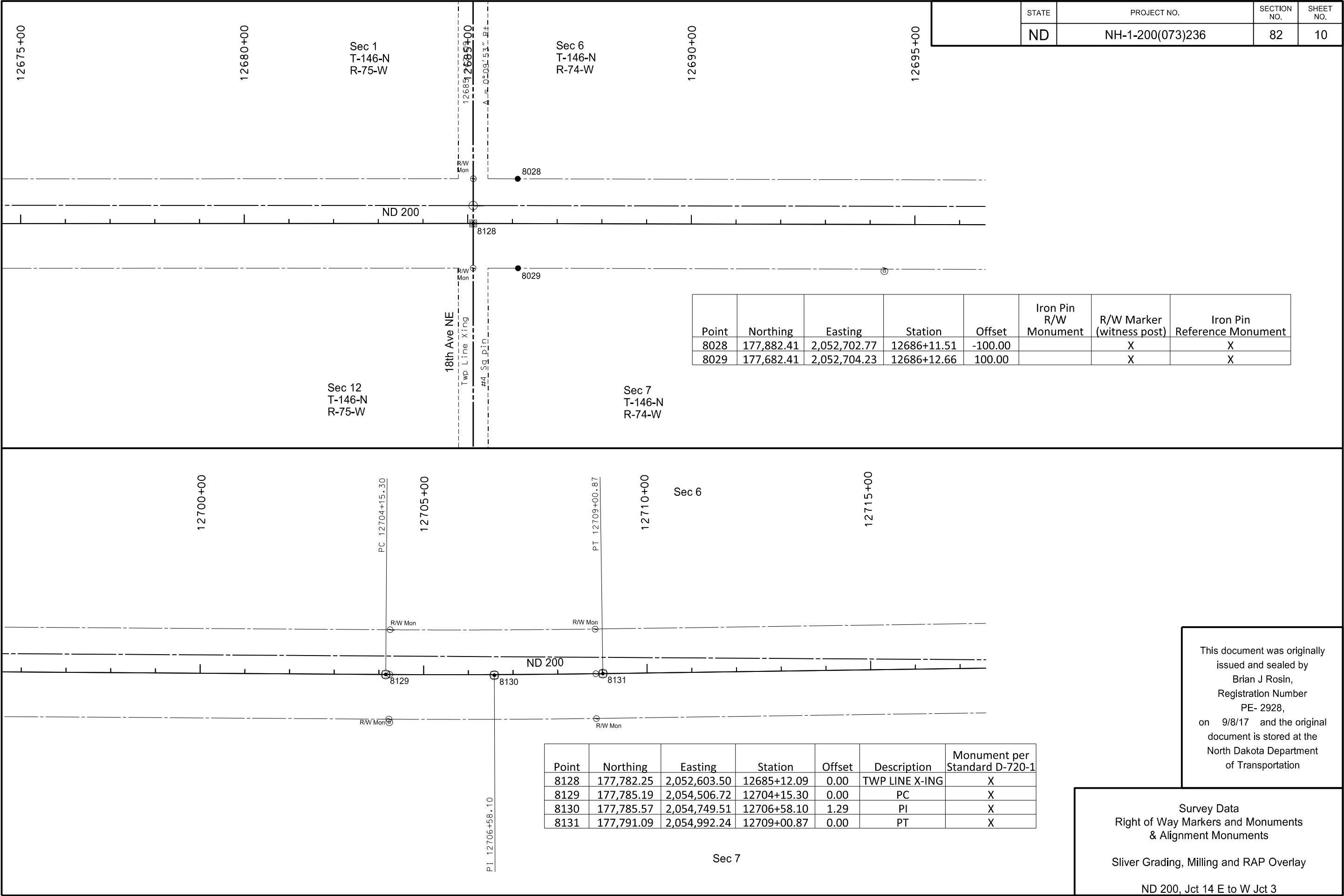
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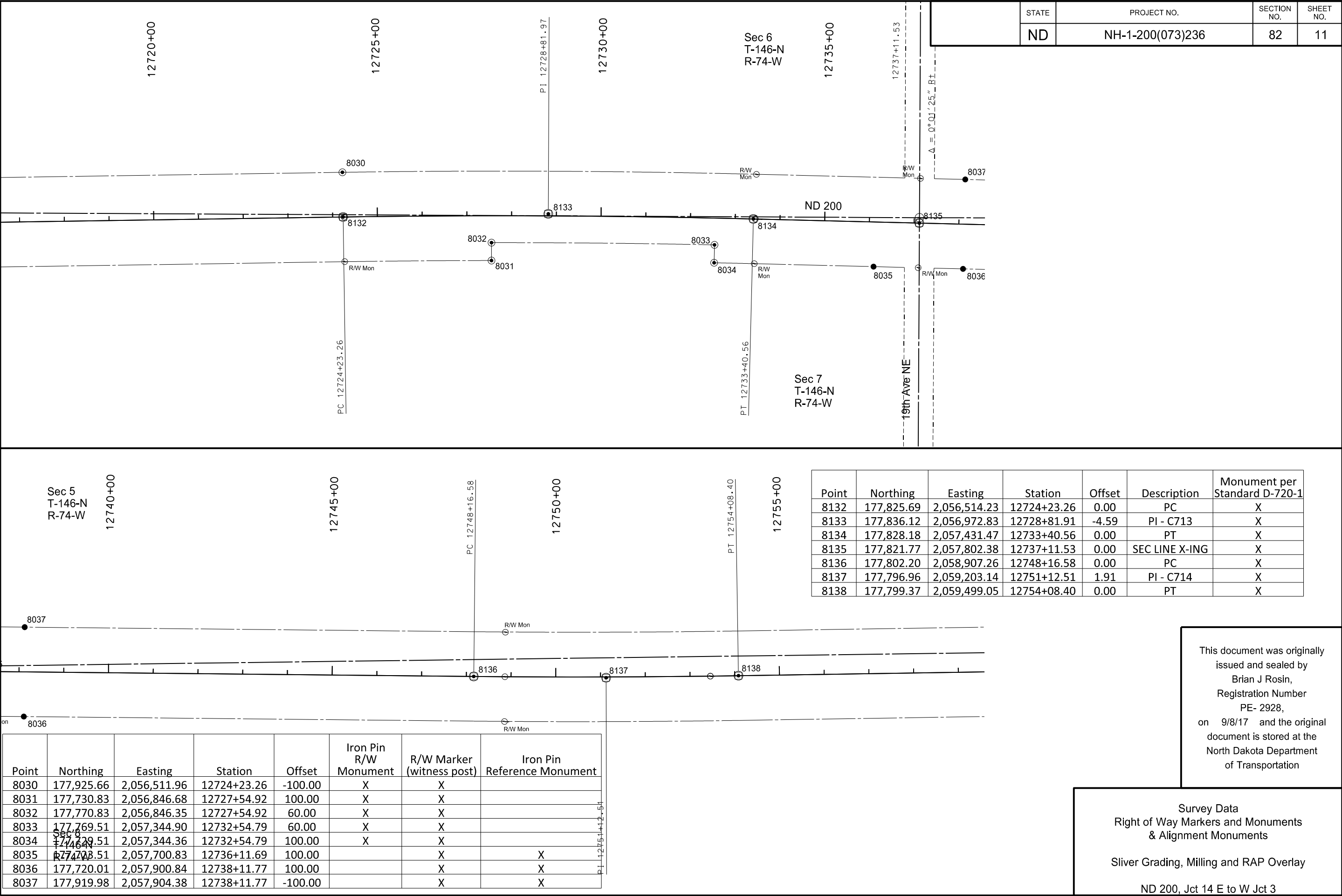
Survey Data
Right of Way Markers and Monuments
& Alignment Monuments

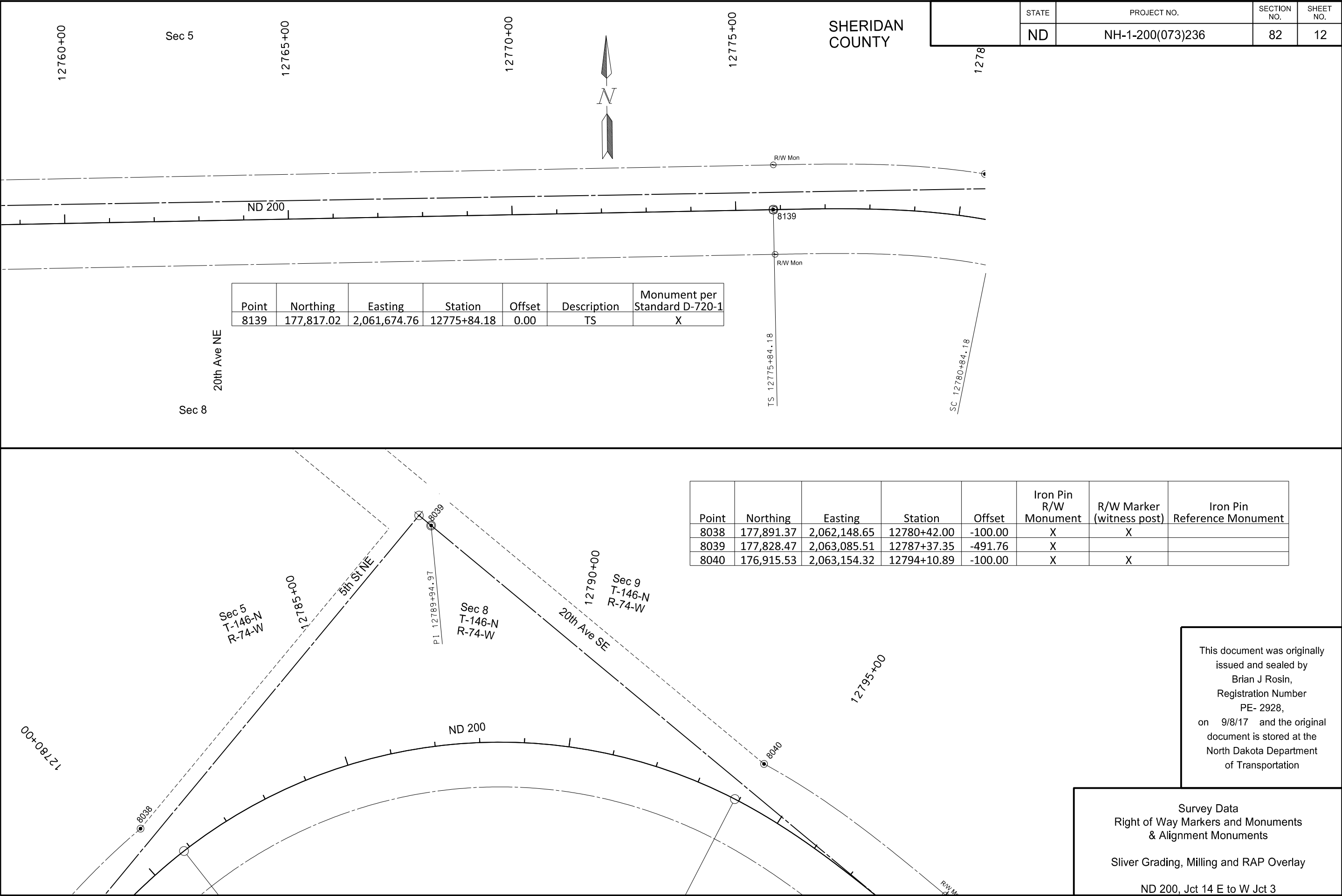
Sliver Grading, Milling and RAP Overlay

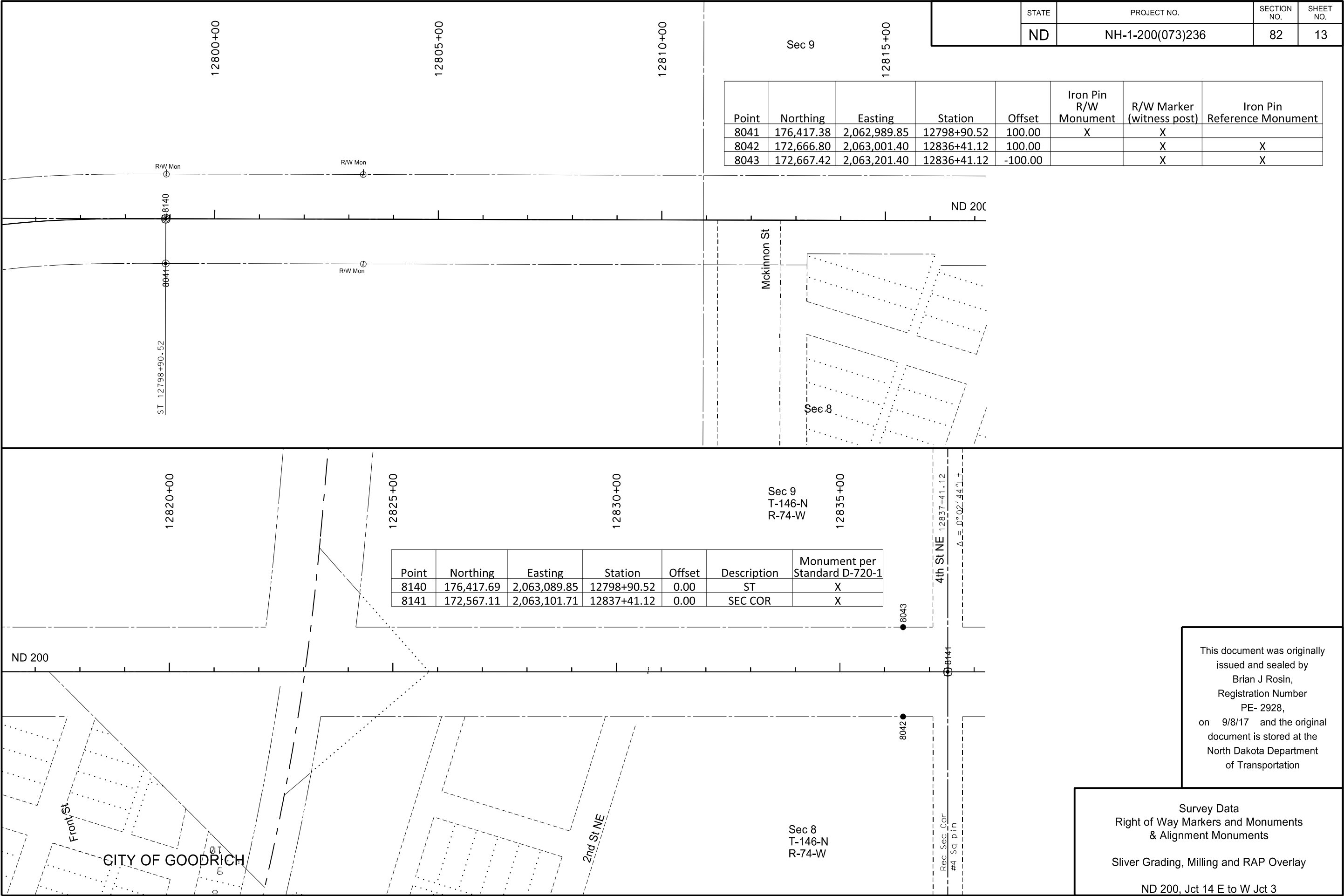
ND 200, Jct 14 E to W Jct 3









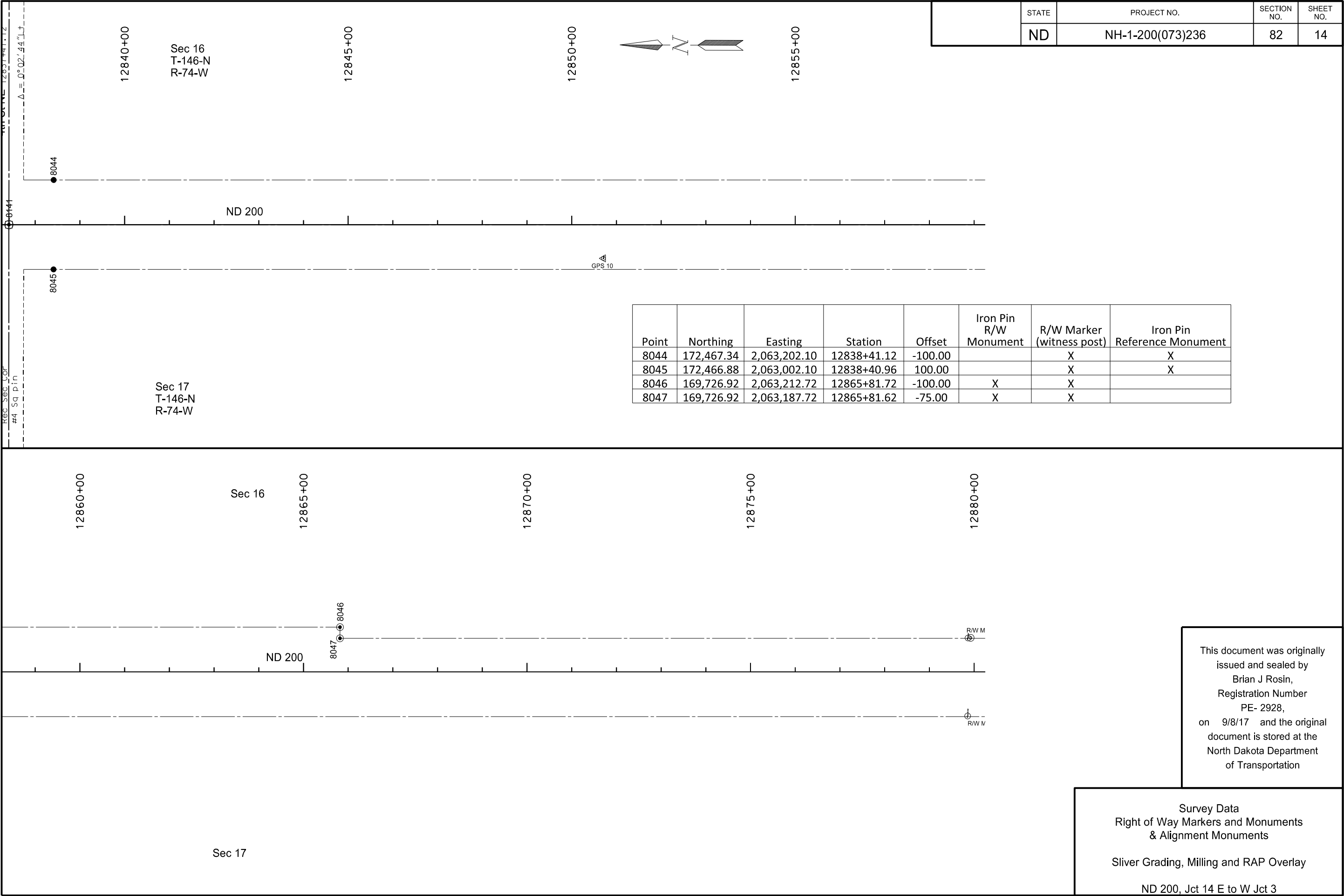


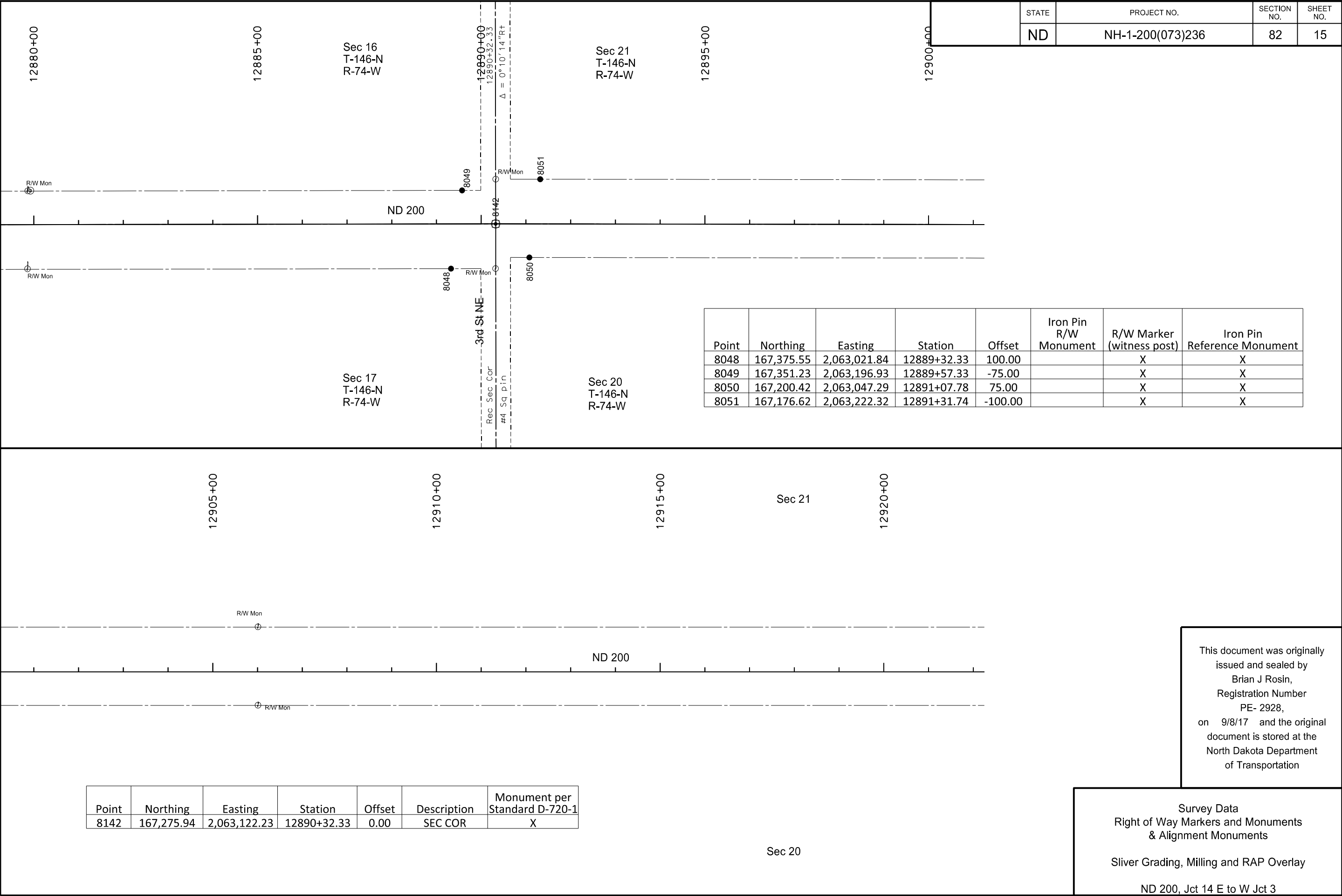
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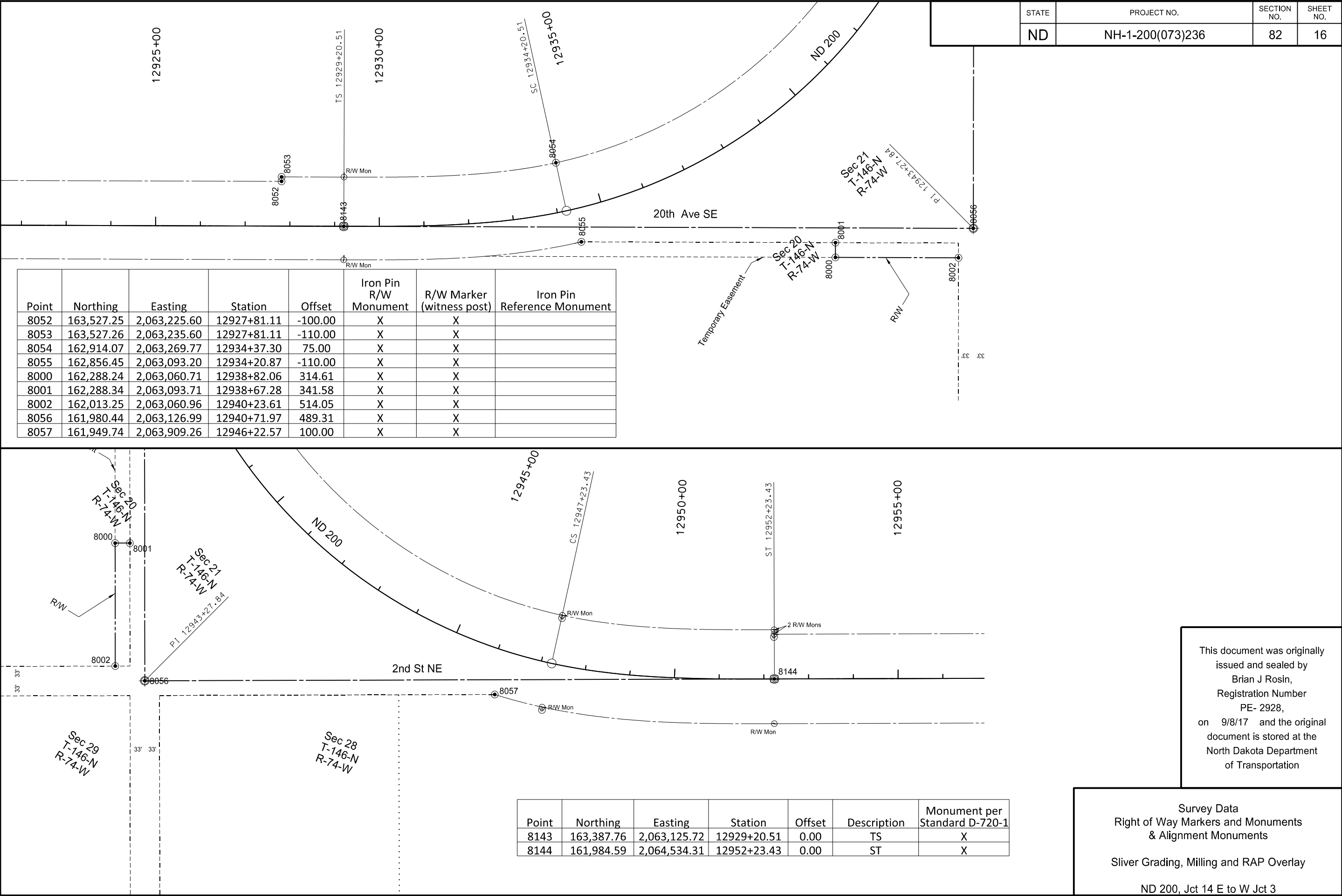
Survey Data
Right of Way Markers and Monuments
& Alignment Monuments

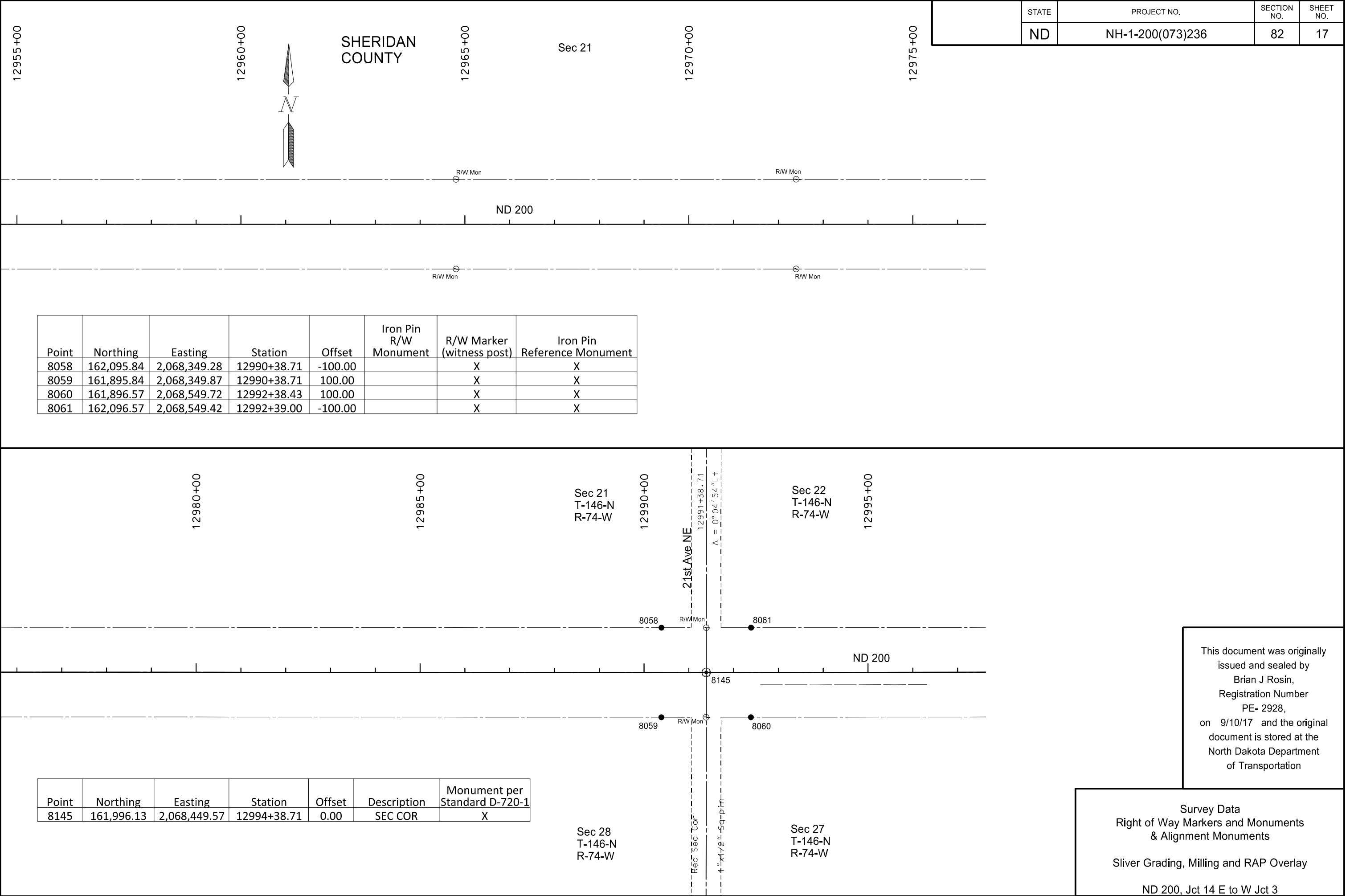
Sliver Grading, Milling and RAP Overlay

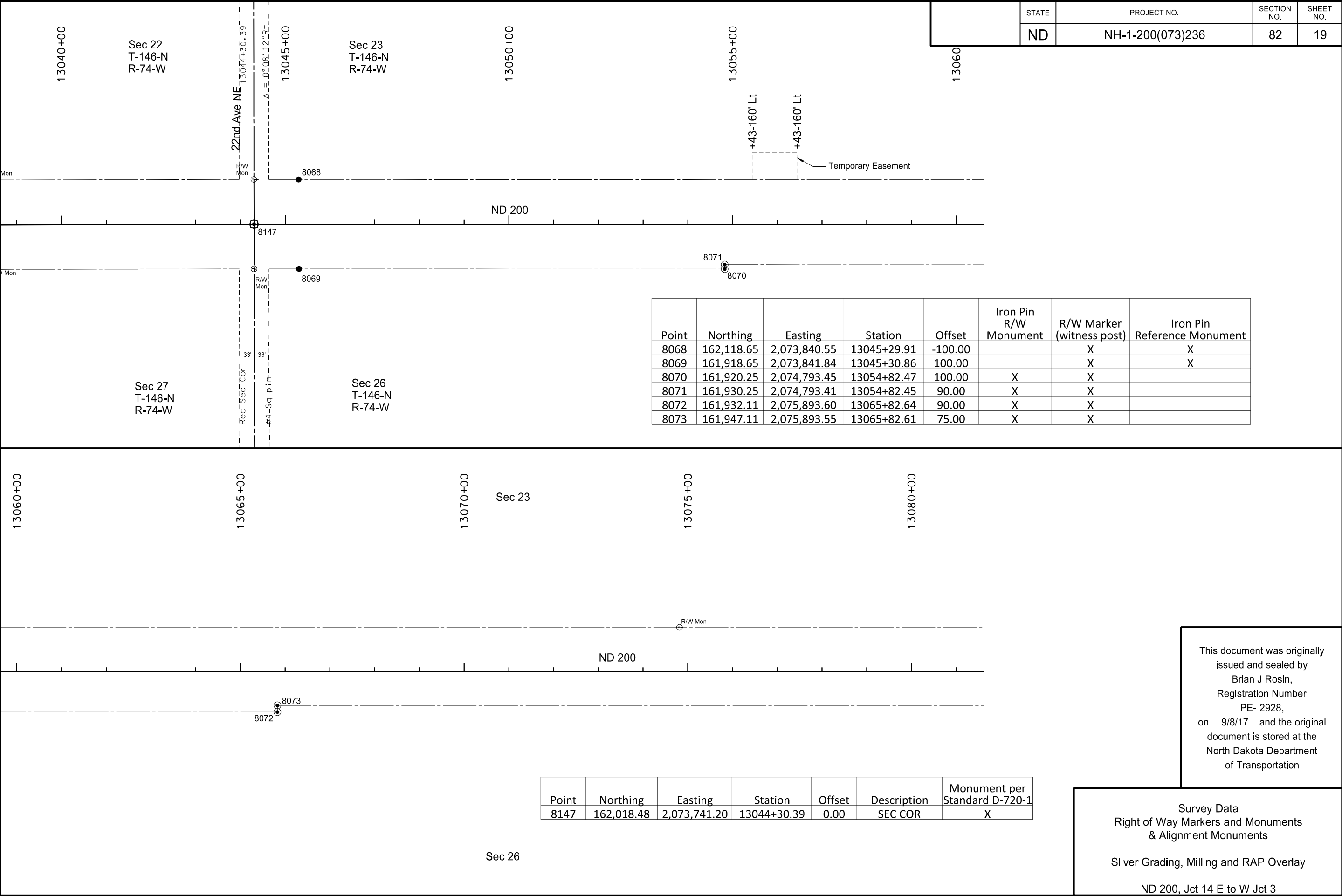
ND 200, Jct 14 E to W Jct 3









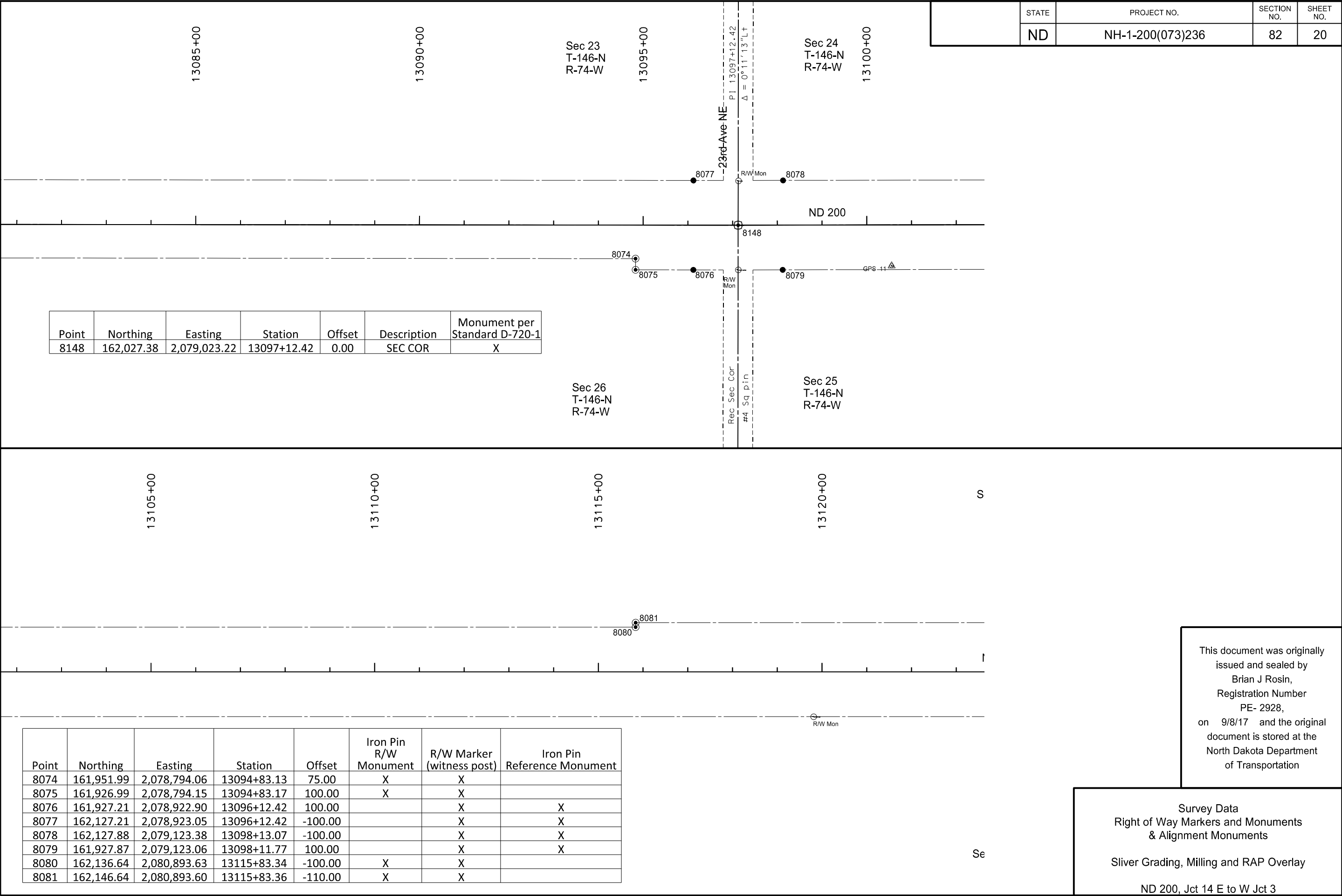


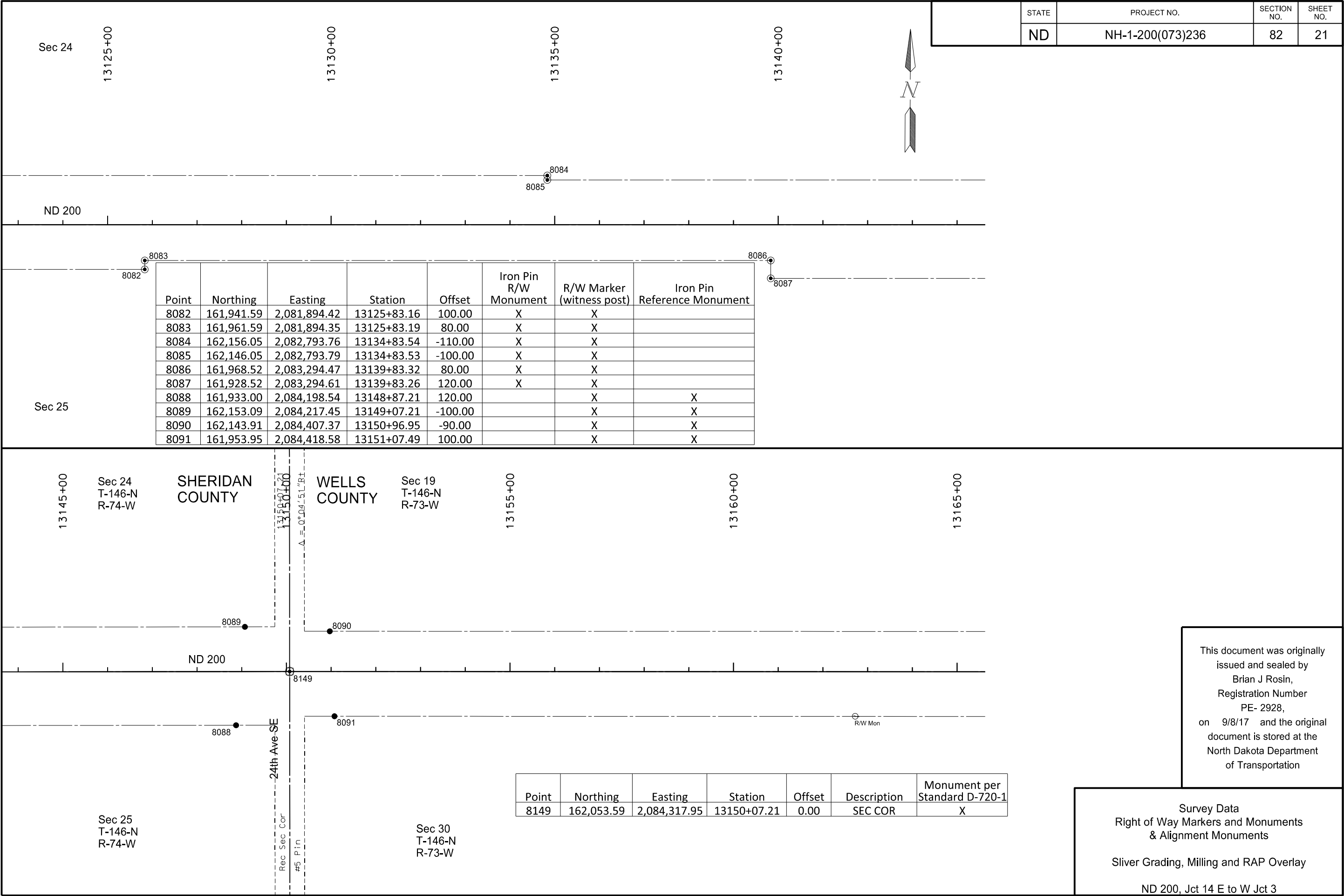
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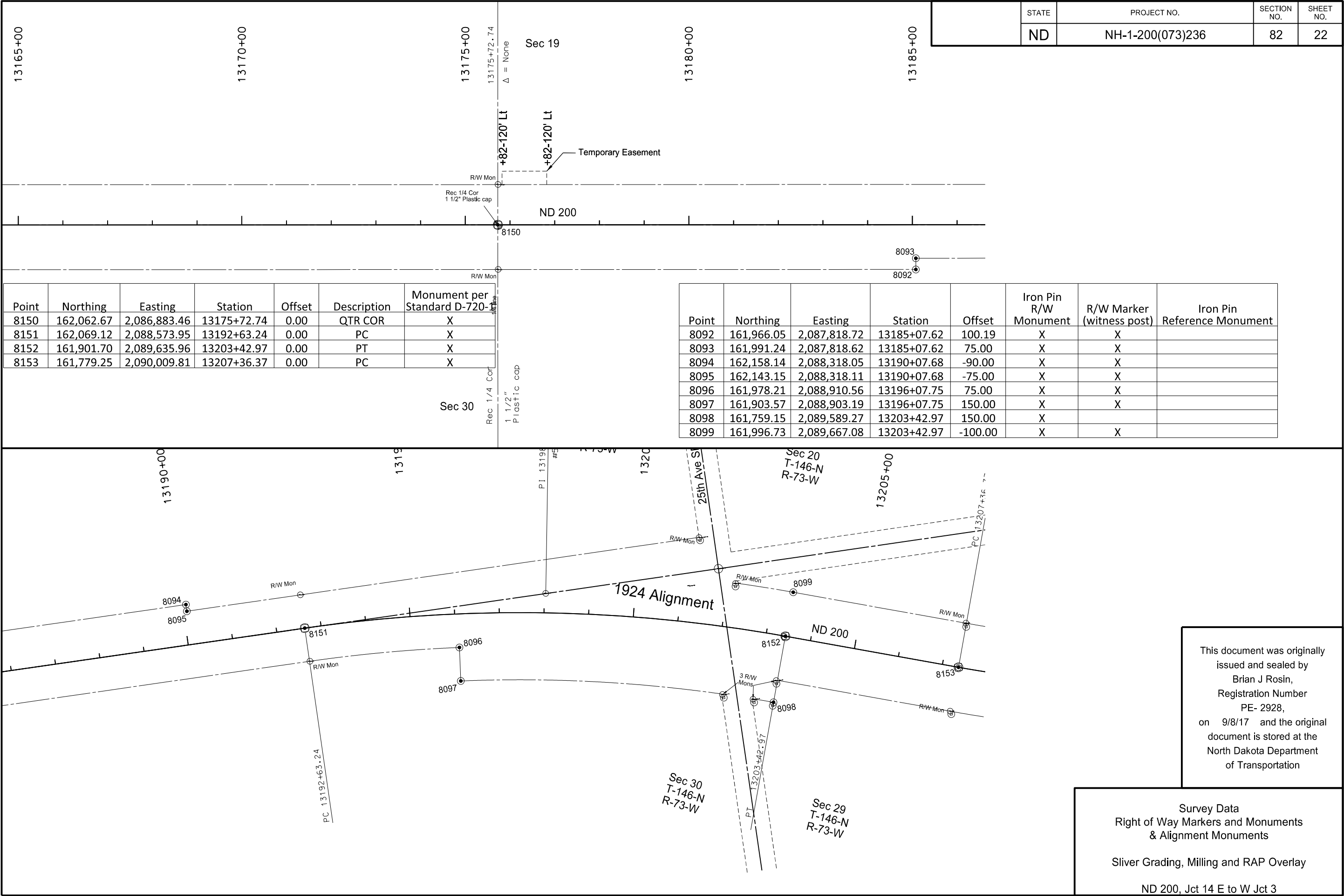
Survey Data
Right of Way Markers and Monuments
& Alignment Monuments

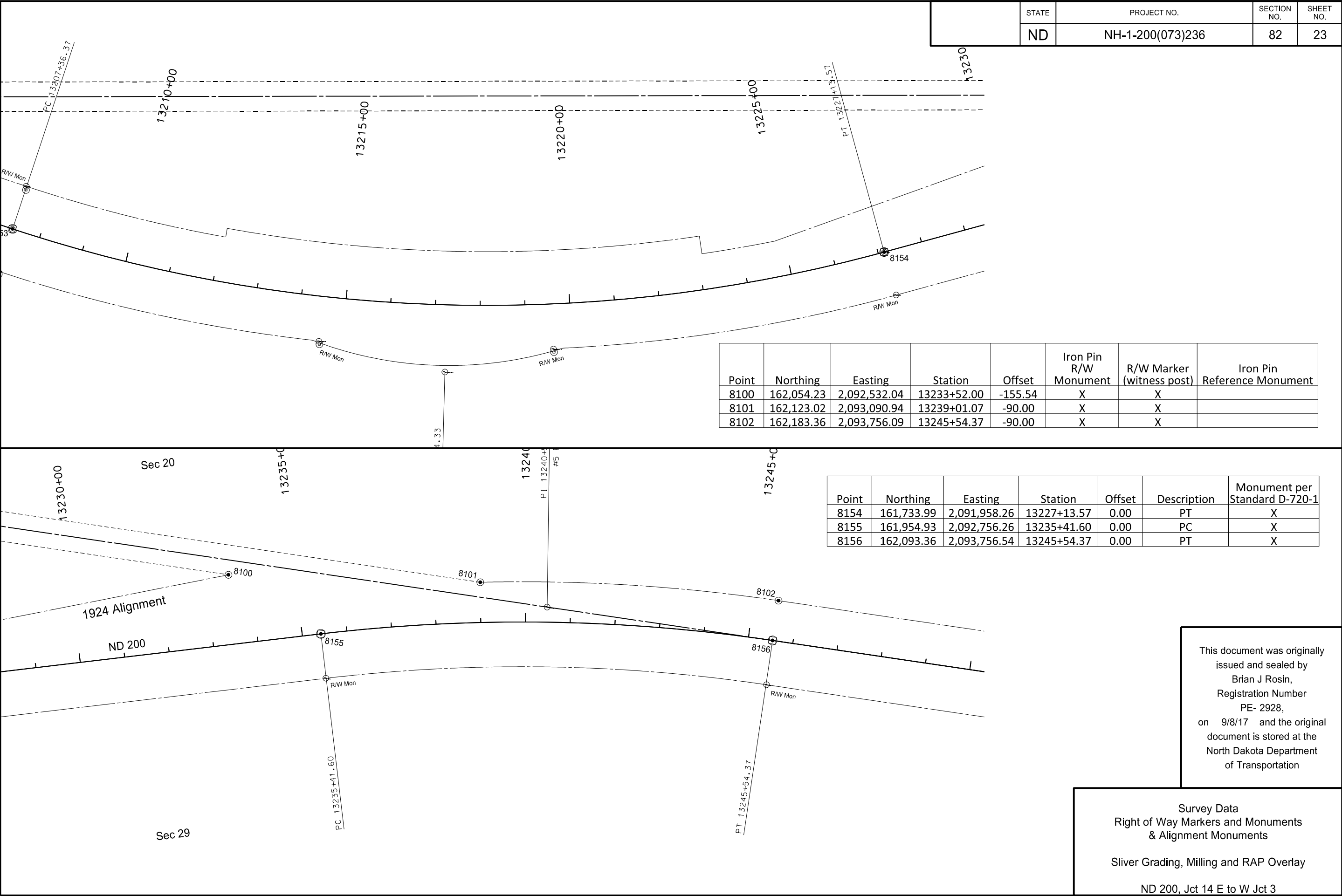
Sliver Grading, Milling and RAP Overlay

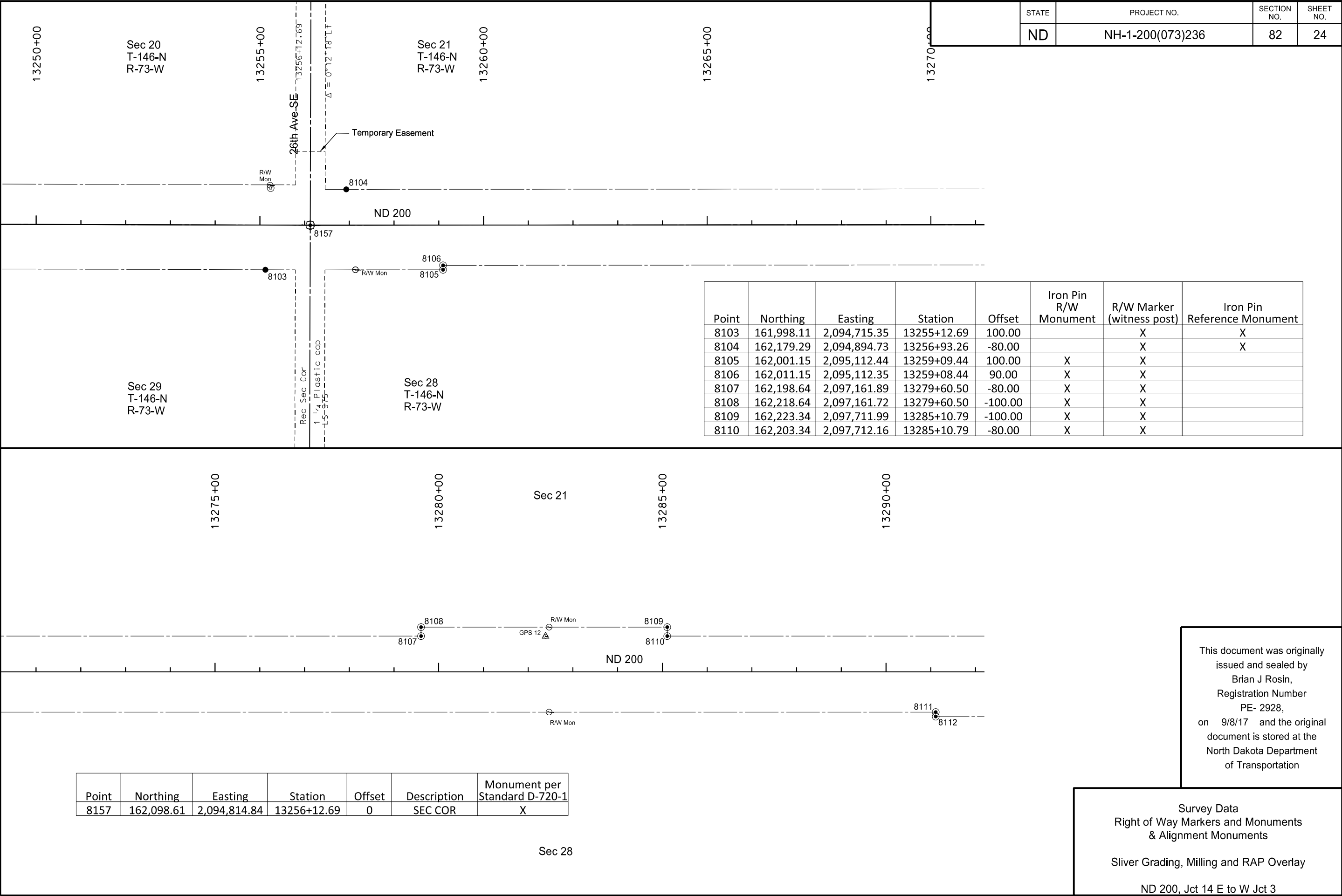
ND 200, Jct 14 E to W Jct 3

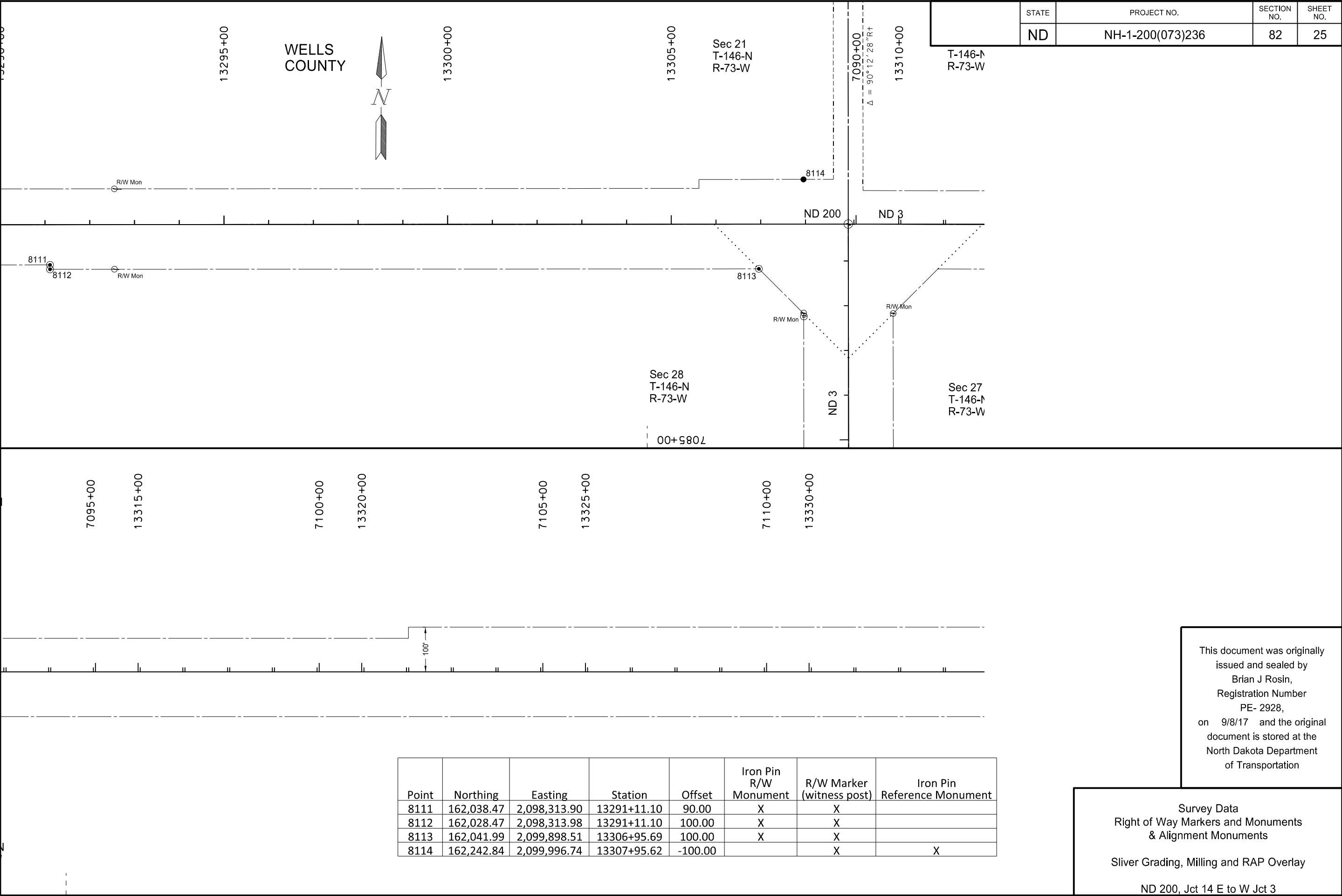






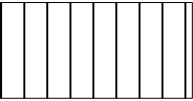
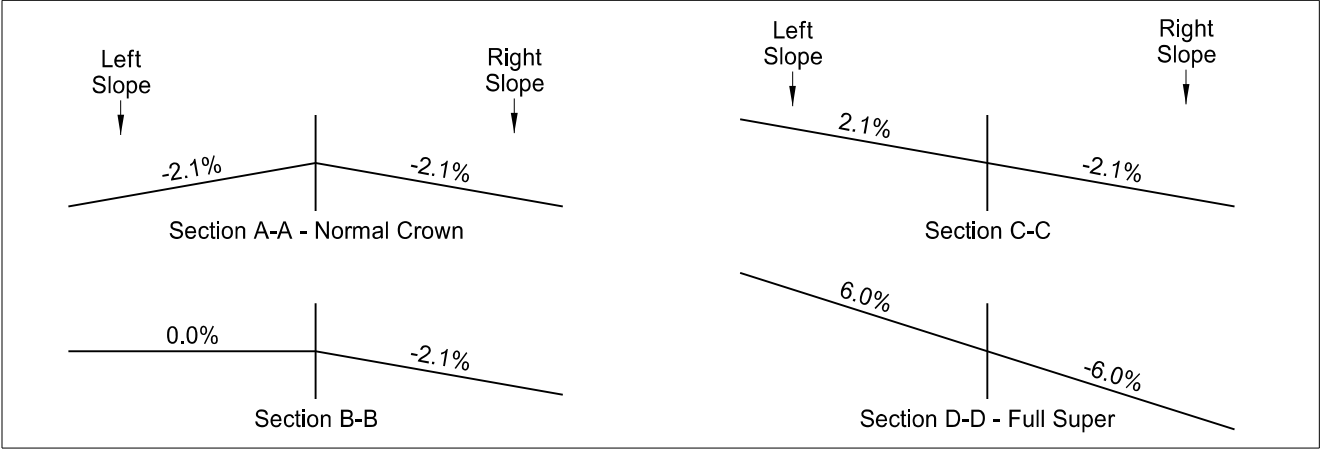
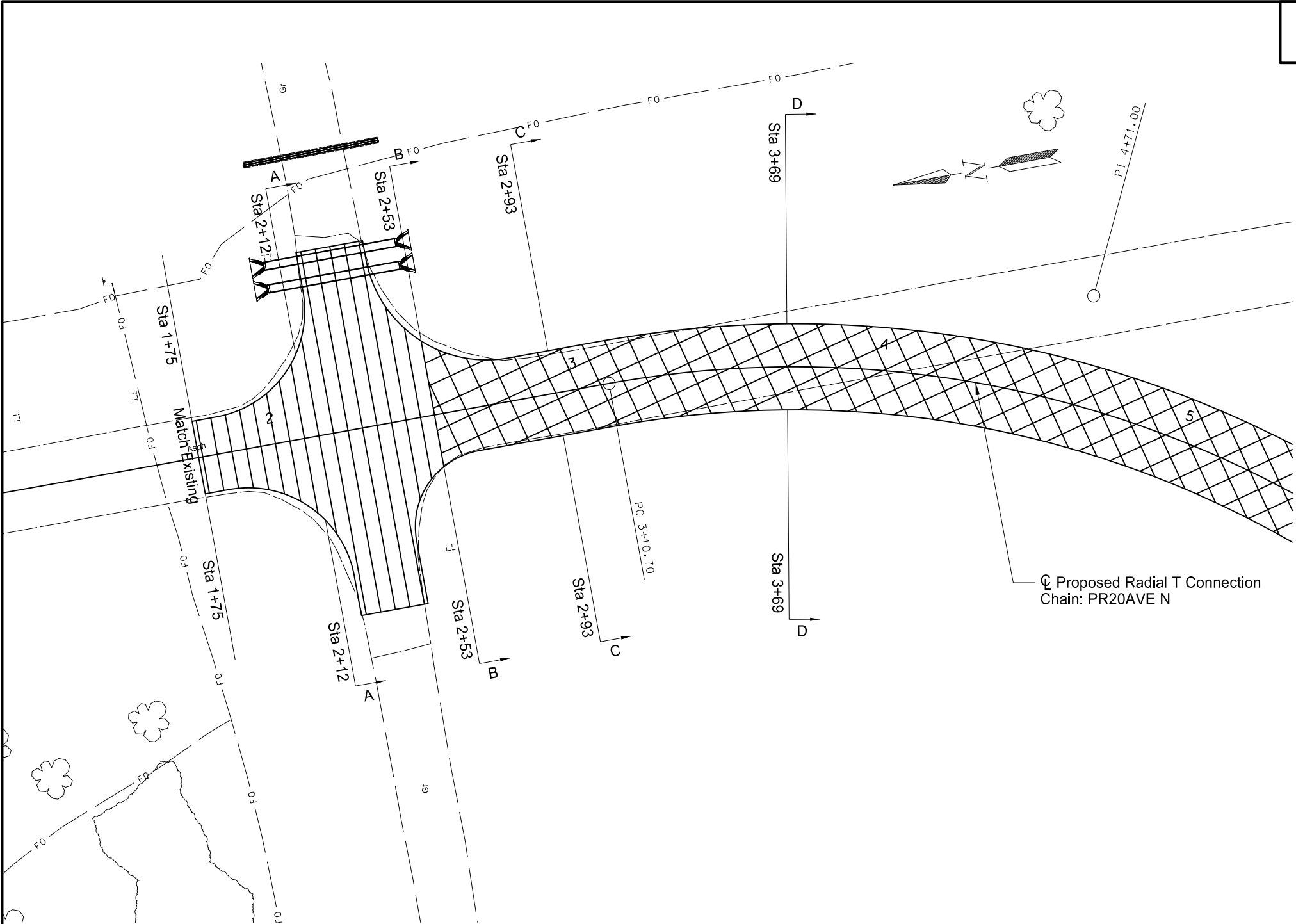






	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-1-200(073)236	90	1

SPEC	CODE	BID ITEM	UNIT	QUANTITY
302	0120	AGGREGATE BASE COURSE CL 5		
		Sta 2+53 to Sta 5+25	TON	671
401	0050	TACK COAT		
		Sta 1+75 to Sta 2+53	GAL	27
		Sta 2+53 to Sta 5+25	GAL	43
401	0060	PRIME COAT		
		Sta 2+53 to Sta 5+25	GAL	237
411	0105	MILLING PAVEMENT SURFACE		
		Sta 1+75 to Sta 2+53	SY	549
430	0143	RAP - SUPERPAVE FAA 43		
		Sta 1+75 to Sta 2+53	TON	61
		Sta 2+53 to Sta 5+25	TON	173
430	5803	PG 58S-28 ASPHALT CEMENT		
		Sta 1+75 to Sta 2+53	TON	3
		Sta 2+53 to Sta 5+25	TON	7



2" Mill &
2" RAP-Superpave FAA 43 Overlay



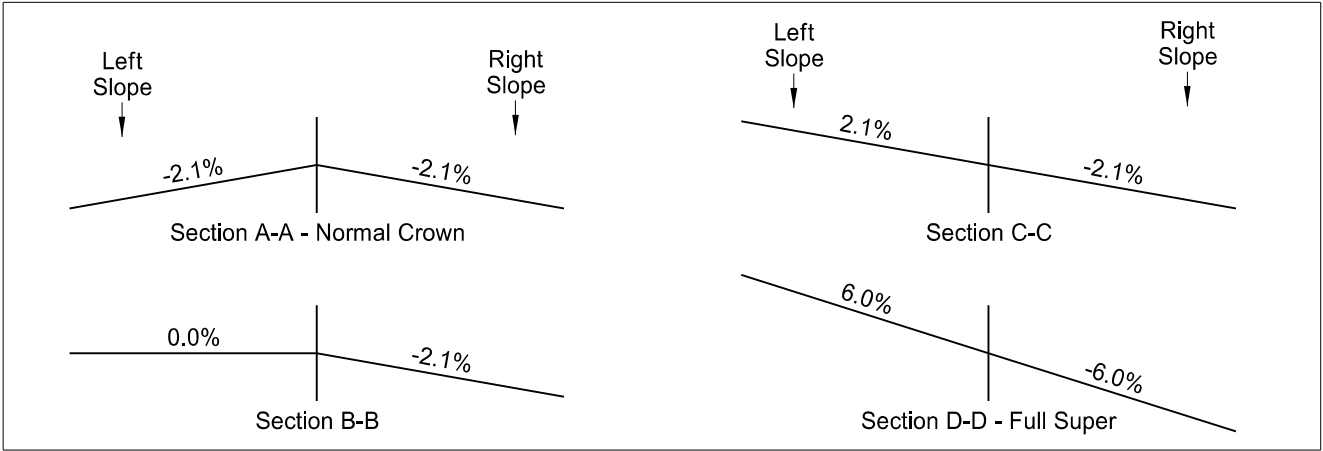
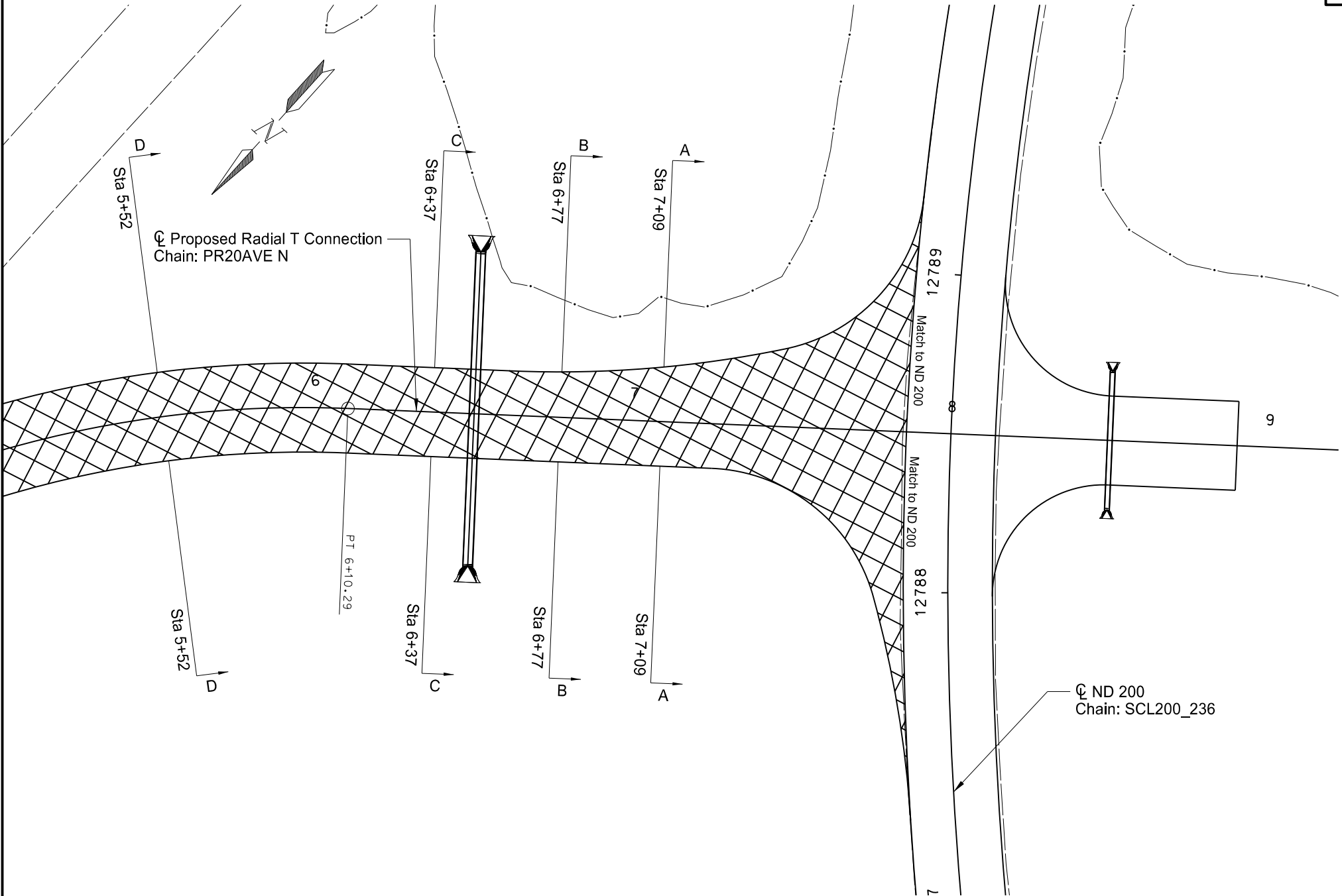
3.5" RAP-Superpave FAA 43 &
12" Aggregate Base Course CL 5

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ND Hwy 200
Proposed Radial T Connection
20th Ave NE - North of Goodrich

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-1-200(073)236	90	2

SPEC	CODE	BID ITEM	UNIT	QUANTITY
302	0120	AGGREGATE BASE COURSE CL 5 Sta 5+25 to Sta 7+86	TON	832
401	0050	TACK COAT Sta 5+25 to Sta 7+86	GAL	53
401	0060	PRIME COAT Sta 5+25 to Sta 7+86	GAL	293
430	0143	RAP - SUPERPAVE FAA 43 Sta 5+25 to Sta 7+86	TON	218
430	5803	PG 58S-28 ASPHALT CEMENT Sta 5+25 to Sta 7+86	TON	9



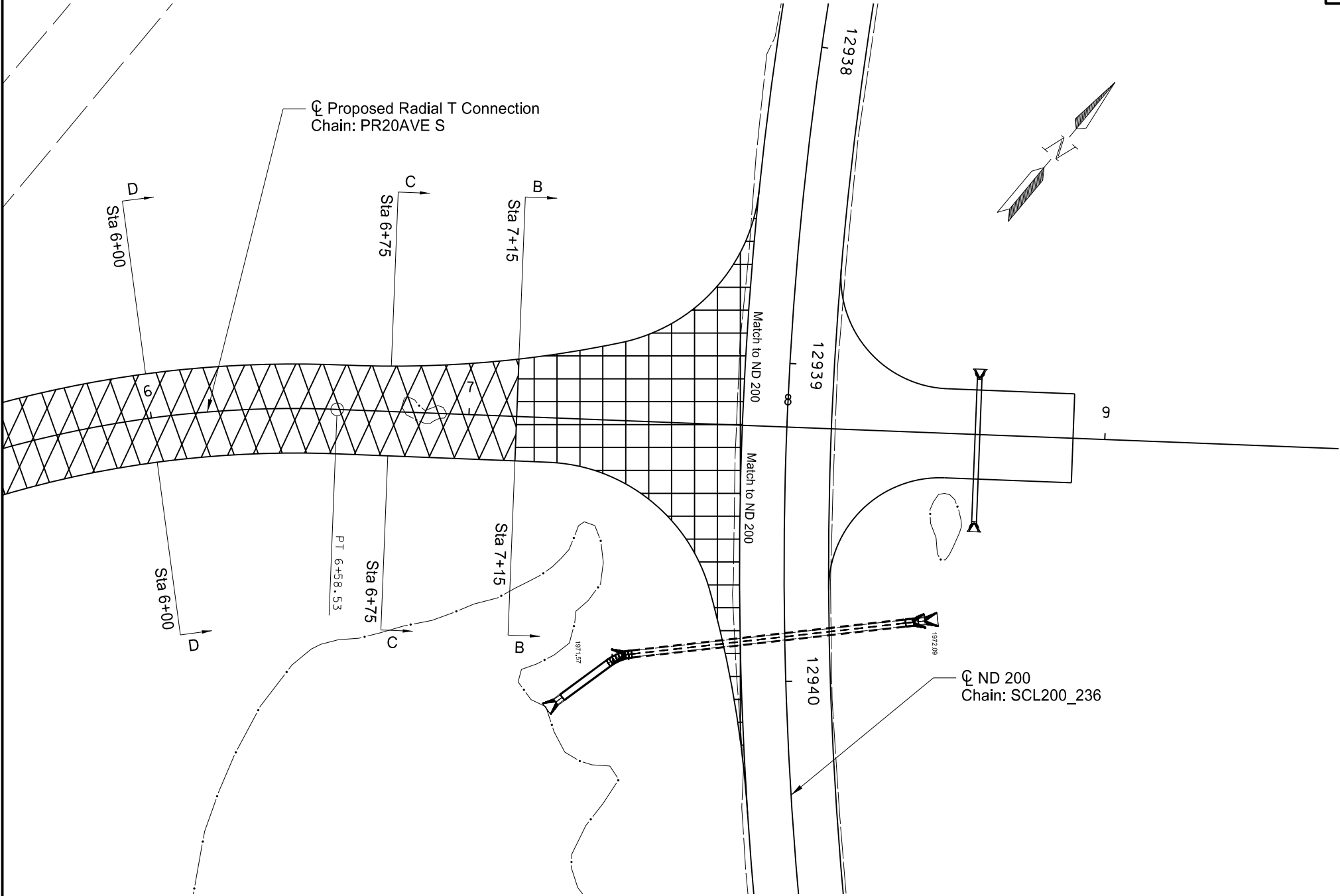
3.5" RAP-Superpave FAA 43 &
12" Aggregate Base Course CL 5

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ND Hwy 200
Proposed Radial T Connection
20th Ave NE - North of Goodrich

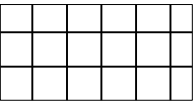
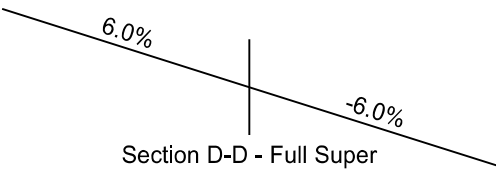
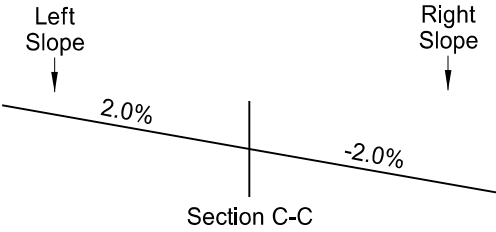
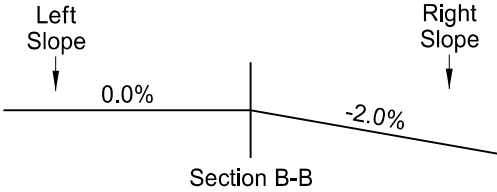
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-1-200(073)236	90	4

SPEC	CODE	BID ITEM	UNIT	QUANTITY
302	0120	AGGREGATE BASE COURSE CL 5		
		Sta 5+75 to Sta 7+15	TON	143
		Sta 7+15 to Sta 7+86	TON	359
401	0050	TACK COAT		
		Sta 7+15 to Sta 7+86	GAL	23
401	0060	PRIME COAT		
		Sta 7+15 to Sta 7+86	GAL	128
430	0143	RAP - SUPERPAVE FAA 43		
		Sta 7+15 to Sta 7+86	TON	95
430	5803	PG 58S-28 ASPHALT CEMENT		
		Sta 7+15 to Sta 7+86	TON	4

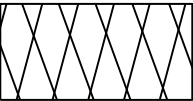


Note:

Section A-A (Normal Crown) not provided.
Transition pavement cross-slopes from Section B-B
to ND Hwy 200 edge of pavement.



3.5" RAP-Superpave FAA 43 &
12" Aggregate Base Course CL 5

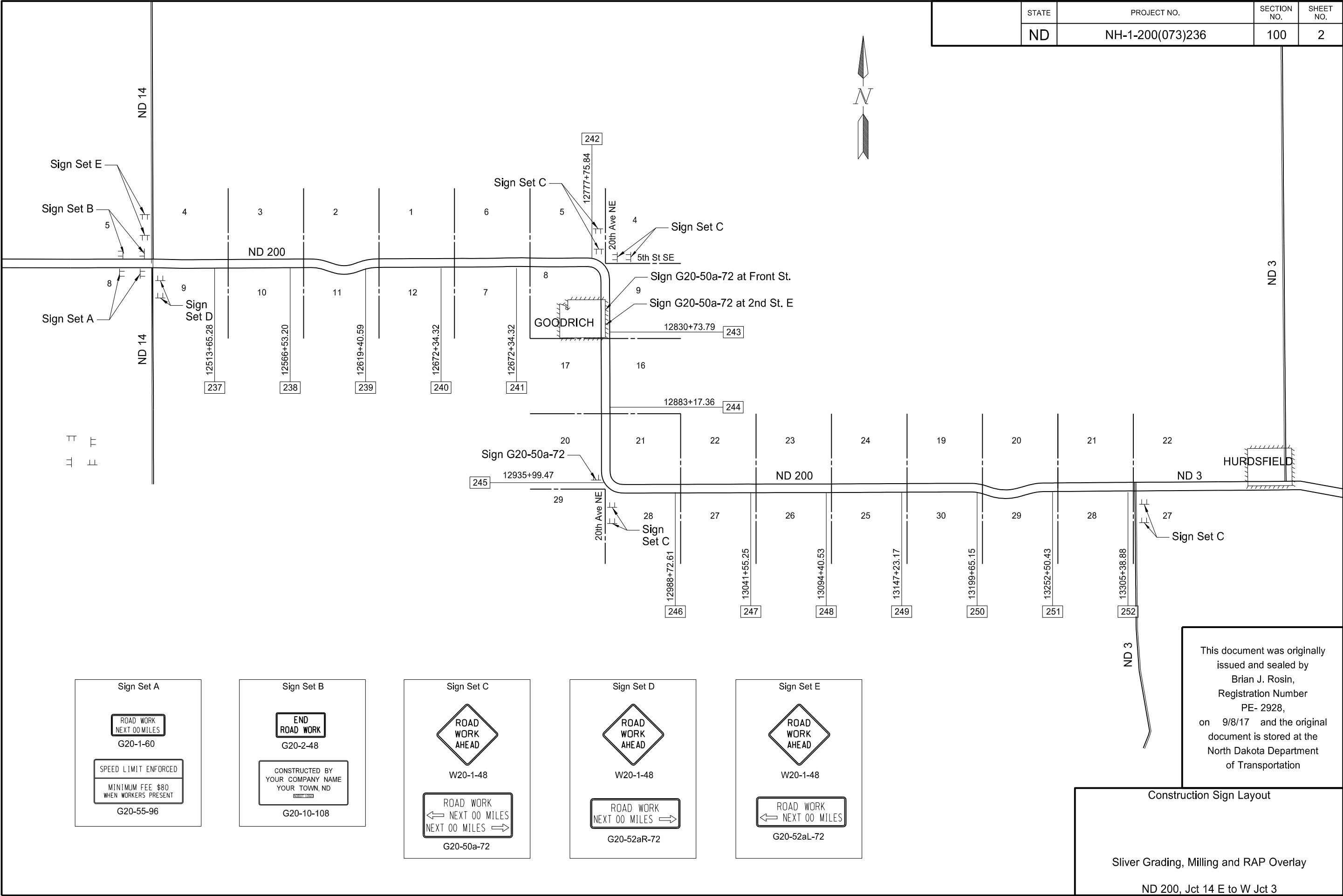


6" Aggregate Base Course CL 5

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ND Hwy 200
Proposed Radial T Connection
20th Ave NE - South of Goodrich

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-1-200(073)236	100	2



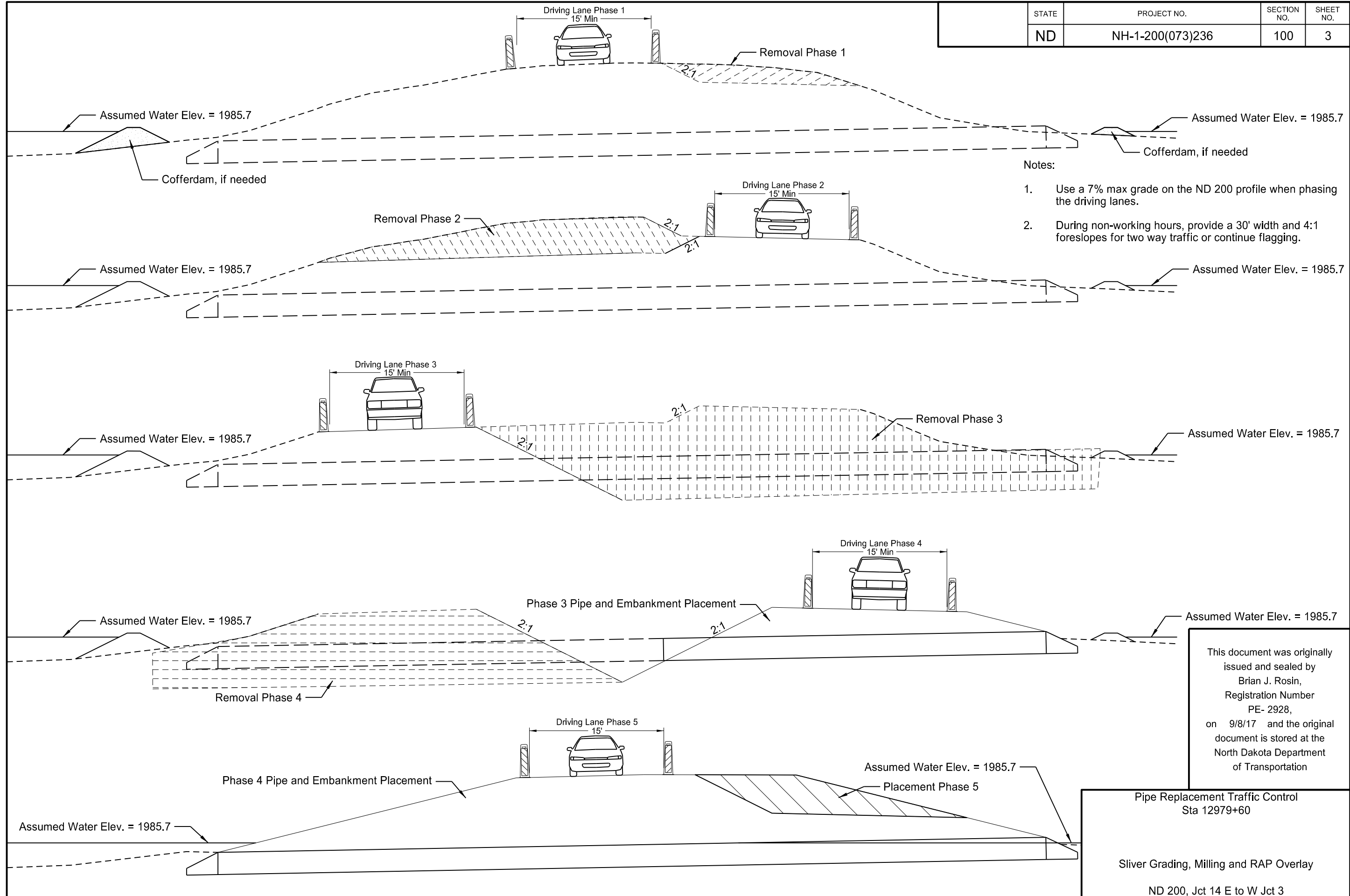
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Construction Sign Layout

Sliver Grading, Milling and RAP Overlay

ND 200, Jct 14 E to W Jct 3

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-1-200(073)236	100	3



																						STATE		PROJECT NO.		SECTION NO.		SHEET NO.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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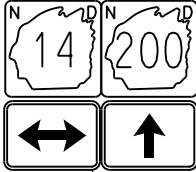
																				STATE	PROJECT NO.			SECTION NO.	SHEET NO.	
																				N.D.	NH-1-200(073)236			110	3	
Station / RP	Sign No.	Assembly No.	Flat Sheet For Signs		Sign Support Length				Vert Clear- ance FT	Support Size	Max Post Len LF	Sleeve Length				Sleeve Size	Anchor EA	Anchor LF	Anchor Size	Reset Sign Panel EA	Reset Sign Support EA	Break-Away EA	Comments			
			IV SF	XI SF	1st LF	2nd LF	3rd LF	4th LF				1st LF	2nd LF	3rd LF	4th LF											
0+00 Rt		20		9.0	12.00				5.0	2.5 x 2.5 10 ga	12.9						1	4	3 x 3 7 ga			1				
1+19 Lt	S.A.B			8.0	12.50				5.0	2.5 x 2.5 12 ga	13.0						1	4	3 x 3 7 ga							
1+58 Lt									5.0	2 x 2 12 ga										1	1					
3+09 Lt		1		5.2	11.00				5.0	2.25 x 2.25 12 ga	13.7						1	4	2.5 x 2.5 12 ga							
4+00 Rt		372	7.0		11.60				5.0	2.5 x 2.5 12 ga	14.1						1	4	3 x 3 7 ga							
4+42 Lt		34		8.0	10.70				5.0	2.5 x 2.5 12 ga	11.3						1	4	3 x 3 7 ga							
Sub Total				7.00	36.50	Total		69.50									Total	24		1	1	1				
South Radial T																										
-4+00 Lt		19		6.3	11.70				5.0	2.5 x 2.5 12 ga	14.5						1	4	3 x 3 7 ga							
0+00 Rt		20		9.0	12.00				5.0	2.5 x 2.5 10 ga	12.9						1	4	3 x 3 7 ga			1				
4+00 Rt		372	7.0		11.60				5.0	2.5 x 2.5 12 ga	14.1						1	4	3 x 3 7 ga							
4+60 Lt		34		8.0	10.70				5.0	2.5 x 2.5 12 ga	11.3						1	4	3 x 3 7 ga							
Sub Total				7.00	23.30	Total		46.00									Total	16		0	0	1				
Grand Total				78.3	467.5	Total		1,044.60									Total	372	0	32	3	44				
																			This document was originally issued and sealed by Douglas A. Schumaker, Registration Number PE - 5047, on 8/31/2017 and is stored at the North Dakota Department of Transportation.				Sign Summary Perforated Tube Jct 14 E to W Jct 3 ND 200			
8/31/2017 4:12:18PM Page 3 of 3																										



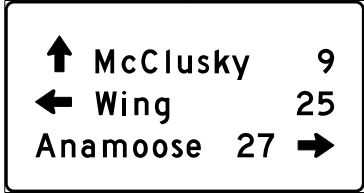
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-1-200(073)236	110	4

SPEC	CODE	BID ITEM	QTY	UNIT
754	0563	REFERENCE MARKER - TYPE C		
		STA 12513+65.28 Rt	1	EA
		STA 12566+53.20 Rt	1	EA
		STA 12619+40.59 Rt	1	EA
		STA 12672+34.32 Rt	1	EA
		STA 12725+11.68 Rt	1	EA
		STA 12777+75.84 Rt	1	EA
		STA 12830+73.79 Rt	1	EA
		STA 12883+17.36 Rt	1	EA
		STA 12935+99.47 Rt	1	EA
		STA 12988+72.61 Rt	1	EA
		STA 13041+55.25 Rt	1	EA
		STA 13094+40.53 Rt	1	EA
		STA 13147+23.17 Rt	1	EA
		STA 13199+65.15 Rt	1	EA
		STA 13252+50.43 Rt	1	EA
		STA 13305+38.88 Rt	1	EA
		Total	16	EA

Sta 12473+37 Lt
Reset signs on
new support



Sta 12479+90 Lt
Reset sign on
new support



Sta 12483+26 Lt
Reset sign on
new support



ND 200



Sta 12474+27 Rt
Reset sign on
new support

R2-1-24



Sta 12483+31 Rt
Assembly 9



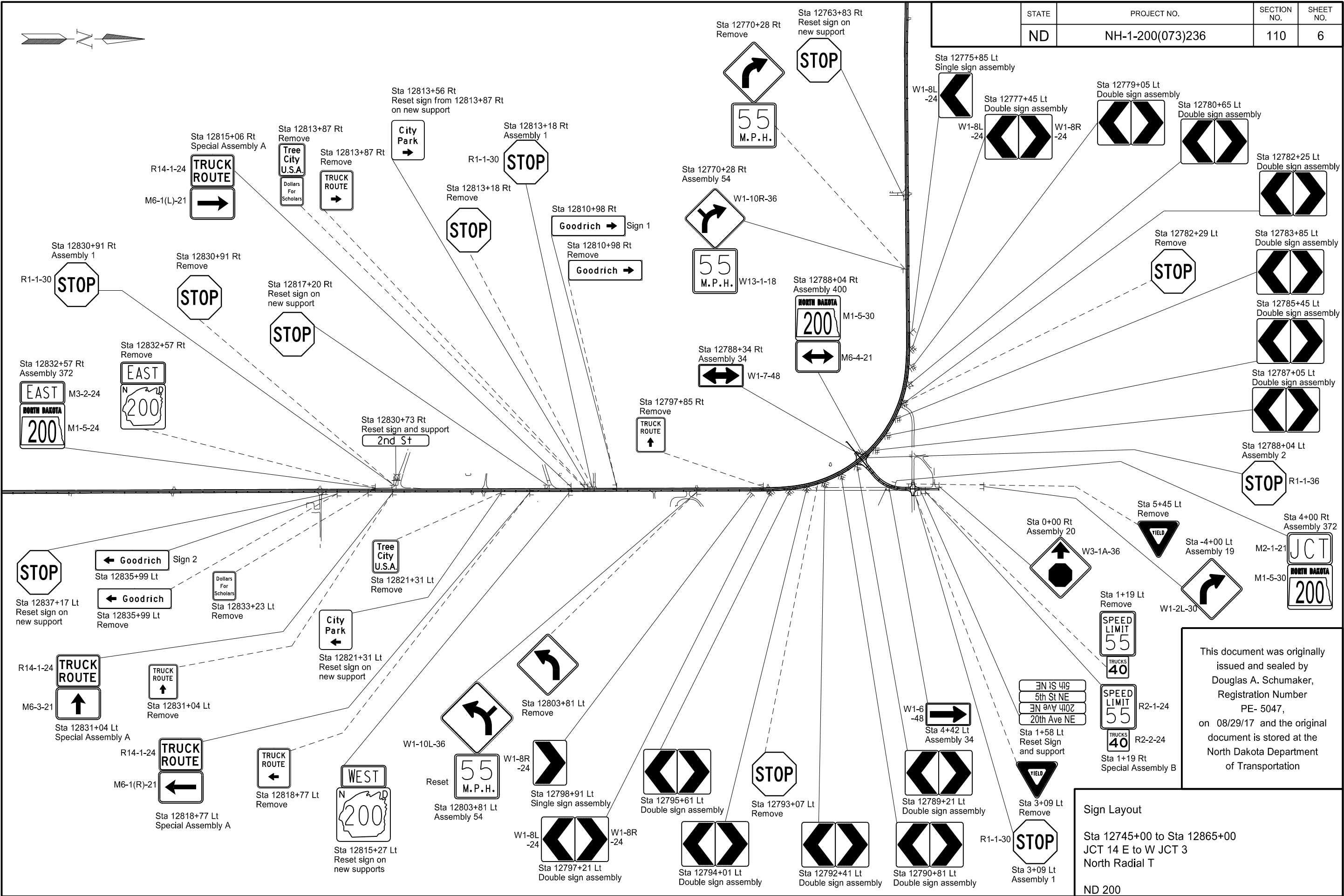
Sta 12483+31 Rt
Remove

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Sign Layout

Sta 12470+00 to Sta 12495+00
JCT 14 E to W JCT 3

ND 200



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-1-200(073)236	110	6

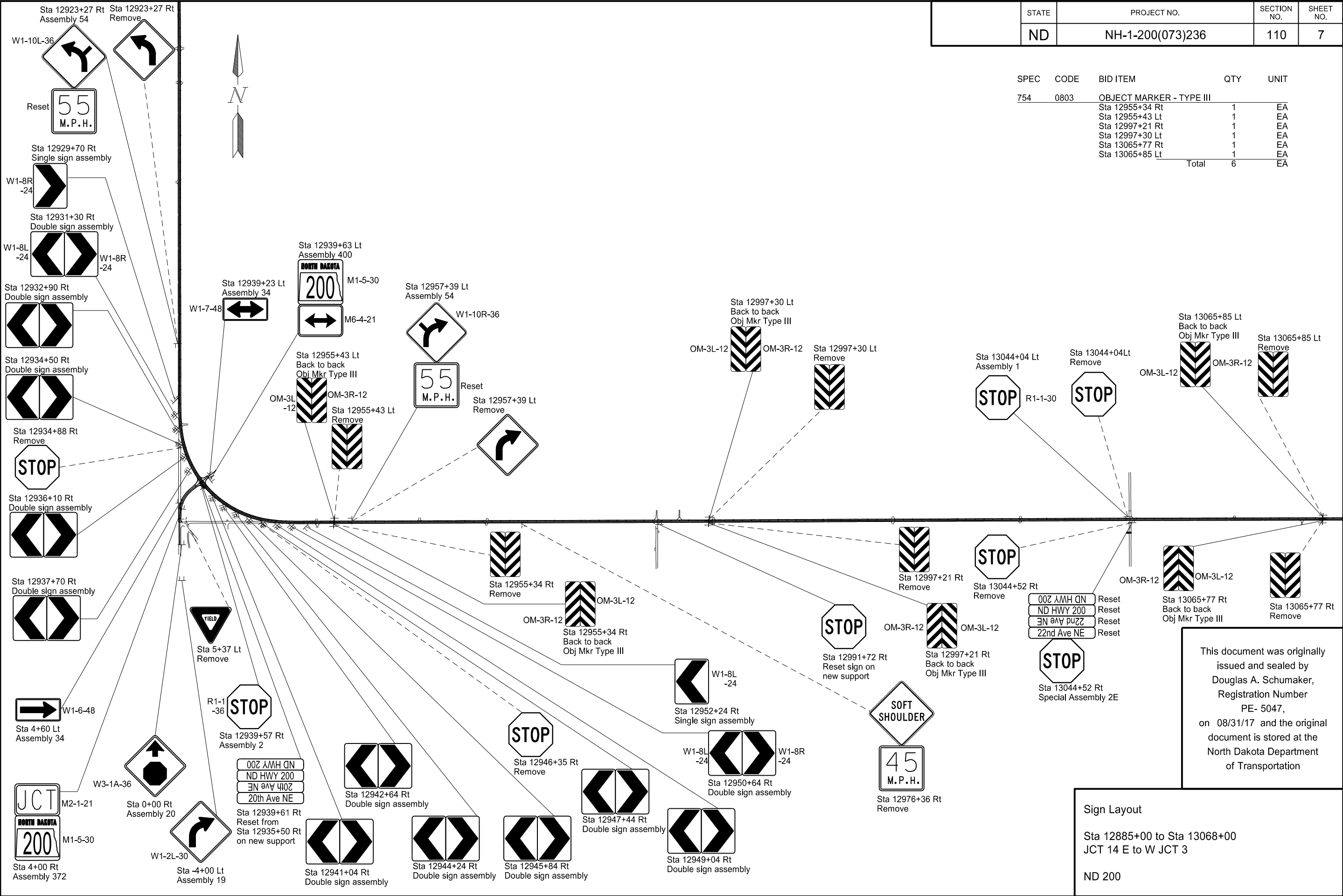
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Sign Layout

Sta 12745+00 to Sta 12865+00
JCT 14 E to W JCT 3
North Radial T
ND 200

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-1-200(073)236	110	7

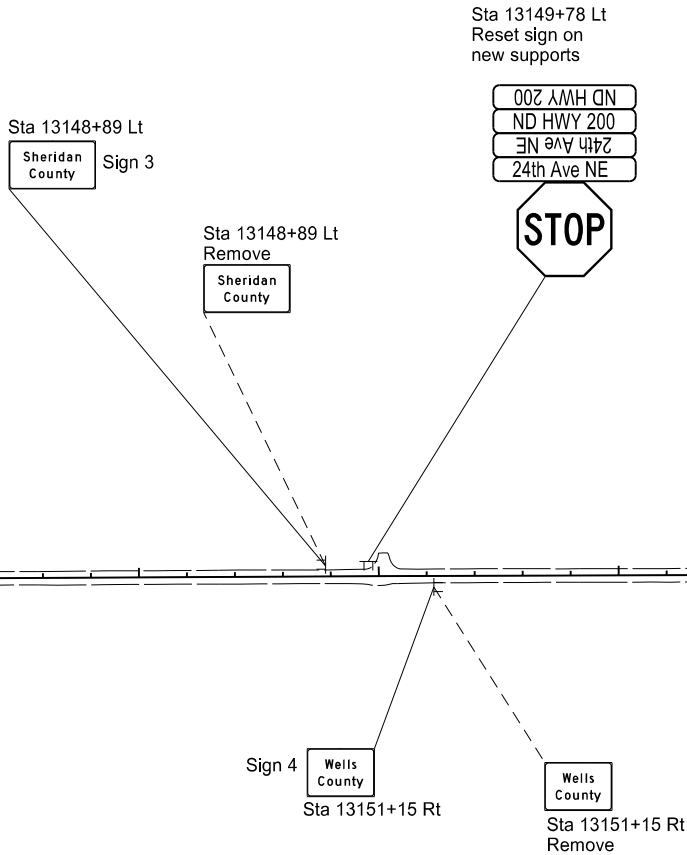
SPEC	CODE	BID ITEM	QTY	UNIT
754	0803	OBJECT MARKER - TYPE III		
		Sta 12955+34 Rt	1	EA
		Sta 12955+43 Lt	1	EA
		Sta 12997+21 Rt	1	EA
		Sta 12997+30 Lt	1	EA
		Sta 13065+77 Rt	1	EA
		Sta 13065+85 Lt	1	EA
		Total	6	EA



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Sign Layout
Sta 12885+00 to Sta 13068+00
JCT 14 E to W JCT 3
ND 200

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-1-200(073)236	110	8



Sta 13187+03 Rt
Reset sign on
new support

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Sign Layout

Sta 13140+00 to Sta 13195+00
JCT 14 E to W JCT 3

ND 200

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-1-200(073)236	110	9



Sta 13251+19 Lt
Reset sign on
new support



Sta 13255+97 Lt
Reset sign on
new support



ND 200

00Z AMH DN
ND HWY 200
EN 26th Ave NE



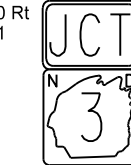
Sta 13256+40 Rt
Reset sign on
new support



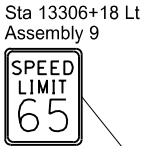
Sta 13296+36 Rt
Remove



Sta 13298+00 Rt
Assembly 391



Sta 13298+00 Rt
Remove



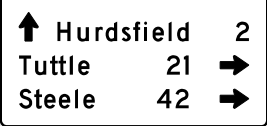
Sta 13306+18 Lt
Assembly 9
R2-1-24



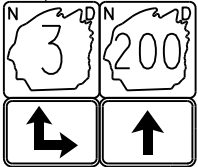
Sta 13306+18 Lt
Remove



Sta 13307+82 Lt
Reset sign on
new support



Sta 13304+73 Rt
Reset sign on
new support



Sta 13306+42 Rt
Reset sign on
new support

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Sign Layout

Sta 13245+00 to Sta 13325+00
JCT 14 E to W JCT 3

ND 200

ND 3

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-1-200(073)236	110	10

SYMBOL	X	Y	WID	HT	ANGL
ND_6IN_TYPE D	49.5	6	6	9	270

[illegible]

SYMBOL	X	Y	WID	HT	ANGL
ND_6IN_TYPE D	7.5	6	6	9	90

[illegible]

STATION(S):
12810+98 Rt

AREA: 8.3 Sq.Ft.

The diagram shows a rectangular sign with a black border and rounded corners. The sign contains the text "Goodrich" in a bold, sans-serif font, followed by a black arrow pointing to the right. Dimensions are provided in inches and tenths of an inch. The overall width is 66 inches, and the overall height is 18 inches. The text "Goodrich" is centered horizontally and vertically. The arrow is positioned to the right of the text. The dimensions are as follows:

- Overall width: 66"
- Overall height: 18"
- Text "Goodrich" width: 50.9"
- Text "Goodrich" height: 6"
- Arrow width: 6"
- Arrow height: 6"
- Left margin: 7.55"
- Right margin: 7.55"
- Top margin: 6"
- Bottom margin: 6"

Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

[illegible][illegible][illegible]

LETTER POSITION (X)																	LENGTH	SIZE	SERIES
W	e	l	l	s													19.6	6/4.5	D 2000
11.2	17.5	22.5	25.6	28															
C	o	u	n	t	y												28.4	6/4.5	D 2000
6.8	12.5	17.8	23.4	28	30.7														

Diagram of a rectangular sign with the text "Sheridan County". The sign has a total width of 54" and a total height of 30". The text "Sheridan" is on the top line and "County" is on the bottom line. The letter locations are defined by dimensions from the panel edge to the lower left corner of each letter: 8.95" for the first letter of each line, 36.1" for the last letter of each line, and 8.95" for the last letter of the bottom line. The vertical dimensions for the letter locations are 6.75" for the top line, 6" for the middle line, 4.5" for the bottom line, and 6.75" for the last letter of the bottom line. The area of the sign is 11.3 Sq.Ft.

STATION(S):
13148+89 Lt

AREA: 11.3 Sq.Ft.

54"

30"

6.75"

6"

4.5"

6"

6.75"

8.95"

36.1"

8.95"

**Sheridan
County**

Dimensions are in inches, tenths

Letter locations are panel edge to lower left corner

STATION(S):
13151+15 Rt

AREA: 8.8 Sq.Ft.

42"

30"

6.75"

6"

4.5"

6"

6.75"

6.8"

28.4"

6.8"

**Wells
County**

Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

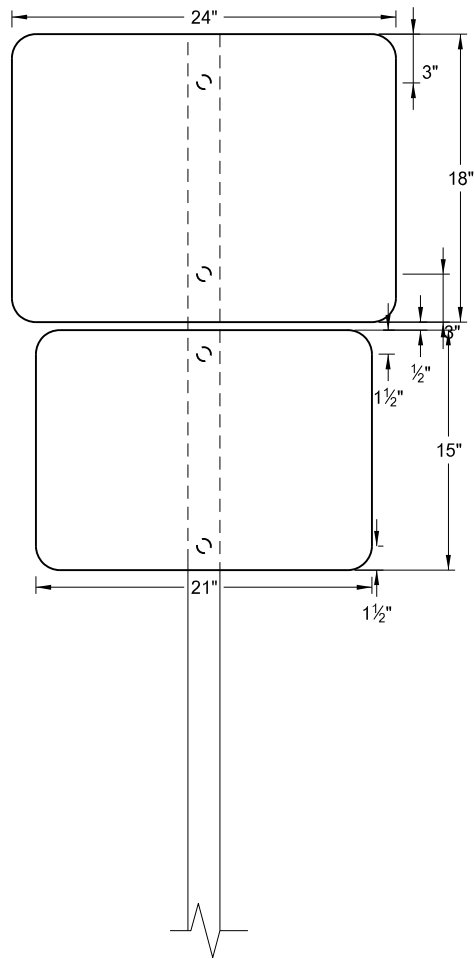
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Sign Details

JCT 14 E to W JCT 3

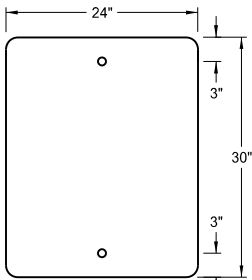
ND 200

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-1-200(073)236	110	11

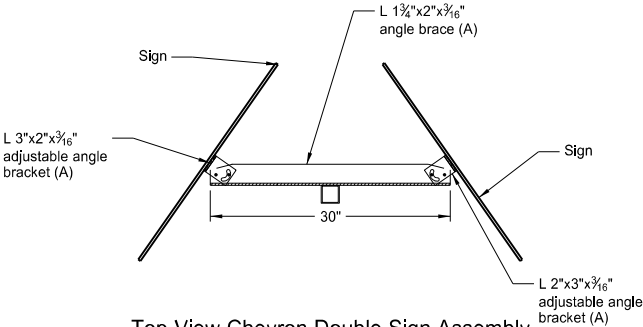


Special Assembly A
Sta 12815+06 Rt
Sta 12818+77 Lt
Sta 12831+04 Lt
Pay Area: 5.2 SF

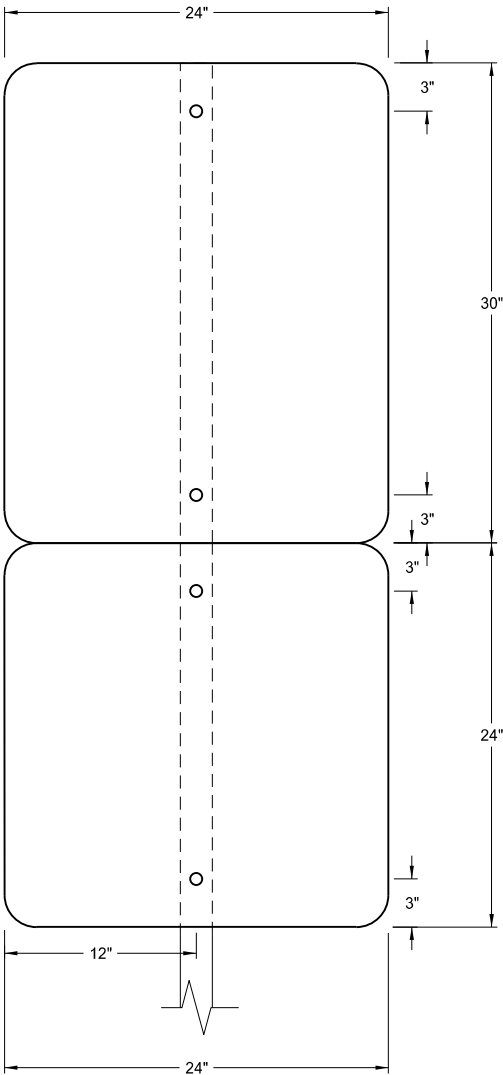
Double Chevron Assembly Details



Chevron Hole Punching



Top View Chevron Double Sign Assembly
(A) All angles shown shall be aluminum or steel. The sizes are the minimum allowed, larger sizes may be used if approved by the Engineer.



Special Assembly B
Sta 6+75 Rt
Pay Area: 8.0 SF

This document was originally issued and sealed by Douglas A. Schumaker, Registration Number PE- 5047, on 08/30/17 and the original document is stored at the North Dakota Department of Transportation

Special Assemblies

JCT 14 E to W JCT 3
North Radial T

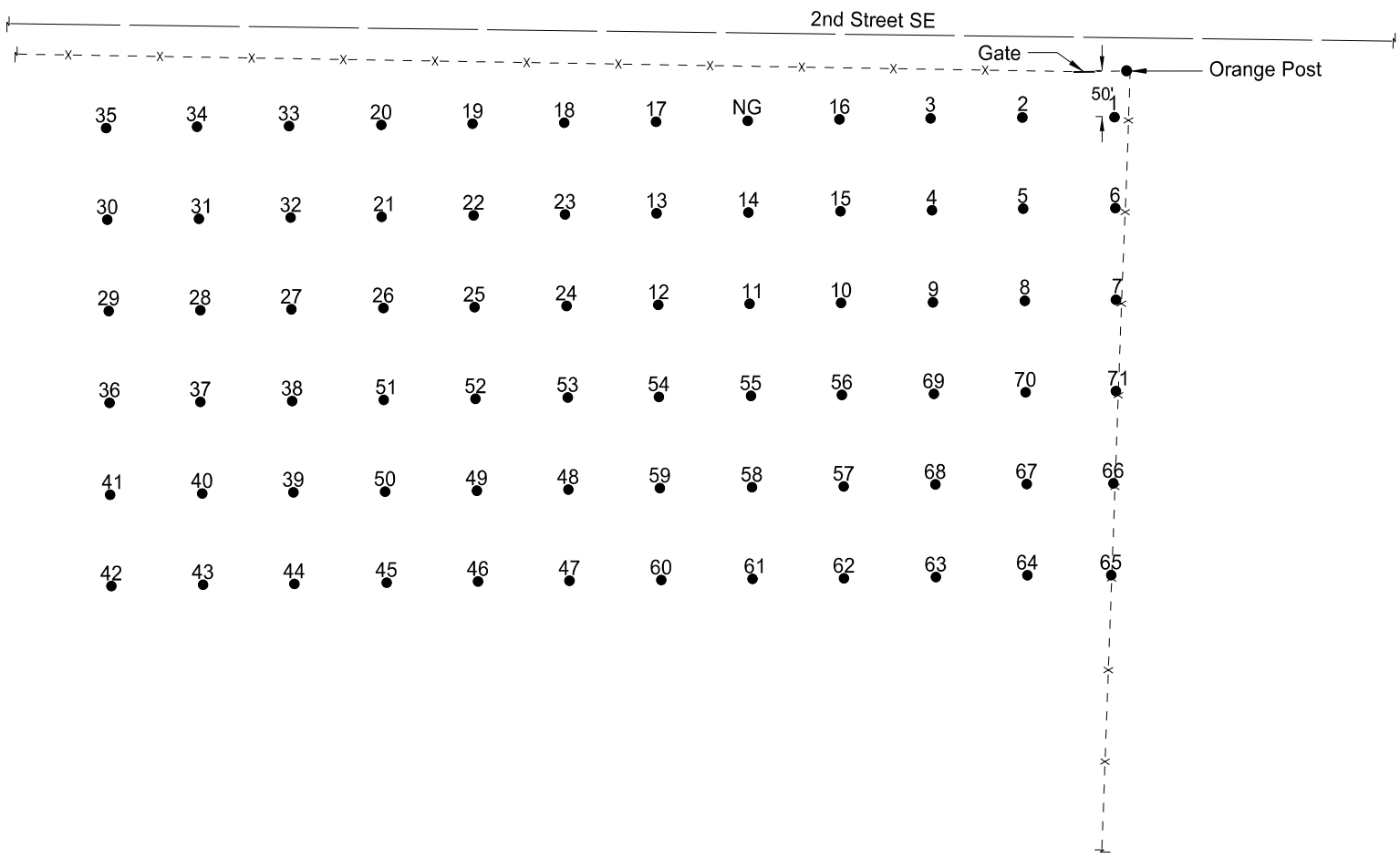
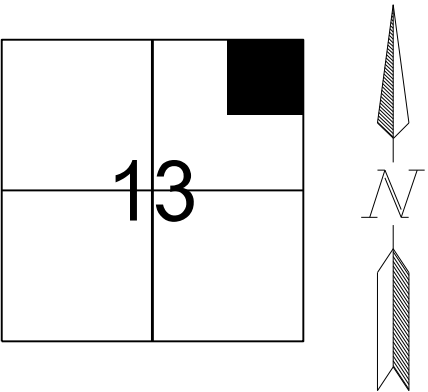
ND 200

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-1-200(073)236	180	1

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

LOCATION OF PIT IN SECTION

TEST HOLE PLAT
Location: NE1/4NE1/4 13-145-74 County: Sheridan
Ownership: Betty Mertz, John Mertz and Terry Mertz



Area "A" consists of Test Holes 1 - 9
Area "B" consists of Test Holes 10 - 17
Area "C" consists of Test Holes 18 - 26
Area "D" consists of Test Holes 27 - 35
Area "E" consists of Test Holes 36 - 44
Area "F" consists of Test Holes 45 - 53
Area "G" consists of Test Holes 54 - 62
Area "H" consists of Test Holes 63 - 71

- Legend:
- gr = gravel
 - sd = sand
 - FS = fine sand
 - Fgr = fine gravel
 - CS = coarse sand
 - sh = shale
 - SiCl = silt clay
 - rk = rock
 - FeO = Iron oxide
 - CoS = Coal Slack
 - WL = water line
 - NG = no gravel
 - DM = disturbed material
 - CGr = coarse gravel

																									STATE	PROJECT NO.		SECTION NO.	SHEET NO.		
																									ND	NH-1-200(073)236		180	2		
PIT LOGGING BY TEST HOLES								PIT LOGGING BY TEST HOLES								PIT LOGGING BY TEST HOLES								PIT LOGGING BY TEST HOLES							
Test Hole No.	Depth of Stripping (Ft)	Depth of Material (Ft)	% Retained on 1½" Screen	% Retained on ¾" Screen	% Retained on 3/8" Screen	% Retained on #4 Screen	Bottom of Test Hole	Test Hole No.	Depth of Stripping (Ft)	Depth of Material (Ft)	% Retained on 1½" Screen	% Retained on ¾" Screen	% Retained on 3/8" Screen	% Retained on #4 Screen	Bottom of Test Hole	Test Hole No.	Depth of Stripping (Ft)	Depth of Material (Ft)	% Retained on 1½" Screen	% Retained on ¾" Screen	% Retained on 3/8" Screen	% Retained on #4 Screen	Bottom of Test Hole	Test Hole No.	Depth of Stripping (Ft)	Depth of Material (Ft)	% Retained on 1½" Screen	% Retained on ¾" Screen	% Retained on 3/8" Screen	% Retained on #4 Screen	
1	2.0	2.0 gr SiCl	0	8	19	30	SiCl	11	2.0	5.0 gr	0	10	20	30	+gr	25	0.5	5.5 Fgr	2	12	23	34	+gr	37	1.0	5.0 gr	1	15	25	36	rk
		1.0 sd SiCl								1.0 Fgr								2.0 gr								4.0 Fgr					
2	1.0	11.0 Fgr	2	9	20	31	+gr			4.0 gr								1.0 Fgr								1.0 gr					
		1.0 FgrSiCl								1.0 Fgr								2.0 gr								2.0 Fgr					
		1.0 Fgr								1.0 gr								3.0 Fgr								4.0 gr					
		2.0 FgrSiCl								1.0 Fgr								3.0 gr						38	1.0	7.0 gr	0	9	19	28	SiCl
		1.0 gr SiCl								2.0 FgrSiCl								3.0 Fgr								4.0 Fgr					
		2.0 gr								3.0 Fgr						26	0.5	7.5 gr	0	11	19	30	+gr			1.0 gr					
		1.0 gr SiCl						12	2.0	1.0 gr	0	3	15	28	+gr			2.0 Fgr								4.0 Fgr					
3	0.5	10.5 Fgr	0	3	8	14	+gr			10.0 Fgr								2.0 gr								1.5 sd sh					
		2.0 gr SiCl								1.0 gr								2.0 Fgr						39	0.5	9.5 gr	1	8	18	27	+gr
		7.0 gr								1.0 FgrSiCl								1.0 gr								3.0 Fgr					
4	1.0	5.0 FgrSiCl	0	0	6	11	+gr			5.0 Fgr								5.0 Fgr								2.0 gr					
		1.0 Fgr						13	0.5	5.5 Fgr	1	6	14	24	SiCl	27	0.5	6.5 gr	4	17	29	40	+gr			5.0 Fgr					
		1.0 FgrSiCl								9.0 gr								5.0 Fgr						40	1.5	3.5 Fgr	0	5	13	22	+gr
		10.0 Fgr								3.0 Fgr								1.0 gr								2.0 gr					
		2.0 FgrSiCl						14	2.0	3.0 Fgr	0	8	22	36	SiCl			2.0 Fgr								10.0 Fgr					
5	1.0	3.0 gr	0	2	8	18	SiCl			2.0 gr								1.5 Fgr sh								3.0 sd					
		2.0 Fgr						15	1.0	3.0 Fgr	0	1	4	7	SiCl			3.5 CGr						41	1.5	2.5 gr	0	4	13	21	+gr
		3.0 gr								3.0 sd sh						28	0.5	4.5 Fgr	4	14	25	34	rk			1.0 Fgr					
		2.0 Fgr								2.0 gr								1.0 gr								2.0 gr					
		2.0 gr SiCl						16	0.5	9.5 Fgr	0	4	11	19	SiCl			6.0 Fgr								6.0 Fgr					
		1.0 Fgr								2.0 gr								3.5 gr								2.0 Fgr sh					
6	1.0	1.0 FgrSiCl	0	3	10	20	SiCl	17	1.0	3.0 Fgr	2	23	36	48	rk	29	2.0	11.0 Fgr	1	11	18	27	rk			1.0 gr					
		6.0 Fgr								5.0 gr								2.0 Fgr sh						42	0.5	2.5 Fgr	0	3	10	16	+gr
		3.0 FgrSiCl						18	1.0	11.0 Fgr	0	3	8	17	SiCl			2.5 CGr								1.0 gr					
		2.5 Fgr								1.0 gr						30	2.0	9.0 Fgr	0	3	10	18	SiCl			6.0 Fgr					
		1.5 FgrSiCl						19	1.5	11.5 Fgr	0	5	9	17	SiCl			1.0 sd sh								2.0 Fgr sh					
7	0.5	1.5 gr	0	0	5	11	SiCl	20	0.5	19.5 Fgr	0	1	7	15	+gr	31	2.0	14.0 Fgr	0	2	9	17	SiCl			1.0 Fgr					
8	0.5	2.5 gr	0	5	13	22	+gr	21	2.0	2.0 gr	0	10	19	27	+gr	32	2.0	11.0 Fgr	0	4	12	21	SiCl			1.0 Fgr sh					
		1.0 Fgr								2.0 Fgr								1.0 sd								1.0 FS					
		1.0 gr								3.0 gr								4.5 Fgr								1.0 Fgr sh					
		2.0 FgrSiCl								1.0 Fgr						33	0.5	11.5 Fgr	0	0	3	10	SiCl			0.5 Fgr					
		2.0 Fgr								2.0 gr								1.0 Fgr sh								1.5 Fgr sh					
		2.0 FgrSiCl								5.0 Fgr								6.0 Fgr								2.0 sd					
		5.0 Fgr								1.0 sd sh						34	3.0	5.0 Fgr	0	2	6	12	+gr	43	1.0	4.0 Fgr	2	6	14	23	+gr
		1.0 gr CoS								1.0 Fgr								1.0 sd								3.0 gr					
		3.0 Fgr								1.0 sd								3.0 Fgr								12.0 Fgr					
9	0.5	2.5 gr	0	13	24	34	+cave	22	1.5	12.5 Fgr	0	3	9	18	SiCl			1.0 CS													
		2.0 FS						23	2.0	8.5 Fgr	0	2	8	15	SiCl			3.0 Fgr													
		2.0 Fgr								0.5 sd								1.0 sd													
		2.0 gr								2.5 Fgr								3.0 Fgr													
		1.0 gr CoS						24	1.0	6.0 gr	3	11	22	34	+gr	35	2.0	10.0 Fgr	0	1	4	9	SiCl								
		1.0 gr								1.0 Fgr						36	2.0	12.0 Fgr	1	11	19	27	+gr								
		4.0 CGr								6.0 gr								1.0 FgrSiCl													
10	0.5	2.5 gr	0	6	15	27	SiCl			2.0 CGr								2.0 sd sh													
		2.0 Fgr								4.0 gr								1.0 sd													
		1.0 gr																2.0 gr													
		5.0 Fgr																													

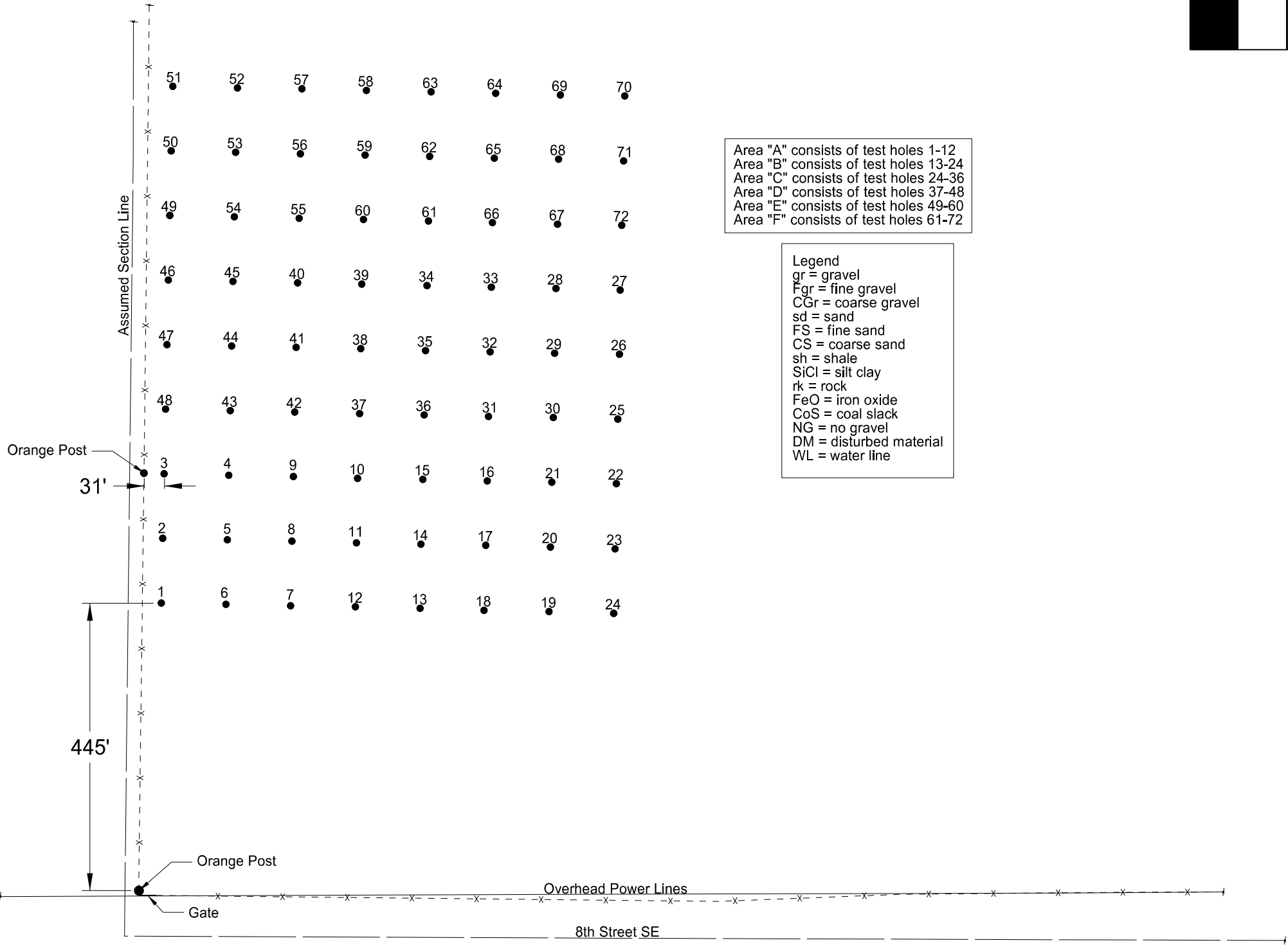
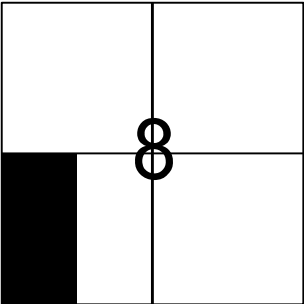
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-1-200(073)236	180	4

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

LOCATION OF PIT IN SECTION

TEST HOLE PLAT

Location: W1/2SW1/4 8-144-71 County: Kidder
Ownership: Karen Hirschert



Area "A" consists of test holes 1-12
Area "B" consists of test holes 13-24
Area "C" consists of test holes 25-36
Area "D" consists of test holes 37-48
Area "E" consists of test holes 49-60
Area "F" consists of test holes 61-72

Legend
gr = gravel
Fgr = fine gravel
CGr = coarse gravel
sd = sand
FS = fine sand
CS = coarse sand
sh = shale
SiCl = silt clay
rk = rock
FeO = iron oxide
CoS = coal slack
NG = no gravel
DM = disturbed material
WL = water line

[illegible]

																									STATE	PROJECT NO.			SECTION NO.	SHEET NO.						
																									ND	NH-1-200(073)236			180	7						
PIT LOGGING BY TEST HOLES								PIT LOGGING BY TEST HOLES								PIT LOGGING BY TEST HOLES								PIT LOGGING BY TEST HOLES												
Test Hole No.	Depth of Stripping (Ft)	Depth of Material (Ft)	% Retained on 1½" Screen	% Retained on ¾" Screen	% Retained on 3/8" Screen	% Retained on #4 Screen	Bottom of Test Hole	Test Hole No.	Depth of Stripping (Ft)	Depth of Material (Ft)	% Retained on 1½" Screen	% Retained on ¾" Screen	% Retained on 3/8" Screen	% Retained on #4 Screen	Bottom of Test Hole	Test Hole No.	Depth of Stripping (Ft)	Depth of Material (Ft)	% Retained on 1½" Screen	% Retained on ¾" Screen	% Retained on 3/8" Screen	% Retained on #4 Screen	Bottom of Test Hole	Test Hole No.	Depth of Stripping (Ft)	Depth of Material (Ft)	% Retained on 1½" Screen	% Retained on ¾" Screen	% Retained on 3/8" Screen	% Retained on #4 Screen	Bottom of Test Hole					
49	1.0	1.0 gr	0	9	20	32	+gr	56	1.0	2.0 gr	2	14	25	35	+gr	63	1.0	9.0 Fgr	0	11	22	32	+gr	70	0.5	2.5 gr	0	10	18	28	+gr					
		1.0 Fgr								3.0 Fgr								2.0 gr								3.5 Fgr										
		2.0 FS								2.0 gr								1.0 Fgr								0.5 FS										
		2.0 gr								1.0 Fgr								2.0 gr								4.0 gr										
		2.0 Fgr								3.0 gr								4.0 Fgr								2.0 FS										
		2.0 gr								1.0 Fgr								1.0 gr								7.0 gr										
		1.0 Fgr								7.0 gr						64	1.0	3.0 Fgr	0	12	20	30	+gr	71	1.5	0.5 Fgr	0	10	21	31	+gr					
		5.0 gr						57	2.0	6.0 Fgr	0	9	21	30	+gr			1.0 FS								1.0 gr										
		2.0 Fgr								3.0 gr								3.0 Fgr								7.0 Fgr										
		1.0 gr								1.0 sd								7.0 gr								2.0 gr										
50	1.0	7.0 Fgr	0	13	26	36	+gr			1.0 Fgr								3.0 Fgr								6.0 Fgr										
		2.0 gr								3.0 gr								2.0 gr								2.0 gr										
		1.0 Fgr								2.0 sd						65	1.0	7.0 Fgr	0	11	22	31	+gr	72	0.5	2.5 gr	1	12	22	32	+gr					
		4.0 gr								2.0 Fgr								2.0 gr								6.0 Fgr										
		2.0 Fgr						58	1.0	1.0 gr	0	10	20	31	+gr			1.0 Fgr								6.0 gr										
		1.0 gr								4.0 Fgr								4.0 gr								1.0 Fgr										
		2.0 Fgr								3.0 gr								4.0 Fgr								4.0 gr										
51	1.0	4.0 Fgr	0	11	23	31	+gr			1.0 Fgr								1.0 gr																		
		2.0 gr								2.0 gr						66	3.0	2.0 gr	0	8	19	30	+gr													
		1.0 sd								2.0 CGr								4.0 Fgr																		
		2.0 Fgr								6.0 gr								2.0 gr																		
		10.0 gr						59	1.0	4.0 Fgr	0	13	24	33	+gr			1.0 Fgr																		
52	2.0	1.0 Fgr	1	16	26	35	+gr			1.0 sd								5.0 gr																		
		1.0 sd								1.0 Fgr								1.0 Fgr																		
		15.0 Fgr								1.0 FS								1.0 FS																		
		1.0 gr								2.0 gr								1.0 gr																		
53	1.0	1.0 gr	1	13	23	33	+gr			5.0 Fgr						67	0.5	9.5 Fgr	1	13	25	37	+gr													
		6.0 Fgr								1.0 gr								5.0 gr																		
		4.0 gr								4.0 Fgr								2.0 Fgr																		
		1.0 Fgr						60	2.0	3.0 Fgr	1	9	20	30	+gr			1.0 gr																		
		7.0 gr								1.0 gr								2.0 Fgr																		
54	2.0	5.0 Fgr	1	13	23	32	+gr			2.0 Fgr						68	0.5	2.5 gr	0	8	17	28	+gr													
		2.0 gr								1.0 sd								1.0 sd																		
		1.0 Fgr								8.0 gr								2.0 Fgr																		
		1.0 gr								2.0 Fgr								1.0 sd																		
		2.0 Fgr								1.0 gr								2.5 Fgr																		
		1.0 gr						61	3.0	1.0 gr	0	15	27	37	+gr			0.5 CS																		
		2.0 Fgr								7.0 Fgr								2.0 gr																		
		4.0 gr								2.0 gr								1.0 Fgr																		
55	4.0	9.0 Fgr	0	11	22	31	+gr			2.0 Fgr								7.0 gr																		
		1.0 gr								1.0 gr						69	3.0	5.0 Fgr	1	16	28	38	+gr	RANGE <u>71</u> TWP <u>144</u> SEC <u>8</u> COUNTY <u>Kidder</u> <u>Aug-15</u> PROSPECTED BY <u>Rogstad/Usher</u> INSPECTED & APPROVED <u>Jeffrey Swank</u> <u>Aug-15</u>												
		3.0 Fgr								2.0 Fgr								3.0 gr																		
		1.0 sd								2.0 gr								1.0 sd																		
		1.0 gr						62	1.0	2.0 gr	0	12	23	34	+gr			1.0 gr																		
		1.0 Fgr								2.0 Fgr								3.0 Fgr																		
										1.0 sd								4.0 gr																		
										14.0 gr																										