DESIGN DATA				
Traffic	Average Daily			
Current 2006	Pass:	Trucks:	Total: 1700	
Forecast 2026	Pass:	Trucks:	Total: 2195	
Clear Zone Distance:		Design Speed: 65 mph		
Minimum Sight Dist. for Stopping:		Bridges:		
Sight Dist. for No Passing Zone:				
Pavement Design Life (years)				
Design Accumulated One-way ESALs:				

STATE	PROJECT NO.	PCN	SECTION NO.	SHEET NO.
ND	SHE-3-281(116)125	20289	1	1

JOB # 19
NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

SHE-3-281(116)125

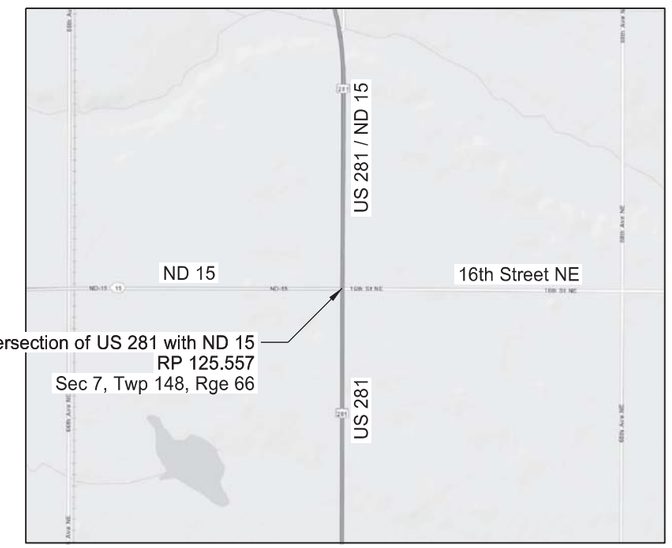
Eddy County
US 281 at S JCT ND 15
T148N, R66W, Sec 7
Right Turn Lane

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

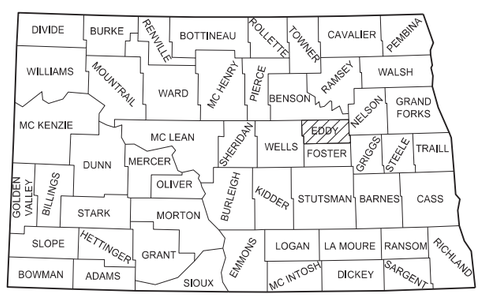
PROJECT NUMBER \ DESCRIPTION	NET MILES	GROSS MILES
SHE-3-281(116)125	0.154	0.154

N

T 148 N



R 66 W



STATE COUNTY MAP

DESIGNERS

Aaron Murra /s/

Joe Wagner /s/

Adam Tjaden /s/

APPROVED DATE 1/20/16

Roger Weigel /s/
OFFICE OF PROJECT DEVELOPMENT
ND DEPARTMENT OF TRANSPORTATION

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

APPROVED DATE 1/20/16

James Douglas Rath /s/
NDDOT DESIGN DIVISION

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SHE-3-281(116)125	2	1

TABLE OF CONTENTS

PLAN SECTIONS

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1	1	Title Sheet
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4	1	Scope of Work
6	1	Notes
6	2	Environmental Commitments
8	1	Quantities
10	1	Basis of Estimate
11	1	Data Tables
20	1 - 2	General Details
30	1	Typical Sections
40	1	Removals
50	1	Culvert Hydraulic Data
51	1	Allowable Pipe List
60	1	Plan & Profile
76	1	Temporary Erosion Control
77	1	Permanent Erosion Control
82	1	Survey Data Layouts
100	1 - 2	Work Zone Traffic Control
110	1 - 3	Signing
200	1 - 5	Cross Sections

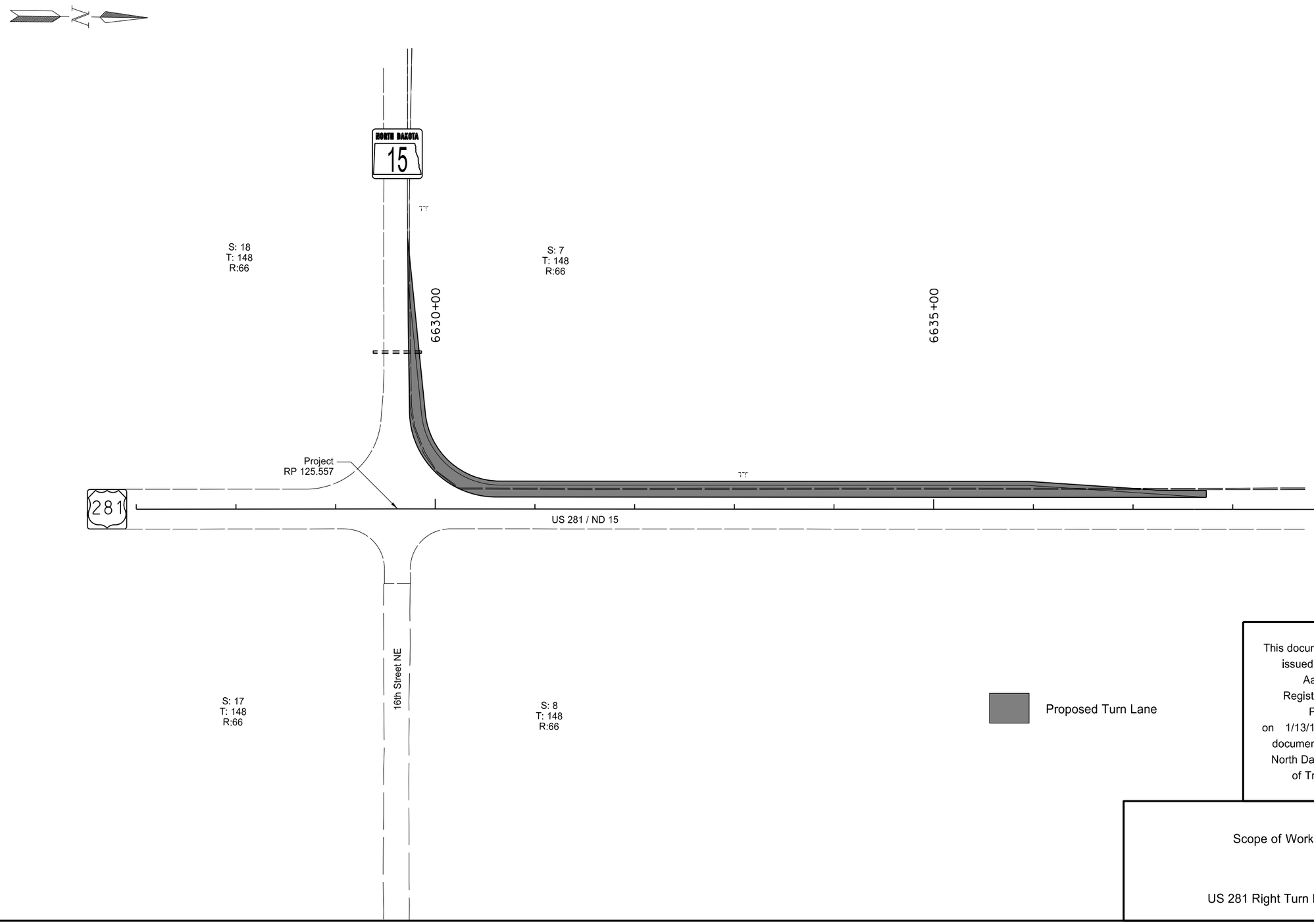
LIST OF STANDARD DRAWINGS

Number	Description
D-101-1, 2, 3	NDDOT Abbreviations
D-101-10	NDDOT Utility Company and Organization Abbreviations
D-101-20, 21	Line Styles
D-101-30, 31, 32	Symbols
D-203-6	Standard 90 Degree Flared Intersection
D-255-2	Erosion and Siltation Control - Erosion Control Blanket Installation
D-261-1	Erosion Control - Fiber Roll Placement Details
D-704-1	Attenuation Device
D-704-2	Traffic Control For Coring of Hot Bituminous Pavement
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-704-22	Construction Truck and Temporary Detour Layouts
D-704-24	Shoulder Closures and Bridge Painting Layouts
D-704-26	Miscellaneous Sign Layouts
D-704-50	Portable Sign Support Assembly
D-714-1	Reinforced Concrete Pipe Culverts and End Sections (Round Pipe)
D-754-9	Letter and Arrow Details for Variable Length Signs
D-754-23	Perforated Tube Assembly Details
D-754-24, 25	Mounting Details Perforated Tube
D-754-24A	Breakaway Coupler System for Perforated Tubes
D-754-50	Sign Punching, Stringer and Support Location Details for Variable Length Signs
D-754-61	Sign Punching, Stringer and Support Location Details - Route Marker Signs
D-762-1	Pavement Marking Message Details
D-762-3	Pavement Marking for Standard 90 Degree Flared Intersection

SPECIAL PROVISIONS

Number	Description
SP 0003(14)	Temporary Erosion and Sediment Best Management Practices

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SHE-3-281(116)125	4	1



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Scope of Work

US 281 Right Turn Lane

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SHE-3-281(116)125	6	1

NOTES

107-700 HAUL ROADS: The Engineer will not designate paved roads off the state system as haul roads.

107-P01 HAUL ROAD: Haul routes include the entire cycle, loaded and empty.

107-P02 HAUL ROAD: Obtain written permission from the applicable local entity if a paved road off the state system is used for this project. All costs of the inspection, maintenance, restoration, and release of the haul road are the responsibility of the contractor.

107-P03 HAUL ROAD RESTORATION: Use CL-13 aggregate for haul road restoration where gravel is needed.

202-P01 REMOVAL OF PAVEMENT: Include the cost of the full depth vertical saw cuts adjacent to pavement removal areas, specified in Section 202.04 A “General”, in the contract unit price for “Removal of Pavement.”

202-P02 REMOVAL OF PAVEMENT: The square yards of “Removal of Pavement” is based on the area shown in the removal layout. The area includes existing bituminous surfacing, existing base, and existing aggregate shoulder.

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

203-P01 WATER: Include the cost for water in the price bid for “Common Excavation – Type A.”

430-P01 TACK COAT: Include the cost for tack coat in the price bid for "Superpave FAA 42."

430-P02 PRIME COAT: Apply prime coat on the aggregate surface prior to placement of pavement. Follow the Equipment, Materials, and Construction Requirements of section 401. Include the cost for prime coat in the price bid for "Superpave FAA 42."

430-P03 ASPHALT CEMENT: Include the cost for asphalt cement in the price bid for "Superpave FAA 42."

704-P01 TRAFFIC CONTROL FOR SHOULDER DROP-OFF: Provide a 4:1 traversable taper wedge when the drop-off is greater than 2" at the end of each day. Construct the traversable taper to a height that reduces the drop-off to less than 2".

Include the cost of constructing in the traffic control bid items.

Provide 24 hour flagging if a taper wedge cannot be constructed

704-P02 TRAFFIC CONTROL DEVICES: The traffic control devices list has been developed using the layouts shown in the plans and the following layouts on Standard Drawings. Quantity for a shoulder closure with minor encroachment on US 281 on the southbound lane and into ND 15 turning right has been included in the plans. Provide additional devices to accommodate the contractor’s operation at no cost to the Department.

D-704-2 – For coring pavement
D-704-22 Type K and L – For trucks hauling
D-704-24 Type U – For constructing the turn lane
D-704-26 Type BB, CC, DD, EE, and GG – For paving

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ENVIRONMENTAL COMMITMENTS

ENVIRONMENTAL COMMITMENTS (EC): The North Dakota Department of Transportation and the Federal Highway Administration have made environmental commitments to secure approval of this project. The environmental commitments are as follows:

Based on the NEPA documentation, no additional permits or environmental commitments have been identified beyond what is covered by the NDDOT's Standard Specification of Road and Bridge Construction.

Wetland Number	Cowardin Classification	Wetland Type	Wetland Size (acres)	Wetland Feature	USACE Jurisdictional Wetlands	Impacts to Wetlands	
						Temp.	Perm.
NO WETLANDS PRESENT							
TOTALS:			0.00			0.00	0.00

*An office delineation was completed by the NDDOT ETS Division on 4-13-15 and no wetlands are present.

ESTIMATE OF QUANTITIES

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SHE-3-281(116)125	8	1

SPEC	CODE	ITEM DESCRIPTION	UNIT	MAINLINE	TOTAL
202	0137	REMOVAL OF PAVEMENT	SY	810	810
203	0101	COMMON EXCAVATION-TYPE A	CY	364	364
203	0109	TOPSOIL	CY	817	817
203	0140	BORROW-EXCAVATION	CY	1,261	1,261
251	0200	SEEDING CLASS II	ACRE	1	1
251	2000	TEMPORARY COVER CROP	ACRE	1	1
253	0101	STRAW MULCH	ACRE	2	2
255	0101	ECB TYPE 1	SY	19	19
261	0112	FIBER ROLLS 12IN	LF	35	35
261	0113	REMOVE FIBER ROLLS 12IN	LF	35	35
302	0120	AGGREGATE BASE COURSE CL 5	TON	1,930	1,930
430	0042	SUPERPAVE FAA 42	TON	440	440
430	1000	CORED SAMPLE	EA	4	4
704	0100	FLAGGING	MHR	100	100
704	1000	TRAFFIC CONTROL SIGNS	UNIT	822	822
704	1060	DELINEATOR DRUMS	EA	9	9
704	1067	TUBULAR MARKERS	EA	19	19
714	0615	PIPE CONC REINF 24IN CL III	LF	20	20
714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES	EA	1	1
754	0112	FLAT SHEET FOR SIGNS-TYPE IV REFL SHEETING	SF	47	47
754	0206	STEEL GALV POSTS-TELESCOPING PERFORATED TUBE	LF	90	90
762	0103	PVMT MK PAINTED-MESSAGE	SF	48	48
762	1104	PVMT MK PAINTED 4IN LINE	LF	987	987
762	1108	PVMT MK PAINTED 8IN LINE	LF	583	583

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SHE-3-281(116)125	10	1

Spec	Code	Description	Qty	Unit
Use or Location		Rate or Station		
302	120	Aggregate Base Course Cl 5	1930	TON
		1.875 TON/CY		
430	42	Superpave FAA 42	440	TON
		2 TON/CY		
430	1000	Cored Sample	4	EA
	Specification Section			
	430.04 I.2.b(1), "General"		4	EA
		Water	52	MGAL
For Aggregate		20 GAL/TON	39	
For Borrow Material		10 GAL/CY	13	
		Tack Coat	77	GAL
		0.05 GAL/SY		
		Prime Coat	539	GAL
		0.35 GAL/SY		
		PG 58-28 Asphalt Cement	26	TON
		6% of Superpave FAA 42		

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Basis of Estimate

US 281 Right Turn Lane

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SHE-3-281(116)125	11	1

Earthwork Summary					
Location	Common Excavation Type A (Pay Item)	Topsoil (Pay Item)	Adjusted Embankment	Borrow Excavation (Pay Item)	Topsoil Excess (To be Spread Evenly)
Road	CY	CY	CY	CY	CY
	A	D	B	C=B-A	E
US 281	291	582	941	649.8	88
ND 15	73	235	684	611.3	52
Total	**364**	**817**	**1625**	**1261**	**140**

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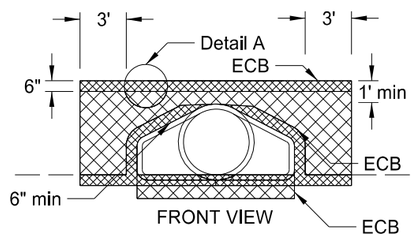
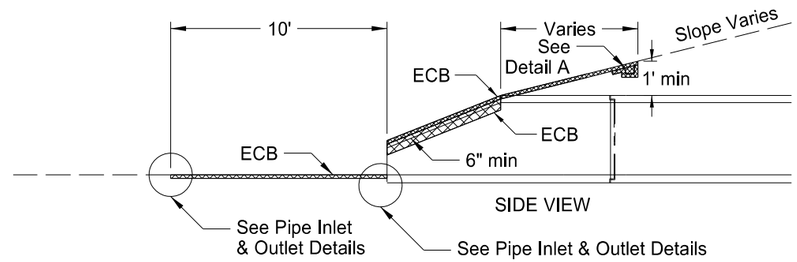
Earthwork Summary & Tabulation

US 281 Right Turn Lane

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SHE-3-281(116)125	20	1

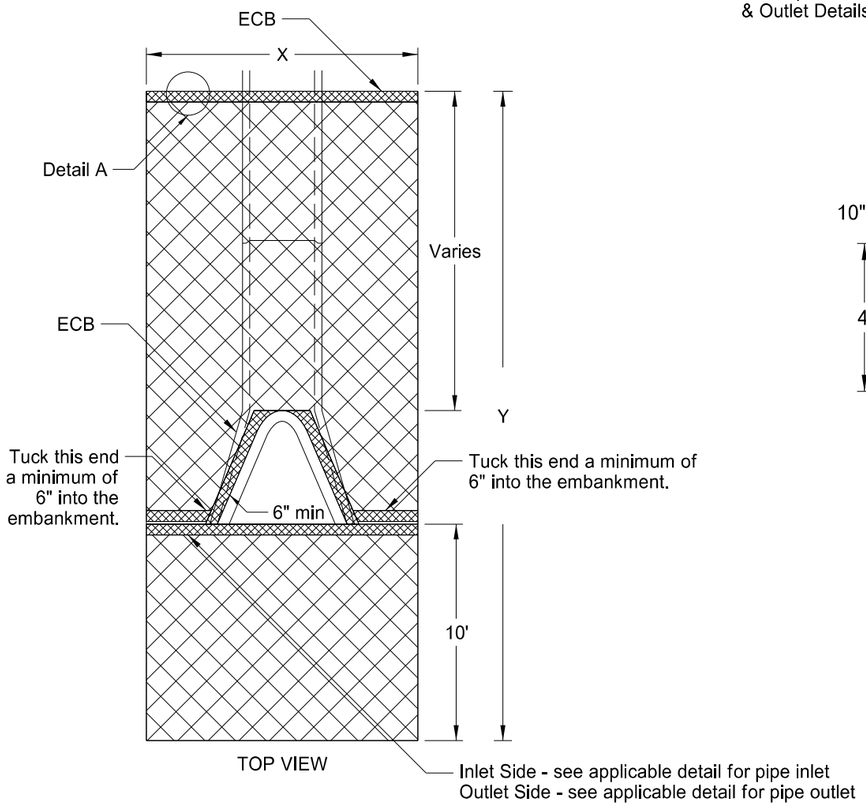


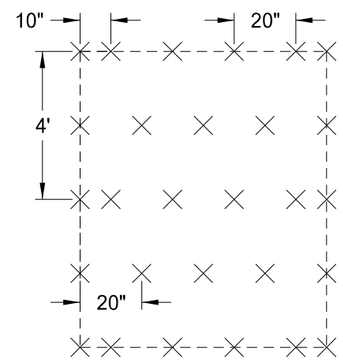


Erosion Control Blanket (ECB)								
Location to be Protected	Culvert Type Appr / CL	Pipe Dia.	No.	Unit Quantity	Total Quantity			
					Type 1	Type 2	Type 3	Type 4
Station		(IN)		(SY)	(SY)	(SY)	(SY)	(SY)
101+14	CL	24	1	19	19	-	-	-
Total (SY)					19	0	0	0

NOTES: Stationing along OCL15

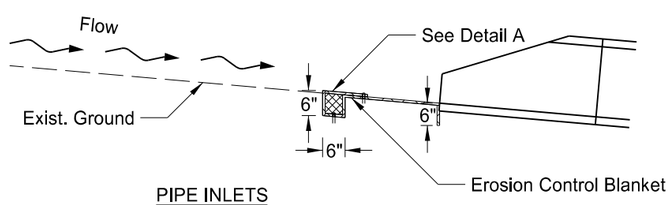
CENTERLINE CULVERTS				
Dia.	X	Y	Surface Area to be Protected	ECB
(IN)	(FT)	(FT)	(SF)	(SY)
24	10.5	17.63	176.18	19
Note: Quantities based on 4:1 slope.				



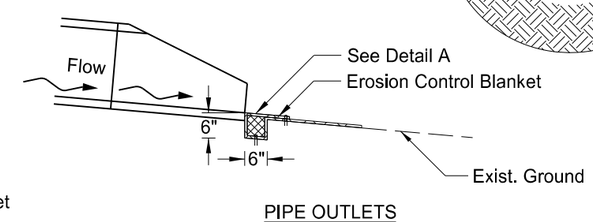


STAPLE PATTERN

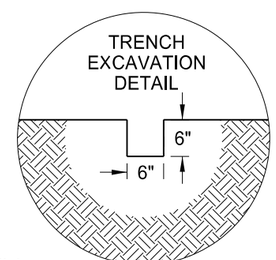
NOTE: Tuck the ECB a minimum of 6" into the embankment (against the flared end section) around the opening of the flared end section

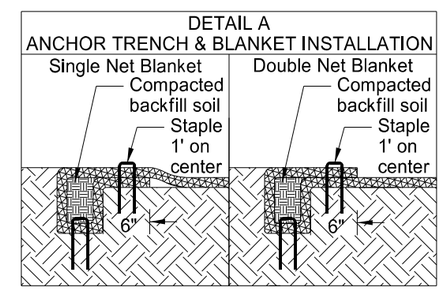


PIPE INLETS



PIPE OUTLETS





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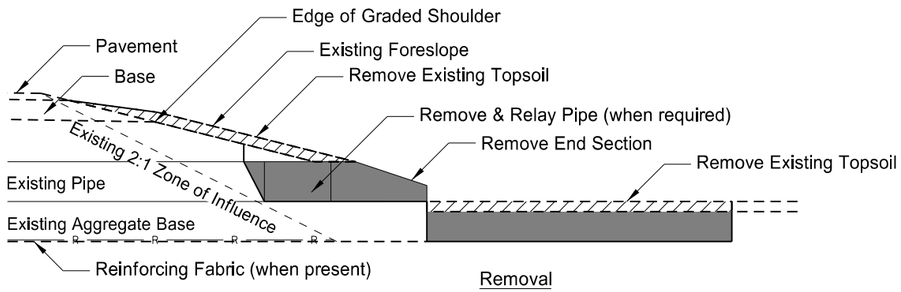
Erosion Control at Culvert Flared End Sections

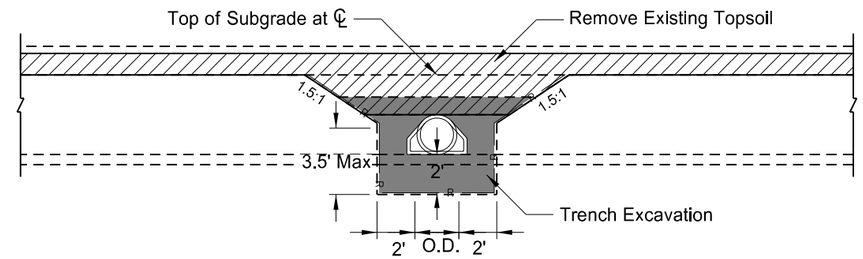
US 281 Right Turn Lane

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SHE-3-281(116)125	20	2



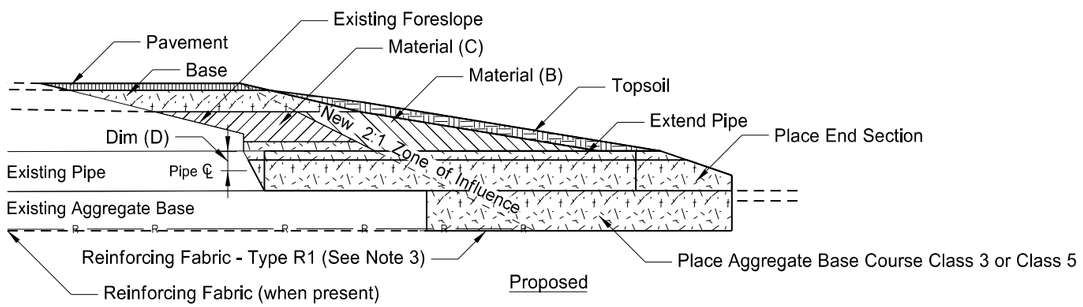
Removal

Cross Section View



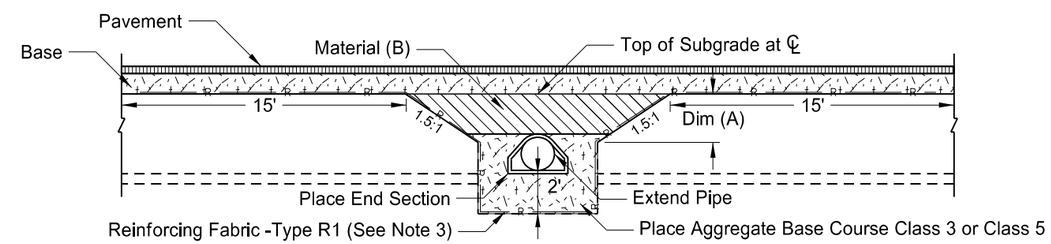
Removal Detail

Side View



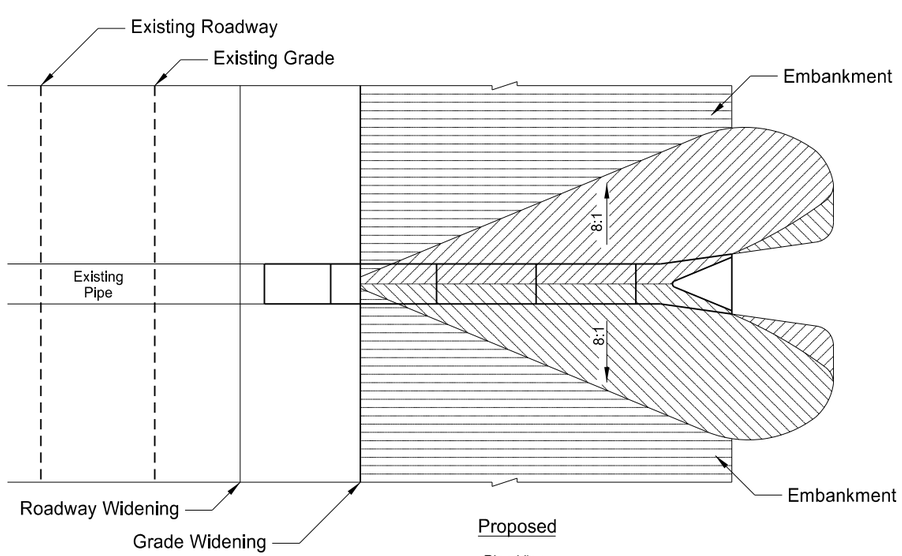
Proposed

Cross Section View



Backfill Detail

Side View (Topsoil not shown)



Proposed

Plan View

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

*Included in Pipe Pay Item
A) Pipe
B) Trench Excavation
C) Aggregate Base Course Class 3 or Class 5

Notes:
1. Embankment may be either Borrow Excavation (Compaction Control - Type A) or Common Excavation - Type A

2. Aggregate may be either Class 3 or Class 5 Aggregate Base Course.

3. When Reinforcing Fabric is provided in the plans at pipe extensions, expose the edge of the existing fabric and connect the new fabric. This may require the removal and resetting of additional sections of pipe. Reinforcing Fabric is not required outside the 2:1 zone of influence.

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

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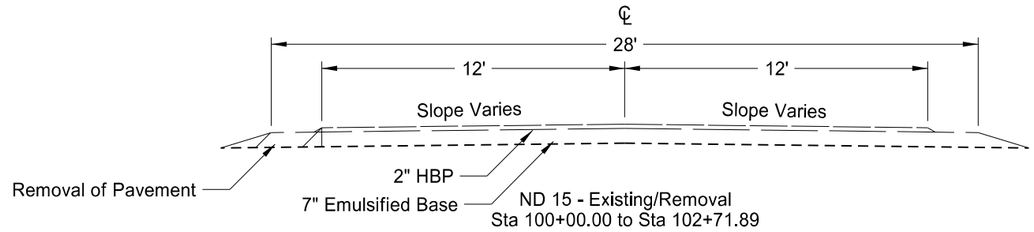
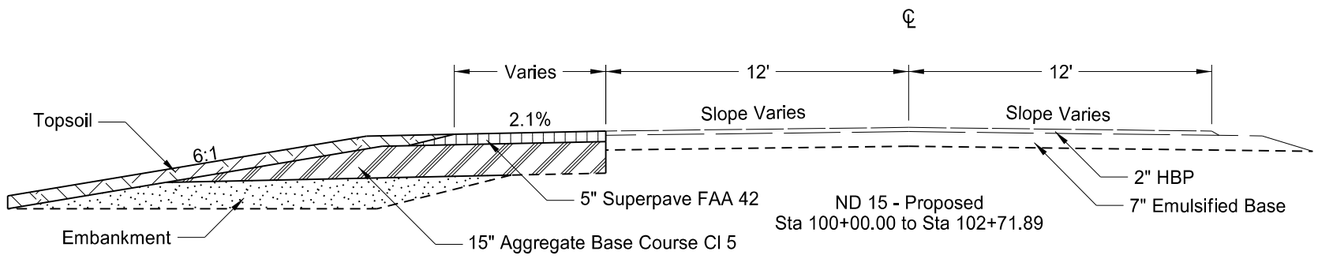
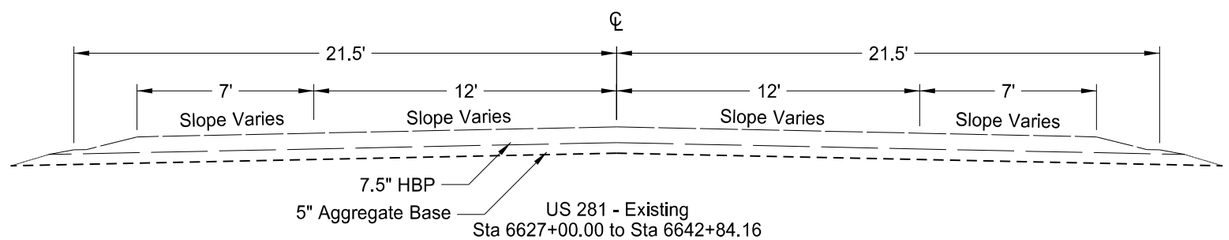
Mainline ℄ Pipe Extension Detail For Adding a Lane

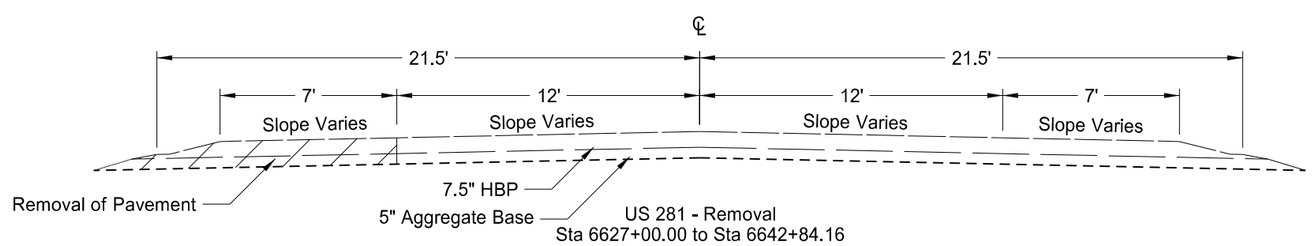
US 281 Right Turn Lane

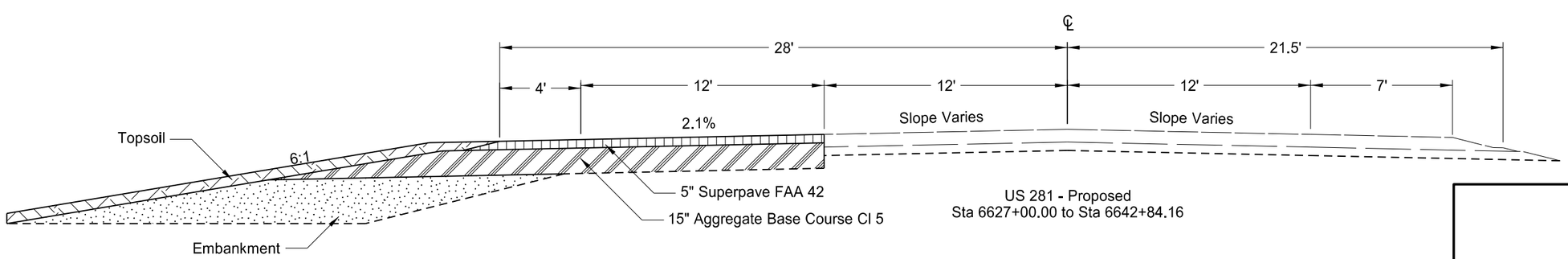
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SHE-3-281(116)125	30	1











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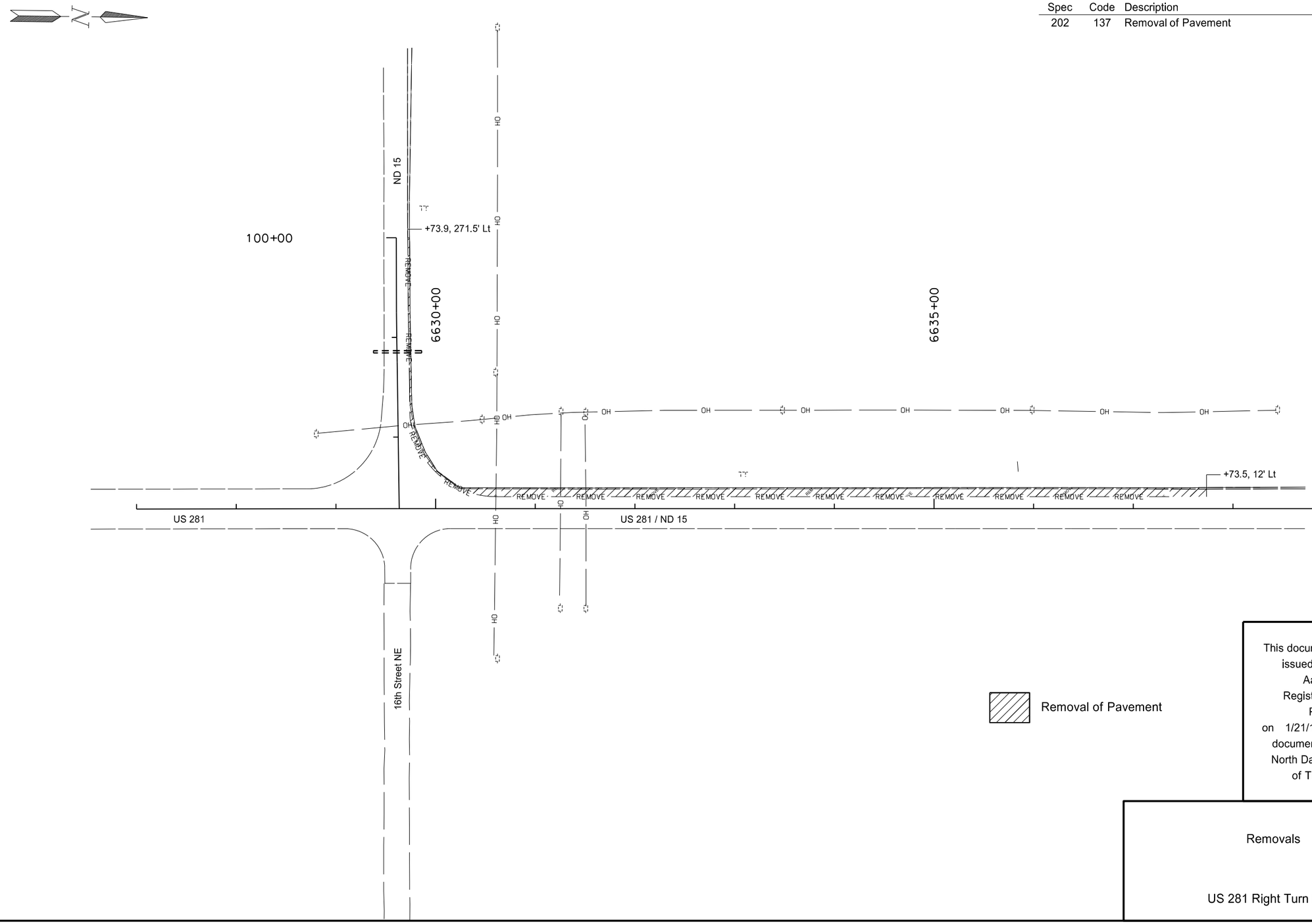
Typical Sections

Existing and Proposed

US 281 Right Turn Lane

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SHE-3-281(116)125	40	1

Spec	Code	Description	Quantity
202	137	Removal of Pavement	810 SY



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Removals

US 281 Right Turn Lane

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SHE-3-281(116)125	51	1

Chain	Begin Station / Location	Begin Offset	End Station / Location	End Offset	Pipe (Pay Item)			Allowable Material	Required Diameter	R1 Fabric	End Sections (Pay Item)		Applicable Backfill Detail
											Begin	End	
					In	Bid Item	LF		In	SY	EA	EA	
OCL15	101+14	24.78 Lt	101+14	44.78 Lt	24	Pipe Conc. Reinf. CL III (Extension)	20	Reinforced Concrete Pipe - Class III (barrel length = 12 LF)	24	N/A		Remove & Relay	See Section 20

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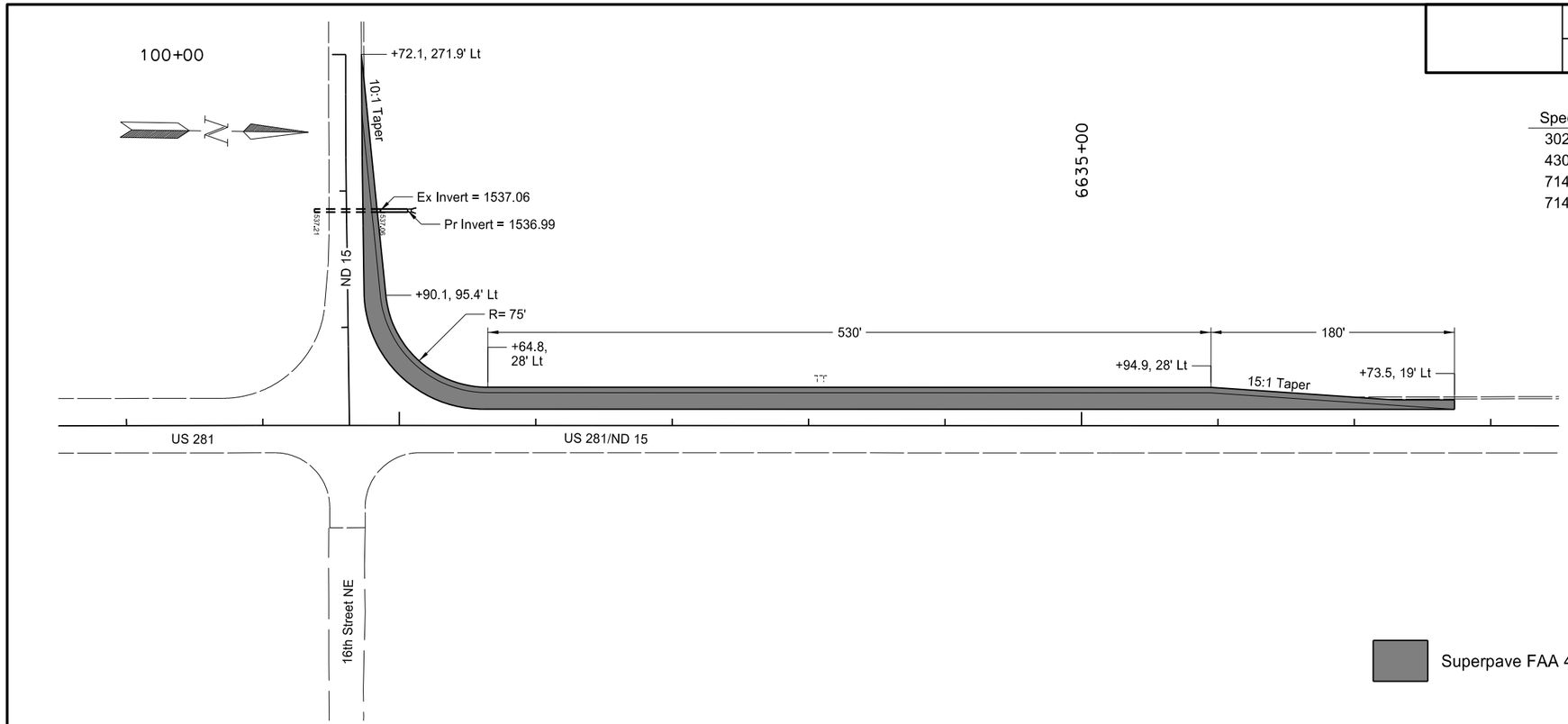
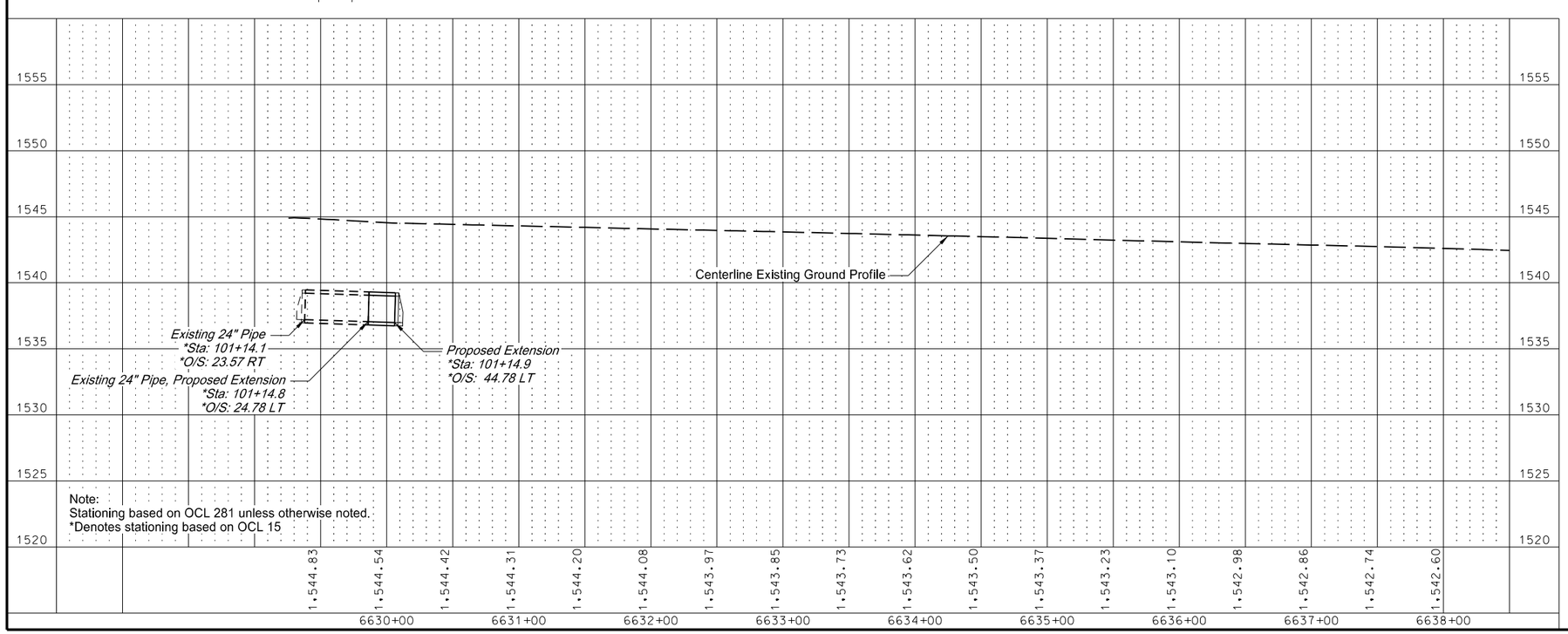
Allowable Pipe List

US 281 Right Turn Lane

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SHE-3-281(116)125	60	1

Spec	Code	Description	Quantity
302	120	Aggregate Base Course Cl 5	1930 TON
430	42	Superpave FAA 42	440 TON
714	615	Pipe Conc Reinf 24IN CL III	20 LF
714	9660	Remove & Relay End Section - All Type & Size	1 EA





Note:
Stationing based on OCL 281 unless otherwise noted.
*Denotes stationing based on OCL 15

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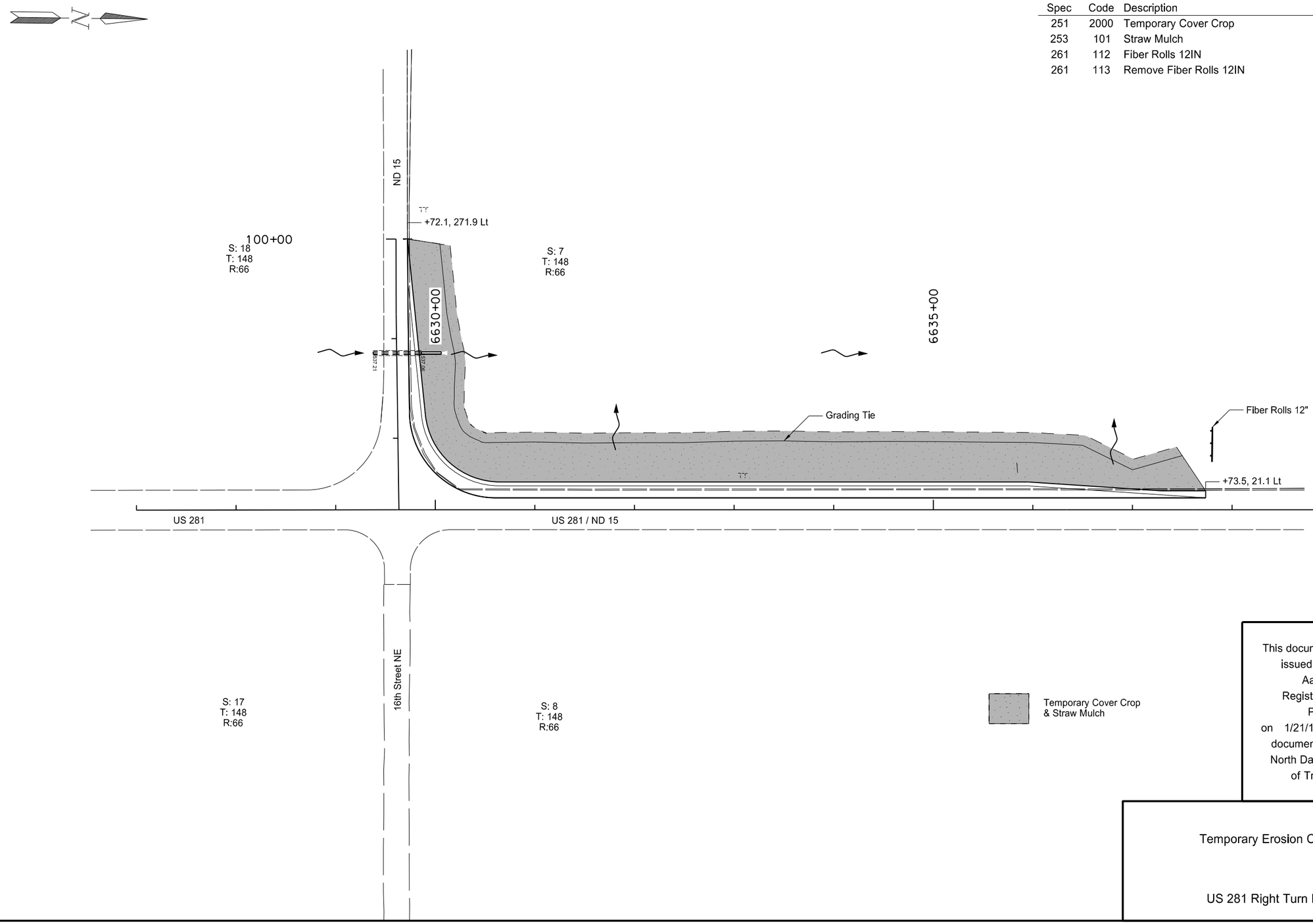
Plan and Profile

US 281 Right Turn Lane

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SHE-3-281(116)125	76	1

Spec	Code	Description	Quantity
251	2000	Temporary Cover Crop	1.0 ACRE
253	101	Straw Mulch	1.0 ACRE
261	112	Fiber Rolls 12IN	35 LF
261	113	Remove Fiber Rolls 12IN	35 LF



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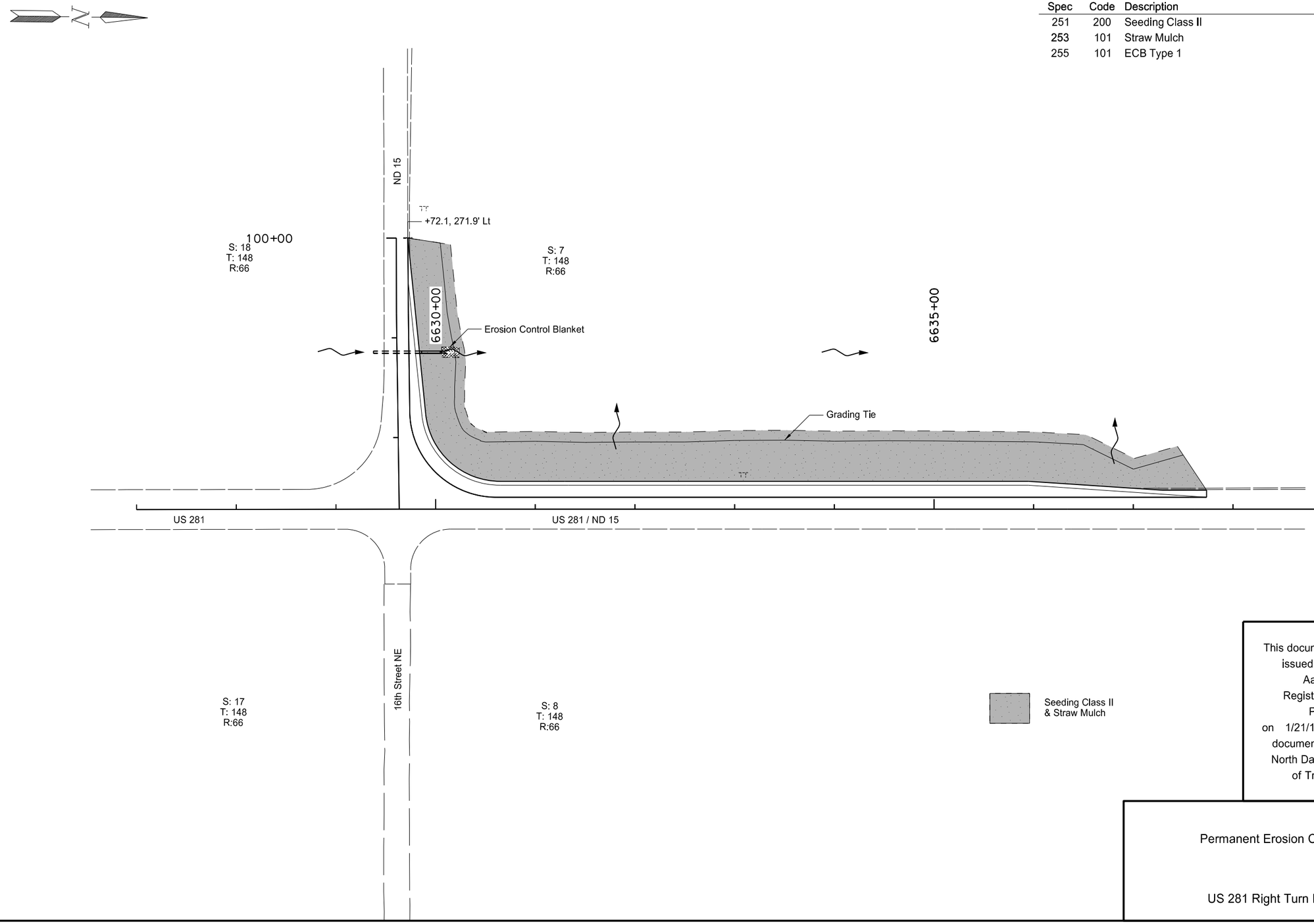
Temporary Erosion Control

US 281 Right Turn Lane

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SHE-3-281(116)125	77	1

Spec	Code	Description	Quantity
251	200	Seeding Class II	1.0 ACRE
253	101	Straw Mulch	1.0 ACRE
255	101	ECB Type 1	19 SY



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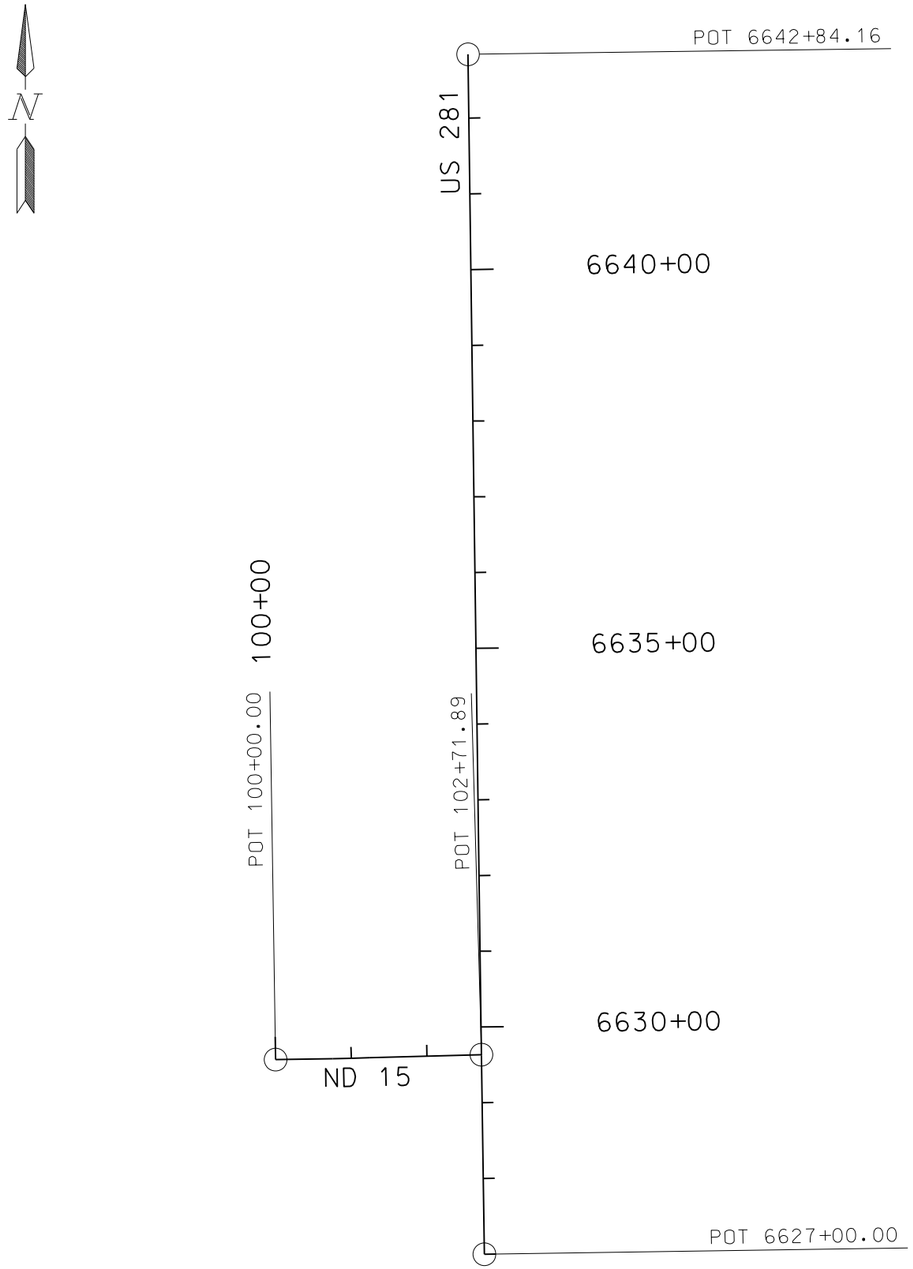
Permanent Erosion Control

US 281 Right Turn Lane

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SHE-3-281(116)125	82	1



Beginning chain OCL281 description
==========

Point 8005	N	238,393.7054 E	2,309,640.1004 Sta	6627+00.00	
Course from 8005 to 8006 N 0° 51' 46.77" W Dist 262.2775					
Point 8006	N	238,655.9532 E	2,309,636.1501 Sta	6629+62.28	
Course from 8006 to 8007 N 0° 45' 59.62" W Dist 1,321.8832					
Point 8007	N	239,977.7181 E	2,309,618.4651 Sta	6642+84.16	

==========
Ending chain OCL281 description

Beginning chain OCL15 description
==========

Point 8020	N	238,650.5720 E	2,309,364.3283 Sta	100+00.00
Course from 8020 to 8021 N 89° 06' 25.18" E Dist 75.4702				
Point 8021	N	238,651.7483 E	2,309,439.7893 Sta	100+75.47
Course from 8021 to 8022 N 88° 31' 06.66" E Dist 24.7380				
Point 8022	N	238,652.3878 E	2,309,464.5190 Sta	101+00.21
Course from 8022 to 8023 N 88° 23' 15.60" E Dist 24.4949				
Point 8023	N	238,653.0770 E	2,309,489.0042 Sta	101+24.70
Course from 8023 to 8024 N 88° 24' 11.00" E Dist 147.1846				
Point 8024	N	238,657.1788 E	2,309,636.1316 Sta	102+71.89

==========
Ending chain OCL15 description

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Survey Data Layout

US 281 Right Turn Lane

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SHE-3-281(116)125	100	1

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
D3-36	36"x6"	STREET NAME SIGN (Sign and installation only)		6	
G20-1-60	60"x24"	ROAD WORK NEXT __ MILES		34	
G20-1b-60	60"x24"	WORK IN PROGRESS/ NO WORK IN PROGRESS (Sign and installation only)		26	
G20-2-48	**48"x24"**	**END ROAD WORK**	**4**	**19**	**76**
G20-4-36	36"x18"	PILOT CAR FOLLOW ME (Mounted to back of pilot car)		18	
G20-10-108	108"x48"	CONTRACTOR SIGN		64	
G20-50a-72	72"x36"	ROAD WORK NEXT __ MILES RT & LT ARROWS		37	
G20-52a-72	72"x24"	ROAD WORK NEXT __ MILES RT or LT ARROW		30	
G20-55-96	96"x48"	SPEED LIMIT ENFORCED - MINIMUM FEE $80 WHEN WORKERS PRESENT		59	
M1-1-36	36"x36"	INTERSTATE ROUTE MARKER (Post and installation only)		10	
M1-4-24	24"x24"	U.S. ROUTE MARKER (Post and installation only)		10	
M1-5-24	24"x24"	STATE ROUTE MARKER (Post and installation only)		10	
M3-1-24	24"x12"	NORTH (Mounted on route marker post)		7	
M3-2-24	24"x12"	EAST (Mounted on route marker post)		7	
M3-3-24	24"x12"	SOUTH (Mounted on route marker post)		7	
M3-4-24	24"x12"	WEST (Mounted on route marker post)		7	
M4-8-24	24"x12"	DETOUR (Mounted on route marker post)		7	
M4-9-30	30"x24"	DETOUR ARROW RIGHT or LEFT/AHD AND RT or LT		15	
M4-10-48	48"x18"	DETOUR ARROW RIGHT or LEFT		23	
M5-1-21	21"x15"	ARROW AHD AND RT or LT(Mounted on route marker post)		7	
M5-2-21	21"x15"	ARROW AHD UP & RT or LT (Mounted on route marker post)		7	
M6-1-21	21"x15"	ARROW RT or LT (Mounted on route marker post)		7	
M6-2-21	21"x15"	ARROW UP & RT or LT (Mounted on route marker post)		7	
M6-3-21	21"x15"	ARROW AHD (Mounted on route marker post)		7	
R1-1-48	**48"x48"**	**STOP**	**4**	**32**	**128**
R1-1a-18	**18"x18"**	**STOP and SLOW PADDLE Back to Back**	**3**	**5**	**15**
R1-2-60	60"x60"	YIELD		29	
R2-1-48	**48"x60"**	**SPEED LIMIT __**	**2**	**39**	**78**
R2-1a-24	24"x18"	MINIMUM FEE $80 (Mounted on Speed Limit post)		10	
R3-7-48	48"x48"	LEFT or RIGHT LANE MUST TURN LEFT or RIGHT		35	
R4-1-48	48"x60"	DO NOT PASS		39	
R4-7-48	48"x60"	KEEP RIGHT SYMBOL		39	
R5-1-48	48"x48"	DO NOT ENTER		35	
R6-1-36	36"x12"	ONE WAY RIGHT or LEFT		13	
R7-1-12	12"x18"	NO PARKING		11	
R10-6-24	24"x36"	STOP HERE ON RED		16	
R11-2-48	48"x30"	ROAD CLOSED		28	
R11-2a-48	48"x30"	STREET CLOSED		28	
R11-3a-60	60"x30"	ROAD CLOSED __ MILES AHEAD LOCAL TRAFFIC ONLY		31	
R11-3c-60	60"x30"	STREET CLOSED __ MILES AHEAD LOCAL TRAFFIC ONLY		31	
R11-4a-60	60"x30"	STREET CLOSED TO THRU TRAFFIC		31	
W1-3-48	48"x48"	RIGHT or LEFT SHARP REVERSE CURVE ARROW		35	
W1-4-48	48"x48"	RIGHT or LEFT REVERSE CURVE ARROW		35	
W1-4b-48	48"x48"	DOUBLE RIGHT or LEFT REVERSE CURVE ARROW		35	
W1-6-48	48"x24"	LARGE ARROW		26	
W3-1-48	48"x48"	STOP AHEAD SYMBOL		35	
W3-3-48	48"x48"	SIGNAL AHEAD SYMBOL		35	
W3-4-48	48"x48"	BE PREPARED TO STOP		35	
W3-5-48	**48"x48"**	**SPEED REDUCTION AHEAD**	**1**	**35**	**35**
W4-2-48	48"x48"	RIGHT or LEFT LANE TRANSITION SYMBOL		35	
W5-1-48	**48"x48"**	**ROAD NARROWS**	**2**	**35**	**70**
W5-8-48	48"x48"	THRU TRAFFIC RIGHT LANE		35	
W5-9-48	48"x48"	ROAD WORK TRAFFIC ONLY DOWN & LT or RT ARROW		35	
W6-3-48	48"x48"	TWO WAY TRAFFIC SYMBOL		35	
W8-1-48	**48"x48"**	**BUMP**	**1**	**35**	**35**
W8-3-48	48"x48"	PAVEMENT ENDS		35	
W8-7-48	48"x48"	LOOSE GRAVEL		35	
W8-9a-48	48"x48"	SHOULDER DROP-OFF		35	
W8-11-48	**48"x48"**	**UNEVEN LANES**	**1**	**35**	**35**
W8-12-48	48"x48"	NO CENTER STRIPE		35	
W8-53-48	48"x48"	TRUCKS ENTERING HIGHWAY		35	
W8-54-48	**48"x48"**	**TRUCKS ENTERING AHEAD or __ FT.**	**2**	**35**	**70**
W8-55-48	**48"x48"**	**TRUCKS CROSSING AHEAD or __ FT.**	**2**	**35**	**70**
W8-56-48	48"x48"	TRUCKS EXITING HIGHWAY		35	
W9-3a-48	48"x48"	CENTER LANE CLOSED SYMBOL		35	
W12-2-48	48"x48"	LOW CLEARANCE SYMBOL		35	
W13-1-24	24"x24"	__ MPH ADVISORY SPEED PLATE (Mounted on warning sign post)		11	
W13-4-48	48"x60"	RAMP ARROW		39	
W14-3-48	48"x36"	NO PASSING ZONE		23	
W20-1-48	**48"x48"**	**ROAD WORK AHEAD or _FT or _ MILE**	**4**	**35**	**140**
W20-2-48	48"x48"	DETOUR AHEAD or __ FT		35	
W20-3-48	48"x48"	ROAD or STREET CLOSED AHEAD or __ FT.		35	
W20-4-48	48"x48"	ONE LANE ROAD AHEAD or __ FT.		35	
W20-5-48	48"x48"	RIGHT or LEFT LANE CLOSED AHEAD or __ FT.		35	
W20-7a-48	48"x48"	FLAGGING SYMBOL		35	
W20-7k-24	24"x18"	__ FEET (Mounted on warning sign post)		10	
W20-8-48	48"x48"	STREET CLOSED		35	
W20-51-48	48"x48"	EQUIPMENT WORKING		35	
W20-52-54	54"x12"	NEXT __ MILES (Mounted on warning sign post)		12	
W21-1a-48	48"x48"	WORKERS SYMBOL		35	
W21-2-48	**48"x48"**	**FRESH OIL**	**1**	**35**	**35**
W21-3-48	48"x48"	ROAD MACHINERY AHEAD or __ FT		35	

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

SPECIAL SIGNS

SPEC & CODE

704-1000	**TRAFFIC CONTROL SIGNS**	**TOTAL UNITS**	**822**

SPEC & CODE	DESCRIPTION	UNIT	QUANTITY
704-0100	**FLAGGING**	**MHR**	**100**
704-1041	ATTENUATION DEVICE-TYPE B-55	EACH	
704-1043	ATTENUATION DEVICE-TYPE B-65	EACH	
704-1044	ATTENUATION DEVICE-TYPE B-70	EACH	
704-1050	TYPE I BARRICADES	EACH	
704-1051	TYPE II BARRICADES	EACH	
704-1052	TYPE III BARRICADES	EACH	
704-1060	**DELINEATOR DRUMS**	**EACH**	**9**
704-1065	TRAFFIC CONES	EACH	
704-1067	**TUBULAR MARKERS**	**EACH**	**19**
704-1070	DELINEATOR	EACH	
704-1072	FLEXIBLE DELINEATORS	EACH	
704-1081	VERTICAL PANELS - BACK TO BACK	EACH	
704-1085	SEQUENCING ARROW PANEL - TYPE A	EACH	
704-1086	SEQUENCING ARROW PANEL - TYPE B	EACH	
704-1087	SEQUENCING ARROW PANEL - TYPE C	EACH	
704-1088	SEQUENCING ARROW PANEL - TYPE C - CROSSOVER	EACH	
704-1095	TYPE B FLASHERS	EACH	
704-1500	OBLITERATION OF PVMT MK	SF	
704-3501	PORTABLE PRECAST CONCRETE MED BARRIER	LF	
704-3510	PRECAST CONCRETE MED BARRIER - STATE FURNISHED	EACH	
762-0200	RAISED PAVEMENT MARKERS	EACH	
762-0420	SHORT TERM 4IN LINE - TYPE R	LF	
762-0430	SHORT TERM 4IN LINE - TYPE NR	LF	
772-2110	FLASHING BEACON - POST MOUNTED	EACH	

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

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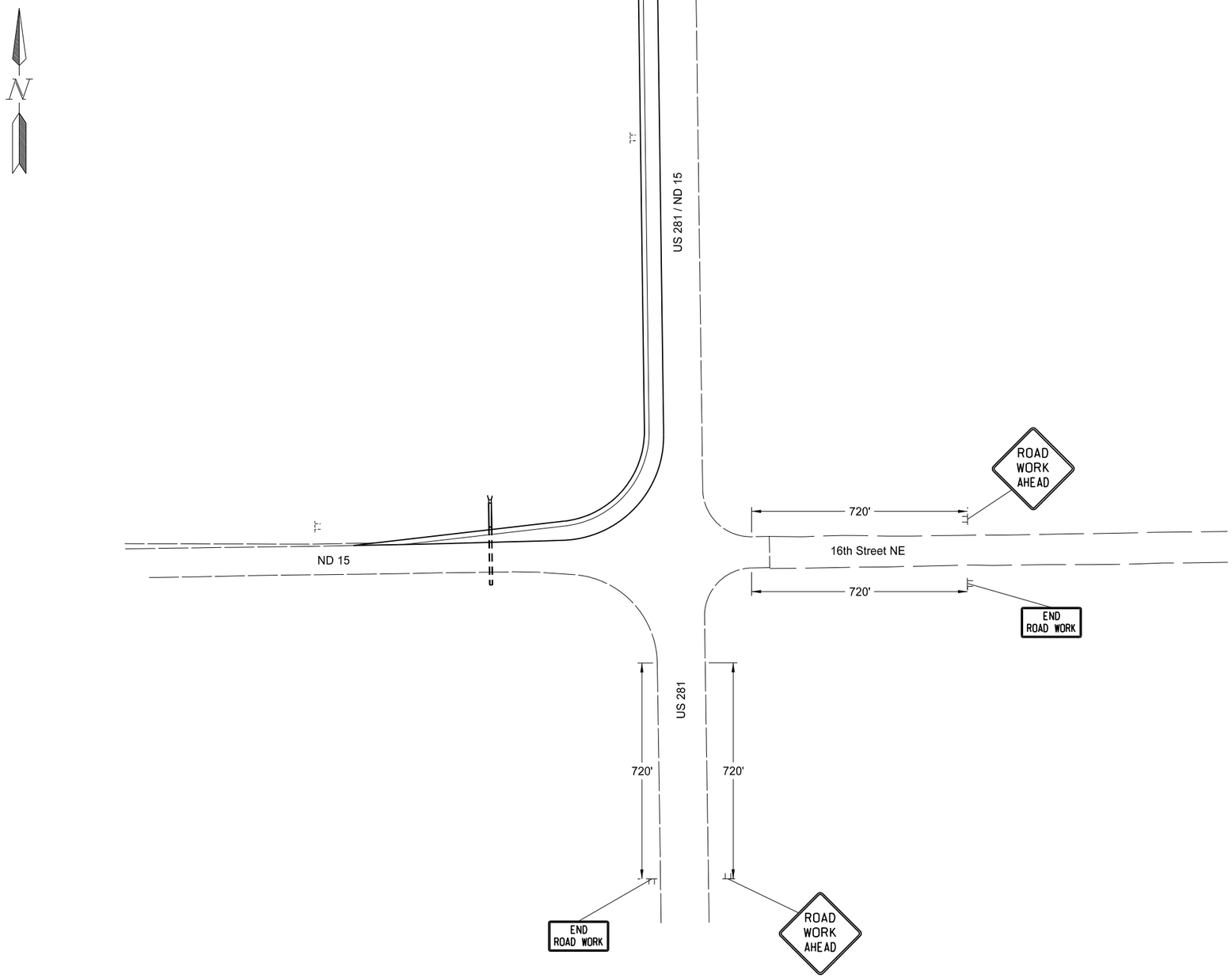
Traffic Control Devices List

US 281 Right Turn Lane

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SHE-3-281(116)125	100	2



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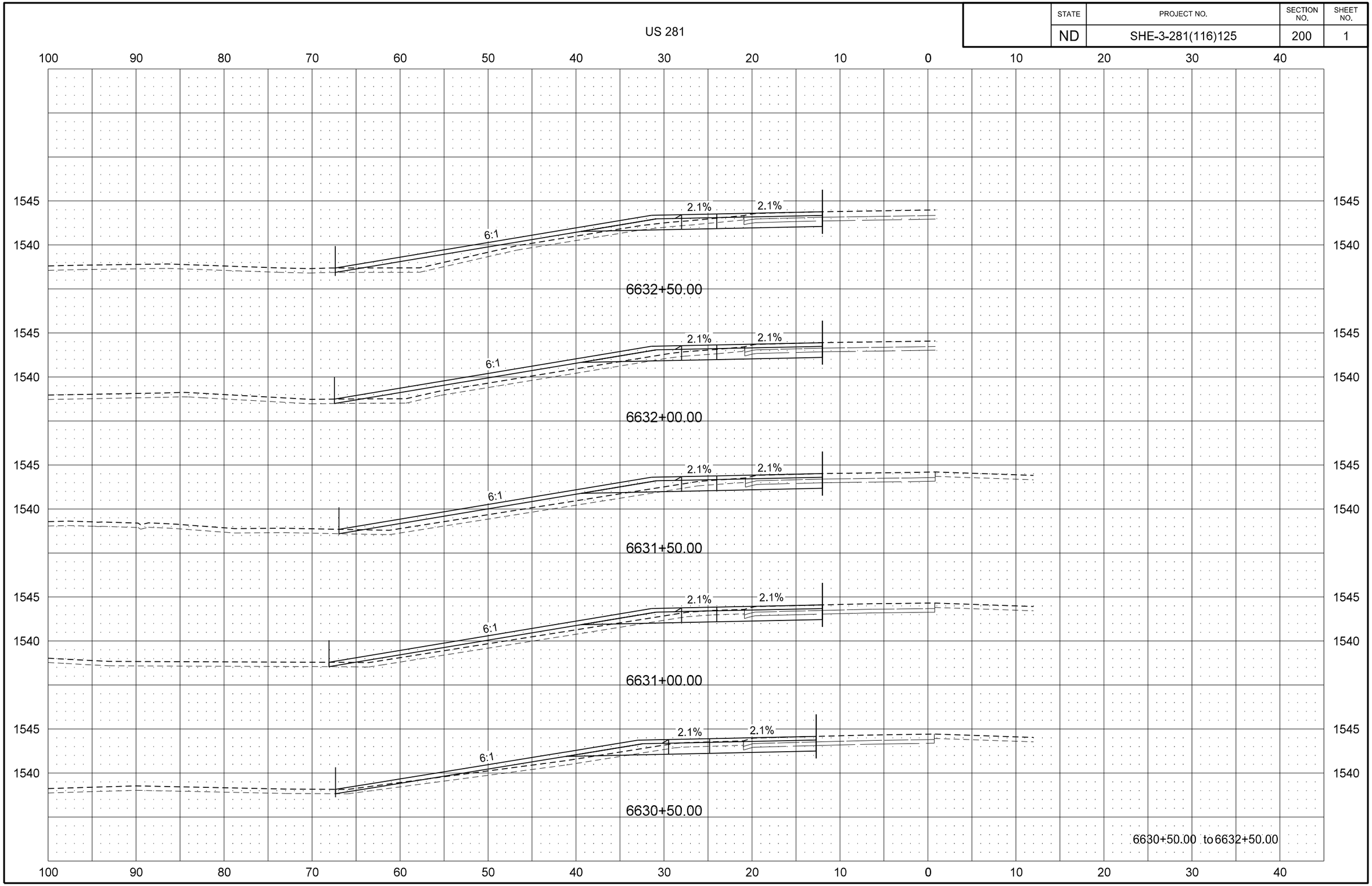
Work Zone Traffic Control

US 281 Right Turn Lane

Note: Signs on this sheet are in addition to those listed in the standard drawings.

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SHE-3-281(116)125	200	1



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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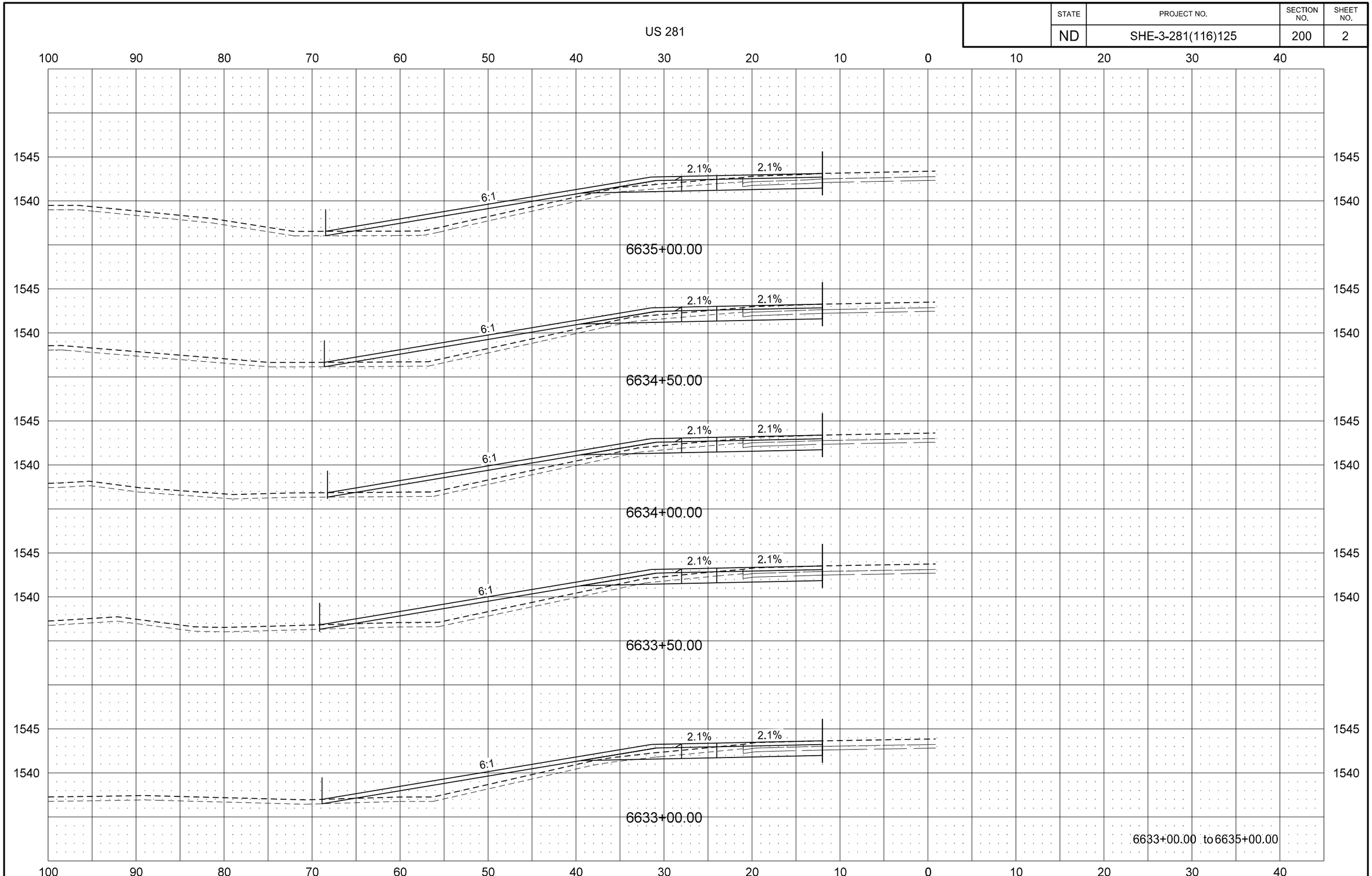

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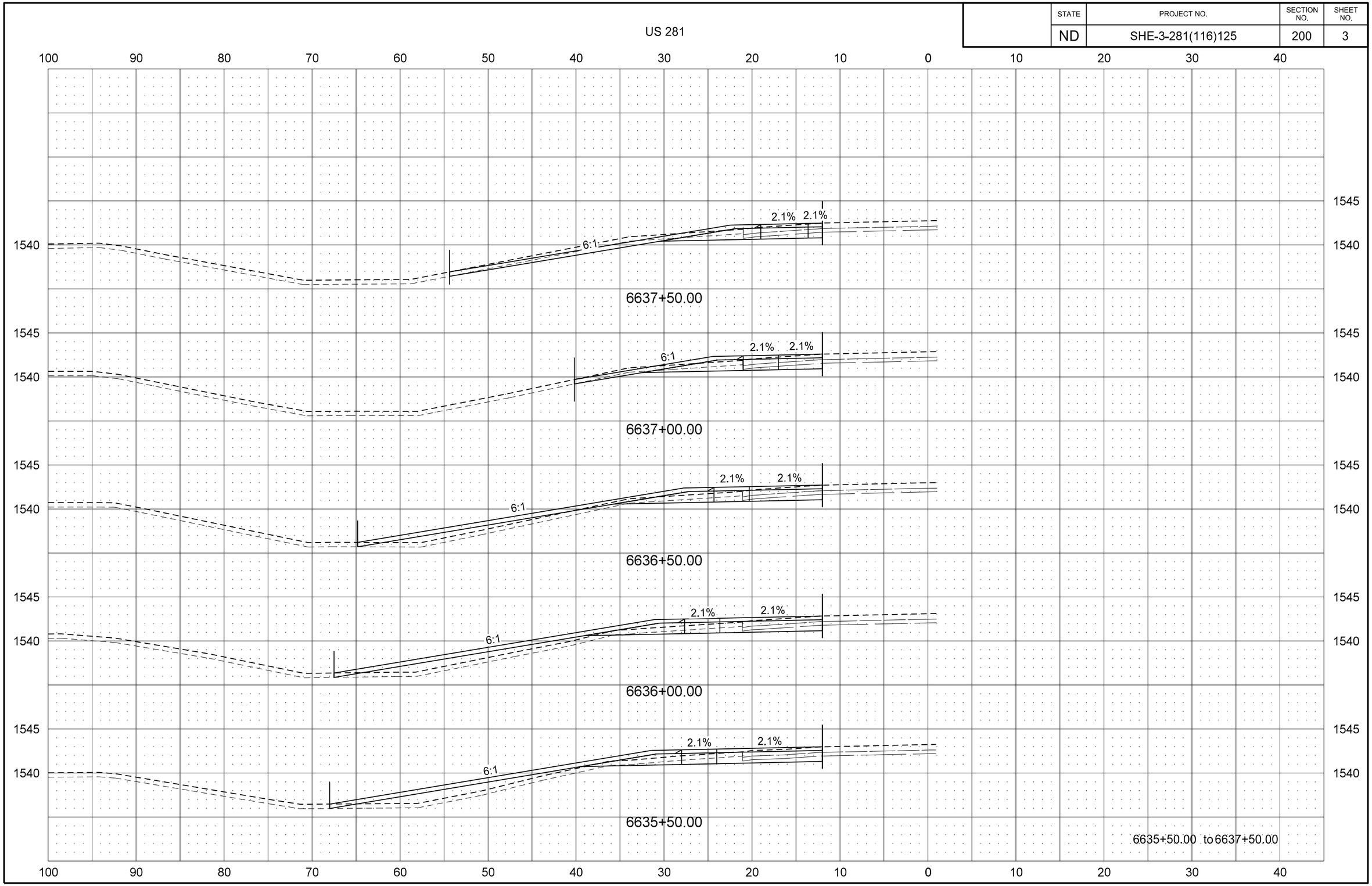
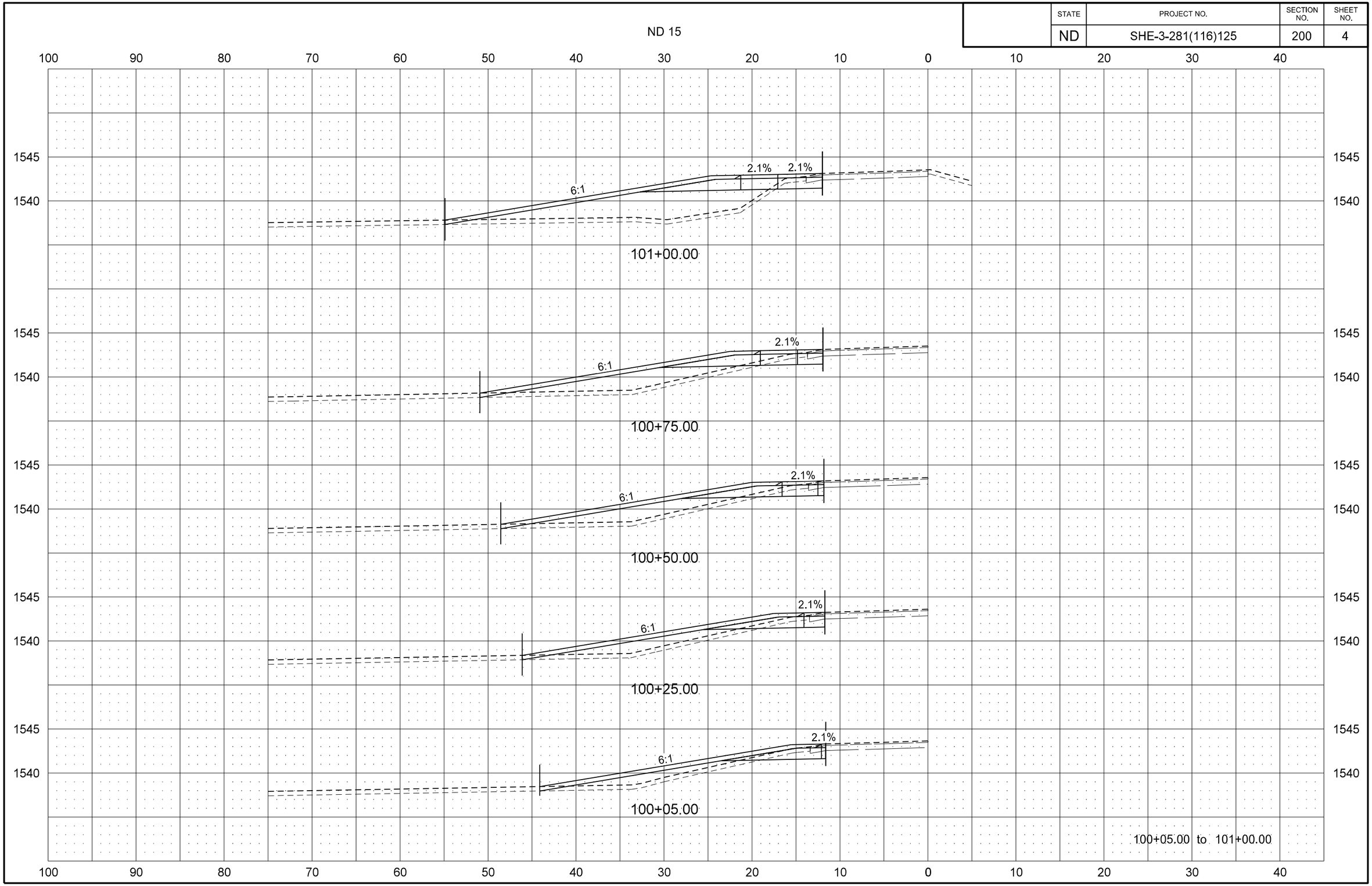
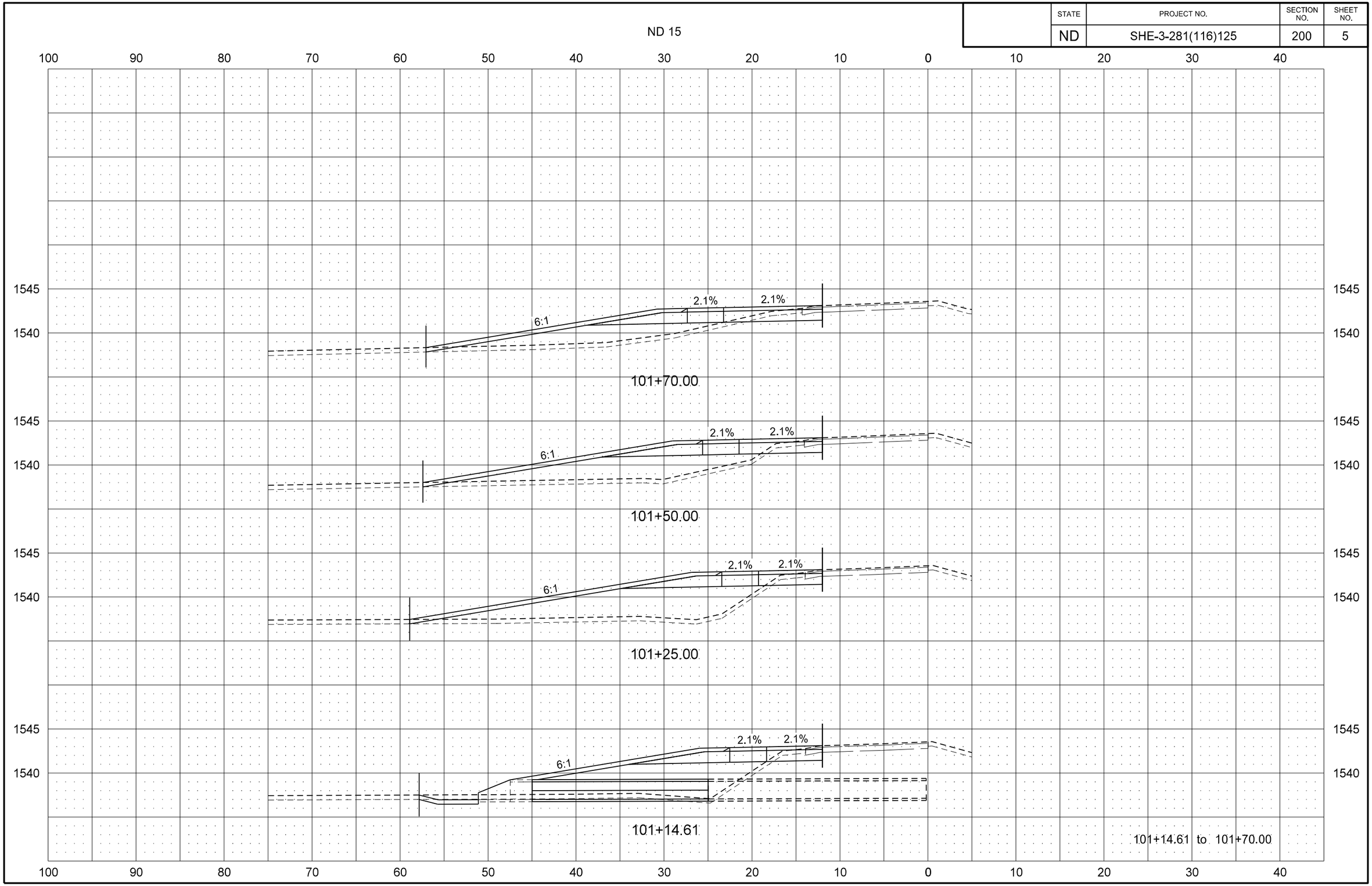
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SHE-3-281(116)125	200	3



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SHE-3-281(116)125	200	4



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SHE-3-281(116)125	200	5