Illinois Department of Transportation
2300 South Dirksen Parkway / Springfield, Illinois / 62764

July 26, 2018

SUBJECT: FAI Route 74 (I-74)
Section 48-29RA(L-1)
Knox County
Contract No. 68E46
Item No. 29, August 3, 2018 Letting
Addendum A

NOTICE TO PROSPECTIVE BIDDERS:

Attached is an addendum to the plans or proposal. This addendum involves revised and/or added material.

1. Revised Schedule of Prices
2. Revised the Table of Contents to the Special Provisions
3. Revised pages 2, 4-7, and 32 of the Special Provisions
4. Added pages 7A, 7B, 7C, 33 and 34 to the Special Provisions
5. Revised sheets 2-10, and 12 of the Plans

Prime contractors must utilize the enclosed material when preparing their bid and must include any changes to the Schedule of Prices in their bid.

Very truly yours,

Jack A. Elston, P.E.
Bureau Chief, Design and Environment

By: Ted B. Walschleger, P. E.
Engineer of Project Management

cc: Kensil Garnett, Region 3, District 4; Tim Kell

JW/ck

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CONTRACT GUARANTEE

The Contractor shall guarantee all electrical equipment, apparatus, materials, and workmanship provided under the contract for a period of six (6) months after the date of final inspection according to Article 801.14.

All instruction sheets required to be furnished by the manufacturer for materials and supplies and for operations shall be delivered to the Engineer prior to the acceptance of the project, with the following warranties and guarantees:

1. The manufacturer's standard written warranty for each piece of electrical equipment or apparatus furnished under the contract.

2. The Contractor's written guarantee that, for a period of six (6) months after the date of final inspection of the project, all necessary repairs to or replacement of said warranted equipment, or apparatus shall be made by the Contractor at no cost to the Department.

3. The Contractor's written guarantee for satisfactory operation of all electrical systems furnished and constructed under the contract for a period of 6 months after final inspection of the project.

4. Ten year warranty on luminaires and powder coat paint.

POT-HOLING FOR LOCATION OF EXISTING UNDERGROUND UTILITIES

Potholing to locate existing underground utilities shall be included in the contract bid price for the conduit pay items.

Removal and replacement of existing sidewalk, pavement, and islands only for utility locating purposes will not be paid for separately, but shall be included in the contract bid price for the conduit pay items.

AS-BUILT DOCUMENTATION

The Contractor shall locate all proposed conduit every 100 feet, communication vaults, and junction boxes using a GIS locating device that is accurate to the nearest foot.

The Contractor shall provide a GIS based map of the conduit route and a complete listing of all of map coordinates in an electronic format (Google Earth KML or KMZ shape file).

Basis of Payment. This work will not be paid for separately, but shall be included in the contract bid price.

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The above list should represent an accurate listing of removal items; however, it is the Contractor's responsibility to verify all quantities prior to bidding. There will be no additional compensation.

The Contractor shall dispose of all items off of the right of way and reflect the salvage value of the material in the contract bid price.

Basis of Payment: The above work will be paid for at the contract unit price Each for REMOVE EXISTING LIGHTING SYSTEM and shall be payment in full for removing and transporting the equipment described above, complete. No additional compensation will be allowed.

LIGHT POLE, SPECIAL

This work shall consist of furnishing and installing a metal light pole complete with an arm, and all required hardware and accessories in accordance with Section 830 of the Standard Specifications except as modified below.

The pole shall be a square, straight steel light pole with a 14.0 ft. luminaire mounting height.

The pole shaft shall be fabricated from hot rolled, welded steel tubing of one-piece construction with a minimum yield strength of 55 ksi. The pole shaft shall have a minimum 5 in. base and top dimensions. The pole shall have a minimum 11-gauge wall thickness.

The pole base plate shall be a minimum of ¾ in. thick and have an 8-1/2 in. bolt circle. The base shall have 7/8 in. x 1 in. slotted holes oriented with the corners of the plate.

The pole top shall have a horizontally mounted 2 in. diameter, 6 in. long tenon arm for mounting a luminaire. The horizontal tenon arm shall be according to the luminaire requirements and shall be of the proper height for a 14.0 ft. luminaire mounting height. A removable pole top cap shall be provided for each pole.

A reinforced hand hole with grounding provisions shall be provided at 1 ft. 6 in. on center from the base end of the pole assembly. The hand hole shall include a gasketed cover and cover attachment hardware. The pole assembly shall be provided with a minimum 3 in. x 5 in. rectangular hand hole. The handhole shall be large enough to accommodate the installation and removal of the fuseholders and surge arrestors for maintenance and repair.

A two-piece full base cover fabricated from steel shall be provided with the pole assembly. The Contractor shall install perforated aluminum screen around the anchor bolts and as required to prevent rodent entry.

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All structural fasteners shall be hot-dipped galvanized high strength carbon steel according to AASHTO M111.

Finish for the pole and associated components shall be hot-dipped galvanized according to AASHTO M111.

The pole shall have a bronze powder coated over hot dipped galvanized steel finish. The powder finish shall have a ten (10) year warranty. Poles shall be replaced or the manufacturer shall repaint the poles on site if any chipping, cracking, or peeling of the paint occurs within the ten year warranty period.

Standard Effective Projected Area (EPA) and weight values shall be based on Standard Commercial Criteria (with 90 mph wind and 1.3 gust factor) for side mounted luminaires.

Basis of Payment. This work will be paid for at the contract unit price per Each LIGHT POLE, SPECIAL and shall be payment in full for all labor, equipment, and materials required to furnish, and install the light pole and accessories described above, complete.

LUMINAIRE, LED, HORIZONTAL MOUNT, OF THE WATTAGE SPECIFIED

Description: This work consists of furnishing all materials, equipment, and labor necessary to install Light-Emitting Diode (LED) luminaires as shown on the plans, in accordance with the applicable requirements of Section 821 of the Standard Specifications for Road and Bridge Construction, and as specified herein.

General: The luminaire shall be assembled in the continental U.S.A. and shall be assembled by and manufactured by the same Manufacturer. Quick connect/disconnect plugs shall be supplied between the discrete electrical components within the luminaire such as the driver, surge protection device, and optical assembly for easy removal. The quick connect/disconnect plugs shall be operable without the use of tools and while wearing insulated gloves. The luminaire shall be in compliance with ANSI C136.37. LED light source(s) and driver(s) shall comply with the material requirements of the Restriction of Hazardous Substances (RoHS) Directive 2011/65/EU.

Manufacturer Experience. The luminaire shall be designed to be incorporated into a lighting system with an expected 30-year lifetime. The luminaire Manufacturer shall have a minimum of 30 years' experience manufacturing High Intensity Discharge (HID) roadway luminaires and shall have a minimum of 5 years' experience manufacturing LED roadway luminaires. The Manufacturer shall have a minimum of 5,000 total LED roadway luminaires installed on a minimum of 30 separate installations, all within the continental U.S.A.

Housing: The housing shall be designed to ensure maximum heat dissipation and to prevent the accumulation of water, ice, dirt and debris. A passive cooling method with no moving or rotating parts shall be employed for heat management. The effective projected area of the luminaire shall not exceed 1.4 sq. ft. The total weight of the luminaire(s) and accessories shall not exceed 75 pounds. Wiring within the electrical enclosure shall be rated at 600 V, 221°F (105°C) or higher.

Finish. The color of the luminaire shall be bronze. Painted or finished luminaire surfaces exposed to the environment, shall exceed a rating of six according to ASTM D1654 after 1000 hours of ASTM B117 testing. The coating shall exhibit no greater than 30 % reduction of gloss according to ASTM D523, after 500 hours of ASTM G154 Cycle 6 QUV® accelerated weathering testing.

Attachment. The luminaire shall slip-fit on a mounting arm with a 2 in. (5 cm) diameter tenon (2.375 in (6 cm) outer diameter), and shall have a barrier to limit the amount of insertion. The luminaire shall be provided with a leveling surface and shall be capable of being tilted ±5 degrees from the axis of attachment in not more than 2.5 degree increments and rotated to any degree with respect to the supporting arm.

Receptacle. The luminaire shall include a fully prewired, 7-pin twist lock ANSI C136.41 compliant receptacle. Unused pins shall be connected as directed by the Manufacturer and as approved by the Engineer. A shorting cap shall be provided with the luminaire.

Vibration Characteristics. All luminaires shall pass ANSI C136.31 requirements. Roadway luminaires mounted on a bridge and high mast luminaires shall be rated for "3G" peak acceleration. Vibration testing shall be run using the same luminaire in all three axes.

Labels and Decals. All luminaires shall have external labels in compliance with the latest version of ANSI C136.15 and internal labels in compliance with the latest version of ANSI C136.22.

The luminaire shall be listed for wet locations by a Nationally Recognized Testing Laboratory (NRTL) as defined by OSHA and shall be in compliance with UL 8750 and UL 1598. It shall be identified as such by the holographic UL tag/sticker on the inside of the luminaire.

Hardware. All external fasteners shall be stainless steel. All hardware shall have corrosion resistance.

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Optical Assembly: The LED optical assembly, consisting of LED packages, shall have a minimum Ingress Protection rating of IP66 according to ANSI C136.25-2013. Circuiting shall be designed to minimize the impact of individual LED failures on the operation of the other LEDs.

The optical assembly shall utilize high brightness, long life, minimum 70 color rendering index (CRI), 4,000 K color temperature (+/-300 K) LEDs binned according to ANSI C78.377. Lenses shall be UV-stabilized acrylic or glass. Provisions for house-side shielding shall be provided when specified.

Lumen depreciation at 50,000 hours of operation shall not exceed 15% of initial lumen output at the specified LED drive current and an ambient temperature of 77°F (25°C).

The assembly shall have individual serial numbers or other means for Manufacturer tracking.

Photometric Performance: The classification of LED luminaires shall be as follows:

VLW – Wattages ≤ 100, minimum delivered lumens 5,000,
LW – Wattages 101 - 200, minimum delivered lumens 10,000,
MW – Wattages 201 - 300, minimum delivered lumens 20,000,
HW – Wattages 301 - 400, minimum delivered lumens 30,000,
VHW – Wattages ≥ 401, minimum delivered lumens 40,000.

VLW= very low watt, LW = low watt, MW = medium watt, HW = high watt, and VHW = very high watt luminaire. Luminaires with lumens below the stated minimums will not be accepted.

Testing. Luminaires shall be tested according to IES LM-79. The laboratory performing this test shall hold accreditation from the National Voluntary Laboratory Accreditation Program (NVLAP) under NIST. Submitted reports shall have a backlight, uplight, and glare (BUG) rating according to IESNA TM-15 including a luminaire classification system graph with both the recorded lumen value and percent lumens by zone.

Lumen maintenance shall be measured for the LEDs according to LM-80, or when available for the luminaires according to LM-84. The LM-80 report shall be based on a minimum of 6,000 hours, yet 10,000 hour reports shall be provided for luminaires where those tests have been completed.

Thermal testing shall be provided according to UL 1598. The luminaire shall start and operate in the ambient temperature range specified. The maximum rated case temperature of the driver, LEDs, and other internal components shall not be exceeded when the luminaire is operated in the ambient temperature range specified.

Mechanical design of protruding external surfaces such as heat sink fins shall facilitate hose-down cleaning and discourage debris accumulation. Testing shall be submitted when available to show the maximum rated case temperature of the driver, LEDs, and other internal components are not exceeded when the luminaire is operated with the heat sink filled with debris.

Calculations. Complete point-by-point luminance and veiling luminance calculations as well as listings of all indicated averages and ratios as applicable shall be provided according to IES RP-8 recommendations. Lighting calculations shall be performed using AGi32 software with calculations performed to two decimal places (i.e. x.xx cd/m^2). Calculation results shall demonstrate that the submitted luminaire meets the lighting metrics specified in the project Luminaire Performance Tables (see exhibit B). Scotopic or mesopic factors will not be allowed.

Lumen Maintenance Projection. The LEDs shall have long term lumen maintenance documented according to IESNA TM-21, or when available for the luminaires according to IESNA TM-28. The submitted calculations shall incorporate an in situ temperature measurement test (ISTMT) and LM-80 data with TM-21 inputs and reports according to the TM-21 calculator, or when available ISTMT and LM-84 data with TM-28 inputs and reports according to the TM-28 calculator. Ambient temperature shall be 77 °F (25 °C).

Driver: The driver for the luminaire shall be integral to the unit. It shall be mounted in the rear of the luminaire on the inside of a removable door or on a removable mounting pad. The removable door or pad shall be secure when fastened in place and all individual components shall be secured upon the removable element. Each component shall be readily removable from the removable door or pad for replacement.

Circuit Protection. Shall tolerate indefinitely open and short circuit output conditions without damage.

Ingress Protection. IP66 rating.

Input Voltage. Shall be suitable for operation over a range of 120 to 277 volts or 347 to 480 volts as required by the system operating voltage.

Operating Temperature. Operating ambient temperature range of -40 to 104 °F (-40 to 40 °C).

Driver Life. Life time of 100,000 hours at 77 °F (25 °C) ambient.

Safety/UL. Listed under UL 1310 or UL 1012.

Power Factor. Shall maintain a power factor of 0.9 or higher and total harmonic distortion of less than 20 % at 50% load across the full supply voltage range.

Driver efficiency. Minimum efficiency of 90% at maximum load and a minimum efficiency of 85% for the driver operating at 50% power with driver efficiency defined as output power divided by input power.

Electrical Interference. Shall meet the Electromagnetic Compatibility (EMC) requirements for Class A digital devices included in the FCC Rules and Regulations, Title 47, Part 15.

Thermal Fold Back. The driver shall reduce the current to the LED module if the driver is overheating due to abnormal conditions.

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Dimming. 0-10 V dimming capability.

Leakage current. Compliance with safety standards according to IEC 61347-1 and UL 1012.

Surge Protection Device: SPD shall be labeled as Type 4 in accordance to UL 1449 and be an integral part of the luminaire. It shall provide a minimum system protection level of 10 kV, 10 kA. To protect for a 10 kV, 10 kA surge the required clamping voltage of the external Metal Oxide Varistor (MOV) or other SPD shall be lower than 1 kV at 8 kA {(10 kV-2 kV)/1 ohm=8 kA}.

The SPD shall comply with the following standards:

1) IEEE C62.41.1, IEEE Guide on the Surge Environment in Low-Voltage (1000 V and Less) AC Power Circuits,
2) IEEE C62.41.2, IEEE Recommended Practice on Characterization of Surges in Low-Voltage (1000 V and Less) AC Power Circuits,
3) IEEE C62.45, IEEE Recommended Practice on Surge Testing for Equipment Connected to Low-Voltage (1000 V and Less) AC Power Circuits, and
4) ANSI C136.2, American National Standard for Roadway and Area Lighting Equipment – Luminaire Voltage Classification.

The SPD and performance parameters shall be posted at www.UL.com under Category Code: VZCA2.

Warranty: The entire luminaire and all of its component parts shall be covered by a 10 year warranty. Failure is when one or more of the following occur:

1) Negligible light output from more than 10 percent of the LED packages
2) Condensed moisture inside the optical assembly
3) driver that continues to operate at a reduced output below 15% of the rated nominal output

The warranty period shall begin on the date of final acceptance of the lighting work as documented in the Resident Engineer's project notes.

Added 7/26/18

Submittal Requirements: The Contractor shall submit, for approval, an electronic version of all associated luminaire IES files, AGi32 files and the TM-21 calculator spreadsheet with inputs and reports associated with the project luminaires. The Contractor shall also provide an electronic version of each of the following Manufacturer's product data for each type of luminaire.

1) Descriptive literature and catalogue cuts for luminaire, LED package, driver, and surge protection device.
2) LED drive current, total luminaire input wattage and total luminaire current at the system operating voltage or voltage range and ambient temperature of 77 °F (25 °C).
3) Luminaire efficacy expressed in lumens per watt (lpw) per luminaire.
4) Initial delivered lumens at the specified color temperature, drive current and ambient temperature.
5) Computer photometric calculation reports.
6) TM-15 BUG rating report.
7) Documentation of Manufacturers experience and certification that luminaires were assembled in the U.S.A.
8) Supporting documentation of compliance with ANSI standards as well as listing requirements.
9) Supporting documentation of laboratory accreditations and certifications for specified testing.
10) Thermal testing documents.
11) IES LM-79, LM-80 (or LM-84) and TM-21 (or TM-28) reports.
12) Salt spray (fog) test reports and certification.
13) Vibration characteristics test reports and certification.
14) IP test reports.
15) Manufacturer written warranty.
16) Luminaire installation, maintenance, and washing instructions.

Luminaire Testing: When a contract has 30 or more luminaires of the same type, wattage and distribution, that luminaire shall be tested. The quantity of luminaires requiring testing shall be one luminaire for the first 30 plus one additional luminaire for each additional 50 luminaires of that type, wattage, and distribution. Testing is not required for temporary lighting luminaires. The Contractor shall coordinate the luminaire testing, propose a properly accredited laboratory and an independent witness, submit their qualifications for approval prior to any testing, and pay all associated costs including travel expenses for the independent witness. Delays caused by the luminaire testing process shall not be grounds for additional compensation or extension of time.

Added 7/26/18

WEEKLY DBE TRUCKING REPORTS (BDE)
Effective: June 2, 2012 Revised: April 2, 2015

The Contractor shall submit a weekly report of Disadvantaged Business Enterprise (DBE) trucks hired by the Contractor or subcontractors (i.e. not owned by the Contractor or subcontractors) that are used for DBE goal credit.

The report shall be submitted to the Engineer on Department form "SBE 723" within ten business days following the reporting period. The reporting period shall be Monday through Sunday for each week reportable trucking activities occur.

Any costs associated with providing weekly DBE trucking reports shall be considered as included in the contract unit prices bid for the various items of work involved and no additional compensation will be allowed.

WORKING DAYS (BDE)
Effective: January 1, 2002

The Contractor shall complete the work within **15** working days.

LIGHTING CONTROLLER, SPECIAL

Description. This work shall consist of furnishing and installing an electrical controller. The lighting controller shall meet the requirements of Section 825 of the Standard Specifications, Lighting Controller, Wall Mount Enclosure.

Materials. Materials shall be according to the following. Item Article/Section
(a) Portland Cement Concrete (Note 1) 1020
(b) Lighting Controller 1068.01
(c) Transformer, General Purpose 1068.02
(d) Lightning Protection 1065.02

Installation. The lighting controller installation shall be according to the details, location, and orientation shown on the plans. All conduit entrances into the lighting controller shall be sealed with a pliable waterproof material.

Controller Mounted on Wall. The lighting controller enclosure shall be mounted to the wall with stainless steel fasteners as indicated in the plans. Stainless steel mounting brackets designed for wall mounting shall be used.

Grounding. Grounding shall be according to Section 806.

Basis of Payment. This work will be paid for at the contract unit price per each for LIGHTING CONTROLLER, SPECIAL, of the enclosure and control type specified.

LIGHT POLE FOUNDATION, SPECIAL

Description. This work shall consist of constructing or furnishing and installing a light pole foundation. The light pole foundation shall meet the requirements of Section 836 of the Standard Specifications, Light Pole Foundation, Metal. Bolt circle shall be 8.5".

Materials. Materials shall be according to the following. Item Article/Section
Light Pole Foundation, Metal 1070.01

Installation. Metal Foundations. Metal foundations shall be installed in undisturbed soil. The foundation shall be installed with its axis plumb. The light pole shall be installed plumb without the use of shims, grout, or other leveling devices. Any voids within the metal screw-in foundation shall be filled with fine aggregate.

Wiring windows shall be oriented to be parallel to the walkway unless otherwise directed by the Engineer to achieve alignment with grade or to minimize bends in the feeder wiring into the foundation.

The Contractor shall use a torque indicating device to install metal foundations. A shear pin indicator or other Engineer approved method shall be used to insure the foundation is installed properly. A metal foundation shall not be installed to a torque which exceeds the manufacturer's maximum torque rating nor shall it be installed to an installation torque value of less than 3,500 ft lb (5,000 N m). Metal foundations that are not installed to full installation depth or do not achieve the minimum installation torque shall be removed and replaced with a concrete foundation at no additional cost to the Department.

Driven grounding electrodes will not be required when metal foundations are specified.
Basis of Payment. Metal foundations will be paid for at the contract unit price per each for LIGHT POLE FOUNDATION, SPECIAL, of the bolt circle, diameter, and length specified.

Added 7/26/18

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FLOOD LIGHTING UNIT

Description. This work shall consist of furnishing and installing a luminaire with flood optics designed for use in flag lighting applications. The luminaire style shall be similar to Lithonia OFL, Phillips Gardco DFL or approved equal, as specified on the plans and as directed by the Engineer. The Luminaire shall be provided with all necessary conduits, fittings, electric cable, mounting hardware and any other material needed to complete the flagpole lighting installation.
Installation: The luminaire installation shall meet all applicable requirements of Section 821 of the Standard Specifications. The luminaire shall be equipped with the wall arm mount. The luminaire shall be mounted to the top of walkway lighting pole as shown on the plans or as directed by the Engineer. The mounting system shall be structurally sound to support the luminaire weight.

Materials. The luminaire housing shall be heavy duty die cast aluminum. The luminaire shall be rain-tight, dust-tight, shall be UL listed for wet locations and shall have a minimum IEC ingress protection rating of IP66. All exposed fasteners and hardware shall be stainless steel.

The LED optical assembly, consisting of LED packages, shall have a minimum Ingress Protection rating of IP66 according to ANSI C136.25-2013. Circuiting shall be designed to minimize the impact of individual LED failures on the operation of the other LEDs.

The optical assembly shall utilize high brightness, long life, minimum 70 color rendering index (CRI), 4,000 K color temperature (+/-300 K) LEDs binned according to ANSI C78.377. Lenses shall be UVstabilized acrylic or glass.

The dimensions of the luminaire shall not exceed 16” x 11” x 10”. The heavy duty knuckle shall allow the luminaire to be aimed upward in any direction with an accuracy of ± 2 degrees. The final luminaire aiming direction shall be approved by the Engineer, and the Contractor shall make all necessary adjustments.

The luminaire housing shall be painted using a powder coat process or Engineer approved equivalent. The surface shall be cleaned prior to the powder coat process by the immersion process using both an alkaline and acid bath. The finish shall be a thermosetting powder coat. The powder resin shall be type TGIC super durable grade polyester or an Engineer approved equivalent. The aluminum shall be preheated to a sufficient temperature, prior to the coating process, to ensure all water vapor is removed in order to fuse the powder to the metal. The luminaire and appurtenances shall be oven cured, after spraying, for a cycle of 5 to 15 minutes at a temperature of 375 to 400 degrees Fahrenheit. The finished coat shall have a dry coat minimum thickness of 3 mil. The finish of the luminaire housing and mounting accessories shall be black.

A thorough visual inspection of the luminaire paint finish shall be made by the Engineer prior to installation and a field touchup or recoat shall be performed by the Contractor at no additional cost. Luminaires with noticeable cracking, blistering, peeling, softening, and fading or chalking will not be accepted.

Basis of Payment. This work will be paid for at the contract unit price per each for FLOOD LIGHTING UNIT and shall include the luminaire, conduits, fittings, electric cable, mounting hardware and any other material needed to complete the flagpole lighting installation.

Added 7/26/18