

CITY OF NEWTON
PURCHASING DEPARTMENT

CONTRACT FOR PARKS, RECREATION & CULTURE
FIELD LIGHTING

PROJECT MANUAL:
NEWTON SOUTH HIGH SCHOOL FIELD
LIGHTING INSTALLATION
INVITATION FOR BID #20-71

Pre-Bid Meeting: April 16, 2020 at 11:00 a.m.

Bid Opening Date: April 23, 2020 at 11:00 a.m.

APRIL 2020

Ruthanne Fuller, Mayor

CITY OF NEWTON

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END OF SECTION

CITY OF NEWTON
PURCHASING DEPARTMENT
INVITATION FOR BID #20-71

The City of Newton invites sealed bids in accordance with M.G.L. c. 30, §39M from Contractors for:

NEWTON SOUTH HIGH SCHOOL FIELD LIGHTING INSTALLATION

Pre-Bid Meeting: **11:00 a.m., Thursday, April 16, 2020, Newton South High School, Winkler Stadium, 140 Brandeis Rd, Newton, MA (Not Mandatory)**

Bids will be received until: **11:00 a.m., Thursday, April 23, 2020***
at the Purchasing Department, Room 201, Newton City Hall, 1000 Commonwealth Avenue, Newton, MA 02459. Bids will not be accepted nor may submitted bids be corrected, modified or withdrawn after the deadline for bids. Immediately following the deadline for bids, all bids received within the time specified will be publicly opened and read aloud. **The pre-bid meeting is NOT Mandatory.**

*** To promote the health and safety of City workers and the public, Newton City Hall is closed to the public. The City has adopted the following procedures that may affect your participation in this bid:**

- 1. Bidders who wish to attend the Bid Opening can do so by telephone conference call. To attend, call 617.454.5555. When prompted, enter Participant Passcode 1220#. There will be no in person meetings.**
- 2. Bids not sent by mail or courier can only be dropped off in a locked drop box at the top of the stairs to the left the main door to City Hall. The box will be checked at the scheduled submission deadline.**
- 3. Bids results will be scanned and posted as soon as practicable after the opening. Copies of bids will be available on written request.**

Documents relating to this Invitation For Bids (Contract Documents) will be available on line at www.newtonma.gov/bids or for pickup at the Purchasing Department after: **10:00 a.m., April 9, 2020.**

Work consists of the installation of playing field lighting equipment as specified in plans and in accordance with the Project Manual. The contractor will be responsible for coordinating permits, utility company connection, trenching, installing erosion control measures, providing conduit and all wiring required and as specified in the Project Manual. The contractor is responsible for installing the light poles and precast foundations in accordance with specifications prepared by the structural engineer (Appendix D). Work will be performed at Winkler Stadium, Newton South High School, located at 140 Brandeis Road, Newton, Massachusetts.

Work under this contract requires a contractor to furnish all labor, materials, tools, equipment and supervision necessary to accomplish the work described herein, in accordance with all specifications and requirements of the Project Manual.

The term of this contract shall extend **from the issuance of a written Work Order** prepared by City of Newton Parks and Recreation Department specifying the work to be performed. **through August 15, 2020.** Award will be made to the responsible and eligible bidder offering the lowest Bid Price on Bid Form #20-71.

A bid deposit in an amount that is not less than five percent (5%) of the value of the bid, including all add alternates, is required. Bid deposits, payable to the City of Newton, shall be either in the form of a bid bond, or cash, or a certified check on, or a treasurer's or cashier's check issued by, a responsible bank or trust company. Bidders are reminded that the bid deposit covers the City for damages when a bidder withdraws its bid after the bid submission date. **Be advised that to the extent permitted by the law the City will retain all bid deposits for withdrawn bids.**

All bids are subject to the provisions of M.G.L. Chapter 30, Section 39M. **Wages are subject** to minimum wage rates determined by the Massachusetts Department of Labor and Industries pursuant to M.G.L. Chapter 149, Sec. 26 to 27H. The schedule of wage rates applicable to this contract is included in the bidding documents. In addition, the prevailing wage schedule will be updated annually for all public construction projects lasting longer than one (1) year. You will be required to pay the rates set out in any updated prevailing wage schedule. Increases in prevailing wage schedules will not be the basis for change order requests.

The successful bidder will be required to provide a Certificate of Insurance demonstrating current coverage of the type and amounts set forth in the Project Manual. The successful bidder will be required to furnish a **Labor and Materials Payment Bond in the amount of 50%** of the contract total.

The costs of any bond and any insurance required in this Invitation For Bid are the responsibility of the bidder; such costs will not be reimbursed by City and should be included in your bid.

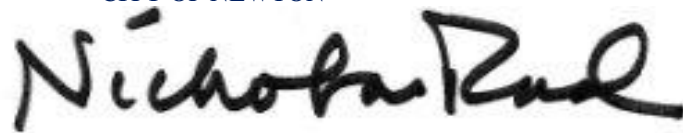
All bids shall be submitted as one ORIGINAL and one COPY.

All City of Newton bids are available on the City's web site, www.newtonma.gov/bids Invitation for Bid. It is the sole responsibility of the contractor downloading these bids to ensure they have received any and all addenda prior to the bid opening. Addenda's will be available online within the original bid document as well as a separate file. If you download bids from the internet site and would like to make it known that your company has done so, you may fax the Purchasing Dept. (617) 796-1227 or email purchasing@newtonma.gov with your NAME, ADDRESS, PHONE, FAX AND INVITATION FOR BID NUMBER 20-71.

The City will reject any and all bids in accordance with the above referenced General Laws. In addition, the City reserves the right to waive minor informalities in any or all bids, or to reject any or all bids (in whole or in part) if it be in the public interest to do so.

In the event that any person wishes to attend a bid opening or pre-bid meeting, accessible and reasonable accommodations will be provided to persons requiring assistance. If you need a reasonable accommodation, please contact the city of Newton's ADA Coordinator, Jini Fairley, at least two business days in advance of the meeting: jfairley@newtonma.gov or (617) 796-1253. For Telecommunications Relay Service, please dial 711.

CITY OF NEWTON



Nicholas Read
Chief Procurement Officer
April 9, 2020

CITY OF NEWTON
DEPARTMENT OF PURCHASING
INSTRUCTIONS TO BIDDERS

ARTICLE 1 - BIDDER'S REPRESENTATION

- 1.1 Each General Bidder (hereinafter called the "Bidder") by making a bid (hereinafter called "bid") represents that:
1. The Bidder has read and understands the Bidding Documents, Contract Forms, General Conditions, Conditions of the Contract, General Requirements and Project Specifications (collectively, referred to as the "Contract Documents") and the bid is made in accordance therewith.
 2. The Bidder is familiar with the work site and with local conditions under which the work has to be performed.
- 1.2 Failure to so examine the Contract Documents and be familiar with the work site will not relieve any Bidder from any obligation under its bid as submitted.

ARTICLE 2 - REQUEST FOR INTERPRETATION

- 2.1 Bidders shall promptly notify the City of any ambiguity, inconsistency, or error which they may discover upon examination of the Contract Documents, the site, and local conditions.
- 2.2 Bidders requiring clarification or interpretation of the Contract Documents shall make a written request to the *Chief Procurement Officer*, at purchasing@newtonma.gov or via facsimile (617) 796-1227. The City will only answer such requests if received by **Friday, April 17, 2020 at 12:00 noon**. In the event that the bid opening date is changed, the deadline for informational requests may also change as provided in an addendum issued by the City.
- 2.3 Interpretation, correction, or change in the Contract Documents will be made by addendum which will become part of the Contract Documents. The City will not be held accountable for any oral communication.
- 2.4 Addenda will be emailed to every individual or firm on record as having taken a set of Contract Documents. Addenda will be emailed to every individual or firm on record as having taken a set of Contract Documents. Receipt of all addenda issued must be acknowledged in the Bid Form. **YOUR FAILURE TO ACKNOWLEDGE ALL ADDENDA MAY RESULT IN YOUR BID BEING REJECTED AS NON-RESPONSIVE.**
- 2.5 Copies of addenda will be made available for inspection at the location listed in the Invitation for Bids where Contract Documents are on file, in addition to being available online at www.newtonma.gov/bids.
- 2.6 Bidders or proposers contacting ANY CITY EMPLOYEE regarding an Invitation for Bid (IFB) or a Request for Proposal (RFP), outside of the Purchasing Department, once an IFB or RFP has been released, may be disqualified from the procurement process.
- 2.7 Bidders downloading information off the internet web site are solely responsible for obtaining any addenda prior to the bid opening. If the bidder makes itself known to the Purchasing Department, at purchasing@newtonma.gov or via facsimile (617) 796-1227, it shall be placed on the bidder's list. Bidders must provide the Purchasing Department with their company's name, street address, city, state, zip, phone, fax, email address and **INVITATION FOR BID #20-71**.

ARTICLE 3 - MBE PARTICIPATION

- 3.1 Notice is hereby given that the Mayor's Affirmative Action Plan for the City of Newton in effect at the time of this solicitation is applicable to all construction contracts in excess of \$10,000.00.
- 3.2 Notice is hereby given that the City of Newton Minority/Women Business Enterprise Plan and the Supplemental Equal Employment Opportunity Anti-Discrimination and Affirmative Action Program in effect at the time of this solicitation are applicable to all City contracts for goods and services in excess of \$50,000.00.
- 3.3 Copies of the Plans and Program referred to in Sections 3.1 and 3.2 are available at: www.newtonma.gov/purchasing.

ARTICLE 4 - PREPARATION AND SUBMISSION OF BIDS

- 4.1 Bids shall be submitted on the "Bid Form 20-71," attached.

- 4.2 All entries on the Bid Form shall be made by typewriter or in ink.
- 4.3 Where so indicated on the Bid Form, sums shall be expressed in both words and figures. Where there is a discrepancy between the bid sum expressed in words and the bid sum expressed in figures, the words shall control.
- 4.4 Bid Deposits shall be submitted in the amount specified in the Invitation for Bids. They shall be made payable to the City and shall be either in the form of cash, certified check, treasurer's or cashier's check issued by a responsible bank or trust company, or a bid bond issued by a surety licensed to do business in the Commonwealth of Massachusetts; and shall be conditioned upon the faithful performance by the principal of the agreements contained in the bid. Bidders are reminded that the bid deposit covers the City for damages when a bidder withdraws its bid after the bid submission date. **Be advised that to the extent permitted by the law the City will retain all bid deposits for withdrawn bids.**

Bid deposits of the three (3) lowest responsible and eligible Bidders shall be retained until the execution and delivery of the City-Contractor agreement.

- 4.5 The Bid, including the bid deposit shall be enclosed in a sealed envelope with the following plainly marked on the outside:

- * GENERAL BID FOR: **#20-71**
- * NAME OF PROJECT: **NEWTON SOUTH HIGH SCHOOL FIELD LIGHTING INSTALLATION**
- * BIDDER'S NAME, BUSINESS ADDRESS, AND PHONE NUMBER

- 4.6 Date and time for receipt of bids is set forth in the IFB.
- 4.7 Timely delivery of a bid at the location designated shall be the full responsibility of the Bidder. In the event that Newton City Hall is closed on the date or at the time that bids are due, the date and time for receipt of bids shall be on the next business day following that the Newton City Hall and the Purchasing Department are open.
- 4.8 Bids shall be submitted with one **original** and one **copy**.
- 4.9 Massachusetts law requires all employees who work on Massachusetts public works construction sites must have no Less than 10 hours of OSHA-approved safety and health training. See M.G.L. c.30, §39M(c), M.G.L. c.30, §39S(a)(1), M.G.L. c.149, §44E(2) & M.G.L. c.149, §44F(2).
 1. This requirement will apply to any general bid or sub bid submitted.
 2. This law directs the Massachusetts Attorney General to restrain the award of construction contracts to any contractor who is in violation to this requirement and to restrain the performance of these contracts by non-complying contractors.
 3. The contractor and all subcontractors on this project must certify on the Bid Form compliance with the applicable requirement. Non-compliance with this law will disqualify the bidder.

ARTICLE 5 - ALTERNATES

- 5.1 Each Bidder shall acknowledge alternates (if any) in Section C on the Bid Form.
- 5.2 In the event an alternate does not involve a change in the amount of the base bid, the Bidder shall so indicated by writing "No Change", or "N/C" or "0" in the space provided for that alternate.
- 5.3 Bidders shall enter on the Bid Form a single amount for each alternate which shall consist of the amount for work performed by the Contractor.
- 5.4 The low Bidder will be determined on the basis of the sum of the base bid and the accepted alternates.

ARTICLE 6 - WITHDRAWAL OF BIDS

- 6.1 Any bid may be withdrawn prior to the time designated for receipt of bids on written or electronic request. Electronic withdrawal of bids must be confirmed over the Bidder's signature by written notice postmarked on or before the date and time set for receipt of bids.
- 6.2 Withdrawn bids may be resubmitted up to the time designated for the receipt of bids.

- 6.3 No bids may be withdrawn within sixty (60) days, Saturdays, Sundays and legal holidays excluded, after the opening of the bids.

ARTICLE 7 - CONTRACT AWARD

- 7.1 The City is soliciting prices for the services set forth in the Bid Form. It is the City's intent to award one (1) contract to the responsible and eligible bidder offering the lowest Bid Price (Total of Items #1 through #4 on Bid Form #20-71). A contract will be awarded within sixty (60) days, Saturdays, Sundays, and legal holidays excluded, after the opening of bids.
- 7.2 The City reserves the right to waive minor informalities in or to reject any or all Bids if it be in the public interest to do so.
- 7.3 The City reserves the right to reject any bidder who has failed to pay any local taxes, fees, assessments, betterments, or any other municipal charge, unless the bidder has a pending abatement application or has entered into a payment agreement with the collector-treasurer.
- 7.4 As used herein, the term "lowest responsible and eligible Bidder" shall mean the Bidder (1) whose bid is the lowest of those bidders possessing the skill, ability and integrity necessary for the faithful performance of the work; (2) who has met all the requirements of the invitation for bids; (3) who shall certify that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the work; (4) who, where the provisions of section eight B of chapter twenty-nine apply, shall have been determined to be qualified thereunder.
- 7.5 Subsequent to the award and within five (5) days, Saturday, Sundays and legal holidays excluded, after the prescribed forms are presented for signature, the successful Bidder shall execute and deliver to the City a contract in the form included in the Contract Documents in such number of counterparts as the City may require.
- 7.6 In the event that the City receives low bids in identical amount from two or more responsive and responsible Bidders, the City shall select the successful Bidder by a blind selection process chosen by the City such as flipping a coin or drawing names from a hat. The low Bidders who are under consideration will be invited to attend and observe the selection process.

ARTICLE 8 - TAXES

- 8.1 The Bidder shall not include in this bid any tax imposed upon the sale or rental of tangible personal property in this Commonwealth, such as any and all building materials, supplies, services and equipment required to complete the work.
- 8.2 The City is exempt from payment of the Massachusetts Sales Tax, and the Bidder shall not include any sales tax on its bid. The City's exemption Number is E-046-001-404.

ARTICLE 9 – PROPRIETARY SPECIFICATIONS

- 9.1 The City has used a proprietary specification to describe the supply listed in the specifications. Such specifications are permitted under M.G.L. c. 30, §39M(b), provided that the City state in writing that use of the proprietary specification is in its best interest and that it will accept an "equal" of the item specified. An item is considered equal if (i) it is at least equal in quality, durability, appearance, strength, and design; (ii) will perform the intended function at least equally; and (iii) conforms substantially, even with deviations, to the detailed requirements contained in the specifications. Bidders wishing to provide an equal item should do so with their bids. The City shall have the sole right to determine whether or not said item is equal.
- 9.2 The required determination and justification have been duly prepared, and a copy may be requested in accordance with the Massachusetts Public Records Law, M.G.L. c. 66, §10.

ARTICLE 10 – ENVIRONMENTALLY PREFERABLE PRODUCTS

- 10.1 The City encourages environmentally preferable products, i.e., products or services that have less negative or more positive effects on human health and the environment when compared with competing products or services that serve the same purpose. The city encourages bidders to describe, in the space provided on the Bid Form, the environmental attributes of its goods or services throughout the entire lifecycle, including manufacture, use and disposition.

This information may include multiple environmental considerations such as natural resource use, recycled content, energy and water efficiency, greenhouse gas emissions, impact on climate change, packaging, hazardous material use, and health and safety impacts on workers, consumers and the community. If you do not currently assess such attributes, please indicate that. However you respond, the City will not take your information into account in evaluating bid proposals.

- 10.2 Bidders are encouraged also to provide information related to steps they take internally to (a) identify any positive or negative environmental attributes of products or services they offer, as specified above, and (b) insure that those attributes are being addressed as part of operations.

END OF SECTION

CITY OF NEWTON
DEPARTMENT OF PURCHASING
BID FORM #20-71

A. The undersigned proposes to furnish all labor, materials, equipment, tools and supervision necessary the installation of Field Lighting provided by the Department of Parks, Recreation & Culture in accordance with the Project Manual prepared by the City of Newton entitled:

Newton South High School Field Lighting Installation

B. This bid includes addenda number(s) _____, _____, _____, _____.

C. The Bid Price is based on the following:

1. **Receiving and securing Lighting equipment in Owner provided container**
2. **Erecting light poles and install all hardware and appurtenances as specified by equipment Manufacturer**
3. **Completing ALL ELECTRICAL WORK required for lighting equipment**
4. **Coordinating work with utility company**

BID PRICE (for items #1 through #4):

_____ DOLLARS

(\$ _____)

COMPANY: _____

D. Prompt Payment Discounts. Bidders are encouraged to offer discounts in exchange for an expedited payment. Payments may be issued earlier than the general goal of within 30 days of receipt of the invoice only when in exchange for discounted prices. Discounts will not be considered in determining the lowest responsible bidder.

Prompt Payment Discount _____% _____Days

Prompt Payment Discount _____% _____Days

Prompt Payment Discount _____% _____Days

E. The undersigned has completed and submits herewith the following documents:

- Bidder's Qualifications and References Form, 2 pages
- Certificate of Non-Collusion, 1 page
- Certificate of Foreign Corporation, 1 page
- Debarment Letter, 1 page
- IRS Form W-9, 1 page
- Signed Bid Form, 2 sheets
- 5% Bid Surety

F. The undersigned agrees that, if s/he is selected as general contractor, s/he will within five days, Saturdays, Sundays and legal holidays excluded, after presentation thereof by the awarding authority, execute a contract in accordance with the terms of this bid and furnish a labor and materials payment bond and/or performance bond, each of a surety company qualified to do business under the laws of the commonwealth and satisfactory to the awarding authority and each in the sum of the contract price, the premiums for which are to be paid by the general contractor and are included in the contract price.

The undersigned hereby certifies that s/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 and that s/he will comply fully with all laws and regulations applicable to awards made subject to section forty-four A of M.G.L. Chapter 30, s 39M.

The undersigned certifies that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the work; (2) 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 (“OSHA”) that is at least 10 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 (3) that all employees to be employed in the work subject to this bid have successfully completed a course in construction safety and health approved by the United States OSHA that is at least 10 hours in duration. The undersigned understands that any employee found on a worksite subject to this section without documentation of successful completion of a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration shall be subject to immediate removal.

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 Bidder)

BY: _____

(Printed Name and Title of Signatory)

(Business Address)

(City, State Zip)

(Telephone) / (FAX)

(E-mail address)

NOTE: If the bidder is a corporation, indicate state of incorporation under signature, and affix corporate seal; if a partnership, give full names and residential addresses of all partners; if an individual, give residential address if different from business address; and, if operating as a d/b/a give full legal identity. Attach additional pages as necessary.

CITY OF NEWTON

BIDDER'S QUALIFICATIONS AND REFERENCES FORM

All questions must be answered, and the data given must be clear and comprehensive. Please type or print legibly. If necessary, add additional sheet for starred items. This information will be utilized by the City of Newton for purposes of determining bidder responsiveness and responsibility with regard to the requirements and specifications of the Contract.

- 1. FIRM NAME: _____
- 2. WHEN ORGANIZED: _____
- 3. INCORPORATED? _____ YES _____ NO DATE AND STATE OF INCORPORATION: _____
- 4. IS YOUR BUSINESS A **MBE**? _____ YES _____ NO **WBE**? _____ YES _____ NO or **MWBE**? _____ YES _____ NO
- * 5. LIST ALL CONTRACTS CURRENTLY ON HAND, SHOWING CONTRACT AMOUNT AND ANTICIPATED DATE OF COMPLETION:

- * 6. HAVE YOU EVER FAILED TO COMPLETE A CONTRACT AWARDED TO YOU?
_____ YES _____ NO
IF YES, WHERE AND WHY?

- * 7. HAVE YOU EVER DEFAULTED ON A CONTRACT? _____ YES _____ NO
IF YES, PROVIDE DETAILS.

- * 8. LIST YOUR VEHICLES/EQUIPMENT AVAILABLE FOR THIS CONTRACT:

- * 9. IN THE SPACES FOLLOWING, PROVIDE INFORMATION REGARDING CONTRACTS COMPLETED BY YOUR FIRM SIMILAR IN NATURE TO THE PROJECT BEING BID. A MINIMUM OF FOUR (4) CONTRACTS SHALL BE LISTED. PUBLICLY BID CONTRACTS ARE PREFERRED, BUT NOT MANDATORY.

PROJECT NAME: _____
OWNER: _____
CITY/STATE: _____

DOLLAR AMOUNT: \$ _____ DATE COMPLETED: _____
PUBLICLY BID? _____ YES _____ NO
TYPE OF WORK?: _____
CONTACT PERSON: _____ TELEPHONE #: (____) _____
CONTACT PERSON'S RELATION TO PROJECT?: _____
(i.e., contract manager, purchasing agent, etc.)

PROJECT NAME: _____
OWNER: _____
CITY/STATE: _____
DOLLAR AMOUNT: \$ _____ DATE COMPLETED: _____
PUBLICLY BID? _____ YES _____ NO
TYPE OF WORK?: _____
CONTACT PERSON: _____ TELEPHONE #: (____) _____
CONTACT PERSON'S RELATION TO PROJECT?: _____
(i.e., contract manager, purchasing agent, etc.)

PROJECT NAME: _____
OWNER: _____
CITY/STATE: _____
DOLLAR AMOUNT: \$ _____ DATE COMPLETED: _____
PUBLICLY BID? _____ YES _____ NO
TYPE OF WORK?: _____
CONTACT PERSON: _____ TELEPHONE #: (____) _____
CONTACT PERSON'S RELATION TO PROJECT?: _____
(i.e., contract manager, purchasing agent, etc.)

PROJECT NAME: _____
OWNER: _____
CITY/STATE: _____
DOLLAR AMOUNT: \$ _____ DATE COMPLETED: _____
PUBLICLY BID? _____ YES _____ NO
TYPE OF WORK?: _____
CONTACT PERSON: _____ TELEPHONE #: (____) _____
CONTACT PERSON'S RELATION TO PROJECT?: _____
(i.e., contract manager, purchasing agent, etc.)

10. The undersigned certifies that the information contained herein is complete and accurate and hereby authorizes and requests any person, firm, or corporation to furnish any information requested by the City of Newton in verification of the recitals comprising this statement of Bidder's qualifications and experience.

DATE: _____ BIDDER: _____

SIGNATURE: _____

PRINTED NAME: _____ TITLE: _____

END OF SECTION

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 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 or individuals.

(Signature of individual)

Name of Business

CERTIFICATION OF TAX COMPLIANCE

Pursuant to M.G.L. c.62C, §49A and requirements of the City, the undersigned acting on behalf of the Contractor certifies under the penalties of perjury that the Contractor is in compliance with all laws of the Commonwealth relating to taxes including payment of all local taxes, fees, assessments, betterments and any other local or municipal charges (unless the Contractor has a pending abatement application or has entered into a payment agreement with the entity to which such charges were owed), reporting of employees and contractors, and withholding and remitting child support.*

**Signature of Individual (Mandatory)

*** Contractor's Social Security Number
(Voluntary) or Federal Identification Number

Print Name: _____

Date: _____

OR

Company Name
(Corporation, Partnership, LLC, etc.)

By: _____
**Corporate Officer (Mandatory)

Print Name: _____

Date: _____

- * The provision in this Certification relating to child support applies only when the Contractor is an individual.
- ** Approval of a contract or other agreement will not be granted until the City receives a signed copy of this Certification.
- *** Your social security number may be furnished to the Massachusetts Department of Revenue to determine whether you have met tax filing or tax payment obligations. Providers who fail to correct their non-filing or delinquency will not have a contract or other agreement issued, renewed, or extended.

CERTIFICATE OF FOREIGN CORPORATION

The undersigned hereby certifies that it has been duly established, organized, or chartered as a corporation under the laws of:

(Jurisdiction)

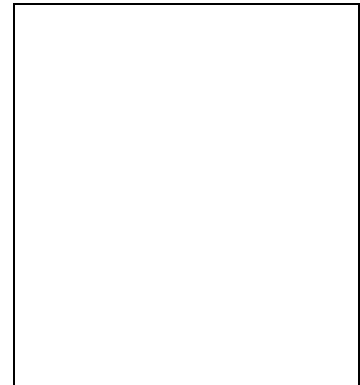
The undersigned further certifies that it has complied with the requirements of M.G.L. c. 30, §39L (if applicable) and with the requirements of M.G.L. c. 156D, §15.03 relative to the registration and operation of foreign corporations within the Commonwealth of Massachusetts.

Name of person signing proposal

Signature of person signing proposal

Name of Business (Please Print or Type)

Affix Corporate Seal here



City of Newton



Mayor
Ruthanne Fuller

Purchasing Department
Nicholas Read ☎ *Chief Procurement Officer*
1000 Commonwealth Avenue
Newton Centre, MA 02459-1449
purchasing@newtonma.gov

Telephone
(617) 796-1220
Fax:
(617) 796-1227
TDD/TTY
(617) 796-1089

Date

Vendor

Re: Debarment Letter for Invitation For Bid #20-71

As a potential vendor on the above contract, the City requires that you provide a debarment/suspension certification indicating that you are in compliance with the below Federal Executive Order. Certification can be done by completing and signing this form.

Debarment:

Federal Executive Order (E.O.) 12549 “Debarment and Suspension“ requires that all contractors receiving individual awards, using federal funds, and all sub-recipients certify that the organization and its principals are not debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded by any Federal department or agency from doing business with the Federal Government.

I hereby certify under pains and penalties of perjury that neither I nor any principal(s) of the Company identified below is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any federal department or agency.

PHONE _____ FAX _____
EMAIL _____

Signature

Date

If you have questions, please contact Nicholas Read, Chief Procurement Officer at (617) 796-1220.

**Request for Taxpayer
Identification Number and Certification**

**Give form to the
requester. Do not
send to the IRS.**

Print or type See Specific Instructions on page 2.	Name (as shown on your income tax return)	
	Business name, if different from above	
	Check appropriate box: <input type="checkbox"/> Individual/Sole proprietor <input type="checkbox"/> Corporation <input type="checkbox"/> Partnership <input type="checkbox"/> Limited liability company. Enter the tax classification (D=disregarded entity, C=corporation, P=partnership) ▶ -----	
	<input type="checkbox"/> Other (see instructions) ▶	
	Address (number, street, and apt. or suite no.)	Requester's name and address (optional)
	City, state, and ZIP code	
List account number(s) here (optional)		

X Exempt
payee

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on Line 1 to avoid backup withholding. For individuals, this is your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the Part I instructions on page 3. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN* on page 3.

Note. If the account is in more than one name, see the chart on page 4 for guidelines on whose number to enter.

Social security number
or
Employer identification number

Part II Certification

Under penalties of perjury, I certify that:

- The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me), and
- I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding, and
- I am a U.S. citizen or other U.S. person (defined below).

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the Certification, but you must provide your correct TIN. See the instructions on page 4.

Sign Here	Signature of U.S. person ▶	Date ▶
	Name	

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Purpose of Form

A person who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) to report, for example, income paid to you, real estate transactions, mortgage interest you paid, acquisition or abandonment of secured property, cancellation of debt, or contributions you made to an IRA.

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN to the person requesting it (the requester) and, when applicable, to:

- Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),
- Certify that you are not subject to backup withholding, or
- Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income.

Note. If a requester gives you a form other than Form W-9 to request your TIN, you must use the requester's form if it is substantially similar to this Form W-9.

Definition of a U.S. person. For federal tax purposes, you are considered a U.S. person if you are:

- An individual who is a U.S. citizen or U.S. resident alien,
- A partnership, corporation, company, or association created or organized in the United States or under the laws of the United States,
- An estate (other than a foreign estate), or
- A domestic trust (as defined in Regulations section 301.7701-7).

Special rules for partnerships. Partnerships that conduct a trade or business in the United States are generally required to pay a withholding tax on any foreign partners' share of income from such business. Further, in certain cases where a Form W-9 has not been received, a partnership is required to presume that a partner is a foreign person, and pay the withholding tax. Therefore, if you are a U.S. person that is a partner in a partnership conducting a trade or business in the United States, provide Form W-9 to the partnership to establish your U.S. status and avoid withholding on your share of partnership income.

The person who gives Form W-9 to the partnership for purposes of establishing its U.S. status and avoiding withholding on its allocable share of net income from the partnership conducting a trade or business in the United States is in the following cases:

- The U.S. owner of a disregarded entity and not the entity,

CONTRACT FORMS

The awarded bidder will be required to complete and submit documents substantially similar in form to the following.

These forms may need to be modified on account of changed circumstances, and are provided for informational purposes only.

CITY - CONTRACTOR AGREEMENT

CONTRACT NO. C- _

THIS AGREEMENT made this ___ day of _____ in the year Two Thousand and Twenty by and between the CITY OF NEWTON, a municipal corporation organized and existing under the laws of the Commonwealth of Massachusetts, hereinafter referred to as the CITY, acting through its Chief Procurement Officer, but without personal liability to him, and

hereinafter referred to as the CONTRACTOR.

The parties hereto for the considerations hereinafter set forth agree as follows:

- I. SCOPE OF WORK.** The lighting equipment, upon receipt by the contractor, shall be installed as specified in plans and in accordance with the project Manual. The contractor is responsible for coordinating permits, utility company connection, trenching, installing erosion control measures, providing conduit and all wiring required and as specified on the Project Manual. The contractor is responsible for installing the light poles and precast foundations to the specification of the structural engineer (Appendix D).

II. Newton South High School Field Lighting Installation

- II. CONTRACT DOCUMENTS.** The Contract documents consist of the following documents which are either attached to this Agreement or are incorporated herein by referenced:
- a. This CITY-CONTRACTOR Agreement;
 - b. The City's Invitation For Bid #20-71 issued by the Purchasing Department;
 - c. The Project Manual for Newton South High School Field Lighting Installation including the Instructions to Bidders; General Conditions; Special Conditions; MWBE/AA Requirements, Wage Rate Requirements and Wage Rate Schedule(s) including any updated prevailing wage rate schedules if applicable; The Supplementary Special Conditions; General Requirements and Project Specifications; and Drawings, if included or referenced therein;
 - d. Addenda Number(s) _____;
 - e. The Bid Response of the CONTRACTOR submitted for this Project and accompanying documents and certifications;
 - f. Certificate(s) of Insurance and surety bond(s) submitted by the CONTRACTOR in connection with this Project;
 - g. Duly authorized and executed Amendments, Change Orders or Work Orders issued by the CITY after execution of this CITY-CONTRACTOR Agreement.

This CITY-CONTRACTOR Agreement, together with the other documents enumerated in this Article, constitute the entire Agreement between the CITY and the CONTRACTOR. The CONTRACTOR represents that its bid was made without condition, qualification or reservation of any kind, except upon the written acknowledgement and consent of the CITY.

- III. PRIORITY OF DOCUMENTS.** In the event of inconsistency between the terms of this CITY -CONTRACTOR Agreement and the Project Manual, the terms of this Agreement shall prevail.
- IV. APPLICABLE STATUTES.** All applicable federal, state and local laws and regulations are incorporated herein by reference and the Contractor agrees to comply with same.
- V. CONTRACT TERM.** The term of this Contract shall extend **from the date of contract execution through August 15, 2020**. A termination due to non-appropriation or withdrawal of funds shall be effective as of the last day of the fiscal year in which such non-appropriation or decision to withdraw funding occurred, or as of the date when such appropriated and authorized funds are exhausted or withdrawn, whichever is later, without liability to the City for damages, penalties or other charges on account of such termination
- VI. AUTHORIZATION OF AND PAYMENT FOR WORK PERFORMED.** The execution of this contract does not constitute a notice to proceed or authorization to perform work. No work shall be commenced unless authorized by a written Work Order prepared by City of Newton Parks and Recreation Department specifying the work to be performed. The Contractor will be paid following completion and acceptance of the work authorized in accordance with the Contract.

The City will use best efforts to pay within thirty (30) days of receipt of an invoice for the work authorized or acceptance of the work whichever date is later.

- VII. RESPONSIBILITY FOR THE WORK/INDEMNIFICATION.** The Contractor shall take all responsibility for the work, and shall take all precautions for preventing injuries to persons and property in or about the work and shall defend, indemnify and hold the City harmless from all loss, cost, damage or expense arising from injuries to persons or property in or about the work. The Contractor shall be responsible for any damage which may be caused by the failure or insufficiency of any temporary works. He shall effectively protect his work and shall be liable for all damage and loss by delay or otherwise caused by his neglect or failure so to do.
- VIII. WARRANTY.** Except as may be otherwise provided in the Project Manual, the Contractor shall replace, repair or make good, without cost to the City, any defects or faults arising within one (1) year after date of acceptance of work and materials furnished hereunder (acceptance not to be unreasonably delayed) resulting from imperfect or defective work done or materials furnished by the Contractor.
- IX. PATENT INDEMNIFICATION.** The Contractor agrees to assume the defense of and shall indemnify and save harmless the City and all persons acting for or on behalf of it from all suits and claims against them, or any of them, arising from or occasioned by the use of any material, equipment or apparatus, or any part thereof which infringes or is alleged to infringe on any patent rights. In case such material, equipment or apparatus, or any part thereof, in any such suit is held to constitute infringement, the Contractor, within a reasonable time, shall at its own expense, and as the City may elect, replace such material, equipment or apparatus with non-infringing material, equipment or apparatus, or remove the material, equipment, or apparatus and refund the sums paid therefor.
- X. ASSIGNMENT/SUB-CONTRACTING.** The Contractor agrees that he will not sell, assign or transfer this Contract or any part thereof or interest therein without the prior written consent of the City.
- XI. TERMINATION.** If the work to be done under this Contract shall be abandoned, or if this Contract or any part thereof shall be assigned or transferred, without the previous written consent of the City, or if the Contract or any claim hereunder shall be assigned by the Contractor otherwise than as herein specified, or if at any time the City determines that the conditions herein specified as to the rate of progress are not fulfilled, or that the work or any part thereof, is unnecessarily or unreasonably delayed, or that the Contractor has violated any of the provisions of this Contract, the City may terminate this Contract and/or notify the Contractor to discontinue such work or such part thereof as the City may designate, and the City may thereupon by agreement or otherwise, as it may determine, complete the work, or any part thereof; and for such completion the City for itself or for its Contractor may take possession of and use or cause to be used in the completion of the work thereof any of such materials, apparatus, machinery, implements, and tools of every description as may be found upon said work. Termination pursuant to this paragraph shall not entitle the Contractor to any claim for damages on account thereof, nor shall it relieve the Contractor of any liability under this Contract.
- XII. GOVERNING LAW.** This Contract shall be governed by and construed in accordance with the laws of the Commonwealth of Massachusetts.
- XIII. SEVERABILITY.** The provisions of this Contract are severable. If any section, paragraph, clause or provision of this Contract shall be finally adjudicated by a court of competent jurisdiction to be invalid, the remainder of this Contract shall be unaffected by such adjudication and all of the remaining provisions of this Contract shall remain in full force and effect as though such section, paragraph, clause or provision, or any part thereof so adjudicated to be invalid, had not been included herein, unless such remaining provisions, standing alone, are incomplete and incapable of being executed in accordance with the intent of the parties to this Contract.
- XIV. AMENDMENTS TO THIS CONTRACT.** This Contract may not be amended except in writing executed in the same manner as this CITY-CONTRACTOR Agreement.

IN WITNESS WHEREOF, the parties have caused this instrument to be executed under seal the day and year first above written.

CONTRACTOR

CITY OF NEWTON

By _____

By _____

Chief Procurement Officer

Print Name _____

Date _____

Title _____

By _____

Commissioner of Parks & Recreation

Date _____

Affix Corporate Seal Here

Date _____

City funds in the amount of
\$120,000. _____

are available in account number
21D60216-52409, 5337G602-52409

I further certify that the Mayor, or her
designee, is authorized to execute contracts
and approve change orders

Approved as to Legal Form and Character

By _____

Associate City Solicitor

By _____

Comptroller of Accounts

Date _____

Date _____

CONTRACT AND BONDS APPROVED

By _____

Mayor or her designee

Date _____

CERTIFICATE OF AUTHORITY - CORPORATE

- 1. I hereby certify that I am the Clerk/Secretary of _____
(insert full name of Corporation)
- 2. corporation, and that _____
(insert the name of officer who signed the **contract and bonds.**)
- 3. is the duly elected _____
(insert the title of the officer in line 2)
- 4. of said corporation, and that on _____
(insert a date that is **ON OR BEFORE** the date the officer signed the **contract and bonds.**)

at a duly authorized meeting of the Board of Directors of said corporation, at which all the directors were present or waived notice, it was voted that

- 5. _____ the _____
(insert **name** from line 2) (insert **title** from line 3)

of this corporation be and hereby is authorized to execute contracts and bonds in the name and on behalf of said corporation, and affix its Corporate Seal thereto, and such execution of any contract of obligation in this corporation's name and on its behalf, with or without the Corporate Seal, shall be valid and binding upon this corporation; and that the above vote has not been amended or rescinded and remains in full force and effect as of the date set forth below.

- 6. ATTEST: _____ *AFFIX CORPORATE SEAL HERE*
(Signature of **Clerk or Secretary**)*
- 7. Name: _____
(Please print or type name in line 6)*
- 8. Date: _____
(insert a date that is **ON OR AFTER** the date the officer signed the **contract and bonds.**)

* The name and signature inserted in lines 6 & 7 **must** be that of the **Clerk or Secretary** of the corporation.

CITY OF NEWTON, MASSACHUSETTS

PAYMENT BOND

Know All Men By These Presents:

That we, _____, as PRINCIPAL, and _____, as SURETY, are held and firmly bound unto the City of Newton as Obligee, in the sum of _____ dollars (\$ _____) to be paid to the Obligee, for which payments well and truly to be made, we bind ourselves, our respective heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

Whereas, the said PRINCIPAL has made a contract with the Obligee, bearing the date of _____, 2020 for the construction of _____ in Newton, Massachusetts. (Project Title)

Now, the conditions of this obligation are such that if the PRINCIPAL and all Sub-contractors under said contract shall pay for all labor performed or furnished and for all materials used or employed in said contract and in any and all duly authorized modifications, alterations, extensions of time, changes or additions to said contract that may hereafter be made, notice to the SURETY of such modifications, alterations, extensions of time, changes or additions being hereby waived, the foregoing to include any other purposes or items set out in, and to be subject to, provisions of M.G.L. c. 30, sec. 39A, and M.G.L. c. 149 sec. 29, as amended, then this obligation shall become null and void; otherwise it shall remain in full force, virtue and effect.

In Witness Whereof, the PRINCIPAL and SURETY have hereto set their hands and seals this ____day of____2020.

PRINCIPAL

SURETY

BY _____
(ATTORNEY-IN-FACT) (SEAL)

BY _____ (SEAL)

(Title)

ATTEST: _____

ATTEST: _____



GENERAL CONDITIONS
OF THE CONTRACT
FOR NON-TECHNICAL SERVICES

The City of Newton, herein referred to as the City, does hereby establish the following General Conditions, applicable to this Invitation for Bids and any subsequent purchase order, work order, shipping order or contract resulting therefrom.

1.0 SCOPE OF SERVICES

- 1.1 The Contractor agrees to furnish all labor, materials, equipment and insurance necessary to perform and fully complete, in every respect, within the time frame herein specified, all work (hereinafter referred as the Services) described in the Project Manual.
- 1.2 The Contractor shall not make any changes in the scope of Services without the prior written consent of the City. The Contractor shall make reasonable revisions or corrections, within the scope of Services, to any work performed until submitted in a form acceptable to the City.
- 1.3 The City reserves the right to alter, add to or reduce the Services by delivering to the Contractor written notice specifying the nature and extent of such alteration, addition or reduction. Such notice shall be effective upon the later of actual receipt by the Contractor or upon the date given in such notice. No addition to the Services shall be made unless the City and the Contractor have agreed to such increase in writing.

2.0 CONTRACT TERM

- 2.1 The obligations of the Contractor identified herein shall commence upon execution of the City-Contractor Contract and shall continue in full force and effect for the duration of the contract term as identified in the Project Manual. The contractor shall commence the performance of services under this contract promptly upon receipt of the City's Notice to Proceed in accordance with the provisions identified in the Project Manual.
- 2.2 In the event the term of this contract exceeds a period of one year and notwithstanding any provision to the contrary herein, the City shall cancel this contract in the event that funds are not appropriated or otherwise made available to support continuation of performance by the Contractor in any fiscal year succeeding the first year.

3.0 EXECUTION

- 3.1 All work required hereunder shall be performed as promptly as possible, and in any event within the time herein set forth, and such work shall be subject to approval and acceptance by the City, but such approval and acceptance shall not relieve the Contractor from the obligation to correct any incomplete, inaccurate or defective work, all of which shall be promptly remedied by the Contractor on demand, without cost to the City. The Contractor shall obtain all the required licenses and permits for the work herein described.
- 3.2 The Contractor shall conform to all determinations and directions of the City concerning the Contractor's delivery of services in the event of inclement weather, equipment failure, picket lines on City property, or labor strikes by the contractor's employees.

4.0 COMPENSATION

- 2.1 The City shall pay the Contractor for services rendered under this contract in accordance with the amount(s) set forth in the Contractor's General Bid Form and pursuant to the provisions contained in the Project Manual.
- 4.2 Notwithstanding anything to the contrary contained in the Contract, the City may withhold any payment to the Contractor hereunder if and for so long as the Contractor fails to perform any of its obligations hereunder or otherwise is in default under this Contract including, without limitation, any failure to perform Services in full accordance with the amount sufficient in the reasonable opinion of the City to cure any such default or failure of performance by the Contractor.

- 4.3 In no event shall the City be required to pay any amounts for work deemed by it to be unacceptable, or which are otherwise disputed. In the event the City disputes any such amounts invoiced, it shall pay all amounts not in dispute and notify the Contractor in writing of the amounts disputed and the reasons therefor.
- 4.4 No payment made shall constitute or be construed as final acceptance or approval of that part of the Services to which payment relates, or relieve the Contractor of any of its obligations outlined in this Contract. Further, the City shall not be deemed, by virtue of making payments to the Contractor hereunder, to have released the Contractor from any claim or liability, or to have waived any action arising out of the breach of this Contract by the Contractor.
- 5.0 REPORTS AND DRAWINGS
- When the Contractor has been paid for the Services performed by him or her, all reports, drawings, and other material furnished to the City shall become the City's property and may be used by the City (or such parties as the City may designate) thereafter in such manner and for such purposes as the City (or such parties as the City may designate) may deem advisable, without further employment of or additional compensation to the Contractor. The Contractor shall not release or disclose any report, drawing, or other material furnished to the Contractor by the City in connection with the performance of the Contractor's Services
- 6.0 CONTRACTOR'S ACCOUNTING RECORDS
- The Contractor shall keep records pertaining to Services performed (including complete and detailed time records) on the basis of recognized bookkeeping practices, generally accepted accounting principles, and in accordance with such reasonable requirements to facilitate audit as the City may provide. All records shall be available to the City or its authorized representatives for review and audit during normal business hours.
- 7.0 ASSIGNMENT/SUBCONTRACTING
- The Contractor agrees that he will not sell, assign or transfer this Contract or any part thereof or interest therein without the prior written consent of the City.
- 8.0 REMEDY FOR DEFAULT
- If the Contractor, in the sole judgment of the City, shall violate or fail properly to comply with or perform in any material respect any condition, provision, or warranty hereof, the City shall have the right by prior written notice to the Contractor to have the services called for hereby otherwise performed, and/or to terminate this contract without prejudice to any other rights or remedies of the City under this contract. The Contractor shall pay any excess in the City's cost to so procure the services and any related goods, supplies, materials or equipment. In addition, and without limiting any other remedies available to the City, the Contractor shall be liable for all losses, costs and expenses incurred by the City which result from the Contractor's noncompliance.
- 9.0 SUSPENSION OR TERMINATION
- 9.1 The City shall have the right, upon seven (7) days written notice to the Contractor so stating, to terminate, suspend, or postpone this contract in whole or in part for any reason deemed by the City to be in the public interest. Any such termination, suspension, or postponement shall not give rise to any cause of action for damages against the City. In the event that the City postpones or suspends the Services, the Contractor's time for performance of the Services shall be extended for a period equal to the period of such postponement or suspension. In the event of termination, suspension or postponement, the City shall pay: (a) for services and any related goods, supplies, materials and equipment furnished up to the time of termination, suspension, or postponement at the contract price upon delivery; (b) for work in process in the amount of the Contractor's cost, determined in accordance with ordinary accepted accounting practices, up to the time of termination, suspension, or postponement; and (c) for raw materials purchased by the Contractor as of the date of termination, suspension, or postponement and which are noncancelable at the Contractor's actual cost plus reasonable handling charges, but only to the extent that such raw materials were purchased in reliance upon this contract and are useful solely with respect to this contract.
- 9.2 Upon receipt of a notice of termination, suspension, or postponement the Contractor shall immediately cease all work hereunder and cancel all orders placed with respect to this contract. The Contractor's failure to so cancel shall relieve the City of the obligations of paragraph 10.1 above.

9.3 The City may postpone, suspend or terminate the Services immediately, by notice, hand delivery or certified mail, if the Contractor violates any of the provisions of this Contract, or fails to perform or observe any of the terms, covenants or conditions of this Contract, or abandons in whole or in part its Services, or becomes unable to perform its Services.

9.4 In the event of termination of this Contract, the Contractor shall promptly deliver to the City all documents, work papers, calculations, computer programs, data, drawings, plans, and other tangible work product, or materials pertaining to the Services performed under this Contract to the time of termination.

10.0 NOTICE

Any action, notice or request required to be taken, given or made by City or the Contractor hereunder may be taken, given or made only by those persons identified for that purpose on the Contract Form. All notices required to be given hereunder shall be deemed properly given if personally delivered, or if mailed by registered or certified mail, postage prepaid addressed to the address and officer identified on the Contract Form.

11.0 PROTECTION OF PROPERTY

The Contractor shall take all reasonable precautions to prevent damage to property, visible and concealed, and shall restore to substantially the same condition existing prior to the Contractor's entry any disturbance or damage to property caused by the Contractor or any person acting under its control.

12.0 INSURANCE REQUIREMENTS

12.1 The Contractor shall provide insurance coverage as listed below. This insurance shall be provided at the Contractor's expense and shall be in full force and effect during the full term of this Contract.

WORKER'S COMPENSATION

Worker's Compensation: Per M.G.L. c.149, §34 and c.152 as amended.

PUBLIC LIABILITY

Personal Injury \$500,000 each occurrence
\$1,000,000 aggregate
Property Damage \$500,000 each occurrence
\$1,000,000 aggregate

VEHICLE LIABILITY

Personal Injury \$500,000 each person
\$1,000,000 aggregate
Property Damage \$300,000 each occurrence
\$500,000 aggregate

12.2 The City shall be named as additional insureds on the Contractor's Liability Policies.

12.3 The Contractor shall not commence the work until proof of compliance with this Section 12.0 has been furnished to the City by submitting one copy of a properly endorsed insurance certificate issued by a company authorized to write insurance in the Commonwealth. This certificate shall indicate that the contractual liability coverage is in force.

12.4 The Contractor shall file the original and one certified copy of all policies with the City within fifteen (15) days after contract award. If the City is damaged by the Contractor's failure to maintain such insurance and to so notify the City, then the Contractor shall be responsible for all reasonable costs attributable thereto.

12.5 Cancellation of any insurance required by this contract, whether by the insurer or the insured, shall not be valid unless written notice thereof is given by the party proposing cancellation to the other party and City at least thirty days prior to the effective date thereof, which shall be expressed in said notice.

13.0 CONFLICT OF INTEREST

No member, agent or employee of the City shall , during his/her tenure or one year thereafter directly or indirectly, have any interest in any property to be included in, or any contract for property, materials or services to be furnished or used in connection with, this contract or the proceeds thereof.

14.0 COMPLIANCE WITH LAWS

All work to be performed and wages paid under this specification shall be in accordance with all applicable laws, state or federal, and all applicable ordinances, codes, rules, and regulations of the City of Newton, or any public board or office having any jurisdiction, regulation or control over any work to be done hereunder, including minimum wage rates. In particular, without limitation, the Contractor agrees to comply with all regulations pertaining to approvals for federal and state grants, and with all federal and state environmental laws and regulations. The Contractor agrees to assist in making any submissions to federal or state agencies as may be required in order to meet the requirements in this paragraph.

15.0 INDEMNIFICATION

The Contractor agrees to indemnify and save the City harmless from and against any and all costs, losses, expenses, liabilities, damages or claims for damages, including reasonable attorney's fees and expenses, on account of any injury or damage to buildings, improvements, or property of the City or on account of any injury (including death) or damage to any person, persons, firm, corporation or association, or on account of any infringement or claim of infringement of patents, arising out of or resulting from the deliveries provided for or performed under this contract or from any act, omission or negligence of the contractor, his agents, employees, or assigns. The foregoing provisions shall not be deemed to be released, waived or modified in any respect by reason of any surety or insurance provided by the contractor under contract.

16.0 FORCE MAJEURE

The City may not hold the Contractor liable for any loss, expense or damage incurred by the City on account of failure of the Contractor to deliver services as specified herein, if that failure is caused by state of war, acts of enemies, expropriation or confiscation of facilities used by the Contractor, or compliance with any law, order, or regulation of any federal, state or municipal governmental authority, if the Contractor shall show that such compliance would impair this ability to perform a material provision of this contract, the Contractor having given the City reasonable notice of such cause.

17.0 DISPUTES

All claims, disputes and other matters in question between the City and the Contractor arising out of or relating to this Contract or the breach of it, shall be submitted for resolution to a court of competent jurisdiction in Massachusetts, unless otherwise agreed by the parties. No such action shall be brought, however, until the completion of all Services under this Contract or the earlier termination of this Contract as provided herein, the parties agreeing to negotiate any claims, disputes or other matters in question during the term of this Contract before resorting to litigation. As to all acts or failures to act by either party to this Contract, any applicable statute of limitations shall commence to run and any alleged cause of action shall be deemed to have accrued in any and all events when the other party becomes aware or should have been aware of such acts or failure to act.

18.0 GOVERNING LAW

This contract shall be governed by and construed in accordance with Massachusetts Law.

19.0 LIABILITY

The Contractor is retained solely for the purpose of and to the extent set forth in this Contract. The Contractor's relationship to the City for the purpose of services to be performed under this Contract shall be that of an independent contractor. The Contractor shall have no capacity or authority to involve the City in any contract or to incur any liability on behalf of the City.

In no event shall the City be held liable as an employer or otherwise for any personal injury to or death of the Contractor's principals, employees, agents and/or representatives occasioned by or resulting from the Contractor's performance under this Contract.

20.0 LIENS

The Contractor shall cause to be removed from the property of the City any liens or other claims asserted by any person or entity claiming through or under the Contractor and arising out of Services performed under this Contract by such third party.

21.0 SEVERABILITY

In the event that any portion of this Contract is held illegal or unenforceable by a court of competent jurisdiction, the parties agree that such invalidity shall not affect the validity of the remaining portions of this Contract and Contractor and the City agree to substitute for the invalid provision a valid provision which most closely approximates the economics and intent of the invalid provision.

END OF SECTION

CITY OF NEWTON

WAGE RATE REQUIREMENTS

1. GENERAL

- A. This section summarizes the requirements for the payment of wages to laborers and mechanics employed under the Contract.
- B. Other duties and requirements of law which may not be specified in this section apply and are inherently a part of the Contract.

2. WAGE RATES

- A. The rate per hour to be paid to mechanics, apprentices, teamsters, chauffeurs, and laborers employed on the Work shall not be less than the rate of wages in the attached "Minimum Wage Rates" as determined by the Commissioner of Labor and Industries. This schedule shall continue to be the minimum rate of wages for said employees during the life of this Contract.
- B. Keep posted on the site a legible copy of said schedule. Keep on file the wage rates and classifications of labor employed on this Work in order that they may be available for inspection by the Owner, Administrator, or the Architect.
- C. Apprentices employed pursuant to this determination of wage rates must be registered and approved by the State Apprenticeship Council wherever rates for journeymen or apprentices are not listed.
- D. Pay reserve police officers employed on the Work the prevailing rate of wages paid to regular police officers as required by M.G.L. c149, Sec. 34B, as amended. Such police officers shall be covered by Workmen's Compensation Insurance and Employers Liability Insurance by the Contractor.
- E. **The Contractor and all subcontractors shall, on a weekly basis throughout the term of the contract, provide to the City of Newton certified payroll affidavits in pdf format verifying compliance with M.G.L. c.149, Sec. 27, 27A and 27B.** The Contractor is obligated to provide such records to the City directly on a weekly basis. The City may assess a penalty of \$100 for each day beyond the required submission date that such records are received, which amount shall be deducted from any amounts to the Contractor from the City. In the event of chronic late submissions, the City shall report the same to the Office of the Attorney General.
- F. The Contractor and all subcontractors shall provide a Statement of Compliance within 15 days of the completion of its portion of the work. This statement shall be submitted to the Owner on the form found elsewhere in this section.
- G. The Contractor shall maintain accurate and complete records, including payroll records, during the Contract term and for three years thereafter.

END OF SECTION



CHARLES D. BAKER
Governor

KARYNE POLITO
Lt. 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

ROSALIN ACOSTA
Secretary
MICHAEL FLANAGAN
Interim Director

Awarding Authority: City of Newton
Contract Number: #20-71 City/Town: NEWTON
Description of Work: Installation of lighting to artificial Turf stadium at Newton South High School, Newton, MA

Job Location: 140 Brandeis Road

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 Department of Labor Standards, Division of Apprentice Standards (DLS/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. **Any apprentice not registered with DLS/DAS regardless of whether or not they are registered with any other federal, state, local, or private agency 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.

Issue Date: 03/31/2020

Wage Request Number: 20200331-050

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Construction						
(2 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	12/01/2019	\$35.35	\$12.41	\$13.72	\$0.00	\$61.48
	06/01/2020	\$36.25	\$12.41	\$13.72	\$0.00	\$62.38
	08/01/2020	\$36.25	\$12.91	\$13.72	\$0.00	\$62.88
	12/01/2020	\$36.25	\$12.91	\$14.82	\$0.00	\$63.98
	06/01/2021	\$37.05	\$12.91	\$14.82	\$0.00	\$64.78
	08/01/2021	\$37.05	\$13.41	\$14.82	\$0.00	\$65.28
	12/01/2021	\$37.05	\$13.41	\$16.01	\$0.00	\$66.47
(3 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	12/01/2019	\$35.42	\$12.41	\$13.72	\$0.00	\$61.55
	06/01/2020	\$36.32	\$12.41	\$13.72	\$0.00	\$62.45
	08/01/2020	\$36.32	\$12.91	\$13.72	\$0.00	\$62.95
	12/01/2020	\$36.32	\$12.91	\$14.82	\$0.00	\$64.05
	06/01/2021	\$37.12	\$12.91	\$14.82	\$0.00	\$64.85
	08/01/2021	\$37.12	\$13.41	\$14.82	\$0.00	\$65.35
	12/01/2021	\$37.12	\$13.41	\$16.01	\$0.00	\$66.54
(4 & 5 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	12/01/2019	\$35.54	\$12.41	\$13.72	\$0.00	\$61.67
	06/01/2020	\$36.44	\$12.41	\$13.72	\$0.00	\$62.57
	08/01/2020	\$36.44	\$12.91	\$13.72	\$0.00	\$63.07
	12/01/2020	\$36.44	\$12.91	\$14.82	\$0.00	\$64.17
	06/01/2021	\$37.24	\$12.91	\$14.82	\$0.00	\$64.97
	08/01/2021	\$37.24	\$13.41	\$14.82	\$0.00	\$65.47
	12/01/2021	\$37.24	\$13.41	\$16.01	\$0.00	\$66.66
ADS/SUBMERSIBLE PILOT <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2019	\$102.78	\$9.90	\$21.15	\$0.00	\$133.83
For apprentice rates see "Apprentice- PILE DRIVER"						
AIR TRACK OPERATOR <i>LABORERS - ZONE 1</i>	12/01/2019	\$39.90	\$8.10	\$16.60	\$0.00	\$64.60
	06/01/2020	\$40.89	\$8.10	\$16.60	\$0.00	\$65.59
	12/01/2020	\$41.87	\$8.10	\$16.60	\$0.00	\$66.57
	06/01/2021	\$42.89	\$8.10	\$16.60	\$0.00	\$67.59
	12/01/2021	\$43.90	\$8.10	\$16.60	\$0.00	\$68.60
For apprentice rates see "Apprentice- LABORER"						
ASBESTOS REMOVER - PIPE / MECH. EQUIPT. <i>HEAT & FROST INSULATORS LOCAL 6 (BOSTON)</i>	12/01/2019	\$37.00	\$12.50	\$8.85	\$0.00	\$58.35
	06/01/2020	\$38.00	\$12.50	\$8.85	\$0.00	\$59.35
	12/01/2020	\$39.00	\$12.50	\$8.85	\$0.00	\$60.35
ASPHALT RAKER <i>LABORERS - ZONE 1</i>	12/01/2019	\$39.40	\$8.10	\$16.60	\$0.00	\$64.10
	06/01/2020	\$40.39	\$8.10	\$16.60	\$0.00	\$65.09
	12/01/2020	\$41.37	\$8.10	\$16.60	\$0.00	\$66.07
	06/01/2021	\$42.39	\$8.10	\$16.60	\$0.00	\$67.09
	12/01/2021	\$43.40	\$8.10	\$16.60	\$0.00	\$68.10
For apprentice rates see "Apprentice- LABORER"						
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2019	\$48.73	\$12.50	\$15.70	\$0.00	\$76.93
	06/01/2020	\$49.83	\$12.50	\$15.70	\$0.00	\$78.03
	12/01/2020	\$50.98	\$12.50	\$15.70	\$0.00	\$79.18
	06/01/2021	\$52.08	\$12.50	\$15.70	\$0.00	\$80.28
	12/01/2021	\$52.23	\$12.50	\$15.70	\$0.00	\$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
BACKHOE/FRONT-END LOADER <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2019	\$48.73	\$12.50	\$15.70	\$0.00	\$76.93
	06/01/2020	\$49.83	\$12.50	\$15.70	\$0.00	\$78.03
	12/01/2020	\$50.98	\$12.50	\$15.70	\$0.00	\$79.18
	06/01/2021	\$52.08	\$12.50	\$15.70	\$0.00	\$80.28
	12/01/2021	\$53.23	\$12.50	\$15.70	\$0.00	\$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BARCO-TYPE JUMPING TAMPER <i>LABORERS - ZONE 1</i>	12/01/2019	\$39.40	\$8.10	\$16.60	\$0.00	\$64.10
	06/01/2020	\$40.39	\$8.10	\$16.60	\$0.00	\$65.09
	12/01/2020	\$41.37	\$8.10	\$16.60	\$0.00	\$66.07
	06/01/2021	\$42.39	\$8.10	\$16.60	\$0.00	\$67.09
	12/01/2021	\$43.40	\$8.10	\$16.60	\$0.00	\$68.10
For apprentice rates see "Apprentice- LABORER"						
BLOCK PAVER, RAMMER / CURB SETTER <i>LABORERS - ZONE 1</i>	12/01/2019	\$39.90	\$8.10	\$16.60	\$0.00	\$64.60
	06/01/2020	\$40.89	\$8.10	\$16.60	\$0.00	\$65.59
	12/01/2020	\$41.87	\$8.10	\$16.60	\$0.00	\$66.57
	06/01/2021	\$42.89	\$8.10	\$16.60	\$0.00	\$67.59
	12/01/2021	\$43.90	\$8.10	\$16.60	\$0.00	\$68.60
For apprentice rates see "Apprentice- LABORER"						
BOILER MAKER <i>BOILERMAKERS LOCAL 29</i>	01/01/2020	\$46.10	\$7.07	\$17.98	\$0.00	\$71.15

Apprentice - *BOILERMAKER - Local 29*

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	65	\$29.97	\$7.07	\$11.69	\$0.00	\$48.73
2	65	\$29.97	\$7.07	\$11.69	\$0.00	\$48.73
3	70	\$32.27	\$7.07	\$12.59	\$0.00	\$51.93
4	75	\$34.58	\$7.07	\$13.49	\$0.00	\$55.14
5	80	\$36.88	\$7.07	\$14.38	\$0.00	\$58.33
6	85	\$39.19	\$7.07	\$15.29	\$0.00	\$61.55
7	90	\$41.49	\$7.07	\$16.18	\$0.00	\$64.74
8	95	\$43.80	\$7.07	\$17.09	\$0.00	\$67.96

Notes:

Apprentice to Journeyworker Ratio:1:4

BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING) <i>BRICKLAYERS LOCAL 3 (NEWTON)</i>	02/01/2020	\$54.40	\$10.75	\$21.94	\$0.00	\$87.09
	08/01/2020	\$55.75	\$10.75	\$22.09	\$0.00	\$88.59
	02/01/2021	\$56.39	\$10.75	\$22.09	\$0.00	\$89.23
	08/01/2021	\$57.79	\$10.75	\$22.25	\$0.00	\$90.79
	02/01/2022	\$58.38	\$10.75	\$22.25	\$0.00	\$91.38

Issue Date: 03/31/2020

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Classification Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - BRICK/PLASTER/CEMENT MASON - Local 3 Newton

Effective Date - 02/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$27.20	\$10.75	\$21.94	\$0.00	\$59.89
2	60	\$32.64	\$10.75	\$21.94	\$0.00	\$65.33
3	70	\$38.08	\$10.75	\$21.94	\$0.00	\$70.77
4	80	\$43.52	\$10.75	\$21.94	\$0.00	\$76.21
5	90	\$48.96	\$10.75	\$21.94	\$0.00	\$81.65

Effective Date - 08/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$27.88	\$10.75	\$22.09	\$0.00	\$60.72
2	60	\$33.45	\$10.75	\$22.09	\$0.00	\$66.29
3	70	\$39.03	\$10.75	\$22.09	\$0.00	\$71.87
4	80	\$44.60	\$10.75	\$22.09	\$0.00	\$77.44
5	90	\$50.18	\$10.75	\$22.09	\$0.00	\$83.02

Notes:

Apprentice to Journeyworker Ratio:1:5

BULLDOZER/GRADER/SCRAPER	12/01/2019	\$48.23	\$12.50	\$15.70	\$0.00	\$76.43
OPERATING ENGINEERS LOCAL 4	06/01/2020	\$49.31	\$12.50	\$15.70	\$0.00	\$77.51
	12/01/2020	\$50.45	\$12.50	\$15.70	\$0.00	\$78.65
	06/01/2021	\$51.54	\$12.50	\$15.70	\$0.00	\$79.74
	12/01/2021	\$52.68	\$12.50	\$15.70	\$0.00	\$80.88

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

CAISSON & UNDERPINNING BOTTOM MAN	12/01/2019	\$40.25	\$8.10	\$16.80	\$0.00	\$65.15
LABORERS - FOUNDATION AND MARINE	06/01/2020	\$41.24	\$8.10	\$16.80	\$0.00	\$66.14
	12/01/2020	\$42.22	\$8.10	\$16.80	\$0.00	\$67.12
	06/01/2021	\$43.24	\$8.10	\$16.80	\$0.00	\$68.14
	12/01/2021	\$44.25	\$8.10	\$16.80	\$0.00	\$69.15

For apprentice rates see "Apprentice- LABORER"

CAISSON & UNDERPINNING LABORER	12/01/2019	\$39.10	\$8.10	\$16.80	\$0.00	\$64.00
LABORERS - FOUNDATION AND MARINE	06/01/2020	\$40.09	\$8.10	\$16.80	\$0.00	\$64.99
	12/01/2020	\$41.07	\$8.10	\$16.80	\$0.00	\$65.97
	06/01/2021	\$42.09	\$8.10	\$16.80	\$0.00	\$66.99
	12/01/2021	\$43.10	\$8.10	\$16.80	\$0.00	\$68.00

For apprentice rates see "Apprentice- LABORER"

CAISSON & UNDERPINNING TOP MAN	12/01/2019	\$39.10	\$8.10	\$16.80	\$0.00	\$64.00
LABORERS - FOUNDATION AND MARINE	06/01/2020	\$40.09	\$8.10	\$16.80	\$0.00	\$64.99
	12/01/2020	\$41.07	\$8.10	\$16.80	\$0.00	\$65.97
	06/01/2021	\$42.09	\$8.10	\$16.80	\$0.00	\$66.99
	12/01/2021	\$43.10	\$8.10	\$16.80	\$0.00	\$68.00

For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
CARBIDE CORE DRILL OPERATOR LABORERS - ZONE 1	12/01/2019	\$39.40	\$8.10	\$16.60	\$0.00	\$64.10
	06/01/2020	\$40.39	\$8.10	\$16.60	\$0.00	\$65.09
	12/01/2020	\$41.37	\$8.10	\$16.60	\$0.00	\$66.07
	06/01/2021	\$42.39	\$8.10	\$16.60	\$0.00	\$67.09
	12/01/2021	\$43.40	\$8.10	\$16.60	\$0.00	\$68.10

For apprentice rates see "Apprentice- LABORER"

CARPENTER CARPENTERS -ZONE 2 (Eastern Massachusetts)	03/01/2020	\$42.50	\$9.40	\$18.95	\$0.00	\$70.85
	09/01/2020	\$43.15	\$9.40	\$18.95	\$0.00	\$71.50
	03/01/2021	\$43.75	\$9.40	\$18.95	\$0.00	\$72.10
	09/01/2021	\$44.40	\$9.40	\$18.95	\$0.00	\$72.75
	03/01/2022	\$45.00	\$9.40	\$18.95	\$0.00	\$73.35
	09/01/2022	\$45.65	\$9.40	\$18.95	\$0.00	\$74.00
	03/01/2023	\$46.25	\$9.40	\$18.95	\$0.00	\$74.60

Apprentice - CARPENTER - Zone 2 Eastern MA

Effective Date - 03/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.25	\$9.40	\$1.73	\$0.00	\$32.38
2	60	\$25.50	\$9.40	\$1.73	\$0.00	\$36.63
3	70	\$29.75	\$9.40	\$13.76	\$0.00	\$52.91
4	75	\$31.88	\$9.40	\$13.76	\$0.00	\$55.04
5	80	\$34.00	\$9.40	\$15.49	\$0.00	\$58.89
6	80	\$34.00	\$9.40	\$15.49	\$0.00	\$58.89
7	90	\$38.25	\$9.40	\$17.22	\$0.00	\$64.87
8	90	\$38.25	\$9.40	\$17.22	\$0.00	\$64.87

Effective Date - 09/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.58	\$9.40	\$1.73	\$0.00	\$32.71
2	60	\$25.89	\$9.40	\$1.73	\$0.00	\$37.02
3	70	\$30.21	\$9.40	\$13.76	\$0.00	\$53.37
4	75	\$32.36	\$9.40	\$13.76	\$0.00	\$55.52
5	80	\$34.52	\$9.40	\$15.49	\$0.00	\$59.41
6	80	\$34.52	\$9.40	\$15.49	\$0.00	\$59.41
7	90	\$38.84	\$9.40	\$17.22	\$0.00	\$65.46
8	90	\$38.84	\$9.40	\$17.22	\$0.00	\$65.46

Notes:

% Indentured After 10/1/17; 45/45/55/55/70/70/80/80
Step 1&2 \$30.26/ 3&4 \$36.18/ 5&6 \$54.64/ 7&8 \$60.62

Apprentice to Journeyworker Ratio:1:5

CARPENTER WOOD FRAME CARPENTERS -ZONE 2 (Wood Frame)	10/01/2019	\$27.95	\$7.07	\$7.86	\$0.00	\$42.88
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All Aspects of New Wood Frame Work

Issue Date: 03/31/2020

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Classification Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - CARPENTER (Wood Frame) - Zone 2

Effective Date - 10/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$16.77	\$7.07	\$0.00	\$0.00	\$23.84
2	60	\$16.77	\$7.07	\$0.00	\$0.00	\$23.84
3	65	\$18.17	\$7.07	\$7.86	\$0.00	\$33.10
4	70	\$19.57	\$7.07	\$7.86	\$0.00	\$34.50
5	75	\$20.96	\$7.07	\$7.86	\$0.00	\$35.89
6	80	\$22.36	\$7.07	\$7.86	\$0.00	\$37.29
7	85	\$23.76	\$7.07	\$7.86	\$0.00	\$38.69
8	90	\$25.16	\$7.07	\$7.86	\$0.00	\$40.09

Notes:
 % Indentured After 10/1/17; 45/45/55/55/70/70/80/80
 Step 1&2 \$19.65/ 3&4 \$27.19/ 5&6 \$34.50/ 7&8 \$37.29

Apprentice to Journeyworker Ratio:1:5

CEMENT MASONRY/PLASTERING BRICKLAYERS LOCAL 3 (NEWTON)	01/01/2020	\$49.07	\$12.75	\$22.41	\$0.62	\$84.85
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Apprentice - CEMENT MASONRY/PLASTERING - Eastern Mass (Newton)

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.54	\$12.75	\$15.41	\$0.00	\$52.70
2	60	\$29.44	\$12.75	\$17.41	\$0.62	\$60.22
3	65	\$31.90	\$12.75	\$18.41	\$0.62	\$63.68
4	70	\$34.35	\$12.75	\$19.41	\$0.62	\$67.13
5	75	\$36.80	\$12.75	\$20.41	\$0.62	\$70.58
6	80	\$39.26	\$12.75	\$21.41	\$0.62	\$74.04
7	90	\$44.16	\$12.75	\$22.41	\$0.62	\$79.94

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

Apprentice to Journeyworker Ratio:1:3

CHAIN SAW OPERATOR LABORERS - ZONE 1	12/01/2019	\$39.40	\$8.10	\$16.60	\$0.00	\$64.10
	06/01/2020	\$40.39	\$8.10	\$16.60	\$0.00	\$65.09
	12/01/2020	\$41.37	\$8.10	\$16.60	\$0.00	\$66.07
	06/01/2021	\$42.39	\$8.10	\$16.60	\$0.00	\$67.09
	12/01/2021	\$43.40	\$8.10	\$16.60	\$0.00	\$68.10

For apprentice rates see "Apprentice- LABORER"

CLAM SHELLS/SLURRY BUCKETS/HEADING MACHINES OPERATING ENGINEERS LOCAL 4	12/01/2019	\$49.73	\$12.50	\$15.70	\$0.00	\$77.93
	06/01/2020	\$50.83	\$12.50	\$15.70	\$0.00	\$79.03
	12/01/2020	\$51.98	\$12.50	\$15.70	\$0.00	\$80.18
	06/01/2021	\$53.08	\$12.50	\$15.70	\$0.00	\$81.28
	12/01/2021	\$54.23	\$12.50	\$15.70	\$0.00	\$82.43

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
COMPRESSOR OPERATOR OPERATING ENGINEERS LOCAL 4	12/01/2019	\$32.47	\$12.50	\$15.70	\$0.00	\$60.67
	06/01/2020	\$33.22	\$12.50	\$15.70	\$0.00	\$61.42
	12/01/2020	\$34.00	\$12.50	\$15.70	\$0.00	\$62.20
	06/01/2021	\$34.75	\$12.50	\$15.70	\$0.00	\$62.95
	12/01/2021	\$35.54	\$12.50	\$15.70	\$0.00	\$63.74
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DELEADER (BRIDGE) PAINTERS LOCAL 35 - ZONE 2	01/01/2020	\$50.96	\$8.20	\$22.10	\$0.00	\$81.26
	07/01/2020	\$52.06	\$8.20	\$22.10	\$0.00	\$82.36
	01/01/2021	\$53.16	\$8.20	\$22.10	\$0.00	\$83.46

Apprentice - PAINTER Local 35 - BRIDGESTANKS

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.48	\$8.20	\$0.00	\$0.00	\$33.68
2	55	\$28.03	\$8.20	\$5.94	\$0.00	\$42.17
3	60	\$30.58	\$8.20	\$6.48	\$0.00	\$45.26
4	65	\$33.12	\$8.20	\$7.02	\$0.00	\$48.34
5	70	\$35.67	\$8.20	\$18.86	\$0.00	\$62.73
6	75	\$38.22	\$8.20	\$19.40	\$0.00	\$65.82
7	80	\$40.77	\$8.20	\$19.94	\$0.00	\$68.91
8	90	\$45.86	\$8.20	\$21.02	\$0.00	\$75.08

Effective Date - 07/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$26.03	\$8.20	\$0.00	\$0.00	\$34.23
2	55	\$28.63	\$8.20	\$5.94	\$0.00	\$42.77
3	60	\$31.24	\$8.20	\$6.48	\$0.00	\$45.92
4	65	\$33.84	\$8.20	\$7.02	\$0.00	\$49.06
5	70	\$36.44	\$8.20	\$18.86	\$0.00	\$63.50
6	75	\$39.05	\$8.20	\$19.40	\$0.00	\$66.65
7	80	\$41.65	\$8.20	\$19.94	\$0.00	\$69.79
8	90	\$46.85	\$8.20	\$21.02	\$0.00	\$76.07

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

DEMO: ADZEMAN LABORERS - ZONE 1	12/01/2019	\$39.30	\$8.10	\$16.60	\$0.00	\$64.00
For apprentice rates see "Apprentice- LABORER"						
DEMO: BACKHOE/LOADER/HAMMER OPERATOR LABORERS - ZONE 1	12/01/2019	\$40.30	\$8.10	\$16.60	\$0.00	\$65.00
For apprentice rates see "Apprentice- LABORER"						
DEMO: BURNERS LABORERS - ZONE 1	12/01/2019	\$40.05	\$8.10	\$16.60	\$0.00	\$64.75
For apprentice rates see "Apprentice- LABORER"						

Issue Date: 03/31/2020

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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
DEMO: CONCRETE CUTTER/SAWYER LABORERS - ZONE 1	12/01/2019	\$40.30	\$8.10	\$16.60	\$0.00	\$65.00
For apprentice rates see "Apprentice- LABORER"						
DEMO: JACKHAMMER OPERATOR LABORERS - ZONE 1	12/01/2019	\$40.05	\$8.10	\$16.60	\$0.00	\$64.75
For apprentice rates see "Apprentice- LABORER"						
DEMO: WRECKING LABORER LABORERS - ZONE 1	12/01/2019	\$39.30	\$8.10	\$16.60	\$0.00	\$64.00
For apprentice rates see "Apprentice- LABORER"						
DIRECTIONAL DRILL MACHINE OPERATOR OPERATING ENGINEERS LOCAL 4	12/01/2019	\$48.23	\$12.50	\$15.70	\$0.00	\$76.43
	06/01/2020	\$49.31	\$12.50	\$15.70	\$0.00	\$77.51
	12/01/2020	\$50.45	\$12.50	\$15.70	\$0.00	\$78.65
	06/01/2021	\$51.54	\$12.50	\$15.70	\$0.00	\$79.74
	12/01/2021	\$52.68	\$12.50	\$15.70	\$0.00	\$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DIVER PILE DRIVER LOCAL 56 (ZONE 1)	08/01/2019	\$68.52	\$9.90	\$21.15	\$0.00	\$99.57
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER PILE DRIVER LOCAL 56 (ZONE 1)	08/01/2019	\$48.94	\$9.90	\$21.15	\$0.00	\$79.99
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER (EFFLUENT) PILE DRIVER LOCAL 56 (ZONE 1)	08/01/2019	\$73.41	\$9.90	\$21.15	\$0.00	\$104.46
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER/SLURRY (EFFLUENT) PILE DRIVER LOCAL 56 (ZONE 1)	08/01/2019	\$102.78	\$9.90	\$21.15	\$0.00	\$133.83
For apprentice rates see "Apprentice- PILE DRIVER"						
DRAWBRIDGE OPERATOR (Construction) ELECTRICIANS LOCAL 103	03/01/2020	\$53.50	\$13.00	\$19.20	\$0.00	\$85.70
	09/01/2020	\$54.93	\$13.00	\$19.25	\$0.00	\$87.18
	03/01/2021	\$56.13	\$13.00	\$19.28	\$0.00	\$88.41
	09/01/2021	\$57.56	\$13.00	\$19.33	\$0.00	\$89.89
	03/01/2022	\$58.76	\$13.00	\$19.36	\$0.00	\$91.12
	09/01/2022	\$60.19	\$13.00	\$19.41	\$0.00	\$92.60
	03/01/2023	\$61.39	\$13.00	\$19.44	\$0.00	\$93.83
For apprentice rates see "Apprentice- ELECTRICIAN"						
ELECTRICIAN ELECTRICIANS LOCAL 103	03/01/2020	\$53.50	\$13.00	\$19.20	\$0.00	\$85.70
	09/01/2020	\$54.93	\$13.00	\$19.25	\$0.00	\$87.18
	03/01/2021	\$56.13	\$13.00	\$19.28	\$0.00	\$88.41
	09/01/2021	\$57.56	\$13.00	\$19.33	\$0.00	\$89.89
	03/01/2022	\$58.76	\$13.00	\$19.36	\$0.00	\$91.12
	09/01/2022	\$60.19	\$13.00	\$19.41	\$0.00	\$92.60
	03/01/2023	\$61.39	\$13.00	\$19.44	\$0.00	\$93.83

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - *ELECTRICIAN - Local 103*

Effective Date - 03/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$21.40	\$13.00	\$0.64	\$0.00	\$35.04
2	40	\$21.40	\$13.00	\$0.64	\$0.00	\$35.04
3	45	\$24.08	\$13.00	\$14.62	\$0.00	\$51.70
4	45	\$24.08	\$13.00	\$14.62	\$0.00	\$51.70
5	50	\$26.75	\$13.00	\$15.04	\$0.00	\$54.79
6	55	\$29.43	\$13.00	\$15.46	\$0.00	\$57.89
7	60	\$32.10	\$13.00	\$15.87	\$0.00	\$60.97
8	65	\$34.78	\$13.00	\$16.29	\$0.00	\$64.07
9	70	\$37.45	\$13.00	\$16.70	\$0.00	\$67.15
10	75	\$40.13	\$13.00	\$17.12	\$0.00	\$70.25

Effective Date - 09/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$21.97	\$13.00	\$0.66	\$0.00	\$35.63
2	40	\$21.97	\$13.00	\$0.66	\$0.00	\$35.63
3	45	\$24.72	\$13.00	\$14.64	\$0.00	\$52.36
4	45	\$24.72	\$13.00	\$14.64	\$0.00	\$52.36
5	50	\$27.47	\$13.00	\$15.06	\$0.00	\$55.53
6	55	\$30.21	\$13.00	\$15.49	\$0.00	\$58.70
7	60	\$32.96	\$13.00	\$15.90	\$0.00	\$61.86
8	65	\$35.70	\$13.00	\$16.32	\$0.00	\$65.02
9	70	\$38.45	\$13.00	\$16.73	\$0.00	\$68.18
10	75	\$41.20	\$13.00	\$17.16	\$0.00	\$71.36

Notes :
 App Prior 1/1/03; 30/35/40/45/50/55/65/70/75/80
 Apprentice to Journeyworker Ratio:2:3***

ELEVATOR CONSTRUCTOR	01/01/2020	\$61.42	\$15.73	\$18.41	\$0.00	\$95.56
ELEVATOR CONSTRUCTORS LOCAL 4	01/01/2021	\$63.47	\$15.88	\$19.31	\$0.00	\$98.66
	01/01/2022	\$65.62	\$16.03	\$20.21	\$0.00	\$101.86

Classification Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - ELEVATOR CONSTRUCTOR - Local 4

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$30.71	\$15.73	\$0.00	\$0.00	\$46.44
2	55	\$33.78	\$15.73	\$18.41	\$0.00	\$67.92
3	65	\$39.92	\$15.73	\$18.41	\$0.00	\$74.06
4	70	\$42.99	\$15.73	\$18.41	\$0.00	\$77.13
5	80	\$49.14	\$15.73	\$18.41	\$0.00	\$83.28

Effective Date - 01/01/2021

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$31.74	\$15.88	\$0.00	\$0.00	\$47.62
2	55	\$34.91	\$15.88	\$19.31	\$0.00	\$70.10
3	65	\$41.26	\$15.88	\$19.31	\$0.00	\$76.45
4	70	\$44.43	\$15.88	\$19.31	\$0.00	\$79.62
5	80	\$50.78	\$15.88	\$19.31	\$0.00	\$85.97

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

Apprentice to Journeyworker Ratio:1:1

ELEVATOR CONSTRUCTOR HELPER ELEVATOR CONSTRUCTORS LOCAL 4	01/01/2020	\$42.99	\$15.73	\$18.41	\$0.00	\$77.13
	01/01/2021	\$44.43	\$15.88	\$19.31	\$0.00	\$79.62
	01/01/2022	\$45.93	\$16.03	\$20.21	\$0.00	\$82.17

For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"

FENCE & GUARD RAIL ERECTOR LABORERS - ZONE 1	12/01/2019	\$39.40	\$8.10	\$16.60	\$0.00	\$64.10
	06/01/2020	\$40.39	\$8.10	\$16.60	\$0.00	\$65.09
	12/01/2020	\$41.37	\$8.10	\$16.60	\$0.00	\$66.07
	06/01/2021	\$42.39	\$8.10	\$16.60	\$0.00	\$67.09
	12/01/2021	\$43.40	\$8.10	\$16.60	\$0.00	\$68.10

For apprentice rates see "Apprentice- LABORER"

FIELD ENG.INST.PERSON-BLDG,SITE,HVY/HWY OPERATING ENGINEERS LOCAL 4	11/01/2019	\$44.18	\$12.00	\$15.60	\$0.00	\$71.78
	05/01/2020	\$45.33	\$12.00	\$15.60	\$0.00	\$72.93
	11/01/2020	\$46.33	\$12.00	\$15.60	\$0.00	\$73.93
	05/01/2021	\$47.48	\$12.00	\$15.60	\$0.00	\$75.08
	11/01/2021	\$48.48	\$12.00	\$15.60	\$0.00	\$76.08
	05/01/2022	\$49.63	\$12.00	\$15.60	\$0.00	\$77.23

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

FIELD ENG.PARTY CHIEF-BLDG,SITE,HVY/HWY OPERATING ENGINEERS LOCAL 4	11/01/2019	\$45.68	\$12.00	\$15.60	\$0.00	\$73.28
	05/01/2020	\$46.83	\$12.00	\$15.60	\$0.00	\$74.43
	11/01/2020	\$47.84	\$12.00	\$15.60	\$0.00	\$75.44
	05/01/2021	\$49.00	\$12.00	\$15.60	\$0.00	\$76.60
	11/01/2021	\$50.01	\$12.00	\$15.60	\$0.00	\$77.61
	05/01/2022	\$51.17	\$12.00	\$15.60	\$0.00	\$78.77

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Issue Date: 03/31/2020

Wage Request Number: 20200331-050

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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FIELD ENG. ROD PERSON-BLDG, SITE, HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	11/01/2019	\$22.57	\$12.00	\$15.60	\$0.00	\$50.17
	05/01/2020	\$23.24	\$12.00	\$15.60	\$0.00	\$50.84
	11/01/2020	\$23.83	\$12.00	\$15.60	\$0.00	\$51.43
	05/01/2021	\$24.51	\$12.00	\$15.60	\$0.00	\$52.11
	11/01/2021	\$25.11	\$12.00	\$15.60	\$0.00	\$52.71
	05/01/2022	\$25.78	\$12.00	\$15.60	\$0.00	\$53.38
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIRE ALARM INSTALLER <i>ELECTRICIANS LOCAL 103</i>	03/01/2020	\$53.50	\$13.00	\$19.20	\$0.00	\$85.70
	09/01/2020	\$54.93	\$13.00	\$19.25	\$0.00	\$87.18
	03/01/2021	\$56.13	\$13.00	\$19.28	\$0.00	\$88.41
	09/01/2021	\$57.56	\$13.00	\$19.33	\$0.00	\$89.89
	03/01/2022	\$58.76	\$13.00	\$19.36	\$0.00	\$91.12
	09/01/2022	\$60.19	\$13.00	\$19.41	\$0.00	\$92.60
03/01/2023	\$61.39	\$13.00	\$19.44	\$0.00	\$93.83	
For apprentice rates see "Apprentice- ELECTRICIAN"						
FIRE ALARM REPAIR / MAINTENANCE / COMMISSIONING <i>ELECTRICIANS LOCAL 103</i>	03/01/2020	\$40.13	\$13.00	\$17.12	\$0.00	\$70.25
	09/01/2020	\$41.20	\$13.00	\$17.16	\$0.00	\$71.36
	03/01/2021	\$42.66	\$13.00	\$17.27	\$0.00	\$72.93
	09/01/2021	\$44.32	\$13.00	\$17.38	\$0.00	\$74.70
	03/01/2022	\$45.83	\$13.00	\$17.49	\$0.00	\$76.32
	09/01/2022	\$47.55	\$13.00	\$17.62	\$0.00	\$78.17
03/01/2023	\$49.11	\$13.00	\$17.73	\$0.00	\$79.84	
For apprentice rates see "Apprentice- TELECOMMUNICATIONS TECHNICIAN"						
FIREMAN (ASST. ENGINEER) <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2019	\$39.89	\$12.50	\$15.70	\$0.00	\$68.09
	06/01/2020	\$40.80	\$12.50	\$15.70	\$0.00	\$69.00
	12/01/2020	\$41.75	\$12.50	\$15.70	\$0.00	\$69.95
	06/01/2021	\$42.66	\$12.50	\$15.70	\$0.00	\$70.86
	12/01/2021	\$43.61	\$12.50	\$15.70	\$0.00	\$71.81
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FLAGGER & SIGNALER <i>LABORERS - ZONE 1</i>	12/01/2019	\$23.50	\$8.10	\$16.60	\$0.00	\$48.20
	06/01/2020	\$23.50	\$8.10	\$16.60	\$0.00	\$48.20
	12/01/2020	\$24.50	\$8.10	\$16.60	\$0.00	\$49.20
	06/01/2021	\$24.50	\$8.10	\$16.60	\$0.00	\$49.20
	12/01/2021	\$24.50	\$8.10	\$16.60	\$0.00	\$49.20
For apprentice rates see "Apprentice- LABORER"						
FLOORCOVERER <i>FLOORCOVERERS LOCAL 2168 ZONE 1</i>	03/01/2020	\$47.05	\$9.40	\$19.25	\$0.00	\$75.70
	09/01/2020	\$47.85	\$9.40	\$19.25	\$0.00	\$76.50
	03/01/2021	\$48.65	\$9.40	\$19.25	\$0.00	\$77.30
	09/01/2021	\$49.45	\$9.40	\$19.25	\$0.00	\$78.10
	03/01/2022	\$50.25	\$9.40	\$19.25	\$0.00	\$78.90

Classification Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - FLOORCOVERER - Local 2168 Zone 1

Effective Date - 03/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.53	\$9.40	\$1.79	\$0.00	\$34.72
2	55	\$25.88	\$9.40	\$1.79	\$0.00	\$37.07
3	60	\$28.23	\$9.40	\$13.88	\$0.00	\$51.51
4	65	\$30.58	\$9.40	\$13.88	\$0.00	\$53.86
5	70	\$32.94	\$9.40	\$15.67	\$0.00	\$58.01
6	75	\$35.29	\$9.40	\$15.67	\$0.00	\$60.36
7	80	\$37.64	\$9.40	\$17.46	\$0.00	\$64.50
8	85	\$39.99	\$9.40	\$17.46	\$0.00	\$66.85

Effective Date - 09/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.93	\$9.40	\$1.79	\$0.00	\$35.12
2	55	\$26.32	\$9.40	\$1.79	\$0.00	\$37.51
3	60	\$28.71	\$9.40	\$13.88	\$0.00	\$51.99
4	65	\$31.10	\$9.40	\$13.88	\$0.00	\$54.38
5	70	\$33.50	\$9.40	\$15.67	\$0.00	\$58.57
6	75	\$35.89	\$9.40	\$15.67	\$0.00	\$60.96
7	80	\$38.28	\$9.40	\$17.46	\$0.00	\$65.14
8	85	\$40.67	\$9.40	\$17.46	\$0.00	\$67.53

Notes: Steps are 750 hrs.
 % After 09/1/17; 45/45/55/55/70/70/80/80 (1500hr Steps)
 Step 1&2 \$32.36/ 3&4 \$38.80/ 5&6 \$58.01/ 7&8 \$64.50

Apprentice to Journeyworker Ratio:1:1

FORK LIFT/CHERRY PICKER OPERATING ENGINEERS LOCAL 4	12/01/2019	\$48.73	\$12.50	\$15.70	\$0.00	\$76.93
	06/01/2020	\$49.83	\$12.50	\$15.70	\$0.00	\$78.03
	12/01/2020	\$50.98	\$12.50	\$15.70	\$0.00	\$79.18
	06/01/2021	\$52.08	\$12.50	\$15.70	\$0.00	\$80.28
	12/01/2021	\$53.23	\$12.50	\$15.70	\$0.00	\$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GENERATOR/LIGHTING PLANT/HEATERS OPERATING ENGINEERS LOCAL 4	12/01/2019	\$32.47	\$12.50	\$15.70	\$0.00	\$60.67
	06/01/2020	\$33.22	\$12.50	\$15.70	\$0.00	\$61.42
	12/01/2020	\$34.00	\$12.50	\$15.70	\$0.00	\$62.20
	06/01/2021	\$34.75	\$12.50	\$15.70	\$0.00	\$62.95
	12/01/2021	\$35.54	\$12.50	\$15.70	\$0.00	\$63.74
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS) GLAZIERS LOCAL 35 (ZONE 2)	01/01/2020	\$40.46	\$8.20	\$22.10	\$0.00	\$70.76
	07/01/2020	\$41.56	\$8.20	\$22.10	\$0.00	\$71.86
	01/01/2021	\$42.66	\$8.20	\$22.10	\$0.00	\$72.96

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - GLAZIER - Local 35 Zone 2

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.23	\$8.20	\$0.00	\$0.00	\$28.43
2	55	\$22.25	\$8.20	\$5.94	\$0.00	\$36.39
3	60	\$24.28	\$8.20	\$6.48	\$0.00	\$38.96
4	65	\$26.30	\$8.20	\$7.02	\$0.00	\$41.52
5	70	\$28.32	\$8.20	\$18.86	\$0.00	\$55.38
6	75	\$30.35	\$8.20	\$19.40	\$0.00	\$57.95
7	80	\$32.37	\$8.20	\$19.94	\$0.00	\$60.51
8	90	\$36.41	\$8.20	\$21.02	\$0.00	\$65.63

Effective Date - 07/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.78	\$8.20	\$0.00	\$0.00	\$28.98
2	55	\$22.86	\$8.20	\$5.94	\$0.00	\$37.00
3	60	\$24.94	\$8.20	\$6.48	\$0.00	\$39.62
4	65	\$27.01	\$8.20	\$7.02	\$0.00	\$42.23
5	70	\$29.09	\$8.20	\$18.86	\$0.00	\$56.15
6	75	\$31.17	\$8.20	\$19.40	\$0.00	\$58.77
7	80	\$33.25	\$8.20	\$19.94	\$0.00	\$61.39
8	90	\$37.40	\$8.20	\$21.02	\$0.00	\$66.62

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

HOISTING ENGINEER/CRANES/GRADALLS	12/01/2019	\$48.73	\$12.50	\$15.70	\$0.00	\$76.93
OPERATING ENGINEERS LOCAL 4	06/01/2020	\$49.83	\$12.50	\$15.70	\$0.00	\$78.03
	12/01/2020	\$50.98	\$12.50	\$15.70	\$0.00	\$79.18
	06/01/2021	\$52.08	\$12.50	\$15.70	\$0.00	\$80.28
	12/01/2021	\$53.23	\$12.50	\$15.70	\$0.00	\$81.43

Classification Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - OPERATING ENGINEERS - Local 4
Effective Date - 12/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$26.80	\$12.50	\$0.00	\$0.00	\$39.30
2	60	\$29.24	\$12.50	\$15.70	\$0.00	\$57.44
3	65	\$31.67	\$12.50	\$15.70	\$0.00	\$59.87
4	70	\$34.11	\$12.50	\$15.70	\$0.00	\$62.31
5	75	\$36.55	\$12.50	\$15.70	\$0.00	\$64.75
6	80	\$38.98	\$12.50	\$15.70	\$0.00	\$67.18
7	85	\$41.42	\$12.50	\$15.70	\$0.00	\$69.62
8	90	\$43.86	\$12.50	\$15.70	\$0.00	\$72.06

Effective Date - 06/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$27.41	\$12.50	\$0.00	\$0.00	\$39.91
2	60	\$29.90	\$12.50	\$15.70	\$0.00	\$58.10
3	65	\$32.39	\$12.50	\$15.70	\$0.00	\$60.59
4	70	\$34.88	\$12.50	\$15.70	\$0.00	\$63.08
5	75	\$37.37	\$12.50	\$15.70	\$0.00	\$65.57
6	80	\$39.86	\$12.50	\$15.70	\$0.00	\$68.06
7	85	\$42.36	\$12.50	\$15.70	\$0.00	\$70.56
8	90	\$44.85	\$12.50	\$15.70	\$0.00	\$73.05

Notes:

Apprentice to Journeyworker Ratio:1:6

HVAC (DUCTWORK)	02/01/2020	\$49.36	\$13.35	\$24.12	\$2.61	\$89.44
SHEETMETAL WORKERS LOCAL 17 - A	08/01/2020	\$50.96	\$13.35	\$24.12	\$2.66	\$91.09
	02/01/2021	\$52.61	\$13.35	\$24.12	\$2.71	\$92.79
	08/01/2021	\$54.36	\$13.35	\$24.12	\$2.76	\$94.59
	02/01/2022	\$56.11	\$13.35	\$24.12	\$2.81	\$96.39

For apprentice rates see "Apprentice- SHEET METAL WORKER"

HVAC (ELECTRICAL CONTROLS)	03/01/2020	\$53.50	\$13.00	\$19.20	\$0.00	\$85.70
ELECTRICIANS LOCAL 103	09/01/2020	\$54.93	\$13.00	\$19.25	\$0.00	\$87.18
	03/01/2021	\$56.13	\$13.00	\$19.28	\$0.00	\$88.41
	09/01/2021	\$57.56	\$13.00	\$19.33	\$0.00	\$89.89
	03/01/2022	\$58.76	\$13.00	\$19.36	\$0.00	\$91.12
	09/01/2022	\$60.19	\$13.00	\$19.41	\$0.00	\$92.60
	03/01/2023	\$61.39	\$13.00	\$19.44	\$0.00	\$93.83

For apprentice rates see "Apprentice- ELECTRICIAN"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
HVAC (TESTING AND BALANCING - AIR) SHEETMETAL WORKERS LOCAL 17 - A	02/01/2020	\$49.36	\$13.35	\$24.12	\$2.61	\$89.44
	08/01/2020	\$50.96	\$13.35	\$24.12	\$2.66	\$91.09
	02/01/2021	\$52.61	\$13.35	\$24.12	\$2.71	\$92.79
	08/01/2021	\$54.36	\$13.35	\$24.12	\$2.76	\$94.59
	02/01/2022	\$56.11	\$13.35	\$24.12	\$2.81	\$96.39
For apprentice rates see "Apprentice- SHEET METAL WORKER"						
HVAC (TESTING AND BALANCING - WATER) PIPEFITTERS LOCAL 537	03/01/2020	\$56.19	\$10.95	\$19.74	\$0.00	\$86.88
	09/01/2020	\$57.69	\$10.95	\$19.74	\$0.00	\$88.38
	03/01/2021	\$59.19	\$10.95	\$19.74	\$0.00	\$89.88
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HVAC MECHANIC PIPEFITTERS LOCAL 537	03/01/2020	\$56.19	\$10.95	\$19.74	\$0.00	\$86.88
	09/01/2020	\$57.69	\$10.95	\$19.74	\$0.00	\$88.38
	03/01/2021	\$59.19	\$10.95	\$19.74	\$0.00	\$89.88
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HYDRAULIC DRILLS LABORERS - ZONE 1	12/01/2019	\$39.90	\$8.10	\$16.60	\$0.00	\$64.60
	06/01/2020	\$40.89	\$8.10	\$16.60	\$0.00	\$65.59
	12/01/2020	\$41.87	\$8.10	\$16.60	\$0.00	\$66.57
	06/01/2021	\$42.89	\$8.10	\$16.60	\$0.00	\$67.59
	12/01/2021	\$43.90	\$8.10	\$16.60	\$0.00	\$68.60
For apprentice rates see "Apprentice- LABORER"						
INSULATOR (PIPES & TANKS) HEAT & FROST INSULATORS LOCAL 6 (BOSTON)	09/01/2019	\$48.44	\$12.80	\$16.40	\$0.00	\$77.64

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

Effective Date - 09/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.22	\$12.80	\$11.90	\$0.00	\$48.92
2	60	\$29.06	\$12.80	\$12.80	\$0.00	\$54.66
3	70	\$33.91	\$12.80	\$13.70	\$0.00	\$60.41
4	80	\$38.75	\$12.80	\$14.60	\$0.00	\$66.15

Notes:

Steps are 1 year

Apprentice to Journeyworker Ratio:1:4

IRONWORKER/WELDER IRONWORKERS LOCAL 7 (BOSTON AREA)	03/16/2019	\$46.66	\$8.00	\$23.50	\$0.00	\$78.16
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Classification Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - IRONWORKER - Local 7 Boston

Effective Date - 03/16/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$28.00	\$8.00	\$23.50	\$0.00	\$59.50
2	70	\$32.66	\$8.00	\$23.50	\$0.00	\$64.16
3	75	\$35.00	\$8.00	\$23.50	\$0.00	\$66.50
4	80	\$37.33	\$8.00	\$23.50	\$0.00	\$68.83
5	85	\$39.66	\$8.00	\$23.50	\$0.00	\$71.16
6	90	\$41.99	\$8.00	\$23.50	\$0.00	\$73.49

Notes:

** Structural 1:6; Ornamental 1:4

Apprentice to Journeyworker Ratio:**

JACKHAMMER & PAVING BREAKER OPERATOR LABORERS - ZONE 1	12/01/2019	\$39.40	\$8.10	\$16.60	\$0.00	\$64.10
	06/01/2020	\$40.39	\$8.10	\$16.60	\$0.00	\$65.09
	12/01/2020	\$41.37	\$8.10	\$16.60	\$0.00	\$66.07
	06/01/2021	\$42.39	\$8.10	\$16.60	\$0.00	\$67.09
	12/01/2021	\$43.40	\$8.10	\$16.60	\$0.00	\$68.10

For apprentice rates see "Apprentice-LABORER"

LABORER LABORERS - ZONE 1	12/01/2019	\$39.15	\$8.10	\$16.60	\$0.00	\$63.85
	06/01/2020	\$40.14	\$8.10	\$16.60	\$0.00	\$64.84
	12/01/2020	\$41.12	\$8.10	\$16.60	\$0.00	\$65.82
	06/01/2021	\$42.14	\$8.10	\$16.60	\$0.00	\$66.84
	12/01/2021	\$43.15	\$8.10	\$16.60	\$0.00	\$67.85

Apprentice - LABORER - Zone 1

Effective Date - 12/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$23.49	\$8.10	\$16.60	\$0.00	\$48.19
2	70	\$27.41	\$8.10	\$16.60	\$0.00	\$52.11
3	80	\$31.32	\$8.10	\$16.60	\$0.00	\$56.02
4	90	\$35.24	\$8.10	\$16.60	\$0.00	\$59.94

Effective Date - 06/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$24.08	\$8.10	\$16.60	\$0.00	\$48.78
2	70	\$28.10	\$8.10	\$16.60	\$0.00	\$52.80
3	80	\$32.11	\$8.10	\$16.60	\$0.00	\$56.81
4	90	\$36.13	\$8.10	\$16.60	\$0.00	\$60.83

Notes:

Apprentice to Journeyworker Ratio: 1:5

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
LABORER: CARPENTER TENDER <i>LABORERS - ZONE 1</i>	12/01/2019	\$39.15	\$8.10	\$16.60	\$0.00	\$63.85
	06/01/2020	\$40.14	\$8.10	\$16.60	\$0.00	\$64.84
	12/01/2020	\$41.12	\$8.10	\$16.60	\$0.00	\$65.82
	06/01/2021	\$42.14	\$8.10	\$16.60	\$0.00	\$66.84
	12/01/2021	\$43.15	\$8.10	\$16.60	\$0.00	\$67.85
For apprentice rates see "Apprentice- LABORER"						
LABORER: CEMENT FINISHER TENDER <i>LABORERS - ZONE 1</i>	12/01/2019	\$39.15	\$8.10	\$16.60	\$0.00	\$63.85
	06/01/2020	\$40.14	\$8.10	\$16.60	\$0.00	\$64.84
	12/01/2020	\$41.12	\$8.10	\$16.60	\$0.00	\$65.82
	06/01/2021	\$42.14	\$8.10	\$16.60	\$0.00	\$66.84
	12/01/2021	\$43.15	\$8.10	\$16.60	\$0.00	\$67.85
For apprentice rates see "Apprentice- LABORER"						
LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER <i>LABORERS - ZONE 1</i>	12/01/2019	\$39.30	\$8.10	\$16.60	\$0.00	\$64.00
For apprentice rates see "Apprentice- LABORER"						
LABORER: MASON TENDER <i>LABORERS - ZONE 1</i>	12/01/2019	\$39.40	\$8.10	\$16.60	\$0.00	\$64.10
	06/01/2020	\$40.39	\$8.10	\$16.60	\$0.00	\$65.09
	12/01/2020	\$41.37	\$8.10	\$16.60	\$0.00	\$66.07
	06/01/2021	\$42.39	\$8.10	\$16.60	\$0.00	\$67.09
	12/01/2021	\$43.40	\$8.10	\$16.60	\$0.00	\$68.10
For apprentice rates see "Apprentice- LABORER"						
LABORER: MULTI-TRADE TENDER <i>LABORERS - ZONE 1</i>	12/01/2019	\$39.15	\$8.10	\$16.60	\$0.00	\$63.85
	06/01/2020	\$40.14	\$8.10	\$16.60	\$0.00	\$64.84
	12/01/2020	\$41.12	\$8.10	\$16.60	\$0.00	\$65.82
	06/01/2021	\$42.14	\$8.10	\$16.60	\$0.00	\$66.84
	12/01/2021	\$43.15	\$8.10	\$16.60	\$0.00	\$67.85
For apprentice rates see "Apprentice- LABORER"						
LABORER: TREE REMOVER <i>LABORERS - ZONE 1</i>	12/01/2019	\$39.15	\$8.10	\$16.60	\$0.00	\$63.85
	06/01/2020	\$40.14	\$8.10	\$16.60	\$0.00	\$64.84
	12/01/2020	\$41.12	\$8.10	\$16.60	\$0.00	\$65.82
	06/01/2021	\$42.14	\$8.10	\$16.60	\$0.00	\$66.84
	12/01/2021	\$43.15	\$8.10	\$16.60	\$0.00	\$67.85
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>	12/01/2019	\$39.40	\$8.10	\$16.60	\$0.00	\$64.10
	06/01/2020	\$40.39	\$8.10	\$16.60	\$0.00	\$65.09
	12/01/2020	\$41.37	\$8.10	\$16.60	\$0.00	\$66.07
	06/01/2021	\$42.39	\$8.10	\$16.60	\$0.00	\$67.09
	12/01/2021	\$43.40	\$8.10	\$16.60	\$0.00	\$68.10
For apprentice rates see "Apprentice- LABORER"						
MARBLE & TILE FINISHERS <i>BRICKLAYERS LOCAL 3 - MARBLE & TILE</i>	02/01/2020	\$41.49	\$10.75	\$20.12	\$0.00	\$72.36
	08/01/2020	\$42.57	\$10.75	\$20.27	\$0.00	\$73.59
	02/01/2021	\$43.08	\$10.75	\$20.27	\$0.00	\$74.10
	08/01/2021	\$44.20	\$10.75	\$20.43	\$0.00	\$75.38
	02/01/2022	\$44.67	\$10.75	\$20.43	\$0.00	\$75.85

Classification Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

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

Effective Date - 02/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.75	\$10.75	\$20.12	\$0.00	\$51.62
2	60	\$24.89	\$10.75	\$20.12	\$0.00	\$55.76
3	70	\$29.04	\$10.75	\$20.12	\$0.00	\$59.91
4	80	\$33.19	\$10.75	\$20.12	\$0.00	\$64.06
5	90	\$37.34	\$10.75	\$20.12	\$0.00	\$68.21

Effective Date - 08/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.29	\$10.75	\$20.27	\$0.00	\$52.31
2	60	\$25.54	\$10.75	\$20.27	\$0.00	\$56.56
3	70	\$29.80	\$10.75	\$20.27	\$0.00	\$60.82
4	80	\$34.06	\$10.75	\$20.27	\$0.00	\$65.08
5	90	\$38.31	\$10.75	\$20.27	\$0.00	\$69.33

Notes:

Apprentice to Journeyworker Ratio:1:3

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
MARBLE MASONS, TILELAYERS & TERRAZZO MECH	02/01/2020	\$54.42	\$10.75	\$21.93	\$0.00	\$87.10
BRICKLAYERS LOCAL 3 - MARBLE & TILE	08/01/2020	\$55.77	\$10.75	\$22.08	\$0.00	\$88.60
	02/01/2021	\$56.41	\$10.75	\$22.08	\$0.00	\$89.24
	08/01/2021	\$57.81	\$10.75	\$22.24	\$0.00	\$90.80
	02/01/2022	\$58.38	\$10.75	\$22.24	\$0.00	\$91.37

Classification Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

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

Effective Date - 02/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$27.21	\$10.75	\$21.93	\$0.00	\$59.89
2	60	\$32.65	\$10.75	\$21.93	\$0.00	\$65.33
3	70	\$38.09	\$10.75	\$21.93	\$0.00	\$70.77
4	80	\$43.54	\$10.75	\$21.93	\$0.00	\$76.22
5	90	\$48.98	\$10.75	\$21.93	\$0.00	\$81.66

Effective Date - 08/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$27.89	\$10.75	\$22.08	\$0.00	\$60.72
2	60	\$33.46	\$10.75	\$22.08	\$0.00	\$66.29
3	70	\$39.04	\$10.75	\$22.08	\$0.00	\$71.87
4	80	\$44.62	\$10.75	\$22.08	\$0.00	\$77.45
5	90	\$50.19	\$10.75	\$22.08	\$0.00	\$83.02

Notes:

Apprentice to Journeyworker Ratio:1:5

MECH. SWEEPER OPERATOR (ON CONST. SITES) OPERATING ENGINEERS LOCAL 4	12/01/2019	\$48.23	\$12.50	\$15.70	\$0.00	\$76.43
	06/01/2020	\$49.31	\$12.50	\$15.70	\$0.00	\$77.51
	12/01/2020	\$50.45	\$12.50	\$15.70	\$0.00	\$78.65
	06/01/2021	\$51.54	\$12.50	\$15.70	\$0.00	\$79.74
	12/01/2021	\$52.68	\$12.50	\$15.70	\$0.00	\$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
MECHANICS MAINTENANCE OPERATING ENGINEERS LOCAL 4	12/01/2019	\$48.23	\$12.50	\$15.70	\$0.00	\$76.43
	06/01/2020	\$49.31	\$12.50	\$15.70	\$0.00	\$77.51
	12/01/2020	\$50.45	\$12.50	\$15.70	\$0.00	\$78.65
	06/01/2021	\$51.54	\$12.50	\$15.70	\$0.00	\$79.74
	12/01/2021	\$52.68	\$12.50	\$15.70	\$0.00	\$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
MILLWRIGHT (Zone 1) MILLWRIGHTS LOCAL 1121 - Zone 1	04/01/2019	\$42.22	\$9.90	\$18.50	\$0.00	\$70.62

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PAINTER Local 35 - BRIDGES/TANKS

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.48	\$8.20	\$0.00	\$0.00	\$33.68
2	55	\$28.03	\$8.20	\$5.94	\$0.00	\$42.17
3	60	\$30.58	\$8.20	\$6.48	\$0.00	\$45.26
4	65	\$33.12	\$8.20	\$7.02	\$0.00	\$48.34
5	70	\$35.67	\$8.20	\$18.86	\$0.00	\$62.73
6	75	\$38.22	\$8.20	\$19.40	\$0.00	\$65.82
7	80	\$40.77	\$8.20	\$19.94	\$0.00	\$68.91
8	90	\$45.86	\$8.20	\$21.02	\$0.00	\$75.08

Effective Date - 07/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$26.03	\$8.20	\$0.00	\$0.00	\$34.23
2	55	\$28.63	\$8.20	\$5.94	\$0.00	\$42.77
3	60	\$31.24	\$8.20	\$6.48	\$0.00	\$45.92
4	65	\$33.84	\$8.20	\$7.02	\$0.00	\$49.06
5	70	\$36.44	\$8.20	\$18.86	\$0.00	\$63.50
6	75	\$39.05	\$8.20	\$19.40	\$0.00	\$66.65
7	80	\$41.65	\$8.20	\$19.94	\$0.00	\$69.79
8	90	\$46.85	\$8.20	\$21.02	\$0.00	\$76.07

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SIGN, PICTORIAL & DISPLAY) 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 - PAINTER SIGN - 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

PAINTER (SPRAY OR SANDBLAST, NEW) *	01/01/2020	\$41.86	\$8.20	\$22.10	\$0.00	\$72.16
* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used. PAINTERS LOCAL 35 - ZONE 2	07/01/2020	\$42.96	\$8.20	\$22.10	\$0.00	\$73.26
	01/01/2021	\$44.06	\$8.20	\$22.10	\$0.00	\$74.36

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

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

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.93	\$8.20	\$0.00	\$0.00	\$29.13
2	55	\$23.02	\$8.20	\$5.94	\$0.00	\$37.16
3	60	\$25.12	\$8.20	\$6.48	\$0.00	\$39.80
4	65	\$27.21	\$8.20	\$7.02	\$0.00	\$42.43
5	70	\$29.30	\$8.20	\$18.86	\$0.00	\$56.36
6	75	\$31.40	\$8.20	\$19.40	\$0.00	\$59.00
7	80	\$33.49	\$8.20	\$19.94	\$0.00	\$61.63
8	90	\$37.67	\$8.20	\$21.02	\$0.00	\$66.89

Effective Date - 07/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.48	\$8.20	\$0.00	\$0.00	\$29.68
2	55	\$23.63	\$8.20	\$5.94	\$0.00	\$37.77
3	60	\$25.78	\$8.20	\$6.48	\$0.00	\$40.46
4	65	\$27.92	\$8.20	\$7.02	\$0.00	\$43.14
5	70	\$30.07	\$8.20	\$18.86	\$0.00	\$57.13
6	75	\$32.22	\$8.20	\$19.40	\$0.00	\$59.82
7	80	\$34.37	\$8.20	\$19.94	\$0.00	\$62.51
8	90	\$38.66	\$8.20	\$21.02	\$0.00	\$67.88

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio: 1:1

PAINTER (SPRAY OR SANDBLAST, REPAINT)	01/01/2020	\$39.92	\$8.20	\$22.10	\$0.00	\$70.22
PAINTERS LOCAL 35 - ZONE 2	07/01/2020	\$41.02	\$8.20	\$22.10	\$0.00	\$71.32
	01/01/2021	\$42.12	\$8.20	\$22.10	\$0.00	\$72.42

Issue Date: 03/31/2020

Wage Request Number: 20200331-050

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Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

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

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.96	\$8.20	\$0.00	\$0.00	\$28.16
2	55	\$21.96	\$8.20	\$5.94	\$0.00	\$36.10
3	60	\$23.95	\$8.20	\$6.48	\$0.00	\$38.63
4	65	\$25.95	\$8.20	\$7.02	\$0.00	\$41.17
5	70	\$27.94	\$8.20	\$18.86	\$0.00	\$55.00
6	75	\$29.94	\$8.20	\$19.40	\$0.00	\$57.54
7	80	\$31.94	\$8.20	\$19.94	\$0.00	\$60.08
8	90	\$35.93	\$8.20	\$21.02	\$0.00	\$65.15

Effective Date - 07/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.51	\$8.20	\$0.00	\$0.00	\$28.71
2	55	\$22.56	\$8.20	\$5.94	\$0.00	\$36.70
3	60	\$24.61	\$8.20	\$6.48	\$0.00	\$39.29
4	65	\$26.66	\$8.20	\$7.02	\$0.00	\$41.88
5	70	\$28.71	\$8.20	\$18.86	\$0.00	\$55.77
6	75	\$30.77	\$8.20	\$19.40	\$0.00	\$58.37
7	80	\$32.82	\$8.20	\$19.94	\$0.00	\$60.96
8	90	\$36.92	\$8.20	\$21.02	\$0.00	\$66.14

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (TRAFFIC MARKINGS)	12/01/2019	\$39.15	\$8.10	\$16.60	\$0.00	\$63.85
LABORERS - ZONE 1	06/01/2020	\$40.14	\$8.10	\$16.60	\$0.00	\$64.84
	12/01/2020	\$41.12	\$8.10	\$16.60	\$0.00	\$65.82
	06/01/2021	\$42.14	\$8.10	\$16.60	\$0.00	\$66.84
	12/01/2021	\$43.15	\$8.10	\$16.60	\$0.00	\$67.85
For Apprentice rates see "Apprentice-LABORER"						
PAINTER / TAPER (BRUSH, NEW) *	01/01/2020	\$40.46	\$8.20	\$22.10	\$0.00	\$70.76
* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used. PAINTERS LOCAL 35 - ZONE 2	07/01/2020	\$41.56	\$8.20	\$22.10	\$0.00	\$71.86
	01/01/2021	\$42.66	\$8.20	\$22.10	\$0.00	\$72.96

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PAINTER - Local 35 Zone 2 - BRUSH NEW

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.23	\$8.20	\$0.00	\$0.00	\$28.43
2	55	\$22.25	\$8.20	\$5.94	\$0.00	\$36.39
3	60	\$24.28	\$8.20	\$6.48	\$0.00	\$38.96
4	65	\$26.30	\$8.20	\$7.02	\$0.00	\$41.52
5	70	\$28.32	\$8.20	\$18.86	\$0.00	\$55.38
6	75	\$30.35	\$8.20	\$19.40	\$0.00	\$57.95
7	80	\$32.37	\$8.20	\$19.94	\$0.00	\$60.51
8	90	\$36.41	\$8.20	\$21.02	\$0.00	\$65.63

Effective Date - 07/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.78	\$8.20	\$0.00	\$0.00	\$28.98
2	55	\$22.86	\$8.20	\$5.94	\$0.00	\$37.00
3	60	\$24.94	\$8.20	\$6.48	\$0.00	\$39.62
4	65	\$27.01	\$8.20	\$7.02	\$0.00	\$42.23
5	70	\$29.09	\$8.20	\$18.86	\$0.00	\$56.15
6	75	\$31.17	\$8.20	\$19.40	\$0.00	\$58.77
7	80	\$33.25	\$8.20	\$19.94	\$0.00	\$61.39
8	90	\$37.40	\$8.20	\$21.02	\$0.00	\$66.62

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER / TAPER (BRUSH, REPAINT)	01/01/2020	\$38.52	\$8.20	\$22.10	\$0.00	\$68.82
PAINTERS LOCAL 35 - ZONE 2	07/01/2020	\$39.62	\$8.20	\$22.10	\$0.00	\$69.92
	01/01/2021	\$40.72	\$8.20	\$22.10	\$0.00	\$71.02

Classification Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PAINTER Local 35 Zone 2 - BRUSH REPAINT

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.26	\$8.20	\$0.00	\$0.00	\$27.46
2	55	\$21.19	\$8.20	\$5.94	\$0.00	\$35.33
3	60	\$23.11	\$8.20	\$6.48	\$0.00	\$37.79
4	65	\$25.04	\$8.20	\$7.02	\$0.00	\$40.26
5	70	\$26.96	\$8.20	\$18.86	\$0.00	\$54.02
6	75	\$28.89	\$8.20	\$19.40	\$0.00	\$56.49
7	80	\$30.82	\$8.20	\$19.94	\$0.00	\$58.96
8	90	\$34.67	\$8.20	\$21.02	\$0.00	\$63.89

Effective Date - 07/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.81	\$8.20	\$0.00	\$0.00	\$28.01
2	55	\$21.79	\$8.20	\$5.94	\$0.00	\$35.93
3	60	\$23.77	\$8.20	\$6.48	\$0.00	\$38.45
4	65	\$25.75	\$8.20	\$7.02	\$0.00	\$40.97
5	70	\$27.73	\$8.20	\$18.86	\$0.00	\$54.79
6	75	\$29.72	\$8.20	\$19.40	\$0.00	\$57.32
7	80	\$31.70	\$8.20	\$19.94	\$0.00	\$59.84
8	90	\$35.66	\$8.20	\$21.02	\$0.00	\$64.88

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PANEL & PICKUP TRUCKS DRIVER TEAMSTERS JOINT COUNCIL NO. 10 ZONE A	12/01/2019	\$35.18	\$12.41	\$13.72	\$0.00	\$61.31
	06/01/2020	\$36.08	\$12.41	\$13.72	\$0.00	\$62.21
	08/01/2020	\$36.08	\$12.91	\$13.72	\$0.00	\$62.71
	12/01/2020	\$36.08	\$12.91	\$14.82	\$0.00	\$63.81
	06/01/2021	\$36.88	\$12.91	\$14.82	\$0.00	\$64.61
	08/01/2021	\$36.88	\$13.41	\$14.82	\$0.00	\$65.11
	12/01/2021	\$36.88	\$13.41	\$16.01	\$0.00	\$66.30
PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK) PILE DRIVER LOCAL 56 (ZONE 1) For apprentice rates see "Apprentice- PILE DRIVER"	08/01/2019	\$48.94	\$9.90	\$21.15	\$0.00	\$79.99
PILE DRIVER PILE DRIVER LOCAL 56 (ZONE 1)	08/01/2019	\$48.94	\$9.90	\$21.15	\$0.00	\$79.99

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PILE DRIVER - Local 56 Zone 1

Effective Date - 08/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.47	\$9.90	\$21.15	\$0.00	\$55.52
2	60	\$29.36	\$9.90	\$21.15	\$0.00	\$60.41
3	70	\$34.26	\$9.90	\$21.15	\$0.00	\$65.31
4	75	\$36.71	\$9.90	\$21.15	\$0.00	\$67.76
5	80	\$39.15	\$9.90	\$21.15	\$0.00	\$70.20
6	80	\$39.15	\$9.90	\$21.15	\$0.00	\$70.20
7	90	\$44.05	\$9.90	\$21.15	\$0.00	\$75.10
8	90	\$44.05	\$9.90	\$21.15	\$0.00	\$75.10

Notes:

Apprentice to Journeyworker Ratio:1:5

PIPEFITTER & STEAMFITTER
PIPEFITTERS LOCAL 537

03/01/2020	\$56.19	\$10.95	\$19.74	\$0.00	\$86.88
09/01/2020	\$57.69	\$10.95	\$19.74	\$0.00	\$88.38
03/01/2021	\$59.19	\$10.95	\$19.74	\$0.00	\$89.88

Apprentice - PIPEFITTER - Local 537

Effective Date - 03/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$22.48	\$10.95	\$8.00	\$0.00	\$41.43
2	45	\$25.29	\$10.95	\$19.74	\$0.00	\$55.98
3	60	\$33.71	\$10.95	\$19.74	\$0.00	\$64.40
4	70	\$39.33	\$10.95	\$19.74	\$0.00	\$70.02
5	80	\$44.95	\$10.95	\$19.74	\$0.00	\$75.64

Effective Date - 09/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$23.08	\$10.95	\$8.00	\$0.00	\$42.03
2	45	\$25.96	\$10.95	\$19.74	\$0.00	\$56.65
3	60	\$34.61	\$10.95	\$19.74	\$0.00	\$65.30
4	70	\$40.38	\$10.95	\$19.74	\$0.00	\$71.07
5	80	\$46.15	\$10.95	\$19.74	\$0.00	\$76.84

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:**

Issue Date: 03/31/2020

Wage Request Number: 20200331-050

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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PIPELAYER LABORERS - ZONE 1	12/01/2019	\$39.40	\$8.10	\$16.60	\$0.00	\$64.10
	06/01/2020	\$40.39	\$8.10	\$16.60	\$0.00	\$65.09
	12/01/2020	\$41.37	\$8.10	\$16.60	\$0.00	\$66.07
	06/01/2021	\$42.39	\$8.10	\$16.60	\$0.00	\$67.09
	12/01/2021	\$43.40	\$8.10	\$16.60	\$0.00	\$68.10
For apprentice rates see "Apprentice- LABORER"						
PLUMBERS & GASFITTERS PLUMBERS & GASFITTERS LOCAL 12	03/01/2020	\$58.69	\$12.07	\$17.26	\$0.00	\$88.02
	09/01/2020	\$60.19	\$12.07	\$17.26	\$0.00	\$89.52
	03/01/2021	\$61.69	\$12.07	\$17.26	\$0.00	\$91.02

Apprentice - PLUMBER/GASFITTER - Local 12

Effective Date - 03/01/2020		Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Step	percent					
1	35	\$20.54	\$12.07	\$6.24	\$0.00	\$38.85
2	40	\$23.48	\$12.07	\$7.08	\$0.00	\$42.63
3	55	\$32.28	\$12.07	\$9.63	\$0.00	\$53.98
4	65	\$38.15	\$12.07	\$11.33	\$0.00	\$61.55
5	75	\$44.02	\$12.07	\$13.03	\$0.00	\$69.12

Effective Date - 09/01/2020		Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Step	percent					
1	35	\$21.07	\$12.07	\$6.24	\$0.00	\$39.38
2	40	\$24.08	\$12.07	\$7.08	\$0.00	\$43.23
3	55	\$33.10	\$12.07	\$9.63	\$0.00	\$54.80
4	65	\$39.12	\$12.07	\$11.33	\$0.00	\$62.52
5	75	\$45.14	\$12.07	\$13.03	\$0.00	\$70.24

Notes:
 ** 1;2; 2;6; 3;10; 4;14; 5;19/Steps are 1 yr
 Step4 with lic\$65.32, Step5 with lic\$72.89
 Apprentice to Journeyworker Ratio:**

PNEUMATIC CONTROLS (TEMP.) PIPEFITTERS LOCAL 537	03/01/2020	\$56.19	\$10.95	\$19.74	\$0.00	\$86.88
	09/01/2020	\$57.69	\$10.95	\$19.74	\$0.00	\$88.38
	03/01/2021	\$59.17	\$10.95	\$19.74	\$0.00	\$89.86
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						

PNEUMATIC DRILL/TOOL OPERATOR LABORERS - ZONE 1	12/01/2019	\$39.40	\$8.10	\$16.60	\$0.00	\$64.10
	06/01/2020	\$40.39	\$8.10	\$16.60	\$0.00	\$65.09
	12/01/2020	\$41.37	\$8.10	\$16.60	\$0.00	\$66.07
	06/01/2021	\$42.39	\$8.10	\$16.60	\$0.00	\$67.09
	12/01/2021	\$43.40	\$8.10	\$16.60	\$0.00	\$68.10
For apprentice rates see "Apprentice- LABORER"						

POWDERMAN & BLASTER LABORERS - ZONE 1	12/01/2019	\$40.15	\$8.10	\$16.60	\$0.00	\$64.85
	06/01/2020	\$41.14	\$8.10	\$16.60	\$0.00	\$65.84
	12/01/2020	\$42.12	\$8.10	\$16.60	\$0.00	\$66.82
	06/01/2021	\$43.11	\$8.10	\$16.60	\$0.00	\$67.81
	12/01/2021	\$44.10	\$8.10	\$16.60	\$0.00	\$68.80

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- LABORER"						
POWER SHOVEL/DERRICK/TRENCHING MACHINE <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2019	\$48.73	\$12.50	\$15.70	\$0.00	\$76.93
	06/01/2020	\$49.83	\$12.50	\$15.70	\$0.00	\$78.03
	12/01/2020	\$50.98	\$12.50	\$15.70	\$0.00	\$79.18
	06/01/2021	\$52.08	\$12.50	\$15.70	\$0.00	\$80.28
	12/01/2021	\$53.23	\$12.50	\$15.70	\$0.00	\$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (CONCRETE) <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2019	\$48.73	\$12.50	\$15.70	\$0.00	\$76.93
	06/01/2020	\$49.83	\$12.50	\$15.70	\$0.00	\$78.03
	12/01/2020	\$50.98	\$12.50	\$15.70	\$0.00	\$79.18
	06/01/2021	\$52.08	\$12.50	\$15.70	\$0.00	\$80.28
	12/01/2021	\$53.23	\$12.50	\$15.70	\$0.00	\$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (DEWATERING, OTHER) <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2019	\$32.47	\$12.50	\$15.70	\$0.00	\$60.67
	06/01/2020	\$33.22	\$12.50	\$15.70	\$0.00	\$61.42
	12/01/2020	\$34.00	\$12.50	\$15.70	\$0.00	\$62.20
	06/01/2021	\$34.75	\$12.50	\$15.70	\$0.00	\$62.95
	12/01/2021	\$35.54	\$12.50	\$15.70	\$0.00	\$63.74
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
READY-MIX CONCRETE DRIVER <i>TEAMSTERS 170 - Rosenfeld (Walpole)</i>	01/01/2020	\$23.50	\$11.01	\$8.00	\$0.00	\$42.51
	01/01/2021	\$23.50	\$11.51	\$8.00	\$0.00	\$43.01
RECLAIMERS <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2019	\$48.23	\$12.50	\$15.70	\$0.00	\$76.43
	06/01/2020	\$49.31	\$12.50	\$15.70	\$0.00	\$77.51
	12/01/2020	\$50.45	\$12.50	\$15.70	\$0.00	\$78.65
	06/01/2021	\$51.54	\$12.50	\$15.70	\$0.00	\$79.74
	12/01/2021	\$52.68	\$12.50	\$15.70	\$0.00	\$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
RIDE-ON MOTORIZED BUGGY OPERATOR <i>LABORERS - ZONE 1</i>	12/01/2019	\$39.40	\$8.10	\$16.60	\$0.00	\$64.10
	06/01/2020	\$40.39	\$8.10	\$16.60	\$0.00	\$65.09
	12/01/2020	\$41.37	\$8.10	\$16.60	\$0.00	\$66.07
	06/01/2021	\$42.39	\$8.10	\$16.60	\$0.00	\$67.09
	12/01/2021	\$43.40	\$8.10	\$16.60	\$0.00	\$68.10
For apprentice rates see "Apprentice- LABORER"						
ROLLER/SPREADER/MULCHING MACHINE <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2019	\$48.23	\$12.50	\$15.70	\$0.00	\$76.43
	06/01/2020	\$49.31	\$12.50	\$15.70	\$0.00	\$77.51
	12/01/2020	\$50.45	\$12.50	\$15.70	\$0.00	\$78.65
	06/01/2021	\$51.54	\$12.50	\$15.70	\$0.00	\$79.74
	12/01/2021	\$52.68	\$12.50	\$15.70	\$0.00	\$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
ROOFER (Inc. Roofer Waterproofing & Roofer Damproofg) <i>ROOFERS LOCAL 33</i>	03/01/2020	\$45.67	\$11.50	\$15.90	\$0.00	\$73.07
	08/01/2020	\$47.10	\$11.50	\$15.90	\$0.00	\$74.50
	02/01/2021	\$48.53	\$11.50	\$15.90	\$0.00	\$75.93
	08/01/2021	\$49.96	\$11.50	\$15.90	\$0.00	\$77.36
	02/01/2022	\$51.39	\$11.50	\$15.90	\$0.00	\$78.79

Classification Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - ROOFER - Local 33

Effective Date - 03/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.84	\$11.50	\$3.69	\$0.00	\$38.03
2	60	\$27.40	\$11.50	\$15.90	\$0.00	\$54.80
3	65	\$29.69	\$11.50	\$15.90	\$0.00	\$57.09
4	75	\$34.25	\$11.50	\$15.90	\$0.00	\$61.65
5	85	\$38.82	\$11.50	\$15.90	\$0.00	\$66.22

Effective Date - 08/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.55	\$11.50	\$3.69	\$0.00	\$38.74
2	60	\$28.26	\$11.50	\$15.90	\$0.00	\$55.66
3	65	\$30.62	\$11.50	\$15.90	\$0.00	\$58.02
4	75	\$35.33	\$11.50	\$15.90	\$0.00	\$62.73
5	85	\$40.04	\$11.50	\$15.90	\$0.00	\$67.44

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.
 (Hot Pitch Mechanics' receive \$1.00 hr. above ROOFER)

Apprentice to Journeyworker Ratio:**

ROOFER SLATE / TILE / PRECAST CONCRETE	03/01/2020	\$45.92	\$11.50	\$15.90	\$0.00	\$73.32
ROOFERS LOCAL 33	08/01/2020	\$47.35	\$11.50	\$15.90	\$0.00	\$74.75
	02/01/2021	\$48.78	\$11.50	\$15.90	\$0.00	\$76.18
	08/01/2021	\$50.21	\$11.50	\$15.90	\$0.00	\$77.61
	02/01/2022	\$51.64	\$11.50	\$15.90	\$0.00	\$79.04
For apprentice rates see "Apprentice- ROOFER"						
SHEETMETAL WORKER	02/01/2020	\$49.36	\$13.35	\$24.12	\$2.61	\$89.44
SHEETMETAL WORKERS LOCAL 17 - A	08/01/2020	\$50.96	\$13.35	\$24.12	\$2.66	\$91.09
	02/01/2021	\$52.61	\$13.35	\$24.12	\$2.71	\$92.79
	08/01/2021	\$54.36	\$13.35	\$24.12	\$2.76	\$94.59
	02/01/2022	\$56.11	\$13.35	\$24.12	\$2.81	\$96.39

Classification Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - SHEET METAL WORKER - Local 17-A

Effective Date - 02/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	42	\$20.73	\$13.35	\$5.89	\$0.00	\$39.97
2	42	\$20.73	\$13.35	\$5.89	\$0.00	\$39.97
3	47	\$23.20	\$13.35	\$11.13	\$1.43	\$49.11
4	47	\$23.20	\$13.35	\$11.13	\$1.43	\$49.11
5	52	\$25.67	\$13.35	\$12.08	\$1.53	\$52.63
6	52	\$25.67	\$13.35	\$12.33	\$1.54	\$52.89
7	60	\$29.62	\$13.35	\$13.70	\$1.70	\$58.37
8	65	\$32.08	\$13.35	\$15.15	\$1.80	\$62.38
9	75	\$37.02	\$13.35	\$16.56	\$2.01	\$68.94
10	85	\$41.96	\$13.35	\$17.96	\$2.20	\$75.47

Effective Date - 08/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	42	\$21.40	\$13.35	\$5.89	\$0.00	\$40.64
2	42	\$21.40	\$13.35	\$5.89	\$0.00	\$40.64
3	47	\$23.95	\$13.35	\$11.13	\$1.45	\$49.88
4	47	\$23.95	\$13.35	\$11.13	\$1.45	\$49.88
5	52	\$26.50	\$13.35	\$12.08	\$1.56	\$53.49
6	52	\$26.50	\$13.35	\$12.33	\$1.57	\$53.75
7	60	\$30.58	\$13.35	\$13.70	\$1.73	\$59.36
8	65	\$33.12	\$13.35	\$15.15	\$1.85	\$63.47
9	75	\$38.22	\$13.35	\$16.56	\$2.04	\$70.17
10	85	\$43.32	\$13.35	\$17.96	\$2.24	\$76.87

Notes:
Steps are 6 mos.

Apprentice to Journeyworker Ratio:1:4

SPECIALIZED EARTH MOVING EQUIP < 35 TONS TEAMSTERS JOINT COUNCIL NO. 10 ZONE A	12/01/2019	\$35.64	\$12.41	\$13.72	\$0.00	\$61.77
	06/01/2020	\$36.54	\$12.41	\$13.72	\$0.00	\$62.67
	08/01/2020	\$36.54	\$12.91	\$13.72	\$0.00	\$63.17
	12/01/2020	\$36.54	\$12.91	\$14.82	\$0.00	\$64.27
	06/01/2021	\$37.34	\$12.91	\$14.82	\$0.00	\$65.07
	08/01/2021	\$37.34	\$13.41	\$14.82	\$0.00	\$65.57
	12/01/2021	\$37.34	\$13.41	\$16.01	\$0.00	\$66.76

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
SPECIALIZED EARTH MOVING EQUIP > 35 TONS <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	12/01/2019	\$35.93	\$12.41	\$13.72	\$0.00	\$62.06
	06/01/2020	\$36.83	\$12.41	\$13.72	\$0.00	\$62.96
	08/01/2020	\$36.83	\$12.91	\$13.72	\$0.00	\$63.46
	12/01/2020	\$36.83	\$12.91	\$14.82	\$0.00	\$64.56
	06/01/2021	\$37.63	\$12.91	\$14.82	\$0.00	\$65.36
	08/01/2021	\$37.63	\$13.41	\$14.82	\$0.00	\$65.86
	12/01/2021	\$37.63	\$13.41	\$16.01	\$0.00	\$67.05
SPRINKLER FITTER <i>SPRINKLER FITTERS LOCAL 550 - (Section A) Zone 1</i>	03/01/2020	\$60.82	\$9.68	\$20.55	\$0.00	\$91.05
	10/01/2020	\$62.32	\$9.68	\$20.55	\$0.00	\$92.55
	03/01/2021	\$63.82	\$9.68	\$20.55	\$0.00	\$94.05

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

Effective Date - 03/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$21.29	\$9.68	\$11.61	\$0.00	\$42.58
2	40	\$24.33	\$9.68	\$12.30	\$0.00	\$46.31
3	45	\$27.37	\$9.68	\$12.99	\$0.00	\$50.04
4	50	\$30.41	\$9.68	\$13.73	\$0.00	\$53.82
5	55	\$33.45	\$9.68	\$14.36	\$0.00	\$57.49
6	60	\$36.49	\$9.68	\$15.05	\$0.00	\$61.22
7	65	\$39.53	\$9.68	\$15.74	\$0.00	\$64.95
8	70	\$42.57	\$9.68	\$16.43	\$0.00	\$68.68
9	75	\$45.62	\$9.68	\$17.11	\$0.00	\$72.41
10	80	\$48.66	\$9.68	\$17.80	\$0.00	\$76.14

Effective Date - 10/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$21.81	\$9.68	\$11.61	\$0.00	\$43.10
2	40	\$24.93	\$9.68	\$12.30	\$0.00	\$46.91
3	45	\$28.04	\$9.68	\$12.99	\$0.00	\$50.71
4	50	\$31.16	\$9.68	\$13.73	\$0.00	\$54.57
5	55	\$34.28	\$9.68	\$14.36	\$0.00	\$58.32
6	60	\$37.39	\$9.68	\$15.05	\$0.00	\$62.12
7	65	\$40.51	\$9.68	\$15.74	\$0.00	\$65.93
8	70	\$43.62	\$9.68	\$16.43	\$0.00	\$69.73
9	75	\$46.74	\$9.68	\$17.11	\$0.00	\$73.53
10	80	\$49.86	\$9.68	\$17.80	\$0.00	\$77.34

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

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - TELECOMMUNICATION TECHNICIAN - Local 103

Effective Date - 03/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	\$18.06	\$13.00	\$0.54	\$0.00	\$31.60
2	45	\$18.06	\$13.00	\$0.54	\$0.00	\$31.60
3	50	\$20.07	\$13.00	\$14.00	\$0.00	\$47.07
4	50	\$20.07	\$13.00	\$14.00	\$0.00	\$47.07
5	55	\$22.07	\$13.00	\$14.31	\$0.00	\$49.38
6	60	\$24.08	\$13.00	\$14.62	\$0.00	\$51.70
7	65	\$26.08	\$13.00	\$14.94	\$0.00	\$54.02
8	70	\$28.09	\$13.00	\$15.26	\$0.00	\$56.35
9	75	\$30.10	\$13.00	\$15.56	\$0.00	\$58.66
10	80	\$32.10	\$13.00	\$15.87	\$0.00	\$60.97

Effective Date - 09/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	\$18.54	\$13.00	\$0.57	\$0.00	\$32.11
2	45	\$18.54	\$13.00	\$0.57	\$0.00	\$32.11
3	50	\$20.60	\$13.00	\$14.02	\$0.00	\$47.62
4	50	\$20.60	\$13.00	\$14.02	\$0.00	\$47.62
5	55	\$22.66	\$13.00	\$14.33	\$0.00	\$49.99
6	60	\$24.72	\$13.00	\$14.64	\$0.00	\$52.36
7	65	\$26.78	\$13.00	\$14.96	\$0.00	\$54.74
8	70	\$28.84	\$13.00	\$15.28	\$0.00	\$57.12
9	75	\$30.90	\$13.00	\$15.59	\$0.00	\$59.49
10	80	\$32.96	\$13.00	\$15.90	\$0.00	\$61.86

Notes:

Apprentice to Journeyworker Ratio:1:1

TERRAZZO FINISHERS	02/01/2020	\$53.34	\$10.75	\$21.94	\$0.00	\$86.03
BRICKLAYERS LOCAL 3 - MARBLE & TILE	08/01/2020	\$54.69	\$10.75	\$22.09	\$0.00	\$87.53
	02/01/2021	\$55.33	\$10.75	\$22.09	\$0.00	\$88.17
	08/01/2021	\$56.73	\$10.75	\$22.25	\$0.00	\$89.73
	02/01/2022	\$57.32	\$10.75	\$22.25	\$0.00	\$90.32

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
STEAM BOILER OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2019	\$48.23	\$12.50	\$15.70	\$0.00	\$76.43
	06/01/2020	\$49.31	\$12.50	\$15.70	\$0.00	\$77.51
	12/01/2020	\$50.45	\$12.50	\$15.70	\$0.00	\$78.65
	06/01/2021	\$51.54	\$12.50	\$15.70	\$0.00	\$79.74
	12/01/2021	\$52.68	\$12.50	\$15.70	\$0.00	\$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TAMPERS, SELF-PROPELLED OR TRACTOR DRAWN <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2019	\$48.23	\$12.50	\$15.70	\$0.00	\$76.43
	06/01/2020	\$49.31	\$12.50	\$15.70	\$0.00	\$77.51
	12/01/2020	\$50.45	\$12.50	\$15.70	\$0.00	\$78.65
	06/01/2021	\$51.54	\$12.50	\$15.70	\$0.00	\$79.74
	12/01/2021	\$52.68	\$12.50	\$15.70	\$0.00	\$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TELECOMMUNICATION TECHNICIAN <i>ELECTRICIANS LOCAL 103</i>	03/01/2020	\$40.13	\$13.00	\$17.12	\$0.00	\$70.25
	09/01/2020	\$41.20	\$13.00	\$17.16	\$0.00	\$71.36
	03/01/2021	\$42.66	\$13.00	\$17.27	\$0.00	\$72.93
	09/01/2021	\$44.32	\$13.00	\$17.38	\$0.00	\$74.70
	03/01/2022	\$45.83	\$13.00	\$17.49	\$0.00	\$76.32
	09/01/2022	\$47.55	\$13.00	\$17.62	\$0.00	\$78.17
	03/01/2023	\$49.11	\$13.00	\$17.73	\$0.00	\$79.84

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - TERRAZZO FINISHER - Local 3 Marble & Tile

Effective Date - 02/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$26.67	\$10.75	\$21.94	\$0.00	\$59.36
2	60	\$32.00	\$10.75	\$21.94	\$0.00	\$64.69
3	70	\$37.34	\$10.75	\$21.94	\$0.00	\$70.03
4	80	\$42.67	\$10.75	\$21.94	\$0.00	\$75.36
5	90	\$48.01	\$10.75	\$21.94	\$0.00	\$80.70

Effective Date - 08/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$27.35	\$10.75	\$22.09	\$0.00	\$60.19
2	60	\$32.81	\$10.75	\$22.09	\$0.00	\$65.65
3	70	\$38.28	\$10.75	\$22.09	\$0.00	\$71.12
4	80	\$43.75	\$10.75	\$22.09	\$0.00	\$76.59
5	90	\$49.22	\$10.75	\$22.09	\$0.00	\$82.06

Notes:

Apprentice to Journeyworker Ratio:1:3

TEST BORING DRILLER <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2019	\$40.50	\$8.10	\$16.80	\$0.00	\$65.40
	06/01/2020	\$41.49	\$8.10	\$16.80	\$0.00	\$66.39
	12/01/2020	\$42.47	\$8.10	\$16.80	\$0.00	\$67.37
	06/01/2021	\$43.49	\$8.10	\$16.80	\$0.00	\$68.39
	12/01/2021	\$44.50	\$8.10	\$16.80	\$0.00	\$69.40
For apprentice rates see "Apprentice- LABORER"						
TEST BORING DRILLER HELPER <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2019	\$39.22	\$8.10	\$16.80	\$0.00	\$64.12
	06/01/2020	\$40.21	\$8.10	\$16.80	\$0.00	\$65.11
	12/01/2020	\$41.19	\$8.10	\$16.80	\$0.00	\$66.09
	06/01/2021	\$42.21	\$8.10	\$16.80	\$0.00	\$67.11
	12/01/2021	\$43.22	\$8.10	\$16.80	\$0.00	\$68.12
For apprentice rates see "Apprentice- LABORER"						
TEST BORING LABORER <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2019	\$39.10	\$8.10	\$16.80	\$0.00	\$64.00
	06/01/2020	\$40.09	\$8.10	\$16.80	\$0.00	\$64.99
	12/01/2020	\$41.07	\$8.10	\$16.80	\$0.00	\$65.97
	06/01/2021	\$42.09	\$8.10	\$16.80	\$0.00	\$66.99
	12/01/2021	\$43.10	\$8.10	\$16.80	\$0.00	\$68.00
For apprentice rates see "Apprentice- LABORER"						
TRACTORS/PORTABLE STEAM GENERATORS <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2019	\$48.23	\$12.50	\$15.70	\$0.00	\$76.43
	06/01/2020	\$49.31	\$12.50	\$15.70	\$0.00	\$77.51
	12/01/2020	\$50.45	\$12.50	\$15.70	\$0.00	\$78.65
	06/01/2021	\$51.54	\$12.50	\$15.70	\$0.00	\$79.74
	12/01/2021	\$52.68	\$12.50	\$15.70	\$0.00	\$80.88
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>	12/01/2019	\$36.22	\$12.41	\$13.72	\$0.00	\$62.35
	06/01/2020	\$37.12	\$12.41	\$13.72	\$0.00	\$63.25
	08/01/2020	\$37.12	\$12.91	\$13.72	\$0.00	\$63.75
	12/01/2020	\$37.12	\$12.91	\$14.82	\$0.00	\$64.85
	06/01/2021	\$37.92	\$12.91	\$14.82	\$0.00	\$65.65
	08/01/2021	\$37.92	\$13.41	\$14.82	\$0.00	\$66.15
	12/01/2021	\$37.92	\$13.41	\$16.01	\$0.00	\$67.34
TUNNEL WORK - COMPRESSED AIR <i>LABORERS (COMPRESSED AIR)</i>	12/01/2019	\$51.38	\$8.10	\$17.20	\$0.00	\$76.68
	06/01/2020	\$52.37	\$8.10	\$17.20	\$0.00	\$77.67
	12/01/2020	\$53.35	\$8.10	\$17.20	\$0.00	\$78.65
	06/01/2021	\$54.37	\$8.10	\$17.20	\$0.00	\$79.67
	12/01/2021	\$55.38	\$8.10	\$17.20	\$0.00	\$80.68
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE) <i>LABORERS (COMPRESSED AIR)</i>	12/01/2019	\$53.38	\$8.10	\$17.20	\$0.00	\$78.68
	06/01/2020	\$54.37	\$8.10	\$17.20	\$0.00	\$79.67
	12/01/2020	\$55.35	\$8.10	\$17.20	\$0.00	\$80.65
	06/01/2021	\$56.37	\$8.10	\$17.20	\$0.00	\$81.67
	12/01/2021	\$57.38	\$8.10	\$17.20	\$0.00	\$82.68
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR <i>LABORERS (FREE AIR TUNNEL)</i>	12/01/2019	\$43.45	\$8.10	\$17.20	\$0.00	\$68.75
	06/01/2020	\$44.44	\$8.10	\$17.20	\$0.00	\$69.74
	12/01/2020	\$45.42	\$8.10	\$17.20	\$0.00	\$70.72
	06/01/2021	\$46.44	\$8.10	\$17.20	\$0.00	\$71.74
	12/01/2021	\$47.45	\$8.10	\$17.20	\$0.00	\$72.75
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR (HAZ. WASTE) <i>LABORERS (FREE AIR TUNNEL)</i>	12/01/2019	\$45.45	\$8.10	\$17.20	\$0.00	\$70.75
	06/01/2020	\$46.44	\$8.10	\$17.20	\$0.00	\$71.74
	12/01/2020	\$47.42	\$8.10	\$17.20	\$0.00	\$72.72
	06/01/2021	\$48.44	\$8.10	\$17.20	\$0.00	\$73.74
	12/01/2021	\$49.45	\$8.10	\$17.20	\$0.00	\$74.75
For apprentice rates see "Apprentice- LABORER"						
VAC-HAUL <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE A</i>	12/01/2019	\$35.64	\$12.41	\$13.72	\$0.00	\$61.77
	06/01/2020	\$36.54	\$12.41	\$13.72	\$0.00	\$62.67
	08/01/2020	\$36.54	\$12.91	\$13.72	\$0.00	\$63.17
	12/01/2020	\$36.54	\$12.91	\$14.82	\$0.00	\$64.27
	06/01/2021	\$37.34	\$12.91	\$14.82	\$0.00	\$65.07
	08/01/2021	\$37.34	\$13.41	\$14.82	\$0.00	\$65.57
	12/01/2021	\$37.34	\$13.41	\$16.01	\$0.00	\$66.76
	WAGON DRILL OPERATOR <i>LABORERS - ZONE 1</i>	12/01/2019	\$39.40	\$8.10	\$16.60	\$0.00
06/01/2020		\$40.39	\$8.10	\$16.60	\$0.00	\$65.09
12/01/2020		\$41.37	\$8.10	\$16.60	\$0.00	\$66.07
06/01/2021		\$42.39	\$8.10	\$16.60	\$0.00	\$67.09
12/01/2021		\$43.40	\$8.10	\$16.60	\$0.00	\$68.10
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
WASTE WATER PUMP OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2019	\$48.73	\$12.50	\$15.70	\$0.00	\$76.93
	06/01/2020	\$49.83	\$12.50	\$15.70	\$0.00	\$78.03
	12/01/2020	\$50.98	\$12.50	\$15.70	\$0.00	\$79.18
	06/01/2021	\$52.08	\$12.50	\$15.70	\$0.00	\$80.28
	12/01/2021	\$53.23	\$12.50	\$15.70	\$0.00	\$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
WATER METER INSTALLER <i>PLUMBERS & GASFITTERS LOCAL 12</i>	03/01/2020	\$58.69	\$12.07	\$17.26	\$0.00	\$88.02
	09/01/2020	\$60.19	\$12.07	\$17.26	\$0.00	\$89.52
	03/01/2021	\$61.69	\$12.07	\$17.26	\$0.00	\$91.02
For apprentice rates see "Apprentice- PLUMBER/PIPEFITTER" or "PLUMBER/GASFITTER"						
Outside Electrical - East						
CABLE TECHNICIAN (Power Zone) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/01/2019	\$28.83	\$8.75	\$1.86	\$0.00	\$39.44
	08/30/2020	\$29.67	\$9.25	\$1.89	\$0.00	\$40.81
For apprentice rates see "Apprentice- LINEMAN"						
CABLEMAN (Underground Ducts & Cables) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/01/2019	\$40.84	\$8.75	\$10.02	\$0.00	\$59.61
	08/30/2020	\$42.03	\$9.25	\$10.27	\$0.00	\$61.55
For apprentice rates see "Apprentice- LINEMAN"						
DRIVER / GROUNDMAN CDL <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/01/2019	\$33.64	\$8.75	\$9.86	\$0.00	\$52.25
	08/30/2020	\$34.62	\$9.25	\$10.07	\$0.00	\$53.94
For apprentice rates see "Apprentice- LINEMAN"						
DRIVER / GROUNDMAN -Inexperienced (<2000 Hrs) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/01/2019	\$26.43	\$8.75	\$1.79	\$0.00	\$36.97
	08/30/2020	\$27.20	\$9.25	\$1.82	\$0.00	\$38.27
For apprentice rates see "Apprentice- LINEMAN"						
EQUIPMENT OPERATOR (Class A CDL) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/01/2019	\$40.84	\$8.75	\$14.10	\$0.00	\$63.69
	08/30/2020	\$42.03	\$9.25	\$14.35	\$0.00	\$65.63
For apprentice rates see "Apprentice- LINEMAN"						
EQUIPMENT OPERATOR (Class B CDL) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/01/2019	\$36.04	\$8.75	\$10.65	\$0.00	\$55.44
	08/30/2020	\$37.09	\$9.25	\$10.87	\$0.00	\$57.21
For apprentice rates see "Apprentice- LINEMAN"						
GROUNDMAN <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/01/2019	\$21.62	\$8.75	\$1.65	\$0.00	\$32.02
	08/30/2020	\$22.25	\$9.25	\$1.67	\$0.00	\$33.17
For apprentice rates see "Apprentice- LINEMAN"						
GROUNDMAN -Inexperienced (<2000 Hrs.) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/01/2019	\$26.43	\$8.75	\$1.79	\$0.00	\$36.97
	08/30/2020	\$27.20	\$9.25	\$1.82	\$0.00	\$38.27
For apprentice rates see "Apprentice- LINEMAN"						
JOURNEYMAN LINEMAN <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	09/01/2019	\$48.05	\$8.75	\$17.19	\$0.00	\$73.99
	08/30/2020	\$49.45	\$9.25	\$17.48	\$0.00	\$76.18

Classification Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - LINEMAN (Outside Electrical) - East Local 104

Effective Date - 09/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$28.83	\$8.75	\$3.36	\$0.00	\$40.94
2	65	\$31.23	\$8.75	\$3.44	\$0.00	\$43.42
3	70	\$33.64	\$8.75	\$3.51	\$0.00	\$45.90
4	75	\$36.04	\$8.75	\$5.08	\$0.00	\$49.87
5	80	\$38.44	\$8.75	\$5.15	\$0.00	\$52.34
6	85	\$40.84	\$8.75	\$5.23	\$0.00	\$54.82
7	90	\$43.25	\$8.75	\$7.30	\$0.00	\$59.30

Effective Date - 08/30/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$29.67	\$9.25	\$3.39	\$0.00	\$42.31
2	65	\$32.14	\$9.25	\$3.46	\$0.00	\$44.85
3	70	\$34.62	\$9.25	\$3.54	\$0.00	\$47.41
4	75	\$37.09	\$9.25	\$5.11	\$0.00	\$51.45
5	80	\$39.56	\$9.25	\$5.19	\$0.00	\$54.00
6	85	\$42.03	\$9.25	\$5.26	\$0.00	\$56.54
7	90	\$44.51	\$9.25	\$7.34	\$0.00	\$61.10

Notes:

Apprentice to Journeyworker Ratio:1:2

TELEDATA CABLE SPLICER <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	02/04/2019	\$30.73	\$4.70	\$3.17	\$0.00	\$38.60
TELEDATA LINEMAN/EQUIPMENT OPERATOR <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	02/04/2019	\$28.93	\$4.70	\$3.14	\$0.00	\$36.77
TELEDATA WIREMAN/INSTALLER/TECHNICIAN <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	02/04/2019	\$28.93	\$4.70	\$3.14	\$0.00	\$36.77
TREE TRIMMER <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	01/31/2016	\$18.51	\$3.55	\$0.00	\$0.00	\$22.06
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>	01/31/2016	\$16.32	\$3.55	\$0.00	\$0.00	\$19.87
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.						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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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.)

Ratios are expressed in allowable number of apprentices to journeymen or fraction thereof, unless otherwise specified.

** 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.

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The Massachusetts Prevailing Wage Law

M.G.L. ch. 149, §§ 26 – 27

NOTICE TO AWARDING AUTHORITIES

- The enclosed wage schedule applies only to the specific project listed at the top and will be updated for any public construction project lasting longer than one (1) year.
- You should request an updated wage schedule from the Division of Occupational Safety if you have not opened bids or selected a contractor within 90 days of the date of issuance of the enclosed wage schedule.
- The wage schedule shall be incorporated in any advertisement or call for bids for the project for which it has been issued.
- Once a contractor has been selected by the awarding authority, the wage schedule shall be made a part of the contract for that project.

NOTICE TO CONTRACTORS

- The enclosed wage schedule, and any updated schedule, must be posted in a conspicuous place at the work site during the life of the project.
- The wages listed on the enclosed wage schedule must be paid to employees on public works projects regardless of whether they are employed by the prime contractor, a filed sub-bidder, or any sub-contractor.
- The enclosed wage schedule applies to all phases of the project including the final clean-up. Contractors whose only role is to perform final clean-up must pay their employees according to this wage schedule.
- All apprentices must be registered with the Massachusetts Division of Apprentice Training in order to be paid at the reduced apprentice rates. If a worker is not registered with the Division of Apprentice Training, they must be paid the “total rate” listed on the wage schedule regardless of experience or skill level. For further information, please call (617) 727-3486 or write to the Division of Apprentice Training, 399 Washington Street, 4th Floor, Boston, MA 02108

END OF SECTION

WEEKLY PAYROLL RECORDS REPORT & STATEMENT OF COMPLIANCE

In accordance with Massachusetts General Law c149, §27B, a true and accurate record must be kept of all persons employed on the public works project for which the enclosed rates have been provided. A Payroll Form has been printed on the reverse of this page and includes all the information required to be kept by law. Every contractor or subcontractor is required to keep these records and preserve them for a period of three years from the date of completion of the contract.

In addition, every contractor and subcontractor is required to submit a copy of their weekly payroll records to the awarding authority. This is required to be done on a weekly basis. Once collected, the awarding authority is also required to preserve those records for three years.

In addition, each such contractor, subcontractor or public body shall furnish to the Department of Labor & Workforce Development/Division of Occupational Safety within fifteen days after completion of its portion of the work a statement, executed by the contractor, subcontractor or public body who supervises the payment of wages, in the following form:

a) STATEMENT OF COMPLIANCE

_____, 2020

I, _____,
(Name of signatory party) (Title)

do hereby state:

That I pay or supervise the payment of the persons employed by
_____ on the _____
(Contractor, subcontractor or public body) (Building or project)

and that all mechanics and apprentices, teamsters, chauffeurs and laborers employed on said project have been paid in accordance with wages determined under the provisions of sections twenty-six and twenty-seven of chapter one hundred and forty nine of the General Laws.

Signature _____

Title _____

DIVISION OF OCCUPATIONAL SAFETY, 399 WASHINGTON STREET, 5TH FL., BOSTON, MA. 02108

NEWTON SOUTH HIGH SCHOOL WINKLER STADIUM LIGHTING INSTALLATION SPECIFICATIONS
SECTIONS

01100 PERMITS

01200 CONTROL OF WORK AND MATERIALS

01300 SUBMITTALS

01400 DUST CONTROL

01500 ENVIRONMENTAL PROTECTION – REFER TO WPA DETERMINATION

01600 CLEANING UP

01700 CONSTRUCTION LAYOUT

02100 DEWATERING

02200 SUPPORT OF EXCAVATION

02400 SEEDING

02500 SCREENED LOAM AND TOPSOIL REUSE

16100 ELECTRICAL WORK – GENERAL PROVISIONS

16200 BASIC ELECTRICAL MATERIAL AND METHODS

16210 CONDUCTORS AND CABLES

16220 RACEWAYS AND BOXES

16230 PANELBOARDS

APPENDIX:

APPENDIX A - NEWTON CONSERVATION COMMISSION DETERMINATION OF APPLICABILITY

APPENDIX B - NEWTON SOUTH HIGH SCHOOL GEOTECHNICAL ASSESSMENT

APPENDIX C - MUSCO LIGHTING CONTROL SYSTEM SUMMARY

APPENDIX D - MUSCO LIGHTING POLE AND FOUNDATION DETAILS AND SPECIFICATION

APPENDIX E – EVERSOURCE WORK ORDER FROM

SECTION 01100 PERMITS

PART - 1 GENERAL

1.1 DESCRIPTION:

This Section provides specific information and defines specific requirements of the Contractor regarding the preparation and acquisition of permits required to perform the work of this project.

1.2 RELATED WORK:

1. Section 01200, CONTROL OF WORK AND MATERIALS
2. Section 01400, DUST CONTROL
3. Section 01500, ENVIRONMENTAL PROTECTION
4. Section 02300, EARTHWORK
5. Section 16100, ELECTRICAL WORK

1.3 GENERAL REQUIREMENTS:

- A. The Contractor shall obtain and pay for all permits required, as defined under this section.

<u>Permits</u>	<u>Status</u>
Trench Permit (520 CMR 14.00)(eff. date 3/1/09)	*
General Building Permit (780 CMR Section 105)	*
Electrical Permit	*

*Contractor shall prepare permit application and obtain the permit after contract is awarded, bearing all expenses. Owner will waive the permit application fee, if possible.

1.4 CONSERVATION COMMISSION ORDERS:

The Conservation Commission has under the authority of Massachusetts General Laws Chapter 131, Section 40, and under the Newton Floodplain/Watershed Protection Ordinance, Section 22-22 issued a Determination of applicability under the Wetlands Protection Act on the work under this contract This condition is to become a part of the Contract Documents and the Contractor shall perform all work in strict conformance with said Condition. A copy of this Order is attached to the Appendix A.

PART - 2 PRODUCTS

N/A

PART - 3 EXECUTION

3.1 PERFORM WORK IN ACCORDANCE WITH REQUIREMENTS:

- A. The Contractor shall perform the work in accordance with the Contract Documents, including the attached permits/order of conditions, and any applicable municipal requirements.**
- B. Prior to commencing any construction activities, the Contractor shall demonstrate to the Owner, through on-site inspection and submitting copies of permits or approvals, that it is in full compliance with the terms and conditions of all permits specified herein. The Contractor shall maintain full compliance with all permits throughout the performance of the work, and upon request, grant access to permitting authorities to inspect the site for the purpose of verifying such compliance.**

END OF SECTION

SECTION 01200 - CONTROL OF WORK AND MATERIALS

PART - 1 GENERAL

1.1 SCOPE OF WORK:

- 1. Hauling, Handling and Storage of Materials**
- 2. Open Excavations**
- 3. Maintenance of Traffic**
- 4. Care and Protection of Property**
- 5. Maintenance of Flow**
- 6. Rejected Materials and Defective Work**
- 7. Sanitary Regulations**
- 8. Safety and Health Regulations**
- 9. Site Investigation**
- 10. Measurement and Payment**

PART - 2 MATERIALS

N/A

PART - 3 EXECUTION

3.1 HAULING, HANDLING AND STORAGE OF MATERIALS:

- A. Storage for lighting equipment shall furnished by the Owner. THE CONTRACTOR SHALL TAKE POSSESSION OF THE LIGHTING EQUIPMENT UPON DELIVERY TO THE SITE AND ASSUME ALL RISK OF LOSS OR DAMAGE TO ANY EQUIPMENT OR MATERIALS BY THEFT, BREAKAGE, OR OTHERWISE.**
- B. The Contractor shall, at their own expense, handle and haul all materials furnished by them and shall remove any of their surplus materials at the completion of the work.**

- C. The Contractor shall provide suitable and adequate storage for equipment and materials furnished by them that are liable to injury and shall be responsible for any loss of or damage to any equipment or materials by theft, breakage, or otherwise.
- D. All excavated materials and equipment to be incorporated in the Work shall be placed so as not to injure any part of the Work or existing facilities and so that free access can be had at all times to all parts of the Work. Materials and equipment shall be kept neatly piled and compactly stored in such location as will cause minimum inconvenience to public travel and adjoining owners, tenants and occupants.
- E. The Contractor shall be responsible for all damages to the work under construction during its progress and until final completion and acceptance even though partial payments have been made under the Contract.

3.2 OPEN EXCAVATIONS:

- A. All open excavations shall be adequately safeguarded by providing temporary barricades, caution signs, lights and other means to prevent accidents to persons, and damage to property. The Contractor shall, at their own expense, provide suitable and safe means for completely covering all open excavations if applicable.

3.3 MAINTENANCE OF TRAFFIC:

- A. Construction traffic and operations shall be conducted so that vehicular and pedestrian traffic may be safely maintained at all times.
- B. The Contractor shall furnish all construction signs that are deemed necessary by and in accordance with Part VI of the Manual on Uniform Traffic Control Devices as published by the U.S. Department of Transportation. In addition, the Contractor may be required to furnish up to 128 square feet of additional special construction warning signs. Size and exact wording of signs shall be determined by the Owner during construction.
- C. The intent of policing is to ensure public safety by direction of traffic. Police officers are not to serve as watchmen to protect the Contractor's equipment and materials.
- D. Nothing contained herein shall be construed as relieving the Contractor of any of their responsibilities for protection of persons and property under the terms of the Contract.

3.4 CARE AND PROTECTION OF PROPERTY:

- A. The Contractor shall be responsible for the preservation of all public and private property and shall use every precaution necessary to prevent damage thereto. If any direct or indirect damage is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work on the part of the Contractor, such property shall be promptly restored by the Contractor, at their expense, to a condition similar or equal to that existing before the damage was done, to the satisfaction of the Owner.

3.5 MAINTENANCE OF FLOW:

- A. All existing drainage facilities including, but not limited to; brooks, streams, canals, channels, ditches, culverts, catch basins and drainage piping shall be adequately safeguarded so as not to impede drainage or to cause siltation of downstream areas in any manner whatsoever. If the Contractor damages or impairs any of the aforesaid drainage facilities, they shall repair the same within the same day.
- B. At the conclusion of the work and following approval by the Owner's representative, the Contractor shall remove all Erosion and Sedimentation controls as well as trapped sediments as described in Section 01600, CLEANING UP.

3.6 REJECTED MATERIALS AND DEFECTIVE WORK:

- A. Materials furnished by the Contractor and condemned by the Owner as unsuitable or not in conformity with the specifications shall forthwith be removed from the work by the Contractor and shall not be made use of elsewhere in the work.**
- B. Any errors, defects or omissions in the execution of the work or in the materials furnished by the Contractor, even though they may have been passed or overlooked or have appeared after the completion of the work, discovered at any time before the final payment is made hereunder, shall be forthwith rectified and made good by and at the expense of the Contractor and in a manner satisfactory to the Owner.**
- C. The Contractor shall reimburse the Owner for any expense, losses or damages incurred in consequence of any defect, error, omission or act of the Contractor or their employees, as determined by the Owner, occurring prior to the final payment.**

3.7 SANITARY REGULATIONS:

- A. Sanitary conveniences for the use of all persons employed on the work, properly screened from public observation, shall be provided in sufficient numbers in such manner and at such locations as may be approved. The contents shall be removed and disposed of in a satisfactory manner as the occasion requires. The Contractor shall rigorously prohibit the committing of nuisances within, on or about the work. Any employees found violating these provisions shall be discharged and not again employed on the work without the written consent of the Owner. The sanitary conveniences specified above shall be the obligation and responsibility of the Contractor.**

3.8 SAFETY AND HEALTH REGULATIONS:

- A. This project is subject to the Safety and Health regulations of the U.S. Department of Labor set forth in 29 CFR, Part 1926, and to the Massachusetts Department of Labor and Industries, Division of Industrial Safety "Rules and Regulations for the Prevention of Accidents in Construction Operations (454 CMR 10.0 et. seq.)." Contractors shall be familiar with the requirements of these regulations.**

3.9 SITE INVESTIGATION:

- A. The Contractor acknowledges that they have satisfied themselves as to the conditions existing at the site of the work, the type of equipment required to perform this work, the quality and quantity of the materials furnished insofar as this information is reasonably ascertainable from an inspection of the site, as well as from information presented by the drawings and specifications made a part of this contract. Any failure of the Contractor to acquaint themselves with available information will not relieve them from the responsibility for estimating properly the difficulty or cost of successfully performing the work. The Owner assumes no responsibility for any conclusion or interpretation made by the Contractor based on the information made available by the Owner.**

3.10 MEASUREMENT AND PAYMENT

- A. ALL CONTRACTED WORK shall be measured and paid by lump sum and shall include all labor, equipment, and incidentals necessary to complete the work as specified.**

END OF SECTION

SECTION 01300 - SUBMITTALS

PART - 1 GENERAL

1.1 WORK INCLUDED:

- A. The contractor shall provide the Owner with Submittals as required by the contract documents.**

1.2 RELATED WORK:

- 1. All specifications that require submittals.**

PART - 2 MATERIALS

N/A

PART - 3 EXECUTION

3.1 GENERAL:

- A. The Contractor shall submit a schedule of shop drawing submittals as required.**
- B. The Contractor shall submit the shop drawing submittals electronically.**

3.2 ELECTRONIC SUBMITTALS:

- A. In accordance with the accepted schedule, the Contractor shall submit promptly to the Owner by email electronic copy in Portable Document Format (PDF) of shop drawings required as noted in the specifications, of equipment, structural details and materials fabricated especially for this Contract.**
- B. Each electronic copy of the shop drawing shall be accompanied by the Owner's standard transmittal form, included as Exhibit 1 of this section, on which is a list of the drawings, descriptions and numbers and the names of the Owner, Project and Contractor.**
- C. The Contractor shall receive a shop drawing memorandum with the Owner's approval or comments via email.**

3.3 SHOP DRAWINGS:

- A. Shop drawings shall show the principal dimensions, weight, clearances, etc., depending on the subject of the drawings. When it is customary to do so, when the dimensions are of particular importance, or when so specified, the drawings shall be certified by the manufacturer or fabricator as correct for this Contract.**
- B. The Contractor shall be responsible for the prompt submittal and resubmittal, as necessary, of all shop drawings so that there will be no delay in the work due to the absence of such drawings.**
- C. The Owner will review the shop drawings as to their general conformance with the design concept of the project and general compliance with the information given in the Contract Documents. Corrections of comments made on the drawings during the review do not relieve the Contractor from compliance with requirements of the Contract Documents. The Contractor is responsible for: confirming and correlating all quantities and**

dimensions; selecting fabrication processes and techniques of construction; coordinating his work with that of all other trades; and performing his work in a safe and satisfactory manner.

- D. With few exceptions, shop drawings will be reviewed and returned to the Contractor within 30 days of submittal.**

3.4 SAMPLES:

- A. Samples specified in individual Sections include, but are not necessarily limited to, physical examples of the work such as sections of manufactured or fabricated work, small cuts or containers of materials, complete units of repetitively-used products, color/texture/pattern swatches and range sets, specimens for coordination of visual effect, graphic symbols, and units of work to be used by the Owner for independent inspection and testing, as applicable to the work.**
- B. The number of samples submitted shall be as specified. Submittal and processing of samples shall follow the procedures outlined for shop drawings unless the specifications call for a field submittal or mock-up.**
- C. Acceptance of samples will be acknowledged via a copy of the transmittal noting status. When samples are not acceptable, prompt resubmittal will be required.**

Exhibit 1



RUTHANNE FULLER
MAYOR

NEWTON PARKS AND RECREATION DEPARTMENT

246 Dudley Rd, Newton, MA 02459
Office: (617) 796-1500
Fax: (617) 796-1512
TDD/TTY: (617) 796-1089



ROBERT J. DERUBEIS
COMMISSIONER

Transmittal

To:	Attn:	From:
Fax:		Pages:
Phone:		Date:
Re:		CC:

Urgent For Review Please Comment Please Reply Please Recycle

www.newtonma.gov/gov/parks

END OF SECTION

SECTION 01400 - DUST CONTROL

PART - 1 GENERAL

1.1 DESCRIPTION:

- A. This section of the specification covers the control of dust via water. No calcium chloride shall be used for dust control for this project.

1.2 WORK INCLUDED

- A. Under this Section, the Contractor shall furnish all labor, materials, equipment and transportation required to complete Dust Control as designated by the Owner, or as specified herein, to complete all proposed work.

PART - 2 PRODUCTS:

2.1 WATER:

- A. Water shall not be brackish and shall be free from oil, acid, and injurious alkali or vegetable matter.

PART - 3 EXECUTION

3.1 APPLICATION:

- A. Water may be sprinkler applied with equipment including a tank with gauge-equipped pressure pump and a nozzle-equipped spray bar if directed by the Owner.
- B. Water shall be dispersed through the nozzle under a minimum pressure of 20 pounds per square inch, gauge pressure.

END OF SECTION

SECTION 01500 - ENVIRONMENTAL PROTECTION

GENERAL

3.2 DESCRIPTION:

- A. The work covered by this section of the specifications consists of furnishing all labor, materials, tools and equipment and performing all work required for the prevention of environmental pollution during and as a result of construction operations under this contract.
- B. Prior to commencement of work, the Contractor shall meet with representatives of the Owner to develop mutual understandings relative to compliance of the environmental protection program.

3.3 RELATED WORK:

A. Section 01400, DUST CONTROL

3.4 SUBMITTALS:

- A. The Contractor shall submit for approval six sets of details and literature fully describing environmental protection methods to be employed in carrying out construction activities.**

PART - 1 PRODUCTS:

1.1 STRAW WATTLES:

- A. Straw Wattles shall consist of a 100% biodegradable exterior jute or coir netting with 100% wheat straw interior filling or approved equal.**
- B. The wattles will be placed and staked in the ground using wooden stakes. The wooden stakes will be placed at a minimum depth of 24-inches into the ground.**

PART - 2 EXECUTION

2.1 NOTIFICATION AND STOPPAGE OF WORK:

- A. The Owner will notify the Contractor in writing of any non-compliance with the provisions of the Order of Conditions. The Contractor shall, after receipt of such notice, immediately take corrective action. Such notice, when delivered to the Contractor or his authorized representative at the site of the work, shall be deemed sufficient for the purpose. If the Contractor fails to act promptly, the Owner may order stoppage of all or part of the work until satisfactory corrective action has been taken. No claim for an extension of time or for excess costs or damage incurred by the Contractor as a result of time lost due to any stop work orders shall be made unless it was later determined that the Contractor was in compliance.**

2.2 AREA OF CONSTRUCTION ACTIVITY:

- A. Insofar as possible, the Contractor shall confine their construction activities to those areas defined by the plans and specifications. All land resources within the project boundaries and outside the limits of permanent work performed under this contract shall be preserved in their present condition or be restored to a condition after completion of construction at least equal to that which existed prior to work under this contract.**

2.3 PROTECTION OF WATER RESOURCES:

- A. The Contractor shall not pollute the underground, perennial stream running under the property through a culvert with fuels, oils, bitumens, calcium chloride, acids or other harmful materials. It is the Contractor's responsibility to comply with all applicable Federal, State, County and Municipal laws regarding pollution of rivers and streams.**
- B. Special measures should be taken to insure against spillage of any pollutants into public waters, including on-site inputs to the culvert.**

2.4 PROTECTING AND MINIMIZING EXPOSED AREAS:

- A. The Contractor shall limit the area of land which is exposed and free from vegetation during construction. In areas where the period of exposure will be greater than two (2) months, temporary vegetation, mulching or other protective measures shall be provided as specified.**

2.5 LOCATION OF STORAGE AREAS:

- A. The location of the Contractor's storage areas for equipment and/or materials shall require written approval of the Owner.**
- B. No excavated materials or materials used in backfill operations shall be deposited within a minimum distance of one hundred (100) feet of any drainage infrastructure to the culvert. Adequate measures for erosion and sediment control such as the placement of straw wattles around the downstream perimeter of stockpiles shall be employed to protect any downstream culvert input from siltation.**
- C. The Owner may designate a particular area or areas where the Contractor may store materials used in their operations.**

2.6 PROTECTION OF LANDSCAPE:

- A. Contractor shall be responsible for disturbance to existing resources within the project boundaries and outside the limits of permanent work performed under this contract shall be restored to a condition after completion of construction at least equal to that which existed prior to work under this contract.**
- B. The Contractor shall not deface, injure, or destroy trees or shrubs nor remove or cut them without written authority from the Owner. No ropes, cables, or guys shall be fastened to or attached to any existing nearby trees for anchorages unless specifically authorized by the Owner. Excavating machinery shall be of suitable type and be operated with care to prevent injury to trees which are not to be removed, particularly overhanging branches and limbs. The Contractor shall, in any event, be responsible for any damage resulting from such use.**
- C. Branches, limbs, and roots shall not be cut except by permission of the Owner. All cutting shall be smoothly and neatly done without splitting or crushing. When there is unavoidable injury to branches, limbs and trunks of trees, the injured portions shall be neatly trimmed and covered with an application of grafting wax or tree healing paint as directed.**
- D. Where, in the opinion of the Owner, trees may possibly be defaced, bruised, injured, or otherwise damaged by the Contractor's equipment or other operations, the Owner may require the Contractor to adequately protect such trees by placing boards, planks, poles or fencing around them. Any trees or landscape feature scarred or damaged by the Contractor's equipment or operations shall be restored as nearly as possible to its original condition at the expense of the Contractor.**

2.7 DUST CONTROL:

- A. During the progress of the work, the Contractor shall conduct their operations and maintain the area of their activities, including sweeping and sprinkling as necessary, to minimize creation and dispersion of dust.**

2.8 STRAW WATTLES:

- A. The wattles will be placed and staked in the ground using wooden stakes. The wooden stakes will be placed at a minimum depth of 24-inches into the ground.**

END OF SECTION

SECTION 01600 - CONSTRUCTION LAYOUT

PART - 1 GENERAL

1.1 SCOPE OF WORK:

- A. The work under this section shall consist of field staking the horizontal alignment of all essential features and proposed work, and other related features as shown on the plans.**

PART - 2 MATERIALS

2.1 LAYOUT AND STAKING:

- A. The Contractor shall be responsible for furnishing all stakes, pins, and markings as required to implement the work of layout and staking and shall make all field adjustments ordered by the Owner at no extra cost.**

PART - 3 EXECUTION

3.1 LAYOUT:

- A. The Contractor shall be responsible for scheduling an on-site meeting with the Owner's Representative preliminary field verification of essential features and proposed work, and other related features as shown on the plans.**
- B. The Contractor shall inform the Owner's Representative when the general layout is completed and shall not begin work until the various alignments have been approved by the Owner. Any discrepancies encountered in field conditions shall be reported immediately and shall be adjusted as directed.**
- C. The Contractor shall be responsible for maintaining the correct horizontal alignment of all elements, which responsibility shall not be waived by the Owner's approval of basic layout and stakeout.**

END OF SECTION

SECTION 01700 - CLEANING UP

PART - 1 GENERAL

1.1 DESCRIPTION:

- A. The Contractor must always employ during the progress of their work adequate cleanup measures and safety precautions to prevent injuries to persons or damage to property. The Contractor shall immediately provide adequate material, equipment and labor to cleanup and make safe any and all areas deemed necessary by the Owner.**

1.2 RELATED WORK

- A. Section 01200 CONTROL OF WORK AND MATERIALS**

B. Section 01500 ENVIRONMENTAL PROTECTION

PART - 2 PRODUCTS

N/A

PART - 3 EXECUTION

3.1 DAILY CLEANUP:

- A. The Contractor shall clean up, at least daily, all refuse, rubbish, scrap and surplus material, debris and unneeded construction equipment resulting from the construction operations and sweep the area. The site of the work and the adjacent areas affected thereby shall at all times present a neat, orderly and professional appearance.
- B. Upon written notification by the Owner, the Contractor shall within 24 hours clean up those areas, which in the Owner's opinion are in violation of this section and the above referenced sections of the specifications.
- C. If in the opinion of the Owner, the referenced areas are not satisfactorily cleaned up, all other work on the project shall stop until the cleanup is satisfactory.

3.2 MATERIAL OR DEBRIS IN DRAINAGE FACILITIES:

- A. Where material or debris has washed or flowed into or has been placed in existing watercourses, ditches, gutters, drains, pipes, structures, such material or debris shall be entirely removed and satisfactorily disposed of during progress of the work. Such ditches, channels, drains, pipes, structures, and work shall, upon completion of the work, be left in a clean and neat condition.

3.3 REMOVAL OF TEMPORARY STRUCTURE AND EQUIPMENT:

- A. On or before completion of the work, the Contractor shall, unless otherwise specifically directed or permitted in writing, tear down and remove all temporary structures built by them; shall remove all temporary work, tools and machinery or other construction equipment furnished by them; shall remove all rubbish from any grounds which they have occupied; shall remove erosion controls used for trapping sediment; and shall leave all parts of the property and adjacent property affected by their operations in a neat and satisfactory condition.

3.4 RESTORATION OF DAMAGED PROPERTY:

- A. The Contractor shall restore or replace, when and as directed, any property damaged by their work, equipment or employees, to a condition at least equal to that existing immediately prior to the beginning of operations. To this end the Contractor shall do, as required, all necessary work. Materials, equipment, and methods for such restoration shall be as approved by the Owner.

3.5 FINAL CLEANUP:

- A. Before acceptance by the Owner, the Contractor shall perform a final cleanup to bring the construction site to its original or specified condition. This cleanup shall include removing all trash and debris off the premises. Before acceptance, the Owner shall approve the condition of the site.

END OF SECTION

02100 – DEWATERING

PART - 1 GENERAL

1.1 WORK INCLUDED:

- A. This section specifies designing, furnishing, installing, maintaining, operating and removing temporary dewatering systems as required to lower and control water levels and hydrostatic pressures during construction; disposing of pumped water; constructing, maintaining, observing and, except where indicated or required to remain in place, removing of equipment and instrumentation for control of the system.
- B. Soil boring information are attached on appendix B.

1.2 RELATED WORK:

- A. Section 01500, ENVIRONMENTAL PROTECTION
- B. Section 02200, SUPPORT OF EXCAVATION

1.3 SYSTEM DESCRIPTION:

- A. Dewatering includes lowering the water table and intercepting seepage which would otherwise emerge from the slopes or bottom of the excavation; increasing the stability of excavated slopes; preventing loss of material from beneath the slopes or bottom of the excavation; reducing lateral loads on sheeting and bracing; improving the excavation and hauling characteristics of sandy soil; preventing rupture or heaving of the bottom of any excavation; and disposing of pumped water.
- B. Normal dewatering is defined as using conventional pumps installed in open excavations, ditches, or sumps.

1.4 QUALITY ASSURANCE:

- A. The Contractor is responsible for the adequacy of the dewatering systems.
- B. The dewatering systems shall be capable of effectively reducing the hydrostatic pressure and lowering the groundwater levels to a minimum of 2 feet below excavation bottom, unless otherwise required by the Engineer, so that all excavation bottoms are firm and dry.
- C. The dewatering system shall be capable of maintaining a dry and stable subgrade until the structures, pipes and appurtenances to be built therein have been completed to the extent that they will not be floated or otherwise damaged.
- D. The dewatering system and excavation support (see Section 02200, SUPPORT OF EXCAVATION) shall be designed so that lowering of the groundwater level outside the excavation does not adversely affect adjacent structures, utilities or wells.

1.5 1.05 SUBMITTALS

- A. Contractor shall submit a plan indicating how they intend to control the discharge from any dewatering operations on the project, whether it is discharge of groundwater from excavations or Stormwater runoff during the life of the project.

PART - 2 EXECUTION

2.1 DEWATERING OPERATIONS:

- A. All water pumped or drained from the work shall be disposed of in a manner which will not result in undue interference with other work or damage to adjacent properties, pavements and other surfaces, and utilities. Suitable temporary pipes, flumes or channels shall be provided for water that may flow along or across the site of the work. All disposal of pumped water shall conform to the requirements of the owner.
- B. Dewatering facilities shall be located where they will not interfere with utilities and construction work to be done by others.
- C. Dewatering procedures to be used shall be as described below:
1. Crushed stone shall encapsulate the suction end of the pump to aid in minimizing the amount of silt discharged.
 2. For dewatering operations with relatively minor flows, pump discharges shall be directed into hay bale sedimentation traps lined with filter fabric. Water is to be filtered through the hay bales and filter fabric prior to being allowed to seep out into its natural water course.
 3. For dewatering operations with larger flows, pump discharges shall be into a steel dewatering basin. Steel baffle plates shall in used to slow water velocities to increase the contact time and allow adequate settlement of sediment prior to discharge into waterways.
 4. Where indicated on the contract drawings or in conditions of excess silt suspended in the discharge water, silt control bags are to be utilized in catch basins.
 5. The Contractor shall be responsible for repair of any damage caused by his dewatering operations, at no cost to the Owner.

END OF SECTION

02200 - SUPPORT OF EXCAVATION

PART - 1 GENERAL

1.1 WORK INCLUDED:

- A. This section of the specification covers wood sheeting and bracing for support of excavations. The requirements of this section shall also apply, as appropriate, to other methods of excavation support and underpinning which the Contractor elects to use to complete the work.
- B. The Contractor shall furnish and place timber sheeting of the kinds and dimensions required, complying with these specifications, where indicated on the drawings or required by the Engineer.

1.2 RELATED WORK:

- A. Section 02100, DEWATERING.

1.3 QUALITY ASSURANCE:

- A. This project is subject to the Safety and Health regulations of the U.S. Department of Labor set forth in 29 CFR, Part 1926, and to the Massachusetts Department of Safety and Department of Labor, Division of Occupational Safety “Excavation & Trench Safety Regulation (520 CMR 14.00)” and “Rules and Regulations for the Prevention of Accidents in Construction Operations (454 CMR 10.0 et seq.)” Contractors shall be familiar with the requirements of these regulations.
- B. The excavation support system shall be of sufficient strength and be provided with adequate bracing to support all loads to which it will be subjected. The excavation support system shall be designed to prevent any movement of earth that would diminish the width of the excavation or damage or endanger adjacent structures.

PART - 2 PRODUCTS

2.1 MATERIALS:

- A. Timber sheeting shall be sound spruce, pine, or hemlock, planed on one side and either tongue and grooved or splined. Timber sheeting shall not be less than nominal 2-inches thick.
- B. Timber and steel used for bracing shall be of such size and strength as required in the excavation support design. Timber or steel used for bracing shall be new or undamaged used material which does not contain splices, cutouts, patches, or other alterations which would impair its integrity or strength.

PART - 3 EXECUTION

3.1 INSTALLATION:

- A. Work shall not be started until all materials and equipment necessary for their construction are either on the site of the work or satisfactorily available for immediate use as required.
- B. The sheeting shall be securely and satisfactorily braced to withstand all pressures to which it may be subjected and be sufficiently tight to minimize lowering of the groundwater level outside the excavation, as required in Section 02100, DEWATERING.
- C. The sheeting shall be driven by approved means to the design elevation. No sheeting may be left so as to create a possible hazard to safety of the public or a hindrance to traffic of any kind.
- D. If boulders or very dense soils are encountered, making it impractical to drive a section to the desired depth, the section shall, as required, be cut off.
- E. The sheeting shall be left in place where indicated on the drawings or required by the Engineer in writing. At all other locations, the sheeting may be left in place or salvaged at the option of the Contractor. Steel or wood sheeting permanently left in place shall be cut off at a depth of not less than two feet below finish grade unless otherwise required.
- F. All cut-off will become the property of the Contractor and shall be removed by him from the site.

- G. Responsibility for the satisfactory construction and maintenance of the excavation support system, complete in place, shall rest with the Contractor. Any work done, including incidental construction, which is not acceptable for the intended purpose shall be either repaired or removed and reconstructed by the Contractor at his expense.
- H. The Contractor shall be solely responsible for repairing all damage associated with installation, performance, and removal of the excavation support system.

END OF SECTION

02400 - SCREENED LOAM AND TOPSOIL REUSE

PART - 1 GENERAL

1.1 SCOPE OF WORK:

- A. Under this Section, the Contractor shall furnish all labor, materials, equipment and transportation required to furnish and place Screened Loam Borrow. Where seed is noted on the drawings, it shall be composed of Loam Borrow, or Topsoil Reused in compliance with this specification.
- B. Prospective bidders are advised that significant quantities of topsoil are present at the property and presumably available for reuse if compatible with the requirements of this specification. The Contractor shall be responsible for amending topsoil, as required to comply with this specification.

1.2 NOTIFICATION:

- A. The Contractor shall notify the Owner in writing at least ten (10) days in advance of the time he intends furnishing Screened Loam Borrow stating the location and amount of such deposit, the name and address of the supplier and also shall furnish such facilities, transportation and assistance as the Owner may require for collecting and forwarding samples.

PART - 2 MATERIALS

2.1 LOAM BORROW:

- A. Existing on-site soil may be re-used as Loam Borrow only if it is to the satisfaction of the Owner. The Contractor shall furnish all required Loam Borrow, from offsite sources, as necessary, to complete the project.

2.2 REUSE OF EXISTING TOPSOIL:

- A. The reuse of topsoil that does not meet the specifications for use as loam borrow may only be permitted for use as a general fill material to subgrade elevations at the limits of lawn areas.

PART - 3 EXECUTION

3.1 PLACEMENT:

- A. The Contractor shall furnish and spread Loam Borrow to the depths shown on the contract drawings, which depth shall be the minimum required depth after settlement.

END OF SECTION

SECTION 02500 – SEEDING

PART - 1 GENERAL

1.1 WORK INCLUDED:

- A. This Section includes furnishing all labor, materials, equipment, seed and incidental materials necessary to accomplish all grass seeding and related work, complete in place, maintained, and accepted, in accordance with the Contact Drawings and Specifications. All grassed areas disturbed by the Contractor's operations shall be repaired as herein specified.**
- B. The Contractor shall bear the responsibility and cost of furnishing and applying water or any other substances, as necessary to ensure the sustainability of grass seeded areas, as part of the work of this contract.**
- C. The Contractor shall furnish and install slope erosion control as specified in this section if required by the Owner.**

1.2 RELATED WORK:

- A. Section 02400, SCREENED LOAM BORROW AND TOPSOIL REUSED**

1.3 SUBMITTALS:

In accordance with requirements of general specifications, the Contractor shall submit the following to the Owner for review and approval:

- A. Digital copies of information for seed mixes including the following:**
 - 1. Name and address of the seed supplier.**
 - 2. Source of origin and dates of harvest for each of the various types of seed**
 - 3. Certification of seed mix composition and proportion, indicating named seed varieties by percent, percent germination, purity, and percent crop seed, percent inert matter, and percent weed seed content.**
 - 4. Estimated number of seeds per pound of each type of seed in the mix**
 - 5. Ingredients that comprise the hydroseed mix**
- B. Copies of information detailing proposed limestone, fertilizers, mulch materials, hydroseeding materials (as required), and slope protection material (as required) to be applied to seeded areas.**
- C. Copies of watering, fertilizing and maintenance schedule.**
- D. Copies of marked up prints indicating the square footage of all proposed seeded areas with quantities of various soil additives and amendments, and quantities of seed for each area prior to beginning work.**

PART - 2 PRODUCTS

2.1 MATERIALS:

A. LOAM BORROW;

1. Loam Borrow shall be as specified in Section 02400, SCREENED LOAM BORROW AND TOPSOIL RE-USED.

B. LIMESTONE:

1. Lime shall be an approved agricultural limestone containing at least 50 percent total oxides (calcium oxide and magnesium oxide). The material will be ground such that 50 percent of the material will pass through a No. 100 mesh sieve and 98 percent will pass a No. 2 mesh sieve. Lime shall be uniform in composition, dry and free-flowing and shall be delivered to the site in the original sealed containers, each bearing the manufacturer’s guaranteed analysis.

C. FERTILIZER:

1. Fertilizer shall be a complete, standard commercial fertilizer, homogenous and uniform in composition, dry and free flowing, and shall be delivered to the site in the manufacturer’s original sealed containers, each bearing the manufacturer’s guaranteed analysis and marketed in compliance with State and Federal Laws. All fertilizer shall be used in accordance with the manufacturer’s recommendations. Refer to Appendix E – Sand and Soil Amendments for required fertilizers. All fertilizers and soil amendments shall meet these requirements or be an approved equal.
2. Refer to Appendix E – Sand and Soil Amendments for required fertilization requirements.

D. SEED:

1. Seed shall be of an approved perennial variety mixture, the previous year's crop, clean, and high in germinating value. Weed seed content shall be less than 0.5 percent and include no noxious weeds. Seed shall be obtained from a reliable seed company and shall be accompanied by certificates of compliance relative to mixture purity and germinating value. Seed shall be furnished and delivered in new, clean, sealed and properly labeled containers. All seed shall comply with applicable State and Federal laws. Seed that has become wet, moldy or otherwise damaged shall not be accepted.
2. Grass seed for general lawn areas shall conform to the following requirements:

Botanical Names	Common Names	Proportion by Weight	Germination Rate	Purity Minimum
Festuca rubra commutata	Chewing’s Fescue	30%	70%	97%
Festuca arundinacea ‘Kentucky 31’	‘Kentucky 31’ Tall Fescue	30%	90%	98%
Poa pratensis	Kentucky Bluegrass	20%	80%	85%
Lolium perenne	Perennial Ryegrass	20%	90%	98%

E. MULCH

1. **Materials to be used in mulching seeded areas shall be free of weed seed and shall conform to the following requirements:**
 - a. **Hay Mulch shall consist of mowed and properly cured grass, clover or other acceptable plants. No salt hay shall be used.**
 - b. **Straw Mulch shall consist of stalks or stems of grain after threshing.**

F. HYDROSEED MULCH, TACKIFIERS AND WATER RETENTION AGENTS:

1. **Wood fiber mulch for Hydroseed application shall be a manufactured product of natural wood cellulose fibers with a non-toxic green marking dye incorporated to ensure uniform distribution. Mulch shall be packed in sealed original containers, clearly labeled with brand name and manufacturer. It shall have delivered moisture content less than 12 percent.**
2. **Hydroseed tackifier shall be a powdered starch-based product approved by the Owner. Hydroseed tackifier shall be applied in conjunction with the hydroseed slurry in accordance with the manufacturer's recommendations.**
3. **Moisture retention agent shall be a powdered starch-based product, approved by the Engineer, and shall be capable of retaining up to 400 times their weight in water. Moisture retaining agents shall be added to the hydroseed slurry in accordance with the manufacturer's recommendations. Moisture retention agent shall be 'Hydro-Gel', as manufactured by Finn Corporation, Fairfield, OH.**
4. **Contractor to submit mix ingredients prior to installation of hydroseed.**

G. SLOPE EROSION PROTECTION:

1. **Erosion control blanket shall be 100 percent biodegradable mesh with 100 percent biodegradable straw or straw/coconut fill. Fill shall be held together by biodegradable fastening. Weight shall be 0.50 pounds per square yard. Erosion control blankets shall be applied parallel to direction of water flow. The erosion control blankets shall be by North American Green, Evansville, IN or approved equal. For slopes 4:1 or greater, erosion control blanket shall be composed of 70 percent straw 30 percent coconut fiber, Model SC150. For slopes less than 4:1, erosion control blanket shall be high velocity straw matting, Model S150.**
2. **Six-inch wire staples shall be placed in accordance with the manufacturer's recommendations to anchor the mesh material. Staples shall be biodegradable.**

H. WATER:

1. **Water shall be furnished by the Contractor, unless otherwise specified, and shall be suitable for irrigation and free from ingredients harmful to plant growth and viability. The delivery and distribution equipment required for the application of water shall be the furnished by the Contractor, at no additional cost to the Owner.**

PART - 3 EXECUTION

3.1 GENERAL:

- A. All work shall be performed by skilled workers with a minimum of 2 years of seeded lawn construction and establishment experience and under the full-time supervision of a qualified foreman.**
- B. Seeding operations shall not begin less than 4 days after the application of lime and fertilizer and the seedbed areas are reviewed and approved by the Engineer.**
- C. Seeding shall be done when soil and weather conditions permit in early spring, until June 15, or from September 10 to October 15, unless otherwise approved. If it becomes necessary for seed to be sown after June 15, provisions shall be made for supplementary water and using mulch cover over lawn areas.**
- D. If there is a delay in seeding, during which weeds grow, or soil is washed out, the Contractor shall eliminate the weeds by physical means, or replace the soil before sowing the seed, without additional compensation. Immediately before seeding is begun, the soil shall be lightly raked.**
- E. Seed shall be sown at the approved rate, on a non-windy day by machine, or as approved by the Engineer.**
- F. The surface shall be kept moist by a fine spray until the seed shows uniform germination over the entire area. Wherever poor germination occurs in areas larger than 3 square feet, the Contractor shall reseed, roll, straw and water as necessary to obtain proper germination.**
- G. If there is insufficient time in the planting season to complete soil preparations, fertilizing, and seeding, permanent seeding may be left until the following planting season, at the option of the Contractor, or on order of the Engineer. In that event, a temporary cover crop shall be sown. This cover crop shall be cut and watered as necessary until the beginning of the following planting season, at which time it shall be plowed or harrowed into the soil, the area shall be fertilized and the permanent seed crop shall be sown as specified.**
- H. Protection of all newly loamed and graded areas is required and shall be accomplished by whatever means necessary such as mulch applied with a tackifier, or by other means approved by the Owner. The Contractor shall be responsible for the prevention of siltation in areas beyond the limit of work and for all means of protection throughout the maintenance period at no additional cost to the Owner.**

3.2 3.03 BROADCAST SEEDING, PLACING MULCH AND SLOPE EROSION PROTECTION:

- A. The seed mix shall be broadcast at 6 pounds per 1000 square feet, as recommended by the seed supplier, or as directed by the Engineer. Seed shall be divided into 2 equal amounts and uniformly distributed in 2 applications at right angles to each other. Seed shall then be raked lightly into the soil to a depth of 1/4 inch.**
- B. If mulch is not necessary the seed shall be directly firmed into the soil with a roller that will apply pressure between 75 and 100 pounds per linear foot of width.**
- C. Hay or Straw Mulch shall be used based on time of seeding as previously specified over all seeded areas, or as otherwise directed. If mulch is to be used, it shall be loosely spread to a uniform depth at a rate of 4-1/2 tons per acre to provide 1/4 inch of cover, or as otherwise directed.**
- D. E. Slope erosion control blankets shall be placed as directed by the Owner.**

3.3 HYDROSEEDING:

- A. A. The application of lime, fertilizer, grass seed and mulch may be accomplished in a single operation with the use of approved hydroseeding equipment. The materials shall be mixed with water in the machine and kept in an agitated state in order that the materials may be uniformly suspended in the water. The slurry shall be of such consistency that it can be sprayed from a hydroseed gun or through at least 200 feet of 1 ½ inch diameter hose. The spraying equipment shall be so designed that when the solution is sprayed over an area, the resulting deposits of lime, fertilizer, grass seed, and mulch shall be equal to the specified quantities.
- B. B. Prior to the start of hydroseeding, the Contractor shall furnish to the Engineer, in writing, the weights of limestone, fertilizer, grass seed, mulch, tackifier (as required) and moisture retention agent (as required) per 100 gallons of water to be used. This statement should also specify the number of square yards of seeding that can be covered with the solution specified above. If the results of hydroseeding operations are unsatisfactory, the Contractor will be required to abandon this method and to apply the lime, fertilizer, grass seed and mulch by other means.
- C. C. Seed shall be incorporated with the mulching material to obtain a minimum hydroseeded sown coverage of 200 pounds of the specified seed mix per acre, as recommended by the seed suppliers.
- D. D. Wood fiber mulch shall be uniformly spread over certain selected seeded areas at the minimum rate of 1,400 pounds per acre unless otherwise directed. Mulch shall be placed by spraying from an approved spraying machine with pressure sufficient to cover the entire area in a single operation.
- E. E. The Contractor shall immediately cleanup hydroseed oversprays from plant materials, pavements, furnishings, etc., to the satisfaction of the Owner.

3.4 MAINTENANCE:

- A. The Contractor shall maintain and protect the entire seeded area, as necessary to ensure dense healthy growth, until completion of the guarantee period and final acceptance of the project, or for 60 days. If lawns are planted in late summer or during the fall, maintenance shall continue through the following spring for at least 60 days. Maintenance shall include watering as specified, liming, fertilizing, removal of stones, control of weeds, insect pests and fungal pathogens, and regular mowing. Defective work shall be corrected as soon as possible after it becomes apparent and weather and season permit.
- B. The first cutting of lawn areas shall be done when the grass is between 2 ½ - 3 inches in height. The lawn shall be cut no shorter than 2 inches in height and shall be regularly mowed as necessary to maintain the above-prescribed conditions. All cuttings shall be removed from the lawn during the maintenance period and disposed of off-site. Cutting shall be accomplished with approved equipment that is weed free, clean of all herbicides and pesticides and has freshly sharpened blades. No mowing shall occur without inspection and approval of the owner or Engineer.
- C. The Contractor shall be responsible to regularly water seeded areas with the equivalent of 1-inch minimum of rainfall per week, or as necessary to develop and sustain dense, green growth.
- D. Six weeks after turf has established, and only during the months of April, May, or September, the Contractor shall apply fertilizer as specified above, at one half the rate recommended by the initial soils laboratory tests, or as directed by the Engineer.
- E. The Contractor shall be responsible for securing all seeded areas from physical damage as necessary, including warning signs, barriers, temporary fencing, or other means of protection, through the guarantee period until final acceptance. All damaged areas shall be repaired to reestablish healthy vigorous growth of turf to the satisfaction of the Engineer, at no additional cost to the Owner. All temporary barriers shall remain the property of the Contractor and shall be removed by the Contractor upon final acceptance by the Engineer.

3.5 INSPECTION AND PRELIMINARY ACCEPTANCE:

- A. At the beginning of the planting season following that in which the permanent grass crop is sown, seeded areas will be inspected. Any section not showing dense, vigorous growth shall be promptly reseeded by the Contractor at no additional cost to the Owner. The seeded areas shall be watered, weeded, cut and otherwise maintained by the Contractor, as many times as necessary, in accordance with these specifications, until they are accepted.
- B. The Contractor shall provide written notice to the Owner not less than 10 days before the anticipated date of inspection for preliminary acceptance. The Engineer shall recommend preliminary acceptance of the work of this Section only after completion and re-inspection of all necessary repairs, renewals, or replacements.
- C. Inspection and acceptance of seeded areas may be requested and granted in part, provided the areas for which acceptance is requested are relatively substantial in size, and with clearly definable boundaries. Acceptance and use of these areas by the Owner shall not waive any other provisions of this Contract.

3.6 3.07 GUARANTEE:

- A. Seeded areas shall be guaranteed until final acceptance of the project, or, in the case of late summer or fall planting, the guarantee period shall extend through the following spring.
- B. When the work is accepted in part, the guarantee period shall extend from each partial acceptance to the terminal date of the last guarantee period. All guarantee periods terminate at one time.
- C. Guarantee shall not apply to the replacement of seeded lawns resulting from the removal, loss, or damage due to occupancy of the project in any part; vandalism or acts of neglect on the part of others; physical damage by animals, vehicles, etc.; and Acts of God, including but not limited to, catastrophic fire, hurricanes, riots, war, etc.
- D. In the instance of curtailment of water by local water authorities (when supply was to be furnished by the Owner), the Contractor shall furnish all necessary water by water tanker, the cost of which will be approved and paid for by the Owner.

3.7 3.08 FINAL INSPECTION AND FINAL ACCEPTANCE:

- A. At the end of the guarantee period, the Contractor shall provide written notice to the Engineer not less than 10 days before the anticipated date of final inspection for final acceptance.
- B. The Engineer shall recommend final acceptance of the work of this Section only after completion and re-inspection of all necessary repairs, renewals or replacements.

END OF SECTION

16010 ELECTRICAL WORK – GENERAL PROVISIONS

PART - 1 PART 1 - GENERAL

1.1 WORK INCLUDED:

- A. The work covered by this section of the specifications consists of furnishing all labor, equipment, appliances, materials and incidentals in connection with the installation of the complete electrical systems as herein specified and as shown on the drawings.

- B. It is not the intent that the drawings shall show every junction box, conduit, wire, fitting, device, accessory, etc., but the Contractor shall be required to furnish without additional expense all transportation, labor and materials necessary to complete the electrical systems in accordance with the best practice of the trade.**
- C. Unless otherwise specified, materials of the same classifications, used for the same purpose shall be the product of the same manufacturer.**
- D. The work shall include furnishing and installing the following items:**
 - 1. Underground Primary and Secondary Services**
 - 2. Grounding System**
 - 3. Panelboards**
 - 4. Raceways**
 - 5. Feeder and Branch Circuit Conductors**
 - 6. Solderless Lugs and Connectors**
 - 7. Conduit and wire for equipment and controls furnished under other divisions of the specifications, when shown on the electrical plans, with the exception of the instrumentation low voltage signal wiring.**
- E. Electric Service and Metering**

The power company serving this project is Eversource.

- 1. Secondary conduit wiring and metering will be by the Contractor**
- 2. Arrangements shall be made with the power company for obtaining service. All cost for overhead line extensions and work required for these services including metering cost shall be obtained from the power company. The Contractor shall include in his bid and shall pay this money to the power company. All work involving the service and metering shall be as approved by the power company.**
- 3. The Contractor shall coordinate and submit the Eversource Work Order Form (Appendix E).**

F. Interpretation of Drawings

- 1. The Drawings are diagrammatic only and are not intended to show exact locations of outlets and conduit runs.**
- 2. All three-phase circuits shall be run in separate conduits unless otherwise shown on the Drawings.**
- 3. The Contractor shall verify with the Engineer the exact locations and mounting heights of lighting fixtures, switches and receptacles prior to installation.**
- 4. Any work installed contrary to Contract Documents, or without approval by the Engineer, shall be changed or replaced as required by the Engineer and no extra compensation will be allowed the Contractor for making these changes.**
- 5. The locations of equipment, fixtures, and similar devices shown on the Drawings are approximate only. Exact locations shall be as approved by the Engineer during construction. The Contractor shall obtain in the field all information relevant to the placing of electrical work and in case of any interference with other work, shall proceed as required by the Engineer and shall furnish all labor and materials necessary to complete the work in an approved manner.**
- 6. Surface mounted panel boxes, junction boxes, conduit, etc., shall be supported by spacers to provide a clearance between wall and equipment.**
- 7. The number of conductors shown on the Drawings are not necessarily the correct number required. As many conductors as are required in each case shall be installed.**
- 8. Unless otherwise specified, all conduits, wires, and cables and the support systems for the conduits and cables that are required to make the electrical connections to equipment shall be furnished and installed. All connections to equipment shall be made as shown, specified, and required and in accordance with the approved shop and setting drawings.**
- 9. The Contractor shall verify, in the field, all measurements necessary for their work and shall assume responsibility for their accuracy.**

1.2 1.02 LOCAL CONDITIONS:

- A. Before submitting proposals, the Contractor is expected to inspect the site and survey the conditions to be encountered in the performance of the work. Failure to familiarize himself with the conditions shall not relieve the Contractor's responsibility for full completion of the work in accordance with the provisions of the Contract.**

1.3 PERMITS AND INSPECTION:

- A. Permits, fees and notices shall be in accordance with the General Conditions.**
- B. All work shall meet or exceed the latest requirements of all national, state, county, municipal and other authorities exercising jurisdiction over electrical construction at this project.**
- C. All required permit and inspection certificates shall be obtained, paid for, and given to the Owner at the completion of the work.**

1.4 CODES AND STANDARDS:

- A. Unless indicated or specified otherwise, materials and workmanship shall conform with the latest editions of the following codes, standards and specifications.**
 - 1. Massachusetts Electrical Code**
 - 2. National Bureau of Standards Handbook H-30 National Electrical Safety Code**
 - 3. State and Local Codes, and all other authorities having jurisdiction**
 - 4. Underwriter's Laboratories, Inc. (UL)**
 - 5. American National Standards Institute, Inc.**
 - 6. Institute of Electrical and Electronic Engineers (IEEE)**
 - 7. National Electrical Manufacturers Association (NEMA)**
 - 8. National Board of Fire Underwriters**
 - 9. International Municipal Signal Association (IMSA)**
 - 10. Insulated Power Cable Engineers Associated Specifications**
 - 11. American Society for Testing Materials Specifications**

1.5 REVIEW OF MATERIALS:

- A. Material and Equipment Schedules. As soon as practicable and within thirty days after the date of notice to proceed and before commencement of installation of any materials or equipment, the Contractor shall submit to the Engineer six (6) complete Brochures for approval of materials, fixtures, and equipment to be incorporated in the work. The list shall include manufacturer's name, catalog numbers, cuts, diagrams, drawings, and such other descriptive data as may be required. No consideration will be given to a partial submittal from time to time. Approval of materials will be based on manufacturer's published ratings. Any materials, fixtures and equipment listed that are not in accordance with the specification requirements will be rejected.**
- B. Substitutions: Substitution of material or equipment shall be in accordance with the General Conditions.**
- C. Shop Drawings. Shop drawings shall be submitted to the Engineer for review in accordance with the Division**
 - 1. Shop drawings shall be submitted for, but not limited to the following:**
 - 1. Panelboards**
 - 2. Wire and Cable**
 - 3. Hangers and Supports**
 - 4. Raceways**

5. Cabinets

- D. Submit the following information with all equipment shop drawings.**
- 1. Manufacturer's certified scale drawings, cuts, or catalogs, including installation details and manufacturer's name.**
 - 2. Manufacturer's specifications, including certified performance characteristics and capacity ratings.**
 - 3. Electrical wiring diagrams and controls, where applicable.**
 - 4. Certificate of compliance with Code, where applicable.**
 - 5. Detail of all conduit stub-up with conduit size and dimensions from columns or walls.**
- E. Equipment shop drawings and wiring diagrams must be prepared specifically for this installation. Standard factory wiring diagrams with a revision marked in ink for this installation will be accepted.**
- F. All control and wiring diagrams shall be complete with the following description:**
- 1. Sequence of operation**
 - 2. Sequence of interlocking**
 - 3. Operation of alarms**
 - 4. Legend**
 - 5. Wiring Numbers**
- G. All equipment shop drawings shall be properly identified and indicate the Article number of the specifications or the Drawing number which applies to the submitted item.**
- H. Shop drawings for the items listed above shall be submitted for approval in accordance with the preceding paragraphs. The Engineer, however, reserves the right to require submittal of shop drawings on any other material or equipment to be installed under this Section not specifically listed above.**
- 1.6 MINOR DEVIATIONS:**
- A. A. The work as shown on the drawings is diagrammatic and is intended to show the work included and the arrangement of the various systems.**
- B. It is not intended that the accompanying plans and specifications cover every detail of the required installation. Furnish and install equipment, materials and labor as shown or specified, as are usually furnished, or as are needed to make a complete and satisfactory operating installation, whether mentioned or not, omitting only those items which are specifically excluded.**
- C. C. Locations and mounting heights of equipment and/or devices as shown are approximately correct. The Engineer reserves the right to relocate any equipment or device prior to actual installation at no extra cost to the Owner.**
- D. D. No deviation from layout shall be made without written approval from the Engineer.**
- 1.7 TEMPORARY LIGHT AND POWER:**
- A. The Contractor shall provide temporary light and power and pay all energy charges as described in Division 1.**
- 1.8 ELECTRICAL REFERENCE SYMBOLS:**

- A. Symbols shown on the drawings shall approximate location of fixtures, outlet boxes, and conduit runs, and other equipment, unless otherwise detailed. The exact location shall be governed by structural conditions and obstructions. This is not to be construed to permit redesigning systems. Locate and install all boxes and equipment where they will be readily accessible.

1.9 PHASE IDENTIFICATION:

- A. The entire system of wiring shall be phased by color code as follows:

- 1. Wires No. 6 AWG and smaller shall have a continuous colored outer covering.
- 2. Wires larger than No. 6 AWG shall be identified at all points of termination by gummed tape, plastic tape, etc., applied to the wire.
- 3. Bus bars in panelboards shall be properly identified by color as herein specified.
- 4. Code colors for 277/480 volt systems shall be:

- a. Phase A – Black
- b. Phase B – Orange
- c. Phase C - Yellow

- 5. Code colors for 120/208 volt systems shall be:

- a. Phase A - Black
- b. Phase B - Red
- c. Phase C - Blue

- 6. Neutral wires shall be white or grey.
- 7. Equipment ground wires shall be green.
- 8. The same colors shall be used for the same phases throughout the entire project.

1.10 PROTECTION AND CLEANING OF EQUIPMENT:

- A. All electrical equipment, upon receipt, shall be adequately stored and protected from damage.
- B. After installation, all electrical equipment shall be protected to prevent damage during the construction period. Openings in conduits and boxes shall be closed to prevent entrance of foreign materials.
- C. The interior of boxes and cabinets shall be left clean. Exposed surfaces shall be cleaned and plate surfaces polished.

1.11 OPERATION AND MAINTENANCE MANUALS:

- A. The Contractor shall furnish the Owner with three (3) copies of complete operating and maintenance manuals. Manuals shall include all equipment, maintenance instruction, parts list, warranties, schematic diagrams of control systems, and lubrication charts.
- B. Manuals shall contain only that information which specifically applies to this project, and all unrelated material shall be deleted. During the instruction period, herein specified, this manual shall be used and explained. Each copy of manual shall be clearly indexed and include a directory of all subcontractors and maintenance contractors, indicate the area of their responsibility, and list the name and telephone numbers of the responsible member of each organization. This material shall have a clear plastic protective shield over each sheet of data.

- C. Each manual shall be bound in an expandable plastic covered hard bound binder. Binders shall be three post type. The manual's front cover and side cover shall be stamped "Operation and Maintenance Manual -- Electrical Systems" along with the project title.

1.12 OPERATING AND MAINTENANCE INSTRUCTIONS:

- A. A competent Engineer shall be provided by the Contractor to instruct operating personnel in the operation and maintenance of equipment and systems.

1.13 SPARE PARTS DATA:

- A. The Contractor shall furnish a complete list of recommended spare parts and supplies for the equipment furnished with current unit prices and source of supply.

1.14 TESTS:

- A. The Electrical Subcontractor shall perform all tests at the completion of the work and the results furnished to the Owner and Engineer in writing. Tests shall include, but not be limited to: all systems test free of shorts or grounds, proper neutral connections, ground system resistance, secondary voltages at main distribution panel, power panels and lighting panels.
- B. Upon completion of all work, the Electrical Subcontractor shall furnish, in duplicate, certificates of inspections from all inspectors and authorities having jurisdiction, notarized letters from the manufacturers stating that authorized Factory Engineers or agents have inspected and tested the installation of their respective systems and found same to be in satisfactory operating condition.
- C. Furnish all labor, material, instruments, supplies and services and bear all costs for the accomplishment of the tests.

1.15 GUARANTEE:

- A. The Contractor shall guarantee equipment and performance of the installation and equipment in accordance with the GENERAL CONDITIONS.

PART - 2 PRODUCTS

2.1 MATERIALS:

- A. The materials used in all systems shall be new, unused and as hereinafter specified. All materials where not specified shall be of the very best of their respective kinds. Samples of materials or manufacturer's specification shall be submitted for approval as required by the Engineer.
- B. Materials and equipment used shall be U.L. listed wherever such approved materials and equipment is available.
- C. Electrical equipment shall at all times during construction be adequately protected against mechanical injury or damage by water. If any apparatus has been damaged, such damage shall be repaired by the Contractor at his cost and expense. If any apparatus has been subject to possible damage by water, it shall be thoroughly dried out and put through such special tests as required by the Engineer, at the cost and expense of the Contractor, or shall be replaced by the Contractor at his own expense.

PART - 3 EXECUTION

3.1 INSTALLATION

- A. All work shall be executed in full accordance with the National Electrical Code and local rulings. Should any work be performed contrary to said rulings, ordinances and regulations, this Contractor shall bear full responsibility for such violations and assume all costs arising therefrom.**
- B. Load Balance. Check the load balance on the phases of the various systems and reconnect where necessary as approved by the Engineer to provide equal division of the loads between the phases of the various systems.**
- C. Before starting the work, confer with all other trades relative to the location of pipes, and apparatus or fixtures to be installed by them and select locations for the work which will avoid possible conflicts with the work of other trades involved. All differences or conflicting conditions concerning the work shall be called to the attention of the Engineer for adjustment before starting work. For such work performed or materials installed in violation of the above clause the work shall be readjusted to the complete satisfaction of the Engineer at the sole expense of the Electrical Subcontractor.**
- D. Cleanup**
 - 1. This Contractor shall cooperate with other workmen and with the General Contractor in the daily removal of debris from the work site.**
 - 2. This Contractor shall leave "broom clean" all areas where he has interrupted or completed his work.**
 - 3. He shall cooperate with the General Contractor in good housekeeping procedures.**
 - 4. At the completion of his work, prior to the final inspection, this Contractor shall clean all devices, plates, fixtures, glassware, switches, cabinets, exposed conduits, fittings, etc. and shall have the premises in a thoroughly clean condition.**

END OF SECTION

16200 BASIC ELECTRICAL MATERIAL AND METHODS

PART - 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.**

1.2 SUMMARY

- A. This Section includes the following:**
 - 1. Raceways.**
 - 2. Building wire and connectors.**
 - 3. Supporting devices for electrical components.**
 - 4. Electrical identification.**

5. **Electricity-metering components.**
6. **Concrete equipment bases.**
7. **Cutting and patching for electrical construction.**
8. **Touchup painting.**

1.3 DEFINITIONS

- A. **EMT: Electrical metallic tubing.**
- B. **FMC: Flexible metal conduit.**
- C. **IMC: Intermediate metal conduit.**
- D. **LFMC: Liquid tight flexible metal conduit.**
- E. **RNC: Rigid nonmetallic conduit.**

1.4 SUBMITTALS

- A. **Product Data: For electricity-metering equipment.**
- B. **Shop Drawings: Dimensioned plans and sections or elevation layouts of electricity metering equipment.**
- C. **Field Test Reports: Indicate and interpret test results for compliance with performance requirements.**

1.5 QUALITY ASSURANCE

- A. **Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.**
- B. **Comply with NFPA 70.1.06 COORDINATION**
- C. **Sequence, coordinate, and integrate installing electrical materials and equipment for efficient flow of the Work.**
- D. **Coordinate electrical service connections to components furnished by utility companies.**
 1. **Coordinate installation and connection of exterior underground and overhead utilities and services, including provision for electricity-metering components.**
 2. **Comply with requirements of authorities having jurisdiction and of utility company providing electrical power and other services.**
- E. **Where electrical identification devices are applied to field-finished surfaces, coordinate installation of identification devices with completion of finished surface.**

PART - 2 PRODUCTS

2.1 RACEWAYS

- A. **EMT: ANSI C80.3, zinc-coated steel, with set-screw or compression fittings.**
- B. **FMC: Zinc-coated steel.**

- C. **IMC: ANSI C80.6, zinc-coated steel, with threaded fittings.**
- D. **LFMC: Zinc-coated steel with sunlight-resistant and mineral-oil-resistant plastic jacket.**
- E. **RNC: NEMA TC 2, Schedule 40 PVC, with NEMA TC3 fittings.**
- F. **Raceway Fittings: Specifically designed for the raceway type with which used.**

2.2 CONDUCTORS

- A. **Conductors, No. 10 AWG and Smaller: Solid or stranded copper.**
- B. **Conductors, Larger Than No. 10 AWG: Stranded copper.**
- C. **Insulation: Thermoplastic, rated at 75 deg C minimum.**
- D. **Wire Connectors and Splices: Units of size, ampacity rating, material, type, and class suitable for service indicated.**

2.3 SUPPORTING DEVICES

- A. **Material: Cold-formed steel, with corrosion-resistant coating acceptable to authorities having jurisdiction.**
- B. **Metal Items for Use Outdoors or in Damp Locations: Hot-dip galvanized steel.**
- C. **Raceway and Cable Supports: Manufactured clevis hangers, riser clamps, straps, threaded C-clamps with retainers, ceiling trapeze hangers, wall brackets, and spring steel clamps or click-type hangers.**
- D. **Pipe Sleeves: ASTM A 53, Type E, Grade A, Schedule 40, galvanized steel, plain ends.**
- E. **Cable Supports for Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug for non-armored electrical cables in riser conduits. Plugs have number and size of conductor gripping holes as required to suit individual risers. Body constructed of malleable-iron casting with hot-dip galvanized finish.**
- F. **Expansion Anchors: Carbon-steel wedge or sleeve type.**
- G. **Toggle Bolts: All-steel springhead type.**
- H. **Powder-Driven Threaded Studs: Heat-treated steel.**

2.4 2.04 ELECTRICAL IDENTIFICATION

- A. **Identification Devices: A single type of identification product for each application category. Use colors prescribed by ANSI A13.1, NFPA 70, and these Specifications.**
 - B. **Raceway and Cable Labels: Comply with ANSI A13.1, Table 3, for minimum size of letters for legend and minimum length of color field for each raceway and cable size.**
1. **Type: Pre-tensioned, wraparound plastic sleeves. Flexible, preprinted, color-coded, acrylic band sized to suit the diameter of the item it identifies.**

2. **Type: Preprinted, flexible, self-adhesive, vinyl. Legend is over laminated with a clear, weather- and chemical-resistant coating.**
 3. **Color: Black letters on orange background.**
 4. **Legend: Indicates voltage.**
- C. Colored Adhesive Marking Tape for Raceways, Wires, and Cables: Self-adhesive vinyl tape, not less than 1 inch wide by 3 mils thick.**
- D. D. Underground Warning Tape: Permanent, bright-colored, continuous-printed, vinyl tape with the following features:**
1. **Not less than 6 inches wide by 4 mils thick.**
 2. **Compounded for permanent direct-burial service.**
 3. **Embedded continuous metallic strip or core.**
 4. **Printed legend that indicates type of underground line.**
- E. Tape Markers for Wire: Vinyl or vinyl-cloth, self-adhesive, wraparound type with preprinted numbers and letters.**
- F. Color-Coding Cable Ties: Type 6/6 nylon, self-locking type. Colors to suit coding scheme.**
- G. Engraved-Plastic Labels, Signs, and Instruction Plates: Engraving stock, melamine plastic laminate punched or drilled for mechanical fasteners 1/16-inch minimum thickness for signs up to 20 sq. in. and 1/8-inch minimum thickness for larger sizes. Engraved legend in black letters on white background.**
- H. Exterior Warning and Caution Signs: Comply with 29 CFR, Chapter XVII, Part 1910.145. Weather-resistant, nonfading, preprinted, cellulose-acetate butyrate signs with 0.0396-inch, galvanized-steel backing, with colors, legend, and size appropriate to the application. 1/4-inch grommets in corners for mounting.**
- I. Fasteners for Nameplates and Signs: Self-tapping, stainless-steel screws or No. 10/32 stainless-steel machine screws with nuts and flat and lock washers.**

2.5 EQUIPMENT FOR UTILITY COMPANY'S ELECTRICITY METERING

- A. Current-Transformer Cabinets: Comply with requirements of electrical power utility company.**
- B. Meter Sockets: Comply with requirements of electrical power utility company.**

2.6 CONCRETE BASES

- A. Concrete Forms and Reinforcement Materials: Per utility equipment manufacturer requirements**
- B. Concrete: 3000-psi, 28-day compressive strength as required by the equipment manufacturer**

2.7 TOUCHUP PAINT

- A. For Equipment: Equipment manufacturer's paint selected to match installed equipment finish.**
- B. Galvanized Surfaces: Zinc-rich paint recommended by item manufacturer.**

PART - 3 EXECUTION

3.1 ELECTRICAL EQUIPMENT INSTALLATION

- A. Headroom Maintenance: If mounting heights or other location criteria are not indicated, arrange and install components and equipment to provide the maximum possible headroom.**
- B. Materials and Components: Install level, plumb, and parallel and perpendicular to other building systems and components, unless otherwise indicated.**
- C. Equipment: Install to facilitate service, maintenance, and repair or replacement of components. Connect for ease of disconnecting, with minimum interference with other installations.**
- D. Right of Way: Give to raceways and piping systems installed at a required slope.**

3.2 RACEWAY APPLICATION

- A. Use the following raceways for outdoor installations:**
 - 1. Underground, Single Run: RNC.**
 - 2. Underground, Grouped: RNC.**
 - 3. Connection to Vibrating Equipment: LFMC.**
 - 4. Boxes and Enclosures: NEMA 250, Type 3R or Type 4.**
- B. Use the following raceways for indoor installations:**
 - 1. Damp or Wet Locations: IMC.**
 - 2. Boxes and Enclosures: NEMA 250, Type 1, unless otherwise indicated.**

3.3 RACEWAY AND CABLE INSTALLATION

- A. Use temporary raceway caps to prevent foreign matter from entering.**
- B. Make conduit bends and offsets so ID is not reduced. Keep legs of bends in the same plane and straight legs of offsets parallel, unless otherwise indicated.**
- C. Use raceway and cable fittings compatible with raceways and cables and suitable for use and location.**
- D. Install pull wires in empty raceways. Use No. 14 AWG zinc-coated steel or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 12 inches of slack at each end of the pull wire.**
- E. Connect motors and equipment subject to vibration, noise transmission, or movement with a maximum of 72-inch flexible conduit. Install LFMC in wet or damp locations. Install separate ground conductor across flexible connections.**

3.4 WIRING METHODS FOR POWER, LIGHTING, AND CONTROL CIRCUITS

- A. Feeders: Type THHN/THWN insulated conductors in raceway.**
- B. Underground Feeders and Branch Circuits: Type THWN or single-wire, Type UF insulated conductors in raceway.**

- C. **Branch Circuits: Type THHN/THWN insulated conductors in raceway.**
- D. **Remote-Control Signaling and Power-Limited Circuits: Type THHN/THWN insulated conductors in raceway for Classes 1, 2, and 3, unless otherwise indicated.**

3.5 3.05 WIRING INSTALLATION

- A. **Install splices and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than un-spliced conductors.**
- B. **Install wiring at outlets with at least 12 inches of slack conductor at each outlet.**
- C. **Connect outlet and component connections to wiring systems and to ground. Tighten electrical connectors and terminals, according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A.**

3.6 3.06 ELECTRICAL SUPPORTING DEVICE APPLICATION

- A. **Damp Locations and Outdoors: Hot-dip galvanized materials or nonmetallic, U-channel system components.**
- B. **Dry Locations: Steel materials.**
- C. **Support Clamps for PVC Raceways: Click-type clamp system.**
- D. **Selection of Supports: Comply with manufacturer's written instructions.**
- E. **Strength of Supports: Adequate to carry present and future loads, times a safety factor of at least four; minimum of 200-lb design load.**

3.7 SUPPORT INSTALLATION

- A. **Install support devices to securely and permanently fasten and support electrical components.**
- B. **Install individual and multiple raceway hangers and riser clamps to support raceways. Provide U-bolts, clamps, attachments, and other hardware necessary for hanger assemblies and for securing hanger rods and conduits.**
- C. **Support parallel runs of horizontal raceways together on trapeze- or bracket-type hangers.**
- D. **Size supports for multiple raceway installations so capacity can be increased by a 25 percent minimum in the future.**
- E. **Support individual horizontal raceways with separate, malleable-iron pipe hangers or clamps.**
- F. **Install 1/4-inch diameter or larger threaded steel hanger rods, unless otherwise indicated.**
- G. **Arrange supports in vertical runs so the weight of raceways and enclosed conductors is carried entirely by raceway supports, with no weight load on raceway terminals.**
- H. **Simultaneously install vertical conductor supports with conductors.**
- I. **Install metal channel racks for mounting cabinets, panelboards, control enclosures, pull and junction boxes, and other devices unless components are mounted directly to structural elements of adequate strength.**

3.8 IDENTIFICATION MATERIALS AND DEVICES

- A. Install at locations for most convenient viewing without interference with operation and maintenance of equipment.**
- B. Coordinate names, abbreviations, colors, and other designations used for electrical identification with corresponding designations indicated in the Contract Documents or required by codes and standards. Use consistent designations throughout Project.**
- C. Self-Adhesive Identification Products: Clean surfaces before applying.**
- D. Identify raceways and cables with color banding as follows:**
 - 1. Bands: Pre-tensioned, snap-around, colored plastic sleeves or colored adhesive marking tape. Make each color band 2 inches wide, completely encircling conduit, and place adjacent bands of two-color markings in contact, side by side.**
 - 2. Band Locations: At changes in direction, at penetrations of walls and floors, at 50-foot maximum intervals in straight runs, and at 25-foot maximum intervals in congested areas.**
 - 3. Colors: As follows:**
 - a. Telecommunication System: Green and yellow.**
- E. Tag and label circuits designated to be extended in the future. Identify source and circuit numbers in each cabinet, pull and junction box, and outlet box. Color-coding may be used for voltage and phase identification.**
- F. Install continuous underground plastic markers during trench backfilling, for exterior underground power, control, signal, and communication lines located directly above power and communication lines. Locate 6 to 8 inches below finished grade. If width of multiple lines installed in a common trench or concrete envelope does not exceed 16 inches, overall, use a single line marker.**
- G. Color-code 208/120-V system secondary service, feeder, and branch-circuit conductors throughout the secondary electrical system as follows:**
 - 1. Phase A: Black.**
 - 2. Phase B: Red.**
 - 3. Phase C: Blue.**
- H. Install warning, caution, and instruction signs where required to comply with 29 CFR, Chapter XVII, Part 1910.145, and where needed to ensure safe operation and maintenance of electrical systems and of items to which they connect. Install engraved plastic-laminated instruction signs with approved legend where instructions are needed for system or equipment operation. Install metal-backed butyrate signs for outdoor items.**

3.9 UTILITY COMPANY ELECTRICITY-METERING EQUIPMENT

- A. Install equipment according to utility company's written requirements. Provide grounding and empty conduits as required by utility company.**

3.10 CONCRETE BASES

- A. Construct concrete bases of dimensions indicated, but not less than 4 inches larger, in both directions, than supported unit. Follow supported equipment manufacturer's anchorage recommendations and setting templates**

for anchor-bolt and tie locations, unless otherwise indicated. Use 3000-psi, 28-day compressive-strength concrete and reinforcement as specified by equipment manufacturer.

3.11 FIELD QUALITY CONTROL

A. A. Inspect installed components for damage and faulty work, including the following:

- 1. Raceways.**
- 2. Building wire and connectors.**
- 3. Supporting devices for electrical components.**
- 4. Electrical identification.**
- 5. Electricity-metering components.**
- 6. Concrete bases.**
- 7. Cutting and patching for electrical construction.**
- 8. Touchup painting.**

B. B. Test Owner's electricity-metering installation for proper operation, accuracy, and usability of output data.

- 1. Connect a load of known kW rating, 1.5 kW minimum, to a circuit supplied by the metered feeder.**
- 2. Turn off circuits supplied by the metered feeder and secure them in the "off" condition.**
- 3. Run the test load continuously for eight hours, minimum, or longer to obtain a measurable meter indication. Use a test load placement and setting that ensure continuous, safe operation.**
- 4. Check and record meter reading at end of test period and compare with actual electricity used based on test load rating, duration of test, and sample measurements of supply voltage at the test load connection. Record test results.**
- 5. Repair or replace malfunctioning metering equipment or correct test setup; then retest. Repeat for each meter in installation until proper operation of entire system is verified.**

3.12 REFINISHING AND TOUCHUP PAINTING

A. Refinish and touch up paint. Paint materials and application requirements are specified in Division 9 Section "Painting."

- 1. Clean damaged and disturbed areas and apply primer, intermediate, and finish coats to suit the degree of damage at each location.**
- 2. Follow paint manufacturer's written instructions for surface preparation and for timing and application of successive coats.**
- 3. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.**
- 4. Repair damage to PVC or paint finishes with matching touchup coating recommended by manufacturer.**

3.13 CLEANING AND PROTECTION

A. On completion of installation, including outlets, fittings, and devices, inspect exposed finish. Remove burrs, dirt, paint spots, and construction debris.

B. Protect equipment and installations and maintain conditions to ensure that coatings, finishes, and cabinets are without damage or deterioration at time of Substantial Completion.

END OF SECTION

SECTION 16210 - CONDUCTORS AND CABLES

PART - 1 PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.**

1.2 SUMMARY

- A. This Section includes building wires and cables and associated connectors, splices, and terminations for wiring systems rated 600 V and less.**

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.**
- B. Qualification Data: For testing agency.**
- C. Field Quality-Control Test Reports: From a qualified testing and inspecting agency engaged by Contractor.**

1.4 QUALITY ASSURANCE

- A. Testing Agency Qualifications: Testing agency as defined by OSHA in 29 CFR 1910.7 or a member company of the International Electrical Testing Association and that is acceptable to authorities having jurisdiction.**
 - 1. Testing Agency's Field Supervisor: Person currently certified by the International Electrical Testing Association or the National Institute for Certification in Engineering Technologies to supervise on-site testing specified in Part 3.**
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.**
- C. Comply with NFPA 70.**

PART - 2 PRODUCTS

2.1 MANUFACTURERS

- A. In other Part 2 articles where subparagraph titles below introduce lists, the following requirements apply for product selection:**

1. **Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the manufacturers specified.**
2. **Manufacturers: Subject to compliance with requirements, provide products by the manufacturers specified.**

2.2 CONDUCTORS AND CABLES

A. Manufacturers:

1. **Alcan Aluminum Corporation; Alcan Cable Div.**
2. **American Insulated Wire Corp.; a Leviton Company.**
3. **General Cable Corporation.**
4. **Senator Wire & Cable Company.**
5. **Southwire Company.**

B. Refer to Part 3 "Conductor and Insulation Applications" Article for insulation type, cable construction, and ratings.

C. Conductor Material: Copper, except feeders No. 4 AWG and larger may be aluminum complying with NEMA WC 5 or 7; solid conductor for No. 10 AWG and smaller, stranded for No. 8 AWG and larger.

D. Conductor Insulation Types: Type THHN-THWN XHHW UF complying with NEMA WC 5 or 7.

E. Multiconductor Cable: Nonmetallic-sheathed cable, Type NM and Type USE with ground wire.

2.3 CONNECTORS AND SPLICES:

A. Manufacturers:

1. **AFC Cable Systems, Inc.**
2. **AMP Incorporated/Tyco International.**
3. **Hubbell/Anderson.**
4. **O-Z/Gedney; EGS Electrical Group LLC.**
5. **3M Company; Electrical Products Division.**

B. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.

PART - 3 EXECUTION

3.1 CONDUCTOR AND INSULATION APPLICATIONS

- A. Service Entrance: Type XHHW, single conductors in raceway.**
- B. Exposed Feeders: Type THHN-THWN, single conductors in raceway**
- C. Exposed Branch Circuit: Type THHN-THWN, single conductors in raceway.**
- D. Underground Feeders and Branch Circuits: Type UF multiconductor cable.**

3.2 INSTALLATION

- A. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.
- B. Use pulling means; including fish tape, cable, rope, and basket-weave wire/cable grips that will not damage cables or raceway.
- C. Support cables according to Division 16 Section "Basic Electrical Materials and Methods."
- D. Identify and color-code conductors and cables according to Division 16 Section Basic Electrical Materials and Methods.

3.3 CONNECTIONS

- A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.
- B. Make splices and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.
 - 1. Use oxide inhibitor in each splice and tap conductor for aluminum conductors.
- C. Wiring at Outlets: Install conductor at each outlet, with at least 12 inches (300 mm) of slack.

3.4 FIELD QUALITY CONTROL

- A. Testing: Owner will engage a qualified testing agency to perform the following field quality-control testing:
- B. Testing: Engage a qualified testing agency to perform the following field quality control testing:
- C. Testing: Perform the following field quality-control testing:
 - 1. After installing conductors and cables and before electrical circuitry has been energized, test for compliance with requirements.
 - 2. Perform each electrical test and visual and mechanical inspection stated in NETA ATS, Section 7.3.1. Certify compliance with test parameters.
- D. Test Reports: Prepare a written report to record the following:
 - 1. Test procedures used.
 - 2. Test results that comply with requirements.
 - 3. Test results that do not comply with requirements and corrective action taken to achieve compliance with requirements.

END OF SECTION

SECTION 16220 – RACEWAYS AND BOXES

PART - 1 PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.**

1.2 SUMMARY

- A. This Section includes raceways, fittings, boxes, enclosures, and cabinets for electrical wiring.**
- B. Related Sections include the following:**
 - 1. Division 16 Section "Basic Electrical Materials and Methods" for supports, anchors, and identification products.**
 - 2. Division 16 Section "Seismic Controls for Electrical Work" for seismic restraints and bracing of raceways, boxes, enclosures, and cabinets.**
 - 3. Division 16 Section "Wiring Devices" for devices installed in boxes.**

1.3 DEFINITIONS

- A. EMT: Electrical metallic tubing.**
- B. ENT: Electrical nonmetallic tubing.**
- C. FMC: Flexible metal conduit.**
- D. IMC: Intermediate metal conduit.**
- E. LFMC: Liquidtight flexible metal conduit.**
- F. LFNC: Liquidtight flexible nonmetallic conduit.**
- G. RNC: Rigid nonmetallic conduit.**

1.4 SUBMITTALS

- A. Product Data: For surface raceways, wireways and fittings, floor boxes, hinged-cover enclosures, and cabinets.**
- B. Shop Drawings: Show fabrication and installation details of components for raceways, fittings, boxes, enclosures, and cabinets.**
- C. Shop Drawings: Signed and sealed by a qualified professional engineer.**

1. **Design Calculations:** Calculate requirements for selecting seismic restraints.
 2. **Detail assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.**
- D. Coordination Drawings:** Reflected ceiling plans drawn to scale and coordinating penetrations and ceiling-mounted items. Show the following:
1. **Ceiling suspension assembly members.**
 2. **Method of attaching hangers to building structure.**
 3. **Size and location of initial access modules for acoustical tile.**
 4. **Ceiling-mounted items including lighting fixtures, diffusers, grilles, speakers, sprinklers, access panels, and special moldings.**
- E. Manufacturer Seismic Qualification Certification:** Submit certification that enclosures, cabinets, accessories, and components will withstand seismic forces defined in Division 16 Section "Seismic Controls for Electrical Work." Include the following:
1. **Basis for Certification:** Indicate whether withstand certification is based on actual test of assembled components or on calculation.
 - a. **The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified."**
 - b. **The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified and the unit will be fully operational after the seismic event."**
 2. **Dimensioned Outline Drawings of Equipment Unit:** Identify center of gravity and locate and describe mounting and anchorage provisions.
 3. **Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.**

1.5 1.05 QUALITY ASSURANCE

- A. **Electrical Components, Devices, and Accessories:** Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. **Comply with NFPA 70.**

PART - 2 PRODUCTS

2.1 MANUFACTURERS

- A. **In other Part 2 articles where subparagraph titles below introduce lists, the following requirements apply for product selection:**
 1. **Available Manufacturers:** Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the manufacturers specified.
 2. **Manufacturers:** Subject to compliance with requirements, provide products by the manufacturers specified.

2.2 METAL CONDUIT AND TUBING

A. A. Manufacturer[s]:

1. AFC Cable Systems, Inc.
2. Alfex Inc.
3. Anamet Electrical, Inc.; Anaconda Metal Hose.
4. Electri-Flex Co.
5. Grinnell Co./Tyco International; Allied Tube and Conduit Div.
6. LTV Steel Tubular Products Company.
7. Manhattan/CDT/Cole-Flex.
8. O-Z Gedney; Unit of General Signal.
9. Wheatland Tube Co.

B. Rigid Steel Conduit: ANSI C80.1.

C. Aluminum Rigid Conduit: ANSI C80.5.

D. IMC: ANSI C80.6.

E. Plastic-Coated Steel Conduit and Fittings: NEMA RN 1.

F. Plastic-Coated IMC and Fittings: NEMA RN 1.

G. EMT and Fittings: ANSI C80.3.

1. Fittings: Compression type.

H. FMC: Zinc-coated steel.

I. LFMC: Flexible steel conduit with PVC jacket.

J. Fittings: NEMA FB 1; compatible with conduit and tubing materials.

2.3 NONMETALLIC CONDUIT AND TUBING

A. Manufacturer[s]:

1. American International.
2. Anamet Electrical, Inc.; Anaconda Metal Hose.
3. Arco Corp.
4. Cantex Inc.
5. Certainteed Corp.; Pipe & Plastics Group.
6. Condux International.
7. ElecSYS, Inc.
8. Electri-Flex Co.
9. Lamson & Sessions; Carlon Electrical Products.
10. Manhattan/CDT/Cole-Flex.
11. RACO; Division of Hubbell, Inc.
12. Spiralduct, Inc./AFC Cable Systems, Inc.
13. Thomas & Betts Corporation.

- B. ENT: NEMA TC 13.**
- C. RNC: NEMA TC 2, Schedule 40 and Schedule 80 PVC.**
- D. ENT and RNC Fittings: NEMA TC 3; match to conduit or tubing type and material.**
- E. LFNC: UL 1660.**

2.4 SURFACE RACEWAYS

- A. Surface Metal Raceways: Galvanized steel with snap-on covers. Finish with manufacturer's standard prime coating.**

- 1. Manufacturer[s]:**

- a. Airey-Thompson Sentinel Lighting; Wiremold Company (The).**
- b. Thomas & Betts Corporation.**
- c. Walker Systems, Inc.; Wiremold Company (The).**
- d. Wiremold Company (The); Electrical Sales Division.**

- B. Surface Nonmetallic Raceways: Two-piece construction, manufactured of rigid PVC compound with matte texture and manufacturer's standard color.**

- 1. Manufacturer[s]:**

- a. Butler Manufacturing Co.; Walker Division.**
- b. Enduro Composite Systems.**
- c. Hubbell, Inc.; Wiring Device Division.**
- d. Lamson & Sessions; Carlon Electrical Products.**
- e. Panduit Corp.**
- f. Walker Systems, Inc.; Wiremold Company (The).**
- g. Wiremold Company (The); Electrical Sales Division.**

- C. Types, sizes, and channels as indicated and required for each application, with fittings that match and mate with raceways.**

2.5 BOXES, ENCLOSURES, AND CABINETS

- A. Manufacturer[s]:**

- 1. Cooper Crouse-Hinds; Div. of Cooper Industries, Inc.**
- 2. Emerson/General Signal; Appleton Electric Company.**
- 3. Erickson Electrical Equipment Co.**
- 4. Hoffman.**
- 5. Hubbell, Inc.; Killark Electric Manufacturing Co.**
- 6. O-Z/Gedney; Unit of General Signal.**
- 7. RACO; Division of Hubbell, Inc.**
- 8. Robroy Industries, Inc.; Enclosure Division.**
- 9. Scott Fetzer Co.; Adalet-PLM Division.**
- 10. Spring City Electrical Manufacturing Co.**
- 11. Thomas & Betts Corporation.**

12. Walker Systems, Inc.; Wiremold Company (The).
13. Woodhead, Daniel Company; Woodhead Industries, Inc. Subsidiary.

- B. Sheet Metal Outlet and Device Boxes: NEMA OS 1.
- C. Cast-Metal Outlet and Device Boxes: NEMA FB 1, Type FD, with gasketed cover.
- D. Nonmetallic Outlet and Device Boxes: NEMA OS 2.
- E. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.
- F. Cast-Metal Pull and Junction Boxes: NEMA FB 1, cast aluminum with gasketed cover.
- G. Hinged-Cover Enclosures: NEMA 250, Type 1, with continuous hinge cover and flush latch.
 1. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel.
 2. Nonmetallic Enclosures: Plastic, finished inside with radio-frequency-resistant paint.
- H. Cabinets: NEMA 250, Type 1, galvanized steel box with removable interior panel and removable front, finished inside and out with manufacturer's standard enamel. Hinged door in front cover with flush latch and concealed hinge. Key latch to match panelboards. Include metal barriers to separate wiring of different systems and voltage and include accessory feet where required for freestanding equipment.

2.6 FACTORY FINISHES

- A. Finish: For raceway, enclosure, or cabinet components, provide manufacturer's standard prime-coat finish ready for field painting.
- B. Finish: For raceway, enclosure, or cabinet components, provide manufacturer's standard paint applied to factory-assembled surface raceways, enclosures, and cabinets before shipping.

PART - 3 EXECUTION

3.1 RACEWAY APPLICATION

- A. Outdoors:
 1. Exposed: Rigid steel or IMC.
 2. Concealed: Rigid steel or IMC.
 3. Underground, Single Run: RNC.
 4. Underground, Grouped: RNC.
 5. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
 6. Boxes and Enclosures: NEMA 250, Type 4.
- B. Minimum Raceway Size: 1/2-inch trade size.
- C. Raceway Fittings: Compatible with raceways and suitable for use and location.
 1. Intermediate Steel Conduit: Use threaded rigid steel conduit fittings, unless otherwise indicated.

2. **PVC Externally Coated, Rigid Steel Conduits:** Use only fittings approved for use with that material. Patch all nicks and scrapes in PVC coating after installing conduits.
- D. **Install nonferrous conduit or tubing for circuits operating above 60 Hz.** Where aluminum raceways are installed for such circuits and pass through concrete, install in nonmetallic sleeve.
- E. **Do not install aluminum conduits embedded in or in contact with concrete.**

3.2 INSTALLATION

- A. **Complete raceway installation before starting conductor installation.**
- B. **Support raceways as specified in Division 16 Section "Basic Electrical Materials and Methods."**
- C. **Install temporary closures to prevent foreign matter from entering raceways.**
- D. **Protect stub-ups from damage where conduits rise through floor slabs.** Arrange so curved portions of bends are not visible above the finished slab.
- E. **Make bends and offsets so ID is not reduced.** Keep legs of bends in the same plane and keep straight legs of offsets parallel, unless otherwise indicated.
- F. **Install exposed raceways parallel or at right angles to nearby surfaces or structural members and follow surface contours as much as possible.**
 1. **Run parallel or banked raceways together on common supports.**
 2. **Make parallel bends in parallel or banked runs.** Use factory elbows only where elbows can be installed parallel; otherwise, provide field bends for parallel raceways.
- G. **Join raceways with fittings designed and approved for that purpose and make joints tight.**
 1. **Use insulating bushings to protect conductors.**
- H. **Tighten set screws of threadless fittings with suitable tools.**
- I. **Terminations:**
 1. **Where raceways are terminated with locknuts and bushings, align raceways to enter squarely and install locknuts with dished part against box.** Use two locknuts, one inside and one outside box.
 2. **Where raceways are terminated with threaded hubs, screw raceways or fittings tightly into hub so end bears against wire protection shoulder.** Where chase nipples are used, align raceways so coupling is square to box; tighten chase nipple so no threads are exposed.
- J. **Install pull wires in empty raceways.** Use polypropylene or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 12 inches of slack at each end of pull wire.
- K. **Install raceway sealing fittings at suitable, approved, and accessible locations and fill them with UL-listed sealing compound.** For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces. Install raceway sealing fittings at the following points:

1. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces.
 2. Where otherwise required by NFPA 70.
- L. **Stub-up Connections:** Extend conduits through concrete floor for connection to freestanding equipment. Install with an adjustable top or coupling threaded inside for plugs set flush with finished floor. Extend conductors to equipment with rigid steel conduit; FMC may be used 6 inches above the floor. Install screwdriver-operated, threaded plugs flush with floor for future equipment connections.
- M. **Flexible Connections:** Use maximum of 72 inches of flexible conduit for recessed and semirecessed lighting fixtures; for equipment subject to vibration, noise transmission, or movement; and for all motors. Use LFMC in damp or wet locations. Install separate ground conductor across flexible connections.
- N. **Surface Raceways:** Install a separate, green, ground conductor in raceways from junction box supplying raceways to receptacle or fixture ground terminals.
- O. Install hinged-cover enclosures and cabinets plumb. Support at each corner.

3.3 PROTECTION

- A. Provide final protection and maintain conditions that ensure coatings, finishes, and cabinets are without damage or deterioration at time of Substantial Completion.
1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
 2. Repair damage to PVC or paint finishes with matching touchup coating recommended by manufacturer.

3.4 CLEANING

- A. After completing installation of exposed, factory-finished raceways and boxes, inspect exposed finishes and repair damaged finishes.

END OF SECTION

SECTION 16230 - PANELBOARDS

PART - 1 PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes load centers and panelboards, overcurrent protective devices, and associated auxiliary equipment rated 600 V and less for the following types:

1. **Lighting and appliance branch-circuit panelboards.**

1.3 DEFINITIONS

- A. **EMI: Electromagnetic interference.**
- B. **GFCI: Ground-fault circuit interrupter.**
- C. **RFI: Radio-frequency interference.**
- D. **RMS: Root mean square.**
- E. **SPDT: Single pole, double throw.**
- F. **TVSS: Transient voltage surge suppressor.**

1.4 SUBMITTALS

- A. **Product Data: For each type of panelboard, overcurrent protective device, TVSS device, accessory, and component indicated. Include dimensions and manufacturers' technical data on features, performance, electrical characteristics, ratings, and finishes.**
- B. **Shop Drawings: For each panelboard and related equipment.**

1. **Dimensioned plans, elevations, sections, and details. Show tabulations of installed devices, equipment features, and ratings. Include the following:**

- a. **Enclosure types and details for types other than NEMA 250, Type 1.**
- b. **Bus configuration, current, and voltage ratings.**
- c. **Short-circuit current rating of panelboards and overcurrent protective devices.**
- d. **UL listing for series rating of installed devices.**
- e. **Features, characteristics, ratings, and factory settings of individual overcurrent protective devices and auxiliary components.**

2. **Wiring Diagrams: Diagram power, signal, and control wiring and differentiate between manufacturer-installed and field-installed wiring.**

- C. **Manufacturer Seismic Qualification Certification: Submit certification that panelboards, overcurrent protective devices, accessories, and components will withstand seismic forces defined in Division 16 Section "Seismic Controls for Electrical Work." Include the following:**

1. **Basis of Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.**
2. **The term "withstand" means "the unit will remain in place without separation of internal and external parts during a seismic event."**
3. **The term "withstand" means "the unit will remain in place without separation of internal and external parts during a seismic event and the unit will be fully operational after the event."**
4. **Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.**
5. **Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.**

- D. **Qualification Data:** Submit data for testing agencies indicating that they comply with qualifications specified in "Quality Assurance" Article.
- E. **Field Test Reports:** Submit written test reports and include the following:
 - 1. Test procedures used.
 - 2. Test results that comply with requirements.
 - 3. Results of failed tests and corrective action taken to achieve test results that comply with requirements.
- F. **Panelboard Schedules:** For installation in panelboards. Submit final versions after load balancing.
- G. **Maintenance Data:** For panelboards and components to include in maintenance manuals specified in Division 1. In addition to requirements specified in Division 1 Section "Contract Closeout," include the following:
 - 1. Manufacturer's written instructions for testing and adjusting overcurrent protective devices.
 - 2. Time-current curves, including selectable ranges for each type of overcurrent protective device.

1.5 QUALITY ASSURANCE

- A. **Testing Agency Qualifications:** Testing agency that is a member company of the InterNational Electrical Testing Association and that is acceptable to authorities having jurisdiction.
 - 1. **Testing Agency's Field Supervisor:** Person currently certified by the InterNational Electrical Testing Association or National Institute for Certification in Engineering Technologies to supervise on-site testing specified in Part 3.
- B. **Electrical Components, Devices, and Accessories:** Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- C. **Comply with NEMA PB 1.**
- D. **Comply with NFPA 70.**

1.6 COORDINATION

- A. **Coordinate layout and installation of panelboards and components with other construction that penetrates walls or is supported by them, including electrical and other types of equipment, raceways, piping, and encumbrances to workspace clearance requirements.**

1.7 EXTRA MATERIALS

- A. **Keys:** Six spares of each type of panelboard cabinet lock.

PART - 2 PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. **Available Manufacturers:** Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Panelboards, Overcurrent Protective Devices, Controllers, Contactors, and Accessories:

- a. Eaton Corp.; Cutler-Hammer Products.
- b. General Electric Co.; Electrical Distribution & Control Div.
- c. Siemens Energy & Automation, Inc.
- d. Square D Co.

2. 2. TVSS Panelboards:

- a. Current Technology, Inc.
- b. Liebert Corporation.

2.2 FABRICATION AND FEATURES

A. Enclosures: Surface mounted cabinets. NEMA PB 1, Type 1, to meet environmental conditions at installed location.

1. Other Wet or Damp Indoor Locations: NEMA 250, Type 4.

B. Front: Secured to box with concealed trim clamps. For surface-mounted fronts, match box dimensions; for flush-mounted fronts, overlap box.

C. Hinged Front Cover: Entire front trim hinged to box and with standard door within hinged trim cover.

D. Finish: Manufacturer's standard enamel finish over corrosion-resistant treatment or primer coat.

E. Directory Card: With transparent protective cover, mounted inside metal frame, inside panelboard door.

F. Bus: Hard-drawn copper, 98 percent conductivity.

G. Main and Neutral Lugs: Compression type suitable for use with conductor material.

H. Equipment Ground Bus: Adequate for feeder and branch-circuit equipment ground conductors; bonded to box.

I. Service Equipment Label: UL labeled for use as service equipment for panelboards with main service disconnect switches.

J. Future Devices: Mounting brackets, bus connections, and necessary appurtenances required for future installation of devices.

K. Skirt for Surface-Mounted Panelboards: Same gage and finish as panelboard front with flanges for attachment to panelboard, wall, and ceiling or floor.

L. Gutter Barrier: Arrange to isolate individual panel sections.

M. Feed-through Lugs: Compression type suitable for use with conductor material. Locate at opposite end of bus from incoming lugs or main device.

2.3 PANELBOARD SHORT-CIRCUIT RATING

- A. UL label indicating series-connected rating with integral or remote upstream devices. Include size and type of upstream device allowable, branch devices allowable, and UL series-connected short-circuit rating.**
- B. Fully rated to interrupt symmetrical short-circuit current available at terminals.**

2.4 LIGHTING AND APPLIANCE BRANCH-CIRCUIT PANELBOARDS

- A. Branch Overcurrent Protective Devices: Bolt-on circuit breakers, replaceable without disturbing adjacent units.**
- B. Doors: Front mounted with concealed hinges; secured with flush latch with tumbler lock; keyed alike.**

2.5 OVERCURRENT PROTECTIVE DEVICES

- A. Molded-Case Circuit-Breaker Features and Accessories. Standard frame sizes, trip ratings, and number of poles.**
 - 1. Lugs: Mechanical or Compression style, suitable for number, size, trip ratings, and material of conductors.**
 - 2. Application Listing: Appropriate for application; Type SWD for switching fluorescent lighting loads; Type HACR for heating, air-conditioning, and refrigerating equipment.**
 - 3. Ground-Fault Protection: Integrally mounted relay and trip unit with adjustable pickup and time-delay settings, push-to-test feature, and ground-fault indicator.**
 - 4. Shunt Trip: 120-V trip coil energized from separate circuit, set to trip at [55] [75] percent of rated voltage.**

2.6 ACCESSORY COMPONENTS ACCESSORY COMPONENTS AND FEATURES

- A. Accessory Set: Tools and miscellaneous items required for overcurrent protective device test, inspection, maintenance, and operation.**
- B. Portable Test Set: To test functions of solid-state trip devices without removal from panelboard.**
- C. Fungus Proofing: Permanent fungicidal treatment for panelboard interior, including overcurrent protective devices and other components.**

PART - 3 EXECUTION

3.1 INSTALLATION

- A. Install panelboards and accessories according to NEMA PB 1.1.**
- B. Comply with mounting and anchoring requirements specified in Division 16 Section "Seismic Controls for Electrical Work."**
- C. Mounting Heights: Top of trim 74 inches (1880 mm) above finished floor, unless otherwise indicated.**
- D. Mounting: Plumb and rigid without distortion of box. Mount recessed panelboards with fronts uniformly flush with wall finish.**

- E. **Circuit Directory:** Create a directory to indicate installed circuit loads after balancing panelboard loads. Obtain approval before installing. Use a computer or typewriter to create directory; handwritten directories are not acceptable.
- F. **Install filler plates in unused spaces.**
- G. **Wiring in Panelboard Gutters:** Arrange conductors into groups and bundle and wrap with wire ties after completing load balancing.

3.2 IDENTIFICATION

- A. **Identify field-installed conductors, interconnecting wiring, and components; provide warning signs as specified in Division 16 Section Basic Electrical Materials and Methods.**
- B. **Panelboard Nameplates:** Label each panelboard with engraved metal or laminated plastic nameplate mounted with corrosion-resistant screws.

3.3 CONNECTIONS

- A. **Install equipment grounding connections for panelboards with ground continuity to main electrical ground bus.**
- B. **Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.**

3.4 FIELD QUALITY CONTROL

- A. **Prepare for acceptance tests as follows:**
 - 1. **Test insulation resistance for each panelboard bus, component, connecting supply, feeder, and control circuit.**
 - 2. **Test continuity of each circuit.**
- B. **Testing Agency:** Owner will engage a qualified independent testing agency to perform specified testing.
- C. **Testing Agency:** Engage a qualified independent testing agency to perform specified testing.
- D. **Testing:** After installing panelboards and after electrical circuitry has been energized, demonstrate product capability and compliance with requirements.
 - 1. **Procedures:** Perform each visual and mechanical inspection and electrical test indicated in NETA ATS, Section 7.5 for switches and Section 7.6 for molded case circuit breakers. Certify compliance with test parameters.
 - 2. **Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.**
- E. **Balancing Loads:** After Substantial Completion, but not more than 60 days after Final Acceptance, measure load balancing and make circuit changes as follows:
 - 1. **Measure as directed during period of normal system loading.**
 - 2. **Perform load-balancing circuit changes outside normal occupancy/working schedule of the facility and at time directed. Avoid disrupting critical 24-hour services such as fax machines and on-line data-processing, computing, transmitting, and receiving equipment.**

3. After circuit changes, recheck loads during normal load period. Record all load readings before and after changes and submit test records.
 4. Tolerance: Difference exceeding 20 percent between phase loads, within a panelboard, is not acceptable. Rebalance and recheck as necessary to meet this minimum requirement.
- F. Infrared Scanning: After Substantial Completion, but not more than 60 days after Final Acceptance, perform an infrared scan of each panelboard. Remove panel fronts so joints and connections are accessible to portable scanner.
1. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan of each panelboard 11 months after date of Substantial Completion.
 2. Instrument: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.
 3. Record of Infrared Scanning: Prepare a certified report that identifies panelboards checked and describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

3.5 ADJUSTING

- A. Set field-adjustable switches and circuit-breaker trip ranges.

3.6 CLEANING

- A. On completion of installation, inspect interior and exterior of panelboards. Remove paint splatters and other spots. Vacuum dirt and debris; do not use compressed air to assist in cleaning. Repair exposed surfaces to match original finish.

END OF SECTION



Ruthanne Fuller
Mayor

City of Newton, Massachusetts
Department of Planning and Development
1000 Commonwealth Avenue Newton, Massachusetts 02459

Telephone
(617) 796-1120
Telefax
(617) 796-1142
TDD/TTY
(617) 796-1089
www.newtonma.gov

Barney S. Heath
Director

January 31, 2020

Luis Perez-Demorizi
City of Newton Parks, Recreation, and Culture
246 Dudley Road
Newton, MA 02459

RE: **140 Brandeis Road, Request for Determination of Applicability**

Project summary

- Install 4 field light poles at the currently unlit Newton South High School field, with related trenching for electrical wiring.
- Work within the buffer zone is limited to the installation of the bases for 2 of the light structures and the trenching associated with the necessary electrical conduit.
- Erosion controls are proposed to be installed between the proposed lights and the resource area.

Approved plans

- "Electrical Site Plan E1.01" prepared by Richard Alexy (1/12/20)
- "Illumination Summary (wetlands grid)" prepared by Musco (11/11/19)
- "Newton South High School Football/Soccer Lighting Design" by Musco (10/4/19)

Dear Mr. Perez-Demorizi:

Enclosed is the Newton Conservation Commission's Determination of Applicability under the Wetlands Protection Act, MGL Ch. 131, s. 40 and the Newton Floodplain/Watershed Protection Ordinance, Section 22-22. The Determination is "Negative-Conditional", i.e., the Commission has determined that by following the referenced plan(s) and the following mandatory conditions listed below, no adverse alteration of the wetland resource area will occur and so no further wetland filing is needed.

- The applicant must schedule and attend a pre-construction site visit to check erosion controls.
- All spoils from trenching and auguring must be properly disposed of off-site.
- Concrete for the footings must be mixed on site to reduce waste. Any excess concrete must be properly disposed of off-site.
- Any concrete washout must occur outside the 100' buffer zone.
- All disturbed areas must be fine-graded, loamed, and seeded to ensure permanent stabilization.

If you have any questions regarding this Determination, please contact me.

Sincerely,


Claire Rundelli
Assistant Environmental Planner

CC: Wetlands Division, DEP - NERO, 205B Lowell St., Wilmington, MA 01887



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 2 – Determination of Applicability

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

A. General Information

Important:
When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



From:

Newton
Conservation Commission

To: Applicant

Luis Perez Demorizi, Parks, Rec., and Culture
Name

246 Dudley Road
Mailing Address

Newton MA 02459
City/Town State Zip Code

Property Owner (if different from applicant):

City of Newton
Name

1000 Commonwealth Ave
Mailing Address

Newton MA 02459
City/Town State Zip Code

1. Title and Date (or Revised Date if applicable) of Final Plans and Other Documents:

"Electrical Site Plan E1.01" prepared by Richard Alexy 1/12/20
Title Date

"Illumination Summary (wetlands grid)" prepared by Musco 11/11/19
Title Date

"Newton South High School Football/Soccer Lighting Design" by Musco 10/4/19
Title Date

2. Date Request Filed:

1/14/20

B. Determination

Pursuant to the authority of M.G.L. c. 131, § 40, the Conservation Commission considered your Request for Determination of Applicability, with its supporting documentation, and made the following Determination.

Project Description (if applicable):

The scope of work at the Newton South High School Field encompasses the retrofitting of the unlit field with new high efficiency lighting that will help extend the playability of the fields. Excavation occurring on the WPA jurisdiction involves digging the light pole foundations and trenching associated with the installation of new electrical conduit. The lighting proposed at the fields has been designed for the least possible spillage.

Project Location:

140 Brandeis Road
Street Address

81051
Assessors Map/Plat Number

Newton
City/Town

0047
Parcel/Lot Number



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 2 – Determination of Applicability

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

B. Determination (cont.)

The following Determination(s) is/are applicable to the proposed site and/or project relative to the Wetlands Protection Act and regulations:

Positive Determination

Note: No work within the jurisdiction of the Wetlands Protection Act may proceed until a final Order of Conditions (issued following submittal of a Notice of Intent or Abbreviated Notice of Intent) or Order of Resource Area Delineation (issued following submittal of Simplified Review ANRAD) has been received from the issuing authority (i.e., Conservation Commission or the Department of Environmental Protection).

1. The area described on the referenced plan(s) is an area subject to protection under the Act. Removing, filling, dredging, or altering of the area requires the filing of a Notice of Intent.

2a. The boundary delineations of the following resource areas described on the referenced plan(s) are confirmed as accurate. Therefore, the resource area boundaries confirmed in this Determination are binding as to all decisions rendered pursuant to the Wetlands Protection Act and its regulations regarding such boundaries for as long as this Determination is valid.

2b. The boundaries of resource areas listed below are not confirmed by this Determination, regardless of whether such boundaries are contained on the plans attached to this Determination or to the Request for Determination.

3. The work described on referenced plan(s) and document(s) is within an area subject to protection under the Act and will remove, fill, dredge, or alter that area. Therefore, said work requires the filing of a Notice of Intent.

4. The work described on referenced plan(s) and document(s) is within the Buffer Zone and will alter an Area subject to protection under the Act. Therefore, said work requires the filing of a Notice of Intent or ANRAD Simplified Review (if work is limited to the Buffer Zone).

5. The area and/or work described on referenced plan(s) and document(s) is subject to review and approval by:

Name of Municipality

Pursuant to the following municipal wetland ordinance or bylaw:

Name

Ordinance or Bylaw Citation



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 2 – Determination of Applicability

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

B. Determination (cont.)

6. The following area and/or work, if any, is subject to a municipal ordinance or bylaw but not subject to the Massachusetts Wetlands Protection Act:

7. If a Notice of Intent is filed for the work in the Riverfront Area described on referenced plan(s) and document(s), which includes all or part of the work described in the Request, the applicant must consider the following alternatives. (Refer to the wetland regulations at 10.58(4)c. for more information about the scope of alternatives requirements):

- Alternatives limited to the lot on which the project is located.
- Alternatives limited to the lot on which the project is located, the subdivided lots, and any adjacent lots formerly or presently owned by the same owner.
- Alternatives limited to the original parcel on which the project is located, the subdivided parcels, any adjacent parcels, and any other land which can reasonably be obtained within the municipality.
- Alternatives extend to any sites which can reasonably be obtained within the appropriate region of the state.

Negative Determination

Note: No further action under the Wetlands Protection Act is required by the applicant. However, if the Department is requested to issue a Superseding Determination of Applicability, work may not proceed on this project unless the Department fails to act on such request within 35 days of the date the request is post-marked for certified mail or hand delivered to the Department. Work may then proceed at the owner's risk only upon notice to the Department and to the Conservation Commission. Requirements for requests for Superseding Determinations are listed at the end of this document.

1. The area described in the Request is not an area subject to protection under the Act or the Buffer Zone.
2. The work described in the Request is within an area subject to protection under the Act, but will not remove, fill, dredge, or alter that area. Therefore, said work does not require the filing of a Notice of Intent.
3. The work described in the Request is within the Buffer Zone, as defined in the regulations, but will not alter an Area subject to protection under the Act. Therefore, said work does not require the filing of a Notice of Intent, subject to the following conditions (if any).
1) Applicant must schedule and attend a pre-construction site visit to check erosion controls. 2) All spoils from trenching and auguring shall be properly disposed off-site. 3) Concrete for backfilling of footings shall be mixed on site to reduce waste and any excess concrete must be disposed properly off-site. 4) Any concrete washout must occur outside the 100' buffer zone. 5) All disturbed areas must be fine graded, loamed, and seeded to ensure permanent stabilization.
4. The work described in the Request is not within an Area subject to protection under the Act (including the Buffer Zone). Therefore, said work does not require the filing of a Notice of Intent, unless and until said work alters an Area subject to protection under the Act.

B. Determination (cont.)



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 2 – Determination of Applicability

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

- 5. The area described in the Request is subject to protection under the Act. Since the work described therein meets the requirements for the following exemption, as specified in the Act and the regulations, no Notice of Intent is required:

Exempt Activity (site applicable statutory/regulatory provisions)

- 6. The area and/or work described in the Request is not subject to review and approval by:

Name of Municipality

Pursuant to a municipal wetlands ordinance or bylaw.

Name Ordinance or Bylaw Citation

C. Authorization

This Determination is issued to the applicant and delivered as follows:

- by hand delivery on *via Personal Delivery* by certified mail, return receipt requested on
- 1/31/20 Date Date

This Determination is valid for **three years** from the date of issuance (except Determinations for Vegetation Management Plans which are valid for the duration of the Plan). This Determination does not relieve the applicant from complying with all other applicable federal, state, or local statutes, ordinances, bylaws, or regulations.

This Determination must be signed by a majority of the Conservation Commission. A copy must be sent to the appropriate DEP Regional Office (see <http://www.mass.gov/eea/agencies/massdep/about/contacts/>) and the property owner (if different from the applicant).

Signatures:

Susan H. Jones
[Signature]
[Signature]
[Signature]
[Signature]
Cash A. Gill

1/31/20
Date

D. Appeals



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 2 – Determination of Applicability

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

The applicant, owner, any person aggrieved by this Determination, any owner of land abutting the land upon which the proposed work is to be done, or any ten residents of the city or town in which such land is located, are hereby notified of their right to request the appropriate Department of Environmental Protection Regional Office (see <http://www.mass.gov/eea/agencies/massdep/about/contacts/>) to issue a Superseding Determination of Applicability. The request must be made by certified mail or hand delivery to the Department, with the appropriate filing fee and Fee Transmittal Form (see Request for Departmental Action Fee Transmittal Form) as provided in 310 CMR 10.03(7) within ten business days from the date of issuance of this Determination. A copy of the request shall at the same time be sent by certified mail or hand delivery to the Conservation Commission and to the applicant if he/she is not the appellant. The request shall state clearly and concisely the objections to the Determination which is being appealed. To the extent that the Determination is based on a municipal ordinance or bylaw and not on the Massachusetts Wetlands Protection Act or regulations, the Department of Environmental Protection has no appellate jurisdiction.



**Request for Departmental Action Fee
Transmittal Form**

Provided by DEP

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

A. Request Information

1. Location of Project

a. Street Address	b. City/Town, Zip
c. Check number	d. Fee amount

2. Person or party making request (if appropriate, name the citizen group's representative):

Name

Mailing Address

City/Town	State	Zip Code
Phone Number	Fax Number (if applicable)	

3. Applicant (as shown on Determination of Applicability (Form 2), Order of Resource Area Delineation (Form 4B), Order of Conditions (Form 5), Restoration Order of Conditions (Form 5A), or Notice of Non-Significance (Form 6)):

Name

Mailing Address

City/Town	State	Zip Code
Phone Number	Fax Number (if applicable)	

4. DEP File Number:

Important:
When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



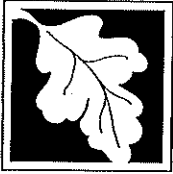
B. Instructions

1. When the Departmental action request is for (check one):

- Superseding Order of Conditions – Fee: \$120.00 (single family house projects) or \$245 (all other projects)
- Superseding Determination of Applicability – Fee: \$120
- Superseding Order of Resource Area Delineation – Fee: \$120

Send this form and check or money order, payable to the *Commonwealth of Massachusetts*, to:

Department of Environmental Protection
Box 4062
Boston, MA 02211



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

DEP File Number:

Request for Departmental Action Fee Transmittal Form

Provided by DEP

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

B. Instructions (cont.)

2. On a separate sheet attached to this form, state clearly and concisely the objections to the Determination or Order which is being appealed. To the extent that the Determination or Order is based on a municipal bylaw, and not on the Massachusetts Wetlands Protection Act or regulations, the Department has no appellate jurisdiction.
3. Send a **copy** of this form and a **copy** of the check or money order with the Request for a Superseding Determination or Order by certified mail or hand delivery to the appropriate DEP Regional Office (see <http://www.mass.gov/eea/agencies/massdep/about/contacts/>).
4. A copy of the request shall at the same time be sent by certified mail or hand delivery to the Conservation Commission and to the applicant, if he/she is not the appellant.



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January 17, 2020
File No. 01.0174475.00

Mr. Luis Perez Demorizi
Open Space Coordinator
City of Newton Parks and Recreation Department
246 Dudley Road
Newton, MA 02459

Re: Geotechnical Assessment
Newton South High School - New Playing Field Lights
Newton, Massachusetts

Dear Mr. Perez Demorizi:

In accordance with our Agreement executed on November 21, 2019, GZA GeoEnvironmental, Inc. (GZA) has prepared this memorandum summarizing geotechnical recommendations for design of the proposed light structures at the subject site. The objectives of our work were to evaluate subsurface conditions and provide geotechnical parameters for design of proposed light pole foundations surrounding the existing football field/track. Our services are subject to the Limitations contained in **Appendix A**.

BACKGROUND

Our understanding of the project is based on our discussions with the you, and the following documents:

- A set of drawings prepared by Raymond Design Associates, Inc. (RDA), dated September 8, 2011 title "Newton South High School Field Facility Building".
- Three drawings (C-9, C-13 and SE-1) prepared by Gale Associates, dated March 25, 2009 for the Newton South High School Athletic Campus Renovation Project; these drawings show utility locations (as designed) around the field.
- A document prepared by Musco Lighting titled "Soil Report Information Required for Light Pole Foundation Design."
- A drawing entitled "Well Location Plan" prepared by Gale Associates, dated October 15, 2009 for the Newton South High School Athletic Campus Renovation Project.
- A Preliminary Geotechnical Engineering Report prepared by McPhail Associates, dated November 18, 2008; including boring logs, test pit logs, lab gradation analyses, and an exploration location plan.
- Supplemental Geotechnical Engineering Recommendations prepared by McPhail Associates, Inc., dated December 8, 2008.

Additional plans were provided to GZA for the purpose of locating utilities during field activities. Elevations used in this report are in feet referenced to the unnamed vertical datum used in the 2009 Well Location Plan referenced above. Elevations were estimated from ground surface contours shown on the 2009 plan and should be considered approximate.



Based on historic aerial imagery from www.historicaerials.com, the original grass playing field appears to have been originally constructed between 1978 and 1994, requiring raises in grade on the order of up to 17 feet according to the fill thickness encountered in the subsurface explorations. (Some of the fill may have been placed prior to constructing the playing field). Subsequently, the field was reconstructed and converted to artificial turf in 2008/2009. At that time minor (1 to 2 feet) changes in grade occurred. A small facility building was added in 2011.

The existing facility building on the east side of the field is located next to the existing grandstands. Based on the RDA drawings, the building is supported on helical piles with a design capacity of 22 kips. There are wetlands to the west of the field.

The City is planning on constructing four new light poles located near the 10-yard lines of the football field on the east and west sides. According to RFP documents, the proposed monopole type structures typically consist of a round precast, prestressed concrete bottom with a lighting structure of unspecified height mounted at the top. The base will be installed into a minimum 30-inch diameter shaft excavation and backfilled with concrete.

SUBSURFACE CONDITIONS

Three borings, GZ-1 through GZ-3, were performed at the approximate proposed light pole locations to depths of 70, 66, and 24.5 feet below ground surface (bgs), respectively, by New England Boring Company on December 24 and 26, 2019.

Based on the recent GZA borings and the previous explorations included in the November 2008 Geotechnical Report referenced above, the subsurface conditions are significantly different on the east and west sides of the existing playing field. The encountered soil conditions also varied from the information available at the time of our proposal. The soil conditions on the western side generally consisted of Topsoil over granular Fill, underlain by a relatively thick deposit of Organic Soils and very soft to medium stiff Clayey Silt/Silt and Clay to depths of at least 70 feet. Subsurface conditions on the eastern side of the field generally consisted of granular Fill over organic Peat/Silt, underlain by medium dense Sand and Gravel, and weathered Bedrock. The depths and thicknesses of the strata encountered in the borings are summarized in **Table 1**. Refer to the boring logs in **Appendices B and C** for more detailed subsurface conditions at specific exploration locations. Logs of previously conducted shallow test pits within the vicinity are included in **Appendix B**. Two samples from the Fill stratum were submitted to the Thielsch Engineering, Inc. geotechnical laboratory, in Cranston, Rhode Island for gradation analyses. Please refer to **Appendix D** for the test results.

Groundwater was measured during the recent drilling in boring GZ-1 at about 4 feet bgs (El. 119) as noted on the attached boring log. Standing water/ice was observed at/near the grounds surface of the nearby wetland area at approximately the same elevation. Groundwater was not measured in borings GZ-2 and GZ-3 due to the use of drilling fluid, subsequent suspended Silt/Clay, and limited stabilization times. However, groundwater was measured in previous borings B-2 and B-4 at depths of about 9 and 14 feet below ground surface (about El. 115 and 111, respectively), and in two of the previous test pits at depths of approximately 6 to 6.5 feet bgs (about El. 117 to 118).

It should be noted that fluctuations in groundwater levels may occur due to variations in season, rainfall, site features and other factors different from those existing at the time of the explorations and measurements.



GEOTECHNICAL RECOMMENDATIONS

Based on our understanding of subsurface conditions and the proposed lighting structures we have developed the following recommendations:

1. Shaft foundations with a minimum diameter of 30-inches are appropriate for support of the new field lights, in our opinion.
2. On the eastern side of the field, vertical loads from the shafts should be supported by friction in the Sand-Gravel and (if needed) weathered Bedrock. Frictional resistance in the fill and organic strata should be ignored, as should end bearing resistance.
3. On the western side of the fields, depending on the vertical loads, it may be possible to support the shafts by friction in the thick fill stratum above the organics; we recommend that the bottom of shaft be at least 5 feet above top of organics. End bearing resistance should be ignored. Estimated settlement of the foundation due to consolidation is approximately 1 to 1-½ inches and is expected to occur over about 3 to 6 years. Thereafter, we estimate continued settlement due to secondary settlement of the organic soils on the order of 2 to 3 inches over 15 to 20 years. This assumes the organics are normally consolidated and that the vertical load of the lightpole foundation is no more than 15 kips. We recommend GZA review these estimates once the foundation geometry and loads are known. Due to the continued settlement over time, we recommend using flexible electrical conduit/connections that can accommodate the movement.

If there is not sufficient capacity in the fill or if the anticipated settlement is not acceptable, then the shafts must extend through the organic soils and be supported by friction in the very soft to medium stiff silt and clay. For this option, friction in the fill and organics should be ignore when evaluating vertical capacity of the foundation.

4. Geotechnical parameters for both design of lateral and vertical frictional capacity of the foundations for the various soil strata are provided below.

Soil Type	Relative Density (%)	Angle of Internal Friction (degrees)	Coefficient of Passive Lateral Pressure	Moist Unit Weight (pcf)	Submerged Unit Weight (pcf)	Undrained Shear Strength (psf)
Granular Fill	25	30	3.0	120	58	-
Organic Peat/Silt	20	0	1.00	70	8	200
Clayey Silt/Silt and Clay	-	0	1.00	105	43	250
Sand and Gravel	60	35	3.7	125	63	-
Weathered Bedrock	-	34	3.5	135	73	-

5. The RFP information indicates precast, pre-stressed concrete shafts will be installed into a “pier excavation” backfilled with concrete. Given the relatively shallow water table at the site, we anticipate that these excavations will require drilling with oversized casing to mitigate soil sloughing. Excavations below the water table should not be open cut.




We appreciate the opportunity to work with you on this project. Please call the undersigned with questions.

Very truly yours,
GZA GEOENVIRONMENTAL, INC.


Joseph M. Benoit, P.E.
Assistant Project Manager


Jonathan D. Andrews, P.E.
Consultant Reviewer

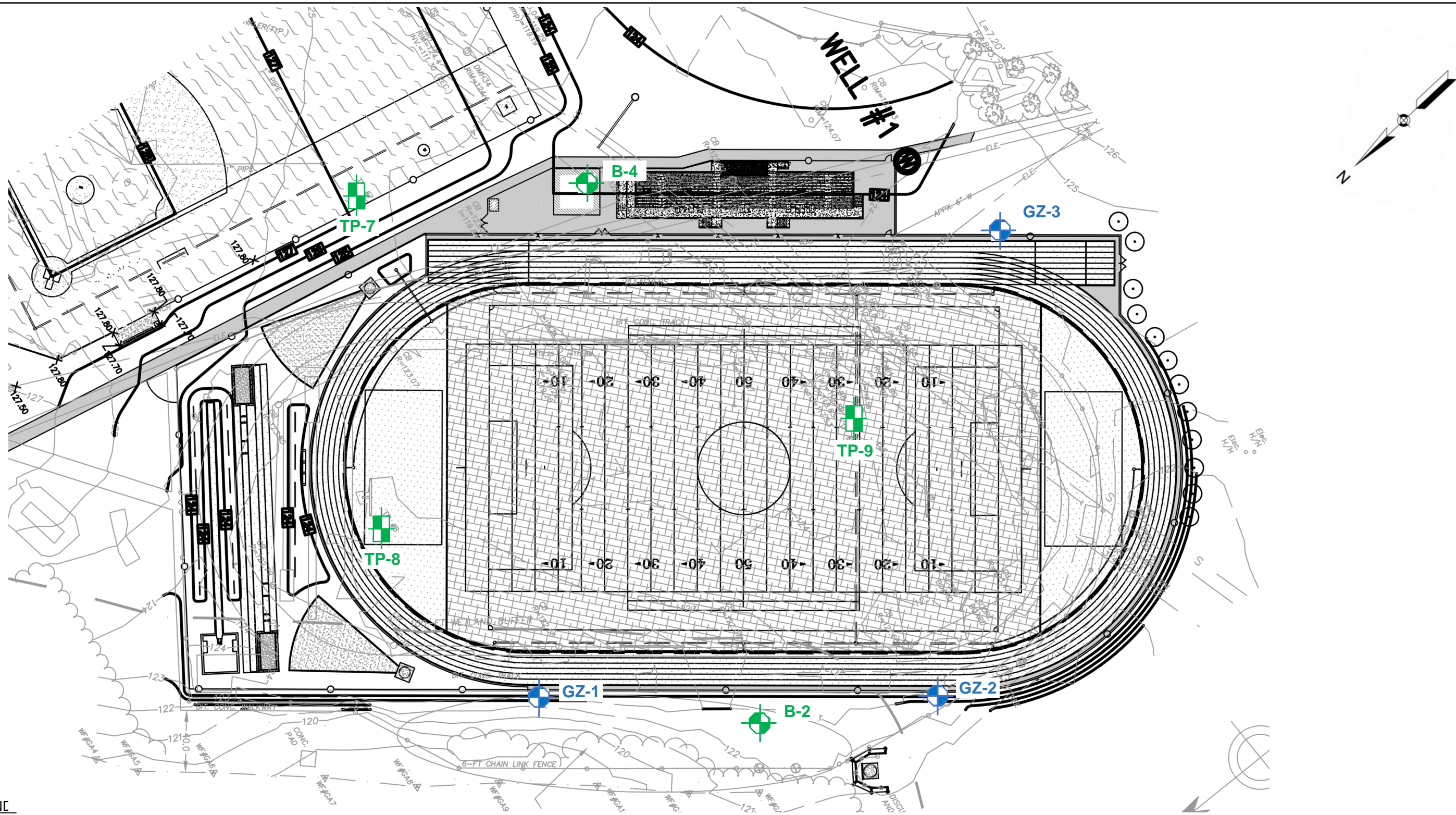

Mary B. Hall, P.E.
Senior Principal

Attachments: Figure 1 – Proposed development Exploration Location Plan
Table 1 – Summary of Subsurface Conditions
Appendix A – Limitations
Appendix B – Previous Explorations by Others
Appendix C – Recent GZA Borings
Appendix D – Geotechnical Laboratory Testing Data




J:\170,000-179,999\174475\174475-00.JMB\Report\174475.00 - Newton High School Lights_Newton MA Memo.docx



Figure




LEGEND

-  **B-1** TEST BORINGS PERFORMED BY CARR-DEE CORP OF MEDFORD, MASSACHUSETTS BETWEEN OCTOBER 27 AND 28, 2008 UNDER CONTRACT TO MCPHAIL ASSOCIATES, INC. OF CAMBRIDGE, MA.
-  **TP-1** TEST PITS PERFORMED BY GALE ASSOCIATES, INC. OF WEYMOUTH, MASSACHUSETTS ON JANUARY 10 AND FEBRUARY 4, 2008. OBSERVED AND LOGGED BY GALE ASSOCIATES, INC.
-  **GZ-101** TEST BORINGS PERFORMED BY NEW ENGLAND BORING CONTRACTORS, INC. OF BROCKTON, MASSACHUSETTS ON DECEMBER 24 AND 25, 2019. OBSERVED AND LOGGED BY GZA PERSONNEL.

1. THE BASE MAP WAS DEVELOPED FROM A PLAN ENTITLED "WELL LOCATION PLAN", PREPARED BY GALE ASSOCIATES, INC. OF WEYMOUTH, MASSACHUSETTS WITH A DATE OF OCTOBER 15, 2009. ELEVATIONS WERE NOT REFERENCED TO A VERTICAL DATUM. CONDITIONS WERE PROPOSED AT THE TIME OF THE DRAWING, AND MAY NOT ACCURATELY REFLECT CURRENT FIELD CONDITIONS.
2. GZA EXPLORATION LOCATIONS WERE APPROXIMATELY DETERMINED BY TAPE MEASUREMENT FROM EXISTING FEATURES. THESE LOCATIONS SHOULD ONLY BE CONSIDERED ACCURATE TO THE DEGREE IMPLIED BY THE METHOD USED.

UNLESS SPECIFICALLY STATED BY WRITTEN AGREEMENT, THIS DRAWING IS THE SOLE PROPERTY OF GZA GEOENVIRONMENTAL INC. (GZA). THE INFORMATION SHOWN ON THIS DRAWING IS SOLELY FOR USE BY GZA'S CLIENT OR THE CLIENT'S DESIGNATED REPRESENTATIVE FOR THE SPECIFIC PROJECT AND LOCATION IDENTIFIED ON THE DRAWING. THE DRAWING SHALL NOT BE TRANSFERRED, REUSED, COPIED, OR MODIFIED IN WHOLE OR IN PART FOR ANY OTHER PURPOSE OR PROJECT. REUSE, OR MODIFICATION TO THE DRAWING, SHALL BE AT THE USER'S OR SUCH OTHER PARTIES' SOLE RISK AND WITHOUT ANY RISK OR LIABILITY TO GZA.

<p>OPERATOR: JMB DATE: JANUARY 10, 2019</p>	<p>PROJ MGR: JMB DESIGNED BY: JMB REVIEWED BY: MBH</p>
<p>APPROXIMATE SCALE</p> 	
<p>NEWTON SOUTH HIGH SCHOOL PROPOSED PLAYING FIELD LIGHTS NEWTON, MASSACHUSETTS</p>	
<p>PROPOSED DEVELOPMENT EXPLORATION LOCATION PLAN</p>	
<p>JOB NO. 01.0174475.00</p>	
<p>FIGURE NO. 1</p>	





Table

TABLE 1
Proposed Playing Field Lights
Newton South High School

Summary of Subsurface Conditions

Boring	Thick-ness of Fill (ft.)	Organic Soils			Sand and Gravel			Clayey Silt/Silt and Clay			Weathered Bedrock		Bottom of Boring (ft)		Groundwater		
		Depth to Top (ft)	EL. (ft)	Thick-ness (ft)	Depth to Top (ft)	EL. (ft)	Thick-ness (ft)	Depth to Top (ft)	EL. (ft)	Thick-ness (ft)	Depth to Top (ft)	EL. (ft)	Depth (ft)	EL. (ft)	Depth (ft.)	EL. (ft)	
WEST	GZ-1	17	17	106	15	NE			32	92	N/A	NE		70	53	4	119
	GZ-2	18	18	106	15	NE			33	91	N/A	NE		66	58	NR	
	B-2	18	18	106	16	NE			34	90	N/A	NE		38	86	9	115
EAST	GZ-3	7	7	116	2	9	114	6	NE			15	108	25	99	NR	
	B-4	10	10	114	4	14	111	N/A	NE			NE		16	108	14	111

Notes:

1. Borings GZ-1 through GZ-3 conducted by New England Boring Contractors and observed by GZA personnel on December 24 and 26, 2019. Borings B-2 and B-4 conducted by Carr-Dee Corp and observed by others. Refer to the boring logs for additional information.
2. Ground surface elevations based on a plan prepared by Gale Associates entitled "Well Location Plan" dated October 15, 2009. No datum is provided on the plan.
3. Depths, thicknesses, and elevations referenced in this table are in feet and should be considered approximate.

NE = Not Encountered

NR = Not Recorded



Appendix A – Limitations



USE OF REPORT

1. GZA GeoEnvironmental, Inc. (GZA) prepared this report on behalf of, and for the exclusive use of The City of Newton Parks and Recreation Department (Client) for the stated purpose(s) and location(s) identified in the Proposal for Services and/or Report. Use of this report, in whole or in part, at other locations, or for other purposes, may lead to inappropriate conclusions; and we do not accept any responsibility for the consequences of such use(s). Further, reliance by any party not expressly identified in the contract documents, for any use, without our prior written permission, shall be at that party's sole risk, and without any liability to GZA.

STANDARD OF CARE

2. GZA's findings and conclusions are based on the work conducted as part of the Scope of Services set forth in Proposal for Services and/or Report, and reflect our professional judgment. These findings and conclusions must be considered not as scientific or engineering certainties, but rather as our professional opinions concerning the limited data gathered during the course of our work. If conditions other than those described in this report are found at the subject location(s), or the design has been altered in any way, GZA shall be so notified and afforded the opportunity to revise the report, as appropriate, to reflect the unanticipated changed conditions .
3. GZA's services were performed using the degree of skill and care ordinarily exercised by qualified professionals performing the same type of services, at the same time, under similar conditions, at the same or a similar property. No warranty, expressed or implied, is made.
4. In conducting our work, GZA relied upon certain information made available by public agencies, Client and/or others. GZA did not attempt to independently verify the accuracy or completeness of that information. Inconsistencies in this information which we have noted, if any, are discussed in the Report.

SUBSURFACE CONDITIONS

5. The generalized soil profile(s) provided in our Report are based on widely-spaced subsurface explorations and are intended only to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized, and were based on our assessment of subsurface conditions. The composition of strata, and the transitions between strata, may be more variable and more complex than indicated. For more specific information on soil conditions at a specific location refer to the exploration logs. The nature and extent of variations between these explorations may not become evident until further exploration or construction. If variations or other latent conditions then become evident, it will be necessary to reevaluate the conclusions and recommendations of this report.
6. In preparing this report, GZA relied on certain information provided by the Client, state and local officials, and other parties referenced therein which were made available to GZA at the time of our evaluation. GZA did not attempt to independently verify the accuracy or completeness of all information reviewed or received during the course of this evaluation.
7. Water level readings have been made in test holes (as described in this Report) and monitoring wells at the specified times and under the stated conditions. These data have been reviewed and interpretations have been made in this Report. Fluctuations in the level of the groundwater however occur due to temporal or spatial variations in areal recharge rates, soil heterogeneities, the presence of subsurface utilities, and/or natural or artificially induced perturbations. The water table encountered in the course of the work may differ from that indicated in the Report.
8. GZA's services did not include an assessment of the presence of oil or hazardous materials at the property. Consequently, we did not consider the potential impacts (if any) that contaminants in soil or groundwater may have on construction activities, or the use of structures on the property.



COMPLIANCE WITH CODES AND REGULATIONS

9. We used reasonable care in identifying and interpreting applicable codes and regulations. These codes and regulations are subject to various, and possibly contradictory, interpretations. Compliance with codes and regulations by other parties is beyond our control.

ADDITIONAL SERVICES

10. GZA recommends that we be retained to provide services during any future: site observations, design, implementation activities, construction and/or property development/redevelopment. This will allow us the opportunity to: i) observe conditions and compliance with our design concepts and opinions; ii) allow for changes in the event that conditions are other than anticipated; iii) provide modifications to our design; and iv) assess the consequences of changes in technologies and/or regulations.



Appendix B – Previous Explorations by Others

CARR-DEE CORP.

37 LINDEN STREET

P.O. BOX 67

MEDFORD, MA 02155-0001

Telephone (781) 391-4500

To: MCPHAIL ASSOCIATES, INC., 2269 MASS. AVE., CAMBRIDGE, MA

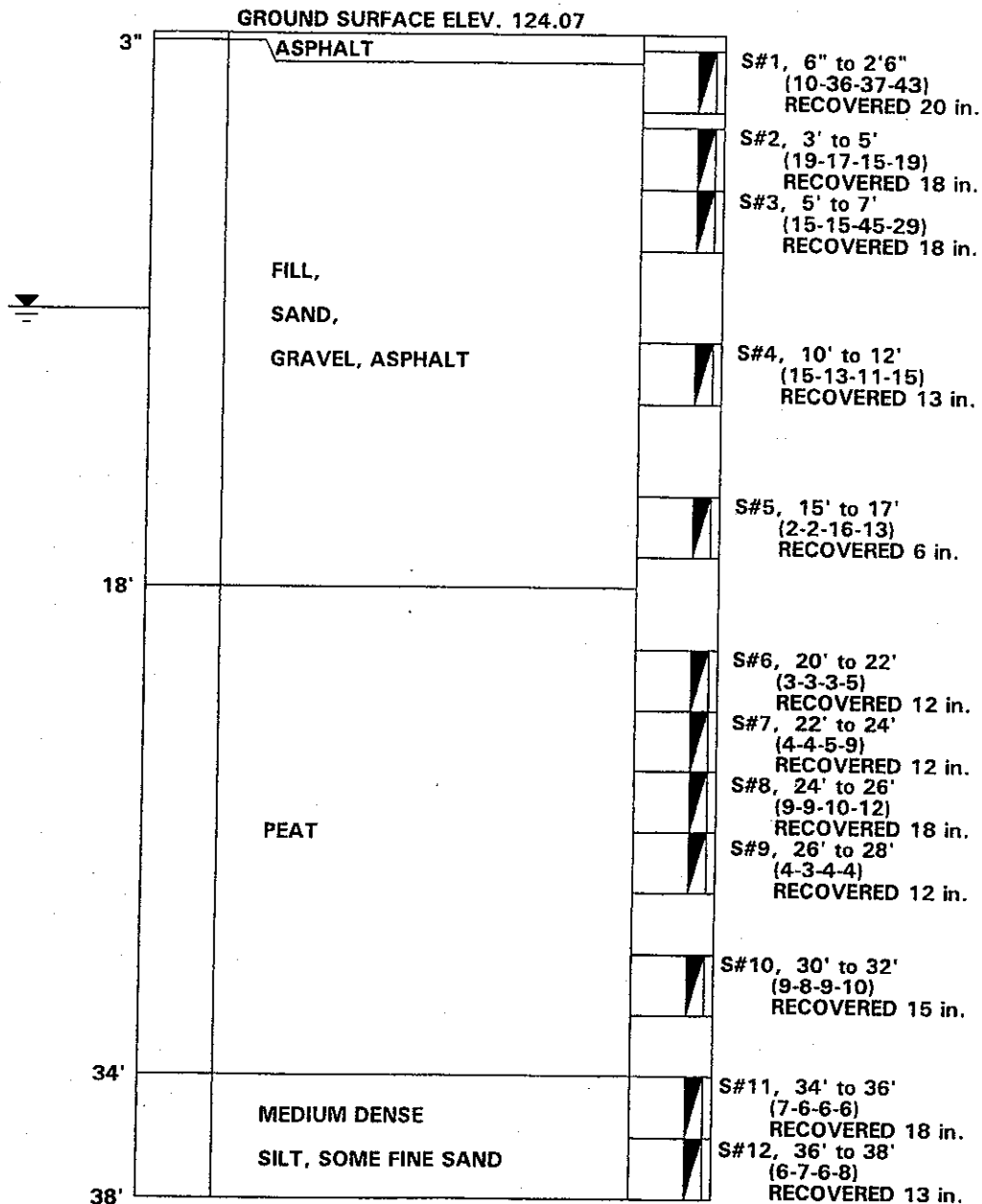
Date: 10-29-2008

Job No.: 2008-158

Location: NEWTON SOUTH HIGH SCHOOL, NEWTON, MA

Scale: 1 in. = 6 ft.

BORING 2



WATER LEVEL 9'
SIZE OF AUGERS: 2-1/4" I.D., LENGTH: 25'0"
DATE STARTED & COMPLETED: 10-28-2008
DRILLER: J. CENTRELLA, INSPECTOR: A. DADONA

All samples have been visually classified by DRILLER. Unless otherwise specified, water levels noted were observed at completion of borings, and do not necessarily represent permanent ground water levels. Figures in parenthesis indicate the number of blows required to drive Two-inch Split Sampler 6 inches using 140 lb. weight falling 30 inches (±). Figures in column to left (if noted) indicate number of blows to drive casing one foot, using 300 lb. weight falling 24 inches (±).

CARR-DEE CORP.

37 LINDEN STREET

P.O. BOX 67

MEDFORD, MA 02155-0001

Telephone (781) 391-4500

To: MCPHAIL ASSOCIATES, INC., 2269 MASS., AVE., CAMBRIDGE, MA

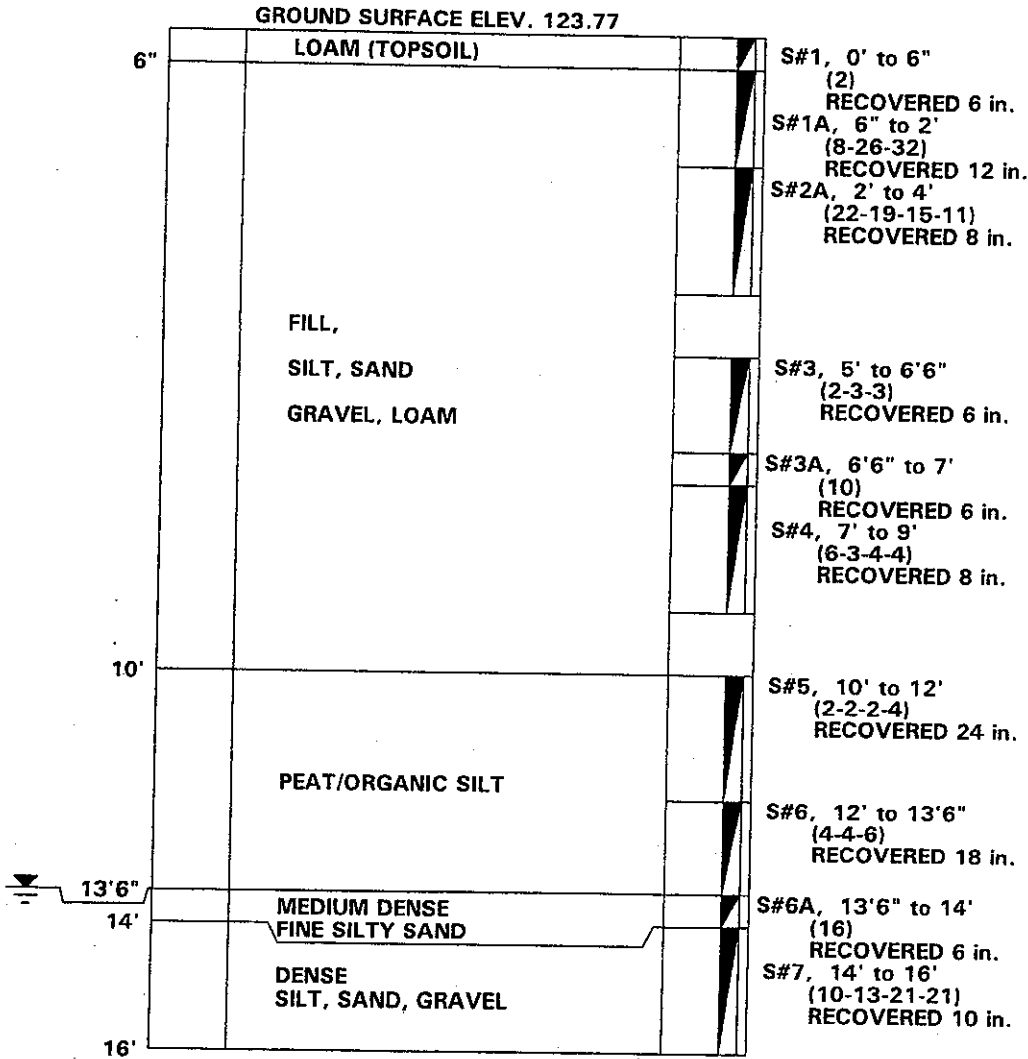
Date: 10-29-2008

Job No.: 2008-158

Location: NEWTON SOUTH HIGH SCHOOL, NEWTON, MA

Scale: 1 in. = 3 ft.

BORING 4



WATER LEVEL 13'6"
SIZE OF AUGERS: 2-1/4" I.D., LENGTH: 14'0"
DATE STARTED & COMPLETED: 10-27-2008
DRILLER: J. CENTRELLA, INSPECTOR: A. DADONA

All samples have been visually classified by DRILLER. Unless otherwise specified, water levels noted were observed at completion of borings, and do not necessarily represent permanent ground water levels. Figures in parenthesis indicate the number of blows required to drive Two-inch Split Sampler 6 inches using 140 lb. weight falling 30 inches(±). Figures in column to left (if noted) indicate number of blows to drive casing one foot, using 300 lb. weight falling 24 inches (±).

FORM 11 - SOIL EVALUATOR FORM

Location Address or Lot No. 140 Brandeis Road, Newton, MA – Newton South

On-site Review

Deep Hole Number: TP7 Date: 2-4-08 Time: 9:35 AM Weather: SUNNY, 40's

Location (Identify on site plan): See Plan

Land Use: ATHLETIC FIELD Slope (%): 0 Surface Stones: NONE

Vegetation: GRASS

Landform: _____

Position on Landscape (sketch on the back): _____

Distances from:

Open Water Body: > 150 feet Drainage way: > 50 feet

Possible Wet Area: > 150 feet Property Line: > 10 feet

Drinking Water Well: > 100 feet Other: _____

DEEP OBSERVATION HOLE LOG*					
Depth from Surface (Inches)	Soil Horizon	Soil Texture (USDA)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Boulders, Consistency, % Gravel)
0-12	A/F	SILT LOAM	10YR 3/3	-	10% SMALL COBBLES
12-21	F1	SILT LOAM	10YR 5/3	-	FIRM, 10% COBBLES, DIRTIES PORES, MODERATELY STICKY, SATURATED
21-77	F2	SILT LOAM w/ SAND	2.5Y 5/1	-	FIRM, 12" STREAKS OF SLIGHTLY VARIGATING COLORS, 15% COBBLES, VERY SANDY, SATURATED

* MINIMUM OF 2 HOLES REQUIRED AT EVERY PROPOSED DISPOSAL AREA

Parent Material (geologic) N/A Depth to Bedrock: > 77"

Depth to Groundwater: Standing Water in the Hole 77" Weeping from Pit Face: Spotty from 12"

Estimated Seasonal High Ground Water: >



FORM 11 - SOIL EVALUATOR FORM

Location Address or Lot No. 140 Brandeis Road, Newton, MA – Newton South

On-site Review

Deep Hole Number: TP8 Date: 2-4-08 Time: 10:55 AM Weather: OVERCAST, 40's

Location (Identify on site plan): See Plan

Land Use: FOOTBALL FIELD Slope (%): 0 Surface Stones: NONE

Vegetation: GRASS

Landform: _____

Position on Landscape (sketch on the back): _____

Distances from:

Open Water Body: > 150 feet Drainage way: > 50 feet
 Possible Wet Area: > 150 feet Property Line: > 10 feet
 Drinking Water Well: > 100 feet Other: _____

DEEP OBSERVATION HOLE LOG*

Depth from Surface (Inches)	Soil Horizon	Soil Texture (USDA)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Boulders, Consistency, % Gravel)
0-8	A/F	SILT LOAM	10YR 2/2	-	SLIGHTLY GRITTY, DIRTIES PORES, RIBBONS, CONTAINS SAND AND GRAVEL FIRM IN PLACE, 5% COBBLES, 10% CLAY POCKETS, 1/2" RUSTY LINE @ INTERFACE w/ F2 ASPHALT, ASH, CLAY, DEBRIS, SATURATED MUCK
8-36	F1	FS TO MS	10YR 6/4	-	
36-71	F2	DEBRIS	GLE Y2 TO BLACK	-	

* MINIMUM OF 2 HOLES REQUIRED AT EVERY PROPOSED DISPOSAL AREA

Parent Material (geologic) N/A Depth to Bedrock: > 71"
 Depth to Groundwater: _____ Standing Water in the Hole 71" Weeping from Pit Face: 36"
 Estimated Seasonal High Ground Water: >



FORM 11 - SOIL EVALUATOR FORM

Location Address or Lot No. 140 Brandeis Road, Newton, MA – Newton South

On-site Review

Deep Hole Number: TP9 Date: 2-4-08 Time: 12:30 PM Weather: OVERCAST, 40's

Location (Identify on site plan): See Plan

Land Use: FOOTBALL FIELD Slope (%): 0 Surface Stones: NONE

Vegetation: GRASS

Landform: _____

Position on Landscape (sketch on the back): _____

Distances from:

Open Water Body: > 150 feet Drainage way: > 50 feet

Possible Wet Area: > 150 feet Property Line: > 10 feet

Drinking Water Well: > 100 feet Other: _____

DEEP OBSERVATION HOLE LOG*					
Depth from Surface (Inches)	Soil Horizon	Soil Texture (USDA)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Boulders, Consistency, % Gravel)
0-7	A/F	SILT LOAM	10 YR 2/2	-	LOOSE VERY FIRM, CEMENT LIKE, 70% COBBLES
7-29	F1	MS	10 YR 5/4	-	
29-62	F2*		30% 10YR 5/1 30% 10YR 3/4	-	

* MINIMUM OF 2 HOLES REQUIRED AT EVERY PROPOSED DISPOSAL AREA

Parent Material (geologic) N/A Depth to Bedrock: > 62"

Depth to Groundwater: Standing Water in the Hole N/A Weeping from Pit Face: N/A

Estimated Seasonal High Ground Water: > 62

***NOTE:**

F2 WAS FOUND TO BE VERY FIRM. SOIL TEXTURE OF MATERIAL CONNECTING COBBLES NOT DETERMINED.





Appendix C – Recent GZA Borings

TEST BORING LOG



GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Newton South High School
 Proposed Playing Field Lights
 Newton, Massachusetts

BORING NO.: GZ-1
SHEET: 1 of 3
PROJECT NO: 01.0174475.00
REVIEWED BY: MBH

Drilling Co.: New England Boring Contractors	Type of Rig: ATV	Boring Location: See Plan	H. Datum:
Foreman: Christopher Knight	Rig Model: Deidrich D-50	Ground Surface Elev. (ft.): 123	
Logged By: Joseph Benoit	Drilling Method: Drive & Wash	Final Boring Depth (ft.): 70	V. Datum: Unknown
Auger/Casing Type: HW	Sampler Type: Split Spoon	Groundwater Depth (ft.)	
I.D./O.D.(in): 4" / 4.5"	I.D./O.D. (in.): 1.375" / 2"	Date	Time
Hammer Weight (lb.): 300	Sampler Hmr Wt (lb): 140	Water Depth	Casing
Hammer Fall (in.): 30	Sampler Hmr Fall (in): 30	Stab. Time	
Other: Safety Hammer	Other: Auto Hammer	12/24/19	1300
		12/26/19	0700
			11.5
			23
			20 min
			40 hrs.

Depth (ft)	Casing Blows/ Core Rate	Sample						SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Depth (ft.)	Stratum Description	Elev. (ft.)
		No.	Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)								
5		S-1	0-2	24	14	9 10 14 11	24	S-1: (Top 7") Dark brown, SILT, some fine to coarse Sand, trace Gravel, trace Roots.	1		1	TOPSOIL	122.0'	
		S-2	2-4	24	17	8 17 29 25	46	S-1: (Bottom 7") Dark brown/black, fine to coarse SAND and GRAVEL, trace (+) Silt.						
5		S-3	4-6	24	14	21 21 17 16	38	S-2: Dense, black/brown, fine to coarse SAND, some Gravel, trace Asphalt, trace (+) Silt. S-3: Dense, black/brown, fine to coarse SAND and GRAVEL, little (-) Silt.						
		S-4	8-10	24	0	1 0 1 0	1	S-4: No recovery.						
10		S-5	13-15	24	10	14 15 15 10	30	S-5: Medium dense, black/gray, GRAVEL, some fine to coarse Sand, trace Silt. (Petroleum odor)	2 3 4			FILL		
		S-6	18-20	24	21	1 1 1 2	2	S-6: Very loose, dark brown, Fibrous PEAT, trace fine to medium Sand, trace Leaves.						
15		S-7	23-25	24	13	1 1 2 3	3	S-7: Very loose, dark brown, Fibrous to Amorphous PEAT, trace fine to medium Sand, trace Gravel.	5 6					
		S-8	28-30	24	22	WOR WOR WOR 3	0	S-8: Very soft, brown, Organic SILT & CLAY, trace fine Sand, trace Plant Fibers.						
20									7		17	FIBROUS PEAT	106.0'	
25									8		26.5	ORGANIC SILT	96.5'	
30									9					

REMARKS

- Ground surface elevations estimated from plan entitled, "Well Location Plan" prepared by Gale Associates, Inc., dated October 15, 2009. No vertical datum is referenced. Borings located with tape measurements to existing site features following completion. These locations should only be considered accurate only to the degree implied by the method used.
- Decrease in driving resistance of casing observed at approximately 7.5 feet below ground surface (bgs).
- No sample recovered within 2-inch inside diameter (I.D.) split spoon. A 3-inch I.D. split spoon was redriven along the same depth interval. No sample recovered in 3-inch I.D. split spoon.
- Casing was able to be pushed down with drill rig from 8.5 to 12.5 feet bgs. Wash water was gray with some sand and some wood fibers. (Appeared to be predominantly granular.)
- Loss of water from 11 to 13 feet bgs.
- Gravel with petroleum odor observed in wash from 15 to 17 feet bgs. Wash color observed to change from gray to dark brown at approximately 17 feet bgs. Wood/peat fibers observed in wash at approximately 17 to 18 feet bgs.
- Casing pushed with drilling from 18 to 23 feet bgs.
- Drilled open hole from 28 to 70 feet bgs.
- "WOR" and "WOH" indicate that the split spoon was advanced under the weight of the drill rods or auto hammer; no blow counts available for that interval.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.:
GZ-1

174475 NEWTON SOUTH HS PROPOSED PLAYING FIELD LIGHTS.GPJ; STRATUM ONLY; 1/15/2020

TEST BORING LOG



GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Newton South High School
 Proposed Playing Field Lights
 Newton, Massachusetts

BORING NO.: GZ-1
SHEET: 2 of 3
PROJECT NO: 01.0174475.00
REVIEWED BY: MBH

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample			Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum	
			Depth (ft.)	Pen. (in)	Rec. (in)						Depth (ft.)	Description
35		S-9	33-35	24	23	WOR WOR WOR WOR	0	S-9: Very soft, light gray, CLAY & SILT, trace fine Sand.	10		ORGANIC SILT	
40		S-10	38-40	24	23	PUSH		S-10: Light gray, SILT & CLAY, trace fine Sand.				
45		S-11	43-45	24	16	2 4 4 4	8	S-11: Medium stiff, light gray, Clayey SILT.				
50		S-12	48-50	24	17	WOH 1 3 7	4	S-12: (Top 7") Gray, SILT & CLAY, trace fine Sand. S-12: (Bottom 10") Gray, Clayey SILT.			SILT AND CLAY	

REMARKS
 10. Wash water observed to contain gray clayey silt starting at approximately 31.5 feet bgs.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.:
GZ-1

174475 NEWTON SOUTH HS PROPOSED PLAYING FIELD LIGHTS.GPJ; STRATUM ONLY; 1/15/2020

TEST BORING LOG



GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Newton South High School
 Proposed Playing Field Lights
 Newton, Massachusetts

BORING NO.: GZ-1
SHEET: 3 of 3
PROJECT NO: 01.0174475.00
REVIEWED BY: MBH

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample				SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Depth (ft.)	Stratum Description	Elev. (ft.)
			Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)							
70		S-13	68-70	24	23	WOR WOR WOR WOH	0	S-13: Very soft, gray, SILT & CLAY.			70	SILT AND CLAY	53.0'
								Bottom of boring at 70 feet.	11				
75													
80													
85													
90													
95													
100													

REMARKS
 11. Borehole was terminated at approximately 70 feet bgs. Upon completion, borehole was backfilled with drill cuttings and sand.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.:
GZ-1

174475 NEWTON SOUTH HS PROPOSED PLAYING FIELD LIGHTS.GPJ; STRATUM ONLY; 1/15/2020

TEST BORING LOG



GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Newton South High School
Proposed Playing Field Lights
Newton, Massachusetts

BORING NO.: GZ-2
SHEET: 1 of 2
PROJECT NO: 01.0174475.00
REVIEWED BY: MBH

Drilling Co.: New England Boring Contractors	Type of Rig: ATV	Boring Location: See Plan	H. Datum:
Foreman: Christopher Knight	Rig Model: Deidrich D-50	Ground Surface Elev. (ft.): 124	V. Datum: Unknown
Logged By: Joseph Benoit	Drilling Method: Drive & Wash	Final Boring Depth (ft.): 66	
Auger/Casing Type: HW		Groundwater Depth (ft.)	
I.D./O.D. (in.): 4" / 4.5"	Sampler Type: Split Spoon	Date	Time
Hammer Weight (lb.): 300	I.D./O.D. (in.): 1.375" / 2"	Not	recorded.
Hammer Fall (in.): 24	Sampler Hmr Wt (lb): 140		
Other: Safety Hammer	Sampler Hmr Fall (in): 30		
	Other: Auto Hammer		

Depth (ft)	Casing Blows/ Core Rate	Sample						Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Depth (ft.)	Stratum Description	Elev. (ft.)
		No.	Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value						
5		S-1	0-2	24	11	4 3 5 4	8	S-1: Loose, dark brown, Organic SILT and fine SAND, trace Gravel, trace Roots.	1				
		S-2	2-4	24	17	5 5 9 11	14	S-2: Medium dense, tan, fine to coarse SAND, trace (+) Silt, trace Gravel with 3" layer of tan, Silt and fine Sand from 5-8" in split spoon.			2	TOPSOIL	122.0'
		S-3	4-6	24	12	3 1 1 9	2	S-3: (Top 9") Tan, fine to medium SAND, little Silt, trace Gravel. S-3: (Bottom 3") Black/gray, fine to coarse SAND, some Gravel, little (-) Silt, trace Roots. (Slight petroleum odor)					
10		S-4	8-10	24	15	27 21 20 13	41	S-4: Dense, black/gray, fine to coarse SAND and GRAVEL, little Silt, trace Brick, trace Asphalt. (Trace petroleum odor)				FILL	
15		S-5	14-16	24	3	9 3 5 6	8	S-5: Loose, black/gray, GRAVEL, some fine to coarse Sand, trace (+) Silt, trace Roots. (Slight petroleum odor)	2		16	ORGANIC FILL	108.0'
20		S-6	18-20	24	0	7 8 8 6	16	S-6: No recovery.	3		18		106.0'
25		S-7	24-26	24	0	29 20 21 20	41	S-7: No recovery.	4			ORGANIC SOILS	
30													

REMARKS

- Ground surface elevations estimated from plan entitled, "Well Location Plan" prepared by Gale Associates, Inc., dated October 15, 2009. No vertical datum is referenced. Borings located with tape measurements to existing site features following completion. These locations should only be considered accurate only to the degree implied by the method used.
- Wash became dark brown and contained some plant fibers from 16 to 18 feet below ground surface (bgs).
- Casing was pushed with drill rig from 18 to 24 feet bgs. Peat fibers in wash from 18 to 24 feet bgs.
- Split spoon observed to be bouncing on possible wood from 24 to 26 feet bgs.
- Clayey silt (light brown with fibers) observed in wash from 30 to 33 feet bgs. Soil in wash from 33 to 34 feet bgs appeared to contain less organic fibers and changed to predominantly gray in color.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.:
GZ-2

174475 NEWTON SOUTH HS PROPOSED PLAYING FIELD LIGHTS.GPJ; STRATUM ONLY; 1/15/2020

TEST BORING LOG



GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Newton South High School
 Proposed Playing Field Lights
 Newton, Massachusetts

BORING NO.: GZ-2
SHEET: 2 of 2
PROJECT NO: 01.0174475.00
REVIEWED BY: MBH

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample			Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Depth (ft.)	Stratum Description	Elev. (ft.)
			Depth (ft.)	Pen. (in)	Rec. (in)								
35		S-8	34-36	24	21	1 1 1 3	2	S-8: Soft, gray, Clayey SILT with frequent fine Sand seams.	5		33	ORGANIC SOILS	91.0'
45		S-9	44-46	24	18	WOH WOH 4 2	4	S-9: Soft, gray, Clayey SILT with frequent fine Sand seams.	6				
65		S-10	64-66	24	22	WOR WOH WOH WOH	0	S-10: Very soft, gray, SILT & CLAY, trace fine Sand.					
Bottom of boring at 66 feet.									7		66		58.0'

REMARKS

- 6. "WOR" and "WOH" indicate that the split spoon was advanced under the weight of the drill rods or auto hammer; no blow counts available for that interval.
- 7. Borehole terminated at approximately 66 feet bgs. Upon completion, the borehole was backfilled with drill cuttings and sand to the approximate ground surface.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.:
GZ-2

174475 NEWTON SOUTH HS PROPOSED PLAYING FIELD LIGHTS.GPJ; STRATUM ONLY; 1/15/2020



Appendix D – Geotechnical Laboratory Testing Data



195 Frances Avenue
 Cranston RI, 02910
 Phone: (401)-467-6454
 Fax: (401)-467-2398
thielsch.com
Let's Build a Solid Foundation

Client Information:
 GZA GeoEnvironmental
 Norwood, MA
 PM: Joseph Benoit
 Assigned By: Joseph Benoit
 Collected By: Joseph Benoit

Project Information:
Newton South High School
Newton, MA
 GZA Project Number: 01.0174475.00
 Summary Page: 1 of 1
 Report Date: 01.06.2020

LABORATORY TESTING DATA SHEET, REPORT No. 7419-M-B116

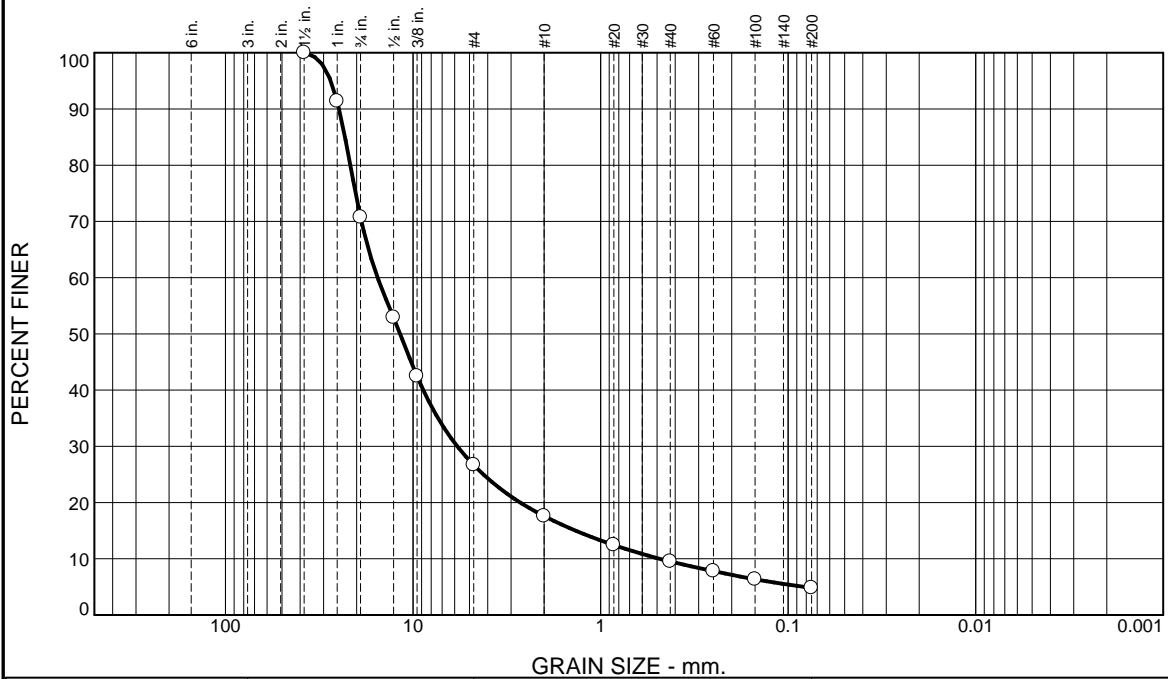
Boring / Test Pit No.	Sample No.	Depth (Ft)	Laboratory No.	Identification Tests								Proctor / Thermal Resistivity							Laboratory Log and Soil Description		
				As Received Water Content %	LL %	PL %	Gravel %	Sand %	Fines %	Org. %	G _s	Dry unit wt. pcf	Test Water Content %	γ_d MAX (pcf) W _{opt} (%)	γ_d MAX (pcf) W _{opt} (%) (Corr.)	Target Test Setup as % of Proctor	Thermal Resistivity Optimum (°C*cm/W)	Thermal Resistivity Mid Point (°C*cm/W)		Thermal Resistivity Oven Dried (°C*cm/W)	
				D2216	D4318		D6913			D2874	D854			D1557			D5334				
GZ-1	S-5	13-15'	19-S-B410				73.3	21.9	4.8											Light gray f-c GRAVEL, some f-c Sand, trace Clayey Silt	
GZ-2	S-3 (Top 9")	4-5'	19-S-B411				4.0	84.4	11.6											Light brown f-m SAND, little Silt, trace fine Gravel	

Date Received: 12.30.2019

Reviewed By: Benoit L. Blais

Date Reviewed: 01.06.2020

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	29.3	44.0	9.1	8.1	4.7	4.8	

Test Results (D6913 & ASTM D 1140)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1-1/2"	100.0		
1"	91.4		
3/4"	70.7		
1/2"	52.9		
3/8"	42.5		
#4	26.7		
#10	17.6		
#20	12.4		
#40	9.5		
#60	7.8		
#100	6.3		
#200	4.8		

* (no specification provided)

Material Description

Light gray f-c GRAVEL, some f-c Sand, trace Clayey Silt

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= GP AASHTO (M 145)= A-1-a

Coefficients

D₉₀= 24.8099 D₈₅= 23.0577 D₆₀= 15.4619
D₅₀= 11.7253 D₃₀= 5.8094 D₁₅= 1.3600
D₁₀= 0.4839 C_u= 31.95 C_c= 4.51

Remarks

Sample visually classified as plastic. Sample rolled to 1/4".

Date Received: 12/30/2019 Date Tested: 12/31/2019

Tested By: CC

Checked By: Ronelle LeBlanc, E.I.T.

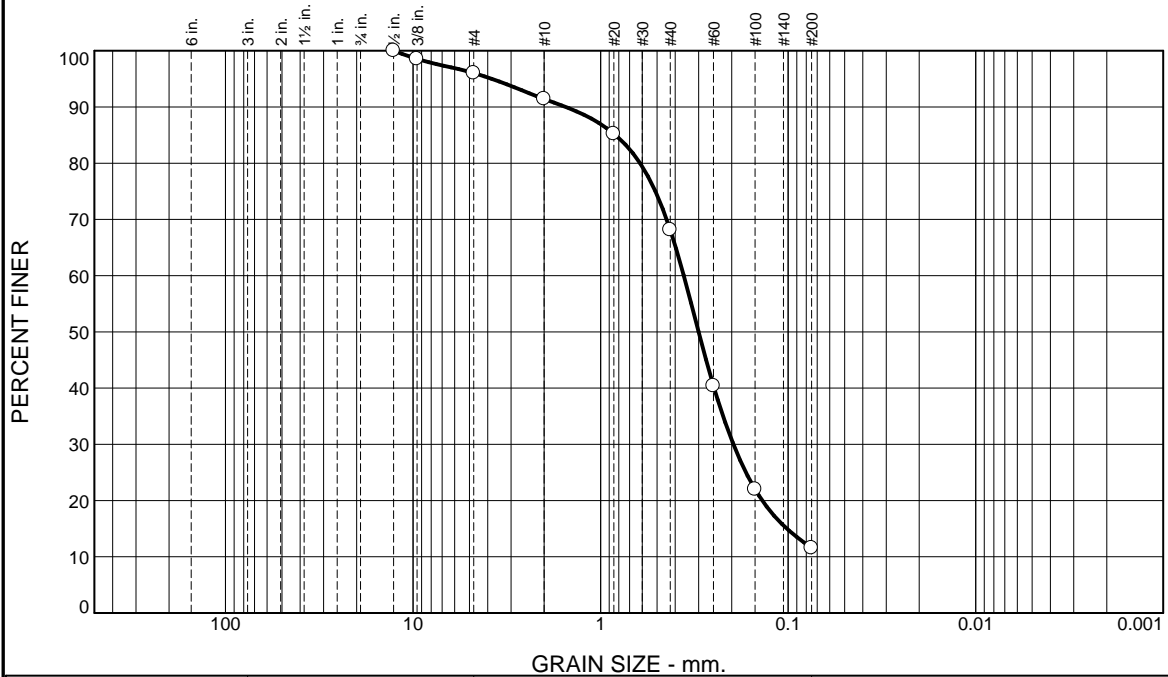
Title: Laboratory Coordinator

Source of Sample: GZ-1 Depth: 13-15'
Sample Number: S-5

Date Sampled: 12/27/2019

Thielsch Engineering Inc. Cranston, RI	Client: GZA GeoEnvironmental Project: Newton South High School Newton, MA Project No: 01.0174475.00
Figure 19-S-B410	

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	4.0	4.6	23.3	56.5	11.6	

Test Results (D6913 & ASTM D 1140)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
0.5"	100.0		
0.375"	98.6		
#4	96.0		
#10	91.4		
#20	85.2		
#40	68.1		
#60	40.4		
#100	22.0		
#200	11.6		

* (no specification provided)

Material Description

Light brown f-m SAND, little Silt, trace fine Gravel

Atterberg Limits (ASTM D 4318)

PL= NP LL= NV PI= NP

Classification

USCS (D 2487)= SP-SM AASHTO (M 145)= A-2-4(0)

Coefficients

D ₉₀ = 1.5330	D ₈₅ = 0.8342	D ₆₀ = 0.3602
D ₅₀ = 0.3000	D ₃₀ = 0.1957	D ₁₅ = 0.1016
D ₁₀ =	C _u =	C _c =

Remarks

Date Received: 12/30/2019 Date Tested: 12/31/2019

Tested By: CC

Checked By: Ronelle LeBlanc, E.I.T.

Title: Laboratory Coordinator

Source of Sample: GZ-2 Depth: 4-5'
 Sample Number: S-3 (Top 9")

Date Sampled: 12/27/2019

Thielsch Engineering Inc. Cranston, RI	Client: GZA GeoEnvironmental Project: Newton South High School Newton, MA Project No: 01.0174475.00
Figure 19-S-B411	



Control System Summary

Project Specific Notes:

Musco will be providing a step-down transformer.

Project Information

Project #: 117155
 Project Name: Newton South High School Football/Soccer
 Date: 03/16/20
 Project Engineer: TLanphier
 Sales Representative: Mike Berry
 Control System Type: LED C&M
 Communication Type: PowerLine-ST
 Scan: 117155G
 Document ID: 117155P1V5-0316113210
 Distribution Panel Location or ID: Electrical Service #1
 Total # of Distribution Panel Locations for Project: 1
 Design Voltage/Hertz/Phase: 480/60/3
 Control Voltage: 120

Equipment Listing

DESCRIPTION	APPROXIMATE SIZE	
1.Control and Monitoring Cabinet	24 X 48	
	QTY	SIZE
Total Contactors	4	30 AMP
Total Off/On/Auto Switches:	1	

Materials Checklist

Contractor/Customer Supplied:

- A dedicated control circuit must be supplied per distribution panel location.
 - If the control voltage is NOT available, a control transformer is required.
- Electrical distribution panel to provide overcurrent protection for circuits
 - HID rated or D-curve circuit breaker sized per full load amps on Circuit Summary by Zone Chart
- Wiring:
 - See chart on page 2 for wiring requirements
 - Equipment grounding conductor and splices must be insulated. (per circuit)
 - Lightning ground protection (per pole), if not Musco supplied.
- Electrical conduit wireway system
 - Entrance hubs rated NEMA 4: must be die-cast zinc, PVC, or copper-free die-cast aluminum
- Mounting hardware for cabinets
- Breaker lock-on device to prevent unauthorized power interruption to control power and powerline connection (if present)
- Anti-corrosion compound to apply to ends of wire, if necessary

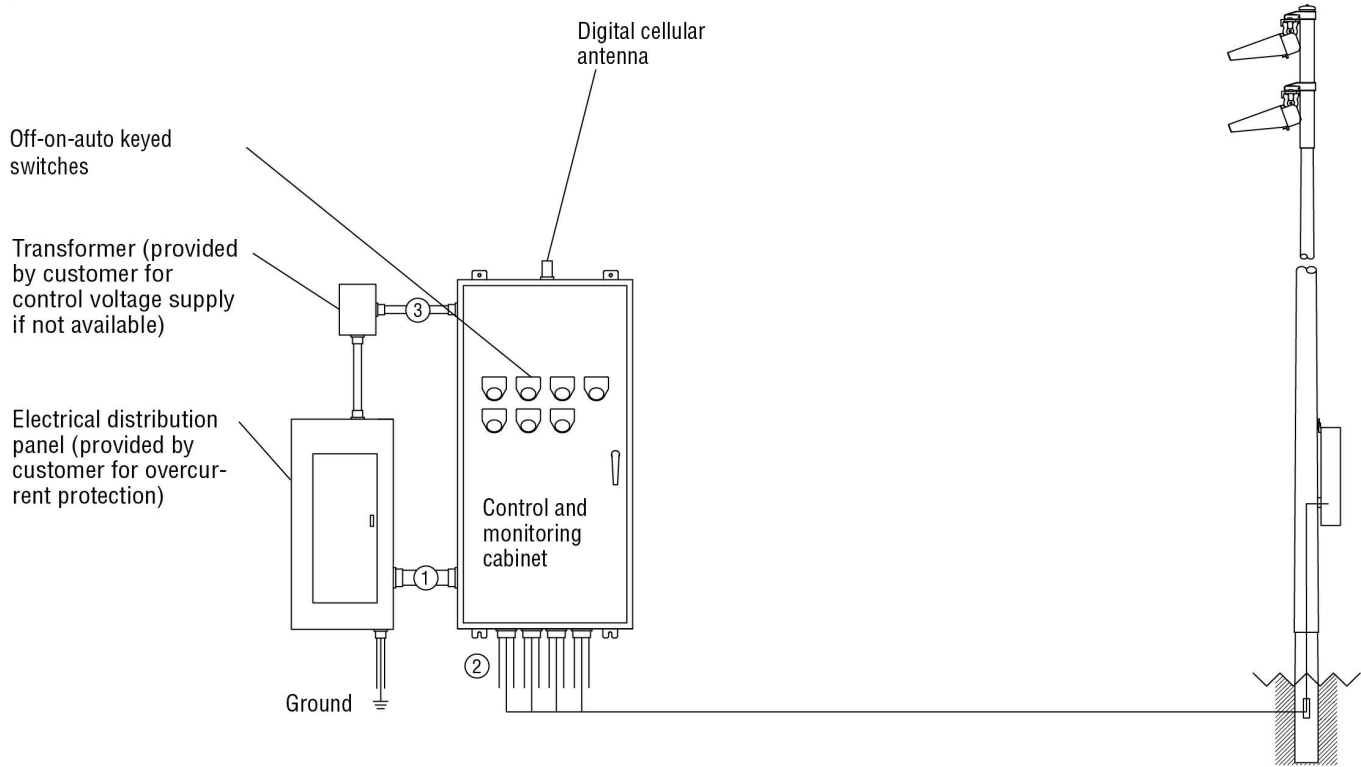
Call Control-Link Central™ operations center at 877/347-3319 to schedule activation of the control system upon completion of the installation.
 Note: Activation may take up to 1 1/2 hours

IMPORTANT NOTES

1. Please confirm that the design voltage listed above is accurate for this facility. Design voltage/phase is defined as the voltage/phase being connected and utilized at each lighting pole's electrical components enclosure disconnect. Inaccurate design voltage/phase can result in additional costs and delays. Contact your Musco sales representative to confirm this item.
2. In a 3 phase design, all 3 phases are to be run to each pole. When a 3 phase design is used Musco's single phase luminaires come pre-wired to utilize all 3 phases across the entire facility.
3. One contactor is required for each pole. When a pole has multiple circuits, one contactor is required for each circuit. All contactors are UL 100% rated for the published continuous load. All contactors are 3 pole.
4. If the lighting system will be fed from more than one distribution location, additional equipment may be required. Contact your Musco sales representative.
5. A single control circuit must be supplied per control system.
6. Size overcurrent devices using the full load amps column of the Circuit Summary By Zone chart- Minimum power factor is 0.9.

NOTE: Refer to Installation Instructions for more details on equipment information and the installation requirements

Control•Link® Control and Monitoring System



Conduit ID	Description	# of Wires	Wire (AWG)	Conduit (in)	Max. Wire Length (ft)	MUSCO Supplied	Notes
1	Line power to contactors, and equipment grounding conductor	*A	*B	*C	N/A	No	A-E
1	Power-line Communication Connection (dedicated, 20A)	*A	12	*C	N/A	No	A-E
2	Load power to lighting circuits, and equipment grounding conductor	*A	*B	*C	N/A	No	A-E
3	Control power (dedicated, 20A)	3	12	*C	N/A	No	C,E

* Notes:

- A. See voltage and phasing per the notes on cover page.
- B. Calculate per load and voltage drop.
- C. All conduit diameters should be per code unless otherwise specified to allow for connector size.
- D. Equipment grounding conductor and any splices must be insulated.
- E. Refer to control and monitoring system installation instructions for more details on equipment information and the installation requirements.

R60-100-00_A

IMPORTANT: Control wires (3) must be in separate conduit from line and load power wires (1, 2).



Control System Summary

Newton South High School Football/Soccer / 117155 - 117155G
 Electrical Service #1 - Page 3 of 4

SWITCHING SCHEDULE

Field/Zone Description	Zones
FB/SO	1

CONTROL POWER CONSUMPTION	
120V Single Phase	
VA loading of Musco Supplied Equipment	INRUSH: 1553.0
	SEALED: 179.8

CIRCUIT SUMMARY BY ZONE

POLE	CIRCUIT DESCRIPTION	# OF FIXTURES	# OF DRIVERS	*FULL LOAD AMPS	CONTACTOR SIZE (AMPS)	CONTACTOR ID	ZONE
S1	FB/SO	11	11	21.7	30	C1	1
S2	FB/SO	11	11	21.7	30	C2	1
S3	FB/SO	11	11	21.7	30	C3	1
S4	FB/SO	11	11	21.7	30	C4	1

*Full Load Amps based on amps per driver.



Control System Summary

Newton South High School Football/Soccer / 117155 - 117155G
 Electrical Service #1 - Page 4 of 4

PANEL SUMMARY						
CABINET #	CONTROL MODULE LOCATION	CONTACTOR ID	CIRCUIT DESCRIPTION	FULL LOAD AMPS	DISTRIBUTION PANEL ID (BY OTHERS)	CIRCUIT BREAKER POSITION (BY OTHERS)
1	1	C1	Pole S1	21.74		
1	1	C2	Pole S2	21.74		
1	1	C3	Pole S3	21.74		
1	1	C4	Pole S4	21.74		

ZONE SCHEDULE				
ZONE	SELECTOR SWITCH	ZONE DESCRIPTION	CIRCUIT DESCRIPTION	
			POLE ID	CONTACTOR ID
Zone 1	1	FB/SO	S1	C1
			S2	C2
			S3	C3
			S4	C4

POLE IDENTIFICATION AND RESULTANT FORCES

POLE DESIGNATION	POLE TYPE	PRECAST BASE TYPE	FIXTURE CONFIGURATION (FIX. PER XARM)	FIXTURE AND ACCESSORIES EPA (FT ²)	FORCES (1.)		
					MOMENT (M) FT-LBS	SHEAR (V) LBS	VERTICAL (P) LBS
S1 - S4	LSS80C	6B	11 (5+4)	29.4	152,192	2,986	4,037

1. ASD LOAD COMBINATION D + 0.6W. VERTICAL FORCE IS WEIGHT OF DRESSED POLE.
2. POLES S3 & S4 HAVE (1) MUSCO LED FIXTURE AT 70'-0" AGL INCLUDED ABOVE. POLES S1 - S4 HAVE (2) MUSCO LED FIXTURES AT 15'-6" AGL INCLUDED ABOVE.

PRECAST BASE ID FOR SPREAD FOOTING (S1 & S2)

PRECAST BASE TYPE	PRECAST BASE WEIGHT (1.)	PRECAST BASE LENGTH (1.)	PROJECTION ABOVE GRADE	STANDARD EMBEDMENT (1.)	OUTSIDE DIAMETER	CUT LENGTH OFF BOTTOM (2.)	EMBEDMENT INTO FOOTING & PIER (3.)
6B	6,930 LBS	26'-1"	8'-1"	18'-0"	20.56"	10'-0"	6'-0"

1. PRECAST BASE WEIGHT, LENGTH AND STANDARD EMBEDMENT ARE PRECUT PROPERTIES
2. EPOXY COAT NEW BOTTOM SURFACE OF PRECAST BASE AFTER CUTTING
3. EMBEDMENT EQUALS 2'-0" FOOTING THICKNESS PLUS 4'-0" PIER HEIGHT BELOW FOOTING

DESIGN NOTES

DESIGN PARAMETERS:
WIND: $V_{ult} = 127$ MPH, $V_{asd} = 98$ MPH (EXPOSURE C, RISK CATEGORY II) PER MASSACHUSETTS STATE BUILDING CODE - 780 CMR, 9TH EDITION (IBC 2015 / ASCE 7-10).

GEOTECHNICAL PARAMETERS:
ALLOWABLE END BEARING SOIL PRESSURE: 1,200 PSF (S1 & S2)
LATERAL SOIL RESISTANCE PARAMETERS: AS PROVIDED IN SOIL REPORT IN ACCORDANCE WITH MASSACHUSETTS STATE BUILDING CODE - 780 CMR, 9TH EDITION, CHAPTER 18.

OVER EXCAVATE 1'-0" BELOW THE BOTTOM OF THE SPREAD FOOTING TO A DEPTH OF -5'-0" BELOW GRADE. REPLACE THE OVER EXCAVATED AREA WITH COMPACTED STRUCTURAL FILL. THE STRUCTURAL FILL SHOULD BE IBC, TABLE 1806.2, CLASS 3 OR BETTER AND BE COMPACTED TO 98% OF STANDARD PROCTOR.

DESIGN SOIL PARAMETERS ARE AS NOTED. ACTUAL ALLOWABLE SOIL PARAMETERS MUST BE VERIFIED ON SITE. REFERENCE SOILS AND FOUNDATION REPORT, FILE NO. 01.0174475.00, PREPARED BY GZA GEOENVIRONMENTAL, INC.; BOSTON, MA.

A GEOTECHNICAL ENGINEER OR REPRESENTATIVE OF IS RECOMMENDED (NOT REQUIRED) TO BE AVAILABLE AT THE TIME OF THE FOUNDATION INSTALLATION TO VERIFY THE SOIL DESIGN PARAMETERS AND TO PROVIDE ASSISTANCE IF ANY PROBLEMS ARISE IN FOUNDATION INSTALLATION.

ENCOUNTERING SOIL FORMATIONS THAT WILL REQUIRE SPECIAL DESIGN CONSIDERATIONS OR EXCAVATION PROCEDURES MAY OCCUR. POLE FOUNDATIONS WILL NEED TO BE ANALYZED ACCORDING TO THE SOIL CONDITIONS THAT EXIST. IF ANY DISCREPANCIES OR INCONSISTENCIES ARISE, NOTIFY THE ENGINEER OF SUCH DISCREPANCIES. FOUNDATIONS WILL THEN BE REVISED ACCORDINGLY. REVISIONS WILL BE ANALYZED PER RECOMMENDATIONS DIRECTED BY A REGISTERED ENGINEER.

ALL EXCAVATIONS MUST BE FREE OF LOOSE SOIL AND DEBRIS PRIOR TO FOUNDATION INSTALLATION AND CONCRETE BACKFILL PLACEMENT. FOR DRILLED PIERS, TEMPORARY CASINGS OR DRILLERS SLURRY MAY BE USED TO STABILIZE THE EXCAVATION DURING INSTALLATION. CASINGS MUST BE REMOVED DURING CONCRETE BACKFILL PLACEMENT. CONCRETE BACKFILL MUST BE PLACED WITH A TREMIE WHEN SLURRY OR WATER IS PRESENT WITHIN THE EXCAVATION OR WHEN THE FREE DROP EXCEEDS 6'-0".

CONTRACTOR MUST BE FAMILIAR WITH THE COMPLETE SOIL INVESTIGATION REPORT AND BORINGS, AND CONTACT THE GEOTECHNICAL FIRM (IF NECESSARY) TO UNDERSTAND THE SOIL CONDITIONS AND THE POSSIBILITY OF GROUND WATER PUMPING AND EXCAVATION STABILIZATION OR BRACING DURING PRECAST BASE INSTALLATION AND PLACEMENT OF CONCRETE BACKFILL.

GENERAL NOTES:
FIXTURES MUST BE LOCATED TO MAINTAIN 10'-0" MINIMUM HORIZONTAL CLEARANCE FROM ANY OBSTRUCTION. ENGINEER MUST BE NOTIFIED IF FOUNDATIONS ARE NEAR ANY RETAINING WALLS OR WITHIN / NEAR ANY SLOPES STEEPER THAN 3H : 1V. POLES, FIXTURES, PRECAST BASES, ELECTRICAL ITEMS AND INSTALLATION PER MUSCO LIGHTING.

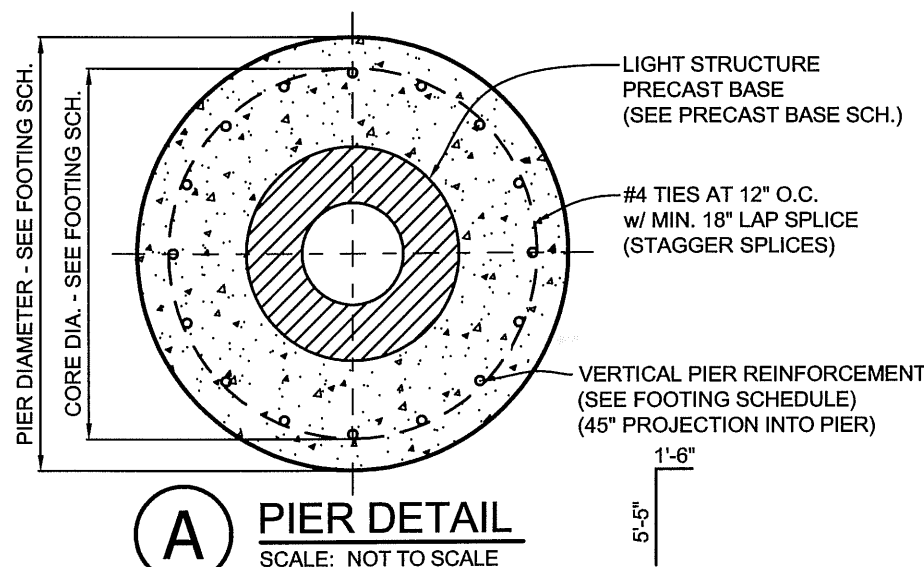
CONCRETE/REINFORCEMENT NOTES

CONCRETE SHALL COMPLY WITH THE FOLLOWING ASTM STANDARDS: MIXTURE WITH ASTM C-94, PORTLAND CEMENT WITH ASTM C-150 TYPE 1-A, AGGREGATES (MAX 0.75") WITH ASTM C-33 AND BE IN CONFORMANCE WITH ACI 318. CONCRETE SHALL BE AIR-ENTRAINED (COMPLY WITH ASTM C-260), HAVE A MAXIMUM WATER-CEMENT RATIO, $w/cm = 0.45$ AND HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF 4,500 PSI (S1, S2); 3,000 PSI (S3, S4).

DESIGN SLUMP LIMITS ARE 4" MINIMUM AND 6" MAXIMUM. THE JOB SITE SLUMP MAY BE INCREASED BY THE USE OF A WATER REDUCING AGENT MEETING ASTM C494-92.

CONCRETE REINFORCEMENT SHALL COMPLY WITH ASTM A615 GRADE 60 AND BE IN CONFORMANCE WITH ACI 315 & 318.

CONCRETE FOR SPREAD FOOTINGS MUST ATTAIN DESIGN STRENGTH PRIOR TO POLE INSTALLATION AND FIXTURE MOUNTING.



**NEWTON SOUTH HS
FOOTBALL/SOCCER
FIELD LIGHTING
NEWTON, MA**

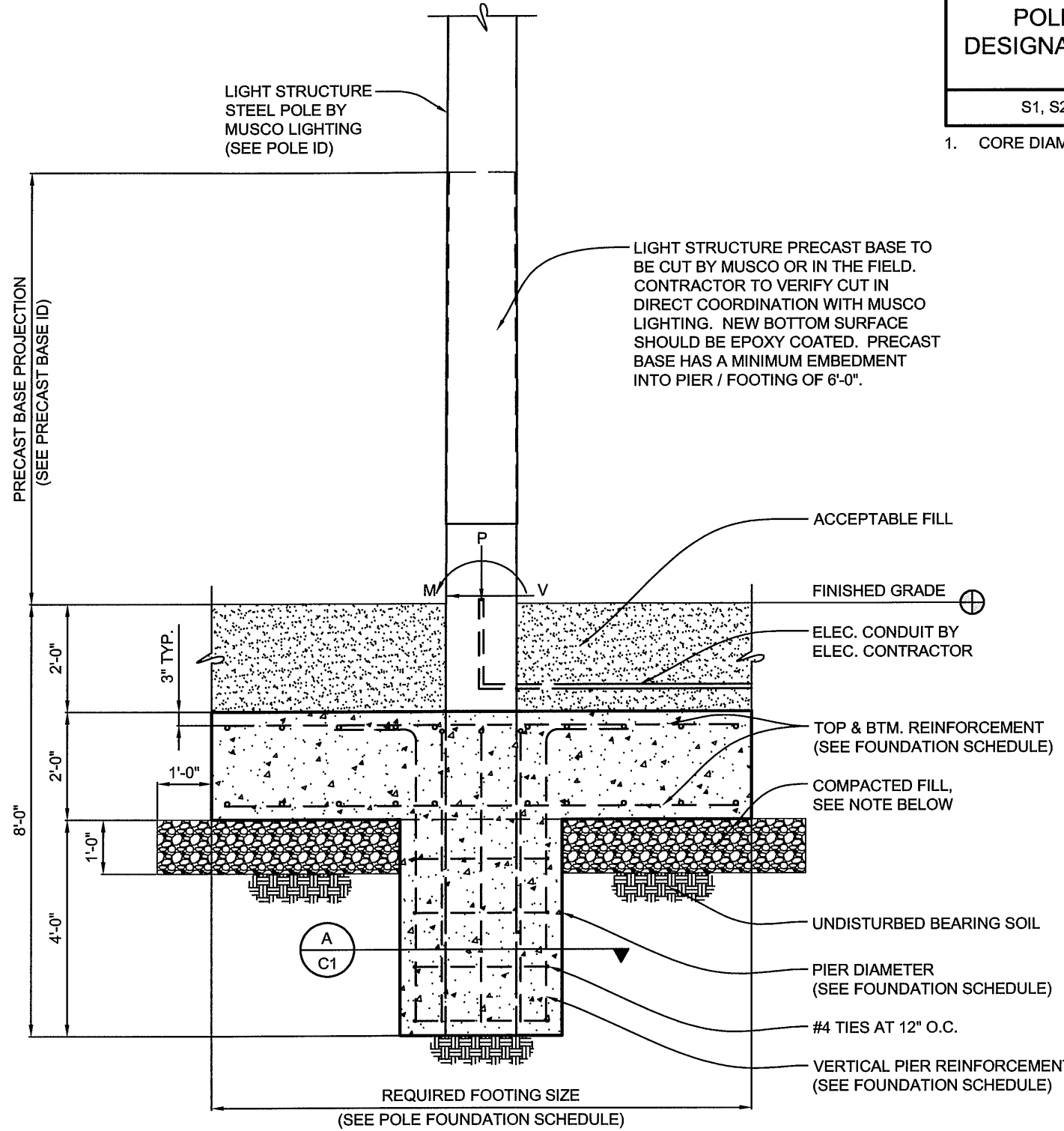
MUSCO
Lighting
CORPORATE: 100 1st AVE WEST
OSKALOOSA, IA 52577
(800) 825-6020

**STRUCTURAL
ENGINEERS, P.C.**
114 NICHOLAS DRIVE
MARSHALLTOWN, IOWA 50158
PHONE NUMBER: 641-752-6334
EMAIL: MSL.INFO@SEPC.BIZ

DRAWING TITLE: POLE AND FOUNDATION	SCALE: SEE PLAN
NOTES: SCAN #117155G	
PROJECT NUMBER	117155
DATE	23 MARCH 2020
DRAWING NUMBER	C1
OF THREE	

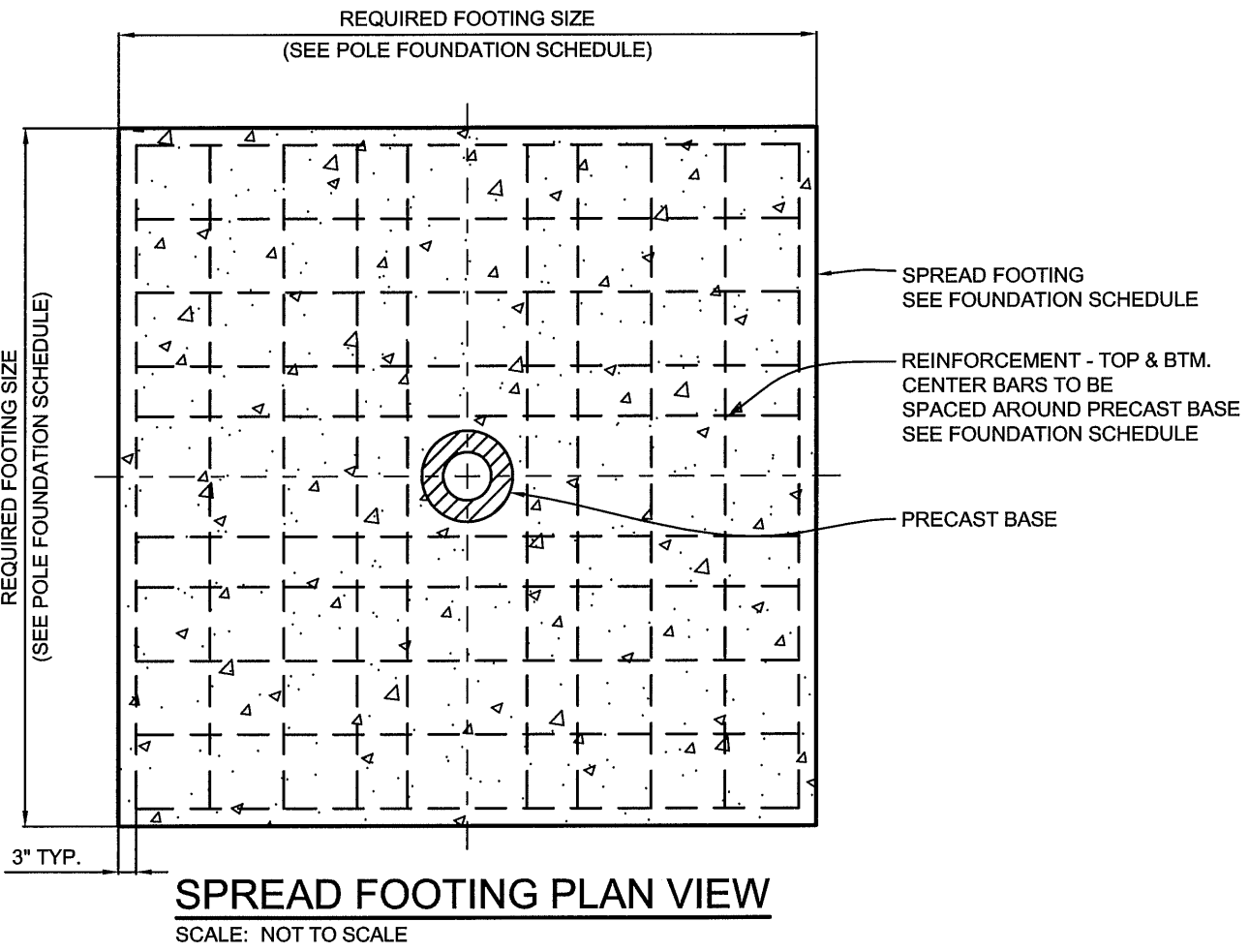
POLE FOUNDATION SCHEDULE (S1 & S2)							
POLE DESIGNATION	FOOTING			PIER			
	SIZE	THICKNESS	REINFORCEMENT TOP & BOTTOM (TOTAL) QUANTITY - SIZE	DIAMETER INCHES	CORE DIA. INCHES (1.)	VERTICAL REINFORCING	HORIZONTAL TIES
S1, S2	12'-0" x 12'-0"	2'-0"	(48) 12 - #7's EACH WAY	42	35	16 - #7	#4 @ 12"

1. CORE DIAMETER EQUAL TO INSIDE DIAMETER OF TIES.



POLE FOUNDATION ELEVATION
SCALE: NOT TO SCALE

NOTE:
OVER EXCAVATE 1'-0" BELOW THE BOTTOM OF THE SPREAD FOOTING TO A DEPTH OF -5'-0" BELOW GRADE. REPLACE THE OVER EXCAVATED AREA WITH COMPACTED STRUCTURAL FILL. THE STRUCTURAL FILL SHOULD BE IBC, TABLE 1806.2, CLASS 3 OR BETTER AND BE COMPACTED TO 98% OF STANDARD PROCTOR.



SPREAD FOOTING PLAN VIEW
SCALE: NOT TO SCALE

NEWTON SOUTH HS
FOOTBALL/SOCCER
FIELD LIGHTING
NEWTON, MA



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114 NICHOLAS DRIVE
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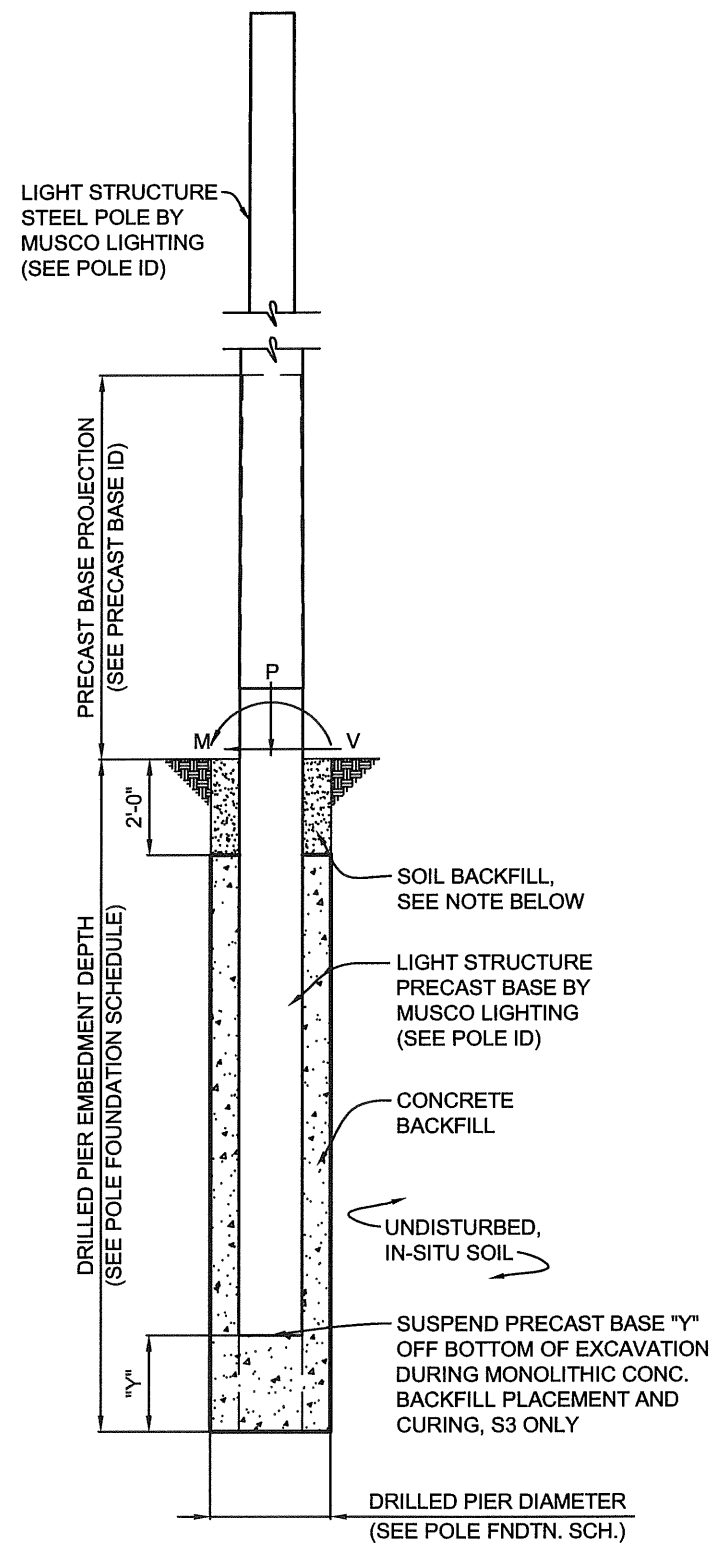
DRAWING TITLE: POLE AND FOUNDATION
SCALE: SEE PLAN
NOTES: SCAN #117155G

PROJECT NUMBER
117155

DATE
23 MARCH 2020

DRAWING NUMBER
C2
OF THREE





POLE FOUNDATION ELEV.

SCALE: NOT TO SCALE

SOIL BACKFILL NOTE:
 THE TOP TWO FEET OF ANNULUS SHALL BE BACKFILLED WITH SOIL, WITH A CLASSIFICATION OF CLASS 5 (TABLE 1806.2) OR BETTER. COMPACTION, 95% FOR COHESIVE SOIL AND 98% FOR A COHESIONLESS SOIL BASED UPON STANDARD PROCTOR TESTING (ASTM D698).

POLE FOUNDATION SCHEDULE (S3 & S4)

POLE DESIGNATION	DRILLED PIER			
	DIAMETER INCHES	EMBEDMENT DEPTH (4.)	SUSPENSION "Y" (2.)	CONCRETE BACKFILL YD ³ (3.)
S3	36	21'-0"	3'-0"	3.7
S4	36	18'-0"	NA	2.9

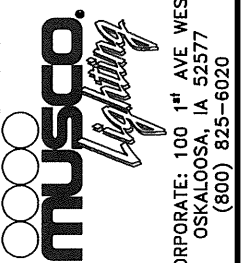
1. ASD LOAD COMBINATION D + 0.6W. VERTICAL FORCE IS WEIGHT OF DRESSED POLE (DOES NOT INCLUDE PRECAST BASE WEIGHT)
2. SUSPEND PRECAST BASE "Y" OFF THE BOTTOM OF THE EXCAVATION DURING MONOLITHIC CONCRETE BACKFILL PLACEMENT AND CURING. NA = NOT APPLICABLE, SUSPENSION NOT REQUIRED.
3. MINIMUM CONCRETE BACKFILL VOLUME, SITE CONDITIONS MAY REQUIRE ADDITIONAL BACKFILL.
4. POTENTIAL FOR ENCOUNTERING ROCK BEFORE REACHING EMBEDMENT DEPTH. ROCK AUGERING EQUIPMENT MAY BE REQUIRED.

PRECAST BASE IDENTIFICATION

PRECAST BASE TYPE	PRECAST BASE WEIGHT	PRECAST BASE LENGTH	PROJECTION ABOVE GRADE	STANDARD EMBEDMENT	OUTSIDE DIAMETER
6B	6,930 LBS	26'-1"	8'-1"	18'-0"	20.56"



**NEWTON SOUTH HS
 FOOTBALL/SOCCER
 FIELD LIGHTING
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 MARSHALLTOWN, IOWA 50158
 PHONE NUMBER: 641-752-6334
 EMAIL: MSL.INFO@SEPC.BIZ

DRAWING TITLE:
 POLE AND FOUNDATION
 SCALE: SEE PLAN
 NOTES:
 SCAN #117155G

PROJECT NUMBER
 117155

DATE
 23 MARCH 2020

DRAWING NUMBER
C3

OF THREE

EVERSOURCE**Work Order Application**

For Kathy White

Customer Request In-Service Date: _____ **Eversource WO Received Date:** _____**Service Address:** Street: _____ Suite: _____ Town: _____ Zip: _____**Customer Of Record:***Customer Responsible for Payment of Monthly Electric Bills*

Name to appear on Monthly Bill: _____

DBA – C/O Name: _____

Billing Address: _____ EMAIL: _____

Telephone: _____ Tax ID Number: _____

Existing Account and Meter Number (if applicable): _____

Property Owner Name (if different from above): _____

Owner Address: _____

Owner Phone Number: _____

Party Responsible for Construction costs associated with work order (if different from above)

Name: _____

Address: _____

Phone Number: _____ EMAIL: _____

Please Note that Articles of Incorporation are required for new commercial Eversource Customers**Type of Service Requested: (Circle Appropriate)**

New Service Service Upgrade Service Relocation Temporary Service

Pole Relocation Disconnect/Reconnect Service Removal Metering Only

OH Service from Pole, Pole# : _____ UG Service from; Riser-Pole # : _____ Padmount # : _____

Customer Loading**Brief Description of Work**

Type of Load	New Connected Load in KVA	
	Single Phase	Three Phase
Lighting		
Electric heat		
Air Conditioning		
Refrigeration		
Cooking		
Electric Dryer		
Water Heater		
Computer		
Process Equip.		
Motors/Elevators		
Miscellaneous		
Totals		

Number of Meters Required:

Residential: _____

Commercial: _____

Public: _____

Main Switch Voltage: _____

Amperage: _____

Phase: _____

Service Voltage: _____

Amperage: _____

Phase: _____

Facility Type (ie: school, hospital): _____ New Building Square Feet: _____

If more than 1 meter is required, how will meters be labeled? (ie: Unit 1, 2, etc, Unit A, B, etc.)

Additional Equipment:

Generator: KW: _____ Phase: _____ Purpose: _____

Motor(S) : Total # : _____ Largest HP: _____ Phase: _____ Locked Rotor AMP: _____

Type of Starting Compensation (choose one): Hard Soft Capacitor VFD

*See Article 802 of Eversource Information and Requirements Book for Maximum LR current and Three Phase Protection *

Contact Name (circle appropriate):

Customer/Contractor/Consultant: _____

Street Address: _____

City, State, Zip: _____

Telephone: _____ Best Time to Call: _____

Pager: _____ Fax: _____

Cell: _____

Electrician: _____ License Number: _____

Business Name: _____

Street Address: _____

City, State, Zip: _____

Telephone: _____ Best Time to Call: _____

Pager: _____ Fax: _____

Cell: _____

Please note that by Interconnecting with Eversource's Distribution System the Customer of Record acknowledges that they have reviewed and are in compliance with the Eversource Information & Requirements for Electric Service.

For New Commercial Services, New Residential Developments, New 13.8 kv Two Line Station Electric Service, please provide (2) copies of City/Town approved site plans that illustrates the new facility location and the proposed location of the new utilities (electric, gas, water, sewer, telecommunications) and a One-Line Diagram.

For Service Increases at existing facilities, please submit a One-Line Diagram if available.

For New Residential Services where a pole must be set, please provide (2) copies of a site plan that illustrates the proposed location of the new facilities.

For Temporary Service Requests, please provide (2) copies of a site plan illustrating service location. You may EMAIL this Form or mail any additional correspondence to:

Ms. Kathy White,
Eversource
484 Willow St
Yarmouth, MA 02675
Tel: (508) 790-9021
Kathleen.White@eversource.com

FOR Eversource USE ONLY

Eversource Revenue Allowance: _____ Eversource Rate: _____

KVA or KW rating of Existing Loads (if applicable):

Existing Winter Peak Demand: _____ Month/Date/Year: _____

Existing Summer Peak Demand: _____ Month/Date/Year: _____



Consultants:
Richard M. Alexy P.E.
 22 Gambier Street
 Auburndale, MA 02466
 617 584 1692

North

Revisions:

Rev.	Date	Description
1	4-4-20	REL FOR BID SPEC.
2	4-6-20	REV PER LPD MARKUP

CONSTRUCTION DOCUMENTS

Date: 4-2-2020
 Scale: N.T.S.
 Drawn By: R.M. Alexy
 Reviewed By: JC, JK
 Checked By: ..
 Approved By: ..

Drawing Title:
**ELECTRICAL LEGEND,
 GENERAL NOTES AND
 DETAILS**

Sheet Number:
E1.00

GENERAL ELECTRICAL NOTES :

- DRAWINGS ARE DIAGRAMMATIC ONLY. THE EXACT LOCATION, MOUNTING HEIGHTS, SIZE OF EQUIPMENT AND ROUTING OF RACEWAYS SHALL BE COORDINATED AND DETERMINED IN THE FIELD.
- WORK SHALL CONFORM TO THE MASSACHUSETTS ELECTRICAL CODE AND MASSACHUSETTS BUILDING CODE AND REQUIREMENTS OF LOCAL AUTHORITIES HAVING JURISDICTION.
- THE WORD "CONTRACTOR" AS USED IN THE "ELECTRICAL WORK" SHALL MEAN THE ELECTRICAL SUBCONTRACTOR.
- CONTRACTOR SHALL PAY FOR ALL PERMITS, INSURANCE AND TESTS, AND SHALL PROVIDE LABOR AND MATERIAL TO COMPLETE THE ELECTRICAL WORK SHOWN.
- CONTRACTOR SHALL PAY ELECTRIC UTILITY COMPANY BACKCHARGES AND PROVIDE COORDINATION WITH SAME.
- FOR COORDINATION PURPOSES THE OPEN EVERSOURCE WORK ORDER NUMBER FOR THIS PROJECT IS #2162535.
- EXCEPT AS OTHERWISE NOTED, THE ELECTRICAL WORK SHALL INCLUDE PANELBOARDS, CIRCUIT BREAKERS, FEEDERS, WIRING, RACEWAYS, LIGHTING FIXTURES, DEVICES, SAFETY SWITCHES, MOUNTING AND WIRING, TRANSFORMERS AND CONNECTIONS NECESSARY TO OPERATE ALL EQUIPMENT.
- THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY LIGHTING AND POWER AND PAY ALL ENERGY CHARGES.
- DURING CONSTRUCTION, THE ELECTRICAL CONTRACTOR SHALL KEEP HIS PORTION OF THE WORK NEAT, CLEAN AND ORDERLY.
- ALL SYSTEMS SHALL BE TESTED FOR SHORT CIRCUIT AND GROUNDS PRIOR TO ENERGIZING AND ANY DEFECTS SHALL BE CORRECTED.
- ALL CUTTING AND PATCHING REQUIRED FOR ELECTRICAL WORK SHALL BE INCLUDED AS PART OF THIS SECTION.
- COMPLETE SHOP DRAWINGS SHALL BE SUBMITTED FOR ELECTRICAL EQUIPMENT. WHERE SPECIFIED, ELECTRICAL EQUIPMENT IS SUBSTITUTED. THE ELECTRICAL CONTRACTOR SHALL SUBMIT COMPLETE SPECIFICATIONS ON THE SUBSTITUTE AS WELL AS THE ITEM ORIGINALLY SPECIFIED.
- MATERIALS SHALL BE SPECIFICATION GRADE AND UL LISTED.
- WHERE MATERIAL IS CALLED OUT IN THE LEGEND BY MANUFACTURER, TYPE OR CATALOG NUMBER, SUCH DESIGNATIONS ARE TO ESTABLISH STANDARDS OR DESIRED QUALITY. ACCEPTANCE OR REJECTIONS OF PROPOSED SUBSTITUTIONS SHALL BE SUBJECT TO THE APPROVAL OF THE OWNER.
- WORK SHALL BE COORDINATED WITH THAT OF OTHER TRADES TO ELIMINATE INTERFERENCES.
- ELECTRICAL WORK SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM DATE OF WHICH SYSTEM IS PUT INTO SERVICE.
- WORK SHALL BE GROUNDED IN ACCORDANCE WITH CODE REQUIREMENTS. COMPLETE EQUIPMENT (INSULATED GREEN WIRE) GROUNDING SYSTEM SHALL BE INSTALLED.
- WIRING METHODS:
 - BELOW GRADE WIRING SHALL BE SCHEDULE 80 PVC.
- PANELBOARDS SHALL BE DEAD FRONT, THERMAL MAGNETIC BOLT-ON CIRCUIT BREAKER TYPE, DESIGNED FOR SURFACE MOUNTING AS INDICATED ON PLAN, AND HAVING CONNECTIONS TO 120/240 VOLT, 3 PHASE, 4 WIRE SERVICE. ALL BUS BARS SHALL BE COPPER. CABINETS SHALL BE MADE OF CODE GAUGE GALVANIZED SHEET STEEL, WITH A MINIMUM OF 4 INCH GUTTERS, DOOR IN DOOR CONSTRUCTION, LOCKED DOOR, AND FLUSH HINGES. TYPEWRITTEN INDEX SHALL BE MOUNTED ON DOOR INSIDE TRANSPARENT COVER INDICATING LOAD SERVED. PANELS SHALL INCLUDE SEPARATE EQUIPMENT GROUND BUS.
- CONDUIT RUNS AS SHOWN ON THE PLANS ARE DIAGRAMMATIC ONLY; EXACT LOCATION AND METHOD OF SUPPORT SHALL BE DETERMINED IN THE FIELD.
- CONTRACTOR SHALL CHECK EXISTING CONDITIONS TO DETERMINE EXACT EXTENT OF WORK TO BE PERFORMED PRIOR TO BIDDING. DIMENSIONS RELEVANT TO EXISTING WORK SHALL BE VERIFIED IN THE FIELD.
- PROVIDE AS-BUILT "CADD" DRAWINGS AT THE COMPLETION OF THE PROJECT.

ELECTRICAL SYMBOL LIST

RECEPTACLES

- DUPLEX CONVENIENCE OUTLET RATED AT 20A, 125V, U SLOT GROUND TYPE, ALL OTHER MOUNTING HEIGHTS SHALL BE AS NOTED ADJACENT TO THE SYMBOL REFER TO RECEPTACLE ABBREVIATIONS FOR SPECIAL PURPOSE RECEPTACLES
- DUPLEX RECEPTACLE WITH INTEGRAL GROUND FAULT INTERRUPTER

RACEWAY AND WIRING

- HOMERUN TO PANELBOARD, NUMBER OF SLASH MARKS INDICATES NUMBER OF #12 AWG CONDUCTORS IN A MINIMUM 1/2" CONDUIT. NO SLASH MARKS INDICATE 2 #12 & 1 #12G, 3/4" UNLESS OTHERWISE NOTED
- GREEN GROUND CONDUCTOR IS NOT INDICATED BUT SHALL BE INCLUDED IN EACH RACEWAY, SIZE SHALL BE #12 UNLESS INDICATED OTHERWISE
- HOMERUNS TO PANELBOARDS SHALL HAVE A MAXIMUM OF 3 PHASE CONDUCTORS (ONE PER PHASE) PLUS NEUTRAL AND GROUND CONDUCTOR IN EACH CONDUIT
- NEW UNDERGROUND ELECTRIC LINE
- NEW LIGHTING CONDUIT RUN

MISCELLANEOUS

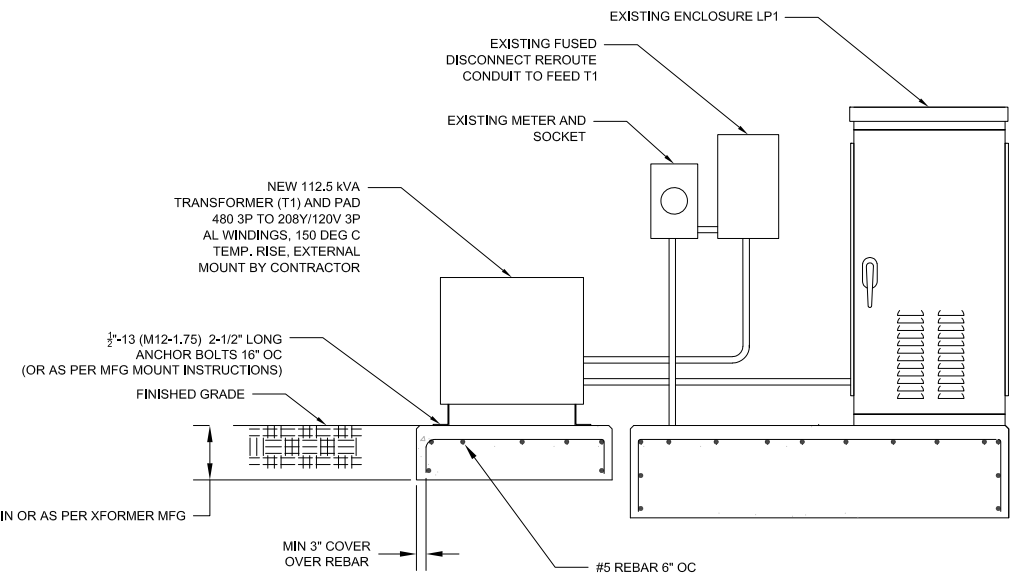
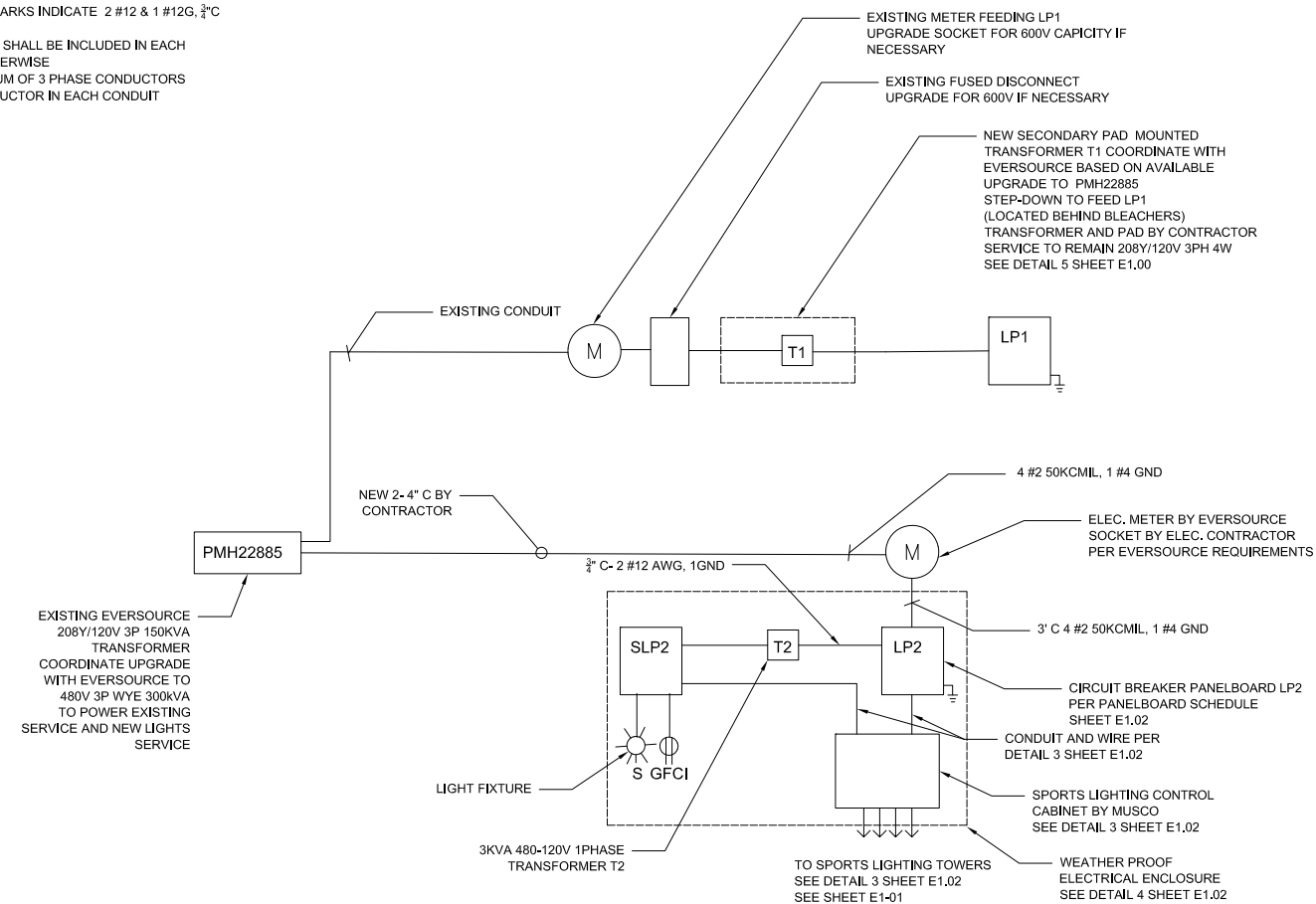
- SINGLE POLE SWITCH
- ELECTRIC UTILITY BILLING METER
- 5/8" X 10' COPPER GROUND ROD

POWER DISTRIBUTION EQUIPMENT

- HAND HOLE SEE DETAIL 1, SHEET E1-02
- CIRCUIT BREAKER VOLTAGE/POLE

LIGHTING

- SPORTS LIGHT POLE - 'S1' INDICATES POLE NUMBER 'C1' INDICATES CONTACTOR CONTROLLING POLE MOUNTED FIXTURES



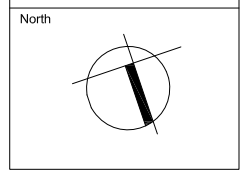
5 NEW TRANSFORMER PAD TO FEED EXISTING SERVICE LOCATED BEHIND BLEACHERS
 SCALE: N.T.S.

ABBREVIATIONS

Symbol	Description	Symbol	Description
A	AMPERE	NTS	NOT TO SCALE
AF	AMPERE FRAME	PNL	PANELBOARD
AC	ALTERNATING CURRENT	PH	PHASE
AT	AMPERE TRIP	FL	FLOOR
ATS	AUTOMATIC TRANSFER SWITCH	FLA	FULL LOAD AMPERE
AWG	AMERICAN WIRE GAUGE	GC/GFI	GENERAL CONTRACTOR
BKR	BREAKER	GFI	GROUND FAULT INTERRUPTER
C	CONDUIT	GND	GROUND
CKT	CIRCUIT	IG	ISOLATED GROUND
CB	CIRCUIT BREAKER	JB	JUNCTION BOX
EC	ELECTRICAL CONTRACTOR	KVA	KILOVOLT AMPERES
EMT	ELECTRIC METALLIC TUBING	PVC	POLYVINYL CHLORIDE CONDUIT
KW	KILOWATT	RSC	RIGID GALVANIZED STEEL CONDUIT MC
KVA	KILOVOLT AMPERE	XFMR	TRANSFORMER
MCB	MAIN CIRCUIT BREAKER	V	VOLTS
MLO	MAIN LUGS ONLY	W	WATTS OR WIRE
MC	MECHANICAL CONTRACTOR	WP	WEATHERPROOF
MTD	MOUNTED		
MTG	MOUNTING		
NMC	NON-METALLIC CONDUIT		
NA	NOT APPLICABLE		



Consultants:
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 22 Gambier Street
 Auburndale, MA 02466
 617 584 1692



Revisions:

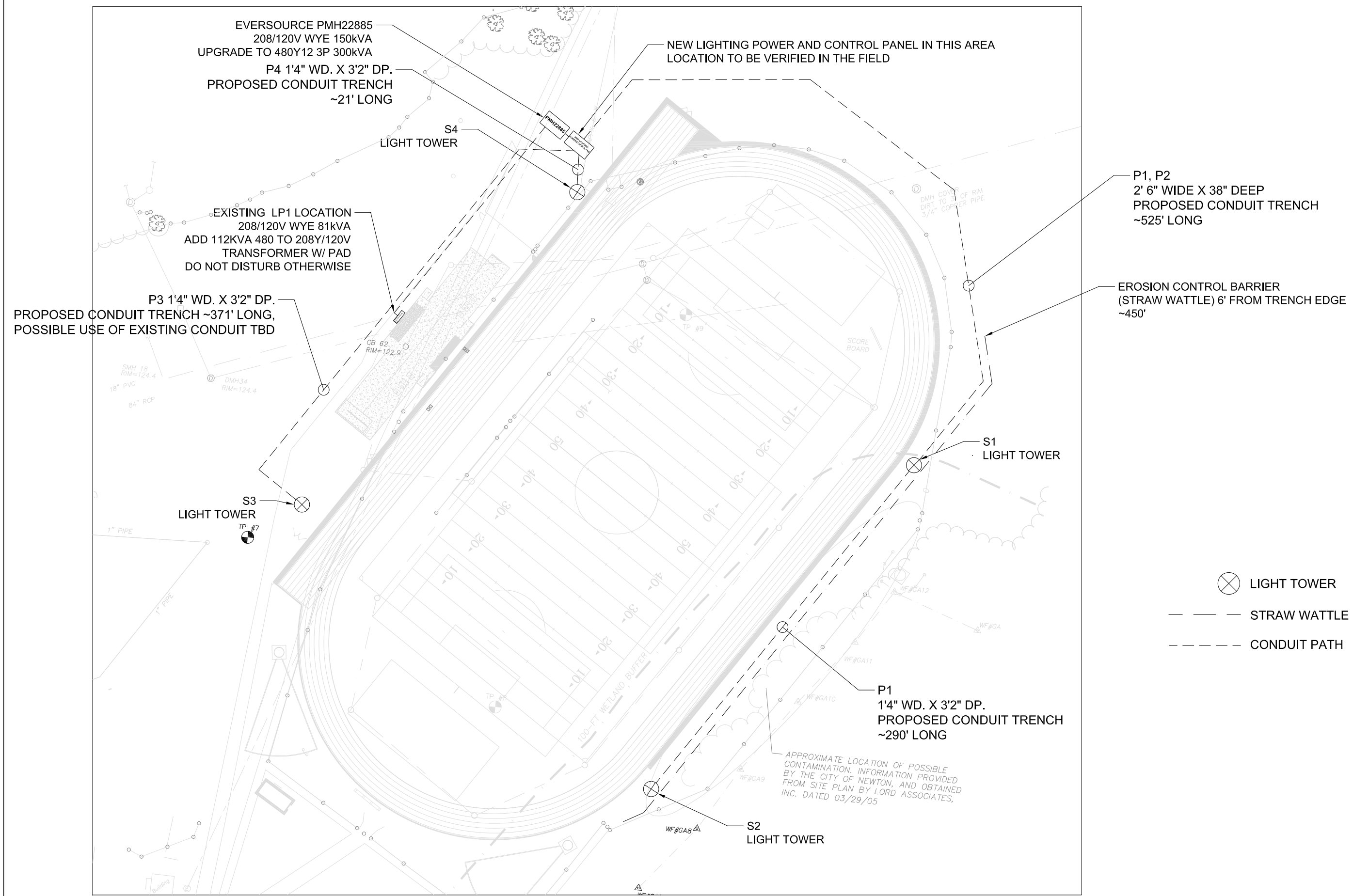
Rev.	Date	Description
1	1-4-20	REL. FOR CON. COM. EVAL.
2	1-12-20	REV. PER LPD COMMENTS
3	4-2-20	REL. FOR BID SPEC.
4	4-6-20	REV. PER LPD COMMENTS

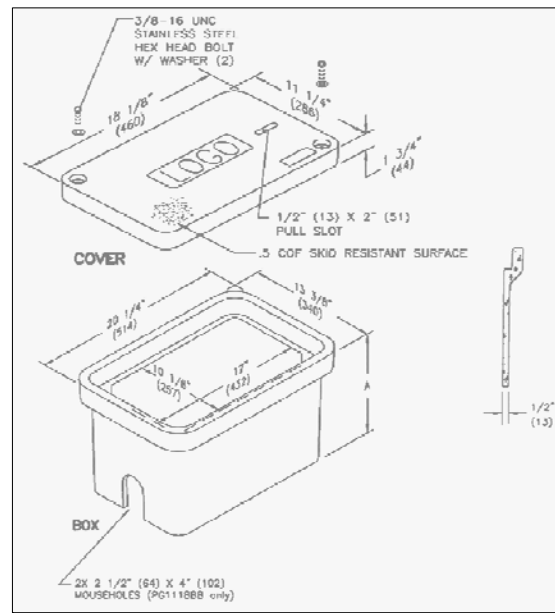
CONSTRUCTION DOCUMENTS

Date: 1-6-2020
 Scale: N.T.S.
 Drawn By: R.M. Alexy
 Reviewed By: MS
 Checked By: ..
 Approved By: ..

Drawing Title:
**ELECTRICAL
 SITE PLAN**

Sheet
 Number:
E1.01





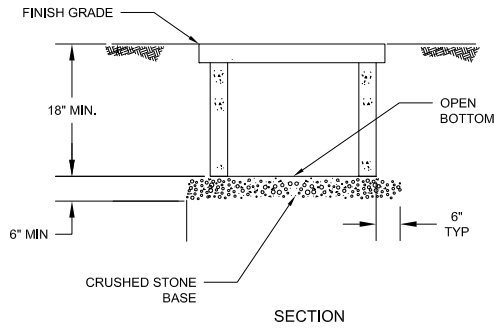
Enclosures:

DESCRIPTION	DEPTH	TIER DESIGN/TEST LOAD#	WEIGHT #	PART NO.
Standard Open Bottom	18"	15,000 / 22,500	53	PC11188A18

Cover:

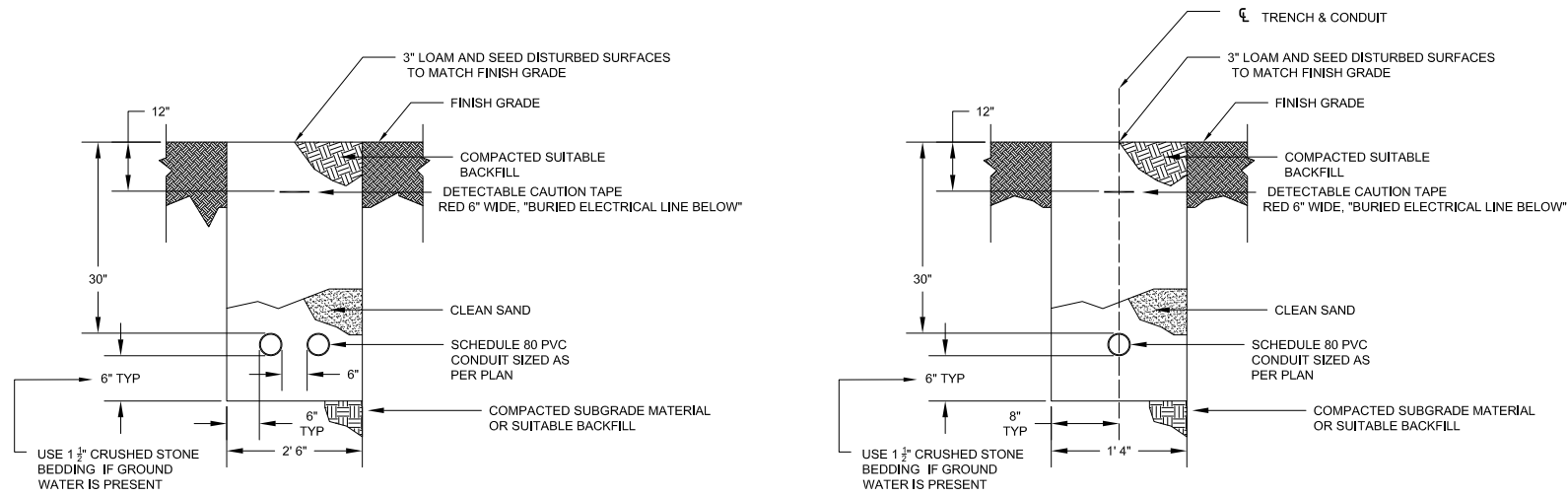
DESCRIPTION	TIER	DESIGN/TEST LOAD#	WEIGHT #	PART NO.
W/ 2 Bolts	8	8,000 / 12,000	13	PC1118CA00*

Loadings comply with ANSI/SCTE 77

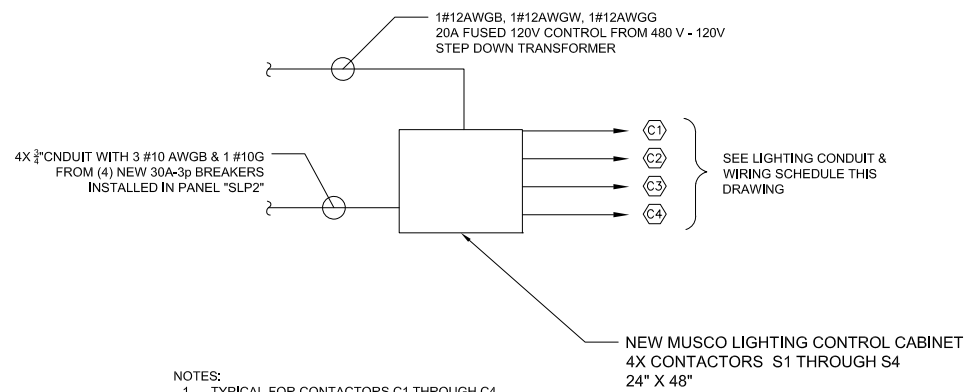


- NOTES:**
- PULL BOX IS INTENDED FOR NON-DELIBERATE VEHICULAR TRAFFIC ONLY
 - PULL BOX SHALL BE PREFABRICATED POLYMER CONCRETE AGGREGATE (QUAZITE) OR EQUAL PRE CAST CONSTRUCTION CONSTRUCTION
 - NAME PLATE SHALL READ "LIGHTING"

1 TYPICAL PREFABRICATED PULL BOX DETAIL
 SCALE: N.T.S.



2 TYPICAL ELECTRICAL CONDUIT TRENCH
 SCALE: N.T.S.



- NOTES:**
- TYPICAL FOR CONTACTORS C1 THROUGH C4. CONTRACTOR SHALL RUN CONDUIT (SIZED AS PER SCHEDULE) WITH WIRING FROM THIS PANEL TO LIGHT TOWER PULL BOXES

3 SPORTS LIGHTING CONTROL DIAGRAM
 SCALE: N.T.S.

CONDUIT & WIRE SCHEDULE

CONDUIT	FEEDER	FROM	TO	FIXTURES	LOAD*	CONTACTOR SIZE	REMARKS
P1	1-1/2" C -525', 3 # 6 AWG -600', 1 #10 G -600'	LIGHT CONTROL PANEL CONTACTOR C1	PULL BOX S1 TOWER S1	9@TLC-LED-1500 12.87AW 2@TLC-BT-575 1.15KW	21.7FLA 18.04KVA	30 A	DIRECT BURIED
P2	1-1/2" C -805', 3 # 4 AWG -900', 1 #10 G -900'	LIGHT CONTROL PANEL CONTACTOR C2	PULL BOX S2 TOWER S2	9@TLC-LED-1500 12.87AW 2@TLC-BT-575 1.15KW	21.7FLA 18.04KVA	30 A	DIRECT BURIED
P3	1-1/2" C -371', 3 # 6 AWG -450', 1 #10 G -450'	LIGHT CONTROL PANEL CONTACTOR C3	PULL BOX S3 TOWER S3	9@TLC-LED-1500 12.87AW 2@TLC-BT-575 1.15KW	21.7FLA 18.04KVA	30 A	DIRECT BURIED
P4	1-1/2" C -20', 3 # 6 AWG -100', 1 #10 G -100'	LIGHT CONTROL PANEL CONTACTOR C4	PULL BOX S4 TOWERS4	9@TLC-LED-1500 12.87AW 2@TLC-BT-575 1.15KW	21.7FLA 18.04KVA	30 A	DIRECT BURIED

*FLA BASED ON AMPS PER ORDER

PANELBOARD SCHEDULE

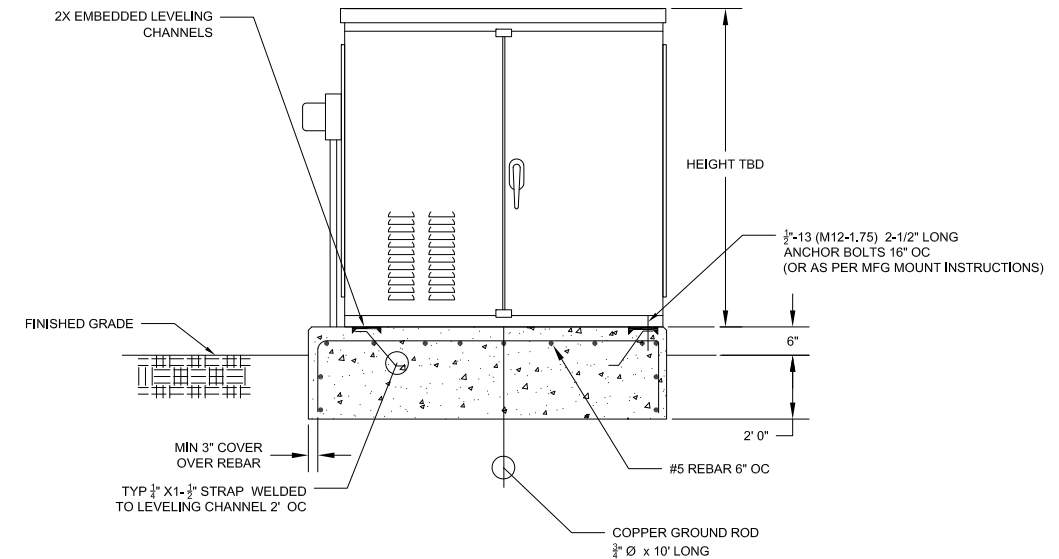
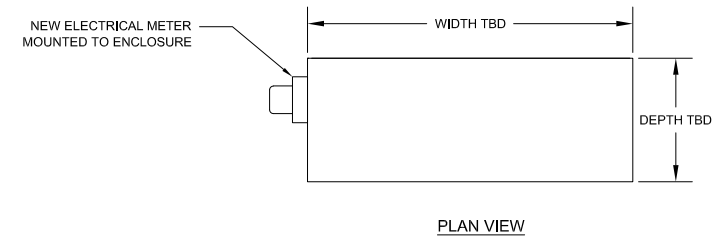
PANELBOARD ID:	LE2	SERVICE ENTRANCE RATED	SERVICE:				
LOCATION:	LIGHTING ELECTRICAL ENCLOSURE		480Y/277V 3Ø 4W/150A MCB MIN				
MOUNTING:	SURFACE	AIC: TBD	BUSS BARS: 150A MIN TOTAL NO. OF POLES: 24 MIN				
CIRCUIT NO.	DESCRIPTION OF LOAD	CIRCUIT BREAKERS				DESCRIPTION OF LOAD	CIRCUIT NO.
		TRIP	POLES	POLES	TRIP		
1	SPORTS LIGHTING S1C1	30	3	3	30	SPORTS LIGHTING S2C2	2
3	SPORTS LIGHTING S3C3	30	3	3	30	SPORTS LIGHTING S4C4	4
5	CONTROL AUX POWER TRANSFORMER	15	2			SPARE	6
8	SPARE					SPARE	8

* PROVIDE WITH A GROUND BUS

PANELBOARD SCHEDULE

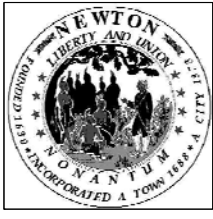
PANELBOARD ID:	SLP2	SERVICE ENTRANCE RATED	SERVICE:				
LOCATION:	LIGHTING ELECTRICAL ENCLOSURE		120V 1PH 40A MIN MCB				
MOUNTING:	SURFACE	AIC: TBD	BUSS BARS: 100A MIN TOTAL NO. OF POLES: 12 MIN				
CIRCUIT NO.	DESCRIPTION OF LOAD	CIRCUIT BREAKERS				DESCRIPTION OF LOAD	CIRCUIT NO.
		TRIP	POLES	POLES	TRIP		
1	LIGHTING CONTROL	20	1	1	20	ENCLOSURE GFCI RECEPTACLE	2
3	ENCLOSURE LIGHT	20	1	1	20	SPARE	4
5	SPARE	20	1	1	20	SPARE	6
8	SPARE					SPARE	8

* PROVIDE WITH A GROUND BUS



4 PAD MOUNTED POWER AND LIGHTING CONTROL ENCLOSURE
 SCALE: N.T.S.

Project:
 NEWTON SOUTH HIGH SCHOOL
 FOOTBALL/SOCCER ATHLETIC
 FIELD LIGHTING PROJECT
 #117155



Lighting Provider:



Consultants:

Richard M. Alexy P.E.
 22 Gambier Street
 Auburndale, MA 02466
 617 584 1692

North

Revisions:

Rev.	Date	Description
1	1-4-20	REL FOR CON. COM. EVAL
2	1-11-20	REV PER LPD COMMENTS
3	4-3-20	REL FOR BID SPEC.

CONSTRUCTION DOCUMENTS

Date: 1-4-2020
 Scale: N.T.S.
 Drawn By: R.M. Alexy
 Reviewed By: MS
 Checked By: ..
 Approved By: ..

Drawing Title:
ELECTRICAL SCHEDULE AND DETAILS

Sheet Number:

E1.02