

City Of Torrington

ENGINEERING DEPARTMENT
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140 Main Street • City Hall
Torrington, CT 06790-5245

May 13, 2011

RE: "Maiden Lane Sidewalk Improvements"
Bid # MLS-027-052411

ADDENDUM #1

1. Replace pages 16500-01 through 16500-03 of Technical Specifications, General Electrical, Telephone, and CATV, 16500 in their entirety with the following attached pages 16500-01 through 16500-04 referencing Addendum #1.
2. Replace pages 16000-01 through 16000-04 of Technical Specifications, General Electrical, Telephone, and CATV, 16000 in their entirety with the following attached pages 16000-01 through 16000-07 referencing Addendum #1.
3. The trench details shown on Drawing 5 of 5 titled Construction Details shall have 1" bituminous concrete finish course in lieu of 1-1/2" shown of plans. The 1" depth only applies to work in Maiden Lane. Any pavement work in Prospect Street shall be finished per Pavement Repair Details labeled "Prospect Street" where shown on same drawing.

SECTION 16500

EXTERIOR LIGHTING (Wall Mounted Fixture)

PART 1 - GENERAL

1.01 INTENT

The Contractor shall provide complete street lighting installation. The installation shall include the LED fixtures, wall mounting brackets and accessories and all electrical supply components. The locations are generally shown on plans and the specific location shall be approved by the City in a preconstruction meeting. Fixture and bracket color shall be textured black. The fixture shall be controlled with a photoelectric cell. Photoelectric cell shall be mounted internal to fixture. See Part 2 paragraph 2.01A below for specifications on fixture and bracket product required. Materials shall comply with Buy American provision.

1.02 GENERAL REQUIREMENTS

A. SUBSTITUTIONS:

It is understood that any substitute and/or alternate that might be offered are guaranteed by the Contractor to be of equal or better quality than is referenced in Section 16500 Part 2.01. The City will have the final decision as to whether the substitute products are equivalent and acceptable. In order for equivalent lighting products to be considered, the Contractor must notify the CITY no less than 5 days prior to bid opening of its intent to supply a substitute product. Such request shall be accompanied with a working display model for review by a committee representing the City. The City shall respond to contractor's request prior to the bid opening regarding approval of substitutions after receipt of Contractor's request and after reviewing submittals and working display mock-up. The contractor shall provide submittals for the substitution fixture, cut sheets, a photometric plan for the project area and a certificate of compliance from the material manufacturer stating that proposed products meets or exceeds requirements of this Section.

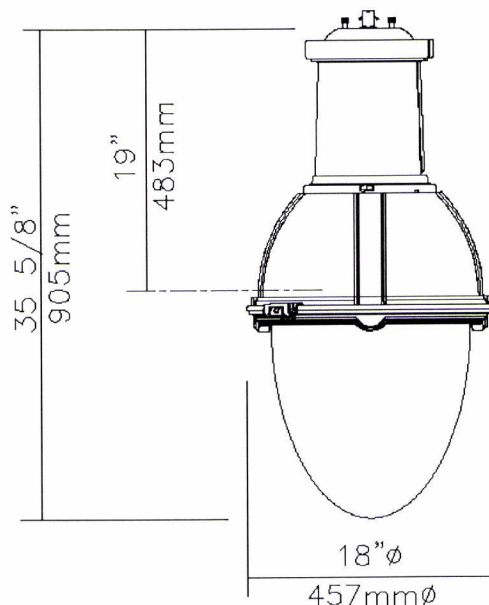
B. SUBMITTALS:

1. Operation and Maintenance Manuals.
2. Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace products that fail in materials or workmanship; that corrode; or that fade, stain, perforate, erode, or chalk due to effects of weather or solar radiation within specified warranty period. Manufacturer may exclude lightning damage, hail damage, vandalism, abuse, or unauthorized repairs or alterations from special warranty coverage. The Warranty Period shall not be less than Five Years beginning on the date of Substantial Completion.

PART 2 - PRODUCTS

2.01 LUMINAIRES, GENERAL REQUIREMENTS

A. The specific light fixture and bracket shall be used as shown on the following pages:



Qty 1 Luminaire RN20-90W49LED4K-ACDR-LE2R-120-BKTX

Description of Components:

Hood: Injection die cast A360.1 aluminium dome, mechanically assembled on the luminaire housing.

Housing: In a round shape, this housing is made of injection die cast A360.1 aluminium, complete with a weatherproof door, mechanically assembled. This suspension system permits a full rotation of the luminaire in 90 degree increments.

Access-Mechanism: Injection die cast A360.1 aluminium frame with latch and hinge, complete with cast-in security block for frame's open position. The mechanism shall offer toolfree access to the inside of the luminaire. An embedded memory-retentive gasket shall ensure weatherproofing.

Light Engine: LifeLED™ composed of 5 main components: **Globe / LED lamp / Optical System / Heat Sink / Driver**
Electrical components are RoHS compliant.

Globe: (ACDR), Made of one-piece seamless injected-molded impact-resistant (DR) acrylic having an inner prismatic surface. Complete with a semi-prismatic house side shield and external glare softening prisms. The globe is mechanically assembled and sealed onto the lower part of the heat sink.

Lamp: (Included), Composed of 49 high performance white LEDs, 90w lamp wattage. Color temperature of 4000 Kelvin nominal, 70 CRI. Operating lifespan, 70 000 hours after which the system emits 70% of its original lumen output, all of those parameters are tested for 100% of light engines. Use of a metal core board ensures greater heat transfer and longer lifespan of the light engine

Optical System: (LE2R), I.E.S type II (asymmetrical). Composed of high performance acrylic collimators, optimized with varying beam angles to achieve desired distribution. System is rated IP66. Performance shall be tested per LM63 and LM79 (IESNA) certifying its photometric performance. Street-side indicated.

Heat Sink: Made of cast aluminum optimising the LEDs efficiency and life. Product does not use any cooling device with moving parts (only passive cooling device)

Driver: High power factor of 90%. Electronic driver, operating range 50-60 Hz. **Auto-adjusting to a voltage between 120 and 277 volt AC, Class II**, THD of 20% max. Maximum ambient operating temperature from -40F(-40C) to 130F(55C) degrees. Certified in compliance to CUL requirement. Weather tightness rating IP66. Assembled on a unitized removable tray with Tyco quick disconnect plug resisting to 221F(105C) degrees.

The current supplying the LEDs will be reduced by the driver if the internal temperature exceeds 185F(85C), as a protection to the LEDs and the electrical components. Output is protected from short circuits, voltage overload and current overload. Automatic recovery after correction.

Surge Protector: LED Driver 3 poles surge Protectors that protect Line-Ground, Line-Neutral, and Neutral-Ground in accordance with IEEE / ANSI C62.41.2 guidelines.

Torrington Maiden Lane CRAT

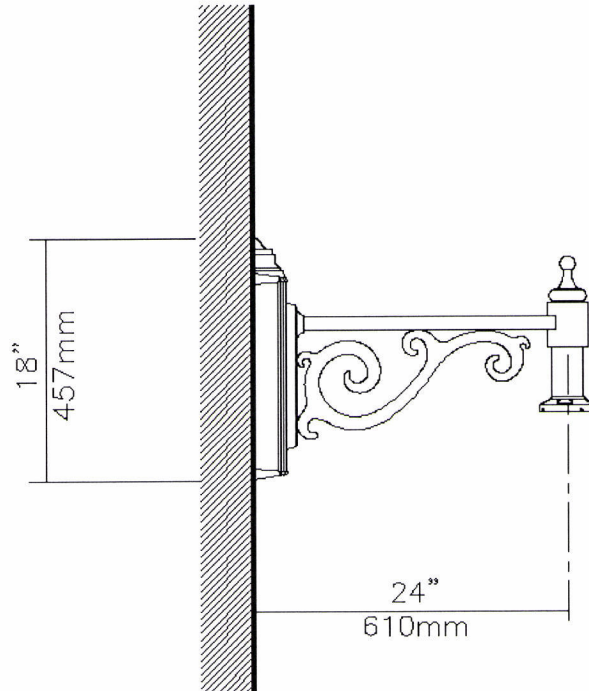
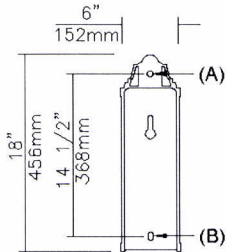
Anchoring details

(A): 1 orifice
1/2" (13mm) Ø
for anchoring

(B): 1 slot
1/2" x 3/4"
(13mm x 19mm)
for anchoring

Bolts Projections:
1" (25mm)

NOTE:
Junction box and Anchor bolts 3/8" (9mm) Ø not included.



Qty 1 Bracket CRAT-M-BKTX

Description of Components:

Arm: Shall be made from cast 356 aluminum complete with a 1" x 2" (25mm x 51mm) aluminum section and an anchor plate, mechanically assembled.

Wall Mount Box: Made of cast 356 aluminum, for a 2" x 3" (51mm x 76mm) horizontal junction box. (Junction box not included).

Mounting Plate: (M), Made of aluminum 6061-T6, complete with a ground connection. For a 2" x 3" (52mm x 76mm) vertical junction box. (Junction box not included).

Miscellaneous

Description of Components:

Wiring: Gauge (#14) TEW/AWM 1015 or 1230 wires, 6" (152mm) minimum exceeding the wall mount box.

Hardware: All exposed screws shall be stainless steel with Ceramic primer-seal basecoat to reduce seizing of the parts. All seals and sealing devices are made and/or lined with EPDM and/or silicone.

Finish: Color to be **black textured (BKTX)**. Application of a polyester powder coat paint. (4 mils/100 microns). The chemical composition provides a highly durable UV and salt spray resistant finish in accordance to the ASTM-B117-73 standard and humidity proof in accordance to the ASTM-D2247-68 standard.

2.02 LUMINAIRE-MOUNTED PHOTOELECTRIC RELAYS

Photoelectric cell shall be twistlock type with matching receptacle mounted integral inside cast aluminum fitter. Photoelectric cell shall look out lensed fitter porthole. Color to be Black.

2.03 BRACKETS AND SUPPORT COMPONENTS, GENERAL REQUIREMENTS

- A. Luminaire Attachment Provisions: Comply with luminaire manufacturers' mounting requirements.
- B. Mountings, Fasteners, and Appurtenances: Corrosion-resistant items compatible with support components.
 - 1. Materials: Shall not cause galvanic action at contact points.
 - 2. Anchor Bolts manufactured for use in brick and stone masonry, Leveling Nuts, Bolt Caps, and Washers: Hot-dip galvanized after fabrication.
 - 3. Color to be Black to match fixture and bracket.
 - 4. Conduit for electrical wire from base of building wall to fixture shall be ¾" galvanized steel.

PART 3 - EXECUTION

3.01 LUMINAIRE, BRACKET AND CONDUIT INSTALLATION

- A. Fasten luminaire to structural bracket supports using methods and materials approved by manufacturer. Bracket shall mounted to wall using methods and materials approved by manufacturer to securely anchor bracket to wall for given total weight. Predrilling of wall material is required. **The height from bottom of fixture globe measured plumb to the finished ground surface directly below shall be approximately 17 feet. The exact bracket locations shall be field determined in a pre-installation meeting with City Engineer.**
- B. CL&P Company shall install electric wire to handhole box. Contractor's licensed electrician to run new wire from handhole box to wall mounted fixture. **The new wall mounted streetlights must be in service prior to removal on existing cobra head fixtures located on wooden utility poles.** Maiden Lane cannot be left dark without lights.
- C. Adjust luminaires that require field adjustment or aiming. Include adjustment of photoelectric device to prevent false operation of relay by artificial light sources.
 - 1. Use anchor bolts and nuts selected to resist seismic forces defined for the application and approved by manufacturer.
 - 2. Grout void between pole base and foundation. Use nonshrink or expanding concrete grout firmly packed to fill space.
 - 3. Install base covers, unless otherwise indicated.

3.02 FIELD QUALITY CONTROL

- A. Inspect each installed fixture for damage. Replace damaged fixtures and components.
- B. Illumination Observations: Verify normal operation of lighting units after installing luminaires and energizing circuits with normal power source. Verify operation of photoelectric controls and adjust if needed.

PART 4 – MEASUREMENT AND PAYMENT

- 4.01 **Exterior Lighting will be measured by the actual number of Wall Mounted Streetlight fixtures with brackets installed complete. Payment per each includes materials and all labor cost for installations to securely attach fixture and electrical conduit/conductor to building wall including cost of grounding and underground**

conduit/conductor installation from handhole box to base of building wall. The unit price per each Wall Mounted Streetlight shall include all electrical permits, testing, equipment, tools, materials and labor incidental thereto.

- 4.02 It is anticipated that CL&P will not require a “standard street/security lighting agreement”. Contractor shall verify with CL&P and if required then execute agreement with CL&P. Any CL&P fees or charges associated with this standard agreement shall be reimbursed to Contractor upon submittal of actual CL&P invoice and canceled check with pay application. No separate payment will be made for coordination work with utility companies.

END OF SECTION

SECTION 16000

GENERAL ELECTRICAL, TELEPHONE AND CATV

PART 1 – GENERAL

1.01 GENERAL

All electrical work shall be done in strict accordance with the 2005 National Electrical Code (NEC). Work shall be in accordance with Connecticut Light and Power (CL&P) installation standards. See Section 16500, Exterior Lighting (Section 16500ALT if alternate bid item approved by City) for additional specifications on street light installation.

1.02 SCOPE

- A. The work to be performed shall include all labor, materials, equipment, transportation, construction, facilities, and incidentals necessary for the proper execution, and completion of all electrical work as designed by the contractor and/or herein specified with the intent that the installation shall be complete in every respect and ready for use.
- B. Work Includes but is not limited to:
1. Underground electrical service including trench excavation and backfilling.
 2. Coordination of the installations/disconnections of utility services with the electric utility company, CL&P (Contact John Gazso 860-496-5297), the telephone company AT&T, (Glen McCloud 230- 575-6703), and the cable TV company, Cablevision (Dave Stofko 203-696-4767). Work includes making “new service requests” and agreement with utility companies.
 3. Street Lighting and lighting controls - Install new wall mounted streetlight fixtures complete including electrical supply and grounding. (or alternate pole mounted streetlight bid item if selected by City)
 4. Install conduit for new underground service to building including handhole boxes. Install new building service connection from underground conduit/handholes to existing overhead service head or underground service as where applicable. **Electrical work includes replacing three (3) existing 600 amp service fuses to 410 amp service fuses within Maiden Lane**
 5. Coordinate the removal and disposal of existing overhead utilities, wooden poles, and streetlight with respective utility owners. Such coordination shall include scheduling of work so that underground services is in place and functioning so utility poles can be removed prior to pouring new sidewalks.

1.03 PRODUCT HANDLING

All work, materials and equipment shall be protected from damage. All materials and equipment which is damaged, including installed work, shall be repaired or replaced to the satisfaction of the City.

1.04 SLEEVES AND OPENINGS

The Contractor shall furnish and install all necessary sleeves and openings as required to permit the installation of the electrical systems.

1.05 TRENCH EXCAVATION AND BACKFILLING

- A. The Contractor shall be responsible for trenching, backfilling, and ground restoration for all electrical work.
- B. **See SECTION 02075 SITE DEMOLITION AND SALVAGE on specifics requiring cutting existing pavement and sidewalks.** Re-pave over trenches upon completion of electrical work. Backfilling, sub-grade preparation, and paving shall be done as specified under other sections of these specifications.

1.06 POWER SHUTDOWNS

Any power shutdown of adjacent businesses required for the completion of the electrical work shall be scheduled with the businesses/owners/residents at least 24 hours in advance of shutdown.

1.07 GUARANTEE FOR EQUIPMENT AND SYSTEMS

The entire Electrical System shall be guaranteed by this Contractor against original defects of equipment and workmanship for a period of 18 months from date of acceptance by the City, unless a longer term is otherwise specified.

PART 2 - MATERIALS

2.01 SUBMITTALS

The contractor shall submit for approval all electrical materials to be incorporated in the work. Submittals shall include manufacturer's names and catalog numbers, descriptive data, manufacturer's ratings and application recommendations, cuts, diagrams, performance curves and such other information as may be required to judge compliance with the requirements and suitability to the application. Items shall be clearly identified as to proposed application.

2.02 RACEWAYS

A. Rigid Galvanized Steel Conduit and Sweeps:

1. Shall be used where conduit is exposed to the sunlight or weather.
2. Shall be used for penetrations through concrete slabs.

B. Rigid PVC Conduit:

1. Shall be used in underground locations for electrical feeders and branch circuits.
2. Rigid PVC conduit shall be schedule 40 PVC for underground work except vertical sweeps to daylight. Conduit attached to buildings shall be of material and minimum size as specified for building services by cl&p and/or NEC.
3. Conduit system shall be installed in strict accordance with the manufacturer's installation instructions and nec.

2.03 CONDUCTORS FOR LIGHTING AND SECONDARY ELECTRICAL SERVICES:

- A. All feeder conductors shall be aluminum, rated for 600 volts 90 deg. C, and approved for underground use in conduit per art. 310 of the nec.
- B. All branch circuit wiring for lighting shall be copper, stranded, and # 12 gauge minimum.
- C. Lighting circuits will require a 20 amp. 125volt 3-wire circuit. A listed in-line fuse and holder shall be provided at the hand hole by the elec. Contractor.

2.04 OUTLET, JUNCTION AND HANDHOLE BOXES

- A. Exterior electrical underground handhole shall be Quazite 'PG' series. Boxes shall be open bottom. Part number PG1730BA18 and top part number PG1730CA00. Top shall be flush with surrounding surface and cover shall be secured with stainless steel bolts.

PART 3 – EXECUTION

3.01 CONDUIT INSTALLATION

A. General:

1. **Conduits run underground below pavement and concrete slabs shall have a 24" minimum cover over the tops of the conduits.** Provide rigid steel conduit for sweeps and penetrations through slabs/pavements. All underground conduit runs shall have pull string or wire.
 2. Care shall be taken to protect underground PVC conduits prior to backfilling.
- B. All trenching and excavation shall be free of rock and that trenching is prepared in accordance with Trenching specifications found elsewhere herein.
- C. Contractor's design shall include coordinating the location of new conduit runs with other utility locations and proposed improvements to avoid interferences.

3.02 GROUNDING AND BONDING

- A. Provide equipment grounding means which will thoroughly ground all exposed non current carrying metal parts on every piece of installed equipment per nec art. 250.
- B. System shall be electrically and mechanically connected with listed fasteners and connectors to provide an independent low impedance path to grounding sources.
- C. All grounding conductors shall be sized per nec. Art.250.122
- D. All grounding conductors shall be copper.

3.03 EXAMINATION AND PERMITTING

- A. The Contractor shall carefully examine and inspect all assemblies for deficiencies in manufacturing before energizing the equipment.
- B. The Contractor shall obtain an electrical permit for this work from the City of Torrington.
- C. Call for inspections prior to concealment.

PART 4 – MEASUREMENT AND PAYMENT

- 4.01 Work under this section associated with building electrical services will be measured by the actual building electrical services that are installed from the proposed handholes to the point of existing electrical connection. Two separate pay items include "Electrical Service Connection to Trinity Episcopal Church" and "Electrical Service Connection to Maiden Lane Condos". Payment includes materials and all labor cost for complete installations. The unit price shall include but not limited to all electrical permits, testing, equipment, tools, conduits, wiring and materials and labor incidental thereto. **A separate lump sum pay item for electrical work associated with replacing existing 600amp service fuses to 410amp service fuses within Maiden Lane Condos is included in bid form.**
- 4.02 It is anticipated that CL&P will require a "new service" agreement for building services. Contractor shall verify with CL&P and if required then execute agreement with CL&P. Any CL&P fees or charges associated with this agreement shall be reimbursed to Contractor upon submittal of actual CL&P invoice (without markup) and canceled check with the project pay application. Any other "new service" charges associated with telephone or CATV shall also be paid in the same manner as with CL&P. No separate payment will be made for coordination work with utility companies.

- 4.03 Underground utility conduit shall be paid at the contract unit price per lineal foot for the size/type specified, complete in place, which price shall include saw cutting and pavement removal, excavation, dewatering, trench support, disposal of trench excavation, all materials, backfilling including back fill materials, compaction, grading, utility identification warning tape, temporary pavement, and all work necessary or incidental to the completion of the work under this section of the Specifications. Payment made shall be considered as full compensation for furnishing all labor, equipment, tools, material, services and installing pipe of the size and type shown on the plans and as detailed in Construction Drawings. No separate payment will be made for work under Excavation, Trenching, Backfilling and Compacting. Conduits that are placed and run longitudinally in the same trench are paid for as individual conduits at the unit price for that size/type. Any changes in alignment that results in additional length of conduits from that shown in plans must be approved by City Engineer prior to installation.
- 4.04 There will be no separate payment for work under this section associated with streetlight electrical installation. See Exterior Lighting section 16500.

END OF SECTION