



## INVITATION TO BID

CITY OF QUINCY, MASSACHUSETTS  
PURCHASING DEPARTMENT  
1305 HANCOCK STREET, QUINCY, MA 02169

The City of Quincy acting on behalf of the Quincy Park Department invites "4 separate" sealed bids for the;  
**"RECONSTRUCTION FOR OLD QUINCY HIGH SCHOOL GREEN SPACE PROPERTY"**

**Park Dept. Extended Stonework Seating Wall August 21, 2014 @ 11:00 a.m.**

**Stone Specific** - The Old Quincy High School Green Space Project involves extending an existing curved stone wall for 71 FT also adding a historical reference seating space with approximately 130 LF of flush granite curb, 86 LF of granite seat wall, and 145 SQ FT of granite paving. The stone specific section of the project also requires skateboard deterrents be attached to the extended curved wall.

**Park Dept. Electrical Work August 21, 2014 @ 11:15 a.m.**

**Electrical Specific** - The Old Quincy High School Green Space Project incorporates adding new vehicular light poles, new pedestrian light poles and reusing existing light poles.

**Park Dept. Concrete Work August 21, 2014 @ 11:30 a.m.**

**Concrete Specific** - The Old Quincy High School Green Space Project incorporates roughly 525 SQ FT of exposed aggregate concrete paving, 3,300 SQ FT of Portland cement concrete paving, and 2,500 SQ FT of integrally colored concrete paving.

**Park Dept. Bituminous Concrete-Asphalt Driveway August 21, 2014 @ 11:45 a.m.**

**Bituminous Concrete Specific** - The Old Quincy High School Green Space Project incorporates roughly 7,000 SQ FT of bituminous concrete.

Detailed specifications are on file at the office of the Purchasing Agent, Quincy City Hall, 1305 Hancock Street, Quincy, Massachusetts, 02169, between the hours of 8:30<sup>AM</sup> and 4:30<sup>PM</sup>.

Bids must state exceptions, if any, the delivery date and any allowable discounts. Bids/Proposals must be in a sealed envelope. The outside of the sealed envelope is to be clearly marked "**BID ENCLOSED**" with time/date of bid call.

Firm bid prices will be given first consideration. Bids/Proposals will be received at the office of the Purchasing Agent until the time and date stated above, at which time and date they will be publicly opened and read. Late Bids/Proposals, delivered by mail or in person, will be rejected.

Bidding procedures are subject to the provisions of the General Laws of the Commonwealth of Massachusetts (MGL) Chapter 30, Section 39M and applicable sections of MGL Chapter 149, sections 44A-44.

The successful bidder will be required to conform to the payment of Prevailing Wage Rates, as determined by the Commissioner of Labor & Industries under the provision of M.G.L. Chapter 149, Section 26 to 27D as amended

The right is reserved to reject any or all bids or to accept any part of a bid or the one deemed best for the City and waive any informality in the bidding if it is in the best interest of the City to do so.

Thomas P. Koch, MAYOR

Kathryn R. Hobin, Purchasing AGENT

LEGAL: AUGUST 6, 2014  
LEGAL: AUGUST 7, 2014

CENTRAL REGISTER  
REQ#: S082114

DEPT. CHARGED: PARK DEPT.



CITY OF QUINCY, MASSACHUSETTS  
PURCHASING DEPARTMENT  
1305 HANCOCK STREET, QUINCY, MA 02169

DETAILED SPECIFICATIONS AND REQUIREMENTS  
“RECONSTRUCTION FOR OLD QUINCY HIGH SCHOOL GREEN SPACE PROPERTY”

Issue Date: AUGUST 6, 2014  
Bid Call: AUGUST 21, 2014 @ 11:15 A.M.  
Department: PARK DEPARTMENT  
Subject: ELECTRICAL WORK

1. Certified check or 5% bid bond is required ..... (Paragraph 1, line 09-17)
2. A Performance is not required & 50% Payment Bond is required ..... (Paragraph 1, line 24-29)
3. Quantities..... (Paragraph 4, line 51-52)
4. Samples must be supplied when requested..... (Paragraph 6, line 10-15)
5. **DO NOT SEPARATE ANY SHEET FROM THIS BID CALL.**
6. All prices are to include delivery F.O.B. destination unless noted otherwise.
7. Wherever a manufacturer's name or model number is specified, it is to be clearly understood that the words "**OR APPROVED EQUAL**" follow.
8. All vendors must acknowledge in writing receipt of any addenda.
9. **Every bid delivered must contain one original and one copy.**

\* TO THE EXTENT APPLICABLE THE FOLLOWING SECTIONS OF MASSACHUSETTS GENERAL LAWS ARE INCORPORATED HEREIN BY REFERENCE:

**M.G.L. CHAPTERS 30B, CHAPTER 149, CHAPTER 30, SECTIONS 39A, 39B AND 39F-R.  
M.G.L. AND CHAPTER 149, AS AMENDED**

In the event of any inconsistency between the bid, Information for Bidders, Bid Forms, Conditions or any other Contract Document or potential Contract Document and these statutes; or any other applicable statutes, by-laws or regulations existing on the date on which the bid is submitted, then the statute, by-laws or regulations shall govern. Such inconsistency shall not be grounds for invalidating this invitation to bid.

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NOTICE TO BIDDERS

The successful bidder will be required to conform to the payment of Prevailing Wage Rates, as determined by the Commissioner of Labor & Industries under the provision of M.G.L., Chap. 149, Sect. 26 to 27D as amended.

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LIABILITY, PROPERTY DAMAGE and WORKERS' COMPENSATION coverage is required of the successful bidder before any work can be started.

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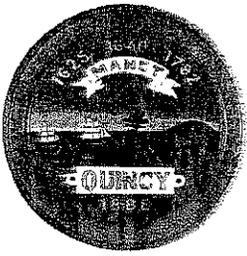
SPECS: RECONSTRUCTION FOR OLD QUINCY HIGH SCHOOL GREEN SPACE PROPERTY”  
**“ELECTRICAL WORK”**

DATE: \_\_\_\_\_

BIDDER: \_\_\_\_\_

ADDRESS: \_\_\_\_\_  
\_\_\_\_\_

PHONE/FAX/EMAIL: \_\_\_\_\_  
\_\_\_\_\_



CITY OF QUINCY  
Purchasing Department  
1305 Hancock Street, Quincy, MA 02169

Phone: 376-1060

Fax: 376-1074

## TAX COMPLIANCE CERTIFICATE

MASS. GENERAL LAWS, CH. 62C, S: 49A(b)

I hereby certify that pursuant to MGL Chapter 62c, section 49a, I have complied with all laws of the Commonwealth of Massachusetts relating to taxes, reporting of employees and contractors, and withholding of child support. This is being signed under the pains and penalties of perjury.

(1) Individual Contractor

\_\_\_\_\_  
(Contractor's Name and Signature)

Social Security Number

(2) Corporation, Association  
or Partnership

\_\_\_\_\_  
(Contractor's Name)

Federal Tax ID Number, or  
Social Security Number

By:

\_\_\_\_\_  
(Authorized Signature)

## CERTIFICATE OF NON – COLLUSION

The undersigned certifies under penalties of perjury that this bid or proposal has been made and submitted in good faith and without collusion or fraud with any other person. As used in this certification, the word "person" shall mean any natural person, business, partnership, corporation, union committee, club, or other organization, entity, or group of individuals.

\_\_\_\_\_  
(Name of person signing bid or proposal)  
(Please print)

\_\_\_\_\_  
(Signature required)

\_\_\_\_\_  
(Name of business)



CITY OF QUINCY  
Purchasing Department  
1305 Hancock Street, Quincy, MA 02169

Phone: (617) 376-1060

Fax: (617) 376-1074

### SIGNATURE AUTHORIZATION

At a duly authorized meeting of the Board of Directors of the

\_\_\_\_\_  
(NAME OF CORPORATION)

held on \_\_\_\_\_, at which all the Directors were present or waived notice, it was  
(DATE)

VOTED, that:

\_\_\_\_\_  
(NAME)

\_\_\_\_\_  
(OFFICER)

of this company, be and he/she hereby is authorized to execute Contracts and Bonds in the name and behalf of said Company, and affix its Corporate Seal thereto, and such execution of any Contract or obligation in this Company's name on its behalf by such \_\_\_\_\_ under seal of the Company, shall be valid  
(OFFICER)

and binding upon this Company. It was further voted that the City of Quincy may rely on such authorization of future Contracts until notified to the contrary.

A true copy,

ATTEST: \_\_\_\_\_  
(CLERK'S SIGNATURE)

PLACE OF BUSINESS: \_\_\_\_\_

DATE OF THIS CONTRACT: \_\_\_\_\_

I hereby certify that I am the Clerk of the:

\_\_\_\_\_  
(COMPANY)

that

\_\_\_\_\_  
(NAME)

is the

duly elected \_\_\_\_\_ of said Company, and that the above VOTE has not been  
(TITLE)

amended or rescinded and remains in full force and effect as of the date of this Contract.

\_\_\_\_\_  
CORPORATE SEAL

CERTIFICATION RELATING TO DEBARMENT AND SUSPENSION

The undersigned contractor certifies to the City of Quincy that neither it nor its principals, officers or any affiliated entities has been debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction in accordance with the requirements of OMB Circular A-87 and with Executive Order 12549, "Debarment and Suspension."

Furthermore, the contractor certifies that it shall not make any subcontract or permit any subcontract to be made with any party which is debarred or suspended or is otherwise excluded in accordance with said OMB Circular and with Executive Order 12549.

This certification shall be for the benefit of the City of Quincy and its successors and/or assigns and is binding upon the contractor, its successors and assigned.

Executed under seal this \_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_.

\_\_\_\_\_  
Contractor Name  
By its duly authorized agent,

Contract Number \_\_\_\_\_

\_\_\_\_\_  
(Authorized Signature)

CERTIFICATION OF GENERAL BIDDERS ON PUBLIC CONSTRUCTION  
PROJECTS

I. CERTIFICATION REGARDING HEALTH AND SAFETY

The undersigned hereby certifies that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work; that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least ten hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee; and that he will comply fully with all laws and regulations application to awards made subject to section 44A.

II. CERTIFICATION REGARDING NON-COLLUSION AND DEBARMENT

The undersigned further certifies under the penalties of perjury that this bid is in all respects bona fide, fair and made without collusion or fraud with any other person. As used in this subsection the word "person" shall mean any natural person, joint venture, partnership, corporation or other business or legal entity. The undersigned further certifies under penalty of perjury that the said undersigned is not presently debarred from doing public construction work in the Commonwealth under the provisions of section twenty-nine F of chapter twenty-nine, or any other applicable debarment provisions of any other chapter of the General Laws or any rule or regulation promulgated thereunder.

Date: \_\_\_\_\_

\_\_\_\_\_  
Name of General Bidder

By \_\_\_\_\_  
Signature

\_\_\_\_\_  
Print name and title

\_\_\_\_\_  
Business Address

\_\_\_\_\_  
Street Address City and State

## INDEMNITY AGREEMENT

In consideration of the award of Contract No. \_\_\_\_\_

by the City of Quincy, hereinafter referred to as INDEMNITEE, to the CONTRACTOR/BIDDER:

\_\_\_\_\_

hereinafter referred to as INDEMNITOR, and for other good and valuable consideration, said INDEMNITOR agrees to hold INDEMNITEE, City of Quincy, and its various department and employees harmless from any and all liability, loss or damage that INDEMNITEE may suffer as the result of claims, demands, costs, including attorneys fees, or judgement or other actions against it by reason of any and all work done by or on behalf of the INDEMNITOR in connection with the above-referenced contract.

INDEMNITOR,

\_\_\_\_\_  
By Duly Authorized Agent

Date: \_\_\_\_\_

**REFERENCE LIST**

All vendors are to fill out the following reference form, and submit it with the bid package, with similar work over the last 3-5 years.

Reference #1 Name: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone: \_\_\_\_\_

Fax: \_\_\_\_\_

Email: \_\_\_\_\_

Reference #2 Name: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone: \_\_\_\_\_

Fax: \_\_\_\_\_

Email: \_\_\_\_\_

Reference #3 Name: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone: \_\_\_\_\_

Fax: \_\_\_\_\_

Email: \_\_\_\_\_

Reference #4 Name: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone: \_\_\_\_\_

Fax: \_\_\_\_\_

Email: \_\_\_\_\_

SECTION 26 05 00

GENERAL CONDITIONS FOR ELECTRICAL WORK

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

A. RELATED DOCUMENTS

1. Drawings and General Provision of Contract, including General and Supplementary Conditions and DIVISION 01 specifications, apply to this section.
2. Where Paragraphs of this Section conflict with similar paragraphs of the General and Supplementary Conditions and DIVISION 01, requirements of this Section shall prevail.

- B. Reference Drawings: The Work of this Section is shown on the following Contract Drawings: E1.0 and E1.1.

1.2 DESCRIPTION OF WORK

- A. *Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:*

1. Underground conduits and wiring including concrete light pole bases.
2. Exterior site lighting including motion sensors and step dimming drivers.
3. Provide all documentation required for electric utility company rebates. Fill out and file all rebate forms that the owners are entitled to. Provide all necessary coordination between the owner and the utility companies for all rebate work.
4. Grounding and bonding of all electrical systems and equipment installed or modified under this contract.
5. Wiring devices (switches and receptacles) complete with associated device covers.
6. Power wiring to irrigation equipment provided by others.
7. Testing of all electrical systems installed or modified under this contract.
8. Coordination between electrical and other trades.

9. All other systems hereinafter specified or indicated on the Contract Drawings, complete, leaving ready an electrical system in perfect operating condition.
  10. Core drilling for the Work of this Section.
  11. Coordination drawings and record drawings and similar requirements.
  12. Hoisting Equipment: The Electrical Work subcontractor shall furnish, install and maintain in safe and adequate condition all mechanical hoisting equipment, operating personnel and rigging that is necessary for the proper execution of the Work of this Section. The requirements of DIVISION 01 in relation to hoisting and rigging being the responsibility of the General Contractor, do not apply to the work of this Section.
  13. Staging, Planking and Scaffolding: The Electrical Work subcontractor shall furnish, install and maintain in safe and adequate condition, all staging, planking and scaffolding up to eight feet in height that is necessary for the proper execution of the Work in this Section. The General Contractor shall furnish, install and maintain in safe and adequate condition all staging, planking and scaffolding above eight feet in height.
- B. Alternates: Not Applicable.
- C. Items To Be Installed Only: Install the following items as furnished by the designated Sections:
1. DIVISION 11 - EQUIPMENT:
    - a. Existing luminaires, removed by others, stored off site by owner.
- D. Items To Be Furnished Only: Furnish the following items for installation by the designated Sections:
1. DIVISION 03 - CONCRETE:
    - a. Concrete pole base anchor bolts and anchor bolt patterns.
- E. Related Work: The following items are not included in this Section and will be performed under the designated Sections:
1. DIVISION 03 - CONCRETE:
    - a. Concrete light pole bases.
  2. DIVISION 31 - EARTHWORK:
    - a. Excavation and backfilling for underground work.

- F. The Electrical Sub-Contractor shall be responsible for filing all documents, payment of all fees, and securing of all inspections and approvals necessary for the electrical work.

### 1.3 SUBMITTALS

- A. Comply with requirements specified in DIVISION 01.
- B. Material and equipment requiring Shop Drawing Submittals shall include but not be limited to:
  - 1. Light fixtures, including lamps, ballasts, drivers and exterior pole base foundations.
  - 2. Overcurrent and switching devices.
  - 3. Wiring devices and cover plates.
  - 4. Motion sensors for exterior lighting.
  - 5. Wiring and cables.
  - 6. Conduit.
  - 7. Boxes and fittings.
  - 8. Safety switches.

### 1.4 REFERENCES

- A. Except where modified by a specific notation to the contrary, it shall be understood that the indication and/or description of any electrical item in the drawings or specifications for electrical work carries with it the instruction to furnish, install and connect the item as part of the electrical work, regardless of whether or not this instruction is explicitly stated.
- B. It shall be understood that the specifications and drawings for electrical work are complimentary and are to be taken together for a complete interpretation of the electrical work except that indications on the drawings, which refer to an individual element of work, take precedence over the specifications where they conflict with same.

### 1.5 REGULATORY REQUIREMENTS

- A. Comply with all applicable federal and state laws, and all local codes, by-laws and ordinances.
- B. Where provisions of the Contract Documents conflict with any codes, rules or regulations, the latter shall govern. Where the contract requirements are in

excess of applicable codes, rules or regulations, the contract provisions shall govern unless the Engineer rules otherwise.

- C. Request inspections from authorities having jurisdiction, obtain all permits and pay for all fees and inspection certificates as applicable and/or required. All permits and certificates shall be turned over to the Owner's representative at the completion of the work. Copies of permits shall be given to the resident engineer prior to the start of work.
- D. Unless otherwise specified or indicated, materials and workmanship and equipment performance shall conform with the latest edition of the following standards, codes, specifications, requirements and regulations:
  - 1. State Building Code
  - 2. State Electrical Code
  - 3. National Fire Protection Association (NFPA)
  - 4. Local Town Regulations and By-laws
  - 5. Underwriter's Laboratories, Inc. (UL)
  - 6. National Electrical Manufacturer's Association (NEMA)
  - 7. American National Standards Institute (ANSI)
- E. All electrical work shall meet or exceed any other state and local codes and/or authorities having jurisdiction including all other standards indicated herein.

#### 1.6 SURVEYS AND MEASUREMENTS

- A. Base all required measurements, both horizontal and vertical, on reference points established by the General Contractor and be responsible for the correct laying out of the electrical work. In the event of a discrepancy between actual measurements and those indicated, notify the General Contractor in writing, and do not proceed with the work required until written instructions have been issued by the General Contractor.

#### 1.7 COORDINATION

- A. Drawings are diagrammatic. They indicate general arrangements of mechanical and electrical systems and other work. They do not show all offsets required for coordination nor do they show the exact routings and locations needed to coordinate with Landscape and other trades and to meet Civil requirements.
- B. Work shall be performed in cooperation with other trades on the project and so scheduled as to allow speedy and efficient completion of the work.

- C. Furnish to other trades advance information on locations and sizes of all frames, boxes, sleeves and openings needed for their work, and also furnish information and shop drawings necessary to permit trades affected by the work to install same properly and without delay.
- D. In all spaces, prior to installation of visible material and equipment, including access panels, review Civil and Landscape Drawings for exact locations and where not definitely indicated, request information from Engineer. Where the electrical work shall interfere with the work of other trades, assist in working out the space conditions to make satisfactory adjustments before installation. Without extra cost to Owner, make reasonable modifications to the work as required by normal structural interferences. Pay the General Contractor for additional openings, or relocating and/or enlarging existing openings required for any work which was not properly coordinated.
- E. If any electrical work has been installed before coordination with other trades so as to cause interference with the work of such trades, all necessary adjustments and corrections shall be made by the electrical trades involved without extra cost to Owner.
- F. Where conflicts or potential conflicts exist and engineering guidance is desired, submit sketch of proposed resolution to Engineer for review and approval.
- G. Protect all materials and work of other trades from damage which may be caused by the electrical work, and repair all damages without extra cost to Owner.

#### 1.8 INSTALLATION REQUIREMENTS

- A. The arrangement of all electrical work shown on the drawings is diagrammatic only and indicates the minimum requirements of the work. Conditions at the site, including actual measurements, shall determine the details of the installation. All work shall be laid out and installed so as to require the least amount of cutting and patching.
- B. Check the Civil and Landscape plans and specifications before ordering any material and equipment. Any discrepancies shall be brought to the attention of the Engineer for his determination prior to proceeding with the work.

#### 1.9 TYPICAL DETAILS

- A. Typical details where shown on the drawings shall apply to each and every item of the project where such items are applicable. They are not repeated in full on the drawings, which in many cases are diagrammatic only, but with the intention that such details shall be incorporated in full. Any alternate method proposed for use by the Contractor shall have the prior approval of the Engineer.

#### 1.10 SLEEVES, INSERTS

- A. Furnish and install all sleeves, inserts, anchor bolts and similar items to be set into masonry or concrete, as required for mechanical and electrical work. Internal diameter of sleeve shall be 2" larger than the outside diameter of the pipe or insulation covered line passing through it.

#### 1.11 CORING, DRILLING

- A. Core, cut and/or drill all small holes 4.5" diameter or less in walls and floors required for the installation of sleeves and supports for the electrical work.

#### 1.12 ACCESSIBILITY

- A. Install all work such that parts requiring periodic inspection, operation, maintenance and repair are readily accessible.
- B. Furnish all access panels appropriate to particular conditions, to be installed by trades having responsibility for the construction of actual walls, floors or ceilings at required locations.

#### 1.13 TOOLS AND EQUIPMENT

- A. Provide all tools and equipment required for the fabrication and installation of the mechanical and electrical equipment at the site.

#### 1.14 PORTABLE AND DETACHABLE PARTS

- A. Contractors shall retain in their possession all portable and/or detachable parts and portions of materials, devices, equipment etc. necessary for the proper operation and maintenance of the mechanical and electrical systems until final completion of the work, at which time they shall be handed over to Owner's representative.

#### 1.15 RECORD DRAWINGS, PROJECT CLOSEOUT

- A. Comply with requirements specified in DIVISION 01.
- B. This trade shall submit the record set for approval by the fire and building departments in a form acceptable to the departments, when required by the jurisdiction.
- C. Drawings shall show record condition of details, sections, riser diagrams, control changes and corrections to schedules. Schedules shall show actual manufacturer and make and model numbers of final equipment installation.

#### 1.16 GUARANTEE/WARRANTY

- A. Guarantee Work of this Section in writing for one year following the date of beneficial occupancy by the Owner. The guarantee shall repair or replace defective materials, equipment, workmanship and installation that develop within this period, promptly and to Engineer's satisfaction and correct damage caused in making necessary repairs and replacements under guarantee within Contract Price.
- B. In addition to guarantee requirements of DIVISION 01 and of Subparagraph A above, obtain written equipment and material warranties offered in manufacturer's published data without exclusion or limitation, in Owner's name.
  - 1. Upon receipt of notice from Owner's representative of failure of any part of the systems or equipment during the warranty period, the affected part or parts shall be replaced by this Contractor without any reimbursement.
  - 2. Replace material and equipment that require excessive service during guarantee period as defined and as directed by Engineer.
  - 3. Provide 24 hour service beginning on the date the project is accepted by Owner, whether or not fully occupied, and lasting until the termination of the guarantee period. Service shall be at no cost to the Owner. Service can be provided by this contractor or a separate service organization. Choice of service organization shall be subject to Engineer and Owner's representative's approval. Submit name and a phone number that will be answered on a 24-hour basis each day of the week, for the duration of the service.

4. Submit copies of equipment and material warranties to Engineer before final payment.
5. At end of guarantee period, transfer manufacturers' equipment and material warranties still in force to the Owner.
6. This Paragraph shall not be interpreted to limit Owner's rights under applicable codes and laws and under this Contract.
7. Other sections of this Specification may specify warranty requirements that exceed those of this Paragraph. Those paragraphs will govern.
8. Use of systems provided under this Section for temporary services and facilities shall not constitute Final Acceptance of work by Owner's representative, and shall not initiate the guarantee period.
9. Non-durable items, such as electric lamps, shall be replaced up to the date of acceptance, such that they shall have had no more than 100 hours use prior to this date.
10. Provide manufacturer's engineering and technical staff at site to analyze and rectify problems that develop during guarantee period immediately. If problems cannot be rectified immediately to Owner's representative's satisfaction, advise Engineer in writing, describe efforts to rectify situation, and provide analysis of cause of problem. Engineer will direct course of action.

#### 1.17 OPERATING, INSTRUCTION AND MAINTENANCE MANUALS

- A. Refer to DIVISION 01 for submittal procedures pertaining to operating and maintenance manuals.
- B. Each copy of the approved operating and maintenance manual shall contain copies of approved shop drawings, equipment literature, cuts, bulletins, details, equipment and engineering data sheets and typewritten instructions relative to the care and maintenance for the operation of the equipment, all properly indexed. Each manual shall have the following minimum contents:
  1. TABLE OF CONTENTS
  2. Introduction

- a. Explanation of manual and its purpose and use.
  - b. Description of the electrical systems.
  - c. Safety precautions necessary for equipment.
  - d. Illustrations, schematics and diagrams.
  - e. Installation drawing.
3. Maintenance
- a. Maintenance and lubricating instructions.
  - b. Replacement charts.
  - c. Trouble shooting charts for equipment components.
  - d. Testing instructions for each typical component.
  - e. Two typed sets of instructions for ordering spare parts. Each set shall include name, price, telephone number and address of where they may be obtained.
4. Manufacturer's Literature
- a. The equipment for which shop drawings have been submitted and approved.

#### 1.18 QUALITY ASSURANCE

- A. The requirements of the State Building Code and local regulations establish the minimum acceptable quality of workmanship and materials, and all work shall conform thereto unless more stringent requirements are indicated or specified herein.
- B. All work shall comply with the latest editions of the codes as referenced herein.
- C. Follow manufacturer's directions for articles furnished, in addition to directions shown on drawings or specified herein.
- D. Protect all work, materials and equipment from damage during process of work. Replace all damaged or defective work, materials and equipment without additional cost to Owner.
- E. All equipment and materials for permanent installation shall be the products of recognized manufacturers and shall be new.

- F. Equipment and materials shall:
1. Where normally subject to Underwriters Laboratory Inc. listing or labeling services, be so listed or labeled.
  2. Be without blemish or defect.
  3. Not be used for temporary light and power purposes.
  4. Be in accordance with the latest applicable NEMA standards.
  5. Be products which will meet with the acceptance of all authorities having jurisdiction over the work. Where such acceptance is contingent upon having the products examined, tested and certified by Underwriters or other recognized testing laboratory, the product shall be so examined, tested and certified.
- G. Except for conduit, conduit fittings, outlet boxes, wire and cable, all items of equipment or material of one generic type shall be the product of one manufacturer throughout.
- H. For items which are to be installed but not purchased as part of the electrical work, the electrical work shall include:
1. The coordination of their delivery.
  2. Their unloading from delivery trucks driven into any point on the property line at grade level.
  3. Their safe handling and field storage up to the time of permanent placement in the project.
  4. The correction of any damage, defacement or corrosion to which they may have been subjected. Replacement if necessary shall be coordinated with Contractor who originally purchased the item.
  5. Their field make-up and internal wiring as may be necessary for their proper operation.
  6. Their mounting in place including the purchase and installation of all dunnage, supporting members and fastenings necessary to adapt them to Civil, Landscape and Structural conditions.

7. Their connection to building wiring including the purchase and installation of all termination junction boxes necessary to adapt and connect them to this wiring. Included also shall be the purchase and installation of any substitute lugs or other wiring terminations as may be necessary to adapt their terminals to the building wiring as called for and to the connection methods set forth in these specifications.
- I. Items which are to be installed but not purchased as part of the electric work shall be carefully examined upon delivery to the project. Claims that any of these items have been received in such condition that their installation will require procedures beyond the reasonable scope of the electric work will be considered only if presented in writing within one week of the date of delivery to the project of the items in question. The electric work includes all procedures, regardless of how extensive, necessary to put into satisfactory operation, all items for which no claims have been submitted as outlined above.

#### 1.19 DELIVERY, STORAGE AND HANDLING

- A. All materials for the work of this section shall be delivered, stored and handled so as to preclude damage of any nature. Manufactured materials shall be delivered and stored in their original containers, plainly marked with the products' and manufacturer's name. Materials in broken containers or in packages showing watermarks or other evidence of damage, shall not be used and shall be removed from the site.

### PART 2 - PRODUCTS

#### 2.01 MANUFACTURERS

- A. Product specifications are written in such a manner so as to specify what materials may be used in a particular location or application and therefore do not indicate what is not acceptable or suitable for a particular location or application. As an example: non-metallic sheathed cable is not specified; therefore, it is not acceptable.
- B. For purpose of establishing a standard of quality and not for purpose of limiting competition, the basis of this Specification is upon specified models and types of equipment and materials, as manufactured by specified manufacturers.
- C. In all cases, standard cataloged materials and systems have been selected. Materials such as lighting fixtures specially manufactured for this particular

project and not part of a manufacturer's standard product line will, not be acceptable. In the case of systems, the system components shall be from a single source regularly engaged in supplying such systems. A proposed system made up of a collection of various manufacturers products will be unacceptable.

- D. Where Specifications list manufacturer's names and/or "as approved" or "Equal approved by Engineer", other manufacturers equipment will be considered if equipment meets Specification requirements and has all features of the specified items as are considered essential by Engineer.
- E. All materials shall be new and shall be UL listed.

## 2.02 RACEWAYS AND FITTINGS

- A. Raceways - General:
  - 1. No raceway shall be used smaller than 3/4" diameter. No conduit shall have more than three (3) 90° bends in any one run, and where necessary, pull boxes shall be provided. Intermediate metal conduit is not allowed.
  - 2. Rigid metal conduit conforming to, and installed in accordance with, Article 346 of NFPA 70 shall be heavy wall zinc coated steel conforming to American Standard Specifications C80-1 and may be used for service work, exterior work, slab work, and below grade level slab, wet locations, and in mechanical rooms and where raceway may be subject to mechanical damage, i.e., loading docks, workshops, etc.
  - 3. Rigid non-metallic conduit may be used for underground electric wiring and shall be polyvinyl chloride (PVC) schedule 40, 90°C.
  - 4. Acceptable manufacturers:
    - a. Pittsburgh Standard Conduit Company
    - b. Republic Steel and Tube
    - c. Youngstown Sheet Tube Company
    - d. Carlon
  - 5. Fittings:
    - a. Provide insulated bushings on all raceways.

- b. Manufacturer's standard fittings shall be used for raceway supports.
- c. Expansion Fittings: Expansion fittings shall be used where structural and concrete expansion joints occur and shall include a ground strap.
- d. Couplings for rigid metal conduit shall be threaded type.
- e. Couplings, elbows and other fittings used with rigid nonmetallic raceways shall be of the solvent cemented type to secure a waterproof installation.
- f. Acceptable manufacturers:
  - 1) O.Z.
  - 2) Crouse Hinds
  - 3) Appleton
  - 4) EFCOR
  - 5) Steel City

## 2.03 WIRING MATERIALS

- A. Conductors shall be copper with 600V insulation, THWN for branch circuitry.
- B. Conductors shall be of soft drawn 98% minimum conductivity properly refined copper, solid construction where No. 10 AWG and smaller, stranded construction where No. 8 AWG and larger.
- C. Exterior of wires shall bear repetitive markings along their entire length indicating conductor size, insulation type and voltage rating.
- D. Exterior of wires shall be color coded, so as to indicate a clear differentiation between each phase and between each phase and neutral. In all cases, grounded neutral wires and cables shall be identified by the colors white or gray. In sizes and insulation types where factory applied colors are not available, wires and cables shall be color coded by the application of approved colored plastic tapes in overlapping turns at all terminal points, and in all boxes in which splices are made. Colored tape shall be applied for a distance of 6 inches along the wires and cables, or along their entire extensions beyond raceway ends, whichever is less.

- E. Final connections to motors shall be made with 18" of liquid tight flexible metal conduit.
- F. Minimum conductor size shall be No. 12 AWG, installed in conduit. Motor control circuit wiring shall be minimum No. 14 AWG, installed in conduit.
- G. For specialty systems wiring, refer to manufacturers shop drawings and wiring diagrams for conductor size, electrical characteristics, and approved wire manufacturers.
- H. Other wires and cables required for the various systems described elsewhere in this section of the Specifications shall be as specified herein, as shown on the Contract Drawings, or as recommended by the manufacturer of the specific equipment for which they are used, all installed in conduit.
- I. Wiring materials shall be manufactured by Triangle, Essex, Republic, Anaconda, General Cable, or equal.

#### 2.04 OUTLET, JUNCTION, PULL BOXES, AND WIRING TROUGHS FOR ALL SYSTEMS

- A. Outlets:
  - 1. Each outlet in wiring or raceway systems shall be provided with an outlet box to suit conditions encountered. Boxes installed in normally wet locations shall be of cast-metal type having hubs. Concealed boxes shall be cadmium plated or zinc coated sheet metal type. Old work boxes with Madison clamps not allowed in new construction.
  - 2. Each box shall have sufficient volume to accommodate number of conductors in accordance with requirements of NFPA 70. Boxes shall not be less than 1-1/2" deep unless shallower boxes are required by structural conditions and are specifically approved by Designer. Ceiling and bracket outlet boxes shall not be less than 4" octagonal except that smaller boxes may be used where required by particular fixture to be installed. Flush or recessed fixtures shall be provided with separate junction boxes when required by fixture terminal temperature requirements. Switch and receptacle boxes shall be 4" square or of comparable volume.
  - 3. Acceptable manufacturers:
    - a. Appleton

- b. Crouse Hinds
- c. Steel City
- d. RACO

- B. Pull and Junction Boxes: Where necessary to terminate, tap off, or redirect multiple raceway runs or to facilitate conductor installation, furnish, and install appropriately designed boxes. Boxes shall be fabricated from code gauge steel assembled with corrosion resistant machine screws. Box size shall be as required by Code. Where intermediate cable supports are necessary because of box dimensions, provide insulated removable core brackets to support conductors. Junction boxes are to be equipped with barriers to separate circuits. Where splices are to be made, boxes shall be large enough to provide ample work space. All conductors in boxes are to be clearly tagged to indicate characteristics. Boxes shall be supported independently of raceways. Junction boxes in moist or wet areas shall be galvanized type. Boxes larger than 4 inches square shall have hinged covers. Boxes larger than 12 inches in one dimension will be allowed to have screw fastened covers, if a hinged cover would not be capable of being opened a full 90 degrees due to installation location.

## 2.05 WIRING DEVICES

- A. Provide wiring device type plates for all wall mounted devices. All wall plates shall be smooth high impact nylon for all public areas, offices, classrooms, etc color as directed by the Designer. Provide galvanized steel for all Utility, Electric and Mechanical Rooms.
- B. Wiring devices standard for the project (i.e., with no specific type indicated) shall conform to the following:
- 1. Visible part colors of wiring devices shall be as directed by the Designer for all public areas, offices, classrooms etc. Provide brown devices for all Utility, Electrical and Mechanical Rooms.
  - 2. Exclude compact or "Despard" type devices.
- C. Wiring device switches shall be toggle type, A.C. specification grade, 20 amps on 120 volt circuits. Switches shall be mounted 48" to center line above finished floor unless noted otherwise.
- 1. Single pole switch shall be equal to Hubbell No. HBL1221.
  - 2. Double pole switch shall be equal to Hubbell No. HBL1222.

3. Three-way switch shall be equal to Hubbell No. HBL1223.
  4. Four-way switch shall be equal to Hubbell No. HBL1224.
  5. Single pole pilot light switch shall be equal to Hubbell No. HBL1221PL.
  6. Equivalent 277 volt 20 amp switches shall be used where required.
- D. Standard duplex convenience receptacles shall be 125 volt, 20 amps, three wire (two circuit wires plus ground), "U-bar" ground NEMA slot configuration 5-20R, specification grade with a one-piece ground assembly. Receptacles shall be mounted 18" to center line above finished floor unless noted otherwise.
1. Equal to Hubbell No. HBL5362.
  2. Where indicated on plans provide receptacles with ground fault current interrupters, UL class A, 20A, 125V to be equal to Hubbell No. GFR5352.
- E. Non-standard convenience receptacles and special purpose power supply receptacles shall be as listed on plans.
- F. Devices and device plates for flush wall devices which are not integrally equipped with same, shall be as directed by the Designer.
- G. For unfinished spaces, plates for surface mounted wall devices which are not integrally equipped with same, shall be galvanized sheet steel, formed raised type which does not overlap box. Where for switches, such plates shall have toggle guards.
- H. Where more than one wiring device is indicated in the same location, the devices shall be mounted in gangs under a common wall plate.
- I. Mount duplex convenience and power receptacles vertically with grounding posts at top of device unless otherwise indicated. Locate grounding post to left when horizontal mounting is indicated.
- J. Wiring devices and associated hardware shall be manufactured by Hubbell, Arrow-Hart, Leviton, or Pass and Seymour.
- K. Dimmer Controls

1. All devices shall be UL listed specifically for the required loads (i.e., incandescent, fluorescent, magnetic low voltage, electronic low voltage). Manufacturer shall provide file card upon request. Universal dimmers are not acceptable.
2. All dimmers and switches shall incorporate an air gap switch. The air gap switch shall be capable of meeting all applicable requirements of UL 20 for air gap switches in incandescent dimmers.
3. All dimmers and switches shall provide power failure memory. Should power be interrupted and subsequently returned, the lights will come back on to the same levels set prior to the power interruption. Restoration to some other default level is not acceptable.
4. Dimmers and switches shall meet ANSI/IEEE Std. C62.41-1980, tested to withstand voltage surges of up to 6000V and current surges of up to 200A without damage.
5. Dimmers and switches shall meet the UL 20 limited short circuit test requirement for snap switches.
6. Dimmer shall provide a smooth and continuous Square Law dimming curve.
7. Dimmers shall be voltage regulated so that + 10% variation in line voltage shall cause not more than + 5% variation in load voltage when dimmer is operating at 40V (5% light output).
8. Dimmers shall be 2000 watt equal to Leviton Monet. Single pole dimmers shall be "slide to off" type. Three way dimmers shall be "preset" type used with appropriate 3 or 4 way linear slide switches.

## 2.06 GROUNDING REQUIREMENTS

- A. Ground all systems including separately derived systems and equipment in accordance with best industry practice, the requirements of NFPA 70 and the following:
- B. Provide grounding bonds between all metallic conduits of the light and power system which enter and leave cable chambers or other non-metallic cable pulling

and splicing boxes. Accomplish this by equipping the conduits with bushings of the grounding type individually cross connected.

- C. Bond conduits containing grounding conductors to both ends of each run utilizing grounding bushings and jumpers.
- D. Provide grounding bonds for all metallic conduits of the light and power system which terminate in pits below equipment for which a ground bus is specified. Accomplish this by equipping the conduits with bushings of the grounding type connected individually to the ground bus.
- E. Provide supplementary ground bonding where metallic conduits terminate at metal clad equipment (or at the metal pull box of equipment) for which a ground bus is specified. Accomplish this by equipping the conduits with bushings of the grounding type connected individually by means of jumpers to the ground bus. Exclude the jumpers where directed. This exclusion will be required where an isolated ground for electronic equipment is to be maintained.
- F. Each grounding type bushing shall have the maximum ground wire accommodation available in standard manufacture for the particular conduit size. Connection to bushing shall be with wire of this maximum size.
- G. Bonding conductors on the load side of the service device and equipment grounding conductors shall be sized in relation to the fuses or trip size of the overcurrent device supplying the circuit.
- H. Each branch circuit and feeder shall have a dedicated equipment grounding conductor, size as shown on plans, minimum # 12 AWG. Shared or tapped equipment grounding conductors shall not be acceptable.

## 2.07 PHASING AND COLOR CODING

- A. The insulation or covering of each wire or cable shall be color coded so as to provide for circuit identification as specified below.

120/208 V Circuits	277/480V Circuits Phase	
Black	Brown	A
Red	Orange	B
Blue	Yellow	C
White	Grey	Neutral
Green	Green	Equipment Ground

W/yellow tracer

- B. Color coding shall be achieved by one of the following methods:
  - 1. The insulation or covering shall be coded during manufacture by use of one of the following methods:
    - a. Colored compounds.
    - b. Colored coatings.
  - 2. In sizes and insulation types where factory applied colors are not available, wires and cables shall be color coded by the application of colored plastic tapes in overlapping turns at all terminal points, and in all boxes in which splices are made.
- C. The same colored cable shall be connected to the same phase throughout the project.

#### 2.08 ENCLOSURES FOR INDIVIDUALLY MOUNTED OVERCURRENT AND SWITCHING DEVICES

- A. Construction shall be NEMA Class I, where installed indoors.
- B. Construction shall be NEMA Class IV, where installed outdoors, in mechanical rooms, in locations defined as damp or wet by NFPA 70 or where indicated as weatherproof.
- C. Operating handles shall be front or side type to accommodate hand access space and flush or surface mounting requirements.
- D. Each shall be equipped with padlock for locking operating handle in the open position.

#### 2.09 MOLDED CASE CIRCUIT BREAKERS

- A. Molded case type circuit breakers shall consist of manually operated quick-make quick-break mechanically trip free operating mechanisms for simultaneous operation of all poles, with contacts, arc interrupters and trip elements for each pole, all enclosed in molded phenolic plastic cases.

1. Their tripping units shall be of the "thermal magnetic" type having bimetallic elements for time delay overload protection and magnetic elements for short circuit protection.
  2. They shall be manually operable by means of toggle type operating handles having "tripped" position midway between the "on-off" positions.
  3. They shall each be contained in an individual case enclosing only the number of poles required for the particular breaker.
  4. All panels and individually mounted circuit breakers shall have short circuit ratings exceeding the available short circuit or the values indicated in the Power System Studies in this section by a factor of 1.2 with a minimum as follows:
    - a. 240V class panels/breakers
      - 1) 10 kAIC where shown fed by a 150 kVA or less transformer
      - 2) 22 kAIC where shown fed by a 300 kVA or less transformer
    - b. 480V Class Panels/Breakers shall be 65 kAIC.
  5. They shall be of the "bolted-in" type.
  6. Where necessary, to accommodate other requirements, their frame sizes shall be increased to conform to such requirements, frame sizes being indicated only as a reference to the minimum acceptable interrupting ratings noted above.
  7. Where single pole in trip sizes 20 amps or less, they shall be rated for switching duty.
  8. They shall be equipped with 5 milliamp sensitivity ground fault interrupting features where so indicated.
- B. They shall be manufactured by Square D, Cutler Hammer or Siemens.

## 2.10 CARTRIDGE FUSES

- A. Cartridge fuses shall be as follows:

1. Provide a complete set of fuses for each item of fusible type equipment. Fusible equipment furnished by other contractors will be complete with fuses.
  2. Secondary system fuses, rated at 600 volts or less, shall be UL listed and constructed in conformance with the applicable standards set forth by NEMA and ANSI. All fuses of a particular class shall be of same manufacturer.
  3. Regardless of actual fault current, they shall, at full recovery voltage, be capable of safely interrupting fault currents of 200,000 amperes RMS symmetrical or 340,000 amperes RMS asymmetrical, deliverable at the line side of the fuse.
  4. Circuits 0-600 amperes shall be protected by the equal of Bussmann "Low Peak" current limiting fuses, LPN-RK (250 volts), LPS-RK (600 volts), UL class RK-1.
  5. Fuses shall be suitable for application to fuse gaps which reject other types of fusing.
  6. Supply 10 per cent spare fuses of each size and type 60 amps and less. Supply three spare fuses for each size and type over 60 amps.
- B. Cartridge fuses shall be manufactured by Bussmann, Mersen (Ferraz/Shawmut) or Littlefuse.

#### 2.11 LIGHTING FIXTURES

- A. Lighting fixtures shall be in accordance with identifications on the drawings and the following.
- B. Finishes shall be as selected by the Designer or as indicated on the plans.
- C. Any additional appurtenances required for installation and operation, where same are not covered by the identification used on the drawings, shall be included.
- D. Recessed fixtures shall be coordinated with ceiling construction.
- E. Exact location of all fixtures shall be confirmed with Designer prior to rough-in.

- F. Recessed fixtures throughout shall have their components, wiring and external connections coordinated for use in ceilings utilized as air handling plenums.
- G. Fixtures for use outdoors or in areas designated as damp locations shall be suitably gasketed and U.L. listed for such applications.
- H. All ballasts or transformers for discharge type lamps shall be for 60 cycles operation.
- I. All ballasts or transformers for discharge or fluorescent type lamps shall be high power factor type.
- J. All fluorescent fixtures shall be provided with a disconnect at the fixture that will open both the hot and neutral conductors to each ballast as required by section 410 of the 2008 NEC.
- K. Ballasts for T8 fluorescent lamps shall be electronic high frequency electronic type (20 KHZ or greater) type "P", class "A" sound rated, instant start and parallel wired such that if one lamp burns out the remaining lamps stay lit. Electronic ballasts shall comply with UL 935, ANSI C82.1, CBM certified and meet FCC standards for EMI/RFI (FCC 47 CFR Part 18 non consumer) with a total harmonic distribution of less than 20%. Ballasts shall carry a manufacturer's warranty of five years and be manufactured by Osram Sylvania, Magnetek, Advance or approved equal.
- L. Remote ballasts shall be standard core and coil type "P", sound rating "A".
- M. All ballasts or transformers for discharge type lamps intended for use outdoors shall be of the low temperature type having the lowest temperature rating available in standard manufacture.
- N. Ballasts and transformers shall be of the "low energy full light output" type where available. Each shall not exceed industry minimum rated input wattage by more than 8%.
- O. All fixtures shall be UL approved with labels attesting thereto.
- P. All lamps shall be included. Except where specifically noted otherwise all fluorescent lamps shall be as follows:
  - 1. Fluorescent lamps of the proper wattage and voltage rating shall be provided in each fixture as indicated on the fixture schedule. All fluorescent lamps shall be manufactured to appropriate specifications

- given in ANSI C78. Unless noted otherwise, fluorescent lamps shall be T8 3500K and have a minimum CRI of 82.
2. Unless otherwise noted, all compact fluorescent lamps shall be 3500K and have a minimum CRI of 82. The contractor shall verify that the proper lamp type for the specified ballast type is furnished with the compact fluorescent fixture.
    - a. Compact fluorescent ballasts shall be UL listed, Class P, Type 1 and CBM Certified.
    - b. Where 4-pin electronic ballast compatible compact fluorescent lamps are specified, electronic ballasts shall include circuitry capable of sensing when lamp is approaching end of life and shut down the lamp circuit. This end of life sensing must be impervious to low/high line voltage conditions and result in no false tripping or overheating of lamp bases.
  3. All metal halide lamps of the proper wattage and voltage rating shall be provided in each fixture as indicated on the fixture schedule and the ANSI designation of the ballast. Unless otherwise noted metal halide lamps shall be universal burn type with a clear outer glass jacket.
  4. All HPS lamps of the proper wattage and voltage rating shall be provided in each fixture as indicated on the fixture schedule and the ANSI designation of the ballast.
  5. All incandescent lamps shall be rated for 130 volt operation.
- Q. All lamps shall be of the type specified in the light fixture schedule.
- R. The contractor shall obtain all information relative to the exact type of hung ceilings and suspension systems to be installed before ordering any recessed fixtures. This Contractor shall furnish the proper type fixtures applicable to the ceiling framing system. If, other than the type of fixtures specified are required for installation due to the type of ceiling construction, this Contractor shall furnish and install the proper type fixtures and mounting appurtenances required at no extra charge.
- S. The Contractor shall coordinate the exact locations of all lighting fixtures with the ceiling pattern during the Construction Period and before installation of the fixtures. Interferences between lighting fixtures, and other equipment, shall be brought to the attention of the General Contractor.

- T. Include the aiming and/or adjustments of all lighting fixtures requiring same in accordance with instructions issued by the Designer in the field.
- U. All lamp sockets in lighting fixtures shall be suitable for the indicated lamps and shall be set so that the lamps are positioned in optically correct relation to all lighting fixtures components.
- V. Lighting fixtures shall be supported from building structure only, not from hung or suspended ceiling, by means of chains or threaded rods. The use of tie wire will not be allowed.
- W. All fixtures shall include seismic clips and shall be supported to comply with seismic regulations.
- X. Lamps shall be manufactured by General Electric, Phillips, OSRAM, or Sylvania.

### PART 3 – EXECUTION

#### 3.01 BASIC REQUIREMENTS

- A. Adhere to best industry practice and the following.
- B. All work shall be concealed.
- C. Route circuitry runs embedded in concrete to coordinate with structural requirements.
- D. Equip each raceway intended for the future installation of wire or cable with a nylon pulling cord 3/16 inch in diameter and clearly identify both ends of the raceway.
- E. Provide all outlet boxes, junction boxes, and pull boxes for proper wire pulling and device installation. Include those omitted from the drawings due to symbolic methods of notation.
- F. Provide all sleeves through fireproof and waterproof slabs, walls, etc. required for electric work.
  - 1. Provide waterproof sealing for the sleeves through waterproof slabs, walls, etc.
  - 2. Provide fireproof sealing for the sleeves through fireproof walls, slabs, etc.

3. Provide fireproof sealing for the openings in fireproof walls, slabs, etc., resulting from removal of existing electrical sleeves, conduits, poke-thru's, etc.
- G. Bundle wiring passing through pull boxes and panel boards in a neat and orderly manner with plastic cable ties. Cable ties shall be Ty-Raps as manufactured by Thomas & Betts, Holub Industries Inc., Quick Wrap, Bundy Unirap or equal.
- H. Turn branch circuits and auxiliary system wiring out of wiring gutters at 90 degrees to circuit breakers and terminal lugs.

### 3.02 BRANCH CIRCUITRY

- A. For all lighting and appliance branch circuitry, raceway sizes shall conform to industry standard maximum permissible occupancy requirements except where these are exceeded by other requirements specified elsewhere.
- B. Circuits shall be balanced on phases at their supply as evenly as possible.
- C. Reduced size conductors indicated for any feeders shall be taken as their grounding conductors.
- D. For circuitry indicated as being protected at 20 Amps or less, abide by the following:
  1. Minimum conductor size shall be No. 12 A.W.G. copper.
  2. Conductors operating at 120 volts extending in excess of 100 Ft., or at 277 volts extending in excess of 200 ft., or the last outlet or fixture tap shall be No. 10 A.W.G. copper throughout.
  3. Lighting fixtures and receptacles shall not be connected to the same circuit.
  4. Circuits shall be balanced on phases at their supply point as evenly as possible.

### 3.03 REQUIREMENTS GOVERNING ELECTRICAL WORK IN DAMP OR WET LOCATIONS

- A. Outlets and outlet size boxes shall be of galvanized cast ferrous metal only.
- B. The finish of threaded steel conduit shall be galvanized only.

- C. Wires for pulling into raceways for lighting and appliance branch circuitry shall be limited to "THWN".
- D. Wires for pulling into raceways for feeders shall be limited to "THWN".
- E. Plates for toggle switches and receptacles shall have gasketed snap shut covers suitable for wet locations while in use.
- F. Final connections of flexible conduit shall be neoprene sheathed.
- G. Apply one layer of half looped plastic electric insulating tape over wire nuts used for joining the conductors of wires.
- H. Enclosures, junction boxes, pull boxes, cabinets, cabinet trims, wiring troughs and the like, shall be fabricated of galvanized sheet metal, shall conform to the following:
  - 1. They shall be constructed with continuously welded joints and seams.
  - 2. Their edges and weld spots shall be factory treated with cold galvanizing compound.
  - 3. Their connection to circuitry shall be by means of watertight hub connectors with sealing rings.
- I. Enclosures for individually mounted switching and overcurrent devices shall be NEMA Class IV weatherproof construction.
- J. The covers, doors and plates and trims used in conjunction with all enclosures, pull boxes, outlet boxes, junction boxes, cabinets and the like shall be equipped with gaskets.
- K. Panels shall be equipped with doors without exception.
- L. The following shall be interpreted as damp or wet locations within building confines:
  - 1. Spaces where any designations indicating weatherproof (WP) or vaporproof appear on the drawings.
  - 2. Below waterproofing in slabs applied directly on grade.
  - 3. Spaces defined as wet or damp locations by article 100 of the National Electric Code.

### 3.04 UNDERGROUND CONDUIT BANKS

- A. The electrical work required in conjunction with underground conduit banks shall include providing all conduits.
- B. Conduits for underground banks shall be:
  - 1. Trade diameter size as indicated but in no case less than one inch.
  - 2. Polyvinyl chloride Schedule 40 (approved for encased burial) duct, rigid steel conduit for vertical elbows and straight sections used to penetrate equipment pads, building foundation walls and concrete slabs.
- C. Install conduit in such a manner as to provide a minimum cover of 36 inches after final grading except the cover may be reduced to a minimum of 18 inches to:
  - 1. Tie into existing work.
  - 2. Pass over other underground utilities.
  - 3. Pass over underground obstructions.
  - 4. Assist in the avoidance of low points.
- D. Increase the minimum cover where required by field conditions.
- E. Lay conduit to avoid low points during run. Pitch at a minimum of three inches per 100 feet away from building.
- F. Install conduit so that adjacent joints are staggered at least six inches from one another.
- G. Offsets to accommodate field conditions shall be accomplished with two bends of not more than ten degrees each.
- H. Plug both ends of all conduit stubs.
- I. Seal the end of each conduit run terminating inside a building utilizing a water and gas-tight sealant manufactured specifically for the purpose.
- J. After conduit has been installed, clear each conduit of all obstructions and foreign matter by pulling a flexible mandrel (12" minimum length and a diameter 1/4" less than that of the conduit) and brush through it. In the event that obstructions are

encountered in any conduit which will not permit the mandrel to pass, remove and replace the blocked section. Include in the electric work all excavation, backfilling, repair restoration of surface at grade involved in the conduit replacement.

- K. Provide a nylon cord for the pulling of cable in each conduit in which no cable is to be installed as part of the electric work.
- L. The Electrical Sub-Contractor shall provide all insulated racks as required for proper support of all cables and wires.
- M. Provide a continuous nylon warning tape above each full length of duct bank 12 inches below grade.

### 3.05 IDENTIFICATION AND TAGGING

- A. Identify individually:
  - 1. Each transformer.
  - 2. Each panelboard.
  - 3. Each switch and circuit breaker.
  - 4. Each wire or cable of all systems.
  - 5. Each end of nylon pullwire in empty conduit.
- B. Each wire or cable shall be identified at its terminal points of connection and in each pullbox, junction box and panel gutter through which it passes.
- C. The nomenclature used to identify panelboards or load center shall designate the numbers assigned to them.
- D. The nomenclature used to identify switches or circuit breakers shall:
  - 1. Where they disconnect mains or services designate this fact.
  - 2. Where they control feeders, designate the feeder number and the name of the load supplied.
  - 3. Where they control lighting and appliance branch circuitry, designate the name of the space and the load supplied.
- E. The nomenclature used to identify feeder wires and cables shall designate the feeder number.

- F. Identification for panelboards or load centers shall be by means of engraved lamacoid nameplates showing 1/4" high white lettering on a black background fastened to the outside face of the front.
- G. Identification for switches or circuit breakers shall be by means of the following:
  - 1. Where individually enclosed -- engraved lamacoid nameplates showing 1/8" high white lettering on a black background fastened on the outside front face of the enclosure.
  - 2. Where in panelboards or load centers without doors -- same as for individually enclosed.
  - 3. Where in panelboards or load centers with doors -- typewritten directories mounted behind transparent plastic covers, in metal frames fastened on the inside face of the doors.
- H. Identification for wires and cables shall be by means of wrap around "Brady" type labels.
- I. Identify each outlet box, junction box, and cabinet used in conjunction with empty raceway for wires of a future system by means of indelible markings on the inside denoting the system.
- J. Prior to installing identifying tags and nameplates, submit their nomenclature for approval. Conform to all revisions issued by the Designer.

### 3.06 LIMITING NOISE PRODUCED BY ELECTRICAL INSTALLATION

- A. Perform the following work, in accordance with field instructions issued by the Designer to assure that minimal noise is produced by electrical installations due to equipment furnished as part of the electrical work.
- B. Check and tighten the fastenings of sheet metal plates, covers, doors and trims used in the enclosures of electrical equipment.
- C. Remove and replace any individual device containing one or more magnetic flux path metallic cores (e.g., discharge lamp ballast, transformer, reactor, dimmer, solenoid) which is found to have a noise output exceeding that of other identical devices installed at the project.

### 3.07 SUPPORTS AND FASTENINGS

- A. Support work in accordance with best industry standards, Mass. Electric Code and the following:
- B. Include supporting frames or racks for equipment, intended for vertical surface mounting, which is required in a free standing position.
- C. Supporting frames or racks shall be of standard angle, standard channel or specialty support system steel members. They shall be rigidly bolted or welded together and adequately braced to form a substantial structure. Racks shall be of ample size to assure a workmanlike arrangement of all equipment mounted on them.
- D. No work intended for exposed installation shall be mounted directly on any building surface. In such locations, flat bar members or spacers shall be used to create a minimum of 1/4" air space between the building surfaces and the work. Provide 3/4" thick exterior grade plywood painted with two coats of fire-retardant grey paint for mounting of panelboards.
- E. Nothing (including outlet, pull and junction boxes and fittings) shall depend on electric conduits, raceways or cables for support.
- F. Nothing shall rest on, or depend for support on, suspended ceiling media.
- G. Fasten electric work to building structure in accordance with the best industry practice.
- H. Floor mounted equipment shall not be held in place solely by its own dead weight. Include floor anchor fastenings in all cases.
- I. As a minimum procedure, where weight applied to the attachment points is 100 lbs. or less, fasten to concrete and solid masonry with bolts and expansion shields.
- J. As a minimum procedure, where weight applied to building attachment points exceeds 100 lbs., but is 300 lbs. or less, conform to the following:
  - 1. At field poured concrete slabs, utilize inserts with 20' minimum length slip-through steel rods, set transverse to reinforcing steel.

### 3.08 SPLICING AND TERMINATING WIRES AND CABLES

- A. Maintain all splices and joints in removable cover boxes or cabinets where they may be easily inspected.
- B. Locate each completed conductor splice or joint in the outlet box, junction box, or pull box containing it, so that it is accessible from the removal cover side of the box.
- C. Join solid conductors No. 8 AWG and smaller by securely twisting them together and soldering, or by using insulated coiled steel spring "wire nut" type connectors. Exclude "wire nuts" employing non-expandable springs. Terminate conductors No. 8 AWG and smaller by means of a neat and fast holding application of the conductors directly to the binding screws or terminals of the equipment or devices to be connected.
- D. Join, tap and terminate stranded conductors No. 6 AWG and larger by means of solder sleeves, taps; and lugs with applied solder or by means of bolted saddle type or pressure indent type connectors, taps and lugs. Exclude connectors and lugs of the types which apply set screws directly to conductors. Where equipment or devices are equipped with set screw type terminals which are impossible to change, replace the factory supplied set screws with a type having a ball bearing tip. Apply pressure indent type connectors, taps and lugs utilizing tools manufactured specifically for the purpose and having features preventing their release until the full pressure has been exerted on the lug or connector.
- E. Except where wire nuts are used, build up insulation over conductor joints to a value, equal both in thickness and dielectric strength, to that of the factory applied conductor insulation. Insulation of conductor taps and joints shall be by means of half-lapped layers of rubber tape, with an outer layer of friction tape; by means of half-lapped layers of approved plastic electric insulating tape; or by means of split insulating casings manufactured specifically to insulate the particular connector and conductor, and fastened with stainless steel or non-metallic snaps or clips.
- F. Exclude splicing procedures for neutral conductors in lighting and appliance branch circuitry which utilize device terminals as the splicing points.
- G. Exclude joints or terminations utilizing solder in any conductors used for grounding or bonding purposes.
- H. Exclude all but solder or pressure indent type joints in conductors used for signaling or communications purposes.

- I. Lugs for conductors used to make phase leg connections on the line side of the main service overcurrent and switching device shall be of the limiter type.

### 3.09 PULLING WIRES INTO CONDUITS AND RACEWAYS

- A. Delay pulling wires or cables in until the project has progressed to a point when general construction procedures are not liable to injure wires and cables, and when moisture is excluded from raceways.
- B. Utilize nylon snakes or metallic fish tapes with ball type heads to set up for pulling. In raceways 2" trade size and larger, utilize a pulling assembly ahead of wires consisting of a suitable brush followed by an 3-1/2" diameter ball mandrel.
- C. Leave sufficient slack on all runs of wire and cable to permit the secure connection of devices and equipment.
- D. Include circular wedge-type cable supports for wires and cables at the top of any vertical raceway longer than 20 feet. Also include additional supports spaced at intervals which are no greater than 10'. Supports shall be located in accessible pull boxes. Supports shall be of a nondeteriorating insulating material manufactured specifically for the purpose.
- E. Pulling lubricants shall be used. They shall be products manufactured specifically for the purpose.
- F. Slack on wires and cables located in cabinets and pull boxes shall be formed and set in place in groupings corresponding to their occupancy of raceways. They shall also be arranged, with insulators and supports provided where necessary, such that cable shims or other such temporary expedients do not have to be left permanently in place to prevent the wires and cables from shifting when covers or trims are removed.

### 3.10 REQUIREMENTS FOR THE INSTALLATION OF JUNCTION BOXES, OUTLET BOXES AND PULL BOXES

- A. Locate all boxes so that their removable covers are accessible without necessitating the removal of parts of permanent building structure and other permanent mechanical elements.
- B. In conjunction with concealed circuitry, abide by one of the following instructions (as may be applicable to the conditions) in order to assure the aforementioned

accessibility. (Not required for circuitry concealed by removable suspended ceiling tiles.)

1. For a small (outlet size) box on circuitry concealed in a partition or wall, locate box or fitting so that its removable cover side (or the face of any applied raised cover) penetrates through to within 1/8" of the exposed surface of the building materials concealing the circuitry and apply a blank or device plate to suit the functional requirements.
2. For a large box on circuitry concealed in a partition, suspended ceiling, or wall, locate box totally hidden but with its removable cover directly behind an architectural access door or panel (included for the purpose, separate from the electric work) in the building construction which conceals the circuitry.
3. For a small (outlet size) box on circuitry concealed above and intended as an outlet for a surface mounted lighting fixture or other such electrical item, locate box so that its removable cover side penetrates through to the exposed surface of the building materials concealing the circuitry. Arrange the mounting of the lighting fixture or other item so that it completely covers the opening in the building construction caused by the box.
4. For a small (outlet size) box on circuitry concealed in a suspended ceiling, and intended as an outlet for a non-demountable type of recessed lighting fixtures or other such electrical items, locate box totally hidden but with its removable cover not more than one foot away from the building construction opening occupied by the demountable items.

C. Apply junction and pull boxes in accordance with the following:

1. Include pull boxes in long straight runs of raceway to assure that cables are not damaged when they are pulled in.
2. Include junction and pull boxes to assure a neat and workmanlike installation of raceways.
3. Include junction and pull boxes to fulfill requirements pertaining to the limitations to the number of bends permitted in raceway between cable access points, the accessibility of cable joints and splices and the application of cable supports.

4. Include all required junction and pull boxes regardless of indications on the drawings (which, due to symbolic methods of notation, may omit to show some of them).

D. Apply outlet boxes in accordance with the following:

1. Unless noted below or otherwise specifically indicated, include a separate outlet box for each individual wiring device, lighting fixture and signal or communication system outlet component. Outlet boxes supplied attached to lighting fixtures shall not be used as replacements for the boxes specified herein.
2. A continuous row of fixtures of the end-to-end channel type, designed for "through wiring," and wired in accordance with the specification hereinafter pertaining to circuitry through a series of lighting fixtures, may be supplied through a single outlet box.
3. A series of separate fixtures, designed for "through wiring," spaced not more than 4' apart, and inter-connected with conduit or raceway and circuitry which is in accordance with the specifications hereinafter pertaining to circuitry through a series of lighting fixtures, may be supplied through a single outlet box.
4. Connection to recessed ceiling fixtures supplied with pigtails may be arranged so that more than one, but not more than four, such fixtures are connected into a single outlet box. When adopting this procedure:
  - a. Utilize an outlet box no smaller than 4" square by 2-1/2" deep.
5. Include all required outlet boxes regardless of indications on the drawings (which due to symbolic methods of notation, may omit to show some of them).

E. Install junction boxes, pull boxes and outlet boxes in accordance with the following:

1. Exclude surface mounted outlet boxes in conjunction with concealed circuitry.
2. Exclude unused circuitry openings in junction and pull boxes. In larger boxes each such opening shall be closed with a galvanized sheet steel plate fastened with a continuous weld all around. In small outlet type boxes, utilize plugs as specified for such boxes.

3. Close up all unused circuitry openings in outlet boxes. Unused openings in cast boxes shall be closed with approved cast metal threaded plugs. Unused openings in sheet metal boxes shall be closed with sheet metal knock-out plugs.
  4. Outlet boxes for switches shall be located at the strike side of doors. Indicated door swings are subject to field change. Outlet boxes shall be located on the basis of final door swing arrangements.
  5. Boxes and plaster covers for duplex receptacles shall be arranged for vertical mounting of the receptacle.
  6. Equip outlet boxes used for devices which are connected to wires of systems supplied by more than one set of voltage characteristics with barriers to separate the different systems.
- F. Barriers in junction and pull boxes of outlet size shall be of the same metal as the box.
- G. Barriers in junction and pull boxes which are larger than outlet size shall be of the polyester resin fiberglass of adequate thickness for mechanical strength, but in no case less than 1/4" thick. Each barrier shall be mounted, without fastenings, between angle iron guides so that they may be readily removed.

### 3.11 LOCATING AND ROUTING OF CIRCUITRY

- A. In general, all circuitry shall be run concealed except that it shall be run exposed where the following conditions occur:
1. Horizontally at the ceiling of permanently unfinished spaces which are not assigned to mechanical or electrical equipment.
  2. Horizontally and vertically in mechanical equipment spaces.
  3. Horizontally and vertically in electric equipment rooms.
- B. Concealed circuitry shall be so located that building construction materials can be applied over its thickest elements without being subject to spalling or cracking.

- C. Circuitry and raceways shall not be run within slabs. If field conditions require raceways to be embedded in field poured structural building construction concrete fill or slab shall conform to the following:
1. All proposed embedded raceways shall be indicated on plan and elevation and submitted to the Designer and Structural Engineer for review and written approval prior to installation. Any costs associated with the review and approval shall be borne by the Electrical Subcontractor.
  2. They shall be run "single layer" with their outside surface no closer than 1" to any surface of the structural concrete.
  3. They shall not be located in any configuration which places the outside surface of one closer than 3" to the outside surface of another, except at tees, crosses or other single level wide angle junction points.
  4. Where crossovers or close grouping are unavoidable, circuitry shall be carefully field coordinated so as not to cause structural weakness.
  5. Where turned up or down into a wall or partition they shall, before entering same, be routed parallel for a long enough distance to assure that no relocation of the wall or partition will be necessary to conceal the required bend.
  6. They shall be routed in such a manner as to coordinate with the structural requirements of the building.
  7. They shall be routed in accordance with field instructions issued by the Designer where such instructions differ from specifications set forth herein.
- D. Circuitry run exposed shall be routed parallel to building walls and column lines.
- E. Exposed circuitry located overhead shall be run in a completely accessible manner on the underside of all piping and ductwork.
- F. Circuitry run in suspended ceilings shall be routed parallel to building walls, column lines, etc.
- G. Circuitry shall be routed so as to prevent electric conductors from being subject to high ambient temperature. Minimum clearances from heated lines or surfaces shall be maintained as follows:

- |                                       |     |
|---------------------------------------|-----|
| 1. Crossing where uninsulated         | 3"  |
| 2. Crossing where insulated           | 1"  |
| 3. Running parallel where uninsulated | 36" |
| 4. Running parallel where insulated   | 6"  |

- H. Circuitry shall not be run in elevator shafts, hoistways and the like.
- I. Circuitry for miscellaneous systems indicated without notation as to location and routing shall be run as per the requirements and notations governing the adjacent light and power circuitry.

### 3.12 INSTALLING CIRCUITRY

- A. In runs of conduit or raceway including flexible limit the number of bends between cable access points to a total which does not exceed the maximum specified for the particular system. Where no such maximum is specified, limit the number to four right angle bends or the equivalent thereof.
- B. In each conduit or raceway assigned for the future pulling in of wires, include a nylon drag cord. In raceways 2" trade size and larger, the cord shall be pulled in utilizing a suitable brush, followed by an 85% diameter ball mandrel ahead of the cord in the pulling assembly. In the event that obstructions are encountered, which will not permit the drag cord to be installed, the blocked section of raceway shall be replaced and any cutting and patching of the structure involved in such replacement shall be included as part of the electric work.
- C. Sleeves used where circuitry is to penetrate waterproof slabs, decks and walls, shall be of a type selected to suite the water condition encountered in the field.

END OF SECTION

- |                                       |     |
|---------------------------------------|-----|
| 1. Crossing where uninsulated         | 3"  |
| 2. Crossing where insulated           | 1"  |
| 3. Running parallel where uninsulated | 36" |
| 4. Running parallel where insulated   | 6"  |

H. Circuitry shall not be run in elevator shafts, hoistways and the like.

I. Circuitry for miscellaneous systems indicated without notation as to location and routing shall be run as per the requirements and notations governing the adjacent light and power circuitry.

### 3.12 INSTALLING CIRCUITRY

- A. In runs of conduit or raceway including flexible limit the number of bends between cable access points to a total which does not exceed the maximum specified for the particular system. Where no such maximum is specified, limit the number to four right angle bends or the equivalent thereof.
- B. In each conduit or raceway assigned for the future pulling in of wires, include a nylon drag cord. In raceways 2" trade size and larger, the cord shall be pulled in utilizing a suitable brush, followed by an 85% diameter ball mandrel ahead of the cord in the pulling assembly. In the event that obstructions are encountered, which will not permit the drag cord to be installed, the blocked section of raceway shall be replaced and any cutting and patching of the structure involved in such replacement shall be included as part of the electric work.
- C. Sleeves used where circuitry is to penetrate waterproof slabs, decks and walls, shall be of a type selected to suite the water condition encountered in the field.

END OF SECTION

SECTION 03300

SITE CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SCOPE OF WORK

- A. Provide labor, materials, equipment, services and transportation required to complete work as shown on Drawings and/or as specified herein and includes, but is not limited to the following:
  - 1. Foundations, footings, piers, frost walls, grade beams, slabs-on-grade, equipment pads, concrete encasement, and thrust blocks, and other concrete work, as shown on Drawings.
  - 2. Embedded items required to support or attach to work of other Sections.
  - 3. Reinforcing dowels required for the attachment to work of other Sections.
  - 4. Sleeves for work of other Sections.
- B. Related Sections:
  - 1. Section 31 00 00 – Earthwork
  - 2. Section 32 13 14 – Portland Cement Concrete Paving
  - 3. Section 32 13 15 – Integrally Colored Concrete Paving
  - 4. Section 32 13 16 – Exposed Aggregate Concrete Paving

1.3 REFERENCES

- A. Comply with applicable requirements of the following standards. Where these standards conflict with other specified requirements, the most restrictive requirement shall govern.
  - 1. American Concrete Institute (ACI):

SITE CAST-IN-PLACE CONCRETE

- a. 212 Guide for Use of Admixtures in Concrete
  - b. 301 Specifications for Structural Concrete for Buildings.
  - c. 304.2 Placing Concrete by Pumping Methods
  - d. 305 Hot Weather Concreting
  - e. 306 Cold Weather Concreting
  - f. 316 Recommended Practice for Construction of Concrete Pavements and Concrete Bases.
  - g. 318 Building Code Requirements for Reinforced Concrete
2. American Plywood Association (APA):
- a. Ref. 1 APA Design/Construction Guide, Residential and Commercial
3. American Society for Testing and Materials (ASTM):
- a. A 185 Welded Steel Wire Fabric for Concrete Reinforcement
  - b. A 307 Carbon Steel Externally Threaded Standard Fasteners
  - c. A 563 Carbon and Alloy Steel Nuts
  - d. A 615 Deformed and Plain Billet-Steel Bars for Concrete Reinforcement
  - e. C 33 Concrete Aggregates
  - f. C 42 Obtaining and Testing Drilled Cores and Sawed Beams of Concrete
  - g. C 94 Ready-Mixed Concrete
  - h. C 143 Slump of Portland Cement Concrete
  - i. C 150 Portland Cement
  - j. C 171 Sheet Materials for Curing Concrete
  - k. 231 Air Content of Freshly Mixed Concrete by the Pressure Method
  - l. C 309 Liquid Membrane-Forming Compounds for Curing Concrete
  - m. C 494 Chemical Admixtures for Concrete
  - n. C 618 Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Portland Cement Concrete
  - o. D 1557 Moisture - Density Relations of Soils and Soil-Aggregate Mixtures Using 10-lb. (4.5-kg) Rammer and 18-in. (457-mm) Drop
  - p. D 1752 Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction.
  - q. F 436 Hardened Steel Washers
4. Corps of Engineers (COE):
- a. CRD-C 621 Specification for Non shrink Grout: Hardened State Volume Change

#### 1.4 SUBMITTALS

- A. Submittals: in accordance with Section 01 30 00 –.Sumbittals
- B. Samples of the following shall be submitted:
  - 1. Prefomed joint filler: Two pieces, full depth and width, 4 in. length
- C. Manufacturers' product data shall be submitted for the following items:
  - 1. Admixtures, each type
  - 2. Curing compounds
  - 3. Non-shrink grout
  - 4. Pipe sleeves
  - 5. Prefomed joint filler
  - 6. Sieve analysis of aggregates
  - 7. Waterproof curing paper
- D. Prior to start of concrete work, submit to the Owner's Representative for review a schedule for execution of Work of this Section.
- E. Shop drawings indicating the complete layout of architectural formwork including material specifications, layout details of formwork panels, joint locations, reveal locations, form tie locations, and other items which will be exposed to view or will create a visible delineation or mark on the face of exposed concrete.
- F. Shop drawings indicating fabrication, bending diagrams, bar schedules, cutting lists and other information to completely define and establish shape, size, location, and spacing of reinforcing bars. Include details of splicing and keying at construction joints. Indicate grades of reinforcing. Opposite hand reinforcing shall be detailed separately. Wall reinforcing shall be detailed on wall elevations.

#### 1.5 DESIGN OF CONCRETE MIX(ES)

- A. Mix design shall be certified by independent testing laboratory. Statement of materials constituting design of mixes (as required by referenced standards) shall be submitted for Owner's Representative's approval within one week following award of Contract.
- B. Concrete mix design shall include the following information:
  - 1. Proportions of cement, fine and coarse aggregate, and water.
  - 2. Water-cement ratio, design strength, slump, and air content.

3. Type of cement and aggregates.
  4. Type and dosage of admixtures.
  5. Special requirements for pumping.
  6. Range of ambient temperature and humidity for which the design is valid.
  7. Special characteristics of mix which require precautions in mixing, placing, finishing, or curing methods to achieve finished product specified.
- C. No concrete shall be delivered to job site until Owner's Representative has approved design mixes.

#### 1.6 QUALITY ASSURANCE

- A. Unless otherwise specified, cast-in-place concrete work shall conform to ACI 301 and ACI 318. Copies of these referenced standards shall be kept available in field office.
- B. Dimensions, locations, and details of equipment pads, anchors, supports, and similar features indicated on Drawings are approximate. Manufacturer's approved shop drawings of equipment to be supported, anchored, or contained thereby shall be consulted for exact location, size, and details.

#### 1.7 TESTING

- A. Owner's Independent Testing Laboratory in accordance with Section 01 41 00 – Testing Laboratory Services, will perform inspection and testing of concrete mix. Testing equipment shall be supplied by laboratory, and laboratory personnel shall perform preparation of samples and testing.
- B. Concrete materials and operations will be tested and inspected by Owner as work progresses. Failure to detect defective work or material shall not prevent later rejection when such defect is discovered, nor shall it obligate Owner's Representative to final acceptance.
- C. The following testing services shall be performed by Owner:
1. Review and test of proposed materials for compliance with specifications.
  2. Review of proposed mix design.
  3. Sampling and testing of materials at plants or stockpiles during course of work for compliance with specifications.
  4. Strength tests of concrete specimens.

5. Inspection of concrete batching, mixing, and delivery.
- D. The following testing services shall be provided, at Contractor's expense.
1. Additional testing and inspection required because of changes in materials or proportions requested by Contractor.
  2. Additional testing of materials or concrete occasioned by their failure by testing or inspection to meet specification requirements.
- E. At least six standard compression test cylinders shall be made and tested from each day's placement of each type and design strength of concrete. Six concrete test cylinders will be taken for every 50 cubic yards of each type and design strength of concrete placed. Two cylinders shall be tested at seven days, and two at 28 days. Remaining two cylinders will be held in reserve. If results of 28 day tests indicate low strength concrete, Owner's Representative will direct Testing Laboratory to test remaining two cylinders at a time indicated by Owner's Representative.
1. One additional test cylinder will be taken during cold weather concreting, and will be cured at job site under same conditions as the concrete it represents.
  2. If job experience indicates additional cylinder tests or other tests are required for proper control or determination of concrete quality, such tests shall be made.
  3. Where high-early strength (Type III) concrete is specified or permitted by Owner's Representative, concrete cylinders shall be tested as follows: two at one day and two at seven days.
- F. One slump test and one air content test will be taken for each set of test cylinders taken.
- G. Provide free access to work and provide full assistance and cooperation, concrete for samples, and such auxiliary personnel and equipment for testing agency to take samples for required tests. Notify testing agency and Owner's Representative of his intent to place concrete at least two working days prior to scheduled time of placement.
- 1.8 EVALUATION AND ACCEPTANCE
- A. Strength level of concrete will be considered satisfactory if averages of all sets of three consecutive strength test results equal or exceed specified strength and no individual test result (average of two cylinders) is below specified strength by more than 500 psi.

- B. Completed concrete work will be accepted when requirements of ACI 301 Chapter 18 have been complied with.
- C. Where the average strength of laboratory control cylinders, as shown by tests for any portion of structure, falls below minimum ultimate compressive strength hereinbefore specified, Owner's Representative shall have the right to require Contractor to provide improved curing conditions of temperature and moisture to secure required strength. Also, if average strength of laboratory control cylinders should fall so low as to cause portions of structure to which respective unsatisfactory test reports apply to be in question by Owner's Representative, Contractor shall, at his expense, follow core procedure set forth in current edition of ASTM C 42. If results of the core tests indicate, in opinion of Owner's Representative, that strength of structure is inadequate, such replacement, load testing, or strengthening as may be ordered by Owner's Representative shall be provided by Contractor without cost to Owner.
- D. Owner's Representative shall have the right to reject concrete represented by low strength tests. Rejected concrete shall be promptly removed and replaced with concrete conforming to specification. Decision of Owner's Representative as to whether substandard concrete is to be accepted or rejected shall be final.

## PART 2 MATERIALS

### 2.1 FORMS

- A. Cylindrical Forms: Sonotube Fibre Forms, wax-impregnated strippable forms manufactured by Sonoco Products Company, General Products Division or approved equal, or ABS or PVC plastic reusable forms.
- B. Forms for Exposed Finish: Plywood, metal, metal-framed plywood faced, or other acceptable panel materials. Plywood shall be APA Ref. 1 B-B (Concrete Form), Class I Exterior Grade plywood or B-B or A-C Class I high density overlay concrete form plywood. Formwork materials shall produce smooth, continuous, straight and level surfaces.
- C. Forms for Unexposed Finish: Plywood, lumber or metal, with lumber dressed on at least two edges and one side.
- D. Form Ties: Provide prefabricated, adjustable length galvanized steel snap-off ties, with brackets, cones, come docks and other accessories.
- E. Form Coatings: Commercial formulation compounds that will not bond with, stain or adversely affect concrete.

- F. Forms shall be true to line and free from warp, and shall be of sufficient strength, when staked, to resist the pressure of the concrete without springing. Formwork shall be designed so that sections may be fastened together to prevent vertical or horizontal movement of ends.

## 2.2 CONCRETE MIX

- A. Concrete: air-entrained type, conforming to ASTM C 94. One copy of Certificate of Delivery required by ASTM C 94 shall be delivered to Owner's Representative immediately upon arrival of each load of concrete at site.
- B. Unless otherwise indicated on Drawings, minimum 28-day compressive strength shall be 4,000 psi.
- C. Concrete slump shall be no less than 2 in. nor greater than 4 in., determined in accordance with ASTM C 143.
- D. Air content by volume shall be 3 to 6%, and shall be tested in accordance with ASTM C 231. "Relative durability factor" of concrete containing air-entrainment admixture shall be at least 90.
- E. Concrete shall contain a water reducing agent to minimize water-cement ratio of mix, at specified slump.
- F. No calcium chloride or admixtures containing calcium chloride shall be added to Concrete. No admixtures other than those specified shall be used in concrete without specific written permission of Owner's Representative.
- G. No additional water, except for amount indicated by design mix shall be added to concrete without prior permission of Owner's Representative.
- H. No concrete shall be placed by pumping methods without prior written approval of Owner's Representative. Should Contractor be allowed to place concrete by pumping methods, pumping procedures, mix design of concrete, and other precautions shall be in accordance with ACI 304 and subject to review by Owner's Representative.

## 2.3 CONCRETE REINFORCING

- A. Steel reinforcing bars shall conform to ASTM A 615.
  - 1. Bars employed as reinforcement shall be deformed type.

2. Bars employed as dowels where indicated on the Drawings shall be hot-rolled plain rounds.
3. Unless otherwise indicated on the Drawings, reinforcing bars shall be Grade 60.

B. Fiber mesh reinforcing per manufacturer's recommendations.

#### 2.4 CEMENT

- A. Cement: approved brand of American manufactured Portland cement, conforming to ASTM C 150, Type I or II. "Submit manufacturer's name and type of cement for Landscape Architect's approval.
- B. Only one color of cement, all from same manufacturer, shall be used for work.
- C. Do not use Type III cement without Owner's Representative's approval.

#### 2.5 ADMIXTURES

- A. Except as otherwise specified, use of concrete admixtures shall conform to ACI 212.
- B. Admixtures employed shall be produced and serviced by established, reputable manufacturer and used in compliance with manufacturer's recommendations.
- C. Air entraining agent shall conform to ASTM C 260 and shall be "Daravair" or "Darex AEA", manufactured by W.R. Grace & Company; "Airmix" or "Perma-Air", manufactured by The Euclid Chemical Co.; "MB-WR", manufactured by Master Builder's Co., or an approved equal product.
  1. When a high range water reducing (HRWR) admixture is used, air-entraining admixture shall be a neutralized vinsol resin solution.
  2. When requested by the Owner's Representative, furnish certification attesting to compliance with these specifications.
- D. Water reducing agent: conform to ASTM C 494, Type A and shall contain no more than 0.05% chloride ions. Water reducing agent: "WRDA with Hycol", manufactured by W.R. Grace & Company; "Eucon WR-75" manufactured by The Euclid Chemical Co.; "Pozzolith 200N", manufactured by Master Builders's Co., or approved equal product.
  1. Water reducing agent: manufactured by same manufacturer as air-entraining agent.

- E. Water reducing agent-retarder: conform to ASTM C 494, Type D and be "Daratard-40", manufactured by W.R. Grace & Company, or an approved equal product.
- F. Fly ash: conform to ASTM C 618, equal to TPA, manufactured by the Trinity Division of General Portland Inc., may be used in non-architecturally exposed concrete. Carbon content shall not exceed 3% by volume.
  - 1. Submit certification attesting to the carbon content and compliance with ASTM C 618.
  - 2. Maximum replacement of cement with fly ash shall be 15% by weight.
- G. Superplasticizers: Where permitted by Owner's Representative and where indicated in approved concrete design mix, a high-range water-reducing (HRWR) admixture (superplasticizers) complying with ASTM C 494, Type F or Type G, and containing more than 0.05% chloride ions, may be used subject to the following requirements:
  - 1. When a high range water-reducing admixture is used, the air-entraining admixture shall be a neutralized vinsol resin solution.
  - 2. Concrete shall arrive at the jobsite having a slump conforming to the requirements specified in Paragraph 2.01. HRWR shall be added after the concrete has been thoroughly mixed and the desired initial slump has been achieved.
  - 3. Water to cement ratio shall not exceed 5.0 gal/cwt (0.42 weight basis).
  - 4. Pretesting of the concrete shall be performed under guidance of admixture manufacturer's representative to determine dosage, addition times, and compatibility with other admixtures and mixture constituents.
  - 5. HRWR shall be added at job site and shall be dispensed to truck mixer using automatic dispensing equipment which accurately measured dosage.
  - 6. Slump after addition of HRWR to concrete shall be no greater than is necessary for proper placement and compaction and shall in no case exceed 7 in.
  - 7. Air tests shall be run on admixed concrete as placed, and air content shall be within specified limits.
  - 8. HRWR admixture: "Melment", manufactured by American Admixtures Corp., Chicago, IL; "WRDA-19", manufactured by W. R. Grace & Co.; "Daracem 100", manufactured by W.R. Grace & Co.; "Eucon 37", manufactured by The Euclid

Chemical Co.; 'Sikament', manufactured by Sika Chemical Co., or approved equal.

9. Dosage as determined by mix design.

## 2.6 AGGREGATE

- A. Except as otherwise noted, aggregate shall conform to ASTM C 33.
- B. Maximum size aggregate for sections 16 in. or greater in thickness shall be 1-1/2 in. Maximum size aggregate for sections less than 16 in. thick shall be 3/4-in.
- C. Maximum size of aggregate shall in no case exceed that permitted by ACI 318.

## 2.7 WATER

- A. Water shall conform to ASTM C 94, Section 4.1.3.

## 2.8 GROUT

- A. Grout shall be mixed in the proportions of one part Portland cement to two parts sand, by volume. Only sufficient water shall be used to enable grout to barely hold its shape when squeezed into a ball in the hand. Sand for grout shall be ASTM C 33 Fine Aggregate.
- B. Nonshrink grout shall be pre-mixed non-shrinking, high strength grout. Compressive strength in 28 days shall be 5,000 psi minimum, but in no case less than the specified strength of the adjacent concrete. Manufacturer shall provide evidence that the material meets the requirements of the COE CRD-C 621 (558). Grout permanently exposed to view shall be nonoxidizing; metallic grout may be used in other locations.

1. Nonshrink grout shall be one of the following, or approved equal:

Manufacturer	Product
Gifford-Hill CO	Supreme
Master Builders Co.	Embeco
U.S. Grout Corporation	Five Star Grout

## 2.9 CURING MATERIALS

- A. Curing shall be by moist curing.

- B. Curing paper shall be a non-staining, fiber reinforced laminated kraft bituminous product conforming to ASTM C 171. Four mil polyethylene sheeting may be substituted for curing paper.
- C. Curing, Sealing, and Hardening of Interior Concrete Floors/Slabs not Scheduled to receive Finish Floor Material: All Portland cement concrete floors/slabs and aprons in buildings not scheduled to receive applied finishes such as vinyl composition floor tile, shall be cured, sealed and hardened by two applications of "Ashford Formula", manufactured by Curecrete Chemical Company, Inc., Springville, UT 84663-0551; or approved equal. Apply after wet cure is completed.

#### 2.10 BONDING AGENT

- A. Bonding agent for adhering fresh concrete to old shall be Sika Armatec 110, three component, water-based epoxy resin/ portland cement bonding agent, manufactured by Sika Corporation, Lyndhurst, NJ 07071, or approved equal.

#### 2.11 SLEEVES

- A. Sleeves shall be galvanized steel pipe, Schedule 40.

#### 2.12 MISCELLANEOUS ITEMS

- A. Bolts: Conform to ASTM A 307 or ASTM A 36 (as indicated on the Drawings), carbon steel with regular hexagon nuts conforming to ASTM A 563, and carbon steel washers conforming to ASTM F 436.
- B. Expansion bolts for anchoring into existing concrete shall conform to ASTM A 307, and shall have a self-drilling shell similar to Phillips Red Head Self-Drilling Shells, manufactured by Phillips Red Head Anchor Division of ITT, Michigan City, IN., or approved equal.

### PART 3 EXECUTION

#### 3.1 SUITABILITY OF SUBGRADE

- A. Aggregate sub-base to receive concrete slab-on-grade shall be inspected to ensure material is suitable to receive concrete, including compaction. Subgrade unacceptable shall be brought to the attention of Owner's Representative.

### 3.2 PREPARATION OF SUBGRADE

- A. Subgrade shall be compacted as required to bring top 6 inches of subgrade material immediately below the concrete to a density of not less than 95% at optimum moisture content as determined by ASTM D 1557. Subgrade compaction shall extend for a distance of at least one foot beyond edge of concrete.
  - 1. Existing subgrade material which will not readily compact shall be removed and replaced with satisfactory materials. Additional materials needed to bring subgrade to line and grade and to replace unsuitable material removed shall conform to Section 31 23 00 - Earthwork.

### 3.3 ACCEPTABILITY OF CONCRETE SURFACES

- A. Concrete structures to receive concrete topping slab shall be inspected to ensure that surface is suitable to receive concrete. Waterproofed surfaces shall be thoroughly cured and suitably protected with protection board prior to start of concrete work of this section.

### 3.4 REINFORCING

- A. Before being placed in position, thoroughly clean reinforcing of loose mill and rust scale, dirt, ice, and other foreign material which may reduce bond between concrete and reinforcing. Where there is delay in placing concrete after reinforcement is in place, bars shall be re-inspected and cleaned.
- B. Bars showing cracks after bending shall be discarded.
- C. Unless otherwise indicated on Drawings, extend reinforcing within 2 in. of formwork and expansion joints. Reinforcing shall continue through control joints. Adjacent sheets of fabric reinforcing shall lap 6 in.
- D. After forms have been coated with form release agent, but before concrete is placed, reinforcing steel and anchors shall be securely wired in the exact position called for, and shall be maintained in that position until concrete is placed and compacted. Chair bars and supports shall be provided in a number and arrangement satisfactory to Owner's Representative.

### 3.5 CONCRETE PLACEMENT

- A. Before placing concrete, forms and space to be occupied by concrete shall be thoroughly cleaned, and reinforcing steel and embedded metal shall be free from dirt, oil, mill scale, loose rust, paint, and other material which might tend to reduce bond.

- B. Existing concrete, earth, and other water-permeable material against which new concrete is to be placed shall be thoroughly damp when concrete is placed. There shall be no free water on surface.
- C. Concrete which has set or partially set before placing shall not be employed. Re-tempering of concrete will not be permitted.
- D. Segregation of concrete shall be prevented during handling; should segregation occur, concrete shall be remixed before it is placed. Concrete shall be placed in the forms in horizontal layers not over one to two feet thick. Concrete shall not be allowed to drop freely more than 4 ft. If free drop to point of placement must exceed 4 ft., obtain approval of Owner's Representative for proposed method of depositing concrete. Concrete shall not be required to flow over distances greater than 3 ft. in any direction in forms or ground, unless otherwise permitted by Owner's Representative.
- E. Concrete shall be thoroughly spaded, and tamped, and vibrated to secure a solid and homogeneous mass, thoroughly worked around reinforcement and into corners of forms.
  - 1. Apply vibration at point of deposit and in area of freshly placed concrete. Vibrate enough to accomplish thorough compaction and complete embedment of reinforcement and fixtures. Supplement vibration by hand spading in corners and angles of forms to prevent honeycombing.
- F. When joining fresh concrete to concrete which has attained full set, latter shall be cleaned of foreign matter, and mortar scum and laitance shall be removed by chipping and washing. Clean, roughened base surface shall be saturated with water, but shall have no free water on surface. A coat of 1:1 cement-sand grout, approximately 1/8 in. thick, shall be well scrubbed into thoroughly dampened concrete base. New concrete shall be placed immediately, before grout has dried or set.
- G. Concrete surfaces which act as a seat for structural members (other than those resting on grout) shall be troweled to an extremely flat and level surface. If necessary, such surfaces shall be ground off to achieve the required flatness and level.

### 3.6 EMBEDDED METALS

- A. Anchor bolts, anchor slots, reglets, sleeves, edge angles, and similar embedded items will be provided, delivered to the site, under other sections of the specification, for installation under this section.

- B. Where edge angles, etc., have nuts welded on to receive machine screws, the threads of the nuts shall be protected from concrete, and the concrete shall be excluded from the space to be occupied by the screw, by use of wood plugs or other effective means.

### 3.7 FINISHING VERTICAL CONCRETE

- A. Exposed vertical surfaces shall be formed to produce a "smooth form finish", as defined in ACI 301. Concrete which is exposed to view on exterior of finished structures shall receive smooth rubbed finish, in accordance with ACI 301 and as follows:
  - 1. To permit satisfactory finishing, forms shall be removed from vertical faces of concrete as early as is possible without damaging surface. Immediately after stripping forms, fins or projections left by forms shall be chipped off, and surfaces rubbed smooth.
  - 2. Voids and faults shall be patched. Voids, etc., shall be cleaned out, roughened, thoroughly wetted, coated with neat cement paste, and filled with mortar of cement and sand in same proportions, materials, and color as used in concrete. Surface of the patch shall be flush with the surrounding surface after finishing operations are complete. Surface shall be kept continuously damp until patches are firm enough to be rubbed without damage.
  - 3. Rubbing shall be performed while the surface is wet using carborundum or cement sand brick, to achieve a smooth, uniform, even textured finish. Blend patched and chipped areas to match appearance of rest of surface. No cement wash or plastering will be permitted, and no mortar shall be used except as required above.
- B. Rubbed Finish: After removal of forms, patching and repairing, and while concrete is still green, spread slurry consisting of 1 part portland cement concrete and 1-1/2 part damp, loose sand by volume, over pre-dampened surface. Apply using burlap pads or sponge rubber floats. Remove surplus materials, and then rub with clean burlap. Water fog completed surfaces for 7 days min.
- C. As-Formed Finish: Remove fins by stoning, otherwise leave texture imparted by forms.
- D. Vertical surfaces of concrete which will be concealed in finished structure shall be formed to produce a "rough form finish", as defined in ACI 301.

### 3.8 FINISHING HORIZONTAL CONCRETE

- A. Screed off and wood-float concrete slabs and pads to smooth surface, true to line and grade, and free of hollows and bumps. Surface shall be dense, smooth, and at exact level and slope required.
- B. Horizontal surfaces of concrete which will be exposed shall be given a light broomed finish, with direction of grooves in concrete surface perpendicular to length of concrete slab or pad. After concrete has set sufficiently to prevent coarse aggregate from being torn from surface, but before it has completely set, brooms shall be drawn across it to produce a pattern of small parallel grooves. Broomed surface shall be uniform, with no smooth, unduly rough or porous spots, or other irregularities. Coarse aggregate shall not be dislodged by brooming operation.
- C. Floated Finish: Provide at slab surfaces to precede other finishes. Begin floating after concrete has been struck off, consolidated, and leveled, surface water has disappeared and surface is sufficiently hardened to support power driven float. Finish surface with impact type power driven float or hand float. Test surface with 10 ft. - 0 in. straightedge placed at minimum two different angles; correct irregularities exceeding 1/4 in. Refloat repaired areas.
- D. Trowel Finish: Provide at interior slab surfaces. Screed and float slabs to true and level surface, then trowel to dense, impervious surface, free from trowel marks, uniform in texture and appearance. Machine troweling is acceptable for surfaces to receive additional floor coverings and as preliminary finish on exposed surfaces. Hand trowel areas to be exposed in finished structure. Test surface with 10 ft. - 0 in. straightedge placed at minimum two different angles; correct irregularities exceeding 1/4 inch. Refloat repaired areas.
- E. Curing, Sealing, and Hardening of Interior Concrete Floors/Slabs and Aprons not Scheduled to receive Finish Floor Material: Apply two applications of Ashford Formula to concrete aprons and concrete floors/slabs (and equipment pads) not scheduled to receive other finishes in strict accordance with manufacturer's instructions and recommendations, including "working" material into concrete surfaces, as approved by Owner's Representative. Provide services of a technical representative of sealer material to be on-site during application of sealer material.
- F. Control joints in floor as indicated on Drawings shall be sawn by using a diamond blade concrete power saw. Joints shall be made as soon as possible after concrete is finished and when the surface is stiff enough to support the weight of workmen without damage to the slab. Saw shall cut into slab at least 1 in., but in no case less than 25% of slab depth. Cuts shall be clean, straight and uniform.

- G. Where finishing is performed before end of curing period, concrete shall not be permitted to dry out, and kept continuously moist from time of placing until end of curing period, or until curing membrane is applied.

### 3.9 FILLING HOLES

- A. Holes resulting from removal of bolts or tie rods that are not a part of decorative layout of set back cones at wall face shall be solidly filled with cement grout. Holes passing entirely through concrete members shall be filled from inside face, with a plunger-type grease gun or other device that will force mortar through to outside face, holding a canvas sack at exterior surface to assure complete filling. Holes, which do not pass entirely through, shall be filled, using tools, which will permit the opening to be packed thoroughly full. Excess mortar at faces of filled holes shall be struck off flush, with a canvas sack.

### 3.10 CURING

- A. It is essential concrete be kept continuously damp from time of placement until end of specified curing period. It is equally essential water not be added to surface during floating and troweling operations, and not earlier than 24 hours after concrete placement. Between finishing operations surface shall be protected from rapid drying by a covering of waterproofing paper. Surface shall be damp when covering is placed over it, and shall be kept damp by means of fog spray of water, applied to prevent drying, but not sooner than 24 hours after placing concrete. None of the water so applied shall be troweled or floated into surface.
- B. Concrete surfaces, not otherwise specified, shall be cured by being kept wet with clean water for a period of not less than seven days after placing. Each day the forms are left in place, and kept wet enough to prevent the opening of joints in the forms and the drying out of the concrete, will be counted as one day of curing.
- C. Concrete surfaces shall be cured by completely covering with curing paper.
  - 1. Concrete shall be completely covered with paper with seams lapped at least 2 in. and sealed with tape. Concrete surface shall not be moistened within 24 hours of placing concrete. During curing period surface shall be checked frequently, and sprayed with water or curing compound to prevent drying, but not earlier than 24 hours after placing concrete.
  - 2. Concrete surfaces to receive paint, waterproofing, damproofing, thin-set adhesives and coatings, and similar applied materials, which require bond and adhesion to concrete surfaces, shall be cured using curing paper. The use of curing compounds on these surfaces will not be permitted.

3. Unless otherwise directed by Owner's Representative, curing period shall be seven days, minimum.

### 3.11 COLD WEATHER CONCRETING

- A. Materials for concrete shall be heated when concrete is mixed, placed, or cured when the mean daily temperature is below 40 degrees F, or is expected to fall to below 40 degrees F, within 72 hours, and concrete after placing shall be protected by covering, heat, or both.
- B. Details of handling and protecting of concrete during freezing weather shall be subject to approval and direction of Owner's Representative. Procedures shall be in accordance with provisions of ACI 306.
- C. Protect concrete from damage and reduced strength or performance due to weather extremes during mixing, placing and curing. Unless adequate protection is provided, concrete shall not be placed during rain, sleet or snow.
- D. Carefully review phasing requirements and determine scope of cold-weather concreting required.

### 3.12 HOT WEATHER CONCRETING

- A. Concrete just placed shall be protected from direct rays of the sun and forms and reinforcement just prior to placing shall be sprinkled with cold water. Every effort shall be made to minimize delays resulting in excessive mixing of concrete after arrival on job.
- B. During periods of excessively hot weather (95 degree F, or above) ingredients in concrete shall be cooled and cold mixing water shall be used to maintain temperature of concrete at permissible levels in accordance with provisions of ACI 305. Concrete with a temperature above 95 degrees F, when ready for placement will not be acceptable, and will be rejected.
- C. Temperature records shall be maintained throughout the period of hot weather giving air temperature, general weather conditions (calm, windy, clear, cloudy, etc.) and relative humidity. Records shall include checks on temperature of concrete as delivered and after placing in forms. Data should be correlated with progress of work so that conditions surrounding construction of structure can be ascertained.

3.13 BRACING AND SUPPORTS

- A. Concrete members shall be adequately and safely supported and braced until permanent supports and braces (by whomever supplied) are installed.

3.14 REMOVING FORMS AND SUPPORTS

- A. Except as otherwise specifically authorized by Owner's Representative, forms shall not be removed until concrete has aged for at least three days or following number of day-degrees, whichever is greater.

Location	Day-Degrees*
Beams and Slabs	500
Walls and Vertical Surfaces	100

\* The term day-degrees represents the product of number of days elapsed since time of concrete placement and average daily air temperature at surface of concrete. For example, five days at a daily average temperature of 60 deg. F. equals 300 day-degrees.

1. Form removal by methods other than day-degree method will not be permitted.

3.15 BONDING AGENT

- A. Surface: clean, sound, and saturated surface dry but free of standing water. Remove dust, laitance, grease, curing compounds impregnations, waxes, and other foreign matter.
- B. Sandblast existing concrete, or use other mechanical means to achieve surface preparation required by bonding agent manufacturer prior to application of bonding agent.
- C. Apply bonding agent in strict accordance with manufacturer's printed instructions.

3.16 PROTECTION OF CONCRETE SURFACES

- A. Concrete surfaces shall be protected from traffic or damage until surfaces have hardened sufficiently. Use 1/2 inch thick plywood sheets to protect the exposed surfaces.

END OF SECTION

SECTION 00 41 00  
FORM FOR GENERAL BID

To the Awarding Authority:

A. The undersigned proposes to furnish all labor and materials required for the construction of the EXTENDED STONEMWORK SEATING WALL for OLD QUINCY HIGH GREEN SPACE, in accordance with the accompanying proposal and specifications prepared by the City of Quincy for the contract price specified below, subject to additions and deductions according to the terms of the specifications.

B. The proposed contract price is: (Bidder shall insert price in both words and numbers. In cases of conflict between words and numbers, the words shall control.

\_\_\_\_\_dollars (\$ \_\_\_\_\_ )

Receipt of Addendum No. \_\_\_\_\_ acknowledged by: \_\_\_\_\_

Award will be based on lump sum pricing and acceptance of submittals and bid specifications.

COMPANY: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

PHONE: \_\_\_\_\_

EMAIL: \_\_\_\_\_

PRIMARY CONTACT: \_\_\_\_\_

TITLE \_\_\_\_\_

**BIDDERS AUTHORIZED SIGNATURE:** \_\_\_\_\_



DEVAL L. PATRICK  
Governor

THE COMMONWEALTH OF MASSACHUSETTS  
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT  
DEPARTMENT OF LABOR STANDARDS

**Prevailing Wage Rates**

As determined by the Director under the provisions of the  
Massachusetts General Laws, Chapter 149, Sections 26 to 27H

RACHEL KAPRIELIAN  
Secretary  
HEATHER E. ROWE  
Director

**Awarding Authority:** City of Quincy  
**Contract Number:** **City/Town:** QUINCY  
**Description of Work:** Reconstruction of old QHS Open Green space - Includes Asphalt/Driveway work, Concrete and Stone work and Electrical  
**Job Location:** 52 Coddington St. Quincy, MA

Information about Prevailing Wage Schedules for Awarding Authorities and Contractors

- This wage schedule applies only to the specific project referenced at the top of this page and uniquely identified by the “Wage Request Number” on all pages of this schedule.
- An Awarding Authority must request an updated wage schedule from the Department of Labor Standards (“DLS”) if it has not opened bids or selected a contractor within 90 days of the date of issuance of the wage schedule. For CM AT RISK projects (bid pursuant to G.L. c.149A), the earlier of: (a) the execution date of the GMP Amendment, or (b) the bid for the first construction scope of work must be within 90-days of the wage schedule issuance date.
- The wage schedule shall be incorporated in any advertisement or call for bids for the project as required by M.G.L. c. 149, § 27. The wage schedule shall be made a part of the contract awarded for the project. The wage schedule must be posted in a conspicuous place at the work site for the life of the project in accordance with M.G.L. c. 149 § 27. The wages listed on the wage schedule must be paid to employees performing construction work on the project whether they are employed by the prime contractor, a filed sub-bidder, or any sub-contractor.
- All apprentices working on the project are required to be registered with the Massachusetts Division of Apprentice Standards (DAS). Apprentice must keep his/her apprentice identification card on his/her person during all work hours on the project. An apprentice registered with DAS may be paid the lower apprentice wage rate at the applicable step as provided on the prevailing wage schedule. **If an apprentice rate is not listed on the prevailing wage schedule for the trade in which an apprentice is registered with the DAS, the apprentice must be paid the journeyworker's rate for the trade.**
- The wage rates will remain in effect for the duration of the project, except in the case of multi-year public construction projects. For construction projects lasting longer than one year, awarding authorities must request an updated wage schedule. Awarding authorities are required to request these updates no later than two weeks before the anniversary of the date the contract was executed by the awarding authority and the general contractor. For multi-year CM AT RISK projects, awarding authority must request an annual update no later than two weeks before the anniversary date, determined as the earlier of: (a) the execution date of the GMP Amendment, or (b) the execution date of the first amendment to permit procurement of construction services. Contractors are required to obtain the wage schedules from awarding authorities, and to pay no less than these rates to covered workers. The annual update requirement is not applicable to 27F “rental of equipment” contracts.
- Every contractor or subcontractor which performs construction work on the project is required to submit weekly payroll reports and a Statement of Compliance directly to the awarding authority by mail or email and keep them on file for three years. Each weekly payroll report must contain: the employee’s name, address, occupational classification, hours worked, and wages paid. Do not submit weekly payroll reports to DLS. A sample of a payroll reporting form may be obtained at <http://www.mass.gov/dols/pw>.
- Contractors with questions about the wage rates or classifications included on the wage schedule have an affirmative obligation to inquire with DLS at (617) 626-6953.
- Employees not receiving the prevailing wage rate set forth on the wage schedule may report the violation to the Fair Labor Division of the office of the Attorney General at (617) 727-3465.
- Failure of a contractor or subcontractor to pay the prevailing wage rates listed on the wage schedule to all employees who perform construction work on the project is a violation of the law and subjects the contractor or subcontractor to civil and criminal penalties.

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
<b>Construction</b>						
(2 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	06/01/2014	\$32.40	\$9.41	\$8.80	\$0.00	\$50.61
	08/01/2014	\$32.40	\$9.91	\$8.80	\$0.00	\$51.11
	12/01/2014	\$32.40	\$9.91	\$9.33	\$0.00	\$51.64
	06/01/2015	\$32.75	\$9.91	\$9.33	\$0.00	\$51.99
	08/01/2015	\$32.75	\$10.41	\$9.33	\$0.00	\$52.49
	12/01/2015	\$32.75	\$10.41	\$10.08	\$0.00	\$53.24
	06/01/2016	\$33.25	\$10.41	\$10.08	\$0.00	\$53.74
	08/01/2016	\$33.25	\$10.91	\$10.08	\$0.00	\$54.24
	12/01/2016	\$33.25	\$10.91	\$10.89	\$0.00	\$55.05
(3 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	06/01/2014	\$32.47	\$9.41	\$8.80	\$0.00	\$50.68
	08/01/2014	\$32.47	\$9.91	\$8.80	\$0.00	\$51.18
	12/01/2014	\$32.47	\$9.91	\$9.33	\$0.00	\$51.71
	06/01/2015	\$32.82	\$9.91	\$9.33	\$0.00	\$52.06
	08/01/2015	\$32.82	\$10.41	\$9.33	\$0.00	\$52.56
	12/01/2015	\$32.82	\$10.41	\$10.08	\$0.00	\$53.31
	06/01/2016	\$33.32	\$10.41	\$10.08	\$0.00	\$53.81
	08/01/2016	\$33.32	\$10.91	\$10.08	\$0.00	\$54.31
	12/01/2016	\$33.32	\$10.91	\$10.89	\$0.00	\$55.12
(4 & 5 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	06/01/2014	\$32.59	\$9.41	\$8.80	\$0.00	\$50.80
	08/01/2014	\$32.59	\$9.91	\$8.80	\$0.00	\$51.30
	12/01/2014	\$32.59	\$9.91	\$9.33	\$0.00	\$51.83
	06/01/2015	\$32.94	\$9.91	\$9.33	\$0.00	\$52.18
	08/01/2015	\$32.94	\$10.41	\$9.33	\$0.00	\$52.68
	12/01/2015	\$32.94	\$10.41	\$10.08	\$0.00	\$53.43
	06/01/2016	\$33.44	\$10.41	\$10.08	\$0.00	\$53.93
	08/01/2016	\$33.44	\$10.91	\$10.08	\$0.00	\$54.43
	12/01/2016	\$33.44	\$10.91	\$10.89	\$0.00	\$55.24
ADS/SUBMERSIBLE PILOT <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2013	\$84.21	\$9.80	\$18.17	\$0.00	\$112.18
	08/01/2014	\$87.36	\$9.80	\$18.17	\$0.00	\$115.33
	08/01/2015	\$90.51	\$9.80	\$18.17	\$0.00	\$118.48
AIR TRACK OPERATOR <i>LABORERS - ZONE 1</i>	06/01/2014	\$34.85	\$7.30	\$12.70	\$0.00	\$54.85
	12/01/2014	\$35.60	\$7.30	\$12.70	\$0.00	\$55.60
	06/01/2015	\$36.35	\$7.30	\$12.70	\$0.00	\$56.35
	12/01/2015	\$37.10	\$7.30	\$12.70	\$0.00	\$57.10
	06/01/2016	\$37.85	\$7.30	\$12.70	\$0.00	\$57.85
	12/01/2016	\$38.85	\$7.30	\$12.70	\$0.00	\$58.85
For apprentice rates see "Apprentice- LABORER"						
ASBESTOS REMOVER - PIPE / MECH. EQUIPT. <i>HEAT &amp; FROST INSULATORS LOCAL 6 (BOSTON)</i>	06/01/2014	\$31.58	\$10.40	\$5.95	\$0.00	\$47.93
	12/01/2014	\$32.48	\$10.40	\$5.95	\$0.00	\$48.83
	06/01/2015	\$33.43	\$10.40	\$5.95	\$0.00	\$49.78
	12/01/2015	\$34.38	\$10.40	\$5.95	\$0.00	\$50.73

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
ASPHALT RAKER <i>LABORERS - ZONE 1</i>	06/01/2014	\$34.35	\$7.30	\$12.70	\$0.00	\$54.35
	12/01/2014	\$35.10	\$7.30	\$12.70	\$0.00	\$55.10
	06/01/2015	\$35.85	\$7.30	\$12.70	\$0.00	\$55.85
	12/01/2015	\$36.60	\$7.30	\$12.70	\$0.00	\$56.60
	06/01/2016	\$37.35	\$7.30	\$12.70	\$0.00	\$57.35
	12/01/2016	\$38.35	\$7.30	\$12.70	\$0.00	\$58.35
For apprentice rates see "Apprentice- LABORER"						
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2013	\$40.49	\$10.00	\$14.18	\$0.00	\$64.67
	For apprentice rates see "Apprentice- OPERATING ENGINEERS"					
BACKHOE/FRONT-END LOADER <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2013	\$40.49	\$10.00	\$14.18	\$0.00	\$64.67
	For apprentice rates see "Apprentice- OPERATING ENGINEERS"					
BARCO-TYPE JUMPING TAMPER <i>LABORERS - ZONE 1</i>	06/01/2014	\$34.35	\$7.30	\$12.70	\$0.00	\$54.35
	12/01/2014	\$35.10	\$7.30	\$12.70	\$0.00	\$55.10
	06/01/2015	\$35.85	\$7.30	\$12.70	\$0.00	\$55.85
	12/01/2015	\$36.60	\$7.30	\$12.70	\$0.00	\$56.60
	06/01/2016	\$37.35	\$7.30	\$12.70	\$0.00	\$57.35
	12/01/2016	\$38.35	\$7.30	\$12.70	\$0.00	\$58.35
For apprentice rates see "Apprentice- LABORER"						
BLOCK PAVER, RAMMER / CURB SETTER <i>LABORERS - ZONE 1</i>	06/01/2014	\$34.85	\$7.30	\$12.70	\$0.00	\$54.85
	12/01/2014	\$35.60	\$7.30	\$12.70	\$0.00	\$55.60
	06/01/2015	\$36.35	\$7.30	\$12.70	\$0.00	\$56.35
	12/01/2015	\$37.10	\$7.30	\$12.70	\$0.00	\$57.10
	06/01/2016	\$37.85	\$7.30	\$12.70	\$0.00	\$57.85
	12/01/2016	\$38.85	\$7.30	\$12.70	\$0.00	\$58.85
For apprentice rates see "Apprentice- LABORER"						
BOILER MAKER <i>BOILERMAKERS LOCAL 29</i>	01/01/2010	\$37.70	\$6.97	\$11.18	\$0.00	\$55.85

**Apprentice - BOILERMAKER - Local 29**

**Effective Date - 01/01/2010**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	65	\$24.51	\$6.97	\$11.18	\$0.00	\$42.66
2	65	\$24.51	\$6.97	\$11.18	\$0.00	\$42.66
3	70	\$26.39	\$6.97	\$11.18	\$0.00	\$44.54
4	75	\$28.28	\$6.97	\$11.18	\$0.00	\$46.43
5	80	\$30.16	\$6.97	\$11.18	\$0.00	\$48.31
6	85	\$32.05	\$6.97	\$11.18	\$0.00	\$50.20
7	90	\$33.93	\$6.97	\$11.18	\$0.00	\$52.08
8	95	\$35.82	\$6.97	\$11.18	\$0.00	\$53.97

**Notes:**

**Apprentice to Journeyworker Ratio:1:5**

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING) <i>BRICKLAYERS LOCAL 3 (QUINCY)</i>	02/01/2014	\$48.06	\$10.18	\$18.15	\$0.00	\$76.39
	08/01/2014	\$48.96	\$10.18	\$18.22	\$0.00	\$77.36
	02/01/2015	\$49.52	\$10.18	\$18.22	\$0.00	\$77.92
	08/01/2015	\$50.42	\$10.18	\$18.29	\$0.00	\$78.89
	02/01/2016	\$50.99	\$10.18	\$18.29	\$0.00	\$79.46
	08/01/2016	\$51.89	\$10.18	\$18.37	\$0.00	\$80.44
	02/01/2017	\$52.46	\$10.18	\$18.37	\$0.00	\$81.01

**Apprentice - BRICK/PLASTER/CEMENT MASON - Local 3 Quincy**

**Effective Date - 02/01/2014**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.03	\$10.18	\$18.15	\$0.00	\$52.36
2	60	\$28.84	\$10.18	\$18.15	\$0.00	\$57.17
3	70	\$33.64	\$10.18	\$18.15	\$0.00	\$61.97
4	80	\$38.45	\$10.18	\$18.15	\$0.00	\$66.78
5	90	\$43.25	\$10.18	\$18.15	\$0.00	\$71.58

**Effective Date - 08/01/2014**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.48	\$10.18	\$18.22	\$0.00	\$52.88
2	60	\$29.38	\$10.18	\$18.22	\$0.00	\$57.78
3	70	\$34.27	\$10.18	\$18.22	\$0.00	\$62.67
4	80	\$39.17	\$10.18	\$18.22	\$0.00	\$67.57
5	90	\$44.06	\$10.18	\$18.22	\$0.00	\$72.46

**Notes:**

**Apprentice to Journeyworker Ratio:1:5**

BULLDOZER/GRADER/SCRAPER <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2013	\$40.11	\$10.00	\$14.18	\$0.00	\$64.29
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

CAISSON & UNDERPINNING BOTTOM MAN <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2014	\$35.20	\$7.30	\$12.90	\$0.00	\$55.40
	12/01/2014	\$35.95	\$7.30	\$12.90	\$0.00	\$56.15
	06/01/2015	\$36.70	\$7.30	\$12.90	\$0.00	\$56.90
	12/01/2015	\$37.45	\$7.30	\$12.90	\$0.00	\$57.65
	06/01/2016	\$38.20	\$7.30	\$12.90	\$0.00	\$58.40
	12/01/2016	\$39.20	\$7.30	\$12.90	\$0.00	\$59.40

For apprentice rates see "Apprentice- LABORER"

CAISSON & UNDERPINNING LABORER <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2014	\$34.05	\$7.30	\$12.90	\$0.00	\$54.25
	12/01/2014	\$34.80	\$7.30	\$12.90	\$0.00	\$55.00
	06/01/2015	\$35.55	\$7.30	\$12.90	\$0.00	\$55.75
	12/01/2015	\$36.30	\$7.30	\$12.90	\$0.00	\$56.50
	06/01/2016	\$37.05	\$7.30	\$12.90	\$0.00	\$57.25
	12/01/2016	\$38.05	\$7.30	\$12.90	\$0.00	\$58.25

For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
CAISSON & UNDERPINNING TOP MAN <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2014	\$34.05	\$7.30	\$12.90	\$0.00	\$54.25
	12/01/2014	\$34.80	\$7.30	\$12.90	\$0.00	\$55.00
	06/01/2015	\$35.55	\$7.30	\$12.90	\$0.00	\$55.75
	12/01/2015	\$36.30	\$7.30	\$12.90	\$0.00	\$56.50
	06/01/2016	\$37.05	\$7.30	\$12.90	\$0.00	\$57.25
	12/01/2016	\$38.05	\$7.30	\$12.90	\$0.00	\$58.25
For apprentice rates see "Apprentice- LABORER"						
CARBIDE CORE DRILL OPERATOR <i>LABORERS - ZONE 1</i>	06/01/2014	\$34.35	\$7.30	\$12.70	\$0.00	\$54.35
	12/01/2014	\$35.10	\$7.30	\$12.70	\$0.00	\$55.10
	06/01/2015	\$35.85	\$7.30	\$12.70	\$0.00	\$55.85
	12/01/2015	\$36.60	\$7.30	\$12.70	\$0.00	\$56.60
	06/01/2016	\$37.35	\$7.30	\$12.70	\$0.00	\$57.35
	12/01/2016	\$38.35	\$7.30	\$12.70	\$0.00	\$58.35
For apprentice rates see "Apprentice- LABORER"						
CARPENTER <i>CARPENTERS -ZONE 2 (Eastern Massachusetts)</i>	03/01/2014	\$34.78	\$9.80	\$15.91	\$0.00	\$60.49
	09/01/2014	\$35.55	\$9.80	\$15.91	\$0.00	\$61.26
	03/01/2015	\$36.32	\$9.80	\$15.91	\$0.00	\$62.03

**Apprentice - CARPENTER - Zone 2 Eastern MA**

**Effective Date - 03/01/2014**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$17.39	\$9.80	\$1.57	\$0.00	\$28.76
2	60	\$20.87	\$9.80	\$1.57	\$0.00	\$32.24
3	70	\$24.35	\$9.80	\$11.20	\$0.00	\$45.35
4	75	\$26.09	\$9.80	\$11.20	\$0.00	\$47.09
5	80	\$27.82	\$9.80	\$12.77	\$0.00	\$50.39
6	80	\$27.82	\$9.80	\$12.77	\$0.00	\$50.39
7	90	\$31.30	\$9.80	\$14.34	\$0.00	\$55.44
8	90	\$31.30	\$9.80	\$14.34	\$0.00	\$55.44

**Effective Date - 09/01/2014**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$17.78	\$9.80	\$1.57	\$0.00	\$29.15
2	60	\$21.33	\$9.80	\$1.57	\$0.00	\$32.70
3	70	\$24.89	\$9.80	\$11.20	\$0.00	\$45.89
4	75	\$26.66	\$9.80	\$11.20	\$0.00	\$47.66
5	80	\$28.44	\$9.80	\$12.77	\$0.00	\$51.01
6	80	\$28.44	\$9.80	\$12.77	\$0.00	\$51.01
7	90	\$32.00	\$9.80	\$14.34	\$0.00	\$56.14
8	90	\$32.00	\$9.80	\$14.34	\$0.00	\$56.14

**Notes:**

**Apprentice to Journeyworker Ratio:1:5**

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
CEMENT MASONRY/PLASTERING <i>BRICKLAYERS LOCAL 3 (QUINCY)</i>	07/01/2014	\$43.77	\$10.90	\$18.71	\$1.30	\$74.68
	01/01/2015	\$44.69	\$10.90	\$18.71	\$1.30	\$75.60
	07/01/2015	\$45.29	\$10.90	\$18.71	\$1.30	\$76.20
	01/01/2016	\$46.21	\$10.90	\$18.71	\$1.30	\$77.12

**Apprentice - CEMENT MASONRY/PLASTERING - Eastern Mass (Quincy)**

**Effective Date - 07/01/2014**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.89	\$10.90	\$12.21	\$1.30	\$46.30
2	60	\$26.26	\$10.90	\$13.71	\$1.30	\$52.17
3	65	\$28.45	\$10.90	\$14.71	\$1.30	\$55.36
4	70	\$30.64	\$10.90	\$15.71	\$1.30	\$58.55
5	75	\$32.83	\$10.90	\$16.71	\$1.30	\$61.74
6	80	\$35.02	\$10.90	\$17.71	\$1.30	\$64.93
7	90	\$39.39	\$10.90	\$18.71	\$1.30	\$70.30

**Effective Date - 01/01/2015**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.35	\$10.90	\$12.21	\$1.30	\$46.76
2	60	\$26.81	\$10.90	\$13.71	\$1.30	\$52.72
3	65	\$29.05	\$10.90	\$14.71	\$1.30	\$55.96
4	70	\$31.28	\$10.90	\$15.71	\$1.30	\$59.19
5	75	\$33.52	\$10.90	\$16.71	\$1.30	\$62.43
6	80	\$35.75	\$10.90	\$17.71	\$1.30	\$65.66
7	90	\$40.22	\$10.90	\$18.71	\$1.30	\$71.13

**Notes:**

Steps 3,4 are 500 hrs. All other steps are 1,000 hrs.

**Apprentice to Journeyworker Ratio:1:3**

CHAIN SAW OPERATOR <i>LABORERS - ZONE 1</i>	06/01/2014	\$34.35	\$7.30	\$12.70	\$0.00	\$54.35
	12/01/2014	\$35.10	\$7.30	\$12.70	\$0.00	\$55.10
	06/01/2015	\$35.85	\$7.30	\$12.70	\$0.00	\$55.85
	12/01/2015	\$36.60	\$7.30	\$12.70	\$0.00	\$56.60
	06/01/2016	\$37.35	\$7.30	\$12.70	\$0.00	\$57.35
	12/01/2016	\$38.35	\$7.30	\$12.70	\$0.00	\$58.35

For apprentice rates see "Apprentice- LABORER"

CLAM SHELLS/SLURRY BUCKETS/HEADING MACHINES <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2013	\$41.49	\$10.00	\$14.18	\$0.00	\$65.67
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

COMPRESSOR OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2013	\$28.11	\$10.00	\$14.18	\$0.00	\$52.29
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
DELEADER (BRIDGE) PAINTERS LOCAL 35 - ZONE 2	07/01/2014	\$46.76	\$7.85	\$16.10	\$0.00	\$70.71
	01/01/2015	\$47.66	\$7.85	\$16.10	\$0.00	\$71.61
	07/01/2015	\$48.56	\$7.85	\$16.10	\$0.00	\$72.51
	01/01/2016	\$49.51	\$7.85	\$16.10	\$0.00	\$73.46
	07/01/2016	\$50.46	\$7.85	\$16.10	\$0.00	\$74.41
	01/01/2017	\$51.41	\$7.85	\$16.10	\$0.00	\$75.36

**Apprentice - PAINTER Local 35 - BRIDGES/TANKS**

**Effective Date - 07/01/2014**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.38	\$7.85	\$0.00	\$0.00	\$31.23
2	55	\$25.72	\$7.85	\$3.66	\$0.00	\$37.23
3	60	\$28.06	\$7.85	\$3.99	\$0.00	\$39.90
4	65	\$30.39	\$7.85	\$4.32	\$0.00	\$42.56
5	70	\$32.73	\$7.85	\$14.11	\$0.00	\$54.69
6	75	\$35.07	\$7.85	\$14.44	\$0.00	\$57.36
7	80	\$37.41	\$7.85	\$14.77	\$0.00	\$60.03
8	90	\$42.08	\$7.85	\$15.44	\$0.00	\$65.37

**Effective Date - 01/01/2015**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.83	\$7.85	\$0.00	\$0.00	\$31.68
2	55	\$26.21	\$7.85	\$3.66	\$0.00	\$37.72
3	60	\$28.60	\$7.85	\$3.99	\$0.00	\$40.44
4	65	\$30.98	\$7.85	\$4.32	\$0.00	\$43.15
5	70	\$33.36	\$7.85	\$14.11	\$0.00	\$55.32
6	75	\$35.75	\$7.85	\$14.44	\$0.00	\$58.04
7	80	\$38.13	\$7.85	\$14.77	\$0.00	\$60.75
8	90	\$42.89	\$7.85	\$15.44	\$0.00	\$66.18

**Notes:**

Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

DEMO: ADZEMAN LABORERS - ZONE 1	06/01/2014	\$34.25	\$7.30	\$12.70	\$0.00	\$54.25
	12/01/2014	\$35.00	\$7.30	\$12.70	\$0.00	\$55.00
	06/01/2015	\$35.75	\$7.30	\$12.70	\$0.00	\$55.75
	12/01/2015	\$36.50	\$7.30	\$12.70	\$0.00	\$56.50

For apprentice rates see "Apprentice- LABORER"

DEMO: BACKHOE/LOADER/HAMMER OPERATOR LABORERS - ZONE 1	06/01/2014	\$35.25	\$7.30	\$12.70	\$0.00	\$55.25
	12/01/2014	\$36.00	\$7.30	\$12.70	\$0.00	\$56.00
	06/01/2015	\$36.75	\$7.30	\$12.70	\$0.00	\$56.75
	12/01/2015	\$37.50	\$7.30	\$12.70	\$0.00	\$57.50

For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
DEMO: BURNERS <i>LABORERS - ZONE 1</i>	06/01/2014	\$35.00	\$7.30	\$12.70	\$0.00	\$55.00
	12/01/2014	\$35.75	\$7.30	\$12.70	\$0.00	\$55.75
	06/01/2015	\$36.50	\$7.30	\$12.70	\$0.00	\$56.50
	12/01/2015	\$37.25	\$7.30	\$12.70	\$0.00	\$57.25
For apprentice rates see "Apprentice- LABORER"						
DEMO: CONCRETE CUTTER/SAWYER <i>LABORERS - ZONE 1</i>	06/01/2014	\$35.25	\$7.30	\$12.70	\$0.00	\$55.25
	12/01/2014	\$36.00	\$7.30	\$12.70	\$0.00	\$56.00
	06/01/2015	\$36.75	\$7.30	\$12.70	\$0.00	\$56.75
	12/01/2015	\$37.50	\$7.30	\$12.70	\$0.00	\$57.50
For apprentice rates see "Apprentice- LABORER"						
DEMO: JACKHAMMER OPERATOR <i>LABORERS - ZONE 1</i>	06/01/2014	\$35.00	\$7.30	\$12.70	\$0.00	\$55.00
	12/01/2014	\$35.75	\$7.30	\$12.70	\$0.00	\$55.75
	06/01/2015	\$36.50	\$7.30	\$12.70	\$0.00	\$56.50
	12/01/2015	\$37.25	\$7.30	\$12.70	\$0.00	\$57.25
For apprentice rates see "Apprentice- LABORER"						
DEMO: WRECKING LABORER <i>LABORERS - ZONE 1</i>	06/01/2014	\$34.25	\$7.30	\$12.70	\$0.00	\$54.25
	12/01/2014	\$35.00	\$7.30	\$12.70	\$0.00	\$55.00
	06/01/2015	\$35.75	\$7.30	\$12.70	\$0.00	\$55.75
	12/01/2015	\$36.50	\$7.30	\$12.70	\$0.00	\$56.50
For apprentice rates see "Apprentice- LABORER"						
DIRECTIONAL DRILL MACHINE OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2013	\$40.11	\$10.00	\$14.18	\$0.00	\$64.29
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DIVER <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2013	\$56.14	\$9.80	\$18.17	\$0.00	\$84.11
	08/01/2014	\$58.24	\$9.80	\$18.17	\$0.00	\$86.21
	08/01/2015	\$60.34	\$9.80	\$18.17	\$0.00	\$88.31
DIVER TENDER <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2013	\$40.10	\$9.80	\$18.17	\$0.00	\$68.07
	08/01/2014	\$41.60	\$9.80	\$18.17	\$0.00	\$69.57
	08/01/2015	\$43.10	\$9.80	\$18.17	\$0.00	\$71.07
DIVER TENDER (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2013	\$60.15	\$9.80	\$18.17	\$0.00	\$88.12
	08/01/2014	\$62.40	\$9.80	\$18.17	\$0.00	\$90.37
	08/01/2015	\$64.65	\$9.80	\$18.17	\$0.00	\$92.62
DIVER/SLURRY (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2013	\$84.21	\$9.80	\$18.17	\$0.00	\$112.18
	08/01/2014	\$87.36	\$9.80	\$18.17	\$0.00	\$115.33
	08/01/2015	\$90.51	\$9.80	\$18.17	\$0.00	\$118.48
DRAWBRIDGE OPERATOR (Construction) <i>ELECTRICIANS LOCAL 103</i>	03/01/2014	\$44.45	\$13.00	\$14.68	\$0.00	\$72.13
	09/01/2014	\$45.12	\$13.00	\$14.70	\$0.00	\$72.82
	03/01/2015	\$45.84	\$13.00	\$14.72	\$0.00	\$73.56
	09/01/2015	\$46.80	\$13.00	\$14.75	\$0.00	\$74.55
	03/01/2016	\$47.75	\$13.00	\$14.78	\$0.00	\$75.53
For apprentice rates see "Apprentice- ELECTRICIAN"						
ELECTRICIAN <i>ELECTRICIANS LOCAL 103</i>	03/01/2014	\$44.45	\$13.00	\$14.68	\$0.00	\$72.13
	09/01/2014	\$45.12	\$13.00	\$14.70	\$0.00	\$72.82
	03/01/2015	\$45.84	\$13.00	\$14.72	\$0.00	\$73.56
	09/01/2015	\$46.80	\$13.00	\$14.75	\$0.00	\$74.55
	03/01/2016	\$47.75	\$13.00	\$14.78	\$0.00	\$75.53

**Classification**

**Effective Date   Base Wage   Health   Pension   Supplemental Unemployment   Total Rate**

**Apprentice - ELECTRICIAN - Local 103**

**Effective Date - 03/01/2014**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$17.78	\$13.00	\$0.53	\$0.00	\$31.31
2	40	\$17.78	\$13.00	\$0.53	\$0.00	\$31.31
3	45	\$20.00	\$13.00	\$11.04	\$0.00	\$44.04
4	45	\$20.00	\$13.00	\$11.04	\$0.00	\$44.04
5	50	\$22.23	\$13.00	\$11.37	\$0.00	\$46.60
6	55	\$24.45	\$13.00	\$11.70	\$0.00	\$49.15
7	60	\$26.67	\$13.00	\$12.03	\$0.00	\$51.70
8	65	\$28.89	\$13.00	\$12.37	\$0.00	\$54.26
9	70	\$31.12	\$13.00	\$12.69	\$0.00	\$56.81
10	75	\$33.34	\$13.00	\$13.03	\$0.00	\$59.37

**Effective Date - 09/01/2014**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$18.05	\$13.00	\$0.54	\$0.00	\$31.59
2	40	\$18.05	\$13.00	\$0.54	\$0.00	\$31.59
3	45	\$20.30	\$13.00	\$11.05	\$0.00	\$44.35
4	45	\$20.30	\$13.00	\$11.05	\$0.00	\$44.35
5	50	\$22.56	\$13.00	\$11.38	\$0.00	\$46.94
6	55	\$24.82	\$13.00	\$11.71	\$0.00	\$49.53
7	60	\$27.07	\$13.00	\$12.04	\$0.00	\$52.11
8	65	\$29.33	\$13.00	\$12.38	\$0.00	\$54.71
9	70	\$31.58	\$13.00	\$12.71	\$0.00	\$57.29
10	75	\$33.84	\$13.00	\$13.05	\$0.00	\$59.89

**Notes:** :  
App Prior 1/1/03; 30/35/40/45/50/55/65/70/75/80

**Apprentice to Journeyworker Ratio:2:3\*\*\***

ELEVATOR CONSTRUCTOR ELEVATOR CONSTRUCTORS LOCAL 4	01/01/2012	\$52.45	\$8.78	\$6.96	\$0.00	\$68.19
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**Apprentice - ELEVATOR CONSTRUCTOR - Local 4**

**Effective Date - 01/01/2012**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$26.23	\$8.78	\$0.00	\$0.00	\$35.01
2	55	\$28.85	\$8.78	\$6.96	\$0.00	\$44.59
3	65	\$34.09	\$8.78	\$6.96	\$0.00	\$49.83
4	70	\$36.72	\$8.78	\$6.96	\$0.00	\$52.46
5	80	\$41.96	\$8.78	\$6.96	\$0.00	\$57.70

**Notes:**

Steps 1-2 are 6 mos.; Steps 3-5 are 1 year

**Apprentice to Journeyworker Ratio:1:1**

ELEVATOR CONSTRUCTOR HELPER <i>ELEVATOR CONSTRUCTORS LOCAL 4</i>	01/01/2012	\$38.59	\$8.78	\$6.96	\$0.00	\$54.33
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For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"

FENCE & GUARD RAIL ERECTOR <i>LABORERS - ZONE 1</i>	06/01/2014	\$34.35	\$7.30	\$12.70	\$0.00	\$54.35
	12/01/2014	\$35.10	\$7.30	\$12.70	\$0.00	\$55.10
	06/01/2015	\$35.85	\$7.30	\$12.70	\$0.00	\$55.85
	12/01/2015	\$36.60	\$7.30	\$12.70	\$0.00	\$56.60
	06/01/2016	\$37.35	\$7.30	\$12.70	\$0.00	\$57.35
	12/01/2016	\$38.35	\$7.30	\$12.70	\$0.00	\$58.35

For apprentice rates see "Apprentice- LABORER"

FIELD ENG.INST.PERSON-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	05/01/2014	\$38.87	\$10.00	\$14.18	\$0.00	\$63.05
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

FIELD ENG.PARTY CHIEF-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	05/01/2014	\$40.29	\$10.00	\$14.18	\$0.00	\$64.47
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

FIELD ENG.ROD PERSON-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	05/01/2014	\$20.92	\$10.00	\$14.18	\$0.00	\$45.10
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

FIRE ALARM INSTALLER <i>ELECTRICIANS LOCAL 103</i>	03/01/2014	\$44.45	\$13.00	\$14.68	\$0.00	\$72.13
	09/01/2014	\$45.12	\$13.00	\$14.70	\$0.00	\$72.82
	03/01/2015	\$45.84	\$13.00	\$14.72	\$0.00	\$73.56
	09/01/2015	\$46.80	\$13.00	\$14.75	\$0.00	\$74.55
	03/01/2016	\$47.75	\$13.00	\$14.78	\$0.00	\$75.53

For apprentice rates see "Apprentice- ELECTRICIAN"

FIRE ALARM REPAIR / MAINTENANCE <i>LOCAL 103</i> / COMMISSIONING <i>ELECTRICIANS</i>	03/01/2014	\$33.44	\$13.00	\$13.03	\$0.00	\$59.47
	09/01/2014	\$33.84	\$13.00	\$13.05	\$0.00	\$59.89
	03/01/2015	\$34.38	\$13.00	\$13.06	\$0.00	\$60.44
	09/01/2015	\$35.10	\$13.00	\$13.08	\$0.00	\$61.18
	03/01/2016	\$35.81	\$13.00	\$13.10	\$0.00	\$61.91

For apprentice rates see "Apprentice- TELECOMMUNICATIONS TECHNICIAN"

FIREMAN (ASST. ENGINEER) <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2013	\$33.76	\$10.00	\$14.18	\$0.00	\$57.94
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FLAGGER & SIGNALER <i>LABORERS - ZONE 1</i>	06/01/2014	\$20.50	\$7.30	\$12.70	\$0.00	\$40.50
	12/01/2014	\$20.50	\$7.30	\$12.70	\$0.00	\$40.50
	06/01/2015	\$20.50	\$7.30	\$12.70	\$0.00	\$40.50
	12/01/2015	\$20.50	\$7.30	\$12.70	\$0.00	\$40.50
	06/01/2016	\$20.50	\$7.30	\$12.70	\$0.00	\$40.50
	12/01/2016	\$20.50	\$7.30	\$12.70	\$0.00	\$40.50

For apprentice rates see "Apprentice- LABORER"

FLOORCOVERER <i>FLOORCOVERERS LOCAL 2168 ZONE 1</i>	03/01/2014	\$39.87	\$9.80	\$16.96	\$0.00	\$66.63
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**Apprentice - FLOORCOVERER - Local 2168 Zone 1**

**Effective Date - 03/01/2014**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.94	\$9.80	\$1.79	\$0.00	\$31.53
2	55	\$21.93	\$9.80	\$1.79	\$0.00	\$33.52
3	60	\$23.92	\$9.80	\$11.59	\$0.00	\$45.31
4	65	\$25.92	\$9.80	\$11.59	\$0.00	\$47.31
5	70	\$27.91	\$9.80	\$13.38	\$0.00	\$51.09
6	75	\$29.90	\$9.80	\$13.38	\$0.00	\$53.08
7	80	\$31.90	\$9.80	\$15.17	\$0.00	\$56.87
8	85	\$33.89	\$9.80	\$15.17	\$0.00	\$58.86

**Notes:**

Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

FORK LIFT/CHERRY PICKER <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2013	\$40.49	\$10.00	\$14.18	\$0.00	\$64.67
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

GENERATOR/LIGHTING PLANT/HEATERS <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2013	\$28.11	\$10.00	\$14.18	\$0.00	\$52.29
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS) <i>GLAZIERS LOCAL 35 (ZONE 2)</i>	07/01/2014	\$36.26	\$7.85	\$16.10	\$0.00	\$60.21
	01/01/2015	\$37.16	\$7.85	\$16.10	\$0.00	\$61.11
	07/01/2015	\$38.06	\$7.85	\$16.10	\$0.00	\$62.01
	01/01/2016	\$39.01	\$7.85	\$16.10	\$0.00	\$62.96
	07/01/2016	\$39.96	\$7.85	\$16.10	\$0.00	\$63.91
	01/01/2017	\$40.91	\$7.85	\$16.10	\$0.00	\$64.86

**Classification**

**Effective Date   Base Wage   Health   Pension   Supplemental Unemployment   Total Rate**

**Apprentice - GLAZIER - Local 35 Zone 2**

**Effective Date - 07/01/2014**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$18.13	\$7.85	\$0.00	\$0.00	\$25.98
2	55	\$19.94	\$7.85	\$3.66	\$0.00	\$31.45
3	60	\$21.76	\$7.85	\$3.99	\$0.00	\$33.60
4	65	\$23.57	\$7.85	\$4.32	\$0.00	\$35.74
5	70	\$25.38	\$7.85	\$14.11	\$0.00	\$47.34
6	75	\$27.20	\$7.85	\$14.44	\$0.00	\$49.49
7	80	\$29.01	\$7.85	\$14.77	\$0.00	\$51.63
8	90	\$32.63	\$7.85	\$15.44	\$0.00	\$55.92

**Effective Date - 01/01/2015**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$18.58	\$7.85	\$0.00	\$0.00	\$26.43
2	55	\$20.44	\$7.85	\$3.66	\$0.00	\$31.95
3	60	\$22.30	\$7.85	\$3.99	\$0.00	\$34.14
4	65	\$24.15	\$7.85	\$4.32	\$0.00	\$36.32
5	70	\$26.01	\$7.85	\$14.11	\$0.00	\$47.97
6	75	\$27.87	\$7.85	\$14.44	\$0.00	\$50.16
7	80	\$29.73	\$7.85	\$14.77	\$0.00	\$52.35
8	90	\$33.44	\$7.85	\$15.44	\$0.00	\$56.73

**Notes:**

Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

HOISTING ENGINEER/CRANES/GRADALLS OPERATING ENGINEERS LOCAL 4	12/01/2013	\$40.49	\$10.00	\$14.18	\$0.00	\$64.67
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**Classification**

**Effective Date    Base Wage    Health    Pension    Supplemental Unemployment    Total Rate**

**Apprentice - OPERATING ENGINEERS - Local 4**

**Effective Date - 12/01/2013**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$22.27	\$10.00	\$0.00	\$0.00	\$32.27
2	60	\$24.29	\$10.00	\$14.18	\$0.00	\$48.47
3	65	\$26.32	\$10.00	\$14.18	\$0.00	\$50.50
4	70	\$28.34	\$10.00	\$14.18	\$0.00	\$52.52
5	75	\$30.37	\$10.00	\$14.18	\$0.00	\$54.55
6	80	\$32.39	\$10.00	\$14.18	\$0.00	\$56.57
7	85	\$34.42	\$10.00	\$14.18	\$0.00	\$58.60
8	90	\$36.44	\$10.00	\$14.18	\$0.00	\$60.62

**Notes:**

**Apprentice to Journeyworker Ratio:1:6**

HVAC (DUCTWORK) SHEETMETAL WORKERS LOCAL 17 - A	02/01/2014	\$42.76	\$9.82	\$19.74	\$2.17	\$74.49
	08/01/2014	\$43.61	\$9.82	\$19.74	\$2.17	\$75.34
	02/01/2015	\$44.51	\$9.82	\$19.74	\$2.17	\$76.24
	08/01/2015	\$45.51	\$9.82	\$19.74	\$2.17	\$77.24
	02/01/2016	\$46.51	\$9.82	\$19.74	\$2.17	\$78.24
	08/01/2016	\$47.66	\$9.82	\$19.74	\$2.17	\$79.39
	02/01/2017	\$48.76	\$9.82	\$19.74	\$2.17	\$80.49
	08/01/2017	\$49.86	\$9.82	\$19.74	\$2.17	\$81.59
	02/01/2018	\$51.01	\$9.82	\$19.74	\$2.17	\$82.74

For apprentice rates see "Apprentice- SHEET METAL WORKER"

HVAC (ELECTRICAL CONTROLS) ELECTRICIANS LOCAL 103	03/01/2014	\$44.45	\$13.00	\$14.68	\$0.00	\$72.13
	09/01/2014	\$45.12	\$13.00	\$14.70	\$0.00	\$72.82
	03/01/2015	\$45.84	\$13.00	\$14.72	\$0.00	\$73.56
	09/01/2015	\$46.80	\$13.00	\$14.75	\$0.00	\$74.55
	03/01/2016	\$47.75	\$13.00	\$14.78	\$0.00	\$75.53

For apprentice rates see "Apprentice- ELECTRICIAN"

HVAC (TESTING AND BALANCING - AIR) SHEETMETAL WORKERS LOCAL 17 - A	02/01/2014	\$42.76	\$9.82	\$19.74	\$2.17	\$74.49
	08/01/2014	\$43.61	\$9.82	\$19.74	\$2.17	\$75.34
	02/01/2015	\$44.51	\$9.82	\$19.74	\$2.17	\$76.24
	08/01/2015	\$45.51	\$9.82	\$19.74	\$2.17	\$77.24
	02/01/2016	\$46.51	\$9.82	\$19.74	\$2.17	\$78.24
	08/01/2016	\$47.66	\$9.82	\$19.74	\$2.17	\$79.39
	02/01/2017	\$48.76	\$9.82	\$19.74	\$2.17	\$80.49
	08/01/2017	\$49.86	\$9.82	\$19.74	\$2.17	\$81.59
	02/01/2018	\$51.01	\$9.82	\$19.74	\$2.17	\$82.74

For apprentice rates see "Apprentice- SHEET METAL WORKER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
HVAC (TESTING AND BALANCING -WATER) <i>PIPEFITTERS LOCAL 537</i>	03/01/2014	\$48.19	\$9.20	\$16.14	\$0.00	\$73.53
	09/01/2014	\$49.19	\$9.20	\$16.14	\$0.00	\$74.53
	03/01/2015	\$50.19	\$9.20	\$16.14	\$0.00	\$75.53
	09/01/2015	\$51.19	\$9.20	\$16.14	\$0.00	\$76.53
	03/01/2016	\$52.19	\$9.20	\$16.14	\$0.00	\$77.53
	09/01/2016	\$53.19	\$9.20	\$16.14	\$0.00	\$78.53
	03/01/2017	\$54.19	\$9.20	\$16.14	\$0.00	\$79.53
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HVAC MECHANIC <i>PIPEFITTERS LOCAL 537</i>	03/01/2014	\$48.19	\$9.20	\$16.14	\$0.00	\$73.53
	09/01/2014	\$49.19	\$9.20	\$16.14	\$0.00	\$74.53
	03/01/2015	\$50.19	\$9.20	\$16.14	\$0.00	\$75.53
	09/01/2015	\$51.19	\$9.20	\$16.14	\$0.00	\$76.53
	03/01/2016	\$52.19	\$9.20	\$16.14	\$0.00	\$77.53
	09/01/2016	\$53.19	\$9.20	\$16.14	\$0.00	\$78.53
	03/01/2017	\$54.19	\$9.20	\$16.14	\$0.00	\$79.53
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HYDRAULIC DRILLS <i>LABORERS - ZONE 1</i>	06/01/2014	\$34.85	\$7.30	\$12.70	\$0.00	\$54.85
	12/01/2014	\$35.60	\$7.30	\$12.70	\$0.00	\$55.60
	06/01/2015	\$36.35	\$7.30	\$12.70	\$0.00	\$56.35
	12/01/2015	\$37.10	\$7.30	\$12.70	\$0.00	\$57.10
	06/01/2016	\$37.85	\$7.30	\$12.70	\$0.00	\$57.85
	12/01/2016	\$38.85	\$7.30	\$12.70	\$0.00	\$58.85
For apprentice rates see "Apprentice- LABORER"						
INSULATOR (PIPES & TANKS) <i>HEAT &amp; FROST INSULATORS LOCAL 6 (BOSTON)</i>	09/01/2013	\$42.11	\$10.95	\$12.10	\$0.00	\$65.16
	09/01/2014	\$44.11	\$10.95	\$12.10	\$0.00	\$67.16

**Apprentice - ASBESTOS INSULATOR (Pipes & Tanks) - Local 6 Boston**

**Effective Date - 09/01/2013**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.06	\$10.95	\$9.00	\$0.00	\$41.01
2	60	\$25.27	\$10.95	\$9.62	\$0.00	\$45.84
3	70	\$29.48	\$10.95	\$10.24	\$0.00	\$50.67
4	80	\$33.69	\$10.95	\$10.86	\$0.00	\$55.50

**Effective Date - 09/01/2014**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.06	\$10.95	\$9.00	\$0.00	\$42.01
2	60	\$26.47	\$10.95	\$9.62	\$0.00	\$47.04
3	70	\$30.88	\$10.95	\$10.24	\$0.00	\$52.07
4	80	\$35.29	\$10.95	\$10.86	\$0.00	\$57.10

**Notes:**

Steps are 1 year

**Apprentice to Journeyworker Ratio:1:4**

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
IRONWORKER/WELDER <i>IRONWORKERS LOCAL 7 (BOSTON AREA)</i>	03/16/2014	\$41.19	\$7.70	\$19.25	\$0.00	\$68.14

**Apprentice - IRONWORKER - Local 7 Boston**

**Effective Date - 03/16/2014**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$24.71	\$7.70	\$19.25	\$0.00	\$51.66
2	70	\$28.83	\$7.70	\$19.25	\$0.00	\$55.78
3	75	\$30.89	\$7.70	\$19.25	\$0.00	\$57.84
4	80	\$32.95	\$7.70	\$19.25	\$0.00	\$59.90
5	85	\$35.01	\$7.70	\$19.25	\$0.00	\$61.96
6	90	\$37.07	\$7.70	\$19.25	\$0.00	\$64.02

**Notes:**

\*\* Structural 1:6; Ornamental 1:4

**Apprentice to Journeyworker Ratio:\*\***

JACKHAMMER & PAVING BREAKER OPERATOR <i>LABORERS - ZONE 1</i>	06/01/2014	\$34.35	\$7.30	\$12.70	\$0.00	\$54.35
	12/01/2014	\$35.10	\$7.30	\$12.70	\$0.00	\$55.10
	06/01/2015	\$35.85	\$7.30	\$12.70	\$0.00	\$55.85
	12/01/2015	\$36.60	\$7.30	\$12.70	\$0.00	\$56.60
	06/01/2016	\$37.35	\$7.30	\$12.70	\$0.00	\$57.35
	12/01/2016	\$38.35	\$7.30	\$12.70	\$0.00	\$58.35

For apprentice rates see "Apprentice- LABORER"

LABORER <i>LABORERS - ZONE 1</i>	06/01/2014	\$34.10	\$7.30	\$12.70	\$0.00	\$54.10
	12/01/2014	\$34.85	\$7.30	\$12.70	\$0.00	\$54.85
	06/01/2015	\$35.60	\$7.30	\$12.70	\$0.00	\$55.60
	12/01/2015	\$36.35	\$7.30	\$12.70	\$0.00	\$56.35
	06/01/2016	\$37.10	\$7.30	\$12.70	\$0.00	\$57.10
	12/01/2016	\$38.10	\$7.30	\$12.70	\$0.00	\$58.10

**Classification**

**Effective Date   Base Wage   Health   Pension   Supplemental Unemployment   Total Rate**

**Apprentice - LABORER - Zone 1**

**Effective Date - 06/01/2014**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$20.46	\$7.30	\$12.70	\$0.00	\$40.46
2	70	\$23.87	\$7.30	\$12.70	\$0.00	\$43.87
3	80	\$27.28	\$7.30	\$12.70	\$0.00	\$47.28
4	90	\$30.69	\$7.30	\$12.70	\$0.00	\$50.69

**Effective Date - 12/01/2014**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$20.91	\$7.30	\$12.70	\$0.00	\$40.91
2	70	\$24.40	\$7.30	\$12.70	\$0.00	\$44.40
3	80	\$27.88	\$7.30	\$12.70	\$0.00	\$47.88
4	90	\$31.37	\$7.30	\$12.70	\$0.00	\$51.37

**Notes:**

**Apprentice to Journeyworker Ratio:1:5**

LABORER: CARPENTER TENDER LABORERS - ZONE 1	06/01/2014	\$34.10	\$7.30	\$12.70	\$0.00	\$54.10
	12/01/2014	\$34.85	\$7.30	\$12.70	\$0.00	\$54.85
	06/01/2015	\$35.60	\$7.30	\$12.70	\$0.00	\$55.60
	12/01/2015	\$36.35	\$7.30	\$12.70	\$0.00	\$56.35
	06/01/2016	\$37.10	\$7.30	\$12.70	\$0.00	\$57.10
	12/01/2016	\$38.10	\$7.30	\$12.70	\$0.00	\$58.10

For apprentice rates see "Apprentice- LABORER"

LABORER: CEMENT FINISHER TENDER LABORERS - ZONE 1	06/01/2014	\$34.10	\$7.30	\$12.70	\$0.00	\$54.10
	12/01/2014	\$34.85	\$7.30	\$12.70	\$0.00	\$54.85
	06/01/2015	\$35.60	\$7.30	\$12.70	\$0.00	\$55.60
	12/01/2015	\$36.35	\$7.30	\$12.70	\$0.00	\$56.35
	06/01/2016	\$37.10	\$7.30	\$12.70	\$0.00	\$57.10
	12/01/2016	\$38.10	\$7.30	\$12.70	\$0.00	\$58.10

For apprentice rates see "Apprentice- LABORER"

LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER LABORERS - ZONE 1	06/01/2014	\$34.25	\$7.30	\$12.70	\$0.00	\$54.25
	12/01/2014	\$35.00	\$7.30	\$12.70	\$0.00	\$55.00
	06/01/2015	\$35.75	\$7.30	\$12.70	\$0.00	\$55.75
	12/01/2015	\$36.50	\$7.30	\$12.70	\$0.00	\$56.50

For apprentice rates see "Apprentice- LABORER"

LABORER: MASON TENDER LABORERS - ZONE 1	06/01/2014	\$34.35	\$7.30	\$12.70	\$0.00	\$54.35
	12/01/2014	\$35.10	\$7.30	\$12.70	\$0.00	\$55.10
	06/01/2015	\$35.85	\$7.30	\$12.70	\$0.00	\$55.85
	12/01/2015	\$36.60	\$7.30	\$12.70	\$0.00	\$56.60
	06/01/2016	\$37.35	\$7.30	\$12.70	\$0.00	\$57.35
	12/01/2016	\$38.35	\$7.30	\$12.70	\$0.00	\$58.35

For apprentice rates see "Apprentice- LABORER"

<b>Classification</b>	<b>Effective Date</b>	<b>Base Wage</b>	<b>Health</b>	<b>Pension</b>	<b>Supplemental Unemployment</b>	<b>Total Rate</b>
LABORER: MULTI-TRADE TENDER <i>LABORERS - ZONE 1</i>	06/01/2014	\$34.10	\$7.30	\$12.70	\$0.00	\$54.10
	12/01/2014	\$34.85	\$7.30	\$12.70	\$0.00	\$54.85
	06/01/2015	\$35.60	\$7.30	\$12.70	\$0.00	\$55.60
	12/01/2015	\$36.35	\$7.30	\$12.70	\$0.00	\$56.35
	06/01/2016	\$37.10	\$7.30	\$12.70	\$0.00	\$57.10
	12/01/2016	\$38.10	\$7.30	\$12.70	\$0.00	\$58.10
	For apprentice rates see "Apprentice- LABORER"					
LABORER: TREE REMOVER <i>LABORERS - ZONE 1</i>	06/01/2014	\$34.10	\$7.30	\$12.70	\$0.00	\$54.10
	12/01/2014	\$34.85	\$7.30	\$12.70	\$0.00	\$54.85
	06/01/2015	\$35.60	\$7.30	\$12.70	\$0.00	\$55.60
	12/01/2015	\$36.35	\$7.30	\$12.70	\$0.00	\$56.35
	06/01/2016	\$37.10	\$7.30	\$12.70	\$0.00	\$57.10
	12/01/2016	\$38.10	\$7.30	\$12.70	\$0.00	\$58.10
	This classification applies to all tree work associated with the removal of standing trees, and trimming and removal of branches and limbs when the work is not done for a utility company for the purpose of operation, maintenance or repair of utility company equipment. For apprentice rates see "Apprentice- LABORER"					
LASER BEAM OPERATOR <i>LABORERS - ZONE 1</i>	06/01/2014	\$34.35	\$7.30	\$12.70	\$0.00	\$54.35
	12/01/2014	\$35.10	\$7.30	\$12.70	\$0.00	\$55.10
	06/01/2015	\$35.85	\$7.30	\$12.70	\$0.00	\$55.85
	12/01/2015	\$36.60	\$7.30	\$12.70	\$0.00	\$56.60
	06/01/2016	\$37.35	\$7.30	\$12.70	\$0.00	\$57.35
	12/01/2016	\$38.35	\$7.30	\$12.70	\$0.00	\$58.35
	For apprentice rates see "Apprentice- LABORER"					
MARBLE & TILE FINISHERS <i>BRICKLAYERS LOCAL 3 - MARBLE &amp; TILE</i>	02/01/2014	\$36.66	\$10.18	\$16.83	\$0.00	\$63.67
	08/01/2014	\$37.37	\$10.18	\$16.90	\$0.00	\$64.45
	02/01/2015	\$37.82	\$10.18	\$16.90	\$0.00	\$64.90
	08/01/2015	\$38.53	\$10.18	\$16.97	\$0.00	\$65.68
	02/01/2016	\$38.98	\$10.18	\$16.97	\$0.00	\$66.13
	08/01/2016	\$39.68	\$10.18	\$17.05	\$0.00	\$66.91
	02/01/2017	\$40.14	\$10.18	\$17.05	\$0.00	\$67.37

**Classification**

**Effective Date   Base Wage   Health   Pension   Supplemental Unemployment   Total Rate**

**Apprentice - MARBLE & TILE FINISHER - Local 3 Marble & Tile**

**Effective Date - 02/01/2014**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$18.33	\$10.18	\$16.83	\$0.00	\$45.34
2	60	\$22.00	\$10.18	\$16.83	\$0.00	\$49.01
3	70	\$25.66	\$10.18	\$16.83	\$0.00	\$52.67
4	80	\$29.33	\$10.18	\$16.83	\$0.00	\$56.34
5	90	\$32.99	\$10.18	\$16.83	\$0.00	\$60.00

**Effective Date - 08/01/2014**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$18.69	\$10.18	\$16.90	\$0.00	\$45.77
2	60	\$22.42	\$10.18	\$16.90	\$0.00	\$49.50
3	70	\$26.16	\$10.18	\$16.90	\$0.00	\$53.24
4	80	\$29.90	\$10.18	\$16.90	\$0.00	\$56.98
5	90	\$33.63	\$10.18	\$16.90	\$0.00	\$60.71

**Notes:**

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**Apprentice to Journeyworker Ratio:1:3**

MARBLE MASONS, TILELAYERS & TERRAZZO MECH	02/01/2014	\$48.10	\$10.18	\$18.15	\$0.00	\$76.43
BRICKLAYERS LOCAL 3 - MARBLE & TILE	08/01/2014	\$49.00	\$10.18	\$18.22	\$0.00	\$77.40
	02/01/2015	\$49.56	\$10.18	\$18.22	\$0.00	\$77.96
	08/01/2015	\$50.46	\$10.18	\$18.29	\$0.00	\$78.93
	02/01/2016	\$51.03	\$10.18	\$18.29	\$0.00	\$79.50
	08/01/2016	\$51.93	\$10.18	\$18.37	\$0.00	\$80.48
	02/01/2017	\$52.50	\$10.18	\$18.37	\$0.00	\$81.05

**Classification**

**Effective Date   Base Wage   Health   Pension   Supplemental Unemployment   Total Rate**

**Apprentice - MARBLE-TILE-TERRAZZO MECHANIC - Local 3 Marble & Tile**

**Effective Date - 02/01/2014**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.05	\$10.18	\$18.15	\$0.00	\$52.38
2	60	\$28.86	\$10.18	\$18.15	\$0.00	\$57.19
3	70	\$33.67	\$10.18	\$18.15	\$0.00	\$62.00
4	80	\$38.48	\$10.18	\$18.15	\$0.00	\$66.81
5	90	\$43.29	\$10.18	\$18.15	\$0.00	\$71.62

**Effective Date - 08/01/2014**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.50	\$10.18	\$18.22	\$0.00	\$52.90
2	60	\$29.40	\$10.18	\$18.22	\$0.00	\$57.80
3	70	\$34.30	\$10.18	\$18.22	\$0.00	\$62.70
4	80	\$39.20	\$10.18	\$18.22	\$0.00	\$67.60
5	90	\$44.10	\$10.18	\$18.22	\$0.00	\$72.50

**Notes:**

**Apprentice to Journeyworker Ratio:1:5**

MECH. SWEEPER OPERATOR (ON CONST. SITES) OPERATING ENGINEERS LOCAL 4	12/01/2013	\$40.11	\$10.00	\$14.18	\$0.00	\$64.29
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

MECHANICS MAINTENANCE OPERATING ENGINEERS LOCAL 4	12/01/2013	\$40.11	\$10.00	\$14.18	\$0.00	\$64.29
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

MILLWRIGHT (Zone 1) MILLWRIGHTS LOCAL 1121 - Zone 1	04/01/2014	\$35.73	\$9.80	\$16.21	\$0.00	\$61.74
	10/01/2014	\$36.68	\$9.80	\$16.21	\$0.00	\$62.69
	04/01/2015	\$37.64	\$9.80	\$16.21	\$0.00	\$63.65

**Classification**

**Effective Date   Base Wage   Health   Pension   Supplemental Unemployment   Total Rate**

**Apprentice - MILLWRIGHT - Local 1121 Zone 1**

**Effective Date - 04/01/2014**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$19.65	\$9.80	\$4.48	\$0.00	\$33.93
2	65	\$23.22	\$9.80	\$13.36	\$0.00	\$46.38
3	75	\$26.80	\$9.80	\$14.18	\$0.00	\$50.78
4	85	\$30.37	\$9.80	\$14.99	\$0.00	\$55.16

**Effective Date - 10/01/2014**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$20.17	\$9.80	\$4.48	\$0.00	\$34.45
2	65	\$23.84	\$9.80	\$13.36	\$0.00	\$47.00
3	75	\$27.51	\$9.80	\$14.18	\$0.00	\$51.49
4	85	\$31.18	\$9.80	\$14.99	\$0.00	\$55.97

**Notes:**

Steps are 2,000 hours

**Apprentice to Journeyworker Ratio:1:5**

MORTAR MIXER LABORERS - ZONE 1	06/01/2014	\$34.35	\$7.30	\$12.70	\$0.00	\$54.35
	12/01/2014	\$35.10	\$7.30	\$12.70	\$0.00	\$55.10
	06/01/2015	\$35.85	\$7.30	\$12.70	\$0.00	\$55.85
	12/01/2015	\$36.60	\$7.30	\$12.70	\$0.00	\$56.60
	06/01/2016	\$37.35	\$7.30	\$12.70	\$0.00	\$57.35
	12/01/2016	\$38.35	\$7.30	\$12.70	\$0.00	\$58.35

For apprentice rates see "Apprentice- LABORER"

OILER (OTHER THAN TRUCK CRANES,GRADALLS) OPERATING ENGINEERS LOCAL 4	12/01/2013	\$20.96	\$10.00	\$14.18	\$0.00	\$45.14
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

OILER (TRUCK CRANES, GRADALLS) OPERATING ENGINEERS LOCAL 4	12/01/2013	\$24.43	\$10.00	\$14.18	\$0.00	\$48.61
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

OTHER POWER DRIVEN EQUIPMENT - CLASS II OPERATING ENGINEERS LOCAL 4	12/01/2013	\$40.11	\$10.00	\$14.18	\$0.00	\$64.29
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Painter (BRIDGES/TANKS) PAINTERS LOCAL 35 - ZONE 2	07/01/2014	\$46.76	\$7.85	\$16.10	\$0.00	\$70.71
	01/01/2015	\$47.66	\$7.85	\$16.10	\$0.00	\$71.61
	07/01/2015	\$48.56	\$7.85	\$16.10	\$0.00	\$72.51
	01/01/2016	\$49.51	\$7.85	\$16.10	\$0.00	\$73.46
	07/01/2016	\$50.46	\$7.85	\$16.10	\$0.00	\$74.41
	01/01/2017	\$51.41	\$7.85	\$16.10	\$0.00	\$75.36

**Apprentice - PAINTER Local 35 - BRIDGES/TANKS**

**Effective Date - 07/01/2014**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.38	\$7.85	\$0.00	\$0.00	\$31.23
2	55	\$25.72	\$7.85	\$3.66	\$0.00	\$37.23
3	60	\$28.06	\$7.85	\$3.99	\$0.00	\$39.90
4	65	\$30.39	\$7.85	\$4.32	\$0.00	\$42.56
5	70	\$32.73	\$7.85	\$14.11	\$0.00	\$54.69
6	75	\$35.07	\$7.85	\$14.44	\$0.00	\$57.36
7	80	\$37.41	\$7.85	\$14.77	\$0.00	\$60.03
8	90	\$42.08	\$7.85	\$15.44	\$0.00	\$65.37

**Effective Date - 01/01/2015**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.83	\$7.85	\$0.00	\$0.00	\$31.68
2	55	\$26.21	\$7.85	\$3.66	\$0.00	\$37.72
3	60	\$28.60	\$7.85	\$3.99	\$0.00	\$40.44
4	65	\$30.98	\$7.85	\$4.32	\$0.00	\$43.15
5	70	\$33.36	\$7.85	\$14.11	\$0.00	\$55.32
6	75	\$35.75	\$7.85	\$14.44	\$0.00	\$58.04
7	80	\$38.13	\$7.85	\$14.77	\$0.00	\$60.75
8	90	\$42.89	\$7.85	\$15.44	\$0.00	\$66.18

**Notes:**

Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

PAINTER (SPRAY OR SANDBLAST, NEW) *	07/01/2014	\$37.66	\$7.85	\$16.10	\$0.00	\$61.61
* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used. PAINTERS LOCAL 35 - ZONE 2	01/01/2015	\$38.56	\$7.85	\$16.10	\$0.00	\$62.51
	07/01/2015	\$39.46	\$7.85	\$16.10	\$0.00	\$63.41
	01/01/2016	\$40.41	\$7.85	\$16.10	\$0.00	\$64.36
	07/01/2016	\$41.36	\$7.85	\$16.10	\$0.00	\$65.31
	01/01/2017	\$42.31	\$7.85	\$16.10	\$0.00	\$66.26

**Apprentice - PAINTER Local 35 Zone 2 - Spray/Sandblast - New**

**Effective Date - 07/01/2014**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$18.83	\$7.85	\$0.00	\$0.00	\$26.68
2	55	\$20.71	\$7.85	\$3.66	\$0.00	\$32.22
3	60	\$22.60	\$7.85	\$3.99	\$0.00	\$34.44
4	65	\$24.48	\$7.85	\$4.32	\$0.00	\$36.65
5	70	\$26.36	\$7.85	\$14.11	\$0.00	\$48.32
6	75	\$28.25	\$7.85	\$14.44	\$0.00	\$50.54
7	80	\$30.13	\$7.85	\$14.77	\$0.00	\$52.75
8	90	\$33.89	\$7.85	\$15.44	\$0.00	\$57.18

**Effective Date - 01/01/2015**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.28	\$7.85	\$0.00	\$0.00	\$27.13
2	55	\$21.21	\$7.85	\$3.66	\$0.00	\$32.72
3	60	\$23.14	\$7.85	\$3.99	\$0.00	\$34.98
4	65	\$25.06	\$7.85	\$4.32	\$0.00	\$37.23
5	70	\$26.99	\$7.85	\$14.11	\$0.00	\$48.95
6	75	\$28.92	\$7.85	\$14.44	\$0.00	\$51.21
7	80	\$30.85	\$7.85	\$14.77	\$0.00	\$53.47
8	90	\$34.70	\$7.85	\$15.44	\$0.00	\$57.99

**Notes:**

Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

PAINTER (SPRAY OR SANDBLAST, REPAINT)	07/01/2014	\$35.72	\$7.85	\$16.10	\$0.00	\$59.67
PAINTERS LOCAL 35 - ZONE 2	01/01/2015	\$36.62	\$7.85	\$16.10	\$0.00	\$60.57
	07/01/2015	\$37.52	\$7.85	\$16.10	\$0.00	\$61.47
	01/01/2016	\$38.47	\$7.85	\$16.10	\$0.00	\$62.42
	07/01/2016	\$39.42	\$7.85	\$16.10	\$0.00	\$63.37
	01/01/2017	\$40.37	\$7.85	\$16.10	\$0.00	\$64.32

**Classification**

**Effective Date    Base Wage    Health    Pension    Supplemental Unemployment    Total Rate**

**Apprentice - PAINTER Local 35 Zone 2 - Spray/Sandblast - Repaint**

**Effective Date - 07/01/2014**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$17.86	\$7.85	\$0.00	\$0.00	\$25.71
2	55	\$19.65	\$7.85	\$3.66	\$0.00	\$31.16
3	60	\$21.43	\$7.85	\$3.99	\$0.00	\$33.27
4	65	\$23.22	\$7.85	\$4.32	\$0.00	\$35.39
5	70	\$25.00	\$7.85	\$14.11	\$0.00	\$46.96
6	75	\$26.79	\$7.85	\$14.44	\$0.00	\$49.08
7	80	\$28.58	\$7.85	\$14.77	\$0.00	\$51.20
8	90	\$32.15	\$7.85	\$15.44	\$0.00	\$55.44

**Effective Date - 01/01/2015**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$18.31	\$7.85	\$0.00	\$0.00	\$26.16
2	55	\$20.14	\$7.85	\$3.66	\$0.00	\$31.65
3	60	\$21.97	\$7.85	\$3.99	\$0.00	\$33.81
4	65	\$23.80	\$7.85	\$4.32	\$0.00	\$35.97
5	70	\$25.63	\$7.85	\$14.11	\$0.00	\$47.59
6	75	\$27.47	\$7.85	\$14.44	\$0.00	\$49.76
7	80	\$29.30	\$7.85	\$14.77	\$0.00	\$51.92
8	90	\$32.96	\$7.85	\$15.44	\$0.00	\$56.25

**Notes:**

Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

PAINTER (TRAFFIC MARKINGS)	06/01/2014	\$34.10	\$7.30	\$12.70	\$0.00	\$54.10
LABORERS - ZONE 1	12/01/2014	\$34.85	\$7.30	\$12.70	\$0.00	\$54.85
	06/01/2015	\$35.60	\$7.30	\$12.70	\$0.00	\$55.60
	12/01/2015	\$36.35	\$7.30	\$12.70	\$0.00	\$56.35
	06/01/2016	\$37.10	\$7.30	\$12.70	\$0.00	\$57.10
	12/01/2016	\$38.10	\$7.30	\$12.70	\$0.00	\$58.10

For Apprentices rates see "Apprentice- LABORER"

PAINTER / TAPER (BRUSH, NEW) *	07/01/2014	\$36.26	\$7.85	\$16.10	\$0.00	\$60.21
* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used. PAINTERS LOCAL 35 - ZONE 2	01/01/2015	\$37.16	\$7.85	\$16.10	\$0.00	\$61.11
	07/01/2015	\$38.06	\$7.85	\$16.10	\$0.00	\$62.01
	01/01/2016	\$39.01	\$7.85	\$16.10	\$0.00	\$62.96
	07/01/2016	\$39.96	\$7.85	\$16.10	\$0.00	\$63.91
	01/01/2017	\$40.91	\$7.85	\$16.10	\$0.00	\$64.86

**Classification**

**Effective Date   Base Wage   Health   Pension   Supplemental Unemployment   Total Rate**

**Apprentice - PAINTER - Local 35 Zone 2 - BRUSH NEW**

**Effective Date - 07/01/2014**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$18.13	\$7.85	\$0.00	\$0.00	\$25.98
2	55	\$19.94	\$7.85	\$3.66	\$0.00	\$31.45
3	60	\$21.76	\$7.85	\$3.99	\$0.00	\$33.60
4	65	\$23.57	\$7.85	\$4.32	\$0.00	\$35.74
5	70	\$25.38	\$7.85	\$14.11	\$0.00	\$47.34
6	75	\$27.20	\$7.85	\$14.44	\$0.00	\$49.49
7	80	\$29.01	\$7.85	\$14.77	\$0.00	\$51.63
8	90	\$32.63	\$7.85	\$15.44	\$0.00	\$55.92

**Effective Date - 01/01/2015**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$18.58	\$7.85	\$0.00	\$0.00	\$26.43
2	55	\$20.44	\$7.85	\$3.66	\$0.00	\$31.95
3	60	\$22.30	\$7.85	\$3.99	\$0.00	\$34.14
4	65	\$24.15	\$7.85	\$4.32	\$0.00	\$36.32
5	70	\$26.01	\$7.85	\$14.11	\$0.00	\$47.97
6	75	\$27.87	\$7.85	\$14.44	\$0.00	\$50.16
7	80	\$29.73	\$7.85	\$14.77	\$0.00	\$52.35
8	90	\$33.44	\$7.85	\$15.44	\$0.00	\$56.73

**Notes:**  
Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

PAINTER / TAPER (BRUSH, REPAINT)	07/01/2014	\$34.32	\$7.85	\$16.10	\$0.00	\$58.27
PAINTERS LOCAL 35 - ZONE 2	01/01/2015	\$35.22	\$7.85	\$16.10	\$0.00	\$59.17
	07/01/2015	\$36.12	\$7.85	\$16.10	\$0.00	\$60.07
	01/01/2016	\$37.07	\$7.85	\$16.10	\$0.00	\$61.02
	07/01/2016	\$38.02	\$7.85	\$16.10	\$0.00	\$61.97
	01/01/2017	\$38.97	\$7.85	\$16.10	\$0.00	\$62.92

**Apprentice - PAINTER Local 35 Zone 2 - BRUSH REPAINT**

**Effective Date - 07/01/2014**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$17.16	\$7.85	\$0.00	\$0.00	\$25.01
2	55	\$18.88	\$7.85	\$3.66	\$0.00	\$30.39
3	60	\$20.59	\$7.85	\$3.99	\$0.00	\$32.43
4	65	\$22.31	\$7.85	\$4.32	\$0.00	\$34.48
5	70	\$24.02	\$7.85	\$14.11	\$0.00	\$45.98
6	75	\$25.74	\$7.85	\$14.44	\$0.00	\$48.03
7	80	\$27.46	\$7.85	\$14.77	\$0.00	\$50.08
8	90	\$30.89	\$7.85	\$15.44	\$0.00	\$54.18

**Effective Date - 01/01/2015**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$17.61	\$7.85	\$0.00	\$0.00	\$25.46
2	55	\$19.37	\$7.85	\$3.66	\$0.00	\$30.88
3	60	\$21.13	\$7.85	\$3.99	\$0.00	\$32.97
4	65	\$22.89	\$7.85	\$4.32	\$0.00	\$35.06
5	70	\$24.65	\$7.85	\$14.11	\$0.00	\$46.61
6	75	\$26.42	\$7.85	\$14.44	\$0.00	\$48.71
7	80	\$28.18	\$7.85	\$14.77	\$0.00	\$50.80
8	90	\$31.70	\$7.85	\$15.44	\$0.00	\$54.99

**Notes:**

Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

PANEL & PICKUP TRUCKS DRIVER <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	06/01/2014	\$32.23	\$9.41	\$8.80	\$0.00	\$50.44
	08/01/2014	\$32.23	\$9.91	\$8.80	\$0.00	\$50.94
	12/01/2014	\$32.23	\$9.91	\$9.33	\$0.00	\$51.47
	06/01/2015	\$32.58	\$9.91	\$9.33	\$0.00	\$51.82
	08/01/2015	\$32.58	\$10.41	\$9.33	\$0.00	\$52.32
	12/01/2015	\$32.58	\$10.41	\$10.08	\$0.00	\$53.07
	06/01/2016	\$33.08	\$10.41	\$10.08	\$0.00	\$53.57
	08/01/2016	\$33.08	\$10.91	\$10.08	\$0.00	\$54.07
PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK) <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	12/01/2016	\$33.08	\$10.91	\$10.89	\$0.00	\$54.88
	08/01/2013	\$40.10	\$9.80	\$18.17	\$0.00	\$68.07
	08/01/2014	\$41.60	\$9.80	\$18.17	\$0.00	\$69.57
PILE DRIVER <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2015	\$43.10	\$9.80	\$18.17	\$0.00	\$71.07
	08/01/2013	\$40.10	\$9.80	\$18.17	\$0.00	\$68.07
	08/01/2014	\$41.60	\$9.80	\$18.17	\$0.00	\$69.57
	08/01/2015	\$43.10	\$9.80	\$18.17	\$0.00	\$71.07

**Apprentice - PILE DRIVER - Local 56 Zone 1**

**Effective Date - 08/01/2013**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.05	\$9.80	\$18.17	\$0.00	\$48.02
2	60	\$24.06	\$9.80	\$18.17	\$0.00	\$52.03
3	70	\$28.07	\$9.80	\$18.17	\$0.00	\$56.04
4	75	\$30.08	\$9.80	\$18.17	\$0.00	\$58.05
5	80	\$32.08	\$9.80	\$18.17	\$0.00	\$60.05
6	80	\$32.08	\$9.80	\$18.17	\$0.00	\$60.05
7	90	\$36.09	\$9.80	\$18.17	\$0.00	\$64.06
8	90	\$36.09	\$9.80	\$18.17	\$0.00	\$64.06

**Effective Date - 08/01/2014**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.80	\$9.80	\$18.17	\$0.00	\$48.77
2	60	\$24.96	\$9.80	\$18.17	\$0.00	\$52.93
3	70	\$29.12	\$9.80	\$18.17	\$0.00	\$57.09
4	75	\$31.20	\$9.80	\$18.17	\$0.00	\$59.17
5	80	\$33.28	\$9.80	\$18.17	\$0.00	\$61.25
6	80	\$33.28	\$9.80	\$18.17	\$0.00	\$61.25
7	90	\$37.44	\$9.80	\$18.17	\$0.00	\$65.41
8	90	\$37.44	\$9.80	\$18.17	\$0.00	\$65.41

**Notes:**

**Apprentice to Journeyworker Ratio:1:3**

PIPEFITTER & STEAMFITTER	03/01/2014	\$48.19	\$9.20	\$16.14	\$0.00	\$73.53
PIPEFITTERS LOCAL 537	09/01/2014	\$49.19	\$9.20	\$16.14	\$0.00	\$74.53
	03/01/2015	\$50.19	\$9.20	\$16.14	\$0.00	\$75.53
	09/01/2015	\$51.19	\$9.20	\$16.14	\$0.00	\$76.53
	03/01/2016	\$52.19	\$9.20	\$16.14	\$0.00	\$77.53
	09/01/2016	\$53.19	\$9.20	\$16.14	\$0.00	\$78.53
	03/01/2017	\$54.19	\$9.20	\$16.14	\$0.00	\$79.53

**Classification**

**Effective Date    Base Wage    Health    Pension    Supplemental Unemployment    Total Rate**

**Apprentice - PIPEFITTER - Local 537**

**Effective Date - 03/01/2014**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$19.28	\$9.20	\$7.00	\$0.00	\$35.48
2	45	\$21.69	\$9.20	\$16.14	\$0.00	\$47.03
3	60	\$28.91	\$9.20	\$16.14	\$0.00	\$54.25
4	70	\$33.73	\$9.20	\$16.14	\$0.00	\$59.07
5	80	\$38.55	\$9.20	\$16.14	\$0.00	\$63.89

**Effective Date - 09/01/2014**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$19.68	\$9.20	\$7.00	\$0.00	\$35.88
2	45	\$22.14	\$9.20	\$16.14	\$0.00	\$47.48
3	60	\$29.51	\$9.20	\$16.14	\$0.00	\$54.85
4	70	\$34.43	\$9.20	\$16.14	\$0.00	\$59.77
5	80	\$39.35	\$9.20	\$16.14	\$0.00	\$64.69

**Notes:**

\*\* 1:3; 3:15; 1:10 thereafter / Steps are 1 yr.  
 Refrig/AC Mechanic \*\*1:1;1:2;2:4;3:6;4:8;5:10;6:12;7:14;8:17;9:20;10:23(Max)

**Apprentice to Journeyworker Ratio:\*\***

PIPELAYER	06/01/2014	\$34.35	\$7.30	\$12.70	\$0.00	\$54.35
LABORERS - ZONE 1	12/01/2014	\$35.10	\$7.30	\$12.70	\$0.00	\$55.10
	06/01/2015	\$35.85	\$7.30	\$12.70	\$0.00	\$55.85
	12/01/2015	\$36.60	\$7.30	\$12.70	\$0.00	\$56.60
	06/01/2016	\$37.35	\$7.30	\$12.70	\$0.00	\$57.35
	12/01/2016	\$38.35	\$7.30	\$12.70	\$0.00	\$58.35

For apprentice rates see "Apprentice- LABORER"

PLUMBERS & GASFITTERS	03/01/2014	\$49.41	\$9.82	\$14.29	\$0.00	\$73.52
PLUMBERS & GASFITTERS LOCAL 12	09/01/2014	\$50.41	\$9.82	\$14.29	\$0.00	\$74.52
	03/01/2015	\$51.41	\$9.82	\$14.29	\$0.00	\$75.52
	09/01/2015	\$52.41	\$9.82	\$14.29	\$0.00	\$76.52
	03/01/2016	\$53.56	\$9.82	\$14.29	\$0.00	\$77.67
	09/01/2016	\$54.61	\$9.82	\$14.29	\$0.00	\$78.72
	03/01/2017	\$55.61	\$9.82	\$14.29	\$0.00	\$79.72

**Classification**

**Effective Date   Base Wage   Health   Pension   Supplemental Unemployment   Total Rate**

**Apprentice - PLUMBER/GASFITTER - Local 12**

**Effective Date - 03/01/2014**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$17.29	\$9.82	\$5.33	\$0.00	\$32.44
2	40	\$19.76	\$9.82	\$6.02	\$0.00	\$35.60
3	55	\$27.18	\$9.82	\$8.08	\$0.00	\$45.08
4	65	\$32.12	\$9.82	\$9.47	\$0.00	\$51.41
5	75	\$37.06	\$9.82	\$10.85	\$0.00	\$57.73

**Effective Date - 09/01/2014**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$17.64	\$9.82	\$5.33	\$0.00	\$32.79
2	40	\$20.16	\$9.82	\$6.02	\$0.00	\$36.00
3	55	\$27.73	\$9.82	\$8.08	\$0.00	\$45.63
4	65	\$32.77	\$9.82	\$9.47	\$0.00	\$52.06
5	75	\$37.81	\$9.82	\$10.85	\$0.00	\$58.48

**Notes:**

\*\* 1:2; 2:6; 3:10; 4:14; 5:19/Steps are 1 yr  
Step4 with lic\$54.58 Step5 with lic\$60.90

**Apprentice to Journeyworker Ratio:\*\***

PNEUMATIC CONTROLS (TEMP.) PIPEFITTERS LOCAL 537	03/01/2014	\$48.19	\$9.20	\$16.14	\$0.00	\$73.53
	09/01/2014	\$49.19	\$9.20	\$16.14	\$0.00	\$74.53
	03/01/2015	\$50.19	\$9.20	\$16.14	\$0.00	\$75.53
	09/01/2015	\$51.19	\$9.20	\$16.14	\$0.00	\$76.53
	03/01/2016	\$52.19	\$9.20	\$16.14	\$0.00	\$77.53
	09/01/2016	\$53.19	\$9.20	\$16.14	\$0.00	\$78.53
	03/01/2017	\$54.19	\$9.20	\$16.14	\$0.00	\$79.53

For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"

PNEUMATIC DRILL/TOOL OPERATOR LABORERS - ZONE 1	06/01/2014	\$34.35	\$7.30	\$12.70	\$0.00	\$54.35
	12/01/2014	\$35.10	\$7.30	\$12.70	\$0.00	\$55.10
	06/01/2015	\$35.85	\$7.30	\$12.70	\$0.00	\$55.85
	12/01/2015	\$36.60	\$7.30	\$12.70	\$0.00	\$56.60
	06/01/2016	\$37.35	\$7.30	\$12.70	\$0.00	\$57.35
	12/01/2016	\$38.35	\$7.30	\$12.70	\$0.00	\$58.35

For apprentice rates see "Apprentice- LABORER"

POWDERMAN & BLASTER LABORERS - ZONE 1	06/01/2014	\$35.10	\$7.30	\$12.70	\$0.00	\$55.10
	12/01/2014	\$35.85	\$7.30	\$12.70	\$0.00	\$55.85
	06/01/2015	\$36.60	\$7.30	\$12.70	\$0.00	\$56.60
	12/01/2015	\$37.35	\$7.30	\$12.70	\$0.00	\$57.35
	06/01/2016	\$38.10	\$7.30	\$12.70	\$0.00	\$58.10
	12/01/2016	\$39.10	\$7.30	\$12.70	\$0.00	\$59.10

For apprentice rates see "Apprentice- LABORER"

POWER SHOVEL/DERRICK/TRENCHING MACHINE OPERATING ENGINEERS LOCAL 4	12/01/2013	\$40.49	\$10.00	\$14.18	\$0.00	\$64.67
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PUMP OPERATOR (CONCRETE) <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2013	\$40.49	\$10.00	\$14.18	\$0.00	\$64.67
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (DEWATERING, OTHER) <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2013	\$28.11	\$10.00	\$14.18	\$0.00	\$52.29
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
READY MIX CONCRETE DRIVERS after 4/30/10 (Drivers Hired After 4/30/2010) <i>TEAMSTERS LOCAL 25b</i>	07/01/2014	\$27.73	\$7.73	\$8.65	\$0.00	\$44.11
	05/01/2015	\$27.88	\$7.73	\$8.92	\$0.00	\$44.53
	07/01/2015	\$27.88	\$7.98	\$8.92	\$0.00	\$44.78
	05/01/2016	\$28.03	\$7.98	\$9.31	\$0.00	\$45.32
	07/01/2016	\$28.03	\$8.23	\$9.31	\$0.00	\$45.57
	05/01/2017	\$28.18	\$8.23	\$9.72	\$0.00	\$46.13
	07/01/2017	\$28.18	\$8.48	\$9.72	\$0.00	\$46.38
READY-MIX CONCRETE DRIVER <i>TEAMSTERS LOCAL 25b</i>	07/01/2014	\$29.03	\$7.73	\$8.65	\$0.00	\$45.41
	05/01/2015	\$29.18	\$7.73	\$8.92	\$0.00	\$45.83
	07/01/2015	\$29.18	\$7.98	\$8.92	\$0.00	\$46.08
	05/01/2016	\$29.33	\$7.98	\$9.31	\$0.00	\$46.62
	07/01/2016	\$29.33	\$8.23	\$9.31	\$0.00	\$46.87
	05/01/2017	\$29.48	\$8.23	\$9.72	\$0.00	\$47.43
	07/01/2017	\$29.48	\$8.48	\$9.72	\$0.00	\$47.68
RECLAIMERS <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2013	\$40.11	\$10.00	\$14.18	\$0.00	\$64.29
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
RESIDENTIAL WOOD FRAME (All Other Work) <i>CARPENTERS -ZONE 2 (Residential Wood)</i>	04/01/2011	\$24.24	\$8.67	\$15.51	\$0.00	\$48.42
RESIDENTIAL WOOD FRAME CARPENTER ** ** The Residential Wood Frame Carpenter classification applies only to the construction of new, wood frame residences that do not exceed four stories including the basement. <i>CARPENTERS -ZONE 2 (Residential Wood)</i>	05/01/2011	\$24.24	\$6.34	\$6.23	\$0.00	\$36.81
As of 9/1/09 Carpentry work on wood-frame residential WEATHERIZATION projects shall be paid the RESIDENTIAL WOOD FRAME CARPENTER rate.						

**Apprentice - CARPENTER (Residential Wood Frame) - Zone 2**

**Effective Date - 05/01/2011**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$14.54	\$6.34	\$0.00	\$0.00	\$20.88
2	60	\$14.54	\$6.34	\$6.23	\$0.00	\$27.11
3	65	\$15.76	\$6.34	\$6.23	\$0.00	\$28.33
4	70	\$16.97	\$6.34	\$6.23	\$0.00	\$29.54
5	75	\$18.18	\$6.34	\$6.23	\$0.00	\$30.75
6	80	\$19.39	\$6.34	\$6.23	\$0.00	\$31.96
7	85	\$20.60	\$6.34	\$6.23	\$0.00	\$33.17
8	90	\$21.82	\$6.34	\$6.23	\$0.00	\$34.39

**Notes:**

**Apprentice to Journeyworker Ratio:1:5**

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
RIDE-ON MOTORIZED BUGGY OPERATOR <i>LABORERS - ZONE 1</i>	06/01/2014	\$34.35	\$7.30	\$12.70	\$0.00	\$54.35
	12/01/2014	\$35.10	\$7.30	\$12.70	\$0.00	\$55.10
	06/01/2015	\$35.85	\$7.30	\$12.70	\$0.00	\$55.85
	12/01/2015	\$36.60	\$7.30	\$12.70	\$0.00	\$56.60
	06/01/2016	\$37.35	\$7.30	\$12.70	\$0.00	\$57.35
	12/01/2016	\$38.35	\$7.30	\$12.70	\$0.00	\$58.35

For apprentice rates see "Apprentice- LABORER"

ROLLER/SPREADER/MULCHING MACHINE <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2013	\$40.11	\$10.00	\$14.18	\$0.00	\$64.29
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

ROOFER (Inc.Roofing Waterproofing &Roofing Damproofg) <i>ROOFERS LOCAL 33</i>	02/01/2014	\$39.21	\$10.50	\$10.70	\$0.00	\$60.41
	08/01/2014	\$39.21	\$10.50	\$11.60	\$0.00	\$61.31
	02/01/2015	\$40.11	\$10.50	\$11.60	\$0.00	\$62.21
	08/01/2015	\$41.01	\$10.50	\$11.60	\$0.00	\$63.11
	02/01/2016	\$41.91	\$10.50	\$11.60	\$0.00	\$64.01

**Apprentice - ROOFER - Local 33**

**Effective Date - 02/01/2014**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.61	\$10.50	\$3.38	\$0.00	\$33.49
2	60	\$23.53	\$10.50	\$10.70	\$0.00	\$44.73
3	65	\$25.49	\$10.50	\$10.70	\$0.00	\$46.69
4	75	\$29.41	\$10.50	\$10.70	\$0.00	\$50.61
5	85	\$33.33	\$10.50	\$10.70	\$0.00	\$54.53

**Effective Date - 08/01/2014**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.61	\$10.50	\$3.38	\$0.00	\$33.49
2	60	\$23.53	\$10.50	\$11.60	\$0.00	\$45.63
3	65	\$25.49	\$10.50	\$11.60	\$0.00	\$47.59
4	75	\$29.41	\$10.50	\$11.60	\$0.00	\$51.51
5	85	\$33.33	\$10.50	\$11.60	\$0.00	\$55.43

**Notes: \*\* 1:5, 2:6-10, the 1:10; Reroofing: 1:4, then 1:1**  
Step 1 is 2000 hrs.; Steps 2-5 are 1000 hrs.

**Apprentice to Journeyworker Ratio:\*\***

ROOFER SLATE / TILE / PRECAST CONCRETE <i>ROOFERS LOCAL 33</i>	02/01/2014	\$39.46	\$10.50	\$10.70	\$0.00	\$60.66
	08/01/2014	\$39.46	\$10.50	\$11.60	\$0.00	\$61.56
	02/01/2015	\$40.36	\$10.50	\$11.60	\$0.00	\$62.46
	08/01/2015	\$41.26	\$10.50	\$11.60	\$0.00	\$63.36
	02/01/2016	\$42.16	\$10.50	\$11.60	\$0.00	\$64.26

For apprentice rates see "Apprentice- ROOFER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
SHEETMETAL WORKER SHEETMETAL WORKERS LOCAL 17 - A	02/01/2014	\$42.76	\$9.82	\$19.74	\$2.17	\$74.49
	08/01/2014	\$43.61	\$9.82	\$19.74	\$2.17	\$75.34
	02/01/2015	\$44.51	\$9.82	\$19.74	\$2.17	\$76.24
	08/01/2015	\$45.51	\$9.82	\$19.74	\$2.17	\$77.24
	02/01/2016	\$46.51	\$9.82	\$19.74	\$2.17	\$78.24
	08/01/2016	\$47.66	\$9.82	\$19.74	\$2.17	\$79.39
	02/01/2017	\$48.76	\$9.82	\$19.74	\$2.17	\$80.49
	08/01/2017	\$49.86	\$9.82	\$19.74	\$2.17	\$81.59
	02/01/2018	\$51.01	\$9.82	\$19.74	\$2.17	\$82.74

**Apprentice - SHEET METAL WORKER - Local 17-A**

**Effective Date - 02/01/2014**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$17.10	\$9.82	\$4.28	\$0.00	\$31.20
2	40	\$17.10	\$9.82	\$4.28	\$0.00	\$31.20
3	45	\$19.24	\$9.82	\$8.70	\$1.13	\$38.89
4	45	\$19.24	\$9.82	\$8.70	\$1.13	\$38.89
5	50	\$21.38	\$9.82	\$9.49	\$1.22	\$41.91
6	50	\$21.38	\$9.82	\$9.74	\$1.23	\$42.17
7	60	\$25.66	\$9.82	\$11.05	\$1.40	\$47.93
8	65	\$27.79	\$9.82	\$11.84	\$1.48	\$50.93
9	75	\$32.07	\$9.82	\$13.41	\$1.66	\$56.96
10	85	\$36.35	\$9.82	\$14.48	\$1.82	\$62.47

**Effective Date - 08/01/2014**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$17.44	\$9.82	\$4.28	\$0.00	\$31.54
2	40	\$17.44	\$9.82	\$4.28	\$0.00	\$31.54
3	45	\$19.62	\$9.82	\$8.70	\$1.13	\$39.27
4	45	\$19.62	\$9.82	\$8.70	\$1.13	\$39.27
5	50	\$21.81	\$9.82	\$9.49	\$1.22	\$42.34
6	50	\$21.81	\$9.82	\$9.74	\$1.23	\$42.60
7	60	\$26.17	\$9.82	\$11.05	\$1.40	\$48.44
8	65	\$28.35	\$9.82	\$11.84	\$1.48	\$51.49
9	75	\$32.71	\$9.82	\$13.41	\$1.66	\$57.60
10	85	\$37.07	\$9.82	\$14.48	\$1.82	\$63.19

**Notes:**

Steps are 6 mos.

**Apprentice to Journeyworker Ratio:1:4**

SIGN ERECTOR PAINTERS LOCAL 35 - ZONE 2	06/01/2013	\$25.81	\$7.07	\$7.05	\$0.00	\$39.93
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**Classification**

**Effective Date    Base Wage    Health    Pension    Supplemental Unemployment    Total Rate**

**Apprentice - SIGN ERECTOR - Local 35 Zone 2**

**Effective Date - 06/01/2013**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$12.91	\$7.07	\$0.00	\$0.00	\$19.98
2	55	\$14.20	\$7.07	\$2.45	\$0.00	\$23.72
3	60	\$15.49	\$7.07	\$2.45	\$0.00	\$25.01
4	65	\$16.78	\$7.07	\$2.45	\$0.00	\$26.30
5	70	\$18.07	\$7.07	\$7.05	\$0.00	\$32.19
6	75	\$19.36	\$7.07	\$7.05	\$0.00	\$33.48
7	80	\$20.65	\$7.07	\$7.05	\$0.00	\$34.77
8	85	\$21.94	\$7.07	\$7.05	\$0.00	\$36.06
9	90	\$23.23	\$7.07	\$7.05	\$0.00	\$37.35

**Notes:**  
Steps are 4 mos.

**Apprentice to Journeyworker Ratio:1:1**

SPECIALIZED EARTH MOVING EQUIP < 35 TONS <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	06/01/2014	\$32.69	\$9.41	\$8.80	\$0.00	\$50.90
	08/01/2014	\$32.69	\$9.91	\$8.80	\$0.00	\$51.40
	12/01/2014	\$32.69	\$9.91	\$9.33	\$0.00	\$51.93
	06/01/2015	\$33.04	\$9.91	\$9.33	\$0.00	\$52.28
	08/01/2015	\$33.04	\$10.41	\$9.33	\$0.00	\$52.78
	12/01/2015	\$33.04	\$10.41	\$10.08	\$0.00	\$53.53
	06/01/2016	\$33.54	\$10.41	\$10.08	\$0.00	\$54.03
	08/01/2016	\$33.54	\$10.91	\$10.08	\$0.00	\$54.53
	12/01/2016	\$33.54	\$10.91	\$10.89	\$0.00	\$55.34
SPECIALIZED EARTH MOVING EQUIP > 35 TONS <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	06/01/2014	\$32.98	\$9.41	\$8.80	\$0.00	\$51.19
	08/01/2014	\$32.98	\$9.91	\$8.80	\$0.00	\$51.69
	12/01/2014	\$32.98	\$9.91	\$9.33	\$0.00	\$52.22
	06/01/2015	\$33.33	\$9.91	\$9.33	\$0.00	\$52.57
	08/01/2015	\$33.33	\$10.41	\$9.33	\$0.00	\$53.07
	12/01/2015	\$33.33	\$10.41	\$10.08	\$0.00	\$53.82
	06/01/2016	\$33.83	\$10.41	\$10.08	\$0.00	\$54.32
	08/01/2016	\$33.83	\$10.91	\$10.08	\$0.00	\$54.82
	12/01/2016	\$33.83	\$10.91	\$10.89	\$0.00	\$55.63
SPRINKLER FITTER <i>SPRINKLER FITTERS LOCAL 550 - (Section A) Zone 1</i>	03/01/2014	\$53.58	\$8.42	\$13.60	\$0.00	\$75.60
	10/01/2014	\$54.73	\$8.42	\$13.60	\$0.00	\$76.75
	01/01/2015	\$54.73	\$8.42	\$13.75	\$0.00	\$76.90
	03/01/2015	\$55.73	\$8.42	\$13.75	\$0.00	\$77.90
	10/01/2015	\$56.88	\$8.42	\$13.75	\$0.00	\$79.05
	01/01/2016	\$56.88	\$8.67	\$13.90	\$0.00	\$79.45
	03/01/2016	\$57.88	\$8.67	\$13.90	\$0.00	\$80.45
	10/01/2016	\$59.03	\$8.67	\$13.90	\$0.00	\$81.60
	03/01/2017	\$60.03	\$8.67	\$13.90	\$0.00	\$82.60

**Apprentice - SPRINKLER FITTER - Local 550 (Section A) Zone 1**

**Effective Date - 03/01/2014**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$18.75	\$8.42	\$8.25	\$0.00	\$35.42
2	40	\$21.43	\$8.42	\$8.25	\$0.00	\$38.10
3	45	\$24.11	\$8.42	\$8.25	\$0.00	\$40.78
4	50	\$26.79	\$8.42	\$8.25	\$0.00	\$43.46
5	55	\$29.47	\$8.42	\$8.25	\$0.00	\$46.14
6	60	\$32.15	\$8.42	\$8.25	\$0.00	\$48.82
7	65	\$34.83	\$8.42	\$8.25	\$0.00	\$51.50
8	70	\$37.51	\$8.42	\$8.25	\$0.00	\$54.18
9	75	\$40.19	\$8.42	\$8.25	\$0.00	\$56.86
10	80	\$42.86	\$8.42	\$8.25	\$0.00	\$59.53

**Effective Date - 10/01/2014**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$19.16	\$8.42	\$8.25	\$0.00	\$35.83
2	40	\$21.89	\$8.42	\$8.25	\$0.00	\$38.56
3	45	\$24.63	\$8.42	\$8.25	\$0.00	\$41.30
4	50	\$27.37	\$8.42	\$8.25	\$0.00	\$44.04
5	55	\$30.10	\$8.42	\$8.25	\$0.00	\$46.77
6	60	\$32.84	\$8.42	\$8.25	\$0.00	\$49.51
7	65	\$35.57	\$8.42	\$8.25	\$0.00	\$52.24
8	70	\$38.31	\$8.42	\$8.25	\$0.00	\$54.98
9	75	\$41.05	\$8.42	\$8.25	\$0.00	\$57.72
10	80	\$43.78	\$8.42	\$8.25	\$0.00	\$60.45

**Notes:** Apprentice entered prior 9/30/10:  
40/45/50/55/60/65/70/75/80/85  
Steps are 850 hours

**Apprentice to Journeyworker Ratio:1:3**

STEAM BOILER OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2013	\$40.11	\$10.00	\$14.18	\$0.00	\$64.29
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TAMPERS, SELF-PROPELLED OR TRACTOR DRAWN <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2013	\$40.11	\$10.00	\$14.18	\$0.00	\$64.29
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TELECOMMUNICATION TECHNICIAN <i>ELECTRICIANS LOCAL 103</i>	03/01/2014	\$33.44	\$13.00	\$13.03	\$0.00	\$59.47
	09/01/2014	\$33.84	\$13.00	\$13.05	\$0.00	\$59.89
	03/01/2015	\$34.38	\$13.00	\$13.06	\$0.00	\$60.44
	09/01/2015	\$35.10	\$13.00	\$13.08	\$0.00	\$61.18
	03/01/2016	\$35.81	\$13.00	\$13.10	\$0.00	\$61.91

**Apprentice - TELECOMMUNICATION TECHNICIAN - Local 103**

**Effective Date - 03/01/2014**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$13.38	\$13.00	\$0.40	\$0.00	\$26.78
2	40	\$13.38	\$13.00	\$0.40	\$0.00	\$26.78
3	45	\$15.05	\$13.00	\$10.29	\$0.00	\$38.34
4	45	\$15.05	\$13.00	\$10.29	\$0.00	\$38.34
5	50	\$16.72	\$13.00	\$10.54	\$0.00	\$40.26
6	55	\$18.39	\$13.00	\$10.79	\$0.00	\$42.18
7	60	\$20.06	\$13.00	\$11.04	\$0.00	\$44.10
8	65	\$21.74	\$13.00	\$11.29	\$0.00	\$46.03
9	70	\$23.41	\$13.00	\$11.54	\$0.00	\$47.95
10	75	\$25.08	\$13.00	\$11.79	\$0.00	\$49.87

**Effective Date - 09/01/2014**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$13.54	\$13.00	\$0.41	\$0.00	\$26.95
2	40	\$13.54	\$13.00	\$0.41	\$0.00	\$26.95
3	45	\$15.23	\$13.00	\$10.30	\$0.00	\$38.53
4	45	\$15.23	\$13.00	\$10.30	\$0.00	\$38.53
5	50	\$16.92	\$13.00	\$10.55	\$0.00	\$40.47
6	55	\$18.61	\$13.00	\$10.80	\$0.00	\$42.41
7	60	\$20.30	\$13.00	\$11.05	\$0.00	\$44.35
8	65	\$22.00	\$13.00	\$11.30	\$0.00	\$46.30
9	70	\$23.69	\$13.00	\$11.55	\$0.00	\$48.24
10	75	\$25.38	\$13.00	\$11.80	\$0.00	\$50.18

**Notes:**

**Apprentice to Journeyworker Ratio:1:1**

TERRAZZO FINISHERS	02/01/2014	\$47.00	\$10.18	\$18.15	\$0.00	\$75.33
BRICKLAYERS LOCAL 3 - MARBLE & TILE	08/01/2014	\$47.90	\$10.18	\$18.22	\$0.00	\$76.30
	02/01/2015	\$48.46	\$10.18	\$18.22	\$0.00	\$76.86
	08/01/2015	\$49.36	\$10.18	\$18.29	\$0.00	\$77.83
	02/01/2016	\$49.93	\$10.18	\$18.29	\$0.00	\$78.40
	08/01/2016	\$50.83	\$10.18	\$18.37	\$0.00	\$79.38
	02/01/2017	\$51.40	\$10.18	\$18.37	\$0.00	\$79.95

**Classification**

**Effective Date   Base Wage   Health   Pension   Supplemental Unemployment   Total Rate**

**Apprentice - TERRAZZO FINISHER - Local 3 Marble & Tile**

**Effective Date - 02/01/2014**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.50	\$10.18	\$18.15	\$0.00	\$51.83
2	60	\$28.20	\$10.18	\$18.15	\$0.00	\$56.53
3	70	\$32.90	\$10.18	\$18.15	\$0.00	\$61.23
4	80	\$37.60	\$10.18	\$18.15	\$0.00	\$65.93
5	90	\$42.30	\$10.18	\$18.15	\$0.00	\$70.63

**Effective Date - 08/01/2014**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.95	\$10.18	\$18.22	\$0.00	\$52.35
2	60	\$28.74	\$10.18	\$18.22	\$0.00	\$57.14
3	70	\$33.53	\$10.18	\$18.22	\$0.00	\$61.93
4	80	\$38.32	\$10.18	\$18.22	\$0.00	\$66.72
5	90	\$43.11	\$10.18	\$18.22	\$0.00	\$71.51

**Notes:**

**Apprentice to Journeyworker Ratio:1:3**

TEST BORING DRILLER <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2014	\$35.45	\$7.30	\$12.90	\$0.00	\$55.65
	12/01/2014	\$36.20	\$7.30	\$12.90	\$0.00	\$56.40
	06/01/2015	\$36.95	\$7.30	\$12.90	\$0.00	\$57.15
	12/01/2015	\$37.70	\$7.30	\$12.90	\$0.00	\$57.90
	06/01/2016	\$38.45	\$7.30	\$12.90	\$0.00	\$58.65
	12/01/2016	\$39.45	\$7.30	\$12.90	\$0.00	\$59.65

For apprentice rates see "Apprentice- LABORER"

TEST BORING DRILLER HELPER <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2014	\$34.17	\$7.30	\$12.90	\$0.00	\$54.37
	12/01/2014	\$34.92	\$7.30	\$12.90	\$0.00	\$55.12
	06/01/2015	\$35.67	\$7.30	\$12.90	\$0.00	\$55.87
	12/01/2015	\$36.42	\$7.30	\$12.90	\$0.00	\$56.62
	06/01/2016	\$37.17	\$7.30	\$12.90	\$0.00	\$57.37
	12/01/2016	\$38.17	\$7.30	\$12.90	\$0.00	\$58.37

For apprentice rates see "Apprentice- LABORER"

TEST BORING LABORER <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2014	\$34.05	\$7.30	\$12.90	\$0.00	\$54.25
	12/01/2014	\$34.80	\$7.30	\$12.90	\$0.00	\$55.00
	06/01/2015	\$35.55	\$7.30	\$12.90	\$0.00	\$55.75
	12/01/2015	\$36.30	\$7.30	\$12.90	\$0.00	\$56.50
	06/01/2016	\$37.05	\$7.30	\$12.90	\$0.00	\$57.25
	12/01/2016	\$38.05	\$7.30	\$12.90	\$0.00	\$58.25

For apprentice rates see "Apprentice- LABORER"

TRACTORS/PORTABLE STEAM GENERATORS <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2013	\$40.11	\$10.00	\$14.18	\$0.00	\$64.29
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TRAILERS FOR EARTH MOVING EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	06/01/2014	\$33.27	\$9.41	\$8.80	\$0.00	\$51.48
	08/01/2014	\$33.27	\$9.91	\$8.80	\$0.00	\$51.98
	12/01/2014	\$33.27	\$9.91	\$9.33	\$0.00	\$52.51
	06/01/2015	\$33.62	\$9.91	\$9.33	\$0.00	\$52.86
	08/01/2015	\$33.62	\$10.41	\$9.33	\$0.00	\$53.36
	12/01/2015	\$33.62	\$10.41	\$10.08	\$0.00	\$54.11
	06/01/2016	\$34.12	\$10.41	\$10.08	\$0.00	\$54.61
	08/01/2016	\$34.12	\$10.91	\$10.08	\$0.00	\$55.11
	12/01/2016	\$34.12	\$10.91	\$10.89	\$0.00	\$55.92
TUNNEL WORK - COMPRESSED AIR <i>LABORERS (COMPRESSED AIR)</i>	06/01/2014	\$46.33	\$7.30	\$13.30	\$0.00	\$66.93
	12/01/2014	\$47.08	\$7.30	\$13.30	\$0.00	\$67.68
	06/01/2015	\$47.83	\$7.30	\$13.30	\$0.00	\$68.43
	12/01/2015	\$48.58	\$7.30	\$13.30	\$0.00	\$69.18
	06/01/2016	\$49.33	\$7.30	\$13.30	\$0.00	\$69.93
	12/01/2016	\$50.33	\$7.30	\$13.30	\$0.00	\$70.93
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE) <i>LABORERS (COMPRESSED AIR)</i>	06/01/2014	\$48.33	\$7.30	\$13.30	\$0.00	\$68.93
	12/01/2014	\$49.08	\$7.30	\$13.30	\$0.00	\$69.68
	06/01/2015	\$49.83	\$7.30	\$13.30	\$0.00	\$70.43
	12/01/2015	\$50.58	\$7.30	\$13.30	\$0.00	\$71.18
	06/01/2016	\$51.33	\$7.30	\$13.30	\$0.00	\$71.93
	12/01/2016	\$52.33	\$7.30	\$13.30	\$0.00	\$72.93
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR <i>LABORERS (FREE AIR TUNNEL)</i>	06/01/2014	\$38.40	\$7.30	\$13.30	\$0.00	\$59.00
	12/01/2014	\$39.15	\$7.30	\$13.30	\$0.00	\$59.75
	06/01/2015	\$39.90	\$7.30	\$13.30	\$0.00	\$60.50
	12/01/2015	\$40.65	\$7.30	\$13.30	\$0.00	\$61.25
	06/01/2016	\$41.40	\$7.30	\$13.30	\$0.00	\$62.00
	12/01/2016	\$42.40	\$7.30	\$13.30	\$0.00	\$63.00
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR (HAZ. WASTE) <i>LABORERS (FREE AIR TUNNEL)</i>	06/01/2014	\$40.40	\$7.30	\$13.30	\$0.00	\$61.00
	12/01/2014	\$41.15	\$7.30	\$13.30	\$0.00	\$61.75
	06/01/2015	\$41.90	\$7.30	\$13.30	\$0.00	\$62.50
	12/01/2015	\$42.65	\$7.30	\$13.30	\$0.00	\$63.25
	06/01/2016	\$43.40	\$7.30	\$13.30	\$0.00	\$64.00
	12/01/2016	\$44.40	\$7.30	\$13.30	\$0.00	\$65.00
For apprentice rates see "Apprentice- LABORER"						
VAC-HAUL <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	06/01/2014	\$32.69	\$9.41	\$8.80	\$0.00	\$50.90
	08/01/2014	\$32.69	\$9.91	\$8.80	\$0.00	\$51.40
	12/01/2014	\$32.69	\$9.91	\$9.33	\$0.00	\$51.93
	06/01/2015	\$33.04	\$9.91	\$9.33	\$0.00	\$52.28
	08/01/2015	\$33.04	\$10.41	\$9.33	\$0.00	\$52.78
	12/01/2015	\$33.04	\$10.41	\$10.08	\$0.00	\$53.53
	06/01/2016	\$33.54	\$10.41	\$10.08	\$0.00	\$54.03
	08/01/2016	\$33.54	\$10.91	\$10.08	\$0.00	\$54.53
	12/01/2016	\$33.54	\$10.91	\$10.89	\$0.00	\$55.34

<b>Classification</b>	<b>Effective Date</b>	<b>Base Wage</b>	<b>Health</b>	<b>Pension</b>	<b>Supplemental Unemployment</b>	<b>Total Rate</b>
WAGON DRILL OPERATOR <i>LABORERS - ZONE 1</i>	06/01/2014	\$34.35	\$7.30	\$12.70	\$0.00	\$54.35
	12/01/2014	\$35.10	\$7.30	\$12.70	\$0.00	\$55.10
	06/01/2015	\$35.85	\$7.30	\$12.70	\$0.00	\$55.85
	12/01/2015	\$36.60	\$7.30	\$12.70	\$0.00	\$56.60
	06/01/2016	\$37.35	\$7.30	\$12.70	\$0.00	\$57.35
	12/01/2016	\$38.35	\$7.30	\$12.70	\$0.00	\$58.35
For apprentice rates see "Apprentice- LABORER"						
WASTE WATER PUMP OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2013	\$40.49	\$10.00	\$14.18	\$0.00	\$64.67
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
WATER METER INSTALLER <i>PLUMBERS &amp; GASFITTERS LOCAL 12</i>	03/01/2014	\$49.41	\$9.82	\$14.29	\$0.00	\$73.52
	09/01/2014	\$50.41	\$9.82	\$14.29	\$0.00	\$74.52
	03/01/2015	\$51.41	\$9.82	\$14.29	\$0.00	\$75.52
	09/01/2015	\$52.41	\$9.82	\$14.29	\$0.00	\$76.52
	03/01/2016	\$53.56	\$9.82	\$14.29	\$0.00	\$77.67
	09/01/2016	\$54.61	\$9.82	\$14.29	\$0.00	\$78.72
	03/01/2017	\$55.61	\$9.82	\$14.29	\$0.00	\$79.72
For apprentice rates see "Apprentice- PLUMBER/PIPEFITTER" or "PLUMBER/GASFITTER"						
<b>Outside Electrical - East</b>						
CABLE TECHNICIAN (Power Zone) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/01/2013	\$25.66	\$8.70	\$4.48	\$0.00	\$38.84
For apprentice rates see "Apprentice- LINEMAN"						
CABLEMAN (Underground Ducts & Cables) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/01/2013	\$36.55	\$8.70	\$6.58	\$0.00	\$51.83
For apprentice rates see "Apprentice- LINEMAN"						
DRIVER / GROUNDMAN CDL <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/01/2013	\$29.94	\$8.70	\$6.05	\$0.00	\$44.69
For apprentice rates see "Apprentice- LINEMAN"						
DRIVER / GROUNDMAN -Inexperienced (<2000 Hrs) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/01/2013	\$23.52	\$8.70	\$5.24	\$0.00	\$37.46
For apprentice rates see "Apprentice- LINEMAN"						
EQUIPMENT OPERATOR (Class A CDL) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/01/2013	\$36.35	\$8.70	\$9.43	\$0.00	\$54.48
For apprentice rates see "Apprentice- LINEMAN"						
EQUIPMENT OPERATOR (Class B CDL) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/01/2013	\$32.08	\$8.70	\$6.59	\$0.00	\$47.37
For apprentice rates see "Apprentice- LINEMAN"						
GROUNDMAN <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/01/2013	\$23.52	\$8.70	\$3.72	\$0.00	\$35.94
For apprentice rates see "Apprentice- LINEMAN"						
GROUNDMAN -Inexperienced (<2000 Hrs.) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/01/2013	\$19.25	\$8.70	\$2.85	\$0.00	\$30.80
For apprentice rates see "Apprentice- LINEMAN"						
JOURNEYMAN LINEMAN <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/01/2013	\$42.77	\$8.70	\$11.78	\$0.00	\$63.25

**Apprentice - LINEMAN (Outside Electrical) - East Local 104**

**Effective Date - 09/01/2013**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$25.66	\$8.70	\$4.24	\$0.00	\$38.60
2	65	\$27.80	\$8.70	\$4.71	\$0.00	\$41.21
3	70	\$29.94	\$8.70	\$5.43	\$0.00	\$44.07
4	75	\$32.08	\$8.70	\$6.16	\$0.00	\$46.94
5	80	\$34.22	\$8.70	\$6.88	\$0.00	\$49.80
6	85	\$36.35	\$8.70	\$7.62	\$0.00	\$52.67
7	90	\$38.49	\$8.70	\$8.83	\$0.00	\$56.02

**Notes:**

**Apprentice to Journeyworker Ratio:1:2**

TELEDATA CABLE SPLICER <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	07/16/2012	\$26.33	\$4.18	\$2.79	\$0.00	\$33.30
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TELEDATA LINEMAN/EQUIPMENT OPERATOR <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	07/16/2012	\$24.78	\$4.18	\$2.74	\$0.00	\$31.70
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TELEDATA WIREMAN/INSTALLER/TECHNICIAN <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	07/16/2012	\$24.78	\$4.18	\$2.74	\$0.00	\$31.70
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TREE TRIMMER <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	01/29/2012	\$17.18	\$3.37	\$0.00	\$0.00	\$20.55
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This classification applies only to tree work done: (a) for a utility company, R.E.A. cooperative, or railroad or coal mining company, and (b) for the purpose of operating, maintaining, or repairing the utility company's equipment, and (c) by a person who is using hand or mechanical cutting methods and is not on the ground. This classification does not apply to wholesale tree removal.

TREE TRIMMER GROUNDMAN <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	01/29/2012	\$15.15	\$3.37	\$0.00	\$0.00	\$18.52
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This classification applies only to tree work done: (a) for a utility company, R.E.A. cooperative, or railroad or coal mining company, and (b) for the purpose of operating, maintaining, or repairing the utility company's equipment, and (c) by a person who is using hand or mechanical cutting methods and is on the ground. This classification does not apply to wholesale tree removal.

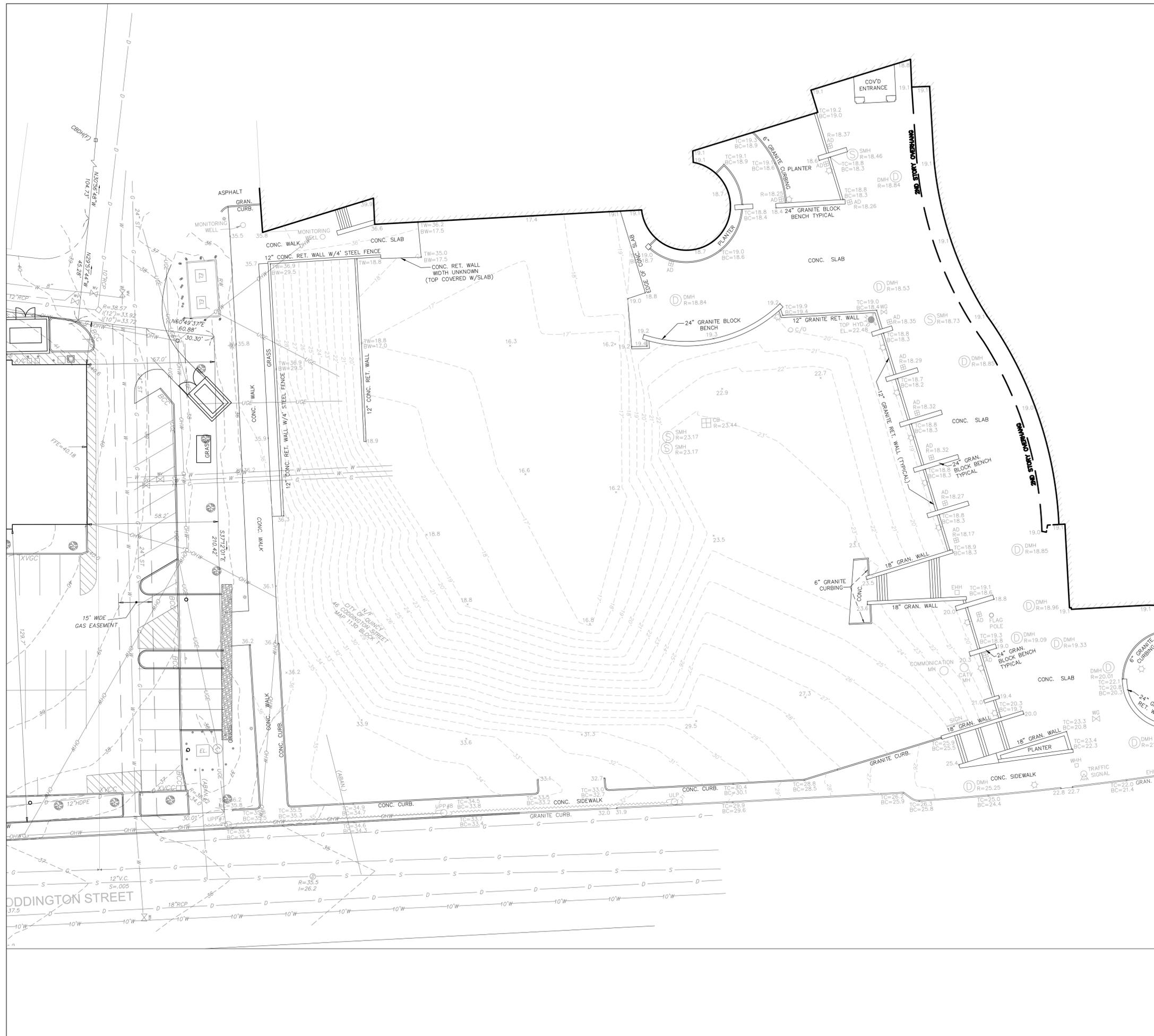
**Additional Apprentice Information:**

Minimum wage rates for apprentices employed on public works projects are listed above as a percentage of the pre-determined hourly wage rate established by the Commissioner under the provisions of the M.G.L. c. 149, ss. 26-27D. Apprentice ratios are established by the Division of Apprenticeship Training pursuant to M.G.L. c. 23, ss. 11E-11L.

All apprentices must be registered with the Division of Apprenticeship Training in accordance with M.G.L. c. 23, ss. 11E-11L.

All steps are six months (1000 hours) unless otherwise specified.

- \* Ratios are expressed in allowable number of apprentices to journeymen or fraction thereof.
- \*\* Multiple ratios are listed in the comment field.
- \*\*\* APP to JM; 1:1, 2:2, 2:3, 3:4, 4:4, 4:5, 4:6, 5:7, 6:7, 6:8, 6:9, 7:10, 8:10, 8:11, 8:12, 9:13, 10:13, 10:14, etc.
- \*\*\*\* APP to JM; 1:1, 1:2, 2:3, 2:4, 3:5, 4:6, 4:7, 5:8, 6:9, 6:10, 7:11, 8:12, 8:13, 9:14, 10:15, 10:16, etc.



**HALVORSON DESIGN PARTNERSHIP**  
 LANDSCAPE ARCHITECTURE  
 25 KIMBARTON ST., BOSTON, MA 02112-2000  
 PHONE: 617-552-0200 FAX: 617-552-0204  
 WWW.HALVORSONDESIGN.COM

**OLD QUINCY HIGH GREEN SPACE**  
 QUINCY, MASSACHUSETTS

REVISIONS

PROJECT NO:  
 DRAWN BY: SL  
 CHECKED BY: CK  
 SCALE: 1"=20'-0"

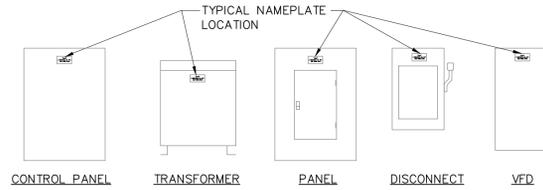
CONSTRUCTION DOCUMENTS

ELECTRICAL SPECIFIC

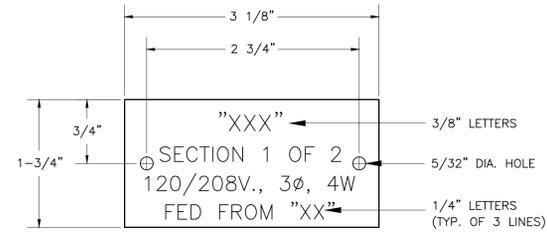
JUNE 27, 2014

EXISTING CONDITIONS

**L0.0**



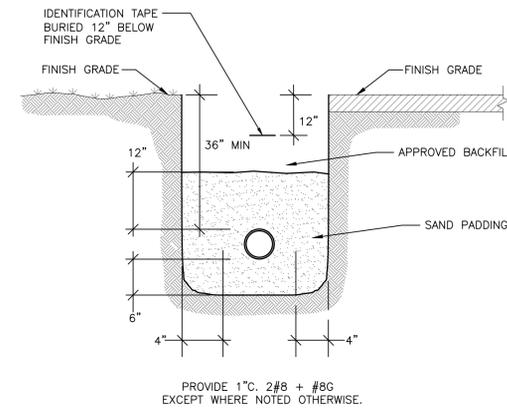
**4** TYPICAL EQUIPMENT LABEL LOCATION  
SCALE: N/A



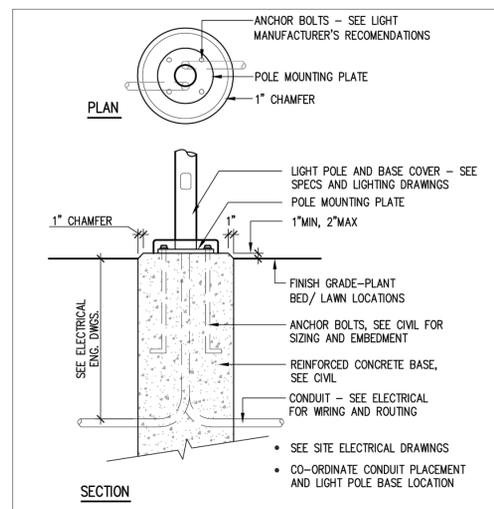
- NOTES:**
- REFER TO SPECIFICATIONS FOR ADDITIONAL NAMEPLATE REQUIREMENTS.
  - NAMEPLATE TO BE 1/16" WHITE PLASTIC WITH BLACK CENTER LAMINATION. FACE TO BE WHITE, ENGRAVED LETTERS TO BE BLACK.
  - SECURE NAMEPLATE TO SURFACES WITH (2) FLATHEAD STAINLESS STEEL SCREWS. ADHESIVE CEMENT SHALL NOT BE PERMITTED.
  - AT A MINIMUM, ALL PANELBOARDS, DISCONNECT SWITCHES, JUNCTION / PULL BOXES AND CONTROL PANELS SHALL BE PROVIDED WITH ENGRAVED LABELS.

**5** TYPICAL EQUIPMENT LABEL DETAIL  
SCALE: N/A

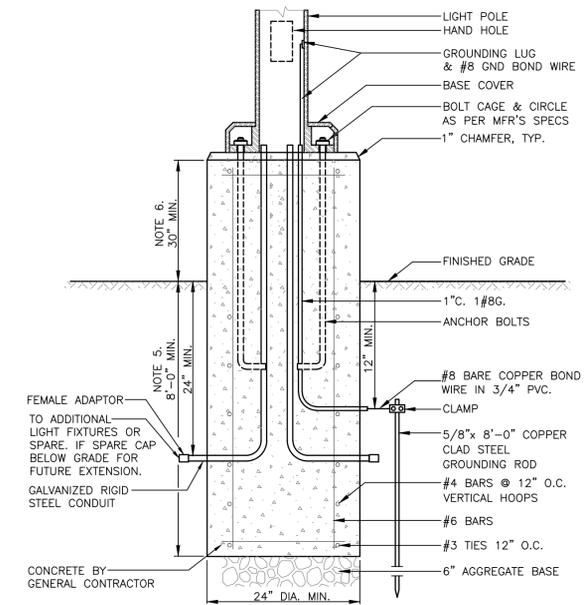
LUMINAIRE SCHEDULE					
TYPE	DESCRIPTION	MANUFACTURER AND CATALOG NUMBER	LAMPS		VOLT.
			QTY.	TYPE	
A	DECORATIVE POST TOP AREA LIGHT LED, SIMILAR TO CITY OF QUINCY STANDARD	SUN VALLEY LIGHTING GLRC-YE-LED VPA-V 80LED NW 277 PT RAL-9005-T BF, H, DIM	1	80W LED	277
B	DECORATIVE POST TOP AREA LIGHT RELOCATED EXISTING LIGHT SALVAGED FROM DEMO	-	1	175W PSMH	277
EE	DECORATIVE POST TOP AREA LIGHT LED, SIMILAR TO CODDINGTON HALL STANDARD	SUN VALLEY LIGHTING -	1	71W LED	277



**3** TYPICAL TRENCH SECTION  
SCALE: N/A



**2** TYPICAL POLE BASE DETAIL FOR WALKWAY LIGHTS ONLY  
SCALE: N/A



**1** TYPICAL LIGHT POLE BASE DETAIL  
SCALE: N/A

- NOTES:**
- SITE LIGHTING CONTROLLED VIA LIGHTING CONTACTOR, PHOTO CELL (ON) AND TIME SWITCH (OFF).
  - CONDUCTOR SIZES SHOWN ON HOMERUNS SHALL BE CARRIED TYPICAL THROUGHOUT THE CIRCUIT.
  - E.C. SHALL PROVIDE A CONTINUOUS EQUIPMENT GROUNDING CONDUCTOR AND (1) GROUND ROD AT EACH POLE TO ASSIST IN LIGHTNING PROTECTION.
  - FURNISH POLE BASE TEMPLATE TO GENERAL CONTRACTOR PRIOR TO CONCRETE POUR.
  - COORDINATE ACTUAL POLE BASE DEPTH WITH CIVIL ENGINEER. POLE BASE DEPTH SHALL BE BASED UPON ACTUAL SOIL CONDITIONS.
  - POLE BASE HEIGHT ABOVE FINISHED GRADE SHALL BE COORDINATED WITH CIVIL ENGINEER PRIOR TO INSTALLATION. BASES WITHIN 36" OF MOTOR VEHICLE TRAFFIC SHALL BE 30" AFG. BASES NOT SUBJECT TO MOTOR VEHICLE TRAFFIC SHALL BE MINIMUM 4" AFG.

**HALVORSON DESIGN PARTNERSHIP**  
LANDSCAPE ARCHITECTURE

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**Match Engineering Incorporated**  
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**OLD QUINCY HIGH GREEN SPACE**  
QUINCY, MASSACHUSETTS

REVISIONS

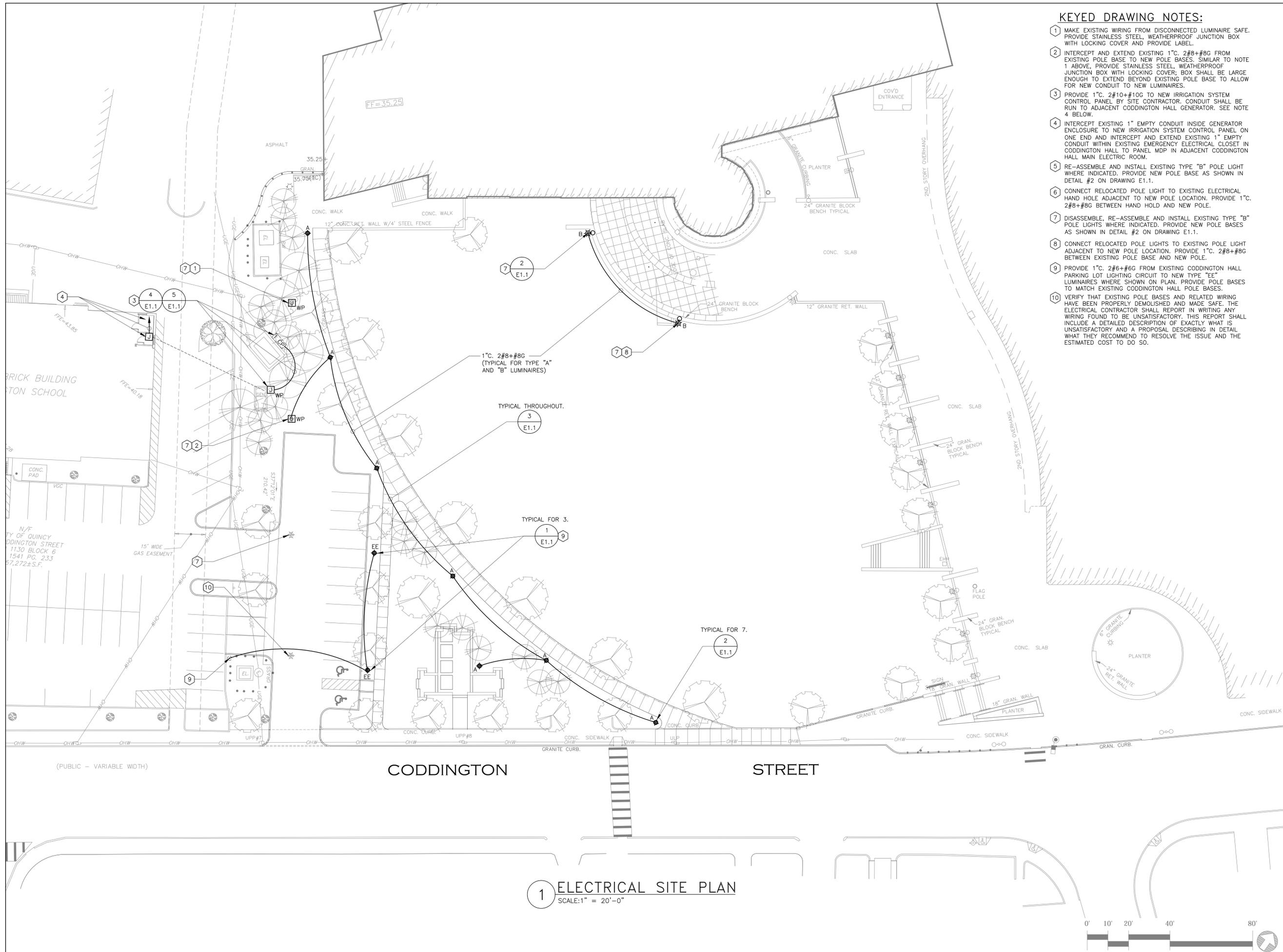
PROJECT NO: 13018  
DRAWN BY: WSJ  
CHECKED BY: HGG  
SCALE: AS NOTED

CONSTRUCTION DOCUMENTS

JUNE 27, 2014

**ELECTRICAL SITE DETAILS**

**E1.1**



**KEYED DRAWING NOTES:**

- 1 MAKE EXISTING WIRING FROM DISCONNECTED LUMINAIRE SAFE. PROVIDE STAINLESS STEEL, WEATHERPROOF JUNCTION BOX WITH LOCKING COVER AND PROVIDE LABEL.
- 2 INTERCEPT AND EXTEND EXISTING 1" 2#8+#8G FROM EXISTING POLE BASE TO NEW POLE BASES. SIMILAR TO NOTE 1 ABOVE. PROVIDE STAINLESS STEEL, WEATHERPROOF JUNCTION BOX WITH LOCKING COVER; BOX SHALL BE LARGE ENOUGH TO EXTEND BEYOND EXISTING POLE BASE TO ALLOW FOR NEW CONDUIT TO NEW LUMINAIRES.
- 3 PROVIDE 1" 2#10+#10G TO NEW IRRIGATION SYSTEM CONTROL PANEL BY SITE CONTRACTOR. CONDUIT SHALL BE RUN TO ADJACENT CODDINGTON HALL GENERATOR. SEE NOTE 4 BELOW.
- 4 INTERCEPT EXISTING 1" EMPTY CONDUIT INSIDE GENERATOR ENCLOSURE TO NEW IRRIGATION SYSTEM CONTROL PANEL ON ONE END AND INTERCEPT AND EXTEND EXISTING 1" EMPTY CONDUIT WITHIN EXISTING EMERGENCY ELECTRICAL CLOSET IN CODDINGTON HALL TO PANEL MDP IN ADJACENT CODDINGTON HALL MAIN ELECTRIC ROOM.
- 5 RE-ASSEMBLE AND INSTALL EXISTING TYPE "B" POLE LIGHT WHERE INDICATED. PROVIDE NEW POLE BASE AS SHOWN IN DETAIL #2 ON DRAWING E1.1.
- 6 CONNECT RELOCATED POLE LIGHT TO EXISTING ELECTRICAL HAND HOLE ADJACENT TO NEW POLE LOCATION. PROVIDE 1" 2#8+#8G BETWEEN HAND HOLE AND NEW POLE.
- 7 DISASSEMBLE, RE-ASSEMBLE AND INSTALL EXISTING TYPE "B" POLE LIGHTS WHERE INDICATED. PROVIDE NEW POLE BASES AS SHOWN IN DETAIL #2 ON DRAWING E1.1.
- 8 CONNECT RELOCATED POLE LIGHTS TO EXISTING POLE LIGHT ADJACENT TO NEW POLE LOCATION. PROVIDE 1" 2#8+#8G BETWEEN EXISTING POLE BASE AND NEW POLE.
- 9 PROVIDE 1" 2#6+#6G FROM EXISTING CODDINGTON HALL PARKING LOT LIGHTING CIRCUIT TO NEW TYPE "EE" LUMINAIRES WHERE SHOWN ON PLAN. PROVIDE POLE BASES TO MATCH EXISTING CODDINGTON HALL POLE BASES.
- 10 VERIFY THAT EXISTING POLE BASES AND RELATED WIRING HAVE BEEN PROPERLY DEMOLISHED AND MADE SAFE. THE ELECTRICAL CONTRACTOR SHALL REPORT IN WRITING ANY WIRING FOUND TO BE UNSATISFACTORY. THIS REPORT SHALL INCLUDE A DETAILED DESCRIPTION OF EXACTLY WHAT IS UNSATISFACTORY AND A PROPOSAL DESCRIBING IN DETAIL WHAT THEY RECOMMEND TO RESOLVE THE ISSUE AND THE ESTIMATED COST TO DO SO.

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LANDSCAPE ARCHITECTURE

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**M&C ENGINEERING INCORPORATED**  
197 Quincy Avenue, Braintree, MA 02184  
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**OLD QUINCY HIGH  
GREEN SPACE**  
QUINCY, MASSACHUSETTS

**REVISIONS**

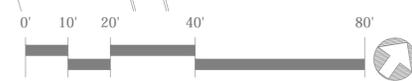
PROJECT NO:	13018
DRAWN BY:	WSJ
CHECKED BY:	HGG
SCALE:	1"=20'-0"

**CONSTRUCTION DOCUMENTS**

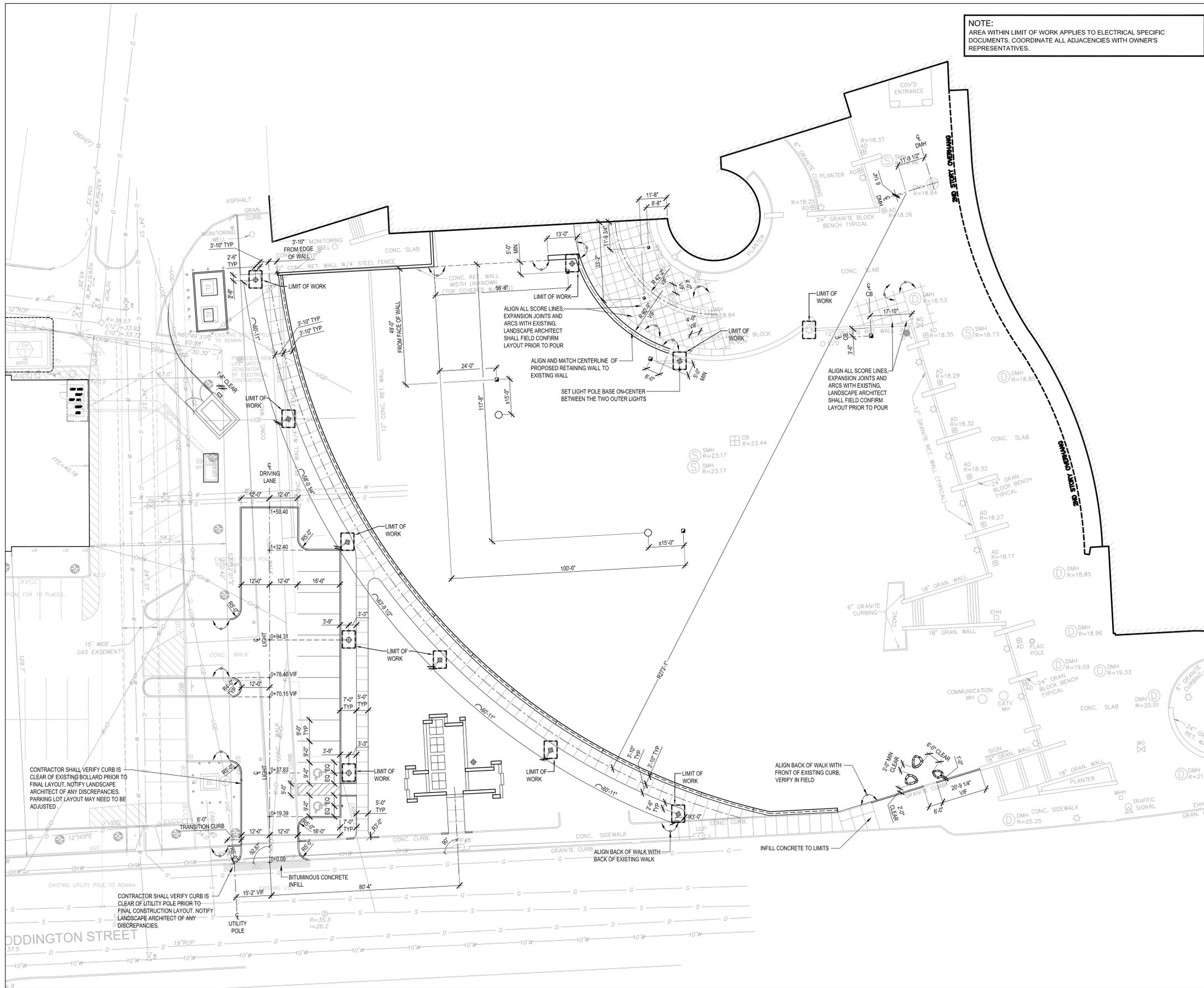
JUNE 27, 2014  
**ELECTRICAL SITE PLAN**

**E1.0**

**1 ELECTRICAL SITE PLAN**  
SCALE: 1" = 20'-0"







**NOTE:**  
 AREA WITHIN LIMIT OF WORK APPLIES TO ELECTRICAL SPECIFIC DOCUMENTS. COORDINATE ALL ADJACENCIES WITH OWNER'S REPRESENTATIVES.

SYMBOL	DESCRIPTION
	LIMIT OF WORK
	CENTER LINE
	ALIGN
	ARC LENGTH
	VERIFY IN FIELD

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# OLD QUINCY HIGH GREEN SPACE

QUINCY, MASSACHUSETTS

REVISIONS

PROJECT NO:  
 DRAWN BY: SL  
 CHECKED BY: CK  
 SCALE: 1"=20'-0"

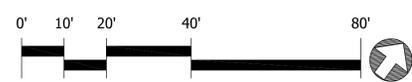
CONSTRUCTION DOCUMENTS

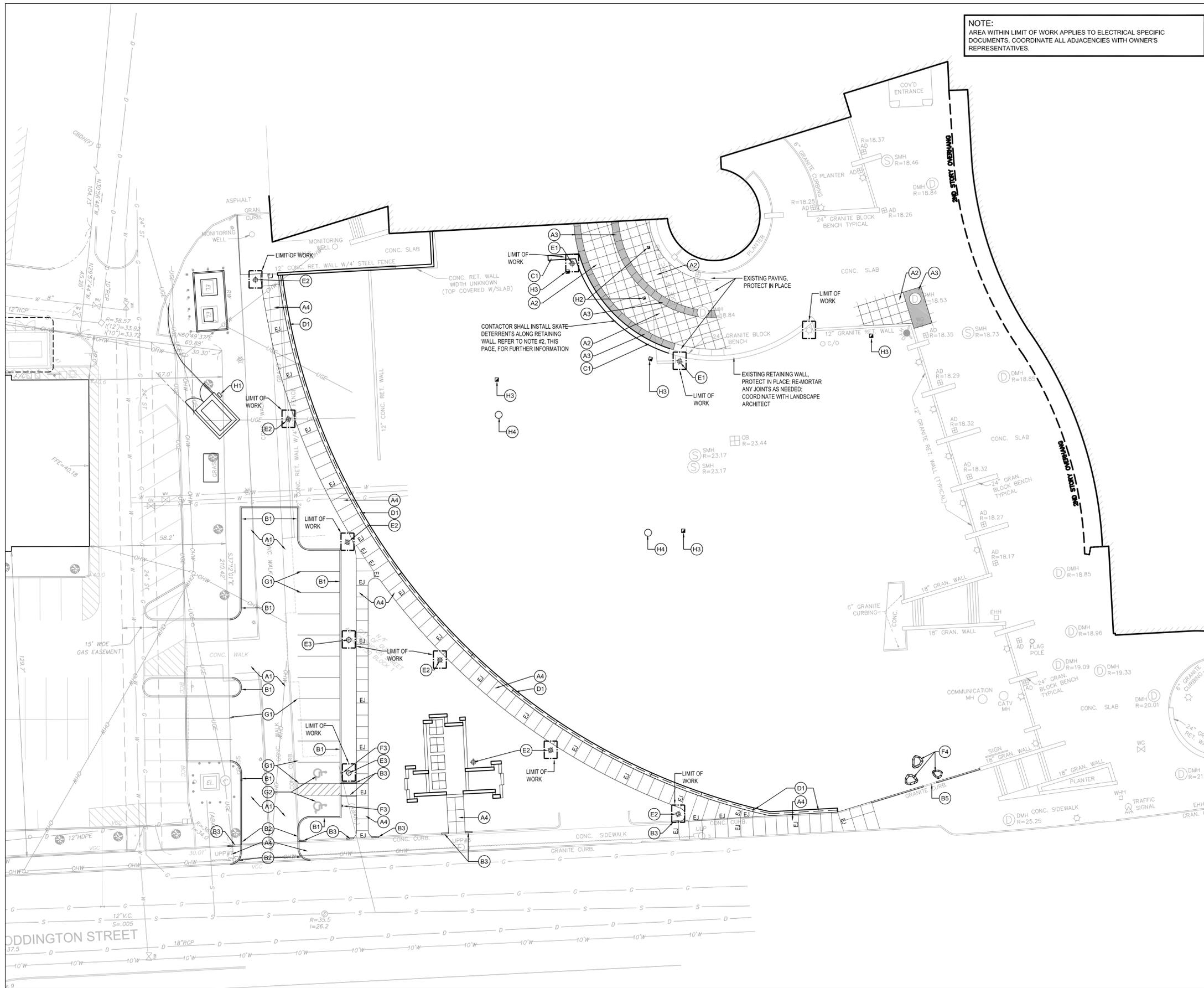
ELECTRICAL SPECIFIC

JUNE 27, 2014

LAYOUT PLAN

L2.0





SYMBOL	TAG	DESCRIPTION	DETAIL
<b>GENERAL SITE</b>			
LIMIT OF WORK			
<b>PAVING</b>			
(A1)		BITUMINOUS CONCRETE	(1) L5.0
(A2)		INTEGRALLY COLORED CONCRETE PAVING - TYPE A	(2) L5.0
(A3)		INTEGRALLY COLORED CONCRETE PAVING - TYPE B	(2) L5.0
(A4)		PORTLAND CEMENT CONCRETE PAVING	(2) L5.0
(A6)		STONE PAVING SLAB	(3) L5.0
(A7)		EXPOSED AGGREGATE CONCRETE PAVING	(2) L5.0
<b>CURBING</b>			
(B1)		VEHICULAR CURB	(4) L5.0
(B2)		TRANSITION CURB - VEHICULAR	(5) L5.0
(B3)		TRANSITION CURB - PEDESTRIAN	(6) L5.0
(B4)		FLUSH CURB	(7) L5.0
(B5)		EXISTING CURB - SAW CUT	(8) L5.0
<b>WALLS</b>			
(C1)		STONE CURVED RETAINING WALL	(4) L5.1
(C2)		FREESTANDING SEAT WALL	(2) L5.1
(C3)		CORNERSTONE	
(C4)		COURT HOUSE ENGRAVING - COORDINATE WITH LANDSCAPE ARCHITECT	
<b>FENCES AND RAILS</b>			
(D1)		SITE FENCE - INSTALL UNDER OWNER'S DIRECTION	
<b>SITE LIGHTING AND ELECTRICAL - SEE ELECTRICAL PLANS</b>			
(E1)		POLE LIGHT - EXISTING PEDESTRIAN REUSED	
(E2)		POLE LIGHT - PEDESTRIAN	
(E3)		POLE LIGHT - VEHICULAR	
<b>FURNISHINGS</b>			
(F1)		TRASH RECEPTACLE	(2) L5.2
(F2)		RECYCLING RECEPTACLE	(2) L5.2
(F3)		ACCESSIBLE PARKING SPACE SIGNAGE	(3) L5.2
(F4)		BOULDER, LOCATION MAY VARY; COORDINATE WITH CITY OFFICIALS	(9) L5.0
<b>MISCELLANEOUS</b>			
(G1)		PARKING LOT STRIPING	(4) L5.2
<b>UTILITIES</b>			
(H1)		WALL MOUNTED IRRIGATION CONTROL BOX	
(H2)		AREA DRAIN	(5) L5.2
(H3)		CATCH BASIN	(8) L5.2
(H4)		DRY WELL	(1) L5.2

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**OLD QUINCY HIGH GREEN SPACE**  
QUINCY, MASSACHUSETTS

REVISIONS

PROJECT NO: 13018  
DRAWN BY: SL  
CHECKED BY: CK  
SCALE: 1"=20'-0"

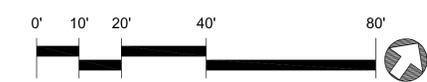
CONSTRUCTION DOCUMENTS

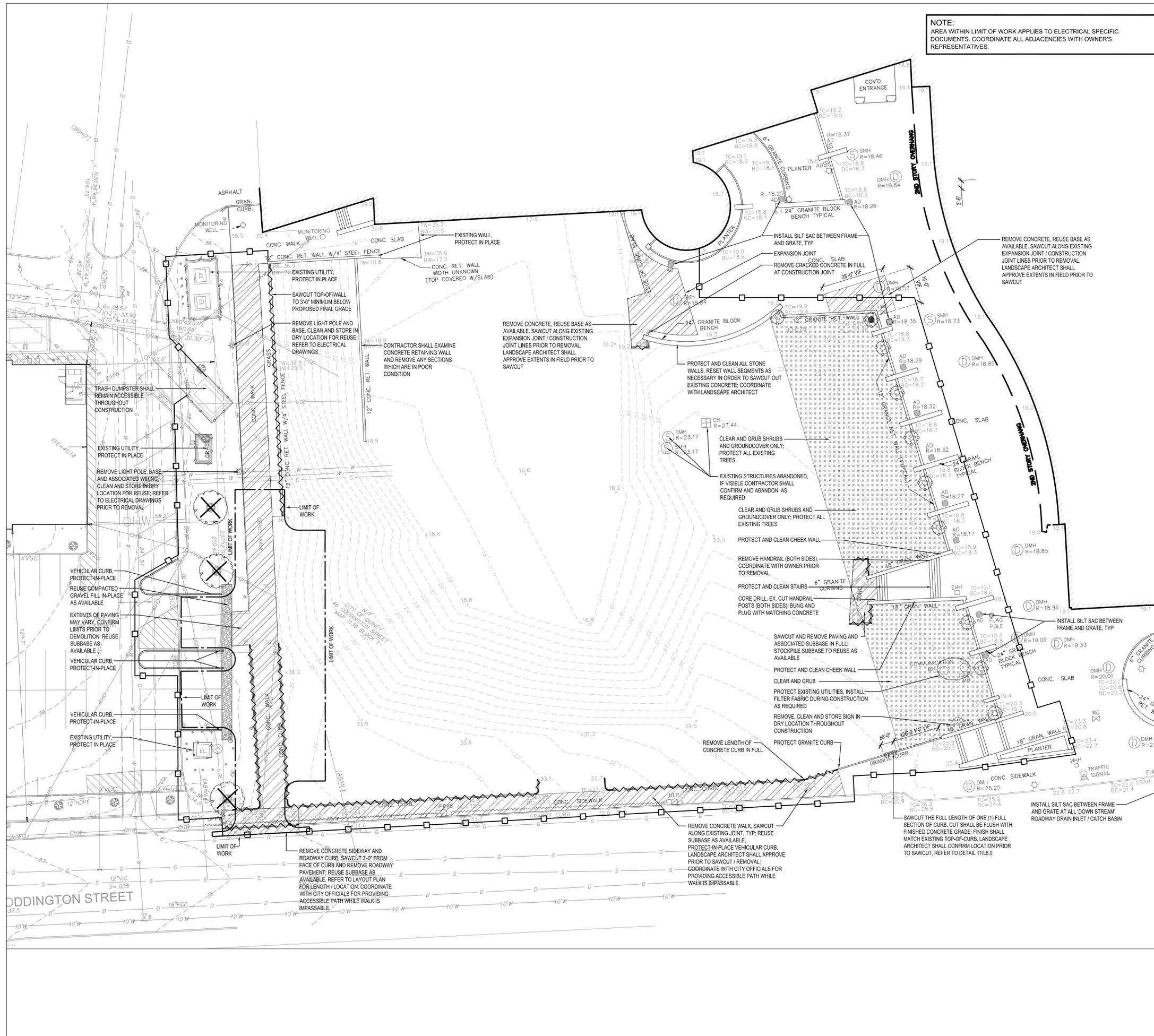
ELECTRICAL SPECIFIC

JUNE 27, 2014

MATERIALS PLAN

L1.0





**NOTE:**  
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**SITE PREPARATION AND DEMOLITION LEGEND**

SYMBOL	DESCRIPTION
—	LIMIT OF WORK
□	CONSTRUCTION FENCE
○	PROTECT IN PLACE, INSTALL CONSTRUCTION FENCE AS NECESSARY; COORDINATE WITH LANDSCAPE ARCHITECT
⊗	REMOVE TREE IN FULL
~	SAWCUT, DEMO AND DISPOSE PORTION OF EXISTING CURB AND / OR WALL
▨	DEMO EXISTING PAVING AND REUSE EXISTING BASE AS AVAILABLE. LANDSCAPE ARCHITECT SHALL VERIFY EXTENTS OF REMOVAL PRIOR TO DEMOLITION
▩	SAWCUT EXISTING CURB FLUSH TO ADJACENT PAVING
*****	CLEAR AND GRUB EXISTING LAWN AND PLANT MATERIAL. REMOVE AND STOCKPILE TOPSOIL

**DEMOLITION AND SALVAGE NOTES:**

- EXISTING CONDITIONS SURVEY WAS PROVIDED BY NEPONSET VALLEY SURVEY ASSOCIATION, INC (NVA), 95 WHITE STREET, QUINCY, MASSACHUSETTS, 02169
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR A THOROUGH SITE EXAMINATION TO DETERMINE THE EXTENT OF DEMOLITION NECESSARY TO PREPARE THE SITE FOR CONSTRUCTION AND SHALL VERIFY ITEMS TO BE DEMOLISHED OR SALVAGED WITH THE OWNER PRIOR TO BEGINNING WORK.
- CARE SHALL BE TAKEN NOT TO DAMAGE ITEMS DESIGNATED TO REMAIN OR DESIGNATED TO BE SALVAGED; REPAIR OR REPLACEMENT OF DAMAGED ITEMS THEREBY DESIGNATED SHALL BE AT THE CONTRACTOR'S EXPENSE.
- DISPOSAL OF ITEMS DESIGNATED TO BE REMOVED SHALL CONFORM TO APPLICABLE LAWS AND REGULATIONS. SALVAGEABLE MATERIAL SHALL BE DELIVERED BY THE CONTRACTOR TO STORAGE AREAS NEAR THE MAINTENANCE YARD ON SITE AS DESIGNATED BY THE OWNER. A PLAN INDICATING AREAS FOR STOCKPILING MATERIALS SHALL BE SUBMITTED TO THE OWNER FOR APPROVAL PRIOR TO BEGINNING WORK.
- REFER TO SITE UTILITY PLANS FOR UTILITY SITE PREPARATION AND DEMOLITION INFORMATION. VERIFY ALL UTILITY LOCATIONS PRIOR TO EXCAVATION. REPORT DISCREPANCIES OR CONFLICTS IN WRITING TO THE DESIGNER AND RECEIVE INSTRUCTIONS PRIOR TO PROCEEDING.
- CONTRACTOR IS RESPONSIBLE TO REPAIR DAMAGE DUE TO CONSTRUCTION OPERATIONS INSIDE AND OUTSIDE THE LIMIT OF WORK LINE.
- REFER TO CIVIL DWGS FOR EROSION PREVENTION AND SEDIMENT CONTROL MEASURES.
- ERECT AND MAINTAIN CONSTRUCTION FENCING SURROUNDING PARK LIMIT OF WORK FOR DURATION OF CONSTRUCTION OPERATIONS. CONSTRUCTION FENCING SHALL BE CHAINLINK WITH DUST SCREENING SET WITH TEMPORARY BASES WITH GATES AS NEEDED (SEE SPECS). CONTRACTOR SHALL MAINTAIN FENCING THROUGHOUT CONSTRUCTION IN PLUMB CONDITION. ANY DAMAGED FENCING OR SCREENING SHALL BE REPLACED IMMEDIATELY BY CONTRACTOR.
- ERECT AND MAINTAIN CONSTRUCTION FENCING IN ROADWAY AND SIDEWALK LIMITS AS CONSTRUCTION PHASING REQUIRES. SCHEDULE AND COORDINATE UTILITY, SIDEWALK, ROADWAY, AND STREETSCAPE WORK IN PUBLIC WAY TO MINIMIZE IMPACTS TO PUBLIC ACCESS AND PROTECT NEW WORK. PROVIDE PEDESTRIAN AND VEHICULAR ACCESS PLANS TO DESIGNER FOR REVIEW AND APPROVAL PRIOR TO PERFORMING WORK IN PUBLIC WAY OR ERECTING/RELOCATING CONSTRUCTION FENCES.
- REMOVE APPROXIMATELY 6" OF TOP SOIL FROM LAWN AREAS AND 1'-0" FROM PLANTING AREAS OF EXISTING PARK SITE AND STOCKPILE FOR RE-USE. PRIOR TO REUSE, CONTRACTOR TO TEST SOIL TO VERIFY COMPLIANCE WITH SPECIFICATION REQUIREMENTS FOR NEW PURPOSE. SOIL AMENDMENTS REQUIRED TO BRING SOIL INTO COMPLIANCE AS DESCRIBED IN SPECIFICATIONS.
- EXCESS SOILS TO BE LEGALLY DISPOSED OF OFF SITE BY CONTRACTOR. DETERMINE VOLUME OF SOILS FOR EXPORT, IMPORT, AND RE-USE TO MEET THE DESIGN INTENT AND DETAILING SET FORTH IN THIS DRAWING SET. CONTRACTOR TO PROVIDE ALL IMPORT SOIL PER PROJECT REQUIREMENTS.
- CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL ITEMS TO COMPLETE THE REQUIRED IMPROVEMENT WORK WHETHER OR NOT EACH ITEM TO BE REMOVED HAS BEEN SPECIFICALLY NOTED.

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**OLD QUINCY HIGH GREEN SPACE**  
 QUINCY, MASSACHUSETTS

REVISIONS

NO.	DESCRIPTION	DATE

PROJECT NO: \_\_\_\_\_  
 DRAWN BY: SL  
 CHECKED BY: CK  
 SCALE: 1"=20'-0"

**CONSTRUCTION DOCUMENTS**

**ELECTRICAL SPECIFIC**

JUNE 27, 2014

**SITE PREP AND DEMO PLAN**

**L0.1**

