



North Dakota Department of Transportation

Grant Levi, P.E.
Director

Jack Dalrymple
Governor

October 2, 2015

ADDENDUM 2 – JOB 26

TO: All prospective bidders on project ITS-8-094(089)352 & SS-9-999(342), Job No. 26, scheduled for the October 9, 2015 bid opening.

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

Plan Revisions:

Remove and replace sheets 1-1, 2-1, 6-2 through 5A, 8-1 and 150-17 with the enclosed sheets revised 9/30/2015.

Add Sheets 150-10A through 150-10F.

Sheet 1-1:

Two ATR sites were added, "Bowesmont ATR" and "Cooperstown ATR"

Sheet 2-1:

Sheet numbers for Section 6 and Section 150 have been revised.

Sheets 6-2 through 5A:

Note 772-P02 has been revised to add ATR Site 229.

Note 772-P04 has been revised to add ATR Site 243.

Note numbers have been revised for all notes after 772-P04.

Sheet 8-1:

Item 704 0100 FLAGGING; quantity has increased from 160 to 240 MHR.

Item 772 9010 AUTOMATIC TRAFFIC RECORDER SYSTEM; quantity increased from 1 to 2 EA.

Item 772 9012 REVISE AUTOMATIC TRAFFIC RECORDER SYSTEM; quantity increased from 2 to 3 EA.

Sheets 150-10A through 10C:

ATR Site 229 near Cooperstown has been added. This is a new 2 lane ADR 6000 ATR site. The old ATR equipment will be removed. Detail sheet and quantities table are included.

Sheets 150-10D through 10F:

ATR Site 243 near Bowesmont has been added. The existing ATR site requires new loops and sensors in the northbound lanes. Detail sheet and quantities table are included.

Sheet 150-17:

Recorder cabinet with switch box detail has been added for Site 229.

Request for Proposal Revisions:

Remove and replace page 7 of 9 of the Proposal pages located at the beginning of the Request for Proposal, with the enclosed page revised 10/2/2015.

Page 7 of 9:

Item 704 0100 FLAGGING; quantity has increased from 160 to 240 MHR.

Item 772 9010 AUTOMATIC TRAFFIC RECORDER SYSTEM; quantity increased from 1 to 2 EA.

Item 772 9012 REVISE AUTOMATIC TRAFFIC RECORDER SYSTEM; quantity increased from 2 to 3 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

**JOB # 26
NORTH DAKOTA**

DEPARTMENT OF TRANSPORTATION

SS-9-999(342)
ITS-8-094(089)352

Cass, Cavalier, Griggs, Nelson, Pembina

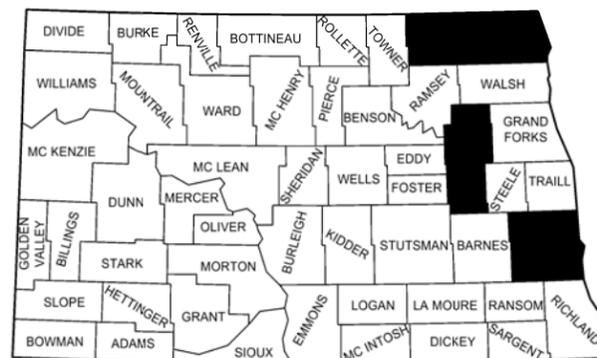
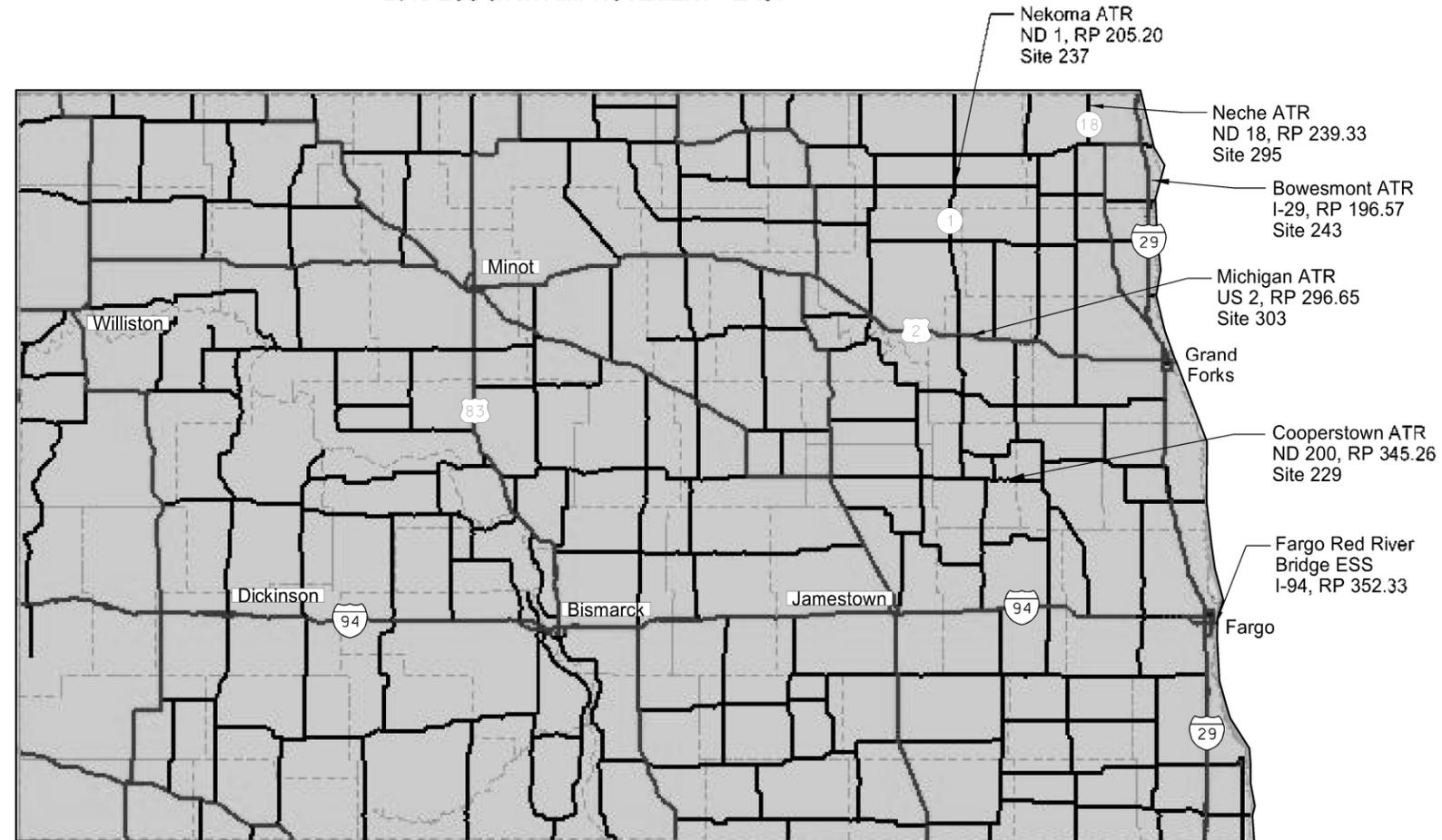
2015 ESS & ATR IMPROVEMENT - EAST

Revised	9-30-15	STATE	PROJECT NO.	PCN	SECTION NO.	SHEET NO.
		ND	SS-9-999(342)	20949	1	1
				ITS-8-094(089)352	20970	

GOVERNING SPECIFICATIONS:

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

PROJECT NUMBER \ DESCRIPTION NET MILES GROSS MILES



STATE COUNTY MAP

DESIGNERS

Spencer Ulvestad /s/

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 9/30/15

James Douglas Rath /s/

DESIGN DIVISION

APPROVED DATE 9/30/15

for Roger Weigel /s/

OFFICE OF PROJECT DEVELOPMENT
ND DEPARTMENT OF TRANSPORTATION

This document was originally issued and sealed by James Douglas Rath Registration Number PE- 4288, on 9/30/15 and the original document is stored at the North Dakota Department of Transportation

Revised 9-30-15

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-9-999(342) ITS-8-094(089)352	2	1

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	6	Environmental Commitments
8	1	Quantities
100	1	Traffic Control Devices List
	2-3	Work Zone Traffic Control
150	1-3	ATR Site 295
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	9-10	ATR Site 237
	10A-10C	ATR Site 229
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LIST OF STANDARD DRAWINGS

<u>Standard No.</u>	<u>Description</u>
D-101-01, 02, 03	NDDOT Abbreviations
D-101-10	NDDOT Utility Company Abbreviations
D-101-20, 21	Linestyles
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D-704-7	Breakaway Systems For Construction Zone Signs – Perforated Tube
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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 And Channelizing Device Details
D-704-14	Construction Sign Punching And Mounting Details
D-704-19	Road Closure and Lane Closure on Two Way Road Layouts
D-704-23	Short Term Urban Detour and Lane Closure on Divided Highway Layouts
D-704-50	Portable Sign Support Assembly
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LIST OF SPECIAL PROVISIONS

<u>SP No.</u>	<u>Description</u>
155(14)	Environmental Sensor Station

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-9-999(342) ITS-8-094(089)352	6	2

NOTES

The Contractor shall install a PEEK LPM33 Modem in the ATR cabinet. The Contractor shall contact the Information Technology Division within the NDDOT:

Robert Steckler
216 Airport Road
Bismarck, ND 58504
Telephone: (701) 328-6935

The Contractor must contact Robert Steckler a minimum of 3 weeks in advance of the installation.

Testing

All new loops shall be tested prior to and after installation and must test to manufacturers specifications or be replaced. If the loops meet manufacturer's specifications after installation, but do not perform traffic count or classification correctly, the Contractor will be responsible for any corrections up to and including replacing the defective part or parts. This may include loops and electronic equipment.

The Contractor shall verify vehicle classification by comparing ATR results with base line traffic counts and classification obtained by videotaping and manually counting and classifying vehicles for a period of 2 hours.

Acceptance

Acceptance of the ATR site will be determined after the site is in operation for 30 days. The 30 days begins after successful testing and it is determined that the ATR site is working correctly. Any damage caused as a result of construction practices or techniques shall be paid at the Contractor's expense. This includes new items installed by this contract including detector loops.

The Contractor shall provide the operation and maintenance manuals and detailed wiring schematics for this ATR site.

The Contractor shall provide and bear all costs for the electrical and phone service necessary to operate and maintain the ATR system until the system is accepted.

Completion of work requires the following items to be completed: the Automatic Traffic Recorder site in working order as approved by the PEEK Traffic Corp. representative, site passed inspection by the Engineer, and successful completion of testing.

All costs for labor, equipment, materials, PEEK representative, and all testing necessary to install the ATR equipment, shall be included in the price bid for "Revise Automatic Traffic Recorder System".

772-P02 AUTOMATIC TRAFFIC RECORDER SYSTEM: This note applies to ATR Sites 229 and 303.

Representative

The Contractor shall ensure that a qualified PEEK Traffic Corp. representative will be on site to assist and supervise the system installation and all work. The Contractor shall ensure that the PEEK Traffic Corp. representative is certified for ATR equipment installation, operation, calibration, and vehicle verification processes.

Loops

Loop conductor shall meet the requirements of Spec. 896.02 B.1.

Loop lead-in conductor shall meet the requirements of Spec. 896.03 B.3 and shall not be spliced except at the pull box, where the loop conductor and loop lead-in conductor are joined. All loop splices shall be soldered along with a 3M splice kit, or CK 137 Shake-N-Seal from Uraseal.

Sawing & Sealing Joints

The Contractor shall follow the provisions of Spec. 772.04 E.4 and E.7 when sawing and sealing any joints. Loop saw slots shall be 2 inches deep or as recommended by the manufacturer. Hot Poured Joint Seal shall not be used for sealing any saw slots.

The Contractor shall use 3M Bondo P-606V Loop Sealant, VersaFLEX SL/75 Joint Filler, or BASF MasterSeal SL 180 Loop Sealant for sealing all saw cuts.

The Contractor shall follow minimum curing specifications for all loops according to the detector loop manufacturer. The sealant shall cure until it does not track or has set sufficiently where it is not damaged by traffic. Any damage will be repaired at the Contractor's expense.

Cabinet

The Contractor is responsible for all conductor termination. All lug terminals for conductor termination shall be crimped and soldered. The conductors shall meet the requirements of Spec. 896.02 A.

The 2" rigid conduit shall be at a minimum depth of 24" below finished grade. This conduit shall meet the requirements of Spec. 896.01 B.2. The conduit shall not be spliced from the pull box to the recorder cabinet, and shall be a continuous run.

All conduit ends shall be sealed with steel wool of sufficient quantity to seal the top 2 inches. The steel wool shall be installed immediately after installation and reinstalled after each phase of construction to prevent mice from entering the conduit.

All conduit ends (both in the pull box and the cabinet) shall be permanently sealed with preformed plugs which provide an air tight and water tight seal in the conduit. The conduit

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NOTES

Revised 9-30-15

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plugs shall be removable and reusable. The plugs shall be the split type that permits installation or removal without removing cables. The plugs shall seal the conduit with an adjustable filler of neoprene or silicone rubber compressed with stainless steel hardware. Duct tape shall not be used to cap the conduit or make the ends watertight.

The pull box shall be round PVC pull box as shown in the details. The pull box cover shall be made watertight. The cover shall have a gasket around the opening and around each of the screw holes.

The ADR-6000 traffic recorder shall be manufactured by PEEK Traffic Corp.

All AC power feeds, data lines, and loops shall be protected with approved surge/line protectors. A 6 outlet AC line protector unit must be provided for the 120 volt 60 Hz power source. The protector unit will include a thermal circuit breaker. Electrical Magnetic Interference (EMI) noise suppression will be provided for diverting and clamping high voltage surges. The noise suppression shall limit the maximum voltage reaching the sensitive electronic equipment during a transient pulse. The unit will be approved by Underwriter Laboratories (UL).

The Contractor shall install a 4G Cellular Modem in the ATR cabinet. The Contractor shall contact the Information Technology Division within the NDDOT:

Robert Steckler
216 Airport Road
Bismarck, ND 58504
Telephone: (701) 328-6935

The Contractor must contact Robert Steckler a minimum of 3 weeks in advance of the installation.

Foundations

The ATR cabinet foundation and working slab shall be constructed using the ATR Detail Sheet.

The cabinet foundation shall be of sufficient size so there is a minimum of 3" of clearance from the outside edge of cabinet to the outside edge of the foundation on any side. The Contractor shall ensure a water-tight seal between the cabinet and the foundation by caulking, except for the V groove. Rodent protection shall be placed in the V groove between the concrete foundation and the cabinet, which will allow water to drain properly from the cabinet. The materials and preparation of the working slab shall be as approved by the Engineer.

Bolt studs in the cabinet foundation shall be securely fastened to the cabinet flange at all four corners. Washers of sufficient size shall be used to secure the cabinet to the foundation.

Ground rods must be placed at all 4 corners, located outside of the foundation pad in a ring type configuration. Each ground rod must be 1/2 inch diameter. The 4 ground rods in a ring shall be 10 feet long, the ground rod next to the cabinet shall be 12 feet long. The ground rod closest to the cabinet shall be installed at the same elevation where the ground rod exits the cabinet. A 3/4 inch diameter conduit shall run from the inside of the cabinet to the top of the nearest ground rod.

Connection of ground rods must be with a No. 2/0 AWG copper conductor bonded to the cabinet. The copper conductor shall be buried a minimum of 6 inches below the ground surface. All buried connections will be made with an exothermic weld connection. The earth ground resistance will test to 25 ohm or less, and be tested with an earth/ground resistance tester capable of measuring earth ground resistance less than 25 ohm. The Contractor will install any additional ground rods to achieve the 25 ohm or less earth ground resistance. All test results will be documented by the Contractor and furnished to NDDOT in a clean, organized format.

Testing

All new loops shall be tested prior to and after installation and must test to manufacturers specifications or be replaced. If the loops meet manufacturer's specifications after installation, but do not perform traffic count or classification correctly, the Contractor will be responsible for any corrections up to and including replacing the defective part or parts. This may include loops and electronic equipment.

The Contractor shall verify vehicle classification by comparing ATR results with base line traffic counts and classification obtained by videotaping and manually counting and classifying vehicles for a period of 2 hours.

Acceptance

Acceptance of the ATR site will be determined after the site is in operation for 30 days. The 30 days begins after successful testing and it is determined that the ATR site is working correctly. Any damage caused as a result of construction practices or techniques shall be paid at the Contractor's expense. This includes new items installed by this contract including detector loops.

The Contractor shall provide the operation and maintenance manuals and detailed wiring schematics for this ATR site.

The Contractor shall provide and bear all costs for the electrical and phone service necessary to operate and maintain the ATR system until the system is accepted.

Completion of work requires the following items to be completed: the Automatic Traffic Recorder site in working order as approved by the PEEK Traffic Corp. representative, site passed inspection by the Engineer, and successful completion of testing.

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ND	NH-9-999(342) ITS-8-094(089)352	6	4

NOTES

All costs for labor, equipment, materials, PEEK representative, and all testing necessary to install the ATR equipment, shall be included in the price bid for "Automatic Traffic Recorder System".

772-P03 AUTOMATIC TRAFFIC RECORDER SYSTEM: This note applies to ATR Site 237.

The Contractor is responsible for all conductor termination. All lug terminals for conductor termination shall be crimped and soldered. The conductors shall meet the requirements of Spec. 896.02 A.

The 2" rigid conduit shall be at a minimum depth of 24" below finished grade. This conduit shall meet the requirements of Spec. 896.01 B.2. The conduit shall not be spliced from the feed point to the recorder cabinet, and shall be a continuous run.

All conduit ends shall be sealed with steel wool of sufficient quantity to seal the top 2 inches. The steel wool shall be installed immediately after installation and reinstalled after each phase of construction to prevent mice from entering the conduit.

All conduit ends (both in the pull box and the cabinet) shall be permanently sealed with preformed plugs which provide an air tight and water tight seal in the conduit. The conduit plugs shall be removable and reusable. The plugs shall be the split type that permits installation or removal without removing cables. The plugs shall seal the conduit with an adjustable filler of neoprene or silicone rubber compressed with stainless steel hardware. Duct tape shall not be used to cap the conduit or make the ends watertight.

Acceptance of the ATR site will be determined after the site is functioning properly. Any damage caused as a result of construction practices or techniques shall be paid at the Contractor's expense.

The Contractor shall provide and bear all costs for the electrical service necessary to operate and maintain the ATR system until the system is accepted.

Completion of work requires site passed inspection by the Engineer.

All costs for labor, equipment, and materials to install the equipment, shall be included in the price bid for "Revise Automatic Traffic Recorder System".

772-P04 AUTOMATIC TRAFFIC RECORDER SYSTEM: This note applies to ATR Site 243.

Representative

The Contractor shall ensure that a qualified PEEK Traffic Corp. representative will be on site to assist and supervise the system installation and all work. The Contractor shall ensure that a PEEK Traffic Corp. representative is certified for the ATR equipment installation, operation, calibration, and vehicle verification processes.

Loops

Loop conductor shall meet the requirements of Spec. 896.02 B.1.

Loop lead-in conductor shall meet the requirements of Spec. 896.03 B.3 and shall not be spliced except at the pull box, where the loop conductor and loop lead-in conductor are joined. All loop splices shall be soldered along with a 3M splice kit, or CK 137 Shake-N-Seal from Uruseal.

Sensors

The sensors shall be AXOR K, 6 Foot, Class II Piezo Electric Sensor. The Contractor shall install all loops and sensors according to the manufacturer's recommendations.

Sawing & Sealing Joints

The Contractor shall follow the provisions of Spec. 772.04 E.4 and E.7 when sawing and sealing any joints. Loop saw slots shall be 2 inches deep or as recommended by the manufacturer. Hot Poured Joint Seal shall not be used for sealing any saw slots.

The Contractor shall use 3M Bondo P-606V Loop Sealant, VersaFLEX SL/75 Joint Filler, or BASF MasterSeal SL 180 Loop Sealant for sealing all saw cuts.

The Contractor shall follow minimum curing specifications for all loops according to the detector loop manufacturer. The sealant shall cure until it does not track or has set sufficiently where it is not damaged by traffic. Any damage will be repaired at the Contractor's expense.

Pull Box

The 2" rigid conduit shall be at a minimum depth of 24" below finished grade. This conduit shall meet the requirements of Spec. 896.02 B.2 and shall not be spliced from the pull box to the recorder cabinet, and shall be a continuous run.

All holes made or existing in the pull box for conduit access shall be plugged/sealed and made watertight. All conduit containing electrical conductor shall be sealed and made watertight after the conductor has been pulled through and terminated.

Testing

All new loops shall be tested prior to and after installation and must test to manufacturers specifications or be replaced. If the loops meet manufacturer's specifications after installation, but do not perform traffic count or classification correctly, the Contractor will be responsible for any corrections up to and including replacing the defective part or parts. This may include loops and electronic equipment.

The Contractor shall verify vehicle classification by comparing ATR results with base line traffic counts and classification obtained by videotaping and manually counting and classifying vehicles for a period of 2 hours.

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ND	NH-9-999(342) ITS-8-094(089)352	6	5

NOTES

Acceptance

Acceptance of the ATR site will be determined after the site is in operation for 30 days. The 30 days begins after successful testing and it is determined that the ATR site is working correctly. Any damage caused as a result of construction practices or techniques shall be paid at the Contractor's expense. This includes new items installed by this contract including detector loops.

The Contractor shall provide the operation and maintenance manuals and detailed wiring schematics for this ATR site.

The Contractor shall provide and bear all costs for the electrical and phone service necessary to operate and maintain the ATR system until the system is accepted.

Completion of work requires the following items to be completed: the Automatic Traffic Recorder site in working order as approved by the PEEK Traffic Corp. representative, site passed inspection by the Engineer, and successful completion of testing.

All costs for labor, equipment, materials, PEEK representative, and all testing necessary to install the ATR equipment, shall be included in the price bid for "Revise Automatic Traffic Recorder System".

772-P05 ENVIRONMENTAL SENSOR STATION (ESS): The Contractor shall follow the provisions of Spec. 772.04 E.4 and E.7 when sawing and sealing any joints. Loop saw slots shall be 2 inches deep or as recommended by the manufacturer. Hot Poured Joint Seal shall not be used for sealing any saw slots.

The Contractor is responsible for all conductor termination. All lug terminals for conductor termination shall be crimped and soldered. The conductors shall meet the requirements of Spec. 896.02 A.

The 2" rigid conduit shall be at a minimum depth of 24" below finished grade. This conduit shall meet the requirements of Spec. 896.01 B.2. The conduit shall not be spliced from the pull box to the cabinet, and shall be a continuous run.

All conduit ends shall be sealed with steel wool of sufficient quantity to seal the top 2 inches. The steel wool shall be installed immediately after installation and reinstalled after each phase of construction to prevent mice from entering the conduit.

All conduit ends (both in the pull box and the cabinet) shall be permanently sealed with preformed plugs which provide an air tight and water tight seal in the conduit. The conduit plugs shall be removable and reusable. The plugs shall be the split type that permits installation or removal without removing cables. The plugs shall seal the conduit with an adjustable filler of neoprene or silicone rubber compressed with stainless steel hardware. Duct tape shall not be used to cap the conduit or make the ends watertight.

All holes made or existing in the pull box for conduit access shall be plugged/sealed and made watertight.

The pull box shall be round PVC pull box as shown in the details. The pull box cover shall be made watertight. The cover shall have a gasket around the opening and around each of the screw holes.

The cabinet foundation shall be of sufficient size so there is a minimum of 3" of clearance from the outside edge of cabinet to the outside edge of the foundation on any side. The Contractor shall ensure a water-tight seal between the cabinet and the foundation by caulking, except for V groove. Rodent protection shall be placed in the V groove between the concrete foundation and the cabinet, which shall allow water to drain properly from the cabinet. The materials and preparation of the Working Slab shall be as approved by the Engineer.

Bolt studs in the cabinet foundation shall be securely fastened to the cabinet flange at all four corners. Washers of sufficient size shall be used to secure the cabinet to the foundation.

The meter on the north side of the roadway at the existing truss tower shall be removed. The Contractor shall contact Travis Lill at Xcel Energy to coordinate this work.

The existing truss tower on the north side of the roadway shall be removed. This includes the truss tower, chain link fence, foundation, sensors, and electrical cabinets. The truss tower, chain link fence, sensors, and electrical cabinets shall be delivered to the NDDOT Fargo District Shop at 503 38th St. S.

772-P06 CONCRETE JOINTS: This note applies to ATR site 303.

A non-metallic conduit shall be placed over the loop wire at each longitudinal concrete joint or as recommended by the PEEK representative. The contractor shall insure that the conduit material will not interfere with the properties of the concrete or degrade the electrical signal output from the loop wire.

All costs associated with this work shall be included in the price bid for "Automatic Traffic Recorder System".

772-P07 CONCRETE PATCHING: This note applies to the Fargo ESS site.

The in-pavement sensors shall be removed as shown in the plans. The holes in the roadway shall be cleaned with all the epoxy removed from the sides. A friction surface is required for the patch to bond properly with the existing pavement. The holes shall be patched with an approved epoxy or cement mixture.

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NOTES

All costs associated with this work shall be included in the price bid for "Install ESS Station/RWIS".

772-P08 FIBER OPTIC SPLICING: This note applies to the Fargo ESS site.

An existing Fiber Optic pull box is located approximately 53 ft to the SW of the existing ESS station. This pull box has a fiber optic splice enclosure within it.

Within this enclosure, there is one 36 fiber single mode fiber cable going west to the Fargo District Office, two 36 single mode cables going east to the existing ESS and high mast light standard, and one 24 fiber single mode cable going south to the existing pump house located on the south side of I-94.

The Contractor shall fusion splice fibers 17 thru 24 of the 24 fiber single-mode pump house cable to fibers 17 thru 24 of the west bound 36 single-mode cable. The purpose of the splicing is to connect the pump house with the Fargo District Office. All other fibers and splices within this enclosure shall remain in place and un-touched. Each fusion splice shall be 0.1 dB loss.

After splicing the contractor shall test fibers 17 thru 24 with end-to-end Conformance Testing using an Optical Time Domain Reflectometer (OTDR). The Contractor shall test each fiber and provide results of the test to the NDDOT.

All costs associated with this work shall be included in the price bid "Install ESS Station/RWIS".

772-P09 SEEDING: Any ground disturbed by construction activities shall be restored to the original grade. These areas shall be reseeded with Class II Seed. This includes areas disturbed by trenching, boring, pull boxes, cabinet foundations, and feed points.

All costs associated with this work shall be included in the price bid for "Automatic Traffic Recorder System", "Revise Automatic Traffic Recorder System", and "Install ESS Station/RWIS".

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ESTIMATE OF QUANTITIES

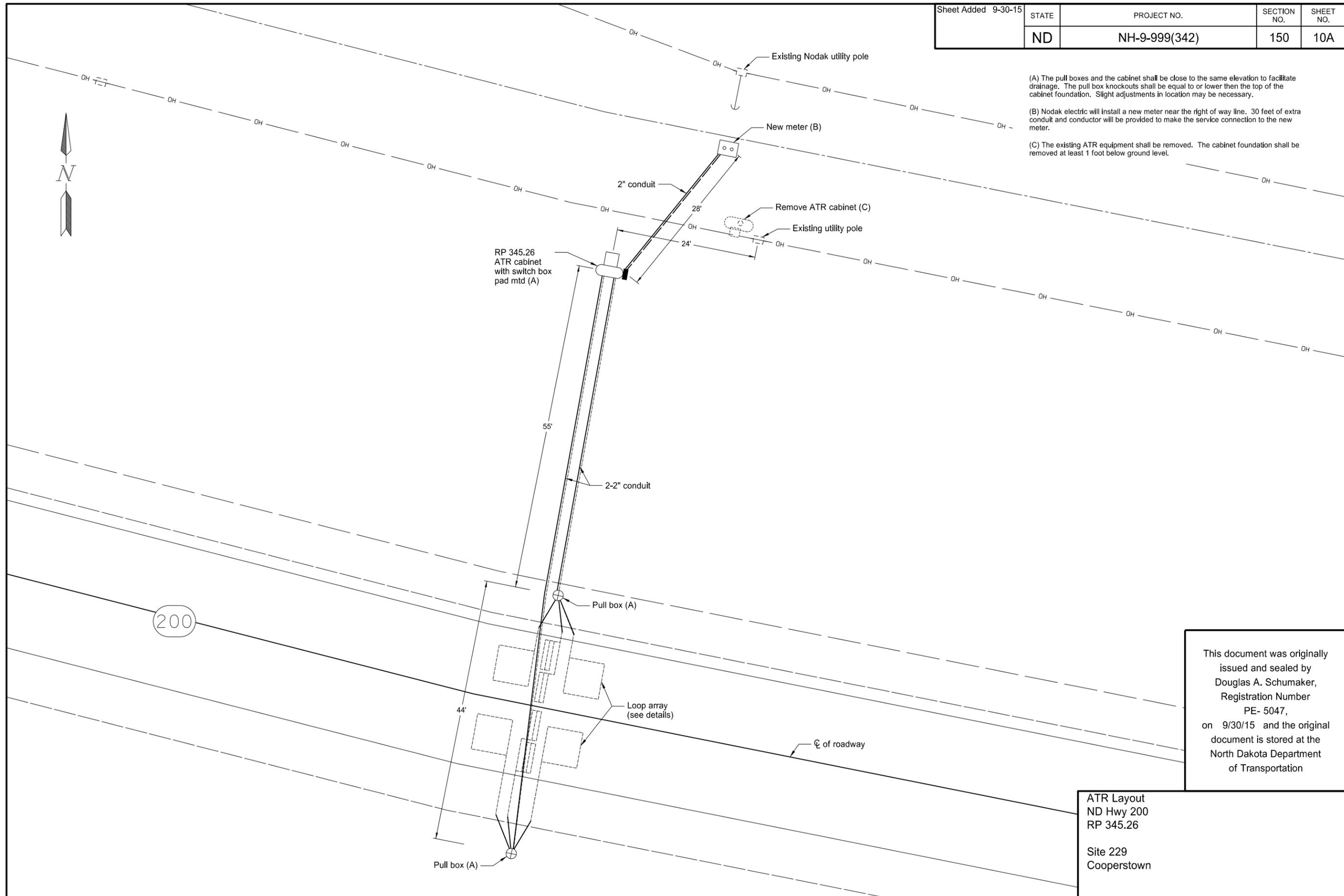
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-9-999(342)	8	1

REVISED 09/30/2015

SPEC CODE	ITEM DESCRIPTION	UNIT	NH-9-999(342) ATR	ITS-8-094(08) 9)352 ESS	TOTAL
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103	0100 CONTRACT BOND	L SUM	0.75	0.25	1
702	0100 MOBILIZATION	L SUM	0.75	0.25	1
704	0100 FLAGGING	MHR	200	40	240
704	1000 TRAFFIC CONTROL SIGNS	UNIT	939	313	1,252
704	1060 DELINEATOR DRUMS	EA	60	20	80
704	1065 TRAFFIC CONES	EA	30	10	40
704	1067 TUBULAR MARKERS	EA	38	12	50
704	1087 SEQUENCING ARROW PANEL-TYPE C	EA	1	1	2
772	9010 AUTOMATIC TRAFFIC RECORDER SYSTEM	EA	2		2
772	9012 REVISE AUTOMATIC TRAFFIC RECORDER SYSTEM	EA	3		3
772	9151 INSTALL ESS STATION/RWIS	EA		1	1

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-9-999(342)	150	10A

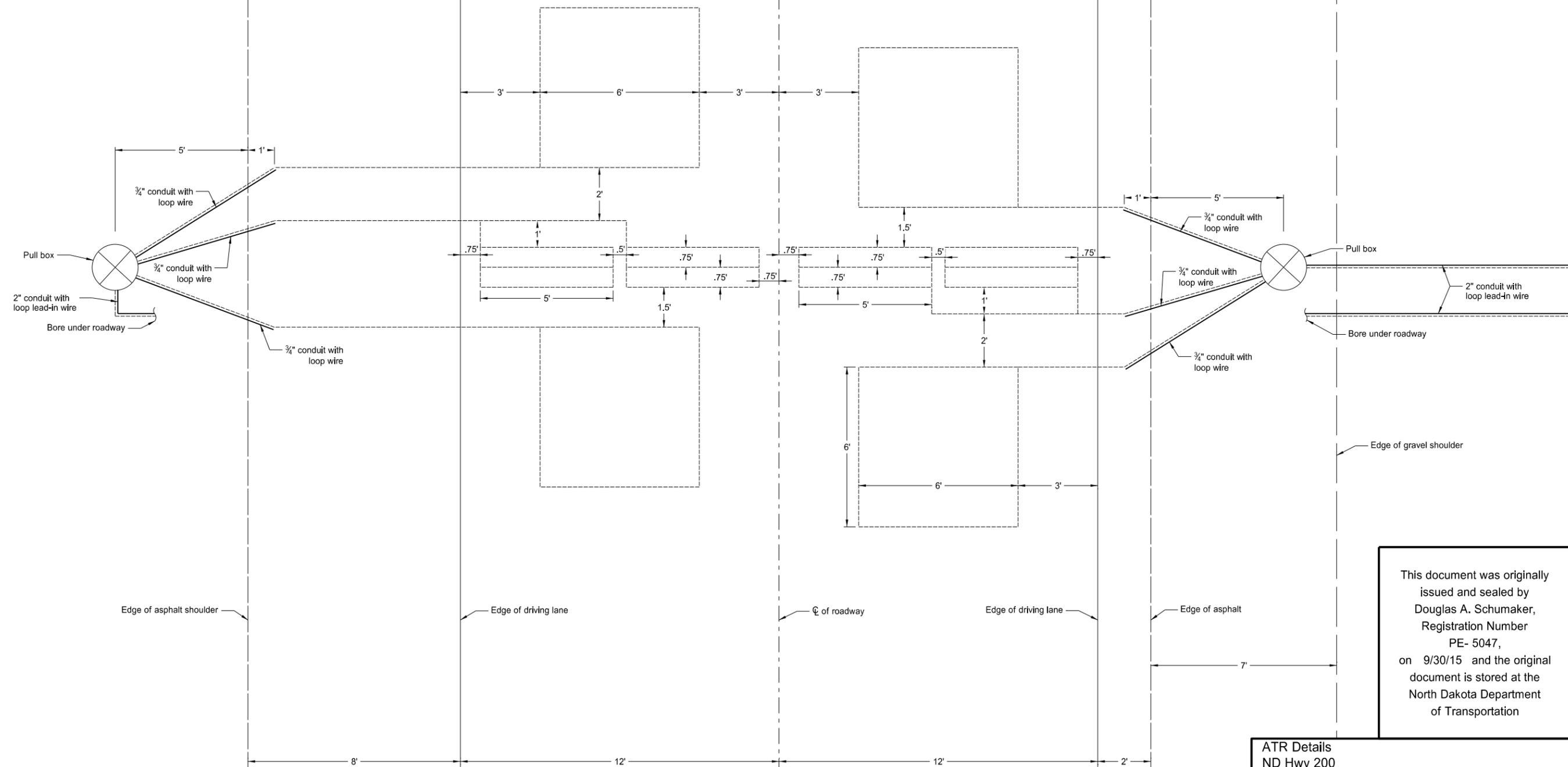
- (A) The pull boxes and the cabinet shall be close to the same elevation to facilitate drainage. The pull box knockouts shall be equal to or lower than the top of the cabinet foundation. Slight adjustments in location may be necessary.
- (B) Nodak electric will install a new meter near the right of way line. 30 feet of extra conduit and conductor will be provided to make the service connection to the new meter.
- (C) The existing ATR equipment shall be removed. The cabinet foundation shall be removed at least 1 foot below ground level.



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ATR Layout
 ND Hwy 200
 RP 345.26
 Site 229
 Cooperstown

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-9-999(342)	150	10B



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ATR Details
 ND Hwy 200
 RP 345.26
 Site 229
 Cooperstown

Sheet Added 9-30-15	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-9-999(342)	150	10C

Quantities (A)		
PVC Pull Box	EA	2
Underground Conductor No 4 Type RHW (B)	LF	136
Underground Conductor No 6 Type THW (B)	LF	68
Shielded Twisted Pair Loop Lead-In Wire 14 AWG XHHW	LF	736
Conductor Loop Wire 14 AWG XHHW (C)	LF	704
Saw Slot and Sealant for Loops	LF	221
3/4 Inch Diameter Rigid HDPE Conduit	LF	84
2 Inch Diameter Rigid HDPE Conduit (D)	LF	267
NEMA Type 3R Ground Mounted Cabinet with AC Power Panel and Sensor Surge Boards and Switch Box	EA	1
Concrete ATR Cabinet Foundation with working slab and grounding system	EA	1
PEEK ADR 6000 Traffic Counter/Classifier with all necessary cabling plus IDRIS License	EA	1
GFCI/Duplex Receptacles (3), Thermostatically Controlled Fan	EA	1
Telephone with Surge Protection	EA	1
4G Cellular Modem with all necessary cabling including ethernet and power cables	EA	1
PEEK Representative Oversight	EA	1
Video Verification and Validation	EA	1
30 Day Monitoring Period	EA	1
Seeding Class II (E)	ACRE	0.02
Remove existing ATR cabinet and foundation, and 2 pull boxes	EA	1

Automatic Traffic Recorder System	EA	1
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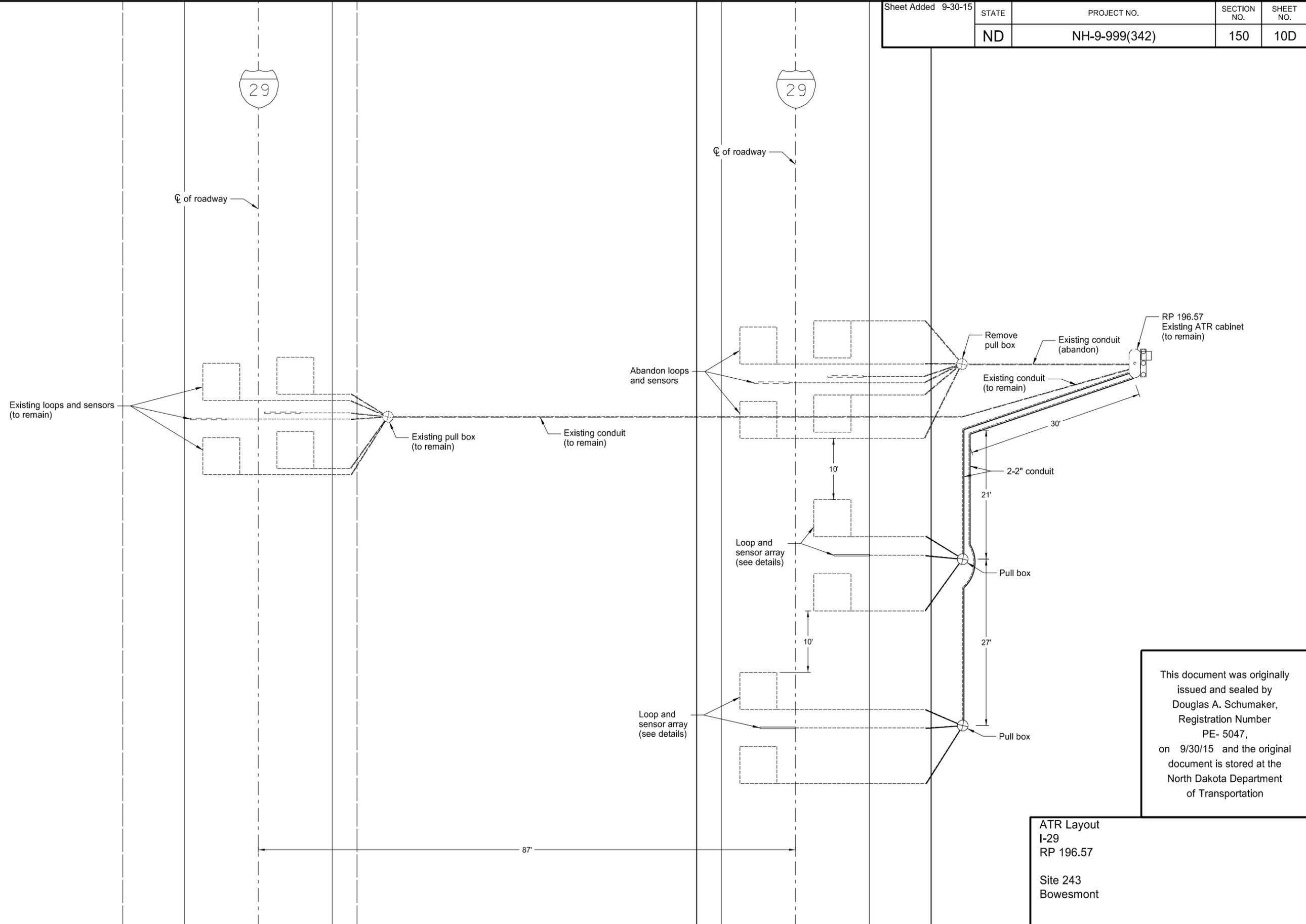
- (A) These quantities shall be included in the price bid for the item "Automatic Traffic Recorder System".
- (B) 1 No 6 and 2 No 4 conductors are provided to extend from the ATR cabinet to the meter. Nodak Electric will provide the service connection to the new meter.
- (C) The Entrance and Exit Loops shall be 6'x6' with 4 turns of conductor per loop. The Inner Axle Loops shall be 1.5'x5' Quadrapol with 3 turns of conductor.
- (D) This quantity includes an extra 20' conduit stub out for future use. Both ends shall be capped.
- (E) Ground disturbed while performing this work shall be reseeded.

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ATR Quantities
 ND Hwy 200
 RP 345.26

 Site 229
 Cooperstown

Sheet Added 9-30-15	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-9-999(342)	150	10D

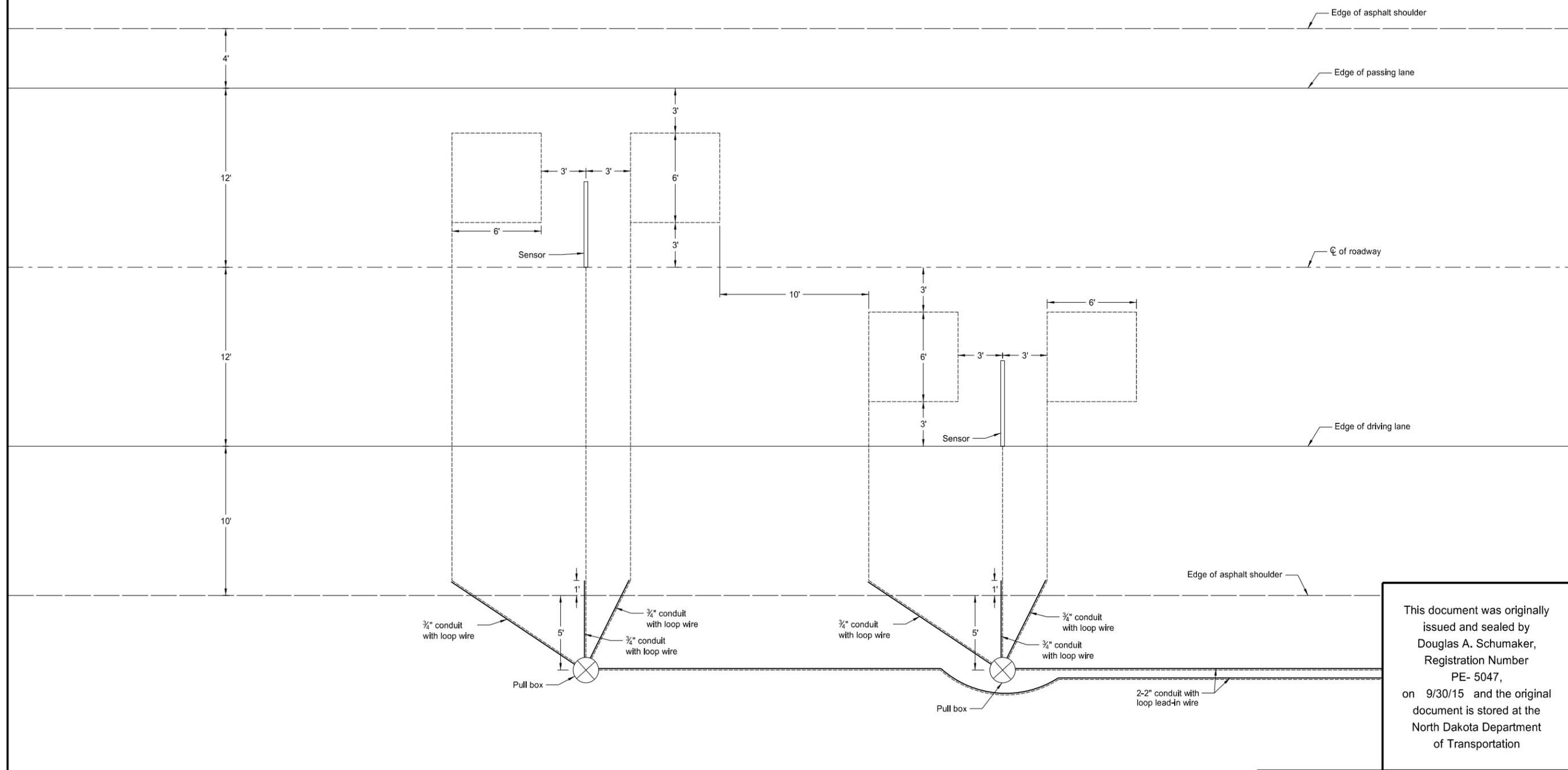


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ATR Layout
I-29
RP 196.57

Site 243
Bowesmont

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NH-9-999(342)	150	10E



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ATR Details
 I-29 northbound
 RP 196.57
 Site 243
 Bowsmont

Sheet Added 9-30-15	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	NH-9-999(342)	150	10F

Quantities (A)		
PVC Pull Box	EA	2
Shielded Twisted Pair Loop Lead-In Wire 14 AWG XHHW	LF	636
Conductor Loop Wire 14 AWG XHHW (B)	LF	632
Saw Slot and Sealant for Loops	LF	222
3/4 Inch Diameter Rigid HDPE Conduit	LF	42
2 Inch Diameter Rigid HDPE Conduit	LF	153
AXOR K 6 Foot Class II Piezo Electric Sensor including cable, epoxy, and mounting accessories	EA	2
PEEK Representative Oversight	EA	1
Vehicle Classification and Testing	EA	1
30 Day Monitoring Period	EA	1
Seeding Class II (C)	ACRE	0.01
Remove pull box	EA	1

Revise Automatic Traffic Recorder System	EA	1
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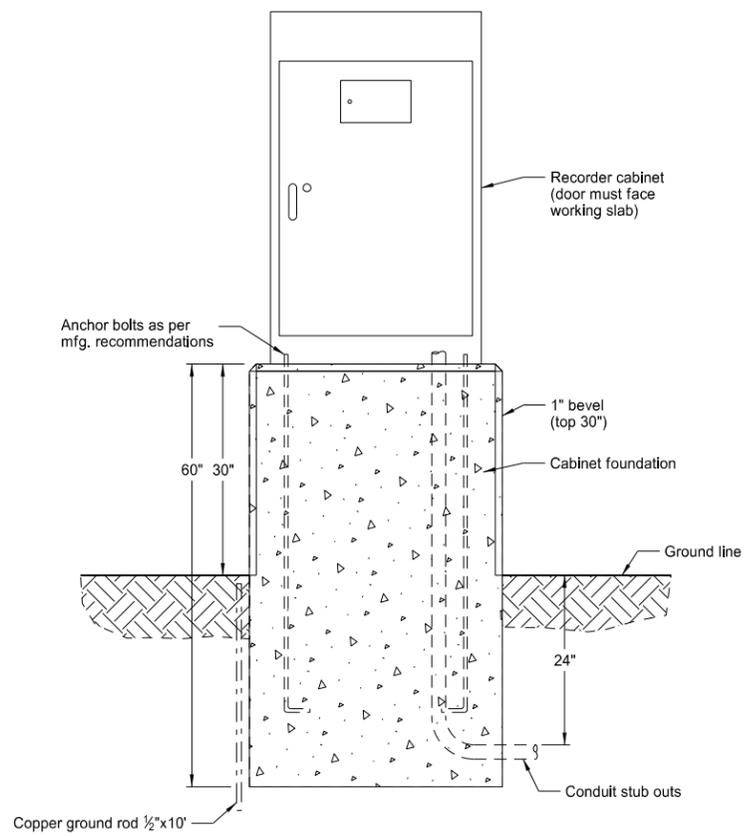
- (A) These quantities shall be included in the price bid for the item "Revise Automatic Traffic Recorder System".
 (B) This quantity includes 4 loops with 4 turns per loop.
 (C) Ground disturbed while performing this work shall be reseeded.

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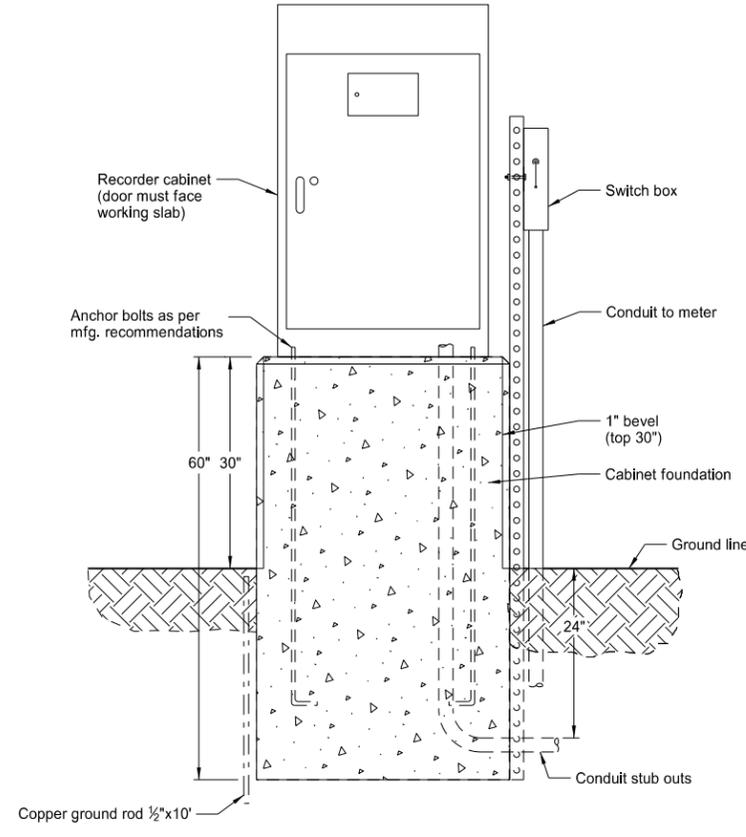
ATR Quantities
 I-29
 RP 196.57

 Site 243
 Bowesmont

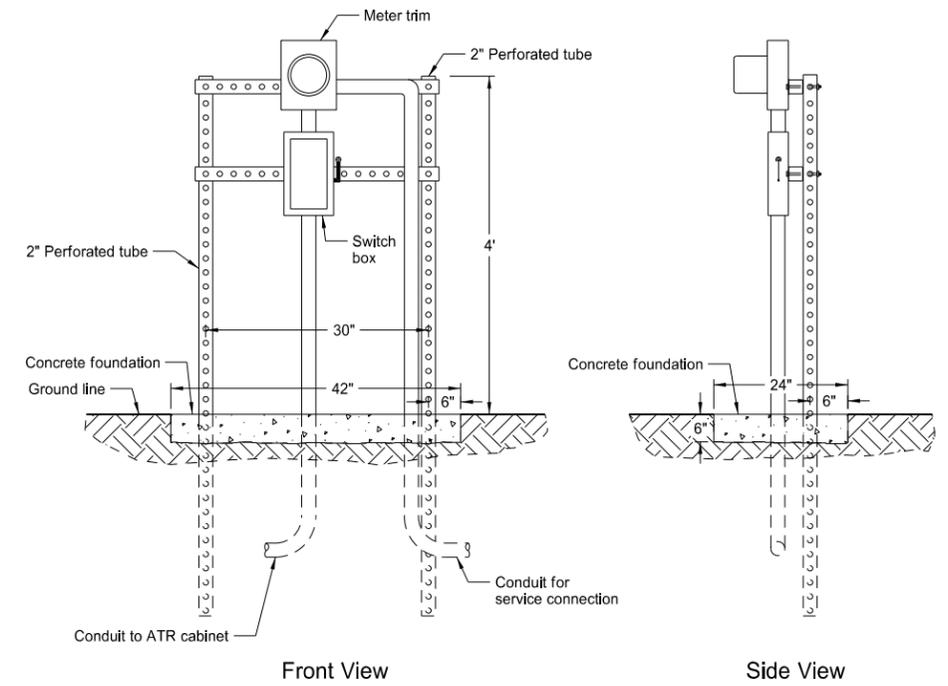
Revised	9-30-15	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
		ND	NH-9-999(342)	150	17



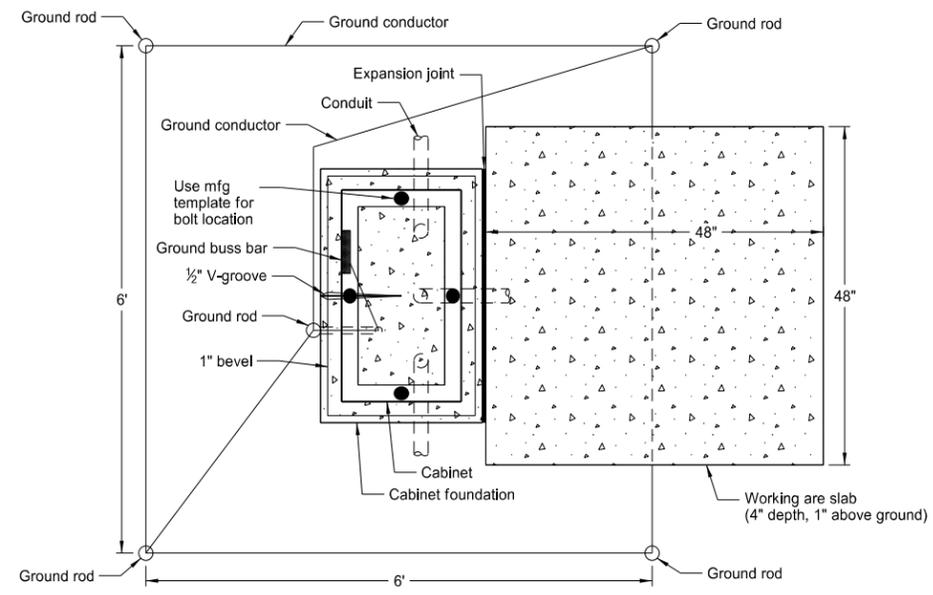
ATR Recorder Cabinet
with Concrete Foundation
Site 303



ATR Recorder Cabinet
with Concrete Foundation
Site 229



Feed Point Detail
with Concrete Foundation
Sites 237 and 303



Cabinet Foundation
and Working Slab
Sites 229 and 303

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ATR Details
Various Sites