

DESIGN DATA RP 67.71 to RP 73.86			
Traffic	Average Daily		
Current 2014	Pass: 585	Trucks: 170	Total: 755
Forecast 2034	Pass: 875	Trucks: 255	Total: 1130
Clear Zone Distance: 20 ft		Design Speed: 65 mph	
Minimum Sight Dist. for Stopping: 645 ft		Bridges:	
Sight Dist. for No Passing Zone: 1100 ft			
Pavement Design Life (years)			
Design Accumulated One-way ESALs:			
DESIGN DATA RP 73.86 to RP 82.33			
Traffic	Average Daily		
Current 2014	Pass: 1350	Trucks: 315	Total: 1665
Forecast 2034	Pass: 2015	Trucks: 470	Total: 2485
Clear Zone Distance: 42 ft		Design Speed: 65 mph	
Minimum Sight Dist. for Stopping: 645 ft		Bridges:	
Sight Dist. for No Passing Zone: 1100 ft			
Pavement Design Life 20 (years)			
Design Accumulated One-way Flexible ESALs: 1,152,910			

JOB # 20 NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

SS-NH-1-049(027)067
 Morton County
 Glen Ullin E & N to County Line
 Widening, Sliver Grading, HBP Overlay
 Milling, Guardrail, Bridge Overlay

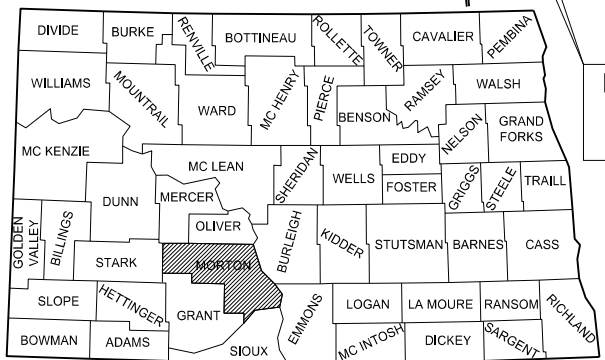
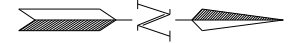
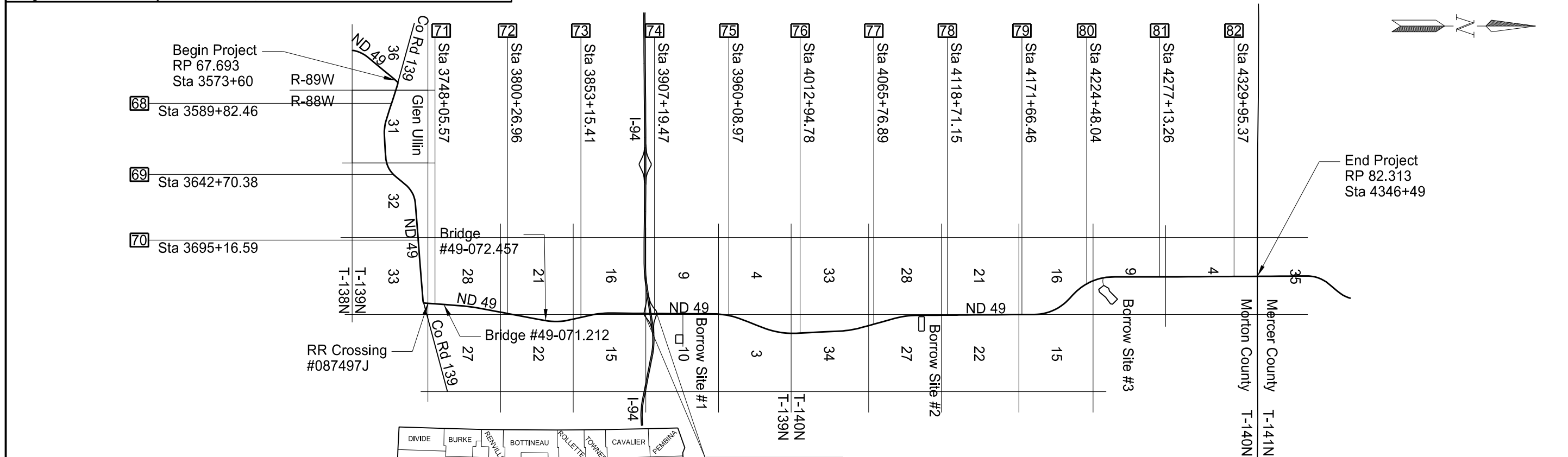
STATE	PROJECT NO.	PCN	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	20677	1	1

GOVERNING SPECIFICATIONS:

2014 Standard Specifications adopted by the North Dakota Department of Transportation and the Supplemental Specifications effective on the date the project is advertised.

PROJECT NUMBER \ DESCRIPTION	NET MILES	GROSS MILES
SS-NH-1-049(027)067	14.344	14.639

0.295 miles deducted for Exception.



Exception 0.295 Mi
Sta 3896+41 to
Sta 3912+00

DESIGNERS
Sarah BaeHurst
Brian Rosin

APPROVED DATE 10/26/16
 Roger Weigel
 OFFICE OF PROJECT DEVELOPMENT
 ND DEPARTMENT OF TRANSPORTATION

I hereby certify that the attached plans were prepared by me or under my direct supervision and that I am a duly registered professional engineer under the laws of the state of ND.
 APPROVED DATE 10/26/16
 James Douglas Rath
 NDDOT DESIGN DIVISION

This document was originally issued and sealed by James Douglas Rath Registration Number PE- 4288, on 10/26/16 and the original document is stored at the North Dakota Department of Transportation

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SPECIAL PROVISIONS

Number	Description
SP 0003(14)	Temporary Erosion and Sediment Best Management Practices
SP 0004(14)	Federal Migratory Bird Treaty Act
SP 317(14)	Flexible Pavement Surface Tolerance
SP 5121(14)	Permits and Environmental Considerations

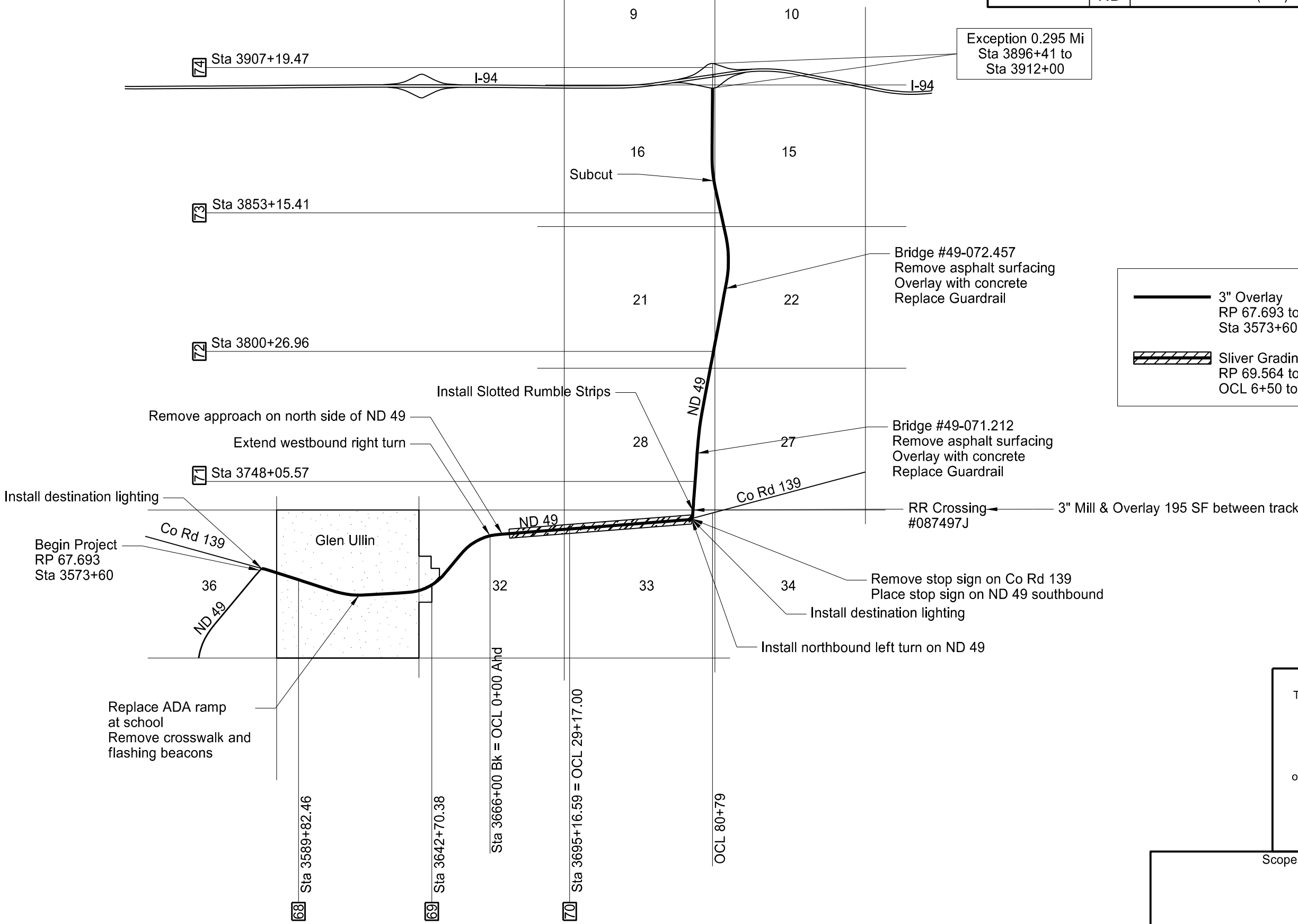
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LIST OF STANDARD DRAWINGS

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D-101-1, 2, 3	NDDOT Abbreviations
D-101-10	NDDOT Utility Company and Organization Abbreviations
D-101-20, 21	Line Styles
D-101-30, 31, 32	Symbols
D-203-7	Recovery Approaches At T-Intersections
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D-260-1	Erosion And Siltation Controls - Silt Fence
D-261-1	Erosion Control - Fiber Roll Placement Details
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D-704-5	Contractor Sign Detail
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D-704-15	Road Closure Layouts
D-704-16	Lane Closure On A Two Lane Road Using Traffic Control Signals
D-704-17	Sign Layout For One Lane Closure Two Lane Roadway
D-704-20	Terminal And Seal Coat Sign Layouts
D-704-22	Construction Truck And Temporary Detour Layouts
D-704-24	Shoulder Closures And Bridge Painting Layouts
D-704-26	Miscellaneous Sign Layouts
D-704-27	Traffic Control Plan For Moving Operations
D-704-30	Windrow Marking
D-704-50	Portable Sign Support Assembly
D-704-56	Mobile Operation - Grinding Shoulder Rumble Strips
D-706-1	Bituminous Laboratory
D-708-6	Erosion And Siltation Controls - Median Or Ditch Inlet Protection
D-714-1	Reinforced Concrete Pipe Culverts And End Sections (Round Pipe)
D-714-22	Concrete Pipe Or Precast Concrete Box Culvert Ties
D-714-25	Transverse Mainline Pipe Installation Detail for Pipes More Than 4 Feet Below Top of the Proposed Subgrade
D-714-26	Transverse Mainline Pipe Installation Detail for Pipes 4 Feet or Less Below Top of the Proposed Subgrade
D-720-1	Standard Monuments And Right Of Way Markers
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D-754-19	(Conventional Use) Reference Markers
D-754-23	Perforated Tube Assembly Details
D-754-24, 25	Mounting Details Perforated Tube

Number	Description
D-754-24A	Breakaway Coupler System For Perforated Tubes
D-754-26, 27, 28, 29, 32, 37	Sign Punching, Stringer And Support Location Details Regulatory, Warning, And Guide Signs
D-754-47, 48, 49, 50	Sign Punching, Stringer And Support Location Details For Variable Length Signs
D-754-51, 53, 58, 60, 72, 74	Sign Punching, Stringer And Support Location Details - Route Marker Signs
D-754-86	911 Sign Support Information And Sign Details
D-754-87	Sign Punching, Stringer And Support Location Details For Street Name Signs And 911 Signs
D-760-3	Rumble Strips Undivided Highways (Shoulders 4' Or Greater)
D-760-4	Rumble Strips Undivided Highways (Shoulders Less Than 4')
D-760-5	Saw Slotted Rumble Strips At Intersections
D-762-1	Pavement Marking Message Details
D-762-4	Pavement Marking
D-762-11	Short-Term Pavement Marking
D-764-1	W-Beam Guardrail General Details
D-764-6	Flared Energy Absorbing Terminal
D-764-7	Slotted Rail Terminal
D-764-10	Thrie Beam Transition To Double Box Beam Retrofit
D-764-20	Short Term End Treatment For Bridges (Attenuation Device Method)
D-764-22	Typical Grading At Bridge Ends With W-Beam Guardrail
D-770-2	Feed Points (Roadway Lighting)
D-772-7	Flashing Beacon

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Exception 0.295 Mi
Sta 3896+41 to
Sta 3912+00

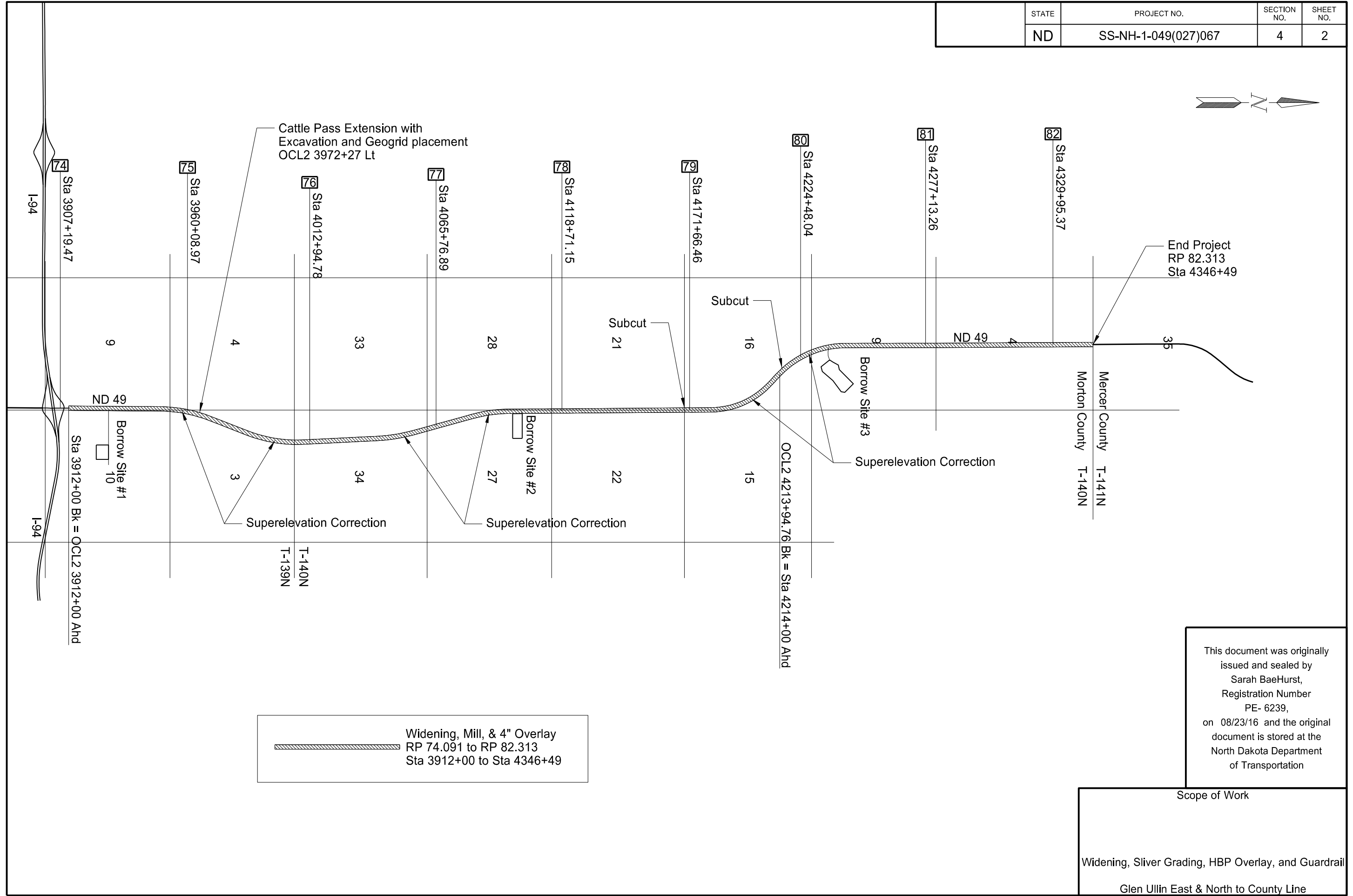
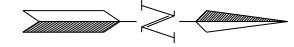
 3" Overlay
 RP 67.693 to RP 73.796
 Sta 3573+60 to Sta 3896+41
 Sliver Grading & 3" Overlay
 RP 69.564 to E on Co Rd 139
 OCL 6+50 to OCL 80+12




This document was originally issued and sealed by Sarah BaeHurst, Registration Number PE- 6239, on 08/23/16 and the original document is stored at the North Dakota Department of Transportation

Scope of Work
Widening, Sliver Grading, HBP Overlay, and Guardrail
Glen Ullin East & North to County Line

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	4	2




 Widening, Mill, & 4" Overlay
 RP 74.091 to RP 82.313
 Sta 3912+00 to Sta 4346+49

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Scope of Work
 Widening, Sliver Grading, HBP Overlay, and Guardrail
 Glen Ullin East & North to County Line

NOTES

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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100-P01 FIBER OPTIC LINE PROTECTION: Protect in place the fiber optic line at the cattle pass extension at OCL2 Sta 3972+84 Rt.

107-115 RAILROAD PROTECTIVE LIABILITY INSURANCE: This project crosses the BNSF Railway Company at RP 70.894. The type of work that will be performed within the railroad right of way is milling and bituminous paving. Direct inquiries regarding protective liability insurance to:

Rosa Martinez
Marsh USA Inc.
4400 Comerica Bank Tower
1717 Main Street
Dallas, TX 75201-7357, USA
214-303-8519
Rosa.M.Martinez@marsh.com

Obtain information regarding crossing number 087497J from the Federal Railroad Administration website: <http://safetydata.fra.dot.gov/Officeofsafety/>

202-P01 REMOVAL OF PAVEMENT: Cut and remove the existing bituminous and aggregate material, as shown on the proposed typical sections.

Include all cost for the removal of the existing aggregate material in the unit price bid for "Removal of Pavement." The quantity includes the bituminous surfacing and aggregate base.

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

203-P01 COMMON EXCAVATION-TYPE C: The Engineer will measure Common Excavation-Type C at plan quantity.

255-P01 EROSION CONTROL BLANKET (ECB): 178 SY of ECB Type 2 has been provided for use on the 2:1 proposed slope at the cattle pass extension at OCL2 3972+27 Left.

261-P01 TEMPORARY EROSION CONTROL: It is assumed that the contractor will use the existing topsoil to create an earthen berm at the bottom of the foreslope in widened areas. The earthen berm, along with the grass remaining in the ditch and fiber rolls will serve as the temporary erosion control. The earthen berm is not a separate pay item, all costs associated with creating, maintaining, and dismantling the berm are included in the unit cost for "Topsoil".

The berm will have a minimum height of 12 inches and be uniformly shaped in such a way that it will not fail when pressure from stormwater is applied. When the foreslope has reached final grade, the earthen berm shall be removed and the soil spread on the foreslope before the permanent seeding and mulching work is commenced. To allow stormwater to drain through the berm, weirs may be placed intermittently as needed throughout the length of the berm. These weirs shall be no more than 5 feet wide and have fiber rolls installed across the weir on the downslope side of the berm. If a weir must be made during conditions that would allow stormwater to flow through immediately, the fiber roll must be installed before the weir is made in the earthen berm. Fiber rolls at the weirs are included in the associated costs for "Topsoil".

261-P02 TEMPORARY EROSION CONTROL WITHIN WETLANDS: Fiber rolls and Silt Fence have been provided for placement at the back-side of the earthen berm at the perimeter of the work area at wetlands. If there is no standing water within the adjacent wetland, immediate seeding and mulching of the earthen berm may replace the fiber roll. If seed/mulch is not immediately applied, fiber rolls are required. Fiber rolls will still be required at the weirs within the berm. Temporary seed mix and mulch for this use will be paid for as "Temporary Cover Crop" and "Straw Mulch".

430-P01 SUPERPAVE FAA 45 - BLADE LEVELING: In the area from the project beginning to RP 73.796, use approximately 1/4" of the 3" overlay for blade leveling before the overlay is applied. Place the blade leveling in a single motor grader pass across the full width of the lane and shoulder. Compact the material with a pneumatic roller prior to the overlay. Include all costs associated with blade leveling in the bid price for "Superpave FAA 45" and "PG 58-28 Asphalt Cement"

704-200 PRECAST CONCRETE MEDIAN BARRIERS – STATE FURNISHED: Obtain 18 barriers from the District Storage Yard at Belfield. Return barriers to the District Storage Yard at Belfield.

Some 4 inch x 4 inch boards are available at the return location. Provide any additional 4 inch x 4 inch boards necessary to stack barriers. The boards will become property of the Department. Include the cost for boards in the contract unit price for "Precast Concrete Median Barrier - State Furnished".

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

Place the following sign assembly at the locations listed below.

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

Locations:

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

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

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

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

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

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

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

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

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

704-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-704-12;
2. Standard D-704-15, layout A;
3. Standard D-704-16,
4. Standard D-704-17,
5. Standard D-704-20, layout G;
6. Standard D-704-22, layouts K and L;
7. Standard D-704-24, layouts R and S (use delineator drums in place of cones);
8. Standard D-704-26, layouts BB, EE, GG, and KK;
9. Standard D-704-27;
10. Standard D-704-30; and
11. Standard D-704-56.

When installing layout G from Standard D-704-20, move sign W-3-5-48 and the sign assembly containing signs R2-1-48 and R2-1a-24 with the work area as it progresses through the construction zone. Place the R2-1-48 assembly a minimum of 500 feet in advance of flagging signs.

Place flaggers and traffic control devices as shown on Standard D-704-15, layout A at the following intersections when the lane closure spans across them:

1. West Jct County Road 139 and ND 49
2. East Jct 41st St and ND 49
3. East Jct County Road 139 and ND 49
4. East and West Jct County Road 140

714-P01 PIPE CLEANOUT: Clean out all centerline 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 pipes in the bid price for centerline pipe.

752-P02 TEMPORARY SAFETY FENCE: Use temporary safety fence at cattle passes when removing and resetting existing fence as necessary. A quantity of 50 LF has been provided.

754-P01 STOP SIGNS - REFLECTIVE STRIPS: Install 2 inch wide red reflective strip on the side that faces the same direction as the sign.

Use reflective material that meets the requirements of Section 894.02 C, "Type IV Retroreflective Sheeting".

Install the strips on STOP signs at the following locations:
- RP 70.860 Lt

Include the cost of furnishing and installing retroreflective strips in the contract unit price for "Steel Galvanized Posts – Telescoping Perforated Tube".

770-P01 DESTINATION LIGHT LUMINAIRE: Provide the following destination light luminaire:

American Electric Autobahn ATBS LED Luminaire with drop refractor. Catalog Number: ATBS H MVOLT D3, no photo control on luminaire.

Include all cost associated with the destination light LED luminaire in the bid price for "Destination Lighting".

885-001 CAST IRON DETECTABLE WARNING PANELS: If cast iron detectable warning panels are used, provide cast iron panels with a minimum thickness of 0.2 inches.

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ENVIRONMENTAL NOTES

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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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 AVOIDANCE AREAS: The Project Engineer will contact Jeani Borchert of the Environmental and Transportation Services Division to coordinate a field meeting to verify and outline the limits of the avoidance areas. The avoidance locations are at both sides of the highway from RP 71.80 to RP 72.09 (approximate Sta 3796+00 to Sta 3804+02) and west side of the highway from RP 80.76 – RP 80.96 (approximate Sta 4263+98 to Sta 4269+09). This avoidance area within the right-of-way must not be disturbed and will be fenced prior to commencement of any construction. Provide the fence and fence posts, install the fence in the location designated in the plans, maintain the fence, and remove the fence upon completion of the project. A quantity of 2010 LF of safety fence has been included for this purpose. All costs to provide, place, maintain, and remove the fence shall be included in the price bid for “Temporary Safety Fence.”

Jeani Borchert
701-328-4378
jborcher@nd.gov

EN-2 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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ND	SS-NH-1-049(027)067	8	1

SPEC CODE	ITEM DESCRIPTION	UNIT	MAINLINE	TOTAL
-----	-----	-----	-----	-----
103	0100 CONTRACT BOND	L SUM	1	1
107	0103 RAILWAY PROTECTION INSURANCE-SITE 1	EA	1	1
202	0101 REMOVAL OF CONCRETE	EA	1	1
202	0136 REMOVAL OF PAVEMENT	TON	3,175	3,175
202	0169 REMOVAL OF END SECTION-ALL TYPES & SIZES	EA	46	46
202	0174 REMOVAL OF PIPE ALL TYPES AND SIZES	LF	276	276
203	0101 COMMON EXCAVATION-TYPE A	CY	155	155
203	0103 COMMON EXCAVATION-TYPE C	CY	293	293
203	0109 TOPSOIL	CY	51,144	51,144
203	0122 TOPSOIL-DEPT OPTION BORROW AREA	CY	24,402	24,402
203	0138 COMMON EXCAVATION-SUBCUT	CY	2,816	2,816
203	0140 BORROW-EXCAVATION	CY	150,974	150,974
216	0100 WATER	M GAL	4,424	4,424
230	0125 SHOULDER PREPARATION	MILE	4.8	4.8
251	0200 SEEDING CLASS II	ACRE	112.6	112.6
251	2000 TEMPORARY COVER CROP	ACRE	164.6	164.6
253	0101 STRAW MULCH	ACRE	194.9	194.9
255	0102 ECB TYPE 2	SY	1,406	1,406
260	0200 SILT FENCE SUPPORTED	LF	11,371	11,371
260	0201 REMOVE SILT FENCE SUPPORTED	LF	11,371	11,371
261	0112 FIBER ROLLS 12IN	LF	6,678	6,678
261	0113 REMOVE FIBER ROLLS 12IN	LF	2,598	2,598
265	0100 STABILIZED CONSTRUCTION ACCESS	EA	3	3
265	0101 REMOVE STABILIZED CONSTRUCTION ACCESS	EA	3	3
302	0120 AGGREGATE BASE COURSE CL 5	TON	39,904.7	39,904.7
302	0318 AGGREGATE SURFACE COURSE CL 4	TON	8,221	8,221
401	0050 TACK COAT	GAL	28,801	28,801
401	0060 PRIME COAT	GAL	9,125.1	9,125.1
411	0105 MILLING PAVEMENT SURFACE	SY	127,634	127,634
430	0045 SUPERPAVE FAA 45	TON	56,374.3	56,374.3
430	1000 CORED SAMPLE	EA	310	310
430	5828 PG 58-28 ASPHALT CEMENT	TON	3,327	3,327
602	0130 CLASS AAE-3 CONCRETE	CY	1	1

ESTIMATE OF QUANTITIES

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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SPEC CODE	ITEM DESCRIPTION	UNIT	MAINLINE	TOTAL
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624	3005 CONNECTION PLATE MODIFICATION	EA	8	8
650	0704 OVERLAY CONCRETE	CY	33	33
650	0710 CLASS 1-H REMOVAL	SY	601	601
650	0711 CLASS 2-H REMOVAL	SY	46	46
650	0712 CLASS 3-H REMOVAL	SY	7	7
702	0100 MOBILIZATION	L SUM	1	1
704	0100 FLAGGING	MHR	2,000	2,000
704	1000 TRAFFIC CONTROL SIGNS	UNIT	3,631	3,631
704	1018 LANE CLOSURE-SIGNAL CONTROL/FLAGGING CONTROL	EA	2	2
704	1043 ATTENUATION DEVICE-TYPE B-65	EA	4	4
704	1052 TYPE III BARRICADE	EA	6	6
704	1060 DELINEATOR DRUMS	EA	136	136
704	1067 TUBULAR MARKERS	EA	82	82
704	1080 STACKABLE VERTICAL PANELS	EA	65	65
704	1185 PILOT CAR	HR	1,000	1,000
704	1500 OBLITERATION OF PAVEMENT MARKING	SF	207	207
704	3510 PRECAST CONCRETE MED BARRIER-STATE FURNISHED	EA	18	18
706	0500 AGGREGATE LABORATORY	EA	1	1
706	0550 BITUMINOUS LABORATORY	EA	1	1
706	0600 CONTRACTOR'S LABORATORY	EA	1	1
709	0100 GEOSYNTHETIC MATERIAL TYPE G	SY	7,375	7,375
709	0151 GEOSYNTHETIC MATERIAL TYPE R1	SY	2,904	2,904
714	0310 PIPE CONC REINF 18IN CL III	LF	26	26
714	0400 PIPE CONC REINF 21IN CL III	LF	24	24
714	0615 PIPE CONC REINF 24IN CL III	LF	122	122
714	0820 PIPE CONC REINF 30IN CL III	LF	52	52
714	0905 PIPE CONC REINF 36IN CL III	LF	94	94
714	1310 PIPE CONC REINF 60IN CL III	LF	30	30
714	3010 END SECT-CONC REINF 18IN	EA	1	1
714	3013 END SECT-TRAVERSABLE REINF. CONC.18IN	EA	3	3
714	3015 END SECT-CONC REINF 21IN	EA	1	1
714	3018 END SECT-TRAVERSABLE REINF. CONC.21IN	EA	3	3
714	3020 END SECT-CONC REINF 24IN	EA	1	1

ESTIMATE OF QUANTITIES

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	8	3

SPEC CODE	ITEM DESCRIPTION	UNIT	MAINLINE	TOTAL
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714	3023 END SECT-TRAVERSABLE REINF. CONC.24IN	EA	7	7
714	3033 END SECT-TRAVERSABLE REINF. CONC.30IN	EA	5	5
714	3036 END SECT-TRAVERSABLE REINF. CONC.36IN	EA	7	7
714	4099 PIPE CONDUIT 18IN-APPROACH	LF	110	110
714	4106 PIPE CONDUIT 24IN-APPROACH	LF	64	64
714	4113 PIPE CONDUIT 30IN-APPROACH	LF	74	74
714	9200 CATTLE PASS CONC INTERMED SECTION	LF	194	194
714	9350 END SECTION CONC CATTLE PASS	EA	10	10
714	9656 INSTALL END SECTION-ALL TYPES & SIZES	EA	8	8
714	9660 REMOVE & RELAY END SECTION-ALL TYPE & SIZES	EA	8	8
720	0110 RIGHT OF WAY MARKERS	EA	216	216
720	0125 ALIGNMENT MONUMENTS	EA	46	46
720	0130 IRON PIN R/W MONUMENTS	EA	156	156
720	0135 IRON PIN REFERENCE MONUMENTS	EA	59	59
750	0100 SIDEWALK CONCRETE	SY	12	12
750	2115 DETECTABLE WARNING PANELS	SF	12	12
752	0911 TEMPORARY SAFETY FENCE	LF	2,060	2,060
752	0922 FENCE REMOVE & RESET	LF	120	120
754	0110 FLAT SHEET FOR SIGNS-TYPE XI REFL SHEETING	SF	217	217
754	0112 FLAT SHEET FOR SIGNS-TYPE IV REFL SHEETING	SF	333	333
754	0206 STEEL GALV POSTS-TELESCOPING PERFORATED TUBE	LF	1,443	1,443
754	0562 REFERENCE MARKER-TYPE B	EA	15	15
754	0592 RESET SIGN PANEL	EA	32	32
754	0593 RESET SIGN SUPPORT	EA	7	7
754	0805 OBJECT MARKERS - CULVERTS	EA	46	46
760	0005 RUMBLE STRIPS - ASPHALT SHOULDER	MILE	26	26
760	0007 RUMBLE STRIPS - ASPHALT CENTERLINE	MILE	13	13
760	0010 RUMBLE STRIPS - INTERSECTION	SET	1	1
762	0103 PVMT MK PAINTED-MESSAGE	SF	361	361
762	0113 EPOXY PVMT MK 4IN LINE	LF	108,223	108,223
762	0420 SHORT TERM 4IN LINE-TYPE R	LF	3,560	3,560
762	0426 SHORT TERM 24IN LINE-TYPE R	LF	24	24
762	0430 SHORT TERM 4IN LINE-TYPE NR	LF	104,757	104,757

ESTIMATE OF QUANTITIES

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	8	4

SPEC CODE	ITEM DESCRIPTION	UNIT	MAINLINE	TOTAL
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762 1104	PVMT MK PAINTED 4IN LINE	LF	81,536	81,536
762 1108	PVMT MK PAINTED 8IN LINE	LF	994	994
762 1124	PVMT MK PAINTED 24IN LINE	LF	54	54
764 0131	W-BEAM GUARDRAIL	LF	466	466
764 0145	W-BEAM GUARDRAIL END TERMINAL	EA	8	8
764 0151	REMOVE W-BEAM GUARDRAIL & POSTS	LF	915	915
764 1050	RESET W-BEAM GUARDRAIL	LF	450	450
764 2081	REMOVE END TREATMENT & TRANSITION	EA	8	8
766 0100	MAILBOX-ALL TYPES	EA	9	9
770 0007	DESTINATION LIGHTING	EA	2	2
772 3150	REMOVE FLASHING BEACON SYSTEM	EA	3	3

BASIS OF ESTIMATE

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	10	1

Material	Unit	Stations		Stations		Stations		Stations		Stations		Stations		Stations		
		Width (ft)	Quantity per Station	Quantity Total	Width (ft)	Quantity Per Station	Width (ft)	Quantity Per Station	Width (ft)	Quantity per Station	Quantity Total	Quantity Total	Width (ft)	Quantity per Station	Width (ft)	Quantity per Station
Milling Pavement Surface	SY	-	-	-	-	-	-	-	-	-	22	-	-	26.0	288.9	
Water @ 20 Gal/Ton of Aggregate	MGal	-	0.15	9.75	-	0.08	-	0.18	-	1.33	41.3	-	0.04	-	1.39	
Prime Coat @ 0.25 Gal/SY	Gal	-	-	111	Varies	8.6	1.6	4.4	3.1 & 3.1	17.2	661	-	-	2.4 & 2.4	13.3	
Tack Coat @ 0.05 Gal/SY	Gal	-	-	-	-	-	-	-	-	-	125	-	-	-	-	
Tack Coat @ 0.05 Gal/SY	Gal	27.0	15.0	30.4	27	15.0	27	15.0	24	13.3	117	31	27.0	15.0	29.4	16.3
Tack Coat @ 0.05 Gal/SY	Gal	28.1	15.6	29.4	28.1	15.6	28.6	15.9	29.1	16.2	109	30	28.1	15.6	28.0	15.6
Superpave FAA 45 @2 Ton/CY	Ton	27.0	52.0	59	27.0	52.0	27.5	53.0	29.56	53.9	679	102	27.0	52.0	27.0	72.5
PG 58-28 Asphalt Cement @ 5.9%	Ton	-	3.07	3.5	-	3.07	-	3.12	-	3.18	40.0	6.0	-	3.07	-	4.28
Class 5 Aggregate @1.50 Ton/CY +25%	Ton	-	7.5	487	0 & 0	3.8	0 & 0	9.1	3.1 & 3.1	66.7	2066	-	-	2.22	6.5 & 6.5	51.0
Class 4 Aggregate @1.50 Ton/CY +25%	Ton	-	-	-	-	-	-	-	-	-	-	-	-	-	4 & 4	18.8

	Subcut		Subcut		Subcut		Subcut	
	Sta 3863+90 to Sta 3866+90		Sta 4165+86 to Sta 4166+86		Sta 4216+18 to Sta 4220+18		Sta 4223+18 to Sta 4227+48	
Full Depth	300	Ft	100	Ft	400	Ft	430	Ft
Tapers	117	Ft Total	23	Ft Total	23	Ft Total	23	Ft Total

Material additional to Mainline overlay and widening	Unit	Width (ft)	Quantity Total	Width (ft)	Quantity Total	Width (ft)	Quantity Total	Width (ft)	Quantity Total
Water @ 20 Gal/Ton of Aggregate	MGal	-	86.2	-	7.3	-	26.7	-	28.7
Prime Coat @ 0.25 Gal/SY	Gal	32.4	374.9	32.4	111.1	32.4	381.1	32.4	408.1
Tack Coat @ 0.05 Gal/SY	Gal	30.4	75.0	-	-	-	-	-	-
Tack Coat @ 0.05 Gal/SY	Gal	32.4	75.0	32.4	22.2	32.4	76.2	32.4	81.6
Removal of Pavement @1.875Ton/CY	Ton	-	813	-	241	-	826	-	885
Superpave FAA 45 @2 Ton/CY	Ton	30.2	239.5	30.2	48.2	30.2	165.3	30.2	177.0
PG 58-28 Asphalt Cement @ 5.9%	Ton	-	14.13	-	2.84	-	9.75	-	10.44
Class 5 Aggregate @1.50 Ton/CY +25%	Ton	31.4	4311	27.4	352	27.4	1298	27.4	1393
Class 4 Aggregate @1.50 Ton/CY +25%	Ton	-	-	4 & 4	11.1	4 & 4	38.2	4 & 4	40.9
Common Excavation-Subcut	CY	-	1964	-	99	-	363	-	390

Water: 140 MGal/Mile for Dust Palliative = 2000 MGal
10 Gal/CY for Embankment= 1,542 MGal

Silt Fence Supported
Borrow Site 1 = 4370 LF
Borrow Site 2 = 2966 LF
Borrow Site 3 = 3174 LF

Mailboxes

Location	Type	Work
74.907 - Rt	Single	Replace
75.941 - Rt	Single	Replace
76.825 - Rt	Single	Replace
77.456 - Rt	Single	Replace
77.752 - Rt	Single	Replace
78.549 - Rt	Single	Replace
78.953 - Rt	Single	Replace
80.105 - Rt	Single	Replace
81.115 - Rt	Single	Replace

Stations		Stations	
OCL 0+00 to OCL 4+36		OCL 63+83 to OCL 80+12	
4.36	Sta	16.29	Sta

Material	Unit	Width (ft)	Quantity Per Station	Width (ft)	Quantity Per Station
Removal of Pavement @1.875 Ton/CY	Ton	8.4	94	-	-
Common Ex - Type C	CY	-	7.1	-	16.1

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BASIS OF ESTIMATE

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	10	2

Locations of Barrier Stripe

East Bound/North Bound				West Bound/South Bound			
Station	Station	=	Length(ft)	Station	Station	=	Length(ft)
3784+70.	to 3801+70.	=	1,700	3795+18.	to 3812+18.	=	1,700
3990+65.	to 4005+75.	=	1,510	4001+15.	to 4016+45.	=	1,530
4115+18.	to 4126+48.	=	1,130	4126+04.	to 4137+19.	=	1,115
4160+45.	to 4163+88.	=	343	4171+45.	to 4174+85.	=	340
4291+18.	to 4302+60.	=	1,142	4302+15.	to 4313+15.	=	1,100

Rumble Strips – Asphalt Shoulder

Left Shoulder	13.0 Miles
Right Shoulder	13.0 Miles
	26.0 Miles

Rumble Strips – Centerline

13.0 Miles

Rumble Strips – Slotted at Intersection E Co Rd 39

Southbound ND 49 1 Set

Permanent Pavement Marking		
Location – Type	Basis	Quantity
RP 67.693 to RP 73.796 Centerline – Paint 4 IN Line	Centerline Skips 1,320 LF/mile Barrier Stripes Single/Double	10,194 LF 3,400 LF
RP 67.693 to RP 73.796 Edge Lines – Paint 4 IN Line	10,560 LF/mile	64,562 LF
RP 74.091 to RP 82.313 Centerline – Epoxy Pvmt MK 4 IN Line	Centerline Skips 1,320 LF/mile Barrier Stripes Single/Double	13,115 LF 8,210 LF
RP 74.091 to RP 82.313 Edge Lines – Epoxy Pvmt MK 4 IN Line	10,560 LF/mile	86,898 LF

Short Term - R		
Location	Basis	Quantity
Bridge Overlays – 4" lines	4" White Single Line 4" Yellow Barrier Line (Double)	1,160 LF 2,400 LF
Bridge Overlays – 24" Stop Bars	24" White Stop Bar	24 LF
Bridge Overlays – Obliterate Marking	Obliterate Pavement Marking	207 SY

Short Term 4 IN - NR		
Location	Basis	Quantity
Centerline – Top of 1 st Lift	Centerline Skips 1,320 LF/mile 4" Yellow Barrier Line single/dbl	23,309 LF 11,610 LF
Centerline – Top of 2 nd Lift	Centerline Skips 1,320 LF/mile 4" Yellow Barrier Line single/dbl	23,309 LF 11,610 LF
Rumble Strip Fog – Centerline	Centerline Skips 1,320 LF/mile	23,309 LF
Rumble Strip Fog – Barrier Stripe	4" Yellow Barrier Line single/dbl	11,610 LF
		104,757 LF

Pavement Marking (Paint) – RR Crossing

2 Railroad Crosses & Dual RR's	121 SF
6 Bands for 12' Lanes	144 SF

Borrow and Embankment			
Common Excavation – Type A, Type C, and Subcut (CY)	Embankment for inslope (CY)*	Embankment for approach flattening (CY)	Borrow Required (CY)*
A	B	C	D=C+B-A
3,264	154,238	0	150,974

*25% additional material for loss

Subgrade material from culvert work has not been included.

Culvert Markers	
Sta	#
OCL 20+71	2
OCL 41+68	2
OCL 58+32	2
OCL 64+49	2
OCL 76+64	2
OCL2 3931+46	1
OCL2 3942+37	2
OCL2 3972+27	1
OCL2 3972+84	1
OCL2 3977+55	1
OCL2 3991+14	2
OCL2 4033+17	2
OCL2 4046+58	1
OCL2 4071+17	2
OCL2 4088+56	2
OCL2 4103+64	2
OCL2 4141+21	2
OCL2 4143+71	2
OCL2 4153+21	2
OCL2 4187+59	1
OCL2 4207+54	2
4227+79	2
4257+31	2
4268+28	2
4278+29	2
4334+50	2
Total	46

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BASIS OF ESTIMATE

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	10	3

HBP Cored Samples							
	A	B	C	D			
Specification Section	Lanes	Lifts	Distance (Feet)	Sublots (A x B x C)÷2000	Quantity (D x 2)	Quantity (1 per mile)	Unit
430.04 I.2.b(1), "General"	2	2	75,435	151	302	N/A	EA
430.04 I.2.b(2), "Pavement Thickness Determination Cores"					N/A	8	EA
				Total	302	8	EA

Geosynthetic Material - Type G		
	Location	SY
Slope Stabilization @ Cattle Pass Extension	OCL2 3971+13 to 3971+53 Lt	1113.0
Subcut	OCL2 4165+67.7 to 4167+04.3	822.6
Subcut	Sta 4215+99.7 to 4220+36.3	2629.3
Subcut	Sta 4222+99.7 to 4227+66.3	2810.0

Geosynthetic Material - Type R1		
	Location	SY
Subcut	OCL 3863+90 to 3866+90	2,904.0

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MILE POINT	Rt. OR Lt.	CORE NUMBER	DEPTH (inches)	WIDTH (feet)	MILE POINT	Rt. OR Lt.	CORE NUMBER	DEPTH (inches)	WIDTH (feet)
67.750	Lt.	1	7.50		76.000	Rt	34	5.75	
68.000	Rt	2	8.25		76.250	Lt.	35	5.00	
68.250	Lt.	3	7.50		76.500	Rt	36	5.00	
68.500	Rt	4	6.25		76.750	Lt.	37	6.00	
68.750	Lt.	5	9.25		77.000	Rt	38	7.00	
69.000	Rt	6	8.00		77.250	Lt.	39	5.75	
69.250	Lt.	7	8.50		77.500	Rt	40	6.00	
69.500	Rt	8	8.00		77.750	Lt.	41	5.50	
69.750	Lt.	9	8.75		78.000	Rt	42	6.00	
70.000	Rt	10	8.00		78.250	Lt.	43	6.00	
70.250	Lt.	11	8.75		78.500	Rt	44	6.00	
70.500	Rt	12	9.00		78.750	Lt.	45	5.50	
70.750	Lt.	13	9.25		79.000	Rt	46	5.75	
71.000	Rt	14	6.00		79.250	Lt.	47	5.75	
71.250	Lt.	15	8.25		79.500	Rt	48	6.25	
71.500	Rt	16	9.00		79.750	Lt.	49	8.50	
71.750	Lt.	17	6.25		80.000	Rt	50	10.00	
72.000	Rt	18	7.50		80.250	Lt.	51	7.00	
72.250	Lt.	19	6.00		80.500	Rt	52	6.75	
72.500	Rt	20	7.00		80.750	Lt.	53	8.25	
72.750	Lt.	21	8.00		81.000	Rt	54	7.75	
73.000	Rt	22	5.50		81.250	Lt.	55	10.00	
73.250	Lt.	23	8.25		81.500	Rt	56	7.75	
73.500	Rt	24	6.75		81.750	Lt.	57	8.00	
73.750	Lt.	25	6.50		82.000	Rt	58	7.00	
74.000	Rt	26	6.00		82.250	Lt.	59	6.50	
74.250	Lt.	27	6.00						
74.500	Rt	28	5.00						
74.750	Lt.	29	5.50						
75.000	Rt	30	6.75						
75.250	Lt.	31	9.00						
75.500	Rt	32	6.75						
75.750	Lt.	33	7.00						

NOTES:

Average Core Depth	Average Width	Maximum Core Length	Minimum Core Length
7.10		10.00	5.00

Milepoint cores between the wheel paths.

Width measurements taken at top of sloughs.

Rt and Lt shall be your Rt and Lt while facing toward the increasing milepoint direction.

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2014 Cores

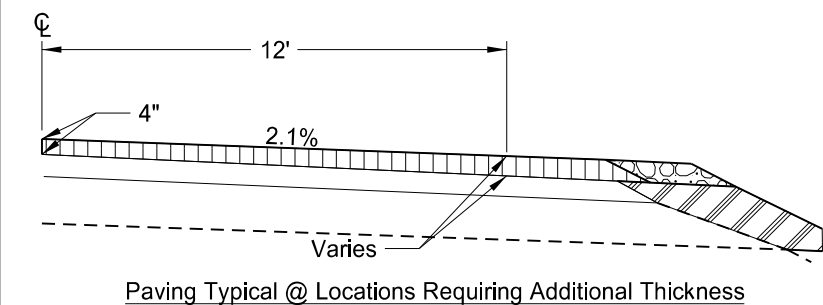
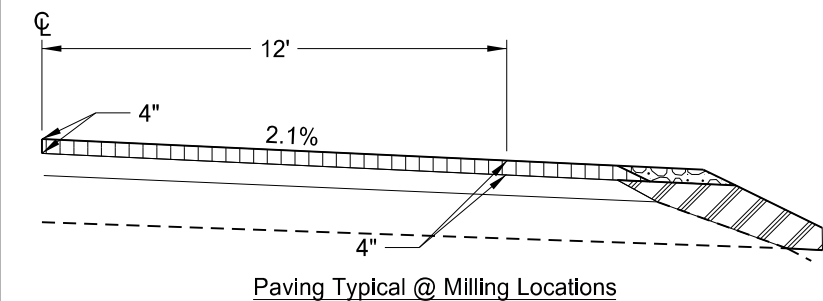
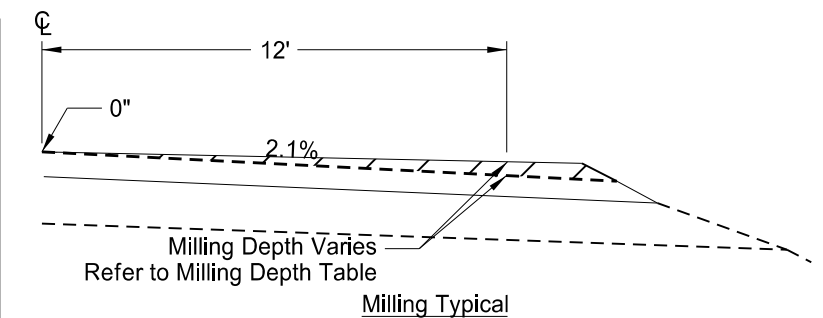
Widening, Sliver Grading, HBP Overlay and Guardrail

Glen Ullin East & North to County Line

Station	mill depth @ 12' Lt	mill depth @ 12' Rt	overlay thickness @ 12' Lt	overlay thickness @ 12' Rt
3912+00.00	0.00	0.00	0.42	0.83
3912+50.00	0.00	0.00	0.88	0.74
3913+00.00	0.00	0.00	0.66	0.53
3913+50.00	0.00	0.00	0.69	0.57
3914+00.00	0.00	0.00	0.75	0.52
3914+50.00	0.00	0.00	0.75	0.53
3915+00.00	0.00	0.00	0.58	0.57
3915+50.00	0.00	0.00	0.46	0.30
3916+00.00	0.00	0.00	0.31	0.32
3916+50.00	0.00	0.00	0.61	0.52
3917+00.00	0.00	0.00	0.57	0.48
3917+50.00	0.00	0.00	0.54	0.45
3918+00.00	0.00	0.00	0.58	0.52
3918+50.00	0.00	0.00	0.52	0.47
3919+00.00	0.00	0.00	0.65	0.53
3919+50.00	0.00	0.00	0.58	0.34
3920+00.00	0.00	0.00	0.33	0.26
3920+50.00	0.00	0.09	0.35	0.25
3921+00.00	0.00	0.02	0.33	0.25
3921+50.00	0.00	0.10	0.29	0.25
3922+00.00	0.00	0.05	0.39	0.25
3922+50.00	0.00	0.01	0.44	0.25
3923+00.00	0.00	0.00	0.26	0.26
3923+50.00	0.00	0.13	0.33	0.25
3924+00.00	0.00	0.13	0.52	0.25
3924+50.00	0.00	0.03	0.47	0.25
3925+00.00	0.00	0.07	0.33	0.25
3925+50.00	0.08	0.12	0.25	0.25
3926+00.00	0.04	0.05	0.25	0.25
3926+50.00	0.00	0.13	0.31	0.25
3927+00.00	0.00	0.05	0.46	0.25
3927+50.00	0.00	0.00	0.42	0.29
3928+00.00	0.00	0.00	0.42	0.25
3928+50.00	0.00	0.01	0.40	0.25
3929+00.00	0.00	0.02	0.36	0.25
3929+50.00	0.00	0.08	0.52	0.25
3930+00.00	0.00	0.10	0.38	0.25
3930+50.00	0.00	0.02	0.45	0.25
3931+00.00	0.00	0.01	0.49	0.25
3931+50.00	0.00	0.25	0.40	0.25
3932+00.00	0.00	0.02	0.45	0.25
3932+50.00	0.00	0.04	0.28	0.25
3933+00.00	0.00	0.07	0.26	0.25

Station	mill depth @ 12' Lt	mill depth @ 12' Rt	overlay thickness @ 12' Lt	overlay thickness @ 12' Rt
3933+50.00	0.00	0.02	0.29	0.25
3934+00.00	0.00	0.03	0.34	0.25
3934+50.00	0.00	0.05	0.34	0.25
3935+00.00	0.00	0.01	0.33	0.25
3935+50.00	0.00	0.08	0.28	0.25
3936+00.00	0.00	0.00	0.41	0.36
3936+50.00	0.00	0.07	0.40	0.25
3937+00.00	0.00	0.13	0.32	0.25
3937+50.00	0.00	0.09	0.37	0.25
3938+00.00	0.00	0.00	0.42	0.26
3938+50.00	0.00	0.00	0.46	0.25
3939+00.00	0.00	0.00	0.43	0.28
3939+50.00	0.00	0.05	0.37	0.25
3940+00.00	0.00	0.07	0.30	0.25
3940+50.00	0.00	0.01	0.31	0.25
3941+00.00	0.00	0.03	0.33	0.25
3941+50.00	0.09	0.08	0.25	0.25
3942+00.00	0.06	0.06	0.25	0.25
3942+50.00	0.00	0.00	0.51	0.33
3943+00.00	0.00	0.03	0.42	0.25
3943+50.00	0.00	0.11	0.32	0.25
3944+00.00	0.00	0.14	0.46	0.25
3944+50.00	0.00	0.05	0.42	0.25
3945+00.00	0.00	0.12	0.43	0.25
3945+50.00	0.00	0.09	0.41	0.25
3946+00.00	0.00	0.00	0.61	0.34
3946+50.00	0.00	0.02	0.45	0.25
3947+00.00	0.00	0.09	0.41	0.25
3947+50.00	0.00	0.11	0.37	0.25
3948+00.00	0.00	0.00	0.33	0.30
3948+50.00	0.00	0.00	0.44	0.48
3949+00.00	0.00	0.00	0.75	0.36
3949+50.00	0.00	0.00	0.69	0.38
3950+00.00	0.00	0.00	0.50	0.27
3950+50.00	0.00	0.00	0.75	0.38
3951+00.00	0.00	0.00	0.64	0.40
3951+50.00	0.00	0.00	0.64	0.28
3952+00.00	0.00	0.00	0.73	0.36
3952+50.00	0.00	0.00	0.59	0.47
3953+00.00	0.00	0.00	0.29	0.33
3953+50.00	0.00	0.00	0.38	0.45
3954+00.00	0.00	0.00	0.55	0.40
3954+50.00	0.00	0.00	0.57	0.32

Station	mill depth @ 12' Lt	mill depth @ 12' Rt	overlay thickness @ 12' Lt	overlay thickness @ 12' Rt
3955+00.00	0.00	0.00	0.85	0.31
3955+50.00	0.00	0.00	0.48	0.38
3956+00.00	0.00	0.00	0.87	0.48
3956+50.00	0.00	0.00	1.20	0.45
3957+00.00	0.00	0.00	0.59	0.34
3957+50.00	0.00	0.00	0.98	0.40
3958+00.00	0.00	0.00	0.65	0.46
3958+50.00	0.00	0.00	0.75	0.68
3959+00.00	0.00	0.09	0.49	0.25
3959+50.00	0.00	0.10	0.67	0.25
3960+00.00	0.00	0.18	0.61	0.25
3960+50.00	0.00	0.11	0.68	0.25
3961+00.00	0.00	0.16	0.70	0.25
3961+50.00	0.00	0.22	0.43	0.25
3962+00.00	0.00	0.00	0.66	0.31
3962+50.00	0.00	0.00	0.71	0.51
3963+00.00	0.00	0.00	0.66	0.39
3963+50.00	0.00	0.00	0.84	0.29
3964+00.00	0.00	0.00	0.70	0.36
3964+50.00	0.00	0.01	0.58	0.25
3965+00.00	0.00	0.11	0.71	0.25
3965+50.00	0.00	0.00	0.52	0.29
3966+00.00	0.00	0.00	0.61	0.35
3966+50.00	0.00	0.00	0.72	0.43
3967+00.00	0.00	0.00	0.75	0.29
3967+50.00	0.00	0.00	0.63	0.41
3968+00.00	0.00	0.00	0.71	0.29
3968+50.00	0.00	0.00	0.80	0.40
3969+00.00	0.00	0.00	0.81	0.29
3969+50.00	0.00	0.00	0.57	0.34
3970+00.00	0.00	0.00	0.33	0.46
3970+50.00	0.00	0.00	0.35	0.25
3971+00.00	0.00	0.05	0.38	0.25
3971+50.00	0.00	0.11	0.47	0.25
3972+00.00	0.00	0.16	0.39	0.25
3972+50.00	0.00	0.21	0.36	0.25
3973+00.00	0.00	0.09	0.34	0.25
3973+50.00	0.03	0.19	0.25	0.25
3974+00.00	0.00	0.05	0.31	0.25
3974+50.00	0.00	0.00	0.49	0.26
3975+00.00	0.00	0.20	0.46	0.25
3975+50.00	0.00	0.30	0.42	0.25
3976+00.00	0.00	0.10	0.52	0.25



NOTE: All depths and thicknesses in table shown in feet.

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Milling Depths
Widening, Sliver Grading, HBP Overlay, and Guardrail
Glen Ullin East & North to County Line

Station	mill depth @ 12' Lt	mill depth @ 12' Rt	overlay thickness @ 12' Lt	overlay thickness @ 12' Rt
3976+50.00	0.00	0.07	0.48	0.25
3977+00.00	0.00	0.13	0.37	0.25
3977+50.00	0.00	0.04	0.33	0.25
3978+00.00	0.00	0.26	0.33	0.25
3978+50.00	0.00	0.00	0.38	0.27
3979+00.00	0.00	0.13	0.54	0.25
3979+50.00	0.00	0.00	0.36	0.27
3980+00.00	0.13	0.13	0.25	0.25
3980+50.00	0.00	0.04	0.36	0.25
3981+00.00	0.00	0.00	0.40	0.32
3981+50.00	0.00	0.07	0.32	0.25
3982+00.00	0.00	0.10	0.30	0.25
3982+50.00	0.00	0.00	0.48	0.29
3983+00.00	0.00	0.07	0.38	0.25
3983+50.00	0.00	0.03	0.35	0.25
3984+00.00	0.00	0.10	0.34	0.25
3984+50.00	0.00	0.12	0.34	0.25
3985+00.00	0.00	0.14	0.33	0.25
3985+50.00	0.00	0.00	0.56	0.78
3986+00.00	0.00	0.00	0.64	0.65
3986+50.00	0.00	0.00	0.45	0.56
3987+00.00	0.00	0.00	0.51	0.79
3987+50.00	0.00	0.00	0.55	0.73
3988+00.00	0.00	0.00	0.51	0.53
3988+50.00	0.00	0.00	0.66	0.73
3989+00.00	0.00	0.00	0.54	0.53
3989+50.00	0.00	0.00	0.26	0.56
3990+00.00	0.00	0.00	0.41	0.37
3990+50.00	0.00	0.00	0.47	0.49
3991+00.00	0.00	0.00	0.49	0.51
3991+50.00	0.00	0.00	0.35	0.53
3992+00.00	0.00	0.00	0.32	0.44
3992+50.00	0.00	0.00	0.54	0.59
3993+00.00	0.00	0.00	0.25	0.66
3993+50.00	0.00	0.00	0.40	0.50
3994+00.00	0.00	0.00	0.43	0.48
3994+50.00	0.00	0.00	0.34	0.52
3995+00.00	0.02	0.00	0.25	0.52
3995+50.00	0.00	0.00	0.50	0.46
3996+00.00	0.00	0.00	0.34	0.47
3996+50.00	0.00	0.00	0.46	0.44
3997+00.00	0.00	0.00	0.33	0.31
3997+50.00	0.00	0.00	0.65	0.51

Station	mill depth @ 12' Lt	mill depth @ 12' Rt	overlay thickness @ 12' Lt	overlay thickness @ 12' Rt
3998+00.00	0.00	0.00	0.71	0.48
3998+50.00	0.00	0.00	0.60	0.48
3999+00.00	0.00	0.00	0.43	0.60
3999+50.00	0.00	0.00	0.37	0.50
4000+00.00	0.00	0.00	0.49	0.72
4000+50.00	0.00	0.00	0.51	0.72
4001+00.00	0.00	0.00	0.36	0.66
4001+50.00	0.00	0.00	0.33	0.74
4002+00.00	0.00	0.00	0.55	0.69
4002+50.00	0.00	0.00	0.59	0.60
4003+00.00	0.00	0.00	0.44	0.28
4003+50.00	0.00	0.00	0.94	0.60
4004+00.00	0.00	0.00	0.40	0.70
4004+50.00	0.07	0.00	0.25	0.63
4005+00.00	0.09	0.00	0.25	0.55
4005+50.00	0.00	0.00	0.36	0.82
4006+00.00	0.00	0.00	0.28	0.81
4006+50.00	0.00	0.00	0.35	0.97
4007+00.00	0.00	0.00	0.34	0.84
4007+50.00	0.00	0.00	0.46	0.70
4008+00.00	0.00	0.00	0.67	0.96
4008+50.00	0.00	0.00	0.58	0.80
4009+00.00	0.00	0.00	0.26	0.71
4009+50.00	0.00	0.00	0.37	0.73
4010+00.00	0.00	0.00	0.29	0.61
4010+50.00	0.00	0.00	0.30	0.56
4011+00.00	0.00	0.00	0.43	0.47
4011+50.00	0.00	0.04	0.43	0.25
4012+00.00	0.41	0.00	0.25	0.29
4012+50.00	0.00	0.08	0.47	0.25
4013+00.00	0.15	0.12	0.25	0.25
4013+50.00	0.04	0.00	0.25	0.50
4014+00.00	0.00	0.00	0.63	0.32
4014+50.00	0.04	0.00	0.25	0.27
4015+00.00	0.00	0.00	0.34	0.37
4015+50.00	0.00	0.00	0.36	0.50
4016+00.00	0.00	0.00	0.69	0.60
4016+50.00	0.00	0.00	0.41	0.38
4017+00.00	0.00	0.00	0.44	0.31
4017+50.00	0.00	0.00	0.39	0.57
4018+00.00	0.00	0.00	0.40	0.48
4018+50.00	0.15	0.10	0.25	0.25
4019+00.00	0.00	0.03	0.33	0.25

Station	mill depth @ 12' Lt	mill depth @ 12' Rt	overlay thickness @ 12' Lt	overlay thickness @ 12' Rt
4019+50.00	0.00	0.00	0.38	0.35
4020+00.00	0.00	0.00	0.40	0.54
4020+50.00	0.01	0.00	0.25	0.45
4021+00.00	0.05	0.00	0.25	0.58
4021+50.00	0.00	0.02	0.34	0.25
4022+00.00	0.00	0.15	0.52	0.25
4022+50.00	0.00	0.00	0.35	0.30
4023+00.00	0.00	0.03	0.32	0.25
4023+50.00	0.26	0.00	0.25	0.47
4024+00.00	0.12	0.00	0.25	0.37
4024+50.00	0.14	0.12	0.25	0.25
4025+00.00	0.25	0.08	0.25	0.25
4025+50.00	0.03	0.00	0.25	0.27
4026+00.00	0.25	0.15	0.25	0.25
4026+50.00	0.15	0.17	0.25	0.25
4027+00.00	0.28	0.17	0.25	0.25
4027+50.00	0.00	0.20	0.28	0.25
4028+00.00	0.00	0.00	0.48	0.31
4028+50.00	0.10	0.16	0.25	0.25
4029+00.00	0.00	0.01	0.35	0.25
4029+50.00	0.13	0.00	0.25	0.29
4030+00.00	0.12	0.23	0.25	0.25
4030+50.00	0.00	0.00	0.49	0.34
4031+00.00	0.00	0.10	0.29	0.25
4031+50.00	0.00	0.00	0.33	0.28
4032+00.00	0.00	0.00	0.53	0.49
4032+50.00	0.00	0.04	0.44	0.25
4033+00.00	0.00	0.10	0.40	0.25
4033+50.00	0.00	0.00	0.28	0.26
4034+00.00	0.00	0.00	0.36	0.30
4034+50.00	0.00	0.00	0.48	0.45
4035+00.00	0.00	0.18	0.59	0.25
4035+50.00	0.00	0.00	0.50	0.28
4036+00.00	0.00	0.00	0.45	0.26
4036+50.00	0.00	0.00	0.36	0.38
4037+00.00	0.00	0.05	0.42	0.25
4037+50.00	0.00	0.00	0.57	0.31
4038+00.00	0.00	0.09	0.34	0.25
4038+50.00	0.00	0.00	0.54	0.40
4039+00.00	0.00	0.00	0.55	0.26
4039+50.00	0.00	0.00	0.67	0.48
4040+00.00	0.00	0.00	0.38	0.43
4040+50.00	0.00	0.00	0.30	0.57

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Milling Depths
Widening, Sliver Grading, HBP Overlay, and Guardrail
Glen Ullin East & North

Station	mill depth @ 12' Lt	mill depth @ 12' Rt	overlay thickness @ 12' Lt	overlay thickness @ 12' Rt
4041+00.00	0.00	0.00	0.31	0.44
4041+50.00	0.00	0.00	0.35	0.42
4042+00.00	0.00	0.00	0.33	0.49
4042+50.00	0.01	0.00	0.25	0.44
4043+00.00	0.00	0.00	0.59	0.63
4043+50.00	0.00	0.00	0.58	0.68
4044+00.00	0.00	0.00	0.47	0.63
4044+50.00	0.00	0.00	0.50	0.55
4045+00.00	0.00	0.00	0.40	0.47
4045+50.00	0.00	0.00	0.43	0.39
4046+00.00	0.00	0.00	0.53	0.56
4046+50.00	0.00	0.00	0.44	0.42
4047+00.00	0.00	0.00	0.52	0.63
4047+50.00	0.00	0.00	0.47	0.54
4048+00.00	0.00	0.00	0.59	0.53
4048+50.00	0.00	0.00	0.57	0.64
4049+00.00	0.00	0.00	0.65	0.70
4049+50.00	0.00	0.00	0.59	0.68
4050+00.00	0.00	0.00	0.58	0.58
4050+50.00	0.00	0.00	0.44	0.63
4051+00.00	0.00	0.00	0.49	0.51
4051+50.00	0.00	0.00	0.46	0.65
4052+00.00	0.00	0.00	0.30	0.67
4052+50.00	0.00	0.00	0.30	0.70
4053+00.00	0.00	0.00	0.40	0.74
4053+50.00	0.00	0.00	0.44	0.64
4054+00.00	0.00	0.00	0.35	0.59
4054+50.00	0.00	0.00	0.42	0.64
4055+00.00	0.00	0.00	0.35	0.75
4055+50.00	0.00	0.00	0.56	0.72
4056+00.00	0.00	0.00	0.41	0.69
4056+50.00	0.00	0.00	0.26	0.44
4057+00.00	0.00	0.00	0.37	0.29
4057+50.00	0.00	0.00	0.26	0.25
4058+00.00	0.06	0.03	0.25	0.25
4058+50.00	0.04	0.10	0.25	0.25
4059+00.00	0.00	0.10	0.27	0.25
4059+50.00	0.14	0.04	0.25	0.25
4060+00.00	0.04	0.04	0.25	0.25
4060+50.00	0.00	0.00	0.26	0.36
4061+00.00	0.00	0.00	0.38	0.31
4061+50.00	0.00	0.00	0.32	0.27
4062+00.00	0.00	0.00	0.28	0.36

Station	mill depth @ 12' Lt	mill depth @ 12' Rt	overlay thickness @ 12' Lt	overlay thickness @ 12' Rt
4062+50.00	0.06	0.00	0.25	0.28
4063+00.00	0.07	0.04	0.25	0.25
4063+50.00	0.27	0.00	0.25	0.31
4064+00.00	0.10	0.00	0.25	0.32
4064+50.00	0.05	0.00	0.25	0.29
4065+00.00	0.01	0.07	0.25	0.25
4065+50.00	0.00	0.00	0.37	0.37
4066+00.00	0.00	0.00	0.31	0.29
4066+50.00	0.00	0.00	0.27	0.26
4067+00.00	0.00	0.05	0.37	0.25
4067+50.00	0.00	0.02	0.35	0.25
4068+00.00	0.00	0.06	0.30	0.25
4068+50.00	0.03	0.02	0.25	0.25
4069+00.00	0.16	0.08	0.25	0.25
4069+50.00	0.00	0.00	0.30	0.42
4070+00.00	0.00	0.00	0.29	0.58
4070+50.00	0.00	0.00	0.45	0.34
4071+00.00	0.02	0.06	0.25	0.25
4071+50.00	0.00	0.00	0.27	0.35
4072+00.00	0.00	0.00	0.26	0.50
4072+50.00	0.01	0.00	0.25	0.55
4073+00.00	0.05	0.00	0.25	0.55
4073+50.00	0.02	0.00	0.25	0.59
4074+00.00	0.03	0.00	0.25	0.41
4074+50.00	0.06	0.00	0.25	0.48
4075+00.00	0.00	0.00	0.37	0.57
4075+50.00	0.00	0.00	0.36	0.49
4076+00.00	0.08	0.00	0.25	0.30
4076+50.00	0.07	0.00	0.25	0.34
4077+00.00	0.06	0.00	0.25	0.34
4077+50.00	0.13	0.00	0.25	0.36
4078+00.00	0.01	0.00	0.25	0.50
4078+50.00	0.00	0.00	0.36	0.62
4079+00.00	0.00	0.00	0.34	0.54
4079+50.00	0.00	0.00	0.41	0.79
4080+00.00	0.03	0.00	0.25	0.47
4080+50.00	0.17	0.00	0.25	0.54
4081+00.00	0.00	0.00	0.32	0.59
4081+50.00	0.00	0.00	0.39	0.61
4082+00.00	0.00	0.00	0.45	0.47
4082+50.00	0.00	0.00	0.66	0.65
4083+00.00	0.00	0.00	0.60	0.74
4083+50.00	0.00	0.00	0.49	0.67

Station	mill depth @ 12' Lt	mill depth @ 12' Rt	overlay thickness @ 12' Lt	overlay thickness @ 12' Rt
4084+00.00	0.00	0.00	0.62	0.68
4084+50.00	0.00	0.00	0.78	0.72
4085+00.00	0.00	0.00	0.71	0.78
4085+50.00	0.00	0.00	0.77	0.66
4086+00.00	0.00	0.00	0.73	0.69
4086+50.00	0.00	0.00	0.42	0.28
4087+00.00	0.00	0.00	0.51	0.40
4087+50.00	0.00	0.00	0.34	0.27
4088+00.00	0.00	0.01	0.47	0.25
4088+50.00	0.00	0.00	0.55	0.36
4089+00.00	0.00	0.00	0.54	0.44
4089+50.00	0.00	0.03	0.56	0.25
4090+00.00	0.00	0.10	0.65	0.25
4090+50.00	0.00	0.00	0.77	0.41
4091+00.00	0.00	0.18	0.56	0.25
4091+50.00	0.00	0.00	0.66	0.45
4092+00.00	0.00	0.00	0.61	0.50
4092+50.00	0.00	0.00	0.41	0.48
4093+00.00	0.00	0.03	0.67	0.25
4093+50.00	0.00	0.03	0.59	0.25
4094+00.00	0.00	0.00	0.65	0.43
4094+50.00	0.00	0.00	0.69	0.56
4095+00.00	0.00	0.00	0.54	0.37
4095+50.00	0.00	0.00	0.57	0.39
4096+00.00	0.00	0.00	0.39	0.44
4096+50.00	0.00	0.00	0.39	0.42
4097+00.00	0.00	0.00	0.33	0.30
4097+50.00	0.10	0.03	0.25	0.25
4098+00.00	0.00	0.14	0.27	0.25
4098+50.00	0.04	0.07	0.25	0.25
4099+00.00	0.06	0.00	0.25	0.28
4099+50.00	0.06	0.05	0.25	0.25
4100+00.00	0.00	0.14	0.30	0.25
4100+50.00	0.00	0.04	0.30	0.25
4101+00.00	0.09	0.01	0.25	0.25
4101+50.00	0.07	0.00	0.25	0.35
4102+00.00	0.00	0.00	0.29	0.44
4102+50.00	0.00	0.00	0.28	0.27
4103+00.00	0.00	0.15	0.27	0.25
4103+50.00	0.00	0.13	0.30	0.25
4104+00.00	0.00	0.02	0.37	0.25
4104+50.00	0.15	0.13	0.25	0.25
4105+00.00	0.05	0.00	0.25	0.31

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Milling Depths
Widening, Sliver Grading, HBP Overlay, and Guardrail
Glen Ullin East & North to County Line

Station	mill depth @ 12' Lt	mill depth @ 12' Rt	overlay thickness @ 12' Lt	overlay thickness @ 12' Rt
4105+50.00	0.00	0.00	0.38	0.39
4106+00.00	0.03	0.00	0.25	0.32
4106+50.00	0.00	0.00	0.26	0.27
4107+00.00	0.00	0.00	0.36	0.26
4107+50.00	0.06	0.04	0.25	0.25
4108+00.00	0.00	0.00	0.31	0.25
4108+50.00	0.00	0.00	0.34	0.28
4109+00.00	0.00	0.00	0.37	0.35
4109+50.00	0.00	0.00	0.38	0.32
4110+00.00	0.00	0.03	0.29	0.25
4110+50.00	0.00	0.00	0.26	0.26
4111+00.00	0.00	0.05	0.39	0.25
4111+50.00	0.03	0.01	0.25	0.25
4112+00.00	0.00	0.04	0.28	0.25
4112+50.00	0.00	0.02	0.29	0.25
4113+00.00	0.01	0.00	0.25	0.25
4113+50.00	0.02	0.00	0.25	0.25
4114+00.00	0.08	0.00	0.25	0.35
4114+50.00	0.00	0.00	0.27	0.32
4115+00.00	0.00	0.00	0.31	0.47
4115+50.00	0.00	0.00	0.27	0.51
4116+00.00	0.08	0.00	0.25	0.39
4116+50.00	0.00	0.00	0.25	0.32
4117+00.00	0.00	0.00	0.29	0.39
4117+50.00	0.05	0.00	0.25	0.33
4118+00.00	0.04	0.00	0.25	0.35
4118+50.00	0.10	0.00	0.25	0.26
4119+00.00	0.05	0.00	0.25	0.30
4119+50.00	0.05	0.00	0.25	0.27
4120+00.00	0.03	0.00	0.25	0.29
4120+50.00	0.07	0.05	0.25	0.25
4121+00.00	0.01	0.00	0.25	0.28
4121+50.00	0.00	0.06	0.25	0.25
4122+00.00	0.00	0.00	0.30	0.32
4122+50.00	0.00	0.00	0.27	0.31
4123+00.00	0.01	0.00	0.25	0.37
4123+50.00	0.02	0.00	0.25	0.37
4124+00.00	0.00	0.00	0.41	0.38
4124+50.00	0.00	0.00	0.31	0.29
4125+00.00	0.00	0.00	0.34	0.27
4125+50.00	0.00	0.00	0.37	0.37
4126+00.00	0.00	0.00	0.40	0.34
4126+50.00	0.00	0.00	0.33	0.29

Station	mill depth @ 12' Lt	mill depth @ 12' Rt	overlay thickness @ 12' Lt	overlay thickness @ 12' Rt
4127+00.00	0.00	0.04	0.26	0.25
4127+50.00	0.00	0.00	0.32	0.31
4128+00.00	0.00	0.00	0.30	0.36
4128+50.00	0.00	0.00	0.26	0.37
4129+00.00	0.00	0.00	0.28	0.31
4129+50.00	0.00	0.00	0.28	0.37
4130+00.00	0.00	0.00	0.31	0.39
4130+50.00	0.00	0.00	0.26	0.26
4131+00.00	0.00	0.00	0.26	0.34
4131+50.00	0.00	0.00	0.38	0.35
4132+00.00	0.00	0.00	0.40	0.25
4132+50.00	0.00	0.00	0.42	0.37
4133+00.00	0.00	0.09	0.32	0.25
4133+50.00	0.00	0.00	0.31	0.26
4134+00.00	0.00	0.00	0.26	0.28
4134+50.00	0.06	0.00	0.25	0.25
4135+00.00	0.09	0.06	0.25	0.25
4135+50.00	0.01	0.00	0.25	0.32
4136+00.00	0.06	0.07	0.25	0.25
4136+50.00	0.01	0.00	0.25	0.37
4137+00.00	0.00	0.00	0.28	0.30
4137+50.00	0.03	0.01	0.25	0.25
4138+00.00	0.08	0.05	0.25	0.25
4138+50.00	0.12	0.12	0.25	0.25
4139+00.00	0.05	0.06	0.25	0.25
4139+50.00	0.08	0.07	0.25	0.25
4140+00.00	0.00	0.00	0.27	0.37
4140+50.00	0.00	0.02	0.37	0.25
4141+00.00	0.00	0.09	0.33	0.25
4141+50.00	0.00	0.08	0.26	0.25
4142+00.00	0.00	0.03	0.45	0.25
4142+50.00	0.00	0.11	0.50	0.25
4143+00.00	0.00	0.04	0.34	0.25
4143+50.00	0.07	0.02	0.25	0.25
4144+00.00	0.00	0.00	0.31	0.34
4144+50.00	0.00	0.00	0.41	0.47
4145+00.00	0.00	0.00	0.39	0.45
4145+50.00	0.00	0.02	0.38	0.25
4146+00.00	0.00	0.00	0.31	0.26
4146+50.00	0.00	0.00	0.40	0.30
4147+00.00	0.00	0.00	0.31	0.36
4147+50.00	0.04	0.00	0.25	0.26
4148+00.00	0.03	0.00	0.25	0.32

Station	mill depth @ 12' Lt	mill depth @ 12' Rt	overlay thickness @ 12' Lt	overlay thickness @ 12' Rt
4148+50.00	0.00	0.00	0.31	0.45
4149+00.00	0.00	0.00	0.32	0.36
4149+50.00	0.00	0.00	0.28	0.41
4150+00.00	0.00	0.00	0.33	0.30
4150+50.00	0.00	0.00	0.33	0.33
4151+00.00	0.00	0.00	0.43	0.36
4151+50.00	0.00	0.00	0.43	0.52
4152+00.00	0.00	0.00	0.35	0.42
4152+50.00	0.00	0.00	0.26	0.33
4153+00.00	0.00	0.00	0.27	0.38
4153+50.00	0.03	0.00	0.25	0.39
4154+00.00	0.00	0.00	0.32	0.52
4154+50.00	0.00	0.00	0.36	0.44
4155+00.00	0.00	0.00	0.34	0.37
4155+50.00	0.00	0.00	0.31	0.28
4156+00.00	0.00	0.00	0.39	0.34
4156+50.00	0.00	0.00	0.39	0.44
4157+00.00	0.00	0.00	0.46	0.42
4157+50.00	0.00	0.00	0.39	0.40
4158+00.00	0.00	0.00	0.48	0.42
4158+50.00	0.00	0.00	0.48	0.38
4159+00.00	0.00	0.00	0.41	0.34
4159+50.00	0.00	0.00	0.34	0.39
4160+00.00	0.00	0.00	0.28	0.36
4160+50.00	0.06	0.00	0.25	0.39
4161+00.00	0.00	0.00	0.28	0.30
4161+50.00	0.00	0.00	0.40	0.40
4162+00.00	0.00	0.00	0.39	0.49
4162+50.00	0.00	0.00	0.26	0.39
4163+00.00	0.00	0.00	0.32	0.30
4163+50.00	0.00	0.00	0.27	0.37
4164+00.00	0.06	0.00	0.25	0.36
4164+50.00	0.00	0.00	0.36	0.38
4165+00.00	0.00	0.00	0.27	0.29
4165+50.00	0.00	0.00	0.47	0.44
4166+00.00	0.00	0.00	0.49	0.35
4166+50.00	0.00	0.00	0.32	0.49
4167+00.00	0.00	0.00	0.28	0.42
4167+50.00	0.00	0.00	0.32	0.35
4168+00.00	0.00	0.00	0.44	0.35
4168+50.00	0.00	0.00	0.35	0.32
4169+00.00	0.00	0.00	0.33	0.52
4169+50.00	0.02	0.00	0.25	0.36

This document was originally issued and sealed by Sarah BaeHurst, Registration Number PE- 6239, on 08/23/16 and the original document is stored at the North Dakota Department of Transportation

Milling Depths
Widening, Sliver Grading, HBP Overlay, and Guardrail
Glen Ullin East & North to County Line

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	11	6

Station	mill depth @ 12' Lt	mill depth @ 12' Rt	overlay thickness @ 12' Lt	overlay thickness @ 12' Rt
4170+00.00	0.01	0.00	0.25	0.40
4170+50.00	0.00	0.00	0.27	0.39
4171+00.00	0.12	0.00	0.25	0.28
4171+50.00	0.07	0.00	0.25	0.44
4172+00.00	0.18	0.00	0.25	0.35
4172+50.00	0.16	0.00	0.25	0.37
4173+00.00	0.13	0.00	0.25	0.42
4173+50.00	0.21	0.00	0.25	0.39
4174+00.00	0.24	0.00	0.25	0.41
4174+50.00	0.20	0.00	0.25	0.62
4175+00.00	0.16	0.00	0.25	0.78
4175+50.00	0.22	0.00	0.25	0.67
4176+00.00	0.18	0.00	0.25	0.90
4176+50.00	0.33	0.00	0.25	0.86
4177+00.00	0.32	0.00	0.25	0.71
4177+50.00	0.32	0.00	0.25	0.70
4178+00.00	0.30	0.00	0.25	0.94
4178+50.00	0.36	0.00	0.25	0.78
4179+00.00	0.24	0.00	0.25	1.16
4179+50.00	0.22	0.00	0.25	1.65
4180+00.00	0.32	0.00	0.25	1.71
4180+50.00	0.43	0.00	0.25	1.95
4181+00.00	0.36	0.00	0.25	1.72
4181+50.00	0.21	0.00	0.25	1.57
4182+00.00	0.18	0.00	0.25	1.61
4182+50.00	0.10	0.00	0.25	1.57
4183+00.00	0.23	0.00	0.25	1.34
4183+50.00	0.17	0.00	0.25	1.43
4184+00.00	0.14	0.00	0.25	1.36
4184+50.00	0.19	0.00	0.25	1.15
4185+00.00	0.23	0.00	0.25	1.40
4185+50.00	0.36	0.00	0.25	1.46
4186+00.00	0.21	0.00	0.25	1.56
4186+50.00	0.28	0.00	0.25	1.61
4187+00.00	0.22	0.00	0.25	1.62
4187+50.00	0.28	0.00	0.25	1.25
4188+00.00	0.05	0.00	0.25	1.08
4188+50.00	0.31	0.00	0.25	1.13
4189+00.00	0.23	0.00	0.25	1.27
4189+50.00	0.21	0.00	0.25	1.07
4190+00.00	0.09	0.00	0.25	1.18
4190+50.00	0.18	0.00	0.25	1.29
4191+00.00	0.08	0.00	0.25	1.07

Station	mill depth @ 12' Lt	mill depth @ 12' Rt	overlay thickness @ 12' Lt	overlay thickness @ 12' Rt
4191+50.00	0.03	0.00	0.25	0.91
4192+00.00	0.04	0.00	0.25	1.09
4192+50.00	0.08	0.00	0.25	1.01
4193+00.00	0.15	0.00	0.25	1.11
4193+50.00	0.01	0.00	0.25	1.08
4194+00.00	0.18	0.00	0.25	0.75
4194+50.00	0.08	0.00	0.25	0.85
4195+00.00	0.00	0.00	0.26	0.67
4195+50.00	0.00	0.00	0.25	0.77
4196+00.00	0.11	0.00	0.25	0.68
4196+50.00	0.05	0.00	0.25	0.82
4197+00.00	0.14	0.00	0.25	0.87
4197+50.00	0.11	0.00	0.25	0.82
4198+00.00	0.23	0.00	0.25	0.56
4198+50.00	0.01	0.00	0.25	0.69
4199+00.00	0.04	0.00	0.25	0.64
4199+50.00	0.00	0.00	0.29	0.70
4200+00.00	0.00	0.00	0.30	0.43
4200+50.00	0.05	0.00	0.25	0.73
4201+00.00	0.01	0.00	0.25	0.68
4201+50.00	0.11	0.00	0.25	0.51
4202+00.00	0.22	0.00	0.25	0.89
4202+50.00	0.07	0.00	0.25	0.71
4203+00.00	0.12	0.00	0.25	0.79
4203+50.00	0.21	0.00	0.25	0.67
4204+00.00	0.35	0.00	0.25	0.51
4204+50.00	0.09	0.00	0.25	0.90
4205+00.00	0.04	0.00	0.25	0.95
4205+50.00	0.00	0.00	0.29	0.74
4206+00.00	0.04	0.00	0.25	0.58
4206+50.00	0.38	0.00	0.25	0.70
4207+00.00	0.30	0.00	0.25	1.10
4207+50.00	0.03	0.00	0.25	1.11
4208+00.00	0.12	0.00	0.25	0.66
4208+50.00	0.00	0.00	0.33	0.65
4209+00.00	0.01	0.08	0.25	0.25
4209+50.00	0.03	0.20	0.25	0.25
4210+00.00	0.07	0.00	0.25	0.29
4210+50.00	0.00	0.00	0.33	0.33
4211+00.00	0.00	0.00	0.42	0.54
4211+50.00	0.00	0.04	0.38	0.25
4212+00.00	0.00	0.00	0.36	0.34
4212+50.00	0.00	0.00	0.34	0.28

Station	mill depth @ 12' Lt	mill depth @ 12' Rt	overlay thickness @ 12' Lt	overlay thickness @ 12' Rt
4213+00.00	0.00	0.00	0.65	0.42
4213+50.00	0.00	0.00	0.65	0.47
4214+00.00	0.00	0.00	0.69	0.47
4214+50.00	0.00	0.00	0.59	0.46
4215+00.00	0.00	0.00	0.50	0.32
4215+50.00	0.00	0.00	0.46	0.44
4216+00.00	0.00	0.00	0.57	0.58
4216+50.00	0.00	0.00	0.60	0.56
4217+00.00	0.00	0.00	0.53	0.35
4217+50.00	0.00	0.00	0.66	0.27
4218+00.00	0.00	0.04	0.56	0.25
4218+50.00	0.00	0.00	0.36	0.38
4219+00.00	0.00	0.00	0.51	0.37
4219+50.00	0.00	0.00	0.49	0.39
4220+00.00	0.00	0.00	0.37	0.35
4220+50.00	0.00	0.00	0.54	0.38
4221+00.00	0.00	0.01	0.56	0.25
4221+50.00	0.00	0.02	0.56	0.25
4222+00.00	0.00	0.00	0.49	0.29
4222+50.00	0.00	0.00	0.57	0.28
4223+00.00	0.00	0.00	0.74	0.47
4223+50.00	0.00	0.00	0.73	0.60
4224+00.00	0.00	0.00	0.66	0.61
4224+50.00	0.00	0.00	0.64	0.70
4225+00.00	0.00	0.00	0.74	0.68
4225+50.00	0.00	0.00	0.50	0.52
4226+00.00	0.00	0.00	0.70	0.44
4226+50.00	0.00	0.00	0.73	0.43
4227+00.00	0.00	0.00	0.60	0.33
4227+50.00	0.00	0.00	0.36	0.40
4228+00.00	0.00	0.00	0.59	0.51
4228+50.00	0.00	0.00	0.67	0.48
4229+00.00	0.00	0.00	0.62	0.37
4229+50.00	0.00	0.03	0.55	0.25
4230+00.00	0.00	0.00	0.37	0.30
4230+50.00	0.00	0.00	0.63	0.53
4231+00.00	0.00	0.00	0.59	0.45
4231+50.00	0.00	0.00	0.52	0.39
4232+00.00	0.00	0.00	0.63	0.38
4232+50.00	0.00	0.00	0.61	0.39
4233+00.00	0.00	0.00	0.58	0.39
4233+50.00	0.00	0.00	0.64	0.45
4234+00.00	0.00	0.00	0.43	0.45

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Milling Depths
Widening, Sliver Grading, HBP Overlay, and Guardrail
Glen Ullin East & North to County Line

Station	mill depth @ 12' Lt	mill depth @ 12' Rt	overlay thickness @ 12' Lt	overlay thickness @ 12' Rt
4234+50.00	0.00	0.00	0.52	0.48
4235+00.00	0.00	0.00	0.58	0.54
4235+50.00	0.00	0.00	0.67	0.45
4236+00.00	0.00	0.00	0.57	0.31
4236+50.00	0.00	0.00	0.60	0.45
4237+00.00	0.00	0.00	0.56	0.47
4237+50.00	0.00	0.00	0.57	0.36
4238+00.00	0.00	0.00	0.54	0.34
4238+50.00	0.00	0.00	0.49	0.26
4239+00.00	0.00	0.00	0.39	0.35
4239+50.00	0.00	0.00	0.40	0.38
4240+00.00	0.00	0.00	0.53	0.42
4240+50.00	0.00	0.00	0.49	0.38
4241+00.00	0.00	0.00	0.53	0.40
4241+50.00	0.00	0.00	0.56	0.32
4242+00.00	0.00	0.00	0.65	0.50
4242+50.00	0.00	0.00	0.59	0.42
4243+00.00	0.00	0.00	0.61	0.37
4243+50.00	0.00	0.00	0.57	0.25
4244+00.00	0.00	0.00	0.69	0.26
4244+50.00	0.00	0.00	0.53	0.39
4245+00.00	0.00	0.00	0.54	0.26
4245+50.00	0.00	0.00	0.33	0.26
4246+00.00	0.04	0.05	0.25	0.25
4246+50.00	0.02	0.07	0.25	0.25
4247+00.00	0.00	0.00	0.35	0.32
4247+50.00	0.00	0.00	0.37	0.41
4248+00.00	0.00	0.00	0.30	0.41
4248+50.00	0.00	0.00	0.38	0.26
4249+00.00	0.00	0.00	0.32	0.34
4249+50.00	0.00	0.00	0.25	0.29
4250+00.00	0.00	0.03	0.33	0.25
4250+50.00	0.00	0.00	0.31	0.31
4251+00.00	0.00	0.00	0.28	0.31
4251+50.00	0.03	0.00	0.25	0.28
4252+00.00	0.00	0.05	0.35	0.25
4252+50.00	0.00	0.04	0.26	0.25
4253+00.00	0.00	0.00	0.31	0.35
4253+50.00	0.00	0.00	0.45	0.32
4254+00.00	0.00	0.00	0.37	0.25
4254+50.00	0.00	0.00	0.45	0.44
4255+00.00	0.00	0.00	0.40	0.40
4255+50.00	0.00	0.00	0.38	0.38

Station	mill depth @ 12' Lt	mill depth @ 12' Rt	overlay thickness @ 12' Lt	overlay thickness @ 12' Rt
4256+00.00	0.00	0.00	0.40	0.25
4256+50.00	0.04	0.11	0.25	0.25
4257+00.00	0.00	0.00	0.41	0.44
4257+50.00	0.00	0.00	0.71	0.47
4258+00.00	0.00	0.02	0.39	0.25
4258+50.00	0.09	0.31	0.25	0.25
4259+00.00	0.04	0.10	0.25	0.25
4259+50.00	0.21	0.22	0.25	0.25
4260+00.00	0.00	0.00	0.44	0.28
4260+50.00	0.00	0.00	0.43	0.36
4261+00.00	0.02	0.00	0.25	0.28
4261+50.00	0.06	0.11	0.25	0.25
4262+00.00	0.09	0.08	0.25	0.25
4262+50.00	0.00	0.00	0.35	0.37
4263+00.00	0.00	0.00	0.26	0.29
4263+50.00	0.00	0.01	0.26	0.25
4264+00.00	0.05	0.01	0.25	0.25
4264+50.00	0.13	0.15	0.25	0.25
4265+00.00	0.09	0.00	0.25	0.28
4265+50.00	0.01	0.00	0.25	0.29
4266+00.00	0.00	0.10	0.34	0.25
4266+50.00	0.00	0.00	0.60	0.41
4267+00.00	0.00	0.01	0.35	0.25
4267+50.00	0.00	0.00	0.45	0.39
4268+00.00	0.00	0.00	0.28	0.37
4268+50.00	0.00	0.00	0.39	0.32
4269+00.00	0.00	0.07	0.31	0.25
4269+50.00	0.00	0.00	0.55	0.42
4270+00.00	0.00	0.00	0.36	0.40
4270+50.00	0.00	0.06	0.38	0.25
4271+00.00	0.00	0.00	0.43	0.26
4271+50.00	0.00	0.01	0.44	0.25
4272+00.00	0.00	0.00	0.37	0.32
4272+50.00	0.00	0.04	0.31	0.25
4273+00.00	0.00	0.13	0.26	0.25
4273+50.00	0.24	0.17	0.25	0.25
4274+00.00	0.10	0.00	0.25	0.31
4274+50.00	0.00	0.00	0.29	0.33
4275+00.00	0.00	0.00	0.28	0.28
4275+50.00	0.00	0.00	0.27	0.28
4276+00.00	0.00	0.00	0.40	0.45
4276+50.00	0.00	0.00	0.56	0.64
4277+00.00	0.00	0.00	0.38	0.53

Station	mill depth @ 12' Lt	mill depth @ 12' Rt	overlay thickness @ 12' Lt	overlay thickness @ 12' Rt
4277+50.00	0.00	0.00	0.26	0.56
4278+00.00	0.05	0.00	0.25	0.30
4278+50.00	0.04	0.00	0.25	0.34
4279+00.00	0.00	0.00	0.29	0.26
4279+50.00	0.00	0.00	0.44	0.32
4280+00.00	0.11	0.30	0.25	0.25
4280+50.00	0.00	0.04	0.27	0.25
4281+00.00	0.02	0.01	0.25	0.25
4281+50.00	0.13	0.09	0.25	0.25
4282+00.00	0.00	0.06	0.32	0.25
4282+50.00	0.00	0.01	0.34	0.25
4283+00.00	0.03	0.23	0.25	0.25
4283+50.00	0.00	0.16	0.30	0.25
4284+00.00	0.00	0.05	0.26	0.25
4284+50.00	0.00	0.08	0.25	0.25
4285+00.00	0.02	0.03	0.25	0.25
4285+50.00	0.00	0.00	0.26	0.53
4286+00.00	0.07	0.00	0.25	0.28
4286+50.00	0.16	0.07	0.25	0.25
4287+00.00	0.00	0.00	0.32	0.35
4287+50.00	0.00	0.00	0.29	0.36
4288+00.00	0.06	0.05	0.25	0.25
4288+50.00	0.00	0.06	0.29	0.25
4289+00.00	0.00	0.01	0.34	0.25
4289+50.00	0.00	0.00	0.42	0.27
4290+00.00	0.00	0.00	0.37	0.25
4290+50.00	0.00	0.00	0.33	0.25
4291+00.00	0.00	0.04	0.36	0.25
4291+50.00	0.00	0.10	0.37	0.25
4292+00.00	0.00	0.11	0.35	0.25
4292+50.00	0.00	0.00	0.30	0.25
4293+00.00	0.00	0.03	0.28	0.25
4293+50.00	0.00	0.02	0.31	0.25
4294+00.00	0.00	0.00	0.39	0.29
4294+50.00	0.00	0.00	0.37	0.26
4295+00.00	0.00	0.00	0.33	0.25
4295+50.00	0.00	0.02	0.34	0.25
4296+00.00	0.02	0.00	0.25	0.26
4296+50.00	0.00	0.00	0.30	0.27
4297+00.00	0.11	0.03	0.25	0.25
4297+50.00	0.04	0.04	0.25	0.25
4298+00.00	0.00	0.00	0.34	0.34
4298+50.00	0.04	0.02	0.25	0.25

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Milling Depths
Widening, Sliver Grading, HBP Overlay, and Guardrail
Glen Ullin East & North to County Line

Station	mill depth @ 12' Lt	mill depth @ 12' Rt	overlay thickness @ 12' Lt	overlay thickness @ 12' Rt
4299+00.00	0.06	0.20	0.25	0.25
4299+50.00	0.00	0.07	0.30	0.25
4300+00.00	0.14	0.06	0.25	0.25
4300+50.00	0.00	0.04	0.27	0.25
4301+00.00	0.00	0.00	0.33	0.32
4301+50.00	0.00	0.02	0.29	0.25
4302+00.00	0.07	0.01	0.25	0.25
4302+50.00	0.01	0.00	0.25	0.28
4303+00.00	0.00	0.00	0.29	0.25
4303+50.00	0.02	0.06	0.25	0.25
4304+00.00	0.00	0.00	0.25	0.29
4304+50.00	0.00	0.00	0.36	0.29
4305+00.00	0.00	0.00	0.41	0.35
4305+50.00	0.00	0.00	0.36	0.26
4306+00.00	0.00	0.00	0.34	0.27
4306+50.00	0.00	0.00	0.46	0.44
4307+00.00	0.00	0.00	0.31	0.32
4307+50.00	0.00	0.00	0.35	0.36
4308+00.00	0.07	0.05	0.25	0.25
4308+50.00	0.00	0.02	0.39	0.25
4309+00.00	0.00	0.02	0.35	0.25
4309+50.00	0.00	0.00	0.51	0.36
4310+00.00	0.00	0.00	0.37	0.34
4310+50.00	0.00	0.03	0.41	0.25
4311+00.00	0.00	0.09	0.42	0.25
4311+50.00	0.00	0.14	0.34	0.25
4312+00.00	0.00	0.00	0.38	0.25
4312+50.00	0.00	0.00	0.26	0.36
4313+00.00	0.00	0.00	0.39	0.34
4313+50.00	0.00	0.05	0.46	0.25
4314+00.00	0.00	0.00	0.36	0.29
4314+50.00	0.00	0.03	0.36	0.25
4315+00.00	0.00	0.10	0.39	0.25
4315+50.00	0.00	0.00	0.38	0.27
4316+00.00	0.00	0.00	0.32	0.27
4316+50.00	0.00	0.00	0.32	0.37
4317+00.00	0.00	0.00	0.35	0.32
4317+50.00	0.00	0.12	0.34	0.25
4318+00.00	0.00	0.00	0.55	0.25
4318+50.00	0.00	0.00	0.35	0.41
4319+00.00	0.00	0.01	0.32	0.25
4319+50.00	0.00	0.00	0.35	0.33
4320+00.00	0.00	0.02	0.40	0.25

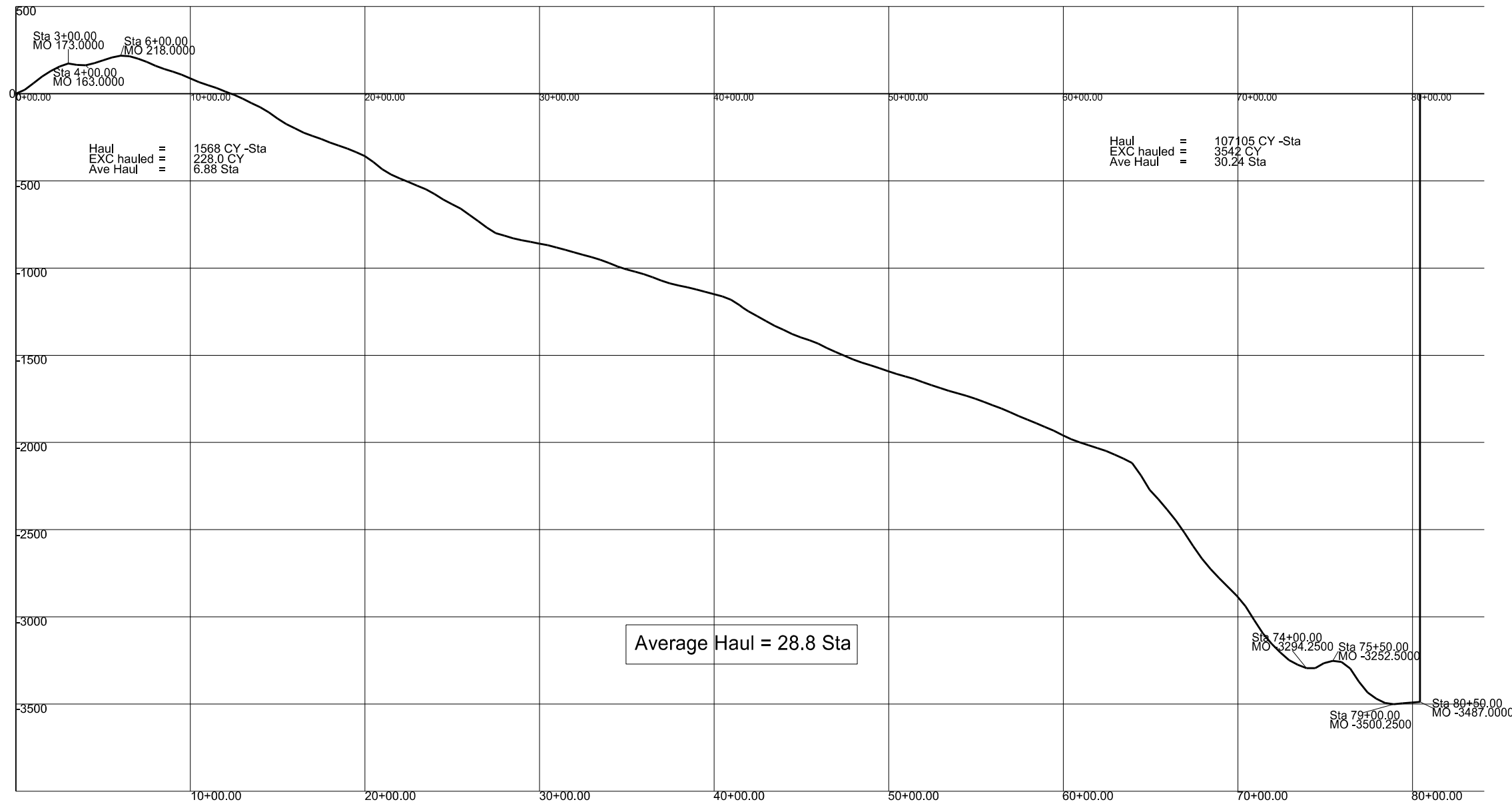
Station	mill depth @ 12' Lt	mill depth @ 12' Rt	overlay thickness @ 12' Lt	overlay thickness @ 12' Rt
4320+50.00	0.00	0.00	0.56	0.62
4321+00.00	0.05	0.00	0.25	0.34
4321+50.00	0.00	0.00	0.35	0.58
4322+00.00	0.00	0.00	0.40	0.47
4322+50.00	0.00	0.00	0.67	0.60
4323+00.00	0.00	0.00	0.51	0.31
4323+50.00	0.00	0.00	0.58	0.31
4324+00.00	0.00	0.08	0.34	0.25
4324+50.00	0.00	0.00	0.54	0.47
4325+00.00	0.00	0.00	0.47	0.38
4325+50.00	0.00	0.00	0.53	0.43
4326+00.00	0.00	0.00	0.36	0.37
4326+50.00	0.00	0.00	0.32	0.59
4327+00.00	0.02	0.10	0.25	0.25
4327+50.00	0.07	0.16	0.25	0.25
4328+00.00	0.03	0.00	0.25	0.42
4328+50.00	0.00	0.00	0.46	0.36
4329+00.00	0.00	0.01	0.33	0.25
4329+50.00	0.00	0.00	0.27	0.28
4330+00.00	0.05	0.00	0.25	0.34
4330+50.00	0.16	0.00	0.25	0.33
4331+00.00	0.22	0.00	0.25	0.26
4331+50.00	0.12	0.01	0.25	0.25
4332+00.00	0.00	0.00	0.32	0.31
4332+50.00	0.00	0.00	0.41	0.40
4333+00.00	0.00	0.00	0.39	0.39
4333+50.00	0.00	0.00	0.40	0.38
4334+00.00	0.00	0.00	0.35	0.27
4334+50.00	0.00	0.05	0.30	0.25
4335+00.00	0.00	0.07	0.30	0.25
4335+50.00	0.00	0.23	0.25	0.25
4336+00.00	0.00	0.07	0.38	0.25
4336+50.00	0.00	0.00	0.50	0.25
4337+00.00	0.00	0.00	0.50	0.25
4337+50.00	0.00	0.00	0.48	0.27
4338+00.00	0.00	0.00	0.34	0.29
4338+50.00	0.00	0.00	0.29	0.28
4339+00.00	0.06	0.01	0.25	0.25
4339+50.00	0.11	0.04	0.25	0.25
4340+00.00	0.05	0.03	0.25	0.25
4340+50.00	0.00	0.01	0.42	0.25
4341+00.00	0.00	0.00	0.42	0.29
4341+50.00	0.00	0.00	0.43	0.33

Station	mill depth @ 12' Lt	mill depth @ 12' Rt	overlay thickness @ 12' Lt	overlay thickness @ 12' Rt
4342+00.00	0.00	0.00	0.45	0.34
4342+50.00	0.00	0.00	0.44	0.44
4343+00.00	0.00	0.00	0.29	0.37
4343+50.00	0.06	0.00	0.25	0.34
4344+00.00	0.02	0.05	0.25	0.25
4344+50.00	0.00	0.00	0.35	0.26
4345+00.00	0.00	0.00	0.41	0.34
4345+50.00	0.00	0.13	0.25	0.25
4346+00.00	0.00	0.05	0.46	0.25
4346+50.00	0.00	0.00	0.48	0.28
4347+00.00	0.00	0.00	0.34	0.56

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Milling Depths
Widening, Sliver Grading, HBP Overlay, and Guardrail
Glen Ullin East & North to County Line

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)67	11	9



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Minor Rehabilitation Mass Diagram
 OCL 0+00 to OCL 80+50
 Widening, Sliver Grading, HBP Overlay, and Guardrail
 Glen Ullin East & North to County Line

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	11	11

OCL Station	End Area (SF)		Volume (CY)		Mass Ordinate
	Excavation	Fill	Excavation	Adjusted Fill	
69+00	12.810	32.630	22.815	76.157	2760.368
70+00	17.230	34.990	55.630	156.528	2861.266
70+50	11.110	39.470	26.241	86.181	2921.206
71+00	9.690	46.040	19.259	98.970	3000.916
71+50	12.740	37.860	20.769	97.106	3077.254
72+00	15.560	35.810	26.204	85.266	3136.317
72+50	16.650	33.820	29.824	80.590	3187.083
73+00	16.230	29.620	30.444	73.426	3230.064
73+50	20.320	22.080	33.843	59.838	3256.060
74+00	16.370	23.900	33.972	53.218	3275.305
74+50	23.600	7.660	37.009	36.528	3274.824
75+00	20.380	3.620	40.722	13.056	3247.157
75+50	11.530	11.920	29.546	17.986	3235.597
76+00	18.520	17.650	27.824	34.225	3241.997
76+50	6.410	34.850	23.083	60.764	3279.678
77+00	4.610	38.980	10.204	85.451	3354.926
77+50	8.020	24.360	11.694	73.310	3416.541
78+00	8.710	20.020	15.491	51.366	3452.416
78+50	8.260	15.060	15.713	40.602	3477.305
79+00	10.220	5.800	17.111	24.144	3484.338
79+50	8.130	4.560	16.991	11.991	3479.338
80+00	7.770	5.300	14.722	11.412	3476.027
80+50	8.720	3.310	15.269	9.965	3470.724

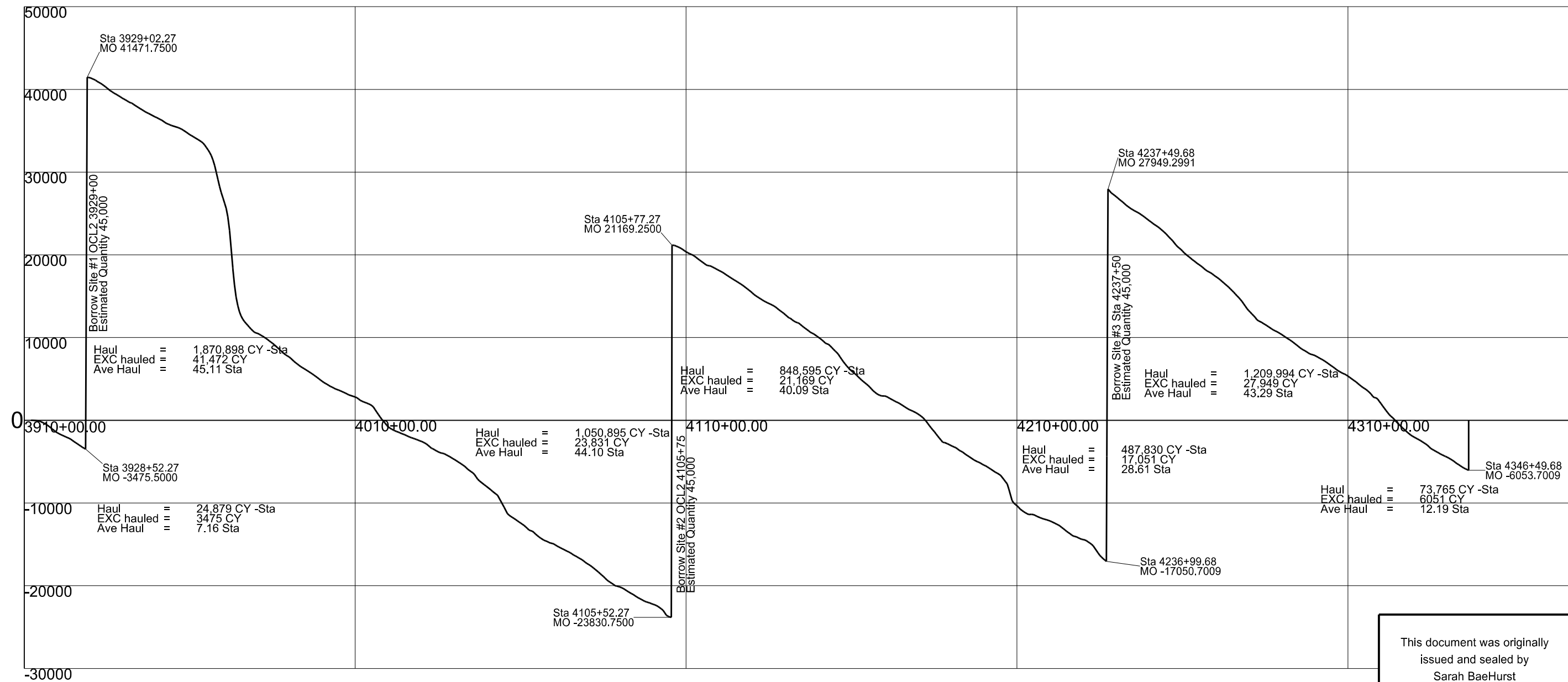
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OCL Earthwork Data

Widening, Sliver Grading, HBP Overlay, and Guardrail

Glen Ullin East & North to County Line

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	11	12



Average Haul = 39.48 Sta

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Mass Diagram
Major Rehab - OCL2 and ND49
Widening, Sliver Grading, HBP Overlay, and Guardrail
Glen Ullin East & North to County Line

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	11	17

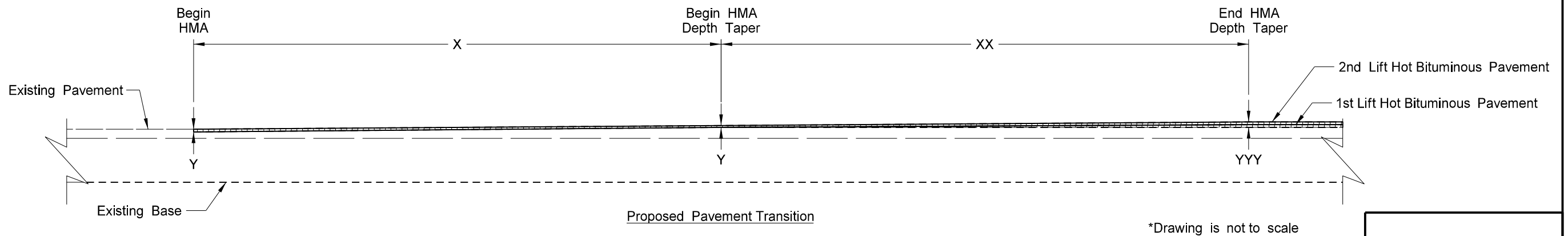
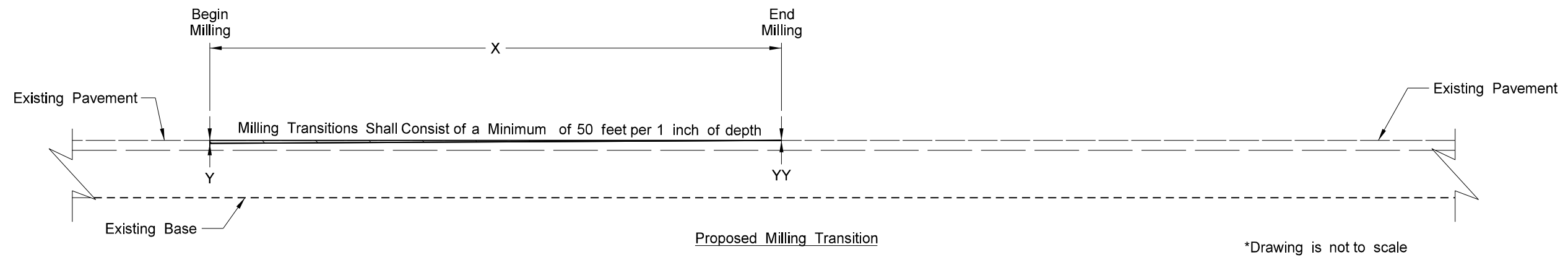
OCL2 Station	End Area (SF)		Volume (CY)		Mass Ordinate
	Excavation	Fill	Excavation	Adjusted Fill	
4209+00	1.650	70.050	3.324	321.551	9996.856
4209+50	2.410	70.790	3.759	163.009	10156.106
4210+00	1.380	75.050	3.509	168.796	10321.393
4210+50	0.290	90.810	1.546	191.968	10511.814
4211+00	0.520	88.030	0.750	206.991	10718.055
4211+50	0.930	57.870	1.343	168.866	10885.578
4212+00	0.500	60.870	1.324	137.431	11021.684
4212+50	2.320	49.230	2.611	127.431	11146.504
4213+00	2.150	48.530	4.139	113.148	11255.513
4213+50	4.110	43.390	5.796	106.389	11356.106

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OCL2 Earthwork Data

Widening, Sliver Grading, HBP Overlay, and Guardrail

Glen Ullin East & North to County Line

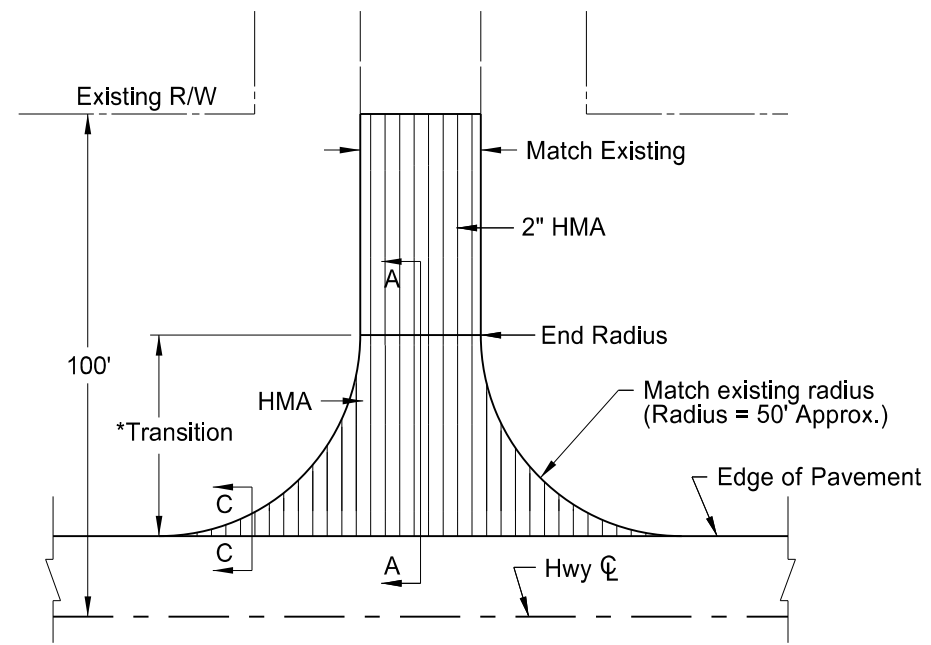


Milling and Paving Transitions

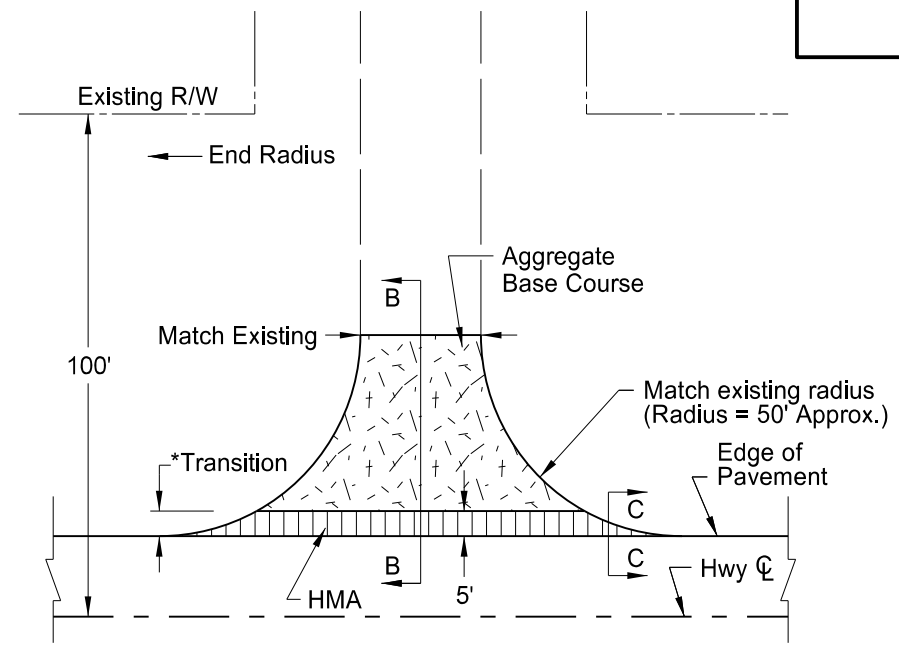
Location	X	Begin Milling/Paving Station	Y	YY	End Milling Station	XX	YYY	End HMA Depth Taper Station	Mill (SY)	Tack (Gal)	HBP (Ton)	AC (Ton)
Beginning of Project	75 ft	3572+10	1.5 in	0 in	3572+85	75 ft	3.0 in	3573+60	250	38	52.0	3.12
RR	75 ft	3743+50	1.5 in	0 in	3742+75	75 ft	3.0 in	3742+00	250	38	52.0	3.12
RR	75 ft	3743+87	1.5 in	0 in	3744+62	75 ft	3.0 in	3745+37	250	38	52.0	3.12
Bridge 49-071.212	75 ft	3759+49	1.5 in	0 in	3758+74	75 ft	3.0 in	3757+99	250	38	52.0	3.12
Bridge 49-071.212	75 ft	3760+43	1.5 in	0 in	3761+18	75 ft	3.0 in	3761+93	250	38	52.0	3.12
Bridge 49-072.457	75 ft	3825+26	1.5 in	0 in	3824+51	75 ft	3.0 in	3823+76	250	38	52.0	3.12
Bridge 49-072.457	75 ft	3826+12	1.5 in	0 in	3826+87	75 ft	3.0 in	3827+62	250	38	52.0	3.12
Start Exception	75 ft	3894+25	1.5 in	0 in	3895+00	75 ft	3.0 in	3895+75	250	38	52.0	3.12
End Exception	100 ft	3912+00	2.0 in	0 in	3913+00	100 ft	4.0 in	3914+00	333	50	92.6	5.56
End of Project	100 ft	4346+49	2.0 in	0 in	4345+49	100 ft	4.0 in	4344+49	333	50	92.6	5.56

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Milling and Paving End Transitions
Widening, Sliver Grading, HBP Overlay, and Guardrail
Glen Ullin East & North to County Line

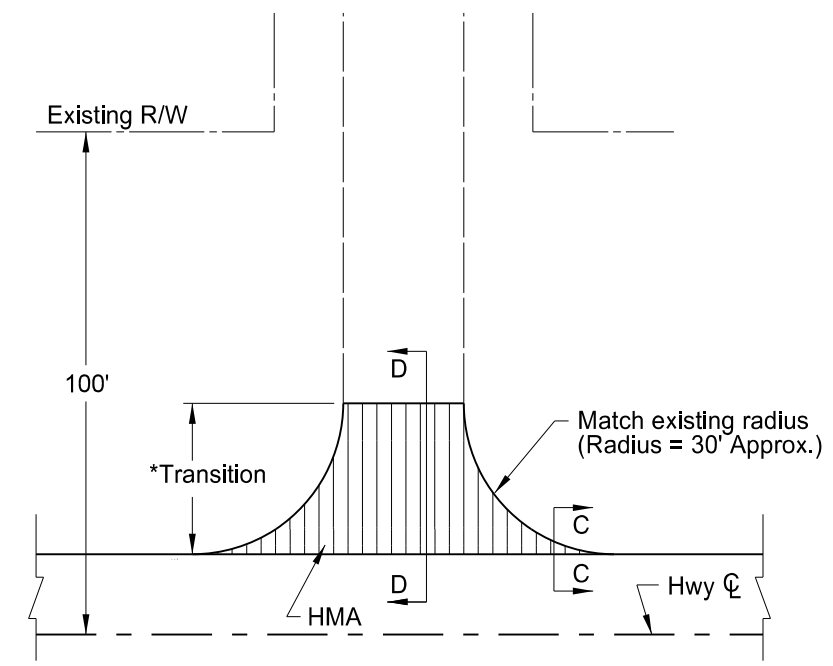
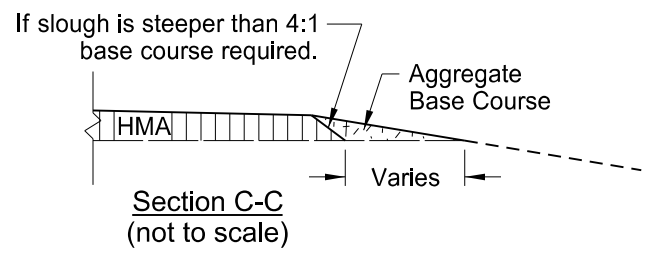
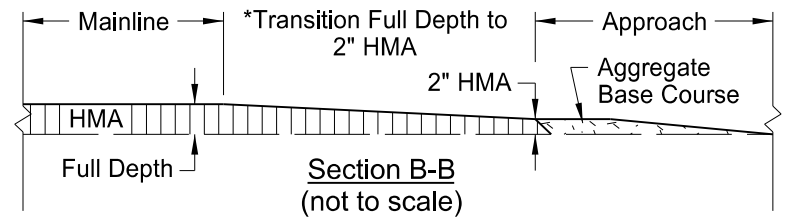
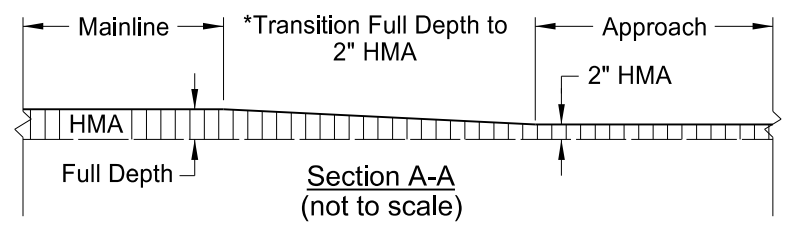


(1) Paved Section Line, County Road, or Street Approach

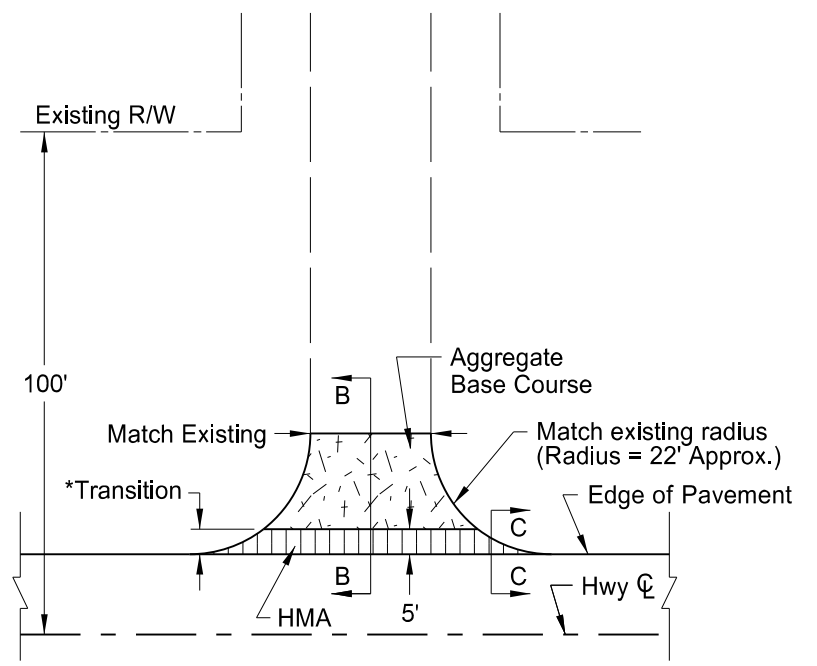


(2) Gravel Section Line, County Road, or Street Approach

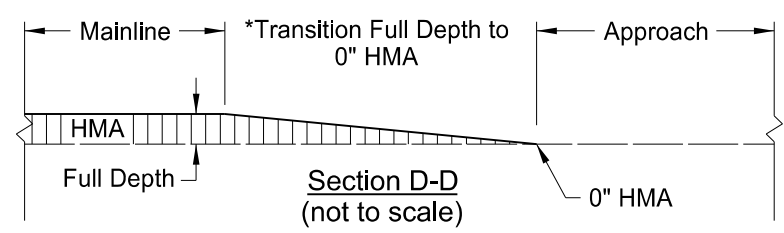
- Notes:
- Actual HMA paving and aggregate base course locations may vary in the field, as approved by the Engineer.
 - Quantity totals have been included in the bid items of the "Estimate of Quantities" of the plans.
 - Aggregate base course has been provided in the quantities to fill in around the radii. This material will be required when sloughs are steeper than 4:1 (see section C-C)



(3) Paved Private Drive Approach



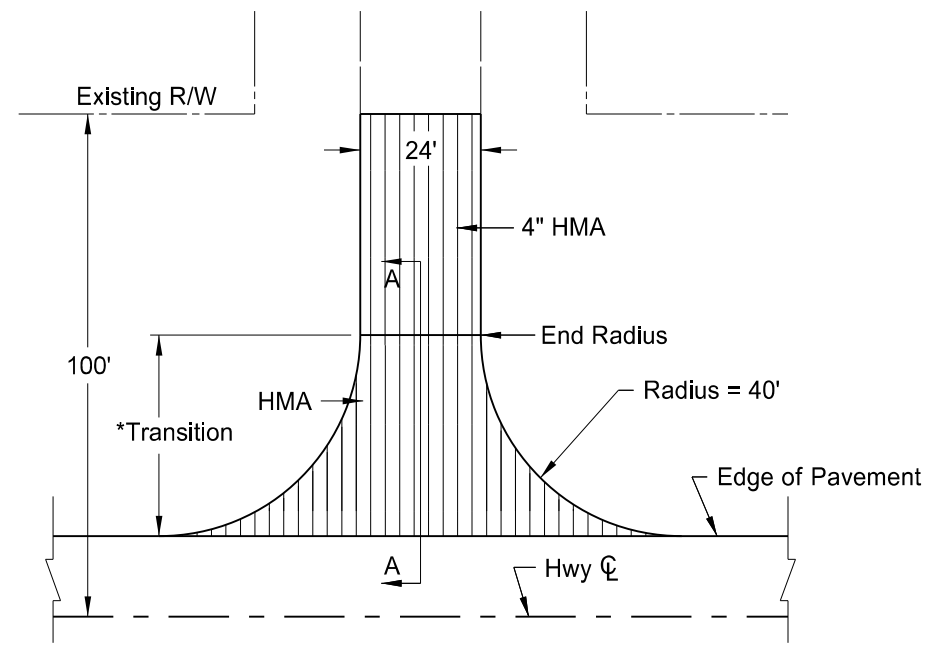
(4) Gravel Private or Field Drive Approach



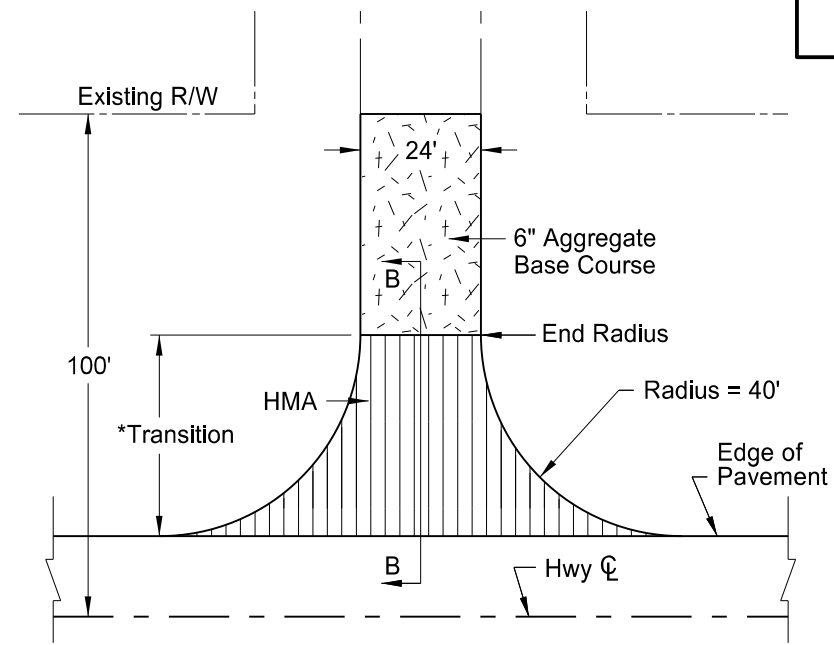
BASIS OF ESTIMATE		(1)	(2)	(3)	(4)	TOTALS
ITEM	UNIT	Paved Section Line	Gravel Section Line	Paved Private Drive	Gravel Field/Private Drive	
Number of Locations	#	16	10	3	26	55
Aggregate Base Course CL 5	TON	N/A	6	N/A	3	138
Tack Coat	GAL	19.6	2.2	12.2	1.4	409
Superpave FAA 45	TON	38.5	7.2	20.4	4.8	874
PG 58-28 Asphalt Cement	TON	2.27	0.42	1.20	0.28	52

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Approach Paving Details for Minor Rehabilitation Projects RP 67.693 to RP 73.796
Widening, Sliver Grading, HBP Overlay, and Guardrail Glen Ullin East & North to County Line

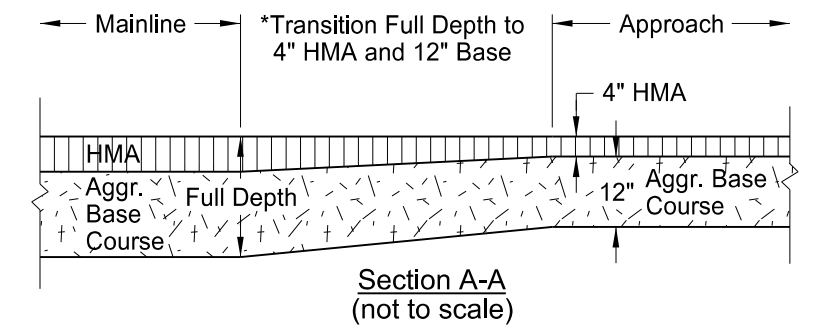


(1) Paved Section Line, County Road, or Street Approach

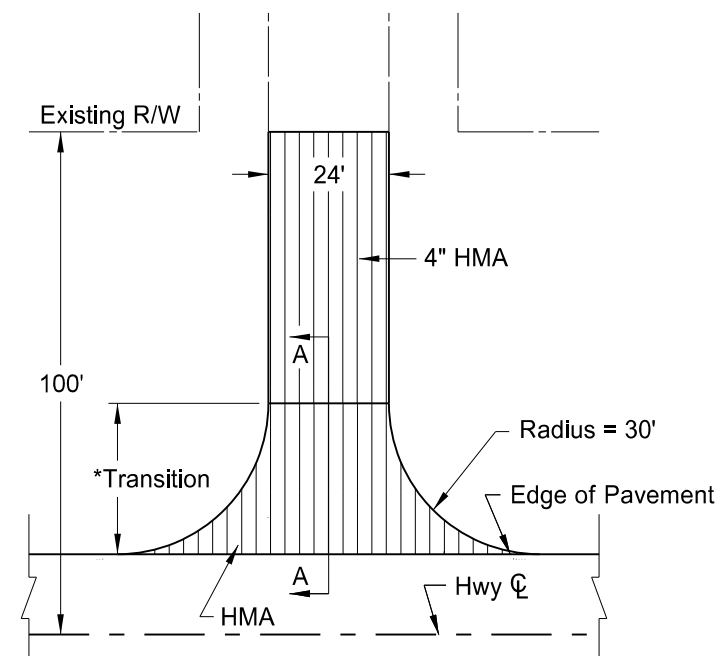


(2) Gravel Section Line, County Road, or Street Approach

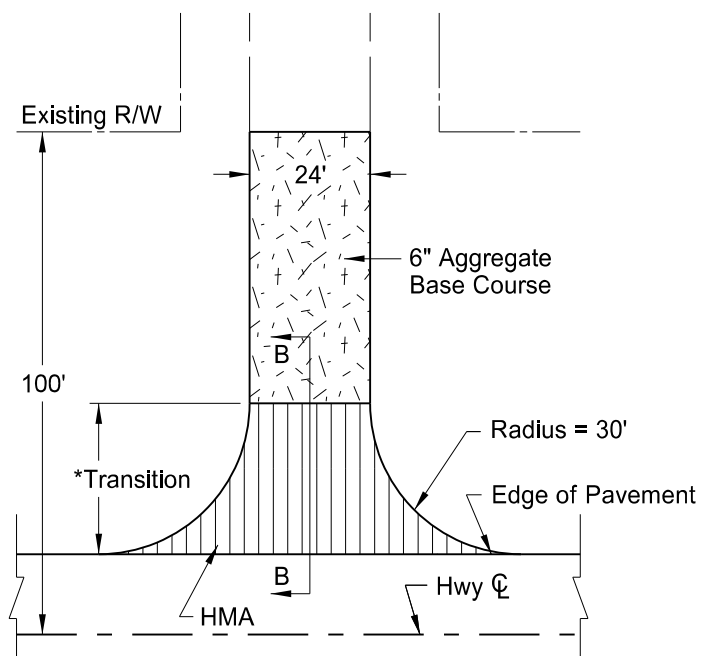
- Notes:
- Actual HMA paving and aggregate base course locations may vary in the field, as approved by the Engineer.
 - Quantity totals have been included in the bid items of the "Estimate of Quantities" of the plans.



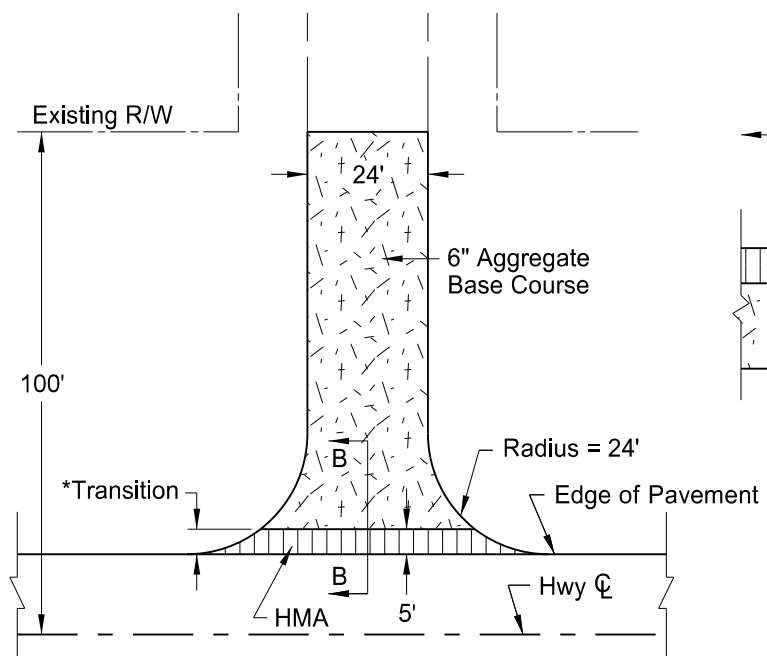
Section A-A (not to scale)



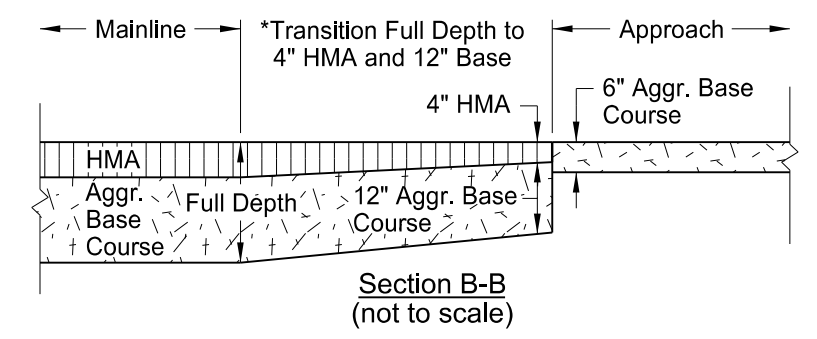
(3) Paved Private Drive Approach



(4) Gravel Private Drive Approach



(5) Field Drive Approach



Section B-B (not to scale)

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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	#	0	12	1	6	23	42
Aggregate Base Course CL 5	TON	-	29.3	-	36.0	55.6	1847
Tack Coat	GAL	-	18.3	26.7	12.3	2.9	387
Superpave FAA 45	TON	-	40.7	59.3	27.3	6.4	859
PG 58-28 Asphalt Cement	TON	-	2.40	3.50	1.61	0.38	51

Approach Paving Details for Major Rehabilitation RP 74.091 to RP 82.313
Widening, Sliver Grading, HBP Overlay, and Guardrail Glen Ullin East & North to County Line

Location	Field Drive	Private Drive	Section Line	Recovery Approach
67.710 Lt			*	
67.710 Lt			*	
67.818 Lt			*	
67.818 Rt			*	
67.872 Lt			*	
67.894 Lt			*	
68.102 Lt			*	
68.177 Lt			*	
68.177 Rt			*	
68.345 Rt			*	
68.394 Lt			*	
68.442 Lt		*		
68.473 Lt			*	
68.493 Rt			*	
68.534 Rt			*	
68.544 Lt			*	
68.585 Lt		*		
68.615 Lt			*	
68.646 Lt		*		
68.683 Lt			*	
68.717 Lt		*		
68.727 Rt		*		
68.758 Lt			*	
68.788 Rt		*		
68.798 Lt		*		
68.816 Lt			*	
68.839 Rt			*	
68.910 Rt		*		
68.930 Lt		*		
68.971 Rt		*		
69.069 Rt		*		
69.109 Lt			*	
69.316 Lt		*		
69.376 Lt			*	
69.435 Rt		*		
69.544 Rt		*		
69.633 Rt		*		
69.742 Rt		*		
69.929 Rt		*		
69.969 Rt			*	
70.224 Rt	*			
70.747 Rt				*
70.927 Lt	*			
70.987 Rt		*		
71.085 Rt		*		
71.614 Lt	*			
71.614 Rt	*			

Location	Field Drive	Private Drive	Section Line	Recovery Approach
71.874 Rt			*	
71.874 Lt	*			
72.155 Rt	*			
72.366 Lt	*			
72.646 Lt	*			
72.646 Rt	*			
72.896 Lt			*	
72.896 Rt			*	
73.403 Lt	*			
73.403 Rt	*			
74.416 Lt		*		
74.416 Rt		*		
74.877 Rt		*		
74.917 Lt			*	
74.917 Rt			*	
75.383 Lt	*			
75.383 Rt	*			
75.941 Lt			*	
75.941 Rt			*	
76.373 Rt	*			
76.752 Lt	*			
76.752 Rt		*		
76.841 Lt		*		
76.951 Lt	*			
76.951 Rt	*			
77.070 Rt			*	
77.171 Lt	*			
77.441 Lt			*	
77.461 Rt			*	
77.622 Rt	*			
77.762 Lt		*		
77.762 Rt	*			
77.872 Lt	*			
77.973 Lt	*			
77.973 Rt	*			
78.469 Lt		*		
78.559 Rt		*		
78.649 Lt	*			
78.649 Rt	*			
78.958 Lt			*	
78.958 Rt			*	
79.305 Lt	*			
79.405 Rt	*			
80.105 Lt			*	
80.105 Rt			*	
80.256 Rt	*			
81.120 Lt			*	

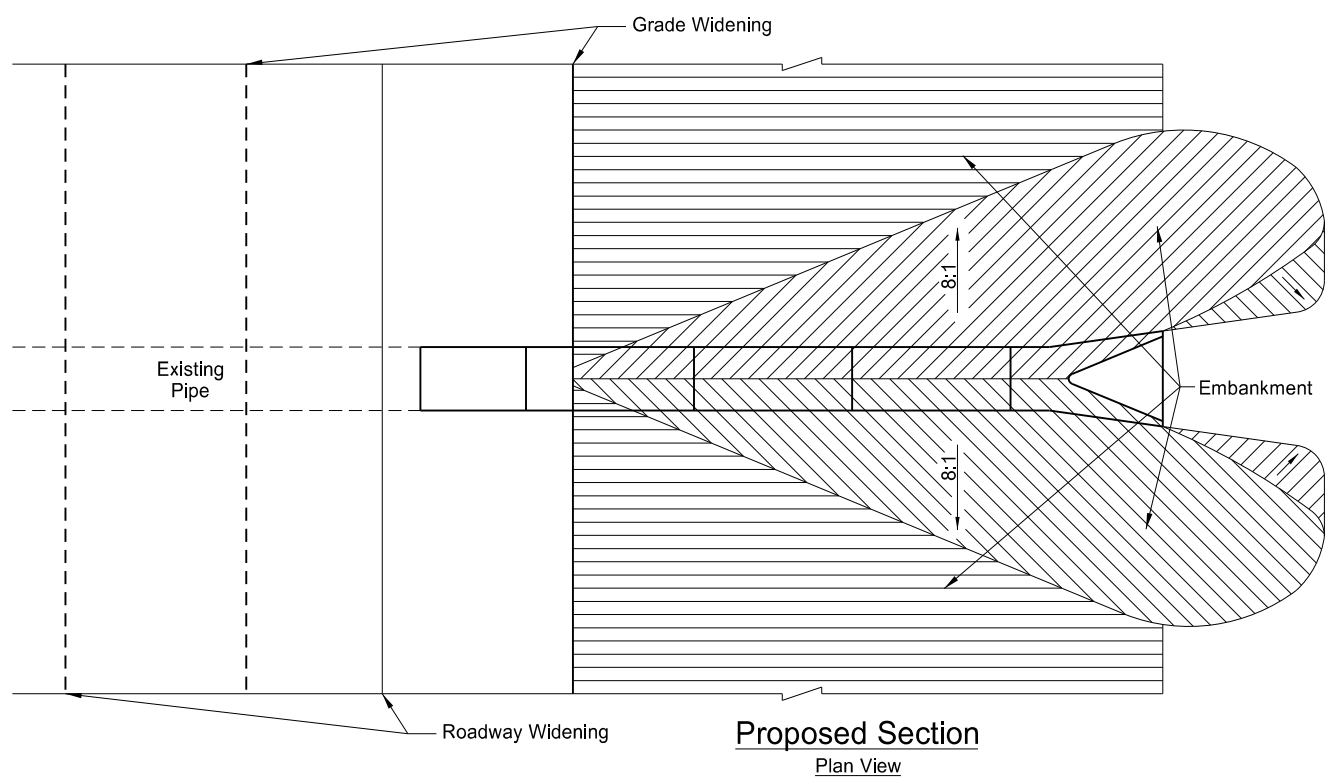
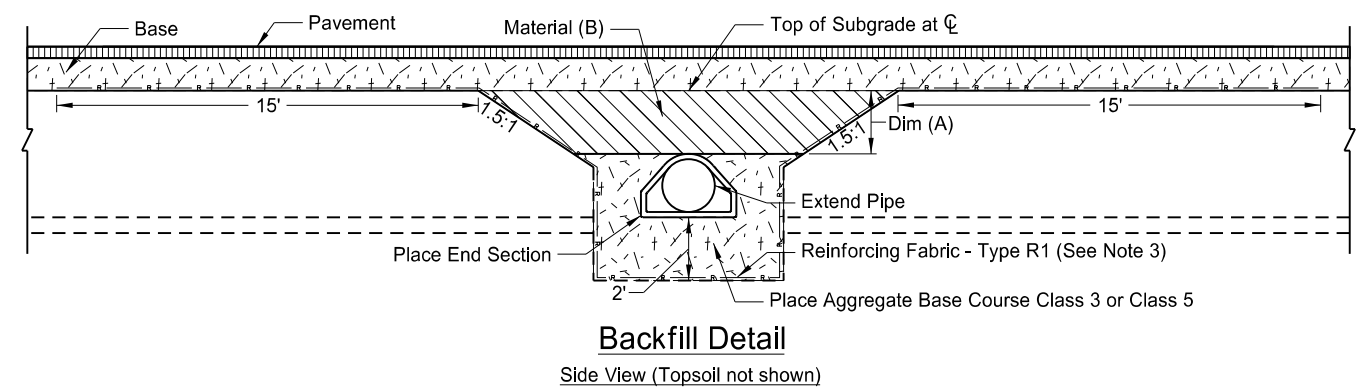
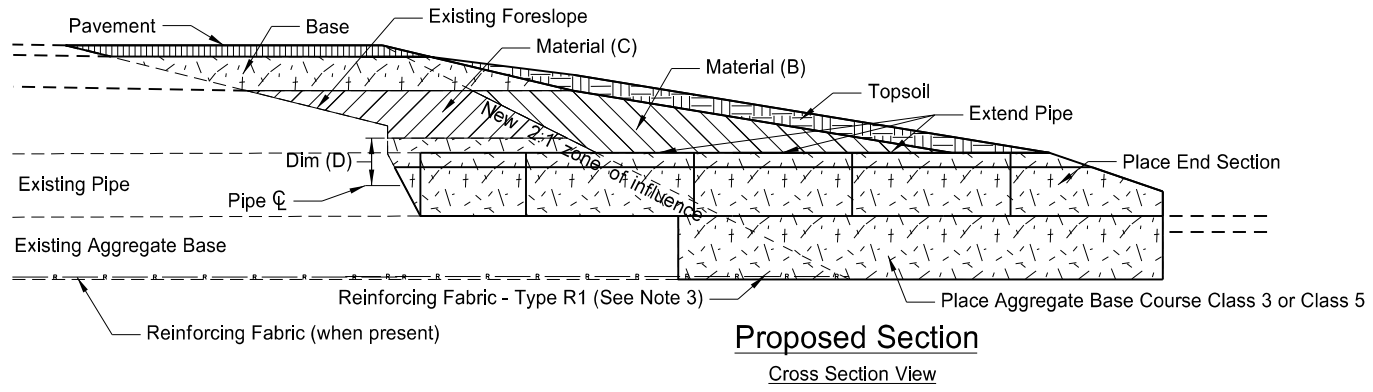
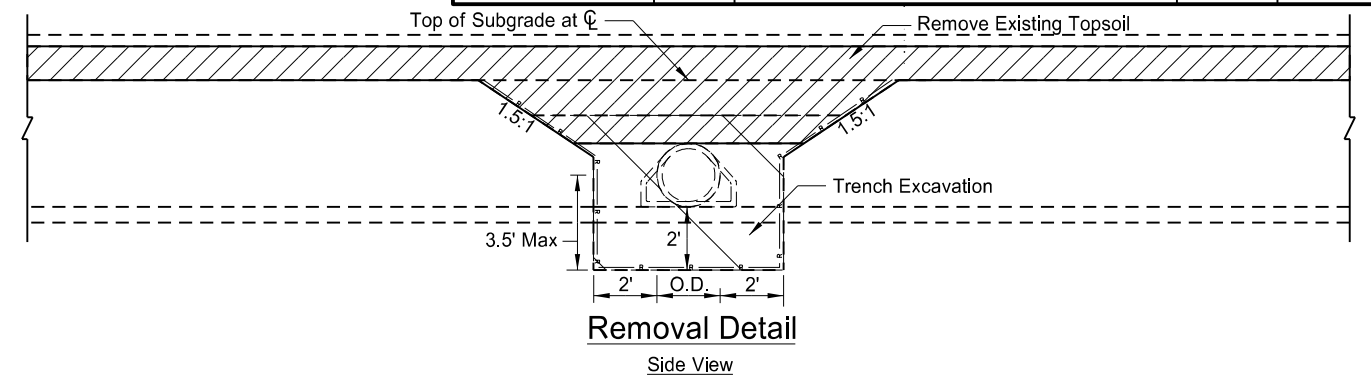
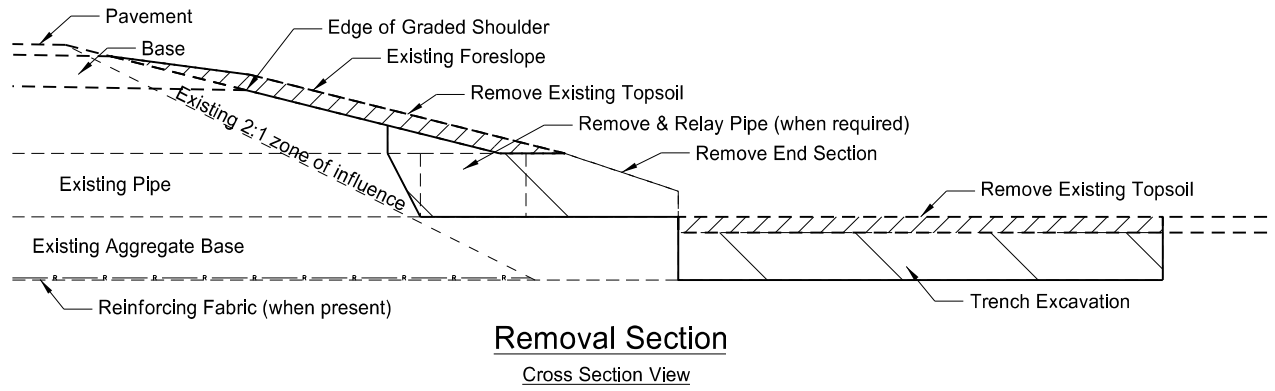
Location	Field Drive	Private Drive	Section Line	Recovery Approach
81.120 Rt			*	
81.430 Lt	*			
81.430 Rt	*			
81.780 Lt	*			
81.780 Rt		*		

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Approach Locations

Widening, Sliver Grading, HBP Overlay, and Guardrail

Glen Ullin East & North to County Line



Pay Items

- 1) Pipe*
- 2) Remove & Relay Pipe - All Types & Sizes (when required)
- 3) Remove & Reset End Section or Remove End Section and Place New End Section
- 4) Reinforcement Fabric - Type R1
- 5) Borrow Excavation (Compaction Control Type A) or Common Excavation-Type A
- 6) Topsoil
- 7) Seeding
- 8) Mulching

***Included in Pipe Pay Item**

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

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

NOTES:

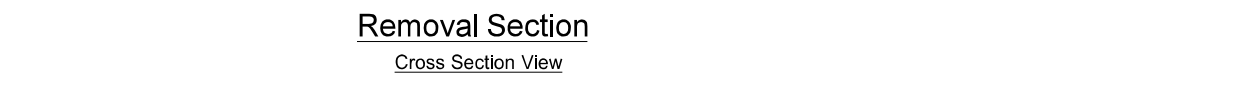
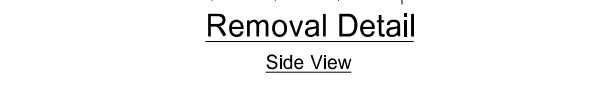
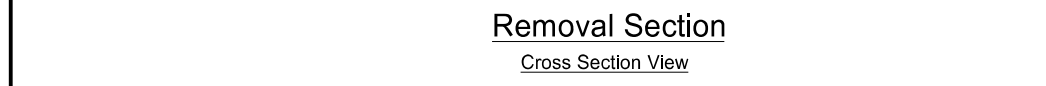
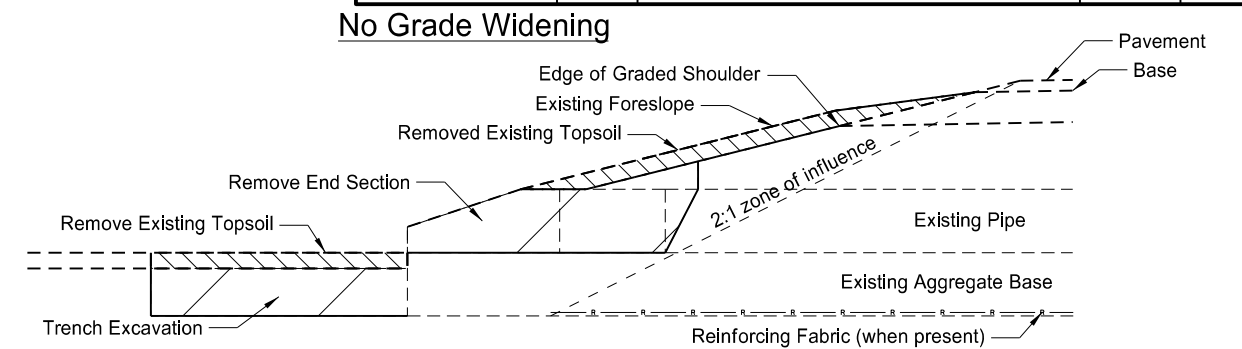
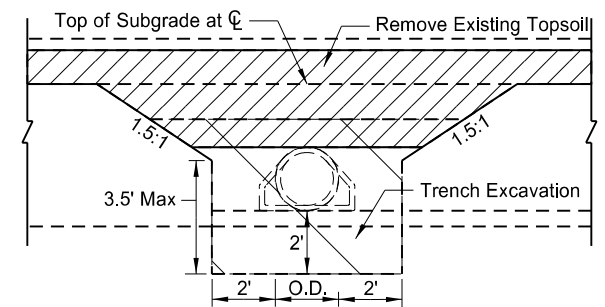
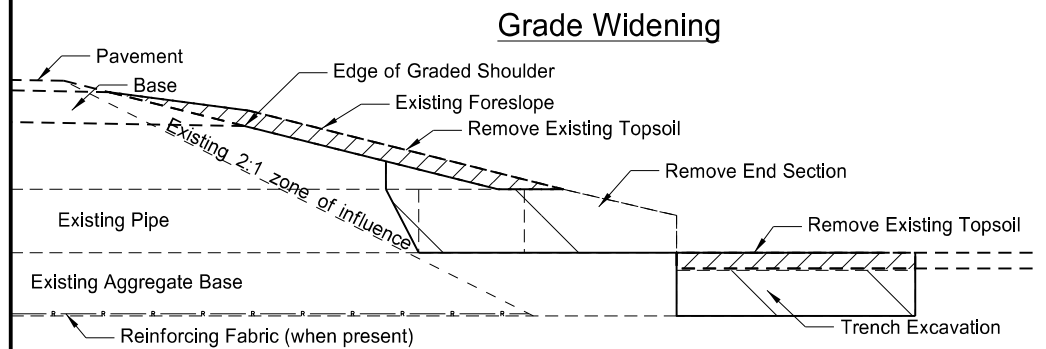
1. Embankment may be either Borrow Excavation (Compaction Control - Type A) or Common Excavation - Type A
2. Aggregate may be either Class 3 or Class 5 Aggregate Base Course.
3. When Reinforcing Fabric is provided in the plans at pipe extensions, expose the edge of the existing fabric and connect the new fabric. This may require the removal and resetting of additional sections of pipe. Reinforcing Fabric is not required outside the 2:1 zone of influence.

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Mainline ϕ Pipe Extension Detail For Adding a Lane

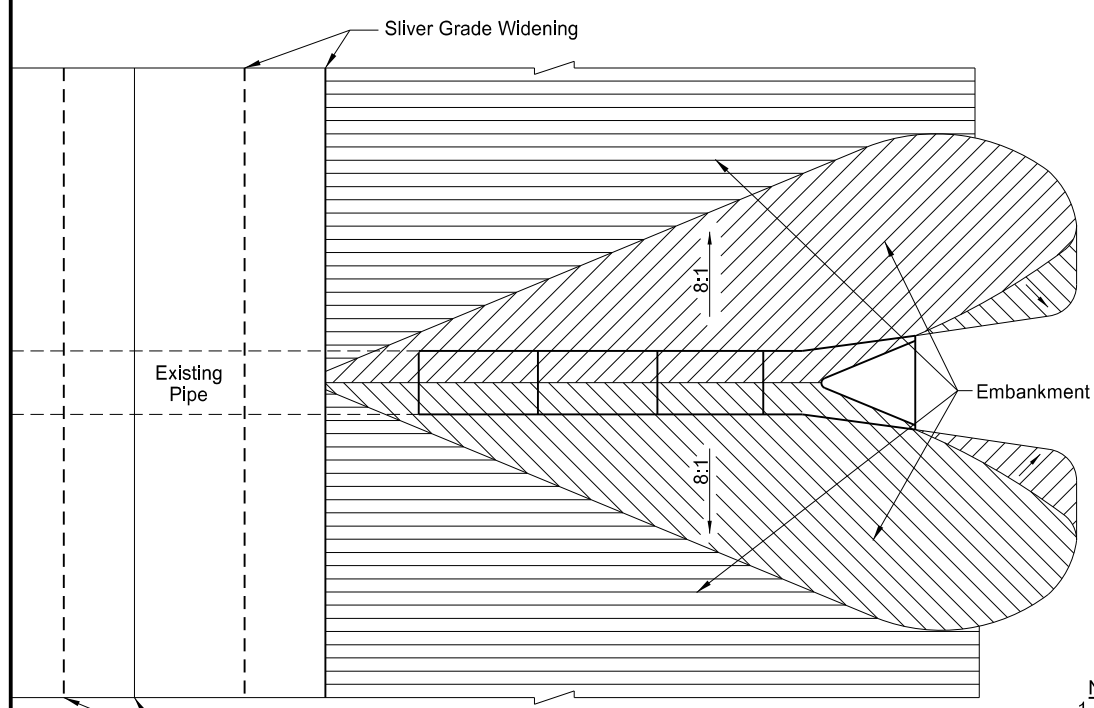
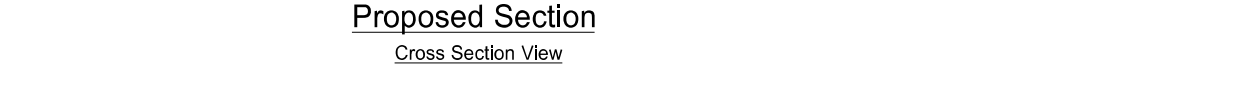
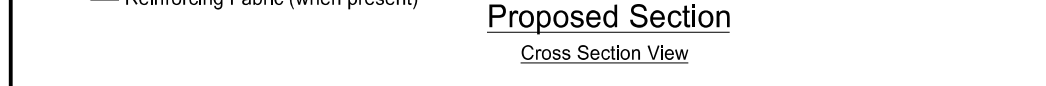
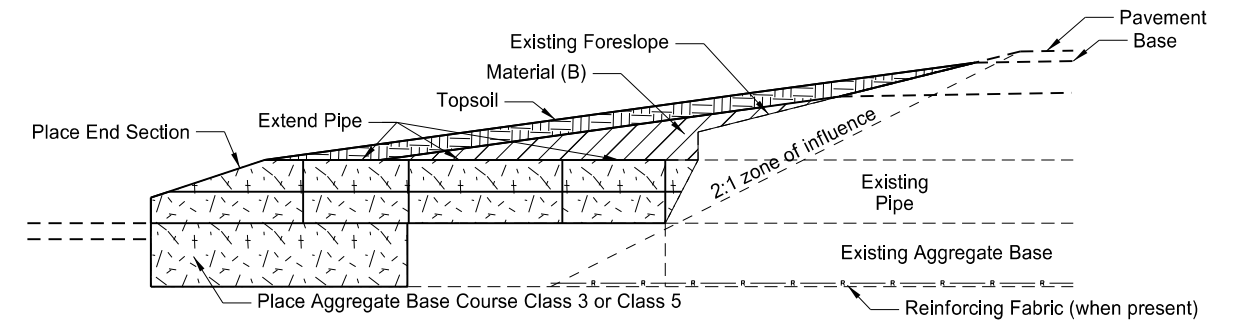
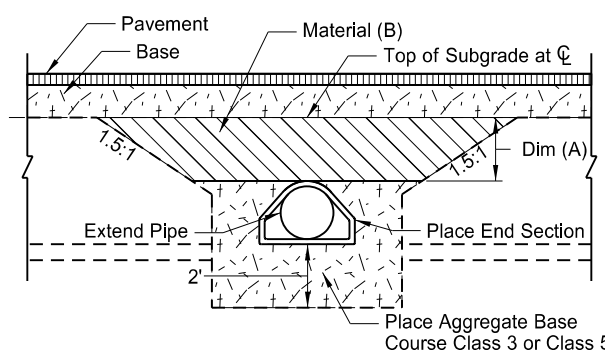
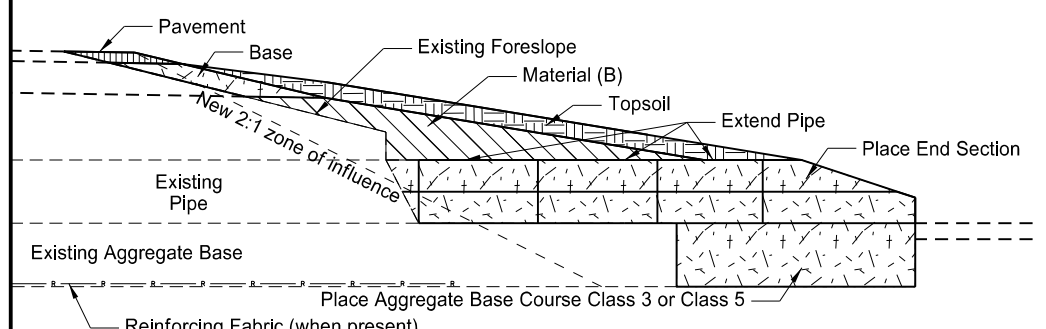
Widening, Sliver Grading, HBP Overlay, and Guardrail

Glen Ullin East & North to County Line



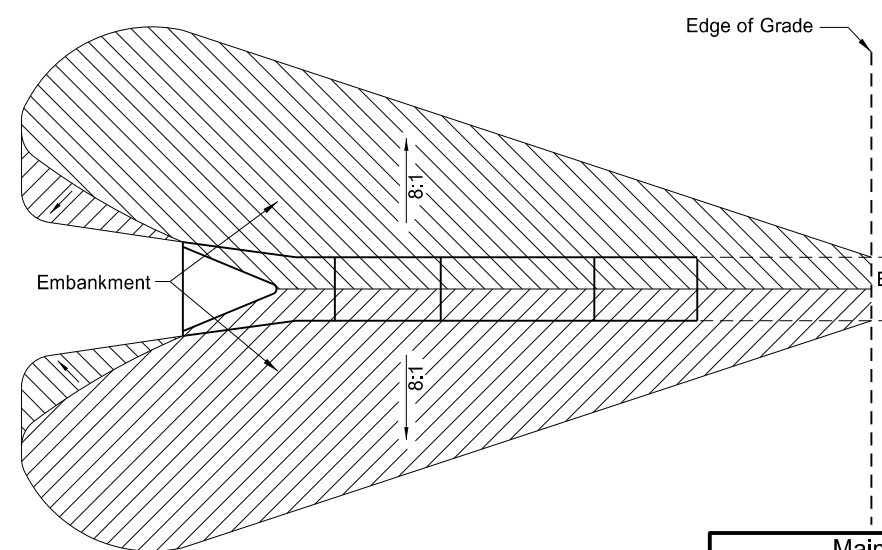
- Pay Items**
- 1) Pipe*
 - 2) Remove & Relay Pipe - All Types & Sizes (when required)
 - 3) Remove & Reset End Section or new End Section
 - 4) Borrow Excavation (Compaction Control Type A) or Common Excavation-Type A
 - 5) Topsoil
 - 6) Seeding
 - 7) Mulching
- *Included in Pipe Pay Item**
- 1) Pipe
 - 2) Trench excavation
 - 3) Aggregate Base Course Class 3 or Class 5

- 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, Seeding, and Mulch



Pipe Materials	Dim (A) \leq 4 Feet	Dim (A) $>$ 4 Feet
Concrete	Material (B)	Material (B)
Metal	Embank or Aggr	Embank or Aggr

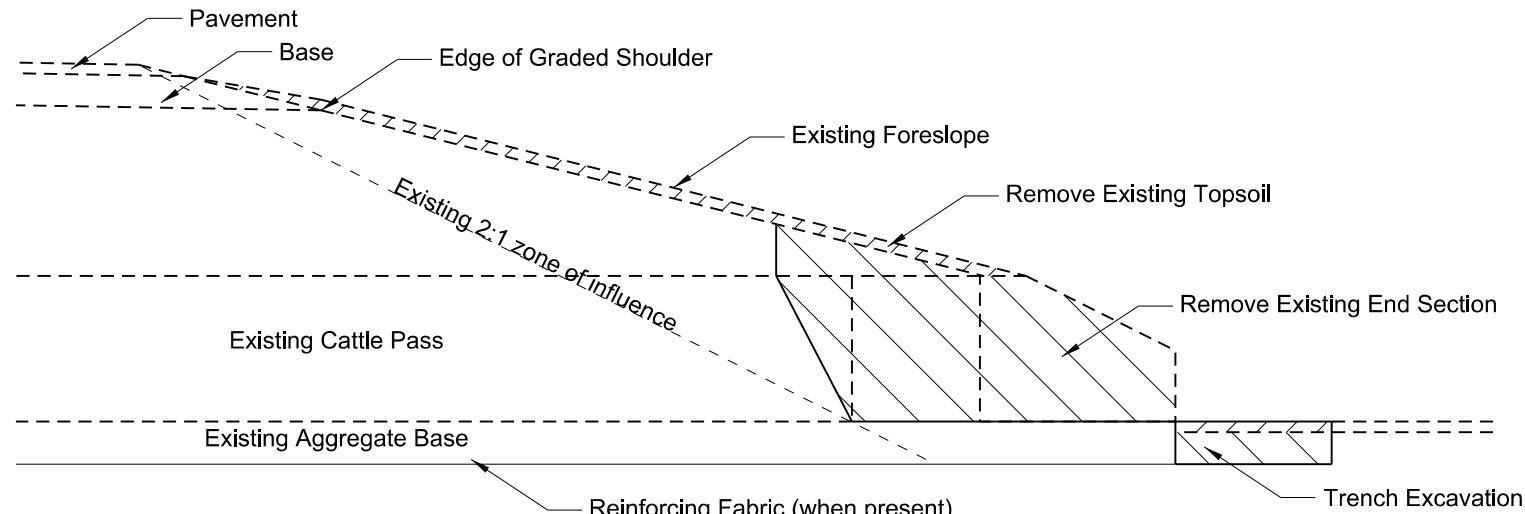
- NOTES:**
1. Embankment may be either Borrow Excavation (Compaction Control - Type A) or Common Excavation - Type A.
 2. Aggregate may be either Class 3 or Class 5 Aggregate Base Course.



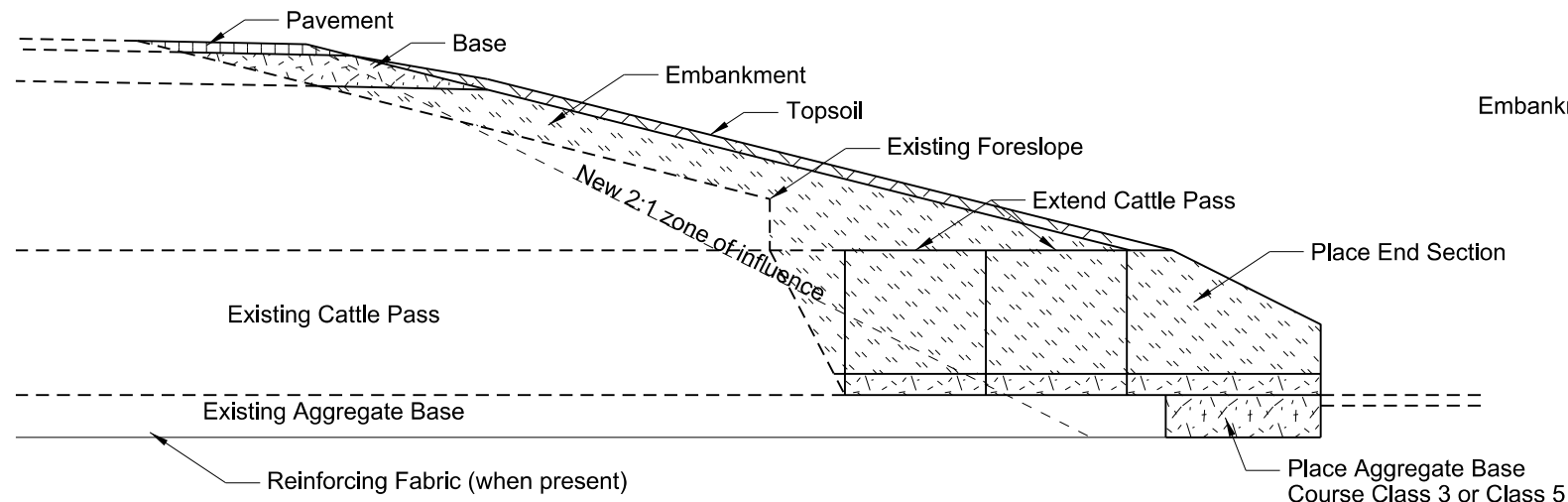
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Mainline ϕ Pipe Extension Detail
Widening, Sliver Grading, HBP Overlay, and Guardrail
Glen Ullin East & North to County Line

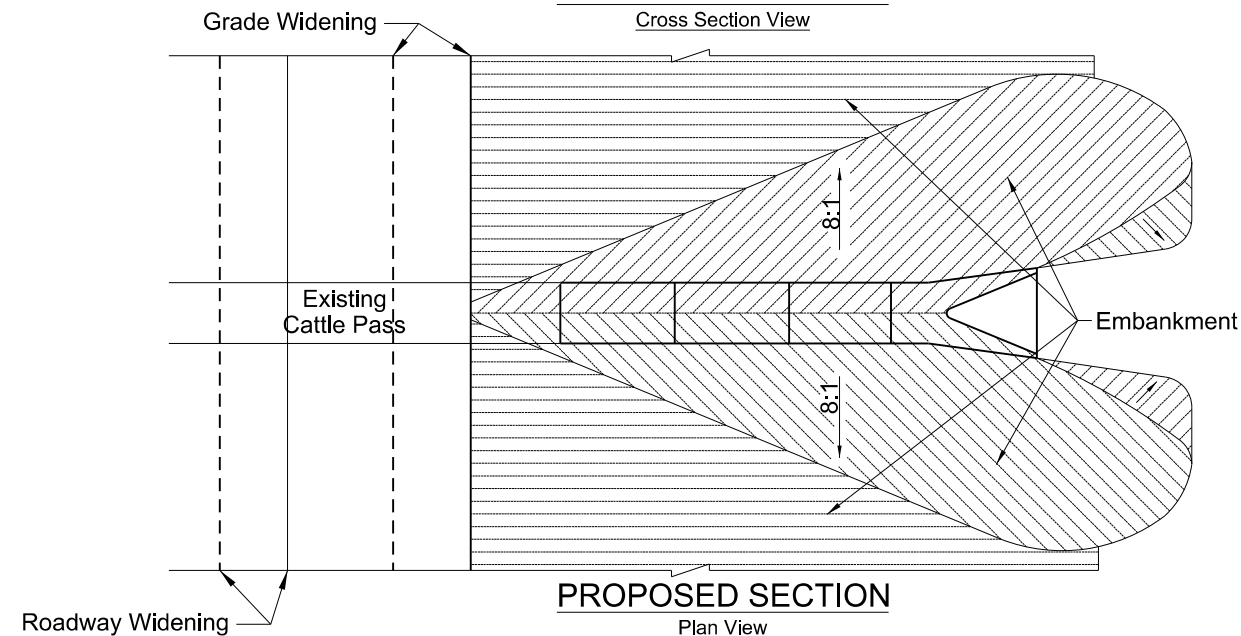
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SS-NH-1-049(027)067	20	7



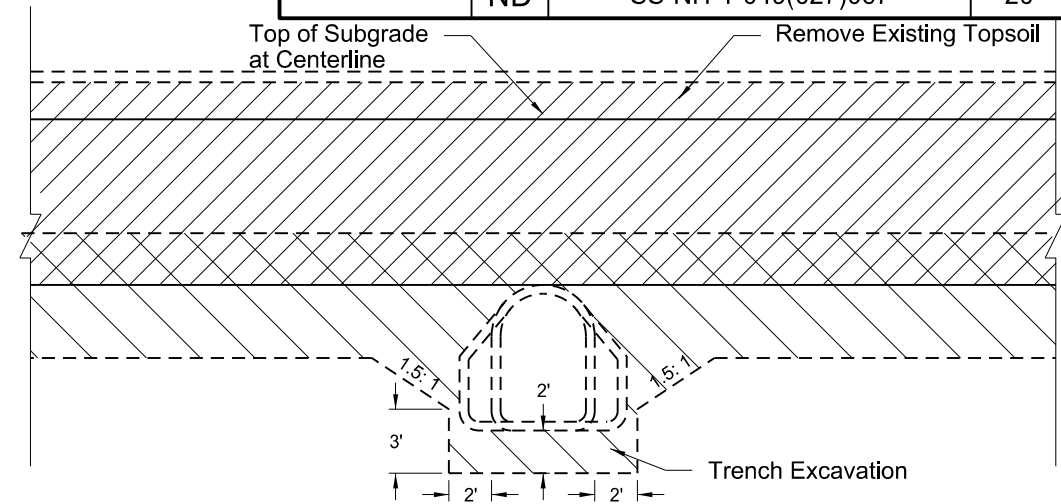
REMOVAL SECTION
Cross Section View



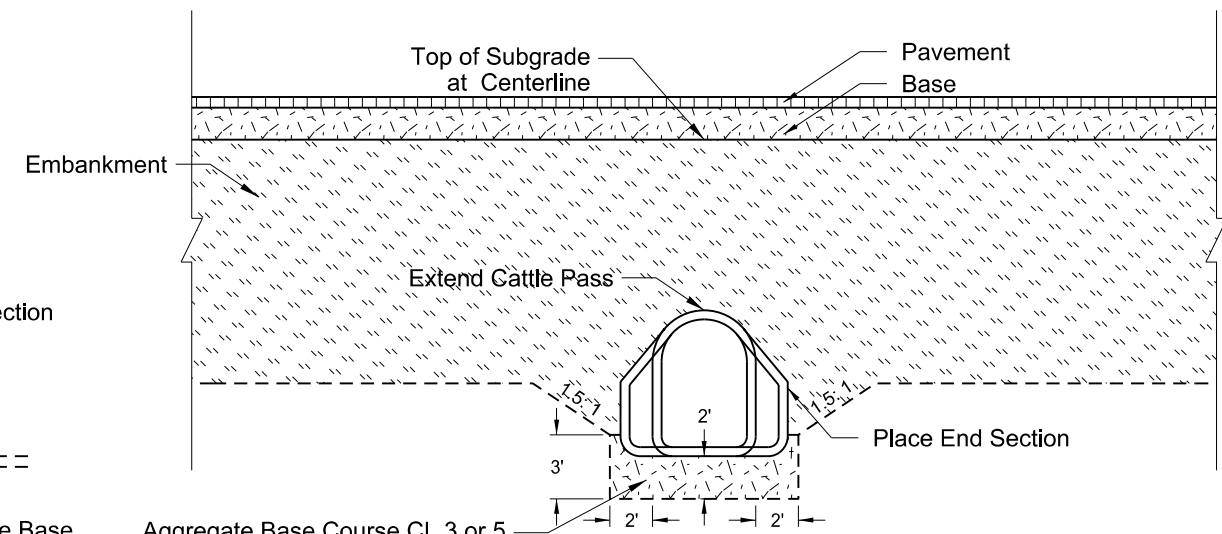
PROPOSED SECTION
Cross Section View



PROPOSED SECTION
Plan View



REMOVAL DETAIL
Side View



BACKFILL DETAIL
Side View (Topsoil Not Shown)

Pay Items

- 1) Cattle Pass Conc Intermed Section*
- 2) Remove and Relay Conc Cattle Pass End Section
- 3) Remove and Relay Conc Cattle Pass (If Required)

***Included in Cattle Pass Conc Intermed Section Pay Item**

- 1) Cattle Pass
- 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
- 2) When reinforcing fabric is present, expose the edge of the existing fabric and connect the new fabric. This may require the removal and resetting of additional sections of pipe. Reinforcing fabric is not required outside the 2:1 zone of influence.

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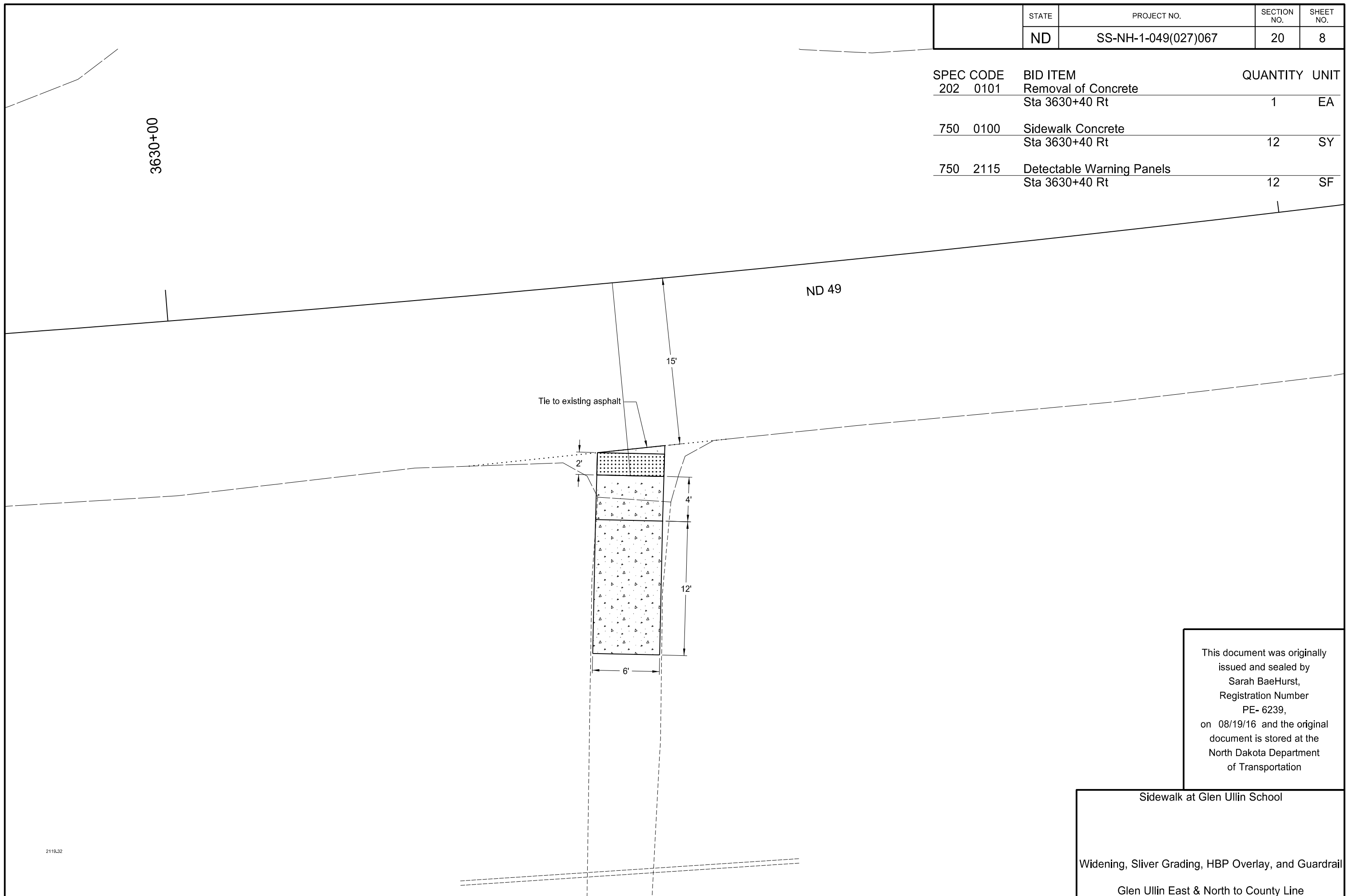
Transverse Mainline Cattle Pass Extension Detail

Widening, Sliver Grading, HBP Overlay, and Guardrail

Glen Ullin East & North to County Line

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	20	8

SPEC CODE	BID ITEM	QUANTITY	UNIT
202 0101	Removal of Concrete Sta 3630+40 Rt	1	EA
750 0100	Sidewalk Concrete Sta 3630+40 Rt	12	SY
750 2115	Detectable Warning Panels Sta 3630+40 Rt	12	SF



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Sidewalk at Glen Ullin School
Widening, Sliver Grading, HBP Overlay, and Guardrail
Glen Ullin East & North to County Line

2119.32

P.C. Station 3948+55.09
P.I. Station 3959+11.29
Delta = 20° 53' 21.00" (RT)
Degree = 1° 00' 00.00"
Tangent = 1,056.20
Length = 2,088.94
Radius = 5,729.65

Station	Left Slope	Right Slope
PC - 118'	-2.1	-2.1
PC - 59'	0.0	-2.1
PC	2.0	-2.1
PC + 25'	3.0	-3.0
PT - 25'	3.0	-3.0
PT	2.0	-2.1
PT + 59'	0.0	-2.1
PT + 118'	-2.1	-2.1

P.C. Station 4081+66.16
P.I. Station 4089+22.64
Delta = 15° 02' 32.00" (RT)
Degree = 1° 00' 00.00"
Tangent = 756.48
Length = 1,504.25
Radius = 5,729.65

Station	Left Slope	Right Slope
PC - 118'	-2.1	-2.1
PC - 59'	0.0	-2.1
PC	2.0	-2.1
PC + 25'	3.0	-3.0
PT - 25'	3.0	-3.0
PT	2.0	-2.1
PT + 59'	0.0	-2.1
PT + 118'	-2.1	-2.1

P.C. Station 3986+02.87
P.I. Station 3998+24.01
Delta = 24° 03' 46.00" (LT)
Degree = 1° 00' 00.00"
Tangent = 1,221.14
Length = 2,406.27
Radius = 5,729.56

Station	Left Slope	Right Slope
PC - 118'	-2.1	-2.1
PC - 59'	-2.1	0.0
PC	-2.1	2.0
PC + 25'	-3.0	3.0
PT - 25'	-3.0	3.0
PT	-2.1	2.0
PT + 59'	-2.1	0.0
PT + 118'	-2.1	-2.1

P.C. Station 4179+95.44
P.I. Station 4194+49.40
Delta = 46° 25' 02.50" (LT)
Degree = 1° 41' 22.82"
Tangent = 1,453.97
Length = 2,747.12
Radius = 3,390.94

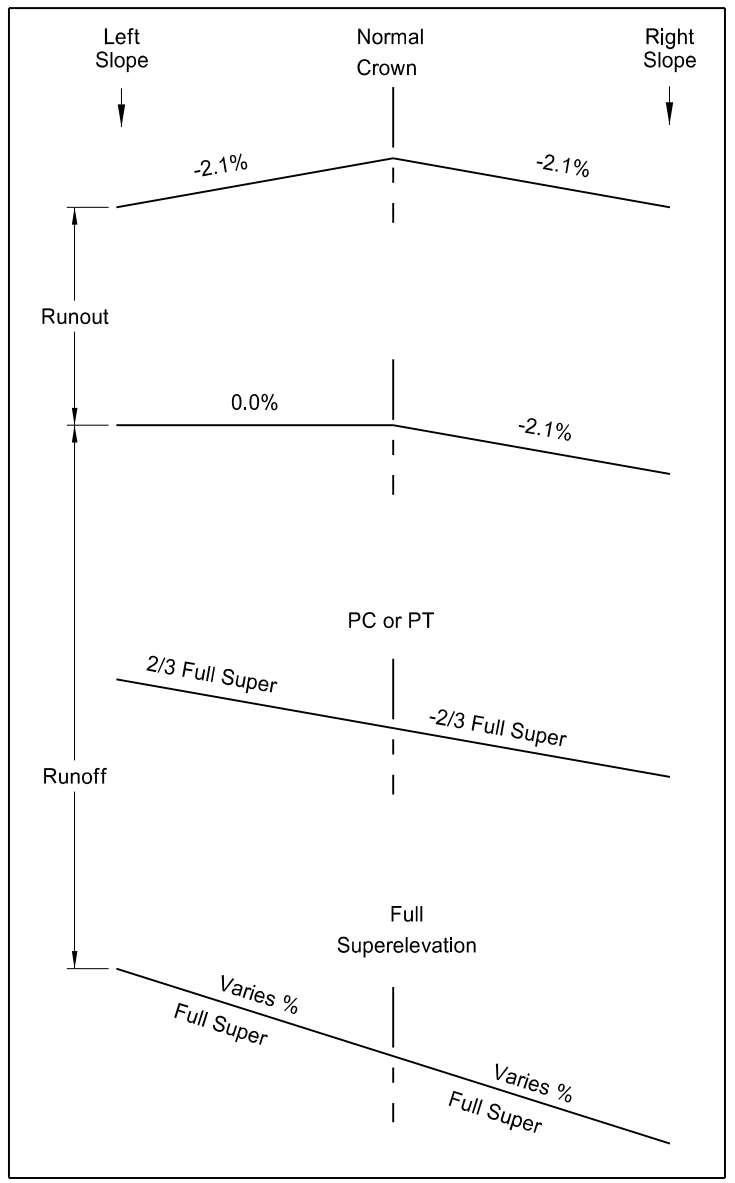
Station	Left Slope	Right Slope
PC - 147'	-2.1	-2.1
PC - 88'	-2.1	0.0
PC	-3.0	3.0
PC + 38'	-4.5	4.5
PT - 38'	-4.5	4.5
PT	-3.0	3.0
PT + 88'	-2.1	0.0
PT + 147'	-2.1	-2.1

P.C. Station 4040+23.41
P.I. Station 4048+14.16
Delta = 12° 36' 03.00" (LT)
Degree = 0° 48' 00.00"
Tangent = 790.75
Length = 1,575.12
Radius = 7,162.03

Station	Left Slope	Right Slope
PC - 108'	-2.1	-2.1
PC - 49'	-2.1	0.0
PC	-2.1	1.7
PC + 21'	-2.5	2.5
PT - 21'	-2.5	2.5
PT	-2.1	1.7
PT + 49'	-2.1	0.0
PT + 108'	-2.1	-2.1

P.C. Station 4213+28.32
P.I. Station 4229+76.69
Delta = 46° 41' 00.00" (RT)
Degree = 1° 30' 00.00"
Tangent = 1,648.38
Length = 3,112.32
Radius = 3,819.83

Station	Left Slope	Right Slope
PC - 139'	-2.1	-2.1
PC - 80'	0.0	-2.1
PC	2.7	-2.7
PC + 35'	4.1	-4.1
PT - 35'	4.1	-4.1
PT	2.7	-2.7
PT + 80'	0.0	-2.1
PT + 139'	-2.1	-2.1



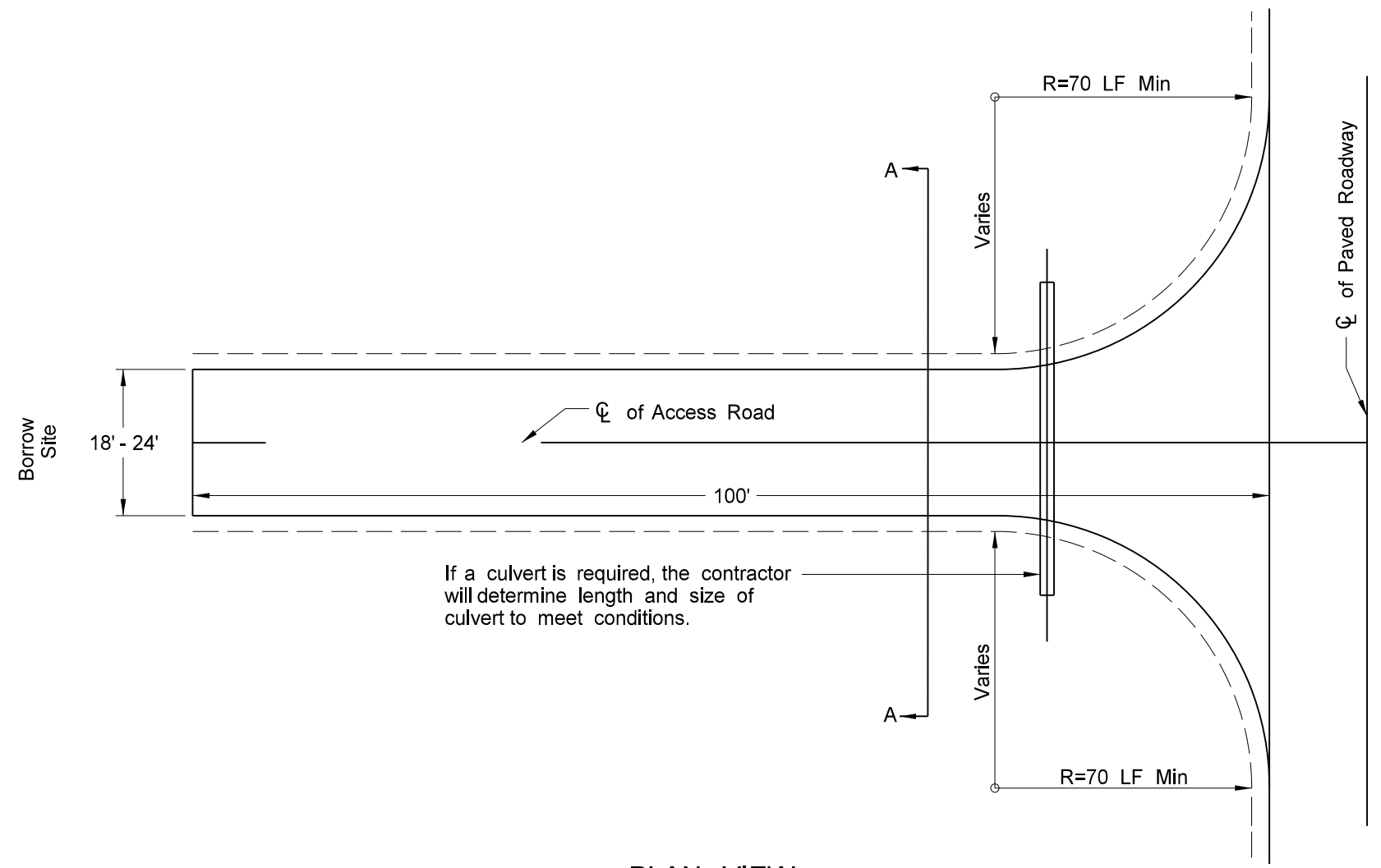
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Superelevation Table
Widening, Sliver Grading, HBP Overlay, and Guardrail
Glen Ullin East & North to County Line

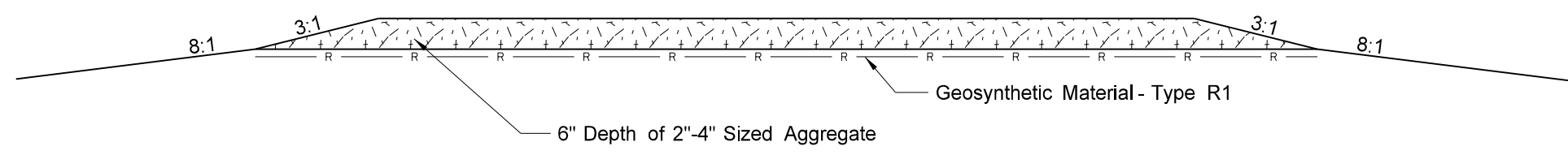
Note: Calculations based on AASHTO method five. A design speed of 65 mph and maximum superelevation of 6% were used.

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	20	10

SPEC CODE	BID ITEM	QUANTITY	UNIT
265 0100	Stabilized Construction Access		
	Borrow Site Entrances	3	EA
265 0101	Remove Stabilized Construction Access		
	Borrow Site Entrances	3	EA



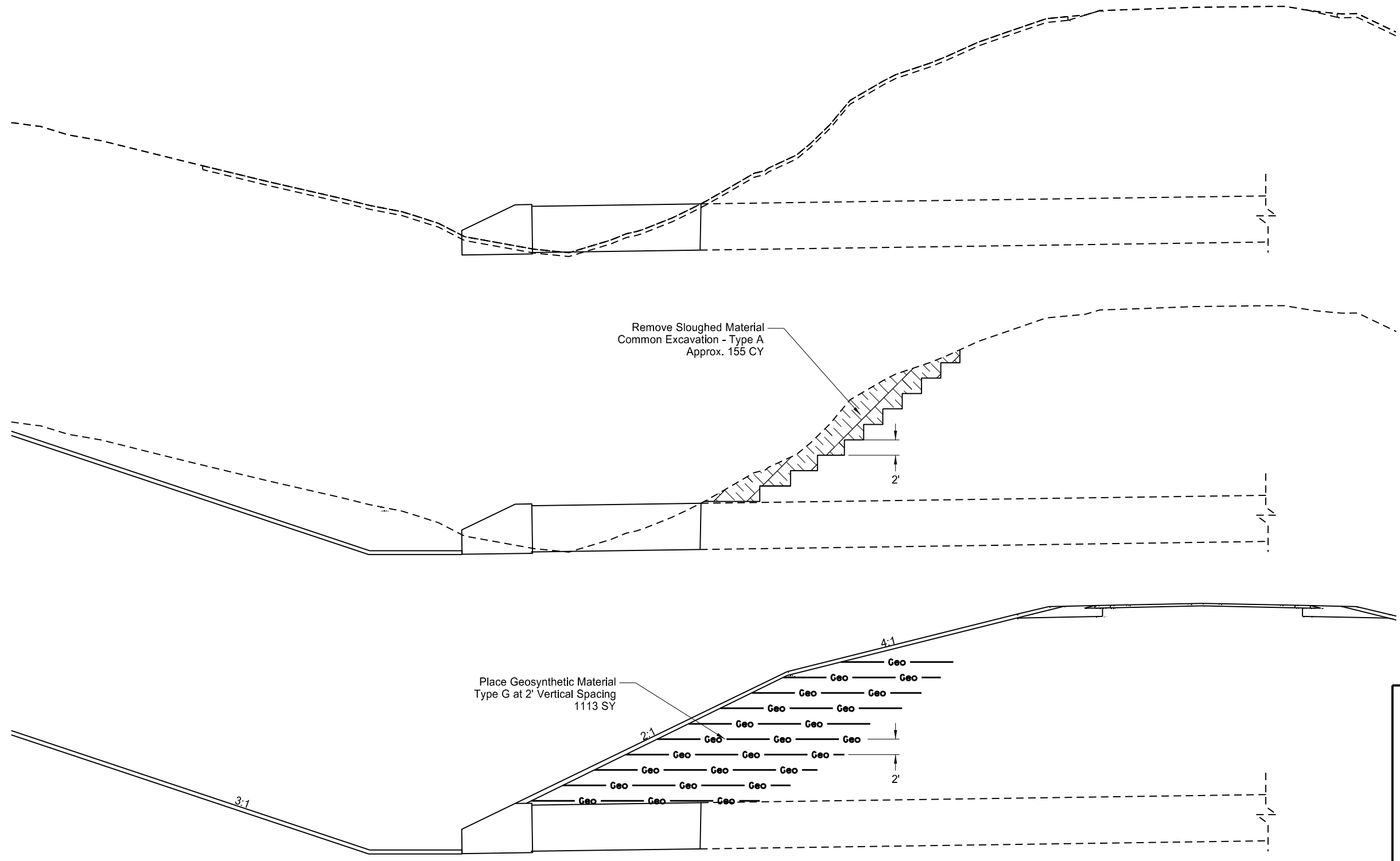
PLAN VIEW



A - A Cross Section

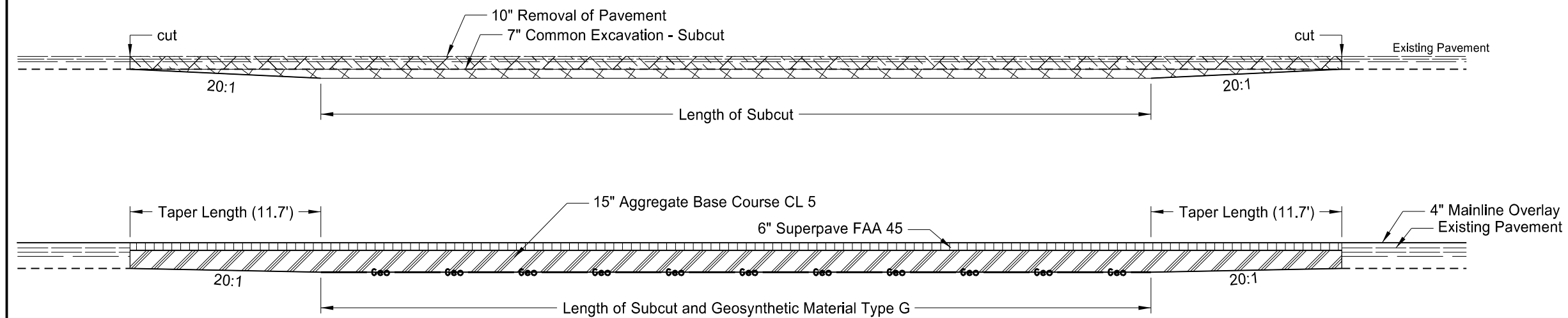
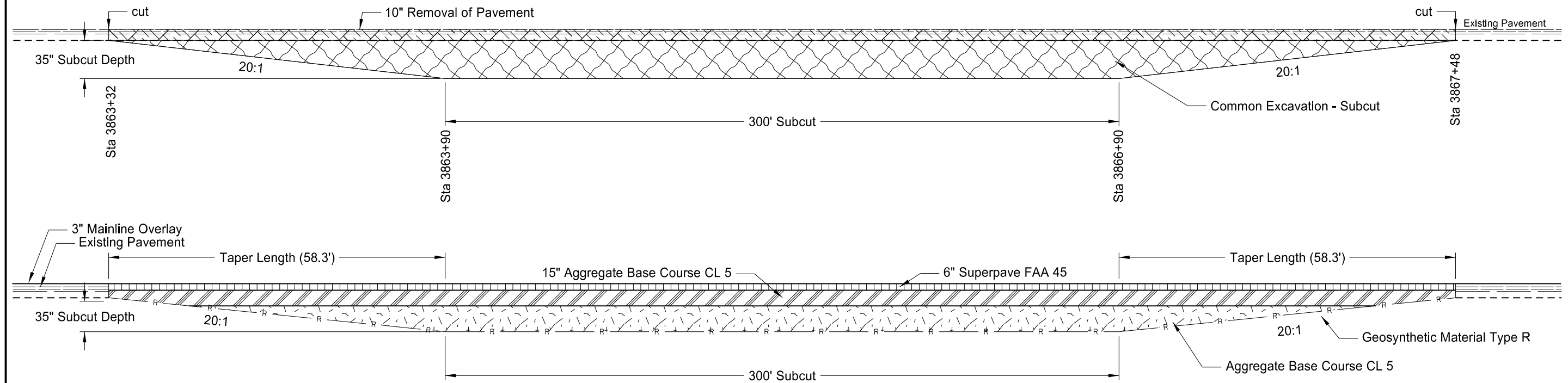
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Stabilized Construction Access
 Widening, Sliver Grading, HBP Overlay, and Guardrail
 Glen Ullin East & North to County Line



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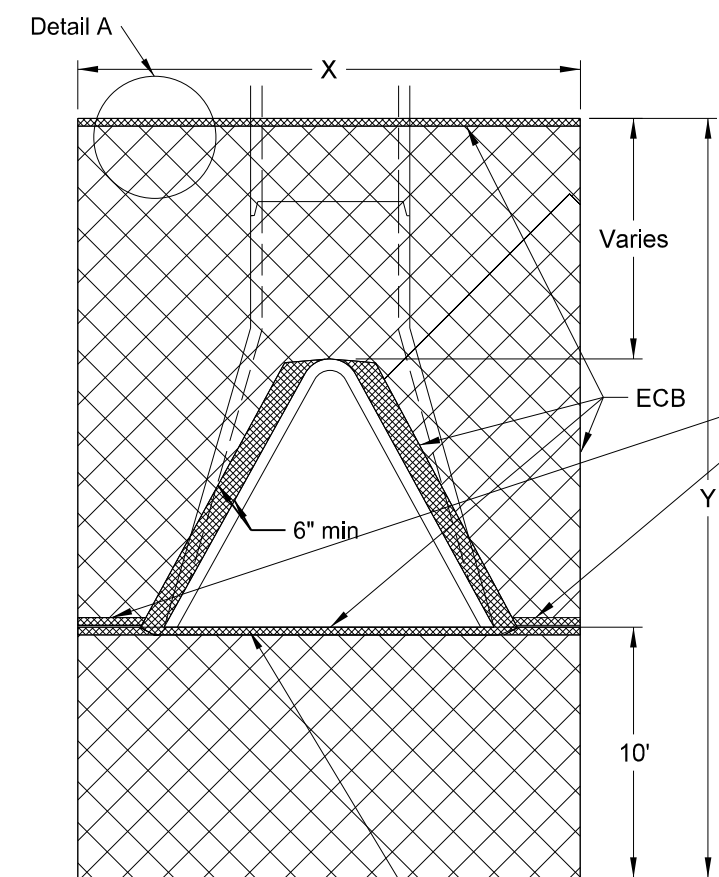
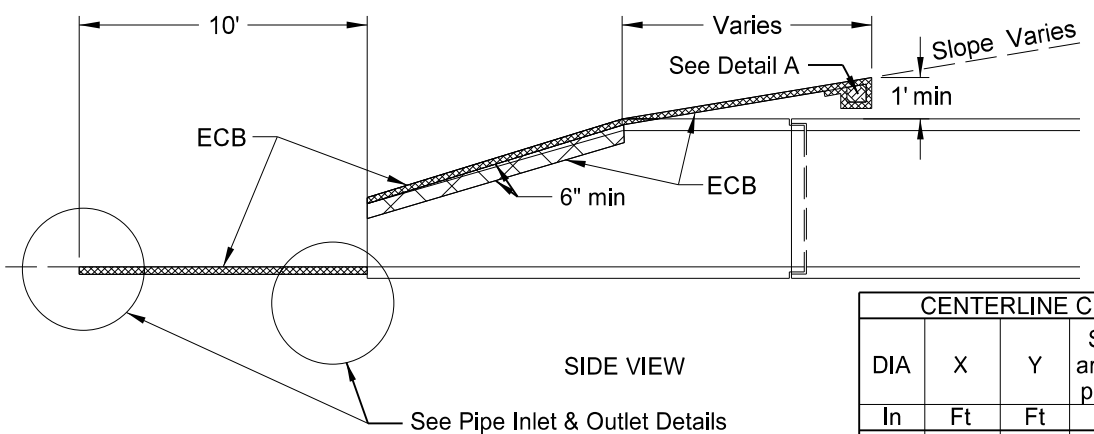
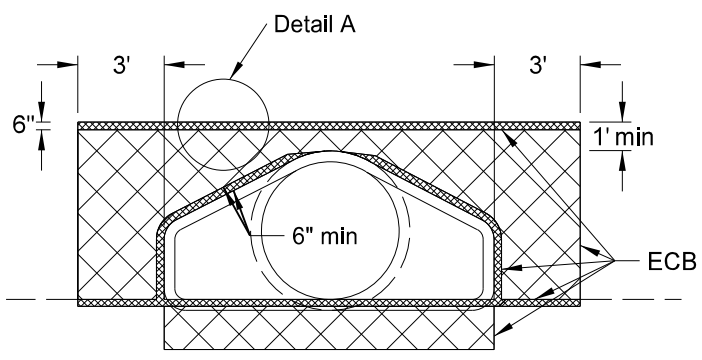
Cattle Pass Extension and Benching
 OCL2 3791+13 Lt - OCL2 3971+53 Lt
 Widening, Sliver Grading, HBP Overlay, and Guardrail
 Glen Ullin East & North to County Line



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Transition		Subcut & Reinforcement		Transition	
Begin Sta	End Sta	Begin Sta	Begin Sta	Begin Sta	Begin Sta
4165+74.3	4165+86	4165+86	4166+86	4166+86	4166+97.7
4216+06.3	4216+18	4216+18	4220+18	4220+18	4220+29.7
4222+06.3	4223+18	4223+18	4227+48	4227+48	4227+59.7

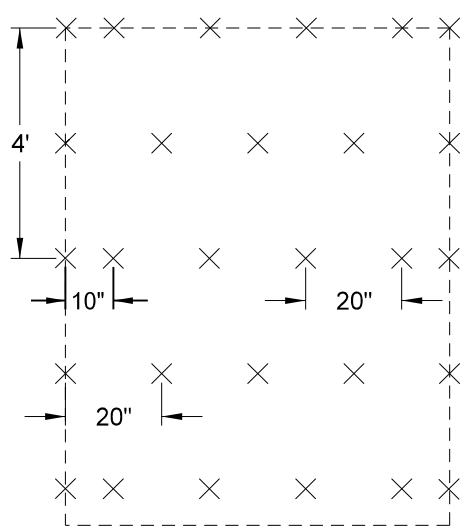
Subcut and Subgrade Reinforcement Details
 Widening, Sliver Grading, HBP Overlay, and Guardrail
 Glen Ullin East and North to County Line



Tuck this end a minimum of 6" into the embankment.

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

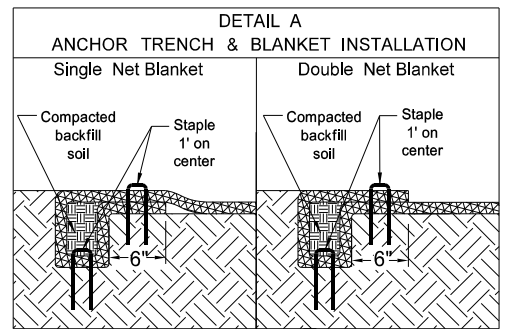
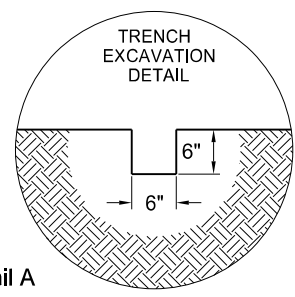
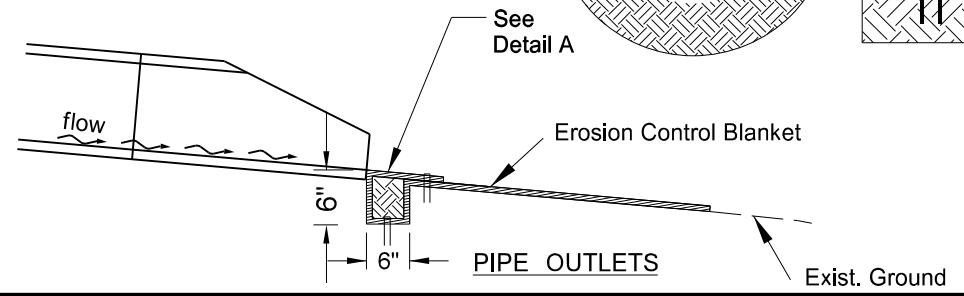
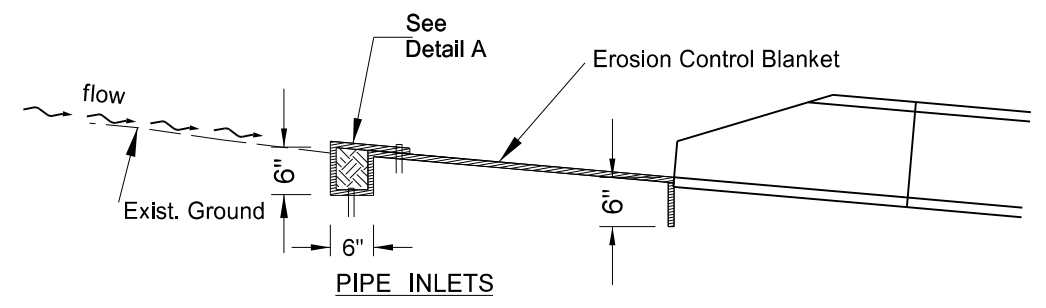
NOTE: Tuck the ECB a minimum of 6" into the embankment (against the flared end section) around the opening of the flared end section.



DIA	X	Y	Surface area to be protected	ECB
In	Ft	Ft	SF	SY
24	10.5	27.6	172.1	20
27	11.0	18.0	182.3	21
30	11.6	18.5	195.1	22
36	12.7	19.2	216.7	24
42	13.3	19.2	225.2	25
48	13.8	20.0	238.0	27
54	14.5	19.5	244.7	28
60	15.0	19.0	248.3	28
66	15.6	20.0	264.5	30
72	16.2	20.5	276.8	31

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

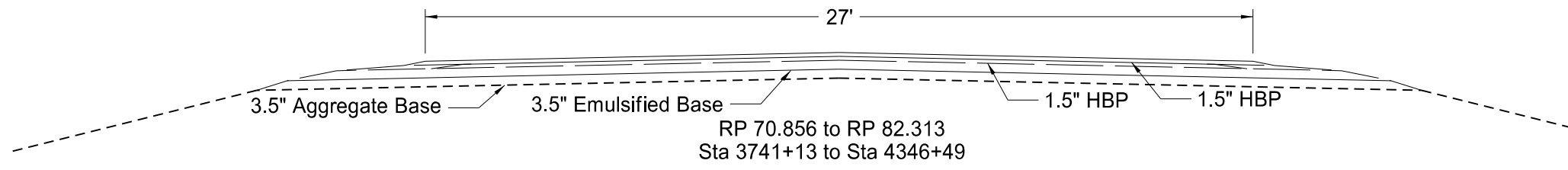
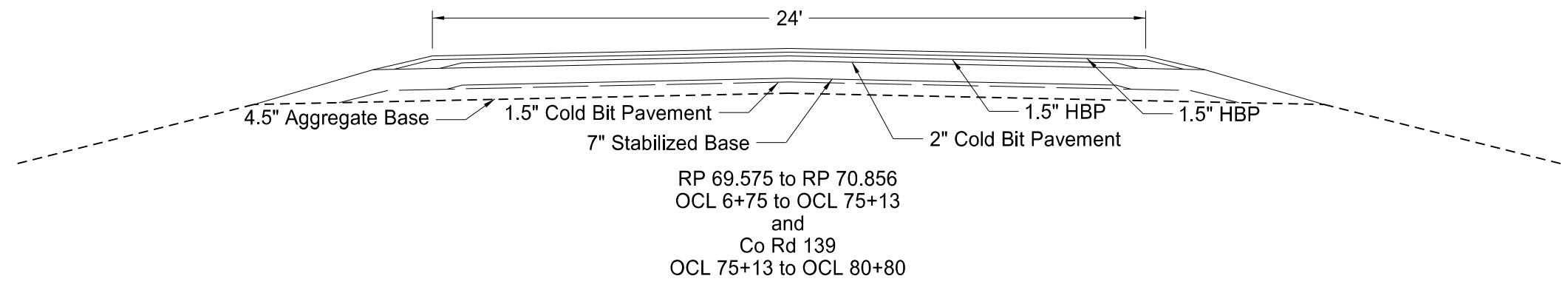
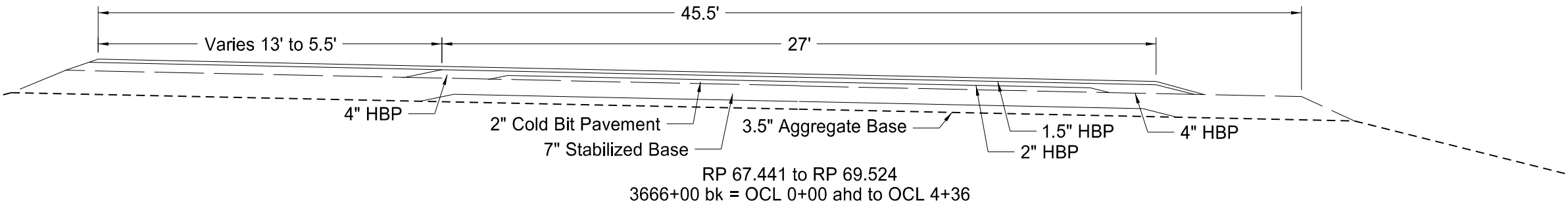
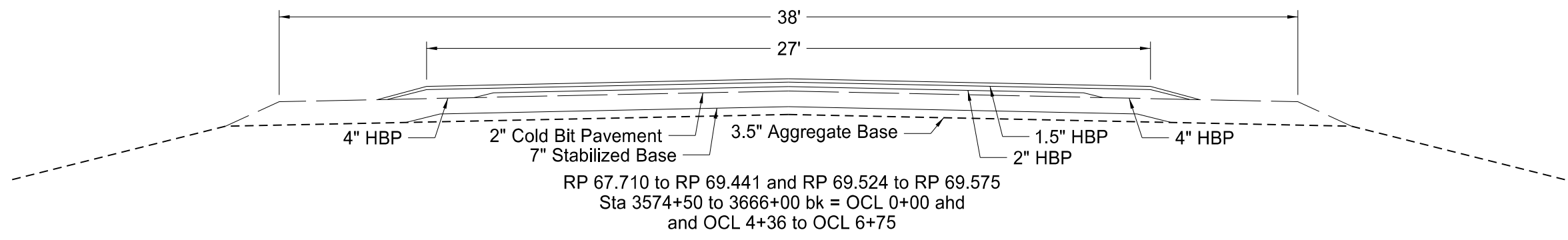
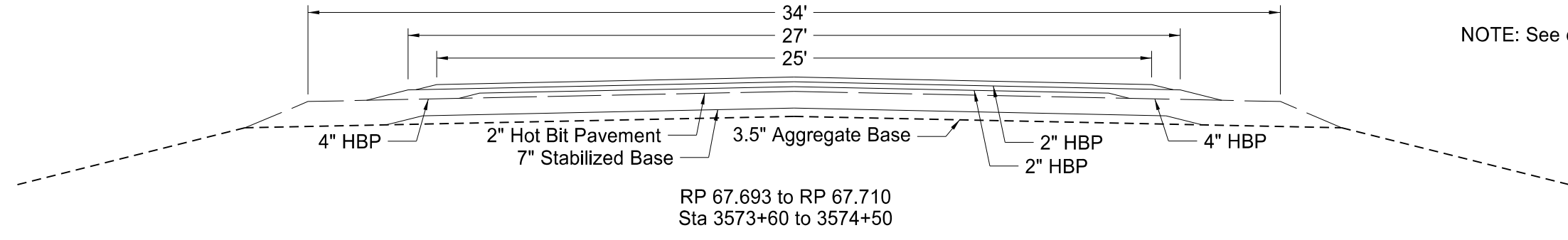
Location to be Protected	Culvert Type	Pipe Diam	#	Unit Quantity	Total Quantity
Station	Appr/CL	(In)		(SY)	(SY)
OCL 20+71	CL	18	2	20	40
OCL 41+68	CL	30	2	22	44
OCL 58+32	CL	21	2	20	40
OCL 64+49	CL	21	2	20	40
OCL 75+02 Rt	Appr	24	2	24	48
OCL 76+64	CL	18	2	20	40
OCL2 3931+46 Lt	CL	30	1	22	22
OCL2 3942+37	CL	30	2	22	44
OCL2 3955+21 Lt	Appr	18	2	22	44
OCL2 3955+34 Rt	Appr	30	2	27	54
OCL2 3972+27 Lt	CL	Cattle		31	0
OCL2 3972+98 Rt	CL	Cattle		31	0
OCL2 3977+55 Lt	CL	30	1	22	22
OCL2 3991+14	CL	24	2	20	40
OCL2 4009+91 Rt	Appr	18	2	22	44
OCL2 4033+17	CL	Cattle	2	31	62
OCL2 4046+58	CL	30	1	22	22
OCL2 4071+17	CL	24	2	20	40
OCL2 4088+56	CL	24	2	20	40
OCL2 4103+64	CL	Cattle	2	31	62
OCL2 4141+21	CL	36	2	24	48
OCL2 4143+71	CL	36	2	24	48
OCL2 4153+21	CL	Cattle	2	31	62
OCL2 4187+59	CL	24	1	20	20
OCL2 4207+54	CL	Cattle	2	35	70
4227+79	CL	24	2	20	40
4257+31	CL	60	2	28	56
4268+28	CL	36	2	24	48
4278+29	CL	24	2	20	40
4334+50	CL	36	2	24	48
Total (SY)					1228



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Erosion Control at Culvert Flared End Sections
Widening, Sliver Grading, HBP Overlay, and Guardrail
Glen Ullin East & North to County Line

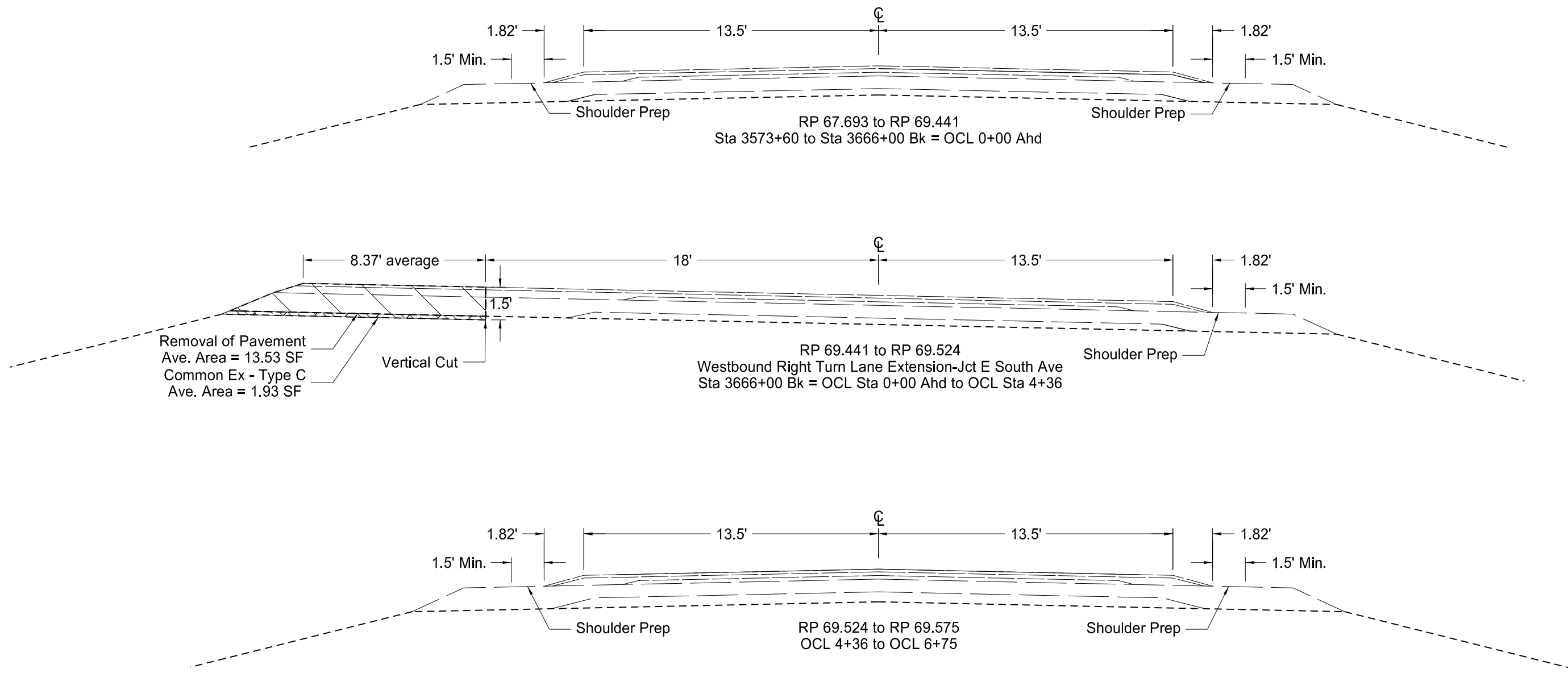
NOTE: See core data for actual pavement depths.



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Existing Typical Section
Widening, Sliver Grading, HBP Overlay, and Guardrail
Glen Ullin East & North to County Line

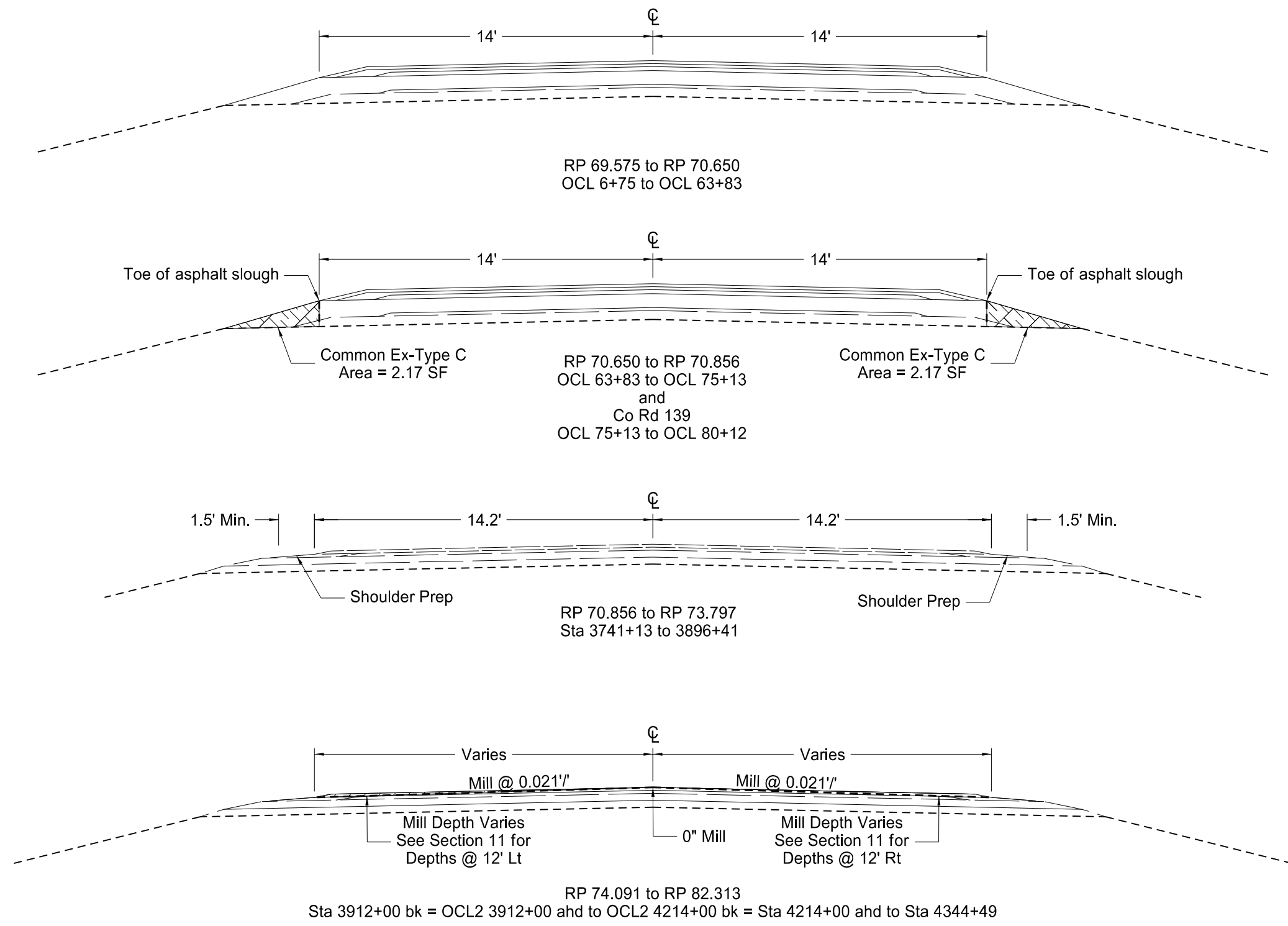
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	30	2



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Removal Typical Sections
Widening, Sliver Grading, HBP Overlay, and Guardrail
Glen Ullin East & North to County Line

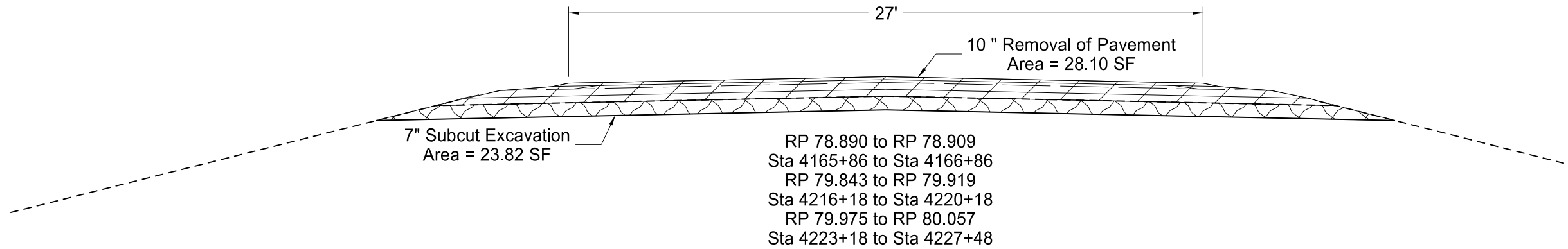
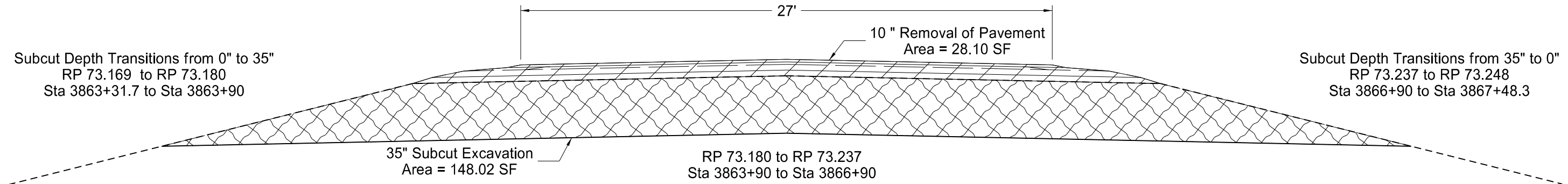
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	30	3



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Removal Typical Sections
Widening, Sliver Grading, HBP Overlay, and Guardrail
Glen Ullin East & North to County Line

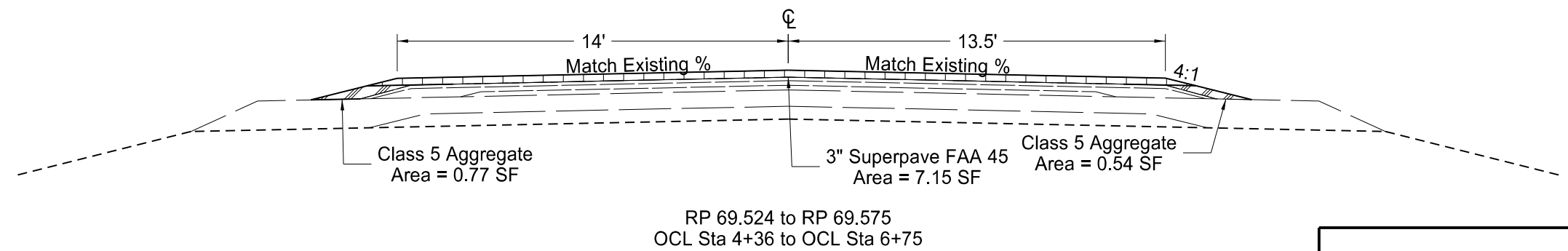
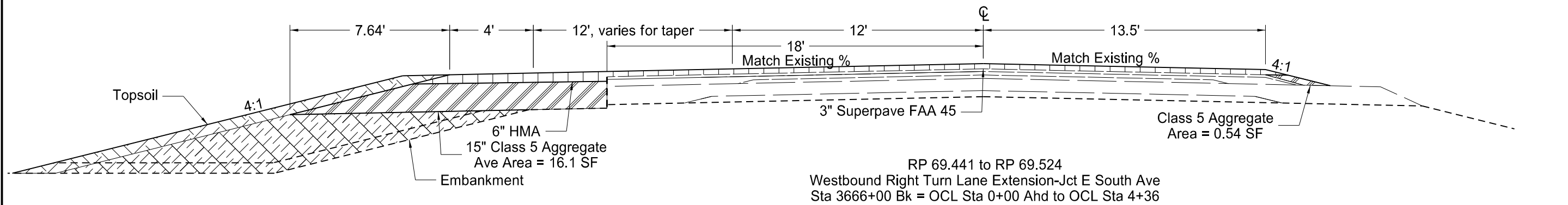
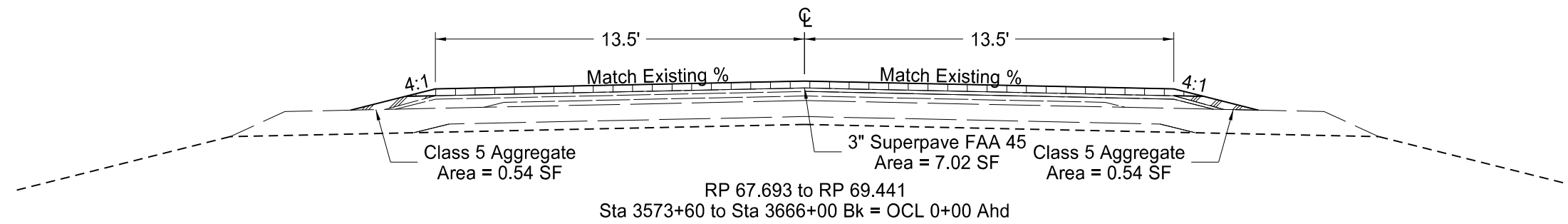
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	30	4



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Subcut & Subgrade Removal Typical
Widening, Sliver Grading, HBP Overlay, and Guardrail
Glen Ullin East & North to County Line

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	30	5



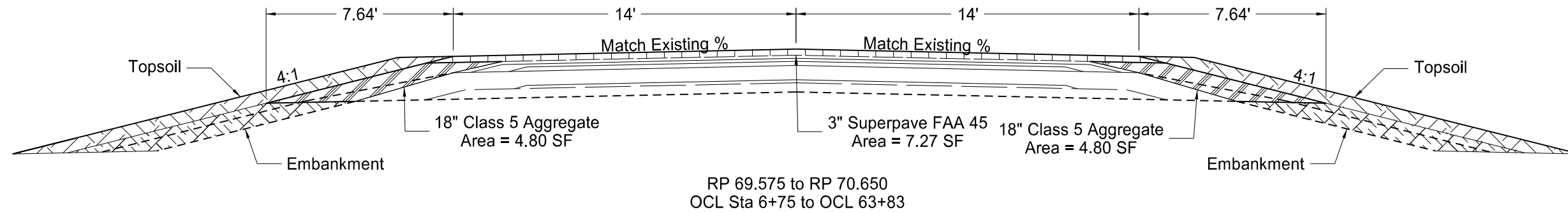
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Proposed Typical Sections
Project Start through Glen Ullin

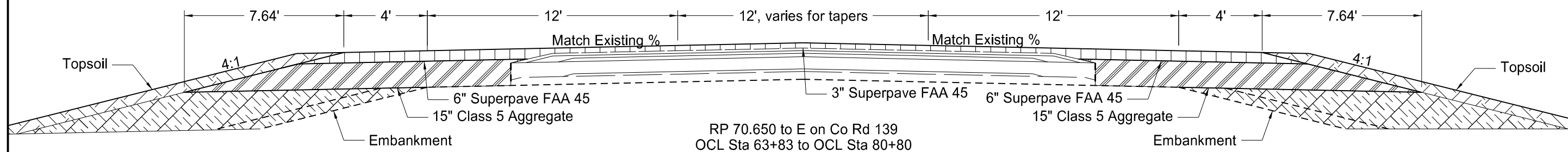
Widening, Sliver Grading, HBP Overlay, and Guardrail

Glen Ullin East & North to County Line

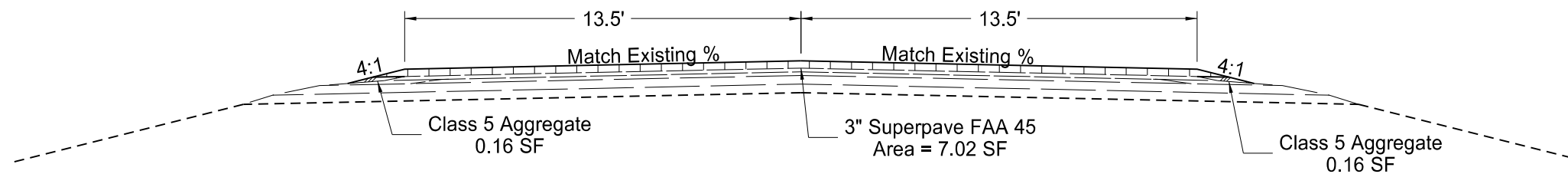
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	30	6



RP 69.575 to RP 70.650
OCL Sta 6+75 to OCL 63+83



RP 70.650 to E on Co Rd 139
OCL Sta 63+83 to OCL Sta 80+80



RP 70.856 to RP 73.797
Sta 3741+13 to 3896+41

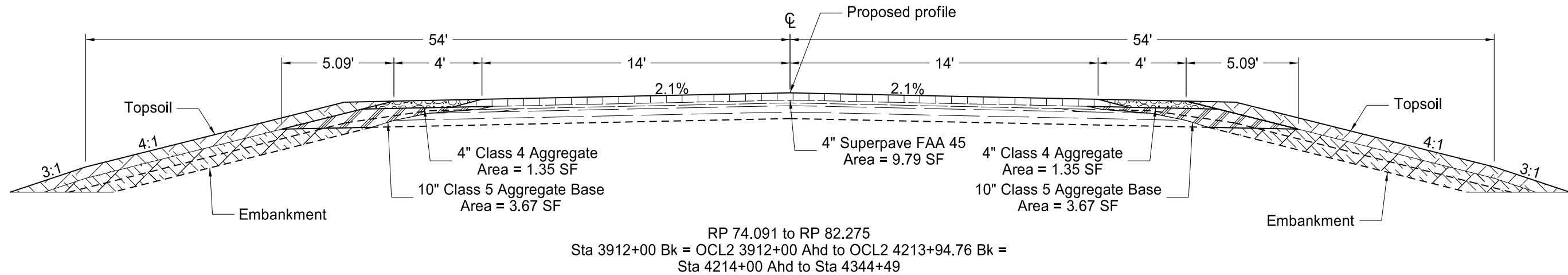
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Proposed Typical Sections
E of Glen Ullin / S of I-94

Widening, Sliver Grading, HBP Overlay, and Guardrail

Glen Ullin East & North to County Line

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	30	7

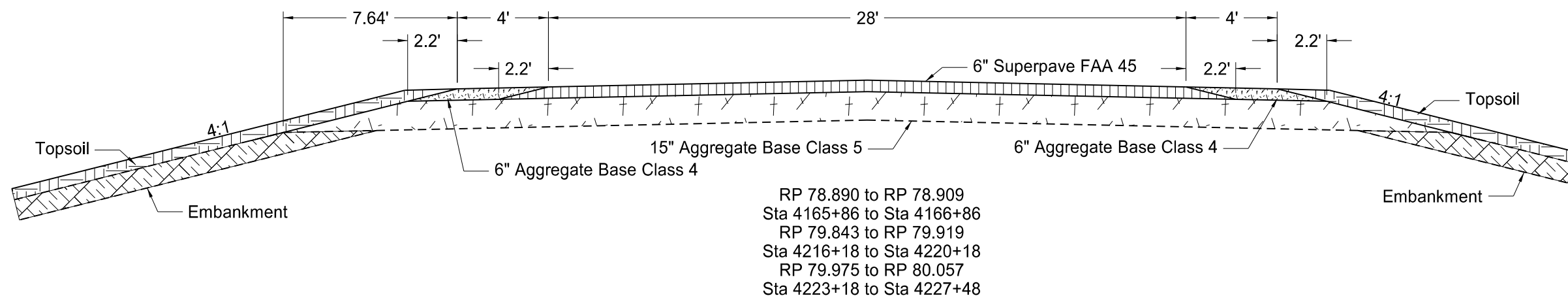
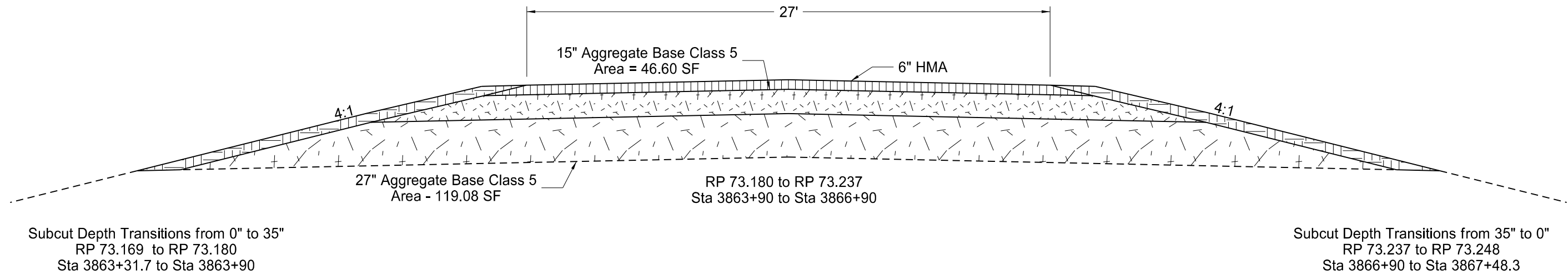


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Proposed Typical Sections
 N of I-94
 Widening, Sliver Grading, HBP Overlay, and Guardrail
 Glen Ullin East & North to County Line

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	30	9

1. Subcuts are not shown in cross-sections.



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Subcut & Subgrade Reinforcement Proposed Typical
Widening, Sliver Grading, HBP Overlay, and Guardrail
Glen Ullin East & North to County Line

Begin Station / Location	Begin Offset	End Station / Location	End Offset	Pipe Installation			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
				In	Bid Item	LF							Begin	End	
OCL 20+71	35' Lt	OCL 20+71	24' Lt	18	Pipe Conc. Reinf. CL III (Extension)	8	Reinforced Concrete Pipe - Class III(barrel length = 8 LF)	18					FES		Section 20 Sheet 6
OCL 20+71	23' Rt	OCL 20+71	29' Rt	18	Pipe Conc. Reinf. CL III (Extension)	6	Reinforced Concrete Pipe - Class III(barrel length = 6 LF)	18						TES (4:1)	Section 20 Sheet 6
OCL 41+68	30' Lt	OCL 41+68	23' Lt	30	Pipe Conc. Reinf. CL III (Extension)	6	Reinforced Concrete Pipe - Class III(barrel length = 6 LF)	30					TES (4:1)		Section 20 Sheet 6
OCL 41+68	24' Rt	OCL 41+68	29' Rt	30	Pipe Conc. Reinf. CL III (Extension)	4	Reinforced Concrete Pipe - Class III(barrel length = 4 LF)	30						TES (4:1)	Section 20 Sheet 6
OCL 58+32	31' Lt	OCL 58+32	23' Lt	21	Pipe Conc. Reinf. CL III (Extension)	8	Reinforced Concrete Pipe - Class III(barrel length = 8 LF)	21					TES (4:1)		Section 20 Sheet 6
OCL 58+32	25' Rt	OCL 58+32	29' Rt	21	Pipe Conc. Reinf. CL III (Extension)	4	Reinforced Concrete Pipe - Class III(barrel length = 4 LF)	21						TES (4:1)	Section 20 Sheet 6
OCL 64+49	33' Lt	OCL 64+49	24' Lt	21	Pipe Conc. Reinf. CL III (Extension)	6	Reinforced Concrete Pipe - Class III(barrel length = 6 LF)	21					FES		Section 20 Sheet 6
OCL 64+49	24' Rt	OCL 64+49	31' Rt	21	Pipe Conc. Reinf. CL III (Extension)	6	Reinforced Concrete Pipe - Class III(barrel length = 6 LF)	21						TES (4:1)	Section 20 Sheet 6
OCL 74+69	47' Rt	OCL 75+33	47' Rt	24	Pipe Conduit - Approach	64	Reinforced Concrete Pipe - Class III (barrell length = 62 LF)	24					TES (4:1)	TES (4:1)	Spec 714.04 A
							Corrugated Steel Pipe	30	Z, A, P	2	0.064				
							Spiral Rib Steel Pipe	30	Z, A, P	3/4, 1	0.064				
							High-Density Polyethylene	30							
							Polypropylene Pipe (AASHTO M330, Type S)	30							
OCL 76+64	33' Rt	OCL 76+64	27' Rt	18	Pipe Conc. Reinf. CL III (Extension)	6	Reinforced Concrete Pipe - Class III(barrel length = 6 LF)	18					TES (4:1)	Section 20 Sheet 5	
OCL 76+64	26' Lt	OCL 76+64	32' Lt	18	Pipe Conc. Reinf. CL III (Extension)	6	Reinforced Concrete Pipe - Class III(barrel length = 6 LF)	18					TES (4:1)	Section 20 Sheet 5	
OCL2 3931+46	39' Lt	OCL2 3931+46	27' Lt	30	Pipe Conc. Reinf. CL III (Extension)	12	Reinforced Concrete Pipe - Class III(barrel length = 12 LF)	30					TES (4:1)	Section 20 Sheet 6	
OCL2 3942+37	40' Lt	OCL2 3942+37	30' Lt	30	Pipe Conc. Reinf. CL III (Extension)	10	Reinforced Concrete Pipe - Class III(barrel length = 10 LF)	30					TES (4:1)	Section 20 Sheet 6	
OCL2 3942+37	28' Rt	OCL2 3942+37	34' Rt	30	Pipe Conc. Reinf. CL III (Extension)	6	Reinforced Concrete Pipe - Class III(barrel length = 6 LF)	30					TES (4:1)	Section 20 Sheet 6	

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 seperately.
FES = Flared End Section
TES = Traversable End Section

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Allowable Pipe List

Widening, Sliver Grading, HBP Overlay, and Guardrail

Glen Ullin East & North to County Line

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	
OCL2 3954+93	46' Lt	OCL2 3955+49	46' Lt	18	Pipe Conduit - Approach	56	Reinforced Concrete Pipe - Class III (barrell length = 54 LF)	18				TES (4:1)	TES (4:1)	Spec 714.04 A
							Corrugated Steel Pipe	18	Z, A, P	2	0.064			
							Spiral Rib Steel Pipe	18	Z, A, P	3/4, 1	0.064			
							High-Density Polyethylene	18						
							Polypropylene Pipe (AASHTO M330, Type S)	18						
OCL2 3954+97	41' Rt	OCL2 3955+71	41' Rt	30	Pipe Conduit - Approach	74	Reinforced Concrete Pipe - Class III (barrell length = 72 LF)	30				TES (4:1)	TES (4:1)	Spec 714.04 A
							Corrugated Steel Pipe	36	Z, A, P	2	0.064			
							Spiral Rib Steel Pipe	36	Z, A, P	3/4, 1	0.064			
							High-Density Polyethylene	36						
							Polypropylene Pipe (AASHTO M330, Type S)	36						
OCL2 3972+27	87' Lt	OCL2 3972+33	69' Lt	48x72	Cattle Pass (Extension)	22	48"x72" Reinforced Concrete Cattle Pass					ES		Section 20 Sheet 7
OCL2 3972+84	65' Rt	OCL2 3972+98	103' Rt	48x72	Cattle Pass (Extension)	40	48"x72" Reinforced Concrete Cattle Pass						ES	Section 20 Sheet 7
OCL2 3977+55	54' Lt	OCL2 3977+55	48' Lt	30	Pipe Conc. Reinf. CL III (Extension)	6	Reinforced Concrete Pipe - Class III(barrel length = 6 LF)	30				Remove & Relay		Section 20 Sheet 6
OCL2 3991+14	56' Lt	OCL2 3991+14	46' Lt	24	Pipe Conc. Reinf. CL III (Extension)	10	Reinforced Concrete Pipe - Class III(barrel length = 10 LF)	24				FES		Section 20 Sheet 6
OCL2 3991+14	33' Rt	OCL2 3991+14	43' Rt	24	Pipe Conc. Reinf. CL III (Extension)	10	Reinforced Concrete Pipe - Class III(barrel length = 10 LF)	24					TES (4:1)	Section 20 Sheet 6
OCL2 4009+64	46' Rt	OCL2 4010+18	46' Rt	18	Pipe Conduit - Approach	54	Reinforced Concrete Pipe - Class III (barrell length = 52 LF)	18				TES (4:1)	TES (4:1)	Spec 714.04 A
							Corrugated Steel Pipe	18	Z, A, P	2	0.064			
							Spiral Rib Steel Pipe	18	Z, A, P	3/4, 1	0.064			
							High-Density Polyethylene	18						
							Polypropylene Pipe (AASHTO M330, Type S)	18						
OCL2 4033+17	45' Rt	OCL2 4033+17	21' Rt	48x72	Cattle Pass (Extension)	24	48"x72" Reinforced Concrete Cattle Pass						ES	Section 20 Sheet 7
OCL2 4033+17	20' Lt	OCL2 4033+17	40' Lt	48x72	Cattle Pass (Extension)	20	48"x72" Reinforced Concrete Cattle Pass					ES		Section 20 Sheet 7
OCL2 4046+58	55' Rt	OCL2 4046+58	47' Rt	30	Pipe Conc. Reinf. CL III (Extension)	8	Reinforced Concrete Pipe - Class III(barrel length = 8 LF)	30					Remove & Relay	Section 20 Sheet 6

Coatings: Z = Zinc Corrugations: 2 = 2-2/3"x1/2" Spiral Ribs: 3/4 = 3/4"x3/4"@7-1/2" (*) The price bid for "Pipe Conduit" bid items includes end sections. Pipe Extensions shall pay for end sections seperately.
A = Aluminum 3 = 3"x1" 1 = 3/4"x1"@11-1/2" FES = Flared End Section
P = Polymeric (over Zinc or Aluminum) 5 = 5"x1" TES = Traversable End Section

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Allowable Pipe List
Widening, Sliver Grading, HBP Overlay, and Guardrail
Glen Ullin East & North to County Line

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	
OCL2 4071+17	32' Lt	OCL2 4071+17	26' Lt	24	Pipe Conc. Reinf. CL III (Extension)	6	Reinforced Concrete Pipe - Class III(barrel length = 6 LF)					TES (4:1)		Section 20 Sheet 6
OCL2 4071+17	54' Rt	OCL2 4071+17	44' Rt	24	Pipe Conc. Reinf. CL III (Extension)	10	Reinforced Concrete Pipe - Class III(barrel length = 10 LF)						Remove & Relay	Section 20 Sheet 6
OCL2 4088+56	42' Rt	OCL2 4088+56	30' Rt	24	Pipe Conc. Reinf. CL III (Extension)	12	Reinforced Concrete Pipe - Class III(barrel length = 12 LF)						TES (4:1)	Section 20 Sheet 6
OCL2 4088+56	28' Lt	OCL2 4088+56	38' Lt	24	Pipe Conc. Reinf. CL III (Extension)	10	Reinforced Concrete Pipe - Class III(barrel length = 10 LF)					TES (4:1)		Section 20 Sheet 6
OCL2 4103+64	46' Lt	OCL2 4103+64	32' Lt	48x72	Cattle Pass (Extension)	14	48"x72" Reinforced Concrete Cattle Pass					ES		Section 20 Sheet 7
OCL2 4103+64	33' Rt	OCL2 4103+64	45' Rt	48x72	Cattle Pass (Extension)	12	48"x72" Reinforced Concrete Cattle Pass						ES	Section 20 Sheet 7
OCL2 4141+21	42' Rt	OCL2 4141+21	30' Rt	36	Pipe Conc. Reinf. CL III (Extension)	12	Reinforced Concrete Pipe - Class III(barrel length = 12 LF)						TES (4:1)	Section 20 Sheet 6
OCL2 4141+21	29' Lt	OCL2 4141+21	39' Lt	36	Pipe Conc. Reinf. CL III (Extension)	10	Reinforced Concrete Pipe - Class III(barrel length = 10 LF)					TES (4:1)		Section 20 Sheet 6
OCL2 4143+71	38' Rt	OCL2 4143+71	24' Rt	36	Pipe Conc. Reinf. CL III (Extension)	14	Reinforced Concrete Pipe - Class III(barrel length = 14 LF)						TES (4:1)	Section 20 Sheet 6
OCL2 4143+71	21' Lt	OCL2 4143+71	35' Lt	36	Pipe Conc. Reinf. CL III (Extension)	14	Reinforced Concrete Pipe - Class III(barrel length = 14 LF)					TES (4:1)		Section 20 Sheet 6
OCL2 4153+21	42' Lt	OCL2 4153+21	22' Lt	48x72	Cattle Pass (Extension)	20	48"x72" Reinforced Concrete Cattle Pass					ES		Section 20 Sheet 7
OCL2 4153+21	20' Rt	OCL2 4153+21	40' Rt	48x72	Cattle Pass (Extension)	20	48"x72" Reinforced Concrete Cattle Pass						ES	Section 20 Sheet 7
OCL2 4187+59	23' Lt	OCL2 4187+59	33' Lt	24	Pipe Conc. Reinf. CL III (Extension)	10	Reinforced Concrete Pipe - Class III(barrel length = 10 LF)					TES (4:1)		Section 20 Sheet 6
OCL2 4207+54	55' Rt	OCL2 4207+54	47' Rt	60x84	Cattle Pass (Extension)	8	60"x84" Reinforced Concrete Cattle Pass						ES	Section 20 Sheet 7
OCL2 4207+54	40' Lt	OCL2 4207+54	54' Lt	60x84	Cattle Pass (Extension)	14	60"x84" Reinforced Concrete Cattle Pass					ES		Section 20 Sheet 7
4227+79	36' Rt	4227+79	24' Rt	24	Pipe Conc. Reinf. CL III (Extension)	12	Reinforced Concrete Pipe - Class III(barrel length = 12 LF)						TES (4:1)	Section 20 Sheet 6
4227+79	32' Lt	4227+79	40' Lt	24	Pipe Conc. Reinf. CL III (Extension)	8	Reinforced Concrete Pipe - Class III(barrel length = 8 LF)					TES (4:1)		Section 20 Sheet 6

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

Widening, Sliver Grading, HBP Overlay, and Guardrail

Glen Ullin East & North to County Line

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		
4257+31	51' Rt	4257+31	37' Rt	60	Pipe Conc. Reinf. CL III (Extension)	14	Reinforced Concrete Pipe - Class III(barrel length = 14 LF)							Remove & Relay	Section 20 Sheet 6
4257+31	31' Lt	4257+31	47' Lt	60	Pipe Conc. Reinf. CL III (Extension)	16	Reinforced Concrete Pipe - Class III(barrel length = 16 LF)						Remove & Relay		Section 20 Sheet 6
4268+28	34' Rt	4268+28	22' Rt	36	Pipe Conc. Reinf. CL III (Extension)	12	Reinforced Concrete Pipe - Class III(barrel length = 12 LF)							TES (4:1)	Section 20 Sheet 6
4268+28	20' Lt	4268+28	32' Lt	36	Pipe Conc. Reinf. CL III (Extension)	12	Reinforced Concrete Pipe - Class III(barrel length = 12 LF)						TES (4:1)		Section 20 Sheet 6
4278+29	62' Rt	4278+29	44' Rt	24	Pipe Conc. Reinf. CL III (Extension)	18	Reinforced Concrete Pipe - Class III(barrel length = 18 LF)							Remove & Relay	Section 20 Sheet 6
4278+29	36' Lt	4278+29	52' Lt	24	Pipe Conc. Reinf. CL III (Extension)	16	Reinforced Concrete Pipe - Class III(barrel length = 16 LF)						Remove & Relay		Section 20 Sheet 6
4334+50	52' Lt	4334+50	42' Lt	36	Pipe Conc. Reinf. CL III (Extension)	10	Reinforced Concrete Pipe - Class III(barrel length = 10 LF)						Remove & Relay		Section 20 Sheet 6
4334+50	30' Rt	4334+50	40' Rt	36	Pipe Conc. Reinf. CL III (Extension)	10	Reinforced Concrete Pipe - Class III(barrel length = 10 LF)							TES (4:1)	Section 20 Sheet 6

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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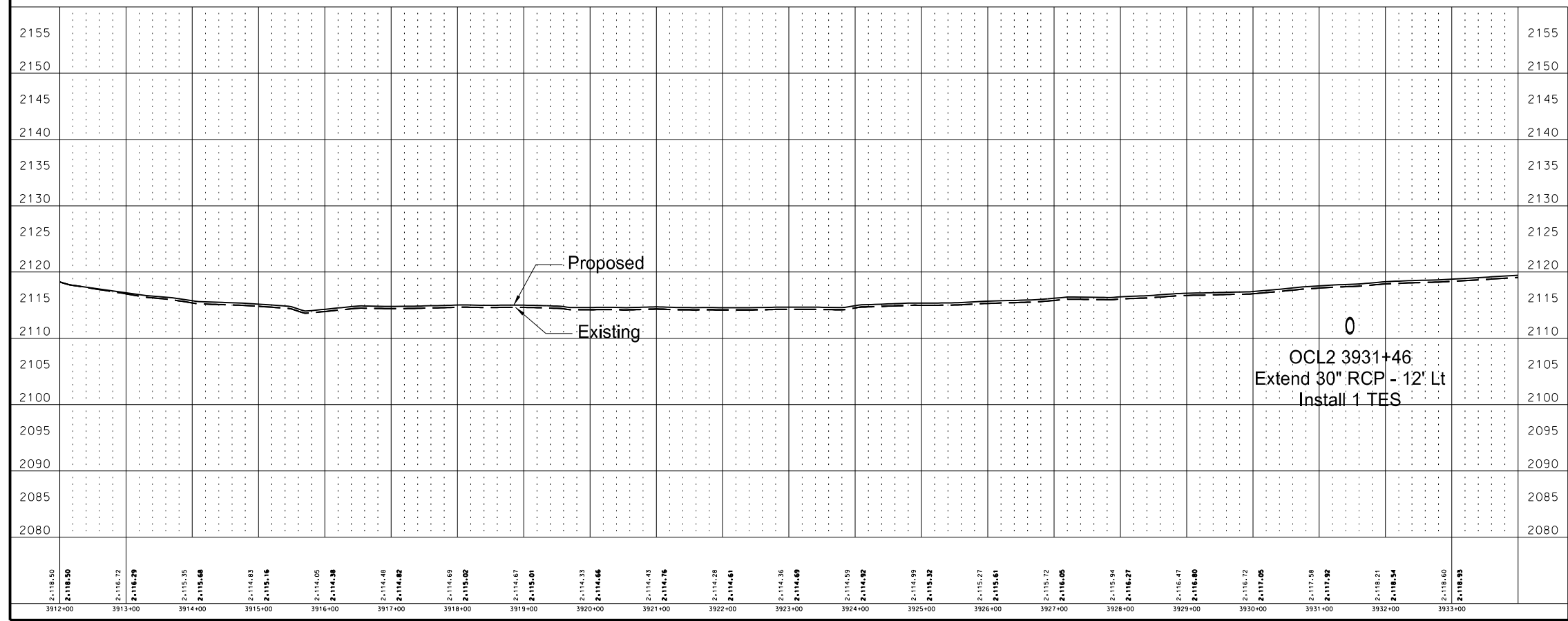
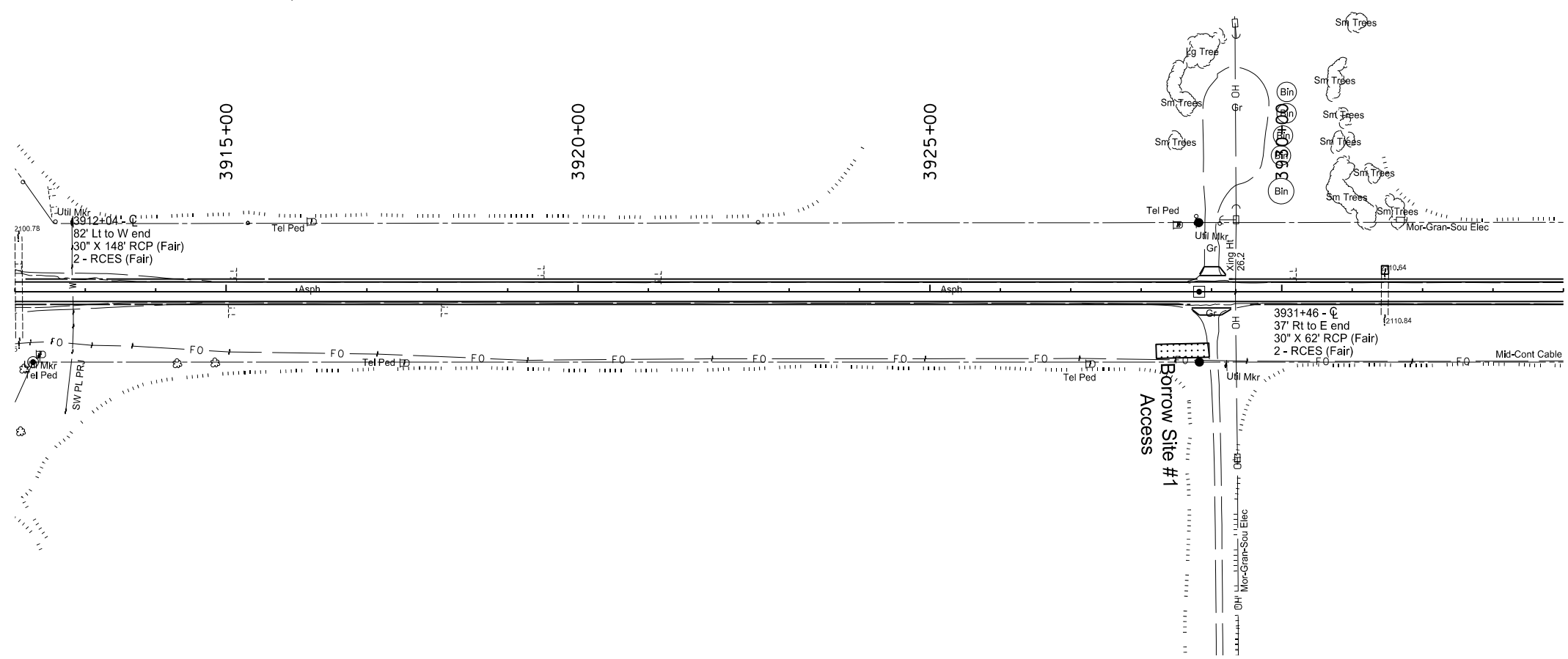
Allowable Pipe List

Widening, Sliver Grading, HBP Overlay, and Guardrail

Glen Ullin East & North to County Line

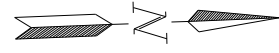
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	60	1

SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	169	Removal of End Section-All Types & Sizes		
		OCL2 3931+48	EA	1
714	820	Pipe Conc Reinf 30in CI III		
		OCL2 3931+46	LF	12
714	3033	End Sect-Traversable Reinf Conc 30in		
		OCL2 3931+46	EA	1



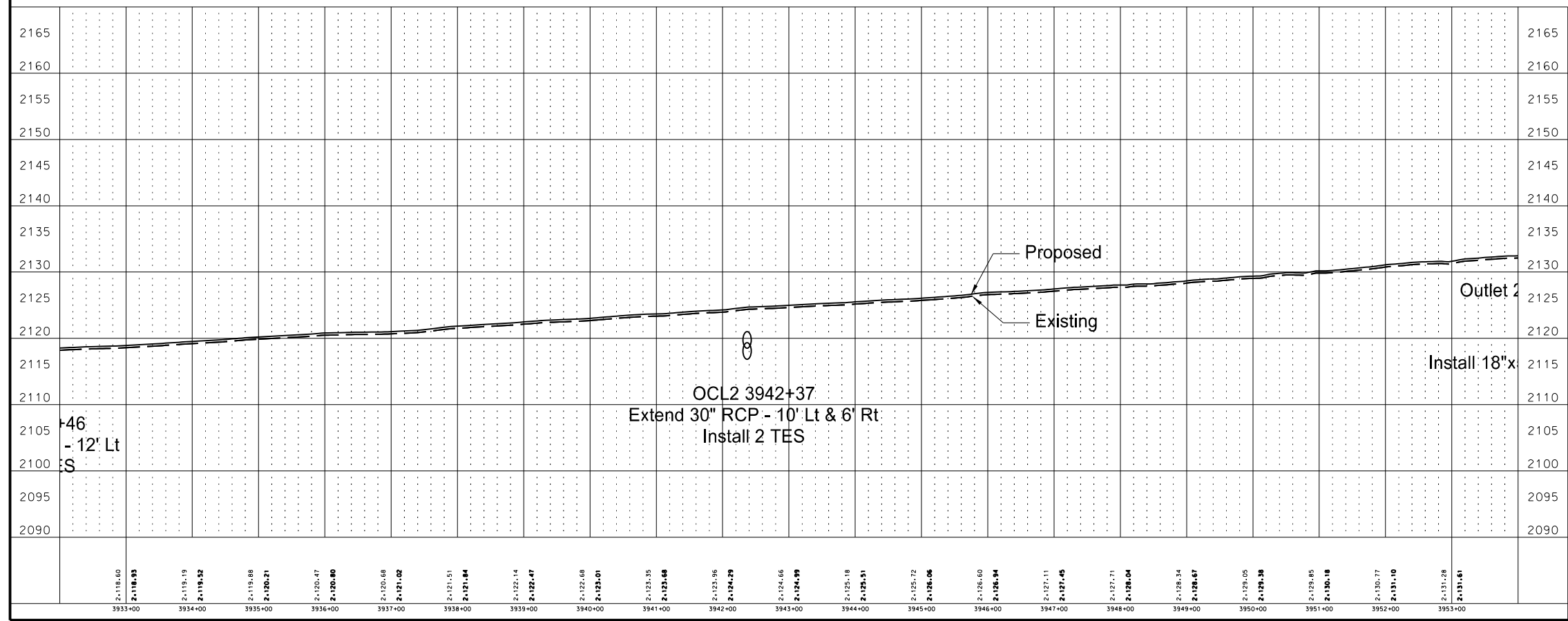
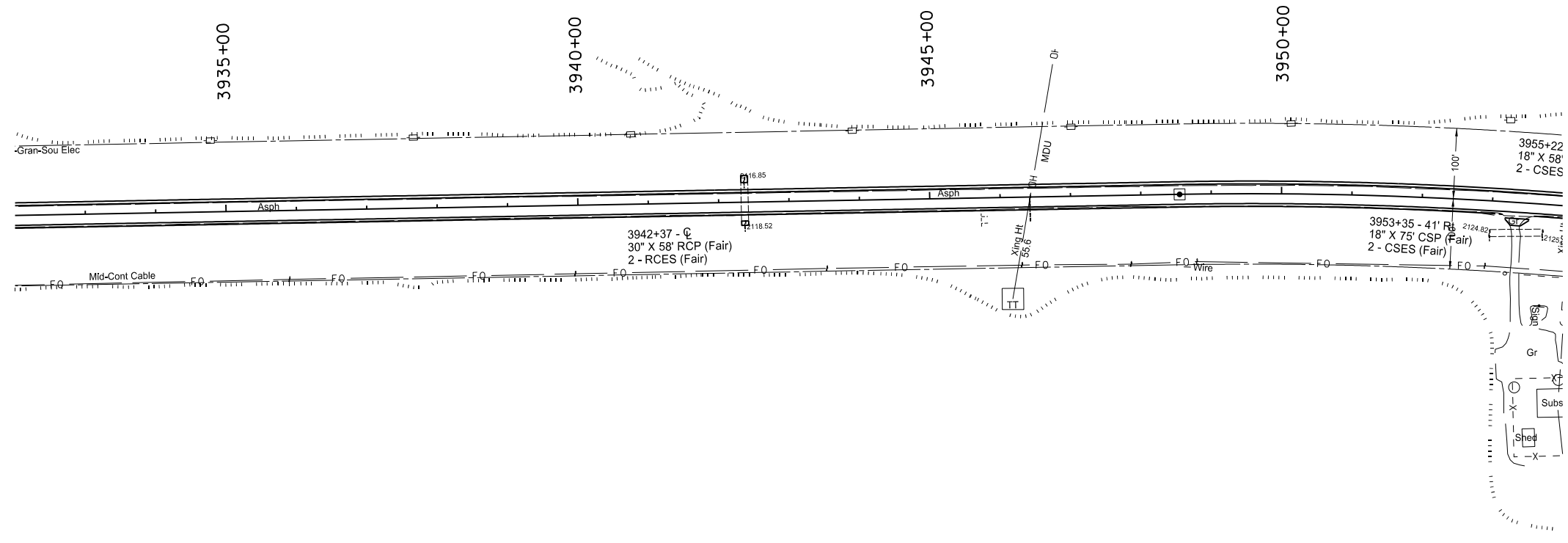
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Plan & Profile (OCL2)
Sta 3915+00 to Sta 3935+00
Widening, Sliver Grading, HBP Overlay, and Guardrail
Glen Ullin East & North to County Line



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	60	2

SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	169	Removal of End Section-All Types & Sizes		
		OCL2 3942+37	EA	2
714	820	Pipe Conc Reinf 30in CI III		
		OCL2 3942+37	LF	10 & 6
714	3033	End Sect-Traversable Reinf Conc 30in		
		OCL2 3942+37	EA	2

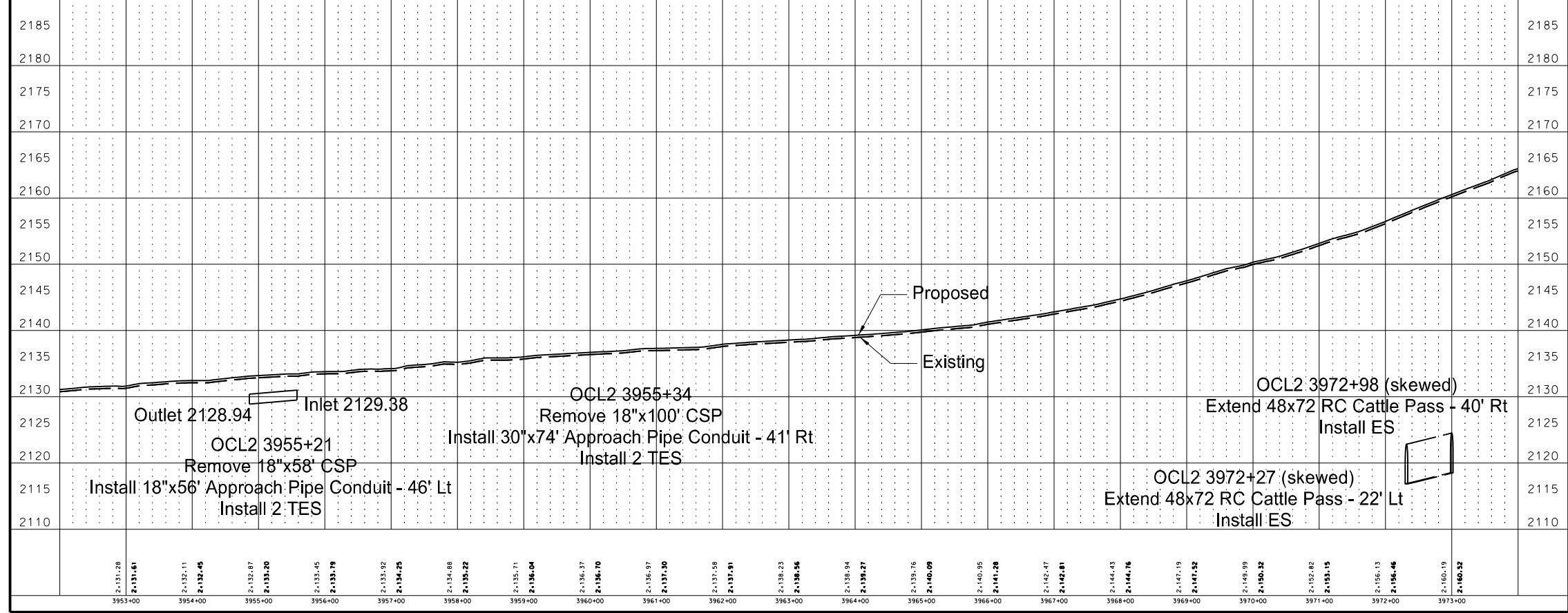
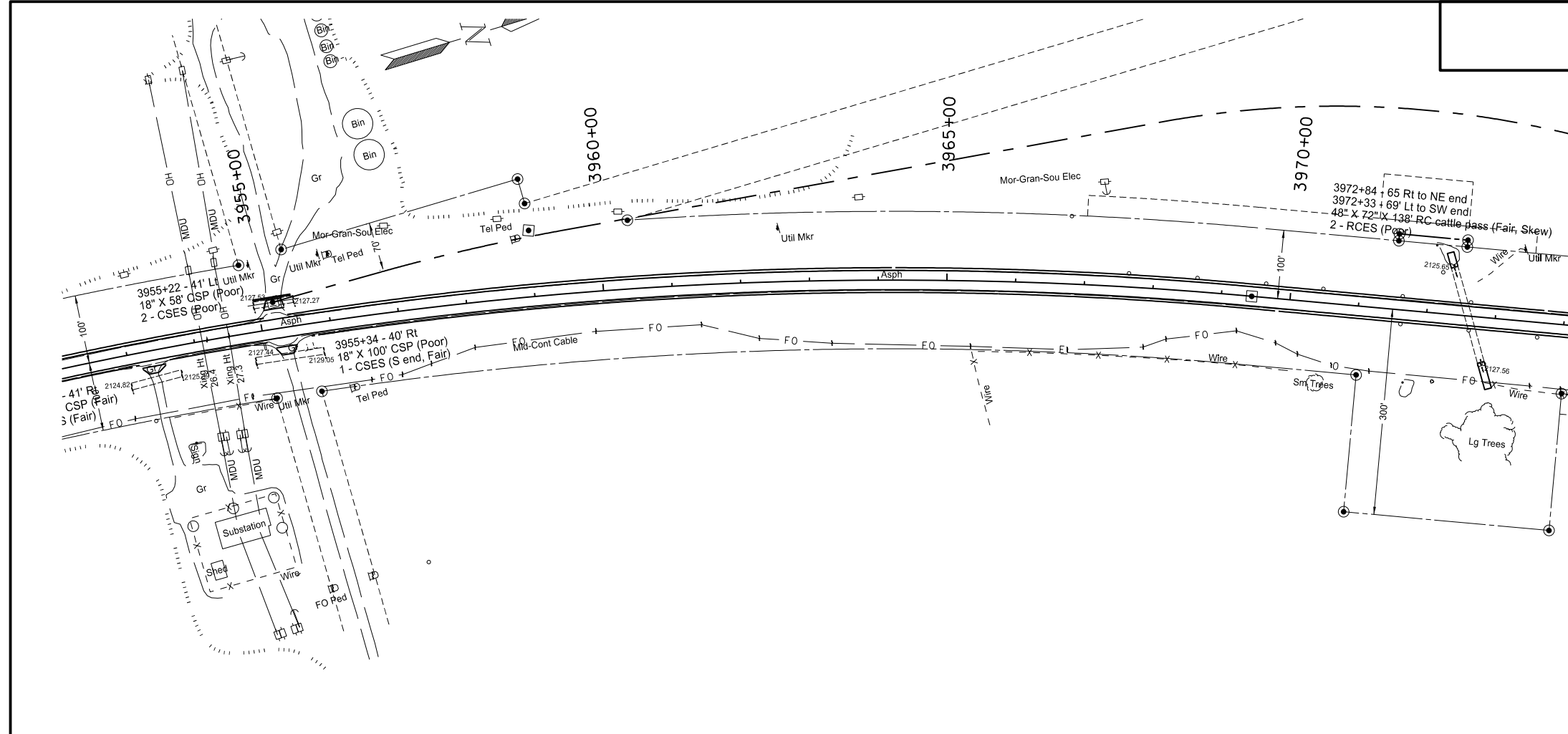


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Plan & Profile (OCL2)
Sta 3935+00 to Sta 3955+00
Widening, Sliver Grading, HBP Overlay, and Guardrail
Glen Ullin East & North to County Line

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	60	3

SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	169	Removal of End Section-All Types & Sizes		
		OCL2 3955+21	EA	2
		OCL2 3972+33	EA	1
		OCL2 3972+84	EA	1
202	174	Removal of Pipe All Types and Sizes		
		OCL2 3955+21	LF	58
		OCL2 3955+34	LF	100
714	4099	Pipe Conduit 18in-Approach		
		OCL2 3955+21	LF	56
714	4113	Pipe Conduit 30in-Approach		
		OCL2 3955+34	LF	74
714	9200	Cattle Pass Conc Intermed Section		
		OCL2 3972+27	LF	22
		OCL2 3972+98	LF	40
714	9350	End Section Conc Cattle Pass		
		OCL2 3972+27	EA	1
		OCL2 3972+98	EA	1
714	9656	Install End Section-All Types & Sizes		
		OCL2 3955+21	EA	2
		OCL2 3955+34	EA	2

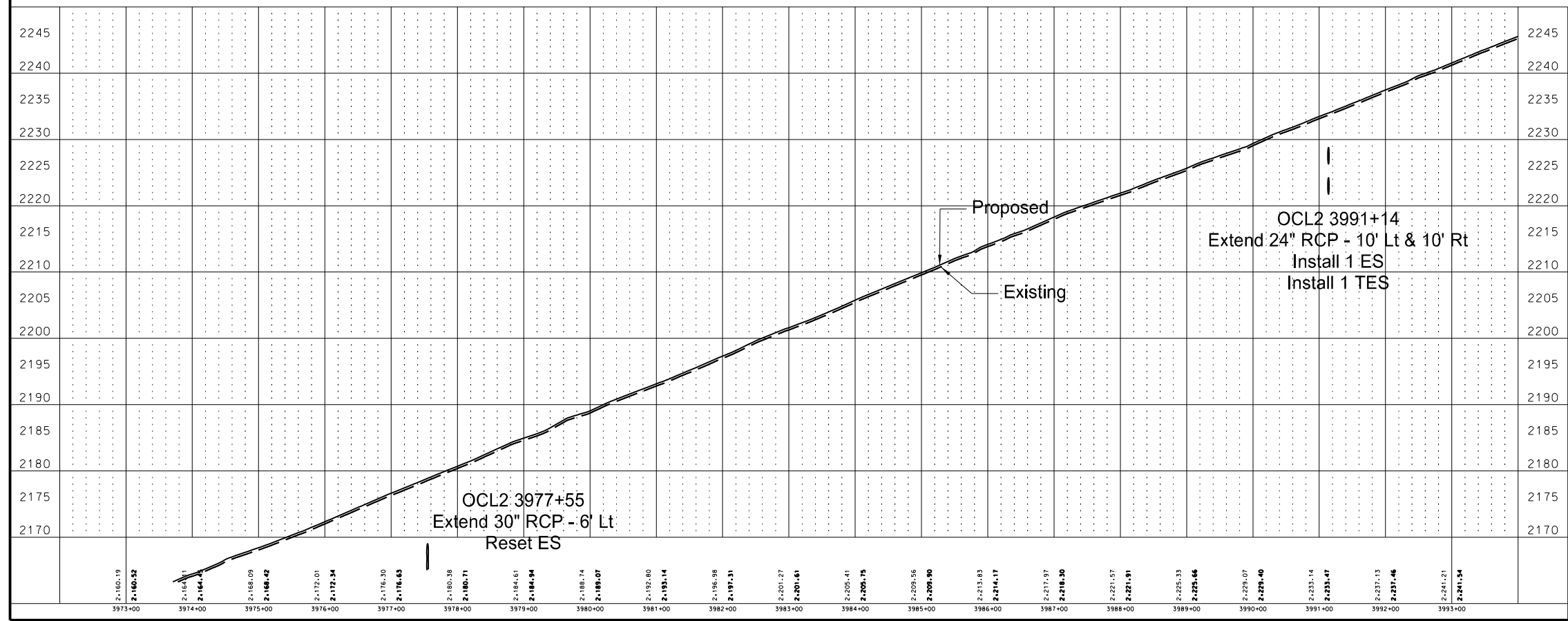
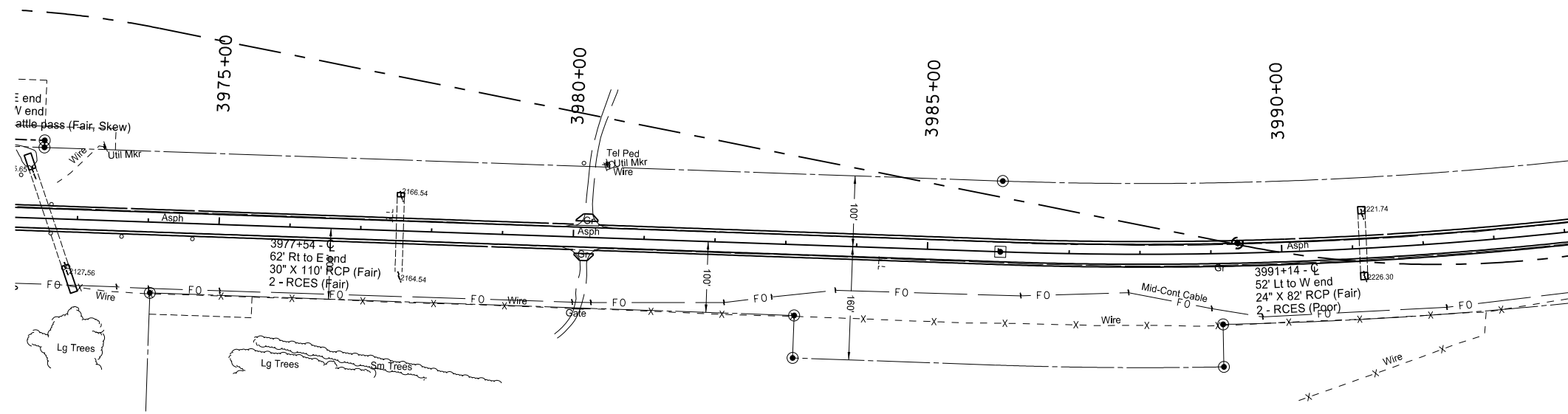


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Plan & Profile (OCL2)
Sta 3955to3975
Widening, Sliver Grading, HBP Overlay, and Guardrail
Glen Ullin East & North to County Line

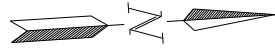
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	60	4

SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	169	Removal of End Section-All Types & Sizes		
		OCL2 3977+55	EA	1
		OCL2 3991+14	EA	2
714	615	Pipe Conc Reinf 24in CI III		
		OCL2 3991+14	LF	10 & 10
714	820	Pipe Conc Reinf 30in CI III		
		OCL2 3977+55	LF	6
714	3020	End Sect-Conc Reinf 24in		
		OCL2 3991+14	EA	1
714	3023	End Sect-Traversable Reinf Conc 24in		
		OCL2 3991+14	EA	1
714	9660	Remove & Relay End Section - All Types & Sizes		
		OCL2 3977+55	EA	1



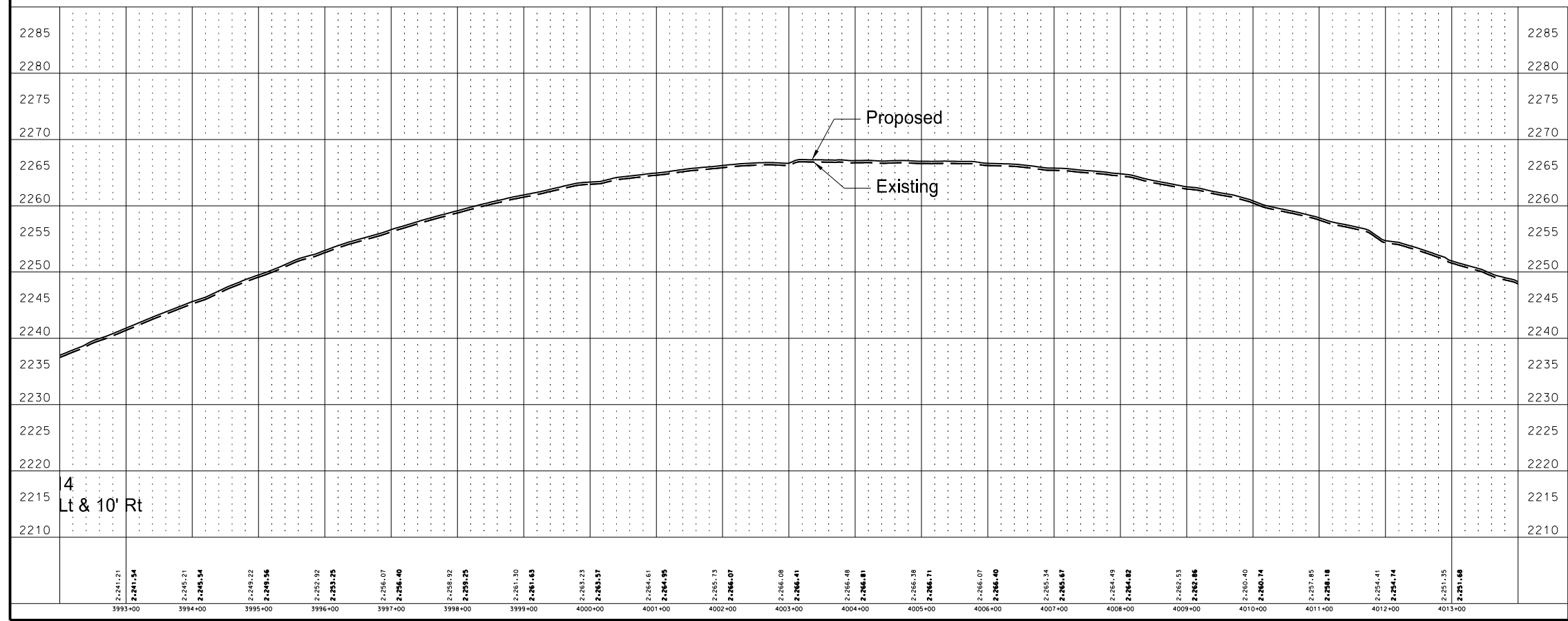
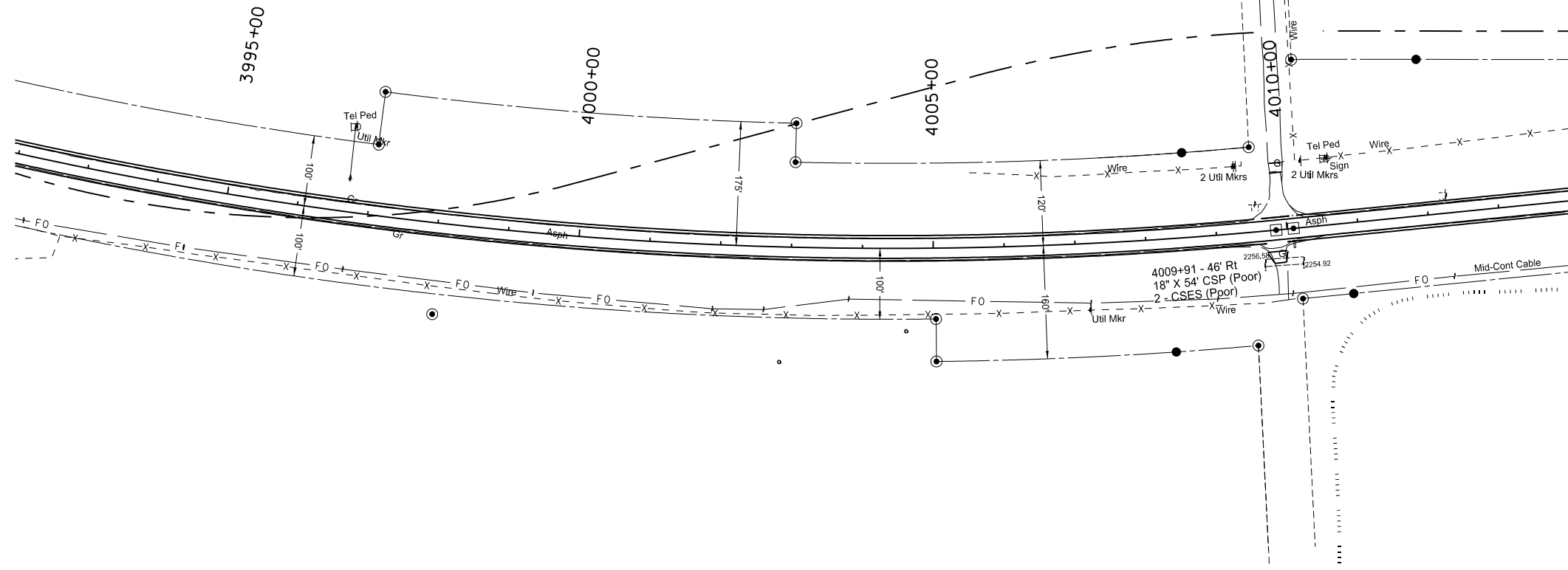
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Plan & Profile (OCL2)
Sta 3975+00 to Sta 3995+00
Widening, Sliver Grading, HBP Overlay, and Guardrail
Glen Ullin East & North to County Line



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	60	5

SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	174	Removal of Pipe All Types and Sizes		
		OCL2 4009+91	LF	54
714	4099	Pipe Conduit 18in-Approach		
		OCL2 4009+91	LF	54
714	9656	Install End Section-All Types & Sizes		
		OCL2 4009+91	EA	2

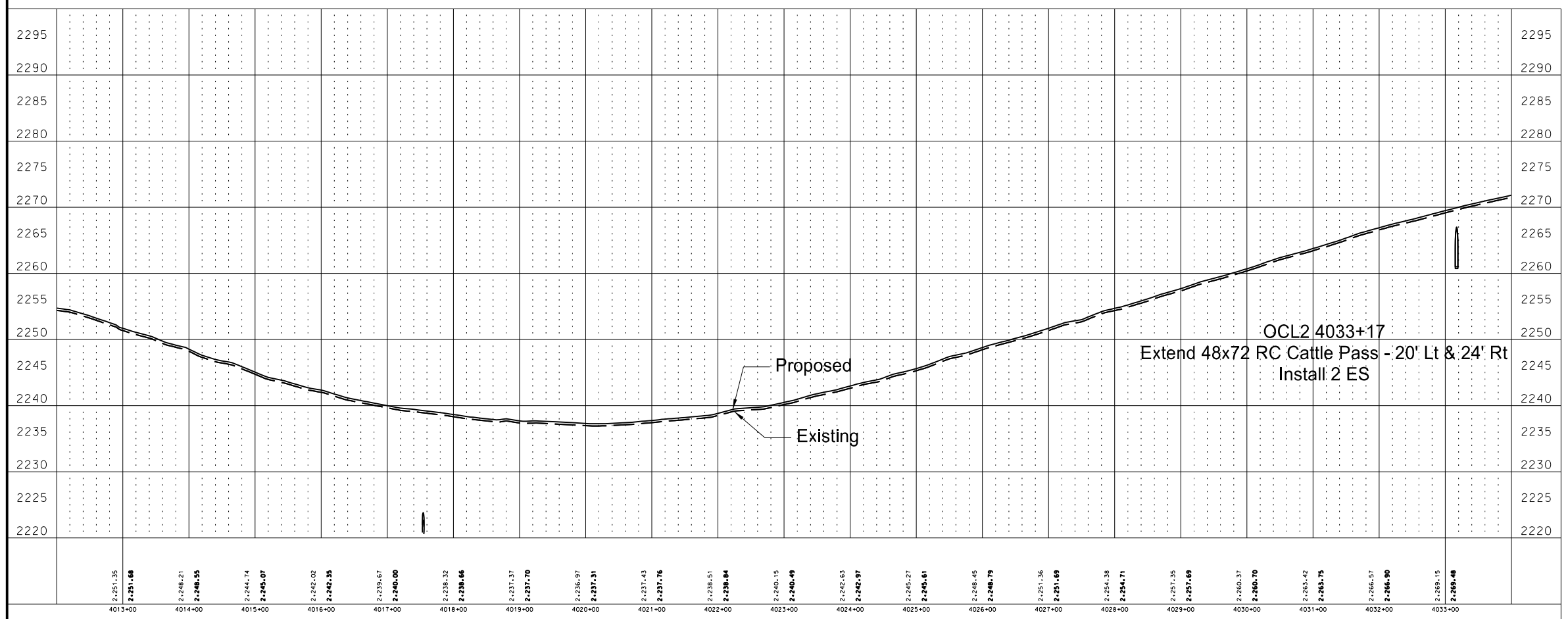
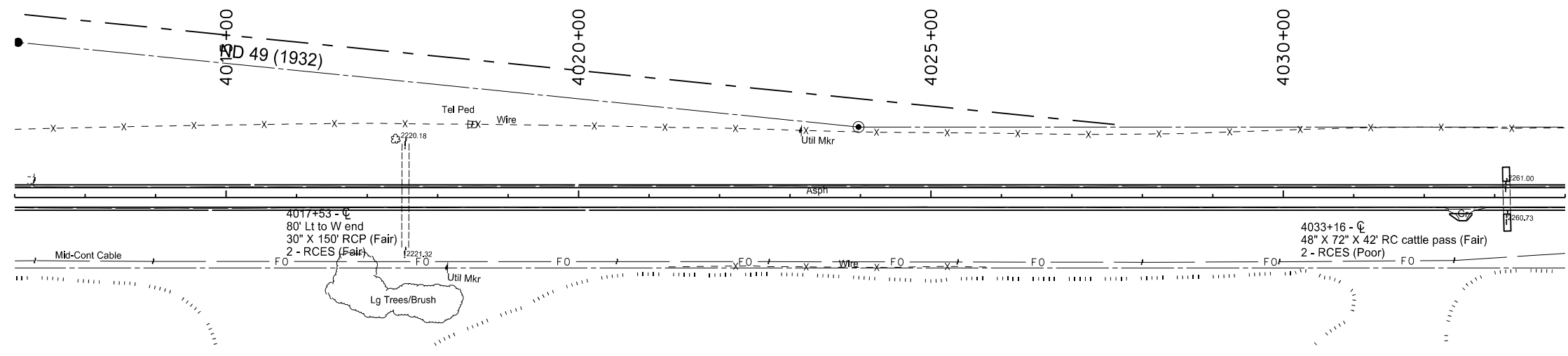


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Plan & Profile (OCL2)
Sta 3995+00 to Sta 4015+00
Widening, Sliver Grading, HBP Overlay, and Guardrail
Glen Ullin East & North to County Line

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	60	6

SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	169	Removal of End Section-All Types & Sizes		
		OCL2 4033+17	EA	2
714	9200	Cattle Pass Conc Intermed Section		
		OCL2 4033+17	LF	20 & 24
714	9350	End Section Conc Cattle Pass		
		OCL2 4033+17	EA	2

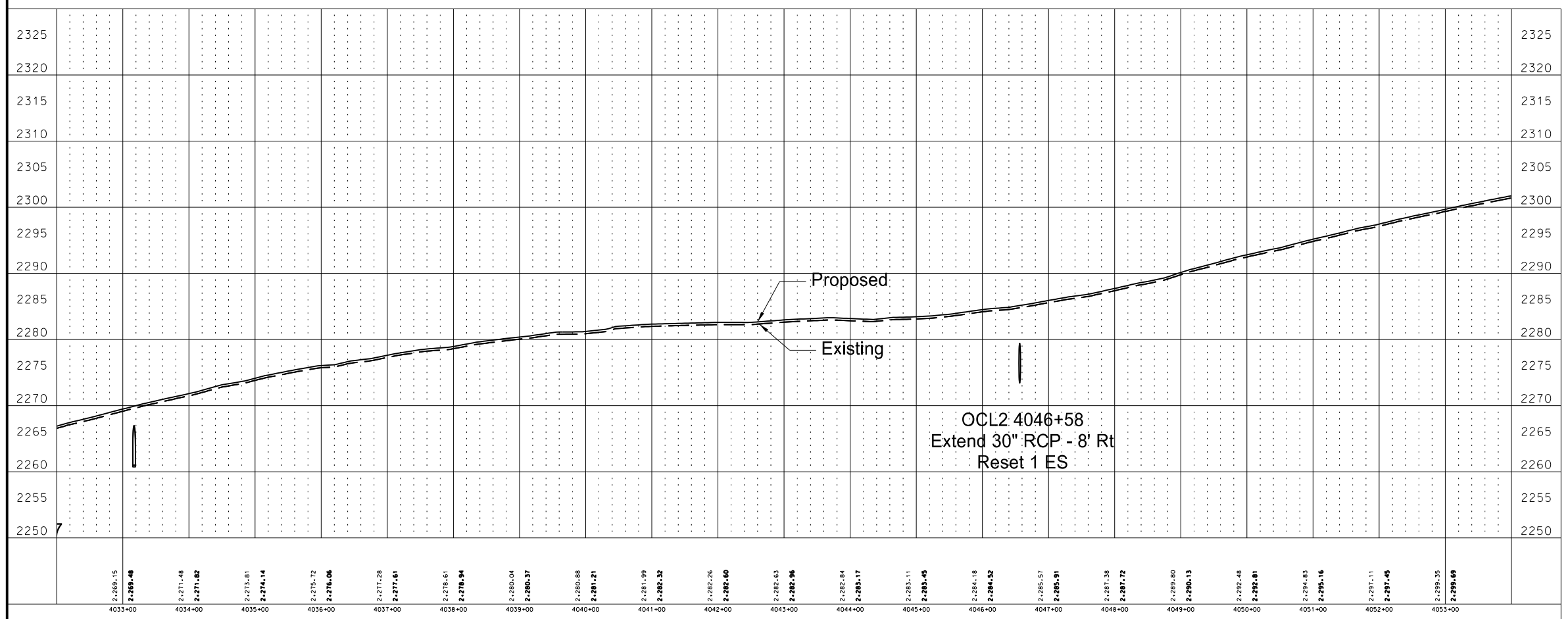
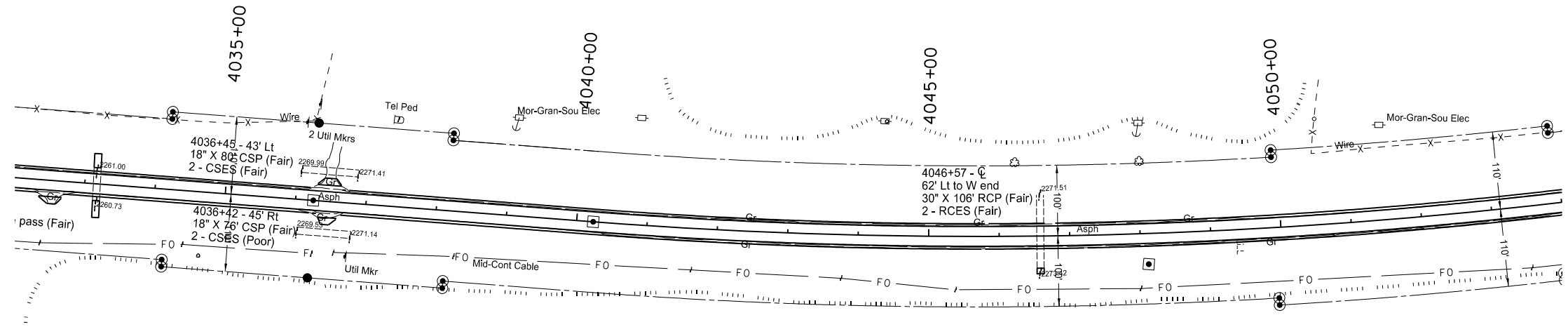


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Plan & Profile (OCL2)
Sta 4015+00 to Sta 4035+00
Widening, Sliver Grading, HBP Overlay, and Guardrail
Glen Ullin East & North to County Line

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	60	7

SPEC	CODE	BID ITEM	UNIT	QUANTITY
714	820	Pipe Conc Reinf 30in CI III		
		OCL2 4046+58	LF	8
714	9660	Remove & Relay End Section - All Types & Sizes		
		OCL2 4046+58	EA	1

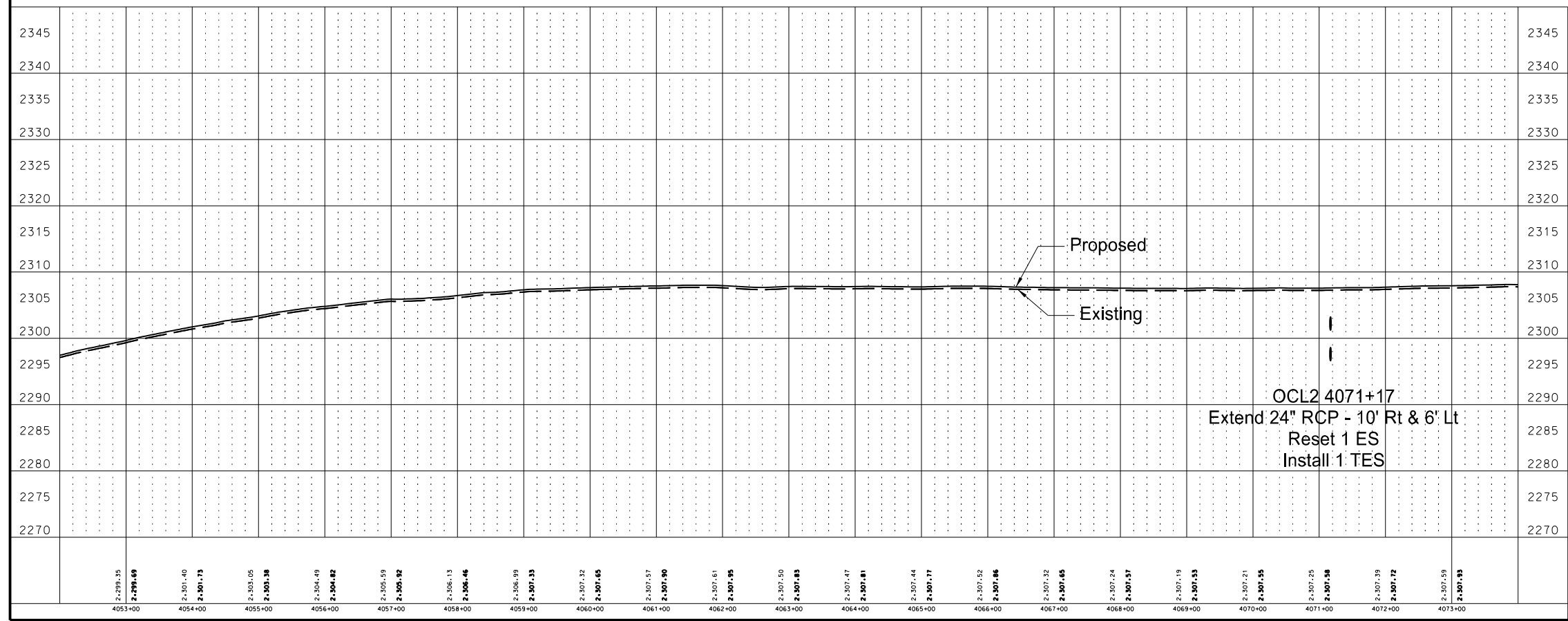
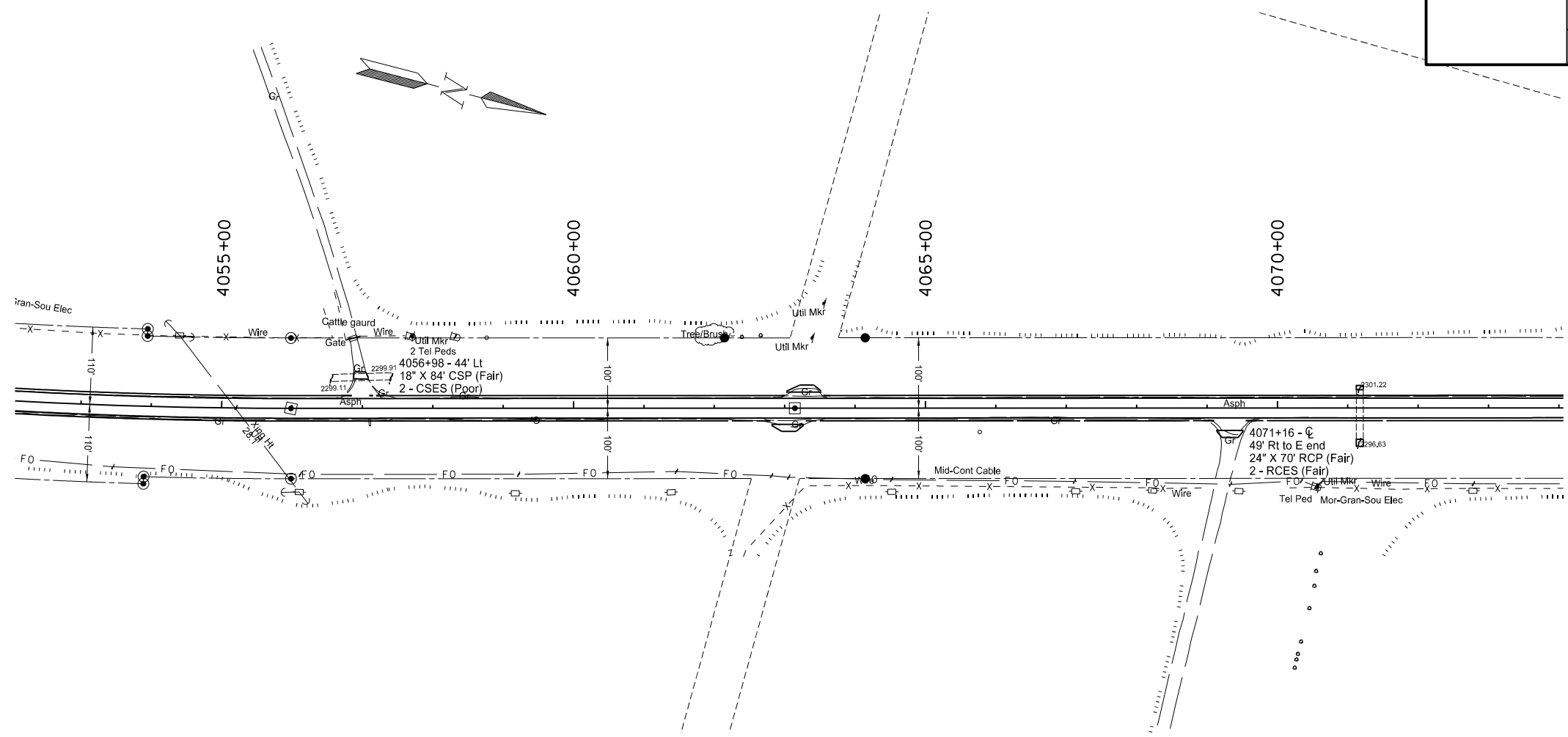


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Plan & Profile (OCL2)
 Sta 4035+00 to Sta 4055+00
 Widening, Sliver Grading, HBP Overlay, and Guardrail
 Glen Ullin East & North to County Line

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	60	8

SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	169	Removal of End Section-All Types & Sizes		
		OCL2 4071+17	EA	1
714	615	Pipe Conc Reinf 24in CI III		
		OCL2 4071+17	LF	10 & 6
714	3023	End Sect-Traversable Reinf Conc 24in		
		OCL2 4071+17	EA	1
714	9660	Remove & Relay End Section - All Types & Sizes		
		OCL2 4071+17	EA	1

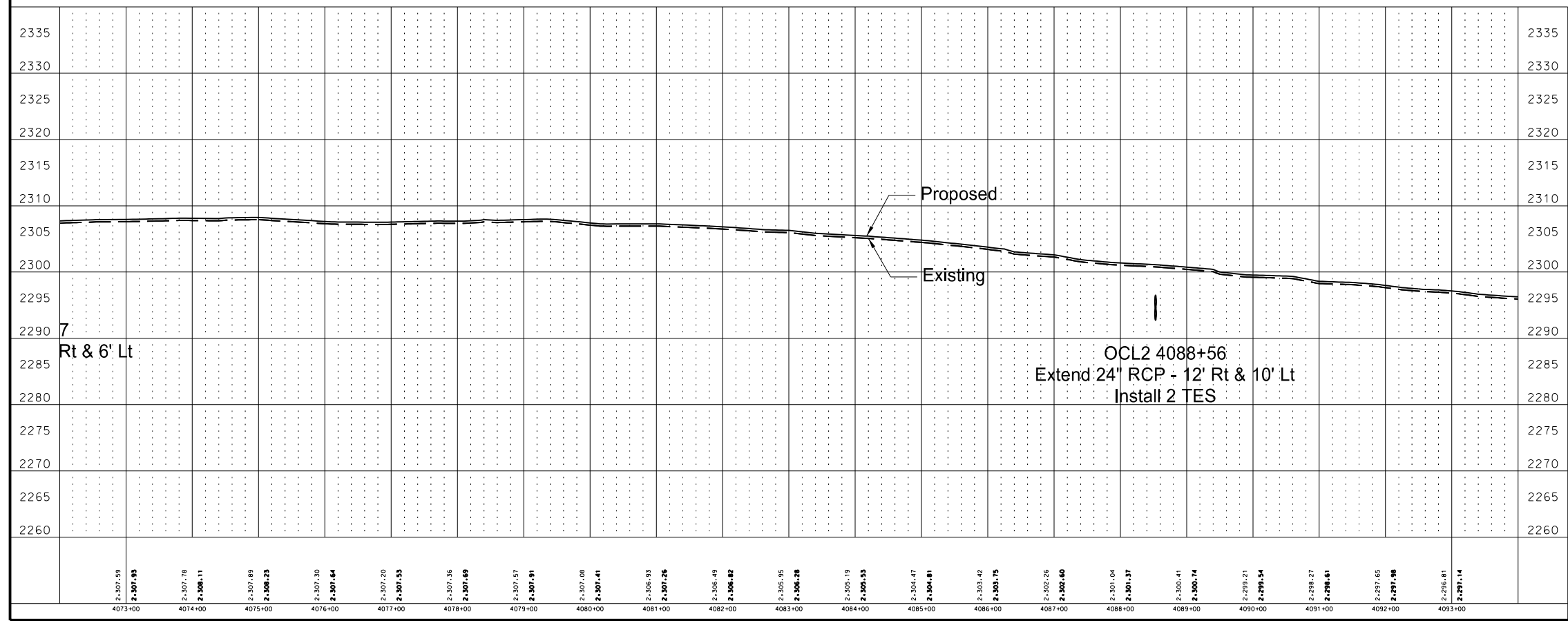
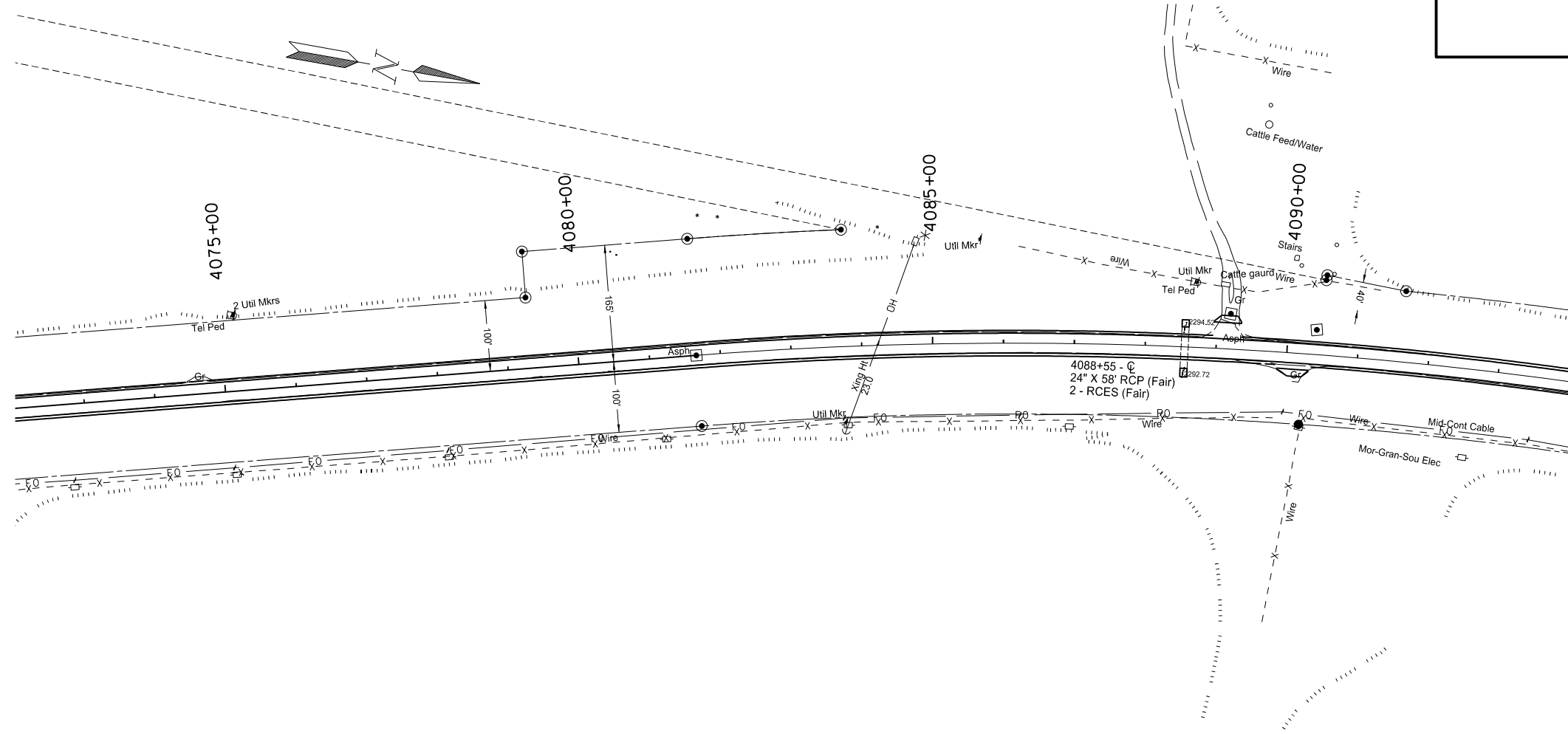


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Plan & Profile (OCL2)
Sta 4055+00 to Sta 4075+00
Widening, Sliver Grading, HBP Overlay, and Guardrail
Glen Ullin East & North to County Line

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	60	9

SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	169	Removal of End Section-All Types & Sizes		
		OCL2 4088+56	EA	2
714	615	Pipe Conc Reinf 24in CI III		
		OCL2 4088+56	LF	12 & 10
714	3023	End Sect-Traversable Reinf Conc 24in		
		OCL2 4088+56	EA	2

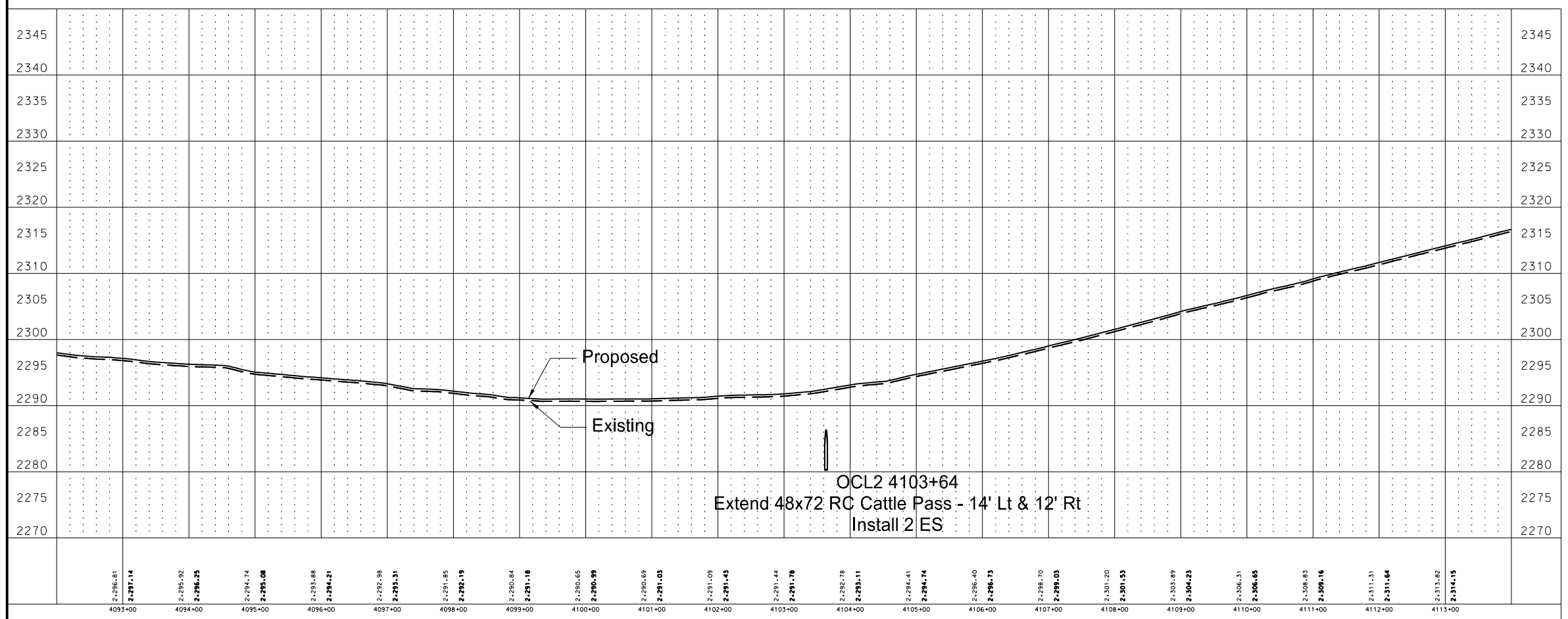
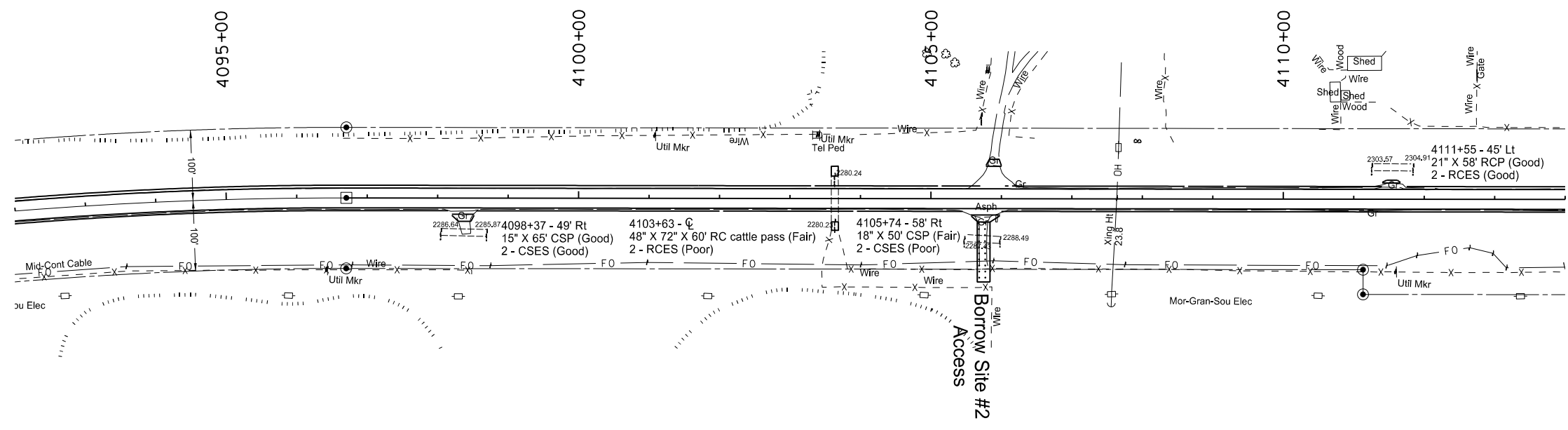


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Plan & Profile (OCL2)
Sta 4075+00 to Sta 4095+00
Widening, Sliver Grading, HBP Overlay, and Guardrail
Glen Ullin East & North to County Line

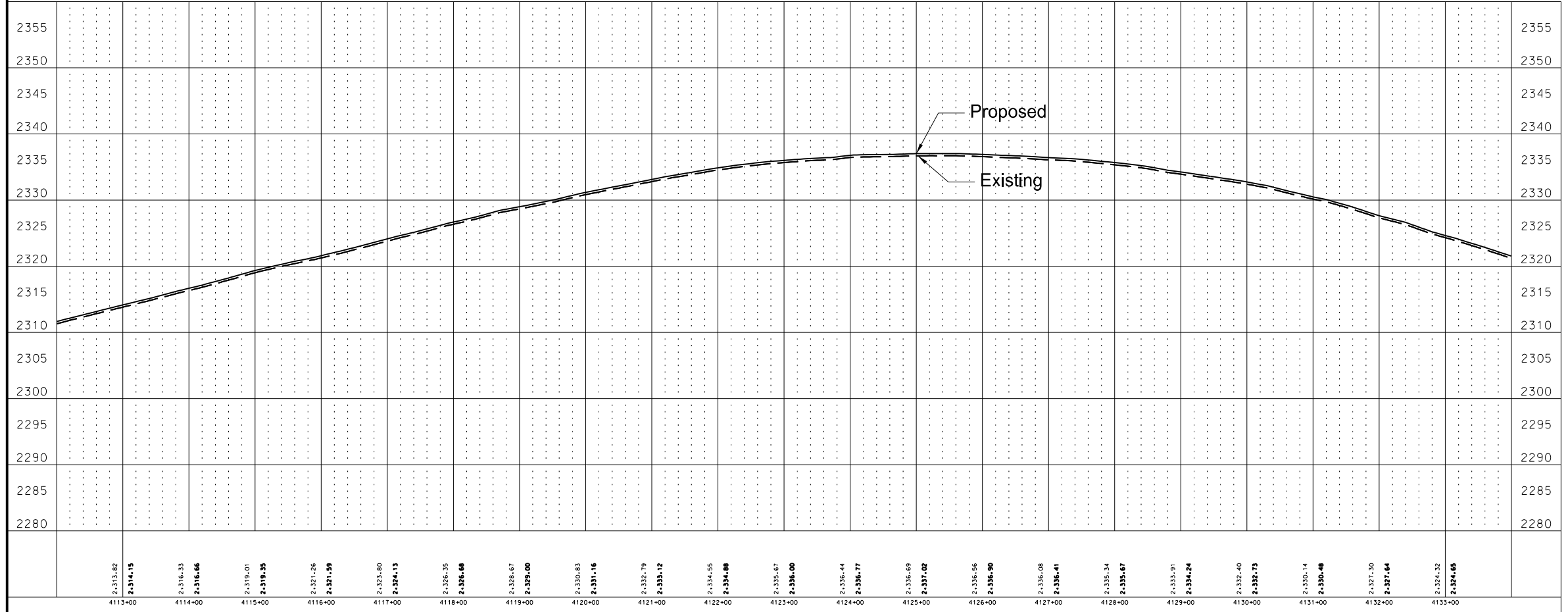
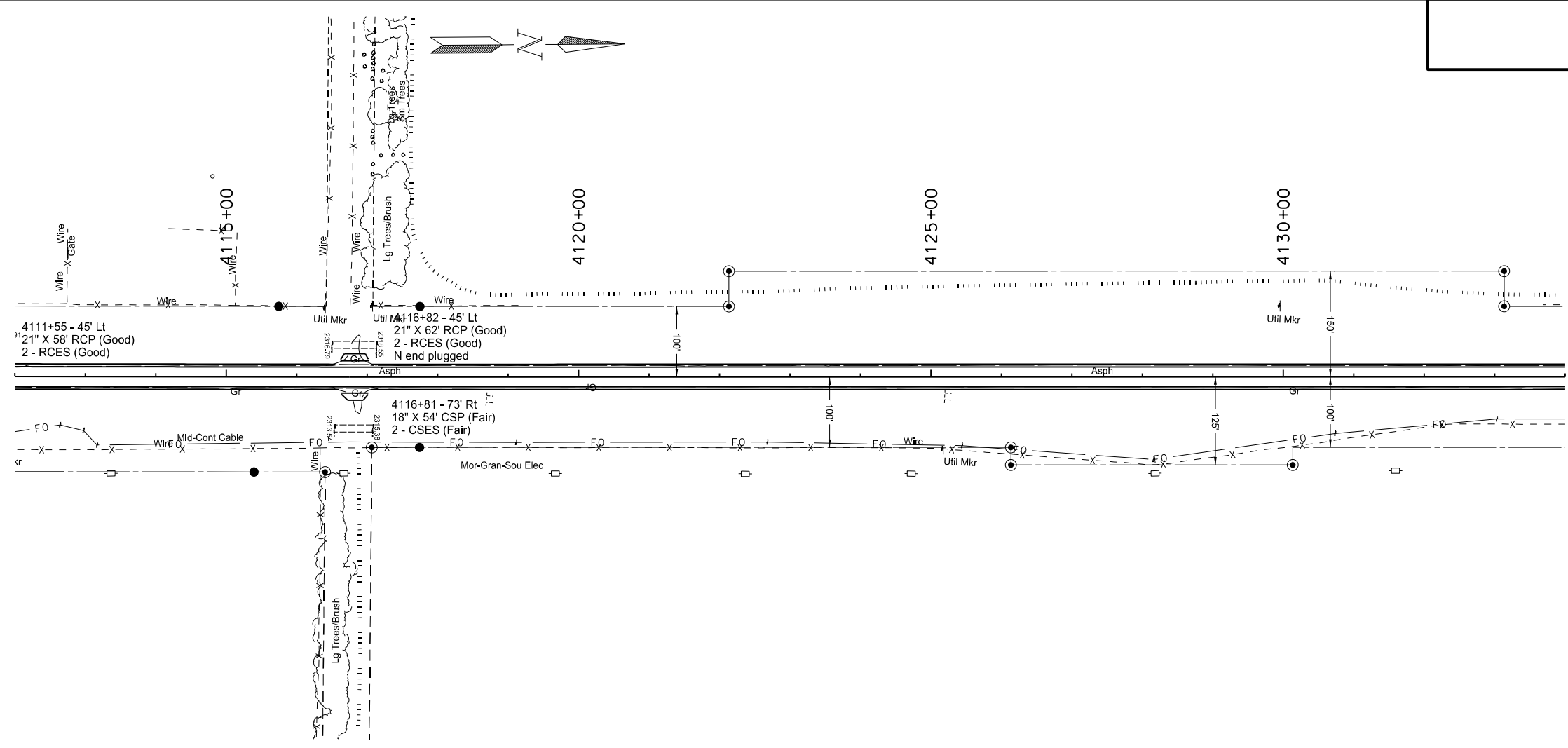
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	60	10

SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	169	Removal of End Section-All Types & Sizes		
		OCL2 4103+64	EA	2
714	9200	Cattle Pass Conc Intermed Section		
		OCL2 4103+64	LF	14 & 12
714	9350	End Section Conc Cattle Pass		
		OCL2 4103+64	EA	2



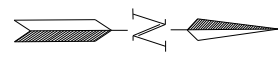
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Plan & Profile (OCL2)
Sta 4095+00 to Sta 4115+00
Widening, Sliver Grading, HBP Overlay, and Guardrail
Glen Ullin East & North to County Line

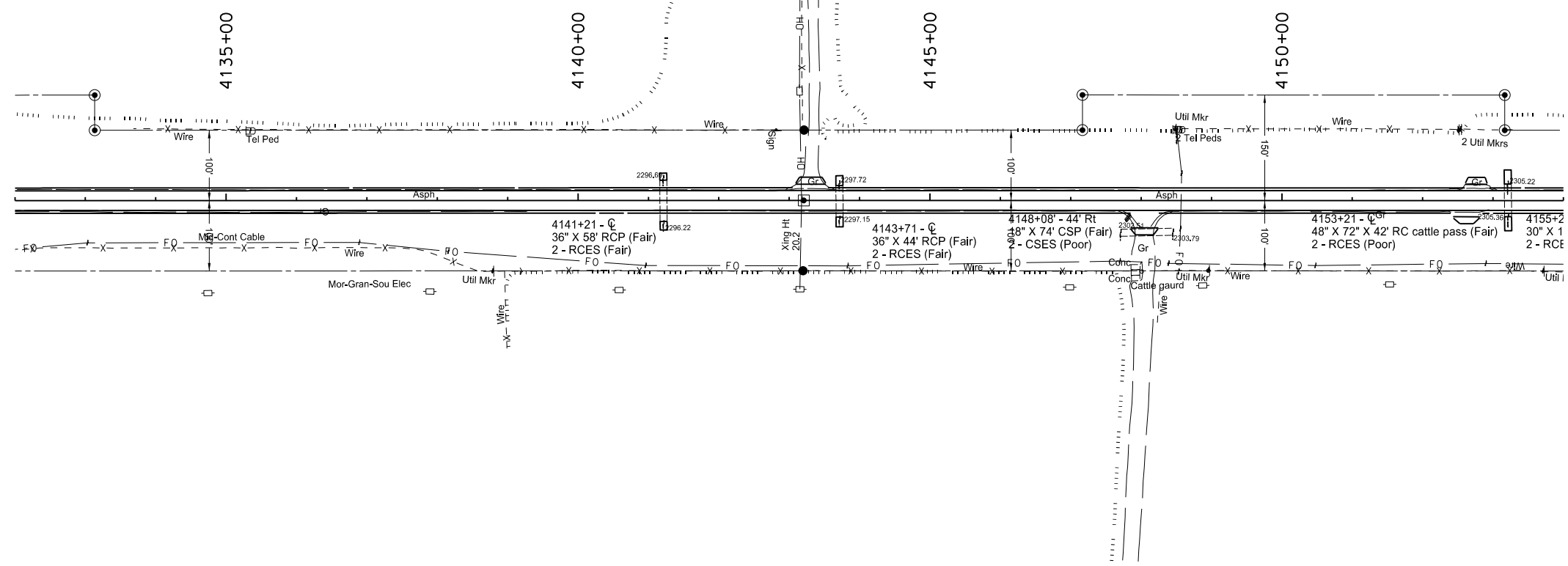


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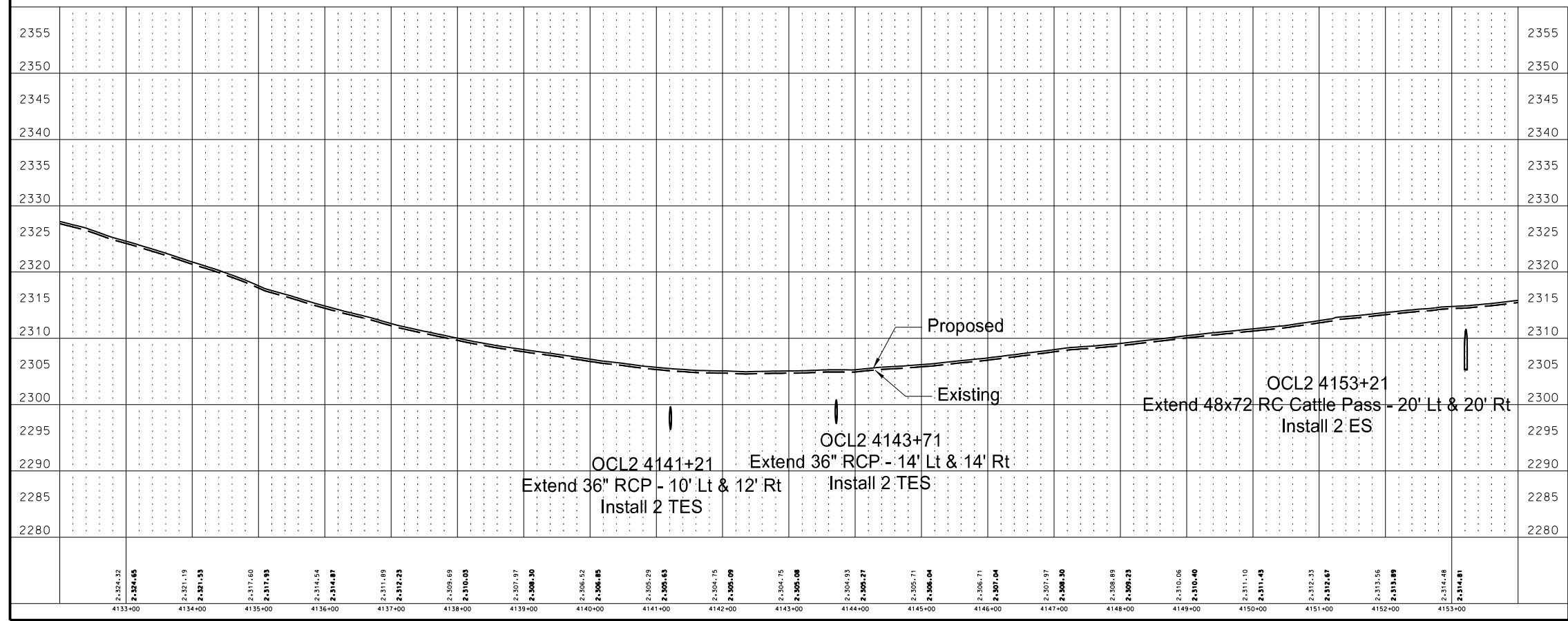
Plan & Profile (OCL2)
 Sta 4115+00 to 4135+00
 Widening, Sliver Grading, HBP Overlay, and Guardrail
 Glen Ullin East & North to County Line



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	60	12

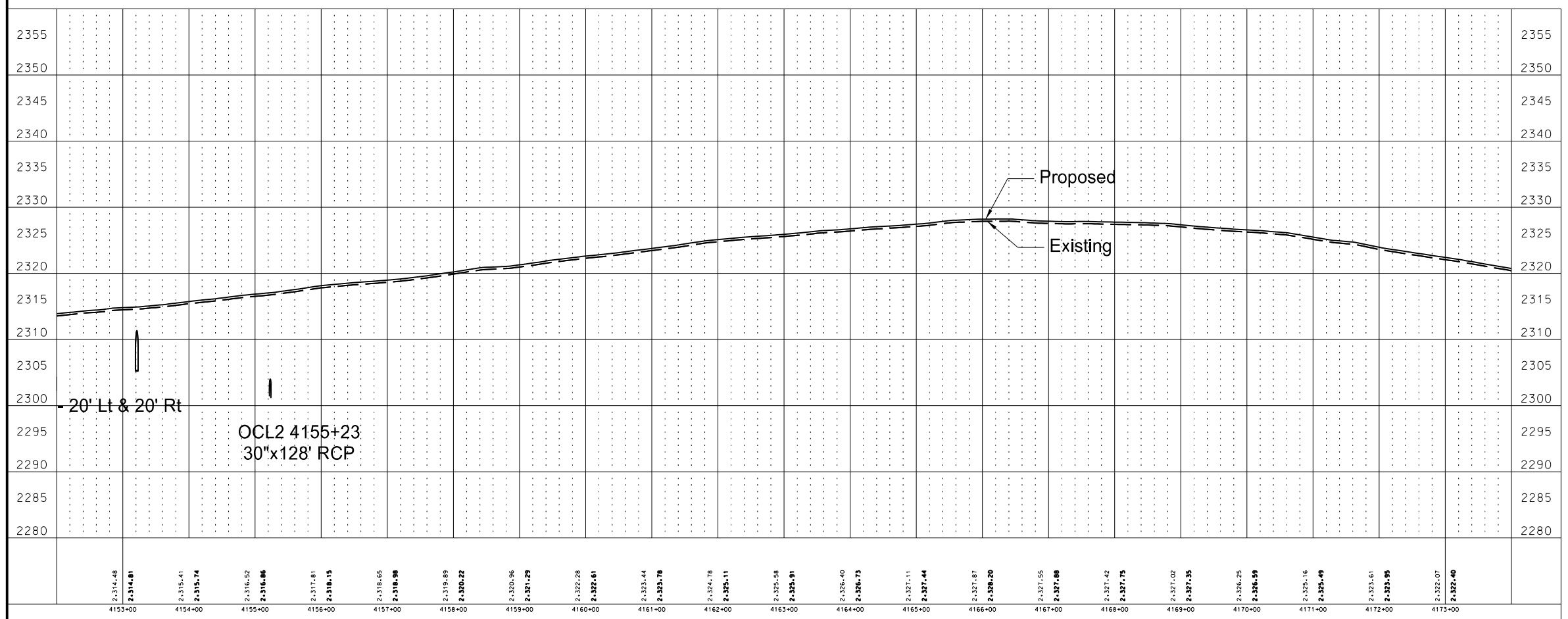
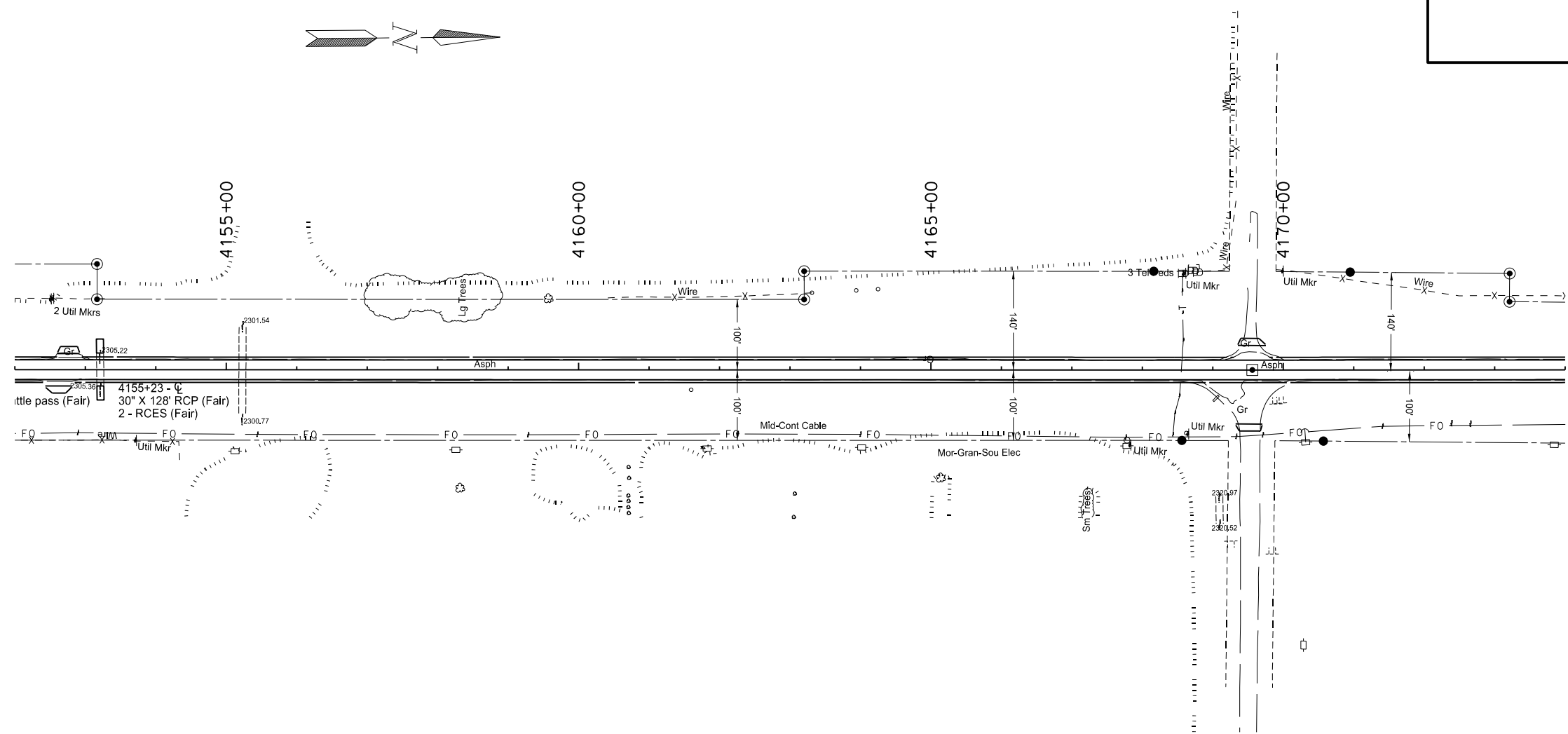


SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	169	Removal of End Section-All Types & Sizes		
		OCL2 4141+21	EA	2
		OCL2 4143+71	EA	2
		OCL2 4153+21	EA	2
714	905	Pipe Conc Reinf 36in CI III		
		OCL2 4141+21	LF	10 & 12
		OCL2 4143+71	LF	14 & 14
714	3036	End Sect-Traversable Reinf Conc 36in		
		OCL2 4141+21	EA	2
		OCL2 4143+71	EA	2
714	9200	Cattle Pass Conc Intermed Section		
		OCL2 4153+21	LF	20 & 20
714	9350	End Section Conc Cattle Pass		
		OCL2 4153+21	EA	2



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Plan & Profile (OCL2)
Sta 4135+00 to Sta 4155+00
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Glen Ullin East & North to County Line

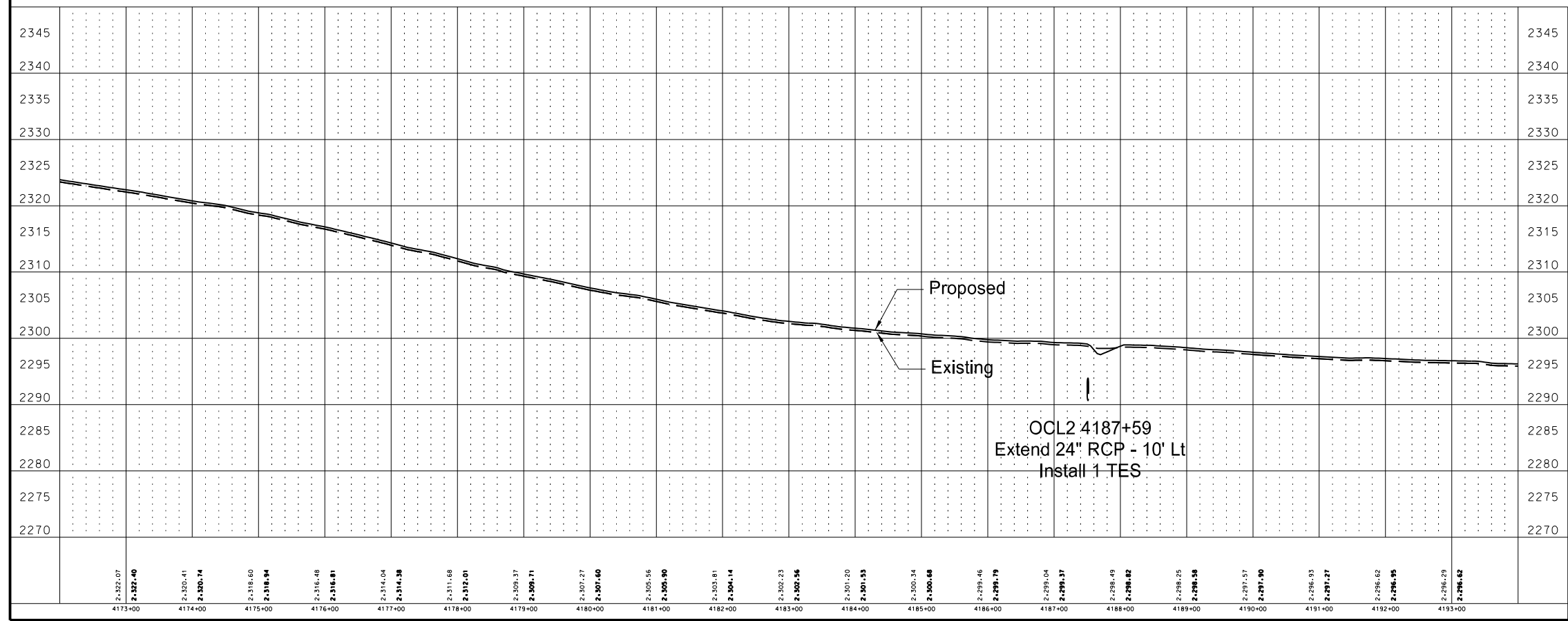
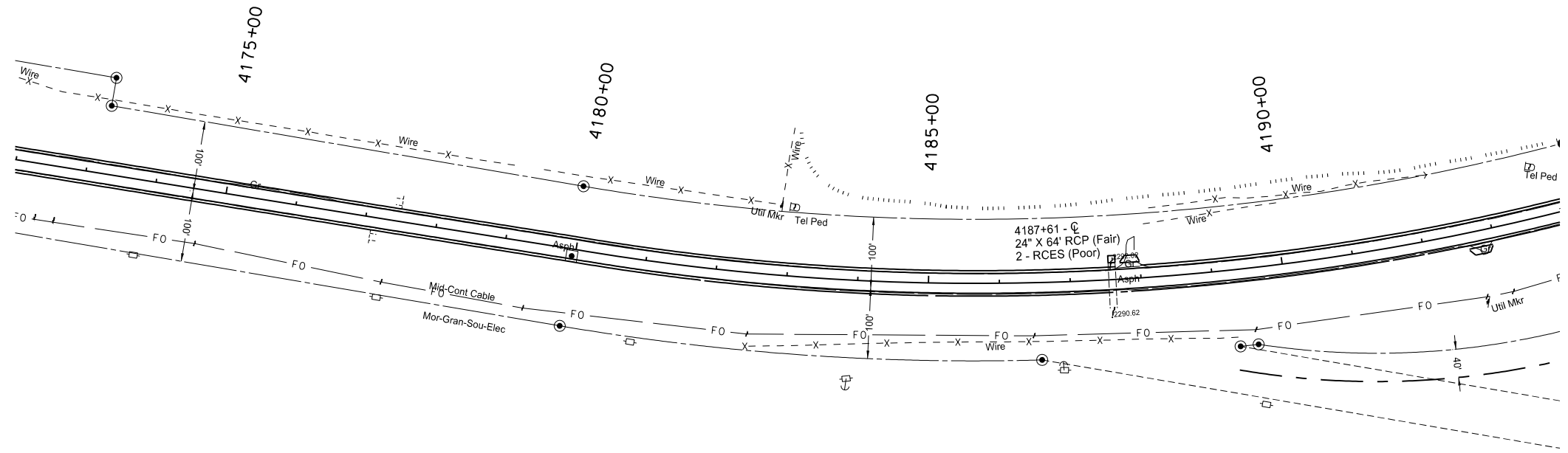


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Plan & Profile (OCL2)
 Sta 4155+00 to Sta 4175+00
 Widening, Sliver Grading, HBP Overlay, and Guardrail
 Glen Ullin East & North to County Line

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	60	14

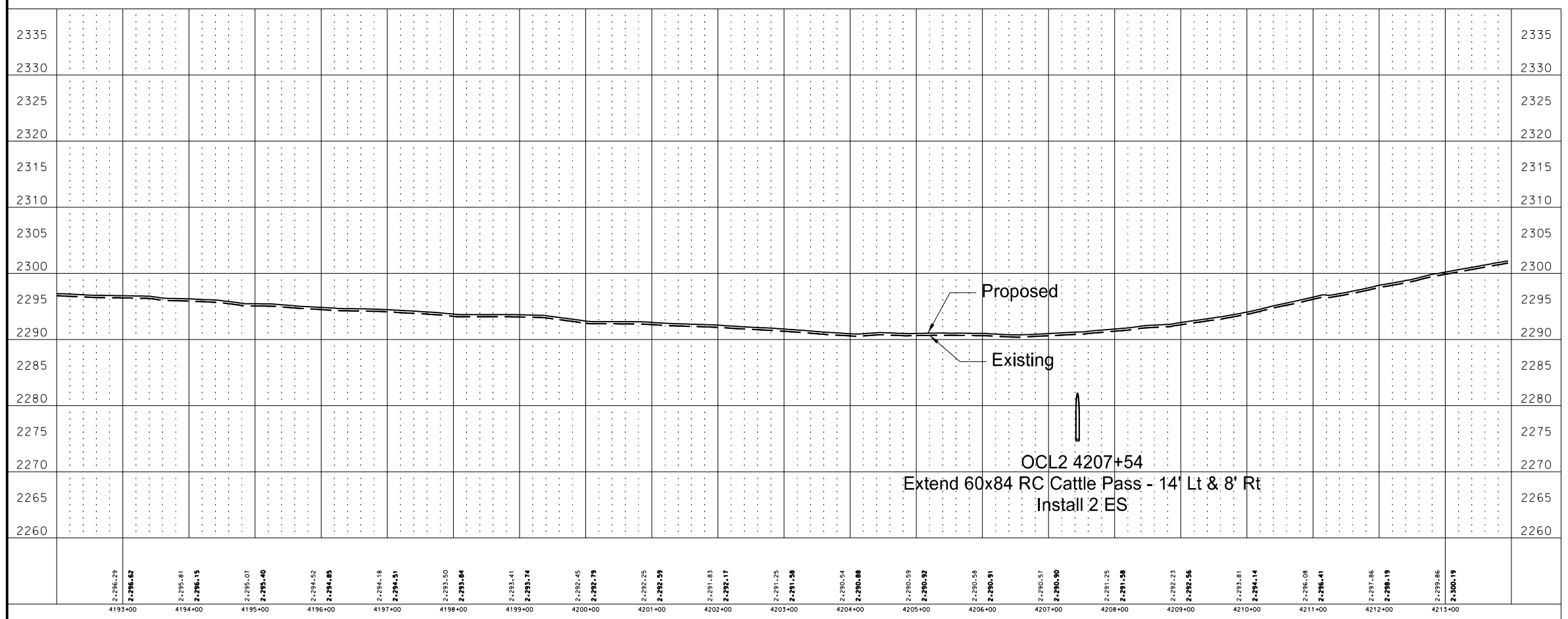
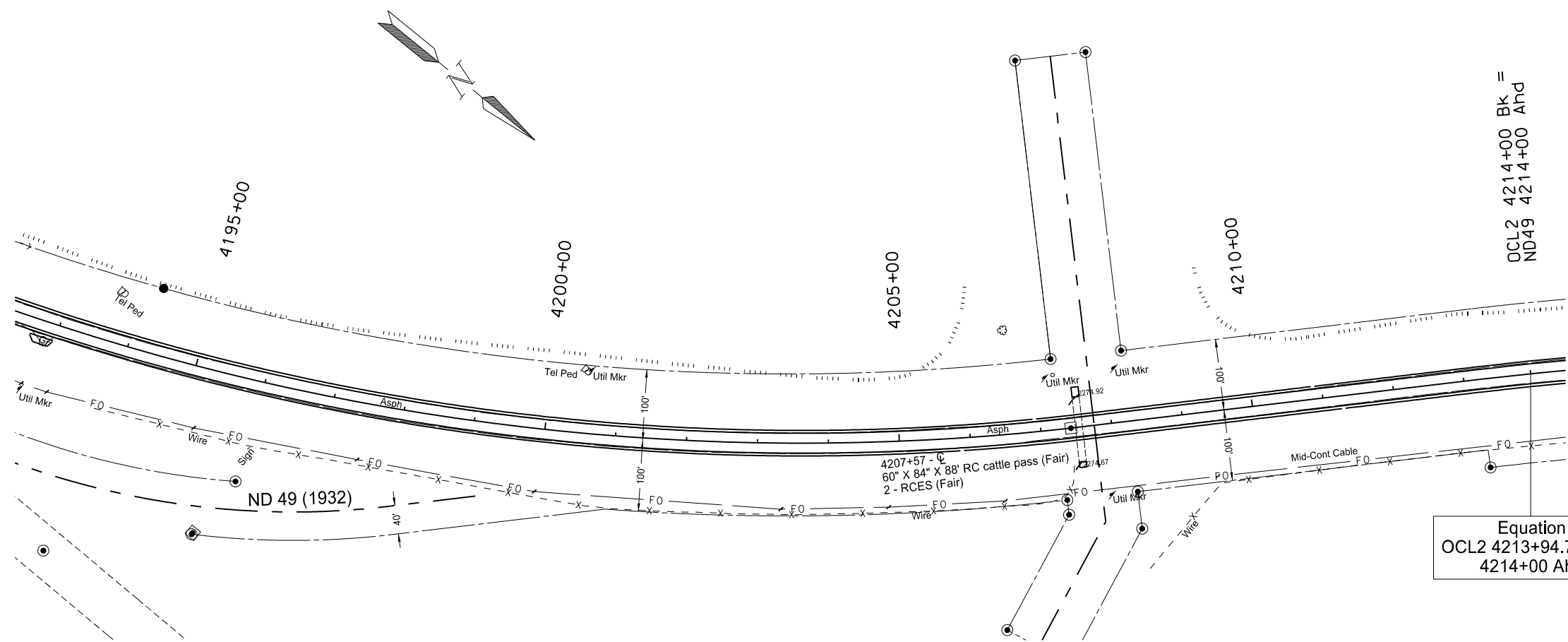
SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	169	Removal of End Section-All Types & Sizes		
		OCL2 4187+59	EA	1
714	615	Pipe Conc Reinf 24in CI III		
		OCL2 4187+59	LF	10
714	3023	End Sect-Traversable Reinf Conc 24in		
		OCL2 4187+59	EA	1



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Plan & Profile (OCL2)
Sta 4175+00 to Sta 4195+00
Widening, Sliver Grading, HPB Overlay, and Guardrail
Glen Ullin East & North to County Line

SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	169	Removal of End Section-All Types & Sizes		
		OCL2 4207+54	EA	2
714	9200	Cattle Pass Conc Intermed Section		
		OCL2 4207+54	LF	14 & 8
714	9350	End Section Conc Cattle Pass		
		OCL2 4207+54	EA	2

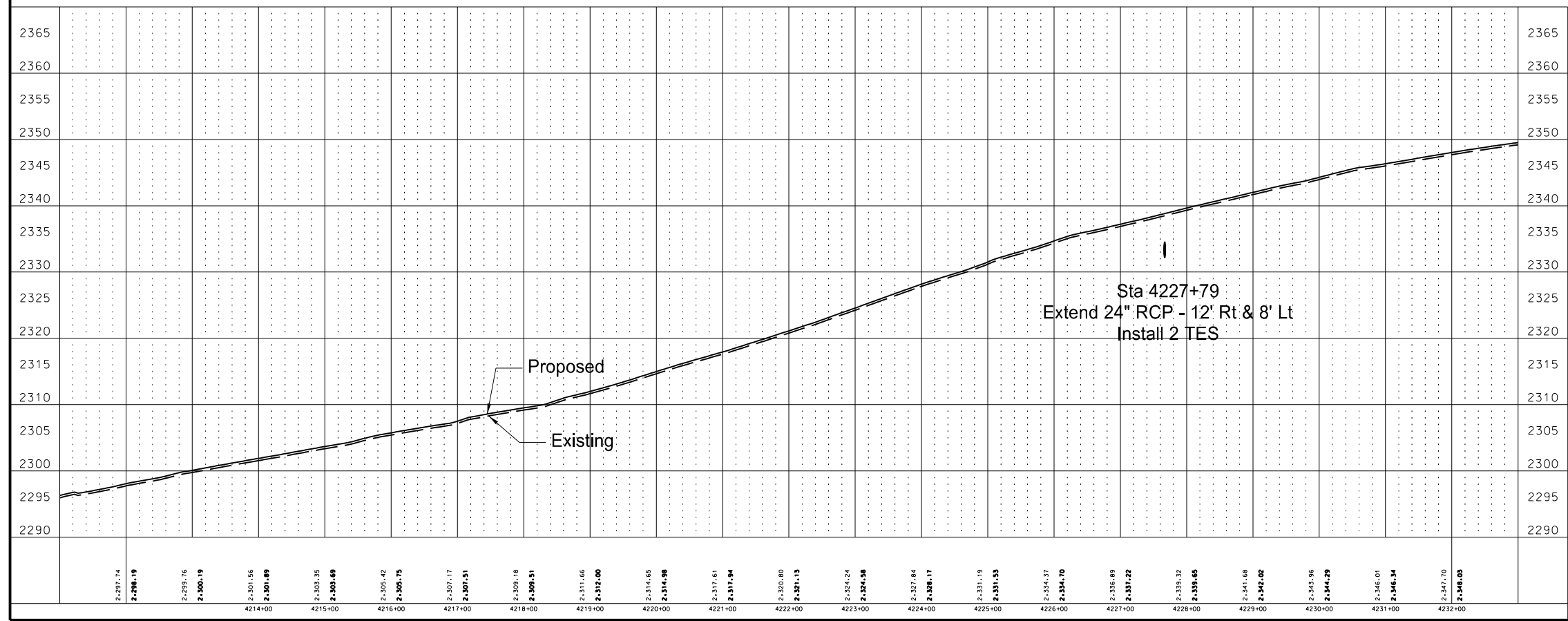
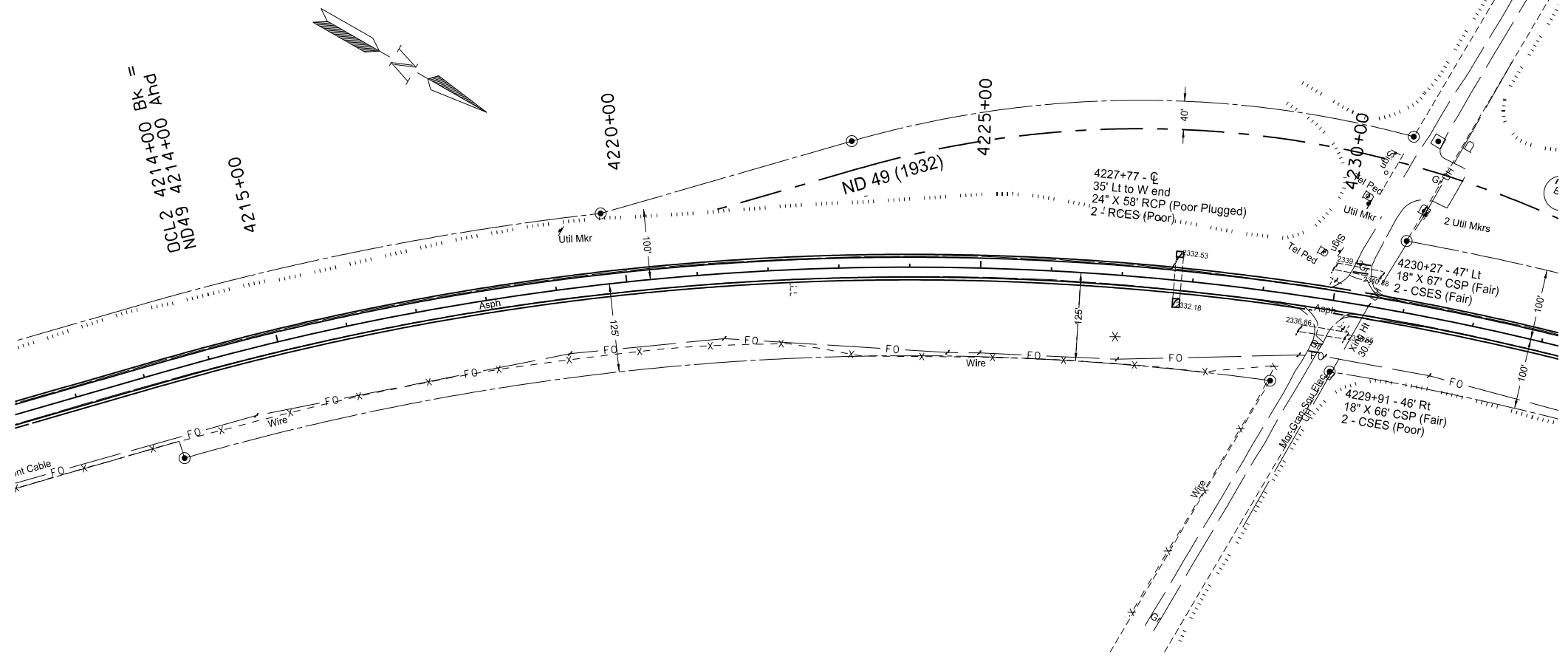


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Plan & Profile (OCL2)
 Sta 4195+00 to Sta 4213+94.76 Bk=4214+00 Ahd
 Widening, Sliver Grading, HBP Overlay, and Guardrail
 Glen Ullin East & North to County Line

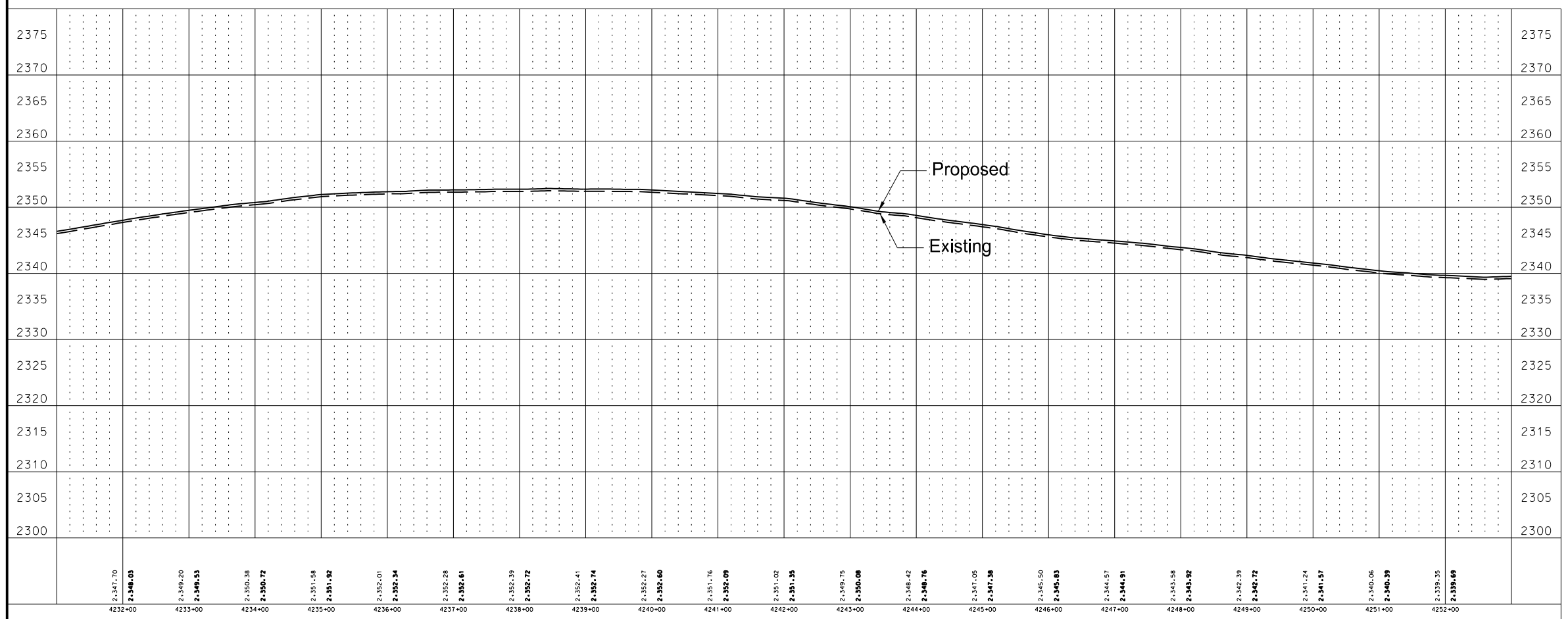
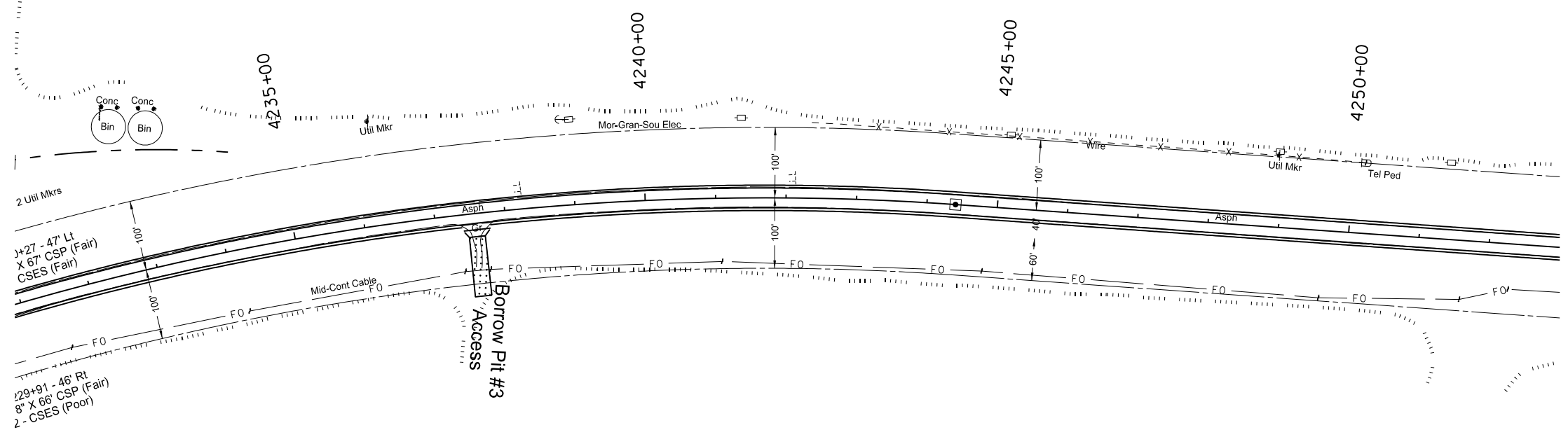
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	60	16

SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	169	Removal of End Section-All Types & Sizes		
		OCL2 4227+79	EA	2
714	615	Pipe Conc Reinf 24in CI III		
		OCL2 4227+79	LF	12 & 8
714	3023	End Sect-Traversable Reinf Conc 24in		
		OCL2 4227+79	EA	2



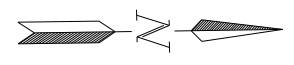
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Plan & Profile
Sta 4214+00 Ahd to 4234+00
Widening, Sliver Grading, HBP Overlay, and Guardrail
Glen Ullin East & North to County Line



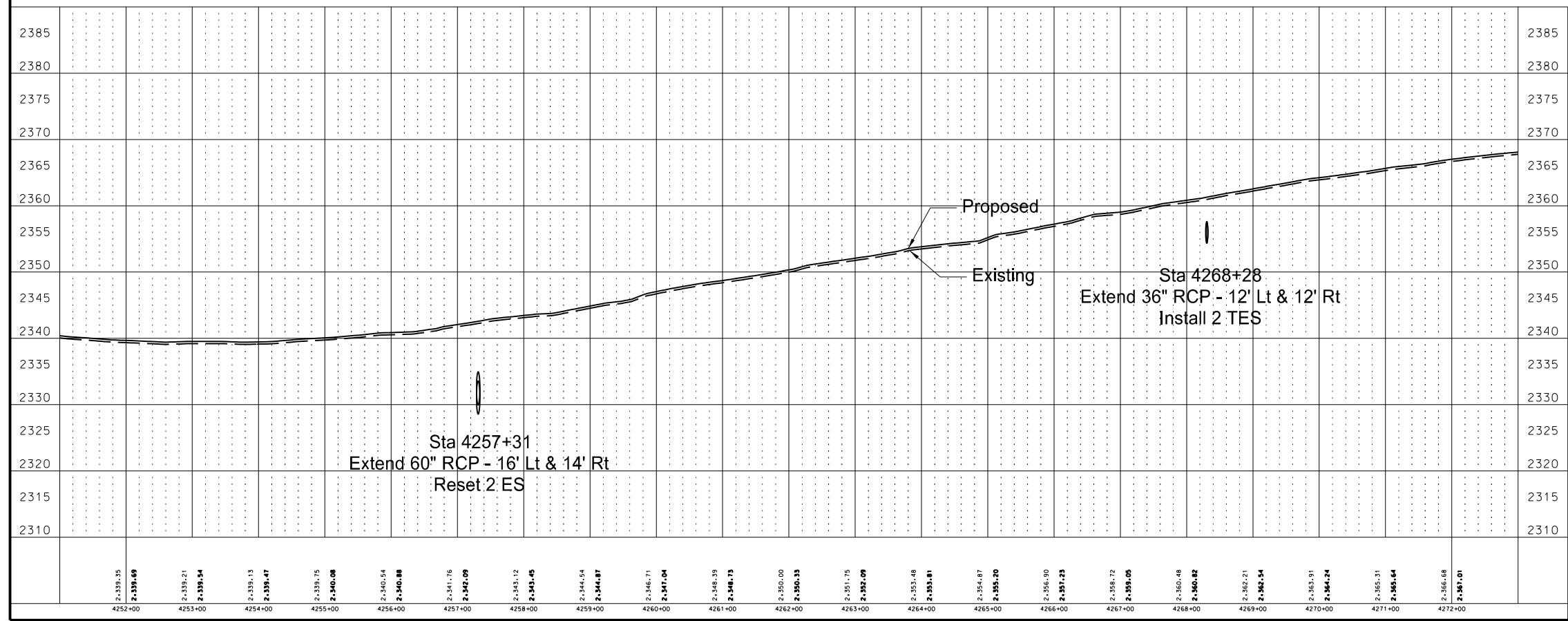
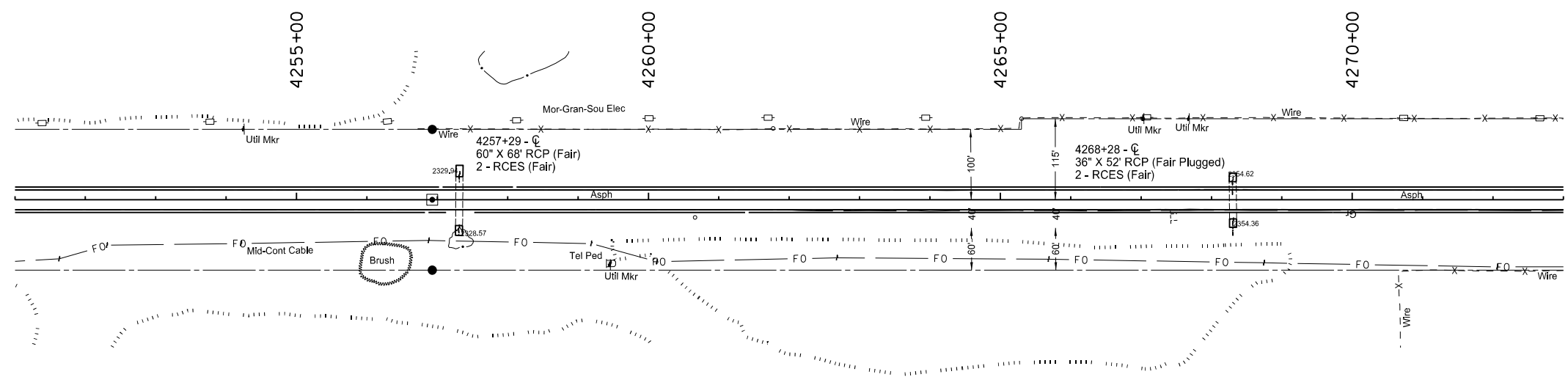
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Plan & Profile
 Sta 4234+00 to Sta 4254+00
 Widening, Sliver Grading, HBP Overlay, and Guardrail
 Glen Ullin East & North to County Line



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	60	18

SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	169	Removal of End Section-All Types & Sizes		
		Sta 4257+31	EA	2
		Sta 4268+28	EA	2
714	905	Pipe Conc Reinf 36in CI III		
		Sta 4268+28	LF	12 & 12
714	1310	Pipe Conc Reinf 60in CI III		
		Sta 4257+31	LF	16 & 14
714	3036	End Sect-Traversable Reinf Conc 36in		
		Sta 4268+28	EA	2
714	9660	Remove & Relay End Section - All Types & Sizes		
		Sta 4257+31	EA	2

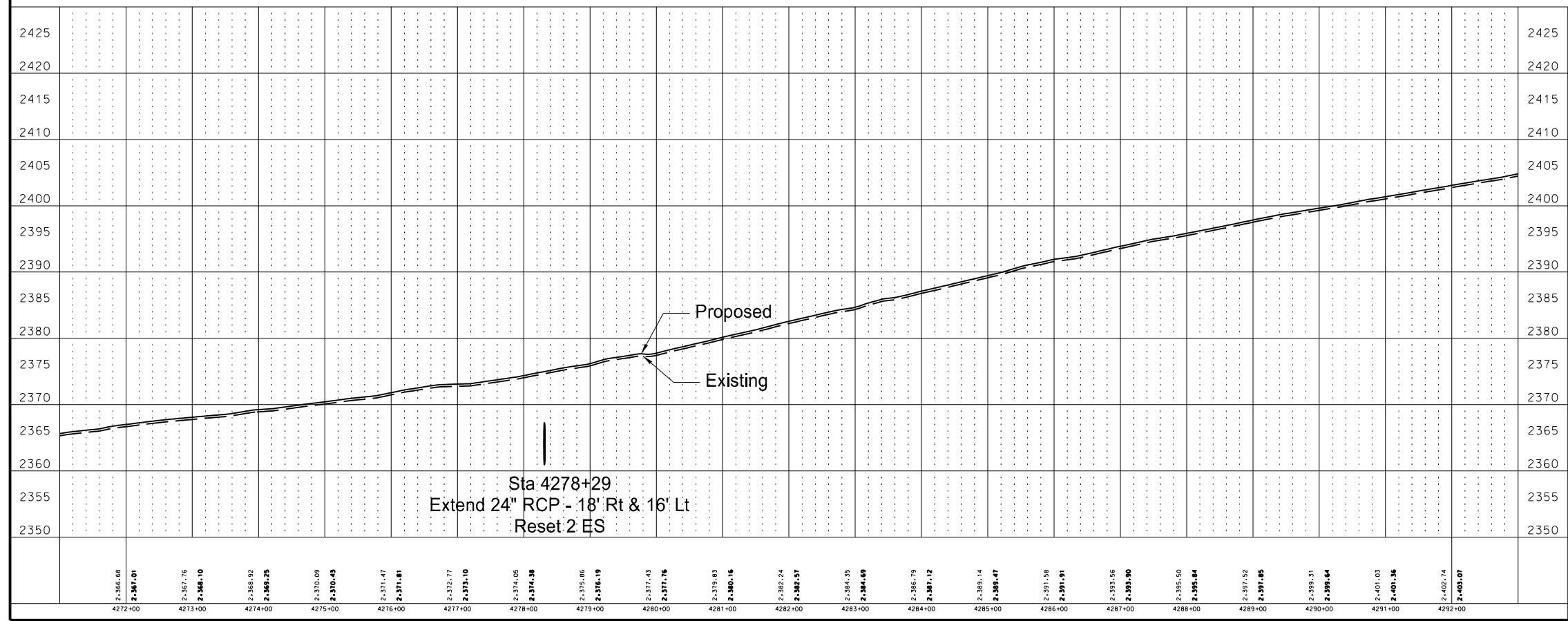
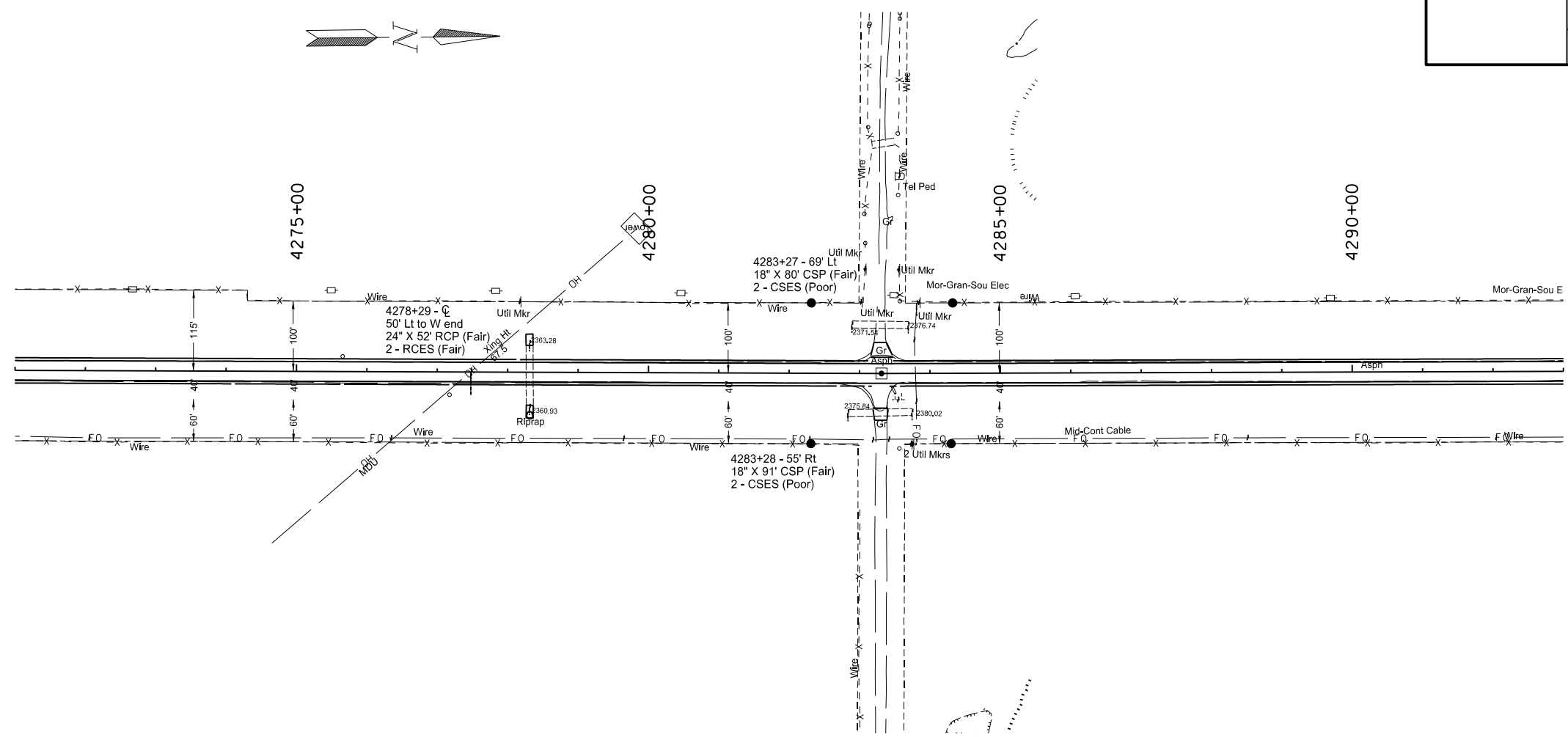


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Plan & Profile
Sta 4254+00 to Sta 4274+00
Widening, Sliver Grading, HBP Overlay, and Guardrail
Glen Ullin East & North to County Line

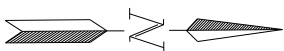
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	60	19

SPEC	CODE	BID ITEM	UNIT	QUANTITY
714	615	Pipe Conc Reinf 24in CI III		
		Sta 4278+29	LF	18 & 16
714	9660	Remove & Relay End Section - All Types & Sizes		
		Sta 4278+29	EA	2

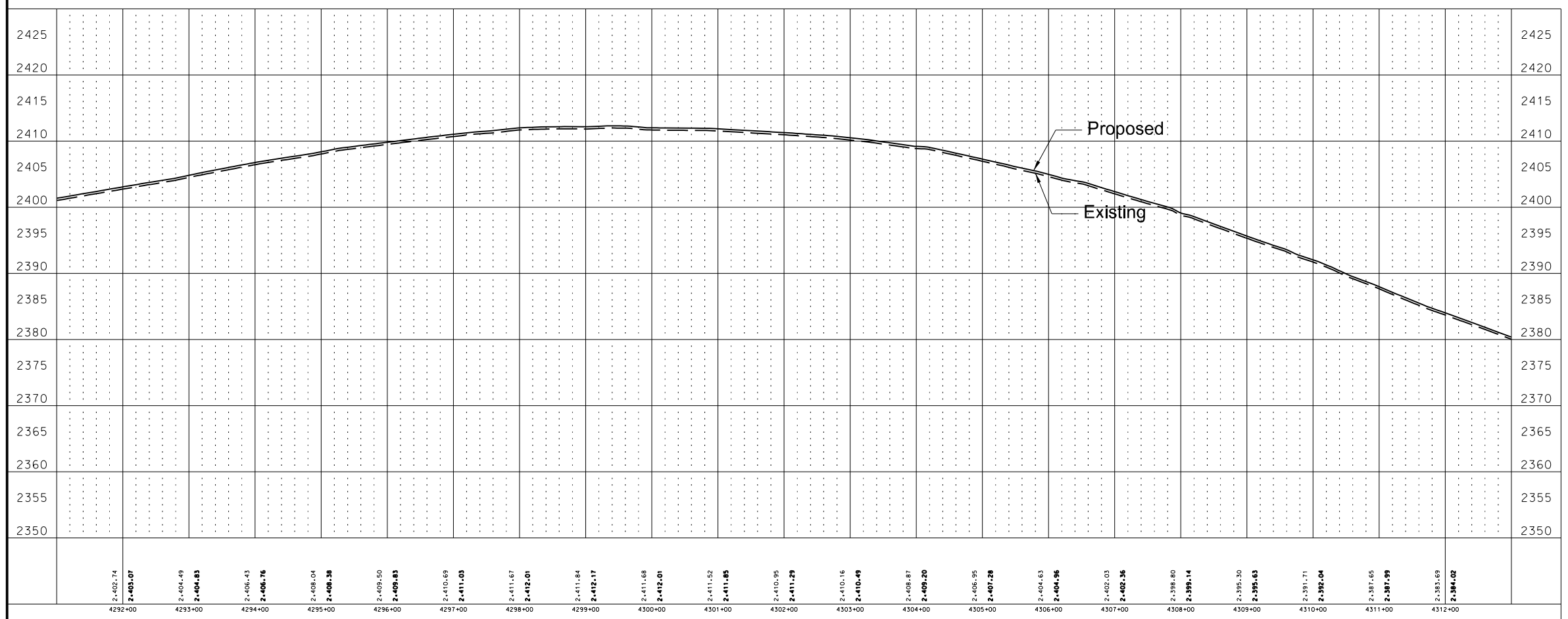
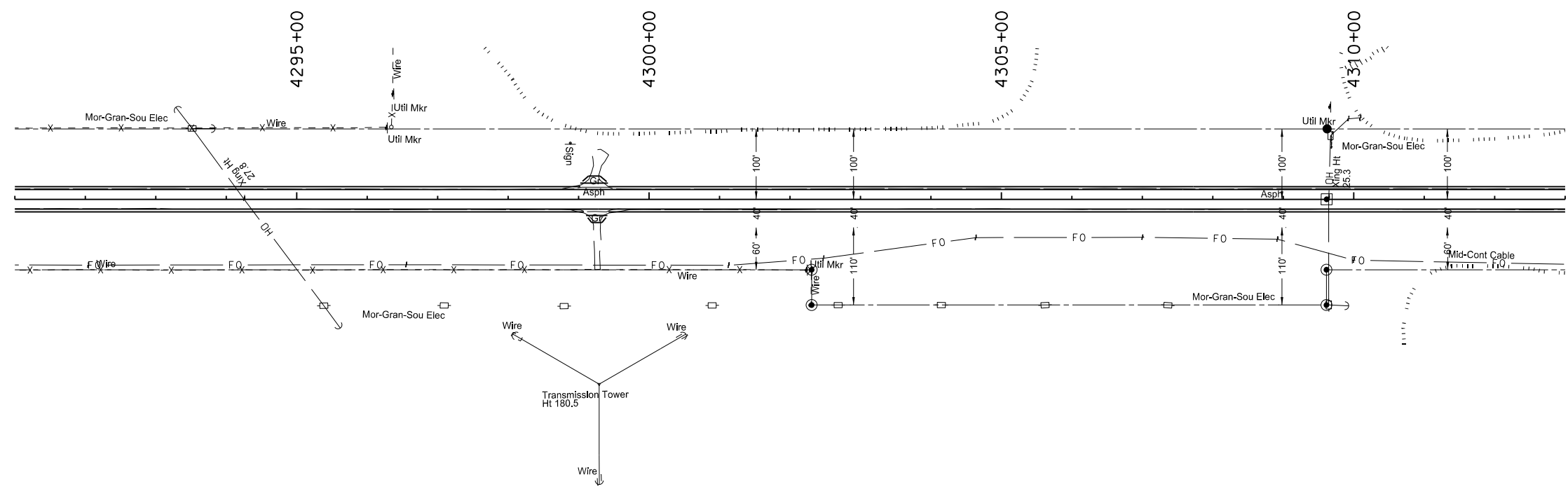


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Plan & Profile
Sta 4274+00 to Sta 4294+00
Widening, Sliver Grading, HBP Overlay, and Guardrail
Glen Ullin East & North to County Line

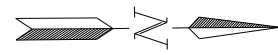


STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	60	20



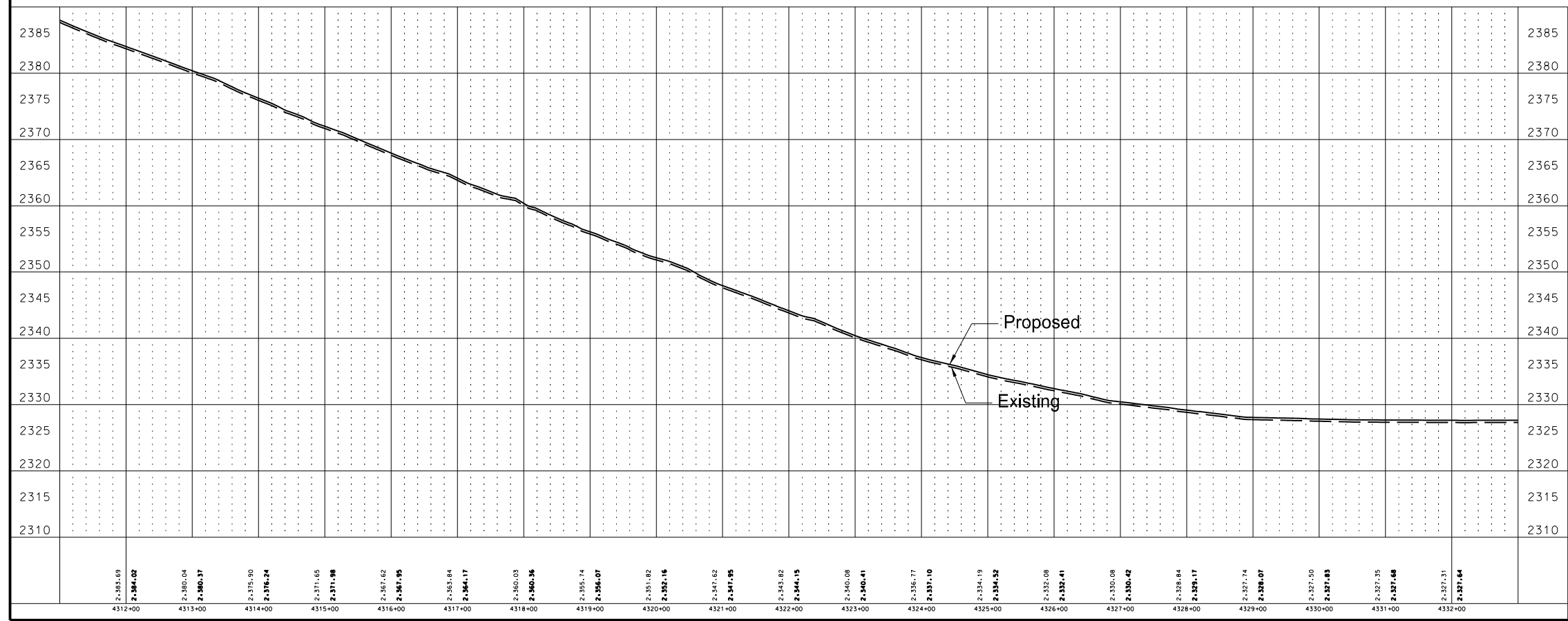
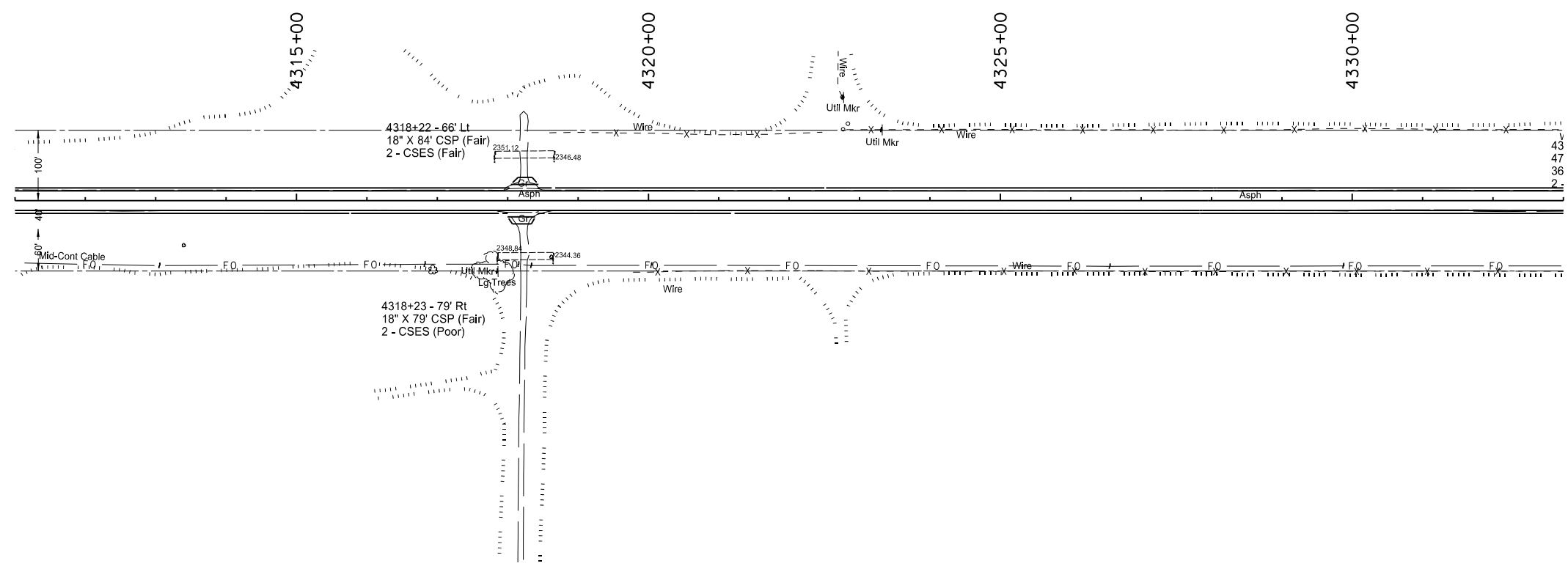
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Plan & Profile
Sta 4294+00 to Sta 4314+00
Widening, Sliver Grading, HBP Overlay, and Guardrail
Glen Ullin East & North to County Line



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	60	21

SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	169	Removal of End Section-All Types & Sizes		
		Sta 4334+50	EA	1
714	905	Pipe Conc Reinf 36in CI III		
		Sta 4334+50	LF	10 & 10
714	3036	End Sect-Traversable Reinf Conc 36in		
		Sta 4334+50	EA	1
714	9660	Remove & Relay End Section - All Types & Sizes		
		Sta 4334+50	EA	1



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Plan & Profile
Sta 4314+00 to Sta 4334+00
Widening, Sliver Grading, HBP Overlay, and Guardrail
Glen Ullin East & North to County Line

Wetland Number	Location	Cowardin Class.	Wetland Type	Wetland Size Ac.	Wetland Feature	USACE Jurisdictional Wetlands*	Wetland Impacts (acres)		USFWS Easement Impacts		Wetland Mitigation								
							Temp. Ac.	Perm. Ac.	Temp.	Perm.	Mitigation Required			Bank		Onsite			
											EO 11990	USACE	USFWS	Location	acres	Mitigation Location; Ratio	acres	Constructed Site#	Constructed size (acres)
1	Sec. 31, T139N, R88W	PEMC	Basin	0.16	Natural	Y	-	-											
2	Sec. 32, T139N, R88W	PEMA	Basin	0.1	Natural	N	-	-											
03a	Sec. 33, T139N, R88W	PEMF	Slope	0.01	Natural	Y	<0.01	<0.01	0	0	Y	N	N	Volrath 16/17	<0.01				
03b	Sec. 33, T139N, R88W	PEMF	Slope	0.03	Natural	Y	<0.01	<0.01	0	0	Y	N	N	Volrath 16/17	<0.01				
04a	Sec. 28, T139N, R88W	PEMF	Basin	0.04	Natural	Y	-	-											
05a	Sec. 22, T139N, R88W	PUBC	Basin	0.06	Natural	Y	-	-											
05c	Sec. 22, T139N, R88W	PEMC	Basin	0.34	Natural	Y	-	-											
6	Sec. 10, T139N, R88W	PEMA	Ditch	0.03	Artificial	N	0.02	<0.01	0	0	N	N	N						
07a	Sec. 3, T139N, R88W	PEMF	Slope	0.13	Natural	Y	0.04	0.05	0	0	Y	N	N	Volrath 16/17	0.05				
07b	Sec. 3, T139N, R88W	PEMF	Slope	0.51	Natural	Y	0.13	0.05	0	0	Y	N	N	Volrath 16/17	0.05				
8	Sec. 3, T139N, R88W	PEMC	Slope	0.09	Natural	N	0.01	-	0	0									
09a	Sec. 34, T140N, R88W	PSSA	Basin	1.26	Natural	Y	-	-											
09b	Sec. 34, T140N, R88W	PEMA	Basin	0.16	Natural	Y	-	-											
10a	Sec. 27, T140N, R88W	PEMC	Slope	0.24	Natural	Y	0.02	<0.01	0	0	Y	N	N	Volrath 16/17	<0.01				
10b	Sec. 28, T140N, R88W	PEMC	Basin	0.12	Natural	Y	<0.01	<0.01	0	0	Y	N	N	Volrath 16/17	<0.01				
10c	Sec. 28, T140N, R88W	PEMC	Basin	0.3	Natural	Y	-	-											
11	Sec. 15, T140N, R88W	PEMC	Slope	0.1	Natural	N	-	-											
12	Sec. 15, T140N, R88W	PEMA	Slope	0.07	Natural	N	-	-											
13	Sec. 16, T140N, R88W	PEMA	Basin	0.07	Natural	N	-	-											
14a	Sec. 16, T140N, R88W	PEMC	Slope	0.04	Natural	Y	0.02	<0.01	0	0	Y	N	N	Volrath 16/17	<0.01				
14b	Sec. 16, T140N, R88W	PEMC	Slope	0.07	Natural	Y	0.03	<0.01	0	0	Y	N	N	Volrath 16/17	<0.01				
15	Sec. 16, T140N, R88W	PEMC	Ditch	0.18	Artificial	N	0.09	0.07	0	0	N	N	N						
16a	Sec. 9, T140N, R88W	PEMC	Slope	1.37	Natural	Y	0.09	<0.01	0	0	Y	N	N	Volrath 16/17	<0.01				
16b	Sec. 9, T140N, R88W	PEMA	Slope	0.54	Natural	Y	0.05	<0.01	0	0	Y	N	N	Volrath 16/17	<0.01				
17	Sec. 9, T140N, R88W	PEMA	Basin	0.15	Natural	N	-	-											
			Totals	6.17			0.51	0.19	0	0						0			0

* A wetland Jurisdictional Determination was issued by the USACE on 9/30/2014; NWO-2014-1676-BIS.
 **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.
 ***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), Preamble Wetlands, and temporary impacts do not require mitigation.

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Wetlands Mitigation and Environmental
 Widening, Sliver Grading, HBP Overlay, and Guardrail
 Glen Ullin East & North to County Line

Other Waters Impact Table															
Other Waters										Other Water Mitigation					
Number	Location	Type	Size		Feature	USACE Jurisdictional*	Impacts to Other Waters				Mitigation Required			Location	Method
			Acres	Linear Feet			Acres Temp	Acres Perm	Linear Feet Temp	Linear Feet Perm	EO 11990	USACE	USFWS		
#OW 04b	Sec. 28, T139N, R88W	Creek	0.25	302	Natural	Yes	0	0	0	0	N	N	N	NA	NA
#OW 05b	Sec. 22, T139N, R88W	Creek	0.19	258	Natural	Yes	0	0	0	0	N	N	N	NA	NA
Totals			0.44	560			0	0	0	0					

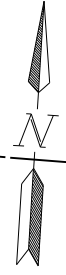
Summary Impact Table			
Total Permanent Impact Summary		Temporary Impacts and additional information	
Wetland Type	Total (Acres)	Wetland Type	Total (Acres/Lf)
Natural/JD	0.12	Temporary JD	0.51
Natural/Non-JD	0	Non-JD Temporary	0
Artificial/JD	0.07	Permanent JD > 0.10	0
Artificial /Non-JD	0	Permanent OW	0
Total	0.19	Temporary OW	0

Mitigation Summary Table					
	Location	Onsite Acre(s)	11990 Bank Acre(s)	USACE/11990 Bank Acre(s)	USFWS Bank Acre(s)
USACE Only	N/A				
EO 11990 Only	Vollrath16/17			0.12	
USACE/11990	N/A				
USFWS	N/A				
Total		0	0	0.12	0

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Wetlands Mitigation and Environmental
 Widening, Sliver Grading, HBP Overlay, and Guardrail
 Glen Ullin East & North to County Line

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	75	3



Sec 33
T-139-N
R-88-W

Sec 28
T-139-N
R-88-W

Sec 33
T-139-N
R-88-W

35+00

40+00

45+00

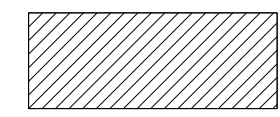
50+00

Wetland 03a
Temporary Impacts = 0.01 Ac
Permanent Impacts = 0.01 Ac

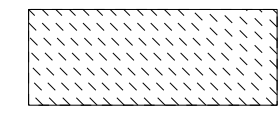
Tie Line

Tie Line

Wetland 03b
Temporary Impacts = 0.01 Ac
Permanent Impacts = 0.01 Ac



Permanent Impact



Temporary Impact

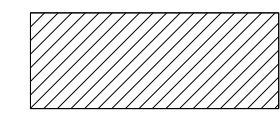
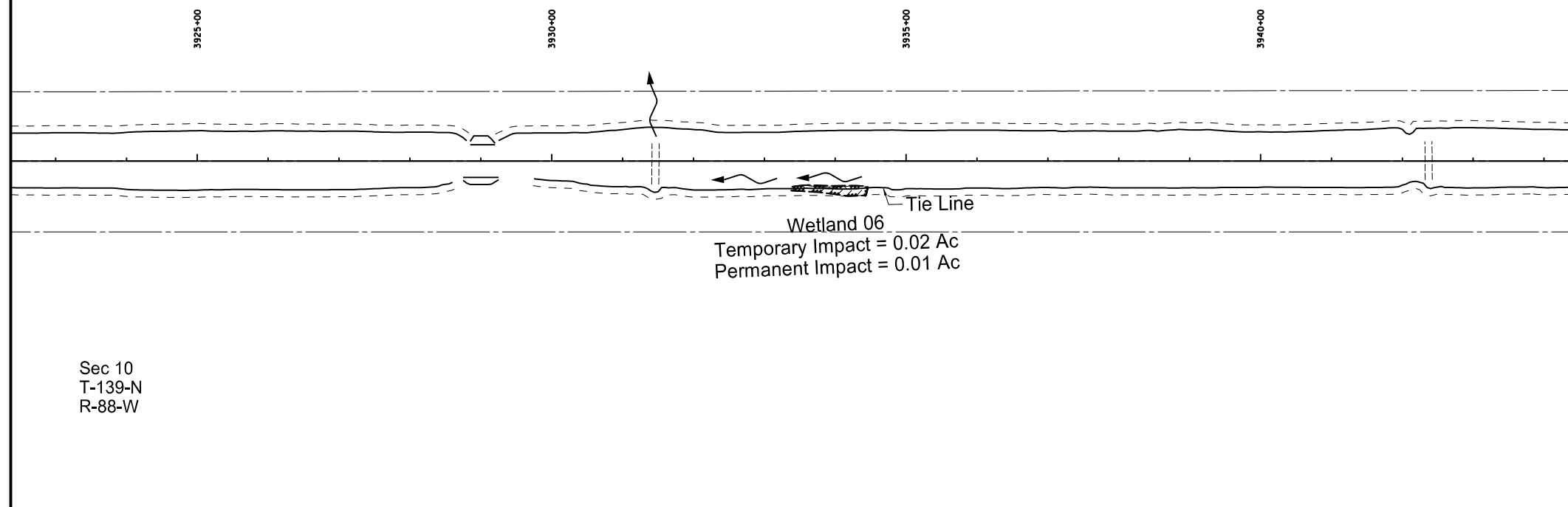
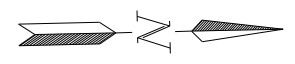
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Wetland Impacts

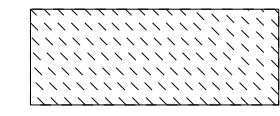
Widening, Sliver Grading, HBP Overlay, and Guardrail

Glen Ullin East & North to County Line

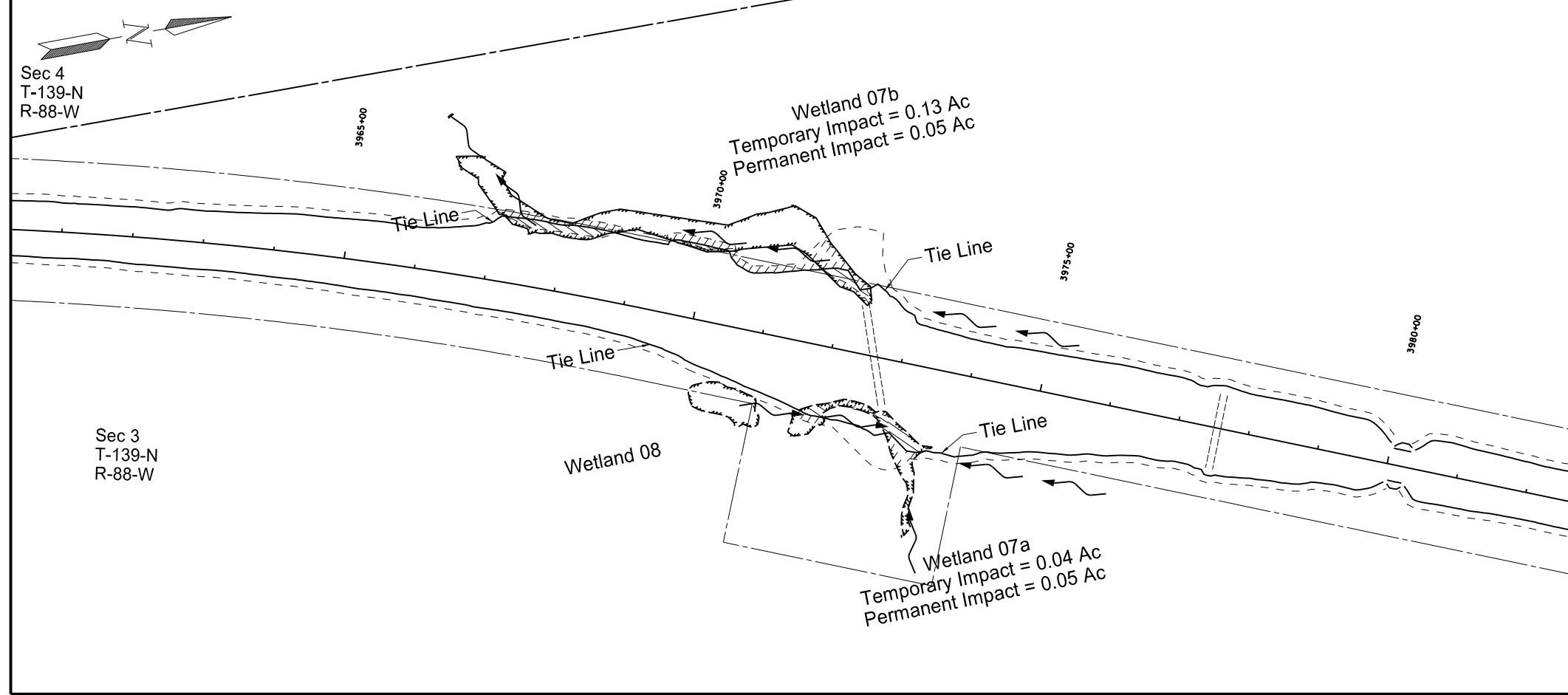
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	75	4



Permanent Impact



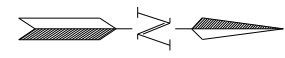
Temporary Impact



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Wetland Impacts
 Sta 3925+00 to Sta 3940+00
 Sta 3965+00 to Sta 3980+00
 Widening, Sliver Grading, HBP Overlay, and Guardrail
 Glen Ullin East & North to County Line

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	75	5



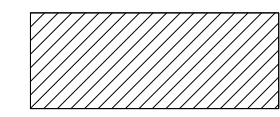
Sec 28
T-140-N
R-88-W

Sec 27
T-140-N
R-88-W

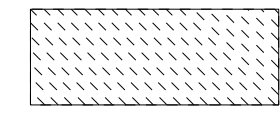
Wetland 10b
Temporary Impacts = 0.01 Ac
Permanent Impacts = 0.01 Ac

Wetland 10c

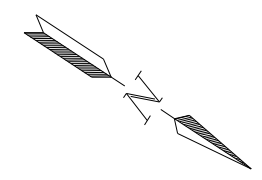
Wetland 10a
Temporary Impacts = 0.02 Ac
Permanent Impacts = 0.01 Ac



Permanent Impact



Temporary Impact



Sec 16
T-140-N
R-88-W

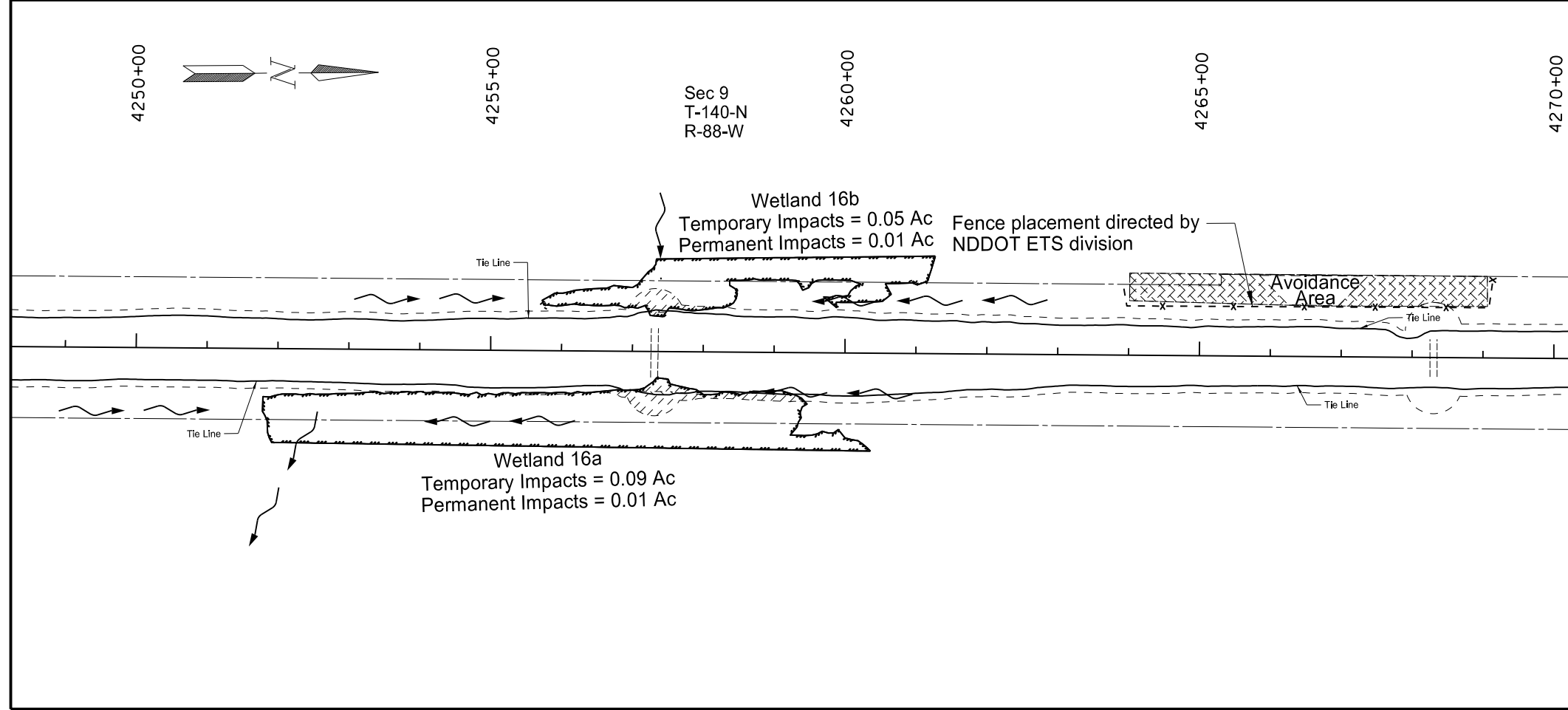
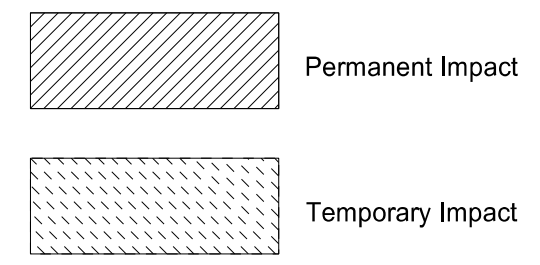
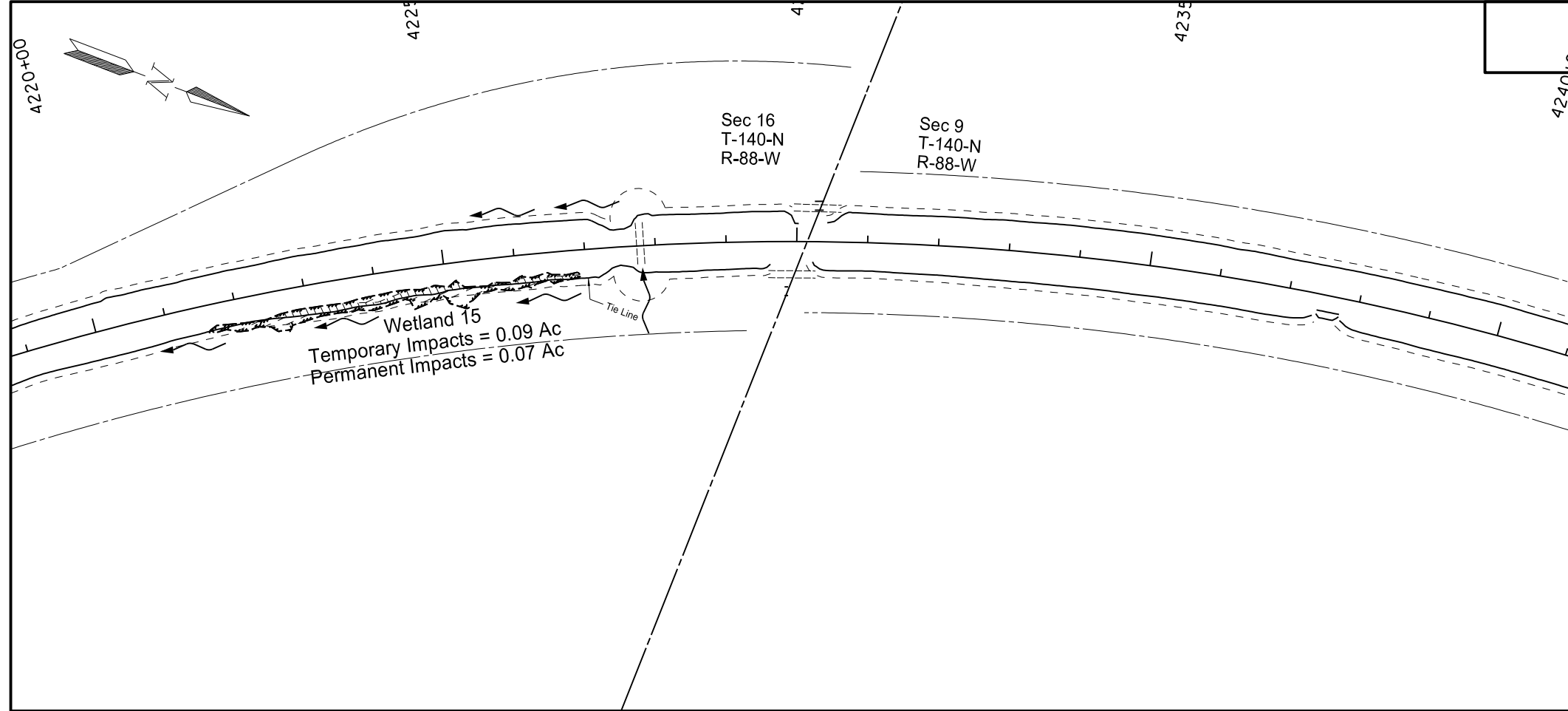
Wetland 14b
Temporary Impacts = 0.03 Ac
Permanent Impacts = 0.01 Ac

Wetland 14a
Temporary Impacts = 0.02 Ac
Permanent Impacts = 0.01 Ac

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Wetland Impacts
Sta 4100+00 to Sta 4115+00
Sta 4195+00 to Sta 4214+94.8 Bk
Widening, Sliver Grading, HBP Overlay, and Guardrail
Glen Ullin East & North to County Line

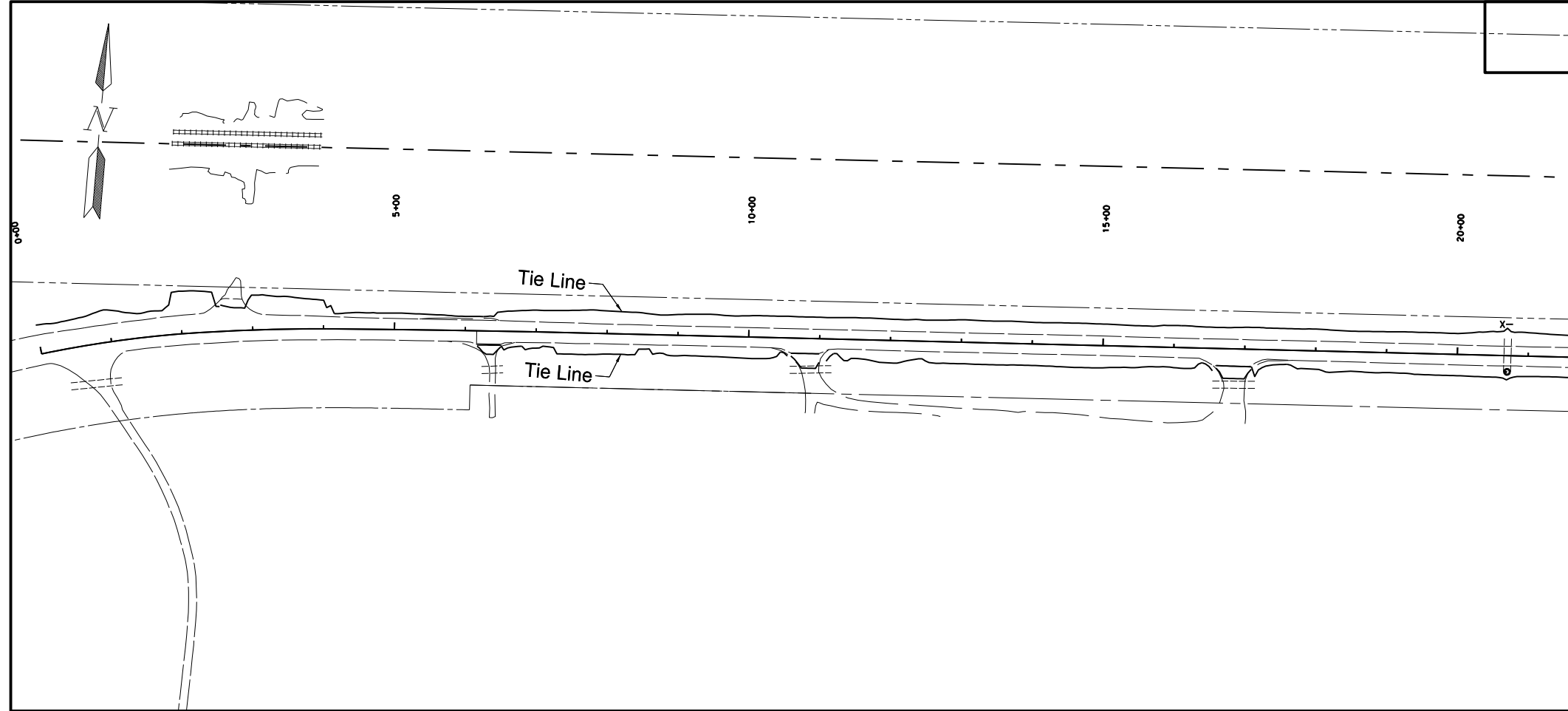
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	75	6



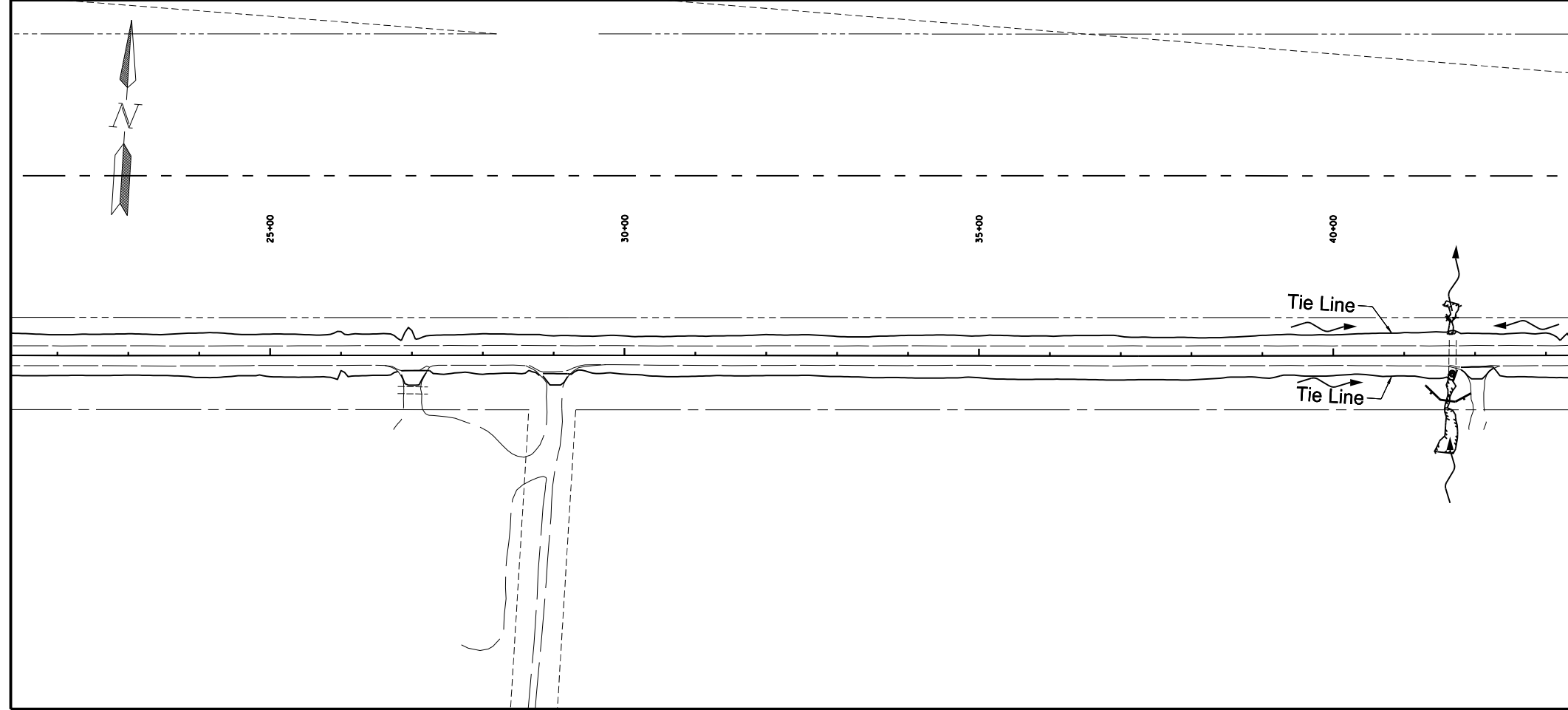
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Wetland Impacts
 Sta 4220+00 to Sta 4240+00
 Sta 4250+00 to Sta 4270+00
 Widening, Sliver Grading, HBP Overlay, and Guardrail
 Glen Ullin East & North to County Line

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	76	1



SPEC	CODE	BID ITEM	UNIT	QUANTITY
261	112	FIBER ROLLS 12IN		
		OCL 41+30 to OCL 41+94 Rt	LF	76
		Culvert Inlets 20 LF/Ea	LF	40
261	113	REMOVE FIBER ROLLS 12IN		
		OCL 41+30 to OCL 41+94 Rt	LF	76
		Culvert Inlets 20 LF/Ea	LF	40
260	200	SILT FENCE		
		OCL 20+58 to OCL 20+78 Lt	LF	20
		OCL 41+57 to OCL 41+77 Lt	LF	20
260	201	REMOVE SILT FENCE		
		OCL 20+58 to OCL 20+78 Lt	LF	20
		OCL 41+57 to OCL 41+77 Lt	LF	20

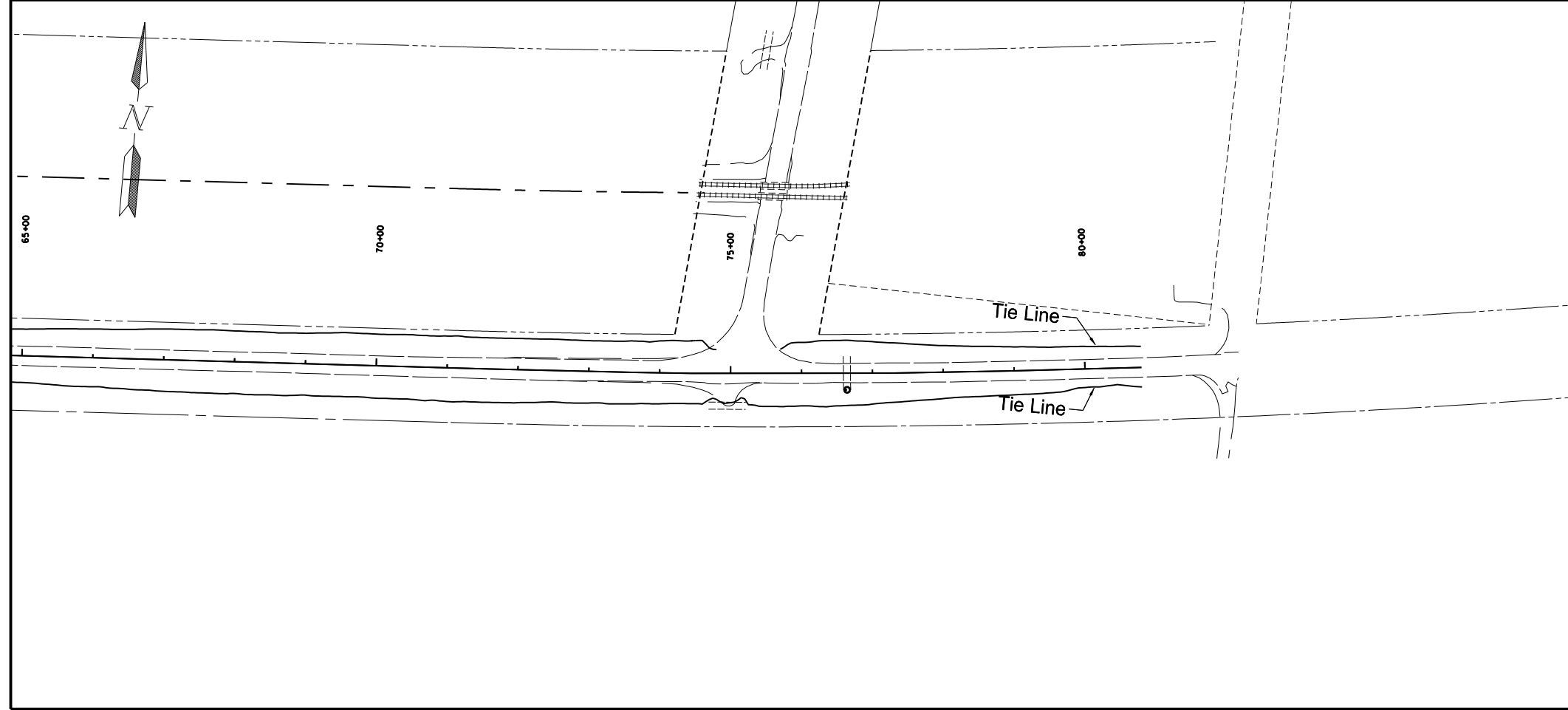
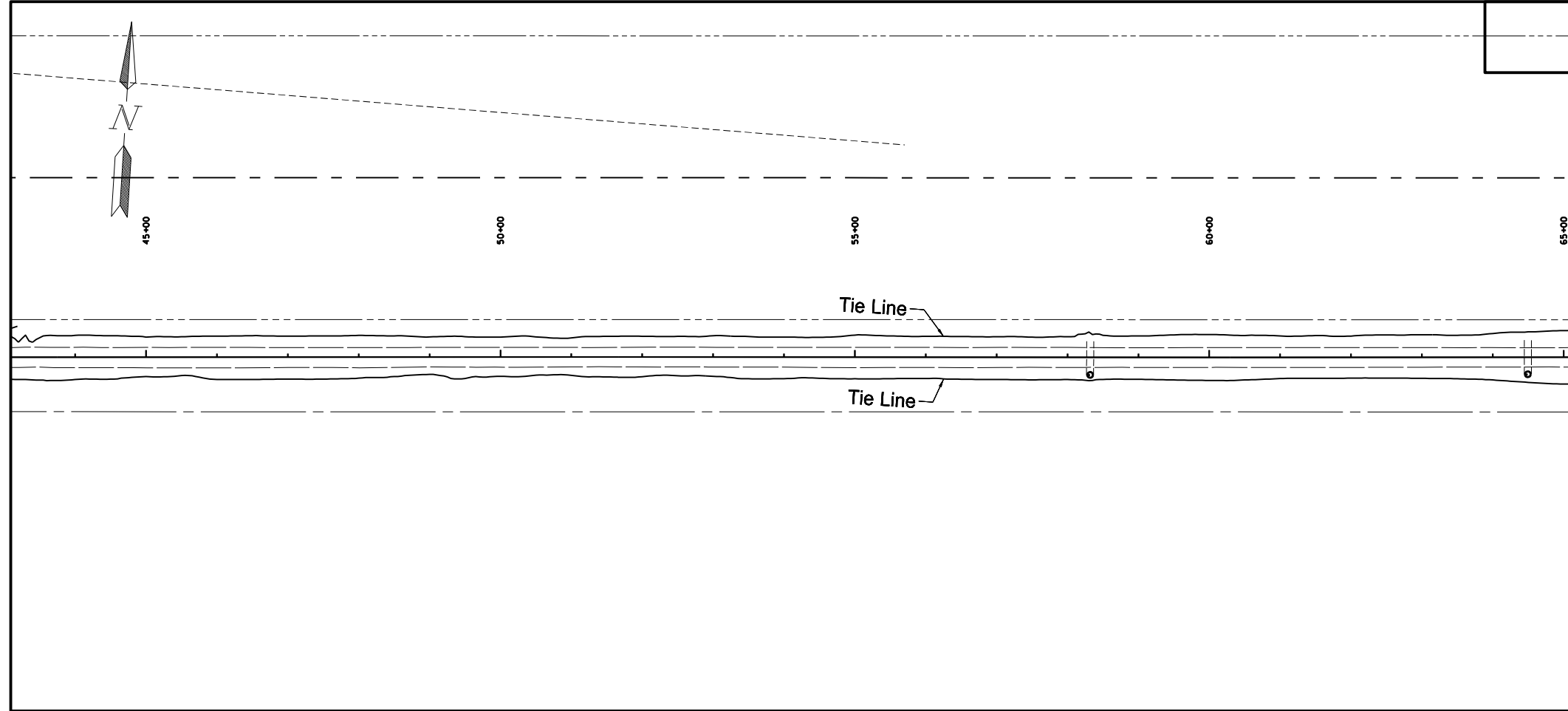


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Temporary Erosion Control
 Widening, Sliver Grading, HBP Overlay, and Guardrail
 Glen Ullin East & North to County Line

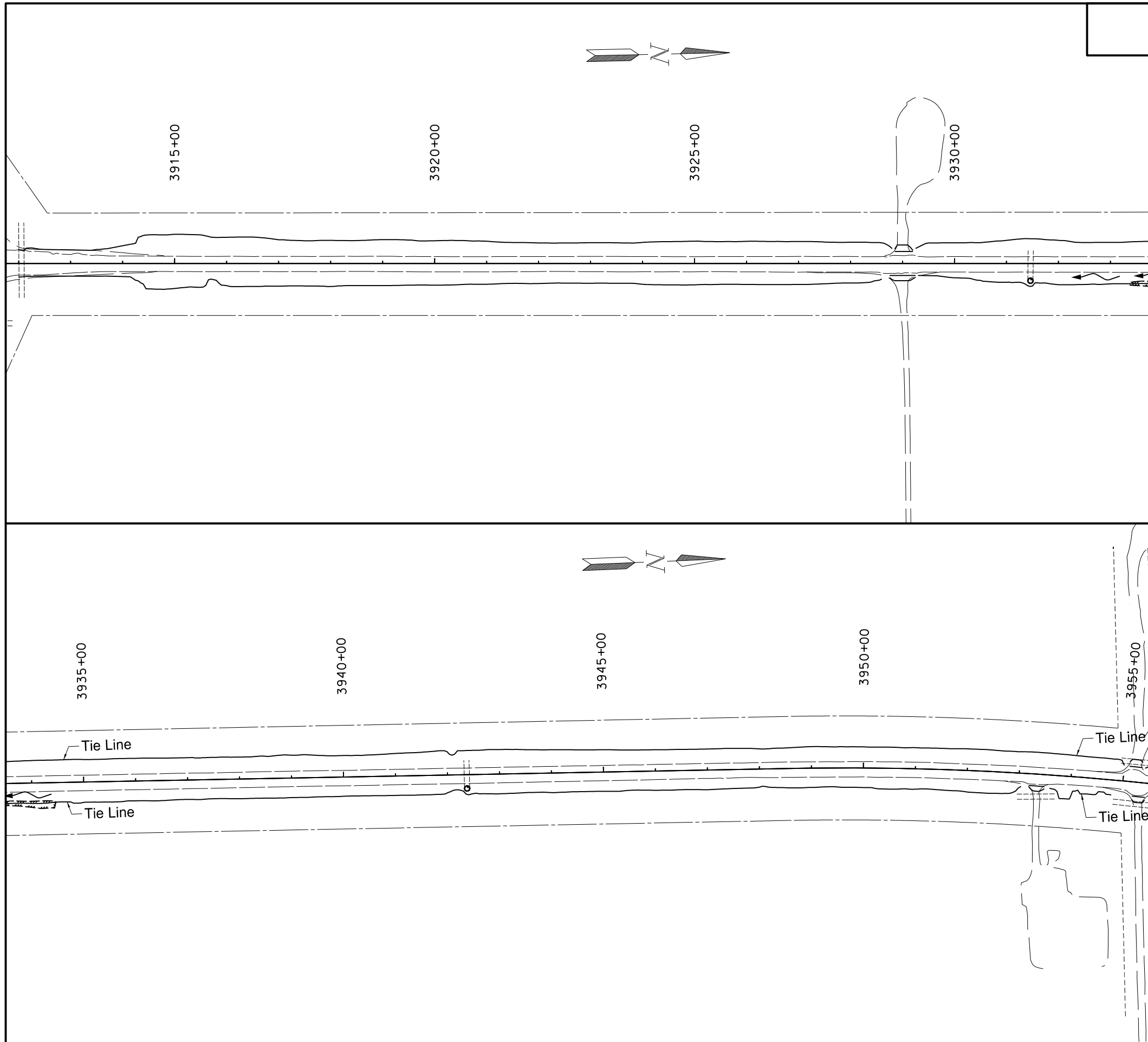
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	76	2

SPEC	CODE	BID ITEM	UNIT	QUANTITY
261	112	FIBER ROLLS 12IN Culvert Inlets 20 LF/Ea	LF	60
261	113	REMOVE FIBER ROLLS 12IN Culvert Inlets 20 LF/Ea	LF	60
260	200	SILT FENCE OCL 43+50 to OCL 87+80	LF	0
260	201	REMOVE SILT FENCE OCL 43+50 to OCL 87+80	LF	0



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Temporary Erosion Control
Widening, Sliver Grading, HBP Overlay, and Guardrail
Glen Ullin East & North to County Line

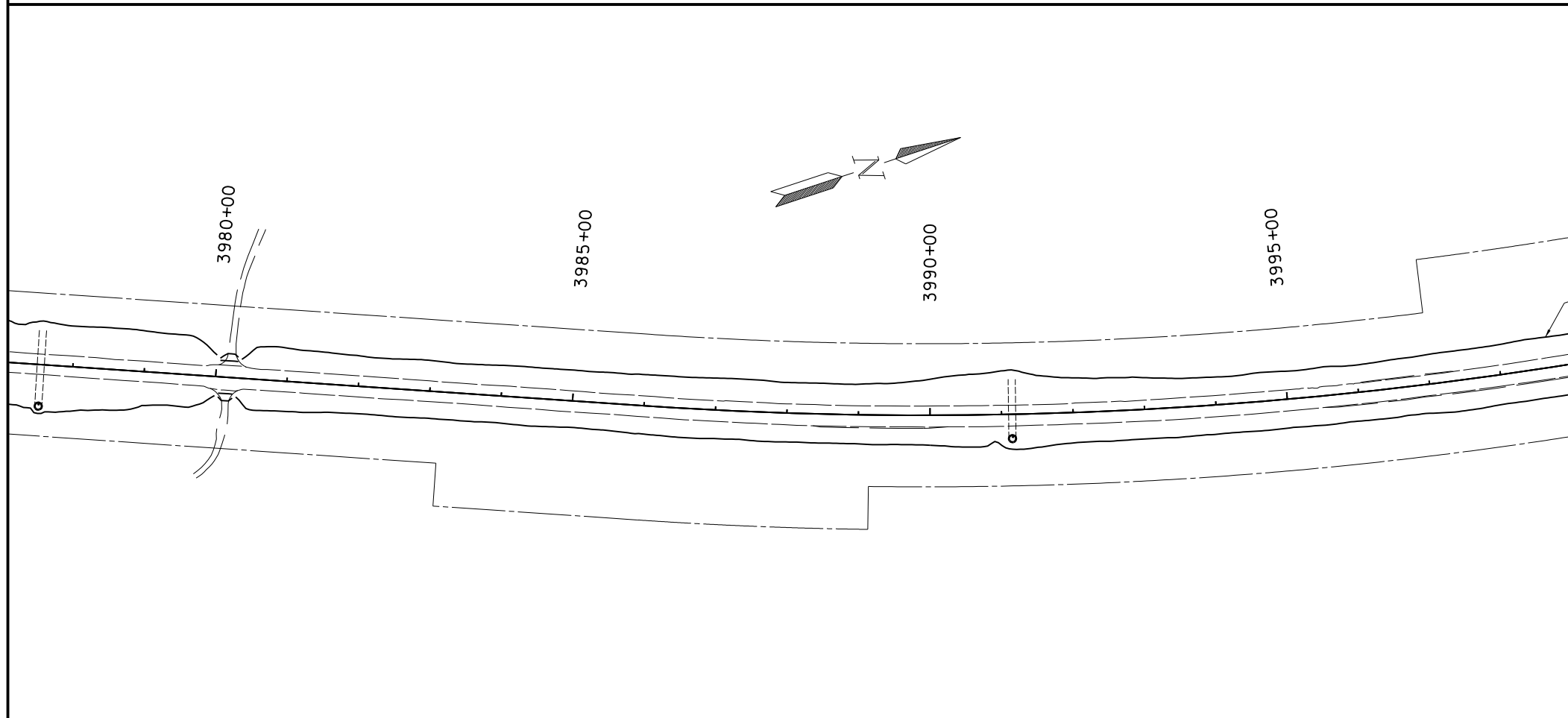
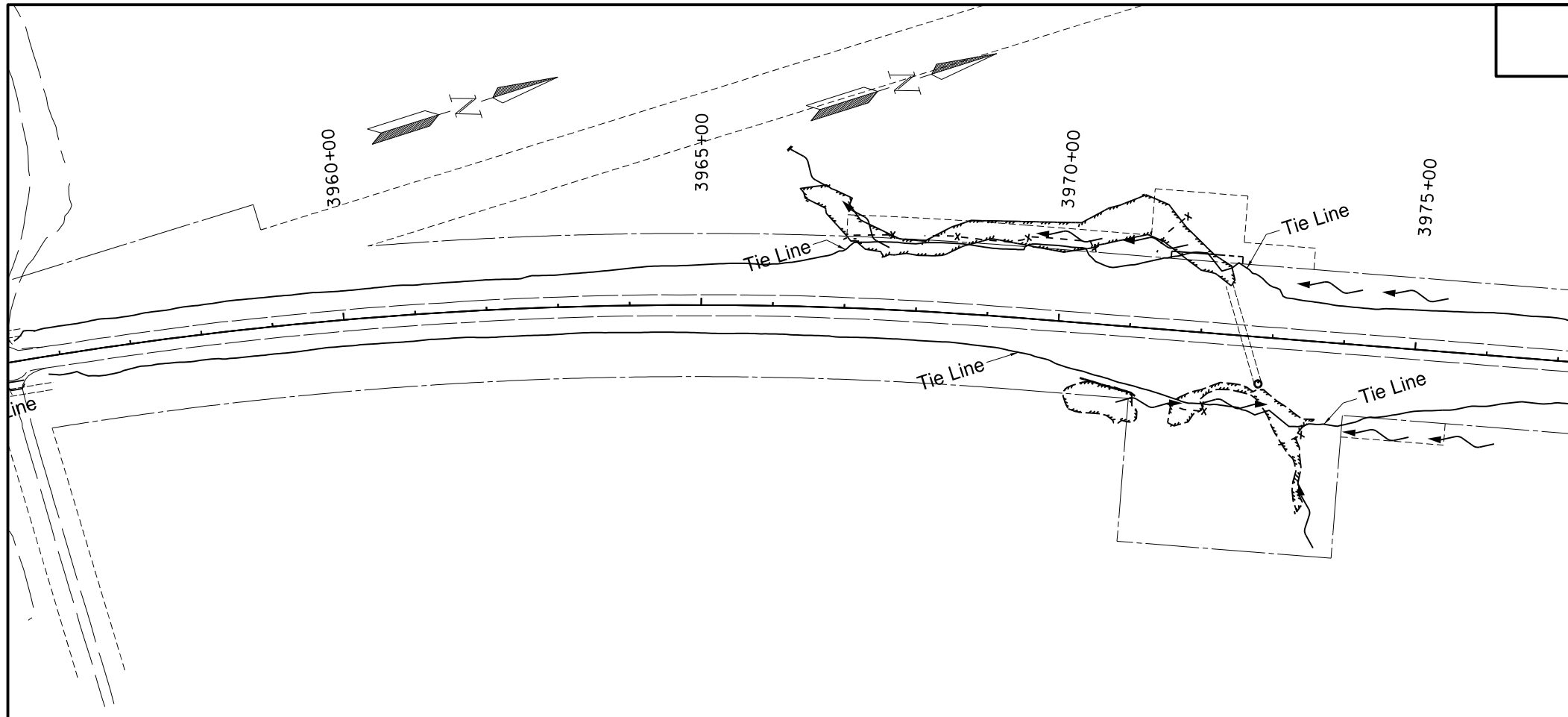


STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	76	3

SPEC	CODE	BID ITEM	UNIT	QUANTITY
261	112	FIBER ROLLS 12IN Culvert Inlets 20 LF/Ea	LF	40
261	113	REMOVE FIBER ROLLS 12IN Culvert Inlets 20 LF/Ea	LF	40
260	200	SILT FENCE Sta 3912+00 to Sta 3955+00	LF	0
260	201	REMOVE SILT FENCE Sta 3912+00 to Sta 3955+00	LF	0

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Temporary Erosion Control
Widening, Sliver Grading, HBP Overlay, and Guardrail
Glen Ullin East & North to County Line



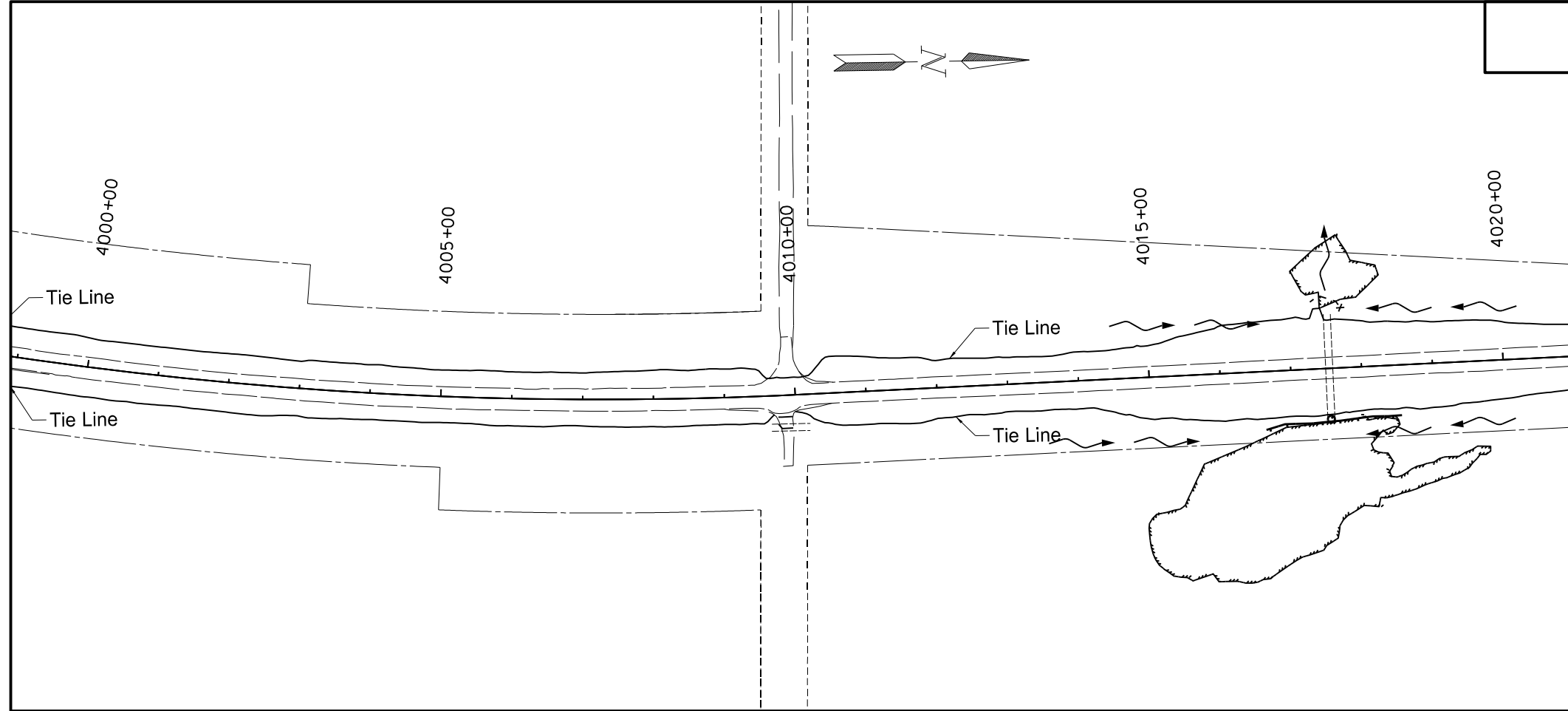
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	76	4

SPEC	CODE	BID ITEM	UNIT	QUANTITY
261	112	FIBER ROLLS 12IN		
		Culvert Inlets 20 LF/Ea	LF	60
		Sta 3970+33 to Sta 3971+15 Rt	LF	82
261	113	REMOVE FIBER ROLLS 12IN		
		Culvert Inlets 20 LF/Ea	LF	60
		Sta 3970+33 to Sta 3971+15 Rt	LF	82
260	200	SILT FENCE		
		Sta 3966+95 to Sta 3967+68 Lt	LF	76
		Sta 3968+06to Sta 3970+48 Lt	LF	251
		Sta 3971+29 to Sta 3971+73 Lt	LF	74
		Sta 3971+55 to Sta 3972+18 Rt	LF	64
		Sta 3973+12 to Sta 3973+55 Rt	LF	47
260	201	REMOVE SILT FENCE		
		Sta 3966+95 to Sta 3967+68 Lt	LF	76
		Sta 3968+06to Sta 3970+48 Lt	LF	251
		Sta 3971+29 to Sta 3971+73 Lt	LF	74
		Sta 3971+55 to Sta 3972+18 Rt	LF	64
		Sta 3973+12 to Sta 3973+55 Rt	LF	47

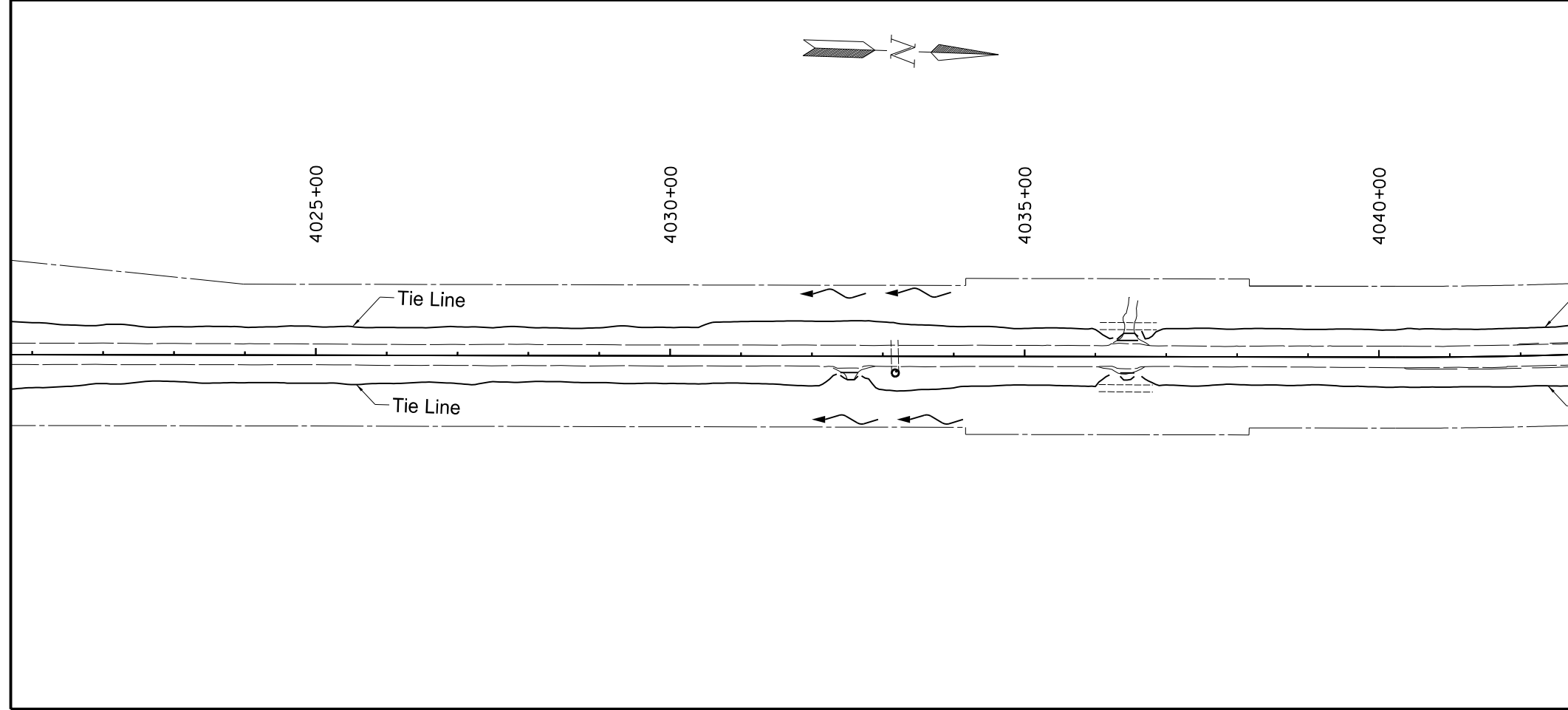
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Temporary Erosion Control
 Widening, Sliver Grading, HBP Overlay, and Guardrail
 Glen Ullin East & North to County Line

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	76	5

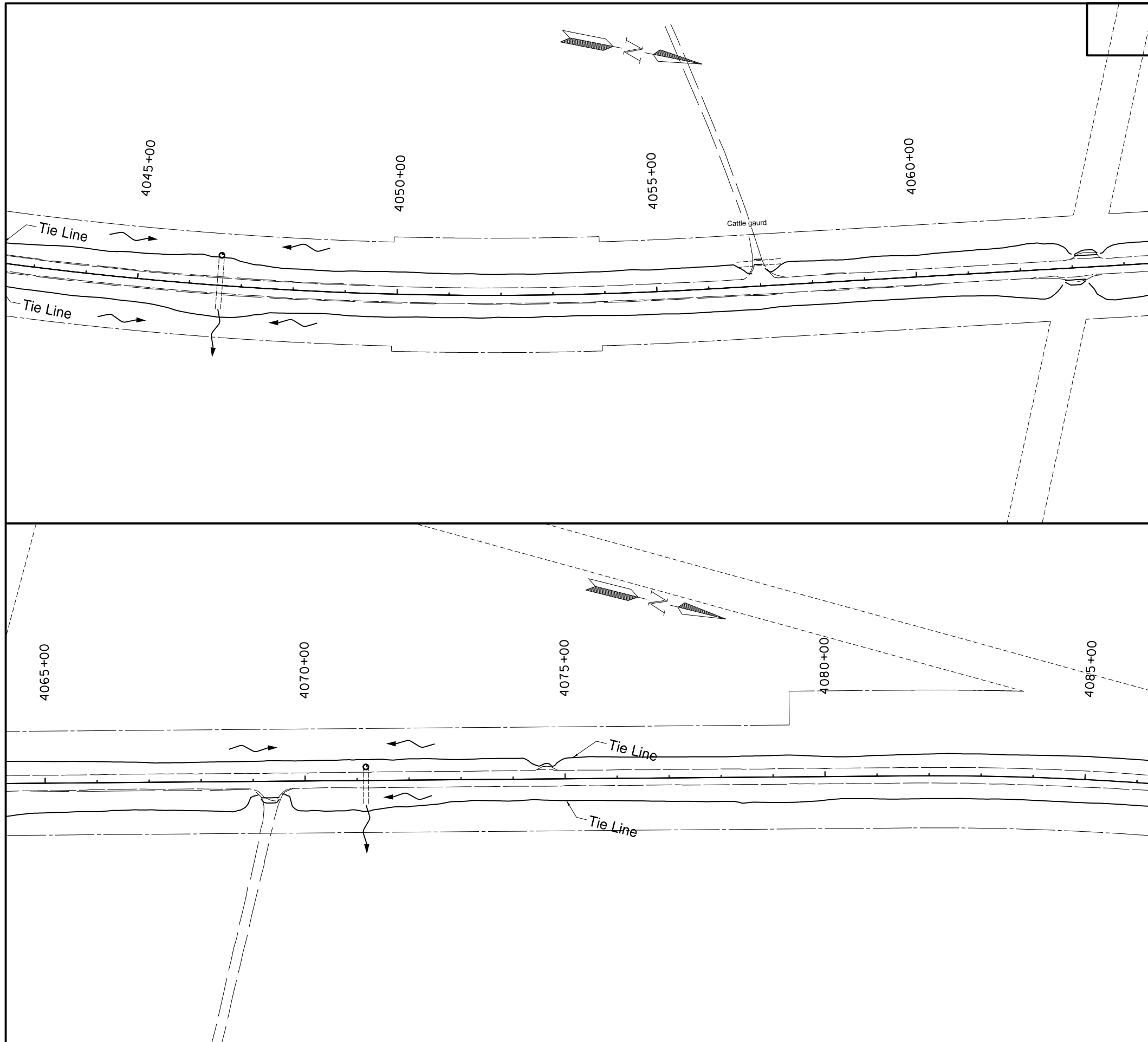


SPEC	CODE	BID ITEM	UNIT	QUANTITY
261	112	FIBER ROLLS 12IN		
		Culvert Inlets 20 LF/Ea	LF	40
		Sta 4016+62 to Sta 4018+54 Rt	LF	193
261	113	REMOVE FIBER ROLLS 12IN		
		Culvert Inlets 20 LF/Ea	LF	40
		Sta 4016+62 to Sta 4018+54 Rt	LF	193
260	200	SILT FENCE		
		Sta 4017+32 to Sta 4017+77 Lt	LF	56
260	201	REMOVE SILT FENCE		
		Sta 4017+32 to Sta 4017+77 Lt	LF	56



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Temporary Erosion Control
 Widening, Sliver Grading, HBP Overlay, and Guardrail
 Glen Ullin East & North to County Line

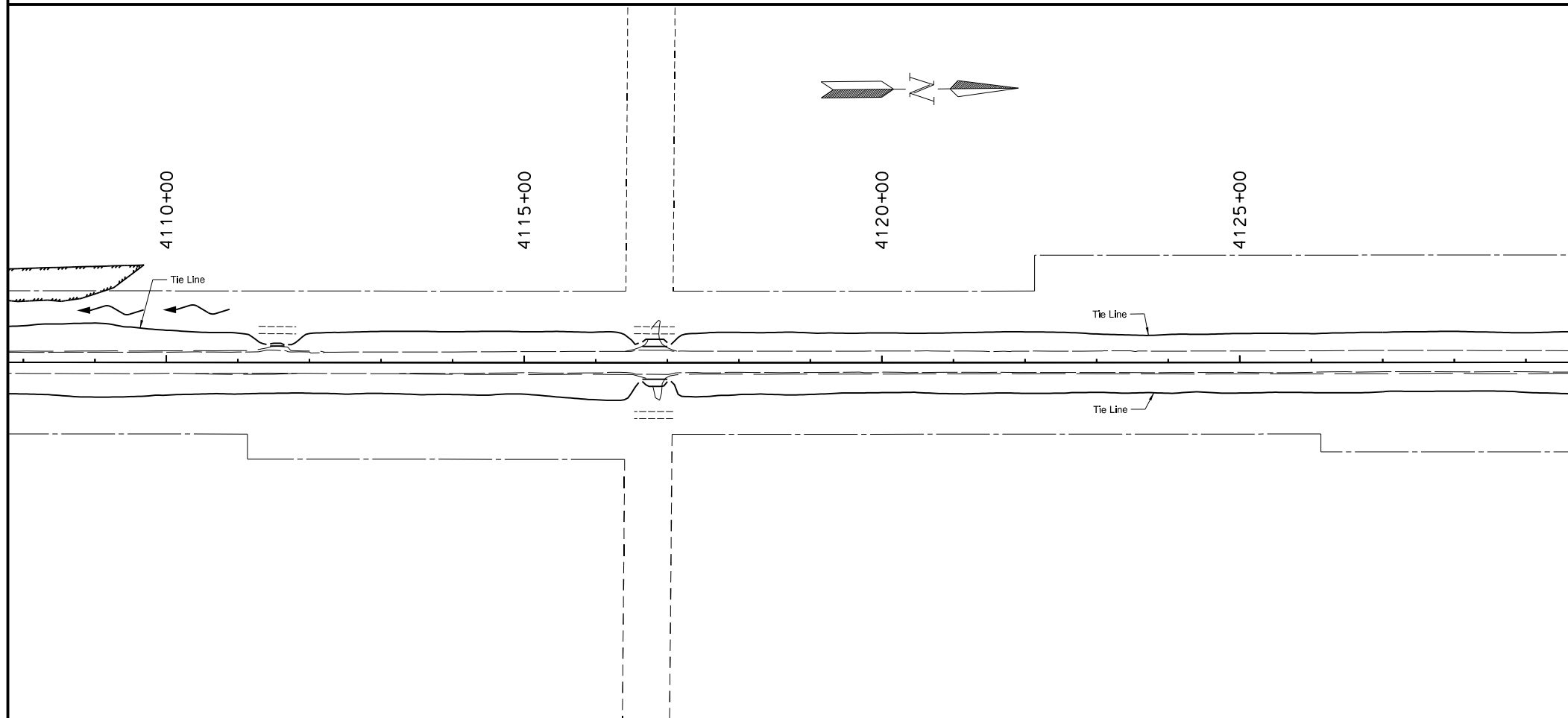
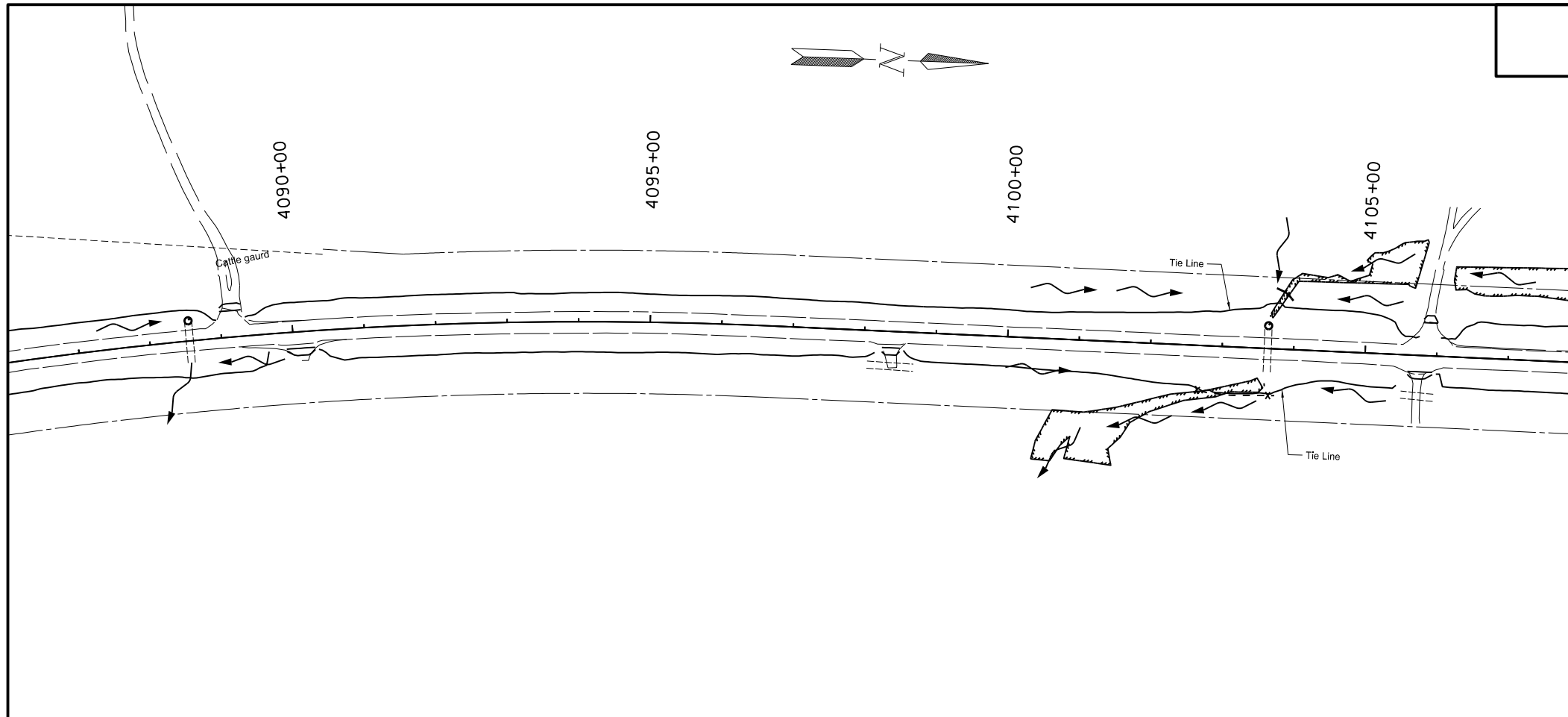


STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	76	6

SPEC	CODE	BID ITEM	UNIT	QUANTITY
261	112	FIBER ROLLS 12IN Culvert Inlets 20 LF/Ea	LF	40
261	113	REMOVE FIBER ROLLS 12IN Culvert Inlets 20 LF/Ea	LF	40
260	200	SILT FENCE Sta 4042+50 to 4086+00	LF	0
260	201	REMOVE SILT FENCE Sta 4042+50 to 4086+00	LF	0

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Temporary Erosion Control
Widening, Sliver Grading, HBP Overlay, and Guardrail
Glen Ullin East & North to County Line



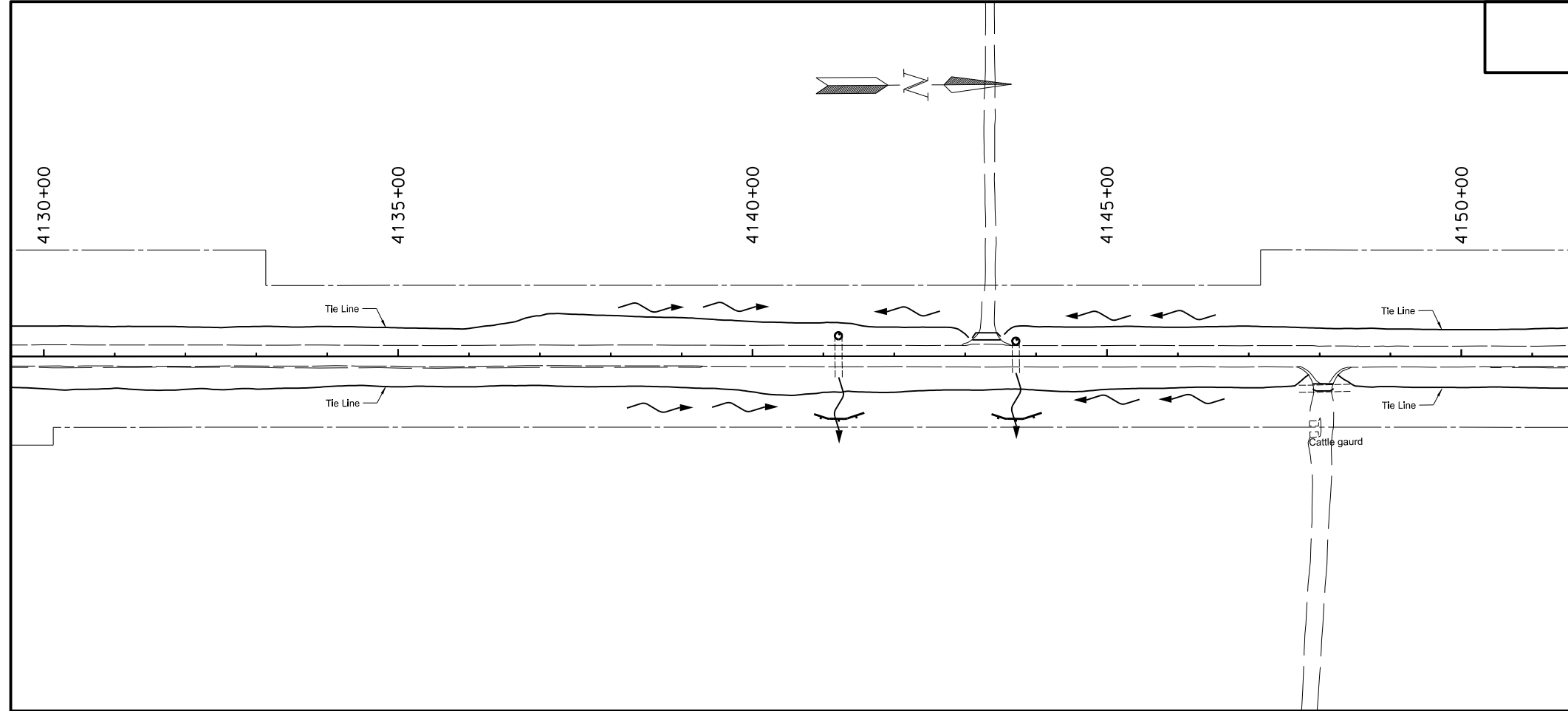
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	76	7

SPEC	CODE	BID ITEM	UNIT	QUANTITY
261	112	FIBER ROLLS 12IN		
		Culvert Inlets 20 LF/Ea	LF	40
		Sta 4103+73 to Sta 4103+96 Lt	LF	29
261	113	REMOVE FIBER ROLLS 12IN		
		Culvert Inlets 20 LF/Ea	LF	40
		Sta 4103+73 to Sta 4103+96 Lt	LF	29
260	200	SILT FENCE		
		Sta 4102+62 to Sta 4103+76 Rt	LF	114
260	201	REMOVE SILT FENCE		
		Sta 4102+62 to Sta 4103+76 Rt	LF	114

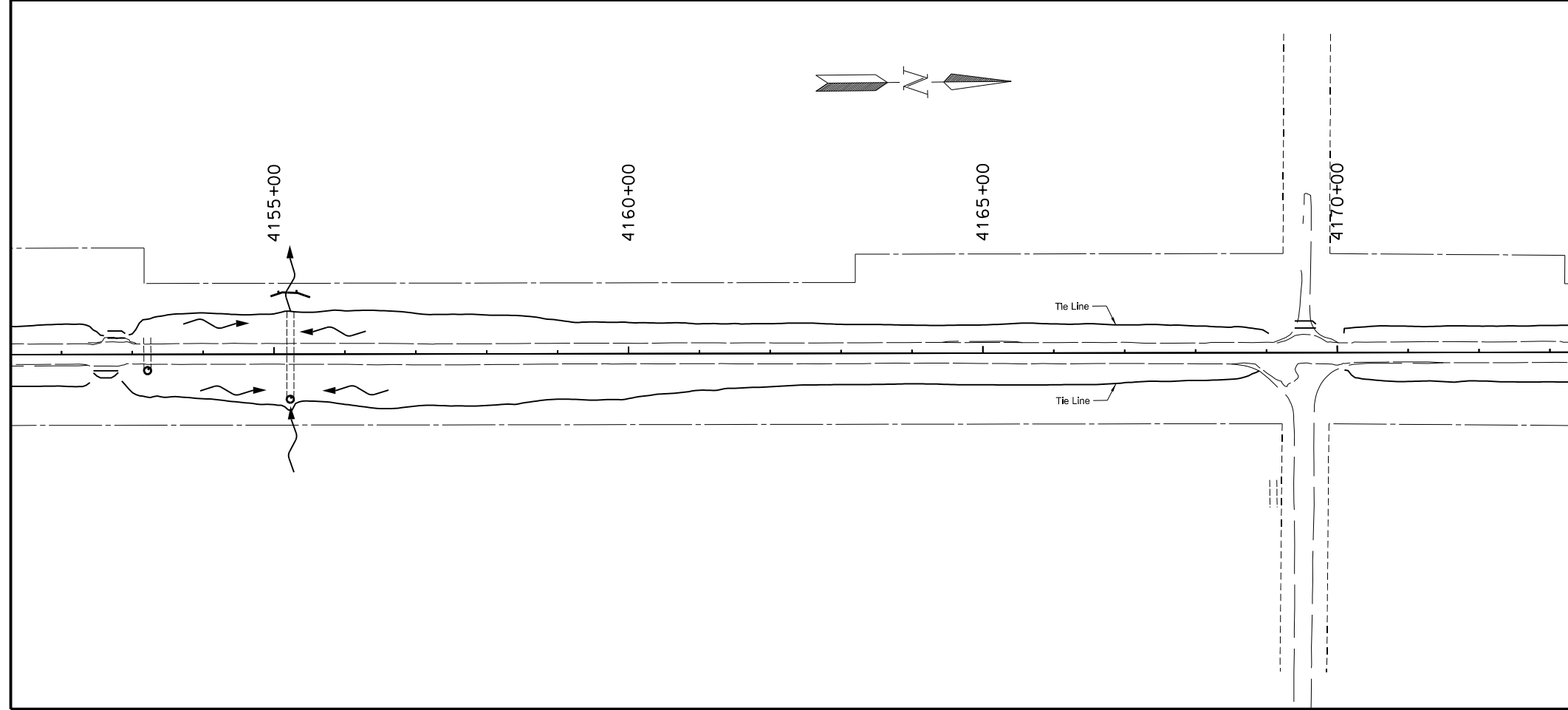
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Temporary Erosion Control
 Widening, Sliver Grading, HBP Overlay, and Guardrail
 Glen Ullin East & North to County Line

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	76	8



SPEC	CODE	BID ITEM	UNIT	QUANTITY
261	112	FIBER ROLLS 12IN		
		Culvert Inlets 20 LF/Ea	LF	80
		Sta 4140+87 to Sta 4141+58 Rt	LF	73
		Sta 4143+37 to Sta 4144+08 Rt	LF	73
		Sta 4154+95 to Sta 4155+51 Lt	LF	58
261	113	REMOVE FIBER ROLLS 12IN		
		Culvert Inlets 20 LF/Ea	LF	80
		Sta 4140+87 to Sta 4141+58 Rt	LF	73
		Sta 4143+37 to Sta 4144+08 Rt	LF	73
		Sta 4154+95 to Sta 4155+51 Lt	LF	58
260	200	SILT FENCE		
		Sta 4129+50 to Sta 4173+00	LF	0
260	201	REMOVE SILT FENCE		
		Sta 4129+50 to Sta 4173+00	LF	0

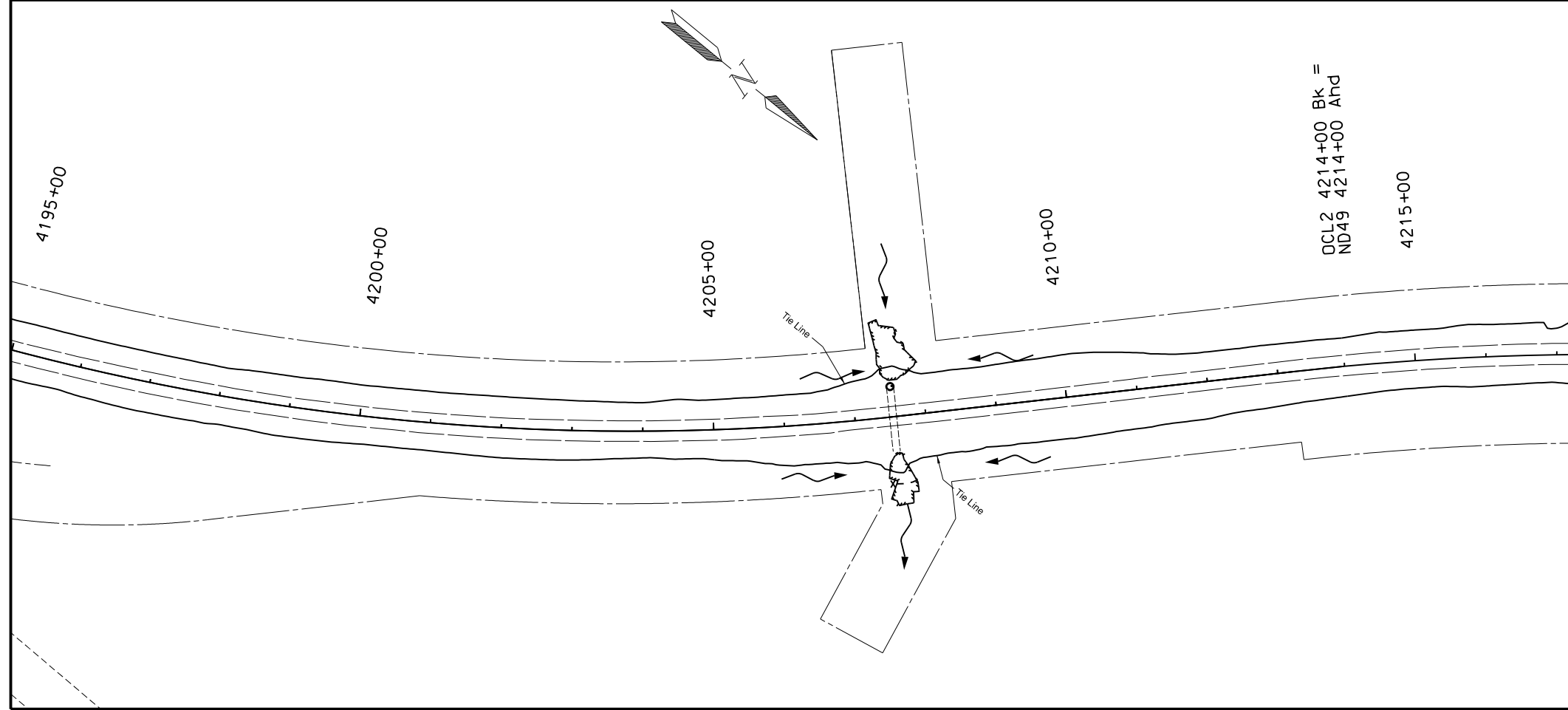
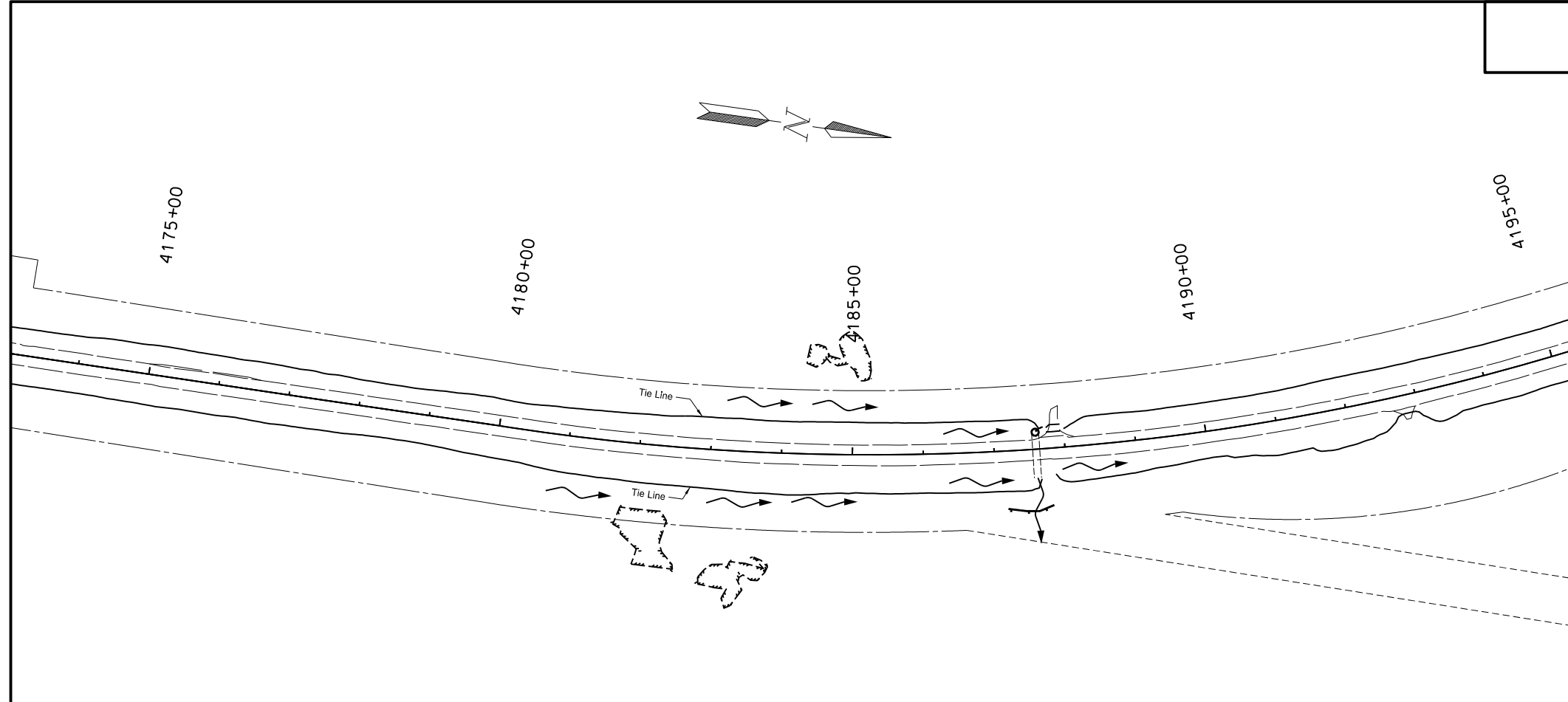


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Temporary Erosion Control
 Widening, Sliver Grading, HBP Overlay, and Guardrail
 Glen Ullin East & North to County Line

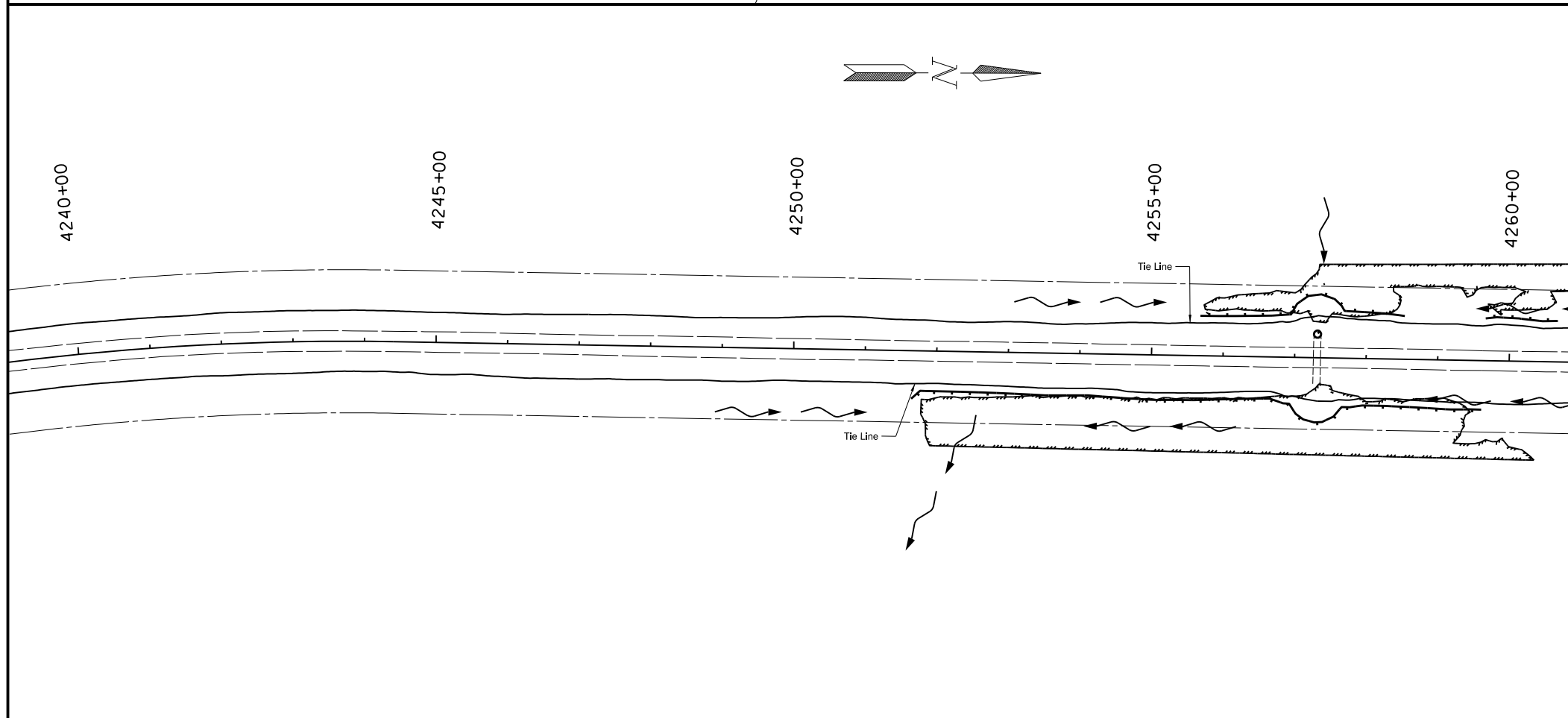
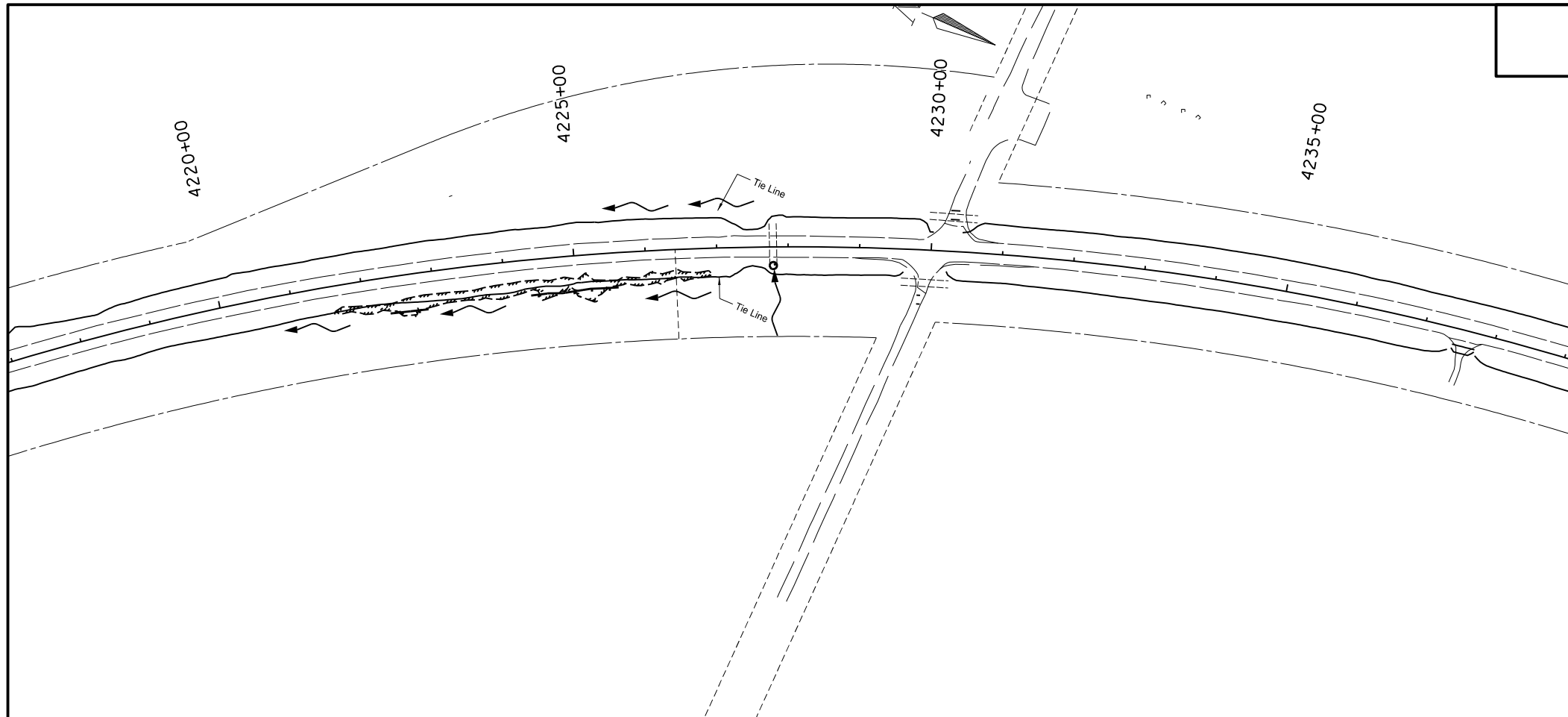
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	76	9

SPEC	CODE	BID ITEM	UNIT	QUANTITY
261	112	FIBER ROLLS 12IN		
		Culvert Inlets 20 LF/Ea	LF	40
		Sta 4186+16 to Sta 4186+79 Rt	LF	66
261	113	REMOVE FIBER ROLLS 12IN		
		Culvert Inlets 20 LF/Ea	LF	40
		Sta 4186+16 to Sta 4186+79 Rt	LF	66
260	200	SILT FENCE		
		Sta 4207+30 to Sta 4207+77 Rt	LF	50
		Sta 4207+30 to Sta 4208+08 Lt	LF	89
260	201	REMOVE SILT FENCE		
		Sta 4207+30 to Sta 4207+77 Rt	LF	50
		Sta 4207+30 to Sta 4208+08 Lt	LF	89



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Temporary Erosion Control
 Widening, Sliver Grading, HBP Overlay, and Guardrail
 Glen Ullin East & North to County Line



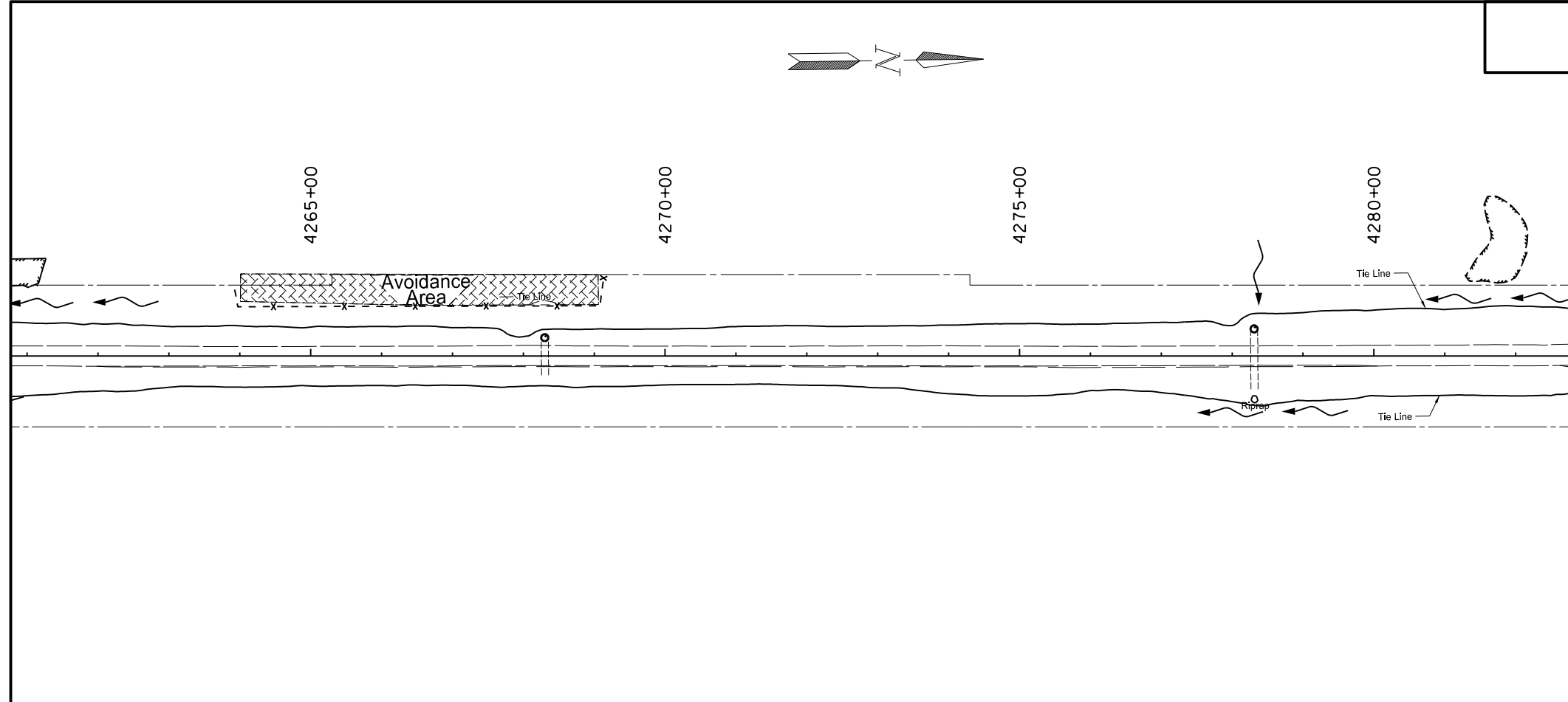
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	76	10

SPEC	CODE	BID ITEM	UNIT	QUANTITY
261	112	FIBER ROLLS 12IN		
		Culvert Inlets 20 LF/Ea	LF	40
		Sta 4222+35 to Sta 4222+89 Rt	LF	54
		Sta 4224+35 to Sta 4225+60 Rt	LF	123
		Sta 4251+65 to Sta 4259+62 Rt	LF	822
		Sta 4255+67 to Sta 4258+53 Lt	LF	308
		Sta 4259+66 to Sta 4260+67 Lt	LF	101
261	113	REMOVE FIBER ROLLS 12IN		
		Culvert Inlets 20 LF/Ea	LF	40
		Sta 4222+35 to Sta 4222+89 Rt	LF	54
		Sta 4224+35 to Sta 4225+60 Rt	LF	123
		Sta 4251+65 to Sta 4259+62 Rt	LF	822
		Sta 4255+67 to Sta 4258+53 Lt	LF	308
		Sta 4259+66 to Sta 4260+67 Lt	LF	101
260	200	SILT FENCE		
		Sta 4217+00 to Sta 4261+00	LF	0
260	201	REMOVE SILT FENCE		
		Sta 4217+00 to Sta 4261+00	LF	0

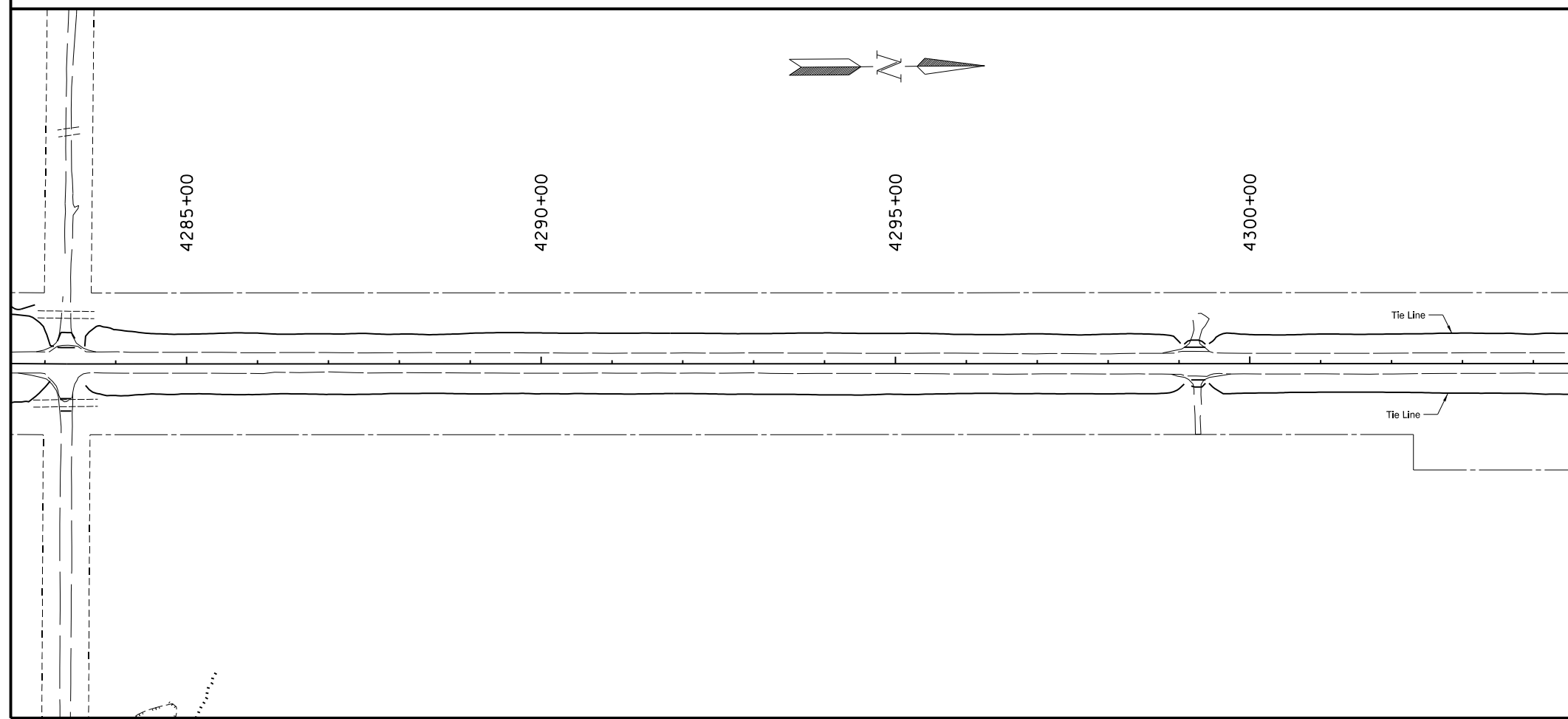
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Temporary Erosion Control
 Widening, Sliver Grading, HBP Overlay, and Guardrail
 Glen Ullin East & North to County Line

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	76	11



SPEC	CODE	BID ITEM	UNIT	QUANTITY
261	112	FIBER ROLLS 12IN Culvert Inlets 20 LF/Ea	LF	40
261	113	REMOVE FIBER ROLLS 12IN Culvert Inlets 20 LF/Ea	LF	40
260	200	SILT FENCE Sta 4261+00 to Sta 4304+50	LF	0
260	201	REMOVE SILT FENCE Sta 4261+00 to Sta 4304+50	LF	0

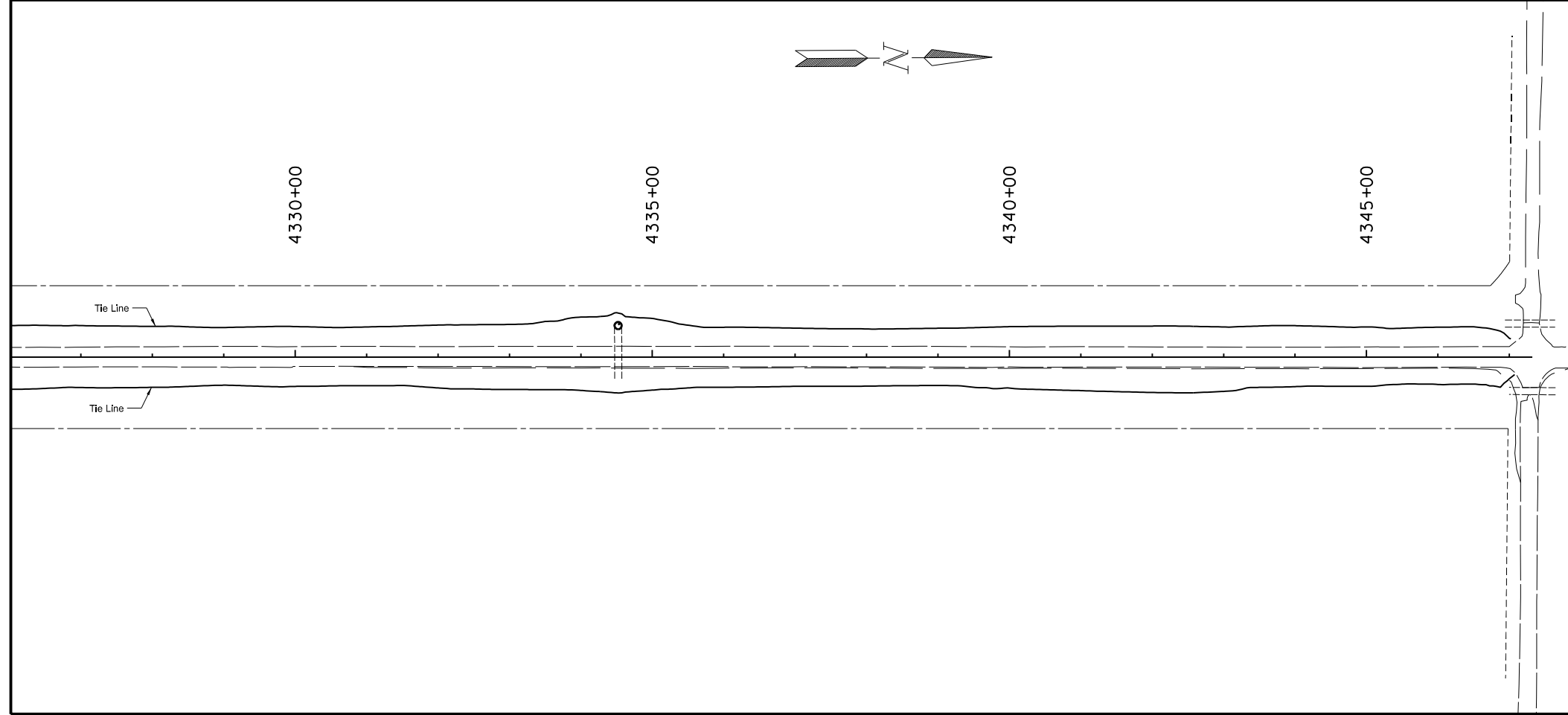
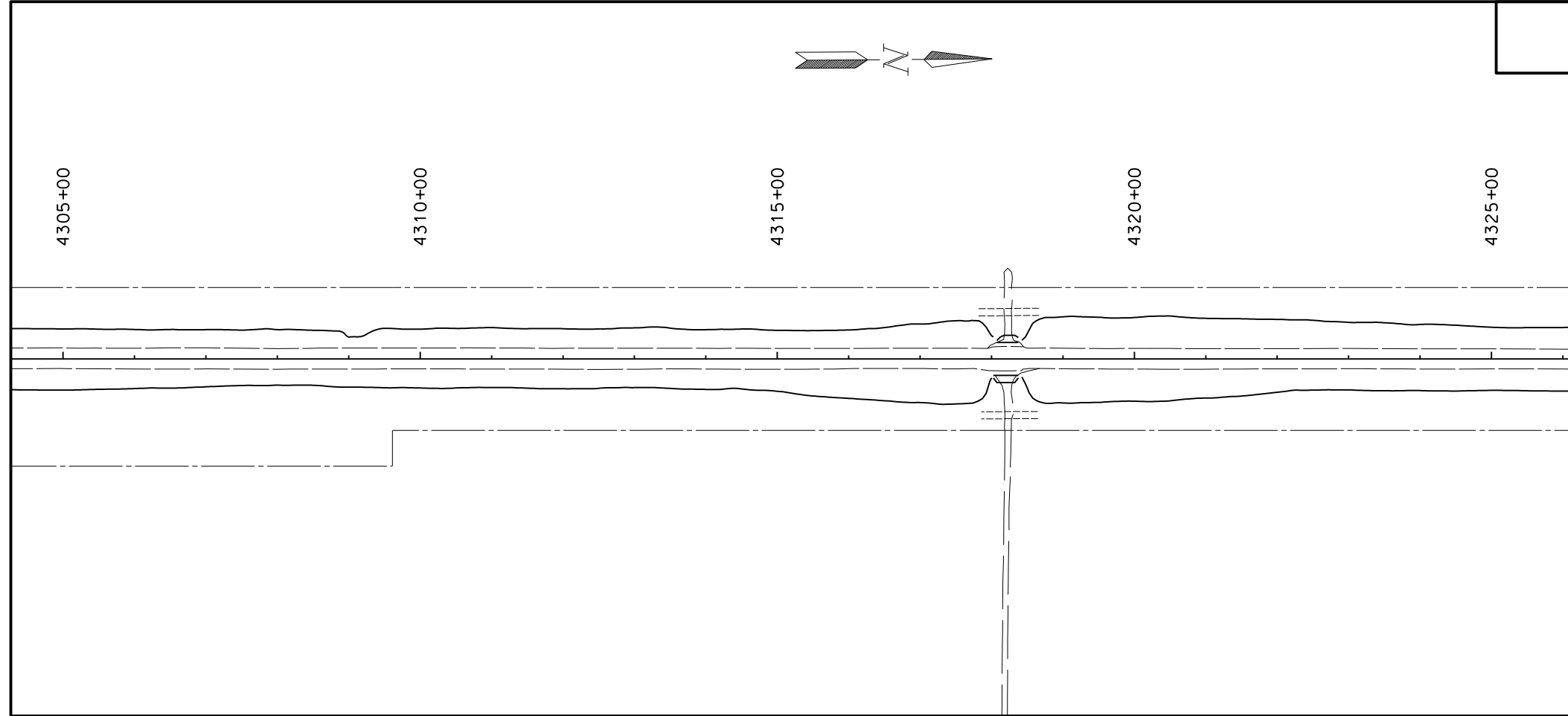


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Temporary Erosion Control
Widening, Sliver Grading, HBP Overlay, and Guardrail
Glen Ullin East & North to County Line

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	76	12

SPEC	CODE	BID ITEM	UNIT	QUANTITY
261	112	FIBER ROLLS 12IN Culvert Inlets 20 LF/Ea	LF	20
261	113	REMOVE FIBER ROLLS 12IN Culvert Inlets 20 LF/Ea	LF	20
260	200	SILT FENCE Sta 4304+50 to End Project	LF	0
260	201	REMOVE SILT FENCE Sta 4304+50 to End Project	LF	0



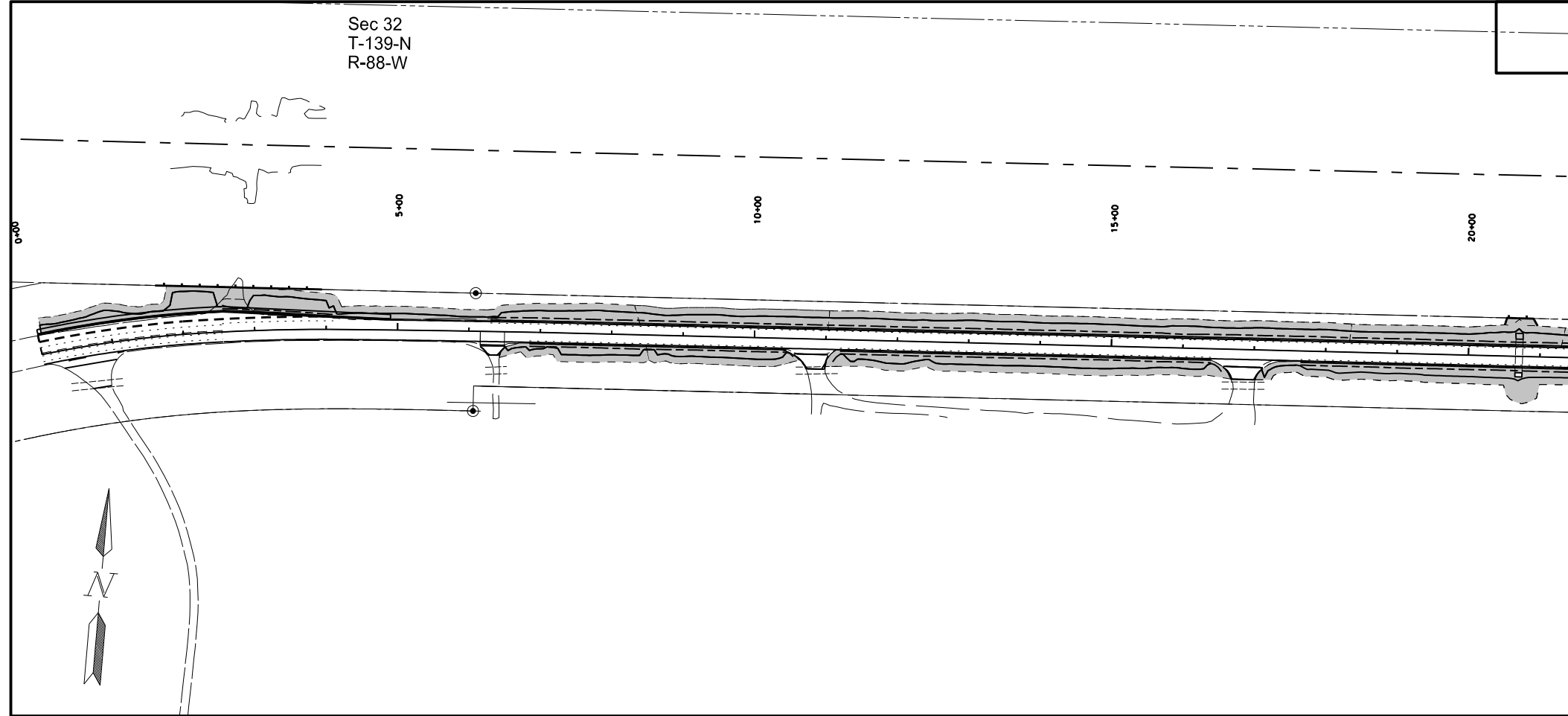
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Temporary Erosion Control
Widening, Sliver Grading, HBP Overlay, and Guardrail
Glen Ullin East & North to County Line

Sec 32
T-139-N
R-88-W

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	77	1

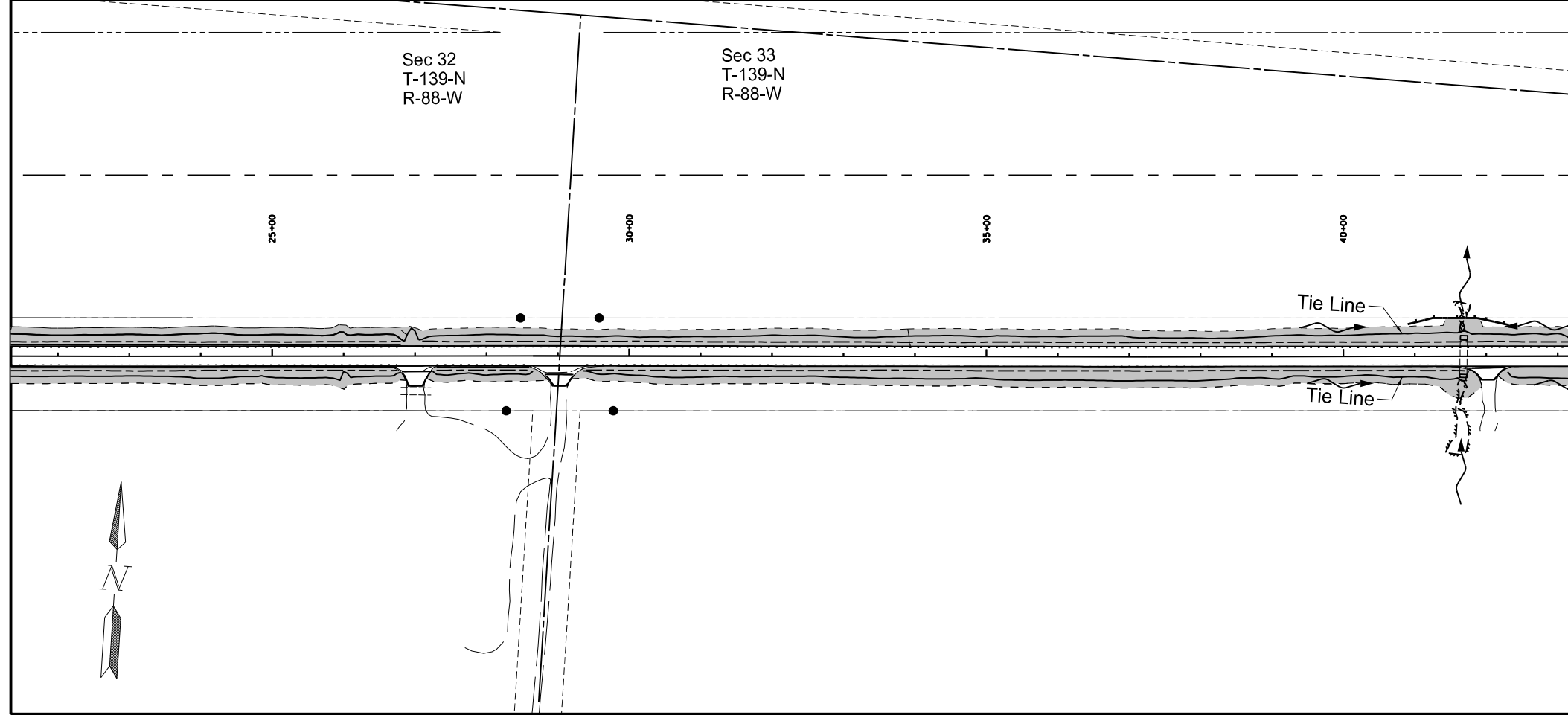
SPEC	CODE	BID ITEM	UNIT	QUANTITY
261	112	FIBER ROLLS 12IN		
		OCL 1+67 to OCL 3+94 Lt	LF	234
		OCL 20+50 to OCL 20+96 Lt	LF	59
		OCL 40+90 to OCL 42+32 Lt	LF	144



Seed and Mulch Area

Sec 32
T-139-N
R-88-W

Sec 33
T-139-N
R-88-W

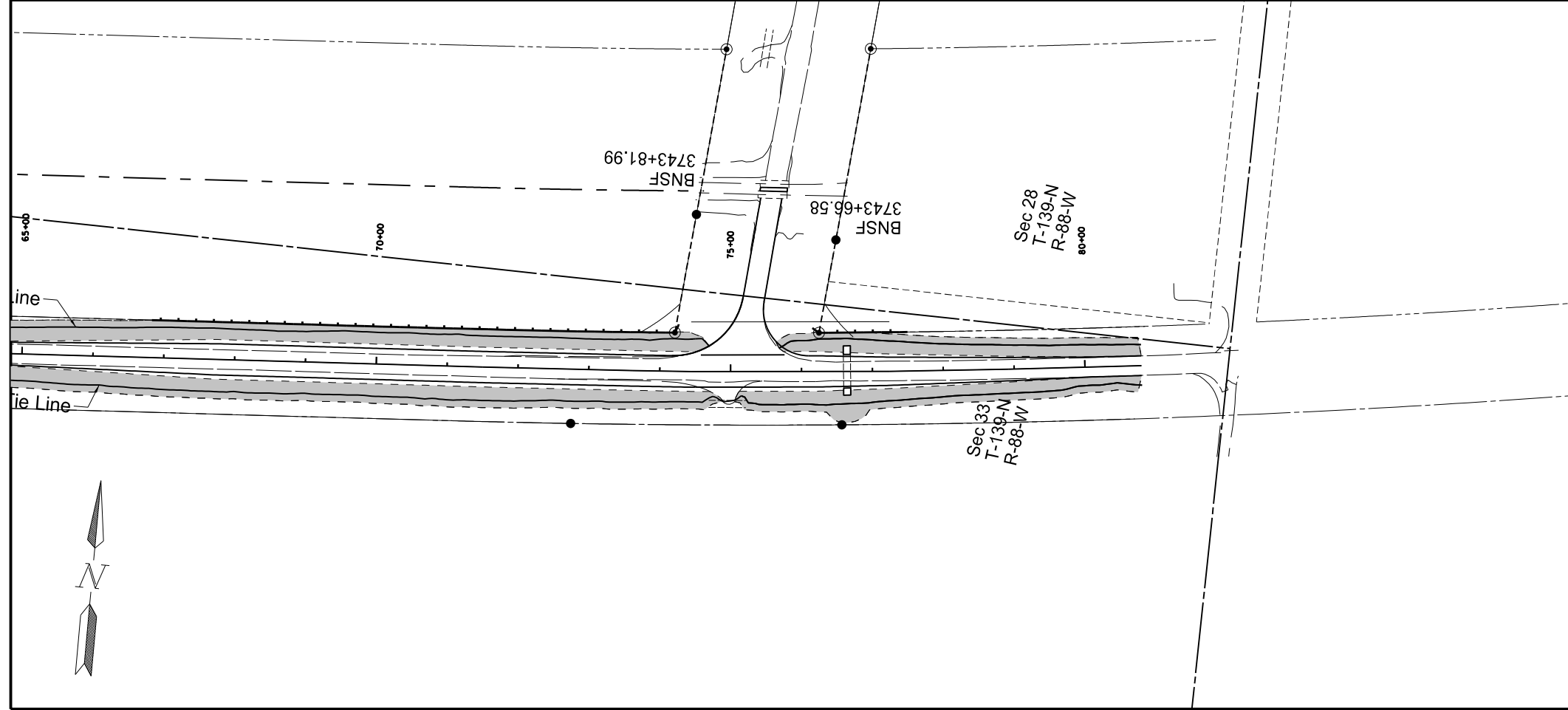
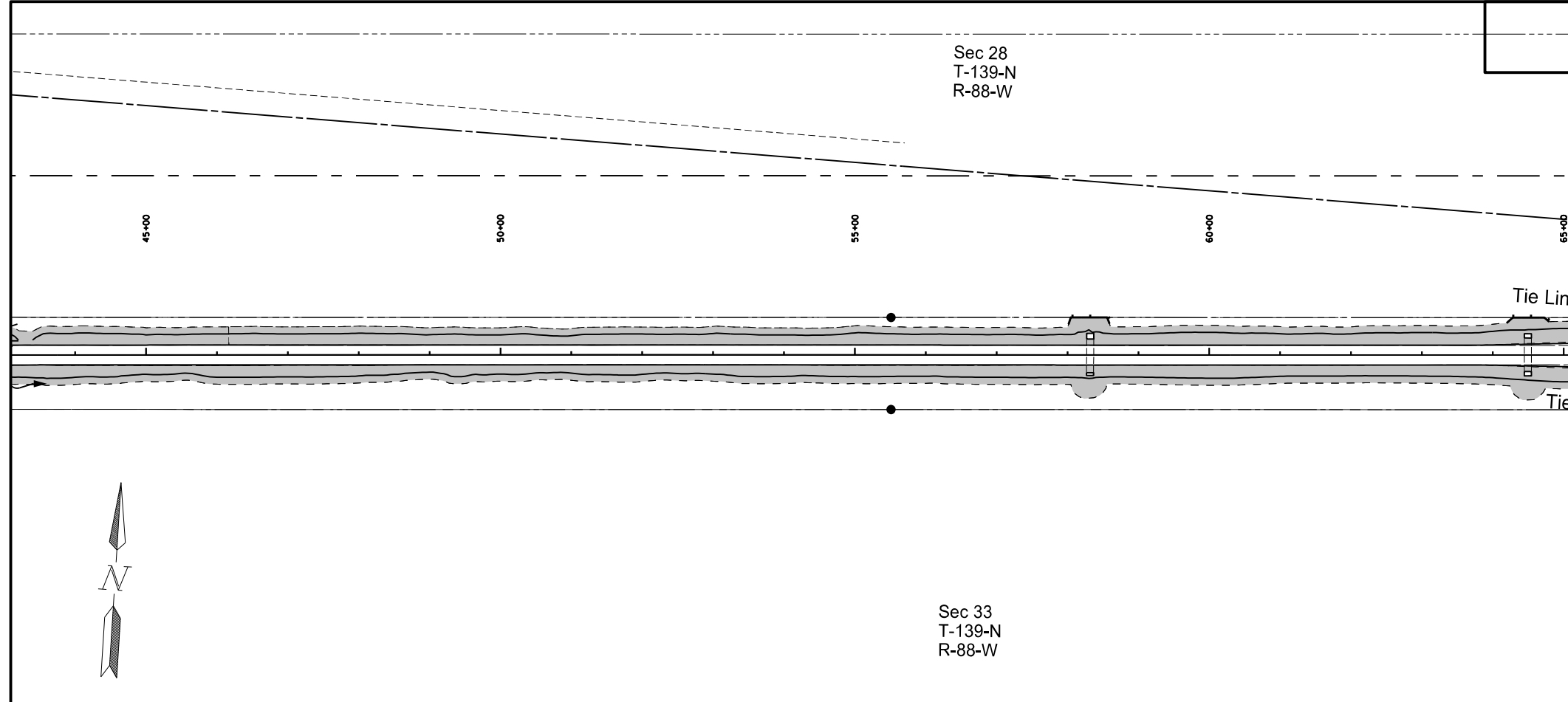
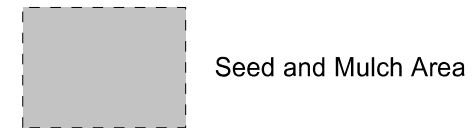


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Permanent Erosion Control
Widening, Sliver Grading, HBP Overlay, and Guardrail
Glen Ullin East & North to County Line

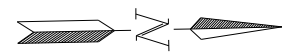
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	77	2

SPEC	CODE	BID ITEM	UNIT	QUANTITY
261	112	FIBER ROLLS 12IN		
		OCL 58+01 to OCL 58+59 Lt	LF	71
		OCL 64+19 to OCL 64+79 Lt	LF	65
		OCL 66+82 to OCL 74+26 Lt	LF	751
		OCL 76+15 to OCL 77+50 Lt	LF	136



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Permanent Erosion Control
 Widening, Sliver Grading, HBP Overlay, and Guardrail
 Glen Ullin East & North to County Line



Sec 9
T-139-N
R-88-W

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	77	3

SPEC	CODE	BID ITEM	UNIT	QUANTITY
261	112	FIBER ROLLS 12IN	LF	0
Sta 3912+00 to Sta 3955+00				

3915+00

3920+00

3925+00

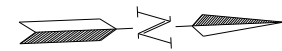
3930+00



Seed and Mulch Area

Borrow Site #1
Access

Sec 10
T-139-N
R-88-W



Sec 9
T-139-N
R-88-W

3935+00

3940+00

3945+00

3950+00

3955+00

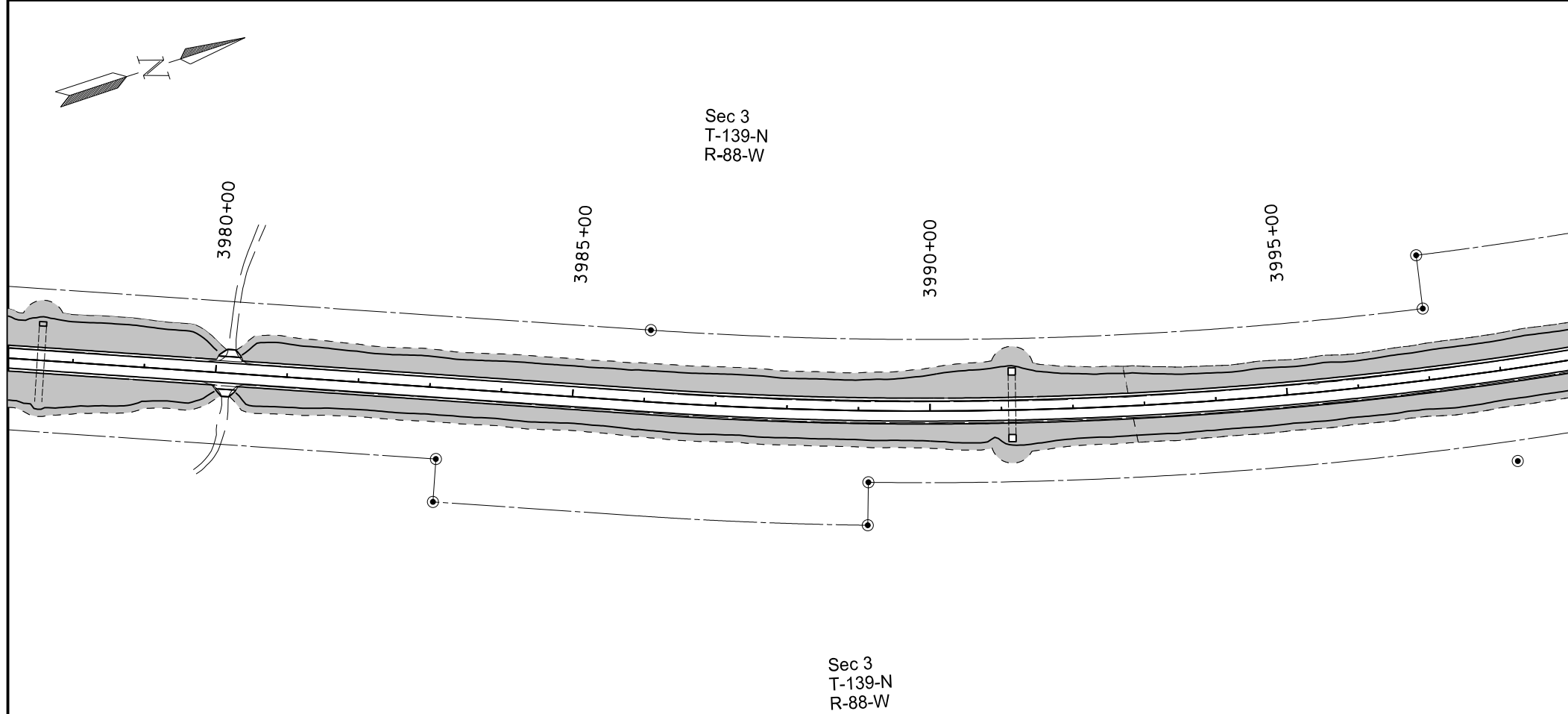
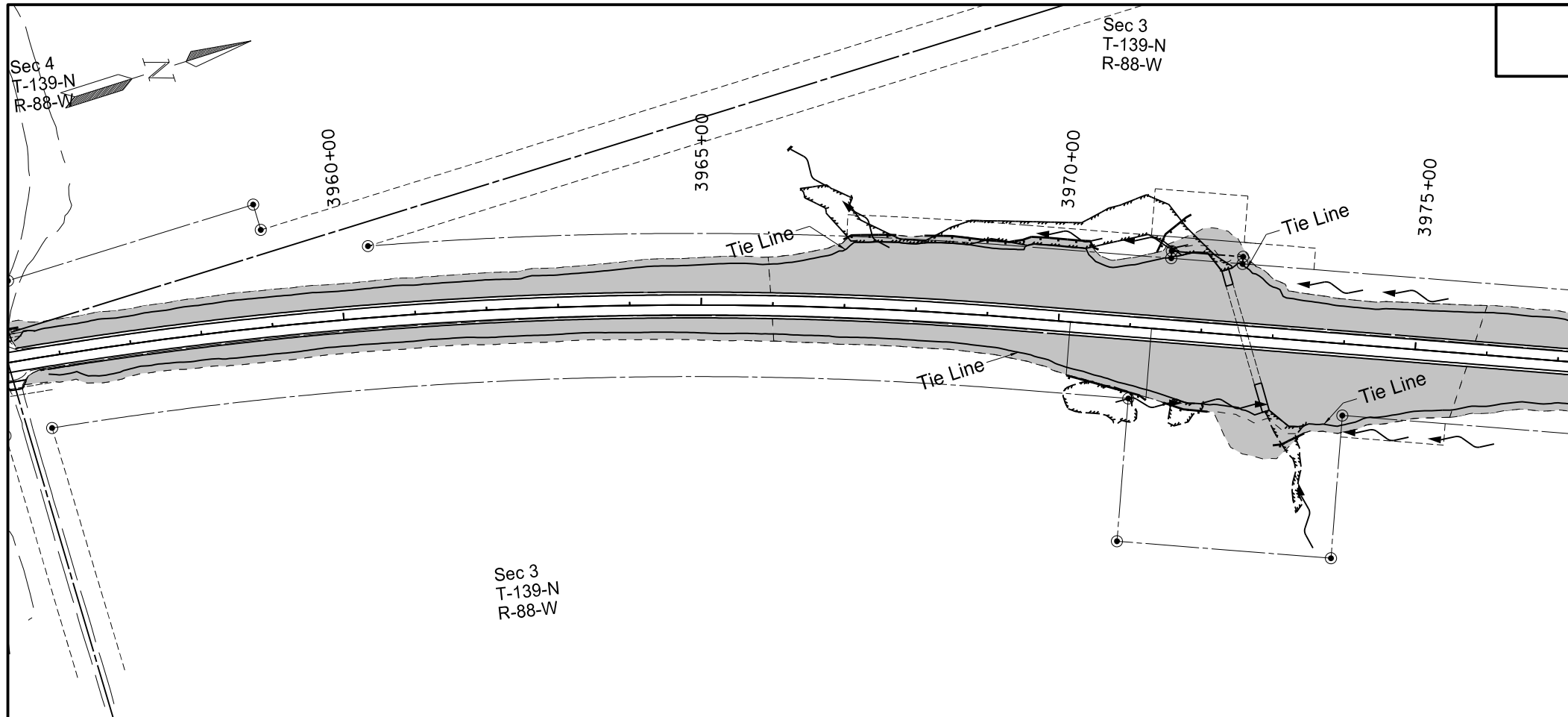
Tie Line

Tie Line

Sec 10
T-139-N
R-88-W


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Permanent Erosion Control
Widening, Sliver Grading, HBP Overlay, and Guardrail
Glen Ullin East & North to County Line



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	77	4

SPEC	CODE	BID ITEM	UNIT	QUANTITY
261	112	FIBER ROLLS 12IN		
		Sta 3966+95 to Sta 3967+68 Lt	LF	76
		Sta 3968+06 to Sta 3970+48 Lt	LF	251
		Sta 3970+17 to Sta 3971+30 Rt	LF	117
		Sta 3971+29 to Sta 3971+73 Lt	LF	74
		Sta 3971+55 to Sta 3972+18 Rt	LF	64
		Sta 3973+12 to Sta 3973+55 Rt	LF	47


 Seed and Mulch Area

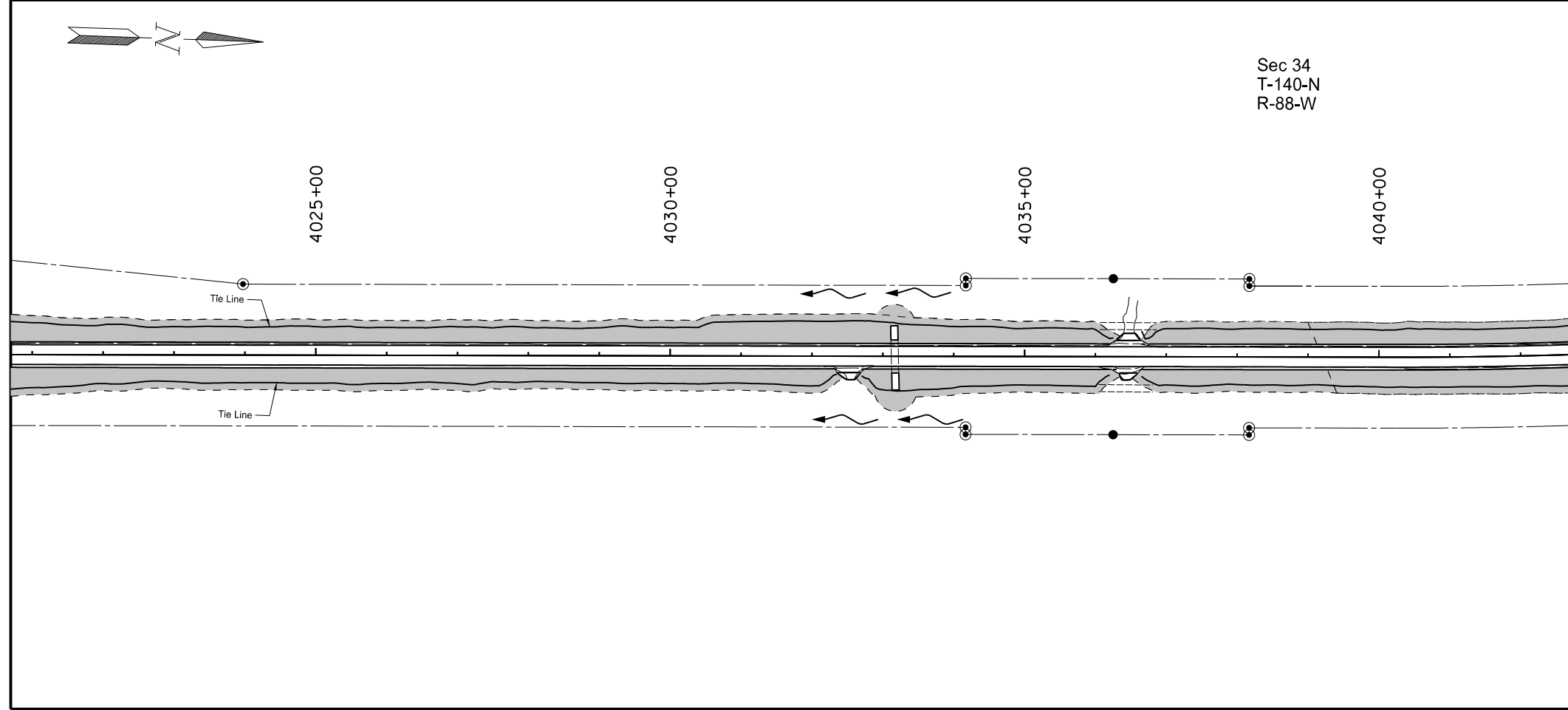
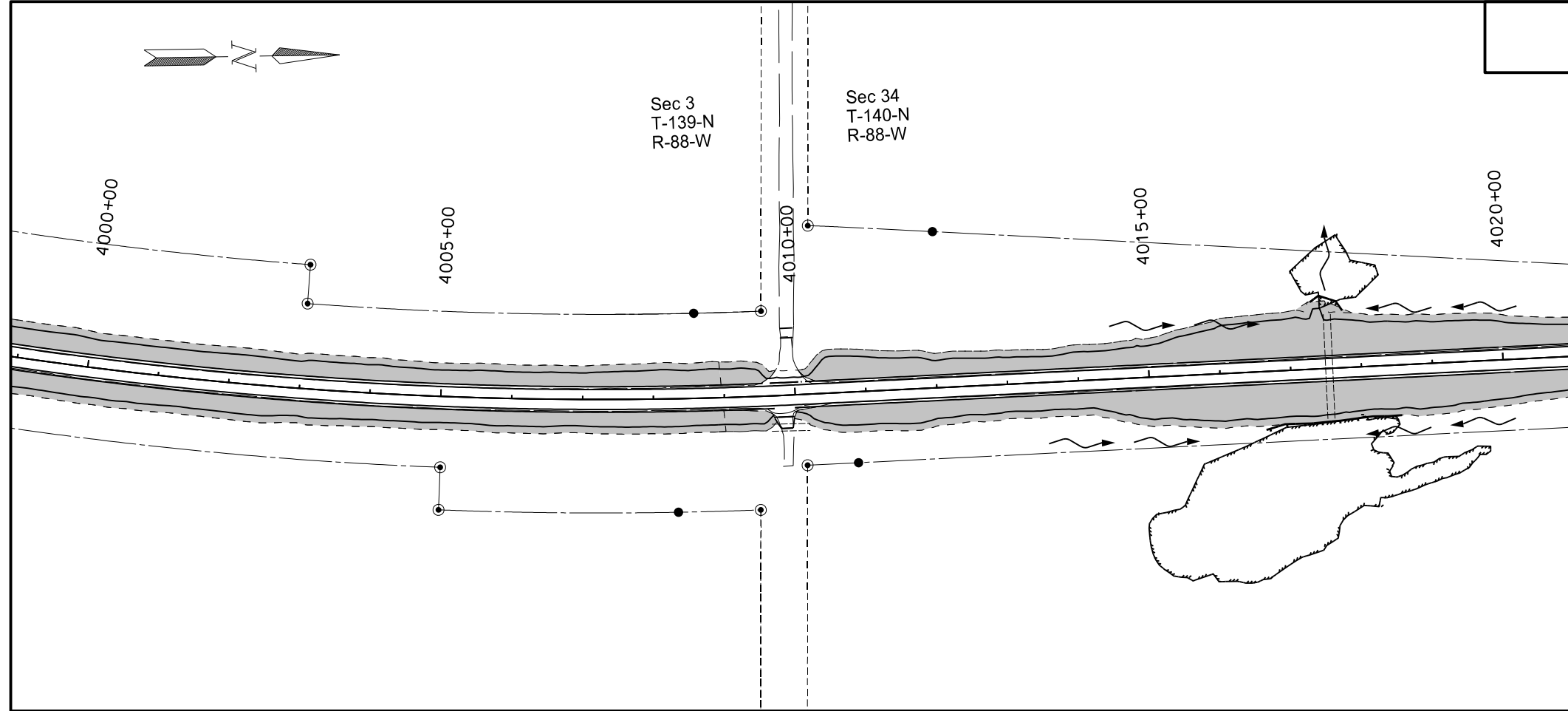
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Permanent Erosion Control
 Widening, Sliver Grading, HBP Overlay, and Guardrail
 Glen Ullin East & North to County Line

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	77	5

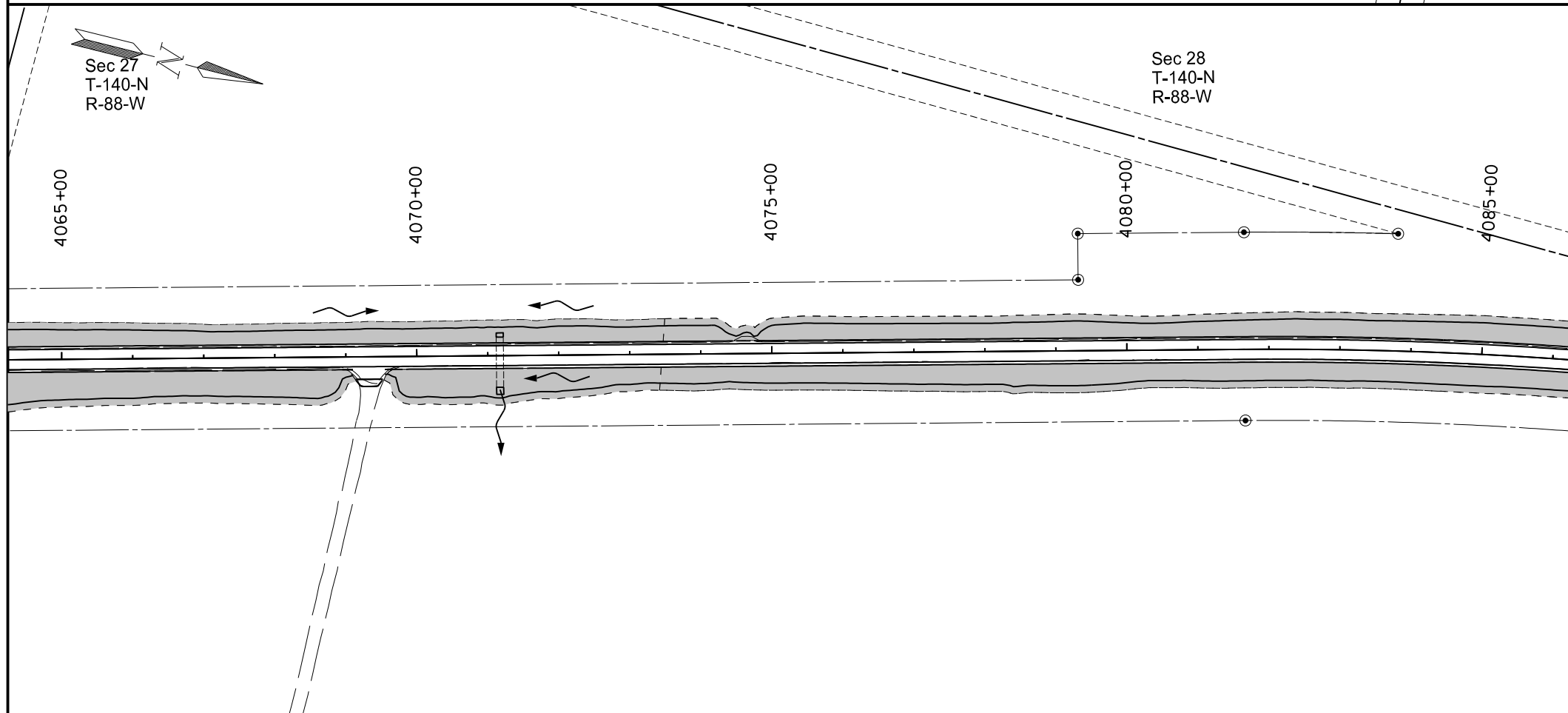
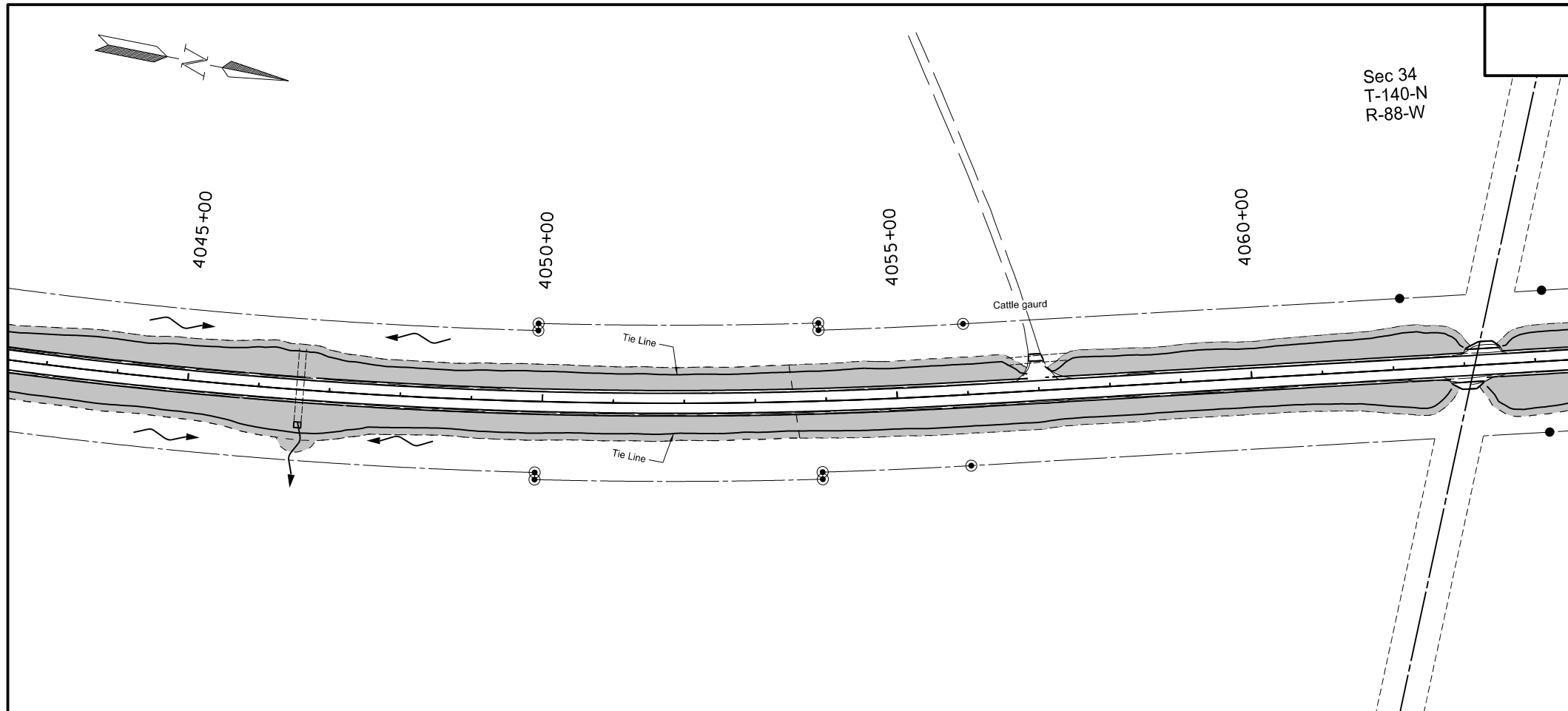
SPEC	CODE	BID ITEM	UNIT	QUANTITY
261	112	FIBER ROLLS 12IN		
		Sta 4016+62 to Sta 4018+54 Rt	LF	193
		Sta 4017+32 to Sta 4017+77 Lt	LF	56

Seed and Mulch Area



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Permanent Erosion Control
 Widening, Sliver Grading, HBP Overlay, and Guardrail
 Glen Ullin East & North to County Line



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	77	6

SPEC	CODE	BID ITEM	UNIT	QUANTITY
261	112	FIBER ROLLS 12IN	LF	0
4042+50 to 4086+00				

Seed and Mulch Area

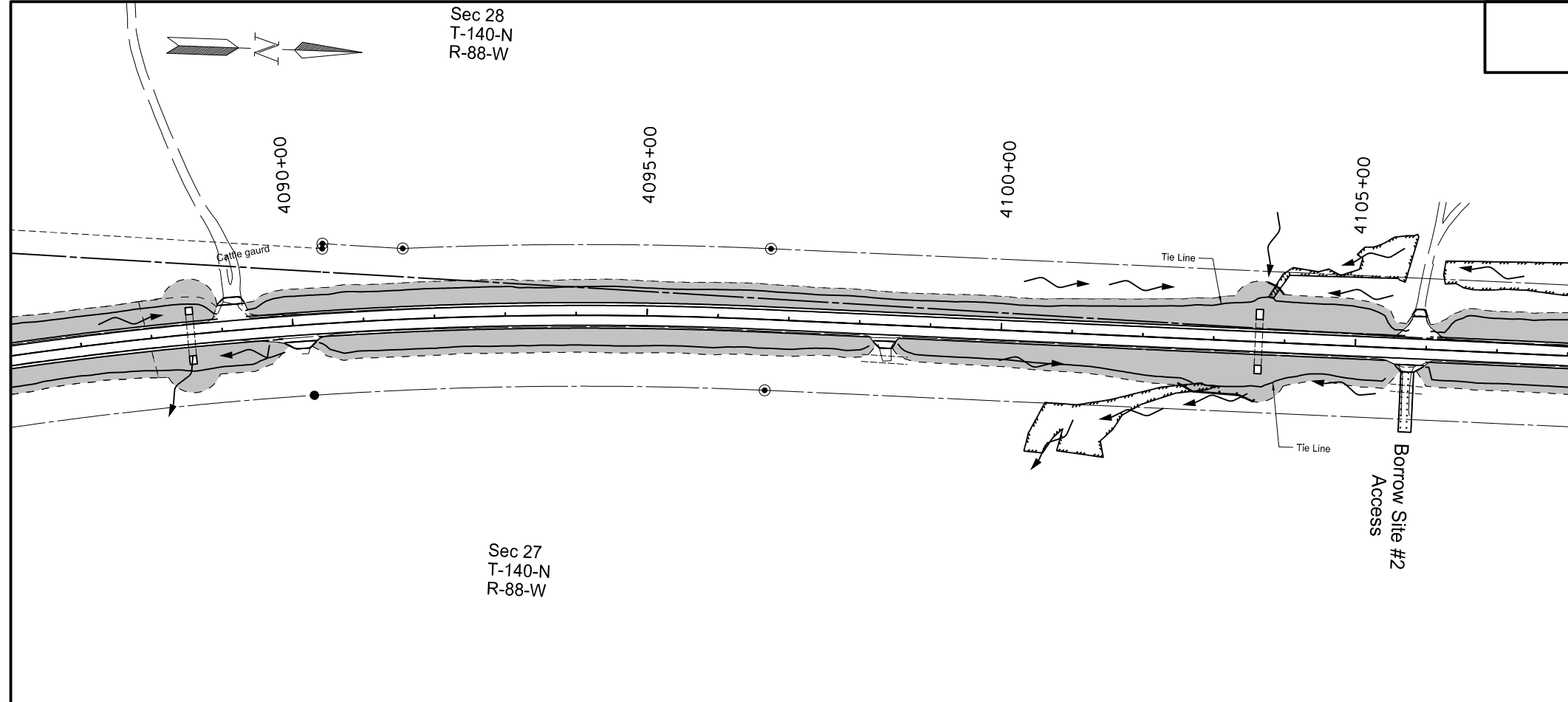
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Permanent Erosion Control
 Widening, Sliver Grading, HBP Overlay, and Guardrail
 Glen Ullin East & North to County Line

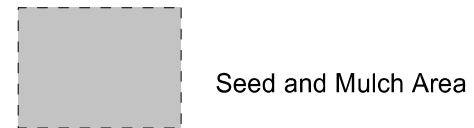
Sec 28
T-140-N
R-88-W

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	77	7

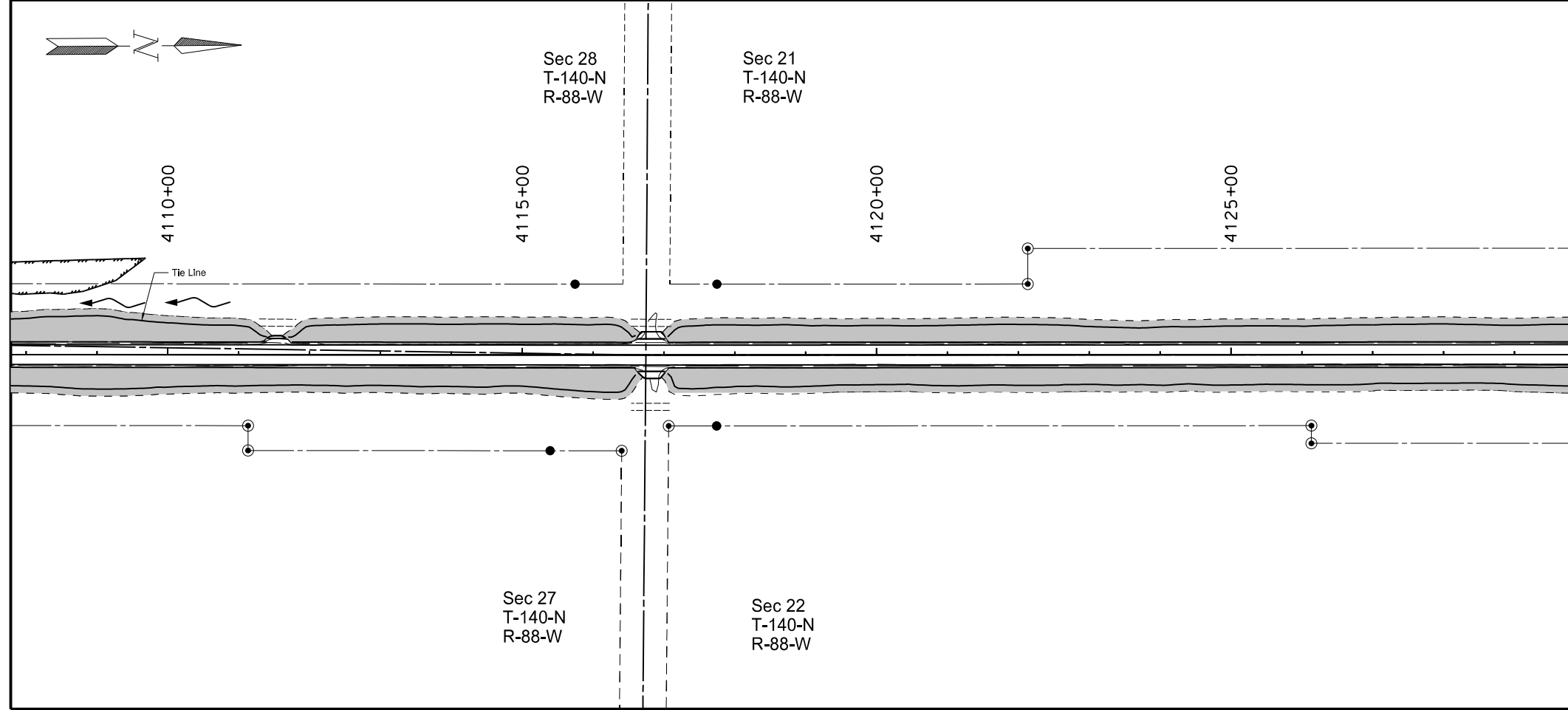
SPEC	CODE	BID ITEM	UNIT	QUANTITY
261	112	FIBER ROLLS 12IN		
		Sta 4102+62 to Sta 4103+76 Rt	LF	114
		Sta 4103+73 to Sta 4103+96 Lt	LF	29



Sec 27
T-140-N
R-88-W



Seed and Mulch Area



Sec 28
T-140-N
R-88-W

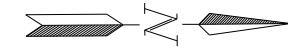
Sec 21
T-140-N
R-88-W

Sec 27
T-140-N
R-88-W

Sec 22
T-140-N
R-88-W

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Permanent Erosion Control
Widening, Sliver Grading, HBP Overlay, and Guardrail
Glen Ullin East & North to County Line



Sec 21
T-140-N
R-88-W

4130+00

4135+00

4140+00

4145+00

4150+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	77	8

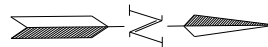
SPEC	CODE	BID ITEM	UNIT	QUANTITY
261	112	FIBER ROLLS 12IN	LF	0
Sta 4129+50 to Sta 4173+00				



Seed and Mulch Area

Cattle gaurd

Sec 22
T-140-N
R-88-W



Sec 21
T-140-N
R-88-W

Sec 16
T-140-N
R-88-W

4155+00

4160+00

4165+00

4170+00

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Permanent Erosion Control

Widening, Sliver Grading, HBP Overlay, and Guardrail

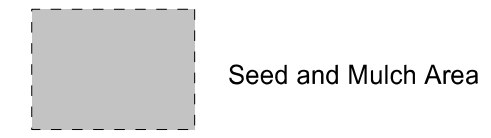
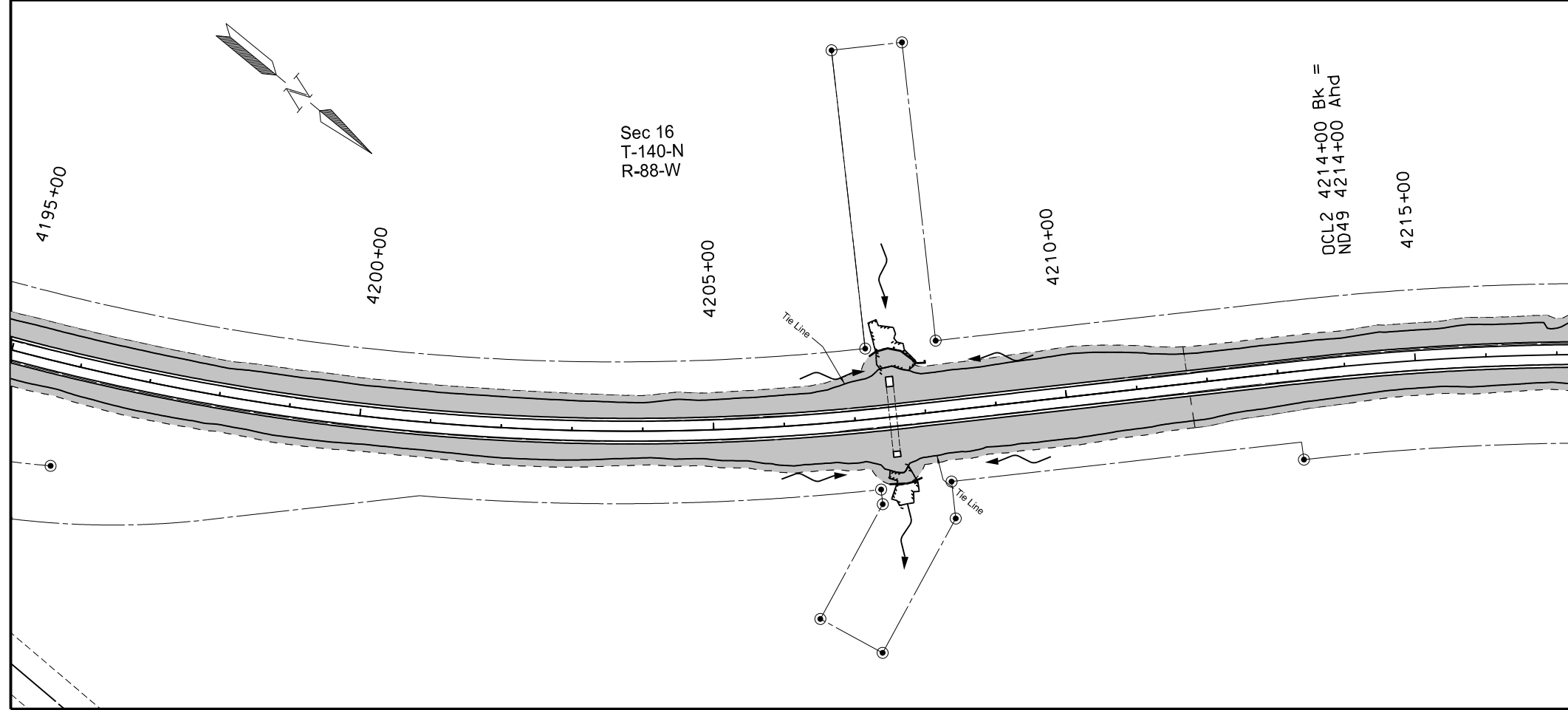
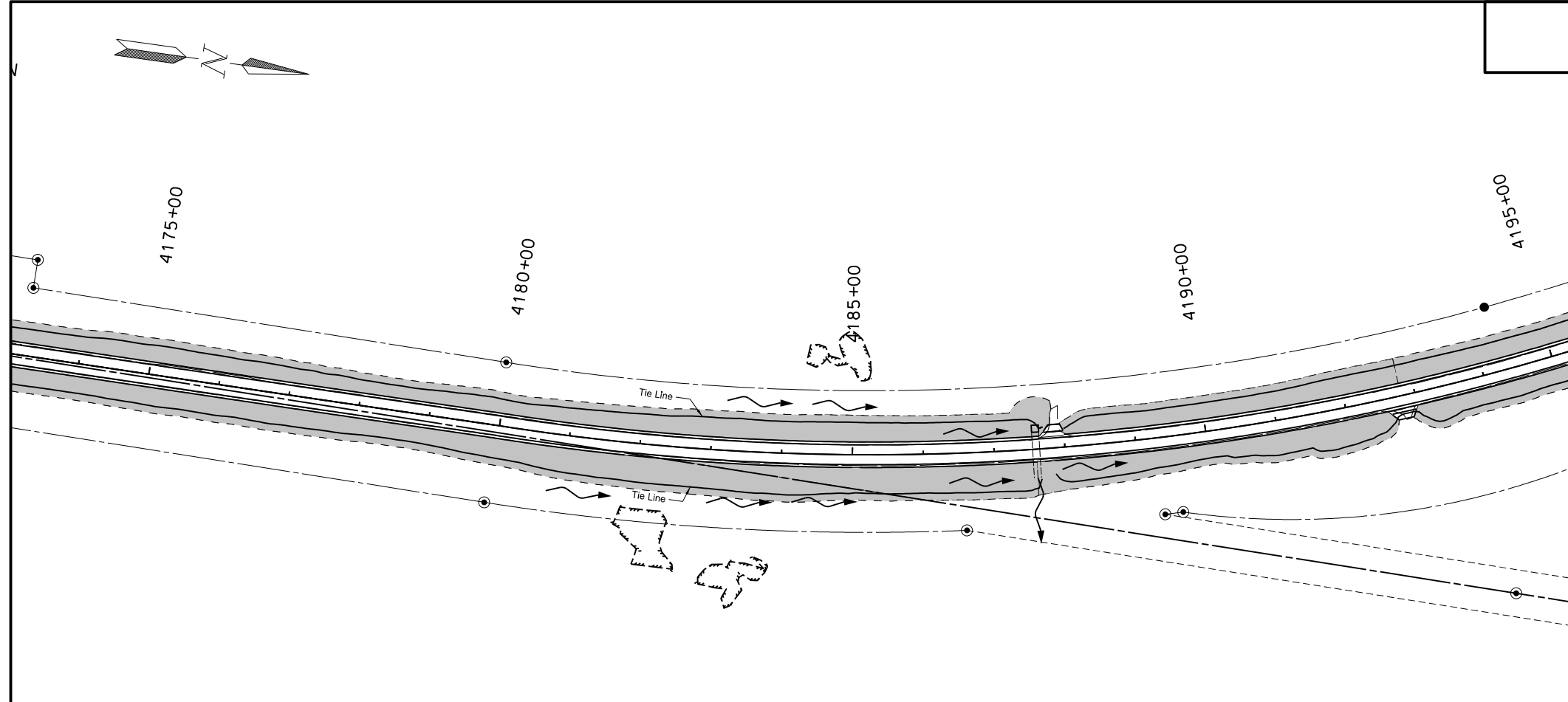
Glen Ullin East & North to County Line

Sec 22
T-140-N
R-88-W

Sec 15
T-140-N
R-88-W

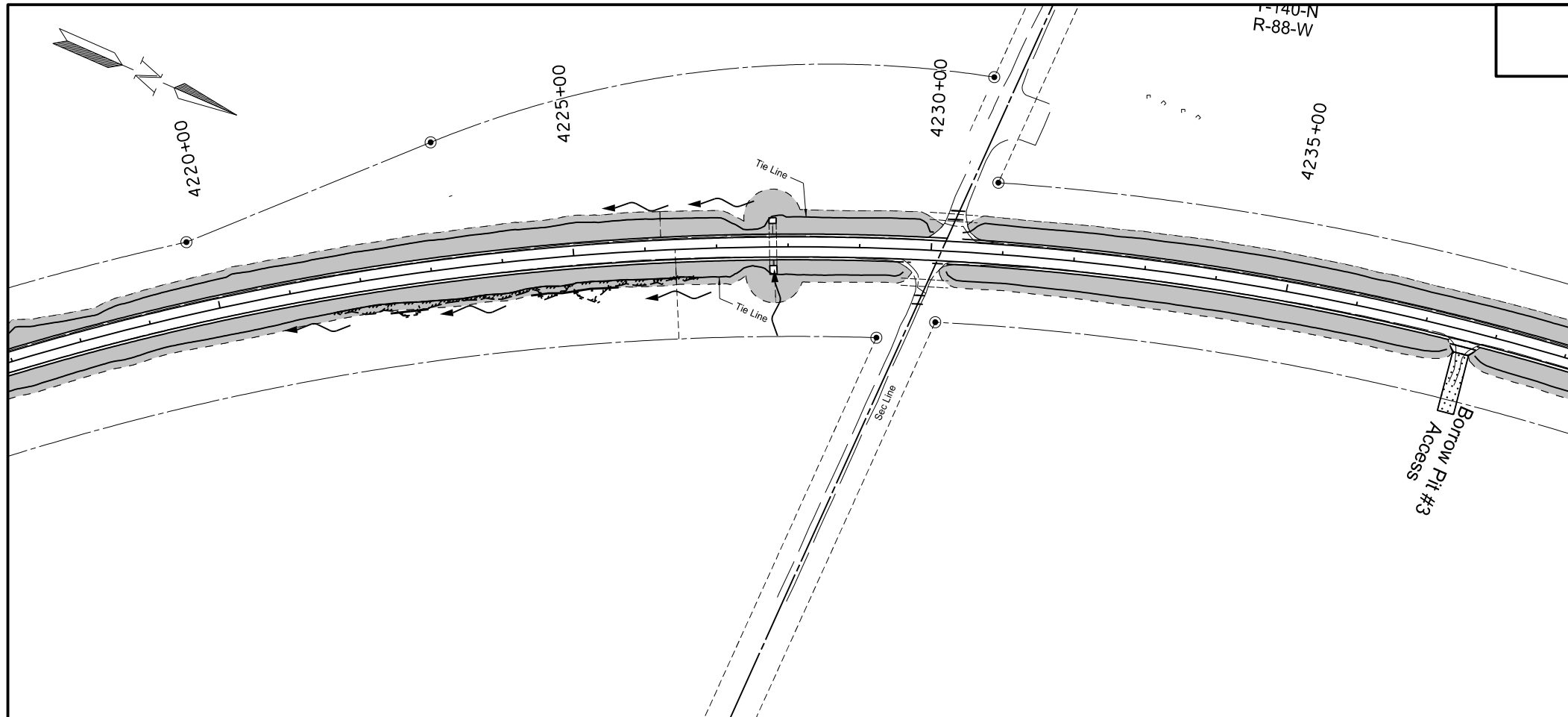
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	77	9

SPEC	CODE	BID ITEM	UNIT	QUANTITY
261	112	FIBER ROLLS 12IN		
		Sta 4207+30 to Sta 4207+77 Rt	LF	50
		Sta 4207+30 to Sta 4208+08 Lt	LF	89



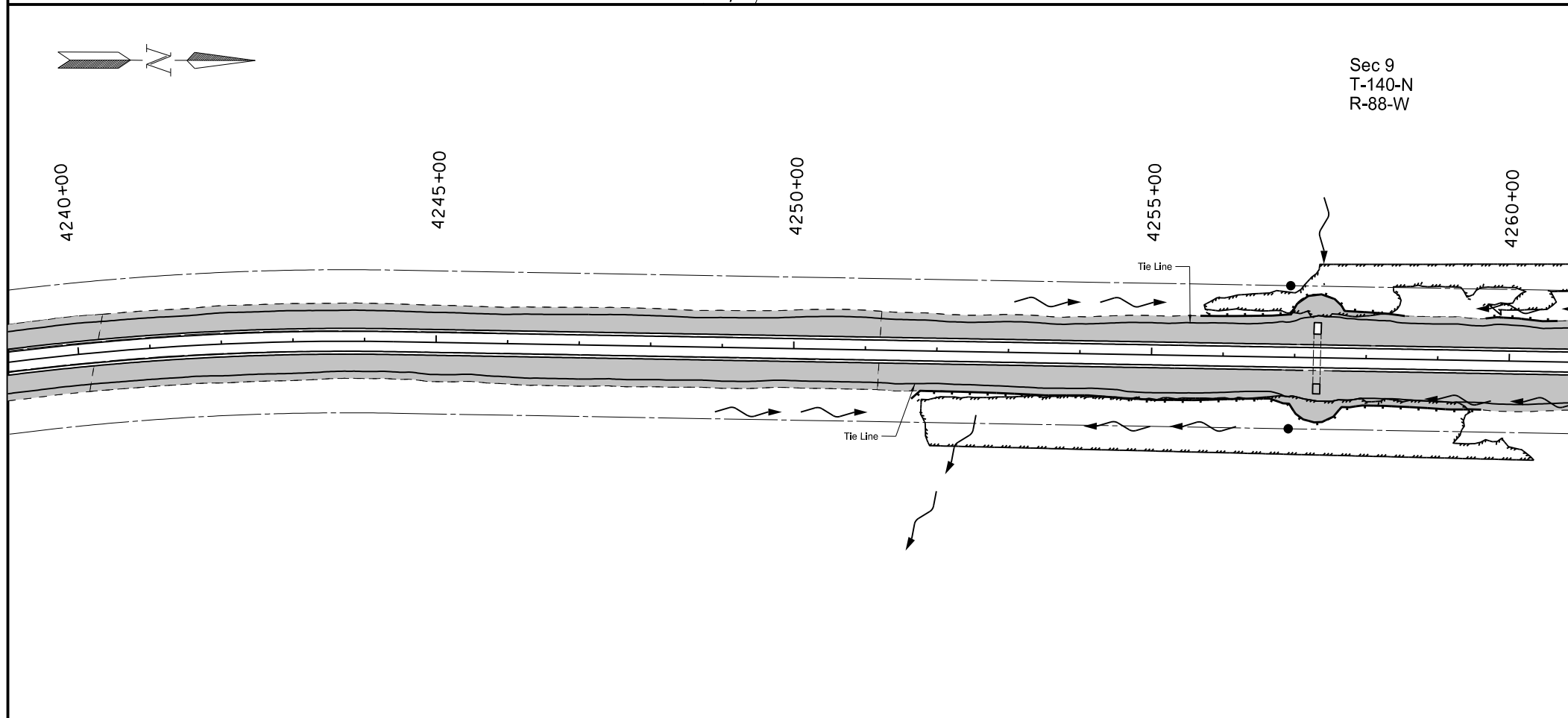
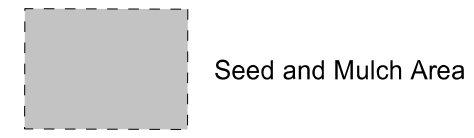
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Permanent Erosion Control
 Widening, Sliver Grading, HBP Overlay, and Guardrail
 Glen Ullin East & North to County Line



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	77	10

SPEC	CODE	BID ITEM	UNIT	QUANTITY
261	112	FIBER ROLLS 12IN		
		Sta 4222+35 to Sta 4222+89 Rt	LF	54
		Sta 4224+35 to Sta 4225+60 Rt	LF	123
		Sta 4251+65 to Sta 4259+62 Rt	LF	822
		Sta 4255+67 to Sta 4258+53 Lt	LF	308
		Sta 4259+66 to Sta 4260+67 Lt	LF	101



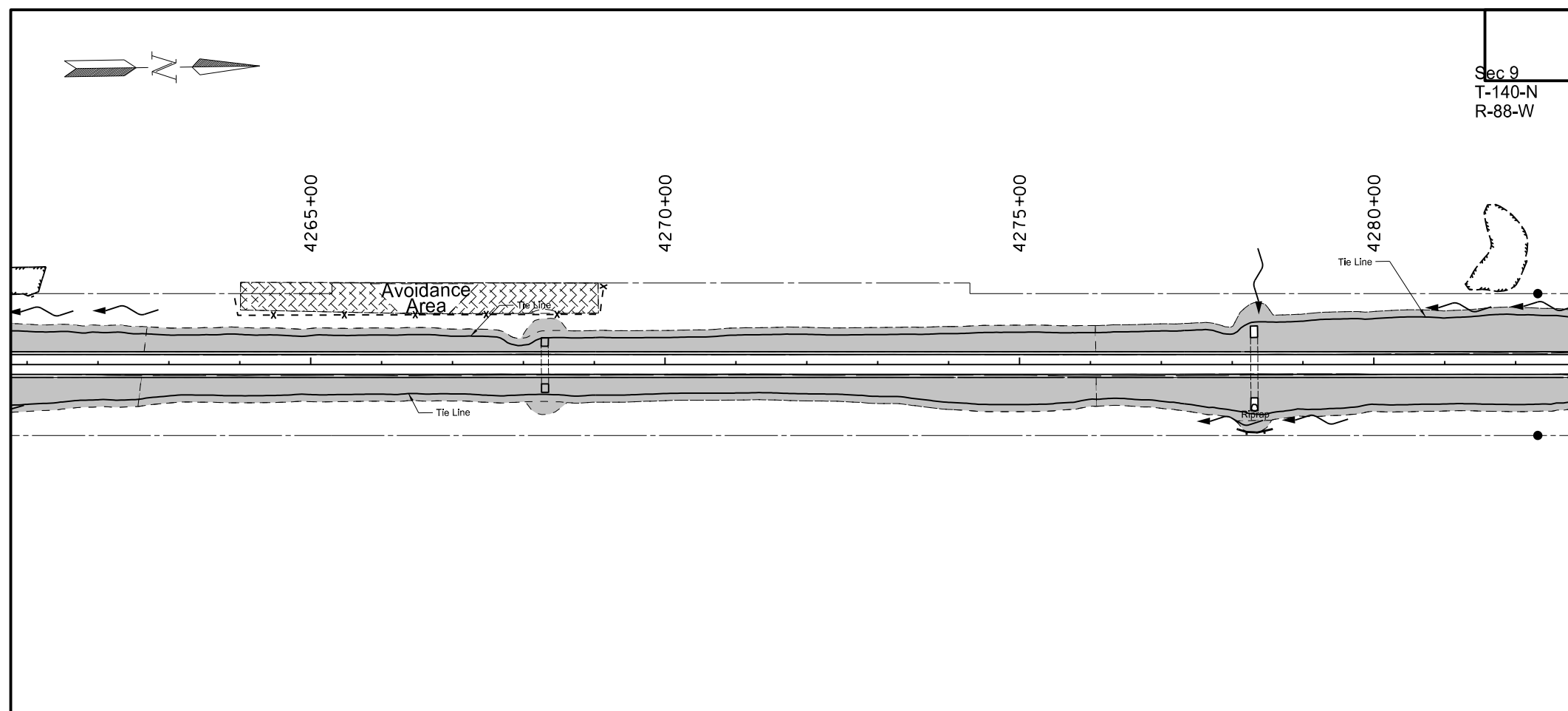
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Permanent Erosion Control
 Widening, Sliver Grading, HBP Overlay, and Guardrail
 Glen Ullin North & East to County Line

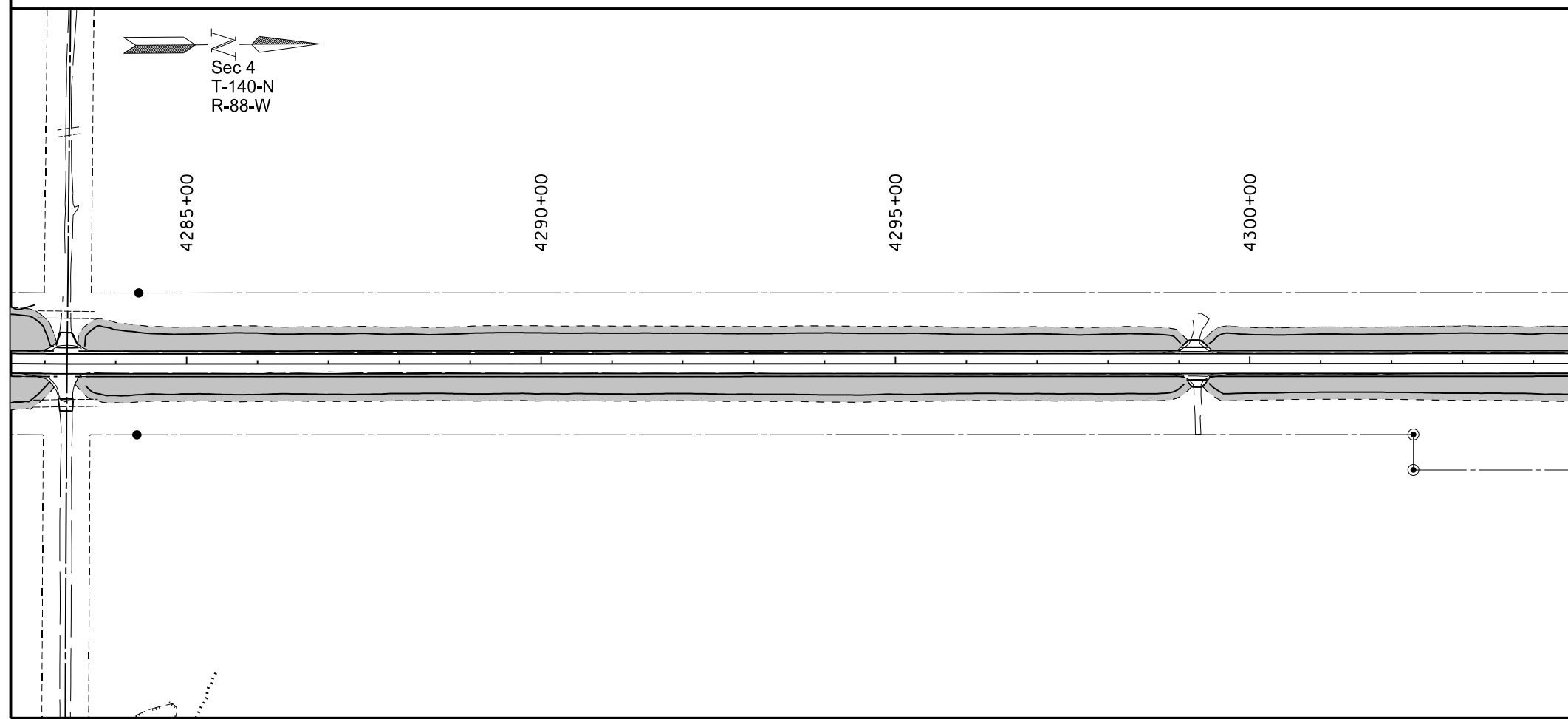
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	77	11

Sec 9
T-140-N
R-88-W

SPEC	CODE	BID ITEM	UNIT	QUANTITY
261	112	FIBER ROLLS 12IN	LF	52
Sta 4278+06 to Sta 4278+57 Rt				



Seed and Mulch Area



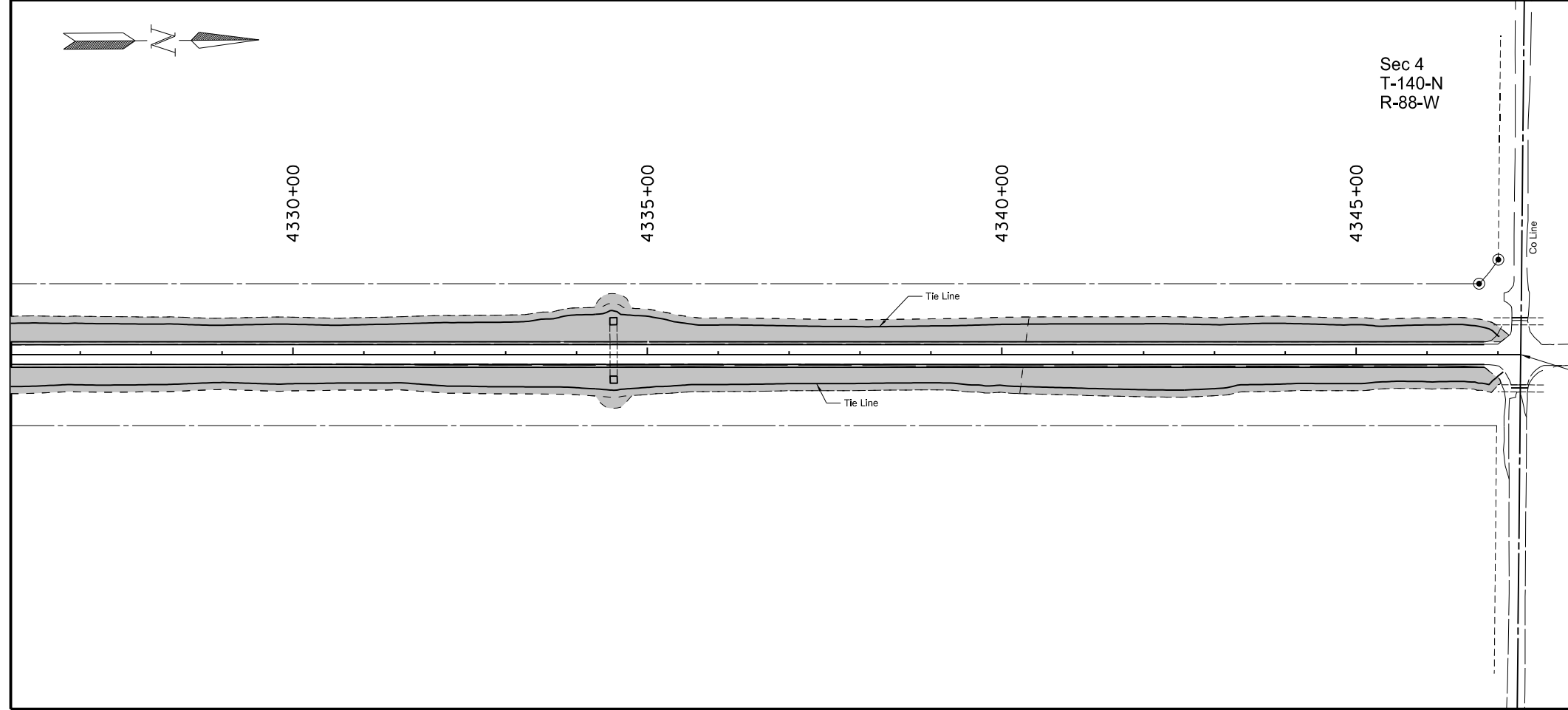
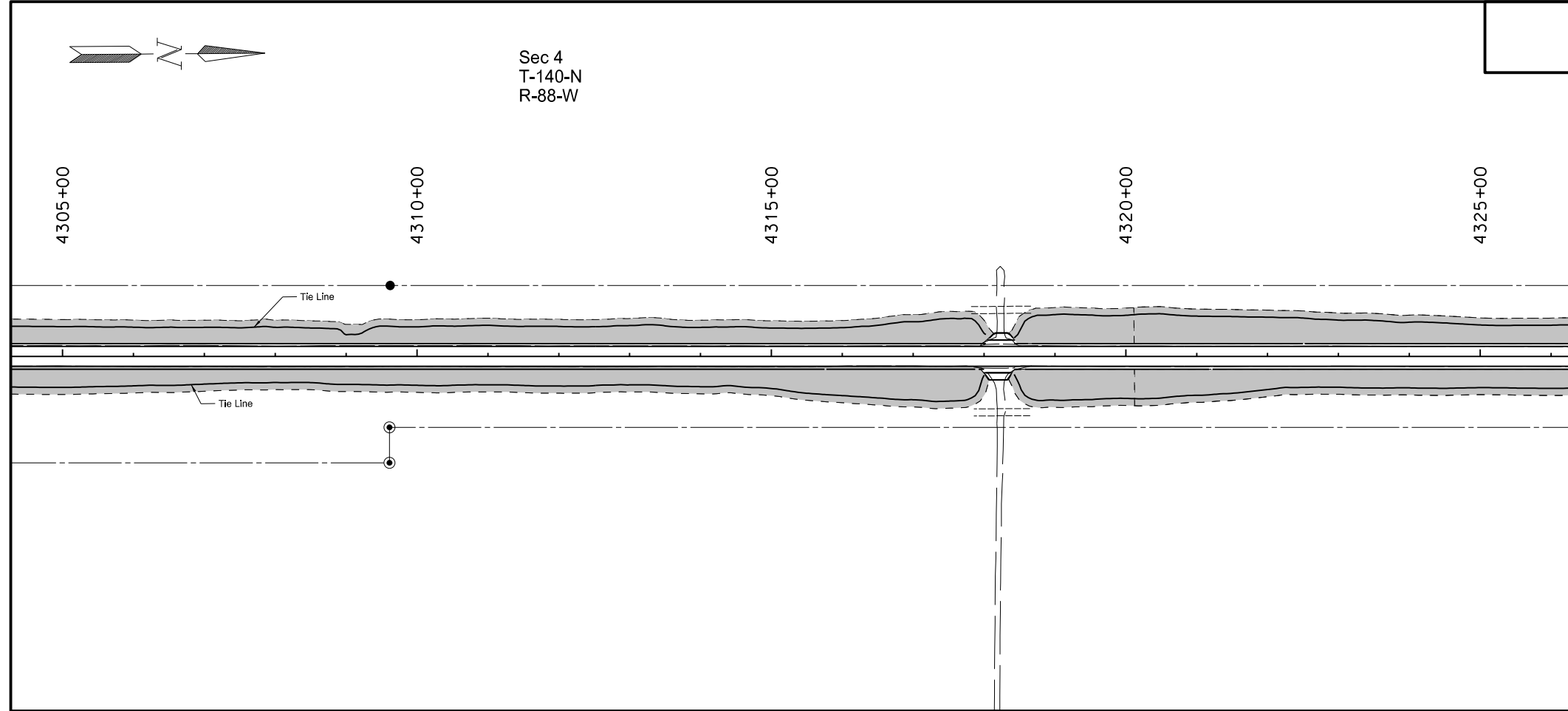
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Permanent Erosion Control
Widening, Sliver Grading, HBP Overlay, and Guardrail
Glen Ullin East & North to County Line

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	77	12

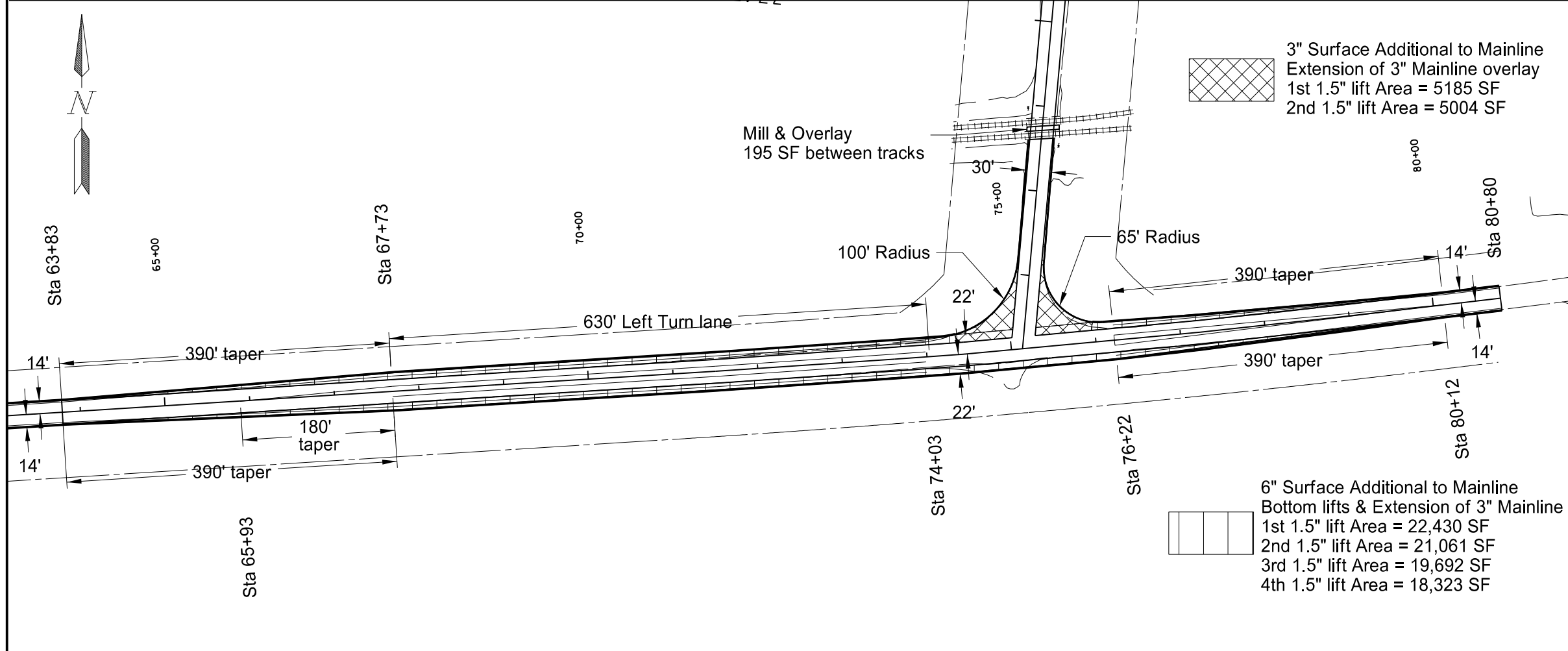
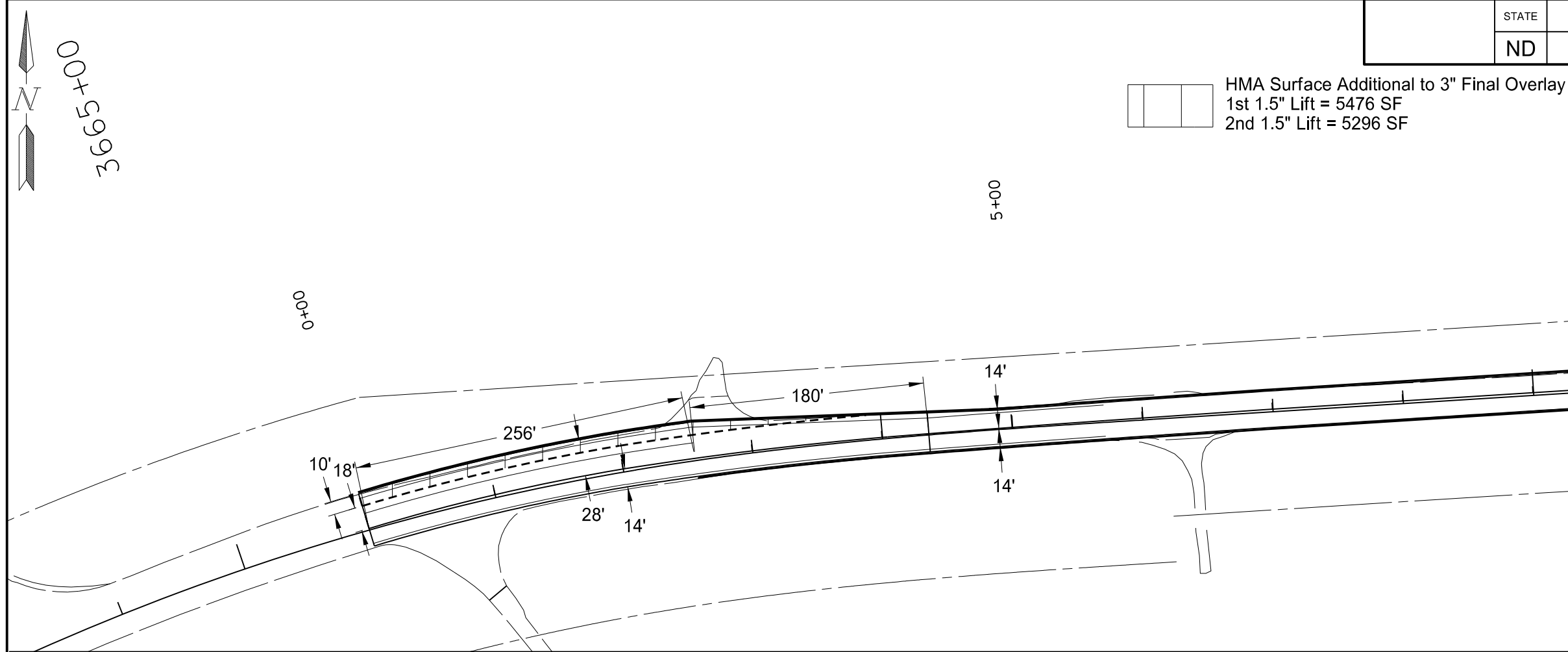
SPEC	CODE	BID ITEM	UNIT	QUANTITY
261	112	FIBER ROLLS 12IN	LF	0
Sta 4304+50 to End Project				

Seed and Mulch Area



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Permanent Erosion Control
 Widening, Sliver Grading, HBP Overlay, and Guardrail
 Glen Ullin East & North to County Line



This document was originally issued and sealed by Sarah BaeHurst, Registration Number PE- 6239, on 08/19/16 and the original document is stored at the North Dakota Department of Transportation

Turn Lane Layouts
 Right Turn Lane Extension East side of Glen Ullin
 Left Turn Lane Addition at Jct with County Road139
 Widening, Sliver Grading, HBP Overlay, and Guardrail
 Glen Ullin East & North to County Line

PRELIMINARY SURVEY COORDINATE AND CURVE DATA - GLEN ULLIN E & N TO COUNTY LINE

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	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		
ND 49 (SCL49)				SCL49001		SCL49002		SW Sec Cor	Sec 36 - T139N - R89W	418002.82	1626890.15	CONTROL POINT DESCRIPTION					
TS	3530+97.46	417703.89	1629215.89	PI Sta = 3540+05.00	PI Sta = 3608+19.49	SW Sec Cor	Sec 31 - T139N - R88W	417904.90	1632135.82								
SC	3533+97.46	418002.58	1629243.23	Delta = 36° 33' 29" (RT)	Delta = 20° 51' 03" (LT)	W ¼ Cor	Sec 31 - T139N - R88W	420544.33	1632170.34	Primary Control							
PI SCL49001	3540+05.00	418609.24	1629278.87	Da = 2° 30' 00"	Da = 2° 00' 00"	NW Sec Cor	Sec 31 - T139N - R88W	423183.76	1632204.86	GPS 1	421050.63	1638397.35	2105.58'	3646+60	77' Rt		
CS	3545+59.78	419066.80	1629678.79	R = 2,291.83'	R = 2,864.93'	SE Sec Cor	Sec 31 - T139N - R88W	417824.51	1637344.15	¾" x 18" Rebar wAlum Cap Stamped - "NDDOT LS 3047"							
ST	3548+59.78	419298.95	1629868.72	L = 1,162.32'	L = 742.60'	W ¼ Cor	Sec 32 - T139N - R88W	420464.68	1637382.02	GPS 2	428137.36	1647899.39	2116.42'	3794+40	83' Rt		
PI	3574+96.48	421302.79	1631582.44	Ls = 300.00'	Ls = 300.00'	NW Sec Cor	Sec 32 - T139N - R88W	423107.72	1637414.58	¾" x 18" Rebar wAlum Cap Stamped - "NDDOT LS 3047"							
TS	3601+42.13	420459.10	1634089.95	Sc = 3° 45' 00"	Sc = 3° 00' 00"	N ¼ Cor	Sec 32 - T139N - R88W	423069.32	1640050.98								
SC	3604+42.13	420368.41	1634375.88	Ts = 907.54'	Ts = 677.36'	NW Sec Cor	Sec 33 - T139N - R88W	423030.91	1642687.39	REFERENCE MARKERS							
PI SCL49002	3608+19.49	420243.09	1634731.94			E ¼ Cor	Sec 33 - T139N - R88W	420301.80	1647936.44	RM	NORTHING	EASTING	STATION	OFFSET			
CS	3611+84.73	420263.17	1635108.88	SCL49003		SCL49004		SE Sec Cor	Sec 28 - T139N - R88W	422940.90	1647974.81	67	418369.33	1629354.40	3537+82	29' Rt	
ST	3614+84.73	420269.73	1635408.77	PI Sta = 3637+92.90	PI Sta = 3662+83.29					68	420759.97	1633087.46	3590+96	35' Rt			
TS	3627+53.87	420319.66	1636676.94	Delta = 47° 35' 36" (LT)	Delta = 46° 14' 52" (RT)					69	420809.61	1638121.20	3643+02	38' Rt			
SC	3631+53.87	420349.40	1637075.63	Da = 3° 01' 00"	Da = 2° 59' 59"					70	422527.71	1642818.13	3696+30	31' Rt			
PI SCL49003	3637+92.90	420360.53	1637715.15	R = 1,899.28'	R = 1,910.08'					71	423683.12	1647397.60	3749+57	33' Rt			
CS	3643+31.53	420858.35	1638116.77	L = 1,177.66'	L = 1,141.77'					72	428833.58	1648158.05	3801+73	32' Rt			
ST	3647+31.53	421154.70	1638385.14	Ls = 400.00'	Ls = 400.00'												
TS	3652+66.21	421565.33	1638727.58	Sc = 6° 02' 00"	Sc = 5° 59' 58"												
SC	3656+66.21	421861.73	1638995.88	Ts = 1,039.02'	Ts = 1,017.07'												
PI SCL49004	3662+83.29	422342.71	1639383.41														
CS	3668+07.98	422367.57	1640000.58	SCL49005		SCL49006											
ST	3672+07.98	422406.58	1640398.47	PI Sta = 3739+10.23	PI Sta = 3774+37.14												
PC	3737+07.86	422814.74	1646885.52	Delta = 1° 29' 02" (LT)	Delta = 6° 14' 26" (RT)												
PI SCL49005	3739+10.23	422827.44	1647087.50	Da = 0° 22' 00"	Da = 0° 30' 00"												
PT	3741+12.58	422845.38	1647289.07	R = 15,626.12'	R = 11,459.16'												
PC	3768+12.47	425534.47	1647530.30	T= 202.37'	T= 624.67'												
PI SCL49006	3774+37.14	426156.65	1647586.11	L = 404.72'	L = 1,248.11'												
PT	3780+60.58	426769.07	1647709.23														
NOTES:				Date Survey Completed 03/16/15		<input type="checkbox"/> Assumed Coordinates <input checked="" type="checkbox"/> All coordinates on this sheet are Morton County ground coordinates. They are derived from the "North Dakota Coordinate System of 1983", NAD83(2011) reference frame; North Dakota South Zone Combination Factor (cf) = 0.9998485				All coordinates and measurements on this document derived from the International Foot definition. INITIALIZING BENCH MARK NDGPS Stations (OPUS) <input checked="" type="checkbox"/> NAVD-88 <input type="checkbox"/> NGVD-29 <input type="checkbox"/> GEOID 09 <input type="checkbox"/> _____ <input checked="" type="checkbox"/> GEOID 12A							
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PRELIMINARY SURVEY COORDINATE AND CURVE DATA - GLEN ULLIN E & N TO COUNTY LINE

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	81	2

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		
										CONTROL POINT DESCRIPTION							
ND 49 (SCL49) Cont.				SCL49007		SCL49008		SE Sec Cor	Sec 28 - T139N - R88W	422940.90	1647974.81						
PT	3780+60.58	426769.07	1647709.23	PI Sta = 3837+30.88	PI Sta = 3869+06.10	SE Sec Cor	Sec 21 - T139N - R88W	428226.76	1648063.88								
PI (Sec Line)	3795+48.58	428227.88	1648002.49	Delta = 23° 05' 02" (LT)	Delta = 12° 59' 07" (RT)	S ¼ Cor	Sec 21 - T139N - R88W	428274.46	1645437.61	Primary Control							
PC	3828+30.83	431445.08	1648652.76	Da = 1° 18' 00"	Da = 1° 00' 00"	S ¼ Cor	Sec 15 - T139N - R88W	433468.76	1650784.80	GPS 3	451944.10	1649847.07	2282.48'	4036+15	109' Rt		
PI SCL49007	3837+30.88	432327.28	1648831.08	R = 4,407.37'	R = 5,729.65'	SW Sec Cor	Sec 15 - T139N - R88W	433515.42	1648139.48	¾" x 18" Rebar w/Alum Cap Stamped - "NDDOT LS 3047"							
PT	3846+06.51	433208.77	1648649.22	T= 900.05'	T= 652.06'	E ¼ Cor	Sec 16 - T139N - R88W	436157.56	1648200.74	GPS 4	465092.07	1648911.90	2323.35'	4168+86	183' Rt		
PC	3862+54.03	434822.31	1648316.34	L = 1,775.68'	L = 1,298.54'	SE Sec Cor	Sec 10 - T139N - R88W	438700.85	1653547.83	¾" x 18" Rebar w/Alum Cap Stamped - "NDDOT LS 3047"							
PI SCL49008	3869+06.10	435460.92	1648184.59			SW Sec Cor	Sec 10 - T139N - R88W	438799.80	1648262.00								
PT	3875+52.57	436112.81	1648199.70	SCL49009		SCL49010		SW Sec Cor	Sec 9 - T139N - R88W	438880.80	1642967.29	Secondary Control					
PI (¼ Cor)	3875+97.33	436157.56	1648200.74	PI Sta = 3959+11.29	PI Sta = 3998+24.01	E ¼ Cor	Sec 10 - T139N - R88W	441344.28	1653593.08	RTK	441469.83	1648381.00	2117.81'	3929+12	61' Rt		
PI (Sec Cor)	3902+40.28	438799.80	1648262.01	Delta = 20° 53' 21" (RT)	Delta = 24° 03' 46" (LT)	W ¼ Cor	Sec 10 - T139N - R88W	441441.40	1648319.11	RTK	443880.14	1648439.01	2130.35'	3953+28	48' Rt		
PI (I-94)	3904+19.04	438978.51	1648265.87	Da = 1° 00' 00"	Da = 1° 00' 00"	W ¼ Cor	Sec 9 - T139N - R88W	441522.12	1643030.48	RTK	453944.18	1649417.16	2303.21'	4056+58	69' Lt		
PI (¼ Cor)	3927+82.50	441441.40	1648319.11	R = 5,729.65'	R = 5,729.56'	SE Sec Cor	Sec 3 - T139N - R88W	443987.71	1653638.32	RTK	455190.53	1649209.57	2304.42'	4069+16	43' Rt		
PC	3948+55.09	443413.53	1648361.75	T= 1,056.20	T= 1,221.14'	SW Sec Cor	Sec 3 - T139N - R88W	444083.00	1648376.22	RTK	458823.81	1648643.23	2294.63'	4106+15	37' Lt		
PI SCL49009	3959+11.29	444469.48	1648384.58	L = 2,088.94	L = 2,406.27'	NW Sec Cor	Sec 9 - T139N - R88W	444163.43	1643093.66	RTK	459886.65	1648600.49	2323.67'	4116+78	89' Lt		
PT	3969+44.04	445447.88	1648782.41			E ¼ Cor	Sec 3 - T139N - R88W	446629.39	1653684.86	RTK	462524.02	1648648.49	2302.59'	4143+16	61' Lt		
PC	3986+02.87	446984.54	1649407.25	SCL49011		SCL49012		W ¼ Cor	Sec 3 - T139N - R88W	446718.81	1648391.01	RTK	462991.49	1648780.49	2307.92'	4147+84	67' Rt
PI SCL49010	3998+24.01	448115.74	1649867.22	PI Sta = 4048+14.16	PI Sta = 4089+22.64	SE Sec Cor	Sec 34 - T140N - R88W	449247.96	1653730.99								
PT	4010+09.14	449336.18	1649825.98	Delta = 12° 36' 03" (LT)	Delta = 15° 02' 32" (LT)	SW Sec Cor	Sec 34 - T140N - R88W	449334.86	1648405.68	REFERENCE MARKERS							
PC	4040+23.41	452348.73	1649724.19	Da = 0° 48' 00"	Da = 1° 00' 00"	E ¼ Cor	Sec 34 - T140N - R88W	451885.28	1653788.11	RM	NORTHING	EASTING	STATION	OFFSET			
PI SCL49011	4048+14.16	453139.03	1649697.49	R = 7,162.03'	R = 5,729.65'	W ¼ Cor	Sec 34 - T140N - R88W	451970.59	1648498.90	73	434054.05	1648507.75	3854+63	32' Rt			
PT	4055+98.54	453904.47	1649499.02	T= 790.75'	T= 756.48'	SE Sec Cor	Sec 27 - T140N - R88W	454522.61	1653845.23	74	439279.58	1648301.73	3907+21	29' Rt			
PC	4081+66.16	456389.91	1648854.57	L = 1,575.12'	L = 1,504.25'	S ¼ Cor	Sec 27 - T140N - R88W	454566.52	1651211.10	75	444551.27	1648534.99	3960+11	33' Rt			
PI SCL49012	4089+22.64	457122.17	1648664.70			SW Sec Cor	Sec 27 - T140N - R88W	454609.77	1648565.51	76	449622.23	1649849.95	4012+94	34' Rt			
PT	4096+70.42	457878.62	1648671.39	SCL49013		SCL49013		E ¼ Cor	Sec 27 - T140N - R88W	457159.35	1653880.35	77	454860.27	1649286.30	4065+77	34' Rt	
PI (Sec Cor)	4116+74.53	459882.65	1648689.09	PI Sta = 4194+53.54		W ¼ Cor	Sec 27 - T140N - R88W	457246.21	1648627.30	78	460077.43	1648722.15	4118+70	32' Rt			
PI (¼ Cor)	4143+20.67	462528.72	1648708.70	Delta = 46° 47' 22" (LT)		W ¼ Cor	Sec 28 - T140N - R88W	457313.15	1643346.70	79	465372.43	1648762.06	4171+65	29' Rt			
PI (Sec Cor)	4169+56.07	465164.03	1648729.88	Da = 1° 42' 00"		SE Sec Cor	Sec 22 - T140N - R88W	459796.08	1653915.46								
PC	4179+95.39	466203.21	1648746.80	R = 3,370.46'		SW Sec Cor	Sec 22 - T140N - R88W	459882.65	1648689.09								
PI SCL49013	4194+53.54	467661.18	1648770.55	T= 1,458.16'		S ¼ Cor	Sec 21 - T140N - R88W	459920.91	1646047.79								
PT	4207+47.80	468676.73	1647724.19	L = 2,752.41'		E ¼ Cor	Sec 22 - T140N - R88W	462431.48	1653962.72								
						W ¼ Cor	Sec 22 - T140N - R88W	462528.72	1648708.70								
NOTES:				Date Survey Completed 03/16/15		<input type="checkbox"/> Assumed Coordinates <input checked="" type="checkbox"/> All coordinates on this sheet are Morton County ground coordinates. They are derived from the "North Dakota Coordinate System of 1983", NAD83(2011) reference frame; North Dakota South Zone Combination Factor (cf) = 0.9998485				All coordinates and measurements on this document derived from the International Foot definition.		This document was originally issued and sealed by Robert D. Zahn Registration Number LS- 3659 , on 08/22/16 and the original document is stored at the North Dakota Department of Transportation					
						<input type="checkbox"/> NAVD-88 <input type="checkbox"/> NGVD-29 <input type="checkbox"/> GEOID 09 <input type="checkbox"/> _____ <input checked="" type="checkbox"/> GEOID 12A											

PRELIMINARY SURVEY COORDINATE AND CURVE DATA - GLEN ULLIN E & N TO COUNTY LINE

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	81	3

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
ND 49 (SCL49) Cont.				SCL49014		W ¼ Cor	Sec 22 - T140N - R88W	462528.72	1648708.70	CONTROL POINT DESCRIPTION					
PT	4207+47.80	468676.73	1647724.19	PI Sta = 4229+76.69		W ¼ Cor	Sec 21 - T140N - R88W	462593.11	1643425.07						
PC	4213+28.32	469081.03	1647307.61	Delta = 46° 41' 00" (RT)		SE Sec Cor	Sec 15 - T140N - R88W	465067.92	1654011.06	Primary Control					
PI SCL49014	4229+76.69	470229.07	1646124.75	Da = 1° 30' 00"		SW Sec Cor	Sec 15 - T140N - R88W	465164.03	1648729.88	GPS 5	482102.15	1646183.72	2325.18'	4346+66	69' Lt
PT	4244+40.63	471877.27	1646148.55	R = 3,819.83'		SW Sec Cor	Sec 16 - T140N - R88W	465228.82	1643442.23	¾" x 18" Rebar w/Alum Cap Stamped - "NDDOT LS 3047"					
PI	4283+31.17	475767.40	1646204.72	T= 1648.38'		E ¼ Cor	Sec 16 - T140N - R88W	467806.97	1648772.81						
County Line	4347+32.17	482168.22	1646253.13	L = 3112.32'		C ¼ Cor	Sec 16 - T140N - R88W	467840.09	1646159.13	Secondary Control					
						SE Sec Cor	Sec 9 - T140N - R88W	470449.69	1648815.97	RTK	470464.00	1646469.33	2342.90'	4229+71	67' Rt
						S ¼ Cor	Sec 9 - T140N - R88W	470488.33	1646167.88	RTK	470653.41	1646162.39	2350.20'	4232+47	161' Lt
						SW Sec Cor	Sec 9 - T140N - R88W	470516.95	1643529.98	RTK	475755.05	1646161.94	2382.27'	4283+18	43' Lt
						E ¼ Cor	Sec 9 - T140N - R88W	473089.81	1648851.18	RTK	477332.55	1646285.90	2410.49'	4298+97	69' Rt
						C ¼ Cor	Sec 9 - T140N - R88W	473128.82	1646206.34	RTK	479270.49	1646201.83	2357.20'	4318+34	29' Lt
						W ¼ Cor	Sec 9 - T140N - R88W	473167.84	1643560.69						
						SE Sec Cor	Sec 4 - T140N - R88W	475732.92	1648886.09	REFERENCE MARKERS					
						S ¼ Cor	Sec 4 - T140N - R88W	475766.88	1646244.72	RM	NORTHING	EASTING	STATION	OFFSET	
						SW Sec Cor	Sec 4 - T140N - R88W	475813.41	1643596.59	80	469986.13	1646652.12	4224+54	30' Rt	
						E ¼ Cor	Sec 4 - T140N - R88W	478359.90	1648905.38	81	475153.14	1646228.10	4277+17	32' Rt	
						C ¼ Cor	Sec 4 - T140N - R88W	478397.09	1646264.61	82	480432.79	1646273.65	4329+97	34' Rt	
						W ¼ Cor	Sec 4 - T140N - R88W	478434.28	1643624.84						
						N ¼ Cor	Sec 3 - T140N - R88W	482093.88	1650533.61						
						NE Sec Cor	Sec 4 - T140N - R88W	482121.49	1648943.69						
						N ¼ Cor	Sec 4 - T140N - R88W	482167.52	1646293.15						
						NW Sec Cor	Sec 4 - T140N - R88W	482213.25	1643677.86						
NOTES:				Date Survey Completed 03/16/15		<input type="checkbox"/> Assumed Coordinates <input checked="" type="checkbox"/> All coordinates on this sheet are Morton County ground coordinates. They are derived from the "North Dakota Coordinate System of 1983", NAD83(2011) reference frame; North Dakota South Zone Combination Factor (cf) = 0.9998485				All coordinates and measurements on this document derived from the International Foot definition.			This document was originally issued and sealed by Robert D. Zahn Registration Number LS- 3659 , on 08/22/16 and the original document is stored at the North Dakota Department of Transportation		
						<input type="checkbox"/> NAVD-88 <input type="checkbox"/> NGVD-29 <input type="checkbox"/> GEOID 09 <input type="checkbox"/> _____ <input checked="" type="checkbox"/> GEOID 12A									

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SS-NH-1-049(027)067	82	1

Chain OCL contains:
 CUR OCL-1 CUR OCL-2 CUR OCL-3 50501 50502 50503 50504 50505 50506 50507 50508
 50509 50510 50511 50512 50513 50514 50515 50516

Beginning chain OCL description
 =====
 =====

Curve Data

Curve OCL-1
 P.I. Station 1+00.25 N 422,351.9724 E 1,639,893.4353

Delta = 7° 16' 44.23" (RT)
 Degree = 3° 38' 06.71"
 Tangent = 100.2526
 Length = 200.2354
 Radius = 1,576.1391
 External = 3.1851
 Long Chord = 200.1008
 Mid. Ord. = 3.1787
 P.C. Station 0+00.00 N 422,323.0080 E 1,639,797.4580

P.T. Station 2+00.24 N 422,368.5429 E 1,639,992.3089

C.C. N 420,814.0832 E 1,640,252.8262

Back = N 73° 12' 25.43" E
 Ahead = N 80° 29' 09.67" E
 Chord Bear = N 76° 50' 47.55" E

Curve Data

Curve OCL-2
 P.I. Station 3+02.29 N 422,384.5826 E 1,640,093.0956

Delta = 4° 15' 01.20" (RT)
 Degree = 2° 04' 59.98"
 Tangent = 102.0551
 Length = 204.0165
 Radius = 2,750.2040
 External = 1.8929
 Long Chord = 203.9697
 Mid. Ord. = 1.8916
 P.C. Station 2+00.24 N 422,368.5429 E 1,639,992.3089

P.T. Station 4+04.25 N 422,393.1085 E 1,640,194.7939

C.C. N 419,652.5184 E 1,640,424.5504

Back = N 80° 57' 27.00" E
 Ahead = N 85° 12' 28.20" E
 Chord Bear = N 83° 04' 57.60" E

Curve Data

Curve OCL-3
 P.I. Station 4+99.59 N 422,400.6578 E 1,640,289.8283

Delta = 0° 35' 54.97" (RT)
 Degree = 0° 18' 50.23"
 Tangent = 95.3337
 Length = 190.6657
 Radius = 18,249.7642
 External = 0.2490
 Long Chord = 190.6649
 Mid. Ord. = 0.2490
 P.C. Station 4+04.25 N 422,393.1085 E 1,640,194.7939

P.T. Station 5+94.92 N 422,407.2139 E 1,640,384.9363

C.C. N 404,200.6546 E 1,641,639.9641

Back = N 85° 27' 29.09" E
 Ahead = N 86° 03' 24.06" E
 Chord Bear = N 85° 45' 26.58" E

Course from PT OCL-3 to 50501 N 86° 03' 24.06" E Dist 100.2362

Point 50501 N 422,414.1071 E 1,640,484.9352 Sta 6+95.15

Course from 50501 to 50502 N 86° 23' 18.34" E Dist 426.7835

Point 50502 N 422,440.9910 E 1,640,910.8711 Sta 11+21.94

Course from 50502 to 50503 N 86° 25' 15.89" E Dist 600.6003

Point 50503 N 422,478.4825 E 1,641,510.3001 Sta 17+22.54

Course from 50503 to 50504 N 86° 27' 48.92" E Dist 560.0309

Point 50504 N 422,513.0268 E 1,642,069.2646 Sta 22+82.57

Course from 50504 to 50505 N 86° 20' 07.99" E Dist 582.6492

Point 50505 N 422,550.2657 E 1,642,650.7226 Sta 28+65.22

Course from 50505 to 50506 N 86° 27' 55.21" E Dist 859.9232

Point 50506 N 422,603.2820 E 1,643,509.0100 Sta 37+25.14

Course from 50506 to 50507 N 86° 19' 43.52" E Dist 649.5462

Point 50507 N 422,644.8734 E 1,644,157.2233 Sta 43+74.69

Course from 50507 to 50508 N 86° 22' 26.17" E Dist 791.6216

Point 50508 N 422,694.9391 E 1,644,947.2601 Sta 51+66.31

Course from 50508 to 50509 N 86° 24' 47.40" E Dist 862.8982

Point 50509 N 422,748.9230 E 1,645,808.4680 Sta 60+29.21

Course from 50509 to 50510 N 86° 22' 51.13" E Dist 860.1546

Point 50510 N 422,803.2192 E 1,646,666.9072 Sta 68+89.36

Course from 50510 to 50511 N 86° 28' 36.88" E Dist 261.0462

Point 50511 N 422,819.2607 E 1,646,927.4600 Sta 71+50.41

Course from 50511 to 50512 N 86° 05' 59.47" E Dist 211.6521

Point 50512 N 422,833.6568 E 1,647,138.6219 Sta 73+62.06

Course from 50512 to 50513 N 85° 50' 24.15" E Dist 82.4468

Point 50513 N 422,839.6376 E 1,647,220.8515 Sta 74+44.51

Course from 50513 to 50514 N 84° 42' 36.26" E Dist 279.5177

Point 50514 N 422,865.4079 E 1,647,499.1787 Sta 77+24.02

Course from 50514 to 50515 N 83° 46' 51.44" E Dist 167.8383

Point 50515 N 422,883.5898 E 1,647,666.0292 Sta 78+91.86

Course from 50515 to 50516 N 83° 17' 01.08" E Dist 187.8659

Point 50516 N 422,905.5615 E 1,647,852.6059 Sta 80+79.73

=====

Ending chain OCL description

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Office Alignment Data

Widening, Sliver Grading, HBP Overlay, and Guardrail

Glen Ullin East & North to County Line

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SS-NH-1-049(027)067	82	2

Chain OCL2 contains:
50600 CUR OCL2-1 CUR OCL2-2 CUR OCL2-3 CUR OCL2-4 50601 50602 50603 50604
CUR -
OCL2-5 50605 50606

Beginning chain OCL2 description
=====

Point 50600 N 439,059.4524 E 1,648,267.6202 Sta 3905+00.00

Course from 50600 to PC OCL2-1 N 1° 14' 18.37" E Dist 4,355.0918

Curve Data

Curve OCL2-1
P.I. Station 3959+11.29 N 444,469.4777 E 1,648,384.5750

Delta = 20° 53' 21.05" (RT)
Degree = 0° 59' 59.95"
Tangent = 1,056.1975
Length = 2,088.9444
Radius = 5,729.6500
External = 96.5359
Long Chord = 2,077.3941
Mid. Ord. = 94.9364
P.C. Station 3948+55.09 N 443,413.5269 E 1,648,361.7473

P.T. Station 3969+44.04 N 445,447.8833 E 1,648,782.4138

C.C. N 443,289.6913 E 1,654,090.0589

Back = N 1° 14' 18.37" E
Ahead = N 22° 07' 39.43" E
Chord Bear = N 11° 40' 58.90" E

Course from PT OCL2-1 to PC OCL2-2 N 22° 07' 39.43" E Dist 1,658.8323

Curve Data

Curve OCL2-2
P.I. Station 3998+24.01 N 448,115.7365 E 1,649,867.2150

Delta = 24° 03' 46.08" (LT)
Degree = 1° 00' 00.01"
Tangent = 1,221.1389
Length = 2,406.2746
Radius = 5,729.5650
External = 128.6852
Long Chord = 2,388.6295
Mid. Ord. = 125.8584
P.C. Station 3986+02.87 N 446,984.5379 E 1,649,407.2476

P.T. Station 4010+09.14 N 449,336.1790 E 1,649,825.9785

C.C. N 449,142.6980 E 1,644,099.6813

Back = N 22° 07' 39.43" E
Ahead = N 1° 56' 06.66" W
Chord Bear = N 10° 05' 46.38" E

Course from PT OCL2-2 to PC OCL2-3 N 1° 56' 06.66" W Dist 3,014.2682

Curve Data

Curve OCL2-3
P.I. Station 4048+14.16 N 453,139.0288 E 1,649,697.4872

Delta = 12° 36' 03.20" (LT)
Degree = 0° 47' 59.98"

Tangent = 790.7518
Length = 1,575.1239
Radius = 7,162.0300
External = 43.5208
Long Chord = 1,571.9514
Mid. Ord. = 43.2579
P.C. Station 4040+23.41 N 452,348.7280 E 1,649,724.1900

P.T. Station 4055+98.54 N 453,904.4685 E 1,649,499.0169

C.C. N 452,106.8743 E 1,642,566.2448

Back = N 1° 56' 06.66" W
Ahead = N 14° 32' 09.86" W
Chord Bear = N 8° 14' 08.26" W

Course from PT OCL2-3 to PC OCL2-4 N 14° 32' 09.86" W Dist 2,567.6288

Curve Data

Curve OCL2-4
P.I. Station 4089+22.64 N 457,122.1689 E 1,648,664.7013

Delta = 15° 02' 32.45" (RT)
Degree = 0° 59' 59.95"
Tangent = 756.4769
Length = 1,504.2535
Radius = 5,729.6500
External = 49.7225
Long Chord = 1,499.9371
Mid. Ord. = 49.2947
P.C. Station 4081+66.16 N 456,389.9070 E 1,648,854.5690

P.T. Station 4096+70.42 N 457,878.6163 E 1,648,671.3856

C.C. N 457,827.9889 E 1,654,400.8119

Back = N 14° 32' 09.86" W
Ahead = N 0° 30' 22.59" E
Chord Bear = N 7° 00' 53.64" W

Course from PT OCL2-4 to 50601 N 0° 30' 22.59" E Dist 2,004.1162

Point 50601 N 459,882.6542 E 1,648,689.0940 Sta 4116+74.53

Course from 50601 to 50602 N 0° 25' 27.97" E Dist 2,646.1383

Point 50602 N 462,528.7199 E 1,648,708.6959 Sta 4143+20.67

Course from 50602 to 50603 N 0° 27' 37.64" E Dist 2,635.3966

Point 50603 N 465,164.0314 E 1,648,729.8750 Sta 4169+56.07

Course from 50603 to 50604 N 0° 24' 59.82" E Dist 781.1962

Point 50604 N 465,945.2069 E 1,648,735.5553 Sta 4177+37.26

Course from 50604 to PC OCL2-5 N 0° 16' 37.27" E Dist 258.1713

Curve Data

Curve OCL2-5
P.I. Station 4194+49.40 N 467,657.1461 E 1,648,760.7569

Delta = 46° 25' 02.50" (LT)
Degree = 1° 41' 22.82"
Tangent = 1,453.9682
Length = 2,747.1243
Radius = 3,390.9430
External = 298.5716
Long Chord = 2,672.6136
Mid. Ord. = 274.4099
P.C. Station 4179+95.44 N 466,203.3752 E 1,648,736.8035

P.T. Station 4207+42.56 N 468,676.7272 E 1,647,724.1866

C.C. N 466,259.2392 E 1,645,346.3207

Back = N 0° 56' 38.26" E
Ahead = N 45° 28' 24.25" W
Chord Bear = N 22° 15' 52.99" W

Course from PT OCL2-5 to 50605 N 45° 51' 22.19" W Dist 580.5143

Point 50605 N 469,081.0334 E 1,647,307.6132 Sta 4213+23.07

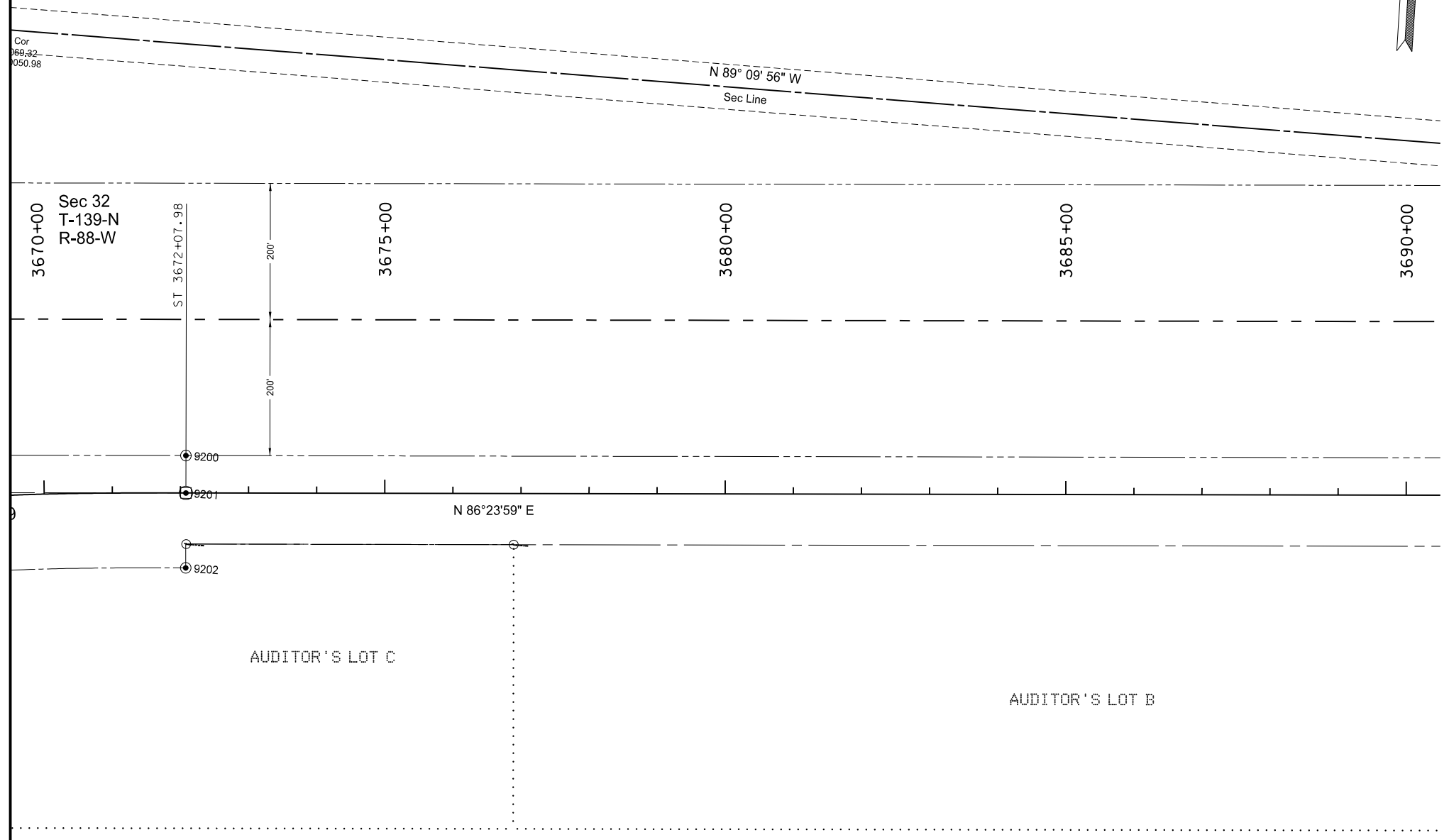
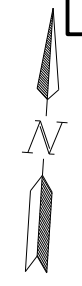
Course from 50605 to 50606 N 45° 19' 06.78" W Dist 71.6831

Point 50606 N 469,131.4384 E 1,647,256.6446 Sta 4213+94.76

=====
Ending chain OCL2 description

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Office Alignment Data
Widening, Sliver Grading, HBP Overlay, and Guardrail
Glen Ullin East & North to County Line



Right of Way/Reference Monuments and Markers

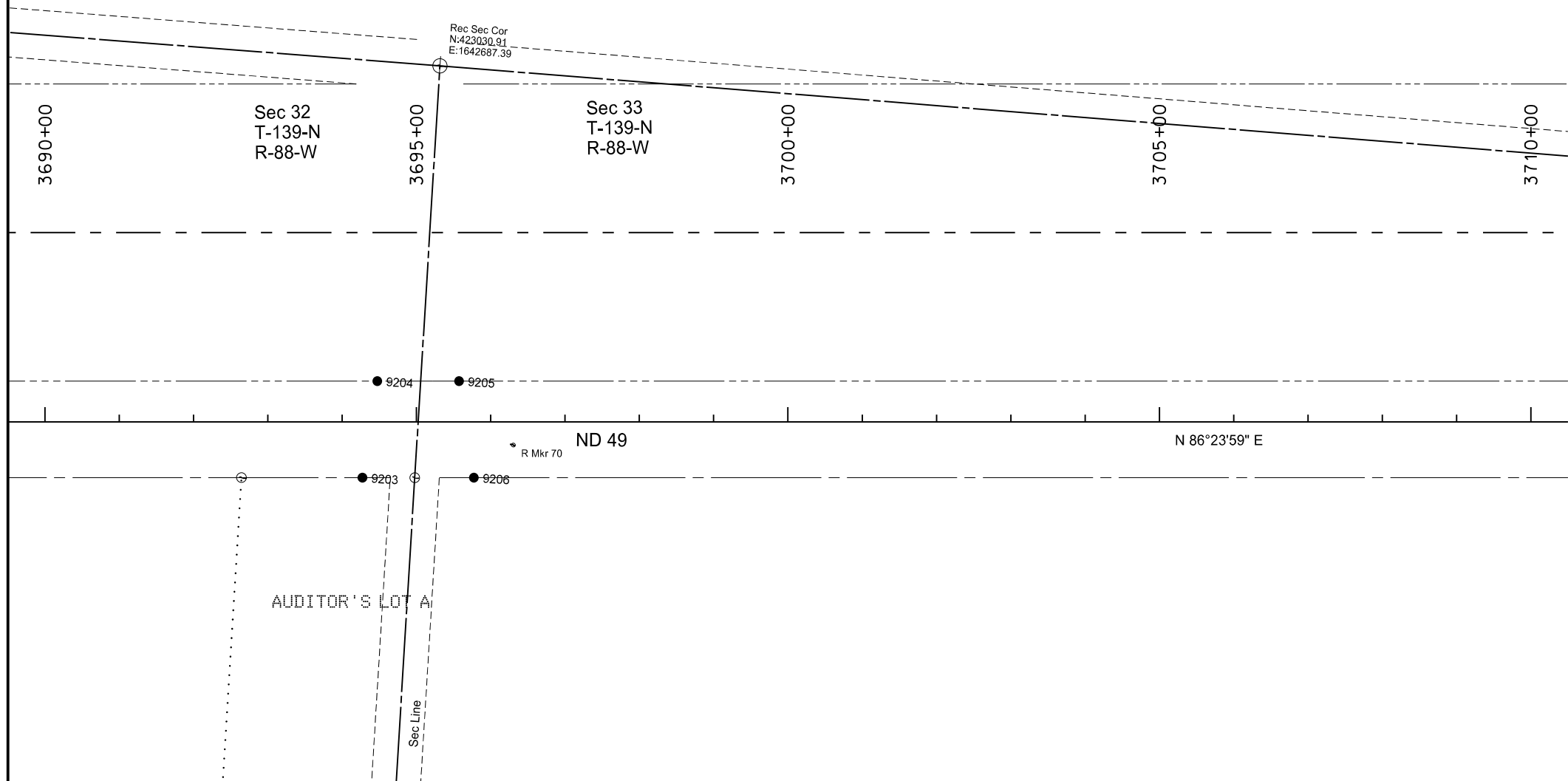
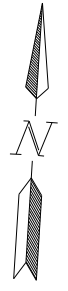
Point	North	East	Station	Offset	Iron Pin R/W Monument	R/W Marker (witness post)	Iron Pin Reference Monument
9200	422461.4699	1640395.021	3672+07.98	-54.9986	X	X	
9202	422296.7955	1640405.382	3672+07.98	110.0014	X	X	

Alignment Monuments

Point	North	East	Station	Offset	Description	Monument per standard D-720-1
9201	422406.5797	1640398.472	3672+07.98	0	ST	X

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Survey Data Layouts for Right of Way Markers and Monuments
 Widening, Sliver Grading, HBP Overlay, & Guardrail
 Glen Ullin East & North to County Line



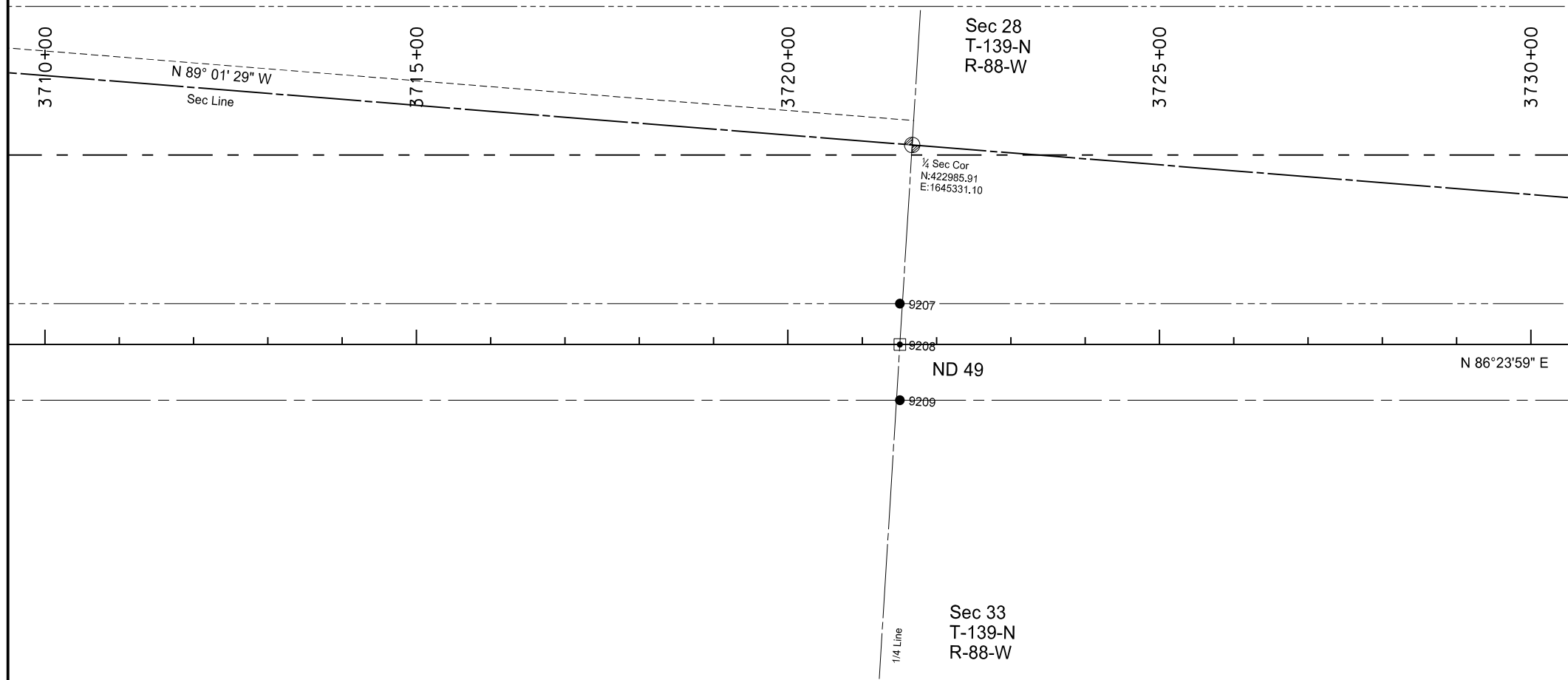
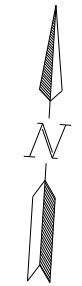
Right of Way/Reference Monuments and Markers

Point	North	East	Station	Offset	Iron Pin R/W Monument	R/W Marker (witness post)	Iron Pin Reference Monument
9203	422471.0874	1642618.106	3694+27.28	75		X	X
9204	422602.0867	1642629.903	3694+47.28	-55		X	X
9205	422608.9941	1642739.686	3695+57.28	-55		X	X
9206	422480.5065	1642767.81	3695+77.28	75		X	X

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Survey Data Layouts for
Right of Way Markers and Monuments

Widening, Sliver Grading, HBP Overlay, & Guardrail
Glen Ullin East & North to County Line



Right of Way/Reference Monuments and Markers

Point	North	East	Station	Offset	Iron Pin R/W Monument	R/W Marker (witness post)	Iron Pin Reference Monument
9207	422771.8443	1645327.96	3721+50.67	-55		X	X
9209	422642.1009	1645336.123	3721+50.67	75		X	X

Alignment Monuments

Point	North	East	Station	Offset	Description	Monument per standard D-720-1
9208	422716.9529	1645331.414	3721+50.67	0	QTR COR	X

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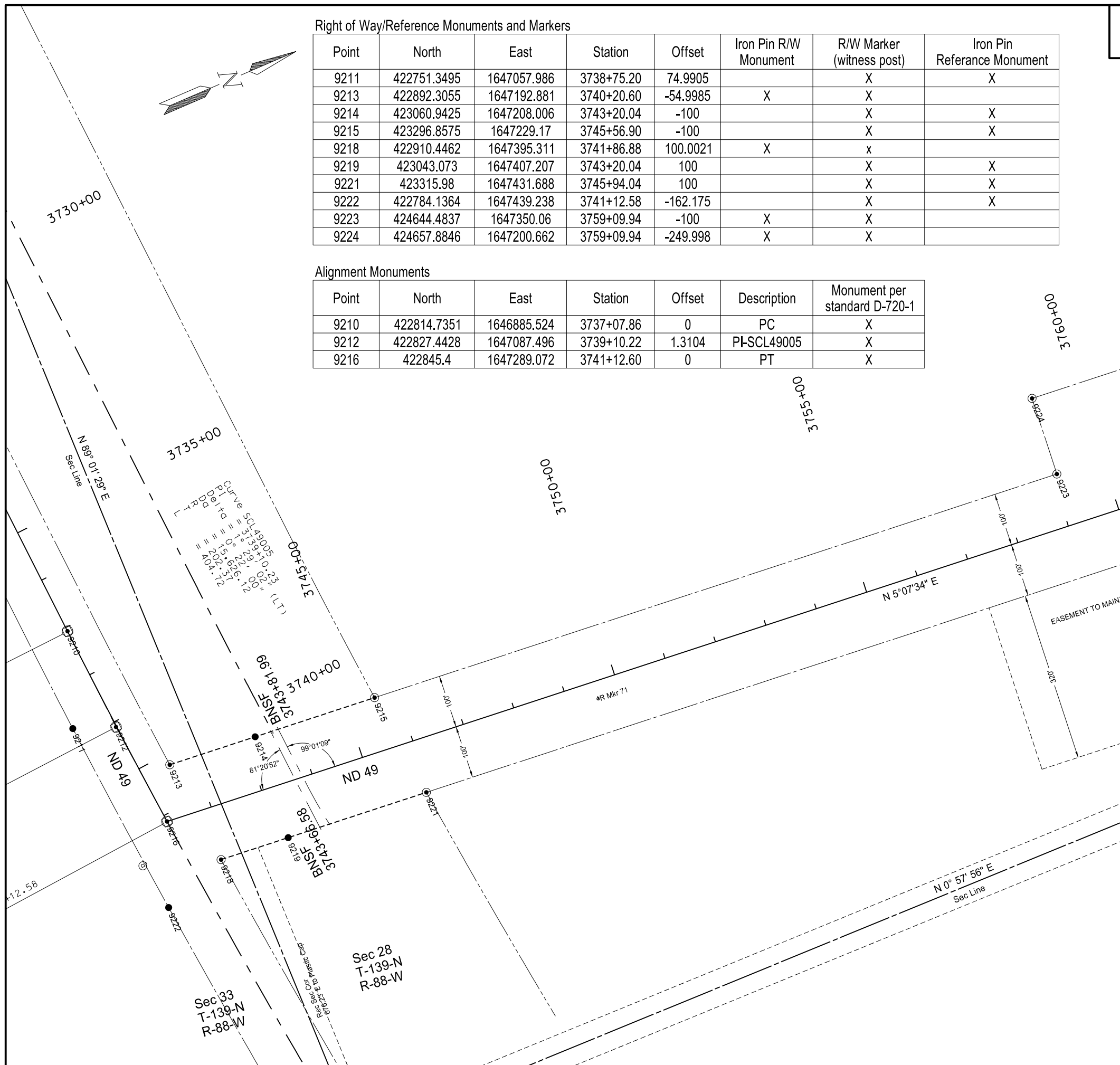
Survey Data Layouts for Right of Way Markers and Monuments
 Widening, Sliver Grading, HBP Overlay, & Guardrail
 Glen Ullin East & North to County Line

Right of Way/Reference Monuments and Markers

Point	North	East	Station	Offset	Iron Pin R/W Monument	R/W Marker (witness post)	Iron Pin Reference Monument
9211	422751.3495	1647057.986	3738+75.20	74.9905		X	X
9213	422892.3055	1647192.881	3740+20.60	-54.9985	X	X	
9214	423060.9425	1647208.006	3743+20.04	-100		X	X
9215	423296.8575	1647229.17	3745+56.90	-100		X	X
9218	422910.4462	1647395.311	3741+86.88	100.0021	X	x	
9219	423043.073	1647407.207	3743+20.04	100		X	X
9221	423315.98	1647431.688	3745+94.04	100		X	X
9222	422784.1364	1647439.238	3741+12.58	-162.175		X	X
9223	424644.4837	1647350.06	3759+09.94	-100	X	X	
9224	424657.8846	1647200.662	3759+09.94	-249.998	X	X	

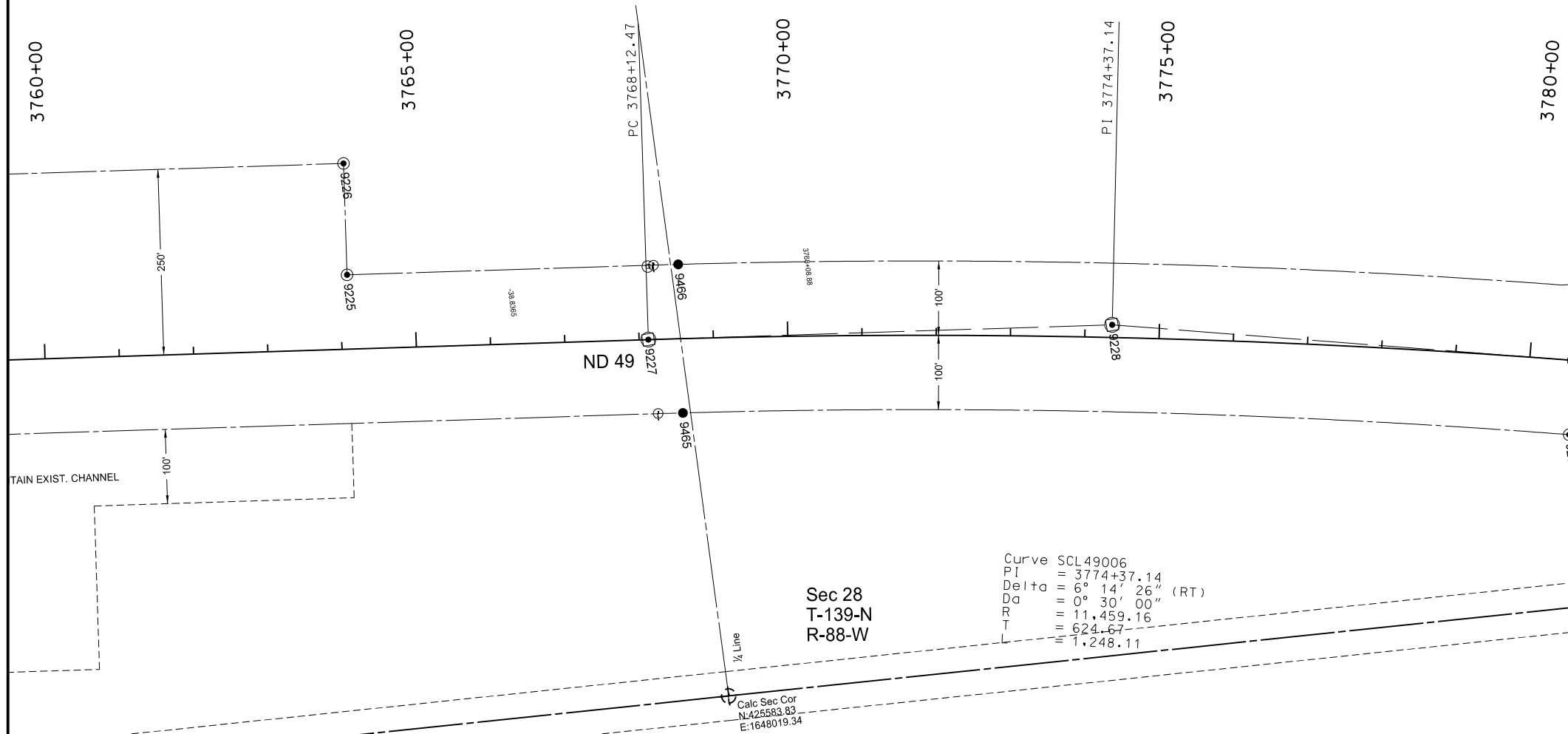
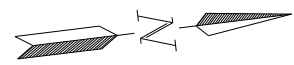
Alignment Monuments

Point	North	East	Station	Offset	Description	Monument per standard D-720-1
9210	422814.7351	1646885.524	3737+07.86	0	PC	X
9212	422827.4428	1647087.496	3739+10.22	1.3104	PI-SCL49005	X
9216	422845.4	1647289.072	3741+12.60	0	PT	X



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Survey Data Layouts for Right of Way Markers and Monuments
 Widening, Sliver Grading, HBP Overlay, & Guardrail
 Glen Ullin East & North to County Line



Sec 28
T-139-N
R-88-W

Curve SCL49006
PI = 3774+37.14
Delta = 6° 14' 26" (RT)
Da = 0° 30' 00"
R = 11,459.16
T = 624.67
L = 1,248.11

Right of Way/Reference Monuments and Markers

Point	North	East	Station	Offset	Iron Pin R/W Monument	R/W Marker (witness post)	Iron Pin Reference Monument
9225	425142.4827	1647394.736	3764+09.94	-99.9979	x	x	
9226	425155.8848	1647245.336	3764+09.94	-249.998	x	x	
9465	425568.7447	1647633.859	3768+56.24	100		x	x
9466	425586.6144	1647434.657	3768+55.48	-100		x	x

Alignment Monuments

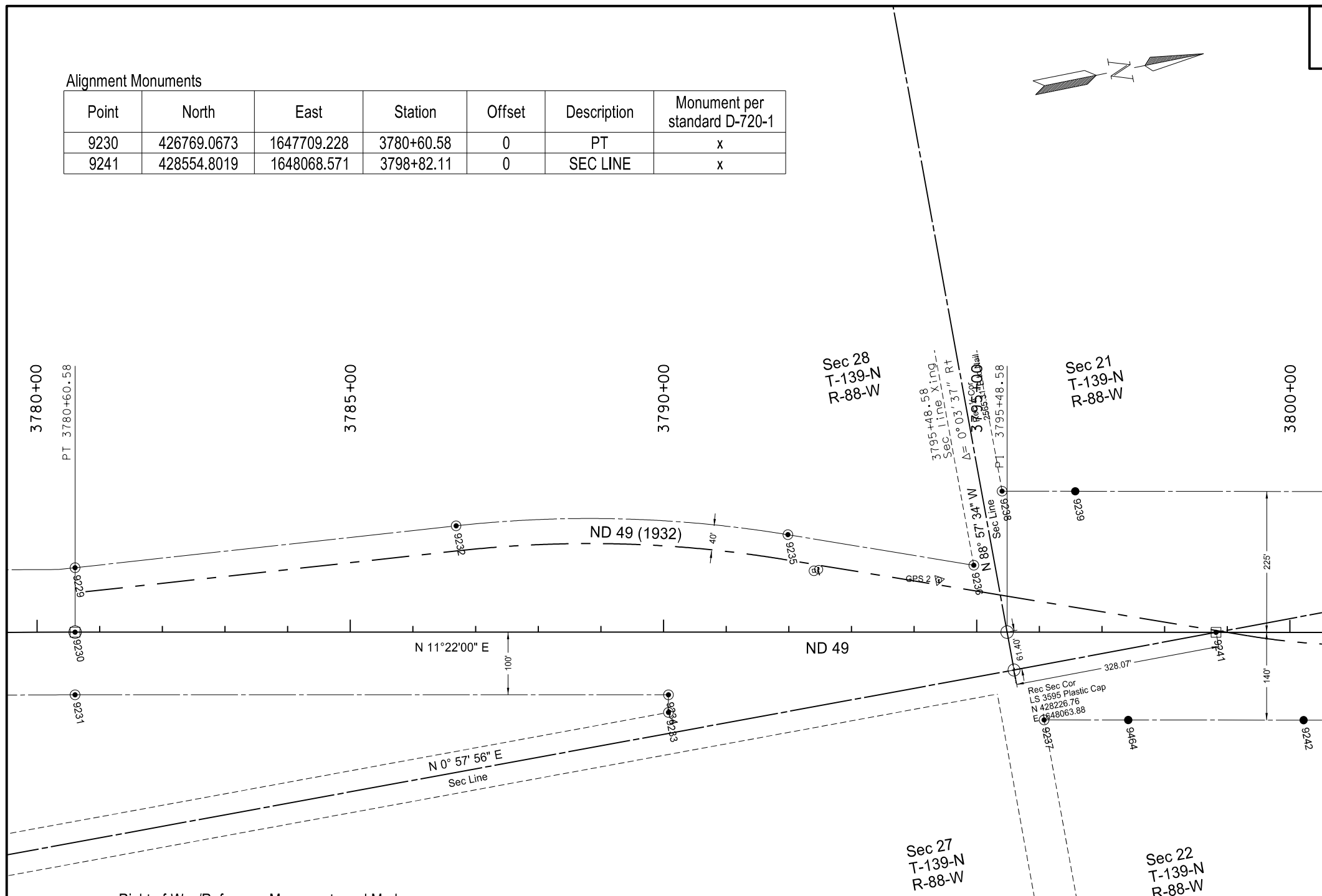
Point	North	East	Station	Offset	Description	Monument per standard D-720-1
9227	425534.4689	1647530.299	3768+12.47	0	PC	x
9228	426156.6451	1647586.113	3774+36.52	-17.0138	PI-SCL49006	x

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Glen Ullin East & North to County Line

Alignment Monuments

Point	North	East	Station	Offset	Description	Monument per standard D-720-1
9230	426769.0673	1647709.228	3780+60.58	0	PT	x
9241	428554.8019	1648068.571	3798+82.11	0	SEC LINE	x

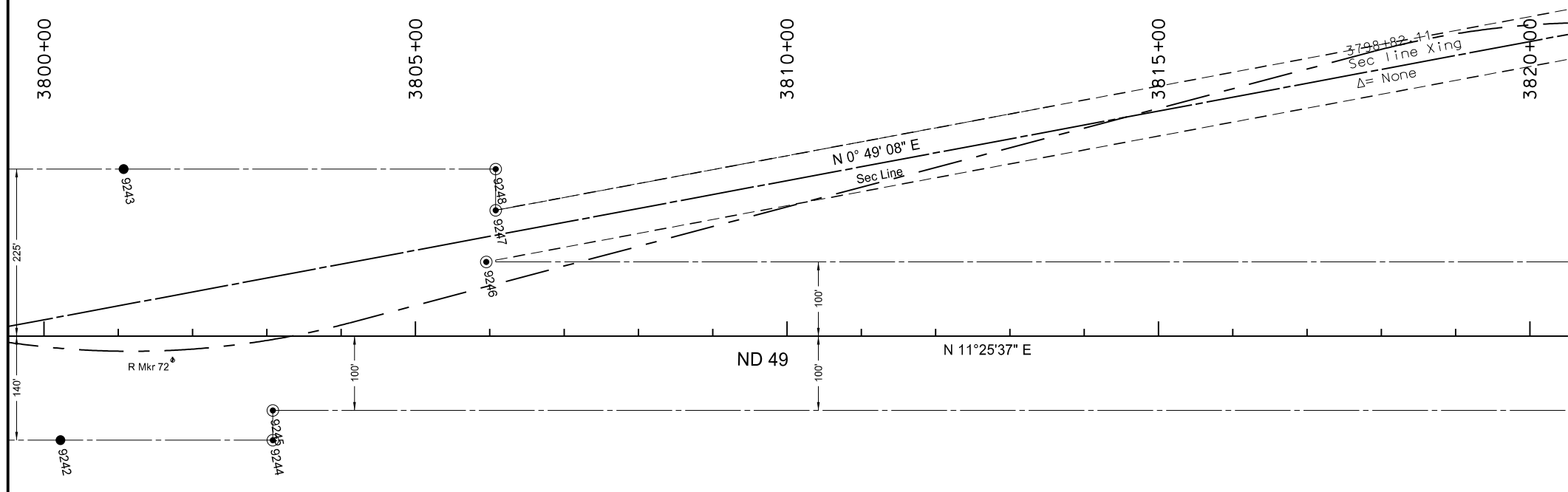
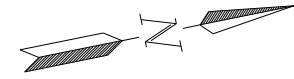


Right of Way/Reference Monuments and Markers

Point	North	East	Station	Offset	Iron Pin R/W Monument	R/W Marker (witness post)	Iron Pin Reference Monument
9229	426789.3392	1647608.397	3780+60.58	-102.849	x	x	
9231	426749.3586	1647807.266	3780+60.58	100	x	x	
9232	427398.8517	1647662.696	3786+68.84	-169.741	x	x	
9233	427672.5331	1648021.538	3790+07.88	128.1233	x	x	
9234	427678.0759	1647993.966	3790+07.88	100	x	x	
9235	427915.3534	1647780.985	3791+98.53	-155.568	x	x	
9236	428196.7968	1647887.376	3794+95.42	-106.732	x	x	
9237	428258.1811	1648151.449	3796+07.79	140.0014	x	x	
9238	428264.4193	1647780.328	3795+40.62	-225.009	x	x	
9239	428378.8382	1647803.454	3796+57.11	-225		x	x
9464	428389.8406	1648178.06	3797+42.11	140		x	x
9242	428664.2905	1648233.532	3800+22.11	140		x	x

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 Widening, Sliver Grading, HBP Overlay, & Guardrail
 Glen Ullin East & North to County Line

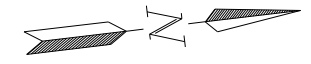


Right of Way/Reference Monuments and Markers

Point	North	East	Station	Offset	Iron Pin R/W Monument	R/W Marker (witness post)	Iron Pin Reference Monument
9243	428819.9184	1647892.607	3801+07.11	-225		x	x
9244	428944.3923	1648290.148	3803+07.88	140	x	x	
9245	428952.317	1648250.94	3803+07.88	100	x	x	
9246	429273.6758	1648111.852	3805+95.31	-99.9986	x	x	
9247	429299.7649	1648046.218	3806+07.88	-169.5	x	x	
9248	429310.7601	1647991.819	3806+07.88	-224.999	x	x	

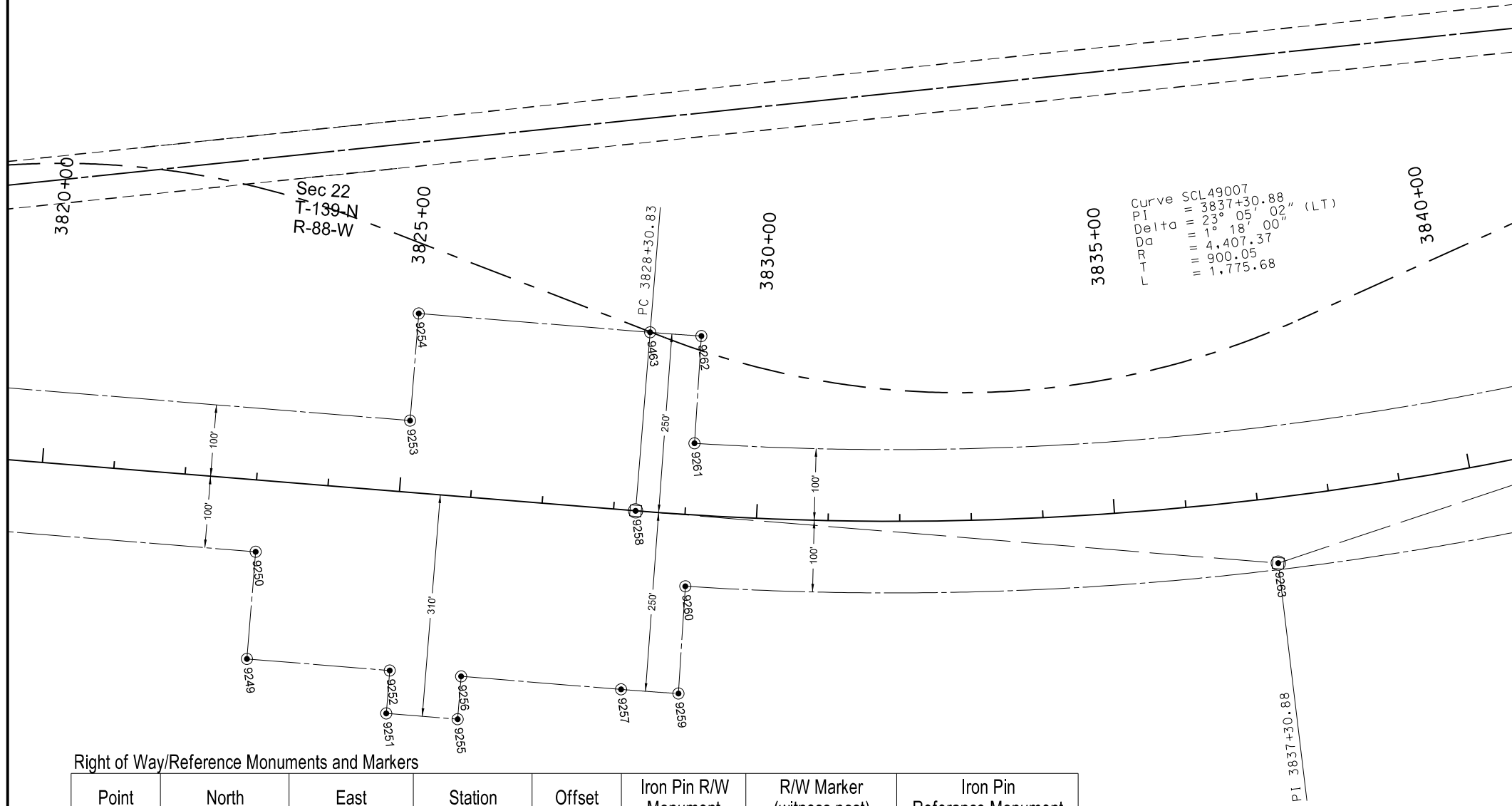
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Survey Data Layouts for Right of Way Markers and Monuments
 Widening, Sliver Grading, HBP Overlay, & Guardrail
 Glen Ullin East & North to County Line



Alignment Monuments

Point	North	East	Station	Offset	Description	Monument per standard D-720-1
9258	431445.0756	1648652.764	3828+30.83	0	PC	x
9263	432327.283	1648831.079	3837+18.67	90.9626	PI-SCL49007	x

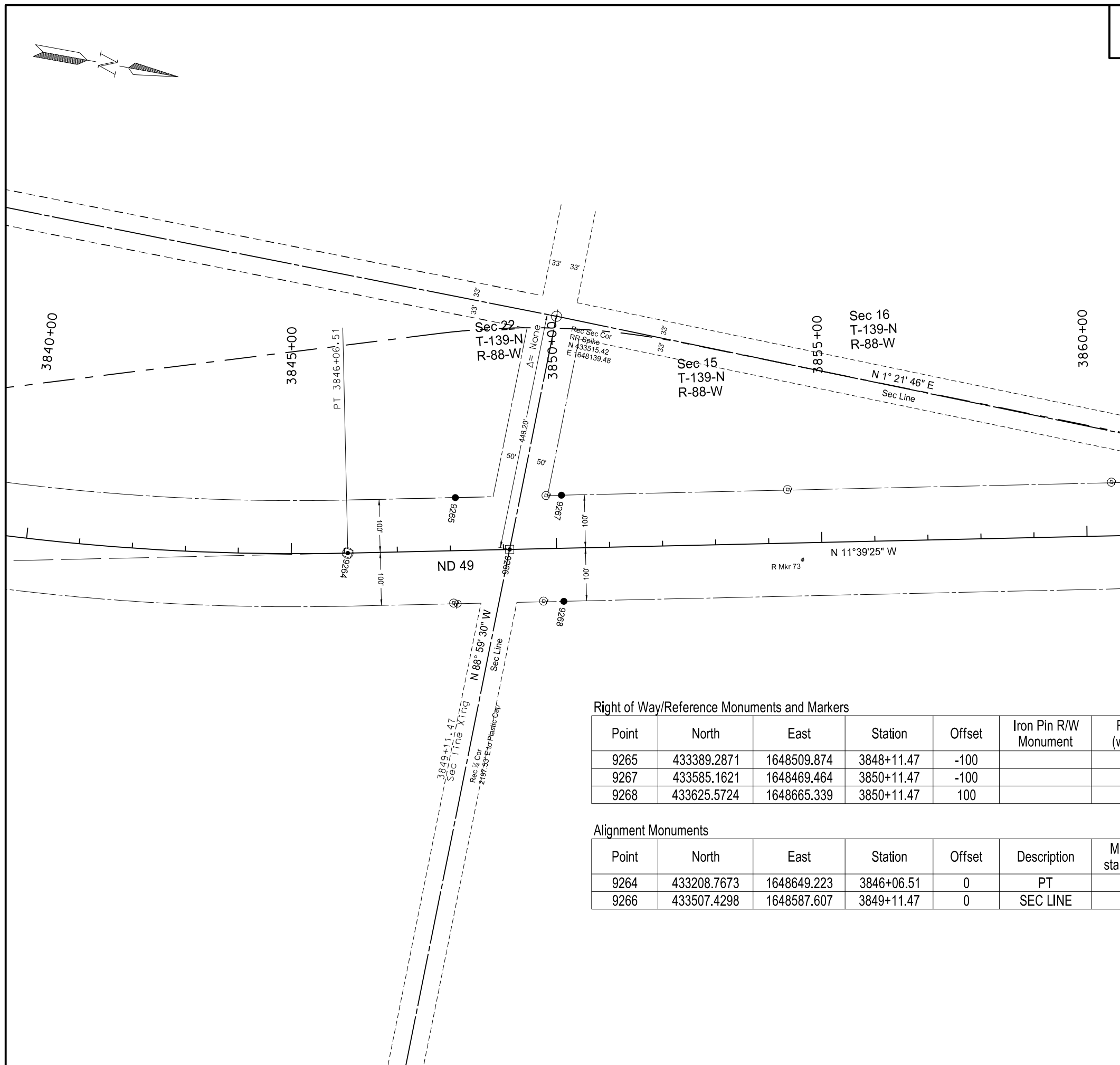


Right of Way/Reference Monuments and Markers

Point	North	East	Station	Offset	Iron Pin R/W Monument	R/W Marker (witness post)	Iron Pin Reference Monument
9249	430881.9329	1648793.995	3823+06.83	250	x	x	
9250	430911.652	1648646.97	3823+06.84	100.0014	x	x	
9251	431066.0831	1648892.431	3825+06.84	310.0014	x	x	
9252	431077.9701	1648833.62	3825+06.84	250.0014	x	x	
9253	431147.3111	1648490.558	3825+06.84	-99.9986	x	x	
9254	431177.0287	1648343.531	3825+06.84	-249.999	x	x	
9255	431164.0993	1648912.241	3826+06.83	310	x	x	
9256	431175.9864	1648853.43	3826+06.83	250	x	x	
9257	431395.5479	1648897.81	3828+30.84	250.0014	x	x	
9463	431494.6065	1648407.721	3828+30.84	249.9986	x	x	
9259	431474.4019	1648913.042	3829+06.84	250.0014	x	x	
9260	431501.5798	1648765.525	3829+06.84	100.0014	x	x	
9261	431537.8171	1648568.835	3829+06.84	-99.9986	x	x	
9262	431564.995	1648421.317	3829+06.84	-249.999	x	x	

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 Widening, Sliver Grading, HBP Overlay, & Guardrail
 Glen Ullin East & North to County Line



Right of Way/Reference Monuments and Markers

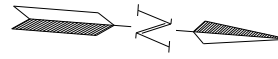
Point	North	East	Station	Offset	Iron Pin R/W Monument	R/W Marker (witness post)	Iron Pin Reference Monument
9265	433389.2871	1648509.874	3848+11.47	-100		x	x
9267	433585.1621	1648469.464	3850+11.47	-100		x	x
9268	433625.5724	1648665.339	3850+11.47	100		x	x

Alignment Monuments

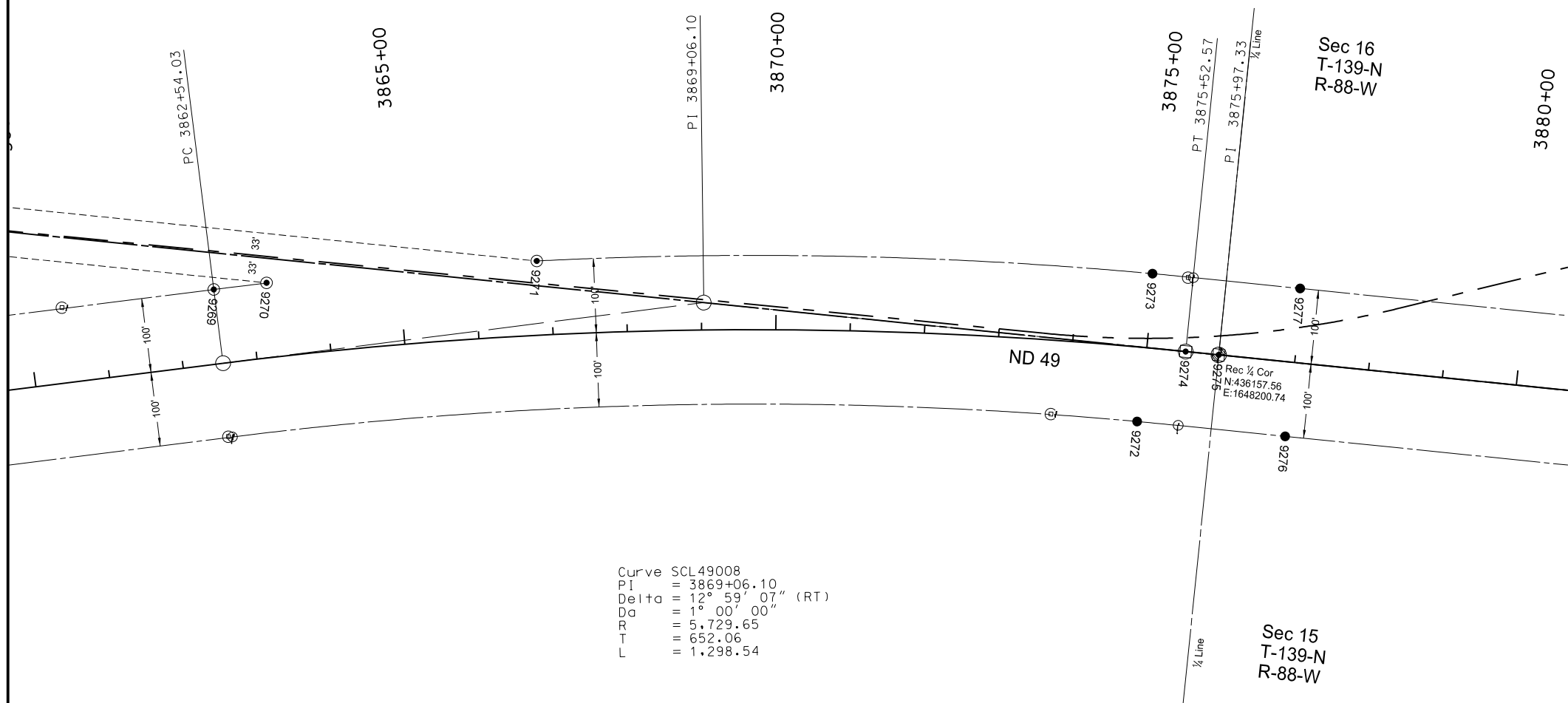
Point	North	East	Station	Offset	Description	Monument per standard D-720-1
9264	433208.7673	1648649.223	3846+06.51	0	PT	x
9266	433507.4298	1648587.607	3849+11.47	0	SEC LINE	x

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Survey Data Layouts for Right of Way Markers and Monuments
 Widening, Sliver Grading, HBP Overlay, & Guardrail
 Glen Ullin East & North to County Line



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	082	12



Curve SCL49008
 PI = 3869+06.10
 Delta = 12° 59' 07" (RT)
 Da = 1° 00' 00"
 R = 5,729.65
 T = 652.06
 L = 1,298.54

Right of Way/Reference Monuments and Markers

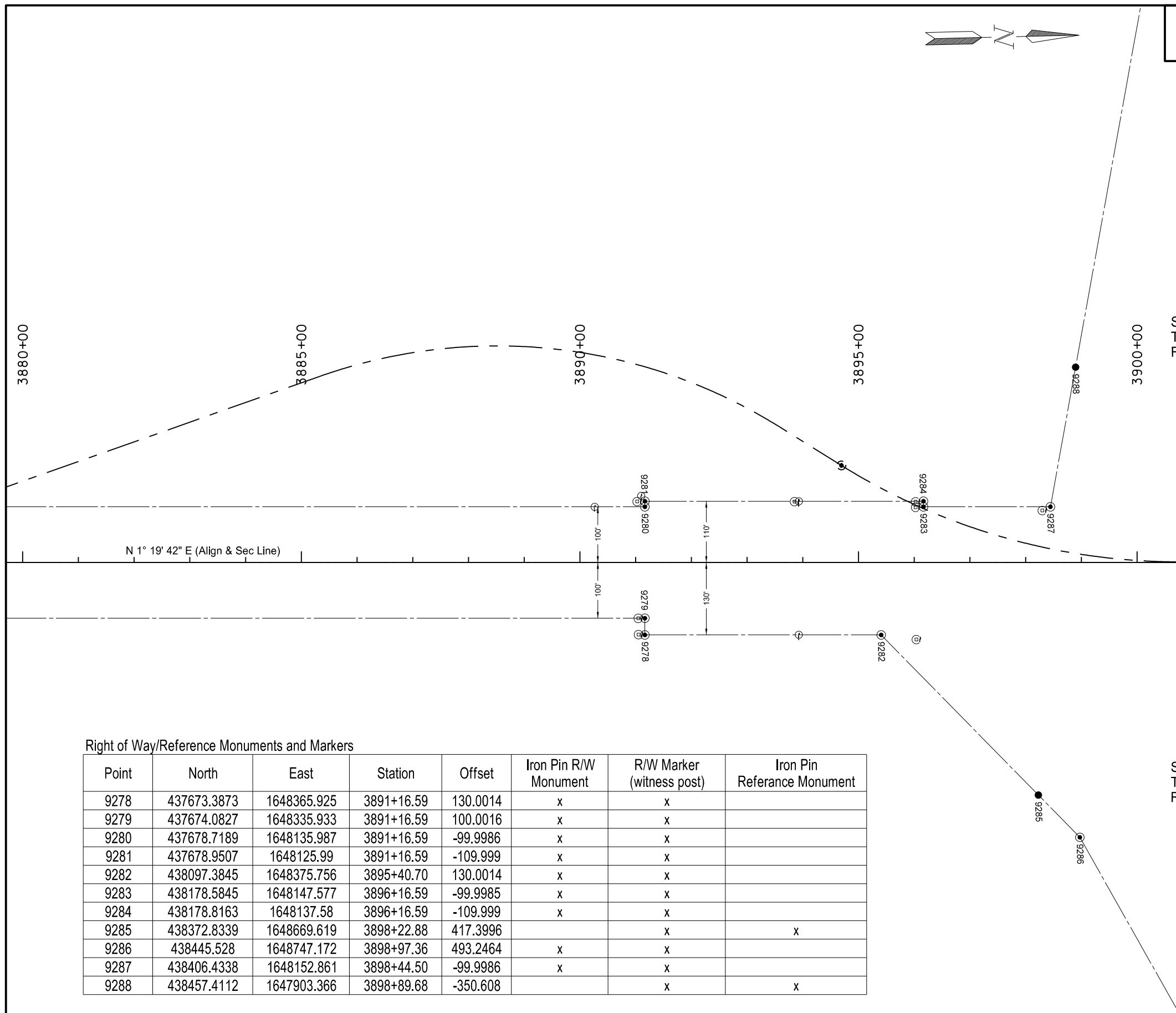
Point	North	East	Station	Offset	Iron Pin R/W Monument	R/W Marker (witness post)	Iron Pin Reference Monument
9269	434802.1033	1648218.403	3862+54.04	-99.9982	x	x	
9270	434872.1717	1648203.947	3863+24.35	-100.438	x	x	
9271	435232.5175	1648146.284	3866+83.06	-99.9987	x	x	
9272	436054.9851	1648298.664	3874+96.07	100		x	x
9273	436060.1556	1648098.716	3874+98.54	-100		x	x
9276	436255.2124	1648303.033	3876+97.33	100.0005		x	x
9277	436259.8481	1648103.086	3876+97.33	-100		x	x

Alignment Monuments

Point	North	East	Station	Offset	Description	Monument per standard D-720-1
9274	436112.8082	1648199.704	3875+52.57	0	PT	x
9275	436157.5482	1648200.741	3875+97.32	0	QTR COR	x

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Survey Data Layouts for Right of Way Markers and Monuments
 Widening, Sliver Grading, HBP Overlay, & Guardrail
 Glen Ullin East & North to County Line

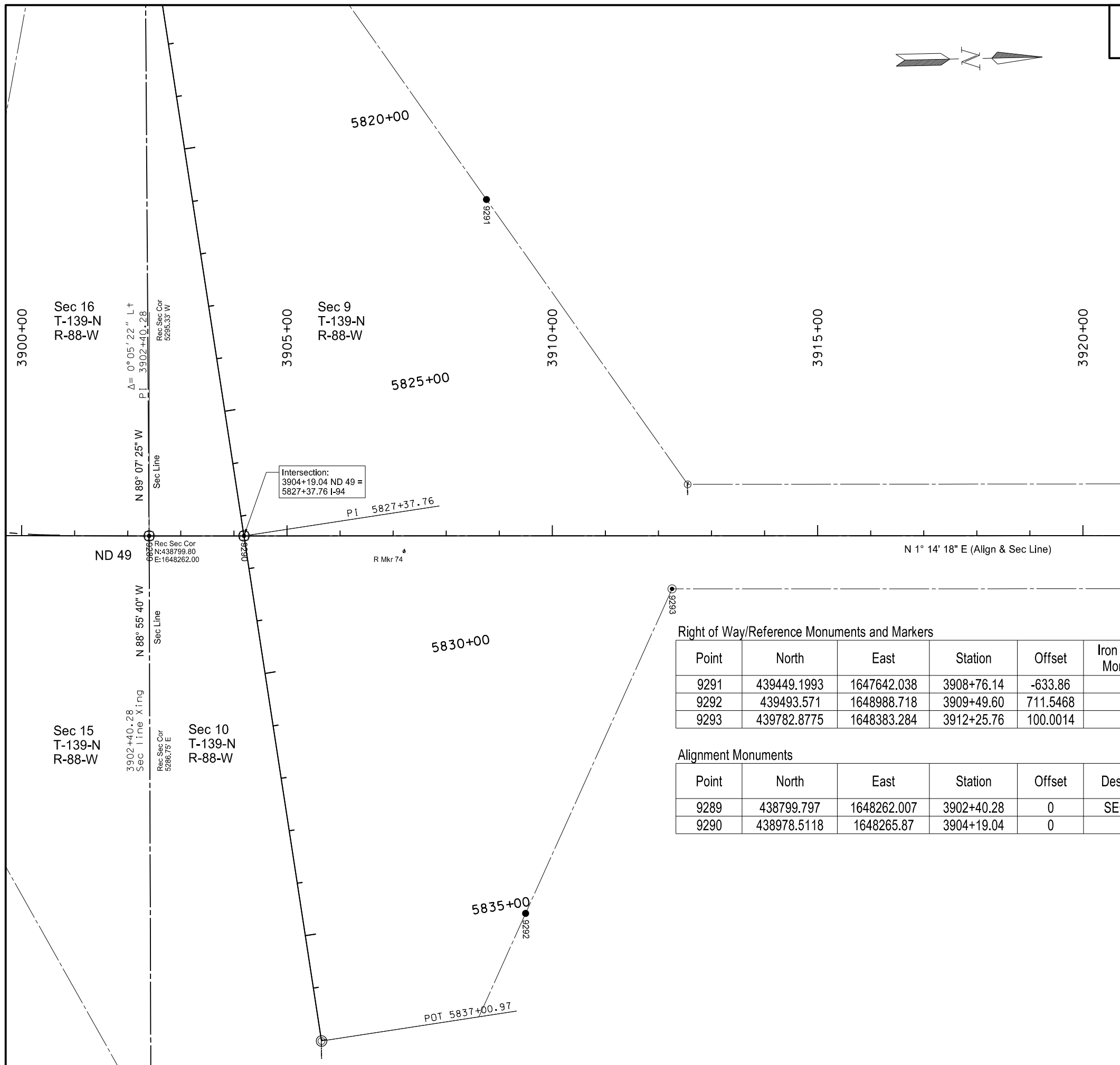
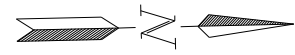


Right of Way/Reference Monuments and Markers

Point	North	East	Station	Offset	Iron Pin R/W Monument	R/W Marker (witness post)	Iron Pin Reference Monument
9278	437673.3873	1648365.925	3891+16.59	130.0014	x	x	
9279	437674.0827	1648335.933	3891+16.59	100.0016	x	x	
9280	437678.7189	1648135.987	3891+16.59	-99.9986	x	x	
9281	437678.9507	1648125.99	3891+16.59	-109.999	x	x	
9282	438097.3845	1648375.756	3895+40.70	130.0014	x	x	
9283	438178.5845	1648147.577	3896+16.59	-99.9985	x	x	
9284	438178.8163	1648137.58	3896+16.59	-109.999	x	x	
9285	438372.8339	1648669.619	3898+22.88	417.3996		x	x
9286	438445.528	1648747.172	3898+97.36	493.2464	x	x	
9287	438406.4338	1648152.861	3898+44.50	-99.9986	x	x	
9288	438457.4112	1647903.366	3898+89.68	-350.608		x	x

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Survey Data Layouts for Right of Way Markers and Monuments
 Widening, Sliver Grading, HBP Overlay, & Guardrail
 Glen Ullin East & North to County Line



Right of Way/Reference Monuments and Markers

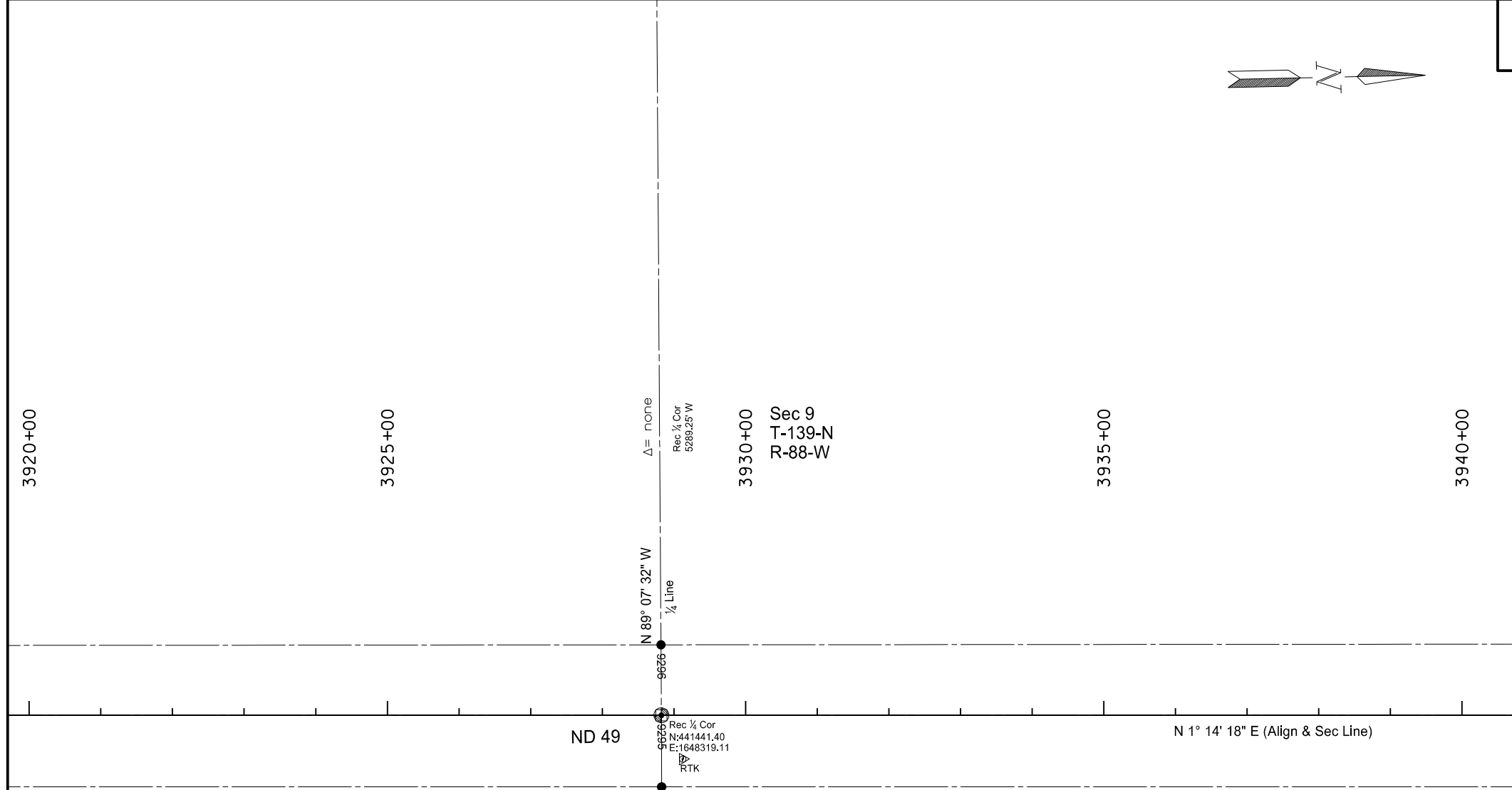
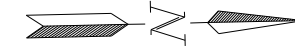
Point	North	East	Station	Offset	Iron Pin R/W Monument	R/W Marker (witness post)	Iron Pin Reference Monument
9291	439449.1993	1647642.038	3908+76.14	-633.86		x	x
9292	439493.571	1648988.718	3909+49.60	711.5468		x	x
9293	439782.8775	1648383.284	3912+25.76	100.0014	x	x	

Alignment Monuments

Point	North	East	Station	Offset	Description	Monument per standard D-720-1
9289	438799.797	1648262.007	3902+40.28	0	SEC COR	x
9290	438978.5118	1648265.87	3904+19.04	0	PI	x

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Survey Data Layouts for Right of Way Markers and Monuments
 Widening, Sliver Grading, HBP Overlay, & Guardrail
 Glen Ullin East & North to County Line



Right of Way/Reference Monuments and Markers

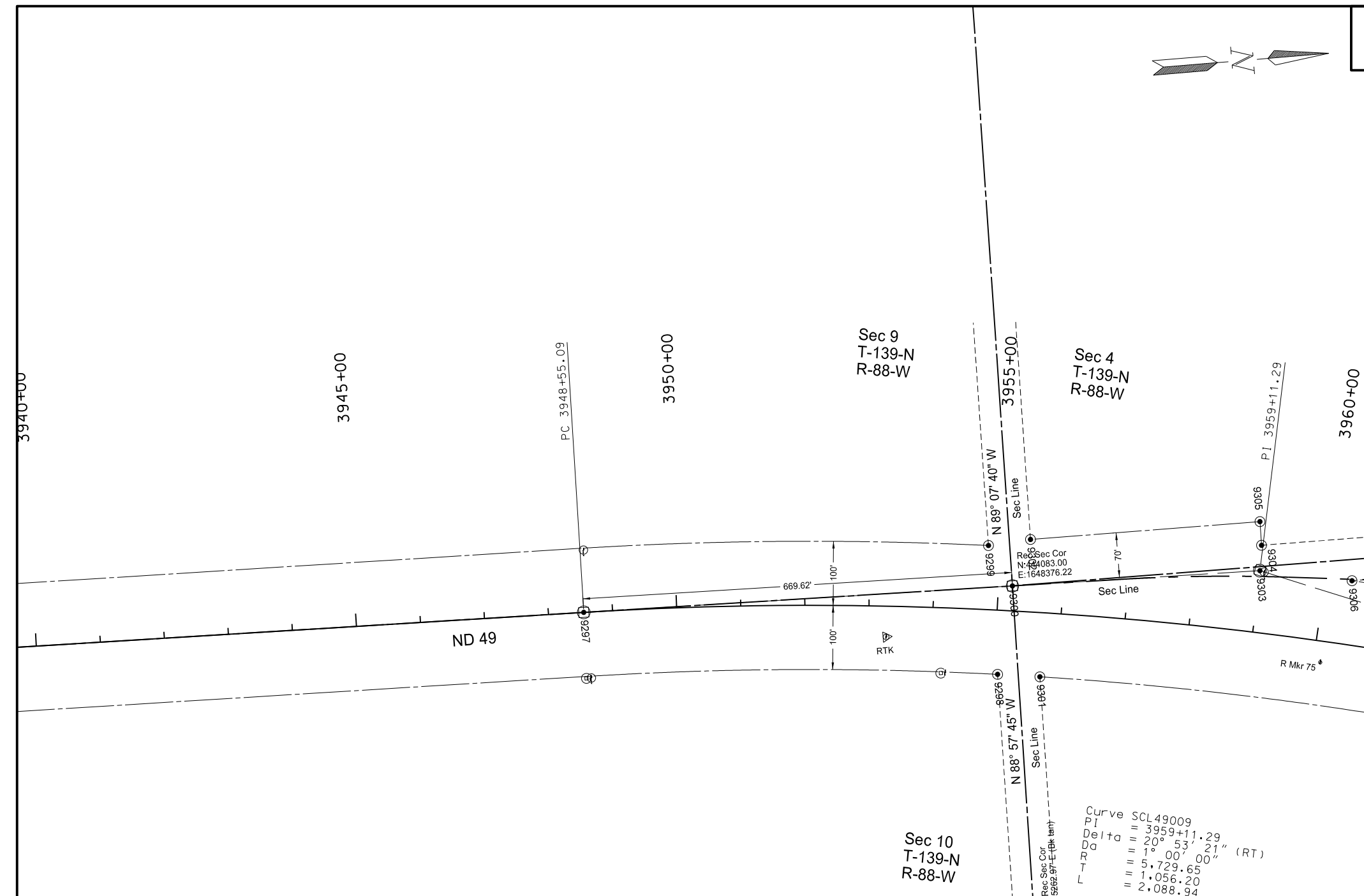
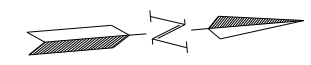
Point	North	East	Station	Offset	Iron Pin R/W Monument	R/W Marker (witness post)	Iron Pin Reference Monument
9294	441439.5549	1648419.097	3928+82.82	100		x	x
9296	441442.8964	1648220.804	3928+81.88	-98.3188		x	x

Alignment Monuments

Point	North	East	Station	Offset	Description	Monument per standard D-720-1
9295	441441.396	1648319.113	3928+82.50	0	QTR COR	x

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Survey Data Layouts for Right of Way Markers and Monuments
 Widening, Sliver Grading, HBP Overlay, & Guardrail
 Glen Ullin East & North to County Line



Right of Way/Reference Monuments and Markers

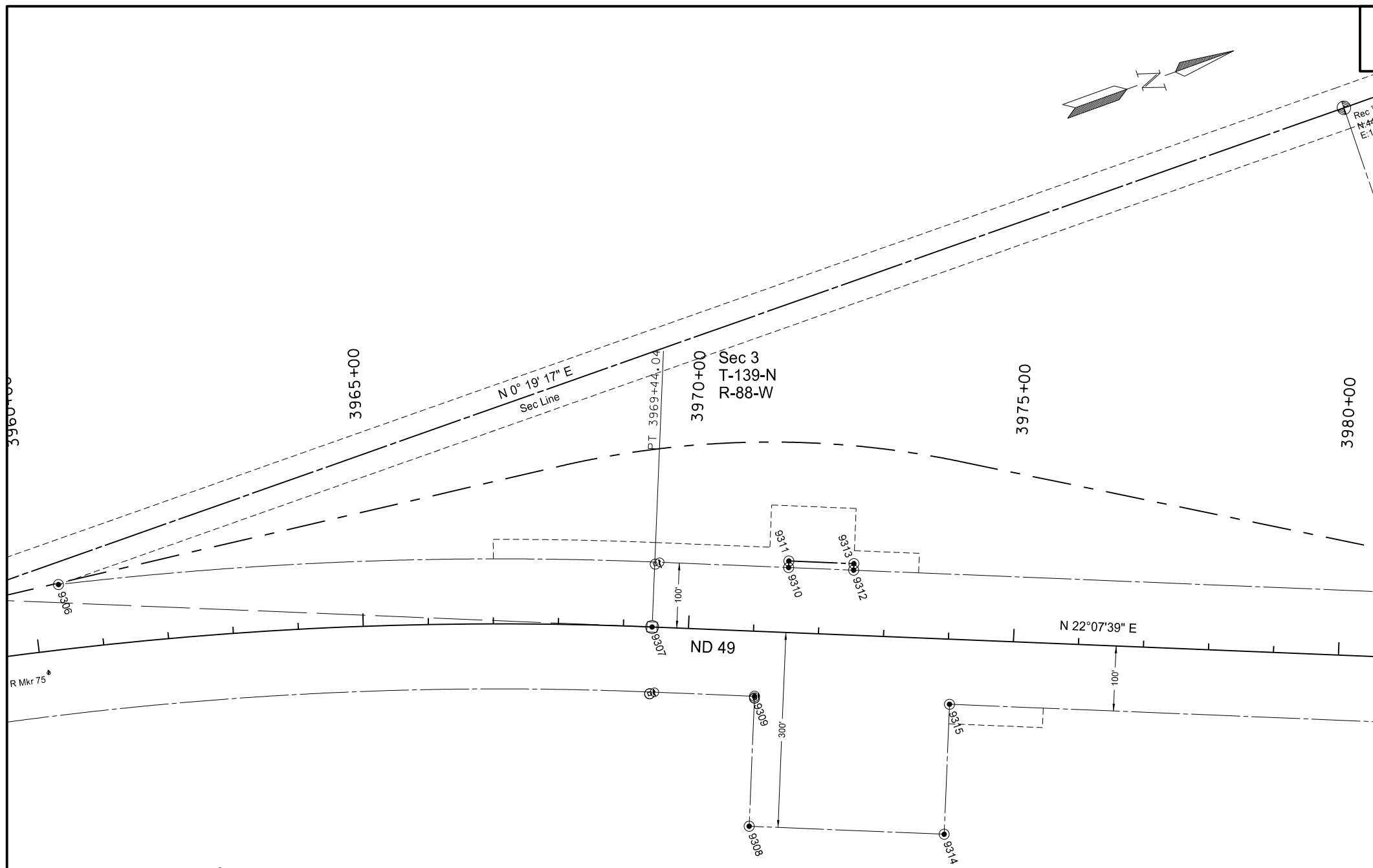
Point	North	East	Station	Offset	Iron Pin R/W Monument	R/W Marker (witness post)	Iron Pin Reference Monument
9298	444048.4295	1648511.775	3955+05.82	100.0018	x	x	
9299	444050.9966	1648310.335	3954+81.64	-99.9982	x	x	
9301	444113.7957	1648521.056	3955+73.01	100.0018	x	x	
9302	444117.064	1648306.412	3955+45.37	-112.877	x	x	
9304	444475.3112	1648345.422	3958+97.40	-136.059	x	x	
9305	444475.8745	1648308.425	3958+90.68	-172.411	x	x	
9306	444611.2667	1648412.186	3960+41.54	-99.999	x	x	

Alignment Monuments

Point	North	East	Station	Offset	Description	Monument per standard D-720-1
9297	443413.5269	1648361.747	3948+55.09	0	PC	x
9300	444082.996	1648376.22	3955+21.69	-38.9969	SEC COR	x
9303	444469.4777	1648384.575	3958+99.56	-96.5359	PI-SCL49009	x

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Survey Data Layouts for Right of Way Markers and Monuments
 Widening, Sliver Grading, HBP Overlay, & Guardrail
 Glen Ullin East & North to County Line



Sec 3
T-139-N
R-88-W

Right of Way/Reference Monuments and Markers

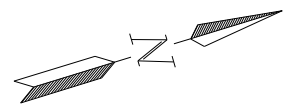
Point	North	East	Station	Offset	Iron Pin R/W Monument	R/W Marker (witness post)	Iron Pin Reference Monument
9308	445484.6736	1649121.228	3971+05.74	300.0014	x	x	
9309	445560.0078	1648935.958	3971+05.74	100.0014	x	x	
9310	445676.3456	1648767.362	3971+50.00	-99.9986	x	x	
9311	445680.1123	1648758.098	3971+50.00	-109.999	x	x	
9312	445768.9803	1648805.029	3972+50.00	-99.9986	x	x	
9313	445772.747	1648795.765	3972+50.00	-109.999	x	x	
9314	445762.5778	1649234.229	3974+05.74	300.0014	x	x	
9315	445837.9119	1649048.96	3974+05.74	100.0014	x	x	

Alignment Monuments

Point	North	East	Station	Offset	Description	Monument per standard D-720-1
9307	445447.8833	1648782.414	3969+44.04	0	PT	X

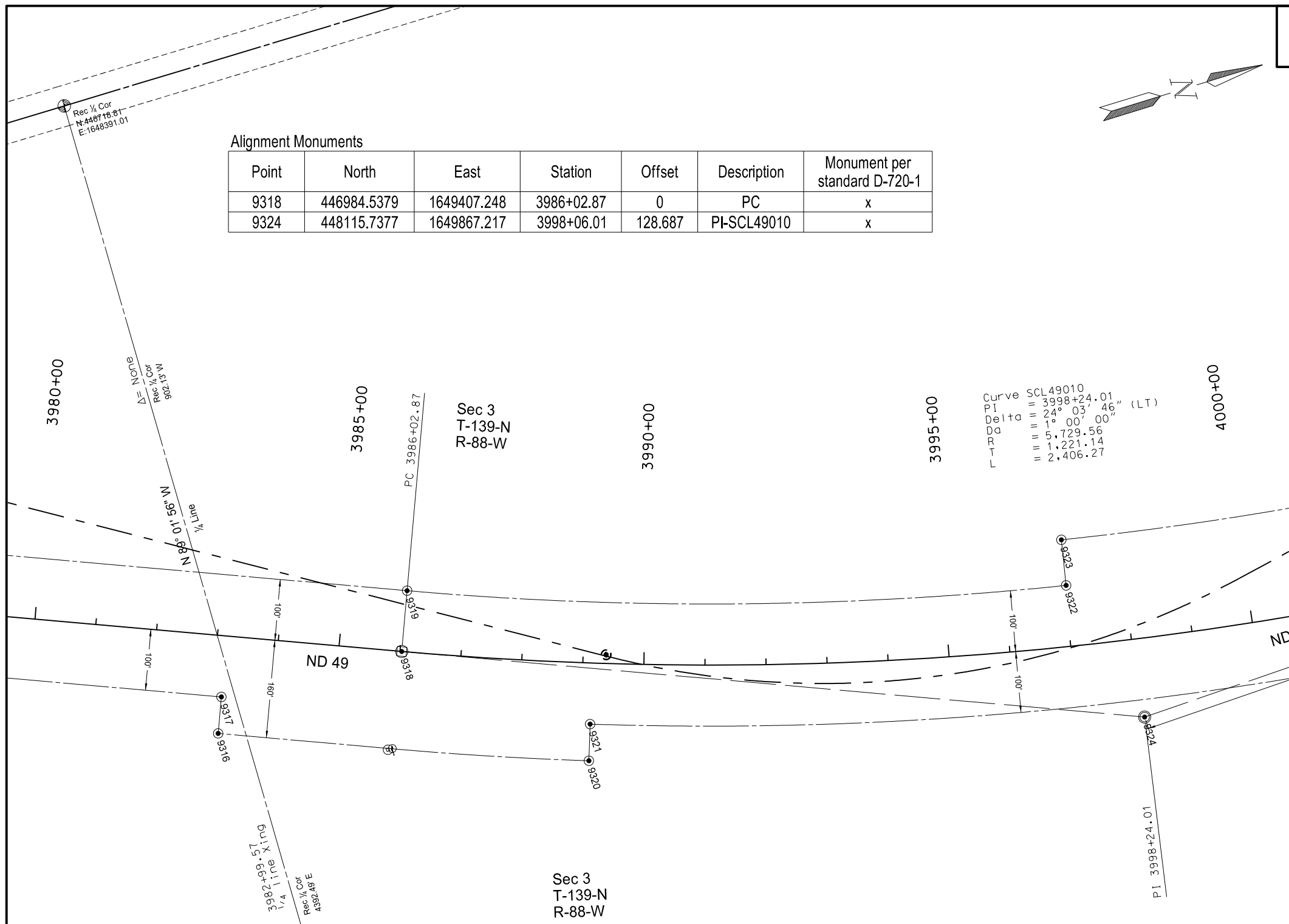
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Survey Data Layouts for Right of Way Markers and Monuments
Widening, Sliver Grading, HBP Overlay, & Guardrail
Glen Ullin East & North to County Line



Alignment Monuments

Point	North	East	Station	Offset	Description	Monument per standard D-720-1
9318	446984.5379	1649407.248	3986+02.87	0	PC	x
9324	448115.7377	1649867.217	3998+06.01	128.687	PI-SCL49010	x



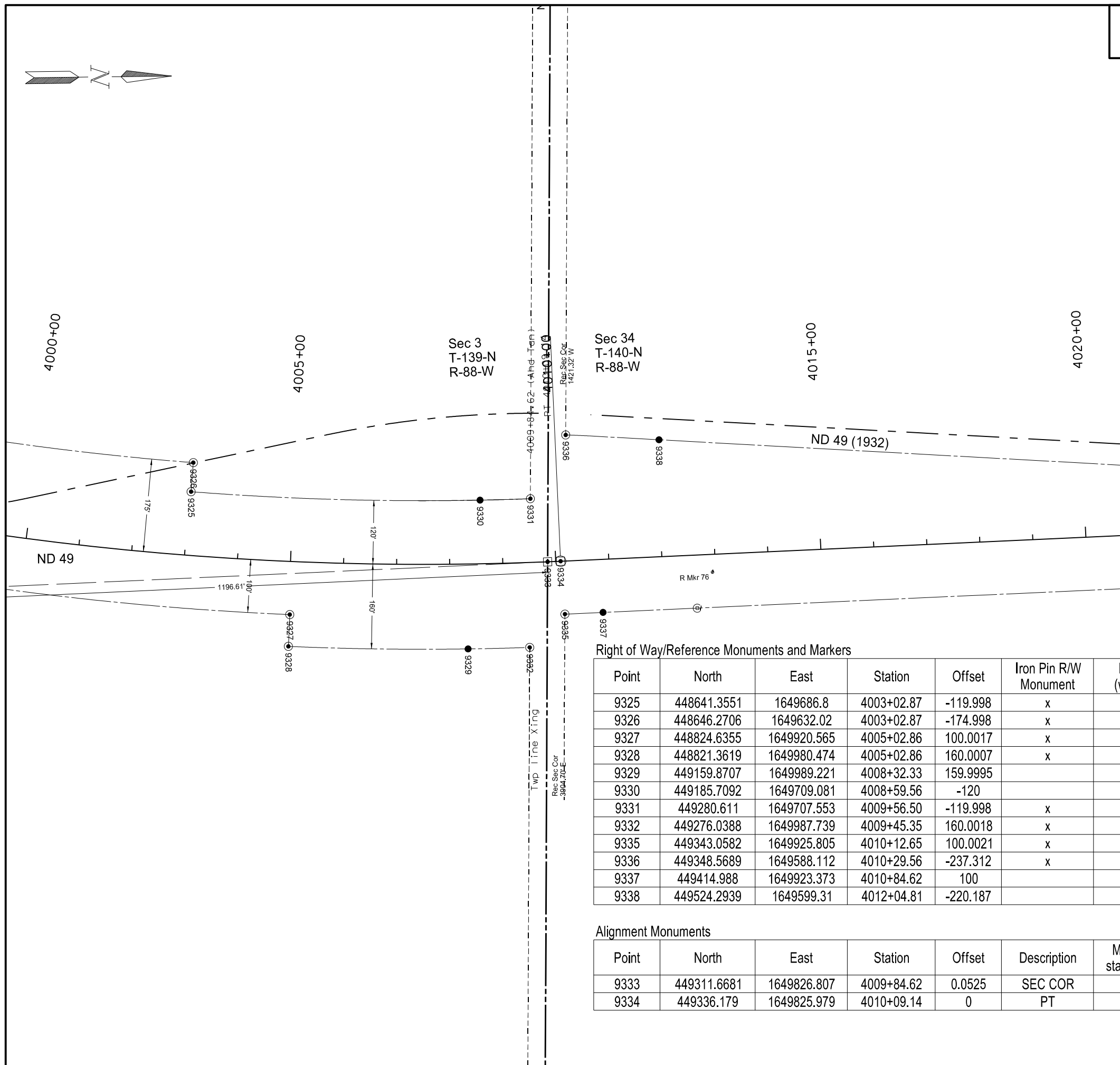
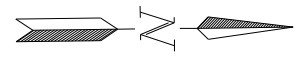
Curve SCL49010
 PI = 3998+24.01
 Delta = 24° 03' 46" (LT)
 Da = 1° 00' 00"
 R = 5,729.56
 T = 1,221.14
 L = 2,406.27

Right of Way/Reference Monuments and Markers

Point	North	East	Station	Offset	Iron Pin R/W Monument	R/W Marker (witness post)	Iron Pin Reference Monument
9316	446657.8396	1649447.129	3983+15.25	160.0014	x	x	
9317	446680.4399	1649391.548	3983+15.25	100.0014	x	x	
9319	447022.2056	1649314.615	3986+02.87	-99.9986	x	x	
9320	447224.8891	1649668.254	3989+15.27	160.0014	x	x	
9321	447244.4268	1649611.524	3989+15.27	100.0014	x	x	
9322	448056.2236	1649623.411	3997+02.87	-99.9986	x	x	
9323	448070.6982	1649549.821	3997+02.87	-174.999	x	x	

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Survey Data Layouts for Right of Way Markers and Monuments
 Widening, Sliver Grading, HBP Overlay, & Guardrail
 Glen Ullin East & North to County Line



Right of Way/Reference Monuments and Markers

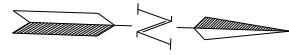
Point	North	East	Station	Offset	Iron Pin R/W Monument	R/W Marker (witness post)	Iron Pin Reference Monument
9325	448641.3551	1649686.8	4003+02.87	-119.998	x	x	
9326	448646.2706	1649632.02	4003+02.87	-174.998	x	x	
9327	448824.6355	1649920.565	4005+02.86	100.0017	x	x	
9328	448821.3619	1649980.474	4005+02.86	160.0007	x	x	
9329	449159.8707	1649989.221	4008+32.33	159.9995		x	x
9330	449185.7092	1649709.081	4008+59.56	-120		x	x
9331	449280.611	1649707.553	4009+56.50	-119.998	x	x	
9332	449276.0388	1649987.739	4009+45.35	160.0018	x	x	
9335	449343.0582	1649925.805	4010+12.65	100.0021	x	x	
9336	449348.5689	1649588.112	4010+29.56	-237.312	x	x	
9337	449414.988	1649923.373	4010+84.62	100		x	x
9338	449524.2939	1649599.31	4012+04.81	-220.187		x	x

Alignment Monuments

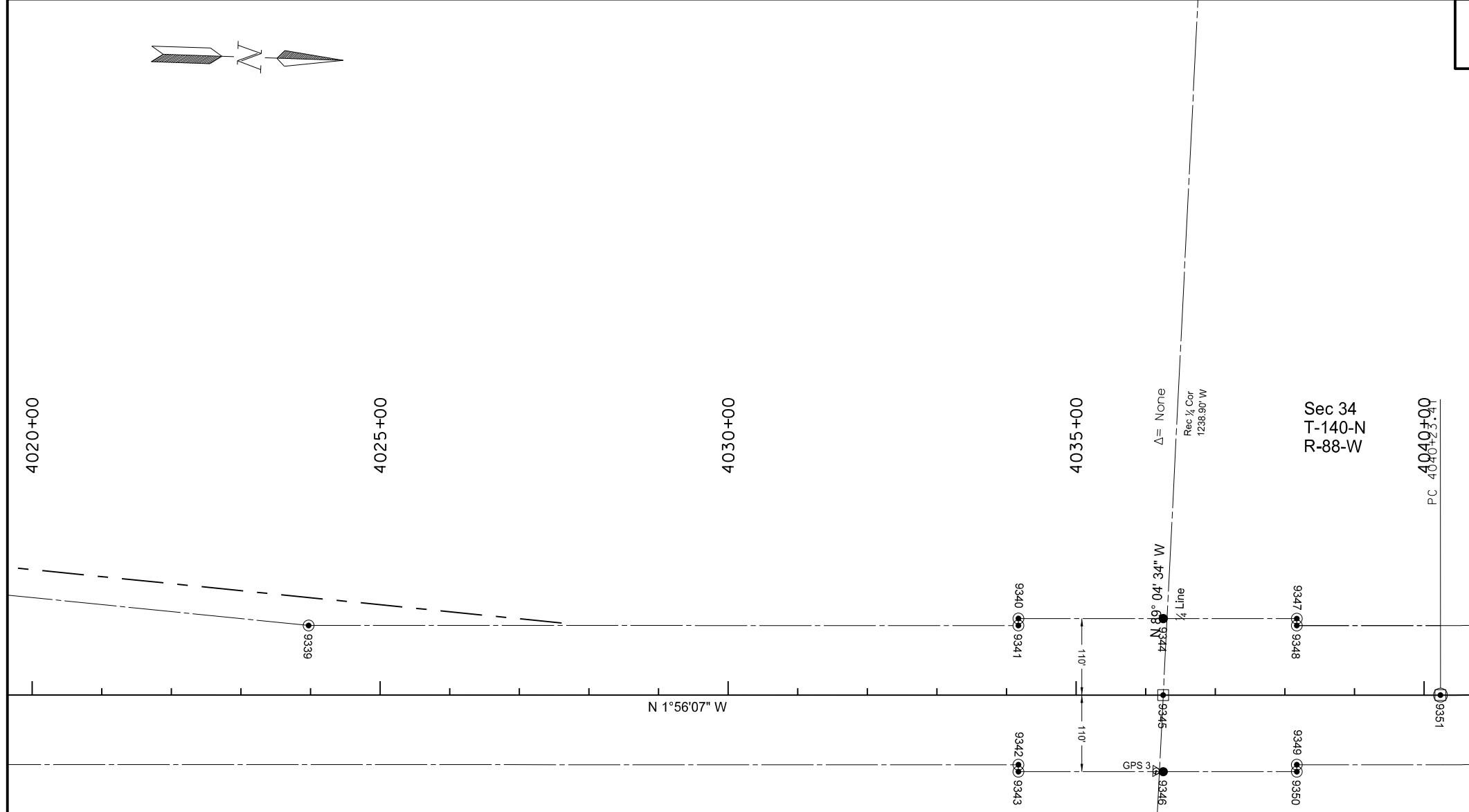
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9333	449311.6681	1649826.807	4009+84.62	0.0525	SEC COR	x
9334	449336.179	1649825.979	4010+09.14	0	PT	x

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 Widening, Sliver Grading, HBP Overlay, & Guardrail
 Glen Ullin East & North to County Line



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	082	20



Right of Way/Reference Monuments and Markers

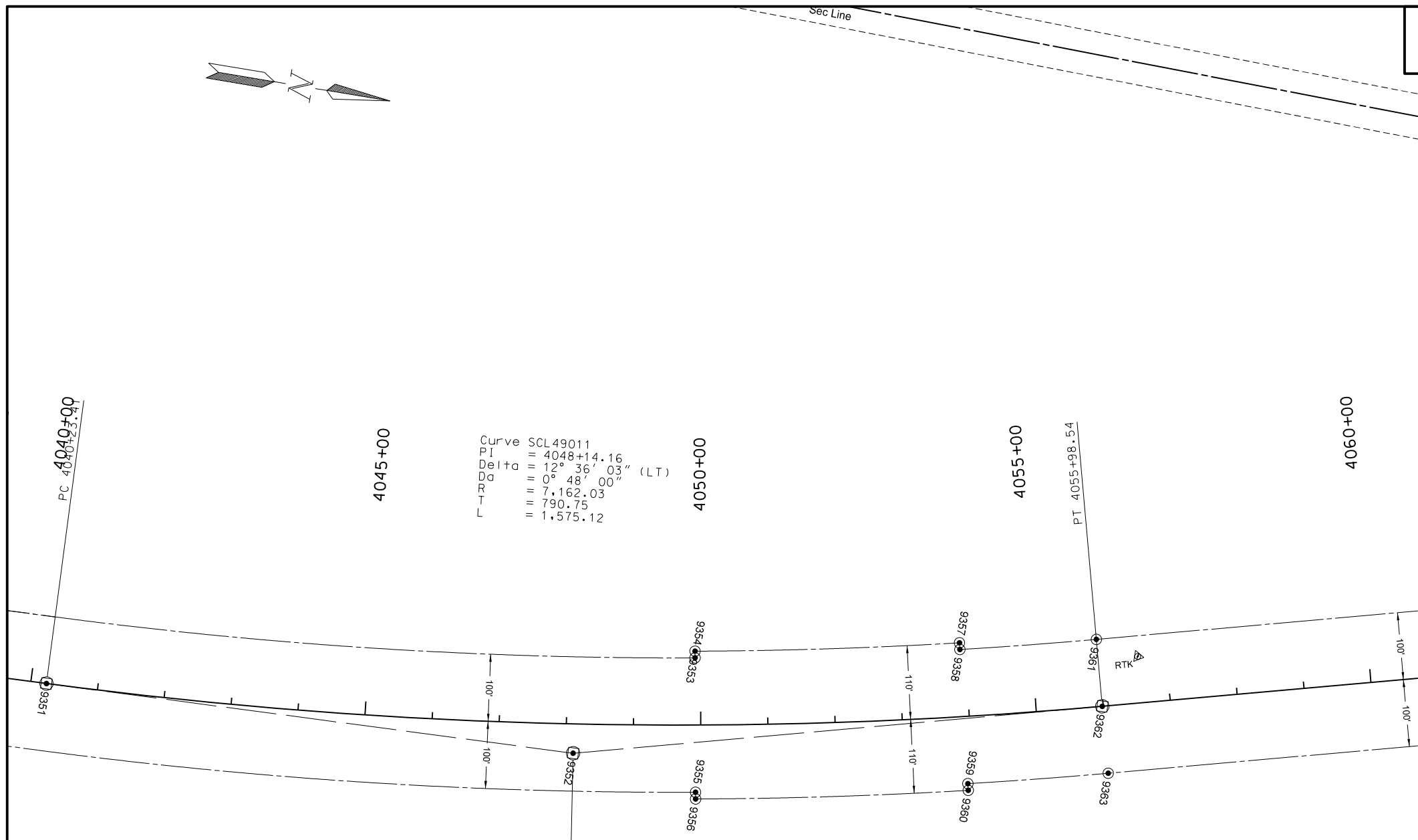
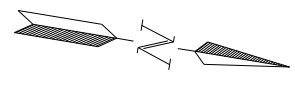
Point	North	East	Station	Offset	Iron Pin R/W Monument	R/W Marker (witness post)	Iron Pin Reference Monument
9339	450720.0911	1649679.163	4023+97.22	-99.9986	x	x	
9340	451738.9053	1649634.734	4034+16.96	-109.999	x	x	
9341	451739.243	1649644.728	4034+16.96	-99.9986	x	x	
9342	451745.9968	1649844.614	4034+16.96	100.0014	x	x	
9343	451746.3345	1649854.608	4034+16.96	110.0014	x	x	
9344	451946.895	1649627.705	4036+25.07	-110		x	x
9346	451954.3242	1649847.579	4036+25.07	110		x	x
9347	452138.6753	1649621.225	4038+16.96	-110	x	x	
9348	452139.0149	1649631.22	4038+16.96	-99.9986	x	x	
9349	452145.7687	1649831.106	4038+16.96	100.0014	x	x	
9350	452146.1064	1649841.1	4038+16.96	110.0014	x	x	

Alignment Monuments

Point	North	East	Station	Offset	Description	Monument per standard D-720-1
9345	451950.6096	1649737.642	4036+25.07	0	QTR COR	x
9351	452348.728	1649724.19	4040+23.41	0	PC	x

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Survey Data Layouts for Right of Way Markers and Monuments
Widening, Sliver Grading, HBP Overlay, & Guardrail
Glen Ullin East & North to County Line



Curve SCL49011
 PI = 4048+14.16
 Delta = 12° 36' 03" (LT)
 L = 790.75
 LTT = 7.162.03
 LTTT = 1.575.12

Right of Way/Reference Monuments and Markers

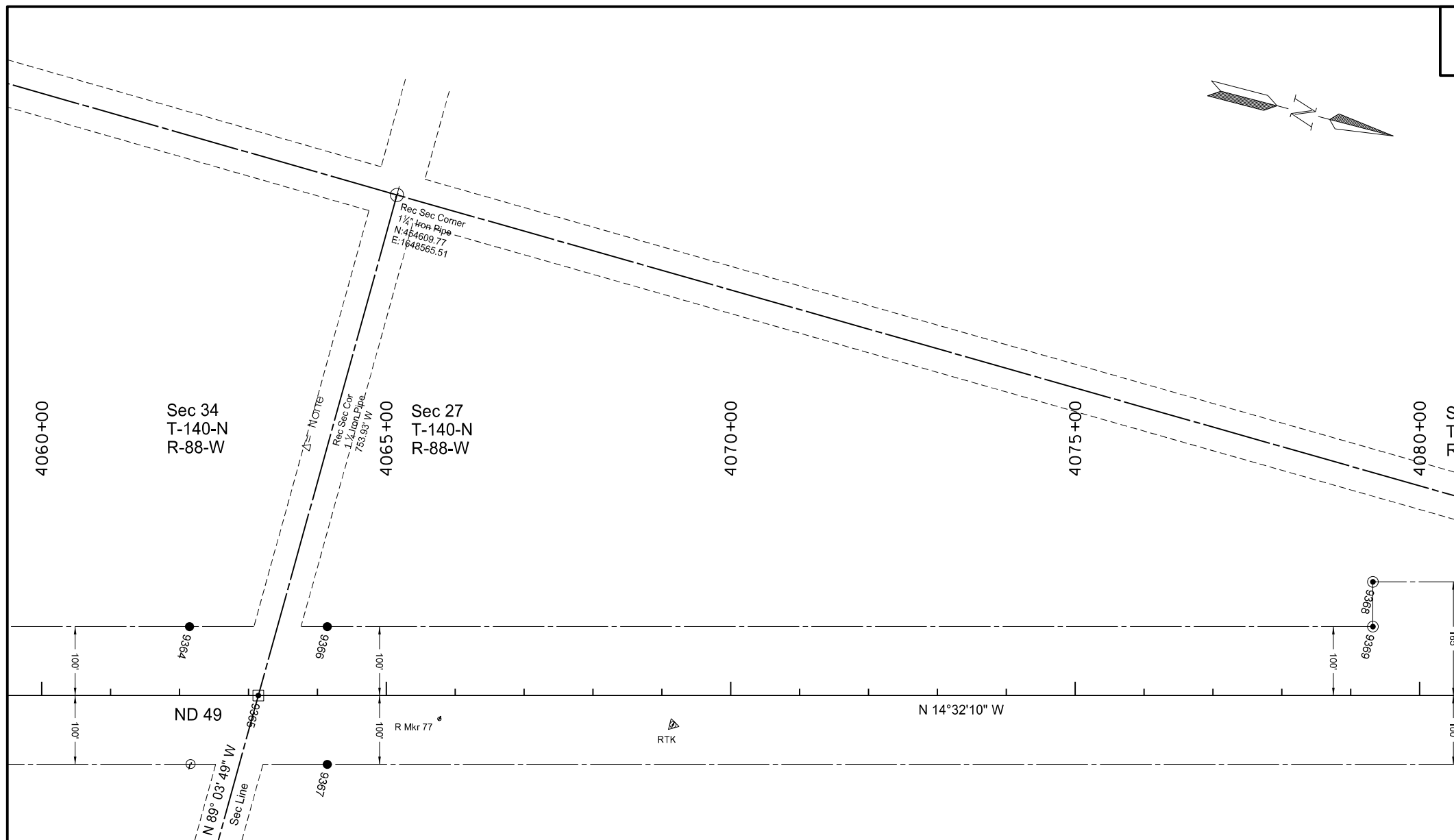
Point	North	East	Station	Offset	Iron Pin R/W Monument	R/W Marker (witness post)	Iron Pin Reference Monument
9353	453293.0383	1649517.803	4049+91.93	-109.999	x	x	
9354	453294.7203	1649527.66	4049+91.93	-99.9988	x	x	
9355	453328.3606	1649724.811	4049+91.93	100.0012	x	x	
9356	453330.0426	1649734.668	4049+91.93	110.0012	x	x	
9357	453679.2339	1649440.751	4053+91.93	-109.999	x	x	
9358	453681.4635	1649450.499	4053+91.93	-99.9986	x	x	
9359	453726.0567	1649645.464	4053+91.93	100.0014	x	x	
9360	453728.2864	1649655.213	4053+91.93	110.0014	x	x	
9361	453879.3717	1649402.219	4055+98.54	-99.9986	x	x	
9363	453929.5696	1649595.817	4055+98.54	100.0014	x	x	

Alignment Monuments

Point	North	East	Station	Offset	Description	Monument per standard D-720-1
9352	453139.0288	1649697.487	4048+10.97	43.5208	PI-SCL49011	x
9362	453904.4685	1649499.017	4055+98.54	0	PT	x

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Survey Data Layouts for Right of Way Markers and Monuments
 Widening, Sliver Grading, HBP Overlay, & Guardrail
 Glen Ullin East & North to County Line



Right of Way/Reference Monuments and Markers

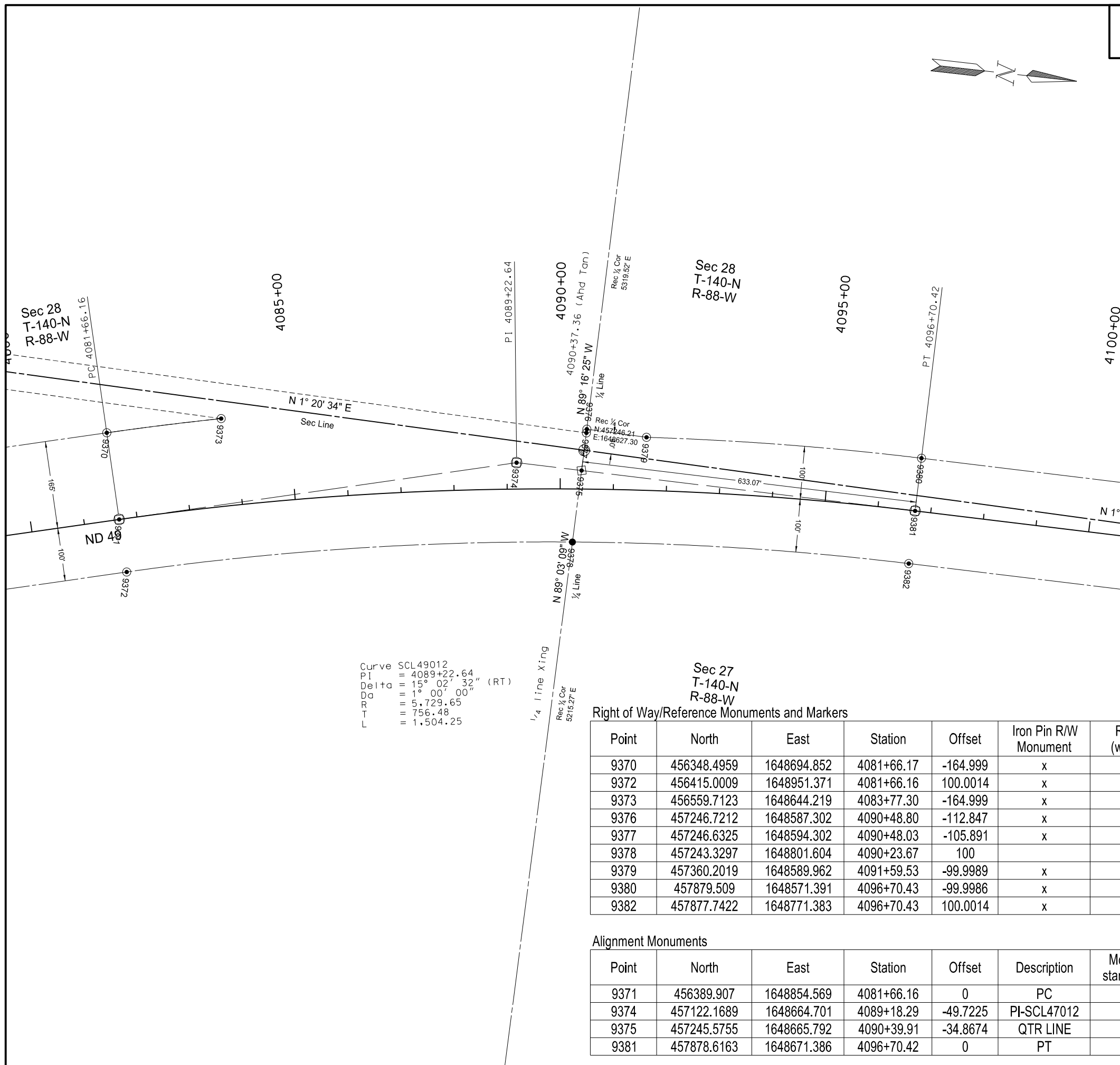
Point	North	East	Station	Offset	Iron Pin R/W Monument	R/W Marker (witness post)	Iron Pin Reference Monument
9364	454475.549	1649247.635	4062+14.43	-100		x	x
9365	454597.4469	1649319.335	4063+14.43	0		x	x
9367	454719.3448	1649391.035	4064+14.43	100		x	x
9368	456121.9863	1648753.583	4079+32.17	-164.999	x	x	
9369	456138.3006	1648816.503	4079+32.17	-99.9986	x	x	

Alignment Monuments

Point	North	East	Station	Offset	Description	Monument per standard D-720-1
9366	454669.1469	1649197.437	4064+14.43	-100	SEC LINE	x

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Survey Data Layouts for Right of Way Markers and Monuments
 Widening, Sliver Grading, HBP Overlay, & Guardrail
 Glen Ullin East & North to County Line



Curve SCL49012
 PI = 4089+22.64
 Delta = 15° 02' 32" (RT)
 Da = 1' 00" 00"
 R = 5,729.65
 T = 756.48
 L = 1,504.25

Right of Way/Reference Monuments and Markers

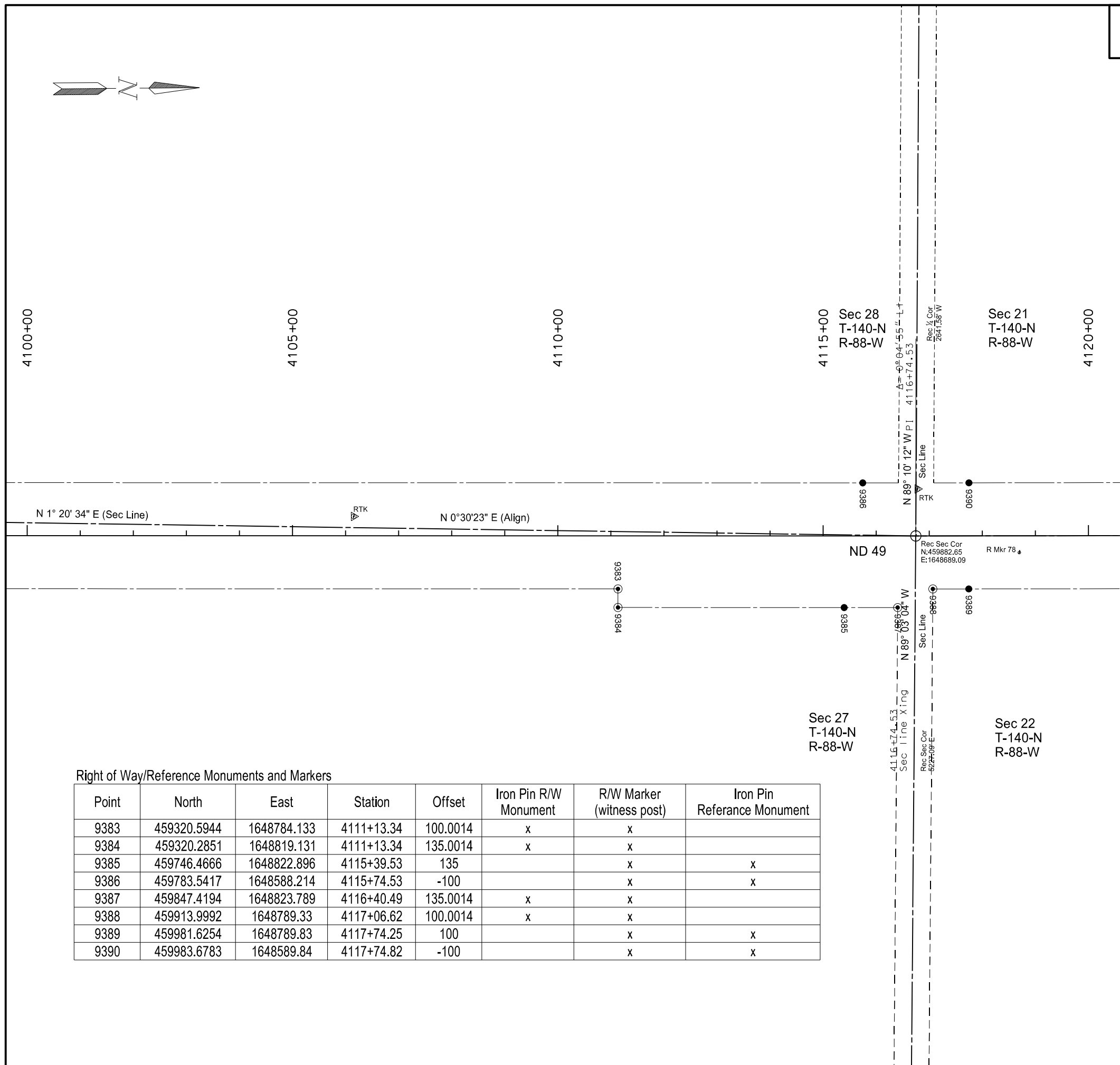
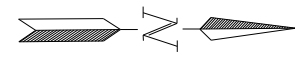
Point	North	East	Station	Offset	Iron Pin R/W Monument	R/W Marker (witness post)	Iron Pin Reference Monument
9370	456348.4959	1648694.852	4081+66.17	-164.999	x	x	
9372	456415.0009	1648951.371	4081+66.16	100.0014	x	x	
9373	456559.7123	1648644.219	4083+77.30	-164.999	x	x	
9376	457246.7212	1648587.302	4090+48.80	-112.847	x	x	
9377	457246.6325	1648594.302	4090+48.03	-105.891	x	x	
9378	457243.3297	1648801.604	4090+23.67	100		x	x
9379	457360.2019	1648589.962	4091+59.53	-99.9989	x	x	
9380	457879.509	1648571.391	4096+70.43	-99.9986	x	x	
9382	457877.7422	1648771.383	4096+70.43	100.0014	x	x	

Alignment Monuments

Point	North	East	Station	Offset	Description	Monument per standard D-720-1
9371	456389.907	1648854.569	4081+66.16	0	PC	x
9374	457122.1689	1648664.701	4089+18.29	-49.7225	PI-SCL47012	x
9375	457245.5755	1648665.792	4090+39.91	-34.8674	QTR LINE	x
9381	457878.6163	1648671.386	4096+70.42	0	PT	x

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Survey Data Layouts for Right of Way Markers and Monuments
 Widening, Sliver Grading, HBP Overlay, & Guardrail
 Glen Ullin East & North to County Line

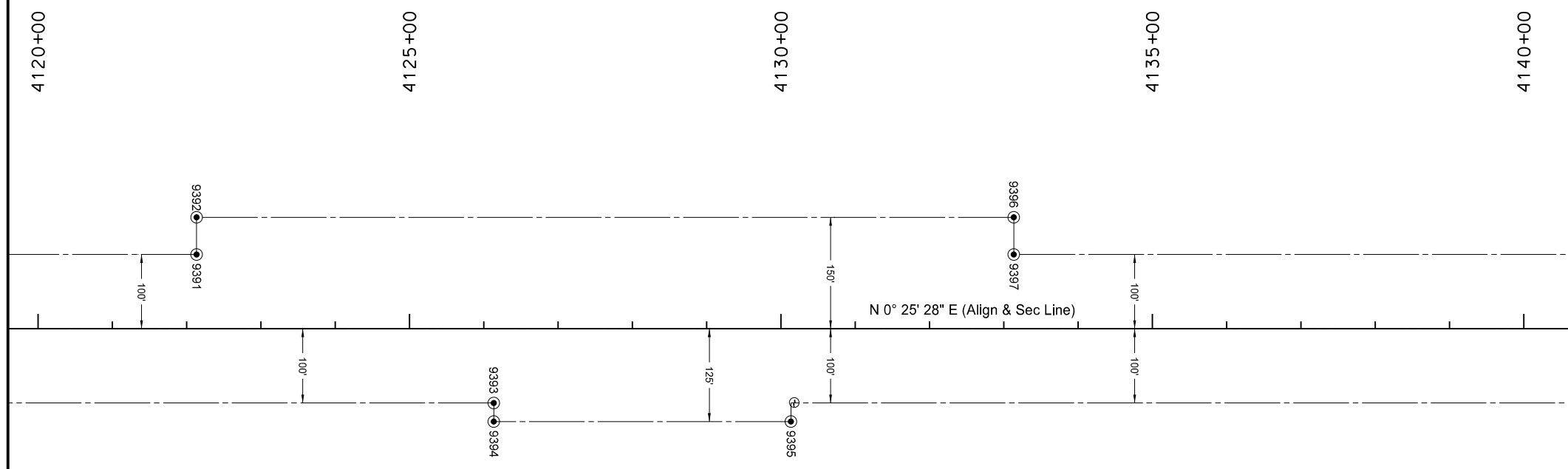
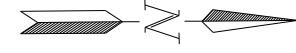


Right of Way/Reference Monuments and Markers

Point	North	East	Station	Offset	Iron Pin R/W Monument	R/W Marker (witness post)	Iron Pin Reference Monument
9383	459320.5944	1648784.133	4111+13.34	100.0014	x	x	
9384	459320.2851	1648819.131	4111+13.34	135.0014	x	x	
9385	459746.4666	1648822.896	4115+39.53	135		x	x
9386	459783.5417	1648588.214	4115+74.53	-100		x	x
9387	459847.4194	1648823.789	4116+40.49	135.0014	x	x	
9388	459913.9992	1648789.33	4117+06.62	100.0014	x	x	
9389	459981.6254	1648789.83	4117+74.25	100		x	x
9390	459983.6783	1648589.84	4117+74.82	-100		x	x

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 Widening, Sliver Grading, HBP Overlay, & Guardrail
 Glen Ullin East & North to County Line

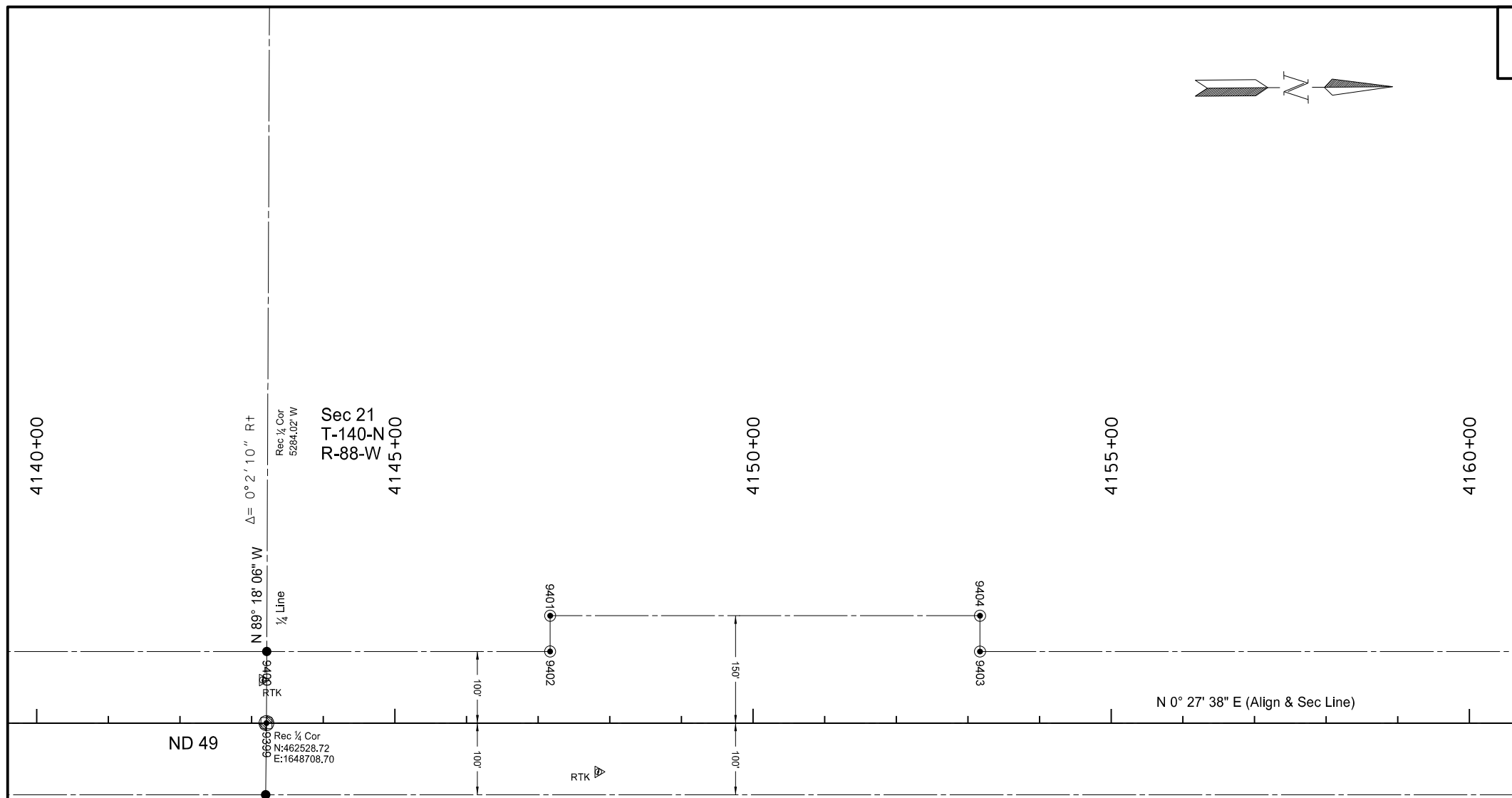
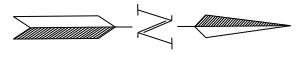


Right of Way/Reference Monuments and Markers

Point	North	East	Station	Offset	Iron Pin R/W Monument	R/W Marker (witness post)	Iron Pin Reference Monument
9391	460422.2046	1648593.09	4122+13.36	-99.9986	x	x	
9392	460422.575	1648543.091	4122+13.36	-149.999	x	x	
9393	460820.7121	1648796.047	4126+13.36	100.0014	x	x	
9394	460820.5251	1648821.045	4126+13.36	125	x	x	
9395	461220.5159	1648824.01	4130+13.36	125.0015	x	x	
9396	461522.5448	1648551.24	4133+13.36	-149.999	x	x	
9397	461522.1745	1648601.238	4133+13.36	-99.9985	x	x	

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 Widening, Sliver Grading, HBP Overlay, & Guardrail
 Glen Ullin East & North to County Line



Right of Way/Reference Monuments and Markers

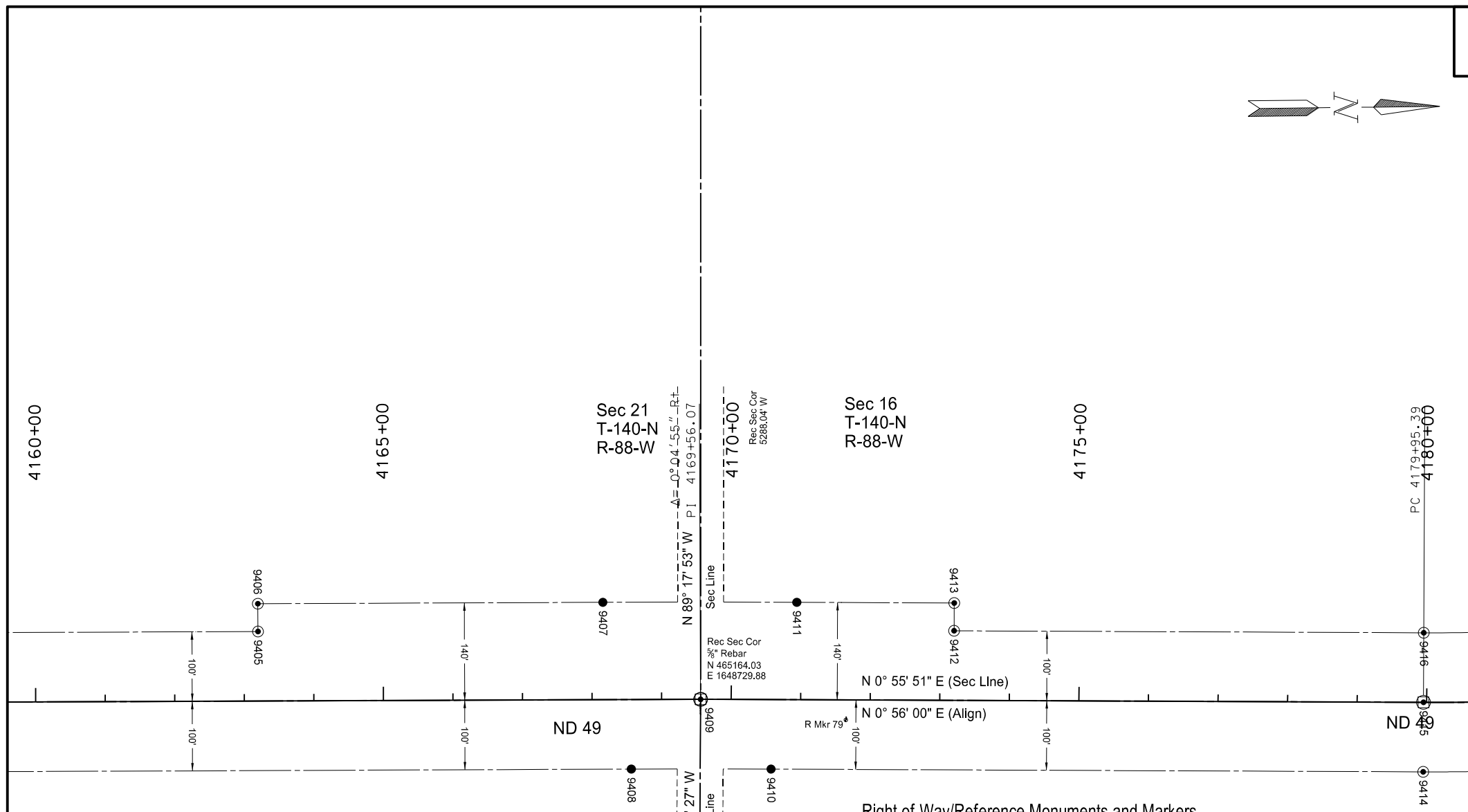
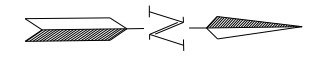
Point	North	East	Station	Offset	Iron Pin R/W Monument	R/W Marker (witness post)	Iron Pin Reference Monument
9398	462526.8693	1648808.684	4143+19.56	99.9994		x	x
9400	462529.9385	1648608.702	4143+21.09	-100		x	x
9401	462925.9017	1648561.885	4147+16.66	-149.999	x	x	
9402	462925.4998	1648611.883	4147+16.66	-99.9985	x	x	
9403	463525.4805	1648616.705	4153+16.66	-99.9985	x	x	
9404	463525.8823	1648566.706	4153+16.66	-149.999		x	

Alignment Monuments

Point	North	East	Station	Offset	Description	Monument per standard D-720-1
9399	462528.72	1648708.696	4143+20.67	0	QTR COR	x

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 Widening, Sliver Grading, HBP Overlay, & Guardrail
 Glen Ullin East & North to County Line



Right of Way/Reference Monuments and Markers

Point	North	East	Station	Offset	Iron Pin R/W Monument	R/W Marker (witness post)	Iron Pin Reference Monument
9405	464528.8196	1648624.768	4163+20.03	-99.9986	x	x	
9406	464529.1411	1648584.77	4163+20.03	-139.999	x	x	
9407	465025.161	1648588.754	4168+16.07	-140		x	x
9408	465063.231	1648829.068	4168+56.07	100		x	x
9410	465264.0532	1648831.518	4170+57.73	100		x	x
9411	465304.0018	1648592.136	4170+93.78	-140		x	x
9412	465529.6137	1648635.818	4173+20.07	-99.9986	x	x	
9413	465530.2651	1648595.823	4173+20.07	-139.999	x	x	
9414	466201.5709	1648846.79	4179+95.37	100.0014	x	x	
9416	466204.8282	1648646.817	4179+95.37	-99.9986		x	

Alignment Monuments

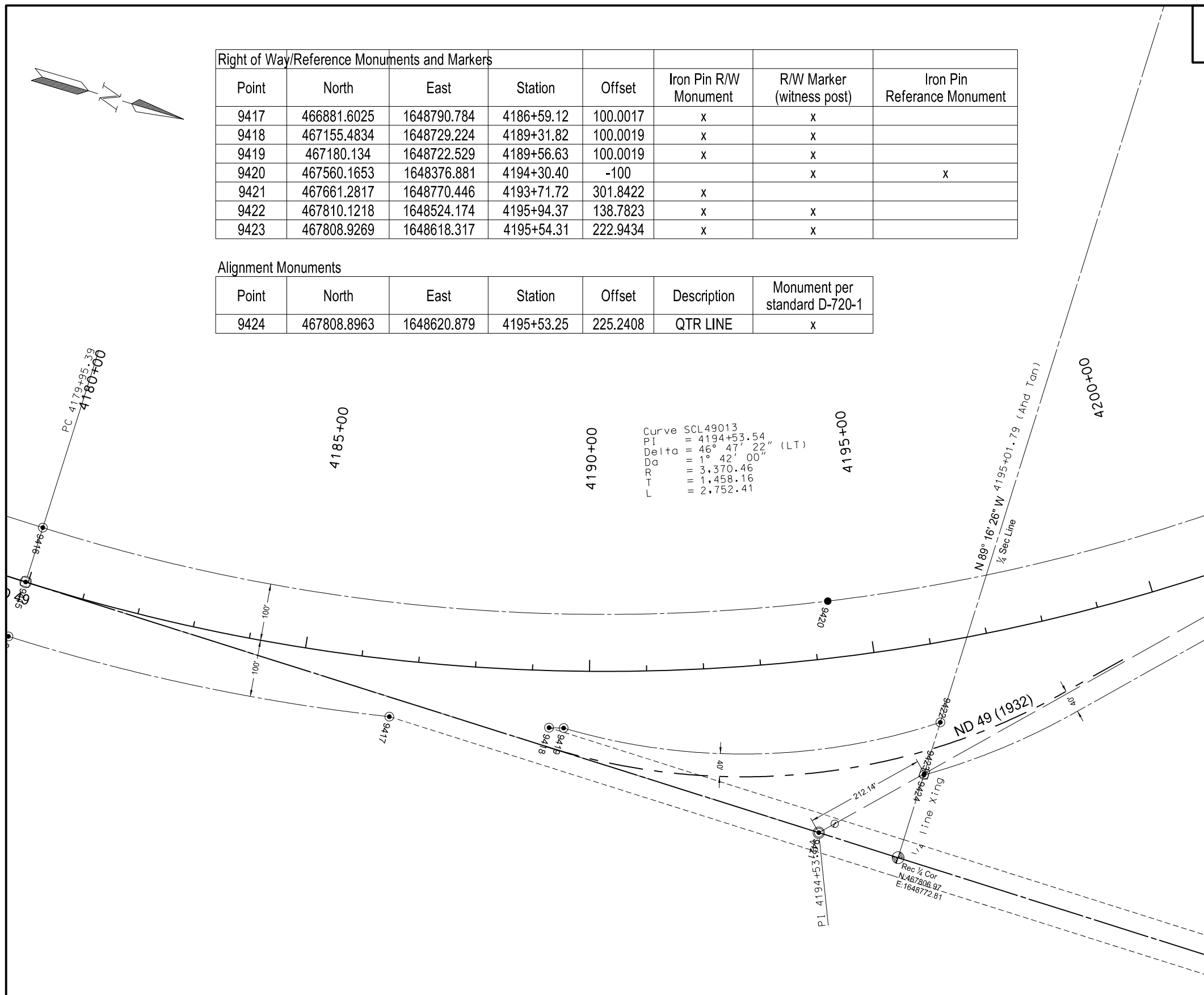
Point	North	East	Station	Offset	Description	Monument per standard D-720-1
9409	465164.0314	1648729.875	4169+56.07	0	SEC COR	x
9415	466203.2124	1648746.802	4179+95.39	0	PC	x

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 Widening, Sliver Grading, HBP Overlay, & Guardrail
 Glen Ullin East & North to County Line

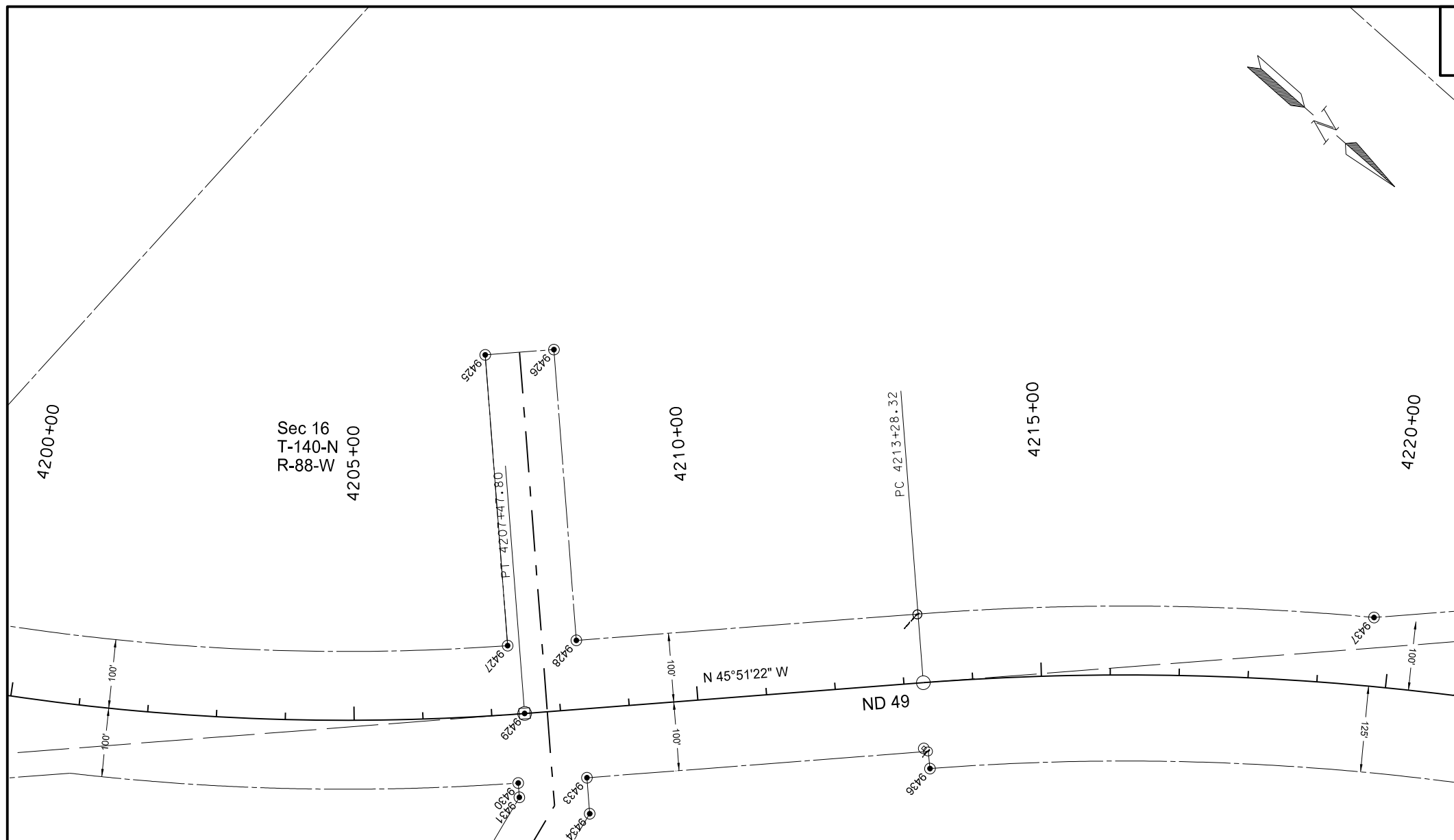
Right of Way/Reference Monuments and Markers							
Point	North	East	Station	Offset	Iron Pin R/W Monument	R/W Marker (witness post)	Iron Pin Reference Monument
9417	466881.6025	1648790.784	4186+59.12	100.0017	x	x	
9418	467155.4834	1648729.224	4189+31.82	100.0019	x	x	
9419	467180.134	1648722.529	4189+56.63	100.0019	x	x	
9420	467560.1653	1648376.881	4194+30.40	-100		x	x
9421	467661.2817	1648770.446	4193+71.72	301.8422	x		
9422	467810.1218	1648524.174	4195+94.37	138.7823	x	x	
9423	467808.9269	1648618.317	4195+54.31	222.9434	x	x	

Alignment Monuments						
Point	North	East	Station	Offset	Description	Monument per standard D-720-1
9424	467808.8963	1648620.879	4195+53.25	225.2408	QTR LINE	x



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 Widening, Sliver Grading, HBP Overlay, & Guardrail
 Glen Ullin East & North to County Line



Right of Way/Reference Monuments and Markers

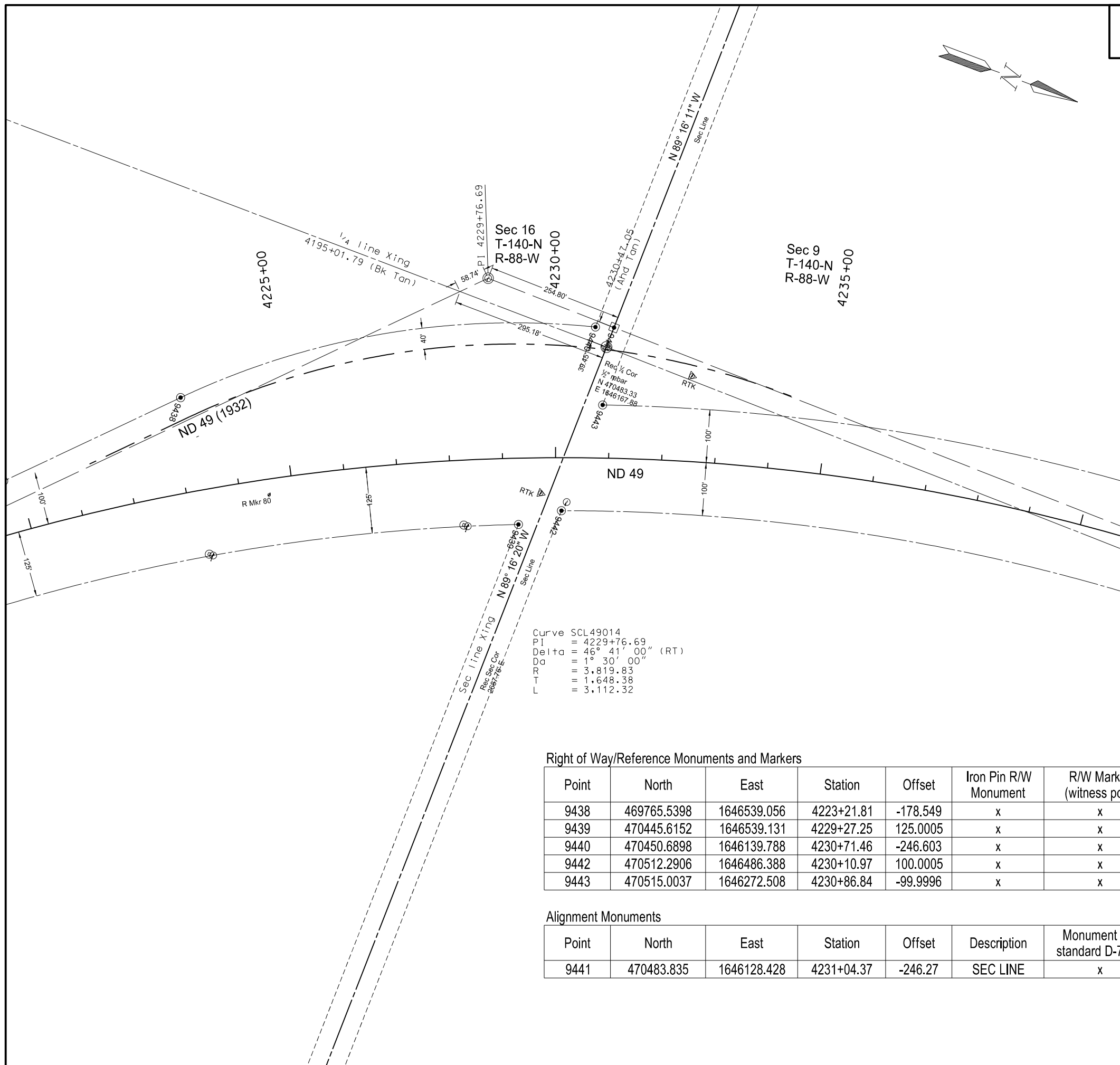
Point	North	East	Station	Offset	Iron Pin R/W Monument	R/W Marker (witness post)	Iron Pin Reference Monument
9425	468289.3012	1647371.857	4207+27.68	-523.348	x	x	
9426	468358.9474	1647300.098	4208+30.80	-523.399	x	x	
9427	468593.0986	1647666.708	4207+30.28	-99.9986	x	x	
9428	468662.7765	1647594.98	4208+30.80	-99.9986	x	x	
9430	468736.6192	1647806.003	4207+31.29	100.0014	x	x	
9431	468751.6002	1647820.542	4207+31.39	120.8779	x	x	
9432	468786.2998	1648001.48	4206+34.33	273.8182	x	x	
9433	468806.2953	1647734.272	4208+30.80	100.0014	x	x	
9434	468843.872	1647770.742	4208+30.80	152.3664	x	x	
9435	468884.5101	1647982.646	4207+10.67	329.3351	x	x	
9436	469170.7349	1647394.671	4213+28.32	125.0014	x	x	
9437	469508.7328	1646803.6	4219+74.12	-99.9989	x	x	

Alignment Monuments

Point	North	East	Station	Offset	Description	Monument per standard D-720-1
9429	468676.7272	1647724.187	4207+47.80	0	PT	x

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 Glen Ullin East & North to County Line



Curve SCL49014
 PI = 4229+76.69
 Delta = 46° 41' 00" (RT)
 Da = 1° 30' 00"
 Pd = 3.819.83
 T = 1.648.38
 L = 3.112.32

Right of Way/Reference Monuments and Markers

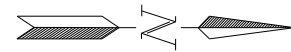
Point	North	East	Station	Offset	Iron Pin R/W Monument	R/W Marker (witness post)	Iron Pin Reference Monument
9438	469765.5398	1646539.056	4223+21.81	-178.549	x	x	
9439	470445.6152	1646539.131	4229+27.25	125.0005	x	x	
9440	470450.6898	1646139.788	4230+71.46	-246.603	x	x	
9442	470512.2906	1646486.388	4230+10.97	100.0005	x	x	
9443	470515.0037	1646272.508	4230+86.84	-99.9996	x	x	

Alignment Monuments

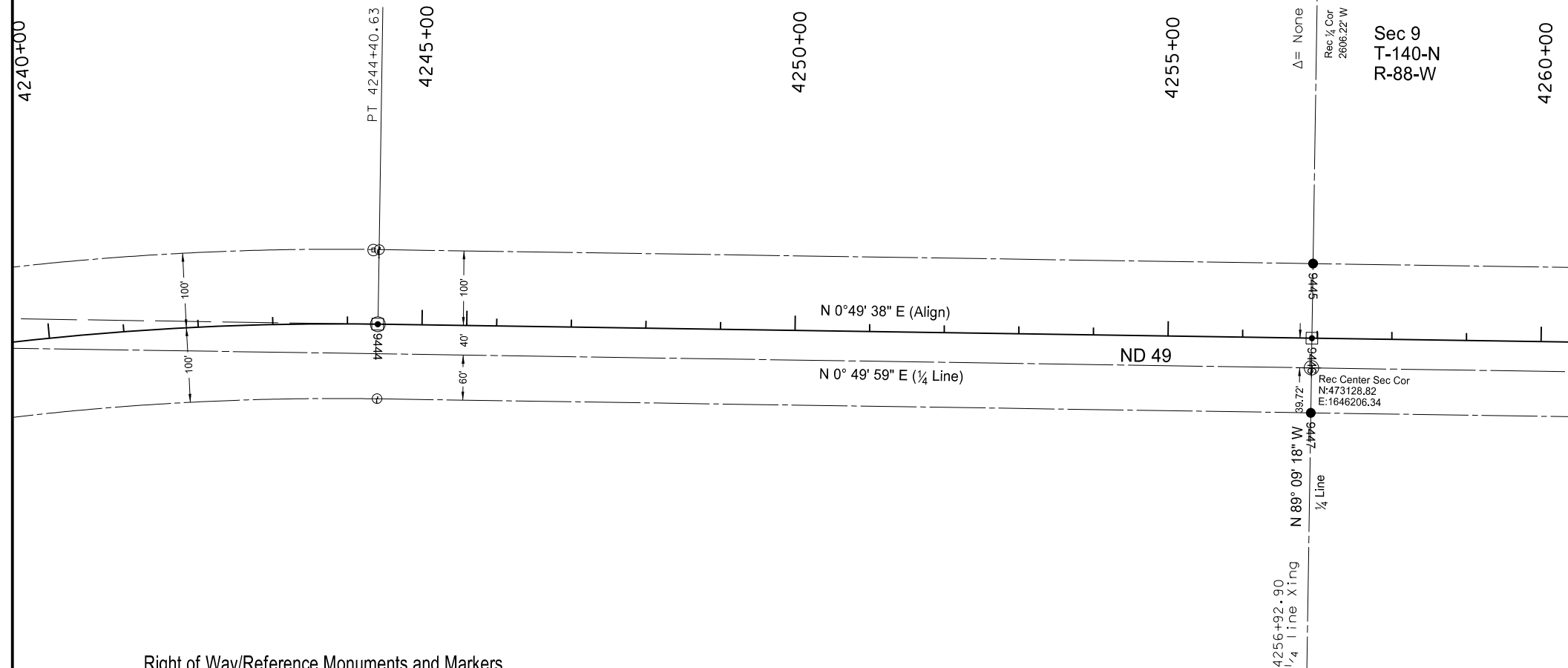
Point	North	East	Station	Offset	Description	Monument per standard D-720-1
9441	470483.835	1646128.428	4231+04.37	-246.27	SEC LINE	x

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 Widening, Sliver Grading, HBP Overlay, & Guardrail
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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	082	31



Right of Way/Reference Monuments and Markers

Point	North	East	Station	Offset	Iron Pin R/W Monument	R/W Marker (witness post)	Iron Pin Reference Monument
9445	473130.8767	1646066.639	4256+92.93	-100		x	x
9447	473127.9271	1646266.617	4256+92.87	100		x	x

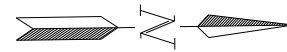
Alignment Monuments

Point	North	East	Station	Offset	Description	Monument per standard D-720-1
9444	471877.2695	1646148.548	4244+40.63	0	PT	x
9446	473129.4019	1646166.628	4256+92.90	0	QTR LINE	x

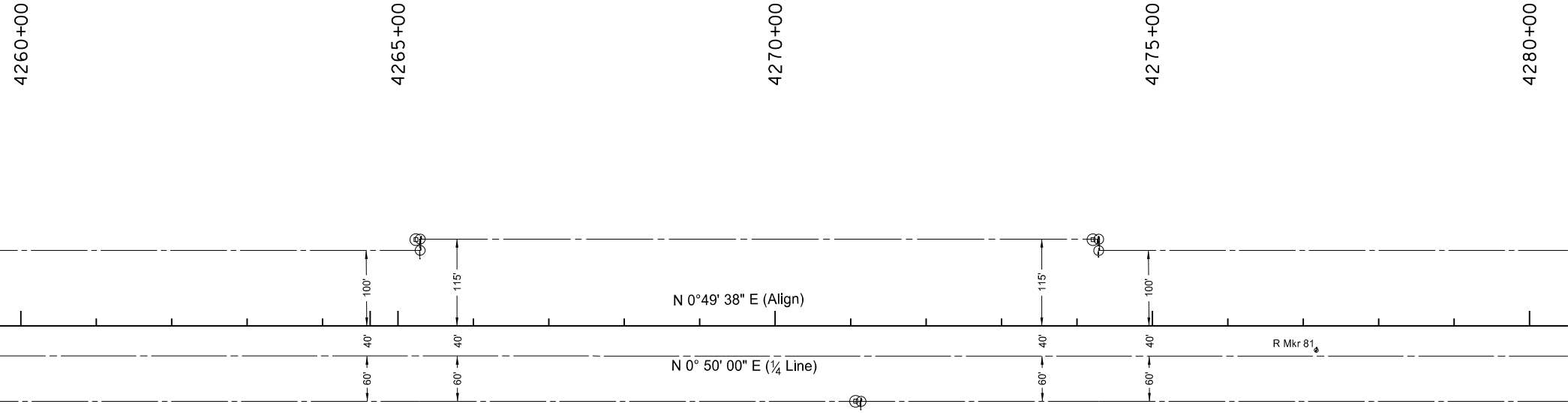
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Survey Data Layouts for
Right of Way Markers and Monuments

Widening, Sliver Grading, HBP Overlay, & Guardrail
Glen Ullin East & North to County Line



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	082	32

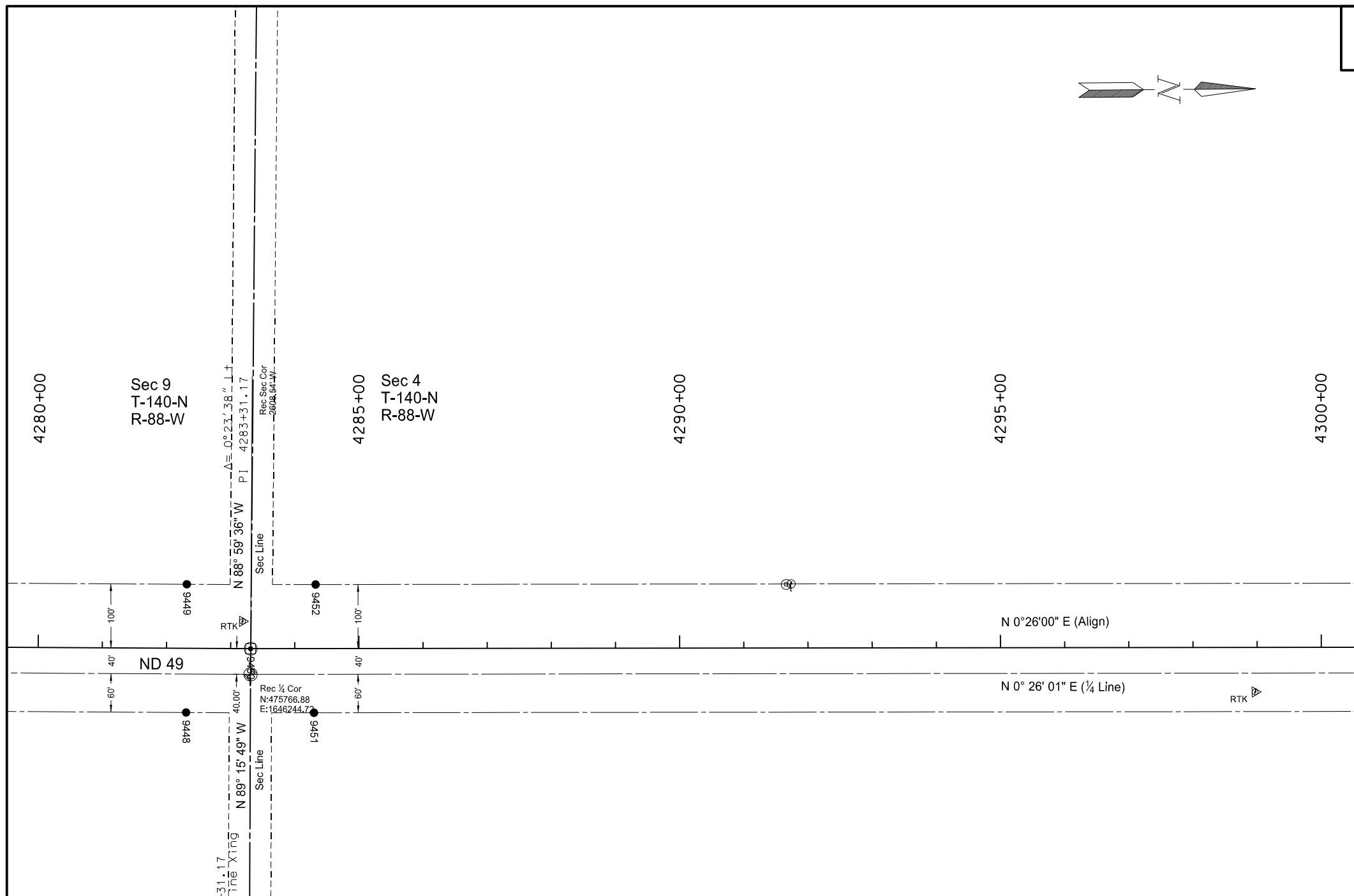
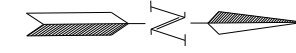


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Survey Data Layouts for
Right of Way Markers and Monuments

Widening, Sliver Grading, HBP Overlay, & Guardrail

Glen Ullin East & North to County Line



Right of Way/Reference Monuments and Markers							
Point	North	East	Station	Offset	Iron Pin R/W Monument	R/W Marker (witness post)	Iron Pin Reference Monument
9448	475665.9615	1646303.264	4282+31.17	100		x	x
9449	475668.8491	1646103.285	4282+31.17	-100		x	x
9451	475865.2701	1646305.462	4284+29.80	100		x	x
9452	475869.5328	1646105.488	4284+32.55	-100		x	x

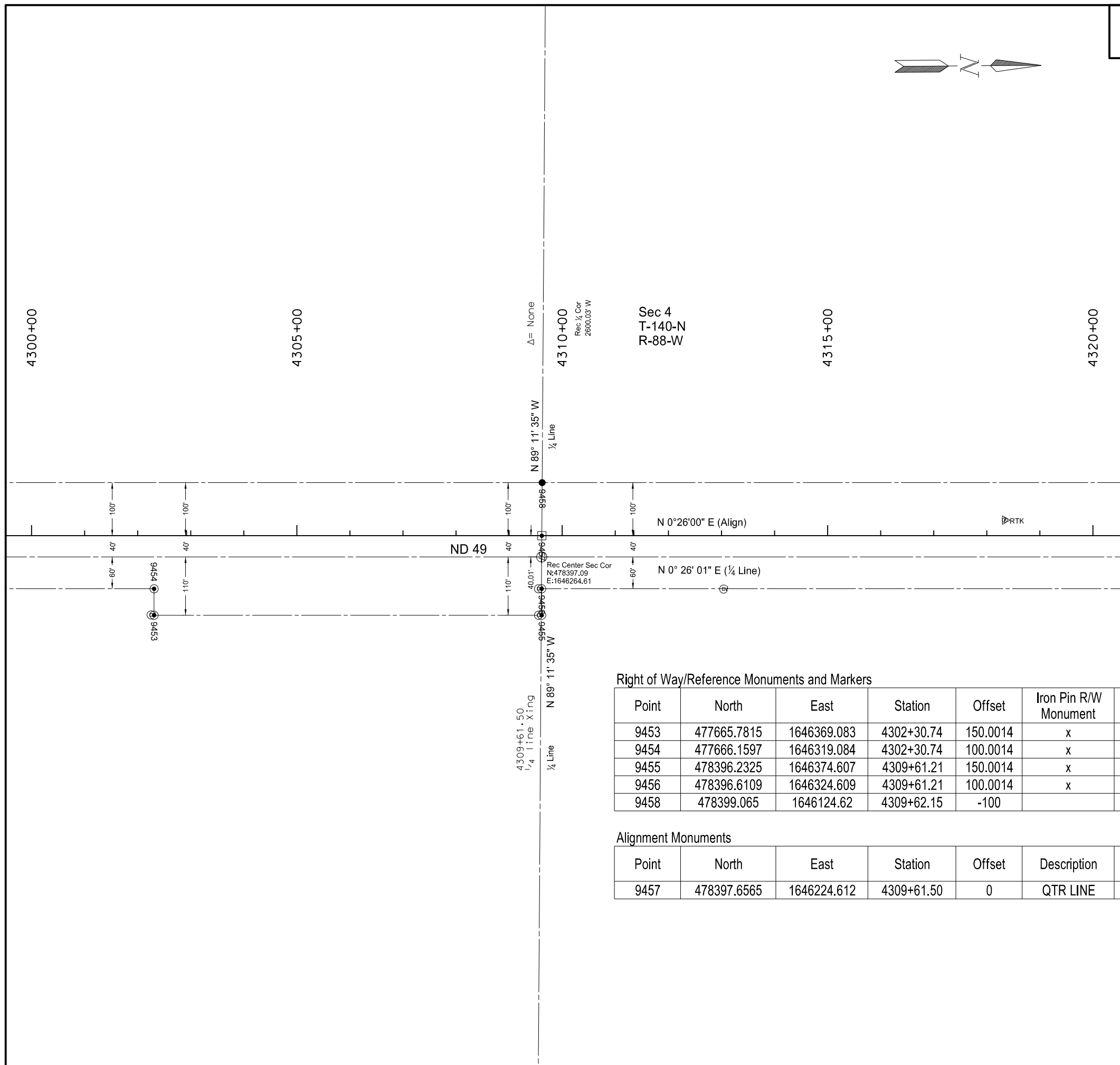
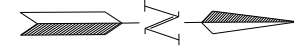
Alignment Monuments						
Point	North	East	Station	Offset	Description	Monument per standard D-720-1
9450	475767.3949	1646204.718	4283+31.17	0	SECLINE	x

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Right of Way Markers and Monuments

Widening, Sliver Grading, HBP Overlay, & Guardrail

Glen Ullin East & North to County Line



Right of Way/Reference Monuments and Markers

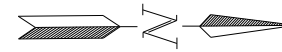
Point	North	East	Station	Offset	Iron Pin R/W Monument	R/W Marker (witness post)	Iron Pin Reference Monument
9453	477665.7815	1646369.083	4302+30.74	150.0014	x	x	
9454	477666.1597	1646319.084	4302+30.74	100.0014	x	x	
9455	478396.2325	1646374.607	4309+61.21	150.0014	x	x	
9456	478396.6109	1646324.609	4309+61.21	100.0014	x	x	
9458	478399.065	1646124.62	4309+62.15	-100		x	x

Alignment Monuments

Point	North	East	Station	Offset	Description	Monument per standard D-720-1
9457	478397.6565	1646224.612	4309+61.50	0	QTR LINE	x

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 Widening, Sliver Grading, HBP Overlay, & Guardrail
 Glen Ullin East & North to County Line



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ND	SS-NH-1-049(027)067	082	35

4320+00

4325+00

4330+00

4335+00

4340+00

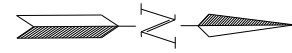
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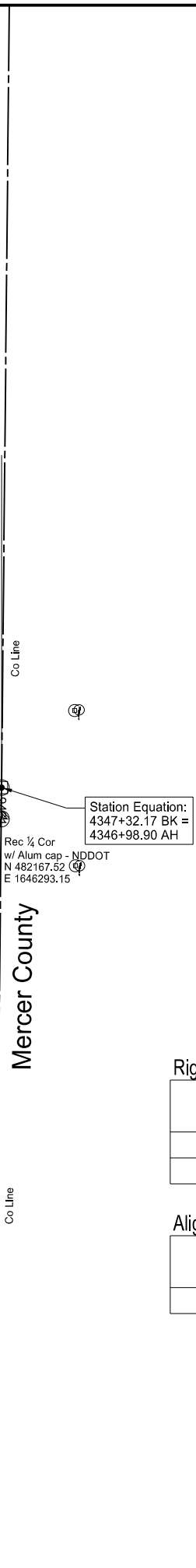
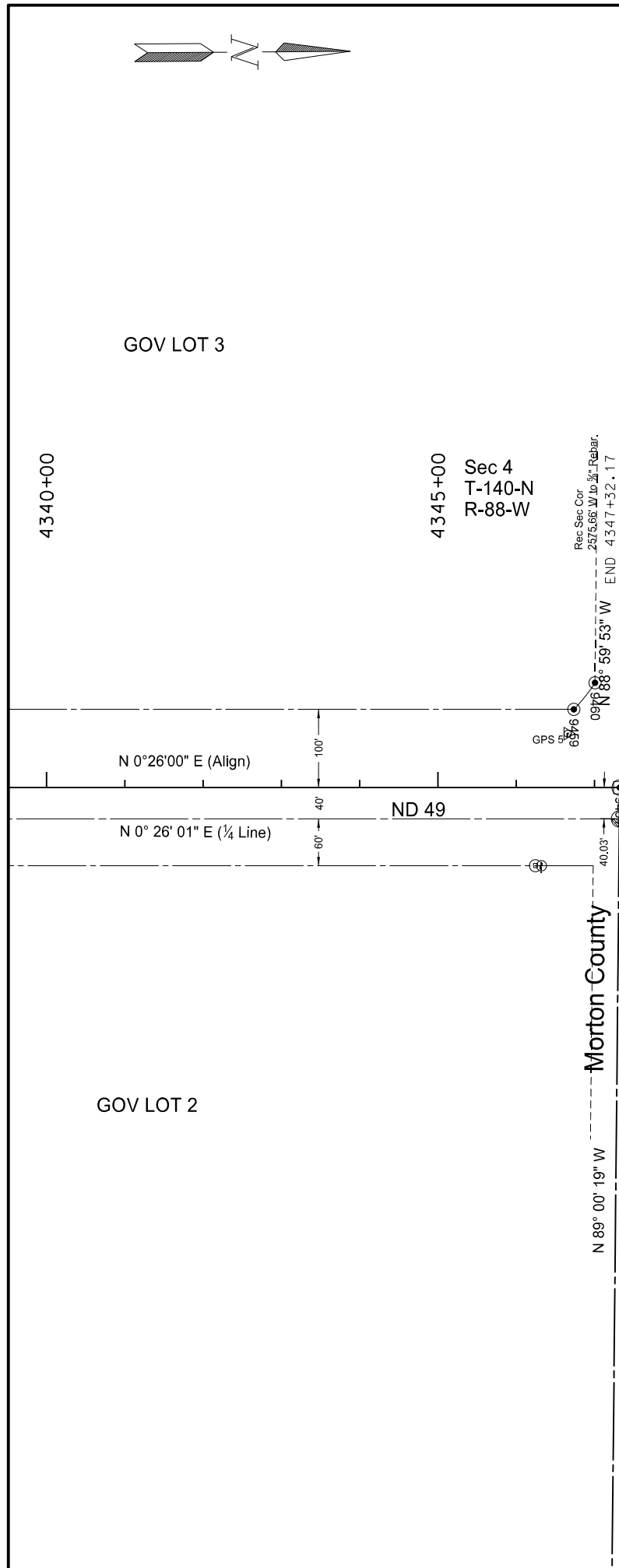
Survey Data Layouts for Right of Way Markers and Monuments

Widening, Sliver Grading, HBP Overlay, & Guardrail

Glen Ullin East & North to County Line



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SS-NH-1-049(027)067	082	36



Right of Way/Reference Monuments and Markers

Point	North	East	Station	Offset	Iron Pin R/W Monument	R/W Marker (witness post)	Iron Pin Reference Monument
9459	482110.2293	1646152.691	4346+73.43	-99.9986	x	x	
9460	482137.559	1646118.983	4347+00.50	-133.913	x	x	

Alignment Monuments

Point	North	East	Station	Offset	Description	Monument per standard D-720-1
9461	482168.2114	1646253.131	4347+32.17	0	COUNTY LINE	x

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Survey Data Layouts for Right of Way Markers and Monuments
 Widening, Sliver Grading, HBP Overlay, & Guardrail
 Glen Ullin East & North to County Line

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	100	1

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
D3-36	36"x6"	STREET NAME SIGN (Sign and installation only)		6	
G20-1-60	60"x24"	ROAD WORK NEXT ___ MILES	3	34	102
G20-1b-60	60"x24"	WORK IN PROGRESS/ NO WORK IN PROGRESS (Sign and installation only)		26	
G20-2-48	48"x24"	END ROAD WORK	6	19	114
G20-4-36	36"x18"	PILOT CAR FOLLOW ME (Mounted to back of pilot car)	2	18	36
G20-4b-36	36"x30"	WAIT FOR PILOT CAR	6	18	108
G20-10-108	108"x48"	CONTRACTOR SIGN	2	64	128
G20-50a-72	72"x36"	ROAD WORK NEXT ___ MILES RT & LT ARROWS	6	37	222
G20-52a-72	72"x24"	ROAD WORK NEXT ___ MILES RT or LT ARROW	2	30	60
G20-55-96	96"x48"	SPEED LIMIT ENFORCED - MINIMUM FEE \$80 WHEN WORKERS PRESENT	2	59	118
M1-1-36	36"x36"	INTERSTATE ROUTE MARKER (Post and installation only)		10	
M1-4-24	24"x24"	U.S. ROUTE MARKER (Post and installation only)		10	
M1-5-24	24"x24"	STATE ROUTE MARKER (Post and installation only)		10	
M3-1-24	24"x12"	NORTH (Mounted on route marker post)		7	
M3-2-24	24"x12"	EAST (Mounted on route marker post)		7	
M3-3-24	24"x12"	SOUTH (Mounted on route marker post)		7	
M3-4-24	24"x12"	WEST (Mounted on route marker post)		7	
M4-8-24	24"x12"	DETOUR (Mounted on route marker post)		7	
M4-9-30	30"x24"	DETOUR ARROW RIGHT or LEFT/AHD AND RT or LT		15	
M4-10-48	48"x18"	DETOUR ARROW RIGHT or LEFT		23	
M5-1-21	21"x15"	ARROW AHD AND RT or LT (Mounted on route marker post)		7	
M5-2-21	21"x15"	ARROW AHD UP & RT or LT (Mounted on route marker post)		7	
M6-1-21	21"x15"	ARROW RT or LT (Mounted on route marker post)		7	
M6-2-21	21"x15"	ARROW UP & RT or LT (Mounted on route marker post)		7	
M6-3-21	21"x15"	ARROW AHD (Mounted on route marker post)		7	
R1-1-48	48"x48"	STOP	4	32	128
R1-1a-18	18"x18"	STOP and SLOW PADDLE Back to Back	4	5	20
R1-2-60	60"x60"	YIELD		29	
R2-1-48	48"x60"	SPEED LIMIT	6	39	234
R2-1a-24	24"x18"	MINIMUM FEE \$80 (Mounted on Speed Limit post)	2	10	20
R3-7-48	48"x48"	LEFT or RIGHT LANE MUST TURN LEFT or RIGHT		35	
R4-1-48	48"x60"	DO NOT PASS		39	
R4-7-48	48"x60"	KEEP RIGHT SYMBOL		39	
R5-1-48	48"x48"	DO NOT ENTER		35	
R6-1-36	36"x12"	ONE WAY RIGHT or LEFT		13	
R7-1-12	12"x18"	NO PARKING		11	
R10-6-24	24"x36"	STOP HERE ON RED	4	16	64
R11-2-48	48"x30"	ROAD CLOSED		28	
R11-2a-48	48"x30"	STREET CLOSED		28	
R11-3a-60	60"x30"	ROAD CLOSED ___ MILES AHEAD LOCAL TRAFFIC ONLY		31	
R11-3c-60	60"x30"	STREET CLOSED ___ MILES AHEAD LOCAL TRAFFIC ONLY		31	
R11-4a-60	60"x30"	STREET CLOSED TO THRU TRAFFIC		31	
W1-3-48	48"x48"	RIGHT or LEFT SHARP REVERSE CURVE ARROW		35	
W1-4-48	48"x48"	RIGHT or LEFT REVERSE CURVE ARROW	2	35	70
W1-4b-48	48"x48"	DOUBLE RIGHT or LEFT REVERSE CURVE ARROW		35	
W1-6-48	48"x24"	LARGE ARROW		26	
W3-1-48	48"x48"	STOP AHEAD SYMBOL		35	
W3-3-48	48"x48"	SIGNAL AHEAD SYMBOL	4	35	140
W3-4-48	48"x48"	BE PREPARED TO STOP	4	35	140
W3-5-48	48"x48"	SPEED REDUCTION AHEAD	4	35	140
W4-2-48	48"x48"	RIGHT or LEFT LANE TRANSITION SYMBOL		35	
W5-1-48	48"x48"	ROAD NARROWS		35	
W5-8-48	48"x48"	THRU TRAFFIC RIGHT LANE		35	
W5-9-48	48"x48"	ROAD WORK TRAFFIC ONLY DOWN & LT or RT ARROW		35	
W6-3-48	48"x48"	TWO WAY TRAFFIC SYMBOL		35	
W8-1-48	48"x48"	BUMP	2	35	70
W8-3-48	48"x48"	PAVEMENT ENDS	2	35	70
W8-7-48	48"x48"	LOOSE GRAVEL		35	
W8-9a-48	48"x48"	SHOULDER DROP-OFF		35	
W8-11-48	48"x48"	UNEVEN LANES	2	35	70
W8-12-48	48"x48"	NO CENTER STRIPE		35	
W8-53-48	48"x48"	TRUCKS ENTERING HIGHWAY		35	
W8-54-48	48"x48"	TRUCKS ENTERING AHEAD or ___ FT.	4	35	140
W8-55-48	48"x48"	TRUCKS CROSSING AHEAD or ___ FT.	2	35	70
W8-56-48	48"x48"	TRUCKS EXITING HIGHWAY		35	
W9-3a-48	48"x48"	CENTER LANE CLOSED SYMBOL		35	
W12-2-48	48"x48"	LOW CLEARANCE SYMBOL		35	
W13-1-24	24"x24"	___ MPH ADVISORY SPEED PLATE (Mounted on warning sign post)		11	
W13-4-48	48"x60"	RAMP ARROW		39	
W14-3-48	48"x36"	NO PASSING ZONE		23	
W20-1-48	48"x48"	ROAD WORK AHEAD or ___ FT or ___ MILE	15	35	525
W20-2-48	48"x48"	DETOUR AHEAD or ___ FT		35	
W20-3-48	48"x48"	ROAD or STREET CLOSED AHEAD or ___ FT.		35	
W20-4-48	48"x48"	ONE LANE ROAD AHEAD or ___ FT.	4	35	140
W20-5-48	48"x48"	RIGHT or LEFT LANE CLOSED AHEAD or ___ FT.		35	
W20-7a-48	48"x48"	FLAGGING SYMBOL	4	35	140
W20-7k-24	24"x18"	___ FEET (Mounted on warning sign post)		10	
W20-8-48	48"x48"	STREET CLOSED		35	
W20-51-48	48"x48"	EQUIPMENT WORKING		35	
W20-52-54	54"x12"	NEXT ___ MILES (Mounted on warning sign post)	4	12	48
W21-1a-48	48"x48"	WORKERS SYMBOL		35	
W21-2-48	48"x48"	FRESH OIL		35	

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
W21-3-48	48"x48"	ROAD MACHINERY AHEAD or ___ FT		35	
W21-5-48	48"x48"	SHOULDER WORK	3	35	105
W21-5a-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED		35	
W21-5b-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED AHEAD or ___ FT.		35	
W21-6a-48	48"x48"	SURVEY CREW AHEAD		35	
W21-50-48	48"x48"	BRIDGE PAINTING AHEAD or ___ FT.		35	
W21-51-48	48"x48"	MATERIAL ON ROADWAY	1	35	35
W22-8-48	48"x48"	FRESH OIL LOOSE ROCK		35	
	24"x24"	TAKE TURNS (6" D letters) (Mounted on stop sign post)		11	

SPECIAL SIGNS					
Consign 1	114x48	12 FT LANE AHEAD WIDE VEHICLES USE ALTERNATE ROUTE	2	72	144
Consign 2	150x72	ND 49 SOUTHBOUND 12 FT LANE WIDE VEHICLES USE ALTERNATE ROUTE	2	115	230

SPEC & CODE	DESCRIPTION	TOTAL UNITS
704-1000	TRAFFIC CONTROL SIGNS	3631

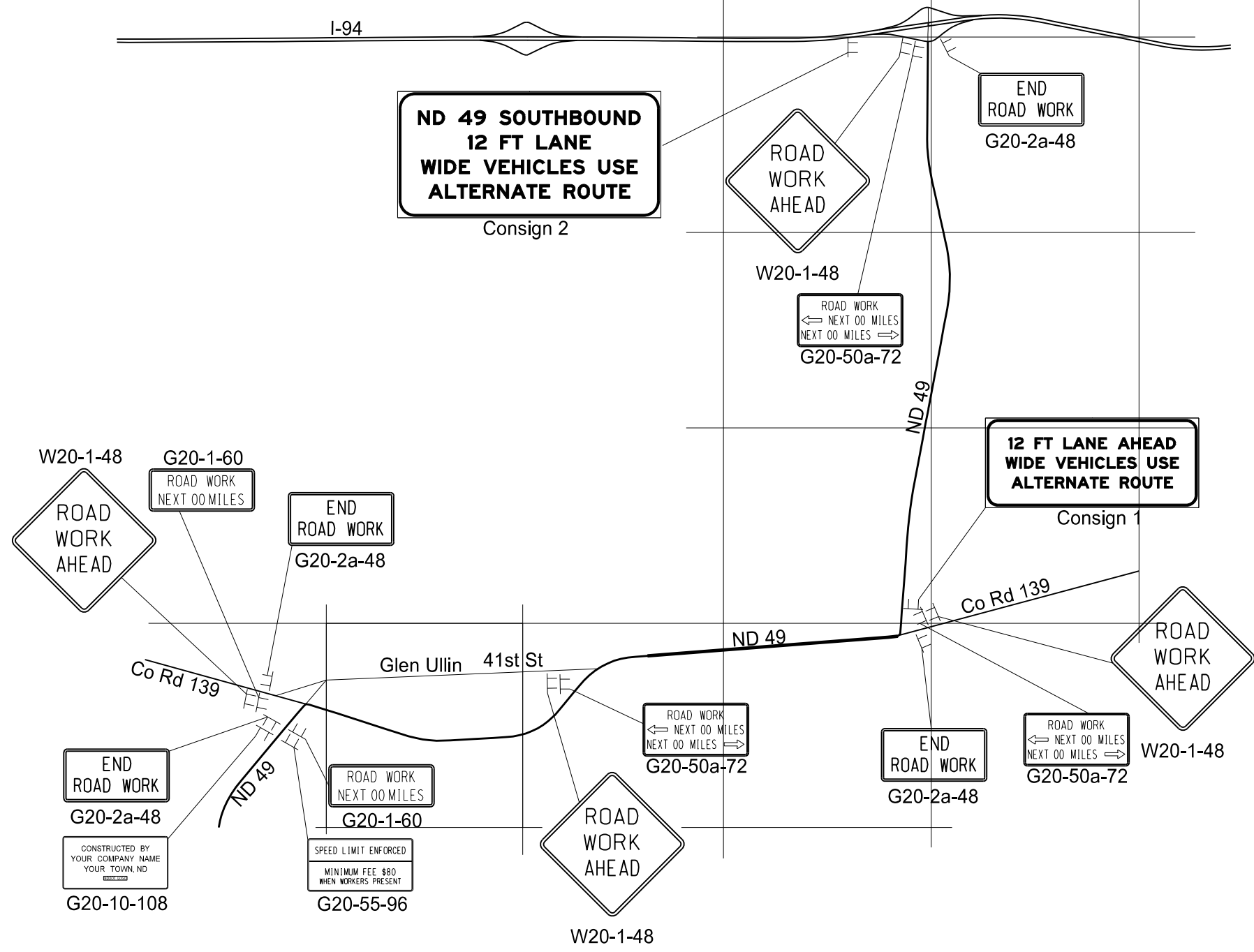
SPEC & CODE	DESCRIPTION	UNIT	QUANTITY
704-0100	FLAGGING	MHR	2000
704-1018	LANE CLOSURE-SIGNAL CONTROLLER/FLAGGING CONTROL	EACH	2
704-1041	ATTENUATION DEVICE-TYPE B-55	EACH	
704-1043	ATTENUATION DEVICE-TYPE B-65	EACH	4
704-1044	ATTENUATION DEVICE-TYPE B-70	EACH	
704-1050	TYPE I BARRICADES	EACH	
704-1051	TYPE II BARRICADES	EACH	
704-1052	TYPE III BARRICADES	EACH	6
704-1060	DELINEATOR DRUMS	EACH	136
704-1065	TRAFFIC CONES	EACH	
704-1067	TUBULAR MARKERS	EACH	82
704-1070	DELINEATOR	EACH	
704-1072	FLEXIBLE DELINEATORS	EACH	
704-1080	STACKABLE VERTICAL PANELS	EACH	65
704-1081	VERTICAL PANELS - BACK TO BACK	EACH	
704-1085	SEQUENCING ARROW PANEL - TYPE A	EACH	
704-1086	SEQUENCING ARROW PANEL - TYPE B	EACH	
704-1087	SEQUENCING ARROW PANEL - TYPE C	EACH	
704-1088	SEQUENCING ARROW PANEL - TYPE C - CROSSOVER	EACH	
704-1095	TYPE B FLASHERS	EACH	
704-1185	PILOT CAR	HR	1000
704-1500	OBLITERATION OF PVMT MK	SF	
704-3501	PORTABLE PRECAST CONCRETE MED BARRIER	LF	
704-3510	PRECAST CONCRETE MED BARRIER - STATE FURNISHED	EACH	18
762-0200	RAISED PAVEMENT MARKERS	EACH	
762-0420	SHORT TERM 4IN LINE - TYPE R	LF	3560
762-0430	SHORT TERM 4IN LINE - TYPE NR	LF	104757
772-2110	FLASHING BEACON - POST MOUNTED	EACH	

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

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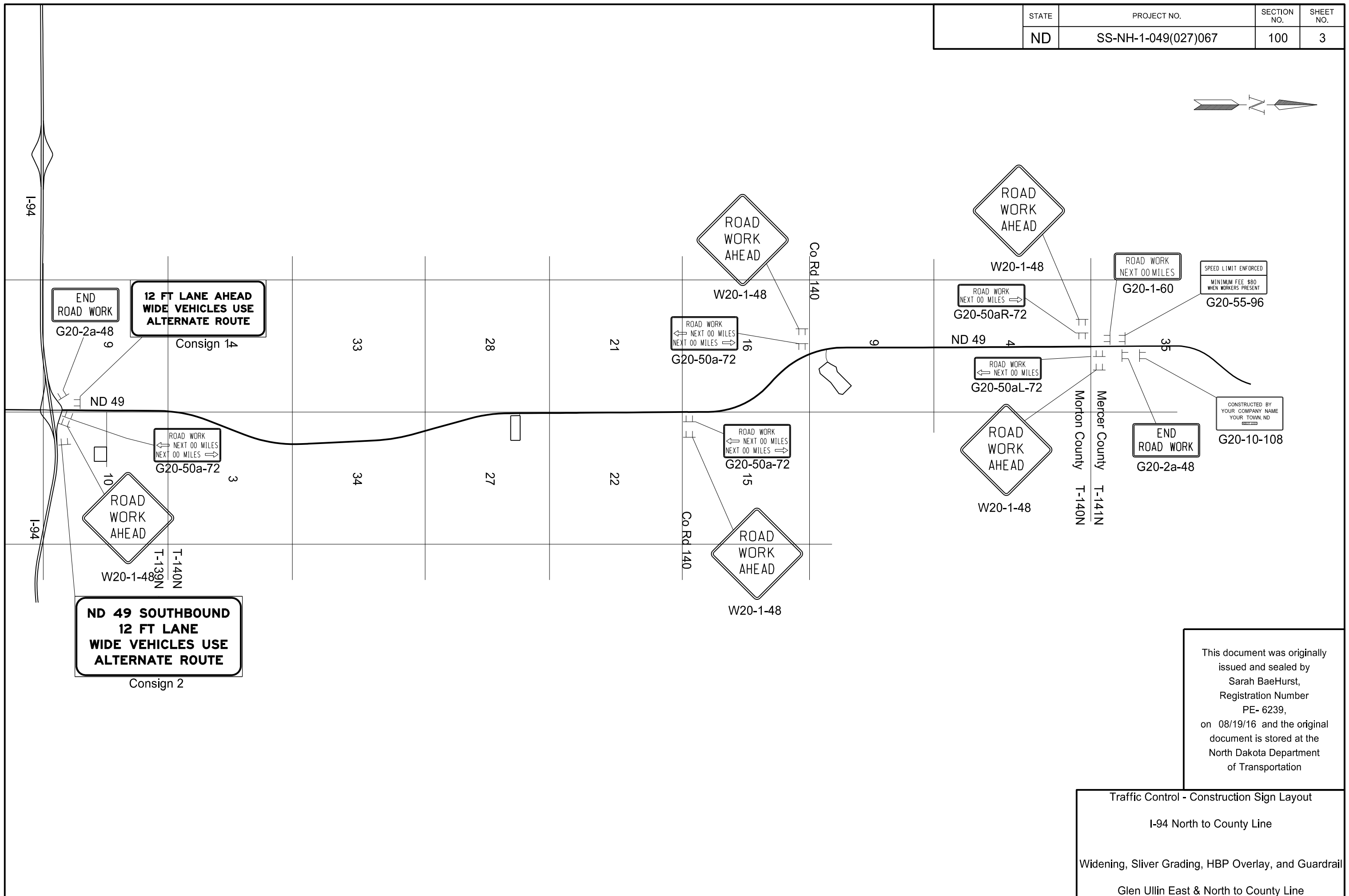
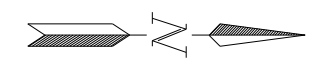
Traffic Control Devices List
Widening, Sliver Grading, HBP, & Grdrl
Glen Ullin East & North to County Line

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	100	2



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Traffic Control - Construction Sign Layout
 Glen Ullin East & North to I-94
 Widening, Sliver Grading, HBP Overlay, and Guardrail
 Glen Ullin East & North to County Line



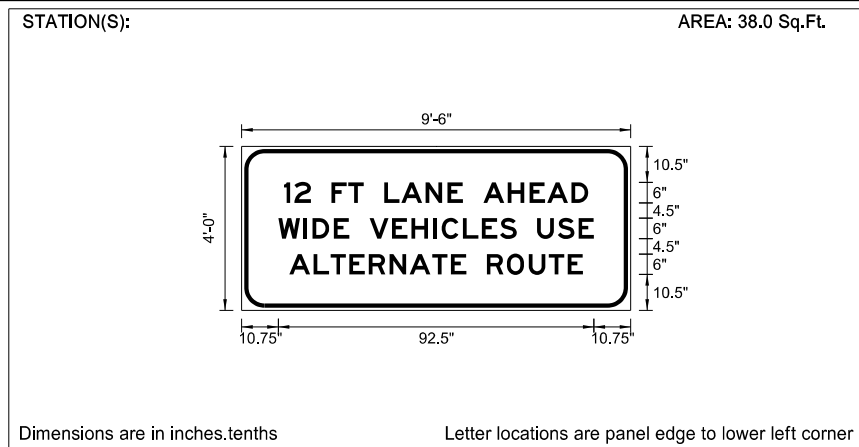
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Traffic Control - Construction Sign Layout
 I-94 North to County Line
 Widening, Sliver Grading, HBP Overlay, and Guardrail
 Glen Ullin East & North to County Line

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	100	4

SIGN NUMBER	Consign 1
WIDTH x HEIGHT	9'-6" x 4'-0"
BORDER WIDTH	1.25" (inset 0.75")
CORNER RADIUS	6"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective COLOR: Fluorescent Orange
LEGEND/BORDER	TYPE: IV Reflective COLOR: Black

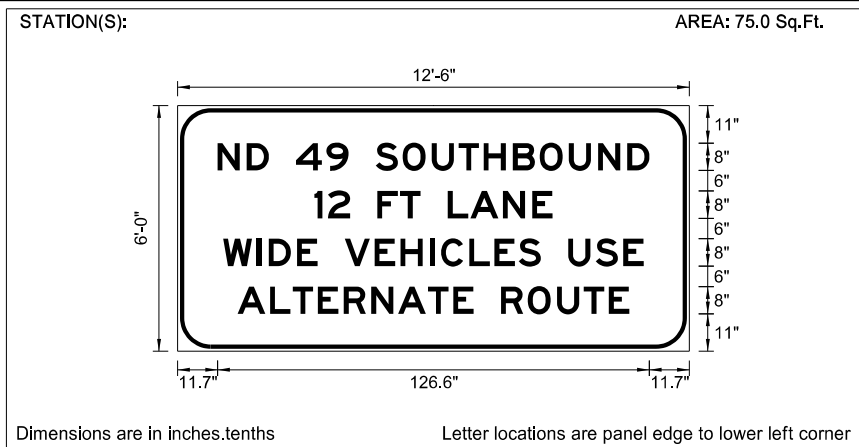
SYMBOL	X	Y	WID	HT	ANGLE



LETTER POSITION (X)																LENGTH	SIZE	SERIES	
1	2	F	T	L	A	N	E	A	H	E	A	D				89.1	6	E 2000	
12.5	15.5	20.3	26.3	31.3	35.8	41.8	46.8	53.9	60.3	64.8	70.8	78	84.4	89.6	96.7				
W	I	D	E	V	E	H	I	C	L	E	S	U	S	E		92.5	6	E 2000	
10.8	18.2	20.8	27	31.5	37.5	44.1	49.8	56.2	58.7	64.9	70.4	75.8	80.6	86.6	92.7	98.7			
A	L	T	E	R	N	A	T	E	R	O	U	T	E				86.1	6	E 2000
14	21.1	26.1	31.6	37.3	43.4	49.2	55.8	61.4	65.9	71.9	77.7	84.2	90	95.6					

SIGN NUMBER	Consign 2
WIDTH x HEIGHT	12'-6" x 6'-0"
BORDER WIDTH	1.25" (inset 0.75")
CORNER RADIUS	9"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective COLOR: Fluorescent Orange
LEGEND/BORDER	TYPE: IV Reflective COLOR: Black

SYMBOL	X	Y	WID	HT	ANGLE



LETTER POSITION (X)																LENGTH	SIZE	SERIES	
N	D	4	9	S	O	U	T	H	B	O	U	N	D			126.6	8	E 2000	
11.7	20.3	26.8	34.8	43.6	50.1	58.1	66	74.5	82.4	89.7	98.3	106.1	114.7	123.2	131.8				
1	2	F	T	L	A	N	E									69.8	8	E 2000	
40.1	44.1	50.6	58.6	65.2	71.2	79.2	85.8	95.4	103.9										
W	I	D	E	V	E	H	I	C	L	E	S	U	S	E		123.3	8	E 2000	
13.4	23.2	26.7	35	41	49	57.8	65.4	73.9	77.2	85.5	92.9	100	106.5	114.5	122.6	130.6			
A	L	T	E	R	N	A	T	E	R	O	U	T	E				114.8	8	E 2000
17.6	27.1	33.8	41.1	48.7	56.8	64.6	73.4	80.8	86.8	94.8	102.6	111.2	119	126.4					

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Construction Sign Details
Widening, Sliver grading, HBP Overlay, and Gaurdrail
Glen Ullin East & North to County Line

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
N.D.	SS-NH-1-049(027)067	110	1

Sta/RP	Sign No.	Assembly No.	Flat Sheet For Signs IV SF	Flat Sheet For Signs XI SF	Sign Support Length				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
					1st LF	2nd LF	3rd LF	4th LF		LF	1st LF	2nd LF	3rd LF	4th LF								
Glen Ullin																						
67.320 Lt		54		11.3	13.0				2.5 x 2.5 12 ga	15.8	3.3				2.25 x 2.25 12 ga	1	4	3 x 3 7 ga			1	
67.464 Lt		9		5.0	11.0				2 x 2 12 ga	11.5						1	4	2.25 x 2.25 12 ga				
67.530 Rt	S.A.B		8.4		12.7				2.5 x 2.5 10 ga	13.7						1	4	3 x 3 7 ga			1	
67.545 Rt	S.A.A			5.2	11.2				2.25 x 2.25 12 ga	14.6						1	4	2.5 x 2.5 12 ga				
67.583 Rt		437	8.4		12.5				2.5 x 2.5 10 ga	15.2						1	4	3 x 3 7 ga			1	
67.620 Rt		399	2.2		9.5				2 x 2 12 ga	9.9						1	4	2.25 x 2.25 12 ga	1			
67.658 Rt	SN 1		24.5		11.0	12.0			2.5 x 2.5 12 ga	13.2	3.1	4.1			2.25 x 2.25 12 ga	2	4	3 x 3 7 ga				2
67.665 Lt									2 x 2 12 ga										1	1		
67.691 Lt		2		7.5	11.0				2.5 x 2.5 12 ga	12.1						1	4	3 x 3 7 ga				
67.700 Lt	S.A.A		5.2		11.2				2.25 x 2.25 12 ga	14.6						1	4	2.5 x 2.5 12 ga				
67.709 Lt		439	4.2		12.5				2.5 x 2.5 12 ga	13.0	4.3				2.25 x 2.25 12 ga	1	4	3 x 3 7 ga	1			1
67.735 Rt									2 x 2 12 ga										1	1		
67.752 Lt									2 x 2 12 ga										1	1		
67.773 Rt	SN 2		6.8		9.8				2.5 x 2.5 12 ga	12.4						1	4	3 x 3 7 ga				
67.793 Lt		405	12.4		11.5				2.5 x 2.5 12 ga	13.5	3.2				2.25 x 2.25 12 ga	1	4	3 x 3 7 ga				1
67.811 Rt		9		5.0	11.0				2 x 2 12 ga	11.5						1	4	2.25 x 2.25 12 ga				
67.964 Rt		20		9.0	12.0				2.5 x 2.5 10 ga	12.9						1	4	3 x 3 7 ga				1
68.155 Lt		9		5.0	11.0				2 x 2 12 ga	11.5						1	4	2.25 x 2.25 12 ga				
68.353 Rt		1		5.2	11.0				2.25 x 2.25 12 ga	13.7						1	4	2.5 x 2.5 12 ga				
68.391 Lt		1		5.2	11.0				2.25 x 2.25 12 ga	13.7						1	4	2.5 x 2.5 12 ga				
68.462 Lt		1		5.2	11.0				2.25 x 2.25 12 ga	13.7						1	4	2.5 x 2.5 12 ga				
68.530 Lt		1		5.2	11.0				2.25 x 2.25 12 ga	13.7						1	4	2.5 x 2.5 12 ga				
68.601 Lt		1		5.2	11.0				2.25 x 2.25 12 ga	13.7						1	4	2.5 x 2.5 12 ga				
68.637 Rt		71			10.7				2 x 2 12 ga	11.2						1	4	2.25 x 2.25 12 ga	1			
68.670 Lt		1		5.2	11.0				2.25 x 2.25 12 ga	13.7						1	4	2.5 x 2.5 12 ga				
68.738 Lt		1		5.2	11.0				2.25 x 2.25 12 ga	13.7						1	4	2.5 x 2.5 12 ga				
68.786 Rt		437	8.4		12.5				2.5 x 2.5 10 ga	15.2						1	4	3 x 3 7 ga				1
68.830 Lt		71			10.7				2 x 2 12 ga	11.2						1	4	2.25 x 2.25 12 ga	1			
68.848 Lt		437	8.4		12.5				2.5 x 2.5 10 ga	15.2						1	4	3 x 3 7 ga				1
68.976 Lt									2 x 2 12 ga										1	1		
68.976 Rt		9		5.0	11.0				2 x 2 12 ga	11.5						1	4	2.25 x 2.25 12 ga				
69.164 Lt		20		9.0	12.0				2.5 x 2.5 10 ga	12.9						1	4	3 x 3 7 ga				1
69.177 Lt		9		5.0	11.0				2 x 2 12 ga	11.5						1	4	2.25 x 2.25 12 ga				
69.178 Rt		9		5.0	11.0				2 x 2 12 ga	11.5						1	4	2.25 x 2.25 12 ga				

Basis of Estimate
Sign Support Lengths
The sign support lengths have been calculated using the following vertical clearances:

Rural Roadway - 60"

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Sign Summary
Perforated Tube
ND 49 - Glen Ullin to County Line
ND Hwy 49

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
N.D.	SS-NH-1-049(027)067	110	2

Sta/RP	Sign No.	Assembly No.	Flat Sheet For Signs		Sign Support Length				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								
69.348 Lt		20		9.0	12.0				2.5 x 2.5 10 ga	12.9						1	4	3 x 3 7 ga			1	
69.373 Lt	SA 2D		15.8		12.6				2.5 x 2.5 12 ga	13.2	4.5			2.25 x 2.25 12 ga	1	4	3 x 3 7 ga	1			1	
69.376 Lt		34		8.0	10.7				2.5 x 2.5 12 ga	11.3					1	4	3 x 3 7 ga					
69.426 Lt	SN 3		11.3		9.9				2.25 x 2.25 12 ga	11.0	3.2			2 x 2 12 ga	1	4	3 x 3 7 ga					1
69.447 Lt	S.A.A			5.2	11.2				2.25 x 2.25 12 ga	14.6					1	4	2.5 x 2.5 12 ga					
69.479 Rt		371	6.0		11.5				2.25 x 2.25 12 ga	12.9					1	4	2.5 x 2.5 12 ga					
69.521 Lt	SN 2		6.8		9.3				2.25 x 2.25 12 ga	9.7					1	4	2.5 x 2.5 12 ga					
69.585 Lt	S.A.B			8.4	11.2				2.5 x 2.5 12 ga	11.3					1	4	3 x 3 7 ga					
69.585 Rt		15	6.3		11.0				2.25 x 2.25 12 ga	11.6					1	4	2.5 x 2.5 12 ga					
Sub Total			128.8	145.3				Total 450.9							Total 160				9	4	14	
49 N & 139 E																						
70.618 Rt	SN 13			12.0	11.0				2.5 x 2.5 12 ga	13.8	2.6			2.25 x 2.25 12 ga	1	4	3 x 3 7 ga					1
70.657 Lt		15	6.3		11.0				2.25 x 2.25 12 ga	11.6					1	4	2.5 x 2.5 12 ga					
70.657 Rt	S.A.B		8.4		11.2				2.5 x 2.5 12 ga	11.3					1	4	3 x 3 7 ga					
70.676 Rt		379	8.2		12.8				2.5 x 2.5 12 ga	12.9					1	4	3 x 3 7 ga	1				
70.718 Rt	SN 4		16.3		10.3	11.3			2.5 x 2.5 10 ga	13.4					2	4	3 x 3 7 ga					2
70.759 Rt		405	12.4		11.5				2.5 x 2.5 12 ga	13.5	3.2			2.25 x 2.25 12 ga	1	4	3 x 3 7 ga					1
70.844 Rt		379	8.2		12.8				2.5 x 2.5 12 ga	12.9					1	4	3 x 3 7 ga					
70.850 Rt									2 x 2 12 ga									1	2			
70.860 Lt		2		7.5	11.1				2.5 x 2.5 12 ga	12.1					1	4	3 x 3 7 ga					
70.916 Lt	SN 5		29.8		10.7	11.3	11.9		2.25 x 2.25 12 ga	12.5	3.0	3.6	4.2	2 x 2 12 ga	3	4	3 x 3 7 ga					3
70.951 Rt	SN 6		6.8		9.8				2.5 x 2.5 12 ga	12.4					1	4	3 x 3 7 ga					
70.954 Lt		437	8.4		12.5				2.5 x 2.5 10 ga	15.2					1	4	3 x 3 7 ga					1
70.992 Lt									2 x 2 12 ga									1	1			
71.030 Lt		399	2.2		11.8				2.25 x 2.25 12 ga	12.7					1	4	2.5 x 2.5 12 ga	1				
71.097 Lt	S.A.B		8.4		11.2				2.5 x 2.5 12 ga	11.3					1	4	3 x 3 7 ga					
71.223 Lt		20		9.0	12.0				2.5 x 2.5 10 ga	12.9					1	4	3 x 3 7 ga					1
Sub Total			115.4	28.5				Total 194.2							Total 68				4	3	9	

Basis of Estimate
Sign Support Lengths
The sign support lengths have been calculated using the following vertical clearances:
Rural Roadway - 60"

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Sign Summary
Perforated Tube
ND 49 - Glen Ullin to County Line
ND Hwy 49

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
N.D.	SS-NH-1-049(027)067	110	3

Sta/RP	Sign No.	Assembly No.	Flat Sheet For Signs IV SF	Flat Sheet For Signs XI SF	Sign Support Length				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
					1st LF	2nd LF	3rd LF	4th LF		LF	1st LF	2nd LF	3rd LF	4th LF								
Interchange																						
73.520 Rt		20		9.0	12.0				2.5 x 2.5 10 ga	12.9						1	4	3 x 3 7 ga			1	
73.691 Rt		9		5.0	11.0				2 x 2 12 ga	11.5						1	4	2.25 x 2.25 12 ga				
73.722 Rt	SN 7		18.8		10.4	11.4			2.25 x 2.25 12 ga	12.9	2.6	3.6			2	4	3 x 3 7 ga				2	
73.725 Lt		9		5.0	11.0				2 x 2 12 ga	11.5						1	4	2.25 x 2.25 12 ga				
73.780 Lt	SN 8		26.3		11.1	11.7	12.2		2.5 x 2.5 10 ga	12.8						3	4	3 x 3 7 ga			3	
74.148 Rt	SN 10		7.5		9.9				2.5 x 2.5 12 ga	11.2						1	4	3 x 3 7 ga				
74.150 Lt	SN 9		18.8		10.4	11.4			2.25 x 2.25 12 ga	12.9	2.6	3.6			2	4	3 x 3 7 ga				2	
74.185 Lt		9		5.0	11.0				2 x 2 12 ga	11.5						1	4	2.25 x 2.25 12 ga				
74.205 Rt		9		5.0	11.0				2 x 2 12 ga	11.5						1	4	2.25 x 2.25 12 ga				
74.435 Lt		20		9.0	12.0				2.5 x 2.5 10 ga	12.9						1	4	3 x 3 7 ga			1	
Sub Total			71.4	38.0	Total 156.5										Total 56				0	0	9	

Basis of Estimate
Sign Support Lengths
The sign support lengths have been calculated using the following vertical clearances:
Rural Roadway - 60"

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Sign Summary
Perforated Tube
ND 49 - Glen Ullin to County Line
ND Hwy 49

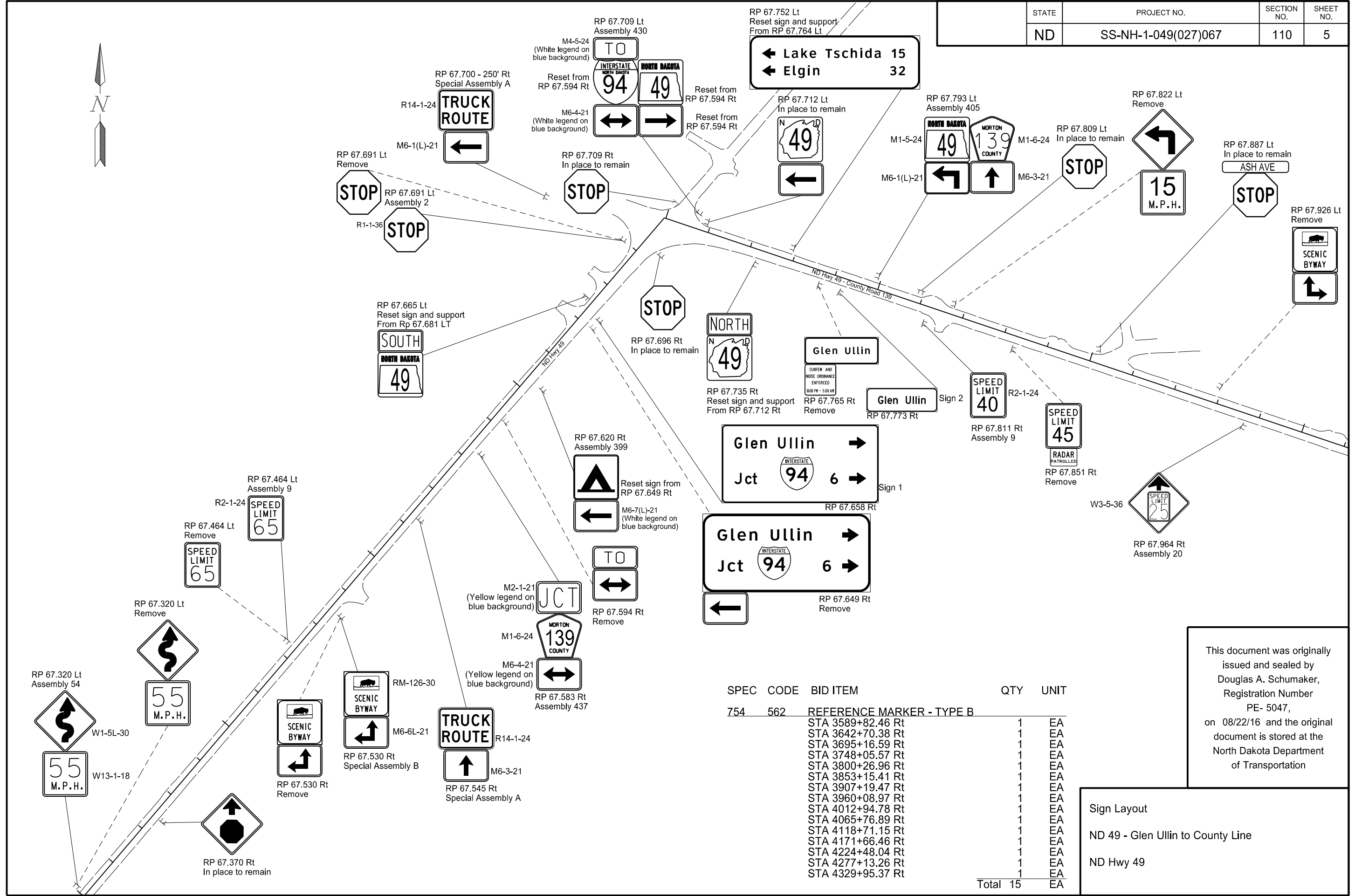
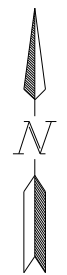
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
N.D.	SS-NH-1-049(027)067	110	4

Sta/RP	Sign No.	Assembly No.	Flat Sheet For Signs		Sign Support Length				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								
HWY 49 N																						
74.730 Rt		19			12.8				2.5 x 2.5 12 ga	14.5					1	4	3 x 3 7 ga	1				
74.922 Rt					10.7				2.5 x 2.5 10 ga	13.1					1	4	3 x 3 7 ga	1		1		
75.328 Lt		19			12.8				2.5 x 2.5 12 ga	14.5					1	4	3 x 3 7 ga	1				
75.461 Rt		19			12.8				2.5 x 2.5 12 ga	14.5					1	4	3 x 3 7 ga	1				
75.932 Lt					10.7				2.5 x 2.5 10 ga	13.1					1	4	3 x 3 7 ga	1		1		
75.994 Lt		1			12.1				2.25 x 2.25 12 ga	13.7					1	4	2.5 x 2.5 12 ga	1				
76.693 Rt		19			12.8				2.5 x 2.5 12 ga	14.5					1	4	3 x 3 7 ga	1				
78.130 Rt		19			12.8				2.5 x 2.5 12 ga	14.5					1	4	3 x 3 7 ga	1				
78.818 Rt		437			13.6				2.5 x 2.5 10 ga	15.2					1	4	3 x 3 7 ga	1		1		
78.973 Rt		1			12.1				2.25 x 2.25 12 ga	13.7					1	4	2.5 x 2.5 12 ga	1				
78.974 Rt					10.7				2.5 x 2.5 10 ga	13.1					1	4	3 x 3 7 ga	1		1		
79.100 Rt		1		5.2	12.1				2.25 x 2.25 12 ga	13.7					1	4	2.5 x 2.5 12 ga					
79.105 Lt		437			13.6				2.5 x 2.5 10 ga	15.2					1	4	3 x 3 7 ga	1		1		
79.964 Rt		437			13.6				2.5 x 2.5 10 ga	15.2					1	4	3 x 3 7 ga	1		1		
80.102 Lt		1			12.1				2.25 x 2.25 12 ga	13.7					1	4	2.5 x 2.5 12 ga	1				
80.110 Rt					11.7				2.5 x 2.5 12 ga	13.3	3.8			2.25 x 2.25 12 ga	1	4	3 x 3 7 ga	1		1		
80.254 Lt		437			13.6				2.5 x 2.5 10 ga	15.2					1	4	3 x 3 7 ga	1		1		
80.333 Lt		19			12.8				2.5 x 2.5 12 ga	14.5					1	4	3 x 3 7 ga	1				
81.125 Rt	0				10.7				2.5 x 2.5 10 ga	13.1					1	4	3 x 3 7 ga	1		1		
82.320 Lt	SN 11		8.8		11.5				2.5 x 2.5 10 ga	12.6					1	4	3 x 3 7 ga			1		
82.325 Lt		1			12.1				2.25 x 2.25 12 ga	13.7					1	4	2.5 x 2.5 12 ga	1				
82.336 Rt	SN 12		8.8		11.5				2.5 x 2.5 10 ga	12.6					1	4	3 x 3 7 ga			1		
Sub Total			17.6	5.2				Total	269.4						Total	88		19	0	11		
Grand Total			333.2	217.0				Total	1071.1						Total	372		32	7	43		

Basis of Estimate
Sign Support Lengths
The sign support lengths have been calculated using the following vertical clearances:
Rural Roadway - 60"

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Sign Summary
Perforated Tube
ND 49 - Glen Ullin to County Line
ND Hwy 49

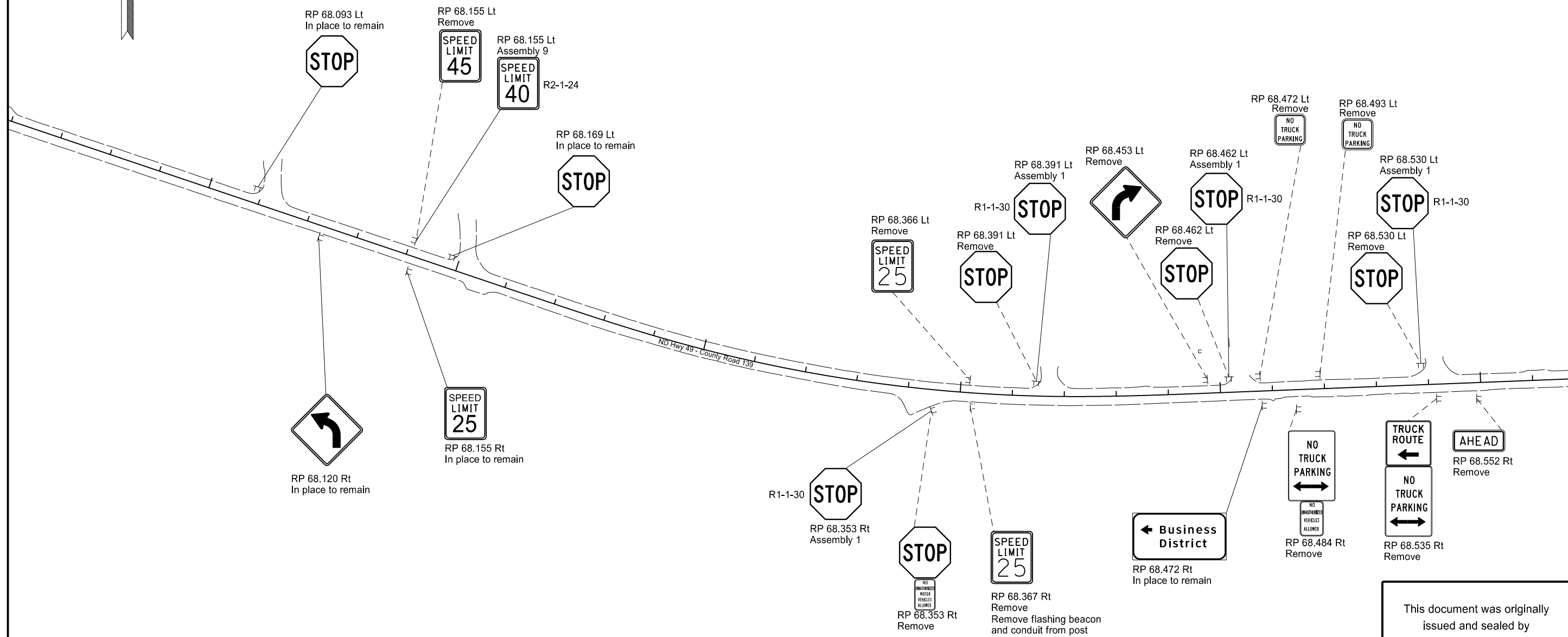
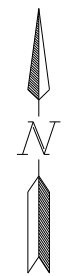


SPEC	CODE	BID ITEM	QTY	UNIT
754	562	REFERENCE MARKER - TYPE B		
		STA 3589+82.46 Rt	1	EA
		STA 3642+70.38 Rt	1	EA
		STA 3695+16.59 Rt	1	EA
		STA 3748+05.57 Rt	1	EA
		STA 3800+26.96 Rt	1	EA
		STA 3853+15.41 Rt	1	EA
		STA 3907+19.47 Rt	1	EA
		STA 3960+08.97 Rt	1	EA
		STA 4012+94.78 Rt	1	EA
		STA 4065+76.89 Rt	1	EA
		STA 4118+71.15 Rt	1	EA
		STA 4171+66.46 Rt	1	EA
		STA 4224+48.04 Rt	1	EA
		STA 4277+13.26 Rt	1	EA
		STA 4329+95.37 Rt	1	EA
		Total	15	EA

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Sign Layout
 ND 49 - Glen Ullin to County Line
 ND Hwy 49

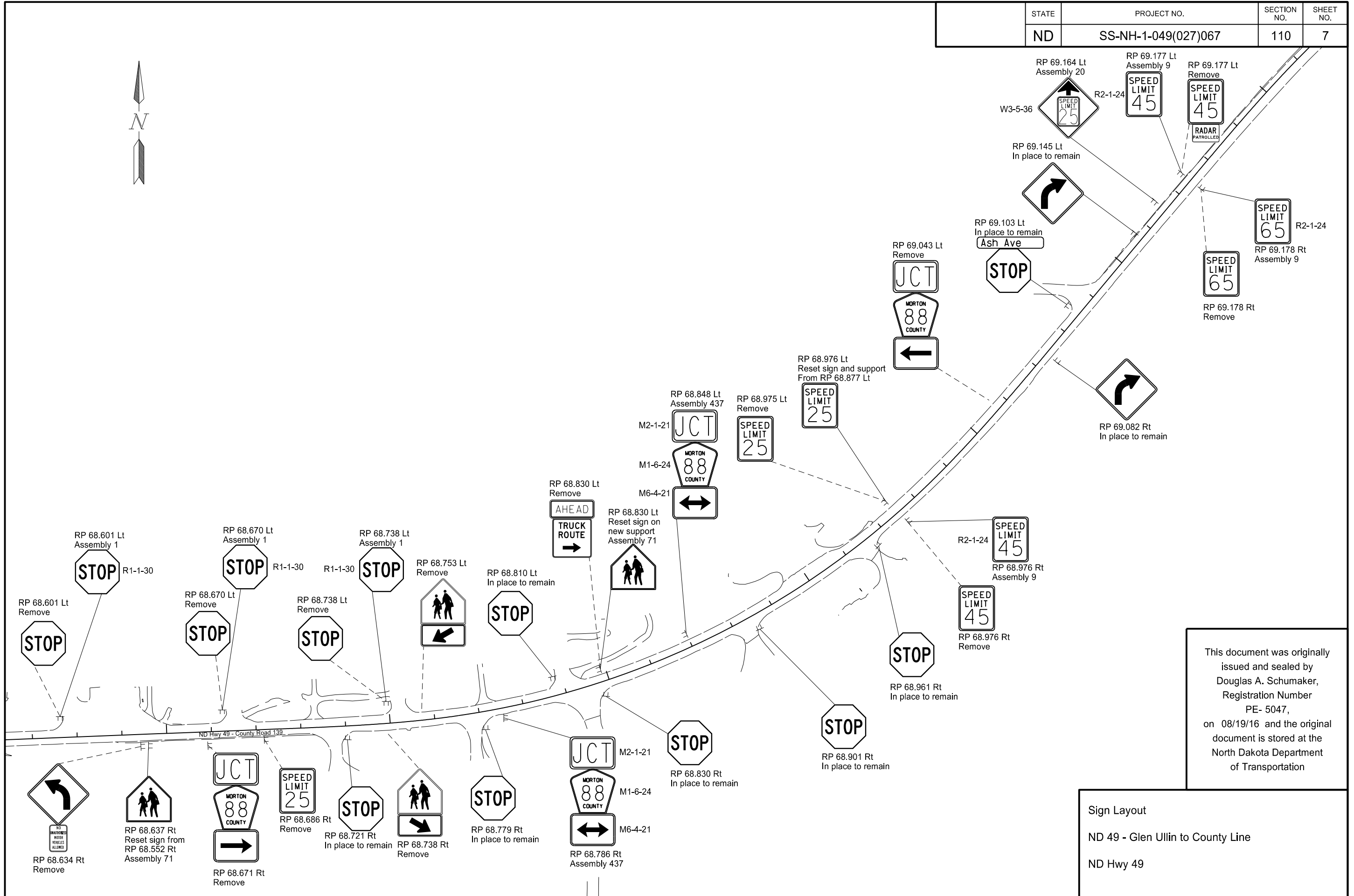
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	110	6



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Sign Layout
 ND 49 - Glen Ullin to County Line
 ND Hwy 49

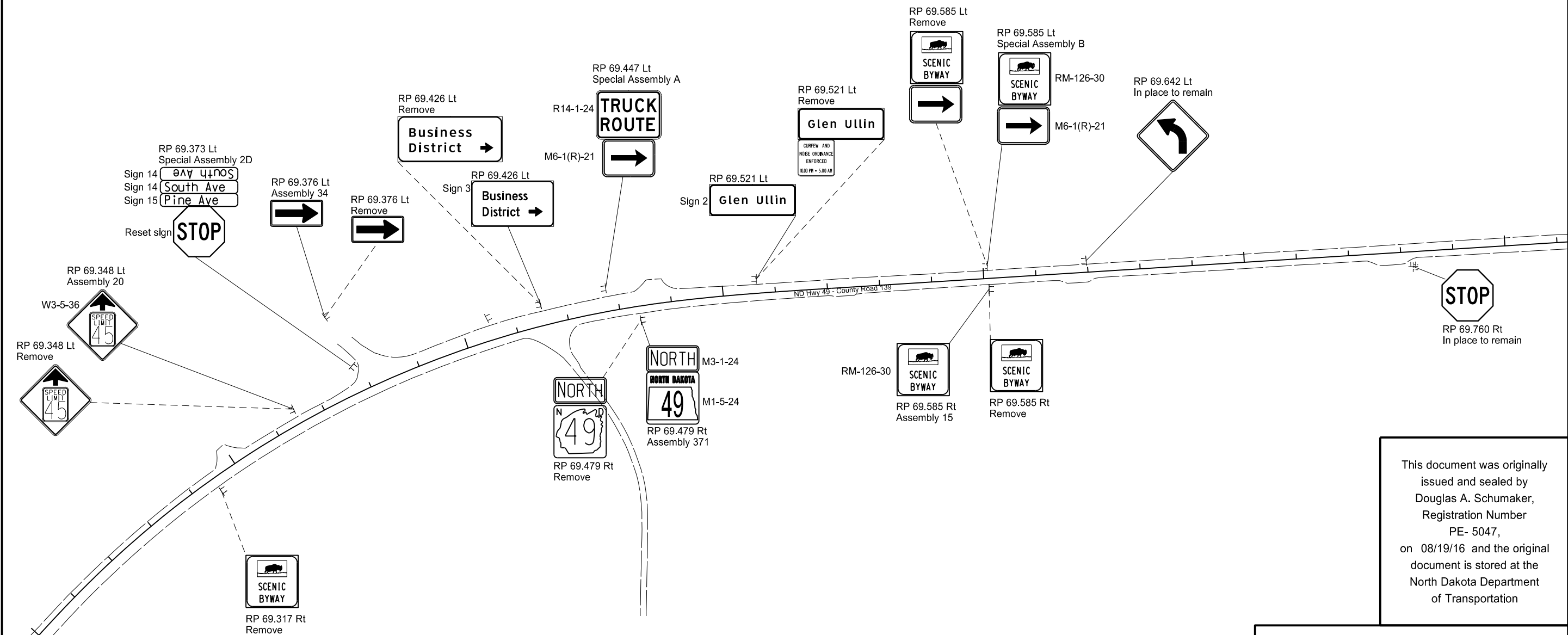
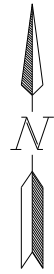
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	110	7



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Sign Layout
 ND 49 - Glen Ullin to County Line
 ND Hwy 49

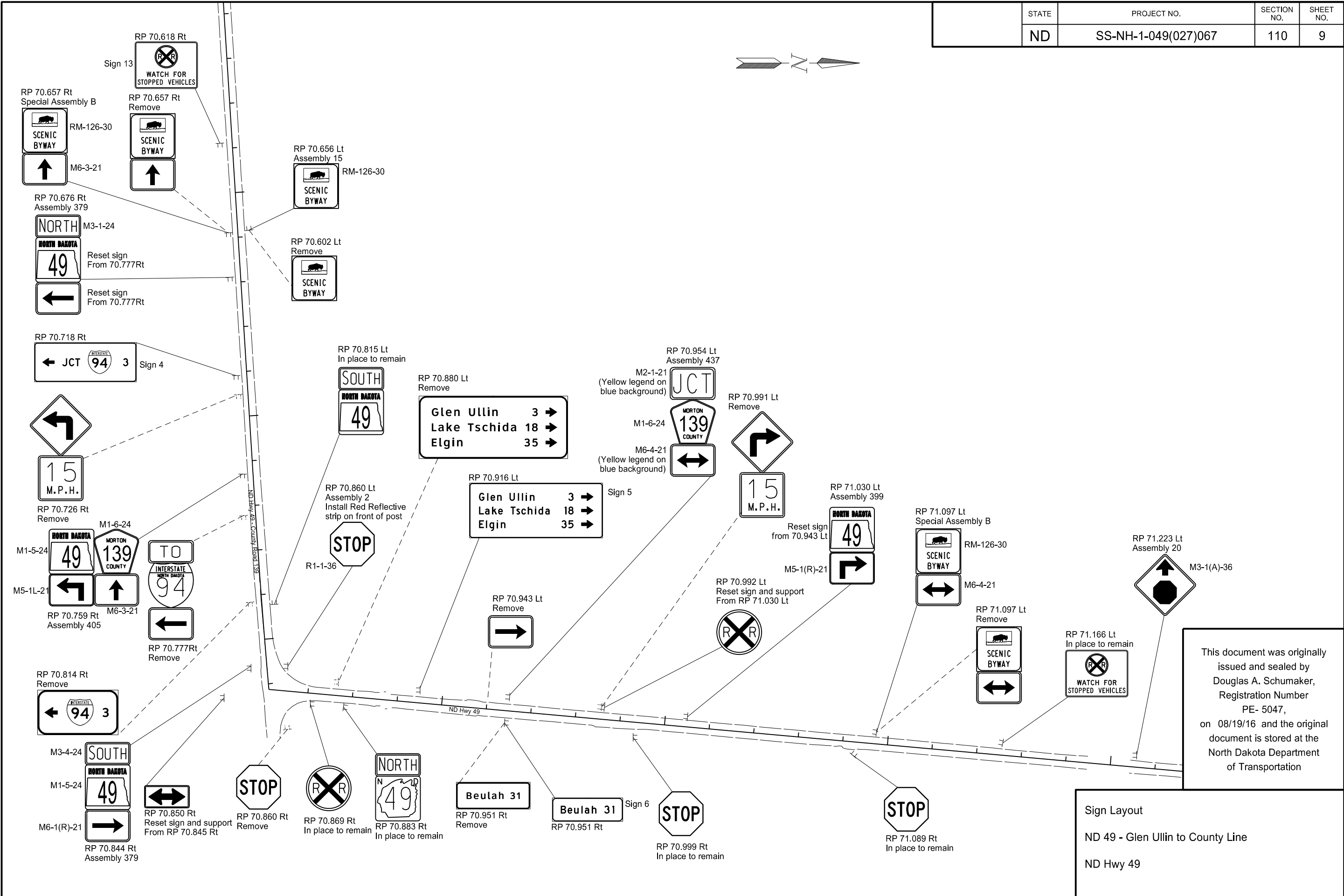
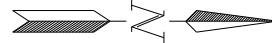
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	110	8



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Sign Layout
ND 49 - Glen Ullin to County Line
ND Hwy 49

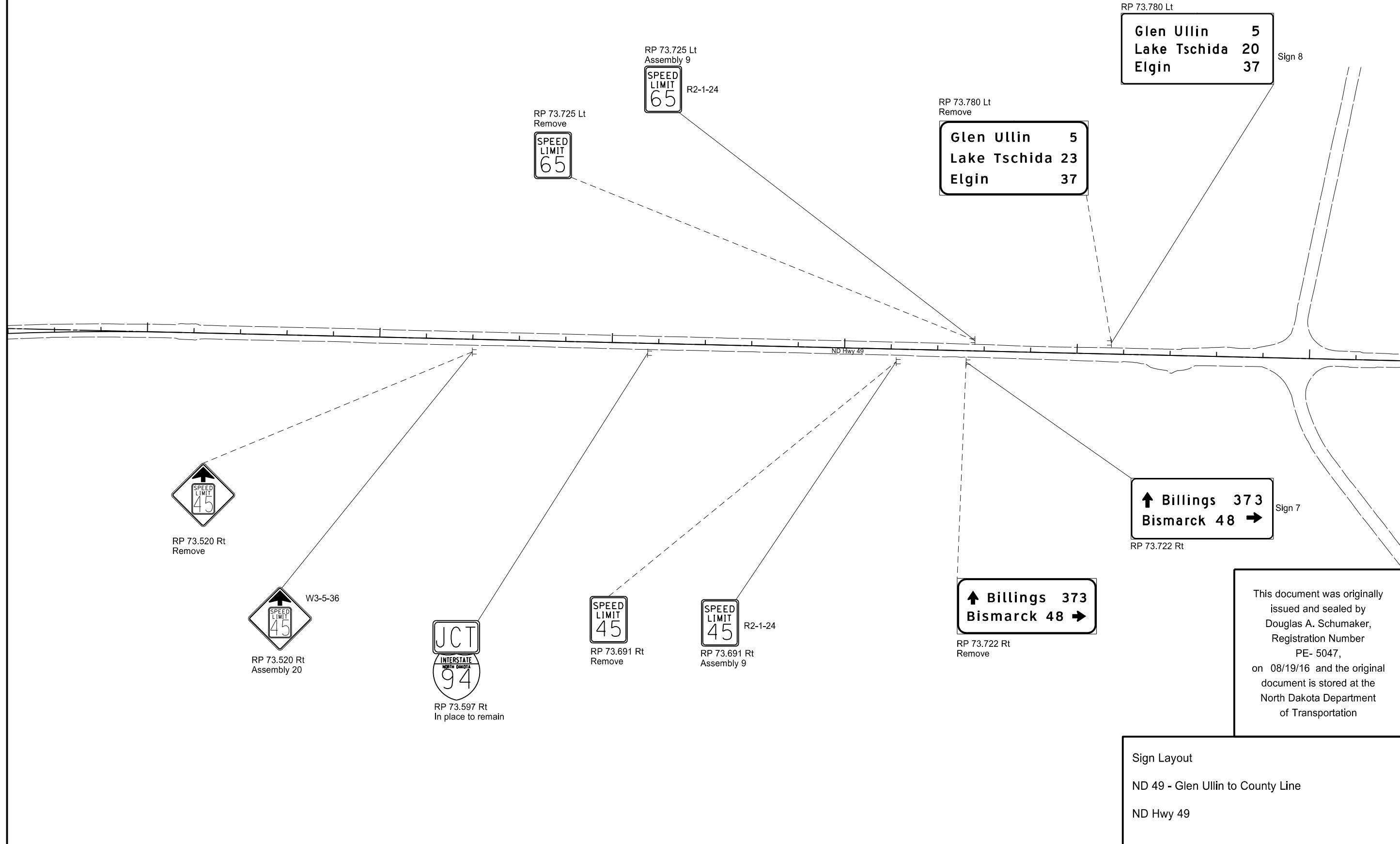
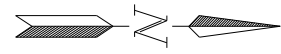
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	110	9



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Sign Layout
 ND 49 - Glen Ullin to County Line
 ND Hwy 49

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	110	10



RP 73.780 Lt
Glen Ullin 5
Lake Tschida 20
Elgin 37 Sign 8

RP 73.780 Lt
 Remove
Glen Ullin 5
Lake Tschida 23
Elgin 37

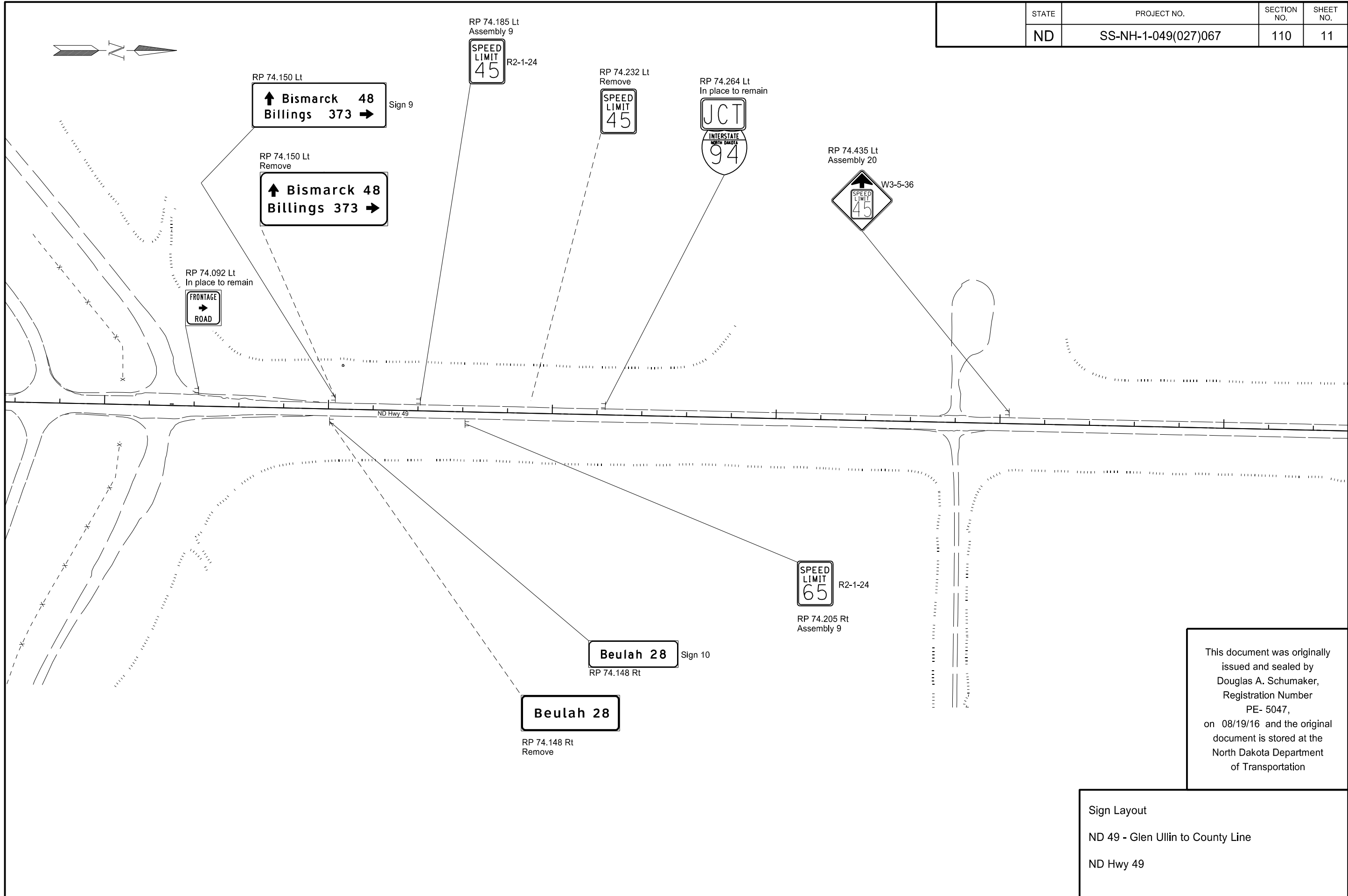
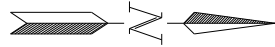
↑ Billings 373
Bismarck 48 → Sign 7
 RP 73.722 Rt

↑ Billings 373
Bismarck 48 →
 RP 73.722 Rt
 Remove

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Sign Layout
 ND 49 - Glen Ullin to County Line
 ND Hwy 49

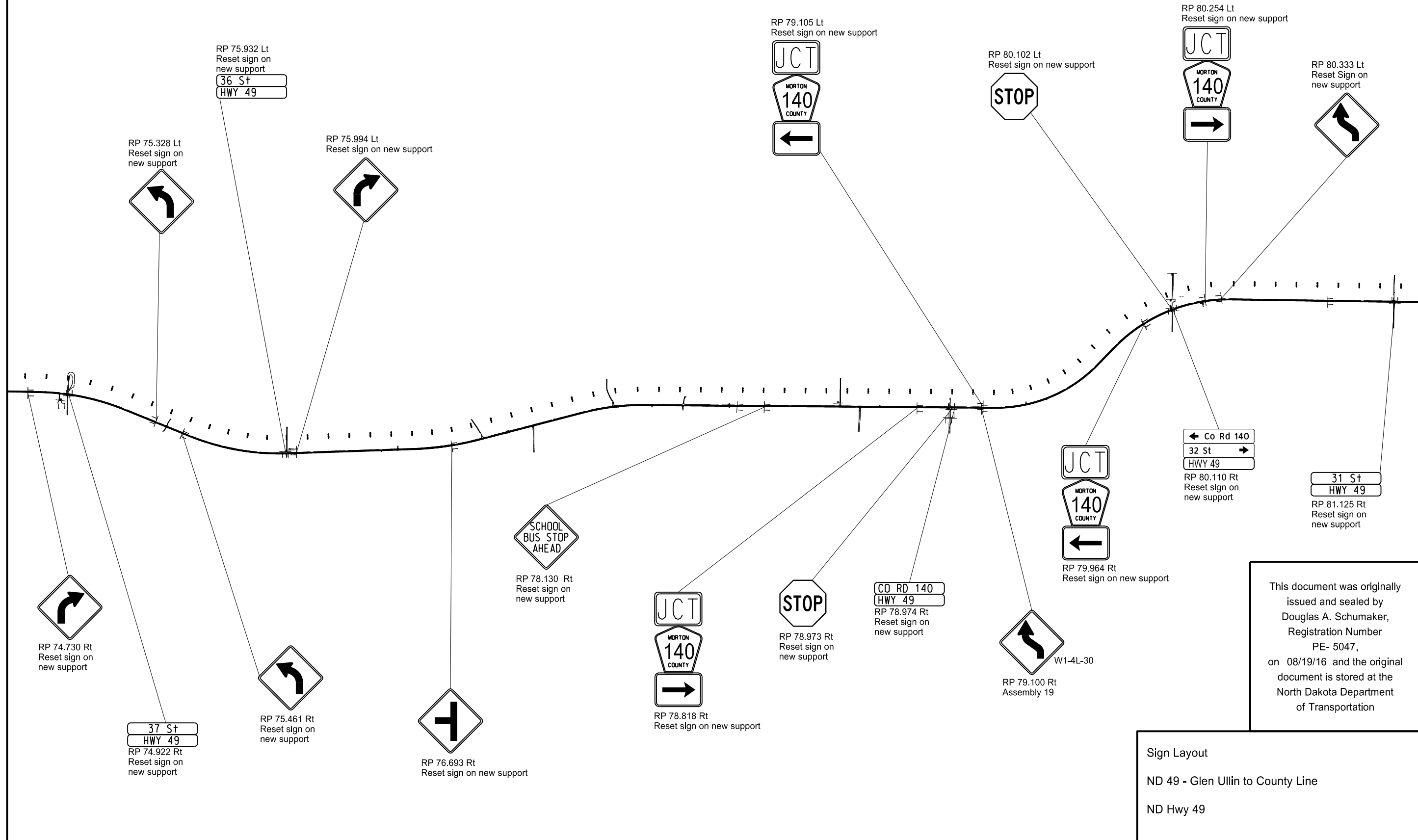
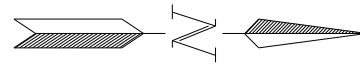
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	110	11



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Sign Layout
 ND 49 - Glen Ullin to County Line
 ND Hwy 49

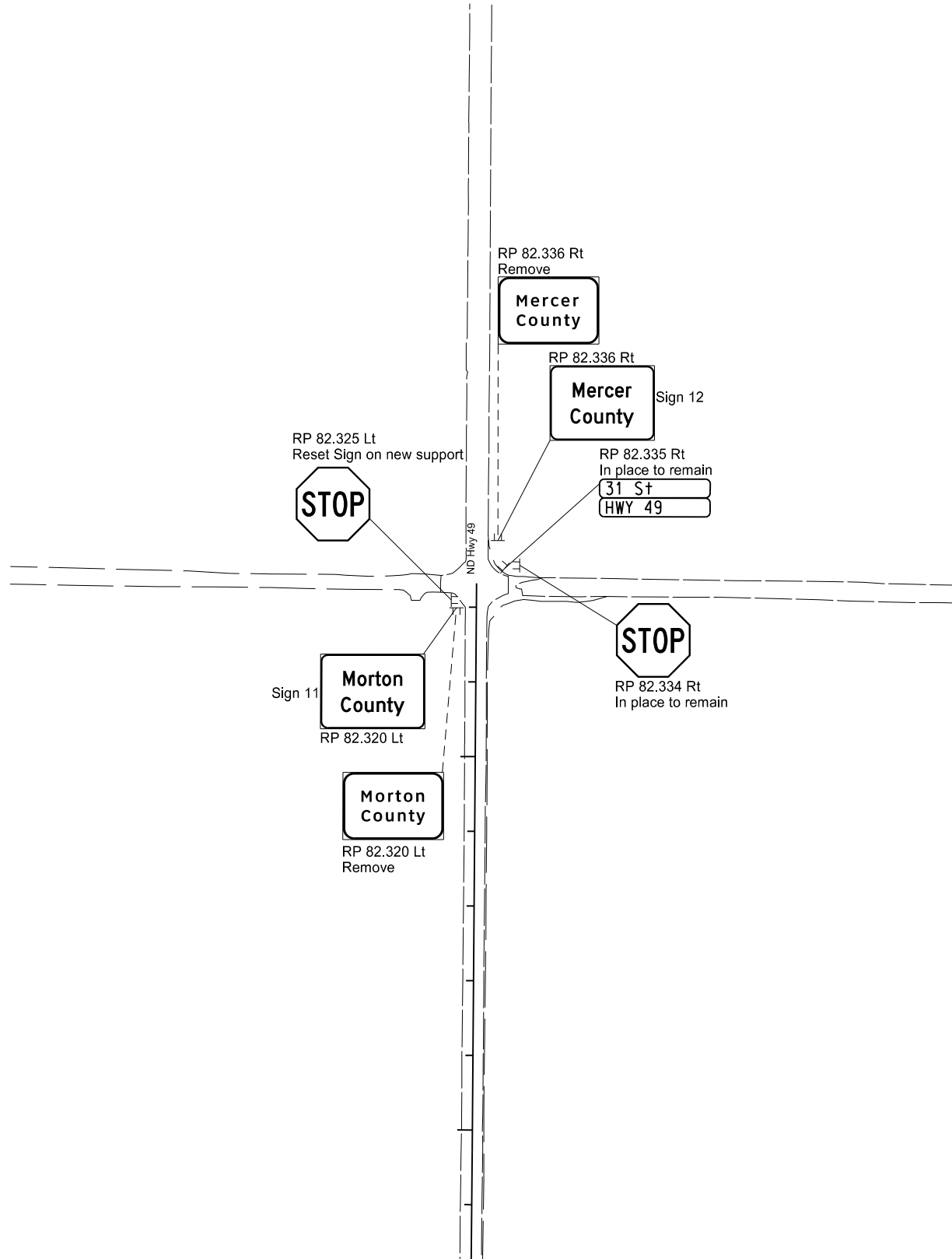
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	110	12



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Sign Layout
 ND 49 - Glen Ullin to County Line
 ND Hwy 49

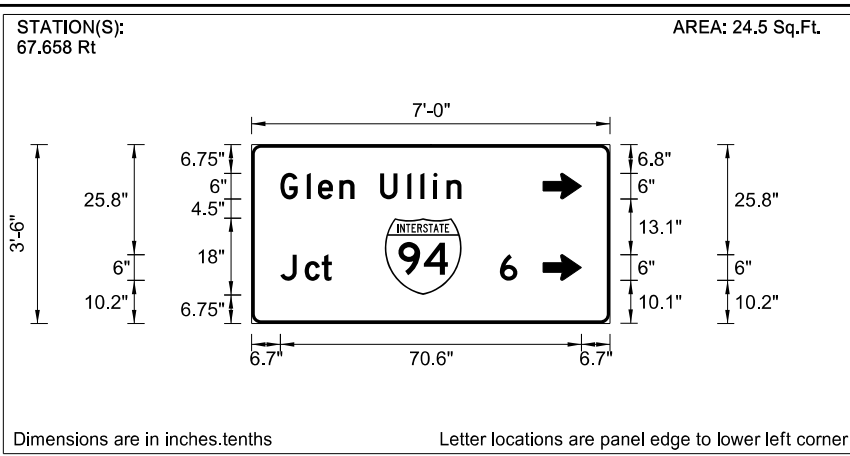
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SS-NH-1-049(027)067	110	13



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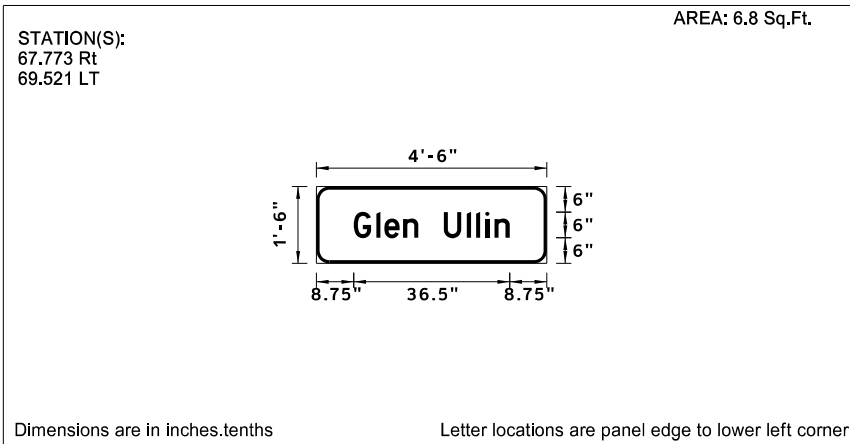
Sign Layout
 ND 49 - Glen Ullin to County Line
 ND Hwy 49

SIGN NUMBER	Sign 1
WIDTH x HEIGHT	7'-0" x 3'-6"
BORDER WIDTH	0.75" (inset 0")
CORNER RADIUS	2.25"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective COLOR: White
SYMBOL	
ND_6IN_TYPE D	X Y WID HT ANGLE
ND_6IN_TYPE D	68.3 29.3 6 9 270
M1_1	31.2 6.8 18 18 0



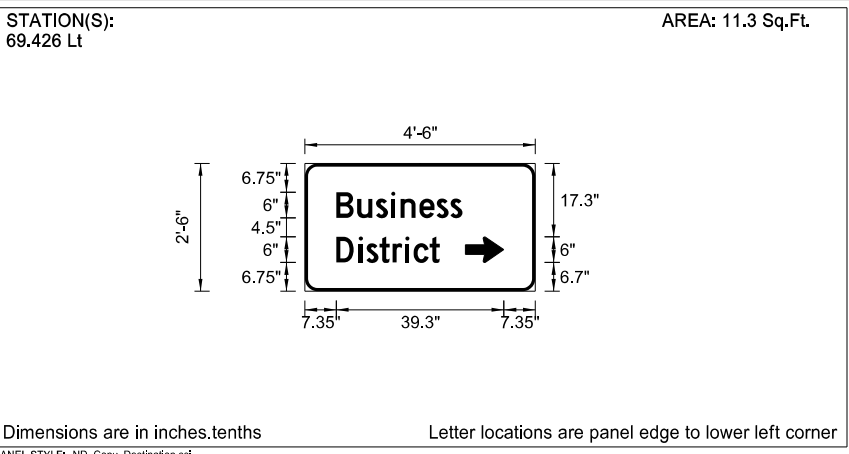
LETTER POSITION (X)											LENGTH	SIZE	SERIES
G	l	e	n	U	l	l	i	n			42.5	6/4.5	D 2000
6.7	12.9	15.5	20.5	24.1	30.1	36.5	39.5	42.6	45.7				
J	c	t									12.1	6/4.5	D 2000
6.7	12.4	16.4											
6											4.1	6	D 2000
58.2													

SIGN NUMBER	Sign 2
WIDTH x HEIGHT	4'-6" x 1'-6"
BORDER WIDTH	0.75" (inset 0")
CORNER RADIUS	3"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective COLOR: White
SYMBOL	
ND_6IN_TYPE D	X Y WID HT ANGLE
M1_1	40.9 6 18 18 0



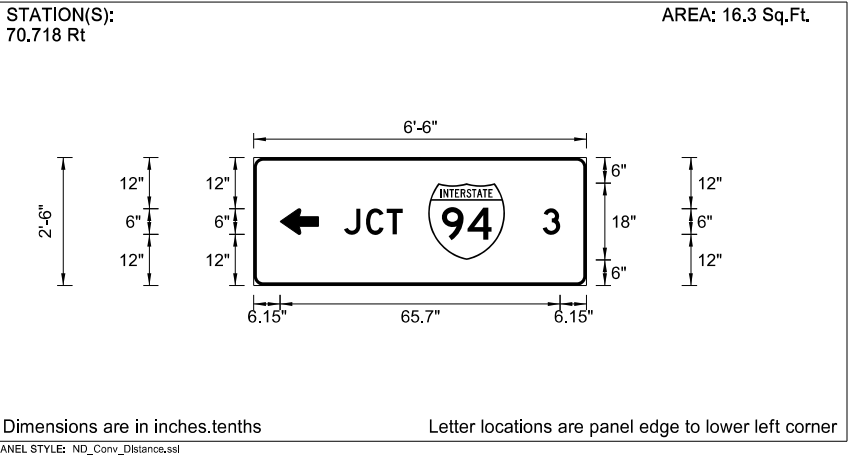
LETTER POSITION (X)											LENGTH	SIZE	SERIES
G	l	e	n	U	l	l	i	n			36.5	6/4.5	D 2000
8.7	14	15.9	20.3	23.9	29.9	35.3	37.4	39.6	41.7				

SIGN NUMBER	Sign 3
WIDTH x HEIGHT	4'-6" x 2'-6"
BORDER WIDTH	0.75" (inset 0")
CORNER RADIUS	3"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective COLOR: White
SYMBOL	
ND_6IN_TYPE D	X Y WID HT ANGLE
ND_6IN_TYPE D	37.6 6.8 6 9 270



LETTER POSITION (X)											LENGTH	SIZE	SERIES
B	u	s	i	n	e	s	s				29.6	6/4.5	D 2000
7.4	12.3	16.7	20.3	22.4	26.9	30.9	34.1						
D	i	s	t	r	i	c	t				24.3	6/4.5	D 2000
7.4	12.6	14.4	17.5	20.6	23.6	25.5	29.3						

SIGN NUMBER	Sign 4
WIDTH x HEIGHT	6'-6" x 2'-6"
BORDER WIDTH	0.75" (inset 0")
CORNER RADIUS	2.25"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective COLOR: White
SYMBOL	
ND_6IN_TYPE D	X Y WID HT ANGLE
M1_1	40.9 6 18 18 0

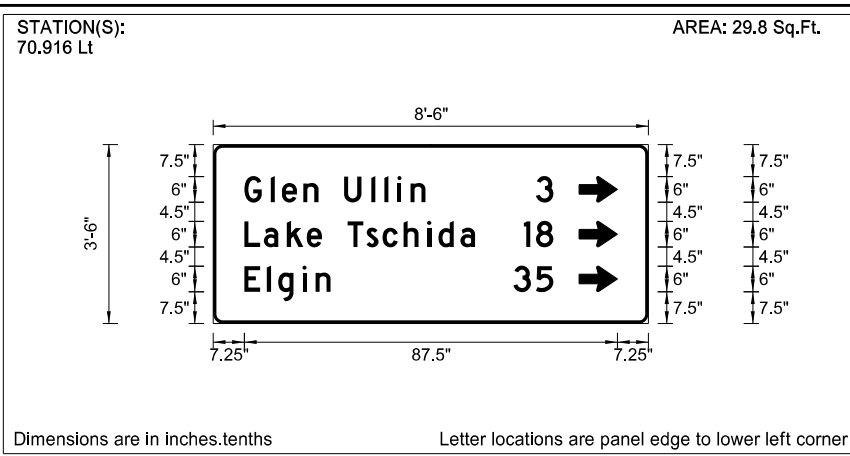


LETTER POSITION (X)											LENGTH	SIZE	SERIES
J	C	T									13.7	6	D 2000
21.2	26.3	31.2											
3											4.1	6	D 2000
67.8													

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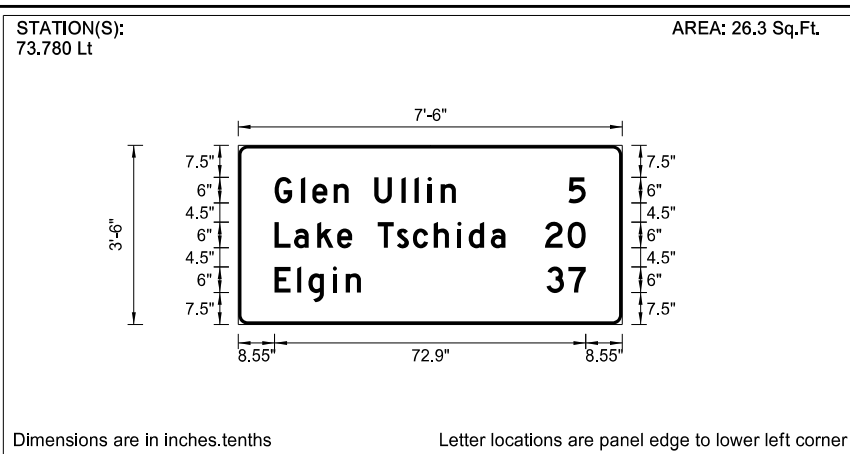
Sign Details
 ND 49 - Glen Ullin to County Line
 ND Hwy 49

SIGN NUMBER	Sign 5
WIDTH x HEIGHT	8'-6" x 3'-6"
BORDER WIDTH	0.75" (inset 0")
CORNER RADIUS	2.25"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective COLOR: White
SYMBOL	X Y WID HT ANGLE
ND_6IN_TYPE D	85.7 28.5 6 9 270
ND_6IN_TYPE D	85.7 18 6 9 270
ND_6IN_TYPE D	85.7 7.5 6 9 270



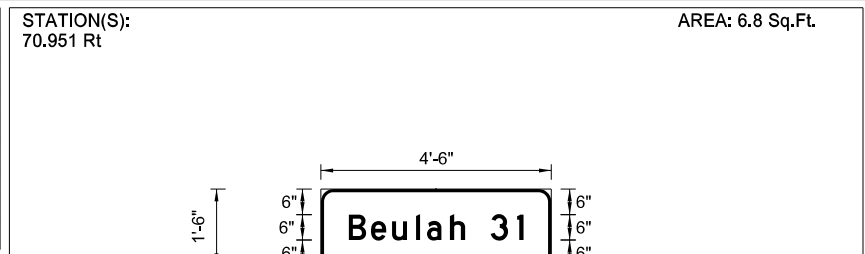
LETTER POSITION (X)											LENGTH	SIZE	SERIES	
G	l	e	n	U	l	l	i	n			42.5	6/4.5	D 2000	
7.3	13.5	16.1	21.1	24.6	30.6	37	40.1	43.2	46.2					
3											4.1	6	D 2000	
75.6														
L	a	k	e	T	s	c	h	i	d	a	54.1	6/4.5	D 2000	
7.3	11.8	17.3	21.9	25.5	31.5	35.9	39.7	44.6	50.1	52.8	57.9			
1	8										6.9	6	D 2000	
72.8	75.6													
E	l	g	i	n							20.2	6/4.5	D 2000	
7.3	12.6	15.2	20.9	24										
3	5										9.4	6	D 2000	
70.4	75.6													

SIGN NUMBER	Sign 8
WIDTH x HEIGHT	7'-6" x 3'-6"
BORDER WIDTH	0.75" (inset 0")
CORNER RADIUS	2.25"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective COLOR: White
SYMBOL	X Y WID HT ANGLE
ND_6IN_TYPE D	8.6 15 6 9 0
ND_6IN_TYPE D	72.4 6 6 9 270



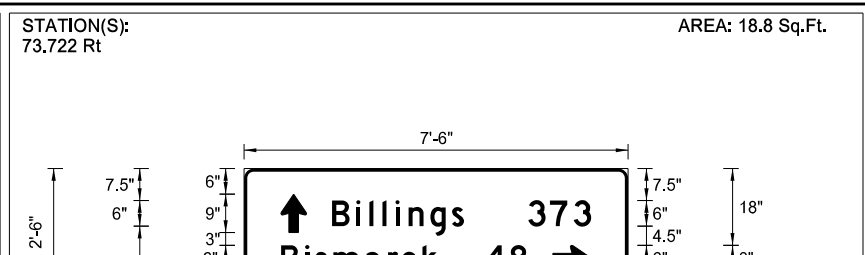
LETTER POSITION (X)											LENGTH	SIZE	SERIES	
G	l	e	n	U	l	l	i	n			42.5	6/4.5	D 2000	
8.5	14.7	17.4	22.4	25.9	31.9	38.3	41.4	44.4	47.5					
5											4.1	6	D 2000	
77.4														
L	a	k	e	T	s	c	h	i	d	a	54.1	6/4.5	D 2000	
8.5	13.1	18.5	23.2	26.7	32.7	37.2	41	45.9	51.4	54	59.2			
2	0										9.5	6	D 2000	
71.9	77.2													
E	l	g	i	n							20.2	6/4.5	D 2000	
8.5	13.8	16.5	22.2	25.2										
3	7										9.2	6	D 2000	
72.3	77.4													

SIGN NUMBER	Sign 6
WIDTH x HEIGHT	4'-6" x 1'-6"
BORDER WIDTH	0.75" (inset 0")
CORNER RADIUS	3"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective COLOR: White
SYMBOL	X Y WID HT ANGLE
ND_6IN_TYPE D	8.6 15 6 9 0
ND_6IN_TYPE D	72.4 6 6 9 270



LETTER POSITION (X)											LENGTH	SIZE	SERIES
B	e	u	l	a	h	3	1				40.9	6/4.5	D 2000
6.5	11.8	16.7	22.3	24.8	30.3	39.8	46						

SIGN NUMBER	Sign 7
WIDTH x HEIGHT	7'-6" x 2'-6"
BORDER WIDTH	0.75" (inset 0")
CORNER RADIUS	2.25"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective COLOR: White
SYMBOL	X Y WID HT ANGLE
ND_6IN_TYPE D	8.6 15 6 9 0
ND_6IN_TYPE D	72.4 6 6 9 270

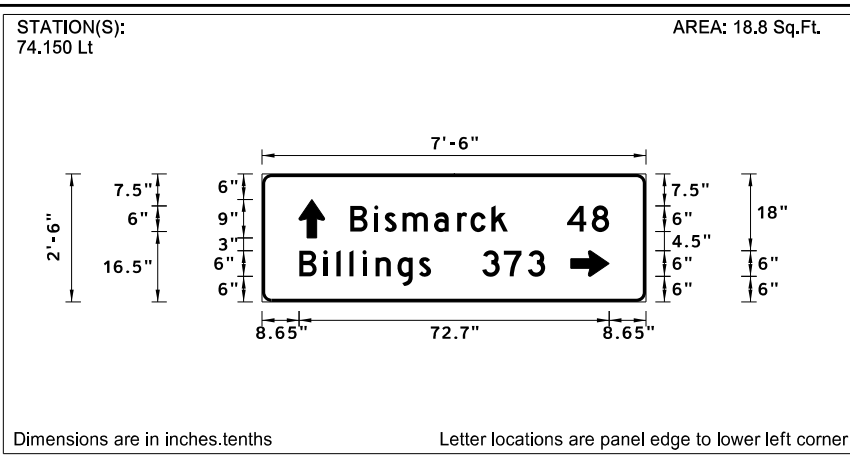


LETTER POSITION (X)											LENGTH	SIZE	SERIES
B	i	l	l	i	n	g	s	3	7	3	60.7	6/4.5	D 2000
20.6	26.3	29.4	32.4	35.5	38.5	43.7	48.7	66.6	71.7	77.3			
B	i	s	m	a	r	c	k	4	8		57.7	6/4.5	D 2000
8.7	14.3	16.7	20.9	28.3	33.7	36.9	41.8	56.5	62.3				

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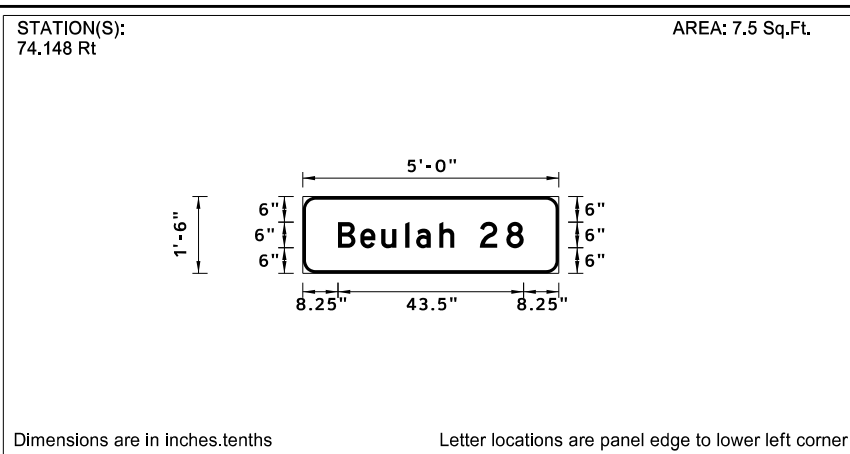
Sign Details
 ND 49 - Glen Ullin to County Line
 ND Hwy 49

SIGN NUMBER	Sign 9
WIDTH x HEIGHT	7'-6" x 2'-6"
BORDER WIDTH	0.75" (inset 0")
CORNER RADIUS	2.25"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective COLOR: White
SYMBOL	X Y WID HT ANGLE
ND_6IN_TYPE D	8.6 15 6 9 0
ND_6IN_TYPE D	72.4 6 6 9 270



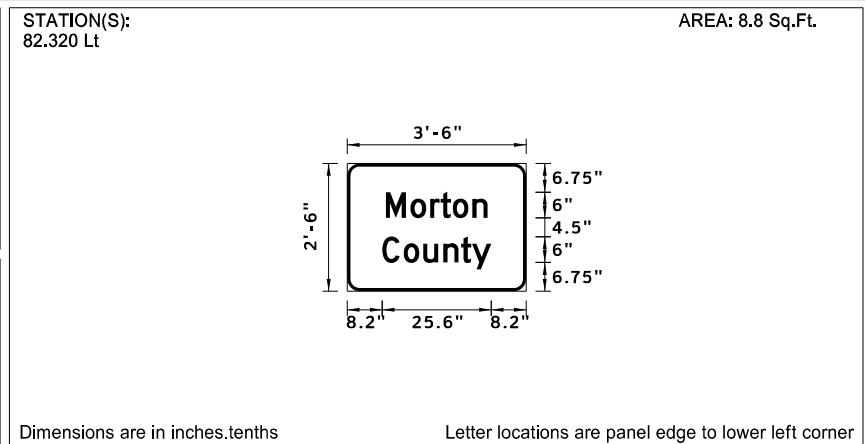
LETTER POSITION (X)										LENGTH	SIZE	SERIES
B	i	s	m	a	r	c	k			37	6/4.5	D 2000
20.6	26.3	28.7	32.9	40.3	45.7	48.9	53.8					
4	8									9.9	6	D 2000
71.5	77.3											
B	i	l	l	i	n	g	s			30.9	6/4.5	D 2000
8.7	14.4	17.4	20.5	23.5	26.6	31.7	36.8					
3	7	3								14.8	6	D 2000
51.6	56.7	62.3										

SIGN NUMBER	Sign 10
WIDTH x HEIGHT	5'-0" x 1'-6"
BORDER WIDTH	0.75" (inset 0")
CORNER RADIUS	3"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective COLOR: White
SYMBOL	X Y WID HT ANGLE



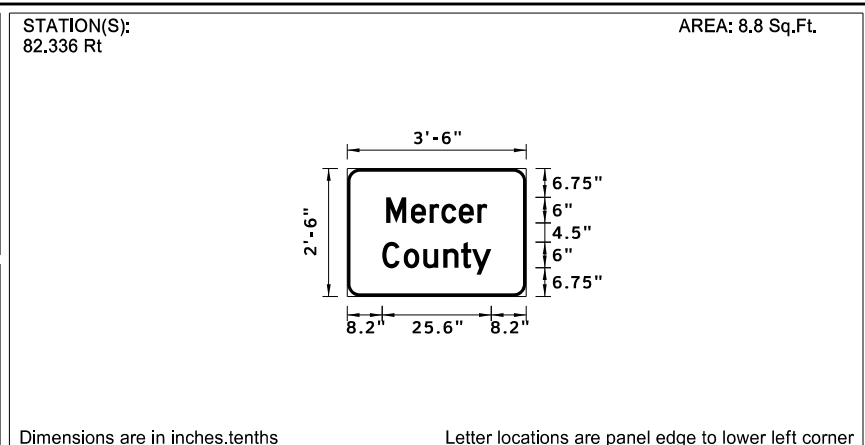
LETTER POSITION (X)										LENGTH	SIZE	SERIES
B	e	u	l	a	h	2	8			43.5	6/4.5	D 2000
8.2	13.5	18.4	24	26.6	32	41.5	47.7					

SIGN NUMBER	Sign 11
WIDTH x HEIGHT	3'-6" x 2'-6"
BORDER WIDTH	0.75" (inset 0")
CORNER RADIUS	3"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective COLOR: White
SYMBOL	X Y WID HT ANGLE



LETTER POSITION (X)										LENGTH	SIZE	SERIES
M	o	r	t	o	n					23.8	6/4.5	D 2000
9.1	14.9	19.5	21.9	24.8	29.4							
C	o	u	n	t	y					25.6	6/4.5	D 2000
8.2	13.3	17.8	22.6	26.7	29.3							

SIGN NUMBER	Sign 12
WIDTH x HEIGHT	3'-6" x 2'-6"
BORDER WIDTH	0.75" (inset 0")
CORNER RADIUS	3"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective COLOR: White
SYMBOL	X Y WID HT ANGLE



LETTER POSITION (X)										LENGTH	SIZE	SERIES
M	e	r	c	e	r					23.6	6/4.5	D 2000
9.2	14.9	19.3	22.1	26.2	30.5							
C	o	u	n	t	y					25.6	6/4.5	D 2000
8.2	13.3	17.8	22.6	26.7	29.3							

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Sign Details
 ND 49 - Glen Ullin to County Line
 ND Hwy 49

SIGN NUMBER	Sign 13
WIDTH x HEIGHT	4'-0" x 3'-0"
BORDER WIDTH	1.25" (inset 0.75")
CORNER RADIUS	3"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective COLOR: Green
LEGEND/BORDER	TYPE: IV Non-reflective COLOR: Black
SYMBOL	X Y WID HT ANGLE
ADV_RR	15.3 15.5 17.5 17.5 0

STATION(S): 70.618 Rt
AREA: 12.0 Sq.Ft.

Dimensions are in inches.tenths Letter locations are panel edge to lower left corner

LETTER POSITION (X)											LENGTH	SIZE	SERIES							
W	A	T	C	H	F	O	R				23	4	C 2000							
12.5	15.7	18.4	20.8	23.7	27.9	30.3	33.3													
S	T	O	P	P	E	D	V	E	H	I	C	L	E	S				39.8	4	C 2000
4.1	6.6	9	12	14.8	17.7	20.2	24.4	27.3	29.9	32.8	34	36.8	39.3	41.7						

SIGN NUMBER	Sign 14
WIDTH x HEIGHT	3'-6" x 1'-6"
BORDER WIDTH	1" (inset 0")
CORNER RADIUS	2.25"
MOUNTING	Overhead
BACKGROUND	TYPE: IV Reflective COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective COLOR: White
SYMBOL	X Y WID HT ANGLE

STATION(S): 69.373 LT
AREA: 5.3 Sq.Ft.

Dimensions are in inches.tenths Letter locations are panel edge to lower left corner

LETTER POSITION (X)											LENGTH	SIZE	SERIES
S	o	u	t	h	A	v	e				33.2	6/4.5	C 2000
4.4	8.5	12.4	16.1	18.8	21.9	26.4	30.5	34.5					

SIGN NUMBER	Sign 15
WIDTH x HEIGHT	3'-6" x 1'-6"
BORDER WIDTH	1" (inset 0")
CORNER RADIUS	2.25"
MOUNTING	Overhead
BACKGROUND	TYPE: IV Reflective COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective COLOR: White
SYMBOL	X Y WID HT ANGLE

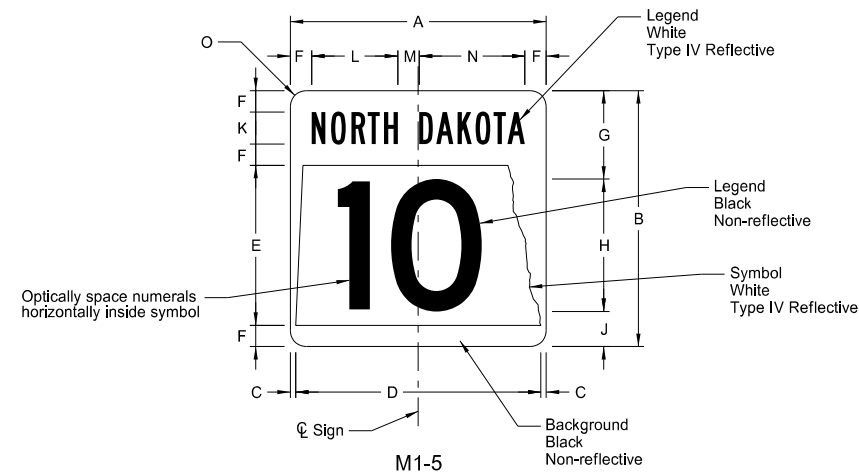
STATION(S): 69.373 Lt
AREA: 5.3 Sq.Ft.

Dimensions are in inches.tenths Letter locations are panel edge to lower left corner

LETTER POSITION (X)											LENGTH	SIZE	SERIES
P	i	n	e	A	v	e					29	6/4.5	C 2000
6.5	10.9	12.8	16.7	19.8	24.3	28.4	32.5						

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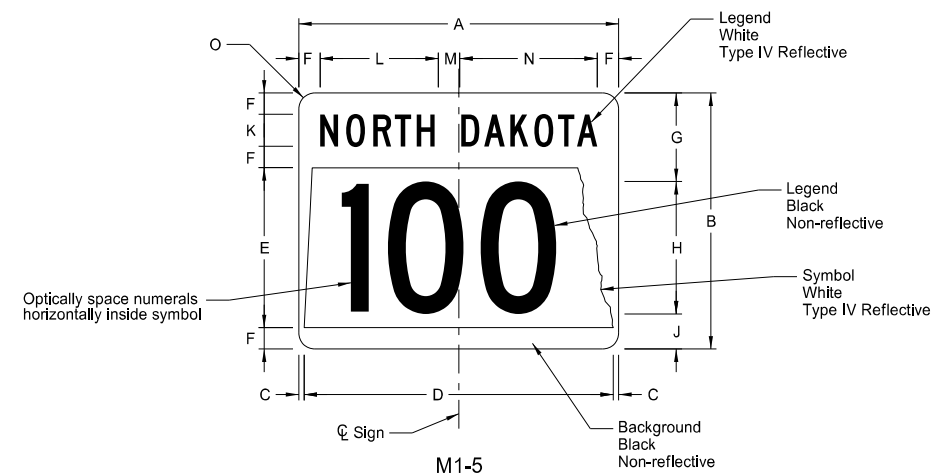
Sign Details
ND 49 - Glen Ullin to County Line
ND Hwy 49



STATE ROUTE MARKER

SIGN	DIMENSION (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N	O
1, 2 digits	18*	18*	0.38	17.25	11.25	1.5	6.38	9 D**	2.63	2.25 B	6.1	1.5	7.4	1.5
1, 2 digits	24	24	0.5	23	15	2	8.5	12 D**	3.5	3 B	8.1	2	9.9	1.5
1, 2 digits	36	36	0.75	34.5	22.5	3	12.75	18 D**	5.25	4.5 B	12.1	3	14.9	2.25
1, 2 digits	48*	48*	1	46	30	4	17	24 D**	7	6 B	16.2	4	19.8	3

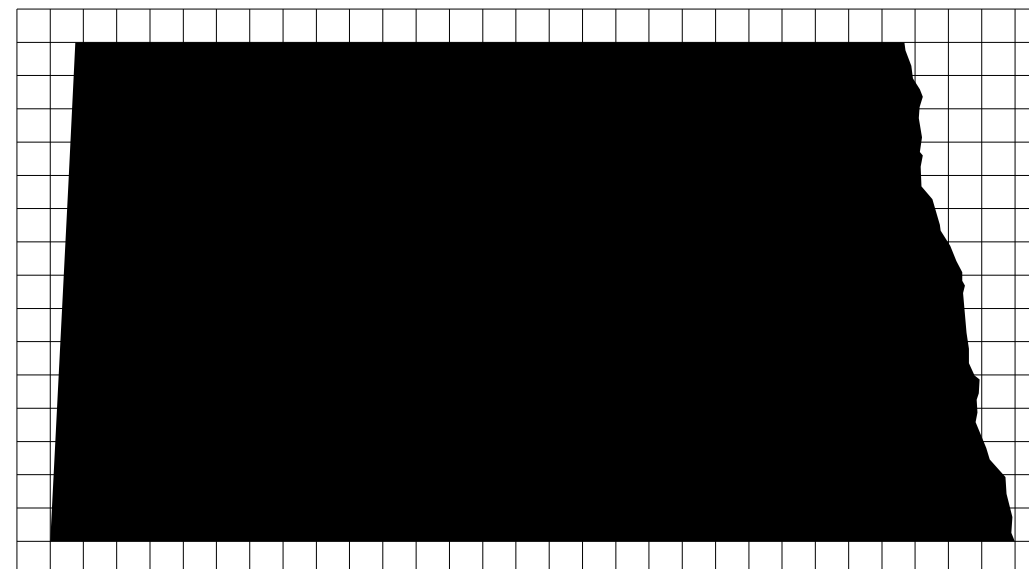
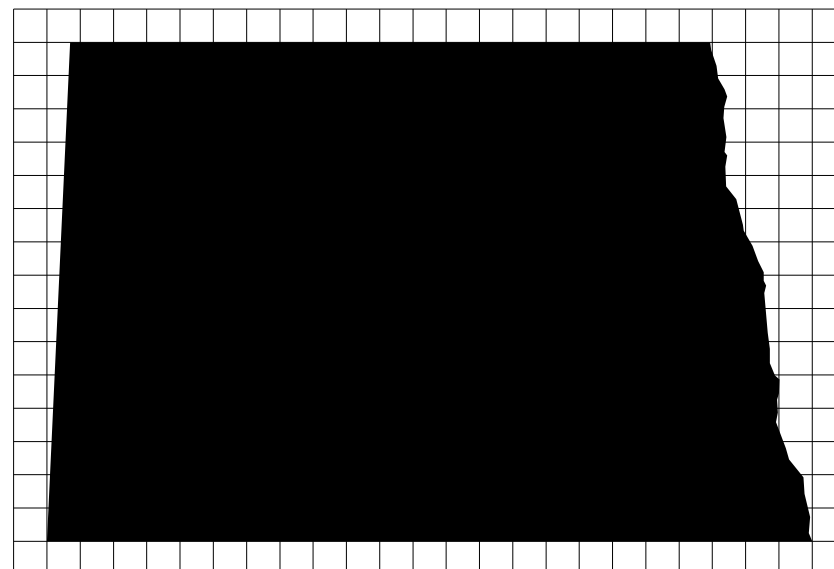
* Size not for independent use (only for use within a guide sign)
 ** Reduce numeral spacing by 25%



STATE ROUTE MARKER

SIGN	DIMENSION (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N	O
3 digits	24*	18*	1.13	21.75	11.25	1.5	6.38	9 C**	2.63	2.25 C	8.8	2	10.2	1.5
3 digits	30	24	0.5	29	15	2	8.5	12 C**	3.5	3 C	10.7	2.5	12.8	1.5
3 digits	45	36	0.75	43.5	22.5	3	12.75	18 C**	5.25	4.5 C	16.1	3.8	19.1	2.25
3 digits	60*	48*	1	58	30	4	17	24 C**	7	6 C	21.5	5	25.5	3
4 digits	24*	18*	1.13	21.75	11.25	1.5	6.38	9 B***	2.63	2.25 C	8.8	2	10.2	1.5
4 digits	30	24	0.5	29	15	2	8.5	12 B***	3.5	3 C	10.7	2.5	12.8	1.5
4 digits	45	36	0.75	43.5	22.5	3	12.75	18 B***	5.25	4.5 C	16.1	3.8	19.1	2.25
4 digits	60*	48*	1	58	30	4	17	24 B***	7	6 C	21.5	5	25.5	3

* Size not for independent use (only for use within a guide sign)
 ** Reduce numeral spacing by 25%
 *** Reduce numeral spacing by 50%

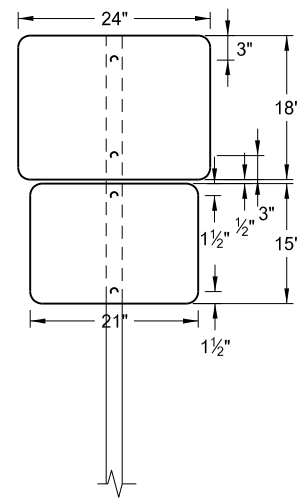


Note: North Dakota symbol graphics file can be obtained from the Design Division of North Dakota Department of Transportation.

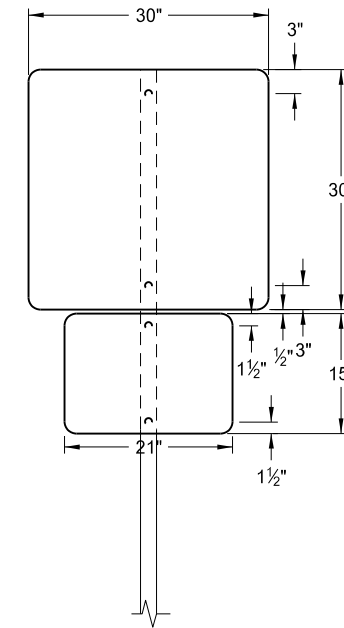
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ND Highway Shield Details for Route Markers and Guide Signs
 ND Hwy 49

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SS-NH-1-049(027)067	110	19



Special Assembly A
 RP 67.545 Rt
 RP 67.700 - 250' Lt
 RP 69.447 Lt
 Pay Area: 5.2 SF



Special Assembly B
 RP 67.530 Rt
 RP 69.585 Lt
 RP 70.657 Rt
 RP 71.097 Lt
 Pay Area: 8.4 SF

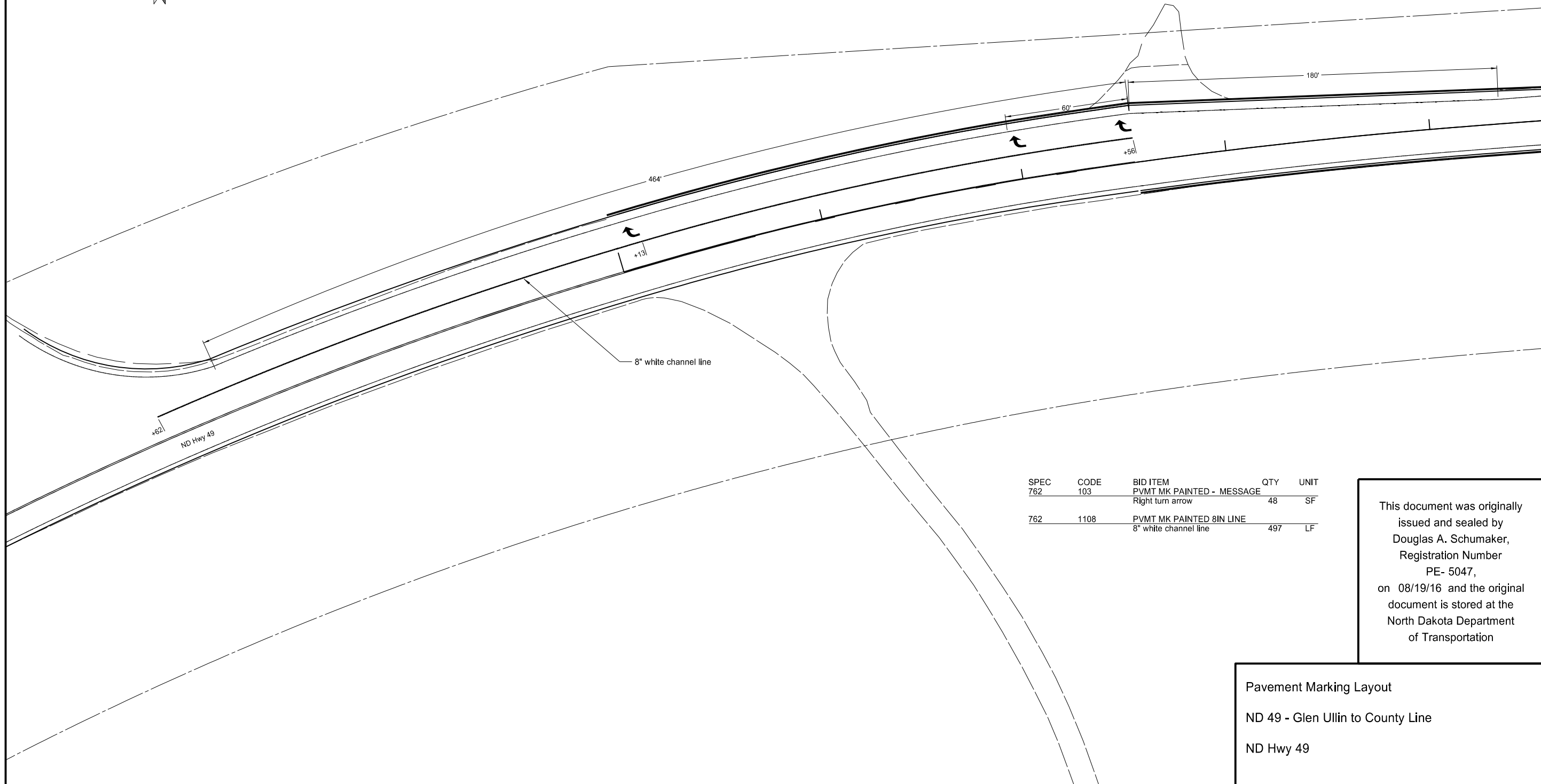
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Special Assemblies
 ND 49 - Glen Ullin to County Line
 ND Hwy 49

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SS-NH-1-049(027)067	120	1



00+00

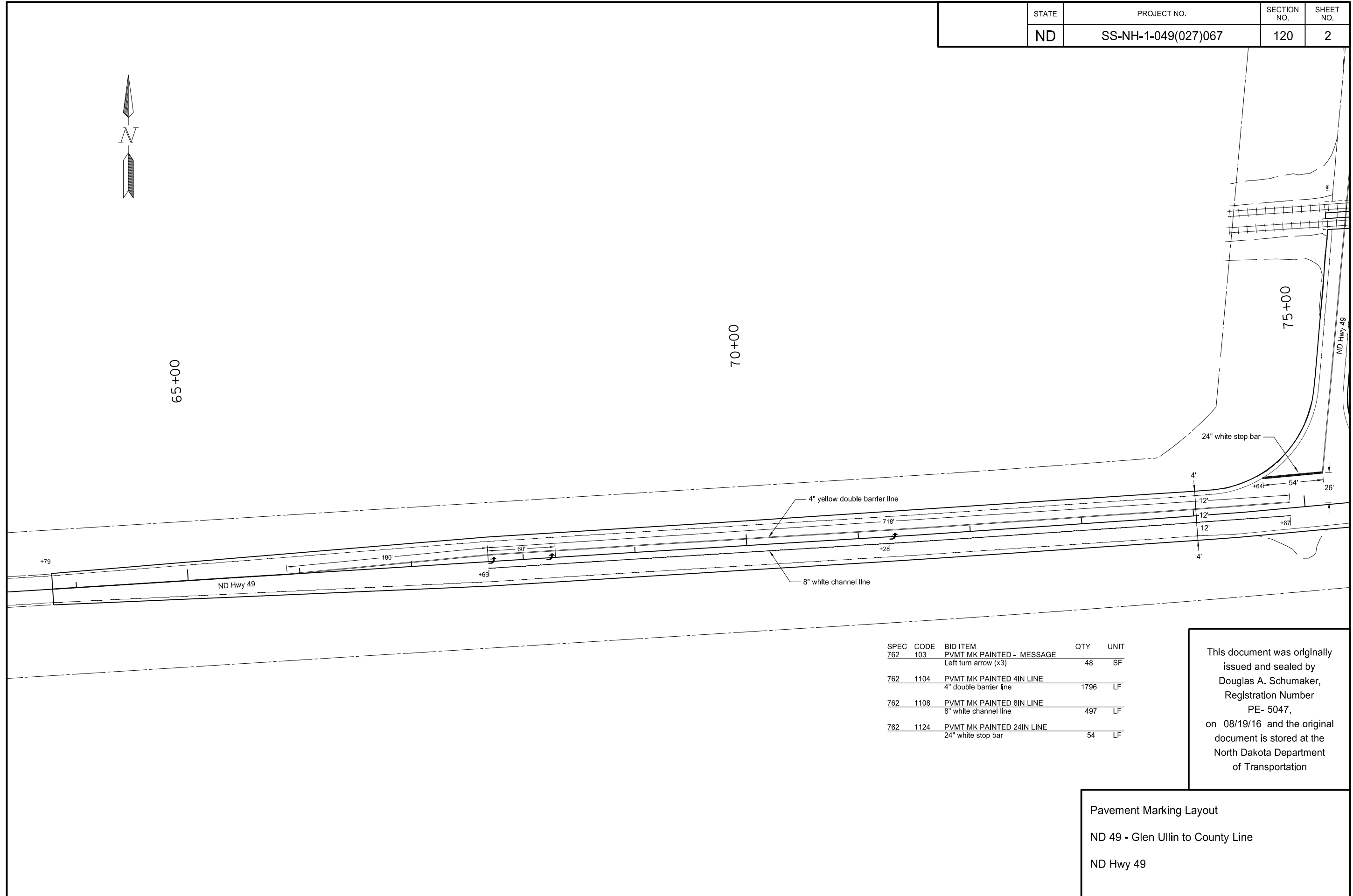


SPEC	CODE	BID ITEM	QTY	UNIT
762	103	PVMT MK PAINTED - MESSAGE Right turn arrow	48	SF
762	1108	PVMT MK PAINTED 8IN LINE 8" white channel line	497	LF

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Pavement Marking Layout
 ND 49 - Glen Ullin to County Line
 ND Hwy 49

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SS-NH-1-049(027)067	120	2

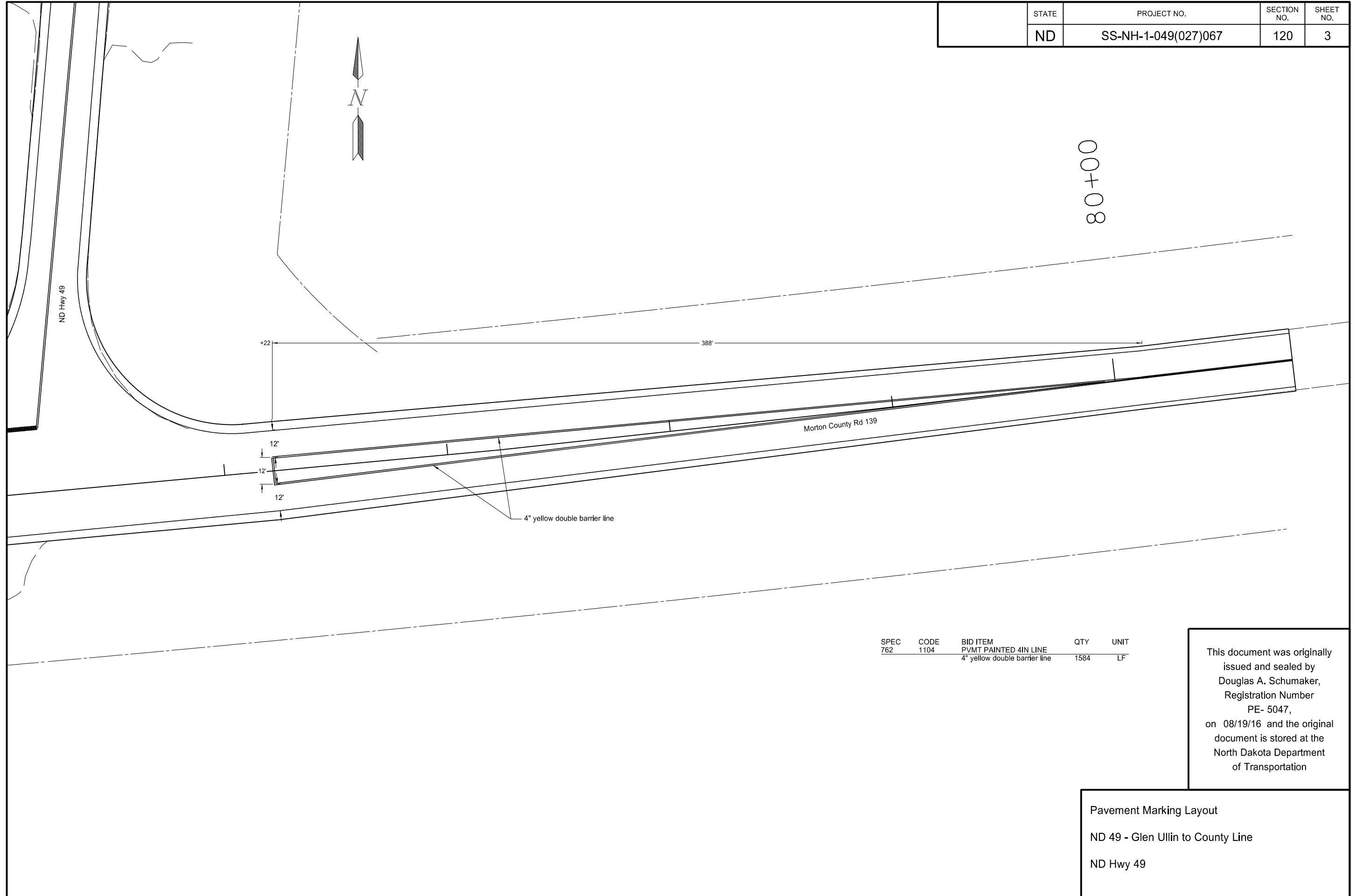


SPEC	CODE	BID ITEM	QTY	UNIT
762	103	PVMT MK PAINTED - MESSAGE Left turn arrow (x3)	48	SF
762	1104	PVMT MK PAINTED 4IN LINE 4" double barrier line	1796	LF
762	1108	PVMT MK PAINTED 8IN LINE 8" white channel line	497	LF
762	1124	PVMT MK PAINTED 24IN LINE 24" white stop bar	54	LF

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Pavement Marking Layout
 ND 49 - Glen Ullin to County Line
 ND Hwy 49

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SS-NH-1-049(027)067	120	3



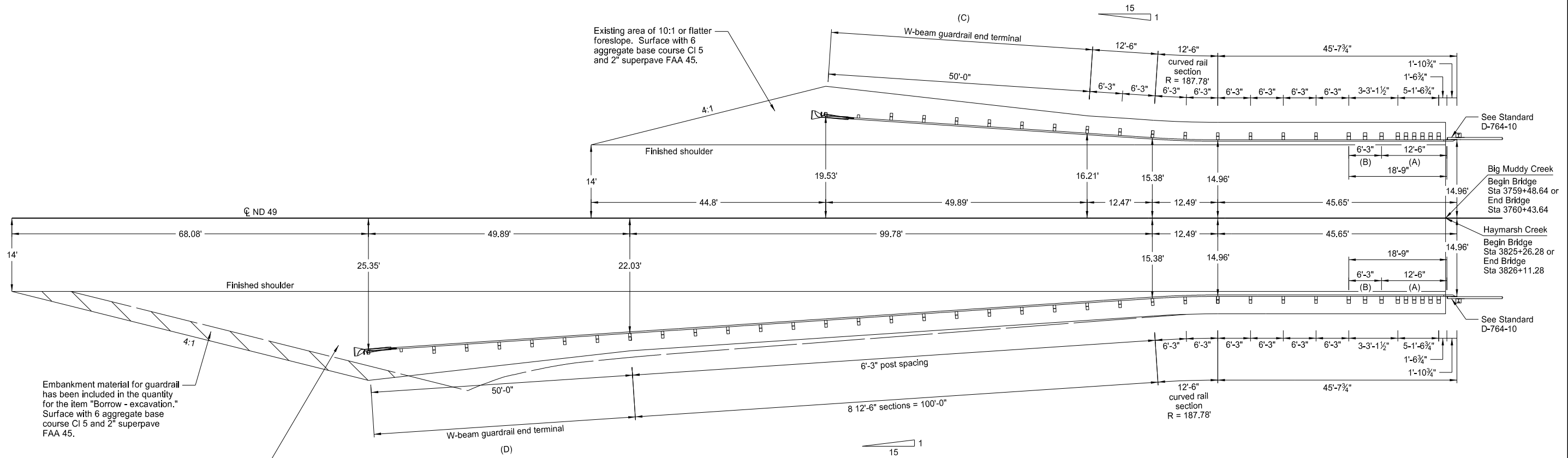
SPEC	CODE	BID ITEM	QTY	UNIT
762	1104	PVMT PAINTED 4IN LINE		
		4" yellow double barrier line	1584	LF

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Pavement Marking Layout
 ND 49 - Glen Ullin to County Line
 ND Hwy 49

23 USC § 409 Documents
 NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	130	1



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- (A) Thrie beam rail section (double thickness)
- (B) W-Thrie beam transition section (double thickness)
- (C) Install a FLEAT end terminal at this location.
- (D) Install either a FLEAT or SRT at this location.

If the FLEAT is installed, use the flare shown above

If the SRT is installed, the flare shown on Standard D-764-7 should be used. Any additional embankment will be at the contractor's expense.

Thrie / W-Beam Guardrail Layout
 At Both Ends of Bridge

Big Muddy Creek, RP 71.212
 Haymarsh Creek, RP 72.457

ND 49

**23 USC § 409 Documents
NDDOT Reserves All Objections**

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SS-NH-1-049(027)067	130	2

W-BEAM GUARDRAIL SUMMARY OF QUANTITIES

THRIE/W-BEAM GUARDRAIL AT BRIDGE ENDS

LOCATION	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)
	5/8" Ø x 18" LONG GUARD- RAIL BOLT	6" x 8" x 6'-0" TIMBER POST	6" x 8" x 14" TIMBER BLOCK	5/8" Ø x 1 1/4" LONG GUARD- RAIL BOLT	12'-6" STRAIGHT W-BEAM RAIL SECTION	12'-6" CURVED W-BEAM RAIL SECTION	REFL- ECTOR- IZED PLATES	8"x 8" x 6" WOOD POST	8"x 8" x 22" WOOD OFF- SET BLOCK	8"x 8" x 18" WOOD OFF- SET BLOCK	8"x 8" x 14" WOOD OFF- SET BLOCK	6'-3" DOUBLE W-THRIE BEAM TRANS- ITION SECTION	12'-6" DOUBLE THRIE BEAM SECTION	2'-6" THRIE BEAM TERM- INAL CON- NECTOR	7/8" Ø x VAR- IABLE LONG. BOLT	3/4" Ø x 2-1/2" LONG POST BOLT
	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH
Sta 3758+92.67 to 3759+50.81 Rt	23	6	6	56	2	1	10	9	7	1	1	1	1	1	5	2
Sta 3758+92.67 to 3759+50.81 Lt	23	6	6	56	2	1	6	9	7	1	1	1	1	1	5	2
Sta 3760+41.47 to 3760+99.61 Rt	23	6	6	56	2	1	6	9	7	1	1	1	1	1	5	2
Sta 3760+41.47 to 3760+99.61 Lt	23	6	6	56	2	1	10	9	7	1	1	1	1	1	5	2
TOTAL	92	24	24	224	8	4	32	36	28	4	4	4	4	20	8	

W-beam guardrail

Sta 3758+92.67 to 3759+50.81 Rt	58.2 LF
Sta 3758+92.67 to 3759+50.81 Lt	58.2 LF
Sta 3760+41.47 to 3760+99.61 Rt	58.2 LF
Sta 3760+41.47 to 3760+99.61 Lt	58.2 LF
Total	232.8 LF

Reset W-beam guardrail

Sta 3757+92.89 to 3758+92.67 Rt	100 LF
Sta 3758+80.20 to 3758+92.67 Lt	12.5 LF
Sta 3760+99.61 to 3761+12.08 Rt	12.5 LF
Sta 3761+99.39 to 3762+49.28 Lt	100 LF
Total	225 LF

(A) Include these items in the contract unit price bid for "W-Beam Guardrail".

W-beam guardrail end terminal

Sta 3757+43.00 to 3757+92.89 Rt	1 ea
Sta 3758+30.31 to 3758+80.20 Lt	1 ea
Sta 3761+12.08 to 3761+61.97 Rt	1 ea
Sta 3761+99.39 to 3762+49.28 Lt	1 ea
Total	4 ea

Remove W-beam guardrail & posts

Sta 3757+98.68 to 3759+50.27 Rt	151.9 LF
Sta 3758+74.16 to 3759+50.27 Lt	76.9 LF
Sta 3760+42.01 to 3761+18.12 Rt	76.9 LF
Sta 3760+42.01 to 3761+93.60 Lt	151.9 LF
Total	457.6 LF

Remove end treatment & transition

Sta 3757+61.88 to 3757+98.68 Rt	1 ea
Sta 3758+37.36 to 3758+74.16 Lt	1 ea
Sta 3761+18.12 to 3761+54.92 Rt	1 ea
Sta 3761+93.60 to 3762+30.40 Lt	1 ea
Total	4 ea

Borrow - excavation

Sta 3756+74.92 to 3757+50.67 Rt	25 CY
Sta 3762+41.61 to 3763+17.36 Lt	35 CY
Total	60 CY

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Thrie/W-Beam Guardrail Quantities

**Big Muddy Creek
RP 71.212**

ND 49

**23 USC § 409 Documents
NDDOT Reserves All Objections**

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	130	3

W-BEAM GUARDRAIL SUMMARY OF QUANTITIES

THRIE/W-BEAM GUARDRAIL AT BRIDGE ENDS

LOCATION	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)
	5/8" Ø x 18" LONG GUARDRAIL BOLT	6" x 8" x 6'-0" TIMBER POST	6" x 8" x 14" TIMBER BLOCK	5/8" Ø x 1 1/4" LONG GUARDRAIL BOLT	12'-6" STRAIGHT W-BEAM RAIL SECTION	12'-6" CURVED W-BEAM RAIL SECTION	REFLECTORIZED PLATES	8"x 8" x 6" WOOD POST	8"x 8" x 22" WOOD OFF-SET BLOCK	8"x 8" x 18" WOOD OFF-SET BLOCK	8"x 8" x 14" WOOD OFF-SET BLOCK	6'-3" DOUBLE W-THRIE BEAM TRANSITION SECTION	12'-6" DOUBLE THRIE BEAM SECTION	2'-6" THRIE BEAM TERMINAL CONNECTOR	7/8" Ø x VAR-IABLE LONG BOLT	3/4" Ø x 2-1/2" LONG POST BOLT
	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH
Sta 3824+70.31 to 3825+28.45 Rt	23	6	6	56	2	1	10	9	7	1	1	1	1	1	5	2
Sta 3824+70.31 to 3825+28.45 Lt	23	6	6	56	2	1	6	9	7	1	1	1	1	1	5	2
Sta 3826+09.11 to 3826+67.25 Rt	23	6	6	56	2	1	6	9	7	1	1	1	1	1	5	2
Sta 3826+09.11 to 3826+67.25 Lt	23	6	6	56	2	1	10	9	7	1	1	1	1	1	5	2
TOTAL	92	24	24	224	8	4	32	36	28	4	4	4	4	4	20	8

W-beam guardrail

Sta 3824+70.31 to 3825+28.45 Rt	58.2 LF
Sta 3824+70.31 to 3825+28.45 Lt	58.2 LF
Sta 3826+09.11 to 3826+67.25 Rt	58.2 LF
Sta 3826+09.11 to 3826+67.25 Lt	58.2 LF
Total	232.8 LF

Reset W-beam guardrail

Sta 3823+70.53 to 3824+70.31 Rt	100 LF
Sta 3824+57.84 to 3824+70.31 Lt	12.5 LF
Sta 3826+67.25 to 3826+79.72 Rt	12.5 LF
Sta 3827+67.03 to 3828+16.92 Lt	100 LF
Total	225 LF

(A) Include these items in the contract unit price bid for "W-Beam Guardrail".

W-beam guardrail end terminal

Sta 3823+20.64 to 3823+70.53 Rt	1 ea
Sta 3824+07.95 to 3824+57.84 Lt	1 ea
Sta 3826+79.72 to 3827+29.61 Rt	1 ea
Sta 3827+67.03 to 3839+16.92 Lt	1 ea
Total	4 ea

Remove W-beam guardrail & posts

Sta 3823+76.32 to 3825+27.91 Rt	151.9 LF
Sta 3824+51.80 to 3825+27.91 Lt	76.9 LF
Sta 3826+09.65 to 3826+85.76 Rt	76.9 LF
Sta 3826+09.65 to 3827+61.24 Lt	151.9 LF
Total	457.6 LF

Remove end treatment & transition

Sta 3823+39.52 to 3823+76.32 Rt	1 ea
Sta 3824+15.00 to 3824+51.80 Lt	1 ea
Sta 3826+85.76 to 3827+22.56 Rt	1 ea
Sta 3827+61.24 to 3827+61.24 Lt	1 ea
Total	4 ea

Borrow - excavation

Sta 3822+52.56 to 3823+28.31 Rt	40 CY
Sta 3828+09.25 to 3828+85.00 Lt	55 CY
Total	95 CY

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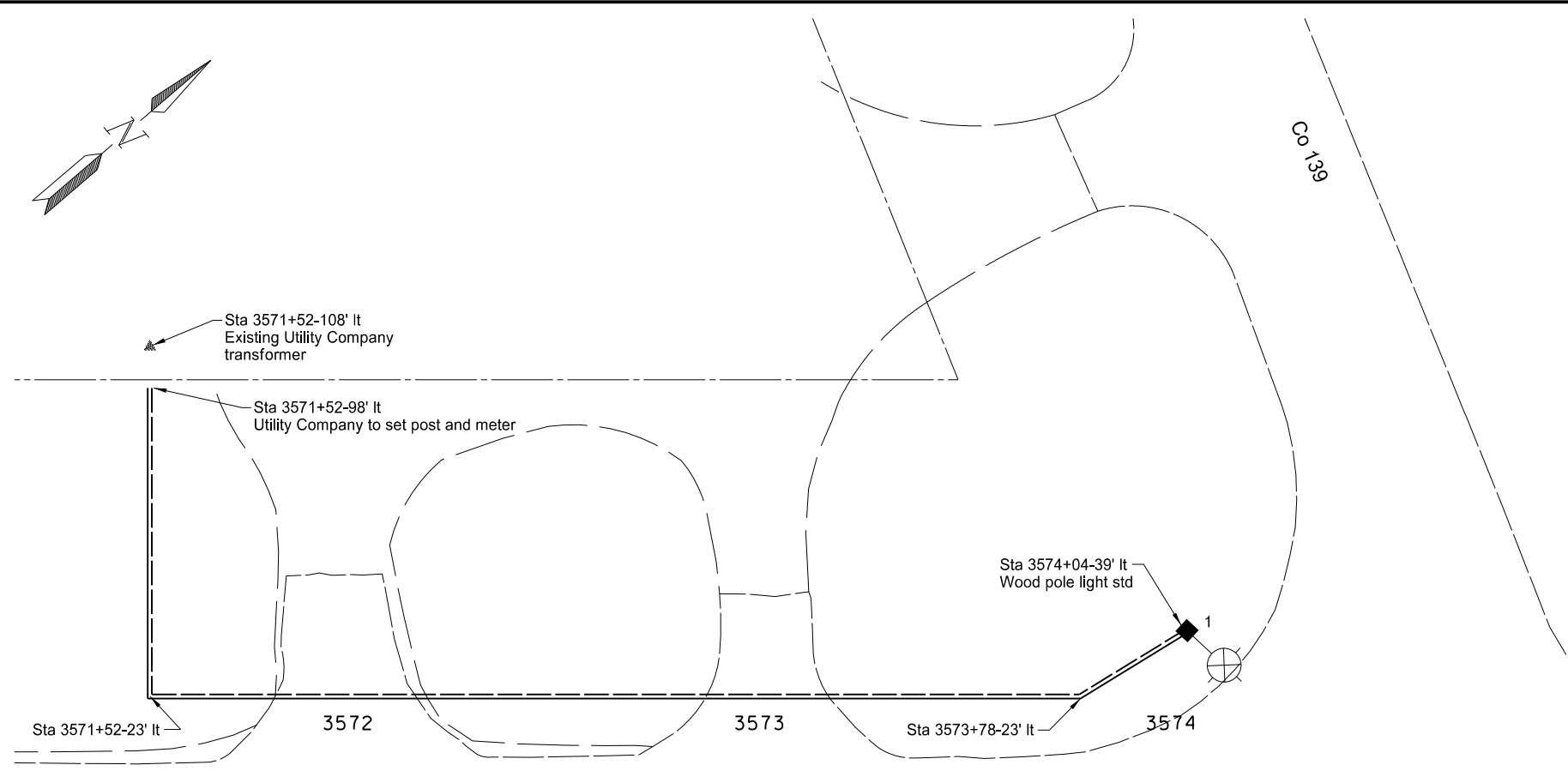
Thrie/W-Beam Guardrail Quantities

**Haymarsh Creek
RP 72.457**

ND 49

Lighting Quantities (A)									
60 ft Wood Pole - Class II	2 in Diameter Rigid Conduit	Underground Conductor No. 6 RHW	Underground Conductor No. 6 THW	Underground Conductor No. 8 RHW	Feed Point - Type 1 - Pole Mounted	6 ft Mast Arm - Wood Pole Mounted	LED Luminaire		Destination Lighting
EA	LF	LF	LF	LF	EA	EA	EA		EA
1	380	728	364	100	1	1	1		1

(A) Do not bid separately but included in the item "Destination Lighting".



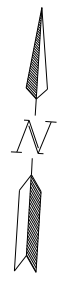
Wood Pole Light Standard						
No.	Station	Wattage	Circuit	Distribution	Wood Pole Length	Wood Pole Mast Arm
1	3574+04-39' It	70 - 75	1	3	50'	6'

Light Std Number	Station	Conduit Runs		Cable Runs	
		LF	Dia	LF	Type
1	3571+52-98' It	6 (B)	2" (B)	728	(2) No. 6 RHW (1) No. 6 THW
	3571+52-98' It to 3571+52-23' It	75	2"	364	
	3571+52-23' It to 3573+78-23' It	226	2"		
	3573+78-23' It to 3574+04-39' It	31	2"		
1	3574+04-39' It	6 (B)	2" (B)		
1	3574+04-39' It	36 (B)	2" (B)	100	(2) No. 8 RHW

(B) Wood pole mounted

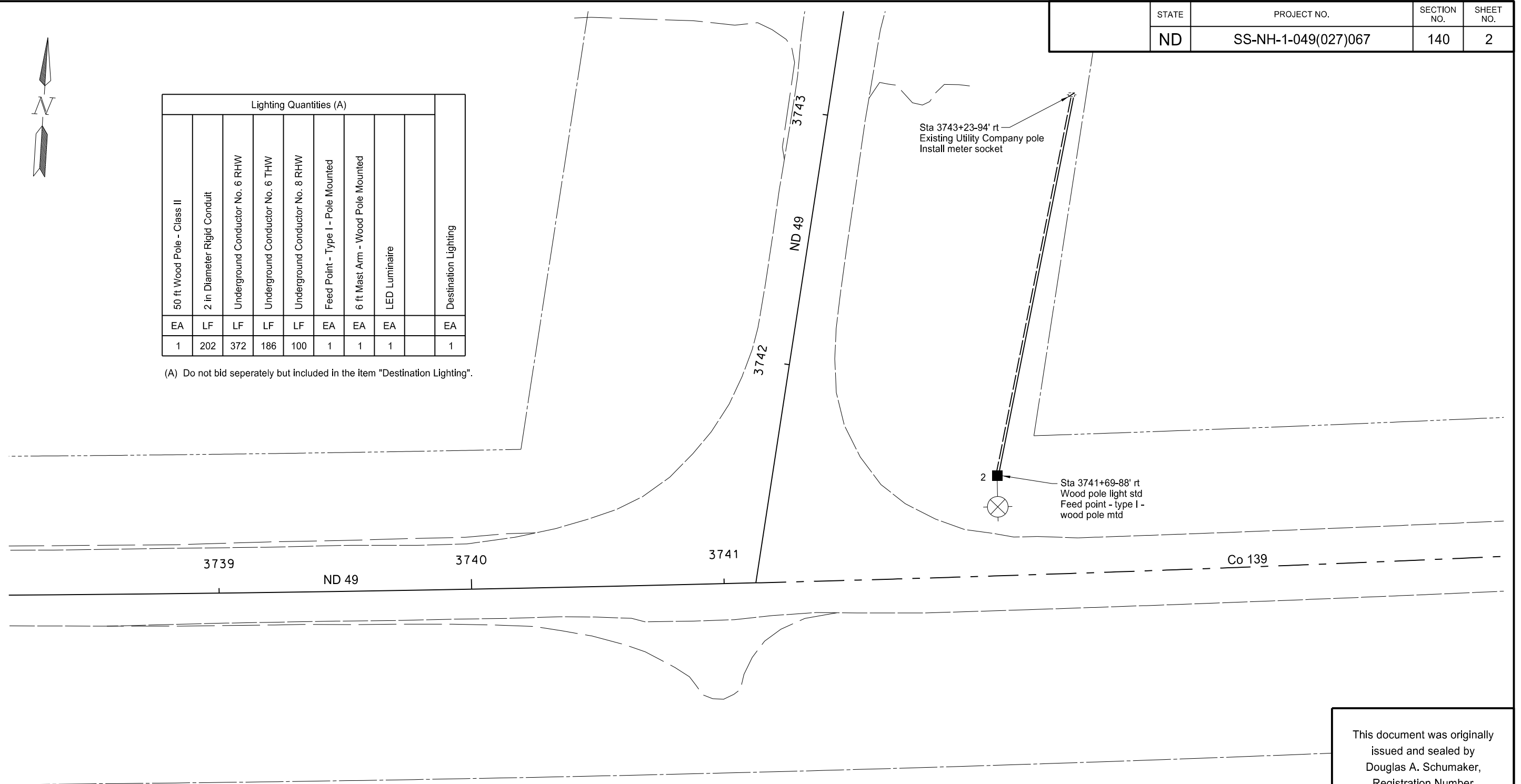
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Destination Lighting
Lighting Layout
ND 49 and Co 139
West of Glen Ullin



Lighting Quantities (A)									
50 ft Wood Pole - Class II	2 in Diameter Rigid Conduit	Underground Conductor No. 6 RHW	Underground Conductor No. 6 THW	Underground Conductor No. 8 RHW	Feed Point - Type I - Pole Mounted	6 ft Mast Arm - Wood Pole Mounted	LED Luminaire		Destination Lighting
EA	LF	LF	LF	LF	EA	EA	EA		EA
1	202	372	186	100	1	1	1		1

(A) Do not bid seperately but included in the item "Destination Lighting".



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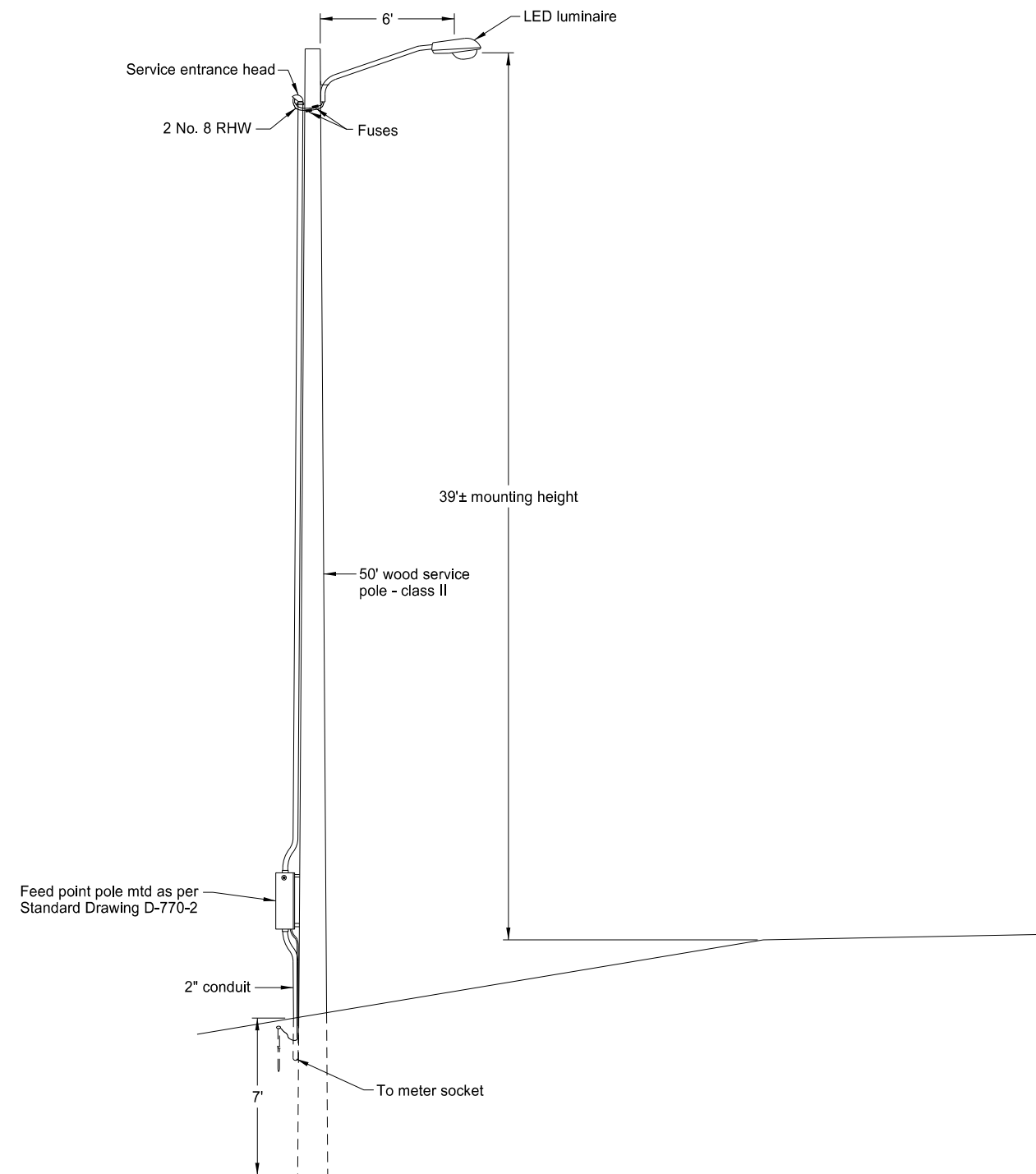
Light Std Number	Station	Conduit Runs		Cable Runs	
		LF	Dia	LF	Type
2	3743+23-94' rt	6 (B)	2" (B)	372	(2) No. 6 RHW
	3743+23-94' rt to 3741+69-88' rt	154	2"	186	(1) No. 6 THW
2	3741+69-88' rt	6 (B)	2" (B)		
2	3741+69-88' rt	36 (B)	2" (B)	100	(2) No. 8 RHW

(B) Wood pole mounted

Wood Pole Light Standard						
No.	Station	Wattage	Circuit	Distribution	Wood Pole Length	Wood Pole Mast Arm
2	3741+69-88' rt	70 - 75	1	3	50'	6'

Destination Lighting
Lighting Layout
ND 49 and Co 139
East of Glen Ullin

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	140	3

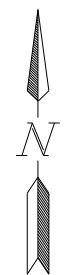


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Destination Lighting
 Destination Lighting Detail
 ND 49

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SS-NH-1-049(027)067	150	1

3610+00



RP 68.367 Rt
Remove 12" flashing
beacon head.

Abandon conduit
and conductor

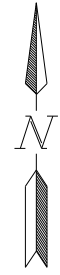
RP 68.367-90' Rt
Remove feed point
pipe stand with foundation

SPEC	CODE	BID ITEM	QTY	UNIT
772	3150	REMOVE FLASHING BEACON SYSTEM RP 68.367 Rt	1	EA

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Flashing Beacon Removal Layout
Glen Ullin
ND Hwy 49

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	150	2



3630+00

RP 68.738 Lt
Remove feed point
from wood pole

RP 68.753 Lt
Remove 12" flashing
beacon head.



Abandon conduit
and conductor



RP 68.738 Rt
Remove 12" flashing
beacon head.

SPEC	CODE	BID ITEM	QTY	UNIT
772	3150	REMOVE FLASHING BEACON SYSTEM		
		RP 68.738 Rt	1	EA
		RP 68.753 Lt		

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Flashing Beacon Removal Layout

Glen Ullin

ND Hwy 49

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	150	3



3645+00

3640+00

RP 69.875-120' Lt
Remove feed point,
pipe stand with foundation



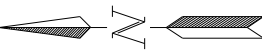
RP 68.975 Lt
Remove 12" flashing
beacon head.

Abandon conduit
and conductor

SPEC	CODE	BID ITEM	QTY	UNIT
772	3150	REMOVE FLASHING BEACON SYSTEM RP 68.975 Lt	1	EA

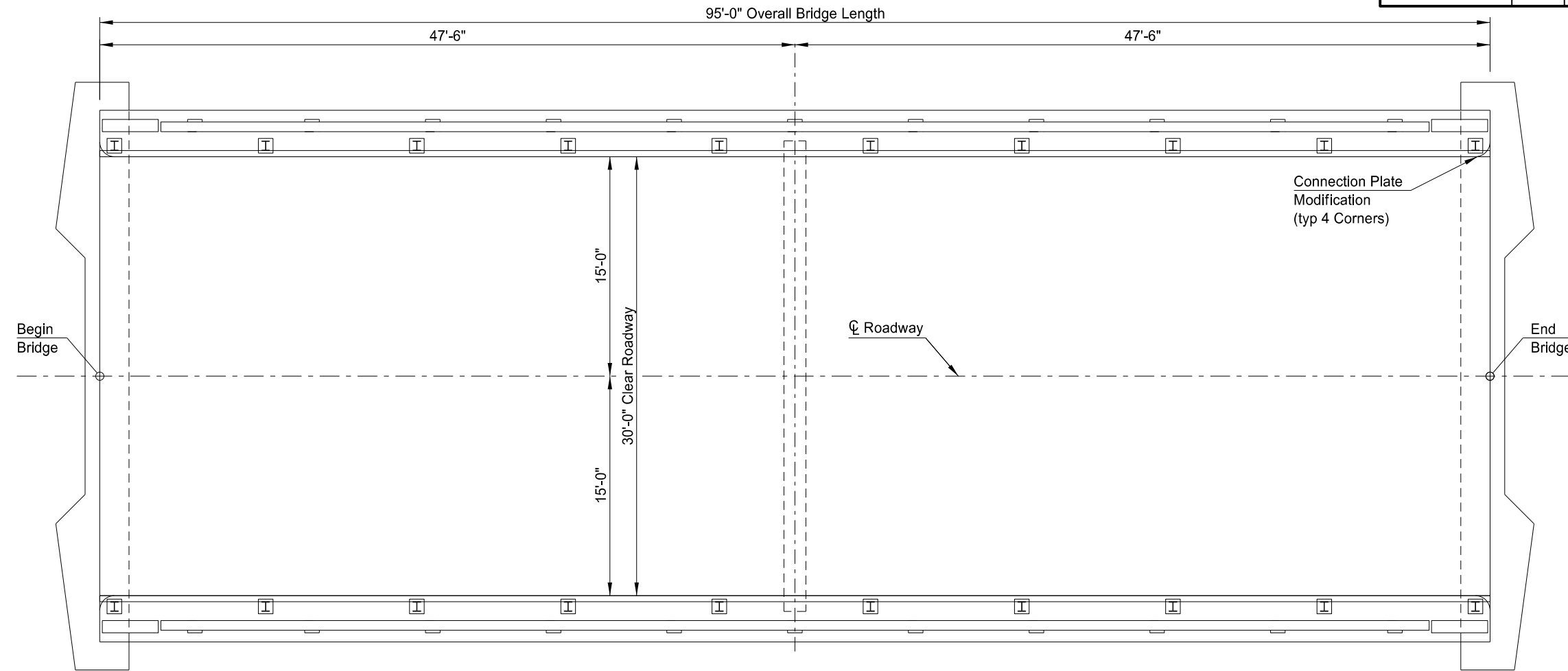
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Flashing Beacon Removal Layout
Glen Ullin
ND Hwy 49



23 U.S.C. 409
NDDOT Reserves All Objections

STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	170	1



PLAN

NOTES:

- 100 SCOPE OF WORK: Work at this site consists of placing a bridge deck overlay, and modifying the guardrail connection plates.
Maintain one lane of traffic across the bridge at all times.
- 650 SURFACE TOLERANCE: The Engineer will process a contract price adjustment for overlay concrete based on the surface tolerance measurements determined in Section 650.04 H, "Surface Tolerances." The amount of the contract price adjustment will be determined by multiplying the contract unit price for "Overlay Concrete" by the area, measured in square yards, that is out of tolerance and the appropriate Contract Price Reduction Factor in the table.

DEVIATION	CONTRACT PRICE REDUCTION FACTOR
> 1/8 inch and ≤ 1/4 inch	0.6%
> 1/4 inch and ≤ 1/2 inch	1.8%

- 650 LONGITUDINAL GROOVING: Do not run a metal tine transversely across the deck overlay surface immediately following the artificial grass drag as per 602.04 D. After the curing of the deck overlay is complete, cut in longitudinal grooves into the deck overlay using a mechanical cutting device. Perform any required surface correction grinding to the deck overlay prior to grooving it. Cut grooves that are 1#8 inch in width (±1#64 inch) and 3#16 inch in depth (±1#16 inch). Space grooves at 3#4 inch center to center. Stop the grooving 2 feet from the face of the barrier/curb and 6 inches from the beginning and end of the deck. Include the price for grooving in the bid item "Overlay Concrete."

This document was originally issued and sealed by Dustin Wing, Registration Number PE 7128, on 11/16/2016 and the original document is stored at the North Dakota Department of Transportation

BRIDGE BID ITEMS

SPEC	CODE	ITEM DESCRIPTION	UNIT	QUANTITY
602	0130	CLASS AAE-3 CONCRETE	CY	0.5
624	3005	CONNECTION PLATE MODIFICATION	EA	4
650	0704	OVERLAY CONCRETE	CY	17.5
650	0710	CLASS 1-H REMOVAL	SY	317
650	0711	CLASS 2-H REMOVAL	SY	24
650	0712	CLASS 3-H REMOVAL	SY	4

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

BIG MUDDY CREEK

BRIDGE LAYOUT

PROJECT: SS-NH-1-049(027)067

MORTON COUNTY

11/16/16 DATE Jon Ketterling BRIDGE ENGINEER

STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	170	2

NOTES:

- 650 CLASS 1-H REMOVAL: Include all costs associated with the removal of the existing asphalt overlay in the price bid for "Class 1-H Removal."
- 650 REMOVAL: If any class of removal reaches the webs of the beams stop the removal and contact bridge division.
- 650 CLASS 2-H REMOVAL: Pay "Class 2-H Removal" only on the areas that receive a second pass from the hydrodemolition machine.
- 650 CLASS 3-H REMOVAL: Pay "Class 3-H Removal" only on the areas that receive a third pass from the hydrodemolition machine.
- 650 OVERLAY CONCRETE: Placement of overlay concrete after September 15 requires authorization from the Bridge Engineer.

Basic absolute volume per Unit Volume of Concrete:

Coarse Aggregate (Size 5)	0.3121
Fine Aggregate	0.3121
Air	0.0600
Water	0.1603
Cement (Type I or IA)	0.1555
	1.0000

Approximate quantities of dry materials per cubic yard of concrete:

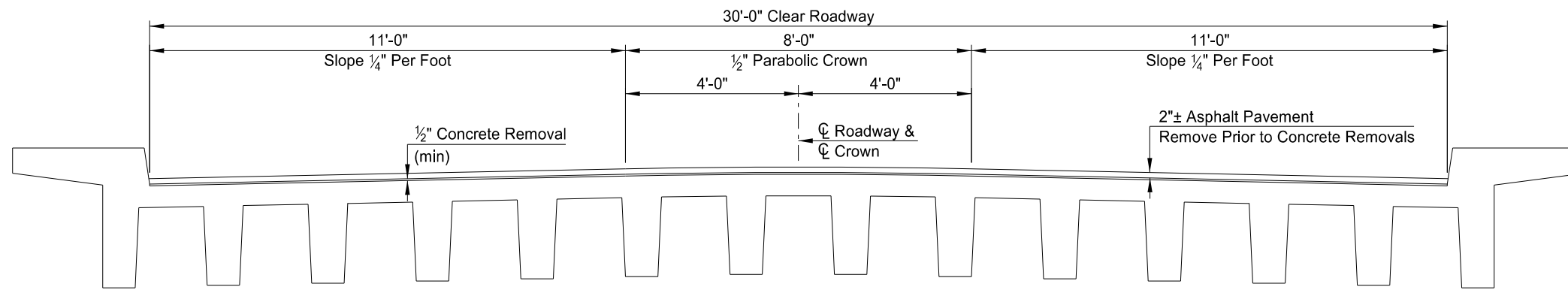
Coarse Aggregate (Size 5)	1,393 lbs.
Fine Aggregate	1,393 lbs.
Cement (8.75 bags)	823 lbs.

These quantities are based on the following assumptions:

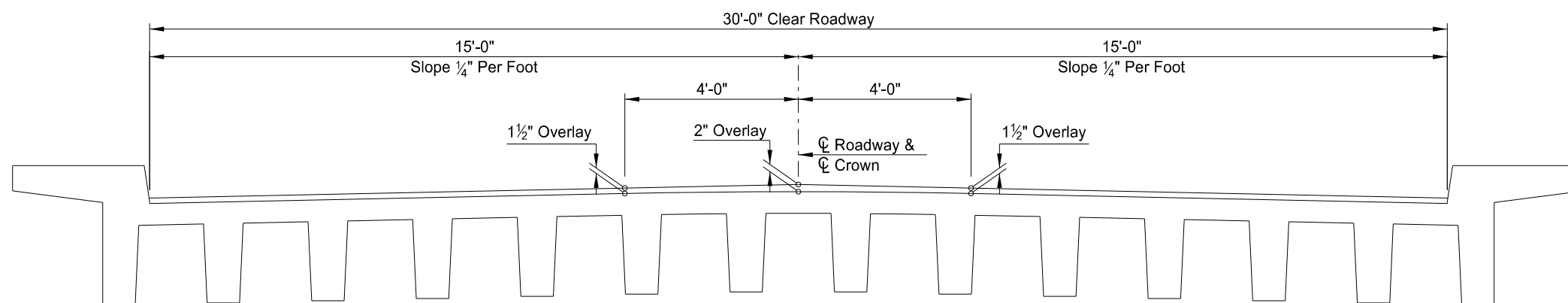
Specific gravity of cement	3.14
Specific gravity of aggregate	2.65
Weight of one cubic foot of water	62.4 lbs.

Use an approved water-reducing admixture.

Use coarse aggregate composed of crushed stone. Use crushed stone that has at least one fractured face on 75 percent of the particles retained on the number 4 sieve.



(SHOWING REMOVAL)
TYPICAL DECK SECTION



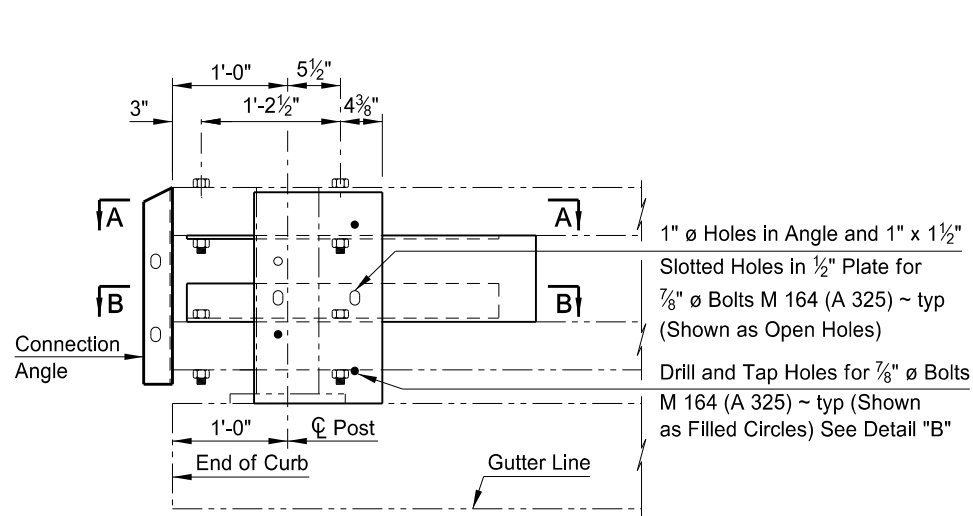
(SHOWING OVERLAY)
TYPICAL DECK SECTION

QUANTITIES	
CLASS AAE-3 CONCRETE	0.5 CY
OVERLAY CONCRETE	17.5 CY
CLASS 1-H REMOVAL	317 SY
CLASS 2-H REMOVAL	24 SY
CLASS 3-H REMOVAL	4 SY

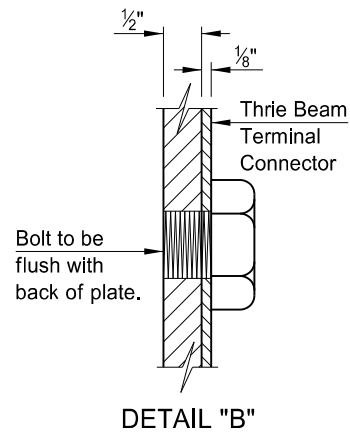
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BIG MUDDY CREEK
DECK OVERLAY DETAILS

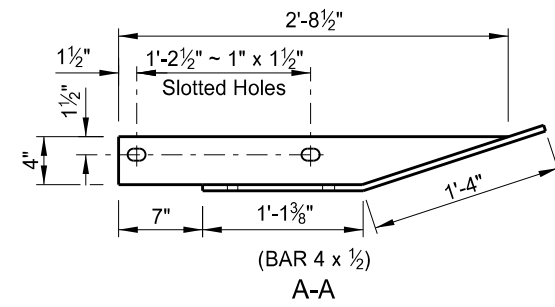
STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	170	3



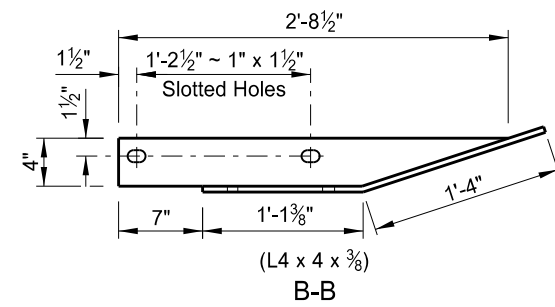
END POST CONNECTION DETAIL



DETAIL "B"



A-A

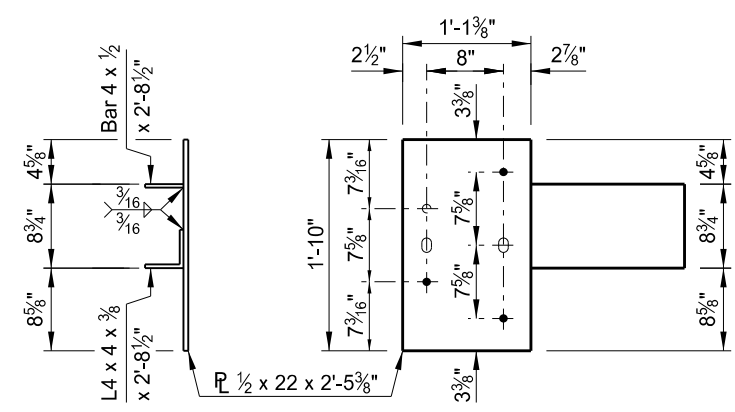


B-B

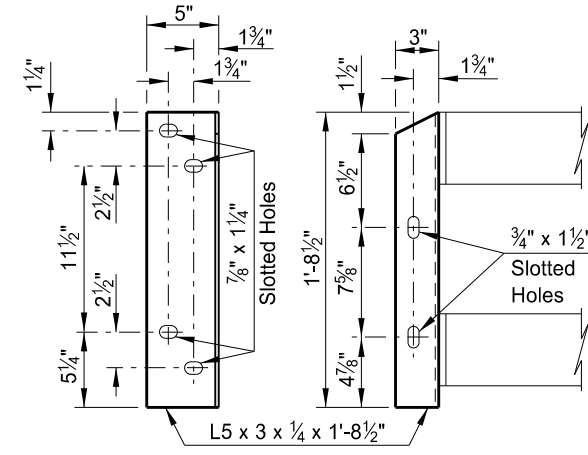
NOTES:

Payment for the "Connection Plate Modification" includes compensation for furnishing and installing the guardrail connection plate, connection angle, welded studs, and for removal and disposal of the existing connection plate.

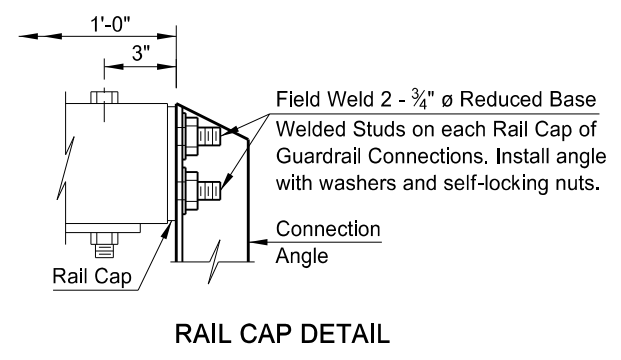
Galvanize all components after fabrication according to Section 854 and Galvanize field welds according to Section 854.02.



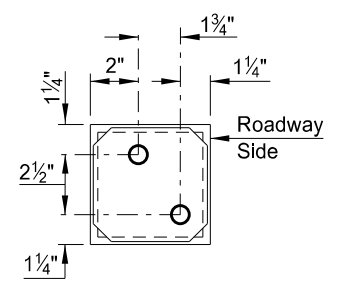
GUARDRAIL CONNECTION PLATE DETAILS



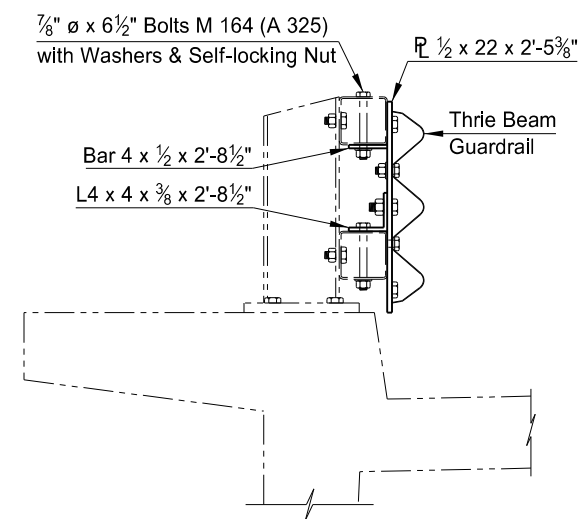
CONNECTION ANGLE DETAILS



RAIL CAP DETAIL



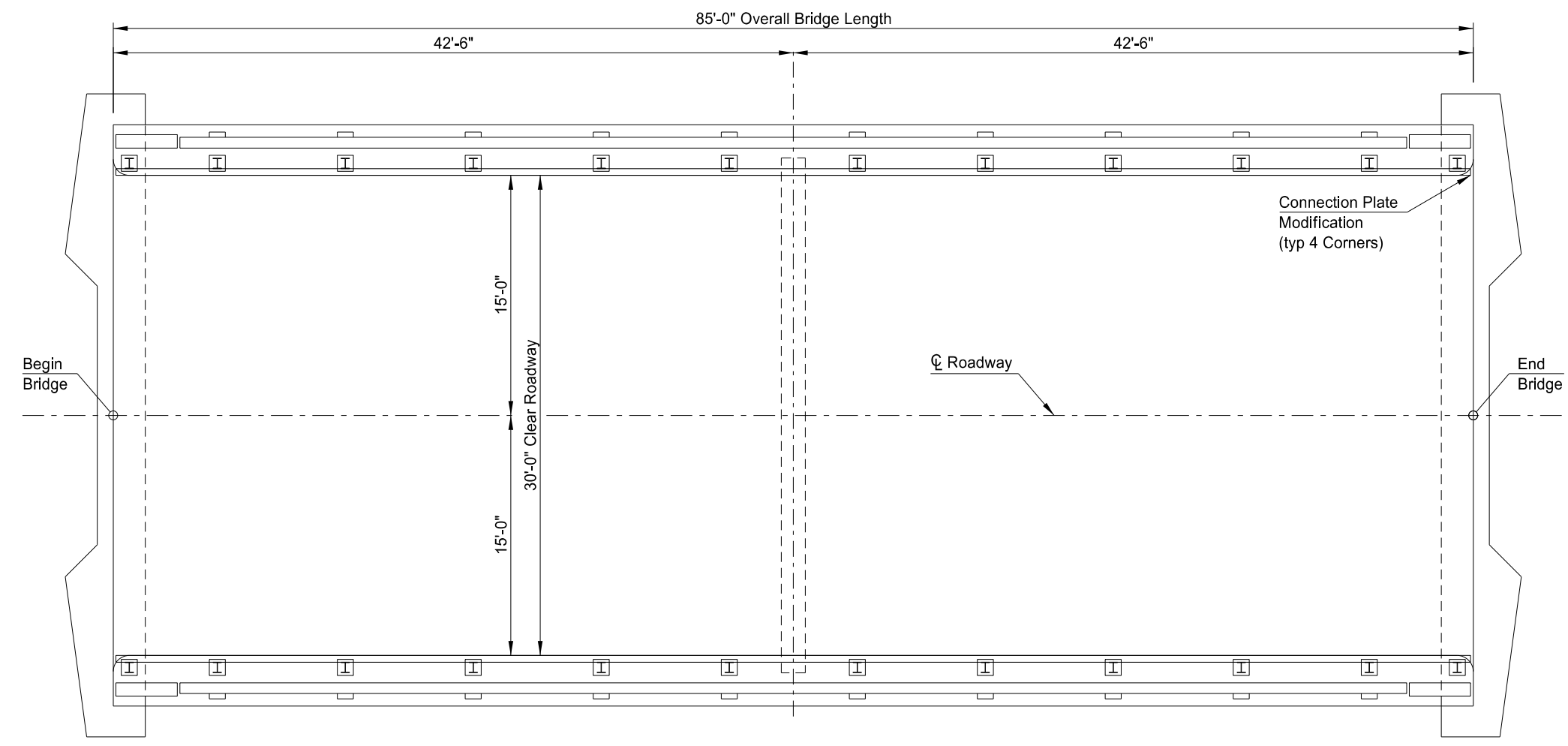
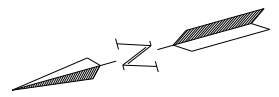
RAIL CAP END VIEW



THRIE BEAM CONNECTION DETAIL

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QUANTITIES	
CONNECTION PLATE MODIFICATION	4 EA
BIG MUDDY CREEK	
CONNECTION PLATE MODIFICATION DETAILS	



PLAN

NOTES:

100 SCOPE OF WORK: Work at this site consists of placing a bridge deck overlay, and modifying the guardrail connection plates.

Maintain one lane of traffic across the bridge at all times.

650 SURFACE TOLERANCE: The Engineer will process a contract price adjustment for overlay concrete based on the surface tolerance measurements determined in Section 650.04 H, "Surface Tolerances." The amount of the contract price adjustment will be determined by multiplying the contract unit price for "Overlay Concrete" by the area, measured in square yards, that is out of tolerance and the appropriate Contract Price Reduction Factor in the table.

DEVIATION	CONTRACT PRICE REDUCTION FACTOR
> 1/8 inch and ≤ 1/4 inch	0.6%
> 1/4 inch and ≤ 1/2 inch	1.8%

650 LONGITUDINAL GROOVING: Do not run a metal tine transversely across the deck overlay surface immediately following the artificial grass drag as per 602.04 D. After the curing of the deck overlay is complete, cut in longitudinal grooves into the deck overlay using a mechanical cutting device. Perform any required surface correction grinding to the deck overlay prior to grooving it. Cut grooves that are 1/8 inch in width (±1/64 inch) and 3/16 inch in depth (±1/16 inch). Space grooves at 3/4 inch center to center. Stop the grooving 2 feet from the face of the barrier/curb and 6 inches from the beginning and end of the deck. Include the price for grooving in the bid item "Overlay Concrete."

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BRIDGE BID ITEMS

SPEC	CODE	ITEM DESCRIPTION	UNIT	QUANTITY
602	0130	CLASS AAE-3 CONCRETE	CY	0.5
624	3005	CONNECTION PLATE MODIFICATION	EA	4
650	0704	OVERLAY CONCRETE	CY	15.5
650	0710	CLASS 1-H REMOVAL	SY	284
650	0711	CLASS 2-H REMOVAL	SY	22
650	0712	CLASS 3-H REMOVAL	SY	3

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

HAYMARSH CREEK

BRIDGE LAYOUT

PROJECT: SS-NH-1-049(027)067

MORTON COUNTY

DATE 11/16/16 Jon Ketterling BRIDGE ENGINEER

STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	170	5

NOTES:

- 650 CLASS 1-H REMOVAL: Include all costs associated with the removal of the existing asphalt overlay in the price bid for "Class 1-H Removal."
- 650 REMOVAL: If any class of removal reaches the webs of the beams stop the removal and contact bridge division.
- 650 CLASS 2-H REMOVAL: Pay "Class 2-H Removal" only on the areas that receive a second pass from the hydrodemolition machine.
- 650 CLASS 3-H REMOVAL: Pay "Class 3-H Removal" only on the areas that receive a third pass from the hydrodemolition machine.
- 650 OVERLAY CONCRETE: Placement of overlay concrete after September 15 requires authorization from the Bridge Engineer.

Basic absolute volume per Unit Volume of Concrete:

Coarse Aggregate (Size 5)	0.3121
Fine Aggregate	0.3121
Air	0.0600
Water	0.1603
Cement (Type I or IA)	0.1555
	1.0000

Approximate quantities of dry materials per cubic yard of concrete:

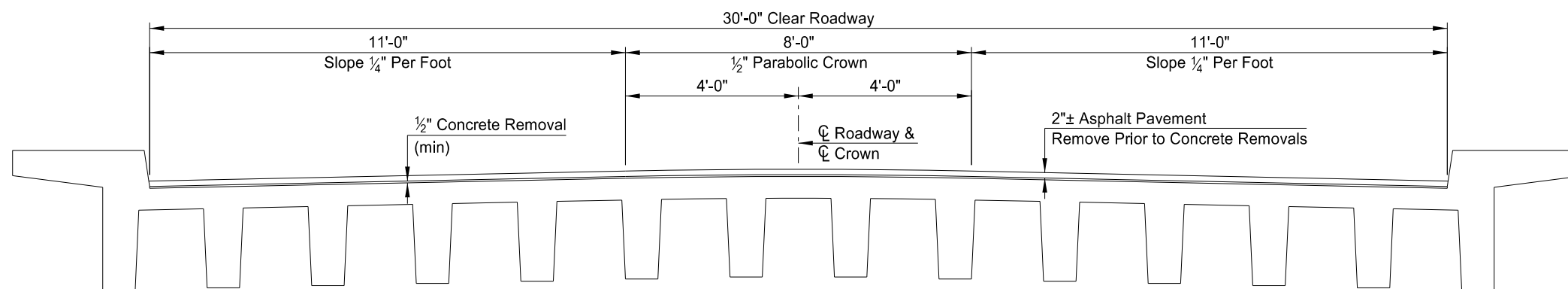
Coarse Aggregate (Size 5)	1,393 lbs.
Fine Aggregate	1,393 lbs.
Cement (8.75 bags)	823 lbs.

These quantities are based on the following assumptions:

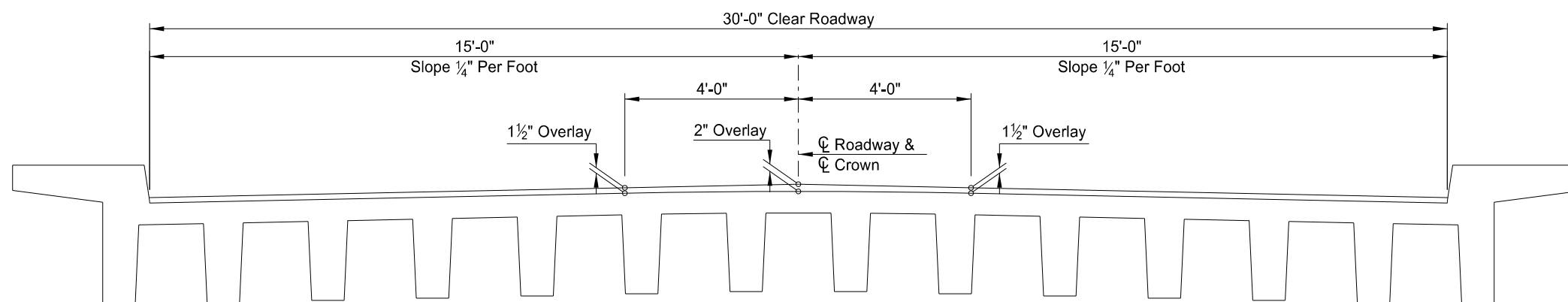
Specific gravity of cement	3.14
Specific gravity of aggregate	2.65
Weight of one cubic foot of water	62.4 lbs.

Use an approved water-reducing admixture.

Use coarse aggregate composed of crushed stone. Use crushed stone that has at least one fractured face on 75 percent of the particles retained on the number 4 sieve.



(SHOWING REMOVAL)
TYPICAL DECK SECTION



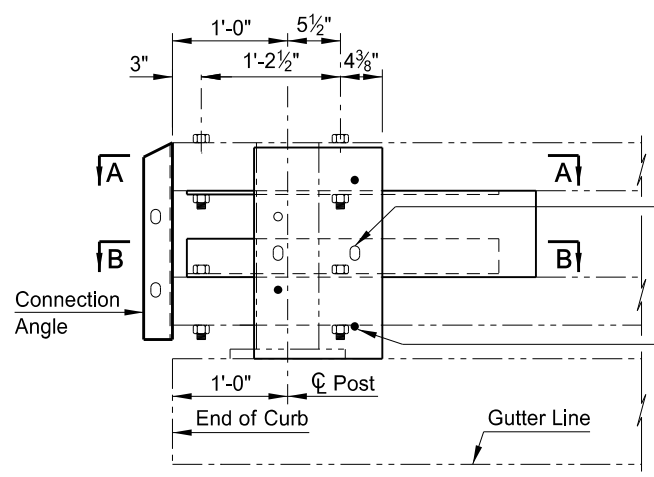
(SHOWING OVERLAY)
TYPICAL DECK SECTION

QUANTITIES	
CLASS AAE-3 CONCRETE	0.5 CY
OVERLAY CONCRETE	15.5 CY
CLASS 1-H REMOVAL	284 SY
CLASS 2-H REMOVAL	22 SY
CLASS 3-H REMOVAL	3 SY

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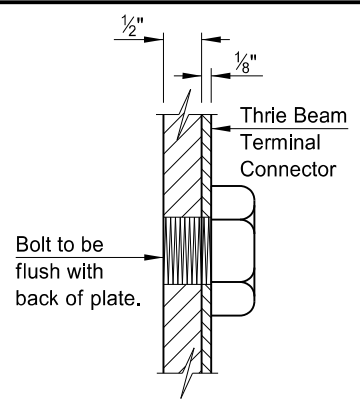
HAYMARSH CREEK
DECK OVERLAY DETAILS

STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	SS-NH-1-049(027)067	170	6

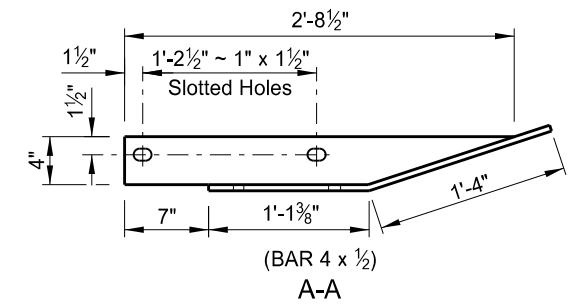


1" \varnothing Holes in Angle and 1" x 1 1/2" Slotted Holes in 1/2" Plate for 7/8" \varnothing Bolts M 164 (A 325) ~ typ (Shown as Open Holes)
 Drill and Tap Holes for 7/8" \varnothing Bolts M 164 (A 325) ~ typ (Shown as Filled Circles) See Detail "B"

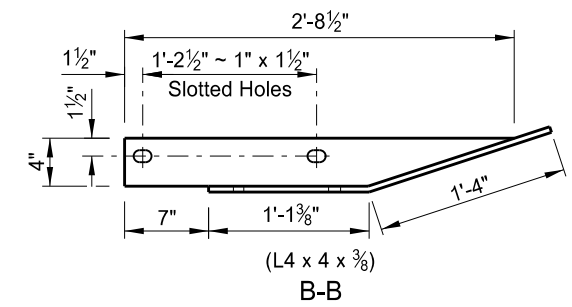
END POST CONNECTION DETAIL



DETAIL "B"



A-A

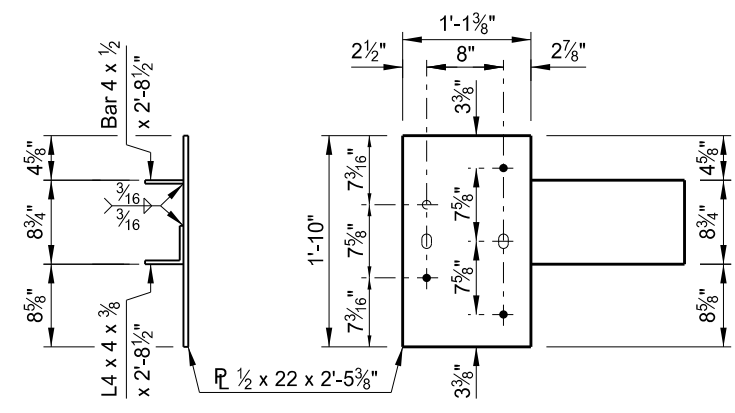


B-B

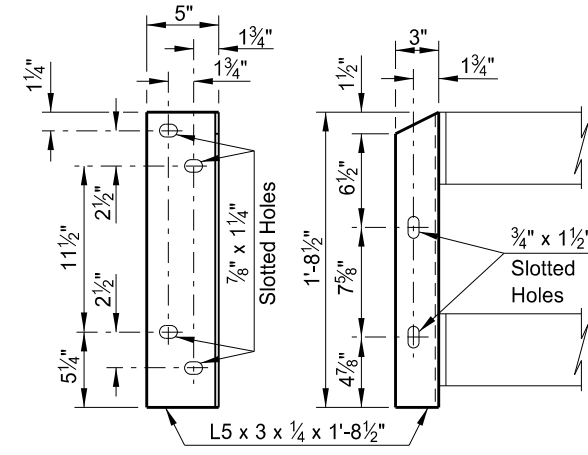
NOTES:

Payment for the "Connection Plate Modification" includes compensation for furnishing and installing the guardrail connection plate, connection angle, welded studs, and for removal and disposal of the existing connection plate.

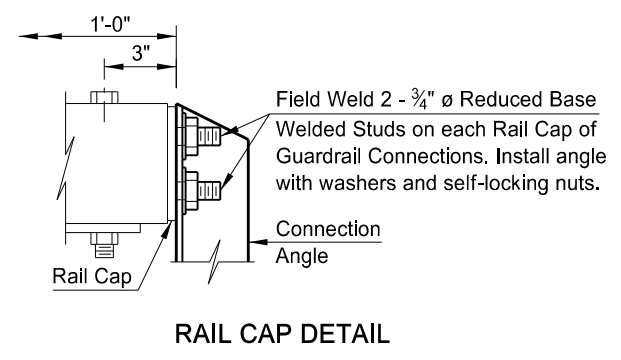
Galvanize all components after fabrication according to Section 854 and Galvanize field welds according to Section 854.02.



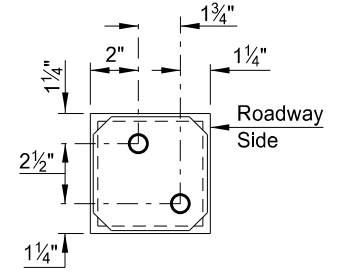
GUARDRAIL CONNECTION PLATE DETAILS



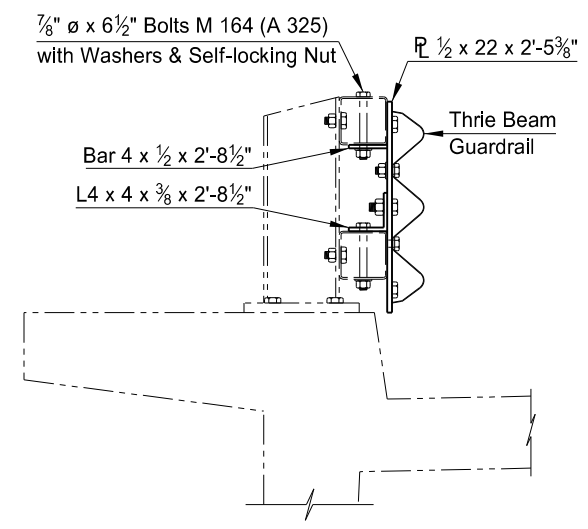
CONNECTION ANGLE DETAILS



RAIL CAP DETAIL



RAIL CAP END VIEW



THRIE BEAM CONNECTION DETAIL

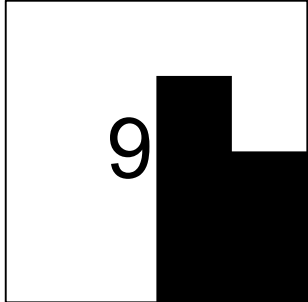
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QUANTITIES	
CONNECTION PLATE MODIFICATION	4 EA
HAYMARSH CREEK	
CONNECTION PLATE MODIFICATION DETAILS	

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SS-NH-049(027)067	180	1

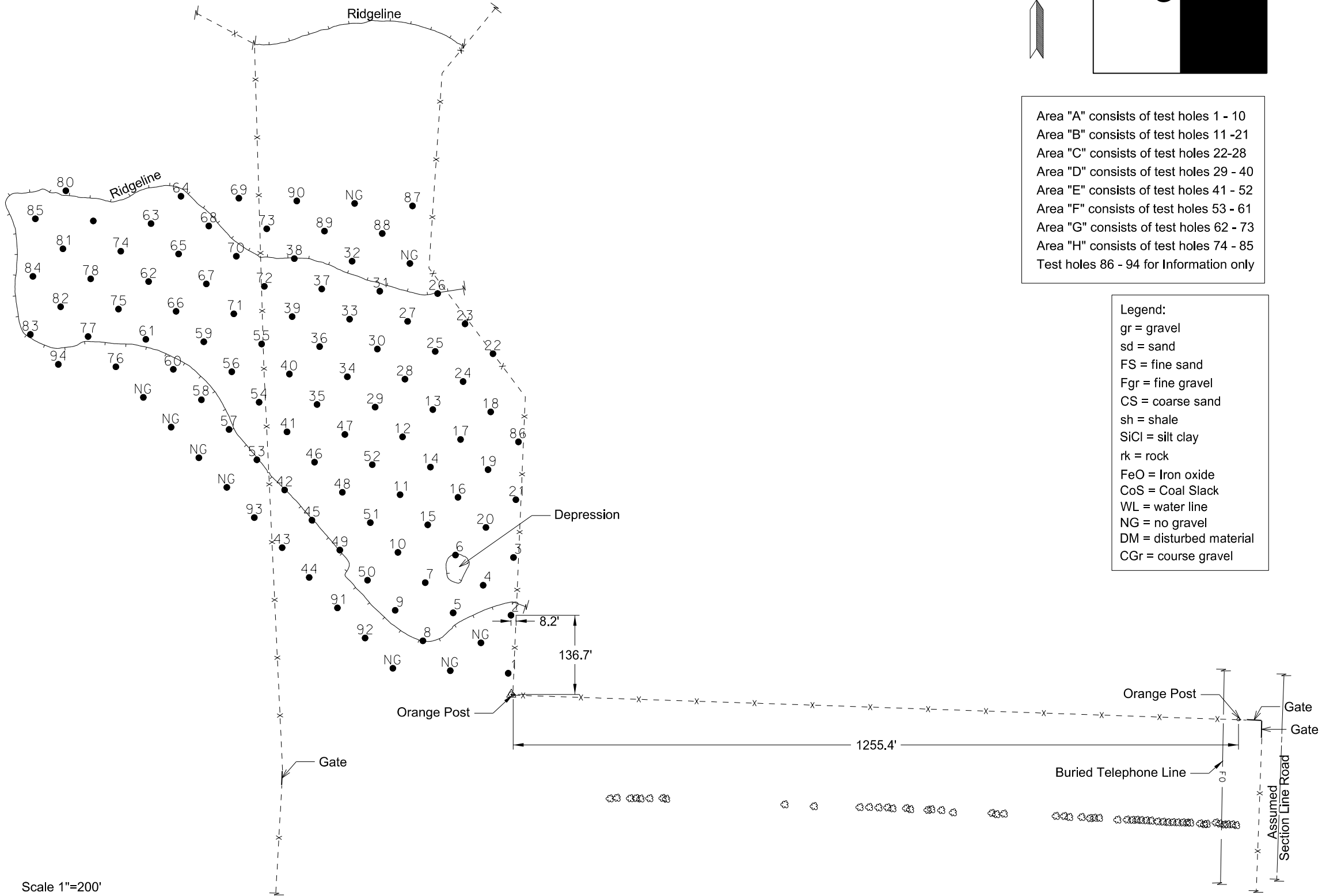
E1/2 9-143-86
Richard & Nancy Scheid

Oliver



Area "A" consists of test holes 1 - 10
Area "B" consists of test holes 11 -21
Area "C" consists of test holes 22-28
Area "D" consists of test holes 29 - 40
Area "E" consists of test holes 41 - 52
Area "F" consists of test holes 53 - 61
Area "G" consists of test holes 62 - 73
Area "H" consists of test holes 74 - 85
Test holes 86 - 94 for Information only

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 = course gravel



Scale 1"=200'

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 1/2" Screen	% Retained on 3/4" 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 1/2" Screen	% Retained on 3/4" 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 1/2" Screen	% Retained on 3/4" 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 1/2" Screen	% Retained on 3/4" Screen	% Retained on 3/8" Screen	% Retained on #4 Screen	Bottom of Test Hole
84	0.5	1.0 gr	1	8	16	25	SiCl	86	6.0	2.0 gr					SiCl																
		0.5 FS						87	3.0	2.0 gr	1	9	15	24	gr SiCl																
		1.0 Fgr								1.0 FS																					
		1.0 FS								1.0 Fgr																					
		2.0 Fgr						88	4.0	2.0 gr					SiCl																
		2.0 gr								1.0 FS																					
85	1.0	1.0 Fgr	0	2	8	15	SiCl	89	5.0	4.0 gr	0	7	21	37	SiCl																
		2.0 FS						90	4.5	3.5 gr	3	14	26	38	SiCl																
		3.0 Fgr						91	4.0	3.0 Fgr					SiCl																
								92	4.0	3.0 gr					SiCl																
								93	5.0	3.0 gr					SiCl																
								94	4.0	3.0 Fgr					SiCl																
								Holes 86-94 are not included in pit quantities and are just for informational use.																							

RANGE	86	TWP	143	SEC	E1/2 9
COUNTY	Oliver		Jun-14		
PROSPECTED BY	Swank / Rogstad				
INSPECTED & APPROVED	Jeffrey Swank		Jul-14		