

Downtown Albany Business Improvement District REQUEST FOR PROPOSAL

**William Street Lighting Project
William Street
Albany, NY**

July 24, 2018

INSTRUCTIONS TO BIDDERS AND BID FORM

(Note: The contents of this document will become part of the Contract to the successful bidder.)

A. PROJECT DESCRIPTION

It is the intent of this Contract to provide for the furnishing and installation of the **lighting fixtures/elements** and the related work, required to complete the Project. It is further understood that the Project Drawings and Specifications listed in **Exhibit 2**, may not be fully developed, and that the Contract will include whatever is reasonably required beyond same to provide a complete and functional installation to the satisfaction of the Owner.

B. CONTRACT DOCUMENTS

1. This Request for Proposal & Bid Form
Exhibit 1 – Scope of Work (included in this RFP)
Exhibit 2 – Drawings/Specifications
Exhibit 3 – Certificate of Insurance (sample form)

All work associated with the contract documents are to be complete and in full compliance with the contract documents unless specifically excluded elsewhere. It is the bidder's responsibility to ensure that the above documents have been received. Promptly notify The Downtown Albany Business Improvement District (DABID) of any missing documents, otherwise it will be assumed that they have been transmitted.

C. INSURANCE

1. Successful bidder shall be required to maintain insurance coverage's in accordance with the attached Sample Certificate of Insurance (**Exhibit 3**) for the duration of the project.
2. An "Additional Insured's" section must be included on the Certificate of Insurance, and **must be worded as it appears on the Sample Certificate of Insurance (Exhibit 3).**
3. Bidding contractor must acknowledge the insurance requirements of this project and assert that they currently possess or will initiate upon contract award insurance in compliance with the attached sample Certificate of Insurance (see bottom of Bid Form for Insurance Acknowledgement and Verification).

4. Insurance policies required to be maintained by the Contractor may contain no exclusions associated with moisture- or mold-related claims.

D. FINANCIAL

1. This project is **tax exempt**.
2. Price includes all applicable fringes, overhead, profit, delivery and distribution and all prices identified in the bid shall be firm for the life of the project.
3. Monthly payment requisitions are due on the 25th of each month with percentages of work completed projected through the end of the month. Percentages of work completed must refer to a previously submitted and approved, itemized schedule of values. An acceptable form for the schedule of values is AIA Document G703. DABID does not pay for stored material, except under special circumstances and at its sole discretion, in which case additional requirements may apply. All requisitions must include the following:
 - A completed Payment Requisition form
 - The itemized schedule of values described above, showing percentages of work completed for each scheduled item
 - A notarized waiver and release of lien by the Contractor, of statutory form, reflecting the full amount requested to date
 - Lien waivers from any/all subordinate Contractors, vendors, and/or other parties providing services, materials, and/or equipment to the project

Monthly requisitions not submitted completely and correctly by the 25th day of the month may be held until the 25th of the following month or rejected for re-submittal the following month.

Contractors are to e-mail or fax a draft copy of the requisition by the 20th of the month in order to ensure completeness and accuracy and to reduce the possibility of rejection.

E. GENERAL INFORMATION

1. Upon start of work, a list of key personnel with email addresses and mobile phone numbers shall be provided to DABID for emergency situations.
2. This Contractor agrees to provide a daily clean-up operation. At a minimum the Contractor is required on a daily basis to broom clean all areas of work and remove all excess material resulting from their operations and to dispose of same.
3. Contractor will be required to Dig Safe (811) prior to excavation under this scope of work.
4. Bidder to include services to support all manufacturers' testing required for each component and completed system.
5. Bidders are to include all items of work relevant to this scope and necessary for complete installation. Bidders are encouraged to attach a written narrative to clarify their interpretation

of any design concept that they feel is unclear on the contract documents. This scope of work shall include the costs to prepare, submit and obtain all required permits, approvals and inspections required for work performed from agencies that have jurisdiction thereof.

6. The location of all equipment and stored material must be submitted to and approved by DABID prior to delivery. The inventory of material will be strictly monitored and controlled. All deliveries must be preceded by written notice to DABID in advance.
7. The following policies are in effect for the project and must be followed by the Contractor's employees and other representatives thereof when on site. Any Contractor employee or other representative thereof may be removed from the Project at the discretion of DABID for failure to follow these policies.
 - a. Smoking and tobacco use strictly prohibited.
8. The successful Contractor shall be responsible for foreseen conditions at the project and its site, and the bid shall include consideration for these conditions. Bidders are encouraged to visit the project site to verify existing conditions. The Contractor has examined the Project site and the Contract Documents and reviewed areas of access and delivery.
9. All Contractors are responsible for protection of stored materials and finished work until final acceptance. If temporary protection is removed in order to perform work, it must be replaced immediately upon completion.
10. All work is to be final cleaned by the Contractor upon completion of their respective work.
11. DABID **will provide one (1)** set of the appropriate Drawings and Specifications to the Contractor. Any additional copies will be provided at the Contractor's expense.
12. Each Contractor is responsible for layout from these references and will be responsible for damage or loss from incorrect layout.

F. SAFETY INFORMATION

1. General Safety Rules for Construction will be in effect and fully enforced.
2. All accidents or injuries regardless of their nature shall be reported to a DABID representative.
3. All bidders must submit a copy of their corporate safety program to DABID for review which must include management safety accountability and documentation of the corporate safety record for EMR for the last three (3) years.
4. Safety glasses are required to be worn as the minimum required eye protection at all times and must meet or exceed ANSI standard Z87.1. Additional eye and face protection as outlined in OSHA CFR 1926.102 may be required for certain activities.
5. The Contractor shall provide **Material Safety Data Sheets (MSDS)** for all hazardous or potentially hazardous materials which the Contractor provides or utilizes on the Project.

Release of progress payments will be contingent upon receipt of MSDS sheets.

G. TEMPORARY FACILITIES

1. Dumpsters - Pricing should include daily clean-up and removal of debris and trash associated with this work. DABID **will NOT provide** dumpsters for this project. Contractor shall be responsible for removing debris and trash from the building and site on a daily basis. Contractors failing to clean up will be given a 24 hour notice after which time DABID will clean up at the Contractor's expense.
2. Electric - Contractor shall be responsible for temporary construction electrical needs for the performance of the work during normal working hours. Any task lighting, special lighting and/or electrical requirements (i.e. welding machines, temporary offices, portable generators etc.) must be approved by and coordinated with DABID and shall be at the expense of the Contractor.
3. Toilets - Temporary toilet facilities **will be provided** by DABID.
4. Material/Personnel Hoist – All requirements for lifting and staging of materials will be by each Contractor. The Contractor is responsible for all hoisting, rigging, planking and scaffolding (if any) required to perform this scope.
5. Vehicles - Failure to park in the designated areas or use of unauthorized entrances into the project may result in the individual being barred from working at the project.

H. DOCUMENT SUBMISSION

1. Submittals & Shop Drawings - Upon contract award, in the absence of more stringent requirements, the successful Contractor shall submit detailed information for all materials, fabrications, fixtures, equipment, and other components to be incorporated into the construction. These submittals shall serve to demonstrate compliance with the design intent, and shall include shop drawings showing details of construction, erection, fabrication, and/or installation, as required by the Contract Documents, and/or code-enforcement agencies. Review and/or approval of these submittals shall not relieve the Contractor of any responsibility for full compliance with the requirements of the Contract Documents.
2. Warranties - Include manufacturers' standard product warranties, transferable to the Owner, for all components installed in the performance of this work. Include warranty of Contractor's workmanship for all work performed. All work and the products included therein shall be warranted for a period of no less than **one (1)** year from the date of Final Completion of the project. A minimum of **three (3)** original signed warranty certificates along with warranty service contact information shall be provided by the Contractor prior to Final Completion. Contractor shall notify DABID immediately of any condition impeding work or which will result in unwarrantable conditions.
3. As-Builts & O&M's - The **Project Closeout Procedure** will be provided to the successful bidder. The review and acceptance of project closeout documents will be at the sole discretion of DABID. Contractor will be required to provide "as-built" drawings/documentation and Operation & Maintenance (O & M) manuals for the work. The

as-built drawings will be required in PDF format. A minimum of **three (3) sets** of “as-built” and O & M information shall be provided by the Contractor prior to Substantial Completion.

4. Permits - All required permits, use taxes, inspections, approvals, and fees, etc. will be the responsibility of this Contractor. Submit copies of all permits, licenses, and similar permissions obtained, to DABID directly.
5. Substitutions - All materials, products, processes or systems named in the specifications or on the drawings will be utilized for the scope. If the specifications permit an "or equal" or if the Contractor wishes to submit a substitution the Contractor's submission must meet the original design intent. If the “or equal” Submission were to cause any additional cost or modification to any other Contractor, it shall be the sole responsibility of this Contractor. The approval of any "or equal" or a substitution is at the sole discretion of DABID.

I. SCOPE REQUIREMENTS

1.1 SCOPE OF WORK

- A. Provide all labor, material, tools, equipment, transportation, and services necessary for and incidental to completion of all electrical work as indicated on the Drawings and/or as specified herein.

1.2 DRAWING USE AND SPECIFICATIONS

- A. Intent:
 1. Provide all items and work indicated on the Contract Documents. This includes all incidentals, equipment, appliances, services, hoisting, scaffolding, supports, tools, supervision, labor, consumable items, fees, licenses, etc., necessary to provide complete and workable, and programmable lighting system. Perform start- up and testing of lighting and lighting control system to provide fully operable systems.
 2. Neither the specifications nor the drawings undertake to illustrate or describe all items necessary for the work; it is expected that the Electrical contractor shall be familiar with all applicable codes and shall provide an electrical installation in conformance with all applicable codes.
 3. If, in the interpretation of contract documents, it appears that the drawings and specifications are not in agreement, the one requiring the greater quantity or superior quality shall prevail, as decided by the Engineer. Addenda supersede the provisions which they amend.
 4. After review of the drawings and specifications, the EC shall be completely familiar with the function of all items included and that his bid shall reflect the inclusion of all hangers, racks, inserts, etc., necessary for a complete and operable system. The EC shall provide offsets, fittings and accessories as may be required to meet such field conditions. The EC shall make all changes in equipment, locations, etc., to accommodate the work and to avoid obstacles at no increase in remuneration.

5. Items of work shown on the contract documents shall be furnished and installed as appearing on both drawings and specifications.
6. Equipment, conduit, etc., shall be installed to avoid interferences with the operation, servicing and maintenance of equipment.
7. Certain materials and equipment shall be provided by other trades. The EC shall examine the Contract Documents to ascertain these requirements. Unless specifically indicated as being supplied or installed by others, all items of work shown on the drawings or indicated in the specifications shall be included by the EC in his bid.
8. The EC shall review the contract documents for the work of other trades, informing the Architect of any conditions which obstruct, interfere with, or in any way prevent him from completing his work in a first class manner.

1.3 ABBREVIATIONS AND DEFINITIONS

A. Abbreviations:

1. EC: The Contractor performing the electrical work.
2. GC: The Contractor performing the site work.

B. References to the above designations are not intended to define contracts and/or subcontracts but only as reference to where items are shown on drawings or described in specifications.

C. Definitions:

1. Concealed: Embedded in masonry or other construction, installed behind wall furring, within partitions or hung ceilings (permanent or removable), in trenches, or in crawl spaces.
2. Exposed: Not installed underground or concealed.
3. Noted: As indicated on the drawings and/or specified.
4. Indicated or Shown: As indicated or shown on the drawings.
5. Wiring: Conduits, fittings, wire, junction and outlet boxes, switches, cutouts, and receptacles and items necessary or required in connection with or relating thereto.
6. Provide: Furnish and install

1.4 COMPLETE SYSTEMS

A. General: Furnish and install all materials as required for complete systems, including all parts obviously or reasonably incidental to a complete installation, whether specifically indicated or not. All systems shall be completely assembled, tested, adjusted and demonstrated to be ready for operation prior to Owner's acceptance.

B. Wiring: The wiring specified and/or shown on the Drawings is for complete and workable systems. Any deviations from the wiring shown due to a particular manufacturer's or sub-contractor's requirements shall be made at no cost to either the Contract or the Owner.

1.5 CODES AND REGULATIONS

- A. General: Comply with the latest recognized edition of the National Electrical Code (NEC) and all governing federal, state, and local laws, ordinances, codes, rules, and regulations. Where the Contract Documents exceed these requirements, the Contract Documents shall govern. In no case shall work be installed contrary to or below minimum legal standards.
- B. Utilities: Comply with all applicable rules, restrictions, and requirements of the utility companies serving the project site/facilities.
- C. Non-Compliance: Should any work be performed which is found not to comply with any of the above codes and regulations, provide all work and pay all costs necessary to correct the deficiencies.

1.6 REFERENCE STANDARDS

- A. All latest published standards of the following associations/organizations shall be followed and applied where applicable as minimum requirements:
 1. (ADA), Americans with Disabilities Act.
 2. (ANSI), American National Standards Institute.
 3. (ASTM), American Society for Testing and Materials.
 4. (BCNYS), Building Code of New York State.
 5. (CBM), Certified Ballast Manufacturer.
 6. (EPACT), National Energy Policy Act.
 7. (ETL), Electrical Testing Laboratory.
 8. (FCNYS), Fire Code of New York State.
 9. (ICEA), Insulated Cable Engineers Association.
 10. (IEEE), Institute of Electrical and Electronic Engineers.
 11. (IESNA), Illuminating Engineering Society of North America.
 12. (NBFU), National Board of Fire Underwriters.
 13. (NEMA), National Electrical Manufacturers Association.
 14. (NESC), National Electrical Safety Code.
 15. (NFPA), National Fire Protection Association.
 16. (UL), Underwriter's Laboratories.

1.7 PERMITS

- A. General: Obtain and pay for any and all permits required by all applicable agencies, prior to commencing work.

1.8 SUBMITTALS

- A. General: Prepare and submit for approval, per the procedures set forth in Division 1, all submittals required by Division 1, this section, and by all other Contract Documents.
- B. Types: Required submittals may include: Schedule of Values; List of Subcontractors; Product Data; Shop Drawings; Samples; Test Reports; Certifications; Warranties; Maintenance Manuals; Record Drawings; and various administrative submittals.
- C. Product Data: Submit for all basic electrical equipment, devices, and materials to be used on the project. Product data to consist of manufacturer's standard catalog cuts, descriptive

literature and/or diagrams, in 8-1/2-inch-by-11-inch format, and in sufficient detail so as to clearly indicate compliance with all specified requirements and standards. Mark each copy to clearly indicate proposed product, options, finishes, etc.

- D. Shop Drawings: Submit for all custom equipment and systems (e.g., panelboards) to be used on the project. Shop Drawings to be newly prepared, specifically for this project, and shall include all information listed in the Shop Drawings submittal requirements in the respective specification section. Include all pertinent information such as equipment/system identification, manufacturer, dimensions, nameplate data, sizes, capacities, types, materials, performance data, features, accessories, wiring diagrams, etc., in sufficient detail so as to clearly indicate compliance with all specified requirements and standards. For control systems, provide computer generated control ladder diagrams specifically developed for this project (standard diagrams not acceptable).
- E. Maintenance Manuals: Include operating and maintenance data in accordance with Division 1. Include all Product Data/Shop Drawing submittals as well as descriptions of function, normal operating characteristics and limitations, and manufacturer's printed operating maintenance, trouble shooting, repair, adjustment, and emergency instructions, and complete replacement parts listing.
- F. Record Documents: Prepare and submit for review field mark-ups indicating revisions to contract drawings. Indicate actual installed locations for all equipment and devices, routing of major interior raceways, locations of all concealed and underground equipment and raceways, and all approved modifications to the Contract Documents, and deviations necessitated by field conditions and change orders.

1.9 QUALITY ASSURANCE

- A. Manufacturers' Qualifications: Not less than three years experience in the actual production of the specified products.
- B. Installers' Qualifications: Firm with not less than five years experience in the installation of electrical systems and equipment similar in scope and complexity to those required for this Project, and having successfully completed at least ten comparable scale projects.
- C. Incidental Work: Excavation, backfill, painting, patching, welding, carpentry, mechanical work, concrete pads and the like related to or required for Division 26 work shall be performed by craftsman skilled in the appropriate trade, but shall be provided for under Division 26.

1.10 INSPECTIONS

- A. General: During and upon completion of the work, arrange and pay all associated costs for inspections of all electrical work installed under this contract, in accordance with the Conditions of the Contract.
- B. Inspections Required: As per the laws and regulations of the local and/or state agencies having jurisdiction at the project site.

- C. Inspection Agency: Approved by the local and/or state agencies having jurisdiction at the project site.
- D. Certificates: Submit all required inspection certificates.
- E. Coordination: Coordinate inspections with the local utility.

1.11 DELIVERY STORAGE AND HANDLING

- A. Packing and Shipping: Deliver products in original, unopened packaging, properly identified with manufacturer's identification, and compliance labels.
- B. Storage and Protection: Comply with all manufacturer's written recommendations. Store all products in a manner, which shall protect them from damage, weather, and entry of debris.
- C. Damaged Products: Do not install damaged products. Arrange for prompt replacement.

PART 2 – PRODUCTS

2.1 GENERAL

- A. Where specified: Materials and equipment shall be as specified herein and/or as indicated on the Drawings.
- B. General Requirements: All materials and equipment shall be in accordance with the Contract Documents, and to the extent possible, standard products of the various manufacturers, except where special construction or performance features are called for. All materials and equipment to be new, clean, undamaged, and free of defects and corrosion.
- C. Acceptable Products: The product of a specified or approved manufacturer will be acceptable only when that product complies with or is modified as necessary to comply with all requirements of the Contract Documents.
- D. Common Items: Where more than one of any specific item is required, all shall be of the same type and manufacturer.
- E. UL Listing: All electrical materials and equipment shall be Underwriters' Laboratories (UL) listed and labeled where UL standards and listings exist for such materials or equipment.

2.2 PRODUCT OPTIONS AND SUBSTITUTIONS

- A. Refer to the Conditions of the Contract and Division 1.

2.3 FIRESTOPPING MATERIALS

- A. General: Firestop systems composed of firestop compounds and appropriate damming materials installed together with the penetrant (e.g., conduit) to form a complete firestop

system, providing a fire resistant rating at least equal to the hourly fire resistance rating of the floor, wall or partition into which the firestop system is to be installed.

- B. Test Standards: Firestopping materials shall be tested together as a system to the time/temperature requirements of ASTM E119 and shall be tested to UL 1479 (ASTM E814) and be UL classified for up to 3 hours.
- C. Firestop Sealants: Non-hardening, conformable, intumescent putties, sealants or other compounds, containing no toxic solvents or asbestos, and exhibiting aggressive adhesion to all common building materials and penetrants, while allowing reasonable movement of the penetrants, without being displaced. Compounds shall be waterproof, non-toxic and smoke and gas tight.
- D. Firestop Mortars: Light-weight, water-based, cementitious, fast drying, low density mortar, non- shrinking and non-cracking during its cure, and which forms a surface capable of being sanded, bored and painted.
- E. Damming Materials: Mineral wool or ceramic fiber.
- F. Multi-Cable Transits: Assemblies consisting of a frame, a compression mechanism, and grooved insert sealing modules sized for multiple penetrating elements of various sizes.
- G. Acceptable Manufacturers: Hilti; Heavy Duty/Nelson; International Protective Coatings; Specified Technologies, Inc.

2.4 SOIL MATERIALS

- A. Subbase Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, crushed slag, or natural or crushed sand.
- B. Drainage Fill: Washed, evenly graded mixture of crushed stone, or crushed or uncrushed gravel, with 100 percent passing a 1-1/2-inch sieve and not more than 5 percent passing a No. 4 sieve.
- C. Backfill and Fill Materials: Materials complying with ASTM D2487 soil classification groups GW, GP, GM, SM, SW, and SP, free of clay, rock, or gravel larger than 2 inches in any dimension, debris, waste, frozen materials, vegetable, and other deleterious matter.

2.5 CONCRETE WORK

- A. Concrete:
 1. Minimum Strength: 3000 psi at 28 days.
 2. Aggregate: 3/4 inch aggregate.
 3. Cement: 588 #/cubic yard minimum, Type I or II.
 4. Slump: 4 inches maximum.
 5. Air: 5 to 7 percent.

- B. Reinforcing: Grade 60 bars, sized as indicated, and 6-inches by 6 inches – W1.4 by W1.4 mesh and other reinforcing as indicated.
- C. Forms: Wood, metal, or other approved materials constructed so as to withstand the forces of the newly placed concrete.

2.6 RACEWAY SYSTEMS

- A. Raceway Sizing: As required by the NEC (minimum) with oversized raceways as indicated and where required for ease of pulling cable. Minimum conduit size: 3/4 inch, unless indicated otherwise.
- B. Raceway Types: Rigid galvanized steel conduit, electrical metallic tubing (EMT), flexible steel conduit, liquid-tight flexible steel conduit and Schedule 80 rigid non-metallic (PVC) conduit conforming to applicable ANSI, NEMA and UL standards.
- C. Fittings: All raceway fittings (except for rigid non-metallic conduit) to be steel or malleable iron and UL-listed for the intended application. EMT fittings to be compression type.
- D. Outlet Boxes (Surface Mounted): Cadmium plated cast or malleable iron.
- E. Pull and Junction Boxes, and Wireways: Use as indicated and required. Junction and pull boxes for general indoor use (dry locations) to be of galvanized code gauge steel construction, minimum 4-inch square by 1-1/2 inches deep with screw-on covers. Wireways to be UL listed, sheet steel construction with screw-on covers. For exterior and damp or wet indoor locations, use boxes and wireways approved for such use.
- F. Pipe Sleeves: Rigid steel conduit or iron pipe.
- G. Conduit Seals: For Cast-in-Place Concrete Applications:
 - 1. Acceptable Manufacturers:
 - a. O-Z/Gedney Type “FSK.”
 - b. Thunderline Corp. “Link Seal” with “Link Seal Wall Sleeve.”
- H. For Core Drilled and Pre-Cast Opening Applications:
 - 1. Acceptable Manufacturers:
 - a. O-Z/Gedney Type “CSML.”
 - b. Thunderline Corp. “Link Seal.”
- I. Pull Wires: Monofilament plastic line with 200-pound tensile strength.

2.7 600 VOLT CLASS WIRE

- A. General: All wire and cable shall be constructed in accordance with all applicable ICEA, NEMA and IEEE published standards, and shall be UL-listed and labeled. Single-conductor, 98 percent conductivity, annealed, uncoated copper conductors with 600-volt rated type “THHN/THWN” insulation.

- B. Wire shall be annealed bare copper per ANSI/ASTM B3, UL 83, and Federal Specification JC-30A with 600 volt insulation, be stranded (except for #10 AWG and smaller may be solid), and be minimum size #12 AWG (except for control wiring and signal circuits).
- C. Insulation: Provide THHN/THWN insulation for all conductors except XHHW insulation may be used for conductors #4 and larger.
- D. Ampacity of conductors shall be rated for 75 DegC regardless of temperature of conductor insulation when combining circuits in one conduit. Derate conductors and increase size per NEC when installing multiple circuits in a raceway, utilizing 75 DegC ampacity table.
- E. Connectors: Nylon shell insulated metallic screw-on connectors for #14-10 AWG and bolted pressure or compression type lugs and connectors with insulating covers for #8 AWG and larger. In damp or wet areas use waterproof connectors.

2.8 WIRING DEVICES

- A. GFI Receptacles: Ground fault circuit interrupter, feed-through, duplex type, 125 volt, 20 amp, NEMA 5-20R, with solid-state ground-fault sensing and 5 mA trip level.
 - 1. Acceptable Manufacturers:
 - a. Leviton.
 - b. Arrow-Hart.
 - c. Hubbell.
 - d. Pass and Seymour.
- B. Device Color: Brown, unless directed otherwise.

2.9 EQUIPMENT CONNECTIONS

- A. Materials as specified in this section, and as required.

2.10 HANGERS AND SUPPORTS

- A. General: All hangers, supports, fasteners and hardware shall be zinc-coated or of equivalent corrosion resistance by treatment or inherent property, and shall be manufactured products designed for the application. Products for outdoor use shall be hot dip galvanized.
- B. Types: Hangers, straps, riser supports, clamps, U-channel, threaded rods, etc., as indicated and/or required.
- C. Seismic restraints and supports as indicated and/or required.

2.11 ELECTRICAL IDENTIFICATION

- A. Nameplates: Three-layer laminated plastic with minimum 3/16 inch high white engraved characters on black background, and punched for mechanical fastening. Fasteners: self-tapping stainless-steel screws or number 10-32 stainless steel machine screws with nuts and flat and lock washers. Each nameplate on all panelboards and switchgear shall indicate the following:

1. Panel Name.
 2. Voltage, Phase, Number of Wires.
 3. Source.
- B. Underground Warning Tape: Traceable 6-inch wide polyethylene tape, permanently bright colored with continuous-printed legend indicating general type of underground line below and "CAUTION." Colors as follows:
1. Red – Electric.
- C. Marking Pens: Permanent, waterproof, quick drying black ink.
1. Acceptable Manufacturers:
 - a. Sanford Fine Point "Sharpie."
 - b. Or equal.
- D. Wire Tags: Vinyl or vinyl-cloth self-adhesive wraparound type indicating appropriate circuit number, etc.
- E. Arc Flash Panelboard Stickers: Provide per NEC 110.16.

2.12 PANELBOARDS

- A. Types: Two-row, bolt-on circuit breaker branch circuit panelboards, and circuit breaker or fusible switch-type distribution panelboards, as indicated or required.
- B. General: Ratings, mains, mounting and complement of branch overcurrent protective devices as indicated below or on the Drawings.
- C. Short Circuit Ratings: Minimum 22,000 amps for 208/120 volt. Provide panelboards with higher ratings as indicated or as required.
- D. Enclosures: NEMA-1 for dry locations and NEMA 3R for wet locations (unless indicated otherwise). Provide galvanized steel rough-in box and cover with gray enamel finish Panel fronts are to have a door (circuit breakers) in door (circuit breakers & wiring gutters) in trim with concealed hinges and flush type tumbler lock. All panels shall be keyed alike. Doors in excess of 48 inches high shall be equipped with a three-point catch and vault handle with integral tumbler lock. Panel shall be dead front, safety type and be multi-section as noted or as necessary to comply with NEC.
- E. Bussing: Full capacity copper, include solid copper ground bus, bonded to enclosure and solid copper neutral bus with lug for each branch circuit.
- F. Fusible Switches: Quick-make, quick-break, horsepower rated with rejection fuse clips, padlockable handle, and hinged door with defeatable interlock.
- G. Acceptable Manufacturers:
1. Schneider (Sq. D)
 2. Eaton
 3. Siemens

4. General Electric

2.13 CIRCUIT BREAKERS

- A. General: Molded case with thermal and magnetic trips unless indicated otherwise. Minimum 22,000 amps interrupting capacity for 208V and 240V, 14,000 amps interrupting capacity for 480V and higher ratings as indicated or required.
- B. For Panelboard Mounting: Bolt-on type.
- C. Individually Mounted: NEMA-1 enclosures for indoor application, NEMA-3R for outdoor application, unless indicated otherwise.
- D. Breakers to be added to Existing Panelboards: Same manufacturer, type, and interrupting rating as for the existing breakers in same panelboard.

2.14 LIGHTING FIXTURES

- A. General:
 - 1. Fixture types as indicated on the Drawings. Lighting fixture manufacturers' series or catalog numbers listed indicate basis of design, general quality, type, and style but may not cover all required design features and details. Provide lighting fixtures having all features, details, and accessories as noted in the fixture descriptions. Provide all fittings, hangers, clamps, brackets, yokes, flanges, and miscellaneous devices required for a complete installation.
 - 2. Whenever possible, (based upon design requirements) provide lighting fixtures with ballasts provided integral to fixture and prewired.
- B. Site Lighting Fixtures: Include foundations, poles, luminaries, lamps, ballasts and all miscellaneous accessories as indicated or required for a complete assembly. Unless indicated otherwise, foundations to be cast-in-place concrete with constructed forms for square foundations and spirally wrapped treated paper forms for round foundations. Provide concrete as specified in this section or in Division 3, anchor bolts, and reinforcing steel as indicated or required. Provide a 1 inch by 45-degree chamfer at top of each foundation. Poles to be able to withstand winds of not less than 100 mph without damage to the poles or attached luminaries. Provide pole bases with handholes, handhole covers finished to match the pole finish, and ground lug.

PART 3 – EXECUTION

3.1 GENERAL

- A. The installation of all electrical work shall be in accordance with the intent of the Contract Documents as determined by the Engineer.
- B. Installation Requirements: All materials and equipment shall be installed as recommended by the respective manufacturers, by mechanics experienced and skilled in their particular trade, in

a neat and workmanlike manner, in accordance with the standards of the trade, and so as not to void any warranty or UL listing.

- C. Administration and Supervision: All electrical work shall be performed under the Contractor's direct supervision using sufficient and qualified personnel as necessary to complete the work in accordance with the progress schedule. The Contractor shall assign one or more competent supervisors who shall have authority to accept and execute orders and instructions, and who shall cooperate with the other Contractors and subcontractors, the Engineer, and Owner in all matters to resolve conflicts and avoid delays.

3.2 EXAMINATION

- A. Conditions Verification: Examine the areas and conditions under which the work is to be performed, and identify any conditions detrimental to the proper and timely completion of the work. Do not proceed until unsatisfactory conditions have been corrected.

3.3 COORDINATION

- A. General: Sequence, coordinate and integrate the installation of all electrical materials and equipment for efficient flow of work, in conjunction with the other trades. Review to the Drawings for work of the other trades, and report and resolve any discovered discrepancies, prior to commencing work.
- B. Cooperation: Cooperate with the other Contractors and individual disciplines for placement, anchorage, and accomplishment of the work. Resolve interferences between work of other disciplines or Contractors, prior to commencing installation.
- C. Chases, Slots, and Openings: Arrange for chases, slots, and openings during the progress of construction as required to allow for installation of the electrical work.
- D. Supports and Sleeves: Coordinate the installation of required supporting devices and sleeves to be set in poured-in-place concrete and other structural components as they are constructed.
- E. Obstacles and Interferences: When installing equipment and raceways, provide offsets, fittings, accessories, and changes in elevation or location as necessary to avoid obstacles and interferences, per actual field conditions.
- F. Space Requirements: Electrical equipment sizes indicated on the Drawings are generally based on specified manufacturer. Verify that the proposed equipment will fit in the space indicated on the drawings. Maintain clearances required by NEC.

3.4 DIMENSIONS

- A. Site Dimensions: Field measurements take precedence over scaled electrical site plans.
- B. Establish the exact location of electrical equipment based on the actual field verified dimensions of equipment furnished.

3.5 EQUIPMENT PROTECTION

- A. Protect all electrical equipment, and materials and work from the weather elements, paint, mortar, construction debris and damage until project is substantially complete. Repair, replace, and clean all electrical work so affected.

3.6 LAYOUT

- A. General: Install electrical systems, materials and equipment level and plumb, and parallel and perpendicular to other building systems and components, where installed exposed.
- B. Serviceability: Install electrical equipment and raceways, etc., to readily facilitate servicing, maintenance, and repair or replacement of components and so as to minimize interference with other equipment and installations.
- C. Clearances: Prior to commencing work, verify that all electrical equipment will adequately fit and conform to the indicated and code required clearances in the spaces indicated on the Drawings. If rearrangement is required, submit plan and elevation drawings or sketches indicating proposed rearrangement for the Engineer's approval. Do not rearrange without express written permission of the Engineer.
- D. Right-Of-Way: When laying out electrical work, give priority in available space to steam and condensate lines, sanitary lines, drain lines, fire protection piping, and sheet metal duct work. Provide offsets as required to avoid conflicts. Resolve all conflicts before commencing installation.

3.7 MOUNTING HEIGHTS

- A. General: Indicated heights are measured from the center of the device outlet box to finished floor or grade, unless indicated otherwise. Request instructions for mounting heights not indicated.

3.8 HOLES, SLEEVES, AND OPENINGS

- A. General: Provide all holes, sleeves, and openings required for the completion of Division 26 work and restore all surfaces damaged to match surrounding surfaces. Maintain integrity of all fire and smoke rated barriers using approved firestopping systems. When cutting holes or openings, or installing sleeves, do not cut, damage, or disturb structural elements or reinforcing steel unless approved in writing by the Project Structural Engineer.
- B. Conduit Penetrations: Size core drilled holes so that an annular space of not less than 1/4 inch and not more than 1 inch is left around the conduit. When openings are cut in lieu of core drilled, provide sleeve in rough opening. Size sleeves to provide an annular space of not less than 1/4 inch and not more than 1 inch around the conduit. Patch around sleeve to match surrounding surfaces.

3.9 FIRESTOPPING SYSTEMS

- A. General: Install firestopping at all electrical raceway and cable penetrations through floor structures and interior walls or partitions, which are time-rated fire and/or smoke barriers.
- B. Preparation: Prior to installation, verify that all penetrating elements and supporting devices are permanently installed and that surfaces which will be in contact with penetration seal materials are clean and free of dust, dirt, grease, oil, loose materials, rust or other substances.
- C. Installation: Install firestop systems in accordance with UL approved design details and the manufacturer's instructions. Install sleeves, conduits, and cables with required clearance spaces, allowing installation of sealing materials. Do not exceed the outside diameter of the sleeve, conduit, or cable by more than 1 inch or by less than 1/4 inch when making openings for penetrations. Install firestop systems so as to completely seal openings to prevent passage of smoke and water.

3.10 CUTTING AND PATCHING

- A. General: Provide all cutting, drilling, chasing, fitting, and patching necessary for accomplishing the work of Division 26, which includes any and all work necessary to: uncover work to provide for the installation of ill-timed work; remove and replace defective work and work not conforming to the requirements of the Contract Documents; and install equipment and materials in existing structures, in addition to that required during the normal course of construction.
- B. Comply with the cutting and patching requirements of Division 1.
- C. Building Structure: Do not endanger the integrity of the building structure by cutting, drilling, or otherwise modifying any structural member without specific approval. Do not proceed with any structural modifications without written permission of the Project Structural Engineer.
- D. Repairs: Repair any and all damage to work of other trades caused by cutting and patching operations using skilled mechanics of the trades involved.

3.11 UNDERGROUND ELECTRICAL WORK

- A. General: Provide all excavating, trenching, backfilling, etc., as indicated or required for the installation of all underground electrical work. Coordinate work with other trades and verify existing underground services and conditions.
- B. Conduit Burial Depth: 30 inches below finished grade unless indicated otherwise. All excavation and burial depths indicated are below finished grade.
- C. Excavating: Do not excavate below required depth except as necessary for removal of unstable soil or when rock is encountered. When rock is encountered, excavate 6 inches below the required depth and backfill with a minimum 6-inch layer of crushed stone or gravel between rock bearing surface and the electrical installation. Stockpile satisfactory excavated materials where directed until required for backfilling. Remove and legally dispose of excess excavated materials and materials not suitable for backfill use. Shore and brace as required for stability of excavation. Remove shoring and bracing when no longer required. Where

sheeting is allowed to remain, cut top of sheeting off at an elevation of 30 inches below finished grade.

- D. Protection: Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by excavations.
- E. Existing Utilities: Prior to any excavation contact "811" dig safe to locate any underground utilities. Where existing utilities, exist within areas of excavation, locate such utilities and support and protect during excavation operations.
- F. Trenching: Cut all trenches neatly and uniformly and so as to provide ample working room and at least six inches clearance on both sides of raceways, etc., unless otherwise noted. Take necessary precautions when working near existing underground utilities, and coordinate with the installation of concurrent utilities by other trades. Unless indicated otherwise, pitch all electrical conduit runs downward away from buildings, manholes, and pad mounted equipment. Excavate trenches to depth indicated or required. Limit length of open trench to that in which installations can be made and trenches backfilled within the same day.
- G. Sand Envelope: Install a minimum envelope of 3 inches (top, bottom, and sides: 3 inches each) of fine grain sand around all electrical cables and conduits installed below grade unless indicated otherwise.
- H. Preparation for Backfilling: Backfill excavations as promptly as work permits but not until completion of inspection, testing, approvals, and recording of underground utility locations. Prior to backfilling, remove all concrete form work, shoring, bracing, trash, and debris.
- I. Backfilling: Use only approved materials free from boulders, sharp objects, and other unsuitable materials. Match the final elevations and materials of areas affected by electrical excavating, trenching, and backfilling. Replace conduit and cables damaged by improper backfilling. Replace surface materials to match existing surface materials if no other utility or site work is being done in area. Place specified soil materials in 4- to 8-inch layers to required subgrade elevations for area classifications as follows:
 - 1. Under Sidewalks: Use combination of subbase materials and excavated or borrowed materials.
 - 2. Under Building Slabs: Use drainage fill materials.
 - 3. Under Piping and Equipment: Use subbase materials where required over rock bearing surfaces and for correction of unauthorized excavation.
 - 4. For Raceways Less than 30 inches below Surface of Paved Areas or Roadways: Provide 4-inch thick concrete base slab support. After raceway installation, provide 4-inch thick concrete encasement (sides and top) prior to backfilling and placement of roadway subbase. Refer to Contract Documents for Conduit Encased in Concrete Details.
- J. Backfill Placement: Place backfill and fill materials in layers of not more than 8 inches in loose depth for material compacted by heavy equipment and not more than 4 inches in loose depth for material compacted by hand-operated tampers. Before compaction, moisten or aerate each layer as necessary to provide optimum moisture content. Compact each layer to required percentage of maximum dry density or relative dry density for each area classification

specified below. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice. Place backfill and fill materials evenly adjacent to structures, piping, and equipment to required elevations. Prevent displacement of raceways and equipment by carrying material uniformly around them to approximately same elevation in each lift.

- K. Compaction: Control soil compaction during construction, providing minimum percentage of density specified for each area classification indicated below.
- L. Percentage of Maximum Density Requirements: Compact soil to not less than the following percentages of maximum density for soils, which exhibit a well-defined, moisture-density relationship (cohesive soils), determined in accordance with ASTM D1557 and not less than the following percentages of relative density, determined in accordance with ASTM D2049, for soils, which will not exhibit a well-defined moisture-density relationship (cohesionless soils).
 - 1. Areas under Structures, Building Slabs and Steps, Pavements: Compact top 12 inches of subgrade and each layer of backfill or fill material to 90 percent maximum density for cohesive materials and 95 percent relative density for cohesionless materials.
 - 2. Areas Under Walkways: Compact top 6 inches of subgrade and each layer of backfill or fill material to 90 percent maximum density for cohesive materials and 95 percent relative density for cohesionless materials.
 - 3. Other Areas: Compact top 6 inches of subgrade and each layer of backfill or fill material to 85 percent maximum density for cohesive materials and 90 percent relative density for cohesionless materials.
- M. Moisture Control: Where subgrade or layer of soil material must be moisture conditioned before compaction, uniformly apply water. Apply water in minimum quantity necessary to achieve required moisture content and to prevent water appearing on surface during, or subsequent to, compaction operations.
- N. Subsidence: Where subsidence occurs at electrical installation excavations during the period 12 months after Substantial Completion, remove surface treatment (i.e., pavement, lawn, or other finish), add backfill material, compact to specified conditions, and replace surface treatment. Restore appearance, quality, and condition of surface or finish to match adjacent areas.

3.12 CONCRETE WORK

- A. General: All concrete shall be prepared from approved materials and poured on clean, stable surfaces.
- B. Finishing: Trowel all exposed surfaces smooth. Round-off or chamfer all exposed edges.
- C. Curing: Beginning immediately after placement, protect concrete from premature drying, excessive hot or cold temperatures, and mechanical injury. Maintain minimal moisture loss at relatively constant temperature throughout period necessary for hydration of cement and hardening of concrete.

3.13 RACEWAY SYSTEMS

- A. Raceway Types: Unless indicated otherwise, use raceway types as follows:
 - 1. Indoors, Exposed: Use rigid galvanized steel conduit below 10 feet above finished floor. EMT may be used above 10 feet.
 - 2. Outdoors, Below Grade: (Minimum 1 inch size). Schedule 80 rigid non-metallic Conduit. Stub up using rigid galvanized steel elbows.
 - 3. Outdoors, Exposed: Rigid galvanized steel conduit.
 - 4. Liquid-Tight Flexible Steel Conduit: Use where flexible steel conduit connections are required in damp, wet, or oily locations, and for final connections to all motors and similar equipment.

- B. Raceway Routing: As required by job conditions unless specific routes or dimensioned positions are indicated on the Drawings. Install tight to slabs, beams, and joists wherever possible. Route exposed conduit, and conduit installed above ceilings, parallel or perpendicular to walls ceilings and structural members. Install to maintain minimum headroom and to present a neat appearance. Run parallel raceways together with bends made from same center line. Verify exact locations of all raceways, pull boxes, and junction boxes. Resolve any conflicts before installation.

- C. Raceway Installation: Cut conduit ends square using saw or pipecutter and ream each cut end smooth. Carefully make all conduit bends and offsets so that the inside diameter of pipe is not reduced. Make bends so that legs are in the same plane. Make offsets so that legs are in the same plane and parallel. Protect stub-ups from damage, and carefully rebend when necessary.

- D. Fittings: Make up all raceway fittings tight so that final installation of raceway, fittings and enclosures constitutes a firm mechanical assembly and a continuous electrical conductor. Where required, provide bonding jumpers to assure electrical continuity.

- E. Protection: Protect all raceways, enclosures, and equipment during construction to prevent entry of concrete, debris and other foreign matter. Free clogged conduits of all obstructions, or replace, prior to pulling wire. Do not pull wire within buildings until buildings are completely enclosed.

- F. Boxes: Install all outlet, pull, and junction boxes rigidly, plumb, and level. Support and secure boxes independently from conduits terminating at box. Install all boxes so as to be accessible and so that covers may be easily removed.

- G. Conduit Seals: Install conduit seal for each conduit penetrating an exterior building wall below grade (unless penetration is below lowest building floor slab) and elsewhere as indicated, and so as to achieve a sealed watertight installation.

3.14 CONDUCTORS - 600 VOLT AND BELOW

- A. Minimum Conductor Size: All branch circuit wiring shall be minimum #12 AWG. All control circuit wiring shall be minimum #14 AWG unless indicated otherwise. Provide larger sizes as indicated or required.

- B. Branch Circuit Conductor Sizes: Provide branch circuit conductor sizes as indicated on the panelboard schedules, plans, or elsewhere. Neutral conductor size to match phase conductors unless indicated otherwise. Provide branch circuit switch legs and travelers as required for the switching indicated.
- C. Equipment Grounding Conductor Required: For each branch circuit and feeder run, provide an equipment grounding conductor for continuous length of run, sized per NEC 250-122 (minimum), larger if so indicated.
- D. Feeders: Provide feeder conductor sizes and quantities as indicated.
- E. In Raceway: Install all wiring in conduit or other specified raceway unless indicated otherwise.
- F. Terminations: Furnish and install terminations including lugs (if necessary) to make all electrical connections indicated or required. Make connections and terminations for all stranded AWG conductors using crimp, clamp, or box-type connectors and terminators. Enclose all strands of stranded conductors in connectors, and lugs.
- G. Color: Conductors #10 and smaller shall be factory color-coded by integral pigmentation with a separate color for each phase and neutral. #8 and larger shall have stripes, bands, hash marks, or color pressure-sensitive plastic tape. Color code all branch circuit and feeder conductors as follows:
 - 1. 208/120 Volts:

<u>PHASE</u>	<u>COLOR</u>
A	Black
B	Red
C	Blue
Neutral	White
 - 2. Equipment Grounding Conductors: Green
- H. Phase Arrangement: Arrange phases in all electrical equipment as follows:
 - 1. A, B, C: Front to Rear.
 - 2. A, B, C: Top to Bottom.
 - 3. A, B, C: Left to Right when facing established front of equipment.
- I. Provide conductors with not less than 90 DegC rated insulation when branch circuit wiring is attached to high temperature light fixtures (e.g., fluorescent and HID), boilers, incinerators, ovens, ranges, kitchen exhaust fans, other heat-producing equipment, and "100 percent rated" overcurrent protective devices. Use special higher temperature wire as required for connection to specialty equipment as required by equipment manufacturer.

3.15 EQUIPMENT CONNECTIONS

- A. Connect complete, all equipment requiring electrical connections, furnished as part of this Contract or by others unless indicated otherwise.

- B. Equipment Variations: Note that equipment sizes and capacities as shown on the Contract Documents are for bidding purposes and as such may not be the exact unit actually furnished. Contractor shall anticipate minor variations in equipment and shall include in his Bid all costs required to properly connect the equipment actually furnished.
- C. Verification: Obtain and review shop drawings, product data, and manufacturer's instructions for equipment furnished by others. Examine actual equipment to verify proper connection locations and requirements.
- D. Coordination: Sequence electrical rough-in and final connections to coordinate with installation and start-up schedule and work by other trades.
- E. Rough-In: Provide all required conduit, boxes, fittings, wire, connectors, miscellaneous accessories, etc., as necessary to rough in and make final connections to all equipment requiring electrical connections. In general, motors and equipment shall be wired in conduit to a junction box (or safety switch) near the unit, and from there to the unit in flexible metal or liquid-tight flexible steel conduit.
- F. Connections: Provide properly sized overload and short circuit protection for all equipment connected, whether furnished under this Contract or by others. Verify proper connections with manufacturer's published diagrams and comply with same. Verify that equipment is ready for electrical connections, wiring, and energization prior to performing same.
- G. Control Wiring: Provide all control wiring to remote devices or equipment as indicated or required. Modify equipment control wiring, install or disconnect jumpers, etc., as required.

3.16 HANGERS AND SUPPORTS

- A. General: Rigidly support and secure all electrical materials, raceway, and equipment to building structure using hangers, supports, and fasteners, suitable for the use, materials and loads encountered. Provide all necessary hardware.
- B. Overhead Mounting: Attach overhead mounted equipment to structural framework or supporting metal framework. Do not make attachments to steel roofing, steel flooring, or ceiling mineral tile.
- C. Wall Mounting: Support wall mounted equipment by masonry, concrete block, metal framing, or sub-framing.
- D. Exterior Walls: Mount all electrical equipment located on the interior of exterior building walls at least 1 inch away from wall surface using suitable spacers.
- E. Structural Members: Do not cut, drill, or weld any structural member.
- F. Independent Support: Do not support electrical materials or equipment from other equipment, piping, ductwork, or supports for same.

- G. Temporary Conditions: Do not attach to or support electrical work from removable or knockout panels or temporary walls or partitions.
- H. Raceway Supports: Rigidly support all raceway with maximum spacings per NEC and so as to prevent distortion of alignment during pulling operation. Use approved hangers, clamps, and straps for individual runs. Do not use perforated straps or tie wires. Where multiple parallel raceways are run together, use trapeze type hanger arrangement made from U-channel and accessories, suspended by threaded rods, and allow at least 25 percent spare capacity for future installation of additional raceways. Rigidly anchor vertical conduits serving floor-mounted or “island” type equipment mounted away from walls with metal bracket or rigid steel conduit extension secured to floor.
- I. Miscellaneous Supports: Provide any additional structural support steel brackets, angles, fasteners, and hardware as required to adequately support all electrical materials and equipment.
- J. Seismic restraints and supports: Provide as indicated and/or as required per seismic zone indicated.

3.17 ELECTRICAL IDENTIFICATION

- A. General: Locate nameplate, marking, or other identification means on outside of equipment or box front covers when above ceilings and when in mechanical or electrical equipment rooms or other unfinished areas, and on inside of front cover when in finished rooms/areas. Use Contract Document designations for identification unless indicated otherwise.
- B. Nameplates: Provide nameplate engraved with equipment designation for each safety switch, panelboard, transformer, motor starter, and all other electrical cabinets, etc.
- C. Underground Warning Tape: During trench backfilling for each underground electrical, telephone, signal, and communications line, provide a continuous underground warning tape located directly above line at 6 to 8 inches below finished grade.
- D. Marking Pen Labeling: Mark each junction and pull box indicating source designation and circuit number(s) for the enclosed conductors.
- E. Wire Tags: For power circuits, apply wire tag indicating appropriate circuit or feeder number to each conductor present in distribution panel and panelboard gutters, and to each conductor in pull and junction boxes where more than one feeder or multi-wire branch circuit is present. Where only a single feeder or multi-wire branch circuit is present, box cover labeling and conductor color coding is sufficient. For control, communications, and signal circuits, apply wire tag indicating circuit or termination number at all terminations and at all intermediate locations and boxes where more than one circuit is present.
- F. Panelboard Circuit Directories: At completion of project, accurately complete each panelboard circuit directory card, identifying load served or “spare” or “space” for each circuit

pole. When modifying, adding or deleting circuits at an existing panelboard, update the existing (or provide new) circuit directory card to accurately reflect final conditions.

- G. Abandoned Equipment: Label all abandon equipment as “Abandon as of _____.” For conduits and conductors, include opposite end location.

3.18 GROUNDING

- A. General: Provide all system and equipment grounding as indicated and required by the NEC.
- B. Equipment Grounding: Provide a green equipment grounding conductor, sized per NEC 250-122 (larger if so indicated), with each feeder and branch circuit run.

3.19 PANELBOARDS

- A. Secure rough-in boxes to building structure or steel framing, independent of conduits. Cover all unused overcurrent protective device spaces.

3.20 LIGHTING FIXTURES

- A. Install all lighting per manufactures written instructions and contract documents.
- B. Provide factory representative to program and commission lighting control system. Provide a minimum of Two (2) man days for this work.

3.21 CHECKOUT, TESTING, AND ADJUSTING

- A. General: Provide testing equipment, materials, instruments, and personnel to perform all test procedures and adjustments required by the Contract Documents and/or deemed necessary by the Engineer to establish proper performance and installation of electrical systems and equipment. All test instruments to be accurately calibrated and in good working order.
- B. Scheduling: Schedule tests at least three days in advance, and so as to allow Engineer and Owner representative(s) to witness the test, unless directed otherwise. Do not schedule tests until the system installation is complete and fully operational unless indicated or directed otherwise.
- C. Manufacturer’s Authorized Representatives: For all new and modified systems and equipment, arrange and pay for the services of the manufacturer’s authorized representative(s) to be present at time of equipment or system start-up, to supervise the start-up, and to conduct and/or certify all required testing and adjusting.
- D. Correction/Replacement: After testing, correct any deficiencies, and replace materials and equipment shown to be defective or unable to perform at design or rated capacity. Retest without additional cost to the Owner or Contract. Submit finalization report indicating corrective measures taken and satisfactory results of retest.

3.22 SYSTEMS DEMONSTRATION

- A. Instruct the Owner's representative(s) in the start-up, operation, and maintenance of all electrical systems and equipment in accordance with Division 1 and as requested by the Owner's Representative.

3.23 CLEANING AND TOUCH-UP PAINTING

- A. General: Daily remove from the project site, all waste, rubbish, and construction debris accumulated from construction operations, and maintain order. The premises shall be left clean and free of any debris and unused construction materials prior to final acceptance.
- B. Electrical Equipment: Remove all dust, dirt, debris, mortar, wire scraps, rust, and other foreign materials from the interior and exterior of all electrical equipment and enclosures, and wipe down. Clean accessible current carrying elements and insulators prior to energizing.
- C. Light Fixtures: Thoroughly clean all new or relocated light fixtures and lamps, just prior to final inspection. Fixture enclosures, reflectors, lenses, etc., shall be cleaned free of dust, dirt, fingerprints, etc., by an approved method.
- D. Touch-Up Painting: Restore and refinish to original condition, all surfaces of electrical equipment scratched, marred, and/or dented during shipping, handling, or installation. Remove all rust, and prime and paint as recommended by the manufacturer.

END OF SECTION

J. PROJECT SCHEDULE

1. Contract is to be awarded within approximately five (5) days of the bid due date, provided a sufficient number of qualified bids have been received. Following receipt of Contract Agreement, shop drawings and other submittals are to be made as dictated by a mutually agreed upon schedule. In no event shall the submittal process be permitted to limit the progress of work. The Contractor is to take specific care to start submittals in a time frame that will allow ample time for review and lead time for fabrication and delivery. Work is to commence immediately upon receipt of a signed Contract Agreement.
2. Contractor duration for each task shall be on the attached Bid Form.
3. The Contractor will be required to work with DABID to develop and update a detailed schedule for the entire scope.
 - The time frames and activity duration include all related work necessary to complete this scope.

- The Contract Agreement Price includes any and all measures necessary to achieve the indicated time frames and activity duration.
- The Contractor agrees to meet the indicated activity duration should the actual start times be changed by DABID, without any additional compensation.

K. PRICING

1. PRICE BREAKDOWN

Provide pricing in accordance with the breakdown represented on the Bid Form. In order to properly identify the successful qualified bidder, all line items must be assigned a value, and the sum of these values must equal the bid amount. Pricing for a line item should not be excluded unless it is the intention of the bidder to exclude that portion of the scope of work. Should a bidder wish to exclude any portion of the work, that portion must be excluded in its entirety and its exclusion must be expressly stated in the Deviations section of the bid form. Note that exclusion of any portion of the work may be cause for rejection of the bid.

2. UNIT PRICING

Provide unit pricing as requested on the Bid Form. In order to properly identify the successful qualified bidder, all unit price items must be assigned a value. Unit prices shall be firm for the life of the project.

Unit prices for any individual components of the scope of work are to include all labor, material, tools, equipment, handling, storage, hoisting, distribution, protection of materials, fringe benefits, overhead, profit, insurance, etc., required for a complete installation. The price of additional work performed in accordance with unit pricing shall be calculated using simple multiplication of the unit price by the quantity of work installed, and shall not be subject to any additional mark-up for overhead or profit.

Unit labor rates are to include the total cost of labor, including, but not limited to, taxes, insurance, fringe benefits, etc. When establishing the price of additional work, labor costs shall be calculated using simple multiplication of the unit labor rate by the duration of time worked.

3. ALTERNATES

Provide a base bid as described in “A” below, provide a deduct alternate bid as described in “B” below and provide an add alternate bid as described in “C” below:

- A. Base bid to include all labor and material required to complete the work associated with providing (8) Eight (SL1) tilt poles with RGB color changing and one white (3000 K) linear strip lighting, GFCI receptacles, RGBWW Festoon lighting (L1) between poles, concrete pole bases, adjustable catenary mount RGB down lights (L2), Catenary cables and hardware, Lighting controls, testing and commissioning of systems for delivery of a complete and workable lighting and power systems. As indicated on contract documents.
- B. Deduct Alternate shall include all labor and material required to complete the work associated with providing (5) Five (SL1) tilt poles with RGB color changing

and one white (3000 K) linear strip lighting, GFCI receptacles, RGBWW Festoon lighting (L1) between poles, concrete pole bases, adjustable catenary mount RGB down lights (L2), Catenary cables and hardware, Lighting controls, testing and commissioning of systems for delivery of a complete and workable lighting and power systems. As indicated on contract documents.

- C. Add Alternate shall include all labor and materials required to complete the work associated with providing (3) Three removable bollards as indicated on contract document SK-E2 and removal of (3) Three existing bollards.

Voluntary alternates are always welcome and will be considered whenever possible. However, base bid must contain the specified scope.

BID FORM FOR:

WILLIAM STREET LIGHTING PROJECT RFP

**William Street
Albany, NY**

Bids are due by NO later than 2:00 p.m. on Monday, August 20, 2018

Submission should be e-mailed to Don Wilson at dwilson@downtownalbany.org or mailed to:

**Don Wilson
Operations Manager
Downtown Albany Business Improvement District
21 Lodge Street
Albany NY 12207**

The undersigned having familiarized ourselves with the local conditions affecting the cost of the work and the documents as outlined in the Request for Proposal, hereby proposes to furnish all labor, material, equipment and service required to perform the scope of work outlined in the aforementioned Request for Proposal, all in accordance therewith for the following sum:

_____ Dollars (\$ _____)

CONTRACT BREAKDOWN: (please provide the breakdown for each item listed below)

Lighting Fixtures	Cost
Lighting fixtures/features	
a) Multi-lamp (50 cm spacing) RGBWW shatterproof exterior rated DMX controlled festoon lighting, DMX/power cables and mounting accessories, catenary cables and associated hardware (See Light Fixture Schedule - Fixture Designation L1 on Site Drawing)	\$ _____
b) 6" Diameter adjustable aiming RGB down light. DMX/power cables and mounting accessories (See Light Fixture Schedule - Fixture Designation L2 on Site Drawing)	\$ _____
c) Custom tilt pole with flush mounted dual LED strip lighting, one RGB color changing and one white (3000 K) linear strip lighting. Control and power cables	\$ _____

and mounting accessories Catenary cable mounting bracket at pole top and champhered pole top. Pole base to have (2) GFI duplex receptacles with in-use coverplates. Pole finish to be from manufacturer's standard metal finishes. Provide fuse holders in each pole base. Fuse holders shall be in-line type, one-pole as manufactured by Littlefuse. Fuses shall be KTK-R type.
(See Light Fixture Schedule – Fixture Designation SL1 on Site Drawing)

TOTAL \$ _____

Concrete Work

Concrete work:

- a) Pre-cast reinforced concrete pole bases.
- b) Anchor bolts. Size and layout as recommended by manufacturer.
- c) 10'-0" rigid steel conduit, entering and leaving base.
- d) 1" x 6" expansion joint material, around perimeter of base, caulk level at finished grade.
- e) Convert to SCH. 80 PVC conduit.
- f) #3 rebar spaced 12" on center horizontally and (4) #8 rebar vertically.
- g) Provide grounding bushing.

TOTAL \$ _____

Initials _____

(BID FORM – PAGE 4)

CONTRACTOR LICENSURE

Proper licensure and/or registration of Contractors with all governing municipalities and/or regulatory agencies are required. By signing below, bidder asserts that bidder possesses all such licenses and that such licenses are current and in good standing. Bidder agrees to maintain such licenses for the duration of the project. This requirement shall apply to any sub-Contractors that the bidder may hire to perform any portion of the work. Please provide business and contractor license/registration information below.

Jurisdiction: _____

License No.: _____

INSURANCE ACKNOWLEDGEMENT AND VERIFICATION

A Certificate of Insurance, demonstrating full compliance with those requirements outlined in Section C of this Request for Proposal. Attached for your review and to assist you in complying with these requirements is a sample Certificate of Insurance (*Exhibit 3*). By signing below, bidder acknowledges the insurance requirements of this project, and asserts that the bidder currently possesses, or will initiate upon contract award, insurance consistent with these requirements.

Signature: _____

Date: _____

Print Name: _____

Title: _____

Bidder (Company) : _____

Contact Phone Number: _____