DESIGN DATA				
Traffic	Average Daily			30th Max.Hr.
Current	Pass:	Trucks:	Total: 3730	
Forecast	Pass:	Trucks:	Total: 5560	

Clear Zone Distance: Existing	Design Speed: 45
Minimum Sight Dist. for Stopping: 360	Bridges:
Limited Access Control	
Pavement Design Life 2-5 (years)	
Design Accumulated One-way ESALs:	

STATE	PROJECT NO.	PCN	SECTION NO.	SHEET NO.
ND	S-NHU-3-002(143)268	20101	1	1

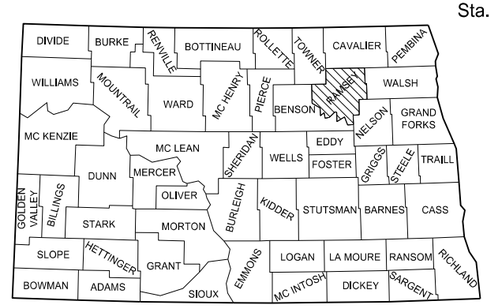
JOB # 27
NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

S-NHU-3-002(143)268
FHWA Limited Involvement
Ramsey County
Intersections of US 2 with ND 19 & ND 20
Mill & HBP Overlay; Pedestrian Ramp Improvements; Pavement Markings; Signal Loop Installation

GOVERNING SPECIFICATIONS:
Standard Specifications adopted by the North Dakota Department of Transportation October 2008; Standard Drawings currently in effect; and other Contract Provisions submitted herein.

PROJECT NUMBER \ DESCRIPTION	NET MILES	GROSS MILES
S-NHU-3-002(143)268	0.394	0.922

N



STATE COUNTY MAP

DESIGNERS

Aaron Murra /s/

Joe Wagner /s/

Megan Meyer /s/

Jennifer Barstow /s/

APPROVED DATE 08/28/13

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 08/26/13

James Douglas Rath /s/
DESIGN DIVISION

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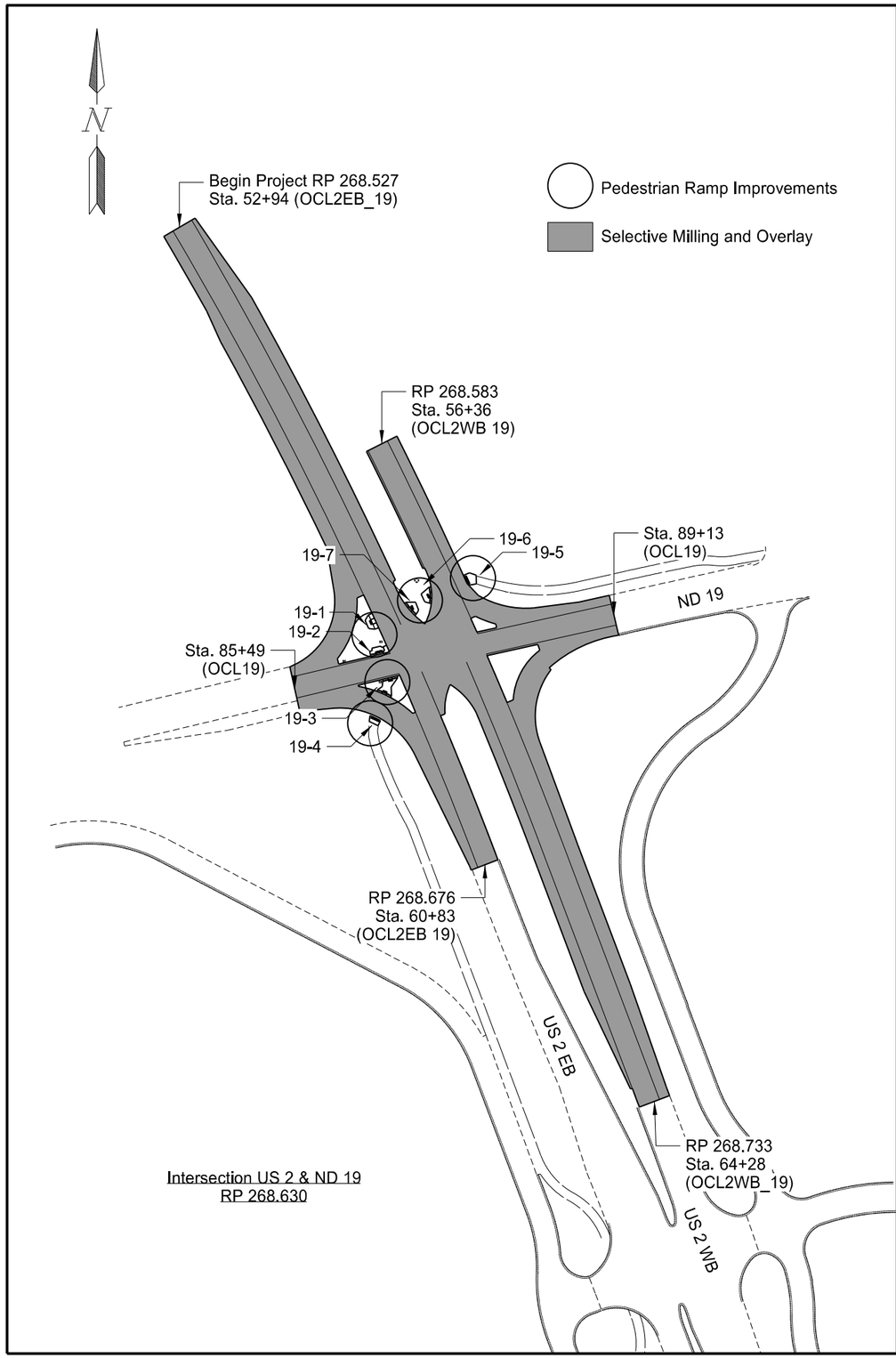
100	1-5	Work Zone Traffic Control
120	1-2	Pavement Marking
150	1-6	Signals

LIST OF STANDARD DRAWINGS

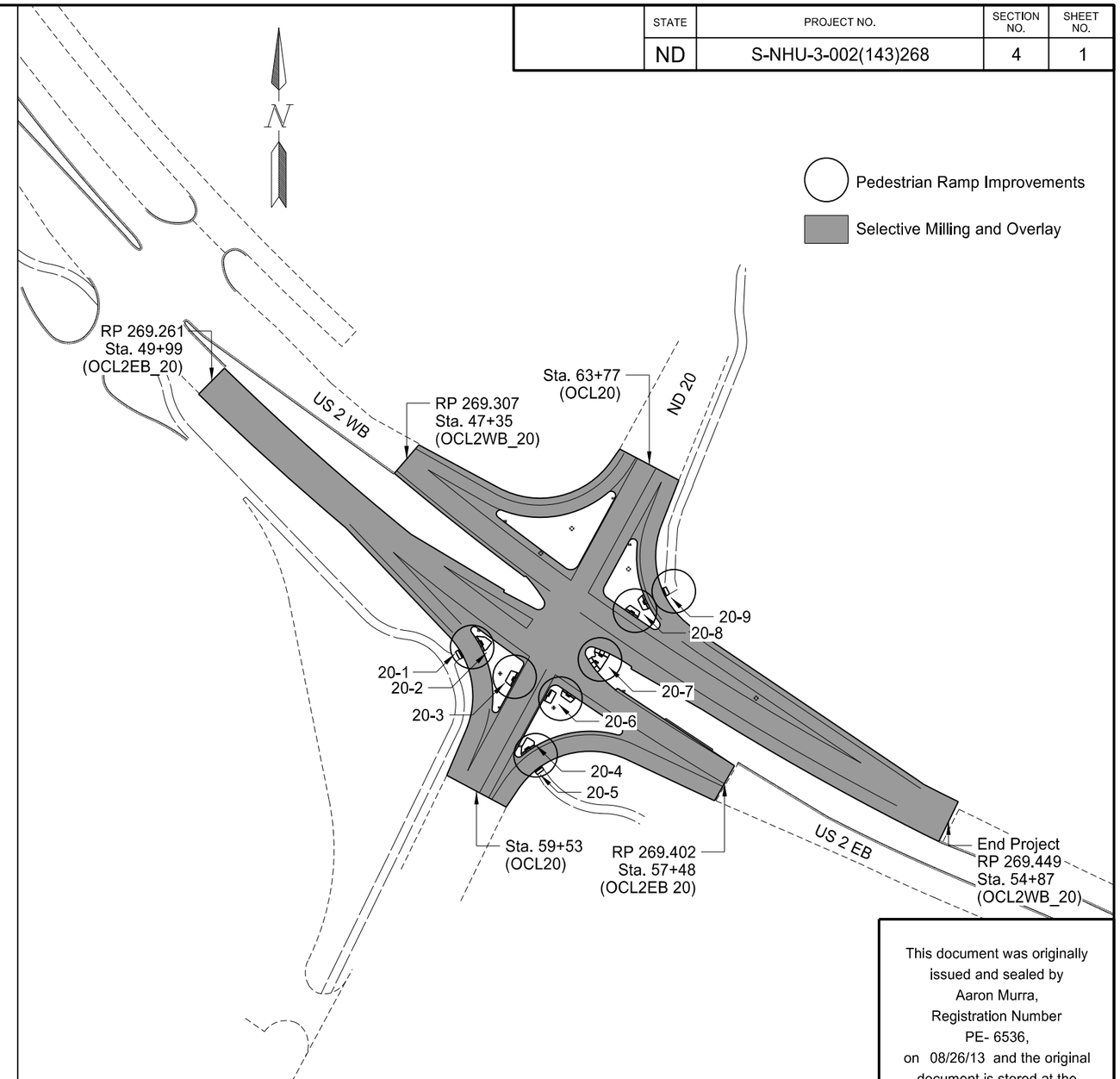
Standard No.	Description
D-20-1, 2, 3	NDDOT Abbreviations
D-20-10	NDDOT Utility Company Abbreviations
D-20-20, 21	Line Styles
D-20-30, 31, 32	Symbols
D-704-7	Breakaway Systems for Construction Zone Signs – Perforated Tube
D-704-8	Breakaway Systems for Construction Zone Signs
D-704-9	Construction Sign Details – Terminal and Guide Signs
D-704-10	Construction Sign Details – Regulatory Signs
D-704-11	Construction Sign Details – Warning Signs
D-704-13	Barricade Details and Channelizing Devices
D-704-14	Construction Sign and Barricade Assembly Details
D-704-15	Construction Sign and Barricade Location Details
D-704-19	Construction Sign and Barricade Location Details
D-704-26	Construction Sign and Barricade Location Details
D-704-27	Traffic Control Plan for Moving Operations on Conventional Highways (Pavement Marking)
D-704-34	Sign Layout for One Lane Closure
D-704-50	Portable Sign Support Assembly
D-748-01	Curb & Gutter and Valley Gutter
D-762-1	Pavement Marking Message Details
D-762-3	Pavement Marking Standard 90 Degree Flared Intersections
D-762-4	Pavement Marking
D-772-5	Loop Detectors Details (Saw Slot)

Special Provisions	Number
Weather Limitations For Hot Bituminous Mix	SP 1275(08)

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	S-NHU-3-002(143)268	4	1



Intersection US 2 & ND 19
RP 268.630



Intersection US 2 & ND 20
RP 269.354

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Scope of Work

Intersection Improvements US 2 at ND 19 & 20

NOTES

100-P01 PLANNING MEETING:

A. Purpose of Meeting.
   1. The contractor shall organize a meeting to coordinate the efforts between subcontractors, utilities, local authorities, and others.

B. Contractor's Project Manager/Superintendent: Planning and Reporting.
   1. The contractor will be responsible for sending a knowledgeable representative to conduct a Reporting/Planning meeting. It will be the contractor's responsibility to prepare minutes for the meeting and to make the appropriate distribution of the minutes. The minutes shall be approved by the Engineer prior to distribution.
   2. The contractor will be required to provide a written tentative schedule for the project.
   3. Reporting/Planning meeting will include discussion of information that is of interest to local authorities, subcontractors, utilities, and the prospective schedule.
   4. The contractor shall organize the meeting by contacting interested agencies. These agencies include, but are not limited to, the following:
      a. North Dakota Department of Transportation
      b. Local Government Agencies
      c. Police Department, Fire Department, Ambulance Service
      d. Telephone Co., Power Co., Cable T.V., Gas Co.
      e. Subcontractors
      f. 911 Coordinator

100-P02 SURVEY OFFICE LOCATION: The centerline alignments for eastbound US 2, westbound US 2, ND 19, and ND 20 are office centerlines and no electronic data will be provided.

105-P01 COORDINATION OF WORK: It shall be the contractor's responsibility to coordinate activities, including but not limited to, haul routes, access, scheduling, and traffic control delineation with the contractors working on other projects in the area.

107-P01 HAUL ROAD RESTRICTIONS: The contractor shall contact the appropriate State, County, Township, City or Political Subdivision official(s) to determine if the proposed haul road has local load restrictions or is designated as a "No Haul Route" prior to preparing a bid for this project. Paved roads off the state system will not be designated as haul roads by the NDDOT. If the contractor chooses to use a paved road off the state system for this project, the contractor shall be responsible for all costs of the inspection, maintenance, restoration, and release of the haul road. The entire haul cycle, loaded and empty, will be considered for haul routes.

107-P02 HAUL ROAD RESTORATION: Any gravel or water needed for haul road restoration will be paid for under the NDDOT Price Schedule for Miscellaneous Items (PS-1). All gravel needed for haul road restoration will be CL-13 aggregate, accepted under Section 302 of the Standard Specifications.

202-P01 PEDESTRIAN RAMP REMOVAL: All red colored concrete is to be removed and replaced as shown in the plans. Sawing, removal, and disposal of concrete for pedestrian ramp locations will be paid for as "Removal of Concrete."

410-P01 CONTRACTOR MIX DESIGN: The contractor shall submit a mix design for the material for the Superpave FAA 45 bituminous pavement. The aggregate source and bitumen target percentage shall be shown on the mix design. The mix design shall be submitted for approval 10 days before the material is used.

410-P02 HOT BITUMINOUS PAVEMENT: The 3" hot bituminous pavement shall be laid in two (2) lifts with the top lift having a depth of approximately 1.5 inches.
PG 64-28 Asphalt Cement shall be used in all hot bituminous pavements.

The Superpave FAA 45 shall conform to Section 410 of the Standard Specifications and Supplemental Specifications along with the following aggregate and mix design properties:

Test	Criteria	Reference
Coarse Aggregate Angularity	85% min	NDDOT Field Sampling/Testing Manual
Fine Aggregate Angularity	45% min	AASHTO T 304
Gyratory Effort, # Gyrations	N_{ini}=7, N_{des}=75, N_{max}=115	AASHTO R 35
Voids Filled with Asphalt	65-75%	AASHTO M 323, T 166
$\%G_{mm}$ @ N_{ini}	89% max	AASHTO M 323, T 166

411-P01 TEMPORARY ASPHALT WEDGES: The contractor shall place temporary asphalt wedges where milled locations abut existing pavement. Bituminous surfacing shall be placed on these milled areas prior to the traffic being allowed back on the milled roadway sections. All costs associated with labor, materials, and equipment for the installation and removal of the asphalt wedges shall be included with other items.

411-P02 MILLING PCC PAVEMENT: Milling pavement will be measured and paid for by SY units for all areas milled. No distinction between depths will be made when measuring milling area for payment.

704-016 TRAFFIC CONTROL SUPERVISOR: Traffic control supervisor shall be provided on this project.

704-P01 TRAFFIC CONTROL DEVICES: The contractor will be required to maintain traffic at all times. The Traffic Control Devices List has been developed using the plan sheets and the following layouts on the standard drawings for traffic control:
D-704-7, 8, 9, 10, 11, 13, 14, & 50, For Temporary Signs
D-704-15, Type C - Closure on ND 20
D-704-19, Type F - Single Lane Closure on ND 19 and 20
D-704-26, For Trucks Entering
D-704-27, For Pavement Marking
D-704-34, Single Lane Closure on US 2

If the contractor would like to request more lane closures than what are provided in the plans approval from the engineer will be required. All costs associated with that request will be at the contractor's expense.

704-P02 TRAFFIC CONTROL: The contractor must notify the engineer at least 2 weeks prior to placing traffic control to discuss schedule of operations.

706-P01 FIELD LABORATORY TYPE C: Type C Laboratories shall be wired for DSL Broadband internet capabilities. The internet shall have a wireless Wi-Fi router and also the capabilities of hard wiring to a computer. The cost of installation and monthly fee for the internet will be included in the cost of the laboratory.
The Quality Assurance laboratory shall have forced air ovens capable of maintaining 300°F.

748-P01 CURB & GUTTER: All costs associated with backfilling and reestablishing turf behind the curb and gutter are to be included in the price bid for "CURB & GUTTER".

772-P01 REVISE TRAFFIC SIGNAL SYSTEM: Vehicle detection loops are to be connected to the existing loop lead in conductor in the existing pull boxes. The existing loops shall be abandoned.

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Wetland Number	Cowardin Classification	Wetland Type	Wetland Size (acres)	Wetland Feature	USACE Jurisdictional Wetlands	Impacts to Wetlands	
						Temp.	Perm.
NO WETLANDS PRESENT							
TOTALS:			0			0	0

ESTIMATE OF QUANTITIES

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	S-NHU-3-002(143)268	8	1

SPEC	CODE	ITEM DESCRIPTION	UNIT	MAINLINE	TOTAL
103	0100	CONTRACT BOND	L SUM	1	1
202	0112	REMOVAL OF CONCRETE	SY	211	211
202	0130	REMOVAL OF CURB & GUTTER	LF	319	319
401	0150	SS1H OR CSS1H OR MS1 EMULSIFIED ASPHALT	GAL	2,233	2,233
410	0215	SUPERPAVE FAA 45	TON	3,234	3,234
410	0460	PG 64-28 ASPHALT CEMENT	TON	194	194
411	0110	MILLING PCC PAVEMENT	SY	10,972	10,972
702	0100	MOBILIZATION	L SUM	1	1
704	0100	FLAGGING	MHR	500	500
704	1000	TRAFFIC CONTROL SIGNS	UNIT	1,910	1,910
704	1052	TYPE III BARRICADE	EA	2	2
704	1060	DELINEATOR DRUMS	EA	55	55
704	1067	TUBULAR MARKERS	EA	110	110
704	1072	FLEXIBLE DELINEATORS	EA	47	47
704	1087	SEQUENCING ARROW PANEL-TYPE C	EA	2	2
706	0300	FIELD LABORATORY-TYPE C	EA	2	2
708	1540	INLET PROTECTION-SPECIAL	EA	10	10
748	0100	CURB & GUTTER	LF	260	260
748	1280	VALLEY GUTTER SPECIAL	LF	59	59
750	0115	SIDEWALK CONCRETE 4IN	SY	211	211
750	2115	DETECTABLE WARNING PANELS	SF	260	260
762	0122	PREFORMED PATTERNED PVMT MK-MESSAGE(GROOVED)	SF	432	432
762	0430	SHORT TERM 4IN LINE-TYPE NR	LF	2,069	2,069
762	1305	PREFORMED PATTERNED PVMT MK 4IN LINE-GROOVED	LF	5,788	5,788
762	1307	PREFORMED PATTERNED PVMT MK 6IN LINE-GROOVED	LF	485	485
762	1309	PREFORMED PATTERNED PVMT MK 8IN LINE-GROOVED	LF	4,987	4,987
762	1325	PREFORMED PATTERNED PVMT MK 24IN LINE-GROOVED	LF	425	425
762	1500	OBLITERATION OF PVMT MK	SF	256	256
772	2904	REVISE TRAFFIC SIGNAL SYSTEM	EA	2	2

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	S-NHU-3-002(143)268	10	1

Spec	Code	Description	Qty	Unit
Use or Location		Items or Rates		
202	112	Removal of Concrete	211	SY
US 2 & ND 19		9 SF/SY	86	
US 2 & ND 20		9 SF/SY	125	
401	150	SS1H or CSS1H or MS1 Emulsified Asphalt	2233	GAL
US 2 & ND 19		.05 GAL/SY	1029	
US 2 & ND 20		.05 GAL/SY	1204	
410	215	Superpave FAA 45	3234	TON
US 2 & ND 19		2 TON/CY	1496	
US 2 & ND 20		2 TON/CY	1738	
410	460	PG 64-28 Asphalt Cement	194	TON
US 2 & ND 19		6% of HBP	89	
US 2 & ND 20		6% of HBP	105	
411	110	Milling PCC Pavement	10972	SY
US 2 & ND 19		9 SF/SY	4521	
US 2 & ND 20		9 SF/SY	6451	
762	430	Short Term 4IN Line-Type NR	2069	LF
		Centerline - 4" White, 10' Lines, 30' Skips		
US 2 EB			179	
US 2 WB			80	
		Double Barrier - 4" Yellow		
ND 19			408	
ND 20			604	
		Turn Lane - 4" White		
US 2 EB			90	
US 2 WB			407	
ND 20			301	

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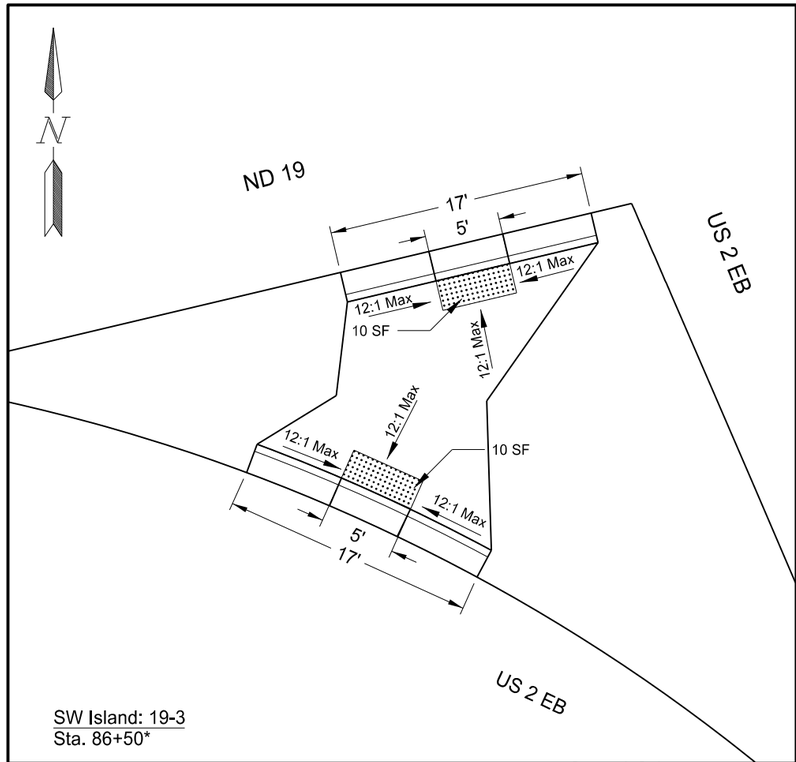
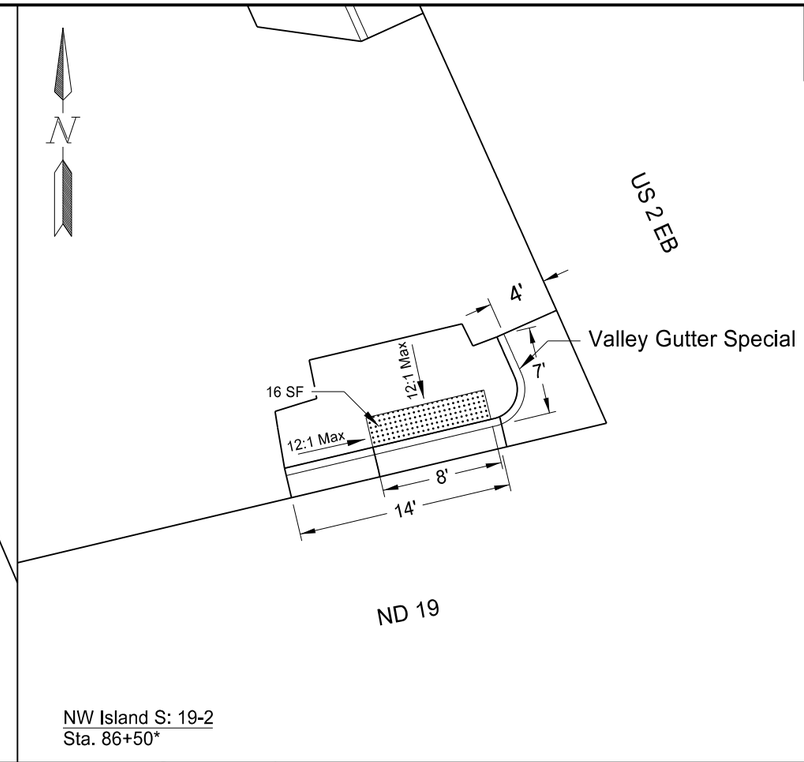
Basis of Estimate

Intersection Improvements US 2 at ND 19 & 20

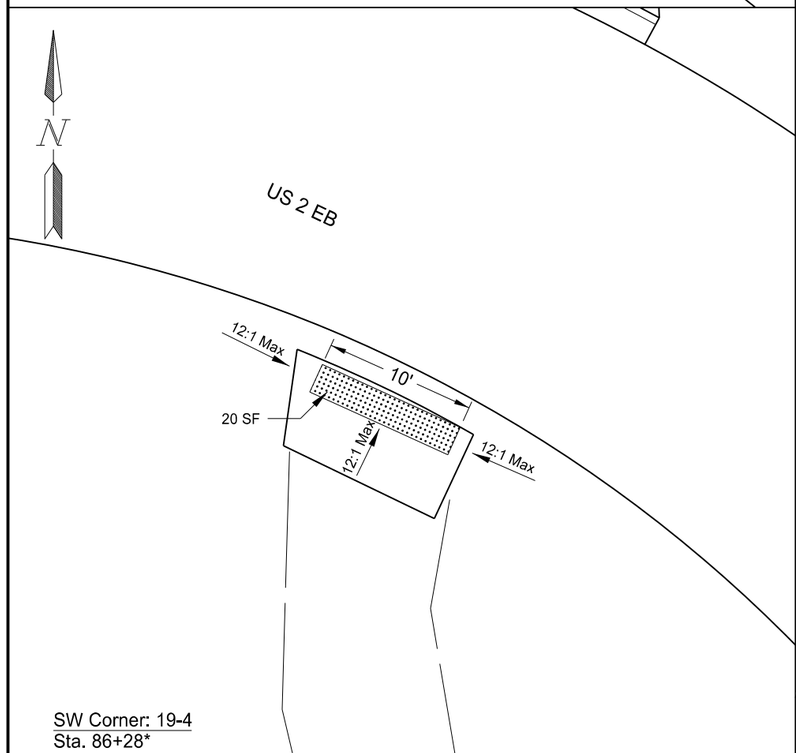
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	S-NHU-3-002(143)268	20	1



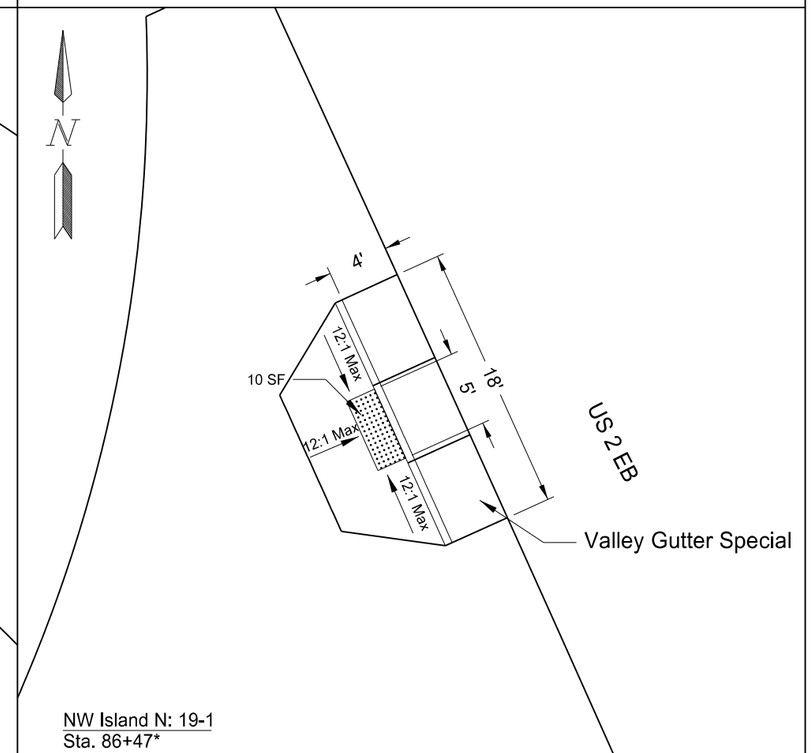
SW Island: 19-3
Sta. 86+50*



NW Island S: 19-2
Sta. 86+50*



SW Corner: 19-4
Sta. 86+28*



NW Island N: 19-1
Sta. 86+47*

SW Island

Spec	Code	Description	Quantity
202	112	Removal of Concrete	21 SY
202	130	Removal of Curb & Gutter	34 LF
748	100	Curb & Gutter	34 LF
750	115	Sidewalk Concrete 4 IN	21 SY
750	2115	Detectable Warning Panels	20 SF

SW Corner

Spec	Code	Description	Quantity
202	112	Removal of Concrete	8 SY
750	115	Sidewalk Concrete 4 IN	8 SY
750	2115	Detectable Warning Panels	20 SF

NW Island S

Spec	Code	Description	Quantity
202	112	Removal of Concrete	10 SY
202	130	Removal of Curb & Gutter	21 LF
748	100	Curb & Gutter	14 LF
748	1280	Valley Gutter Special	7 LF
750	115	Sidewalk Concrete 4 IN	10 SY
750	2115	Detectable Warning Panels	16 SF

NW Island N

Spec	Code	Description	Quantity
202	112	Removal of Concrete	9 SY
202	130	Removal of Curb & Gutter	18 LF
748	1280	Valley Gutter Special	18 LF
750	115	Sidewalk Concrete 4 IN	9 SY
750	2115	Detectable Warning Panels	10 SF

*Stationing based off of the alignment OCL19

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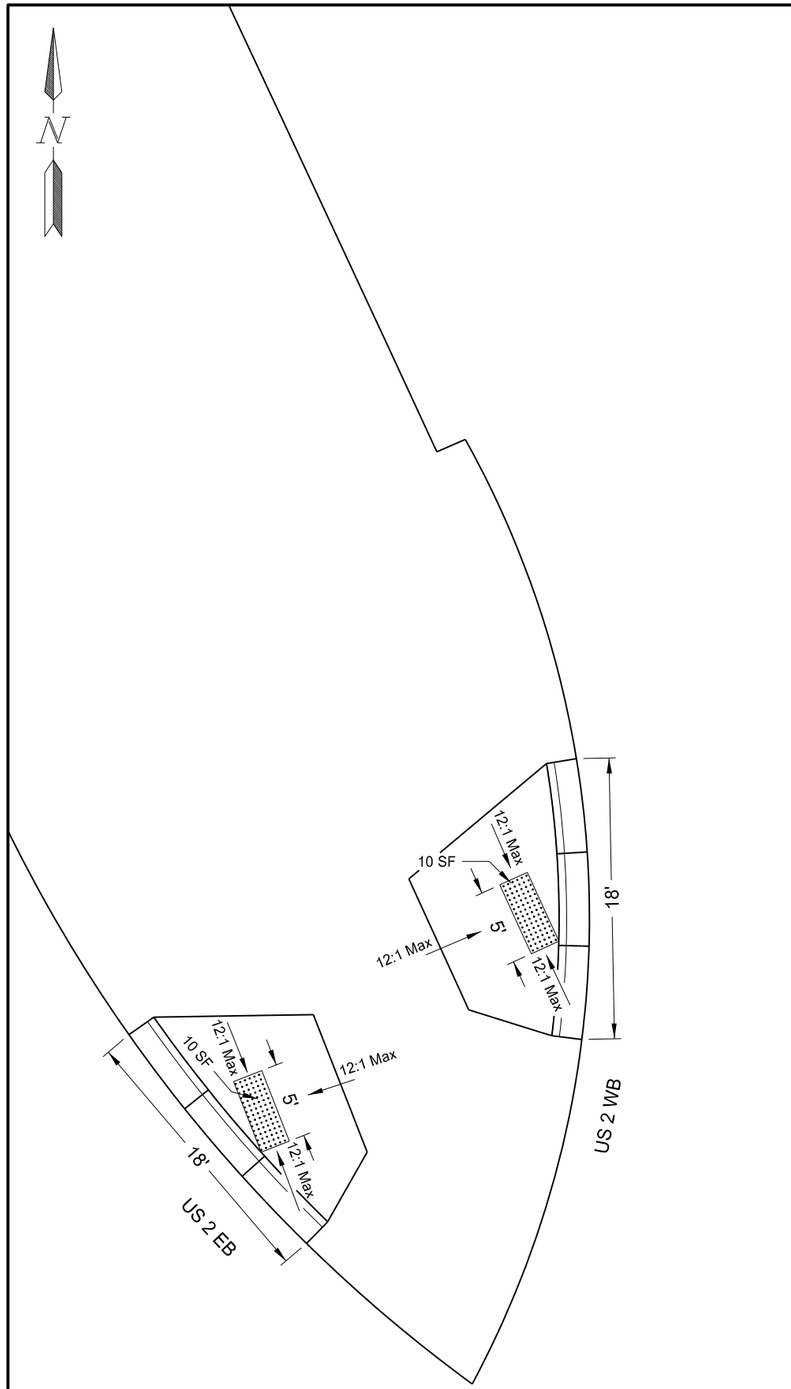
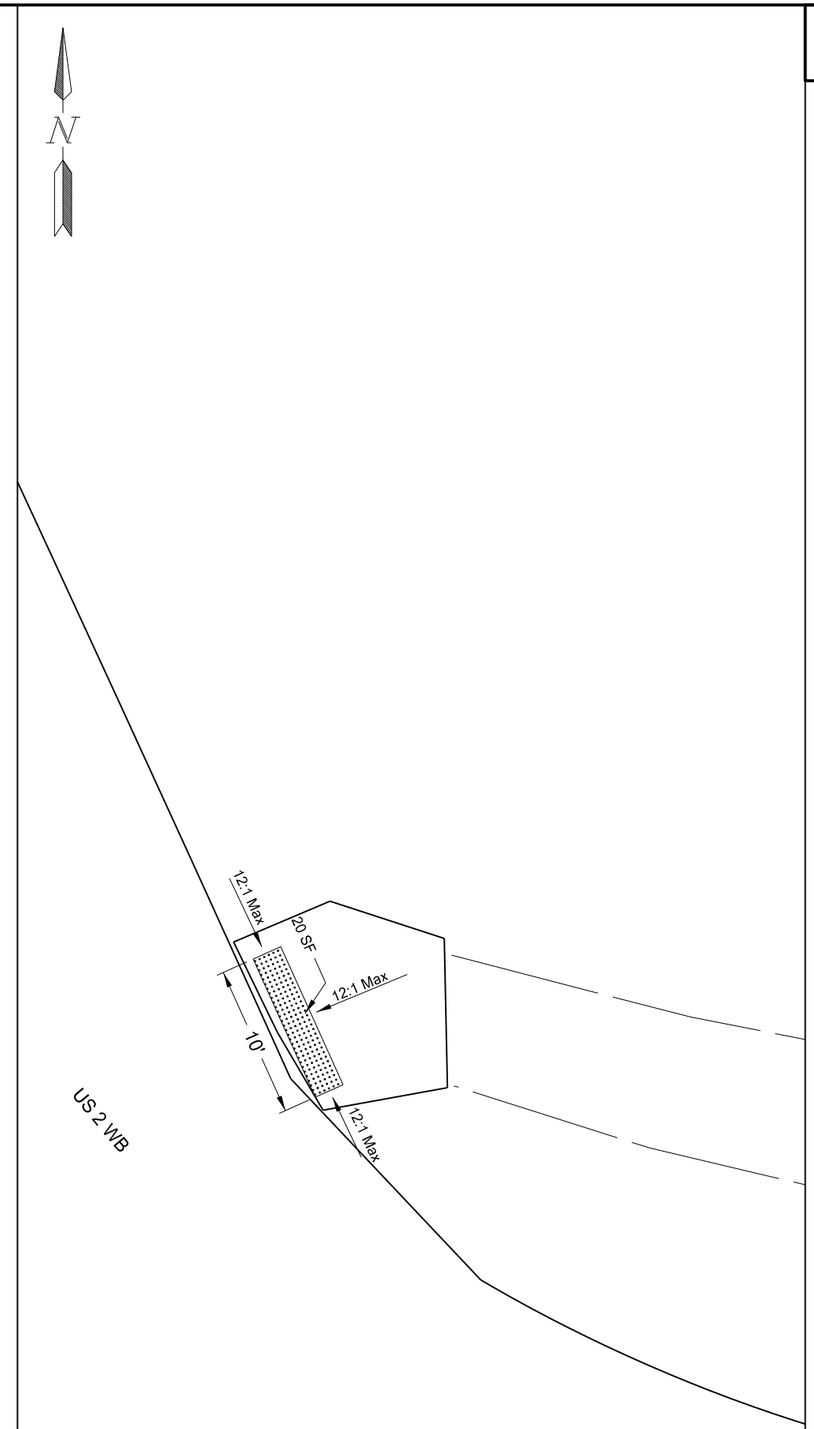
ADA Ramps - ND 19

Intersection Improvements US 2 at ND 19 & 20

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	S-NHU-3-002(143)268	20	2



North Median Nose: 19-6 and 19-7
Sta. 87+15*and Sta. 86+97*



NE Corner: 19-5
Sta. 87+64*

North Median Nose E

Spec	Code	Description	Quantity
202	112	Removal of Concrete	12 SY
202	130	Removal of Curb & Gutter	18 LF
748	100	Curb & Gutter	18 LF
750	115	Sidewalk Concrete 4 IN	12 SY
750	2115	Detectable Warning Panels	10 SF

North Median Nose W

Spec	Code	Description	Quantity
202	112	Removal of Concrete	11 SY
202	130	Removal of Curb & Gutter	18 LF
748	100	Curb & Gutter	18 LF
750	115	Sidewalk Concrete 4 IN	11 SY
750	2115	Detectable Warning Panels	10 SF

NE Corner

Spec	Code	Description	Quantity
202	112	Removal of Concrete	15 SY
750	115	Sidewalk Concrete 4 IN	15 SY
750	2115	Detectable Warning Panels	20 SF

*Stationing based off of the alignment OCL19

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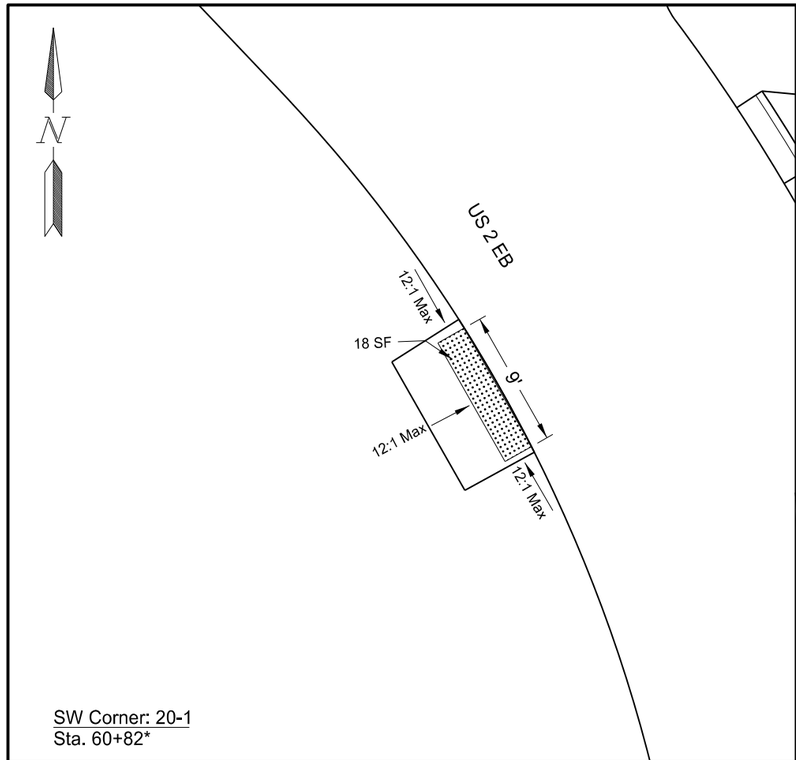
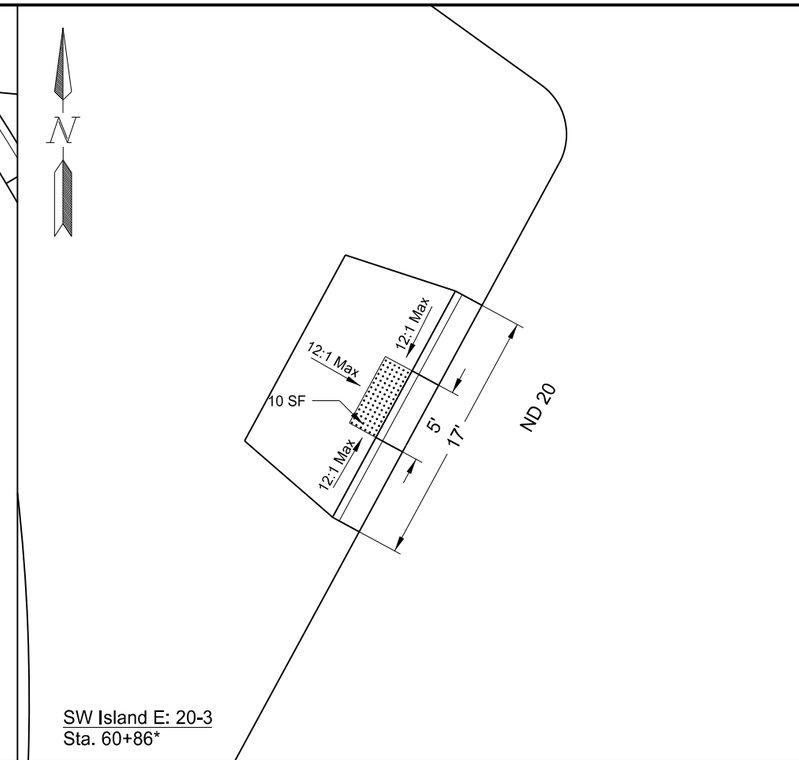
ADA Ramps - ND 19

Intersection Improvements US 2 at ND 19 & 20

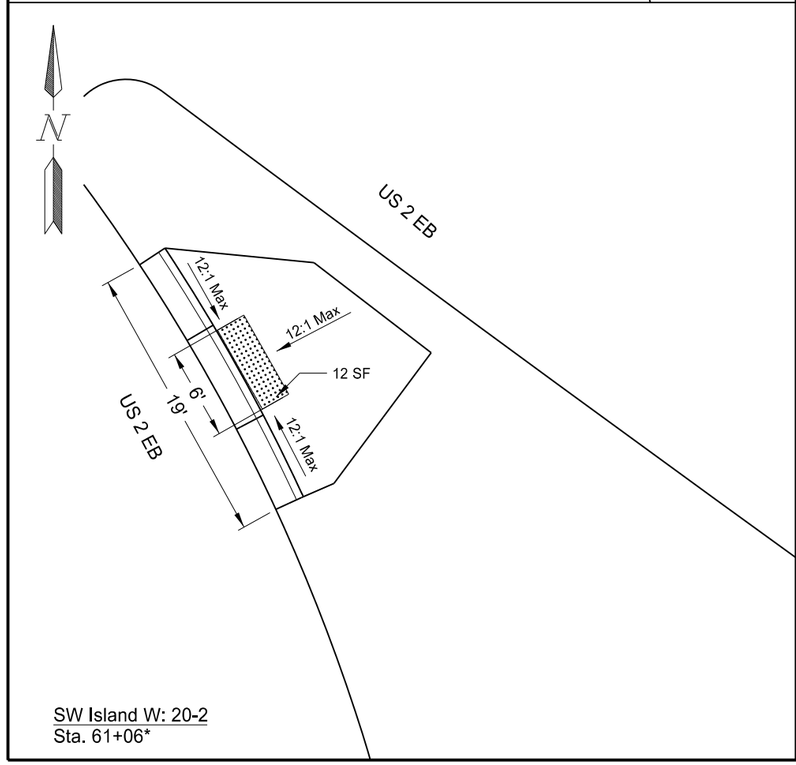
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	S-NHU-3-002(143)268	20	3



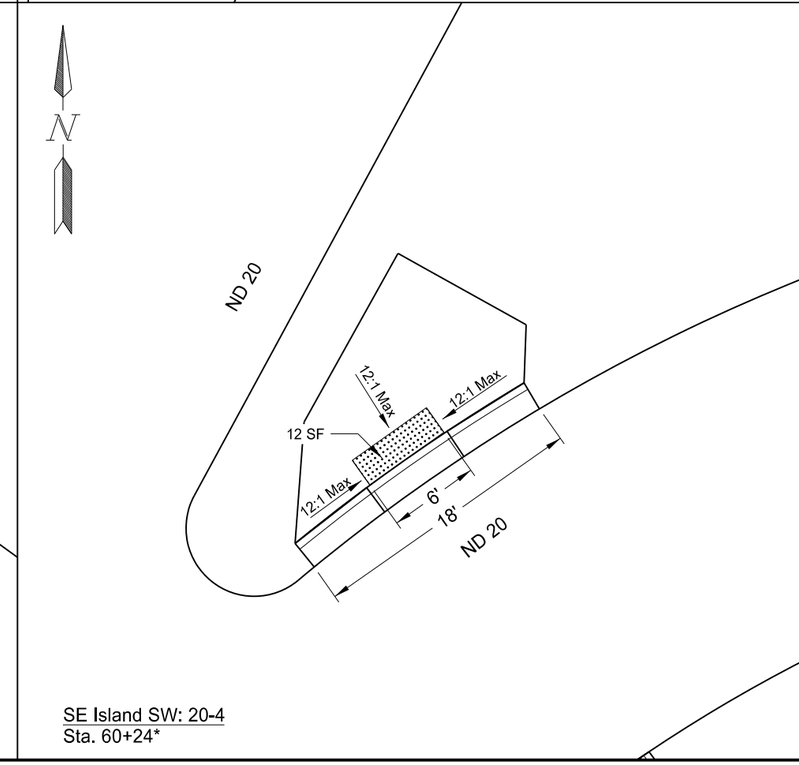
SW Corner: 20-1
Sta. 60+82*



SW Island E: 20-3
Sta. 60+86*



SW Island W: 20-2
Sta. 61+06*



SE Island SW: 20-4
Sta. 60+24*

SW Corner

Spec	Code	Description	Quantity
202	112	Removal of Concrete	6 SY
750	115	Sidewalk Concrete 4 IN	6 SY
750	2115	Detectable Warning Panels	18 SF

SW Island W

Spec	Code	Description	Quantity
202	112	Removal of Concrete	16 SY
202	130	Removal of Curb & Gutter	19 LF
748	100	Curb & Gutter	19 LF
750	115	Sidewalk Concrete 4 IN	16 SY
750	2115	Detectable Warning Panels	12 SF

SW Island E

Spec	Code	Description	Quantity
202	112	Removal of Concrete	13 SY
202	130	Removal of Curb & Gutter	17 LF
748	100	Curb & Gutter	17 LF
750	115	Sidewalk Concrete 4 IN	13 SY
750	2115	Detectable Warning Panels	10 SF

SE Island SW

Spec	Code	Description	Quantity
202	112	Removal of Concrete	16 SY
202	130	Removal of Curb & Gutter	18 LF
748	100	Curb & Gutter	18 LF
750	115	Sidewalk Concrete 4 IN	16 SY
750	2115	Detectable Warning Panels	12 SF

*Stationing based off of the alignment OCL20

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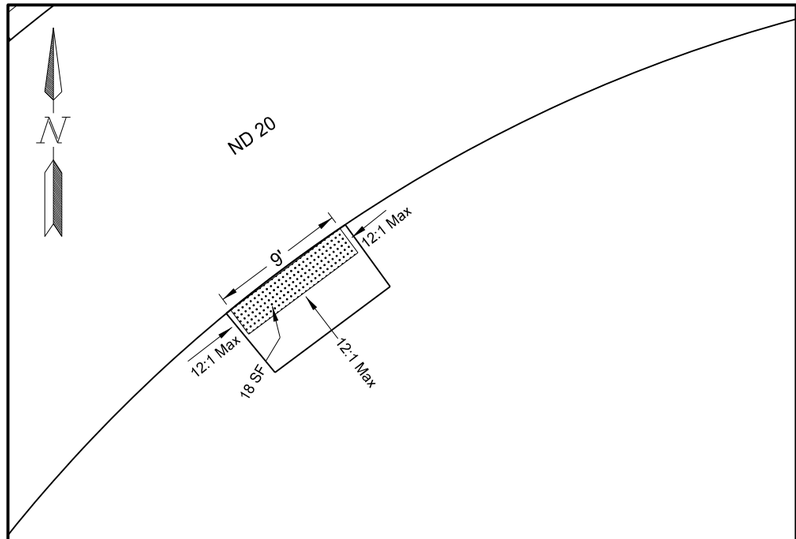
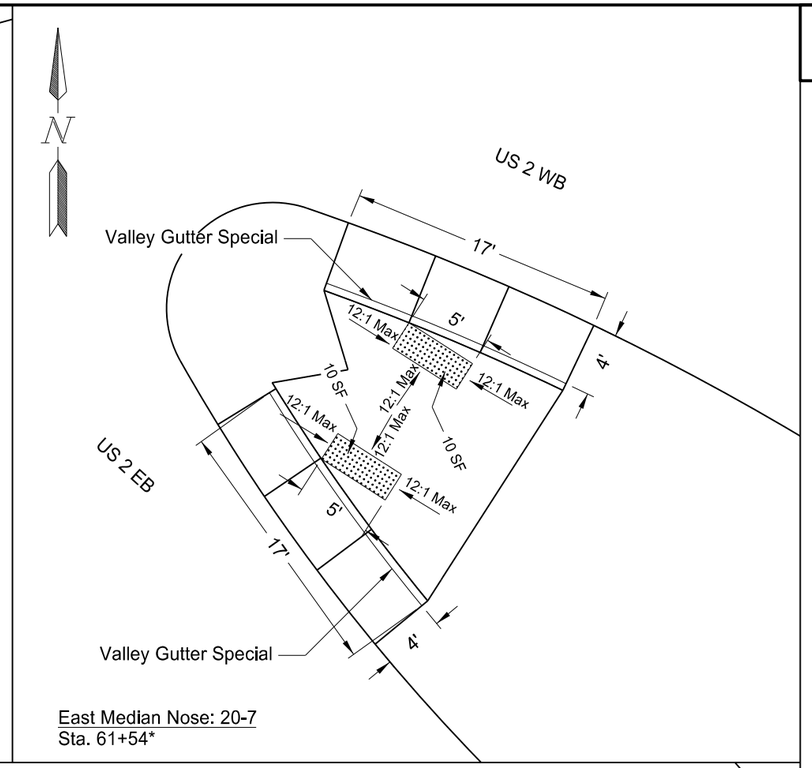
ADA Ramps - ND 20

Intersection Improvements US 2 at ND 19 & 20

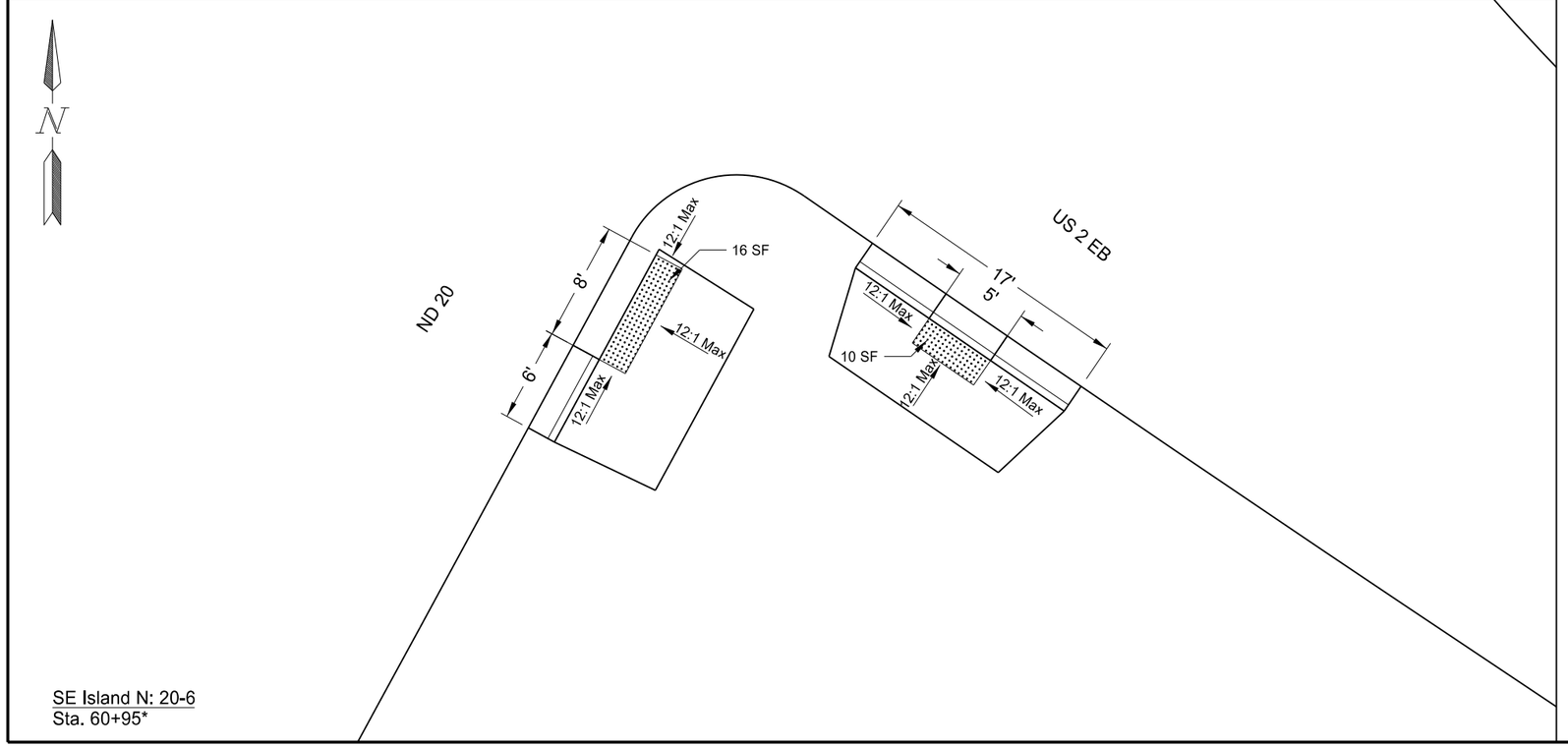
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	S-NHU-3-002(143)268	20	4



SE Corner: 20-5
Sta. 60+08*



East Median Nose: 20-7
Sta. 61+54*



SE Island N: 20-6
Sta. 60+95*

SE Corner

Spec	Code	Description	Quantity
202	112	Removal of Concrete	5 SY
750	115	Sidewalk Concrete 4 IN	5 SY
750	2115	Detectable Warning Panels	18 SF

East Median Nose

Spec	Code	Description	Quantity
202	112	Removal of Concrete	21 SY
202	130	Removal of Curb & Gutter	34 LF
748	1280	Valley Gutter Special	34 LF
750	115	Sidewalk Concrete 4 IN	21 SY
750	2115	Detectable Warning Panels	20 SF

SE Island N

Spec	Code	Description	Quantity
202	112	Removal of Concrete	10 SY
202	130	Removal of Curb & Gutter	17 LF
748	100	Curb & Gutter	17 LF
750	115	Sidewalk Concrete 4 IN	10 SY
750	2115	Detectable Warning Panels	10 SF

SE Island W

Spec	Code	Description	Quantity
202	112	Removal of Concrete	12 SY
202	130	Removal of Curb & Gutter	6 LF
748	100	Curb & Gutter	6 LF
750	115	Sidewalk Concrete 4 IN	12 SY
750	2115	Detectable Warning Panels	16 SF

*Stationing based off of the alignment OCL20

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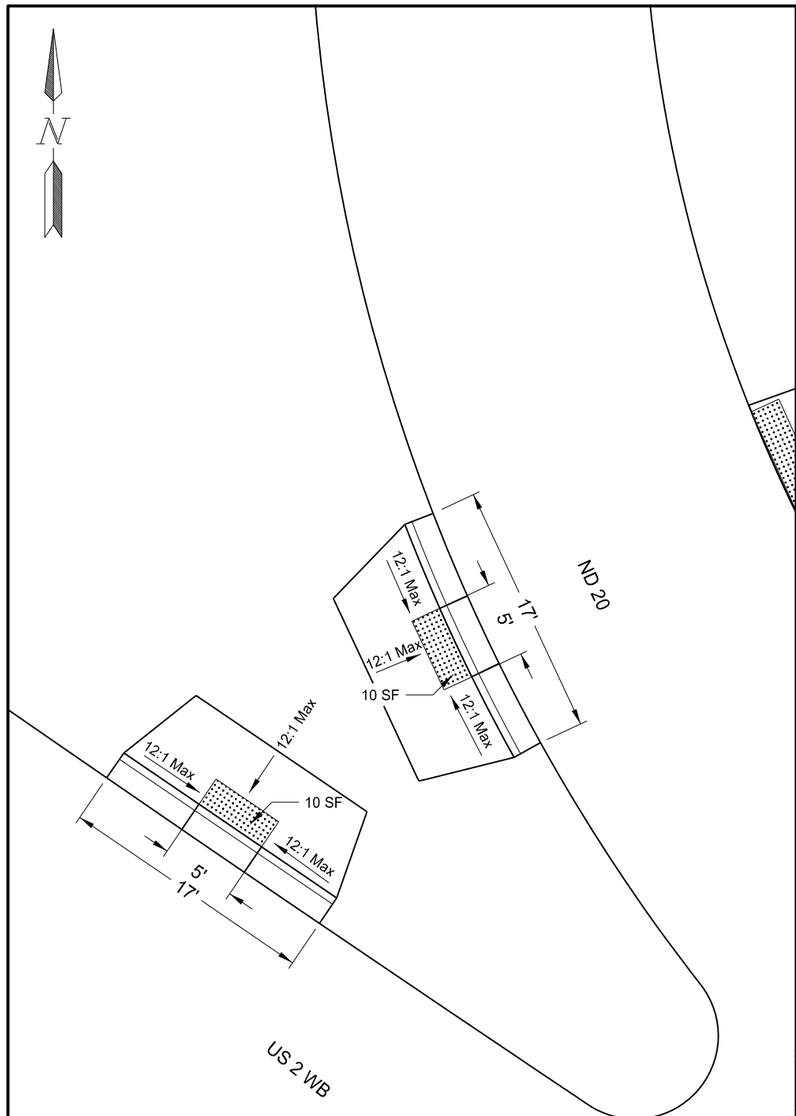
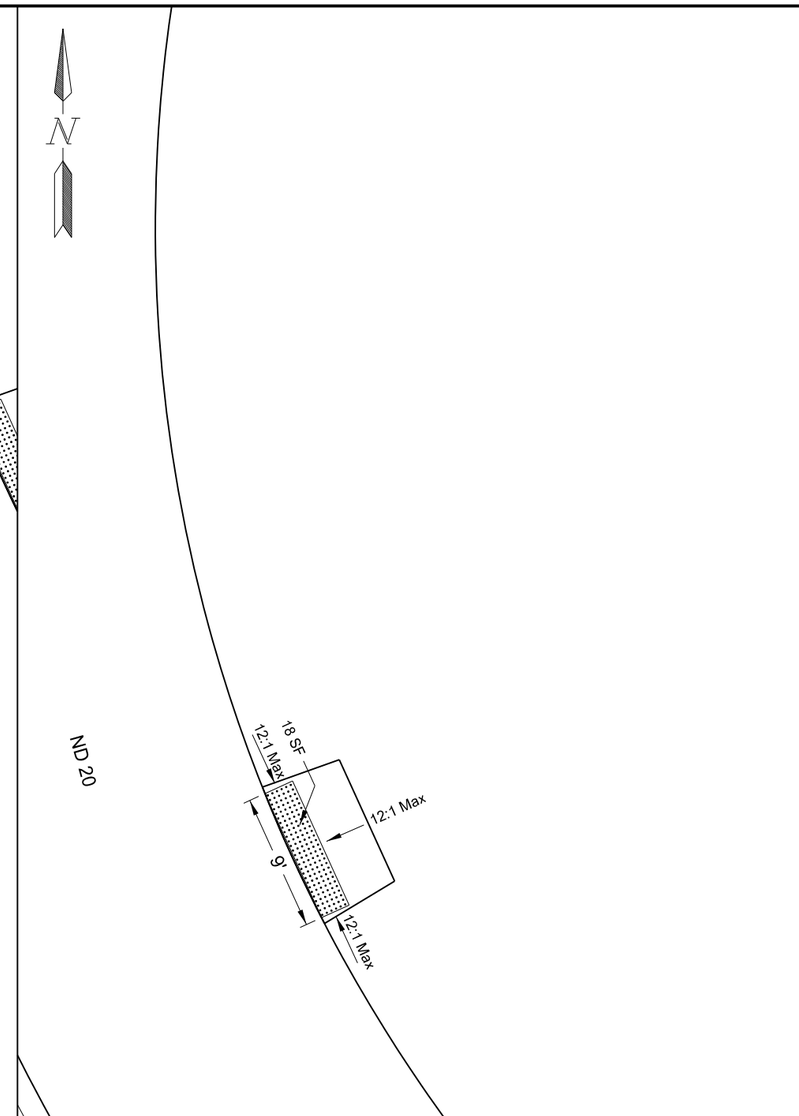
ADA Ramps - ND 20

Intersection Improvements US 2 at ND 19 & 20

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	S-NHU-3-002(143)268	20	5



NE Island: 20-8
Sta. 62+28*



NE Corner: 20-9
Sta. 62+58*

NE Island E

Spec	Code	Description	Quantity
202	112	Removal of Concrete	10 SY
202	130	Removal of Curb & Gutter	17 LF
748	100	Curb & Gutter	17 LF
750	115	Sidewalk Concrete 4 IN	10 SY
750	2115	Detectable Warning Panels	10 SF

NE Island W

Spec	Code	Description	Quantity
202	112	Removal of Concrete	10 SY
202	130	Removal of Curb & Gutter	17 LF
748	100	Curb & Gutter	17 LF
750	115	Sidewalk Concrete 4 IN	10 SY
750	2115	Detectable Warning Panels	10 SF

NE Corner

Spec	Code	Description	Quantity
202	112	Removal of Concrete	6 SY
750	115	Sidewalk Concrete 4 IN	6 SY
750	2115	Detectable Warning Panels	18 SF

*Stationing based off of the alignment OCL20

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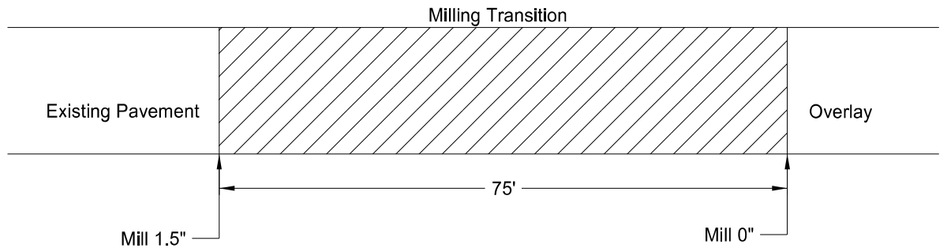
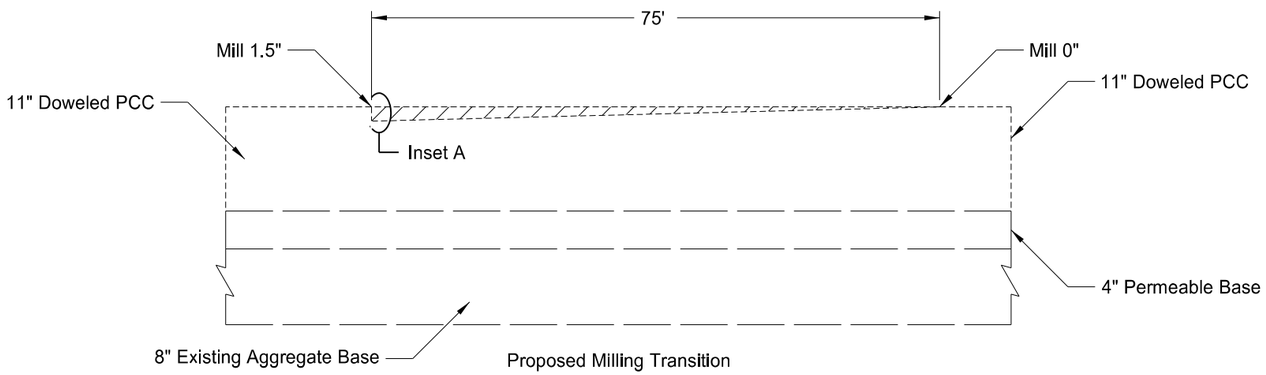
ADA Ramps - ND 20

Intersection Improvements US 2 at ND 19 & 20

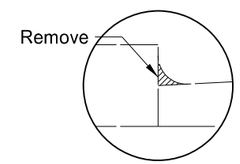
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	S-NHU-3-002(143)268	20	6





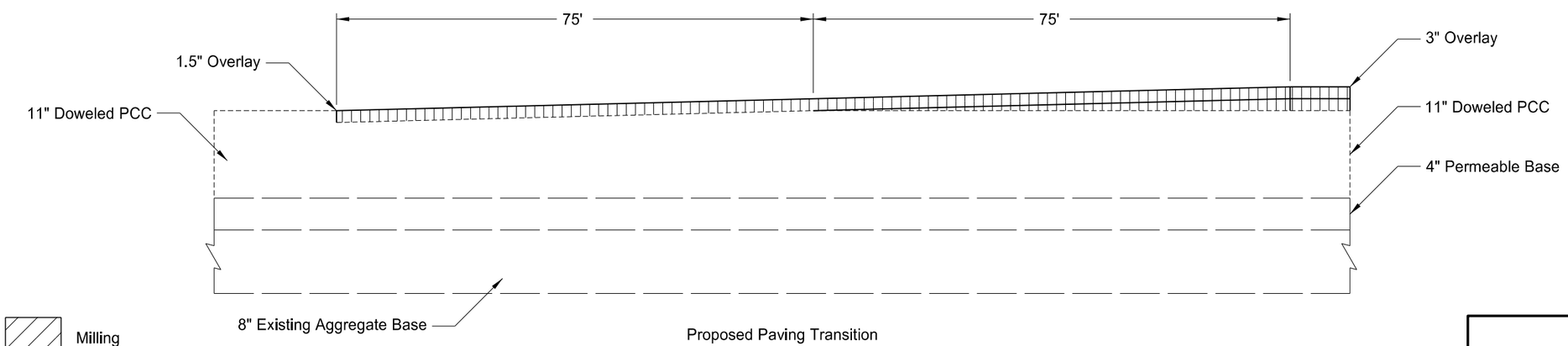
Proposed Milling Transition

Sta. 52+94 to 53+69 and Sta. 60+07 to 60+82 on OCL2EB 19
Sta. 56+36 to 57+11 and Sta. 63+53 to 64+28 on OCL2WB_19
Sta. 49+99 to 50+74 and Sta. 56+73 to 57+48 on OCL2EB_20
Sta. 47+35 to 48+10 and Sta. 54+12 to 54+87 on OCL2WB_20



Inset A

Note: Contractor shall remove excess material to form vertical edge before paving.



Proposed Paving Transition

Sta. 52+94 to 54+44 and Sta. 59+32 to 60+82 on OCL2EB 19
Sta. 56+36 to 57+86 and Sta. 62+78 to 64+28 on OCL2WB_19
Sta. 49+99 to 51+49 and Sta. 55+98 to 57+48 on OCL2EB_20
Sta. 47+35 to 48+85 and Sta. 53+37 to 54+87 on OCL2WB_20

Milling

HBP

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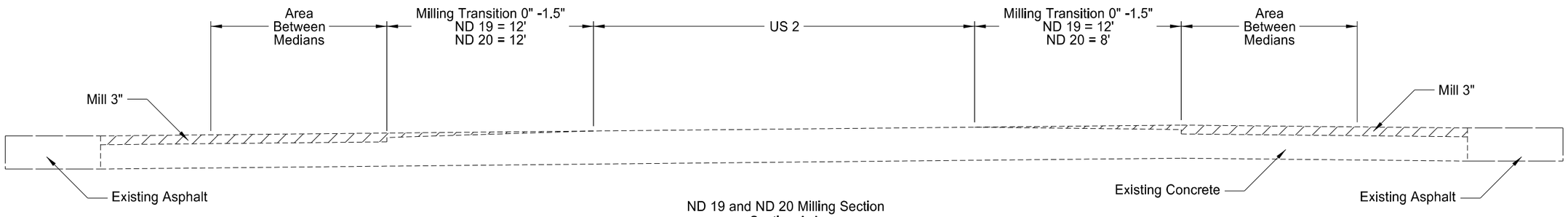
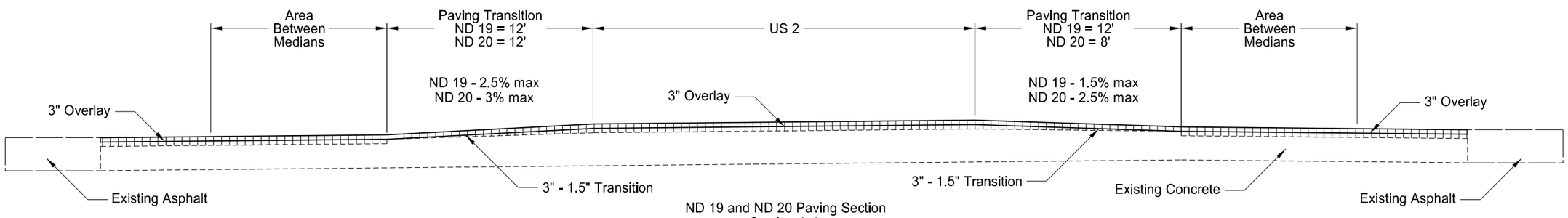
Mill and Overlay - ND 19 & ND 20

Intersection Improvements US 2 at ND 19 & 20

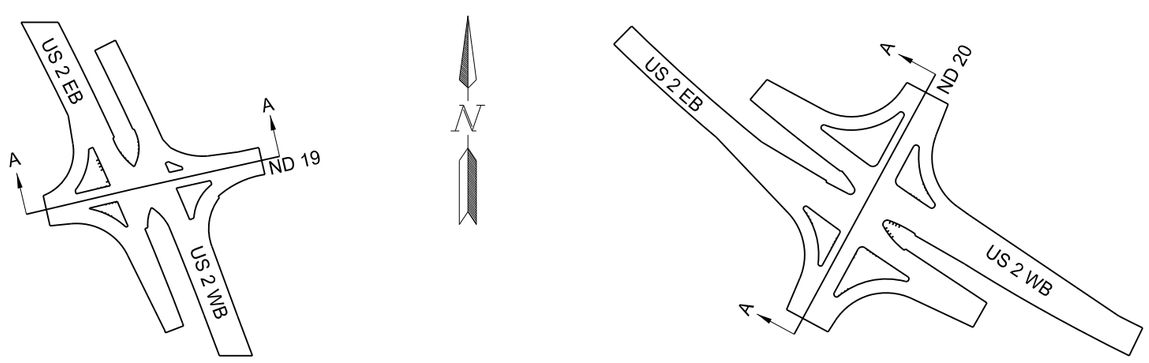
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	S-NHU-3-002(143)268	20	7



ND 19 and ND 20 Milling Section
Section A-A



ND 19 and ND 20 Paving Section
Section A-A



Milling

HBP

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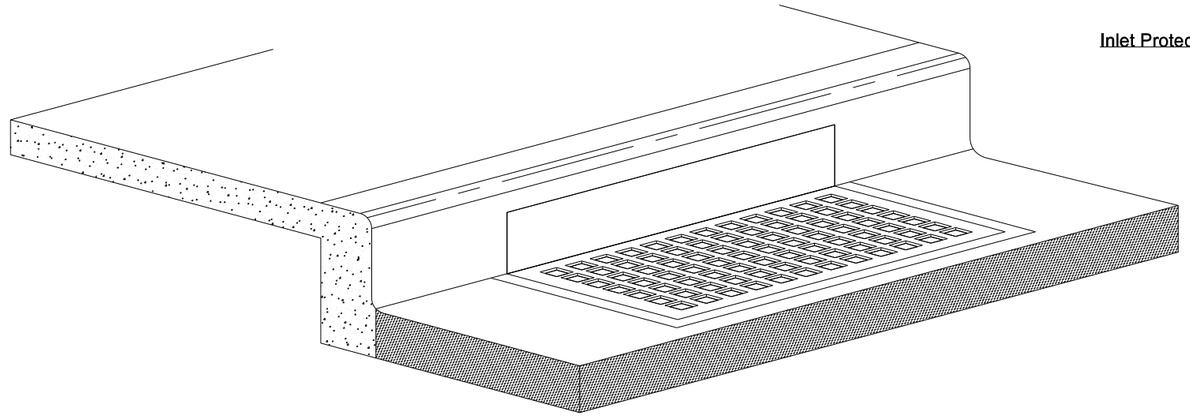
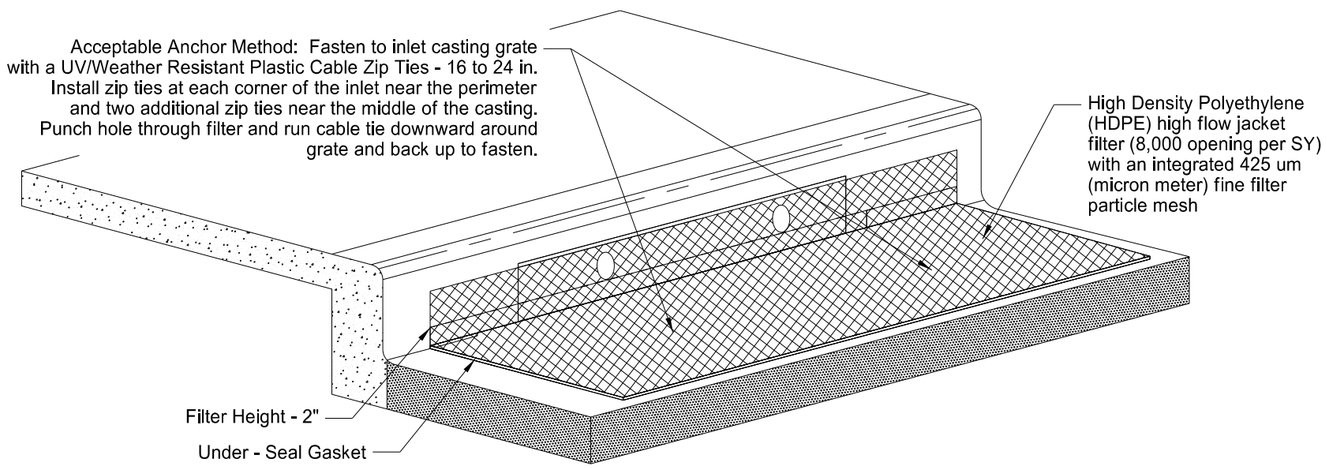
Mill and Overlay
Profiles of ND 19 & ND 20

Intersection Improvements US 2
at ND 19 & 20

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	S-NHU-3-002(143)268	20	8

Inlet Protection





Inlet Protection Device

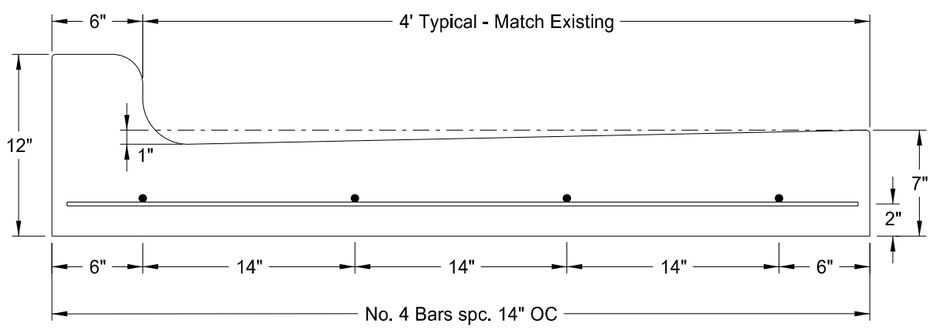
Installation Notes:

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:

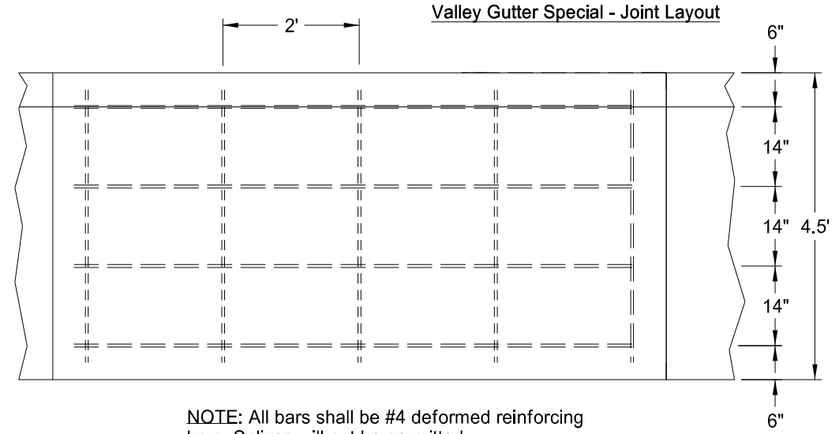
1. Inlet Protection shall be maintained or replaced at the direction of the engineer.
2. Manufactured alternatives may be substituted at the direction of the engineer.
3. When removing or maintaining inlet protection, care shall be taken so that fabric does not fall into the inlet. Any material falling 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.

Valley Gutter Special



NOTE: Valley Gutter Special used in ADA Ramps on sheets 1 and 4 in Section 20

Valley Gutter Special - Joint Layout



NOTE: All bars shall be #4 deformed reinforcing bars. Splices will not be permitted.

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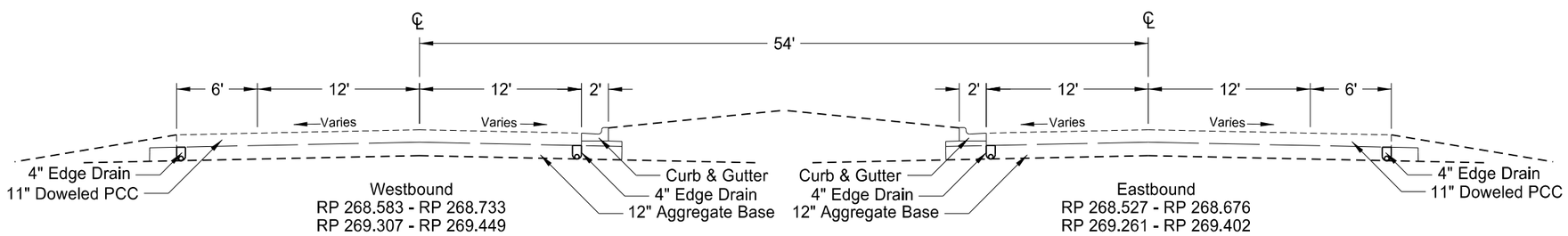
Inlet Protection Device Detail
& Valley Gutter Special Detail

Intersection Improvements US 2
at ND 19 & 20

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	S-NHU-3-002(143)268	30	1

Existing US 2



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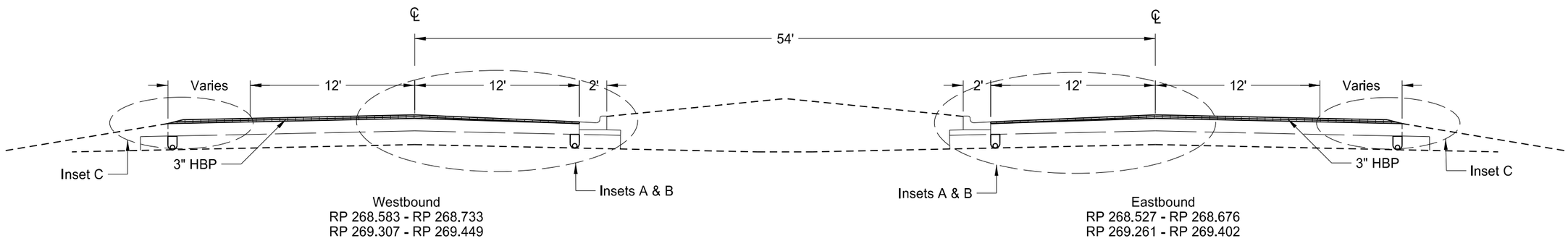
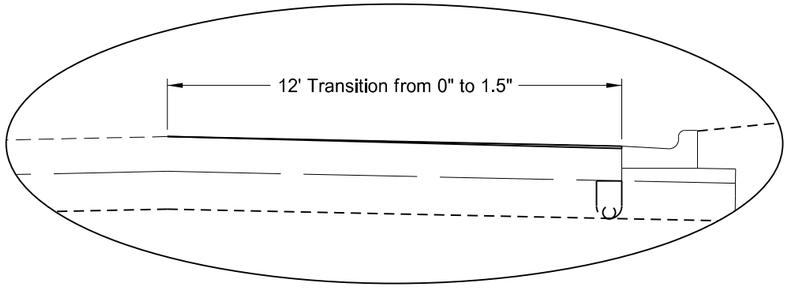
Typical Sections
Existing US 2

Intersection Improvements US 2
at ND 19 & 20

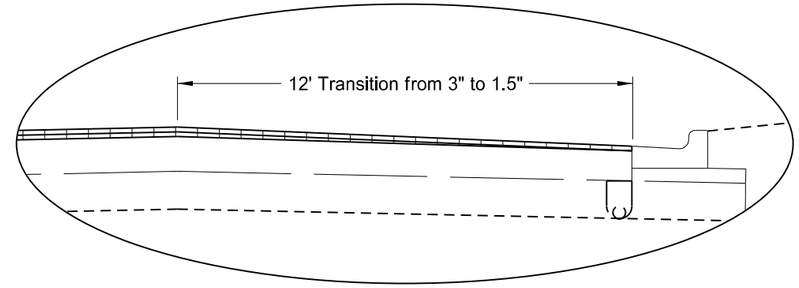
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	S-NHU-3-002(143)268	30	2

Proposed US 2

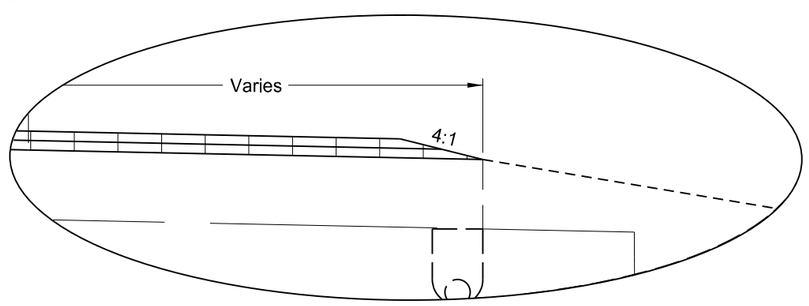




Inset A
Milling Transition



Inset B
Paving Transition



Inset C
Pavement Slough Detail

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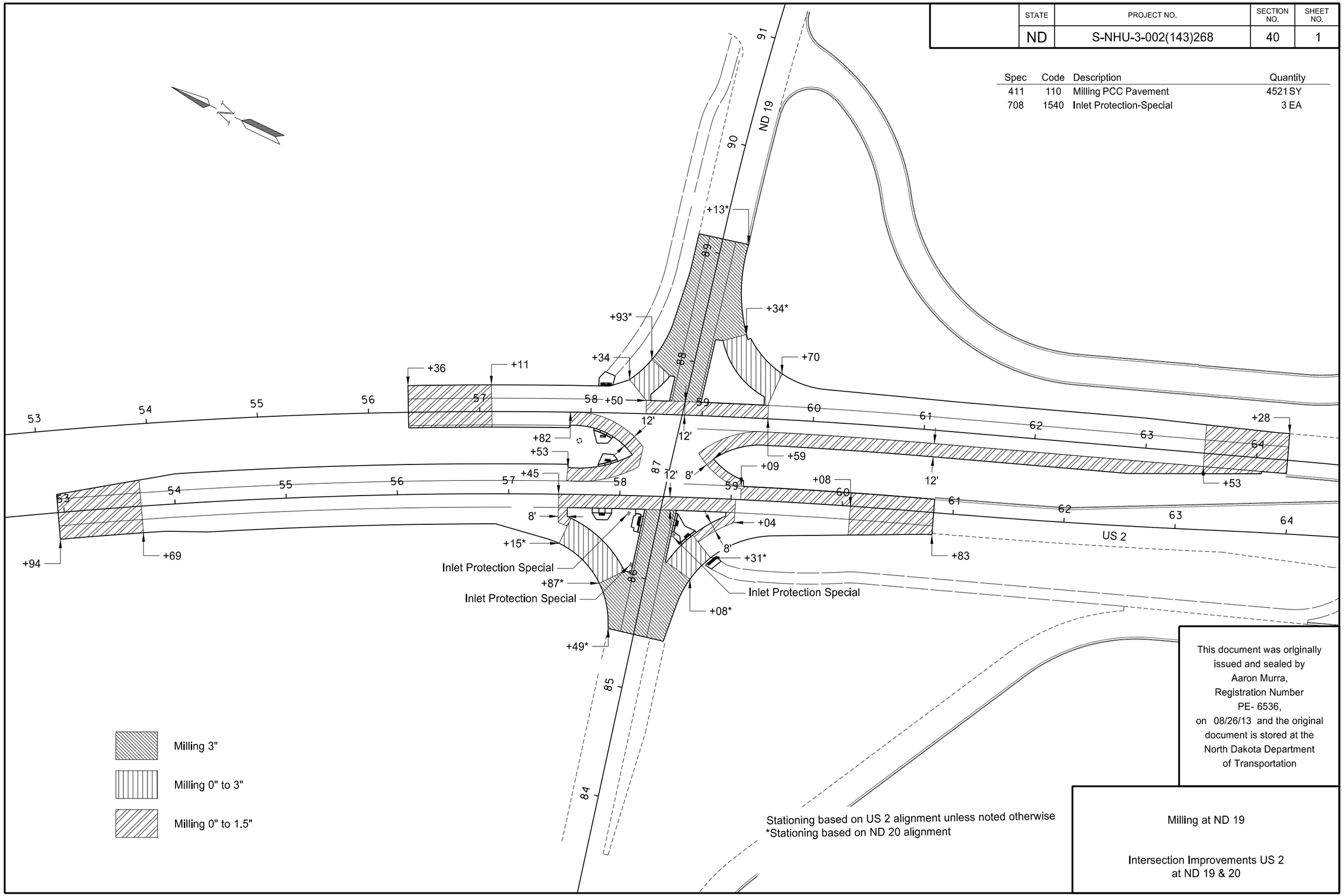
Typical Sections
Proposed US 2

Intersection Improvements US 2
at ND 19 & 20

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	S-NHU-3-002(143)268	40	1

Spec	Code	Description	Quantity
411	110	Milling PCC Pavement	4521 SY
708	1540	Inlet Protection-Special	3 EA



Stationing based on US 2 alignment unless noted otherwise
*Stationing based on ND 20 alignment

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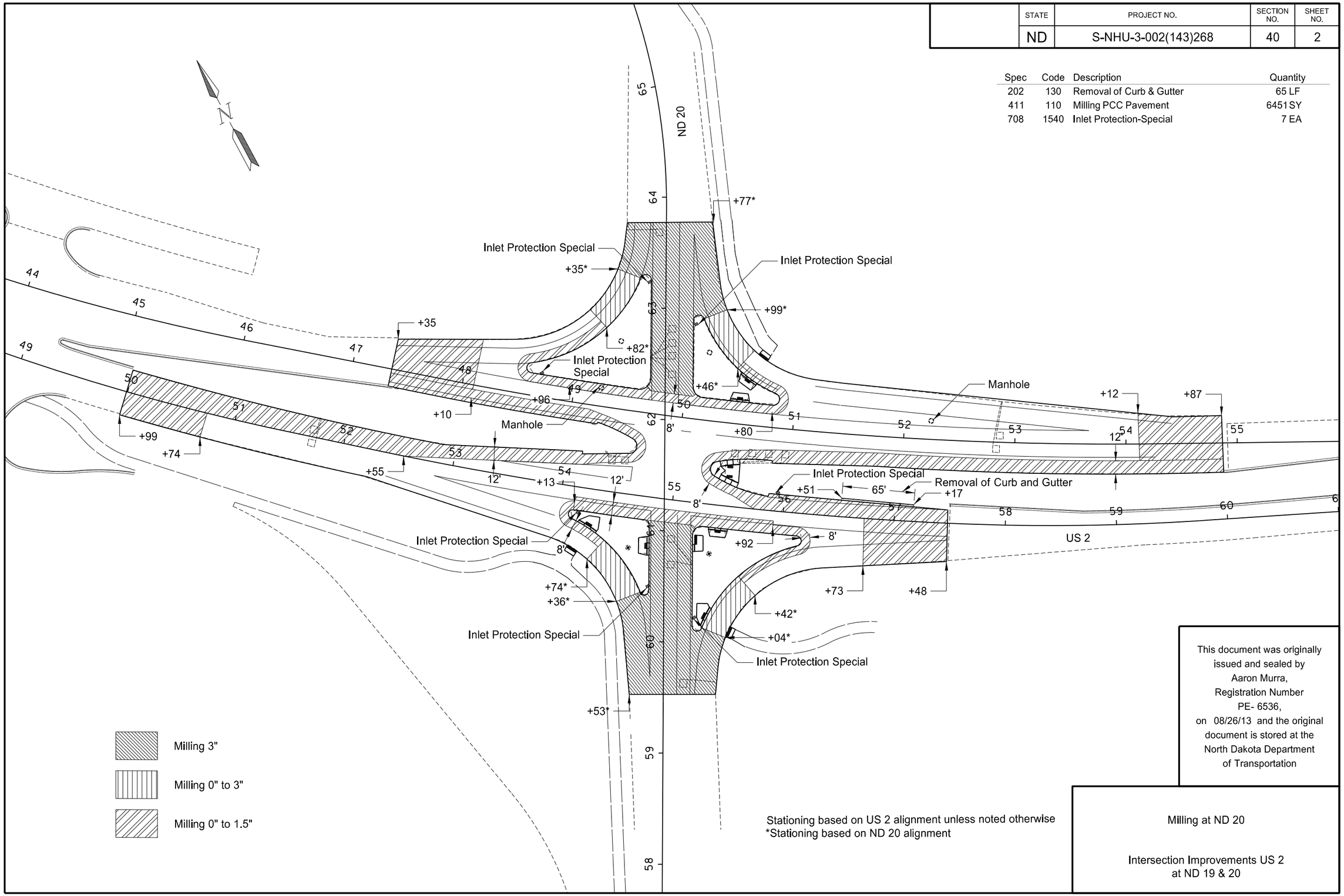
Milling at ND 19

Intersection Improvements US 2 at ND 19 & 20

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	S-NHU-3-002(143)268	40	2

Spec	Code	Description	Quantity
202	130	Removal of Curb & Gutter	65 LF
411	110	Milling PCC Pavement	6451 SY
708	1540	Inlet Protection-Special	7 EA



Stationing based on US 2 alignment unless noted otherwise
*Stationing based on ND 20 alignment

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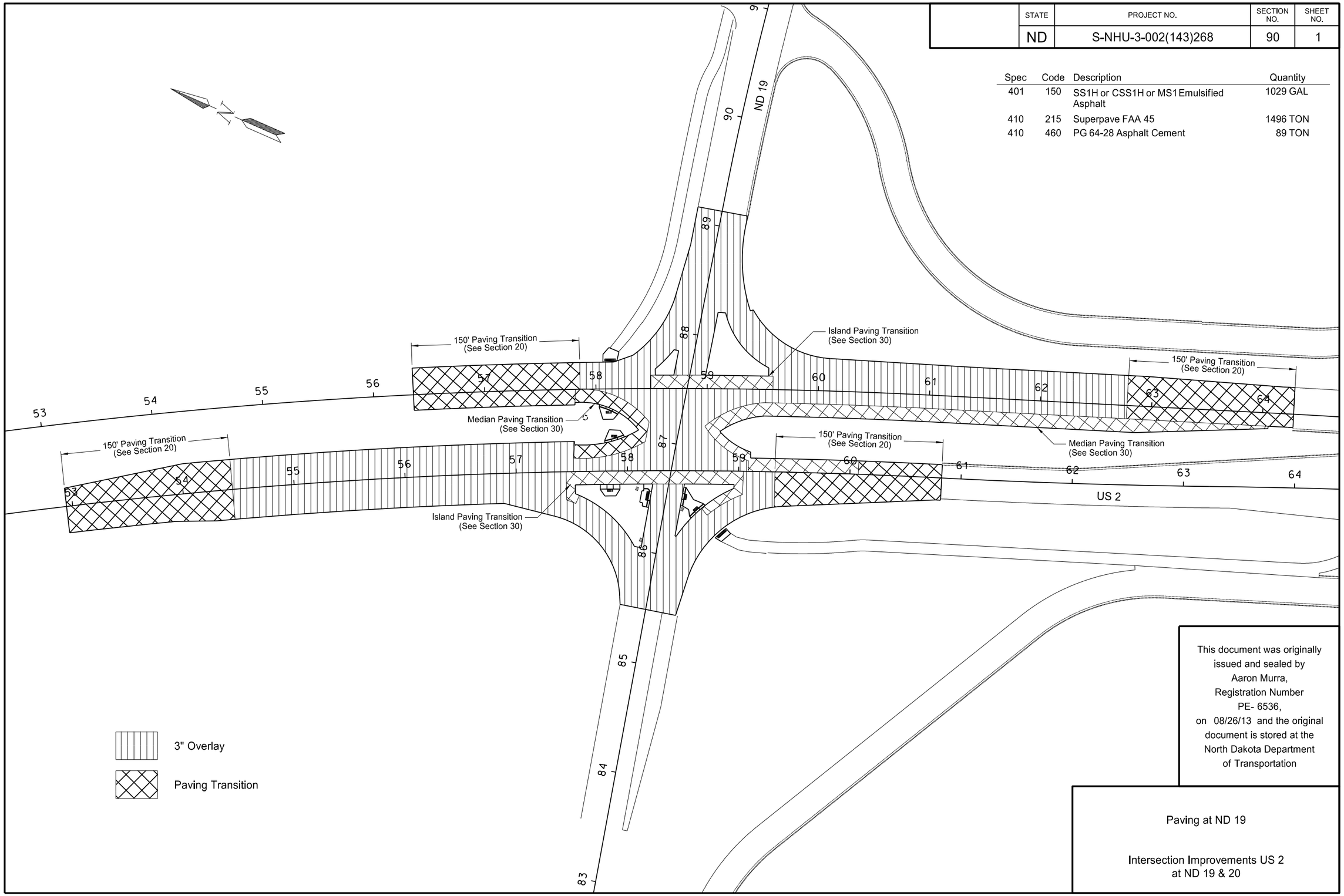
Milling at ND 20

Intersection Improvements US 2 at ND 19 & 20

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	S-NHU-3-002(143)268	90	1

Spec	Code	Description	Quantity
401	150	SS1H or CSS1H or MS1 Emulsified Asphalt	1029 GAL
410	215	Superpave FAA 45	1496 TON
410	460	PG 64-28 Asphalt Cement	89 TON



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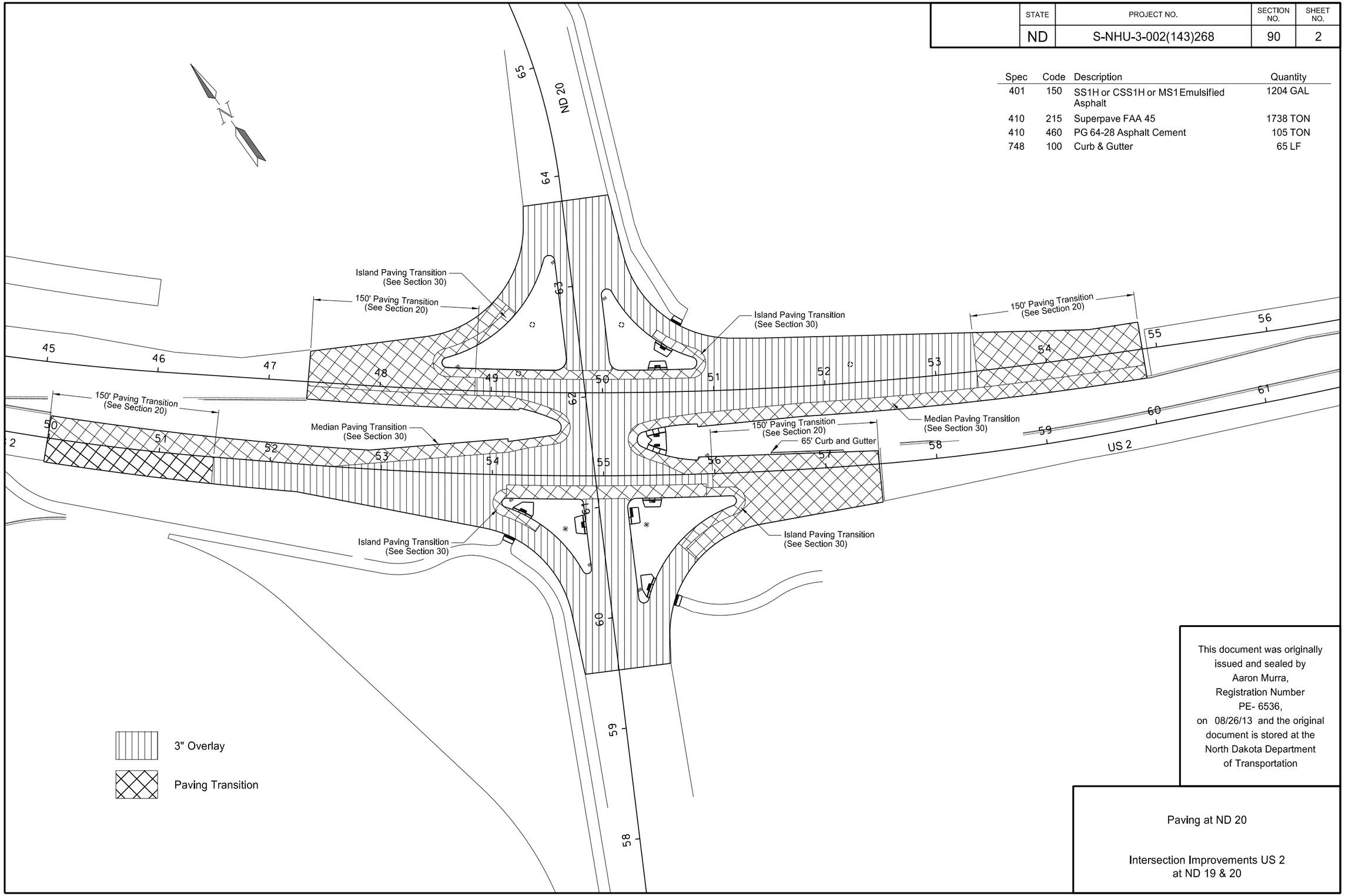
Paving at ND 19

Intersection Improvements US 2 at ND 19 & 20

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	S-NHU-3-002(143)268	90	2

Spec	Code	Description	Quantity
401	150	SS1H or CSS1H or MS1 Emulsified Asphalt	1204 GAL
410	215	Superpave FAA 45	1738 TON
410	460	PG 64-28 Asphalt Cement	105 TON
748	100	Curb & Gutter	65 LF



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Paving at ND 20

Intersection Improvements US 2 at ND 19 & 20

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	S-NHU-3-002(143)268	100	1

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED BY PHASE NO. 1	2	3		TOTAL 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**	**2**	**2**	**4**		**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**	**2**	**2**			**2**	**59**	**118**
M1-1-36	36"x36"	INTERSTATE ROUTE MARKER (Post and installation only)						10	
M1-4-24	24"x24"	U.S. ROUTE MARKER (Post and installation only)						10	
M1-5-24	24"x24"	STATE ROUTE MARKER (Post and installation only)						10	
M3-1-24	24"x12"	NORTH (Mounted on route marker post)						7	
M3-2-24	24"x12"	EAST (Mounted on route marker post)						7	
M3-3-24	24"x12"	SOUTH (Mounted on route marker post)						7	
M3-4-24	24"x12"	WEST (Mounted on route marker post)						7	
M4-8-24	24"x12"	DETOUR (Mounted on route marker post)						7	
M4-9-30	30"x24"	DETOUR ARROW RIGHT or LEFT/AHD AND RT or LT						15	
M4-10-48	48"x18"	DETOUR ARROW RIGHT or LEFT						23	
M5-1-21	21"x15"	ARROW AHD AND RT or LT(Mounted on route marker post)						7	
M5-2-21	21"x15"	ARROW AHD UP & RT or LT (Mounted on route marker post)						7	
M6-1-21	21"x15"	ARROW RT or LT (Mounted on route marker post)						7	
M6-2-21	21"x15"	ARROW UP & RT or LT (Mounted on route marker post)						7	
M6-3-21	21"x15"	ARROW AHD (Mounted on route marker post)						7	
R1-1-48	**48"x48"**	**STOP**	**4**	**4**			**4**	**32**	**128**
R1-1a-18	**18"x18"**	**STOP and SLOW PADDLE Back to Back**	**1**	**1**	**2**		**2**	**5**	**10**
R1-2-60	60"x60"	YIELD						29	
R2-1-48	**48"x60"**	**SPEED LIMIT __**	**11**	**11**	**9**		**11**	**39**	**429**
R2-1a-24	**24"x18"**	**MINIMUM FEE $80 (Mounted on Speed Limit post)**	**6**	**6**	**4**		**6**	**10**	**60**
R3-7-48	48"x48"	LEFT or RIGHT LANE MUST TURN LEFT or RIGHT						35	
R4-1-48	**48"x60"**	**DO NOT PASS**	**2**	**2**			**2**	**39**	**78**
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**			**2**		**2**	**35**	**70**
W1-4b-48	48"x48"	DOUBLE RIGHT or LEFT REVERSE CURVE ARROW						35	
W1-6-48	48"x24"	LARGE ARROW						26	
W3-1-48	48"x48"	STOP AHEAD SYMBOL						35	
W3-3-48	48"x48"	SIGNAL AHEAD SYMBOL						35	
W3-4-48	48"x48"	BE PREPARED TO STOP						35	
W3-5-48	**48"x48"**	**SPEED REDUCTION AHEAD**	**2**	**2**	**4**		**4**	**35**	**140**
W4-2-48	**48"x48"**	**RIGHT or LEFT LANE TRANSITION SYMBOL**	**2**	**2**	**2**		**2**	**35**	**70**
W5-1-48	48"x48"	ROAD NARROWS						35	
W5-8-48	48"x48"	THRU TRAFFIC RIGHT LANE						35	
W5-9-48	48"x48"	ROAD WORK TRAFFIC ONLY DOWN & LT or RT ARROW						35	
W6-3-48	48"x48"	TWO WAY TRAFFIC SYMBOL						35	
W8-1-48	**48"x48"**	**BUMP**	**8**	**8**	**8**		**8**	**35**	**280**
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						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.						35	
W8-55-48	48"x48"	TRUCKS CROSSING AHEAD or __ FT.						35	
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)**			**1**		**1**	**11**	**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**	**2**	**2**	**4**		**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.**			**2**		**2**	**35**	**70**
W20-5-48	**48"x48"**	**RIGHT or LEFT LANE CLOSED AHEAD or __ FT.**	**2**	**2**	**4**		**4**	**35**	**140**
W20-7a-48	48"x48"	FLAGGING SYMBOL						35	
W20-7k-24	**24"x18"**	**__ FEET (Mounted on warning sign post)**			**2**		**2**	**10**	**20**
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						35	
W21-3-48	48"x48"	ROAD MACHINERY AHEAD or __ FT						35	

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED BY PHASE NO. 1	2	3		TOTAL AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
W21-5-48	48"x48"	SHOULDER WORK						35	
W21-5a-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED						35	
W21-5b-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED AHEAD or __ FT.						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

W20-7-48	**48"x48"**	**Flagger Sign**	**1**	**1**	**2**		**2**	**35**	**70**

SPEC & CODE

704-1000	**TRAFFIC CONTROL SIGNS**	**TOTAL UNITS**	**1910**

SPEC & CODE	DESCRIPTION	UNIT	QUANTITY BY PHASE NO. 1	2	3		TOTAL QUANTITY
704-0100	**FLAGGING**	MHR	**170**	**170**	**160**		**500**
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	**2**	**2**			**2**
704-1060	**DELINEATOR DRUMS**	EACH	**44**	**44**	**55**		**55**
704-1065	TRAFFIC CONES	EACH					
704-1067	**TUBULAR MARKERS**	EACH	**110**	**110**			**110**
704-1070	DELINEATOR	EACH					
704-1072	**FLEXIBLE DELINEATORS**	EACH			**47**		**47**
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	**1**	**1**	**2**		**2**
704-1088	SEQUENCING ARROW PANEL - TYPE C - CROSSOVER	EACH					
704-1095	TYPE B FLASHERS	EACH					
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	**269**	**487**	**1313**		**2069**
762-1500	OBLITERATION OF PVMT MK	SF					
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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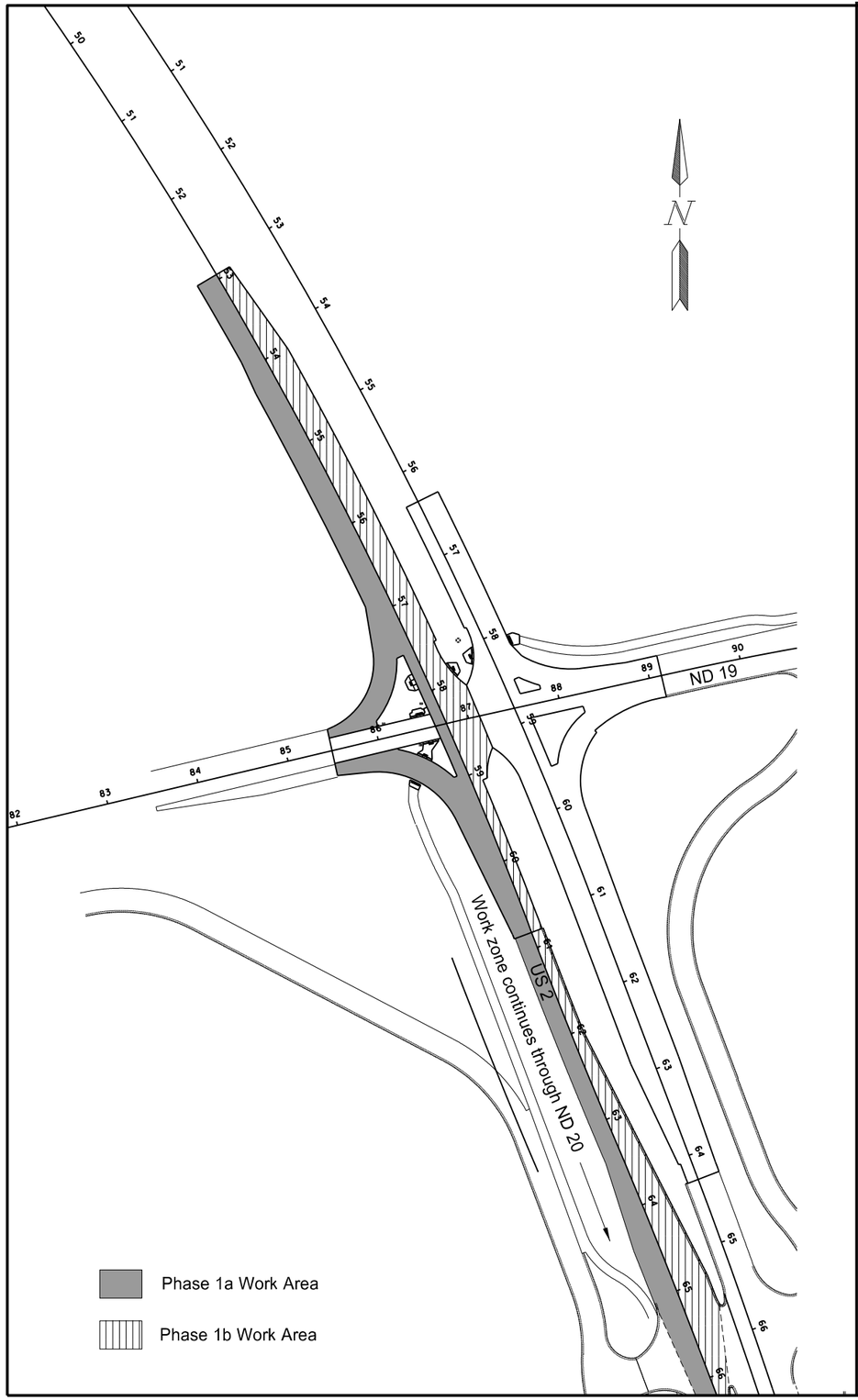
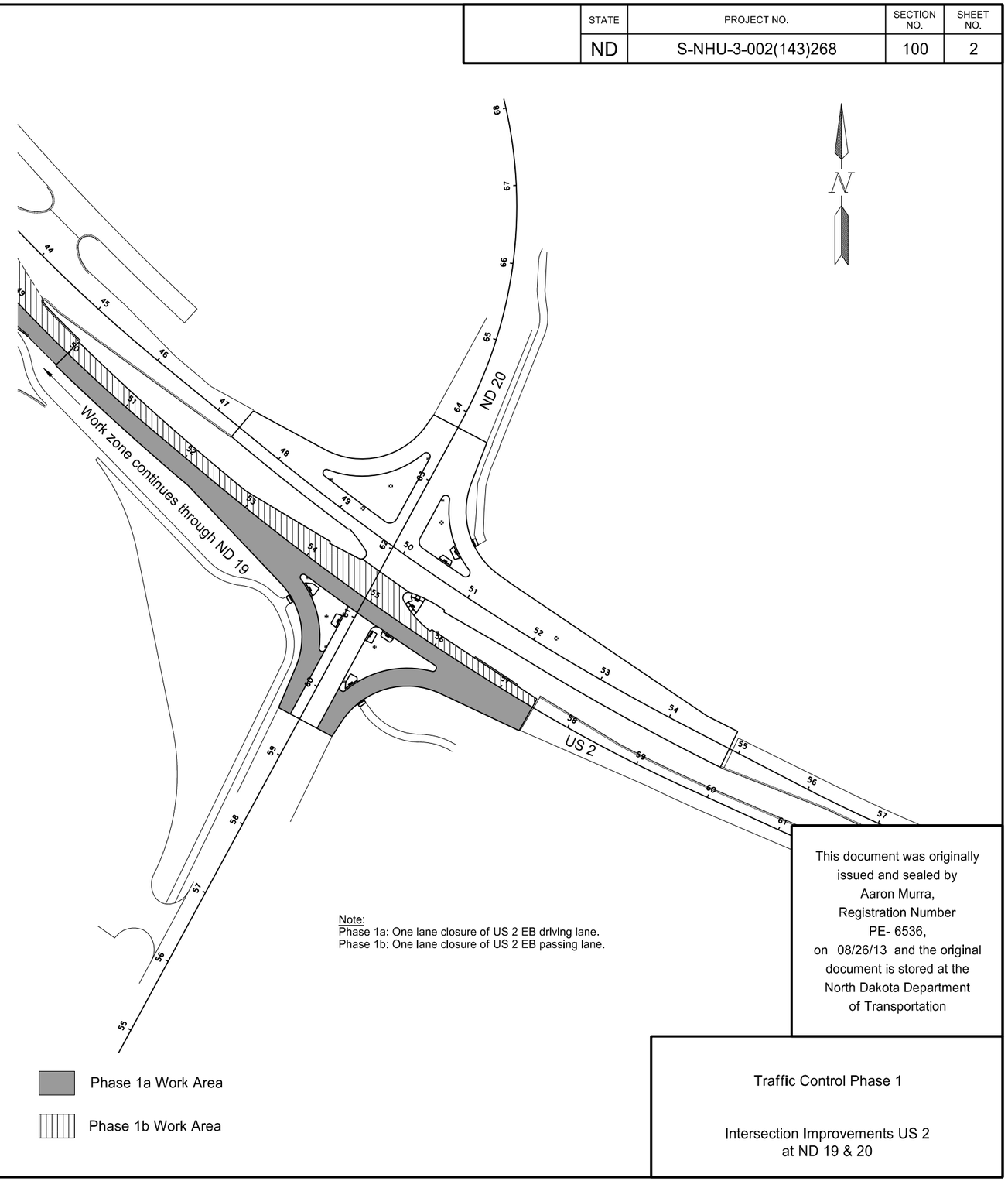
Traffic Control Devices List

Intersection Improvements US 2
at ND 19 & 20

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	S-NHU-3-002(143)268	100	2





Note:
Phase 1a: One lane closure of US 2 EB driving lane.
Phase 1b: One lane closure of US 2 EB passing lane.

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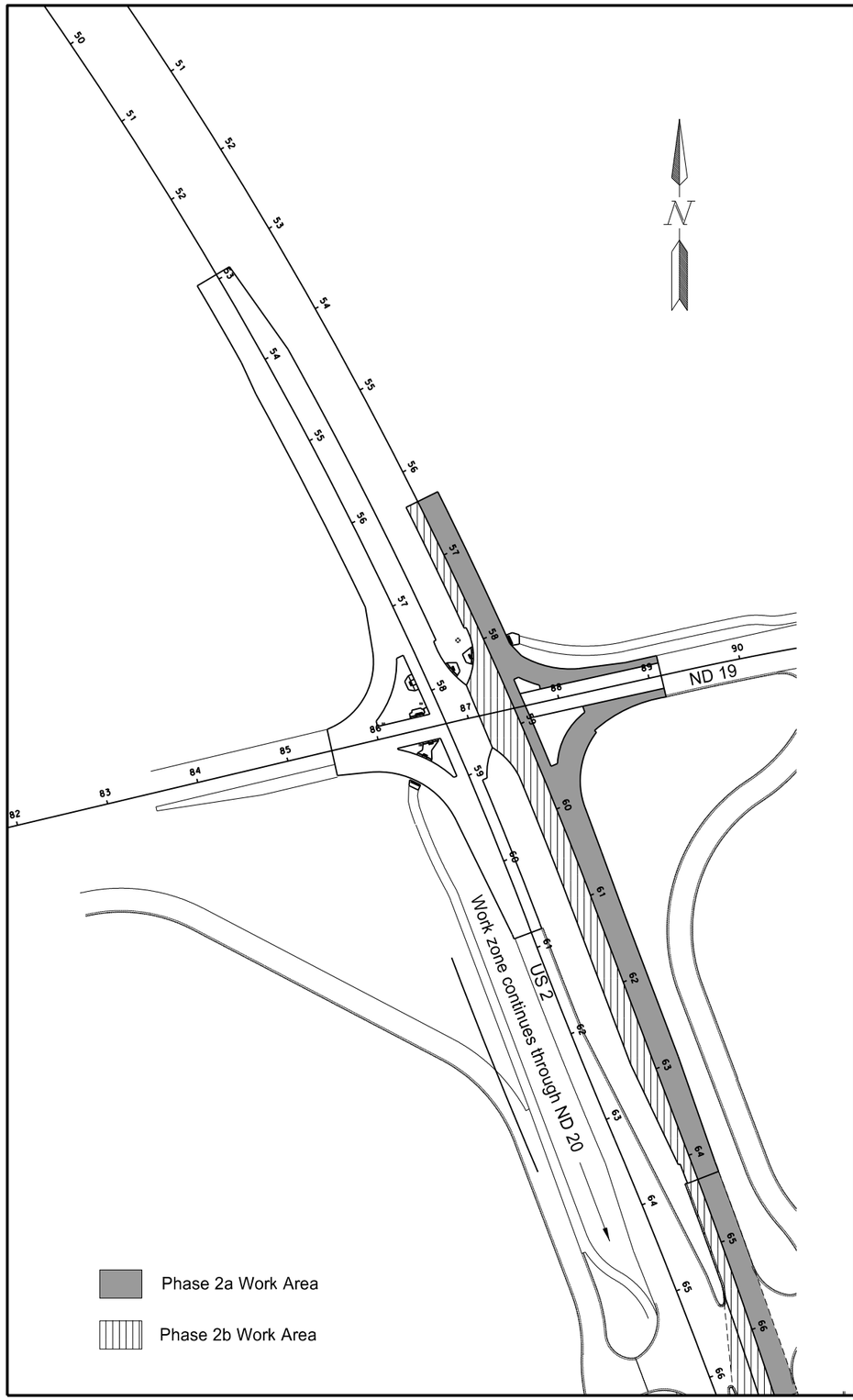
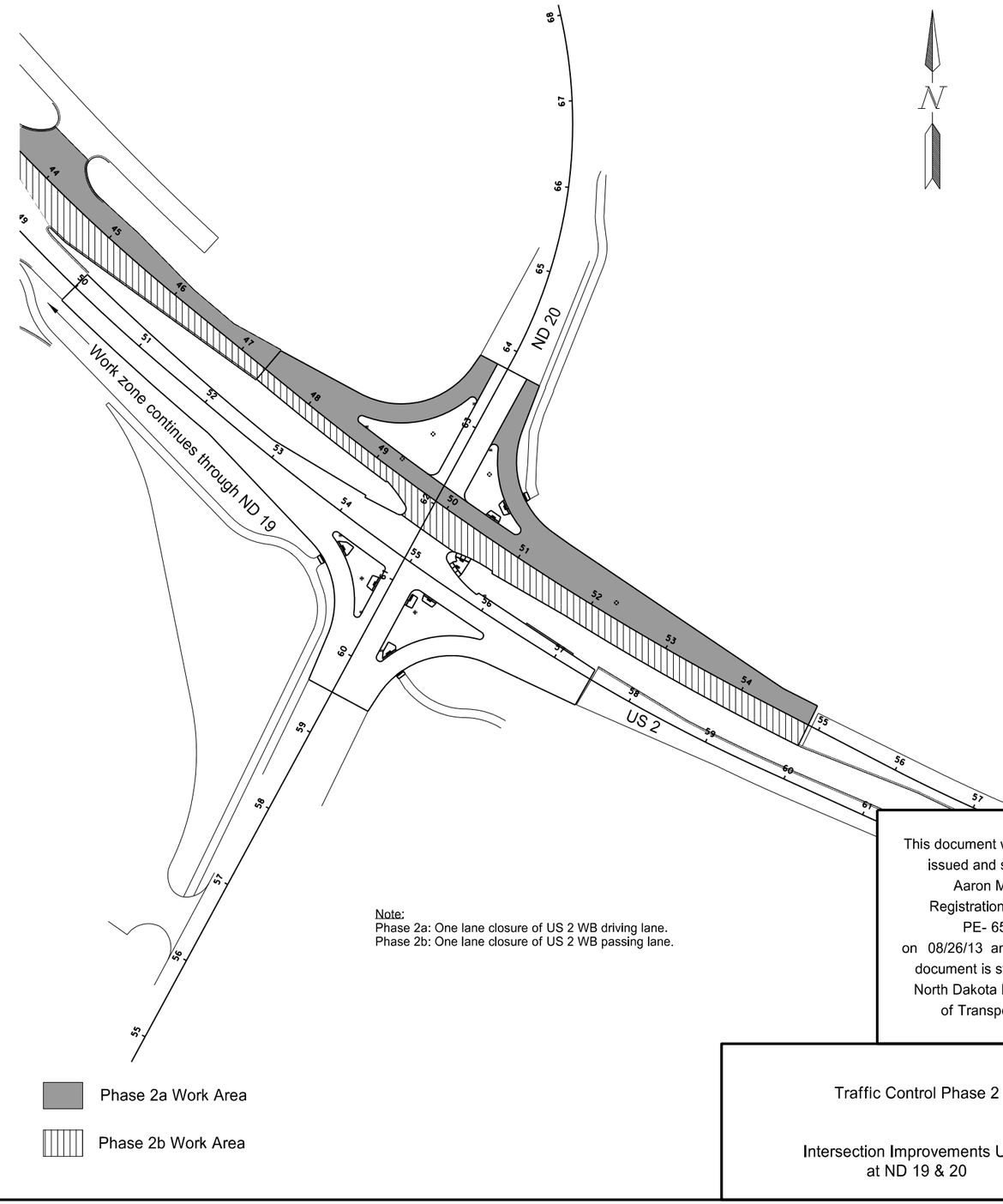
Traffic Control Phase 1

Intersection Improvements US 2 at ND 19 & 20

8/23/2013 12:02:29 PM kkleinknecht R:\project\30002268.143\Design\DOTSC\Plan\100WZ_002_TCDL.dgn

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	S-NHU-3-002(143)268	100	3





Note:
Phase 2a: One lane closure of US 2 WB driving lane.
Phase 2b: One lane closure of US 2 WB passing lane.

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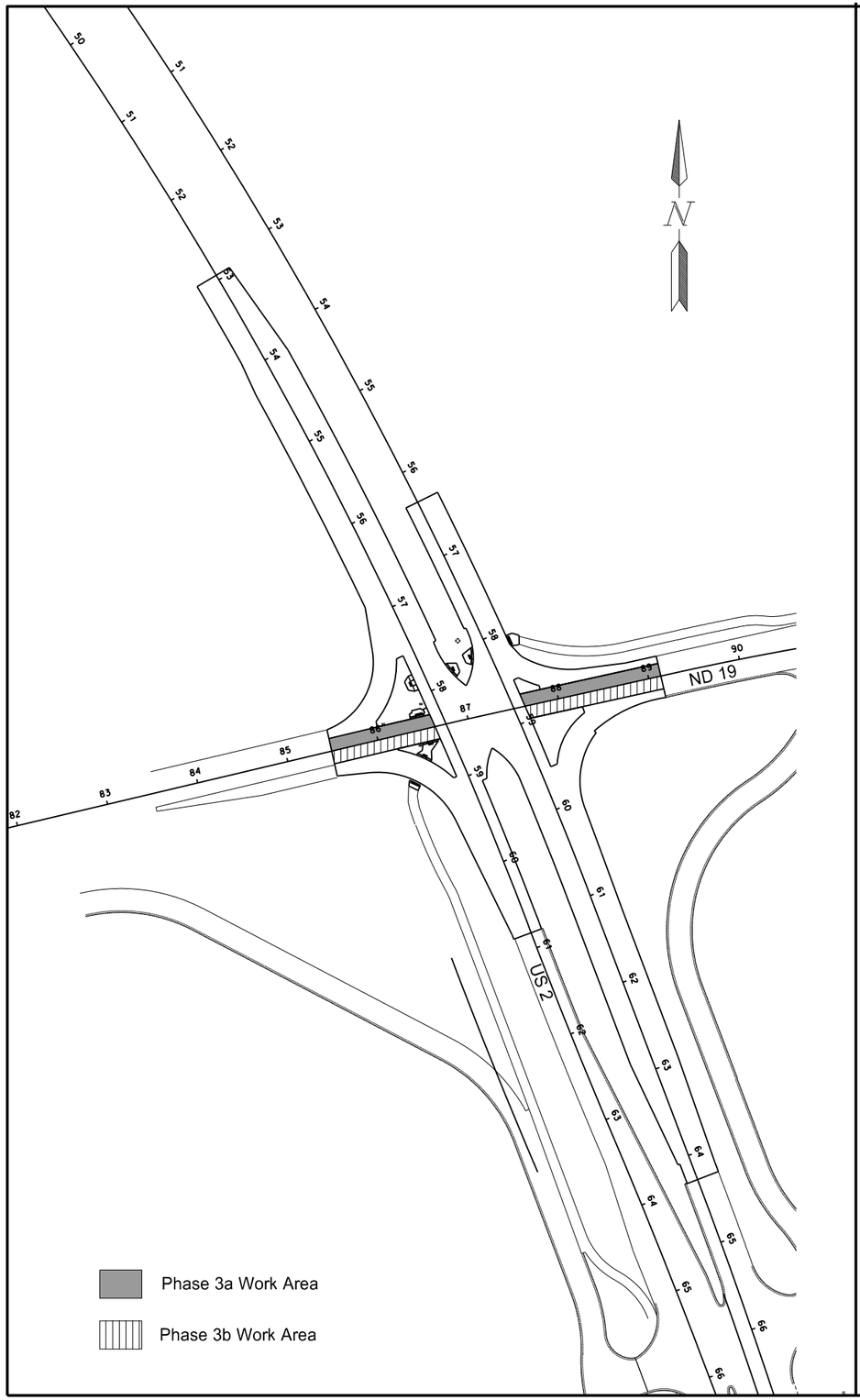
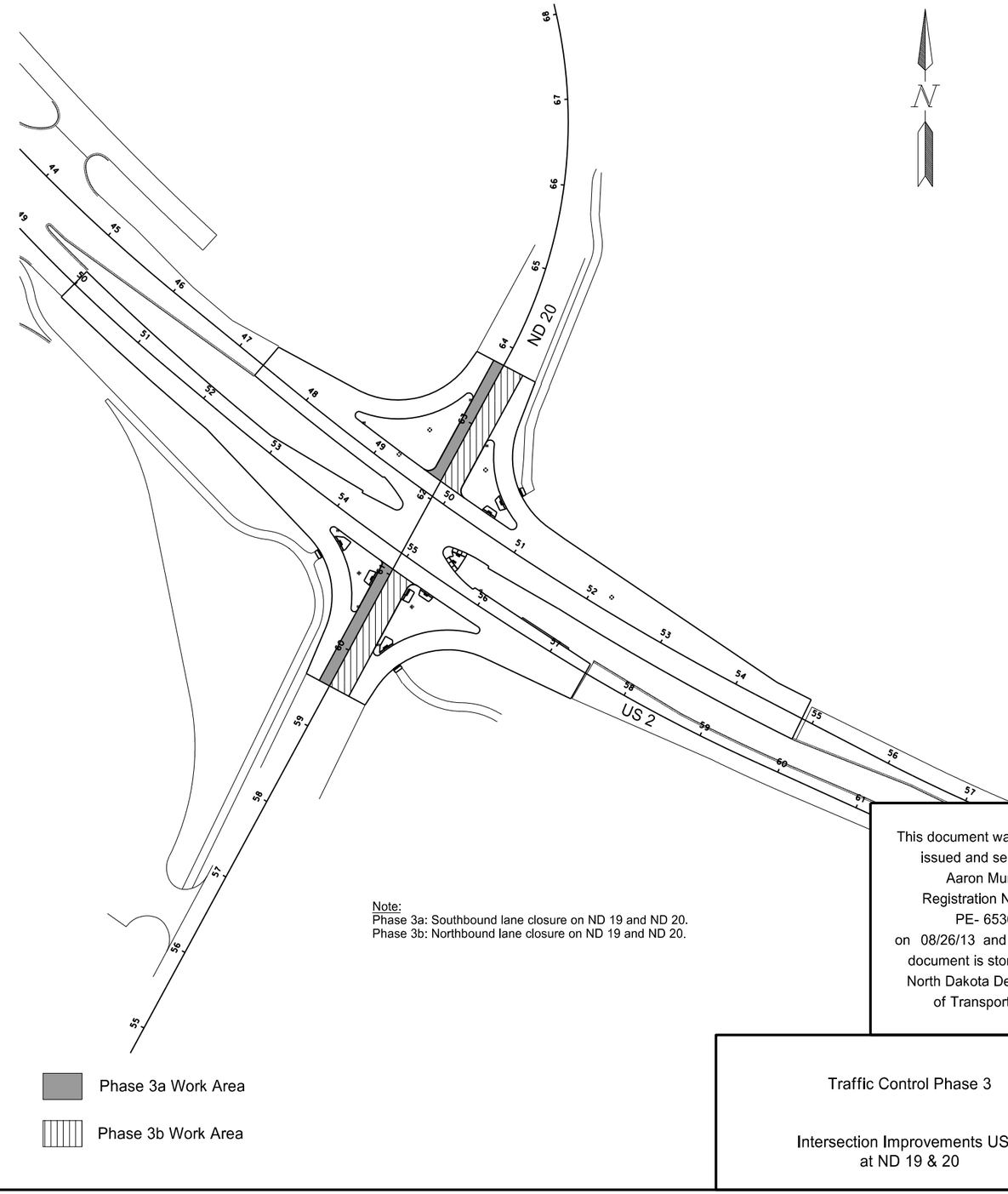
Traffic Control Phase 2

Intersection Improvements US 2 at ND 19 & 20

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	S-NHU-3-002(143)268	100	4





Note:
Phase 3a: Southbound lane closure on ND 19 and ND 20.
Phase 3b: Northbound lane closure on ND 19 and ND 20.

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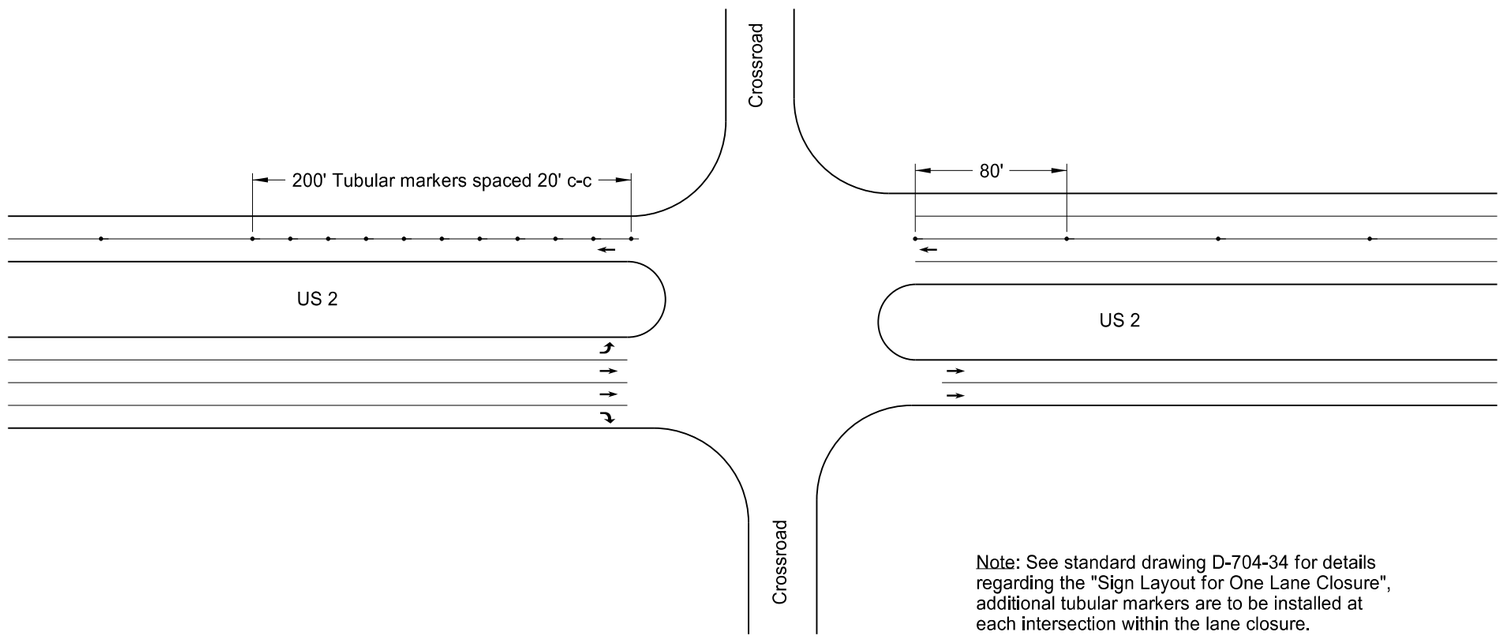
Traffic Control Phase 3

Intersection Improvements US 2 at ND 19 & 20

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	S-NHU-3-002(143)268	100	5



Note: See standard drawing D-704-34 for details regarding the "Sign Layout for One Lane Closure", additional tubular markers are to be installed at each intersection within the lane closure.

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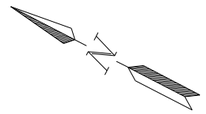
Additional Tubular Markers at Intersections

Intersection Improvements US 2 at ND 19 & ND 20

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	S-NHU-3-002(143)268	120	1



Preformed Patterned Pvmt Mk Message-Grooved

Left Arrow (6)	96 SF
Right Arrow (8)	128 SF
Total	224 SF

Preformed Patterned Pvmt Mk 4in Line-Grooved

4" white lines	1917 LF
4" yellow lines	606 LF
4" centerline (10' line, 30' skip)	320 LF
4" double yellow lines (4" between)	476 LF
Total	3319 LF

Preformed Patterned Pvmt Mk 6in Line-Grooved

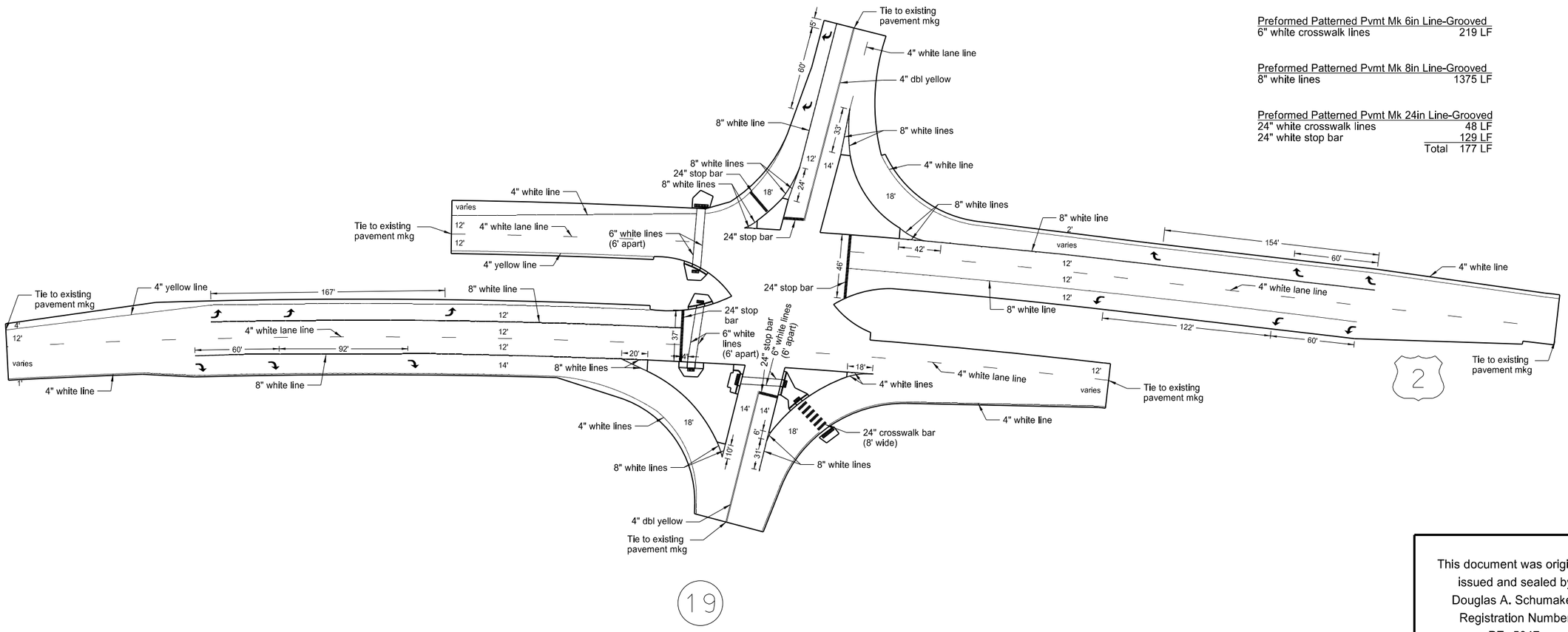
6" white crosswalk lines	219 LF

Preformed Patterned Pvmt Mk 8in Line-Grooved

8" white lines	1375 LF

Preformed Patterned Pvmt Mk 24in Line-Grooved

24" white crosswalk lines	48 LF
24" white stop bar	129 LF
Total	177 LF



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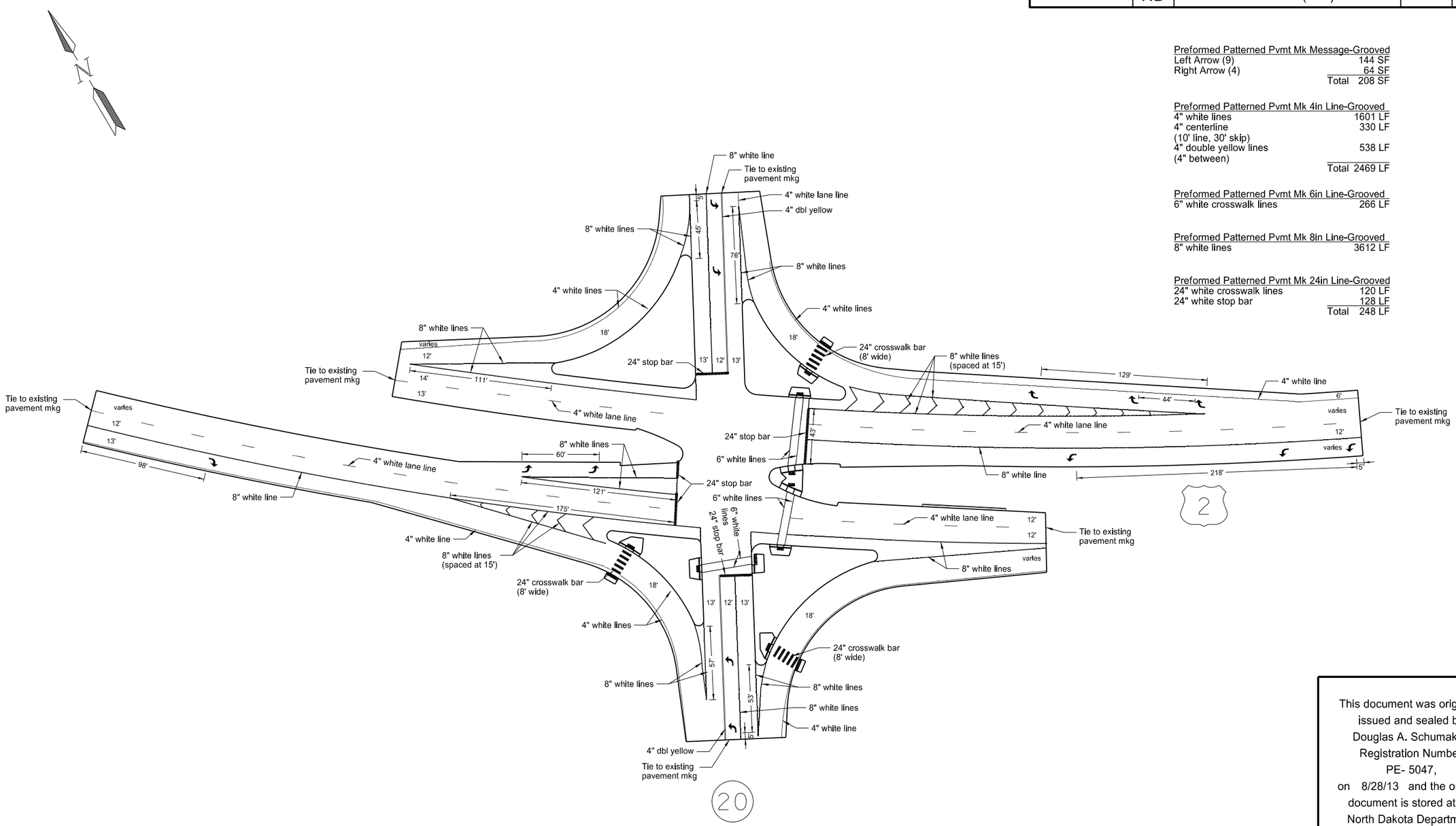
Pavement Marking

US Hwy 2 and ND Hwy 19 Intersection
Devils Lake, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	S-NHU-3-002(143)268	120	2



Preformed Patterned Pvmt Mk Message-Grooved

Left Arrow (9)	144 SF
Right Arrow (4)	64 SF
Total	208 SF

Preformed Patterned Pvmt Mk 4in Line-Grooved

4" white lines	1601 LF
4" centerline (10' line, 30' skip)	330 LF
4" double yellow lines (4" between)	538 LF
Total	2469 LF

Preformed Patterned Pvmt Mk 6in Line-Grooved

6" white crosswalk lines	266 LF

Preformed Patterned Pvmt Mk 8in Line-Grooved

8" white lines	3612 LF

Preformed Patterned Pvmt Mk 24in Line-Grooved

24" white crosswalk lines	120 LF
24" white stop bar	128 LF
Total	248 LF

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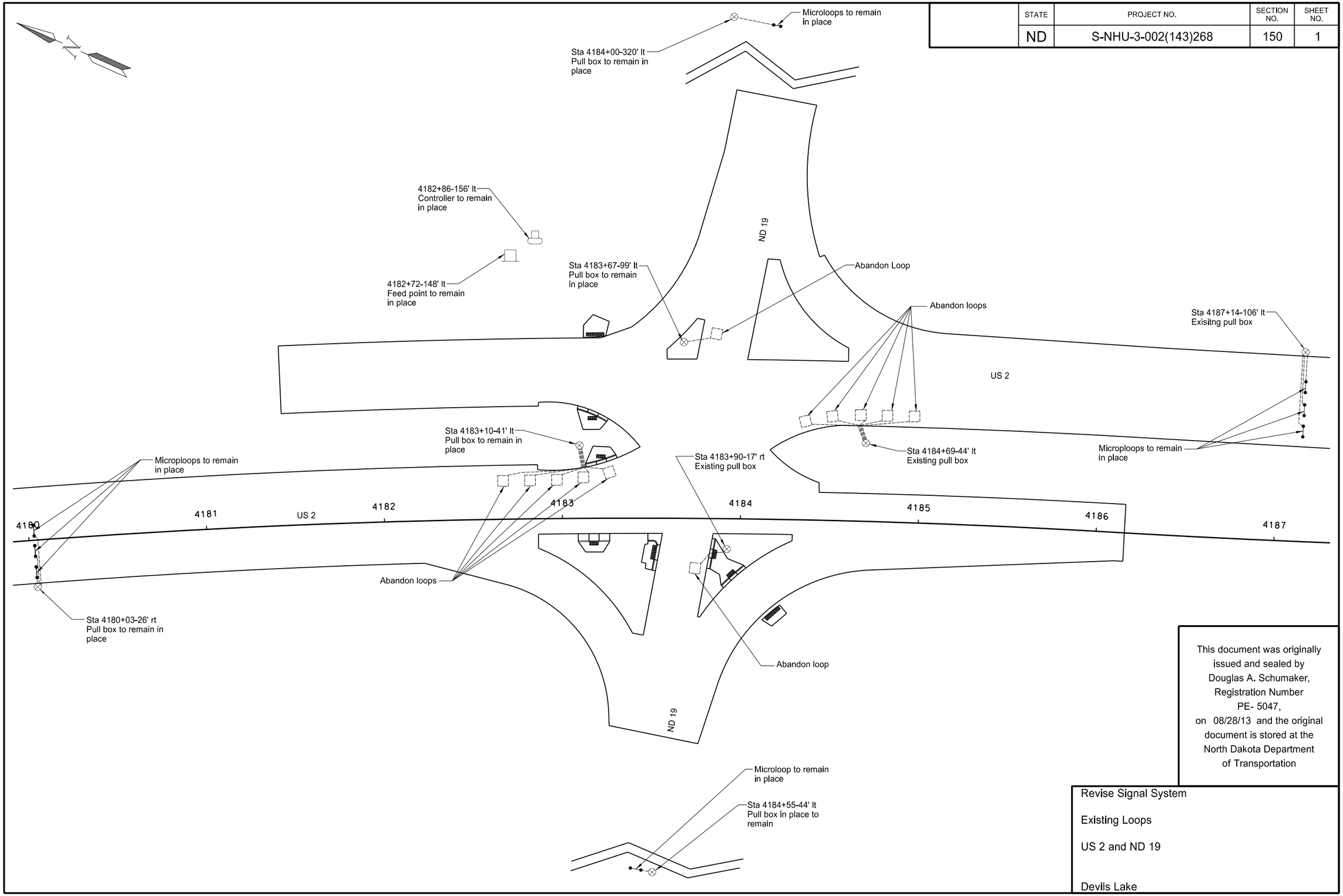
Pavement Marking

US Hwy 2 and ND Hwy 20 Intersection
Devils Lake, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	S-NHU-3-002(143)268	150	1



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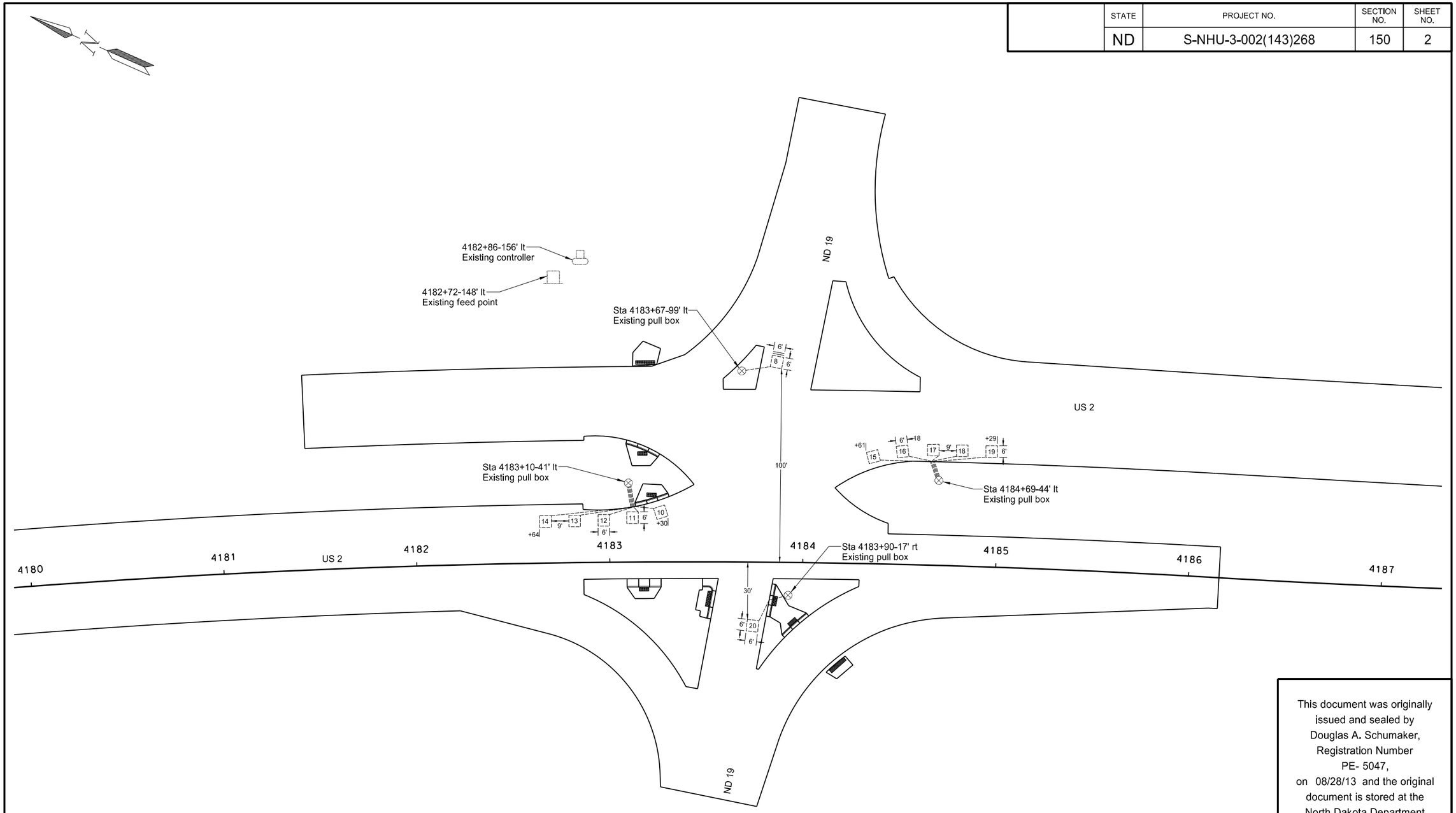
Revise Signal System

Existing Loops

US 2 and ND 19

Devils Lake

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	S-NHU-3-002(143)268	150	2



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Revise Traffic Signal System

Traffic Signal Loop Layout

US 2 and ND 19

Devils Lake

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	S-NHU-3-002(143)268	150	3

QUANTITIES (A)					
	Underground Conductor No. 14-Type XHHW	Saw Slot			Revise Traffic Signal System
	LF	LF			EA
TOTAL	1516	494			1

(A) These items shall not be bid separately but shall be included in the item "Revise Traffic Signal System".

Detector loops

Loop No.	Amplifier No.	# of Turns	Size	Type
8	D8-1	3	6'X6'	Calling
10	D5-1	3	6'X6'	Presence/Counting
11	D5-1	3	6'X6'	Presence/Counting
12	D5-1	3	6'X6'	Presence/Counting
13	D5-1	3	6'X6'	Presence/Counting
14	D5-1	3	6'X6'	Presence/Counting
15	D1-1	3	6'X6'	Presence/Counting
16	D1-1	3	6'X6'	Presence/Counting
17	D1-1	3	6'X6'	Presence/Counting
18	D1-1	3	6'X6'	Presence/Counting
19	D1-1	3	6'X6'	Presence/Counting
20	D4-2	3	6'X6'	Calling

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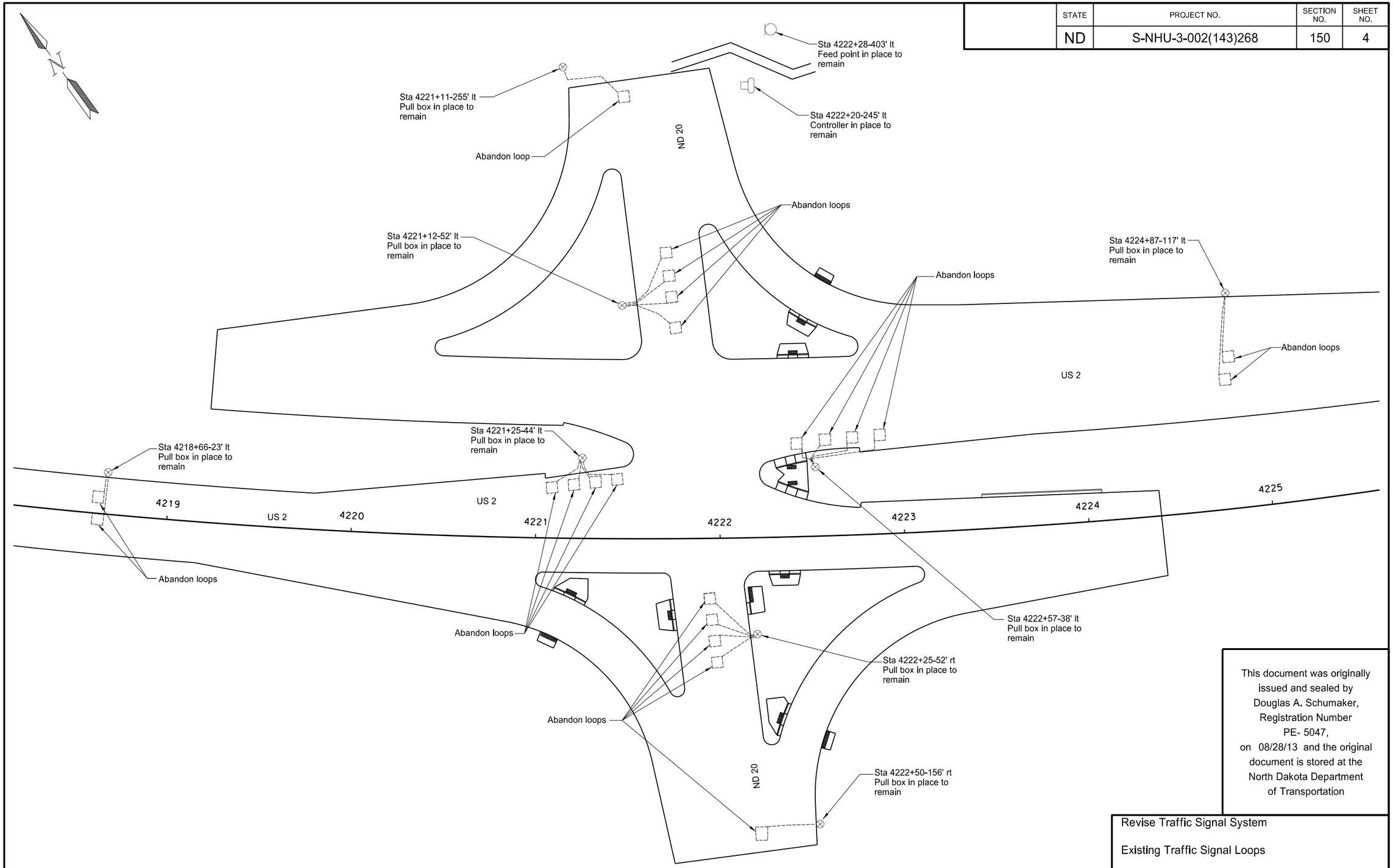
Revise Traffic Signal System

Detector Loops and Quantities

US 2 and ND 19

Devils Lake

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	S-NHU-3-002(143)268	150	4



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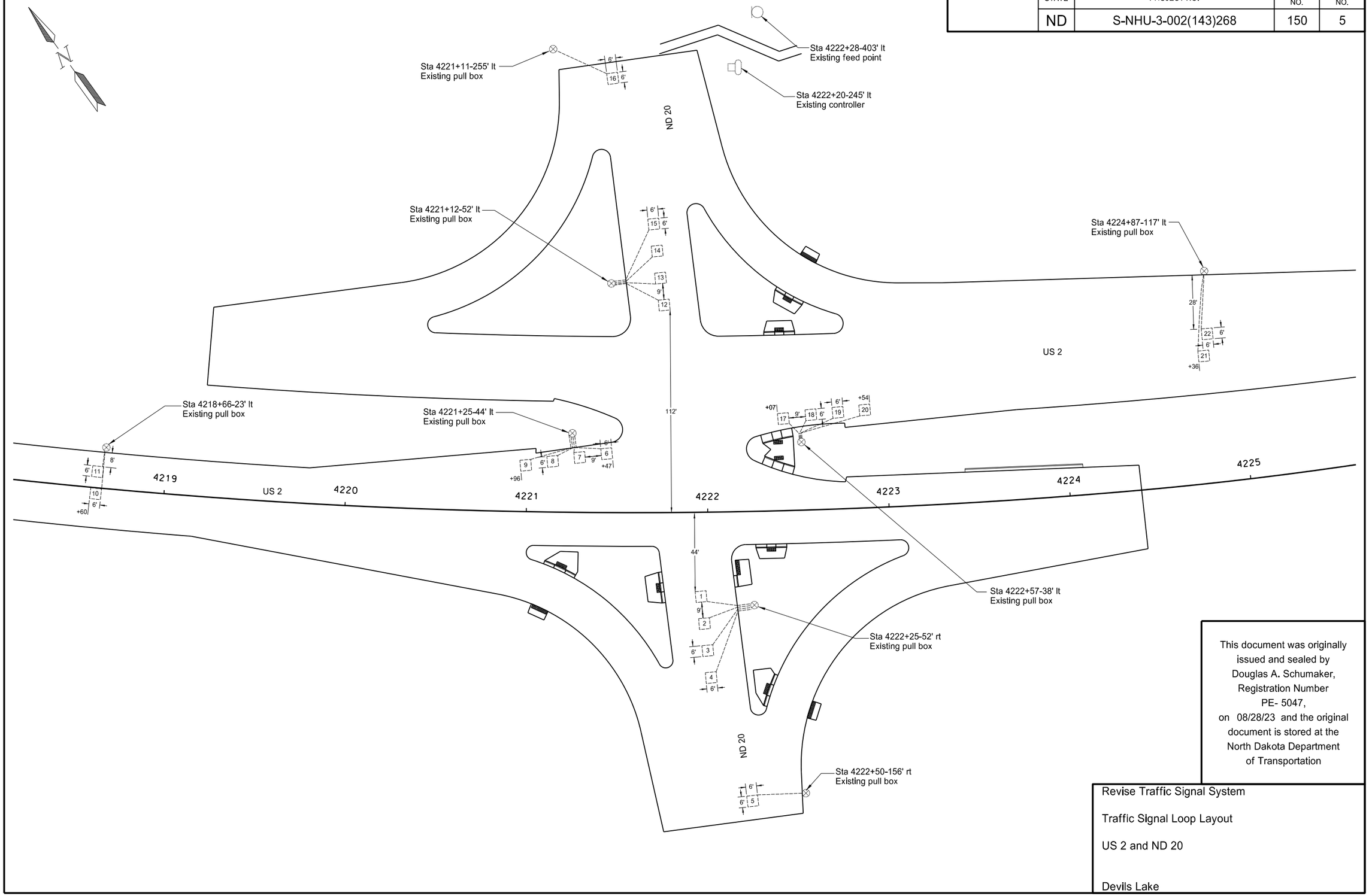
Revise Traffic Signal System

Existing Traffic Signal Loops

US 2 and ND 20

Devils Lake

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	S-NHU-3-002(143)268	150	5



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Revise Traffic Signal System

Traffic Signal Loop Layout

US 2 and ND 20

Devils Lake

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	S-NHU-3-002(143)268	150	6

QUANTITIES (A)					
	Underground Conductor No. 14-Type XHHW	Saw Slot			Revise Traffic Signal System
	LF	LF			EA
TOTAL	2898	985			1

(A) These items shall not be bid separately but shall be included in the item "Revise Traffic Signal System".

Detector loops

Loop No.	Amplifier No.	# of Turns	Size	Type
1	D7-1	3	6'X6'	Presence/Counting
2	D7-1	3	6'X6'	Presence/Counting
3	D7-1	3	6'X6'	Presence/Counting
4	D7-1	3	6'X6'	Presence/Counting
5	D4-1	3	6'X6'	Passage/Counting
6	D5-1	3	6'X6'	Presence/Counting
7	D5-1	3	6'X6'	Presence/Counting
8	D5-1	3	6'X6'	Presence/Counting
9	D5-1	3	6'X6'	Presence/Counting
10	D2-1	3	6'X6'	Passage/Counting
11	D2-1	3	6'X6'	Passage/Counting
12	D3-1	3	6'X6'	Presence/Counting
13	D3-1	3	6'X6'	Presence/Counting
14	D3-1	3	6'X6'	Presence/Counting
15	D3-1	3	6'X6'	Presence/Counting
16	D8-1	3	6'X6'	Passage/Counting
17	D1-1	3	6'X6'	Presence/Counting
18	D1-1	3	6'X6'	Presence/Counting
19	D1-1	3	6'X6'	Presence/Counting
20	D1-1	3	6'X6'	Presence/Counting
21	D6-1	3	6'X6'	Passage/Counting
22	D6-1	3	6'X6'	Passage/Counting

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Revise Traffic Signal System

Detector Loops and Quantities

US 2 and ND 20

Devils Lake