January 26, 2017

ADDENDUM 1 – JOB 25

TO: All prospective bidders on project IM-NHU-9-999(370), Job No. 25 scheduled for the February 3, 2017 bid opening.

The following plan revisions shall be made:

Plan Revisions:
Remove and replace sheets 6-2, 6-3 and 6-4 with the enclosed sheets revised 1/25/2017.

Sheet 6-2:
Note 770-P07 was revised. The last sentence was revised to say all work described in this note is included in the pay item.  
Note 770-P08 was revised. The last sentence was revised to match the bid item. 
Note 770-P09 was revised. The bid item was changed to “High Mast Lighting – Anchor Bolts”.

Sheet 6-3:
Note 770-P13 was revised. The last sentence was removed, since notes 770-P08 and 770-P09 already explain how the testing is paid for.

Sheet 6-4:
Notes 770-P14 was revised. A new luminaire was added to the lists.

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

CAL J. GENDREAU – CONSTRUCTION SERVICES ENGINEER
80:plm
Enclosure
770-P05 PORTABLE POWER UNIT: Provide new portable power units according to Standard Specifications Section 895.13 H.7 "Portable Power Unit". Deliver units to each district office.

Bismarck District Office
218 Airport Rd., Bismarck, ND
Kirk Hoff (701) 328-6949

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

Include all costs in the price bid for the item "Portable Power Unit".

770-P06 FIELD SERVICE TECHNICIAN: Provide at least 2 days with a field service technician from the lowering device manufacturer. Ensure the lowering devices are installed following the guidance of the field service technician.

Include all cost associated with this work in the bid price for "High Mast Lighting – Lowering Device".

770-P07 LOWERING DEVICES: When the plans indicate the high mast poles require new lowering devices, lower the existing pole and remove the existing lowering equipment. Follow this procedure for each pole:

- Lower the pole and remove mortar about base.
- Test the structural integrity of the pole according to note 770-P13.
- Replace the following equipment:
  - Top latching, centering arm unit with internal winch
  - Internal conductor
  - Complete transition assembly with hoist cables and winch cables
  - Complete hardware with strand vises
  - Latch pins with new hardware
  - A single 30 Amp circuit
  - Lightning arrester at pole base
  - Lightning rod
  - Rodent protection according to Section 140 Sheet 16.
- The existing luminaire ring and head frame assembly will remain in place.
- Raise and lower the luminaire ring once the pole has been installed to ensure the lowering devices are working properly.

Refer to the old shop drawings in the supplemental bid documents for information on the existing poles and lowering devices.

Include all cost associated with this work in the bid price for "High Mast Lighting – Lowering Device".

770-P08 LOWERING DEVICES INSPECTION: The plans list the lowering devices that require individual review. Follow the procedure below for these poles:

1. Test the lowering device and lower the pole.
2. Test the structural integrity of the pole according to note 770-P13.
3. Negotiate the cost to repair or replace any part of the lowering device that is not working correctly.
4. If needed replace the complete lowering device as outlined in Note 770-P07. Ensure the Engineer provides approval.

Include all cost associated with this work in the bid price for "High Mast Lighting – Inspection".

770-P09 ANCHOR BOLTS: Tighten anchor bolts according to Section 754.04.D.5.c “Anchor Bolt Tightening”.

Include all cost associated with anchor bolt tightening in the bid price for "High Mast Lighting – Anchor Bolts".

770-P10 MULTIPLE UNDERGROUND CABLE: The plans call for using Multiple Underground Cable and Conduit in various locations. If desired furnish and install rigid conduit and single RHW conductors of the same size as shown in the plans of the Multiple Underground Cable.

Provide conduit according to the size required in the National Electric Code. If this option is chosen, use the bid price for "Multiple Underground Cable 3 No. 4, 1 No. 6 Style USE". The cost of installing conduit with single conductors shall be paid using the bid price for "Cable Trench – Type II".

The conduit shown in the plans under roadways for installing Multiple Underground Cable will continue to be paid for as "__ Inch Diameter Rigid Conduit".

770-P11 EXISTING CIRCUIT INSPECTION: The plans list the existing high mast feed points. Follow the procedure below for each feed point:

1. Test each electrical circuit to ensure it is installed properly.
2. Check each light standard to ensure it is grounded properly.
3. Verify that the appropriate size and type of breakers are installed for each pole.
4. Check the phase and neutral lines and verify that they are installed properly.
5. Negotiate the cost to repair or replace any part of the feed point that is not working correctly. Ensure the Engineer provides approval.

Include all cost associated with circuit inspection in the bid price for "LED Luminaire – High Mast".

This document was originally issued and sealed by Douglas A Schumaker, Registration Number PE-5047, on 1/25/17 and the original document is stored at the North Dakota Department of Transportation.
770-P12  HIGH MAST POLES: Provide high mast lighting poles following Section 895.13 "High-Mast Lighting Assembly" of the standard specifications and the following:

- 8 anchor bolts
- Metal templates to hold anchor bolts in place during pour
- Ultrasonic and Radiographic weld certifications
- Full penetration weld and backup ring in place of molten lead requirement

Tighten anchor bolts according to Section 754.04.D.5.c “Anchor Bolt Tightening”.

Include all cost associated with the furnishing and installing the pole in the bid price for “High Mast Lighting Assembly – Type HM – 140-__”.

770-P13  HIGH MAST LIGHT STANDARD TESTING: Conduct magnetic particle inspection on each pole that needs new lowering devices.

**Locations**
- 11 in the Bismarck District
- 12 in the Minot District

**Access**
Furnish any special equipment to access all items to be inspected. Light standards are located on the NDDOT ROW and can be accessed without permits or special authorization. Test poles when they are lying down and before installing LED luminaires or replacing the lowering devices.

**Personnel**
Certification in nondestructive testing is required for all inspectors performing magnetic particle testing, according to the American Society for Nondestructive Testing.

**Inspections**
Test each high mast pole using magnetic particle technology. Determine the integrity of the pole near the top of the weld between the base plate and the pole.

Test vertical weld seams and slip joints for flaws and defects in the welds.

If a flaw is detected, provide a hard copy of the measurement display or photo of the location.

If a condition found that is critical, inform the Engineer immediately.

The bases of many of the poles have been inspected with the magnetic particle technique. Previous records are available upon request.

**Reports**
At the conclusion of the inspection, the testing agency will submit a draft report for each site within 10 days of testing. Provide the report to the Engineer. Include the following items in the report:

- Provide a description of the general condition of each base plate and pole. Report any damage or deterioration. The Bridge Division will provide a plan to strengthen or replace the pole.

- Provide the date, time, duration, and method of access for the inspection at each site.

All materials submitted will become the property of the NDDOT.

Bridge Division will review the draft report and provide recommendations within 10 days. Negotiate any repair or replacement. Ensure the pole is not installed until the Bridge Division has provided comments. Submit an electronic copy of the final report to the Engineer after it has been accepted by the Bridge Division.
770-P14 HIGH MAST LED LUMINAIRE: Provide only one of the high mast luminaires listed below or an approved equal.

<table>
<thead>
<tr>
<th>High Mast Luminaire</th>
<th>Catalog Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>GE Evolve Roadway High Mast LED</td>
<td>ERHM01-0-60-51-7-30-N-1-4B-GRAY-F</td>
</tr>
<tr>
<td>Erna High Mast LED</td>
<td>ERHM01-0-60-VM-7-30-N-1-4B-GRAY-F</td>
</tr>
<tr>
<td>Holophane High Mast LED</td>
<td>HMLED2-12-3K-AS-G-M-FD2</td>
</tr>
<tr>
<td>Philips Lumec HighFocus LED</td>
<td>HMLED2-12-3K-AS-G-AW-FD2</td>
</tr>
<tr>
<td></td>
<td>HFL-184L830WW-G1-3-UNV-DD-F1-GY3</td>
</tr>
<tr>
<td></td>
<td>HFL-184L830WW-G1-5W-UNV-DD-F1-GY3</td>
</tr>
</tbody>
</table>

Refer to the plans for luminaires which require cutoff shields. Add the following description to the catalog number:

<table>
<thead>
<tr>
<th>High Mast Luminaire</th>
<th>Cutoff Shield Catalog Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>GE Evolve Roadway High Mast LED</td>
<td>HSS</td>
</tr>
<tr>
<td>Holophane High Mast LED</td>
<td>HMLED2D90</td>
</tr>
<tr>
<td>Philips Lumec HighFocus LED</td>
<td>HS</td>
</tr>
</tbody>
</table>

Provide an approved equal luminaire that meets the following:

<table>
<thead>
<tr>
<th>Light Source</th>
<th>LED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Light Output</td>
<td>50,000lm to 65,000lm</td>
</tr>
<tr>
<td>Driver</td>
<td>850mA to 1000mA</td>
</tr>
<tr>
<td>Wattage</td>
<td>400W to 600W</td>
</tr>
<tr>
<td>Color Temperature</td>
<td>3000K ±300K</td>
</tr>
<tr>
<td>Operating Temperature Range</td>
<td>-40°C to +40°C</td>
</tr>
<tr>
<td>Luminaire Housing</td>
<td>Die Cast Aluminum</td>
</tr>
<tr>
<td>Vibration Testing</td>
<td>ANSI/NEMA C136.31 Level 2, 3 G</td>
</tr>
<tr>
<td>Surge Suppression Rating</td>
<td>ANSI/IEEE C62.41 Cat C</td>
</tr>
<tr>
<td>Outdoor rating for housing, wiring, and drivers</td>
<td>ANSI C136.25 IP-65</td>
</tr>
<tr>
<td>Photo Control on each luminaire</td>
<td>No</td>
</tr>
<tr>
<td>Qualified with DesignLights Consortium</td>
<td>Yes</td>
</tr>
</tbody>
</table>

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.

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 an IES Short, semi-cutoff, Type III distribution.

The lighting systems were designed using these values:

<table>
<thead>
<tr>
<th>Roadway Classification</th>
<th>Principal Arterial - Interstate/Freeway</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Maintained Illuminance</td>
<td>0.6-0.8 foot-candles</td>
</tr>
<tr>
<td>Illuminance Uniformity Ratio</td>
<td>3.0:1</td>
</tr>
<tr>
<td>Minimum Illuminance</td>
<td>0.2 foot-candles</td>
</tr>
<tr>
<td>Light Loss Factor</td>
<td>0.81</td>
</tr>
</tbody>
</table>

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

This document was originally issued and sealed by Douglas A Schumaker, Registration Number PE-5047, on 1/25/17 and the original document is stored at the North Dakota Department of Transportation.