NOTES

SECTION 100

704-P01 LIGHTING TRAFFIC CONTROL: Provide traffic control according to the following layouts on the Standard Drawings for traffic control:

Lane closure traffic control device quantities are based on a 3000 foot work zone.

D-704-24, type S: For work beyond the shoulder.
D-704-34: For lighting installation when lane closure is needed.
D-704-35, right lane closed: For lighting installation in interchange area when lane closure is needed.

Remove lane closures if no work is scheduled for the following day. Lane closures may remain in place for up to 3 days if weather prevents work from being performed on days when work was scheduled to take place.

SECTION 140

770-P01 LED LUMINAIRE: Provide luminaires for US 2 that meet the following:

Light Source	LED
Light Output	24,000 lm to 26,000 lm
Driver	850 mA to 1100 mA
Wattage	190W to 210W
Color Temperature	3000K ±300K
Operating Temperature Range	-40°C to +40°C
Luminaire Housing	Die Cast Aluminum
Vibration Testing	ANSI/NEMA C136.31 Level 2, 3 G
Surge Suppression Rating	ANSI/IEEE C62.41 Cat C
Outdoor rating for housing, wiring, and drivers	ANSI C136.25 IP-65
Tool-less Access	Yes

Ensure the Effective Projected Area of the luminaire does not exceed the capacity of the light standard.

The lighting systems were designed using these values:

Roadway Classification (US 2)	Principal Arterial
Average Maintained Illuminance	0.8 foot-candles
Illuminance Uniformity Ratio (avg/min)	3.0:1
Minimum Illuminance	As required
Light Loss Factor	0.69

Provide one of the luminaires listed or an approved equal:

Company	Catalog Number
American Electric Lighting	ATB2 60BLEDE10 MVOLT R2 3K

770-P02 LIGHT STANDARD: Design the light standard base with a minimum of 4 anchor bolts. Install davit type galvanized light standards with 10' mast arms.

770-P03 MULTIPLE UNDERGROUND CABLE: The plans call for using Multiple Underground Cable and Conduit in various locations. In lieu of the Multiple Underground Cable, the contractor may furnish and install rigid conduit and single RHW conductors of the same size for the Multiple Underground Cable.

Install conduit size as specified by the National Electric Code. If the contractor chooses to use the conduit and single conductors, the cost to furnish and install conduit, conductors, and pull boxes shall be included in the item Multiple Underground Cable.

770-P04 LED LUMINAIRE – HIGH MAST: Provide luminaires that meets the following:

Light Source	LED
Light Output	55,000 lm to 65,000 lm
Driver	850 mA to 1100 mA
Wattage	400W to 600W
Color Temperature	3000K ±300K
Operating Temperature Range	-40°C to +40°C
Luminaire Housing	Die Cast Aluminum
Vibration Testing	ANSI/NEMA C136.31 Level 2, 3 G
Surge Suppression Rating	ANSI/IEEE C62.41 Cat C
Outdoor rating for housing, wiring, and drivers	ANSI C136.25 IP-65
Qualified with Design Lights Consortium	Yes

Provide a cast aluminum slip fitter housing that accommodates a 2 inch horizontal pipe bracket and that is adjustable 3 degrees above and below the bracket axis for leveling. Provide means to prevent the twisting of the luminaire about the bracket. Include terminal boards in the housing.

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NOTES

Provide an effective projected area of a luminaire less than 2.2 square feet. Provide a luminaire with a maximum weight of 62 pounds.

Provide a symmetrical luminaire that has a maximum beam angle of between 55 degrees and 60 degrees. Provide asymmetrical luminaires that have a Type III medium distribution.

The high mast lighting system was designed using these values:

Roadway Classification	Principal Arterial
Average Maintained Illuminance	0.8 foot-candles
Illuminance Uniformity Ratio (avg/min)	3.0:1
Minimum Illuminance	0.2 foot-candles
Light Loss Factor	0.81

Provide the high mast luminaires listed below or an approved equal.

Company	Catalog Number
Holophane High Mast LED	HMLED3 PK3 30K MVOLT G M FD2
Holophane High Mast LED	HMLED3 PK3 30K MVOLT G AW FD2

Include all cost associated with the LED luminaire in the bid price for “LED Luminaire – High Mast”.

770-P05 HIGH MAST TOWER LABELING: Provide labels on every high mast tower with the following specifications:

- Outdoor rated permanent backing material
- Protective coating
- Outdoor rated Permanent Adhesive
- 1” letters, 3”x12” total size
- 5 year life span
- 5 total with the High Mast Number printed on each. Refer to the High Mast Light Standards charts in the plans for the High Mast Number.

Install the label 2” above the hand hole cover and level with the foundation. Ensure the surface is clean of dirt or debris. If needed, sand the area to remove any surface rust. Ensure the label is securely fastened to the surface.

Include all costs for purchasing and installing the labels in the price bid for “LED Luminaire – High Mast”.

770-P06 PORTABLE POWER UNIT: Provide new portable power units according to Standard Specifications Section 895.13 H.7 “Portable Power Unit”. Deliver units to the Minot District.

Minot District Office
1305 Hwy 2 Bypass E., Minot, ND
Bob Allen (701) 857-6911

Include the cost of the portable power units in the item High Mast Lighting Assembly.

770-P07 ANCHOR BOLTS: Tighten anchor bolts according to Section 754.04.D.5.c “Anchor Bolt Tightening”.

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