

TOWN OF WILMINGTON, MASSACHUSETTS

**CONTRACT DOCUMENTS
FOR**

**WILMINGTON HIGH SCHOOL
TRACK RECONSTRUCTION**

March 2, 2022

Town of Wilmington

Wilmington Town Hall

121 Glen Road

Wilmington, MA 01887

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SECTION 00020

INVITATION FOR BIDS

Sealed bids for furnishing the following item will be received at the Office of the Town Manager, Wilmington Town Hall, 121 Glen Road, Wilmington, MA 01887 until the time specified below at which time the bids will be publicly opened and read.

Bid Specifications are available for download at the Town of Wilmington's Purchasing Department website: <https://www.wilmingtonma.gov/purchasing-department>

Bids will be opened at Wilmington Town Hall, Room 9, on March 23, 2022, at 10:00 a.m. Each Bid must be accompanied by a bid security consisting of a BID BOND, CASH, or, CERTIFIED CHECK issued by a responsible bank or trust company in the amount of 5% of the bid price.

Pre-Bid Conference and Site Visit will be held at Wilmington High School field located at 159 Church Street, Wilmington, MA, on March 9, 2022 at 10:00 a.m.

A performance bond in an amount equal to 100 percent of the total amount of the contract price with a surety company qualified to do business in the Commonwealth of Massachusetts will be required for the faithful performance of the contract, as well as a labor and materials bond in an amount equal to 100 percent of the total contract price.

All bids for this project are subject to applicable public bidding laws of Massachusetts, including, but not limited to G.L. c.30, §39M.

Attention is directed to the minimum wage rates to be paid as determined by the Commissioner of Labor and Workforce Development and the weekly payroll record submittal requirements under the provisions of Massachusetts General Laws, Chapter 149, Section 26 through 27D inclusive.

Selection of the contractor will be based upon bidder qualifications, including evidence of past performance in similar projects, and bid price. The contract will be awarded to the bidder deemed by the awarding authority to be the lowest responsible and eligible bidder.

The bidder agrees that its bid shall be good and may not be withdrawn for a period of 30 days, Saturdays, Sundays and legal holidays excluded, after the opening of the bids.

The Town reserves the right to waive any informalities, to accept or reject, in whole or in part any or all bids, or take whatever other action may be deemed to be in the best interest of the Town.

The Town of Wilmington
By: Jeffrey M. Hull, Town Manager

SECTION 00100

INSTRUCTIONS TO BIDDERS

1. Receipt and Opening of Bids

The Town of Wilmington, Massachusetts, herein called the Owner, acting by and through its Board of Selectmen, will receive sealed Bids for the project known as the Wilmington High School Track Reconstruction Project.

General bids shall be addressed to the Office of the Town Manager, Wilmington Town Hall, Wilmington, MA 01887 and endorsed "Bid for Wilmington High School Track Reconstruction Project" will be received at the Wilmington Town Hall until 10:00 a.m. prevailing time, on Wednesday, March 23, 2022 at which time and place said bids will be publicly opened and read aloud.

Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof. Any bid received after the time and date specified will not be considered. The bidder agrees that its bid shall be good and may not be withdrawn for a period of 30 days, Saturdays, Sundays, and legal holidays excluded, after the opening of bids.

2. Location and Work to be Done

The Work consists of the reconstruction of the existing six (6) lane running track and resurfacing of the D-Areas and all work incidental thereto, in accordance with the Specifications and conceptual plans attached hereto.

Additional drawings showing details in accordance with which the Work is to be done may be furnished by addendum from time to time during the bidding period by the Owner or its Architect/Engineer and shall then become a part of the Contract Documents.

The Contractor shall furnish all labor, services, materials, equipment, plant, machinery, apparatus, appliances, tools, supplies, and all other things necessary to do all work required for the completion of each item of the Work and as herein specified.

The Work to be done and paid for under any item shall not be limited to the exact extent mentioned or described but shall include all incidental work necessary or customarily done for the completion of that item.

3. Preparation of Bid

Each bid must be submitted on the prescribed form. All blank spaces for bid prices must be filled in, in ink or typewritten, in both words and figures.

Each bid must be submitted in a sealed envelope bearing on the outside the name of the bidder, his address, and endorsed with the name of the project as specified in Receipt and Opening of Bids, above. If forwarded by mail, the sealed envelope containing the bid must be enclosed in another envelope addressed as specified in Receipt and Opening of Bids, above.

4. Bid Opening Procedure

The following list of requirements shall apply to each filed bid. Bids not meeting all the requirements for timeliness and security will be rejected; bids not meeting signature and addenda requirements will be rejected prior to checking of bid amounts.

Bids shall be filed at the place and before the time specified in Receipt and Opening of Bids, above.

Properly executed bid security shall be placed in a sealed envelope and shall be attached to the outside of the envelope containing the bid.

Bid signatures will be checked.

All addenda will be sent certified mail, with return receipt requested, and/or facsimile or e-mail to all prospective bidders. All bidders shall include with their bids the written acknowledgment form provided in Section 00300, FORM OF GENERAL BID.

The total dollar amount of each bid will be read, and the three apparent lowest bids will be selected for further consideration. These three apparent low bids will be read aloud for the benefit of the other bidders and the bid opening procedure will be closed. All those present at the bid opening may examine all bids after the bid opening and after the reading of the three apparent low bids.

5. Modification

Any bidder may modify his bid by written communication at any time prior to the scheduled closing time for receipt of bids. Any telegraphic communication must be received by the Owner prior to the closing time, and, provided further, the Owner must be satisfied that a written confirmation of the telegraphic modification over the signature of the bidder was mailed prior to the closing time. If written confirmation is not received within two days from the closing time, no consideration will be given to a telegraphic communication.

The communication shall not reveal the bid price but shall provide the addition or subtraction or other modification so that the final prices or terms will not be known by the Owner until the sealed bid is opened.

6. Ability and Experience of Bidder

No award will be made to any bidder who cannot satisfy the Owner that he has sufficient ability and experience in this class of work and sufficient capital and plant to enable him to prosecute and complete the work successfully within the time named. The Owner's decision or judgment on these matters will be final, conclusive, and binding.

The Owner may make such investigations as it deems necessary, and the bidder shall furnish to the Owner, under oath if so required, all such information and data for this purpose as the Owner may request.

7. Conditions of Work

Each bidder must familiarize himself fully with the conditions relating to the construction of the project and the employment of labor thereon. Failure to do so will not relieve a successful bidder of his obligation to furnish all material and labor necessary to carry out the provisions of his contract. Insofar as possible the Contractor, in carrying out his work, must employ such methods or means as will not cause any interruption of or interference with the work of any other Contractor.

8. Addenda and Interpretations

No interpretation of the meaning of the plans, specifications or other prebid documents will be made to any bidder orally. All information given to bidders other than by means of the plans, specifications, or by addenda, as described below, is given informally and shall not be used as the basis of a claim against the Owner.

Every request for such interpretation must be submitted in writing at least 72 business hours before the bid opening and addressed to the following:

Bree Sullivan, P.E.
Title: Chief Civil Engineer
Email: bds@gainc.com
Gale Associates, Inc.

Copy: Kyle Rowan
Sr. Staff Designer
kfr@gainc.com
Gale Associates, Inc.

Any and all such interpretations and any supplemental instructions will be in the form of written addenda to the specifications which, when issued, will be emailed to all prospective bidders (at the respective email address furnished by them for such purposes). Failure of any bidder to receive any such addendum or interpretation shall not relieve such bidder from any obligation under his bid as submitted. All addenda so issued shall become part of the Contract Documents.

9. Security for Faithful Performance

Simultaneously with his delivery of the executed Contract, the Contractor shall furnish a surety bond or bonds as security for faithful performance of this contract and for the payment of all persons performing labor and materials under this contract. The surety on such bond or bonds shall be a surety company qualified to do business under the laws of the Commonwealth and satisfactory to the Owner. The bonds shall remain in force for one year after final acceptance of the work by the Owner, unless the Owner, in writing, releases the Contractor from the obligation sooner.

10. Power of Attorney

Attorneys-in-fact who sign Contract bonds must file with each bond a certified and effectively dated copy of their power of attorney.

11. Laws and Regulations

The bidder's attention is directed to the fact that all applicable State laws, municipal ordinances or bylaws, and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the contract throughout, and they will be deemed to be included in the Contract the same as though written out in full.

12. Liquidated Damages for Failure to Enter into Contract

The successful bidder, upon his failure or refusal to execute and deliver the Contract and bonds required within 10 days after presentation thereof by the Owner, shall forfeit to the Owner, as liquidated damages for such failure or refusal, the security deposited with his/her bid, but the amount forfeited shall not exceed the difference between his/her bid price and the bid price of the next lowest responsible and eligible bidder. In case of death, disability, bona fide clerical or mechanical error of a substantial nature, or other similar unforeseen circumstances affecting the bidder, his/her bid deposit will be returned.

13. Obligation of Bidder

At the time of the opening of bids, each bidder will be presumed to have inspected the site and to have read and to be thoroughly familiar with the Contract Documents (including all addenda). The failure or omission of any bidder to examine any form, instrument, or document shall in no way relieve any bidder from any obligation in respect of his bid.

14. Information Not Guaranteed

All information given in the Contract Documents relating to subsurface and other conditions, natural phenomena, existing pipes, and other structures is from the best sources at present available to the Owner. All such information is furnished only for the information and convenience of bidders and is not guaranteed.

It is agreed and understood that the Owner does not warrant or guarantee that the subsurface or other conditions, natural phenomena, existing pipes, or other structures encountered during construction will be the same as those indicated in the Contract Documents. It is further agreed and understood that no bidder or Contractor shall use or be entitled to use any of the information made available to him or obtained in any examination made by him in any manner as a basis of or ground for any claim or demand against the Owner or the Architect/Engineer, arising from or by reason of any variance which may exist between the information made available and the actual subsurface or other structures actually encountered during the construction work, except as may otherwise be expressly provided for in the Contract Documents.

15. Bid Security

Each bid and sub-bid must be accompanied by bid security in the form of a certified check, a bid bond, cash, or a treasurer's or cashier's check, payable to the Owner, in the amount of five (5) percent of the value of the bid. Such security of general bidders will be returned to all except the three lowest responsible and eligible bidders within five days, Saturdays, Sundays, and legal holidays excluded, after the opening of bids, and the remaining securities will be returned promptly after the Owner and the accepted bidder have executed the Contract, or if no notice of intent to award has been presented to the selected contractor within 30 days, Saturdays, Sundays and holidays excluded, after the date of the opening of bids, upon demand of the bidder at any time thereafter.

16. Right to Reject Bid

The Owner reserves the right to waive any informalities in bids and to reject any and all bids, should the Owner deem it to be in the public interest to do so.

The Owner may also reject bids which in its sole judgment are either incomplete, conditional, obscure or not responsive or which contain additions not called for, erasures not properly initialed, alterations, or similar irregularities.

17. Project Start/Time for Completion

The successful general bidder must agree to commence work within ten (10) days of the date of the Notice to Proceed and to fully complete the project within the time limit stated in Section 00300, FORM OF GENERAL BID.

18. Comparison of Bids

Bids will be compared on the basis of prices set forth in the bid forms. In the event that there is a discrepancy between the lump sum or unit prices written in words and figures, the prices written in words will govern.

19. Award of Contract

The Contract will be awarded to "the lowest responsible and eligible bidder" pursuant to General Laws Chapter 30, Section 39M, as amended. Such a bidder shall possess the skill, ability and integrity necessary for the faithful performance of the work, shall be able to furnish labor that can work in harmony with all other elements of labor employed, or to be employed, in the work, and shall otherwise comply with all applicable provisions of law. Contract award shall be subject to availability of an appropriation for funding for fiscal year 2023, which begins July 1, 2022.

20. Statutes Regulating Competitive Bidding

Any bid which does not comply with the provisions of Massachusetts General Laws Chapter 30, Section 39M, as amended, need not be accepted and the Owner may reject every such bid.

21. Wage Rates

Prevailing Wage Rates as determined by the Commissioner of Department of Labor and Workforce Development under the provision of the Massachusetts General Laws, Chapter 149, Section 26 to 27G, as amended, apply to this project. It is the responsibility of the bidder, before bid opening, to request any additional information on Prevailing Wage Rates for those tradespeople who may be employed for the proposed work under this contract.

22. Contractor Records

The Contractor shall comply with the provisions of Massachusetts General Laws, Chapter 30, Section 39R concerning Contractor records.

23. Insurance

The Contractor shall carry and continuously maintain until completion of the Contract, insurance as specified in Agreement and in such form as shall protect him performing work covered by this Contract, and the Town of Wilmington and its employees, agents and officials, from all claims an liability for damages for bodily injury, including accidental death, and for property damage, which may arise from operations under this Contract. The Town shall be named as an additional insured. The Contractor covenants and agrees to hold the Town and its employees, agents and officials harmless from loss or damage due to claims for bodily injury or death and/or property damage arising from, or in connection with, operations under this Contract.

24. Project Manager

The Owner may utilize the services of a project manager, whose duties shall be as set forth in an Agreement for Project Manager Services.

25. CORI/SORI

The Owner shall require criminal offender record information (“CORI”) and sex offender registry information (“SORI”) relating to any worker who is scheduled to work at the School.

SECTION 00300

FORM OF GENERAL BID

Bid of _____ (hereinafter called "Bidder")*

() a corporation, organized and existing under the laws of the state of _____

() a partnership

() a joint venture

() an individual
doing business as _____

To the City/Town of _____, Massachusetts (hereinafter called "Owner").

Gentlemen:

A) The undersigned Bidder, in compliance with your invitation for bids for the project known as _____, having examined the plans and specifications and related documents and the site of the proposed work, and being familiar with all of the conditions surrounding the construction of the proposed project including the availability of materials and labor, hereby proposes to furnish all labor, materials, and supplies, and to construct the project in accordance with the contract documents and the plans and specifications within the time set forth below, and at the prices stated below. These prices are to cover all expenses incurred in performing the work required under the contract documents, of which this bid is a part.

The Bidder hereby agrees to commence work on or before the date to be specified in written "Notice to Proceed" of the Owner, and to fully complete the project within **ninety (90)** consecutive calendar days thereafter. The Bidder further agrees to pay as liquidated damages the sum of **Three-Hundred and 00/100 (\$ 300.00)** Dollars for each consecutive calendar day thereafter that the work is not complete as provided in the contract.

*Specify corporation, partnership or individual as applicable.

B) Bidder acknowledges receipt of and this bid includes the following addenda:

No. _____ Dated: _____

No. _____ Dated: _____

No. _____ Dated: _____

No. _____ Dated: _____

C) The Bidder agrees to perform the bid work described in the specifications and shown on the plans for the following contract price:

Base Bid: \$ _____

In words: _____

Deduct Alternate #1: - \$ _____

In words: _____

Deduct Alternate #2: - \$ _____

In words: _____

The above unit prices shall include all labor, materials, bailing, shoring, removal, overhead, profit, insurance, etc., to cover the finished work of the several kinds called for.

The Bidder understands that all bids for this project are subject to the applicable bidding laws of the Commonwealth of Massachusetts, including General Laws Chapter 149 and Chapter 30, Section 39M, as amended.

The Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informalities in the bidding.

The Bidder agrees that this bid shall be good and may not be withdrawn for a period of 30 days, Saturdays, Sundays and legal holidays excluded, after the opening of bids.

Within 10 days of receipt of the written notice of acceptance of this bid, the Bidder will execute the formal Agreement set forth in Section 00500 CONTRACT.

Bid security is attached in the sum of five percent (5%) of the total bid in accordance with the conditions of Section 00100 INSTRUCTIONS TO BIDDERS. The bid security may become the property of the Owner in the event the contract and bond are not executed within the time set forth above.

The selected Contractor shall furnish a performance bond and a payment bond in an amount at least equal to one hundred percent (100%) of the contract price in accordance with Section 00610 PERFORMANCE BOND, Section 00620 PAYMENT BOND, and as stipulated in the contract.

The undersigned offers the following information as evidence of his qualifications to perform the work as bid upon according to all the requirements of the plans and specifications.

1. Have been in business under present name for ____ years.
2. The names and addresses of all persons interested in the bid (if made by a partnership or corporation) as principals, are as follows:

(attach supplementary list if necessary)

3. The bidder shall indicate a minimum of six (6) track reconstruction/resurfacing projects completed within the past five (5) years of similar character to this scope that he has completed as the general contractor, and give references that will enable the Owner to judge his experience, skill and business standing (add supplementary page if necessary).

<u>Completion Date</u>	<u>Project Name</u>	<u>Contract Amount</u>	<u>Design Engineer</u>	<u>Reference Name</u>	<u>Telephone No.</u>
a.					
b.					
c.					
d.					
e.					
f.					

Bank reference _____
(Name)

(Bank)

(Address)

(Telephone No.)

Pursuant to G.L. c.62C, §49A, I certify hereby in writing, under penalties of perjury, that the within named Bidder/Contractor has complied with all laws of the Commonwealth of Massachusetts relating to taxes, reporting of employees and contractors, and withholding and remitting of child support.

The undersigned Bidder hereby certifies under penalties of perjury, as follows: (1) that he/she 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 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 Occupational Safety and Health Administration that is at least 10 hours in duration.

The undersigned certifies under 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 paragraph the word "person" shall mean any natural person, joint venture, partnership, corporation or other business or legal entity.

The undersigned bidder hereby certifies, under pains and penalties of perjury, that the foregoing bid is based upon the payment to laborers to be employed on the project of wages in an amount no less than the applicable prevailing wage rates established for the project by the Massachusetts Department of Labor and Workforce Development. The undersigned bidder agrees to indemnify the awarding authority for, from and against any loss, expense, damages, actions or claims, including any expense incurred in connection with any delay or stoppage of the project work arising out of or as a result of (1) the failure of the said bid to be based upon the payment of the said applicable prevailing wage rates or (2) the failure of the bidder, if selected as the contractor, to pay laborers employed on the project the said applicable prevailing wage rates.

Respectfully submitted:

Date: _____

By: _____

(Signature)

(Type Name of Bidder)

(Title)

(Business Address)

(City and State)

(Telephone Number)

SECTION 00500

AGREEMENT

THIS AGREEMENT, made this _____ day of _____,
20____, by and between the party of the first part, the Town of _____, hereinafter called
"OWNER," acting herein through its _____, and the party of the second part,
_____ doing business as *(an individual) (a
partnership) (a joint venture) (a corporation) located in the *(City) (Town) of
_____, County of
_____, and State of _____, hereinafter called
"CONTRACTOR."

WITNESSETH: That for and in consideration of the payments and agreements
hereinafter mentioned, to be made and performed by the OWNER, the CONTRACTOR hereby
agrees with the OWNER to commence and complete the project described as follows:

hereinafter called the project, for the sum of _____ Dollars
(\$ _____) and all extra work in connection therewith, under the terms as stated in
the Contract Documents; and at his (its or their) own proper cost and expense to furnish all the
materials, supplies, machinery equipment, tools, superintendence, labor, insurance, and other
accessories and services necessary to complete the said project in accordance with the conditions
and prices stated in Section 00300 FORM OF GENERAL BID, Section 00700 GENERAL
CONDITIONS, Section 00750 SUPPLEMENTARY GENERAL CONDITIONS and Section
00800 SUPPLEMENTAL GENERAL CONDITIONS, the plans, which include all maps, plates,
blue prints, and the specifications and Contract Documents as prepared by the Owner.

*Strike out inapplicable term.

The CONTRACTOR hereby agrees to commence work under this Contract on or before a date to be specified in written "Notice to Proceed" of the OWNER.

The CONTRACTOR further agrees to fully complete the project within **90** consecutive calendar days of the date of the notice to proceed.

The CONTRACTOR further agrees to pay as liquidated damages the sum of **\$300.00** for each consecutive calendar day thereafter as provided in the Liquidated Damages Paragraph of Section 00700 GENERAL CONDITIONS.

The goal for minority business enterprise (MBE) participation for this contract is a minimum of _____ percent MBE participation, on the basis of the total dollars paid. The CONTRACTOR agrees to take all affirmative steps necessary to achieve this goal, and shall provide reports documenting the portion of contract and subcontract dollars paid to minority and women-owned businesses, and its efforts to achieve the goals, with each invoice submitted or at such greater intervals as specified by the Owner. The CONTRACTOR shall require similar reports from its subcontractors.

The CONTRACTOR agrees not to discriminate against or exclude any person from participation herein on grounds of race, religion, color, sex, age or national origin; and that it shall take affirmative actions to insure that applicants are employed, and that employees are treated during their employment, without regard to race, religion, color, sex, age, handicapped status, or national origin.

The CONTRACTOR agrees not to participate in or cooperate with an international boycott, as defined in Section 999 (b)(3) and (4) of the Internal Revenue Code of 1954, as amended, or engage in conduct declared to be unlawful by Section 2 of Chapter 151E of the Massachusetts General Laws.

The OWNER agrees to pay the CONTRACTOR in current funds for the performance of the contract, subject to additions and deductions, as provided in Section 00700 GENERAL CONDITIONS as amended by the supplementary general conditions, and to make payments on account thereof as provided in Section 00700 GENERAL CONDITIONS.

IN WITNESS WHEREOF, the parties to these presents have executed this contract in counterparts, each of which shall be deemed an original, in the year and day first above mentioned.

AGREED:

Town of _____, Massachusetts
(Owner)

By _____

(Name)

(Title)

(Contractor)

By _____

(Name)

(Title)

(Address)

(City and State)

Approved as to Form:

By _____
(Owner's Counsel)

(Name)

In accordance with M.G.L. C.44, Section 31C, this is to certify that an appropriation in the amount of this contract is available therefor and that the _____ has been authorized to execute the contract and approve all requisitions and change orders.

By _____
(Owner's Accountant)

(Name)

CERTIFICATE OF VOTE
(to be filed if Contractor is a Corporation)

I, _____, hereby certify that I am the duly qualified
(Secretary of the Corporation)

and acting Secretary of _____ and I further certify that a meeting of the

(Name of Corporation)

Directors of said Company, duly called and held on _____, at which
(Date of Meeting)

all Directors were present and voting, the following vote was unanimously passed:

VOTED: To authorize and empower

Anyone acting singly, to execute Forms of General Bid, Contracts or Bonds on behalf of the Corporation.

I further certify that the above vote is still in effect and has not been changed or modified in any respect.

By: _____
(Secretary of Corporation)

A True Copy:

Attest: _____
(Notary Public)

My Commission Expires: _____
(Date)

**CERTIFICATIONS REQUIRED BY LAW
FOR PUBLIC CONSTRUCTION CONTRACTS**

You must COMPLETE and SIGN the following certifications. You must also print, at the bottom of this page, the name of the contractor for whom these certifications are submitted.

TAX COMPLIANCE

Pursuant to Chapter 62C of the Massachusetts General Laws, Section 49A(b), I, the undersigned, authorized signatory for the below named contractor, do hereby certify under the pains and penalties of perjury that said contractor has complied with all laws of the Commonwealth of Massachusetts relating to taxes, reporting of employees and contractors, and withholding and remitting child support.

NON-COLLUSION

The undersigned 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.

PUBLIC CONTRACTOR DEBARMENT

The undersigned certifies under penalty of perjury that the below named contractor 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.

OSHA TRAINING

Pursuant to G.L. c. 30, §39S, the Contractor hereby certifies under penalties of perjury as follows:

- (1) Contractor 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) All employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration at the time the employee begins work and they shall furnish documentation of successful completion of said course with the first certified payroll report for each employee; and
- (3) All employees to be employed in the work subject to this contract have successfully completed 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.

COMPLETE AND SIGN BELOW:

Authorized Person's Signature

Date

Print Name & Title of Signatory

Name of Contractor

SECTION 00610

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS: That we _____
(Name of Contractor)

a _____ hereinafter called "Principal" and
(Corporation, Partnership, Joint Venture or Individual)

_____ of _____, State of _____
(Surety) (City & State)

_____ hereinafter called the "Surety" and licensed by the State
Division of Insurance to do business under the laws of the Commonwealth of Massachusetts, are
held and firmly bound to the City/Town of _____, Massachusetts, hereinafter called
"Owner", in the penal sum of

_____ Dollars
(\$ _____) in lawful money of the United States, for the payment of which
sum well and truly to be made, we bind ourselves, our heirs, executors, administrators and
successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that Whereas, the Principal entered
into a certain contract with the Owner, dated the _____ day of _____,
20____ (the "Construction Contract"), for the construction described as follows: _____
_____.

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform its duties,
all the undertakings, covenants, terms, conditions, and agreements of the Construction Contract
during the original term thereof, and any extensions thereof which may be granted by the Owner,
with or without notice to the Surety, and if he shall satisfy all claims and demands incurred under
the Construction Contract, and shall fully indemnify and save harmless the Owner from all costs
and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the
Owner all outlay and expense which the Owner may incur in making good any default, then this
obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the Surety's obligation under this Bond shall arise after (1)
the Owner has declared the Principal in default of the Construction Contract or any provision
thereof or (2) has declared that the Principal has failed, or is otherwise unable or unwilling, to
execute the work consistent with, and in conformance to, the Construction Contract (collectively
referred to as a "Contractor Default"). The determination of a Contractor Default shall be made
solely by the Owner. The Owner need not terminate the Construction Contract to declare a
Contractor Default or to invoke its rights under this Bond.

When the Surety's obligation under this Bond arises, the Surety, at its sole expense and at the consent and election of the Owner, shall promptly take one of the following steps: (1) arrange for the Principal to perform and complete the work of the Construction Contract; (2) arrange for a contractor other than the Principal to perform and complete the work of the Construction Contract; (3) reimburse the Owner, in a manner and at such time as the Owner shall decide, for all costs and expenses incurred by the Owner in performing and completing the work of the Construction Contract. Surety will keep Owner reasonably informed of the progress, status and results of any investigation of any claim of the Owner.

If the Surety does not proceed as provided in this Bond with due diligence and all deliberate speed, the Surety shall be deemed to be in default of this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner.

After the Surety's obligation under this Bond arises, the Surety is obligated, to the limit of the amounts of this Bond, for (1) the correction of defective work and completion of the Construction Contract; (2) additional design, professional services, and legal costs, including attorneys' fees, resulting from the Contractor Default or from the default of the Surety under this Bond; (3) any additional work beyond the Construction Contract made necessary by the Contractor Default or default of the Surety under this Bond; (4) indemnification obligation of the Principal, if any, as provided in the Construction Contract; and (5) liquidated damages as provided in the Construction Contract, or if none are so specified, actual and foreseeable consequential damages resulting from the Contractor Default or default of the Surety under this Bond.

Any proceeding, legal or equitable, under this Bond shall be instituted in any court of competent jurisdiction in the Commonwealth of Massachusetts.

The Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Construction Contract or to the work to be performed thereunder or the specifications accompanying the same shall in any way affect its obligation on this Bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Construction Contract or to the work or to the specifications.

IN WITNESS WHEREOF, this instrument is executed in _____ () counterparts, each one of which shall be deemed an original, this the _____ day of _____, 20____.

ATTEST:

_____		_____
(Principal Secretary)	By	Principal

		(Address-Zip Code)

Witness as to Principal (SEAL)

(Address-Zip Code)

ATTEST:

_____		_____
	By	Surety

		(Attorney-in-Fact)

		(Address-Zip Code)

Witness as to Surety (SEAL)

(Address-Zip Code)

NOTE: Date of Bond must not be prior to date of Contract. If Contractor is a Partnership, all partners should execute Bond.

SECTION 00620

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS: That we _____

_____ a _____
(Name of Contractor) (Corporation, Partnership, Joint Venture or
Individual)

hereinafter called "Principal" and _____ of _____,
(Surety)

State of _____ hereinafter called the "Surety" and licensed by the State
(City and State)

Division of Insurance to do business under the laws of the Commonwealth of Massachusetts, are held and firmly bound to the City/Town of _____, Massachusetts, hereinafter called "Owner", in the penal sum of _____ Dollars

(\$ _____) in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that Whereas, the Principal entered into a certain contract with the Owner, dated the _____ day of _____, 20____, for the construction described as follows:

NOW, THEREFORE, if the Principal shall promptly make payment to all persons, firms, subcontractors, and corporations furnishing materials for or performing labor in the prosecution of the work provided for in such contract, and any authorized extension or modification thereof, including all amounts due for materials, lubricants, oil, gasoline, coal and coke, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such work, and all insurance premiums on said work, and for all labor, performed in such work whether by subcontractor or otherwise, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the work to be performed thereunder or the specifications accompanying the same shall in any way affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of this contract or to the work or to the specifications.

PROVIDED, FURTHER, that no final settlement between the Owner and the Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in ____ () counterparts, each one of which shall be deemed an original, this the _____ day of _____, 20__.

ATTEST:

		_____ Surety
_____	By	_____ (Attorney-in-Fact)

		_____ (Address-Zip Code)
_____	(SEAL)	
Witness as to Surety		

		_____ (Address-Zip Code)

NOTE: Date of Bond must not be prior to date of Contract. If Contractor is a Partnership, all partners should execute Bond.

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly by



AMERICAN COUNCIL OF ENGINEERING COMPANIES

ASSOCIATED GENERAL CONTRACTORS OF AMERICA

AMERICAN SOCIETY OF CIVIL ENGINEERS

PROFESSIONAL ENGINEERS IN PRIVATE PRACTICE
A Practice Division of the
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Endorsed by



CONSTRUCTION SPECIFICATIONS INSTITUTE

These General Conditions have been prepared for use with the Suggested Forms of Agreement Between Owner and Contractor (EJCDC C-520 or C-525, 2007 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other. Comments concerning their usage are contained in the Narrative Guide to the EJCDC Construction Documents (EJCDC C-001, 2007 Edition). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (EJCDC C-800, 2007 Edition).

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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
 2. *Agreement*—The written instrument which is evidence of the agreement between Owner and Contractor covering the Work.
 3. *Application for Payment*—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
 4. *Asbestos*—Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.
 5. *Bid*—The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 6. *Bidder*—The individual or entity who submits a Bid directly to Owner.
 7. *Bidding Documents*—The Bidding Requirements and the proposed Contract Documents (including all Addenda).
 8. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid security of acceptable form, if any, and the Bid Form with any supplements.
 9. *Change Order*—A document recommended by Engineer which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.
 10. *Claim*—A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.
 11. *Contract*—The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

12. *Contract Documents*—Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.
13. *Contract Price*—The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).
14. *Contract Times*—The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any; (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.
15. *Contractor*—The individual or entity with whom Owner has entered into the Agreement.
16. *Cost of the Work*—See Paragraph 11.01 for definition.
17. *Drawings*—That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.
18. *Effective Date of the Agreement*—The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.
19. *Engineer*—The individual or entity named as such in the Agreement.
20. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.
21. *General Requirements*—Sections of Division 1 of the Specifications.
22. *Hazardous Environmental Condition*—The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto.
23. *Hazardous Waste*—The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.
24. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
25. *Liens*—Charges, security interests, or encumbrances upon Project funds, real property, or personal property.
26. *Milestone*—A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

27. *Notice of Award*—The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.
28. *Notice to Proceed*—A written notice given by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work under the Contract Documents.
29. *Owner*—The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.
30. *PCBs*—Polychlorinated biphenyls.
31. *Petroleum*—Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.
32. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.
33. *Project*—The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.
34. *Project Manual*—The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.
35. *Radioactive Material*—Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.
36. *Resident Project Representative*—The authorized representative of Engineer who may be assigned to the Site or any part thereof.
37. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.
38. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.
39. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

40. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.
41. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.
42. *Specifications*—That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.
43. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.
44. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion thereof.
45. *Successful Bidder*—The Bidder submitting a responsive Bid to whom Owner makes an award.
46. *Supplementary Conditions*—That part of the Contract Documents which amends or supplements these General Conditions.
47. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or Subcontractor.
48. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
49. *Unit Price Work*—Work to be paid for on the basis of unit prices.
50. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.
51. *Work Change Directive*—A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer ordering an

addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

1.02 *Terminology*

A. The words and terms discussed in Paragraph 1.02.B through F are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

B. *Intent of Certain Terms or Adjectives:*

1. The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.09 or any other provision of the Contract Documents.

C. *Day:*

1. The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.

D. *Defective:*

1. The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
 - a. does not conform to the Contract Documents; or
 - b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
 - c. has been damaged prior to Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 14.04 or 14.05).

E. *Furnish, Install, Perform, Provide:*

1. The word “furnish,” when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
 2. The word “install,” when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.
 3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.
 4. When “furnish,” “install,” “perform,” or “provide” is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, “provide” is implied.
- F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 – PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

- A. When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.
- B. *Evidence of Insurance:* Before any Work at the Site is started, Contractor and Owner shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.

2.02 *Copies of Documents*

- A. Owner shall furnish to Contractor up to ten printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction.

2.03 *Commencement of Contract Times; Notice to Proceed*

- A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Agreement. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

2.04 *Starting the Work*

- A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to the date on which the Contract Times commence to run.

2.05 *Before Starting Construction*

- A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), Contractor shall submit to Engineer for timely review:
 - 1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;
 - 2. a preliminary Schedule of Submittals; and
 - 3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.06 *Preconstruction Conference; Designation of Authorized Representatives*

- A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit instructions, receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.07 *Initial Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference attended by Contractor, Engineer, and others as appropriate will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.05.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.
 - 1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of

the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.

2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.
3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 *Intent*

- A. The Contract Documents are complementary; what is required by one is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that reasonably may be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the indicated result will be provided whether or not specifically called for, at no additional cost to Owner.
- C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

3.02 *Reference Standards*

- A. Standards, Specifications, Codes, Laws, and Regulations
 1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.
 2. No provision of any such standard, specification, manual, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the Contract Documents. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies:*

1. *Contractor's Review of Contract Documents Before Starting Work:* Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor discovers, or has actual knowledge of, and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.
2. *Contractor's Review of Contract Documents During Performance of Work:* If, during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) any standard, specification, manual, or code, or (c) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.
3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. Resolving Discrepancies:

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:
 - a. the provisions of any standard, specification, manual, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference in the Contract Documents); or
 - b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 Amending and Supplementing Contract Documents

- A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.
- B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:
 1. A Field Order;
 2. Engineer's approval of a Shop Drawing or Sample (subject to the provisions of Paragraph 6.17.D.3); or

3. Engineer's written interpretation or clarification.

3.05 *Reuse of Documents*

- A. Contractor and any Subcontractor or Supplier shall not:
 1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media editions; or
 2. reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer.
- B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

3.06 *Electronic Data*

- A. Unless otherwise stated in the Supplementary Conditions, the data furnished by Owner or Engineer to Contractor, or by Contractor to Owner or Engineer, that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.
- B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party.
- C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

ARTICLE 4 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS

4.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the

Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.
- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.02 *Subsurface and Physical Conditions*

A. *Reports and Drawings:* The Supplementary Conditions identify:

- 1. those reports known to Owner of explorations and tests of subsurface conditions at or contiguous to the Site; and
- 2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:

- 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or
- 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
- 3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

4.03 *Differing Subsurface or Physical Conditions*

A. *Notice:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed either:

- 1. is of such a nature as to establish that any "technical data" on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or
- 2. is of such a nature as to require a change in the Contract Documents; or
- 3. differs materially from that shown or indicated in the Contract Documents; or

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

- B. *Engineer's Review:* After receipt of written notice as required by Paragraph 4.03.A, Engineer will promptly review the pertinent condition, determine the necessity of Owner's obtaining additional exploration or tests with respect thereto, and advise Owner in writing (with a copy to Contractor) of Engineer's findings and conclusions.

C. *Possible Price and Times Adjustments:*

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. such condition must meet any one or more of the categories described in Paragraph 4.03.A; and
 - b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.07 and 11.03.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:
 - a. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or
 - b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or
 - c. Contractor failed to give the written notice as required by Paragraph 4.03.A.
3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, neither Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

4.04 *Underground Facilities*

A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data provided by others; and
2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:
 - a. reviewing and checking all such information and data;
 - b. locating all Underground Facilities shown or indicated in the Contract Documents;
 - c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction; and
 - d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated:*

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.
2. If Engineer concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, Owner or Contractor may make a Claim therefor as provided in Paragraph 10.05.

4.05 *Reference Points*

- A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.06 *Hazardous Environmental Condition at Site*

- A. *Reports and Drawings:* The Supplementary Conditions identify those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at the Site.
- B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:
 - 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or
 - 2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or
 - 3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.
- C. Contractor shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.
- D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 6.16.A); and (iii) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to

permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 4.06.E.

- E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered written notice to Contractor: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefor as provided in Paragraph 10.05.
- F. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.
- G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- H. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 5 – BONDS AND INSURANCE

5.01 *Performance, Payment, and Other Bonds*

- A. Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.
- B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed each bond.
- C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 5.01.B and 5.02.

5.02 *Licensed Sureties and Insurers*

- A. All bonds and insurance required by the Contract Documents to be purchased and maintained by Owner or Contractor shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

5.03 *Certificates of Insurance*

- A. Contractor shall deliver to Owner, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.
- B. Owner shall deliver to Contractor, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Contractor or any other additional insured) which Owner is required to purchase and maintain.

- C. Failure of Owner to demand such certificates or other evidence of Contractor's full compliance with these insurance requirements or failure of Owner to identify a deficiency in compliance from the evidence provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.
- D. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor.
- E. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner in the Contract Documents.

5.04 *Contractor's Insurance*

- A. Contractor shall purchase and maintain such insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:
 - 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;
 - 2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;
 - 3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;
 - 4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:
 - a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or
 - b. by any other person for any other reason;
 - 5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and
 - 6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.
- B. The policies of insurance required by this Paragraph 5.04 shall:
 - 1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, be written on an occurrence basis, include as additional insureds (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, members, partners,

employees, agents, consultants, and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;

2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;
3. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;
4. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);
5. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and
6. include completed operations coverage:
 - a. Such insurance shall remain in effect for two years after final payment.
 - b. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

5.05 *Owner's Liability Insurance*

- A. In addition to the insurance required to be provided by Contractor under Paragraph 5.04, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.

5.06 *Property Insurance*

- A. Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:
 1. include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of

them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee;

2. be written on a Builder's Risk "all-risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage (other than that caused by flood), and such other perils or causes of loss as may be specifically required by the Supplementary Conditions.
 3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);
 4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;
 5. allow for partial utilization of the Work by Owner;
 6. include testing and startup; and
 7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other loss payee to whom a certificate of insurance has been issued.
- B. Owner shall purchase and maintain such equipment breakdown insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee.
- C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other loss payee to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.
- D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

- E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under this Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

5.07 *Waiver of Rights*

- A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or loss payees thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner as trustee or otherwise payable under any policy so issued.
- B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for:
1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and
 2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.
- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them.

5.08 *Receipt and Application of Insurance Proceeds*

- A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the loss payees, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order.
- B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

5.09 *Acceptance of Bonds and Insurance; Option to Replace*

- A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

- A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

ARTICLE 6 – CONTRACTOR’S RESPONSIBILITIES

6.01 *Supervision and Superintendence*

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction. Contractor shall not be responsible for the negligence of Owner or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

6.02 *Labor; Working Hours*

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.
- B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner’s written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

6.03 *Services, Materials, and Equipment*

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.
- B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.
- C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

6.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 as it may be adjusted from time to time as provided below.
1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.
 2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

6.05 *Substitutes and “Or-Equals”*

- A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or “or-equal” item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.
1. “*Or-Equal*” *Items*: If in Engineer’s sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an “or-equal” item, in which case review and approval of the proposed item may, in Engineer’s sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:
 - a. in the exercise of reasonable judgment Engineer determines that:
 - 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
 - 2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole; and
 - 3) it has a proven record of performance and availability of responsive service.
 - b. Contractor certifies that, if approved and incorporated into the Work:
 - 1) there will be no increase in cost to the Owner or increase in Contract Times; and
 - 2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

2. *Substitute Items:*

- a. If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.
- b. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.
- c. The requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented by the General Requirements, and as Engineer may decide is appropriate under the circumstances.
- d. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:
 - 1) shall certify that the proposed substitute item will:
 - a) perform adequately the functions and achieve the results called for by the general design,
 - b) be similar in substance to that specified, and
 - c) be suited to the same use as that specified;
 - 2) will state:
 - a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time,
 - b) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and
 - c) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;
 - 3) will identify:
 - a) all variations of the proposed substitute item from that specified, and
 - b) available engineering, sales, maintenance, repair, and replacement services; and
 - 4) shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change.

- B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.
- C. *Engineer's Evaluation:* Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by a Change Order in the case of a substitute and an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.
- D. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- E. *Engineer's Cost Reimbursement:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.
- F. *Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

6.06 *Concerning Subcontractors, Suppliers, and Others*

- A. Contractor shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to Owner as indicated in Paragraph 6.06.B), whether initially or as a replacement, against whom Owner may have reasonable objection. Contractor shall not be required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.
- B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or

entity, whether initially or as a replacement, shall constitute a waiver of any right of Owner or Engineer to reject defective Work.

- C. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents:
 - 1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other individual or entity; nor
 - 2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.
- D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.
- E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.
- F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.
- G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as a loss payee on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner, Contractor, Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

6.07 *Patent Fees and Royalties*

- A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its

use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.

- B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.
- C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

6.08 *Permits*

- A. Unless otherwise provided in the Supplementary Conditions, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

6.09 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work. However, it shall not be Contractor's responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.
- C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner

and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

6.10 *Taxes*

- A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

6.11 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas:*

1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.
2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.
3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused by or based upon Contractor's performance of the Work.

- B. *Removal of Debris During Performance of the Work:* During the progress of the Work Contractor shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

- C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

- D. *Loading Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

6.12 *Record Documents*

- A. Contractor shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications in good order and annotated to show changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to Engineer for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings will be delivered to Engineer for Owner.

6.13 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:
 - 1. all persons on the Site or who may be affected by the Work;
 - 2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
 - 3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.
- C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.
- D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
- E. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts

any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).

- F. Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 *Safety Representative*

- A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

6.15 *Hazard Communication Programs*

- A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

6.16 *Emergencies*

- A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

6.17 *Shop Drawings and Samples*

- A. Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.

1. *Shop Drawings:*

- a. Submit number of copies specified in the General Requirements.
- b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 6.17.D.

2. *Samples:*

- a. Submit number of Samples specified in the Specifications.

- b. Clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 6.17.D.
- B. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. *Submittal Procedures:*

- 1. Before submitting each Shop Drawing or Sample, Contractor shall have:
 - a. reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
 - b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
 - c. determined and verified the suitability of all materials offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
 - d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.
- 2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval of that submittal.
- 3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop Drawings or Sample submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

D. *Engineer's Review:*

- 1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
- 2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the

Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

3. Engineer's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

E. *Resubmittal Procedures:*

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.

6.18 *Continuing the Work*

- A. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

6.19 *Contractor's General Warranty and Guarantee*

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on representation of Contractor's warranty and guarantee.
- B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
 1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
 2. normal wear and tear under normal usage.
- C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:
 1. observations by Engineer;
 2. recommendation by Engineer or payment by Owner of any progress or final payment;

3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
4. use or occupancy of the Work or any part thereof by Owner;
5. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by Engineer;
6. any inspection, test, or approval by others; or
7. any correction of defective Work by Owner.

6.20 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable .
- B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.
- C. The indemnification obligations of Contractor under Paragraph 6.20.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:
 1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
 2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

6.21 *Delegation of Professional Design Services*

- A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable law.
- B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.
- C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.
- D. Pursuant to this Paragraph 6.21, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.
- E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

ARTICLE 7 – OTHER WORK AT THE SITE

7.01 *Related Work at Site*

- A. Owner may perform other work related to the Project at the Site with Owner's employees, or through other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:
 - 1. written notice thereof will be given to Contractor prior to starting any such other work; and
 - 2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.
- B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner, and Owner, if Owner is performing other work with Owner's employees, proper and safe

access to the Site, provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and properly coordinate the Work with theirs. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.

- C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

7.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:
 - 1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;
 - 2. the specific matters to be covered by such authority and responsibility will be itemized; and
 - 3. the extent of such authority and responsibilities will be provided.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

7.03 *Legal Relationships*

- A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.
- B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's wrongful actions or inactions.
- C. Contractor shall be liable to Owner and any other contractor under direct contract to Owner for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's wrongful action or inactions.

ARTICLE 8 – OWNER’S RESPONSIBILITIES

8.01 *Communications to Contractor*

- A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

8.02 *Replacement of Engineer*

- A. In case of termination of the employment of Engineer, Owner shall appoint an engineer to whom Contractor makes no reasonable objection, whose status under the Contract Documents shall be that of the former Engineer.

8.03 *Furnish Data*

- A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

8.04 *Pay When Due*

- A. Owner shall make payments to Contractor when they are due as provided in Paragraphs 14.02.C and 14.07.C.

8.05 *Lands and Easements; Reports and Tests*

- A. Owner’s duties with respect to providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers to Owner’s identifying and making available to Contractor copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

8.06 *Insurance*

- A. Owner’s responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

8.07 *Change Orders*

- A. Owner is obligated to execute Change Orders as indicated in Paragraph 10.03.

8.08 *Inspections, Tests, and Approvals*

- A. Owner’s responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 13.03.B.

8.09 *Limitations on Owner’s Responsibilities*

- A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor’s means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws

and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

8.10 *Undisclosed Hazardous Environmental Condition*

- A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 4.06.

8.11 *Evidence of Financial Arrangements*

- A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents.

8.12 *Compliance with Safety Program*

- A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed pursuant to Paragraph 6.13.D.

ARTICLE 9 – ENGINEER'S STATUS DURING CONSTRUCTION

9.01 *Owner's Representative*

- A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract Documents.

9.02 *Visits to Site*

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.
- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 9.09. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

9.03 *Project Representative*

- A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in providing more extensive observation of the Work. The authority and responsibilities of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

9.04 *Authorized Variations in Work*

- A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

9.05 *Rejecting Defective Work*

- A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

9.06 *Shop Drawings, Change Orders and Payments*

- A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.
- B. In connection with Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, see Paragraph 6.21.
- C. In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.
- D. In connection with Engineer's authority as to Applications for Payment, see Article 14.

9.07 *Determinations for Unit Price Work*

- A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations

on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of Paragraph 10.05.

9.08 *Decisions on Requirements of Contract Documents and Acceptability of Work*

- A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question.
- B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believes that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.
- C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.
- D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

9.09 *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.
- B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
- D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 14.07.A will only be to determine generally that their content complies with the requirements of,

and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with, the Contract Documents.

- E. The limitations upon authority and responsibility set forth in this Paragraph 9.09 shall also apply to the Resident Project Representative, if any, and assistants, if any.

9.10 *Compliance with Safety Program*

- A. While at the Site, Engineer's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Engineer has been informed pursuant to Paragraph 6.13.D.

ARTICLE 10 – CHANGES IN THE WORK; CLAIMS

10.01 *Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).
- B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

10.02 *Unauthorized Changes in the Work*

- A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.D.

10.03 *Execution of Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:
 - 1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;
 - 2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and
 - 3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of

executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

10.04 *Notification to Surety*

- A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

10.05 *Claims*

- A. *Engineer's Decision Required:* All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.
- B. *Notice:* Written notice stating the general nature of each Claim shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Times shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).
- C. *Engineer's Action:* Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:
 - 1. deny the Claim in whole or in part;
 - 2. approve the Claim; or
 - 3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.
- D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.

- E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.
- F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

ARTICLE 11 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

11.01 *Cost of the Work*

- A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 11.01.B, and shall include only the following items:
 - 1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.
 - 2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.
 - 3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 11.01.

4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.
5. Supplemental costs including the following:
 - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
 - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.
 - c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.
 - d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
 - e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
 - f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.
 - g. The cost of utilities, fuel, and sanitary facilities at the Site.
 - h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, express and courier services, and similar petty cash items in connection with the Work.
 - i. The costs of premiums for all bonds and insurance Contractor is required by the Contract Documents to purchase and maintain.

B. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:

1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the Contractor's fee.
 2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
 3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
 4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.
 5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraphs 11.01.A.
- C. *Contractor's Fee:* When all the Work is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 12.01.C.
- D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

11.02 Allowances

- A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.
- B. *Cash Allowances:*
1. Contractor agrees that:
 - a. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and
 - b. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in

the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

C. *Contingency Allowance:*

1. Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.
- D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.03 *Unit Price Work*

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.
- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.
- D. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 if:
 1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and
 2. there is no corresponding adjustment with respect to any other item of Work; and
 3. Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 12 – CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

12.01 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

- B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:
1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or
 2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or
 3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).
- C. *Contractor's Fee*: The Contractor's fee for overhead and profit shall be determined as follows:
1. a mutually acceptable fixed fee; or
 2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
 - a. for costs incurred under Paragraphs 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;
 - b. for costs incurred under Paragraph 11.01.A.3, the Contractor's fee shall be five percent;
 - c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 12.01.C.2.a and 12.01.C.2.b is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;
 - d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;
 - e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and
 - f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

12.02 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.
- B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

12.03 *Delays*

- A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.
- B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.
- D. Owner, Engineer, and their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.
- E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

ARTICLE 13 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

13.01 *Notice of Defects*

- A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor. Defective Work may be rejected, corrected, or accepted as provided in this Article 13.

13.02 *Access to Work*

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

13.03 *Tests and Inspections*

- A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.
- B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:
 - 1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;
 - 2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in Paragraph 13.04.C; and
 - 3. as otherwise specifically provided in the Contract Documents.
- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.
- D. Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.

- E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation.
- F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

13.04 *Uncovering Work*

- A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.
- B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.
- C. If it is found that the uncovered Work is defective, Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.
- D. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

13.05 *Owner May Stop the Work*

- A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

13.06 *Correction or Removal of Defective Work*

- A. Promptly after receipt of written notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers,

architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).

- B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

13.07 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents) or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
 - 1. repair such defective land or areas; or
 - 2. correct such defective Work; or
 - 3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
 - 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom.
- B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by Contractor.
- C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.
- E. Contractor's obligations under this Paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

13.08 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Engineer's recommendation of final payment, Engineer) prefers to accept it, Owner may do so. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness) and for the diminished value of the Work to the extent not otherwise paid by Contractor pursuant to this sentence. If any such acceptance occurs prior to Engineer's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

13.09 *Owner May Correct Defective Work*

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer in accordance with Paragraph 13.06.A, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after seven days written notice to Contractor, correct, or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 13.09, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this Paragraph.
- C. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 13.09.

ARTICLE 14 – PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 *Schedule of Values*

- A. The Schedule of Values established as provided in Paragraph 2.07.A will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed.

14.02 *Progress Payments*

A. Applications for Payments:

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.
2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

B. Review of Applications:

1. Engineer will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to Owner or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's

review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

- a. the Work has progressed to the point indicated;
 - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and any other qualifications stated in the recommendation); and
 - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
- a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or
 - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.
4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
- a. to supervise, direct, or control the Work, or
 - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
 - d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or
 - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:

- a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;
- b. the Contract Price has been reduced by Change Orders;
- c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or
- d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

C. Payment Becomes Due:

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor.

D. Reduction in Payment:

1. Owner may refuse to make payment of the full amount recommended by Engineer because:
 - a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;
 - b. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;
 - c. there are other items entitling Owner to a set-off against the amount recommended; or
 - d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.
2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, when Contractor remedies the reasons for such action.
3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 14.02.C.1 and subject to interest as provided in the Agreement.

14.03 Contractor's Warranty of Title

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to Owner no later than the time of payment free and clear of all Liens.

14.04 *Substantial Completion*

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.
- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the tentative certificate to Owner, notify Contractor in writing, stating the reasons therefor. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will, within said 14 days, execute and deliver to Owner and Contractor a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.
- E. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the tentative list.

14.05 *Partial Utilization*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:

1. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 14.04.A through D for that part of the Work.
2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.
4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 5.10 regarding property insurance.

14.06 *Final Inspection*

- A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

14.07 *Final Payment*

A. *Application for Payment:*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.
2. The final Application for Payment shall be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.6;
 - b. consent of the surety, if any, to final payment;
 - c. a list of all Claims against Owner that Contractor believes are unsettled; and

- d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien.

B. Engineer's Review of Application and Acceptance:

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. Payment Becomes Due:

1. Thirty days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and will be paid by Owner to Contractor.

14.08 Final Completion Delayed

- A. If, through no fault of Contractor, final completion of the Work is significantly delayed, and if Engineer so confirms, Owner shall, upon receipt of Contractor's final Application for Payment (for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

14.09 *Waiver of Claims*

A. The making and acceptance of final payment will constitute:

1. a waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and
2. a waiver of all Claims by Contractor against Owner other than those previously made in accordance with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

ARTICLE 15 – SUSPENSION OF WORK AND TERMINATION

15.01 *Owner May Suspend Work*

- #### A.
- At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

15.02 *Owner May Terminate for Cause*

A. The occurrence of any one or more of the following events will justify termination for cause:

1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);
2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;
3. Contractor's repeated disregard of the authority of Engineer; or
4. Contractor's violation in any substantial way of any provisions of the Contract Documents.

B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:

1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion);

2. incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere; and
 3. complete the Work as Owner may deem expedient.
- C. If Owner proceeds as provided in Paragraph 15.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this Paragraph, Owner shall not be required to obtain the lowest price for the Work performed.
- D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.
- E. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.
- F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B and 15.02.C.

15.03 *Owner May Terminate For Convenience*

- A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
 2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;
 3. all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other

dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and

4. reasonable expenses directly attributable to termination.

B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.04 *Contractor May Stop Work or Terminate*

A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in Paragraph 15.03.

B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this Paragraph 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this Paragraph.

ARTICLE 16 – DISPUTE RESOLUTION

16.01 *Methods and Procedures*

A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.

B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.

C. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:

1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions; or

2. agrees with the other party to submit the Claim to another dispute resolution process; or
3. gives written notice to the other party of the intent to submit the Claim to a court of competent jurisdiction.

ARTICLE 17 – MISCELLANEOUS

17.01 *Giving Notice*

- A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:
 1. delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended; or
 2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

17.02 *Computation of Times*

- A. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

17.03 *Cumulative Remedies*

- A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract Documents. The provisions of this Paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

17.04 *Survival of Obligations*

- A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

17.05 *Controlling Law*

- A. This Contract is to be governed by the law of the state in which the Project is located.

17.06 *Headings*

- A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

SECTION 00800
SUPPLEMENTAL CONDITIONS

Page

1. Supplementary General Conditions to EJCDC No. C-700, 2007 Edition
2. Prevailing Wage Rates
3. Insurance Requirements

Attachment A - Wage Rates and Certificate of Compliance

**AMENDING THE STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION
CONTRACT PREPARED BY ENGINEERS JOINT CONTRACT DOCUMENTS
COMMITTEE
(EJCDC NO. C-700, 2007 EDITION)**

(Sub) Paragraph

No.

- 2.01B Delete this paragraph and substitute the following:
- Before any Work at the Site is started, CONTRACTOR shall deliver to OWNER, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which OWNER or any additional insured may reasonably request) which CONTRACTOR is required to purchase and maintain in accordance with Article 5.
- 2.03 Delete the last sentence.
- 3.02A.1 Delete the phrase starting “shall mean” through the end of this sentence and substitute the following:
- shall mean the standard, specification, manual, code, or Laws or Regulations in effect and applicable at the time in question, except as may be otherwise specifically stated in the Contract Documents.
- 3.03A.3 Delete this paragraph and replace with the following:
- CONTRACTOR shall be liable to OWNER or ENGINEER for failure to report any such conflict, error, ambiguity or discrepancy if CONTRACTOR knew or reasonably should have known thereof.
- 4.01A Delete the last sentence.
- 4.01B Delete this subparagraph in its entirety.
- 4.03C.3 Delete this subparagraph in its entirety.
- 4.04B.2 Delete the phrase “or not shown or indicated with reasonable accuracy” following the word “indicated.” Delete the last sentence.
- 4.06C Add the following to the first sentence: “unless CONTRACTOR caused or contributed to such Hazardous Environmental Condition.”

- 4.06D Delete the last sentence.
- 4.06E Delete the last sentence.
- 4.06F Delete the second sentence.
- 4.06G Delete this subparagraph in its entirety.
- 4.06H Delete the last sentence.
- 5.03B Delete this subparagraph in its entirety.
- 5.04B.7 Insert the following new subparagraph:
7. “all coverage shall be written on an occurrence basis.
- 5.06A Delete this subparagraph in its entirety and substitute the following:
- Owner may, in its discretion, purchase and maintain property insurance upon the Work at the Site.
- 5.06B Delete this subparagraph in its entirety.
- 5.06D Delete this subparagraph in its entirety and substitute the following:
- The risk of loss within any identified deductible amount will be borne by CONTRACTOR, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser’s own expense.
- 5.07A Delete all text after the first sentence.
- 5.07B Delete this subparagraph in its entirety.
- 5.07C Delete this subparagraph in its entirety.
- 5.08 Delete this paragraph in its entirety.
- 5.09 Delete this paragraph in its entirety.
- 5.10 Delete this paragraph in its entirety and substitute the following:
- OWNER may occupy or use a portion of the Work prior to Substantial Completion.

- 6.05A Add the following to the second sentence “, and in accordance with G.L. c.30, §39M.”
- 6.06F Insert the following at the beginning of this subparagraph:

“Except as required by and indicated in the specifications and contract documents pursuant to G.L. c.149, §44F,”
- 6.07A Delete the second sentence.
- 6.09C Delete the last sentence.
- 6.13E Delete the text in parentheses at the end of the first sentence.
- 6.20A Delete the parenthetical phrase “(other than the Work itself).”
- 6.20.A Change the phrase “negligent act or omission” to “negligent or wrongful act or omission.”
- 7.01.A.2 Delete this subparagraph in its entirety.
- 7.01.B Delete the last sentence.
- 7.02 Delete this paragraph in its entirety.
- 8.02 Delete the phrase “to whom CONTRACTOR makes no reasonable objection.”
- 8.07 Delete this paragraph in its entirety.
- 8.09 Insert the following after the first sentence: “However, the OWNER shall have the right to direct the CONTRACTOR to perform the Work according to any sequence schedule set forth in the Contract Documents or established pursuant thereto.”
- 9.02B Insert the following at the end of this subparagraph: “However, the ENGINEER shall have the right to direct the CONTRACTOR to perform the Work according to any sequence schedule set forth in the Contract Documents or established pursuant thereto.”
- 9.03 Delete the last sentence.
- 9.04 Delete the last sentence.
- 9.08C Delete the final phrase “subject to the provisions of paragraph 10.05.”
- 9.09B Insert the following after the first sentence:

“However, the ENGINEER shall have the right to direct the CONTRACTOR to perform the Work according to any sequence schedule set forth in the Contract Documents or established pursuant thereto.”

- 10.03A.3 Delete this subparagraph in its entirety.
- 11.01A.5 Delete subparagraphs a, b, d, e, f, g, and h.
- 11.02 Delete this paragraph in its entirety.
- 12.01B.3 Delete the last phrase “(determined as provided in paragraph 12.01.C).”
- 12.01C.2 Delete this subparagraph in its entirety.
- 12.03B Delete this subparagraph in its entirety.
- 12.03F Insert the following new subparagraph:

3. Delays caused by or within the control of the OWNER. In such event, the CONTRACTOR’S sole remedy shall be an extension of the Contract Time. Notwithstanding anything to the contrary in the Contract Documents, Contractor shall not be eligible for any increase in the Contract Price/Sum on account of any delay in the work, no matter by whom such delay is caused, and Contractor shall make no claim for such an increase, whether such claim is styled as a claim for delay damages, acceleration of work, loss of production, or otherwise.
- 13.01 Delete the word “Prompt” at the beginning of the subparagraph.
- 13.03F Delete the balance of this subparagraph after the words “CONTRACTOR’s expense.”
- 13.04D Delete this subparagraph in its entirety.
- 13.08 Delete the fourth sentence.
- 13.09C Delete the second sentence.
- 14.02A.1 Delete the first phrase prior to the words, “Contractor shall” and substitute in place thereof the following: “On a monthly basis and in accordance with G.L. c.30, §39G,”.
- 14.02A.3 Delete this subparagraph and substitute the following: “Retainage shall be in accordance with G.L. c.30, §39G.
- 14.02C Delete this subparagraph and substitute the following:

Payment shall be made in accordance with G.L. c.30, §39G.

14.02D.2 Delete the words “immediate” and “promptly”.

14.02D.3 Delete this subparagraph in its entirety.

14.04C Delete the third sentence and substitute the following:

“OWNER shall review the tentative certificate and make written objection to ENGINEER as to any provisions of the certificate or attached list.”

Delete the phrase “within 14 days after submission of the tentative certificate to OWNER” in the fourth sentence. Delete the phrase “within said 14 days” in the fifth sentence.

14.05 Delete the phrase “subject to the following conditions” at the end of the first sentence and delete subparagraphs 1 and 2 in their entirety.

14.07B.1 Delete the phrase “within ten days after receipt of the final Application for Payment,” in the first sentence.

14.07C Delete this subparagraph in its entirety and substitute the following:

Final payment shall be made in accordance with G.L. c.30, §39G.

14.09A.1 Delete this subparagraph in its entirety.

15.01 Delete this subparagraph in its entirety and substitute the following:

OWNER may suspend the work or any portion thereof in accordance with G.L. c.30, §39O.

15.03A Delete from subparagraph 1 the phrase “including fair and reasonable sums for overhead and profit on such Work;” and from subparagraph 2 the phrase “plus fair and reasonable sums for overhead and profit on such expenses”; and delete subparagraphs 3 and 4 in their entirety.

15.04B Delete the last sentence.

SUPPLEMENTAL CONDITIONS

§ SC 1.1 INTRODUCTION

The following provisions modify, change, delete from or add to Section 00500 Agreement. Where any Subsection of the Agreement is modified or any Article Paragraph, Subparagraph or Clause thereof is modified or deleted by these Supplemental Conditions, the unaltered provisions of that Article, Paragraph, Subparagraph or Clause shall remain in effect.

§ SC 2.1 PREVAILING WAGE

In accordance with General Laws Chapter 149, Section 26 through 27D, the Contractor is obligated to comply with the prevailing wage rates established by the Commissioner of the Department of Labor and Workforce Development for mechanics, apprentices, chauffeurs, teamsters and laborers employed on the Project. The schedule of applicable prevailing wage rates for the Project, together with a Certificate of Compliance therewith, are set forth in Attachment A herein.

§ SC 3.1 CONTRACTOR'S LIABILITY INSURANCE

TOWN OF WILMINGTON

INSURANCE REQUIREMENTS

A. Worker's Compensation and Employers Liability Insurance

Coverage as required by the Worker's Compensation laws of the Commonwealth of Massachusetts, M.G.L. Chapter 149, §34A.

B. General Liability

Bodily Injury each occurrence limit	\$1,000,000
Bodily Injury aggregated limit	\$3,000,000
Property Damage each occurrence limit	\$1,000,000
Project Damage aggregated limit	\$3,000,000

Coverage must include Premises/Operations, Independent Contractors, Contractual Liability Assumed, Products/Completed Operations, Personal Injury, Pollution Liability, and shall not be subject to any of the special property damage liability exclusions commonly referred to as XCU exclusions.

C. Automobile Liability

Bodily Injury each person limit	\$1,000,000
Bodily Injury each occurrence limit	\$3,000,000
Property Damage each occurrence limit	\$1,000,000
Property Damage aggregated limit	\$3,000,000

Coverage must include Owned Vehicles, Leased Vehicles, Hired Vehicles, Non-Owned Vehicles.

D. Umbrella Liability

General aggregate limit	\$2,000,000
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Products - completed operations aggregate	\$2,000,000
Each occurrence limit	\$2,000,000

E. Owner's Protective Liability Insurance

The Contractor shall furnish the Certificates of Insurance naming the Town of Wilmington as additionally insured as their interest may appear and maintain the require insurances through the life of this Contract.

F. General Requirements for All Lines of Insurance to be Furnishing

All policies shall be written so the Town shall be notified of cancellation or addition of "restrictive amendments" by registered mail or by facsimile not later than ten (10) days prior to the effective date of such cancellation or amendment.

If the initial policy/policies expire prior to the completion of the Work, renewal certificates shall be promptly filed with the Town for extension of said coverage. The full cost of insurance and renewing such coverage for additional amounts of time shall be the sole responsibility of the Contractor.

The Contractor shall require that each subcontractor procure, and maintain, until completion of that subcontractor's work, insurance of the types and to the limits set forth in the above sections. All such coverage by subcontractors shall be in favor of the Contractor, and the Town shall be held harmless from liability in all such policies. Use of subcontractor(s) are subject to the specifications herein.

The policies of insurance required by the General Conditions shall include by endorsement all policies listed above in SC 3.1, that the insurer shall waive all rights of Subrogation in favor of the Owner, Engineer, and any other party named in the written contract against whom the insurer must agree to waive rights of subrogation.

SECTION 00850

Incorporation of Applicable Provisions of the Massachusetts General Laws

Certain provisions of the Massachusetts General Laws are applicable to Construction contracts including, but not limited to, those contained in Chapter 30 and Chapter 149. All applicable provisions of the Massachusetts General Laws are incorporated into the Contract as if fully set forth herein and shall prevail over any conflicting provisions of the General or Supplemental Conditions.

"ATTACHMENT A"

[Wage Rates]



CHARLES D. BAKER
Governor

KARYN E. 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
Director

Awarding Authority: Town of Wilmington

Contract Number:

City/Town: WILMINGTON

Description of Work: Remove existing track at Wilmington High School and reconstruct with new.

Job Location: 159 Church Street

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.
-

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Construction						
(2 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2021	\$35.95	\$13.41	\$16.01	\$0.00	\$65.37
(3 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2021	\$36.02	\$13.41	\$16.01	\$0.00	\$65.44
(4 & 5 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2021	\$36.14	\$13.41	\$16.01	\$0.00	\$65.56
ADS/SUBMERSIBLE PILOT <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2020	\$103.05	\$9.40	\$23.12	\$0.00	\$135.57
For apprentice rates see "Apprentice- PILE DRIVER"						
AIR TRACK OPERATOR <i>LABORERS - ZONE 2</i>	12/01/2021	\$36.16	\$9.10	\$16.64	\$0.00	\$61.90
	06/01/2022	\$37.06	\$9.10	\$16.64	\$0.00	\$62.80
	12/01/2022	\$37.91	\$9.10	\$16.64	\$0.00	\$63.65
	06/01/2023	\$38.81	\$9.10	\$16.64	\$0.00	\$64.55
	12/01/2023	\$39.71	\$9.10	\$16.64	\$0.00	\$65.45
For apprentice rates see "Apprentice- LABORER"						
AIR TRACK OPERATOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	12/01/2021	\$36.16	\$9.10	\$16.64	\$0.00	\$61.90
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
ASBESTOS REMOVER - PIPE / MECH. EQUIPT. <i>HEAT & FROST INSULATORS LOCAL 6 (BOSTON)</i>	12/01/2020	\$38.10	\$12.80	\$9.45	\$0.00	\$60.35
ASPHALT RAKER <i>LABORERS - ZONE 2</i>	12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40
	06/01/2022	\$36.56	\$9.10	\$16.64	\$0.00	\$62.30
	12/01/2022	\$37.41	\$9.10	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.31	\$9.10	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.21	\$9.10	\$16.64	\$0.00	\$64.95
For apprentice rates see "Apprentice- LABORER"						
ASPHALT RAKER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2021	\$51.38	\$14.00	\$16.05	\$0.00	\$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BACKHOE/FRONT-END LOADER <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2021	\$51.38	\$14.00	\$16.05	\$0.00	\$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BARCO-TYPE JUMPING TAMPER <i>LABORERS - ZONE 2</i>	12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40
	06/01/2022	\$36.56	\$9.10	\$16.64	\$0.00	\$62.30
	12/01/2022	\$37.41	\$9.10	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.31	\$9.10	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.21	\$9.10	\$16.64	\$0.00	\$64.95
For apprentice rates see "Apprentice- LABORER"						
BLOCK PAVER, RAMMER / CURB SETTER <i>LABORERS - ZONE 2</i>	12/01/2021	\$36.16	\$9.10	\$16.64	\$0.00	\$61.90
	06/01/2022	\$37.06	\$9.10	\$16.64	\$0.00	\$62.80
	12/01/2022	\$37.91	\$9.10	\$16.64	\$0.00	\$63.65
	06/01/2023	\$38.81	\$9.10	\$16.64	\$0.00	\$64.55
	12/01/2023	\$39.71	\$9.10	\$16.64	\$0.00	\$65.45
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
BLOCK PAVER, RAMMER / CURB SETTER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i> For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"	12/01/2021	\$36.16	\$9.10	\$16.64	\$0.00	\$61.90
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 (LOWELL)</i>	02/01/2022	\$55.01	\$11.39	\$21.65	\$0.00	\$88.05
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Apprentice - BRICK/PLASTER/CEMENT MASON - Local 3 Lowell

Effective Date - 02/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$27.51	\$11.39	\$21.65	\$0.00	\$60.55
2	60	\$33.01	\$11.39	\$21.65	\$0.00	\$66.05
3	70	\$38.51	\$11.39	\$21.65	\$0.00	\$71.55
4	80	\$44.01	\$11.39	\$21.65	\$0.00	\$77.05
5	90	\$49.51	\$11.39	\$21.65	\$0.00	\$82.55

Notes:

Apprentice to Journeyworker Ratio:1:5

BULLDOZER/GRADER/SCRAPER <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2021	\$50.83	\$14.00	\$16.05	\$0.00	\$80.88
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

CAISSON & UNDERPINNING BOTTOM MAN <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2021	\$42.33	\$9.10	\$17.72	\$0.00	\$69.15
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For apprentice rates see "Apprentice- LABORER"

CAISSON & UNDERPINNING LABORER <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2021	\$41.18	\$9.10	\$17.72	\$0.00	\$68.00
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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- LABORER"						
CAISSON & UNDERPINNING TOP MAN <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2021	\$41.18	\$9.10	\$17.72	\$0.00	\$68.00
For apprentice rates see "Apprentice- LABORER"						
CARBIDE CORE DRILL OPERATOR <i>LABORERS - ZONE 2</i>	12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40
	06/01/2022	\$36.56	\$9.10	\$16.64	\$0.00	\$62.30
	12/01/2022	\$37.41	\$9.10	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.31	\$9.10	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.21	\$9.10	\$16.64	\$0.00	\$64.95
For apprentice rates see "Apprentice- LABORER"						
CARPENTER <i>CARPENTERS -ZONE 2 (Eastern Massachusetts)</i>	09/01/2021	\$44.18	\$8.58	\$19.82	\$0.00	\$72.58
	03/01/2022	\$44.78	\$8.58	\$19.82	\$0.00	\$73.18
	09/01/2022	\$45.43	\$8.58	\$19.82	\$0.00	\$73.83
	03/01/2023	\$46.03	\$8.58	\$19.82	\$0.00	\$74.43

Apprentice - CARPENTER - Zone 2 Eastern MA

Effective Date - 09/01/2021

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.09	\$8.58	\$1.70	\$0.00	\$32.37
2	60	\$26.51	\$8.58	\$1.70	\$0.00	\$36.79
3	70	\$30.93	\$8.58	\$14.63	\$0.00	\$54.14
4	75	\$33.14	\$8.58	\$14.63	\$0.00	\$56.35
5	80	\$35.34	\$8.58	\$16.36	\$0.00	\$60.28
6	80	\$35.34	\$8.58	\$16.36	\$0.00	\$60.28
7	90	\$39.76	\$8.58	\$18.09	\$0.00	\$66.43
8	90	\$39.76	\$8.58	\$18.09	\$0.00	\$66.43

Effective Date - 03/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.39	\$8.58	\$1.70	\$0.00	\$32.67
2	60	\$26.87	\$8.58	\$1.70	\$0.00	\$37.15
3	70	\$31.35	\$8.58	\$14.63	\$0.00	\$54.56
4	75	\$33.59	\$8.58	\$14.63	\$0.00	\$56.80
5	80	\$35.82	\$8.58	\$16.36	\$0.00	\$60.76
6	80	\$35.82	\$8.58	\$16.36	\$0.00	\$60.76
7	90	\$40.30	\$8.58	\$18.09	\$0.00	\$66.97
8	90	\$40.30	\$8.58	\$18.09	\$0.00	\$66.97

Notes:

% Indentured After 10/1/17; 45/45/55/55/70/70/80/80
Step 1&2 \$30.19/ 3&4 \$36.28/ 5&6 \$55.87/ 7&8 \$62.01

Apprentice to Journeyworker Ratio:1:5

CARPENTER WOOD FRAME <i>CARPENTERS-ZONE 3 (Wood Frame)</i>	04/01/2021	\$23.16	\$7.21	\$4.80	\$0.00	\$35.17
	04/01/2022	\$23.66	\$7.21	\$4.80	\$0.00	\$35.67
	04/01/2023	\$24.16	\$7.21	\$4.80	\$0.00	\$36.17

All Aspects of New Wood Frame Work

Classification

Effective Date

Base Wage

Health

Pension

Supplemental
Unemployment

Total Rate

Apprentice - CARPENTER (Wood Frame) - Zone 3**Effective Date -** 04/01/2021

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$13.90	\$7.21	\$0.00	\$0.00	\$21.11
2	60	\$13.90	\$7.21	\$0.00	\$0.00	\$21.11
3	65	\$15.05	\$7.21	\$0.00	\$0.00	\$22.26
4	70	\$16.21	\$7.21	\$0.00	\$0.00	\$23.42
5	75	\$17.37	\$7.21	\$3.80	\$0.00	\$28.38
6	80	\$18.53	\$7.21	\$3.80	\$0.00	\$29.54
7	85	\$19.69	\$7.21	\$3.80	\$0.00	\$30.70
8	90	\$20.84	\$7.21	\$3.80	\$0.00	\$31.85

Effective Date - 04/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$14.20	\$7.21	\$0.00	\$0.00	\$21.41
2	60	\$14.20	\$7.21	\$0.00	\$0.00	\$21.41
3	65	\$15.38	\$7.21	\$0.00	\$0.00	\$22.59
4	70	\$16.56	\$7.21	\$0.00	\$0.00	\$23.77
5	75	\$17.75	\$7.21	\$3.80	\$0.00	\$28.76
6	80	\$18.93	\$7.21	\$3.80	\$0.00	\$29.94
7	85	\$20.11	\$7.21	\$3.80	\$0.00	\$31.12
8	90	\$21.29	\$7.21	\$3.80	\$0.00	\$32.30

Notes:

% Indentured After 10/1/17; 45/45/55/55/70/70/80/80
 Step 1&2 \$17.63/ 3&4 \$19.95/ 5&6 \$27.22/ 7&8 \$29.54

Apprentice to Journeyworker Ratio:1:5

CEMENT MASONRY/PLASTERING

01/01/2020

\$45.23

\$12.75

\$22.41

\$0.62

\$81.01

BRICKLAYERS LOCAL 3 (LOWELL)

Apprentice - CEMENT MASONRY/PLASTERING - Lowell**Effective Date -** 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.62	\$12.75	\$15.41	\$0.00	\$50.78
2	60	\$27.14	\$12.75	\$17.41	\$0.62	\$57.92
3	65	\$29.40	\$12.75	\$18.41	\$0.62	\$61.18
4	70	\$31.66	\$12.75	\$19.41	\$0.62	\$64.44
5	75	\$33.92	\$12.75	\$20.41	\$0.62	\$67.70
6	80	\$36.18	\$12.75	\$21.41	\$0.62	\$70.96
7	90	\$40.71	\$12.75	\$22.41	\$0.62	\$76.49

Notes:

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

Apprentice to Journeyworker Ratio:1:3

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
CHAIN SAW OPERATOR <i>LABORERS - ZONE 2</i>	12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40
	06/01/2022	\$36.56	\$9.10	\$16.64	\$0.00	\$62.30
	12/01/2022	\$37.41	\$9.10	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.31	\$9.10	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.21	\$9.10	\$16.64	\$0.00	\$64.95
For apprentice rates see "Apprentice- LABORER"						
CLAM SHELLS/SLURRY BUCKETS/HEADING MACHINES <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2021	\$52.38	\$14.00	\$16.05	\$0.00	\$82.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
COMPRESSOR OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2021	\$33.69	\$14.00	\$16.05	\$0.00	\$63.74
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DELEADER (BRIDGE) <i>PAINTERS LOCAL 35 - ZONE 2</i>	01/01/2022	\$53.66	\$8.65	\$23.05	\$0.00	\$85.36
	07/01/2022	\$54.86	\$8.65	\$23.05	\$0.00	\$86.56
	01/01/2023	\$56.06	\$8.65	\$23.05	\$0.00	\$87.76
	07/01/2023	\$57.26	\$8.65	\$23.05	\$0.00	\$88.96
	01/01/2024	\$58.46	\$8.65	\$23.05	\$0.00	\$90.16
	07/01/2024	\$59.66	\$8.65	\$23.05	\$0.00	\$91.36
	01/01/2025	\$60.86	\$8.65	\$23.05	\$0.00	\$92.56

Classification
Effective Date
Base Wage
Health
Pension
**Supplemental
Unemployment**
Total Rate
Apprentice - PAINTER Local 35 - BRIDGES/TANKS
Effective Date - 01/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$26.83	\$8.65	\$0.00	\$0.00	\$35.48
2	55	\$29.51	\$8.65	\$6.27	\$0.00	\$44.43
3	60	\$32.20	\$8.65	\$6.84	\$0.00	\$47.69
4	65	\$34.88	\$8.65	\$7.41	\$0.00	\$50.94
5	70	\$37.56	\$8.65	\$19.63	\$0.00	\$65.84
6	75	\$40.25	\$8.65	\$20.20	\$0.00	\$69.10
7	80	\$42.93	\$8.65	\$20.77	\$0.00	\$72.35
8	90	\$48.29	\$8.65	\$21.91	\$0.00	\$78.85

Effective Date - 07/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$27.43	\$8.65	\$0.00	\$0.00	\$36.08
2	55	\$30.17	\$8.65	\$6.27	\$0.00	\$45.09
3	60	\$32.92	\$8.65	\$6.84	\$0.00	\$48.41
4	65	\$35.66	\$8.65	\$7.41	\$0.00	\$51.72
5	70	\$38.40	\$8.65	\$19.63	\$0.00	\$66.68
6	75	\$41.15	\$8.65	\$20.20	\$0.00	\$70.00
7	80	\$43.89	\$8.65	\$20.77	\$0.00	\$73.31
8	90	\$49.37	\$8.65	\$21.91	\$0.00	\$79.93

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1
DEMO: ADZEMAN
LABORERS - ZONE 2

12/01/2021	\$41.33	\$9.10	\$17.57	\$0.00	\$68.00
06/01/2022	\$42.33	\$9.10	\$17.57	\$0.00	\$69.00
12/01/2022	\$43.33	\$9.10	\$17.57	\$0.00	\$70.00
06/01/2023	\$44.33	\$9.10	\$17.57	\$0.00	\$71.00
12/01/2023	\$45.58	\$9.10	\$17.57	\$0.00	\$72.25

For apprentice rates see "Apprentice- LABORER"

DEMO: BACKHOE/LOADER/HAMMER OPERATOR
LABORERS - ZONE 2

12/01/2021	\$42.33	\$9.10	\$17.57	\$0.00	\$69.00
06/01/2022	\$43.33	\$9.10	\$17.57	\$0.00	\$70.00
12/01/2022	\$44.33	\$9.10	\$17.57	\$0.00	\$71.00
06/01/2023	\$45.33	\$9.10	\$17.57	\$0.00	\$72.00
12/01/2023	\$46.58	\$9.10	\$17.57	\$0.00	\$73.25

For apprentice rates see "Apprentice- LABORER"

DEMO: BURNERS
LABORERS - ZONE 2

12/01/2021	\$42.08	\$9.10	\$17.57	\$0.00	\$68.75
06/01/2022	\$43.08	\$9.10	\$17.57	\$0.00	\$69.75
12/01/2022	\$44.08	\$9.10	\$17.57	\$0.00	\$70.75
06/01/2023	\$45.08	\$9.10	\$17.57	\$0.00	\$71.75
12/01/2023	\$46.33	\$9.10	\$17.57	\$0.00	\$73.00

For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
DEMO: CONCRETE CUTTER/SAWYER <i>LABORERS - ZONE 2</i>	12/01/2021	\$42.33	\$9.10	\$17.57	\$0.00	\$69.00
	06/01/2022	\$43.33	\$9.10	\$17.57	\$0.00	\$70.00
	12/01/2022	\$44.33	\$9.10	\$17.57	\$0.00	\$71.00
	06/01/2023	\$45.33	\$9.10	\$17.57	\$0.00	\$72.00
	12/01/2023	\$46.58	\$9.10	\$17.57	\$0.00	\$73.25
For apprentice rates see "Apprentice- LABORER"						
DEMO: JACKHAMMER OPERATOR <i>LABORERS - ZONE 2</i>	12/01/2021	\$42.08	\$9.10	\$17.57	\$0.00	\$68.75
	06/01/2022	\$43.08	\$9.10	\$17.57	\$0.00	\$69.75
	12/01/2022	\$44.08	\$9.10	\$17.57	\$0.00	\$70.75
	06/01/2023	\$45.08	\$9.10	\$17.57	\$0.00	\$71.75
	12/01/2023	\$46.33	\$9.10	\$17.57	\$0.00	\$73.00
For apprentice rates see "Apprentice- LABORER"						
DEMO: WRECKING LABORER <i>LABORERS - ZONE 2</i>	12/01/2021	\$41.33	\$9.10	\$17.57	\$0.00	\$68.00
	06/01/2022	\$42.33	\$9.10	\$17.57	\$0.00	\$69.00
	12/01/2022	\$43.33	\$9.10	\$17.57	\$0.00	\$70.00
	06/01/2023	\$44.33	\$9.10	\$17.57	\$0.00	\$71.00
	12/01/2023	\$45.58	\$9.10	\$17.57	\$0.00	\$72.25
For apprentice rates see "Apprentice- LABORER"						
DIRECTIONAL DRILL MACHINE OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2021	\$50.83	\$14.00	\$16.05	\$0.00	\$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DIVER <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2020	\$68.70	\$9.40	\$23.12	\$0.00	\$101.22
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2020	\$49.07	\$9.40	\$23.12	\$0.00	\$81.59
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2020	\$73.60	\$9.40	\$23.12	\$0.00	\$106.12
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER/SLURRY (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2020	\$103.05	\$9.40	\$23.12	\$0.00	\$135.57
For apprentice rates see "Apprentice- PILE DRIVER"						
DRAWBRIDGE OPERATOR (Construction) <i>DRAWBRIDGE - SEIU LOCAL 888</i>	07/01/2020	\$26.77	\$6.67	\$3.93	\$0.16	\$37.53
ELECTRICIAN <i>ELECTRICIANS LOCAL 103</i>	09/01/2021	\$56.36	\$13.00	\$20.54	\$0.00	\$89.90
	03/01/2022	\$57.32	\$13.00	\$20.82	\$0.00	\$91.14
	09/01/2022	\$58.76	\$13.00	\$20.86	\$0.00	\$92.62
	03/01/2023	\$60.43	\$13.00	\$20.91	\$0.00	\$94.34

Classification
Effective Date
Base Wage
Health
Pension
**Supplemental
Unemployment**
Total Rate
Apprentice - ELECTRICIAN - Local 103
Effective Date - 09/01/2021

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$22.54	\$13.00	\$0.68	\$0.00	\$36.22
2	40	\$22.54	\$13.00	\$0.68	\$0.00	\$36.22
3	45	\$25.36	\$13.00	\$15.36	\$0.00	\$53.72
4	45	\$25.36	\$13.00	\$15.36	\$0.00	\$53.72
5	50	\$28.18	\$13.00	\$15.84	\$0.00	\$57.02
6	55	\$31.00	\$13.00	\$16.31	\$0.00	\$60.31
7	60	\$33.82	\$13.00	\$16.77	\$0.00	\$63.59
8	65	\$36.63	\$13.00	\$17.25	\$0.00	\$66.88
9	70	\$39.45	\$13.00	\$17.71	\$0.00	\$70.16
10	75	\$42.27	\$13.00	\$18.19	\$0.00	\$73.46

Effective Date - 03/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$22.93	\$13.00	\$0.69	\$0.00	\$36.62
2	40	\$22.93	\$13.00	\$0.69	\$0.00	\$36.62
3	45	\$25.79	\$13.00	\$15.62	\$0.00	\$54.41
4	45	\$25.79	\$13.00	\$15.62	\$0.00	\$54.41
5	50	\$28.66	\$13.00	\$16.10	\$0.00	\$57.76
6	55	\$31.53	\$13.00	\$16.58	\$0.00	\$61.11
7	60	\$34.39	\$13.00	\$17.04	\$0.00	\$64.43
8	65	\$37.26	\$13.00	\$17.52	\$0.00	\$67.78
9	70	\$40.12	\$13.00	\$17.98	\$0.00	\$71.10
10	75	\$42.99	\$13.00	\$18.46	\$0.00	\$74.45

Notes: :

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

Apprentice to Journeyworker Ratio:2:3***

 ELEVATOR CONSTRUCTOR
 ELEVATOR CONSTRUCTORS LOCAL 4

01/01/2022

\$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 - 01/01/2022						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$32.81	\$16.03	\$0.00	\$0.00	\$48.84
2	55	\$36.09	\$16.03	\$20.21	\$0.00	\$72.33
3	65	\$42.65	\$16.03	\$20.21	\$0.00	\$78.89
4	70	\$45.93	\$16.03	\$20.21	\$0.00	\$82.17
5	80	\$52.50	\$16.03	\$20.21	\$0.00	\$88.74
Notes: Steps 1-2 are 6 mos.; Steps 3-5 are 1 year						
Apprentice to Journeyworker Ratio:1:1						
ELEVATOR CONSTRUCTOR HELPER <i>ELEVATOR CONSTRUCTORS LOCAL 4</i>	01/01/2022	\$45.93	\$16.03	\$20.21	\$0.00	\$82.17
For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"						
FENCE & GUARD RAIL ERECTOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
FIELD ENG.INST.PERSON-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	11/01/2021	\$46.53	\$13.75	\$15.80	\$0.00	\$76.08
	05/01/2022	\$47.86	\$13.75	\$15.80	\$0.00	\$77.41
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIELD ENG.PARTY CHIEF-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	11/01/2021	\$48.06	\$13.75	\$15.80	\$0.00	\$77.61
	05/01/2022	\$49.22	\$13.75	\$15.80	\$0.00	\$78.77
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIELD ENG.ROD PERSON-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	11/01/2021	\$23.16	\$13.75	\$15.80	\$0.00	\$52.71
	05/01/2022	\$23.83	\$13.75	\$15.80	\$0.00	\$53.38
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIRE ALARM INSTALLER <i>ELECTRICIANS LOCAL 103</i>	09/01/2021	\$56.36	\$13.00	\$20.54	\$0.00	\$89.90
	03/01/2022	\$57.32	\$13.00	\$20.82	\$0.00	\$91.14
	09/01/2022	\$58.76	\$13.00	\$20.86	\$0.00	\$92.62
	03/01/2023	\$60.43	\$13.00	\$20.91	\$0.00	\$94.34
For apprentice rates see "Apprentice- ELECTRICIAN"						
FIRE ALARM REPAIR / MAINTENANCE / COMMISSIONING <i>ELECTRICIANS LOCAL 103</i>	09/01/2021	\$43.40	\$13.00	\$18.37	\$0.00	\$74.77
	03/01/2022	\$44.71	\$13.00	\$18.74	\$0.00	\$76.45
	09/01/2022	\$46.42	\$13.00	\$18.87	\$0.00	\$78.29
	03/01/2023	\$48.34	\$13.00	\$19.01	\$0.00	\$80.35
For apprentice rates see "Apprentice- TELECOMMUNICATIONS TECHNICIAN"						
FIREMAN (ASST. ENGINEER) <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2021	\$41.76	\$14.00	\$16.05	\$0.00	\$71.81
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FLAGGER & SIGNALER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	12/01/2021	\$24.50	\$9.10	\$16.64	\$0.00	\$50.24
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
FLOORCOVERER <i>FLOORCOVERERS LOCAL 2168 ZONE I</i>	09/01/2021	\$49.38	\$8.58	\$20.12	\$0.00	\$78.08
	03/01/2022	\$50.18	\$8.58	\$20.12	\$0.00	\$78.88

Apprentice - FLOORCOVERER - Local 2168 Zone I

Effective Date - 09/01/2021

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.69	\$8.58	\$1.79	\$0.00	\$35.06
2	55	\$27.16	\$8.58	\$1.79	\$0.00	\$37.53
3	60	\$29.63	\$8.58	\$14.75	\$0.00	\$52.96
4	65	\$32.10	\$8.58	\$14.75	\$0.00	\$55.43
5	70	\$34.57	\$8.58	\$16.54	\$0.00	\$59.69
6	75	\$37.04	\$8.58	\$16.54	\$0.00	\$62.16
7	80	\$39.50	\$8.58	\$18.33	\$0.00	\$66.41
8	85	\$41.97	\$8.58	\$18.33	\$0.00	\$68.88

Effective Date - 03/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.09	\$8.58	\$1.79	\$0.00	\$35.46
2	55	\$27.60	\$8.58	\$1.79	\$0.00	\$37.97
3	60	\$30.11	\$8.58	\$14.75	\$0.00	\$53.44
4	65	\$32.62	\$8.58	\$14.75	\$0.00	\$55.95
5	70	\$35.13	\$8.58	\$16.54	\$0.00	\$60.25
6	75	\$37.64	\$8.58	\$16.54	\$0.00	\$62.76
7	80	\$40.14	\$8.58	\$18.33	\$0.00	\$67.05
8	85	\$42.65	\$8.58	\$18.33	\$0.00	\$69.56

Notes: Steps are 750 hrs.

% After 10/1/17; 45/45/55/55/70/70/80/80 (1500hr Steps)

Step 1&2 \$32.59/ 3&4 \$39.26/ 5&6 \$59.69/ 7&8 \$66.41

Apprentice to Journeyworker Ratio:1:1

FORK LIFT/CHERRY PICKER OPERATING ENGINEERS LOCAL 4	12/01/2021	\$51.38	\$14.00	\$16.05	\$0.00	\$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GENERATOR/LIGHTING PLANT/HEATERS OPERATING ENGINEERS LOCAL 4	12/01/2021	\$33.69	\$14.00	\$16.05	\$0.00	\$63.74
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS) GLAZIERS LOCAL 35 (ZONE 2)	01/01/2022	\$43.16	\$8.65	\$23.05	\$0.00	\$74.86
	07/01/2022	\$44.36	\$8.65	\$23.05	\$0.00	\$76.06
	01/01/2023	\$45.56	\$8.65	\$23.05	\$0.00	\$77.26
	07/01/2023	\$46.76	\$8.65	\$23.05	\$0.00	\$78.46
	01/01/2024	\$47.96	\$8.65	\$23.05	\$0.00	\$79.66
	07/01/2024	\$49.16	\$8.65	\$23.05	\$0.00	\$80.86
	01/01/2025	\$50.36	\$8.65	\$23.05	\$0.00	\$82.06

Classification

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

Apprentice - GLAZIER - Local 35 Zone 2

Effective Date - 01/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.58	\$8.65	\$0.00	\$0.00	\$30.23
2	55	\$23.74	\$8.65	\$6.27	\$0.00	\$38.66
3	60	\$25.90	\$8.65	\$6.84	\$0.00	\$41.39
4	65	\$28.05	\$8.65	\$7.41	\$0.00	\$44.11
5	70	\$30.21	\$8.65	\$19.63	\$0.00	\$58.49
6	75	\$32.37	\$8.65	\$20.20	\$0.00	\$61.22
7	80	\$34.53	\$8.65	\$20.77	\$0.00	\$63.95
8	90	\$38.84	\$8.65	\$21.91	\$0.00	\$69.40

Effective Date - 07/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.18	\$8.65	\$0.00	\$0.00	\$30.83
2	55	\$24.40	\$8.65	\$6.27	\$0.00	\$39.32
3	60	\$26.62	\$8.65	\$6.84	\$0.00	\$42.11
4	65	\$28.83	\$8.65	\$7.41	\$0.00	\$44.89
5	70	\$31.05	\$8.65	\$19.63	\$0.00	\$59.33
6	75	\$33.27	\$8.65	\$20.20	\$0.00	\$62.12
7	80	\$35.49	\$8.65	\$20.77	\$0.00	\$64.91
8	90	\$39.92	\$8.65	\$21.91	\$0.00	\$70.48

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

HOISTING ENGINEER/CRANES/GRADALLS OPERATING ENGINEERS LOCAL 4	12/01/2021	\$51.38	\$14.00	\$16.05	\$0.00	\$81.43
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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Apprentice - OPERATING ENGINEERS - Local 4						
Effective Date - 12/01/2021						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$28.26	\$14.00	\$0.00	\$0.00	\$42.26
2	60	\$30.83	\$14.00	\$16.05	\$0.00	\$60.88
3	65	\$33.40	\$14.00	\$16.05	\$0.00	\$63.45
4	70	\$35.97	\$14.00	\$16.05	\$0.00	\$66.02
5	75	\$38.54	\$14.00	\$16.05	\$0.00	\$68.59
6	80	\$41.10	\$14.00	\$16.05	\$0.00	\$71.15
7	85	\$43.67	\$14.00	\$16.05	\$0.00	\$73.72
8	90	\$46.24	\$14.00	\$16.05	\$0.00	\$76.29
Notes:						
Apprentice to Journeyworker Ratio:1:6						

HVAC (DUCTWORK) <i>SHEETMETAL WORKERS LOCAL 17 - A</i>	02/01/2022	\$53.70	\$13.80	\$25.60	\$2.79	\$95.89
For apprentice rates see "Apprentice- SHEET METAL WORKER"						
HVAC (ELECTRICAL CONTROLS) <i>ELECTRICIANS LOCAL 103</i>	09/01/2021	\$56.36	\$13.00	\$20.54	\$0.00	\$89.90
	03/01/2022	\$57.32	\$13.00	\$20.82	\$0.00	\$91.14
	09/01/2022	\$58.76	\$13.00	\$20.86	\$0.00	\$92.62
	03/01/2023	\$60.43	\$13.00	\$20.91	\$0.00	\$94.34
For apprentice rates see "Apprentice- ELECTRICIAN"						
HVAC (TESTING AND BALANCING - AIR) <i>SHEETMETAL WORKERS LOCAL 17 - A</i>	02/01/2022	\$53.70	\$13.80	\$25.60	\$2.79	\$95.89
For apprentice rates see "Apprentice- SHEET METAL WORKER"						
HVAC (TESTING AND BALANCING -WATER) <i>PIPEFITTERS LOCAL 537</i>	03/01/2021	\$57.94	\$11.70	\$20.24	\$0.00	\$89.88
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HVAC MECHANIC <i>PIPEFITTERS LOCAL 537</i>	03/01/2021	\$57.94	\$11.70	\$20.24	\$0.00	\$89.88
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HYDRAULIC DRILLS <i>LABORERS - ZONE 2</i>	12/01/2021	\$36.16	\$9.10	\$16.64	\$0.00	\$61.90
	06/01/2022	\$37.06	\$9.10	\$16.64	\$0.00	\$62.80
	12/01/2022	\$37.91	\$9.10	\$16.64	\$0.00	\$63.65
	06/01/2023	\$38.81	\$9.10	\$16.64	\$0.00	\$64.55
	12/01/2023	\$39.71	\$9.10	\$16.64	\$0.00	\$65.45
For apprentice rates see "Apprentice- LABORER"						
HYDRAULIC DRILLS (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	12/01/2021	\$36.16	\$9.10	\$16.64	\$0.00	\$61.90
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
INSULATOR (PIPES & TANKS) <i>HEAT & FROST INSULATORS LOCAL 6 (BOSTON)</i>	09/01/2021	\$51.40	\$13.80	\$17.14	\$0.00	\$82.34
	09/01/2022	\$53.85	\$13.80	\$17.14	\$0.00	\$84.79

Apprentice - ASBESTOS INSULATOR (Pipes & Tanks) - Local 6 Boston**Effective Date - 09/01/2021**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.70	\$13.80	\$12.42	\$0.00	\$51.92
2	60	\$30.84	\$13.80	\$13.36	\$0.00	\$58.00
3	70	\$35.98	\$13.80	\$14.31	\$0.00	\$64.09
4	80	\$41.12	\$13.80	\$15.25	\$0.00	\$70.17

Effective Date - 09/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$26.93	\$13.80	\$12.42	\$0.00	\$53.15
2	60	\$32.31	\$13.80	\$13.36	\$0.00	\$59.47
3	70	\$37.70	\$13.80	\$14.31	\$0.00	\$65.81
4	80	\$43.08	\$13.80	\$15.25	\$0.00	\$72.13

Notes:

Steps are 1 year

Apprentice to Journeyworker Ratio:1:4

IRONWORKER/WELDER	09/16/2021	\$45.72	\$8.15	\$25.80	\$0.00	\$79.67
IRONWORKERS LOCAL 7 (LAWRENCE AREA)	03/16/2022	\$46.19	\$8.20	\$26.50	\$0.00	\$80.89

Apprentice - IRONWORKER - Local 7 Lawrence**Effective Date - 09/16/2021**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$27.43	\$8.15	\$25.80	\$0.00	\$61.38
2	70	\$32.00	\$8.15	\$25.80	\$0.00	\$65.95
3	75	\$34.29	\$8.15	\$25.80	\$0.00	\$68.24
4	80	\$36.58	\$8.15	\$25.80	\$0.00	\$70.53
5	85	\$38.86	\$8.15	\$25.80	\$0.00	\$72.81
6	90	\$41.15	\$8.15	\$25.80	\$0.00	\$75.10

Effective Date - 03/16/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$27.71	\$8.20	\$26.50	\$0.00	\$62.41
2	70	\$32.33	\$8.20	\$26.50	\$0.00	\$67.03
3	75	\$34.64	\$8.20	\$26.50	\$0.00	\$69.34
4	80	\$36.95	\$8.20	\$26.50	\$0.00	\$71.65
5	85	\$39.26	\$8.20	\$26.50	\$0.00	\$73.96
6	90	\$41.57	\$8.20	\$26.50	\$0.00	\$76.27

Notes:

Structural 1:6; Ornamental 1:4

Apprentice to Journeyworker Ratio:

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
JACKHAMMER & PAVING BREAKER OPERATOR <i>LABORERS - ZONE 2</i>	12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40
	06/01/2022	\$36.56	\$9.10	\$16.64	\$0.00	\$62.30
	12/01/2022	\$37.41	\$9.10	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.31	\$9.10	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.21	\$9.10	\$16.64	\$0.00	\$64.95
For apprentice rates see "Apprentice- LABORER"						

LABORER <i>LABORERS - ZONE 2</i>	12/01/2021	\$35.41	\$9.10	\$16.64	\$0.00	\$61.15
	06/01/2022	\$36.31	\$9.10	\$16.64	\$0.00	\$62.05
	12/01/2022	\$37.16	\$9.10	\$16.64	\$0.00	\$62.90
	06/01/2023	\$38.06	\$9.10	\$16.64	\$0.00	\$63.80
	12/01/2023	\$38.96	\$9.10	\$16.64	\$0.00	\$64.70

Apprentice - LABORER - Zone 2

Effective Date - 12/01/2021

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$21.25	\$9.10	\$16.64	\$0.00	\$46.99
2	70	\$24.79	\$9.10	\$16.64	\$0.00	\$50.53
3	80	\$28.33	\$9.10	\$16.64	\$0.00	\$54.07
4	90	\$31.87	\$9.10	\$16.64	\$0.00	\$57.61

Effective Date - 06/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$21.79	\$9.10	\$16.64	\$0.00	\$47.53
2	70	\$25.42	\$9.10	\$16.64	\$0.00	\$51.16
3	80	\$29.05	\$9.10	\$16.64	\$0.00	\$54.79
4	90	\$32.68	\$9.10	\$16.64	\$0.00	\$58.42

Notes:

Apprentice to Journeyworker Ratio:1:5

LABORER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	12/01/2021	\$35.41	\$9.10	\$16.64	\$0.00	\$61.15
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Apprentice - LABORER (Heavy & Highway) - Zone 2

Effective Date - 12/01/2021

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$21.25	\$9.10	\$16.64	\$0.00	\$46.99
2	70	\$24.79	\$9.10	\$16.64	\$0.00	\$50.53
3	80	\$28.33	\$9.10	\$16.64	\$0.00	\$54.07
4	90	\$31.87	\$9.10	\$16.64	\$0.00	\$57.61

Notes:

Apprentice to Journeyworker Ratio:1:5

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
LABORER: CARPENTER TENDER <i>LABORERS - ZONE 2</i>	12/01/2021	\$35.41	\$9.10	\$16.64	\$0.00	\$61.15
	06/01/2022	\$36.31	\$9.10	\$16.64	\$0.00	\$62.05
	12/01/2022	\$37.16	\$9.10	\$16.64	\$0.00	\$62.90
	06/01/2023	\$38.06	\$9.10	\$16.64	\$0.00	\$63.80
	12/01/2023	\$38.96	\$9.10	\$16.64	\$0.00	\$64.70
For apprentice rates see "Apprentice- LABORER"						
LABORER: CEMENT FINISHER TENDER <i>LABORERS - ZONE 2</i>	12/01/2021	\$35.41	\$9.10	\$16.64	\$0.00	\$61.15
	06/01/2022	\$36.31	\$9.10	\$16.64	\$0.00	\$62.05
	12/01/2022	\$37.16	\$9.10	\$16.64	\$0.00	\$62.90
	06/01/2023	\$38.06	\$9.10	\$16.64	\$0.00	\$63.80
	12/01/2023	\$38.96	\$9.10	\$16.64	\$0.00	\$64.70
For apprentice rates see "Apprentice- LABORER"						
LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER <i>LABORERS - ZONE 2</i>	12/01/2021	\$35.50	\$9.10	\$16.70	\$0.00	\$61.30
	06/01/2022	\$36.40	\$9.10	\$16.70	\$0.00	\$62.20
	12/01/2022	\$37.25	\$9.10	\$16.70	\$0.00	\$63.05
	06/01/2023	\$38.15	\$9.10	\$16.70	\$0.00	\$63.95
	12/01/2023	\$39.05	\$9.10	\$16.70	\$0.00	\$64.85
For apprentice rates see "Apprentice- LABORER"						
LABORER: MASON TENDER <i>LABORERS - ZONE 2</i>	12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40
	06/01/2022	\$36.56	\$9.10	\$16.64	\$0.00	\$62.30
	12/01/2022	\$37.41	\$9.10	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.31	\$9.10	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.21	\$9.10	\$16.64	\$0.00	\$64.95
For apprentice rates see "Apprentice- LABORER"						
LABORER: MASON TENDER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
LABORER: MULTI-TRADE TENDER <i>LABORERS - ZONE 2</i>	12/01/2021	\$35.41	\$9.10	\$16.64	\$0.00	\$61.15
	06/01/2022	\$36.31	\$9.10	\$16.64	\$0.00	\$62.05
	12/01/2022	\$37.16	\$9.10	\$16.64	\$0.00	\$62.90
	06/01/2023	\$38.06	\$9.10	\$16.64	\$0.00	\$63.80
	12/01/2023	\$38.96	\$9.10	\$16.64	\$0.00	\$64.70
For apprentice rates see "Apprentice- LABORER"						
LABORER: TREE REMOVER <i>LABORERS - ZONE 2</i>	12/01/2021	\$35.41	\$9.10	\$16.64	\$0.00	\$61.15
	06/01/2022	\$36.31	\$9.10	\$16.64	\$0.00	\$62.05
	12/01/2022	\$37.16	\$9.10	\$16.64	\$0.00	\$62.90
	06/01/2023	\$38.06	\$9.10	\$16.64	\$0.00	\$63.80
	12/01/2023	\$38.96	\$9.10	\$16.64	\$0.00	\$64.70
This classification applies to the removal of standing trees, and the trimming and removal of branches and limbs when related to public works construction or site clearance incidental to construction . For apprentice rates see "Apprentice- LABORER"						
LASER BEAM OPERATOR <i>LABORERS - ZONE 2</i>	12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40
	06/01/2022	\$36.56	\$9.10	\$16.64	\$0.00	\$62.30
	12/01/2022	\$37.41	\$9.10	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.31	\$9.10	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.21	\$9.10	\$16.64	\$0.00	\$64.95
For apprentice rates see "Apprentice- LABORER"						
LASER BEAM OPERATOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate																																										
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)																																																
MARBLE & TILE FINISHERS BRICKLAYERS LOCAL 3 - MARBLE & TILE	02/01/2022	\$43.69	\$11.39	\$20.37	\$0.00	\$75.45																																										
Apprentice - MARBLE & TILE FINISHER - Local 3 Marble & Tile Effective Date - 02/01/2022 <table> <tr> <th>Step</th><th>percent</th><th>Apprentice Base Wage</th><th>Health</th><th>Pension</th><th>Supplemental Unemployment</th><th>Total Rate</th></tr> <tr> <td>1</td><td>50</td><td>\$21.85</td><td>\$11.39</td><td>\$20.37</td><td>\$0.00</td><td>\$53.61</td></tr> <tr> <td>2</td><td>60</td><td>\$26.21</td><td>\$11.39</td><td>\$20.37</td><td>\$0.00</td><td>\$57.97</td></tr> <tr> <td>3</td><td>70</td><td>\$30.58</td><td>\$11.39</td><td>\$20.37</td><td>\$0.00</td><td>\$62.34</td></tr> <tr> <td>4</td><td>80</td><td>\$34.95</td><td>\$11.39</td><td>\$20.37</td><td>\$0.00</td><td>\$66.71</td></tr> <tr> <td>5</td><td>90</td><td>\$39.32</td><td>\$11.39</td><td>\$20.37</td><td>\$0.00</td><td>\$71.08</td></tr> </table> <div>Notes:</div> Apprentice to Journeyworker Ratio:1:3							Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate	1	50	\$21.85	\$11.39	\$20.37	\$0.00	\$53.61	2	60	\$26.21	\$11.39	\$20.37	\$0.00	\$57.97	3	70	\$30.58	\$11.39	\$20.37	\$0.00	\$62.34	4	80	\$34.95	\$11.39	\$20.37	\$0.00	\$66.71	5	90	\$39.32	\$11.39	\$20.37	\$0.00	\$71.08
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate																																										
1	50	\$21.85	\$11.39	\$20.37	\$0.00	\$53.61																																										
2	60	\$26.21	\$11.39	\$20.37	\$0.00	\$57.97																																										
3	70	\$30.58	\$11.39	\$20.37	\$0.00	\$62.34																																										
4	80	\$34.95	\$11.39	\$20.37	\$0.00	\$66.71																																										
5	90	\$39.32	\$11.39	\$20.37	\$0.00	\$71.08																																										
MARBLE MASONS,TILELAYERS & TERRAZZO MECH BRICKLAYERS LOCAL 3 - MARBLE & TILE	02/01/2022	\$57.17	\$11.39	\$22.31	\$0.00	\$90.87																																										
Apprentice - MARBLE-TILE-TERRAZZO MECHANIC - Local 3 Marble & Tile Effective Date - 02/01/2022 <table> <tr> <th>Step</th><th>percent</th><th>Apprentice Base Wage</th><th>Health</th><th>Pension</th><th>Supplemental Unemployment</th><th>Total Rate</th></tr> <tr> <td>1</td><td>50</td><td>\$28.59</td><td>\$11.39</td><td>\$22.31</td><td>\$0.00</td><td>\$62.29</td></tr> <tr> <td>2</td><td>60</td><td>\$34.30</td><td>\$11.39</td><td>\$22.31</td><td>\$0.00</td><td>\$68.00</td></tr> <tr> <td>3</td><td>70</td><td>\$40.02</td><td>\$11.39</td><td>\$22.31</td><td>\$0.00</td><td>\$73.72</td></tr> <tr> <td>4</td><td>80</td><td>\$45.74</td><td>\$11.39</td><td>\$22.31</td><td>\$0.00</td><td>\$79.44</td></tr> <tr> <td>5</td><td>90</td><td>\$51.45</td><td>\$11.39</td><td>\$22.31</td><td>\$0.00</td><td>\$85.15</td></tr> </table> <div>Notes:</div> Apprentice to Journeyworker Ratio:1:5							Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate	1	50	\$28.59	\$11.39	\$22.31	\$0.00	\$62.29	2	60	\$34.30	\$11.39	\$22.31	\$0.00	\$68.00	3	70	\$40.02	\$11.39	\$22.31	\$0.00	\$73.72	4	80	\$45.74	\$11.39	\$22.31	\$0.00	\$79.44	5	90	\$51.45	\$11.39	\$22.31	\$0.00	\$85.15
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate																																										
1	50	\$28.59	\$11.39	\$22.31	\$0.00	\$62.29																																										
2	60	\$34.30	\$11.39	\$22.31	\$0.00	\$68.00																																										
3	70	\$40.02	\$11.39	\$22.31	\$0.00	\$73.72																																										
4	80	\$45.74	\$11.39	\$22.31	\$0.00	\$79.44																																										
5	90	\$51.45	\$11.39	\$22.31	\$0.00	\$85.15																																										
MECH. SWEEPER OPERATOR (ON CONST. SITES) OPERATING ENGINEERS LOCAL 4	12/01/2021	\$50.83	\$14.00	\$16.05	\$0.00	\$80.88																																										
For apprentice rates see "Apprentice- OPERATING ENGINEERS"																																																
MECHANICS MAINTENANCE OPERATING ENGINEERS LOCAL 4	12/01/2021	\$50.83	\$14.00	\$16.05	\$0.00	\$80.88																																										
For apprentice rates see "Apprentice- OPERATING ENGINEERS"																																																
MILLWRIGHT (Zone 2) MILLWRIGHTS LOCAL 1121 - Zone 2	01/03/2022	\$40.67	\$8.58	\$21.57	\$0.00	\$70.82																																										
	01/02/2023	\$41.92	\$8.58	\$21.57	\$0.00	\$72.07																																										

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Apprentice - MILLWRIGHT - Local 1121 Zone 2						
Effective Date - 01/03/2022						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$22.37	\$8.58	\$5.72	\$0.00	\$36.67
2	65	\$26.44	\$8.58	\$17.93	\$0.00	\$52.95
3	75	\$30.50	\$8.58	\$18.98	\$0.00	\$58.06
4	85	\$34.57	\$8.58	\$20.01	\$0.00	\$63.16
Effective Date - 01/02/2023						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$23.06	\$8.58	\$5.72	\$0.00	\$37.36
2	65	\$27.25	\$8.58	\$17.93	\$0.00	\$53.76
3	75	\$31.44	\$8.58	\$18.98	\$0.00	\$59.00
4	85	\$35.63	\$8.58	\$20.01	\$0.00	\$64.22
Notes: Step 1&2 Appr. indentured after 1/6/2020 receive no pension, but do receive annuity. (Step 1 \$5.72, Step 2 \$6.66) Steps are 2,000 hours						
Apprentice to Journeyworker Ratio:1:4						
MORTAR MIXER	12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40
LABORERS - ZONE 2	06/01/2022	\$36.56	\$9.10	\$16.64	\$0.00	\$62.30
	12/01/2022	\$37.41	\$9.10	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.31	\$9.10	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.21	\$9.10	\$16.64	\$0.00	\$64.95
For apprentice rates see "Apprentice- LABORER"						
OILER (OTHER THAN TRUCK CRANES,GRADALLS)	12/01/2021	\$23.48	\$14.00	\$16.05	\$0.00	\$53.53
OPERATING ENGINEERS LOCAL 4						
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
OILER (TRUCK CRANES, GRADALLS)	12/01/2021	\$28.44	\$14.00	\$16.05	\$0.00	\$58.49
OPERATING ENGINEERS LOCAL 4						
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
OTHER POWER DRIVEN EQUIPMENT - CLASS II	12/01/2021	\$50.83	\$14.00	\$16.05	\$0.00	\$80.88
OPERATING ENGINEERS LOCAL 4						
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PAINTER (BRIDGES/TANKS)	01/01/2022	\$53.66	\$8.65	\$23.05	\$0.00	\$85.36
PAINTERS LOCAL 35 - ZONE 2	07/01/2022	\$54.86	\$8.65	\$23.05	\$0.00	\$86.56
	01/01/2023	\$56.06	\$8.65	\$23.05	\$0.00	\$87.76
	07/01/2023	\$57.26	\$8.65	\$23.05	\$0.00	\$88.96
	01/01/2024	\$58.46	\$8.65	\$23.05	\$0.00	\$90.16
	07/01/2024	\$59.66	\$8.65	\$23.05	\$0.00	\$91.36
	01/01/2025	\$60.86	\$8.65	\$23.05	\$0.00	\$92.56

Apprentice - PAINTER Local 35 - BRIDGES/TANKS**Effective Date - 01/01/2022**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$26.83	\$8.65	\$0.00	\$0.00	\$35.48
2	55	\$29.51	\$8.65	\$6.27	\$0.00	\$44.43
3	60	\$32.20	\$8.65	\$6.84	\$0.00	\$47.69
4	65	\$34.88	\$8.65	\$7.41	\$0.00	\$50.94
5	70	\$37.56	\$8.65	\$19.63	\$0.00	\$65.84
6	75	\$40.25	\$8.65	\$20.20	\$0.00	\$69.10
7	80	\$42.93	\$8.65	\$20.77	\$0.00	\$72.35
8	90	\$48.29	\$8.65	\$21.91	\$0.00	\$78.85

Effective Date - 07/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$27.43	\$8.65	\$0.00	\$0.00	\$36.08
2	55	\$30.17	\$8.65	\$6.27	\$0.00	\$45.09
3	60	\$32.92	\$8.65	\$6.84	\$0.00	\$48.41
4	65	\$35.66	\$8.65	\$7.41	\$0.00	\$51.72
5	70	\$38.40	\$8.65	\$19.63	\$0.00	\$66.68
6	75	\$41.15	\$8.65	\$20.20	\$0.00	\$70.00
7	80	\$43.89	\$8.65	\$20.77	\$0.00	\$73.31
8	90	\$49.37	\$8.65	\$21.91	\$0.00	\$79.93

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SPRAY OR SANDBLAST, NEW) *

* If 30% or more of surfaces to be painted are new construction,
NEW paint rate shall be used. PAINTERS LOCAL 35 - ZONE 2

01/01/2022	\$44.56	\$8.65	\$23.05	\$0.00	\$76.26
07/01/2022	\$45.76	\$8.65	\$23.05	\$0.00	\$77.46
01/01/2023	\$46.96	\$8.65	\$23.05	\$0.00	\$78.66
07/01/2023	\$48.16	\$8.65	\$23.05	\$0.00	\$79.86
01/01/2024	\$49.36	\$8.65	\$23.05	\$0.00	\$81.06
07/01/2024	\$50.56	\$8.65	\$23.05	\$0.00	\$82.26
01/01/2025	\$51.76	\$8.65	\$23.05	\$0.00	\$83.46

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

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

Effective Date - 01/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.28	\$8.65	\$0.00	\$0.00	\$30.93
2	55	\$24.51	\$8.65	\$6.27	\$0.00	\$39.43
3	60	\$26.74	\$8.65	\$6.84	\$0.00	\$42.23
4	65	\$28.96	\$8.65	\$7.41	\$0.00	\$45.02
5	70	\$31.19	\$8.65	\$19.63	\$0.00	\$59.47
6	75	\$33.42	\$8.65	\$20.20	\$0.00	\$62.27
7	80	\$35.65	\$8.65	\$20.77	\$0.00	\$65.07
8	90	\$40.10	\$8.65	\$21.91	\$0.00	\$70.66

Effective Date - 07/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.88	\$8.65	\$0.00	\$0.00	\$31.53
2	55	\$25.17	\$8.65	\$6.27	\$0.00	\$40.09
3	60	\$27.46	\$8.65	\$6.84	\$0.00	\$42.95
4	65	\$29.74	\$8.65	\$7.41	\$0.00	\$45.80
5	70	\$32.03	\$8.65	\$19.63	\$0.00	\$60.31
6	75	\$34.32	\$8.65	\$20.20	\$0.00	\$63.17
7	80	\$36.61	\$8.65	\$20.77	\$0.00	\$66.03
8	90	\$41.18	\$8.65	\$21.91	\$0.00	\$71.74

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SPRAY OR SANDBLAST, REPAINT)	01/01/2022	\$42.62	\$8.65	\$23.05	\$0.00	\$74.32
PAINTERS LOCAL 35 - ZONE 2	07/01/2022	\$43.82	\$8.65	\$23.05	\$0.00	\$75.52
	01/01/2023	\$45.02	\$8.65	\$23.05	\$0.00	\$76.72
	07/01/2023	\$46.22	\$8.65	\$23.05	\$0.00	\$77.92
	01/01/2024	\$47.42	\$8.65	\$23.05	\$0.00	\$79.12
	07/01/2024	\$48.62	\$8.65	\$23.05	\$0.00	\$80.32
	01/01/2025	\$49.82	\$8.65	\$23.05	\$0.00	\$81.52

Apprentice - PAINTER Local 35 Zone 2 - Spray/Sandblast - Repaint**Effective Date - 01/01/2022**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.31	\$8.65	\$0.00	\$0.00	\$29.96
2	55	\$23.44	\$8.65	\$6.27	\$0.00	\$38.36
3	60	\$25.57	\$8.65	\$6.84	\$0.00	\$41.06
4	65	\$27.70	\$8.65	\$7.41	\$0.00	\$43.76
5	70	\$29.83	\$8.65	\$19.63	\$0.00	\$58.11
6	75	\$31.97	\$8.65	\$20.20	\$0.00	\$60.82
7	80	\$34.10	\$8.65	\$20.77	\$0.00	\$63.52
8	90	\$38.36	\$8.65	\$21.91	\$0.00	\$68.92

Effective Date - 07/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.91	\$8.65	\$0.00	\$0.00	\$30.56
2	55	\$24.10	\$8.65	\$6.27	\$0.00	\$39.02
3	60	\$26.29	\$8.65	\$6.84	\$0.00	\$41.78
4	65	\$28.48	\$8.65	\$7.41	\$0.00	\$44.54
5	70	\$30.67	\$8.65	\$19.63	\$0.00	\$58.95
6	75	\$32.87	\$8.65	\$20.20	\$0.00	\$61.72
7	80	\$35.06	\$8.65	\$20.77	\$0.00	\$64.48
8	90	\$39.44	\$8.65	\$21.91	\$0.00	\$70.00

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER / TAPER (BRUSH, NEW) *

* If 30% or more of surfaces to be painted are new construction,
NEW paint rate shall be used. *PAINTERS LOCAL 35 - ZONE 2*

01/01/2022	\$43.16	\$8.65	\$23.05	\$0.00	\$74.86
07/01/2022	\$44.36	\$8.65	\$23.05	\$0.00	\$76.06
01/01/2023	\$45.56	\$8.65	\$23.05	\$0.00	\$77.26
07/01/2023	\$46.76	\$8.65	\$23.05	\$0.00	\$78.46
01/01/2024	\$47.96	\$8.65	\$23.05	\$0.00	\$79.66
07/01/2024	\$49.16	\$8.65	\$23.05	\$0.00	\$80.86
01/01/2025	\$50.36	\$8.65	\$23.05	\$0.00	\$82.06

Apprentice - PAINTER - Local 35 Zone 2 - BRUSH NEW**Effective Date - 01/01/2022**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.58	\$8.65	\$0.00	\$0.00	\$30.23
2	55	\$23.74	\$8.65	\$6.27	\$0.00	\$38.66
3	60	\$25.90	\$8.65	\$6.84	\$0.00	\$41.39
4	65	\$28.05	\$8.65	\$7.41	\$0.00	\$44.11
5	70	\$30.21	\$8.65	\$19.63	\$0.00	\$58.49
6	75	\$32.37	\$8.65	\$20.20	\$0.00	\$61.22
7	80	\$34.53	\$8.65	\$20.77	\$0.00	\$63.95
8	90	\$38.84	\$8.65	\$21.91	\$0.00	\$69.40

Effective Date - 07/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.18	\$8.65	\$0.00	\$0.00	\$30.83
2	55	\$24.40	\$8.65	\$6.27	\$0.00	\$39.32
3	60	\$26.62	\$8.65	\$6.84	\$0.00	\$42.11
4	65	\$28.83	\$8.65	\$7.41	\$0.00	\$44.89
5	70	\$31.05	\$8.65	\$19.63	\$0.00	\$59.33
6	75	\$33.27	\$8.65	\$20.20	\$0.00	\$62.12
7	80	\$35.49	\$8.65	\$20.77	\$0.00	\$64.91
8	90	\$39.92	\$8.65	\$21.91	\$0.00	\$70.48

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER / TAPER (BRUSH, REPAINT)

PAINTERS LOCAL 35 - ZONE 2

01/01/2022	\$41.22	\$8.65	\$23.05	\$0.00	\$72.92
07/01/2022	\$42.42	\$8.65	\$23.05	\$0.00	\$74.12
01/01/2023	\$43.62	\$8.65	\$23.05	\$0.00	\$75.32
07/01/2023	\$44.82	\$8.65	\$23.05	\$0.00	\$76.52
01/01/2024	\$46.02	\$8.65	\$23.05	\$0.00	\$77.72
07/01/2024	\$47.22	\$8.65	\$23.05	\$0.00	\$78.92
01/01/2025	\$48.42	\$8.65	\$23.05	\$0.00	\$80.12

Apprentice - PAINTER Local 35 Zone 2 - BRUSH REPAINT

Effective Date - 01/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.61	\$8.65	\$0.00	\$0.00	\$29.26
2	55	\$22.67	\$8.65	\$6.27	\$0.00	\$37.59
3	60	\$24.73	\$8.65	\$6.84	\$0.00	\$40.22
4	65	\$26.79	\$8.65	\$7.41	\$0.00	\$42.85
5	70	\$28.85	\$8.65	\$19.63	\$0.00	\$57.13
6	75	\$30.92	\$8.65	\$20.20	\$0.00	\$59.77
7	80	\$32.98	\$8.65	\$20.77	\$0.00	\$62.40
8	90	\$37.10	\$8.65	\$21.91	\$0.00	\$67.66

Effective Date - 07/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.21	\$8.65	\$0.00	\$0.00	\$29.86
2	55	\$23.33	\$8.65	\$6.27	\$0.00	\$38.25
3	60	\$25.45	\$8.65	\$6.84	\$0.00	\$40.94
4	65	\$27.57	\$8.65	\$7.41	\$0.00	\$43.63
5	70	\$29.69	\$8.65	\$19.63	\$0.00	\$57.97
6	75	\$31.82	\$8.65	\$20.20	\$0.00	\$60.67
7	80	\$33.94	\$8.65	\$20.77	\$0.00	\$63.36
8	90	\$38.18	\$8.65	\$21.91	\$0.00	\$68.74

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER TRAFFIC MARKINGS (HEAVY/HIGHWAY) LABORERS - ZONE 2 (HEAVY & HIGHWAY)	12/01/2021	\$35.41	\$9.10	\$16.64	\$0.00	\$61.15
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)						
PANEL & PICKUP TRUCKS DRIVER TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	12/01/2021	\$35.78	\$13.41	\$16.01	\$0.00	\$65.20
PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK) PILE DRIVER LOCAL 56 (ZONE 1)	08/01/2020	\$49.07	\$9.40	\$23.12	\$0.00	\$81.59
For apprentice rates see "Apprentice- PILE DRIVER"						
PILE DRIVER PILE DRIVER LOCAL 56 (ZONE 1)	08/01/2020	\$49.07	\$9.40	\$23.12	\$0.00	\$81.59

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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Apprentice - PILE DRIVER - Local 56 Zone 1

Effective Date - 08/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.54	\$9.40	\$23.12	\$0.00	\$57.06
2	60	\$29.44	\$9.40	\$23.12	\$0.00	\$61.96
3	70	\$34.35	\$9.40	\$23.12	\$0.00	\$66.87
4	75	\$36.80	\$9.40	\$23.12	\$0.00	\$69.32
5	80	\$39.26	\$9.40	\$23.12	\$0.00	\$71.78
6	80	\$39.26	\$9.40	\$23.12	\$0.00	\$71.78
7	90	\$44.16	\$9.40	\$23.12	\$0.00	\$76.68
8	90	\$44.16	\$9.40	\$23.12	\$0.00	\$76.68

Notes:

% Indentured After 10/1/17; 45/45/55/55/70/70/80/80
Step 1&2 \$34.01/ 3&4 \$41.46/ 5&6 \$62.80/ 7&8 \$69.25

Apprentice to Journeyworker Ratio:1:5

PIPEFITTER & STEAMFITTER	03/01/2021	\$57.94	\$11.70	\$20.24	\$0.00	\$89.88
PIPEFITTERS LOCAL 537						

Apprentice - PIPEFITTER - Local 537

Effective Date - 03/01/2021

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$23.18	\$11.70	\$8.25	\$0.00	\$43.13
2	45	\$26.07	\$11.70	\$20.24	\$0.00	\$58.01
3	60	\$34.76	\$11.70	\$20.24	\$0.00	\$66.70
4	70	\$40.56	\$11.70	\$20.24	\$0.00	\$72.50
5	80	\$46.35	\$11.70	\$20.24	\$0.00	\$78.29

Notes:

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

Apprentice to Journeyworker Ratio:**

PIPELAYER	12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40
LABORERS - ZONE 2						
	06/01/2022	\$36.56	\$9.10	\$16.64	\$0.00	\$62.30
	12/01/2022	\$37.41	\$9.10	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.31	\$9.10	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.21	\$9.10	\$16.64	\$0.00	\$64.95

For apprentice rates see "Apprentice- LABORER"

PIPELAYER (HEAVY & HIGHWAY)	12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40
LABORERS - ZONE 2 (HEAVY & HIGHWAY)						

For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PLUMBERS & GASFITTERS	09/01/2021	\$61.79	\$13.57	\$17.26	\$0.00	\$92.62
PLUMBERS & GASFITTERS LOCAL 12	02/27/2022	\$63.39	\$13.57	\$17.26	\$0.00	\$94.22
	09/04/2022	\$65.09	\$13.57	\$17.26	\$0.00	\$95.92
	02/26/2023	\$66.79	\$13.57	\$17.26	\$0.00	\$97.62
	09/03/2023	\$68.54	\$13.57	\$17.26	\$0.00	\$99.37
	03/03/2024	\$70.34	\$13.57	\$17.26	\$0.00	\$101.17
	09/01/2024	\$72.14	\$13.57	\$17.26	\$0.00	\$102.97
	03/02/2025	\$73.94	\$13.57	\$17.26	\$0.00	\$104.77

Apprentice - PLUMBER/GASFITTER - Local 12

Effective Date - 09/01/2021

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$21.63	\$13.57	\$6.24	\$0.00	\$41.44
2	40	\$24.72	\$13.57	\$7.08	\$0.00	\$45.37
3	55	\$33.98	\$13.57	\$9.63	\$0.00	\$57.18
4	65	\$40.16	\$13.57	\$11.33	\$0.00	\$65.06
5	75	\$46.34	\$13.57	\$13.03	\$0.00	\$72.94

Effective Date - 02/27/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$22.19	\$13.57	\$6.24	\$0.00	\$42.00
2	40	\$25.36	\$13.57	\$7.08	\$0.00	\$46.01
3	55	\$34.86	\$13.57	\$9.63	\$0.00	\$58.06
4	65	\$41.20	\$13.57	\$11.33	\$0.00	\$66.10
5	75	\$47.54	\$13.57	\$13.03	\$0.00	\$74.14

Notes:

** 1:2; 2:6; 3:10; 4:14; 5:19/Steps are 1 yr
Step4 with lic\$69.00, Step5 with lic\$76.87

Apprentice to Journeyworker Ratio:**

PNEUMATIC CONTROLS (TEMP.)	03/01/2021	\$57.94	\$11.70	\$20.24	\$0.00	\$89.88
PIPEFITTERS LOCAL 537						

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

PNEUMATIC DRILL/TOOL OPERATOR	12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40
LABORERS - ZONE 2	06/01/2022	\$36.56	\$9.10	\$16.64	\$0.00	\$62.30
	12/01/2022	\$37.41	\$9.10	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.31	\$9.10	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.21	\$9.10	\$16.64	\$0.00	\$64.95

For apprentice rates see "Apprentice- LABORER"

PNEUMATIC DRILL/TOOL OPERATOR (HEAVY & HIGHWAY)	12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40
LABORERS - ZONE 2 (HEAVY & HIGHWAY)						

For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
POWDERMAN & BLASTER <i>LABORERS - ZONE 2</i>	12/01/2021	\$36.41	\$9.10	\$16.64	\$0.00	\$62.15
	06/01/2022	\$37.31	\$9.10	\$16.64	\$0.00	\$63.05
	12/01/2022	\$38.16	\$9.10	\$16.64	\$0.00	\$63.90
	06/01/2023	\$39.06	\$9.10	\$16.64	\$0.00	\$64.80
	12/01/2023	\$39.96	\$9.10	\$16.64	\$0.00	\$65.70
For apprentice rates see "Apprentice- LABORER"						
POWDERMAN & BLASTER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	12/01/2021	\$36.41	\$9.10	\$16.64	\$0.00	\$62.15
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
POWER SHOVEL/DERRICK/TRENCHING MACHINE <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2021	\$51.38	\$14.00	\$16.05	\$0.00	\$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (CONCRETE) <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2021	\$51.38	\$14.00	\$16.05	\$0.00	\$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (DEWATERING, OTHER) <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2021	\$33.69	\$14.00	\$16.05	\$0.00	\$63.74
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
READY-MIX CONCRETE DRIVER <i>TEAMSTERS 170 - J.G. MacLellan (Lowell)</i>	01/01/2022	\$25.50	\$10.37	\$6.35	\$0.00	\$42.22
	05/01/2022	\$25.85	\$10.37	\$6.35	\$0.00	\$42.57
	01/01/2023	\$25.85	\$10.77	\$6.35	\$0.00	\$42.97
RECLAIMERS <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2021	\$50.83	\$14.00	\$16.05	\$0.00	\$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
RIDE-ON MOTORIZED BUGGY OPERATOR <i>LABORERS - ZONE 2</i>	12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40
	06/01/2022	\$36.56	\$9.10	\$16.64	\$0.00	\$62.30
	12/01/2022	\$37.41	\$9.10	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.31	\$9.10	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.21	\$9.10	\$16.64	\$0.00	\$64.95
For apprentice rates see "Apprentice- LABORER"						
ROLLER/SPREADER/MULCHING MACHINE <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2021	\$50.83	\$14.00	\$16.05	\$0.00	\$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
ROOFER (Inc.Roof Waterproofing &Roof Damproofg) <i>ROOFERS LOCAL 33</i>	02/01/2022	\$47.03	\$12.28	\$19.45	\$0.00	\$78.76

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Apprentice - ROOFER - Local 33						
Effective Date - 02/01/2022						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.52	\$12.28	\$5.21	\$0.00	\$41.01
2	60	\$28.22	\$12.28	\$19.45	\$0.00	\$59.95
3	65	\$30.57	\$12.28	\$19.45	\$0.00	\$62.30
4	75	\$35.27	\$12.28	\$19.45	\$0.00	\$67.00
5	85	\$39.98	\$12.28	\$19.45	\$0.00	\$71.71
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 ROOFERS LOCAL 33	02/01/2022	\$47.28	\$12.28	\$19.45	\$0.00	\$79.01
For apprentice rates see "Apprentice- ROOFER"						
SHEETMETAL WORKER SHEETMETAL WORKERS LOCAL 17 - A	02/01/2022	\$53.70	\$13.80	\$25.60	\$2.79	\$95.89
Apprentice - SHEET METAL WORKER - Local 17-A						
Effective Date - 02/01/2022						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	42	\$22.55	\$13.80	\$6.01	\$0.00	\$42.36
2	42	\$22.55	\$13.80	\$6.01	\$0.00	\$42.36
3	47	\$25.24	\$13.80	\$11.26	\$1.51	\$51.81
4	47	\$25.24	\$13.80	\$11.26	\$1.51	\$51.81
5	52	\$27.92	\$13.80	\$12.23	\$1.62	\$55.57
6	52	\$27.92	\$13.80	\$12.48	\$1.63	\$55.83
7	60	\$32.22	\$13.80	\$13.87	\$1.80	\$61.69
8	65	\$34.91	\$13.80	\$14.84	\$1.91	\$65.46
9	75	\$40.28	\$13.80	\$16.77	\$2.13	\$72.98
10	85	\$45.65	\$13.80	\$18.20	\$2.33	\$79.98
Notes: Steps are 6 mos.						
Apprentice to Journeyworker Ratio:1:4						
SPECIALIZED EARTH MOVING EQUIP < 35 TONS TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	12/01/2021	\$36.24	\$13.41	\$16.01	\$0.00	\$65.66
SPECIALIZED EARTH MOVING EQUIP > 35 TONS TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	12/01/2021	\$36.53	\$13.41	\$16.01	\$0.00	\$65.95
SPRINKLER FITTER SPRINKLER FITTERS LOCAL 550 - (Section A) Zone I	03/01/2021	\$62.45	\$10.00	\$21.25	\$0.00	\$93.70

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

Effective Date - 03/01/2021

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$21.86	\$10.00	\$11.99	\$0.00	\$43.85
2	40	\$24.98	\$10.00	\$12.70	\$0.00	\$47.68
3	45	\$28.10	\$10.00	\$13.41	\$0.00	\$51.51
4	50	\$31.23	\$10.00	\$14.13	\$0.00	\$55.36
5	55	\$34.35	\$10.00	\$14.84	\$0.00	\$59.19
6	60	\$37.47	\$10.00	\$15.55	\$0.00	\$63.02
7	65	\$40.59	\$10.00	\$16.26	\$0.00	\$66.85
8	70	\$43.72	\$10.00	\$16.98	\$0.00	\$70.70
9	75	\$46.84	\$10.00	\$17.69	\$0.00	\$74.53
10	80	\$49.96	\$10.00	\$18.40	\$0.00	\$78.36

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

Apprentice to Journeyworker Ratio:1:3

STEAM BOILER OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2021	\$50.83	\$14.00	\$16.05	\$0.00	\$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TAMPERS, SELF-PROPELLED OR TRACTOR DRAWN <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2021	\$50.83	\$14.00	\$16.05	\$0.00	\$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TELECOMMUNICATION TECHNICIAN <i>ELECTRICIANS LOCAL 103</i>	09/01/2021	\$43.40	\$13.00	\$18.37	\$0.00	\$74.77
	03/01/2022	\$44.71	\$13.00	\$18.74	\$0.00	\$76.45
	09/01/2022	\$46.42	\$13.00	\$18.87	\$0.00	\$78.29
	03/01/2023	\$48.34	\$13.00	\$19.01	\$0.00	\$80.35

Apprentice - TELECOMMUNICATION TECHNICIAN - Local 103

Effective Date - 09/01/2021

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	\$19.53	\$13.00	\$0.59	\$0.00	\$33.12
2	45	\$19.53	\$13.00	\$0.59	\$0.00	\$33.12
3	50	\$21.70	\$13.00	\$14.79	\$0.00	\$49.49
4	50	\$21.70	\$13.00	\$14.79	\$0.00	\$49.49
5	55	\$23.87	\$13.00	\$15.12	\$0.00	\$51.99
6	60	\$26.04	\$13.00	\$15.47	\$0.00	\$54.51
7	65	\$28.21	\$13.00	\$15.84	\$0.00	\$57.05
8	70	\$30.38	\$13.00	\$16.20	\$0.00	\$59.58
9	75	\$32.55	\$13.00	\$16.57	\$0.00	\$62.12
10	80	\$34.72	\$13.00	\$16.92	\$0.00	\$64.64

Effective Date - 03/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	\$20.12	\$13.00	\$0.60	\$0.00	\$33.72
2	45	\$20.12	\$13.00	\$0.60	\$0.00	\$33.72
3	50	\$22.36	\$13.00	\$15.06	\$0.00	\$50.42
4	50	\$22.36	\$13.00	\$15.06	\$0.00	\$50.42
5	55	\$24.59	\$13.00	\$15.39	\$0.00	\$52.98
6	60	\$26.83	\$13.00	\$15.74	\$0.00	\$55.57
7	65	\$29.06	\$13.00	\$16.11	\$0.00	\$58.17
8	70	\$31.30	\$13.00	\$16.48	\$0.00	\$60.78
9	75	\$33.53	\$13.00	\$16.85	\$0.00	\$63.38
10	80	\$35.77	\$13.00	\$17.20	\$0.00	\$65.97

Notes:

Apprentice to Journeyworker Ratio:1:1

TERRAZZO FINISHERS	02/01/2022	\$56.09	\$11.39	\$22.34	\$0.00	\$89.82
BRICKLAYERS LOCAL 3 - MARBLE & TILE						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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Apprentice - TERRAZZO FINISHER - Local 3 Marble & Tile

Effective Date - 02/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$28.05	\$11.39	\$22.34	\$0.00	\$61.78
2	60	\$33.65	\$11.39	\$22.34	\$0.00	\$67.38
3	70	\$39.26	\$11.39	\$22.34	\$0.00	\$72.99
4	80	\$44.87	\$11.39	\$22.34	\$0.00	\$78.60
5	90	\$50.48	\$11.39	\$22.34	\$0.00	\$84.21

Notes:

Apprentice to Journeyworker Ratio:1:3

TEST BORING DRILLER <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2021	\$42.58	\$9.10	\$17.72	\$0.00	\$69.40
For apprentice rates see "Apprentice- LABORER"						
TEST BORING DRILLER HELPER <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2021	\$41.30	\$9.10	\$17.72	\$0.00	\$68.12
For apprentice rates see "Apprentice- LABORER"						
TEST BORING LABORER <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2021	\$41.18	\$9.10	\$17.72	\$0.00	\$68.00
For apprentice rates see "Apprentice- LABORER"						
TRACTORS/PORTABLE STEAM GENERATORS <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2021	\$50.83	\$14.00	\$16.05	\$0.00	\$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TRAILERS FOR EARTH MOVING EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2021	\$36.82	\$13.41	\$16.01	\$0.00	\$66.24
TUNNEL WORK - COMPRESSED AIR <i>LABORERS (COMPRESSED AIR)</i>	12/01/2021	\$53.41	\$9.10	\$18.17	\$0.00	\$80.68
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE) <i>LABORERS (COMPRESSED AIR)</i>	12/01/2021	\$55.41	\$9.10	\$18.17	\$0.00	\$82.68
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR <i>LABORERS (FREE AIR TUNNEL)</i>	12/01/2021	\$45.48	\$9.10	\$18.17	\$0.00	\$72.75
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR (HAZ. WASTE) <i>LABORERS (FREE AIR TUNNEL)</i>	12/01/2021	\$47.48	\$9.10	\$18.17	\$0.00	\$74.75
For apprentice rates see "Apprentice- LABORER"						
VAC-HAUL <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2021	\$36.24	\$13.41	\$16.01	\$0.00	\$65.66
WAGON DRILL OPERATOR <i>LABORERS - ZONE 2</i>	12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40
	06/01/2022	\$36.56	\$9.10	\$16.64	\$0.00	\$62.30
	12/01/2022	\$37.41	\$9.10	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.31	\$9.10	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.21	\$9.10	\$16.64	\$0.00	\$64.95
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
WAGON DRILL OPERATOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
WASTE WATER PUMP OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2021	\$51.38	\$14.00	\$16.05	\$0.00	\$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
WATER METER INSTALLER <i>PLUMBERS & GASFITTERS LOCAL 12</i>	09/01/2021	\$61.79	\$13.57	\$17.26	\$0.00	\$92.62
	02/27/2022	\$63.39	\$13.57	\$17.26	\$0.00	\$94.22
	09/04/2022	\$65.09	\$13.57	\$17.26	\$0.00	\$95.92
	02/26/2023	\$66.79	\$13.57	\$17.26	\$0.00	\$97.62
	09/03/2023	\$68.54	\$13.57	\$17.26	\$0.00	\$99.37
	03/03/2024	\$70.34	\$13.57	\$17.26	\$0.00	\$101.17
	09/01/2024	\$72.14	\$13.57	\$17.26	\$0.00	\$102.97
	03/02/2025	\$73.94	\$13.57	\$17.26	\$0.00	\$104.77
For apprentice rates see "Apprentice- PLUMBER/PIPEFITTER" or "PLUMBER/GASFITTER"						

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.

SECTION 00900

SPECIFICATIONS

SECTION 010100 – SUMMARY OF WORK

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS (PCR), which are hereby made a part of this Section of the Specifications.

1.2 RELATED SECTIONS

- A. Section 00100 – Instruction to Bidders
- B. Section 01 3114 – Conduct of the Work
- C. Section 02 2113 – Existing Conditions

1.3 GENERAL SCOPE OF WORK

- A. The Track Reconstruction Project at Wilmington High School shall include:
 - 1. The demolition of existing site features to include, but not limited to, the existing running track, D-Areas, and other appurtenances as detailed in the contract documents.
 - 2. The construction of a bituminous concrete oval running track with accompanying d-areas and other appurtenances, as detailed in the contract documents.
 - 3. Site improvements to include walkways and utility services, as detailed in the contract documents.
 - 4. The restoration of any items damaged or destroyed by encroaching upon areas outside the Project Site.
 - 5. Providing and restoring, where appropriate, all temporary facilities.
 - 6. All other work indicated on the contract plans and/or specifications.

1.4 TIME OF COMPLETION

- A. Start construction – July 11, 2022
- B. Substantial Completion of Athletic Facility – September 5, 2022
- C. Final Completion of Athletic Facility – September 30, 2022

- D. Prior to construction, the Contractor shall provide a detailed Gantt Chart schedule noting the start and end date of each task to be completed. The schedule shall include submission dates for key product submittals.

1.5 TESTING

- A. The Contractor will retain and pay for the services of a certified independent testing laboratory in good standing to perform inspections, tests and other services required by the Specification including the expense of all failed tests, including retests as required to obtain approval. Contractor shall submit testing lab certifications and qualifications to the Owner for approval. However, the Owner shall pay for testing of concrete. The Contractor shall coordinate and schedule concrete testing.

1.6 MEETINGS

- A. A competent representative of the Contractor who is familiar with the site and progress of the work is required to attend weekly jobsite meeting during the period of construction.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

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SECTION 012300 - ALTERNATES

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS (PCR), which are hereby made a part of this Section of the Specifications.

1.2 SCOPE

- A. This section lists the Alternates which appear in the Contract Documents.
- B. Prices for each Alternate shall include overhead, bonding, profit, and all other expenses incidental to the Work under each Alternate.
- C. The Contractor and Subcontractors shall be responsible for examining the scope of each Alternate generally defined herein and for recognizing modifications to the Work caused by the Alternates and including the cost thereof in the bid price.

1.3 ALTERNATES

- A. Alternate No. 1 Deduct - In lieu of removing and replacing the track surface from the D-areas, provide a blue structural (color) coating over the existing surface to match the running oval. Clean and prepare existing track surface to receive new two coat structural spray resurfacing, Beynon BSS-100, or equal.
- B. Alternate No. 2 Deduct - Proposed 4-foot black, vinyl-coated chain link fence.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

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SECTION 013114 – CONDUCT OF THE WORK

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS (PCR), which are hereby made a part of this Section of the Specifications.

1.2 RELATED SECTIONS

- A. Section 00100 – Instructions to Bidders
- B. Section 01 0100 – Summary of Work
- C. Section 02 2113 – Existing Conditions

1.3 PROJECT MANAGEMENT

- A. Adjacent school buildings proximate to the project sites may not be occupied during construction. The Contractor will take all necessary precautions to ensure the public safety and convenience of the occupants during construction. Use of any on-sites structures by the Contractor, proximate to the work site as a construction office, will not be allowed unless the Owner gives express written consent.
- B. The work must be completed in a continuous uninterrupted operation. The Contractor must use sufficient personnel and adequate equipment to complete all the necessary work requirements within a minimum period of time.
- C. Unless specifically authorized by the Owner, in writing, the work must be conducted between the hours of 7:00 A.M. and 5:00 P.M., Monday through Friday. No work is to be done on holidays or Sundays, other than for emergencies or as approved by the Owner. Work may be allowed on Saturdays, provided the Contractor obtains the Owner's written approval at least one week prior to the date of such work.
- D. The Contractor is responsible for the security of partially completed work until the Owner accepts the project.
- E. There will be no storage of materials, tools, and/or equipment within any of the adjacent buildings. The Owner, in writing, must authorize any storage within the school facilities.
- F. Only materials and/or equipment intended and necessary for immediate use will be brought onto the sites. At the end of each workday and at the completion of each phase of work, equipment and leftover or unused materials will be removed from the sites.

1.4 SHUTDOWN OF SERVICES

- A. The Contractor's attention is especially called to the fact that the continuous operation of services for the Owner is mandatory. The work cannot result in the shutdown of any major utilities in adjacent facilities without the Owner's consent, in writing. If the Owner will not allow this shutdown, but wants instead a temporary means of supplying said services, the Contractor will supply all labor, materials or whatever may be required to supply said temporary services, at no extra cost to the Owner and in accordance with the state and local regulations on health and safety.

1.5 COORDINATION

- A. At the pre-construction conference, the Contractor will submit to the Owner for approval, a detailed project progress schedule showing the sequence of operations. The progress schedule will be in a Gantt Chart or CPM format with tasks on the critical path clearly identified. The progress schedule must reflect achievements of the required substantial and final completion dates. The Owner may request a revised progress schedule at any point in the project when the working progress schedule is determined to be out of date. The Owner must approve any changes to this operational plan.
- B. The Contractor must retain on the worksites, during the work's progress, a competent, full-time representative, satisfactory to the Owner. This representative will not be changed, except with the consent of the Owner. The representative will be in full charge of the work and all instructions given to this person by the Engineer will be binding.
- C. The Contractor must supply to the Owner the home telephone number of responsible persons who may be contacted during non-work-hours for emergencies on the Project.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

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SECTION 013302 – SUBMITTAL REQUIREMENTS

PART 1 - GENERAL

1.1 GENERAL PROVISIONS.

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS (PCR), which are hereby made a part of this Section of the Specifications.

1.2 RELATED DOCUMENTS

- A. Consult the individual sections of the specifications for the specific submittals required under those sections and for further details and descriptions of the requirements.

1.3 GENERAL PROCEDURES FOR SUBMITTALS

- A. Submittal Register: Within seven (7) days of receipt of a Notice to Proceed, the Contractor will furnish to the Engineer a complete listing of all submittals (Shop Drawings, Manufacturer's Data, Samples, etc.) required by these specifications in tabular form. This form will include columns sufficient to manage and track the submission and action for each submission. The Contractor will revise and update this form upon request of the Engineer.
- B. Schedule of Values: Within seven (7) days of receipt of a Notice to Proceed, the Contractor will furnish to the Engineer a Schedule of Values for review and approval. The Contractor will revise and update this form upon request of the Engineer.
- C. Timeliness: The Contractor will transmit each submittal to the Engineer sufficiently in advance of performing related Work or other applicable activities so that the installation is not delayed by processing times, including disapproval and resubmittal (if required), coordination with other submittals, testing, purchasing, fabrication, delivery, and similar sequenced activities. No extension of time will be authorized because of the Contractor's failure to transmit submittals to the Engineer in advance of the Work.
- D. Sequence: The Contractor will transmit each submittal in a sequence which will not result in the Engineer's approval having to be later modified or rescinded by reason of subsequent submittals which should have been processed earlier or concurrently for coordination.

- E. Contractor's Review and Approval: Only submittals received from and bearing the stamp of approval of the Contractor will be considered for review by the Engineer. Submittals will be accompanied by a transmittal notice stating name of Project, date of submittal, "To", "From" (Contractor, Subcontractor, Installer, Manufacturer, Supplier), Specification Section, or Drawing No. to which the submittal refers, purpose (first submittal, resubmittal), description, remarks, distribution record, and signature of transmitter.
- F. Engineer's Action: The Engineer will review the Contractor's submittals and return them with one of the following actions recorded thereon by appropriate markings:
 - 1. Final Unrestricted Release: Where marked "Approved" the Work covered by the submittal may proceed provided it complies with the requirements of the Contract Documents.
 - 2. Final-But-Restricted Release: When marked "Approved As Noted" the Work may proceed provided it complies with the Engineer's notations or corrections on the submittal and complies with the requirements of the Contract Documents. Acceptance of the Work will depend on these compliance's.
 - 3. Returned for Resubmittal: When marked "Revise and Resubmit" or "Disapproved", the Work covered by the submittal (such as purchasing, fabrication, delivery, or other activity) should not proceed. The submittal should be revised or a new submittal resubmitted without delay, in accordance with the Engineer's notations stating the reasons for returning the submittal.
- G. Processing: All costs for printing, preparing, packaging, submitting, resubmitting, and mailing, or delivering submittals required by this contract will be included in the Contract Sum.

1.4 OR EQUALS

- A. Definition: Whenever a specification section names one or more brands for a given item, and the Contractor wishes to submit, for consideration, another brand, the submission will be considered an "or-equal" or a "material substitution". For the purposes of this Contract, the terms "or-equal" and "material substitution" will be considered synonymous.
- B. In no case may an item be furnished on the Work other than the item named or described, unless the Engineer, will consider the item equal to the item so named or described.
- C. The equality of items offered as "equal" to items named or described will be proved to the satisfaction of the Engineer at the expense of the Contractor submitting the substitution.
- D. The Engineer and/or the Owner may require that full size samples of both the specified and proposed products be submitted for review and evaluation. The Contractor will bear full cost for providing, delivering, and disposal of all such samples.

- E. The Contractor will assume full responsibility for the performance of any item submitted as an "Or-Equal" and assume the costs of any changes in any Work which may be caused by such substitution.
- F. Or Equal Approval Process: On the transmittal, or on a separate sheet attached to the submission, the Contractor will direct attention to any deviations, including minor limitations and variations, from the Contract Documents.
 - 1. The Contractor will submit to the Engineers for consideration of any or-equal substitution a written point-by-point comparison containing the name and full particulars of the proposed product and the product named or described in the Contract Documents.
 - 2. Such submittal will in no event be made later than 10 calendar days prior to the incorporation of the item into the Work. This requirement may be waived by the Engineer upon written request.
 - 3. Upon receipt of a written request for approval of an or-equal substitution, the Engineer will investigate whether the proposed item will be considered equal to the item named or described in the Contract Documents. Upon conclusion of the investigation, the Engineer will promptly advise the Contractor that the item is, or is not, considered acceptable as an Or-Equal substitution. Such written notice must have the concurrence of the Owner.

1.5 SUBMISSION OF SHOP DRAWINGS

- A. Shop Drawings will be complete and to scale, giving all information necessary or requested in the individual section of the specifications. They will also show adjoining Work and details of connection thereto.
- B. Shop Drawings will be for whole systems. Partial submissions will not be accepted.
- C. The Engineer reserves the right to review and approve shop drawings only after approval of related product data and samples.
- D. Shop drawings will be properly identified and contain the name of the project, name of the firm submitting the shop drawings, shop drawing number, date of shop drawings and revisions, Contractor's stamp of approval, and sufficient spaces near the title block for the Engineer's stamp.
- E. The Contractor will submit to the Engineer legible, shop drawings. Shop drawings shall be electronic PDF format. Each submittal will be accompanied by a transmittal notice.
- F. When the shop drawings are returned by the Engineer with the stamp "Revise and Resubmit", "Submit Specified Items" or "Rejected", the Contractor will correct the original drawing or prepare a new drawing and resubmit to the Engineer for approval. This procedure will be repeated until the Engineer's approval is obtained.
- G. When the shop drawings are returned by the Engineer with the stamp "Approved" or "Make Corrections Noted", the Contractor will provide and distribute the drawings for all Contractors and Subcontractors use.

- H. The Contractor will maintain one full set of approved shop drawings at the site. The Contractor will produce a set of coordination drawings before the installation of any electrical work.
- I. Changes on the submitted shop drawings that deviate from the Design Drawings must be brought to the Owners and Designers attention in writing prior to review. Changes must be clearly visible on the shop drawings in the form of written notation, ballooning or highlighting the intended change. A written description for the proposed change must also be included and submitted on company letterhead. Changes to drawings and details not submitted in accordance with these requirements will not be recognized as an approved deviation from the Design of Record. Construction repairs, renovations or replacements required as a result of shop drawing and submittal deviations that are not documented in accordance with these requirements are subject to removal and/or replacement by the Contractor, at the sole cost of the Contractor.

1.6 SUBMISSION OF PRODUCT DATA

- A. The Contractor will submit Product Data to the Engineer via electronic PDF Format. All such data will be specific and identification of material or equipment submitted will be clearly marked in ink. Data of general nature will not be accepted.
- B. Product Data will be accompanied by a transmittal notice. The Contractor's stamp of approval will appear on the information itself, in a location which will not impair legibility.
- C. Product Data returned by the Engineer as "Rejected" will be resubmitted until the Engineers approval is obtained.
- D. When the Product Data is acceptable, the Engineer will stamp them "Approved" or "Make Corrections Noted", and return to the Contractor. The Contractor will provide and distribute as may be required to complete the Work.
- E. The Contractor will maintain one full set of approved, Product Data at the site.

1.7 SUBMISSION OF SAMPLES

- A. Unless otherwise specified in the individual section, the Contractor will submit two (2) specimens of each sample required for submission.
- B. Samples will be of adequate size to permit proper evaluation of materials. Where variations in color or in other characteristics are to be expected, samples will show the maximum range of variation. Materials exceeding the variation of approved samples will not be approved on the Work.
- C. Samples which can be conveniently mailed will be sent directly to the Engineer, accompanied by a transmittal notice. All transmittals will be stamped with the Contractor's approval stamp of the material submitted.

- D. All other samples will be delivered at the field office of the Project Representative with sample identification tag attached and properly filled in. Transmittal notice of samples so delivered with the Contractor's stamp of approval will be mailed to the Engineer.
- E. If a sample is rejected by the Engineer, a new sample will be resubmitted in the manner specified herein above. This procedure will be repeated until the sample is approved by the Engineer.
- F. Samples will not be returned unless return is requested at the time of submission. The right is reserved to require submission of samples whether or not particular mention is made in the specifications, at no additional cost to the Owner.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not used)

END OF SECTION

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SECTION 013543 – ENVIROMENTAL PROTECTION PROCEDURES

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS (PCR), which are hereby made a part of this Section of the Specifications.

1.2 SUMMARY

- A. Furnishing all labor, materials, equipment and perform all work required for the prevention of environmental pollution in conformance with applicable laws and regulations, during and, as the result, of construction operation under this Contract. For the purpose of this Section, environmental pollution is defined as the presence of chemical, physical or biological elements, or agents, which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life; affect other species of importance to man; or degrade the utility of the environment for aesthetic and/or recreational purposes.
- B. The control of environmental pollution requires consideration of air, water and land, and involves management of runoff, dust, noise and solid waste, as well as other pollutants. Work will include installing, maintaining and removing sedimentation and erosion control components within the Limits of Work.
- C. This Section does not address erosion and sedimentation control requirements, which are addressed in Section 31 2500 EROSION AND SEDIMENTATION CONTROLS.

1.3 SECTION INCLUDES

- A. Applicable Regulations
- B. Notifications
- C. Protection of Groundwater
- D. Protection of Streams And Wetlands
- E. Protection of Land Resources
- F. Protection of Air Quality
- G. Maintenance of Pollution Control Facilities During Construction
- H. Noise Control
- I. Diesel Equipment Emission Controls
- J. Spill And Discharge Control

1.4 RELATED SECTIONS

- A. Section 01 5000 - TEMPORARY FACILITIES
- B. Section 02 4113 – SELECTIVE SITE DEMOLITION
- C. Section 31 1000 - SITE CLEARING
- D. Section 31 2000 - EARTH MOVING
- E. Section 31 2500 - EROSION AND SEDIMENTATION CONTROLS

1.5 APPLICABLE REGULATIONS

- A. The General Contractor will comply with all applicable Federal, State and local laws and regulations concerning environmental pollution control and abatement.
- B. Fines and related costs resulting from failure to provide adequate protection against any environmentally objectionable acts and corrective action to be taken are the obligations of the General Contractor.

1.6 NOTIFICATIONS

- A. Engineer may notify the General Contractor, in writing, of any non-compliance with the foregoing provisions or of any environmentally objectionable acts and corrective action to be taken. State or local agencies responsible for verification of certain aspects of the environmental protection requirements may notify the General Contractor, in writing, through the Engineer, of any non-compliance with State or local requirements. After receipt of such notice from the Engineer or from the regulatory agency, through the Engineer, the General Contractor will immediately take corrective action. Such notice, when delivered to the General Contractor or his/her authorized representative at the site of the Work, will be deemed sufficient for the purpose. If the General Contractor fails or refuses to comply promptly, the Engineer may issue an order stopping all or part of the Work until satisfactory corrective action has been taken. No part of the time lost, due to any such stop orders, will be made the subject of a claim for extension of time or for excess costs or damages by the General Contractor, unless it is later determined that the General Contractor was in compliance.

PART 2 - MATERIALS

2.1 WATER

- A. Water used for dust control and equipment washes will be clean and free of salt, oil and other injurious materials. The General Contractor will provide all necessary water.

B. ONSITE SPILL KIT

- 1. The General Contractor will provide the following minimum equipment to be kept onsite, at all times, during site work activities for any unexpected spills or discharges:
- 2. Sand, clean fill and absorbent pillows;

3. Four (4) drum drums (55 gallon, U.S. DOT 17-E or 17-H);
4. Shovels; and
5. Steam cleaner for decontamination of tools and equipment.

PART 3 - EXECUTION

3.1 PROTECTION OF GROUNDWATER

3.2 PROTECTION OF STREAMS AND WETLANDS

- A. Care will be taken to prevent, or reduce to a minimum, any damage to any wetland from pollution by debris, sediment, or other material. Manipulation of equipment and/or materials in delineated wetland areas is prohibited. Water that has been used for washing or processing, or that contains oils or sediments that will reduce the quality of the water in downstream waters of the state will not be discharged from the Site. Such waters will be collected and disposed of by the General Contractor, in accordance with all applicable Federal, State and local regulations.

3.3 PROTECTION OF LAND RESOURCES

- A. Land resources, within the project boundaries and outside the limits of permanent work, will be restored to a condition, after completion of remediation activities that will appear to be natural and not detract from the appearance of the project. Confine all construction activities to Limits of Work areas shown on the Drawing.
- B. Outside of the Limits of Work as shown on the Drawing, do not deface, injure, or destroy trees or shrubs, nor remove or cut them without prior approval. Snow fence or other approved equal will be erected at the "fall line" of the tree canopy, and no vehicles or storage will be permitted within, to prevent damage to trees.
- C. The locations of storage and other facilities, required in the performance of the Work, will not be within wetlands or resource areas.

3.4 PROTECTION OF AIR QUALITY

- A. Burning – The use of burning at the project site for the disposal of refuse and debris will not be permitted.
- B. Dust Control – Maintain all demolition excavations, stockpiles, waste areas and all other work areas within or without the project boundaries free from dust, which could cause the standards for air pollution to be exceeded (MADEP 310 CMR 7.09.-7.10) and, which would cause a hazard or nuisance to others.
- C. The General Contractor will provide adequate means for the purpose of preventing dust and odor caused by construction operations throughout the period of the construction contract. If the Designer indicates that the level of dust or odors is unacceptable, the General Contractor will employ measures necessary to reduce dust or odors to an acceptable level.

- D. The General Contractor will implement engineering controls (e.g. watering, misting) to control dust whenever required by the Engineer.

3.5 MAINTENANCE OF POLLUTION CONTROL FACILITIES DURING CONSTRUCTION

- A. During the life of this Contract, maintain all facilities constructed for pollution, erosion and sedimentation control as long as the operations creating the particular pollutant area being carried out.

3.6 NOISE CONTROL

- A. The General Contractor will develop and maintain a noise-abatement program and enforce strict discipline over all personnel to keep noise to a minimum. Local noise ordinances will govern.
- B. The General Contractor will execute construction work by methods and by use of equipment, which will reduce excess noise.
- C. Equipment will be equipped with silencers or mufflers designed to operate with the least possible noise in compliance with Federal and State regulations.
- D. The General Contractor will manage vehicular traffic and scheduling to reduce noise.

3.7 DIESEL EQUIPMENT EMISSION CONTROLS

- A. All motor vehicles and construction equipment will comply with all pertinent local, state, and federal regulations covering exhaust emission controls and safety.
- B. All General Contractor and Subcontractor diesel-powered, non-road construction equipment with engine horsepower (HP) ratings of 50HP and above, which are used on the Project Site, for a period in excess of 30 calendar days over the course of the construction period on the Project Site, will be retrofitted with Emission Control Devices in order to reduce diesel emissions.
- C. The reduction of emissions of volatile organic compounds (VOCs), carbon monoxide (CO) and particulate matter (PM) from diesel-powered equipment will be accomplished by installing Retrofit Emission Control Devices.
- D. Construction will not proceed until the General Contractor has submitted a certified list of the non-road, diesel-powered, construction equipment subject to this specification which are, or will be, retrofitted with emission control devices. The list will include: (1) the equipment number, type, make and General Contractor/Subcontractor name; and (2) the emission control device make, model, and EPA verification number. General Contractors will also submit a receipt or other documentation from a manufacturer or installer that verifies that the appropriate equipment has been installed. The General Contractor will also identify any vehicles that will use Clean Fuels. Equipment that has been retrofitted with an emission control device will be stenciled, or otherwise clearly marked as "Low Emission Equipment".
- E. The General Contractor will submit monthly reports, updating the same information stated in Paragraph D above, including the quantity of Clean Fuel utilized. The addition, or

deletion, of non-road diesel equipment will be indicated in the report.

- F. The General Contractor will use methods to control nuisance odors associated with diesel emissions from construction equipment including, but not limited to, the following: (1) turning off diesel combustion engines on construction equipment not in active use and on trucks that are idling for five (5) minutes or more; and (2) locating diesel equipment away from the general public and sensitive receptors.
- G. All costs associated with implementation of the diesel equipment emissions control will be borne by the respective General Contractor and included in their cost for performing the work of the Contract.

3.8 SPILL AND DISCHARGE CONTROL

- A. The General Contractor will provide equipment and personnel to perform emergency measures required to contain any spillage and to remove spilled materials and soils or liquids that become contaminated due to spillage. The collected spill material will be properly disposed of at the General Contractor's expense.
- B. Costs to provide the above spill and discharge control materials will be included in the contract base bid price.

END OF SECTION

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SECTION 015000 – TEMPORARY FACILITIES

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS (PCR), which are hereby made a part of this Section of the Specifications.

1.2 GENERAL REQUIREMENTS

- A. The Contractor will be responsible for providing and maintaining all temporary facilities until Substantial Completion. Removal of such, prior to Substantial Completion, must be with the concurrence of the Engineer. The Contractor bears full responsibility for providing any facility removed prior to Substantial Completion
- B. Removal of all temporary facilities will be a condition precedent to Substantial Completion unless directed otherwise by the Engineer or specifically noted in the Specifications.
- C. The Contractor must comply with all safety laws and regulations of the State of Massachusetts, the United States Government, and local government agencies applicable to Work under this contract. The Contractor's attention is directed to the State of Massachusetts, Department of Labor and Industries Regulations.
- D. Submittals:
 - 1. Within seven (7) days from a Notice to Proceed, the Contractor will submit for the approval of the Engineer a site layout plan indicating the location of all temporary facilities described within this Specification.
 - 2. Shop drawings showing proposed project sign (if applicable).
 - 3. Manufacturer's Data for proposed field offices (if applicable).

1.3 FIELD OFFICES

- A. A field office is not required for this project.

1.4 TEMPORARY TELEPHONES

- A. The Contractor will provide a cell phone on site at all times with the same phone number. This will be the number that the Engineer or Owner may contact in times of emergency.

1.5 TEMPORARY TOILETS

- A. The Contractor will provide and service an adequate number of toilet booths, with chemical type toilets.
- B. The toilets will be maintained by the Contractor in a clean and orderly condition, in compliance with all local and state health requirements.
- C. Under no circumstances will the Contractor's personnel be allowed to use Owner's toilets.

1.6 TEMPORARY CONSTRUCTION FENCE

- A. The Contractor will be responsible for providing and maintaining temporary fencing or barricades around the construction site, as may be necessary to ensure the safety of all persons authorized or unauthorized. Such protective measures will be located and constructed as required by local, state and federal ordinances, laws, codes, or regulations and as required by the Engineer or Owner. The contractor will provide at the pre-construction conference a site operation plan that indicates construction entrance, lay down areas, stock pile areas, and construction fencing locations for Owner review.

1.7 TEMPORARY STRUCTURES AND MATERIAL HANDLING

- A. The Contractor will provide such storage sheds, temporary buildings or trailers, as required for the performance of the Contract. Subcontractors will provide their own temporary buildings and trailers. The locations of such items are to be approved by the Engineer.
- B. Materials will be handled, stored, installed, cleaned and protected in accordance with the best practice in the industry and, except where otherwise specified in the Contract Documents, in accordance with manufacturer's specifications and directions.
- C. The Contractor must obtain the permission of the Owner for the use of any storage facilities available on site, but the Owner assumes no responsibility for articles stored.

1.8 HOISTING FACILITIES

- A. Except as otherwise specified, the Contractor will provide, operate, and remove material hoists, cranes and other hoisting, as required for the performance of the Work by all trades. All such hoisting service will be without cost to the Subcontractors.

1.9 TEMPORARY WATER

- A. The Contractor may make use of the available water supply at the site for construction purposes, provided the permission of the Owner is obtained beforehand and only as long as the water is metered and paid for by the contractor. If onsite water is not available the contractor is responsible for supplying temporary water.

- B. The Contractor will provide all necessary backflow preventers, piping, and hoses to utilize the available sources of water.
- C. The Contractor will provide an adequate supply of cool drinking water, with individual drinking cups, for personnel on the job.

1.10 TEMPORARY ELECTRICITY

- A. The Contractor may make use of the electricity as available at the site as long as the electricity is metered and paid for by the contractor, provided that the Contractor will supply proper adapters and extension cords. Power requirements that cannot be met with onsite power will be the responsibility of the Contractor.
 - 1. Where heavy duty electric equipment drawing current in excess of 15 amperes is involved, the Contractor will provide temporary service to supply the power.
 - 2. The temporary electric service will include, but not be limited to, labor, materials and equipment necessary to supply temporary power of adequate capacity for the project.
 - 3. Transformers and meters, when required by the power company, will be furnished by the power company and the Contractor will pay the costs thereof.
- B. Temporary electrical Work will be performed under the direct supervision of at least one master electrician, who will be present on the project at all times when such work is being performed.
- C. All temporary work will be provided in conformity with the National Electric Code, state and local laws, and the requirements of the power company.
- D. Dismantle and completely remove from the project site all temporary electrical facilities, only when the permanent electrical system is operational and accepted by the Engineer.
- E. Electrical permits will be the responsibility of the Contractor to obtain.

1.11 WEATHER PROTECTION

- A. It is to be specifically understood that the Contractor shall do no work under any conditions deemed unsuitable by the manufacturer of various materials to be installed or the Owner for the execution of the Work. This provision will not constitute any waiver, release, or lessening of the Contractor's obligation to bring the Work to Substantial Completion within the period of time set forth in the Contract Documents.

END OF SECTION

SECTION 017000 – PROJECT CLOSEOUT

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS (PCR), which are hereby made a part of this Section of the Specifications.

1.2 RELATED DOCUMENTS

- A. Consult the individual sections of the specifications for specific items required under those sections.

1.3 PERMITS

- A. The Contractor will coordinate the efforts of all Subcontractors and obtain any final permits that may be required.

1.4 SUBSTANTIAL COMPLETION

- A. Prior to requesting Substantial Completion, the Contractor will make a thorough inspection of the Work. During this inspection, the Contractor will prepare a comprehensive list of all items remaining to be completed or corrected. This list will include all remaining Contractor and Subcontractor items to be provided under the Contract Documents.
- B. The Contractor shall conduct a walk-through visual inspection with a representative of the turf manufacturer to document any turf deficiencies.
- C. Upon completion of the items, noted on the Contractor's list, the Contractor will notify the Engineer that the Work is Substantially Complete. The Engineer will then conduct a similar thorough inspection. If the Engineer agrees that the Work is Substantially Complete, the Engineer will promptly make a thorough inspection and prepare a punch list, setting forth, in accurate detail, any items on the Contractor's list in addition to items that are not acceptable or incomplete. The Contractor will coordinate all Subcontractors to achieve prompt completion of the punch list.
- D. The Contractor will not be relieved of the responsibility to provide Contract items omitted on the Engineer's punch list.
- E. If the Engineer determines that the Work is not substantially complete, the Engineer will inform the Contractor of those items that must be completed before the Engineer will prepare a punch list. Upon completion of those items, the Contractor will again request the Engineer to prepare a punch list.

- F. When the punch list has been prepared, the Engineer will arrange a meeting with the Contractor and Subcontractors to identify and explain all punch list items and answer questions on work which must be done before final acceptance.
- G. The Engineer may revise the punch list, from time to time, to ensure that all items of Work are properly completed.
- H. The Engineer will prepare the Certificate of Substantial Completion.

1.5 RECORD DRAWINGS

- A. See Section 01 7123 – Surveys and Record Drawings

1.6 OPERATING AND MAINTENANCE INSTRUCTIONS

- A. Consult the individual sections of the specifications for the specific requirements for those sections and for further details and descriptions of the requirements
- B. Prior to final payment and completion, the Contractor will provide all Operating Manuals and Maintenance Instructions, as required by the Contract Documents.
- C. Operating Instructions and Manuals
 - 1. Subcontractors, installers and suppliers will furnish to the Contractor two (2) sets of operating and maintenance instructions of all equipment furnished and installed by them.
 - 2. The Contractor will collect all of the above instructions, bind them into two (2) complete sets and submit them to the Engineer who will deliver them to the Owner.
 - 3. Submission of operating and maintenance instructions will be a condition precedent to final payment.
- D. Instruction of Owner's Personnel
 - 1. Where specified, in the individual sections of the specifications, the Contractor and Subcontractor will instruct the Owner's personnel at the site in the use and maintenance of equipment installed under the Contract.
 - 2. Submission to the Engineer of a Certificate of Compliance to this requirement, signed by the Contractor and the Owner's Representative, will be a condition precedent to final payment.

1.7 FINAL COMPLETION

- A. Full Release of Retainage

1. Upon completion of all work, and after receipt of all appropriate marked up As-Built Drawings, Operating Manuals, Warranties, Guarantees and Spare Parts required by the Contract Documents, the Engineer will prepare the Certificate of Final Completion.
2. The Contractor's signature on this Certificate will be notarized.
3. The Contractor will provide a final Application for Payment to complement the close-out process.

1.8 Partial Release of Retainage

- A. If, within sixty (60) days after Substantial Completion, any of the items on the Engineer's punch list are not complete or if the Contractor has not provided the appropriate marked up As-Built Drawings, Operating Manuals, Warranties, Guarantees, or Spare Parts, the Engineer will assign a monetary value for each incomplete item as well as any other items, and the Engineer will prepare a Certificate for Partial Release of Retainage.
1. If the Engineer is required to prepare a Certificate for Partial Release of Retainage, the Contractor will still complete all remaining Work.
 2. The Contractor's signature on this Certificate will be notarized.
 3. The Contractor may make a request for additional Releases of Retainage when portions of the Work listed on the Engineer's punch list have been satisfactorily completed. Each request will be accompanied by a new application for payment and a new signed and notarized Certificate for Partial Release of Retainage.
 4. Upon completion of all remaining items, the Final Release of Retainage will be processed in accordance with Paragraph A above.

END OF SECTION

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SECTION 017123 – SURVEYS AND RECORD DRAWINGS

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS (PCR), which are hereby made a part of this Section of the Specifications.

1.2 RECORD DRAWINGS

- A. Prior to final payment, the Contractor will engage a Professional Land Surveyor (PLS) to complete an “on-the ground” detailed survey and provide an as-built plan of all facilities within the limit of work. This includes grading, field layout, fencing, utilities, walkways, and all other related amenities within the project scope. The final submitted as-built will be stamped by a Professional Land Surveyor or Professional Engineer registered in Massachusetts, demonstrating compliance with all MIAA, American Sports Builders Association (ASBA), and Americans with Disabilities Act (ADA) requirements for layout, geometry, striping and slope requirements. An electronic version of the as-built plan in AutoCAD 2012 or newer format shall be provided. As-Built drawings that consist of the Engineer’s electronic design file will not be accepted.
- B. Record Drawings will consist of all the Contract Drawings with mark-ups made during construction.
- C. From the sets of drawings furnished by the Owner, the Contractor will reserve one (1) set for record purposes.
- D. The Contractor will keep their marked-up record set on the site at all times and note on it in colored ink or pencil, neatly and accurately, at the end of each working day, the exact location of their work as actually installed. This will include the location and dimensions of underground and concealed Work and any variations from the Contract Drawings. All changes, including those issued by Addendum, Change Order, or instructions by the Engineer will be recorded. Marked-up record drawings will be prepared for the entire project and include all Work, including, but not limited to:
- E. The location of all underground utilities and appurtenances referenced to permanent surface improvements, both horizontally and vertically, at ten foot (10') intervals and at all changes of direction.
- F. The Engineer may periodically inspect the marked-up record drawings at the site. The proper and current maintenance of the information required on these drawings will be a condition precedent to approval of the monthly applications for payment.

- G. At Substantial Completion, the Contractor will submit the complete set of marked-up as-built drawings to the Engineer. The Contractor will check all marked-up record drawings prepared by subcontractors and certify, in writing, on the title sheet of the drawings, that they are complete and correct prior to submission to the Engineer.
- H. The Engineer will review the marked-up record drawings and verify by letter to the Owner that the Work is complete. The Contractor will incorporate any and all changes into the as-built drawings.
- I. The Contractor may make a written request for copies of the completed Record Drawings. The Contractor will reimburse the Owner directly for the cost of printing of any requested Record Drawings.
- J. Submission of accurate marked-up record drawings, as-built drawings and their approval by the Engineer will be a condition precedent to final payment.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

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SECTION 017419 – CLEANING UP

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS (PCR), which are hereby made a part of this Section of the Specifications.

1.2 RELATED DOCUMENTS

- A. Consult the individual sections of the specifications for cleaning of Work installed under those sections.

1.3 CLEANING DURING CONSTRUCTION

- A. Conduct cleaning and disposal operations to comply with local ordinances, anti-pollution laws and the Owner.
- B. Do not burn or bury rubbish and waste materials on the site.
- C. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
- D. Do not dispose of wastes into streams or waterways.
- E. Wet down dry materials and rubbish to lay dust and prevent blowing dust.
- F. Maintain the site free from accumulations of waste, debris and rubbish.
- G. Provide on-site containers for collection of waste materials and rubbish.
- H. At the end of each day, remove and legally dispose of waste materials and rubbish from site.
- I. Schedule cleaning operations so that dust and other contaminants, resulting from cleaning process, will not fall on wet, newly applied surfaces.
- J. Disposal of materials will be in compliance with all applicable laws, ordinances, codes and by-laws.

1.4 FINAL CLEANING

- A. Prior to submitting a request to the Engineer to certify Substantial Completion of the Work, the Contractor will inspect all spaces and verify that all waste materials, rubbish, tools, equipment, machinery and surplus materials have been removed, and that all sight-exposed surfaces are clean. Leave the Project clean and ready for occupancy.

- B. Unless otherwise specified under other sections of the Specifications, the Contractor will perform final cleaning operations as herein specified prior to final inspection.
- C. Cleaning will include all surfaces which Contractor has had access to, whether new or existing.
- D. Employ experienced workmen or professional cleaners for final cleaning.
- E. Use only cleaning materials recommended by the manufacturer of the surface to be cleaned.
- F. Use cleaning materials which will not create a hazard to health or property and will not damage surfaces.
- G. Remove grease, mastic, adhesive, dust, dirt, stains, labels, fingerprints and other foreign materials from sight-exposed surfaces. This includes cleaning of the Work of all finishing trades where needed, whether or not cleaning by such trades is included in their respective specifications.
- H. Repair, patch and touch up marred surfaces to the specified finish, to match adjacent surfaces.
- I. In cleaning items with manufacturer's finish, or items previously finished by a Subcontractor, care will be taken not to damage such manufacturer's or Subcontractor's finish. Any damage to finishes caused by cleaning operations will be repaired at the Contractor's expense.
- J. Broom clean exposed concrete surfaces and paved surfaces. Rake clean other surfaces of grounds.
- K. The Owner's responsibility for cleaning commences at Substantial Completion and transfer of occupancy from the Contractor to the Owner.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 017600 – PROTECTION

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS (PCR), which are hereby made a part of this Section of the Specifications.

1.2 PROTECTION OF PERSONS & PROPERTIES

- A. All Owner facilities may be occupied during construction. The Contractor will take all necessary precautions to ensure public safety and convenience of the occupants during construction.
- B. Any damage to buildings, roads, (public and private), bituminous concrete areas, fences, lawn areas, trees, shrubbery, poles, underground utilities, etc. will be made good by and at the Contractor's own expense, all to the satisfaction of the Owner.
- C. The Contractor will patch, repair and/or replace all adjacent materials and surfaces damaged after the installation of new work, at no expense to the Owner. All repair and replacement work will match the existing in kind and appearance.

1.3 TEMPORARY PROTECTION

The Contractor Will:

- A. The Contractor shall conduct a walk-through visual inspection with a turf manufacturer representative to review the proposed turf protection measures and visually inspect and document any turf deficiencies. After substantial completion, the Contractor shall conduct a walk-through visual inspection with a turf manufacturer representative to document any turf deficiencies as part of the project closeout process.
- B. Protect all existing vegetation to remain that is in proximity to the site work required for completion of the construction project.
- C. Protect the private property of the Owner. Any areas damaged by the Contractor will be restored to the original condition or compensated at the Contractor's expense.
- D. After the installation of the Work by any Subcontractor is completed, the Contractor will be responsible for its protection and for repairing, replacing or cleaning any such Work, which has been damaged by other trades or by any other cause, so that all Work is in first class condition at the time of Substantial Completion.

1.4 ACCESS

- A. The Contractor will, at all times, leave an unobstructed way along walks, parking lots and roadways outside the indicated limit of work and will maintain barriers and lights for the

protection of all persons and property in all locations where materials are stored or where work is in progress.

1.5 SECURITY

- A. The Contractor will be responsible for providing all security precautions necessary to protect the Contractor's and Owner's interests.
- B. Where excavation is involved, the Contractor will be responsible for providing continuous watchmen service, as necessary, to insure adequate protection of the general public.

1.6 NOISE AND DUST CONTROL

- A. The Contractor will take special measures to protect the neighbors and general public from noise, dust and other disturbances, as needed, and/or directed by the Owner throughout construction by:
 - i. Keeping common pedestrian and vehicular circulation areas clean and unobstructed
 - ii. Applying water or other dust palliatives, as needed, for dust mitigation.
 - iii. Keeping all loose trash picked up and preventing it from blowing outside the limit or work.

1.7 FIRE PROTECTION

- A. The Contractor will take necessary precautions to insure against fire during construction. The Contractor will be responsible to ensure that the area within contract limits is kept orderly and clean and all combustible rubbish and construction debris is promptly removed from the site.
- B. Installation of equipment suitable for fire protection will be done as soon as possible after commencement of the Work.

1.8 WIND PROTECTION

- A. Should high wind or severe weather warnings be issued by the U.S. Weather Bureau, the Contractor will take every precaution to minimize danger to persons, to the Work and to the adjacent property.

1.9 WEATHER PROTECTION

- A. The Contractor will provide Weather Protection, as required by Specification Section 01 5000, Temporary Facilities and any other specific requirements of the Contract

Documents.

1.10 COORDINATION - NOTIFICATIONS

- A. The Contractor will coordinate all work activities with the Owner.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

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SECTION 022113 – EXISTING CONDITIONS

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS (PCR), which are hereby made a part of this Section of the Specifications.

1.2 RELATED SECTIONS

- A. Section 00100 – Instructions to Bidders
- B. Section 01 0100 – Summary of Work
- C. Section 01 3114 – Conduct of the Work

1.3 EXISTING CONDITIONS

- A. Before submitting a bid, the Contractor will make a thorough examination of the conditions at the site, checking the requirements of the Plans and Specifications with the existing conditions.
- B. No claim for extra compensation or extension of time will be allowed on account of the Contractor's failure to estimate properly the quantities, locations and measurements of all items required to complete the work, which could be discerned from visiting the site and a thorough review of the Bid Documents, Drawings and Specifications.
- C. The Contractor will report any discrepancies to the Engineer and request an interpretation prior to bid submission. Discrepancies discovered after award of Contract will be handled as detailed in the General Conditions.
- D. Existing Utilities exist on site and are shown on the drawings for reference only. Locations shown do not relieve the Contractor from the responsibility for accurately locating and protecting utilities in place. The Contractor is responsible for repair and replacement of all utilities to remain that are damaged by his work.

1.4 SUBMITTALS

- A. The Contractor will submit a field verification plan of all utilities within limit of work and submit to Engineer for review and approval.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

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SECTION 023000 – SUBSURFACE INVESTIGATION

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS (PCR) which are hereby made a part of this Section of the Specifications.

1.2 SUBSURFACE INVESTIGATION

- A. Information Not Guaranteed: Information on the Drawings and in the Project Manual relating to subsurface conditions, natural phenomena, and existing utilities and structures is from the best sources presently available. Such information is furnished only for the information and convenience of the Contractor, and the accuracy or completeness of this information is not guaranteed. The Contractor shall field verify and locate existing utilities prior to construction. The Contractor shall utilize a third party utility locator as necessary. The Contractor shall coordinate with DIG SAFE (888-DIG-SAFE) at least 72-hours prior to excavation.

1.3 CONFIRMATION OF GRADES AND UTILITIES

- A. Prior to commencement of site excavating operations, the Contractor shall compare existing site grading and proposed new site grading. Where existing utilities are indicated but their inverts or depths are not, exploratory excavating shall be performed to assure that sufficient earth coverage will be attained during the course of new site grading.
 - 1. Utilities existing on the site shall be carefully protected from damage and relocated or removed as required by the work. When an active utility line is exposed during construction, its location and elevation shall be plotted on the record drawings and the Engineer, and the utility Owner notified in writing.
 - 2. If exploratory excavating confirms that the depth of existing utilities will be negatively impacted by proposed new grades (i.e., will be too shallow or become exposed), immediately notify the Engineer. Do not proceed with work in such areas until instructions are issued by the Engineer. Continue work in other areas.

1.4 CONFIRMATION OF INTEGRITY OF ADJACENT STRUCTURES

- A. Prior to commencement of site excavating operations, the Contractor shall compare depths of existing structures and proposed depths of new utilities. Where existing structures are indicated but their depths are not, exploratory excavating shall be performed to assure that proposed new excavations adjacent to them, or in near proximity of them, will not undermine the structural integrity of the existing structures. The Contractor shall be responsible for providing shoring as necessary to protect existing site appurtenances.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

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SECTION 024113 – SELECTIVE SITE DEMOLITION

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS (PCR) which are hereby made a part of this Section of the Specifications.

1.2 SUMMARY

- A. Work to include the demolition of indicated bituminous concrete pavement and asphalt.
- B. Except for items or materials indicated to be reused, salvaged, reinstalled or otherwise indicated to remain the Owner's property, demolished materials shall become the Contractor's property and shall be removed from the site with further disposition at the Contractor's option and in full compliance with all applicable disposal regulations.

1.3 DESCRIPTION OF WORK

- A. Work Included:
 - 1. Demolition and removal of selected site elements as required for new work. Refer to the Drawings for additional requirements.
 - 2. Salvage of existing items to be reused or turned over to the owner.
 - 3. Removal and legal disposal of demolished materials off site. Except those items specifically designated to be relocated, reused, or turned over to the owner, all existing removed materials, items, trash, unsuitable soils, stumps and debris shall become property of the Contractor and shall be completely removed from the site and legally disposed of at her/his expense. Salvage value belongs to the Contractor. On-site sale of materials is not permitted.
 - 4. Demolition and removal work shall properly prepare for alteration work and new construction to be provided under the Contract.
 - 5. Scheduling and sequencing operations without interrupting utilities serving occupied areas. If interruption is required, obtain written permission from the utility company. Provide temporary services as necessary to serve occupied and usable facilities when permanent utilities must be interrupted, and schedule interruption when the least amount of inconvenience will result.

- B. Related Work: The following items are not included in this Section and will be performed under the designated Sections:

1. Section 01 5000 - TEMPORARY FACILITIES: Maintenance of access, cleaning during construction, dust and noise control.

1.4 DEFINITIONS

- A. Remove: Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.
- B. Remove and Salvage: Detach items from existing construction and deliver them to the Owner ready for reuse, at a location designated by the Owner. Protect from weather until accepted by Owner.
- C. Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated. Protect from weather until reinstallation.
- D. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.5 MATERIALS OWNERSHIP

- A. Where indicated on plan, Historic items, relics, and similar objects including, but not limited to, ornamental signage, metalwork, cornerstones and their contents, commemorative plaques, antiques, and other items of interest or value that may be encountered during demolition shall remain property of the Owner as applicable. Carefully remove each item or object in a manner to prevent damage and deliver promptly to a location acceptable to the Owner.
- B. Excess topsoil: Refer to Site Clearing 31 1000.
- C. Except for materials indicated to be stockpiled, reused, or to remain as the Owner's property, cleared materials shall become the Contractor's property and shall be removed from the site.

1.6 SUBMITTALS

- A. Schedule of Selective Demolition Activities: Indicate the following:
1. Detailed sequence of selective demolition and removal work, with early and late starting and finishing dates for each activity. Ensure Owner's on-site operations are uninterrupted if applicable.
 2. Coordination of Owner's continuing occupancy of portions of existing site.
 3. Means of protection for items to remain and items in path of removal.

- B. Submit photographs or videotape, sufficiently detailed, of existing conditions of adjoining construction and site improvements that might be misconstrued as damage caused by selective demolition operations. Submit photographs of existing items to be removed and reinstalled to record original condition of objects to be retained.

1.7 RECORD DRAWINGS

- A. Record drawings at Project Closeout shall be in accordance with Division 1.
- B. Identify and accurately locate capped utilities and other subsurface conditions.

1.8 REGULATORY REQUIREMENTS

- A. Comply with governing State and EPA notification regulations, before starting selective demolition. Comply with the hauling and disposal regulations of any authorities having jurisdiction.
- B. The Owner will occupy portions of the facilities and fields immediately adjacent to selective demolition areas. Conduct selective demolition so that the Owner's operations will not be disrupted. Provide not less than 72 hours of notice to the Owner of activities (if any) that may affect the Owner's operations.
- C. The Owner assumes no responsibility for the actual condition of facilities or items to be selectively demolished or removed and reused.
- D. Storage or sale of removed items or materials on-site will not be permitted without the Owner's permission.

1.9 QUALITY ASSURANCE

- A. Examination of Existing Conditions: The Contractor shall examine the Contract Drawings for demolition and removal requirements and provisions for new work. Verify all existing conditions and dimensions before commencing work. The Contractor shall visit the site and examine the existing conditions as he finds them and shall inform herself/himself of the character, extent and type of demolition and removal work to be performed. Submit any questions regarding the extent and character of the demolition and removal work in the manner and within the time period established for receipt of such questions during the bidding period.

1.10 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 EXECUTION

- A. Prior to commencing any excavation or demolition, the Contractor shall take all actions necessary to fully protect the existing facilities from damage. The Contractor shall take all actions required to repair any damage and return the fields to their existing conditions.
- B. Survey the condition of the site to determine whether removing any element might result in the undesirable damage of any portion of the adjacent facilities during selective demolition.
- C. Perform surveys as the work progresses to detect hazards resulting from selective demolition activities.
- D. Conduct demolition operations and remove debris to ensure minimum interference with roads, parking lots, streets, walks and other adjacent occupied and utilized facilities.
- E. Conduct demolition operations to prevent injury to people and damage to adjacent buildings, facilities and site improvements to remain. Ensure safe passage of people around selective demolition areas.
- F. Use water mist and other suitable methods, as necessary, to limit the spread of dust and dirt. Comply with governing environmental protection regulations.
- G. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- H. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to conditions existing before the start of selective demolition.
- I. Demolish and remove existing construction only to the extent required by new construction and as indicated. The Contractor is to be responsible for any cutting and patching that is required.
- J. Promptly patch and repair holes and damaged surfaces caused to adjacent construction by selective demolition operations.
- K. Where repairs to existing surfaces are required, patch to produce surfaces suitable for new materials.
- L. Restore exposed finishes of patched areas and extend finish restoration into adjoining construction to remain in a manner that eliminates evidence of patching and refinishing.
- M. Disposal: Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.
- N. Do not burn demolished materials.
- O. Transport demolished materials off the Owner's property and legally dispose of them, if they are not designated for salvage by the Owner or reuse.
- P. In areas where bituminous concrete is to be removed, the edge of any bituminous

concrete to remain must be a sawcut edge.

- Q. Items to be removed and reset may be stored on site, at a location approved by the Owner.
- R. Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

3.2 PREPARATION

- A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
 - 1. Comply with requirements for access and protection specified in Section 01 5000 - TEMPORARY FACILITIES.
- B. Conduct demolition operations to prevent injury to people and damage to adjacent buildings and facilities to remain. Ensure safe passage of people around demolition area(s).
 - 1. Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, where required by authorities having jurisdiction. Provide temporary barricades as required to limit access to demolition areas.
 - 2. Protect existing site improvements, appurtenances, and landscaping to remain.

3.3 DISCOVERY OF HAZARDOUS MATERIALS

- A. If hazardous materials, such as chemicals, asbestos-containing materials, or other hazardous materials are discovered during the course of the work, cease work in affected area only and immediately notify the Designer of such discovery. Do not proceed with work in such areas until instructions are issued by the Designer. Continue work in other areas.
- B. If unmarked containers are discovered during the course of the work, cease work in the affected area only and immediately notify the Designer of such discovery. Do not proceed with work in such areas until instructions are issued by the Designer. Take immediate precautions to prohibit endangering the containers integrity. Continue work in other areas.

3.4 CUTTING

- A. Provide a flush saw cut edge where pavement, curb and concrete removals abut new construction work or existing surfaces to remain undisturbed.

3.5 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Comply with requirements of Section 01 7419 - CLEANING UP and the following.

1. Do not allow demolished materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.

B. Burning: Do not burn demolished materials.

3.6 CLEANING

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Premises shall be left in a clean condition and ready to accept alteration work and new construction.

END OF SECTION

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SECTION 311000 - SITE CLEARING

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS (PCR), which are hereby made a part of this Section of the Specifications.

1.2 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:
 - 1. Protecting existing trees and vegetation to remain, including temporary fencing for trees in close proximity to construction operations.
 - 2. Over excavating unsuitable soils as required.
 - 3. Removing above and below grade site improvements.
 - 4. Disconnecting, capping or sealing of utilities as required.
- B. Alternates: N/A
- C. Items to Be Installed Only: Not Applicable.

1.3 RELATED WORK

- A. Related Work: The following items are not included in this Section and will be performed under the designated Sections:
 - 1. Section 31 2000 – EARTH MOVING for soil materials, excavating, backfilling, and site grading and removal of site utilities.
 - 2. Section 31 2500 – EROSION AND SEDIMENTATION CONTROLS for required erosion and sedimentation control measures.

1.4 DEFINITIONS

- A. Topsoil: Natural or cultivated surface-soil layer containing organic matter and sand, silt, and clay particles; friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects more than 2 inches in diameter; and free of subsoil and weeds, roots, toxic materials, or other nonsoil materials.
- B. Tree Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction, and defined by the drip line of individual trees or the perimeter drip line of groups of trees, unless otherwise indicated.

1.5 MATERIAL OWNERSHIP

- A. Except for materials indicated to remain the Owner's property, cleared materials shall become Contractor's property and shall be removed from the Project site and disposed of legally offsite.

1.6 SUBMITTALS

- A. Photographs sufficiently detailed, of existing conditions of trees and plantings, adjoining construction, and site improvements that might be misconstrued as damage caused by site clearing.
- B. Record drawings, according to Section 01 7000 - PROJECT CLOSEOUT identifying and accurately locating capped utilities and other subsurface structural, electrical, and mechanical conditions.

1.7 PROJECT CONDITIONS

- A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.
 - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from the Owner and authorities having jurisdiction.
 - 2. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.
- B. Salvable Improvements: Carefully remove items indicated to be salvaged and store on Owner's premises where indicated.
- C. Utility Locator Service: Notify utility locator service for area where Project is located before site clearing.
- D. Do not commence site clearing operations until erosion and sedimentation control measures are in place.

- E. Protection of Existing Improvements: Provide protection necessary to prevent damage to existing improvements indicated to remain in place or outside of the limit of work. Protect improvements on adjoining properties and on Owner's property.
 - 1. Restore improvements damaged by Contractor's clearing activities to their original condition, at no additional expense to the Commonwealth.

PART 2 – PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 PREPARATION

- A. Protect and maintain benchmarks and survey control points from disturbance during construction.
- B. Locate and clearly flag trees and vegetation to remain or to be relocated.
- C. Protect existing site improvements to remain from damage during construction.
 - 1. Restore damaged improvements to their original condition, as acceptable to the Owner.

3.2 TREE PROTECTION

- A. Erect and maintain temporary fencing around tree protection zones before starting site clearing. Remove fence when construction is complete.
 - 1. Do not store construction materials, debris, or excavated material within fenced area.
 - 2. Do not permit vehicles, equipment, or foot traffic within fenced area.
 - 3. Maintain fenced area free of weeds and trash.
 - 4. Except as otherwise directed, cutting and trimming of existing trees will not be permitted.
- B. Do not excavate within tree protection zones, unless otherwise indicated.
- C. Where excavation for new construction is required within tree protection zones, hand clear and excavate to minimize damage to root systems. Use narrow-tine spading forks, comb soil to expose roots, and cleanly cut roots as close to excavation as

possible.

1. Cover exposed roots with burlap and water regularly.
 2. Temporarily support and protect roots from damage until they are permanently redirected and covered with soil.
 3. Coat cut faces of roots more than 1-1/2 inches in diameter with an emulsified asphalt or other approved coating formulated for use on damaged plant tissues.
 4. Backfill with soil as soon as possible.
- D. Repair or replace trees and vegetation indicated to remain that are damaged by construction operations, in a manner approved by the Engineer.
1. Employ an arborist, licensed in jurisdiction where Project is located, to submit details of proposed repairs and to repair damage to trees and shrubs.
 2. Replace trees that cannot be repaired and restored to full-growth status, as determined by the Engineer.

3.3 UTILITIES

- A. Locate, identify, disconnect, and seal or cap off utilities indicated to be removed.
1. Arrange with utility companies to shut off indicated utilities.
- B. Existing Utilities: Do not interrupt utilities serving facilities occupied by the Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
1. Notify the Owner not less than two days in advance of proposed utility interruptions.
 2. Do not proceed with utility interruptions without the Owner's written permission.

3.4 SITE IMPROVEMENTS

- A. Remove existing above- and below-grade improvements as indicated and as necessary to facilitate new construction.
- B. Remove slabs, paving, curbs, gutters, and aggregate base as indicated.
1. Unless existing full-depth joints coincide with line of demolition, neatly saw-cut length of existing pavement to remain before removing existing pavement. Saw-cut faces vertically.
 2. Paint cut ends of steel reinforcement in concrete to remain to prevent corrosion.

3.5 DISPOSAL

- A. Disposal: Remove surplus soil material, boulders, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off the Owner's property.
1. Burning and burying on site is prohibited.
 2. Separate recyclable materials produced during site clearing from other nonrecyclable materials. Store or stockpile without intermixing with other materials and transport them to recycling facilities.

END OF SECTION

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SECTION 312000-EARTH MOVING

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS (PCR) which are hereby made a part of this Section of the Specifications.

1.2 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:
 - 1. Preparing subgrades for structures and landscaping.
 - 2. Excavating and backfilling for pavements and structures.
 - 3. Drainage course for slabs-on-grade.
 - 4. Subbase course for concrete pavements.
 - 5. Subbase and base course for asphalt paving.
 - 6. Excavating and backfilling for utility trenches.
 - 7. Remove and replace unsuitable existing fill material.

1.3 Alternates: Not Applicable.

1.4 Items To Be Installed Only: Not Applicable.

1.5 Items To Be Furnished Only: Not Applicable.

1.6 Related Work:

- A. The following items are not included in this Section and will be performed under the designated Sections:
 - 1. Section 31 1000 - SITE CLEARING for site stripping, grubbing, stripping and stockpiling topsoil, and removal of above- and below-grade improvements and utilities.
 - 2. Section 31 2500 – EROSION AND SEDIMENTATION CONTROLS for temporary erosion and sedimentation control measures.

1.7 DEFINITIONS

- A. Backfill: Soil material or controlled low-strength material used to fill an excavation.

1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
 2. Final Backfill: Backfill placed over initial backfill to fill a trench.
- B. Base Course: Course placed between the subbase course and hot-mix asphalt paving.
- C. Bedding Course: Course placed over the excavated subgrade in a trench before laying pipe.
- D. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.
- E. Drainage Course: Course supporting the slab-on-grade that also minimizes upward capillary flow of pore water.
- F. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.
1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Designer. Authorized additional excavation and replacement material will be paid for according to Contract provisions for unit prices.
 2. Bulk Excavation: Excavation more than 10 feet in width and more than 30 feet in length.
 3. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Designer. Unauthorized excavation, as well as remedial work directed by Designer, shall be without additional compensation.
- G. Fill: Suitable soil materials used to raise existing grades.
- H. Rock: Rock material in beds, ledges, unstratified masses, conglomerate deposits, and boulders of rock material that exceed 1 cu. yd. for bulk excavation or 3/4 cu. yd. for footing, trench, and pit excavation that cannot be removed by rock excavating equipment without systematic drilling, ram hammering, ripping, or blasting, when permitted.
- I. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.
- J. Subbase Course: Course placed between the subgrade and base course for hot-mix asphalt pavement, or course placed between the subgrade and a cement concrete pavement or a cement concrete or hot-mix asphalt walk.
- K. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below subbase, drainage fill, or topsoil materials.

- L. Utilities: On-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

1.8 SITE INVESTIGATION

- A. The Contractor shall satisfy himself to the nature and location of the work, the general and local conditions, particularly those bearing upon transportation, disposal, handling and storage of materials, availability of labor, water, electric power, roads and uncertainties of weather, groundwater table or similar physical conditions at the site, the confirmation of subsurface materials to be encountered, the character of equipment and facilities needed prior to and during the prosecution of work and other matters which can affect the work or the cost thereof under this contract. Failure by the Contractor to acquaint himself with all information concerning these conditions will not relieve him from responsibility for properly estimating the difficulty or cost of successfully performing the work.

1.9 SUBSURFACE DATA

- A. Variations in existing ground or subsurface soil conditions shall not constitute grounds for changes in contract price or completion dates of this contract.

1.10 SUBMITTALS

- A. Product Data: Not Applicable.
- B. Material Test Reports: From a qualified testing agency indicating and interpreting test results for compliance of the following with requirements indicated:
 - 1. Classification according to ASTM D 2487 of each on-site and borrow soil material proposed for fill and backfill.
 - 2. Laboratory compaction curve according to ASTM D 1557 for each onsite and borrow soil material proposed for fill and backfill.
- C. Pre-excavation Photographs and Videotape: Show existing conditions of adjoining construction and site improvements, including finish surfaces that might be misconstrued as damage caused by earthwork operations. Submit before earthwork begins. Maintain catalog of up-to-date photographs at the site.

1.11 PROJECT CONDITIONS

- A. Existing Utilities: Do not interrupt utilities serving facilities occupied by the Owner or others unless permitted in writing by Designer and then only after arranging to provide temporary utility services according to requirements indicated.
 - 1. Notify the Owner not less than two days in advance of proposed utility interruptions.
 - 2. Do not proceed with utility interruptions without the Owner's written permission.
 - 3. Contact utility-locator service for area where Project is located before excavating.

- B. Demolish and completely remove from site existing underground utilities indicated to be removed. Coordinate with utility companies to shut off services if lines are active.

1.12 QUALITY CONTROL

- A. Compaction and materials testing results shall be submitted to the Engineer for review as outlined in the following sections.

PART 2 – PRODUCTS

2.1 SOIL MATERIALS

- A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.
- B. Satisfactory Soils: ASTM D 2487 Soil Classification Groups GW, GP, GM, SW, SP, and SM or a combination of these groups; free of rock or gravel larger than 3 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.
- C. Common Fill: Imported Common Fill should consist of Satisfactory Soils having a maximum particle size of 6 inches and no more than 25 percent by weight passing the US No. 200 sieve.
- D. Unsatisfactory Soils: Soil Classification Groups GC, SC, CL, ML, OL, CH, MH, OH, and PT according to ASTM D 2487, or a combination of these groups.
1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.
- E. Subbase Material: Material meeting the minimum requirements for Processed Gravel, as defined by the Commonwealth of Massachusetts Department of Transportation – Highway Division (MassDOT) Standard Specifications for Highways and Bridges (Section M1.03.1). The gradation requirements for Processed Gravel for Subbase are as follows:

Percent Passing	
Sieve Size	By Weight
3 in.	100
1½ in.	70-100
¾ in.	50-85
No. 4	30-60
No. 200	0-10

- F. Base Course: Material meeting the minimum requirements for Dense-graded Crushed Stone, as defined by the MassDOT Standard Specifications for Highways and Bridges (Section M2.01.7). The gradation requirements for Dense-graded Crushed Stone for Subbase are as follows:

Percent Passing

EARTH MOVING
312000-4

Sieve Size	By Weight
2 in.	100
1½ in.	70-100
¾ in.	50-85
No. 4	30-55
No. 50	8-24
No. 200	3-10

- G. Engineered Fill (Structural Fill): Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940. The gradation requirements for Engineered Fill (Structural Fill) are as follows:

Percent Passing	
Sieve Size	By Weight
8 in.	100
3 in.	70-100*
¾ in.	45-95
No. 4	30-90
No. 10	25-80
No. 40	10-50
No. 200	0-10

**Three inch maximum particle size within twelve (12) inches of the underside of footings or slabs.*

- H. Gravel Borrow: Shall comply with MassDOT Standard Specifications for Highways and Bridges (Section M1.03.0 Type C). Maximum size of stone in the gravel shall be 2" in its largest dimension. The gradation requirements for Gravel Borrow are as follows:

Percent Passing	
Sieve Size	By Weight
1/2 in.	50-85
No. 4	40-75
No. 50	8-28
No. 200	0-10

**2" maximum stone.*

- I. Three quarter inch stone: Imported 3/4-inch stone meeting MassDOT Standard Specifications for Highways and Bridges (Section M.2.01.4):

Sieve Size	Percent Passing
1 inch	100
3/4 inch	90-100
½ inch	10-50
3/8 inch	0-20
No. 4	0-5

- J. Bedding Course: Bedding course for utilities shall comply with the requirements of Sand listed below.
- K. Drainage Course: Narrowly graded mixture of washed crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2-inch sieve and 0 to 5 percent passing a No. 8 sieve.
- L. Filter Material: Narrowly graded mixture of natural or crushed gravel, or crushed stone and natural sand; ASTM D 448; coarse-aggregate grading Size 67; with 100 percent passing a 1-inch sieve and 0 to 5 percent passing a No. 4 sieve.
- M. Sand: ASTM C 33; fine aggregate, natural, or manufactured sand.
- N. Impervious Fill: Clayey gravel and sand mixture capable of compacting to a dense state.
- O. Free draining angular washed stone: Imported angular double washed stone with particle size ranging from 3/4 inch to 1-1/2 inch.
- P. Peastone: Shall be crusher or natural stone meeting the following gradation

Sieve Size	Percent Passing
1/2 inch	100
3/8 inch	85-100
No 4	10-30
No 8	0-10
No. 16	0-5

- Q. Stonedust: Shall be stone screenings as specified in MassDOT Standard Specifications for Highways and Bridges (Section M2.05.0) stone crusher material completely passing a No. 4 sieve with not less than 40% passing a No. 8 Sieve.
- R. Track Base Stone: Refer to Section 321833.

2.2 GEOTEXTILES

- A. Geotextile Filter Fabric: Nonwoven needle-punched geotextile, manufactured for subsurface drainage applications, made from polyolefins or polyesters; with elongation greater than 50 percent; complying with AASHTO M 288 and the following, measured per test methods referenced:
 - 1. Survivability: Class 2; AASHTO M 288.
 - 2. Grab Tensile Strength: 157 lbf; ASTM D 4632.
 - 3. Sewn Seam Strength: 142 lbf; ASTM D 4632.
 - 4. Tear Strength: 56 lbf; ASTM D 4533.
 - 5. Puncture Strength: 56 lbf; ASTM D 4833.

6. Apparent Opening Size: No. 40 sieve, maximum; ASTM D 4751.

7. UV Stability: 50 percent after 500 hours' exposure; ASTM D 4355.

B. Geotextile Stabilization Fabric: Shall be Tensar TX130 or approved equal.

2.3 ACCESSORIES

A. Detectable Warning Tape: Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, a minimum of 6 inches wide and 4 mils thick, continuously inscribed with a description of the utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches deep; colored as follows:

1. Red: Electric.

2. Yellow: Gas, oil, steam, and dangerous materials.

3. Orange: Telephone and other communications.

4. Blue: Water systems.

5. Green: Sewer systems.

PART 3 – EXECUTION

3.1 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

B. Preparation of subgrade for earthwork operations including removal of vegetation, topsoil, debris, obstructions, and deleterious materials from ground surface is specified in Section 31 1000 - SITE CLEARING.

C. Protect and maintain erosion and sedimentation controls, which are specified in Section 32 2500 – EROSION AND SEDIMENTATION CONTROL, during earthwork operations.

D. Provide protective insulating materials to protect subgrades and foundation soils against freezing temperatures or frost.

3.2 DEWATERING

A. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area. Dispose of contaminated water in accordance with regulations of authorities having jurisdiction.

- B. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.
 - 1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.
 - 2. Install a dewatering system to keep subgrades dry and convey ground water away from excavations. Maintain until dewatering is no longer required.

3.3 EXPLOSIVES

- A. Explosives: Explosives are prohibited.

3.4 EXCAVATION, GENERAL

- A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.
 - 1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.
 - 2. Remove rock to lines and grades indicated to permit installation of permanent construction without exceeding the following dimensions:
 - a. 24 inches outside of concrete forms other than at footings.
 - b. 12 inches outside of concrete forms at footings.
 - c. 6 inches outside of minimum required dimensions of concrete cast against grade.
 - d. Outside dimensions of concrete walls indicated to be cast against rock without forms or exterior waterproofing treatments.
 - e. 6 inches beneath bottom of concrete slabs on grade.
 - f. 6 inches beneath pipe in trenches, and the greater of 24 inches wider than pipe or 42 inches wide.

3.5 EXCAVATION FOR STRUCTURES

- A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch. If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.

1. Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.
2. Excavation for Underground Tanks, Basins, and Mechanical or Electrical Utility Structures: Excavate to elevations and dimensions indicated within a tolerance of plus or minus 1 inch. Do not disturb bottom of excavations intended as bearing surfaces.

3.6 EXCAVATION FOR WALKS AND PAVEMENTS

- A. Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.

3.7 EXCAVATION FOR UTILITY TRENCHES

- A. Excavate trenches to indicated gradients, lines, depths, and elevations.
 1. Beyond building perimeter, excavate trenches to allow installation of top of pipe below frost line.
- B. Excavate trenches to uniform widths to provide the following clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches higher than top of pipe or conduit, unless otherwise indicated.
 1. Clearance: 12 inches each side of pipe or conduit.
- C. Trench Bottoms: Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit. Shape subgrade to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits. Remove projecting stones and sharp objects along trench subgrade.
 1. For pipes and conduit less than 6 inches in nominal diameter and flat-bottomed, multiple-duct conduit units, hand-excavate trench bottoms and support pipe and conduit on an undisturbed subgrade.
 2. For pipes and conduit 6 inches or larger in nominal diameter, shape bottom of trench to support bottom 90 degrees of pipe circumference. Fill depressions with tamped sand backfill.
 3. Excavate trenches 6 inches deeper than elevation required in rock or other unyielding bearing material to allow for bedding course.

3.8 OVER-EXCAVATION OF UNSUITABLE SOILS

- A. When approved by the Engineer, the Contractor may be required to remove unsuitable soils, fill, or natural soil materials in areas where fills are to be placed when determined to be undesirable in their location or condition. The Contractor shall be required to remove the undesirable material and backfill with approved material properly compacted.

- B. At locations where unstable soil is identified, the removal and replacement of such soil shall be as directed as recommended by the Engineer.
- C. At locations where soil is wet of optimum moisture, the Contractor shall provide a “good faith” effort in drying and discing these areas prior to completing over-excavation as approved by the Engineer.
- D. Where over-excavations are required adjacent or beneath the location of the proposed drainage structure, undercut and backfill shall be done over a sufficient distance adjacent to the installation to prevent future operations from disturbing the completed drainage structure.
- E. All material removed in the work of over-excavation will be classified by the Engineer and Owner as either suitable for other use without excessive manipulation and utilized by the Contractor elsewhere in the work, or unsuitable for future use and disposed of by the Contractor as directed by the Engineer.
- F. The Contractor shall conduct over-excavation operations in such a way that the necessary measurements can be taken before any backfill is placed.
- G. Backfill in over-excavation areas shall be placed as a continuous operation along with the over-excavation operation. Backfill materials shall be consistent with the intended use. No backfill material shall be placed in water unless otherwise permitted by the Engineer.

3.9 SUBGRADE INSPECTION

- A. Notify Designer when excavations have reached required subgrade.
- B. If Designer determines that unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed and specified herein.
- C. Proof-roll subgrade below the building slabs and pavements with suitable equipment, as specified herein, to identify soft pockets and areas of excess yielding. During the proofrolling process, the subgrade shall be reviewed by the Engineer to identify unstable zones. Where fine-grained subgrades are present, proofrolling may need to be accomplished statically, to reduce the potential for disturbing the subgrade. Do not proof-roll wet or saturated subgrades.
 - 1. Completely proof-roll subgrade in one direction, repeating proof-rolling in direction perpendicular to first direction. Limit vehicle speed to 3 mph.
 - 2. Proof-roll with minimum 10-ton vibratory rollers or a loaded 10-wheel, tandem-axle dump truck weighing not less than 15 tons, in open areas or a minimum 1-ton walk-behind roller or large plate compactor in trenches or confined areas.
 - 3. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by Designer, and replace with compacted backfill or fill as recommended by the Engineer.
- D. The Contractor shall be responsible for maintaining stable soil subgrades. Fine-grained

subgrade soils exposed during construction are anticipated to be easily disturbed by construction traffic and are likely to become unstable when above the optimum moisture content. The Contractor shall be responsible for managing construction traffic, stockpiling of materials, and providing routine maintenance to protect subgrades from disturbance. Where subgrades are damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, they shall be reconstructed as directed by the Designer, without additional compensation.

3.10 UNAUTHORIZED EXCAVATION

- A. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation. Alternatively, the unauthorized excavation may be backfilled to design elevation using appropriate soil for the intended use. Lean concrete fill, with 28-day compressive strength of 2500 psi may also be used when approved by Designer.
 - 1. Fill unauthorized excavations under other construction or utility pipe as directed by Designer.

3.11 STORAGE OF SOIL MATERIALS

- A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
 - 1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees, if applicable.

3.12 BACKFILL

- A. Place and compact backfill in excavations promptly, but not before completing the following:
 - 1. Construction below finish grade including, where applicable, subdrainage, dampproofing, waterproofing, and perimeter insulation.
 - 2. Observing and accepting subgrade.
 - 3. Surveying locations of underground utilities for Record Documents.
 - 4. Testing and inspecting underground utilities.
 - 5. Removing concrete formwork.
 - 6. Removing trash and debris.
 - 7. Removing temporary shoring and bracing, and sheeting.

8. Installing permanent or temporary horizontal bracing on horizontally supported walls.

- B. Place backfill on subgrades free of mud, frost, snow, or ice.

3.13 UTILITY TRENCH BACKFILL

- A. Place backfill on subgrades free of mud, frost, snow, or ice.
- B. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.
- C. Place and compact initial backfill of subbase material free of particles larger than 1 inch in any dimension, to a height of 12 inches over the utility pipe or conduit.
 1. Carefully compact initial backfill under pipe haunches and compact evenly up on both sides and along the full length of utility piping or conduit to avoid damage or displacement of piping or conduit. Coordinate backfilling with utilities testing.
- D. Backfill voids with satisfactory soil while installing and removing shoring and bracing.
- E. Place and compact final backfill of satisfactory soil to final subgrade elevation.
- F. Install warning tape directly above utilities, 12 inches below finished grade, except 6 inches below subgrade under pavements and slabs.

3.14 SOIL FILL

- A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.
- B. Place and compact fill material in layers to required elevations per plans and details:
- C. Place soil fill on subgrades free of mud, frost, snow, or ice.
- D. All soils to be compacted to a minimum of 95% of its maximum density at optimum moisture content or as otherwise specified.

3.15 SOIL MOISTURE CONTROL

- A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.
 1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.
 2. Remove and replace, or scarify and air dry otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

3.16 COMPACTION OF SOIL BACKFILLS AND FILLS

- A. Place backfill and fill soil materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.
- B. Place backfill and fill soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.
- C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 1557:
 - 1. Under structures, building slabs, steps, and pavements, scarify and recompact top 12 inches of existing subgrade and each layer of backfill or fill soil material at 95 percent; and areas within 10 feet of structures, building slabs, steps, and pavements at 92 percent.
 - 2. Under walkways, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 95 percent.
 - 3. Under lawn or unpaved areas, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 90 percent.
 - 4. For utility trenches, compact each layer of initial and final backfill soil material at 95 percent.

3.17 GRADING

- A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.
 - 1. Provide a smooth transition between adjacent existing grades and new grades.
 - 2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.
- B. Site Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:
 - 1. Lawn or Unpaved Areas: Plus or minus 1 inch.
 - 2. Walks: Plus or minus 1/2 inch. Tolerance will not alleviate the contractor's responsibility to meet required slopes in Accessible areas.
 - 3. Pavements: Plus or minus 1/4 inch.

- C. Grading inside Building Lines: Finish subgrade to a tolerance of 1/2 inch when tested with a 10-foot straightedge.

3.18 SUBBASE AND BASE COURSES

- A. Place subbase and base course on subgrades free of mud, frost, snow, or ice.
- B. On prepared subgrade, place subbase and base course under pavements and walks as follows:
 - 1. Install separation geotextile on prepared subgrade according to manufacturer's written instructions, overlapping sides and ends.
 - 2. Place base course material over subbase course under hot-mix asphalt pavement.
 - 3. Shape subbase and base course to required crown elevations and cross-slope grades.
 - 4. Place subbase and base course 6 inches or less in compacted thickness in a single layer.
 - 5. Place subbase and base course that exceeds 6 inches in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches thick or less than 3 inches thick.
 - 6. Compact subbase and base course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.

3.19 DRAINAGE COURSE

- A. Place drainage course on subgrades free of mud, frost, snow, or ice.
- B. On prepared subgrade, place and compact drainage course under cast-in-place concrete slabs-on-grade as follows:
 - 1. Install subdrainage geotextile on prepared subgrade according to manufacturer's written instructions, overlapping sides and ends.
 - 2. Compact each layer of drainage course to required cross sections and thicknesses to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.

3.20 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified independent materials testing agency to perform field quality-control testing.
- B. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earthwork only after test results for previously completed work

comply with requirements.

- C. Footing Subgrade: At footing subgrades, at least one test of each soil stratum will be performed to verify design bearing capacities. Subsequent verification and approval of other footing subgrades may be based on a visual comparison of subgrade with tested subgrade when approved by Designer.
- D. Double ring infiltrometer testing shall be performed for every 25,000 sf of in-situ Drainage Course material below Synthetic ensure that compacted material achieves a minimum infiltration rate of 9"per hour.
- E. Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2922, and ASTM D 2937, as applicable. Tests will be performed at the following locations and frequencies:
 - 1. Paved Slab Areas: At subgrade and at each compacted fill and backfill layer, at least 1 test for every 2000 sq. ft. or less of paved area or building slab, but in no case fewer than 3 tests.
 - 2. Trench Backfill: At each compacted initial and final backfill layer, at least 1 test for each 150 feet or less of trench length, but no fewer than 2 tests.
- F. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required; recompact and retest until specified compaction is obtained.

3.21 PROTECTION

- A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.
- B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.
 - 1. Scarify or remove and replace soil material to depth as directed by Designer; reshape and recompact.
- C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.
 - 1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.22 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Disposal: Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off the property.

END OF SECTION

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SECTION 312500 - EROSION AND SEDIMENTATION CONTROLS

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS (PCR) which are hereby made a part of this Section of the Specifications.

1.2 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:
1. Control measures to prevent all erosion, siltation and sedimentation of wetlands, waterways, construction areas, adjacent areas and off-site areas.
 2. Control measures shall be accomplished adjacent to or in the following work areas:
 - a. Soil stockpiles and on-site storage and staging areas.
 - b. Cut and fill slopes and other stripped and graded areas.
 - c. Protection of drainage structure inlets.
 - d. At edge of wetlands areas, if applicable, as shown on Drawings.
 - e. Protection of stockpile areas.
 3. Additional means of protection shall be provided by the Contractor as required for continued or unforeseen erosion problems, at no additional cost to the Owner.
 4. Periodic maintenance of all sediment control structures shall be provided to ensure intended purpose is accomplished. Sediment control measures shall be in working condition at the end of each day.
 5. On a weekly basis and after any significant rainfall, sediment control structures shall be inspected for integrity. Any damaged device shall be corrected immediately.
- B. Alternates: Not Applicable.
- C. Items To Be Installed Only: Not Applicable.
- D. Items To Be Furnished Only: Not Applicable.
- E. Related Work: The following items are not included in this Section and will be performed under the designated Sections:

1. Section 31 1000 – SITE CLEARING for protection of existing trees and other vegetation to remain.
2. Section 31 2000 – EARTH MOVING for soil materials, excavating, backfilling, and site grading and removal of site utilities.

1.3 QUALITY ASSURANCE

- A. Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to a sediment and erosion control plan specific to the site that complies with EPA 832/R-92-005 or requirements of authorities having jurisdiction whichever is more stringent.
- B. Erosion control measures shall be established at the beginning of construction and maintained during the entire period of construction. On-site areas which are subject to severe erosion, and off-site areas which are especially vulnerable to damage from erosion and/or sedimentation, are to be identified and receive special attention.
- C. All land-disturbing activities are to be planned and conducted to minimize the size of the area to be exposed at any one time, and the length of time of exposure.
- D. Surface water runoff originating upgrate of exposed areas should be controlled to reduce erosion and sediment loss during the period of exposure.
- E. When the increase in the peak rates and velocity of storm water runoff resulting from a land-disturbing activity is sufficient to cause accelerated erosion of the receiving stream bed, provide measures to control both the velocity and rate of release so as to minimize accelerated erosion and increased sedimentation of the stream.
- F. All land-disturbing activities are to be planned and conducted so as to minimize off-site sedimentation damage.
- G. The Contractor is responsible for cleaning out and disposing of all sediment once the storage capacity of the sediment facility is reduced by one-half.
- H. Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.
- I. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Stakes: Stakes for bales shall be one of the following materials: Wood stakes of sound hardwood 2 by 2 inches in size or steel reinforcing bars of at least No. 4 size. Lengths shall be approximately three feet.

B. Siltation Fence: Fabricated or prefabricated unit consisting of the following filter fabric properties:

1) Grab Tensile Strength	90	ASTM D1682
2) Elongation at Failure (%)	50	ASTM D1682
3) Mullen Burst Strength (PSI)	190	ASTM D3786
4) Puncture Strength (lbs)	70	ASTMD751(modified)
5) Slurry Flow Rate (gal/min/sf)	0.5	Virginia DOT VTM-51
6) Equivalent Opening Size	40-80 US	Std Sieve CW-02215
7) Ultraviolet Radiation Stability (%)	90	ASTM G26

C. Fencing: Steel posts shall be standard 6 foot long metal stamped drive stakes commonly used to support snow fences. Fencing shall be new four foot height wood lath snow fencing. Provide suitable steel staples or heavy nylon cord for securing filter cloth to support system.

D. Silt Socks: The silt socks for construction of erosion control devices shall be 12" in diameter. In areas of slope greater than 2:1(horizontal: vertical), silt sock must be secured in place by stakes. Silt socks shall be either lapped or butted at the ends to create a continuous line.

E. Protective Measures: As temporary coverings on ground areas subject to erosion, provide one of the following protective measures, and as directed by the Engineer:

1. Hay or straw temporary mulch, 100 pounds per 1,000 square feet.
2. Wood fiber cellulose temporary mulch, 35 pounds per 1,000 square feet.
3. Tackafier for anchoring mulch or straw shall be a non-petroleum based liquid bonding agent specifically made for anchoring hay or straw.
4. Provide natural (jute, wood excelsior) or man-made (glass fiber) covering with suitable staples or anchors to secure to ground surface. Note that wire stapes and non-biodegradable coverings shall not be used for any area that will be mown turf.
5. Temporary vegetative cover for graded areas shall be undamaged, air dry threshed straw or hay free of undesirable weed seed.
6. Provide temporary settling basis as shown on the contract drawings and described in the specifications.

F. Stone for Construction Entrance: Shall be ASTM designation C-33, size No. 2 (1-1/2" to 2-1/2") crushed stone.

PART 3 - EXECUTION

3.1 SILT FENCING

- A. Excavate a 6 inch trench along the upstream side of the desired fence location.
- B. Drive fence posts a minimum of 1'-6" into the ground. Install fence, well-staked at maximum eight foot intervals in locations as shown on Drawings. Secure fabric to fence and bury fabric end within the six inch deep trench cut.
- C. Lay lower 12 inches of silt fence into the trench, 6 inches deep and 6 inches wide. Backfill trench and compact.
- D. Overlap joints in fabric at post to prevent leakage of silt at seam.

3.2 VEGETATIVE STABILIZATION / TEMPORARY SEEDING

- A. Grassing shall be applied according to State of Massachusetts DOT Standard Specifications.

3.3 INLET PROTECTION

- A. Install silt fence or straw bales around inlet as specified herein.

3.4 DUST CONTROL

- A. Throughout the construction period the Contractor shall carry on an active program for the control of fugitive dust within all site construction zones, or areas disturbed as a result of construction. Control methods shall include the following: Apply calcium chloride at a uniform rate of one and one-half (1 ½) pounds per square yard in areas subject to blowing. For emergency control of dust apply water to affected areas. The source of supply and the method of application for water are the responsibility of the contractor.
- B. The frequency and methods of application for fugitive dust control shall be as directed by the Engineer.

3.5 TEMPORARY PROTECTIVE COVERINGS (AFTER GROWING SEASON)

- A. Place temporary covering for erosion and sedimentation control on all areas that have been graded and left exposed after October 30. Contractor shall have the choice to use either or both of the methods described herein.
- B. Hay or straw shall be anchored in-place by one of the following methods and as approved by the Engineer: Mechanical "crimping" with a tractor drawn device specifically devised to cut mulch into top two inches of soil surface or application of non-petroleum based liquid tackifier, applied at a rate and in accordance with manufacturer's instructions for specific mulch material utilized.
- C. Placement of mesh or blanket matting and anchoring in place shall be in accordance with manufacturer's printed instructions.

- D. Inspect protective coverings periodically and reset or replace materials as required.

END OF SECTION

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SECTION 32 01 23 RECYCLED BASE COURSE

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work Included:

This item shall include the crushing and pulverizing of the existing asphalt pavement in the areas shown on the plans in accordance with these specifications. The work shall conform to the dimensions and typical cross section shown on the plans and with the lines and grades established by the Engineer. The material created by this process may be used as a base course material for paved walkways, or gravel fill shown on the plans – contingent to testing. This item shall include crushing, pulverizing, and processing of the existing asphalt pavement and underlying granular base, fine-grading and compacting the recycled base course for new bituminous paving, including the removal of any excess, or non-compliant material.

B. Related Sections:

1. Asphalt Paving - Section 32 1216

C. Pavement Subsurface Data: Bidders are expected to examine the site and decide for themselves the character of materials to be encountered.

D. All work shall conform to the requirements of Massachusetts DOT Standard Specifications for Highways and Bridges Section 403 - Reclaimed Pavement for Base Course, Supplemental Specifications Section 403 - Reclaimed Pavement for Base Course and/or Sub-base, and Supplemental Specifications Section M1 – Soils and Borrow Materials.

E. Recycled base material shall be tested in accordance with specification 32 11 23 Aggregate Base Course, or in accordance with the intended use, and shall meet the requirements of this section.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Recycled Base Course:

1. The cold mixed recycled base material, after the crushing, pulverizing, hammer milling, and blending shall conform to the following gradation requirement per Mass DOT Supplemental Specifications M1, Subsection M1.09.0 – Reclaimed Pavement Borrow Material:

<u>Sieve Designation</u>	<u>% Passing by Weight</u>
3"	100
1 1/2"	70-100
3/4"	50-85
#4	30-60
#50	8-24
#200	3-10

2. Acceptable base material shall consist of hard, durable stones and shall be free from excess flat, elongated, soft or disintegrated pieces, dirt, or other objectionable matter. No additional asphalt cements or recycling agents are required to be added to the blended materials under this specification. It shall be the contractor's responsibility to perform tests on the blended material to determine if it meets gradation requirements. The Contractor shall amend the Recycled base course with dense graded crushed stone as required to raise the grade or provide the required section depth. The cold mixed base course shall be checked and accepted by the Engineer before fine-grading operations are started.
3. Any proposed widening areas adjacent to the existing pavement shall be excavated to form a box-cut. The exposed subgrades in the box-cut areas shall be densified with a vibratory roller compactor. The cold mixed base course shall then be regraded across the entire width of the base to create a uniform depth of approximately 8" of reclaimed subbase material. Excess material shall be removed from the site.

PART 3 - EXECUTION

3.1 CONSTRUCTION METHODS

- A. Equipment: The equipment to be used must have an established capability of crushing/pulverizing bituminous concrete pavements to produce a crushed material meeting the gradation specified above. The equipment must be capable of crushing/pulverizing to a depth of 11 inches in one pass at a rate of production consistent with the time allowed under the contract.
- B. Finishing and Compacting:
 1. All percentages of compaction specified herein shall be related to the maximum dry density as established by Method D ASTM Designation D 1557-70 and verified in the field by ASTM Designation D1556-68, D2167-66, or an approved nuclear density testing device. Prior to placing, at least one (1) laboratory test (Method D, ASTM D 1557-70) shall be made on a representative sample of the recycled base course material to determine gradation and moisture-density characteristics. This test will be made by a testing laboratory selected by the Owner and at the Contractor's expense.

2. Initial field density tests to determine the actual in-place densities being attained will be made at the Contractor's expense and in sufficient quantity to determine that the required compaction is being attained. All retesting necessitated by failure of the recycled material to comply with the minimum percent of compaction shall be performed by a testing laboratory selected by the Owner and the cost of the retesting will be paid for by the Contractor.
- C. Equipment: Where vibratory compaction equipment is specified herein or is directed to be used by the Owner all such equipment whether plate-type or roller shall be furnished with a vibrating surface at least 24 inches in width, and capable of operating at a minimum of 2,000 blows per minute. Equipment not specifically designed as vibrating compaction equipment shall not be permitted for compaction of either existing in-place materials or of fills, refills and backfills. Jack hammers and similar equipment not specifically designed and manufactured for the compaction of granular materials will not be approved for use.
- D. Procedure:
1. Surfaces to be compacted shall, unless otherwise specified, shall be compacted by not less than six (6) complete passes of the approved vibratory compactors, or as necessary to obtain the required percentage of compaction. A complete pass shall consist of the entire coverage of the surface. Surfaces are to be compacted with one trip of the equipment. Each trip of the equipment shall overlap the previous trip by at least one (1) foot.
 2. It is the intent of these compaction requirements that the minimum in-place dry density of the compacted materials resulting from the specified minimum number of passes of the compaction equipment will be equal to or greater than the minimum percentages specified herein. Additional passes of the specified equipment shall be required if the minimum in-place dry densities as specified are not obtained with the minimum passes indicated. No additional payment will be made for this compaction.

3.2 GRADING REQUIREMENTS

- A. After the base course has been completely blended and compacted with the underlying base material to a full depth so that a uniform 8" depth is created across the width of the base, the surface shall be tested for smoothness and accuracy of grade and crown. Any portion lacking the required smoothness or failing in accuracy of grade or crown shall be scarified, reshaped, recompacted, and otherwise manipulated as the Engineer may direct until the required smoothness and accuracy are met. The finished surface shall not vary more than 1/4" in ten feet (10').

Refer to Specification Sections 32 1216 Asphalt Paving, and Section 32 1123 – Aggregate Base Course, for required pavement grading tolerances.

3.3 PROTECTION

- A. Work on the base course shall not be accomplished during freezing temperatures nor when the subgrade is wet. When the aggregates contain frozen materials or when the underlying course is frozen, the construction shall be stopped.

END OF SECTION

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SECTION 321123 - AGGREGATE BASE COURSE

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS (PCR) which are hereby made a part of this Section of the Specifications.

1.2 SECTION INCLUDES

- A. Aggregate base course for placement under proposed paving.

1.3 SUBMITTALS

- A. Contractor to submit product data sheet and sieve analysis results.
- B. Samples shall be submitted at the request of the Engineer.
- C. Nuclear density test results are to be in accordance with ASTM D6938-10.

1.4 RELATED SECTIONS

- A. Examine Contract Documents for requirements that affect work of this Section. Other Specification Sections that directly relate to work of this Section include, but are not limited to:
 - 1. Section 31 2000 – Earth Moving
 - 2. Section 32 1216 – Asphalt Paving

1.5 REFERENCES

- A. ASTM D1557 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10 lb Rammer and an 18 inch Drop.
- B. ASTM D2922 - Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
- C. MASSACHUSETTS HIGHWAY DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGES (Latest Edition).

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Subbase and Base Course as specified in Section 31 2000 - Earth Moving.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify substrate has been inspected, gradients and elevations are correct, and is dry.

3.2 PREPARATION

- A. Correct irregularities in substrate gradient and elevation by scarifying, reshaping, and re-compacting.
- B. Do not place fill on soft, muddy, or frozen surfaces.

3.3 AGGREGATE PLACEMENT

- A. Spread fill over prepared substrate to a total compacted thickness as specified on drawings.
- B. Place aggregate in maximum six (6) inch layers compact to specified density.
- C. Level and grade surfaces to elevations and gradients indicated on the Contract Drawings.
- D. Add small quantities of fine aggregate to coarse aggregate as appropriate to assist compaction.
- E. Add water to assist compaction. If excess water is apparent, remove aggregate and aerate to reduce moisture content.
- F. Use mechanical tamping equipment in areas inaccessible to compaction equipment.

3.4 TOLERANCES

- A. Flatness: Maximum variation of 1/4 inch measured with 10 foot straight edge.
- B. Scheduled Compacted Thickness: Within 1/4 inch.
- C. Variation From Design Elevation: Within 1/4inch.

3.5 FIELD QUALITY CONTROL

- A. Compaction testing will be performed in accordance with ASTM D1557 and alternatively with ASTM D2922 at a frequency as requested by the Engineer or School.

Wilmington High School
Track Reconstruction
Wilmington, MA
Gale JN 718480

END OF SECTION

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AGGREGATE BASE COURSE
321123-3

SECTION 321216 - ASPHALT PAVING

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS (PCR) which are hereby made a part of this Section of the Specifications.

1.2 DESCRIPTION OF WORK

- A. Work Included: Work under this section includes the installation of bituminous concrete pavement to a total compacted thickness indicated in the Contract Drawings. All existing pavement damaged or displaced as a result of the construction operations will be restored in accordance with the requirements for this Section.
- B. Related Work: The following items are not included in this Section and will be performed under the designated Sections:
 - 1. Section 31 2000 - EARTH MOVING for aggregate subbase and base courses and for aggregate pavement shoulders.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated. Include technical data and tested physical and performance properties.
 - 1. Job-Mix Designs: Certification, by authorities having jurisdiction, of approval of each job mix proposed for the Work.
- B. Shop Drawings: Indicate pavement markings, lane separations, and defined parking spaces. Indicate, with international symbol of accessibility, spaces allocated for people with disabilities.
- C. Material Certificates: For each paving material, from manufacturer.
- D. Nuclear density gauge field density test results for finish grade.

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A paving-mix manufacturer registered with and approved by the Massachusetts Department of Transportation Highway Division (MassDOT).

- B. Regulatory Requirements: Unless otherwise superseded by this specification, comply with materials, workmanship, and other applicable requirements of the Massachusetts Department of Transportation Highway Division (MassDOT) for hot mix asphalt paving work.
 - 1. Unless otherwise superseded by this specification, comply with requirements of the Massachusetts Department of Transportation Highway Division (MassDOT) Standard Specifications for Highways and Bridges, including supplemental specifications and special provisions.
 - 2. Comply with requirements of the Americans with Disabilities Act (ADA) and the Massachusetts Architectural Access Board (MAAB). If these requirements cannot be met with the grades and slopes indicated on the plans, notify the Engineer immediately.
 - 3. Comply with requirements of the local authority having jurisdiction concerning the location and construction of accessible curb cuts.
- C. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 01.
 - 1. Review methods and procedures related to hot-mix asphalt paving including, but not limited to, the following:
 - a. Review proposed sources of paving materials, including capabilities and location of plant that will manufacture hot-mix asphalt.
 - b. Review condition of subgrade and preparatory work.
 - c. Review requirements for protecting paving work, including restriction of traffic during installation period and for remainder of construction period.
 - d. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver pavement-marking materials to Project site in original packages with seals unbroken and bearing manufacturer's labels containing brand name and type of material, date of manufacture, and directions for storage.
- B. Store pavement-marking materials in a clean, dry, protected location within temperature range required by manufacturer. Protect stored materials from direct sunlight.

1.6 PROJECT CONDITIONS

- A. Traffic Control: Maintain access for vehicular and pedestrian traffic as required for other construction activities.

- B. Environmental Limitations: Do not apply asphalt materials if subgrade is wet or excessively damp, if rain is imminent or expected before time required for adequate cure, or if the following conditions are not met:
 - 1. Tack Coat: Minimum surface temperature of 60 deg F.
 - 2. Asphalt Base Course: Minimum surface temperature of 40 deg F and rising at time of placement.
 - 3. Asphalt Surface Course: Minimum surface temperature of 60 deg F at time of placement.
- C. Pavement-Marking Paint: Proceed with pavement marking only on clean, dry surfaces and at a minimum ambient or surface temperature of 55 deg F for water-based materials, and not exceeding 95 deg F.

PART 2 - PRODUCTS

2.1 GRAVEL BASE:

- A. Subbase and Base Aggregate as specified in Section 32 1123 Aggregate Base Course.

2.2 MINERAL AGGREGATE

- A. Conform to subsection M3.11.04 of the Standard Specifications.

Coarse Aggregate Shall be clean, crushed rock consisting of the angular fragments obtained by breaking and crushing shattered natural rock, free from detrimental quantity of thin or elongated pieces, free from dirt or other objectionable materials, and shall have a percentage of wear, as determined by the Los Angeles Abrasion Test (AASHTO-T96), of not more than 30. It shall be surfaced dry and shall have a moisture content of not more than ½% after drying. The use of crushed gravel stone will not be permitted.

Fine Aggregate shall consist of one of the following:

- 1. 100% natural sand
- 2. 100% stone sand
- 3. A blend of sand and stone screenings the proportions of which shall be approved by the engineer.
- 4. A blend of natural sand and stone sand.

Natural sand shall consist of inert, hard, durable grains of quartz or other hard, durable rock, free from topsoil or clay, surface coatings, organic matter or other deleterious materials. When the primary source of material, passing the No. 200 sieve, is obtained from natural sand, these fines must be approved prior to use. Stone sand shall be a processed material prepared from stone screenings to produce a consistently graded material conforming to the specification requirement. The stone screening shall be the product of a secondary crusher and shall be free from dirt, clay, organic matter, excess fines or other deleterious material. The fine aggregate as delivered to the mixer shall meet the following requirements:

<u>Sieve Size</u>	<u>Percent Passing</u>
3/8 inch	100-95
No. 8	70-95
No. 50	20-40
No. 200	2-16

2.3 BITUMINOUS MATERIALS

- A. Bituminous materials shall conform to the requirements of these Specifications and Section M3.11.06 of the Standard Specification.
- B. Bitumen delivered to a project or to a mix plant must be accompanied by a proper certificate signed by the producer's authorized representative. Shipments of material not accompanied by a certificate will not be accepted for use in the work.
- C. Bituminous Concrete Paving shall be Class I, Type 1-1, as specified in Section M3.11.0 of the Standard Specifications.
- D. Hot Poured Joint Sealer: Sealer shall be composed of a mixture of materials which will form a resilient and adhesive compound capable of effectively sealing joints in concrete and shall conform to the requirements of AASHTO M 173.
- E. Tack coat shall consist of either emulsified asphalt, Grade MS-I conforming to Section M3.03.0, or cutback asphalt, Grade MC-70 or MC-250 conforming to Section M3.02.0 of the Standard Specifications.

PART 3- EXECUTION

3.1 EXAMINATION

- A. Examine exposed Subbase and Base surfaces for compliance with requirements for dimensional, grading, and elevation tolerances.
- B. Proof-roll subgrade below pavements with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.
- C. Proceed with paving only after unsatisfactory conditions have been corrected.

3.2 COLD MILLING

- A. If applicable, clean existing pavement surface of loose and deleterious material immediately before cold milling. Remove existing asphalt pavement by cold milling to grades and cross sections indicated.

3.3 PATCHING (If Applicable)

- A. Existing Hot-Mix Asphalt Pavement: Saw cut perimeter of patch and excavate existing pavement section to sound base. Excavate rectangular or trapezoidal patches, extending 12 inches into adjacent sound pavement, unless otherwise indicated. Cut excavation faces vertically. Remove excavated material. Recompact existing unbound-aggregate base course to form new subgrade.
- B. Existing Portland Cement Concrete Pavement: Break cracked slabs and roll as required to reseat concrete pieces firmly.
 - 1. Remove disintegrated or badly cracked pavement. Excavate rectangular or trapezoidal patches, extending into adjacent sound pavement, unless otherwise indicated. Cut excavation faces vertically. Recompact existing unbound-aggregate base course to form new subgrade.
- C. Tack Coat: Apply uniformly to vertical surfaces abutting or projecting into new, hot-mix asphalt paving at a rate of 0.05 to 0.15 gal./sq. yd.
 - 1. Allow tack coat to cure undisturbed before applying hot-mix asphalt paving.
 - 2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.
- D. Patching: Fill excavated pavements with hot-mix asphalt base mix for full thickness of patch and, while still hot, compact flush with adjacent surface.

3.4 SURFACE PREPARATION

- A. General: Immediately before placing asphalt materials, remove loose and deleterious material from substrate surfaces. Ensure that prepared subgrade is ready to receive paving.
- B. Herbicide Treatment: Apply herbicide according to manufacturer's recommended rates and written application instructions. Apply to dry, prepared subgrade or surface of compacted-aggregate base before applying paving materials.
- C. Tack Coat: Apply uniformly to surfaces of existing pavement at a rate of 0.05 to 0.15 gal./sq. yd.
 - 1. Allow tack coat to cure undisturbed before applying hot-mix asphalt paving.
 - 2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.

3.5 HOT-MIX ASPHALT PLACING

- A. Machine place hot-mix asphalt on prepared surface, spread uniformly, and strike off. Place asphalt mix by hand to areas inaccessible to equipment in a manner that prevents segregation of mix. Place each course to required grade, cross section, and thickness when compacted.
 1. Regulate paver machine speed to obtain smooth, continuous surface free of pulls and tears in asphalt-paving mat.
- B. Place paving in consecutive strips not less than 10 feet wide unless infill edge strips of a lesser width are required.
- C. Promptly correct surface irregularities in paving course behind paver. Use suitable hand tools to remove excess material forming high spots. Fill depressions with hot-mix asphalt to prevent segregation of mix; use suitable hand tools to smooth surface.
- D. The permanent bituminous concrete pavement surface courses shall be provided in accordance with details and the applicable requirements of Massachusetts Standard Specifications Section 460, Subsection 460.40 and Section M.3.11 for "Materials" and Subsection 460.60 for "Construction Methods". The surface shall be rolled free of any roller marks, ridges, and voids, and shall be repaired if directed.
- E. Per Section 460.61 of the MHD Standard Specifications, the temperature of asphalt at time of placement shall be as follows:

Base Temp °F on which mix is placed	Mat Thickness					
	1/2"	3/4"	1"	1-1/2"	2"	3" +
35-40				305	295	280
40-50			310	300	285	275
50-60		310	300	295	280	270
60-70	310	300	290	285	275	265
70-80	300	290	285	280	270	265
80-90	290	280	275	270	265	260
90+	290	275	270	265	260	255

Temperatures listed above shall be within plus or minus 15° F

3.6 JOINTS

- A. Construct joints to ensure a continuous bond between adjoining paving sections. Construct joints free of depressions, with same texture and smoothness as other sections of hot-mix asphalt course.
 1. Clean contact surfaces and apply tack coat to joints.
 2. Offset longitudinal joints, in successive courses, a minimum of 6 inches.
 3. Offset transverse joints, in successive courses, a minimum of 24 inches.

4. Construct transverse joints at each point where paver ends a day's work and resumes work at a subsequent time. Construct these joints using either "bulkhead" or "papered" method according to AI MS-22, for both "Ending a Lane" and "Resumption of Paving Operations."

3.7 COMPACTION

- A. General: Begin compaction as soon as placed hot-mix paving will bear roller weight without excessive displacement. Compact hot-mix paving with hot, hand tampers or with vibratory-plate compactors in areas inaccessible to rollers.
 1. Complete compaction before mix temperature cools to 185 deg F.
- B. Breakdown Rolling: Complete breakdown or initial rolling immediately after rolling joints and outside edge. Examine surface immediately after breakdown rolling for indicated crown, grade, and smoothness. Correct laydown and rolling operations to comply with requirements.
- C. Intermediate Rolling: Begin intermediate rolling immediately after breakdown rolling while hot-mix asphalt is still hot enough to achieve specified density. Continue rolling until hot-mix asphalt course has been uniformly compacted to the following density:
 1. Average Density: ASTM D 2041, per MHD Specifications.
- D. Finish Rolling: Finish roll paved surfaces to remove roller marks while hot-mix asphalt is still warm.
- E. Edge Shaping: While surface is being compacted and finished, trim edges of pavement to proper alignment. Bevel edges while asphalt is still hot; compact thoroughly.
- F. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.
- G. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

3.8 INSTALLATION TOLERANCES

- A. Pavement Thickness: Compact each course to produce the thickness indicated within the following tolerances:
 1. Base Course: Plus or minus 1/2 inch.
 2. Surface Course: Plus 1/4 inch, no minus.
- B. Pavement Surface Smoothness: Compact each course to produce a surface smoothness within MHD Specification tolerances as determined by using a 10-foot straightedge applied transversely or longitudinally to paved areas.

3.9 PAVEMENT MARKING

- A. Do not apply pavement-marking paint until layout, colors, and placement have been verified with Designer.
- B. Allow paving to age for a minimum of 30 days before starting pavement marking.
- C. Sweep and clean surface to eliminate loose material and dust.
- D. Apply paint with mechanical equipment to produce pavement markings, of dimensions indicated, with uniform, straight edges. Apply at manufacturer's recommended rates to provide a minimum wet film thickness of 15 mils.

3.10 FIELD QUALITY CONTROL

- A. Test the plane of the finished surfaces of base, binder, and surface courses with a 16-foot straightedge, except use a 10-foot straightedge on vertical courses and on the top course of resurfaced streets which contain manhole covers, valve boxes, and the like.
- B. Carefully apply the straightedge immediately after the first compaction by rolling, and from then on as may be necessary until and after the final compaction of the material in place. Hold the straightedge in successive positions parallel to the road centerline and in contact with the road surface; check the entire area from one side of the pavement to the other.
- C. Correct irregularities which vary $\frac{3}{8}$ inch from a true finished surface in base and binder courses, and $\frac{1}{4}$ inch in top courses.
- D. Irregularities which may develop before the completion of rolling and while the material is still workable, may be remedied by loosening the surface mixture and removing or adding material as necessary. Should any unsatisfactory irregularities or defects remain after final compaction, correct the defective work by removing and replacing with new material to form a true and even surface.

3.11 OPENING TO TRAFFIC

- A. No vehicular traffic or loads shall be permitted on the newly completed pavement until adequate stability has been attained, and the material has cooled sufficiently to prevent distortion or loss of fines, and the pavement has achieved a maximum temperature of 140 degrees F.
- B. If the climatic or other conditions warrant it, the period of time before opening to traffic may be extended at the discretion of the Designer.

3.12 DISPOSAL

- A. Except for material indicated to be recycled, remove excavated materials from Project site and legally dispose of them in an EPA-approved landfill.

END OF SECTION

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SECTION 321833 - SYNTHETIC TRACK SURFACING

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS (PCR), which are hereby made a part of this Section of the Specifications.

1.2 SECTION INCLUDES

- A. The work under this section applies to the installation of asphalt track paving as well as a new, one-half (1/2") inch base-mat structural spray, urethane track system and all associated work.

1.3 SPECIFIC SCOPE OF WORK

- A. Install a porous polyurethane synthetic track system, comprised of a base layer of polyurethane-bound SBR granules and topped with a water-based single-component polyurethane structural spray, and EPDM granules.
- B. Layout and paint all track lines and event markings, as required and specified by current NFHS & MIAA rules.

1.4 RELATED SECTIONS

- A. Examine the Contract Documents for requirements that affect work of this Section. Other Specification Sections that directly relate to work of this Section include, but are not limited to:
 - 1. Section 31 2000 – Earth Moving
 - 2. Section 32 0123 – Recycled Base Course
 - 3. Section 32 1123 – Aggregate Base Course
 - 4. Section 32 1216 – Asphalt Paving
 - 5. Section 32 1837 – Track Line - Marking

1.5 REFERENCES

- A. Comply with applicable requirements of the following standards. Where these standards conflict with other specified requirements, the most restrictive requirement shall govern.
 - 1. American Association of State Highway and Transportation Officials (AASHTO):
 - 2. American Society for Testing and Materials (ASTM):
 - 3. NFHS – National Federation of State High School Athletic Associations

4. MIAA – Massachusetts Interscholastic Athletic Association
5. ASBA – American Sports Builders Association Running Tracks: A Construction and Maintenance Manual
6. MASSACHUSETTS HIGHWAY DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGES (Latest Edition).

- B. Codes and standards follow the current guidelines set forth by the National Federation of High School Athletic Associations (NFHS) and the Massachusetts Interscholastic Athletic Association (MIAA), along with the current material testing guidelines as published by the American Society of Testing and Materials (ASTM), and the American Sports Builders Association (ASBA) Track Construction Manual.

1.6 SITE CONDITIONS

- A. The synthetic surfacing contractor shall coordinate the work specified with an authorized and appointed representative of the Owner so as to perform the work during a period and in a manner acceptable to the Owner.
- B. The curing time for the asphalt base shall be a minimum of 28 days. Resilient surfacing shall not be installed prior to specified asphalt cure period, unless previously approved in writing by the engineer. It shall be the responsibility of the surfacing contractor to determine if the asphalt substrate has cured sufficiently prior to the application of the polyurethane surfacing system.
- C. Resilient surfacing or binders shall not be installed unless the temperature is fifty degrees Fahrenheit and rising. Installation shall be executed only in fully dry conditions.

1.7 SYNTHETIC TRACK SURFACE INSTALLER QUALIFICATIONS

- A. The synthetic track surface installer shall have a minimum of 5 years of experience of successfully installing basemat/structural spray running tracks and shall have installed a minimum of 8 complete polyurethane running track surfacing systems, including those requiring a structural spray in New England within the past 5 years.
- B. The synthetic track surface installer shall be able to furnish evidence that they have been in business for a period of not less than 5 years, under the present name and, if required, furnish financial statements for each of the past three (3) years.
- C. The synthetic track surface installer must be a member of the American Sports Builders Association (ASBA) and must employ a Certified Track Builder (CTB), as approved by ASBA, who will supervise the surface installation.
- D. The synthetic track surfacing manufacturer shall provide evidence indicating that the specified materials have been successfully utilized on work of similar scope to that shown and specified for this Project. The synthetic track surfacing examples cited shall have been completed and in use for five years, without any evidence of failure.
- E. Synthetic track surface manufacturer shall provide certification that all materials utilized are designated as “mercury and heavy-metals-free”.

- F. Synthetic surfacing work shall be done only after excavation and construction work, which might injure the new surface, has been completed. Damage caused during construction shall be repaired to the Owner's full satisfaction before acceptance.
- G. Existing areas shall, if damaged or removed during the construction of this project, be repaired or replaced at no extra cost to the Owner. Workmanship and materials for such repair and/or replacement, unless otherwise noted, shall match as closely as possible to those employed in the existing work.
- H. The synthetic surfacing contractor shall take precautionary measures to prevent track surfacing material from staining or coating other surfaces. Staining and coating damage shall be cleaned, removed or repaired to original condition by the synthetic surfacing contractor, to the Owner's full satisfaction.
- I. Thickness of the finished system shall be one half inch (1/2"). Thickness value shall not be determined to the very top of the surface crumb or texture, but to a point somewhat below that, as laid down in a precise method of test.

1.8 SUBMITTALS

The following submittals must be received with bid submittal:

- A. Standard printed specifications of the resilient track surfacing system, or its equal, to be installed on this project including current World Athletics (IAAF) certification for the track surfacing.
- B. An affidavit attesting that the resilient track surfacing system to be installed meets the requirements defined by the manufacturer's currently published specifications and any modifications outlined in those technical specifications.
- C. A synthetic track surfacing system sample, 4" x 4" in size, of the same synthetic track surfacing system to be installed on this project.
- D. An installation list of outdoor track facilities installed by the designated installer in the last two (2) years, using the exact synthetic track surfacing system specified herein.
- E. Other materials and certifications as called out in section 3.1
- F. After completion of the work of this Section, a licensed professional engineer, registered land surveyor or (ASBA) certified track builder shall furnish an acceptable certificate of accuracy of all track markings and measurements.

1.9 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in original, unopened packages with manufacturer's labels intact and clearly identifying products.
- B. Store materials elevated above grade and under cover; keep them dry and protected from weather, direct sunlight, surface contamination, construction traffic and other causes.

- C. Comply with procedures recommended by the manufacturer.

1.10 GUARANTEE

- A. The Track Surfacing System shall be fully guaranteed against faulty workmanship and material failure for a period of five (5) years from the date of acceptance. The warranty coverage shall not be prorated, nor limited by the amount of usage. It shall cover (but not be limited to) exercise wear, fading, blistering and delamination.
- B. Synthetic surfacing material found to be defective as a result of faulty workmanship and/or material failure shall be replaced or repaired, to the Owner's full satisfaction and at no charge, upon written notification within the guarantee period.

PART 2 – MATERIALS

2.1 ASPHALT TRACK PAVING

- A. **Asphalt for track surface paving shall comply with the requirements of specification section 32 1216 Asphalt Paving except for the following:**

Bituminous Design mix for Track Pavements:

- **RAP – Recycled Asphalt content shall NOT be used in the design mix.**
- **RAS – Recycled Asphalt Shingles shall NOT be used in design mix.**
- **The Performance Grade (PG) of asphalt binder used in the design mix shall be tailored specifically for the climate/environmental conditions of the proposed project's geographic location and ability to resist thermal cracking at low temperatures. Contractor to submit documentation of examples where similar PG design mixes were used for running track construction projects in the same regional area.**

- B. Grading tolerances for the Asphalt running track are revised as noted in Part 3 of this specification section

2.2 RESILIENT TRACK SURFACING

- A. Resilient track surfacing shall be a paved in place, ½" thick synthetic, porous, polyurethane system intended for use on competitive running tracks, comprised of a base layer of polyurethane-bound SBR granules and topped with a single-component polyurethane structural spray, and EPDM granules.
- B. Surfacing system shall be Beynon, BSS-100 Track Surfacing System as manufactured by Beynon Sports or approved equal.

C. The installed resilient track surfacing system shall exhibit the following minimum performance standards (ASTM):

- Thickness: ½" (13mm) or as specified
- Shore A Hardness: 55 ± 5 (ASTM D-2240)
- Elongation at Break: ≥ 40% (ASTM D-412)
- Tensile Strength: ≥ 0.4 MPa (ASTM D-412)
- Compression Set Recovery: ~90%-95% over 24 hr period (ASTM D-412)
- Abrasion Resistance: 0.25 grams loss after 1000 cycles (ASTM D-501)
- Coefficient of Friction: Dry: 0.7-0.75, Wet: 0.6-0.65 (ASTM D-1984)
- Resilience: 37%-39% (ASTM D-2632)
- Tear Resistance: 50-65 psi (ASTM D-624)
- Color: 2-Tone Blue (30M Exchange Zones) refer to Photos included in the Construction documents. Colors to be approved by owner.

2.3 PRIMERS

- A. Primers shall be equal to BEYPRIM, a polyurethane-based primer specifically formulated to be compatible with the paved-in-place SBR granules and equal to BEYPUR track surfacing material.

2.4 BLACK SBR GRANULES

- A. The rubber granules for the base mat shall be recycled SBR rubber, processed and chopped to 1-3mm size, containing less than 4% dust, and no metals.

2.5 EPDM GRANULES

- A. The rubber granules for the BEYPUR structural spray, or equal, wearing coats shall be EPDM, peroxide-cured, synthetic rubber, containing a minimum 20% EPDM resin, with a specific gravity of 1.5 ±0.1 g/cm³. The EPDM rubber shall be the same color chosen by the Owner for the track surface.

2.6 POLYURETHANE BINDER

- A. Binder for the black mat shall be equal to BEYPUR, an MDI-based single-component, polyurethane binding agent. The binder shall not have a free TDI monomer level above 0.2%, must be clear in color, and must be solvent free. The binder must be specially formulated for compatibility with SBR rubber crumb.

2.7 STRUCTURAL SPRAY COATING

- A. The spray coating shall be equal to BEYPUR 160, a water-based single-component, moisture cured, 100% solids, pigmented polyurethane, specifically formulated for compatibility with EPDM granules. ***The color coating shall be darker blue with contrasting lighter blue exchange zones. Final color approval shall be given by Owner after review of color sample submittal.*** Pigment integrated in the field shall not be allowed.

2.8 LINE MARKING PAINT

- A. All line and event markings shall be applied by experienced personnel, utilizing a single component, moisture cured, aliphatic polyurethane paint compatible with the resilient track surfacing system material.

PART 3 – EXECUTION

3.1 RUNNING TRACK BASE

- A. The Resilient track surface shall be laid on an approved subbase and a bituminous asphalt mat, a minimum of three inches (3") in thickness. The General Contractor shall provide compaction test results of 95% or greater for the installed subbase and asphalt surface.
- B. Special care shall be taken during the paving process to insure smooth and imperceptible joints, blending asphalt uniformly to achieve a continuous surface. Infra-red heating devices shall be employed when temperature of material in place falls below 150d F.
- C. The track surface, i.e., asphalt substrate, shall not vary under a 10' straight edge more than 1/8".
- D. It is the responsibility of the asphalt-paving contractor to flood the surface with water immediately after the asphalt is capable of handling traffic, and within 24 hours of installation. If, after 20 minutes of drying time, there are birdbaths (depressions deeper than 1/8") evident, it shall be the responsibility of the General Contractor, in conjunction with the surfacing contractor to determine the method of correction, subject to the engineers approval. Cold tar patching, skin patching or sand mix patching IS NOT an acceptable means of correction.
- E. Any oil spills (hydraulic, diesel, motor oil, etc.) shall be completely removed, either by chipping out or removing and replacing with new, keyed in asphalt. The minimum depth of any asphalt replacement shall be one inch. The curing time for the asphalt base is 28 days. It shall be the responsibility of the surfacing contractor to determine if the asphalt substrate has cured sufficiently prior to the application of the polyurethane surfacing system.
- F. It shall be the responsibility of the general contractor to determine if the asphalt substrate meets all design specifications; i.e., cross slopes, planarity and specific project criteria. After all the above conditions are met, the synthetic surfacing contractor must, in writing, accept the planarity of the asphalt receiving base before installation of the resilient surfacing can commence.
- G. Start of synthetic track surface application shall constitute sub contractor's acceptance of the asphaltic concrete surface to receive synthetic track surfacing.

3.2 SITE CONDITIONS

- A. Installation shall not take place if adjacent or concurrent construction generates excessive dust, abrasives or any other by-product that, in the opinion of the installer, would be harmful to the track material, until completion of such works.
- B. Installation shall not occur if wind conditions will cause blowing or migration of overspray off site, or potentially damage adjacent features. The contractor is responsible for any damage on or off-site directly related to the migration of overspray of the resilient track surfacing.
- C. Resilient surfacing or binders shall not be installed unless the temperature is fifty degrees Fahrenheit and rising. Installation shall be executed only in fully dry conditions.
- D. If, in the opinion of the installer of the synthetic material, the weather and/or climatic conditions are detrimental to the proper installation of the surfacing materials, work shall be delayed until conditions are acceptable.

3.3 EQUIPMENT

- A. The resilient track surfacing components shall be processed and installed by specially designed machinery and equipment as manufactured by SMG or equal. A mechanically operated paver, with variable regulated speed and thermostatically controlled screed, shall be used in the installation of the base mat, utilizing continuous and computerized mixing. The wearing course shall be installed using automatic electronic portioning, which provides continuous mixing and feeding for an accurate, quality controlled installation.

3.4 INSTALLATION

- A. Resilient Base Course: The SBR granules and binders shall be mixed together on site to regulate the ratio/quantity of SBR, not to exceed 82% in the base mat portion of the system. The single component polyurethane binder shall be mixed with the SBR rubber so that a minimum of 20%, by weight, exists in the final mixture. This mixture is then mechanically installed using the paver machine.
- B. Resilient Wearing Course (a.k.a Color Coat): The 0.5 to 1.5 millimeter EPDM granules shall be mixed with BEYPUR 160 or equal, the water-based single-component structural spray coating. The structural spray shall be made in two (2) uniform applications.

3.5 TRACK STRIPING

- A. Line and event markings shall be applied by experienced personnel utilizing Acrylic based paint compatible with the synthetic track surfacing. All marking dimensions shall be certified in accordance with the specifications issued and by Section 32 1837 Track Line-Marking.
- B. Provide adequate barricades or other protective methods in order to prevent traffic over newly painted areas.

Wilmington High School
Track Reconstruction
Wilmington, MA
Gale JN 718480

END OF SECTION

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SYNTHETIC TRACK SURFACING
321833-8

SECTION 321837 - TRACK LINE-MARKING

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS (PCR), which are hereby made a part of this Section of the Specifications.
- B. This section pertains to the application of all line marking on the resilient running track surface. The Contractor shall provide all track event marking required by the American Sports Builder's Association (ASBA), National Federation of High School Standards (NFHS), and Massachusetts Interscholastic Athletic Association (MIAA).

1.2 RELATED SECTIONS

- A. Examine the Contract Documents for requirements that affect work of this Section. Other Specification Sections that directly relate to work of this Section include, but are not limited to:
 - 1. Section 32 1833 – Synthetic Track Surfacing

1.3 QUALITY CONTROL

- A. Submittals: The Contractor will prepare and submit for approval a colored track striping and marking plan shop drawing indicating all lane and event markings for approval prior to commencing this phase of the work.
- B. Provide specific manufacturers product data for all types of paints and overlays to be used in running track lane marking.
- C. The Contractor will prepare and submit for approval a colored track striping and marking plan shop drawing indicating all lane and event markings for approval prior to commencing this phase of the work.
- D. The Contractor is responsible for the removal or correction of any overspray, spill or marking not in compliance with applicable track layout.
- E. The Contractor shall employ a Certified Track Builder-Striper (CTB-S), as approved by ASBA, to perform all striping and field event markings.

PART 2 – MATERIALS

2.1 PRODUCTS

- A. 100% Acrylic Line paint (Plexicolor, as manufactured by California Products, or approved equal). Line marking paint shall be as approved and recommended by the approved resilient track surfacing manufacturer.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Prior to performing any striping work, the striping contractor shall meet with the Owner and the Engineer/Landscape Architect to discuss and approve the striping layout.
- B. The Contractor shall provide all labor, materials and equipment necessary to perform the following:
 - 1. Locate and establish radius points.
 - 2. Establish and set all necessary control points.
 - 3. Lay out all lines and marking to within a one-half inch (1/2") (plus only) tolerance according to the markings layout shown on the plans.
 - 4. Prepare all necessary shop drawings.
 - 5. Provide all computations and measurements in organized form.
 - 6. Establish all locations on the curves.
 - 7. Identify all markings, where appropriate, by painting the identification directly onto the track surface in four (4)" letters just below or in front of each mark in the right hand portion of the lane.
 - 8. Paint all of the large three (3) foot high lane numbers in two (2) colors (shadowed backgrounds). Colors to be determined by Owner upon awarding of Contract.
 - 9. All lines shall receive sufficient paint to assure complete opacity and uniformity of color.
 - 10. Paints shall be used directly from original containers and thinned according to the manufacturers written instructions.
 - 11. Paint application rate shall be as recommended by manufacturer.
 - 12. All measurements shall be made by competent, experienced and fully qualified personnel. The Contractor shall employ a Certified Track Builder-Striper (CTB-S), as approved by ASBA, to perform all striping and field event markings.
 - 13. The paint used shall be line paint made specifically for painting athletic running tracks.

14. The markings shall include all events and marks required or recommended by all local and national associations (whichever governing body is appropriate), including all hurdle and acceleration marks.

- C. Clean Up: The Contractor shall remove all bags, pallets, plastic or any other items associated with his/her work and leave the site in the same state of cleanliness as it was when he/she arrived.

END OF SECTION

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SECTION 323113 – FENCE AND GATES

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS (PCR) which are hereby made a part of this Section of the Specifications.

1.2 WORK INCLUDED

- A. Provide all equipment and materials and installation, of Chain Link fence, line posts, end posts, rails, gates and backspots as designated on the Contract Drawings.

1.3 RELATED WORK

- A. Examine Contract Documents for requirements that affect work of this Section. Other Specification Sections that directly relate to work of this Section include, but are not limited to:
 - 1. Section 31 2000 - Earth Moving

1.4 REFERENCES

- A. Comply with applicable requirements of the following standards. Where these standards conflict with other requirements, the most restrictive requirements shall govern.
 - 1. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)
 - a. ASTM A 53 Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless
 - b. ASTM A 123 Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
 - c. ASTM A 153 Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
 - d. ASTM A 176 (1994) Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip
 - e. ASTM A 385 Standard Practice for Providing High-Quality Zinc Coatings (Hot-Dip)
 - f. ASTM A 392 (1991b) Zinc-Coated Chain-Link Fence Fabric

- g. ASTM A 478 (1995a) Chromium-Nickel Stainless and Heat-Resisting Steel Weaving and Knitting Wire
 - h. ASTM A 491 (1994) Aluminum-Coated Steel Chain-Link Fence Fabric
 - i. ASTM A 666 (1994) Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar
 - j. ASTM C 94 (1994) Ready-Mixed Concrete
 - k. ASTM F 626 (1994a) Fence Fittings
 - l. ASTM F 688 Poly (Vinyl Chloride) (PVC) and other Organic Polymer-Coated Steel Chain link fence fabric, Class 2B
 - m. ASTM F 883 (1990) Padlocks
 - n. ASTM F 900 (1994) Industrial and Commercial Swing Gates
 - o. ASTM F 1043 (1995) Strength and Protective Coatings on Metal Industrial Chain-Link Fence Framework
 - p. ASTM F 1083 (1993) Pipe, Steel, Hot-Dipped Zinc-Coated (Galvanized) Welded for Fence Structures
- 2. AMERICAN WELDING SOCIETY (AWS)
 - a. AWS WZC (1972) Welding Zinc-Coated Steels
 - 3. CHAIN LINK FENCE MANUFACTURERS INSTITUTE (CLFMI)
 - a. CLFMI Product Manual (CLF-PM0610) revised January 2012

1.5 SUBMITTALS

- A. Submit shop drawings and manufacturer's specifications and installation instructions for all materials to be used.
- B. Certificates: Statement signed by an official authorized to certify on behalf of the manufacturer attesting that the chain link fence and component materials meet the specified requirements.

PART 2 - PRODUCTS

2.1 CHAIN LINK FENCE MATERIALS

- A. Vinyl Coated Fence Fabric
 - 1. Fabric shall be black vinyl coated thermally fused and bonded to a primer which is thermally cured onto galvanized steel core wire conforming to ASTM F 668, Class 2b. Color of vinyl coating shall be black as specified in the plan set. Minimum coating thickness shall be 0.006 in. Color sample shall be submitted to the Owner for approval.

FENCE AND GATES

2. Chain link Fabric shall be woven into a two (2) inch mesh of 8-core, 6 gauge galvanized wire with a minimum breaking strength of 1290 lbs. In accordance with ASTM F 668, Class 2b.
3. Zinc for galvanized coating shall conform to ASTM B 6, galvanized by hot dipped method AISI Type I, before vinyl coating; coating shall be smooth. Minimum weight of zinc coating shall be 1.2 oz. per sq. ft.
4. Polyvinyl chloride coating shall meet the following requirements:
 - a. Specific gravity shall be 1.30 maximum, tested in accordance with ASTM D 792.
 - b. Hardness shall have a minimum Durometer reading of A 95 in accordance with ASTM D 2240. Ultimate elongation shall be 275% in accordance with ASTM D 412.
5. Tensile strength shall have a test minimum of 3,300 psi in accordance with ASTM D 412.
6. Vinyl shall be a dense and impervious covering free of voids, having a smooth, lustrous surface without pinholes, bubbles, voids, or rough or blistered surface.

B. Fence Posts, Hardware, and Fittings - General

1. Fittings shall be of best quality malleable iron castings, wrought iron forgings, or pressed steel and provided with pin connections. Equipment shall be designed to carry 100% overload.
2. Malleable iron castings shall be hot-dipped galvanized in accordance with ASTM A 153.
3. Wrought iron forgings or pressed steel fitting and appurtenances shall be hot-dipped galvanized in accordance with ASTM A 123.
4. Fence Hardware Coatings: shall match fence fabric coating.
5. Piping for fence posts shall be steel conforming to ASTM A 53 except that pipe shall be unthreaded and untested for water pressure.
6. Galvanized items shall be galvanized in accordance with ASTM A 123, A 153, or A 385, as applicable.
7. Bolts, which are installed six (6) feet or less above grade shall not protrude more than 1/4 inch beyond the nut after tightening. Rough edges shall be filed smooth to the satisfaction of the engineer. Peen ends of all bolts after tightening.

C. Posts

1. Under Six Foot (6') High Fence:
 - a. Line posts shall be 1.9 in. outside diameter (O.D.), Schedule 40 pipe, weighing 2.28 lb./ft.
 - b. End and corner posts shall be 2.375 in. O.D., Schedule 40 pipe, weighing 3.65 lb./ft.
2. Six Feet to Nine Feet (6' to 9') High Fence:

FENCE AND GATES

- a. Line posts shall be 2.375 in. O.D., Schedule 40 pipe, weighing 3.65 lb./ft.
 - b. End and corner posts shall be 2.875 in. O.D., Schedule 40 pipe, weighing 5.79 lb./ft.
3. Nine Feet to Twelve Feet (9' to 12') High Fence:
- a. Line posts shall be 2.875 in. outside diameter (O.D.), Schedule 40 pipe, weighing 5.79 lb./ft.
 - b. End and corner posts shall be 4.00 in. O.D., Schedule 40 pipe, weighing 9.11 lb./ft.
4. Twelve Feet to Sixteen Feet (12' to 16') High Fence:
- a. Line posts shall be 4.0 in. outside diameter (O.D.), Schedule 40 pipe, weighing 9.11 lb./ft.
 - b. End and corner posts shall be 6.6 in. O.D., Schedule 40 pipe, weighing 18.9 lb./ft.
5. The gatepost for any gate leaf 6 ft. wide and less shall be 3.0 in. O.D., Schedule 40 pipe, weighing 5.79 lb./ft.
6. Posts shall be PVC coated, thermally fused and bonded to a primer that is thermally cured onto galvanized steel posts. The color of the vinyl coating shall be black. The minimum coating thickness shall be 0.006 in.

D. Rails and Post Braces

1. Top rail, mid rail (**equal to or greater than 8-ft. fence**) and bottom rails shall be 1.66 in. O.D., Schedule 40 pipe, weighing 2.27 lb./ft.
2. Rails and post braces shall be PVC coated, thermally fused and bonded to a primer which is thermally cured onto galvanized steel rails and post braces. The color of the vinyl coating shall be black, as specified in the plan set. The minimum coating thickness shall be 0.006 in.

E. Gates and Gate Frames

1. Fabrication: Assemble gate frames by welding connections. Use the same fabric as for the fence, unless otherwise indicated. Install fabric with stretcher bars at the edges (and tie wire at top and bottom edges, if stretcher is not used). Attach the stretcher bars to gate frame at not more than 12 in. O.C. Attach the hardware with rivets or by other means, which shall provide security against removal or breakage.
 - a. Framing:
 - 1) Fabricate perimeter frames of a minimum of 1.90 in. O.D., Schedule 40 pipe, that has been hot-dipped and galvanized, with a minimum of 2.0 oz. of zinc per sq. ft. of surface area.
 - b. Bracing:
 - 1) Provide diagonal cross bracing, consisting of 3/8 in. diameter adjustable length truss rods, on gates where four sided tension rods are not used. Provide frame rigidity without sag or twist.

FENCE AND GATES

2. Gate hardware: Galvanize per ASTM A 153 (each gate). Provide lockable drop bar on each gate leaf for double swing gates, so that gate leaves can be locked in place individually.
3. Gate Hardware Coatings: These shall match the fence fabric coating.
4. Hinges: Pressed steel or malleable iron to gate size, non-lift-off type, offset to permit 180° gate opening. Provide one pair of hinges for each leaf.
5. Latch: Forked type, to permit operation from either side of gate: Provide padlock eye as integral part of latch. Provide locking mechanism for sliding gates.
6. Keeper: Provide keeper for gates, which automatically engages the gate leaf and holds it in the open position until it is manually released.
7. Gates and gate frames shall be PVC coated, thermally fused and bonded to a primer that is thermally cured onto galvanized steel components. The color of the vinyl coating shall be black, as specified in the plan set. The minimum coating thickness shall be 0.006 in.
8. Stretcher Bars
 - a. Stretcher bars shall not be less than 3/16 in. x 3/4 in. and shall be the full height of the fabric with which they are being used.
 - b. Provide stretcher bars for each gate, end and corner, and pull post stretcher bar bands and clips shall be of heavy pressed steel or malleable iron.

F. Caps

1. Posts shall have caps, which shall be designed to exclude water from the posts. Caps shall have holes suitable for the through passage of the top rail, where necessary.
2. Caps for posts shall be PVC coated, thermally fused and bonded to a primer which is thermally cured onto the galvanized steel caps. The color of the vinyl coating shall be black, as specified in the plan set. The minimum coating thickness shall be 0.006 in. All caps shall be securely fastened to the posts.

G. Tension and Tie Wire

1. PVC Coated Fence: Tie wire shall be 9-gauge O.D., vinyl-clad, galvanized steel wire.

H. Galvanized Paint

1. Cold galvanized paint shall be one of the following:

Product	Manufacturer
Galvicon	Galvicon Corporation
Zinc Shield	Stanley Chemical Division of The Stanley Works

2. Touch-up for Galvanized Surfaces: Touch-up damaged or abraded galvanized surfaces with products equal to one of the following:
 - a. Cold Galvanizing Compound; ZRC.

- b. Speedhide Galvanized Steel Paint; PPG.
 - c. Series 90-97 Zinc-Rich Primer; Tnemec.
- I. Concrete
- 1. Concrete shall meet ASTM C 94, using 3/4 inch maximum size aggregate, and having minimum compressive strength of 4000 psi at 28 days. Grout shall consist of one part Portland cement to three parts clean, well-graded sand and the minimum amount of water to produce a workable mix.

PART 3 - EXECUTION

3.1 GENERAL

- A. Fence shall be installed to the lines and grades indicated. The area on either side of the fence line shall be cleared to the extent indicated. Line posts shall be spaced equidistant, at intervals not exceeding ten feet (10). Terminal (corner, gate, and pull) posts shall be set at abrupt changes in vertical and horizontal alignment. Fabric shall be continuous between the terminal posts. However, runs between terminal posts shall not exceed 500 feet. Any damage to galvanized surfaces, including welding, shall be repaired with paint containing zinc dust, in accordance with ASTM A 780.

3.2 POSTS

- A. Posts shall be poured-in-place, into the proposed concrete footings, as shown on the plans and details.

3.3 RAILS

- A. Top Rail, Mid (8-ft. fence) and Bottom Rails
 - 1. Top, mid (8-ft. fence) and bottom rails shall be supported at each post to form a continuous brace between terminal posts. Where required, sections of top rail shall be joined using sleeves or couplings that shall allow expansion or contraction of the rail. Bottom tension wire is not acceptable.

3.4 BRACES AND TRUSS RODS

- A. Braces and truss rods shall be installed as indicated and in conformance with the standard practice for the fence furnished. Braces and truss rods shall extend from terminal posts to line posts. Diagonal braces shall form an angle of approximately 40 to 50 degrees with the horizontal. No bracing is required on fences six feet high or less, if a top rail is installed.

3.5 CHAIN LINK FABRIC

- A. Chain link fabric shall be installed on the playing field side of the fence unless otherwise noted. Fabric shall be attached to terminal posts with stretcher bars and tension bands. Bands shall be spaced at approximately fifteen inch (15") intervals. The fabric shall be installed and pulled taut to provide a smooth and uniform appearance free from sag, without permanently distorting the fabric diamond or reducing the fabric height. Fabric shall be fastened to line posts at approximately fourteen inch (14") intervals and fastened to all rails at approximately twelve inch (12") intervals. Fabric shall be cut by untwisting and removing pickets. Splicing shall be accomplished by weaving a single picket into the ends of the rolls to be joined. The top and bottom of installed fabric shall be as indicated on the Drawings. After the fabric installation is complete, the fabric shall be exercised by applying a 50-pound push-pull force at the center of the fabric between posts. The use of a 30-pound pull at the center of the panel shall cause fabric deflection of not more than two and one half inches (2-1/2") when pulling fabric from the post side of the fence. Every second fence panel shall meet this requirement. All failed panels shall be re-secured and retested at the Contractor's expense.

3.6 GATES

- A. Gates shall be installed plumb, level and secure, at the locations shown. Hinged gates shall be mounted to swing, as indicated. Latches, stops and keepers shall be installed, as required. Slide gates shall be installed as recommended by the manufacturer. Hinge pins and hardware shall be welded or otherwise secured to prevent removal. All gates shall be tested by the Engineer for proper functionality prior to final approval.

3.7 TOUCH-UP

- A. Following installation, scratches and marred spots in vinyl-coated surfaces shall be field coated with a vinyl coating supplied by the fence manufacturer.
- B. Following installation, scratches and marred spots in galvanized surfaces shall be power wire brushed and painted, with a cold-applied galvanized paint, at a rate of 2 oz. zinc per sq. ft. of surface.

3.8 GROUNDING

- A. Electrical equipment attached to the fence shall be grounded, as specified in manufacturer's instructions. Fences shall be grounded on each side of all gates, at each corner, at the closest approach to each building located within 50 feet of the fence, and where the fence alignment changes by more than 15 degrees. Grounding locations shall not exceed 650 feet. Each gate panel shall be bonded with a flexible bond strap to its gatepost. Fences crossed by power lines of 600 volts or more shall be grounded, at or near the point of crossing, and at distances not exceeding 150 feet on each side of crossing. The ground conductor shall consist of No. 8 AWG solid copper wire. Grounding electrodes shall consist of No. 8 AWG solid copper wire. Grounding electrodes shall be $\frac{3}{4}$ inch, by 10-foot long, copper-clad steel rod. Electrodes shall be driven into the earth so that the top of the electrode is at least six inches below the grade. Where driving is impracticable, electrodes shall be buried a minimum of twelve inches (12") deep and radially from the fence. The top of the electrode shall be not less than two feet or more than eight feet from the fence. The ground conductor shall be clamped to the fence and electrodes with bronze grounding clamps to create electrical continuity between fence posts, fence fabric and ground rods. After installation, the total resistance of the fence to the ground shall not be greater than 25 ohms.

END OF SECTION

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SECTION 329250 – LOAM AND SEED

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS (PCR) which are hereby made a part of this Section of the Specifications.
- B. Examine all other Sections of the Specifications for requirements which affect work of this Section, whether or not such work is specifically mentioned in this Section.
- C. Coordinate work with trades affecting, or affected by, work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

1.2 WORK INCLUDES

- A. Refer to the Drawings for the extent and details of the work.
- B. The work of this Section consists of all seeding and related work as shown on the Drawings or required herein, and includes, but is not limited to, the following:
 - 1. Providing all topsoil required for work of this Section.
 - 2. Screened, stripped and stockpiled topsoil.
 - 3. Providing additional new topsoil from off-site sources, as required to complete work for this Section.
 - 4. Providing all soil amendments, fertilizers, erosion controls and mulches, as required for work in this Section.
 - 5. Scarification of subsoil in preparation for loaming.
 - 6. Spreading and fine grading topsoil for all lawn areas, sodded or seeded.
 - 7. Seeding required for work in this Section.

1.3 RELATED SECTIONS

- A. Section 31 2000 – Earth Moving.

1.4 SUBMITTALS

- A. Materials List: Submit a complete list of all materials proposed for use in this work, demonstrating complete conformance with the requirements specified.
 - 1. Submit grass seed mixes for approval.

2. Submit topsoil analysis results for review by the Landscape Architect. State recommended quantities of amendments necessary to produce satisfactory topsoil, as stated in the specifications herein. If on-site stockpiled topsoil is to be used, submit topsoil analysis of screened products.
3. Submit product information, with mix ratios and amounts, for hydro mulching to be used during hydro seeding, for Landscape Architect's approval.
4. Submit fertilizer, herbicide and fungicide products for application, as required, for Landscape Architect's approval.
5. Submit mechanical analysis of any soil amendments.

1.5 QUALITY ASSURANCE

- A. All seed and amendments shall comply with all federal, state and local laws and regulations requiring inspection for plant disease and insect control.

1.6 PRODUCT HANDLING

- A. Delivery and Storage:
 1. Deliver all items to the job site in their original containers, with all labels intact and legible at time of the Landscape Architect's inspection.
 2. Immediately remove from the site all materials which do not comply with the specified requirements.
 3. Use all means necessary to protect seed from moisture and other contaminants which may adversely affect proper germination.
 4. Use all means necessary to protect fertilizers, amendments and other materials from moisture and other contaminants which may adversely affect their efficacy.

1.7 JOB CONDITIONS

- A. Utilities: Determine the location of underground utilities and perform work in a manner which will avoid possible damage. Hand excavate, as required. Maintain grade stakes set by others until removal is mutually agreed upon by all parties concerned.
- B. Excavation: When conditions detrimental to plant growth are encountered, such as rubble fill, adverse drainage conditions or obstructions, notify Landscape Architect before spreading topsoil.

PART 2 - PRODUCTS

2.1 TOPSOIL

- A. Topsoil
 1. Topsoil stockpiled from on-site stripping, once tested, may be utilized and amended to meet the requirements for New Topsoil (aka Topsoil Mix).

2. All topsoil that was stripped and stockpiled shall be screened to a maximum stone size of three quarters of an inch (3/4") in any dimension.
3. If determined by soil testing that the existing topsoil does not meet these specifications, the topsoil shall be amended to provide an acceptable topsoil for use.

B. New Topsoil for Lawns(Topsoil Mix/Amended Topsoil):

1. New Topsoil (Topsoil Mix): Shall be natural, fertile loam, typically cultivated topsoils of the locality, containing not less than 4% or more than 8% by weight, of decayed organic matter (humus), as determined in ASTM F-1647. If organic amendments are needed to obtain the specified matter content of the topsoil, the organic matter source may be a peat or compost material.
2. Topsoil shall be taken from a well-drained, arable site, free of subsoil, slag and any stones, earth clods, sticks, stumps, clay lumps, roots or other objectionable, extraneous matter or debris over 3/4" in any dimension.
3. Topsoil shall be free of Quack-grass rhizomes, Agropyron Repens, and the nut-like tubers of Nutgrass, Cyperus Esculentus, and all other primary noxious weeds.
4. Topsoil shall have a pH not less than 6.0 or greater than 7.0.
5. Topsoil shall not have soluble salts greater than 500 parts per million.
6. Topsoil mix (amended topsoil) shall have target Nutrient levels of Phosphorus (P), Potassium (K), Calcium (C) and Magnesium (Mg) in the Optimum Range as determined local Agricultural Extension Service Topsoil testing recommendations for Sportsturf/Golf Fairway Lawn Establishment.
7. Topsoil shall be a loamy sand, sandy loam, loam, sandy clay loam as defined by the USDA, as determined by Pipette Method, in compliance with ASTM F-1632.
8. Topsoil shall not be delivered or placed while in a frozen or muddy condition.

C. Imported Topsoil:

1. The Contractor shall submit representative samples of topsoil he intends to bring onto the site, and samples of topsoil that was stockpiled from on-site stripping, to a Soil Plant Testing Laboratory acceptable to the Engineer or Landscape Architect. All reports shall be sent to the Engineer / Landscape Architect for approval. The cost for testing and analysis of the soils shall be borne by the Contractor.
2. Samples of topsoil to be brought to the site must be approved prior to delivery of topsoil to the site. Imported topsoil shall be amended by the Contractor to comply with the requirements of New Topsoil (aka Topsoil Mix)
3. Testing reports shall include the following tests and recommendations:
 - a. Mechanical gradation (sieve analysis) shall be performed and compared to the USDA Soil Classification System.
 - b. The silt and clay content shall be determined by a Pipette Test of soil passing the No. 270 sieve.

- c. Percent of organics shall be determined by an Ash Burn Test or Walkley/Black Test (ASTM F-1647).
 - d. Test for gradation and organics shall be performed by a private testing laboratory approved by the Engineer/Landscape Architect. Tests for soil chemistry and pH may be performed by a public extension service agency.
 - e. Chemical analysis shall be undertaken for Phosphorus, Potassium, Calcium, Magnesium, Aluminum, Soluble Salts, and acidity (pH).
 - f. Soil analysis tests shall include recommendations for soil additives to correct soils deficiencies, as necessary, and for additives necessary to meet defined topsoil mix requirements.
 - g. All tests shall be performed in accordance with the current standards of the Association of Official Agriculture Chemists.
4. Deficiencies in the topsoil shall be corrected by the Contractor

2.2 SOIL AMENDMENTS:

- A. Organic Amendments: Shall be Compost or Peat.
- 1. Peat shall be Canadian sphagnum peat, having an ash content not exceeding 15%, as determined by ASTM D-2974.
 - 2. Compost may be used, provided that the material has been composted in an in-vessel system, and has an ash content not exceeding 40%, and is free from debris and contaminants.
- B. Lime
- 1. Lime shall be an approved agricultural limestone, containing no less than fifty (50%) percent of total carbonates and twenty five (25%) percent total magnesium, with a neutralizing value of at least one hundred (100%) percent.
 - 2. The material shall be ground to such a fineness that forty (40%) percent will pass through a Number 100 U.S. Standard Sieve, and ninety eight (98%) percent will pass through a Number 20 U.S. Standard Sieve.
 - 3. The lime shall be uniform in composition, dry and free flowing, and shall be delivered to the site in the original, unopened containers, each bearing the manufacturer's guaranteed analysis.
 - 4. Any lime which becomes caked or otherwise damaged, making it unsuitable for use, will be rejected.
- C. Fertilizers: Quantity, gradation and rate of application shall be determined based on soil tests and recommendations conducted by an approved soil testing laboratory.
- D. Water: The Contractor is responsible for providing all water equipment, hoses, etc. for watering throughout the project and until final acceptance of lawn and turf areas by the Landscape Architect.

- E. Herbicides, Pesticides and Fungicides: Herbicides, pesticides and fungicides may be used, subject to the approval of the Engineer / Landscape Architect, and handled by state-licensed operators only.

2.3 SEED:

A. Seed

1. Grass seed shall be clean, new crop seed, composed of a mixture of varieties, mixed in proportion by weight and tested for minimum percentages of purity and germination. Submit proposed mixture to the Engineer / Landscape Architect for approval.
2. General Lawn Area Seed Mix:
 - a. Perennial Ryegrass: 40%
 - b. Chewing Fescue: 30%
 - c. Kentucky Bluegrass: 30%

B. Hydroseed Mix (Lawn Areas Only)

1. All work will be carried out by an approved spraying machine specifically used for this work. Amounts of fertilizer used shall reflect recommendations outlined in the Soil Analysis, see Section 2.01 D. The Contractor shall submit to the Landscape Architect for approval, prior to the start of work, a certified statement as to number of pounds of fertilizer, amounts and types of grass seed, and processed fiber, per one hundred (100) gallons of water.
2. Hydromulch: Shall be Terra-Sorb GB, or an approved equal. Add Terra-Sorb to the hydroseed tank at the amount of 60 pounds per acre.
3. Hydroseeding is not permitted for athletic field areas

PART 3 - EXECUTION

3.1 PREPARATION OF SUBSOIL (General Lawn Areas)

- A. Prior to spreading topsoil, subsoil should be rough graded to correspond with finish grades, as indicated on the Drawings. Subgrade shall slope to allow for subsurface drainage. Depressions shall be filled and areas which are highly compacted shall be loosened to a depth of 2 inches (2") minimum, which is adequate for the passage of gravitational water through the subsoil.
- B. After acceptance of subsoil grades, loosen and mix subgrade material four to six inches (4"-6") deep. Remove all stones, sticks, rubbish and other deleterious materials, over ¾ inch in any dimension which may impede the healthy and vigorous growth of grass. Do not allow heavy objects or machinery, except as necessary for the spreading of topsoil, over the seedbeds after the preparation of the subgrade.

- C. Subsoil which becomes compacted due to excessive construction activity shall be loosened, as directed by the Engineer / Landscape Architect, at no additional cost to the Owner.

3.2 SPREADING OF TOPSOIL

- A. Immediately after approval and loosening of subgrade, evenly spread and lightly compact approved topsoil to finish grades, as indicated on the Drawings. Do not spread topsoil which is in a muddy or frozen condition. Handle no topsoil when dry or above the plastic limit. Install a minimum of six inches (6") of topsoil to lawn areas, unless otherwise indicated on the Drawings.
- B. When possible, the spreading of topsoil shall be performed from the center of the lawn area to the perimeter. Contractor may use alternate spreading pattern, if approved in writing by the Engineer / Landscape Architect.
- C. Caution should be exercised to minimize or eliminate travel over areas previously covered with topsoil. Topsoil which becomes compacted due to construction activity shall be stripped and re-spread or loosened, as directed by Engineer / Landscape Architect, at no additional cost to the Owner.

3.3 TOPSOIL SEED BED PREPARATION

- A. The minimum depth of topsoil in all lawn areas shall be six inches (6"). Contractor is responsible for supplying all topsoil needed from off-site sources.
- B. Grade all lawn areas to finish grades, as indicated on the Drawings. When no grades are shown, areas shall have a smooth and continuous grade between existing or fixed controls and elevations shown on plans. Roll, scarify, rake and level, as necessary, to obtain true even lawn surfaces. All lawn areas shall slope to drain. Finish grades shall be approved by Engineer / Landscape Architect prior to commencing any seeding or sodding work.
- C. Install soil additives per manufacturer's and topsoil testing lab instructions and as indicated on the Drawings.
- D. Amend all disturbed areas to be topsoiled, seeded or sodded to meet amended topsoil target recommendations. Follow the testing lab and manufacturer's recommendations for installation.
- E. Spreading Limestone: Spread ground limestone evenly over the topsoil surface. Incorporate limestone within the top two inches (2") of soil, prior to finish raking. Apply limestone at the rate recommended by the testing and analysis agency.
- F. Rake and remove all rocks and debris over ¾" in any dimension from the topsoil surface.

3.4 SEEDING

- A. Schedule for Seeding: Sow grass seed between April 1 and May 31, or between August 15 and October 1, except as otherwise approved in writing by the Engineer / Landscape Architect.
- B. If seeding out of season, as described above, the Contractor is still obligated by all conditions and responsibilities described under 3.6 LAWN MAINTENANCE, until final acceptance of all lawn areas.
- C. Before seed is sown, scarify soil and rake until surface is smooth, friable and of uniformly fine texture. Seed evenly at supplier's recommendation rates, lightly rake and water with fine spray. Do not use wet seed which is moldy or otherwise damaged in transit or storage.
- D. Mulch bank areas with three to one (3 to 1) slope or greater with straw mulch, one and one half to two (1½ to 2) tons per acre. Secure mulch at Contractor's discretion as to method or need. Wood fiber mulch may be substituted at a rate of 1,400 pounds per acre, at same time as seed and fertilizer.
- E. Equipment Calibration
 - 1. The equipment to be used and the methods of seeding shall be subject to the inspection and approval of the Owner's Representative, prior to commencement of seeding operations. Immediately prior to the commencement of seeding operations, the Contractor shall conduct seeding equipment calibration tests in the presence of the Owner's Representative.
- F. Applying Seed
 - 1. Mechanical Seeding of Lawn Seed Mix:
 - a. Seed shall not be placed until soils have stabilized and further settlement is not apparent. Utilize an irrigation system for consolidation of top mix.
 - b. Seed at a minimum rate of three (3) lbs per 1000 square feet.
 - c. Sow grass seed, applying half the quantity in one direction and the remaining quantity at right angles to the previous application
 - d. Do not sow seed on a windy day or when the ground is frozen, wet or otherwise non-tillable.
 - e. Cover seed with a thin layer of topsoil by raking or dragging. Cover with straw mulch, loosely spread to a uniform depth.
 - f. Keep soil moist throughout the germination period.

3.5 FERTILIZING

- A. The Contractor is to have the topsoil tested for soil fertility by an approved soil testing laboratory, and a complete fertilization program will be recommended by the testing laboratory and Landscape Architect for the installation and maintenance period.

3.6 LAWN MAINTENANCE

- A. Maintenance of the grass areas shall begin immediately and generally consist of watering, weeding, fertilization, mowing and edging, reseeding, disease and insect pest control, repair of all erosion, and any other procedure consistent with good horticultural practice, as necessary to insure normal, vigorous and healthy growth.
- B. After grass has appeared, reseed all areas which have failed to show a uniform stand of grass.
- C. Maintenance shall also include filling, regrading and reseeding, as necessary, to correct depressions caused by settling, subsidence or other physical or mechanical damage.
- D. Maintenance shall also include all temporary protection fences, barriers, signs and all other work incidental to proper maintenance.
- E. The Contractor shall be responsible for maintenance to establish a uniform stand of the approved grasses until acceptance. After the grass has started, all areas and parts of areas showing poor germination or growth shall be re-seeded, repeatedly, until all areas are covered with a satisfactory growth of grass. At the time of the first cutting, mow lawn with sharp mowing units not less than two and one half inches (2 1/2") high. Lawn shall be maintained between two and one half inches to three and one half inches (2 1/2" - 3 1/2") high. Do not remove more than one third (1/3) of the grass blade. All lawns shall receive a minimum of three (3) mowings before Contractor's request for inspection and acceptance. Additional mowings may be required before acceptance.
- F. Where permitted, the contractor shall be responsible for the application of pre-emergent crabgrass control, in accordance with manufacture's recommended rate and timing for all lawn areas the spring following seeding.
- G. Fertilization: Second fertilization of all lawn areas shall be done either the following spring after a fall seeding or in the fall after a spring seeding.
- H. Watering: The Contractor shall include the cost for daily and, if necessary, continuous watering of all grass areas during a normal eight (8) hour working day.
 - 1. The seed bed shall be maintained in a continuous moist condition, to the depth of 2". Maintain soil moisture satisfactory for good germination and growth of grass until acceptance of lawns.
- I. Full and complete written instructions for maintenance of the lawn areas are to be furnished to the Owner, by the Contractor, at least ten (10) days prior to the end of the contractual maintenance period, to familiarize him with the maintenance requirements for proper care and development of lawns.

3.7 INSPECTION AND ACCEPTANCE

- A. The Landscape Architect shall inspect the lawns upon written request by the Contractor. The request shall be received at least ten (10) days before the anticipated date of inspection.

- B. Final acceptance will not be granted until all seeded areas are in satisfactory condition. No seeded areas will be inspected prior to 60 days from seeding and prior to the completion of two mowings. An acceptable stand of grass will be determined by the Engineer or Landscape Architect.
- C. A satisfactory stand of grass which is acceptable is defined as consisting of a uniform stand of at least 60% established, permanent grass species, free of weed species and no bare spots (free of germinating grass) over 1sf in area.
- D. If the grass is in satisfactory condition, the Contractor's care and maintenance responsibilities will end. If the grass stand is unsatisfactory, the Contractor's maintenance responsibility shall continue, including a normal program of mowing, irrigation, reseeding, fertilizing and repair until an acceptable stand of grass is achieved.

3.8 CLEAN UP

- A. Absolutely no debris may be left on the site. Excavated material shall be removed, as directed. Repair any damage to site or structures to restore them to their original condition, as directed by the Landscape Architect, at no cost to the Owner.

END OF SECTION

G:\718480 Wilmington HS Track\02 Design\specs\Div 32 - EXTERIOR IMPROVEMENTS\32 92 50 - Loam and Seed.docx



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:

Wilmington
Conservation Commission

To: Applicant

Town of Wilmington

Name

121 Glen Road

Mailing Address

Wilmington

City/Town

MA

State

01887

Zip Code

Property Owner (if different from applicant):

Name

Mailing Address

City/Town

State

Zip Code

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

Layout & Materials Plan

Title

12-1-2021

Date

Title

Date

Title

Date

2. Date Request Filed:

12/15/2021

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 demolition and removal of the existing running track and installation of a new bituminous pavement base and resilient track surfacing. Installation of 75 feet of 4 foot high fence within existing track limits.

Project Location:

159 Church Street

Street Address

63

Assessors Map/Plat Number

Wilmington

City/Town

10

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).

- ☐ 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.



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.)

- ☐ 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

☐ by certified mail, return receipt requested on

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 <https://www.mass.gov/service-details/massdep-regional-offices-by-community>) and the property owner (if different from the applicant).



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

C. Authorization (cont.)

Signatures:

Donald Pearson
Signature

[Signature]
Signature

Vincent Licciardi
Signature

[Signature]
Signature

[Signature]
Signature

Signature

Signature

Signature

Donald Pearson
Printed Name

Theron R Bradley
Printed Name

VINCENT LICCIARDI
Printed Name

Nester Soloman
Printed Name

Alexander M. Pithon
Printed Name

Printed Name

Printed Name

Printed Name

D. Appeals

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 <https://www.mass.gov/service-details/massdep-regional-offices-by-community>) 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.



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

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: _____

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

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





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 <https://www.mass.gov/service-details/massdep-regional-offices-by-community>).
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.



TOWN of WILMINGTON

DEPARTMENT OF PLANNING & CONSERVATION

121 GLEN ROAD, WILMINGTON, MA 01887 www.wilmingtonma.gov (978) 658-8238

Wetland Approval Checklist

After you have received your approval, please be sure to complete the following that pertain to your approval

DETERMINATION OF APPLICABILITY (DOA):

- Read the paperwork carefully and note any special conditions that are listed
- 10 business day appeal period (once issued) before building permit can be signed and/or work can begin
- Call for erosion control inspection PRIOR to starting work
- The Determination is good for 3 years from the date of issuance

ORDER OF RESOURCE AREA DELINEATION (ORAD):

- Note which Resource Areas are accurate, modified, and inaccurate as stated in the ORAD
- 10 business day appeal period (once issued) period before Order is valid
- Record this Order at the Middlesex North Registry of Deeds in Lowell, then forward a copy of the recorded document to the Planning and Conservation Department
- The order is good for 3 years from the date of issuance. Extensions can be issued for periods of up to 3 years. Requests for extension must be submitted no later than 30 days prior to expiration, but we recommend they be submitted about 3 months prior to expiration

ORDER OF CONDITIONS (OOC):

- Read the paperwork carefully and note all general and special conditions that are listed
- 10 business day appeal period (once issued) before building permit can be signed and/or work can begin
- Record OOC at the Middlesex North Registry of Deeds in Lowell, then forward a copy of the recorded document to the Planning and Conservation Department
- Pre-construction conditions must be satisfied before ANY work can begin
- Call for a pre-construction meeting and erosion control inspection PRIOR to starting work
- The Order is good for 3 years from the date of issue. Extensions can be issued for periods up to 3 years. Requests for extension should be submitted no later than 30 days prior to expiration, but we recommend they be submitted about 3 months prior to expiration
- Submit a Request for Certificate of Compliance when work is complete and all conditions are met. See Special Conditions for CoC submittal requirements

CERTIFICATE OF COMPLIANCE (COC):

- Record CoC at the Middlesex North Registry of Deeds in Lowell, then forward a copy of the recorded document to the Planning and Conservation Department