North Dakota Department of Transportation

Grant Levi, P.E.
Director

Jack Dalrymple
Governor

February 1, 2016

ADDENDUM 1 – JOB 11

TO: All prospective bidders on project SOIB-7-023(051)027, Job No. 11 scheduled for the February 5, 2016 bid opening.

The following plan and request for proposal revision shall be made:

Plan Revisions:
See attached summary from Jonathan Morgenroth, PE; SRF Consulting, dated January 29, 2016 for an explanation.

Request for Proposal Revisions:
Remove and replace pages 5-11 of 12 of the Proposal pages located at the beginning of the Request for Proposal, with the enclosed pages revised 1/30/2016.

Page 5 of 12:
Item 203 0101 COMMON EXCAVATION-TYPE A; quantity increased from 190,146 to 194,914 CY.
Item 203 0109 TOPSOIL; quantity increased from 29,227 to 29,317 CY.
Item 216 0100 WATER; quantity increased from 2902 to 2926 M GAL.
Item 251 0200 SEEDING CLASS II; quantity increased from 32.9 to 33 ACRE.

Page 6 of 12:
Item 253 0101 STRAW MULCH; quantity increased from 66.1 to 66.2 ACRE.

Page 7 of 12:
Item 708 1540 INLET PROTECTION-SPECIAL; quantity increased from 14 to 15 EA.
Item 708 1541 REMOVE INLET PROTECTION-SPECIAL; quantity increased from 14 to 15 EA.
Item 714 4097 PIPE CONDUIT 15IN-STORM DRAIN; quantity increased from 236 to 243 LF.

Page 8 of 12:
Item 714 4101 PIPE CONDUIT 18IN-STORM DRAIN; quantity increased from 300 to 332 LF.
Item 722 1100 MANHOLE RISER 48IN; quantity increased from 64.5 to 66.7 LF.
Item 722 3510 INLET-TYPE 2; quantity decreased from 6 to 5 EA.
Item 722 3713 INLET SPECIAL MOUNTABLE-TYPE B 48IN; 5 EA was added.
Item 722 4060 INLET MOUNTABLE CURB-TYPE B; 2 EA was added.

Page 9 of 12:

Item 748 0120 CURB & GUTTER MOUNTABLE-TYPE I; 1309 LF was added.
Item 748 0140 CURB & GUTTER-TYPE I; quantity decreased from 7173 to 5877 LF.

Page 10 of 12:

Item 754 0206 STEEL GALV POSTS-TELESCOPING PERFORATED TUBE; quantity decreased from 606.7 to 600 LF.
Item 970 1011 LANDSCAPE PLANTINGS; 1 Lump Sum was added.

Page 11 of 12:

Time for completion was revised.

This addendum is to be incorporated into the bidder's proposal for this project.

Expedite bid files should be updated by downloading the addendum file from the Bid Express on-line bidding exchange at http://www.bidx.com/ or the Department's web page (http://www.dot.nd.gov) and load it into the Expedite program.

CAL J. GENDREAU – CONSTRUCTION SERVICES ENGINEER
80:plm
Enclosure

SRF Consulting Group, Inc. | ENGINEERS PLANNERS DESIGNERS

SRF No. 7751

January 29, 2016

ADDENDUM 1 – JOB 11

TO: All prospective bidders on project SOIB-7-023(051)027, Job No. 11 scheduled for the February 5, 2016 bid opening.

The following plan and proposal revisions shall be made:

Plan Revisions:

Remove and replace sheets 6-1, 11-1 to 5, 30-3 to 6, 76-2 & 3, 82-17 to 19, 82-21 & 22, 90-2 to 4, 90-6 & 7, 100-6 & 7, 110-1 & 2, 110-5, 120-2 to 4, 140-1 & 3, 200-6 to 13, 200-19 to 22, 200-46 to 49, 200-56 to 86, 200-97 to 100, with the enclosed sheets revised 1/28/16

Remove and replace sheets 2-2, 8-1, 20-6, 20-8, 50-1, 51-2, 60-1 to 7, 60- 11, 60-18, 60-22 to 24, 60-31, 75-2 & 3, 77-2 & 3, 200-26 to 35, with the enclosed sheets revised 1/29/16

Sheet 2-2

Added Standard Drawing D-722-3 to Table of Contents.

Sheet 6-1

Revised note 203-P02.

Sheet 8-1

Revised quantities;
Common Excavation – Type A changed from 190,146 CY to 194,914 CY, increased 4,768 CY.
Topsoil changed from 29,227 CY to 29,317 CY, increased 90 CY.
Water changed from 2,902 M GAL to 2926 M Gal, increased 24 M Gal.
Seeding Class II changed from 32.9 Acre to 33 Acre, increased .1 Acre.
Straw Mulch changed from 66.1 Acre to 66.2 Acre, increased .1 Acre.
Inlet Protection-Special changed from 14 EA to 15 EA, increased 1 EA.
Remove Inlet Protection-Special changed from 14 EA to 15 EA, increased 1 EA.
Pipe Conduit 15IN-Storm Drain changed from 236 LF to 243 LF, increased 7 LF.
Pipe Conduit 18IN- Storm Drain changed from 300 LF to 332 LF, increased 32 LF.
Manhole Riser 48IN changed from 64.5 LF to 66.7 LF, increased 2.2 LF.
Inlet- Type 2 changed from 6 EA to 5 EA, decreased 1 EA.
Added Inlet Special Mountable- Type B 48IN changed from 0 EA to 5 EA, increased 5 EA.
Added Inlet Mountable Curb- Type B changed from 0 EA to 2 EA, increased 2 EA.
Added Curb & Gutter Mountable – Type 1 changed from 0 LF to 1,309 LF, increased 1,309 LF.
Curb & Gutter – Type 1 changed from 7,173 LF to 5,877 LF, decreased 1,296 LF.
Steel Galv Post-Telescoping Perforated Tube changed from 606.7 LF to 600.0 LF, decreased 6.7 LF.
Added Landscape Plantings changed from 0 L Sum to 1 L Sum, increased 1 L Sum.

Sheet 11-1

Earthwork Summary updated for 8 ft berm and mountable curb. SE Quadrant Grading updated to get a near balance of earthwork.

Sheet 11-2

ND 23 South Leg table updated for 8 ft berm, mountable curb, and SE Quadrant Grading.

Sheet 11-3
SE Quadrant Grading and County Road 10 West Leg tables updated for 8 ft berm, mountable curb, and SE Quadrant Grading.

Sheet 11-4
Roundabout Center table updated or 8 ft berm, mountable curb, and SE Quadrant Grading.

Sheet 11-5
County Road 55 North Leg and ND 23 East Leg tables updated for 8 ft berm, mountable curb, and SE Quadrant Grading.

Sheet 20-6
Increased inlet protection quantities due to the addition of inlet 6B.

Sheet 20-8
Updated station locations of culvert protection for storm drain changes.

Sheet 30-3
Added typical section showing mountable curb and 8 foot berm on right side. Updated station ranges.

Sheet 30-4
Updated station ranges for top typical section. Changed top typical to have mountable curb and 8 foot berms on both sides.

Sheet 30-5
Changed outside curbs to mountable curbs with 8 foot berms.

Sheet 30-6
Changed “Driving Lane” typical to show mountable curb and 8 foot berm.

Sheet 50-2
Added inlet 6B. Updated other structure types, elevations, heights, and grates.

Sheet 51-2
Added pipe 6B-to-6A. Updated other pipe lengths, stations, and offsets.

Sheets 60-1, 2, 3, 4, 5, 6, 7, 11, 18, 22, 23, 24, 31
Updated to show the mountable curbs with the 8 foot berm, the grading PI, and updated pipes.

Sheets 75-2, 3
Updated to show the new construction limits.

Sheets 76-2, 3
Updated to show the new construction limits. The seeding quantities were updated to reflect the construction limit changes.

Sheets 77-2, 3
Updated to show the new construction limits. The seeding quantities were updated to reflect the construction limit changes.

Sheets 82-17, 18, 19, 21, 22

Added line work for outside edge of new 8 foot berm. Added survey data points at transition locations of new berm.

Sheets 90-2, 3, 4, 6, 7

Changed outside curbs on Roundabout Radius to Curb & Gutter Mountable – Type 1 and revised quantities.

Sheets 100-6, 7

Changed outside curbs on Roundabout Radius to Curb & Gutter Mountable – Type 1.

Sheets 110-1, 2

Sign 1499+05 LT moved to 1499+07 RT (PR23A), Sign 1505+05 RT moved to 1505+02 RT (PR23A), and Sign 1+13 LT moved to 1+14 LT (CO RD 55). Sign 51+54 RT moved to 51+52 RT (CO RD 10). Post heights were changed due to the change in the curb.

Sheet 110-5

Updated to show the new location of the signs that were shifted due to the mountable curve and 8' berm.

Sheets 120-2, 3, 4

Changed outside curbs on Roundabout Radius to Curb & Gutter Mountable – Type 1.

Sheets 140-1

Revised lighting layout due to change in mountable curbs with 8 foot berms.

Sheet 140-3

Revised tables.

Sheets 200 - 6-13, 19-22, 26-35, 46-49, 56-82, 83-86, 97-100

Cross Sections updated for 8 ft berm, mountable curb, and SE Quadrant Grading.

Sheets 200 – 119-122

Updated to show correct cross sections for Wetland 53 Mitigation 1475+00 RT.

Supplemental Design Data Revisions

DESIGN_AD-A.dgn, PROFILE_AD-A.dgn, RD_Excavation_Keene_Corner_AD-A.dgn, RD_Roundabout_AD-A.dgn, RD_Roundabout_Center_AD-A.dgn, XSEC_EASTLEG_AD-A.dgn, XSEC_Keene_Corner_Excavation_AD-A.dgn, XSEC_NORTHLEG_AD-A.dgn, XSEC_Roundabout_Center_AD-A.dgn, XSEC_SOUTHLEG_AD-A.dgn, XSEC_WESTLEG_AD-A.dgn

.dtm, .xml, & .tin:

East Leg_AD-A, North Leg_AD_A,Roundabout Center 1_AD-A, Roundabout Center 2_AD-A, SE Quadrant Grading_AD-A, South Leg_AD-A, West Leg_AD-A, East Leg-DG_AD-A, North Leg-DG_AD-A, Roundabout Center 1-DG_AD-A, Roundabout Center 2-DG_AD-A, SE Quadrant Grading-DG_AD-A, South Leg-DG_AD-A, West Leg-DG_AD-A, East Leg-B1_AD-A, North Leg-B1_AD-A, Roundabout Center 1-B1_AD-A, Roundabout Center 2-B1_AD-A, South Leg-B1_AD-A, West Leg-B1_AD-A

This addendum is to be incorporated into the bidder's proposal for this project.

Jonathan Morgenroth, PE
SRF Consulting Group, Inc.

Enclosure

BID ITEMS

Project: SOIB-7-023(051)027 (PCN-21339)

Bidder must type or neatly print unit prices in numerals, make extensions for each item, and total. Do not carry unit prices further than three (3) decimal places.

Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price $$$$$	Unit Price 000	Amount $$$$$	Amount 00
001	103	0100	CONTRACT BOND	L SUM	1.				
002	103	0200	ESCROW OF BID DOCUMENTATION	L SUM	1.				
003	201	0330	CLEARING & GRUBBING	L SUM	1.				
004	202	0121	REMOVE & SALVAGE BITUMINOUS SURFACING	TON	12,458.				
005	202	0136	REMOVAL OF PAVEMENT	TON	5,096.				
006	202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES	LF	432.				
007	202	0312	REMOVE EXISTING FENCE	LF	6,861.				
008	203	0101	COMMON EXCAVATION-TYPE A	CY	194,914.				
009	203	0109	TOPSOIL	CY	29,317.				
010	203	0121	TOPSOIL-WETLAND	CY	1,213.				
011	203	0140	BORROW-EXCAVATION	CY	3,968.				
012	216	0100	WATER	M GAL	2,926.				
013	230	0165	SUBGRADE PREPARATION-TYPE A-12IN	STA	27.590				
014	251	0200	SEEDING CLASS II	ACRE	33.				
015	251	1000	WETLAND SEED	ACRE	1.800				
016	251	2000	TEMPORARY COVER CROP	ACRE	33.200				

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Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price $$$$$	Unit Price 000	Amount $$$$$	Amount 00
017	253	0101	STRAW MULCH	ACRE	66.200				
018	255	0101	ECB TYPE 1	SY	8,257.				
019	255	0104	ECB TYPE 4	SY	5,175.				
020	261	0112	FIBER ROLLS 12IN	LF	10,000.				
021	261	0113	REMOVE FIBER ROLLS 12IN	LF	5,474.				
022	261	0120	FIBER ROLLS 20IN	LF	13,376.				
023	261	0121	REMOVE FIBER ROLLS 20IN	LF	6,688.				
024	302	0100	SALVAGED BASE COURSE	TON	40,079.				
025	401	0050	TACK COAT	GAL	1,982.				
026	401	0060	PRIME COAT	GAL	6,594.				
027	430	0045	SUPERPAVE FAA 45	TON	5,616.				
028	430	1000	CORED SAMPLE	EA	21.				
029	430	5828	PG 58-28 ASPHALT CEMENT	TON	260.				
030	430	6434	PG 64-34 ASPHALT CEMENT	TON	89.				
031	550	0312	10.5IN NON REINF CONCRETE PVMT CL AE-DOWELED	SY	13,358.				
032	550	0330	NON-REINF CONCRETE PVMT CL AE-DOWELED-COLORED	SY	501.				

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Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price $$$$$	Unit Price 000	Amount $$$$$	Amount 00
033	702	0100	MOBILIZATION	L SUM	1.				
034	704	0100	FLAGGING	MHR	800.				
035	704	1000	TRAFFIC CONTROL SIGNS	UNIT	2,911.				
036	704	1052	TYPE III BARRICADE	EA	38.				
037	704	1060	DELINEATOR DRUMS	EA	104.				
038	704	1067	TUBULAR MARKERS	EA	70.				
039	704	1080	STACKABLE VERTICAL PANELS	EA	140.				
040	706	0400	FIELD OFFICE	EA	1.				
041	706	0500	AGGREGATE LABORATORY	EA	1.				
042	706	0550	BITUMINOUS LABORATORY	EA	1.				
043	706	0600	CONTRACTOR'S LABORATORY	EA	1.				
044	708	1540	INLET PROTECTION-SPECIAL	EA	15.				
045	708	1541	REMOVE INLET PROTECTION-SPECIAL	EA	15.				
046	709	0151	GEOSYNTHETIC MATERIAL TYPE R1	SY	2,362.				
047	714	4091	PIPE CONDUIT 12IN-APPROACH	LF	43.				
048	714	4097	PIPE CONDUIT 15IN-STORM DRAIN	LF	243.				

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Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price $$$$$	Unit Price 000	Amount $$$$$	Amount 00
049	714	4099	PIPE CONDUIT 18IN-APPROACH	LF	59.				
050	714	4101	PIPE CONDUIT 18IN-STORM DRAIN	LF	332.				
051	714	4106	PIPE CONDUIT 24IN-APPROACH	LF	239.				
052	714	4113	PIPE CONDUIT 30IN-APPROACH	LF	135.				
053	714	4115	PIPE CONDUIT 36IN	LF	83.				
054	714	9200	CATTLE PASS CONC INTERMED SECTION	LF	32.				
055	714	9611	REMOVE & RELAY CONC CATTLE PASS END SECTION	EA	2.				
056	720	0110	RIGHT OF WAY MARKERS	EA	28.				
057	720	0125	ALIGNMENT MONUMENTS	EA	3.				
058	720	0130	IRON PIN R/W MONUMENTS	EA	28.				
059	722	1100	MANHOLE RISER 48IN	LF	66.700				
060	722	3510	INLET-TYPE 2	EA	5.				
061	722	3520	INLET-TYPE 2 DOUBLE	EA	1.				
062	722	3701	INLET SPECIAL-TYPE 2 48IN	EA	7.				
063	722	3713	INLET SPECIAL MOUNTABLE-TYPE B 48IN	EA	5.				
064	722	4060	INLET MOUNTABLE CURB-TYPE B	EA	2.				

Project: SOIB-7-023(051)027 (PCN-21339)

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Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price $$$$$	Unit Price 000	Amount $$$$$	Amount 00
065	748	0100	CURB & GUTTER	LF	496.				
066	748	0120	CURB & GUTTER MOUNTABLE-TYPE I	LF	1,309.				
067	748	0140	CURB & GUTTER-TYPE I	LF	5,877.				
068	750	0140	SIDEWALK CONCRETE 6IN	SY	136.				
069	750	0200	CONCRETE MEDIAN PAVING	SY	3,793.				
070	750	0210	CONCRETE MEDIAN NOSE PAVING	SY	64.				
071	752	0110	FENCE BARBED WIRE 3 STRAND-STEEL POST	LF	356.				
072	752	0320	FENCE BARBED WIRE 4 STRAND-STEEL POST	LF	6,224.				
073	752	0900	FENCE TEMPORARY INSTALL & REMOVE	LF	1,208.				
074	752	2100	VEHICLE GATE	EA	5.				
075	752	2120	REMOVE VEHICLE GATE	EA	5.				
076	752	3160	CORNER ASSEMBLY BARBED WIRE-STEEL POST	EA	14.				
077	752	4150	DOUBLE BRACE ASSEMBLY BARBED WIRE-STEEL POST	EA	25.				
078	754	0110	FLAT SHEET FOR SIGNS-TYPE XI REFL SHEETING	SF	120.900				
079	754	0112	FLAT SHEET FOR SIGNS-TYPE IV REFL SHEETING	SF	211.300				
080	754	0193	FLEXIBLE DELINEATORS-TYPE D	EA	8.				

BID ITEMS

Project: SOIB-7-023(051)027 (PCN-21339)

Bidder must type or neatly print unit prices in numerals, make extensions for each item, and total. Do not carry unit prices further than three (3) decimal places.

Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price $$$$$	Unit Price 000	Amount $$$$$	Amount 00
081	754	0206	STEEL GALV POSTS-TELESCOPING PERFORATED TUBE	LF	600.				
082	754	0805	OBJECT MARKERS - CULVERTS	EA	20.				
083	762	0110	EPOXY PVMT MK 4IN LINE-GROOVED	LF	5,873.				
084	762	0113	EPOXY PVMT MK 4IN LINE	LF	4,960.				
085	762	0118	EPOXY PVMT MK CURB TOP & FACE	LF	465.				
086	762	0122	PREFORMED PATTERNED PVMT MK-MESSAGE(GROOVED)	SF	72.				
087	762	0430	SHORT TERM 4IN LINE-TYPE NR	LF	7,000.				
088	762	1305	PREFORMED PATTERNED PVMT MK 4IN LINE-GROOVED	LF	12,207.				
089	762	1309	PREFORMED PATTERNED PVMT MK 8IN LINE-GROOVED	LF	48.				
090	762	1315	PREFORMED PATTERNED PVMT MK 12IN LINE-GROOVED	LF	120.				
091	770	0001	LIGHTING SYSTEM	EA	1.				
092	970	0003	LANDSCAPE FABRIC	SY	1,386.				
093	970	0080	LANDSCAPE BOULDERS	TON	270.				
094	970	1011	LANDSCAPE PLANTINGS	L SUM	1.				
			TOTAL SUM BID						

Project: SOIB-7-023(051)027 (PCN-21339)

Type of Work: CONCRETE, HMA, & LIGHTING

County: MCKENZIE

Length: 0.6600 Miles

TIME FOR COMPLETION:

The undersigned Bidder agrees, if awarded the contract, to prosecute the work with sufficient forces and equipment to complete the contract work within the allowable time specified as follows:

WORKING DAY CONTRACT: **NA** working days are provided. The Department will begin charging working days beginning **NA** or the date work begins on the project site, whichever is earlier.

CALENDAR DAY CONTRACT: **NA** calendar days are provided. The completion date will be determined by adding **NA** calendar days to **NA** or the date work begins on the project site, whichever is earlier.

COMPLETION DATE CONTRACT The project completion date is **10/15/2016 *** . The Department provides a minimum of **NA** working days. The Department will begin charging working days beginning **NA** or the date work begins on the project site, whichever is earlier.

***A COMPLETION DATE OF 10/15/16 IS FOR ALL WORK, EXCEPT THE LANDSCAPE PLANTINGS. THE LANDSCAPE PLANTINGS SHALL BE COMPLETED THE FOLLOWING YEAR BY JUNE 30, 2017. LIQUIDATED DAMAGES FOR FAILURE TO COMPLETE ALL WORK, EXCEPT THE LANDSCAPE PLANTINGS, SHALL BE CHARGED IN ACCORDANCE WITH SECTION 108.07B OF THE STANDARD SPECIFICATIONS. LIQUIDATED DAMAGES FOR FAILURE TO COMPLETE THE LANDSCAPE PLANTINGS BY JUNE 30, 2017 SHALL BE CHARGED AT A RATE OF $350 PER CALENDAR DAY UNTIL COMPLETED.**

LIST OF STANDARD DRAWINGS

Standard No.	Description
D-101-1-3	NDDOT Abbreviations
D-101-10	NDDOT Utility Company and Organization Abbreviations
D-101-20, 21	Line Styles
D-101-30-32	Symbols
D-203-6	Standard 90 Degree Flared Intersection
D-203-8	Standard Rural Approaches
D-255-2	Erosion and Siltation Control - Erosion Control Blanket Installation
D-261-1	Erosion Control - Fiber Roll Placement Details
D-704-2	Traffic Control For Coring of Hot Bituminous Pavement
D-704-5	Construction Sign Detail
D-704-7	Breakaway Systems For Construction Zone Signs - Perforated Tube
D-704-8	Breakaway Systems For Construction Zone Signs – U-Channel Post
D-704-9	Construction Sign Details - Terminal and Guide Signs
D-704-10	Construction Sign Details - Regulatory Signs
D-704-11	Construction Sign Details – Warning Signs
D-704-12	Shoulder Closure Tapers
D-704-13	Barricade and Channelizing Device Details
D-704-14	Construction Sign Punching and Mounting Details
D-704-15	Road Closure Layouts
D-704-19	Road Closure and Lane Closure on a Two Way Road Layouts
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-704-37	Construction Sign Layout
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-714-4	Round Corrugated Steel Pipe Culverts and End Sections
D-714-8	4’ x 6’ Precast Concrete Cattle Pass
D-714-11	Traversable End Sections For Corrugated Steel Pipe Culverts
D-714-22	Concrete Pipe or Precast Concrete Box Culvert Ties
D-714-26	Transverse Mainline Pipe Installation Detail for Pipes 4 Feet or Less Below the Top of the Proposed Subgrade
D-714-27	Pipe Installation For Longitudinal Mainline Pipe Or Pipe Not Under The Roadway
D-720-1	Standard Monuments and Right of Way Markers
D-722-1B	Inlet – Special
D-722-2	Inlet – Type 2
D-722-3	Inlet – Mountable Curb
D-748-1	Curb & Gutter and Valley Gutter
D-750-2	Sidewalk
D-752-1	Standard Barbed Wire Fence
D-752-4	Concrete Cattle & Stockpass Fencing Standard
D-754-9	Letter and Arrow Details For Variable Length Signs
D-754-21	Reflectorized Delineators
D-754-23	Perforated Tube Assembly Details
D-754-24	Mounting Details Perforated Tube
D-754-24A	Breakaway Coupler System for Perforated Tubes
D-754-25	Mounting Details Perforated Tube
D-754-26, 27, 32, 37	Sign Punching, Stringer, and Support Location Details Regulatory, Warning, and Guide Signs
D-754-49, 50	Sign Punching, Stringer, and Support Location Details for Variable Length Signs
D-754-51, 74	Sign Punching, Stringer, and Support Location Details - Route Marker Signs
D-754-80	Light Standard, Signal Standard, and Span Wire Mounted Sign Assembly Detail
D-754-83	Object Markers – Culverts
D-760-3	Rumble Strips Undivided Highways (Shoulders 4’ or Greater)
D-762-4	Pavement Marking
D-762-6	Short Term Pavement Marking
D-766-1	Mailbox Location Details
D-770-1	Concrete Foundations (Traffic Signals & Highway Lighting)
D-770-2	Feed Points (Roadway Lighting)
D-770-4	Lighting and Signal Details
D-770-5	Light Standard Details

NOTES

100-P01 WEEKLY PLANNING/REPORTING MEETING: Organize a weekly meeting to coordinate efforts between subcontractors, utilities, local authorities, and others.

Send a knowledgeable representative to conduct the weekly reporting/planning meeting. Prepare minutes for each meeting and make the appropriate distribution of the minutes. Have the minutes approved by the Engineer before distribution.

Provide a written schedule of the next week's work and a tentative schedule of the following week. Include a discussion of problems encountered during the current week; also include information of interest to local authorities, subcontractors, and utilities.

Invite interested agencies to the meeting. Include the following agencies and any other agencies that are necessary:

a. North Dakota Department of Transportation
b. Local Government Agencies
c. Police department
d. Fire department
e. Ambulance service
f. Telephone Co.
g. Power Co.
h. Cable T.V.
i. Gas Co.
j. Railroad Co.
k. Subcontractors
l. Chamber of Commerce

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

107-710 HAUL ROADS: Before submitting a proposal, contact the appropriate State, County, Township, or City officials to determine if there are any roadways that will be designated as "no haul routes".

202-P01 REMOVE & SALVAGE BITUMINOUS SURFACING: The tonnage of “Remove & Salvage Bituminous Surfacing” is based on the existing typical sections shown in Section 30. The tonnage includes the entire bituminous surfacing and the entire aggregate base except the bottom two inches. The quantity of Remove & Salvage Bituminous Surfacing has been deducted from the excavation quantity within the reconstruction limits. This work will consist of removing and salvaging the existing bituminous surfacing and aggregate base.

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

203-P01 EXCAVATION AND FILL ELEVATIONS: All ditch grades and contours are given at the top of the topsoil.

203-P02 WETLAND EXCAVATION: Excavate 1’ of the pervious soil material located at the mitigation site 3 & 4, at Wetland 53, and replace with 1’ of clay material. The excavation of the 1’ of pervious material will be paid for under the bid item "Common Excavation - Type A". If clay is not available on the project, the Contractor will import impervious material to line the wetland mitigation area. The 1’ of impervious embankment will be paid as “Borrow-Excavation.”

203-P03 PROCTORS: Determine the optimum moisture and density, as specified in ND T 180, for each type of material encountered that requires compaction control. Perform a multi-point test. Submit the results to the Engineer along with a split sample of each material.

The Engineer will perform comparison tests using the same procedure on the split sample. The Engineer’s results will be used for determining in place density of material.

203-P04 SUBGRADE PREPARATION – TYPE A-12IN: Perform subgrade preparation in all reconstruction areas, with the following exceptions: Locations where subcuts are preformed; and fills over 18 inches.

203-P05 TOPSOIL: Spread any excess topsoil evenly over project area.

203-P06 EXCESS EXCAVATION: Spread the excess material from the removal of the existing roadway during the last phase of the project in the SE quadrant of the project.

302-P01 AGGREGATE SURFACE TOLERANCE**:** Trim base course as specified in Section 302.04 C.1, "Surface Tolerance Type B”.

550-P01 NON-REINF CONCRETE PVMT CL AE-DOWELED – COLORED: The truck apron shall be paved with 10.5” Non-Reinforced doweled concrete and colored yellow.

The Class AE concrete for the drivable surfaces will have a max water-cement ratio of 0.40.

Provide a pigment from the list below or provide an approved equal. To be considered an approved equal, pigments must meet the requirements of ASTM C 979.

1. Marigold pigment, produced by Soloman Colors, Inc. http://www.solomoncolors.com/;
2. Harvest Gold pigment, produced by Davis Colors http:/www.daviscolors.com/; or
3. Pigment R/M – St. Simon’s Tan, produced by Southern Color Company http://www.southerncolor.com/.

Use the same supplier for all colored concrete placed under the contract.

Cure concrete using curing compound that meets the requirements of ASTM C 309, Type 1.

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

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Revised 1/29/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	8	1

Spec	Code	Description	Unit	Quantity
103	0100	Contract Bond	L SUM	1
103	0200	Escrow of Bid Documentation	L SUM	1
201	0330	Clearing & Grubbing	L SUM	1
202	0121	Remove & Salvage Bituminous Surfacing	TON	12458
202	0136	Removal of Pavement	TON	5096
202	0174	Removal of Pipe All Types and Sizes	LF	432
202	0312	Remove Existing Fence	LF	6861
203	0101	Common Excavation-Type A	CY	194914
203	0109	Topsoil	CY	29317
203	0121	Topsoil-Wetland	CY	1213
203	0140	Borrow-Excavation	CY	3968
216	0100	Water	M GAL	2926
230	0165	Subgrade Preparation-Type A-12IN	STA	27.59
251	0200	Seeding Class II	ACRE	33.0
251	1000	Wetland Seed	ACRE	1.8
251	2000	Temporary Cover Crop	ACRE	33.2
253	0101	Straw Mulch	ACRE	66.2
255	0101	ECB Type 1	SY	8257
255	0104	ECB Type 4	SY	5175
261	0112	Fiber Rolls 12IN	LF	10000
261	0113	Remove Fiber Rolls 12IN	LF	5474
261	0120	Fiber Rolls 20IN	LF	13376
261	0121	Remove Fiber Rolls 20IN	LF	6688
302	0100	Salvaged Base Course	TON	40079
401	0050	Tack Coat	GAL	1982
401	0060	Prime Coat	GAL	6594
430	0045	Superpave FAA 45	TON	5616
430	1000	Cored Sample	EA	21
430	5828	PG 58-28 Asphalt Cement	TON	260
430	6434	PG 64-34 Asphalt Cement	TON	89
550	0312	10.5IN Non Reinf Concrete Pvmt CL AE-Doweled	SY	13358
550	0330	Non-Reinf Concrete Pvmt CL AE-Doweled-Colored	SY	501
702	0100	Mobilization	L SUM	1
704	0100	Flagging	MHR	800
704	1000	Traffic Control Signs	UNIT	2911
704	1052	Type III Barricade	EA	38
704	1060	Delineator Drums	EA	104
704	1067	Tubular Markers	EA	70
704	1080	Stackable Vertical Panels	EA	140
706	0400	Field Office	EA	1
706	0500	Aggregate Laboratory	EA	1
706	0550	Bituminous Laboratory	EA	1
706	0600	Contractor's Laboratory	EA	1
708	1540	Inlet Protection-Special	EA	15
708	1541	Remove Inlet Protection-Special	EA	15
709	0151	Geosynthetic Material Type R1	SY	2362
714	4091	Pipe Conduit 12IN-Approach	LF	43
714	4097	Pipe Conduit 15IN-Storm Drain	LF	243
714	4099	Pipe Conduit 18IN-Approach	LF	59
714	4101	Pipe Conduit 18IN-Storm Drain	LF	332
714	4106	Pipe Conduit 24IN-Approach	LF	239
714	4113	Pipe Conduit 30IN-Approach	LF	135
714	4115	Pipe Conduit 36IN	LF	83
714	9200	Cattle Pass Conc Intermed Section	LF	32
714	9611	Remove & Relay Conc Cattle Pass End Section	EA	2
720	0110	Right of Way Markers	EA	28
720	0125	Alignment Monuments	EA	3
720	0130	Iron Pin R/W Monuments	EA	28
722	1100	Manhole Riser 48IN	LF	66.7
722	3510	Inlet-Type 2	EA	5
722	3520	Inlet-Type 2-Double	EA	1
722	3701	Inlet Special-Type 2 48IN	EA	2
722	3713	Inlet Special Mountable-Type B 48IN	EA	5
722	4060	Inlet Mountable Curb- Type B	EA	2
748	0100	Curb & Gutter	LF	496
748	0120	Curb & Gutter Mountable -Type I	LF	1309
748	0140	Curb & Gutter-Type I	LF	5877
750	0140	Sidewalk Concrete 6IN	SY	136
750	0200	Concrete Median Paving	SY	3793
750	0210	Concrete Median Nose Paving	SY	64
752	0110	Fence Barbed Wire 3 Strand-Steel Post	LF	356
752	0320	Fence Barbed Wire 4 Strand-Steel Post	LF	6224
752	0900	Fence Temporary Install & Remove	LF	1208
752	2100	Vehicle Gate	EA	5
752	2120	Remove Vehicle Gate	EA	5
752	3160	Corner Assembly Barbed Wire-Steel Post	EA	14
752	4150	Double Brace Assembly Barbed Wire-Steel Post	EA	25
754	0110	Flat Sheet For Signs-Type XI Refl Sheeting	SF	120.9
754	0112	Flat Sheet For Signs-Type IV Refl Sheeting	SF	211.3
754	0193	Flexible Delineators-Type D	EA	8
754	0206	Steel Galv Posts-Telescoping Perforated Tube	LF	600.0
754	0805	Object Markers - Culverts	EA	20
762	0110	Epoxy Pvmt MK 4IN Line-Grooved	LF	5873
762	0113	Epoxy Pvmt MK 4IN Line	LF	4960
762	0118	Epoxy Pvmt MK Curb Top & Face	LF	465
762	0122	Preformed Patterned Pvmt Mk-Message(Grooved)	SF	72
762	0430	Short Term 4IN Line - Type NR	LF	7000
762	1305	Preformed Patterned Pvmk Mk 4IN Line-Grooved	LF	12207
762	1309	Preformed Patterned Pvmk Mk 8IN Line-Grooved	LF	48
762	1315	Preformed Patterned Pvmk Mk 12IN Line-Grooved	LF	120
770	0001	Lighting System	EA	1
970	0003	Landscape Fabric	SY	1386
970	0080	Landscape Boulders	TON	270
970	1011	Landscape Plantings	L SUM	1

Quantities

ND Hwy 23
Keene Corner Major Rehab

Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	11	1

Location	Common Excavation Type - A	Embankment		Balance
		Roadway	Adjusted	Borrow/Waste
	CY	CY	CY	CY
	A	B	C = B * 1.25	D = C - A
ND 23 South Leg	27098	19440	24300	-2798
Field Drive 1499+52 RT South Leg	2431	3442	4303	1872
SE Quadrant Grading	114807	83540	104425	-10382
County Road 10 West Leg	1055	7620	9525	8470
Private Drive 46+34 LT West Leg	246	964	1206	960
Field Drive 46+34 RT West Leg	1	662	828	827
Roundabout Center	146	12865	16082	15936
County Road 55 North Leg	606	3288	4111	3505
Field Drive 6+08 LT North Leg	0	287	359	359
Field Drive 6+08 RT North Leg	2	176	221	219
ND 23 East Leg	17660	8540	10676	-6984
Wetland 53 Mitigation 1470+00 RT	20246	0	0	-20246
Wetland 53 Mitigation 1475+00 RT	2391	24	31	-2360
Temporary Co Rd 10	777	3740	4675	3898
Temporary Co Rd 55	202	3506	4383	4181
*Remove Temporary Co Rd 10	3740	777	971	
*Remove Temporary Co Rd 55	3506	202	253	
Totals	194914	149073	186349	-2543

*Removal of Temporary Roads is excess excavation

Location	Topsoil Excavation	Topsoil Embankment	Balance
	CY	CY	CY
	E	F	H = E - F
ND 23 South Leg	5206	4960	246
Field Drive 1499+52 RT South Leg	440	511	-71
SE Quadrant Grading	12238	12589	-351
County Road 10 West Leg	1118	971	147
Private Drive 46+34 LT West Leg	264	145	119
Field Drive 46+34 RT West Leg	118	96	22
Roundabout Center	622	201	421
County Road 55 North Leg	909	755	154
Field Drive 6+08 LT North Leg	78	62	16
Field Drive 6+08 RT North Leg	62	43	19
ND 23 East Leg	5225	4864	361
Wetland 53 Mitigation 1470+00 RT	1731	1731	0
Wetland 53 Mitigation 1475+00 RT	371	371	0
Temporary Co Rd 10	619	0	619
Temporary Co Rd 55	316	0	316
*Remove Temporary Co Rd 10	0	619	-619
*Remove Temporary Co Rd 55	0	316	-316
Totals	29317	28234	1083

Pay Items	
Common Excavation Type-A	194914
Borrow Excavation	3968
Topsoil	29317
Topsoil Wetland	1213

Borrow Excavation	
Wetland Mitigation Clay Liner	CY
Wetland 53 Mitigation 1470+00 RT	3227
Wetland 53 Mitigation 1475+00 RT	741
Total	3968

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Earthwork & Topsoil Summary

ND Hwy 23
Keene Corner Major Rehab

Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	11	2

ND 23 South Leg

Station	End Area (SF)				Volume (CY)				Mass Ordinate	
	Topsoil		Embankment		Topsoil		Embankment		Topsoil	Embankment
	Excavation	Fill	Excavation	Fill	Excavation	Fill	Excavation	Fill*		
1485+01.04	49.5	47.5	25.7	177.2						
1485+50.00	55.5	53.7	25.1	170.8	95	92	46	395	3	-349
1486+00.00	51.8	32.7	38.8	154.4	99	80	59	377	22	-667
1486+50.00	65.2	63.2	135.7	107.7	108	89	162	304	41	-809
1486+90.00	78.3	76.0	227.1	228.5	106	103	269	312	44	-852
1487+00.00	77.0	74.8	225.2	174.7	29	28	84	94	45	-862
1487+50.00	67.9	65.7	182.1	156.4	134	130	377	384	49	-869
1488+00.00	63.4	61.4	127.2	179.9	121	118	286	389	52	-972
1488+50.00	61.6	59.5	98.9	161.0	116	112	209	395	56	-1158
1489+00.00	60.2	58.2	75.4	143.5	113	109	161	353	60	-1350
1489+50.00	61.0	58.7	65.5	148.5	112	108	130	338	64	-1558
1489+54.84	61.1	58.8	60.6	149.3	11	11	11	34	64	-1581
1490+00.00	64.7	62.6	59.4	170.9	105	102	100	335	67	-1816
1490+25.20	64.3	62.5	74.9	170.4	60	58	63	199	69	-1952
1490+50.00	63.8	62.0	77.9	169.0	59	57	70	195	71	-2077
1490+95.55	63.8	62.0	72.6	156.4	108	105	127	343	74	-2293
1491+00.00	63.6	62.0	73.8	155.1	10	10	12	33	74	-2314
1491+50.00	61.9	60.1	83.6	158.3	116	113	146	363	77	-2531
1492+00.00	61.3	59.4	109.6	163.2	114	111	179	373	80	-2725
1492+12.81	62.9	61.0	124.3	163.8	29	29	55	98	80	-2768
1492+50.00	66.9	64.9	160.6	168.2	89	87	196	287	82	-2859
1493+00.00	72.8	70.7	242.3	158.4	129	126	373	378	85	-2864
1493+50.00	75.4	73.6	326.4	159.2	137	134	527	368	88	-2705
1494+00.00	80.1	78.1	422.4	159.7	144	140	693	369	92	-2381
1494+50.00	84.2	82.2	512.6	164.8	152	148	866	375	96	-1890
1494+79.68	86.2	84.1	567.5	167.4	94	91	594	229	99	-1525
1495+00.00	86.3	84.4	613.0	169.6	65	63	444	159	101	-1240
1495+50.00	87.4	85.7	748.6	179.6	161	157	1261	404	105	-383
1495+96.94	86.8	84.9	886.3	185.5	151	148	1421	397	108	641
1496+00.00	86.7	84.9	894.1	184.8	10	10	101	27	108	715
1496+50.00	87.7	85.7	1026.6	171.1	161	158	1778	412	111	2081
1496+67.29	86.2	84.8	1069.7	158.8	56	55	671	133	112	2619
1497+00.00	83.4	81.8	1138.1	124.5	103	101	1337	215	114	3741
1497+37.65	81.0	81.5	1224.5	71.9	115	114	1647	172	115	5216
1497+50.00	80.4	82.1	1267.5	46.1	37	37	570	34	115	5752
1497+75.00	80.0	84.2	1405.7	5.3	74	77	1238	30	112	6960
1497+76.18	79.4	85.7	1387.1	9.4	3	4	61	0	111	7021
1498+00.00	77.6	89.4	1437.1	0.7	69	77	1246	5	103	8262
1498+50.00	74.0	95.8	911.2	0.5	140	171	2174	2	72	10434
1499+00.00	50.9	45.6	217.3	117.7	116	131	1045	137	57	11342
1499+50.00	47.8	38.5	218.0	180.9	91	78	403	345	70	11400
1500+00.00	67.7	58.1	214.7	288.8	107	89	401	544	88	11257
1500+25.00	80.0	85.1	1095.4	209.7	68	66	606	289	90	11574
1500+50.00	88.5	81.4	980.2	198.4	78	77	961	237	91	12298
1500+75.00	88.8	78.9	889.2	219.8	82	74	865	243	99	12920
1501+00.00	85.4	74.4	861.4	234.2	81	71	810	263	109	13467
1501+25.00	82.5	71.4	725.6	263.6	78	67	735	288	120	13914
1501+50.00	79.5	68.2	510.2	294.1	75	65	572	323	130	14163
1501+75.00	75.9	64.4	346.3	338.7	72	61	396	367	141	14192
1502+00.00	75.4	64.0	221.8	382.9	70	59	263	418	152	14037
1502+25.00	72.6	61.3	127.5	437.4	69	58	162	475	163	13724
1502+50.00	70.0	58.8	51.8	489.4	66	56	83	537	173	13270
1502+75.00	67.2	56.1	16.8	534.9	64	53	32	593	184	12709
1503+00.00	60.3	49.9	6.3	591.0	59	49	11	652	194	12068
1503+25.00	63.2	57.9	5.9	684.4	57	50	6	738	201	11336
1503+50.00	62.7	59.3	0.1	778.2	58	54	3	847	205	10492
1503+75.00	62.7	59.8	0.0	876.5	58	55	0	958	208	9534
1504+00.00	62.7	59.9	0.0	943.4	58	55	0	1054	211	8480
1504+25.00	67.2	62.3	0.0	1052.5	60	57	0	1155	214	7325
1504+50.00	76.5	69.1	0.0	1321.6	67	61	0	1374	220	5951
1504+75.00	87.7	77.2	0.0	1590.2	76	68	0	1685	228	4266
1505+00.00	44.0	15.9	0.0	945.7	61	43	0	1468	246	2798
Totals					5206	4960	27098	24300		

Field Drive 1499+52 RT South Leg

Station	End Area (SF)				Volume (CY)				Mass Ordinate	
	Topsoil		Embankment		Topsoil		Embankment		Topsoil	Embankment
	Excavation	Fill	Excavation	Fill	Excavation	Fill	Excavation	Fill*		
0+21.00	27.4	0.0	0.0	289.0						
0+26.00	34.7	0.0	0.0	336.4	6	0	0	73	6	-73
0+50.00	27.7	65.5	190.6	27.1	28	29	85	203	5	-191
1+00.00	51.2	66.8	756.8	1.1	73	122	877	33	-44	653
2+00.00	57.6	57.2	18.2	777.1	202	230	1435	1802	-72	286
3+00.00	13.0	13.0	0.0	169.7	131	130	34	2192	-71	-1872
Totals					440	511	2431	4303		

Note: End Areas and Volumes for topsoil excavation includes quantities for both "Topsoil" and "Topsoil Wetland". See Section 75 for locations and quantities for "Topsoil Wetland"

* 25% additional volume is included for shrinkage in earth embankment

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Earthwork Values

ND Hwy 23
Keene Corner Major Rehab

ND 23 South Leg
Field Drive 1499+52 RT South Leg

Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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SE Quadrant Grading

Station	End Area (SF)				Volume (CY)				Mass Ordinate	
	Topsoil		Embankment		Topsoil		Embankment		Topsoil	Embankment
	Excavation	Fill	Excavation	Fill	Excavation	Fill	Excavation	Fill*		
1490+50.50	12.9	13.0	3.9	0.0						
1491+00.50	21.7	21.6	81.4	0.0	32	32	79	0	0	79
1491+50.00	31.5	31.5	219.5	0.0	49	49	276	0	0	355
1492+00.50	43.5	43.3	427.9	0.0	70	70	605	0	0	960
1492+50.00	53.5	53.3	624.4	0.0	89	89	965	0	0	1925
1493+00.50	62.6	62.6	916.4	0.0	109	108	1441	0	1	3366
1493+50.00	71.2	71.2	1283.4	0.0	123	123	2016	0	1	5382
1494+00.00	79.4	79.3	1821.7	0.0	139	139	2875	0	1	8257
1494+50.00	83.3	83.3	2348.5	0.0	151	151	3861	0	1	12118
1495+00.00	86.2	86.2	2766.6	0.0	157	157	4736	0	1	16854
1495+50.00	89.2	89.2	3070.7	0.0	162	162	5405	0	1	22259
1496+00.00	93.7	93.7	3210.9	0.0	169	169	5816	0	1	28075
1496+50.00	100.1	99.6	3196.7	0.0	179	179	5933	0	1	34008
1497+00.00	107.3	106.3	2790.5	0.0	192	191	5544	0	2	39552
1497+50.00	120.5	119.3	2383.8	0.0	211	209	4791	0	4	44343
1498+00.00	128.4	127.7	1224.5	0.0	231	229	3341	0	6	47684
1498+50.00	122.2	121.4	399.7	66.7	232	231	1504	78	7	49110
1499+00.00	105.7	105.0	311.0	276.5	211	210	658	398	8	49370
1499+50.00	92.4	91.6	246.4	456.8	183	182	516	849	9	49037
1500+00.00	208.1	221.4	2185.9	1440.2	278	290	2252	2195	-3	49094
1500+50.00	261.5	274.7	2616.5	2105.2	435	459	4447	4104	-27	49437
1501+00.00	311.7	324.8	2934.1	2283.0	531	555	5139	5079	-51	49497
1501+50.00	365.6	378.3	3340.1	2444.3	627	651	5809	5472	-75	49834
1502+00.00	369.1	382.3	3673.6	2303.2	680	704	6494	5495	-99	50833
1502+50.00	356.8	370.1	3913.2	2369.0	672	697	7025	5408	-124	52450
1503+00.00	344.8	358.2	3524.5	2283.4	650	674	6887	5385	-148	53952
1503+50.00	325.6	339.0	2437.6	2362.3	621	646	5520	5378	-173	54094
1504+00.00	304.2	317.7	1804.6	2367.1	583	608	3928	5474	-198	52548
1504+50.00	281.3	295.2	1457.2	2386.3	542	567	3020	5502	-223	50066
1505+00.00	259.4	273.5	1230.3	2444.0	501	527	2489	5590	-249	46965
1505+50.00	239.2	253.9	1113.2	2500.6	462	488	2170	5723	-275	43412
1506+00.00	220.2	236.8	1029.1	2477.3	425	454	1984	5762	-304	39634
1506+50.00	191.8	206.2	1232.0	2234.3	382	410	2094	5454	-332	36274
1507+00.00	168.6	181.8	930.6	2140.7	334	359	2002	5064	-357	33212
1507+50.00	163.0	161.1	535.2	1903.0	307	317	1357	4680	-367	29889
1508+00.00	149.7	147.7	353.8	1801.6	289	286	823	4288	-364	26424
1508+50.00	134.0	132.0	185.9	1722.5	263	259	500	4079	-360	22845
1509+00.00	120.1	118.3	100.0	1632.4	235	232	265	3883	-357	19227
1509+50.00	109.5	109.3	70.9	1319.3	213	211	158	3417	-355	15968
1510+00.00	90.1	89.2	9.1	888.6	185	184	74	2555	-354	13487
1510+50.00	67.6	67.2	0.0	587.5	146	145	8	1709	-353	11786
1510+80.00	53.5	53.1	0.0	370.6	67	67	0	665	-353	11121
1511+00.00	44.2	43.7	0.0	253.9	36	36	0	289	-353	10832
1511+50.00	22.9	22.7	0.0	66.9	62	61	0	372	-352	10460
1512+00.00	1.4	1.4	0.0	0.3	23	22	0	78	-351	10382
Totals					12238	12589	114807	104425		

County Road 10 West Leg

Station	End Area (SF)				Volume (CY)				Mass Ordinate	
	Topsoil		Embankment		Topsoil		Embankment		Topsoil	Embankment
	Excavation	Fill	Excavation	Fill	Excavation	Fill	Excavation	Fill*		
45+87.15	10.4	11.6	32.5	3.1						
46+00.00	4.8	3.3	29.6	0.9	4	4	15	2	0	13
46+25.00	2.4	0.0	29.6	0.0	3	2	27	0	1	40
46+50.00	4.0	0.0	31.2	0.0	3	0	28	0	4	68
46+75.00	59.7	52.5	248.6	30.6	29	24	130	18	9	180
46+81.06	56.4	49.2	125.7	31.0	13	11	42	9	11	213
46+82.06	57.5	53.6	103.0	55.4	2	2	4	3	11	214
47+00.00	56.5	51.8	146.6	48.3	38	35	83	43	14	254
47+25.00	57.1	51.6	117.1	69.5	53	48	122	69	19	307
47+50.00	58.5	52.0	109.0	89.1	54	48	105	92	25	320
47+75.00	59.5	51.4	100.7	115.9	55	48	97	119	32	298
48+00.00	57.0	47.0	103.0	150.1	54	46	94	154	40	238
48+25.00	59.3	47.7	87.9	186.3	54	44	88	195	50	131
48+50.00	57.0	44.5	61.9	216.7	54	43	69	234	61	-34
48+75.00	56.3	43.5	32.8	242.4	52	41	44	267	72	-257
49+00.00	55.2	42.8	5.4	276.6	52	40	18	300	84	-539
49+25.00	52.8	43.9	0.1	351.0	50	40	3	364	94	-900
49+50.00	58.0	51.8	4.9	388.2	51	44	2	428	101	-1326
49+75.00	40.8	58.7	83.1	362.7	46	51	41	435	96	-1720
50+00.00	64.5	58.5	4.6	521.4	49	54	41	512	91	-2191
50+25.00	59.9	53.6	0.0	578.2	58	52	2	637	97	-2826
50+50.00	63.3	56.7	0.0	649.0	57	51	0	710	103	-3536
50+75.00	71.2	63.7	0.0	814.4	62	56	0	847	109	-4383
51+00.00	93.7	86.8	0.0	1202.7	76	70	0	1168	115	-5551
51+25.00	90.8	75.3	0.0	1448.9	85	75	0	1535	125	-7086
51+50.00	48.1	15.1	0.0	942.4	64	42	0	1384	147	-8470
Totals					1118	971	1055	9525		

Private Drive 46+34 LT West Leg

Station	End Area (SF)				Volume (CY)				Mass Ordinate	
	Topsoil		Embankment		Topsoil		Embankment		Topsoil	Embankment
	Excavation	Fill	Excavation	Fill	Excavation	Fill	Excavation	Fill*		
0+20.00	37.4	5.2	0.0	54.0						
0+35.00	53.9	37.0	9.5	338.5	25	12	3	137	13	-134
0+50.00	57.4	43.4	53.3	408.2	31	22	17	259	22	-376
0+55.64	48.4	34.8	44.9	311.8	11	8	10	94	25	-460
1+00.00	23.8	10.7	0.0	106.3	59	37	37	429	47	-852
1+50.00	21.7	8.6	0.0	70.6	42	18	0	205	71	-1057
2+00.00	29.3	16.3	86.5	0.0	47	23	80	82	95	-1059
2+50.00	24.0	11.1	20.2	0.0	49	25	99	0	119	-960
Totals					264	145	246	1206		

Field Drive 46+34 RT West Leg

Station	End Area (SF)				Volume (CY)				Mass Ordinate	
	Topsoil		Embankment		Topsoil		Embankment		Topsoil	Embankment
	Excavation	Fill	Excavation	Fill	Excavation	Fill	Excavation	Fill*		
0+95.01	13.0	13.0	0.1	2.0						
1+00.00	14.4	14.3	0.0	9.9	3	3	0	2	0	-2
1+50.00	50.3	50.2	0.7	364.1	60	60	1	433	0	-434
1+57.00	60.0	43.7	0.6	440.6	14	12	0	130	2	-564
1+78.50	31.0	6.5	0.0	68.7	36	20	0	254	18	-818
1+83.00	31.7	0.0	0.0	19.0	5	1	0	9	22	-827
Totals					118	96	1	828		

This document was originally issued and sealed by Jonathon P. Morgenroth Registration Number PE- 6872, on 1/28/16 and the original document is stored at the North Dakota Department of Transportation

Note: End Areas and Volumes for topsoil excavation includes quantities for both "Topsoil" and "Topsoil Wetland". See Section 75 for locations and quantities for "Topsoil Wetland"

* 25% additional volume is included for shrinkage in earth embankment

Earthwork Values

ND Hwy 23
Keene Corner Major Rehab
SE Quadrant Grading/County Road 10 West Leg
Private Drive 43+34 LT West Leg
Field Drive 43+34 RT West Leg

Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	11	4

Roundabout Center

Station	End Area (SF)				Volume (CY)				Mass Ordinate	
	Topsoil		Embankment		Topsoil		Embankment		Topsoil	Embankment
	Excavation	Fill	Excavation	Fill	Excavation	Fill	Excavation	Fill*		
0+00.01	22.9	0.0	0.0	675.4						
0+05.00	0.0	0.0	0.0	619.3	2	0	0	150	2	-150
0+10.00	0.0	0.0	0.0	589.6	0	0	0	140	2	-290
0+15.00	0.0	0.0	0.0	583.2	0	0	0	137	2	-427
0+20.00	5.6	0.0	0.0	570.5	1	0	0	134	3	-561
0+25.00	14.3	0.0	0.0	560.8	2	0	0	132	5	-693
0+30.00	26.7	0.0	0.0	699.8	4	0	0	147	9	-840
0+35.00	37.2	8.9	0.0	898.3	6	1	0	185	14	-1025
0+40.00	48.1	22.5	0.0	1091.0	8	3	0	230	19	-1255
0+45.00	54.3	27.7	0.0	1102.1	9	5	0	254	23	-1509
0+50.00	54.6	26.9	0.0	1050.4	10	5	0	249	28	-1758
0+55.00	56.6	27.9	0.0	1007.0	10	5	0	239	33	-1997
0+60.00	59.4	29.2	1.8	964.0	11	5	0	228	39	-2225
0+65.00	62.6	30.4	12.0	914.4	11	6	1	218	44	-2442
0+70.00	57.8	23.5	0.0	865.4	11	5	1	207	50	-2648
0+75.00	52.5	15.0	0.0	804.8	10	4	0	194	56	-2842
0+80.00	42.2	0.0	0.0	729.2	9	1	0	178	64	-3020
0+85.00	33.4	0.0	0.0	644.0	7	0	0	159	71	-3179
0+90.00	42.7	0.0	0.0	749.5	7	0	0	162	78	-3341
0+95.00	39.1	0.0	0.0	687.8	8	0	0	167	86	-3508
1+00.00	35.5	0.0	0.0	603.0	7	0	0	150	93	-3658
1+05.00	58.8	0.0	0.0	478.9	9	0	0	125	102	-3783
1+10.00	0.0	0.0	0.0	408.2	5	0	0	103	107	-3886
1+15.00	0.0	0.0	0.0	400.0	0	0	0	94	107	-3980
1+20.00	0.0	0.0	0.0	391.3	0	0	0	92	107	-4072
1+25.00	0.0	0.0	0.0	400.7	0	0	0	92	107	-4164
1+30.00	9.9	0.0	0.0	407.3	1	0	0	94	108	-4258
1+35.00	23.8	0.0	0.0	493.3	3	0	0	104	111	-4362
1+40.00	35.9	6.6	0.0	616.3	6	1	0	129	116	-4491
1+45.00	46.8	22.3	0.0	713.6	8	3	0	154	121	-4645
1+50.00	57.8	32.4	121.1	695.5	10	5	11	163	126	-4797
1+55.00	72.2	46.8	221.3	675.0	12	7	32	159	131	-4924
1+60.00	68.9	43.2	179.2	664.4	13	8	37	155	136	-5042
1+65.00	68.9	42.5	143.9	659.6	13	8	30	154	141	-5166
1+70.00	62.4	35.2	90.1	659.9	12	7	22	153	146	-5297
1+75.00	55.3	26.5	18.6	667.8	11	6	10	154	151	-5441
1+80.00	49.3	17.9	0.0	674.7	10	4	2	155	157	-5594
1+85.00	35.8	0.0	0.0	610.1	8	2	0	149	163	-5743
1+90.00	25.7	0.0	0.0	508.5	6	0	0	130	169	-5873
1+95.00	32.9	0.0	0.0	543.5	5	0	0	122	174	-5995
2+00.00	21.3	0.0	0.0	450.6	5	0	0	115	179	-6110
2+05.00	5.0	0.0	0.0	402.7	2	0	0	99	181	-6209
2+10.00	0.0	0.0	0.0	387.3	0	0	0	92	181	-6301
2+15.00	0.0	0.0	0.0	385.5	0	0	0	90	181	-6391
2+20.00	0.0	0.0	0.0	408.9	0	0	0	93	181	-6484
2+25.00	24.1	0.0	0.0	447.3	2	0	0	99	183	-6583
2+30.00	28.3	0.0	0.0	503.3	5	0	0	110	188	-6693
2+35.00	28.8	0.0	0.0	563.3	5	0	0	124	193	-6817
2+40.00	35.5	0.0	0.0	709.5	6	0	0	148	199	-6965
2+45.00	43.3	11.8	0.0	870.8	7	1	0	183	205	-7148
2+50.00	53.4	24.4	0.0	995.2	9	3	0	217	211	-7365
2+55.00	62.5	33.6	0.0	1020.7	11	5	0	234	217	-7599
2+60.00	62.9	34.0	0.0	1033.4	12	6	0	238	223	-7837
2+65.00	65.8	36.6	0.0	1075.8	12	7	0	244	228	-8081
2+70.00	69.2	39.0	0.0	1139.5	13	7	0	257	234	-8338
2+75.00	64.0	32.7	0.0	1188.8	12	7	0	270	239	-8608
2+80.00	57.0	23.2	0.0	1176.5	11	5	0	274	245	-8882
2+85.00	45.5	3.0	0.0	988.2	9	2	0	250	252	-9132
2+90.00	37.6	0.0	0.0	849.2	8	0	0	213	260	-9345
2+95.00	32.9	0.0	0.0	776.9	7	0	0	189	267	-9534
3+00.00	27.9	0.0	0.0	692.6	6	0	0	170	273	-9704
3+05.00	20.7	0.0	0.0	604.6	4	0	0	150	277	-9854
3+10.00	9.2	0.0	0.0	549.1	3	0	0	134	280	-9988
3+15.00	0.0	0.0	0.0	536.9	1	0	0	127	281	-10115
3+20.00	0.0	0.0	0.0	537.2	0	0	0	124	281	-10239

Station	End Area (SF)				Volume (CY)				Mass Ordinate	
	Topsoil		Embankment		Topsoil		Embankment		Topsoil	Embankment
	Excavation	Fill	Excavation	Fill	Excavation	Fill	Excavation	Fill*		
3+25.00	0.0	0.0	0.0	551.5	0	0	0	127	281	-10366
3+30.00	15.6	0.0	0.0	592.1	1	0	0	133	282	-10499
3+35.00	36.1	0.0	0.0	693.5	5	0	0	149	287	-10648
3+40.00	35.0	0.0	0.0	737.9	7	0	0	167	294	-10815
3+45.00	39.4	0.0	0.0	884.4	7	0	0	188	301	-11003
3+50.00	46.8	1.1	0.0	1078.8	8	0	0	228	309	-11231
3+55.00	55.8	19.8	0.0	1276.7	10	2	0	273	317	-11504
3+60.00	67.9	33.2	0.0	1451.3	11	5	0	317	323	-11821
3+65.00	81.7	47.2	0.0	1492.2	14	7	0	342	330	-12163
3+70.00	80.1	45.6	0.0	1468.2	15	9	0	343	336	-12506
3+75.00	80.6	45.9	0.0	1488.0	15	8	0	343	343	-12849
3+80.00	82.4	47.1	0.0	1541.0	15	9	0	350	349	-13199
3+85.00	85.8	49.5	0.0	1622.7	16	9	0	367	356	-13566
3+90.00	74.9	37.3	0.0	1629.7	15	8	0	377	363	-13943
3+95.00	68.0	28.2	0.0	1573.8	13	6	0	372	370	-14315
4+00.00	54.1	5.6	0.0	1282.0	11	3	0	330	378	-14645
4+05.00	49.3	0.0	0.0	1193.4	10	1	0	287	387	-14932
4+10.00	44.2	0.0	0.0	1062.4	9	0	0	262	396	-15194
4+15.00	47.0	0.0	0.0	1087.0	8	0	0	249	404	-15443
4+20.00	42.7	0.0	0.0	902.3	8	0	0	230	412	-15673
4+25.00	33.8	0.0	0.0	733.5	7	0	0	189	419	-15862
4+27.25	23.0	0.0	0.0	675.7	2	0	0	74	421	-15936
Totals					622	201	146	16082		

Note: End Areas and Volumes for topsoil excavation includes quantities for both "Topsoil" and "Topsoil Wetland". See Section 75 for locations and quantities for "Topsoil Wetland"

* 25% additional volume is included for shrinkage in earth embankment

This document was originally issued and sealed by Jonathon P. Morgenroth Registration Number PE- 6872, on 1/28/16 and the original document is stored at the North Dakota Department of Transportation

Earthwork Values

ND Hwy 23
Keene Corner Major Rehab

Roundabout Center

Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	11	5

County Road 55 North Leg

Station	End Area (SF)				Volume (CY)				Mass Ordinate	
	Topsoil		Embankment		Topsoil		Embankment		Topsoil	Embankment
	Excavation	Fill	Excavation	Fill	Excavation	Fill	Excavation	Fill*		
1+25.00	55.7	32.4	0.0	465.0						
1+50.00	84.1	76.1	70.1	401.1	65	50	32	502	15	-470
1+75.00	65.8	59.5	44.4	252.1	69	63	53	378	21	-795
2+00.00	54.8	51.1	32.4	155.3	56	51	36	237	26	-996
2+25.00	52.4	49.8	34.7	153.6	50	47	31	179	29	-1144
2+50.00	53.5	50.4	35.3	184.4	49	46	32	195	32	-1307
2+75.00	54.9	49.5	32.2	207.2	50	46	31	227	36	-1503
3+00.00	52.3	40.8	24.8	202.3	50	42	26	238	44	-1715
3+25.00	52.8	40.0	16.9	217.8	49	37	19	244	56	-1940
3+50.00	52.6	39.4	13.5	228.5	49	37	14	259	68	-2185
3+75.00	52.7	39.6	11.2	260.8	49	37	11	284	80	-2458
4+00.00	54.5	43.2	12.0	267.1	50	38	11	305	92	-2752
4+25.00	53.3	42.7	7.4	239.0	50	40	9	293	102	-3036
4+50.00	52.2	43.5	12.1	187.3	49	40	9	247	111	-3274
4+75.00	50.6	43.2	31.1	127.6	48	40	20	183	119	-3437
5+00.00	50.0	43.6	84.4	85.7	47	40	53	124	126	-3508
5+25.00	43.1	37.4	36.3	78.8	43	38	56	95	131	-3547
5+48.01	40.4	34.9	38.1	62.2	36	31	32	75	136	-3590
5+49.01	39.2	30.6	41.5	48.4	1	1	1	3	136	-3592
5+50.00	39.0	30.5	42.2	47.3	1	1	2	3	136	-3593
5+75.00	5.8	0.0	29.8	0.1	21	14	33	28	143	-3588
6+00.00	4.2	0.0	29.6	0.0	5	0	27	0	148	-3561
6+25.00	2.6	0.0	26.8	0.0	3	0	26	0	151	-3535
6+50.00	15.7	13.5	27.5	8.2	8	6	25	5	153	-3515
6+67.39	18.6	17.5	25.8	6.5	11	10	17	7	154	-3505
Totals					909	755	606	4111		

Field Drive 6+08 LT North Leg

Station	End Area (SF)				Volume (CY)				Mass Ordinate	
	Topsoil		Embankment		Topsoil		Embankment		Topsoil	Embankment
	Excavation	Fill	Excavation	Fill	Excavation	Fill	Excavation	Fill*		
1+04.50	12.5	12.4	1.0	1.0						
1+25.00	17.9	17.9	0.0	39.9	12	12	0	20	0	-20
1+50.00	31.9	31.9	0.0	128.0	23	23	0	98	0	-118
1+70.00	42.5	23.7	0.0	232.4	28	21	0	167	7	-285
1+81.00	32.4	4.3	0.0	57.4	15	6	0	74	16	-359
Totals					78	62	0	359		

Field Drive 6+08 RT North Leg

Station	End Area (SF)				Volume (CY)				Mass Ordinate	
	Topsoil		Embankment		Topsoil		Embankment		Topsoil	Embankment
	Excavation	Fill	Excavation	Fill	Excavation	Fill	Excavation	Fill*		
2+19.00	32.7	4.4	0.0	30.5						
2+35.00	46.7	29.8	2.2	178.2	24	10	1	78	14	-77
2+50.00	27.4	27.4	0.0	90.1	21	16	1	94	19	-170
2+73.00	12.4	12.4	0.0	1.9	17	17	0	49	19	-219
Totals					62	43	2	221		

ND 23 East Leg

Station	End Area (SF)				Volume (CY)				Mass Ordinate	
	Topsoil		Embankment		Topsoil		Embankment		Topsoil	Embankment
	Excavation	Fill	Excavation	Fill	Excavation	Fill	Excavation	Fill*		
1499+25.00	76.5	58.0	61.1	403.1						
1499+50.00	84.6	75.6	293.8	273.5	75	62	164	392	13	-228
1499+75.00	77.5	66.5	278.7	219.1	75	66	265	285	22	-248
1500+00.00	71.9	63.3	233.9	173.8	69	60	237	228	31	-239
1500+25.00	73.0	64.8	263.9	101.6	67	59	230	159	39	-168
1500+50.00	75.5	66.6	330.4	110.3	69	61	275	123	47	-16
1500+75.00	76.6	66.6	384.0	140.6	70	62	331	145	55	170
1501+00.00	76.9	64.7	433.0	132.0	71	61	378	158	65	390
1501+25.00	76.7	59.7	450.6	110.3	71	58	409	140	78	659
1501+50.00	78.4	59.5	494.0	101.7	72	55	437	123	95	973
1501+75.00	80.3	60.0	521.0	99.7	73	55	470	117	113	1326
1502+00.00	81.9	60.1	507.9	97.8	75	56	476	114	132	1688
1502+25.00	78.8	56.5	437.2	94.4	74	54	438	112	152	2014
1502+50.00	76.1	53.2	373.7	83.7	72	51	375	103	173	2286
1502+75.00	74.2	51.3	326.8	72.4	70	48	324	90	195	2520
1503+00.00	71.7	49.4	275.3	61.8	68	47	279	78	216	2721
1503+25.00	72.0	50.8	268.1	55.1	67	46	252	68	237	2905
1503+50.00	73.9	53.9	270.4	43.5	68	48	249	58	257	3096
1503+75.00	72.3	53.8	257.9	36.6	68	50	245	47	275	3294
1504+00.00	71.3	54.3	249.5	33.7	66	50	235	42	291	3487
1504+25.00	71.1	55.3	256.1	35.2	66	51	234	40	306	3681
1504+50.00	71.2	56.7	269.9	44.0	66	52	244	47	320	3878
1504+75.00	70.7	57.5	270.7	55.5	66	53	250	58	333	4070
1505+00.00	71.3	59.4	261.8	67.9	66	54	247	72	345	4245
1505+25.00	72.1	61.5	243.1	79.5	66	56	234	85	355	4394
1505+50.00	68.5	59.1	218.5	103.6	65	56	214	107	364	4501
1505+75.00	72.2	63.9	263.2	131.7	65	57	223	137	372	4587
1506+00.00	75.5	68.0	352.6	147.8	68	61	285	162	379	4710
1506+25.00	77.1	71.6	464.4	162.4	71	65	378	180	385	4908
1506+50.00	73.5	75.2	557.5	158.1	70	68	473	185	387	5196
1506+75.00	69.1	77.4	612.0	132.4	66	71	541	168	382	5569
1507+00.00	66.8	78.3	629.2	103.3	63	72	575	137	373	6007
1507+25.00	66.4	78.0	602.9	84.1	62	72	570	109	363	6468
1507+50.00	66.0	77.6	563.0	67.1	61	72	540	88	352	6920
1507+51.62	66.0	77.6	561.4	66.4	4	5	34	5	351	6949
1507+52.62	65.0	73.3	597.8	42.9	2	3	21	3	350	6967
1508+00.00	59.3	73.4	494.6	62.2	109	129	958	115	330	7810
1509+00.00	73.9	79.3	155.6	92.3	247	283	1204	358	294	8656
1510+00.00	66.8	65.2	86.0	122.7	261	268	447	498	287	8605
1511+00.00	62.6	60.6	142.4	118.1	240	233	423	558	294	8470
1512+00.00	72.7	70.7	257.5	111.6	251	243	741	532	302	8679
1513+00.00	75.9	73.9	119.9	131.3	275	268	699	563	309	8815
1514+00.00	57.9	56.0	112.4	126.5	248	240	430	597	317	8648
1515+00.00	71.9	69.9	87.5	110.9	240	233	370	550	324	8468
1516+00.00	69.5	67.5	101.3	104.4	262	254	350	499	332	8319
1517+00.00	58.1	56.1	101.6	108.5	236	229	376	493	339	8202
1518+00.00	58.5	56.4	46.7	125.0	216	208	275	540	347	7937
1519+00.00	53.8	51.8	34.8	151.0	208	200	151	639	355	7449
1519+75.00	52.2	50.1	32.4	141.9	147	142	93	509	360	7033
1519+84.26	51.8	49.7	33.0	138.3	18	17	11	60	361	6984
Totals					5225	4864	17660	10676		

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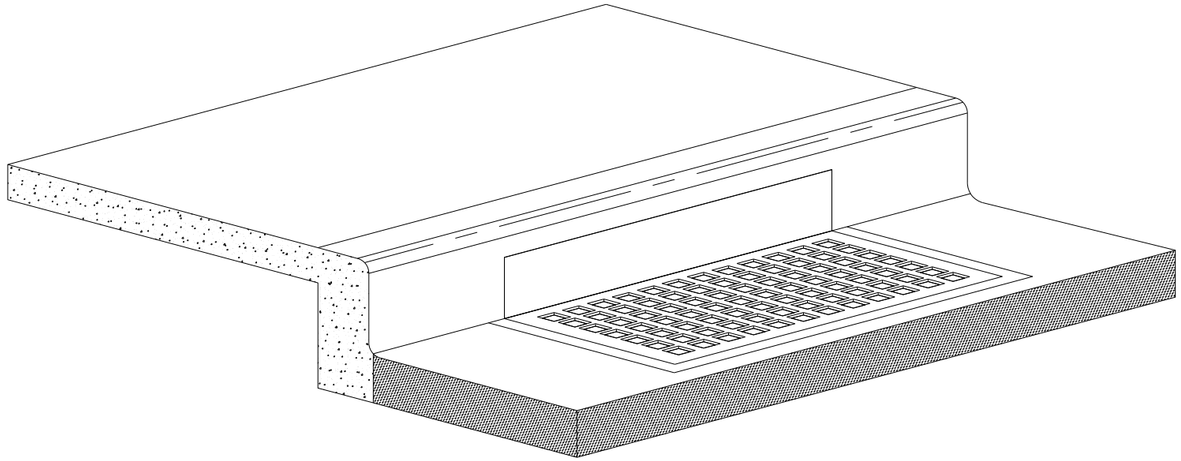
Note: End Areas and Volumes for topsoil excavation includes quantities for both "Topsoil" and "Topsoil Wetland". See Section 75 for locations and quantities for "Topsoil Wetland"

* 25% additional volume is included for shrinkage in earth embankment

Earthwork Values

ND Hwy 23
Keene Corner Major Rehab
County Road 55 North Leg
Field Drives 6+08 LT and RT North Leg
ND 23 East Leg

Revised 1/29/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	20	6



708	1540	Inlet Protection-Special		
		Total	15	EA
708	1541	Remove Inlet Protection-Special		
		Total	15	EA

Inlet Protection Device

Installation Notes:

1. Place device tightly against drain opening and cover entire grate. The device should extend at least 2 inches past grate toward street.

2. Overlap the segments at longer openings.

3. Anchor the device so that water cannot flow behind it.

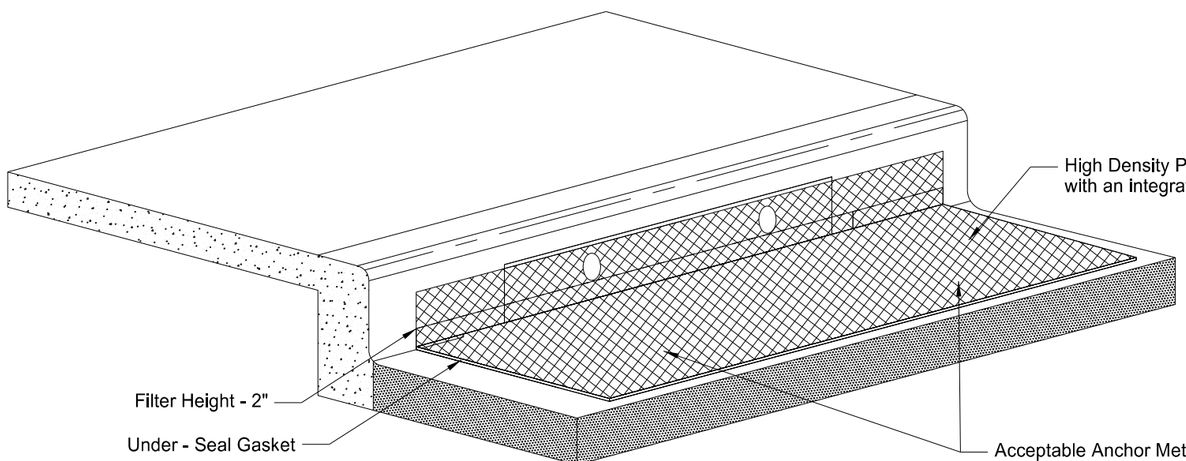
General Notes:

1. Inlet Protection shall be maintained or replaced at the direction of the engineer.

2. Manufactured alternatives may be substituted at the direction of the engineer.

3. When removing or maintaining inlet protection, care shall be taken so that fabric does not fall into the inlet. Any material falling into the inlet shall be removed immediately.

4. Inlet protection is to be used (and reused) as needed to prevent material from entering inlets as the work progresses through the project.



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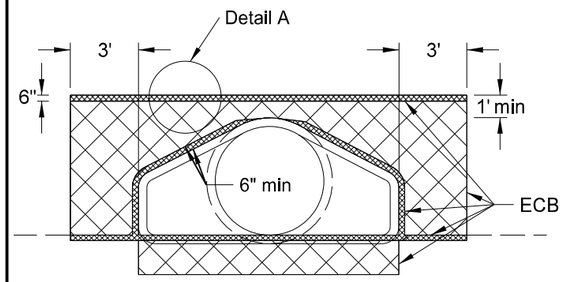
Details

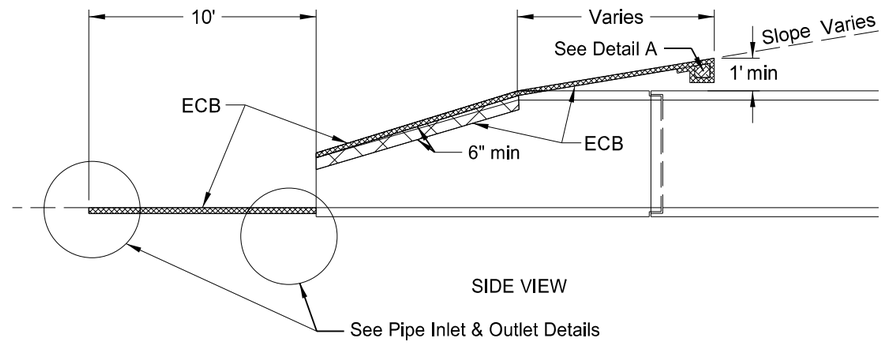
ND Hwy 23
Keene Corner Major Rehab

Inlet Protection Device

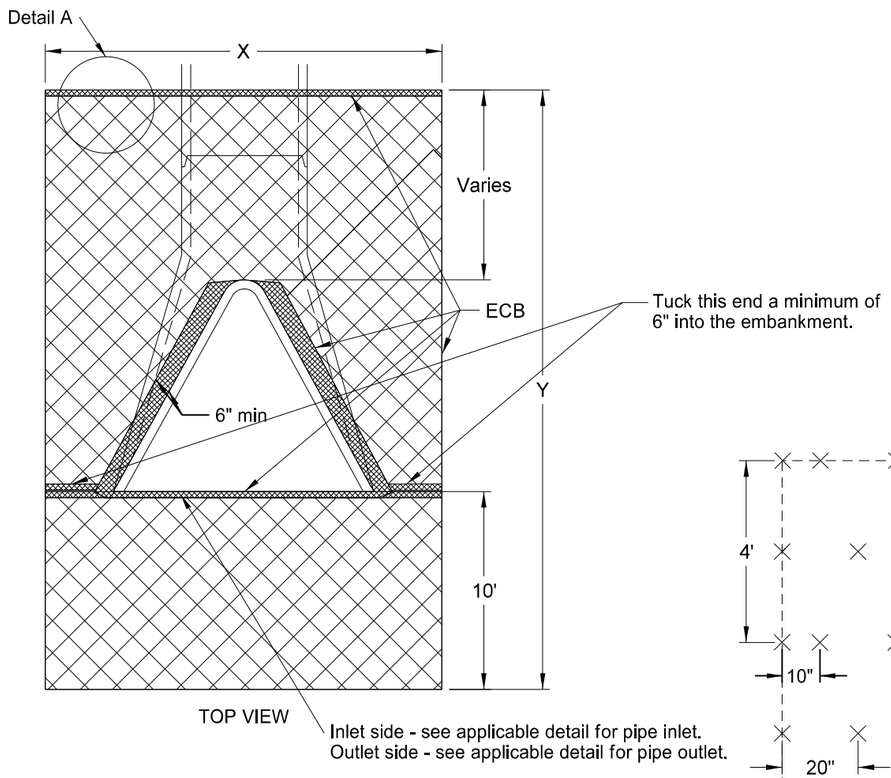
Revised 1/29/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	20	8



FRONT VIEW

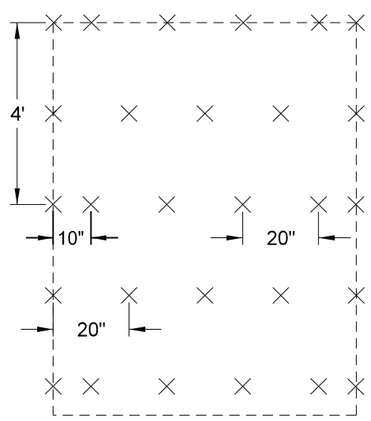


SIDE VIEW



TOP VIEW

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



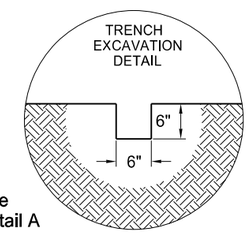
STAPLE PATTERN

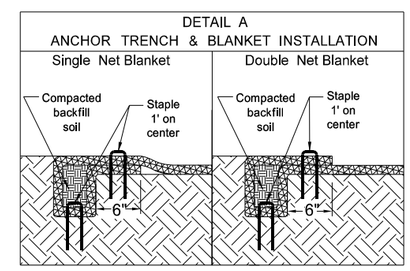
Erosion Control Blanket (ECB)					
Location of Surface Area to be Protected	Culvert Type Appr/CL	Pipe Diam (Inch)	No.	Unit Quantity (SY)	Total Quantity Type 1 (SY)
Station					
1486+89 RT to 1486+91 LT (PR23A) - Cattle Pass	CL	48	2	30	60
1502+25 RT (PR23A)	CL	18	1	20	20
1503+94 RT (PR23A)	CL	18	1	20	20
1504+43 LT (PR23A)	CL	18	1	20	20
45+95 to 46+63 RT (PR_CORD10)	Appr	24	2	24	48
45+96 to 46+68 LT (PR_CORD10)	Appr	24	2	24	48
48+84 RT (PR_CORD10)	CL	18	1	20	20
50+84 LT (PR_CORD10)	CL	18	1	20	20
1+62 RT (PR_CORD55)	CL	18	1	20	20
1+90 LT (PR_CORD55)	CL	18	1	20	20
5+84 to 6+32 LT (PR_CORD55)	Appr	24	2	24	48
1499+54 R2 RT (PR23A)	CL	18	1	20	20
1503+08 R2 LT (PR23A)	CL	18	1	20	20
1505+96 R2 LT (PR23A)	CL	18	1	20	20
1512+00 (PR23A)	CL	36	2	24	48
Total (SY)					452

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

Note:
*Cattle Pass

CENTERLINE CULVERTS									
DIA	X	Y	Surface area to be protected	ECB	DIA	X	Y	Surface area to be protected	ECB
In	Ft	Ft	SF	SY	In	Ft	Ft	SF	SY
24	10.5	19.6	193.1	22	24	10.5	27.6	172.1	20
27	11.0	20.0	204.3	23	27	11.0	18.0	182.3	21
30	11.6	20.5	218.3	25	30	11.6	18.5	195.1	22
36	12.7	21.2	242.1	27	36	12.7	19.2	216.7	24
42	13.3	21.2	251.8	28	42	13.3	19.2	225.2	25
48	13.8	22.0	265.6	30	48	13.8	20.0	238.0	27
54	14.5	21.5	273.7	31	54	14.5	19.5	244.7	28
60	15.0	21.0	278.3	31	60	15.0	19.0	248.3	28
66	15.6	22.0	295.7	33	66	15.6	20.0	264.5	30
72	16.2	22.5	309.2	35	72	16.2	20.5	276.8	31
Note: Quantities based on 6:1 slope.					Note: Quantities based on 4:1 slope.				





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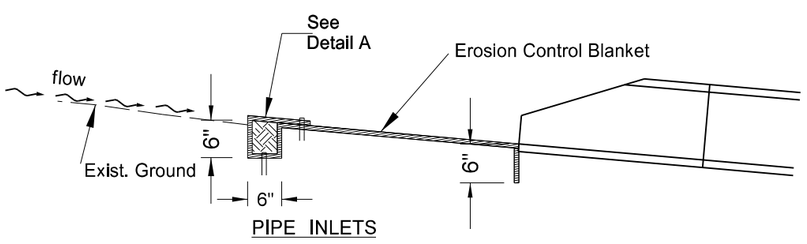
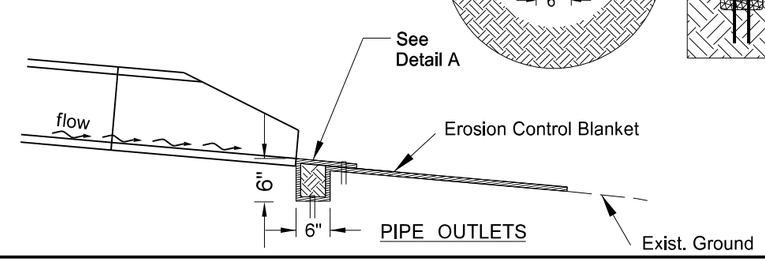


PIPE INLETS



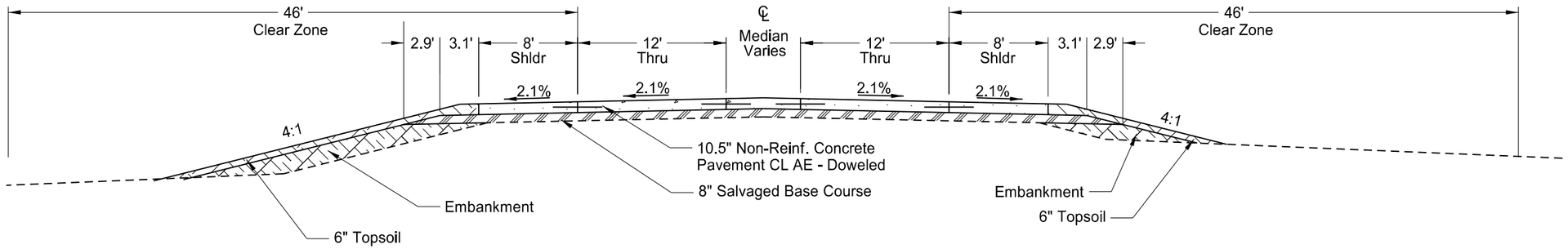
PIPE OUTLETS

Details

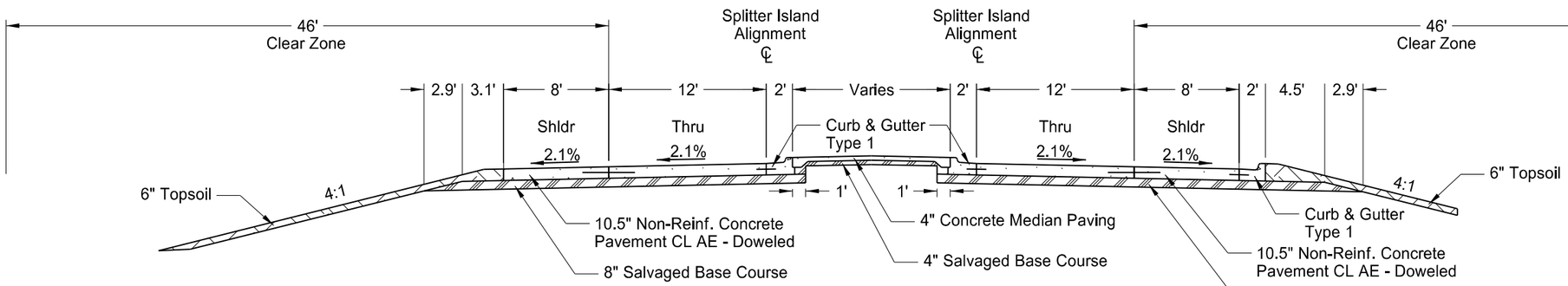
ND Hwy 23
Keene Corner Major Rehab

Erosion Control at Culvert Flared End Sections

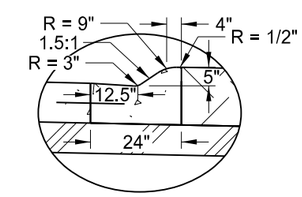
Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	30	3



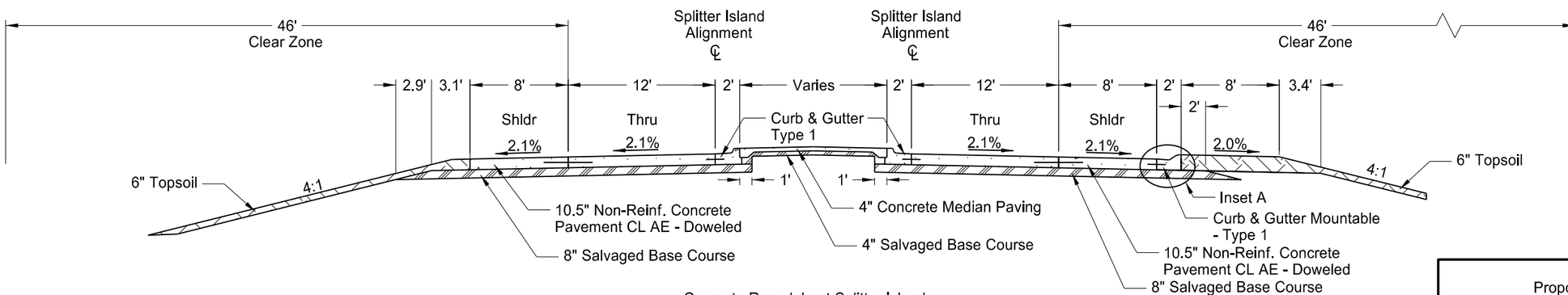
Concrete Reconstruction Roundabout Connections
PR23A Sta 1497+75.68 to Sta 1500+00
2 Lane



Concrete Roundabout Splitter Islands
PR23A Sta 1500+00 to Sta 1503+30.00
Co Rd 10 Sta 47+98.21 to Sta 49+40.00
*PR23A Sta 1500+95.00 R2 to Sta 1505+38.05 R2
*Co Rd 55 Sta 2+68.00 to Sta 4+31.99
2 Lane



Inset A
Curb & Gutter
Mountable - Type 1



Concrete Roundabout Splitter Islands
PR23A Sta 1503+30.00 to Sta 1504+53.20
Co Rd 10 Sta 49+40.00 to Sta 50+91.65
*PR23A Sta 1499+50.26 R2 to Sta 1500+95.00 R2
*Co Rd 55 Sta 1+59.54 to Sta 2+68.00
2 Lane

Note:
* These locations are mirrored about the centerline

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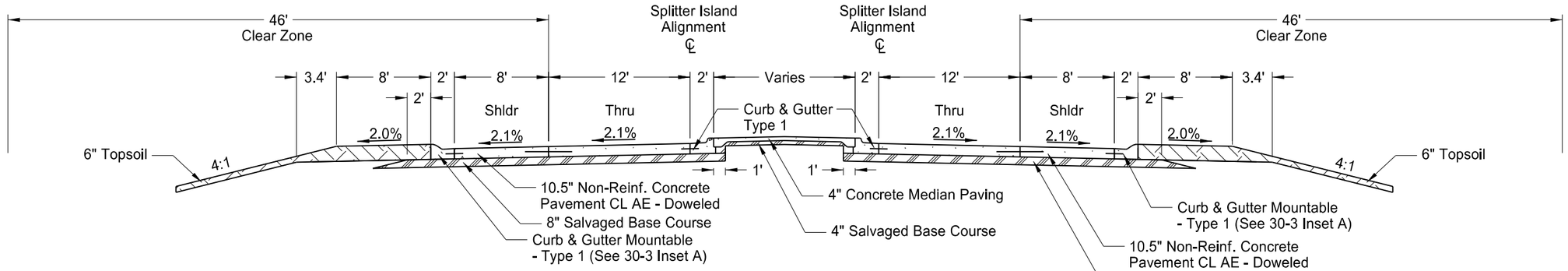
Proposed Typical Sections

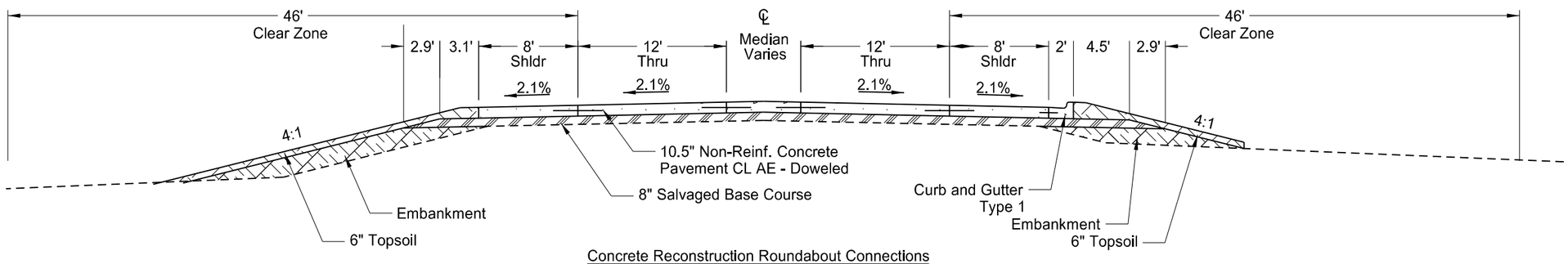
ND Hwy 23
Keene Corner Major Rehab

ND 23, Co Rd 10, Co Rd 55
Roundabout Connections

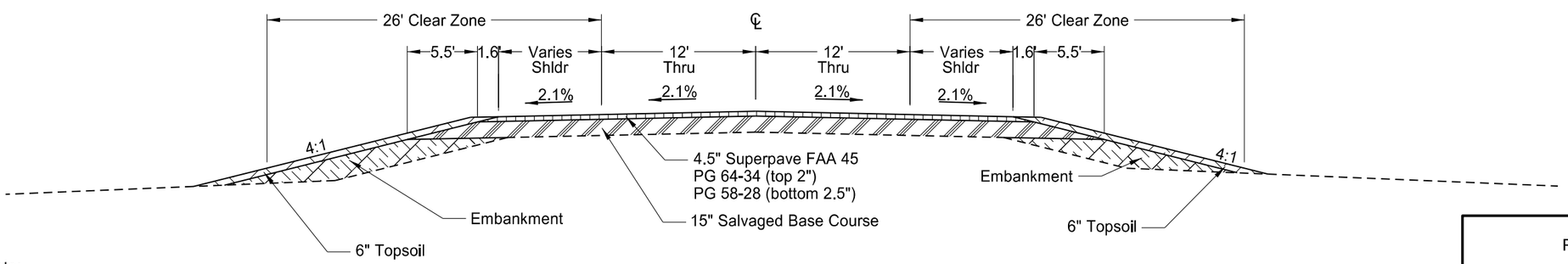
Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	30	4



Concrete Roundabout Splitter Islands
PR23A Sta 1504+53.20 to Sta 1505+17.42
PR23A Sta 1498+93.07 R2 to Sta 1499+50.26 R2
Co Rd 55 Sta 1+02.00 to Sta 1+59.54
Co Rd 10 Sta 50+91.65 to Sta 51+63.97
2 Lane



Concrete Reconstruction Roundabout Connections
Co Rd 10 Sta 46+81.56 to Sta 47+98.21
*PR23A Sta 1505+38.05 R2 to Sta 1507+52.12 R2
*Co Rd 55 Sta 4+31.99 to Sta 5+48.51
2 Lane



Note:
* These locations are mirrored about the centerline

Asphalt Reconstruction Roundabout Connections
Co Rd 55 Sta 5+48.51 to Sta 6+67.89
Co Rd 10 Sta 45+86.65 to Sta 46+81.56
2 Lane

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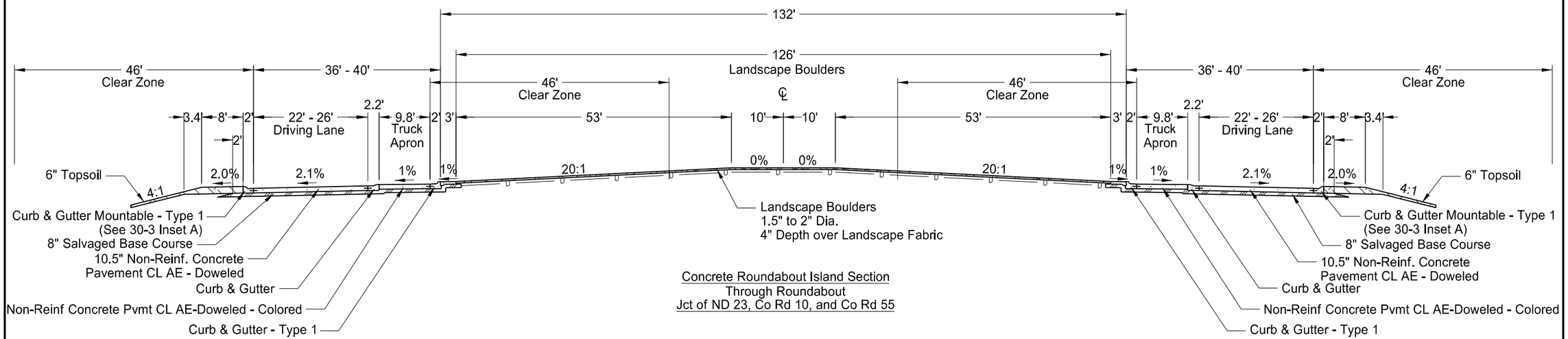
Proposed Typical Sections

ND Hwy 23
Keene Corner Major Rehab

ND 23, Co Rd 10, Co Rd 55
Roundabout Connections

Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	30	5



Concrete Roundabout Island Section
Through Roundabout
Jct of ND 23, Co Rd 10, and Co Rd 55

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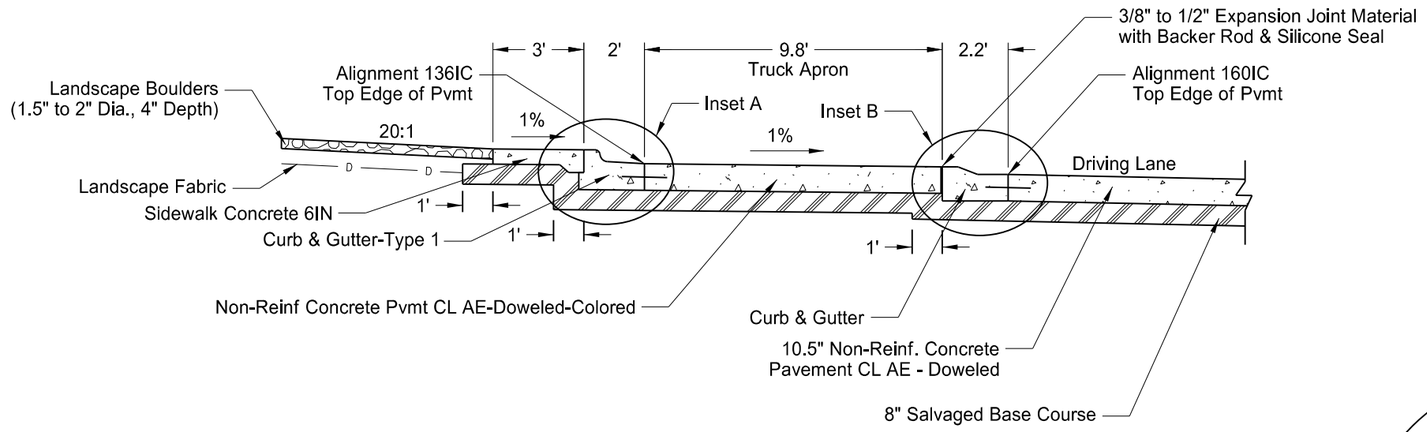
Proposed Typical Sections

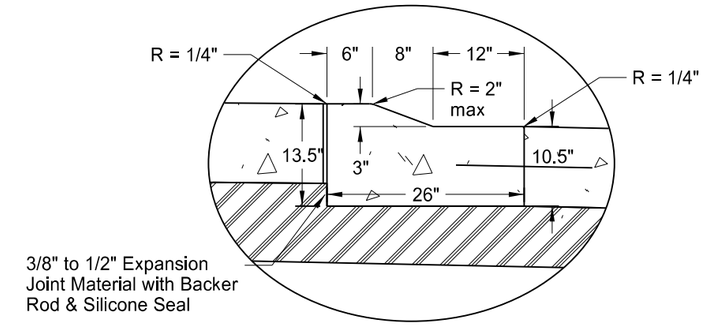
ND Hwy 23
Keene Corner Major Rehab

Roundabout Center Island Section

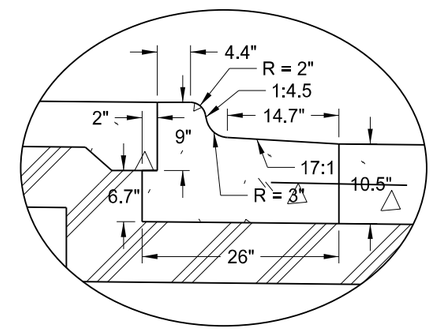
Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	30	6



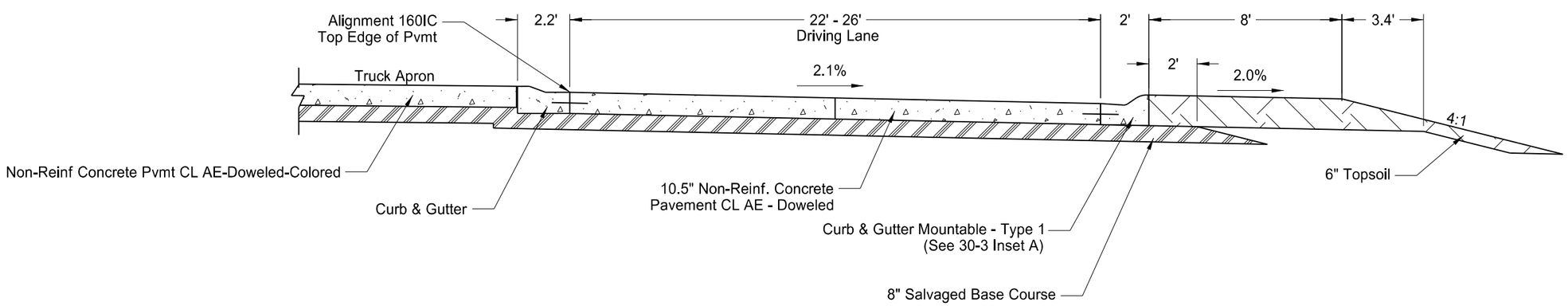
Truck Apron



Inset B
Curb & Gutter



Inset A
Curb & Gutter



Driving Lane

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Proposed Typical Sections

ND Hwy 23
Keene Corner Major Rehab

Island Section

Revised 1/29/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	50	2

Inlet No. 1A Inlet Special - Type 2 - 48IN ND 23A - 1502+25.00 - 27.4' RT Grate Type: V Grate Elev = 2442.67 Base Elev =2431.12 Invert Elev = 2431.33 H' Dist. = 11.22' 18 In. Conduit E = 2431.33	Inlet No. 5A Inlet Special Mountable - Type B - 48IN CO RD 10 - 50+98.00 - 38.5' LT Grate Type: L Grate Elev = 2444.22 Base Elev =2433.81 Invert Elev = 2434.02 H' Dist. = 10.08' 18 In. Conduit S = 2434.02 15 In. Conduit E = 2439.97	Inlet No. 7B Inlet - Type 2 160IC - 2+30.00 - 26.1' RT Grate Type: V Grate Elev = 2446.93 Base Elev =2442.48 Invert Elev = 2442.68 H' Dist. = 4.11' 15 In. Conduit N = 2442.68
Inlet No. 2A Inlet Special Mountable - Type B - 48IN ND 23A - 1503+94.00 - 22.6' RT Grate Type: L Grate Elev = 2445.07 Base Elev =2437.72 Invert Elev = 2437.93 H' Dist. = 7.02' 18 In. Conduit E = 2437.93	Inlet No. 5B Inlet - Type 2 160IC - 3+52.00 - 26.1' RT Grate Type: V Grate Elev = 2446.92 Base Elev =2442.48 Invert Elev = 2442.67 H' Dist. = 4.11' 15 In. Conduit W = 2442.67	Inlet No. 8A Inlet Special Mountable - Type B - 48IN ND 23A - 1499+44.00 - 43.5' RT Grate Type: L Grate Elev = 2445.78 Base Elev =2438.66 Invert Elev = 2438.87 H' Dist. = 6.79' 18 In. Conduit S = 2438.87 15 In. Conduit W = 2441.53
Inlet No. 3A Inlet Special Mountable - Type B - 48IN ND 23A - 1504+60.00 - 36.4' LT Grate Type: L Grate Elev = 2445.72 Base Elev =2430.08 Invert Elev = 2430.29 H' Dist. = 15.31' 18 In. Conduit W = 2430.29 15 In. Conduit N = 2441.46	Inlet No. 6A Inlet Special Mountable - Type B - 48IN CO RD 55 - 1+82.00 - 24.5' LT Grate Type: B Grate Elev = 2446.18 Base Elev =2437.49 Invert Elev = 2437.70 H' Dist. = 8.36' 18 In. Conduit W = 2437.70 15 In. Conduit S = 2441.84	Inlet No. 8B Inlet - Type 2 160IC - 1+06.00 - 26.1' RT Grate Type: V Grate Elev = 2446.93 Base Elev =2442.47 Invert Elev = 2442.66 H' Dist. = 4.12' 15 In. Conduit E = 2442.66
Inlet No. 3B Inlet - Type 2 160IC - 4+90.00 - 26.0' RT Grate Type: V Grate Elev = 2446.93 Base Elev =2442.49 Invert Elev = 2442.68 H' Dist. = 4.11' 15 In. Conduit S = 2442.68	Inlet No. 6B Inlet Mountable Curb - Type B CO RD 55 - 1+71.61 - 26.8' LT Grate Type: B Grate Elev = 2446.19 Base Elev =2441.75 Invert Elev = 2441.94 H' Dist. = 4.11' 15 In. Conduit N = 2441.94	Inlet No. 9A Inlet - Type 2 - Double ND 23A - 1503+08.00 R 2 - 37.7' LT Grate Type: V Grate Elev = 2439.66 Base Elev =2435.33 Invert Elev = 2436.62 H' Dist. = 4.00' 18 In. Conduit N = 2436.62
Inlet No. 4A Inlet - Type 2 CO RD 10 - 48+84.00 - 28.7' RT Grate Type: V Grate Elev = 2436.76 Base Elev =2431.59 Invert Elev = 2431.80 H' Dist. = 4.84' 18 In. Conduit S = 2431.80	Inlet No. 7A Inlet Mountable Curb - Type B CO RD 55 - 1+54.00 - 37.7' RT Grate Type: L Grate Elev = 2445.96 Base Elev =2440.90 Invert Elev = 2441.11 H' Dist. = 4.73' 18 In. Conduit E = 2441.11 15 In. Conduit S = 2441.68	Inlet No. 10A Inlet Special - Type 2 - 48IN ND 23A - 1505+96.00 R 2 - 24.3' LT Grate Type: V Grate Elev = 2436.42 Base Elev =2428.15 Invert Elev = 2428.36 H' Dist. = 7.94' 18 In. Conduit N = 2428.36

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Inlet and Manhole Summary

ND Hwy 23
Keene Corner Major Rehab

Revised 1/29/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	51	2

Begin Alignment	Begin Station/ Location	Begin Offset	End Alignment	End Station/ Location	End Offset	Pipe Installation (Pay Item)			Allowable Material	Required Diameter	Steel Pipe Coatings	Steel Pipe Corrugations or Spiral Ribs	Steel Pipe Minimum Thickness	(*) End Treatments		R1 Fabric (Pay Item)	Applicable Backfill Detail
														Begin	End		
						IN	Bid Item	LF		IN	Type	IN	IN	EA	EA	SY	
ND 23A	1A		ND 23A	1502+25	71.9' RT	18	Pipe Conduit - Storm Drain	43	Reinforced Concrete Pipe - Class III Spiral Rib Steel Pipe High-Density Polyethylene Pipe	18	P	3/4, 1	0.064		FES		D-714-27
ND 23A	2A		ND 23A	1503+94	56.2' RT	18	Pipe Conduit - Storm Drain	32	Reinforced Concrete Pipe - Class III Spiral Rib Steel Pipe High-Density Polyethylene Pipe	18	P	3/4, 1	0.064		TES		D-714-27
ND 23A	3A		ND 23A	1504+43	101.3' LT	18	Pipe Conduit - Storm Drain	66	Reinforced Concrete Pipe - Class III Spiral Rib Steel Pipe High-Density Polyethylene Pipe	18	P	3/4, 1	0.064		FES		D-714-27
160IC	3B		ND 23A	3A		15	Pipe Conduit - Storm Drain	59	Reinforced Concrete Pipe - Class III Spiral Rib Steel Pipe	15	P	3/4, 1	0.064			342	D-714-26
CO RD 10	4A		CO RD 10	48+84	47.5' RT	18	Pipe Conduit - Storm Drain	18	Reinforced Concrete Pipe - Class III Spiral Rib Steel Pipe High-Density Polyethylene Pipe	18	P	3/4, 1	0.064		TES		D-714-27
CO RD 10	5A		CO RD 10	50+84	79.1' LT	18	Pipe Conduit - Storm Drain	42	Reinforced Concrete Pipe - Class III Spiral Rib Steel Pipe High-Density Polyethylene Pipe	18	P	3/4, 1	0.064		TES		D-714-27
160IC	5B		CO RD 10	5A		15	Pipe Conduit - Storm Drain	69	Reinforced Concrete Pipe - Class III Spiral Rib Steel Pipe	15	P	3/4, 1	0.064			397	D-714-26
CO RD 55	6A		CO RD 55	1+90	62.8' LT	18	Pipe Conduit - Storm Drain	37	Reinforced Concrete Pipe - Class III Spiral Rib Steel Pipe High-Density Polyethylene Pipe	18	P	3/4, 1	0.064		TES		D-714-27
CO RD 55	6B		CO RD 55	6A		15	Pipe Conduit - Storm Drain	7	Reinforced Concrete Pipe - Class III Spiral Rib Steel Pipe	15	P	3/4, 1	0.064				D-714-27
CO RD 55	7A		CO RD 55	1+62	60.2' RT	18	Pipe Conduit - Storm Drain	23	Reinforced Concrete Pipe - Class III Spiral Rib Steel Pipe High-Density Polyethylene Pipe	18	P	3/4, 1	0.064		TES		D-714-27
160IC	7B		CO RD 55	7A		15	Pipe Conduit - Storm Drain	54	Reinforced Concrete Pipe - Class III Spiral Rib Steel Pipe	15	P	3/4, 1	0.064			310	D-714-26
ND 23A	8A		ND 23A	1499+54 R2	74.1' RT	18	Pipe Conduit - Storm Drain	31	Reinforced Concrete Pipe - Class III Spiral Rib Steel Pipe High-Density Polyethylene Pipe	18	P	3/4, 1	0.064		TES		D-714-27
160IC	8B		ND 23A	8A		15	Pipe Conduit - Storm Drain	54	Reinforced Concrete Pipe - Class III Spiral Rib Steel Pipe	15	P	3/4, 1	0.064			315	D-714-26
ND 23A	9A		ND 23A	1503+08 R2	48.5' LT	18	Pipe Conduit - Storm Drain	10	Reinforced Concrete Pipe - Class III Spiral Rib Steel Pipe High-Density Polyethylene Pipe	18	P	3/4, 1	0.064		TES		D-714-27
ND 23A	10A		ND 23A	1505+96 R2	56.1' LT	18	Pipe Conduit - Storm Drain	30	Reinforced Concrete Pipe - Class III Spiral Rib Steel Pipe High-Density Polyethylene Pipe	18	P	3/4, 1	0.064		TES		D-714-27

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. The pipe barrel length shall be bid seperately from the end section for culvert extensions.
FES = Flared End Section
TES = Traversable End Section

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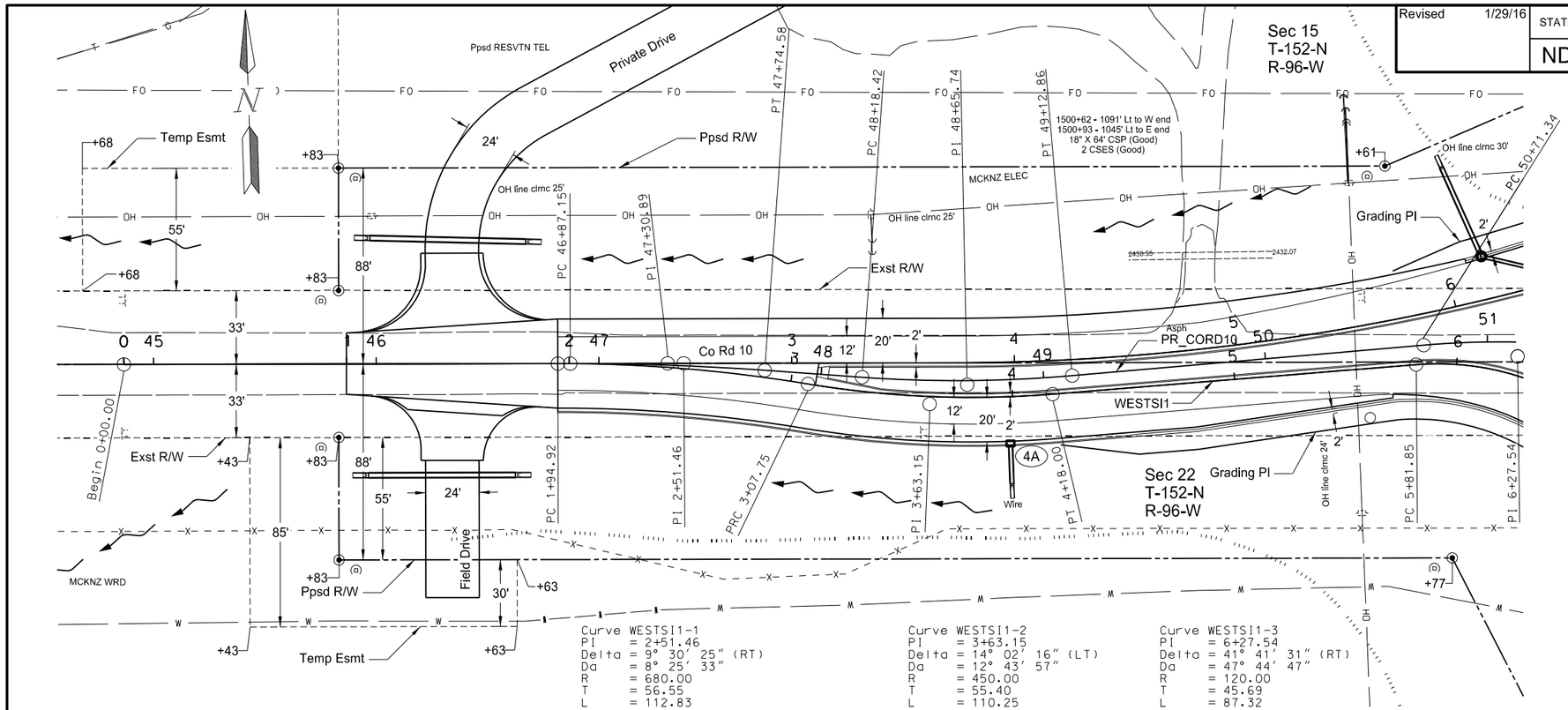
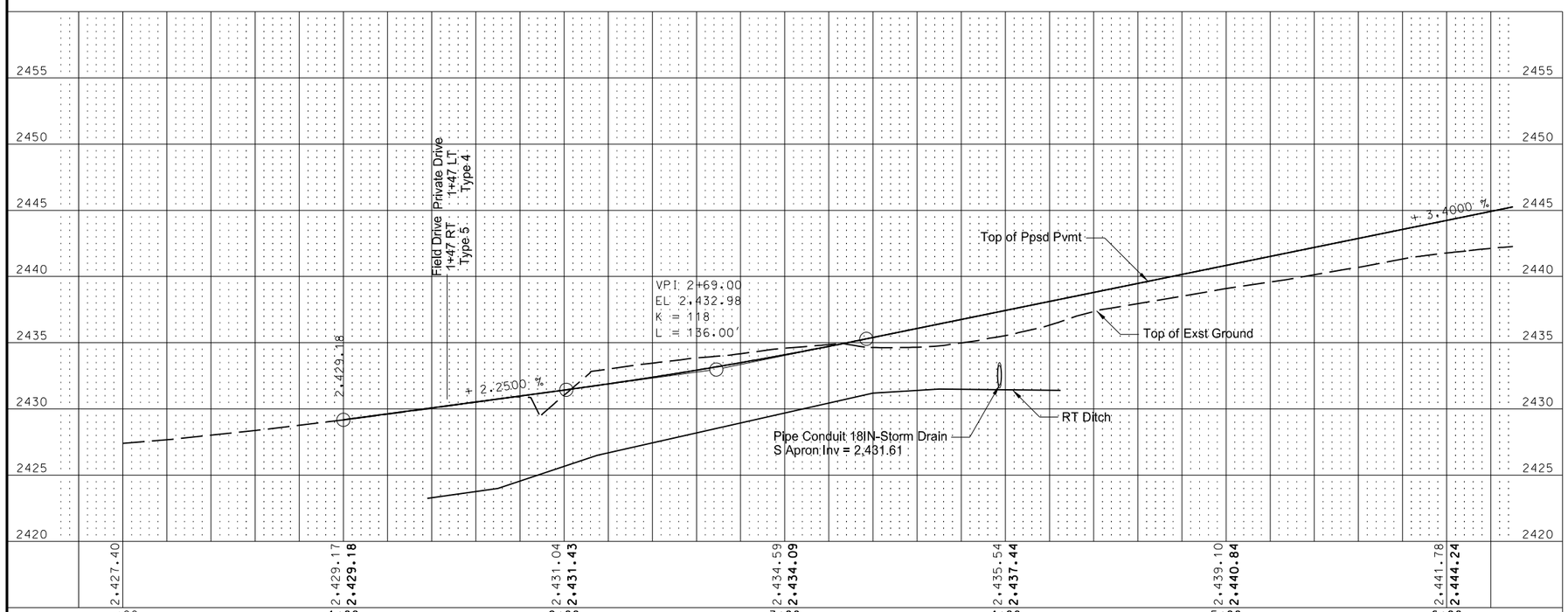
Allowable Pipe List
Storm Drain
ND Hwy 23
Keene Corner Major Rehab

Revised 1/29/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	60	1



714	4101	Pipe Conduit 18IN - Storm Drain		
		4A to 48+84 - 47.5 RT	18	LF
722	3510	Inlet - Type 2		
		4A	1	EA
754	0805	Object Marker - Culverts		
		48+84 RT	1	EA



Note: Stations and Offsets are measured from Co Rd 10 ℄ (PR_CORD10)

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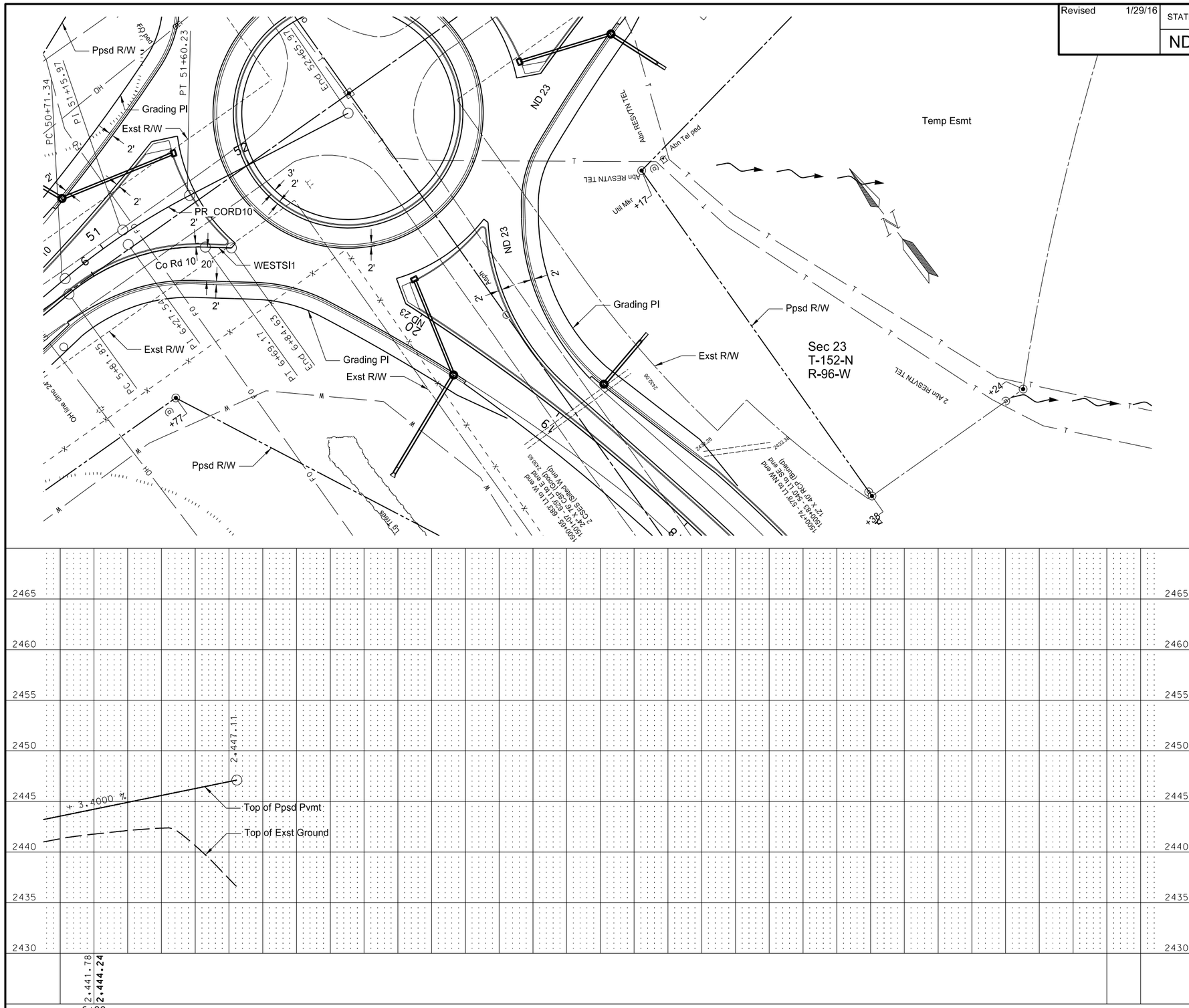
Plan & Profile

ND Hwy 23
Keene Corner Major Rehab

West Splitter Island
Eastbound 1+00 to 6+00

Revised 1/29/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	60	2



Note: Stations and Offsets are measured from Co Rd 10 ℄ (PR_CORD10)

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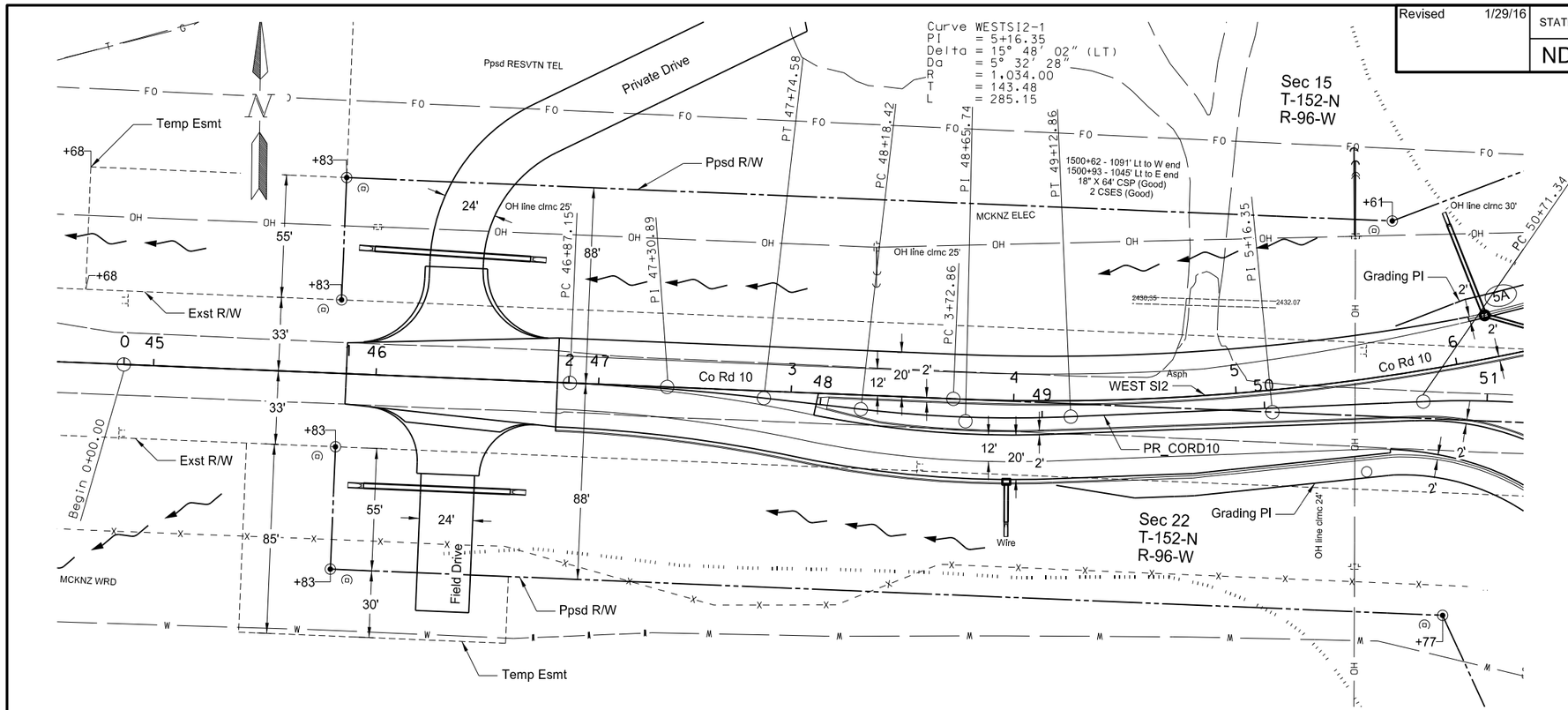
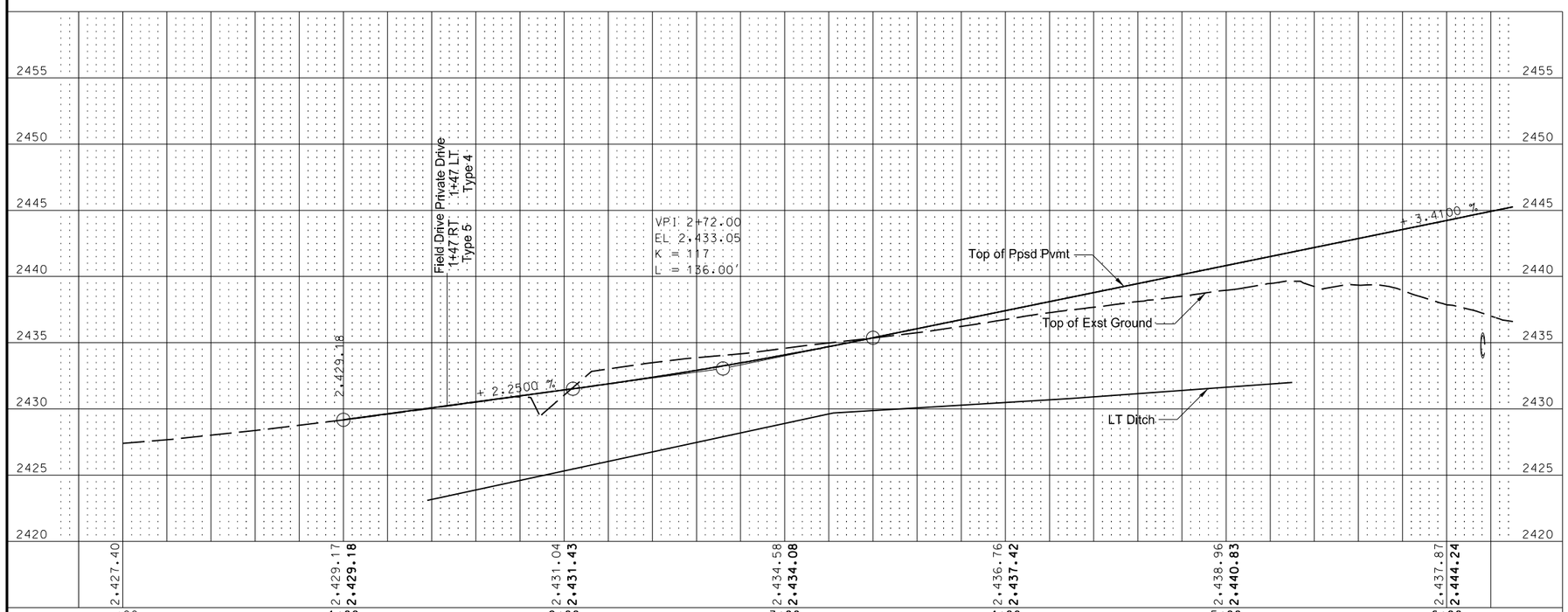
Plan & Profile

ND Hwy 23
Keene Corner Major Rehab

West Splitter Island
Eastbound 6+00 to 6+84.63

Revised 1/29/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	60	3





Note: Stations and Offsets are measured from Co Rd 10 ℄ (PR_CORD10)

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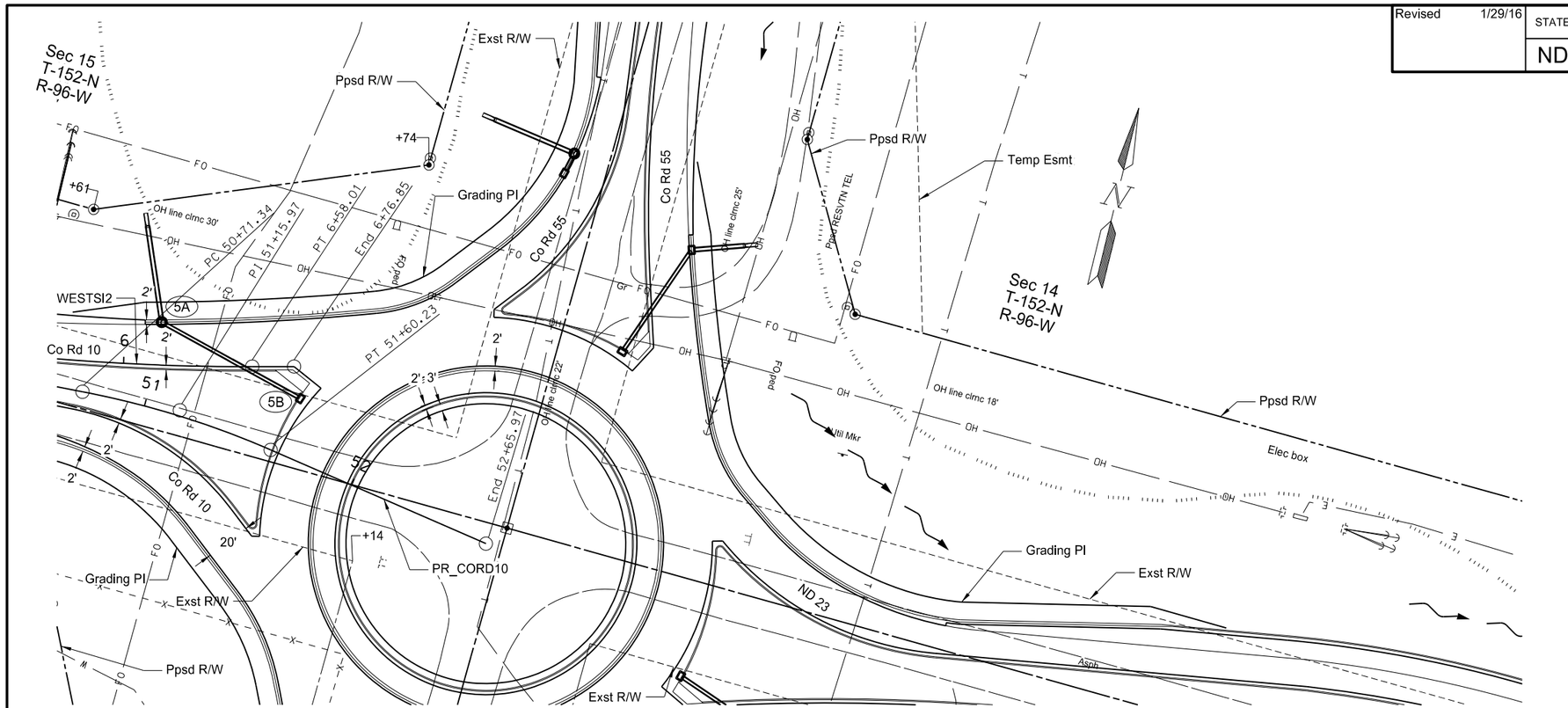
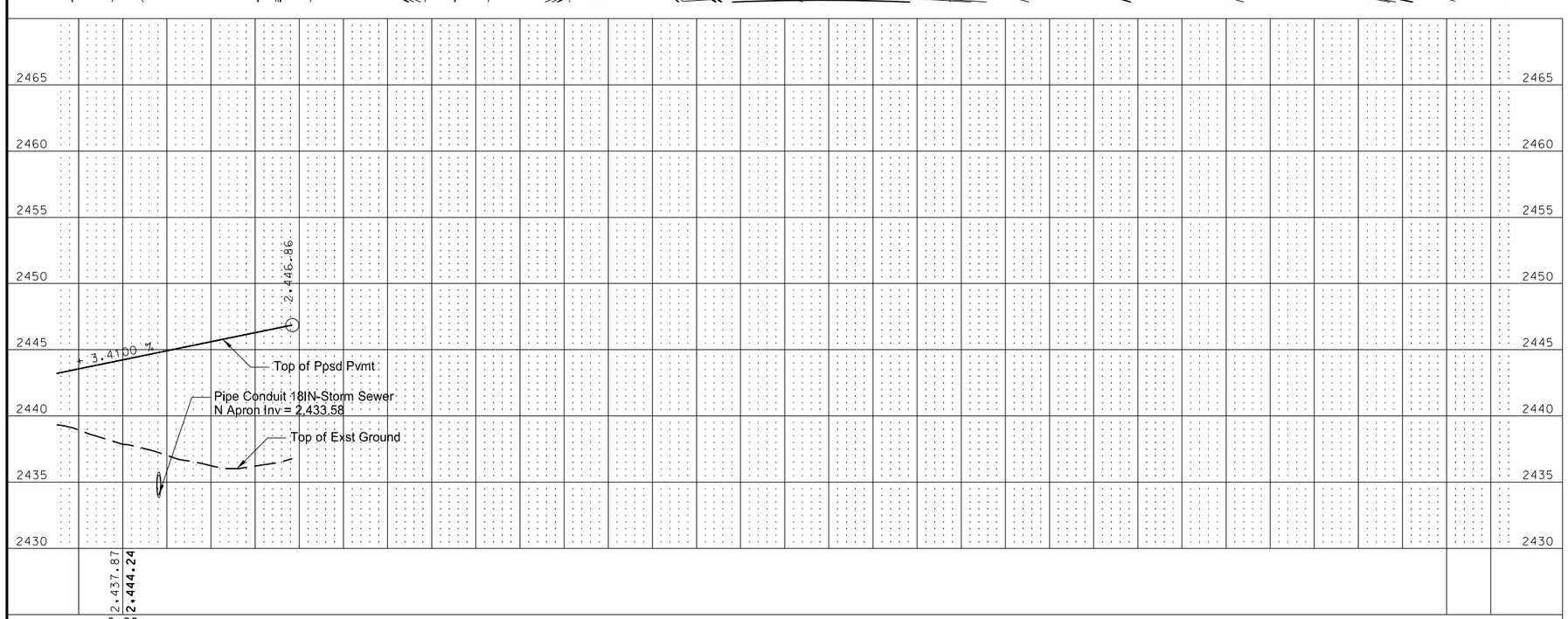
ND Hwy 23
Keene Corner Major Rehab

West Splitter Island
Westbound 1+00 to 6+00

Revised 1/29/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	60	4



714	4097	Pipe Conduit 15IN - Storm Drain		
		5B to 5A	69	LF
714	4101	Pipe Conduit 18IN - Storm Drain		
		5A to 50+84 - 79.1' LT	42	LF
722	1100	Manhole Riser 48IN		
		5A	10.1	LF
722	3510	Inlet - Type 2		
		5B	1	EA
722	3713	Inlet Special Mountable - Type B 48IN		
		5A	1	EA
754	0805	Object Marker - Culverts		
		50+84 LT	1	EA



Note: Stations and Offsets are measured from Co Rd 10 ℄ (PR_CORD10)

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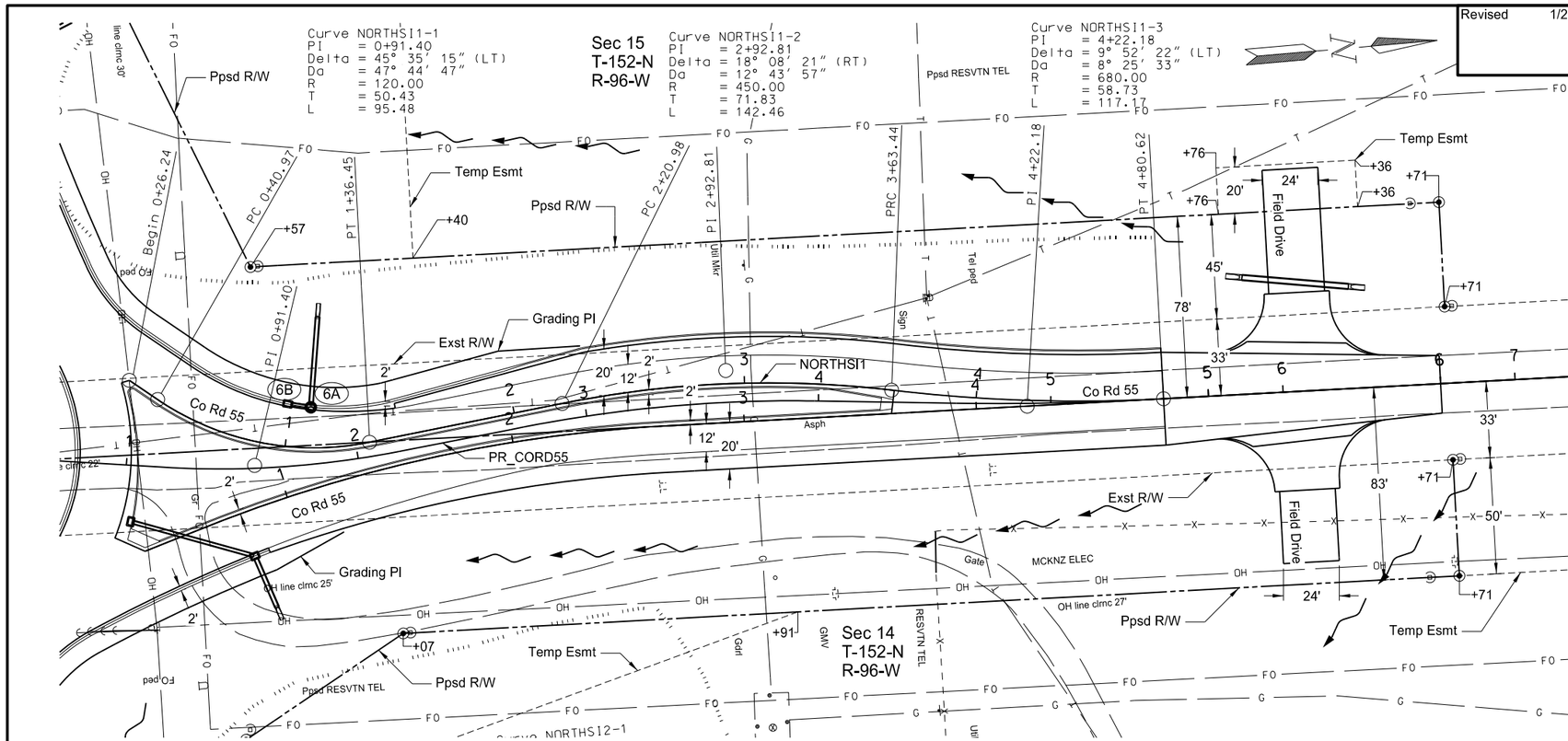
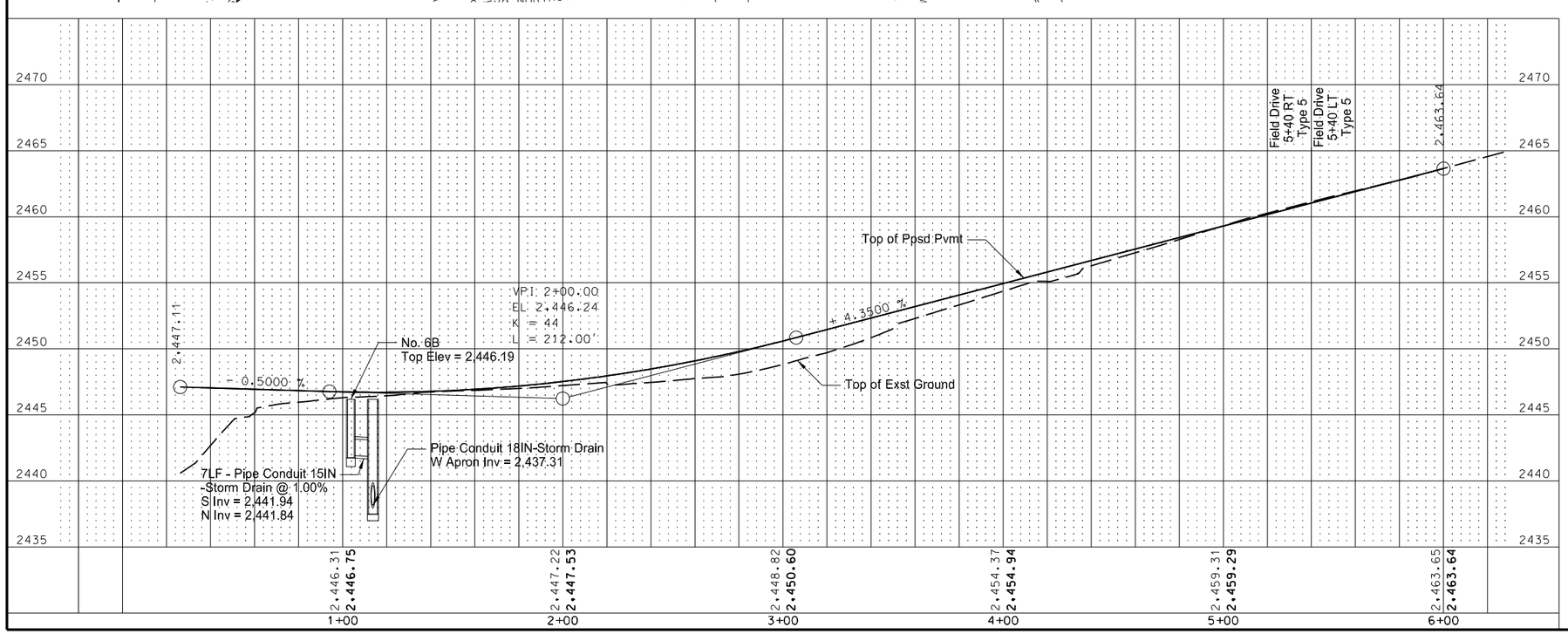
ND Hwy 23
Keene Corner Major Rehab

West Splitter Island
Westbound 6+00 to 6+76.85

Revised 1/29/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	60	5



714	4097	Pipe Conduit 15IN - Storm Drain		
		6B to 6A	7	LF
714	4101	Pipe Conduit 18IN - Storm Drain		
		6A to 1+90 - 62.8' LT (PR_CORD55)	37	LF
722	1100	Manhole Riser 48IN		
		6A	8.4	LF
722	3713	Inlet Special Mountable - Type B 48IN		
		6A	1	EA
722	4060	Inlet Mountable Curb - Type B		
		6B	1	EA
754	0805	Object Marker - Culverts		
		1+90 LT (PR_CORD55)	1	EA



Note: Stations and Offsets are measured from Co Rd 55 ℄ (PR_CORD55)

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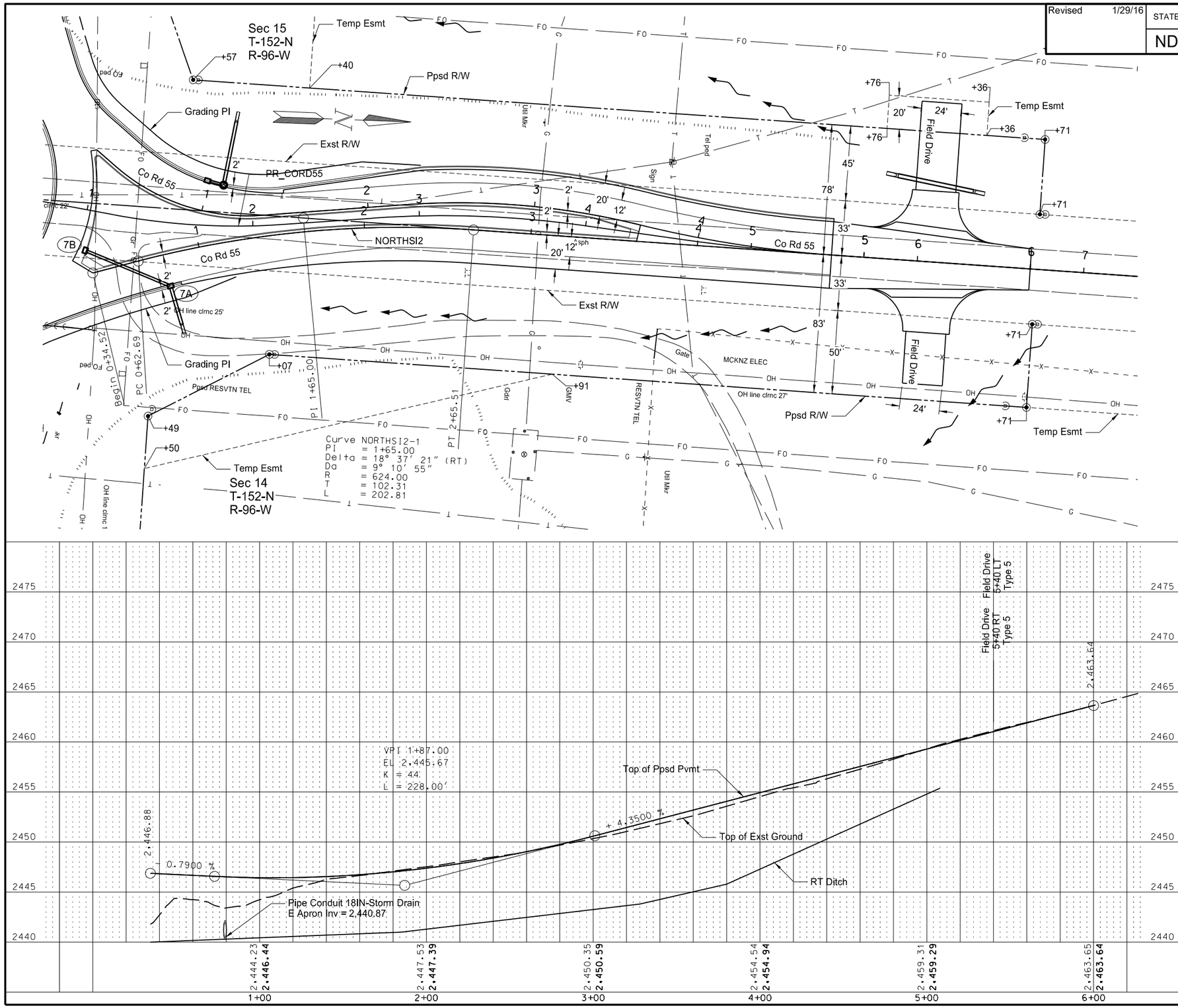
ND Hwy 23
Keene Corner Major Rehab

North Splitter Island
Southbound 0+26.24 to 6+00

Revised 1/29/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	60	6



714	4097	Pipe Conduit 15IN - Storm Drain		
		7B to 7A	54	LF
714	4101	Pipe Conduit 18IN - Storm Drain		
		7A to 1+62 - 60.2' RT (PR_CORD55)	23	LF
722	3510	Inlet - Type 2		
		7B	1	EA
722	4060	Inlet Mountable Curb - Type B		
		7A	1	EA
754	0805	Object Marker - Culverts		
		1+62 RT (PR_CORD55)	1	EA

Note: Stations and Offsets are measured from Co Rd 55 ℄ (PR_CORD55)

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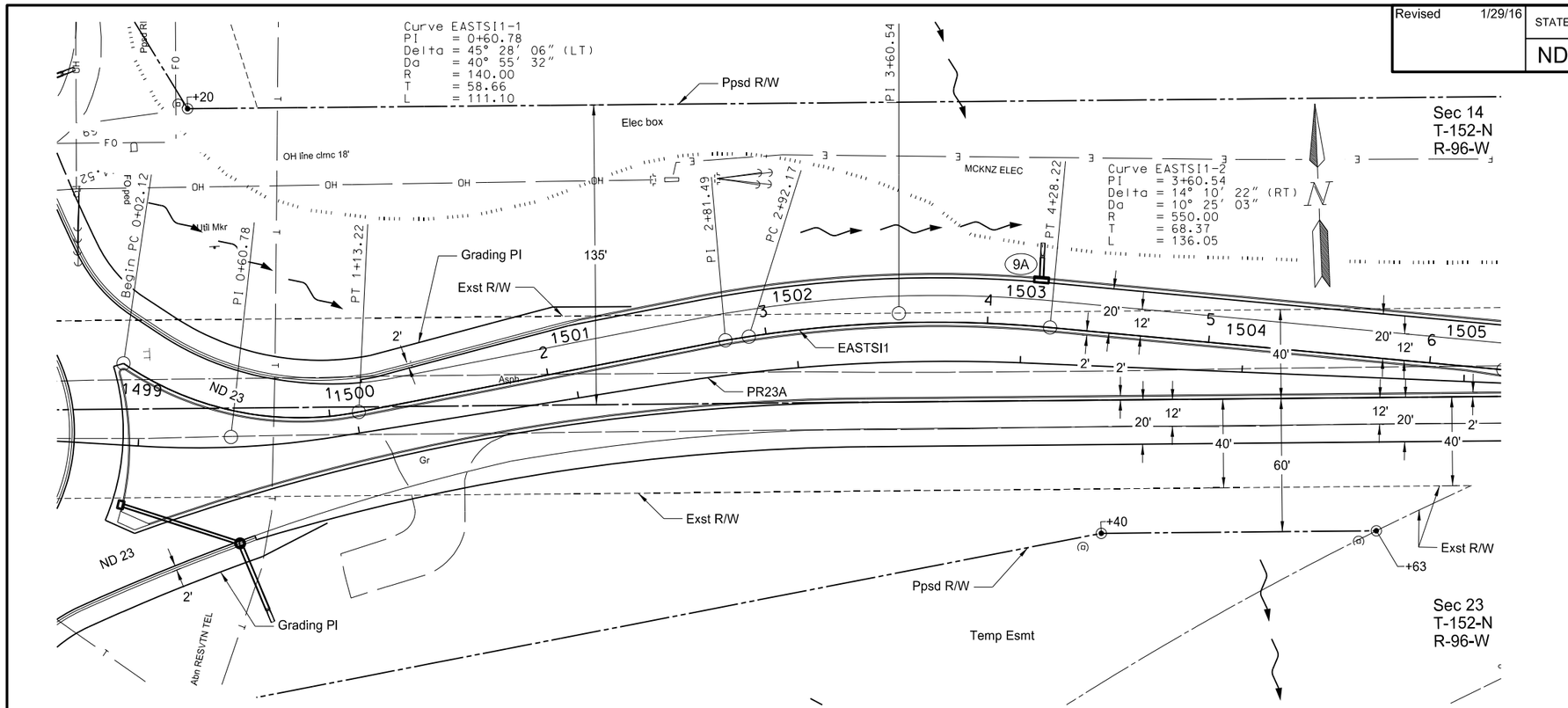
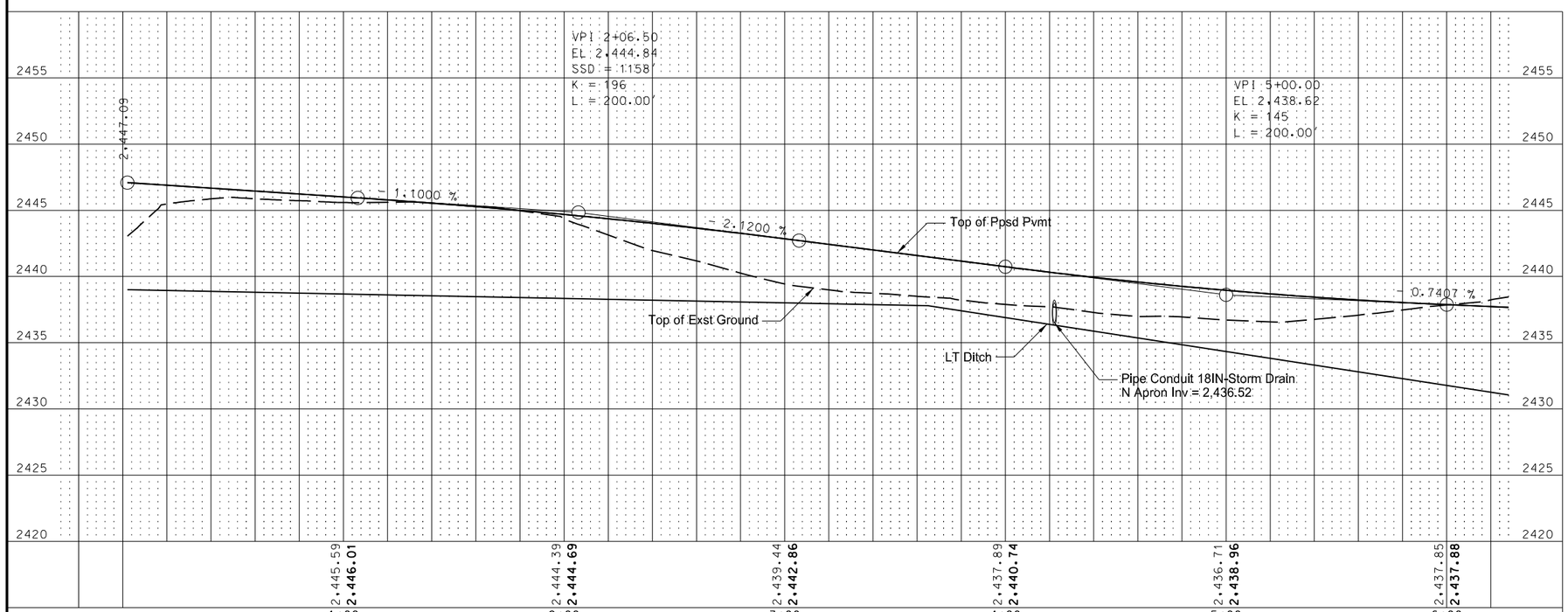
ND Hwy 23
Keene Corner Major Rehab

North Splitter Island
Northbound 0+34.52 to 6+00

Revised 1/29/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	60	7



714	4101	Pipe Conduit 18IN - Storm Drain		
		9A to 1503+08 - 48.5' LT	10	LF
722	3520	Inlet - Type 2 - Double		
		9A	1	EA
754	0805	Object Marker - Culverts		
		1503+08 LT	1	EA



Note: Stations and Offsets are measured from PR23A ℄ (PR23A)

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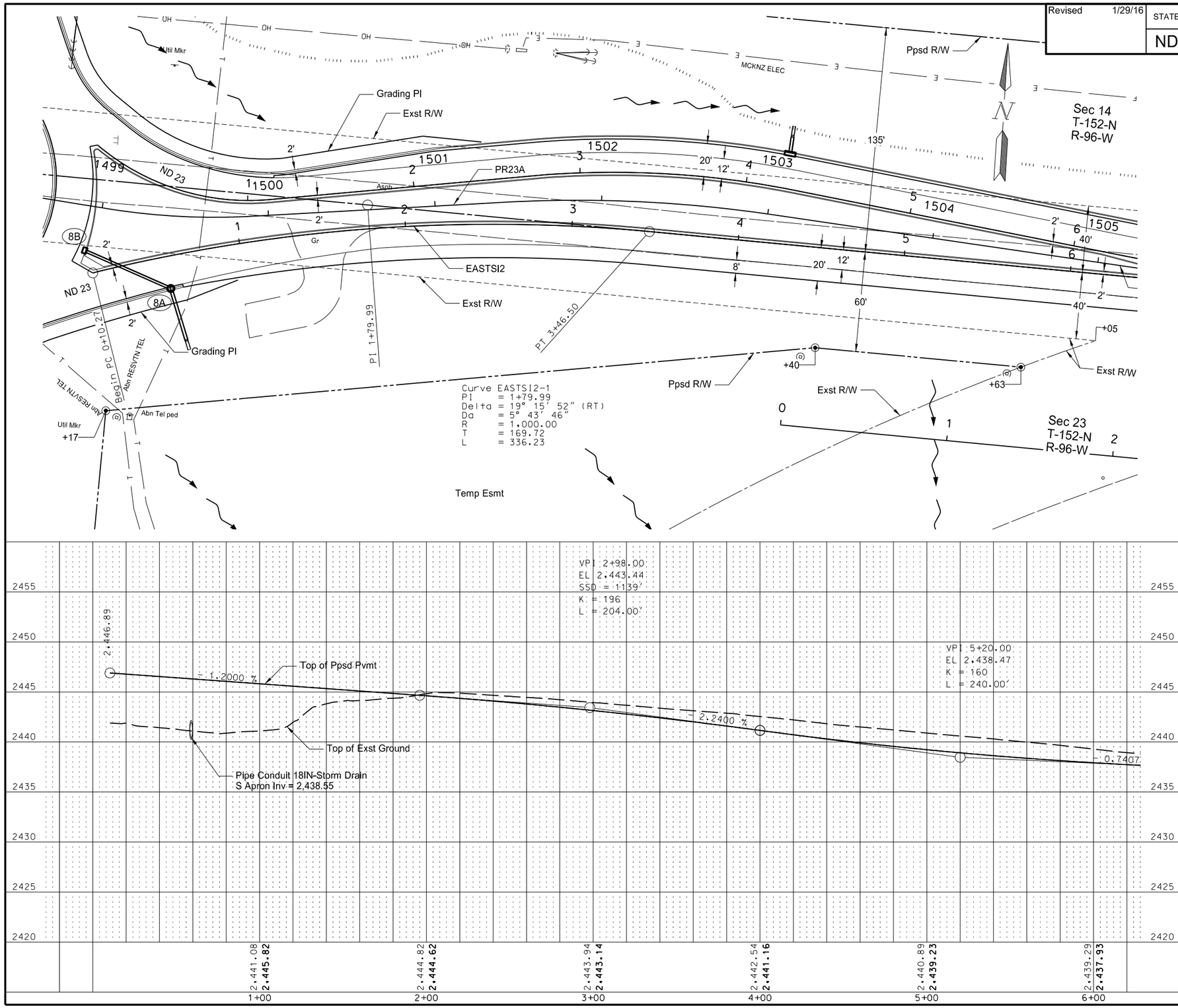
Plan & Profile

ND Hwy 23
Keene Corner Major Rehab

East Splitter Island
Westbound 0+02.12 to 6+00

Revised 1/29/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	60	11



714	4097	Pipe Conduit 15IN - Storm Drain		
		8B to 8A	54	LF
714	4101	Pipe Conduit 18IN - Storm Drain		
		8A to 1499+54 - 74.1' RT	31	LF
722	1100	Manhole Riser 48IN		
		8A	6.8	LF
722	3510	Inlet - Type 2		
		8B	1	EA
722	3713	Inlet Special Mountable - Type B 48IN		
		8A	1	EA
754	0805	Object Marker - Culverts		
		1499+54 RT	1	EA

Note: Stations and Offsets are measured from PR23A ℄ (PR23A)

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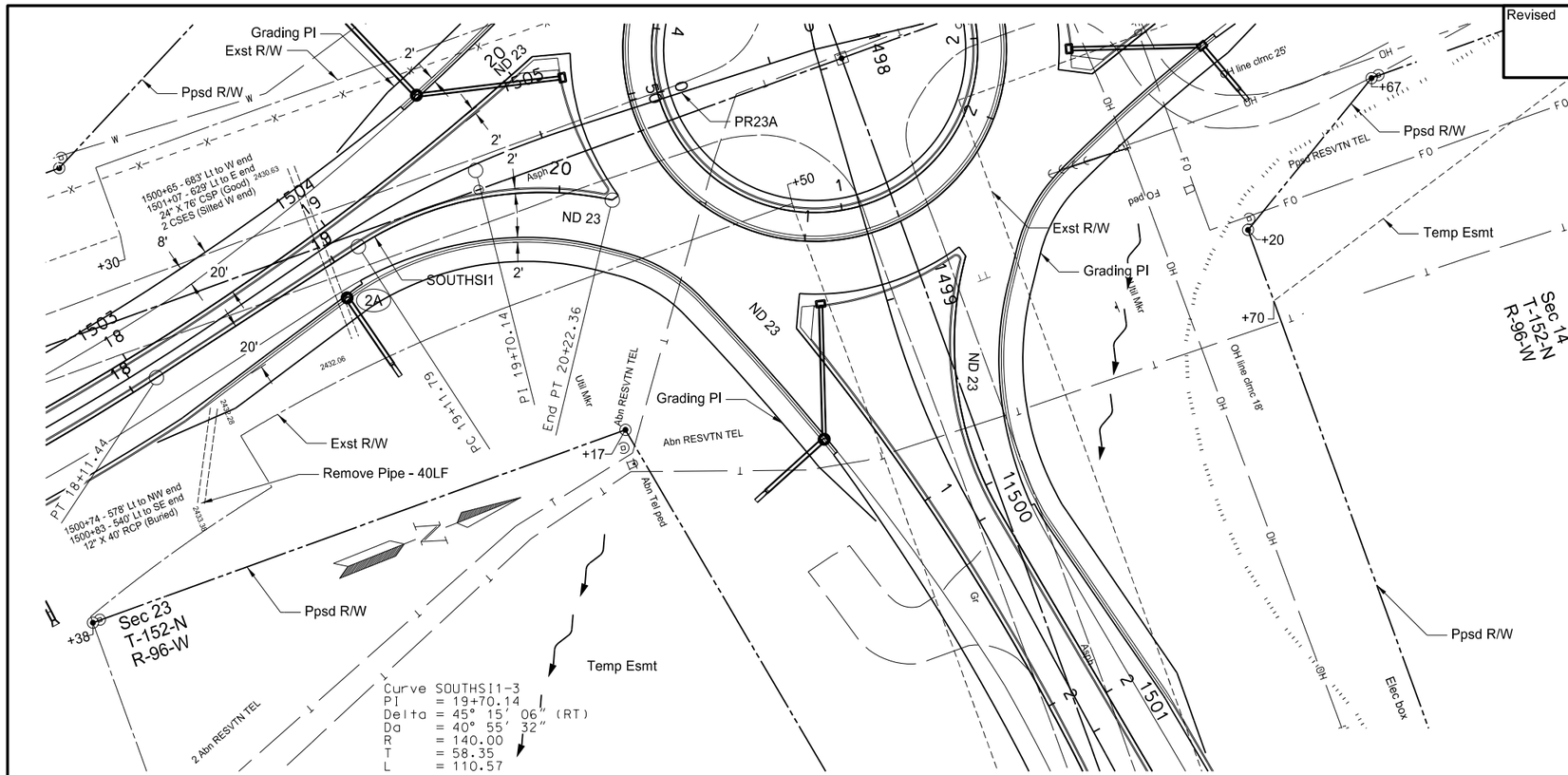
Plan & Profile

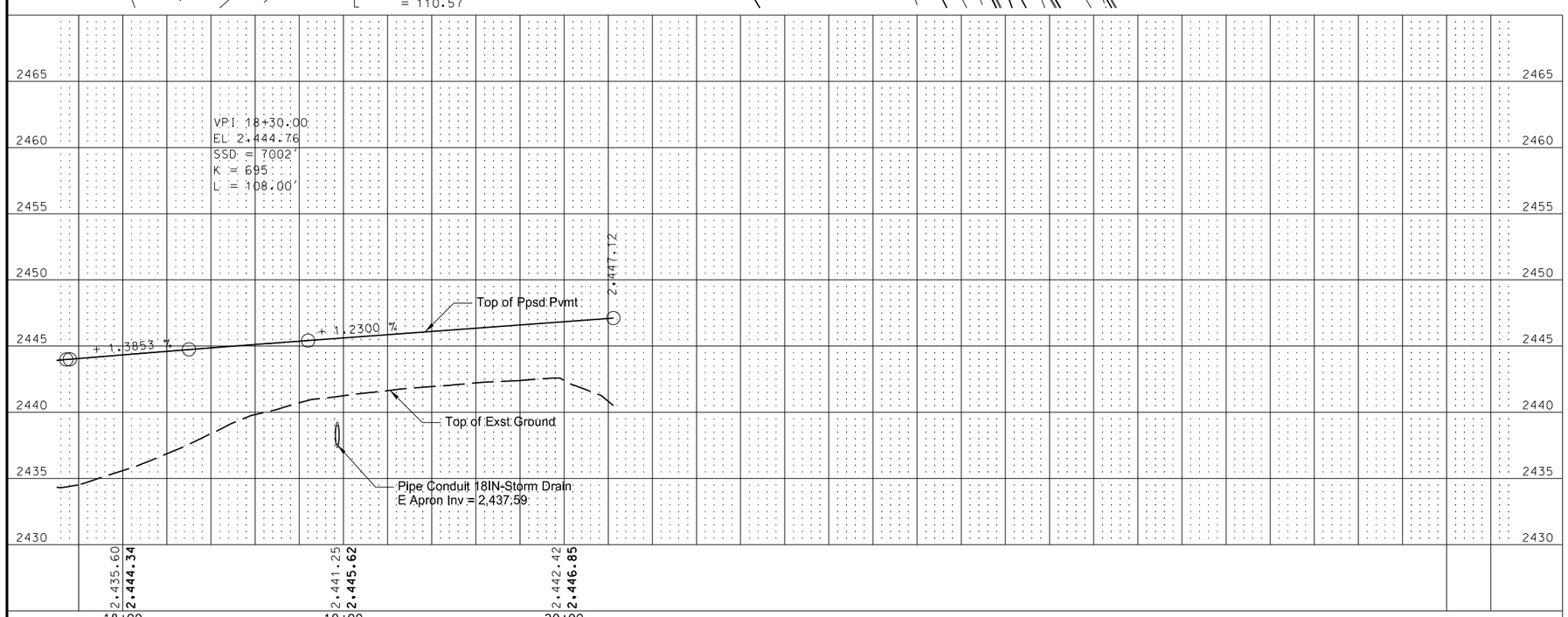
ND Hwy 23
Keene Corner Major Rehab

East Splitter Island
Eastbound 0+10.27 to 6+00

Revised 1/29/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	60	18



202	0174	Removal of Pipe All Types and Sizes		
		1500+74 - 578' LT to NW End	40	LF
714	4101	Pipe Conduit 18IN - Storm Drain		
		2A to 1503+94 - 56.2' RT	32	LF
722	1100	Manhole Riser 48IN		
		2A	7.0	LF
722	3713	Inlet Special Mountable - Type B 48IN		
		2A	1	EA
754	0805	Object Marker - Culverts		
		1503+94 RT	1	EA



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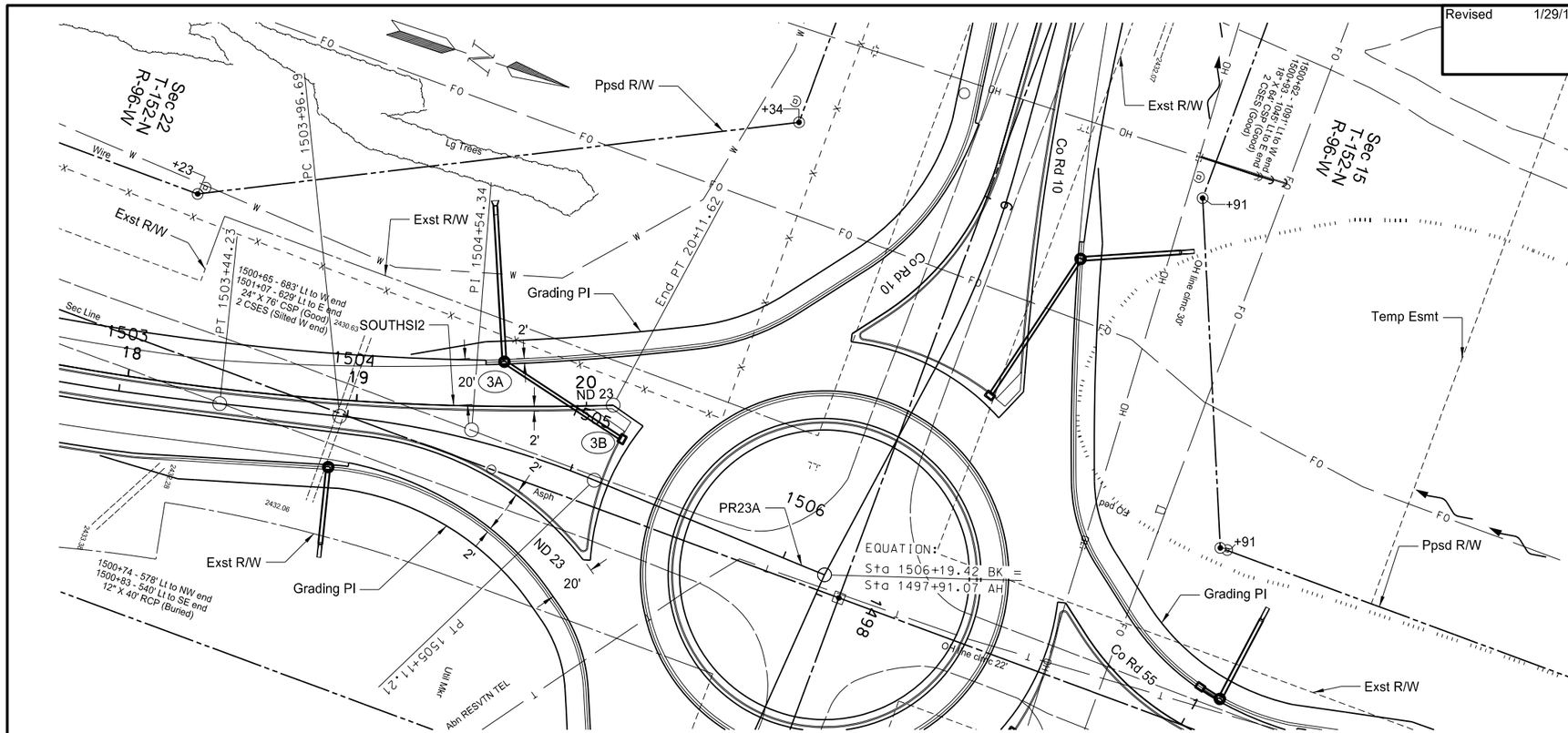
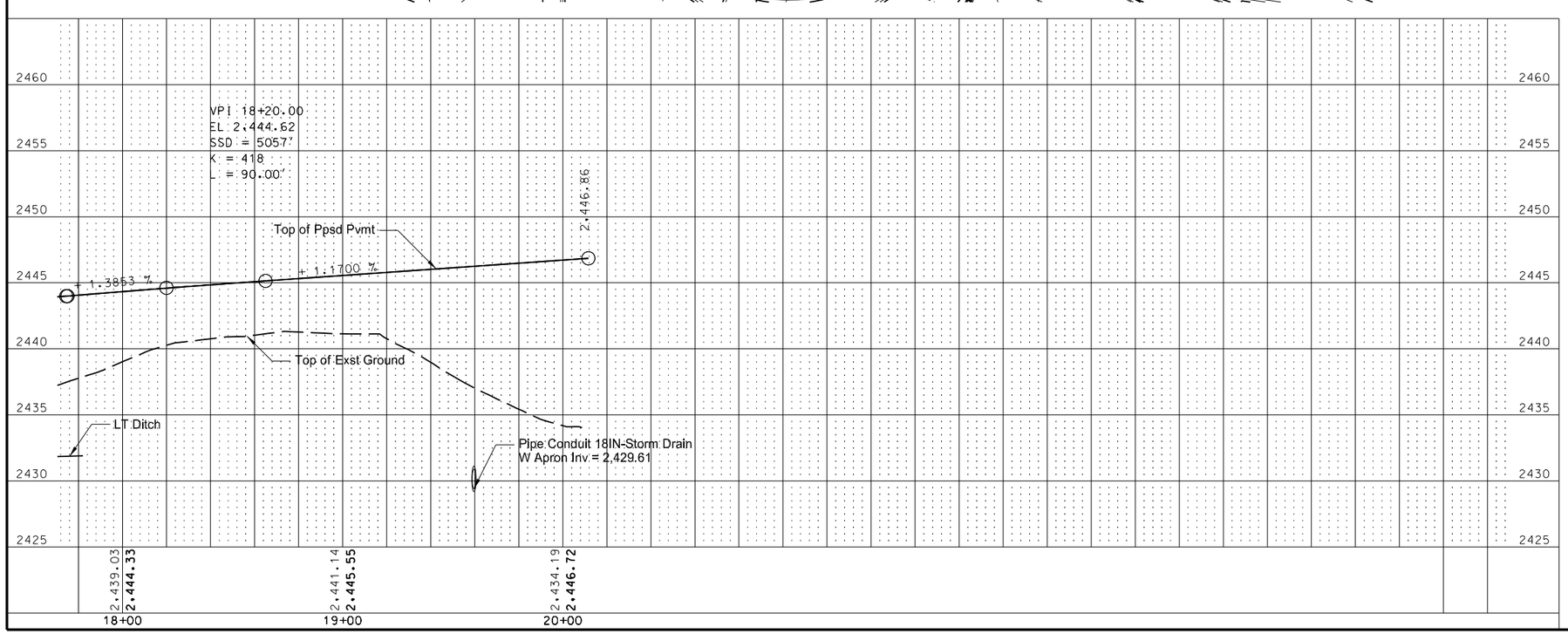
Plan & Profile

ND Hwy 23
Keene Corner Major Rehab

South Splitter Island
Northbound 18+00 to 20+22.36

Revised 1/29/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	60	22





714	4097	Pipe Conduit 15IN - Storm Drain		
		3B to 3A	59	LF
714	4101	Pipe Conduit 18IN - Storm Drain		
		3A to 1504+43 - 101.3' LT	66	LF
722	1100	Manhole Riser 48IN		
		3A	15.3	LF
722	3510	Inlet - Type 2		
		3B	1	EA
722	3713	Inlet Special Mountable - Type B 48IN		
		3A	1	EA
754	0805	Object Marker - Culverts		
		1504+43 LT	1	EA

Note: Stations and Offsets are measured from PR23A ℄ (PR23A)

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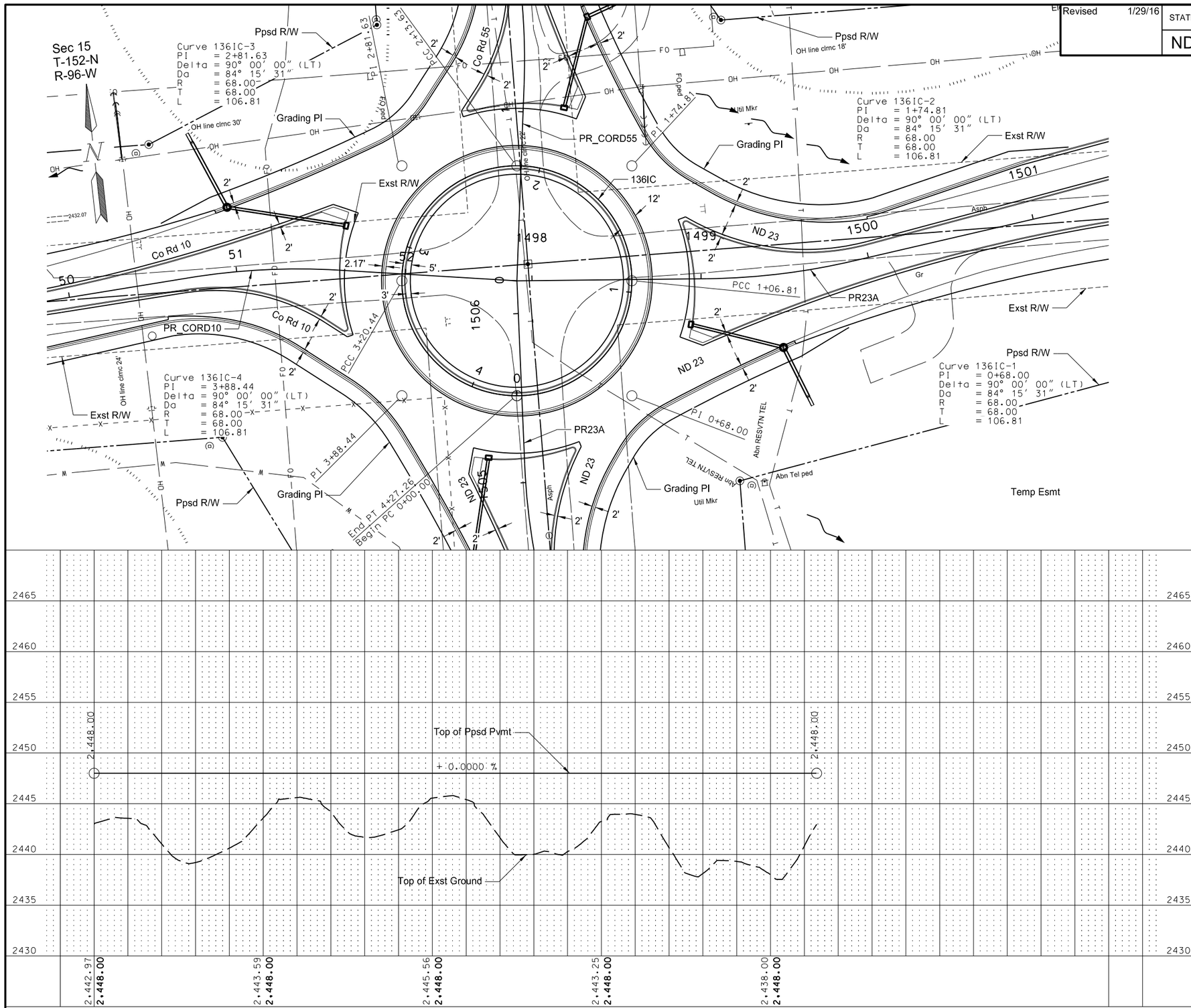
Plan & Profile

ND Hwy 23
Keene Corner Major Rehab

South Splitter Island
Southbound 18+00 to 20+11.62

Revised 1/29/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	60	23



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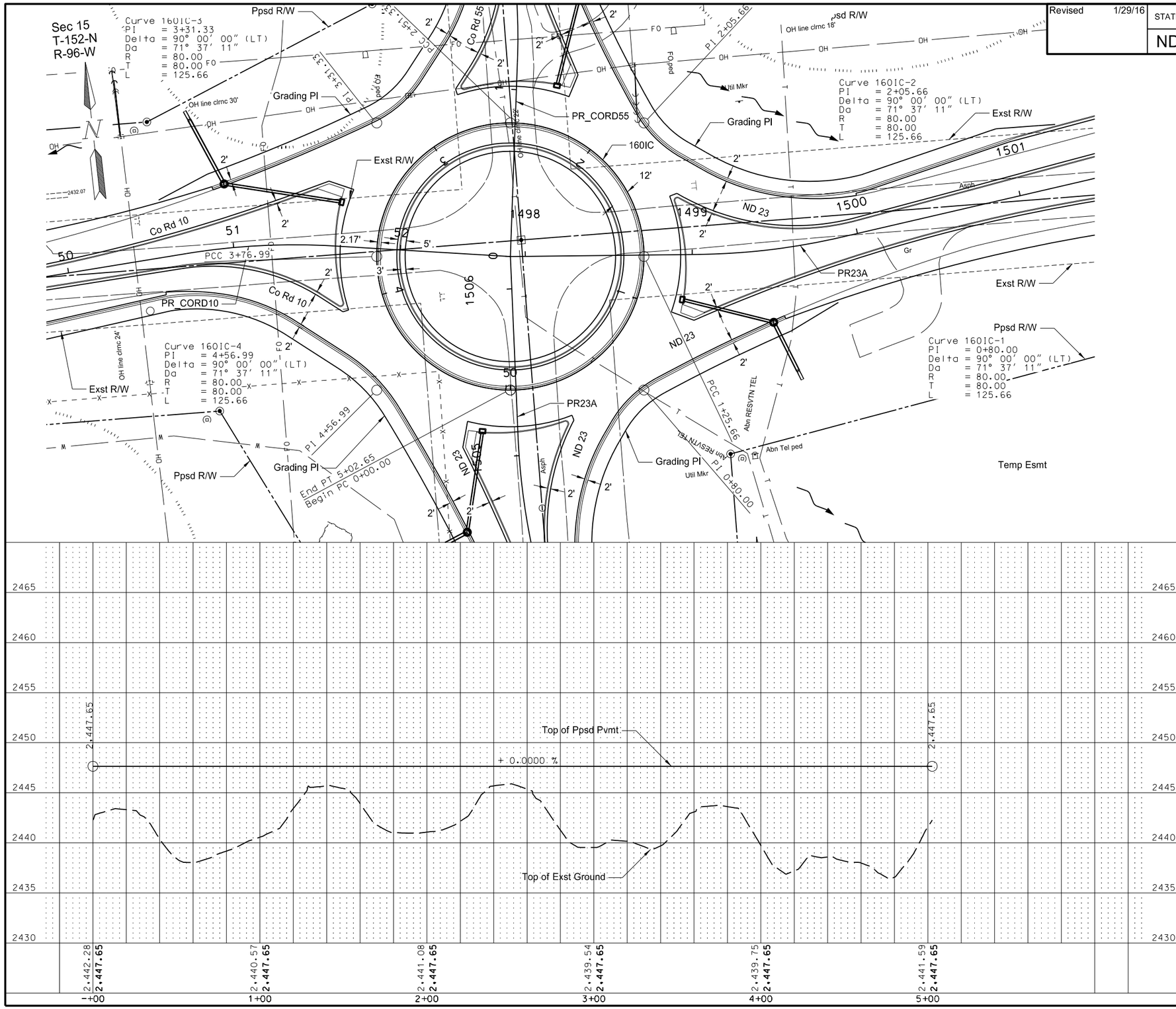
Plan & Profile

ND Hwy 23
Keene Corner Major Rehab

Truck Apron Center Island
Inner Curb 0+00 to 4+27.26

1/29/2016 9:13:05 AM kmueller I:\Projects\7751\70023027.051\Design\Addendum_A\Plan\060PP_023_PP_AD-A.dgn

Revised 1/29/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	60	24



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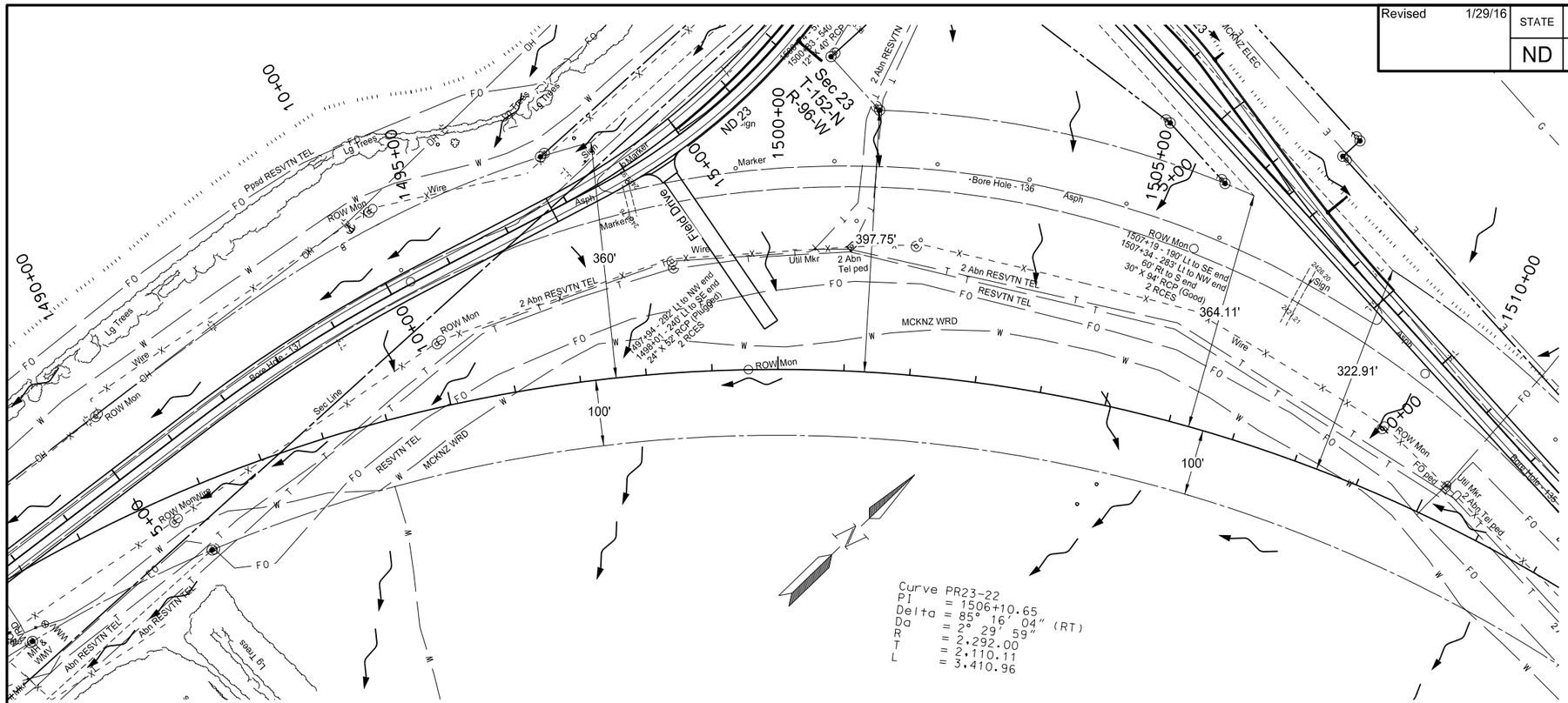
Plan & Profile

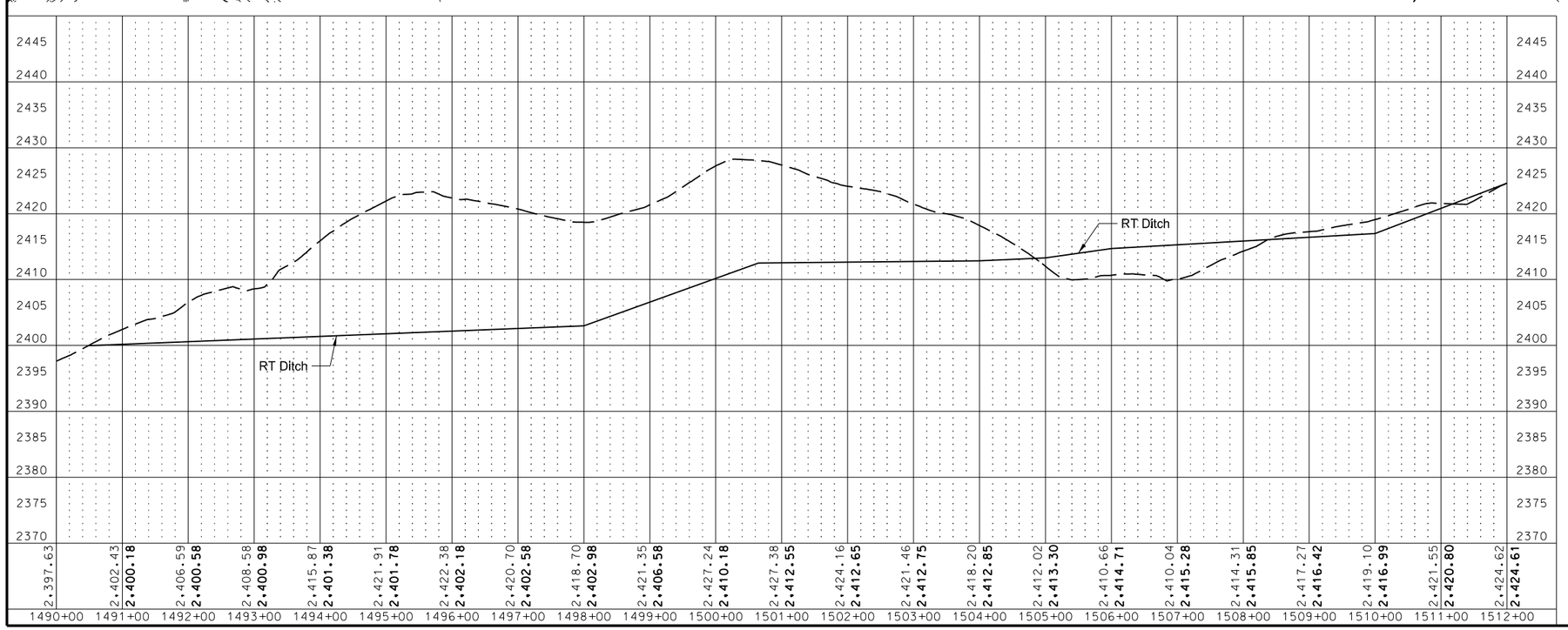
ND Hwy 23
Keene Corner Major Rehab

Truck Apron Center Island
Outer Curb 0+00 to 5+02.65

1/29/2016 9:13:07 AM kmueller I:\Projects\7751\70023027.051\Design\Addendum_A\Plan\060PP_024_PP_AD-A.dgn

Revised 1/29/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	60	31





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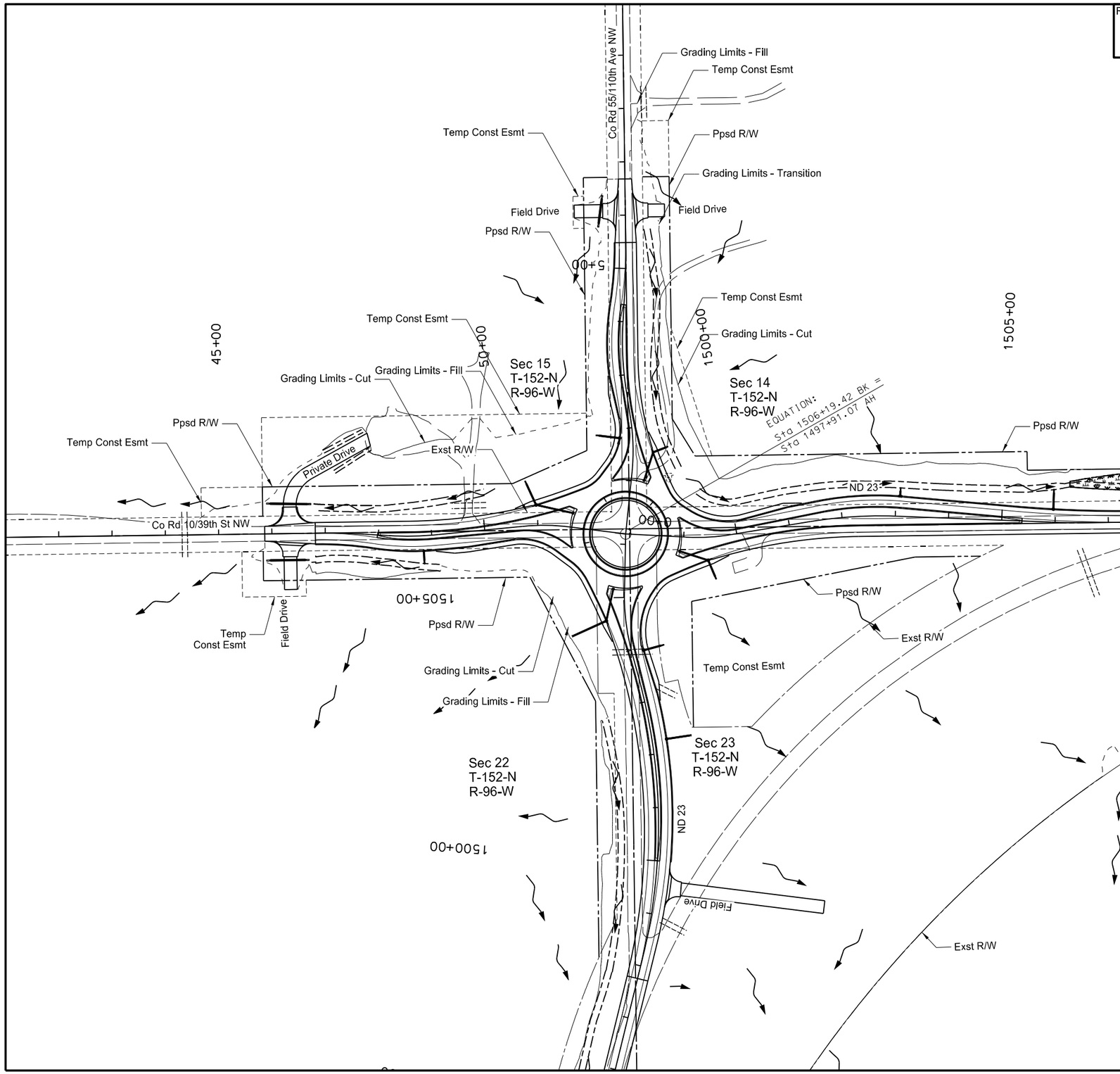
Plan & Profile

ND Hwy 23
Keene Corner Major Rehab

SE Quadrant Grading

Revised 1/29/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	75	2



LEGEND

- Grading Limits - Cut
- Grading Limits - Fill
- Grading Limits - Transition
- Other Waters
- Ditch Bottom
- Wetland Delineated Existing
- Wetland Impacts Permanent
- Wetland Impacts Temporary
- Wetland Mitigation
- Other Water Impacts Permanent
- Other Water Impacts Temporary

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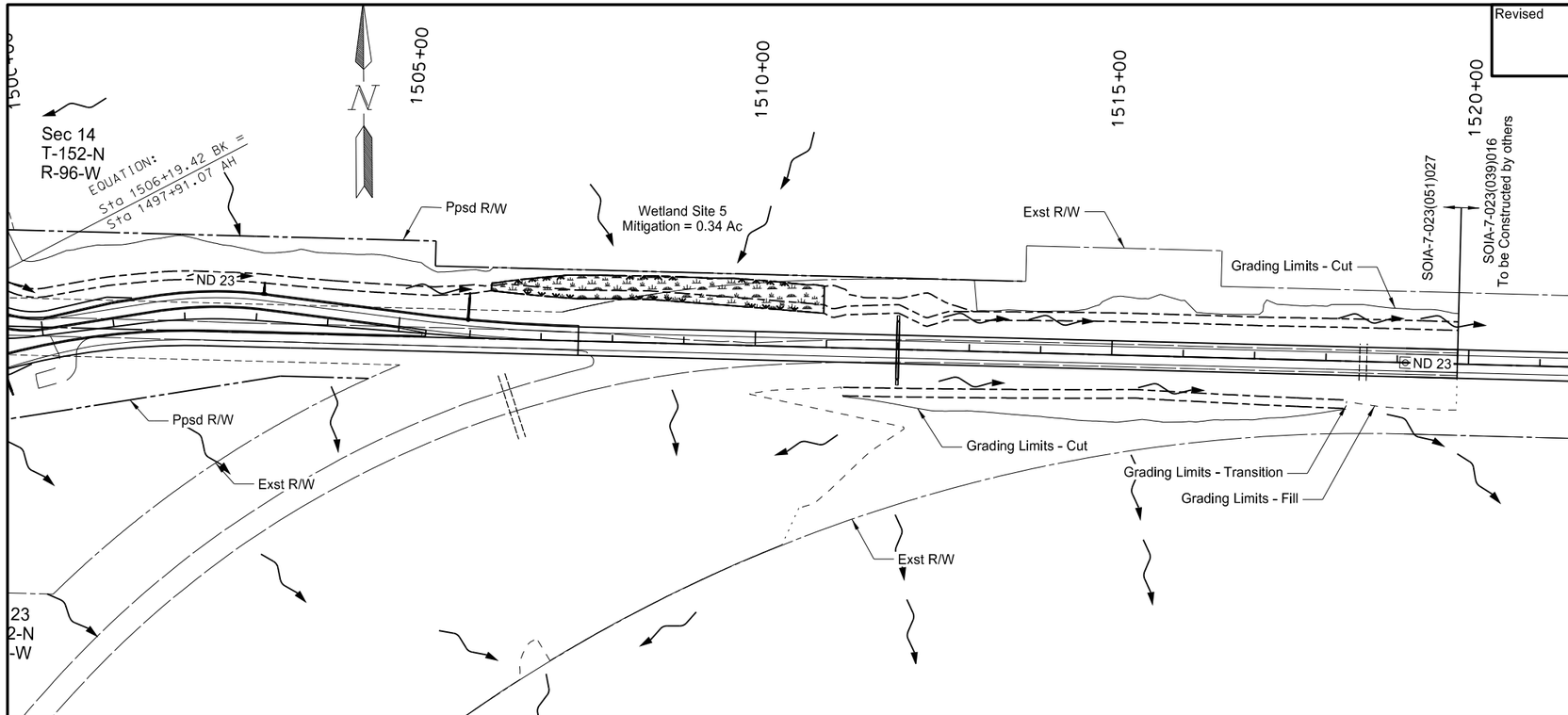
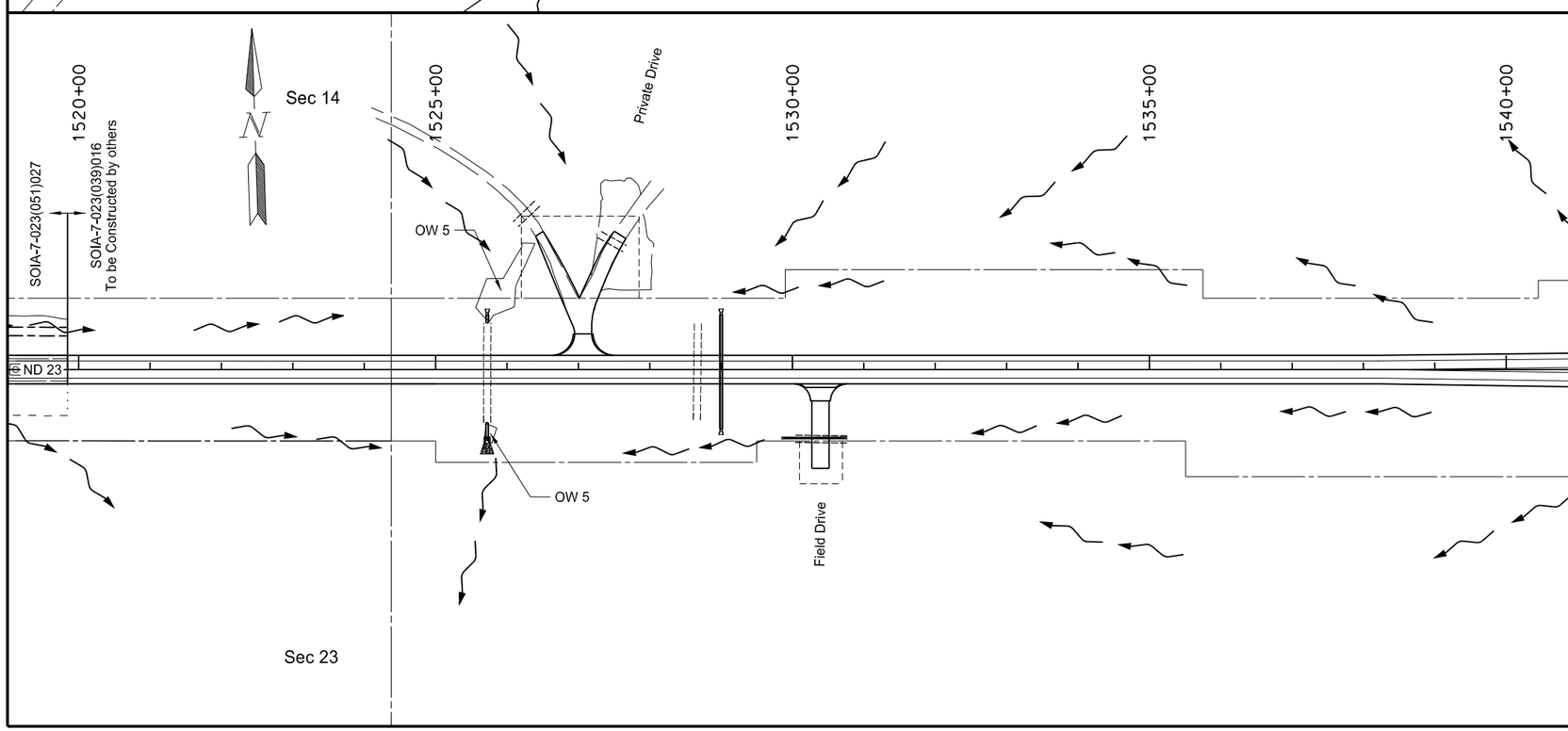
Wetland

ND Hwy 23
Keene Corner Major Rehab

1500+00 to 1505+00

Revised 1/29/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	75	3





203	0121	Topsoil - Wetland		
		1506+26 to 1510+95 (PR23A)	281	CY
251	1000	Wetland Seed		
		1506+26 to 1510+95 (PR23A)	0.34	Acre

LEGEND

- Grading Limits - Cut
- Grading Limits - Fill
- Grading Limits - Transition
- Other Waters
- Ditch Bottom
- Wetland Delineated Existing
- Wetland Impacts Permanent
- Wetland Impacts Temporary
- Wetland Mitigation
- Other Water Impacts Permanent
- Other Water Impacts Temporary

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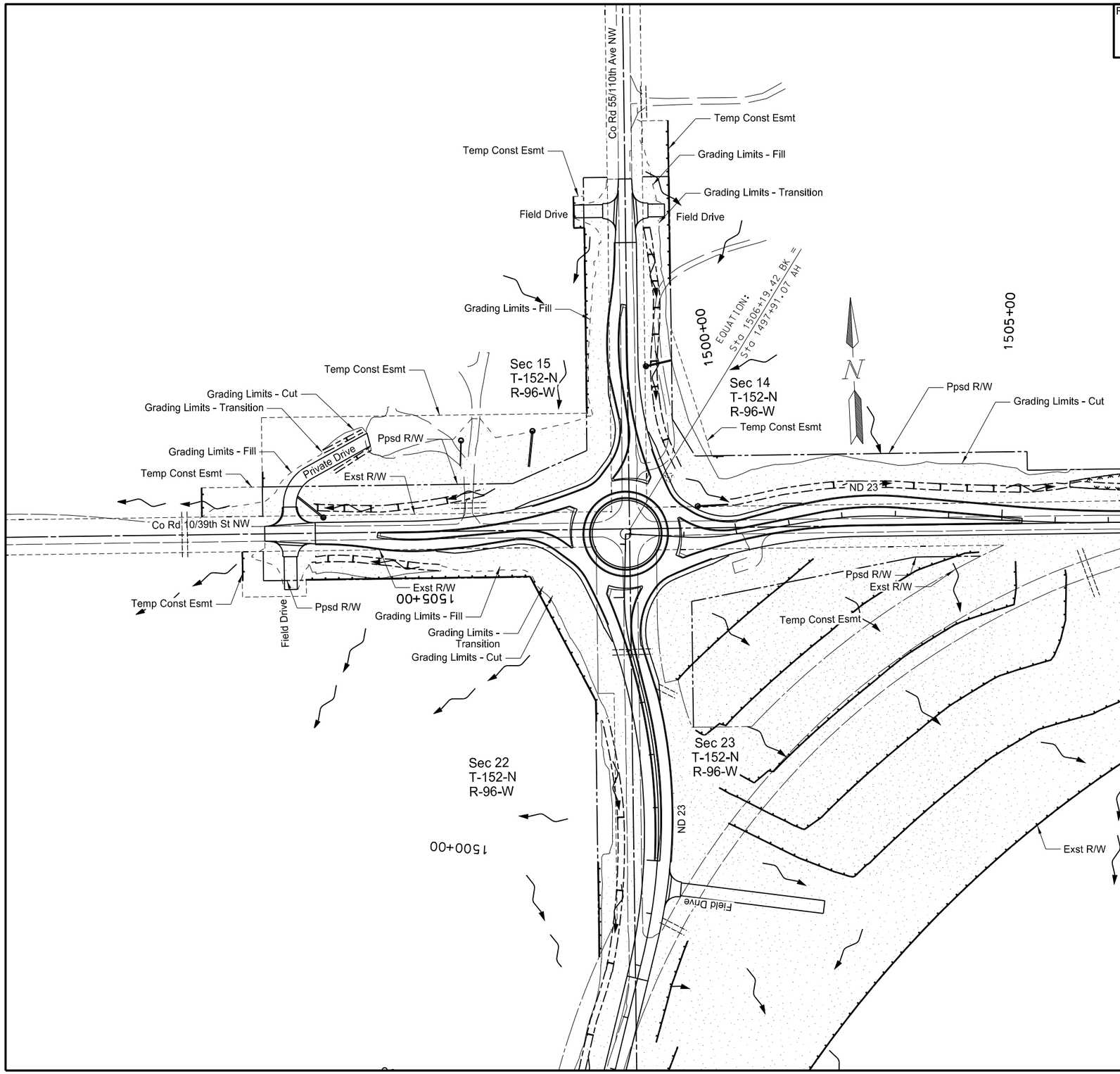
Wetland

ND Hwy 23
Keene Corner Major Rehab

1505+00 to 1520+00
1520+00 to 1540+00

Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	76	2

251	2000	Temporary Cover Crop		
		NE Quadrant	1.88	Acre
		SE Quadrant	8.76	Acre
		SW Quadrant	1.43	Acre
		NW Quadrant	2.38	Acre
253	0101	Straw Mulch		
		NE Quadrant	1.88	Acre
		SE Quadrant	8.76	Acre
		SW Quadrant	1.43	Acre
		NW Quadrant	2.38	Acre



LEGEND

- Grading Limits - Cut
- Grading Limits - Fill
- Grading Limits - Transition
- Ditch Bottom
- Flotation Silt Curtain
- Fiber Roll
- Wetland Delineated Existing
- Wetland Mitigation
- Temporary Cover Crop Straw Mulch

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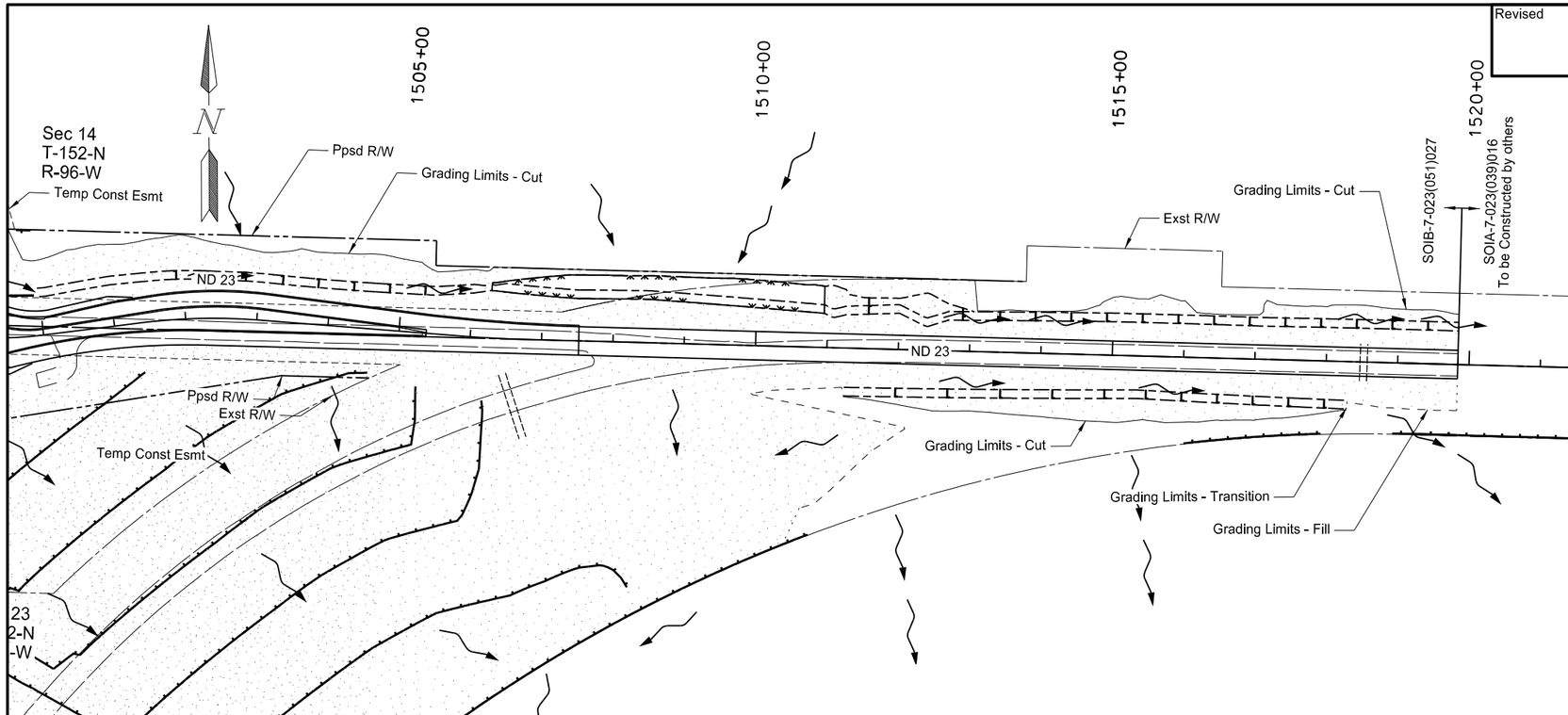
Temporary Wetland, Erosion Control and Seeding

ND Hwy 23
Keene Corner Major Rehab

1500+00 to 1500+00

Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	76	3



251	2000	Temporary Cover Crop		
		1505+00 to 1520+00 LT	1.87	Acre
		1505+00 to 1520+00 RT	6.97	Acre
253	0101	Straw Mulch		
		1505+00 to 1520+00 LT	1.87	Acre
		1505+00 to 1520+00 RT	6.97	Acre

LEGEND

- Grading Limits - Cut
- Grading Limits - Fill
- Grading Limits - Transition
- Ditch Bottom
- Flotation Silt Curtain
- Fiber Roll
- Wetland Delineated Existing
- Wetland Mitigation
- Temporary Cover Crop Straw Mulch

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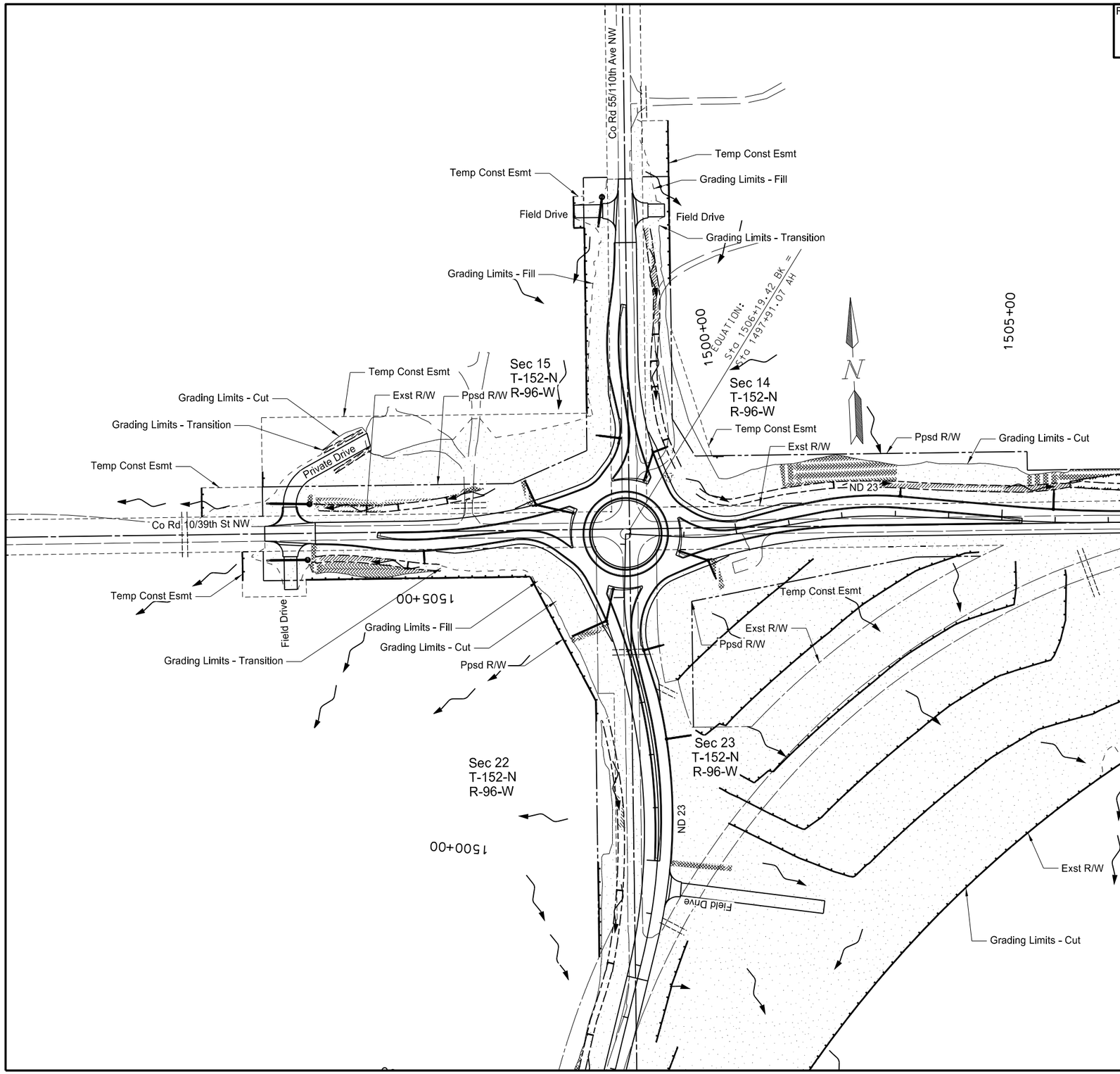
Temporary Wetland, Erosion Control and Seeding

ND Hwy 23
Keene Corner Major Rehab

1505+00 to 1520+00

Revised 1/29/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	77	2



251	0200	Seeding Class II		
		NE Quadrant	1.90	Acre
		SE Quadrant	8.76	Acre
		SW Quadrant	1.48	Acre
		NW Quadrant	2.38	Acre
253	0101	Straw Mulch		
		NE Quadrant	1.90	Acre
		SE Quadrant	8.76	Acre
		SW Quadrant	1.48	Acre
		NW Quadrant	2.38	Acre
255	0101	ECB - Type 1		
		NE Quadrant	1019	SY
		SE Quadrant	89	SY
		SW Quadrant	591	SY
		NW Quadrant	355	SY
255	0104	ECB - Type 4		
		NE Quadrant	624	SY
		SE Quadrant	0	SY
		SW Quadrant	287	SY
		NW Quadrant	303	SY

LEGEND

- Grading Limits - Cut
- Grading Limits - Fill
- Grading Limits - Transition
- Ditch Bottom
- Fiber Roll
- Wetland Delineated
- Riprap
- Erosion Control Blanket Type 1
- Erosion Control Blanket Type 4
- Seeding Class II

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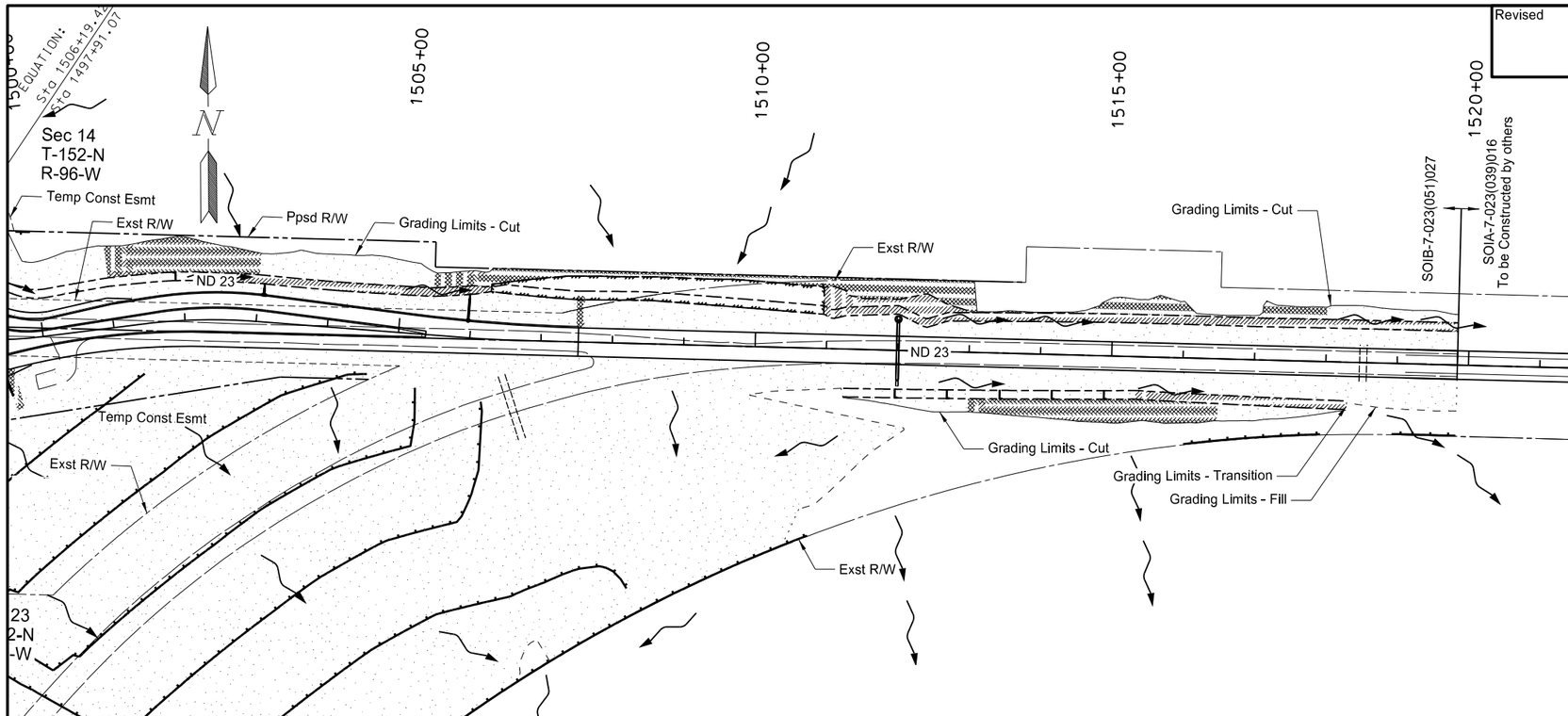
Permanent Wetland, Erosion Control and Seeding

ND Hwy 23
Keene Corner Major Rehab

1500+00 to 1505+00

Revised 1/29/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	77	3



251	0200	Seeding Class II		
		1505+00 to 1520+00 LT	1.87	Acre
		1505+00 to 1520+00 RT	6.94	Acre
253	0101	Straw Mulch		
		1505+00 to 1520+00 LT	1.87	Acre
		1505+00 to 1520+00 RT	6.94	Acre
255	0101	ECB - Type 1		
		1505+00 to 1520+00 LT	1940	SY
		1505+00 to 1520+00 RT	1074	SY
255	0104	ECB - Type 4		
		1505+00 to 1520+00 LT	1803	SY
		1505+00 to 1520+00 RT	421	SY

LEGEND

- Grading Limits - Cut
- Grading Limits - Fill
- Grading Limits - Transition
- Ditch Bottom
- Fiber Roll
- Wetland Delineated
- Riprap
- Erosion Control Blanket Type 1
- Erosion Control Blanket Type 4
- Seeding Class II

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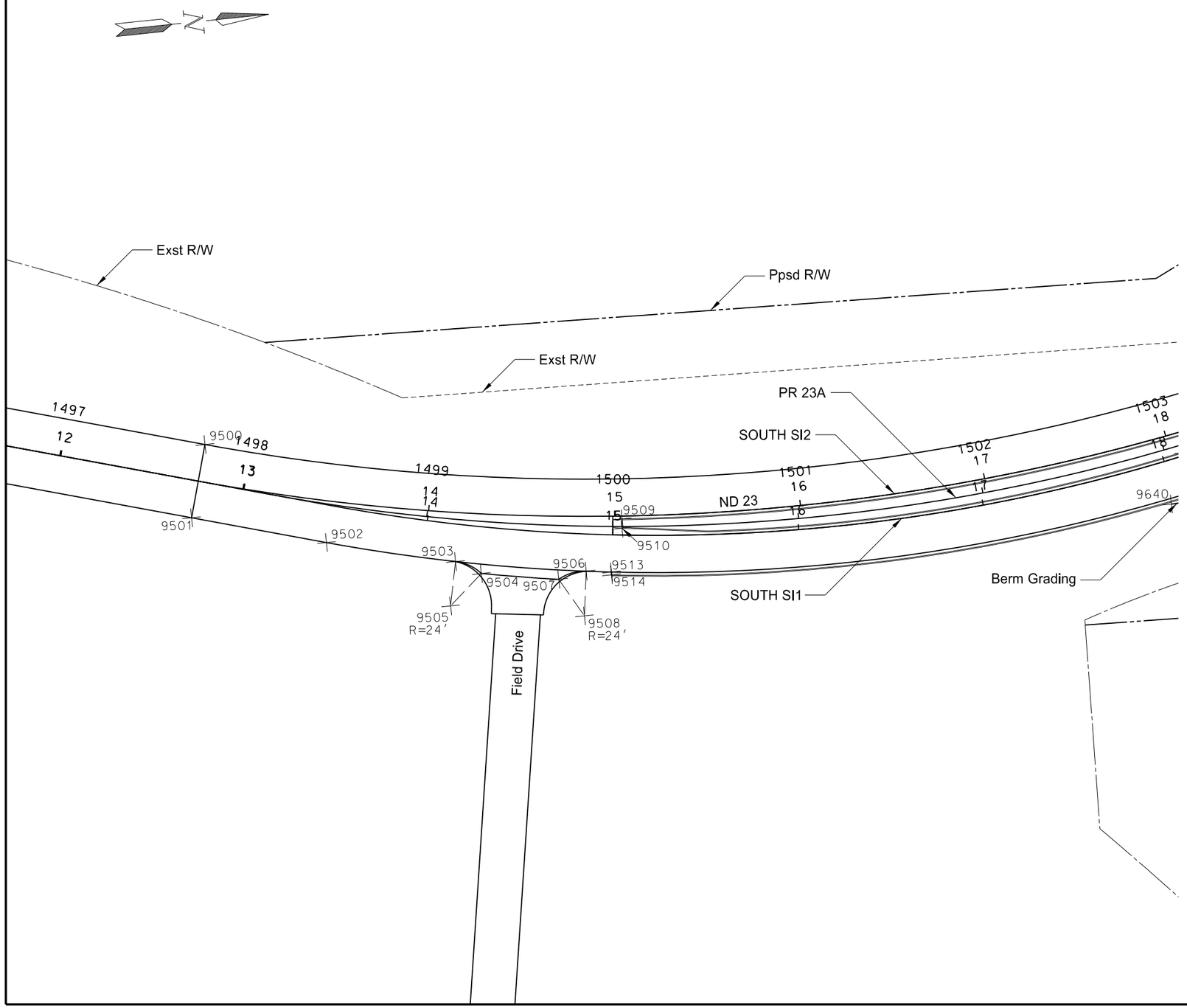
Permanent Wetland, Erosion Control and Seeding

ND Hwy 23
Keene Corner Major Rehab

1505+00 to 1520+00

Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	82	17



Point	North	East	Station	Offset
9501	365,294.68	1,370,852.88	12+75.14	20.00
9502	365,365.38	1,370,873.64	13+48.82	20.00
9503	365,433.29	1,370,890.97	14+17.49	20.00
9504	365,446.44	1,370,898.83	14+31.65	25.00
9505	365,428.19	1,370,914.42	14+17.49	44.00
9506	365,502.54	1,370,903.44	14+86.44	20.00
9507	365,487.47	1,370,906.22	14+72.28	25.00
9508	365,499.14	1,370,927.20	14+86.44	44.00
9510	365,524.06	1,370,882.42	15+04.84	-3.68
9513	365,516.08	1,370,905.28	14+99.83	20.00
9514	365,515.89	1,370,906.77	14+99.83	21.50
9640	365,819.01	1,370,900.17	17+97.34	23.00
Station and Offset from Chain SOUTHSI1				

Point	North	East	Station	Offset
9500	365,305.95	1,370,814.50	12+75.14	-20.00
9509	365,524.71	1,370,877.46	15+03.99	1.50
Station and Offset from Chain SOUTHSI2				

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Survey Data Layout

ND Hwy 23
Keene Corner Major Rehab

ND 23
1497+00 to 1503+00

Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	82	18

Point	North	East	Station	Offset
9515	366,021.82	1,370,895.10	0+39.59	41.42
9521	366,032.36	1,370,818.00	4+87.48	26.77
9525	366,028.16	1,370,899.78	0+44.17	37.49
9526	366,050.96	1,370,929.14	0+69.78	35.30
9527	366,051.46	1,370,771.85	4+51.24	33.62
9528	366,086.06	1,370,744.71	4+20.35	35.42
9529	366,134.37	1,370,849.53	1+31.64	-80.00
9532	366,094.52	1,370,948.71	1+03.91	26.88
9555	366,183.57	1,370,958.24	1+68.48	39.32
9556	366,211.90	1,370,935.45	1+93.21	35.73
9557	366,232.68	1,370,891.45	2+27.90	26.88
9570	366,224.81	1,370,776.66	3+14.40	36.15
9571	366,246.20	1,370,807.15	2+89.12	39.60
9628	366,180.90	1,370,753.32	3+49.77	26.87
Station and Offset from Chain 160IC				

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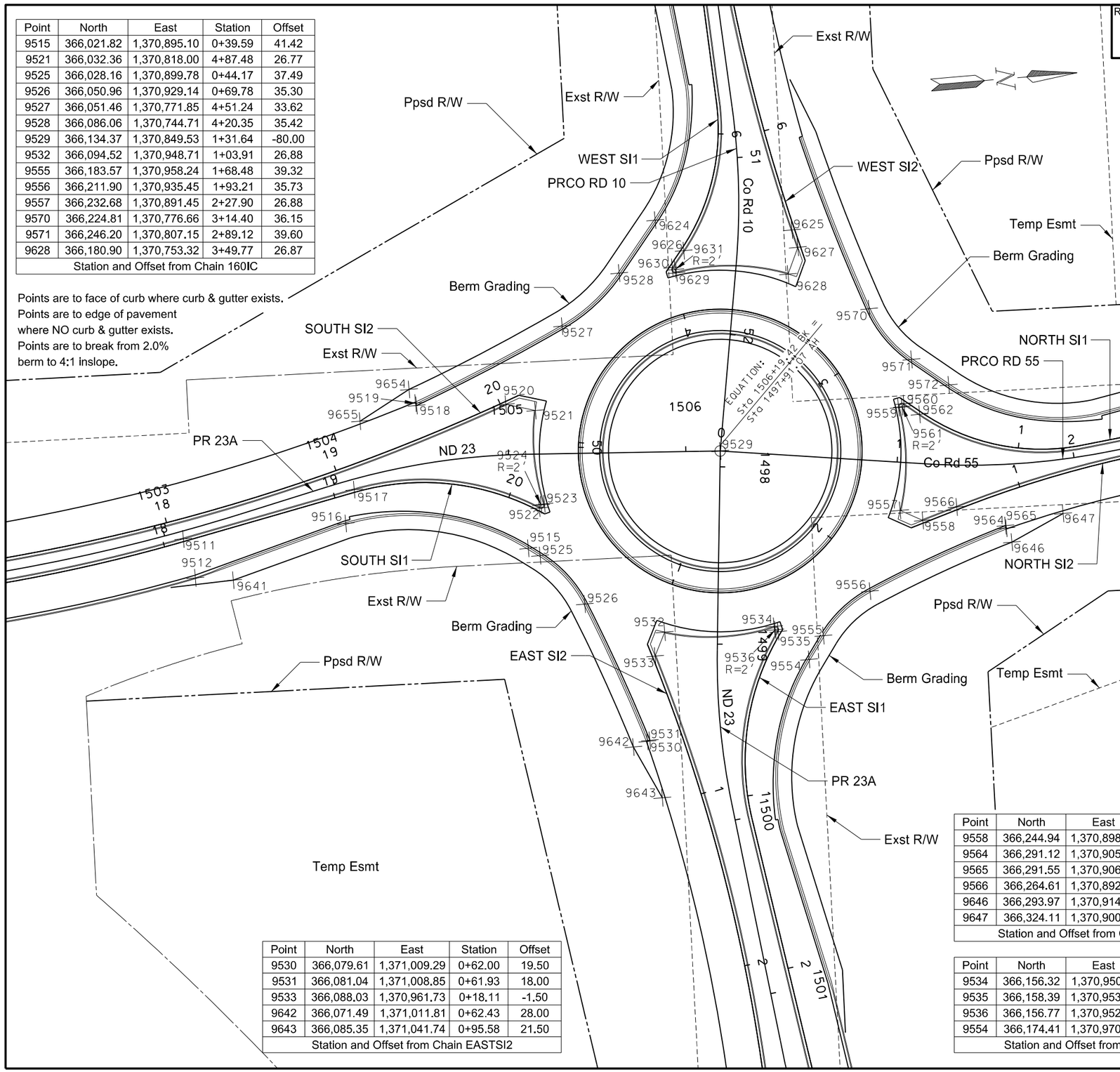

Point	North	East	Station	Offset
9511	365,828.41	1,370,873.43	18+11.44	-1.50
9512	365,833.30	1,370,895.91	18+11.85	21.50
9516	365,920.43	1,370,872.47	19+01.88	15.50
9517	365,926.83	1,370,853.86	19+11.79	-1.50
9522	366,030.02	1,370,873.03	20+18.16	-1.50
9523	366,033.03	1,370,870.88	20+19.52	-4.94
9524	366,031.09	1,370,871.34	20+18.16	-3.50
9641	365,854.51	1,370,899.00	18+32.05	28.67
Station and Offset from Chain SOUTHSI1				

Point	North	East	Station	Offset
9518	365,965.89	1,370,809.51	19+56.09	-18.00
9519	365,965.36	1,370,808.10	19+56.01	-19.50
9520	366,016.06	1,370,813.08	20+02.80	1.50
9654	365,962.39	1,370,800.14	19+55.57	-28.00
9655	365,933.32	1,370,815.64	19+22.55	-21.50
Station and Offset from Chain SOUTHSI2				

Point	North	East	Station	Offset
9624	366,108.77	1,370,716.67	6+62.82	21.36
9626	366,123.36	1,370,735.19	6+69.17	-1.50
9629	366,118.29	1,370,747.27	6+81.74	-5.16
9630	366,116.15	1,370,744.10	6+80.63	-1.50
9631	366,117.71	1,370,745.36	6+80.63	-3.50
Station and Offset from Chain WESTSI1				

Point	North	East	Station	Offset
9625	366,185.20	1,370,728.67	6+58.01	1.50
9627	366,187.70	1,370,738.72	6+68.37	1.50
Station and Offset from Chain WESTSI2				

Point	North	East	Station	Offset
9559	366,236.67	1,370,833.57	0+28.98	5.01
9560	366,239.90	1,370,831.68	0+30.29	1.50
9561	366,238.64	1,370,833.23	0+30.29	3.50
9562	366,248.18	1,370,838.42	0+40.97	1.50
9572	366,265.96	1,370,823.24	0+46.08	-21.41
Station and Offset from Chain NORTHSI1				

Point	North	East	Station	Offset
9558	366,244.94	1,370,898.20	0+42.15	-1.50
9564	366,291.12	1,370,905.05	0+85.04	18.00
9565	366,291.55	1,370,906.49	0+85.09	19.50
9566	366,264.61	1,370,892.27	0+62.69	-1.50
9646	366,293.97	1,370,914.64	0+85.37	28.00
9647	366,324.11	1,370,900.93	1+19.18	21.50
Station and Offset from Chain NORTHSI2				

Point	North	East	Station	Offset
9530	366,079.61	1,371,009.29	0+62.00	19.50
9531	366,081.04	1,371,008.85	0+61.93	18.00
9533	366,088.03	1,370,961.73	0+18.11	-1.50
9642	366,071.49	1,371,011.81	0+62.43	28.00
9643	366,085.35	1,371,041.74	0+95.58	21.50
Station and Offset from Chain EASTSI2				

Point	North	East	Station	Offset
9534	366,156.32	1,370,950.71	0+03.17	5.01
9535	366,158.39	1,370,953.83	0+04.45	1.50
9536	366,156.77	1,370,952.66	0+04.45	3.50
9554	366,174.41	1,370,970.93	0+09.74	-21.42
Station and Offset from Chain EASTSI1				

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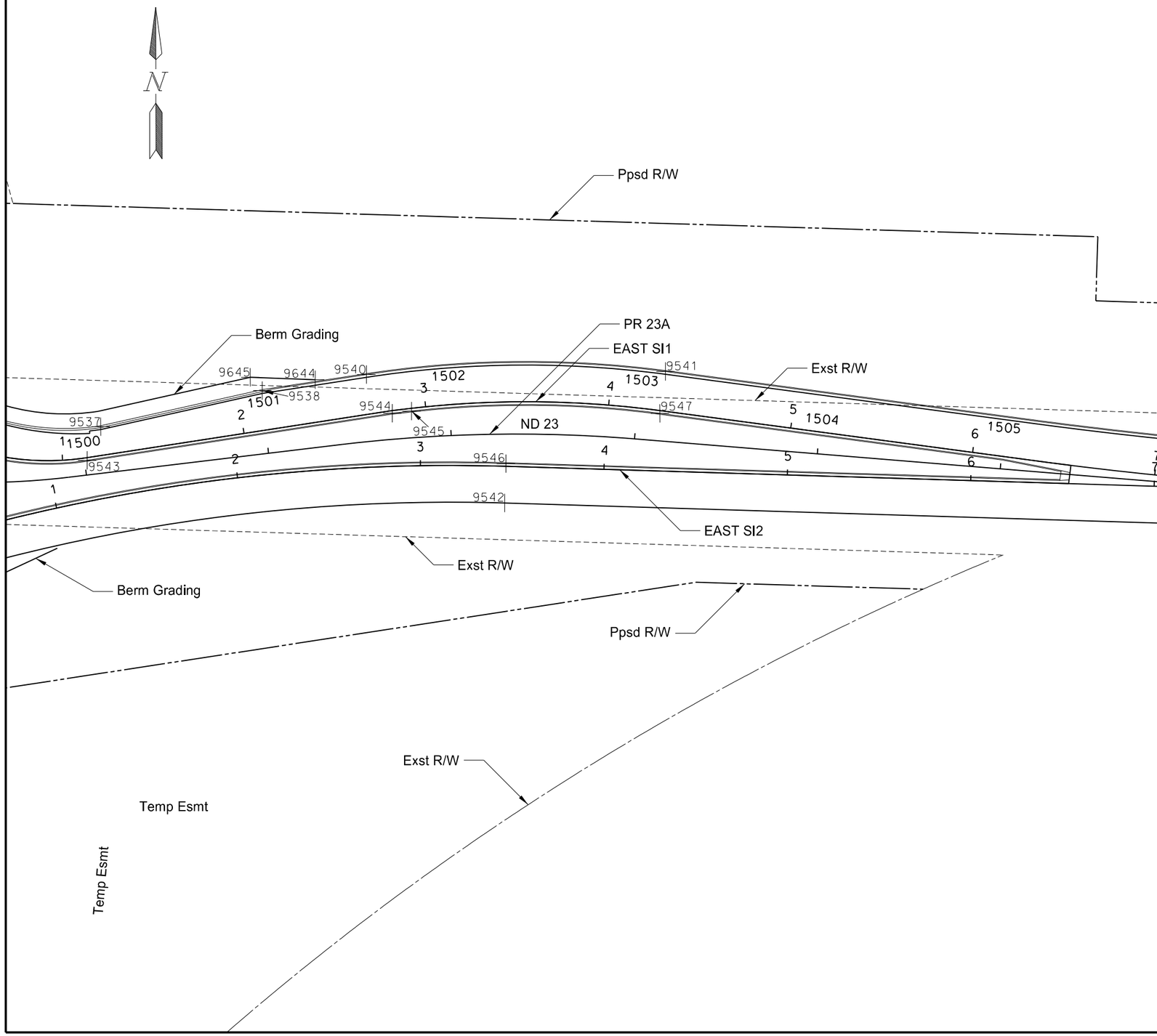
Survey Data Points

ND Hwy 23
Keene Corner Major Rehab

ND 23
1503+00 to 1500+00

Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	82	19



Point	North	East	Station	Offset
9537	366,151.59	1,371,065.47	1+23.34	-15.50
9538	366,171.14	1,371,153.55	2+13.37	-21.50
9540	366,179.83	1,371,210.34	2+70.81	-21.50
9541	366,181.26	1,371,373.33	4+28.22	-21.50
9543	366,133.26	1,371,058.04	1+13.22	1.50
9544	366,158.71	1,371,224.37	2+81.55	1.50
9545	366,159.91	1,371,234.93	2+92.17	1.50
9547	366,158.47	1,371,370.25	4+28.22	1.50
9644	366,177.08	1,371,182.44	2+42.82	-23.00
9645	366,178.40	1,371,147.04	2+08.02	-29.66
Station and Offset from Chain EASTSI1				

Point	North	East	Station	Offset
9542	366,109.70	1,371,285.59	3+46.50	20.00
9546	366,131.19	1,371,286.28	3+46.50	-1.50
Station and Offset from Chain EASTSI2				

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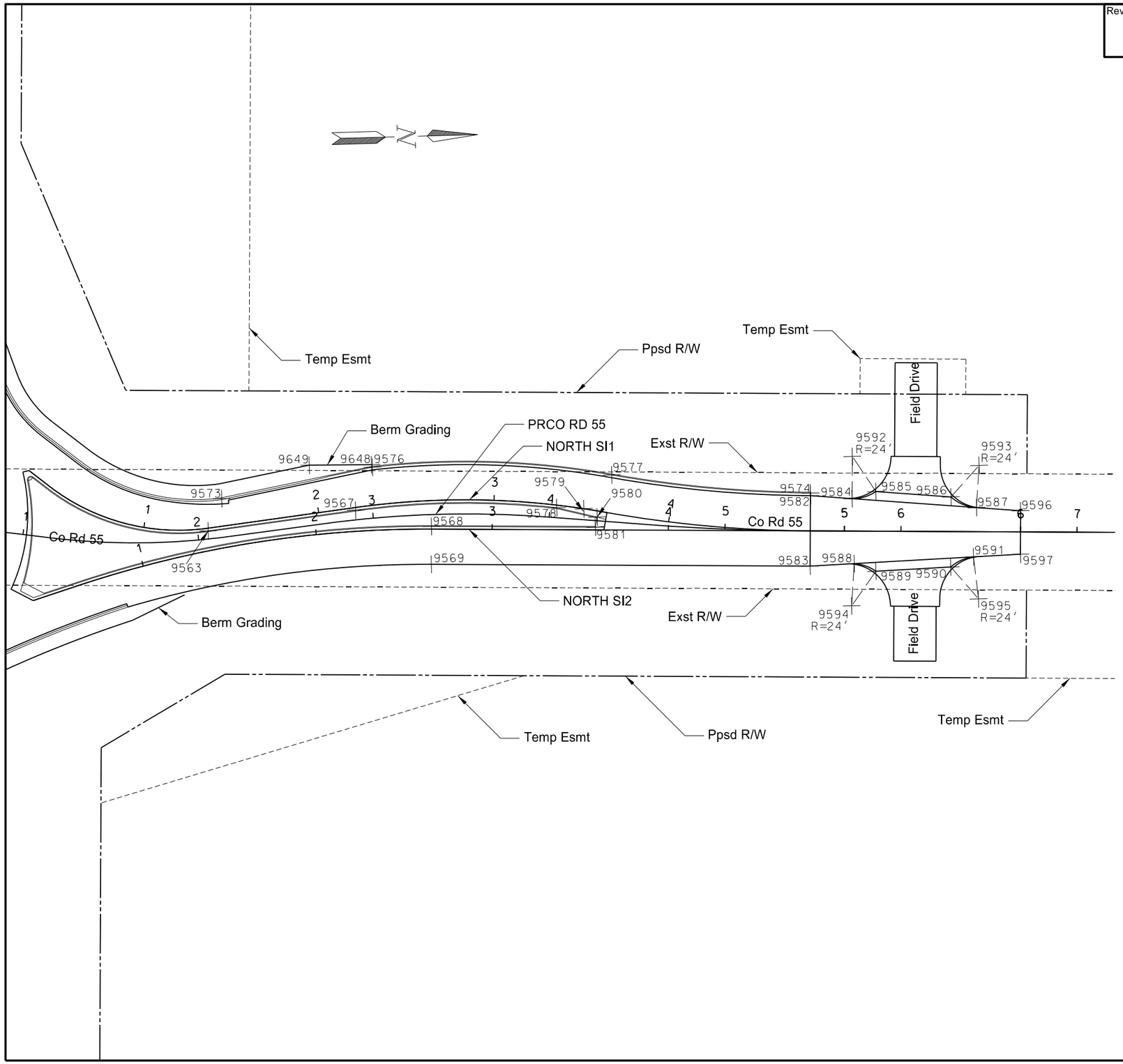
Survey Data Points

ND Hwy 23
Keene Corner Major Rehab

ND 23
1500+00 to 1505+00

Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	82	21



Point	North	East	Station	Offset
9563	366,338.50	1,370,864.97	1+36.45	1.50
9567	366,422.50	1,370,855.52	2+20.98	1.50
9573	366,346.64	1,370,846.95	1+46.56	-15.50
9574	366,680.95	1,370,852.94	4+80.62	-21.50
9576	366,432.74	1,370,831.41	2+33.26	-21.50
9577	366,568.42	1,370,839.55	3+63.44	-21.50
9578	366,536.71	1,370,857.32	3+35.90	1.50
9579	366,552.06	1,370,858.28	3+51.23	0.00
9580	366,559.52	1,370,863.22	3+59.51	3.47
9582	366,680.90	1,370,854.44	4+80.62	-20.00
9584	366,704.52	1,370,856.79	5+04.30	-18.42
9585	366,718.09	1,370,853.11	5+17.74	-22.54
9586	366,760.65	1,370,857.33	5+60.41	-19.69
9587	366,774.98	1,370,863.78	5+74.94	-13.71
9592	366,705.30	1,370,832.80	5+04.30	-42.42
9593	366,777.12	1,370,839.87	5+76.31	-37.67
9596	366,799.98	1,370,866.26	6+00.01	-12.04
9648	366,432.17	1,370,829.98	2+32.84	-22.97
9649	366,396.89	1,370,829.24	1+98.47	-27.48
Station and Offset from Chain NORTHSI1				

Point	North	East	Station	Offset
9568	366,465.30	1,370,865.99	2+65.51	-1.50
9569	366,464.61	1,370,887.48	2+65.51	20.00
9581	366,558.33	1,370,868.99	3+58.58	-1.50
9583	366,679.61	1,370,894.42	4+80.62	20.00
9588	366,704.70	1,370,893.70	5+05.67	18.47
9589	366,716.89	1,370,898.35	5+18.01	22.72
9590	366,759.41	1,370,897.12	5+60.46	20.12
9591	366,772.51	1,370,891.74	5+73.39	14.32
9594	366,702.56	1,370,917.60	5+04.31	42.43
9595	366,774.67	1,370,915.65	5+76.31	38.14
9597	366,799.16	1,370,890.98	6+00.00	12.69
Station and Offset from Chain NORTHSI2				

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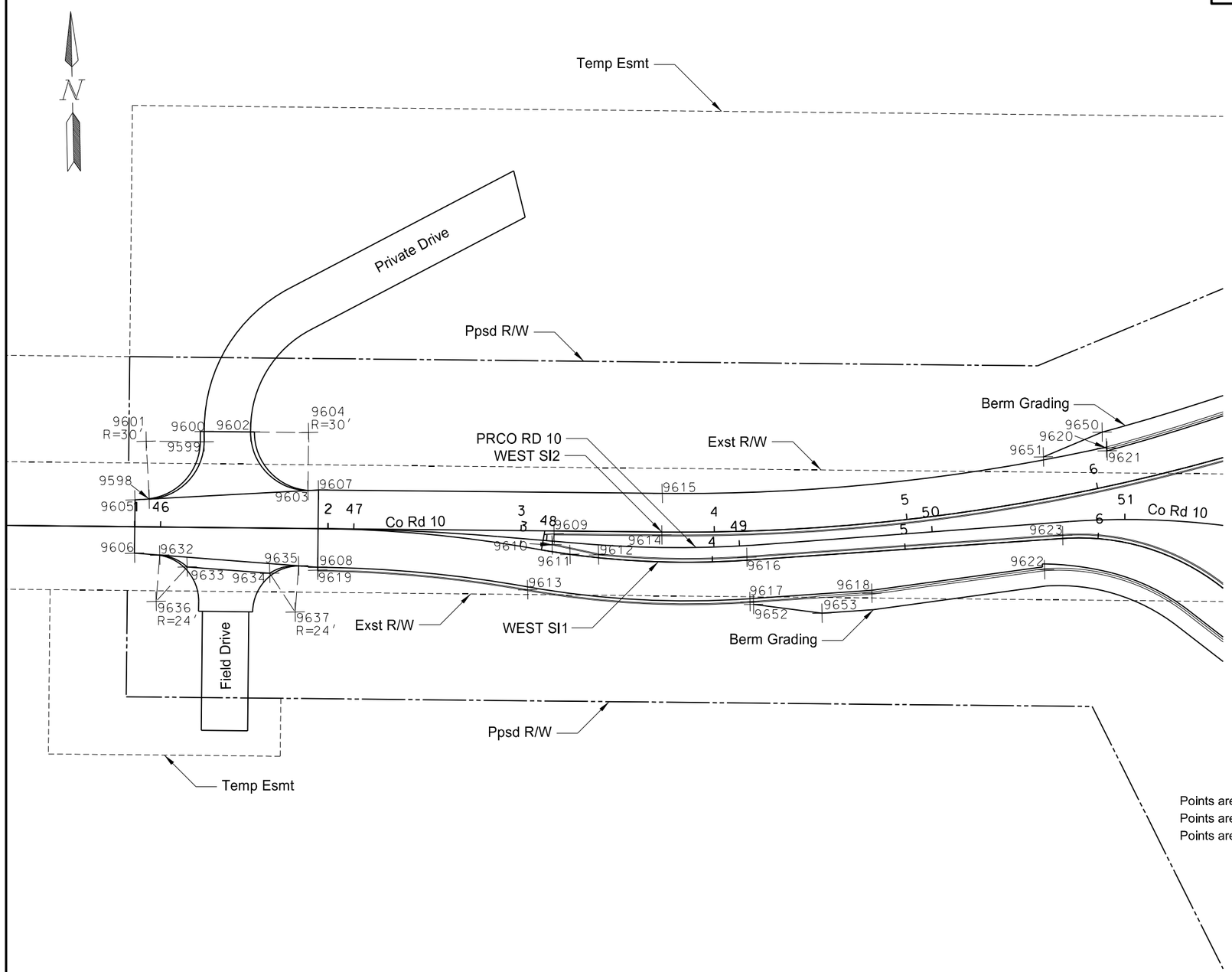
Survey Data Points

ND Hwy 23
Keene Corner Major Rehab

Co Rd 55
1+00 to 7+00

Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	82	22



Point	North	East	Station	Offset
9606	366,151.66	1,370,172.50	1+00.00	13.67
9608	366,142.30	1,370,267.16	1+94.92	20.00
9610	366,151.23	1,370,388.67	3+16.19	-3.50
9611	366,146.13	1,370,397.81	3+26.09	0.00
9612	366,145.55	1,370,412.59	3+40.83	-1.50
9613	366,128.29	1,370,375.53	3+07.75	21.50
9616	366,142.58	1,370,489.35	4+18.00	-1.50
9617	366,119.61	1,370,490.44	4+18.00	21.50
9618	366,122.58	1,370,553.62	4+81.25	21.50
9619	366,140.80	1,370,267.11	1+94.92	21.50
9622	366,132.82	1,370,643.26	5+71.28	15.50
9623	366,150.30	1,370,653.02	5+81.85	-1.50
9632	366,150.37	1,370,185.52	1+13.05	14.54
9633	366,143.96	1,370,199.62	1+27.35	20.51
9634	366,139.74	1,370,242.24	1+70.09	23.36
9635	366,143.27	1,370,257.33	1+85.05	19.34
9636	366,126.49	1,370,183.15	1+11.46	38.49
9637	366,119.39	1,370,254.96	1+83.46	43.29
9652	366,118.19	1,370,492.25	4+19.75	23.00
9653	366,112.85	1,370,527.58	4+54.79	30.00
Station and Offset from Chain WESTSI1				

Point	North	East	Station	Offset
9598	366,179.46	1,370,180.71	1+07.32	-14.38
9599	366,208.49	1,370,209.79	1+35.46	-44.32
9600	366,213.82	1,370,209.96	1+35.46	-49.65
9601	366,209.45	1,370,179.80	1+05.46	-44.32
9602	366,213.05	1,370,233.95	1+59.46	-49.65
9603	366,182.11	1,370,262.97	1+89.46	-19.65
9604	366,212.09	1,370,263.93	1+89.46	-49.65
9605	366,179.23	1,370,173.38	1+00.00	-13.91
9607	366,182.28	1,370,268.44	1+94.92	-20.00
9609	366,156.89	1,370,389.85	3+17.08	1.50
9614	366,155.10	1,370,445.61	3+72.86	1.50
9615	366,176.59	1,370,446.29	3+72.86	-20.00
9620	366,195.07	1,370,676.64	6+08.96	-19.50
9621	366,193.61	1,370,677.00	6+09.03	-18.00
9650	366,203.32	1,370,674.61	6+08.57	-28.00
9651	366,191.15	1,370,643.95	5+75.43	-21.50
Station and Offset from Chain WESTSI2				

Points are to face of curb where curb & gutter exists.
Points are to edge of pavement where NO curb & gutter exists.
Points are to break from 2.0% berm to 4:1 inslope.

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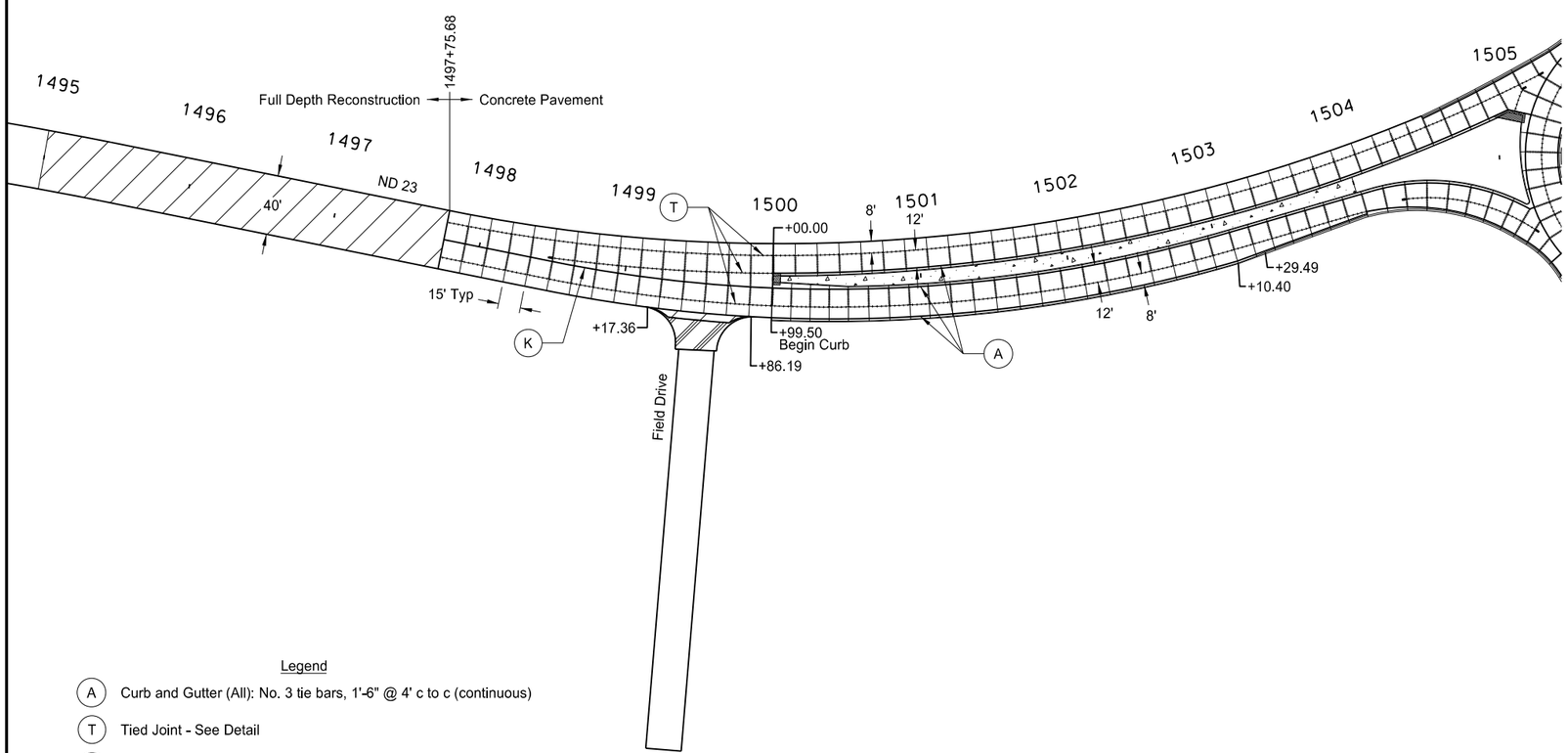
Survey Data Points

ND Hwy 23
Keene Corner Major Rehab

Co Rd 10
46+00 to 51+00

Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	90	2



302	0100	Salvaged Base Course		
		1495+00 to 1504+00	4099	TON
		1499+52.25 RT	76	TON
		1500+00 to 1504+00 Median	373	TON
401	0050	Tack Coat		
		1495+00 to 1497+75.68	209	GAL
		1499+52.25 RT	4	GAL
401	0060	Prime Coat		
		1495+00 to 1497+75.68	348	GAL
		1499+52.25 RT	9	GAL
430	0045	Superpave FAA 45		
		1495+00 to 1497+75.68	581	TON
		1499+52.25 RT	11	TON
430	5828	PG 58-28 Asphalt Cement		
		1495+00 to 1497+75.68	27	TON
		1499+52.25 RT	1	TON
430	6434	PG 64-34 Asphalt Cement		
		1495+00 to 1497+75.68	9	TON
550	0312	10.5IN Non Reinf Concrete Pvmt CL AE-Doweled		
		1497+75.68 to 1504+00	2868	SY
748	0120	Curb & Gutter Mountable -Type 1		
		1503+29.49 to 1504+00 RT	71	LF
748	0140	Curb & Gutter-Type 1		
		1500+00 to 1504+00 LT	393	LF
		1500+00 to 1504+00 RT	735	LF
750	0200	Concrete Median Paving		
		1500+05.05 to 1504+00	385	SY
750	0210	Concrete Median Nose Paving		
		1500+00	4	SY

Note: Stations & Offsets from ND 23 Chain: PR23A

Legend

- (A) Curb and Gutter (All): No. 3 tie bars, 1'-6" @ 4' c to c (continuous)
- (T) Tied Joint - See Detail
- (K) Keyed Joint Not Tied - See Detail
- Doweled Joint - Placed in driving lanes only @ 15' Average transverse joint spacing (continuous)
- Asphalt Pavement
- Salvaged Base Course
- Concrete Median Nose Paving
- Concrete Median Paving
- Truck Apron
- Central Island

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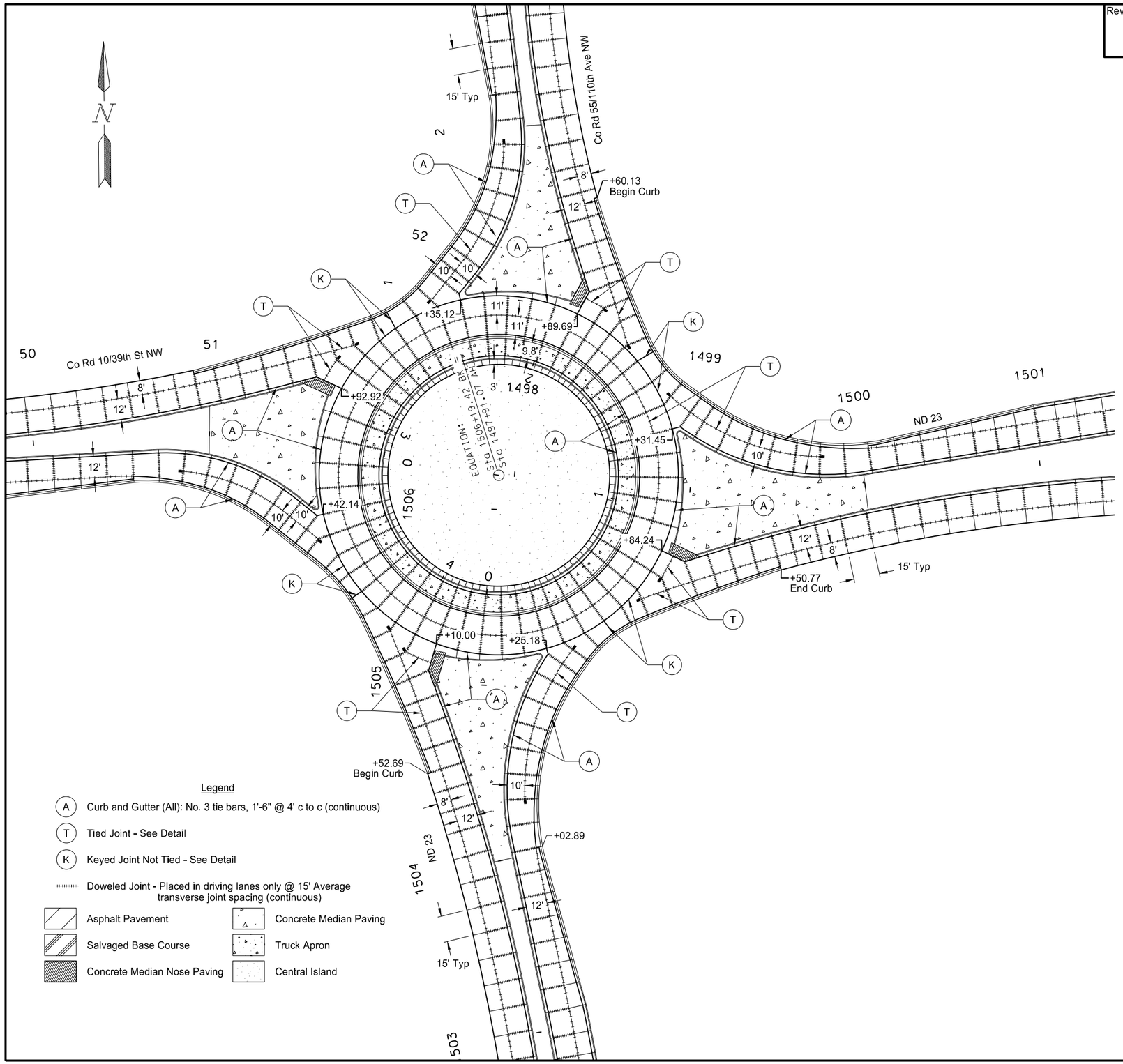
Paving Layout

ND Hwy 23
Keene Corner Major Rehab

ND 23
1495+00 to 1504+00

Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	90	3



302	0100	Salvaged Base Course		
		1504+00 to 1500+00 (PR23A)	2177	TON
		0+00 to 4+26.78 Truck Apron (136IC)	274	TON
		0+00 to 4+26.78 Median (136IC)	75	TON
		1504+00 to 1505+14.09 Median (PR23A)	345	TON
		51+00 to 51+60.82 Median (PR_CORD10)	314	TON
		1+05.28 to 2+00 Median (PR_CORD55)	318	TON
		1498+96.21 to 1500+00 Median (PR23A)	430	TON
550	0312	10.5IN Non Reinf Concrete Pvmt CL AE-Doweled		
		1504+00 to 1500+00 (PR23A)	3679	SY
550	0330	Non-Reinf Concrete Pvmt CL AE-Doweled-Colored		
		0+00 to 5+02.65 (160IC)	501	SY
748	0100	Curb & Gutter		
		0+00 to 5+02.65 (160IC)	496	LF
748	0120	Curb & Gutter Mountable -Type 1		
		1504+00 to 1505+31.20 (PR23A)	246	LF
		51+00 to 51+78.87 (PR_CORD10)	212	LF
		0+89.27 to 2+00 (PR_CORD55)	220	LF
		1498+78.55 to 1500+00 (PR23A)	227	LF
748	0140	Curb & Gutter-Type 1		
		1504+00 to 1505+31.20 (PR23A)	282	LF
		51+00 to 51+78.87 (PR_CORD10)	191	LF
		0+89.27 to 2+00 (PR_CORD55)	256	LF
		1498+78.55 to 1500+00 (PR23A)	277	LF
		0+00 to 4+26.78 (136IC)	418	LF
750	0140	Sidewalk Concrete 6IN		
		0+00 to 4+26.78 (136IC)	136	SY
750	0200	Concrete Median Paving		
		1504+00 to 1505+14.09 Median (PR23A)	353	SY
		51+00 to 51+60.82 Median (PR_CORD10)	321	SY
		1+05.28 to 2+00 Median (PR_CORD55)	325	SY
		1498+96.21 to 1500+00 Median (PR23A)	441	SY
750	0210	Concrete Median Nose Paving		
		1505+12.22 LT (PR23A)	12	SY
		51+60.51 LT (PR_CORD10)	12	SY
		1+05.48 LT (PR_CORD55)	11	SY
		1498+95.77 LT (PR23A)	11	SY
970	0003	Landscape Fabric		
		0+00 to 4+26.78 (136IC)	1386	SY
970	0080	Landscape Boulders		
		0+00 to 4+26.78 (136IC)	270	TON

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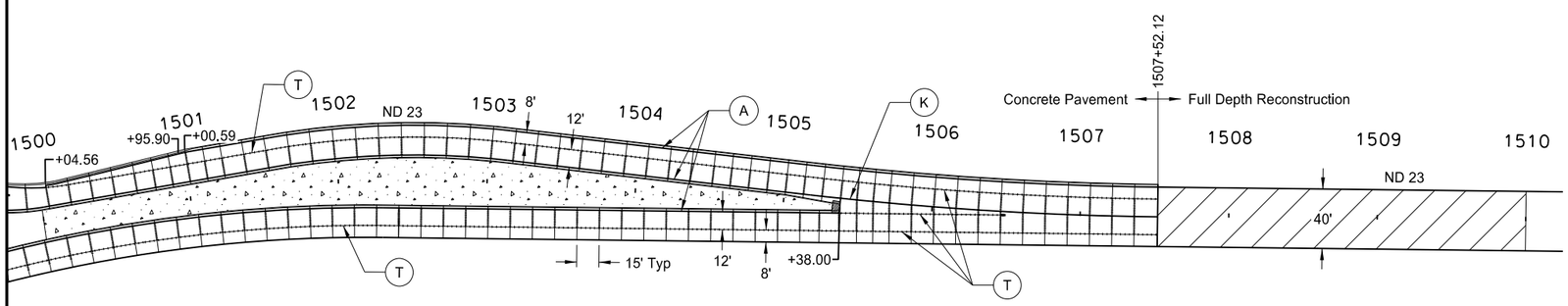
Paving Layout

ND Hwy 23
Keene Corner Major Rehab

ND 23
1504+00 to 1500+00

Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	90	4



302	0100	Salvaged Base Course		
		1500+00 to 1510+00	4142	TON
		1500+00 1505+38 Medain	1257	TON
401	0050	Tack Coat		
		1507+52.12 to 1510+00	188	GAL
401	0060	Prime Coat		
		1507+52.12 to 1510+00	313	GAL
430	0045	Superpave FAA 45		
		1507+52.12 to 1510+00	523	TON
430	5828	PG 58-28 Asphalt Cement		
		1507+52.12 to 1510+00	24	TON
430	6434	PG 64-34 Asphalt Cement		
		1507+52.12 to 1510+00	8	TON
550	0312	10.5IN Non Reinf Concrete Pvmt CL AE-Doweled		
		1500+00 to 1507+52.12	3393	SY
748	0120	Curb & Gutter Mountable -Type 1		
		1500+00 to 1500+95.90 LT	96	LF
748	0140	Curb & Gutter-Type 1		
		1500+00 to 1507+52.12 LT	1200	LF
		1500+00 1505+38 RT	530	LF
750	0200	Concrete Median Paving		
		1500+00 to 1505+33	1302	SY
750	0210	Concrete Median Nose Paving		
		1505+38	4	SY

Note: Stations & Offsets from ND 23 Chain: PR23A

Legend

- (A) Curb and Gutter (All): No. 3 tie bars, 1'-6" @ 4' c to c (continuous)
- (T) Tied Joint - See Detail
- (K) Keyed Joint Not Tied - See Detail
- —— Doweled Joint - Placed in driving lanes only @ 15' Average transverse joint spacing (continuous)
- Asphalt Pavement
- Salvaged Base Course
- Concrete Median Nose Paving
- Concrete Median Paving
- Truck Apron
- Central Island

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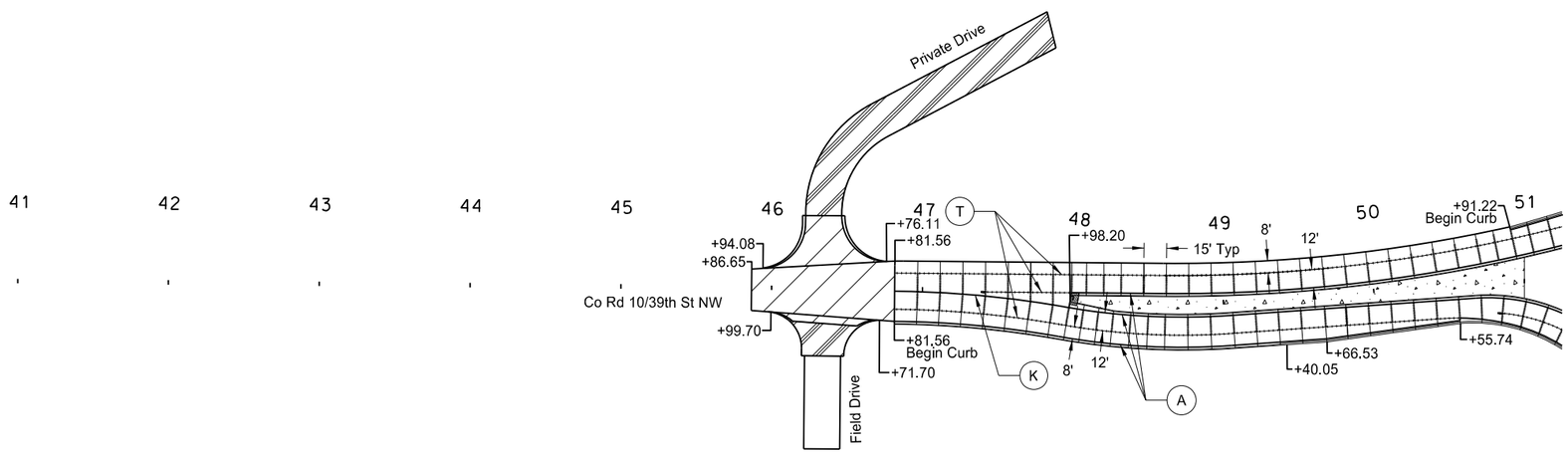
Paving Layout

ND Hwy 23
Keene Corner Major Rehab

ND 23
1500+00 to 1510+00

Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	90	6



302	0100	Salvaged Base Course		
		45+86.65 to 51+00	1426	TON
		46+34.11 LT	471	TON
		46+34.11 RT	80	TON
		47+98.20 Median	404	TON
401	0050	Tack Coat		
		45+86.65 to 46+81.56	19	GAL
		46+34.11 LT	16	GAL
		46+34.11 RT	4	GAL
401	0060	Prime Coat		
		45+86.65 to 46+81.56	91	GAL
		46+34.11 LT	38	GAL
		46+34.11 RT	9	GAL
430	0045	Superpave FAA 45		
		45+86.65 to 46+81.56	90	TON
		46+34.11 LT	48	TON
		46+34.11 RT	11	TON
430	5828	PG 58-28 Asphalt Cement		
		45+86.65 to 46+81.56	3	TON
		46+34.11 LT	3	TON
		46+34.11 RT	1	TON
430	6434	PG 64-34 Asphalt Cement		
		45+86.65 to 46+81.56	3	TON
550	0312	10.5IN Non Reinf Concrete Pvmt CL AE-Doweled		
		46+81.56 to 51+00	1859	SY
748	0120	Curb & Gutter Mountable -Type 1		
		49+40.05 to 51+00 RT	159	LF
		50+91.22 to 51+00 LT	10	LF
748	0140	Curb & Gutter-Type 1		
		46+81.56 to 51+00 RT	559	LF
		47+98.20 to 51+00 LT	297	LF
750	0200	Concrete Median Paving		
		48+03.32 to 51+00	417	SY
750	0210	Concrete Median Nose Paving		
		47+98.20	5	SY

Note: Stations & Offsets from Co Rd 10 Chain: PR_CORD10

Legend

- (A) Curb and Gutter (All): No. 3 tie bars, 1'-6" @ 4' c to c (continuous)
- (T) Tied Joint - See Detail
- (K) Keyed Joint Not Tied - See Detail
- — Doweled Joint - Placed in driving lanes only @ 15' Average transverse joint spacing (continuous)
- Asphalt Pavement
- Salvaged Base Course
- Concrete Median Nose Paving
- Concrete Median Paving
- Truck Apron
- Central Island

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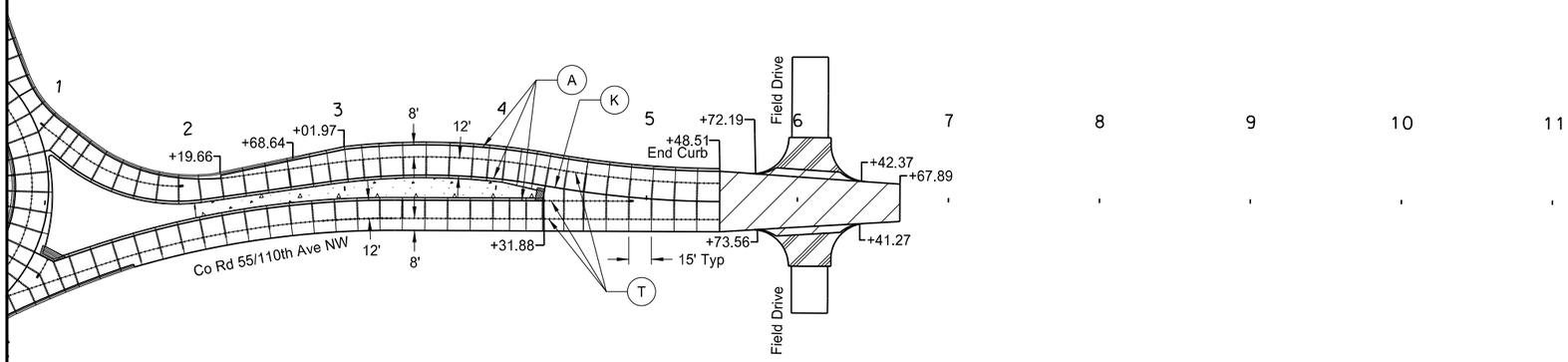
Paving Layout

ND Hwy 23
Keene Corner Major Rehab

Co Rd 10
45+86.65 to 51+00

Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	90	7



302	0100	Salvaged Base Course		
		2+00 to 6+67.89	1310	TON
		6+08.20 LT	79	TON
		6+08.20 RT	78	TON
		2+00 to 4+31.88 Medain	243	TON
401	0050	Tack Coat		
		5+48.51 to 6+67.89	23	GAL
		6+08.20 LT	4	GAL
		6+08.20 RT	4	GAL
401	0060	Prime Coat		
		5+48.51 to 6+67.89	112	GAL
		6+08.20 LT	9	GAL
		6+08.20 RT	9	GAL
430	0045	Superpave FAA 45		
		5+48.51 to 6+67.89	110	TON
		6+08.20 LT	11	TON
		6+08.20 RT	11	TON
430	5828	PG 58-28 Asphalt Cement		
		5+48.51 to 6+67.89	4	TON
		6+08.20 LT	1	TON
		6+08.20 RT	1	TON
430	6434	PG 64-34 Asphalt Cement		
		5+48.51 to 6+67.89	4	TON
550	0312	10.5IN Non Reinf Concrete Pvmt CL AE-Doweled		
		2+00 to 5+48.51	1559	SY
748	0120	Curb & Gutter Mountable -Type 1		
		2+00 to 2+19.68.64 LT	68	LF
748	0140	Curb & Gutter-Type 1		
		2+00 to 5+48.51 LT	513	LF
		2+00 to 4+31.88 RT	226	LF
750	0200	Concrete Median Paving		
		2+00 to 4+26.88	249	SY
750	0210	Concrete Median Nose Paving		
		4+31.88	5	SY

Note: Stations & Offsets from Co Rd 55 Chain: PR_CORD55

Legend

- (A) Curb and Gutter (All): No. 3 tie bars, 1'-6" @ 4' c to c (continuous)
- (T) Tied Joint - See Detail
- (K) Keyed Joint Not Tied - See Detail
- Doweled Joint - Placed in driving lanes only @ 15' Average transverse joint spacing (continuous)
- Asphalt Pavement
- Salvaged Base Course
- Concrete Median Nose Paving
- Concrete Median Paving
- Truck Apron
- Central Island

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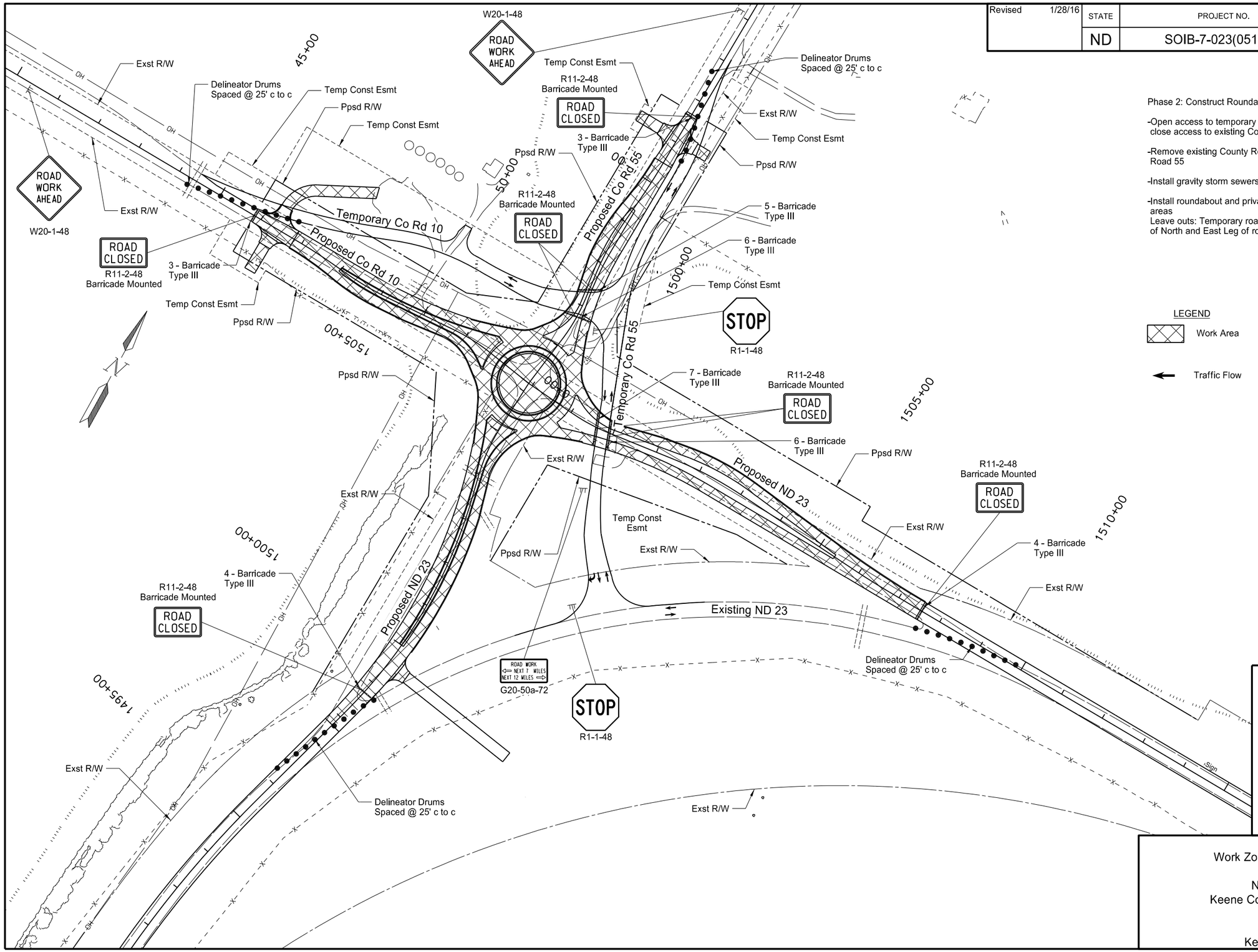
Paving Layout

ND Hwy 23
Keene Corner Major Rehab

Co Rd 55
2+00 to 6+67.89

Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	100	6



Phase 2: Construct Roundabout

-Open access to temporary County Road 10 and 55, and close access to existing County Road 10 and 55

-Remove existing County Road 10 and existing County Road 55

-Install gravity storm sewers and culverts

-Install roundabout and private drives except for leave out areas
Leave outs: Temporary road crossings, splitter island and median of North and East Leg of roundabout

LEGEND

Work Area

Traffic Flow

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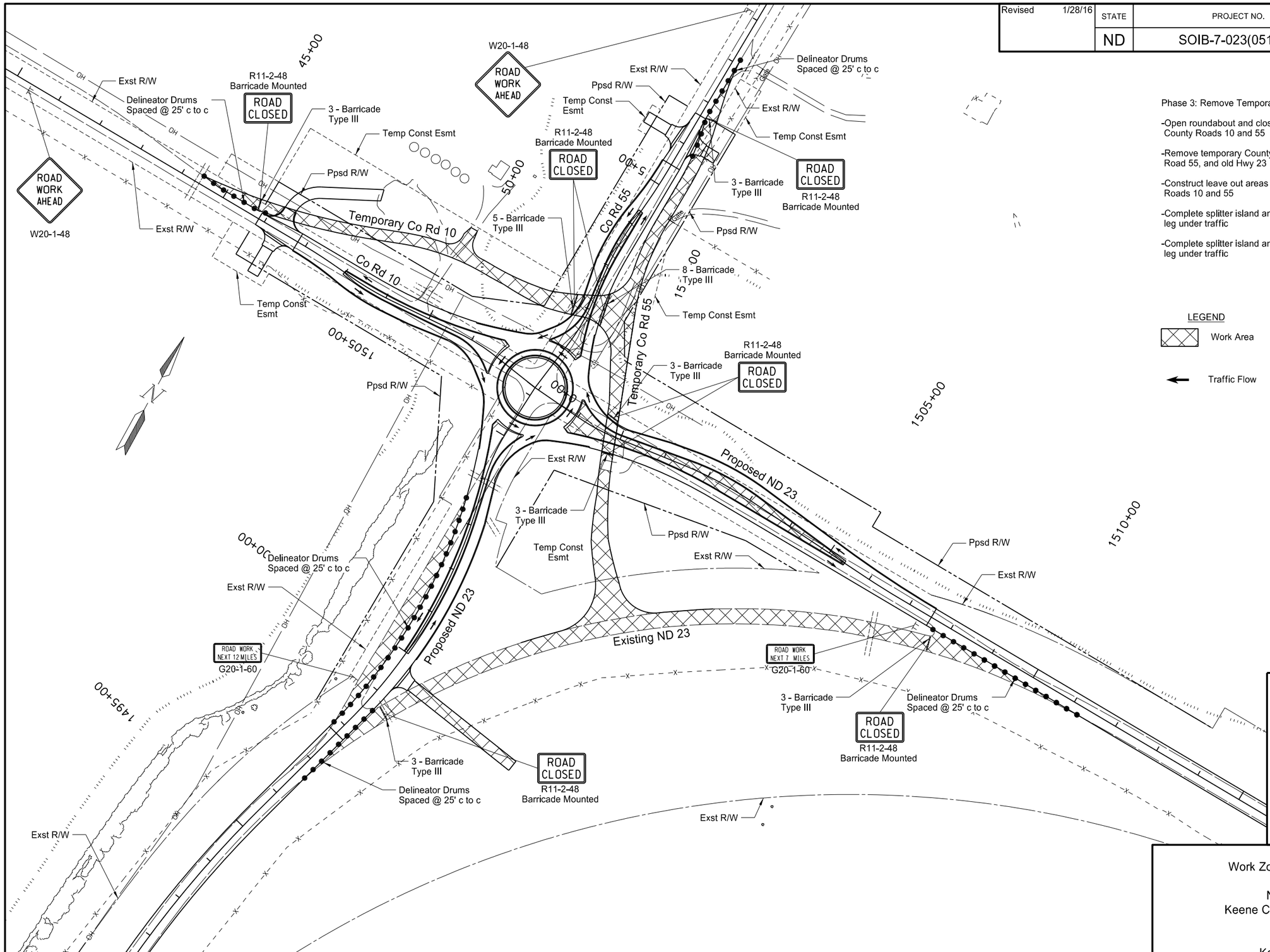
Work Zone Traffic Control

ND Hwy 23
Keene Corner Major Rehab

Phase 2
Keene Corner

Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	100	7



Phase 3: Remove Temporary Road

-Open roundabout and close access to temporary County Roads 10 and 55

-Remove temporary County Road 10, temporary County Road 55, and old Hwy 23

-Construct leave out areas from the temporary County Roads 10 and 55

-Complete splitter island and median of North roundabout leg under traffic

-Complete splitter island and median of East roundabout leg under traffic

LEGEND

Work Area

Traffic Flow

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Work Zone Traffic Control

ND Hwy 23
Keene Corner Major Rehab

Phase 3
Keene Corner

Revised 1/28/16

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIB-7-023(051)027	110	1

Sta/RP	Sign No.	Assembly No.	Flat Sheet For Signs IV SF	Flat Sheet For Signs XI SF	Sign Support Length 1st LF	Sign Support Length 2nd LF	Sign Support Length 3rd LF	Sign Support Length 4th LF	Support Size	Max Post Len LF	Sleeve Length 1st LF	Sleeve Length 2nd LF	Sleeve Length 3rd LF	Sleeve Length 4th LF	Sleeve Size	Anchor EA	Anchor LF	Anchor Size	Reset Sign Panel EA	Reset Sign Support EA	Break-Away EA	Comments
ND 23																						
01487+57 Lt		19		6.3	10.7				2.25 x 2.25 12 ga	11.6						1	4	2.5 x 2.5 12 ga				
01493+93 Rt	SA K		16.8		11.7				2.5 x 2.5 10 ga	13.5	3.0				2.19 x 2.19 10 ga	1	4	3 x 3 7 ga			1	Yellow Legend on Blue Background
01497+50 Lt		9		5.0	11.5				2.25 x 2.25 12 ga	15.0						1	4	2.5 x 2.5 12 ga				
01497+50 Rt		53		8.5	13.3				2.5 x 2.5 10 ga	14.7						1	4	3 x 3 7 ga			1	
01498+38 Lt		32		5.0	7.2				2 x 2 12 ga	10.6						1	4	2.25 x 2.25 12 ga				
01498+90 Lt			8.2																			Mount on Light Standard, Yellow Legend on Blue Background
01499+07 Lt		4		3.9	11.5				2 x 2 12 ga	13.6						1	4	2.25 x 2.25 12 ga				
01500+20 Rt mdn		9		5.0	7.7				2 x 2 12 ga	11.5						1	4	2.25 x 2.25 12 ga				
01500+95 Rt		379	8.2		13.3				2.5 x 2.5 10 ga	15.3						1	4	3 x 3 7 ga			1	
01500+96 Rt		371	6.0		12.8				2.25 x 2.25 12 ga	12.9						1	4	2.5 x 2.5 12 ga				
01500+99 Lt	SN 11		33.0		12.2	13.1	13.7		2.5 x 2.5 12 ga	14.3	3.7	4.6	5.2		2.25 x 2.25 12 ga	3	4	3 x 3 7 ga			3	
01503+15 Lt		371	6.0		12.8				2.25 x 2.25 12 ga	12.9						1	4	2.5 x 2.5 12 ga				
01503+23 Lt		379	8.2		13.3				2.5 x 2.5 10 ga	15.3						1	4	3 x 3 7 ga			1	
01503+23 Rt	SN 10		34.5		11.3	12.2	13.1	14.0	2.5 x 2.5 12 ga	18.0	0.8	1.6	2.5	3.4	2.25 x 2.25 12 ga	4	4	3 x 3 7 ga			4	
01505+02 Rt		4		3.9	11.4				2 x 2 12 ga	13.6						1	4	2.25 x 2.25 12 ga				
01505+21 Rt			8.2																			Mount on Light Standard
01505+27 Lt mdn		9		5.0	7.7				2 x 2 12 ga	11.5						1	4	2.25 x 2.25 12 ga				
01505+34 Lt			7.2																			Mount on Light Standard
01505+68 Rt		32		5.0	7.2				2 x 2 12 ga	10.6						1	4	2.25 x 2.25 12 ga				
01508+40 Lt		53		8.5	12.2				2.5 x 2.5 10 ga	14.7						1	4	3 x 3 7 ga			1	
01508+40 Rt		9		5.0	10.5				2 x 2 12 ga	11.5						1	4	2.25 x 2.25 12 ga				
01511+50 Rt		9	5.0		10.2				2 x 2 12 ga	11.5						1	4	2.25 x 2.25 12 ga				
01511+90 Lt	SA K		16.8		11.7				2.5 x 2.5 10 ga	13.5	3.0				2.19 x 2.19 10 ga	1	4	3 x 3 7 ga			1	Yellow Legend on Blue Background
Sub Total			158.1	61.1		**Total**	286.3									**Total**	100		0	0	13	
CO RD 55																						
00000+53 Lt		32		5.0	7.2				2 x 2 12 ga	10.6						1	4	2.25 x 2.25 12 ga				
00000+86 Rt			8.2																			Mount on Light Standard, Yellow Legend On Blue Background
00001+14 Lt		4		3.9	11.5				2 x 2 12 ga	13.6						1	4	2.25 x 2.25 12 ga				
00002+97 Rt		371	6.0		12.8				2.25 x 2.25 12 ga	12.9						1	4	2.5 x 2.5 12 ga				Yellow Legend on Blue Background
00004+01 Lt	SA I		12.4		13.5				2.5 x 2.5 10 ga	15.9	3.7				2.19 x 2.19 10 ga	1	4	3 x 3 7 ga			1	Yellow Legend on Blue Background
00004+21 Lt mdn		9		5.0	7.7				2 x 2 12 ga	11.5						1	4	2.25 x 2.25 12 ga				
00006+58 Lt		53		8.5	14.1				2.5 x 2.5 10 ga	14.7						1	4	3 x 3 7 ga			1	
00006+58 Rt	SA J / SN 16			10.0	13.0				2.25 x 2.25 12 ga	14.5	3.7				2 x 2 12 ga	1	4	3 x 3 7 ga			1	
Sub Total			26.6	32.4		**Total**	79.8									**Total**	28		0	0	3	

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

Rural Roadway - 60"
(Horizontal Offset Behind Center Island Curb = 6 ft)

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Signing Summary

ND Hwy 23
Keene Corner Major Rehab

Perforated Tube

Revised 1/28/16

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SOIB-7-023(051)027	110	2

Sta/RP	Sign No.	Assembly No.	Flat Sheet For Signs IV SF	Flat Sheet For Signs XI SF	Sign Support Length 1st LF	Sign Support Length 2nd LF	Sign Support Length 3rd LF	Sign Support Length 4th LF	Support Size	Max Post Len LF	Sleeve Length 1st LF	Sleeve Length 2nd LF	Sleeve Length 3rd LF	Sleeve Length 4th LF	Sleeve Size	Anchor EA	Anchor LF	Anchor Size	Reset Sign Panel EA	Reset Sign Support EA	Break-Away EA	Comments
CO RD 10																						
00045+87 Lt		9		5.0	11.3				2 x 2 12 ga	11.5						1	4	2.25 x 2.25 12 ga				
00045+87 Rt		53		8.5	13.8				2.5 x 2.5 10 ga	14.7						1	4	3 x 3 7 ga			1	
00046+90 Rt	SA I		12.4		13.5				2.5 x 2.5 10 ga	15.9	3.7				2.19 x 2.19 10 ga	1	4	3 x 3 7 ga			1	Yellow Legend on Blue Background
00048+10 Rt mdn		9		5.0	7.7				2 x 2 12 ga	11.5						1	4	2.25 x 2.25 12 ga				
00049+61 Lt		371	6.0		12.8				2.25 x 2.25 12 ga	12.9						1	4	2.5 x 2.5 12 ga				Yellow Legend on Blue Background
00051+52 Rt		4		3.9	11.6				2 x 2 12 ga	13.6						1	4	2.25 x 2.25 12 ga				
00051+72 Rt			8.2																			Mount on Light Standard
00052+14 Rt		32		5.0	7.2				2 x 2 12 ga	10.6						1	4	2.25 x 2.25 12 ga				
Sub Total			26.6	27.4		**Total**	77.9									**Total**	28		0	0	2	
Grand Total			211.3	120.9		**Total**	444									**Total**	156		0	0	18	

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

Rural Roadway - 60"
(Horizontal Offset Behind Center Island Curb = 6 ft)

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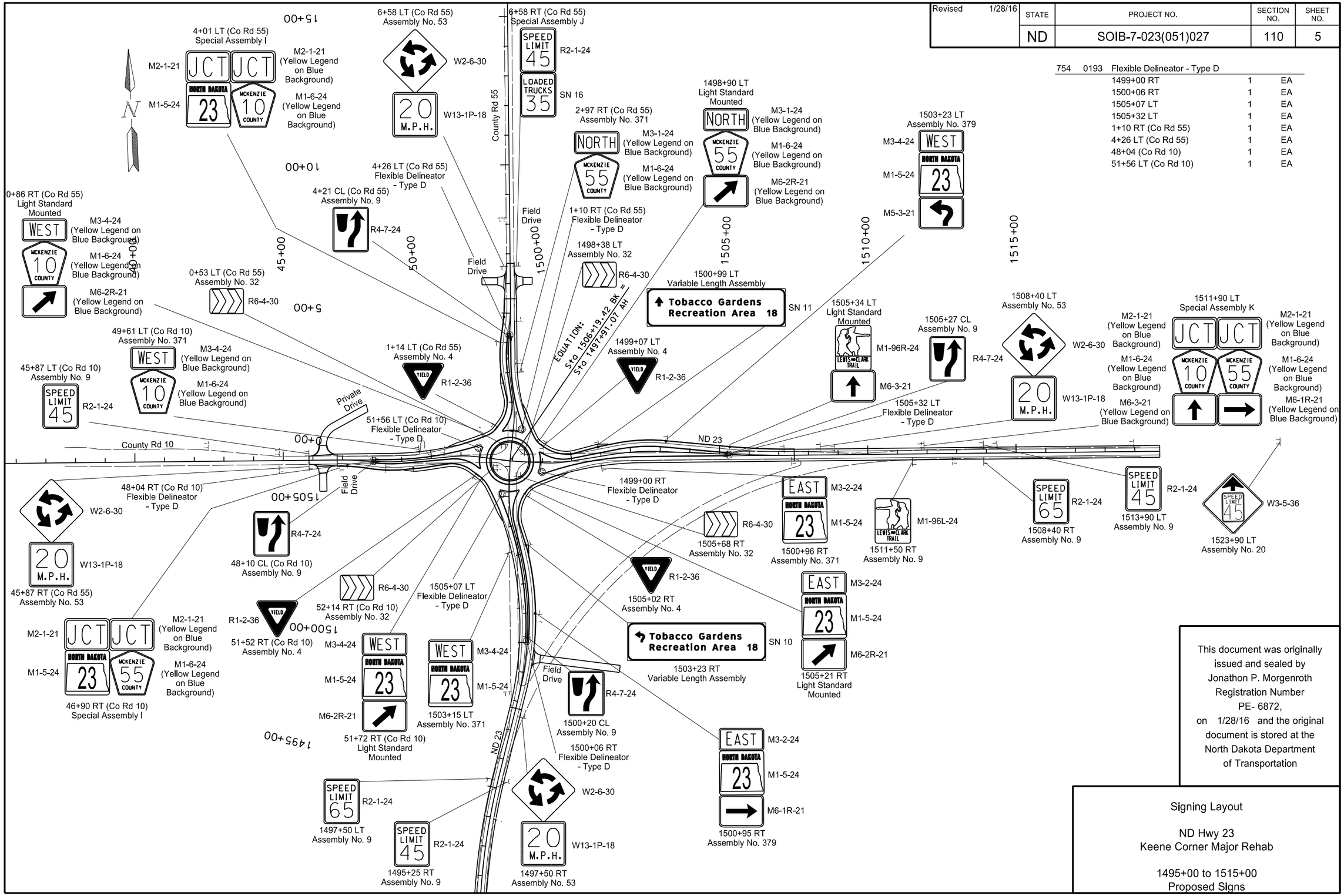
Signing Summary

ND Hwy 23
Keene Corner Major Rehab

Perforated Tube

Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	110	5



754	0193	Flexible Delineator - Type D		
		1499+00 RT	1	EA
		1500+06 RT	1	EA
		1505+07 LT	1	EA
		1505+32 LT	1	EA
		1+10 RT (Co Rd 55)	1	EA
		4+26 LT (Co Rd 55)	1	EA
		48+04 (Co Rd 10)	1	EA
		51+56 LT (Co Rd 10)	1	EA

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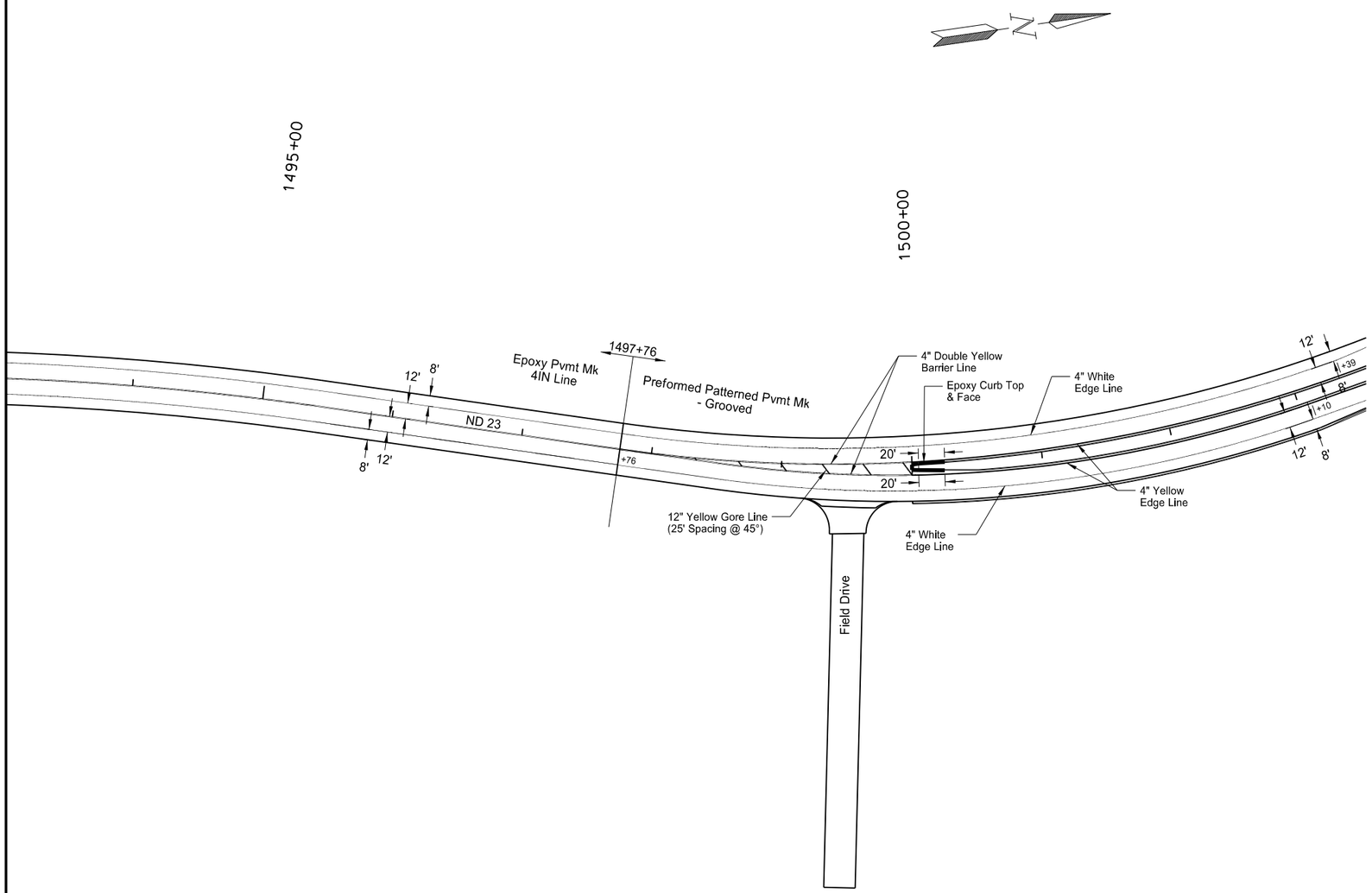
Signing Layout

ND Hwy 23
Keene Corner Major Rehab

1495+00 to 1515+00
Proposed Signs

Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	120	2

762	0110	Epoxy PVMT MK 4IN Line - Grooved		
		White Edge Line	848	LF
762	0113	Epoxy PVMT MK 4IN Line		
		Double Yellow Barrier Line	848	LF
762	0118	Epoxy Pvmt Mk Curb Top & Face		
		Yellow	54	LF
762	1305	Preformed Patterned Pvmt Mk 4IN - Grooved		
		White Edge Line	1048	LF
		Yellow Edge Line	600	LF
		Double Yellow Barrier Line	898	LF
		Total=	2546	LF
762	1315	Preformed Patterned Pvmt Mk 12IN - Grooved		
		Yellow Gore Line	46	LF



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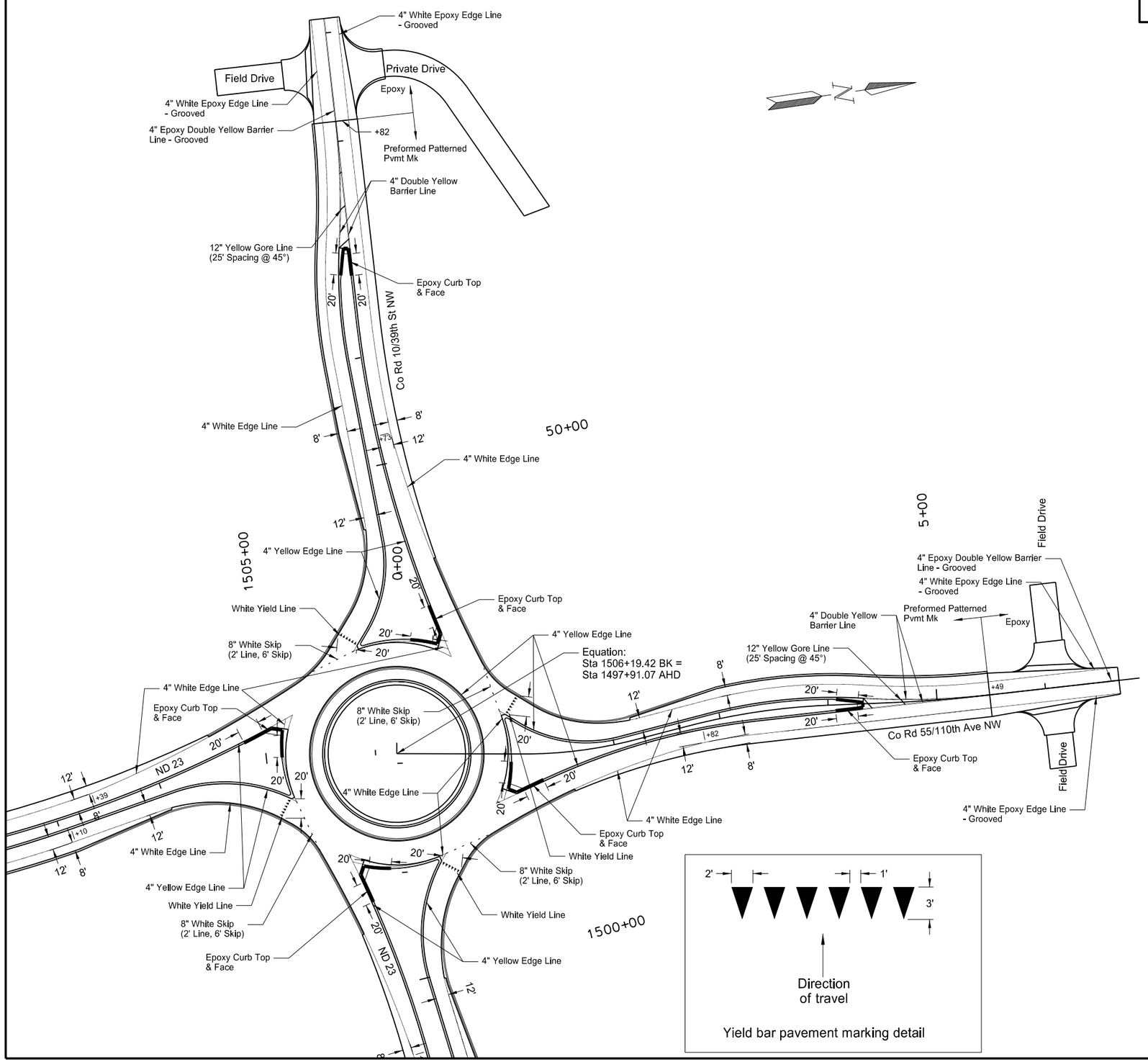
Pavement Marking Layout

ND Hwy 23
Keene Corner Major Rehab

1493+51 to 1503+00 BK

Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	120	3



762	0110	Epoxy PVMT MK 4IN Line - Grooved		
		White Edge Line	429	LF
		Double Yellow Barrier Line	430	LF
		Total =	859	LF
762	0118	Epoxy Pvmt Mk Curb Top & Face		
		Yellow	356	LF
762	0122	Preformed Patterned Pvmt Mk - Message(Grooved)		
		White Yield Line (2'x3' Triangle) 3 SF x 24 =	72	SF
		Total =	72	SF
762	1305	Preformed Patterned Pvmt Mk 4IN - Grooved		
		White Edge Line	3146	LF
		Yellow Edge Line	2141	LF
		Double Yellow Barrier Line	934	LF
		Total=	6221	LF
762	1309	Preformed Patterned Pvmt MK 8IN - Grooved		
		White Skip (2' Line, 6' Skip)	48	LF
762	1315	Preformed Patterned Pvmt Mk 12IN - Grooved		
		Yellow Gore Line	41	LF

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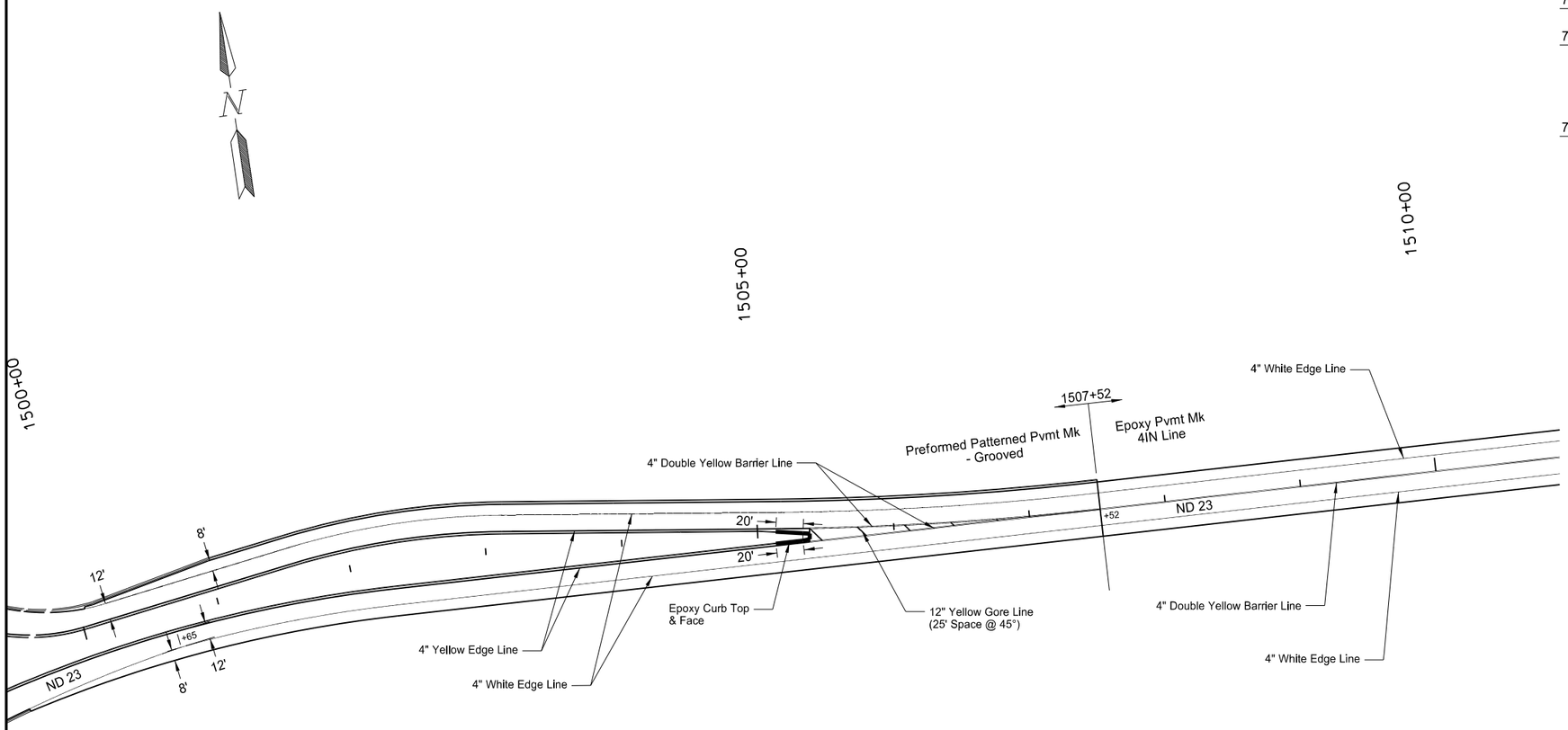
Pavement Marking Layout

ND Hwy 23
Keene Corner Major Rehab

1503+00 BK to 1500+00 AH
Co Rd 10, Co Rd 55

Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	120	4

762	0110	Epoxy PVMT MK 4IN Line - Grooved		
		White Edge Line	662	LF
762	0113	Epoxy PVMT MK 4IN Line		
		Double Yellow Barrier Line	662	LF
762	0118	Epoxy Pvmt Mk Curb Top & Face		
		Yellow	55	LF
762	1305	Preformed Patterned Pvmt Mk 4IN - Grooved		
		White Edge Line	1506	LF
		Yellow Edge Line	1077	LF
		Double Yellow Barrier Line	857	LF
		Total=	3440	LF
762	1315	Preformed Patterned Pvmt Mk 12IN - Grooved		
		Yellow Gore Line	33	LF



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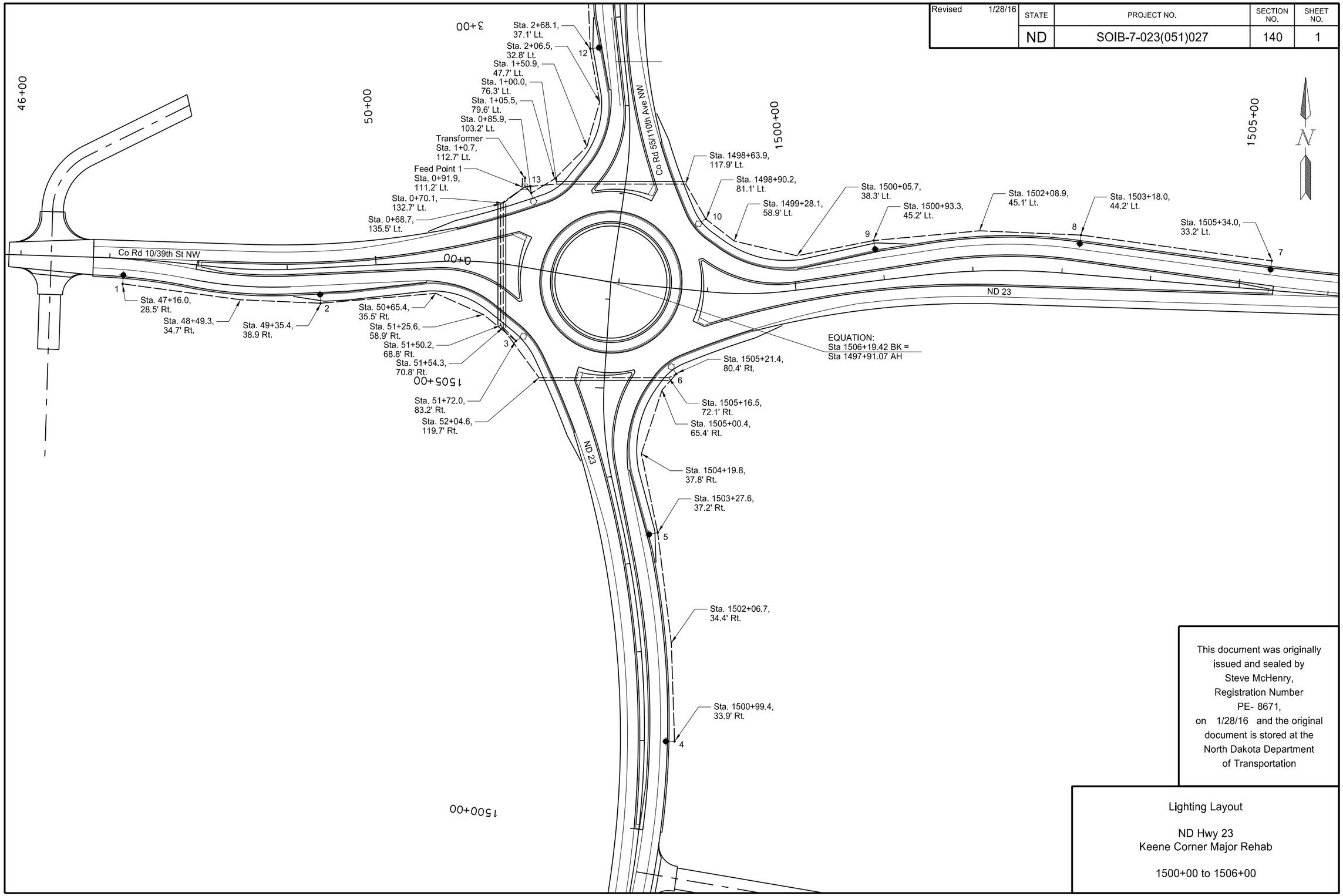
Pavement Marking Layout

ND Hwy 23
Keene Corner Major Rehab

1500+00 to 1510+83

Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	140	1



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Lighting Layout

ND Hwy 23
Keene Corner Major Rehab

1500+00 to 1506+00

Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	140	3

Points	Station	Conduit Runs		Cable Trench	Cable Runs	
		Length (ft)	Size	Length (ft)	Length (ft)	Type
XFMR	1+01.7 - 112.7' LT TO	10	2"		60	2 - NO 2 TYPE RHW
FP-1	0+91.9 - 111.2' LT				30	1 - NO 2 TYPE THW
FP-1	0+91.9 - 111.2' LT TO			192	206	3 No 4 Style USE
	0+70.1 - 132.7' LT TO	140	3"			
	51+54.3 - 70.8' RT TO					
3	51+72.0 - 83.2' RT					
3	51+72.0 - 83.2' RT TO			236	244	3 No 4 Style USE
	51+25.6, 58.9' RT TO					
	50+65.4, 35.3' RT TO					
2	49+35.4 - 38.9' RT					
2	49+35.4 - 38.9' RT TO			224	232	3 No 4 Style USE
	48+49.3 - 34.7' RT TO					
1	47+16.0 - 28.5' RT					
FP-1	0+91.9 - 111.2' LT TO			399	413	3 No 4 Style USE
	0+68.7 - 135.5' LT TO	137	3"			
	51+50.2 - 68.8' RT TO					
	52+04.6 - 119.7' RT TO	146	3"			
	1505+16.5 - 72.1' RT TO					
6	1505+21.4 - 80.4' RT					
6	1505+21.4 - 80.4' RT TO			191	199	3 No 4 Style USE
	1505+00.4 - 65.4' RT TO					
	1504+19.8 - 37.8' RT TO					
5	1503+27.6 - 37.2' RT					
5	1503+27.6 - 37.2' RT TO			236	244	3 No 4 Style USE
	1502+06.7 - 34.4' RT TO					
4	1500+99.4 - 33.9' RT					
FP-1	0+91.9 - 111.2' LT TO			227	241	3 No 4 Style USE
	1+00.0 - 76.3' LT TO	146	3"			
	1498+63.9 - 117.9' LT TO					
10	1498+90.2 - 81.1' LT					
10	1498+90.2 - 81.1' LT TO			201	209	3 No 4 Style USE
	1499+28.1 - 58.9' LT TO					
	1500+05.7 - 38.3' LT TO					
9	1500+93.3 - 45.2' LT					
9	1500+93.3 - 45.2' LT TO			234	242	3 No 4 Style USE
	1502+08.9 - 45.1' LT TO					
8	1503+18.0 - 44.2' LT					
8	1503+18.0 - 44.2' LT TO			217	225	3 No 4 Style USE
7	1505+34.0 - 33.2' LT					
FP-1	0+91.9 - 111.2' LT TO			10	24	3 No 4 Style USE
13	0+85.9 - 103.2' LT					
13	0+85.9 - 103.2' LT TO			195	203	3 No 4 Style USE
	1+05.5 - 79.6' LT TO					
	1+50.9 - 47.7' LT					
	2+06.5 - 32.8' LT					
12	2+68.1 - 37.1' LT					
12	2+68.1 - 37.1' LT TO			226	234	3 No 4 Style USE
	3+60.7 - 37.4' LT					
11	4+86.9 - 29.5' LT					

No.	Station	Offset	Wattage	Circuit	IES-Type	Pole Ht.	Mast Arm	Note
1	47+16.0	28.5' RT	250	1	3	42'	6'	
2	49+35.4	38.9' RT	250	1	3	42'	6'	
3	51+72.0	83.2' RT	400	1	3	42'	6'	
4	1500+99.4	33.9' RT	250	2	3	42'	6'	
5	1503+27.6	37.2' RT	250	2	3	42'	6'	
6	1505+21.4	80.4' RT	400	2	3	42'	6'	
7	1505+34.0	33.2' LT	250	3	3	42'	6'	
8	1503+18.0	44.2' LT	250	3	3	42'	6'	
9	1500+93.3	45.2' LT	250	3	3	42'	6'	
10	1498+90.2	81.1' LT	400	3	3	42'	6'	
11	4+86.9	29.5' LT	250	4	3	42'	6'	
12	2+68.1	37.1' LT	250	4	3	42'	6'	
13	0+85.9	103.2' LT	400	4	3	42'	6'	

IES Type 3 - Distribution Type 3, Medium Semi Cutoff

Quantities (A)												
CONCRETE FOUNDATION-HIGHWAY LIGHTING	CONCRETE FOUNDATION-FEED POINT TYPE B	CABLE TRENCH II	2IN DIAMETER RIGID CONDUIT	3IN DIAMETER RIGID CONDUIT	MULTIPLE UNDERGRUOND CABLE 3NO4 STYLE USE	UNDERGROUND CONDUCTOR NO2-TYPE RHW	UNDERGROUND CONDUCTOR NO2-TYPE THW	FEEDPOINT-TYPE IV-PAD MOUNTED	LT STD 6FT MA 42FT MT HT BREAKAWAY	HP SODIUM LUMINAIRE-250 WATT	HP SODIUM LUMINAIRE-400 WATT	LIGHTING SYSTEM
EA	EA	LF	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA
13	1	2788	10	569	2916	60	30	1	13	9	4	1

(A) - These items not to be bid separately but included in the item "LIGHTING SYSTEM".

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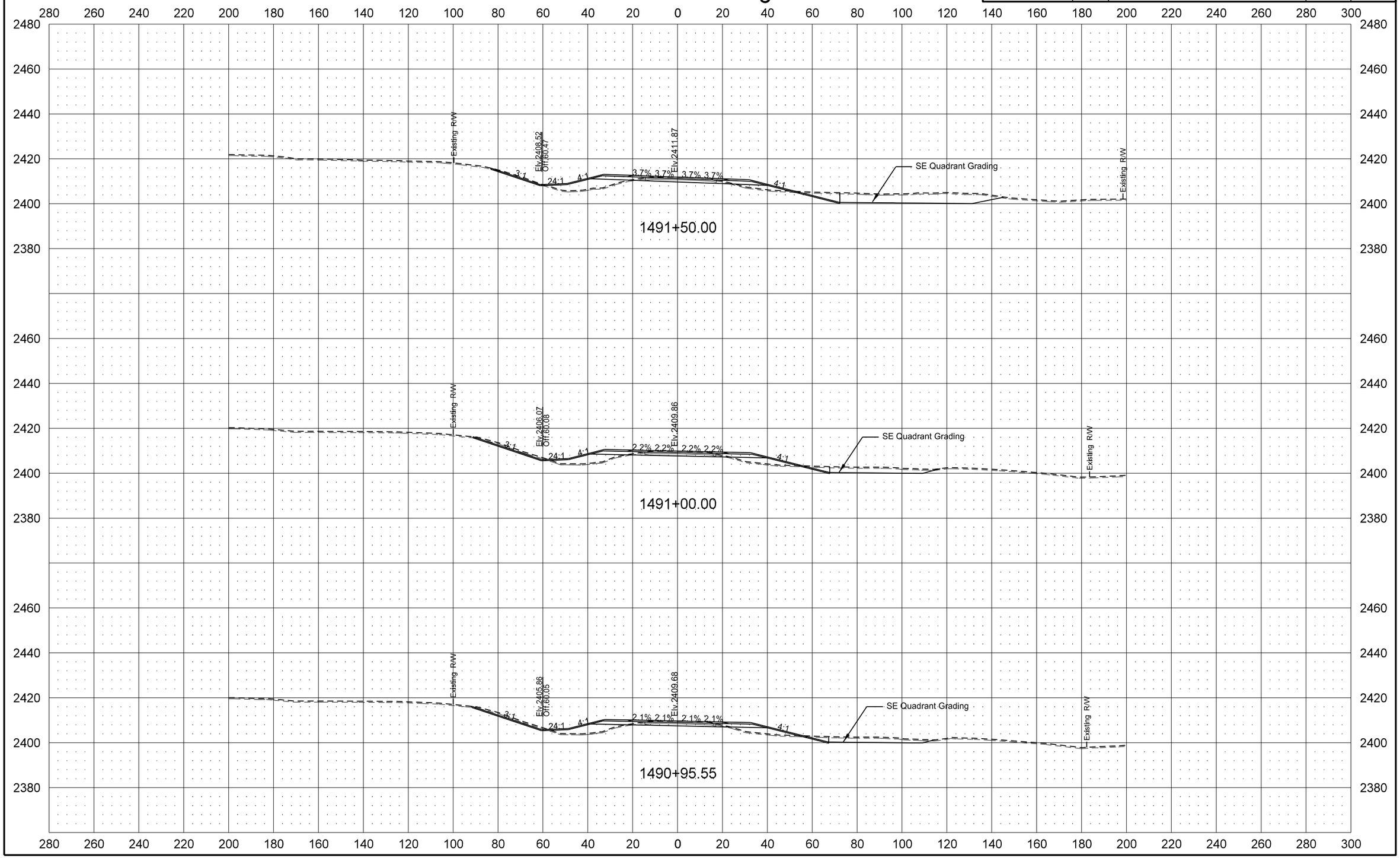
Lighting Quantities

ND Hwy 23
Keene Corner Major Rehab
County Road 55
1500+00 to 1506+00
2+50 to 5+00

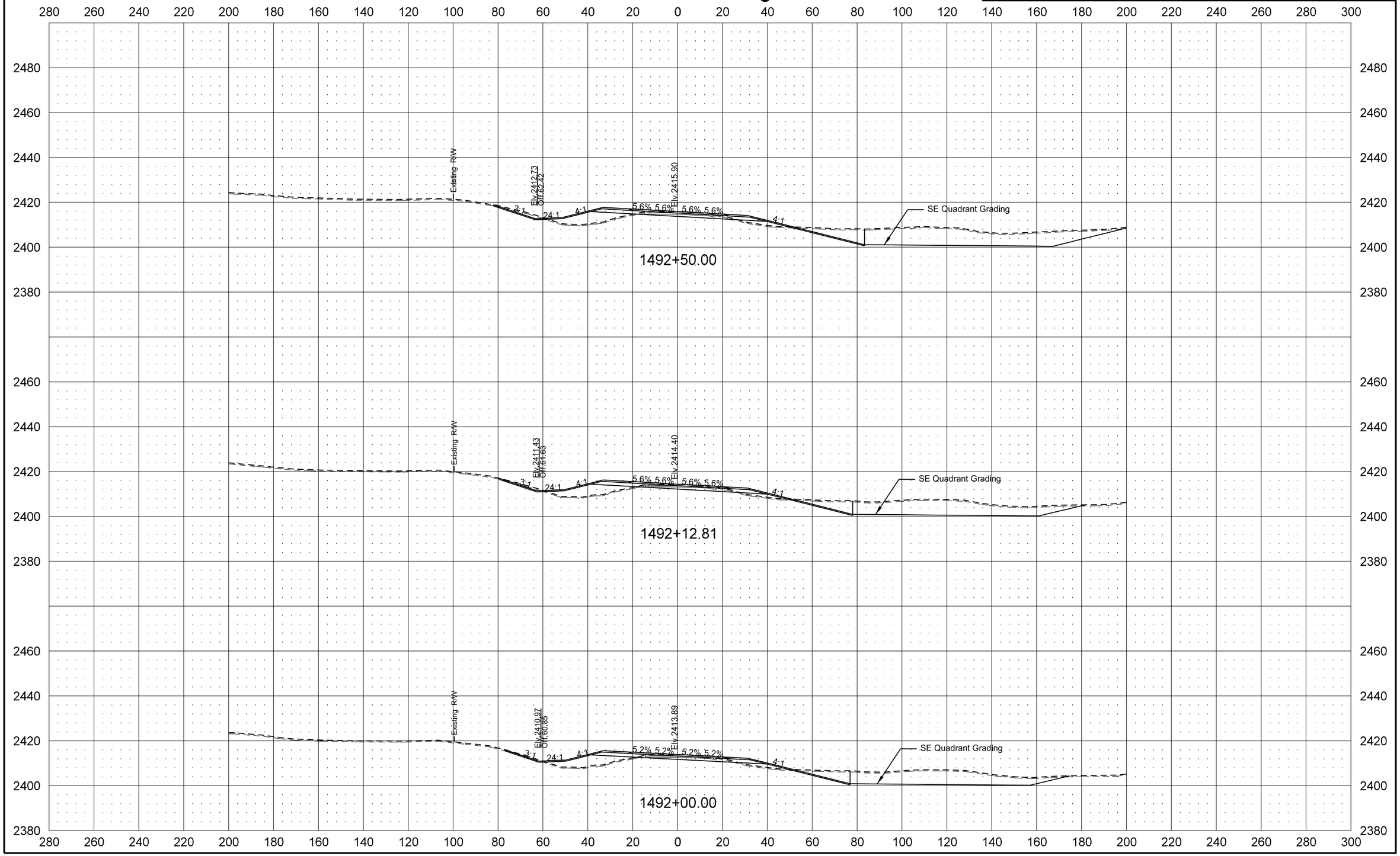
Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	6

ND 23 South Leg



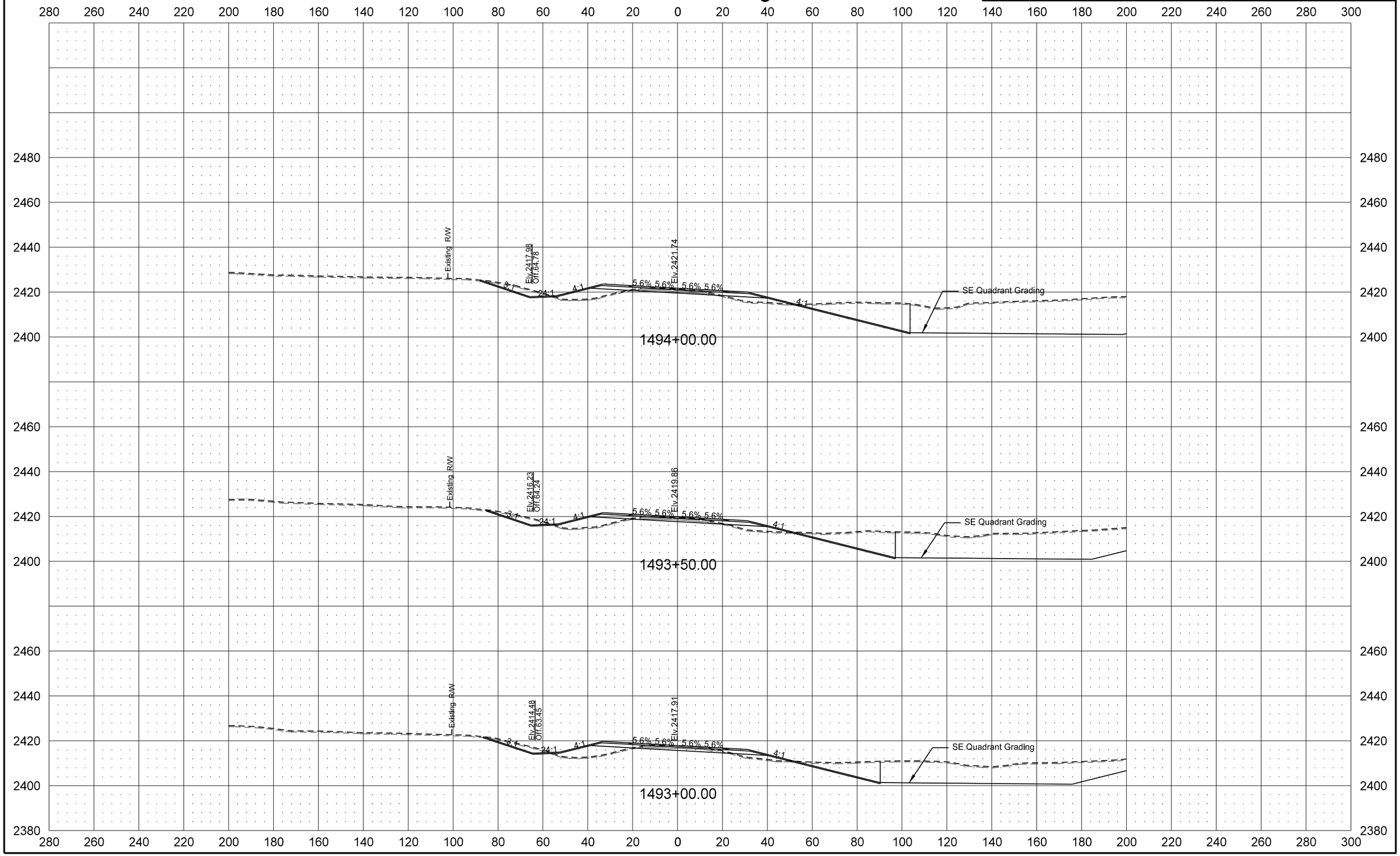
Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	7

ND 23 South Leg



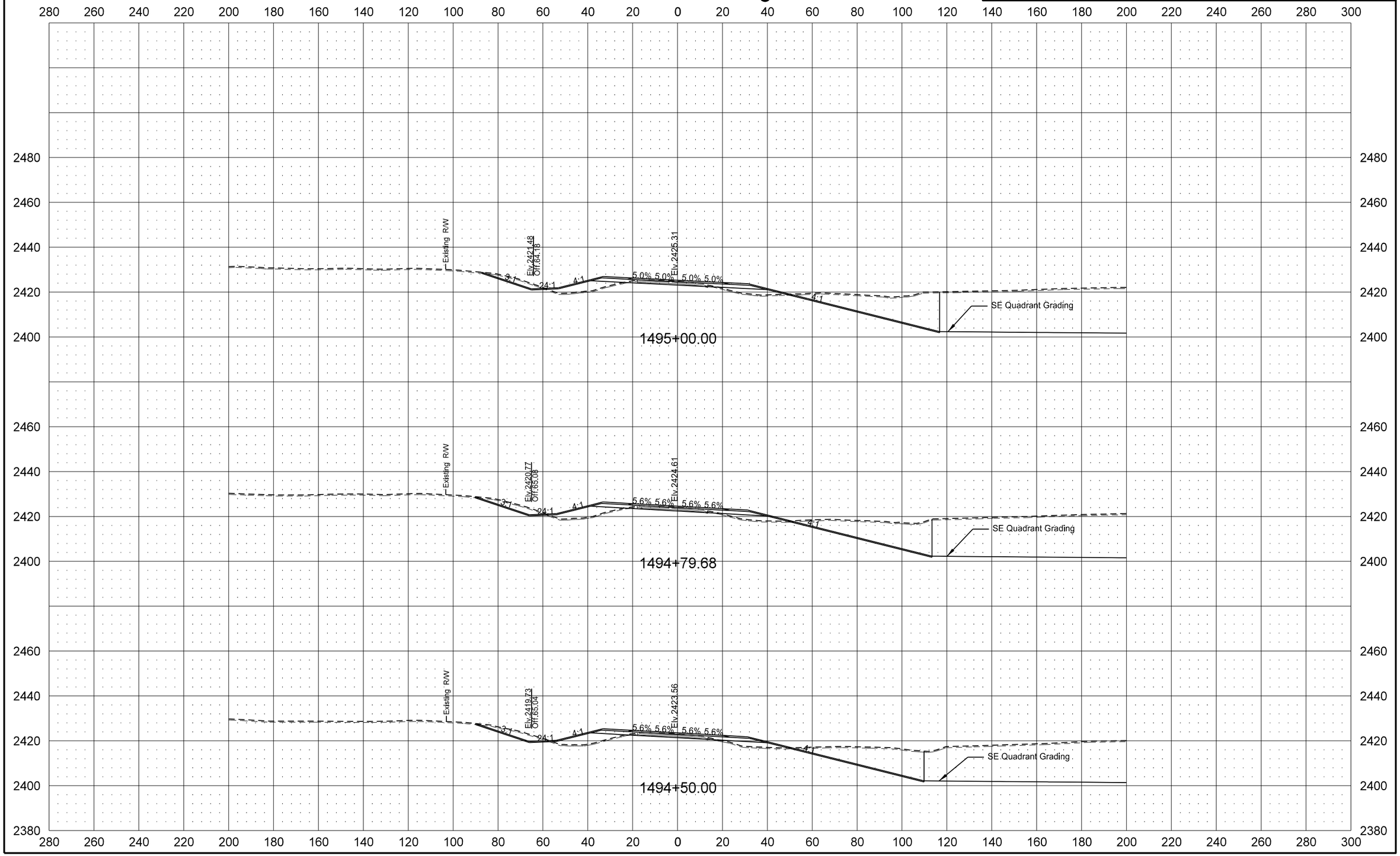
Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	8

ND 23 South Leg



Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	9

ND 23 South Leg



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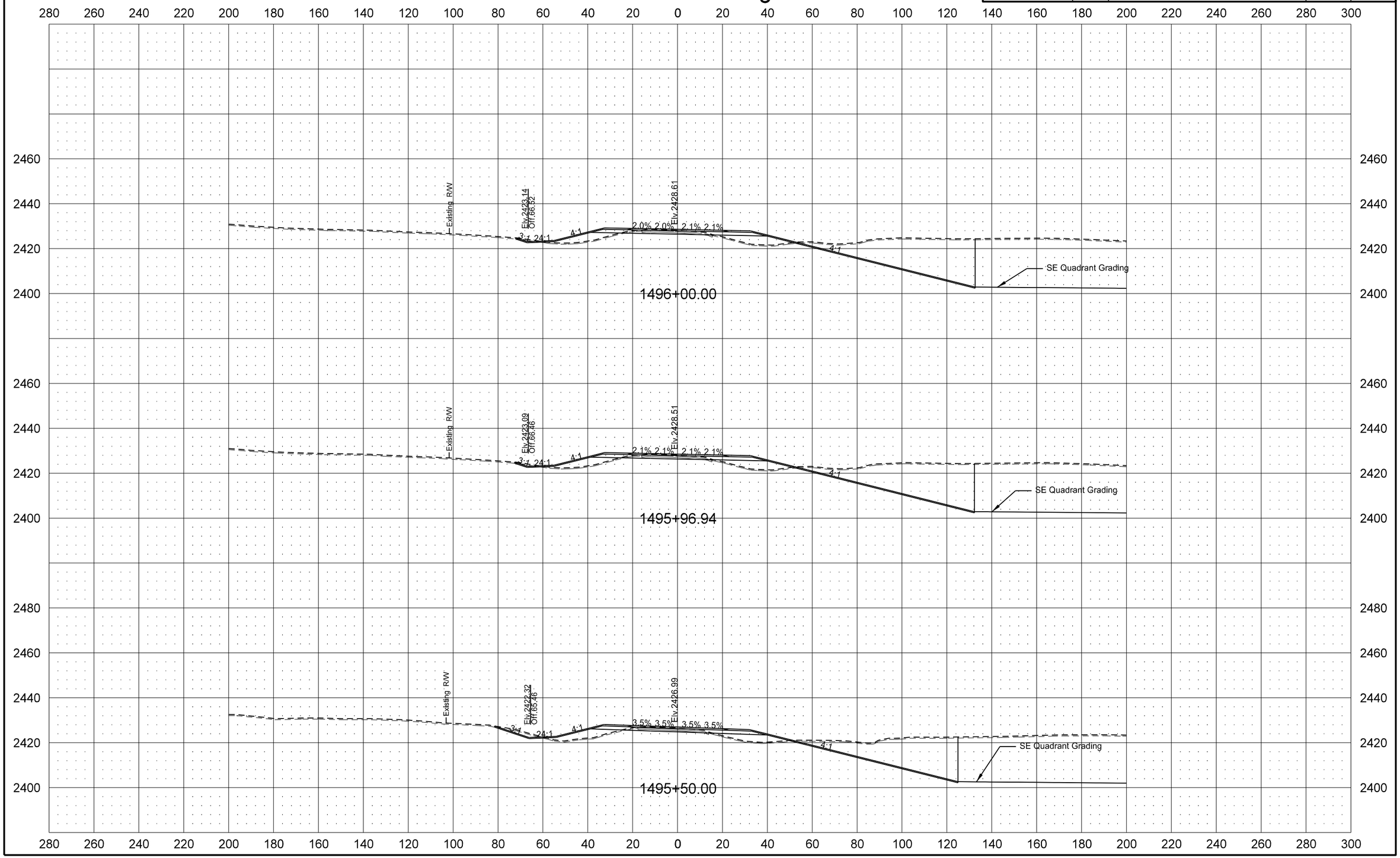
Revised	1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
		ND	SOIB-7-023(051)027	200	10

ND 23 South Leg



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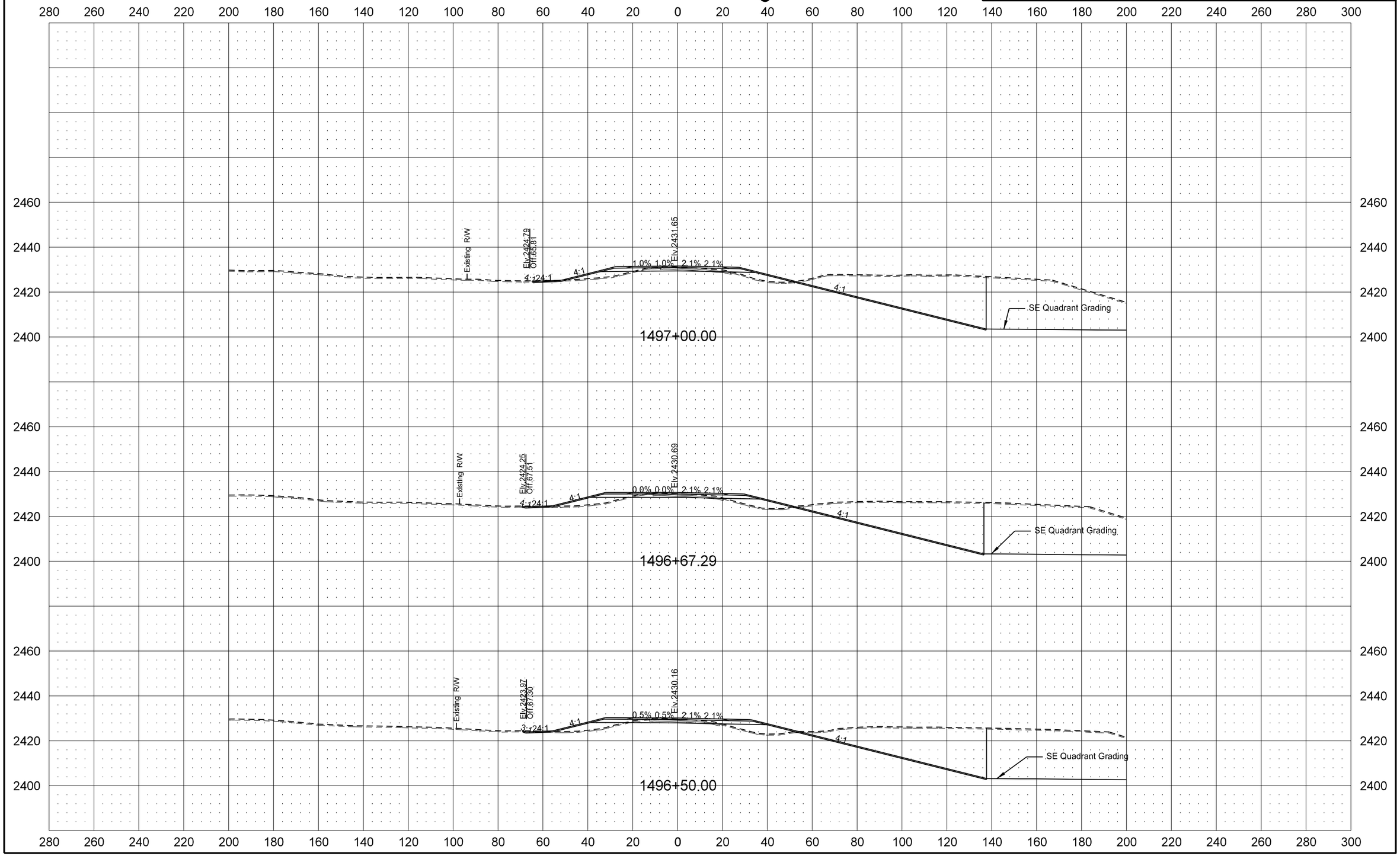
	ND	SOIB-7-023(051)027	200	11

ND 23 South Leg



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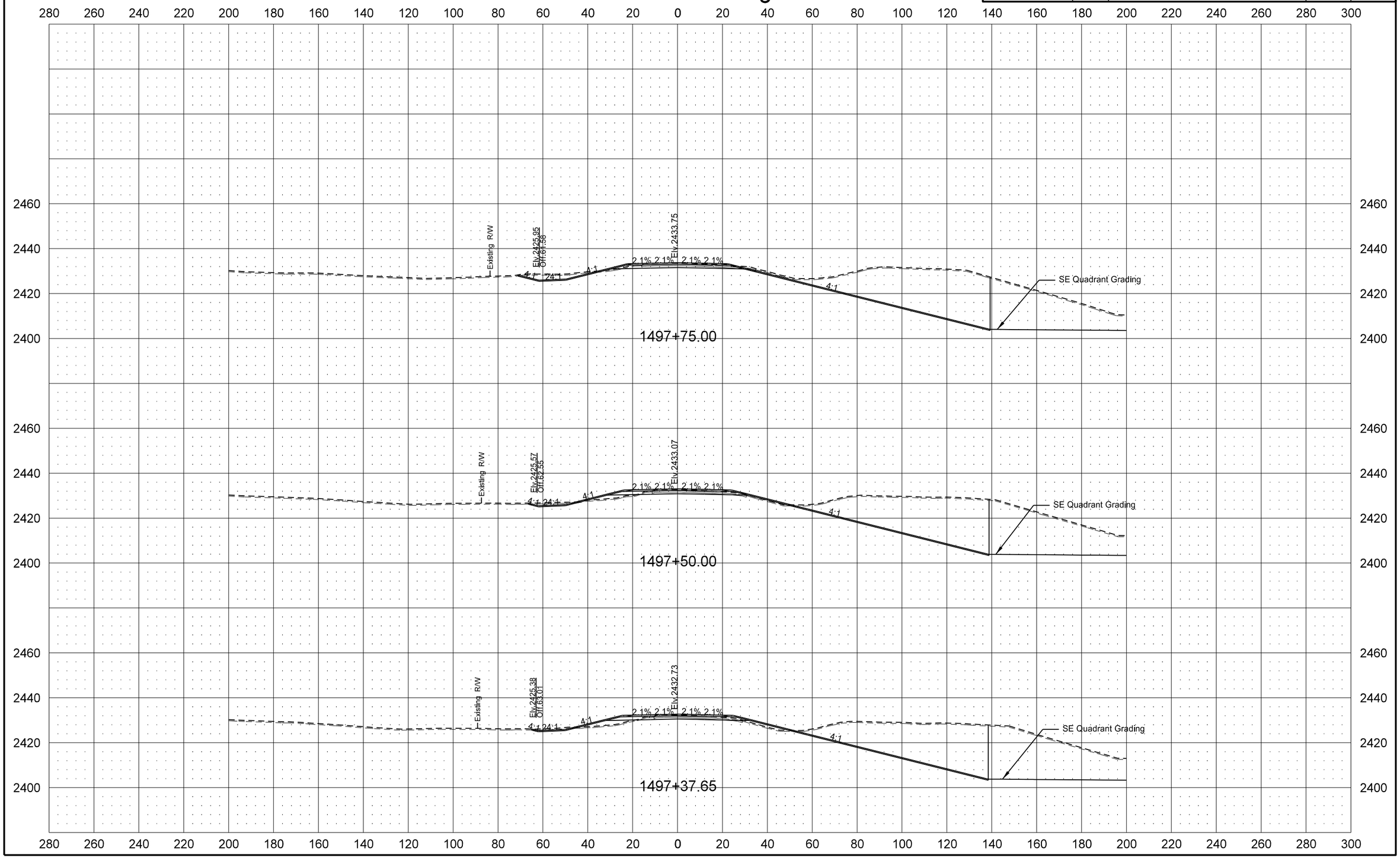
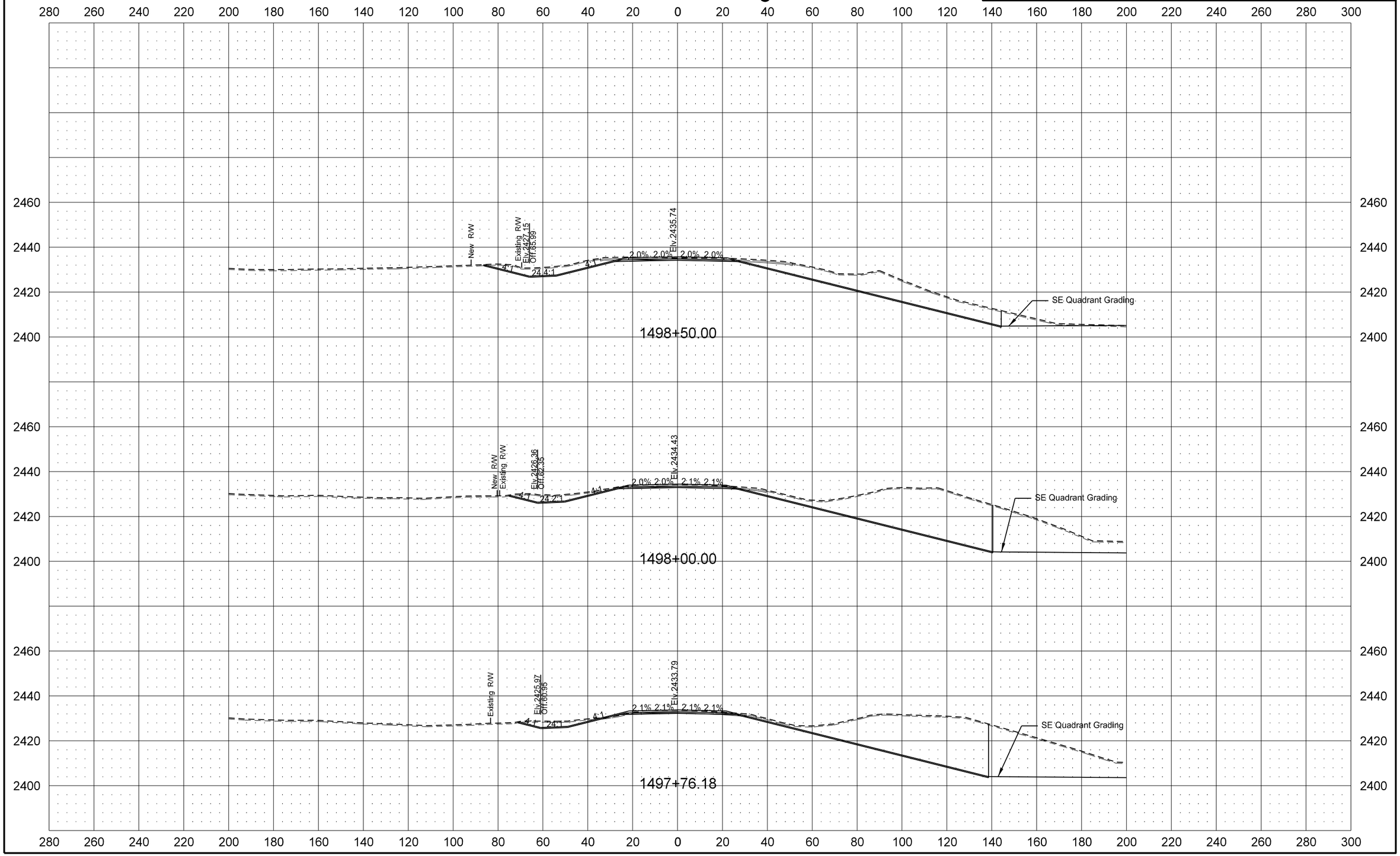
Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	12

ND 23 South Leg



Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	13

ND 23 South Leg



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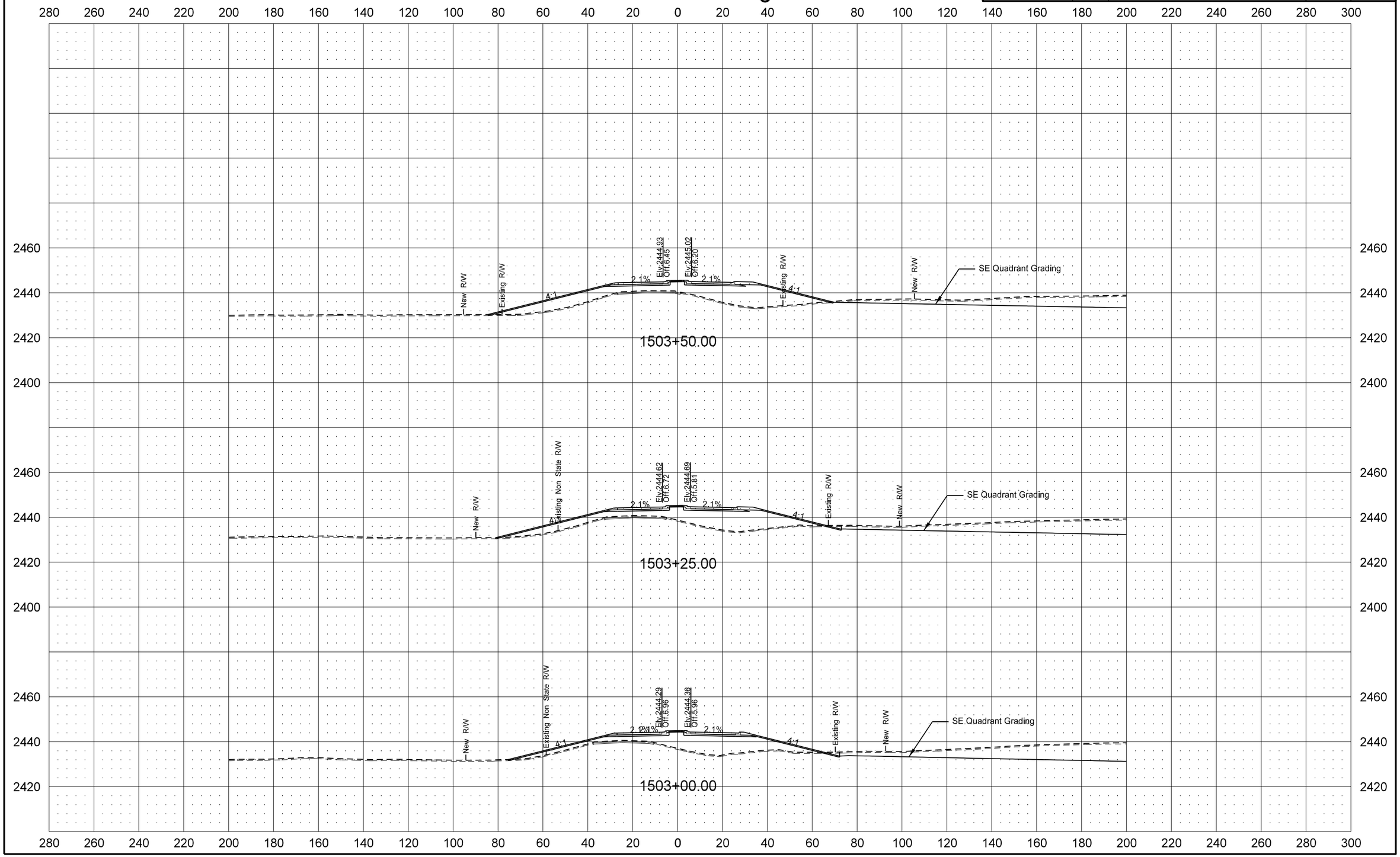
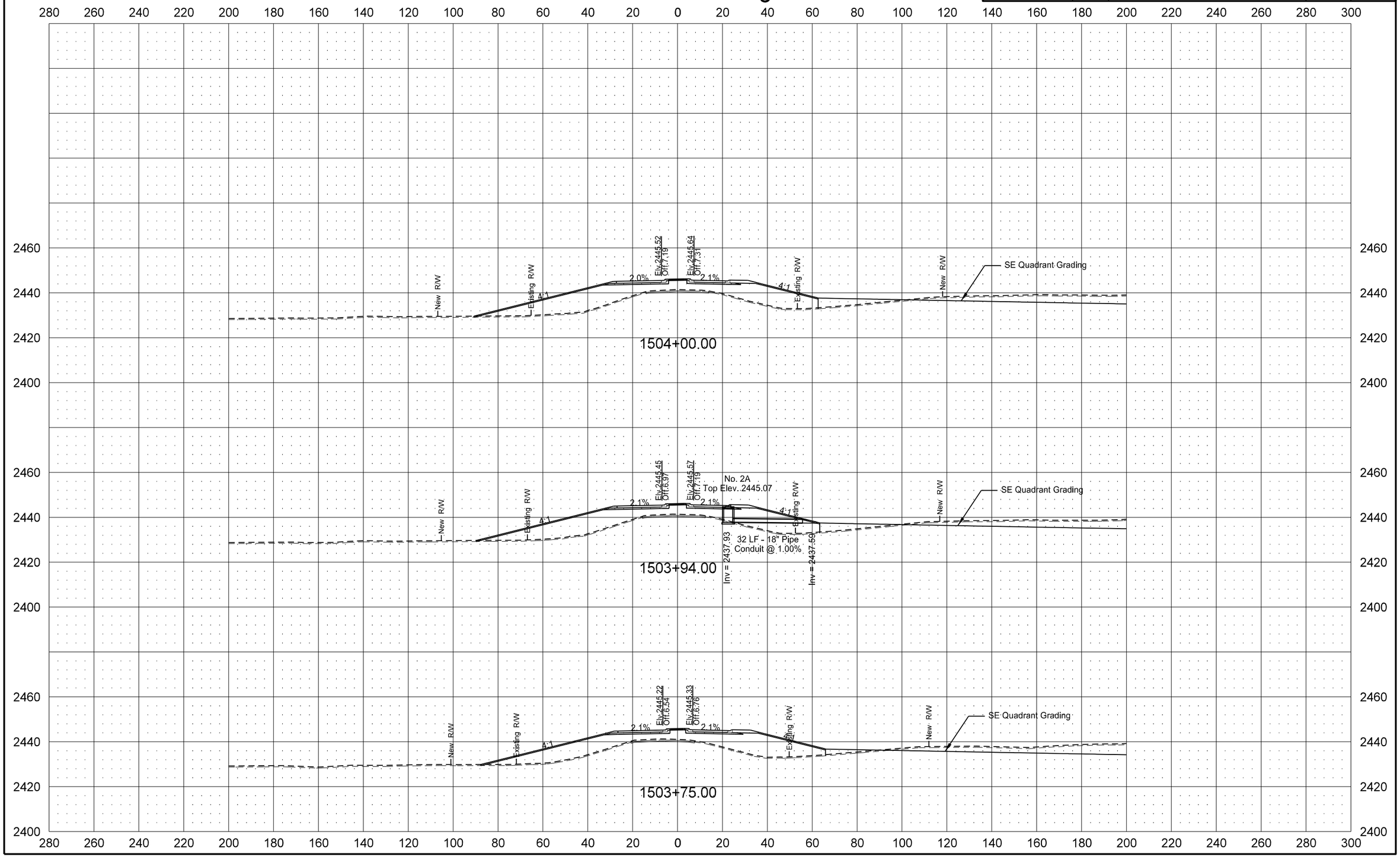
Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	19

ND 23 South Leg



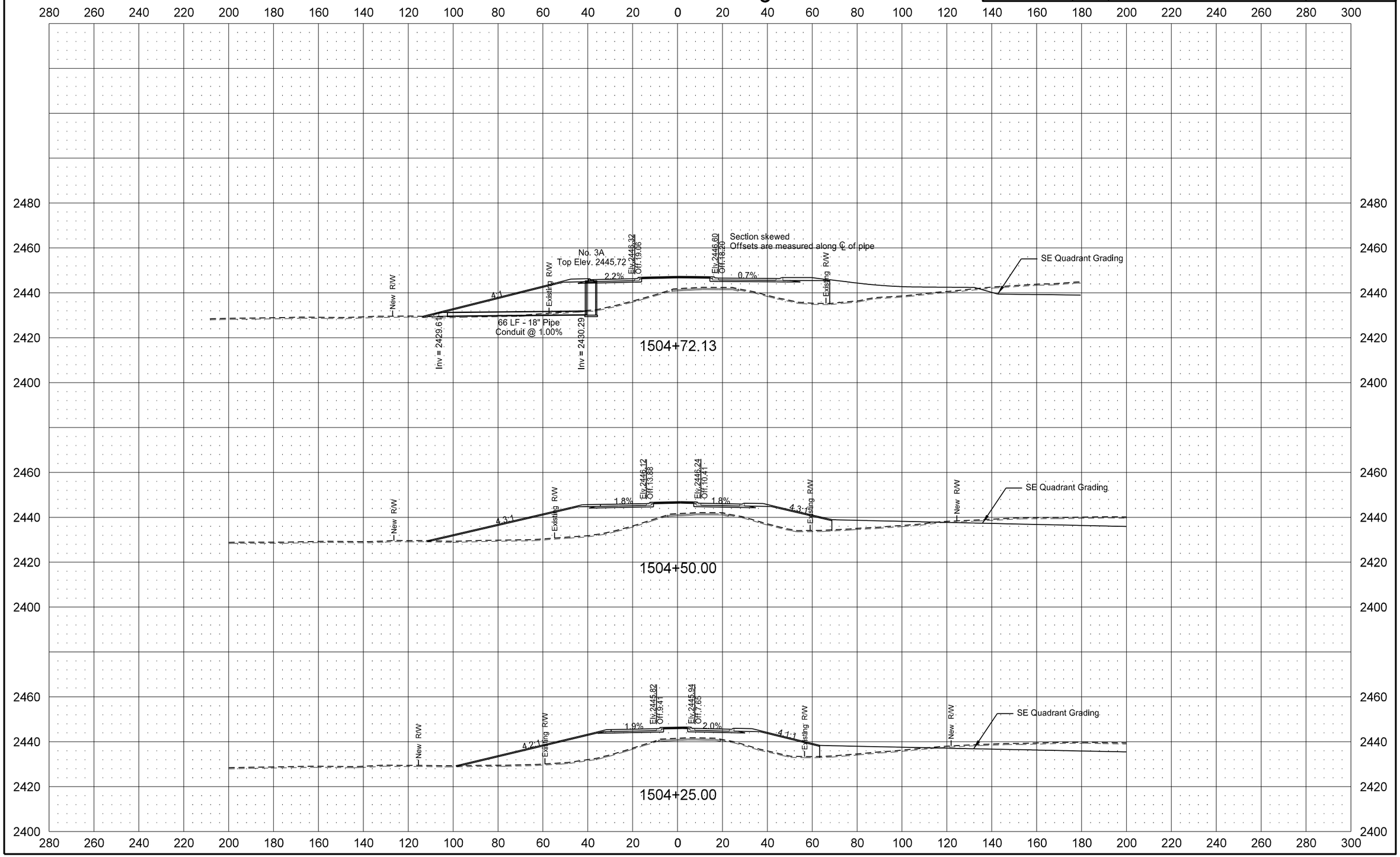
Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	20

ND 23 South Leg



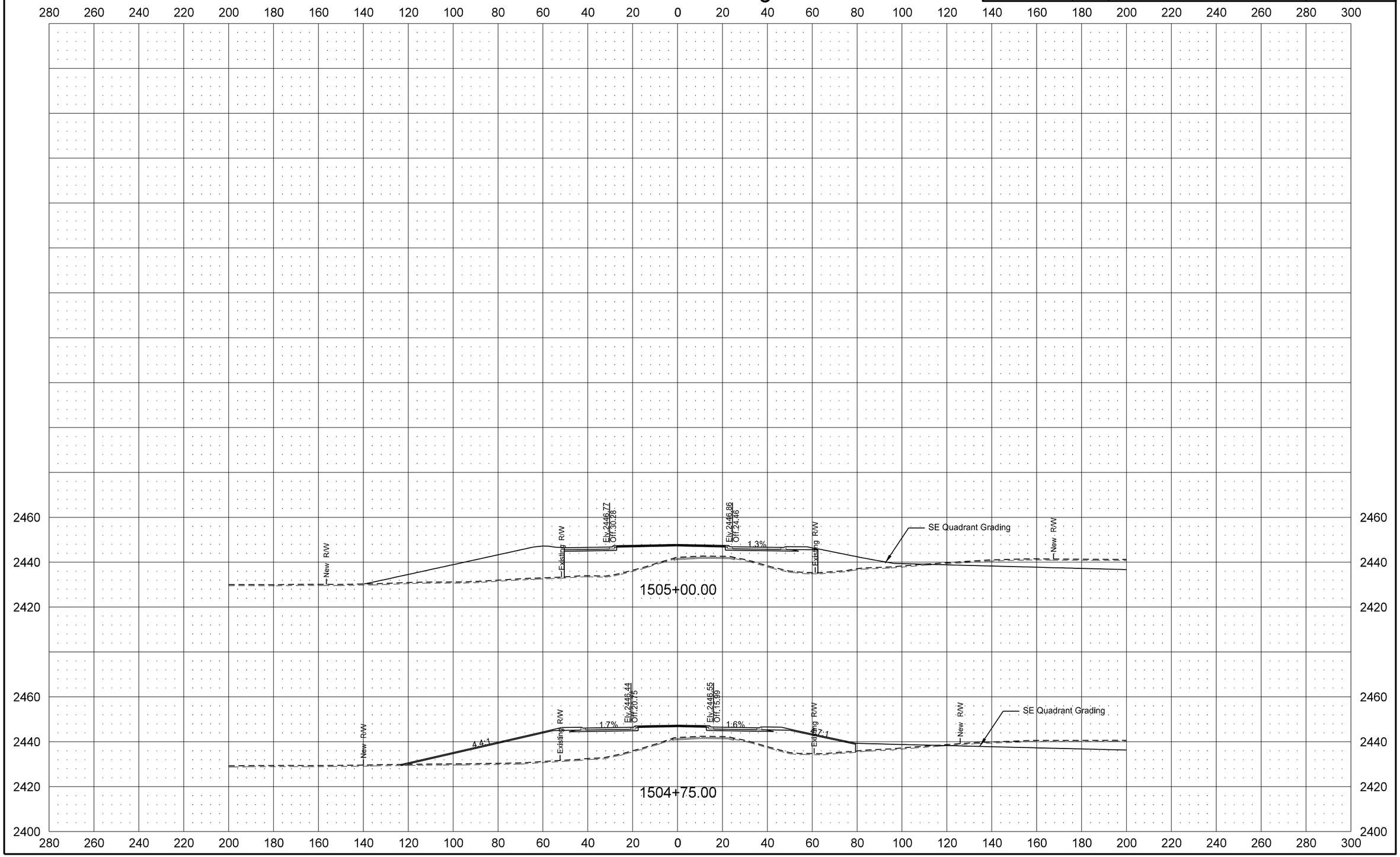
Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	21

ND 23 South Leg



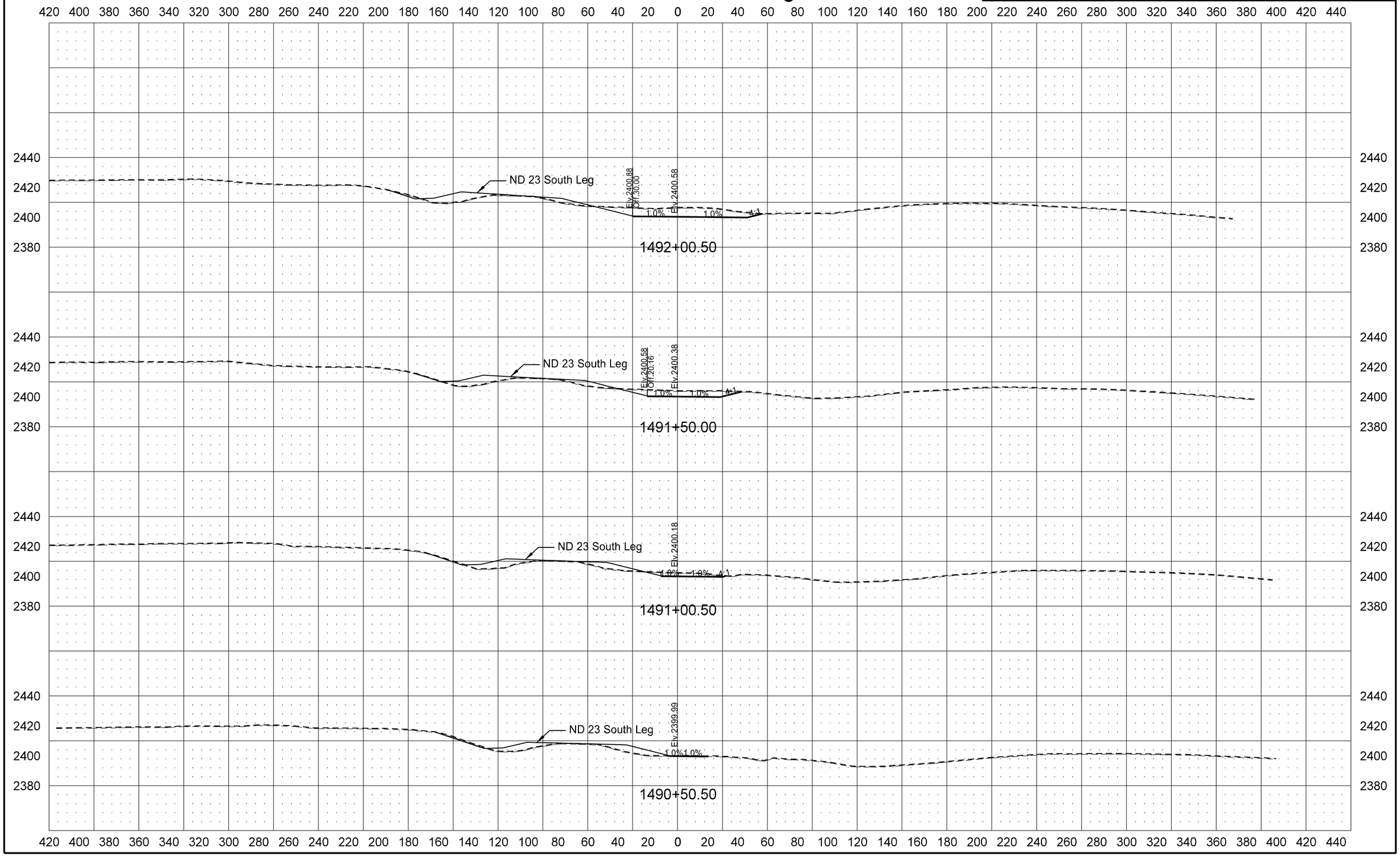
Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	22

ND 23 South Leg



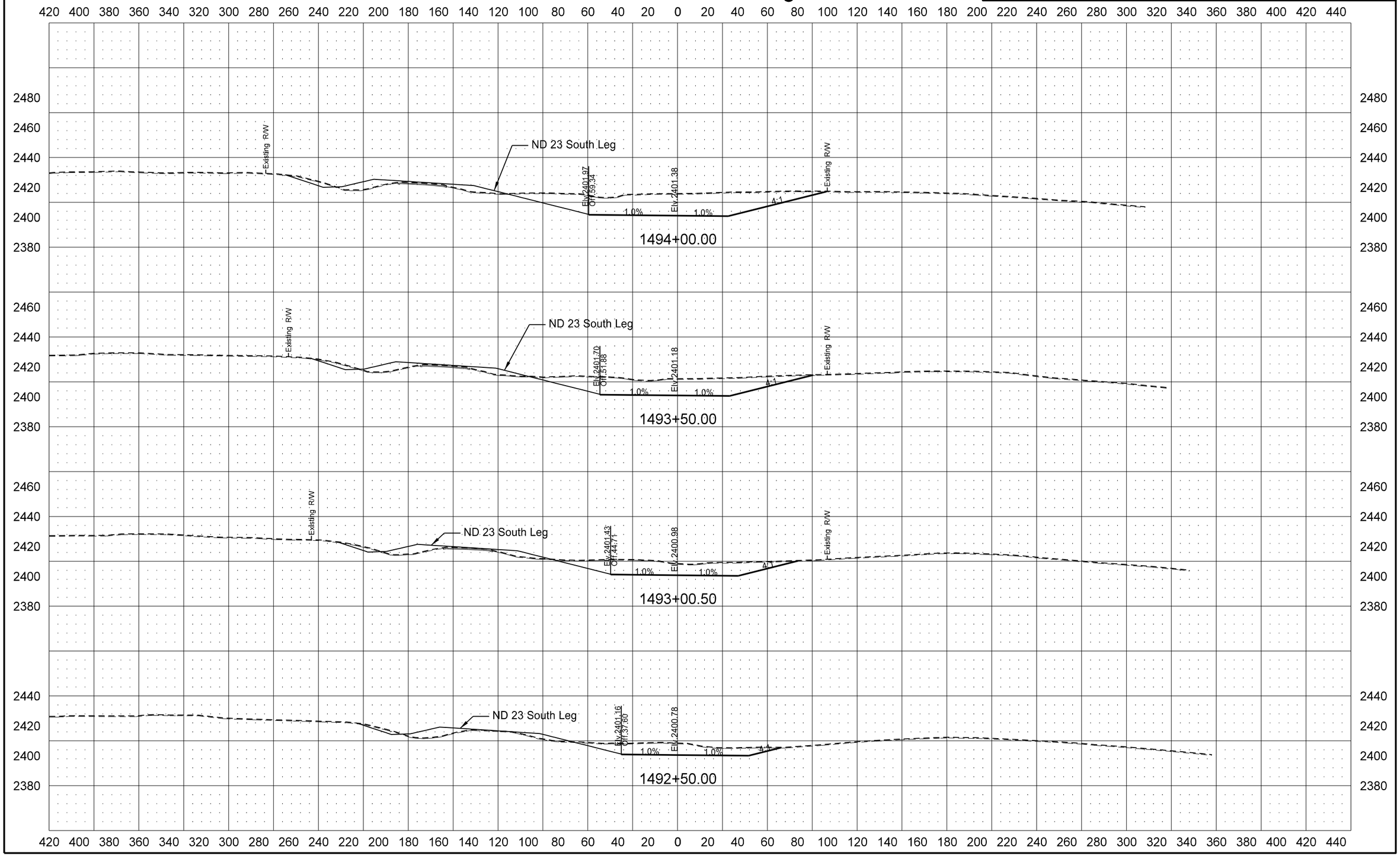
Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	26

SE Quadrant Grading



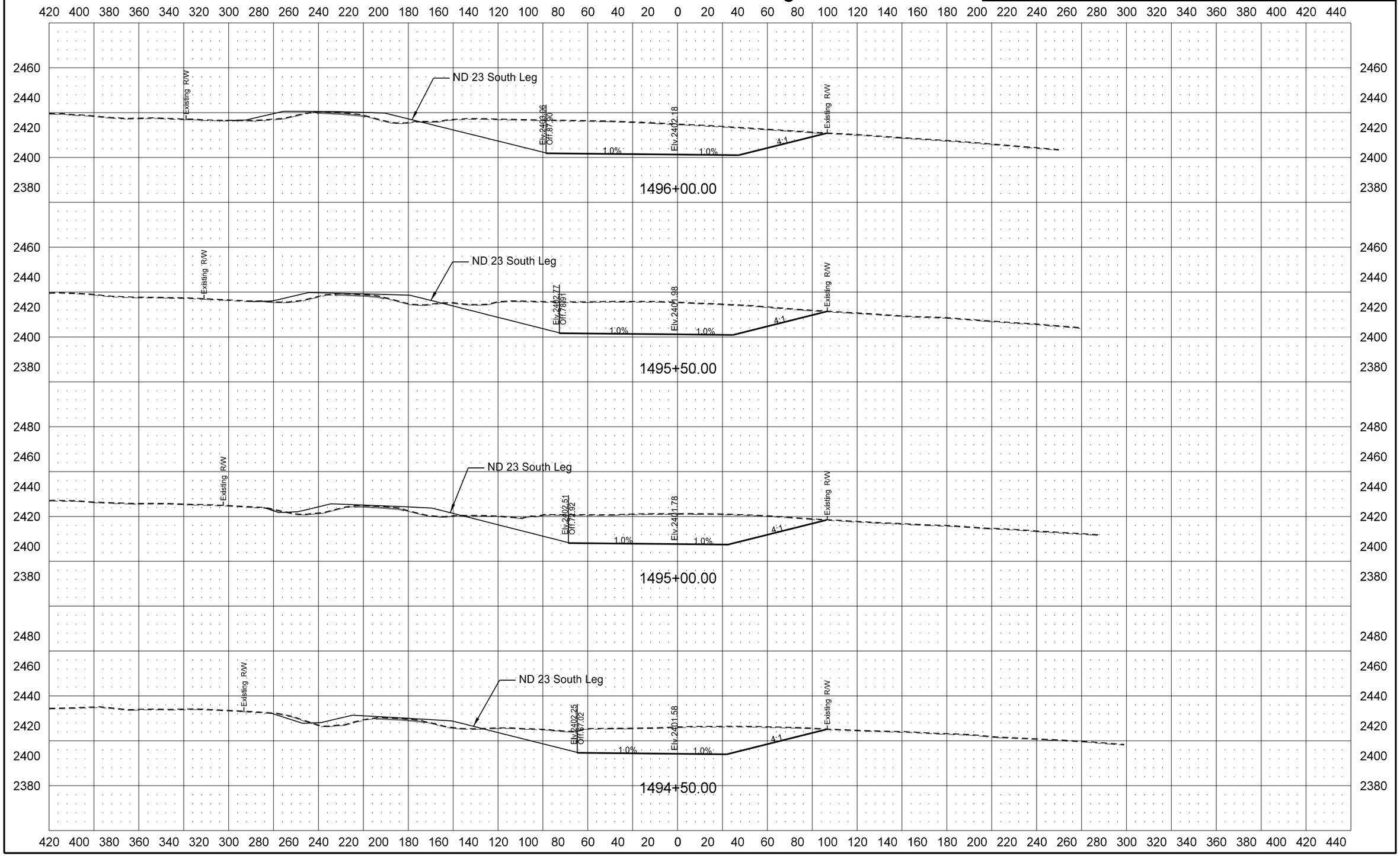
Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	27

SE Quadrant Grading



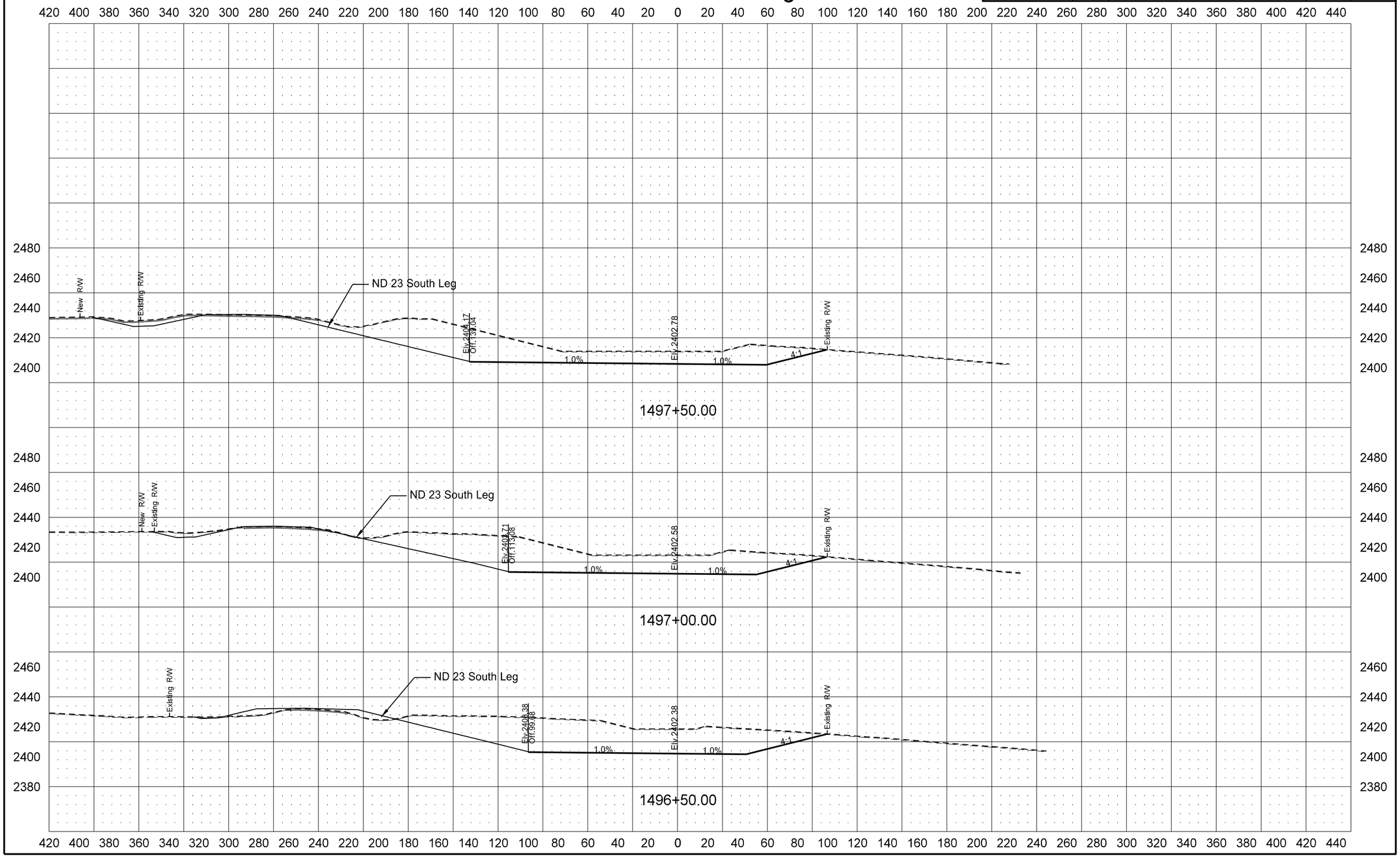
Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	28

SE Quadrant Grading



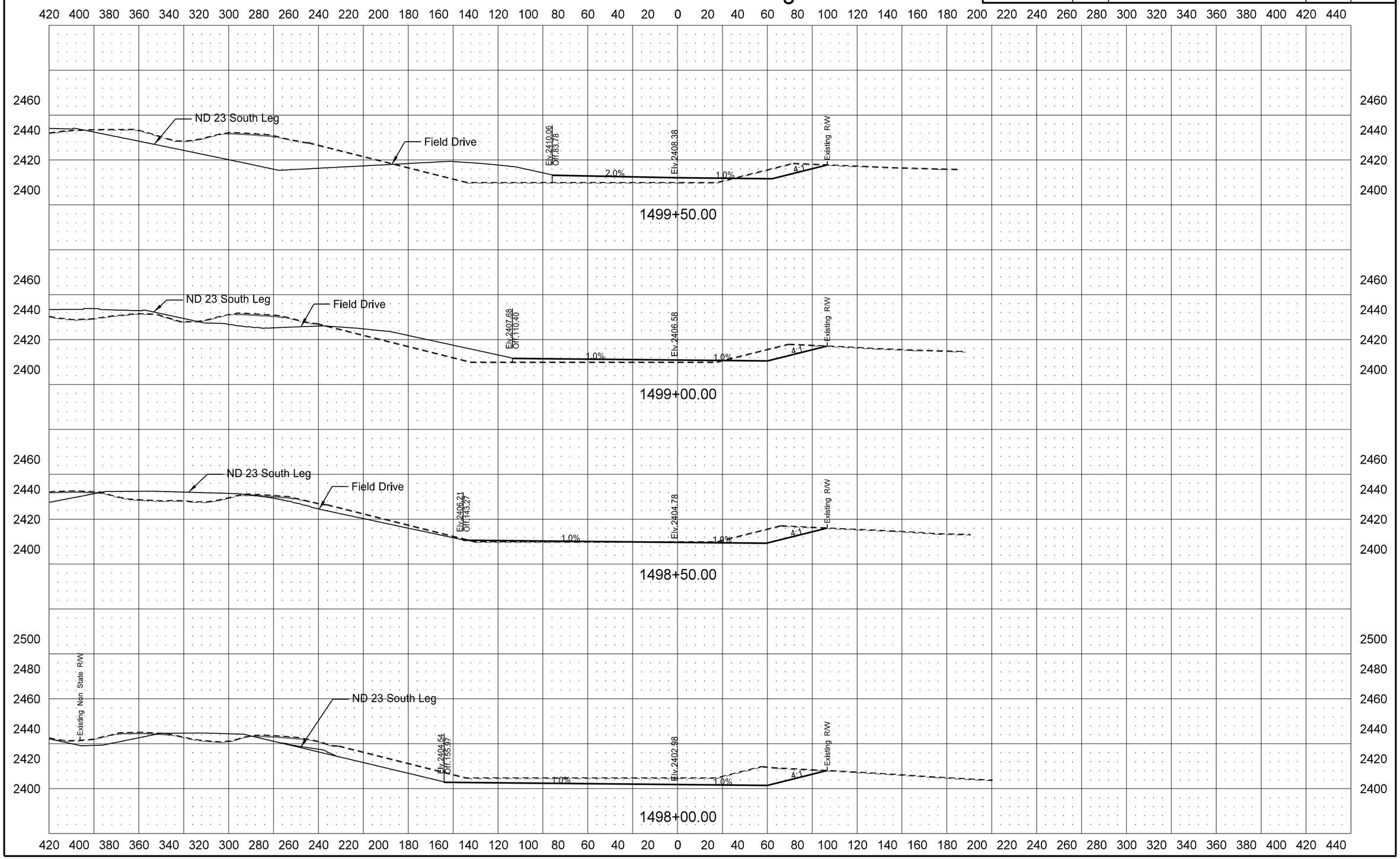
Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	29

SE Quadrant Grading



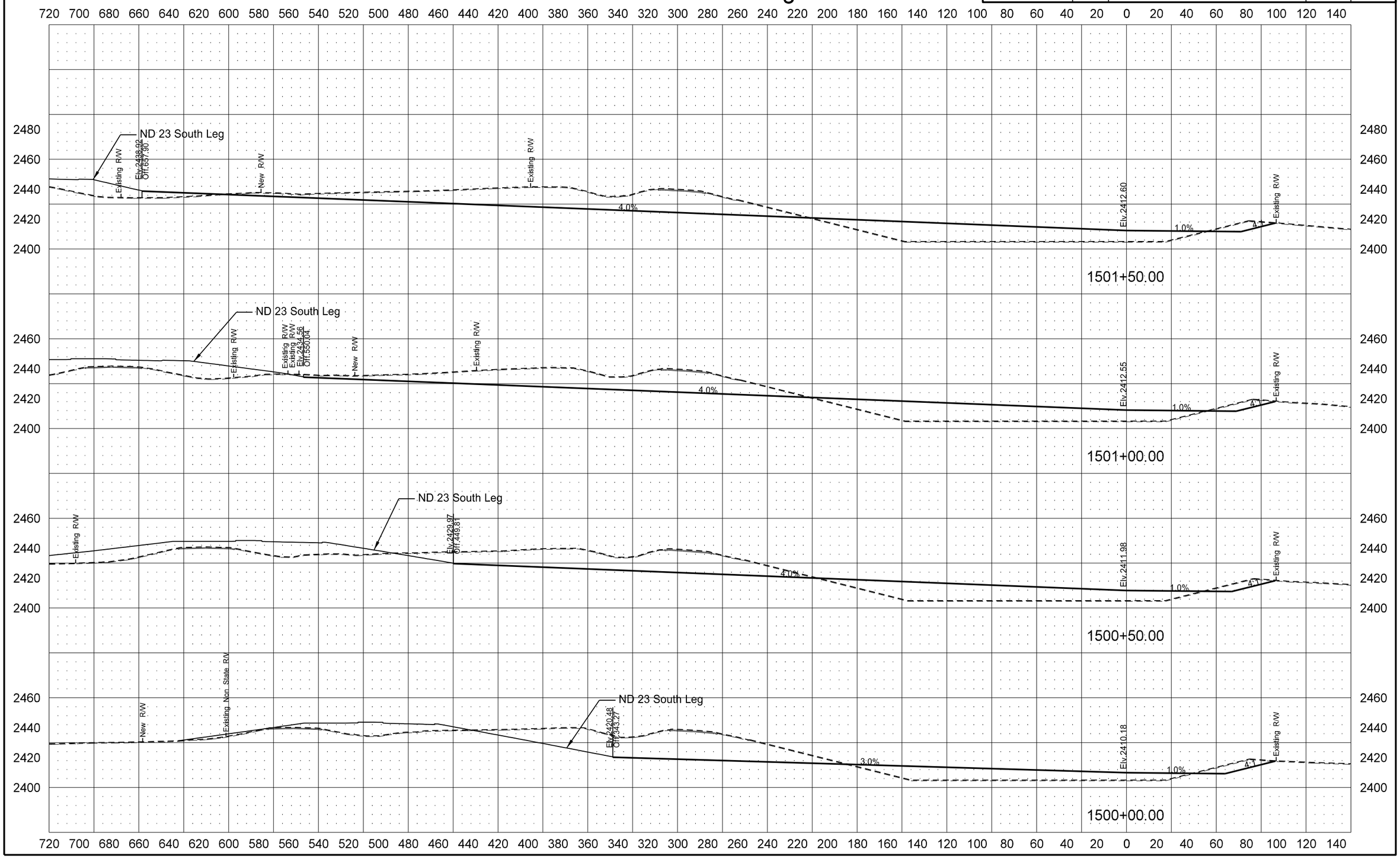
Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	30

SE Quadrant Grading



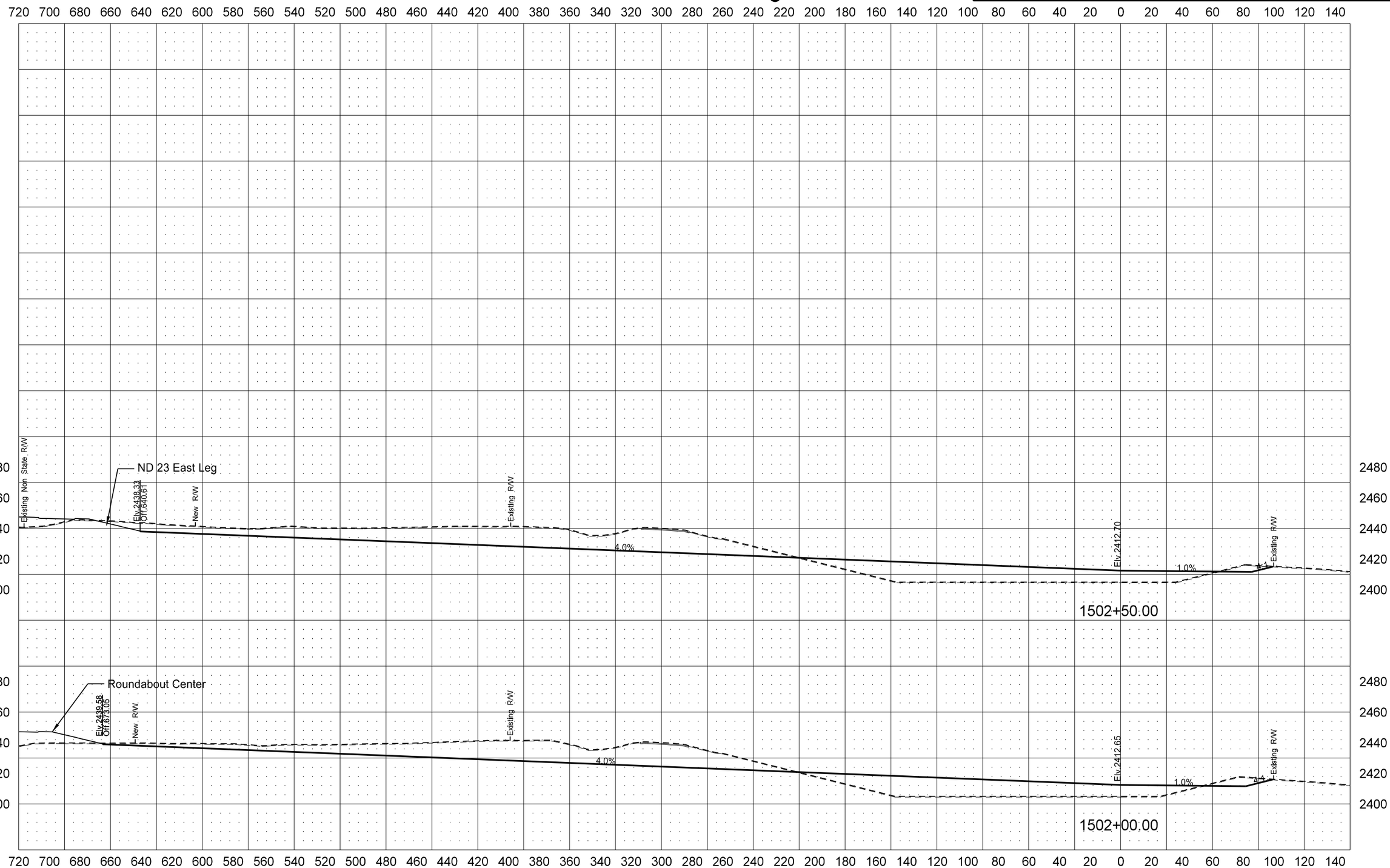
Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	31

SE Quadrant Grading



Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	32

SE Quadrant Grading



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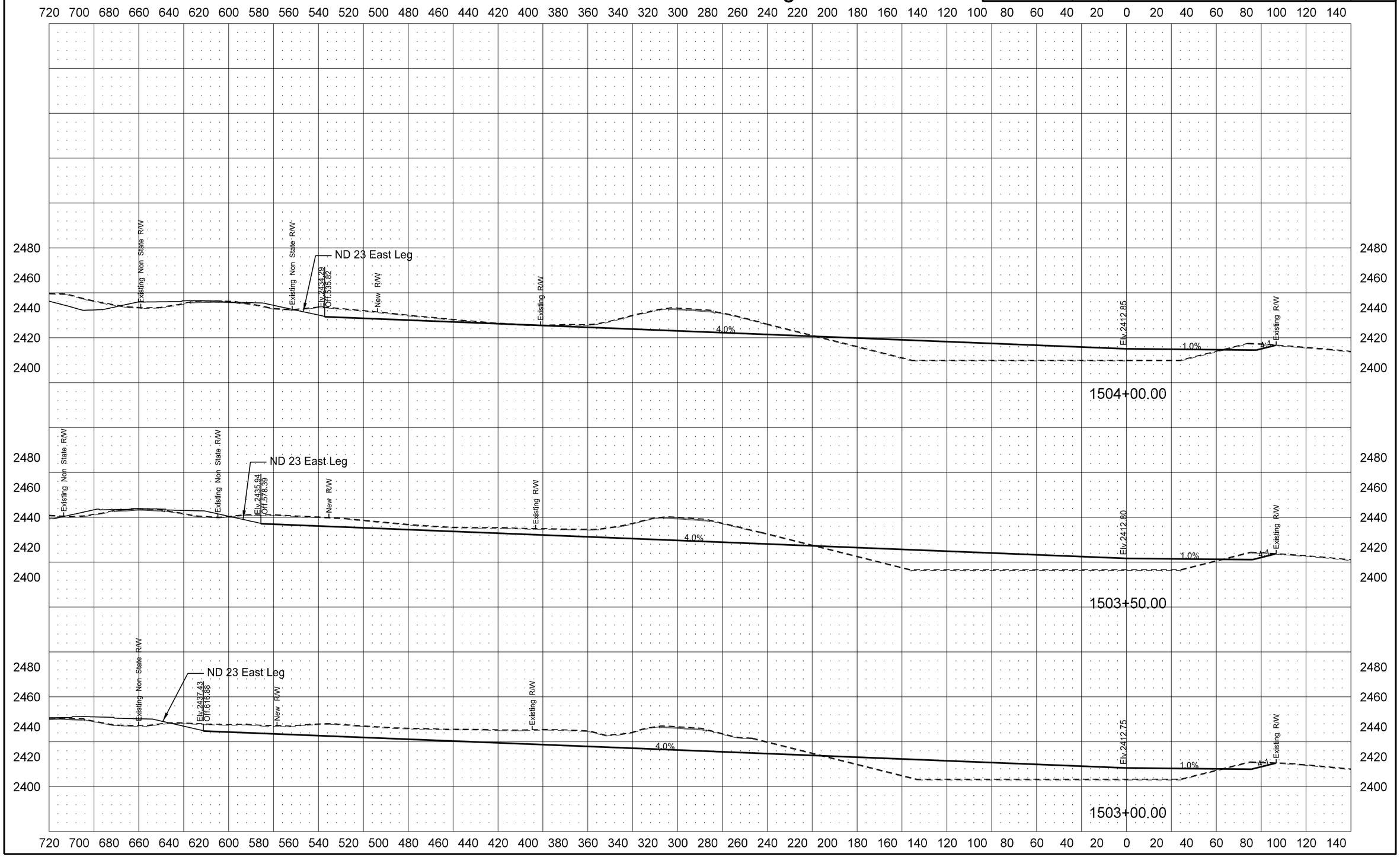
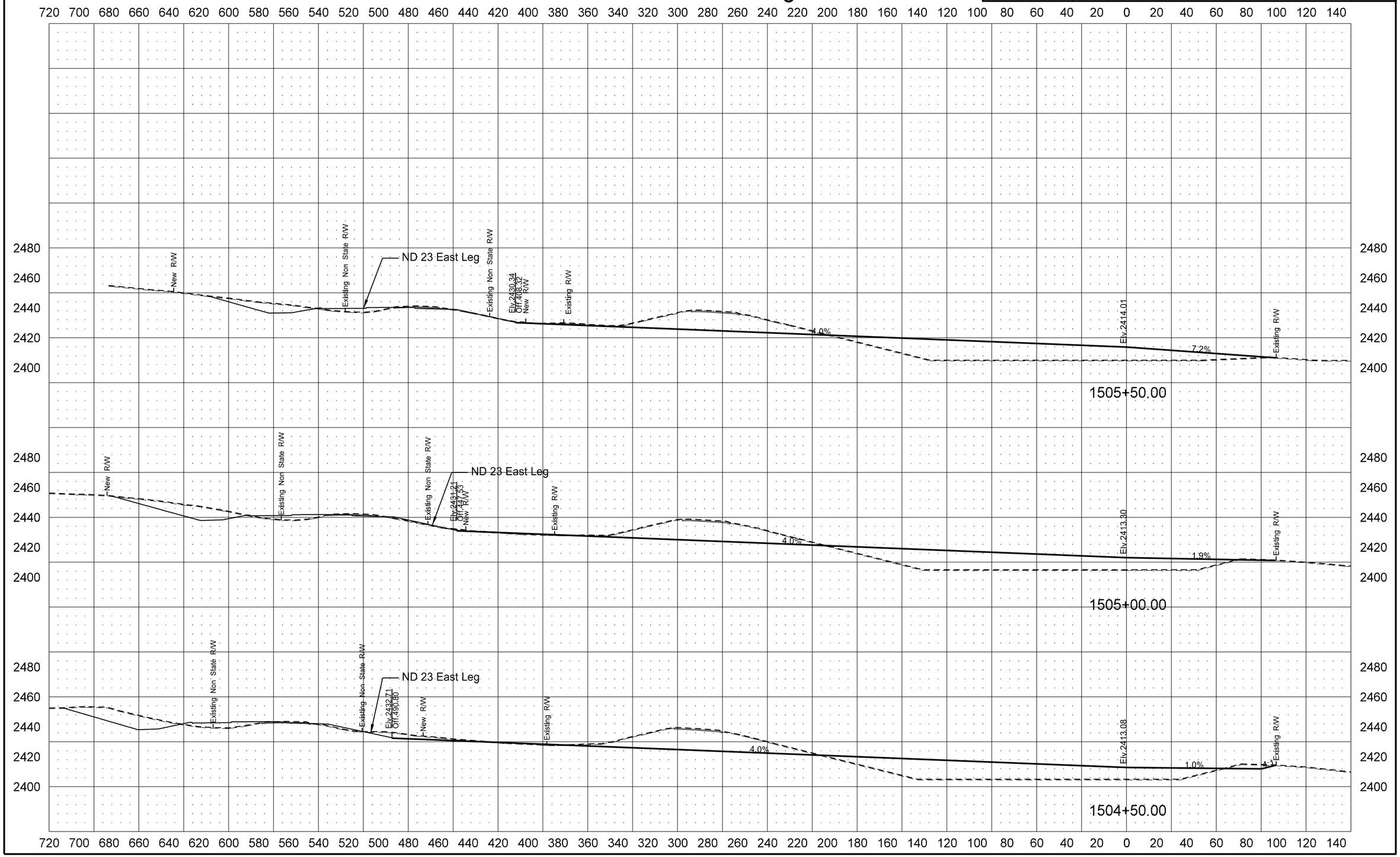
Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	33

SE Quadrant Grading



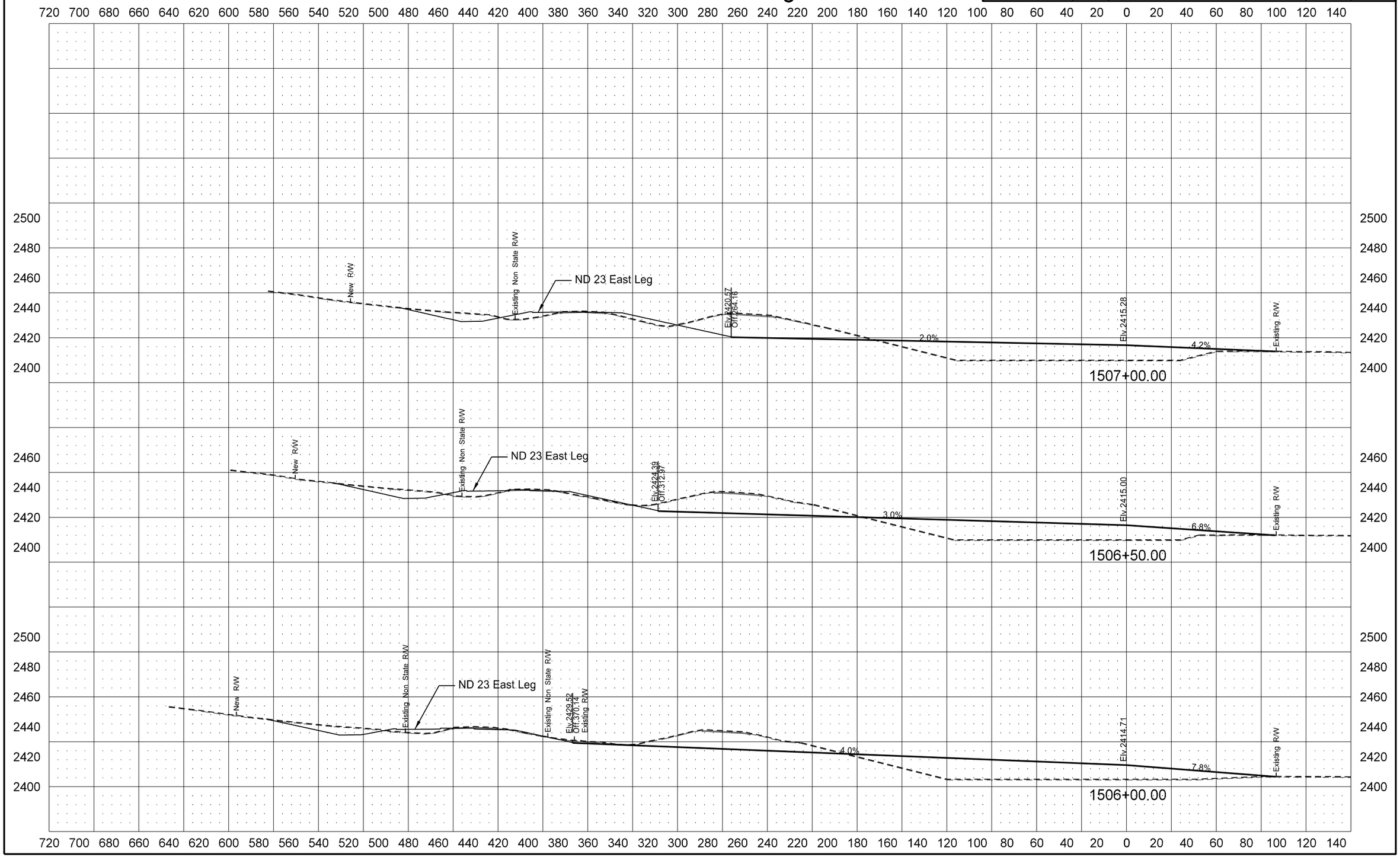
Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	34

SE Quadrant Grading



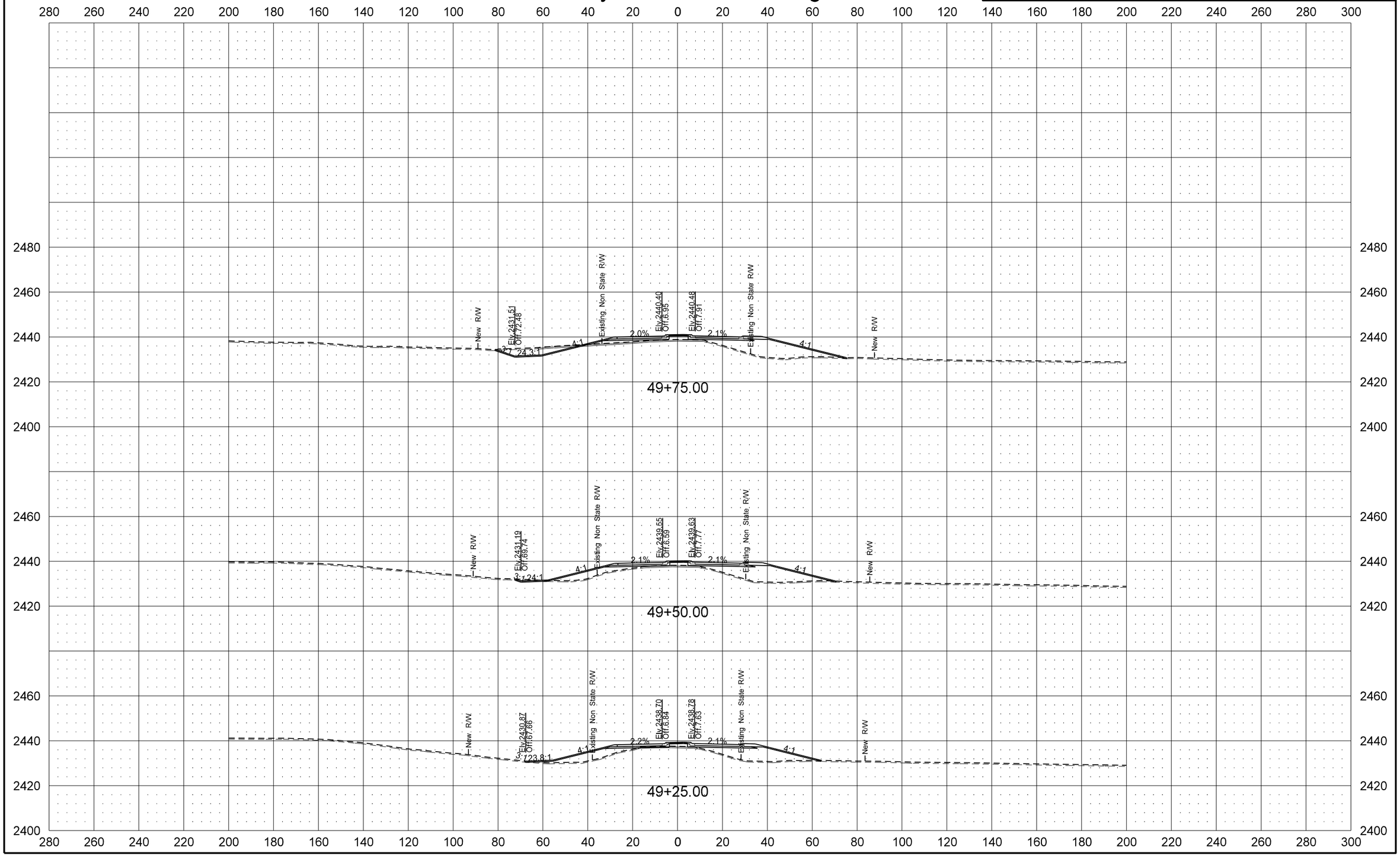
Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	35

SE Quadrant Grading



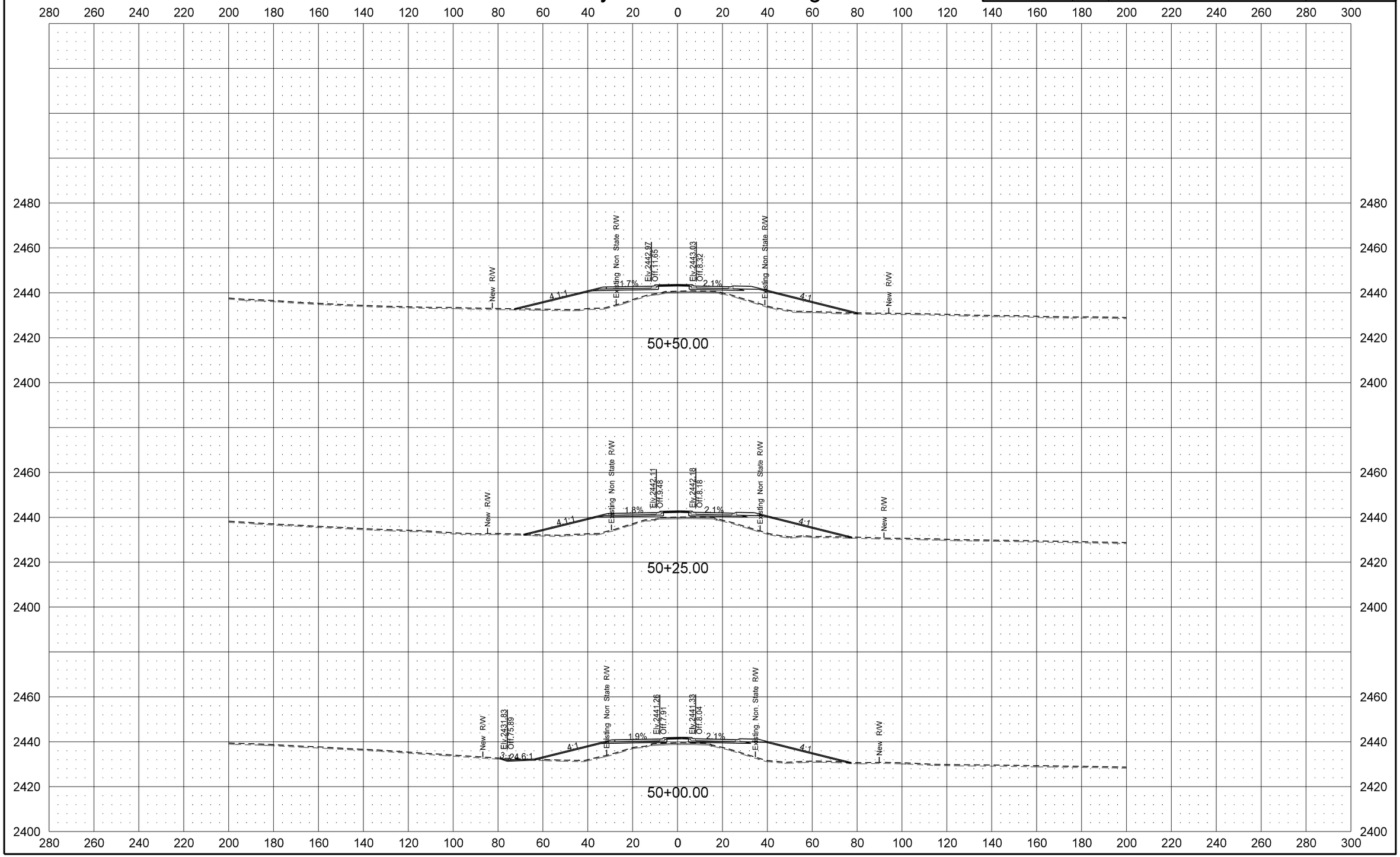
Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	46

County Road 10 West Leg



Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	47

County Road 10 West Leg



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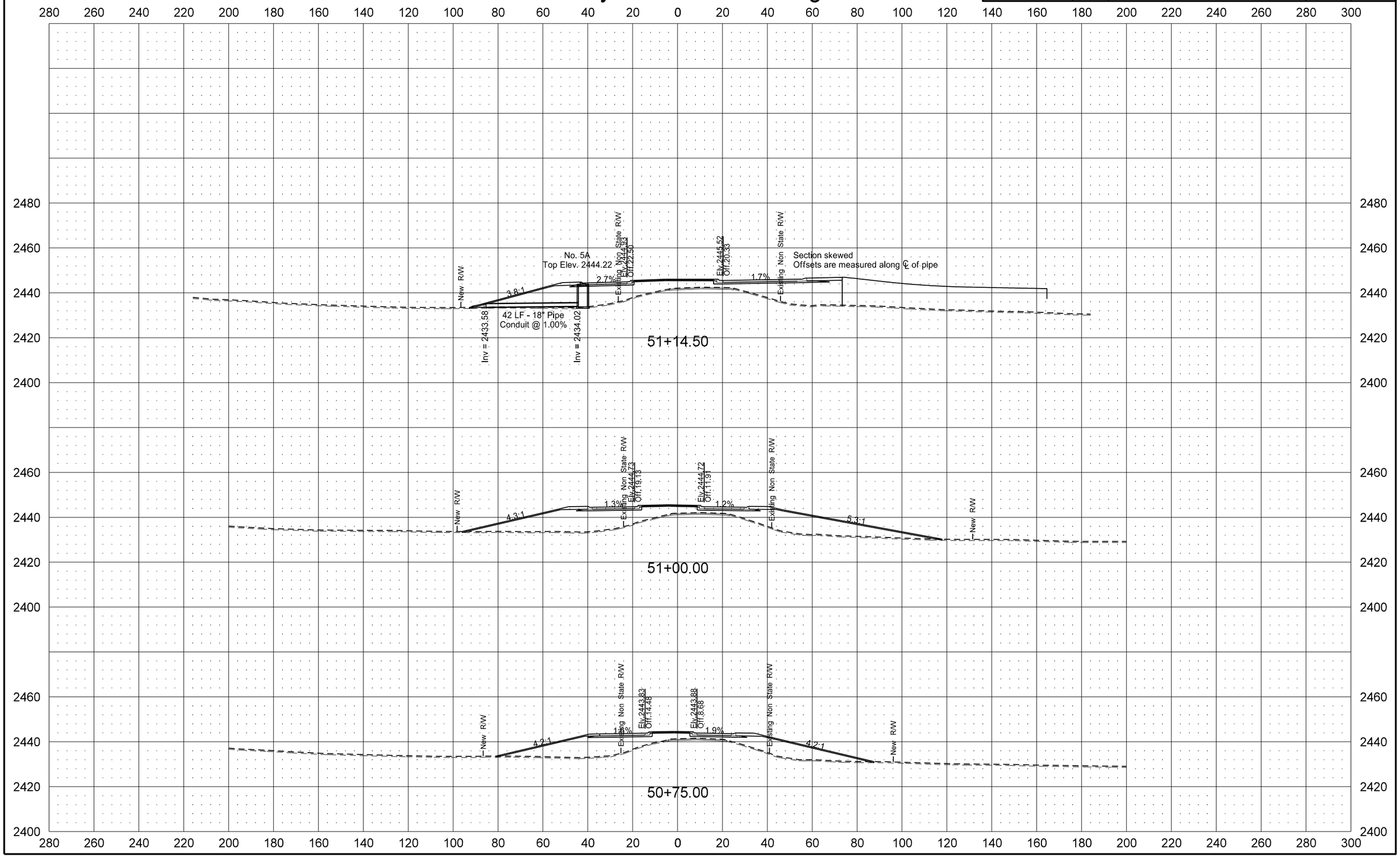
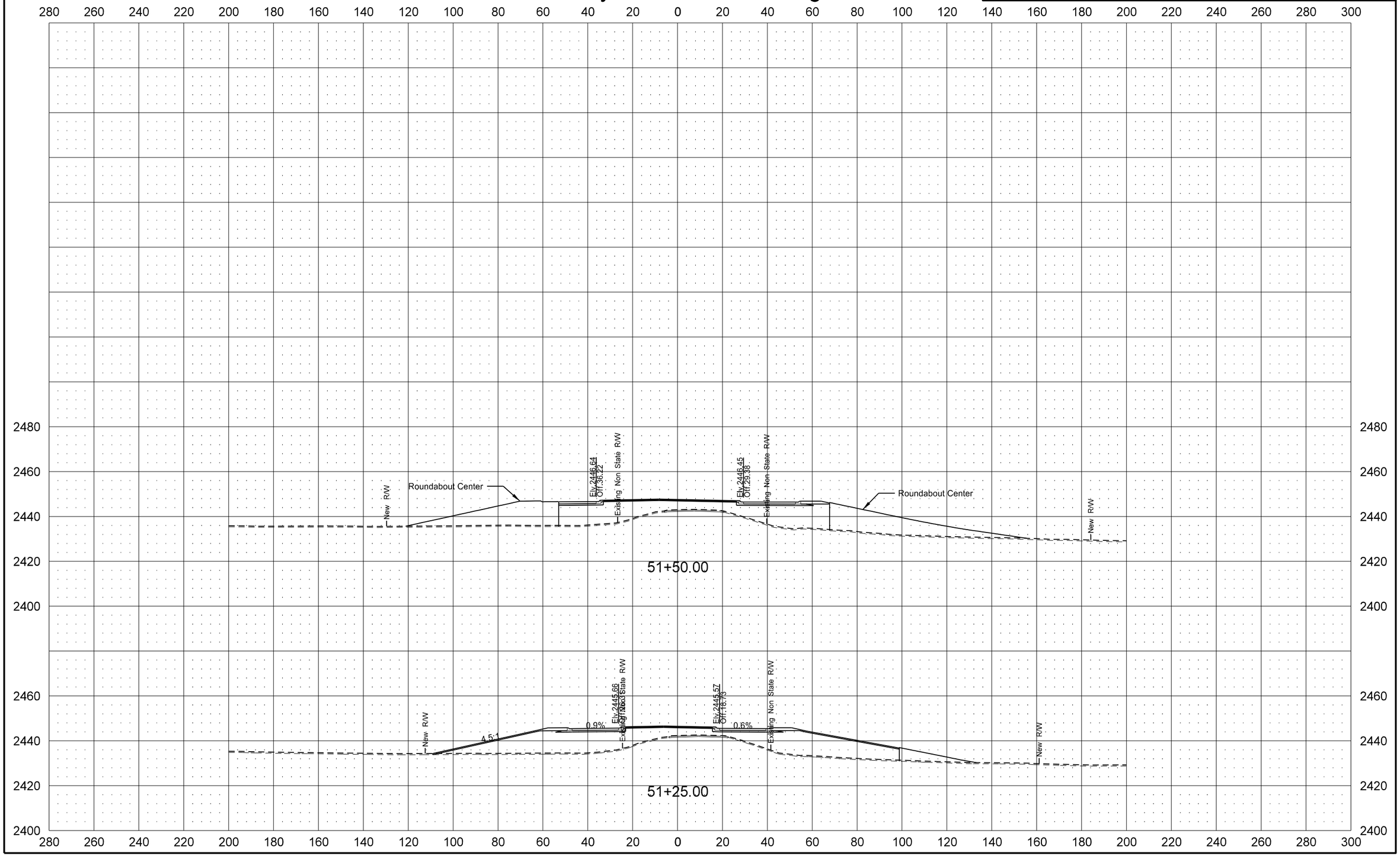
Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	48

County Road 10 West Leg



Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	49

County Road 10 West Leg



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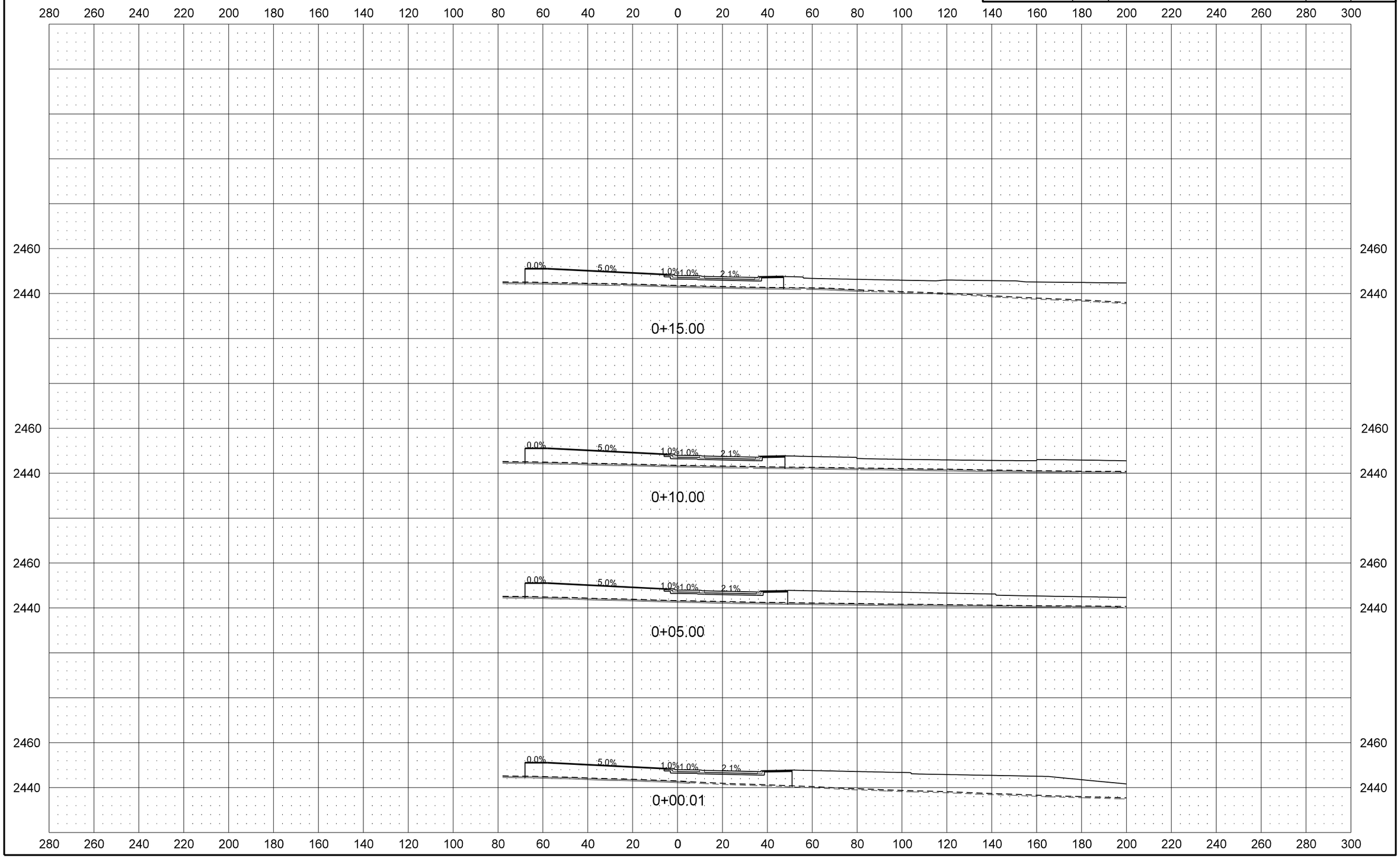
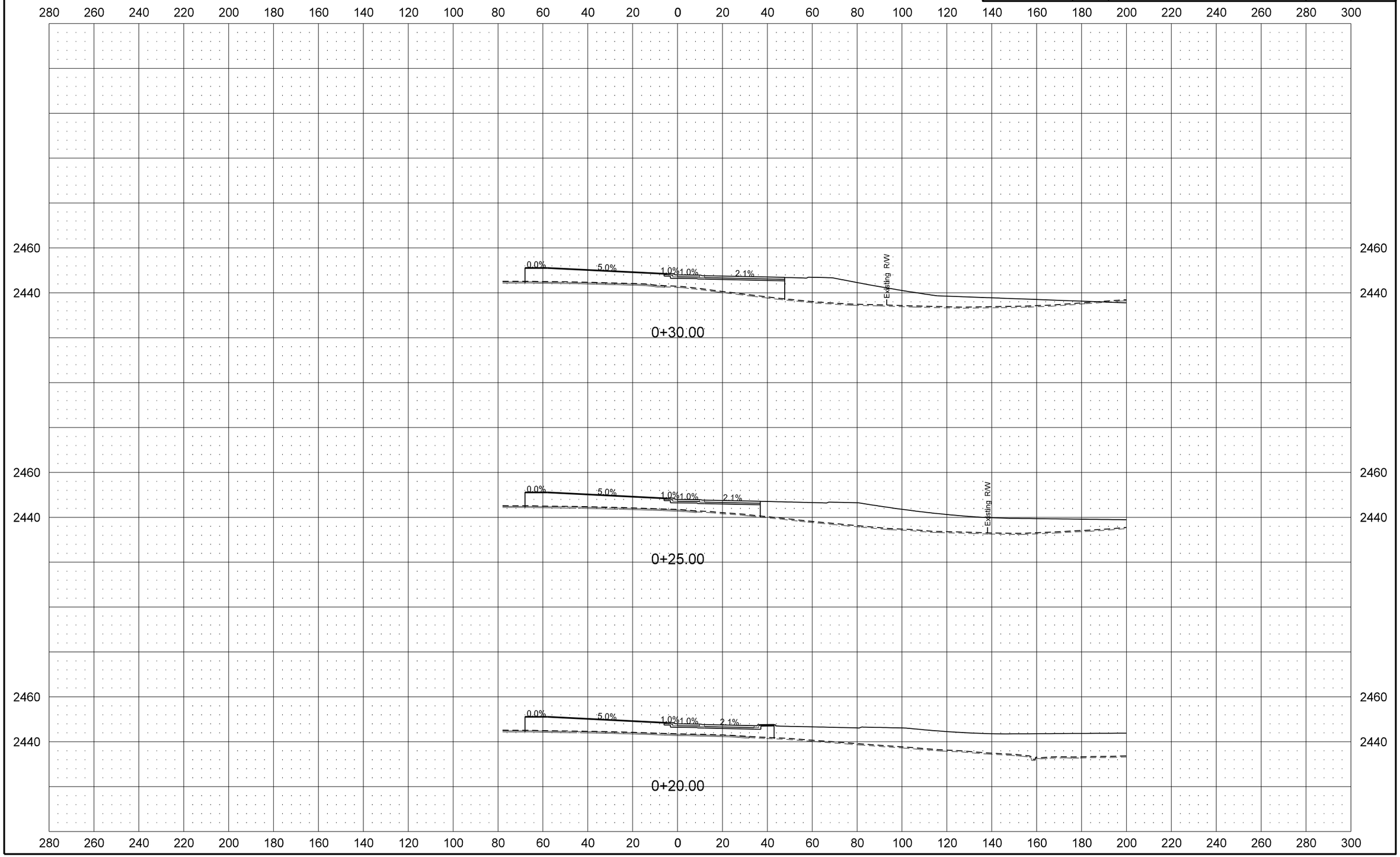
Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	56

Roundabout Center



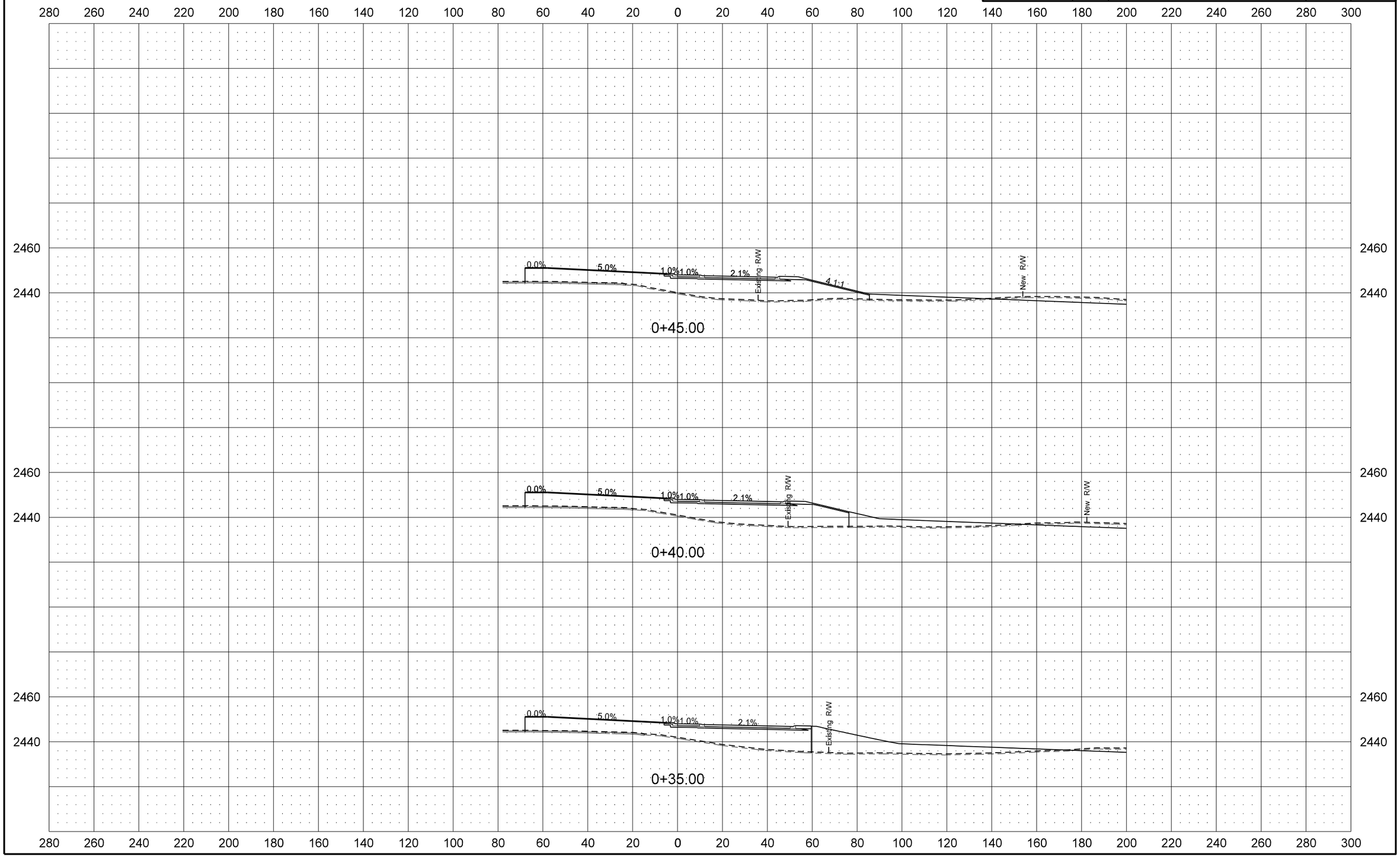
Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	57

Roundabout Center



Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	58

Roundabout Center



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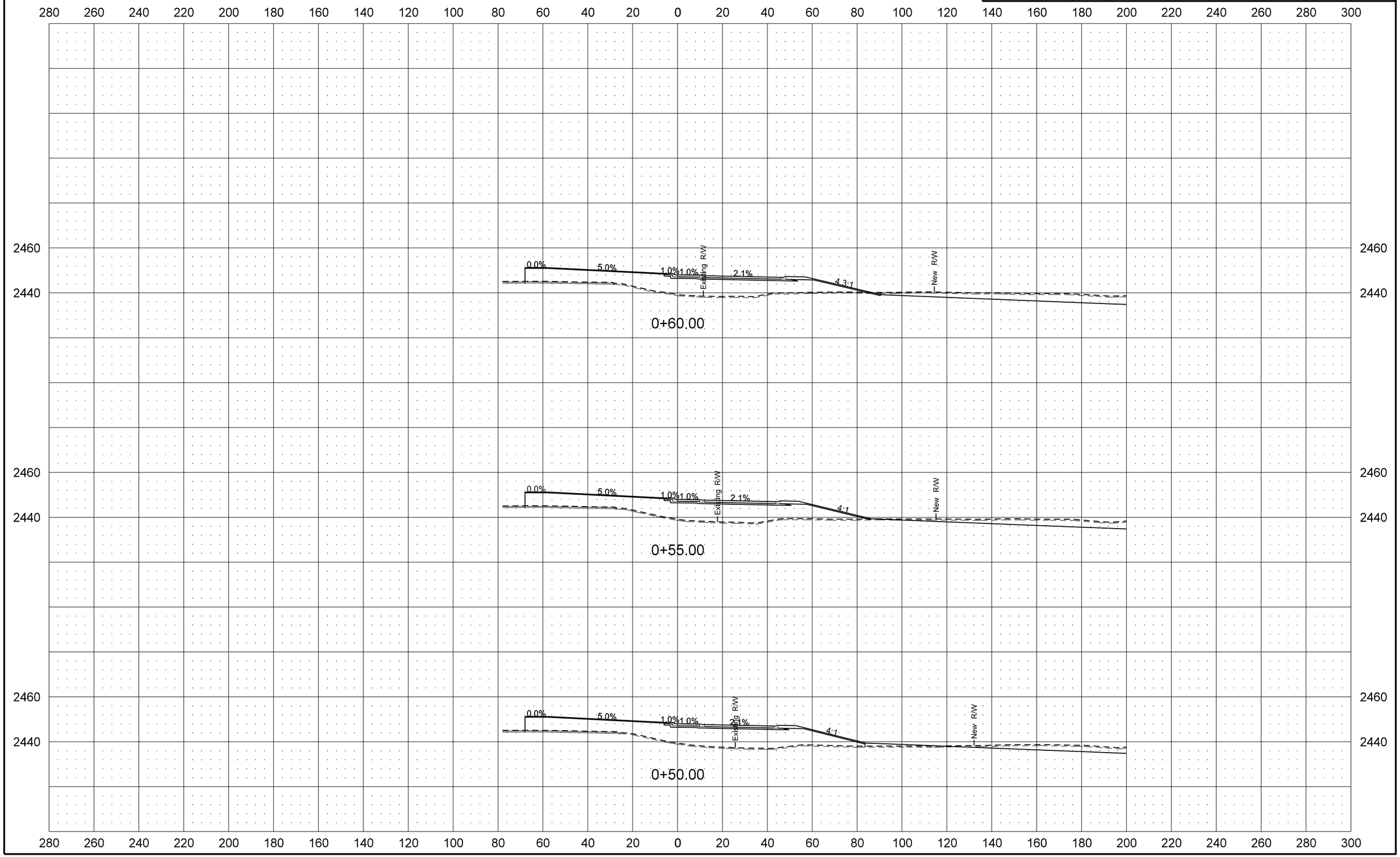
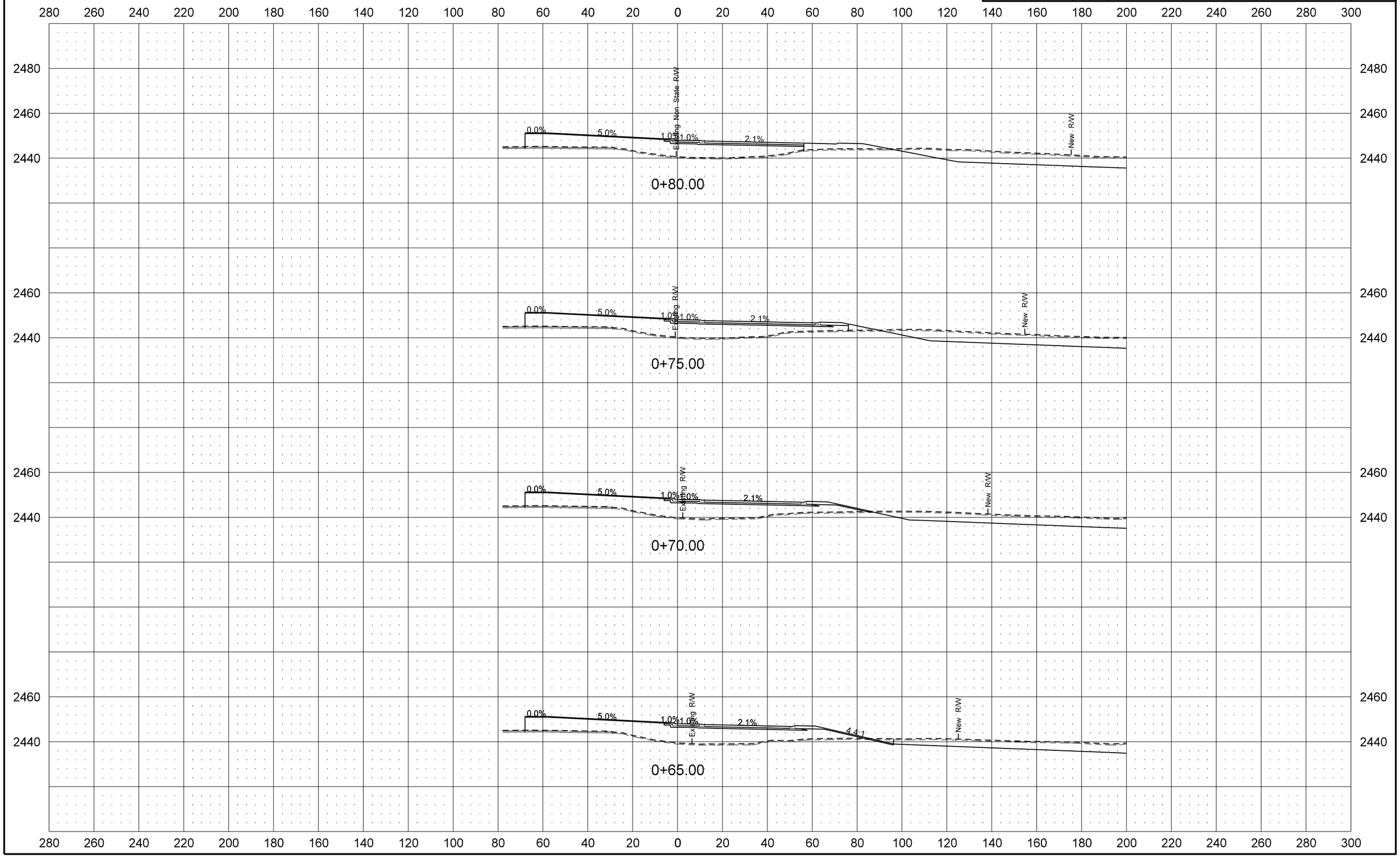
Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	59

Roundabout Center



Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	60

Roundabout Center



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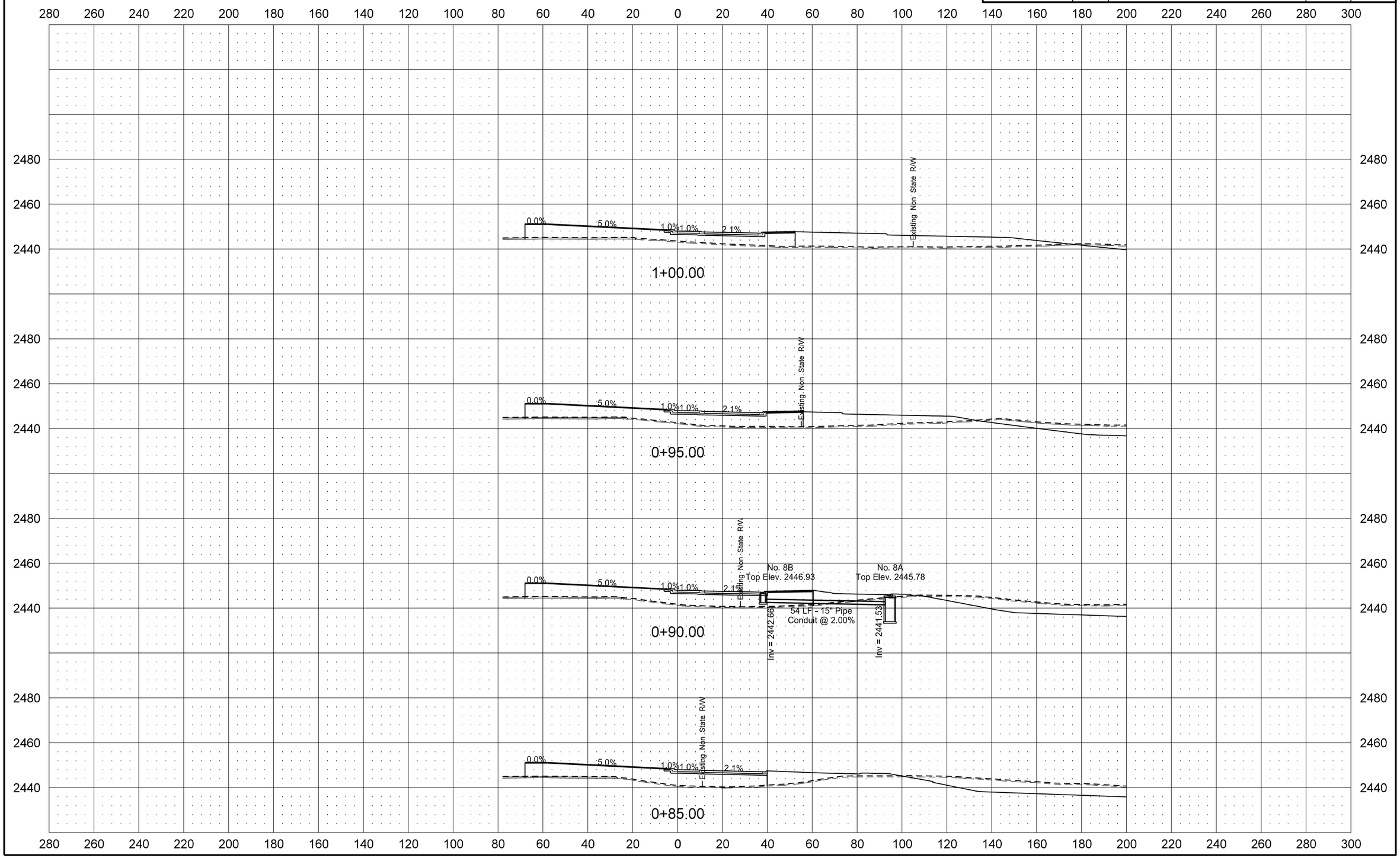
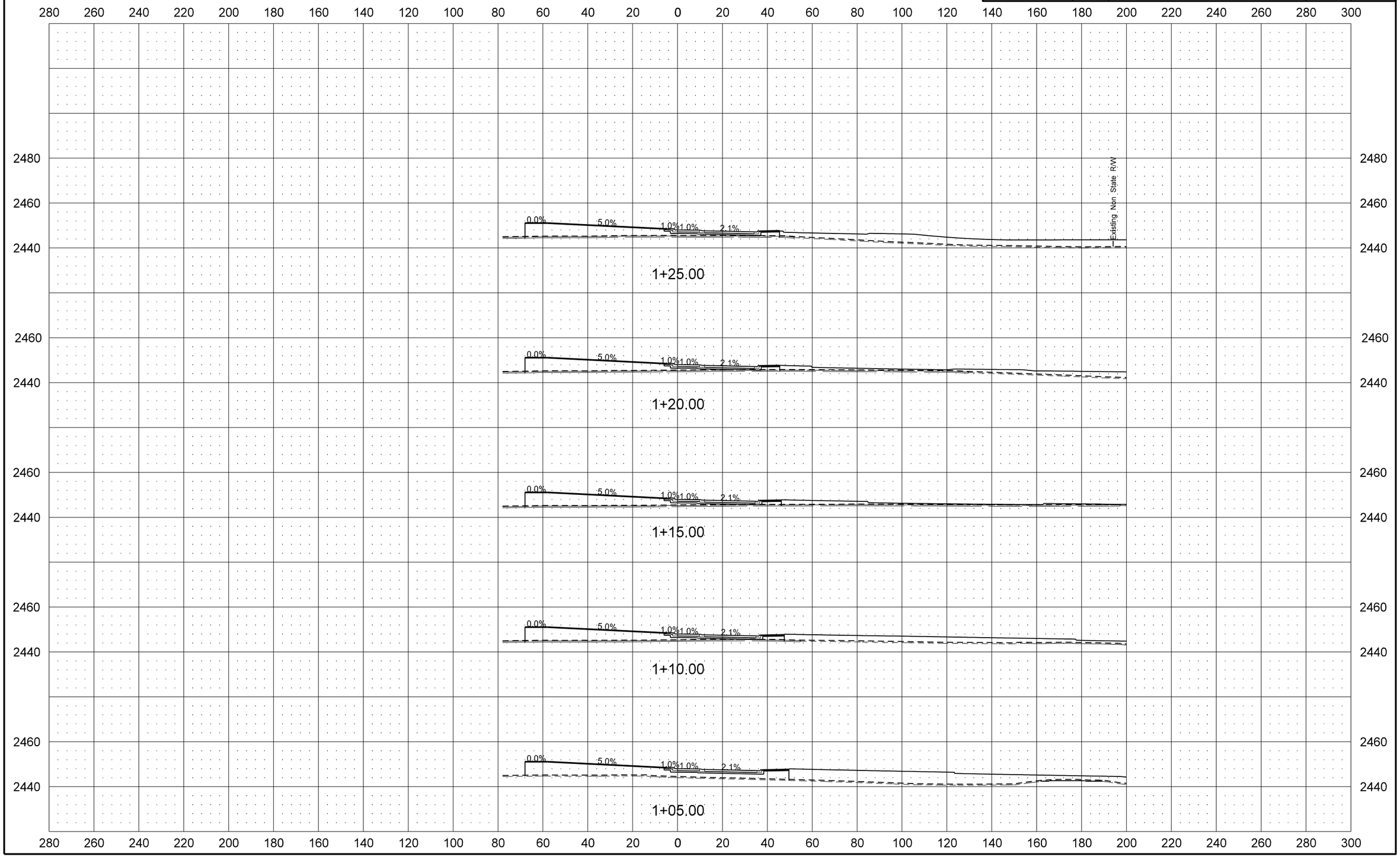
Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	61

Roundabout Center



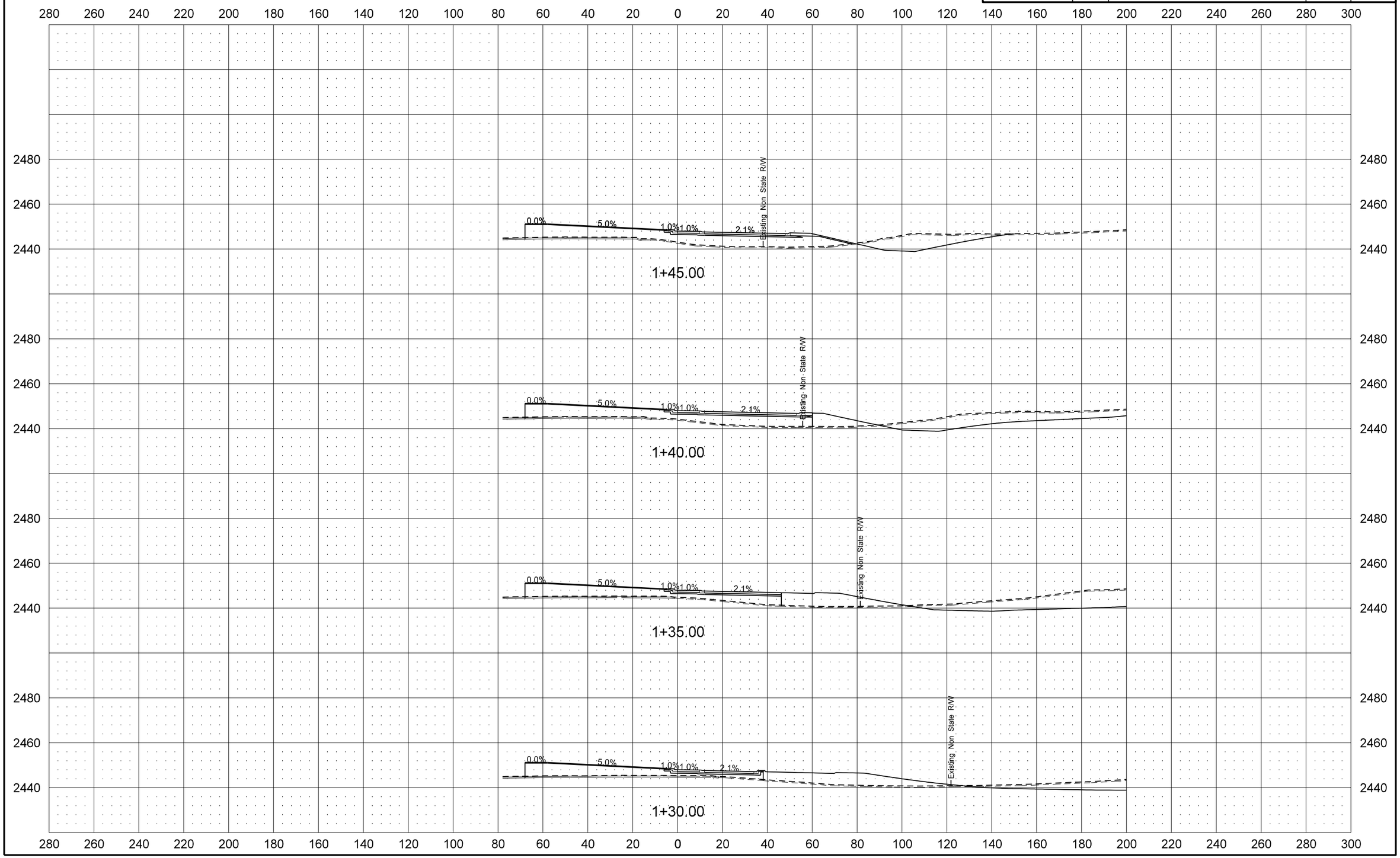
Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	62

Roundabout Center



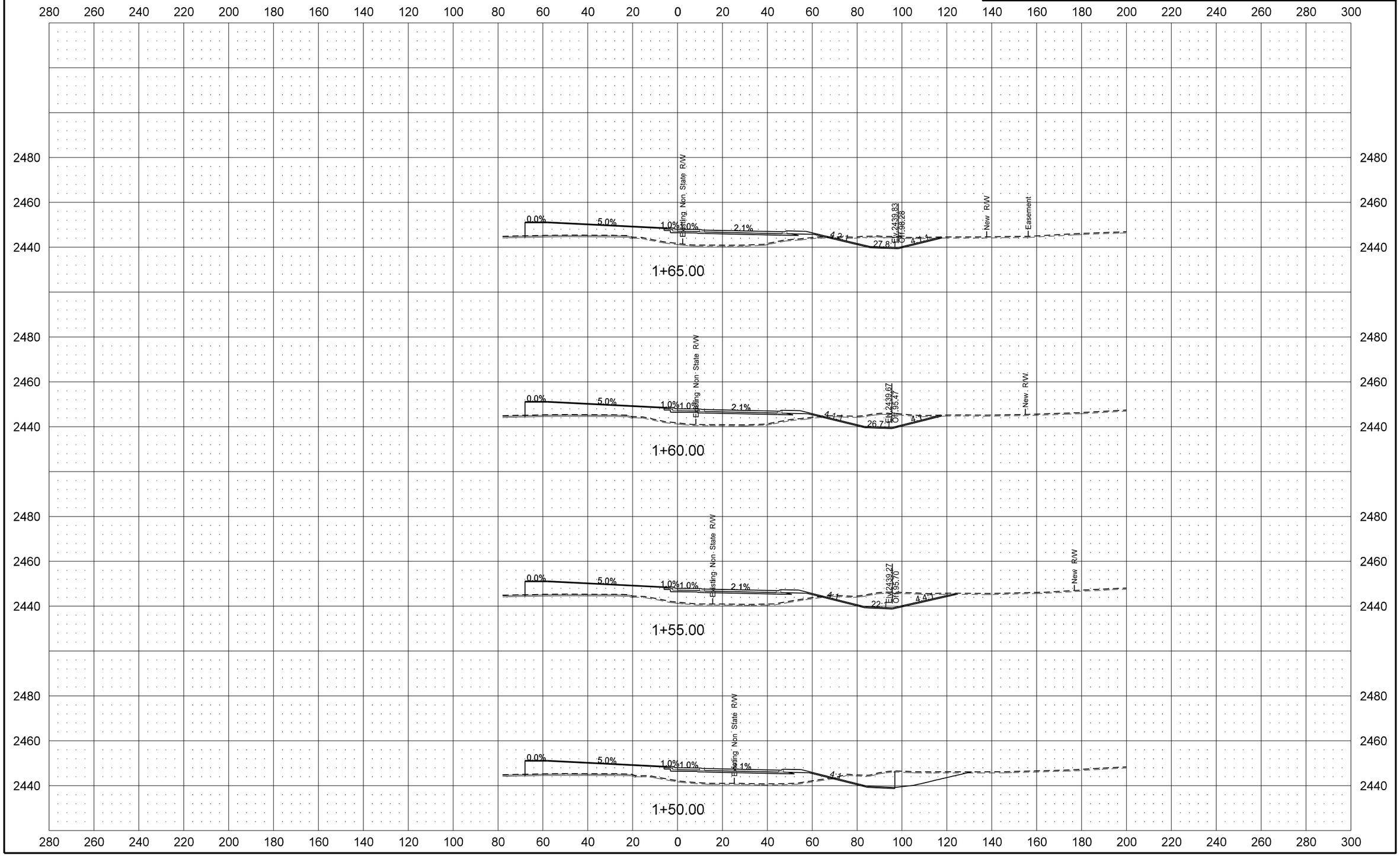
Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	63

Roundabout Center



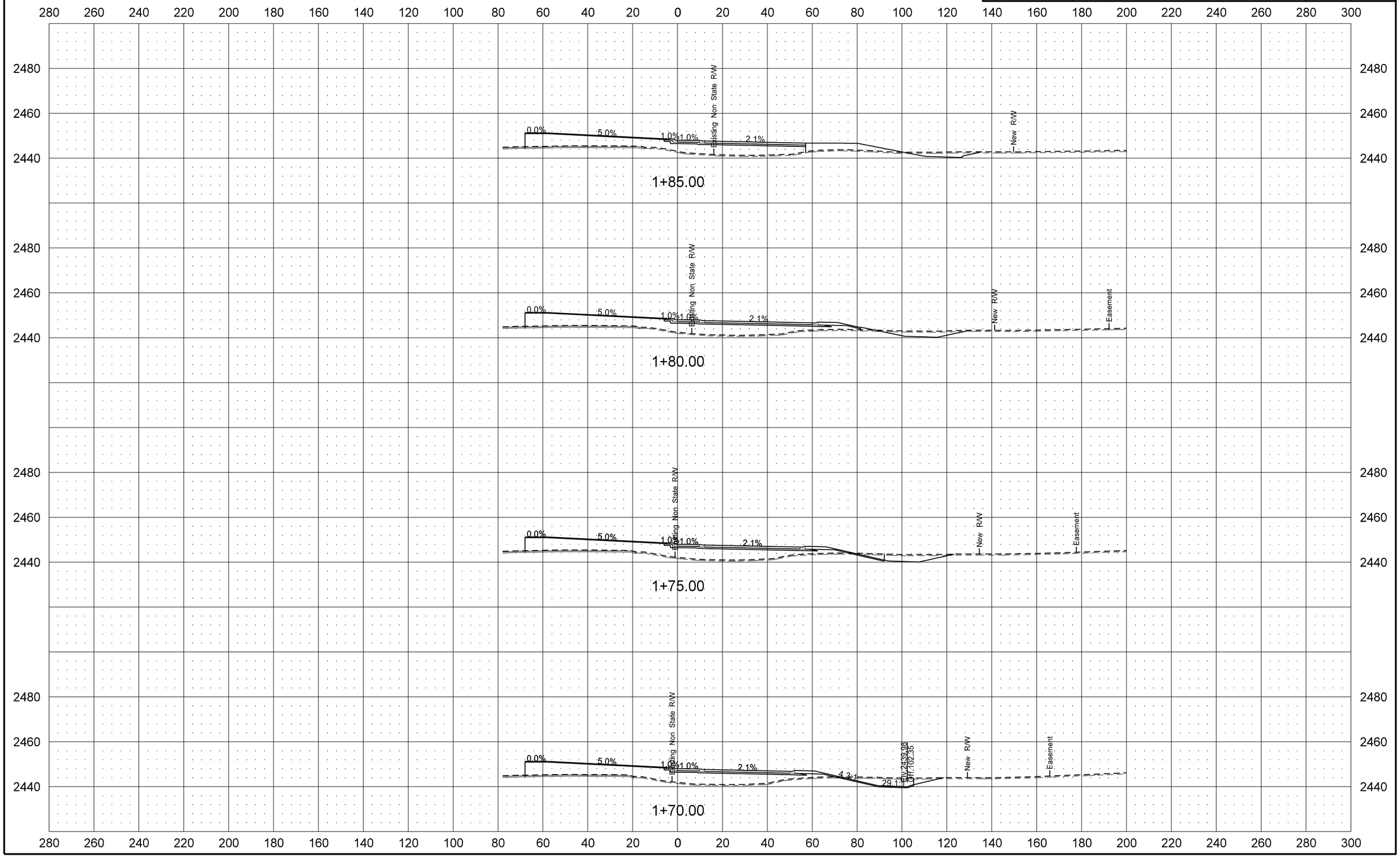
Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	64

Roundabout Center



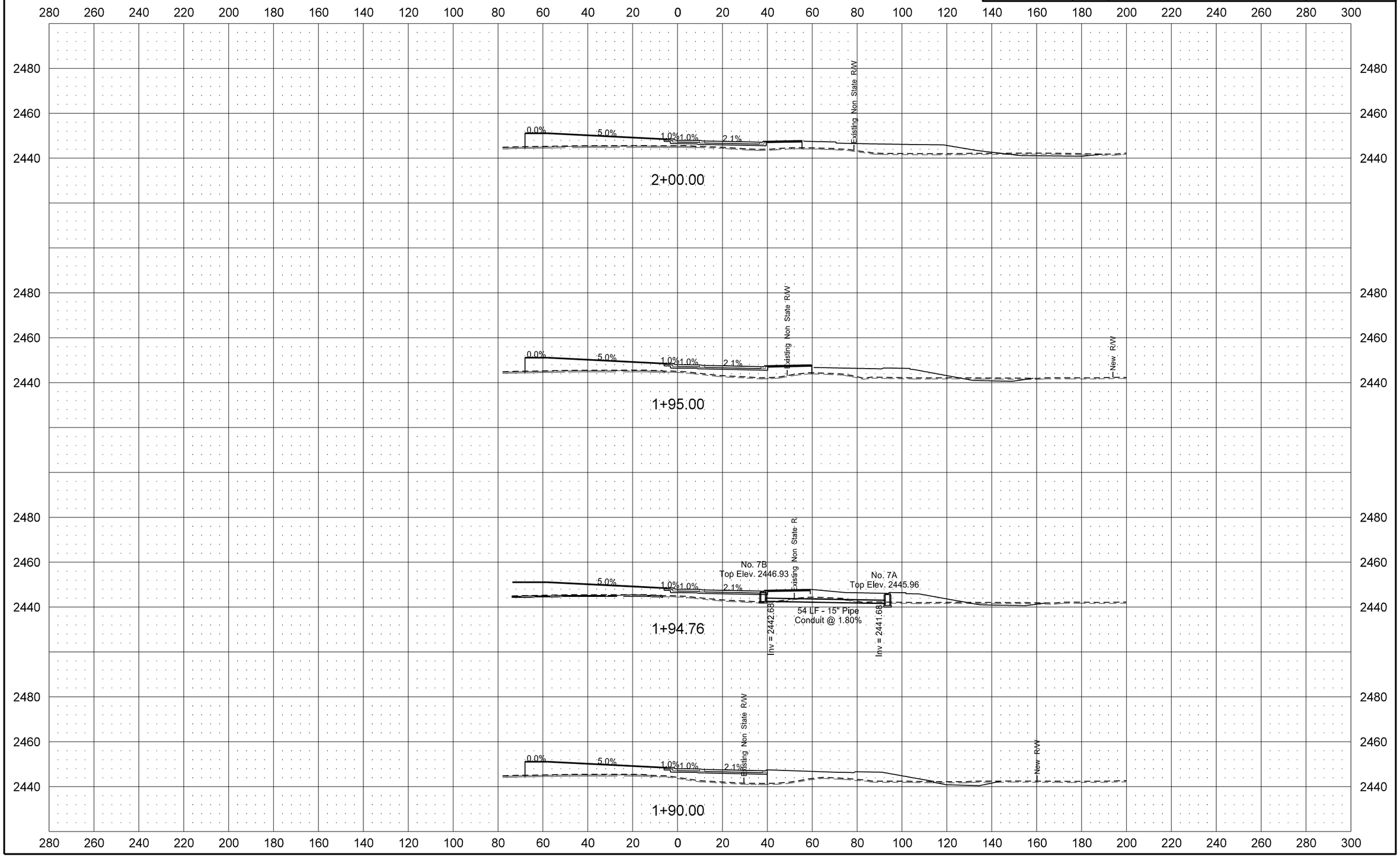
Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	65

Roundabout Center



Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	66

Roundabout Center



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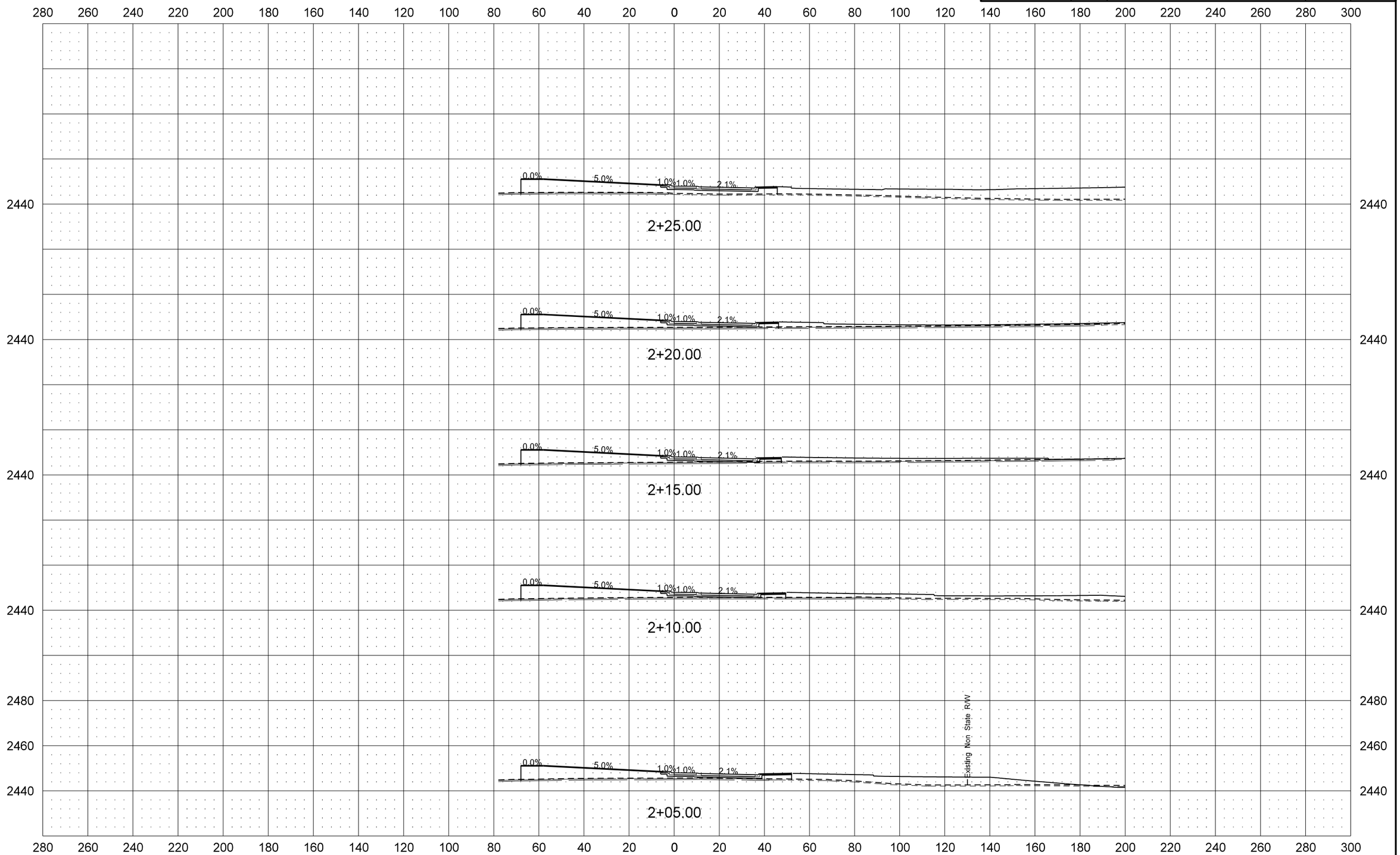
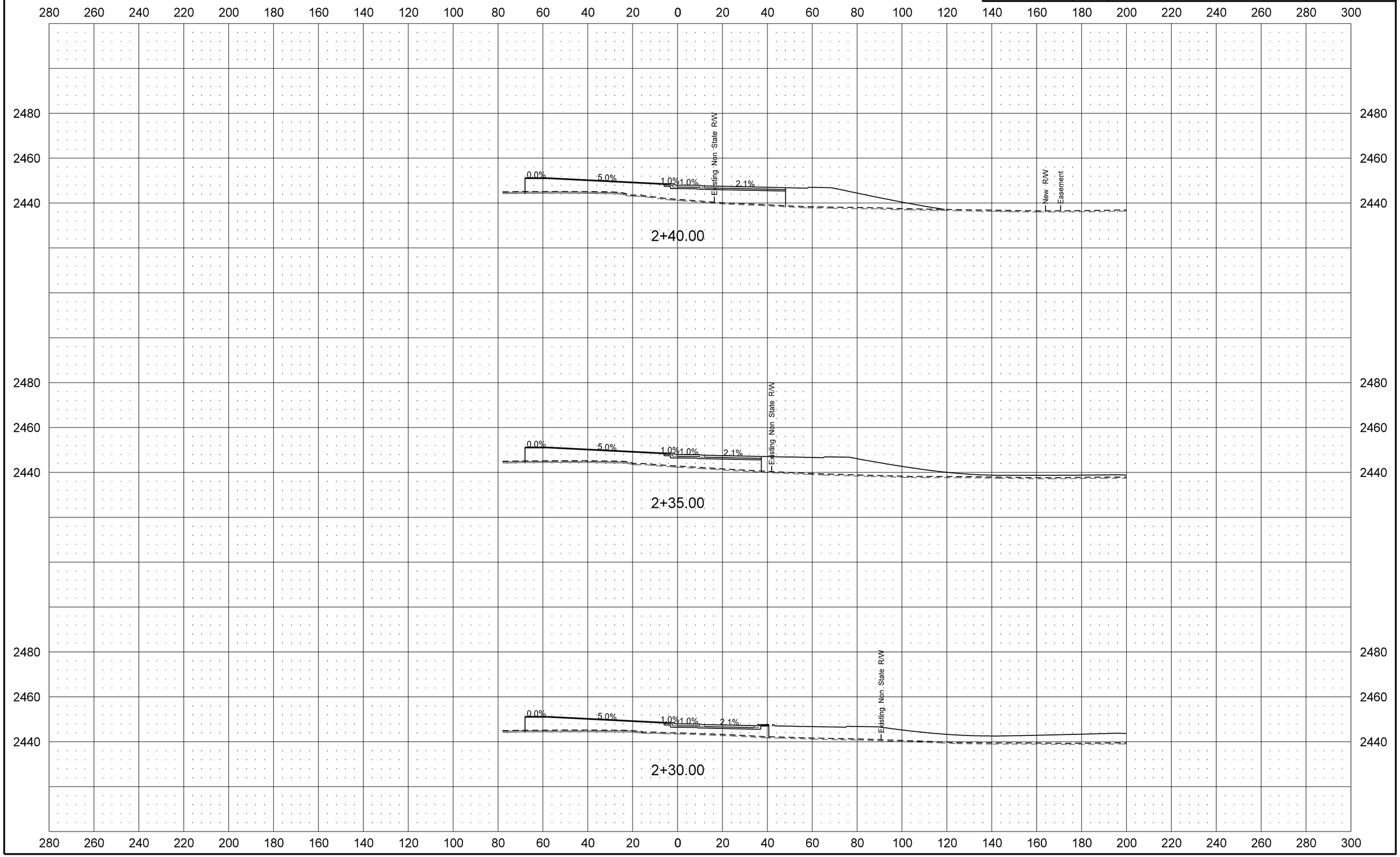
Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	67

Roundabout Center



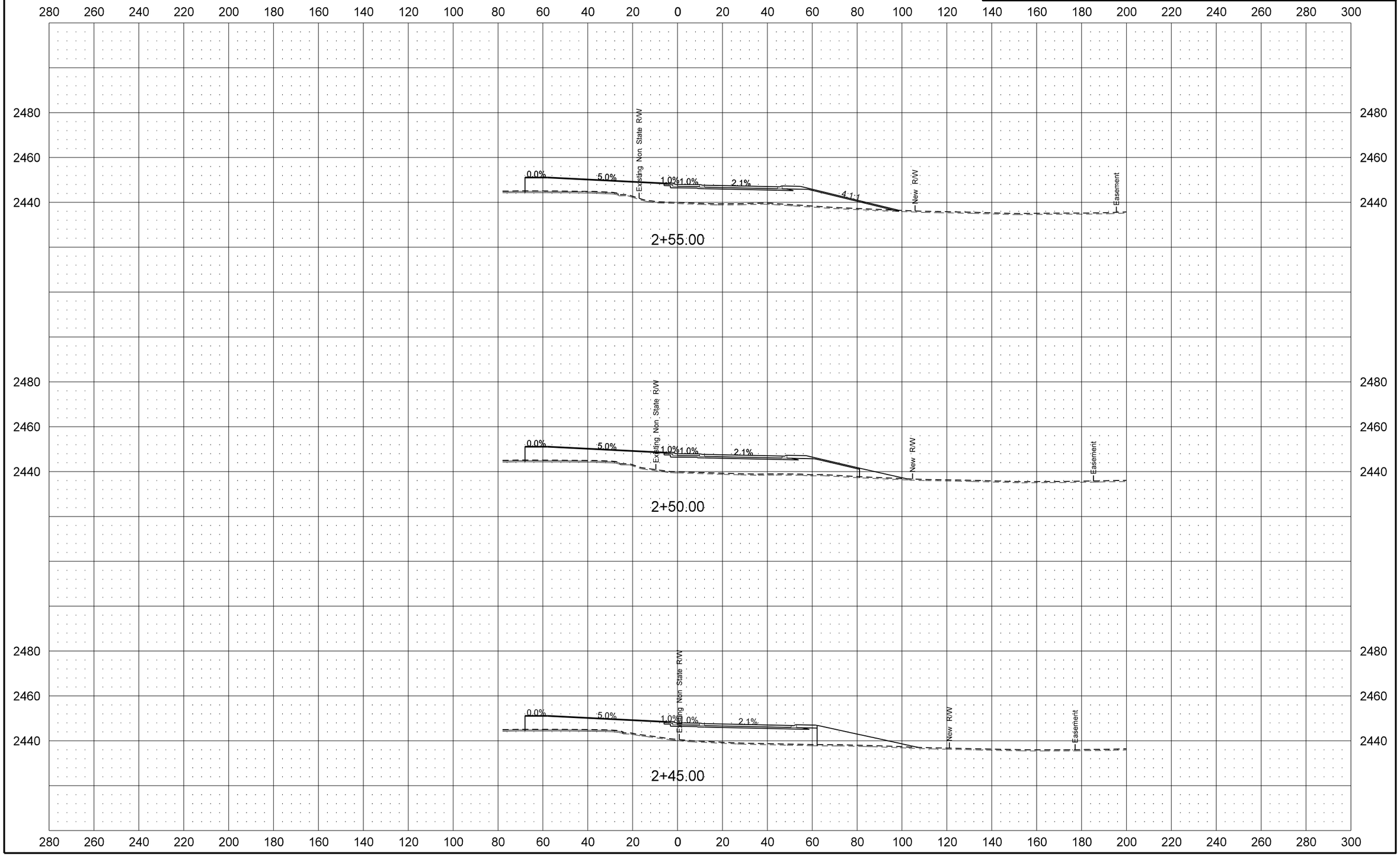
Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	68

Roundabout Center



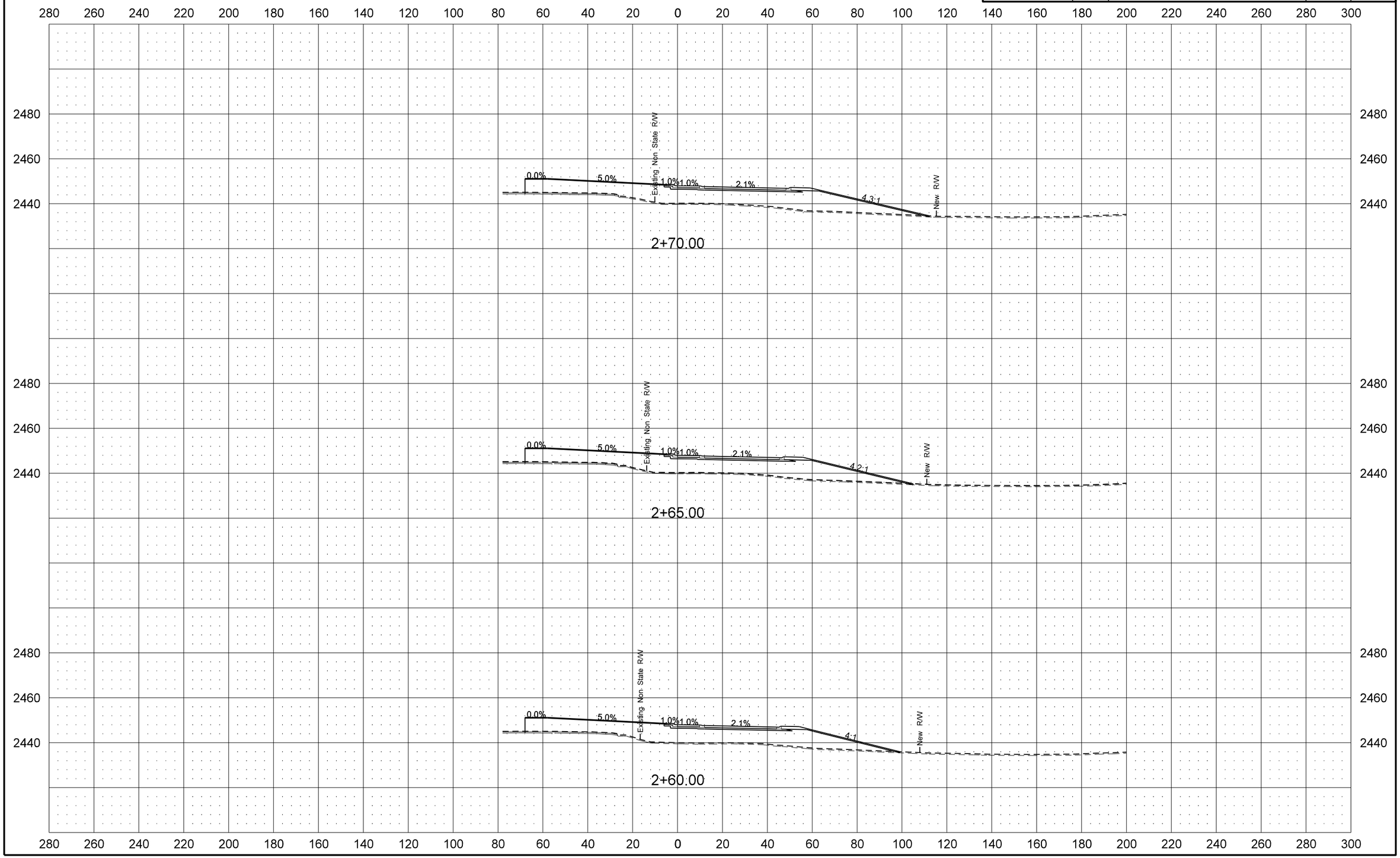
Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	69

Roundabout Center



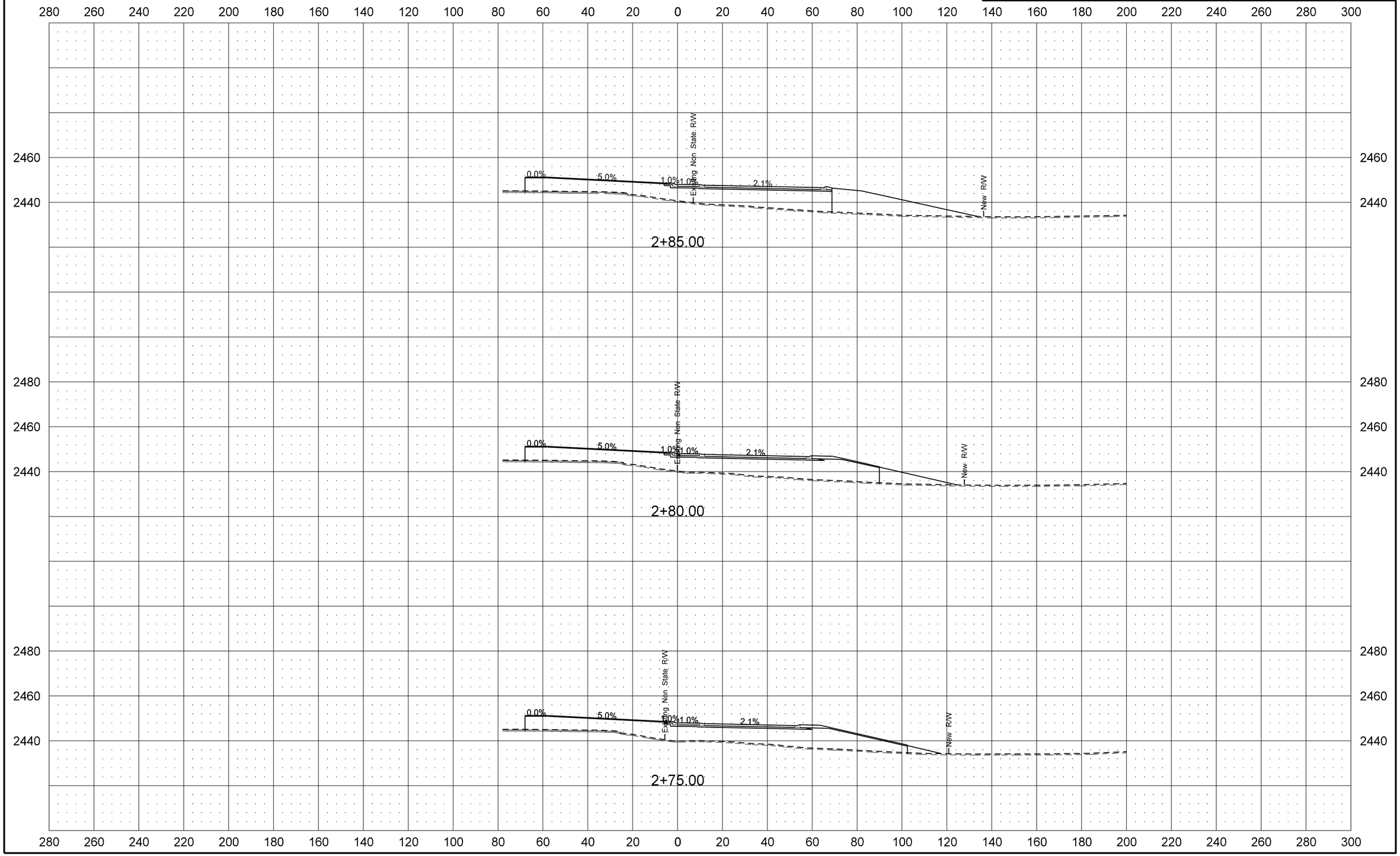
Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	70

Roundabout Center



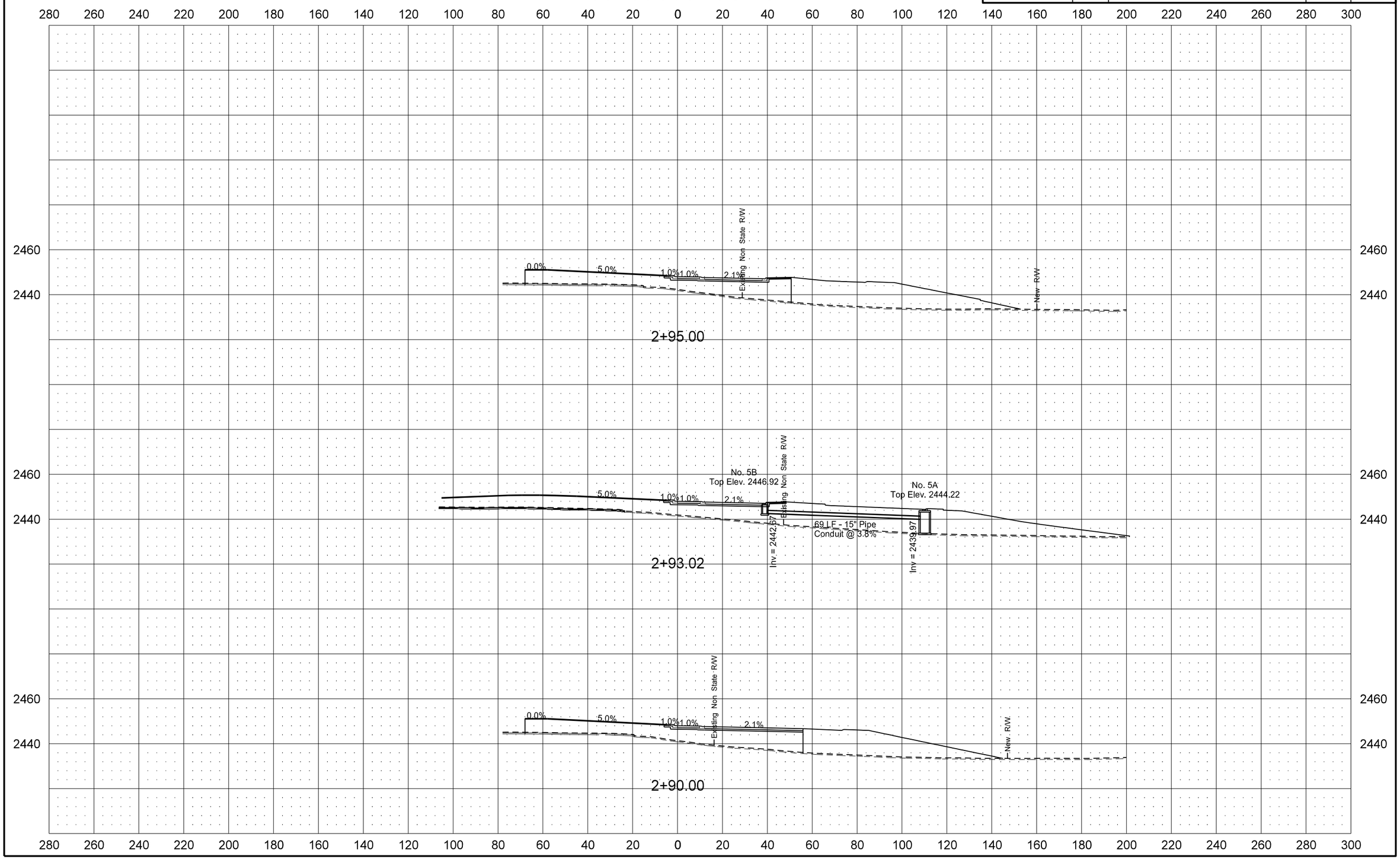
Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	71

Roundabout Center



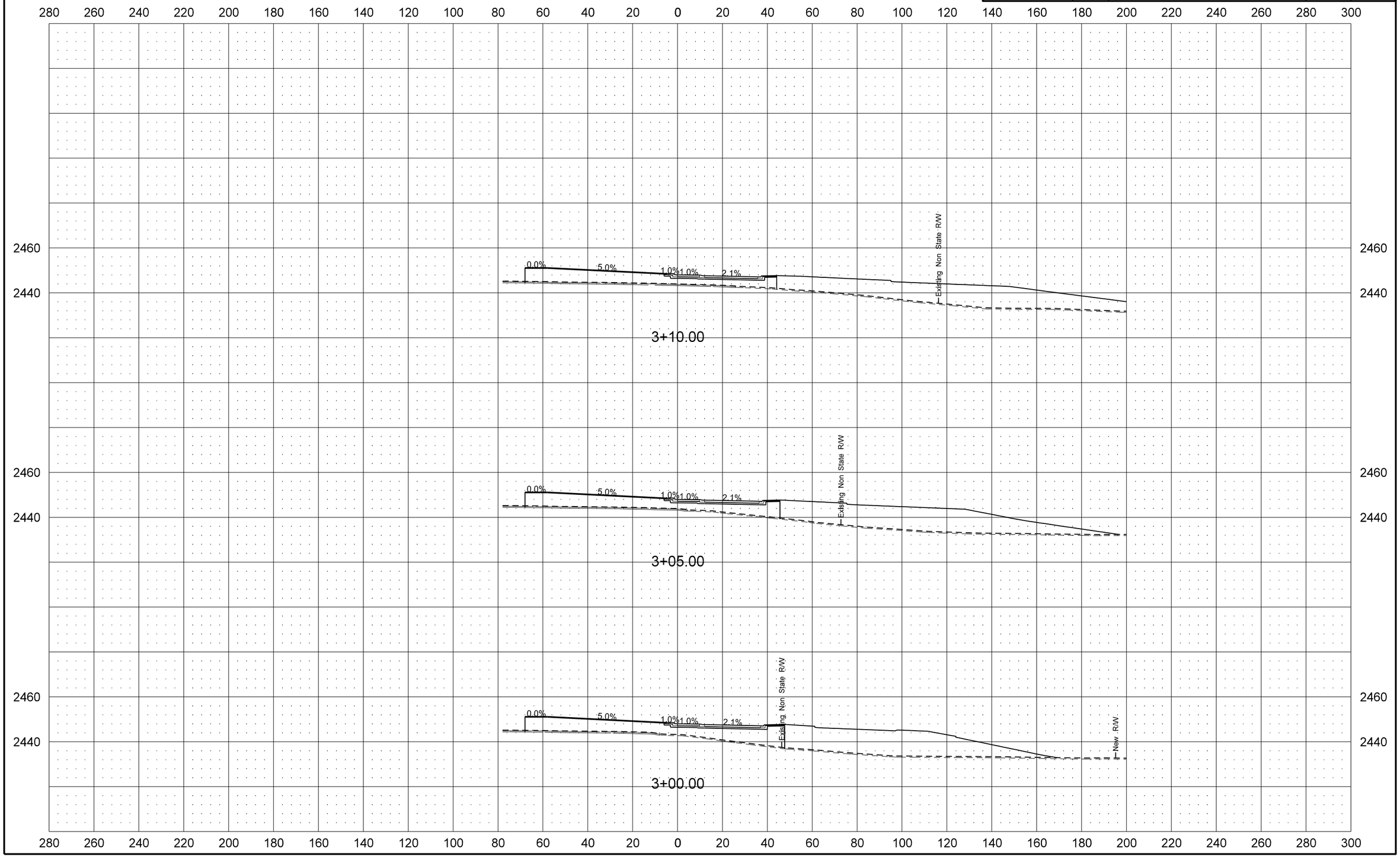
Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	72

Roundabout Center



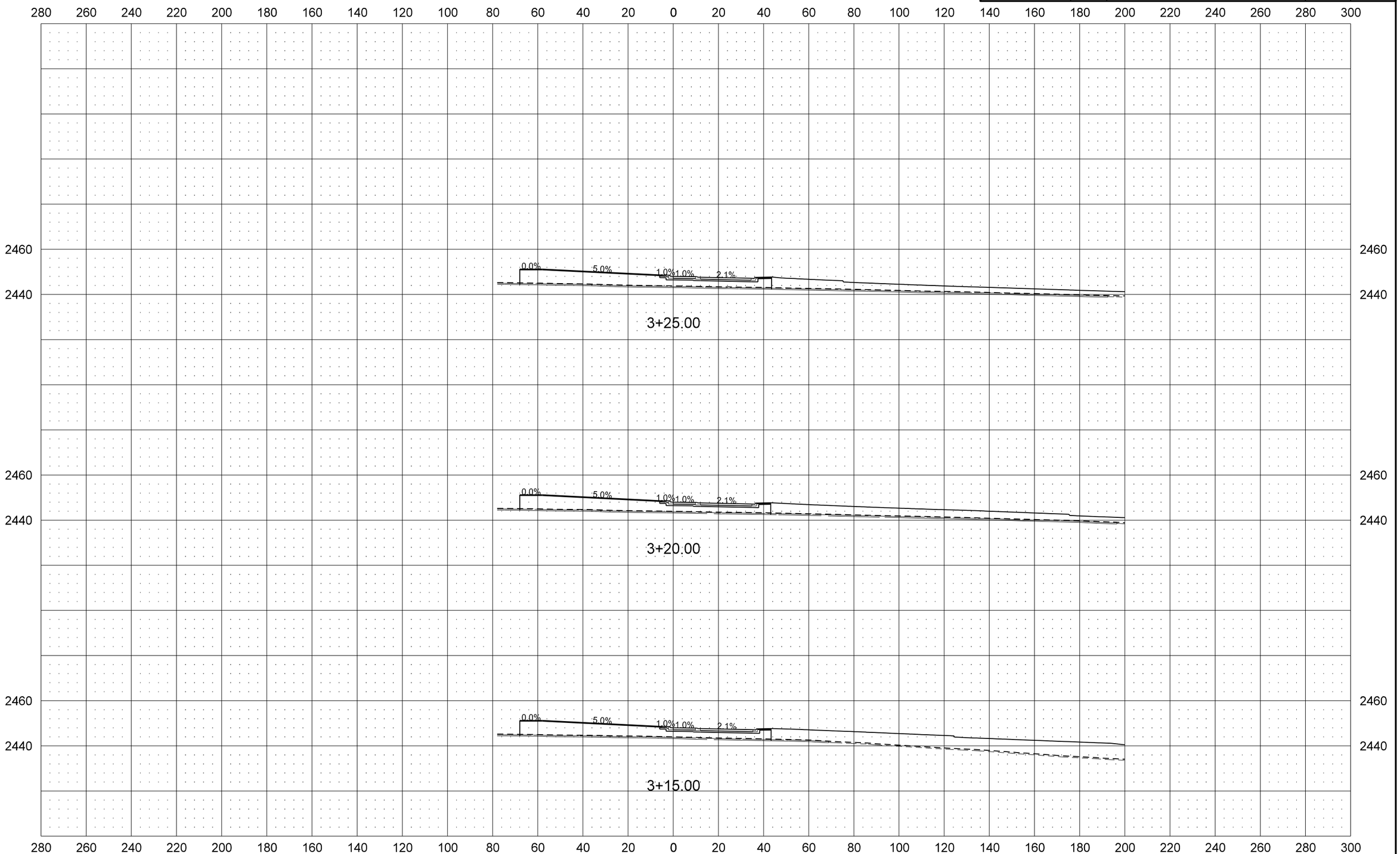
Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	73

Roundabout Center



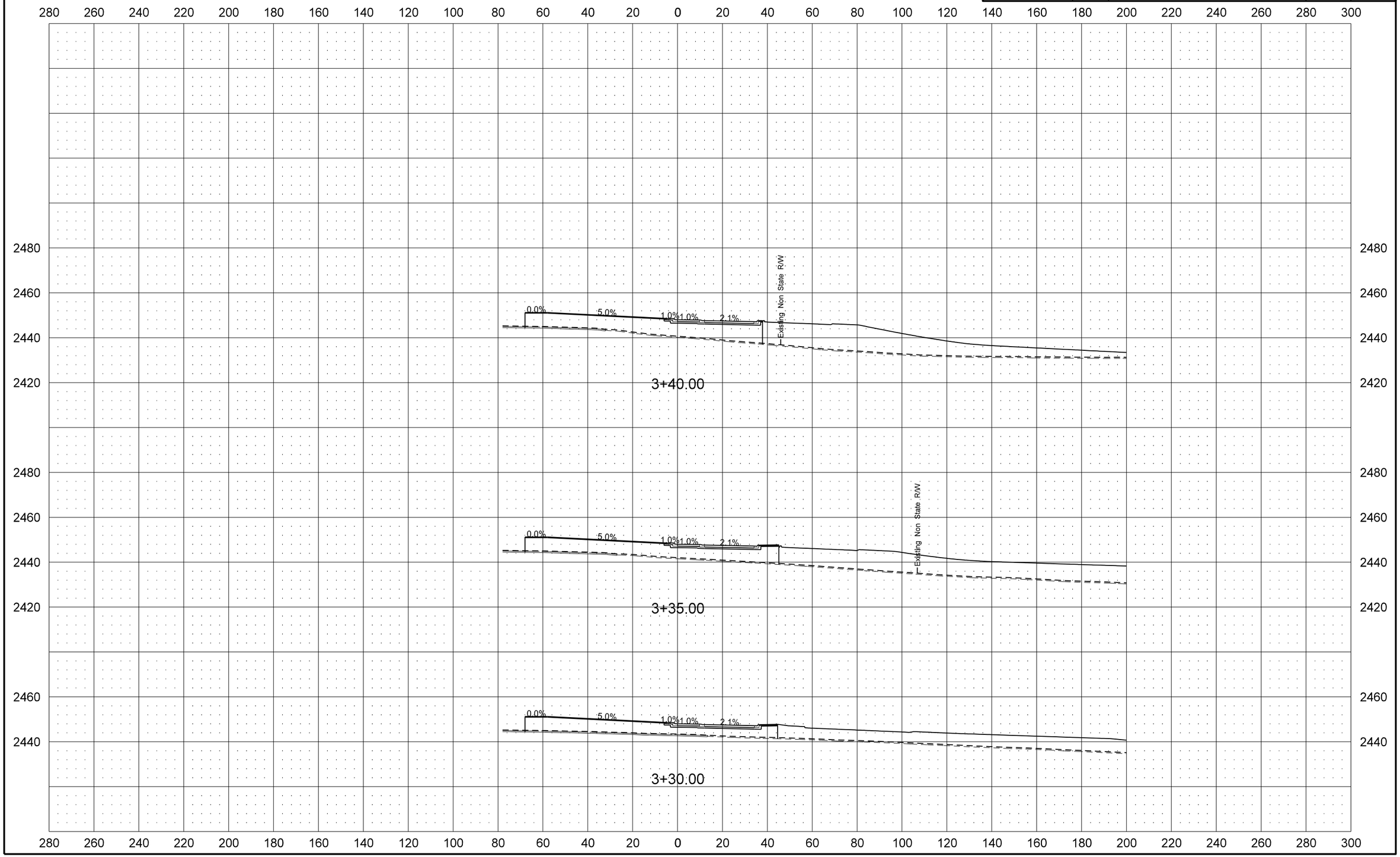
Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	74

Roundabout Center



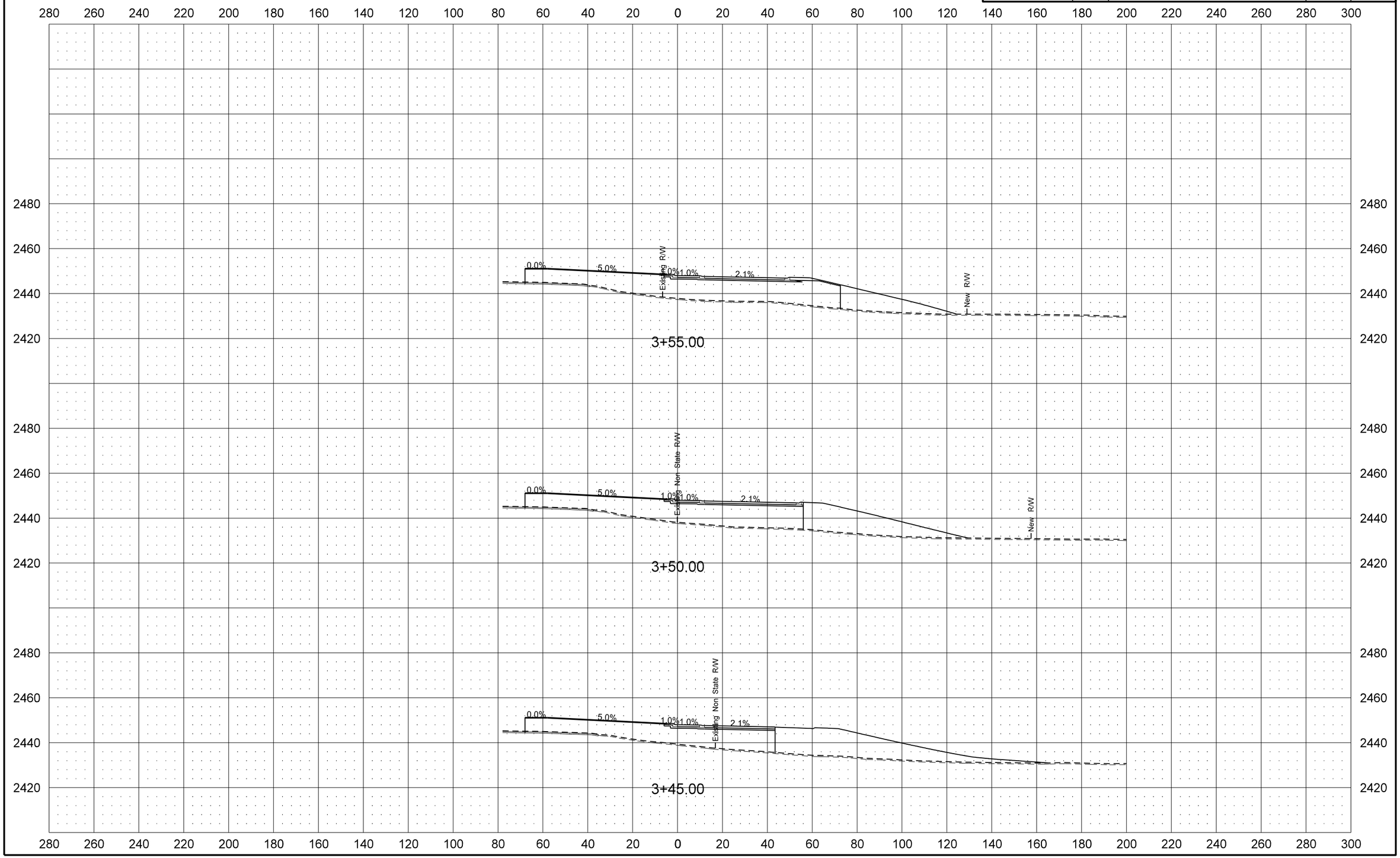
Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	75

Roundabout Center



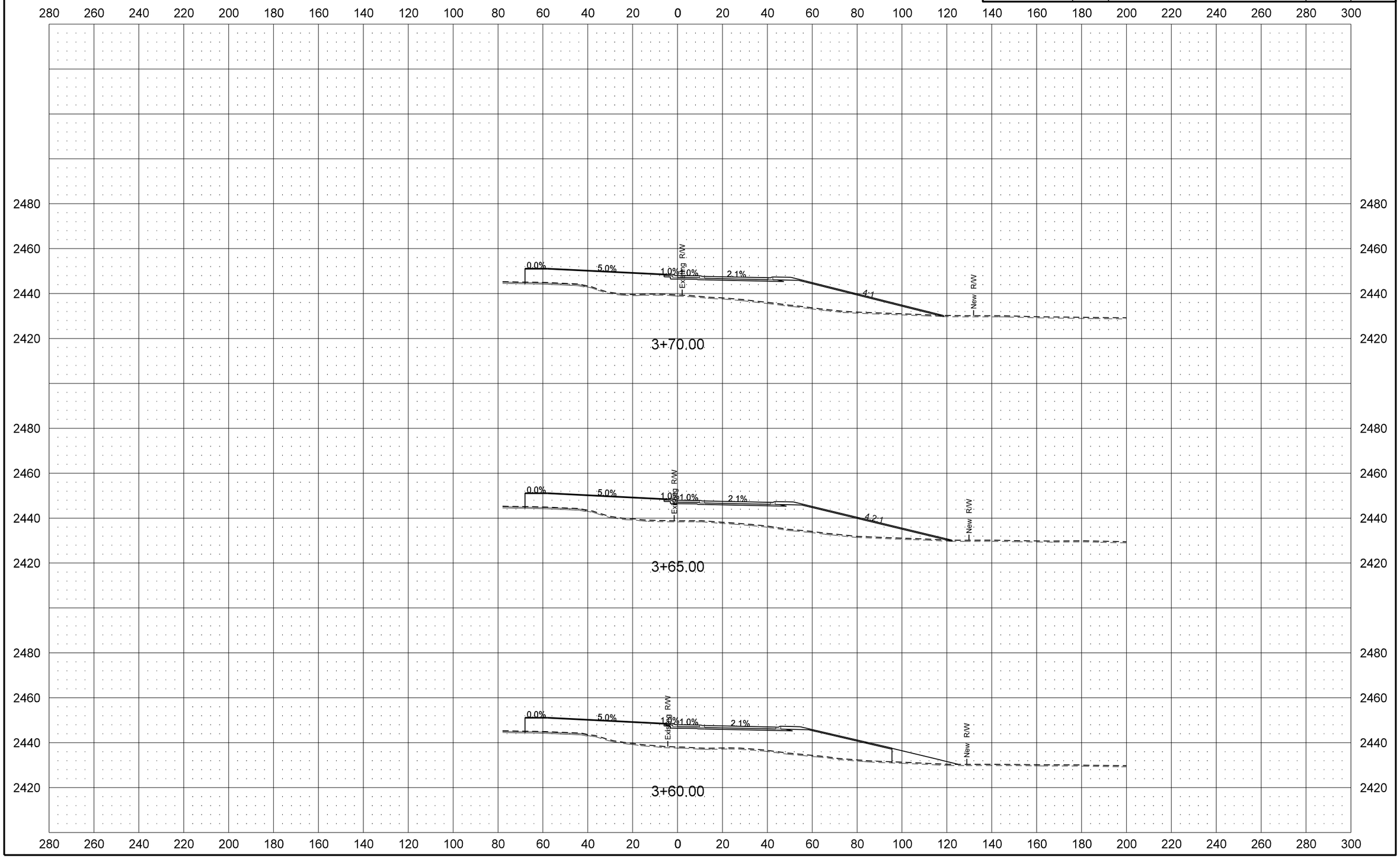
Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	76

Roundabout Center



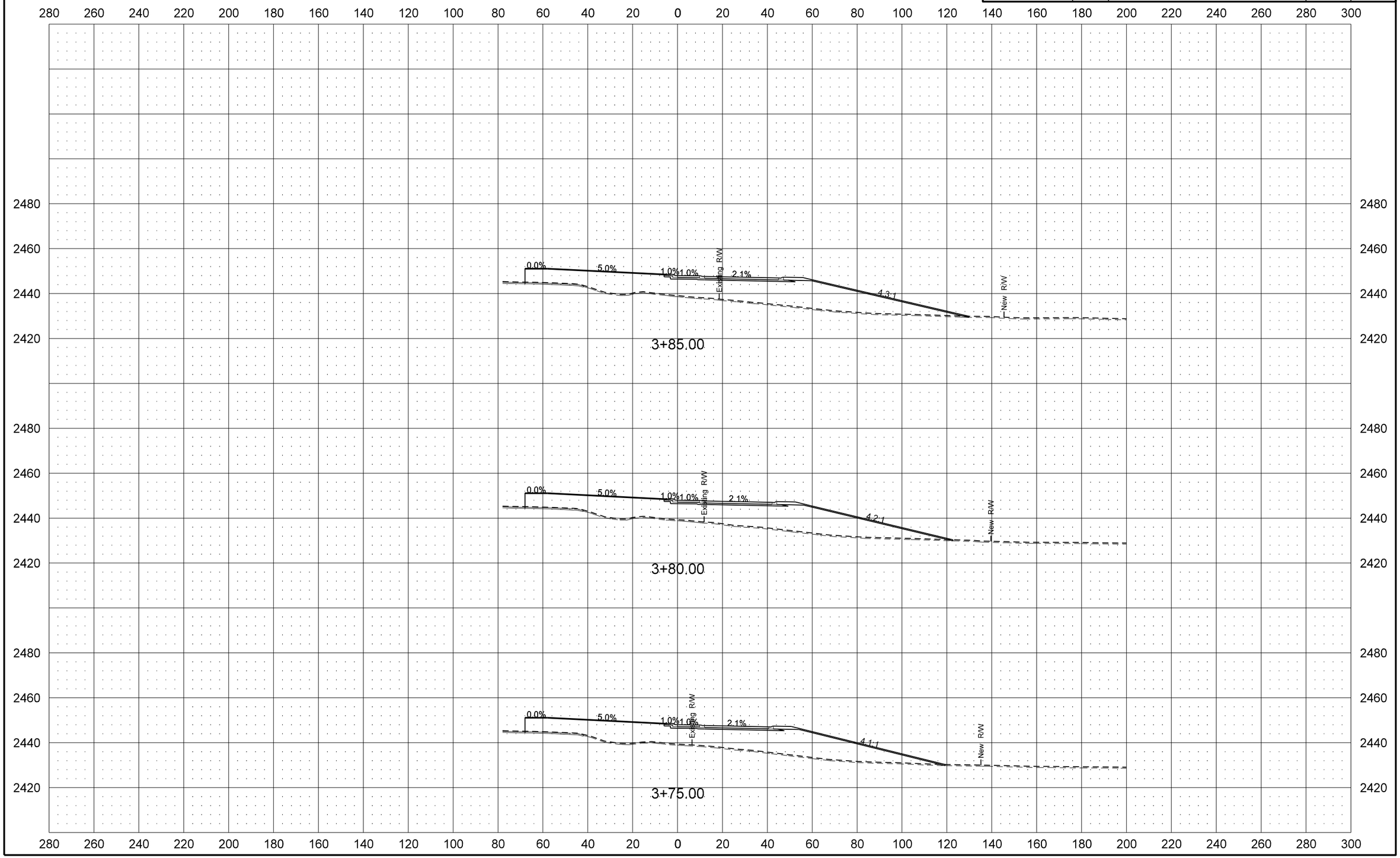
Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	77

Roundabout Center



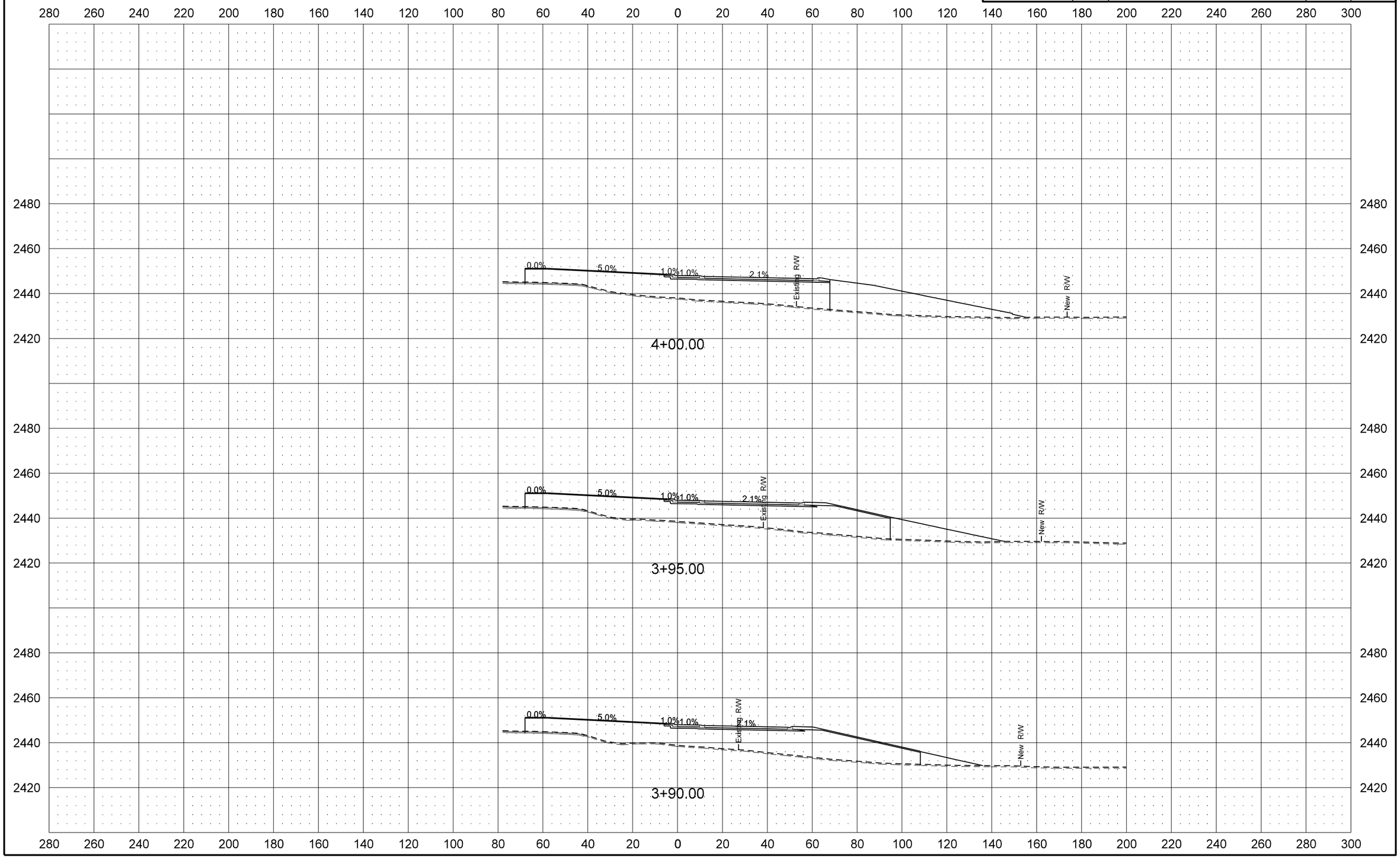
Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	78

Roundabout Center



Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	79

Roundabout Center



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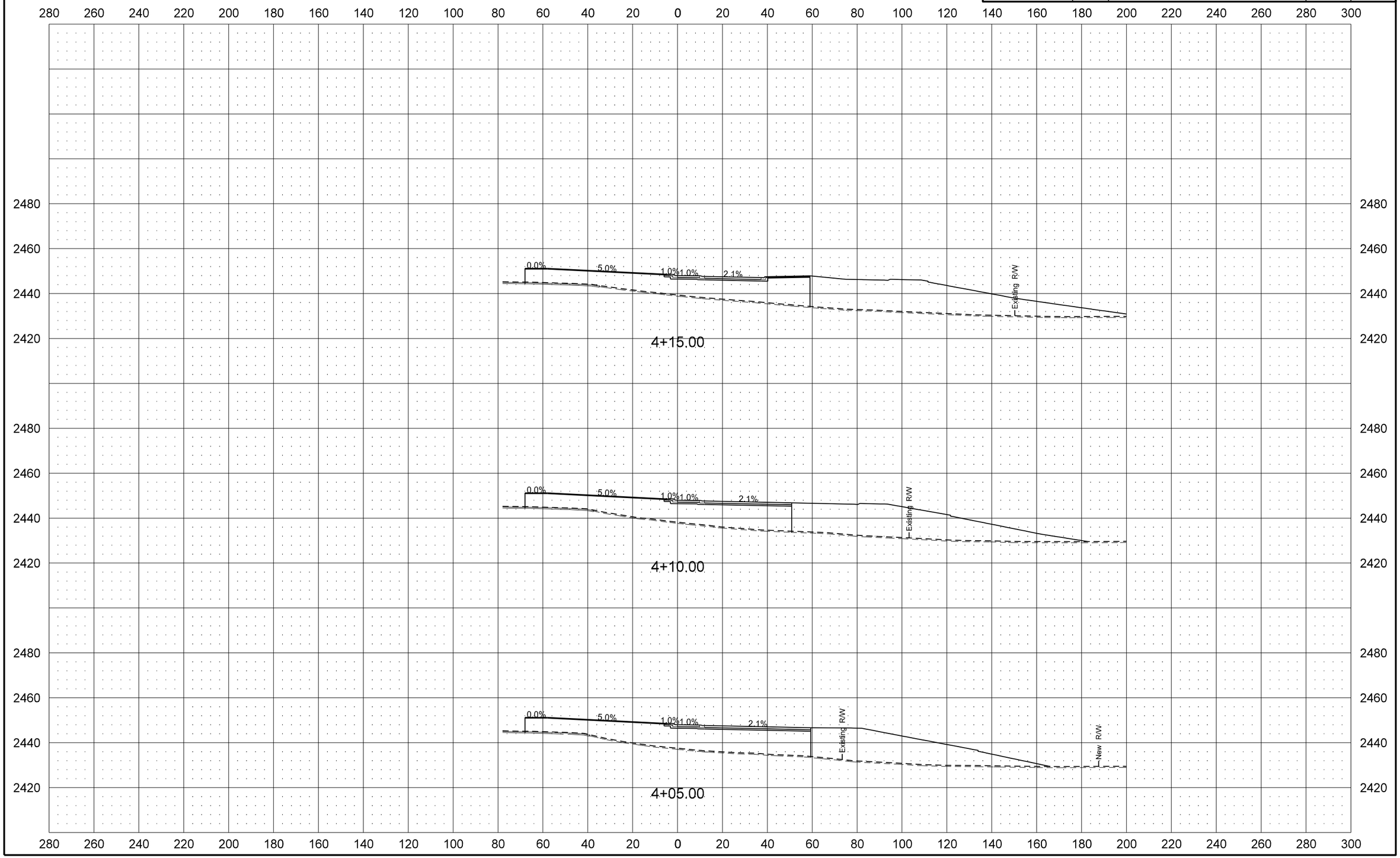
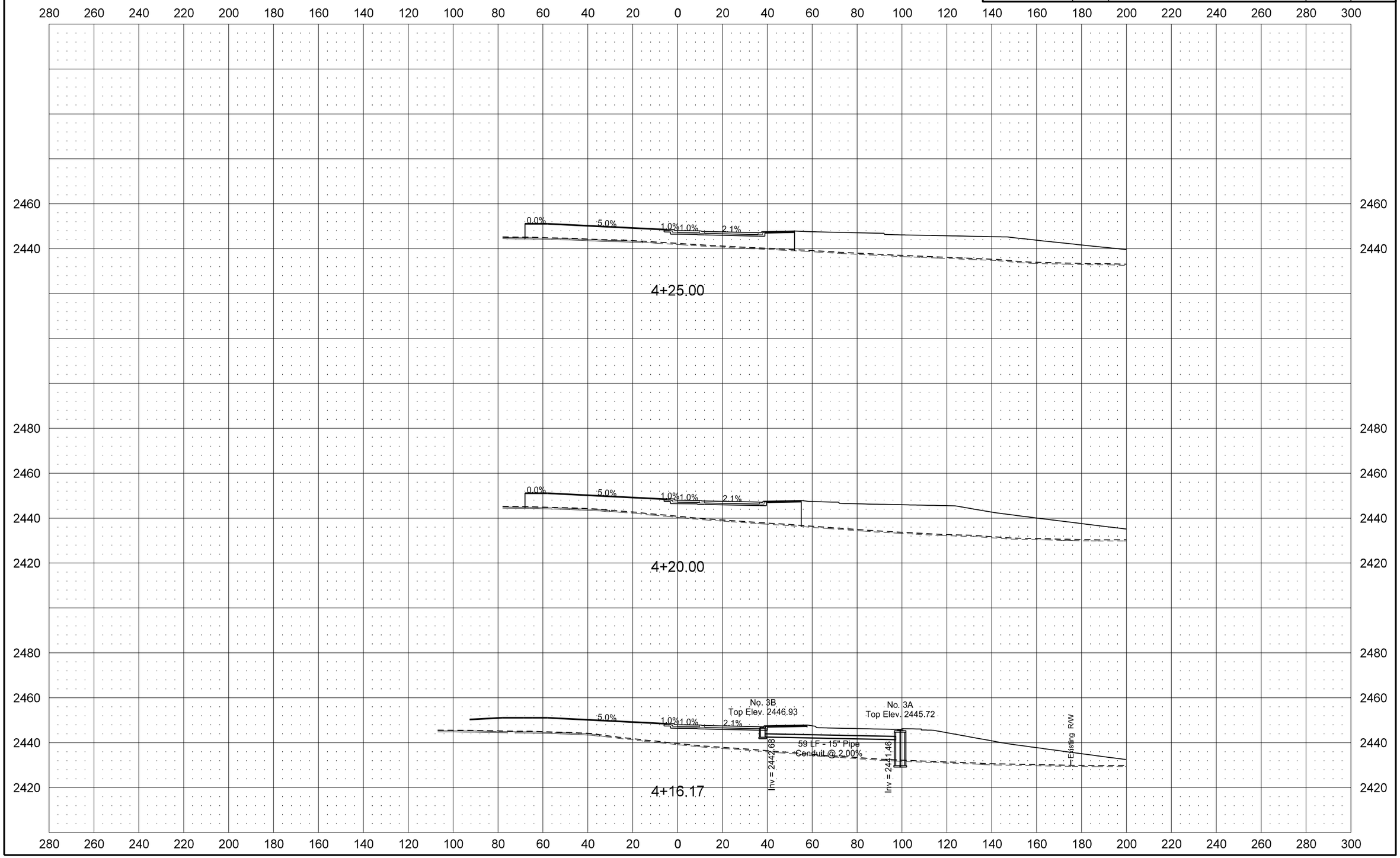
Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	80

Roundabout Center



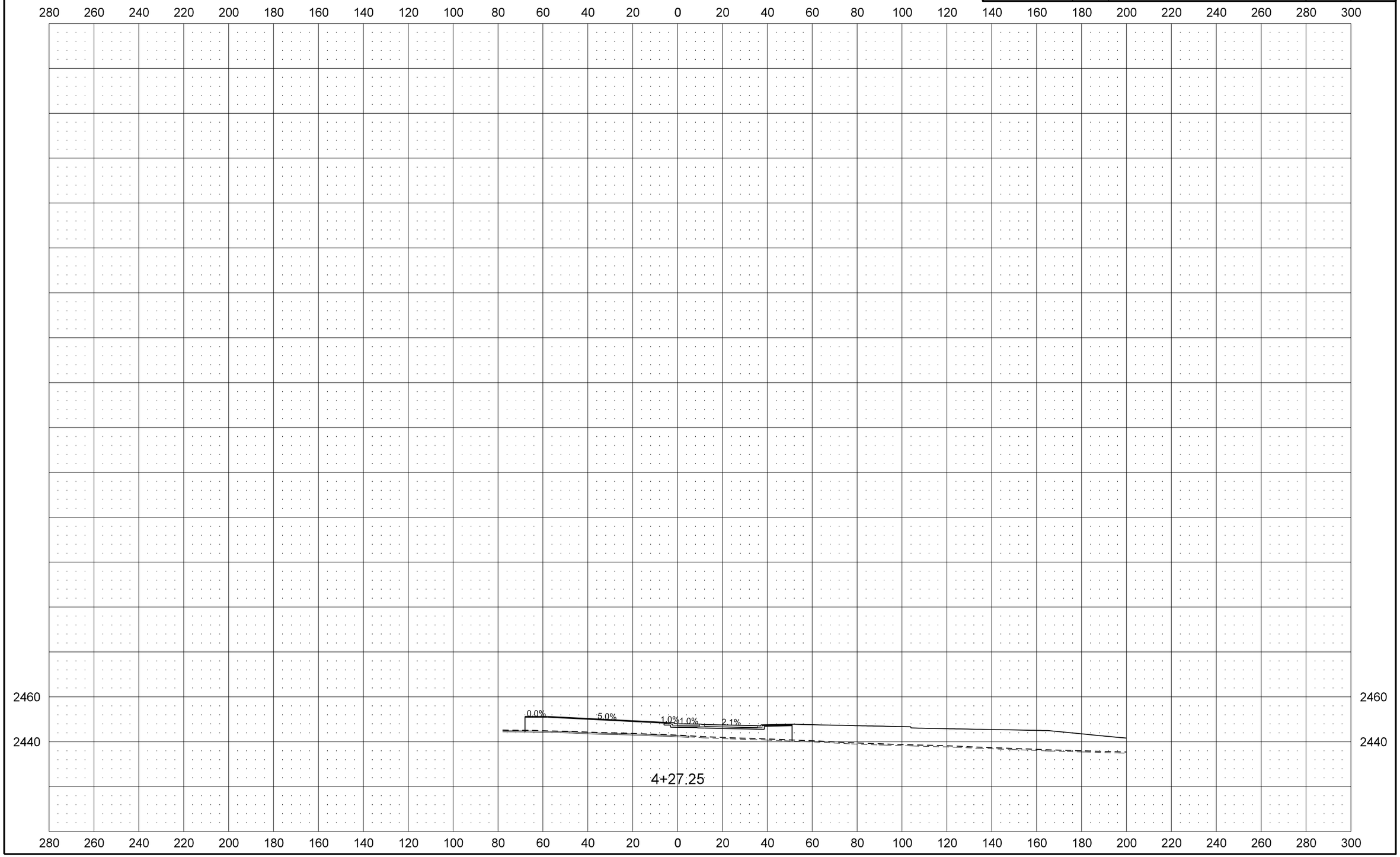
Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	81

Roundabout Center



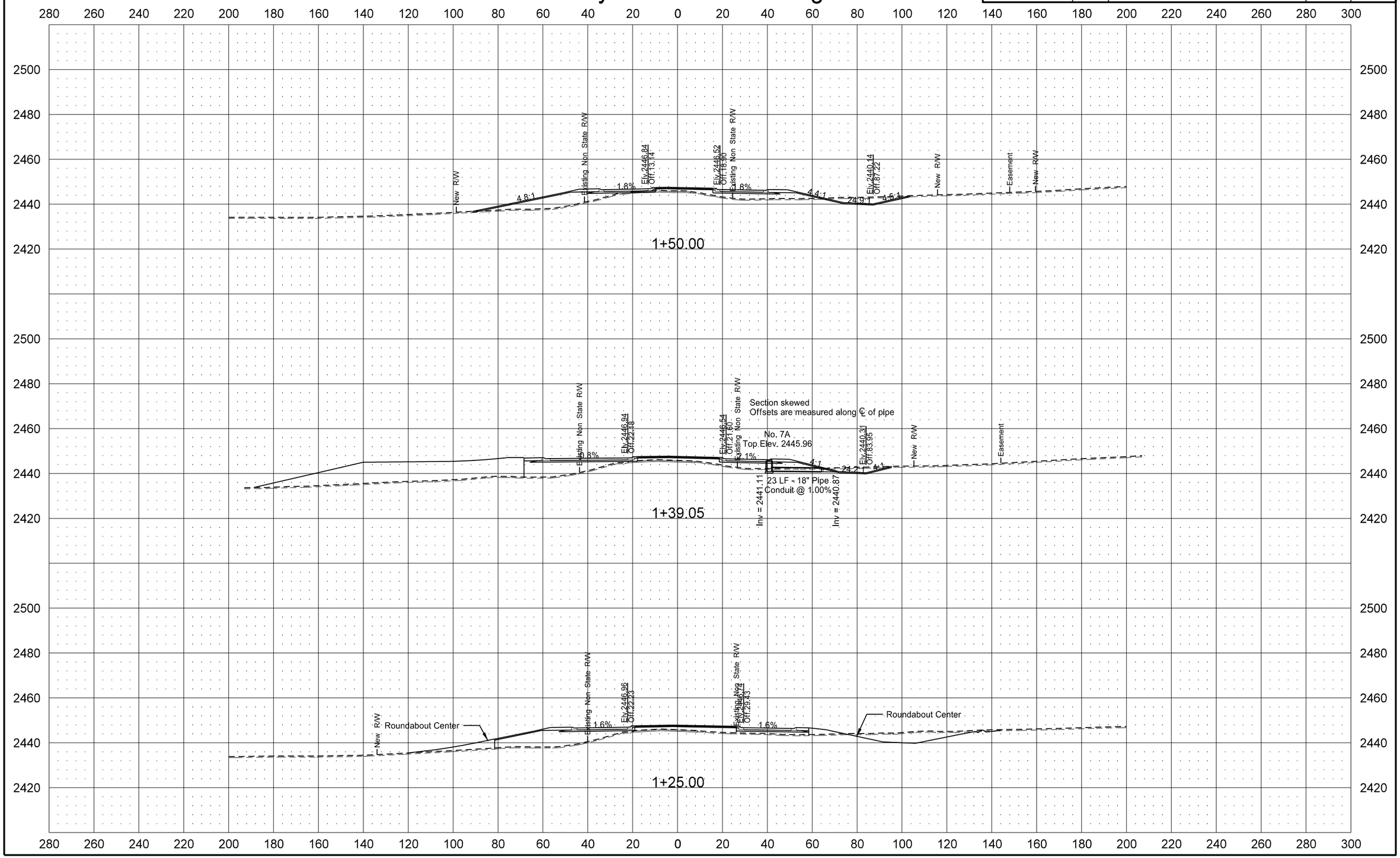
Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	82

Roundabout Center



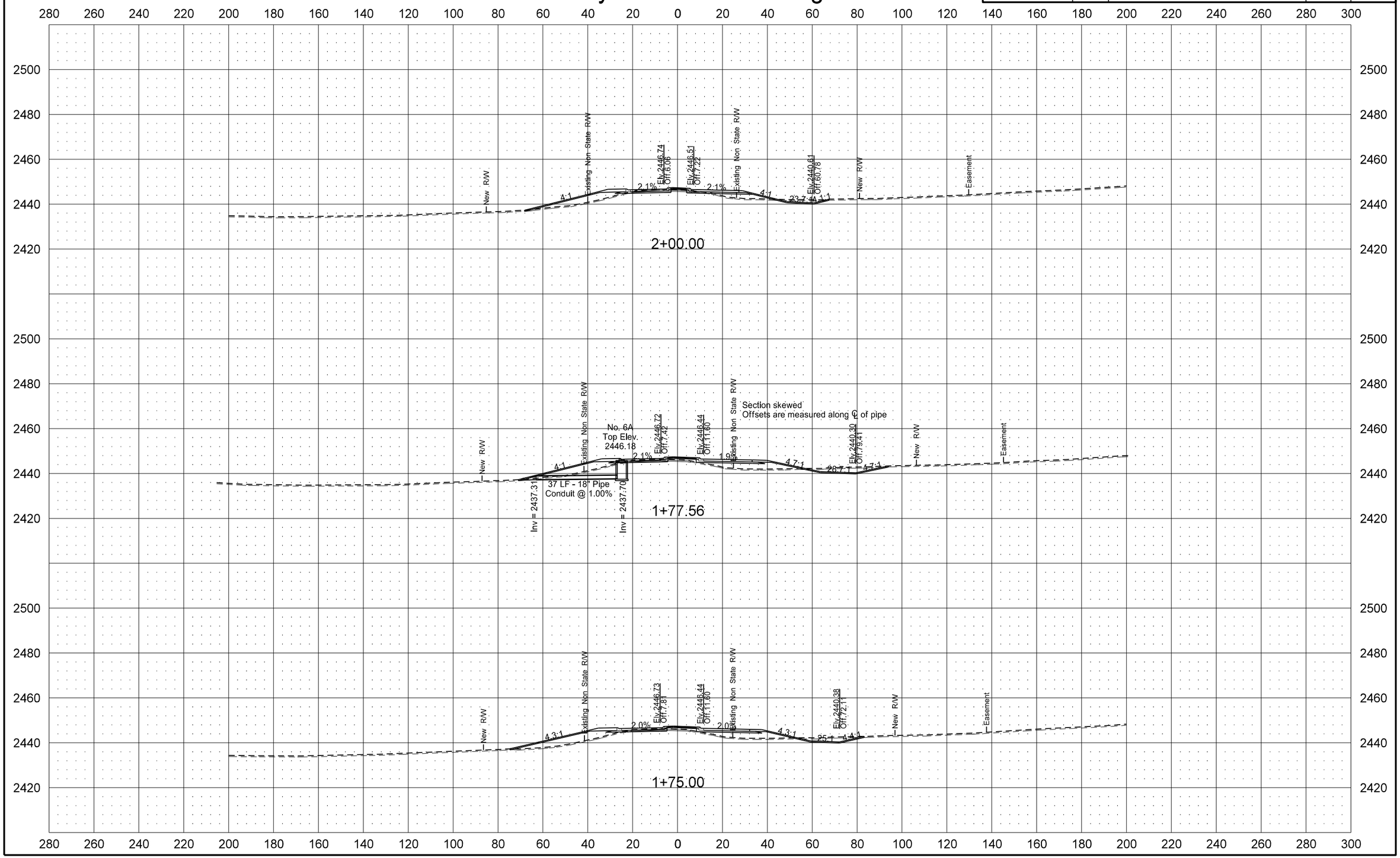
Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	83

County Road 55 North Leg



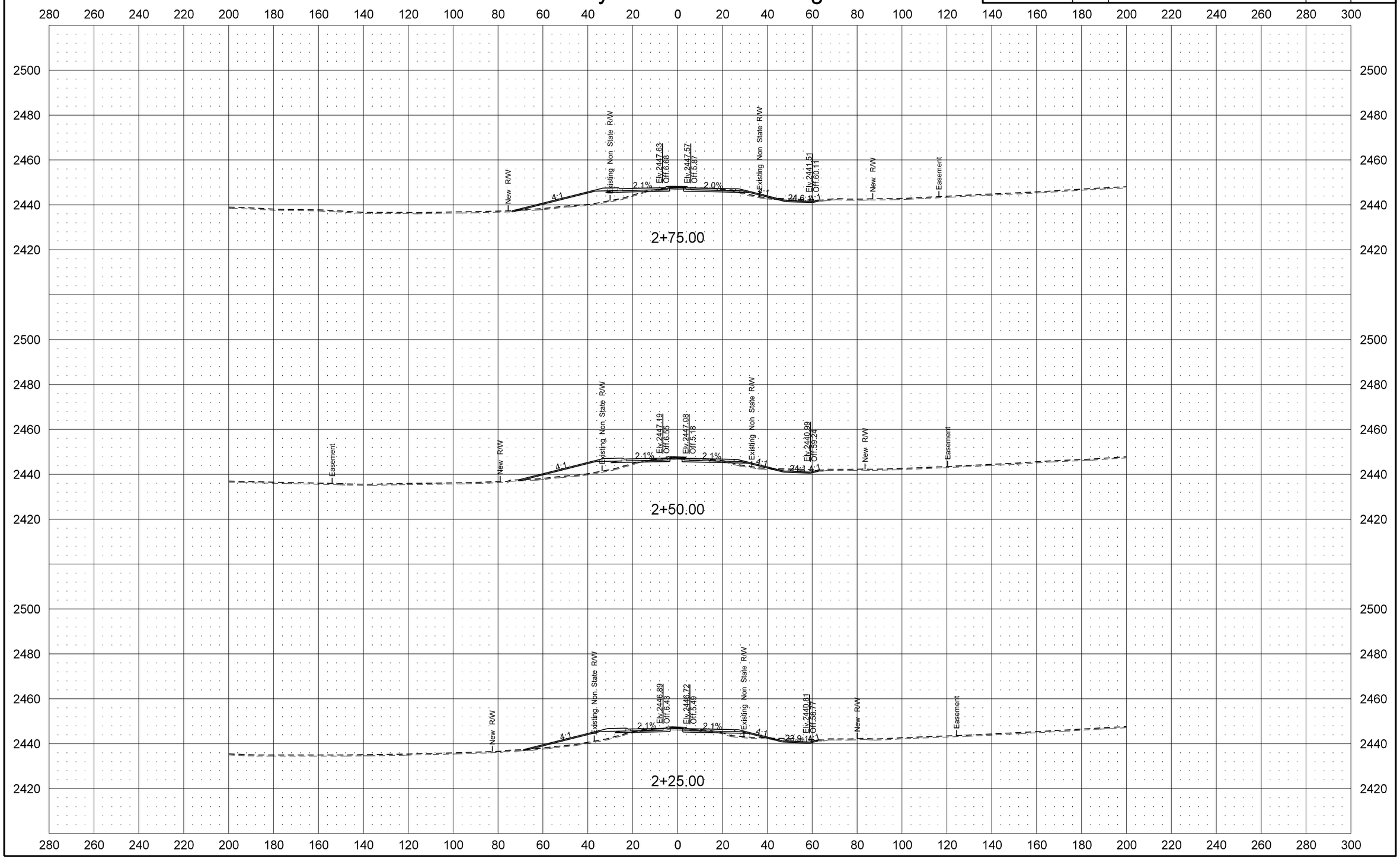
Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	84

County Road 55 North Leg



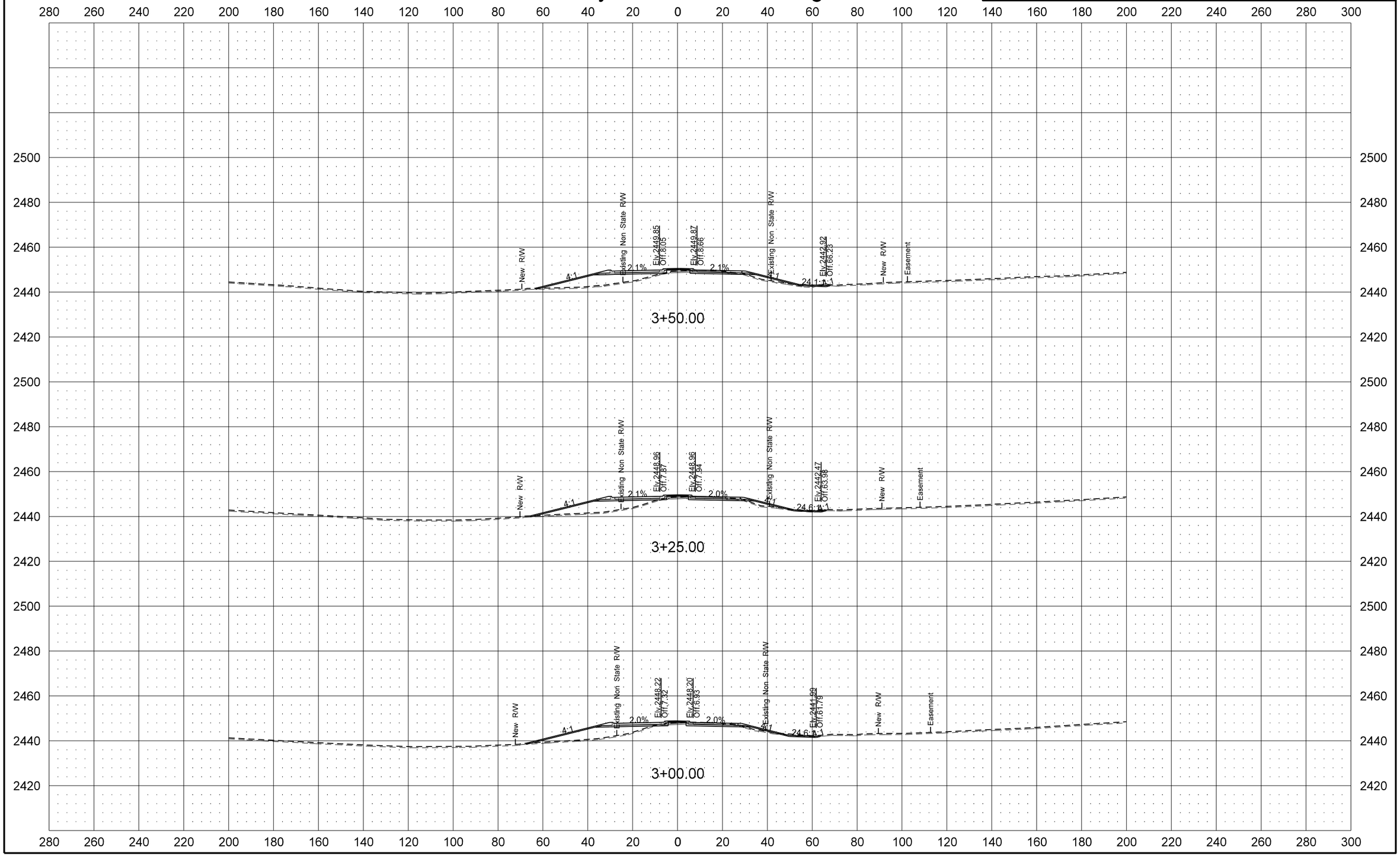
Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	85

County Road 55 North Leg



Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	86

County Road 55 North Leg



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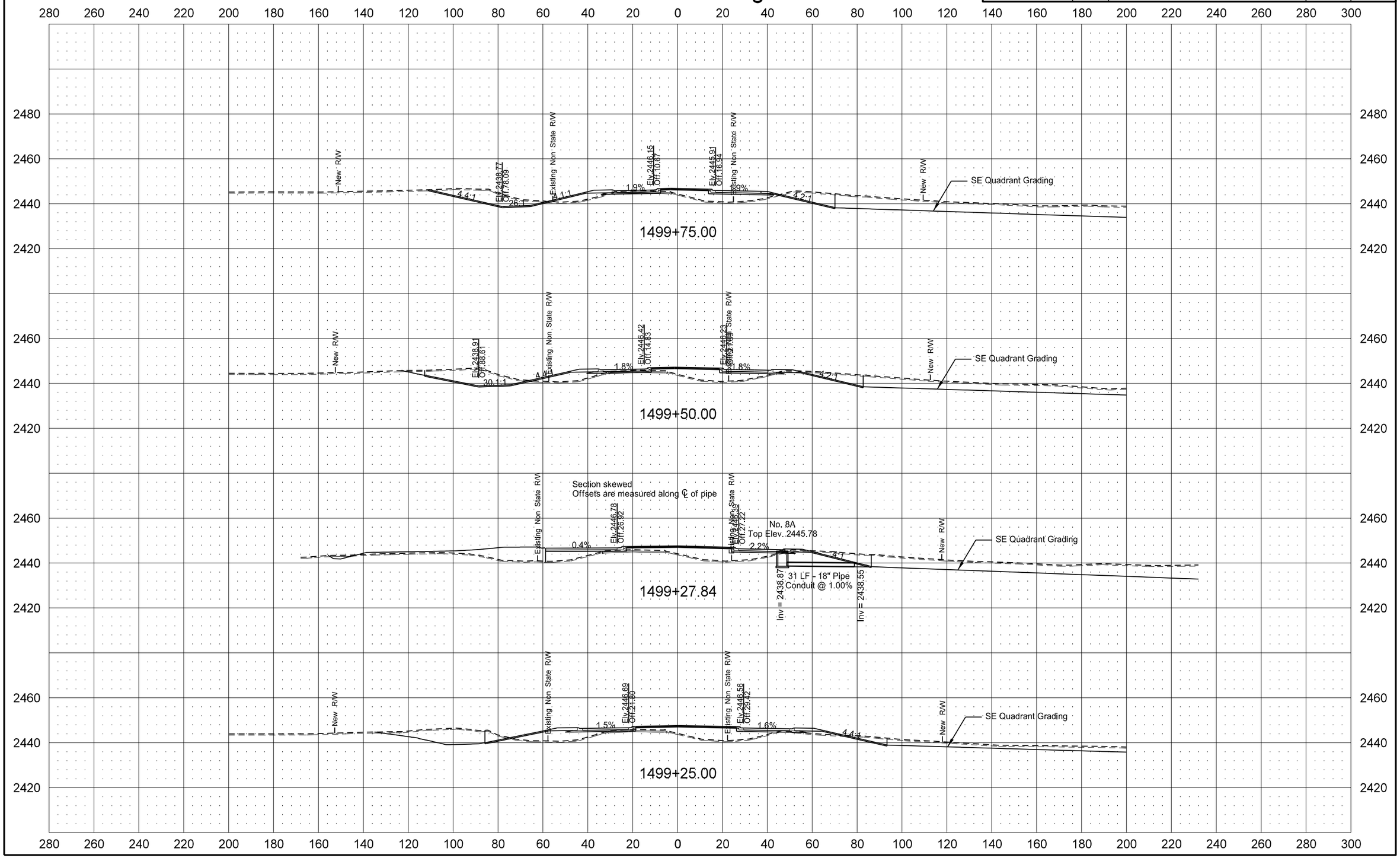
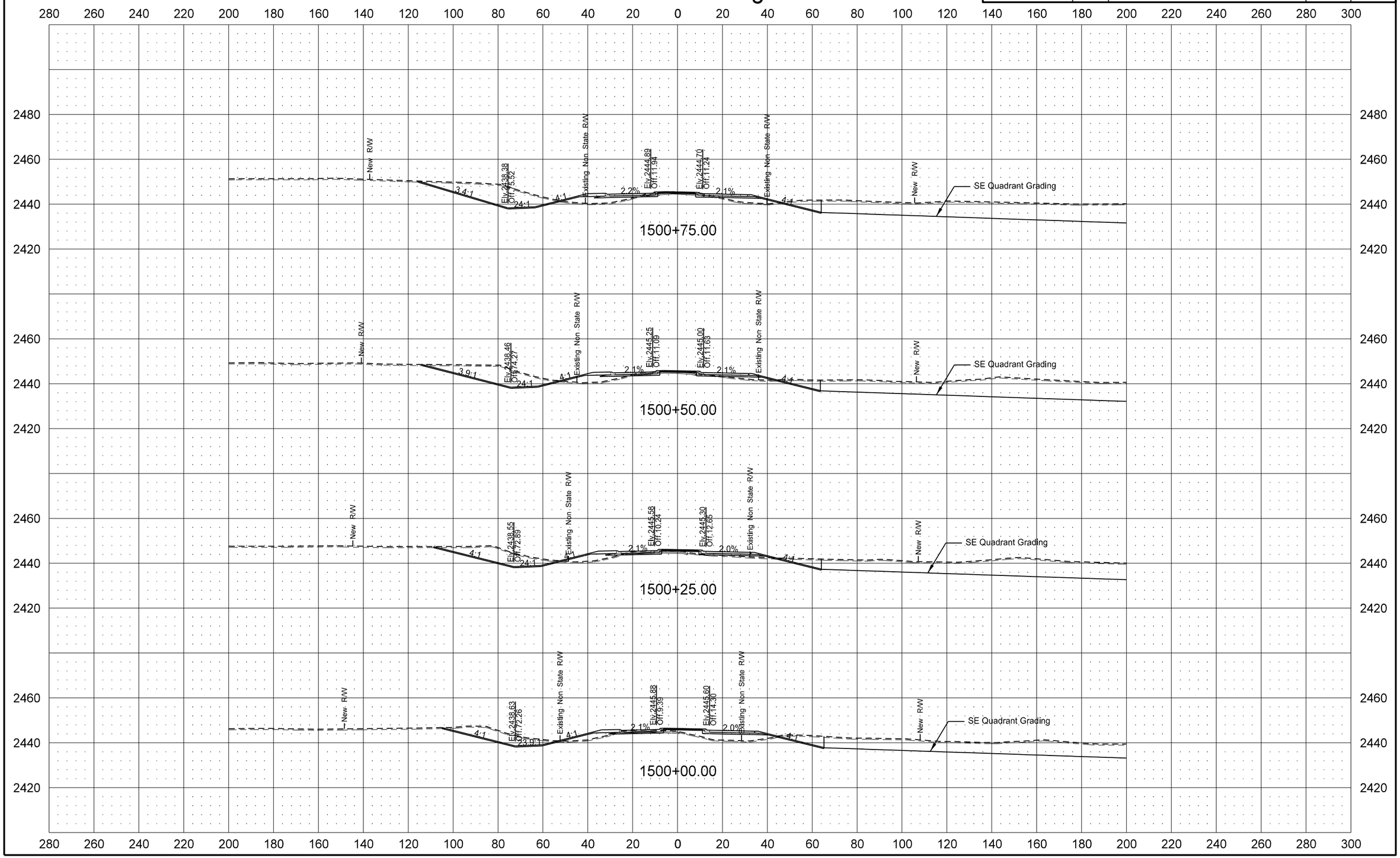
Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	97

ND 23 East Leg



Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	98

ND 23 East Leg



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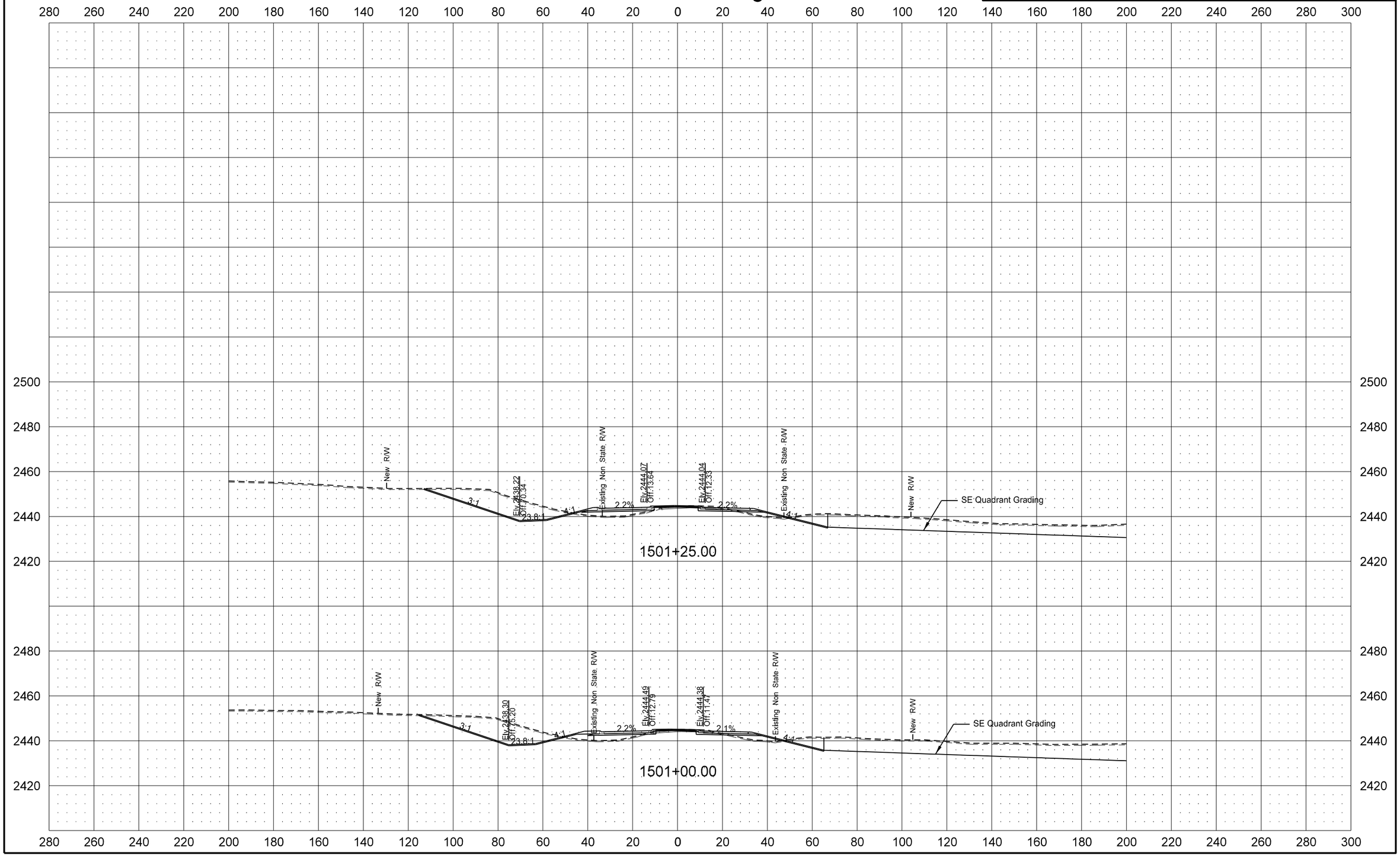
Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	99

ND 23 East Leg



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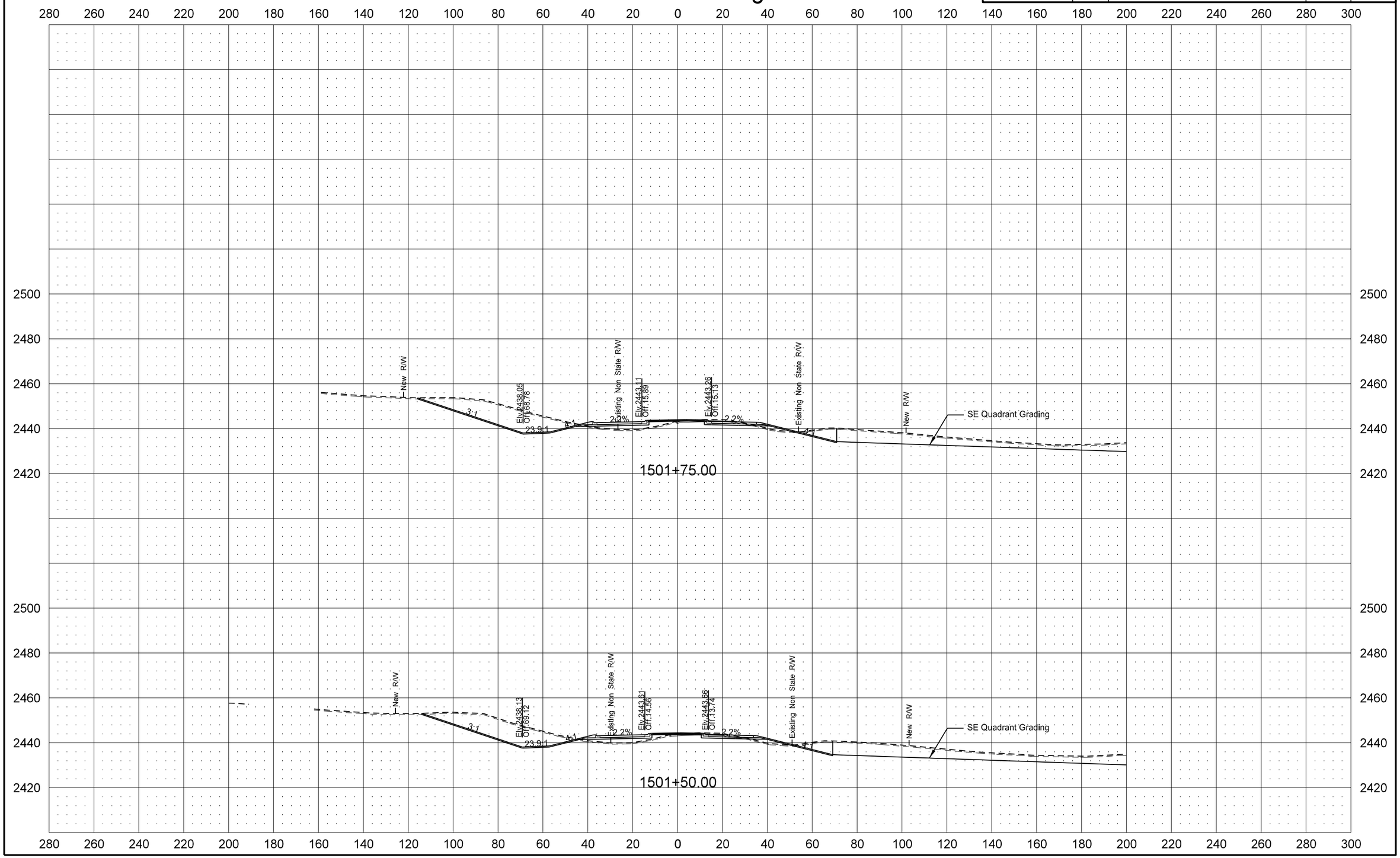
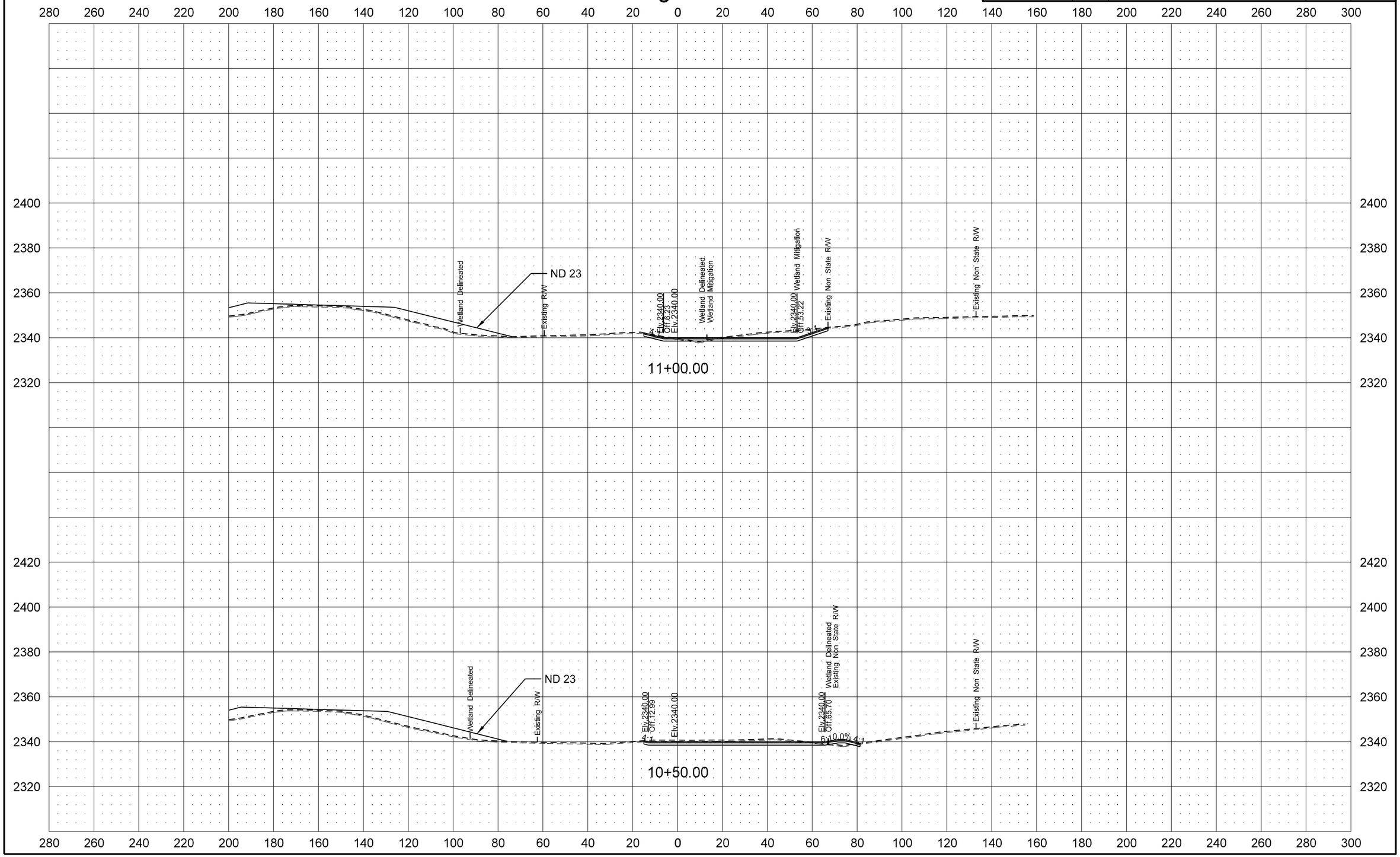
Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	100

ND 23 East Leg



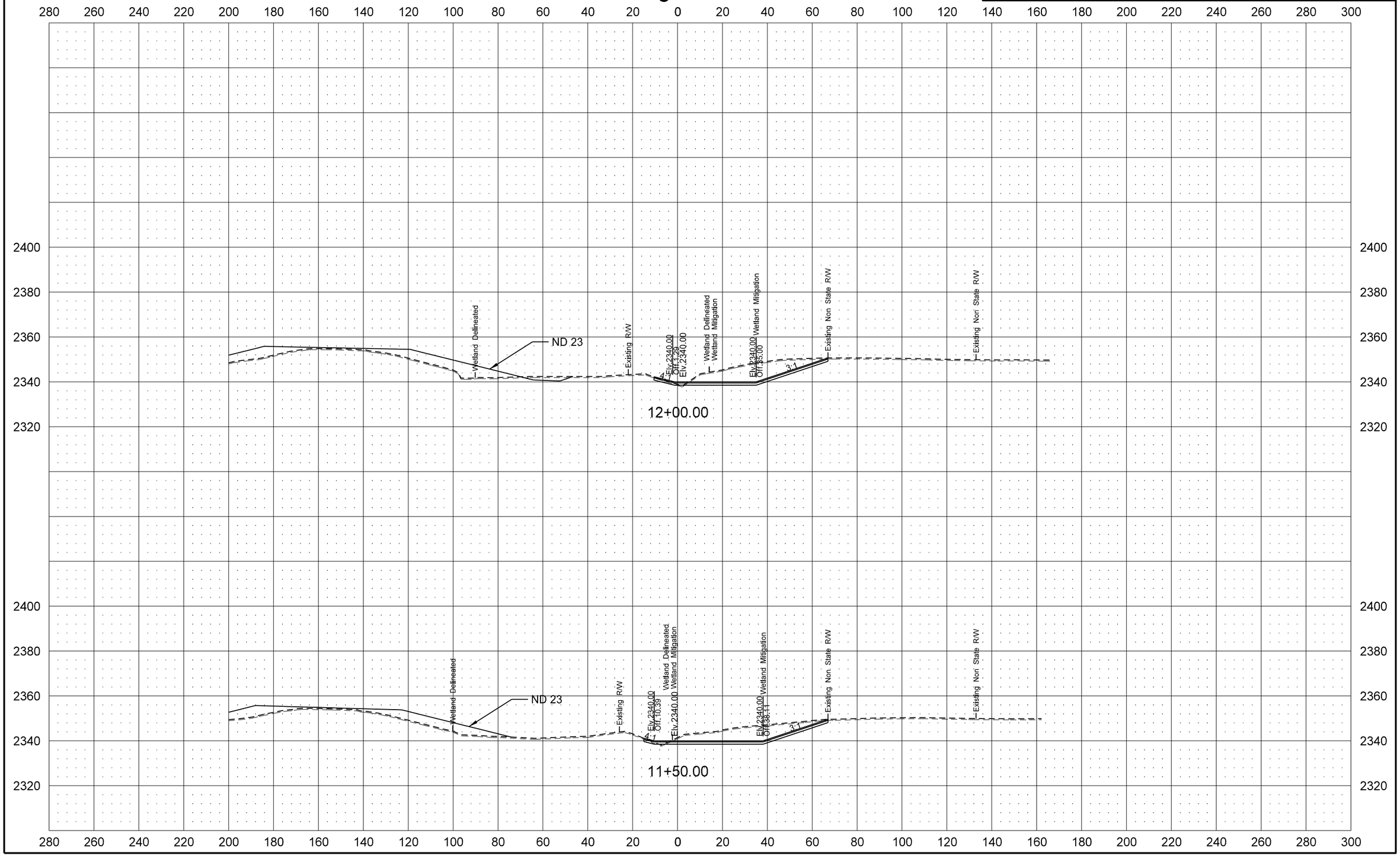
Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	119

Wetland 53 Mitigation 1475+00 RT



Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SOIB-7-023(051)027	200	120

Wetland 53 Mitigation 1475+00 RT



Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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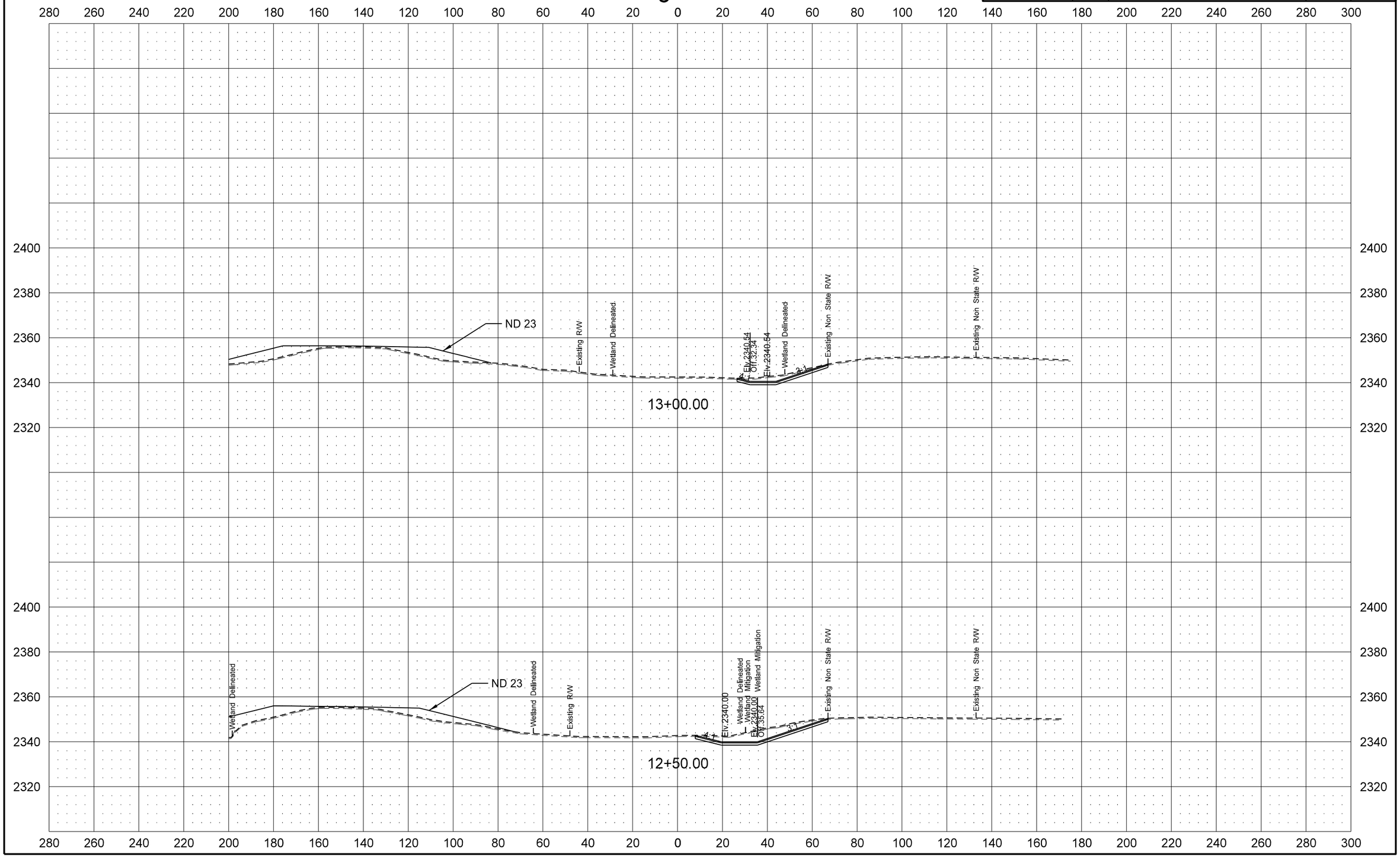
Wetland 53 Mitigation 1475+00 RT



Revised 1/28/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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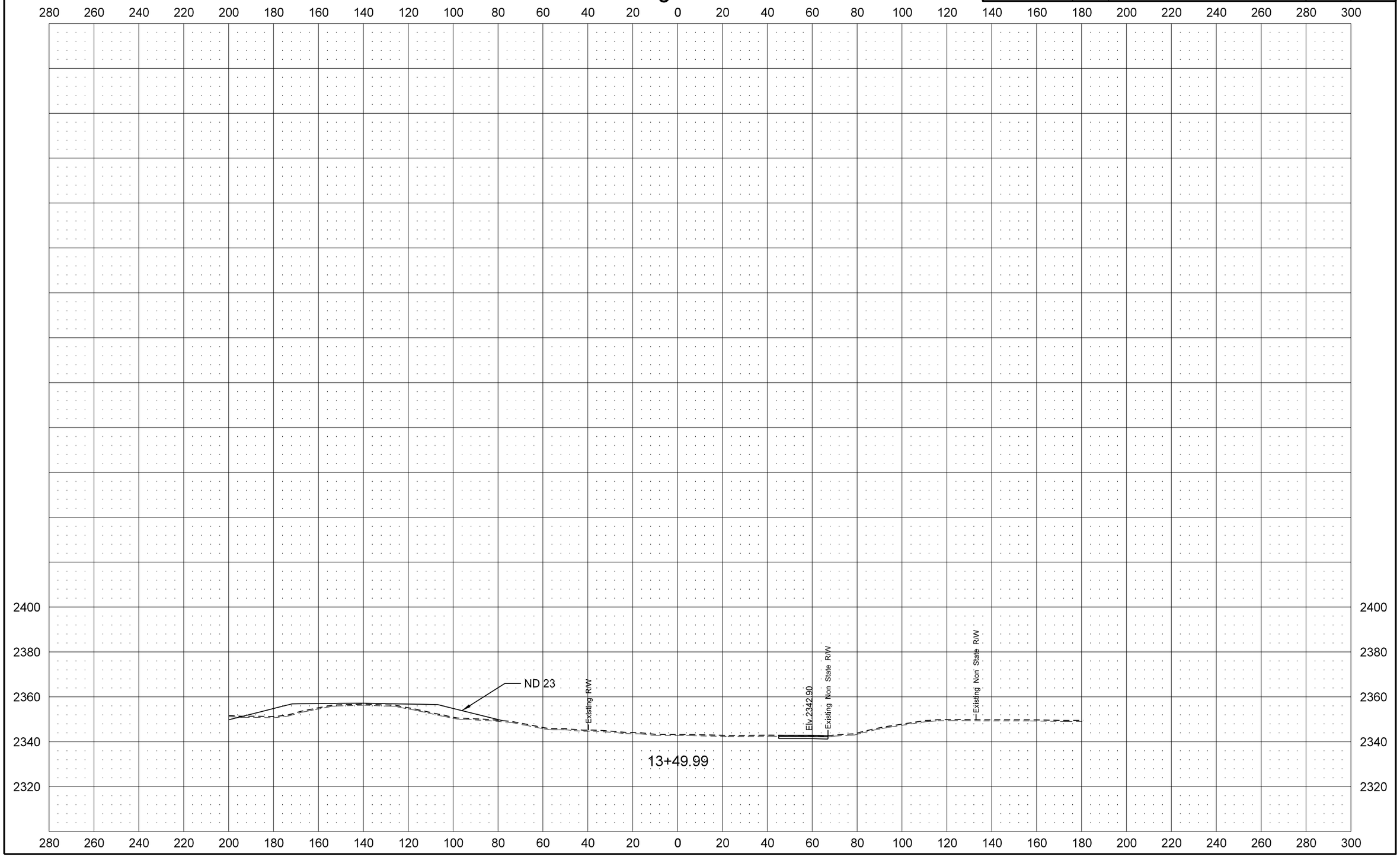
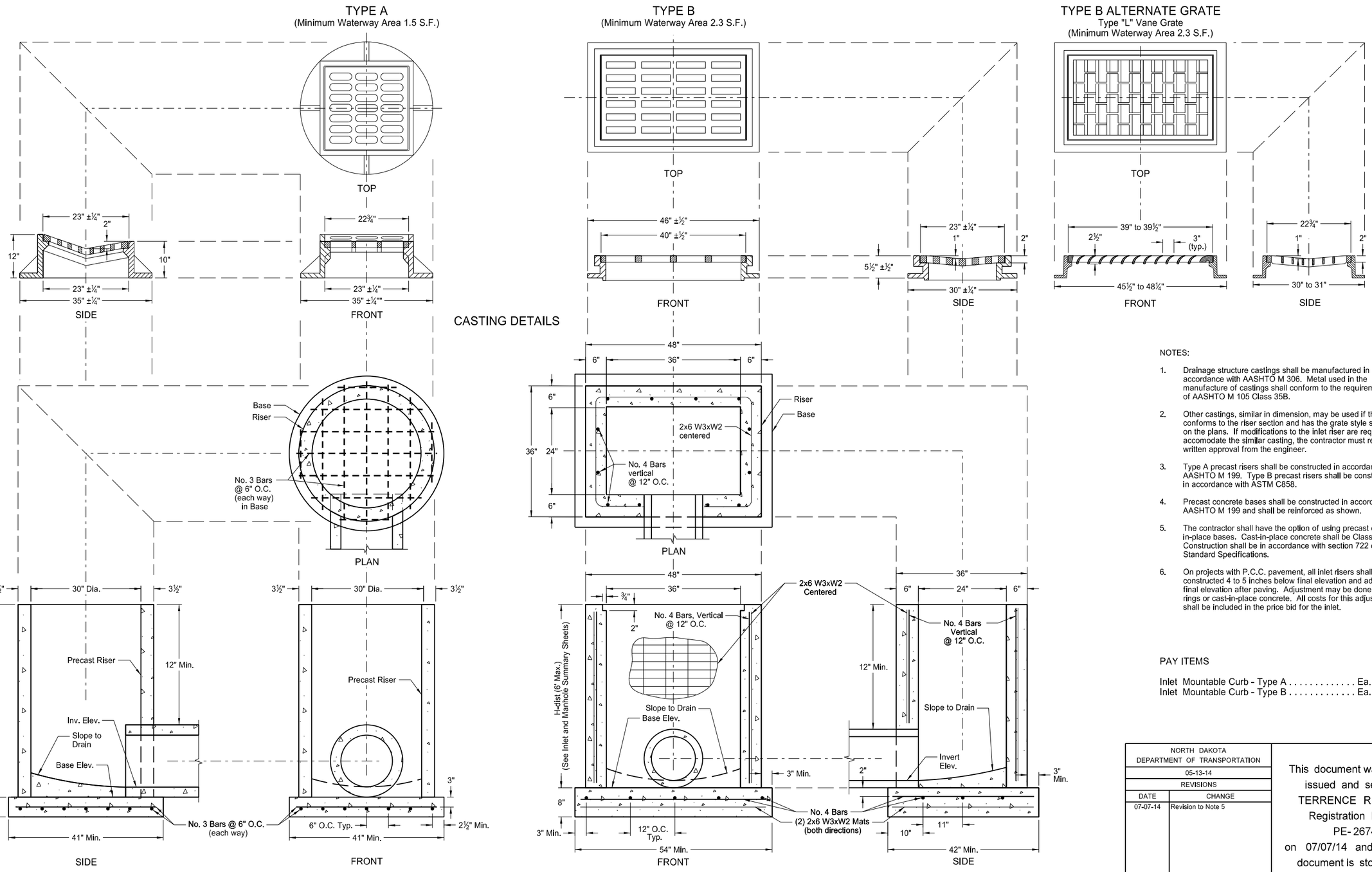
Wetland 53 Mitigation 1475+00 RT



INLET - MOUNTABLE CURB

D-722-3



NOTES:

1. Drainage structure castings shall be manufactured in accordance with AASHTO M 306. Metal used in the manufacture of castings shall conform to the requirements of AASHTO M 105 Class 35B.
2. Other castings, similar in dimension, may be used if the casting conforms to the riser section and has the grate style specified on the plans. If modifications to the inlet riser are required to accomodate the similar casting, the contractor must receive written approval from the engineer.
3. Type A precast risers shall be constructed in accordance with AASHTO M 199. Type B precast risers shall be constructed in accordance with ASTM C858.
4. Precast concrete bases shall be constructed in accordance with AASHTO M 199 and shall be reinforced as shown.
5. The contractor shall have the option of using precast or cast-in-place bases. Cast-in-place concrete shall be Class AE-3. Construction shall be in accordance with section 722 of the Standard Specifications.
6. On projects with P.C.C. pavement, all inlet risers shall be constructed 4 to 5 inches below final elevation and adjusted to final elevation after paving. Adjustment may be done with adjusting rings or cast-in-place concrete. All costs for this adjustment shall be included in the price bid for the inlet.

PAY ITEMS

Inlet Mountable Curb - Type A . . . . . Ea.
Inlet Mountable Curb - Type B . . . . . Ea.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
05-13-14	
REVISIONS	
DATE	CHANGE
07-07-14	Revision to Note 5

This document was originally issued and sealed by TERRENCE R. UDLAND Registration Number PE-2674 , on 07/07/14 and the original document is stored at the North Dakota Department of Transportation