



North Dakota Department of Transportation

Grant Levi, P.E.
Director

Jack Dalrymple
Governor

November 12, 2014

ADDENDUM 2 – JOB 22

TO: All prospective bidders on project NHU-1-981(105)115, Job No. 22 scheduled for the November 14, 2014 bid opening.

The following plan revisions shall be made:

Plan Revisions:

See attached letter dated November 12, 2014 from Nicholas J. Erpelding, Senior Associate – SRF Consulting Group, Inc. for an explanation.

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

For 

CAL J. GENDREAU – CONSTRUCTION SERVICES ENGINEER

80:dch

Enclosure

November 12, 2014

ADDENDUM 2

TO: All prospective bidders for the NHU-1-981(105)115 project (Job No. 22) scheduled for the November 14, 2014 bid opening

The following plan sheets shall be replaced by the attached revised sheets:

- Section 6, Sheet 2 (revised plan note 772-P03; feed point per City standards).
- Section 6, Sheet 3 (added plan note 772-P21; signal standards per AASHTO 5th Edition).
- Section 150, Sheet 1 (clarified that the feed point is to be furnished and installed).
- Section 150, Sheet 2 (clarified that the feed point is to be furnished and installed).
- Section 150, Sheet 13 (clarified that the feed point is to be furnished and installed).

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

Sincerely,

SRF CONSULTING GROUP, INC.



Nicholas J. Erpelding
Senior Associate

NJE

Attachments

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NOTES

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-1-981(105)115	6	2

772-P01 TRAFFIC SIGNALS SYSTEM: The price bid for "Traffic Signals System" shall include all labor and equipment necessary for the signal system to be fully operational as shown in the plans upon construction completion. This includes, but is not limited to, the installation of the following features: traffic signal standards, mast arms, vehicular heads, video detection system, street light extensions, luminaires, controller, controller battery back-up, cabinet, foundations, feed point installation, removal or revisions, emergency vehicle pre-emption system, along with all cable, conduit, junction boxes and appurtenances to install the traffic signal completely. Also includes the removal of the existing wiring or any other abandoned existing features that may conflict with the proposed traffic signal system improvements.

772-P02 TRAFFIC SIGNAL CABINET: The proposed traffic signal cabinet shall be a NEMA TS-2 Type 1 Standard Cabinet Assembly. The cabinet door shall face east and have the hinges on the right. All costs, labor, materials and equipment necessary for furnishing and installing this item shall be included in the price bid for "Traffic Signals System."

772-P03 UTILITY COORDINATION AND FEED POINT: The Contractor shall be responsible for coordination with Capital Electric Cooperative for the incoming electrical service to the new traffic signal system. The Contractor shall be responsible for connecting the traffic signal controller to a new feed point.

The new feed point shall be a Combination Lighting and Signal Feed Point Type IV and shall be furnished and installed in compliance with the "Construction Specifications for Municipal Public Works Improvements – City of Bismarck, North Dakota" revised April 2014. The feed point shall have separate meter sockets for Roadway Lighting and Traffic Signals, which will be metered separately. Capital Electric Cooperative shall supply all conductors, conduit, and connections from the transformer to the new feed point. The Contractor shall furnish and install all cable, conduit, meter sockets, and service disconnect from the new feed point to the new signal control cabinet. Any cost by Capital Electric Cooperative for the new installation shall be paid for by the City of Bismarck.

The Contractor shall coordinate with the utility company to establish the service connection to ensure a fully operational traffic signal controller feed point at this location. All costs, labor, materials and equipment required for feed point shall be included in the price bid for "Traffic Signals System."

772-P04 BATTERY BACK-UP: The controller shall be equipped with an Uninterruptible Power Supply (UPS) as specified in Standard Specification 772.04 K. The UPS shall be installed in a temperature and humidity controlled environment. The UPS shall be installed in a separate enclosure on a separate pad from the signal controller cabinet at a location approved by the Engineer. All materials, labor and equipment necessary to furnish and install the battery back-up system shall be included in the price bid for "Traffic Signals System."

772-P05 TRAFFIC SIGNAL CONTROLLER: The proposed volume density controller shall be NEMA TS2/NTCIP Actuated Controller produced by Econolite (ASC/3 Series), Peek

(3000E Series) or approved equal. The traffic counting capability of the controller shall be fully operational. The Contractor shall install a 4G Cellular Modem and Switch with all necessary cabling, including ethernet and power in the cabinet.

The price bid for "Traffic Signals System" shall include all labor, materials and equipment required to install the new controller. This shall include but is not limited to the emergency vehicle pre-emption unit, cabinet, new detector amplifiers (furnished and installed), other ancillary signal components (such as load switches, conflict monitors, etc.) and controller cabinet components connected as required to make the new controller equipment operational with the proposed signal equipment.

772-P06 PADLOCKS: The contractor shall obtain all padlocks from the City of Bismarck.

772-P07 CONTROLLER WORKING SLAB: Controller working slab shall be 6 feet wide and extend a minimum of 4 feet from the face of the controller foundation. The slab shall be 4 inches thick and reinforced with 6" x 6" x 10 GA welded wire fabric and shall be tied to the controller foundation with 18-inch long #3 rebar spaced 18 inches on center. The controller working slab shall have a slope of .25 inches per foot away from the controller cabinet foundation. The closest point of the top of the slab to finished grade shall be 2 inches above grade. Furnishing and installing the working slab shall be included in the price bid for "Traffic Signals System."

772-P08 CONTROLLER CABINET WIRING DIAGRAM: The following items shall be labeled on the cabinet wiring diagram, in addition to information required by NDDOT Standard Specification.

- A. The camera number (i.e., VC-1) from the plan shall be labeled on the detector panel drawing adjacent to the point for termination.
- B. The field wire terminals for the vehicle head control cables shall be labeled with the phase number and direction (i.e., 02, SB).
- C. The field wire terminals for the EVP cable shall be labeled with the pre-empt number (i.e., P.E. #1).
- D. The field wire terminal for the pre-empt indicator lamps shall be labeled with the pre-empt number and direction (i.e., P.E. #1, NB).
- E. Provide a CAD drawing file of the as-built cabinet wiring diagram.
- F. Not a separate pay item, cost to be included in the price bid for "Traffic Signals System."

772-P09 CONDUIT DUCT SEAL: Conduit shall be installed at the locations shown on the plans. All conduits shall be sealed with duct seal at the controller cabinet and at the traffic signal standard foundations. Conduit duct seal shall be included in the bid price for "Traffic Signals System."

This document was originally issued and sealed by Nicholas J. Erpelding, Registration Number PE- 5870, on 11/12/14 and the original document is stored at the City of Bismarck Bismarck, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-1-981(105)115	6	3

NOTES

- 772-P10 ADDITIONAL CONDUIT: The contractor shall install one additional 4-inch diameter conduit in the controller cabinet foundation. The direction of the conduit shall be determined in the field by the engineer. The conduits shall be capped. Not a separate pay item, cost to be included in the price bid for "Traffic Signals System."
- 772-P11 TRANSFORMER BASES: All signal standards shall be furnished with transformer bases.
- 772-P12 COMBINATION LIGHT AND SIGNAL STANDARD: The luminaire extension shall be of the davit type and designed for 12' mast arms as shown in the plans.
- 772-P13 SIGNAL EQUIPMENT:
- A. All signal plumbizer and pedestal adapters/collars shall be steel - absolutely no aluminum.
 - B. All vehicle heads, except 4-section mast arm mounted heads, shall be cast aluminum and installed level on all sides. Four section mast arm mounted heads shall be SIG polycarbonate and installed using a signal mounting bracket.
 - C. Mast arm length may need to be adjusted if a signal mounting bracket is used for mounting the 4-section heads at the end of the mast arms. Shop drawings for signal heads shall indicate the type of mounting.
 - D. Furnishing and installing signal equipment shall be included in the price bid for "Traffic Signals System."
- 772-P14 VEHICLE INDICATION ALIGNMENT: Vehicle heads mounted on signal standards shall be leveled on all 4-sides and aimed to the center of the oncoming traffic lane 200 feet from the stop bar. Mast arm heads shall be parallel to oncoming traffic.
- 772-P15 EMERGENCY VEHICLE PREEMPTION: The emergency vehicle preemption equipment furnished and installed shall be the Opticom system by GTT, Strobecom system by Tomar or approved equal. The equipment shall be fully compatible with other EVP equipment used within the City of Bismarck. All indicator lamps shall be LED. Confirmation lights shall be at the same locations on the mast arms as the EVP detectors. The EVP phase selector shall be model 754, or newer, with four channels of detection. Not a separate pay item, cost to be included in the price bid for "Traffic Signals System."
- 772-P16 LABEL ALL FIELD CABLES: All labeling materials shall be approved by the City of Bismarck. Labels shall be readable without moving the cables. All field cables installed by the contractor shall be labeled with the cable designations:

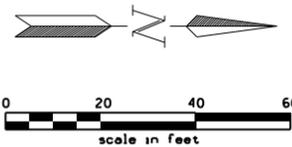
TYPE	LABEL	LABEL LOCATION
Video camera cable	Detection zone (i.e. D2-1, D2-2, etc.)	Within 6" of terminals
Control cable	Cable number & location (i.e. NW, SW, etc.)	Within 12" of conduit
EVP cable	Pre-empt number/location (i.e. NW, SW, etc.)	Within 6" of terminals

Not a separate pay item, cost to be included in the price bid for "Traffic Signals System."

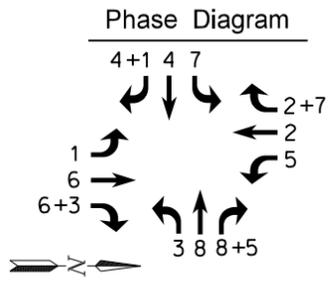
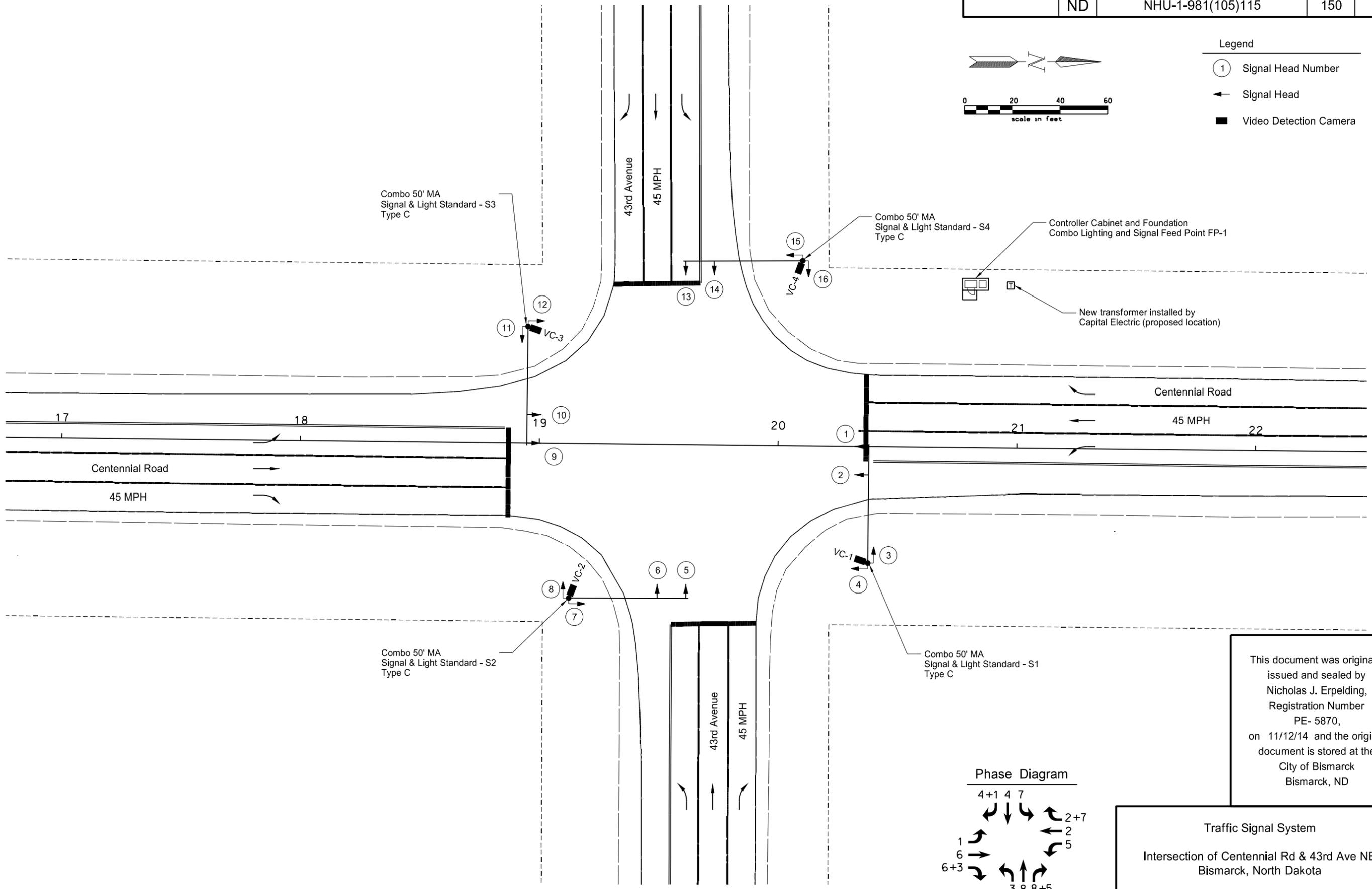
- 772-P17 PULL BOXES: Pull boxes shall meet the specification outlined in the NDDOT standard drawing D770-3. All proposed pull boxes shall be made of PVC with steel casting and shall include a traffic resistant cast iron cover.
- 772-P18 SPLICES AND CONDUCTORS IN PULL BOXES: There shall be no splices below grade.
- 772-P19 VIDEO DETECTION SYSTEM: The contractor shall supply a fully functioning video detection system manufactured by Econolite/Autoscope, Peek or approved equal. Video detection units shall be mounted on luminaire extensions. All cable connections, camera aiming, and system set-up, including programming detection zones and verification of reliable operation, shall be provided by the manufacturer's representative. Cable and camera installation shall be performed by the Contractor. Video detection camera locations in the plans are for guidance only. The Contractor shall provide all labor and equipment necessary for the video detection system to be fully operational. A video monitor shall be included in the controller cabinet for viewing the video detection. The video monitor shall be meet LCDI-104-CCTV-LCD specifications. All costs, labor, materials and equipment necessary for furnishing and installing a complete video detection system shall be included in the price bid for "Traffic Signals System."
- 772-P20 PAINT / FINISH: The traffic signal system components shall be painted / finished in accordance with the following:
- Transformer base – galvanized
 - Pole – galvanized
 - Mast arm – galvanized
 - Luminaire pole/arm – galvanized
 - Signal head mounting hardware – yellow
 - Signal housing – black
- The color yellow shall be 13538 of Federal Standard No. 595.
- 772-P21 TRAFFIC SIGNAL STANDARDS: All traffic signal standards shall comply with AASHTO 5th Edition 2010 Interim Guidelines.

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-1-981(105)115	150	1

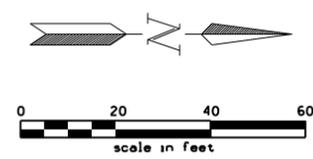


- Legend
- ① Signal Head Number
 - ← Signal Head
 - Video Detection Camera

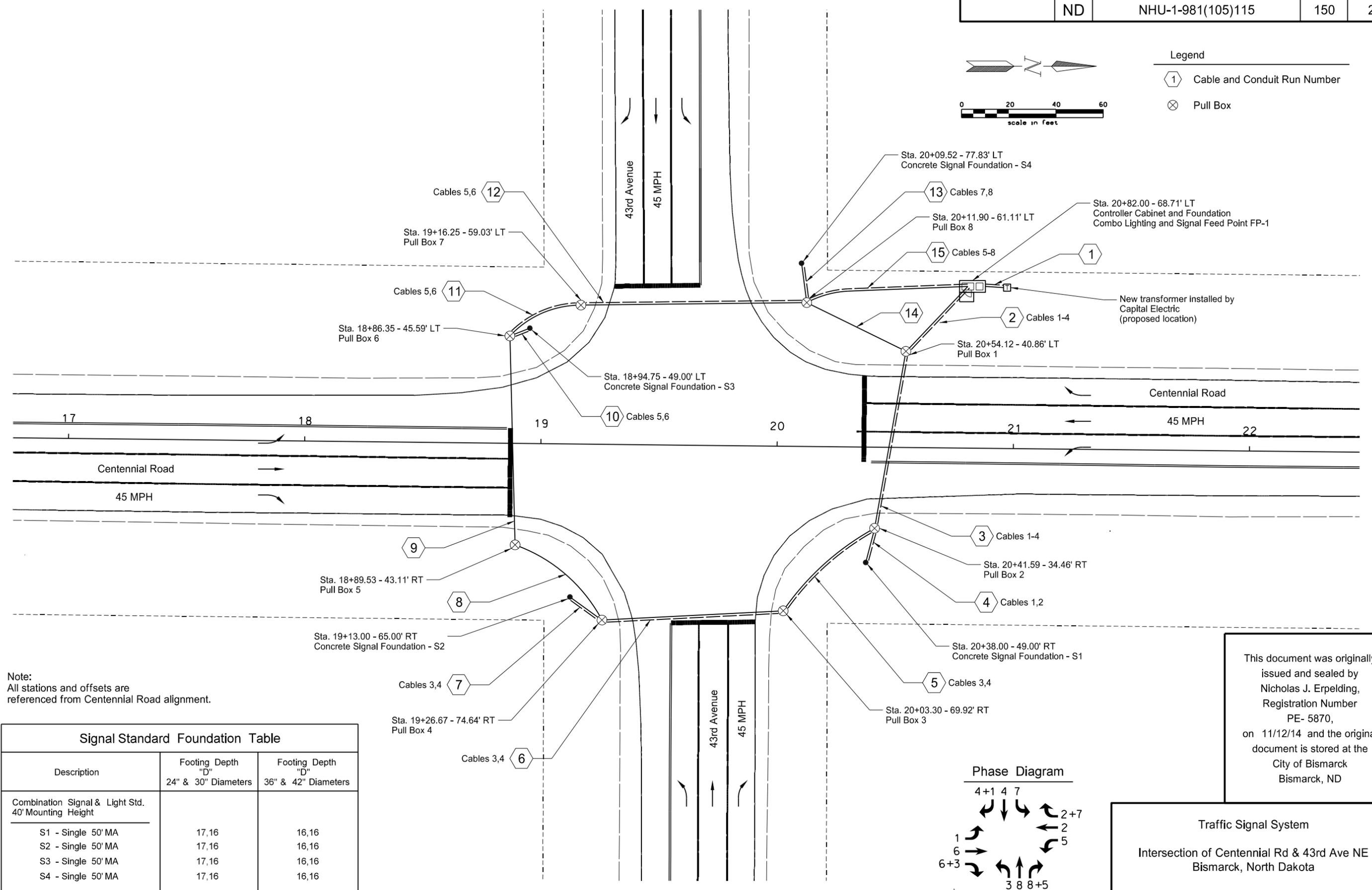


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Traffic Signal System
 Intersection of Centennial Rd & 43rd Ave NE
 Bismarck, North Dakota
 Traffic Signal Layout

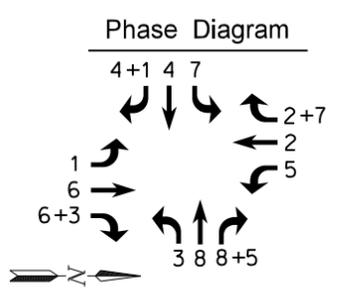


- Legend
- ① Cable and Conduit Run Number
 - ⊗ Pull Box



Note:
All stations and offsets are referenced from Centennial Road alignment.

Description	Footing Depth "D" 24" & 30" Diameters	Footing Depth "D" 36" & 42" Diameters
Combination Signal & Light Std. 40' Mounting Height		
S1 - Single 50' MA	17,16	16,16
S2 - Single 50' MA	17,16	16,16
S3 - Single 50' MA	17,16	16,16
S4 - Single 50' MA	17,16	16,16



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Traffic Signal System
Intersection of Centennial Rd & 43rd Ave NE
Bismarck, North Dakota
Cable/Conduit Layout

SPEC	CODE	ITEM DESCRIPTION	UNIT	TOTAL
772	20	CONCRETE FOUNDATION-TRAFFIC SIGNALS	EA	4
772	100	PULL BOX	EA	8
772	240	2IN DIAMETER RIGID CONDUIT	LF	10
772	270	3IN DIAMETER RIGID CONDUIT	LF	55
772	290	4IN DIAMETER RIGID CONDUIT	LF	615
772	375	EMERGENCY VEHICLE DETECTOR CABLE	LF	815
772		NO14 AWG 3 CONDUCTOR CABLE	LF	815
772		NO14 AWG 12 CONDUCTOR CABLE	LF	1630
772	551	FEED POINT-COMBO LIGHTING & SIGNAL-PAD MOUNT	EA	1
772	1202	COMBO 50FT MA SIG & LT STD-TYPE C	EA	4
772	1812	1-WAY 3 SEC HEAD W/12IN LENS-MA MTD	EA	4
772	1820	1-WAY 4 SEC HEAD W/12IN LENS-POST MTD	EA	4
772	1822	1-WAY 4 SEC HEAD W/12IN LENS-MA MTD	EA	4
772	1830	1-WAY 5 SEC HEAD W/12IN LENS-POST MTD	EA	4
772	2260	VIDEO DETECTION CABLE	LF	815
772	2265	VIDEO DETECTION SYSTEM	EA	1
772	2522	VOLUME DENSITY CONTR W/EMER PREEMPTION	EA	1
772		TRAFFIC SIGNAL CABINET	EA	1
772	2610	EMERGENCY VEHICLE PREEMPTION UNIT	EA	4
772	1	TRAFFIC SIGNALS SYSTEM	EA	1

Items shown above are for informational purposes; contractor shall provide all labor and equipment necessary for the signal system to be fully operational as shown in the Plans. Items shall be included in the corresponding price bid for "TRAFFIC SIGNAL SYSTEM".

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Traffic Signal System
 Intersection of Centennial Rd & 43rd Ave NE
 Bismarck, North Dakota
 Estimated Quantities