North Dakota Department of Transportation

Grant Levi, P.E.
Director

Jack Dalrymple
Governor

March 28, 2016

ADDENDUM 1 – JOB 17

TO: All prospective bidders on project NHU-3-019(066)153, SS-3-019(065)139, & SS-3-019(067)135, Job No. 17 scheduled for the April 8, 2016 bid opening.

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

Plan Revisions:
See attached summary from Jason P. Gullicks, PE; Apex Engineering Group, dated March 21, 2016 for an explanation.

Request for Proposal Revisions:
Remove pages 7 to 11 of 14 of the Proposal pages located at the beginning of the Request for Proposal, with the enclosed pages revised 3/28/2016.

Page 7 of 14:

Item 202 0132 REMOVAL OF BITUMINOUS SURFACING quantity has increased from 43,115 to 43,171 SY.

Page 8 of 14:

Item 255 0103 ECB TYPE 3 quantity has increased from 3,116 to 3,160 SY.
Item 302 0120 AGGREGATE BASE COURSE CL 5 quantity has increased from 112,767 to 112,848 TON.
Item 401 0050 TACK COAT quantity has increased from 29,216 to 29,225 GAL.

Page 9 of 14:

Item 401 0060 PRIME COAT quantity increased from 26,735 to 26,758 GAL.
Item 430 0042 SUPERPAVE FAA 42 quantity increased from 54,520 to 54,543 TON.
Item 430 5828 PG 58-28 ASPHALT CEMENT quantity increased from 3,472 to 3,473 TON.
Item 704 0100 FLAGGING quantity increased from 4,110 to 5,410 MHR.
Item 704 1000 TRAFFIC CONTROL SIGNS quantity increased from 6,970 to 7,438 UNIT.
Item 704 1185 PILOT CAR quantity increased from 840 to 2,670 HR.

Page 10 of 14:

Item 714 4099 PIPE CONDUIT 18IN-APPROACH quantity increased from 602 to 679 LF.

Page 11 of 14:

Item 754 0805 OBJECT MARKERS-CULVERTS quantity increased from 140 to 142 EA.

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:dch
Enclosure

Apex Engineering Group
Water | Transportation| Municipal | Facilities

701.323.3950
600 South 2nd Street – Suite 145
Bismarck, ND 58504

March 21, 2016

ADDENDUM 1 – JOB 17

TO: All prospective bidders and suppliers on Projects NHU-3-019(066)153, SS-3-019(065)139 & SS-3-019(067)135 Job 17 scheduled for the April 8th, 2016 bid opening.

The following plan revisions shall be made:

Plan revisions for SS-3-019(065)139:

REMOVE the following Plan Sheets and REPLACE with the enclosed sheets revised 3/21/2016.

- Section 2 Sheet 1
- Section 6 Sheet 3
- Section 8 Sheet 1
- Section 10 Sheet 2, 3 & 4
- Section 20 Sheets 6 & 7
- Section 40 Sheet 11
- Section 51 Sheet 6
- Section 60 Sheet 19 & 23
- Section 70 Sheets 2
- Section 82 Sheet 16
- Section 100 Sheet 1
- Section 200 Sheets 178, 328-338

Section 2
Sheet 1:

- Revised SP Number for Permits and Considerations

Section 6
Sheet 3:

- Added Plan Note 704-P05

Section 8
Sheet 1:

SPEC	*CODE*	*ITEM DESCRIPTION*	*REVISION*
202	0132	REMOVAL OF BITUMINOUS SURF.	Revised Quantity from 31,860 SY to 31,916 SY
255	0103	ECB TYPE 3	Revised Quantity from 2176 SY to 2220 SY
302	0120	AGGREGATE BASE COURSE CL 5	Revised Quantity from 81,810 TON to 81,891 TON
401	0050	TACK COAT	Revised Quantity from 16,327 GAL to 16,336 GAL
401	0060	PRIME COAT	Revised Quantity from 18,971 GAL to 18,994 GAL
430	0042	SUPERPAVE FAA 42	Revised Quantity from 34,248 TON to 34,271 TON
430	5828	PG 58-28 ASPHALT CEMENT	Revised Quantity from 2,054 TON to 2,055 TON
704	0100	FLAGGING	Revised Quantity from 2,800 MHR to 3,600 MHR
704	1000	TRAFFIC CONTROL SIGNS	Revised Quantity from 4,555 UNIT to 4,789 UNIT
704	1185	PILOT CAR	Revised Quantity from 550 HR to 1800 HR
714	4099	PIPE CONDUIT 18IN-APPROACH	Revised Quantity from 530 LF to 607 LF
754	0805	OBJECT MARKERS - CULVERTS	Revised Quantity from 100 EA to 102 EA

Section 10
Sheet 2:
- Revised Paving Tables (Approaches 2 of 4) Station 7987+94

Sheet 3:
- Revised Paving Summary Table (2 of 2) due to approach change at Station 7987+94
- Revised Cumulative Paving Summary Table due to approach change at Station 7987+94

Sheet 4:
- Revised OBJECT MARKER – CULVERTS quantity from 100 EA to 102 EA

Section 20
Sheet 6:
- Revised ECB TYPE 3 quantity from 2176 SY to 2220 SY

Sheet 7:
- Revised Ditch Block at 7875+02 Top Elevation to 1457.20

Section 40
Sheet 11:
- Revised Approach at Station 7987+94
- Revised REMOVE AGGREGATE BASE & SURFACE quantity from 3365 SY to 3421 SY

Section 51
Sheet 6:
- Added pipe on 48th Street at Station 2506+48.

Section 60
Sheet 19:
- Revised Approach at Station 7987+94

Sheet 23:
- Added pipe on 48th Street at Station 2506+48.
- Added PIPE CONDIUT 18IN APPROACH 60 LF.

Section 70
Sheet 2:
- Added pipe on 48th Street at Station 2506+48.
- Revised grading and flow arrows on 48th Street NE.

Section 82
Sheet 16:
- Revised Approach at Station 7987+94

Section 100
Sheet 1:
- Updated quantities within the Traffic Control Devices List.
- Revised FLAGGING quantity from 2800 MHR to 3600 MHR.
- Revised TRAFFIC CONTROL SIGNS quantity from 4555 UNIT to 4789 UNIT.
- Revised PILOT CAR quantity from 550 HR to 1800 HR.

Section 200
Sheet 178:
- Revised cross sections for modified Ditch Block elevation.

Sheet 328-338:
- Revised cross sections for modified grading along the existing 48th Street NE roadway.

Supplemental Design Data:
- The Supplemental Design Data has been updated to reflect the revisions of Addendum 1.

Plan revisions for NHU-3-019(066)153:

REMOVE the following Plan Sheets and REPLACE with the enclosed sheets revised 3/21/2016.
- Section 2 Sheet 1
- Section 6 Sheet 2 & 3
- Section 8 Sheet 1
- Section 100 Sheet 1

Section 2
Sheet 1:
- Revised SP Number for Permits and Considerations

Section 6
Sheet 2:
- Added Plan Note 704-P05

Sheet 3:
- Addition of 704-P05 note moved notes to page 3

Section 8
Sheet 1:

SPEC	*CODE*	*ITEM DESCRIPTION*	*REVISION*
704	0100	FLAGGING	Revised Quantity from 1100 MHR to 1600 MHR
704	1000	TRAFFIC CONTROL SIGNS	Revised Quantity from 1835 UNIT to 2069 UNIT
704	1185	PILOT CAR	Revised Quantity from 220 HR to 800 HR

Section 100
Sheet 1:
- Updated quantities within the Traffic Control Devices List.
- Revised FLAGGING quantity from 1100 MHR to 1600 MHR.
- Revised TRAFFIC CONTROL SIGNS quantity from 1835 UNIT to 2069 UNIT.
- Revised PILOT CAR quantity from 220 HR to 800 HR.

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://wwww.dot.nd.gov) and load it into the Expedite program.

Sincerely,

Apex Engineering Group, Inc.

Jason P. Gullicks, PE
Project Manager

Enclosures: Revised Plan Sheets
Projects NHU-3-019(066)153, SS-3-019(065)139 & SS-3-019(067)135

CC: Amy Beise, NDDOT

BID ITEMS

Projects: NHU-3-019(066)153 (PCN-20707), SS-3-019(065)139 (PCN-20682), and SS-3-019(067)135 (PCN-21273)

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	201	0330	CLEARING & GRUBBING	L SUM	1.				
003	202	0120	REMOVE AGGREGATE BASE & SURFACING	L SUM	1.				
004	202	0132	REMOVAL OF BITUMINOUS SURFACING	SY	43,171.				
005	202	0169	REMOVAL OF END SECTION-ALL TYPES & SIZES	EA	21.				
006	202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES	LF	3,517.				
007	203	0101	COMMON EXCAVATION-TYPE A	CY	25,831.				
008	203	0108	TOPSOIL-BORROW AREA	CY	20,167.				
009	203	0109	TOPSOIL	CY	59,981.				
010	203	0121	TOPSOIL-WETLAND	CY	9,272.				
011	203	0140	BORROW-EXCAVATION	CY	170,570.				
012	216	0100	WATER	M GAL	5,194.				
013	251	0200	SEEDING CLASS II	ACRE	91.990				
014	251	1000	WETLAND SEED	ACRE	8.680				
015	251	2000	TEMPORARY COVER CROP	ACRE	91.990				
016	253	0101	STRAW MULCH	ACRE	183.980				

Projects: NHU-3-019(066)153 (PCN-20707), SS-3-019(065)139 (PCN-20682), and SS-3-019(067)135 (PCN-21273)

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		Amount	
						$$$$$	000	$$$$$	00
017	255	0103	ECB TYPE 3	SY	3,160.				
018	255	0201	TRM TYPE 1	SY	9,532.				
019	256	0100	RIPRAP GRADE I	CY	40.				
020	260	0200	SILT FENCE SUPPORTED	LF	57,071.				
021	260	0201	REMOVE SILT FENCE SUPPORTED	LF	57,071.				
022	261	0112	FIBER ROLLS 12IN	LF	87,269.				
023	261	0113	REMOVE FIBER ROLLS 12IN	LF	19,087.				
024	261	0120	FIBER ROLLS 20IN	LF	1,750.				
025	261	0121	REMOVE FIBER ROLLS 20IN	LF	925.				
026	262	0100	FLOTATION SILT CURTAIN	LF	1,017.				
027	262	0101	REMOVE FLOTATION SILT CURTAIN	LF	1,017.				
028	265	0100	STABILIZED CONSTRUCTION ACCESS	EA	1.				
029	265	0101	REMOVE STABILIZED CONSTRUCTION ACCESS	EA	1.				
030	302	0050	TRAFFIC SERVICE AGGREGATE	TON	1,000.				
031	302	0120	AGGREGATE BASE COURSE CL 5	TON	112,848.				
032	401	0050	TACK COAT	GAL	29,225.				

BID ITEMS

Projects: NHU-3-019(066)153 (PCN-20707), SS-3-019(065)139 (PCN-20682), and SS-3-019(067)135 (PCN-21273)

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
033	401	0060	PRIME COAT	GAL	26,758.				
034	411	0105	MILLING PAVEMENT SURFACE	SY	9,365.				
035	420	0160	BLOTTER MATERIAL CL 44	TON	691.				
036	430	0042	SUPERPAVE FAA 42	TON	54,543.				
037	430	1000	CORED SAMPLE	EA	192.				
038	430	5828	PG 58-28 ASPHALT CEMENT	TON	3,473.				
039	702	0100	MOBILIZATION	L SUM	1.				
040	704	0100	FLAGGING	MHR	5,410.				
041	704	1000	TRAFFIC CONTROL SIGNS	UNIT	7,438.				
042	704	1060	DELINEATOR DRUMS	EA	24.				
043	704	1067	TUBULAR MARKERS	EA	632.				
044	704	1080	STACKABLE VERTICAL PANELS	EA	1,206.				
045	704	1185	PILOT CAR	HR	2,670.				
046	706	0400	FIELD OFFICE	EA	.950				
047	706	0500	AGGREGATE LABORATORY	EA	.950				
048	706	0550	BITUMINOUS LABORATORY	EA	1.				

Projects: NHU-3-019(066)153 (PCN-20707), SS-3-019(065)139 (PCN-20682), and SS-3-019(067)135 (PCN-21273)

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		Amount	
						$$$$$	000	$$$$$	00
049	706	0600	CONTRACTOR'S LABORATORY	EA	1.				
050	708	0903	BEDDING STONE GRADATION III	TON	1,229.				
051	709	0155	GEOSYNTHETIC MATERIAL TYPE RR	SY	2,576.				
052	714	0615	PIPE CONC REINF 24IN CL III	LF	380.				
053	714	2130	PIPE CONC REINF ARCH 44IN X 27IN CL III	LF	48.				
054	714	2161	PIPE CONC REINF ARCH 58IN X 36IN CL III	LF	42.				
055	714	2524	CURED-IN-PLACE PIPE-24IN	LF	93.				
056	714	3023	END SECT-TRAVERSABLE REINF. CONC.24IN	EA	20.				
057	714	4099	PIPE CONDUIT 18IN-APPROACH	LF	679.				
058	714	4106	PIPE CONDUIT 24IN-APPROACH	LF	3,267.				
059	714	4122	PIPE CONDUIT 42IN-APPROACH	LF	144.				
060	714	5035	PIPE CORR STEEL .064IN 24IN	LF	9.				
061	714	6506	END SECT-TRAVERSABLE METAL 24IN	EA	2.				
062	714	9659	REMOVE & RELAY PIPE-ALL TYPES & SIZES	LF	256.				
063	714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES	EA	16.				
064	720	0110	RIGHT OF WAY MARKERS	EA	107.				

BID ITEMS

Projects: NHU-3-019(066)153 (PCN-20707), SS-3-019(065)139 (PCN-20682), and SS-3-019(067)135 (PCN-21273)

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
065	720	0125	ALIGNMENT MONUMENTS	EA	14.				
066	720	0130	IRON PIN R/W MONUMENTS	EA	60.				
067	720	0135	IRON PIN REFERENCE MONUMENTS	EA	47.				
068	722	6200	ADJUST MANHOLE	EA	2.				
069	754	0110	FLAT SHEET FOR SIGNS-TYPE XI REFL SHEETING	SF	136.				
070	754	0112	FLAT SHEET FOR SIGNS-TYPE IV REFL SHEETING	SF	170.				
071	754	0206	STEEL GALV POSTS-TELESCOPING PERFORATED TUBE	LF	1,213.				
072	754	0214	GALV STEEL POSTS-W-SHAPE POSTS(TWO OR MORE)	LF	102.				
073	754	0534	PANEL FOR SIGNS-TYPE IV REFLECTIVE SHEETING	SF	90.				
074	754	0563	REFERENCE MARKER-TYPE C	EA	8.				
075	754	0592	RESET SIGN PANEL	EA	29.				
076	754	0805	OBJECT MARKERS - CULVERTS	EA	142.				
077	760	0005	RUMBLE STRIPS - ASPHALT SHOULDER	MILE	20.992				
078	760	0007	RUMBLE STRIPS - ASPHALT CENTERLINE	MILE	10.490				
079	760	0009	RUMBLE STRIPS - INTERSECTION	EA	1.				
080	762	0103	PVMT MK PAINTED-MESSAGE	SF	336.				

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SPECIAL PROVISIONS

Number	Description
SP 0003(14)	Temporary Erosion and Sediment Best Management Practices
SP 272(14)	Cured In Place Pipe (CIPP)
SP 5098(14)	Permits and Environmental Considerations

NOTES

704-P05 TRAFFIC CONTROL: Use flagging and pilot car operations in areas where the shoulder drop off is 2” or greater during working hours. Construct a slough that is 4:1 or flatter during non-working hours. In lieu of constructing a 4:1 slough, flagging and pilot car operations can be used at Contractor’s expense during non-working hours. At no time shall adjacent shoulders have a drop off of 2” or greater.

706-P01 FIELD OFFICE: Provide a field office which meets the following requirements:

1. Be completely insulated and weather tight.
2. Have a minimum floor area of 230 square feet with a minimum exterior width of 8 feet and a minimum ceiling height of 7 feet.
3. Have a dependable source of electricity for power and lights with a minimum of 6 electrical outlets spaced throughout the building and 3 light fixtures spaced to uniformly light the entire interior. The cost of the installation and monthly fee for the electricity will be included in the cost of the field office.
4. Be wired for DSL Broadband internet with wireless Wi-Fi and have the capability to allow for hard wiring the computer. Include the cost of the installation and monthly fees.
5. A heating and cooling system that is capable of maintaining the temperature between 65°F and 78°F year around.
6. Have 3 desks and 3 desk chairs, 3 extra chairs, one drawer file cabinet with at least two drawers, one table minimum of 2.5 ft x 5 ft.
7. Have a photocopy machine capable of 11 x 17 photocopies and toner to last the duration of the project. The Engineer will be responsible to furnish the paper. A separate table or cabinet to support the copier.
8. Have a 15 cubic foot or larger refrigerator and a microwave.
9. The location of the field office shall be on, or as close to the project and Aggregate Laboratory as possible. Prior to installation of the Field Office, the location shall be approved by the Engineer. Any rental fees shall be paid by the Contractor.
10. Be available at the start of the project and remain available through project completion.

All requirements of the Field Office are subject to approval by the Engineer. Include all costs associated with field office in the contract unit price for “Field Office.”

706-P02 LABORATORY: Provide all laboratories wired for DSL Broadband internet with wireless Wi-Fi and have the capability to allow for hard wiring the computer.

Include the cost of the installation and monthly fees in the contract unit price of each laboratory.

708-P01 BEDDING STONE GRADATION III: Gradation shall conform to the following requirements:

Bedding Stone Gradation III		
	Minimum	Maximum
d_{100} (In)	2.8	5.5
d_{15} (In)	0.9	2.8

All other aspects of the “Bedding Stone Gradation III,” such as material requirements, construction requirements, method of measurement, and basis of payment shall be as described for Riprap in Section 256 of the NDDOT Standard Specifications.

This document was originally issued and sealed by Jason P. Gullicks, Registration Number PE-4792, on 03/21/16 and the original document is stored at the North Dakota Department of Transportation.

Revised 3/21/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SS-3-019(065)139	8	1

ESTIMATE OF QUANTITIES				
SPEC	CODE	ITEM DESCRIPTION	UNIT	QUANTITY
103	0100	CONTRACT BOND	L SUM	0.70
201	0330	CLEARING & GRUBBING	L SUM	0.73
202	0120	REMOVE AGGREGATE BASE & SURFACING	L SUM	1
202	0132	REMOVAL OF BITUMINOUS SURFACING	SY	31,916
202	0169	REMOVAL OF END SECTION-ALL TYPES & SIZES	EA	21
202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES	LF	2,426
203	0101	COMMON EXCAVATION-TYPE A	CY	23,082
203	0108	TOPSOIL-BORROW AREA	CY	14,722
203	0109	TOPSOIL	CY	46,653
203	0121	TOPSOIL-WETLAND	CY	7,122
203	0140	BORROW-EXCAVATION	CY	122,941
216	0100	WATER	M GAL	3,772
251	0200	SEEDING CLASS II	ACRE	71.15
251	1000	WETLAND SEED	ACRE	6.68
251	2000	TEMPORARY COVER CROP	ACRE	71.15
253	0101	STRAW MULCH	ACRE	142.30
255	0103	ECB TYPE 3	SY	2,220
260	0200	SILT FENCE SUPPORTED	LF	42,298
260	0201	REMOVE SILT FENCE SUPPORTED	LF	42,298
261	0112	FIBER ROLLS 12IN	LF	69,962
261	0113	REMOVE FIBER ROLLS 12IN	LF	16,621
261	0120	FIBER ROLLS 20IN	LF	1,650
261	0121	REMOVE FIBER ROLLS 20IN	LF	825
262	0100	FLOTATION SILT CURTAIN	LF	1,017
262	0101	REMOVE FLOTATION SILT CURTAIN	LF	1,017
265	0100	STABILIZED CONSTRUCTION ACCESS	EA	0.73
265	0101	REMOVE STABILIZED CONSTRUCTION ACCESS	EA	0.73
302	0050	TRAFFIC SERVICE AGGREGATE	TON	500
302	0120	AGGREGATE BASE COURSE CL 5	TON	81,891
401	0050	TACK COAT	GAL	16,336
401	0060	PRIME COAT	GAL	18,994
411	0105	MILLING PAVEMENT SURFACE	SY	7,801
420	0160	BLOTTER MATERIAL CL 44	TON	498
430	0042	SUPERPAVE FAA 42	TON	34,271
430	1000	CORED SAMPLE	EA	128
430	5828	PG 58-28 ASPHALT CEMENT	TON	2,055
702	0100	MOBILIZATION	L SUM	0.70
704	0100	FLAGGING	MHR	3,600
704	1000	TRAFFIC CONTROL SIGNS	UNIT	4,789
704	1060	DELINEATOR DRUMS	EA	12

ESTIMATE OF QUANTITIES				
SPEC	CODE	ITEM DESCRIPTION	UNIT	QUANTITY
704	1067	TUBULAR MARKERS	EA	400
704	1080	STACKABLE VERTICAL PANELS	EA	942
704	1185	PILOT CAR	HR	1800
706	0400	FIELD OFFICE	EA	0.70
706	0500	AGGREGATE LABORATORY	EA	0.70
706	0550	BITUMINOUS LABORATORY	EA	0.70
706	0600	CONTRACTOR'S LABORATORY	EA	0.70
708	0903	BEDDING STONE GRADATION III	TON	1,229
709	0155	GEOSYNTHETIC MATERIAL TYPE RR	SY	2,497
714	0615	PIPE CONC REINF 24IN CL III	LF	380
714	2524	CURED-IN-PLACE PIPE-24IN	LF	93
714	3023	END SECT-TRAVERSABLE REINF. CONC.24IN	EA	20
714	4099	PIPE CONDUIT 18IN-APPROACH	LF	607
714	4106	PIPE CONDUIT 24IN-APPROACH	LF	2,142
714	5035	PIPE CORR STEEL .064IN 24IN	LF	9
714	6506	END SECT-TRAVERSABLE METAL 24IN	EA	2
714	9659	REMOVE & RELAY PIPE-ALL TYPES & SIZES	LF	240
714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES	EA	10
720	0110	RIGHT OF WAY MARKERS	EA	79
720	0125	ALIGNMENT MONUMENTS	EA	9
720	0130	IRON PIN R/W MONUMENTS	EA	42
720	0135	IRON PIN REFERENCE MONUMENTS	EA	37
754	0110	FLAT SHEET FOR SIGNS-TYPE XI REFL SHEETING	SF	51
754	0112	FLAT SHEET FOR SIGNS-TYPE IV REFL SHEETING	SF	62
754	0206	STEEL GALV POSTS-TELESCOPING PERFORATED TUBE	LF	543
754	0214	GALV STEEL POSTS-W-SHAPE POSTS(TWO OR MORE)	LF	102
754	0534	PANEL FOR SIGNS-TYPE IV REFLECTIVE SHEETING	SF	90
754	0563	REFERENCE MARKER-TYPE C	EA	6
754	0592	RESET SIGN PANEL	EA	18
754	0805	OBJECT MARKERS - CULVERTS	EA	102
760	0005	RUMBLE STRIPS - ASPHALT SHOULDER	MILE	14.025
760	0007	RUMBLE STRIPS - ASPHALT CENTERLINE	MILE	7.012
762	0103	PVMT MK PAINTED-MESSAGE	SF	144
762	0430	SHORT TERM 4IN LINE-TYPE NR	LF	40,586
762	0434	SHORT TERM 8IN LINE-TYPE NR	LF	3,668
762	1104	PVMT MK PAINTED 4IN LINE	LF	204,977
762	1108	PVMT MK PAINTED 8IN LINE	LF	1,834
766	0100	MAILBOX-ALL TYPES	EA	14
930	3639	POLYURETHANE FOAM - 90 LBS	GAL	37
990	0400	PIPE CLEANOUT	EA	16

ND Hwy 19

Estimate of Quantities

Revised 3/21/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SS-3-019(065)139	10	2

Paving Tables: Approaches (1 of 4)

Approaches													
Material	Unit	(1)		(2)					(3)		(4)		
		Topsoil Field Drive Approach		Gravel Field Drive Approach					Topsoil Field Drive Approach-48th St NE		Gravel Private Drive		
		Sta 7390+95 Sta 7416+30 Sta 7423+38 Sta 7682+07 Sta 7700+60 Sta 7706+85 Sta 7737+46 Sta 7753+80 Sta 7882+90 Sta 7971+49	Sta 7439+85 Sta 7715+65 Sta 7746+60 Sta 7753+40 Sta 7883+65 Sta 7984+52	Sta 7370+70 Sta 7439+85 Sta 8008+75	Sta 7942+63 Sta 8031+05	Sta 7384+85	Sta 7700+60	Sta 8002+96	2503+77	2503+77	Sta 7394+81	Sta 7918+61	Sta 7930+22
		Lt	Rt	Lt	Rt	Lt	Rt	Rt	Lt	Rt	Rt	Rt	Rt
302 0120 AGGREGATE BASE COURSE CL 5 @ 1.875 Ton/CY	Ton	59	59	112	112	79	101	108	10	11	184	174	183
401 0050 TACK COAT @ 0.05 Gal/SY	Gal	3	3	3	3	3	3	3	0	0	13	13	13
430 0042 SUPERPAVE FAA 42 @ 2 Ton/CY (PG 58-28 Oil)	Ton	8	8	8	8	8	8	8	0	0	33	33	33
401 0060 PRIME @ 0.25 Gal/SY	Gal	8	8	8	8	8	8	8	0	0	33	33	33
430 5828 PG 58-28 ASPHALT CEMENT @ 6.0%	Ton	1	1	1	1	1	1	1	0	0	2	2	2

Paving Tables: Approaches (2 of 4)

Approaches											
Material	Unit	(5)									
		Paved Private Drive									
		Sta 7723+75	Sta 7744+12	Sta 7767+02	Sta 7919+70	Sta 7923+53	Sta 7933+94 Sta 7943+97	Sta 7979+58	Sta 7984+52	Sta 7987+94	Sta 8028+69
		Lt	Rt	Rt	Lt	Rt	Lt	Lt	Lt	Lt	Lt
302 0120 AGGREGATE BASE COURSE CL 5 @ 1.875 Ton/CY	Ton	277	245	240	243	265	254	254	223	263	404
401 0050 TACK COAT @ 0.05 Gal/SY	Gal	28	24	23	24	26	25	25	22	26	41
430 0042 SUPERPAVE FAA 42 @ 2 Ton/CY (PG 58-28 Oil)	Ton	70	60	58	61	66	62	63	55	64	103
401 0060 PRIME @ 0.25 Gal/SY	Gal	70	60	58	61	66	62	63	55	64	103
430 5828 PG 58-28 ASPHALT CEMENT @ 6.0%	Ton	4	4	3	4	4	4	4	3	4	6

Paving Tables: Approaches (3 of 4)

Approaches													
Material	Unit	(6)											
		Gravel Low Volume Public Road											
		Sta 7384+85	Sta 7404+39	Sta 7405+37	Sta 7423+38	Sta 7674+91	Sta 7780+15	Sta 7885+39	Sta 7910+43	Sta 7923+53	Sta 7963+35	Sta 7963+35	Sta 8016+23
		Rt	Rt	Lt	Rt	Lt	Rt	Rt	Lt	Lt	Lt	Rt	Lt
302 0120 AGGREGATE BASE COURSE CL 5 @ 1.875 Ton/CY	Ton	249	237	210	227	218	235	189	249	238	299	261	222
401 0050 TACK COAT @ 0.05 Gal/SY	Gal	19	19	19	19	19	19	19	19	19	19	22	19
430 0042 SUPERPAVE FAA 42 @ 2 Ton/CY (PG 58-28 Oil)	Ton	49	49	49	49	49	49	48	49	49	49	55	49
401 0060 PRIME @ 0.25 Gal/SY	Gal	49	49	49	49	49	49	48	49	49	49	55	49
430 5828 PG 58-28 ASPHALT CEMENT @ 6.0%	Ton	3	3	3	3	3	3	3	3	3	3	3	3

Paving Tables: Approaches (4 of 4)

Approaches							
Material	Unit	(7)					(8)
		Paved Low Volume Public Road					Paved Flared Intersection (D-203-06)
		Sta 7727+21	Sta 7727+21	Sta 7780+15	Sta 7910+43	Sta 8016+23	Sta 7674+91
		Lt	Rt	Lt	Rt	Rt	Rt
302 0120 AGGREGATE BASE COURSE CL 5 @ 1.875 Ton/CY	Ton	294	338	300	307	335	1,538
401 0050 TACK COAT @ 0.05 Gal/SY	Gal	30	34	30	31	36	162
430 0042 SUPERPAVE FAA 42 @ 2 Ton/CY (PG 58-28 Oil)	Ton	74	85	76	78	89	405
401 0060 PRIME @ 0.25 Gal/SY	Gal	74	85	76	78	89	405
430 5828 PG 58-28 ASPHALT CEMENT @ 6.0%	Ton	4	5	5	5	5	24

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ND Hwy 19

Basis of Estimate

Mainline & Shoulders Paving Summary Table

Summary Table (1 of 2): Subtotals from Mainline Paving Tables 1-3		
Material	**Unit**	**Total**
302 0120 AGGREGATE BASE COURSE CL 5 @ 1.875 Ton/CY	Ton	70,597
401 0050 TACK COAT @ 0.05 Gal/SY	Gal	17,734
430 0042 SUPERPAVE FAA 42 @ 2 Ton/CY (PG 58-28 Oil)	Ton	31,833
430 5828 PG 58-28 ASPHALT CEMENT @ 6.0%	Ton	1,909
401 0060 PRIME @ 0.25 Gal/SY	Gal	16,556
420 0160 BLOTTER MATERIAL CL 44 @ 15 lbs/SY	Ton	498

Approach Paving Summary Table

Summary Table (2 of 2): Subtotals from Approach Paving Tables 1-4		
Material	**Unit**	**Total**
302 0120 AGGREGATE BASE COURSE CL 5 @ 1.875 Ton/CY	Ton	11,294
401 0050 TACK COAT @ 0.05 Gal/SY	Gal	963
430 0042 SUPERPAVE FAA 42 @ 2 Ton/CY (PG 58-28 Oil)	Ton	2,438
430 5828 PG 58-28 ASPHALT CEMENT @ 6.0%	Ton	146
401 0060 PRIME @ 0.25 Gal/SY	Gal	2,438
420 0160 BLOTTER MATERIAL CL 44 @ 15 lbs/SY	Ton	-

Cumulative Paving Summary Table

Cumulative Paving Summary Table: Summation of Summary Tables 1-2		
Material	**Unit**	**Total**
302 0120 AGGREGATE BASE COURSE CL 5 @ 1.875 Ton/CY	Ton	81,891
401 0050 TACK COAT @ 0.05 Gal/SY	Gal	16,336
430 0042 SUPERPAVE FAA 42 @ 2 Ton/CY (PG 58-28 Oil)	Ton	34,271
430 5828 PG 58-28 ASPHALT CEMENT @ 6.0%	Ton	2,055
401 0060 PRIME @ 0.25 Gal/SY	Gal	18,994
420 0160 BLOTTER MATERIAL CL 44 @ 15 lbs/SY	Ton	498

Water

216 0100 WATER			
Material	**Basis**	**Basis Quantity**	**Quantity (MGAL)**
Dust Palliative	25 MGal/Mile	7.050 Mile	176
Dust Palliative Haul Road	-	-	500
Embankment	10 Gal/CY	146,018 CY	1,460
Aggregates	20 Gal/Ton	81,810 Ton	1,636
		Total:	**3,772 MGal**

Coring

430 1000 CORED SAMPLE								
Specification Section	**Location**	**Begin Station**	**End Station**	**A**	**B**	**C**	**D**	
				Distance (Ft)÷2000	**Lanes**	**Lifts**	**Sublots**	**Quantity (EA)**
							(A × B × C)	**(D × 2)**
430.04 I.2.b(1), "General"	Segment 1	7363+26	7442+75	4	2	1	8	16
	Segment 2	7667+25	7790+00	6	2	2	24	48
	Segment 3	7868+00	8036+00	8	2	2	32	64
							Total:	**128 EA**

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ND Hwy 19

Basis of Estimate

Revised 3/21/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SS-3-019(065)139	10	4

Reference Markers

754 0563 REFERENCE MARKER-TYPE C			
Segment	Station	Reference Marker	Quantity (EA)
1	7393+06	140	1
2	7708+89	146	1
	7756+69	147	1
3	7179+76	150	1
	7972+12	151	1
	8024+91	152	1
		Total:	6 EA

Rumble Strips-Shoulder

760 0005 RUMBLE STRIPS - ASPHALT SHOULDER				
Segment	Begin Station	End Station	Basis	Quantity (Mile)
1	7363+26	7442+75	10,560 LF/Mile	3.011
2	7667+25	7790+00	10,560 LF/Mile	4.65
3	7868+00	8036+00	10,560 LF/Mile	6.364
			Total:	14.025 Mile

Rumble Strips-Centerline

760 0007 RUMBLE STRIPS - ASPHALT CENTERLINE				
Segment	Begin Station	End Station	Basis	Quantity (Mile)
1	7363+26	7442+75	5,280 LF/Mile	1.505
2	7667+25	7790+00	5,280 LF/Mile	2.325
3	7868+00	8036+00	5,280 LF/Mile	3.182
			Total:	7.012 Mile

Object Markers - Culverts

754 0805 OBJECT MARKERS - CULVERTS			
Segment	Station	Offset	Quantity (EA)
1	7370+70	Lt	2
	7384+85	Lt	2
	7384+85	Rt	2
	7394+81	Rt	2
	7403+06	CL	2
	7404+39	Rt	2
	7411+85	CL	2
	7416+30	Lt	2
	7431+84	CL	2
	7439+85	Rt	2
2	7674+03	CL	2
	7675+57	CL	2
	7700+60	Lt	2
	7700+60	Rt	2
	7702+01	CL	2
	7706+85	Lt	2
	7715+65	Rt	2
	7719+00	CL	2
	7723+75	Lt	2
	7727+21	Lt	2
	7744+12	Rt	2
	7746+60	Rt	2
	7751+39	CL	2
	7753+40	Rt	2
	7760+03	CL	2
	7767+02	Rt	2
3	7875+31	CL	2
	7882+90	Lt	2
	7883+85	Rt	2
	7895+70	CL	2
	7910+43	Lt	2
	7910+43	Rt	2
	7918+61	Rt	2
	7919+70	Lt	2
	7925+87	CL	2
	7930+22	Rt	2
	7933+94	Lt	2
	7940+75	CL	2
	7942+63	Rt	2
	7943+97	Lt	2
	7963+35	Rt	2
	7979+58	Lt	2
	7984+52	Rt	2
	7984+52	Lt	2
	7987+94	Lt	2
	7989+19	CL	2
	8002+96	Rt	2
	8008+09	CL	2
	8021+47	CL	2
	8028+69	Lt	2
	2506+48 *	CL	2
		Total:	102 EA

Note: Refer to Standard Drawing D-754-83
* 48th Street

Mailboxes

766 0100 MAILBOX-ALL TYPES					
Segment	Station	Offset	Type	Mailboxes	Quantity (EA)
1	7385+13	23' Rt	Multiple	3	1
	7394+55	44' Rt	Single	1	1
	7404+68	28' Rt	Multiple	3	1
	7423+65	34' Rt	Single	1	1
2	7727+58	23' Rt	Multiple	3	1
	7743+91	25' Rt	Single	1	1
	7766+67	23' Rt	Single	1	1
3	7919+91	38' Lt	Double	2	1
	7923+77	25' Rt	Single	1	1
	7933+86	100' Lt	Multiple	3	1
	7942+86	23' Rt	Single	1	1
	7979+48	70' Lt	Single	1	1
	7984+44	87' Lt	Single	1	1
	7987+73	93' Lt	Single	1	1
				Total:	14 EA

Note: Refer to Standard Drawing D-766-01

Pipe Cleanout

990 0400 PIPE CLEANOUT			
Segment	Station	Location	Quantity (EA)
1	7403+06	CL	1
	7411+85	CL	1
	7431+84	CL	1
2	7674+03	CL	1
	7675+57	CL	1
	7702+01	CL	1
	7719+00	CL	1
	7751+39	CL	1
	7760+03	CL	1
3	7875+31	CL	1
	7895+70	CL	1
	7925+87	CL	1
	7940+75	CL	1
	7989+19	CL	1
	8008+09	CL	1
	8021+47	CL	1
		Total:	16 EA

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ND Hwy 19

Basis of Estimate

Revised 3/21/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SS-3-019(065)139	20	6

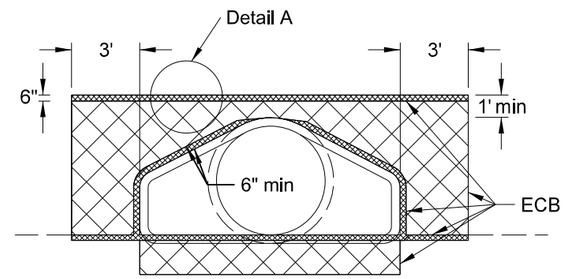
255 0103 ECB TYPE 3

Summary of Quantities 2,220 SY

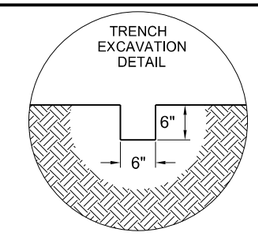
255 0103 ECB TYPE 3								
Location of Surface Area to be Protected				Pipe Diameter	x	y	Unit Quantity	Total Quantity
Station		Offset	No	In	ft	ft	SY	SY
Segment 1								
7370+70	LT	AHD & BK	2	24	10.5	21.6	24	48
7384+85	LT	AHD & BK	2	18	9.5	20.7	22	44
7384+85	RT	AHD & BK	2	24	10.5	21.6	24	48
7394+81	RT	AHD & BK	2	18	9.5	20.7	22	44
7403+06	CL	LT & RT	2	24	10.5	17.6	20	40
7404+39	RT	AHD & BK	2	24	10.5	21.6	24	48
7411+85	CL	LT	1	24	10.5	17.6	20	20
7411+85	CL	RT	1	24*	8.5	20.0	18	18
7416+30	LT	AHD & BK	2	24	10.5	21.6	24	48
7431+84	CL	LT & RT	2	24	10.5	17.6	20	40
7439+85	RT	AHD & BK	2	24	10.5	21.6	24	48
Segment 2								
7674+03	CL	LT	1	24*	8.5	20.0	18	18
7674+03	CL	RT	1	24	10.5	17.6	20	20
7675+57	CL	LT	1	24*	8.5	20.0	18	18
7675+57	CL	RT	1	24	10.5	17.6	20	20
7700+60	LT	AHD & BK	2	24	10.5	21.6	24	48
7700+60	RT	AHD & BK	2	18	9.5	20.7	22	44
7702+01	CL	LT & RT	2	24*	8.5	20.0	18	36
7706+85	LT	AHD & BK	2	18	9.5	20.7	22	44
7715+65	RT	AHD & BK	2	24	10.5	21.6	24	48
7719+00	CL	LT	1	24*	8.5	20.0	18	18
7719+00	CL	RT	1	24	10.5	17.6	20	20
7723+75	LT	AHD & BK	2	24	10.5	21.6	24	48
7727+21	LT	AHD & BK	2	24	10.5	21.6	24	48
7744+12	RT	AHD & BK	2	24	10.5	21.6	24	48
7746+60	RT	AHD & BK	2	24	10.5	21.6	24	48
7751+39	CL	LT & RT	2	24*	8.5	20.0	18	36
7753+40	RT	AHD & BK	2	24	10.5	21.6	24	48
7760+03	CL	LT & RT	2	24*	8.5	20.0	18	36
7767+02	RT	AHD & BK	2	18	9.5	20.7	22	44
Segment 3								
7875+31	CL	LT & RT	2	24*	8.5	20.0	18	36
7882+90	LT	AHD & BK	2	24	10.5	21.6	20	40
7883+64	RT	AHD & BK	2	24	10.5	21.6	20	40
7895+70	CL	LT & RT	2	24*	8.5	20.0	18	36
7910+43	LT	AHD & BK	2	24	10.5	21.6	24	48
7910+43	RT	AHD & BK	2	24	10.5	21.6	24	48
7918+61	RT	AHD & BK	2	24	10.5	21.6	24	48
7919+70	LT	AHD & BK	2	18	9.5	20.7	22	44
7925+87	CL	LT	1	24	10.5	17.6	20	20
7925+87	CL	RT	1	24*	8.5	20.0	18	18
7930+22	RT	AHD & BK	2	24	10.5	21.6	24	48
7933+94	LT	AHD & BK	2	18	9.5	20.7	22	44
7940+75	CL	LT & RT	2	24*	8.5	20.0	18	36
7942+63	RT	AHD & BK	2	24	10.5	21.6	24	48
7943+97	LT	AHD & BK	2	18	9.5	20.7	22	44
7963+35	RT	AHD & BK	2	24	10.5	21.6	24	48
7979+58	LT	AHD & BK	2	24	10.5	21.6	24	48
7984+52	LT	AHD & BK	2	24	10.5	21.6	24	48
7984+52	RT	AHD & BK	2	18	9.5	20.7	22	44
7987+94	LT	AHD & BK	2	24	10.5	21.6	24	48
7989+19	CL	LT & RT	2	24*	8.5	20.0	18	36
8002+96	RT	AHD & BK	2	24	10.5	21.6	24	48
8008+09	CL	LT & RT	2	24*	8.5	20.0	18	36
8021+47	CL	LT	1	24	10.5	17.6	20	20
8021+47	CL	RT	1	24*	8.5	20.0	18	18
8028+69	LT	AHD & BK	2	24	10.5	21.6	24	48
2506+48 **	CL	LT & RT	2	18	9.5	20.7	22	44
							Total:	**2,220**

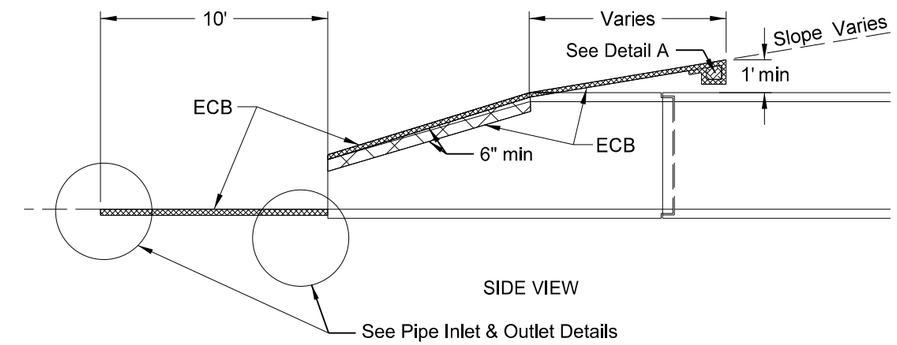
*Traversable End Section

** 48th Street

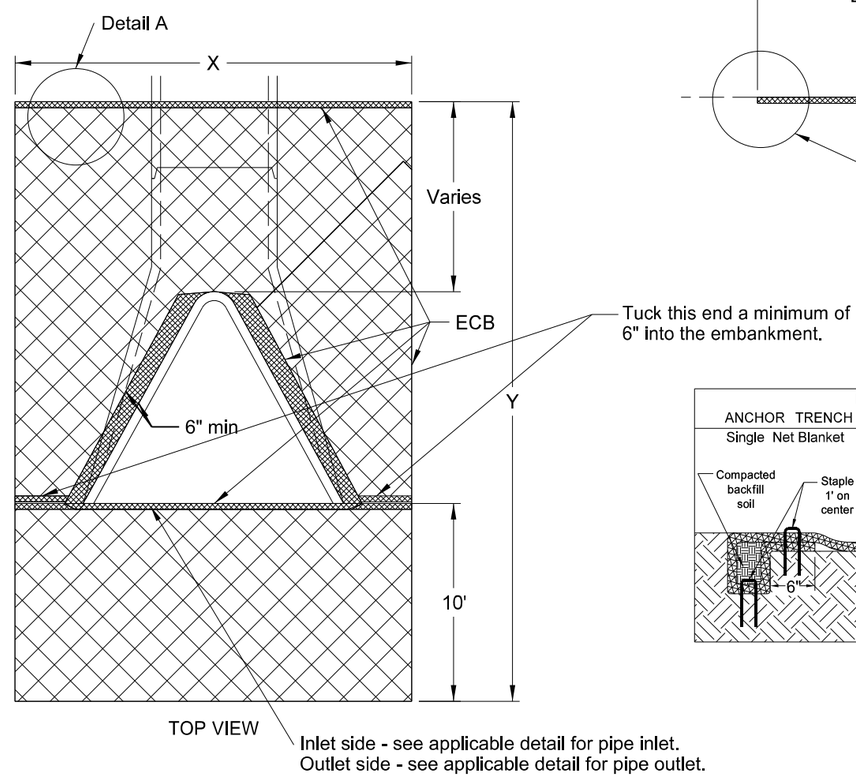


FRONT VIEW



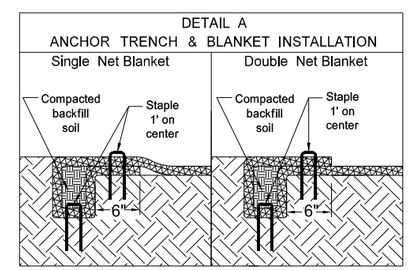


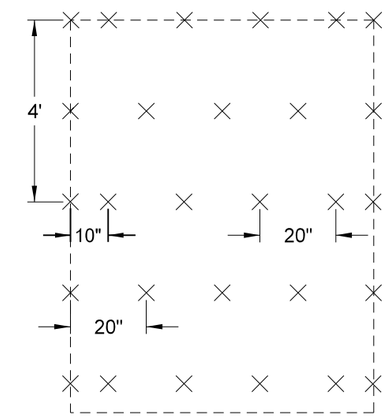
SIDE VIEW



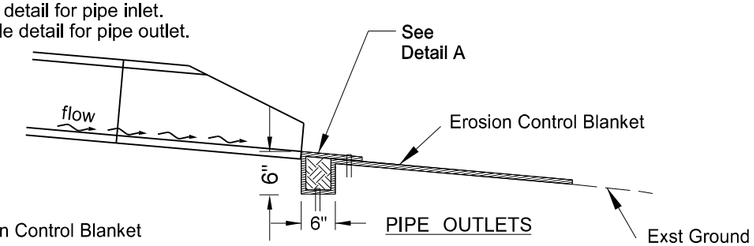
TOP VIEW

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

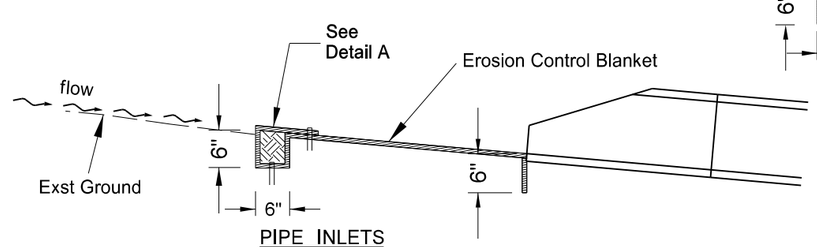




STAPLE PATTERN



PIPE OUTLETS



PIPE INLETS

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ND Hwy 19

General Details

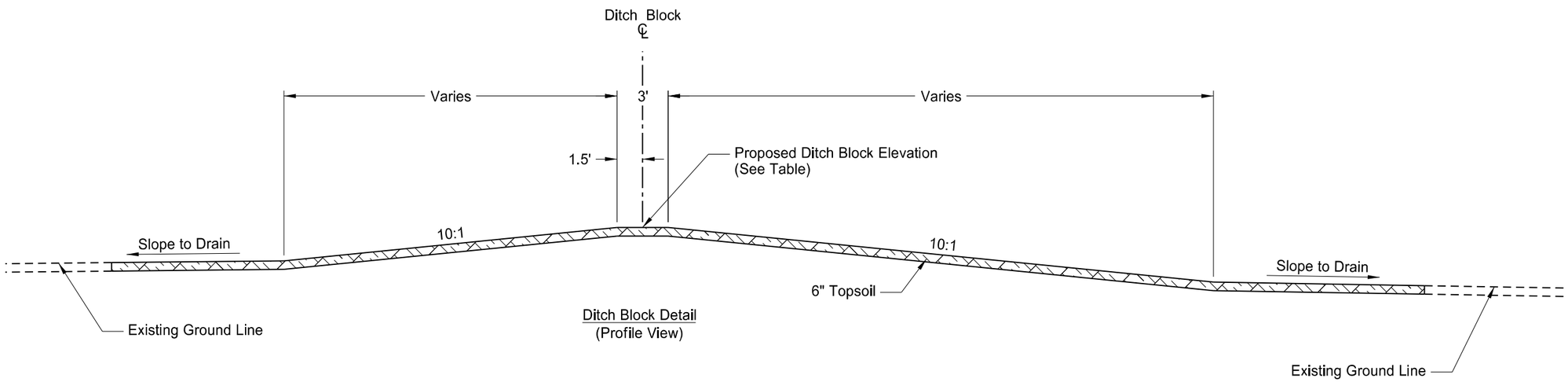
Erosion Control at Culvert Flared End Sections

Revised 03/21/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SS-3-019(065)139	20	7

Notes:

1. All costs of the labor, equipment, and materials to construct the ditch blocks shall be included in the price bid for "Common Excavation - Type A".

2. Refer to Sections 60 and 200 for additional details.



Ditch Block Detail
(Profile View)

Segment	Location		Top Elevation	Work To Be Performed
	Station	Offset		
2	7673+74	Lt	1460.50	Reconstruct
2	7751+64	Rt	1460.60	Reconstruct
3	7875+02	Lt	1457.20	Reconstruct
3	7895+42	Rt	1464.40	Reconstruct

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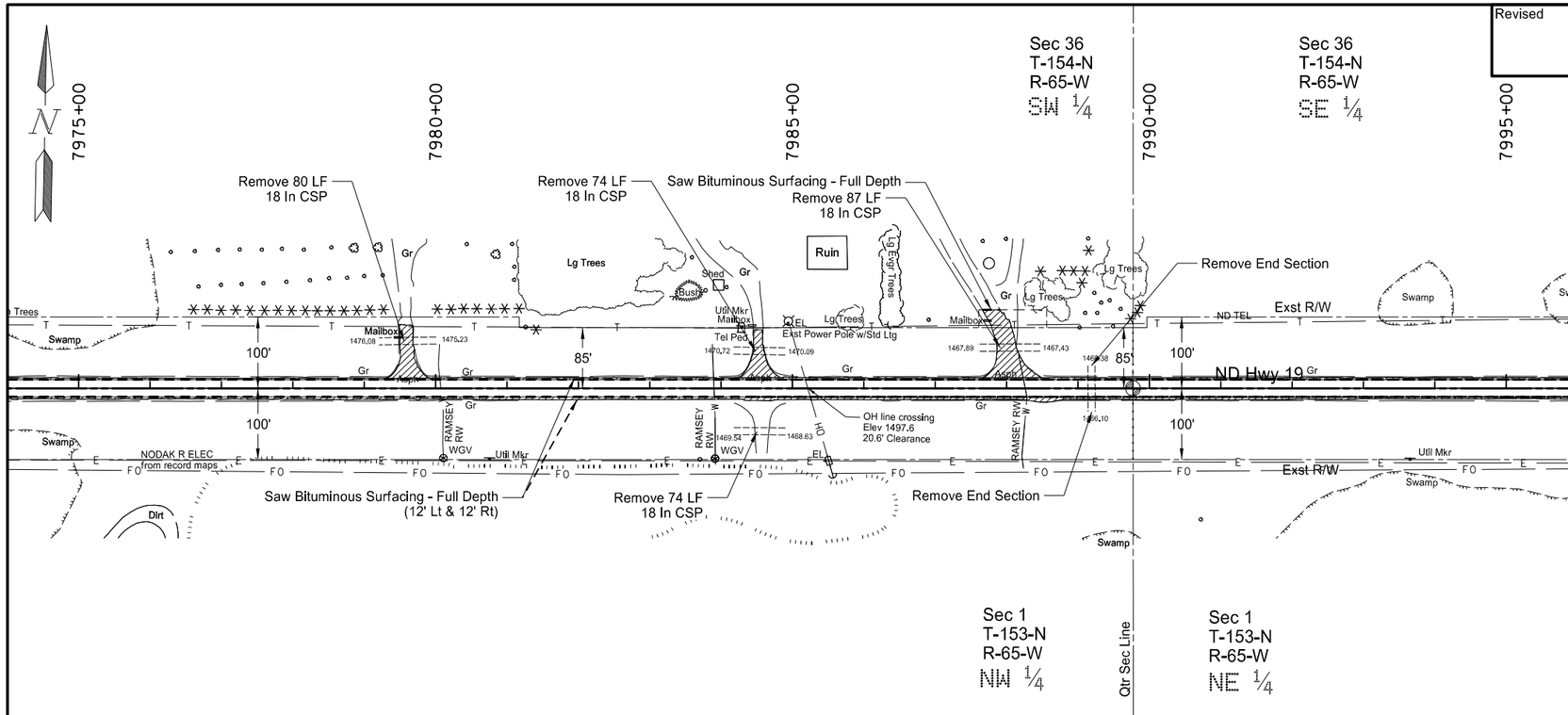
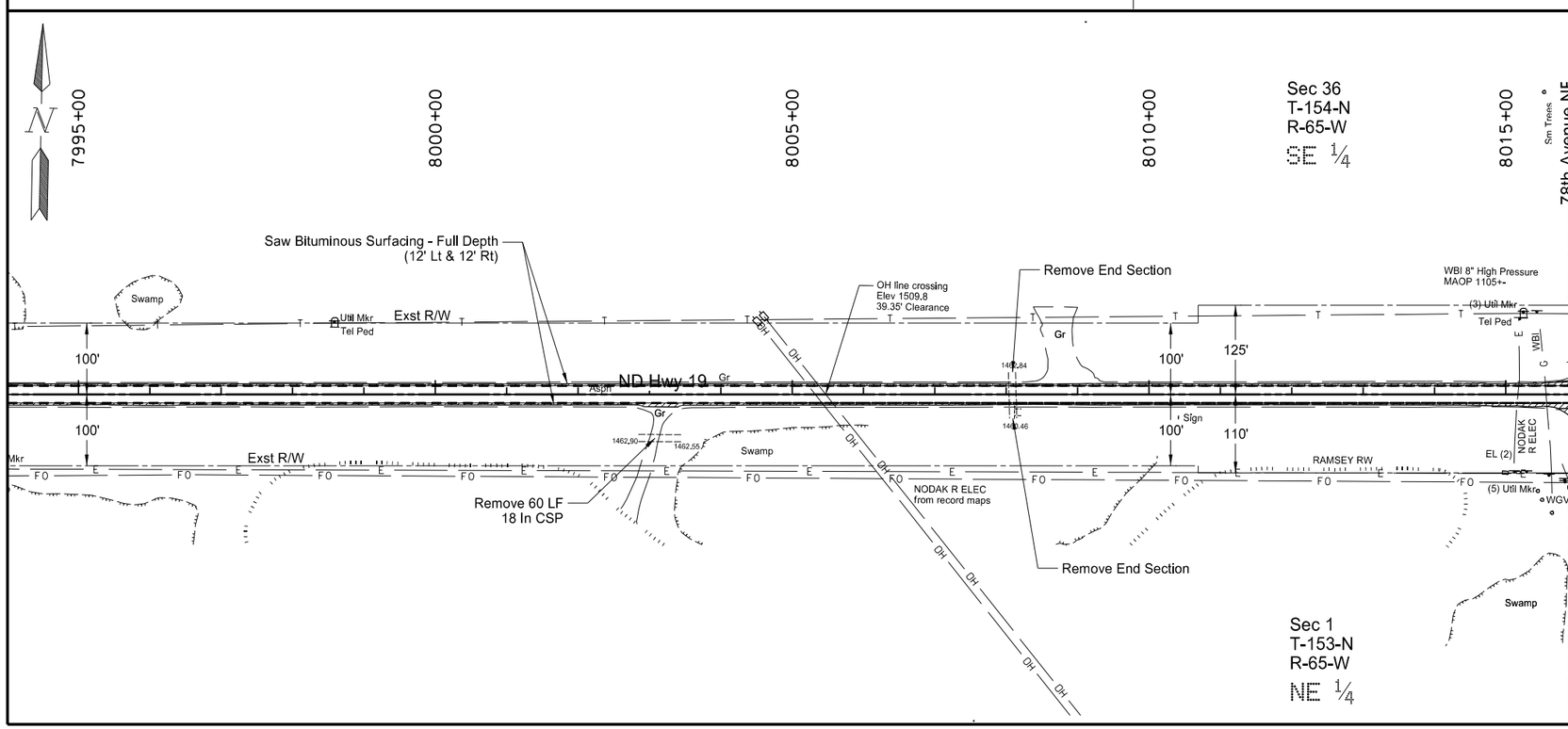
ND Hwy 19

General Details

Ditch Block Details

Revised 3/21/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SS-3-019(065)139	40	11





202 0132 REMOVAL OF BITUMINOUS SURFACING

Sta 7975+00 - 12' Lt to Sta 8015+00 - 12' Lt	1198 SY
Sta 7975+00 - 12' Rt to Sta 8015+00 - 12' Rt	1484 SY
Sta 7979+58 Lt	202 SY
Sta 7984+58 Lt	166 SY
Sta 7987+94 Lt	371 SY
Total	3421 SY

202 0169 REMOVAL OF END SECTION-ALL TYPES & SIZES

Sta 7989+19 Lt	1 EA
Sta 7989+19 Rt	1 EA
Sta 8008+09 Lt	1 EA
Sta 8008+09 Rt	1 EA
Total	4 EA

202 0174 REMOVAL OF PIPE ALL TYPES AND SIZES

Sta 7979+61 - 66' Lt	80 LF
Sta 7984+53 - 52' Lt	74 LF
Sta 7984+55 - 61' Rt	74 LF
Sta 7988+03 - 57' Lt	87 LF
Sta 8003+15 - 61' Rt	60 LF
Total	375 LF

Legend

- Saw Bituminous Surfacing-Full Depth
- Removal of Bituminous Surfacing
- Milling Pavement Surface

Notes:

1. Stationing is based on Alignment "PR19_SEG3" unless otherwise noted.

This document was originally issued and sealed by Derek Anderson, Registration Number PE- 7107, on 03/21/16 and the original document is stored at the North Dakota Department of Transportation

ND Hwy 19 - Segment 3

Removals

Sta 7975+00 to 8015+00
(Mile 151)

Revised 03/21/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SS-3-019(065)139	51	6

Begin Station / Location	Begin Offset	End Station / Location	End Offset	Pipe Installation (Pay Item)			Allowable Material	Required Diameter	Steel Pipe Coatings	Steel Pipe Corrugations or Spiral Ribs	Steel Pipe Minimum Thickness	(*) End Sections		Applicable Backfill Detail
												Begin	End	
				In	Bid Item	LF		In	Type		In	EA	EA	
7987+52	56 Lt	7988+42	56 Lt	24	Pipe Conduit - Approach	90	Reinforced Concrete Pipe - Class III **(Barrel Length = 86 LF)**	24				FES	FES	
							Corrugated Steel Pipe	24	Z, A, P	2	0.064			
							Spiral Rib Pipe	24	Z, A, P	3/4, 1	0.064			
							High Density Polyethylene (HDPE) Pipe	24						
7989+19	44 Lt	7989+19	32 Lt	24	Pipe Conc. Reinf.CL III (Extension)	12	Reinforced Concrete Pipe - Class III **(Barrel Length = 12 LF)**	24				TES		Section 20
7989+19	25 Rt	7989+19	33 Rt	24	Remove & Relay Pipe	8								Section 20
7989+19	33 Rt	7989+19	45 Rt	24	Pipe Conc. Reinf.CL III (Extension)	12	Reinforced Concrete Pipe - Class III **(Barrel Length = 12 LF)**	24					TES	Section 20
8002+55	60 Rt	8003+39	60 Rt	24	Pipe Conduit - Approach	84	Reinforced Concrete Pipe - Class III **(Barrel Length = 80 LF)**	24				FES	FES	
							Corrugated Steel Pipe	24	Z, A, P	2	0.064			
							Spiral Rib Pipe	24	Z, A, P	3/4, 1	0.064			
							High Density Polyethylene (HDPE) Pipe	24						
8008+09	31 Lt	8008+09	23 Lt	24	Remove & Relay Pipe	8								Section 20
8008+09	37 Lt	8008+09	31 Lt	24	Pipe Conc. Reinf.CL III (Extension)	6	Reinforced Concrete Pipe - Class III **(Barrel Length = 6 LF)**	24				TES		Section 20
8008+09	26 Rt	8008+09	34 Rt	24	Remove & Relay Pipe	8								Section 20
8008+09	34 Rt	8008+09	48 Rt	24	Pipe Conc. Reinf.CL III (Extension)	14	Reinforced Concrete Pipe - Class III **(Barrel Length = 14 LF)**	24					TES	Section 20
8021+47	41 Lt	8021+47	33 Lt	24	Remove & Relay Pipe	8								Section 20
8021+47	73 Lt	8021+47	41 Lt	24	Pipe Conc. Reinf.CL III (Extension)	32	Reinforced Concrete Pipe - Class III **(Barrel Length = 32 LF)**	24				FES		Section 20
8021+47	35 Rt	8021+47	47 Rt	24	Pipe Conc. Reinf.CL III (Extension)	12	Reinforced Concrete Pipe - Class III **(Barrel Length = 12 LF)**	24					TES	Section 20
8028+11	56 Lt	8029+23	56 Lt	24	Pipe Conduit - Approach	112	Reinforced Concrete Pipe - Class III **(Barrel Length = 108 LF)**	24				FES	FES	
							Corrugated Steel Pipe	24	Z, A, P	2	0.064			
							Spiral Rib Pipe	24	Z, A, P	3/4, 1	0.064			
							High Density Polyethylene (HDPE) Pipe	24						
48th Street NE														
2506+48	34 Lt	2506+48	26 Rt	18	Pipe Conduit - Approach	60	Reinforced Concrete Pipe - Class III **(Barrel Length = 54 LF)**	18				FES	FES	
							Corrugated Steel Pipe	18	Z, A, P	2	0.064			
							Spiral Rib Pipe	18	Z, A, P	3/4, 1	0.064			
							High Density Polyethylene (HDPE) Pipe	18						

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

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

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

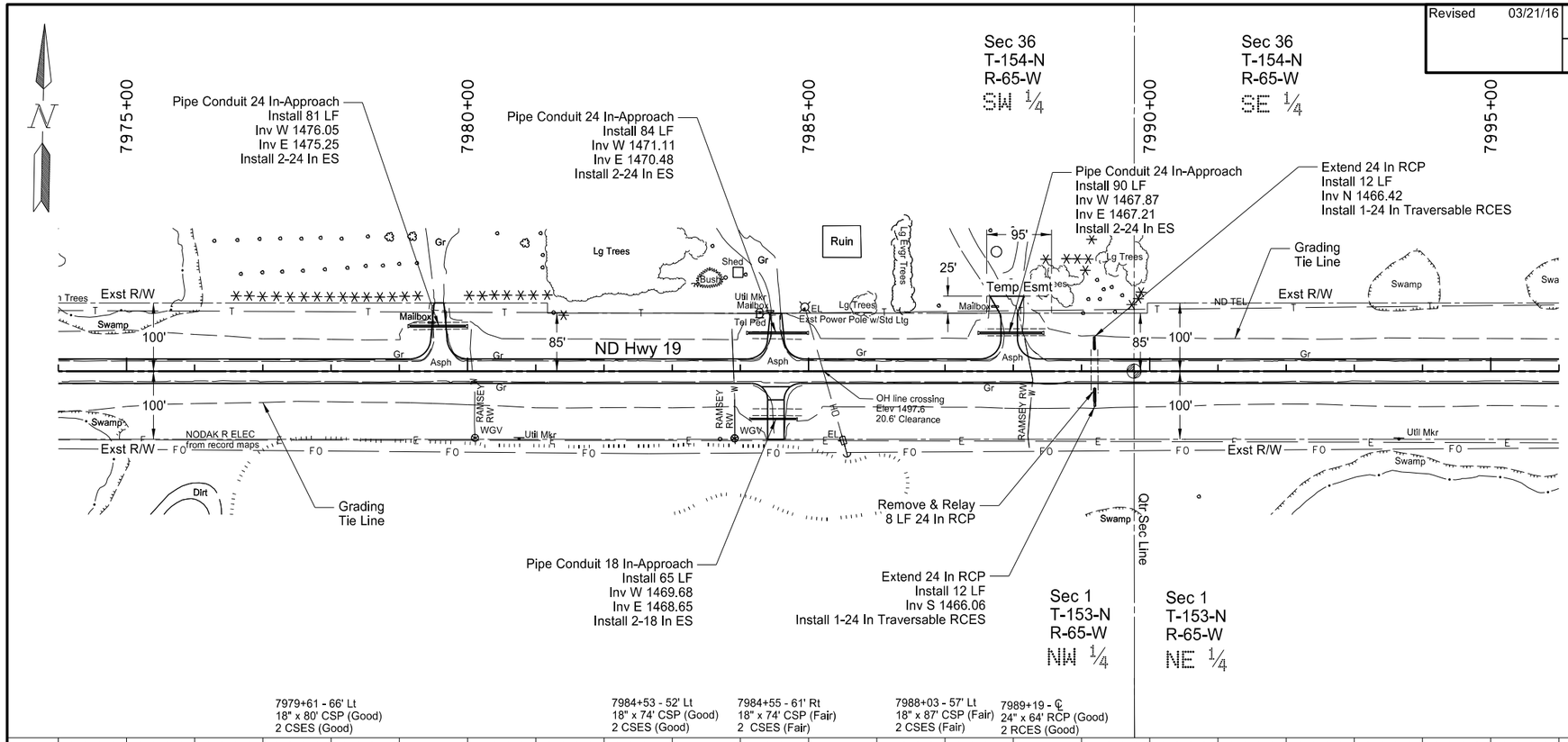
(*) The price bid for "Pipe Conduit" bid items includes end sections. Pipe Extensions shall pay for end sections seperately.
FES = Flared End Section
TES = Traversable End Section

This document was originally issued and sealed by Jennifer R. Malloy, Registration Number PE- 8414, on 03/21/16 and the original document is stored at the North Dakota Department of Transportation

ND Hwy 19

Allowable Pipe List

Revised 03/21/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SS-3-019(065)139	60	19



714 0615 PIPE CONC REINF 24IN CL III

Sta 7989+19 Lt	12 LF
Sta 7989+19 Rt	12 LF
Total	24 LF

714 3023 END SECT-TRAVERSABLE REINF. CONC.24IN

Sta 7989+19 Lt	1 EA
Sta 7989+19 Rt	1 EA
Total	2 EA

714 4099 PIPE CONDUIT 18IN-APPROACH

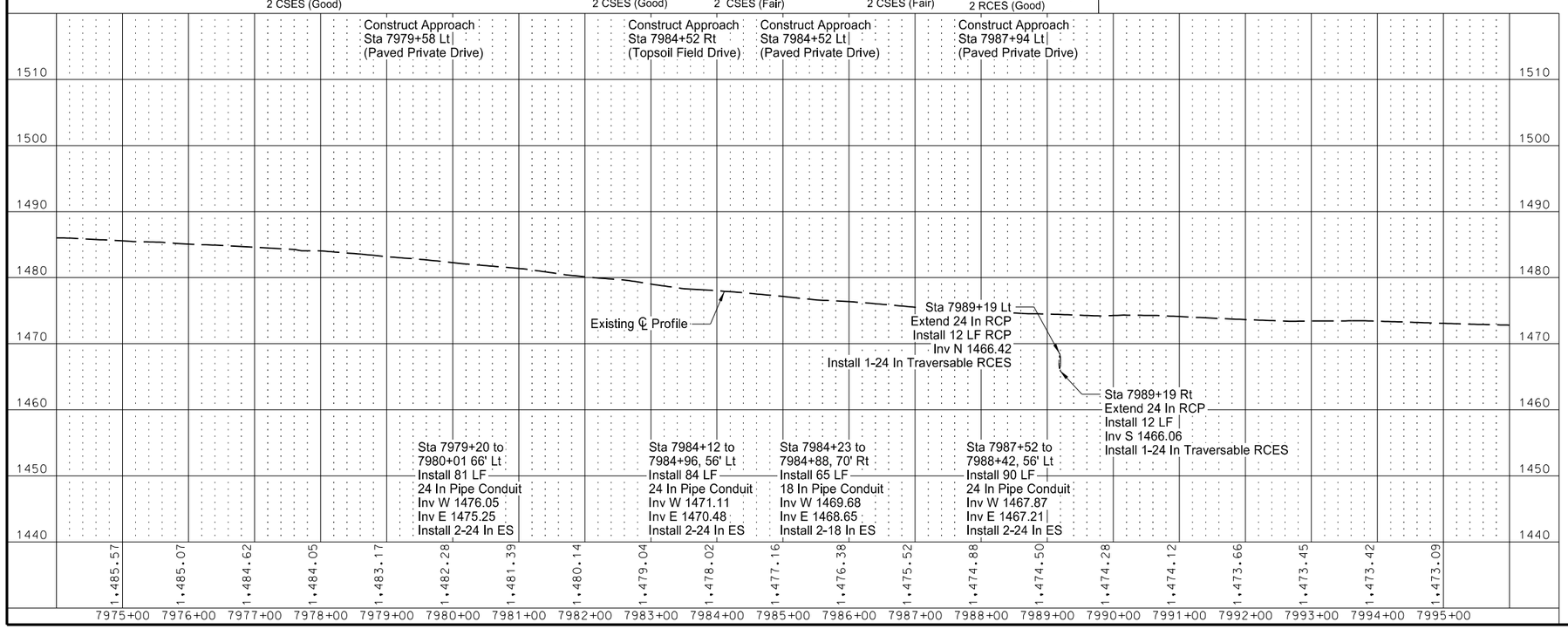
Sta 7984+23 - 70' Rt to Sta 7984+88 - 70' Rt	65 LF

714 4106 PIPE CONDUIT 24IN-APPROACh

Sta 7979+20 - 66' Lt to Sta 7980+01 - 66' Lt	81 LF
Sta 7984+12 - 56' Lt to Sta 7984+97 - 56' Lt	84 LF
Sta 7987+52 - 56' Lt to Sta 7988+42 - 56' Lt	90 LF
Total	255 LF

714 9659 REMOVE & RELAY PIPE-ALL TYPES & SIZES

Sta 7989+19 Rt	8 LF



Notes:

1. Stationing is based on Alignment "PR19_SEG3" unless otherwise noted.

This document was originally issued and sealed by Jonathan D Bach, Registration Number PE- 9797, on 03/21/16 and the original document is stored at the North Dakota Department of Transportation

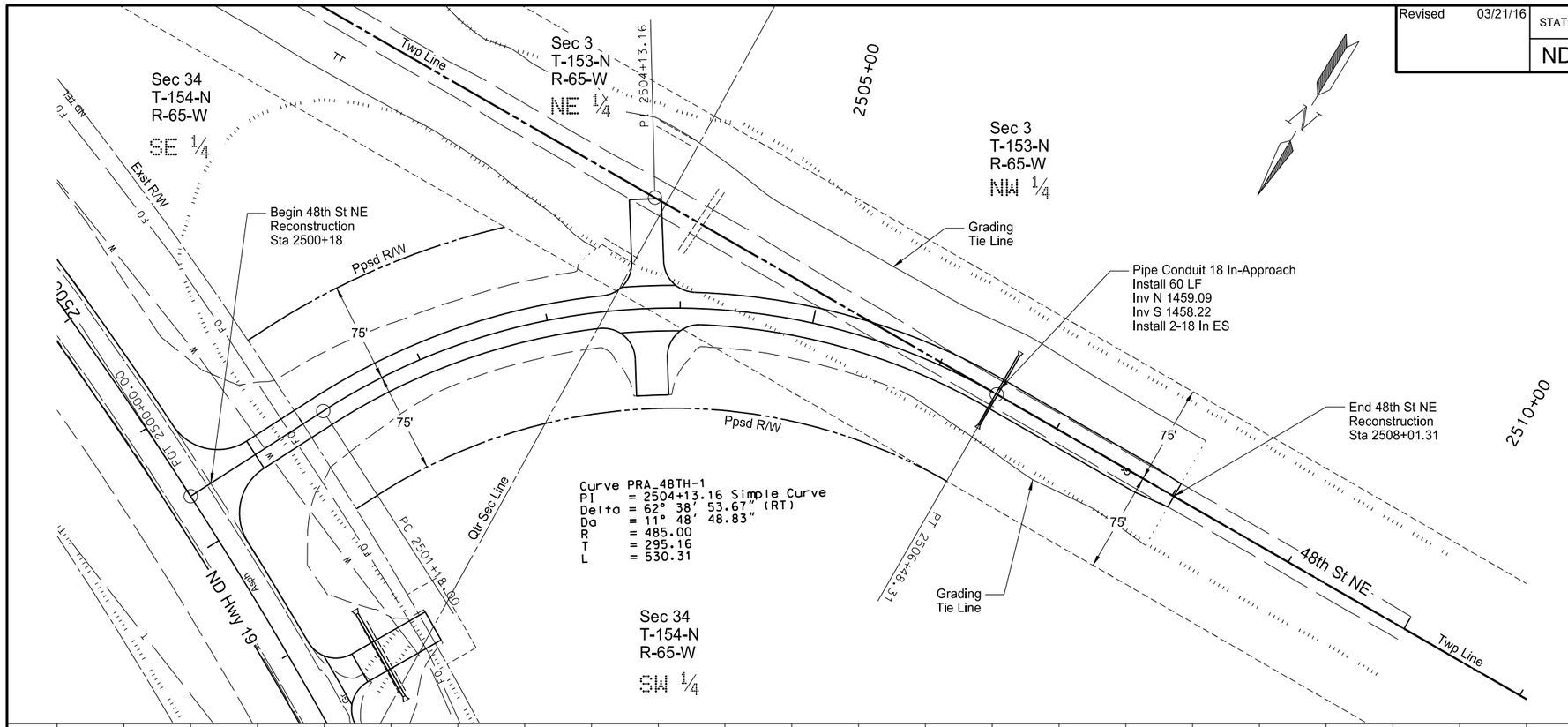
ND Hwy 19 - Segment 3

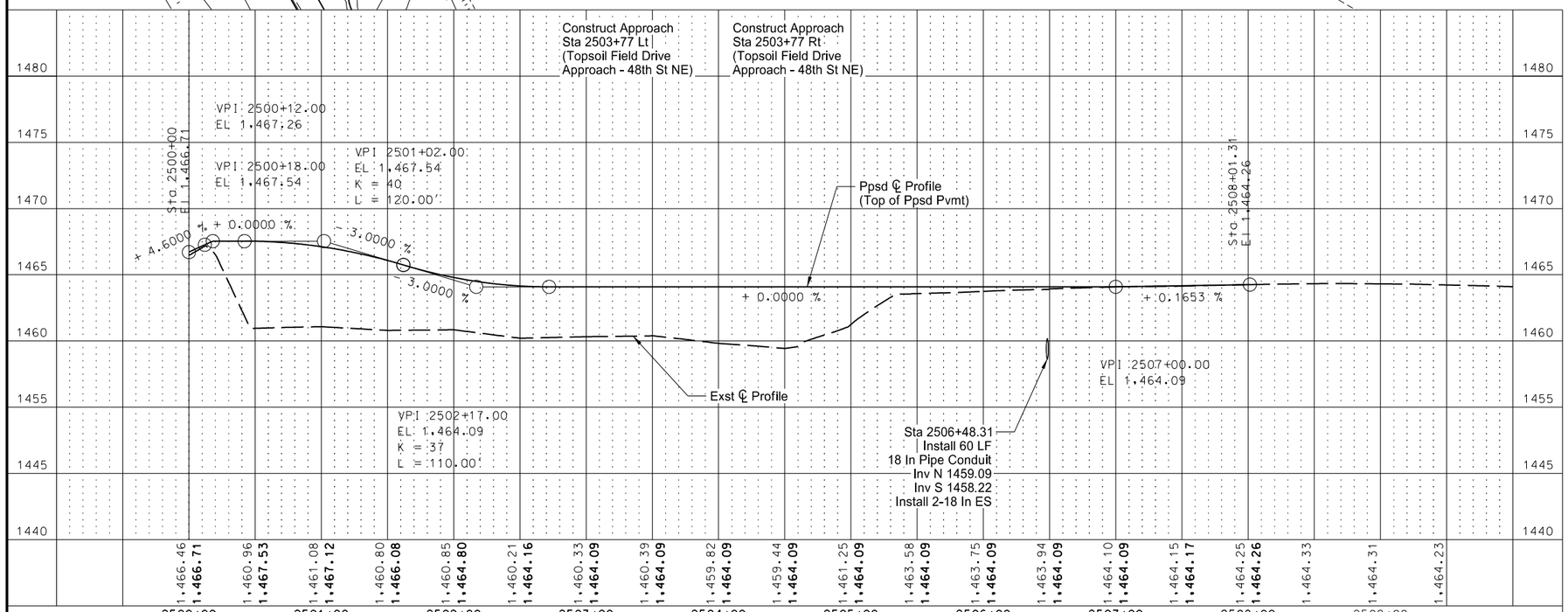
Plan & Profile

Sta 7975+00 to 7995+00
(Mile 151)

Revised 03/21/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SS-3-019(065)139	60	23

714 4099 PIPE CONDUIT 18IN-APPROACH
Sta 2506+48.31 - ℄ 60 LF





Notes:

1. Stationing is based on Alignment "PRA 48TH" unless otherwise noted.

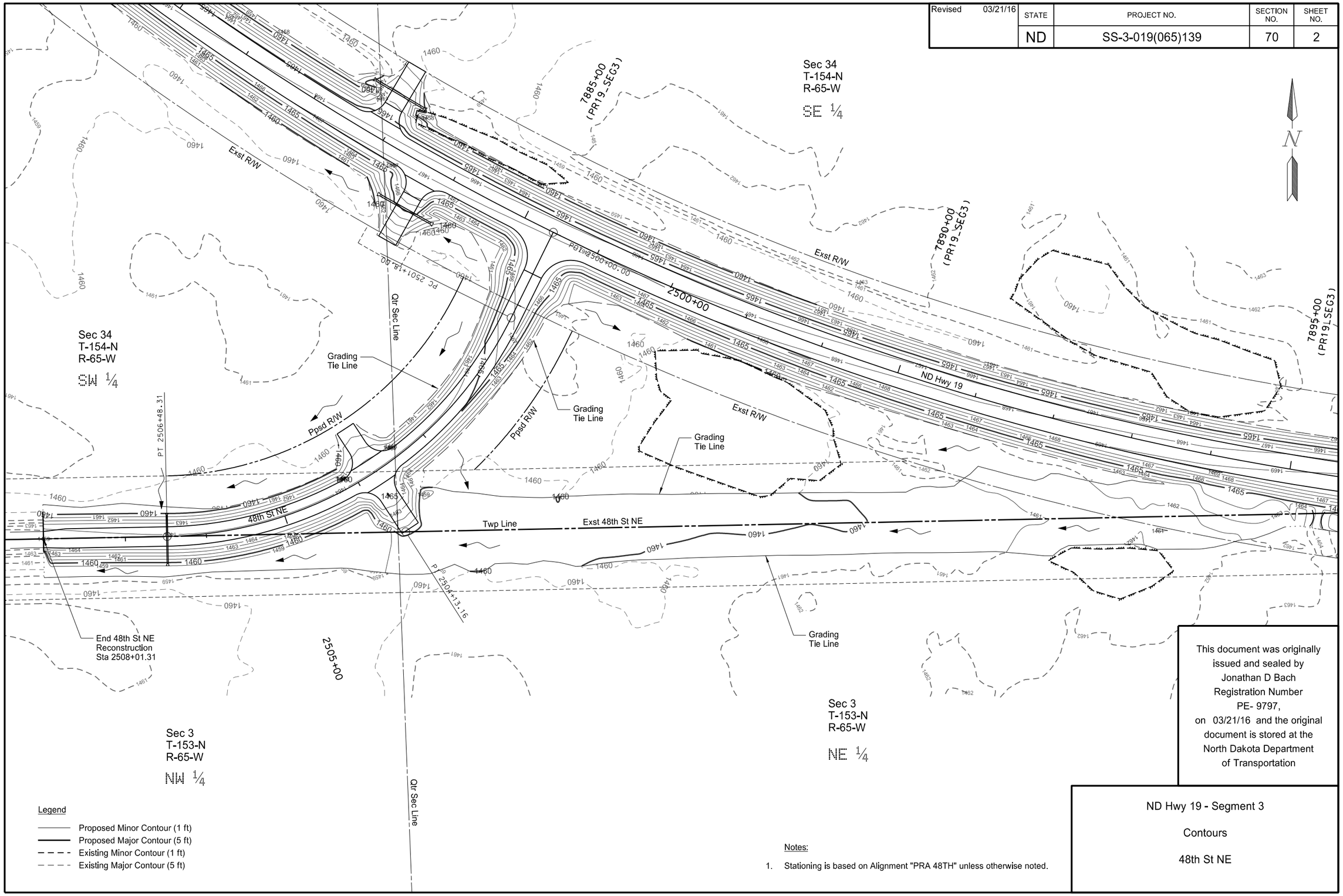
This document was originally issued and sealed by Jonathan D Bach, Registration Number PE- 9797, on 03/21/16 and the original document is stored at the North Dakota Department of Transportation

ND Hwy 19 - Segment 3

Plan & Profile

Sta 2500+00 to 2508+01.31
(48th St NE)

Revised 03/21/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SS-3-019(065)139	70	2



Notes:

1. Stationing is based on Alignment "PRA 48TH" unless otherwise noted.

This document was originally issued and sealed by Jonathan D Bach Registration Number PE- 9797, on 03/21/16 and the original document is stored at the North Dakota Department of Transportation

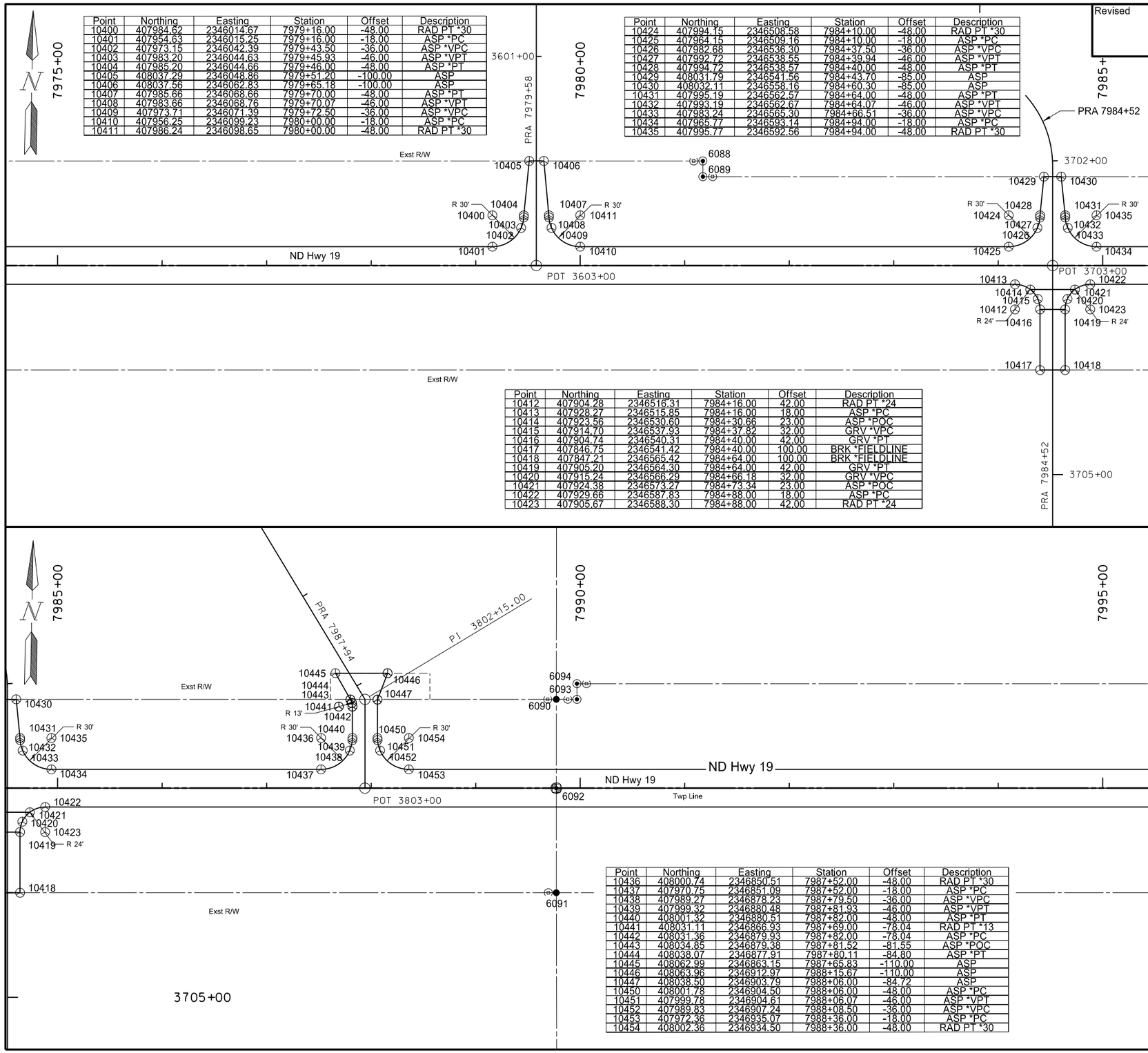
ND Hwy 19 - Segment 3

Contours

48th St NE

Revised	3/21/16

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-3-019(065)139	82	16



Point	Northing	Easting	Station	Offset	Description
10400	407984.62	2346014.67	7979+16.00	-48.00	RAD PT *30
10401	407954.63	2346015.25	7979+16.00	-18.00	ASP *PC
10402	407973.15	2346042.39	7979+43.50	-36.00	ASP *VPC
10403	407983.20	2346044.63	7979+45.93	-46.00	ASP *VPT
10404	407985.20	2346044.66	7979+46.00	-48.00	ASP *PT
10405	408037.29	2346048.86	7979+51.20	-100.00	ASP
10406	408037.56	2346062.83	7979+65.18	-100.00	ASP
10407	407985.66	2346068.66	7979+70.00	-48.00	ASP *PT
10408	407983.66	2346068.76	7979+70.07	-46.00	ASP *VPT
10409	407973.71	2346071.39	7979+72.50	-36.00	ASP *VPC
10410	407956.25	2346099.23	7980+00.00	-18.00	ASP *PC
10411	407986.24	2346098.65	7980+00.00	-48.00	RAD PT *30

Point	Northing	Easting	Station	Offset	Description
10424	407994.15	2346508.58	7984+10.00	-48.00	RAD PT *30
10425	407964.15	2346509.16	7984+10.00	-18.00	ASP *PC
10426	407982.68	2346536.30	7984+37.50	-36.00	ASP *VPC
10427	407992.72	2346538.55	7984+39.94	-46.00	ASP *VPT
10428	407994.72	2346538.57	7984+40.00	-48.00	ASP *PT
10429	408031.79	2346541.56	7984+43.70	-85.00	ASP
10430	408032.11	2346558.16	7984+60.30	-85.00	ASP
10431	407995.19	2346562.57	7984+64.00	-48.00	ASP *PT
10432	407993.19	2346562.67	7984+64.07	-46.00	ASP *VPT
10433	407983.24	2346565.30	7984+66.51	-36.00	ASP *VPC
10434	407965.77	2346593.14	7984+94.00	-18.00	ASP *PC
10435	407995.77	2346592.56	7984+94.00	-48.00	RAD PT *30

Point	Northing	Easting	Station	Offset	Description
10412	407904.28	2346516.31	7984+16.00	42.00	RAD PT *24
10413	407928.27	2346515.85	7984+16.00	18.00	ASP *PC
10414	407923.56	2346530.60	7984+30.66	23.00	ASP *POC
10415	407914.70	2346537.93	7984+37.82	32.00	GRV *VPC
10416	407904.74	2346540.31	7984+40.00	42.00	GRV *PT
10417	407846.75	2346541.42	7984+40.00	100.00	BRK *FIELDLINE
10418	407847.21	2346565.42	7984+64.00	100.00	BRK *FIELDLINE
10419	407905.20	2346564.30	7984+64.00	42.00	GRV *PT
10420	407915.24	2346566.29	7984+66.18	32.00	GRV *VPC
10421	407924.38	2346573.27	7984+73.34	23.00	ASP *POC
10422	407929.66	2346587.83	7984+88.00	18.00	ASP *PC
10423	407905.67	2346588.30	7984+88.00	42.00	RAD PT *24

Point	Northing	Easting	Station	Offset	Description
10436	408000.74	2346850.51	7987+52.00	-48.00	RAD PT *30
10437	407970.75	2346851.09	7987+52.00	-18.00	ASP *PC
10438	407989.27	2346878.23	7987+79.50	-36.00	ASP *VPC
10439	407999.32	2346880.48	7987+81.93	-46.00	ASP *VPT
10440	408001.32	2346880.51	7987+82.00	-48.00	ASP *PT
10441	408031.11	2346866.93	7987+69.00	-78.04	RAD PT *13
10442	408031.36	2346879.93	7987+82.00	-78.04	ASP *PC
10443	408034.85	2346879.38	7987+81.52	-81.55	ASP *POC
10444	408038.07	2346877.91	7987+80.11	-84.80	ASP *PT
10445	408062.99	2346863.15	7987+65.83	-110.00	ASP
10446	408063.96	2346912.97	7988+15.67	-110.00	ASP
10447	408038.50	2346903.79	7988+06.00	-84.72	ASP
10450	408001.78	2346904.50	7988+06.00	-48.00	ASP *PC
10451	407999.78	2346904.61	7988+06.07	-46.00	ASP *VPT
10452	407989.83	2346907.24	7988+08.50	-36.00	ASP *VPC
10453	407972.36	2346935.07	7988+36.00	-18.00	ASP *PC
10454	408002.36	2346934.50	7988+36.00	-48.00	RAD PT *30

Beginning chain PRA 7979+58 description
Description: Ppsd Paved Private Drive @ Sta 7979+58 Lt

Point 8728 N 408,237.3849 E 2,346,051.8013 Sta 3600+00.00

Course from 8728 to 8729 S 1° 06' 16.93" E Dist 300.0000

Point 8729 N 407,937.4406 E 2,346,057.5852 Sta 3603+00.00

Ending chain PRA 7979+58 description

Beginning chain PRA 7984+52 description
Description: Ppsd Paved Private Drive Lt & Topsoil Field Drive Rt @ Sta 7984+52

Point 8730 N 408,220.9151 E 2,346,477.1441 Sta 3700+00.00

Course from 8730 to PC PRA 7984+52-1 S 0° 00' 34.59" W Dist 57.3279

Curve Data

Curve PRA 7984+52-1
Feature: PD-P / FD-T
Description: PRA 7984+52
P.I. Station 3700+74.11 N 408,146.8076 E 2,346,477.1317
Delta = 51° 13' 39.74" (LT)
Degree = 163° 42' 08.02"
Tangent = 16.7796
Length = 31.2932
Radius = 35.0000
External = 3.8144
Long Chord = 30.2613
Mid. Ord. = 3.4395
P.C. Station 3700+57.33 N 408,163.5872 E 2,346,477.1345
P.T. Station 3700+88.62 N 408,136.2976 E 2,346,490.2120
C.C. N 408,163.5813 E 2,346,512.1345
Back = S 0° 00' 34.59" W
Ahead = S 51° 13' 05.15" E
Chord Bear = S 25° 36' 15.28" E

Course from PT PRA 7984+52-1 to PC PRA 7984+52-2 S 51° 13' 05.15" E Dist 28.3414

Curve Data

Curve PRA 7984+52-2
Feature: PD-P / FD-T
Description: PRA 7984+52
P.I. Station 3701+63.71 N 408,089.2627 E 2,346,548.7494
Delta = 50° 06' 48.22" (RT)
Degree = 57° 17' 44.81"
Tangent = 46.7513
Length = 87.4644
Radius = 100.0000
External = 10.3888
Long Chord = 84.7030
Mid. Ord. = 9.4111
P.C. Station 3701+16.96 N 408,118.5457 E 2,346,512.3051
P.T. Station 3702+04.43 N 408,042.5201 E 2,346,549.6507
C.C. N 408,040.5921 E 2,346,449.6693
Back = S 51° 13' 05.15" E
Ahead = S 1° 06' 16.93" E
Chord Bear = S 26° 09' 41.04" E

Course from PT PRA 7984+52-2 to 8731 S 1° 06' 16.93" E Dist 95.5731

Point 8731 N 407,946.9647 E 2,346,551.4934 Sta 3703+00.00

Course from 8731 to 8732 S 1° 06' 16.93" E Dist 300.0000

Point 8732 N 407,647.0205 E 2,346,557.2772 Sta 3706+00.00

Ending chain PRA 7984+52 description

Beginning chain PRA 7987+94 description
Description: Ppsd Paved Private Drive @ Sta 7987+94 Lt

Point 8733 N 408,220.4705 E 2,346,777.2171 Sta 3800+00.00

Course from 8733 to 8734 S 32° 12' 06.31" E Dist 215.0000

Point 8734 N 408,038.5425 E 2,346,891.7910 Sta 3802+15.00

Course from 8734 to 8735 S 1° 06' 16.93" E Dist 85.0000

Point 8735 N 407,953.5583 E 2,346,893.4298 Sta 3803+00.00

Ending chain PRA 7987+94 description

Legend

- R/W Marker (Witness Post)
- Alignment Monuments
- Iron Pin R/W Monument
- Iron Pin Reference Monument
- COGO Point

Notes:

1. Stationing is Based on Alignment "PR19_SEG3" Unless Otherwise Noted.
2. All coordinates on this sheet are Ramsey County ground coordinates.

This document was originally issued and sealed by Dawn LS Michel, Registration Number PE- 8029, on 03/21/16 and the original document is stored at the North Dakota Department of Transportation

ND Hwy 19 - Segment 3

Survey Data & Right of Way Layout

Sta 7975+00 to 7995+00
(Mile 151)

Revised	03/21/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
		ND	SS-3-019(065)139	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**	**2**	**34**	**68**
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**	**19**	**38**
G20-4-36	**36"x18"**	**PILOT CAR FOLLOW ME (Mounted to back of pilot car)**	**3**	**18**	**54**
G20-10-108	**108"x48"**	**CONTRACTOR SIGN**	**2**	**64**	**128**
G20-50a-72	**72"x36"**	**ROAD WORK NEXT __ MILES RT & LT ARROWS**	**11**	**37**	**407**
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**	**6**	**59**	**354**
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**	**6**	**32**	**192**
R1-1a-18	**18"x18"**	**STOP and SLOW PADDLE Back to Back**	**6**	**5**	**30**
R1-2-60	60"x60"	YIELD		29	
R2-1-48	**48"x60"**	**SPEED LIMIT __**	**12**	**39**	**468**
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**	**6**	**39**	**234**
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**	**8**	**35**	**280**
W3-5-48	**48"x48"**	**SPEED REDUCTION AHEAD**	**6**	**35**	**210**
W4-2-48	48"x48"	RIGHT or LEFT LANE TRANSITION SYMBOL		35	
W5-1-48	**48"x48"**	**ROAD NARROWS**	**3**	**35**	**105**
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**	**6**	**35**	**210**
W8-3-48	**48"x48"**	**PAVEMENT ENDS**	**3**	**35**	**105**
W8-7-48	48"x48"	LOOSE GRAVEL		35	
W8-9a-48	**48"x48"**	**SHOULDER DROP-OFF**	**2**	**35**	**70**
W8-11-48	**48"x48"**	**UNEVEN LANES**	**6**	**35**	**210**
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.**	**6**	**35**	**210**
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)		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**	**13**	**35**	**455**
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.**	**6**	**35**	**210**
W20-5-48	48"x48"	RIGHT or LEFT LANE CLOSED AHEAD or __ FT.		35	
W20-7a-48	**48"x48"**	**FLAGGING SYMBOL**	**8**	**35**	**280**
W20-7k-24	**24"x18"**	**__ FEET (Mounted on warning sign post)**	**6**	**10**	**60**
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)**	**8**	**12**	**96**
W21-1a-48	48"x48"	WORKERS SYMBOL		35	
W21-2-48	**48"x48"**	**FRESH OIL**	**3**	**35**	**105**
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**	**3**	**35**	**105**
W21-5a-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED		35	
W21-5b-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED AHEAD or __ FT.		35	
W21-6a-48	48"x48"	SURVEY CREW AHEAD		35	
W21-50-48	48"x48"	BRIDGE PAINTING AHEAD or __ FT.		35	
W21-51-48	**48"x48"**	**MATERIAL ON ROADWAY**	**3**	**35**	**105**
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**	**4789**

SPEC & CODE	DESCRIPTION	UNIT	QUANTITY
704-0100	**FLAGGING**	**MHR**	**3600**
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**	**12**
704-1065	TRAFFIC CONES	EACH	
704-1067	**TUBULAR MARKERS**	**EACH**	**400**
704-1070	DELINEATOR	EACH	
704-1072	FLEXIBLE DELINEATORS	EACH	
704-1080	**STACKABLE VERTICAL PANELS**	**EACH**	**942**
704-1081	VERTICAL PANELS - BACK TO BACK	EACH	
704-1085	SEQUENCING ARROW PANEL - TYPE A	EACH	
704-1086	SEQUENCING ARROW PANEL - TYPE B	EACH	
704-1087	SEQUENCING ARROW PANEL - TYPE C	EACH	
704-1088	SEQUENCING ARROW PANEL - TYPE C - CROSSOVER	EACH	
704-1095	TYPE B FLASHERS	EACH	
704-1185	**PILOT CAR**	**HR**	**1800**
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**	**40586**
762-0434	**SHORT TERM 8IN LINE - TYPE NR**	**LF**	**3668**
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/

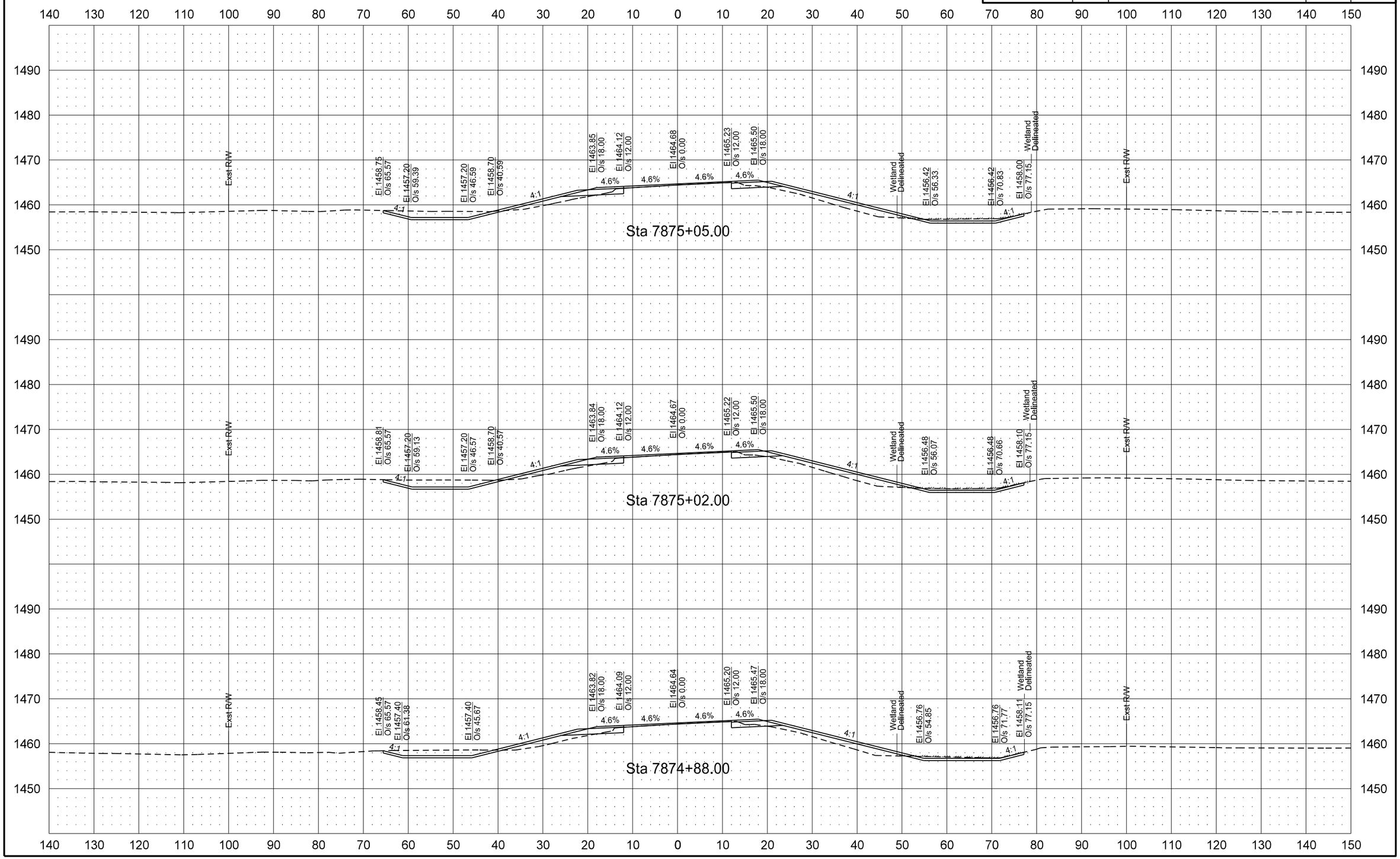
This document was originally issued and sealed by Jonathan D Bach, Registration Number PE-9797, on 3/21/16 and the original document is stored at the North Dakota Department of Transportation.

Traffic Control Devices List

ND Hwy 19

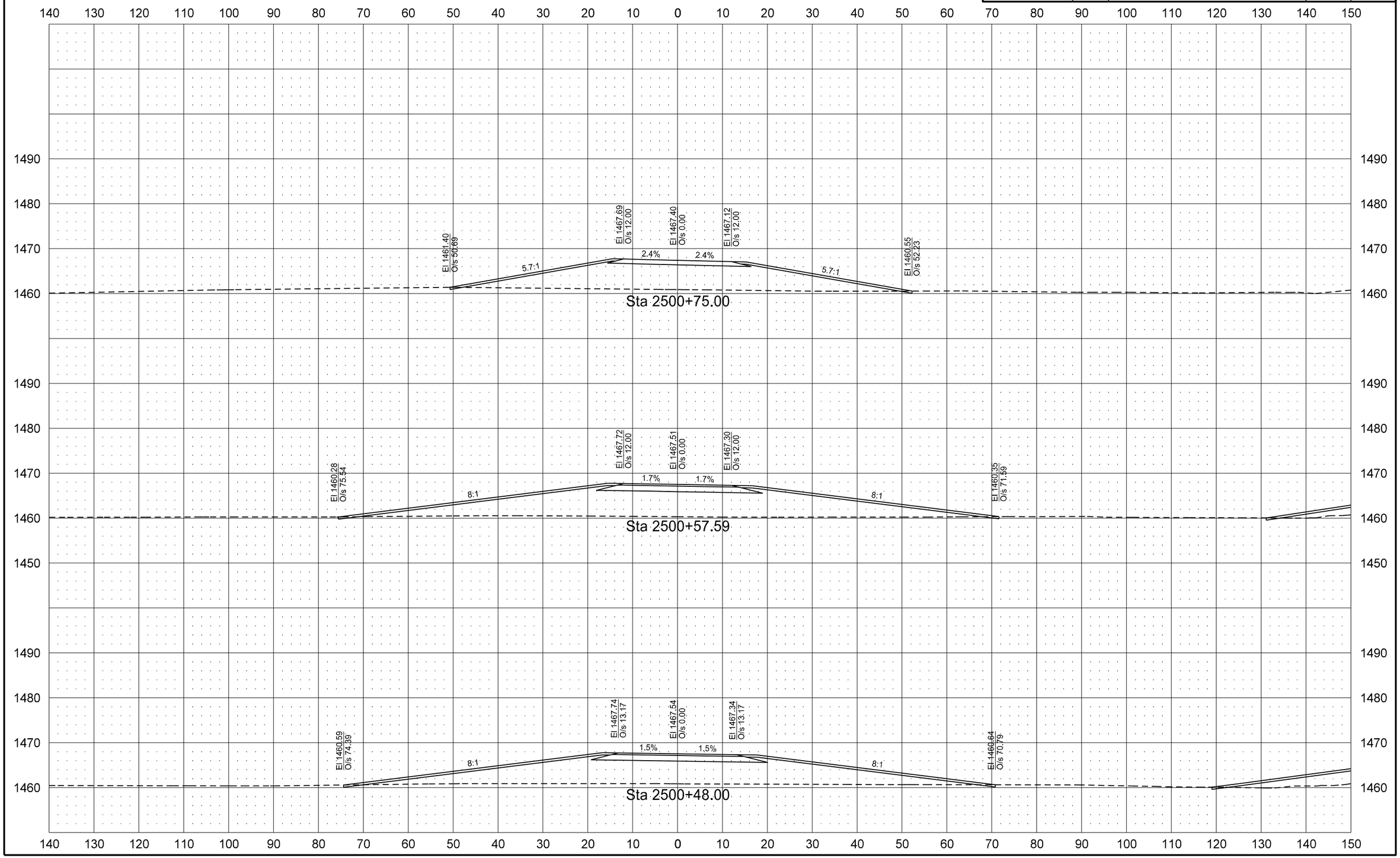
Revised 03/21/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SS-3-019(065)139	200	178

ND Hwy 19 - Segment 3 ℄
(PR19_SEG3)



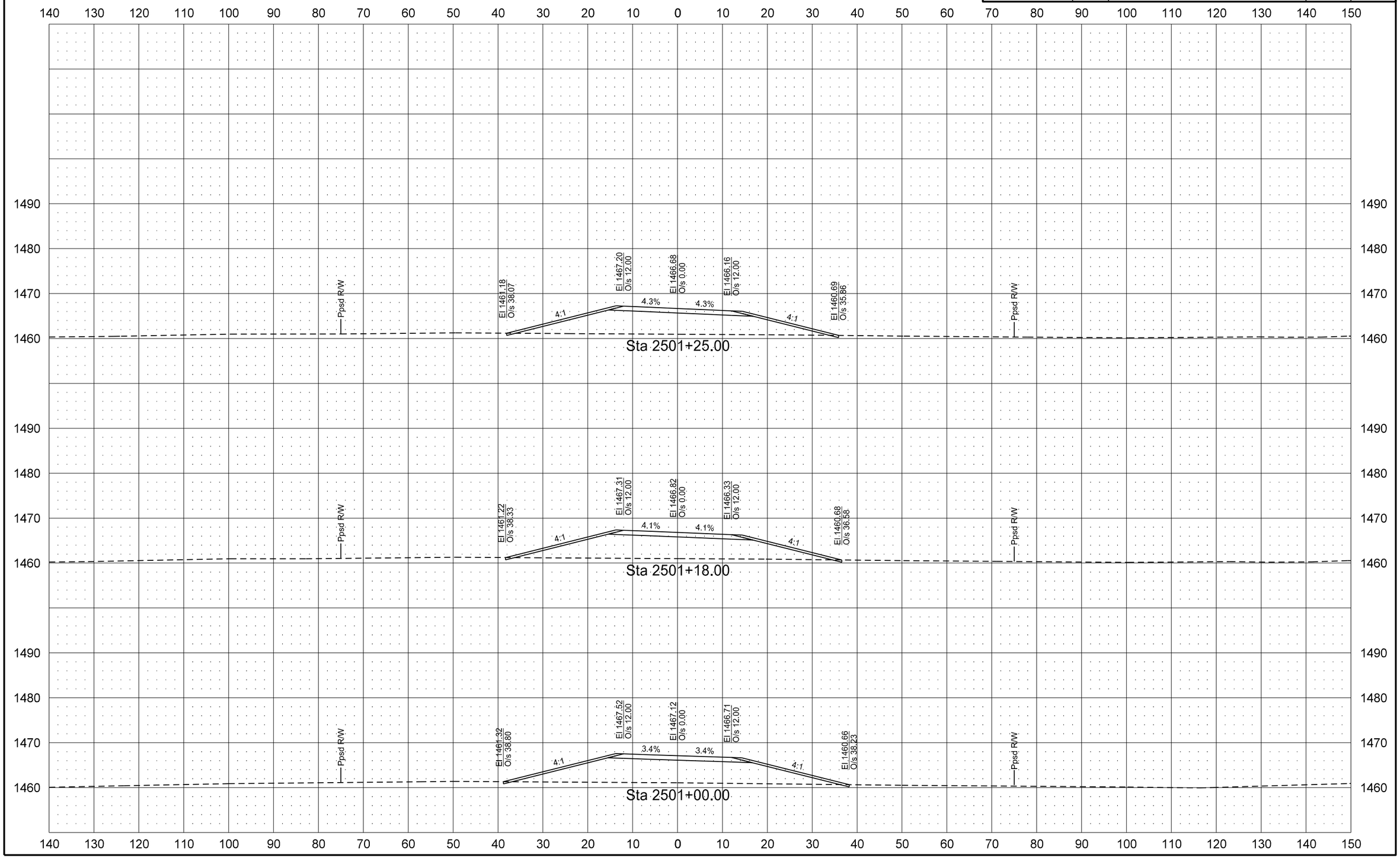
Revised	03/21/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
		ND	SS-3-019(065)139	200	328

48th St NE
(PRA_48TH)



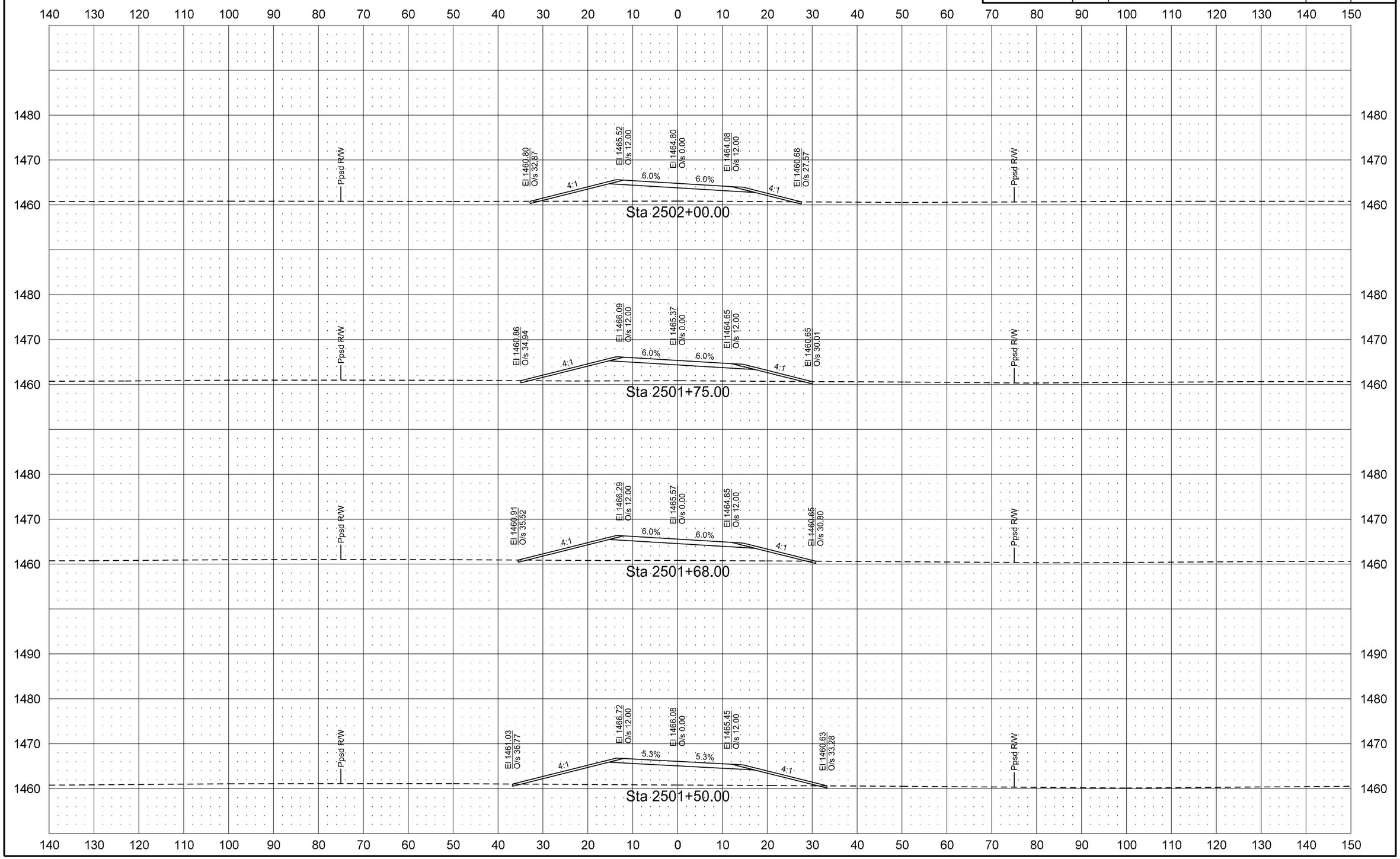
Revised 03/21/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SS-3-019(065)139	200	329

48th St NE
(PRA_48TH)



Revised 03/21/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SS-3-019(065)139	200	330

48th St NE
(PRA_48TH)



Revised 03/21/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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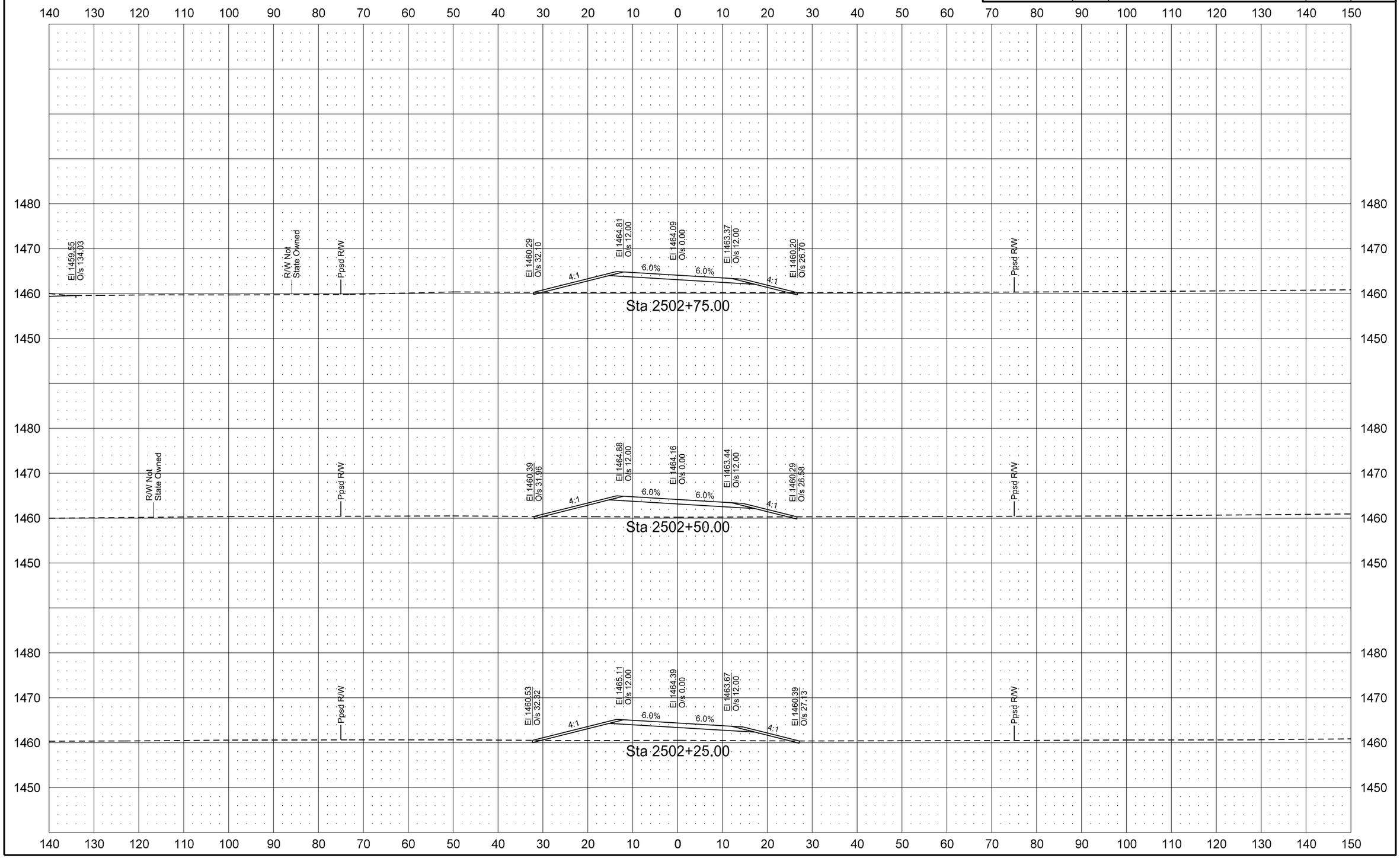
48th St NE
(PRA_48TH)



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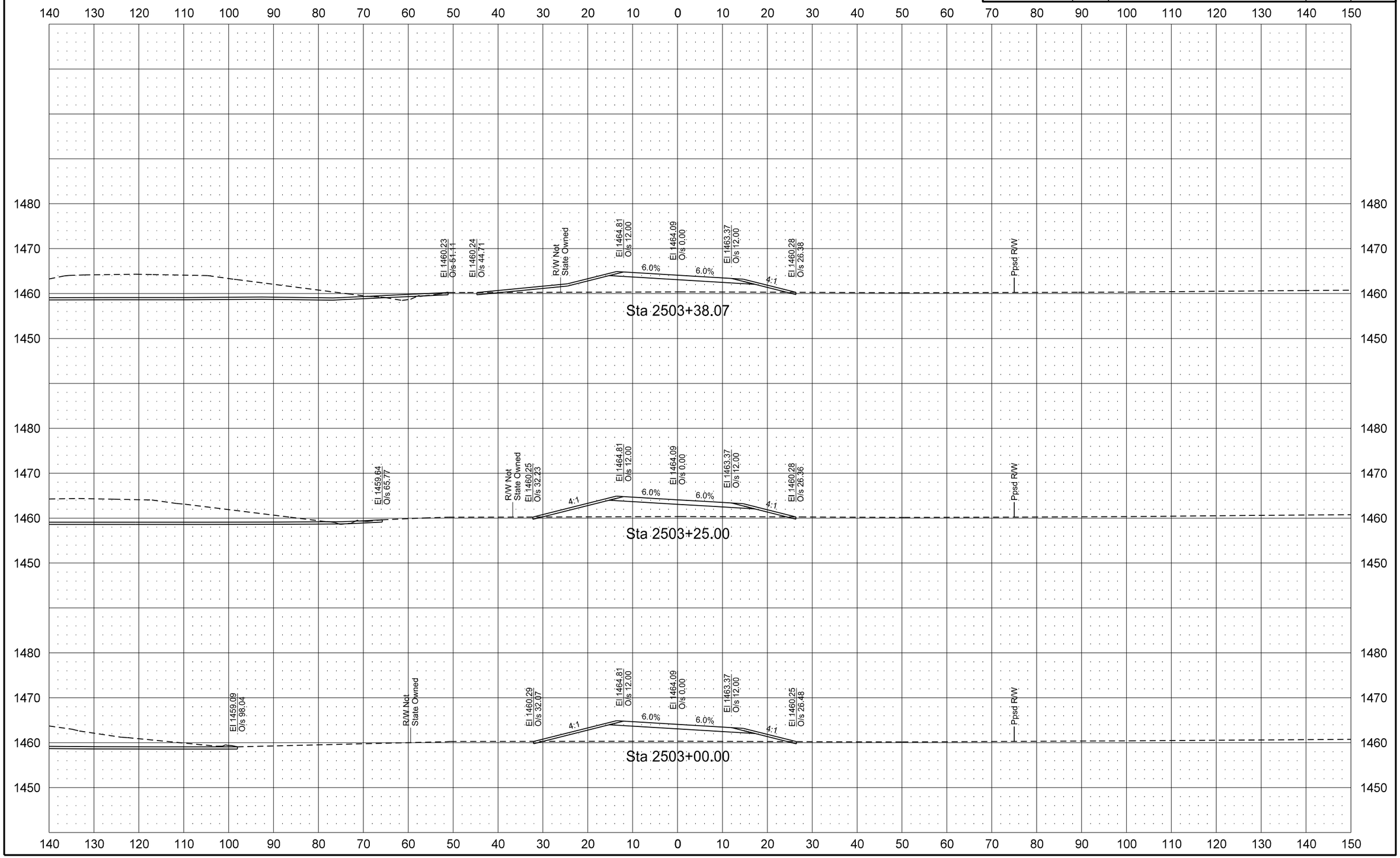
Revised 03/21/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SS-3-019(065)139	200	332

48th St NE
(PRA_48TH)



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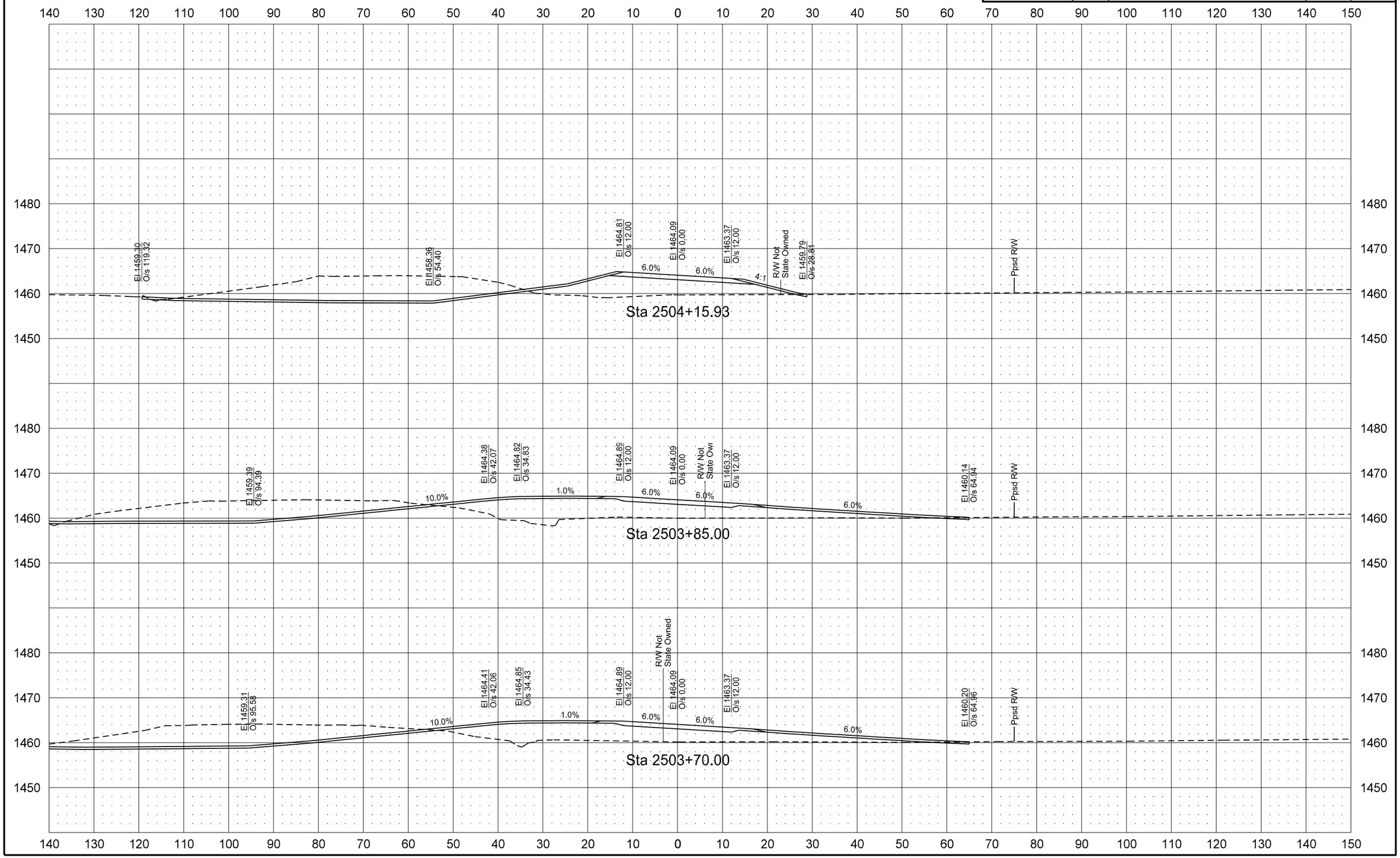
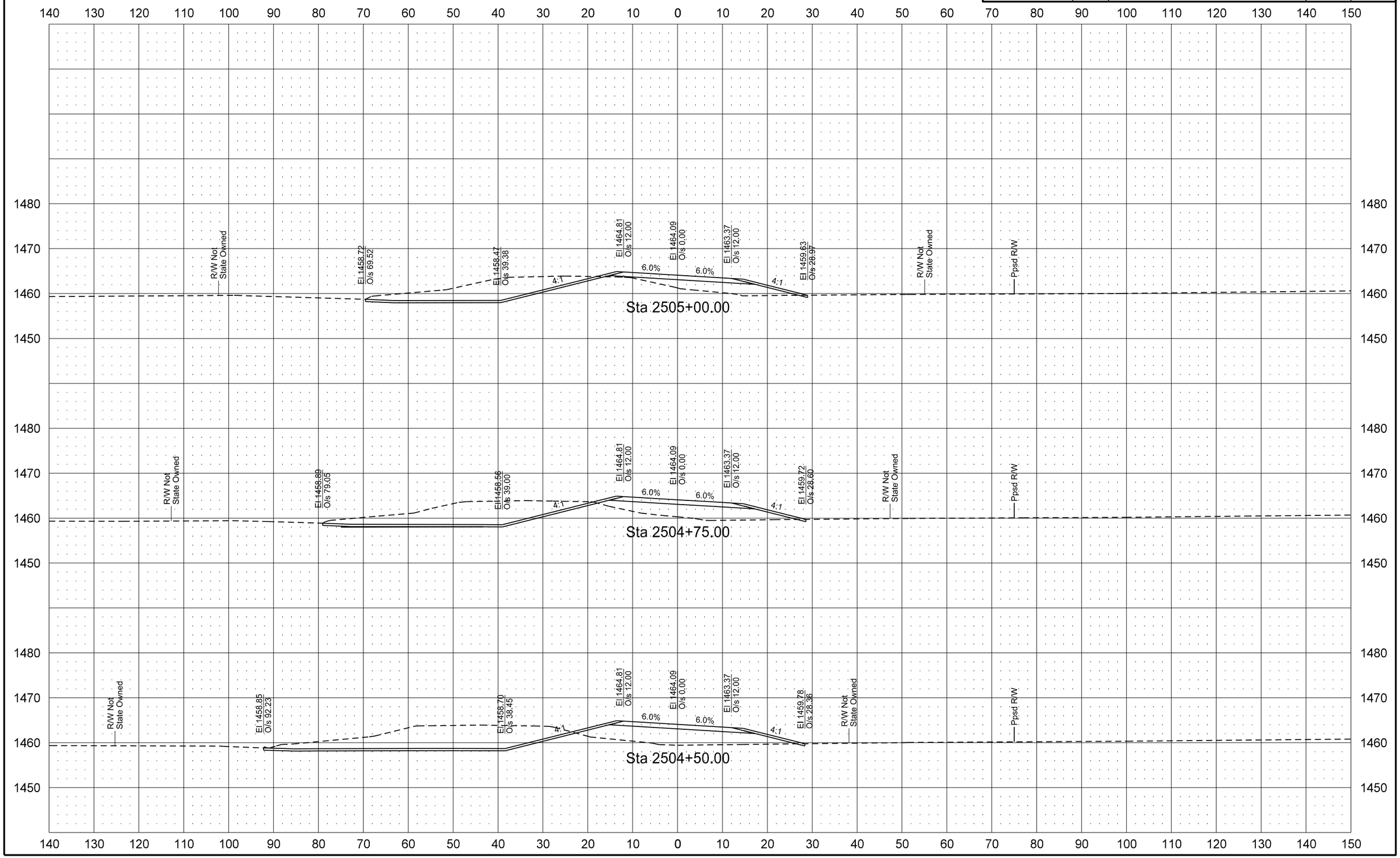
Revised 03/21/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SS-3-019(065)139	200	333

48th St NE
(PRA_48TH)



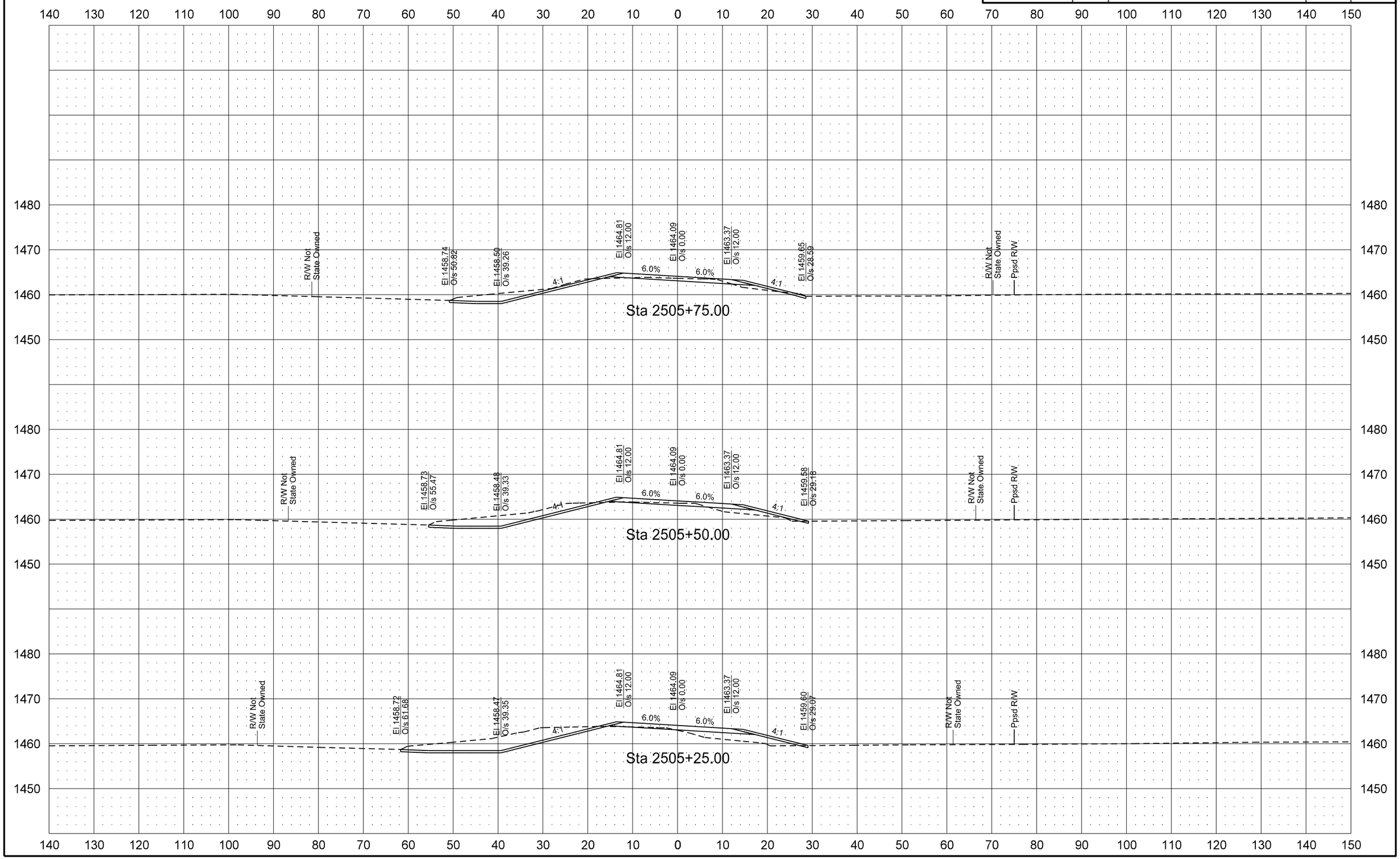
Revised 03/21/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SS-3-019(065)139	200	334

48th St NE
(PRA_48TH)



Revised 03/21/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SS-3-019(065)139	200	335

48th St NE
(PRA_48TH)



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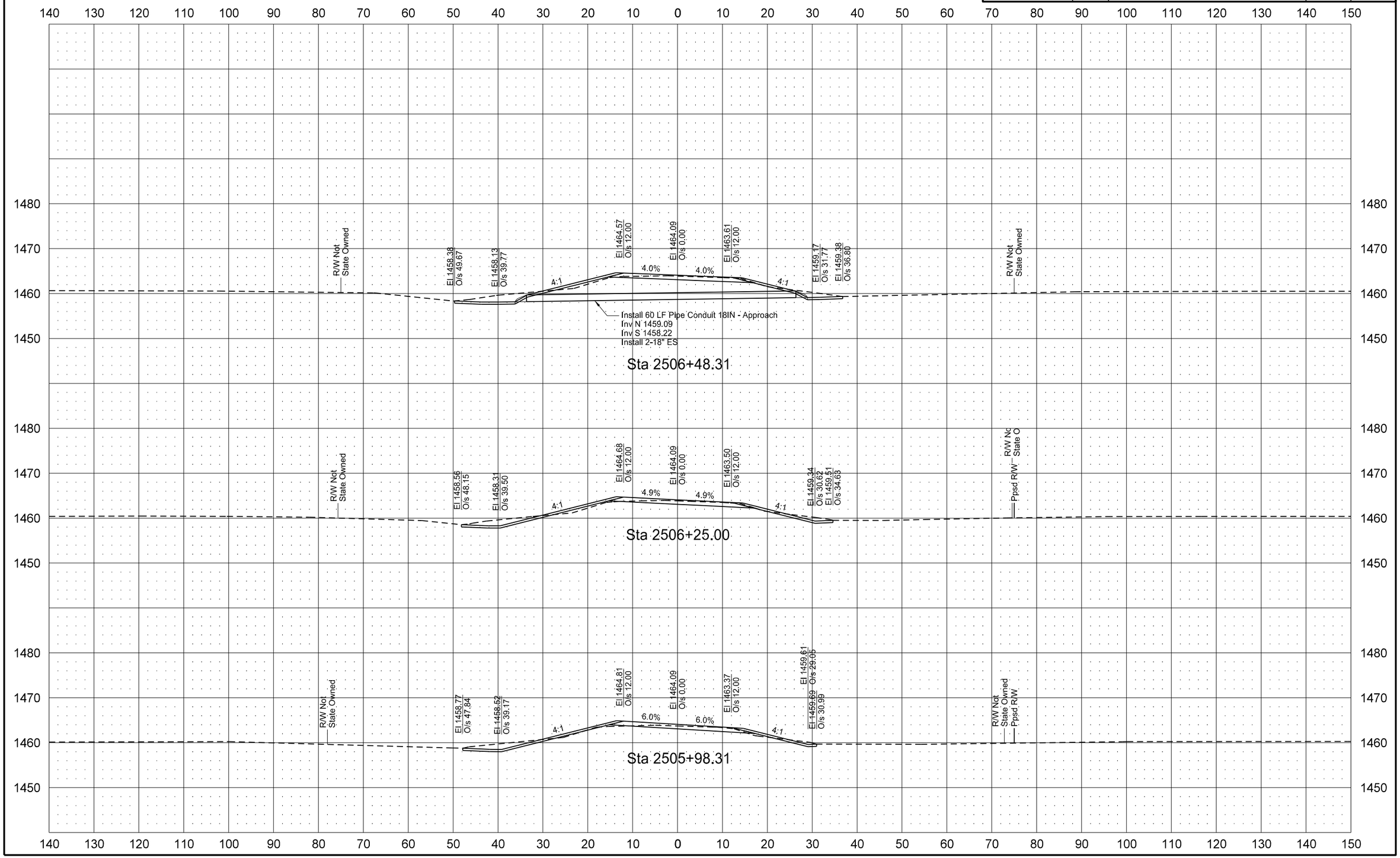
Revised 03/21/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SS-3-019(065)139	200	336

48th St NE
(PRA_48TH)



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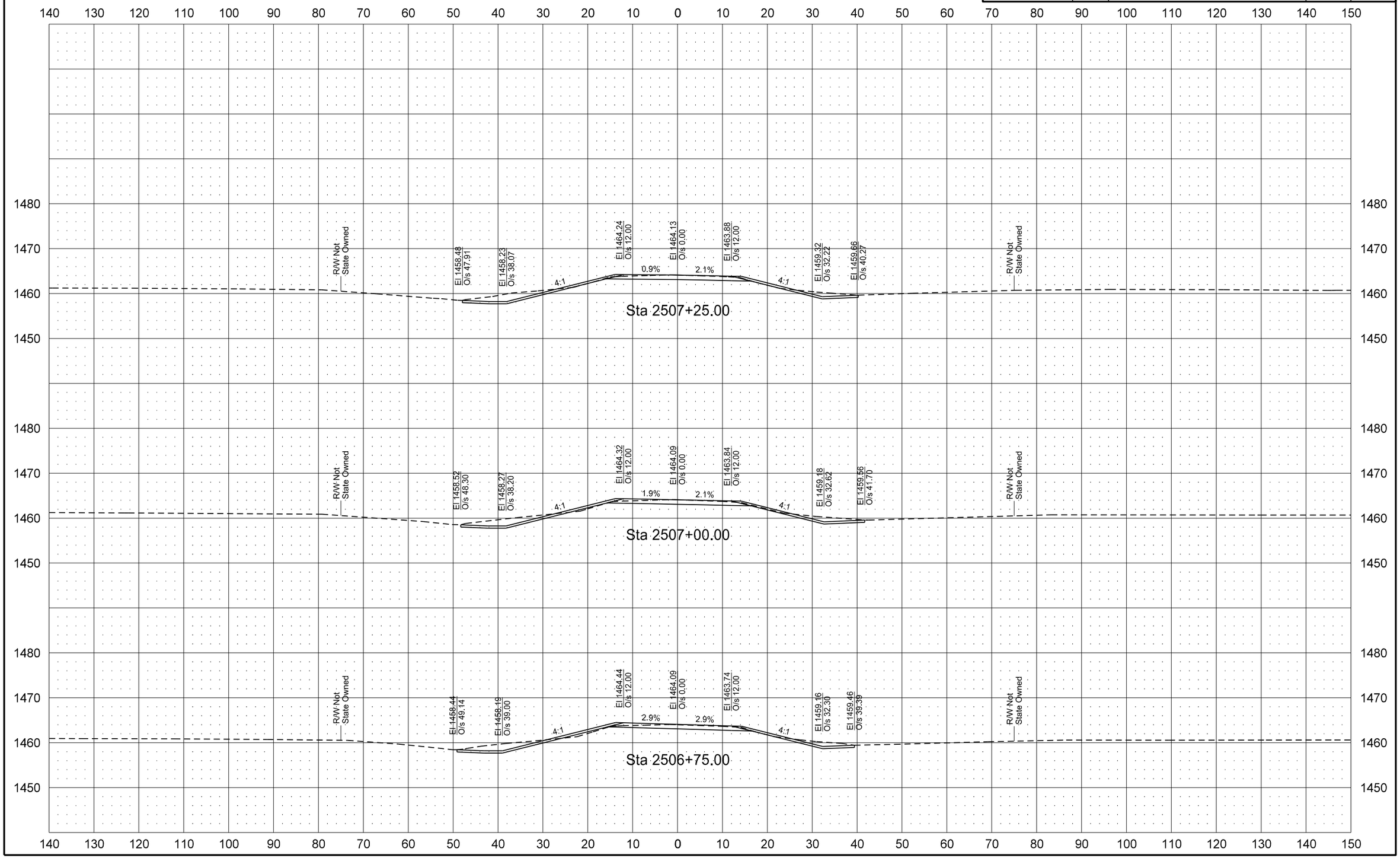
Revised 03/21/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SS-3-019(065)139	200	337

48th St NE
(PRA_48TH)



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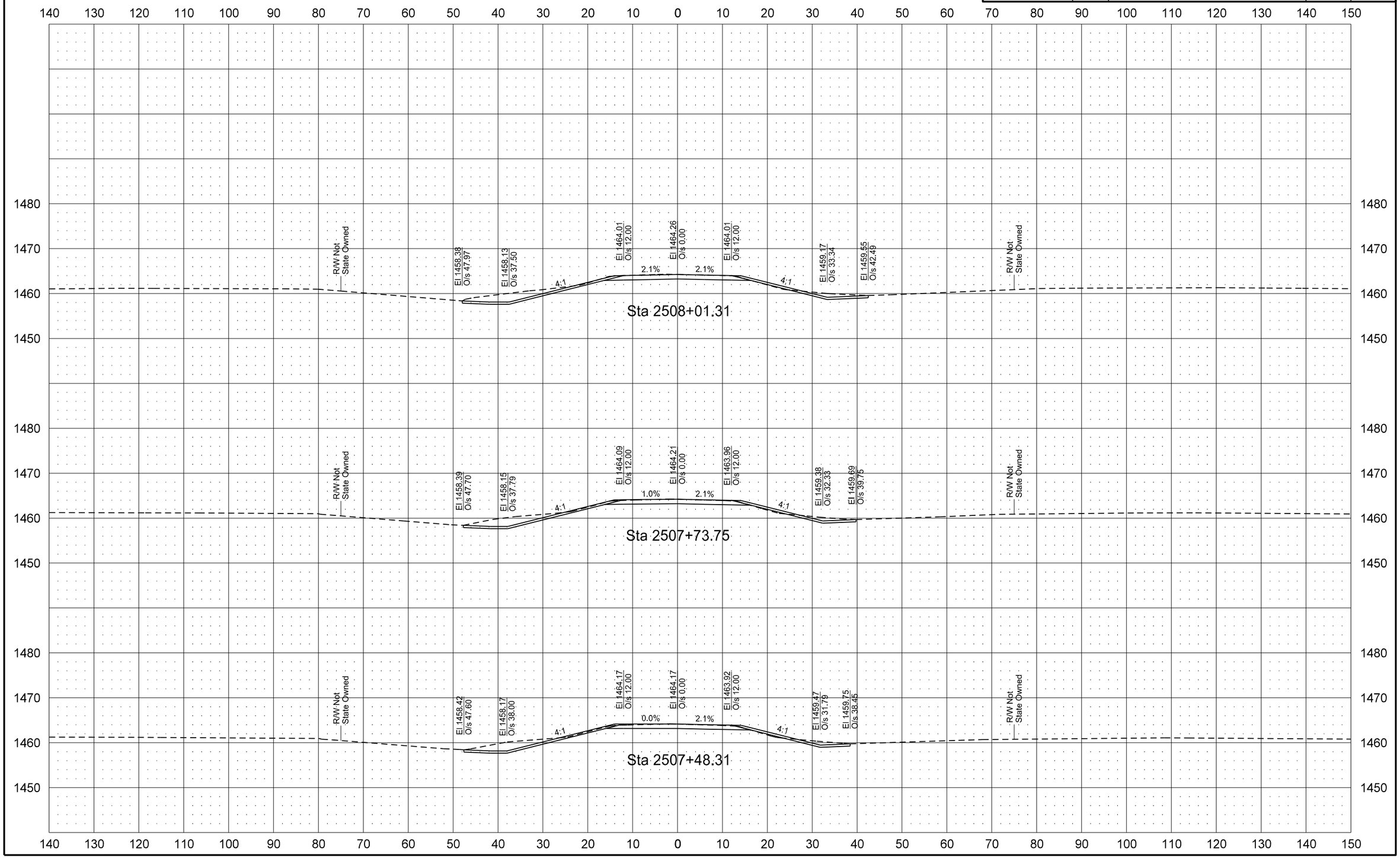
Revised 03/21/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SS-3-019(065)139	200	338

48th St NE
(PRA_48TH)



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SPECIAL PROVISIONS

Number	Description
SP 0003(14)	Temporary Erosion and Sediment Best Management Practices
SP 5098(14)	Permits and Environmental Considerations

NOTES

permanently installed. Verify with the Engineer which signs are to remain. Include costs in the price bid for “Traffic Control Signs.”

704-P02 TRAFFIC CONTROL DEVICES LIST: The Traffic Control Devices list has been developed using the following layouts and standard drawings for traffic control:

1. Standard D-704-2: For coring hot bituminous pavement.
2. Standard D-704-15: layout A; For paving operations
3. Standard D-704-19, layout F: For paving operations and lane closures.
4. Standard D-704-20, layout G: Terminal Signing. 80th Ave NE/Walleye Dr
5. Standard D-704-22, layouts K: For trucks hauling material.
6. Standard D-704-24, layouts R: For shoulder work.
7. Standard D-704-26, layouts BB, CC, EE, FF, GG, KK: as applicable.
8. Standard D-704-27: moving operations (pavement marking)
9. Standard D-704-30: windrow marking
10. Standard D-704-56: For grinding shoulder and median rumble strips.
11. Traffic Control Drawings in Section 100 of the plans.
12. Standard Drawings D-704-5, 7, 8, 9, 10, 11, 13, 14, 15, and 50 as applicable.

The required traffic control signs and devices are included in the "Traffic Control Devices List" and will be measured and paid at the contract unit price for each device. Quantities for Traffic Control devices were estimated using a 40 mph work zone speed limit. Enough stackable vertical panels were quantified to provide closure of both shoulders. Provide additional devices at no additional cost to the Department.

During paving operations, provide traffic control consisting of a temporary road closure, flagging, and a pilot car. When installing layout G from Standard D-704-20 during this operation, move sign W3-5-48 and the sign assembly containing signs R2-1-48 and R2-1a-24 with the work area as it progresses through the construction zone. Place the R2-1-48 assembly a minimum of 500 feet in advance of flagging signs.

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

1. 80th Ave NE/Walleye Dr
2. Devils Lake Regional Airport Entrance/Exit

704-P03 TRAFFIC CONTROL DEVICES: Traffic control devices used for mobile operations including paving operations, pavement marking and rumbles strips on SS-3-019(067)135 PCN 21273, SS-3-019(065)139 PCN 20682 and NHU-3-019(066)153 PCN 20707 will be paid once under the SS-3-019(065)139 PCN 20682 project.

704-P04 TERMINAL SIGNING: If work is simultaneously being performed on this project and Segment 3 of tied project SS-3-019(065)139 PCN 20682; the following criteria will apply:

1. The reduced construction work zone speed limit shall remain between this project and the above listed segment.
2. The following signs shall be removed between this project and the above listed segments.
   a. Sign No. G20-55-96 “Speed Limit Enforced”
   b. Sign No. W3-5-48 “Speed Reduction”
   c. Sign No. R2-1-28 “Speed Limit”
   d. Sign No. G20-2a-48 “End Road Work”
   e. Sign No. G20-10-108 “Contractor Sign”

704-P05 TRAFFIC CONTROL: Use flagging and pilot car operations in areas where the shoulder drop off is 2” or greater during working hours. Construct a slough that is 4:1 or flatter during non-working hours. In lieu of constructing a 4:1 slough, flagging and pilot car operations can be used at Contractor’s expense during non-working hours. At no time shall adjacent shoulders have a drop off of 2” or greater.

706-P01 FIELD OFFICE: Provide a field office which meets the following requirements:

1. Be completely insulated and weather tight.
2. Have a minimum floor area of 230 square feet with a minimum exterior width of 8 feet and a minimum ceiling height of 7 feet.
3. Have a dependable source of electricity for power and lights with a minimum of 6 electrical outlets spaced throughout the building and 3 light fixtures spaced to uniformly light the entire interior. The cost of the installation and monthly fee for the electricity will be included in the cost of the field office.
4. Be wired for DSL Broadband internet with wireless Wi-Fi and have the capability to allow for hard wiring the computer. Include the cost of the installation and monthly fees.
5. A heating and cooling system that is capable of maintaining the temperature between 65°F and 78°F year around.
6. Have 3 desks and 3 desk chairs, 3 extra chairs, one drawer file cabinet with at least two drawers, one table minimum of 2.5 ft x 5 ft.
7. Have a photocopy machine capable of 11 x 17 photocopies and toner to last the duration of the project. The Engineer will be responsible to furnish the paper. A separate table or cabinet to support the copier.
8. Have a 15 cubic foot or larger refrigerator and a microwave.
9. The location of the field office shall be on, or as close to the project and Aggregate Laboratory as possible. Prior to installation of the Field Office, the location shall be approved by the Engineer. Any rental fees shall be paid by the Contractor.

This document was originally issued and sealed by Jason P. Gullicks, Registration Number PE-4792, on 03/21/16 and the original document is stored at the North Dakota Department of Transportation.

NOTES

10. Be available at the start of the project and remain available through project completion.

All requirements of the Field Office are subject to approval by the Engineer. Include all costs associated with field office in the contract unit price for "Field Office."

706-P02 LABORATORY: Provide all laboratories wired for DSL Broadband internet with wireless Wi-Fi and have the capability to allow for hard wiring the computer.

Include the cost of the installation and monthly fees in the contract unit price of each laboratory.

714-P01 BROKEN BACK CULVERT INSTALLATION: Broken back culvert installations are required at some locations as shown in the plans. Invert elevations and culvert segment lengths for these culverts have been noted on the cross sections.

Station	Offset	Pipe Diameter (inches)	Number of Deflected Joints	Overall Vertical Deflection Angle
8097+00	LT	24	1	00˚30'00"
8097+00	RT	24	1	00˚30'00"

The proposed number of joints to deflect is based on a combination of 6' and 8' pipe segment lengths. The overall deflection angle shall be installed gradually over the number of proposed sections of pipe to deflect. Install sections using a maximum of one (1) degree of deflection per joint to obtain the required invert elevation. The joint openings of these deflected pipe sections shall be wrapped externally with Geotextile Fabric – Type S2 (2 foot minimum width), and mortar shall be used to fill the joints. Longer tie bars may be necessary at to tie deflected joints.

Include the cost of completing the above described work in the contract unit price for "Pipe Conc Reinf Arch __INx__IN – CL III."

714-P02 COFFERDAM: Cofferdams may be required to install centerline culverts. Install and remove cofferdams in accordance to Section 626. Include the cost of installing and removing cofferdam in the contract unit price for "Pipe Conc Reinf Arch __INx__IN – CL III."

714-P03 REMOVE & RELAY PIPE-ALL TYPES & SIZES: Wrap relay pipe joints externally with Geotextile Fabric – Type S2 (2 foot minimum width) and tie joints. Include the cost in the contract unit price for "Remove & Relay Pipe-All Types & Sizes."

714-P04 REMOVE & RELAY END SECTION-ALL TYPE & SIZES: If an existing end section is unsuitable to relay prior to removal, replace it with an end section from another location that is scheduled for removal. Wrap relay end section joints externally with Geotextile Fabric – Type S2 (2 foot minimum width) and tie joints. Include the cost in the contract unit price for "Remove & Relay End Section-All Type & Sizes."

714-P05 CONCRETE PIPE BEND: 58 inch by 36 inch 30 degree bends are required at Sta 8136+31 and Sta 8136+40. Include the cost of the pipe bends in the contract unit price for "Pipe Conc Reinf Arch __INx__IN – CL III."

720-P01 RIGHT OF WAY MARKERS: Remove all existing concrete right of way markers between Sta 8078+80 to 8181+00. Include the cost of removal and backfilling of the holes in the contract unit price for "Right of Way Markers."

754-P01 SIGNING: All signs and supports not to be reset shall become property of the Contractor.

762-050 PAVEMENT MARKING: If the Engineer and Contractor agree, plan quantity will be used as the measurement for payment for pavement marking items.

990-P01 PIPE CLEANOUT: The centerline pipes have silt and/or debris along the bottom of the structure. Remove silt and/or debris from all centerline culverts and dispose of all material including sediment, rocks, and miscellaneous debris according to Section 107.17, "Removed Material."

After cleaning, inspect and record all centerline pipes using a closed-circuit television crawler. Provide DVD recording to the Engineer.

During inspection determine the following:
1. Deviations in the horizontal and vertical alignment
2. Location of any gaps in joints
3. Location of any damage

Include the cost of pipe cleaning and inspection in the contract unit price for "Pipe Cleanout."

This document was originally issued and sealed by Jason P. Gullicks, Registration Number PE-4792, on 03/21/16 and the original document is stored at the North Dakota Department of Transportation.

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(066)153	8	1

ESTIMATE OF QUANTITIES

SPEC	CODE	ITEM DESCRIPTION	UNIT	FUNDING A - MAINLINE	FUNDING B - CITY COST SHARE	TOTAL QUANTITY
103	0100	CONTRACT BOND	L SUM	0.08	0.17	0.25
201	0330	CLEARING & GRUBBING	L SUM	0.09	0.18	0.27
202	0132	REMOVAL OF BITUMINOUS SURFACING	SY	4,476	6,779	11,255
202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES	LF	324	767	1,091
203	0101	COMMON EXCAVATION-TYPE A	CY	1,060	1,689	2,749
203	0108	TOPSOIL-BORROW AREA	CY	1,851	3,594	5,445
203	0109	TOPSOIL	CY	4,380	8,948	13,328
203	0121	TOPSOIL-WETLAND	CY	651	1,499	2,150
203	0140	BORROW-EXCAVATION	CY	16,345	31,284	47,629
216	0100	WATER	M GAL	561	861	1,422
251	0200	SEEDING CLASS II	ACRE	6.83	14.01	20.84
251	1000	WETLAND SEED	ACRE	0.51	1.49	2.00
251	2000	TEMPORARY COVER CROP	ACRE	6.83	14.01	20.84
253	0101	STRAW MULCH	ACRE	13.66	28.02	41.68
255	0103	ECB TYPE 3	SY	342	598	940
255	0201	TRM TYPE 1	SY	-	9532	9532
256	0100	RIPRAP GRADE I	CY	-	40	40
260	0200	SILT FENCE SUPPORTED	LF	3,037	11,736	14773
260	0201	REMOVE SILT FENCE SUPPORTED	LF	3,037	11,736	14,773
261	0112	FIBER ROLLS 12IN	LF	4,197	13,110	17,307
261	0113	REMOVE FIBER ROLLS 12IN	LF	925	1,541	2,466
261	0120	FIBER ROLLS 20IN	LF	100	-	100
261	0121	REMOVE FIBER ROLLS 20IN	LF	100	-	100
265	0100	STABILIZED CONSTRUCTION ACCESS	EA	0.09	0.18	0.27
265	0101	REMOVE STABILIZED CONSTRUCTION ACCESS	EA	0.09	0.18	0.27
302	0050	TRAFFIC SERVICE AGGREGATE	TON	160	340	500
302	0120	AGGREGATE BASE COURSE CL 5	TON	14,283	16,624	30,907
401	0050	TACK COAT	GAL	3,326	3,628	6,954
401	0060	PRIME COAT	GAL	3,626	4,138	7,764
411	0105	MILLING PAVEMENT SURFACE	SY	267	519	786
420	0160	BLOTTER MATERIAL CL 44	TON	91	102	193
430	0042	SUPERPAVE FAA 42	TON	6,385	7,379	13,764
430	1000	CORED SAMPLE	EA	16	24	40
430	5828	PG 58-28 ASPHALT CEMENT	TON	383	442	825
702	0100	MOBILIZATION	L SUM	0.08	0.17	0.25
704	0100	FLAGGING	MHR	512	1088	1600
704	1000	TRAFFIC CONTROL SIGNS	UNIT	662	1407	2,069

ESTIMATE OF QUANTITIES

SPEC	CODE	ITEM DESCRIPTION	UNIT	FUNDING A - MAINLINE	FUNDING B - CITY COST SHARE	TOTAL QUANTITY
704	1060	DELINEATOR DRUMS	EA	4	8	12
704	1067	TUBULAR MARKERS	EA	42	90	132
704	1080	STACKABLE VERTICAL PANELS	EA	84	180	264
704	1185	PILOT CAR	HR	256	544	800
706	0400	FIELD OFFICE	EA	0.08	0.17	0.25
706	0500	AGGREGATE LABORATORY	EA	0.08	0.17	0.25
706	0550	BITUMINOUS LABORATORY	EA	0.08	0.17	0.25
706	0600	CONTRACTOR'S LABORATORY	EA	0.08	0.17	0.25
709	0155	GEOSYNTHETIC MATERIAL TYPE RR	SY	-	79	79
714	2130	PIPE CONC REINF ARCH 44IN X 27IN CL III	LF	48	-	48
714	2161	PIPE CONC REINF ARCH 58IN X 36IN CL III	LF	-	42	42
714	4099	PIPE CONDUIT 18IN-APPROACH	LF	-	72	72
714	4106	PIPE CONDUIT 24IN-APPROACH	LF	464	661	1,125
714	4122	PIPE CONDUIT 42IN-APPROACH	LF	-	144	144
714	9659	REMOVE & RELAY PIPE-ALL TYPES & SIZES	LF	16	-	16
714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES	EA	2	4	6
720	0110	RIGHT OF WAY MARKERS	EA	8	20	28
720	0125	ALIGNMENT MONUMENTS	EA	1	4	5
720	0130	IRON PIN R/W MONUMENTS	EA	4	14	18
720	0135	IRON PIN REFERENCE MONUMENTS	EA	4	6	10
722	6200	ADJUST MANHOLE	EA	-	2	2
754	0110	FLAT SHEET FOR SIGNS-TYPE XI REFL SHEETING	SF	-	85	85
754	0112	FLAT SHEET FOR SIGNS-TYPE IV REFL SHEETING	SF	6	102	108
754	0206	STEEL GALV POSTS-TELESCOPING PERFORATED TUBE	LF	50	620	670
754	0563	REFERENCE MARKER-TYPE C	EA	1	1	2
754	0592	RESET SIGN PANEL	EA	2	9	11
754	0805	OBJECT MARKERS - CULVERTS	EA	14	26	40
760	0005	RUMBLE STRIPS - ASPHALT SHOULDER	MILE	1.290	1.127	2.417
760	0007	RUMBLE STRIPS - ASPHALT CENTERLINE	MILE	0.645	0.563	1.208
762	0103	PVMT MK PAINTED-MESSAGE	SF	96	96	192
762	0430	SHORT TERM 4IN LINE-TYPE NR	LF	7,650	13,656	21,306
762	0434	SHORT TERM 8IN LINE-TYPE NR	LF	2,222	2,620	4,842
762	1104	PVMT MK PAINTED 4IN LINE	LF	11,603	25,618	37,221
762	1108	PVMT MK PAINTED 8IN LINE	LF	1,111	1,310	2,421
766	0100	MAILBOX-ALL TYPES	EA	7	-	7
990	0400	PIPE CLEANOUT	EA	1	3	4

ND Hwy 19

Estimate of Quantities

Revised	03/21/16	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
		ND	NHU-3-019(066)153	100	1

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
D3-36	36"x6"	STREET NAME SIGN (Sign and installation only)		6	
G20-1-60	**60"x24"**	**ROAD WORK NEXT __ MILES**	**3**	**34**	**102**
G20-1b-60	60"x24"	WORK IN PROGRESS/ NO WORK IN PROGRESS (Sign and installation only)		26	
G20-2-48	**48"x24"**	**END ROAD WORK**	**2**	**19**	**38**
G20-4-36	**36"x18"**	**PILOT CAR FOLLOW ME (Mounted to back of pilot car)**	**1**	**18**	**18**
G20-10-108	**108"x48"**	**CONTRACTOR SIGN**	**2**	**64**	**128**
G20-50a-72	**72"x36"**	**ROAD WORK NEXT __ MILES RT & LT ARROWS**	**2**	**37**	**74**
G20-52a-72	**72"x24"**	**ROAD WORK NEXT __ MILES RT or LT ARROW**	**2**	**30**	**60**
G20-55-96	**96"x48"**	**SPEED LIMIT ENFORCED - MINIMUM FEE $80 WHEN WORKERS PRESENT**	**2**	**59**	**118**
M1-1-36	36"x36"	INTERSTATE ROUTE MARKER (Post and installation only)		10	
M1-4-24	24"x24"	U.S. ROUTE MARKER (Post and installation only)		10	
M1-5-24	24"x24"	STATE ROUTE MARKER (Post and installation only)		10	
M3-1-24	24"x12"	NORTH (Mounted on route marker post)		7	
M3-2-24	24"x12"	EAST (Mounted on route marker post)		7	
M3-3-24	24"x12"	SOUTH (Mounted on route marker post)		7	
M3-4-24	24"x12"	WEST (Mounted on route marker post)		7	
M4-8-24	24"x12"	DETOUR (Mounted on route marker post)		7	
M4-9-30	30"x24"	DETOUR ARROW RIGHT or LEFT/AHD AND RT or LT		15	
M4-10-48	48"x18"	DETOUR ARROW RIGHT or LEFT		23	
M5-1-21	21"x15"	ARROW AHD AND RT or LT(Mounted on route marker post)		7	
M5-2-21	21"x15"	ARROW AHD UP & RT or LT (Mounted on route marker post)		7	
M6-1-21	21"x15"	ARROW RT or LT (Mounted on route marker post)		7	
M6-2-21	21"x15"	ARROW UP & RT or LT (Mounted on route marker post)		7	
M6-3-21	21"x15"	ARROW AHD (Mounted on route marker post)		7	
R1-1-48	**48"x48"**	**STOP**	**2**	**32**	**64**
R1-1a-18	**18"x18"**	**STOP and SLOW PADDLE Back to Back**	**2**	**5**	**10**
R1-2-60	60"x60"	YIELD		29	
R2-1-48	**48"x60"**	**SPEED LIMIT __**	**4**	**39**	**156**
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**	**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		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**	**4**	**35**	**140**
W3-5-48	**48"x48"**	**SPEED REDUCTION AHEAD**	**2**	**35**	**70**
W4-2-48	48"x48"	RIGHT or LEFT LANE TRANSITION SYMBOL		35	
W5-1-48	**48"x48"**	**ROAD NARROWS**	**1**	**35**	**35**
W5-8-48	48"x48"	THRU TRAFFIC RIGHT LANE		35	
W5-9-48	48"x48"	ROAD WORK TRAFFIC ONLY DOWN & LT or RT ARROW		35	
W6-3-48	48"x48"	TWO WAY TRAFFIC SYMBOL		35	
W8-1-48	**48"x48"**	**BUMP**	**2**	**35**	**70**
W8-3-48	**48"x48"**	**PAVEMENT ENDS**	**1**	**35**	**35**
W8-7-48	48"x48"	LOOSE GRAVEL		35	
W8-9a-48	**48"x48"**	**SHOULDER DROP-OFF**	**2**	**35**	**70**
W8-11-48	**48"x48"**	**UNEVEN LANES**	**2**	**35**	**70**
W8-12-48	48"x48"	NO CENTER STRIPE		35	
W8-53-48	48"x48"	TRUCKS ENTERING HIGHWAY		35	
W8-54-48	**48"x48"**	**TRUCKS ENTERING AHEAD or __ FT.**	**2**	**35**	**70**
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)		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**	**6**	**35**	**210**
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**	**35**	**70**
W20-5-48	48"x48"	RIGHT or LEFT LANE CLOSED AHEAD or __ FT.		35	
W20-7a-48	**48"x48"**	**FLAGGING SYMBOL**	**6**	**35**	**210**
W20-7k-24	**24"x18"**	**__ FEET (Mounted on warning sign post)**	**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)**	**4**	**12**	**48**
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**	**1**	**35**	**35**
W22-8-48	48"x48"	FRESH OIL LOOSE ROCK		35	
	24"x24"	TAKE TURNS (6" D letters) (Mounted on stop sign post)		11	

SPECIAL SIGNS

SPEC & CODE

704-1000	**TRAFFIC CONTROL SIGNS**	**TOTAL UNITS**	**2069**

SPEC & CODE	DESCRIPTION	UNIT	QUANTITY
704-0100	**FLAGGING**	**MHR**	**1600**
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**	**12**
704-1065	TRAFFIC CONES	EACH	
704-1067	**TUBULAR MARKERS**	**EACH**	**132**
704-1070	DELINEATOR	EACH	
704-1072	FLEXIBLE DELINEATORS	EACH	
704-1080	**STACKABLE VERTICAL PANELS**	**EACH**	**264**
704-1081	VERTICAL PANELS - BACK TO BACK	EACH	
704-1085	SEQUENCING ARROW PANEL - TYPE A	EACH	
704-1086	SEQUENCING ARROW PANEL - TYPE B	EACH	
704-1087	SEQUENCING ARROW PANEL - TYPE C	EACH	
704-1088	SEQUENCING ARROW PANEL - TYPE C - CROSSOVER	EACH	
704-1095	TYPE B FLASHERS	EACH	
704-1185	**PILOT CAR**	**HR**	**800**
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**	**21306**
762-0434	**SHORT TERM 8IN LINE - TYPE NR**	**LF**	**4842**
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/

This document was originally issued and sealed by Jonathan D Bach, Registration Number PE-9797, on 3/21/16 and the original document is stored at the North Dakota Department of Transportation.

Traffic Control Devices List

ND Hwy 19