



TOWN OF
HOLLISTON, MASSACHUSETTS

PROJECT MANUAL

FOR

WASHINGTON STREET CORRIDOR IMPROVEMENTS

Issue Date: June 21, 2017

Bid Due: July 19, 2017 at 11:00 AM

Prepared for:

Town of Holliston
Town Hall Building
703 Washington Street
Holliston, MA 01746
Telephone: 508-429-0608
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Jeff Ritter, Town Administrator
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SECTION 1 INVITATION TO BID

“Washington Street Corridor Improvements” provides roadway and traffic signal improvements on Washington Street in downtown Holliston, MA. The work includes the installation of a traffic signal system, as well as the reconstruction of pavement areas, ADA compliant curb ramps and sidewalks, signage, and pavement markings, and other related work along Washington Street in Holliston, MA.

Sealed bids are requested by the Town of Holliston from contractors prequalified by MassDOT in Highway – Construction and/or Traffic Signals. Envelopes containing sealed bids will be accepted at the Town of Holliston, Town Hall Building, Jeff Ritter, Town Administrator, 703 Washington Street, Holliston, MA 01746. Bids are to be submitted by 11:00 AM, on Wednesday, July 19, 2017, at which time they will be publicly opened and read by the Town Administrator. Postmarks will not be considered. Bids submitted on any other form will not be accepted as valid bids. Envelopes should be clearly marked "Washington Street Corridor Improvements." Bids will be available for public inspection three (3) business days after the bid opening.

Bids shall be on a Unit-Price basis.

A non-mandatory pre-bid meeting will be held at the Town Hall, 703 Washington Street, Holliston, MA 01746 at 11:00 AM on Wednesday, July 5, 2017.

Bidders will be able to ask questions until 11:00 AM on Wednesday, July 12, 2017.

The successful bidder will be required to complete the entire project by Friday, June 29, 2018.

All bids for this project are subject to the provisions of Massachusetts General Laws Chapter 30, Section 39M as amended.

Bid Forms and Contract Documents will be available for purchase only at www.biddocsonline.com (may be viewed electronically) or at Nashoba Blue, Inc. at 433 Main Street, Hudson, MA 01749 (978-568-1167). The cost is \$50 per set payable to BidDocs ONLINE Inc. Bidders requesting Contract Documents to be mailed to them shall include a separate check for \$40.00 per set for UPS Ground (or \$65.00 per set for UPS overnight), payable to BidDocs ONLINE Inc. to cover mail handling costs.

Bidding documents may also be examined at the office of the Town Administrator, Town Hall, 703 Washington Street, Holliston, Massachusetts between the hours of 8:30 AM and 4:30 PM, Monday through Friday, legal holidays excluded.

This proposal shall be accompanied by a bid deposit in the form of a bid bond, or a certified check, or a treasurer's or cashier's check issued by, a responsible bank or trust company, payable to the Town of Holliston. A bid bond shall be (a) in a form satisfactory

to the awarding authority, (b) with a surety company qualified to do business in the commonwealth and satisfactory to the awarding authority and (c) conditioned upon the faithful performance by the principal of the agreements contained in the bid. The amount of such bid deposit shall be five percent (5%) of the value of the bid.

This Contract contains price adjustments for hot mix asphalt mixes, diesel fuel, gasoline, Portland cement contained in concrete, and steel. See Section 9 - Special Provisions for payment procedures and base prices for this project.

Minimum Wage Rates as determined by the Commissioner of Department of Workforce Development under the provision of the Massachusetts General Laws, Chapter 149, Section 26 to 27D, as amended, apply to this project. It is the responsibility of the Contractor, before Bid opening, to request if necessary, any additional information on Minimum Wage Rates for those trades people who may be employed for the proposed Work under this contract.

The Town may cancel this invitation to bid, or reject in whole or in part any and all bids, if the Town determines that the cancellation or rejection serves the best interests of the Town of Holliston.

Consulting Engineer:
McMahon Associates
300 Myles Standish Boulevard, Suite 201
Taunton, MA 02780
508-823-2245

SECTION 2
INSTRUCTIONS TO BIDDERS

PART 1 SUMMARY

1.01 DOCUMENT INCLUDES

- A. PART 2 – INVITATION
 - 1. Bid Submission
 - 2. Intent
 - 3. Work Identified in Contract Documents
 - 4. Contract Time
- B. PART 3 – BID DOCUMENTS AND CONTRACT DOCUMENTS
 - 1. Definitions
 - 2. Contract Documents Identification
 - 3. Availability
 - 4. Examination
 - 5. Inquiries/Addenda
 - 6. Product/Assembly/System Substitutions
- C. PART 4 – SITE ASSESSMENT
 - 1. Site Examination
 - 2. Pre-Bid Meeting
- D. PART 5 - QUALIFICATIONS
 - 1. Evidence of Qualifications
 - 2. Subcontractors/Suppliers/Others
- E. PART 6 – BID SUBMISSION
 - 1. Submission Procedure
 - 2. Bid Ineligibility
 - 3. Bid Modifications
- F. PART 7 – BID ENCLOSURES/REQUIREMENTS
 - 1. Security Deposit
 - 2. Performance Assurance
 - 3. Insurance
 - 4. Bid Form Requirements
 - 5. Bid Form Signature
 - 6. Additional Bid Information
- G. PART 8 – OFFER ACCEPTANCE/REJECTION
 - 1. Bid Opening
 - 2. Duration of Offer
 - 3. Bid Comparison
 - 4. Acceptance of Offer

1.02 RELATED DOCUMENTS

- A. Section 1 - Invitation to Bid
- B. Document 00411 - Bid Form – General Contract

PART 2 INVITATION

2.01 BID SUBMISSION

- A. All signed and sealed bids must be received in the Town Administrator's Office, 703 Washington Street, Holliston, Massachusetts between the hours of 8:30 AM and 4:30 PM, Monday through Friday, legal holidays excluded. Bids will be received until 11:00 AM on Wednesday, July 19, 2017. Late bids will not be considered and will be returned to bidder unopened.
- B. Submitted offers will be opened publicly immediately after time for receipt of bids and read aloud.
- C. If, at the time of the scheduled bid opening, the Town Hall is closed due to uncontrolled events such as fire, snow, ice, or building evacuation, the bid opening will be postponed until 11:00 AM on the next normal business day. Bids will be accepted until that date and time.
- D. Each bidder must submit one (1) copy of their bid.
- E. Each bid must be clearly marked on the outside of the envelope "Sealed bid enclosed, "Town of Holliston, Washington Street Corridor Improvements," and shall carry the following information on the face of it:

BIDDER'S NAME, ADDRESS, ADVERTISED DATE OF BID OPENING
AND THE HOUR DESIGNATED FOR BID OPENING AS SHOWN ON THE
LEGAL ADVERTISEMENT.
- F. All submitted bids shall include all documents in Bid Package completed and any shop drawing required by this Invitation to Bid. Bids received at the Office of Procurement after the time of opening of bids designated in this Invitation to Bid will be returned to the bidder unopened.
- G. Upon submitting a proposal, each bidder shall be assumed to have made a careful examination of conditions and specifications and to have fully informed himself thoroughly as to the special conditions, contract, and other documents.
- H. The Town may reject any and/or all bids. Any bid may be withdrawn prior to the scheduled time for the opening of bids. Any bid received after the time specified in the Invitation to Bid will not be considered.

- I. The Town may cancel this Invitation to Bid, or reject in whole or in part any and all bids, if the Town determines that the cancellation or rejection serves the best interests of the Town of Holliston.

2.02 INTENT

- A. The intent of this Bid request is to obtain an offer to perform work to complete Washington Street Corridor Improvements located in Holliston, MA, based on unit-price bid and estimated quantities for comparison of bids.

2.03 WORK IDENTIFIED IN CONTRACT DOCUMENTS

- A. The work includes, but is not limited to the installation of a traffic signal system, as well as the construction of pavement areas, curb ramps, and sidewalk, and landscape maintenance, and other related work associated with the Washington Street Corridor Improvements in Holliston, MA.

2.04 CONTRACT TIME

- A. The successful bidder will be required to complete the entire project no later than Friday, June 29, 2018.
- B. The bidder, in submitting an offer, accepts the Contract Time period stated for performing the Work.

PART 3 BID DOCUMENTS AND CONTRACT DOCUMENTS

3.01 DEFINITIONS

- A. Bid Documents: Contract Documents supplemented with Invitation to Bid, Instructions to Bidders, Bid Form and Bid security identified.
- B. Bid, Offer, or Bidding: Act of submitting an offer.
- C. Bid Price, Bid Amount: Monetary sum identified by the Bidder in the Bid Form.

3.02 CONTRACT DOCUMENTS IDENTIFICATION

- A. The Contract Documents are identified as Washington Street Corridor Improvements dated June 2017.

3.03 AVAILABILITY

- A. Bid Documents and Plans may be obtained electronically at www.biddocsonline.com (Nashoba Blue, 433 Main Street, Hudson, MA 01749).
- B. Bid Documents are also available for viewing at the Town Administrator's Office, Town Hall Building, 703 Washington Street, Holliston, MA.

- C. Bid Documents are made available only for the purpose of obtaining offers for this project. Their use does not grant a license for other purposes.

3.04 EXAMINATION

- A. Bid Documents may be viewed at the Town Administrator's Office, Town Hall Building, 703 Washington Street, Holliston, MA.
- B. Upon receipt of Bid Documents verify documents are complete. Notify Engineer if documents are incomplete.
- C. Immediately notify Engineer upon finding discrepancies or omissions in Bid Documents.

3.05 INQUIRIES/ADDENDA

- A. Questions concerning this bid must be submitted in writing via mail, email, or fax to: Alex Bulhoes, email abulhoes@mcmahonassociates.com, before 11:00 AM on Friday, July 7, 2017. Written responses will be posted electronically at www.biddocsonline.com, mailed, or emailed to all bidders on record as having picked up/downloaded the bid documents.
- B. Addenda may be issued during bidding period to address any changes that are made. Addenda will be posted electronically at www.biddocsonline.com, mailed, or emailed to all bidders on record as having picked up/downloaded the Bid Documents. Addenda becomes part of the Contract Documents. Include resultant costs in the Bid Price. Contractors shall be responsible for ensuring that all addenda are in receipt prior to bid deadline. The Town will require acknowledgement of any addenda issued to be included on the bid form.
- C. Verbal answers are not binding on any party.

3.06 PRODUCT/ASSEMBLY/SYSTEM SUBSTITUTIONS

- A. Substitutions will not be considered prior to receipt of bids.
- B. Provide Products as specified. Substitutions may be submitted for consideration after contract award.
- C. Any and all references to commercial types, styles, or trade names and catalogues are intended to be descriptive only and not restrictive. The intention is to indicate to the bidders the kind and quality of the articles which will be necessary.

PART 4 SITE ASSESSMENT

4.01 SITE EXAMINATION

- A. Bidders are strongly encouraged to visit the project site to familiarize themselves with the project.

- B. Bidders are required to submit their Bids, upon the following express conditions which shall apply to and be deemed a part of every Bid received.

Bidders must satisfy themselves by personal examination of the site of the Work, and by such other means as they may wish, as to the actual conditions there existing, the character and requirements of the Work, the difficulties attendant upon its execution, and the accuracy of all estimated quantities stated in the Bid, and neither the Engineer nor the Owner makes any warranty or representation as to any of said matters or as to the accuracy of the methods by which any descriptions or estimates have been obtained.

- C. All information given on Drawings or in the other 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 nor is the quality of the sources of such information guaranteed.

It is agreed and understood that the Owner and Engineer do 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, or similar to, those indicated on the Drawings or in the other Contract Documents.

It is agreed further 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 Engineer, arising from or by reason of any variance which may exist between the information made available and the actual subsurface or other conditions, natural phenomena, existing pipes or other structures actually encountered during the construction work, except as may otherwise be expressly provided for in the Contract Documents.

4.02 PRE-BID MEETING

- A. A non-mandatory pre-bid meeting will be held at the Town Hall at 11:00 AM on Wednesday, July 5, 2017.

PART 5 QUALIFICATIONS

5.01 EVIDENCE OF QUALIFICATIONS

- A. General Bids will be accepted from contractors with five references to comparable projects.
- B. 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 shall be final, conclusive and binding.

- C. 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 relating to the ability and experience of the Bidder as the Owner may request. THE OWNER RESERVES THE RIGHT TO REJECT ANY BID OF A BIDDER WHO CANNOT SATISFY THE OWNER THAT HE HAS SUFFICIENT EXPERIENCE TO SUCCESSFULLY COMPLETE THE PROJECT.

5.02 SUBCONTRACTORS/SUPPLIES/OTHERS

- A. The Owner reserves the right to reject a proposed Subcontractor/supplier for reasonable cause.

PART 6 BID SUBMISSION

6.01 SUBMISSION PROCEDURE

- A. Bidders shall be solely responsible for delivery of bids in manner and time prescribed.
- B. Submit two copies of the complete, unseparated Contract Documents containing the executed offer on Bid Forms provided, signed and sealed with required security in a closed opaque envelope, clearly identified with bidder's name, project name and Owner's name on the outside.

6.02 BID INELIGIBILITY

- A. Bids that are unsigned, improperly signed or sealed, conditional, illegible, obscure, contain arithmetical errors, erasures, alternations, or irregularities of any kind, may at the Owner's discretion, be declared unacceptable.

6.03 BID MODIFICATIONS

- A. Bidders may correct, modify, or withdraw a bid by written notice received by the Town prior to the time and date set for the bid opening. Bid modifications must be submitted in a sealed envelope clearly labeled "Modification No. ____." Each modification must be numbered sequentially, and must reference the original Invitation to Bid.
- B. After the bid opening, a bidder may not change any provision of the bid in a manner prejudicial to the interests of the Town or fair competition. Minor informalities will be waived or the bidder will be allowed to correct them. If a mistake and the intended bid are clearly evident on the face of the bid document, the mistake will be corrected to reflect the intended correct bid, and the bidder will be notified in writing; the bidder may not withdraw the bid. A bidder may withdraw a bid if a mistake is clearly evident on the face of the bid document, but the intended correct bid is not similarly evident.

PART 7 BID ENCLOSURES/REQUIREMENTS

7.01 SECURITY DEPOSIT

- A. Bids shall be accompanied by a security deposit as follows:
- B. Bid Security in the form of cash, treasurer's, cashier's or certified check or bid bond, payable to the Owner, is required in a sum of no less than five percent (5%) of the Bid Price, payable to the Town of Holliston.
- C. The security deposit will be returned after delivery to the Owner of the required Performance and Payment Bonds by the accepted Bidder.
- D. After a bid has been accepted, security deposits will be returned to the respective Bidders.
- E. If no contract is awarded, security deposits will be returned.
- F. Surety Companies executing the Contract Bonds must also appear on the U.S. Treasury Department's most current 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 Audit Staff Bureau of Accounts.
- G. Attorneys-in-fact who sign Bid Bonds or Contract Bonds must file with each Bond a certified and effectively dated copy of their power of attorney.

7.02 PERFORMANCE ASSURANCE

- A. Accepted Bidder: Provide 100 percent (100%) Performance Bond and 100 percent (100%) Labor and Materials Bonds.

7.03 INSURANCE

- A. The Contractor will not be permitted to start any work until he has submitted certificates covering all insurances called for under that subsection of the Agreement, titled "Insurance".

7.04 BID FORM REQUIREMENTS

- A. Complete requested information in the Bid Form.
- B. Materials and equipment purchased for permanent installation in this project will be exempt from the State Sales and Use Tax. The exemption certificate number will be furnished to the Contractor. Each bidder shall take this exemption into account in calculating his Bid for the Work.

7.05 BID FORM SIGNATURE

- A. Sign Bid Form, as follows:
1. Sole Proprietorship: Signature of sole proprietor in the presence of a witness who will also sign. Insert the words "Sole Proprietor" under the signature. Affix seal.
 2. Partnership: Signature of all partners in the presence of a witness who will also sign. Insert the word "Partner" under each signature. Affix seal with each signature.
 3. Corporation: Signature of a duly authorized signing officer in their normal signature. Insert the officer's capacity in which the signing officer acts, under each signature. Affix the corporate seal. If the bid is signed by officials other than the president and secretary of the company, or the president/secretary/treasurer of the company, submit a copy of the by-law resolution of their board of directors authorizing them to do so, with the Bid Form in the bid envelope.
 4. Joint Venture: Signature of each party of the joint venture under their respective seals in a manner appropriate to such party as described above, similar to requirements for partnerships.

7.06 ADDITIONAL BID INFORMATION

- A. The general contractor shall apply for and obtain any permit as may be required by the Town of Holliston.
- B. Indeterminate Items, as follows:
1. The Work to be done under this Contract has been divided into parts or items to enable each bidder to bid on different portions of the work in accordance with his estimate of their cost and so that the actual quantity of work executed under each item may be paid for at the price bid for that particular item, even though such quantity is greater or less than the estimated quantity stated in the Bid.
 2. The quantities listed in the bid (proposal) are approximate. The Owner does not expressly or by implication represent that the actual amounts of work will even approximately correspond therewith, but does call particular attention to the uncertainty in the quantities of the work involved which can not be predicted in advance. The work under certain items may be materially greater or less than those given in the Bid as may be necessary in the judgment of the Owner complete the work contemplated in the Contract. Attention is particularly called to the fact that the quantity of work to be done under some bid items may be largely dependent on subsurface ground conditions encountered and, therefore, the quantities of work to be done under the various items may vary substantially from the estimated quantities or may even be omitted.
 3. Certain items in the Bid cover classes of work of doubtful necessity or work for which it is impractical to estimate approximate quantities. Such items have been marked "Indeterminate". Prices for certain of such items have been stipulated in advance by the Owner as stated in the Bid.

4. Only such quantities of the respective items of work actually performed and accepted will be paid for. An increase or decrease in quantity for any item shall not be regarded as grounds for an increase or decrease in the bid prices.

PART 8 OFFER ACCEPTANCE/REJECTION

8.01 BID OPENING

- A. Bids will be opened publicly and read aloud. Bidders may be present.

8.02 DURATION OF OFFER

- A. The time period for holding bids is sixty (60) days after the opening of bids.

8.03 BID COMPARISON

- A. Bids will be compared on the basis of the experience and competence of the bidders and on the basis of the totals of the quantities listed in the proposal under the enumerated items at the unit prices or lump sums bid for these items. The Contract will be awarded to the lowest responsive, responsible and eligible bidder as determined by the Owner and/or its authorized representatives or agents. However, the Owner may reject any and all bids if it is in the public interest to do so.
- B. The term, "Lowest responsive, responsible and eligible bidder," shall mean the bidder whose bid is the lowest of those bidders possessing the skill, ability and integrity necessary for the faithful performance of the Work; who shall certify that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the work.
- C. Bids should be made on each separate item of work shown in the bid (proposal) with reasonable relation to the probable cost of doing the work included in such items. The Owner reserves the right to reject, wholly, any bid on which an item or items thereof are obviously unbalanced or appear to the Owner to be so unbalanced as to affect or to be liable to affect adversely any interests of the Owner. The attention of the bidder is called to the fact that unbalancing of bids may adversely affect the Contractor if certain portions for the Work are increased or decreased as provided in the Contract Documents.
- D. A bidder shall state the proposed price for the work by which the bids will be compared. This price is to cover all expenses incidental to the completion of the work in full conformity with the Contract and Specifications. In the event that there is a discrepancy between the unit prices and the extended totals, the unit prices shall govern. In the event that there is a discrepancy between the lump-sum or unit prices written in words and numerical figures, the prices written in words shall govern. No bid will be accepted which does not contain a unit price or lump

sum as indicated for each of the applicable items enumerated in the proposal form.

8.04 ACCEPTANCE OF OFFER

- A. The Owner reserves the right to accept or reject any or all offers if it is in the public interest to do so.
- B. The Engineer, on behalf of the Owner and after acceptance by the Owner, will issue to the successful Bidder a written Bid Acceptance.

END OF SECTION

SECTION 3
BID FORM

TO: Town of Holliston, MA

PROJECT: Washington Street Corridor Improvements,
Holliston, MA

DATE: _____

SUBMITTED BY: _____
(Full Name)

(Complete Address)

The Owner reserves the right to reject any or all bids if it deems this action to be in its best interest or if it is in the public interest to do so.

1. OFFER

Having examined the Place of the Work and all matters referred to in the Instructions to Bidders and the Contract Documents for the above-mentioned project, we, the undersigned, hereby offer to enter into a Contract to perform the Work, including the work of all Subcontractors, for the **TOTAL PRICE** of:

(\$_____)

_____ dollars and _____ cents

The individual unit prices used to establish the above Total Price are detailed on the attached Bid Pricing Sheet.

2. ACCEPTANCE

This offer shall be open to acceptance and is irrevocable for *sixty* business days, Saturdays, Sundays and legal Holidays excluded, from the bid closing date.

If the Owner accepts this bid within the time period stated above, we will:

- Execute the Agreement within ten (10) days of receipt of Notice of Award.

- Furnish the required 100 percent (100%) Performance and 100 percent (100%) Labor and Materials Bonds within ten (10) days of receipt of Notice of Award in the form described in Section 5 - Supplementary Conditions.
- Commence work within seven (7) days after written Notice to Proceed.

If this bid is accepted within the time stated, and we fail to provide the required bonds, the security deposit shall be forfeited as damages to the Owner by reason of our failure, limited in amount to the lesser of the face value of the security deposit or the difference between this bid and the bid upon which a Contract is signed.

In the event our bid is not accepted within the time stated above, the required security deposit will be returned to the undersigned, in accordance with the provisions of the Instructions to Bidders; unless a mutually satisfactory arrangement is made for its retention and validity for an extended period of time.

3. CONTRACT TIME

If this Bid is accepted:

- The successful bidder will be required to complete the entire project no later than Friday, June 29, 2018.

4. BIDDING LAWS

Bids for this contract are subject to MASSACHUSETTS GENERAL LAWS, CHAPTER 30, S. 39M, AS AMENDED TO DATE, APPLIES.

5. ADDENDA

The following Addenda have been received. The modifications to the Bid Documents noted below have been considered and all costs are included in the Bid Price.

Addendum # _____ Dated _____

Addendum # _____ Dated _____

Addendum # _____ Dated _____

6. LIQUIDATED DAMAGES

Liquidated damages specified in this contract are \$500 per day for each calendar day beyond the contract completion date that work remains incomplete.

7. APPLICABLE GENERAL LAWS AND REGULATIONS

This Contract is governed by applicable provisions of Massachusetts General Laws and Regulations and/or the United States Code and Code of Federal Regulations. Any provision violation of the foregoing shall be deemed null, void and of no effect. Where conflict between Code of Federal Regulations and State Laws and Regulations exist, the more stringent requirement shall apply.

8. CERTIFICATION STATEMENTS

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 further certifies, under penalties of perjury, and pursuant to G.L. c.62c., s.49A, that to the best of his knowledge and belief has filed all State tax returns and paid all State taxes required by law, and has complied with reporting of employees and contractors, and withholding and remitting of child support.

The Undersigned certifies under penalties of perjury that there have been no substantial changes in his financial position or business organization other than those changes noted within the application since the applicant's most recent pre-qualification statement and that the bid is in all respects bona fide, fair and made without collusion or fraud with any other person. "Person" shall mean any natural person, joint venture, partnership, corporation or other business or legal entity which sells material, equipment or supplies used in or for, or engages in the performance of, the same or similar construction, reconstruction, installation, demolition, maintenance or repair work or any part thereof.

The Undersigned hereby certifies that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work and that he will comply fully with all laws and regulations applicable to awards made subject to s.44A.

The Undersigned further certifies under penalty of perjury that the said undersigned is not presently debarred from doing public construction work in the Commonwealth under the provisions of s.29 F of c.29, or any other applicable debarment provisions of any other chapter of the General Laws or any rule or regulation promulgated thereunder.

The Undersigned hereby certifies that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least ten (10) hours in duration at the time the employee begins work. The Undersigned shall furnish documentation of successful completion of said course with the first certified payroll report for each employee.

The Undersigned declares that he understands that the quantities shown are approximate only and are subject to either increase or decrease; and that should the quantities of any of the items of work be increased or decreased he shall not be entitled to a change in unit price. He also understands that payment shall be made on actual quantities installed at the unit bid prices, and shall make no claims for anticipated profits for any decrease in the quantities. Actual quantities shall be determined upon completion of the job(s).

This bid shall bear the written signature of the bidder or an authorized agent of the bidder. If the bidder is a corporation or partnership, the bid shall be signed by a duly authorized officer of such corporation or by a partner, and the title of such officer shall be stated.

9. BID FORM SIGNATURES

The Corporate Seal of

(Bidder – print the full name of your firm)

(Bidder's business address, city, state, zip)

(Bidder's State of Incorporation)

was hereunto affixed in the presence of:

(Print name of authorized signing officer and Title)

(Signature)

(Seal)

(Print name of authorized signing officer and Title)

(Signature)

(Seal)

Business Telephone No.

Business Fax No.

Tax Identification No.

If the Bid is a joint venture or partnership, add additional forms of execution for each member of the joint venture/partnership in the appropriate form or forms as above.

The Bidder is requested to state below what work of a similar character to that included in the proposed Contract he has done and to give references that will enable the Owner to judge his experience, skill, and business standing.

CONTRACTOR EXPERIENCE			
<u>PROJECT</u>	<u>OWNER</u>	<u>CONTACT PERSON</u>	<u>TELEPHONE NUMBER</u>

(Add supplementary page if necessary)

Have you ever failed to complete any work awarded to you? If so, state where, when and why.

SUB-CONTRACTOR EXPERIENCE			
<u>PROJECT</u>	<u>OWNER</u>	<u>CONTACT PERSON</u>	<u>TELEPHONE NUMBER</u>

(Add supplementary page if necessary)

Have you ever failed to complete any work awarded to you? If so, state where, when and why.

AFFIDAVIT

State of _____)

_____) ss _____ 2017

(Bid Opening Date)

The undersigned being duly sworn, deposes and says that he is the _____
sole owner, partner, president, treasurer, or other duly authorized agent or official of

(Name of bidder as appearing in submitted proposal)

for work in _____
(City/Town)

and certifies that of his own knowledge, said Bidder has not either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with this contract.

(Signature and title of person making affidavit)

Sworn to before me this

_____ day of _____ 2017

Notary Public

CERTIFICATION TO PAYMENT OF TAXES

Pursuant to G.L. c.62C, para. 49A, I hereby certify under the penalties of perjury that to the best of my knowledge and belief

(Name of Bidder)

has filed all State tax returns and paid all State taxes required by law, and has complied with reporting of employees and contractors, and withholding and remitting of child support.

Signed under the penalties of perjury.

Signature of Authorized Representative

Date

CERTIFICATE OF OSHA TRAINING

LABOR HARMONY AND OSHA TRAINING

The undersigned hereby certifies that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work; that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 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 that he will comply fully with all laws and regulations applicable to awards made subject to section 44A.

(Signature of authorized individual submitting proposal)

(Printed Name)

(Name of Bidder (if different than name))

(Date)

**BIDDER'S CERTIFICATION REGARDING
PAYMENT OF PREVAILING WAGES**

The undersigned bidder hereby certifies, under the 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 Executive Office of Labor and Workforce Development, Department of Labor Standards (DLS).

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.

Date: _____

Name of Bidder: _____

By: _____
(Signature)

Print Name & Title of Person Signing:

END OF SECTION

SECTION 4
AGREEMENT

WASHINGTON STREET CORRIDOR IMPROVEMENTS
HOLLISTON, MASSACHUSETTS

THIS AGREEMENT, executed this _____ day of _____ in the year Two Thousand Seventeen (herein referred to as the “AGREEMENT”) by and between the Town of Holliston, MA acting by and through its Board of Selectmen, duly authorized therefor, which acts solely for said Town of Holliston, MA without personal liability to its members, party of the first part, and

(Party of the second part)

(Legal address)

Party of the second part agrees to perform the following work under this contract which includes, but is not necessarily limited to the following: construction of pavement areas, landscape maintenance, and all other incidental items necessary to complete the required work as illustrated on the Drawings.

This work shall be carried out in accordance with the following sections of this Agreement as listed in Agreement Table of Contents (Section 5, Page 2).

WITNESSETH, that the parties to these presents, each in consideration of the undertakings, promises, and agreements on the part of the other herein contained, have undertaken, promised, and agreed and do hereby undertake, promise, and agree, the party of the first part for itself, its successors and assigns, and the party of the second part for himself and his heirs, executors, administrators, successors and assigns, as follows:

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A1 DEFINITIONS

Wherever the words hereinafter defined or pronouns used in their stead occur in the Contract Documents, they shall have the following meanings:

The word “Owner” shall mean the party of the first part above designated.

The word “Contractor” shall mean the party of the second part above designated.

The word “Engineer” shall mean that person duly appointed by the Owner to undertake the duties and powers herein assigned to the Engineer, acting either directly or through duly authorized representatives.

The word “Work” or “work” shall mean furnishing, installing, removing, altering and constructing roadway and appurtenances as shown or specified by the Drawings and Specifications.

The words “herein,” “hereinafter,” “hereunder” and words of like import shall be deemed to refer to the Contract Documents.

A2 THE CONTRACT DOCUMENTS

Contract Documents include all documents indicated, included or referred to in sections listed in the Contract Documents Table of Contents (Page TOC-1) of the Project Manual and collectively include Bidding Requirements, Contracting Requirements of this bound set, the Drawings, and all appendices, Addenda and amendments to any of the foregoing. The Contract Documents are sometimes herein referred to as the “Contract”.

The Contract Documents are complementary, and what is called for by any one shall be as binding as if called for by all. In the event of any conflict or inconsistency between the provisions of the SPECIAL CONDITIONS and the provisions of any of the other Contract Documents, the provisions of the SPECIAL CONDITIONS shall prevail. In the event of conflict or inconsistency between the provisions of the AGREEMENT and the provisions of the Contract Documents other than the SPECIAL CONDITIONS, the provisions of the AGREEMENT shall prevail.

The Agreement shall be carried out and governed by the Contract Documents.

A3 OBLIGATIONS AND LIABILITY OF CONTRACTOR

The Contractor shall supervise and direct the work using his best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences and procedures and for coordinating all portions of the work under the Contract.

The Contractor shall do all the work and perform and furnish all the labor, services, materials, equipment, plant, machinery, apparatus, appliances, tools, supplies and all other things (except as otherwise expressly provided herein) necessary and as herein specified for the proper performance and completion of the Work in the manner and within the time hereinafter specified, in strict accordance with the Contract Documents, in conformity with the directions and to the satisfaction of the Engineer, and at the prices herein agreed upon therefore.

All parts of the Work and all fixtures, equipment, apparatus and other items indicated on the Drawings and not mentioned in the Specifications, or vice versa, and all work and material usual and necessary to make the Work complete in all its parts, including all incidental work necessary to make it complete and satisfactory and ready for use and operation, whether or not they are indicated on the Drawings or mentioned in the Specifications, shall be furnished and executed the same as if they were called for both by the Drawings and by the Specifications.

The Contractor shall coordinate his operations with those of any other contractors who may be employed on other work of the Owner, shall avoid interference therewith, and shall cooperate in the arrangements for storage of materials and equipment.

The Contractor shall conduct his work so as to interfere as little as possible with residents and public travel. Wherever and whenever necessary or required, he shall maintain fences, furnish watchmen, maintain lights, and take such other precautions as may be necessary to protect life and property.

The Contractor shall have complete responsibility for the Work and the protection thereof, and for preventing injuries to persons and damage to the Work and property and utilities on or about the Work, until final completion and acceptance thereof. He shall in no way be relieved of his responsibility by any right of the Engineer to give permission or directions relating to any part of the Work, by any such permission or directions given, or by failure of the Engineer to give such permission or directions. The Contractor shall bear all costs, expenses, losses and damages on account of the quantity or character of the Work or the nature of the land (including but not limited to subsurface conditions) in or under or on which the Work is done being different from that indicated or shown in the Contract Documents or from what was estimated or expected, or on account of the weather, elements, or other causes. The Contractor shall indemnify and save harmless the Owner and the Engineer and their officers, agents and employees, from and against any and all claims, demands, suits, proceedings, liabilities, judgments, awards, losses, damages, costs and expenses, including attorneys' fees, of whatever kind, directly or indirectly arising out of, relating to or in connection with the Work, whether or not due or claimed to be due in whole or in part to the active, passive or concurrent negligence or fault of the Contractor, his officers, agents, Engineer or any of their respective officers, agents or employees and/or any other person or persons, and whether or not such claims, demands, suits or proceedings are just, unjust, groundless, false or fraudulent; and the Contractor shall and does hereby assume and agree to pay for the defense of all such claims, demands, suits and proceedings, including, if demanded in writing at any time by the Owner or Engineer, counsel chosen by the Owner or Engineer separate from the counsel chosen by the Contractor; provided, however, that the Contractor shall not be required to indemnify the Engineer, his officers, agents or employees, against any such damages occasioned solely by the negligence or fault of the Engineer; and provided further, that the Contractor shall not be required to indemnify the Owner, his officers, agents or employees, against any such damages occasioned solely by faults of the Owner.

The Contractor shall conduct his operations so as not to damage existing structures of work installed either by him or by other contractors. In case of any such damage resulting from his operations, he shall repair and make good as new the damaged portions at his own expense with the consent of the damaged party. In the event that consent is not given, the Contractor shall continue solely liable for the damage caused.

The Contractor shall be as fully responsible to the Owner for the acts and omissions of his subcontractors, their officers, agents and employees as he is for his own acts and omissions and those of his own officers, agents and employees.

Should the Contractor sustain any loss, damage or delay through any act or omission of any other contractor or any subcontractor of any such other contractor, the Contractor shall have no claim against the Owner or Engineer therefore, other than for an extension of time, but shall have recourse solely to such other contractor or subcontractor.

If any other contractor or any subcontractor of any such other contractor shall suffer or claim to have suffered loss, damage or delay by reason of the acts or omissions of the Contractor or of any of his subcontractors, the Contractor agrees to assume the defense against any such claim and to reimburse such other contractor or subcontractor for such loss or damage. The Contractor agrees to and does hereby indemnify and save harmless the Owner and Engineer from and against any and all claims by such other contractors or subcontractors alleging such loss, damage or delay and from and against any and all claims, demands, suits, proceedings, liabilities, judgments, awards, losses, damages, costs and expenses, including attorneys' fees, arising out of, relating to or resulting from such claims.

The Contractor shall promptly pay all federal, state and local taxes which may be assessed against him in connection with the Work or his operations under the AGREEMENT and/or the other Contract Documents, including, but not limited to, taxes attributable to the purchase of material and equipment, to the performance of services, and the employment of persons in the prosecution of the Work.

The Contractor shall not 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.

A4 AUTHORITY OF THE ENGINEER

The Engineer shall be the sole judge of the intent and meaning of the Drawings and Specifications and his decisions thereon and his interpretation thereof shall be final, conclusive and binding on all parties. No party shall be entitled to rely on any such interpretation nor shall the Engineer be bound by any such interpretation except if it is in writing. The Engineer shall promptly, on the request of any affected party, put any such interpretation in writing.

The Engineer shall be the Owner's representative during the life of the Contract and he shall have all the rights of the Owner to observe the Work in progress. He shall have authority (1) to act on behalf of the Owner to the extent expressly provided in the Contract or otherwise in writing; and (2) to determine the amount, quality, acceptability and fitness of all work, materials and equipment required by the Contract.

The Contractor shall proceed without delay to perform the work as directed, instructed, determined or decided by the Engineer and shall comply promptly with such directions, instructions, determinations or decisions. If the Contractor has any objection thereto, he may require that any such direction, instruction, determination or decision be put in writing and within ten (10) days after receipt of any such writing he may file a written protest with the Owner stating clearly and in detail his objections, the reasons therefore, and the nature and amount of additional compensation, if any, to which he claims he will be entitled thereby. A copy of such protest shall be filed with the Engineer at the same time it is filed with the Owner. Unless the Contractor files such written protest with the Owner and Engineer within such ten (10) day period, he shall be deemed to have waived all grounds for protest of such direction, instruction, determination, or decision and all claims for additional compensation or damages occasioned thereby, and shall further be deemed to have accepted such direction, instruction, determination, or decision as being fair, reasonable, and finally determinative of his obligations and rights under the Contract.

The Engineer shall not be responsible for the construction means, controls, techniques, sequences, procedures, or safety procedures of the Contractor, his employees, subcontractors or suppliers.

A5 SAFETY

The Contractor shall be responsible for jobsite safety, including safety programs and safety procedures. Neither the Owner nor the Engineer assumes responsibility for such programs or procedures.

A6 SUPERVISION OF WORK

The Contractor shall give the work the constant attention necessary to ensure the expeditious and orderly progress thereof and shall cooperate with the Engineer in every possible way.

At all times, the Contractor shall have as his agent on the Work a competent superintendent capable of reading and thoroughly understanding the Drawings and Specifications, with full authority to execute the directions of the Engineer regarding the same without delay and to supply promptly such labor, services, materials, equipment, plant, apparatus, appliances, tools, supplies and other items as may be required.

A7 INSURANCE

Before starting and until final completion and acceptance of the Work and expiration of the guarantee period provided for in the AGREEMENT, the Contractor shall procure and maintain insurance of the types specified in paragraphs (a) to (d), inclusive, below, and to the limits for this insurance specified under SPECIAL CONDITIONS. All insurance shall be obtained from companies with an A.M. Best Co. rating of A.

Insurance shall be in such form as will protect the Contractor from all claims and liability for damages of any kind, which may arise from operations under the Contract, whether such operations be by himself, his subcontractors, or by any one directly or indirectly employed or engaged by him.

The following types of insurance shall be provided:

- (a) Workmen's Compensation and Employer's Liability Insurance.
- (b) General Liability Insurance including:
 - (i) Bodily Injury Liability (including Personal Injury) Insurance for Operations and Completed Operations and Contractor's Protective Bodily Injury Insurance.
 - (ii) Property Damage Liability Insurance (including Broad Form Property Damage Liability Coverage) for Operations and Completed Operations and Contractor's Protective Property Damage Insurance, each including coverage for injury to or destruction of wires, conduits, pipes, mains, tanks, tunnels, or any similar property, and the collapse of, or structural injury to, any building or structure except those on which work under the Contract is being done. Blasting and explosion coverage shall be obtained if there is a need for blasting under the Contract, and no blasting shall be performed until such insurance has been secured.

- (c) Insurance to cover liability for Bodily Injury and Property Damage resulting from the use of owned, non-owned, and hired motor vehicles while such vehicles are being operated in connection with the prosecution of the Work.
- (d) Contractual Liability Insurance covering the liability assumed by the Contractor under the subsection A3 titled OBLIGATIONS AND LIABILITY OF CONTRACTOR of this AGREEMENT.
- (e) Umbrella Liability
- (f) Owner's Protective Public Liability & Property Damage

All policies shall be so written that 1) the Owner will be notified in writing of cancellation or restrictive amendment at least thirty (30) days prior to the effective date of such cancellation or amendment, and 2) the Owner will be designated as an additional insured on the General Liability Policy.

Certificates from the Contractor's insurance carriers stating the coverages provided, the limits of liability, and expiration dates shall be filed in duplicate with the Owner before operations are begun.

Renewal certificates shall be furnished by the Contractor to the Owner at least thirty (30) days prior to the expiration date of any of the initial insurances.

The Contractor shall also furnish such other insurance as may be called for by the SPECIAL CONDITIONS.

No insurance required or furnished hereunder shall in any way relieve the Contractor of or diminish any of his responsibilities, obligations and liabilities under the Contract.

A8 PATENTS

The Contractor shall indemnify and save harmless the Owner and Engineer and all persons acting for or on behalf of the Owner and Engineer from all claims and liability of any nature or kind, and all damages, costs and expenses, including attorney's fees, arising from or occasioned by an infringement or alleged infringement of any patents or patent rights or any trademark or copyright or any alleged unfair competition relating to any invention, process, material, equipment, article, or apparatus, or any part thereof, furnished and installed by the Contractor, or arising from or occasioned by the use or manufacture thereof, including their use by the Owner.

A9 COMPLIANCE WITH LAWS

This Contract is governed by applicable provisions of Massachusetts General Laws and Regulations and/or the United States Code and Code of Federal Regulations. Any provision violation of the foregoing shall be deemed null, void and of no effect. Where conflict between Code of Federal Regulations and State Laws and Regulations exist, the more stringent requirements shall apply.

The Contractor shall keep himself fully informed of all applicable Federal, State and local laws, ordinances, rules and regulations affecting those engaged or employed on the Work, the materials and equipment used in the Work or the conduct of the Work, and of all orders, decrees and other requirements of bodies or tribunals having any jurisdiction or authority over the same. If any discrepancy or inconsistency is discovered in the Drawings, Specifications or other

Contract Documents in relation to any such law, ordinance, rule, regulation, order, decree or other requirement, the Contractor shall forthwith report the same to the Engineer in writing. The Contractor shall at all times observe and comply with, and cause all his agents, employees and subcontractors to observe and comply with all such laws, ordinances, rules, regulations, orders, decrees and other requirements, and he shall protect, indemnify and save harmless the Owner and Engineer, their officers, agents and employees, from and against any and all claims, demands, suits, proceedings, liabilities, judgments, penalties, losses, damages, costs, and expenses, including attorney's fees, arising from or based upon any violation or claimed violation of any such law, ordinance, rule, regulation, order, decree or other requirement, whether committed by the Contractor or any of his agents, employees or subcontractors.

A10 PROVISIONS REQUIRED BY LAW DEEMED INSERTED

Each and every provision of law and clause required by law to be inserted in the Contract shall be deemed to be inserted herein, the Contract shall be read and enforced as though they were included herein and such provision shall prevail over any inconsistent language herein. If through mistake or otherwise any such provision is not inserted then upon the application of either party, the Contract shall forthwith be physically amended to make such insertion.

A11 PERMITS

The Contractor shall, at his own expense, take out and maintain all necessary permits from the county, municipal, or other public authorities; shall give all notices required by law; and shall post all bonds and pay all fees and charges incident to the due and lawful prosecution of the Work.

A12 NOT TO SUBLET OR ASSIGN

The Contractor shall constantly give his personal attention to the faithful prosecution of the Work, shall keep the same under his personal control, shall not assign the Contract or sublet the Work or any part thereof without the previous written consent of the Owner, and shall not assign any of the moneys payable under the Contract, or his claim thereto, unless by and with the like written consent of the Owner and the Surety on the Contract Bonds. Any assignment or subletting in violation hereof shall be void and unenforceable.

A13 DELAY BY OWNER

The Owner may delay the beginning of the work or any part thereof if the necessary lands or rights-of-way for such work shall not have been obtained. The Contractor shall have no claim for additional compensation or damages on account of such delay, subject to Section 8 "SPECIAL CONDITIONS."

A14 TIME FOR COMPLETION

The rate of progress shall be such that the Work shall be performed and completed in accordance with the Contract before the expiration of the time limit stipulated under Section 2 "INSTRUCTIONS TO BIDDERS," except as otherwise expressly provided.

No extension of time will be given for ordinary or foreseeable delays, inclement weather, or accidents and the occurrence of such will not relieve the Contractor of completing the Work within the stipulated time limit. No extension of time will be given, or if given will be valid, unless based on a written application stating all grounds on which the Contractor relies and

delivered to the Engineer promptly upon the occurrence of such grounds as the application states, and in any event prior to the stipulated time for completion of the Work.

If delays are caused by acts of God, acts of government, unavoidable strikes, extra work, or other causes or contingencies clearly beyond the control or responsibility of the Contractor, the Contractor shall be entitled to so much additional time to perform and complete the Work as the Engineer shall certify in writing to be just.¹ The Contractor agrees that he shall not have or assert any claim for, nor shall he be entitled to any additional compensation or damages on account of such delays.

The time in which the Work is to be performed and completed is of the essence of the AGREEMENT.

A15 LIQUIDATED DAMAGES

If the Contractor fails to complete the Work satisfactorily on or before the date of completion fixed herein or as duly extended by written certification of the Engineer, the Contractor agrees that the Owner shall deduct from the payments due the Contractor each month the sum set forth under Section 6, for each calendar day of delay which sum is agreed upon not as a penalty, but as fixed and liquidated damages for each day of such delay. If the payments due the Contractor are less than the amount of such liquidated damages, said damages shall be deducted from any other moneys due or to become due the Contractor, and, in case such damages shall exceed the amount of all moneys due or to become due the Contractor, the Contractor or his Surety shall pay the balance to the Owner.

A16 SUNDAY WORK

No work shall be done on Sunday except (1) usual protective work, (2) work done in case of emergency threatening injury to persons or property, or (3) if all of the conditions set forth in the next paragraph below are met.

No work other than that included in (1) and (2) above shall be done on Sunday except when (a), in the sole judgment of the Engineer, the work will be of advantage to the Owner and can be performed satisfactorily. (b) the Engineer has given written permission for such Sunday work.

A17 EMPLOY COMPETENT PERSONS

The Contractor shall employ only competent persons on the Work and shall not employ persons or means which may cause strikes, work stoppages or any disturbances by working people employed by the Contractor, any subcontractor, the Owner, the Engineer or any other contractor.

A18 EMPLOY SUFFICIENT LABOR AND EQUIPMENT

If in the sole judgment of the Engineer the Contractor is not employing sufficient labor, plant, equipment or other means to complete the Work within the time specified, the Engineer may, after giving written notice, require the Contractor to employ such additional labor, plant, equipment and other means as the Engineer deems necessary to enable the Work to progress

¹ This paragraph will be interpreted to include delays in receipt of equipment provided that the Contractor placed his order and submitted shop drawings for such equipment promptly after execution of the Contract, that he has shown due diligence in following the progress of the order, and that the time required for delivery is in accordance with conditions generally prevailing in the industry.

properly.

A19 INTOXICATING CHEMICALS

The Contractor shall not sell and shall neither permit nor suffer the introduction or use of intoxicating chemicals upon or about the Work.

A20 ACCESS TO WORK

The Owner, the Engineer, and their officers, agents, and employees may at any and all times and for any and all purposes, enter upon the Work and the site thereof and the premises used by the Contractor, and the Contractor shall at all times provide safe and proper facilities thereof.

A21 EXAMINATION OF WORK

The Engineer shall be furnished by the Contractor with every reasonable facility for examining and inspecting the Work and for ascertaining that the Work is being performed in accordance with the requirements and intent of the Contract, even to the extent of requiring the uncovering or taking down portions of finished work by the Contractor.

Should the work thus uncovered or taken down prove satisfactory, the cost of uncovering or taking down and the replacement thereof shall be considered as extra work unless the original work was done in violation of the Contract in point of time or in the absence of the Engineer or his inspector and without his written authorization, in which case said cost shall be borne by the Contractor. Should the work uncovered or taken down prove unsatisfactory, said cost shall likewise be borne by the Contractor.

A22 DEFECTIVE WORK

The inspection of the Work shall not relieve the Contractor of any of his obligations to perform and complete the Work as required by the Contract. Defective work shall be corrected and unsuitable materials, equipment, apparatus and other items shall be replaced by the Contractor, notwithstanding that such work, materials, equipment, apparatus and other items may have been previously overlooked or accepted or estimated for payment. If the Work or any part thereof shall be found defective at any time before the final acceptance of the Work, the Contractor shall forthwith make good such defect in a manner satisfactory to the Engineer; if any material, equipment, apparatus or other items brought upon the site for use or incorporation in the Work, or selected for the same, is condemned by the Engineer as unsuitable or not in conformity with the Specifications or any of the other Contract Documents, the Contractor shall forthwith remove such materials, equipment, apparatus and other items from the site of the Work and shall at his own cost and expense make good and replace the same and any material furnished by the Owner which shall be damaged or rendered defective by the handling or improper installation by the Contractor, his agents, employees or subcontractors.

A23 PROTECTION AGAINST WATER, STORM OR ADVERSE WEATHER

The Contractor shall take all precautions necessary to prevent damage to the Work by storms, by water entering the site of the Work directly or through the ground and by adverse weather. In case of damage by storm, water or adverse weather, the Contractor shall, at his own cost and expense, make such repairs or replacement or rebuild such parts of the Work as the Engineer may require in order that the finished Work may be completed as required by the Contract.

The Contractor shall provide for protection against weather in accordance with MGL C. 149, SS 44F and 44G.

A24 MISTAKES OF CONTRACTOR

The Contractor shall promptly correct and make good any and all defects, damages, omissions or mistakes for which he and/or his agents, employees or subcontractors are responsible, and he shall pay to the Owner all costs, expenses, losses, and damages resulting there from or by reason thereof as determined by the Engineer.

A25 RIGHT TO MATERIALS

Nothing in the Contract shall be construed as vesting in the Contractor any right of property in the materials, equipment, apparatus and other items furnished after they have been installed or incorporated in or attached or affixed to the Work or the site, but all such materials, equipment, apparatus and other items shall, upon being so installed, incorporated, attached or affixed, become the property of the Owner.

A26 CHANGES

The Owner may make changes in the Work and in the Drawings and Specifications therefore by making alterations therein, additions thereto or omissions there from. All work resulting from such changes shall be performed and furnished under and pursuant to the terms and conditions of the Contract. If such changes result in an increase or decrease in the Work to be done hereunder, or increase or decrease the quantities thereof, adjustment in compensation shall be made therefore at the unit prices stipulated in the Contract for such work, except that if unit prices are not stipulated for such work, compensation for additional or increased work shall be made as provided hereinafter under the subsection titled EXTRA WORK; and for eliminated or decreased work the Contractor shall allow the Owner a reasonable credit as determined by the Engineer. All decisions with respect to any such changes shall be made by the Engineer and shall be conclusive and binding upon the Contractor.

Except in an emergency endangering life or property, no change shall be made unless in pursuance of a written order from the Engineer authorizing the change, and no claim for additional compensation shall be valid unless the change is so ordered.

The Contractor agrees that he shall neither have nor assert any claim for or be entitled to any additional compensation for damages or for loss of anticipated profits on work that is eliminated.

A27 EXTRA WORK

The Contractor shall perform any extra work (work in connection with the Contract but not provided for herein) when and as ordered in writing by the Engineer, at the unit prices stipulated in the Contract for such work or, if none are so stipulated, either (a) at the price agreed upon before such work is commenced and named in the written order for such work, or (b) if the Engineer so elects, for the reasonable cost of such work, as determined by the Contractor and approved by the Engineer, plus a percentage of such cost, as set forth below. No extra work shall be paid for unless specifically ordered as such in writing by the Engineer.

The cost of extra work done under (b) above shall include the reasonable cost to the Contractor of materials used and equipment installed, common and skilled labor, and foremen, and the fair rental of all machinery and equipment used on the extra work for the period of such use.

At the request of the Engineer, the Contractor shall furnish itemized statements of the cost of the extra work ordered as above and give the Engineer access to all records, accounts, bills and vouchers and correspondence relating thereto.

The Contractor may include in the cost of extra work the amounts of additional premiums, if any, (other than premiums on bonds) paid on the required insurance on account of such extra work, of Social Security or other direct assessments under the Contractor's payroll by Federal or other properly authorized public agencies, and of other approved assessments when such assessments are not normally included in payments made by the Contractor directly to his employees, but in fact are, and are customarily recognized as, part of the cost of doing work.

The fair rental for all machinery and equipment shall be based upon the most recent edition of "Compilation of Rental Rates for Construction Equipment," published by the Associated Equipment Distributors, or a similar publication approved by the Engineer. Rental for machinery and equipment shall be based upon an appropriate fraction of the approved monthly rate schedule. If said extra work requires the use of machinery or equipment not already on the site of the Work the actual cost of transportation, not exceeding a distance of one-hundred (100) miles, of such machinery or equipment to and from the Work shall be added to the fair monthly rental provided, however, that this shall not apply to machinery or equipment already required to be furnished under the terms of the Contract.

The Contractor shall not include in the cost of extra work any cost or rental of small tools, buildings, or any portion of the time of the Contractor, his superintendent, or his office and engineering staff.

To the cost of extra work done by the Contractor's own forces under (b) above (determined as stated above), the Contractor shall add 15 percent (15%) to cover his overhead, use of capital, the premium on the Bonds as assessed upon the amount of this extra work, and profit.

In the case of extra work done under (b) above by a subcontractor, the subcontractor shall compute, as above, his cost for the extra work, to which he shall add 15 percent (15%) as in the case of the Contractor, and the Contractor shall be allowed an additional 15 percent (15%) of the subcontractor's cost for the extra work to cover the costs of the Contractor's overhead, use of capital, and the premium on the Bonds as assessed upon the amount of this extra work, and profit. Said subcontractor's cost must be reasonable and approved by the Engineer.

If extra work is done under (b) above, the Contractor and/or subcontractor shall keep daily records of such extra work. The daily record shall include the names of persons employed, the nature of the work performed, and hours worked, materials and equipment used, if any, in the prosecution of such extra work. This daily record, to constitute verification that the work was done, must be signed by the Contractor's authorized representative. A separate daily record shall be submitted for each Extra Work Order.

A28 EXTENSION OF TIME ON ACCOUNT OF EXTRA WORK

When extra work is ordered at any time during the progress of the Work which in the sole judgment of the Engineer unavoidably increases the time for the completion of the Work, an extension of time shall be granted as hereinbefore provided under CONTRACT TIME.

A29 CHANGES NOT TO AFFECT BONDS

It is distinctly agreed and understood that any changes made in the Work or the Drawings or Specifications therefore (whether such changes increase or decrease the amount thereof or the time required for its performance) or any changes in the manner or time of payments made by the Owner to the Contractor, or any other modifications of the Contract, shall in no way annul, release, diminish or affect the liability of the Surety on the CONTRACT BONDS given by the Contractor, it being the intent hereof that notwithstanding such changes the liability of the Surety on said bonds continue and remain in full force and effect.

A30 CLAIMS FOR DAMAGES

If the Contractor makes claim for any damages alleged to have been sustained by breach of contract or otherwise, he shall, within ten (10) days after occurrence of the alleged breach or within ten (10) days after such damages are alleged to have been sustained, whichever date is the earlier, file with the Engineer a written, itemized statement in triplicate of the details and amount of the alleged damages. The Contractor agrees that unless such statement is made and filed as so required, his claim for damages shall be deemed waived, invalid and unenforceable, and that he shall not be entitled to any compensation for any such alleged damages. Within ten (10) days after the timely filing of such statement, the Engineer shall file with the Owner one copy of the statement, together with his recommendations for action by the Owner.

The Contractor shall not be entitled to claim any additional compensation for damages by reason of any direction, instruction, determination or decision of the Engineer, nor shall any such claims be considered, unless the Contractor shall have complied in all respects with the third paragraph of that subsection above of this AGREEMENT titled AUTHORITY OF THE ENGINEER including, but not limited to the filing of a written protest in the manner and within the time therein provided.

A31 ABANDONMENT OF WORK OR OTHER DEFAULT

If the Work shall be abandoned, or any part thereof shall be sublet without previous written consent of the Owner, or the Contract or any moneys payable hereunder shall be assigned otherwise than as herein specified, or if at any time the Engineer shall certify in writing that the conditions herein specified as to rate of progress are not being complied with or that the Work or any part thereof is being unnecessarily or unreasonably delayed or that the Contractor has violated or is in default under any of the provisions of the Contract, or if the Contractor becomes bankrupt or insolvent or goes or is put into liquidation or dissolution, either voluntarily, or petitions for an arrangement or reorganization under the Bankruptcy Act, or makes a general assignment for the benefit of creditors or otherwise acknowledges insolvency, the happening of any of which shall be and constitute a default under the Contract, the Owner may notify the Contractor in writing, with a copy of such notice mailed to the Surety, to discontinue all work or any part thereof; thereupon the Contractor shall discontinue such Work forthwith or such part thereof as the Owner may designate, and the Owner may, upon giving such notice, by contract or otherwise as it may determine, complete the Work or such part thereof and charge the entire cost and expense of so completing the Work or such part thereof to the Contractor. In addition to the said entire cost and expense of completing the Work the Owner shall be entitled to reimbursement from the Contractor and the Contractor agrees to pay to the Owner any losses, damages, costs and expenses, including attorney's fees, sustained or incurred by the Owner by reason of any of the foregoing causes. For the purposes of such completion the Owner may for

itself or for any contractors employed by the Owner take possession of and use or cause to be used any and all materials, equipment, plant, machinery, appliances, tools, supplies and such other items of every description that may be found or located at the site of the Work.

All costs, expenses, losses, damages, attorneys' fees and any and all other charges incurred by the Owner under this subsection shall be charged against the Contractor and deducted by the Owner out of any moneys due or payable or to become due or payable under the Contract to the Contractor; in computing the amounts chargeable to the Contractor, the Owner shall not be held to a basis of the lowest prices for which the completion of the Work or any part thereof might have been accomplished, but all sums actually paid or obligated therefore to effect its prompt completion shall be charged to and against the account of the Contractor. In case the costs, expenses, losses, damages, attorneys' fees and other charges, together with all payments theretofore made to or for the account of the Contractor, are less than the sum which would have been payable under the Contract if the Work had been properly performed and completed by the Contractor, the Contractor shall be entitled to receive the difference; in case such costs, expenses, losses, damages, attorneys' fees and other charges, together with all payments theretofore made to or for the account of the Contractor, shall exceed the said sum, the Contractor shall pay the amount of the excess to the Owner.

A32 PRICES FOR WORK

The Owner shall pay and the Contractor shall receive the prices stipulated in the BID FORM made a part hereof as full compensation for everything performed and furnished and for all risks and obligations undertaken by the Contractor under and as required by the Contract.

A33 MONEYS MAY BE RETAINED

The Owner may at any time retain from any moneys which would otherwise be payable hereunder so much thereof as the Owner may deem necessary to complete the Work hereunder and to reimburse it for all costs, expenses, losses, damage and damages chargeable to the Contractor hereunder.

A34 USE OR PARTIAL PAYMENT NOT ACCEPTANCE

It is agreed that this is an entire contract for one whole and complete Work or result and that neither the Owner's entrance upon or use of the Work, or any part thereof nor any partial payments by the Owner shall constitute an acceptance of the Work or any part thereof before its entire completion and final acceptance.

A35 PERIODIC ESTIMATES

Once a month, except as hereinafter provided, the Contractor shall make an estimate in writing to the Owner, in a format designated by the Engineer, of the total amount and value of the work done to the first of the month. The estimate shall be reviewed and recommended for payment by the Engineer before submittal to the Owner. Submittal without the Engineer's recommendation shall be considered not in the required form. The Owner shall retain a percentage of such estimated value, as set forth under SPECIAL CONDITIONS, as part security for fulfillment of the Contract by the Contractor and shall deduct from the balance all previous payments made to the Contractor, all sums chargeable against the Contractor and all sums to be retained under the provisions of the Contract. The Owner shall pay monthly to the Contractor the balance not deducted and/or retained as aforesaid, except that payment may be withheld at any time if, in the sole judgment of the Engineer, the Work is not proceeding in accordance with the Contract.

If the Owner deems it expedient to do so, it may cause estimates and payments to be made more frequently than once in each month. No periodic estimate or payment need be made when, in the sole judgment of the Engineer, the total value of the work done since the last estimate amounts to less than the amount set forth under SPECIAL CONDITIONS.

Estimates of lump-sum items shall be based on a schedule dividing each such item into its appropriate component parts together with a quantity and a unit price for each part so that the sum of the products of prices and quantities will equal the Contract price for the item. This schedule shall be submitted by the Contractor for and must have the approval of the Engineer before the first estimate becomes due.

If the Engineer determines that the progress of the Work will be benefited by the delivery to the site of certain materials and equipment, when available, in advance of actual requirement therefore and if such materials and equipment are delivered and properly stored and protected, the cost to the Contractor or subcontractor as established by invoices or other suitable vouchers satisfactory to the Engineer, less the retained percentages as above provided, may be included in the periodic estimates; provided always that there be duly executed and delivered by the Contractor to the Engineer at the same time a Bill of Sale in form satisfactory to the Owner, transferring and assigning to the Owner full ownership and title to such materials or equipment. Prior to the subsequent payment estimate, the Contractor shall demonstrate that suppliers of such materials and equipment have been properly paid.

A36 FINAL ESTIMATE AND PAYMENT

Within sixty-five days after (a) the Contractor fully completes the Work or substantially completes the Work so that the value of the work remaining to be done is, in the estimate of the Owner, less than one percent of the original contract price, or (b) the Contractor substantially completes the Work and the Owner takes possession for occupancy, whichever occurs first, the Owner shall pay the Contractor the entire balance due on the contract as determined by the Engineer less (1) a retention based on its estimate of the fair value of its claims against the Contractor and of the cost of completing the incomplete and unsatisfactory items of work and less (2) a retention for direct payments to subcontractors. The Engineer also shall fix the date of completion of the work and incorporate the same into the final estimate.

All quantities shown on periodic estimates and all prior payments shall be subject to correction in the final estimate and payment.

The Contractor's acceptance of such final payment shall constitute a waiver of all claims by the Contractor against the Owner, the Engineer and any agent, servant or employee of either, except for such claims as have previously been made in writing, and submitted to the Engineer.

A37 LIENS

If at any time any notices of lien are filed for labor performed or materials or equipment manufactured, furnished, or delivered to or for the Work, the Contractor shall, at its own cost and expense, promptly discharge, remove or otherwise dispose of the same, and until such discharge, removal or disposition, the Owner shall have the right to retain from any moneys payable hereunder an amount which, in its sole judgment, it deems necessary to satisfy such liens and pay the costs and expenses, including attorneys' fees, of defending any actions brought to enforce the same, or incurred in connection therewith or by reason thereof.

A38 CLAIMS

If at any time there be any evidence of any claims for which the Contractor is or may be liable or responsible hereunder, the Contractor shall promptly settle or otherwise dispose of the same, and until such claims are settled or disposed of, the Owner may retain from any moneys which would otherwise be payable hereunder so much thereof as, in its sole judgment, it may deem necessary to settle or otherwise dispose of such claims and to pay the costs and expenses, including attorneys' fees, of defending any actions brought to enforce such claims, or incurred in connection therewith or by reason thereof.

A39 APPLICATION OF MONEYS RETAINED

The Owner may apply any moneys retained hereunder to reimburse itself for any and all costs, expenses, losses, damage and damages, liabilities, suits, judgments and awards incurred, suffered or sustained by the Owner and chargeable to the Contractor hereunder or as determined hereunder.

A40 NO WAIVER

Neither the inspection by the Owner or the Engineer, nor any order, measurement, approval, determination or decision or certificate by the Engineer, nor any order by the Owner for the payment of money, nor any payment for or use, occupancy, possession or acceptance of the whole or any part of the Work by the Owner, nor any extension of time, nor any other act or omission of the Owner or of the Engineer shall constitute or be deemed to be an acceptance of any defective or improper work, materials, or equipment; nor operate as a waiver of any requirement or provision of the Contract, nor of any remedy, power or right herein reserved to the Owner, nor of any right to damages for breach of contract. Any and all rights and/or remedies provided for in the Contract are intended and shall be construed to be cumulative; and, in addition to each and every other right and remedy provided for herein or by law, the Owner shall be entitled as of right to an injunction against any breach or threatened breach of the Contract by the Contractor, by his subcontractors or by any other person or persons.

A41 LIABILITY OF OWNER

No person, firm or corporation, other than the Contractor, who signed this Contract as such, shall have any interest herein or right hereunder. No claim shall be made or be valid either against the Owner or any employee, servant or agent of the Owner or the Engineer and neither the Owner nor any employee, servant or agent of the Owner or the Engineer shall be liable for or be held to pay any money except as herein provided. The acceptance by the Contractor of the payment as fixed in the final estimate shall operate as and shall be a full and complete release of the Owner and of every employee, servant or agent of the Owner or the Engineer of and from any and all claims, demands, damages and liabilities of, by or to the Contractor for anything done or furnished for or arising out of or relating to or by reason of the Work except the claim against the Owner for the unpaid balance, if any there be, of the amounts retained as herein provided.

A42 GUARANTEE

The Contractor guarantees that the Work and services to be performed under the Contract, and all workmanship, materials and equipment performed, furnished, used or installed in the construction of the same, shall be free from defects and flaws, and shall be performed and furnished in strict accordance with the Drawings, Specifications, and other Contract Documents, that the strength of all parts of all manufactured equipment shall be adequate and as specified and that the performance test requirements of the Contract shall be fulfilled. This guarantee shall be

for a period of one year from and after the date of completion and acceptance of the Work as stated in the final estimate.

If part of the Work is accepted in accordance with that subsection of this Agreement titled "Partial Acceptance", the guarantee for that part of the Work shall be for a period of one year from the date fixed for such acceptance.

If at any time within the said period of guarantee, any part of the Work requires repairing, correction or replacement, the Owner may notify the Contractor in writing to make the required repairs, correction or replacements. If the Contractor neglects to commence making such repairs, corrections or replacements to the satisfaction of the Owner within ten (10) days from the date of receipt of such notice, or having commenced fails to prosecute such Work with diligence, the Owner may employ other persons to make said repairs, correction or replacements, including compensation for additional professional services, shall be paid by the Contractor.

Nothing contained in the Section shall be construed as a limitation as to any and all rights the Owner may have against the Contractor for any neglect or for any breach of this AGREEMENT.

A43 RETURN OF DRAWINGS

All Drawings furnished by the Owner or the Engineer to the Contractor may be used only in connection with the prosecution of the Work and shall be returned by the Contractor upon completion of the Work.

A44 LEGAL ADDRESS OF CONTRACTOR

The Contractor's business address is hereby designated as the place to which communications shall be delivered. The depositing of any letter notice, or other communication in a postpaid wrapper, directed to the Contractor's business address, in a post office box regularly maintained by the Post Office Department or the delivery at designated address of any letter, notice, or other communication by mail or otherwise shall be deemed sufficient service thereof upon the Contractor, and the date of such service shall be the date of receipt. The address may be changed at any time by an instrument in writing, executed and acknowledged by the Contractor, and delivered to the Engineer. Service of any notice, letter, or other communication upon the Contractor personally shall likewise be deemed sufficient service.

A45 HEADINGS

The headings or titles of any section, subsection, paragraph, provision, or part of the Contract Documents shall not be deemed to limit or restrict the content, meaning or effect of such section, subsection, paragraph, provision or part.

A46 MODIFICATION OR TERMINATION

Except as otherwise expressly provided herein, the Contract may not be modified or terminated except in writing signed by the parties hereto.

A47 LIMITATION OF LIABILITY OF ENGINEER

Neither the Engineer's authority to act under any section of this Agreement or under any other provision in the Contract Documents, nor any decision made by the Engineer to either exercise or not exercise such authority shall give rise to any duty or responsibility of the Engineer to the Contractor, to any subcontractor, manufacturer, fabricator, supplier, or distributor, or to any of their agents, employees, or any other person performing any of the work.

A48 NON-DISCRIMINATION AND EQUAL EMPLOYMENT OPPORTUNITY

Discriminatory employment practices by contractors, subcontractors and suppliers of goods and services based on race, color, religion, national origin, ancestry, age or sex are prohibited. Contractors and suppliers of goods and services shall give written notice of their commitment to non-discrimination to any labor union, association or brotherhood with which they have a collective bargaining or other agreement.

A49 INDEMNIFICATION

The Contractor shall indemnify, defend and hold the Owner harmless for any claim for damages of whatever description arising from the negligence of the Contractor or any of its employees and subcontractors in the performance of the work or arising from a breach of the Contractor's agreement with the Owner.

IN WITNESS HEREOF, the parties of this AGREEMENT have hereunto set their hands and seals as of the day and year first above written.

FOR THE TOWN OF HOLLISTON, MA

By: _____

Board of Selectmen
(Party of the First Part)

and: _____

(Party of the Second Part)

APPROVED AS TO FORM

Holliston Town Counsel

Date

CERTIFICATE PURSUANT TO GL C44 & 31C

In accordance with M.G.L. C44, Section 31C, this is to certify that an appropriation in the amount of this contract is available therefore and that the Board of Selectmen has been authorized to execute the contract and approve all requisitions and change orders.

BY _____
Town Accountant

**CERTIFICATE OF ACKNOWLEDGMENT
OF CONTRACTOR IF A CORPORATION
For AGREEMENT**

State of _____)

_____)ss:

County of _____)

On this _____ day of _____, 2017, before me personally came _____ to me known, who being by me duly sworn, did depose and say as follows:

That he resides at _____
and is the _____
of _____

the corporation described in and which executed the foregoing instrument; that he knows the corporate seal of said corporation; that the seal affixed to the foregoing instrument is such corporate seal and it was so affixed by order of the Board of Directors of said corporation; and that by the like order he signed thereto his name and official designation.

Notary Public (Seal)

My commission expires _____

END OF SECTION

SECTION 5
CONTRACT BONDS

PERFORMANCE BOND

(NOTE: This Bond is issued simultaneously with the attached Labor and Materials Bond in favor of the Owner.)

KNOW ALL MEN BY THESE PRESENTS: That we

(an individual, a partnership, a corporation)

duly organized under the Laws of the State (or Commonwealth) of _____,
and having a usual place of business at _____,
as Principal, and _____ a
corporation duly organized under the Laws of the State (or Commonwealth) of _____
and duly authorized to do business in the State (or Commonwealth) of _____,
and having a usual place of business at _____,
as Surety are holden and stand firmly bound and obligated unto the Town of Holliston,
MA as obligee, in the sum of _____

lawful money of the United States of America, to and for the true payment whereof we bind
ourselves and, each of us, our heirs, executors, administrators, successors, and assigns, jointly
and severally, firmly by these presents.

WHEREAS, the Principal, by means of a written AGREEMENT (which together with the Contract Documents in said AGREEMENT referred to are collectively sometimes referred to as

the "CONTRACT") dated _____ has entered into a contract with the said obligee for Washington Street Corridor Improvements, Holliston, MA, a copy of which AGREEMENT is attached hereto and by reference made a part hereof.

NOW THEREFORE, THE CONDITION of this obligation is such that if the Principal shall well and truly keep and fully and faithfully perform all of the terms and conditions of said AGREEMENT and of the "Contract Documents" referred to in said AGREEMENT (which collectively are hereinafter and in said AGREEMENT sometimes referred to as the "Contract") and all modifications thereof on the Principal's part to be performed, this obligation shall be void; otherwise it shall remain in full force and effect.

Wherever the said Principal shall be, and declared by the Owner to be, in default under the said Contract, the Owner having performed the Owner's obligations thereunder, the Surety, for value received, shall promptly remedy the default, or, at the option of the Owner, shall promptly

- (a) Complete the said AGREEMENT and/or Contract in accordance with its terms and conditions, or
- (b) Obtain a bid or bids for submission to and the approval of the Owner for completing the said AGREEMENT and/or Contract and any modifications thereof in accordance with the terms and conditions thereof, and upon determination by the Owner and the Surety of the lowest responsible and acceptable bidder, arrange for a contract between such bidder and the Owner, and make available to the Owner as the Work progresses (even though there should be a default or a succession of defaults under the contract or contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion less a sum that shall be equal to the difference between the Contract price as fixed and provided in said AGREEMENT and/or Contract or any modifications thereof to be paid thereunder to the Principal and the amount previously paid by the Owner to and/or for the account of and/or chargeable against the Principal, but not exceeding (including other costs and damages for which the Surety may be liable hereunder) the amount set forth in the first paragraph hereof.

The Surety, for value received, agrees further that no changes in, omissions from, or alterations, modifications or additions to the terms and provisions of said AGREEMENT and/or Contract or the Work to be performed thereunder, and that no extensions of time given or changes made in the manner or time of making payments thereunder, shall in any way affect the Surety's obligations on this Bond, and the Surety hereby waives notice of any such changes, omissions, alterations, modifications, additions or extensions.

No right of action shall accrue on this Bond to or for the use of any persons other than the Owner named herein or the heirs, executors, administrators, successors and assigns of the Owner.

IN WITNESS WHEREOF, we have hereunto set our hands and seals to counterparts of this Bond, this _____ day of _____, in the year Two Thousand Seventeen.

_____	<i>SEAL</i>
Principal	
_____	<i>SEAL</i>
Principal	
_____	<i>SEAL</i>
Surety	
_____	<i>SEAL</i>
Surety	

(NOTE:

If the Principal (Contractor) is a partnership, the Bond should be signed by each of the partners.

If the Principal (Contractor) is a Corporation, the Bond should be signed in its correct corporate name by its duly authorized officer or officers.

If this Bond is signed on behalf of the Surety by an attorney-in-fact, there should be attached to it a duly certified copy of his power of attorney showing his authority to sign such Bonds.

There should be executed an appropriate number of counterparts of the Bond corresponding to the number of counterparts of the AGREEMENT.)

Important

Surety Companies executing BONDS must appear on the U.S. Treasury Department's most current 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 Audit Staff Bureau of Accounts and be authorized to transact business in the state where the PROJECT is located.

The attention of the Surety Companies and Principal executing this Performance Bond is Directed to the fact that said Bond shall remain in full effect throughout the life of any guaranty or warranty periods stipulated in the Contract Documents and/or Agreement.

LABOR AND MATERIALS BOND

(NOTE: This Bond is issued simultaneously with the attached Performance Bond in favor of the Owner.)

KNOW ALL MEN BY THESE PRESENTS:

That we, _____
(an individual, a partnership, a corporation)

duly organized under the Laws of the State (or Commonwealth) of _____,

and having a usual place of business at _____

as Principal, and _____ a corporation duly

organized under the Laws of the State (or Commonwealth) of _____

and duly authorized to do business in the State (or Commonwealth) of _____

and having a usual place of business at _____ as

surety, are holden and stand firmly bound and obligated unto the Town of Holliston, MA,

as obligee, in the sum of _____
lawful money of the United States of America, to and for the true payment whereof we bind ourselves and, each of us, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal, by means of a written AGREEMENT (which together with the Contract Documents in said AGREEMENT referred to are collectively sometimes referred to as

the "Contract") dated _____ has entered into a contract with the said obligee for Washington Street Corridor Improvements, a copy of which AGREEMENT is attached hereto and by reference made a part hereof.

NOW THEREFORE, THE CONDITION of this obligation is such, that if the Principal shall promptly make payments to all claimants as hereinafter defined, for all labor performed or furnished and for all materials and equipment furnished for or used in or in connection with the Work called for by said AGREEMENT and/or Contract and any modifications thereof, including lumber used but not incorporated in said Work, and for the rental or hire of vehicles, tools and other appliances and equipment furnished for or used in connection with said Work, this obligation shall be void; otherwise it shall remain in full force and effect, subject, however, to the following conditions:

1. A claimant is defined as one having a direct contract with the Principal or with a subcontractor of the Principal for labor, materials and/or equipment used or reasonably required for use in the performance of the said Work, labor and materials being construed to include that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental of equipment directly applicable to the said AGREEMENT and/or Contract and any modifications thereof.
2. The above named Principal and Surety hereby jointly and severally agree with the Owner that every claimant as herein defined, who has not been paid in full before the expiration of a period of ninety (90) days after the date on which the last of such claimant's work or labor was done or performed, or materials or equipment were furnished by such claimant, may sue on this bond for the use of such claimant, prosecute the suit to final judgment for such sum or sums as may be justly due claimant, and have execution thereon. The Owner shall not be liable for the payment of any costs or expenses of any such suit.
3. No suit or action shall be commenced hereunder by any claimant,
 - (a) Unless claimant, other than one having a direct contract with the Principal, shall have given written notice to any two of the following: The Principal, the Owner, or the Surety above named, within ninety (90) days after such claimant did or performed the last of the work or labor, or furnished the last of the materials or equipment for which said claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials or equipment were furnished, or for whom the work or labor was done or performed. Such notice shall be served by mailing the same by registered mail or certified mail, postage prepaid, in an envelope addressed to the Principal, Owner or Surety at any place where an office is regularly maintained for the transaction of business, or served in any manner in which legal process may be served in the state in which the said Work is located, save that such service need not be made by a public officer;
 - (b) After the expiration of one (1) year following the date on which the Principal ceased work on said AGREEMENT and/or Contract and any modifications thereof, it being understood, however, that if any limitation embodied in this bond is prohibited by any law controlling the construction hereof, such limitation shall be deemed to be amended so as to be equal to the minimum period of limitation permitted by such law.
 - (c) Other than in a state court of competent jurisdiction in and for the county or other political subdivision of the state in which the said Work, or any part thereof, is situated, or in the United States District Court for the district in which the said Work, or any part thereof, is situated, and not elsewhere.

4. The amount of this bond shall be reduced by and to the extent of any payment or payments made in good faith hereunder, inclusive of the payment by Surety of mechanics' liens which may be filed of record against said AGREEMENT and/or Contract or said Work, whether or not claim for the amount of such lien be presented under and against this bond.

The Surety, for value received, agrees further that no changes in, omissions from, or alterations, modifications or additions to the terms and provisions of said AGREEMENT and/or Contract or the Work to be performed thereunder, and that no extensions of time given or changes made in the manner of time of making payments thereunder, shall in any way affect the Surety's obligations on this Bond, and the Surety hereby waives notice of any such changes, omissions, alterations, modifications, additions or extensions.

IN WITNESS WHEREOF, we have hereunto set our hands and seals to counterparts of this Bond, this _____ day of _____, in the year Two Thousand Seventeen.

_____	<i>SEAL</i>
Principal	
_____	<i>SEAL</i>
Principal	
_____	<i>SEAL</i>
Surety	
_____	<i>SEAL</i>
Surety	

(NOTE:

If the Principal (Contractor) is a partnership, the Bond should be signed by each of the partners.

If the Principal (Contractor) is a Corporation, the Bond should be signed in its correct corporate name by its duly authorized officer or officers.

If this Bond is signed on behalf of the Surety by an attorney-in-fact, there should be attached to it a duly certified copy of his power of attorney showing his authority to sign such Bonds.

There should be executed an appropriate number of counterparts of the Bond corresponding to the number of counterparts of the AGREEMENT.

Important

Surety Companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the PROJECT is located.

The attention of the Surety Companies and Principal executing this Labor and Materials Bond is directed to the fact that said Bond shall remain in full effect throughout the life of any guaranty or warranty periods stipulated in the Contract Documents and/or Agreement.

**CERTIFICATE OF ACKNOWLEDGMENT OF CONTRACTOR IF A CORPORATION
FOR CONTRACT BONDS**

State of _____)

_____)

County of _____)

On this _____ day of _____, 2017,

before me personally came _____

to me known, who being by me duly sworn, did depose and say as follows:

That he resides at _____

and is the _____

of _____

the corporation described in and which executed the foregoing instrument; that he knows the corporate seal of said corporation; that the seal affixed to the foregoing instrument is such corporate seal and it was so affixed by order of the Board of Directors of said corporation; and that by the like order he signed thereto his name and official designation.

Notary Public

SEAL

My commission expires _____

SECTION 6 SPECIAL CONDITIONS

SC1 CONFLICT OR INCONSISTENCY

If there be any conflict or inconsistency between the provisions of the SPECIAL CONDITIONS and the provisions of the other Contract Documents, the provisions of the SPECIAL CONDITIONS shall prevail. If there be any conflict or inconsistency between the provisions of the AGREEMENT and the provisions of any of the Contract Documents other than the SPECIAL CONDITIONS, the provisions of the AGREEMENT shall prevail.

SC2 AMOUNT OF LIQUIDATED DAMAGES

The amount of liquidated damages for delay to be assessed under that Subsection of the AGREEMENT entitled LIQUIDATED DAMAGES shall be five hundred (\$500) for each calendar day of delay.

SC3 PERCENTAGE OF PERIODIC ESTIMATES TO BE RETAINED.

The percentage of estimated value to be retained under that Subsection of the AGREEMENT entitled PERIODIC ESTIMATES shall be five percent (5%).

SC4 AMOUNT OF MINIMUM PERIODIC ESTIMATES

No periodic estimate or payment need be made when, in the judgment of the Engineer, the total value of the work done since the last estimate amounts to less than two thousand dollars (\$2,000) pay as set forth in that Subsection of the AGREEMENT entitled PERIODIC ESTIMATES.

SC5 LIMITS FOR INSURANCE

The limits for the various types of insurance required under that Subsection of the AGREEMENT entitled INSURANCE shall be not less than:

1. Workers' Compensation and Employers' Liability:

- a. Workers' Compensation: Statutory limits as required by the provisions of MGL C. 149, S 34A.
- b. Employers Liability: Limits of \$1,000,000 each accident, \$1,000,000 disease/each employee, and \$1,000,000 disease/policy limit.

2. General Liability:

- a. Bodily Injury and Property Damage: Combined single limit of \$1,000,000 for any one occurrence and \$2,000,000 aggregate of all occurrences.

3. Automobile Liability and Physical Damage:

- a. Combined single limit of \$1,000,000 per occurrence.

4. Owner's Protective Public Liability and Property Damage Insurance:

- a. Limits of \$1,000,000 for one occurrence and \$2,000,000 aggregate for all occurrences.

5. Umbrella Liability:

- a. For excess liability endorsement not less than \$5,000,000 per occurrence/\$10,000,000 aggregate.
- b. The umbrella limit specified may be used to meet the underlying policy limits. However, excess liability limits over and above these stated amounts are recommended.

All subcontractors, where applicable, shall adhere to these limits.

All certificates shall provide for at least thirty (30) days notice to the Owner on cancellation of material change.

The Owner shall be named as an additional insured on the certificate of insurance to be provided by the Contractor and on all certificates of insurance of subcontractors hired by the Contractor.

SC6 EXCERPTS FROM MASSACHUSETTS STATUTES

In addition to the requirements as set forth under COMPLIANCE WITH LAWS in the AGREEMENT, particular attention is directed to certain stipulations of Chapter 149 of the General Laws of Massachusetts, as amended to date as follows:

Section 25. "Every employee in public work shall lodge, board, and trade where and with whom he elects; and no person or his agents or employees under contract with the commonwealth, a county, city or town, or with a department, board, commission or officer acting therefor, for the doing of public work shall directly or indirectly require, as a condition of employment therein, that the employee shall lodge, board or trade at a particular place or with a particular person. This section shall be made a part of the contract for such employment."

Section 26. "In the employment of mechanics and apprentices, teamsters, chauffeurs and laborers in the construction of public works by the commonwealth, or by a county, town or district, or by persons contracting or subcontracting for such works, preference shall first be given to citizens of the commonwealth who have been residents of the commonwealth for at least six (6) months at the commencement of their employment who are male veterans as defined in clause Forty-third of section seven of chapter four, and who are qualified to perform the work to which the employment relates; and secondly, to citizens of the commonwealth generally who have been residents of the commonwealth for at least six (6) months at the commencement of their employment, and if they cannot be obtained in sufficient numbers, then to citizens of the United States, and every contract for such work shall contain a provision to this effect."

"Each county, town or district in the construction of public works, or persons contracting or subcontracting for such works, shall give preference to veterans and citizens who are residents of such county, town or district. The rate per hour of the wages paid to said mechanics and apprentices, teamsters, chauffeurs and laborers in the construction of public works shall not be less than the rate or rates of wages to be determined by the commissioner as hereinafter provided; provided, that the wages paid to laborers employed on said works shall not be less than those paid to laborers in the municipal service of the town or towns where said works are being constructed; provided, further, that where the same public work is to be constructed in two or

more towns, the wages paid to laborers shall not be less than those paid to laborers in the municipal service of the town paying the highest rate; provided, further, that if, in any of the towns where the works are to be constructed, a wage rate or wage rates have been established in certain trades and occupations by collective agreements or understandings in the private construction industry between organized labor and employers, the rate or rates to be paid on said works shall not be less than the rates so established; provided further, that in towns where no such rate or rates have been so established, the wages paid to mechanics, teamsters, chauffeurs and laborers on public works, shall not be less than the wages paid to the employees in the same trades and occupations by private employers engaged in the construction industry. This section shall also apply to regular employees of the commonwealth or of a county, town or district, when such employees are employed in the construction, addition to or alteration of public buildings for which special appropriations of more than one thousand dollars (\$1000) are provided. Payments by employers to health and welfare plans, pension plans and supplementary unemployment benefit plans under collective bargaining agreements or understandings between organized labor and employers shall be included for the purpose of establishing minimum wage rates as herein provided.

Permanent and temporary laborers employed by the state department of public works and by the metropolitan district commission shall receive such salary or compensation as may be fixed under and in accordance with sections forty-five to fifty inclusive of chapter thirty.”

Section 34. “Every contract, except for the purchase of material or supplies, involving the employment of laborers, workmen, mechanics, foremen or inspectors, to which the commonwealth or any county or any town, subject to section thirty, is a party, shall contain a stipulation that no laborer, workman, mechanic, foreman or inspector working within the commonwealth, in the employ of the contractor, subcontractor or other person doing or contracting to do the whole or a part of the work contemplated by the contract, shall be required or permitted to work more than eight (8) hours in any one day or more than forty-eight (48) hours in any one week, or more than six (6) days in any one (1) week, except in cases of emergency, or in case any towns subject to section thirty-one is a party to such a contract, more than eight hours in any one day, except as aforesaid...”

“Provided, that in contracts entered into by the department of public works for the construction of highways there may be inserted in said stipulation a provision that said department, or any contractor or subcontractor for said department, may employ laborers, workmen, mechanics, foremen and inspectors for more than eight hours in any one day in such construction or reconstruction when, in the opinion of the commissioner of labor and industries, public necessity so requires. Every such contract not containing the aforesaid stipulation shall be null and void.”

Section 34A. “Every contract for the construction, alteration, maintenance, repair or demolition of or addition to, any public building or other public works for the commonwealth or any political subdivision thereof shall contain stipulations requiring that the contractor shall, before commencing performance of such contract, provide by insurance for the payment of compensation and the furnishing of other benefits under chapter one hundred and fifty-two to all persons to be employed under the contract, and that the contractor shall continue such insurance in full force and effect during the term of the contract. No officer or agent contracting in behalf of the commonwealth or any political subdivision thereof shall award such a contract until he has been furnished with sufficient proof of compliance with the aforesaid stipulations. Failure to provide and continue in force such insurance as aforesaid shall be deemed a material breach of the contract and shall operate as an immediate termination thereof. No cancellation of such insurance, whether by the insurer or by the insured, shall be valid unless written notice thereof is given by the party proposing cancellation to the other party and to the officer or agent who awarded the contract at least fifteen days prior to the intended effective date thereof, which date shall be expressed in said notice. Notice of cancellation sent by the party proposing cancellation by registered mail, postage prepaid, with a return receipt of the addressee requested, shall be a

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sufficient notice...”

“An affidavit of any officer, agent or employee of the insurer or of the insured, as the case may be, duly authorized for the purpose, that he has so sent such notice addressed as aforesaid shall be prima facie evidence of the sending thereof as aforesaid. This section shall apply to the legal representative, trustee in bankruptcy, receiver, assignee, trustee and the successor in interest of any such contractor. The superior court shall have jurisdiction in equity to enforce this section.”

“Whoever violates any provision of this section shall be punished by a fine of not more than one hundred dollars or by imprisonment for six (6) months, or both; and, in addition, any contractor who violates any provision of this section shall be prohibited from contracting, directly or indirectly, with the commonwealth or any political subdivision thereof, for the construction, alteration, demolition, maintenance or repair of, or addition to, any public works or public building for a period of two (2) years from the date of conviction of said violation.”

Section 34B. “Every contract for the construction, alteration, maintenance, repair of demolition of, or addition to, any public works for the commonwealth or any political subdivision thereof shall contain stipulations requiring that the contractor shall pay to any reserve police officer employed by him in any city or town the prevailing rate of wage paid to regular police officers employed by him in such city or town.”

Attention is also directed to Chapter 30, Section 39F, 39I, 39J, 39K, 39L, 39M, 39N, 39O, 39P and 39R of the General Laws as amended to date:

Section 39F. (1) Every contract awarded pursuant to sections forty-four A to L, inclusive, of chapter one hundred and forty-nine shall contain the following subparagraphs (a) through (i) and every contract awarded pursuant to section thirty-nine M of chapter thirty shall contain the following subparagraphs (a) through (h) and in each case those subparagraphs shall be binding between the general contractor and each subcontractor.

- (a) Forthwith after the general contractor receives payment on account of a periodic estimate, the general contractor shall pay to each subcontractor the amount paid for the labor performed and the materials furnished by that subcontractor, less any amount specified in any court proceedings barring such payment and also less any amount claimed due from the subcontractor by the general contractor.
- (b) Not later than the sixty-fifth day after each subcontractor substantially completes his work in accordance with the plans and specifications, the entire balance due under the subcontract less amounts retained by the awarding authority as the estimated cost of completing the incomplete and unsatisfactory items of work, shall be due the subcontractor; and the awarding authority shall pay that amount to the general contractor. The general contractor shall forthwith pay to the subcontractor the full amount received from the awarding authority less any amount specified in any court proceedings barring such payment and also less any amount claimed due from the subcontractor by the general contractor.
- (c) Each payment made by the awarding authority to the general contractor pursuant to subparagraphs (a) and (b) of this paragraph for the labor performed and the materials furnished by a subcontractor shall be made to the general contractor for the account of that subcontractor; and the awarding authority shall take reasonable steps to compel the general contractor to make each such payment to each such subcontractor. If the awarding authority has received a demand for direct payment from a subcontractor for any amount which has already been included in a payment to the general contractor or which is to be included in a payment to the general contractor for payment to the subcontractor as provided in subparagraphs (a) and (b), the awarding authority shall act upon the demand as provided in this section.

- (d) If, within seventy (70) days after the subcontractor has substantially completed the subcontract work, the subcontractor has not received from the general contractor the balance due under the subcontract including any amount due for extra labor and materials furnished to the general contractor, less any amount retained by the awarding authority as the estimated cost of completing the incomplete and unsatisfactory items of work, the subcontractor may demand direct payment of that balance from the awarding authority.

The demand shall be by a sworn statement delivered to or sent by certified mail to the awarding authority, and a copy shall be delivered to or sent by certified mail to the general contractor at the same time. The demand shall contain a detailed breakdown of the balance due under the subcontract and also a statement of the status of completion of the subcontract work. Any demand made after substantial completion of the subcontract work shall be valid even if delivered or mailed prior to the seventieth day after the subcontractor has substantially completed the subcontract work. Within ten days after the subcontractor has delivered or so mailed the demand to the awarding authority and delivered or so mailed a copy to the general contractor, the general contractor may reply to the demand. The reply shall be by a sworn statement delivered to or sent by certified mail to the awarding authority and a copy shall be delivered to or sent by certified mail to the subcontractor at the same time. The reply shall contain a detailed breakdown of the balance due under the subcontract including any amount due for extra labor and materials furnished to the general contractor and of the amount due for each claim made by the general contractor against the subcontractor.

- (e) Within fifteen (15) days after receipt of the demand by the awarding authority, but in no event prior to the seventieth day after substantial completion of the subcontract work, the awarding authority shall make direct payment to the subcontractor of the balance due under the subcontract including any amount due for extra labor and materials furnished to the general contractor, less any amount (i) retained by the awarding authority as the estimated cost of completing the incomplete or unsatisfactory items of work, (ii) specified in any court proceedings barring such payment, or (iii) disputed by the general contractor in the sworn reply; provided, that the awarding authority shall not deduct from a direct payment any amount as provided in part (iii) if the reply is not sworn to, or for which the sworn reply does not contain the detailed breakdown required by subparagraph (d). The awarding authority shall make further direct payments to the subcontractor forthwith after the removal of the basis for deductions from direct payments made as provided in parts (i) and (ii) of this subparagraph.
- (f) The awarding authority shall forthwith deposit the amount deducted from a direct payment as provided in part (iii) of subparagraph (e) in an interest-bearing joint account in the names of the general contractor and the subcontractor in a bank in Massachusetts selected by the awarding authority or agreed upon by the general contractor and the subcontractor and shall notify the general contractor and the subcontractor of the date of the deposit and the bank receiving the deposit. The bank shall pay the amount in the account, including accrued interest, as provided in an agreement between the general contractor and the subcontractor or as determined by decree of a court of competent jurisdiction.
- (g) All direct payments and all deductions from demands for direct payments deposited in an interest-bearing account or accounts in a bank pursuant to subparagraph (f) shall be made out of amounts payable to the general contractor at the time of receipt of a demand for direct payment from a subcontractor and out of amounts which later become payable to the general contractor and in the order of receipt of such demands from subcontractors. All direct payments shall discharge the obligation of the awarding authority to the general contractor to the extent of such payment.

- (h) The awarding authority shall deduct from payments to a general contractor amounts which, together with the deposits in interest-bearing accounts pursuant to subparagraph (f), are sufficient to satisfy all unpaid balances of demands for direct payment received from subcontractors. All such amounts shall be earmarked for such direct payments, and the subcontractors shall have a right in such deductions prior to any claims against such amounts by creditors of the general contractor.
 - (i) If the subcontractor does not receive payment as provided in subparagraph (a) or if the general contractor does not submit a periodic estimate for the value of the labor or materials performed or furnished by the subcontractor and the subcontractor does not receive payment for same when due less the deductions provided for in subparagraph (a), the subcontractor may demand direct payment by following the procedure in subparagraph (d) and the general contractor may file a sworn reply as provided in that same subparagraph. A demand made after the first day of the month following that for which the subcontractor performed or furnished the labor and materials for which the subcontractor seeks payment shall be valid even if delivered or mailed prior to the time payment was due on a periodic estimate from the general contractor. Thereafter the awarding authority shall proceed as provided in subparagraph (e), (f), (g) and (h).
- (2) Any assignment by a subcontractor of the rights under this section to a surety company furnishing a bond under the provisions of section twenty-nine of chapter one hundred forty-nine shall be invalid. The assignment and subrogation rights of the surety to amounts included in a demand for direct payment which are in the possession of the awarding authority or which are on deposit pursuant to subparagraph (f) of paragraph (1) shall be subordinate to the rights of all subcontractors who are entitled to be paid under this section and who have not been paid in full.
- (3) “Subcontractor” as used in this section (i) for contracts awarded as provided in sections forty-four A to forty-four H, inclusive, of chapter one hundred forty-nine shall mean a person who files a sub-bid and receives a subcontract as a result of that filed sub-bid or who is approved by the awarding authority in writing as a person performing labor or both performing labor and furnishing materials pursuant to a contract with the general contractor, (ii) for contracts awarded as provided in paragraph (a) of section thirty-nine M of chapter thirty shall mean a person approved by the awarding authority in writing as a person performing labor or both performing labor and furnishing materials pursuant to a contract with the general contractor, and (iii) for contracts with the commonwealth not awarded as provided in forty-four A to forty-four H, inclusive, of chapter one hundred forty-nine shall also mean a person contracting with the general contractor to supply materials used or employed in a public works project for a price in excess of five thousand dollars (\$5000).
- (4) A general contractor or a subcontractor shall enforce a claim to any portion of the amount of a demand for direct payment deposited as provided in subparagraph (f) of paragraph 1 by a petition in equity in the superior court against the other and the bank shall not be a necessary party. A subcontractor shall enforce a claim for direct payment or a right to require a deposit as provided in subparagraph (f) of paragraph 1 by a petition in equity in the superior court against the awarding authority and the general contractor shall not be a necessary party. Upon motion of any party the court shall advance for speedy trial any petition filed as provided in this paragraph. Sections fifty-nine and fifty-nine B of chapter two hundred thirty-one shall apply to such petitions. The court shall enter an interlocutory decree upon which execution shall issue for any part of a claim found due pursuant to sections fifty-nine and

fifty-nine B and, upon motion of any party, shall advance for speedy trial the petition to collect the remainder of the claim. Any party aggrieved by such interlocutory decree shall have the right to appeal therefrom as from a final decree. The court shall not consolidate for trial the petition of any subcontractor with the petition of one or more subcontractors or the same general contract unless the court finds that a substantial portion of the evidence of the same events during the course of construction (other than the fact that the claims sought to be consolidated arise under the same general contract) is applicable to the petitions sought to be consolidated and that such consolidation will prevent unnecessary duplication of evidence. A decree in any such proceeding shall not include interest on the disputed amount deposited in excess of the interest earned for the period of any such deposit. No person except a subcontractor filing a demand for direct payment for which no funds due the general contractor are available for direct payment shall have a right to file a petition in court of equity against the awarding authority claiming a demand for direct payment is premature and such subcontractor must file the petition before the awarding authority has made a direct payment to the subcontractor and has made a deposit of the disputed portion as provided in part (iii) of subparagraph (e) and in subparagraph (f) of paragraph (1).

- (5) In any petition to collect any claim for which a subcontractor has filed a demand for direct payment the court shall, upon motion of the general contractor, reduce by the amount of any deposit of a disputed amount by the awarding authority as provided in part (iii) of subparagraph (e) and in subparagraph (f) of paragraph (1) any amount held under a trustee writ or pursuant to a restraining order or injunction.
- (1) Every contract awarded pursuant to sections forty-four A to L, inclusive, of chapter one hundred and forty-nine shall contain the following subparagraphs (a) through (i) and every contract awarded pursuant to section thirty-nine M of chapter thirty shall contain the following subparagraphs (a) through (h) and in each case those subparagraphs shall be binding between the general contractor and each subcontractor.
 - (a) Forthwith after the general contractor receives payment on account of a periodic estimate, the general contractor shall pay to each subcontractor the amount paid for the labor performed and the materials furnished by that subcontractor, less any amount specified in any court proceedings barring such payment and also less any amount claimed due from the subcontractor by the general contractor.
 - (b) Not later than the sixty-fifth day after each subcontractor substantially completes his work in accordance with the plans and specifications, the entire balance due under the subcontract less amounts retained by the awarding authority as the estimated cost of completing the incomplete and unsatisfactory items of work, shall be due the subcontractor; and the awarding authority shall pay that amount to the general contractor. The general contractor shall forthwith pay to the subcontractor the full amount received from the awarding authority less any amount specified in any court proceedings barring such payment and also less any amount claimed due from the subcontractor by the general contractor.
 - (c) Each payment made by the awarding authority to the general contractor pursuant to subparagraphs (a) and (b) of this paragraph for the labor performed and the materials furnished by a subcontractor shall be made to the general contractor for the account of that subcontractor; and the awarding authority shall take reasonable steps to compel the general contractor to make each such payment to each such subcontractor. If the awarding authority has received a demand for direct payment from the subcontractor for any amount which has already been included in a payment to the general contractor or which is to be included in a payment to the general contractor for payment to the

subcontractor as provided in subparagraphs (a) and (b), the awarding authority shall act upon the demand as provided in this section.

- (d) If, within seventy (70) days after the subcontractor has substantially completed the subcontract work, the subcontractor has not received from the general contractor the balance due under the subcontract including any amount due for extra labor and materials furnished to the general contractor, less any amount retained by the awarding authority as the estimated cost of completing the incomplete and unsatisfactory items of work, the subcontractor may demand direct payment of that balance from the awarding authority. The demand shall be by a sworn statement delivered to or sent by certified mail to the awarding authority, and a copy shall be delivered to or sent by certified mail to the general contractor at the same time. The demand shall contain a detailed breakdown of the balance due under the subcontract and also a statement of the status of completion of the subcontract work. Within ten days after the subcontractor has delivered or so mailed the demand to the awarding authority and delivered or so mailed a copy to the general contractor, the general contractor may reply to the demand. The reply shall be by a sworn statement delivered to or sent by certified mail to the awarding authority and a copy shall be delivered to or sent by certified mail to the subcontractor at the same time. The reply shall contain a detailed breakdown of the balance due under the subcontract including any amount due for extra labor and materials furnished to the general contractor and of the amount due for each claim made by the general contractor against the subcontractor.
- (e) Within fifteen (15) days after receipt of the demand by the awarding authority, but in no event prior to the seventieth day after substantial completion of the subcontract work, the awarding authority shall make direct payment to the subcontractor of the balance due under the subcontract including any amount due for extra labor and materials furnished to the general contractor, less any amount (i) retained by the awarding authority as the estimated cost of completing the incomplete or unsatisfactory items of work, (ii) specified in any court proceedings barring such payment, or (iii) disputed by the general contractor in the sworn reply; provided, that the awarding authority shall not deduct from a direct payment any amount as provided in part (iii) if the reply is not sworn to, or for which the sworn reply does not contain the detailed breakdown required by subparagraph (d). The awarding authority shall make further direct payments to the subcontractor forthwith after the removal of the basis for deductions from direct payments made as provided in parts (i) and (ii) of this subparagraph.
- (f) The awarding authority shall forthwith deposit the amount deducted from a direct payment as provided in part (iii) of subparagraph (e) in an interest-bearing joint account in the names of the general contractor and the subcontractor in a bank in Massachusetts selected by the awarding authority or agreed upon by the general contractor and the subcontractor and shall notify the general contractor and the subcontractor of the date of the deposit and the bank receiving the deposit. The bank shall pay the amount in the account, including accrued interest, as provided in an agreement between the general contractor and the subcontractor or as determined by decree of a court of competent jurisdiction.
- (g) All direct payments and all deductions from demands for direct payments deposited in an interest-bearing account or accounts in a bank pursuant to subparagraph (f) shall be made out of amounts payable to the general contractor at the time of receipt of a demand for direct payment from a subcontractor and out of amounts which later become payable to the general contractor and in the order of receipt of such demands from subcontractors. All direct payments shall discharge the obligation of the awarding authority to the general contractor to the extent of such payment.

- (h) The awarding authority shall deduct from payments to a general contractor amounts which, together with the deposits in interest-bearing accounts pursuant to subparagraph (f), are sufficient to satisfy all unpaid balances of demands for direct payment received from subcontractors. All such amounts shall be earmarked for such direct payments, and the subcontractors shall have a right in such deductions prior to any claims against such amounts by creditors of the general contractor.
 - (i) If the subcontractor does not receive payment as provided in subparagraph (a) or if the general contractor does not submit a periodic estimate for the value of the labor and materials performed or furnished by the subcontractor and the subcontractor does not receive payment for same when due less the deductions provided for in subparagraph (a), the subcontractor may demand direct payment by following the procedure in subparagraph (d) and the general contractor may file a sworn reply as provided in that same subparagraph. A demand made after the first day of the month following that for which the subcontractor performed or furnished the labor and materials for which the subcontractor seeks payment shall be valid even if delivered or mailed prior to the time payment was due on a periodic estimate from the general contractor. Thereafter the awarding authority shall proceed as provided in subparagraph (e), (f), (g) and (h).
- (2) Any assignment by a subcontractor of the rights under this section to a surety company furnishing a bond under the provisions of section twenty-nine of chapter one hundred forty-nine shall be invalid. The assignment and subrogation rights of the surety to amounts included in a demand for direct payment which are in the possession of the awarding authority or which are on deposit pursuant to subparagraph (f) of paragraph (1) shall be subordinate to the rights of all subcontractors who are entitled to be paid under this section and who have not been paid in full.
- (3) “Subcontractor” as used in this section (i) for contracts awarded as provided in sections forty-four A to forty-four L, inclusive, of chapter one hundred forty-nine shall mean a person who files a sub-bid and receives a subcontract as a result of that filed sub-bid or who is approved by the awarding authority in writing as a person performing labor or both performing labor and furnishing materials pursuant to a contract with the general contractor, (ii) for contracts awarded as provided in paragraph (a) of section thirty-nine M of chapter thirty shall mean a person approved by the awarding authority in writing as a person performing labor or both performing labor and furnishing materials pursuant to a contract with the general contractor, and (iii) for contracts with the commonwealth not awarded as provided in sections forty-four A to forty-four L, inclusive, of chapter one hundred forty-nine shall also mean a person contracting with the general contractor to supply materials used or employed in a public works project for a price in excess of ten thousand dollars.
- (4) A general contractor or a subcontractor shall enforce a claim to any portion of the amount of a demand for direct payment deposited as provided in subparagraph (f) of paragraph 1 by a petition in equity in the superior court against the other and the bank shall not be a necessary party. A subcontractor shall enforce a claim for direct payment or a right to require a deposit as provided in subparagraph (f) of paragraph 1 by a petition in equity in the superior court against the awarding authority and the general contractor shall not be a necessary party. Upon motion of any party the court shall advance for speedy trial any petition filed as provided in this paragraph. Sections fifty-nine and fifty-nine B of chapter two hundred thirty-one shall apply to such petitions. The court shall enter an interlocutory decree upon which execution shall issue for any part of a claim found due pursuant to sections fifty-nine and fifty-nine B and, upon motion of any party, shall advance for speedy trial the petition to collect the remainder of the claim. Any party aggrieved by such interlocutory decree shall have the right to appeal therefrom as from a final decree. The court shall not consolidate for trial the petition of any subcontractor

with the petition of one or more subcontractors or the same general contract unless the court finds that a substantial portion of the evidence of the same events during the course of construction (other than the fact that the claims sought to be consolidated arise under the same general contract) is applicable to the petitions sought to be consolidated and that such consolidation will prevent unnecessary duplication of evidence. A decree in any such proceeding shall not include interest on the disputed amount deposited in excess of the interest earned for the period of any such deposit. No person except a subcontractor filing a demand for direct payment for which no funds due the general contractor are available for direct payment shall have a right to file a petition in court of equity against the awarding authority claiming a demand for direct payment is premature and such subcontractor must file the petition before the awarding authority has made a direct payment to the subcontractor and has made a deposit of the disputed portion as provided in part (iii) of subparagraph (e) and in subparagraph (f) of paragraph (1).

- (5) In any petition to collect any claim for which a subcontractor has filed a demand for direct payment the court shall, upon motion of the general contractor, reduce by the amount of any deposit of a disputed amount by the awarding authority as provided in part (iii) of subparagraph (e) and in subparagraph (f) of paragraph (1) any amount held under a trustee writ or pursuant to a restraining order or injunction.

Section 39I. Every contractor having a contract for the construction, alteration, maintenance, repair or demolition of, or addition to, any public building or public works for the commonwealth, or of any political subdivision thereof, shall perform all the work required by such contract in conformity with the plans and specifications contained therein. No willful and substantial deviation from said plans and specifications shall be made unless authorized in writing by the awarding authority or by the engineer or architect in charge of the work who is duly authorized by the awarding authority to approve such deviations. In order to avoid delays in the prosecution of the work required by such contract such deviation from the plans or specifications may be authorized by a written order of the awarding authority or such engineer or architect so authorized to approve such deviation. Within thirty days thereafter, such written order shall be confirmed by a certificate of the awarding authority stating: (1) If such deviation involves any substitution or elimination of materials, fixtures or equipment, the reasons why such materials, fixtures or equipment were included in the first instance and the reasons for substitution or elimination, and, if the deviation is of any other nature, the reasons for such deviation, giving justification therefore; (2) that the specified deviation does not materially injure the project as a whole; (3) that either the work substituted for the work specified is of the same cost and quality, or that an equitable adjustment has been agreed upon between the contracting agency and the contractor and the amount in dollars of said adjustment; and (4) that the deviation is in the best interest of the contracting authority.

Such certificate shall be signed under the penalties of perjury and shall be a permanent part of the file record of the work contracted for.

Whoever violates any provision of this section willfully and with intent to defraud shall be punished by a fine of not more than five thousand dollars or by imprisonment for not more than six months, or both.

Section 39J. Notwithstanding any contrary provision of any contract for the construction, reconstruction, alteration, remodeling, repair or demolition of any public building or public works by the commonwealth, or by any county, city, town, district, board, commission or other

public body, when the amount of the contract is more than five thousand dollars in the case of the commonwealth and more than two thousand dollars (\$2000) in the case of any county, city, town, district, board, commission or other public body, a decision, by the contracting body or by any administrative board, official or agency, or by any architect or engineer, on a dispute, whether of fact or of law, arising under said contract shall not be final or conclusive if such decision is made in bad faith, fraudulently, capriciously, or arbitrarily is unsupported by substantial evidence, or is based upon error of law.

Section 39K. “Every contract for the construction, reconstruction, alteration, remodeling, repair or demolition of any public building by the commonwealth, or by any county, city, town, district, board, commission or other public body, when the amount is more than five thousand dollars in the case of the commonwealth and more than two thousand dollars (\$2000) in the case of any county, city, town, district, board, commission or other public body, shall contain the following paragraph: - Within fifteen (15) days (twenty-four (24) days in the case of the commonwealth) after receipt from the contractor, at the place designated by the awarding authority if such a place is so designated, of a periodic estimate requesting payment of the amount due for the preceding month, the awarding authority will make a periodic payment to the contractor for the work performed during the preceding month and for the materials not incorporated in the work but delivered and suitably stored at the site (or at some location agreed upon in writing) to which the Contractor has title or to which a subcontractor has title and has authorized the contractor to transfer title to the awarding authority, less (1) a retention based on its estimate of the fair value of its claims against the contractor and less (2) a retention for direct payments to subcontractors based on demands for same in accordance with the provisions of section thirty-nine F, and less (3) a retention not exceeding five percent (5%) of the approved amount of the periodic payment. After the receipt of a periodic estimate requesting final payment and within sixty-five (65) days after (a) the contractor fully completes the work or substantially completes the work so that the value of the work remaining to be done is, in the estimate of the awarding authority, less than one percent of the original contract price, or (b) the contractor substantially completes the work and the awarding authority takes possession for occupancy, whichever occurs first, the awarding authority shall pay the contractor the entire balance due on the contract less (1) a retention based on its estimate of the fair value of its claims against the contractor and of the cost of completing the incomplete and unsatisfactory items of work and less (2) a retention for direct payments to subcontractors based on demands for same in accordance with the provisions of section thirty-nine F, or based on the record of payments by the contractor to the subcontractors under this contract if such record of payment indicates that the contractor has not paid subcontractors as provided in section thirty-nine F. If the awarding authority fails to make payments as herein provided, there shall be added to each such payment daily interest at the rate of three percentage points above the rediscount rate then charged by the Federal Reserve Bank of Boston commencing on the first day after said payment is due and continuing until the payment is delivered or mailed to the contractor; provided, that no interest shall be due, in any event, on the amount due on a periodic estimate for final payment until fifteen (15) days (twenty-four (24) days in the case of the commonwealth) after receipt of such a periodic estimate from the contractor, at the place designated by the awarding authority if such a place is so designated. The contractor agrees to pay to each subcontractor a portion of any such interest paid in accordance with the amount due each subcontractor.

The awarding authority may make changes in any periodic estimate submitted by the contractor and the payment due on such periodic estimate shall be computed in accordance with the changes so made, but such changes or any requirement for a corrected periodic estimate shall not affect the due date for the periodic payment or the date for the commencement of interest charges on the amount of the periodic payment computed in accordance with the changes made, as provided herein; provided, that the awarding authority may, within seven days after receipt, return to the contractor for correction, any periodic estimate which is not in the required form or

which contains computations not arithmetically correct and, in that event, the date of receipt of such periodic estimate shall be the date of receipt of a periodic estimate received on a Saturday shall be the first working day thereafter. The provisions of section thirty-nine G shall not apply to any contract for the construction, reconstruction, alteration, remodeling, repair or demolition of any public building to which this section applies.

All periodic estimates shall be submitted to the awarding authority, or to its designee as set forth in writing to the contractor, and the date of receipt by the awarding authority or its designee shall be marked on the estimate.

All periodic estimates shall contain a separate item for each filed subtrade and a column listing the amount paid to each filed subcontractor as of the date the periodic estimate is filed. The person making payment for the awarding authority shall add the daily interest provided for herein to each payment for each day beyond the due date based on the date of receipt on the estimate.

Section 39L. The commonwealth and every county, city, town, district, board, commission or other public body which, as the awarding authority, requests proposals, bids or sub-bids for any work in the construction, reconstruction, alteration, remodeling, repair or demolition of any public building or other public works (1) shall not enter into a contract for such work with, and shall not approve as a subcontractor furnishing labor and materials for a part of any such work, a foreign corporation which has not filed with such awarding authority a certificate of the state secretary stating that such corporation has complied with sections three and five of chapter one hundred and eighty-one and the date of such compliance, and (2) shall report to the state secretary and to the department of corporations and taxation any foreign corporation performing work under such contract or subcontract, and any person, other than a corporation, performing work under such contract or subcontract, and residing or having a principal place of business outside the commonwealth.

Section 39M. Specifications for such contracts, and specifications for contracts awarded pursuant to the provisions of said sections forty-four A to forty-four L of said chapter one hundred and forty-nine, shall be written to provide for full competition for each item of material to be furnished under the contract; except, however, that said specifications may be otherwise written for sound reasons in the public interest stated in writing in the public records of the awarding authority or promptly given in writing by the awarding authority to anyone making a written request therefor, in either instance such writing to be prepared after reasonable investigation. Every such contract shall provide that an item equal to that named or described in the said specifications may be furnished; and an item shall be considered equal to the item so named or described if (1) it is at least equal in quality, durability, appearance, strength and design, (2) it will perform at least equally the function imposed by the general design for the public work being contracted for or the material being purchased, and (3) it conforms substantially, even with deviations, to the detailed requirements for the item in the said specifications. For each item of material the specifications shall provide for either a minimum of three named brands of material or a description of material which can be met by a minimum of three manufacturers or producers, and for the equal of any one of said named or described materials.

Section 39N. Every contract subject to section forty-four A of the chapter one hundred and forty-nine or subject to section thirty-nine M chapter thirty shall contain the following paragraph in its entirety and an awarding authority may adopt reasonable rules or regulations in conformity

with that paragraph concerning the filing, investigation and settlement of such claims. If, during the progress of the work, the contractor or the awarding authority discovers that the actual subsurface or latent physical conditions encountered at the site differ substantially or materially from those shown on the plans or indicated in the contract documents either the contractor or the contracting authority may request an equitable adjustment in the contract price of the contract applying to work affected by the differing site conditions. A request for such an adjustment shall be in writing and shall be delivered by the party making such claim to the other party as soon as possible after such conditions are discovered. Upon receipt of such a claim from a contractor, or upon its own initiative, the contracting authority shall make an investigation of such physical conditions, and, if they differ substantially or materially from those shown on the plans or indicated in the contract documents or from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the plans and contract documents and are of such a nature as to cause an increase or decrease in the cost of performance of the work or a change in the construction methods required for the performance of the work which results in an increase or decrease in the cost of the work, the contracting authority shall make an equitable adjustment in the contract price and the contract shall be modified in writing accordingly.

Section 39O. Every contract subject to the provisions of section thirty-nine M of this chapter or subject to section forty-four A of chapter one hundred forty-nine shall contain the following provisions (a) and (b) in their entirety and, in the event a suspension, delay, interruption or failure to act of the awarding authority increases the cost of performance to any subcontractor, that subcontractor shall have the same rights against the general contractor for payment for an increase in the cost of his performance as provisions (a) and (b) give the general contractor against the awarding authority, but nothing in provisions (a) and (b) shall in any way change, modify or alter any other rights which the general contractor or the subcontractor may have against each other.

- (a) The awarding authority may order the general contractor in writing to suspend, delay, or interrupt all or any part of the work for such period of time as it may determine to be appropriate for the convenience of the awarding authority; provided however, that if there is a suspension, delay or interruption for fifteen days or more or due to a failure of the awarding authority to act within the time specified in this contract, the awarding authority shall make an adjustment in the contract price for any increase in the cost of performance of this contract but shall not include any profit to the general contractor on such increase; and provided further, that the awarding authority shall not make any adjustment in the contract price under this provision for any suspension, delay, interruption or failure to act to the extent that such is due to any cause for which this contract provides for an equitable adjustment of the contract price under any other contract provisions.
- (b) The general contractor must submit the amount of a claim under provision (a) to the awarding authority in writing as soon as practicable after the end of the suspension, delay, interruption or failure to act and, in any event, not later than the date of final payment under this contract and, except for costs due to a suspension order, the awarding authority shall not approve any costs in the claim incurred more than twenty days before the general contractor notified the awarding authority in writing of the act or failure to act involved in the claim.

Section 39P. Every contract subject to section thirty-nine M of this chapter or section forty-four A of chapter one hundred forty-nine which requires the awarding authority, any official, its architect or engineer to make a decision on interpretation of the specifications, approval of equipment, material or any other approval, or progress of the work, shall require that the decision be made promptly and, in any event, no later than thirty days after the written submission for

decision; but if such decision requires extended investigation and study, the awarding authority, the official, architect or engineer shall, within thirty days after the receipt of the submission, give the party making the submission written notice of the reasons why the decision cannot be made within the thirty day period and the date by which the decision will be made.

Section 39R. (a) The words defined herein shall have the meaning stated below whenever they appear in this section:

- (1) "Contractor" means any person, corporation, partnership, joint venture, sole proprietorship, or other entity awarded a contract pursuant to sections thirty-eight A $\frac{1}{2}$ to thirty-eight O, inclusive, of chapter seven and any contract awarded or executed pursuant to section eleven C of chapter twenty-five A, section thirty-nine M of chapter thirty, or sections forty-four A to forty-four H, inclusive, of chapter one hundred and forty-nine, which is for an amount or estimated amount greater than one hundred thousand dollars.
- (2) "Contract" means any contract awarded or executed pursuant to sections thirty-eight A $\frac{1}{2}$ to thirty-eight O, inclusive, of chapter seven and any contract awarded or executed pursuant to section eleven C of chapter twenty-five A, section thirty-nine M of chapter thirty, or sections forty-four A through forty-four H, inclusive, of chapter one hundred and forty-nine, which is for amount or estimated amount greater than one hundred thousand dollars.
- (3) "Records" means books of original entry, accounts, checks, bank statements and all other banking documents, correspondence, memoranda, invoices, computer printouts, tapes, discs, papers and other documents or transcribed information of any type, whether expressed in ordinary or machine language.
- (4) "Independent Certified Public Accountant" means a person duly registered in good standing and entitled to practice as a certified public accountant under the laws of the place of his residence or principal office and who is in fact independent. In determining whether an accountant is independent with respect to a particular person, appropriate consideration should be given to all relationships between the accountant and that person or any affiliate thereof. Determination of an accountant's independence shall not be confined to the relationships existing in connection with the filing of reports with the awarding authority.
- (5) "Audit," when used in regard to financial statements, means an examination of records by an independent certified public accountant in accordance with generally accepted accounting principles and auditing standards for the purpose of expressing a *certified* opinion thereon, or, in the alternative, a qualified opinion or a declination to express an opinion for stated reasons.
- (6) "Accountant's Report," when used in regard to financial statements, means a document in which an independent certified public accountant indicates the scope of the audit which he has made and sets forth his opinion regarding the financial statements taken as a whole with a listing of noted exceptions and qualifications, or an assertion to the effect that an overall opinion cannot be expressed. When an overall opinion cannot be expressed the reason therefor shall be stated. An accountant's report shall include as a part thereof a signed statement by the responsible corporate officer attesting that management has fully disclosed all material facts to the independent certified public accountant, and that the

audited financial statement is a true and complete statement of the financial condition of the contractor.

- (7) "Management," when used herein, means the chief executive officers, partners, principals or other person or persons primarily responsible for the financial and operational policies and practices of the contractor.
- (8) Accounting terms, unless otherwise defined herein, shall have a meaning in accordance with generally accepted accounting principles and auditing standards.
- (b) Subsection (a)(2) hereof notwithstanding, every agreement or contract awarded or executed pursuant to sections thirty-eight A½ to thirty-eight O, inclusive, of chapter seven, or eleven C of chapter twenty-five A, and pursuant to section thirty-nine M of chapter thirty or to section forty-four A through H, inclusive, of chapter one hundred and forty-nine, shall provide that:
 - (1) The contractor shall make, and keep for at least six years after final payment, books, records, and accounts which in reasonable detail accurately and fairly reflect the transactions and dispositions of the contractor, and
 - (2) Until the expiration of six (6) years after final payment, the office of inspector general, and the deputy commissioner of capital planning and operations shall have the right to examine any books, documents, papers or records of the contractor or of his subcontractors that directly pertain to, and involve transactions relating to, the contractor or his subcontractors, and
 - (3) If the agreement is a contract as defined herein, the contractor shall describe any change in the method of maintaining records or recording transactions which materially affect any statements filed with the awarding authority, including in his description the date of the change and reasons therefor, and shall accompany said description with a letter from the contractor's independent certified public accountant approving or otherwise commenting on the changes, and
 - (4) If the agreement is a contract as defined herein, the contractor has filed a statement of management on internal accounting controls as set forth in paragraph (c) below prior to the execution of the contract, and
 - (5) If the agreement is a contract as defined herein, the contractor has filed prior to the execution of the contracts and will continue to file annually, an audited financial statement for the most recent completed fiscal year as set forth in paragraph (d) below.
- (c) Every contractor awarded a contract shall file with the awarding authority a statement of management as to whether the system of internal accounting controls of the contractor and its subsidiaries reasonably assures that:
 - (1) Transactions are executed in accordance with management's general and specific authorization;
 - (2) Transactions are recorded as necessary
 - i. To permit preparation of financial statements in conformity with generally accepted accounting principles, and
 - ii. To maintain accountability for assets;
 - (3) Access to assets is permitted only in accordance with management's general or specific authorization; and

- (4) The recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action was taken with respect to any difference.

Every contractor awarded a contract shall also file with the awarding authority a statement prepared and signed by an independent certified public accountant, stating that he has examined the statement of management on internal accounting controls, and expressing an opinion as to

- (1) Whether the representations of management in response to this paragraph and paragraph (b) above are consistent with the result of management's evaluation of the system of internal accounting controls; and
 - (2) Whether such representations of management are, in addition, reasonable with respect to transactions and assets in amounts, which would be material when measured in relation to the applicant's financial statements.
- (d) Every contractor awarded a contract by the commonwealth or by any political subdivision thereof shall annually file with the commissioner of capital planning and operations during the term of the contract a financial statement prepared by an independent certified public accountant on the basis of an audit by such accountant. The final statement filed shall include the date of final payment. All statements shall be accompanied by an accountant's report. Such statements shall be made available to the awarding authority upon request.
- (e) The office of inspector general, the commissioner for capital planning and operations and any other awarding authority shall enforce the provisions of this section. The commissioner of capital planning and operations may after providing an opportunity for the inspector general and other interested parties to comment, promulgate pursuant to the provisions of chapter thirty A such rules, regulations and guidelines as are necessary to effectuate the purposes of this section. Such rules, regulations and guidelines may be applicable to all awarding authorities. A contractor's failure to satisfy any of the requirements of this section may be grounds for debarment pursuant to section forty-four C of chapter one hundred and forty-nine.
- (f) Records and statements required to be made, kept or filed under the provisions of this section shall not be public records as defined in section seven of chapter four and shall not be open to public inspection; provided, however, that such records and statements shall be made available pursuant to the provisions of clause (2) of paragraph (b).

Section 34. Every contract, except for the purchase of material or supplies, involving the employment of laborers, workmen, mechanics, foremen or inspectors, to which the commonwealth or any county or any town, subject to section thirty, is a party, shall contain a stipulation that no laborer, workman, mechanic, foreman or inspector working within the commonwealth, in the employ of the contractor, sub-contractor or other person doing or contracting to do the whole or a part of the work contemplated by the contract, shall be required or permitted to work more than eight hours in any one day or more than forty-eight hours in any one week, or more than six days in any one week, except in cases of emergency, or, in case any town subject to section thirty-one is a party to such a contract, more than eight hours in any one day, except as aforesaid; provided, that in contracts entered into by the department of highways for the construction or reconstruction of highways there may be inserted in said stipulation a provision that said department, or any contractor or sub-contractor for said department, may employ laborers, workmen, mechanics, foremen and inspectors for more than eight hours in any one day in such construction or reconstruction when, in the opinion of the commissioner of labor

and industries, public necessity so requires. Every such contract not containing the aforesaid stipulation shall be null and void.

Section 44J.

(1) No public agency or authority of the commonwealth or any political subdivision thereof shall award any contract for which competitive bids are required pursuant to section forty-four A of this chapter or section thirty-nine M of chapter thirty, or for which competitive proposals are required pursuant to subsection (4) of section forty-four E of this chapter or section eleven C of chapter twenty-five section eleven C of chapter twenty-five A, unless a notice inviting bids or proposals therefor shall have been posted no less than one week prior to the time specified in such notice for the receipt of said bids or proposals in a conspicuous place in or near the offices of the awarding authority, and shall have remained posted until the time so specified, and unless such notice shall also have been published at least once not less than two weeks prior to the time so specified in the central register published by the secretary of state pursuant to section twenty A of chapter nine and in a newspaper of general circulation in the locality of the proposed project. Said notice shall also be published at such other times and in such other newspapers or trade periodicals as the commissioner of capital planning and operations may require, having regard to the locality of the work involved.

(2) Said notice shall specify the time and place where plans and specifications of the proposed work may be had; the time and place of submission of general bids; and the time and place for opening of the general bids. For contracts subject to the provisions of sections forty-four A to H, inclusive, of this chapter, said notice shall also specify the time and place for submission of filed sub-bids, where required pursuant to section forty-four F; and the time and place for opening of said filed sub-bids.

Said notice shall also provide sufficient facts concerning the nature and scope of such project, the type and elements of construction, and such other information as will assist applicants in deciding to bid on such contract.

(3) No contract or preliminary plans and specifications shall be split or divided for the purpose of evading the provisions of this section.

(4) General bids and filed sub-bids for any contract subject to this section shall be in writing and shall be opened in public at the time and place specified in the posted or published notice, and after being so opened shall be open to public inspection.

(5) The provisions of this section shall not apply to any transaction between the commonwealth and any public service corporation.

(6) The provisions of this section may be waived in cases of extreme emergency involving the health and safety of the people and their property, upon the written approval of said commissioner. The written approval shall contain a description of the circumstances and the reasons for the commissioner's determination.

(7) Whoever violates any provision of this section shall be punished by a fine of not more than ten thousand dollars or by imprisonment in the state prison for not more than three years or in a jail or house of correction for not more than two and one-half years, or by both said fine and imprisonment; and in the event of final conviction, said person shall be incapable of holding any office of honor, trust or profit under the commonwealth or under any county, district or municipal agency.

Each and every person who shall cause or conspire to cause any contract or preliminary plans and specifications to be split or divided for the purpose of evading the provisions of this section shall forfeit and pay to the commonwealth, a political subdivision thereof or other awarding authority subject to this section, the sum of not more than five thousand dollars and, in addition, such person or persons shall pay, apportioned among them, double the amount of damages which the commonwealth or political subdivision thereof or other awarding authority may have sustained by reason of the doing of such act, together with the costs of the action.

- (8) If an awarding authority rejects all general bids or does not receive any general bids, and advertises for a second opening of general bids with the original filed sub-bids as set forth in subsection (1) of section forty-four E the notice for receipt of such general bids may be published in the central register and elsewhere as required not less than one week prior to the time specified for such second opening of general bids.

Attention is also directed to Chapter 82, Section 40 of the General Laws as amended to date:

Section 40. No person shall, except in an emergency, contract for, or make an excavation, which shall include, but not be limited to, the discharge of explosives and the demolition of any structure but which shall not be deemed to include gardening or tilling the soil in the case of privately owned land, in any public way, any public utility company right of way or easement, or any privately owned land under which any public utility company, municipal utility department, natural gas pipeline company, or cable television company maintains underground facilities, including pipes, mains, wires or conduits, unless at least seventy-two hours, exclusive of Saturdays, Sundays and legal holidays, but not more than thirty (30) days, before the proposed excavation is to be made such person has given an initial notice in writing of the proposed excavation to such natural gas pipeline companies, public utility companies, cable television companies and municipal utility departments as supply gas, electricity, telephone or cable television service in or to the city or town where such excavation is to be made. Such notice shall set forth the name of the street or the route number of said way and a reasonably accurate description of the location in said way or on private property the excavation is to be made. In addition, such initial notice shall indicate whether any such excavation will involve blasting and, if so, the date on which the specific location at which such blasting is to occur; provided, however, that in no event shall any excavation by blasting take place unless written notice thereof, either in the initial notice or a subsequent notice, accurately specifying the date and location of such blasting shall have been given and received at least twenty-four hours in advance, except in the case of an unanticipated obstruction requiring blasting when such notice should not be less than four hours in advance to such natural gas pipeline companies, public utility companies, cable television companies and municipal utility departments as supply gas, electricity, telephone or cable television services in or to the city or town where such excavation by blasting is to be made. If any such notice cannot be given as aforesaid because of an emergency, it shall be given as soon as may be practicable.

Copies of such notices together with a statement certifying that they have been mailed or delivered to such cable television companies and public utility companies as required by this section shall be filed with the officer or board having charge of any such public way before a permit to excavate or to blast may be approved or issued, except in case of an emergency.

Where an excavation is to be made by a contractor as part of the work required by a contract with the commonwealth or with any political subdivision thereof or other public agency, for the construction, reconstruction, relocation or improvement of a public way or for the installation of a railway track, conduit, sewer or water main, such contractor shall be deemed to have complied with the requirements of this section by giving such notices as required by this section setting forth the location and the approximate time required to perform the work involved to each of said companies.

Within seventy-two (72) hours, exclusive of Saturdays, Sundays and legal holidays, from the time said initial notice is received or at such time as said company and the excavator agree in writing, said company shall respond to the original written notice or to subsequent oral or written notice by designating at the locus, the location of pipes, mains, wires or conduits, in that portion of the public way, public utility company right-of-way or easement or privately owned land in which the excavation is to be made; provided, however, that in the event that the excavator has given notice of proposed excavation as aforesaid at a locus at which because of its length or size the company cannot reasonably designate the location of all such pipes, mains, wires or conduits within such seventy-two hour period, then the excavator shall notify the company of the portion of the locus in which excavation is to be first made and the company shall designate the location of such pipes, mains, wires or conduits in such portion within seventy-two hours and shall designate the location of the pipes, mains, wires or conduits in the remaining portion of the locus within a reasonable time thereafter; and the providing of such designation by the company shall constitute prima facie evidence of an exercise of reasonable precaution by the company as required by this section. After a company has designated the location of such pipes, mains, wires and conduits at the locus of the excavation in accordance with the provisions of this section, the excavator shall be responsible for maintaining the designation markings at such locus, unless the said excavator requests re-marking at the locus due to the obliteration, destruction or other removal of such markings and the company shall then have twenty-four hours following the receipt of such request to re-mark such locus.

Any such excavation shall be performed in such manner, and such reasonable precautions taken to avoid damage to the pipes, mains, wires or conduits in use under the surface of said public way, public utility company right-of-way or easement, or privately owned land, including, but not limited to, any substantial weakening of structural or lateral support of such pipe, main, wire, or conduit, penetration or destruction of any pipe, main, wire or the protective coating thereof, or the severance of any pipe, main or conduit.

When any damage of any such pipe, main, wire or conduit or its protective coating occurs, the public utility company, natural gas pipeline company, cable television company or municipal utility department shall be notified immediately by the person or public agency responsible for the excavation causing the damage.

The making of an excavation without providing any or all notice or notices required by this section with respect to any proposed excavation which results in any damage to a pipe, main, wire or conduit or its protective coating shall be prima facie evidence in any legal or administrative proceeding that such damage was caused by the negligence of such person.

Notice to the public utility underground plant damage prevention system pursuant to section seventy-six D of chapter one hundred and sixty-four, which notice is given during normal business hours each day of the year exclusive of Saturdays, Sundays and legal holidays, and which notice is given with the time periods established in this section, shall constitute compliance with the written notice requirements of this section. Nothing contained in this section

shall be construed to affect or impair local ordinances or by-laws requiring permits to be obtained before excavation in a public way, except that, notwithstanding any contrary provision of local ordinances or by-laws, no permit to excavate in a public way shall be approved or issued by the officer or board having charge of any such way, except in any emergency, until such time as copies of such notices to public utility companies and cable television companies are filed with said officer or board by the applicant for a permit as required by this section and copies of such notices are served by said officer or board upon the appropriate water and sewer department.

Any person, contractor or company found by the department of telecommunications and energy, after a hearing, to have violated any provision of this section shall forfeit to the commonwealth the sum of two hundred dollars (\$200) for the first offense and not less than five hundred dollars (\$500) nor more than one thousand dollars (\$1000) for any subsequent offense.

SC7 MINIMUM WAGE RATES

A schedule of minimum wage rates issued for this contract by the Massachusetts Executive Office of Labor and Workforce Development, Department of Labor Standards (DLS) in accordance with General Laws, Chapter 149, Sections 26 to 27D, as amended, is attached in Section 7. It is the responsibility of the Contractor, before bid opening, to request if necessary, any additional information on minimum wage rates for those trades people who may be employed for the proposed work under this contract.

In accordance with the MGL c149, s27B, the Contractor shall maintain a true and accurate record of all persons employed on the project for which the attached rates have been provided. The Payroll Form included indicates all the information required to be kept by law. Every contractor or subcontractor is required to keep these records and preserve them for a period of three years from the date of completion of the contract.

Every contractor and subcontractor is required to submit a copy of weekly payroll records to the awarding authority. This is required to be done on a weekly basis.

Each such contractor or subcontractor shall furnish to the Executive Office of Labor, within fifteen days after completion of its portion of the work, a statement, executed by the contractor or subcontractor on the attached Statement of Compliance Form.

SC8 INTERFERENCE WITH EXISTING WORKS

The Contractor shall develop a program, in cooperation with the Engineer and Owner, which shall provide for the construction and putting into service of the new work in the most orderly manner possible. All work shall be planned to interfere with the operation of the existing facilities for the shortest time possible when the demands on the facilities best permit such interference, even to the extent of working outside normal working hours to meet these requirements.

The Contractor shall have no claim for additional compensation by reason of delay or inconvenience in adapting his operations to meet the above requirements.

SC9 TIME FOR DECISIONS

All decisions concerning the interpretation of the specifications, approval of equipment, material or any other approval, or progress of the work, shall be made within thirty (30) days of the time the Owner or the Engineer receives from the Contractor, a written request for any such decision; provided that if any such decision requires further investigation and study by the Engineer, then in such case, the Owner or the Engineer shall within thirty (30) days after receipt of the written request for such decision give the party making such request written notice of the reason or reasons why such decision cannot be made within the thirty (30) day period and the date by which such decision will be made.

SC10 STANDARDS

Wherever the manufacturer of equipment or materials is referenced to a standard, the latest edition to the standard shall apply.

SC11 SPECIAL REQUIREMENTS

The Contractor shall provide the telephone number(s) of a responsible member(s) of his organization whose duty it shall be to take immediate action to correct unsafe or hazardous conditions. This person(s) is/are to be available twenty-four (24) hours per day.

SC12 RIGHT-TO-KNOW LAW

The Contractor shall maintain documentation to indicate that he is in conformance with 105 CMR 670.000, the Right-to-Know Law, as promulgated by the Dept. of Public Health; with 310 CMR 33.00. Implementation of M.G.L. Chapter 111F, Employee and Community "Right-to-Know" as promulgated by the Department of Environmental Protection; and with 441 CMR 21.00 "Right-to-Know" M.G.L. Chapter 111F as promulgated by the Department of Labor and Industries, Division of Industrial Safety. The documentation shall include all pertinent Material Safety Data Sheets (MSDS) where such MSDS are available, letters to manufacturers indicating he has made a diligent effort to obtain the MSDS, personnel listings and any other documents or reports required by the regulations. In addition, in compliance with the regulations, all materials covered by the regulations shall be properly labeled.

SC13 SAFETY AND HEALTH REGULATIONS

This project is subject to all Safety and Health Regulations promulgated by the U.S. Department of Labor including, but not limited to, rules and regulations of the Occupational Safety and Health Administration (OSHA). Contractors are urged to make themselves familiar with the requirements of these regulations.

The Contractor shall be solely responsible for safety precautions and programs in connection with the work. The Contractor shall take all necessary precautions and provide all necessary safeguards to prevent personal injury and property damage. The Contractor shall provide protection for all persons including but not limited to his employees and other employees of other contractors or subcontractors; members of the public; and employees, agents and representatives of the Owner, the Engineer, and regulatory agencies that may be on or about the Work. The Contractor shall provide protection for all public and private property including but not limited to structures, pipe and utilities, above and below ground.

The Contractor shall provide and maintain all necessary safety equipment such as fences, barriers, signs, lights, walkways, guards and fire prevention and fire-fighting equipment and shall take such other action as is required to fulfill his obligations under this subsection.

The Contractor shall comply with all applicable Federal, State and local laws, ordinances, rules and regulations and lawful orders of all authorities having jurisdiction for the safety of persons and protection of property.

The Contractor shall designate a responsible member of his organization at the site whose duty shall be the prevention of accidents. This “competent person,” as defined by OSHA, shall have the authority to take immediate action to correct unsafe or hazardous conditions and to enforce safety precautions and programs.

END OF SECTION



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

RONALD L. WALKER, II
Secretary

WILLIAM D MCKINNEY
Director

Awarding Authority: Town of Holliston
Contract Number: **City/Town:** HOLLISTON
Description of Work: WASHINGTON STREET CORRIDOR IMPROVEMENTS - The project provides roadway and traffic signal improvements on Washington Street in downtown Holliston, MA.
Job Location: 703 Washington 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

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>	12/01/2016	\$32.15	\$10.91	\$10.89	\$0.00	\$53.95
(3 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2016	\$32.22	\$10.91	\$10.89	\$0.00	\$54.02
(4 & 5 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2016	\$32.34	\$10.91	\$10.89	\$0.00	\$54.14
ADS/SUBMERSIBLE PILOT <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2015	\$88.29	\$9.80	\$19.23	\$0.00	\$117.32
For apprentice rates see "Apprentice- PILE DRIVER"						
AIR TRACK OPERATOR <i>LABORERS - ZONE 2</i>	06/01/2017	\$33.65	\$7.60	\$13.00	\$0.00	\$54.25
	12/01/2017	\$34.28	\$7.60	\$13.00	\$0.00	\$54.88
	06/01/2018	\$35.12	\$7.60	\$13.00	\$0.00	\$55.72
	12/01/2018	\$35.96	\$7.60	\$13.00	\$0.00	\$56.56
	06/01/2019	\$36.83	\$7.60	\$13.00	\$0.00	\$57.43
	12/01/2019	\$37.69	\$7.60	\$13.00	\$0.00	\$58.29
For apprentice rates see "Apprentice- LABORER"						
ASBESTOS REMOVER - PIPE / MECH. EQUIPT. <i>HEAT & FROST INSULATORS LOCAL 6 (BOSTON)</i>	06/01/2017	\$34.90	\$11.50	\$7.10	\$0.00	\$53.50
	12/01/2017	\$35.90	\$11.50	\$7.10	\$0.00	\$54.50
	06/01/2018	\$36.90	\$11.50	\$7.10	\$0.00	\$55.50
	12/01/2018	\$37.90	\$11.50	\$7.10	\$0.00	\$56.50
	06/01/2019	\$38.90	\$11.50	\$7.10	\$0.00	\$57.50
	12/01/2019	\$39.90	\$11.50	\$7.10	\$0.00	\$58.50
	06/01/2020	\$40.90	\$11.50	\$7.10	\$0.00	\$59.50
	12/01/2020	\$41.90	\$11.50	\$7.10	\$0.00	\$60.50
ASPHALT RAKER <i>LABORERS - ZONE 2</i>	06/01/2017	\$33.15	\$7.60	\$13.00	\$0.00	\$53.75
	12/01/2017	\$33.78	\$7.60	\$13.00	\$0.00	\$54.38
	06/01/2018	\$34.62	\$7.60	\$13.00	\$0.00	\$55.22
	12/01/2018	\$35.46	\$7.60	\$13.00	\$0.00	\$56.06
	06/01/2019	\$36.33	\$7.60	\$13.00	\$0.00	\$56.93
	12/01/2019	\$37.19	\$7.60	\$13.00	\$0.00	\$57.79
For apprentice rates see "Apprentice- LABORER"						
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2017	\$46.38	\$10.00	\$15.25	\$0.00	\$71.63
	12/01/2017	\$47.38	\$10.00	\$15.25	\$0.00	\$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BACKHOE/FRONT-END LOADER <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2017	\$46.38	\$10.00	\$15.25	\$0.00	\$71.63
	12/01/2017	\$47.38	\$10.00	\$15.25	\$0.00	\$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BARCO-TYPE JUMPING TAMPER <i>LABORERS - ZONE 2</i>	06/01/2017	\$33.15	\$7.60	\$13.00	\$0.00	\$53.75
	12/01/2017	\$33.78	\$7.60	\$13.00	\$0.00	\$54.38
	06/01/2018	\$34.62	\$7.60	\$13.00	\$0.00	\$55.22
	12/01/2018	\$35.46	\$7.60	\$13.00	\$0.00	\$56.06
	06/01/2019	\$36.33	\$7.60	\$13.00	\$0.00	\$56.93
	12/01/2019	\$37.19	\$7.60	\$13.00	\$0.00	\$57.79
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
BLOCK PAVER, RAMMER / CURB SETTER <i>LABORERS - ZONE 2</i>	06/01/2017	\$33.65	\$7.60	\$13.00	\$0.00	\$54.25
	12/01/2017	\$34.28	\$7.60	\$13.00	\$0.00	\$54.88
	06/01/2018	\$35.12	\$7.60	\$13.00	\$0.00	\$55.72
	12/01/2018	\$35.96	\$7.60	\$13.00	\$0.00	\$56.56
	06/01/2019	\$36.83	\$7.60	\$13.00	\$0.00	\$57.43
	12/01/2019	\$37.69	\$7.60	\$13.00	\$0.00	\$58.29

For apprentice rates see "Apprentice- LABORER"

BOILER MAKER <i>BOILERMAKERS LOCAL 29</i>	01/01/2017	\$42.92	\$6.97	\$16.21	\$0.00	\$66.10
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Apprentice - BOILERMAKER - Local 29

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	65	\$27.90	\$6.97	\$10.54	\$0.00	\$45.41
2	65	\$27.90	\$6.97	\$10.54	\$0.00	\$45.41
3	70	\$30.04	\$6.97	\$11.35	\$0.00	\$48.36
4	75	\$32.19	\$6.97	\$12.16	\$0.00	\$51.32
5	80	\$34.34	\$6.97	\$12.97	\$0.00	\$54.28
6	85	\$36.48	\$6.97	\$13.78	\$0.00	\$57.23
7	90	\$38.63	\$6.97	\$14.59	\$0.00	\$60.19
8	95	\$40.77	\$6.97	\$15.40	\$0.00	\$63.14

Notes:

Apprentice to Journeyworker Ratio:1:5

BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING) <i>BRICKLAYERS LOCAL 3 (LOWELL)</i>	03/01/2017	\$48.66	\$10.75	\$18.62	\$0.00	\$78.03
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Apprentice - BRICK/PLASTER/CEMENT MASON - Local 3 Lowell

Effective Date - 03/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.33	\$10.75	\$18.62	\$0.00	\$53.70
2	60	\$29.20	\$10.75	\$18.62	\$0.00	\$58.57
3	70	\$34.06	\$10.75	\$18.62	\$0.00	\$63.43
4	80	\$38.93	\$10.75	\$18.62	\$0.00	\$68.30
5	90	\$43.79	\$10.75	\$18.62	\$0.00	\$73.16

Notes:

Apprentice to Journeyworker Ratio:1:5

BULLDOZER/GRADER/SCRAPER <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2017	\$45.93	\$10.00	\$15.25	\$0.00	\$71.18
	12/01/2017	\$46.92	\$10.00	\$15.25	\$0.00	\$72.17

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
CAISSON & UNDERPINNING BOTTOM MAN <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2016	\$37.45	\$7.60	\$14.35	\$0.00	\$59.40
For apprentice rates see "Apprentice- LABORER"						
CAISSON & UNDERPINNING LABORER <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2016	\$36.30	\$7.60	\$14.35	\$0.00	\$58.25
For apprentice rates see "Apprentice- LABORER"						
CAISSON & UNDERPINNING TOP MAN <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2016	\$36.30	\$7.60	\$14.35	\$0.00	\$58.25
For apprentice rates see "Apprentice- LABORER"						
CARBIDE CORE DRILL OPERATOR <i>LABORERS - ZONE 2</i>	06/01/2017	\$33.15	\$7.60	\$13.00	\$0.00	\$53.75
	12/01/2017	\$33.78	\$7.60	\$13.00	\$0.00	\$54.38
	06/01/2018	\$34.62	\$7.60	\$13.00	\$0.00	\$55.22
	12/01/2018	\$35.46	\$7.60	\$13.00	\$0.00	\$56.06
	06/01/2019	\$36.33	\$7.60	\$13.00	\$0.00	\$56.93
	12/01/2019	\$37.19	\$7.60	\$13.00	\$0.00	\$57.79
For apprentice rates see "Apprentice- LABORER"						
CARPENTER <i>CARPENTERS -ZONE 2 (Eastern Massachusetts)</i>	03/01/2017	\$38.77	\$9.90	\$17.00	\$0.00	\$65.67
	09/01/2017	\$39.78	\$9.90	\$17.00	\$0.00	\$66.68
	03/01/2018	\$40.78	\$9.90	\$17.00	\$0.00	\$67.68
	09/01/2018	\$41.82	\$9.90	\$17.00	\$0.00	\$68.72
	03/01/2019	\$42.85	\$9.90	\$17.00	\$0.00	\$69.75

Classification

Effective Date Base Wage Health Pension Supplemental
Unemployment Total Rate

Apprentice - CARPENTER - Zone 2 Eastern MA
Effective Date - 03/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.39	\$9.90	\$1.63	\$0.00	\$30.92
2	60	\$23.26	\$9.90	\$1.63	\$0.00	\$34.79
3	70	\$27.14	\$9.90	\$12.11	\$0.00	\$49.15
4	75	\$29.08	\$9.90	\$12.11	\$0.00	\$51.09
5	80	\$31.02	\$9.90	\$13.74	\$0.00	\$54.66
6	80	\$31.02	\$9.90	\$13.74	\$0.00	\$54.66
7	90	\$34.89	\$9.90	\$15.37	\$0.00	\$60.16
8	90	\$34.89	\$9.90	\$15.37	\$0.00	\$60.16

Effective Date - 09/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.89	\$9.90	\$1.63	\$0.00	\$31.42
2	60	\$23.87	\$9.90	\$1.63	\$0.00	\$35.40
3	70	\$27.85	\$9.90	\$12.11	\$0.00	\$49.86
4	75	\$29.84	\$9.90	\$12.11	\$0.00	\$51.85
5	80	\$31.82	\$9.90	\$13.74	\$0.00	\$55.46
6	80	\$31.82	\$9.90	\$13.74	\$0.00	\$55.46
7	90	\$35.80	\$9.90	\$15.37	\$0.00	\$61.07
8	90	\$35.80	\$9.90	\$15.37	\$0.00	\$61.07

Notes:
Apprentice to Journeyworker Ratio:1:5

CEMENT MASONRY/PLASTERING	01/01/2017	\$41.72	\$12.20	\$19.41	\$1.30	\$74.63
BRICKLAYERS LOCAL 3 (LOWELL)	07/01/2017	\$42.61	\$12.20	\$19.41	\$1.30	\$75.52
	01/01/2018	\$43.28	\$12.20	\$19.41	\$1.30	\$76.19
	07/01/2018	\$43.94	\$12.20	\$19.41	\$1.30	\$76.85
	01/01/2019	\$44.61	\$12.20	\$19.41	\$1.30	\$77.52
	07/01/2019	\$45.27	\$12.20	\$19.41	\$1.30	\$78.18
	01/01/2020	\$45.94	\$12.20	\$19.41	\$1.30	\$78.85

Classification
Effective Date
Base Wage
Health
Pension
**Supplemental
Unemployment**
Total Rate
Apprentice - CEMENT MASONRY/PLASTERING - Lowell
Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.86	\$12.20	\$12.41	\$0.00	\$45.47
2	60	\$25.03	\$12.20	\$14.41	\$1.30	\$52.94
3	65	\$27.12	\$12.20	\$15.41	\$1.30	\$56.03
4	70	\$29.20	\$12.20	\$16.41	\$1.30	\$59.11
5	75	\$31.29	\$12.20	\$17.41	\$1.30	\$62.20
6	80	\$33.38	\$12.20	\$18.41	\$1.30	\$65.29
7	90	\$37.55	\$12.20	\$19.41	\$1.30	\$70.46

Effective Date - 07/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.31	\$12.20	\$12.41	\$0.00	\$45.92
2	60	\$25.57	\$12.20	\$14.41	\$1.30	\$53.48
3	65	\$27.70	\$12.20	\$15.41	\$1.30	\$56.61
4	70	\$29.83	\$12.20	\$16.41	\$1.30	\$59.74
5	75	\$31.96	\$12.20	\$17.41	\$1.30	\$62.87
6	80	\$34.09	\$12.20	\$18.41	\$1.30	\$66.00
7	90	\$38.35	\$12.20	\$19.41	\$1.30	\$71.26

Notes:

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

Apprentice to Journeyworker Ratio:1:3

CHAIN SAW OPERATOR	06/01/2017	\$33.15	\$7.60	\$13.00	\$0.00	\$53.75
LABORERS - ZONE 2	12/01/2017	\$33.78	\$7.60	\$13.00	\$0.00	\$54.38
	06/01/2018	\$34.62	\$7.60	\$13.00	\$0.00	\$55.22
	12/01/2018	\$35.46	\$7.60	\$13.00	\$0.00	\$56.06
	06/01/2019	\$36.33	\$7.60	\$13.00	\$0.00	\$56.93
	12/01/2019	\$37.19	\$7.60	\$13.00	\$0.00	\$57.79
For apprentice rates see "Apprentice- LABORER"						
CLAM SHELLS/SLURRY BUCKETS/HEADING MACHINES	06/01/2017	\$47.38	\$10.00	\$15.25	\$0.00	\$72.63
OPERATING ENGINEERS LOCAL 4	12/01/2017	\$48.38	\$10.00	\$15.25	\$0.00	\$73.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
COMPRESSOR OPERATOR	06/01/2017	\$31.86	\$10.00	\$15.25	\$0.00	\$57.11
OPERATING ENGINEERS LOCAL 4	12/01/2017	\$32.55	\$10.00	\$15.25	\$0.00	\$57.80
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DELEADER (BRIDGE)	01/01/2017	\$51.41	\$7.85	\$16.10	\$0.00	\$75.36
PAINTERS LOCAL 35 - ZONE 2						

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

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.71	\$7.85	\$0.00	\$0.00	\$33.56
2	55	\$28.28	\$7.85	\$3.66	\$0.00	\$39.79
3	60	\$30.85	\$7.85	\$3.99	\$0.00	\$42.69
4	65	\$33.42	\$7.85	\$4.32	\$0.00	\$45.59
5	70	\$35.99	\$7.85	\$14.11	\$0.00	\$57.95
6	75	\$38.56	\$7.85	\$14.44	\$0.00	\$60.85
7	80	\$41.13	\$7.85	\$14.77	\$0.00	\$63.75
8	90	\$46.27	\$7.85	\$15.44	\$0.00	\$69.56

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

DEMO: ADZEMAN LABORERS - ZONE 2	06/01/2017	\$37.50	\$7.60	\$14.15	\$0.00	\$59.25
	12/01/2017	\$38.35	\$7.60	\$14.15	\$0.00	\$60.10
	06/01/2018	\$39.30	\$7.60	\$14.15	\$0.00	\$61.05
	12/01/2018	\$40.25	\$7.60	\$14.15	\$0.00	\$62.00
	06/01/2019	\$41.25	\$7.60	\$14.15	\$0.00	\$63.00
	12/01/2019	\$42.25	\$7.60	\$14.15	\$0.00	\$64.00
For apprentice rates see "Apprentice- LABORER"						
DEMO: BACKHOE/LOADER/HAMMER OPERATOR LABORERS - ZONE 2	06/01/2017	\$38.50	\$7.60	\$14.15	\$0.00	\$60.25
	12/01/2017	\$39.35	\$7.60	\$14.15	\$0.00	\$61.10
	06/01/2018	\$40.30	\$7.60	\$14.15	\$0.00	\$62.05
	12/01/2018	\$41.25	\$7.60	\$14.15	\$0.00	\$63.00
	06/01/2019	\$42.25	\$7.60	\$14.15	\$0.00	\$64.00
	12/01/2019	\$43.25	\$7.60	\$14.15	\$0.00	\$65.00
For apprentice rates see "Apprentice- LABORER"						
DEMO: BURNERS LABORERS - ZONE 2	06/01/2017	\$38.25	\$7.60	\$14.15	\$0.00	\$60.00
	12/01/2017	\$39.10	\$7.60	\$14.15	\$0.00	\$60.85
	06/01/2018	\$40.05	\$7.60	\$14.15	\$0.00	\$61.80
	12/01/2018	\$41.00	\$7.60	\$14.15	\$0.00	\$62.75
	06/01/2019	\$42.00	\$7.60	\$14.15	\$0.00	\$63.75
	12/01/2019	\$43.00	\$7.60	\$14.15	\$0.00	\$64.75
For apprentice rates see "Apprentice- LABORER"						
DEMO: CONCRETE CUTTER/SAWYER LABORERS - ZONE 2	06/01/2017	\$38.50	\$7.60	\$14.15	\$0.00	\$60.25
	12/01/2017	\$39.35	\$7.60	\$14.15	\$0.00	\$61.10
	06/01/2018	\$40.30	\$7.60	\$14.15	\$0.00	\$62.05
	12/01/2018	\$41.25	\$7.60	\$14.15	\$0.00	\$63.00
	06/01/2019	\$42.25	\$7.60	\$14.15	\$0.00	\$64.00
	12/01/2019	\$43.25	\$7.60	\$14.15	\$0.00	\$65.00
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
DEMO: JACKHAMMER OPERATOR <i>LABORERS - ZONE 2</i>	06/01/2017	\$38.25	\$7.60	\$14.15	\$0.00	\$60.00
	12/01/2017	\$39.10	\$7.60	\$14.15	\$0.00	\$60.85
	06/01/2018	\$40.05	\$7.60	\$14.15	\$0.00	\$61.80
	12/01/2018	\$41.00	\$7.60	\$14.15	\$0.00	\$62.75
	06/01/2019	\$42.00	\$7.60	\$14.15	\$0.00	\$63.75
	12/01/2019	\$43.00	\$7.60	\$14.15	\$0.00	\$64.75
For apprentice rates see "Apprentice- LABORER"						
DEMO: WRECKING LABORER <i>LABORERS - ZONE 2</i>	06/01/2017	\$37.50	\$7.60	\$14.15	\$0.00	\$59.25
	12/01/2017	\$38.35	\$7.60	\$14.15	\$0.00	\$60.10
	06/01/2018	\$39.30	\$7.60	\$14.15	\$0.00	\$61.05
	12/01/2018	\$40.25	\$7.60	\$14.15	\$0.00	\$62.00
	06/01/2019	\$41.25	\$7.60	\$14.15	\$0.00	\$63.00
	12/01/2019	\$42.25	\$7.60	\$14.15	\$0.00	\$64.00
For apprentice rates see "Apprentice- LABORER"						
DIRECTIONAL DRILL MACHINE OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2017	\$45.93	\$10.00	\$15.25	\$0.00	\$71.18
	12/01/2017	\$46.92	\$10.00	\$15.25	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DIVER <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2015	\$58.86	\$9.80	\$19.23	\$0.00	\$87.89
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2015	\$42.04	\$9.80	\$19.23	\$0.00	\$71.07
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2015	\$63.06	\$9.80	\$19.23	\$0.00	\$92.09
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER/SLURRY (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2015	\$88.23	\$9.80	\$19.23	\$0.00	\$117.26
For apprentice rates see "Apprentice- PILE DRIVER"						
DRAWBRIDGE OPERATOR (Construction) <i>ELECTRICIANS LOCAL 103</i>	03/01/2017	\$48.33	\$13.00	\$17.45	\$0.00	\$78.78
	09/01/2017	\$49.28	\$13.00	\$17.48	\$0.00	\$79.76
	03/01/2018	\$50.48	\$13.00	\$17.51	\$0.00	\$80.99
	09/01/2018	\$51.67	\$13.00	\$17.55	\$0.00	\$82.22
	03/01/2019	\$52.87	\$13.00	\$17.59	\$0.00	\$83.46
For apprentice rates see "Apprentice- ELECTRICIAN"						
ELECTRICIAN <i>ELECTRICIANS LOCAL 103</i>	03/01/2017	\$48.33	\$13.00	\$17.45	\$0.00	\$78.78
	09/01/2017	\$49.28	\$13.00	\$17.48	\$0.00	\$79.76
	03/01/2018	\$50.48	\$13.00	\$17.51	\$0.00	\$80.99
	09/01/2018	\$51.67	\$13.00	\$17.55	\$0.00	\$82.22
	03/01/2019	\$52.87	\$13.00	\$17.59	\$0.00	\$83.46

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - ELECTRICIAN - Local 103
Effective Date - 03/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$19.33	\$13.00	\$0.58	\$0.00	\$32.91
2	40	\$19.33	\$13.00	\$0.58	\$0.00	\$32.91
3	45	\$21.75	\$13.00	\$13.37	\$0.00	\$48.12
4	45	\$21.75	\$13.00	\$13.37	\$0.00	\$48.12
5	50	\$24.17	\$13.00	\$13.75	\$0.00	\$50.92
6	55	\$26.58	\$13.00	\$14.11	\$0.00	\$53.69
7	60	\$29.00	\$13.00	\$14.48	\$0.00	\$56.48
8	65	\$31.41	\$13.00	\$14.85	\$0.00	\$59.26
9	70	\$33.83	\$13.00	\$15.22	\$0.00	\$62.05
10	75	\$36.25	\$13.00	\$15.60	\$0.00	\$64.85

Effective Date - 09/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$19.71	\$13.00	\$0.59	\$0.00	\$33.30
2	40	\$19.71	\$13.00	\$0.59	\$0.00	\$33.30
3	45	\$22.18	\$13.00	\$13.39	\$0.00	\$48.57
4	45	\$22.18	\$13.00	\$13.39	\$0.00	\$48.57
5	50	\$24.64	\$13.00	\$13.76	\$0.00	\$51.40
6	55	\$27.10	\$13.00	\$14.12	\$0.00	\$54.22
7	60	\$29.57	\$13.00	\$14.50	\$0.00	\$57.07
8	65	\$32.03	\$13.00	\$14.87	\$0.00	\$59.90
9	70	\$34.50	\$13.00	\$15.25	\$0.00	\$62.75
10	75	\$36.96	\$13.00	\$15.62	\$0.00	\$65.58

Notes :

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

Apprentice to Journeyworker Ratio:2:3***

ELEVATOR CONSTRUCTOR	01/01/2017	\$55.86	\$15.28	\$15.71	\$0.00	\$86.85
ELEVATOR CONSTRUCTORS LOCAL 4						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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Apprentice - ELEVATOR CONSTRUCTOR - Local 4

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$27.93	\$15.28	\$0.00	\$0.00	\$43.21
2	55	\$30.72	\$15.28	\$15.71	\$0.00	\$61.71
3	65	\$36.31	\$15.28	\$15.71	\$0.00	\$67.30
4	70	\$39.10	\$15.28	\$15.71	\$0.00	\$70.09
5	80	\$44.69	\$15.28	\$15.71	\$0.00	\$75.68

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>	01/01/2017	\$39.10	\$15.28	\$15.71	\$0.00	\$70.09
For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"						
FENCE & GUARD RAIL ERECTOR <i>LABORERS - ZONE 2</i>	06/01/2017	\$33.15	\$7.60	\$13.00	\$0.00	\$53.75
	12/01/2017	\$33.78	\$7.60	\$13.00	\$0.00	\$54.38
	06/01/2018	\$34.62	\$7.60	\$13.00	\$0.00	\$55.22
	12/01/2018	\$35.46	\$7.60	\$13.00	\$0.00	\$56.06
	06/01/2019	\$36.33	\$7.60	\$13.00	\$0.00	\$56.93
	12/01/2019	\$37.19	\$7.60	\$13.00	\$0.00	\$57.79
For apprentice rates see "Apprentice- LABORER"						
FIELD ENG.INST.PERSON-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	05/01/2017	\$42.15	\$10.00	\$15.25	\$0.00	\$67.40
	11/01/2017	\$42.88	\$10.00	\$15.25	\$0.00	\$68.13
	05/01/2018	\$43.59	\$10.00	\$15.25	\$0.00	\$68.84
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIELD ENG.PARTY CHIEF-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	05/01/2017	\$43.61	\$10.00	\$15.25	\$0.00	\$68.86
	11/01/2017	\$44.34	\$10.00	\$15.25	\$0.00	\$69.59
	05/01/2018	\$45.06	\$10.00	\$15.25	\$0.00	\$70.31
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIELD ENG.ROD PERSON-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	05/01/2017	\$22.41	\$10.00	\$15.25	\$0.00	\$47.66
	11/01/2017	\$22.83	\$10.00	\$15.25	\$0.00	\$48.08
	05/01/2018	\$23.26	\$10.00	\$15.25	\$0.00	\$48.51
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIRE ALARM INSTALLER <i>ELECTRICIANS LOCAL 103</i>	03/01/2017	\$48.33	\$13.00	\$17.45	\$0.00	\$78.78
	09/01/2017	\$49.28	\$13.00	\$17.48	\$0.00	\$79.76
	03/01/2018	\$50.48	\$13.00	\$17.51	\$0.00	\$80.99
	09/01/2018	\$51.67	\$13.00	\$17.55	\$0.00	\$82.22
	03/01/2019	\$52.87	\$13.00	\$17.59	\$0.00	\$83.46
For apprentice rates see "Apprentice- ELECTRICIAN"						
FIRE ALARM REPAIR / MAINTENANCE <i>LOCAL 103</i> / COMMISSIONING <i>ELECTRICIANS</i>	03/01/2017	\$36.25	\$13.00	\$15.60	\$0.00	\$64.85
	09/01/2017	\$36.96	\$13.00	\$15.62	\$0.00	\$65.58
	03/01/2018	\$37.86	\$13.00	\$15.65	\$0.00	\$66.51
	09/01/2018	\$38.75	\$13.00	\$15.67	\$0.00	\$67.42
	03/01/2019	\$39.65	\$13.00	\$15.70	\$0.00	\$68.35

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- TELECOMMUNICATIONS TECHNICIAN"						
FIREMAN (ASST. ENGINEER)	06/01/2017	\$38.49	\$10.00	\$15.25	\$0.00	\$63.74
OPERATING ENGINEERS LOCAL 4	12/01/2017	\$39.32	\$10.00	\$15.25	\$0.00	\$64.57
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FLAGGER & SIGNALER	12/01/2016	\$20.50	\$7.60	\$13.00	\$0.00	\$41.10
LABORERS - ZONE 2						
For apprentice rates see "Apprentice- LABORER"						
FLOORCOVERER	03/01/2016	\$42.13	\$9.80	\$17.62	\$0.00	\$69.55
FLOORCOVERERS LOCAL 2168 ZONE I						

Apprentice - FLOORCOVERER - Local 2168 Zone I

Effective Date - 03/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.07	\$9.80	\$1.79	\$0.00	\$32.66
2	55	\$23.17	\$9.80	\$1.79	\$0.00	\$34.76
3	60	\$25.28	\$9.80	\$12.25	\$0.00	\$47.33
4	65	\$27.38	\$9.80	\$12.25	\$0.00	\$49.43
5	70	\$29.49	\$9.80	\$14.04	\$0.00	\$53.33
6	75	\$31.60	\$9.80	\$14.04	\$0.00	\$55.44
7	80	\$33.70	\$9.80	\$15.83	\$0.00	\$59.33
8	85	\$35.81	\$9.80	\$15.83	\$0.00	\$61.44

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

FORK LIFT/CHERRY PICKER	06/01/2017	\$46.38	\$10.00	\$15.25	\$0.00	\$71.63
OPERATING ENGINEERS LOCAL 4	12/01/2017	\$47.38	\$10.00	\$15.25	\$0.00	\$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GENERATOR/LIGHTING PLANT/HEATERS	06/01/2017	\$31.86	\$10.00	\$15.25	\$0.00	\$57.11
OPERATING ENGINEERS LOCAL 4	12/01/2017	\$32.55	\$10.00	\$15.25	\$0.00	\$57.80
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS)	01/01/2017	\$40.91	\$7.85	\$16.10	\$0.00	\$64.86
GLAZIERS LOCAL 35 (ZONE 2)						

Classification

Effective Date

Base Wage

Health

Pension

**Supplemental
Unemployment**

Total Rate

Apprentice - GLAZIER - Local 35 Zone 2

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.46	\$7.85	\$0.00	\$0.00	\$28.31
2	55	\$22.50	\$7.85	\$3.66	\$0.00	\$34.01
3	60	\$24.55	\$7.85	\$3.99	\$0.00	\$36.39
4	65	\$26.59	\$7.85	\$4.32	\$0.00	\$38.76
5	70	\$28.64	\$7.85	\$14.11	\$0.00	\$50.60
6	75	\$30.68	\$7.85	\$14.44	\$0.00	\$52.97
7	80	\$32.73	\$7.85	\$14.77	\$0.00	\$55.35
8	90	\$36.82	\$7.85	\$15.44	\$0.00	\$60.11

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

HOISTING ENGINEER/CRANES/GRADALLS	06/01/2017	\$46.38	\$10.00	\$15.25	\$0.00	\$71.63
OPERATING ENGINEERS LOCAL 4	12/01/2017	\$47.38	\$10.00	\$15.25	\$0.00	\$72.63

Classification
Effective Date
Base Wage
Health
Pension
**Supplemental
Unemployment**
Total Rate
Apprentice - OPERATING ENGINEERS - Local 4
Effective Date - 06/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$25.51	\$10.00	\$0.00	\$0.00	\$35.51
2	60	\$27.83	\$10.00	\$15.25	\$0.00	\$53.08
3	65	\$30.15	\$10.00	\$15.25	\$0.00	\$55.40
4	70	\$32.47	\$10.00	\$15.25	\$0.00	\$57.72
5	75	\$34.79	\$10.00	\$15.25	\$0.00	\$60.04
6	80	\$37.10	\$10.00	\$15.25	\$0.00	\$62.35
7	85	\$39.42	\$10.00	\$15.25	\$0.00	\$64.67
8	90	\$41.74	\$10.00	\$15.25	\$0.00	\$66.99

Effective Date - 12/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$26.06	\$10.00	\$0.00	\$0.00	\$36.06
2	60	\$28.43	\$10.00	\$15.25	\$0.00	\$53.68
3	65	\$30.80	\$10.00	\$15.25	\$0.00	\$56.05
4	70	\$33.17	\$10.00	\$15.25	\$0.00	\$58.42
5	75	\$35.54	\$10.00	\$15.25	\$0.00	\$60.79
6	80	\$37.90	\$10.00	\$15.25	\$0.00	\$63.15
7	85	\$40.27	\$10.00	\$15.25	\$0.00	\$65.52
8	90	\$42.64	\$10.00	\$15.25	\$0.00	\$67.89

Notes:
Apprentice to Journeyworker Ratio:1:6

HVAC (DUCTWORK) SHEETMETAL WORKERS LOCAL 17 - A	02/01/2017	\$43.72	\$11.45	\$23.07	\$2.35	\$80.59
	08/01/2017	\$44.82	\$11.45	\$23.07	\$2.35	\$81.69
	02/01/2018	\$45.97	\$11.45	\$23.07	\$2.35	\$82.84
For apprentice rates see "Apprentice- SHEET METAL WORKER"						
HVAC (ELECTRICAL CONTROLS) ELECTRICIANS LOCAL 103	03/01/2017	\$48.33	\$13.00	\$17.45	\$0.00	\$78.78
	09/01/2017	\$49.28	\$13.00	\$17.48	\$0.00	\$79.76
	03/01/2018	\$50.48	\$13.00	\$17.51	\$0.00	\$80.99
	09/01/2018	\$51.67	\$13.00	\$17.55	\$0.00	\$82.22
	03/01/2019	\$52.87	\$13.00	\$17.59	\$0.00	\$83.46
For apprentice rates see "Apprentice- ELECTRICIAN"						
HVAC (TESTING AND BALANCING - AIR) SHEETMETAL WORKERS LOCAL 17 - A	02/01/2017	\$43.72	\$11.45	\$23.07	\$2.35	\$80.59
	08/01/2017	\$44.82	\$11.45	\$23.07	\$2.35	\$81.69
	02/01/2018	\$45.97	\$11.45	\$23.07	\$2.35	\$82.84
For apprentice rates see "Apprentice- SHEET METAL WORKER"						
HVAC (TESTING AND BALANCING -WATER) PIPEFITTERS LOCAL 537	03/01/2017	\$51.19	\$9.70	\$18.14	\$0.00	\$79.03
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HVAC MECHANIC PIPEFITTERS LOCAL 537	03/01/2017	\$51.19	\$9.70	\$18.14	\$0.00	\$79.03

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HYDRAULIC DRILLS <i>LABORERS - ZONE 2</i>	06/01/2017	\$33.65	\$7.60	\$13.00	\$0.00	\$54.25
	12/01/2017	\$34.28	\$7.60	\$13.00	\$0.00	\$54.88
	06/01/2018	\$35.12	\$7.60	\$13.00	\$0.00	\$55.72
	12/01/2018	\$35.96	\$7.60	\$13.00	\$0.00	\$56.56
	06/01/2019	\$36.83	\$7.60	\$13.00	\$0.00	\$57.43
	12/01/2019	\$37.69	\$7.60	\$13.00	\$0.00	\$58.29
For apprentice rates see "Apprentice- LABORER"						
INSULATOR (PIPES & TANKS) <i>HEAT & FROST INSULATORS LOCAL 6 (BOSTON)</i>	09/01/2016	\$45.09	\$11.75	\$14.20	\$0.00	\$71.04
	09/01/2017	\$47.09	\$11.75	\$14.20	\$0.00	\$73.04
	09/01/2018	\$49.34	\$11.75	\$14.20	\$0.00	\$75.29
	09/01/2019	\$51.84	\$11.75	\$14.20	\$0.00	\$77.79

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

Effective Date - 09/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.55	\$11.75	\$10.45	\$0.00	\$44.75
2	60	\$27.05	\$11.75	\$11.20	\$0.00	\$50.00
3	70	\$31.56	\$11.75	\$11.95	\$0.00	\$55.26
4	80	\$36.07	\$11.75	\$12.70	\$0.00	\$60.52

Effective Date - 09/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.55	\$11.75	\$10.45	\$0.00	\$45.75
2	60	\$28.25	\$11.75	\$11.20	\$0.00	\$51.20
3	70	\$32.96	\$11.75	\$11.95	\$0.00	\$56.66
4	80	\$37.67	\$11.75	\$12.70	\$0.00	\$62.12

Notes:

Steps are 1 year

Apprentice to Journeyworker Ratio:1:4

IRONWORKER/WELDER <i>IRONWORKERS LOCAL 7 (WORCESTER AREA)</i>	03/16/2017	\$44.35	\$7.80	\$20.85	\$0.00	\$73.00
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Apprentice - IRONWORKER - Local 7 Worcester

Effective Date - 03/16/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$26.61	\$7.80	\$20.85	\$0.00	\$55.26
2	70	\$31.05	\$7.80	\$20.85	\$0.00	\$59.70
3	75	\$33.26	\$7.80	\$20.85	\$0.00	\$61.91
4	80	\$35.48	\$7.80	\$20.85	\$0.00	\$64.13
5	85	\$37.70	\$7.80	\$20.85	\$0.00	\$66.35
6	90	\$39.92	\$7.80	\$20.85	\$0.00	\$68.57

Notes:

Structural 1:6; Ornamental 1:4

Apprentice to Journeyworker Ratio:

JACKHAMMER & PAVING BREAKER OPERATOR	06/01/2017	\$33.15	\$7.60	\$13.00	\$0.00	\$53.75
LABORERS - ZONE 2	12/01/2017	\$33.78	\$7.60	\$13.00	\$0.00	\$54.38
	06/01/2018	\$34.62	\$7.60	\$13.00	\$0.00	\$55.22
	12/01/2018	\$35.46	\$7.60	\$13.00	\$0.00	\$56.06
	06/01/2019	\$36.33	\$7.60	\$13.00	\$0.00	\$56.93
	12/01/2019	\$37.19	\$7.60	\$13.00	\$0.00	\$57.79

For apprentice rates see "Apprentice- LABORER"

LABORER	06/01/2017	\$32.90	\$7.60	\$13.00	\$0.00	\$53.50
LABORERS - ZONE 2	12/01/2017	\$33.53	\$7.60	\$13.00	\$0.00	\$54.13
	06/01/2018	\$34.37	\$7.60	\$13.00	\$0.00	\$54.97
	12/01/2018	\$35.21	\$7.60	\$13.00	\$0.00	\$55.81
	06/01/2019	\$36.08	\$7.60	\$13.00	\$0.00	\$56.68
	12/01/2019	\$36.94	\$7.60	\$13.00	\$0.00	\$57.54

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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Apprentice - LABORER - Zone 2

Effective Date - 06/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$19.74	\$7.60	\$13.00	\$0.00	\$40.34
2	70	\$23.03	\$7.60	\$13.00	\$0.00	\$43.63
3	80	\$26.32	\$7.60	\$13.00	\$0.00	\$46.92
4	90	\$29.61	\$7.60	\$13.00	\$0.00	\$50.21

Effective Date - 12/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$20.12	\$7.60	\$13.00	\$0.00	\$40.72
2	70	\$23.47	\$7.60	\$13.00	\$0.00	\$44.07
3	80	\$26.82	\$7.60	\$13.00	\$0.00	\$47.42
4	90	\$30.18	\$7.60	\$13.00	\$0.00	\$50.78

Notes:

Apprentice to Journeyworker Ratio:1:5

LABORER: CARPENTER TENDER	06/01/2017	\$32.90	\$7.60	\$13.00	\$0.00	\$53.50
LABORERS - ZONE 2	12/01/2017	\$33.53	\$7.60	\$13.00	\$0.00	\$54.13
	06/01/2018	\$34.37	\$7.60	\$13.00	\$0.00	\$54.97
	12/01/2018	\$35.21	\$7.60	\$13.00	\$0.00	\$55.81
	06/01/2019	\$36.08	\$7.60	\$13.00	\$0.00	\$56.68
	12/01/2019	\$36.94	\$7.60	\$13.00	\$0.00	\$57.54

For apprentice rates see "Apprentice- LABORER"

LABORER: CEMENT FINISHER TENDER	06/01/2017	\$32.90	\$7.60	\$13.00	\$0.00	\$53.50
LABORERS - ZONE 2	12/01/2017	\$33.53	\$7.60	\$13.00	\$0.00	\$54.13
	06/01/2018	\$34.37	\$7.60	\$13.00	\$0.00	\$54.97
	12/01/2018	\$35.21	\$7.60	\$13.00	\$0.00	\$55.81
	06/01/2019	\$36.08	\$7.60	\$13.00	\$0.00	\$56.68
	12/01/2019	\$36.94	\$7.60	\$13.00	\$0.00	\$57.54

For apprentice rates see "Apprentice- LABORER"

LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER	06/01/2017	\$33.10	\$7.60	\$12.95	\$0.00	\$53.65
LABORERS - ZONE 2	12/01/2017	\$33.73	\$7.60	\$12.95	\$0.00	\$54.28
	06/01/2018	\$34.57	\$7.60	\$12.95	\$0.00	\$55.12
	12/01/2018	\$35.41	\$7.60	\$12.95	\$0.00	\$55.96
	06/01/2019	\$36.28	\$7.60	\$12.95	\$0.00	\$56.83
	12/01/2019	\$37.14	\$7.60	\$12.95	\$0.00	\$57.69

For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
LABORER: MASON TENDER <i>LABORERS - ZONE 2</i>	06/01/2017	\$33.15	\$7.60	\$13.00	\$0.00	\$53.75
	12/01/2017	\$33.78	\$7.60	\$13.00	\$0.00	\$54.38
	06/01/2018	\$34.62	\$7.60	\$13.00	\$0.00	\$55.22
	12/01/2018	\$35.46	\$7.60	\$13.00	\$0.00	\$56.06
	06/01/2019	\$36.33	\$7.60	\$13.00	\$0.00	\$56.93
	12/01/2019	\$37.19	\$7.60	\$13.00	\$0.00	\$57.79
For apprentice rates see "Apprentice- LABORER"						
LABORER: MULTI-TRADE TENDER <i>LABORERS - ZONE 2</i>	06/01/2017	\$32.90	\$7.60	\$13.00	\$0.00	\$53.50
	12/01/2017	\$33.53	\$7.60	\$13.00	\$0.00	\$54.13
	06/01/2018	\$34.37	\$7.60	\$13.00	\$0.00	\$54.97
	12/01/2018	\$35.21	\$7.60	\$13.00	\$0.00	\$55.81
	06/01/2019	\$36.08	\$7.60	\$13.00	\$0.00	\$56.68
	12/01/2019	\$36.94	\$7.60	\$13.00	\$0.00	\$57.54
For apprentice rates see "Apprentice- LABORER"						
LABORER: TREE REMOVER <i>LABORERS - ZONE 2</i>	06/01/2017	\$32.90	\$7.60	\$13.00	\$0.00	\$53.50
	12/01/2017	\$33.53	\$7.60	\$13.00	\$0.00	\$54.13
	06/01/2018	\$34.37	\$7.60	\$13.00	\$0.00	\$54.97
	12/01/2018	\$35.21	\$7.60	\$13.00	\$0.00	\$55.81
	06/01/2019	\$36.08	\$7.60	\$13.00	\$0.00	\$56.68
	12/01/2019	\$36.94	\$7.60	\$13.00	\$0.00	\$57.54
This classification applies to all tree work associated with the removal of standing trees, and trimming and removal of branches and limbs when the work is not done for a utility company for the purpose of operation, maintenance or repair of utility company equipment. For apprentice rates see "Apprentice- LABORER"						
LASER BEAM OPERATOR <i>LABORERS - ZONE 2</i>	06/01/2017	\$33.15	\$7.60	\$13.00	\$0.00	\$53.75
	12/01/2017	\$33.78	\$7.60	\$13.00	\$0.00	\$54.38
	06/01/2018	\$34.62	\$7.60	\$13.00	\$0.00	\$55.22
	12/01/2018	\$35.46	\$7.60	\$13.00	\$0.00	\$56.06
	06/01/2019	\$36.33	\$7.60	\$13.00	\$0.00	\$56.93
	12/01/2019	\$37.19	\$7.60	\$13.00	\$0.00	\$57.79
For apprentice rates see "Apprentice- LABORER"						
MARBLE & TILE FINISHERS <i>BRICKLAYERS LOCAL 3 - MARBLE & TILE</i>	02/01/2017	\$38.78	\$10.75	\$17.67	\$0.00	\$67.20

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

Effective Date - 02/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.39	\$10.75	\$17.67	\$0.00	\$47.81
2	60	\$23.27	\$10.75	\$17.67	\$0.00	\$51.69
3	70	\$27.15	\$10.75	\$17.67	\$0.00	\$55.57
4	80	\$31.02	\$10.75	\$17.67	\$0.00	\$59.44
5	90	\$34.90	\$10.75	\$17.67	\$0.00	\$63.32

Notes:

Apprentice to Journeyworker Ratio:1:3

MARBLE MASONS, TILELAYERS & TERRAZZO MECH <i>BRICKLAYERS LOCAL 3 - MARBLE & TILE</i>	02/01/2017	\$50.80	\$10.75	\$19.22	\$0.00	\$80.77
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Classification
Effective Date
Base Wage
Health
Pension
**Supplemental
Unemployment**
Total Rate
Apprentice - MARBLE-TILE-TERRAZZO MECHANIC - Local 3 Marble & Tile
Effective Date - 02/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.40	\$10.75	\$19.22	\$0.00	\$55.37
2	60	\$30.48	\$10.75	\$19.22	\$0.00	\$60.45
3	70	\$35.56	\$10.75	\$19.22	\$0.00	\$65.53
4	80	\$40.64	\$10.75	\$19.22	\$0.00	\$70.61
5	90	\$45.72	\$10.75	\$19.22	\$0.00	\$75.69

Notes:
Apprentice to Journeyworker Ratio:1:5

MECH. SWEEPER OPERATOR (ON CONST. SITES)	06/01/2017	\$45.93	\$10.00	\$15.25	\$0.00	\$71.18
OPERATING ENGINEERS LOCAL 4	12/01/2017	\$46.92	\$10.00	\$15.25	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
MECHANICS MAINTENANCE	06/01/2017	\$45.93	\$10.00	\$15.25	\$0.00	\$71.18
OPERATING ENGINEERS LOCAL 4	12/01/2017	\$46.92	\$10.00	\$15.25	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
MILLWRIGHT (Zone 2)	04/01/2017	\$35.47	\$9.90	\$18.50	\$0.00	\$63.87
MILLWRIGHTS LOCAL 1121 - Zone 2	10/01/2017	\$36.32	\$9.90	\$18.50	\$0.00	\$64.72
	04/01/2018	\$37.17	\$9.90	\$18.50	\$0.00	\$65.57
	10/01/2018	\$38.02	\$9.90	\$18.50	\$0.00	\$66.42
	04/01/2019	\$38.87	\$9.90	\$18.50	\$0.00	\$67.27

Apprentice - MILLWRIGHT - Local 1121 Zone 2
Effective Date - 04/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$19.51	\$9.90	\$5.31	\$0.00	\$34.72
2	65	\$23.06	\$9.90	\$15.13	\$0.00	\$48.09
3	75	\$26.60	\$9.90	\$16.10	\$0.00	\$52.60
4	85	\$30.15	\$9.90	\$17.06	\$0.00	\$57.11

Effective Date - 10/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$19.98	\$9.90	\$5.31	\$0.00	\$35.19
2	65	\$23.61	\$9.90	\$15.13	\$0.00	\$48.64
3	75	\$27.24	\$9.90	\$16.10	\$0.00	\$53.24
4	85	\$30.87	\$9.90	\$15.06	\$0.00	\$55.83

Notes:

Steps are 2,000 hours

Apprentice to Journeyworker Ratio:1:5

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
MORTAR MIXER <i>LABORERS - ZONE 2</i>	06/01/2017	\$33.15	\$7.60	\$13.00	\$0.00	\$53.75
	12/01/2017	\$33.78	\$7.60	\$13.00	\$0.00	\$54.38
	06/01/2018	\$34.62	\$7.60	\$13.00	\$0.00	\$55.22
	12/01/2018	\$35.46	\$7.60	\$13.00	\$0.00	\$56.06
	06/01/2019	\$36.33	\$7.60	\$13.00	\$0.00	\$56.93
	12/01/2019	\$37.19	\$7.60	\$13.00	\$0.00	\$57.79
For apprentice rates see "Apprentice- LABORER"						
OILER (OTHER THAN TRUCK CRANES,GRADALLS) <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2017	\$23.47	\$10.00	\$15.25	\$0.00	\$48.72
	12/01/2017	\$23.99	\$10.00	\$15.25	\$0.00	\$49.24
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
OILER (TRUCK CRANES, GRADALLS) <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2017	\$27.54	\$10.00	\$15.25	\$0.00	\$52.79
	12/01/2017	\$28.15	\$10.00	\$15.25	\$0.00	\$53.40
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
OTHER POWER DRIVEN EQUIPMENT - CLASS II <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2017	\$45.93	\$10.00	\$15.25	\$0.00	\$71.18
	12/01/2017	\$46.92	\$10.00	\$15.25	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PAINTER (BRIDGES/TANKS) <i>PAINTERS LOCAL 35 - ZONE 2</i>	01/01/2017	\$51.41	\$7.85	\$16.10	\$0.00	\$75.36

Apprentice - PAINTER Local 35 - BRIDGES/TANKS

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.71	\$7.85	\$0.00	\$0.00	\$33.56
2	55	\$28.28	\$7.85	\$3.66	\$0.00	\$39.79
3	60	\$30.85	\$7.85	\$3.99	\$0.00	\$42.69
4	65	\$33.42	\$7.85	\$4.32	\$0.00	\$45.59
5	70	\$35.99	\$7.85	\$14.11	\$0.00	\$57.95
6	75	\$38.56	\$7.85	\$14.44	\$0.00	\$60.85
7	80	\$41.13	\$7.85	\$14.77	\$0.00	\$63.75
8	90	\$46.27	\$7.85	\$15.44	\$0.00	\$69.56

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SPRAY OR SANDBLAST, NEW) *	01/01/2017	\$42.31	\$7.85	\$16.10	\$0.00	\$66.26
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* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used.*PAINTERS LOCAL 35 - ZONE 2*

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PAINTER Local 35 Zone 2 - Spray/Sandblast - New
Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.16	\$7.85	\$0.00	\$0.00	\$29.01
2	55	\$23.27	\$7.85	\$3.66	\$0.00	\$34.78
3	60	\$25.39	\$7.85	\$3.99	\$0.00	\$37.23
4	65	\$27.50	\$7.85	\$4.32	\$0.00	\$39.67
5	70	\$29.62	\$7.85	\$14.11	\$0.00	\$51.58
6	75	\$31.73	\$7.85	\$14.44	\$0.00	\$54.02
7	80	\$33.85	\$7.85	\$14.77	\$0.00	\$56.47
8	90	\$38.08	\$7.85	\$15.44	\$0.00	\$61.37

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SPRAY OR SANDBLAST, REPAINT)	01/01/2017	\$40.37	\$7.85	\$16.10	\$0.00	\$64.32
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PAINTERS LOCAL 35 - ZONE 2
Apprentice - PAINTER Local 35 Zone 2 - Spray/Sandblast - Repaint
Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.19	\$7.85	\$0.00	\$0.00	\$28.04
2	55	\$22.20	\$7.85	\$3.66	\$0.00	\$33.71
3	60	\$24.22	\$7.85	\$3.99	\$0.00	\$36.06
4	65	\$26.24	\$7.85	\$4.32	\$0.00	\$38.41
5	70	\$28.26	\$7.85	\$14.11	\$0.00	\$50.22
6	75	\$30.28	\$7.85	\$14.44	\$0.00	\$52.57
7	80	\$32.30	\$7.85	\$14.77	\$0.00	\$54.92
8	90	\$36.33	\$7.85	\$15.44	\$0.00	\$59.62

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (TRAFFIC MARKINGS)	06/01/2017	\$32.90	\$7.60	\$13.00	\$0.00	\$53.50
	12/01/2017	\$33.53	\$7.60	\$13.00	\$0.00	\$54.13
	06/01/2018	\$34.37	\$7.60	\$13.00	\$0.00	\$54.97
	12/01/2018	\$35.21	\$7.60	\$13.00	\$0.00	\$55.81
	06/01/2019	\$36.08	\$7.60	\$13.00	\$0.00	\$56.68
	12/01/2019	\$36.94	\$7.60	\$13.00	\$0.00	\$57.54

For Apprentice rates see "Apprentice- LABORER"

PAINTER / TAPER (BRUSH, NEW) *	01/01/2017	\$40.91	\$7.85	\$16.10	\$0.00	\$64.86
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* If 30% or more of surfaces to be painted are new construction,
NEW paint rate shall be used. *PAINTERS LOCAL 35 - ZONE 2*

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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Apprentice - PAINTER - Local 35 Zone 2 - BRUSH NEW

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.46	\$7.85	\$0.00	\$0.00	\$28.31
2	55	\$22.50	\$7.85	\$3.66	\$0.00	\$34.01
3	60	\$24.55	\$7.85	\$3.99	\$0.00	\$36.39
4	65	\$26.59	\$7.85	\$4.32	\$0.00	\$38.76
5	70	\$28.64	\$7.85	\$14.11	\$0.00	\$50.60
6	75	\$30.68	\$7.85	\$14.44	\$0.00	\$52.97
7	80	\$32.73	\$7.85	\$14.77	\$0.00	\$55.35
8	90	\$36.82	\$7.85	\$15.44	\$0.00	\$60.11

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER / TAPER (BRUSH, REPAINT)	01/01/2017	\$38.97	\$7.85	\$16.10	\$0.00	\$62.92
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PAINTERS LOCAL 35 - ZONE 2

Apprentice - PAINTER Local 35 Zone 2 - BRUSH REPAINT

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.49	\$7.85	\$0.00	\$0.00	\$27.34
2	55	\$21.43	\$7.85	\$3.66	\$0.00	\$32.94
3	60	\$23.38	\$7.85	\$3.99	\$0.00	\$35.22
4	65	\$25.33	\$7.85	\$4.32	\$0.00	\$37.50
5	70	\$27.28	\$7.85	\$14.11	\$0.00	\$49.24
6	75	\$29.23	\$7.85	\$14.44	\$0.00	\$51.52
7	80	\$31.18	\$7.85	\$14.77	\$0.00	\$53.80
8	90	\$35.07	\$7.85	\$15.44	\$0.00	\$58.36

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PANEL & PICKUP TRUCKS DRIVER	12/01/2012	\$30.28	\$9.07	\$8.00	\$0.00	\$47.35
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TEAMSTERS JOINT COUNCIL NO. 10 ZONE B

PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK)	08/01/2015	\$42.04	\$9.80	\$19.23	\$0.00	\$71.07
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PILE DRIVER LOCAL 56 (ZONE 1)

For apprentice rates see "Apprentice- PILE DRIVER"

PILE DRIVER	08/01/2015	\$42.04	\$9.80	\$19.23	\$0.00	\$71.07
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PILE DRIVER LOCAL 56 (ZONE 1)

Classification

Effective Date

Base Wage

Health

Pension

Supplemental
Unemployment

Total Rate

Apprentice - PILE DRIVER - Local 56 Zone 1**Effective Date - 08/01/2015**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.02	\$9.80	\$19.23	\$0.00	\$50.05
2	60	\$25.22	\$9.80	\$19.23	\$0.00	\$54.25
3	70	\$29.43	\$9.80	\$19.23	\$0.00	\$58.46
4	75	\$31.53	\$9.80	\$19.23	\$0.00	\$60.56
5	80	\$33.63	\$9.80	\$19.23	\$0.00	\$62.66
6	80	\$33.63	\$9.80	\$19.23	\$0.00	\$62.66
7	90	\$37.84	\$9.80	\$19.23	\$0.00	\$66.87
8	90	\$37.84	\$9.80	\$19.23	\$0.00	\$66.87

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

PIPEFITTER & STEAMFITTER

03/01/2017

\$51.19

\$9.70

\$18.14

\$0.00

\$79.03

PIPEFITTERS LOCAL 537

Apprentice - PIPEFITTER - Local 537**Effective Date - 03/01/2017**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$20.48	\$9.70	\$7.50	\$0.00	\$37.68
2	45	\$23.04	\$9.70	\$18.14	\$0.00	\$50.88
3	60	\$30.71	\$9.70	\$18.14	\$0.00	\$58.55
4	70	\$35.83	\$9.70	\$18.14	\$0.00	\$63.67
5	80	\$40.95	\$9.70	\$18.14	\$0.00	\$68.79

Notes:

** 1:3; 3:15; 1:10 thereafter / Steps are 1 yr.

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

Apprentice to Journeyworker Ratio:**

PIPELAYER

06/01/2017

\$33.15

\$7.60

\$13.00

\$0.00

\$53.75

LABORERS - ZONE 2

12/01/2017

\$33.78

\$7.60

\$13.00

\$0.00

\$54.38

06/01/2018

\$34.62

\$7.60

\$13.00

\$0.00

\$55.22

12/01/2018

\$35.46

\$7.60

\$13.00

\$0.00

\$56.06

06/01/2019

\$36.33

\$7.60

\$13.00

\$0.00

\$56.93

12/01/2019

\$37.19

\$7.60

\$13.00

\$0.00

\$57.79

For apprentice rates see "Apprentice- LABORER"

PLUMBERS & GASFITTERS

03/01/2017

\$52.69

\$11.32

\$15.46

\$0.00

\$79.47

PLUMBERS & GASFITTERS LOCAL 12

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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Apprentice - PLUMBER/GASFITTER - Local 12

Effective Date - 03/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$18.44	\$11.32	\$5.74	\$0.00	\$35.50
2	40	\$21.08	\$11.32	\$6.49	\$0.00	\$38.89
3	55	\$28.98	\$11.32	\$8.73	\$0.00	\$49.03
4	65	\$34.25	\$11.32	\$10.23	\$0.00	\$55.80
5	75	\$39.52	\$11.32	\$11.72	\$0.00	\$62.56

Notes:

** 1:2; 2:6; 3:10; 4:14; 5:19/Steps are 1 yr
Step4 with lic\$58.50 Step5 with lic\$65.36

Apprentice to Journeyworker Ratio:**

PNEUMATIC CONTROLS (TEMP.) PIPEFITTERS LOCAL 537	03/01/2017	\$51.19	\$9.70	\$18.14	\$0.00	\$79.03
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For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"

PNEUMATIC DRILL/TOOL OPERATOR LABORERS - ZONE 2	06/01/2017	\$33.15	\$7.60	\$13.00	\$0.00	\$53.75
	12/01/2017	\$33.78	\$7.60	\$13.00	\$0.00	\$54.38
	06/01/2018	\$34.62	\$7.60	\$13.00	\$0.00	\$55.22
	12/01/2018	\$35.46	\$7.60	\$13.00	\$0.00	\$56.06
	06/01/2019	\$36.33	\$7.60	\$13.00	\$0.00	\$56.93
	12/01/2019	\$37.19	\$7.60	\$13.00	\$0.00	\$57.79

For apprentice rates see "Apprentice- LABORER"

POWDERMAN & BLASTER LABORERS - ZONE 2	06/01/2017	\$33.90	\$7.60	\$13.00	\$0.00	\$54.50
	12/01/2017	\$34.53	\$7.60	\$13.00	\$0.00	\$55.13
	06/01/2018	\$35.37	\$7.60	\$13.00	\$0.00	\$55.97
	12/01/2018	\$36.21	\$7.60	\$13.00	\$0.00	\$56.81
	06/01/2019	\$37.08	\$7.60	\$13.00	\$0.00	\$57.68
	12/01/2019	\$37.94	\$7.60	\$13.00	\$0.00	\$58.54

For apprentice rates see "Apprentice- LABORER"

POWER SHOVEL/DERRICK/TRENCHING MACHINE OPERATING ENGINEERS LOCAL 4	06/01/2017	\$46.38	\$10.00	\$15.25	\$0.00	\$71.63
	12/01/2017	\$47.38	\$10.00	\$15.25	\$0.00	\$72.63

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

PUMP OPERATOR (CONCRETE) OPERATING ENGINEERS LOCAL 4	06/01/2017	\$46.38	\$10.00	\$15.25	\$0.00	\$71.63
	12/01/2017	\$47.38	\$10.00	\$15.25	\$0.00	\$72.63

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

PUMP OPERATOR (DEWATERING, OTHER) OPERATING ENGINEERS LOCAL 4	06/01/2017	\$31.86	\$10.00	\$15.25	\$0.00	\$57.11
	12/01/2017	\$32.55	\$10.00	\$15.25	\$0.00	\$57.80

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
READY-MIX CONCRETE DRIVER <i>TEAMSTERS LOCAL 170</i>	05/01/2017	\$24.92	\$9.96	\$8.26	\$0.00	\$43.14
	12/01/2017	\$24.95	\$9.96	\$8.26	\$0.00	\$43.17
	01/01/2018	\$24.95	\$10.24	\$8.26	\$0.00	\$43.45
	02/02/2018	\$25.01	\$10.24	\$8.36	\$0.00	\$43.61
	03/01/2018	\$25.04	\$10.24	\$8.46	\$0.00	\$43.74
	05/01/2018	\$25.09	\$10.24	\$8.56	\$0.00	\$43.89
	12/01/2018	\$25.12	\$10.24	\$8.56	\$0.00	\$43.92
	01/01/2019	\$25.12	\$10.41	\$8.56	\$0.00	\$44.09
	12/01/2019	\$25.15	\$10.41	\$8.56	\$0.00	\$44.12
	01/01/2020	\$25.15	\$10.46	\$8.56	\$0.00	\$44.17
RECLAIMERS <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2017	\$45.93	\$10.00	\$15.25	\$0.00	\$71.18
	12/01/2017	\$46.92	\$10.00	\$15.25	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
RESIDENTIAL WOOD FRAME (All Other Work) <i>CARPENTERS -ZONE 2 (Residential Wood)</i>	06/01/2016	\$25.32	\$9.80	\$16.82	\$0.00	\$51.94
RESIDENTIAL WOOD FRAME CARPENTER ** ** The Residential Wood Frame Carpenter classification applies only to the construction of new, wood frame residences that do not exceed four stories including the basement. <i>CARPENTERS -ZONE 2 (Residential Wood)</i>	04/01/2017	\$26.31	\$7.07	\$7.18	\$0.00	\$40.56
	10/01/2017	\$26.93	\$7.07	\$7.18	\$0.00	\$41.18
	04/01/2018	\$27.35	\$7.07	\$7.18	\$0.00	\$41.60
	10/01/2018	\$27.77	\$7.07	\$7.18	\$0.00	\$42.02
	04/01/2019	\$28.20	\$7.07	\$7.18	\$0.00	\$42.45
	10/01/2019	\$28.63	\$7.07	\$7.18	\$0.00	\$42.88
As of 9/1/09 Carpentry work on wood-frame residential WEATHERIZATION projects shall be paid the RESIDENTIAL WOOD FRAME CARPENTER rate.						

Apprentice - CARPENTER (Residential Wood Frame) - Zone 2**Effective Date - 04/01/2017**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$15.79	\$7.07	\$0.00	\$0.00	\$22.86
2	60	\$15.79	\$7.07	\$0.00	\$0.00	\$22.86
3	65	\$17.10	\$7.07	\$7.18	\$0.00	\$31.35
4	70	\$18.42	\$7.07	\$7.18	\$0.00	\$32.67
5	75	\$19.73	\$7.07	\$7.18	\$0.00	\$33.98
6	80	\$21.05	\$7.07	\$7.18	\$0.00	\$35.30
7	85	\$22.36	\$7.07	\$7.18	\$0.00	\$36.61
8	90	\$23.68	\$7.07	\$7.18	\$0.00	\$37.93

Effective Date - 10/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$16.16	\$7.07	\$0.00	\$0.00	\$23.23
2	60	\$16.16	\$7.07	\$0.00	\$0.00	\$23.23
3	65	\$17.50	\$7.07	\$7.18	\$0.00	\$31.75
4	70	\$18.85	\$7.07	\$7.18	\$0.00	\$33.10
5	75	\$20.20	\$7.07	\$7.18	\$0.00	\$34.45
6	80	\$21.54	\$7.07	\$7.18	\$0.00	\$35.79
7	85	\$22.89	\$7.07	\$7.18	\$0.00	\$37.14
8	90	\$24.24	\$7.07	\$7.18	\$0.00	\$38.49

Notes:**Apprentice to Journeyworker Ratio:1:5****RIDE-ON MOTORIZED BUGGY OPERATOR***LABORERS - ZONE 2*

06/01/2017	\$33.15	\$7.60	\$13.00	\$0.00	\$53.75
12/01/2017	\$33.78	\$7.60	\$13.00	\$0.00	\$54.38
06/01/2018	\$34.62	\$7.60	\$13.00	\$0.00	\$55.22
12/01/2018	\$35.46	\$7.60	\$13.00	\$0.00	\$56.06
06/01/2019	\$36.33	\$7.60	\$13.00	\$0.00	\$56.93
12/01/2019	\$37.19	\$7.60	\$13.00	\$0.00	\$57.79

For apprentice rates see "Apprentice- LABORER"

ROLLER/SPREADER/MULCHING MACHINE*OPERATING ENGINEERS LOCAL 4*

06/01/2017	\$45.93	\$10.00	\$15.25	\$0.00	\$71.18
12/01/2017	\$46.92	\$10.00	\$15.25	\$0.00	\$72.17

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

ROOFER (Inc.Roofers Waterproofing &Roofers Damproofg)*ROOFERS LOCAL 33*

02/01/2017	\$41.36	\$11.10	\$13.80	\$0.00	\$66.26
08/01/2017	\$42.46	\$11.10	\$13.80	\$0.00	\$67.36
02/01/2018	\$43.61	\$11.10	\$13.80	\$0.00	\$68.51
08/01/2018	\$44.71	\$11.10	\$13.80	\$0.00	\$69.61
02/01/2019	\$45.86	\$11.10	\$13.80	\$0.00	\$70.76

Classification
Effective Date
Base Wage
Health
Pension
**Supplemental
Unemployment**
Total Rate
Apprentice - ROOFER - Local 33
Effective Date - 02/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.68	\$11.10	\$3.44	\$0.00	\$35.22
2	60	\$24.82	\$11.10	\$13.80	\$0.00	\$49.72
3	65	\$26.88	\$11.10	\$13.80	\$0.00	\$51.78
4	75	\$31.02	\$11.10	\$13.80	\$0.00	\$55.92
5	85	\$35.16	\$11.10	\$13.80	\$0.00	\$60.06

Effective Date - 08/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.23	\$11.10	\$3.44	\$0.00	\$35.77
2	60	\$25.48	\$11.10	\$13.80	\$0.00	\$50.38
3	65	\$27.60	\$11.10	\$13.80	\$0.00	\$52.50
4	75	\$31.85	\$11.10	\$13.80	\$0.00	\$56.75
5	85	\$36.09	\$11.10	\$13.80	\$0.00	\$60.99

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

02/01/2017	\$41.61	\$11.10	\$13.80	\$0.00	\$66.51
08/01/2017	\$42.71	\$11.10	\$13.80	\$0.00	\$67.61
02/01/2018	\$43.86	\$11.10	\$13.80	\$0.00	\$68.76
08/01/2018	\$44.96	\$11.10	\$13.80	\$0.00	\$69.86
02/01/2019	\$46.11	\$11.10	\$13.80	\$0.00	\$71.01

For apprentice rates see "Apprentice- ROOFER"

SHEETMETAL WORKER
SHEETMETAL WORKERS LOCAL 17 - A

02/01/2017	\$43.72	\$11.45	\$23.07	\$2.35	\$80.59
08/01/2017	\$44.82	\$11.45	\$23.07	\$2.35	\$81.69
02/01/2018	\$45.97	\$11.45	\$23.07	\$2.35	\$82.84

Classification
Effective Date
Base Wage
Health
Pension
**Supplemental
Unemployment**
Total Rate
Apprentice - SHEET METAL WORKER - Local 17-A
Effective Date - 02/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$17.49	\$11.45	\$5.24	\$0.00	\$34.18
2	40	\$17.49	\$11.45	\$5.24	\$0.00	\$34.18
3	45	\$19.67	\$11.45	\$10.31	\$1.24	\$42.67
4	45	\$19.67	\$11.45	\$10.31	\$1.24	\$42.67
5	50	\$21.86	\$11.45	\$11.21	\$1.34	\$45.86
6	50	\$21.86	\$11.45	\$11.46	\$1.34	\$46.11
7	60	\$26.23	\$11.45	\$13.02	\$1.52	\$52.22
8	65	\$28.42	\$11.45	\$13.93	\$1.61	\$55.41
9	75	\$32.79	\$11.45	\$15.74	\$1.80	\$61.78
10	85	\$37.16	\$11.45	\$17.05	\$1.97	\$67.63

Effective Date - 08/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$17.93	\$11.45	\$5.24	\$0.00	\$34.62
2	40	\$17.93	\$11.45	\$5.24	\$0.00	\$34.62
3	45	\$20.17	\$11.45	\$10.31	\$1.26	\$43.19
4	45	\$20.17	\$11.45	\$10.31	\$1.26	\$43.19
5	50	\$22.41	\$11.45	\$11.21	\$1.35	\$46.42
6	50	\$22.41	\$11.45	\$11.46	\$1.36	\$46.68
7	60	\$26.89	\$11.45	\$13.02	\$1.54	\$52.90
8	65	\$29.13	\$11.45	\$13.93	\$1.64	\$56.15
9	75	\$33.62	\$11.45	\$15.74	\$1.82	\$62.63
10	85	\$38.10	\$11.45	\$17.05	\$2.00	\$68.60

Notes:

Steps are 6 mos.

Apprentice to Journeyworker Ratio:1:4

SIGN ERECTOR

PAINTERS LOCAL 35 - ZONE 2

06/01/2013

\$25.81

\$7.07

\$7.05

\$0.00

\$39.93

Classification
Effective Date
Base Wage
Health
Pension
**Supplemental
Unemployment**
Total Rate
Apprentice - SIGN ERECTOR - Local 35 Zone 2
Effective Date - 06/01/2013

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

Notes:

Steps are 4 mos.

Apprentice to Journeyworker Ratio:1:1

SPECIALIZED EARTH MOVING EQUIP < 35 TONS TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	12/01/2016	\$32.44	\$10.91	\$10.89	\$0.00	\$54.24
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SPECIALIZED EARTH MOVING EQUIP > 35 TONS TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	12/01/2016	\$32.73	\$10.91	\$10.89	\$0.00	\$54.53
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SPRINKLER FITTER SPRINKLER FITTERS LOCAL 550 - (Section A) Zone 1	03/01/2017	\$56.08	\$8.77	\$17.20	\$0.00	\$82.05
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Apprentice - SPRINKLER FITTER - Local 550 (Section A) Zone 1
Effective Date - 03/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$19.63	\$8.52	\$8.70	\$0.00	\$36.85
2	40	\$22.43	\$8.52	\$8.70	\$0.00	\$39.65
3	45	\$25.24	\$8.52	\$8.70	\$0.00	\$42.46
4	50	\$28.04	\$8.52	\$8.70	\$0.00	\$45.26
5	55	\$30.84	\$8.52	\$8.70	\$0.00	\$48.06
6	60	\$33.65	\$8.52	\$10.20	\$0.00	\$52.37
7	65	\$36.45	\$8.52	\$10.20	\$0.00	\$55.17
8	70	\$39.26	\$8.52	\$10.20	\$0.00	\$57.98
9	75	\$42.06	\$8.52	\$10.20	\$0.00	\$60.78
10	80	\$44.86	\$8.52	\$10.20	\$0.00	\$63.58

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 OPERATING ENGINEERS LOCAL 4	06/01/2017	\$45.93	\$10.00	\$15.25	\$0.00	\$71.18
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	12/01/2017	\$46.92	\$10.00	\$15.25	\$0.00	\$72.17
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TAMPERS, SELF-PROPELLED OR TRACTOR DRAWN <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2017	\$45.93	\$10.00	\$15.25	\$0.00	\$71.18
	12/01/2017	\$46.92	\$10.00	\$15.25	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TELECOMMUNICATION TECHNICIAN <i>ELECTRICIANS LOCAL 103</i>	03/01/2017	\$36.25	\$13.00	\$15.60	\$0.00	\$64.85
	09/01/2017	\$36.96	\$13.00	\$15.62	\$0.00	\$65.58
	03/01/2018	\$37.86	\$13.00	\$15.65	\$0.00	\$66.51
	09/01/2018	\$38.75	\$13.00	\$15.67	\$0.00	\$67.42
	03/01/2019	\$39.65	\$13.00	\$15.70	\$0.00	\$68.35

Apprentice - TELECOMMUNICATION TECHNICIAN - Local 103

Effective Date - 03/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$14.50	\$13.00	\$0.44	\$0.00	\$27.94
2	40	\$14.50	\$13.00	\$0.44	\$0.00	\$27.94
3	45	\$16.31	\$13.00	\$12.54	\$0.00	\$41.85
4	45	\$16.31	\$13.00	\$12.54	\$0.00	\$41.85
5	50	\$18.13	\$13.00	\$12.81	\$0.00	\$43.94
6	55	\$19.94	\$13.00	\$13.09	\$0.00	\$46.03
7	60	\$21.75	\$13.00	\$13.37	\$0.00	\$48.12
8	65	\$23.56	\$13.00	\$13.65	\$0.00	\$50.21
9	70	\$25.38	\$13.00	\$13.93	\$0.00	\$52.31
10	75	\$27.19	\$13.00	\$14.21	\$0.00	\$54.40

Effective Date - 09/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$14.78	\$13.00	\$0.44	\$0.00	\$28.22
2	40	\$14.78	\$13.00	\$0.44	\$0.00	\$28.22
3	45	\$16.63	\$13.00	\$12.55	\$0.00	\$42.18
4	45	\$16.63	\$13.00	\$12.55	\$0.00	\$42.18
5	50	\$18.48	\$13.00	\$12.82	\$0.00	\$44.30
6	55	\$20.33	\$13.00	\$13.10	\$0.00	\$46.43
7	60	\$22.18	\$13.00	\$13.39	\$0.00	\$48.57
8	65	\$24.02	\$13.00	\$13.66	\$0.00	\$50.68
9	70	\$25.87	\$13.00	\$13.95	\$0.00	\$52.82
10	75	\$27.72	\$13.00	\$14.22	\$0.00	\$54.94

Notes:

Apprentice to Journeyworker Ratio:1:1

TERRAZZO FINISHERS <i>BRICKLAYERS LOCAL 3 - MARBLE & TILE</i>	02/01/2017	\$49.70	\$10.75	\$19.22	\$0.00	\$79.67
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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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Apprentice - TERRAZZO FINISHER - Local 3 Marble & Tile

Effective Date - 02/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.85	\$10.75	\$19.22	\$0.00	\$54.82
2	60	\$29.82	\$10.75	\$19.22	\$0.00	\$59.79
3	70	\$34.79	\$10.75	\$19.22	\$0.00	\$64.76
4	80	\$39.76	\$10.75	\$19.22	\$0.00	\$69.73
5	90	\$44.73	\$10.75	\$19.22	\$0.00	\$74.70

Notes:

Apprentice to Journeyworker Ratio:1:3

TEST BORING DRILLER <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2016	\$37.70	\$7.60	\$14.35	\$0.00	\$59.65
For apprentice rates see "Apprentice- LABORER"						
TEST BORING DRILLER HELPER <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2016	\$36.42	\$7.60	\$14.35	\$0.00	\$58.37
For apprentice rates see "Apprentice- LABORER"						
TEST BORING LABORER <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2016	\$36.30	\$7.60	\$14.35	\$0.00	\$58.25
For apprentice rates see "Apprentice- LABORER"						
TRACTORS/PORTABLE STEAM GENERATORS <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2017	\$45.93	\$10.00	\$15.25	\$0.00	\$71.18
	12/01/2017	\$46.92	\$10.00	\$15.25	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TRAILERS FOR EARTH MOVING EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2016	\$33.02	\$10.91	\$10.89	\$0.00	\$54.82
TUNNEL WORK - COMPRESSED AIR <i>LABORERS (COMPRESSED AIR)</i>	12/01/2016	\$48.58	\$7.60	\$14.75	\$0.00	\$70.93
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE) <i>LABORERS (COMPRESSED AIR)</i>	12/01/2016	\$50.58	\$7.60	\$14.75	\$0.00	\$72.93
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR <i>LABORERS (FREE AIR TUNNEL)</i>	12/01/2016	\$40.65	\$7.60	\$14.75	\$0.00	\$63.00
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR (HAZ. WASTE) <i>LABORERS (FREE AIR TUNNEL)</i>	12/01/2016	\$42.65	\$7.60	\$14.75	\$0.00	\$65.00
For apprentice rates see "Apprentice- LABORER"						
VAC-HAUL <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2016	\$32.44	\$10.91	\$10.89	\$0.00	\$54.24
WAGON DRILL OPERATOR <i>LABORERS - ZONE 2</i>	06/01/2017	\$33.15	\$7.60	\$13.00	\$0.00	\$53.75
	12/01/2017	\$33.78	\$7.60	\$13.00	\$0.00	\$54.38
	06/01/2018	\$34.62	\$7.60	\$13.00	\$0.00	\$55.22
	12/01/2018	\$35.46	\$7.60	\$13.00	\$0.00	\$56.06
	06/01/2019	\$36.33	\$7.60	\$13.00	\$0.00	\$56.93
	12/01/2019	\$37.19	\$7.60	\$13.00	\$0.00	\$57.79
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
WASTE WATER PUMP OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2017	\$46.38	\$10.00	\$15.25	\$0.00	\$71.63
	12/01/2017	\$47.38	\$10.00	\$15.25	\$0.00	\$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
WATER METER INSTALLER <i>PLUMBERS & GASFITTERS LOCAL 12</i>	03/01/2017	\$52.69	\$11.32	\$15.46	\$0.00	\$79.47
For apprentice rates see "Apprentice- PLUMBER/PIPEFITTER" or "PLUMBER/GASFITTER"						
Outside Electrical - East						
CABLE TECHNICIAN (Power Zone) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/28/2016	\$26.61	\$7.50	\$1.80	\$0.00	\$35.91
	09/03/2017	\$27.14	\$7.75	\$1.81	\$0.00	\$36.70
For apprentice rates see "Apprentice- LINEMAN"						
CABLEMAN (Underground Ducts & Cables) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/28/2016	\$37.70	\$7.50	\$8.87	\$0.00	\$54.07
	09/03/2017	\$38.45	\$7.75	\$9.53	\$0.00	\$55.73
For apprentice rates see "Apprentice- LINEMAN"						
DRIVER / GROUNDMAN CDL <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/28/2016	\$31.05	\$7.50	\$8.89	\$0.00	\$47.44
	09/03/2017	\$31.66	\$7.75	\$9.44	\$0.00	\$48.85
For apprentice rates see "Apprentice- LINEMAN"						
DRIVER / GROUNDMAN -Inexperienced (<2000 Hrs) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/28/2016	\$24.39	\$7.50	\$1.73	\$0.00	\$33.62
	09/03/2017	\$24.88	\$7.75	\$1.75	\$0.00	\$34.38
For apprentice rates see "Apprentice- LINEMAN"						
EQUIPMENT OPERATOR (Class A CDL) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/28/2016	\$37.70	\$7.50	\$12.95	\$0.00	\$58.15
	09/03/2017	\$38.45	\$7.75	\$13.61	\$0.00	\$59.81
For apprentice rates see "Apprentice- LINEMAN"						
EQUIPMENT OPERATOR (Class B CDL) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/28/2016	\$33.26	\$7.50	\$9.63	\$0.00	\$50.39
	09/03/2017	\$33.92	\$7.75	\$10.21	\$0.00	\$51.88
For apprentice rates see "Apprentice- LINEMAN"						
GROUNDMAN <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/28/2016	\$24.39	\$7.50	\$1.73	\$0.00	\$33.62
	09/03/2017	\$24.88	\$7.75	\$1.75	\$0.00	\$34.38
For apprentice rates see "Apprentice- LINEMAN"						
GROUNDMAN -Inexperienced (<2000 Hrs.) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/28/2016	\$19.96	\$7.50	\$1.60	\$0.00	\$29.06
	09/03/2017	\$20.35	\$7.75	\$1.61	\$0.00	\$29.71
For apprentice rates see "Apprentice- LINEMAN"						
JOURNEYMAN LINEMAN <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/28/2016	\$44.35	\$7.50	\$15.83	\$0.00	\$67.68
	09/03/2017	\$45.23	\$7.75	\$16.61	\$0.00	\$69.59

Apprentice - LINEMAN (Outside Electrical) - East Local 104

Effective Date - 08/28/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$26.61	\$7.50	\$3.30	\$0.00	\$37.41
2	65	\$28.83	\$7.50	\$3.36	\$0.00	\$39.69
3	70	\$31.05	\$7.50	\$3.43	\$0.00	\$41.98
4	75	\$33.26	\$7.50	\$5.00	\$0.00	\$45.76
5	80	\$35.48	\$7.50	\$5.06	\$0.00	\$48.04
6	85	\$37.70	\$7.50	\$5.13	\$0.00	\$50.33
7	90	\$39.92	\$7.50	\$7.20	\$0.00	\$54.62

Effective Date - 09/03/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$27.14	\$7.75	\$3.31	\$0.00	\$38.20
2	65	\$29.40	\$7.75	\$3.38	\$0.00	\$40.53
3	70	\$31.66	\$7.75	\$3.45	\$0.00	\$42.86
4	75	\$33.92	\$7.75	\$5.02	\$0.00	\$46.69
5	80	\$36.18	\$7.75	\$5.09	\$0.00	\$49.02
6	85	\$38.45	\$7.75	\$5.15	\$0.00	\$51.35
7	90	\$40.71	\$7.75	\$7.22	\$0.00	\$55.68

Notes:

Apprentice to Journeyworker Ratio:1:2

TELEDATA CABLE SPLICER <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	01/01/2016	\$28.98	\$4.25	\$3.12	\$0.00	\$36.35
TELEDATA LINEMAN/EQUIPMENT OPERATOR <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	01/01/2016	\$27.31	\$4.25	\$3.07	\$0.00	\$34.63
TELEDATA WIREMAN/INSTALLER/TECHNICIAN <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	01/01/2016	\$27.31	\$4.25	\$3.07	\$0.00	\$34.63
TREE TRIMMER <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	01/31/2016	\$18.51	\$3.55	\$0.00	\$0.00	\$22.06
This classification applies only to tree work done: (a) for a utility company, R.E.A. cooperative, or railroad or coal mining company, and (b) for the purpose of operating, maintaining, or repairing the utility company's equipment, and (c) by a person who is using hand or mechanical cutting methods and is not on the ground. This classification does not apply to wholesale tree removal.						
TREE TRIMMER GROUNDMAN <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	01/31/2016	\$16.32	\$3.55	\$0.00	\$0.00	\$19.87

This classification applies only to tree work done: (a) for a utility company, R.E.A. cooperative, or railroad or coal mining company, and (b) for the purpose of operating, maintaining, or repairing the utility company's equipment, and (c) by a person who is using hand or mechanical cutting methods and is on the ground. This classification does not apply to wholesale tree removal.

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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Additional Apprentice Information:

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

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

All steps are six months (1000 hours.)
Ratios are expressed in allowable number of apprentices to journeymen or fraction thereof, unless otherwise specified.

- ** Multiple ratios are listed in the comment field.
- *** APP to JM; 1:1, 2:2, 2:3, 3:4, 4:4, 4:5, 4:6, 5:7, 6:7, 6:8, 6:9, 7:10, 8:10, 8:11, 8:12, 9:13, 10:13, 10:14, etc.
- **** APP to JM; 1:1, 1:2, 2:3, 2:4, 3:5, 4:6, 4:7, 5:8, 6:9, 6:10, 7:11, 8:12, 8:13, 9:14, 10:15, 10:16, etc.

SECTION 8
DESCRIPTION OF WORK AND ADDITIONAL NOTES

- A. The proposed project involves the installation of a traffic signal system, as well as the construction of pavement areas, curb ramps, and sidewalk, landscape maintenance, and other related work associated with the Washington Street Corridor Improvements in Holliston, MA. The entire project is to be completed by Friday, June 29, 2018.

The work to be performed is as described herein and in the Special Provisions, Estimated Quantities are shown in the Bid Pricing Sheet.

Included in the work are pavement installation, signing and pavement markings, landscape improvements, and all other incidental items necessary to complete the required work as illustrated on the Drawings. The intent of this contract is to obtain unit costs for the items listed herein. The specific quantities will be as directed by the engineer and all work will be paid at the contract unit prices.

- B. All Bidders will carefully examine the site of the proposed Work and fully inform and satisfy himself as to the conditions there existing, the character and requirements of the proposed Work, the difficulties attendant upon its execution and the accuracy of all estimated quantities stated in this BID, and has carefully read and examined the Drawings, the annexed proposed AGREEMENT and the Specifications and other Contract Documents therein referred to and knows and understands the terms and provisions thereof.
- C. Bidders understand that information relative to subsurface and other conditions, natural phenomena, existing pipes and other structures (surface and/or subsurface) has been furnished only for his information and convenience without any warranty or guarantee, expressed or implied, that the subsurface and/or other conditions, natural phenomena, existing pipes and other structures (surface and/or subsurface) actually encountered will be the same as those shown on the Drawings or in any of the other Contract Documents and agrees that the Bidder shall not use or be entitled to use any such information made available to him through the Contract Documents or otherwise obtained by him in his own examination of the site, as a basis of or ground for any claim against the Owner or the Engineer arising from or by reason of any variance which may exist between the aforesaid information made available to or acquired by him and the subsurface and/or other conditions, natural phenomena, existing pipes and other structures (surface and/or subsurface) actually encountered during the construction work, and has made due allowance therefore in this BID.
- D. The quantities of work tabulated in this BID or indicated on the Drawings or in the Specifications or other Contract Documents are only approximate and are subject to increase or decrease as deemed necessary by the Engineer.

E. Price Adjustments

- a. Portland Cement. The Base Price for this agreement is \$121.80/ton.
 - i. The Base Price of Portland cement on a project is a fixed price determined at the time of bid by the Town by using the same method as for the determination of the Period Price (see below) and found in the Notice to Contractors.
 - ii. The Period Price of Portland cement will be determined by using the latest published price, in dollars per ton (US.), for Portland cement (Type I) quoted for Boston, U.S.A. in the Engineering News-Record (ENR), Construction Economics section or at ENR website <http://www.enr.com> under "Construction Economics". The Period Price will be posted on the MassDOT website at <http://www.massdot.state.ma.us/highway/DoingBusinessWithUs/Construction/PriceAdjustments.aspx> the Wednesday immediately following the publishing of the monthly price in ENR, which is normally the first week of the month.
 - iii. The Contract Price of the Portland cement concrete mix will be paid under the respective item in the Contract. The price adjustment, as herein provided, upwards or downwards, will be made after the work has been performed, using the monthly period price for the month during which the work was performed.
 - iv. The price adjustment applies only to the actual Portland cement content in the mix placed on the job in accordance with the Standard Specifications for Highways and Bridges, Division 111, Section M4.02.01. No adjustments will be made for any cement replacement materials such as fly ash or ground granulated blast furnace slag.
 - v. The Price Adjustment will be a separate payment item. It will be determined by multiplying the number of cubic yards (cubic meters) of Portland cement concrete placed during each monthly period times the Portland cement content percentage times the variance in price between the Base Price and Period Price of Portland cement.
 - vi. This Price Adjustment will be paid only if the variance from the Base Price is 5% or more for a monthly period. The complete adjustment will be paid in all cases with no deduction of the 5% from either upward or downward adjustments.
 - vii. No Price Adjustment will be allowed beyond the Completion Date of this Contract, unless there is a Town-approved extension of time.
- b. Liquid Asphalt: The Base Price for this agreement is \$407.50/ton.
 - i. The Price Adjustment will be based on the variance in price for the Liquid Asphalt component only from the Base Price to the Period Price. It shall not include transportation or other charges. This Price Adjustment will occur on a monthly basis.
 - ii. The Base Price of Liquid Asphalt on a project as listed in the Notice to Contractors section of the bid documents is a fixed price determined at the

time of bid by the Town by using the same method as for the determination of the Period Price detailed below.

- iii. New Method Period Price: Due to the elimination of the Old Method Period Price, starting July 19, 2013, only one price will be posted each month in the table under Liquid Asphalt. This single posted price, formerly called the "New Asphalt Period Price Method", will continue to show the Period Price of Liquid Asphalt for each monthly period as determined by MassDOT - Highway Division using the average selling price per standard ton of PG64-28 paving grade (primary binder classification) asphalt, FOB manufacturer's terminal, as listed under the "East Coast Market - New England, Boston, Massachusetts area" section of the Poten & Partners, Inc. "Asphalt Weekly Monitor". This average selling price is listed in the issue having a publication date of the second Friday of the month and will be posted as the Period Price for that month. MassDOT Highway Division will post this Period Price on this website within two (2) business days following their receipt of the relevant issue of the "Asphalt Weekly Monitor."
- iv. The Contract Price of the hot mix asphalt mixture will be paid under the respective item in the Contract. The price adjustment, as herein provided, upwards or downwards, will be made after the work has been performed, using the monthly period price for the month during which the work was performed.
- v. The price adjustment applies only to the actual virgin Liquid Asphalt content in the mixture placed on the job in accordance with the Standard Specifications for Highways and Bridges, Division 111, Section M3.11.03.
- vi. The Price Adjustment will be a separate payment item. It will be determined by multiplying the number of tons of hot mix asphalt mixtures placed during each monthly period times the Liquid Asphalt content percentage (0.055) (or by the actual (RAP) asphalt content percentage) times the variance in price the variance in price between Base Price and Period Price of Liquid Asphalt.

The bidder agrees to furnish the Town of Holliston, in conformity with this proposal, any or all of the above articles at the prices affixed thereto and will start work within thirty (30) days from the date of receipt of order.

I. Quality Requirements:

- 1. Bidders must be prequalified by the Massachusetts Department of Transportation (MassDOT), Highway Division in Highway – Construction and/or Traffic Signals.
- 2. Bidder must provide all of the items described in the Invitation to Bid and the Specification.
- 3. Bidder must have been in the business for a minimum of three (3) years.

II. References: Provide the following information.

1. Commercial: Submit a listing of ongoing projects and projects completed in the last three (3) years.
2. Financial References demonstrate a stable and secure financial position. Bidders must include a business information report or business profile from a credit reporting agency dated no earlier than sixty (60) days prior to bid submission date.
3. The Bidder shall disclose any current or pending litigation regarding road/bridge construction projects.

III. Rule for Award:

The contract will be awarded to the lowest responsible and eligible bidder.

- Determination of responsible shall be based on the inclusion of the required submittals and financial references.
- Determination of eligible shall be based on the bidder
 - (1) whose bid is the lowest of those bidders possessing the skill, ability and integrity necessary for the faithful performance of the work;
 - (2) who shall certify that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed;
 - (3) who, where the provisions of Section 8B of Chapter 129 apply, shall have been deemed qualified thereunder; and
 - (4) who obtains within ten (10) days of the notification of contract award the security by bond required under Section 24, Chapter 149.

IV. Bid Pricing Sheet: See Appendix A.

V. Additional Contract Terms & Conditions:

- A. All words, signatures and figures submitted on the bid shall be in ink. Proposals, which are conditional, obscure or which contain additions not called for, erasures, alterations or irregularities, or any prices, which contain abnormally high or low amounts for any item, may be rejected as informal.
- B. The undersigned, as Bidder, hereby certifies that he is aware of the applicable requirements of the Williams- Steiger Occupational Safety and Health Act of 1970. (O.S.H.A.), and all latest revisions thereto, and that this Proposal is prepared on the basis of compliance with those requirements.
- C. The undersigned, as Bidder, hereby certifies that he will maintain records in reasonable detail, which accurately and fairly reflect the financial transactions and disposition of the Bidder, in accordance with M.G.L. Chapter 30, Section 30R.
- D. A Notice of Acceptance of the Bid will be mailed or furnished to the successful bidder within thirty (30) days of the bid opening. A Town Contract will follow the written Notice of Award. The draft contract is included in the bid package.

- E. Bidders must supply an anticipated schedule for work to be completed once a contract has been signed. The schedule should state a proposed start date as well as the projected number of days needed to complete the installation.
- F. All work is to be completed during normal working hours.
- G. Warranties and Guarantees. All bidders must include with their bid or proposal copies of warranties and/or guarantees for each item and related major components. Such warranties or guaranties must be assignable to the Town by the bidder or it must make arrangements to allow such assignment. Warranties and Guarantees are part of the evaluation criteria.
- H. Nonrestricted Solicitation. Any reference to a particular trademark, trade name, patent, design, type, specification, producer, supplier, or catalogue is not intended to restrict this solicitation to any manufacturer or proprietor or to constitute an endorsement of any good or service, and the Town may consider clearly identified offers of substantially equivalent goods and services submitted in response to such reference.
- I. Material Safety Data Sheets. Pursuant to M.G.L. ch. 111F, sec. 8-10, any supplier who receives a contract resulting from this solicitation agrees to submit a MSDS for each toxic or hazardous substance or mixture containing such substance when deliveries are made.
- J. Definitions: The word “Engineer” shall mean that person duly appointed by the Owner to undertake the duties and powers herein assigned to the Engineer, acting either directly or through duly authorized representatives.
- K. The Contract Documents: The Contract Documents are complementary, and what is called for by any one shall be as binding as if called for by all. In the event of any conflict or inconsistency between the provisions of the INVITATION FOR BID/SPECIAL PROVISIONS and the provisions of any of the other Contract Documents, the provisions of the INVITATION FOR BID/SPECIAL PROVISIONS shall prevail. In the event of conflict or inconsistency between the provisions of the AGREEMENT and the provisions of the Contract Documents other than the INVITATION FOR BID/SPECIAL PROVISIONS, the provisions of the AGREEMENT shall prevail.
- L. Conflict or Inconsistency: If there be any conflict or inconsistency between the provisions of the SPECIAL CONDITIONS and the provisions of the other Contract Documents, the provisions of the SPECIAL CONDITIONS shall prevail. If there be any conflict or inconsistency between the provisions of the AGREEMENT and the provisions of any of the Contract Documents other than the SPECIAL CONDITIONS, the provisions of the AGREEMENT shall prevail.

VI. Plans: See Appendix B (Washington Street Corridor Improvements)

SECTION 9 SPECIAL PROVISIONS

SCOPE OF WORK

The proposed project involves roadway and traffic signal improvements along the Washington Street corridor through the town of Holliston, MA. The proposed work extends from approximately 300 feet south of the intersection of Washington Street/Green Street/Exchange Street intersection to 250 feet north of the Washington Street/Hollis Street/Charles Street intersection.

Included in the work is the pavement micromilling and overlay of Washington Street, installation of new granite curbing, cement concrete curb ramps, signs, pavement markings, traffic signal equipment, and all other incidental items necessary to complete the required work as illustrated on the plans, titled as follows:

Washington Street Corridor Improvements, Holliston, Massachusetts; prepared by McMahon Associates, 300 Myles Standish Boulevard, Taunton, MA 02780

All work under this Contract shall be done in conformance with the *MassDOT Standard Specifications for Highways and Bridges* dated 1988, the *Supplemental Specifications* dated July 1, 2015, and the current edition of the *Interim Supplemental Specifications*; the *December 2016 Construction Standard Details*, the *1990 Standard Drawings for Signs and Supports*; the *1996 Construction and Traffic Standard Details* (as relates to the pavement marking details only); the *2015 Overhead Signal Structure and Foundation Standard Drawings*, the *2009 Manual on Uniform Traffic Control Devices (MUTCD)* with *Massachusetts Amendments* and the *Standard Municipal Traffic Code*; the *1968 Standard Drawings for Traffic Signals and Highway Lighting*; the latest edition of *American Standard for Nursery Stock*; the Plans and these Special Provisions.

MASSHIGHWAY TO MASSDOT NAME CHANGE

The following definitions in Section 100 of the MassDOT Standard Specifications for Highways and Bridges are revised as follows:

(Amend definition of Department)

1.17 – Department Effective November 1, 2009, St. 2009, c. 25 abolishes the Massachusetts Department of Highways and all assets, liabilities, and obligations become those of the Massachusetts Department of Transportation (MassDOT). Anywhere in this contract the terms Commission, Commonwealth, Department of Public Works, Department, Massachusetts Highway Department, MassHighway, Party of the First Part, or any other term intending to mean the former Massachusetts Department of Highways is used, it shall be interpreted to mean MassDOT or applicable employee of MassDOT unless the context clearly requires otherwise. Furthermore, MassDOT by operation of law inherited all rights and obligations pursuant to any contract, and therefore parties to this contract hereby acknowledge and agree that its terms shall be liberally construed and interpreted to maintain the rights and obligations of MassDOT. Furthermore, the parties hereby acknowledge and agree that the transfer of all rights and obligations from the Massachusetts Department of Highways to MassDOT shall not have the effect of altering or eliminating any provision of this contract in a manner that inures to the detriment of MassDOT.

(Add a definition for MassDOT)

1.46 – MassDOT The Massachusetts Department of Transportation, a body politic and corporate, under St. 2009, c. 25 “An Act Modernizing the Transportation Systems of the Commonwealth”, as amended.

ACCESS MASSDOT HIGHWAY INFORMATION ON WEBSITE

Access MassDOT Highway Information related to Construction, Design/Engineering, Contractor/Vendor Information, Approved Materials and Fabricators, Manuals, Publications and Forms at:

<http://www.mass.gov/massdot/highway>

Select Doing business with us

SUBSECTION 4.04 CHANGED CONDITIONS.

This Subsection is revised by deleting the two sequential paragraphs near the end that begin “The Contractor shall be estopped...” and “Any unit item price determined ...” (1/6/2006).

WORK SCHEDULE

The Contractor may operate an eight-hour work shift per day, five (5) days a week excluding Saturday and Sunday (except as specifically described herein), where and when appropriate with the prior approval of the Engineer, with the Contractor and all Subcontractors working the same shifts unless otherwise approved by the Engineer.

Work involving lane restrictions is not permitted during the weekday peak hours from 6:00 AM to 9:00 AM and 3:00 PM to 6:00 PM. One lane in each direction shall be maintained along Washington Street at all times, including during pavement micromilling and overlay operations. Micromilling and paving operations shall be performed between the hours of 9:00 PM and 5:00 AM.

Work on a holiday or on the day before or the day after a long weekend, which involves a holiday requires prior approval by the Engineer. Likewise, work on a weekend requires prior approval by the Engineer. Times will need to be submitted in advance for approval.

All work shall be completed and/or suspended by normal close of business on Thursday, October 5, 2017 and may be restarted on Tuesday, October 10, 2017. The Town is hosting a major international event beginning on Saturday, October 7, 2017 which will generate a considerable amount of pedestrian traffic. All sections of sidewalk within the project limits shall be passable, all travel lanes opened, and all parking spaces available for parking during this time.

Particular care shall be taken to establish and maintain methods and procedures that will not create unnecessary or unusual hazards to public safety. Traffic control shall be implemented as shown on the Plans and detours shall not be implemented without prior approval from the Town and Engineer. Traffic control devices required only during working hour operations shall be removed at the end of each working day.

HOLIDAY WORK RESTRICTIONS FOR CALENDAR YEARS 2017 & 2018

(Supplementing Subsection 7.09)

The Town may authorize work to continue during these specified time periods if it is determined by the Town that the work will not negatively impact the traveling public.

Below are the holiday work restrictions for this project during the 2017 and 2018 calendar years.

Independence Day (Federal Holiday)

Tuesday, July 4, 2017:

No work from noon on Friday, June 30, 2017 until the normal start of business on Wednesday, July 5, 2017.

Labor Day (Federal Holiday)

Monday, September 4, 2017:

No work from noon on Friday, September 1, 2017 until the normal start of business on Tuesday, September 5, 2017.

Columbus Day (Federal Holiday)

Monday, October 9, 2017:

No work from normal close of business on Thursday, October 5, 2017 until the normal start of business on Tuesday, October 10, 2017 (see “work schedule” above).

Veterans' Day (Federal Holiday)

Saturday, November 11, 2017:

No additional work restrictions due to traffic concerns.

Thanksgiving Day (Federal Holiday)

Thursday, November 23, 2017:

No work from noon on Wednesday, November 22, 2017 until the normal start of business on Monday, November 27, 2017.

Christmas Day (Federal Holiday)

Monday, December 25, 2017:

No work from noon on Friday, December 22, 2017 until the normal start of business on Tuesday, December 26, 2017.

New Year's Day (Federal Holiday)

Monday, January 1, 2018:

No work from noon on Friday, December 29, 2017 until the normal start of business on Tuesday, January 2, 2018.

Martin Luther King's Birthday (Federal Holiday)

Monday, January 15, 2018:

No additional work restrictions due to traffic concerns.

President's Day (Federal Holiday)

Monday, February 19, 2018:

No additional work restrictions due to traffic concerns.

Patriot's Day (State Holiday)

Monday, April 16, 2018:

No work from close of business on Friday, April 13, 2018 until the normal start of business on Tuesday, April 17, 2018.

Memorial Day (Federal Holiday)

Monday, May 28, 2018:

No work from noon on Friday, May 25, 2018 until the normal start of business on Tuesday, May 29, 2018.

ORDERING OF MATERIALS AND DRAWINGS

The Contractor shall provide the Town of Holliston, within ten (10) business days of receipt of the Contract, written evidence that:

1. The Contractor has prepared shop drawings for the materials for which shop drawings are required on the subject contract; and,
2. The Contractor has ordered the materials and traffic control devices for which shop drawings are not required on the subject contract.

The Contractor shall further provide the Town of Holliston written evidence within fifteen (15) business days of execution of the Contract that those orders have been confirmed in writing by the manufacturer with delivery dates appropriate for timely completion of the project.

Failure to comply with any of the ordering requirements shall nullify a request for an extension of the project completion date as a consequence of late delivery required equipment or materials.

NOTICE TO OWNERS OF UTILITIES

Written notice shall be given by the Contractor to all public service corporations or officials owning or having charge of publicly or privately owned utilities of the Contractor's intention to commence operations affecting such utilities at least one (1) week in advance of the commencement of such operations in accordance with Chapter 82, Section 40 of the General Laws, as amended, and the Contractor shall at that time file a copy of such notice with the Engineer.

The Plans indicate the approximate location of known utilities in the vicinity of the work. The accuracy and completeness of the information is not guaranteed.

Any damage to these utilities caused by negligence of the Contractor shall be repaired by the Contractor at their own expense and to the satisfaction of the Engineer.

It is the intent of these Special Provisions that the Contractor having been given due notice hereof will safeguard the utilities during construction and shall assume liability for damage, relieving the Town of Holliston from any liability.

A list of public and private utilities can be found on the MassDOT website at:

<http://www.massdot.state.ma.us/highway/Departments/UtilitySection.aspx>

Select Utility Contacts by District/Municipality

Select District 3

Select Holliston

Locate the utility contact

The Contractor shall inform the following officials in each area that he is assigned to work:

Superintendent, Department of Public Works or Town Engineer,
Superintendent, Water Department,
Superintendent, Sewer Department,
Police and Fire Department,
Electric Department

Town officials are shown at website <http://www.mass.gov> under the Cities and Towns.

Select "Choose Holliston" from the "pull down" menu.

Press "Go" and locate the official Municipality Home Page.

Following are the names of owners and representatives of the principal utilities presumed affected, but the completeness of this list is not guaranteed.

UTILITY COMPANIES

Electric

NSTAR Electric and Gas Company d/b/a/ Eversource Energy
One NSTAR Way, NWBED180
Westwood, MA 02090
Mark Manganaro
508-732-4315
mark.manganaro@eversource.com

Gas

NSTAR Electric and Gas Company d/b/a/ Eversource Energy
One NSTAR Way, NWBED180
Westwood, MA 02090
Jeffrey Cantara
781-441-8439
jeffrey.cantara@eversource.com

Gas

Spectra Energy Transmission, LLC
8 Wilson Way
Westwood, MA 02090
Kathy M. Aruda
508-938-7728
kmaruda@spectraenergy.com

Telephone

Verizon
385 Myles Standish Boulevard
Taunton, MA 02780
Karen Mealey
774-409-3160
karen.m.mealey@verizon.com

Water

Holliston Water Department
703 Washington Street, Room 104
Holliston, MA 01746
Sean Reese
508-429-0603

Cable

Lighttower
80 Central Street
Boxborough, MA 02719
Mark Bonanno
508-616-7818
mbonanno@lighttower.com

DPW

Holliston Highway Department
63 Arch Street
Holliston, MA 01746
Tom Smith
508-429-0616

DESIGNER/PROJECT MANAGER

McMahon Associates, Inc.
300 Myles Standish Boulevard
Taunton, MA 02780
Contact: Robert Smith, P.E.
401-648-7200

PROTECTION OF UNDERGROUND FACILITIES

The Contractor's attention is directed to the necessity of making their own investigation in order to assure that no damage to existing structures, water lines, gas mains, drainage lines, traffic signal conduit, and additional facilities will occur.

The Contractor shall notify "Massachusetts DIG SAFE" and procure a DIG SAFE number for each location prior to disturbing existing ground in any way. The telephone number of the Dig Safe Call Center is 811 or 1-888-344-7233

The Contractor shall also notify the town of Holliston so that all the town utilities may be located and all necessary permits may be obtained.

PROMPT PAYMENT

Contractors are required to promptly pay Subcontractors under this Prime Contract within ten (10) business days from the receipt of each payment the Prime Contractor receives from the Town. Failure to comply with this requirement may result in the withholding of payment to the Prime Contractor until such time as all payments due under this provision have been received by the Subcontractor(s).

NEW INTRODUCTIONS OF INVASIVE PLANTS INTO OR AROUND THE SITE

(Supplementing Subsections 7.01(D) Plant Pest Control and 7.13 Protection and Restoration of Property)

The Contractor shall ensure that no invasive plant species, as defined and listed by the Massachusetts Invasive Plant Advisory Group, are introduced or moved around the site by construction activities either by improperly cleaned construction equipment or importation of infected materials such as borrow, compost, nursery stock, seed, or hay bales. Corrective measures, if necessary, shall be made by the Contractor as directed by the Engineer. The Contractor shall be solely responsible for all costs associated with ensuring that invasive species are not introduced or moved around the site by construction activities and for all corrective measures required for as long as necessary to eliminate the introduced invasive plant species and prevent re-establishment of same.

PRESERVATION OF ROADSIDE GROWTH

(Subection 8.08 shall be amended as follows)

The Contractor shall take all necessary care when excavating or working in the vicinity of existing trees so that the root systems, trunks, and branches are not damaged. All precautions shall be taken to ensure that heavy equipment does not damage any roots, including those that lie below the limits of excavation.

Do not store equipment or stockpile materials within drip line of trees or in areas enclosed by tree protection fencing.

Avoid any direct soil contamination in root zone area by petroleum, petroleum products or solvents, salts or any other pollutant during construction.

Trees that, in the judgment of the Engineer, have been irreparably damaged by the Contractor shall be replaced in kind and in size, or, with a quantity of 2 inch caliper replacement trees (the quantity of which shall be determined by the Engineer) such that the cumulative caliper of the replacement trees will be up to the equivalent of diameter of the lost tree at breast height. Cost of replacement trees shall be paid by the Contractor.

Cost of removal of destroyed tree, including roots and stump, as well as the cost of replacement trees, shall be paid for by the Contractor.

ARCHITECTURAL ACCESS BOARD TOLERANCES

The Contractor is hereby notified that they are ultimately responsible for constructing all project elements in strict compliance with the current AAB/ADA rules, regulations and standards.

All construction elements in this project associated with sidewalks, walkways, wheelchair ramps and curb cuts are controlled by 521CMR - Rules and Regulations of the Architectural Access Board (AAB).

The AAB Rules and Regulations specify maximum slopes and minimum dimensions required for construction acceptance. There is no tolerance allowed for slopes greater than the maximum slope nor for dimensions less than the minimum dimensions.

Contractors shall establish grade elevations at all wheel chair ramp locations, and shall set transition lengths according to the appropriate table in the Construction Standards (or to the details shown on the plans).

All wheelchair ramp joints and transition sections which define grade changes shall be formed, staked and checked prior to placing cement concrete. All grade changes are to be made at joints.

PROCEDURES FOR SHOP DRAWING SUBMITTALS

The Contractor shall not receive payment for nor be allowed to install any item or materials which require shop drawing approval unless and until the Contractor receives shop drawing approval for that item, as detailed above.

Shop Drawing Requirements:

- **Asphalt Mix Design**
- **Gravel Borrow**
- **Stamped Asphalt Crosswalk**
- **Brick Walk**
- **Traffic Signal Equipment**
- **Variable Message Sign**
- **All other items normally required by MASSDOT – Highway Division**

ITEM 120.1**UNCLASSIFIED EXCAVATION****CY**

The work to be done hereunder consists of removing and disposing in accordance with the relevant provisions of Section 120, all materials required for execution of the required work as shown on the Plans and as directed, except materials for which payment is made under other items of this contract.

The work shall also include the removal and disposal of substandard or damaged berm or curb, broken or replaced frames and grates or covers, signs and sign posts to be removed and discarded, and all other materials not designated to be reused on the project. The Engineer shall determine the disposition of all materials with respect to removal and disposal.

Edges of excavations made in existing pavements shall be squared by sawcutting with power-driven tools to provide a neat, clean edge for joining new pavement as shown on the Plans. Ragged, uneven edges shall not be accepted. Pavement areas which have been broken or undermined shall be edged neatly with a minimum disturbance to the remaining pavement.

The contractor shall perform all excavation in such a manner as to maintain slopes, longitudinally and laterally and to insure proper and continuous drainage at all times.

Payment for work under this item will be made at the contract unit price per cubic yard for Item 120.1 Unclassified Excavation.

ITEM 153.**CONTROLLED DENSITY FILL - EXCAVATABLE****CY**

Work under this item shall conform to the relevant provisions of Section 150 of the Standard Specifications and the following:

Controlled density fill (CDF) shall be used under the control of the Engineer.

Controlled density fill material shall conform to Section M4.08.0. Controlled Density Fill and shall be Type 2E – Flowable (Excavatable).

Work under this item shall consist of furnishing and placing controlled density fill in trenches for utility lines installed in pavement milling and overlay areas where normal backfill cannot be placed and/or as directed by the Engineer. The trench shall be backfilled with Controlled density fill to a depth equal to the top of the subbase of the existing pavement structure. The trench will then be permanently patched to be flush with the existing roadway surface, prior to pavement milling, with hot mix asphalt.

Controlled Density Fill shall be placed within the specified limits as directed by the Resident Engineer.

METHOD OF MEASUREMENT

Item 153. Controlled Density Fill – Excavatable, will be measured for payment per cubic yard of basis complete and in place.

When calculating the volume of CDF used in backfilling drainage trenches in the roadway, the width of the trench shall be equal to the inside diameter of the pipe plus three (3) feet.

BASIS OF PAYMENT

Item 153. Controlled Density Fill – Excavatable shall be paid at the contract unit price bid per cubic yard of material, complete in place, which price shall include all material, labor, equipment, and incidental costs required to complete the work as described and as required by the Engineer.

ITEM 180.1**HEALTH AND SAFETY PLAN****LS**

Work under this item shall consist of the preparation and implementation of a Health and Safety Plan (HASP). The Contractor is ultimately responsible to ensure the health and safety of all the Contractor's employees and subcontracting personnel, the Engineer and his representatives, and the public from any on-site chemical contamination.

A HASP shall be prepared by a Certified Industrial Hygienist or other experienced individual with the appropriate training required by OSHA to prepare such a plan, and it shall include the components required by OSHA 29 CFR 1910.120(b). The preparer's name and work experience shall be included as part of the Health and Safety Plan submittal. The HASP must be stamped by a Certified Industrial Hygienist certifying that it complies with all applicable laws, regulations, standards and guidelines, and that it provides a degree of protection and training appropriate for implementation on the project during the execution of this contract.

The HASP shall be designed to identify, evaluate, and control health and safety hazards associated with the work on this project and provide for emergency response if needed. The HASP shall be a dynamic document with provision for change to reflect new information, new practices or procedures, changing site environmental conditions or other situations which may affect site workers and the public. Health and safety procedures provided by the Contractor shall comply with all the appropriate regulations that address employee working conditions (e.g. OSHA, RCRA, CERCLA). In addition, guidelines of NIOSH, OSHA, USCG, EPA, etc., shall be followed. Equipment used for the purpose of health and safety shall be approved and meet pertinent standards and specifications of the appropriate regulatory agencies.

A copy of the Health and Safety Plan shall be maintained on-site at all times by the Contractor. The on-site copy shall contain the signature of the Engineer and each on-site employee of the Department, Contractor and subcontractors. The employee's signature on the Health and Safety Plan shall be deemed prima facie evidence that the employee has read and understands the plan. A copy of the plan with signatures shall be submitted to the Engineer at the conclusion of the Contract, or at the Engineer's request. Signature sheets shall be submitted monthly, or at the request of the Engineer.

BASIS OF PAYMENT

Item 180.1 Health and Safety Plan shall be paid at the contract lump sum price for the development and preparation of the HASP by a qualified individual.

ITEM 220.**DRAINAGE STRUCTURE ADJUSTED****EA**

This item shall conform to the relevant provisions of Section 220 of the Standard Specifications and to the following:

This work shall consist of the adjustment of drainage structures to perform the work shown on the plans. In the event that a structure is broken, the replacement shall conform to the Holliston standards, as follows:

Manhole frames and covers shall be manufactured by East Jordan Iron Works (formerly LeBaron Foundry Co. Catalog No. LK124) with the word "DRAIN" on the cover, or an approved equal. Standard catch basin frames and grates shall be manufactured by East Jordan Iron Works (formerly LeBaron Foundry Co. Catalog No. LF 248-2) or an equal approved by the Planning Board prior to installation but in all cases the frames and covers must be manufactured in the United States. Cement concrete collars shall be placed around the castings after the final setting and as directed. Bricks for adjusting frames shall conform to ASTM C32. Said bricks shall mean "Boston Bricks" (Red Tops).

Drainage manholes shall be precast, reinforced concrete conforming to ASTM C478, minimum 4 foot inside diameter, and coated outside with bitumastic in accordance with the manufacturer's recommendations. Joints and lifting holes are to be mastic gasket. Manholes to service pipes larger than 30 inches in diameter shall require a special manhole in accordance with the Standard Specs. Manholes will be required at every change in direction, slope or diameter in the drainpipes and at intervals not to exceed 400 feet. Manhole steps shall be steel-reinforced polypropylene plastic and formed invert shall be brick for storm drains. When inverts in manholes differ more than 2.75 feet, drop manholes shall be installed. All pipe-to-manhole connections shall be by a resilient connector conforming to ASTM C923, latest edition. Storm drain manholes shall be provided with a weep hole where warranted by high ground water.

Payment for frames and grates or covers will be measured per each at the contract unit price bid for this item.

ITEM 415.**PAVEMENT MICROMILLING****SY**

The work under this item shall conform to the relevant provisions of Section 130 and Section 450 of the Standard Specifications and the following:

Description**415.20 General.**

This work shall consist of micromilling and removal of existing Hot Mix Asphalt (HMA) pavement courses from the project by the Contractor. Micromilling shall be performed in conformity with the approved QC Plan. The Contractor shall present and discuss in sufficient detail the Quality Control information and activities related to milling at the Construction Quality Meeting required under Section 450. Unless otherwise specified, the milled material shall become the property of the Contractor.

Construction Procedures**415.60 General.**

All construction procedures under Pavement Micromilling shall also conform to any of the following relevant provisions of Pavement Milling:

Milling Equipment Requirements.

The milling equipment shall be self-propelled with sufficient power, traction, and stability to remove the existing HMA pavement to the specified depth and cross-slope. The milling machine shall be capable of operating at a minimum speed of 10 feet (3 meters) per minute, designed so that the operator can at all times observe the milling operation without leaving the control area of the machine, and equipped with the following:

- (a) A built in automatic grade control system that can control the longitudinal profile and the transverse cross-slope to produce the specified results.
- (b) Longitudinal controls capable of operating from any longitudinal grade reference, including string line, 30-foot (10 meter) ski minimum, 30 foot (10 meter) mobile string line minimum, or a matching shoe.
- (c) The transverse controls shall have an automatic system for controlling cross-slope at a given rate.
- (d) Cutting heads able to provide a minimum 6 foot (2 meter) cutting width and a 0 to 4 inch (0 to 100 mm) deep cut in one pass. The teeth on the revolving cutting drum must be continually maintained and shall be replaced as warranted to provide a uniform pavement texture.
- (e) An integral pickup and conveying device to immediately remove milled material from the roadway and discharge the millings into a truck, all in one operation.

- (f) All necessary safety devices such as reflectors, headlights, taillights, flashing lights and back up signals so as to operate safely in both day and night.
- (g) A means of effectively limiting the amount of dust escaping from the milling and removal operation in accordance with local, State, and Federal air pollution control laws and regulations.

When milling smaller areas or areas where it is impractical to use the above described equipment, the use of a smaller or lesser-equipped milling machine may be permitted when approved by the Engineer.

Sweeper Equipment Requirements.

The Contractor shall provide a sufficient number of mechanical sweepers to ensure that the milled surface is free of millings and debris at the end of each day milling operations. Each sweeper shall be equipped with a water tank, spray assembly to control dust, a pick-up broom, a dual gutter broom, and a dirt hopper. The sweepers shall be capable of removing millings and loose debris from the textured pavement.

Milling Operations.

The milling operations shall be scheduled to minimize the duration and placement of traffic on the milled surface. Under no circumstances shall the milled surface be left exposed to traffic for a period exceeding seven days. The Engineer may allow the Contractor to adjust the above limitations on milling production when necessary.

The Contractor shall coordinate milling and paving operations to minimize the exposure of milled surfaces to traffic. The Contractor shall ensure that milled surfaces are overlaid in a timely manner to avoid damage to the pavement structure. Any damage to the pavement structure resulting from extended exposure of the milled surface to traffic shall be repaired as directed by the Engineer at the Contractor's expense.

The existing pavement shall be removed to the average depth shown on the plans, in a manner that will restore the pavement surface to a uniform cross-section and longitudinal profile. The longitudinal profile of the milled surface shall be established using a 30 foot (10 meter) mobile ski, mobile string line, or stationary string line. The cross-slope of the milled surface shall be established by a second sensing device or by an automatic cross-slope control mechanism. The Contractor will be responsible for providing all grades necessary to remove the material to the proper line, grade, cross section, superelevation, and transitions shown on the plans or as directed by the Engineer. The requirement for automatic grade or slope controls may be waived by the Engineer in locations warranted by the situation, including intersections and closely confined areas.

The Engineer may adjust the average milling depth specified on the plans by $\pm 3/4"$ ($\pm 20\text{mm}$) during each milling pass at no additional payment to minimize delamination of the underlying pavement course or to otherwise provide a more stable surface. If delamination or exposure of concrete occurs when milling a HMA pavement course from

an underlying Portland Cement Concrete (PCC) pavement, the Contractor shall cease milling operations and consult the Engineer to determine whether to reduce the milling depth or make other adjustments to the operation.

Protection of Inlets and Utilities.

Throughout the milling operation, protection shall be provided around existing catch basin inlets, manholes, utility valve boxes, and any similar structures. Any damage to such structures as a result of the milling operation is the Contractor's responsibility and shall be repaired at the Contractor's expense. To prevent the infiltration of milled material into the storm sewer system the Contractor shall take special care to prevent the milled material from falling into the inlet openings or inlet grates. Any milled material that falls into inlet openings or inlet grates shall be removed at the Contractor's expense.

Vertical Faces.

All permanent limits of the milled area shall be sawcut or otherwise neatly cut by mechanical means to provide a clean and sound vertical face. No vertical faces, transverse or longitudinal, shall be left exposed to traffic. If any vertical face is formed in an area exposed to traffic a temporary paved transition with a maximum 12:1 slope shall be established. If the milling machine is used to temporarily transition the milled pavement surface to the existing pavement surface, the temporary transition shall be constructed at a maximum 12:1 slope.

Opening to Traffic.

Prior to opening a milled area to traffic, the milled surface shall be thoroughly swept with a mechanical sweeper to remove all remaining millings and dust. This operation shall be conducted in a manner so as to minimize the potential for creation of a traffic hazard and to comply with local, State, and Federal air pollution control laws and regulations. Any damage to vehicular traffic as a result of milled material becoming airborne is the responsibility of the Contractor and shall be repaired at the Contractor's expense. Temporary pavement markings shall be placed in accordance with the provisions of Subsection 850.64.

Milled Surface Inspection.

The milled surface shall provide a satisfactory riding surface with a uniform textured appearance. The milled surface shall be free from gouges, excessive longitudinal grooves and ridges, oil film, and other imperfections that are a result of defective equipment, non-uniform milling teeth, improper use of equipment, or otherwise poor workmanship. Any unsatisfactory surfaces produced shall be corrected by remilling at the Contractor's expense and to the satisfaction of the Engineer.

The Contractor shall perform Quality Control inspection of all work items addressed as specified in the table below. Inspection activities during milling of HMA pavement may

be performed by qualified Production personnel (e.g. Skilled Laborers, Foremen, Superintendents). However, the Contractor's QC personnel shall have overall responsibility for QC inspection. The Contractor shall not rely on the results of Department Acceptance inspection for Quality Control purposes. The Engineer shall be provided the opportunity to monitor and witness all QC inspection.

The milled surface of each travel lane shall be divided into longitudinal Sublots of 500 feet (150 meters). The Contractor shall perform a minimum of one random QC measurement within each Sublot with a 10 foot (3 meter) straightedge in the transverse direction across the milled surface. Additional selective QC measurements within each Sublot will be performed as deemed necessary by the QC personnel. All QC inspection results shall be recorded on NETTCP Inspection Report Forms. The Engineer will also randomly inspect a minimum of 25% of the Sublots. The Contractor shall perform surface texture measurements with a 10 foot (3 meter) straightedge in the transverse direction across the milled surface. The milled surface shall have a texture such that the variation from the edge of the straightedge to the top of ridges between any two ridge contact points shall not exceed 1/8 inch (3 mm). The difference in height from the top of any ridge to the bottom of the groove adjacent to that ridge shall not exceed 1/16" (1.6 mm). Any point in the surface not meeting these requirements shall be corrected as directed by the Engineer at the Contractor's expense.

In isolated areas where surface delamination between existing HMA layers or a surface delamination of HMA on Portland Cement Concrete causes a non-uniform texture to occur, the straightedge surface measurement requirements stated in the preceding paragraph may be waived, subject to the approval of the Engineer.

Minimum QC Inspection of Milling Operations

Inspection Component	Items Inspected	Minimum Inspection Frequency	Point of Inspection	Inspection Method
Equipment	As specified in QC Plan	Per QC Plan	Per QC Plan	Per QC Plan
Environmental Conditions	Protection of Inlets & Utilities	Per QC Plan	Existing Surface	Visual Check
	Removal of Millings & Dust	Per QC Plan	Milled Surface	Visual Check
Workmanship	Milling Depth	Per QC Plan	Milled Surface	Check Measurement
	Cross-Slope & Profile	Per QC Plan	Milled Surface	Check Measurement
	Milled Surface Texture	Per QC Plan	Milled Surface	Visual Check
	Milled Surface Roughness	Once per 500 feet(150 meters) per milled lane	Milled Surface per Subsection 410.67	10 foot (3 meter) standard straightedge
	Sawcut Limit Vertical Face	Per QC Plan	Sawcut Limits	Visual Check

415.61 Micromilling Equipment Requirements.

The micromilling machine shall be equipped with a drum specifically designed to provide the surface specified below.

415.62 Control Strip.

The Contractor shall micromill a control strip. The control strip shall be 500 feet minimum in length with a uniformly textured surface and cross slope, as approved by the Engineer.

The micromilled surface of the control strip shall provide a satisfactory riding surface with a uniform textured appearance. The micromilled surface shall be free from gouges, excessive longitudinal grooves and ridges, oil film, and other imperfections that are a result of defective equipment, non-uniform milling teeth, improper use of equipment, or otherwise poor workmanship. Any unsatisfactory surfaces produced in the control strip shall be corrected by additional micromilling at the Contractor's expense and to the satisfaction of the Engineer.

The micromilled pavement surface shall have a transverse pattern of 0.2 – 0.3 inch center to center of each strike area. The Contractor shall perform surface texture measurements with a 10-foot (3 meter) straightedge in the transverse direction across the milled surface. The milled surface shall have a texture such that the variation from the edge of the straightedge to the top of ridges between any two ridge contact points shall not exceed 1/8 inch (3 mm). The difference in height from the top of any ridge to the bottom of the groove adjacent to that ridge shall not exceed 1/16" (1.6 mm). Any point in the surface not meeting these requirements shall be corrected as directed by the Engineer at the Contractor's expense.

415.67 Micromilled Surface Inspection.

The Contractor shall perform Quality Control inspection of all work items addressed under Section 415. The Contractor shall not rely on the results of Department Acceptance inspection for Quality Control purposes. The micromilled surface shall meet the requirements of 415.62.

Compensation

415.80 Method of Measurement.

Micromilling - Micromilling will be measured for payment by the number of square yards (square meters) of area from which the milling of existing HMA pavement has been completed and the work accepted. No area deductions will be made for minor unmilled areas such as catch basin inlets, manholes, utility boxes and any similar utility structures.

415.81 Basis of Payment.

Micromilling - Micromilling, removal and disposal of existing HMA pavement will be paid for at the contract unit price per square yard (square meter). This price shall include all equipment, tools, labor, and materials incidental thereto. No additional payments will be made for multiple passes with the milling machine to remove the existing HMA surface to the grade specified.

No separate payments will be made for: performing handwork removal of existing pavement and providing protection around catch basin inlets, manholes, utility valve boxes and any similar structures; repairing surface defects as a result of the Contractor's negligence; providing protection to underground utilities from the vibration of the milling operation; sawcutting micromilled limits; installing and removing any temporary transition; removing and disposing of millings; furnishing a sweeper and sweeping after milling. The costs for these items shall be included in the contract unit price bid for item 415. Pavement Micromilling.

415.82 Payment Items.

415. Pavement Micromilling	Square Yard
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ITEM 431.1**HIGH EARLY STRENGTH CEMENT CONCRETE
BASE COURSE****CY**

The work under this item shall conform to the relevant provisions of Section 430 of the Standard Specifications and the following:

High early strength cement concrete base course will be measured in place by the cubic yard conforming to the length, width and depth required by the plans or as directed.

Payment for work under this item will be made at the contract unit price per cubic yard for Item 431.1 High Early Strength Cement Concrete Base Course.

<u>ITEM 455.22</u>	<u>SUPERPAVE SURFACE COURSE – 9.5 (SSC-9.5)</u>	<u>TON</u>
<u>ITEM 455.23</u>	<u>SUPERPAVE SURFACE COURSE – 12.5 (SSC-12.5)</u>	<u>TON</u>
<u>ITEM 455.31</u>	<u>SUPERPAVE INTERMEDIATE COURSE – 12.5 (SIC-12.5)</u>	<u>TON</u>
<u>ITEM 452.</u>	<u>ASPHALT EMULSION FOR TACK COAT</u>	<u>GAL</u>
<u>ITEM 453.</u>	<u>HMA JOINT SEALANT</u>	<u>FT</u>

Work to be done under these items shall be done in accordance with the MassDOT Superpave Requirements (Document 00717), contained herein and the following:

The estimated traffic level to be used for Superpave HMA mixture design for this contract, expressed in Equivalent Single Axle Loads (ESALs) for the design travel lane over a 20-year period is **1.8** Million 18-kip (80-kn) ESALs. The PGAB Grade selected for this Contract is **PG 64-28**.

The emulsion under this specification shall be Grade RS-1H and shall meet the requirements of AASHTO M 140.

All required sawcutting in the existing pavement in accordance with Sections 450 and 455 (Document 00717) will be included in the contract unit price for each HMA pavement course, except sawcutting asphalt pavement for box widening which will be paid under Item 482.5.

ITEM 472.**HOT MIX ASPHALT FOR MISCELLANEOUS WORK****TON**

Work under this item shall conform to the relevant provisions of Sections 420, 460, 470, 501, 701 and the following:

Hot mix asphalt for miscellaneous work shall be used to provide temporary access and egress to those properties abutting the work area as determined by the Engineer. It shall also be used for patching of pavement surface where such areas are specified by the Engineer. The Contractor is advised that this is material which will be spread primarily by hand.

Hot mix asphalt for miscellaneous work shall be placed only upon the direction of the Engineer.

Payment for work under this item will be made at the contract unit price per ton which price and payment shall constitute full compensation for all labor, materials, equipment, transportation and incidental costs required to complete the work to the satisfaction of the Engineer.

ITEM 701.3**STAMPED ASPHALT CROSSWALK****SY**

All work under this item shall conform to the relevant provisions of Section 460 and 700 of the Standard Specifications, Manufacturer's specifications and the following:

The work shall consist of the imprinting and coloring of eight-foot wide "stamped" asphalt surface at the proposed crosswalk locations shown of the plans.

The Contractor shall be responsible for the preparation, coloring and imprinting of the "stamped" asphalt surface per manufacturer's specifications. This coloring and imprinting shall be applied to the asphalt pavement surfaces using infrared heating equipment. A two-part epoxy sealer specified by the manufacturer must be applied to the substrate prior to preformed thermoplastic application to ensure proper adhesion, and to provide reinforcement for larger volumes of material.

The preparation, imprinting, and coloring of the "stamped" asphalt shall conform to the Standard Specifications and the Manufacturer's specifications for TrafficPatternsXD, or approved equal. An approved manufacturer for "stamped" asphalt imprinting and coloring is Ennis-Flint Street Heat, 115 Todd Court, P.O. Box 160, Thomasville, NC 27360. An approved manufacturer for coloring is StreetBond by GAF, 1 Campus Drive, Parsippany, New Jersey 07054. Other manufacturers wishing to be approved must submit adequate proof of qualifications and experience for review. The Contractor must be a manufacturer authorized applicator, experienced with this specialized system, satisfactory to the Town of Holliston.

The color shall be "brick red" and the surface pattern shall be "offset brick." Said surface pattern shall be oriented such that the continuous lines of the brick pattern shall be perpendicular to the parallel edges of the proposed crosswalk. The Contractor will be required to overlay "stamped" asphalt imprinting in the previously prepared recessed pavement surfaces, as directed and approved by the Town of Holliston. The Town of Holliston will select the "stamped" asphalt coloring from the available pigments supplied by the manufacturer.

TrafficPatternsXD is applied to asphalt pavement using StreetPrint®/StreetHeat® reciprocating infrared heating equipment. The material must be able to be applied at ambient and road temperatures down to 45°F (7°C) without any preheating of the pavement to a specific temperature. A two-part epoxy sealer specified by Ennis-Flint must be applied to the substrate prior to the TrafficPatternsXD preformed thermoplastic application. Immediately following sealer application, the panels of aggregate reinforced TrafficPatternsXD preformed thermoplastic are positioned properly on the asphalt substrate with the aggregate side facing up. The TrafficPatternsXD preformed thermoplastic is then heated to the required melting temperature. Additional aggregate may be applied to the TrafficPatternsXD preformed thermoplastic surface as needed following the melting process. As the TrafficPatternsXD material is cooling, it is imprinted with a stamping template made from 3/8 in. (9.5 mm) flexible wire rope in the required design using a vibratory plate compactor. The TrafficPatternsXD preformed

thermoplastic material is then allowed to cool thoroughly before being opened to vehicle or pedestrian traffic. (Consult the published TrafficPatternsXD application procedures for complete information.) No material shall be applied when precipitation is present.

A 3 foot by 3 foot “mock up” shall be constructed for review and approval by the Town of Holliston and the Engineer. Cost for constructing the “mock up” shall be included in the contractor’s estimate.

Any residual material resulting from this work shall be removed and disposed of in a proper manner off site. The completed work area shall be left in a neat and clean condition, satisfactory to the Town of Holliston.

Special care must be exercised by the Contractor during the operation of work to save from harm and injury, any structure, public or private, situated above or below the surface and lying within the scope of the project. If during the execution of the work, the Contractor, through willfulness or carelessness, permits or causes any damage, the cost of satisfactory repair or replacement shall be the financial responsibility of the Contractor.

The Contractor must possess and be familiar with the specialized machinery necessary to perform the procedures as outlined and contained within this technical specification package, including, but not limited to, appropriate trucks, compressors, miscellaneous asphalt equipment, dispensers, applicators, cutters and/or specialized tools etc.

Payment for this item shall be at the contract unit price bid per square yard, which shall include all labor, materials, equipment, and incidental costs required to complete the work.

ITEM 706.**BRICK WALK****SY**

All work under this item shall conform to the relevant provisions of the Standard Specifications and the following:

Brick banding and walkway areas to be reconstructed shall have their existing bricks or stones, removed and cleaned of the jointing material. The existing bricks shall be reused to the maximum extent practicable. Any brick or stone broken or damaged during this work shall be replaced by the Contractor to match existing in color, texture and thickness to the maximum extent possible. The extent of the removal shall be determined by the Engineer. The construction of the brick walk, including the joints and the base shall be similar to the existing brick walk. The brick banding and walkway areas shall be sloped smoothly and evenly without dips or distinct breaks when relaid.

The existing bedding shall be cleaned of all debris and properly prepared for the addition of more bedding as required for the regrading. The bedding shall match existing.

Brick walk shall be measured by the square yard for the work complete and in place at the locations indicated on the Plans.

Payment for this item shall be at the contract unit price bid per square yard, which shall include full compensation for replacing broken bricks or stones, removing, cleaning and relaying them, for furnishing and placing the bedding and jointing materials including the stone dust, necessary excavation, and all other materials, labor and equipment required to make the work complete.

ITEM 804.3 3 INCH ELECTRICAL CONDUIT TYPE NM – PLASTIC – (UL)

FT

The work under this item shall conform to the relevant provisions of Section 801 of the Standard Specifications and the following:

The work shall include the furnishing and installation of 3-inch non-metallic conduit for traffic signal systems in accordance with the plans and as directed by the Engineer. The conduit material shall be NEMA TC 2; UL 651 listed; Schedule 80 polyvinyl chloride (PVC) plastic conduit with pull rope. Fittings shall be NEMA TC 3; match to conduit or tubing type and material.

Materials and equipment shall be in accordance with NEC, UL, ANSI, and as shown on the drawings and specified.

Trench backfill shall include the installation of a 6-inch detectable metallic warning tape, conforming to current APWA Standards, and be placed 16 inches above the top of conduit.

The conduit quantity may be increased or decreased by the Engineer depending upon actual conditions encountered as provided for in Section 4.06 of the Standard Specifications.

Conduits entering concrete handholes shall be terminated 1.5 inches inside the wall of the handhole and shall have attached a duct bell end of the required size, using solvent cement.

All conduit installed in handholes shall be installed in knockouts provided in the box. After the conduit has been installed in the handhole, the open space between the box and the conduit will be sealed with cement mortar.

Conduit in Grass or Planted Areas

Where new conduits are installed in grass and planted areas, work shall include placement of a minimum of 4 inches of loam borrow, seed and any other materials replaced in kind to restore disturbed areas to their original condition. Any existing plants (bushes, flowers, etc.) removed or damaged as a result of this project shall be replaced in kind.

No separate payment shall be made for this work, but all costs in connection therewith shall be included in the contract unit price bid for item 804.3 3-Inch Electrical Conduit Type NM – Plastic – (UL).

Conduit under Sidewalk or Roadway

Where conduit is installed in sidewalk, roadway or asphalt driveway areas, the work shall include excavating and backfilling of trenches, including necessary compaction, as well as cement concrete or asphalt pavement.

Trenches in existing bituminous concrete pavements not subject to full depth reconstruction shall be sawcut to a 42-inch width. The existing pavements shall be sawcut through their full depth and the pavement removed.

After conduit installation, the trench shall be backfilled with controlled density fill (CDF) when directed by the Engineer. CDF shall be Type 2E and shall be as specified in Section M4.08.0 of the Standard Specifications. The finished grade of the CDF shall be below existing pavement surface as shown on the construction details.

Where conduit crosses roadways, no separate payment shall be made for the excavation, sawcutting pavement, or incidental materials, but all costs in connection therewith shall be included in the contract unit price bid for item 804.3 3-Inch Electrical Conduit Type NM – Plastic– (UL).

Conduit under Brick

Where conduit is installed in brick areas, the work shall include removal and relaying of brick, excavating and backfilling of trenches, including necessary compaction, including necessary bedding and jointing material.

No separate payment shall be made for this work, but all costs in connection therewith shall be included in the contract unit price bid for item 804.3 3-Inch Electrical Conduit Type NM – Plastic – (UL).

METHOD OF MEASUREMENT

Item 804.3 will be measured per Subsections 801.80.

BASIS OF PAYMENT

3-inch Electrical Conduit Type NM - Plastic (UL) will be paid for at the contract unit price bid per foot, which price shall include sawcutting, excavation, compacted backfill, warning tape, sand bedding, gravel backfill, surface restoration and all labor, materials, equipment and incidental costs required to complete the work.

Controlled Density Fill – Excavatable will be paid under Item 153.

ITEM 811.31**PULL BOX 12 X 12 INCHES – SD2.031****EA**

The work under this item shall conform to the relevant provisions of Section 800 of the Standard Specifications and the following:

Frames and grates for all metallic pull box covers shall be grounded in accordance with Subsections 813.40, 813.61, and 813.62 of the Standard Specifications, or as directed by the Engineer.

ITEM 815.1**TRAFFIC CONTROL SIGNAL**
LOCATION NO. 1**LS****(Washington Street at Green Street/Exchange Street/Central Street)****ITEM 815.2****TRAFFIC CONTROL SIGNAL**
LOCATION NO. 2**LS****(Washington Street at Hollis Street/Charles Street)**

The work under this item shall conform to the relevant provisions of Section 800 of the Standard Specifications, the 2009 Manual on Uniform Traffic Control Devices (MUTCD), and the MassDOT amendments to the MUTCD, as amended and supplemented by the following:

The work shall include installation of a new traffic signal equipment at the intersections of Washington Street at Green Street/Exchange Street/Central Street and Washington Street at Hollis Street/Charles Street. The work shall include the furnishing and installation of part or all of the following items: controller, cabinet and foundation with concrete pad; ornamental mast arms, anchor bolts and foundations; signal heads; backplates; pedestrian signal heads and pedestals; pedestrian push buttons; all cable and wiring; ground rods; equipment grounding and bonding; loop detection; emergency pre-emption system; wireless communication equipment; electrical service connections; and all other equipment, materials and incidental costs necessary to provide complete, traffic control signal systems at the designated locations, as specific herein and as shown on the Plans. In addition, the work shall include removing and stacking of the existing pedestrian signal equipment throughout the project area. The stacking of the existing equipment will be at a location designated by the Town.

A list of major traffic signal items required at each location is included on the plan. Details of the ornamental traffic signal equipment is also included on the plans. Traffic signal operation and signalized intersection approaches shall be in conformance with the MUTCD throughout construction except when the intersections are under police control. The contractor shall submit any proposed interim traffic lane and traffic signal arrangements at intersections that deviate from the existing or proposed arrangements to the Resident Engineer for approval.

Local intersection traffic signal cable shall be #14 AWG.

The Contractor shall make all necessary arrangements with the electric utility company for the service connections or for any main power cut off when necessary, and bear all charges incurred hereby.

All New Materials

The Contractor shall deliver to the Engineer a certificate of compliance from the manufacturer for all materials purchased from the manufacturer/distributor. All materials shall be new, and certain components, such as the controller and cabinet, shall be

purchased from the same manufacturer/distributor and assembled by a qualified electrician/technician to ensure compatibility of components.

Shop Drawings

Within thirty (30) days following Notice To Proceed, the Contractor shall submit shop drawings for signal supports, a list of equipment, and manufacturer's equipment specifications to the Engineer in accordance with the relevant provisions of Section 815.20.

No work shall be commenced by the Contractor until approval of the shop drawings and manufacturer's data has been received in writing from the Engineer. Approval of these drawings will be general in character and shall not relieve the Contractor from the responsibility of, or the necessity of, furnishing materials and workmanship conforming to the plans and specifications.

The Contractor shall deliver to the Engineer a certificate of compliance with the manufacturer for all materials purchased from the manufacturer.

Service Connection

New service connection is required for this project. Service connection shown on the plans is approximate only. The Contractor shall determine the exact location from the servicing utility and arrange to complete the service connections. The Contractor shall be responsible for all charges incidental thereto including installation of transformers if required. Underground power conductors shall be in a separate conduit from other services. Multiple conduit runs within the same trench is acceptable. The servicing utility will furnish connection and power at the location shown on the Contract Drawings. The utility company will connect and disconnect power as required. No work shall be done in manholes or on power poles without a representative of the servicing utility being present. The Contractor will be responsible for coordinating the utility work. It shall also be the Contractor's responsibility to pay all charges to the utility company for performing this work. No direct reimbursement will be made under this contract to the Contractor for payments made to the utility company, it being understood that full compensation for any payment made by the Contractor to the utility company will be included in the contract bid price.

Any permit and/or utility fees/charges associated with providing the service, via Eversource – Electric, are considered incidental to this item.

An Eversource approved handhole (polymer concrete) is required, with a 6 inch layer of ¾ inch crushed stone as set forth in Material Subsection M2.01.4.

Refer to Overhead Traffic Signal Service Connection detail provided in Document A00803.

It shall be the Contractor's responsibility to contact the utility company. The electric company (refer to utility contacts) will furnish the connection and power at the locations shown on the Contract Drawings. The service connection shown on the plans is only approximate. The electric company will connect and disconnect power as required. No work shall be done in manholes or on power poles without a representative of the electric company being present. The Contractor will be responsible for coordinating work with the electric company.

The utility will provide a stub conduit connection at the underground structure, furnish the wire and make the connection from the power source to the new meter socket. The Contractor will install the conduit connecting the stub connection to the controller cabinet foundation.

The Contractor shall furnish and install, or cause to be installed, all service equipment to the satisfaction of the electric utility company. It shall also be the Contractor's responsibility to pay all charges to the utility company for performing the work previously described.

Openings where cables enter the bottom of the controller cabinet and each pull box shall be sealed with approved elastic sealing compound.

No direct reimbursement will be made under this contract to the Contractor for payments made to electric company, it being understood that full compensation for any payment made by the Contractor to the utility company will be included in the contract prices bid.

Grounding Cable - Grounding cable shall be bare copper No. 8 AWG wires.

Flashing Operation

Changes from automatic flashing to stop-and-go operation and from stop-and-go to automatic flashing operation shall occur as set forth in Sections 4D.28 through 4D.31 of the MUTCD.

Signal Cable & Wiring

All signal cable connections in the bases of signal poles, posts, and cabinet shall be made by means of appropriate terminal blocks. These blocks shall be completely furnished and installed on terminal block mounting strips in bases. All cables & wires that are to be installed on this project shall comply with Section 813 and the most recent edition of the International Municipal Signal Association Wire and Cable Specification.

Traffic Signal Equipment; Terminal & Facilities

The traffic signal controller units (CU), malfunction management units (MMU), detector amplifiers, cabinet power supply, and all other ancillary traffic signal control components included in the traffic control cabinet shall comply with the National Electrical

Manufacturers Association (NEMA) Standard No. TS 2-2003, Traffic Controller Assemblies with NTCIP Requirements.

Controller Unit and Cabinet

The traffic controller unit supplied shall conform to Section 3 "Controller Units" of the NEMA TS-2 Standard. The traffic controller shall be supplied in a TS-2 - Type 1 Configuration as required in the list of major traffic signal items included on the plans. Specifically, the controller units (CU) shall be supplied as an actuated controller with NTCIP capabilities; defined as Type A1N in Subsection 3.2 "Physical Standards" of the NEMA TS 2 Standard.

Controller Cabinets shall conform to the NEMA TS-2 Standards, Section 7. The TS-2 - Type 1 cabinet shall, at a minimum, meet the requirements of configuration 3 as defined in Table 5-2, "Type 1 Configurations" of the NEMA TS 2 Standard and additional terminals & facilities shall be added, or expanded, as necessary, to operate the number of detector channels and other ancillary equipment shown on the Contract drawings. The cabinet size shall be a "P" cabinet, or NEMA Type 6, at a minimum. The cabinet shall include a police door, fan, thermostat, and pullout laptop shelf.

TS-2 Type 1 Configuration Table

Item Number	NEMA TS 2 Cabinet Size	Nominal Cabinet Size (HxWxD) *	Configuration Type Table 5-2	Load Switch Positions	Flash Transfer Relays	BIUs Required	Detector Rack Type Table 5-9	MMU (Channels)
816.01	6	52x44x24	3	12	6	2	2	16

Cabinets shall be made of aluminum. **Where applicable, the cabinets shall be installed with the door opening positioned in order to allow general observation of the flow of traffic and the inside of the cabinets at the same time.** Controller cabinet foundations shall not obstruct a sidewalk or crosswalk so that passage by physically-challenged persons is impaired. The foundation, if installed in a grassed area, shall include a cement concrete workman's pad made the same width as the cabinet foundation, extending to a length of 30"-36" away from the foundation with a concrete access walk on the side of the cabinet not obstructed by the open cabinet door, constructed to a thickness of 4" placed on an 8" compacted gravel base, with the foundation extending 18" above finish grade. **The cabinet shall be installed with the door of the cabinet positioned on the side opposite the sidewalk such that a signal technician standing in front of the open door will see the signalized intersection and not obstruct the sidewalk.** The Contractor shall include a 25' RS-232 cable in each cabinet to support communications between the controller unit and a laptop computer.

The Contractor shall provide the Municipality with two (2) sets of keys to the controller cabinet.

TS 2 Cabinet Power Supply

A separate power supply shall be supplied and installed in the TS-2 cabinet. The unit shall be AC line powered and provide regulated DC power, unregulated AC power, and a line frequency reference for the rack mounted loop amplifiers, bus interface units, load switches and other auxiliary cabinet equipment as required. As a minimum, the power supply shall meet all requirements of Section 5.3.5 of the NEMA TS-2 Standard.

The power supply shall be either shelf mounted or wall mounted utilizing keyhole slots for ease of replacement or installed as part of the rack assembly.

The unit shall contain four LED indicators on the front panel to indicate the four outputs, + 12 VDC \pm 1 VDC @ 2.0 amps, + 24 VDC \pm 2 VDC @ 2.0 amps, 12 VAC @ 250 milliamps, and 60 Hz line frequency reference. A test point terminal shall also be located on the unit's front panel for + 24 VDC and logic ground testing.

Cabinet Load Switches

The Contractor shall furnish the appropriate type and number of load switches for the controller cabinet, in conformance with Section 6.2, Three-Circuit Solid State Load Switches, of the NEMA TS-2 Standard and as specified under Section 815.41 of the Standard Specifications. The Contractor's attention, in particular, is directed to Table 2 within Section 815.41.

Flasher

Flashers shall comply with all requirements of Subsection 6.3, Solid State Flashers, of the NEMA TS-2 Standard.

Flash Transfer Relays

The Contractor shall furnish the appropriate type and number of flash transfer relays for the controller cabinet, in conformance with Section 6.4 of the NEMA TS-2 Standard and as specified under Section 815.41 of the Standard Specifications; the Contractor's attention, in particular, is directed to Table 2 within Section 815.41. The Contractor shall provide a full complement of flash transfer relays for the control cabinet and place two additional spare flash transfer relays in the cabinet for future use. Load relays shall be easily replaced using a screwdriver. Component relays requiring soldering are not acceptable.

Malfunction Management Units

The malfunction management unit (MMU) shall comply with all requirements of Section 4 of the NEMA TS-2 Standard. The MMU shall be capable of operating as either a Type 16 with 16 channels (8 vehicle, 4 pedestrian, and 4 overlaps).

Loop Detector Amplifier Rack Assembly

The loop amplifiers supplied shall be rack mount, Type C, two-channel units with delay and extension timing internal to each unit's channel conforming to Section 6.5 of the NEMA TS 2 standards. The detector shall fit in a standard card rack conforming to Section 6.5 of the NEMA TS 2 Standard. The detector rack assembly shall be a Type 2 configuration conforming to Section 5.3.4 of the NEMA TS 2 Standard. The two-channel card rack loop amplifier unit shall occupy one of the rack slots. Each amplifier channel shall be labeled with the detector number.

The detector unit shall be capable of operating in a voltage range from 10.8 to 26.5 VDC. The unit shall operate from the cabinet's external power supply at 12 VDC. Detector units shall be microprocessor controlled, fully digital, self-tuning, and capable of detecting bicycles. Each channel of a dual-channel amplifier shall be connected to a series of wire loop detectors.

Inductive vehicle loop detectors shall utilize a liquid crystal display (LCD) to indicate the operational, set-up, and loop diagnostic parameters of the detector/loop system.

The type 8DW cabinet shall be supplied with a minimum of four (4), two-channel card rack loop amplifiers. Unless otherwise required by the plan's detector chart, phase call assignments of each amplifier channel shall be wired to one of the traffic controller's vehicle phase inputs; one for each of the eight phases for an 8DW cabinet. Additional amplifiers shall be supplied if so required by the major items list on the plans.

Vehicle and Bicycle Loop Detectors

The Contractor shall install wire loop detection in the roadway at these intersections. The work shall include the furnishing and installation of the wire loop detector on all approaches at this intersection. The installation of the wire loop detector shall conform to the information shown in the loop detector data chart that is included in the plan set. All existing wire loops shall be removed and disposed of by the Contractor. The work shall also include lead-in cable, connection to amplifier, adjustment to amplifier, testing, and all other equipment, materials and incidental costs necessary to complete and place the detector in operation.

Loop modification during construction: If loops are destroyed during construction, the Contractor shall modify the "Minimum Recall" green times in the traffic signal controller for all approaches to establish acceptable operations. This includes setting min recall to a level that reflects the existing demand during peak operating conditions. This modification shall be put in place from the time the existing wire loops become inoperable until such time the new wire loops are operational. The timings shall then be reprogrammed back into the controller to reflect proposed loop settings.

Vehicle and Bicycle Loop Detectors: Wire loop detectors shall be installed in the roadway pavement for vehicle and bicycle detection at locations shown on the plans. In

advance of the loop detector installation, the Contractor shall mark, on site, the loop detectors with any changes required by field conditions. The loop detector layout shall be inspected and approved by the Engineer before the loop detectors are installed.

The detector lead-in cables shall be labeled, with the street name, phase, detector number and terminal numbers, both in the controller unit and in the pull box containing the detector lead-in splice. This labeling and attachment shall be of durable materials such as brass or plastic, attached by wire or plastic ties. Adhesive attachment of the label shall not be acceptable.

Loop wire shall be encased in a protected plastic tubing of PVC or polyethylene plastic, IMSA 51-5, 0.25-inch outside diameter, and the wire may have cross-linked polyethylene insulation or it may have THHN/THWN insulation or as per the instructions by the Resident Engineer.

Splicing insulator shall be an approved re-enterable body splice kit with a non-hardening silicone gel sealing compound compatible with the wire insulation.

Splice and Connection

Splicing and connection shall be made in the pull box nearest the roadway loop sensor but not exceeding four loops per pull box. All loops included in a detector group as shown on the plans shall be spliced in a single pull box.

Each lead and lead-in connector shall be stripped back and spliced using a pressure type wire connector applied with a crimping tool. Multiple loop sensors shall be identified as detailed on the plans.

Lead-in splicing shall be staggered to prevent contact with each other. Each crimped splice shall be soldered and insulated. The insulation material shall be as listed in the MassDOT approved materials. The shielded lead-in cable outer jacket and shield shall be stripped back sufficiently to ensure that the shield cannot come into contact with the spliced conductors. Follow the instructions of the kit manufacturer for this procedure when installing the re-enterable splice kit. Splice hangers shall be provided in each pull box.

The above splice shall be done on the day of the loop wire installation to prevent the entrance of any moisture into the plastic tubing. The lead-in conductors shall be connected to the appropriate terminals in the controller cabinet, by using crimped and soldered terminal ends.

The heat source for soldering shall be electrical not exceeding 30W capacity

Testing of Loops

The Contractor shall perform testing of the wire loop detectors in accordance with Section 815.66 of the Standard Specifications and the following:

The testing of the loops shall be performed in the presence of the Engineer, before and after the loop sensor is sealed in the pavement as detailed below. After installation of wire loop sensors in the roadway and installation of shielded lead-in connecting the loop sensors to the controller cabinet, each loop sensor and lead-in combination shall be tested (at the controller cabinet) for proper installation. After the tests have been satisfactorily completed, all loop sensor/shielded lead-in inductance shall be measured and a written report of the results shall be filed with the Engineer and a copy stored with the "box prints" at the intersection.

Testing of Grounding System

The Contractor shall perform testing of the equipment grounding system in accordance with the Standard Specifications.

Fine Tuning, Adjusting and Testing of Traffic Signals

The Contractor is reminded that fine tuning, adjusting and testing of the traffic signals shall be performed in accordance with Section 815.66 of the Standard Specifications.

After the Contractor has finished installing the controllers and all other associated signal equipment and after the Contractor has set the signal equipment to operate as specified in the contract documents, the fine tuning, adjusting and testing period shall begin. During this period, the Contractor under the direction of the Engineer will make necessary adjustments and tests to ensure safe and efficient operation of the equipment. This period shall be not less than 30 days. No request for final acceptance will be considered until successful completion of the testing period.

The cost of electrical energy consumed by the operation of the traffic signal during the construction, fine-tuning and testing until final acceptance of the signal shall be borne by the Contractor.

The Contractor shall order and pay for a Police Officer detail to facilitate the equipment testing.

Mast Arm and Span Wire Poles and Foundations

Mast arm and span wire poles and foundations shall be fabricated and constructed in conformance with the MassDOT Standard Drawings, as well as the signal details included in the plans. Boring logs with soil information for each foundation location are included in Appendix C.

All signal posts, mast arms, bases, pedestrian pedestals, luminaires, luminaire arms, and other applicable materials shall conform to the MassDOT Standard Specifications and the Manufacturer's specifications. An approved manufacturer is Visco, Inc., 29579 Awbrey Lane, Eugene, OR 97402. Other manufacturers wishing to be approved must submit shop drawings to the Town of Holliston for review.

Acceptance of mast arm poles will be contingent upon review and approval of shop drawings submitted by the Contractor. Long-hand design calculations shall be submitted by the Contractor with the shop drawings for all mast arm poles.

The foundations shall not be constructed prior to soil classification of the subsurface soil by a qualified firm or person to perform the soil classification, analysis, and footing design. When soil classification, analysis and footing design are complete, the design including all pertinent data and calculations, shall be submitted to the Design Engineer for approval.

The lump sum prices bid should assume the dimensions shown on the standard drawings included with the Plans for the type of soil for each foundation location, as noted on the drawings.

Mast arm foundation depths as shown on the plans may be increased or decreased based on the actual existing soil types determined by the Engineer from soil borings provided by the Design Engineer. If the Engineer determines that the soil classification requires the use of a deeper foundation, the Contractor shall construct the foundation at the dimensions shown on the foundation design charts as included on the Plans and the Contractor shall be paid for the difference in depth at the contract unit price bid per foot under Item 815.98 Footing Cost Adjustment. Conversely, if the Engineer determines that the soil classification requires the use of a shallower foundation, the Owner shall be credited for the difference in depth at the contract unit price bid per foot under Item 815.98 Footing Cost Adjustment. The difference in depth calculation shall be based in the dimensions shown on the foundation design charts as included on the Plans for an applicable diameter foundation.

Where soil conditions are such that, in the opinion of the Engineer, the typical foundation design is not suitable, the Engineer will provide a modified design for the foundation. Mast arm and span wire pole foundations shall not obstruct a sidewalk or crosswalk so that passage by physically-challenged persons is impaired.

Backplates

Traffic signal backplates shall have a 5-inch solid border width and a dull flat black color. In addition, all backplates shall include a 3-inch wide reflective border surrounding the outside edge of the backplate.

Sign Mounting

Proposed signs on mast arm poles, mast arm shafts and strain poles shall be bolt mounted through the sign face. Hanging or swinging sign mountings are not allowed. Sign mounts shall be for the same design wind load required for the signal installation.

Signal Heads

Signal heads mounted on mast arms shall be attached in accordance with MassDOT – Highway Division Standard Drawings, with the bottom of all signals at the same height. All signal heads shall be equipped with 12-inch red, amber, and green ball or arrow light emitting diode (LED) modules as noted on the plan.

Any equipment that has been type-tested and approved according to Section 815.21 of the Standard Specifications prior to the date of award of this Contract will be considered as meeting these specifications.

All red, yellow and green LED signal housings with the exception of optically-programmed and fiber optic housings shall conform to the following:

All red and green LED signal modules shall conform to “ITE LED Circular Signal Supplement Purchase Specification” (January 2008) and “Vehicle Traffic Control Signal Heads - Part 3: Light Emitting Diode (LED) Vehicle Arrow Signal Modules” (January 2008), or most current versions, Institute of Transportation Engineers (ITE), 1627 Eye Street, NW, Suite 600, Washington, DC 20006.

Yellow LED signal modules shall conform to the above specifications with the exception that yellow modules shall meet maintained minimum luminous intensity values of Table 1, Section 4 of the above referenced ITE specification of compliant **green** signal modules at 75°F at 120 volts AC, throughout the useful life based on normal use in traffic signal operation over the operating temperature range.

All signal modules shall conform to the following: (In the case of a conflict, the following special provision shall overrule.)

An independent laboratory shall certify that the LED signal module complies with Section 6 Quality Assurance of the above stated ITE LED Purchase Specification.

LED signal modules must be type-tested and approved by the town of Holliston according to the requirements of Subsection 815.21 of the Standard Specifications.

On the backside of the LED signal module there shall be a permanently marked “up” arrow to aid in the proper orientation of the module during installation.

The manufacturer’s name, trademark, serial number and other necessary identification shall be permanently marked on the backside of the LED signal module.

Physical and Mechanical Requirements:

LED signal modules shall fit without modifications into existing traffic signal housings conforming to “Vehicle Traffic Control Signal Heads” (VTC SH) published in the Equipment and Materials Standards of the Institute of Transportation Engineers. The LED signal module shall be a single, self-contained device, not requiring on-site assembly for installation. The LED signal assembly construction shall conform to the applicable ASTM specification for the materials used to fabricate the module.

Each red LED signal module shall be comprised of a smooth surfaced red, UV stabilized polycarbonate outer shell, multiple LED light sources, a power supply and a polycarbonate back cover assembled in a gasket or silicon sealed unit.

Each yellow LED signal module shall be comprised of a smooth surfaced yellow, or transparent, UV stabilized polycarbonate outer shell, multiple LED light sources, a power supply and a polycarbonate back cover assembled in a gasket or silicon sealed unit.

Optical and Light Output Requirements:

The minimum luminous intensity values and light output shall be maintained within the rated input voltage of 117 volts AC. Red and green LED signal modules shall not be allowed to fall short of the minimum intensity values at any of the 44 measuring points of the standard when the lamp is turned on cold for measurements and after a thirty (30) minute warm-up time period at 100% duty cycle. Yellow LED signal modules shall not be allowed to fall short of minimum intensity values for green modules as described above, at any of the 44 measuring points of the standard.

Electrical:

The maximum wattage for red and green 12-inch balls shall be 20 watts and 10 watts for the 12-inch red and green arrows. The maximum wattage for 12-inch yellow balls shall be 24 watts and 12 watts for the 12-inch yellow arrows.

The LED sources shall not be powered above 70% of the manufacturer’s specified rated load. This shall be clearly shown in layman’s terms through calculations, schematics, catalogue cuts, etc.

Red LED sources shall be AlInGaP (Aluminum Indium Gallium Phosphide) type shown clearly in a catalogue cut or similar literature.

Yellow LED sources shall be AlInGaP (Aluminum Indium Gallium Phosphide) type shown clearly in a catalogue cut or similar literature.

Green LED sources shall be InGaN (Indium Gallium Nitride) type shown clearly in a catalogue cur or similar literature.

Warranty:

The LED signal module will be replaced or repaired by the manufacturer if it exhibits a failure due to workmanship or material defects within the first sixty (60) months of field operation.

The LED signal module will be replaced or repaired by the manufacturer if it exhibits either a greater than 40 percent light output degradation or a fall below the minimum intensity levels within the first thirty-six (36) months of field operation.

Traffic Signal LED Module

All signal and pedestrian displays shall be equipped with LED signal modules. All red, amber, green, and pedestrian signal housings with the exception of optically programmed and fiber optic housings and shall conform to the following where applicable:

- ITE's Vehicle Traffic Control Signal Heads – Light Emitting Diode (LED) Arrow Traffic Signal Supplement, Dated July 1, 2007
- ITE's Vehicle Traffic Control Signal Heads – Light Emitting Diode (LED) Circular Signal Supplement, Dated June 27, 2005.
- ITE's Pedestrian and Countdown Signal Modules Compliant to PTCSI - Part 2 Light Emitting Diode (LED), Dated, February 2011
- On the MassDOT Traffic Signal Approved Equipment List

For an LED module to installed on this project, the LED module shall have approval from the MassDOT Traffic Control Products Approved Equipment Committee and be included on the Traffic Control Products List prior to the date of this proposal

To prevent the LED module warranty from being voided, the connecting leads on the module shall not be cut. The original LED module leads shall be connected to the signal head terminal block as continuous wire without splices.

The LED signal module will be replaced or repaired by the manufacturer if it exhibits one of the following:

- A failure due to workmanship or material defects within the first 60 months of field operation.
- A greater than 40 percent light output degradation or a fall below the minimum intensity levels (as defined by the latest ITE performance specifications) within the first 36 months of field operation

Vehicular Signal Heads

Signal heads mounted on mast arms shall be attached in accordance with MassDOT – Highway Division Standard Drawings, with the bottom of all signals at the same height.

The signal housings shall be 12-inch sections and configured as shown in the contract drawings. The signal housings shall be listed on the MassDOT “Approved Equipment” list.

5-inch black non-louvered backplates with 3-inch retroreflective yellow border shall be provided on all signal heads or as noted on the plans. All indications shall be equipped with a standard cut-away visor. Signal housings shall be rigidly mounted to the mast arm. All signal heads mounted overhead on mast arms shall be installed, with the bottom of the signals at the same height. The Contractor shall modify any signal head location that is visibly obstructed to a motorist or pedestrian by overhead street light posts or other obstructions as determined by the Engineer. Vehicular signal housings shall be equipped with 12-inch red, amber, green balls or arrow light emitting diodes (LED’s) as shown in the contract documents. All LED vehicular signal heads installed on this project shall be included on the MassDOT approved materials list.

Pedestrian Signal Housings with Countdown Timers

Pedestrian signal housings shall be LED Type. The pedestrian signal indications shall be a HAND/PERSON overlay utilizing the international graphics for the Hand and Person.. The Hand and Person shall be filled in as shown on the plans. All pedestrian signal indications installed on this project shall be a similar style. The pedestrian signal head shall be a 16”x18” single, bimodal, LED section that includes a Count Down Timer. The countdown feature shall be active exclusively during the Flashing Don’t Walk interval and shall be dark during other intervals. The countdown numerals shall not flash. The placement of pedestrian signals shall conform to the Section 4E of the MUTCD.

The minimum performance requirements for the LED “walking person” and “hand” icon pedestrian signal modules shall conform to the latest edition of the "Pedestrian Traffic Control Signal Indications – Part 2: LED Pedestrian Traffic Signal Modules” of the Institute of Transportation Engineers (ITE), 1627 Eye Street NW, Suite 600, Washington, DC 20006, Telephone: (202) -785-0060, FAX: (202) 787-0609.

Accessible Pedestrian Signals (APS)

The APS installation shall follow all ADA, AAB, MUTCD and MassDOT requirements.

Accessible pedestrian signals shall combine an ADA compliant push button with an audible pedestrian signal in one unit. The push button shall provide tactile and audible indication of the WALK interval and emit a locating tone during the WALK and DON’T WALK intervals. A sunlight-visible LED shall confirm when the button is pushed and remain on until the WALK phase goes into effect.

Accessible pedestrian signals shall include frame with standard sign, ADA compliant push button, mounting hardware, and control unit with the following field selectable options:

- Locating Tone
- Extended Push Activation
- Audible rapid “TICKS” (default), “CUCKOO”, “CHIRP”, or “WALK SIGN IS ON” voice message during the walk cycle
- Selectable times for duration of walk cycle sound
- Fixed or automatic volume adjustment of all sounds.

Under automatic adjustment the volume of the locating tone and audible sounds automatically adjust in relation to ambient noise levels. The volume of the locating tone and audible sounds are to be field adjusted prior testing and final acceptance.

Software

All local controller, malfunction management unit, loop detector amplifier and emergency vehicle preemption software shall be supplied with the latest available revision. Any software upgrades released by the manufacturer shall be supplied at no charge to the Municipality for a period of five years after acceptance of the traffic signal installation.

Data Base Programming

Each programmable local hardware component (controller, malfunction management unit, and detector amplifier) shall be initially programmed by the Contractor based on information contained on the plans. Three sets of hard copy programming per device shall be supplied.

Traffic Signal Priority Control System

This item shall be furnished at all newly constructed traffic signals and will require a priority control system to employ data-encoded infrared communication to identify the presence of designated priority. A record of system users by vehicle classification and identification number shall be created. In priority vehicle mode, the data-encoded communication will request that the traffic signal controller advance to and/or hold a desired traffic signal display selected from phases normally available or from exclusive phases assigned specifically to higher priority (emergency vehicle) pre-emption. The priority control systems will consist of a matched system of infrared detectors, detector cable, phase selectors and system software at each signal location. A confirmation beacon shall also be provided, which shall run on a separate, dedicated cable; a spare signal cable shall not be used. The systems shall be compatible with the existing emitters used by the Town of Holliston, where applicable.

The emergency vehicle preemption system shall be 3M OPTICOM Priority Control System Model 700 series installed in the same cabinet as the controller, or approved equivalent. Preemption equipment installed shall be compatible with existing preemption equipment currently used by the Municipality.

The emitter will generate an infrared, data-encoded signal. The data-encoded signal will be detected and recognized by the infrared detectors at or near the intersection over a line-of-sight path of up to 2,380 feet under clear atmospheric conditions. The phase selector will process the electrical signal from the detector to ensure that the communication (1) is a valid frequency, (2) is correctly data encoded, and (3) is within user-settable range. If these conditions are met, the phase selector will generate a priority control request (i.e., a green light) for the approaching priority vehicles, as shown on the plans.

The system will require no action from the vehicle operator other than to turn the emitter on. The system will operate on a first-come, first-served basis. The system will interface with both existing and proposed traffic signal controllers and will not compromise normal operation or existing safety provisions.

The Holliston Fire Department will be given command requests with exclusive approach movement through intersections within their respective jurisdictions.

Construction Methods

Once the Contractor begins construction in the area, it shall then be his responsibility to operate and maintain the traffic/pedestrian signal system. Traffic signal operation and signalized intersection approaches shall be in conformance with the MUTCD throughout construction except when the intersections are under police control. The contractor shall submit any proposed interim traffic lane and traffic signal arrangements at intersections that deviate from the existing and proposed arrangements to the Resident Engineer for approval. The Contractor shall be required to keep records of dates when traffic signal posts are installed and when traffic signals are put on flashing and stop and go. These records are to be submitted to the Engineer by the first of each month. If required, the Contractor shall make all electrical arrangements with the utility company and also make telephone arrangements with cable company for providing power and telephone service to the controllers.

The Contractor shall supply and install the conduit and wires to the utility company. The Contractor will be required to pay directly to the company, all charges resulting from, at no additional cost to the Town of Holliston above the lump sum bid for this contract. The Contractor, or his agent, will not cause any of his personnel to work in an electric manhole or on a pole without permission of the utility company.

BASIS OF PAYMENT

The work under Item 815.1 and 815.2 will be paid for at their respective Contract lump sum price, which price shall include all labor, material, equipment and incidental costs required to complete work.

Conduit will be paid separately under Item 804.3, 3-inch Electrical Conduit Type NM-Plastic (UL).

Pull boxes will be paid separately under Item 811.31

ITEM 850.42**POLICE DETAIL****HR**

The work to be performed under this item shall include Police Details for traffic control, as required for protection of the traveling public and working personnel during construction operations.

This work consists of scheduling Police Details for construction operations involving work which is of a nature where the use of a Police Detail would be required to increase safety of the general public and construction personnel.

Scheduling of Details shall be conducted through the Town.

The Contractor is responsible for canceling Details DIRECTLY in the event of schedule changes where work no longer requires the use of Details, or cancellations of work for any reason, including weather.

Police Details shall be paid according to actual man-hours, for which such services are rendered as required, as billed according to the Detail's union contract in effect at the time of work.

The Contractor shall be responsible for all payments of Police Details incurred when the Contractor is unable to cancel Details with a minimum of one-hour notice, in the event of schedule changes where work no longer requires the use of Details, or cancellations of work for any reason, including weather. Such man-hours shall be billed directly to the Contractor, according to the Detail's union contract in effect at time of work, and shall be kept separate from man-hours to be paid by the Owner, and in no case will such payments be reimbursed.

The allowance established in the Bid Form is for bidding purposes only. The actual invoiced rates and quantities may differ from these established rates.

BASIS OF PAYMENT

Payment for Traffic Police Detail shall be paid man-hours for services rendered as required, as measured in Subsection 850.80. Payment will not be made for man-hours the Contractor shall be responsible for, as stated in Subsection 850.80, METHOD OF MEASUREMENT.

ITEM 856.1**VARIABLE MESSAGE SIGN****EA**

All work under this item shall conform to the relevant provisions of Section 815 of the Standard Specifications, Manufacturer's specifications and the following:

The Variable Message Sign shall be a DOT LED Blank-Out Sign (Product ID: 40799, Model: DOT3030RGAW-D255-3S) manufactured by Signal-Tech, 4985 Pittsburgh Avenue, Erie, PA 16509, or approved equal.

Variable Message Sign shall constitute of a 30" H x 30" W x 5" D extruded aluminum cabinet with welded seams (NEMA 4X rated/IP66), hinged door with 1" silicone gasket and tool-less stainless steel latches. The sign face shall be a replaceable single face, 1/4" thick and smoke-tinted polycarbonate (5109). The cabinet, door and face of the Variable Message Sign shall have a powder-coated black finish. The illumination of the sign shall be super bright direct view LEDs and the message shall blank out when off. The message display shall vary based on time period, as indicated on the Contract Drawings.

The Variable Message Sign may be mounted, but the display shall remain dark or covered until the signal system is activated. In addition, the associated variable parking signage (R7-2aL and R7-2aR) shown on the Contract Drawings shall remain covered until the signal system is activated.

Payment for work under this item will be made at the contract unit price per each which price and payment shall constitute full compensation for all labor, materials, equipment, transportation and incidental costs required to complete the work to the satisfaction of the Engineer.

ITEM 864.05**VARIABLE TURN ARROW PAVEMENT MARKING****SF**

All work under this item shall conform to the relevant provisions of Section 860 of the Standard Specifications, Manufacturer's specifications and the following:

Variable Turn Arrow Markings shall constitute of a 6-inch wide white thermoplastic perimeter with an unpainted interior surface, as indicated on the Contract Drawings.

Payment for this item shall be at the contract unit price bid per square foot under the item in the contract.

ITEM 866.104**4 INCH REFLECTORIZED
WHITE LINE (THERMOPLASTIC)****LF**

This work shall consist of furnishing materials and application of reflectorized pavement markings in accordance with the Commonwealth of Massachusetts, Department of Public Works, and MUTCD where designated by the Engineer in accordance with the relevant provisions of Section 860 as amended and/or supplemented as follows:

Pavement markings shall be 4-inch width.

Measurement for markings shall be made for the actual length of lines installed complete in place.

Payment for pavement markings will be made for the quantities as above determined, measured by the unit per linear foot, which unit price and payment shall be full compensation for the satisfactory application and for furnishing all material, labor, tools, equipment and any other incidentals necessary to complete the work.

END OF SECTION

APPENDIX A
BID PRICING SHEET

WASHINGTON STREET CORRIDOR IMPROVEMENTS

HOLLISTON, MASSACHUSETTS

BID PRICING SHEET

<u>Item No.</u>	<u>Item Description with Unit Bid Price (Written in Words and Figures)</u>	<u>Quantity</u>	<u>Unit</u>	<u>Amount</u>
103.	TREE REMOVED - DIAMETER UNDER 24 INCHES (\$ _____) per each _____ dollars and _____ cents	1	EA	\$ _____
120.1	UNCLASSIFIED EXCAVATION (\$ _____) per cubic yard _____ dollars and _____ cents	230	CY	\$ _____
141.1	TEST PIT FOR EXPLORATION (\$ _____) per cubic yard _____ dollars and _____ cents	15	CY	\$ _____
151.	GRAVEL BORROW (\$ _____) per cubic yard _____ dollars and _____ cents	190	CY	\$ _____
153.	CONTROLLED DENSITY FILL - EXCAVATABLE (\$ _____) per cubic yard _____ dollars and _____ cents	70	CY	\$ _____
170.	FINE GRADING AND COMPACTING (\$ _____) per square yard _____ dollars and _____ cents	650	SY	\$ _____
180.1	HEALTH AND SAFETY PLAN (\$ _____) per lump sum _____ dollars and _____ cents	1	LS	\$ _____

WASHINGTON STREET CORRIDOR IMPROVEMENTS

HOLLISTON, MASSACHUSETTS

BID PRICING SHEET

<u>Item No.</u>	<u>Item Description with Unit Bid Price (Written in Words and Figures)</u>	<u>Quantity</u>	<u>Unit</u>	<u>Amount</u>
220.	DRAINAGE STRUCTURE ADJUSTED (\$ _____) per each _____ dollars and _____ cents	25	EA	\$ _____
358.	GATE BOX ADJUSTED (\$ _____) per each _____ dollars and _____ cents	15	EA	\$ _____
415.*	PAVEMENT MICROMILLING (\$ _____) per square yard _____ dollars and _____ cents	8,900	SY	\$ _____
431.1	HIGH EARLY STRENGTH CEMENT CONCRETE BASE (\$ _____) per cubic yard _____ dollars and _____ cents	15	CY	\$ _____
455.23	SUPERPAVE SURFACE COURSE - 12.5 (SSC-12.5) (\$ _____) per ton _____ dollars and _____ cents	1,020	TON	\$ _____
455.31	SUPERPAVE INTERMEDIATE COURSE - 12.5 (SIC-12.5) (\$ _____) per ton _____ dollars and _____ cents	5	TON	\$ _____
452.*	ASPHALT EMULSION FOR TACK COAT (\$ _____) per gallon _____ dollars and _____ cents	620	GAL	\$ _____

WASHINGTON STREET CORRIDOR IMPROVEMENTS

HOLLISTON, MASSACHUSETTS

BID PRICING SHEET

<u>Item No.</u>	<u>Item Description with Unit Bid Price (Written in Words and Figures)</u>	<u>Quantity</u>	<u>Unit</u>	<u>Amount</u>
453.*	HOT MIX ASPHALT JOINT SEALANT (\$ _____) per linear foot _____ dollars and _____ cents	3,400	LF	\$ _____
472.	HOT MIX ASPHALT FOR MISCELLANEOUS WORK (\$ _____) per ton _____ dollars and _____ cents	30	TON	\$ _____
482.4	SAWCUTTING PORTLAND CEMENT CONCRETE (\$ _____) per linear foot _____ dollars and _____ cents	290	LF	\$ _____
506.	GRANITE CURB TYPE VB - STRAIGHT (\$ _____) per linear foot _____ dollars and _____ cents	310	LF	\$ _____
506.1	GRANITE CURB TYPE VB - CURVED (\$ _____) per linear foot _____ dollars and _____ cents	120	LF	\$ _____
509.	GRANITE TRANSITION CURB FOR WHEELCHAIR RAMPS - STRAIGHT (\$ _____) per linear foot _____ dollars and _____ cents	110	LF	\$ _____
509.1	GRANITE TRANSITION CURB FOR WHEELCHAIR RAMPS - CURVED (\$ _____) per linear foot _____ dollars and _____ cents	80	LF	\$ _____

WASHINGTON STREET CORRIDOR IMPROVEMENTS

HOLLISTON, MASSACHUSETTS

BID PRICING SHEET

<u>Item No.</u>	<u>Item Description with Unit Bid Price (Written in Words and Figures)</u>	<u>Quantity</u>	<u>Unit</u>	<u>Amount</u>
594.	CURB REMOVED AND DISCARDED (\$ _____) per linear foot _____ dollars and _____ cents	540	LF	\$ _____
701.	CEMENT CONCRETE SIDEWALK (\$ _____) per square yard _____ dollars and _____ cents	215	SY	\$ _____
701.2	CEMENT CONCRETE WHEELCHAIR RAMP (\$ _____) per square yard _____ dollars and _____ cents	245	SY	\$ _____
701.3*	STAMPED ASPHALT CROSSWALK (\$ _____) per square yard _____ dollars and _____ cents	340	SY	\$ _____
703.	HOT MIX ASPHALT DRIVEWAY (\$ _____) per ton _____ dollars and _____ cents	10	TON	\$ _____
706*.	BRICK WALK (\$ _____) per square yard _____ dollars and _____ cents	105	SY	\$ _____
748.	MOBILIZATION (\$ _____) per lump sum _____ dollars and _____ cents	1	LS	\$ _____

WASHINGTON STREET CORRIDOR IMPROVEMENTS

HOLLISTON, MASSACHUSETTS

BID PRICING SHEET

<u>Item No.</u>	<u>Item Description with Unit Bid Price (Written in Words and Figures)</u>	<u>Quantity</u>	<u>Unit</u>	<u>Amount</u>
804.3	3 INCH ELECTRICAL CONDUIT TYPE NM - PLASTIC (UL) (\$ _____) per foot _____ dollars and _____ cents	2,000	FT	\$ _____
811.31	PULL BOX 12 x 12 INCHES - SP2.031 (\$ _____) per each _____ dollars and _____ cents	35	EA	\$ _____
815.1*	TRAFFIC CONTROL SIGNAL LOCATION NO. 1 (\$ _____) per lump sum _____ dollars and _____ cents	1	LS	\$ _____
815.2*	TRAFFIC CONTROL SIGNAL LOCATION NO. 2 (\$ _____) per lump sum _____ dollars and _____ cents	1	LS	\$ _____
824.11*	VARIABLE TURN MESSAGE SIGN (\$ _____) per each _____ dollars and _____ cents	1	EA	\$ _____
832.	WARNING - REGULATORY AND ROUTE MARKER - ALUM. PANEL (TYPE A) (\$ _____) per square foot _____ dollars and _____ cents	90	SF	\$ _____
847.1	SIGN SUP (N/GUIDE)+RTE MKR W/ 1 BRKWAY POST ASSEMBLY - STEEL (\$ _____) per each _____ dollars and _____ cents	15	EA	\$ _____

WASHINGTON STREET CORRIDOR IMPROVEMENTS

HOLLISTON, MASSACHUSETTS

BID PRICING SHEET

<u>Item No.</u>	<u>Item Description with Unit Bid Price (Written in Words and Figures)</u>	<u>Quantity</u>	<u>Unit</u>	<u>Amount</u>
850.42	POLICE DETAIL (\$ _____) per hour _____ dollars and _____ cents	1,000	HR	\$ _____
852.	SAFETY SIGNING FOR TRAFFIC MANAGEMENT (\$ _____) per square foot _____ dollars and _____ cents	350	SF	\$ _____
853.1	PORTABLE BREAKAWAY BARRICADE TYPE III (\$ _____) per each _____ dollars and _____ cents	10	EA	\$ _____
856.	ARROW BOARD (\$ _____) per day _____ dollars and _____ cents	250	DAY	\$ _____
859.	REFLECTORIZED DRUM (\$ _____) per day _____ dollars and _____ cents	16,500	DAY	\$ _____
864.04	PAVEMENT ARROWS AND LEGENDS (THERMOPLASTIC) (\$ _____) per square foot _____ dollars and _____ cents	300	SF	\$ _____
866.104	4 INCH REFLECTORIZED WHITE LINE (THERMOPLASTIC) (\$ _____) per linear foot _____ dollars and _____ cents	700	LF	\$ _____

WASHINGTON STREET CORRIDOR IMPROVEMENTS

HOLLISTON, MASSACHUSETTS

BID PRICING SHEET

<u>Item No.</u>	<u>Item Description with Unit Bid Price (Written in Words and Figures)</u>	<u>Quantity</u>	<u>Unit</u>	<u>Amount</u>
866.106	6 INCH REFLECTORIZED WHITE LINE (THERMOPLASTIC) (\$ _____) per linear foot _____ dollars and _____ cents	1,800	LF	\$ _____
866.112	12 INCH REFLECTORIZED WHITE LINE (THERMOPLASTIC) (\$ _____) per linear foot _____ dollars and _____ cents	1,100	LF	\$ _____
867.106	6 INCH REFLECTORIZED YELLOW LINE (THERMOPLASTIC) (\$ _____) per linear foot _____ dollars and _____ cents	3,700	LF	\$ _____
867.112	12 INCH REFLECTORIZED YELLOW LINE (THERMOPLASTIC) (\$ _____) per linear foot _____ dollars and _____ cents	700	LF	\$ _____
TOTAL OF BASE BID:				
(\$ _____)				
_____ dollars and				
_____ cents				

APPENDIX B
PLANS

WASHINGTON STREET CORRIDOR IMPROVEMENTS

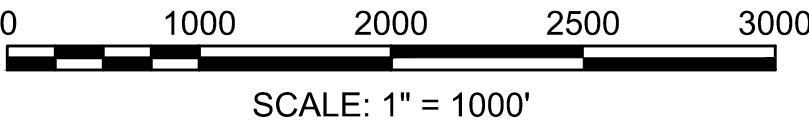
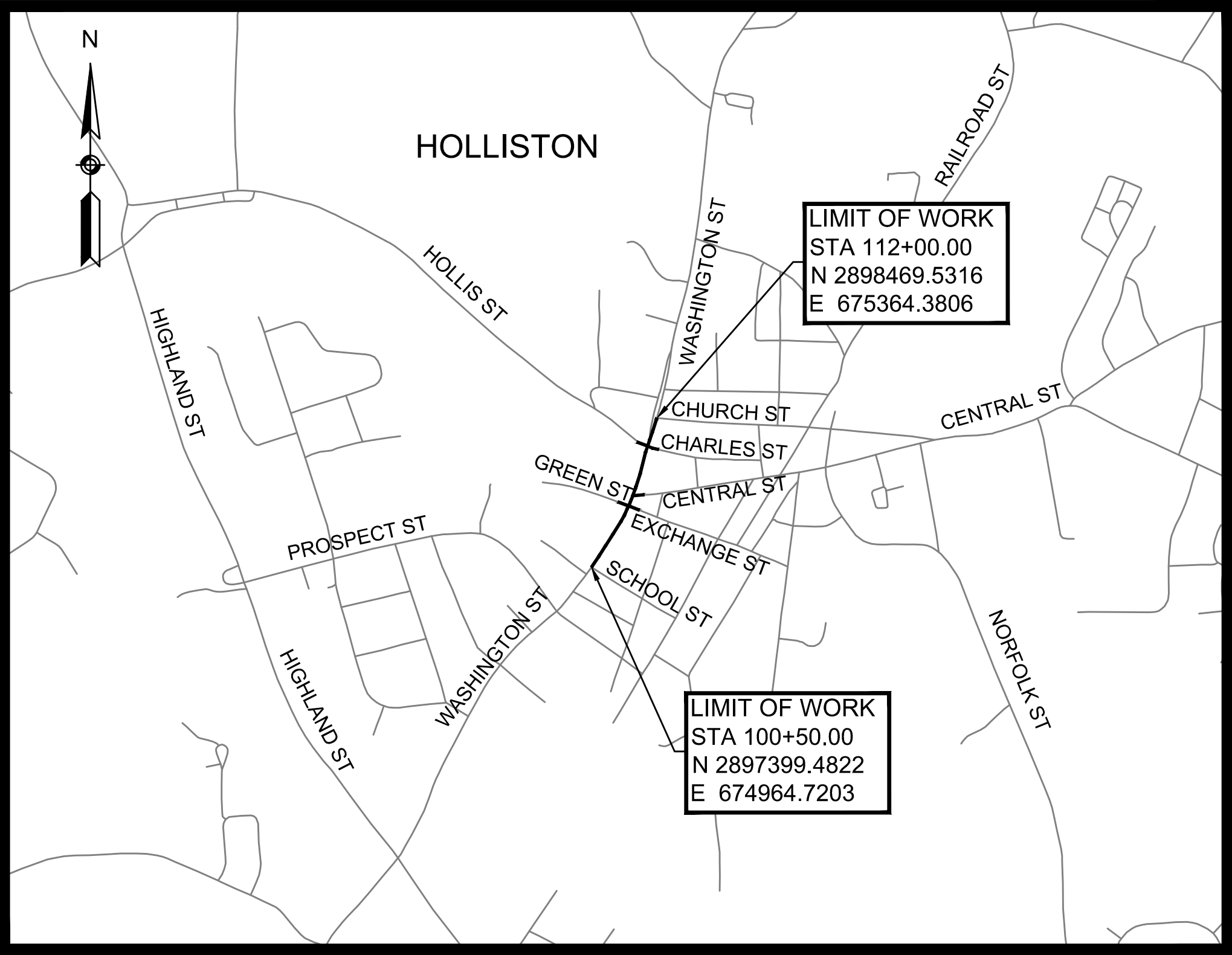
IN THE TOWN OF
HOLLISTON
MIDDLESEX COUNTY

HOLLISTON
WASHINGTON ST CORRIDOR IMPROVEMENTS

SHEET NO.	TOTAL SHEETS
1	22

TITLE SHEET AND INDEX

INDEX	
SHEET NO	DESCRIPTION
1	TITLE SHEET AND INDEX
2	LEGEND AND ABBREVIATIONS
3	TYPICAL SECTIONS
4 - 8	CONSTRUCTION DETAILS (1 - 5)
9 - 10	CONSTRUCTION PLANS (1 - 2)
11 - 12	TRAFFIC SIGN AND PAVEMENT MARKING PLANS (1 - 2)
13	TRAFFIC SIGN SUMMARY
14	TRAFFIC SIGNAL PLAN - EXCHANGE ST/GREEN ST/CENTRAL ST (1)
15	TRAFFIC SIGNAL PLAN - EXCHANGE ST/GREEN ST/CENTRAL ST (2)
16	TRAFFIC SIGNAL PLAN - CHARLES ST/HOLLIS ST (3)
17 - 20	TRAFFIC SIGNAL DETAILS (1 - 4)
21 - 22	TEMPORARY TRAFFIC CONTROL PLANS (1 - 2)

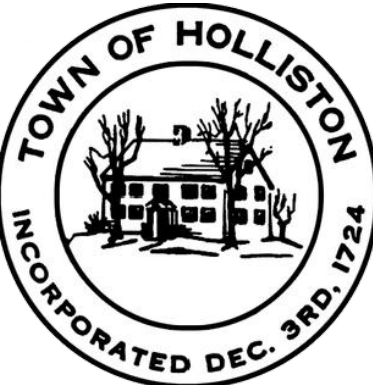


LENGTH OF PROJECT = 1450.00 FEET = 0.275 MILES

THE MASSACHUSETTS HIGHWAY DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES DATED 1988, AS AMENDED, THE SUPPLEMENTAL SPECIFICATIONS DATED JULY 1, 2015, THE LATEST EDITION OF THE SUPPLEMENTAL SPECIFICATIONS, THE DECEMBER 2016 CONSTRUCTION STANDARD DETAILS, THE 1996 CONSTRUCTION AND TRAFFIC STANDARD DETAILS (AS RELATES TO TRAFFIC STANDARD DETAILS ONLY), THE 2015 OVERHEAD SIGNAL STRUCTURE AND FOUNDATION STANDARD DRAWINGS, MASSDOT TRAFFIC MANAGEMENT PLANS AND DETAIL DRAWINGS, THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS WITH MASSACHUSETTS AMENDMENTS, THE 1990 STANDARD DRAWINGS FOR SIGNS AND SUPPORTS, THE 1968 STANDARD DRAWINGS FOR TRAFFIC SIGNALS AND HIGHWAY LIGHTING, AND THE LATEST EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK, WILL GOVERN.

JUNE 21, 2017

PREPARED FOR:



TOWN OF HOLLISTON
703 WASHINGTON STREET
HOLLISTON, MA 01746

PREPARED BY:



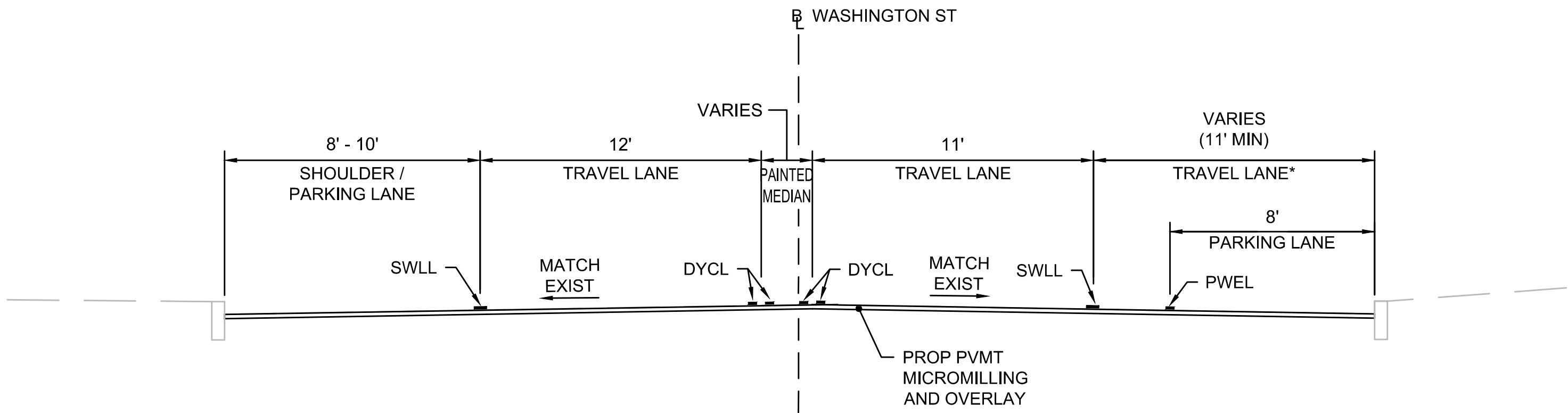
45 Bromfield St, 6th Flr
BOSTON, MA 02108
TEL: (617) 556-0020
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www.mcmahonassociates.com

300 Myles Standish Blvd
TAUNTON, MA 02780
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FAX: (508) 823-2246
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GENERAL SYMBOLS			TRAFFIC SYMBOLS			ABBREVIATIONS		HOLLISTON WASHINGTON ST CORRIDOR IMPROVEMENTS							
EXISTING	PROPOSED	DESCRIPTION	EXISTING	PROPOSED	DESCRIPTION	GENERAL		SHEET NO. TOTAL SHEETS							
		JERSEY BARRIER			CONTROLLER PHASE ACTUATED	AADT	ANNUAL AVERAGE DAILY TRAFFIC	2	22						
		CATCH BASIN			TRAFFIC SIGNAL HEAD (SIZE AS NOTED)	ABAN	ABANDON	LEGEND AND ABBREVIATIONS							
		CATCH BASIN CURB INLET			WIRE LOOP DETECTOR (6' x 6' TYP UNLESS OTHERWISE SPECIFIED)	ADJ	ADJUST								
		FLAG POLE			VIDEO DETECTION CAMERA	APPROX	APPROXIMATE	ABBREVIATIONS (cont)							
		GAS PUMP			MICROWAVE DETECTOR	AC	ASPHALT CONCRETE								
		MAIL BOX			PEDESTRIAN PUSH BUTTON, SIGN (DIRECTIONAL ARROW AS SHOWN) AND SADDLE	ACCM PIPE	ASPHALT COATED CORRUGATED METAL PIPE	GENERAL							
		POST SQUARE			EMERGENCY PREEMPTION CONFIRMATION STROBE LIGHT	BIT	BITUMINOUS								
		POST CIRCULAR			VEHICULAR SIGNAL HEAD	BC	BOTTOM OF CURB	PWW	PAVED WATER WAY						
		WELL			VEHICULAR SIGNAL HEAD, OPTICALLY PROGRAMMED	BD	BOUND	R	RADIUS OF CURVATURE						
		ELECTRIC HANDHOLE			FLASHING BEACON	BL	BASELINE	R&D	REMOVE AND DISPOSE						
		FENCE GATE POST			PEDESTRIAN SIGNAL HEAD, (TYPE AS NOTED OR AS SPECIFIED)	BLDG	BUILDING	RCP	REINFORCED CONCRETE PIPE						
		GAS GATE			RAILROAD SIGNAL	BM	BENCHMARK	RD	ROAD						
		BORING HOLE			SIGNAL POST AND BASE (ALPHA-NUMERIC DESIGNATION NOTED)	CC	CEMENT CONCRETE	RDWY	ROADWAY						
		MONITORING WELL			MAST ARM, SHAFT AND BASE (ARM LENGTH AS NOTED)	CCM	CEMENT CONCRETE MASONRY	REM	REMOVE						
		TEST PIT			HIGH MAST POLE OR TOWER	CEM	CEMENT	RET	RETAIN						
		HYDRANT			SIGN AND POST	CI	CURB INLET	RET WALL	RETAINING WALL						
		LIGHT POLE			SIGN AND POST (2 POSTS)	CIP	CAST IRON PIPE	ROW	RIGHT OF WAY						
		COUNTY BOUND			MAST ARM WITH LUMINAIRE	CLF	CHAIN LINK FENCE	RR	RAILROAD						
		GPS POINT			OPTICAL PRE-EMPTION DETECTOR	CL	CENTERLINE	R&R	REMOVE AND RESET						
		CABLE MANHOLE			CONTROL CABINET, GROUND MOUNTED	CMP	CORRUGATED METAL PIPE	R&S	REMOVE AND STACK						
		DRAINAGE MANHOLE			CONTROL CABINET, POLE MOUNTED	CSP	CORRUGATED STEEL PIPE	RT	RIGHT						
		ELECTRIC MANHOLE			FLASHING BEACON CONTROL AND METER PEDESTAL	CO	COUNTY	SB	STONE BOUND						
		GAS MANHOLE			LOAD CENTER ASSEMBLY	CONC	CONCRETE	SHLD	SHOULDER						
		MISC MANHOLE			PULL BOX 12"x12" (OR AS NOTED)	CONT	CONTINUOUS	SMH	SEWER MANHOLE						
		SEWER MANHOLE			ELECTRIC HANDHOLE 12"x24" (OR AS NOTED)	CONST	CONSTRUCTION	ST	STREET						
		TELEPHONE MANHOLE	-----			CR GR	CROWN GRADE	STA	STATION						
		WATER MANHOLE	-----			DHV	DESIGN HOURLY VOLUME	SSD	STOPPING SIGHT DISTANCE						
		MASSACHUSETTS HIGHWAY BOUND	-----			DI	DROP INLET	SHLO	STATE HIGHWAY LAYOUT LINE						
		MONUMENT	-----			DIA	DIAMETER	SW	SIDEWALK						
		STONE BOUND	-----			DIP	DUCTILE IRON PIPE	T	TANGENT DISTANCE OF CURVE/TRUCK %						
		TOWN OR CITY BOUND	-----			DWY	DRIVEWAY	TAN	TANGENT						
		TRAVERSE OR TRIANGULATION STATION	-----			ELEV (or EL)	ELEVATION	TEMP	TEMPORARY						
		TROLLEY POLE OR GUY POLE	-----			EMB	EMBANKMENT	TC	TOP OF CURB						
		TRANSMISSION POLE	-----			EOP	EDGE OF PAVEMENT	TOS	TOP OF SLOPE						
		UTILITY POLE W/ FIREBOX	-----			EXIST (or EX)	EXISTING	TYP	TYPICAL						
		UTILITY POLE WITH DOUBLE LIGHT	-----			EXC	EXCAVATION	UP	UTILITY POLE						
		UTILITY POLE W / 1 LIGHT	-----			F&C	FRAME AND COVER	VAR	VARIES						
		UTILITY POLE	-----			F&G	FRAME AND GRATE	VERT	VERTICAL						
		BUSH	-----			FDN	FOUNDATION	VC	VERTICAL CURVE						
		TREE	-----			FLDSTN	FIELDSTONE	VGC	VERTICAL GRANITE CURB						
		STUMP	-----			GAR	GARAGE	WCR	CURB RAMP						
		SWAMP / MARSH	-----			GD	GROUND	WG	WATER GATE						
		WATER GATE	-----			GG	GAS GATE	WIP	WROUGHT IRON PIPE						
		PARKING METER	-----			GI	GUTTER INLET	WM	WATER METER/WATER MAIN						
		OVERHEAD CABLE/WIRE	-----			GIP	GALVANIZED IRON PIPE	X-SECT	CROSS SECTION						
		CURBING	-----			GRAN	GRANITE	TRAFFIC SIGNAL							
		CONTOURS (ON-THE-GROUND SURVEY DATA)	-----			GRAV	GRAVEL								
		CONTOURS (PHOTOGRAMMETRIC DATA)	-----			GRD	GUARD	CAB	CABINET						
		UNDERGROUND DRAIN PIPE (DOUBLE LINE 24 INCH AND OVER)	-----			HDW	HEADWALL	CCVE	CLOSED CIRCUIT VIDEO EQUIPMENT						
		UNDERGROUND ELECTRIC DUCT (DOUBLE LINE 24 INCH AND OVER)	-----			HMA	HOT MIX ASPHALT	DW	STEADY DON'T WALK						
		UNDERGROUND GAS MAIN (DOUBLE LINE 24 INCH AND OVER)	-----			HOR	HORIZONTAL	EB	EASTBOUND						
		UNDERGROUND SEWER MAIN (DOUBLE LINE 24 INCH AND OVER)	-----			HYD	HYDRANT	FDW	FLASHING DON'T WALK						
		UNDERGROUND TELEPHONE DUCT (DOUBLE LINE 24 INCH AND OVER)	-----			INV	INVERT	FR	FLASHING CIRCULAR RED						
		UNDERGROUND WATER MAIN (DOUBLE LINE 24 INCH AND OVER)	-----			JCT	JUNCTION	FRL	FLASHING RED LEFT ARROW						
		BALANCED STONE WALL	-----			L	LENGTH OF CURVE	FRR	FLASHING RED RIGHT ARROW						
		GUARD RAIL - STEEL POSTS	-----			LB	LEACH BASIN	FY	FLASHING CIRCULAR AMBER						
		GUARD RAIL - WOOD POSTS	-----			LP	LIGHT POLE	FYL	FLASHING AMBER LEFT ARROW						
		CHAIN LINK OR METAL FENCE	-----			LT	LEFT	FYR	FLASHING AMBER RIGHT ARROW						
		WOOD FENCE	-----			MAX	MAXIMUM	G	STEADY CIRCULAR GREEN						
		TREE LINE	-----			MB	MAILBOX	GL	STEADY GREEN LEFT ARROW						
		SAWCUT LINE	-----			MH	MANHOLE	GR	STEADY GREEN RIGHT ARROW						
		TOP OR BOTTOM OF SLOPE	-----			MHB	MASSACHUSETTS HIGHWAY BOUND	GSL	STEADY GREEN SLASH LEFT ARROW						
		LIMIT OF EDGE OF PAVEMENT OR COLD PLANE AND OVERLAY	-----			MIN	MINIMUM	GSR	STEADY GREEN SLASH RIGHT ARROW						
		BANK OF RIVER OR STREAM	-----			NIC	NOT IN CONTRACT	GV	STEADY GREEN VERTICAL ARROW						
		BORDER OF WETLAND	-----			NO	NUMBER	OL	OVERLAP						
		100 FT WETLAND BUFFER	-----			PBS	PAINTED BOTH SIDES	NB	NORTHBOUND						
		200 FT RIVERFRONT BUFFER	-----			PC	POINT OF CURVATURE	PED	PEDESTRIAN						
		STATE HIGHWAY LAYOUT	-----			PCC	POINT OF COMPOUND CURVATURE	PTZ	PAN, TILE, ZOOM						
		TOWN OR CITY LAYOUT	-----			PGL	PROFILE GRADE LINE	R	STEADY CIRCULAR RED						
		COUNTY LAYOUT	-----			PI	POINT OF INTERSECTION	RL	STEADY RED LEFT ARROW						
		RAILROAD SIDELINE	-----			POC	POINT ON CURVE	RR	STEADY RED RIGHT ARROW						
		TOWN OR CITY BOUNDARY LINE	-----			POT	POINT ON TANGENT	SB	SOUTHBOUND						
		PROPERTY LINE OR APPROXIMATE PROPERTY LINE	-----			PRC	POINT OF REVERSE CURVATURE	SY	SOLID CIRCULAR AMBER						
		EASEMENT	-----			PROJ	PROJECT	TR SIG	TRAFFIC SIGNAL						
			-----			PROP	PROPOSED	TSC	TRAFFIC SIGNAL CONDUIT						
			-----			PSB	PLANTABLE SOIL BORROW	W	STEADY WALK						
			-----			PT	POINT OF TANGENCY	WB	WESTBOUND						
			-----			PVC	POINT OF VERTICAL CURVATURE	Y	STEADY CIRCULAR AMBER						
			-----			PVI	POINT OF VERTICAL INTERSECTION	YL	STEADY AMBER LEFT ARROW						
			-----			PVT	POINT OF VERTICAL TANGENCY								
			-----			PVMT	PAVEMENT								
			-----			PWEL	PARKING WHITE EDGE LINE - 4"								
PAVEMENT MARKINGS SYMBOLS															
EXISTING	PROPOSED	DESCRIPTION													
		PAVEMENT ARROW - WHITE THERMOPLASTIC													
		LEGEND "ONLY" - WHITE THERMOPLASTIC													
		STOP LINE - 12" WHITE THERMOPLASTIC													
		CROSSWALK - 12" WHITE THERMOPLASTIC (10' O.C.), STAMPED ASPHALT WALK													
		SOLID WHITE LANE LINE - 6" WHITE THERMOPLASTIC													
		SOLID YELLOW LANE LINE - 6" YELLOW THERMOPLASTIC													
		BROKEN WHITE LANE LINE - 6" WHITE THERMOPLASTIC (10' LINE, 30' SPACE)													
		BROKEN YELLOW LANE LINE - 6" YELLOW THERMOPLASTIC (10' LINE, 30' SPACE)													
		DOTTED WHITE LANE LINE - 6" WHITE THERMOPLASTIC (2' LINE, 6' SPACE)													
		DOTTED YELLOW LANE LINE - 6" YELLOW THERMOPLASTIC (2' LINE, 6' SPACE)													
		DOUBLE YELLOW CENTER LINE - 6" YELLOW THERMOPLASTIC													
		YELLOW GORE LINE - 12" YELLOW THERMOPLASTIC (15' SPACING, 1:3 SLOPE)													
		WHITE GORE LINE - 4" WHITE THERMOPLASTIC (3' O.C., 1:1 SLOPE)													

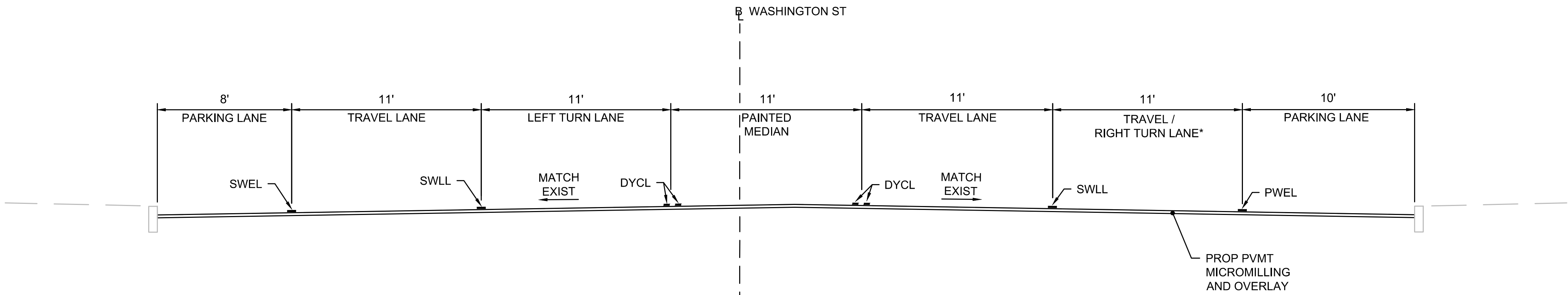
SHEET NO.	TOTAL SHEETS
3	22

TYPICAL SECTIONS



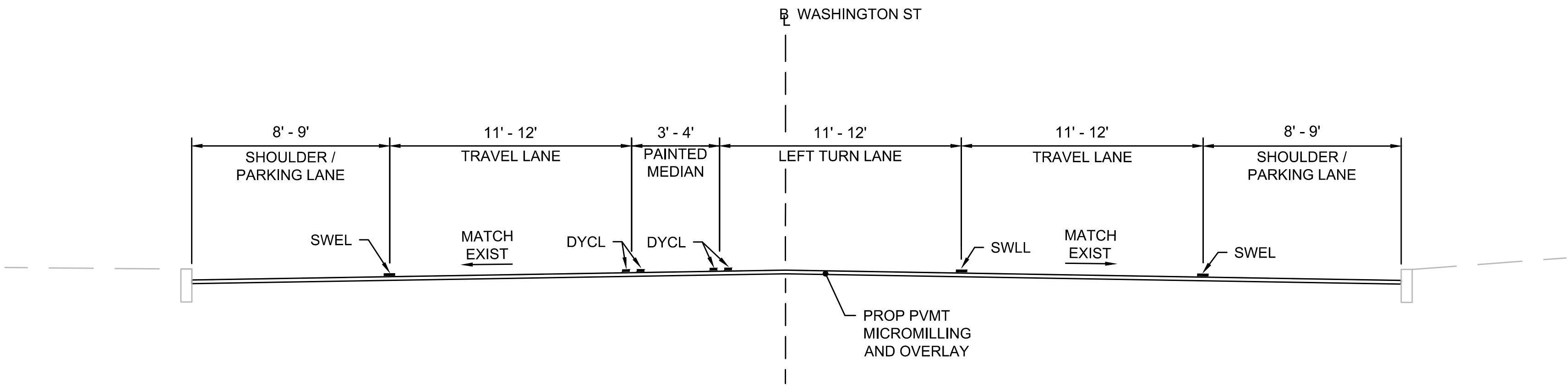
* TRAVEL PERMITTED IN THIS LANE DURING PEAK PERIODS ONLY

WASHINGTON ST
SOUTH OF GREEN ST/EXCHANGE ST



* THROUGH TRAVEL PERMITTED IN THIS LANE DURING PEAK PERIODS ONLY

WASHINGTON ST
GREEN ST/EXCHANGE ST TO CENTRAL ST



WASHINGTON ST
CENTRAL ST TO HOLLIS ST/CHARLES ST

PAVEMENT NOTES

PROPOSED PAVEMENT MICROMILLING AND OVERLAY

SURFACE: 2" SUPERPAVE SURFACE COURSE 12.5 (SSC-12.5) OVER ASPHALT EMULSION FOR TACK COAT (RS-1H) AT 0.07 GAL/SY OVER MILLED PAVEMENT
2" PAVEMENT MICROMILLING

PROPOSED HMA DRIVEWAY

SURFACE: 1.5" SUPERPAVE SURFACE COURSE 9.5 (SSC-9.5) OVER 2" SUPERPAVE INTERMEDIATE COURSE 12.5 (SSC-12.5) OVER

SUB-BASE: 8" GRAVEL BORROW FOR SUB-BASE COURSE

PROPOSED CEMENT CONCRETE SIDEWALK AND WHEELCHAIR RAMPS

SURFACE: 4" CEMENT CONCRETE (4,000 PSI, 3/4", 610) OVER

FOUNDATION: 8" GRAVEL BORROW (TYPE b)

PROPOSED BRICK WALK

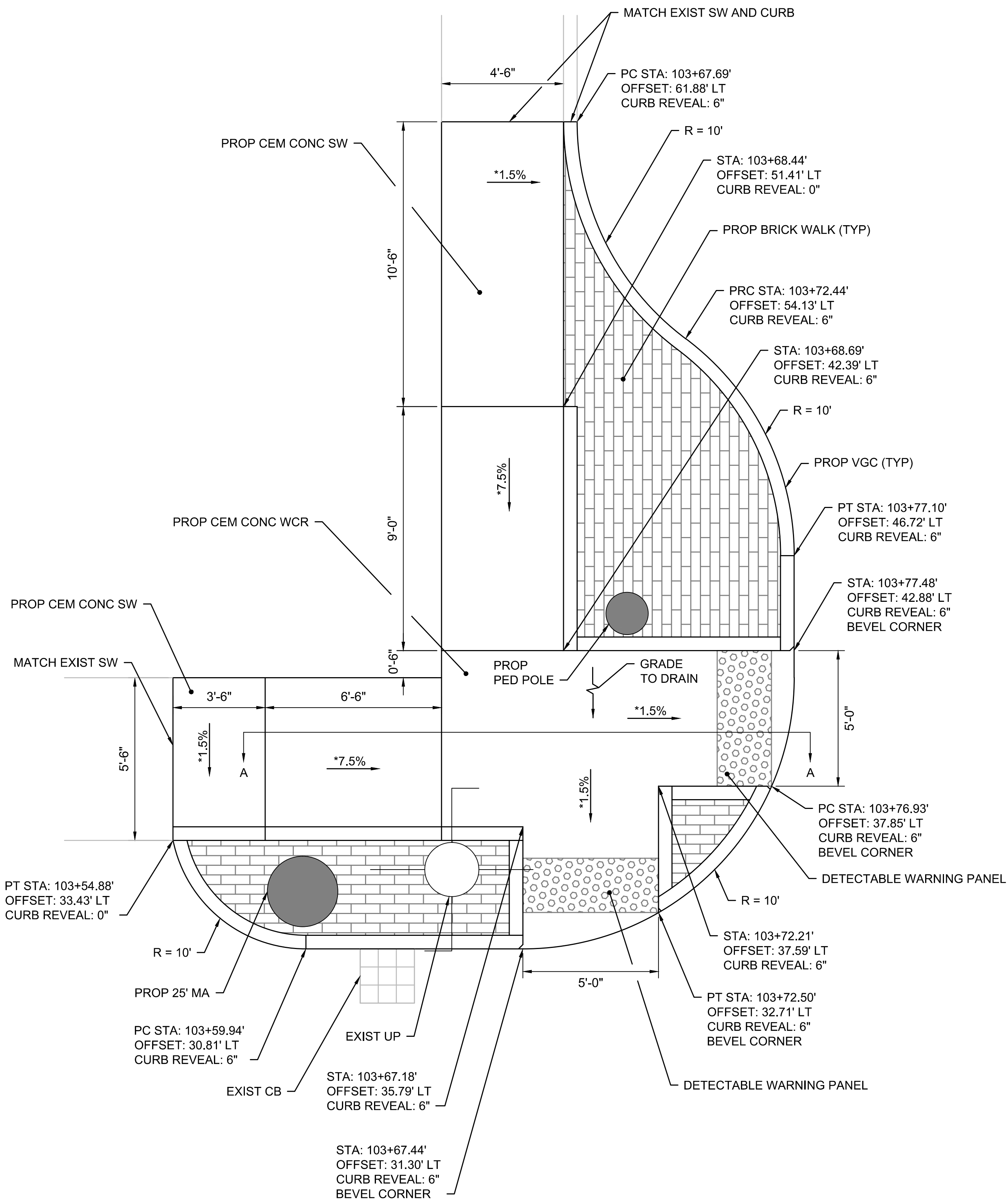
SURFACE: BRICK PAVERS (MATCH EXIST)* OVER 1" COMPACTED STONE DUST OVER

SUB-BASE: 8" GRAVEL BORROW (TYPE b)

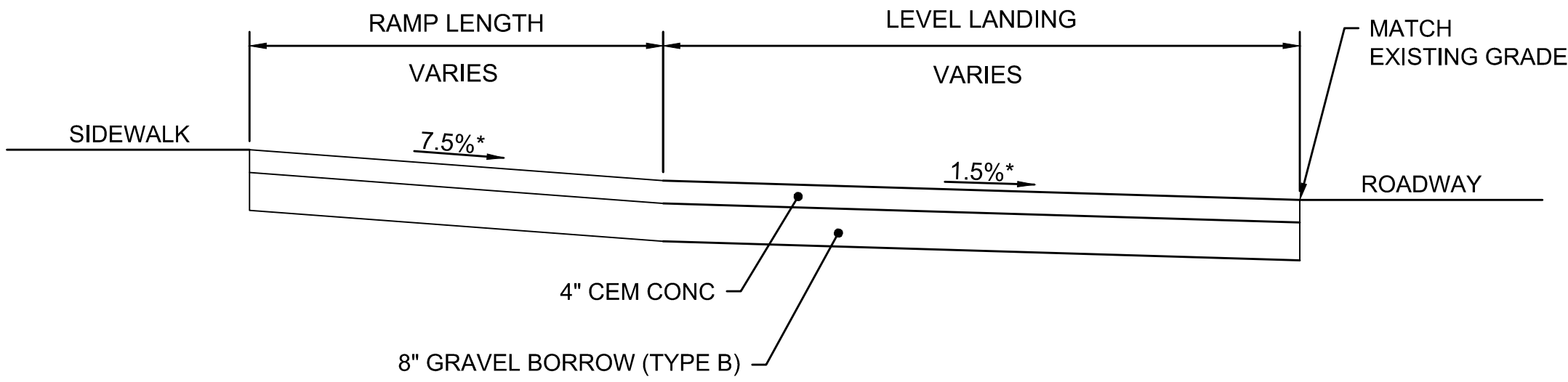
*BRICK WALK PATTERN, TYPE, AND COLOR TO MATCH EXIST.



SHEET NO.	TOTAL SHEETS
4	22

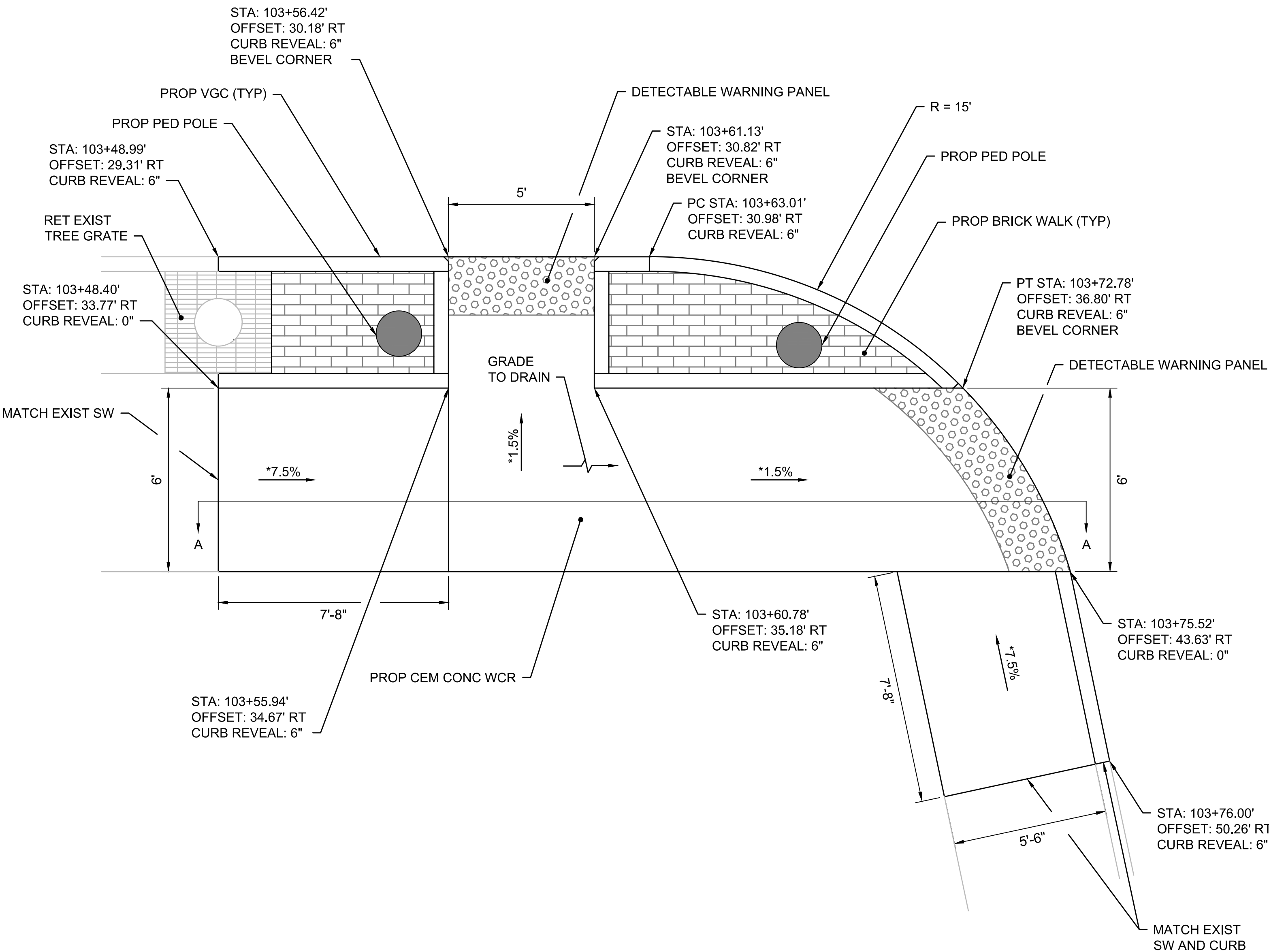


CURB RAMP #1
NOT TO SCALE



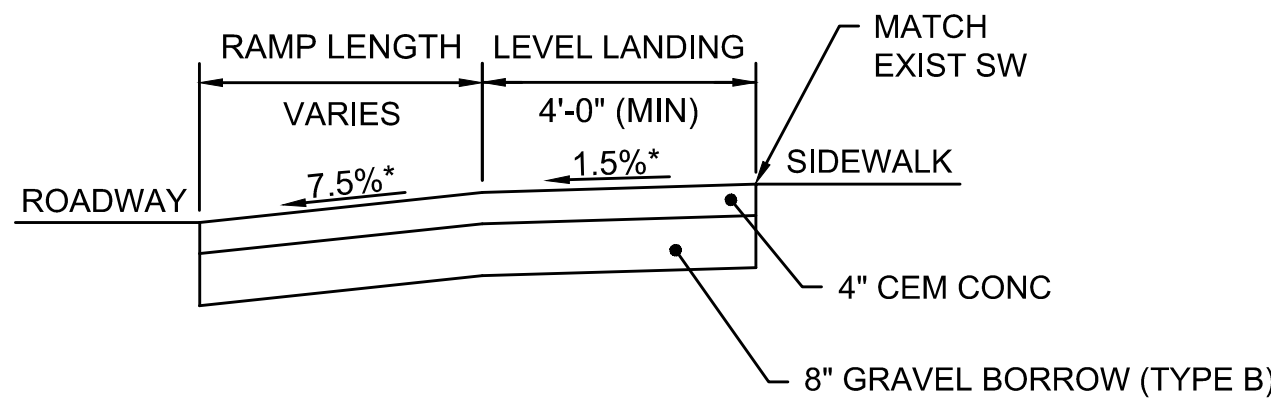
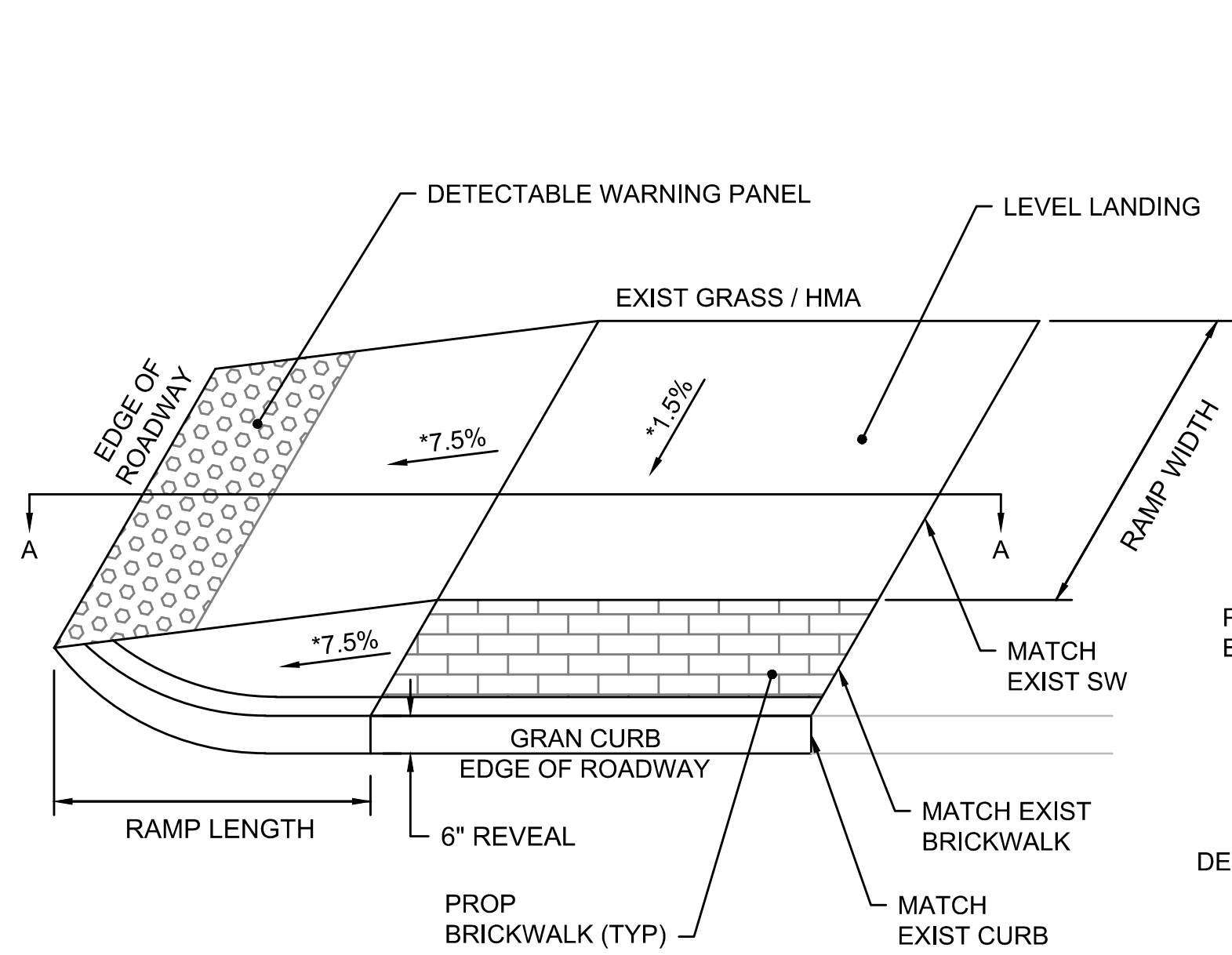
* TOLERANCE FOR CONSTRUCTION = ±0.5%

SECTION A-A



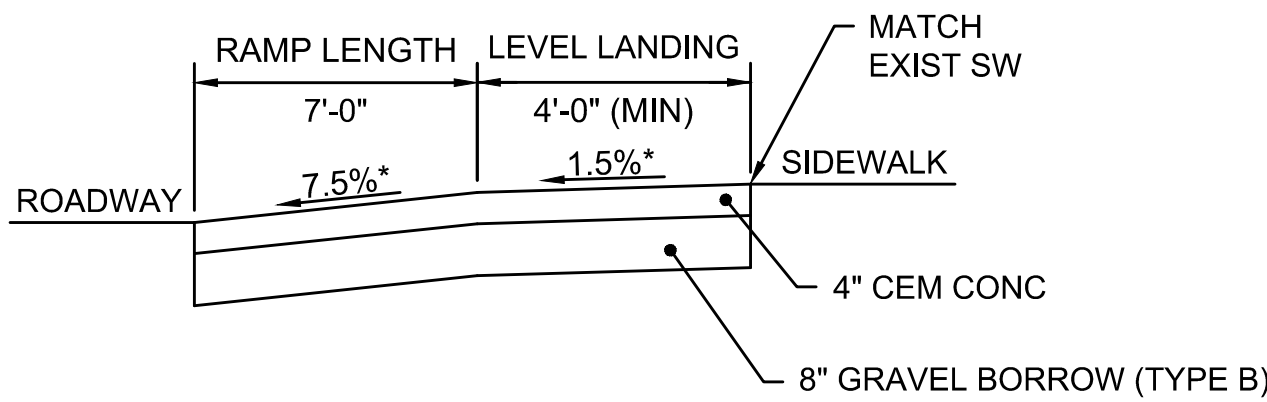
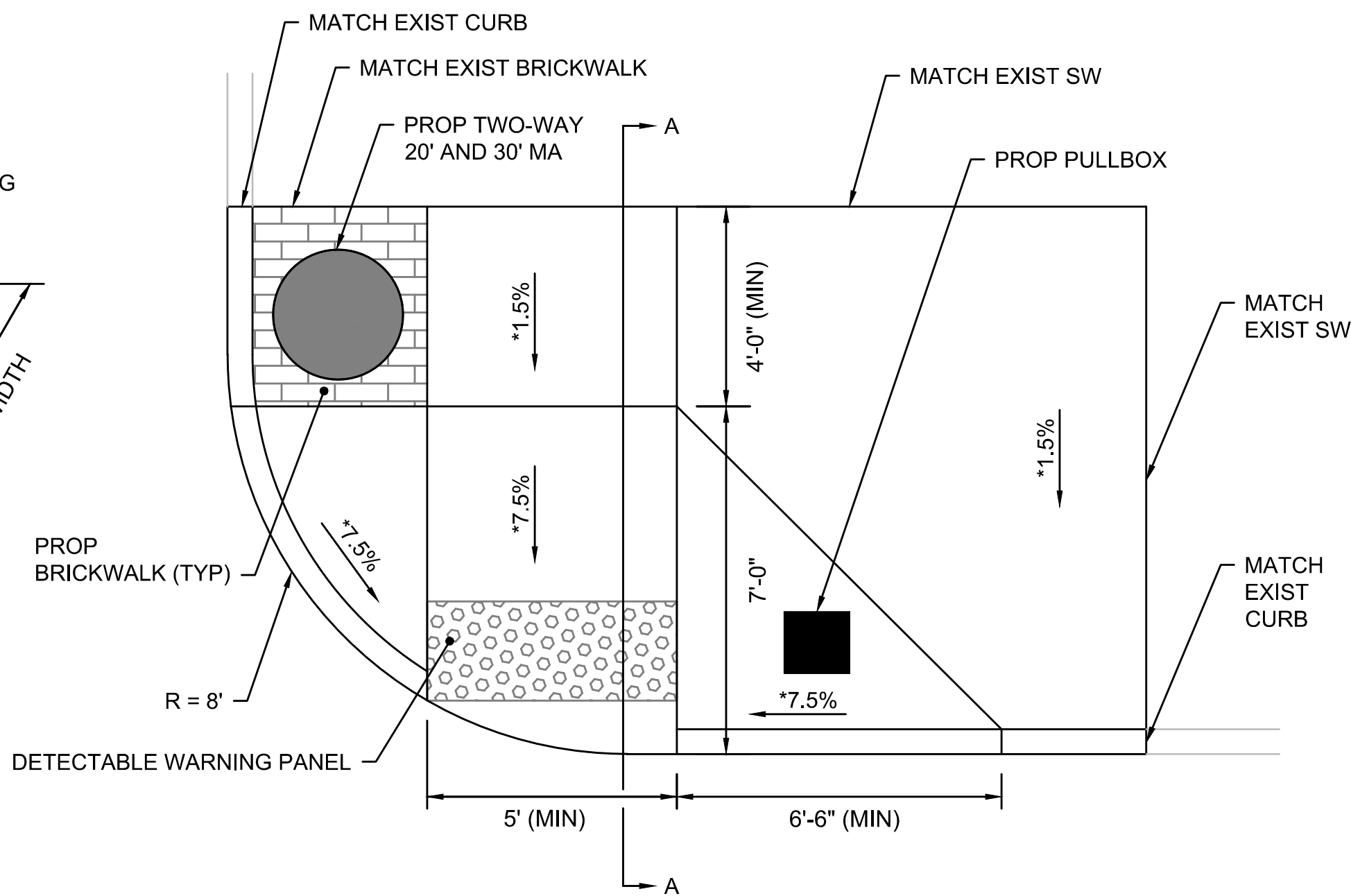
CURB RAMP #2
NOT TO SCALE

SHEET NO.	TOTAL SHEETS
5	22



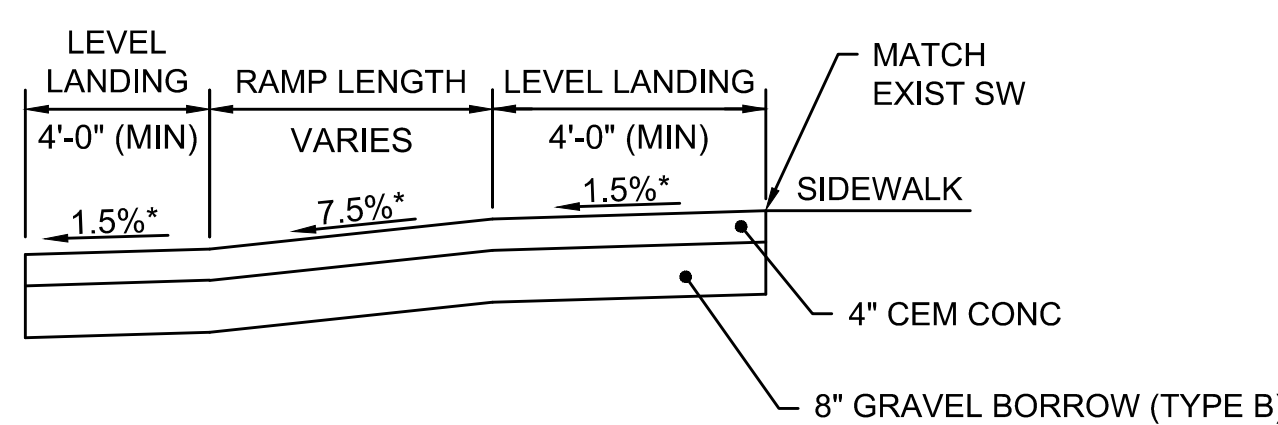
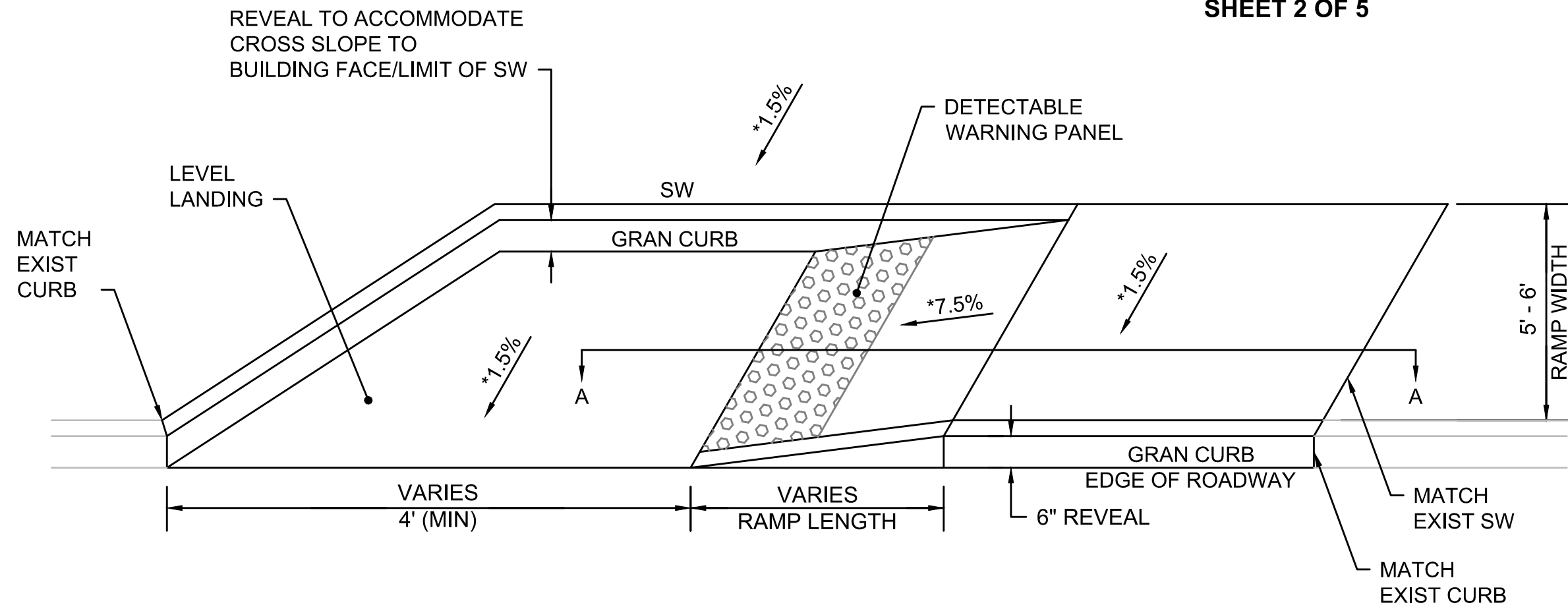
* TOLERANCE FOR CONSTRUCTION = ±0.5%

SECTION A-A



* TOLERANCE FOR CONSTRUCTION = ±0.5%

SECTION A-A



* TOLERANCE FOR CONSTRUCTION = ±0.5%

SECTION A-A

WCR #	CURB RAMP LOCATION		RAMP WIDTH	LEVEL LANDING WIDTH	RAMP LENGTH	ROADWAY GUTTER SLOPE
	STATION	OFFSET				
3	104+07	40' L	6' - 0"	4' - 0"	9' - 0"	1.1%
13	109+08	34' R	5' - 0"	4' - 0"	7' - 8"	0.1%

CURB RAMPS #3 AND #13

NOT TO SCALE

WCR #	CURB RAMP LOCATION		RAMP WIDTH	LEVEL LANDING LENGTH	RAMP LENGTH	ROADWAY GUTTER SLOPE
	STATION	OFFSET				
4	104+03	45' R	5' - 0"	4' - 0"	7' - 0"	2.3%

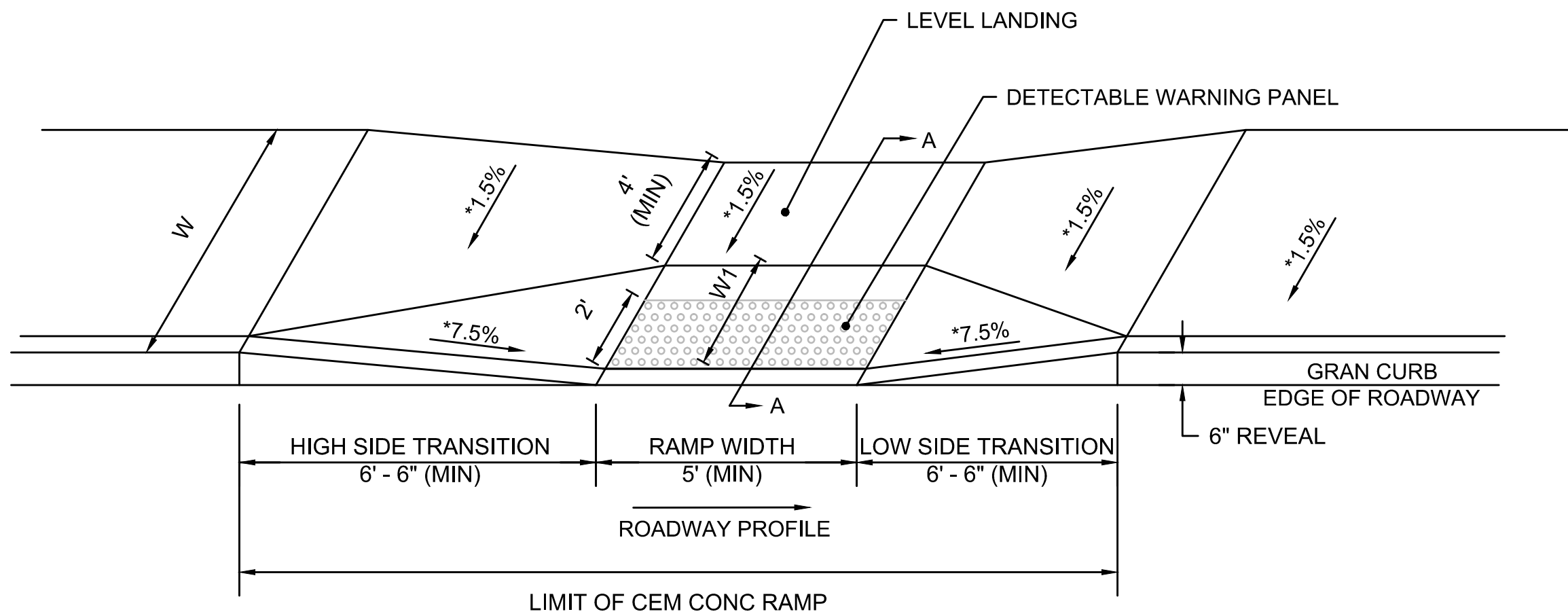
CURB RAMP #4

NOT TO SCALE

WCR #	CURB RAMP LOCATION		RAMP WIDTH	LEVEL LANDING WIDTH	RAMP LENGTH	ROADWAY GUTTER SLOPE
	STATION	OFFSET				
5	104+51	44' R	6' - 0"	4' - 0"	7' - 8"	0.4%
15	110+63	31' L	5' - 0"	4' - 0"	9' - 0"	1.4%

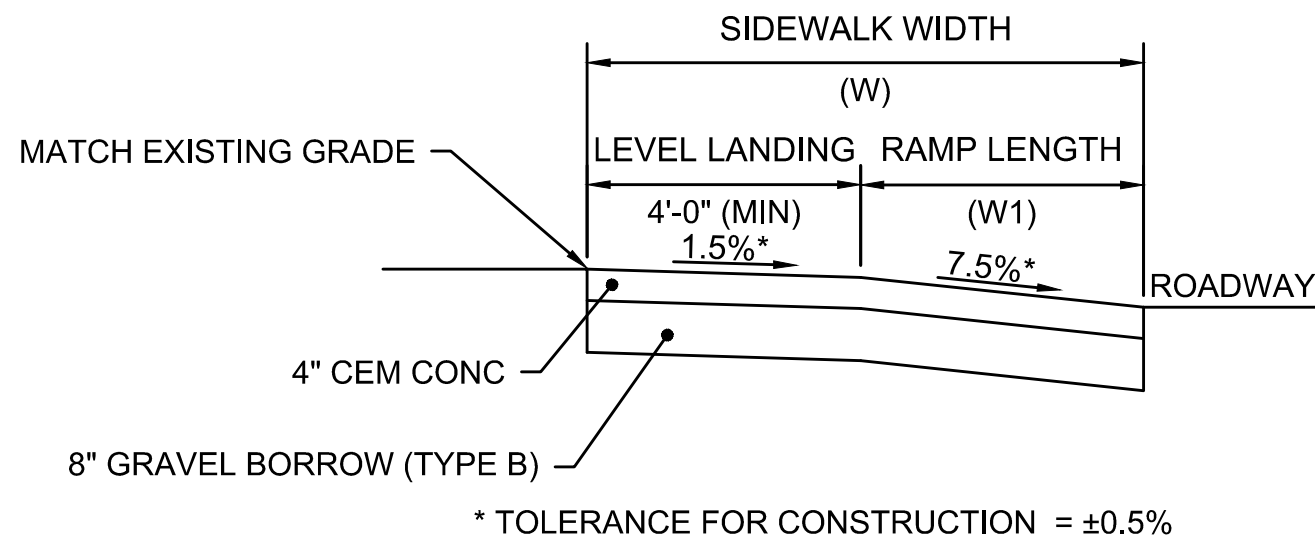
CURB RAMPS #5 AND #15

NOT TO SCALE



CURB RAMPS #6, #7, AND #12

NOT TO SCALE



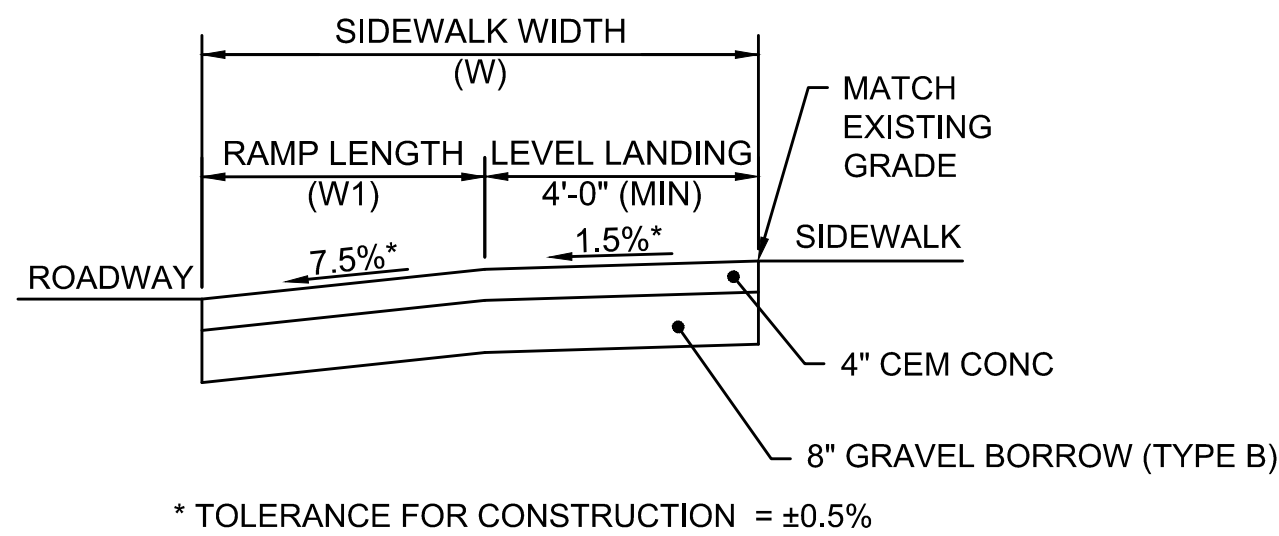
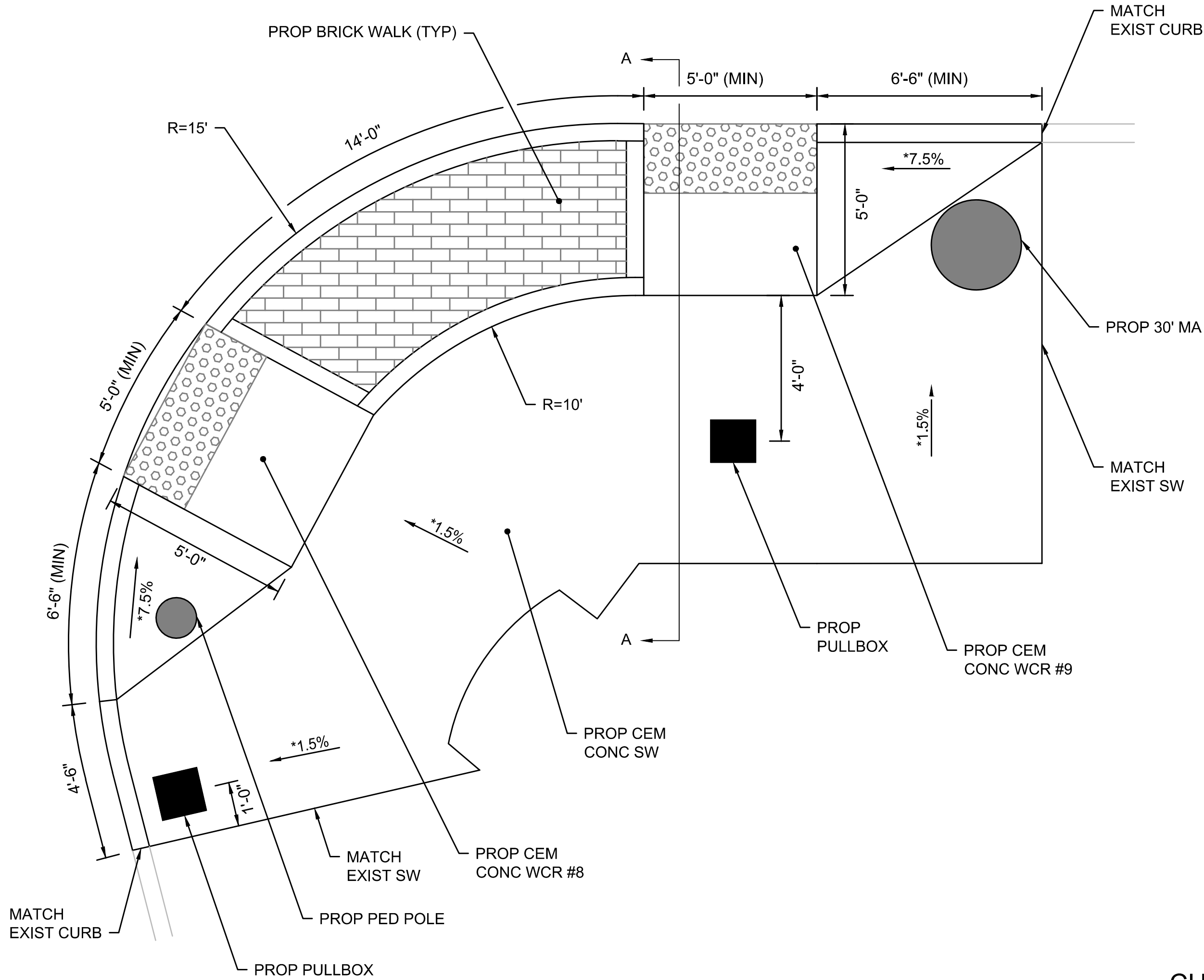
* TOLERANCE FOR CONSTRUCTION = ±0.5%

SECTION A-A

WCR #	CURB RAMP LOCATION		SIDEWALK WIDTH (W)	LEVEL LANDING WIDTH	RAMP LENGTH (W1)	ROADWAY GUTTER SLOPE	TRANSITION LENGTH	
	STATION	OFFSET					LEFT SIDE	RIGHT SIDE
6	104+96	53' R	8' - 6"	4' - 0"	4' - 6"	3.1%	6' - 6"	14' - 0"
7	105+36	31' L	12' - 6"	8' - 6"	4' - 0"	0.9%	7' - 8"	6' - 6"
12	108+76	29' R	6' - 0"	4' - 0"	2' - 0"	0.9%	7' - 8"	6' - 6"

SHEET NO.	TOTAL SHEETS
6	22

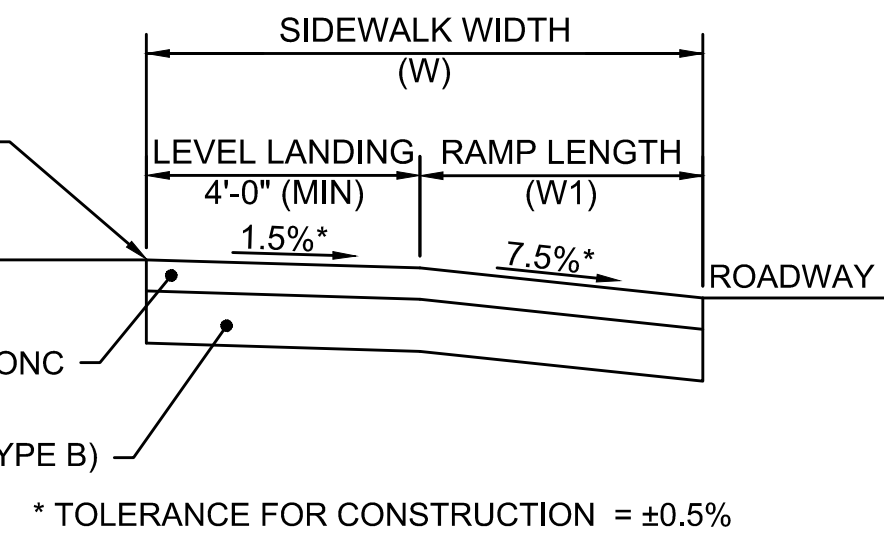
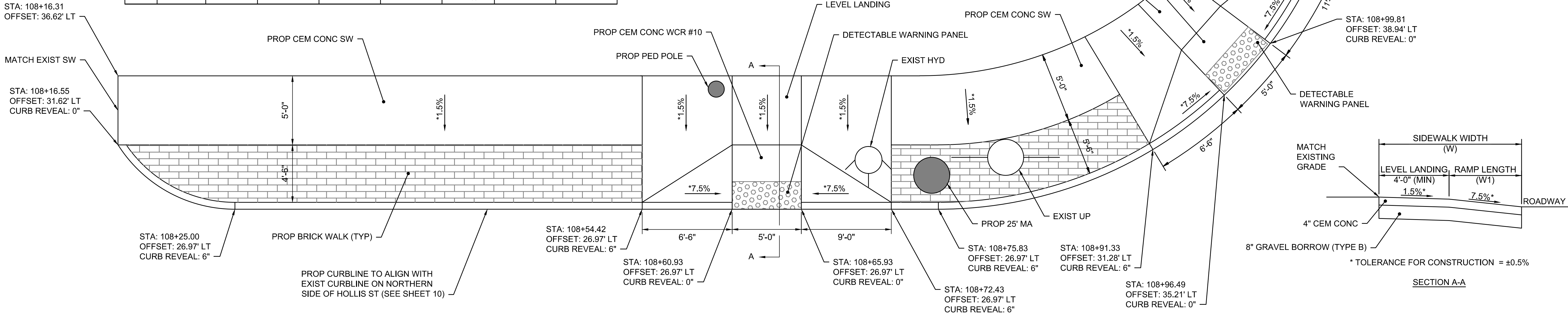
CONSTRUCTION DETAILS
SHEET 3 OF 5



WCR #	CURB RAMP LOCATION		SIDEWALK WIDTH (W)	LEVEL LANDING WIDTH	RAMP LENGTH (W1)	ROADWAY GUTTER SLOPE	TRANSITION LENGTH	
	STATION	OFFSET					LEFT SIDE	RIGHT SIDE
8	105+31	49' R	12' - 6"	7' - 6"	5' - 0"	1.0%	-	6' - 6"
9	105+45	39' R	12' - 6"	7' - 6"	5' - 0"	1.5%	6' - 6"	-

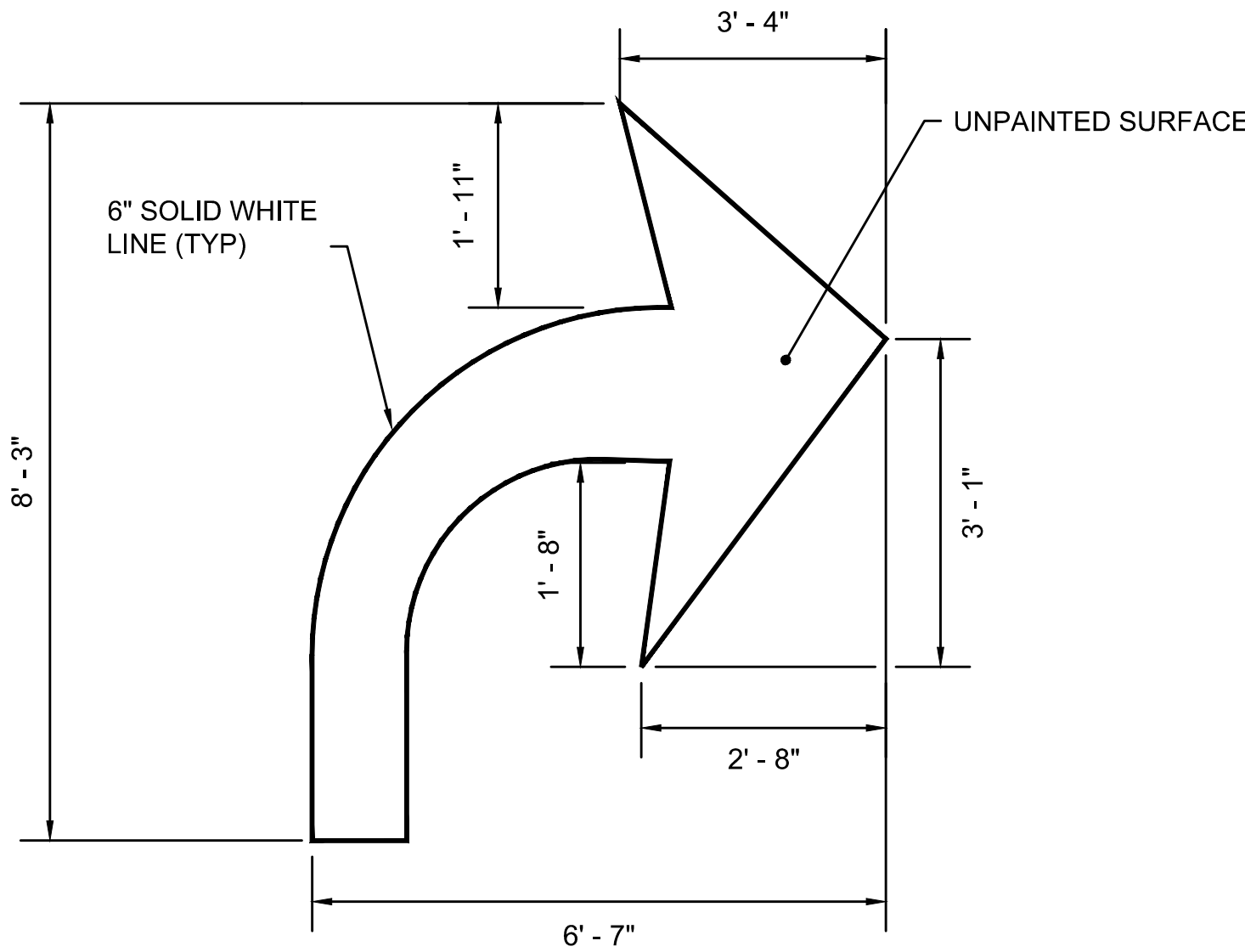
CURB RAMPS #8 AND #9
NOT TO SCALE

WCR #	CURB RAMP LOCATION		SIDEWALK WIDTH (W)	LEVEL LANDING WIDTH	RAMP LENGTH (W1)	ROADWAY GUTTER SLOPE	TRANSITION LENGTH	
	STATION	OFFSET					LEFT SIDE	RIGHT SIDE
10	108+62	31' L	6' - 0"	4' - 0"	2' - 0"	1.6%	6' - 6"	9' - 0"
11	108+98	37' L	5' - 6"	5' - 6"	4' - 6"	2.3%	6' - 6"	11' - 0"

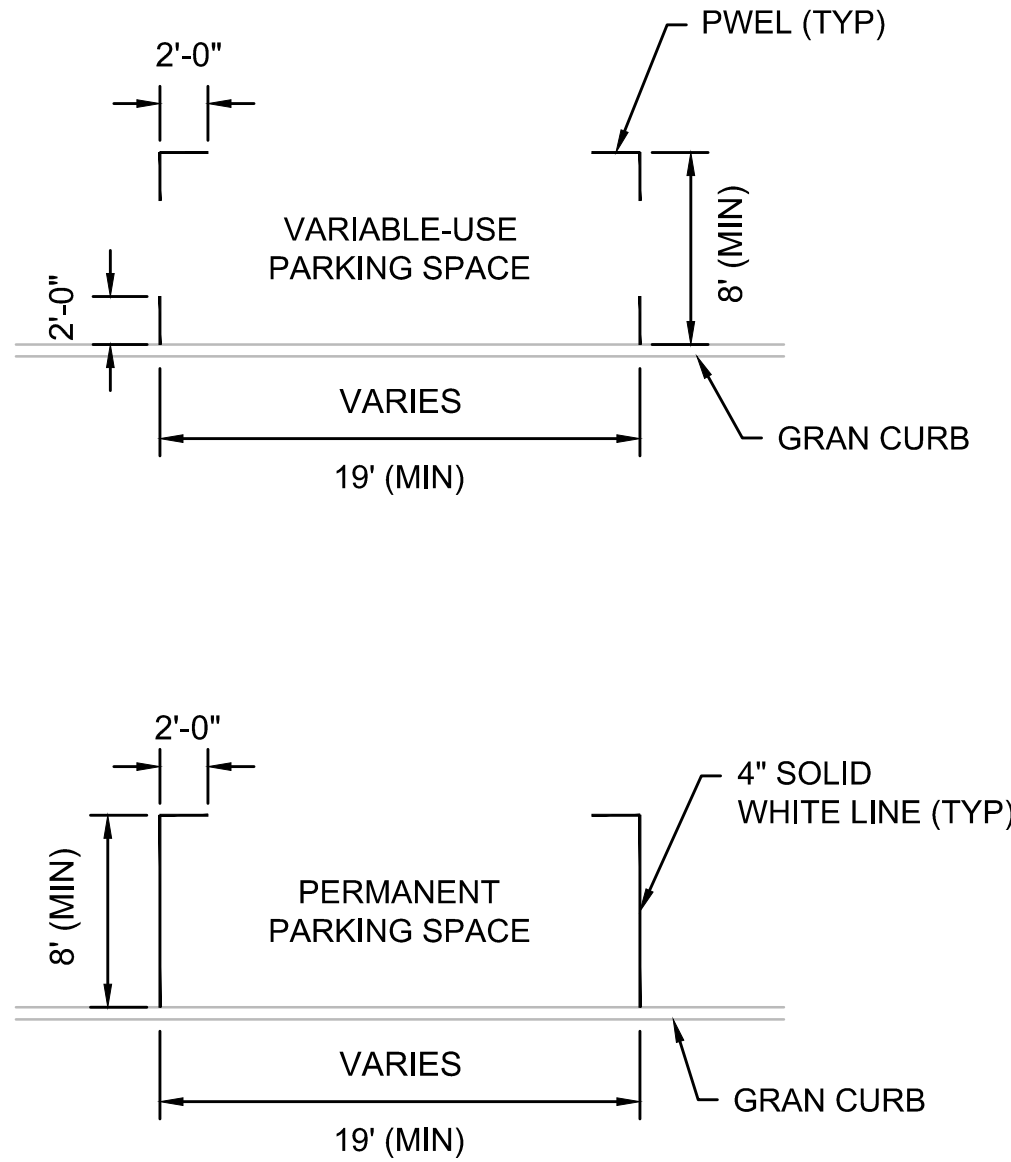


CURB RAMPS #10 AND #11
NOT TO SCALE

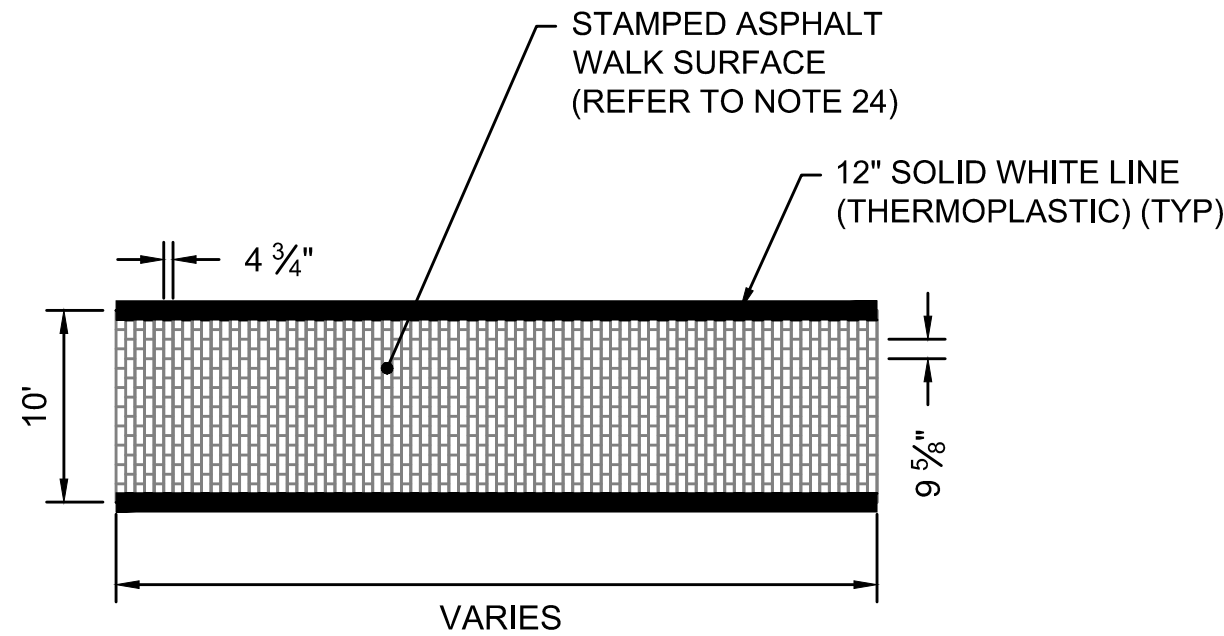
SHEET NO.	TOTAL SHEETS
8	22



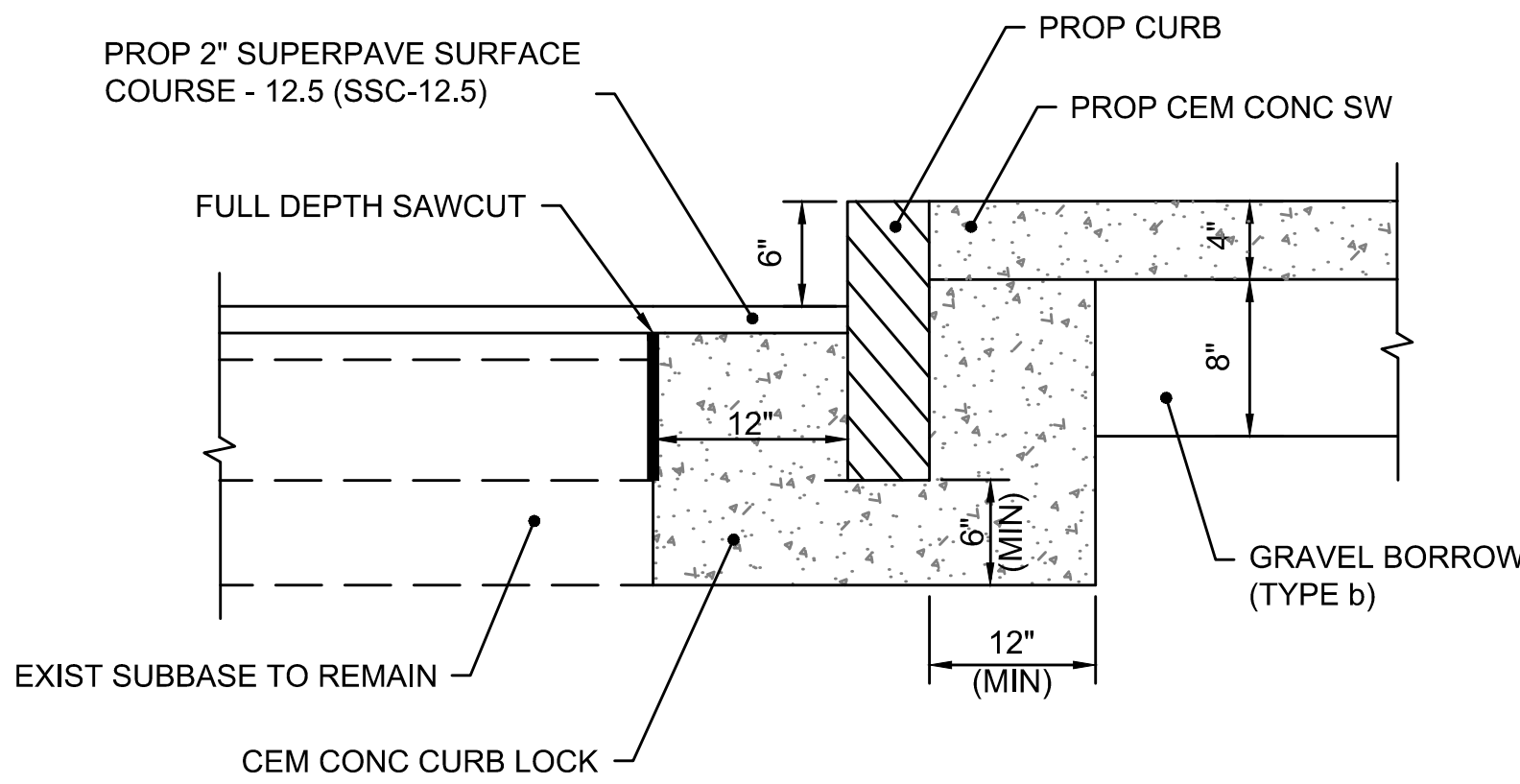
VARIABLE TURN ARROW
PAVEMENT MARKING
NOT TO SCALE



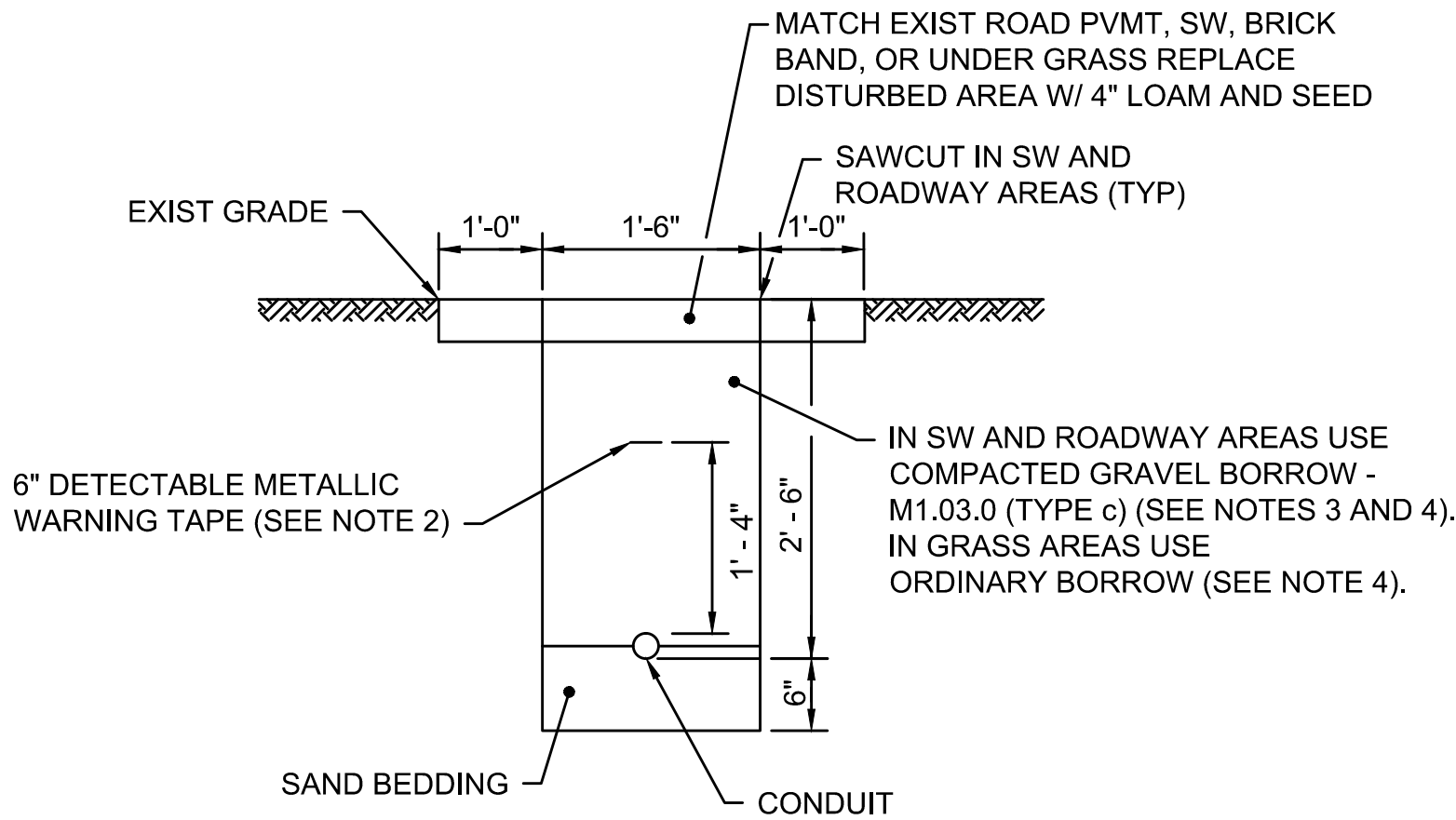
PARKING SPACE
PAVEMENT MARKINGS
NOT TO SCALE



STAMPED ASPHALT CROSSWALK
NOT TO SCALE



CURB SETTING
NOT TO SCALE



- NOTES:
- SCHEDULE 80 ELECTRICAL CONDUIT TYPE NM-PLASTIC (UL) W/ PULL ROPE.
 - WARNING TAPE SHALL BE PER CURRENT APWA STANDARDS.
 - CONTROL DENSITY FILL SHALL BE USED IN ROADWAY AREAS AS DETERMINED BY THE ENGINEER AND MEET THE REQUIREMENTS OF SUBSECTION M4.08.0
 - ALL STONES TO BE LESS THAN 2" UNDER SW AND ROADWAY. ALL STONES TO BE LESS THAN 3" UNDER GRASS.

CONDUIT INSTALLATION
NOT TO SCALE

- NOTES:
- THE CONTRACTOR SHALL VERIFY, PRIOR TO CONSTRUCTION, THE EXISTING CONDITIONS WITHIN THE PROJECT AREA AND IMMEDIATELY NOTIFY THE ENGINEER OF DISCREPANCIES WHICH ARE FOUND.
 - IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY "DIG-SAFE" AT LEAST SEVENTY-TWO (72) HOURS PRIOR TO ANY EXCAVATION WITHIN THE PROJECT AREA.
 - ALL SITE FEATURES WHICH ARE TO BE DISPOSED OF, INCLUDING EXISTING PAVEMENT, SHALL BE DISPOSED OF IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.
 - ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE RESTORED TO THEIR ORIGINAL CONDITION, UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS. EXISTING AND NEWLY CONSTRUCTED DRAINAGE SYSTEMS IN THE PROXIMITY OF THE CONSTRUCTION SHALL BE LEFT CLEAN AND IN GOOD OPERABLE CONDITION.
 - NO EXCAVATIONS SHALL BE LEFT UNPROTECTED AT THE END OF ANY WORK PERIOD. A STEEL PLATE OR DECKING SHALL BE TEMPORARILY PLACED OVER ALL EXCAVATIONS WHEN NOT ACTIVELY IN USE.
 - ALL EXISTING FEATURES WHICH ARE "TO REMAIN" AND WHICH ARE DISTURBED BY THE CONTRACTOR SHALL BE RESTORED TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.
 - THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
 - WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE ENGINEER FOR RESOLUTION OF THE CONFLICT.
 - THE CONTRACTOR SHALL ALTER THE MASONRY OF THE TOP SECTION OF ALL EXISTING DRAINAGE AND SANITARY SEWER STRUCTURES AS NECESSARY FOR CHANGES IN GRADE, AND ADJUST ALL WATER AND DRAINAGE FRAMES, GRATES AND BOXES TO THE PROPOSED FINISH SURFACE GRADE. REQUIRED NEW MASONRY SHALL BE CLAY BRICK CONFORMING TO M4.05.2.
 - THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY COMPANIES.
 - AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT NO EXPENSE TO THE OWNER.
 - THE TERM "PROPOSED" (PROP) MEANS WORK TO BE CONSTRUCTED USING NEW MATERIALS OR, WHERE APPLICABLE, RE-USING EXISTING MATERIALS IDENTIFIED AS "REMOVE AND RESET" (R&R).
 - JOINTS BETWEEN NEW HOT MIX ASPHALT ROADWAY PAVEMENT AND SAWCUT EXISTING PAVEMENT SHALL BE SEALED WITH BITUMEN AND BACKSANDS.
 - ALL EXISTING SIGNS WITHIN THE PROJECT LIMITS SHALL BE RETAINED UNLESS INDICATED OTHERWISE ON THE DRAWINGS.
 - THE CONTRACTOR SHALL MAINTAIN ALL EXISTING ROADWAY LIGHTING WITHIN THE PROJECT LIMITS UNTIL OTHERWISE DIRECTED IN WRITING BY THE ENGINEER.
 - ALL EXISTING STATE, COUNTY, CITY, AND TOWN LOCATION LINES AND PRIVATE PROPERTY LINES HAVE BEEN ESTABLISHED FROM AVAILABLE INFORMATION AND THEIR EXACT LOCATION ARE NOT GUARANTEED.
 - ALL TREE PROTECTION IS TO BE LOCATED WITHIN THE EXISTING STATE AND/OR TOWN LAYOUTS.
 - ALL CURB RAMP CONSTRUCTION SHALL CONFORM TO MASSDOT ENGINEERING DIRECTIVE E-12-005.
 - DETECTABLE WARNING PANELS ARE REQUIRED ON ALL PROPOSED CURB RAMPS AND SHALL CONFORM TO THE DIMENSIONS SHOWN IN MASSDOT CONSTRUCTION STANDARD E 107.6.5R.
 - ALL PEDESTRIAN PATHS OF TRAVEL SHALL PROVIDE A 3' MINIMUM CLEARANCE AS REQUIRED BY ADA/AAB.
 - ALL SAWCUTTING FOR SIDEWALK RECONSTRUCTION SHALL BE PERFORMED AT THE EXISTING SIDEWALK PANEL JOINTS TO THE EXTENT POSSIBLE.
 - ALL OF THE REMOVED LIGHT POSTS AND MAST ARMS SHALL REMAIN PROPERTY OF THE TOWN OF HOLLISTON AND STACKED AT THE HOLLISTON HIGHWAY DEPARTMENT. (REFER TO SPECIAL PROVISIONS)
 - STAMPED ASPHALT WALK SURFACE SHALL CONFORM TO THE PATTERN, COLOR, AND CONSTRUCTION METHODS DETAILED IN THE SPECIAL PROVISIONS UNDER ITEM 701.3 STAMPED ASPHALT CROSSWALK.

SHEET NO.	TOTAL SHEETS
9	22

CONTINUED ON
SHEET NO. 10



SHEET NO.	TOTAL SHEETS
10	22

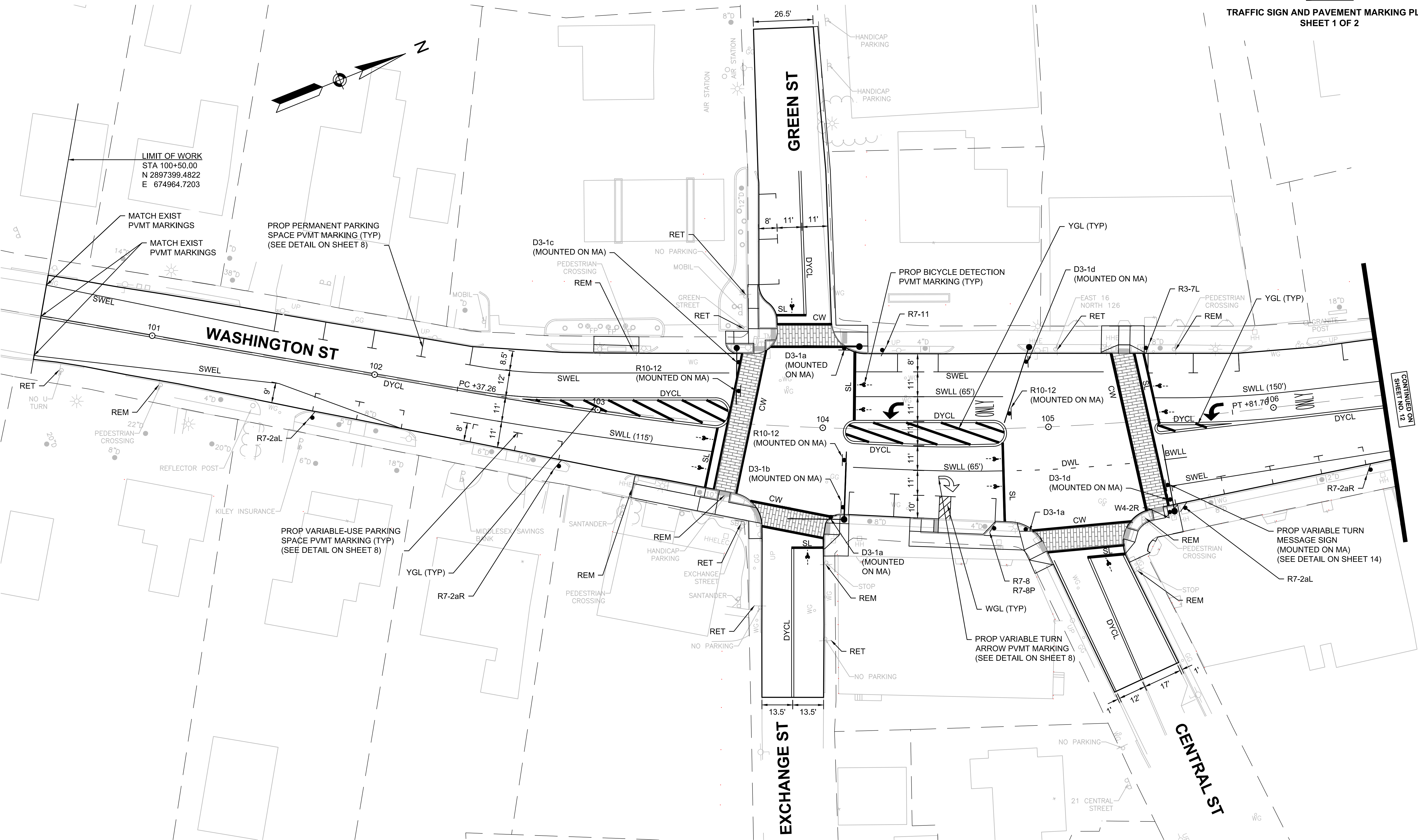
Y13449.21[50%]HD(CONSTRUCTION).DWG Plotted on 16-May-2017 3:55 PM



HOLLISTON
WASHINGTON ST CORRIDOR IMPROVEMENTS

SHEET NO.	TOTAL SHEETS
11	22









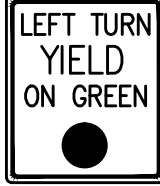
TRAFFIC SIGN AND PAVEMENT MARKING PLAN
SHEET 1 OF 2



SHEET NO.	TOTAL SHEETS
13	22

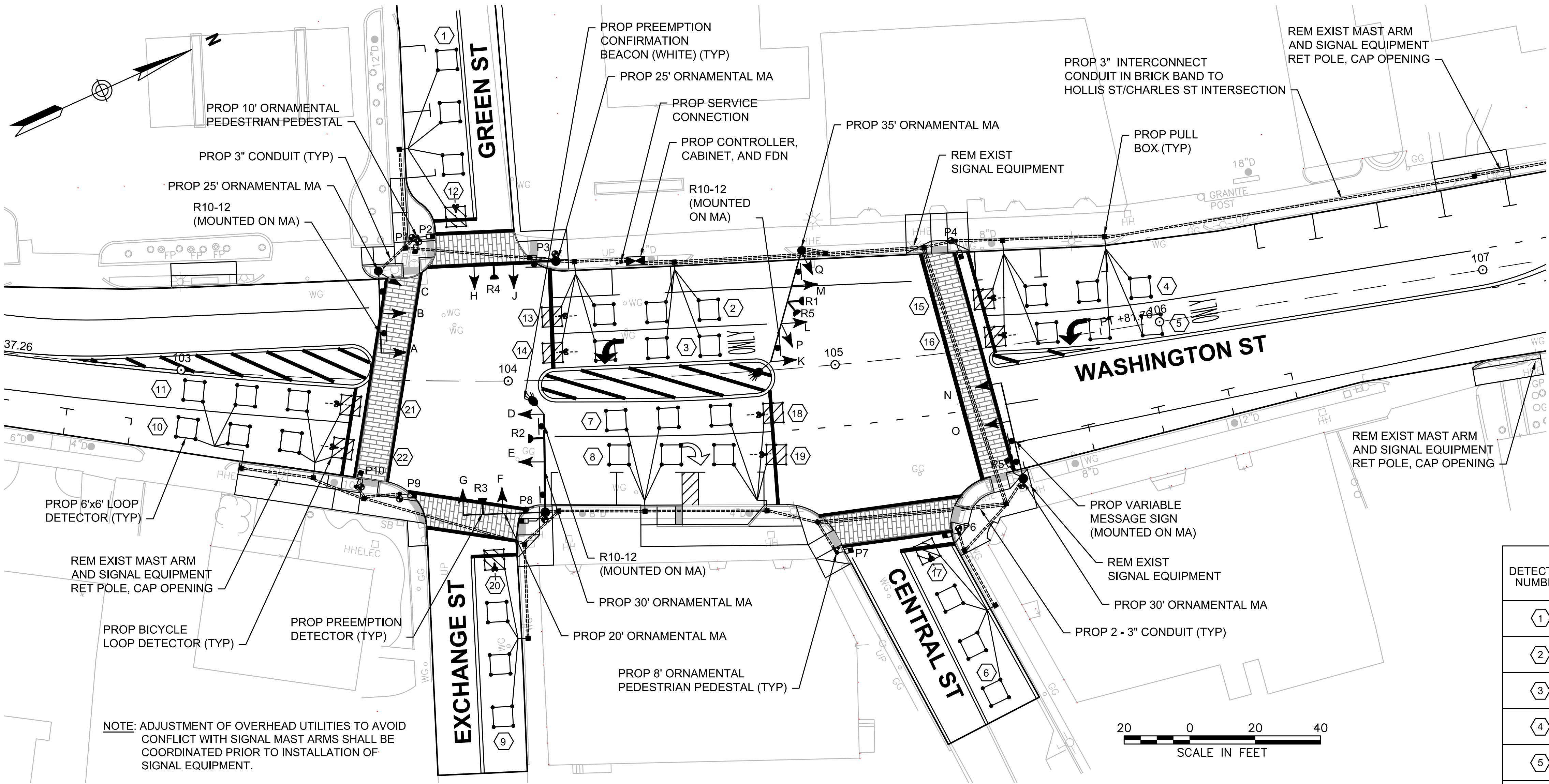
TRAFFIC SIGN SUMMARY

TRAFFIC SIGN SUMMARY

IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (INCHES)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA (SF)	AREA IN SQUARE FEET
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE MKR		BACK-GROUND	LEGEND	BORDER			
R3-7L	36"	36"		SEE 2009 MUTCD			4	SEE 2009 MUTCD			P5 - 1 4 - REQ	9.00	36.00
R3-7R	36"	36"					1				P5 - 1 1 - REQ	9.00	9.00
R6-1 (PBS)	36"	12"					1				1-MOUNT ON MA POST	3.00	3.00
R7-2aL	12"	18"					2				P5 - 1 2 - REQ	1.50	3.00
R7-2aR	12"	18"					2				P5 - 1 2 - REQ	1.50	3.00
R7-8	12"	18"					2				P5 - 1 2 - REQ	1.50	3.00
R7-8P	12"	6"					1				1 - MOUNT W/ R7-8	0.50	0.50
R7-11	12"	18"					1				P5 - 1 1 - REQ	1.50	1.50
R10-12	30"	36"					3				3 - MOUNT ON MA	9.00	27.00
D3-1a (PBS)	TBD	18"	<div>Washington St</div>	SEE HOLLISTON STANDARDS			4	SEE HOLLISTON STANDARDS			3 - MOUNT ON MA P5 - 1 1 - REQ	-	-
D3-1b (PBS)	TBD	18"	<div>Exchange St</div>				1				1-MOUNT ON MA	-	-
D3-1c (PBS)	TBD	18"	<div>Green St</div>				1				1-MOUNT ON MA	-	-
D3-1d (PBS)	TBD	18"	<div>Central St</div>				2				1-MOUNT ON MA	-	-
D3-1e (PBS)	TBD	18"	<div>Charles St</div>				1				1-MOUNT ON MA	-	-
D3-1f (PBS)	TBD	18"	<div>Hollis St</div>				1				1-MOUNT ON MA	-	-
												TOTAL: 86.00 SF	

SHEET NO.	TOTAL SHEETS
14	22

TRAFFIC SIGNAL PLAN
EXCHANGE ST/GREEN ST/CENTRAL ST
SHEET 1 OF 3

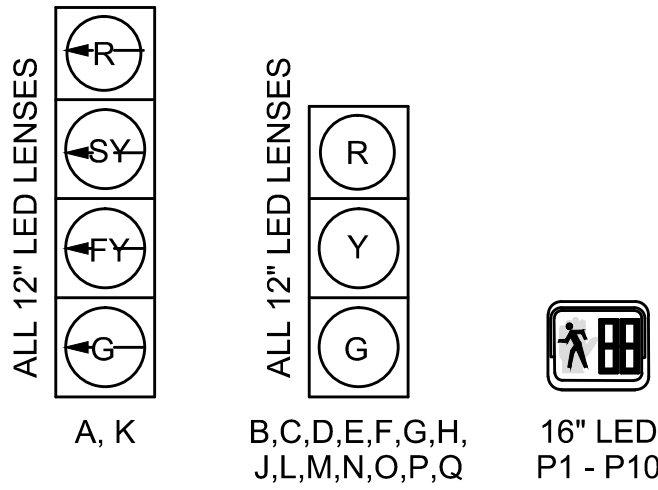


NOTE: ADJUSTMENT OF OVERHEAD UTILITIES TO AVOID
CONFLICT WITH SIGNAL MAST ARMS SHALL BE
COORDINATED PRIOR TO INSTALLATION OF
SIGNAL EQUIPMENT.

LOOP DETECTOR DATA

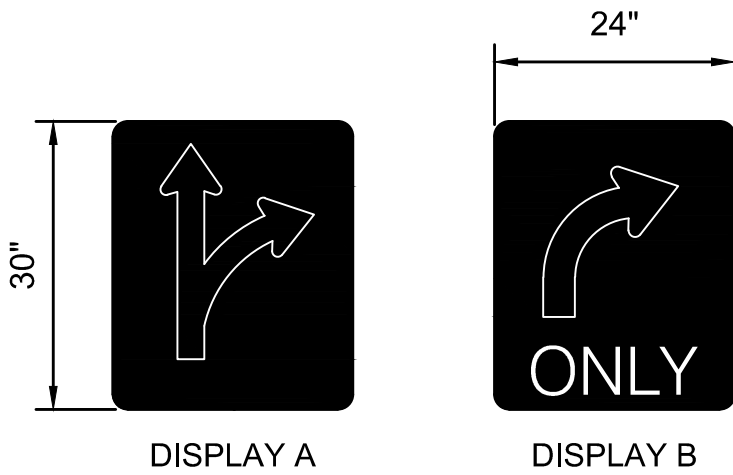
DETECTOR NUMBER	AMPLIFIER NUMBER	CHANNEL NUMBER	LOOP SIZE	NUM OF TURNS	Ø CALLED	Ø EXT	MODE A=PULSE B=PRES	DELAY TIME	EXT TIME
1	1	1	3@6'X6"	3	4	4	B	5	0
2	1	2	3@6'X6"	3	6	6	B	0	0
3	2	1	3@6'X6"	3	1	6	B	0	0
4	2	2	3@6'X6"	3	6	6	B	0	0
5	3	1	3@6'X6"	3	1	6	B	0	0
6	3	2	3@6'X6"	3	8	8	B	5	0
7	4	1	3@6'X6"	3	2	4	B	0	0
8	4	2	3@6'X6"	3	2	4	B	0	0
9	5	1	3@6'X6"	3	4	4	B	5	0
10	5	2	3@6'X6"	3	2	2	B	0	0
11	6	1	3@6'X6"	3	2	2	B	0	0
12	6	2	1@6'X6"	D-2	4	4	BICYCLE	5	0
13	7	1	1@6'X6"	D-2	6	6	BICYCLE	0	0
14	7	2	1@6'X6"	D-2	1	1	BICYCLE	0	0
15	8	1	1@6'X6"	D-2	6	6	BICYCLE	0	0
16	8	2	1@6'X6"	D-2	1	1	BICYCLE	0	0
17	9	1	1@6'X6"	D-2	8	8	BICYCLE	5	0
18	9	2	1@6'X6"	D-2	2	2	BICYCLE	0	0
19	10	1	1@6'X6"	D-2	2	2	BICYCLE	0	0
20	10	2	1@6'X6"	D-2	4	4	BICYCLE	5	0
21	11	1	1@6'X6"	D-2	2	2	BICYCLE	0	0
22	11	2	1@6'X6"	D-2	2	2	BICYCLE	0	0

SIGNAL IDENTIFICATION



- NOTES:
- ALL SIGNALS SHALL HAVE CUT AWAY VISORS.
 - ALL SIGNALS SHALL HAVE 5" LOUVERED BACK PLATES WITH 3" RETROREFLECTIVE BORDERS.

VARIABLE MESSAGE SIGN

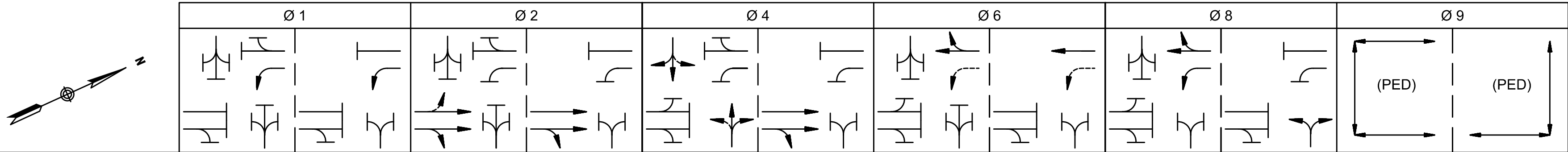


- NOTES:
- VARIABLE MESSAGE SIGN TO BE OVERHEAD MOUNTED ON MAST ARM.
 - DISPLAY A SHALL BE SHOWN ON WEEKDAYS FROM 6:00 AM - 9:00 AM.
 - DISPLAY B SHALL BE SHOWN AT ALL OTHER TIMES.

MAJOR ITEMS REQUIRED		
PAY ITEM	QUANTITY	ITEM
815.1	1	NEMA TS2 (TYPE 1) CONTROLLER, CABINET AND FDN
	1	SERVICE CONNECTION
	1	TWO-WAY, ORNAMENTAL MAST ARM ASSEMBLY W/ 20 FT AND 30 FT MAST ARMS, BASE AND FDN
	2	25 FT ORNAMENTAL MAST ARM ASSEMBLY, BASE AND FDN
	1	30 FT ORNAMENTAL MAST ARM ASSEMBLY, BASE AND FDN
	1	35 FT ORNAMENTAL MAST ARM ASSEMBLY, BASE AND FDN
	10	PEDESTRIAN SIGNAL HEAD, SINGLE SECTION W/ COUNTDOWN TIMER
	5	8' ORNAMENTAL PEDESTRIAN PEDESTAL, BASE AND FDN
	1	10' ORNAMENTAL PEDESTRIAN PEDESTAL, BASE AND FDN
	10	ACCESSIBLE PEDESTRIAN SIGNAL (APS) PUSH BUTTON ASSEMBLY
	14	1 WAY, 3 SECTION, SIGNAL HOUSING (12" LED)
	2	1 WAY, 4 SECTION, SIGNAL HOUSING (12" LED)
	16	5" LOUVERED SIGNAL BACKPLATES W/ RETROREFLECTIVE BORDERS
	11	DUAL CHANNEL LOOP DETECTOR AMPLIFIER
	33	LOOP DETECTOR (6'X6')
	11	BICYCLE LOOP DETECTOR (6'X6')
	5	OPTICOM OPTICAL DETECTOR, UNIDIRECTIONAL, SINGLE CHANNEL
	4	OPTICOM PHASE SELECTOR MODULE-DUAL CHANNEL
	2	OPTICOM CARD RACK
	2	EMERGENCY PREEMPTION CONFIRMATION BEACON (WHITE)
	PLUS ALL NECESSARY DUCT, CABLE, LABOR, MISCELLANEOUS MATERIAL AND EQUIPMENT TO COMPLETE THE INSTALLATION.	

SHEET NO.	TOTAL SHEETS
15	22

TRAFFIC SIGNAL PLAN
EXCHANGE ST/GREEN ST/CENTRAL ST
SHEET 2 OF 3



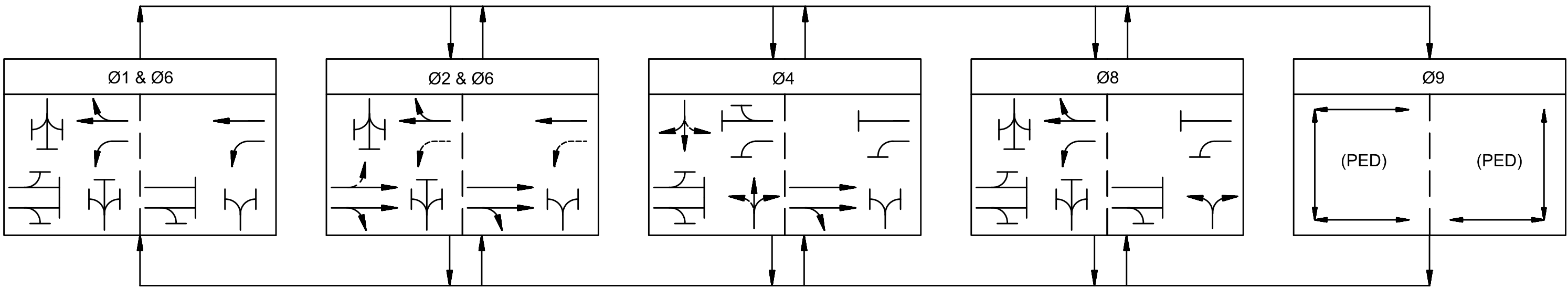
SEQUENCE AND TIMING FOR FULL ACTUATED CONTROL (ISOLATED)																					
STREET	DIRECTION	HEAD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	FLASH OP
WASHINGTON ST AT EXCHANGE ST	SB LEFT	A	← G—	← SY—	← R—	← R—	← R—	← R—	← R—	← R—	← R—	← FY—	← SY—	← R—	← G—	← SY—	← R—	← R—	← R—	← R—	← FR—
WASHINGTON ST AT CENTRAL ST	SB LEFT	K	← G—	← SY—	← R—	← R—	← R—	← R—	← R—	← R—	← R—	← FY—	← SY—	← R—	← R—	← R—	← R—	← R—	← R—	← R—	← FR—
WASHINGTON ST AT EXCHANGE ST	SB	B,C	R	R	R	R	R	R	R	R	R	G	Y	R	G	Y	R	R	R	R	FY
WASHINGTON ST AT CENTRAL ST	SB	L,M	R	R	R	R	R	R	R	R	R	G	Y	R	R	R	R	R	R	R	FY
WASHINGTON ST AT EXCHANGE ST	NB	D,E	R	R	R	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	FY
WASHINGTON ST AT CENTRAL ST	NB	N,O	R	R	R	G	Y	R	G	Y	R	R	R	R	R	R	R	R	R	R	FY
GREEN ST	EB	F,G	R	R	R	R	R	R	G	Y	R	R	R	R	R	R	R	R	R	R	FR
EXCHANGE ST	WB	H,J	R	R	R	R	R	R	G	Y	R	R	R	R	R	R	R	R	R	R	FR
CENTRAL ST	WB	P,Q	R	R	R	R	R	R	R	R	R	R	R	R	G	Y	R	R	R	R	FR
PEDESTRIAN	P1 - P10	ALL	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	DW	OUT
TIMING IN SECONDS																					
MINIMUM GREEN (INITIAL)			7			10			7			10			7						EMERGENCY ONLY
PASSAGE TIME (VEHICLE)			2			4			4			4			4						
MAXIMUM 1			10			25			10			35			10						
MAXIMUM 2			9			36			10			47			12						
YELLOW CLEARANCE				3			3			3			3			3					
RED CLEARANCE					1			1			1			1			1				
WALK (W)																		7			
PEDESTRIAN CLEARANCE																			18	1	
RECALL			NONE			SOFT			NONE			SOFT			NONE			NONE			
MEMORY			NON-LOCK			NON-LOCK			NON-LOCK			NON-LOCK			NON-LOCK			LOCK			
COORDINATION DATA			COORDINATION PHASE TIMING (SEC)																		
TIMING PLAN	CYCLE LENGTH	REF/OFFSET	Ø 1			Ø 2			Ø 4			Ø 6			Ø 8			Ø 9			
TP1 (M-F 6 AM - 9 AM)	100	0	11			40			11			51			12			26			
TP2 (M-F 4 PM - 6 PM)	100	88	11			33			14			44			16			26			
TP3 (ALL OTHER TIMES)	FREE	-																			

- COORDINATION NOTES:
- OFFSET TO BEGINNING OF FIRST COORDINATED PHASE TO THE BEGINNING OF GREEN.
 - PHASE 2 TO BE COORDINATED PHASE.
 - ALL COORDINATION PHASE TIMES INCLUDE YELLOW AND RED CLEARANCE TIME.
 - COORDINATED PHASE DETECTORS SHALL BE DISABLED DURING COORDINATION.
 - COORDINATION MODE SHALL BE PERMISSIVE. FLOATING FORCE OFFS SHALL BE IN EFFECT DURING COORDINATION.
 - OFFSET SEEKING SHALL BE THE SHORTWAY METHOD.
 - MAXIMUM GREEN #1 FOR FREE OPERATION. MAXIMUM GREEN #2 IN EFFECT DURING COORDINATION.

EMERGENCY PREEMPTION SCHEDULE

APPROACH	PREEMPTION PHASE	NEXT PHASE CALLED
NORTHBOUND	Ø 2	Ø 4
SOUTHBOUND	Ø 1 & Ø 6	Ø 2 & Ø 6
EASTBOUND	Ø 4	Ø 8
WESTBOUND	Ø 8	Ø 1 & Ø 6

PREFERENTIAL PHASING SEQUENCE

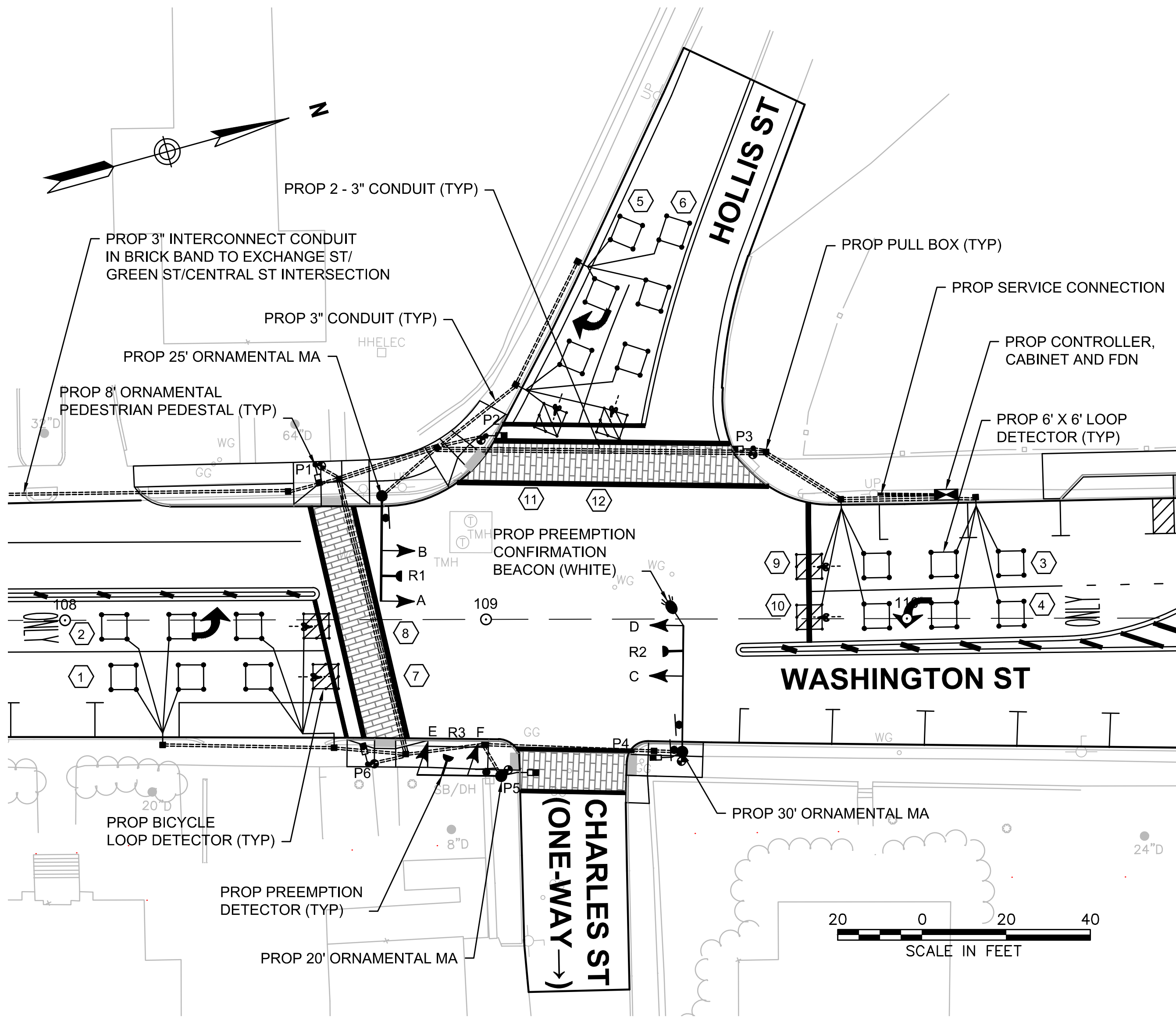


- EMERGENCY PREEMPTION OPERATION:
- EMERGENCY VEHICLE PREEMPTION SHALL BE ACTUATED BY AN OPTICAL SIGNAL FROM AN OPTICAL EMITTER MOUNTED ON AN EMERGENCY VEHICLE AND RECEIVED BY AN OPTICAL DETECTOR LOCATED AT INTERSECTION. A SEPARATE RECEIVING DETECTOR IS REQUIRED FOR EACH DETECTED APPROACH.
 - PREEMPTION SIGNALS FROM MULTIPLE APPROACHES SHALL BE SERVICED ON A FIRST DETECTED FIRST SERVED BASIS.
 - IN RESPONSE TO A PREEMPTION SIGNAL RECEIVED AT AN INTERSECTION BY AN OPTICAL DETECTOR, THE CONTROLLER SHALL TIME THE CLEARANCE INTERVALS OF THE ACTIVE PHASE (IF DIFFERENT THAT TO BE SERVICED) AND ADVANCE TO AND/OR HOLD IN EMERGENCY VEHICLE PREEMPTION PHASE UNTIL PREEMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME CLEARANCES AND SIMILARLY SERVICE OTHER EMERGENCY VEHICLE PREEMPTION SEQUENCES IN THE ORDER RECEIVED (IF RECEIVED). OTHERWISE, RESUME NORMAL PREFERENTIAL PHASE SEQUENCE.
 - PREEMPTION MINIMUM GREENS SHALL BE 6 SECONDS.
 - NORMAL CLEARANCES SHALL BE PROVIDED ON PHASES THAT ARE TERMINATED BY PREEMPTION DEMAND.
 - ACTUAL TIMING FOR PREEMPTION SHALL BE DETERMINED IN THE FIELD IN COORDINATION WITH THE FIRE DEPARTMENT.

HOLLISTON
WASHINGTON ST CORRIDOR IMPROVEMENTS

SHEET NO.	TOTAL SHEETS
16	22

TRAFFIC SIGNAL PLAN
CHARLES ST/HOLLIS ST
SHEET 3 OF 3



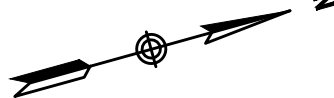
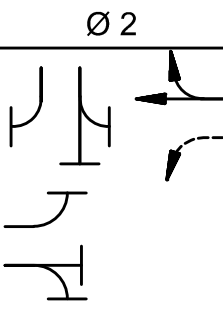
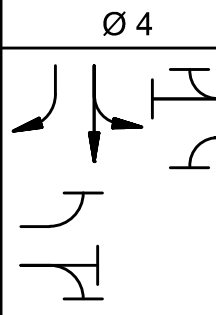
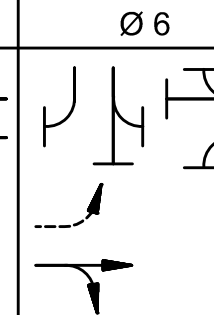
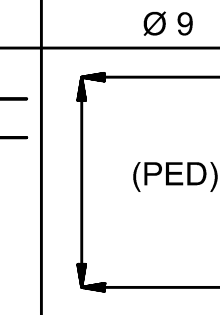
NOTE: ADJUSTMENT OF OVERHEAD UTILITIES TO AVOID CONFLICT WITH SIGNAL MAST ARMS SHALL BE COORDINATED PRIOR TO INSTALLATION OF SIGNAL EQUIPMENT.

EMERGENCY PREEMPTION SCHEDULE

APPROACH	PREEMPTION PHASE	NEXT PHASE CALLED
NORTHBOUND	Ø 6	Ø 2 & Ø 6
SOUTHBOUND	Ø 2	Ø 2 & Ø 6
EASTBOUND	Ø 4	Ø 2 & Ø 6

- EMERGENCY PREEMPTION OPERATION:
- EMERGENCY VEHICLE PREEMPTION SHALL BE ACTUATED BY AN OPTICAL SIGNAL FROM AN OPTICAL EMITTER MOUNTED ON AN EMERGENCY VEHICLE AND RECEIVED BY AN OPTICAL DETECTOR LOCATED AT THE INTERSECTION. A SEPARATE RECEIVING DETECTOR IS REQUIRED FOR EACH DETECTED APPROACH.
 - PREEMPTION SIGNALS FROM MULTIPLE APPROACHES SHALL BE SERVICED ON A FIRST DETECTED FIRST SERVED BASIS.
 - IN RESPONSE TO A PREEMPTION SIGNAL RECEIVED AT AN INTERSECTION BY AN OPTICAL DETECTOR, THE CONTROLLER SHALL TIME THE CLEARANCE INTERVALS OF THE ACTIVE PHASE (IF DIFFERENT FROM THAT TO BE SERVICED) AND ADVANCE TO AND/OR HOLD IN EMERGENCY VEHICLE PREEMPTION PHASE UNTIL PREEMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME CLEARANCES AND SIMILARLY SERVICE OTHER EMERGENCY VEHICLE PREEMPTION SEQUENCES IN THE ORDER RECEIVED (IF RECEIVED). OTHERWISE, RESUME NORMAL PREFERENTIAL PHASE SEQUENCE.
 - PREEMPTION MINIMUM GREENS SHALL BE 6 SECONDS.
 - NORMAL CLEARANCES SHALL BE PROVIDED ON PHASES THAT ARE TERMINATED BY PREEMPTION DEMAND.
 - ACTUAL TIMING FOR PREEMPTION SHALL BE DETERMINED IN THE FIELD IN COORDINATION WITH THE FIRE DEPARTMENT.

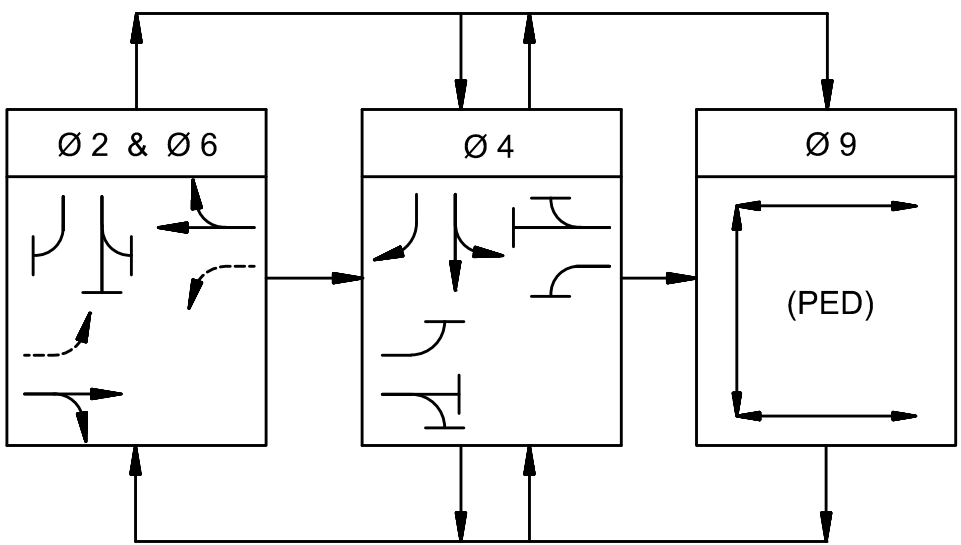
- COORDINATION NOTES:
- OFFSET TO BEGINNING OF FIRST COORDINATED PHASE TO THE BEGINNING OF GREEN.
 - PHASES 2 AND 6 TO BE COORDINATED PHASES.
 - ALL COORDINATION PHASE TIMES INCLUDE YELLOW AND RED CLEARANCE TIME.
 - COORDINATED PHASE DETECTORS SHALL BE DISABLED DURING COORDINATION.
 - COORDINATION MODE SHALL BE PERMISSIVE. FLOATING FORCE OFFS SHALL BE IN EFFECT DURING COORDINATION.
 - OFFSET SEEKING SHALL BE THE SHORTWAY METHOD.
 - MAXIMUM GREEN #1 FOR FREE OPERATION. MAXIMUM GREEN #2 IN EFFECT DURING COORDINATION.

															
SEQUENCE AND TIMING FOR FULL ACTUATED CONTROL (ISOLATED)															
STREET	DIRECTION	HSGS	1	2	3	4	5	6	7	8	9	10	11	12	FLASH OP
WASHINGTON ST	SB	A,B	G	Y	R	R	R	R	R	R	R	R	R	R	FY
WASHINGTON ST	NB	C,D	R	R	R	R	R	R	G	Y	R	R	R	R	FY
HOLLIS ST	EB	E,F	R	R	R	G	Y	R	R	R	R	R	R	R	FR
PEDESTRIAN	P1 - P6	ALL	DW	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	DW	OUT
MINIMUM GREEN (INITIAL)			10			7			10						EMERGENCY ONLY
PASSAGE TIME (VEHICLE)			4			4			4						
MAXIMUM 1			25			10			25						
MAXIMUM 2			58			16			58						
YELLOW CLEARANCE				3			3			3					
RED CLEARANCE					1			1			1				
WALK (W)												7			
PEDESTRIAN CLEARANCE													16	1	
RECALL			SOFT			NONE			SOFT			NONE			
MEMORY			NON-LOCK			NON-LOCK			NON-LOCK			LOCK			
COORDINATION DATA			COORDINATION PHASE TIMING (SEC)												
TIMING PLAN	CYCLE LENGTH	REF/OFFSET	Ø 2		Ø 4		Ø 6		Ø 9						
TP1 (M-F 6 AM - 9 AM)	100	0	56		20		56		24						
TP2 (M-F 4 PM - 6 PM)	100	0	62		14		62		24						
TP3 (ALL OTHER TIMES)	FREE	-													

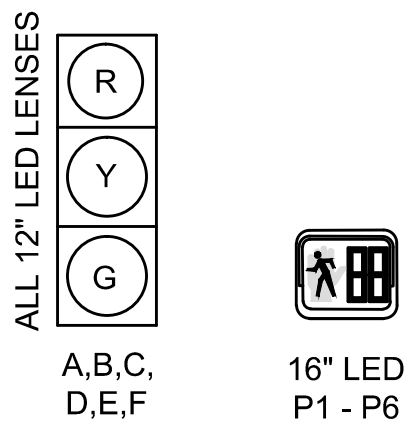
LOOP DETECTOR DATA

DETECTOR NUMBER	AMPLIFIER NUMBER	CHANNEL NUMBER	LOOP SIZE	NUM OF TURNS	Ø CALLED	Ø EXT	MODE A=PULSE B=PRES	DELAY TIME	EXT TIME
1	1	1	3@6'X6"	3	6	6	B	0	0
2	1	2	3@6'X6"	3	6	6	B	0	0
3	2	1	3@6'X6"	3	2	2	B	0	0
4	2	2	3@6'X6"	3	2	2	B	0	0
5	3	1	3@6'X6"	3	4	4	B	0	5
6	3	2	3@6'X6"	3	4	4	B	0	0
7	4	1	1@6'X6"	D-2	6	6	BICYCLE	0	0
8	4	2	1@6'X6"	D-2	6	6	BICYCLE	0	0
9	5	1	1@6'X6"	D-2	2	2	BICYCLE	0	0
10	5	2	1@6'X6"	D-2	2	2	BICYCLE	0	0
11	6	1	1@6'X6"	D-2	4	4	BICYCLE	0	5
12	6	2	1@6'X6"	D-2	4	4	BICYCLE	0	0

PREFERENTIAL PHASING SEQUENCE

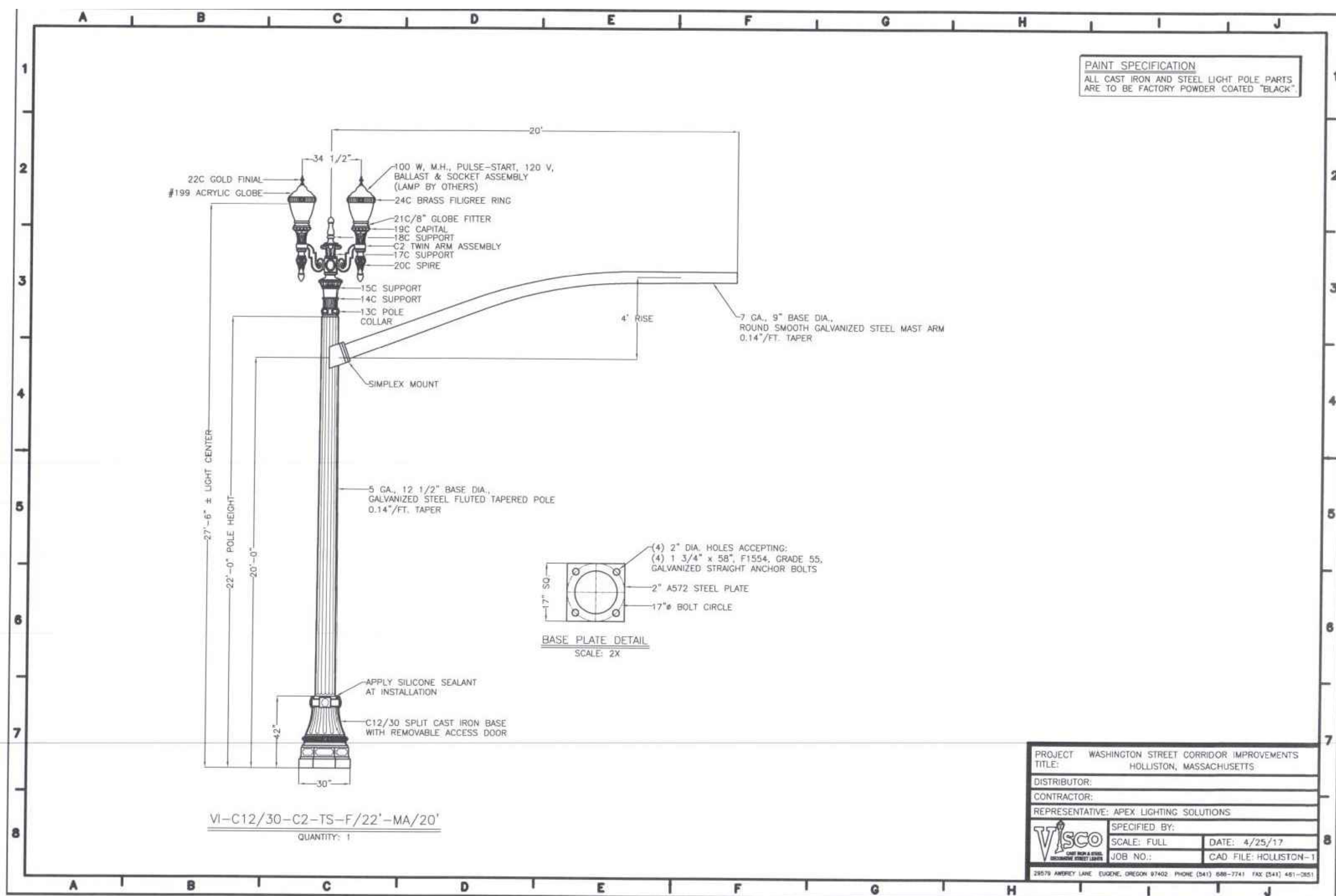


SIGNAL IDENTIFICATION

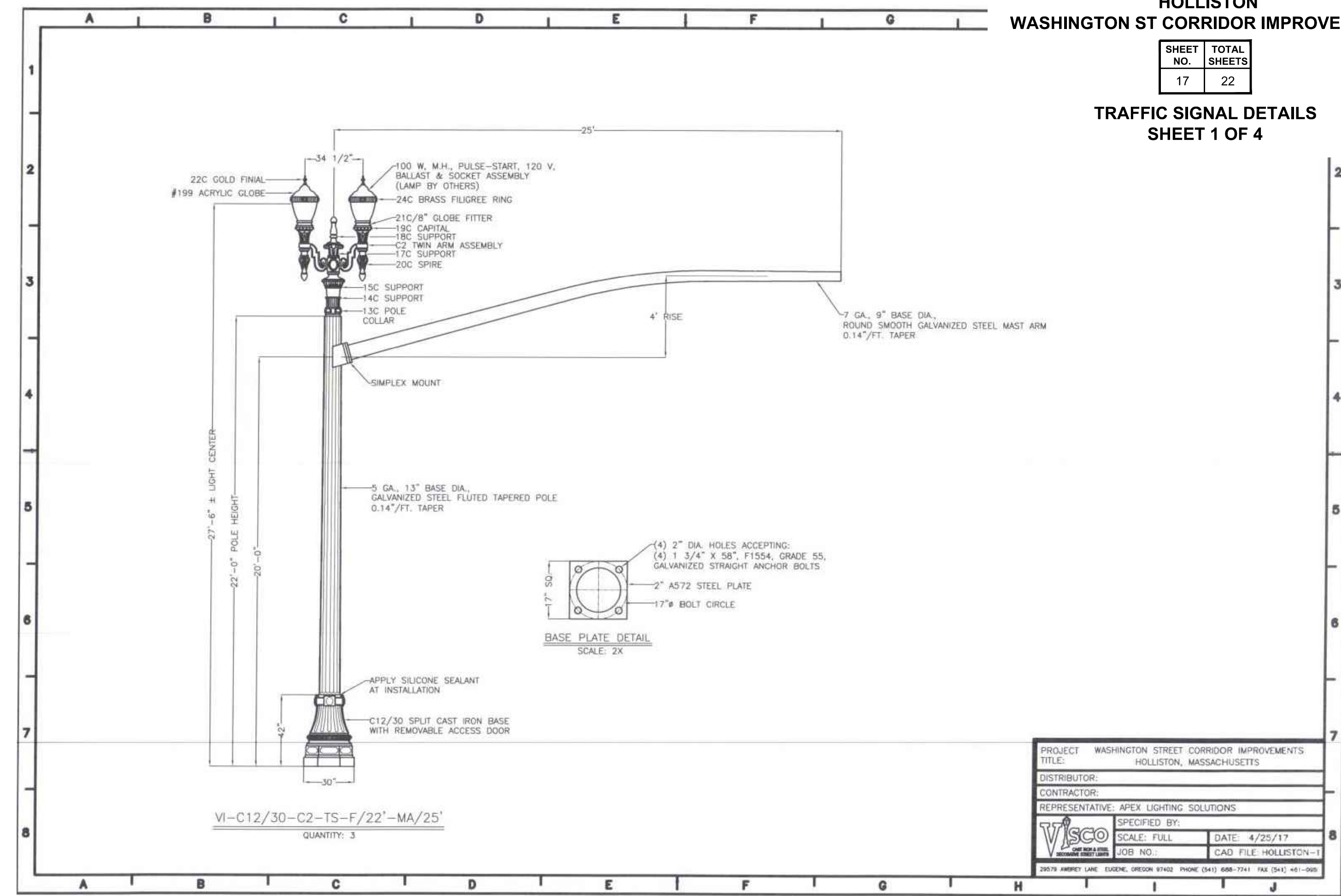


- NOTES:
- ALL SIGNALS SHALL HAVE CUT AWAY VISORS.
 - ALL SIGNALS SHALL HAVE 5\"/>

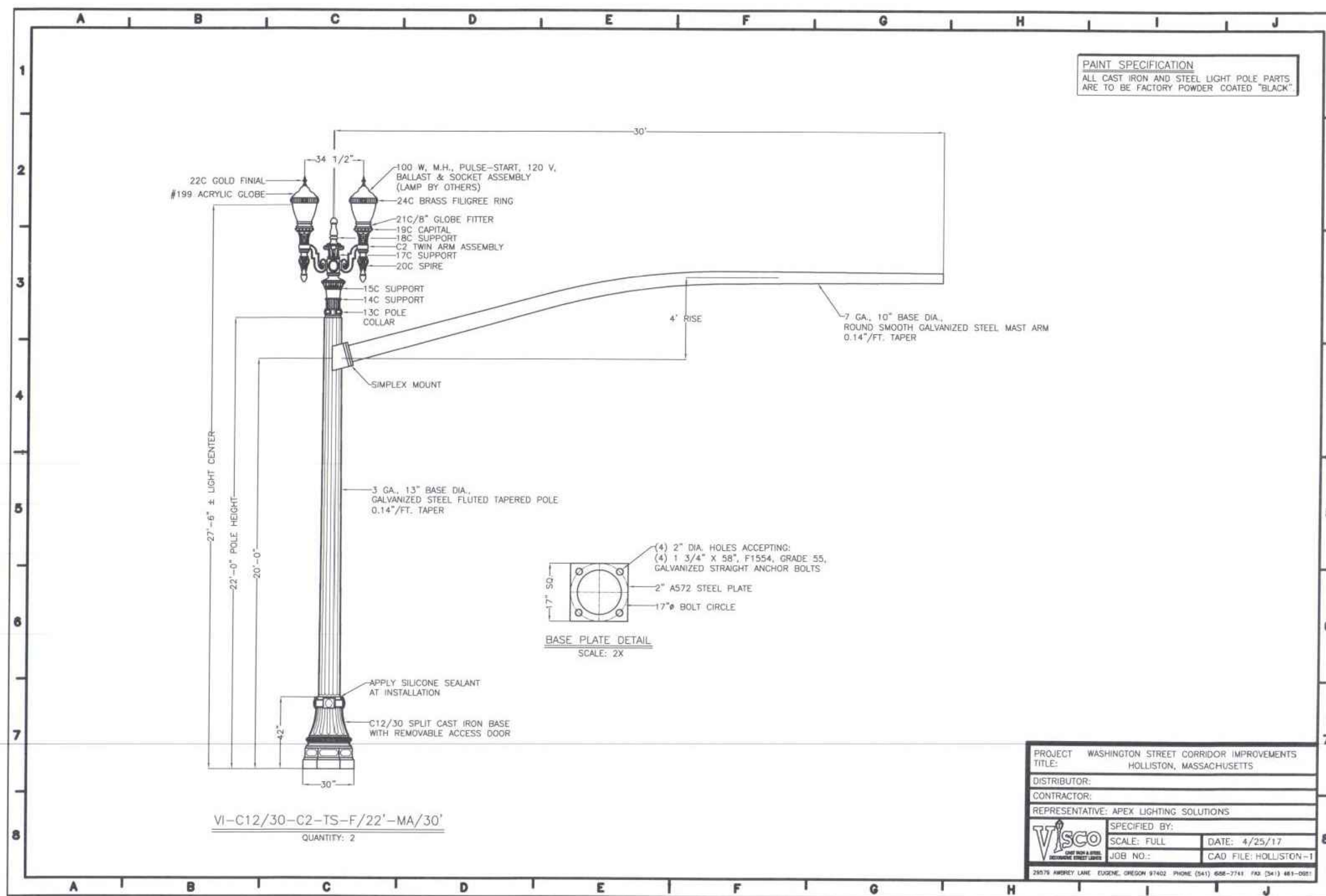
MAJOR ITEMS REQUIRED		
PAY ITEM	QUANTITY	ITEM
815.2	1	NEMA TS2 (TYPE 1) CONTROLLER, CABINET AND FDN
	1	SERVICE CONNECTION
	1	20 FT ORNAMENTAL MAST ARM ASSEMBLY, BASE AND FDN
	1	25 FT ORNAMENTAL MAST ARM ASSEMBLY, BASE AND FDN
	1	30 FT ORNAMENTAL MAST ARM ASSEMBLY, BASE AND FDN
	6	PEDESTRIAN SIGNAL HEAD, SINGLE SECTION W/ COUNTDOWN TIMER
	4	8\"/>
	6	ACCESSIBLE PEDESTRIAN SIGNAL (APS) PUSH BUTTON ASSEMBLY
	6	1 WAY, 3 SECTION, SIGNAL HOUSING (12\"/>
	6	5\"/>
	18	LOOP DETECTOR (6\"/>
	6	BICYCLE LOOP DETECTOR (6\"/>
	6	DUAL CHANNEL LOOP DETECTOR AMPLIFIER
	3	OPTICOM OPTICAL DETECTOR, UNIDIRECTIONAL, SINGLE CHANNEL
	2	OPTICOM PHASE SELECTOR MODULE-DUAL CHANNEL
	1	OPTICOM CARD RACK
	1	EMERGENCY PREEMPTION CONFIRMATION BEACON (WHITE)
PLUS ALL NECESSARY DUCT, CABLE, LABOR, MISCELLANEOUS MATERIAL AND EQUIPMENT TO COMPLETE THE INSTALLATION.		



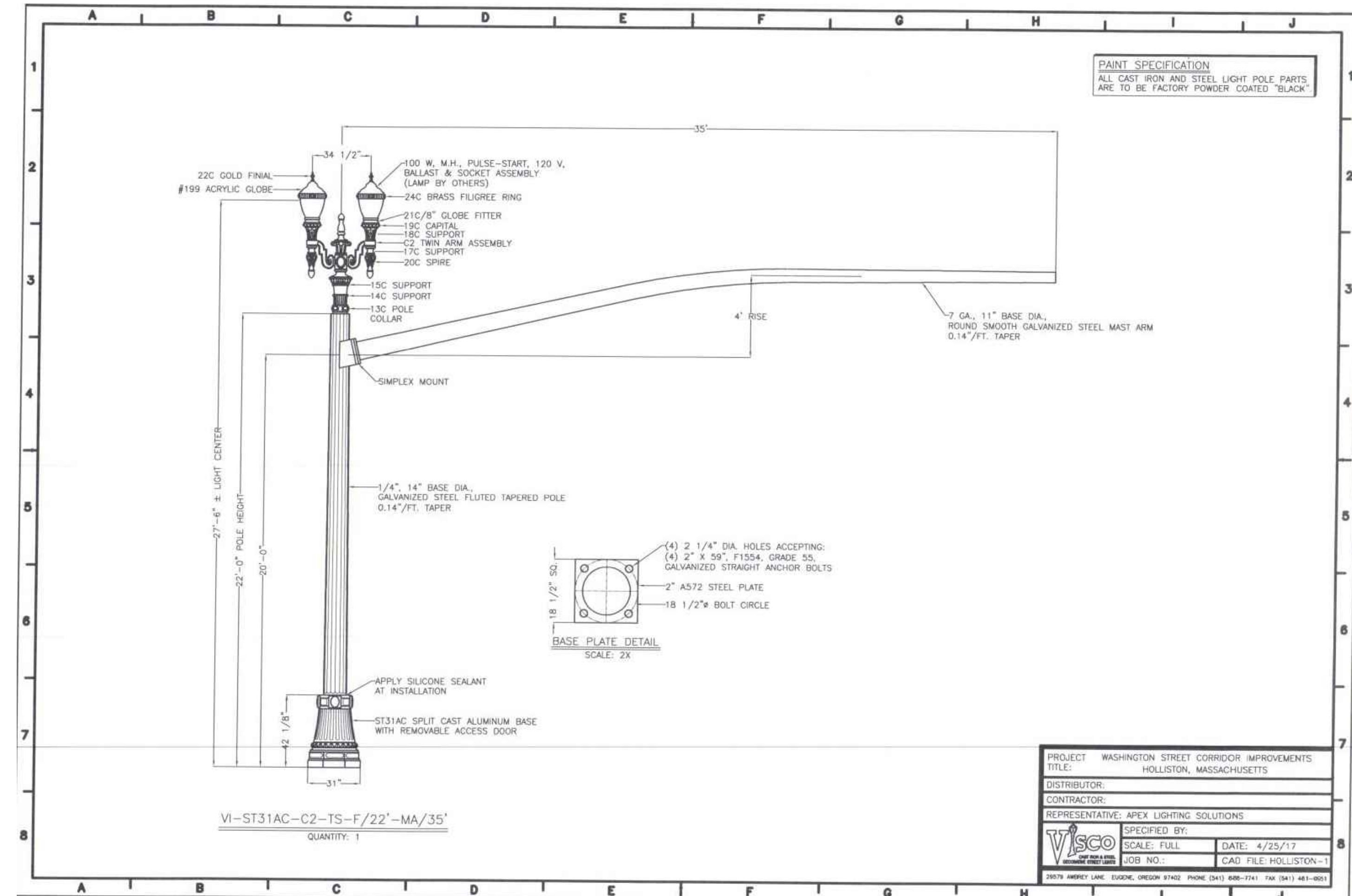
20' ORNAMENTAL MAST ARM



25' ORNAMENTAL MAST ARM

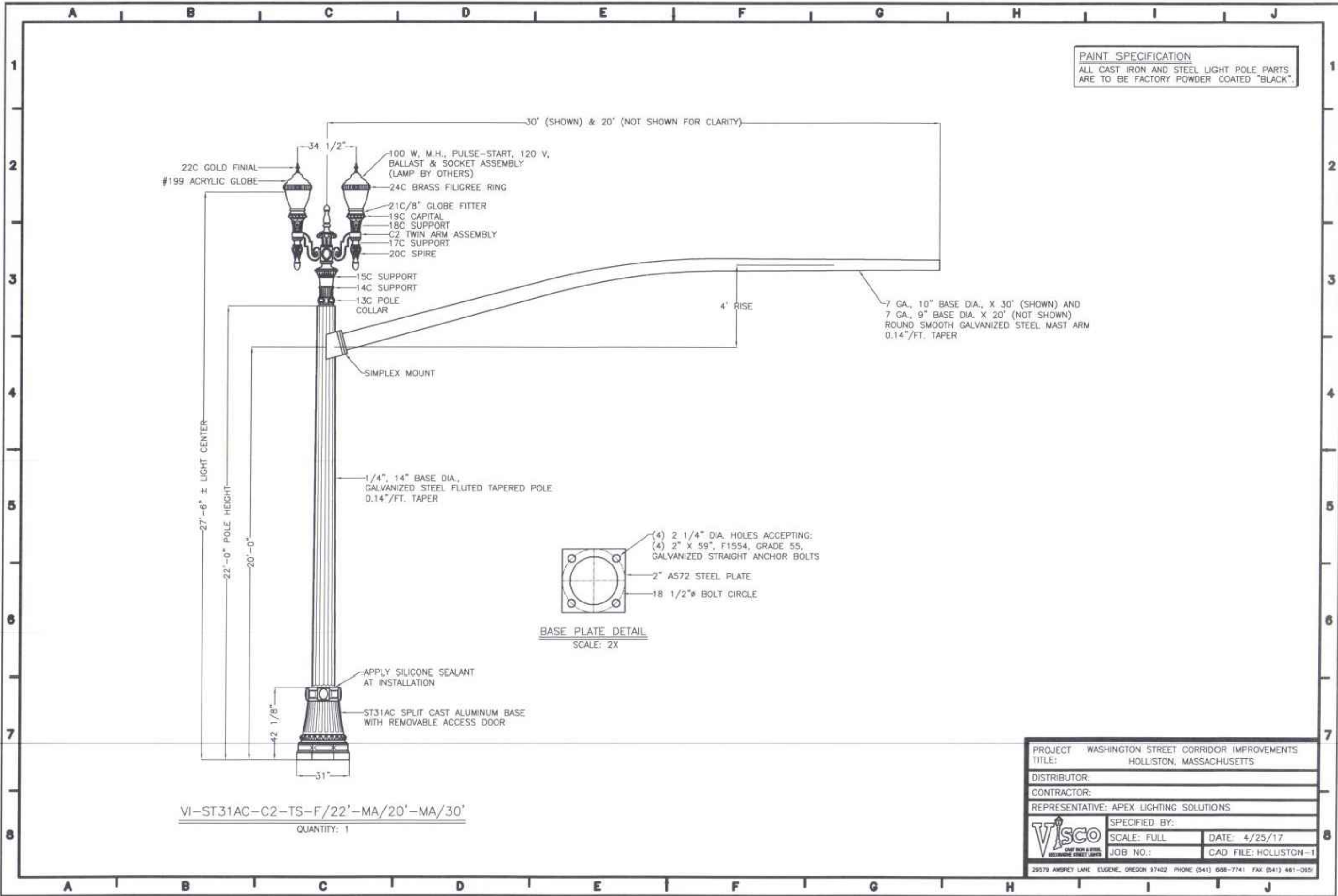


30' ORNAMENTAL MAST ARM

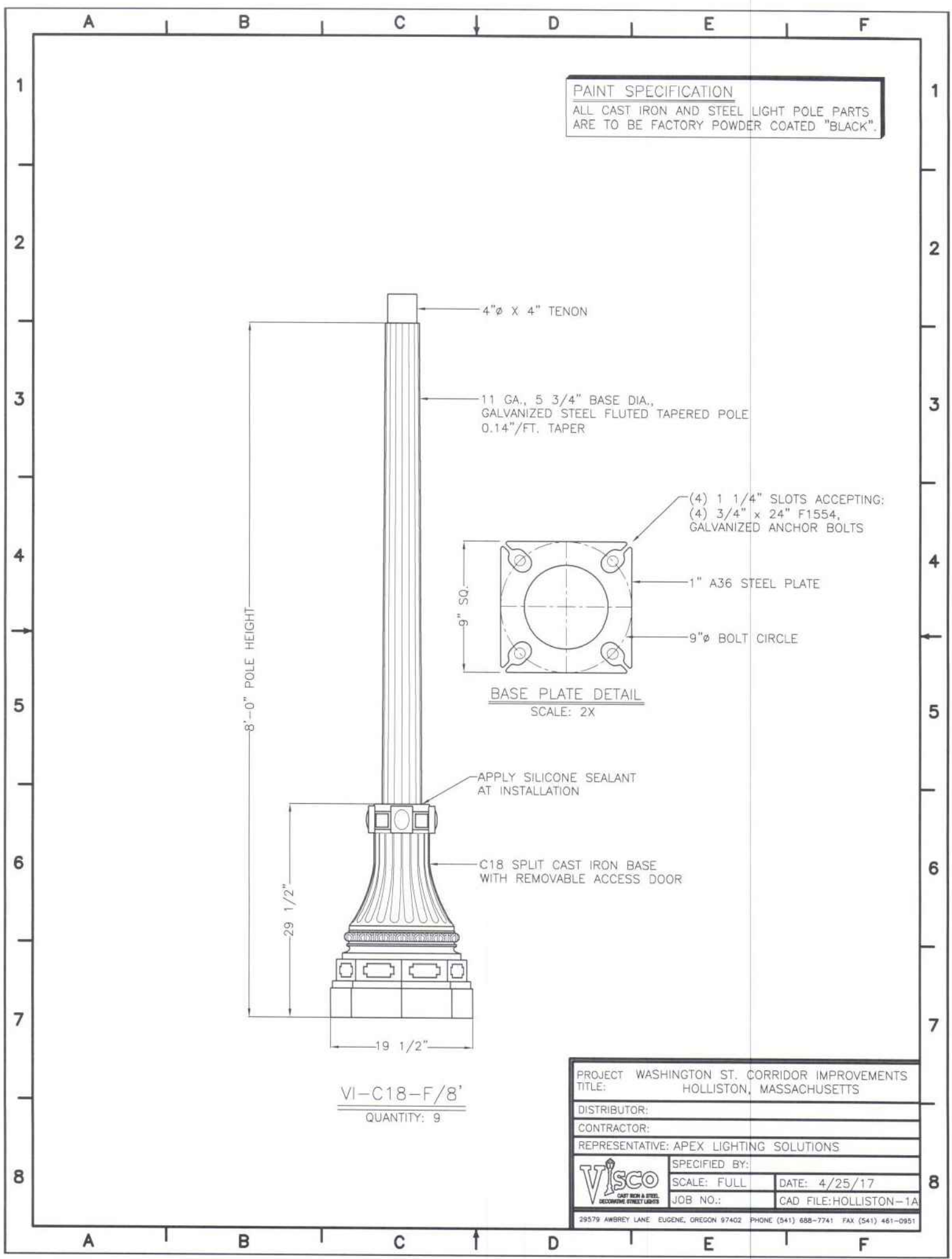


35' ORNAMENTAL MAST ARM

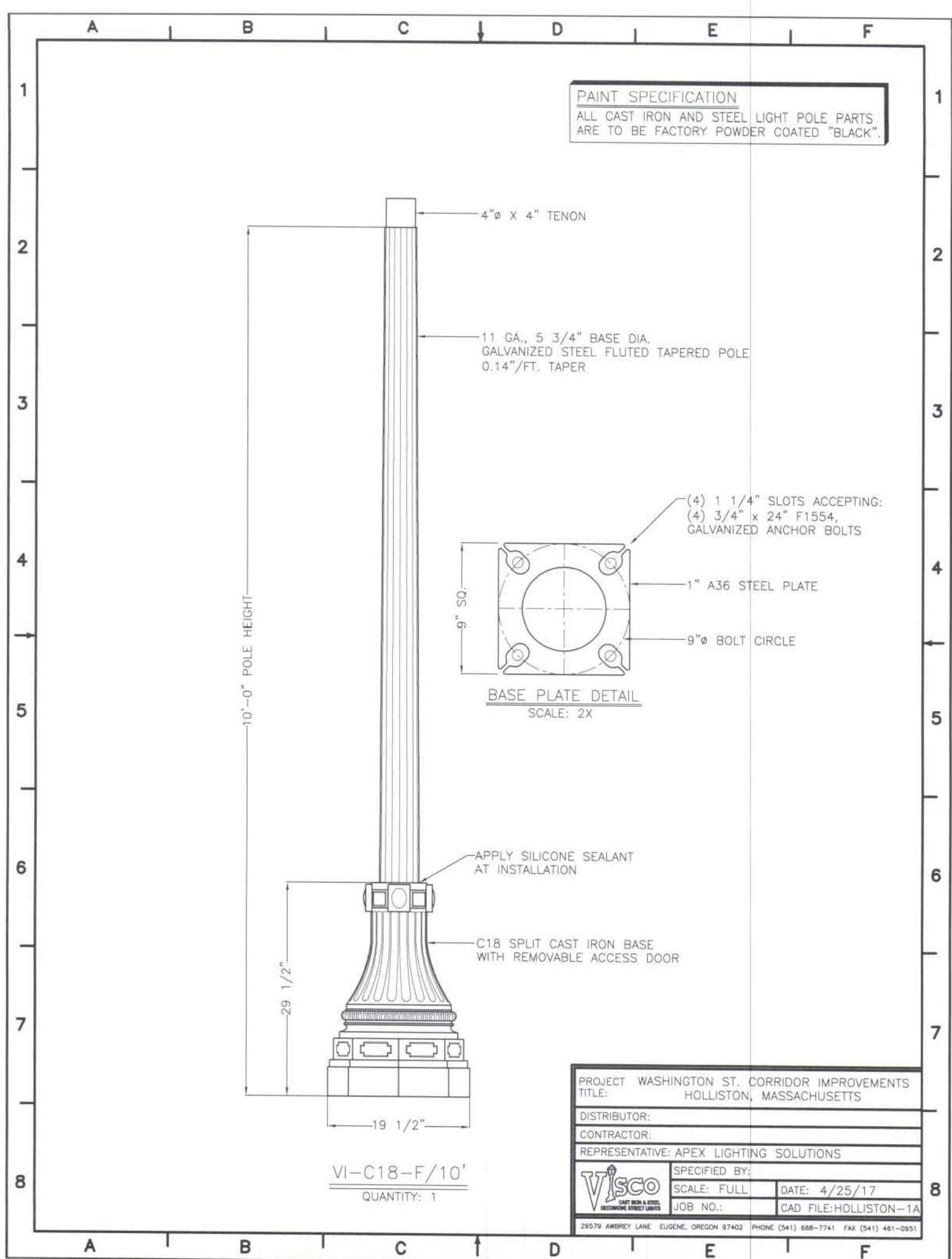
SHEET NO.	TOTAL SHEETS
18	22



20' & 30' ORNAMENTAL MAST ARM



8' ORNAMENTAL PEDESTRIAN PEDESTAL

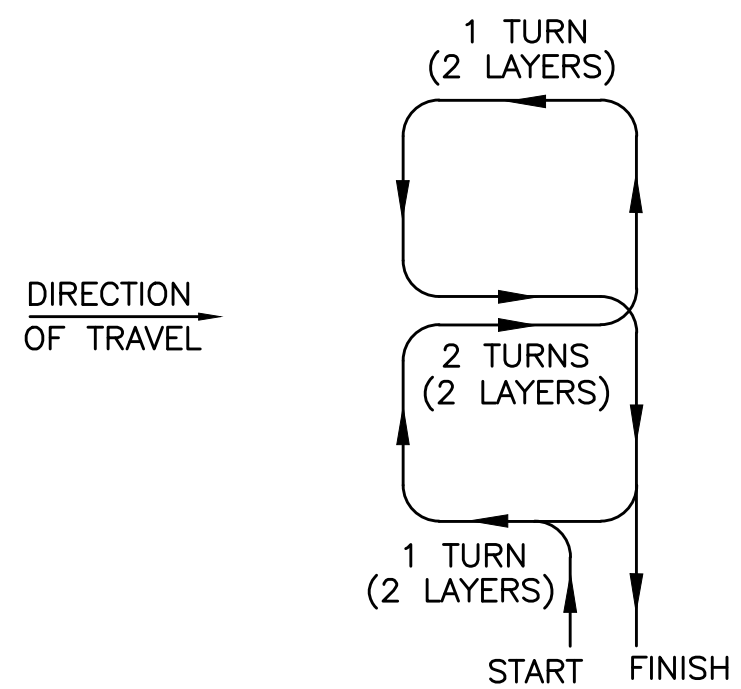


10' ORNAMENTAL PEDESTRIAN PEDESTAL

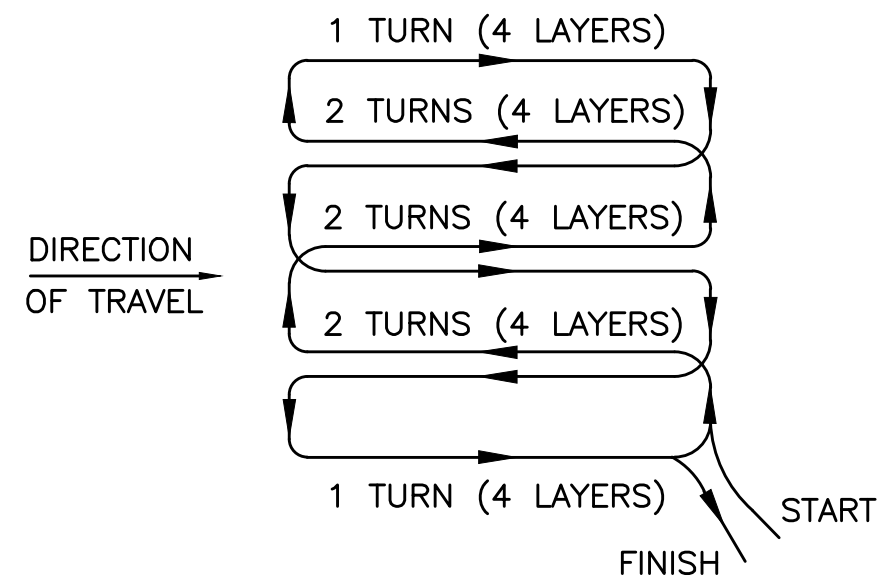
SHEET NO.	TOTAL SHEETS
19	22

TRAFFIC SIGNAL DETAILS
SHEET 3 OF 4

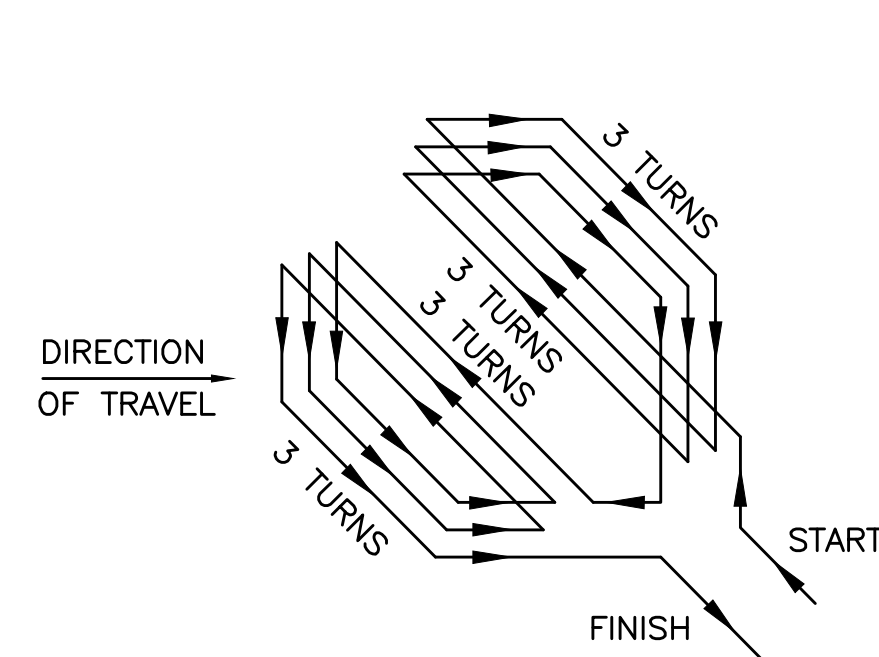
WINDING DETAILS



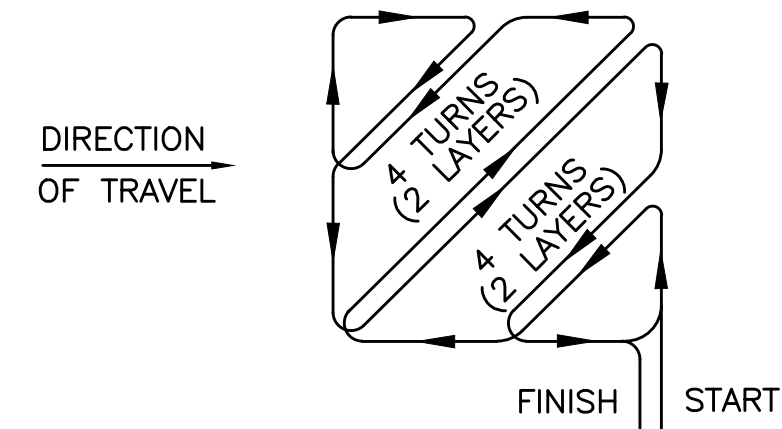
TYPE Q DETECTOR



TYPE D-Q DETECTOR

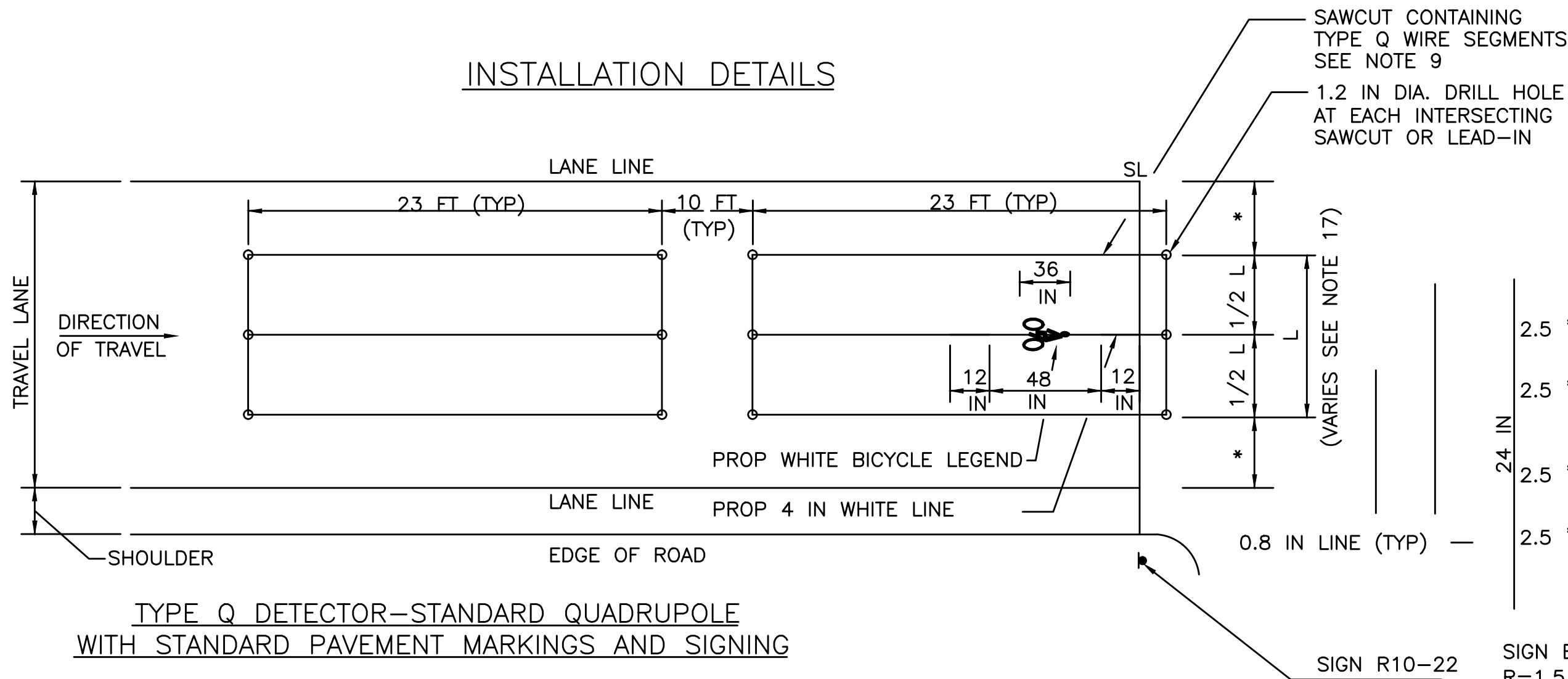


TYPE D-1 DETECTOR

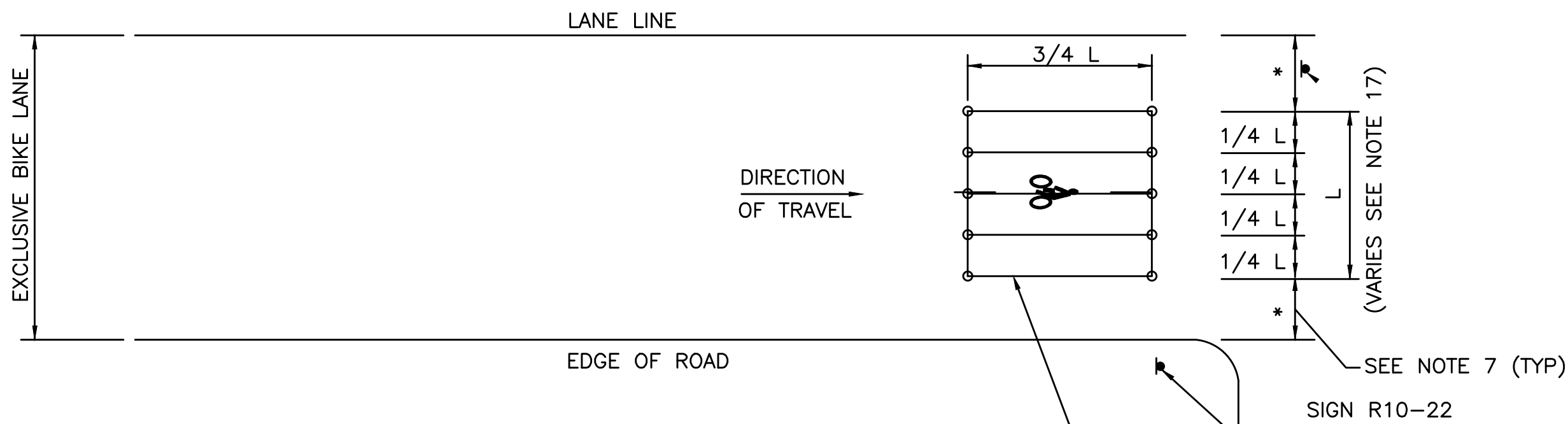


TYPE D-2 DETECTOR

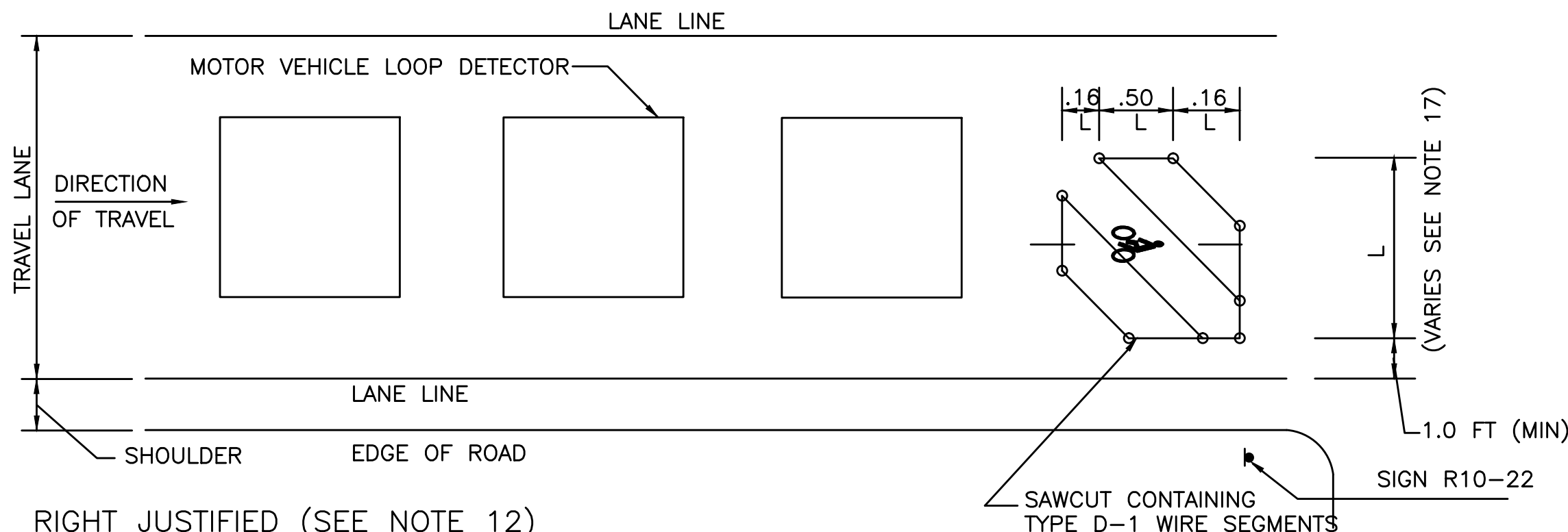
INSTALLATION DETAILS



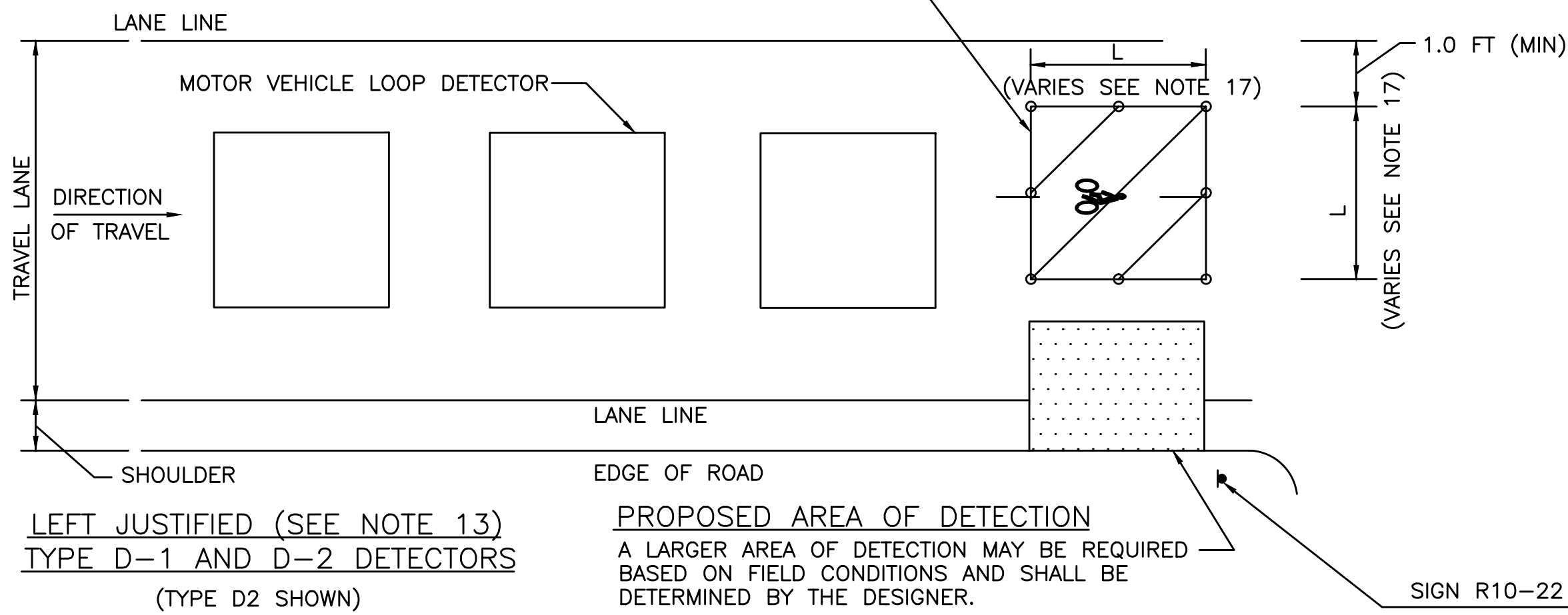
TYPE Q DETECTOR-STANDARD QUADRUPOLE
WITH STANDARD PAVEMENT MARKINGS AND SIGNING



TYPE D-Q DETECTOR-DOUBLE QUADRUPOLE



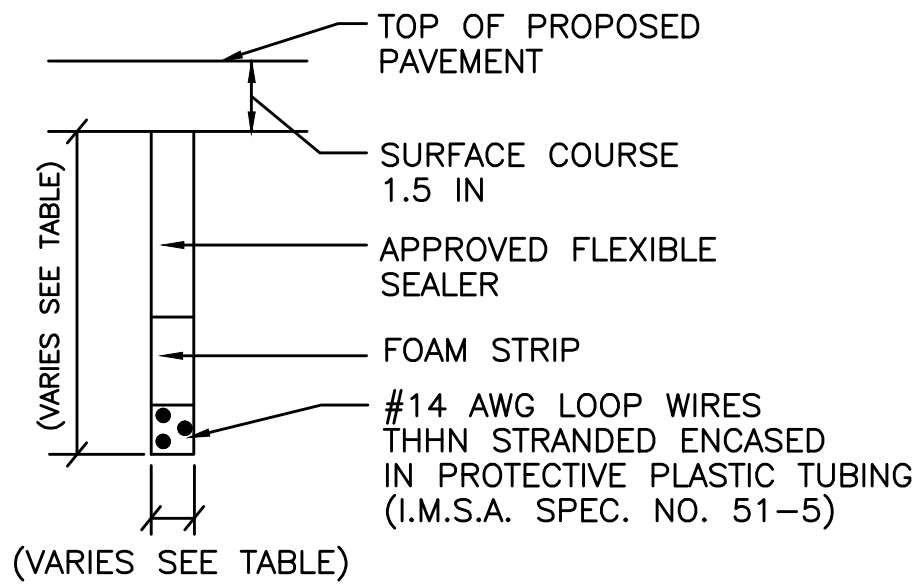
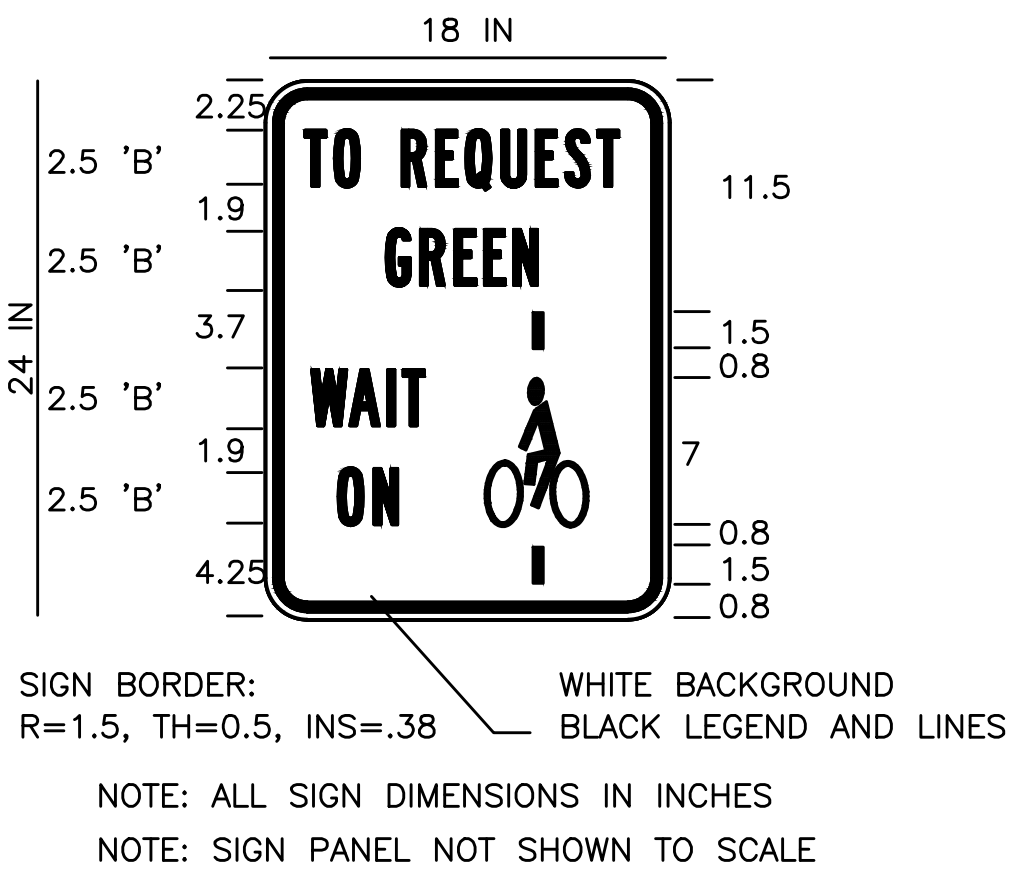
RIGHT JUSTIFIED (SEE NOTE 12)
TYPE D-1 AND D-2 DETECTORS
(TYPE D1 SHOWN)



LEFT JUSTIFIED (SEE NOTE 13)
TYPE D-1 AND D-2 DETECTORS
(TYPE D2 SHOWN)

PROPOSED AREA OF DETECTION
A LARGER AREA OF DETECTION MAY BE REQUIRED
BASED ON FIELD CONDITIONS AND SHALL BE
DETERMINED BY THE DESIGNER.

SIGN R10-22



SECTION THRU LOOP DETECTOR

SAWCUT SLOT DEPTH GUIDE		
TURNS OF WIRE	SLOT SIZE	
	DEPTH (IN)	WIDTH (IN)
1	1.5	0.5
2	1.5	0.5
3	1.5	0.5
4	2.0	0.5
5	2.0	0.5
6	2.0	0.5
7	2.0	0.5
8	2.0	0.5

NOTES:

- REFER TO VEHICLE LOOP DETECTOR DETAIL SHEET FOR ADDITIONAL NOTES AND CONSTRUCTION DETAILS.
- ALL DETAILS ARE GRAPHICAL WITH NO SCALE.
- THE NUMBER, SIZE, LOCATION AND LENGTH OF DETECTION AREA VARIES AND SHALL BE DETERMINED BY THE DESIGNER REFER TO TRAFFIC SIGNAL PLAN.
- BICYCLE LOOPS SHALL BE CONNECTED TO SEPARATE LOOP DETECTOR AMPLIFIERS CAPABLE OF HIGHER LEVELS OF SENSITIVITY.
- BICYCLE LOOPS SHALL BE INSTALLED IN THE BASE COURSE OF EXISTING PAVEMENT. THE EXISTING PAVEMENT SHALL BE COLD PLANED TO THE BASE COURSE AND SAWCUT FOR LOOP INSTALLATION.
- SIGNS AND PAVEMENT MARKINGS SHALL BE INSTALLED FOR ALL BICYCLE DETECTORS TO INFORM CYCLISTS OF THE DETECTION AREA.
- OFFSETS FROM LANE LINE EQUAL UNLESS OTHERWISE NOTED. SEE PLANS.
- TYPE Q DETECTORS SHALL BE WIRED IN A FIGURE EIGHT PATTERN WITH A DOUBLE LAYER DESIGN ("2-4-2") WITH 2 TURNS IN THE PERIMETER SLOTS AND 4 TURNS IN THE CENTER SLOT AS SHOWN IN THE WINDING DETAIL.
- BICYCLES WILL BE DETECTED WITHIN 4 IN. OF THE INTERIOR LONGITUDINAL LOOP WIRES FOR TYPE Q AND D-Q DETECTORS.
- PROVIDE 3 TURNS FOR TYPE D-1 DETECTORS.
- INSTALL 2 LAYERS OF WIRE WOUND IN THE SAME DIRECTION IN BOTH LAYERS FOR TYPE D-2 DETECTORS. THE RESULT IS 4 TURNS IN EACH DIAGONAL.
- RIGHT JUSTIFIED LOOP DETECTORS SHALL BE CONSIDERED FOR THE FOLLOWING CONDITIONS:
 - BICYCLE STOPPING ON THE RIGHT SIDE OF A THRU TRAVEL LANE.
 - BICYCLE STOPPING ON THE RIGHT SIDE OF AN EXCLUSIVE LEFT TURN LANE.
- LEFT JUSTIFIED LOOP DETECTORS SHALL BE CONSIDERED FOR THE FOLLOWING CONDITIONS:
 - BICYCLE STOPPING ON THE LEFT SIDE OF A SHARED LEFT/THRU LANE.
 - BICYCLE STOPPING JUST TO THE RIGHT OF THE CENTERLINE WHEN TURNING LEFT ON A TWO-LANE ROADWAY.
- RECTANGULAR LOOP DETECTORS SHALL BE CONSIDERED FOR BICYCLES STOPPING ON EITHER THE LEFT OR RIGHT SIDE OF A TWO-LANE ROADWAY. THE MINIMUM OFFSET FROM LANE LINE OR CURB LINE SHALL BE 1.0 FT.
- PAVEMENT CORES OR TEST PITS MAY BE REQUIRED TO DETERMINE THE DEPTH OF EXISTING PAVEMENT AND CONFIRM THAT THE DETECTION OPTION CHOSEN AND CORRESPONDING WINDING PATTERN CAN BE ACCOMMODATED.
- THESE DETAILS APPLY TO BICYCLE LOOPS INSTALLED IN ROADWAYS. PUSH BUTTON ACTUATION SHALL BE CONSIDERED FOR RECREATIONAL BIKE PATHS.
- THE MINIMUM DIMENSION FOR L SHALL BE 6 FT MIN. FOR DETECTORS TYPE D-Q, D-1 & D-2. FINAL DIMENSIONS SHALL BE DETERMINED BY THE DESIGN ENGINEER.

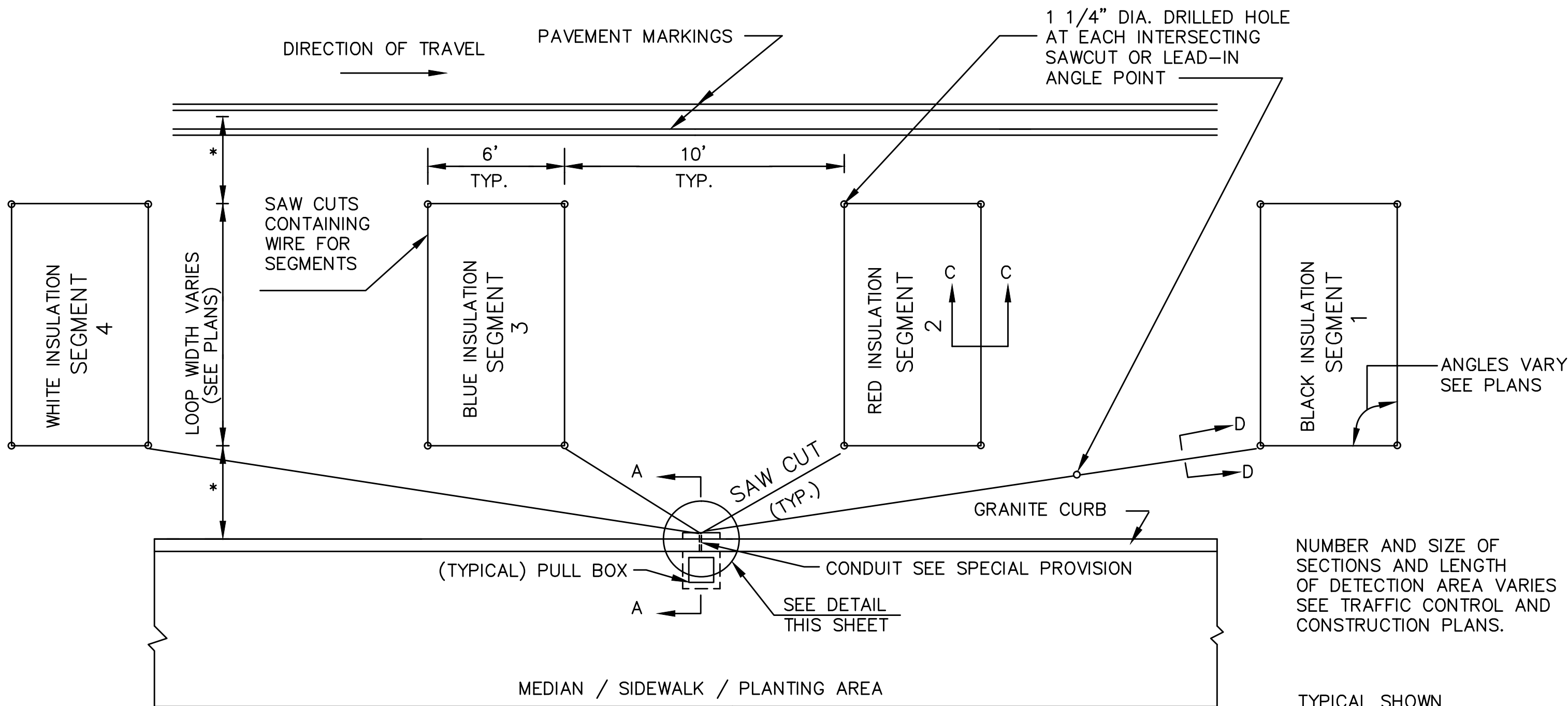
SHEET NO.	TOTAL SHEETS
20	22

TRAFFIC SIGNAL DETAILS
SHEET 4 OF 4

DETECTOR NOTES

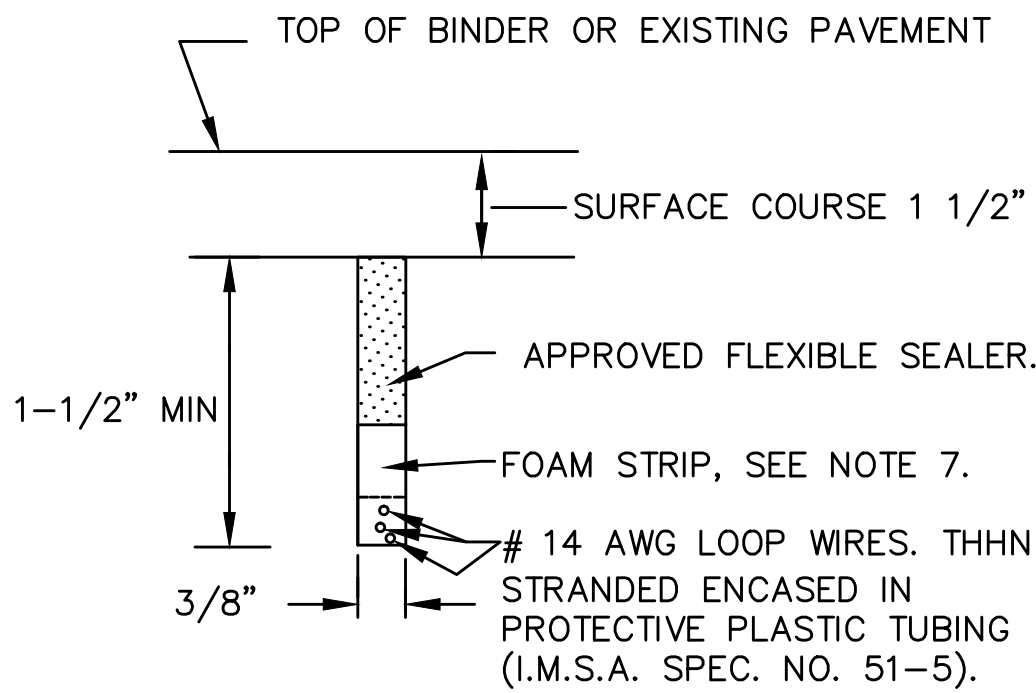
1. IN HANDHOLE, SPLICE ALL SEGMENTS TO TYPE II--SHIELDED LOOP DETECTOR DETECTOR LEAD-IN CABLE. SEGMENTS SHALL BE SPLICED IN PARALLEL, IN SERIES, OR IN A COMBINATION OF PARALLEL & SERIES AS SHOWN ON THE PLAN SHEET FOR EACH DETECTOR. NUMBER OF TURNS OF WIRE SHALL ALSO BE AS SHOWN ON THE PLAN SHEET FOR EACH DETECTOR. SEE NOTE 12.
2. SEE SPECIAL PROVISIONS FOR REQUIREMENTS OF DETECTOR AMPLIFIER
3. LEAD IN WIRES SHALL BE TWISTED FROM SEGMENT TO SPLICE WITH SHIELDED CABLE FIVE TURNS PER FOOT. LEAD-IN SHALL BE TYPE II (M8. 16. II).
4. BEFORE STARTING ANY SPLICING, THE ELECTRICAL CONTRACTOR SHALL FURNISH DATA SHEETS ON THE MATERIALS AND/OR METHODS TO BE USED IN ACCORDANCE WITH THE DEPARTMENTS STANDARD OPERATING PROCEDURES FOR APPROVAL OF SHOP DRAWINGS SEE SECTION 815.64, ESPECIALLY PARAGRAPH 1.
5. THE METALLIC SHIELD WHICH SHALL ENCASE THE DETECTOR LEADS FROM A SPLICE (TYPICALLY LOCATED IN A PULL BOX NEAR THE ROADWAY COMPONENT OF THE DETECTOR) THE METALLIC SHIELD WHICH SHALL INCASE THE DETECTOR LEADS FROM A SPLICE (TYPICALLY LOCATED IN A PULL BOX NEAR THE ROADWAY COMPONENT OF THE DETECTOR) OT THE CONTROLLER, AND THE DRAIN WIRE UNDER THE METALLIC SHIELD, SHALL NOT BE GROUNDED TO THE EARTH GROUNDING BUSS IN THE CONTROLLER, AND THE SHIELD AND DRAIN WIRE SHALL BE CAREFULLY INSULATED FROM THE TRANSFORMER NEUTRAL OR FROM EARTH GROUND AT ALL POINTS ALONG IT'S LENGTH. SPECIALLY, THIS INCLUDES CAREFUL INSULATION OF THE EXPOSED PORTION OF THE SHIELD AND THE AND THE DRAIN WIRE AT THE END AWAY FROM THE CONTROLLER WHERE IT IS SPLICED TO WIRES LEADING TO THE ROADWAY COMPONENT OF THE DETECTOR. THIS IS IMPORTANT TO AVOID A GROUND RETURN LOOP.
6. FILL ALL CONDUIT OPENINGS WITH DUCT SEAL.
7. AFTER SAW CUTS ARE COMPLETE, BLOW OUT WATER WITH OIL - FREE COMPRESSED AIR UNTIL CUTS ARE CLEAN AND DRY. INSERT WIRE INTO CLEAN SLOT WITH A BLUNT, SMOOTH, ROUND EGED TOOL OF WOOD OR PLASTIC SUCH AS A PAINT STIRRER. DO NOT USE A SCREWDRIVER, THEN INSERT FOAM PLASTIC HOLD DOWN STRIPS, SIMILAR TO ETHA FOAM SB. STRIPS SHALL BE ABOUT 2" LONG, PLACED IN THE SLOT ABOUT EVERY 2 FEET THEN POUR SEALER, TAKING CARE TO ELIMINATE BUBBLES.
8. THE COMBINED ROADWAY LOOP, TWISTED LEAD-IN WIRES, SPLICE AND SHIELDED LEAD-IN CABLE SHALL HAVE A RESISTANCE TO GROUND OF AT LEAST 100 MEGOHMS. SEE SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS.
9. FOR INSTALLATION OF SINGLE (ONE SEGMENT) SMALL WIRE LOOP DETECTOR DETAIL IS THE SAME
10. CUT LOOPS IN BINDER AND FILL WITH APPROVED FLEXIBLE SEALER.
11. DETECTOR WIRE SHALL BE A DIFFERENT COLOR FOR EACH SEGMENT OF A DETECTOR GROUP. SEE DETAIL
12. SPLICING PATTERN P = SERIES/PARALLEL: SPLICE SEGMENTS 1 AND 3 OF AN INDIVIDUAL DETECTOR IN SERIES. SPLICE SEGMENTS 2 AND 4 IN SERIES. SPLICE THE RESULTANT TWO GROUPS IN PARALLEL. SPLICE THE RESULTANT COMBINATION TO ONE LEAD-IN CABLE. CONNECT THIS CABLE TO AN OTHERWISE UNUSED AMPLIFIER CHANNEL.

SPLICING PATTERN S = SERIES: SPLICE ALL SEGMENTS (TYPICALLY FOUR, BUT MAY BE LESS) OF AN INDIVIDUAL DETECTOR IN SERIES. SPLICE THE RESULTANT COMBINATION TO ONE LEAD-IN CABLE TO AN OTHERWISE UNUSED AMPLIFIER CHANNEL.



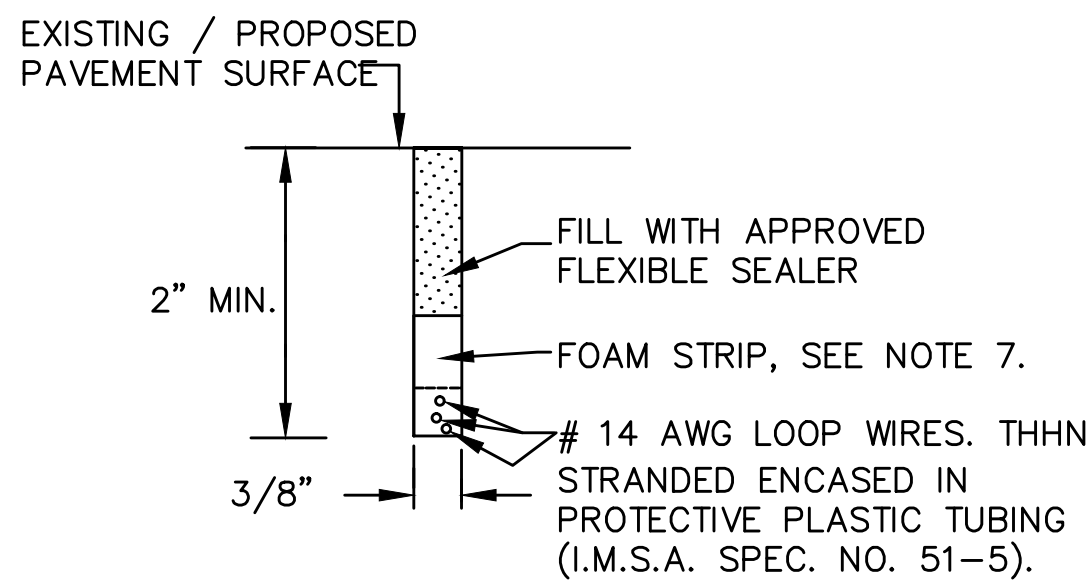
* OFFSETS FROM CURB TO LOOP AND EDGE OF LANE TO LOOP EQUAL IF NOT SHOWN.

PLAN OF SEGMENTED DETECTOR DETAIL
NOT TO SCALE



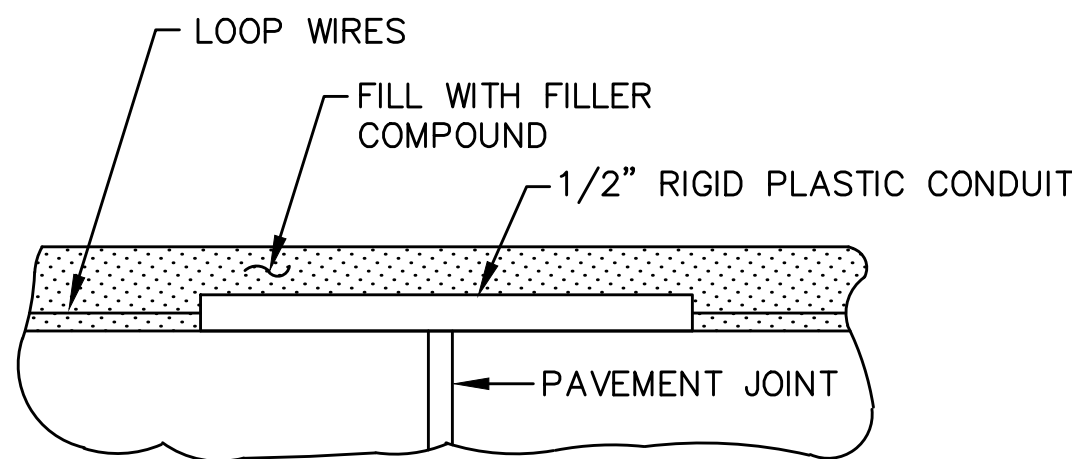
SECTION C-C & D-D

LOOPS IN BINDER COURSE OR EXISTING PAVEMENT TO BE RESURFACED
NOT TO SCALE

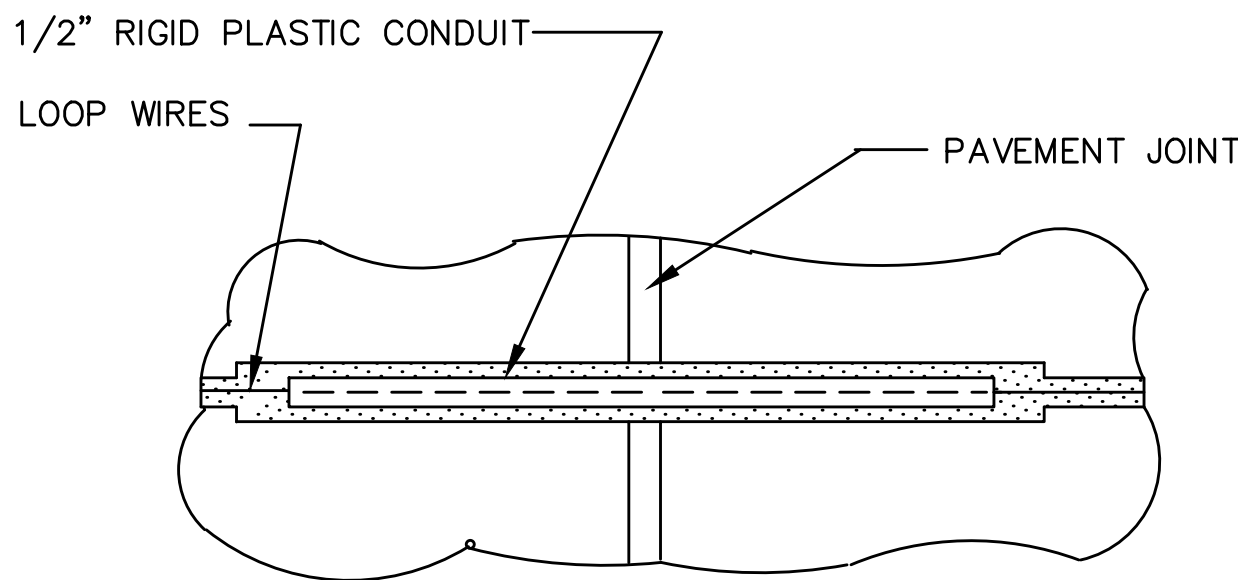


SECTION C-C & D-D

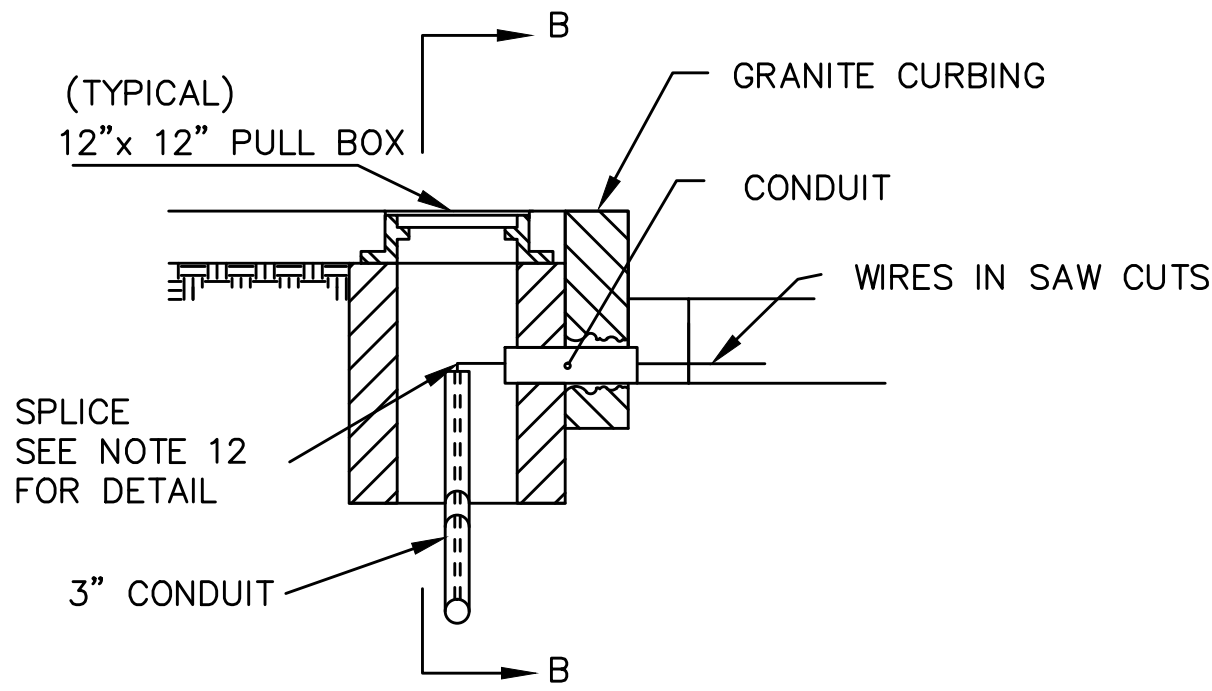
LOOPS IN SURFACE COURSE
NOT TO SCALE



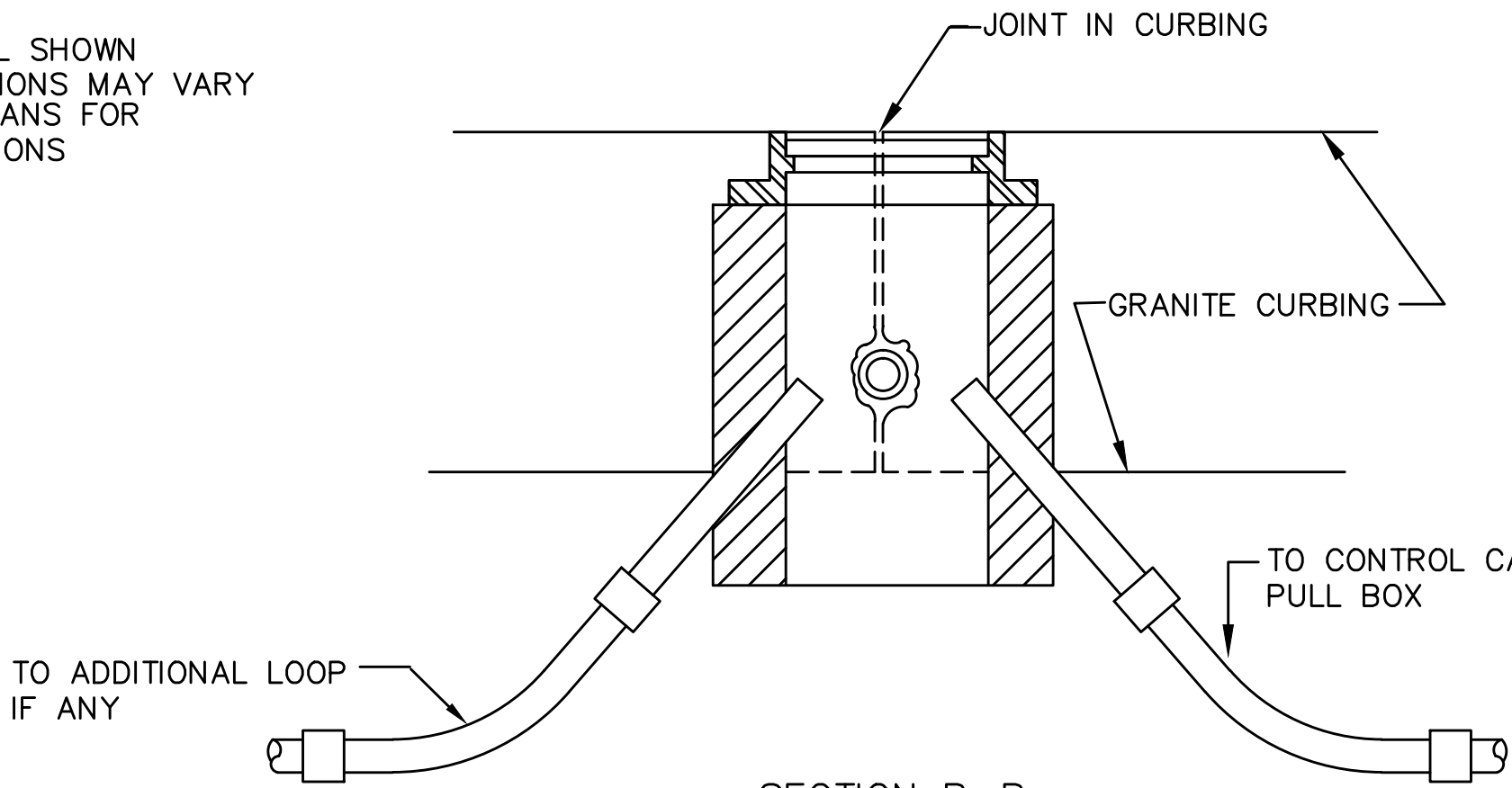
VERTICAL SECTION
TREATMENT AT PAVEMENT JOINTS
NOT TO SCALE



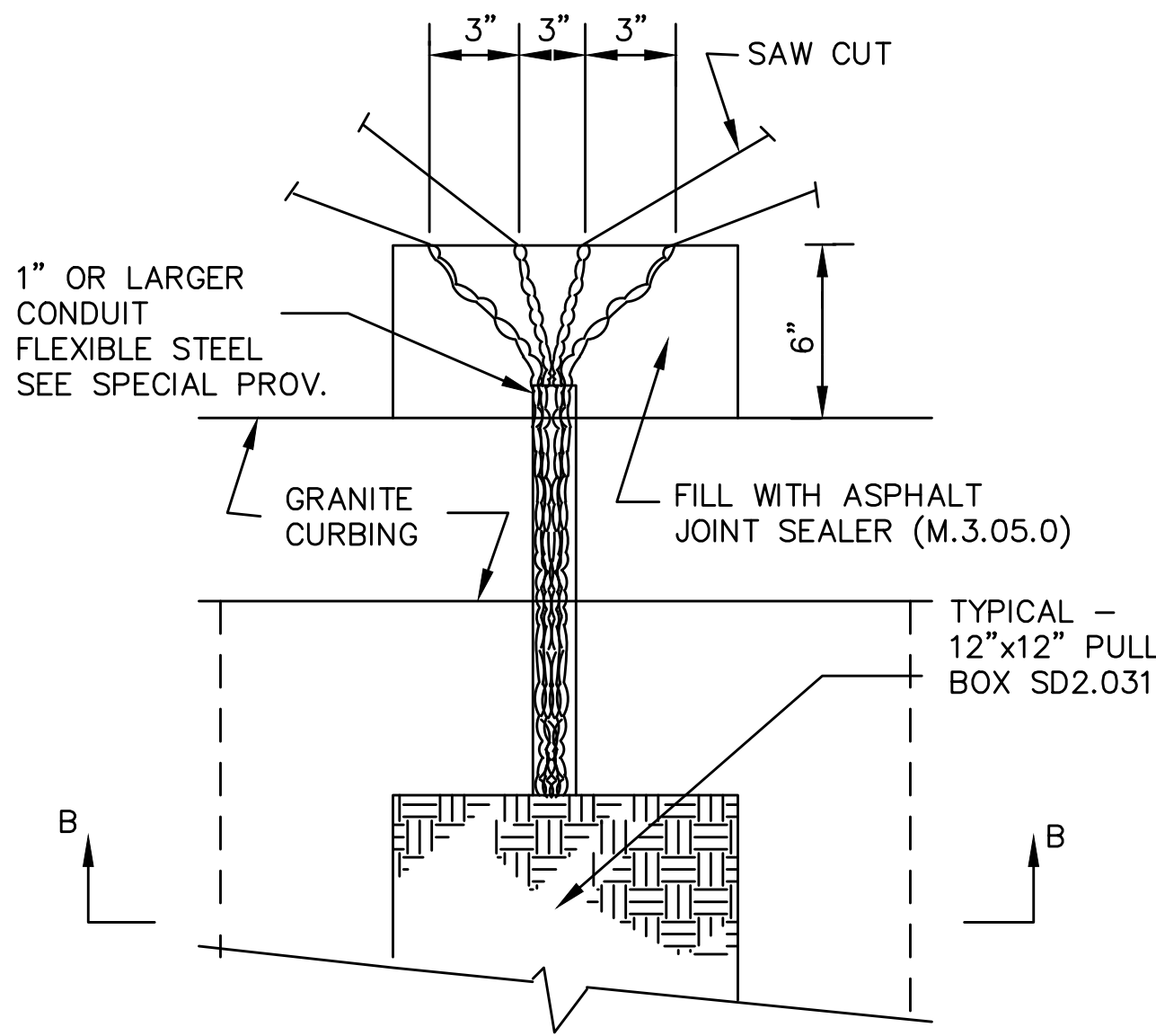
PLAN
TREATMENT AT PAVEMENT JOINTS
NOT TO SCALE



SECTION A-A
NOT TO SCALE

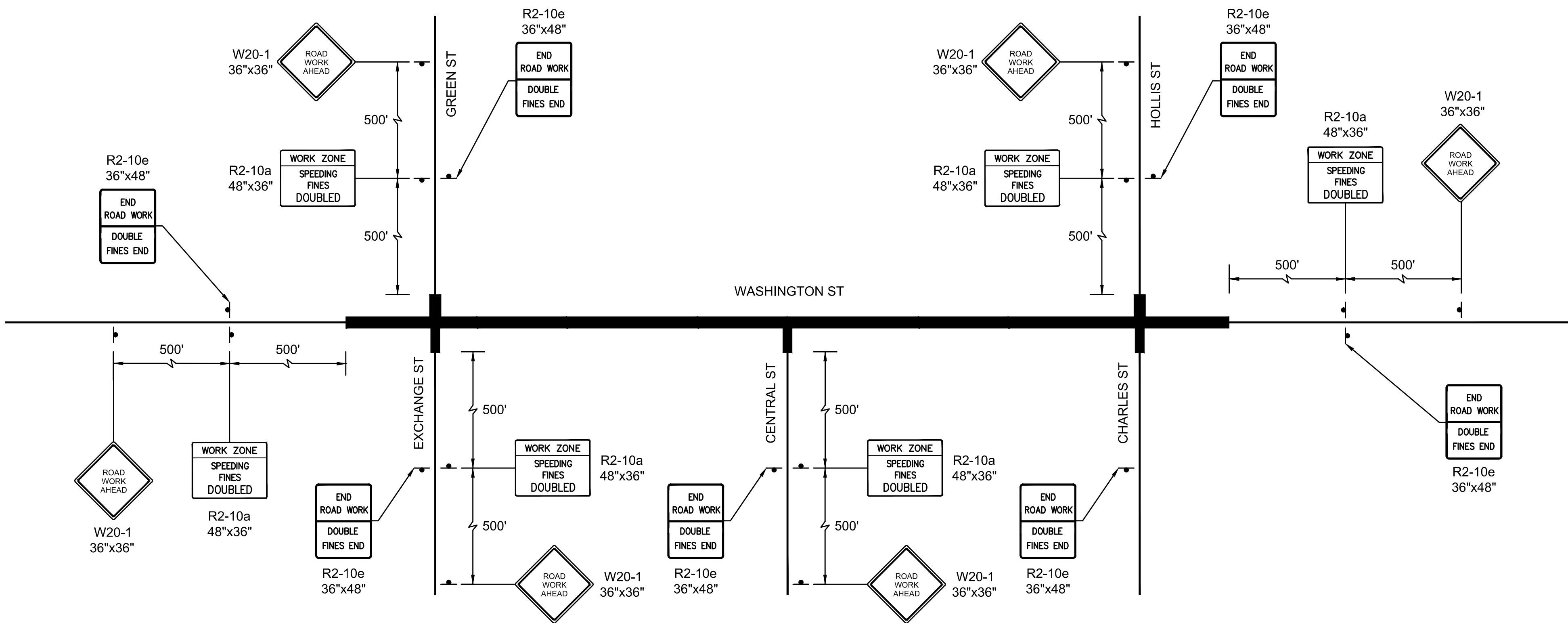


SECTION B-B
NOT TO SCALE

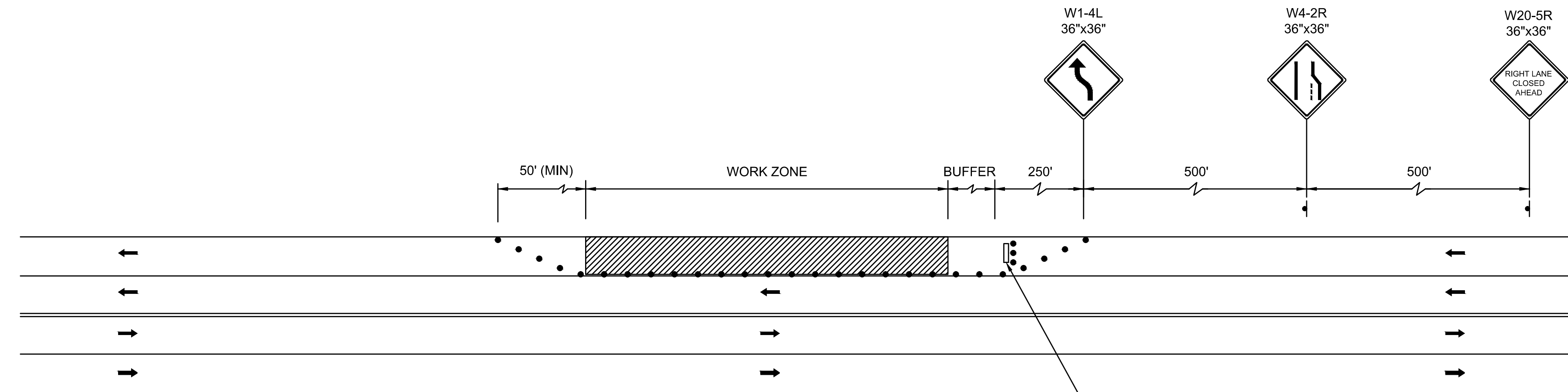


DETAIL - PLAN VIEW
NOT TO SCALE

SHEET NO.	TOTAL SHEETS
21	22



PROJECT LIMIT SIGNING
NOT TO SCALE



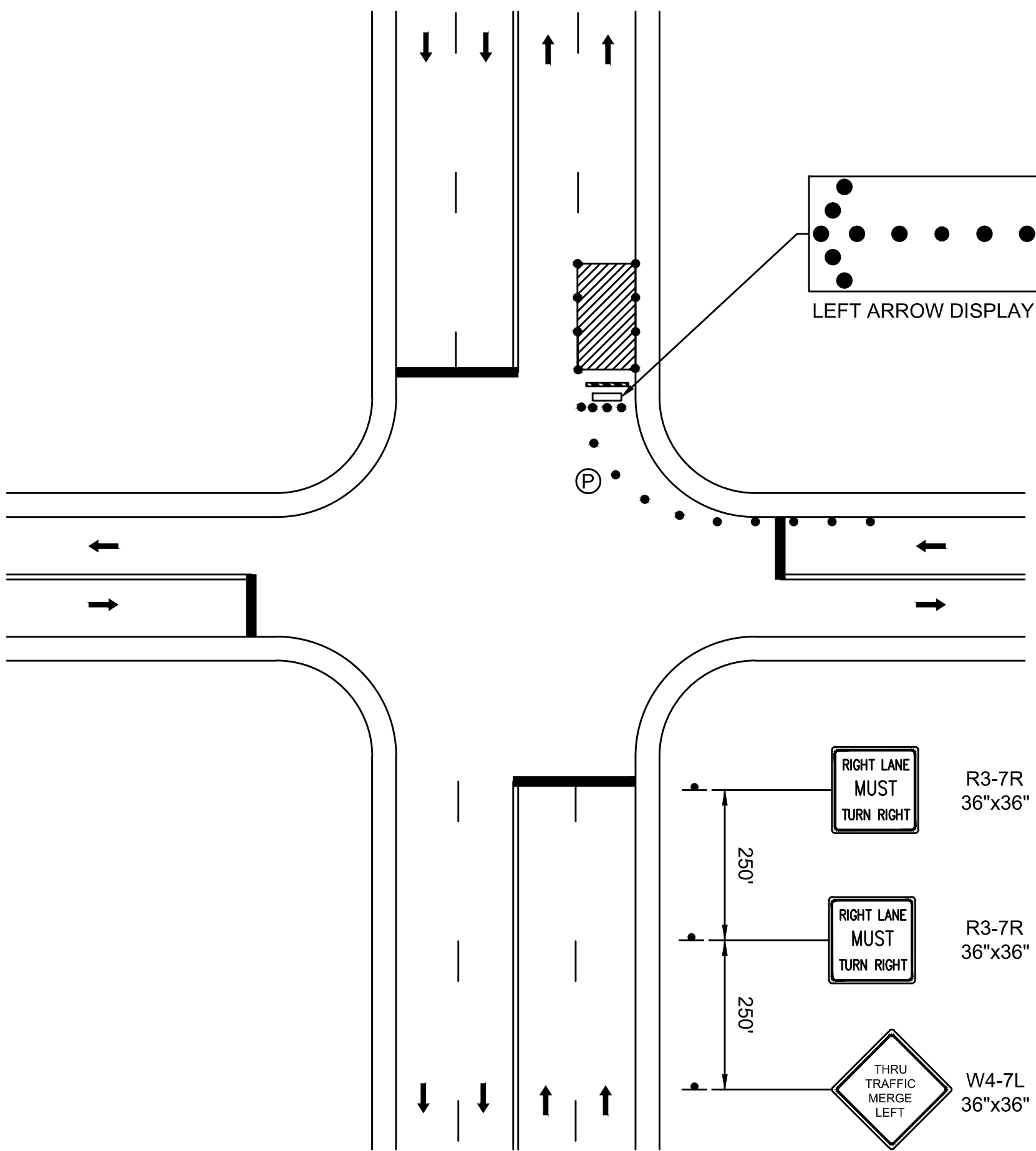
MULTIPLE LANE ROAD - RIGHT LANE CLOSURE
NOT TO SCALE

LEGEND:

- WORK AREA
- SIGN
- CHANNELIZING DEVICE
- FLASHING ARROW BOARD
- TYPE III BARRICADE
- POLICE
- ARROW PANEL SUPPORT TRAILER
- FLOW DIRECTION
- TEMPORARY PEDESTRIAN RAMP

NOTES:

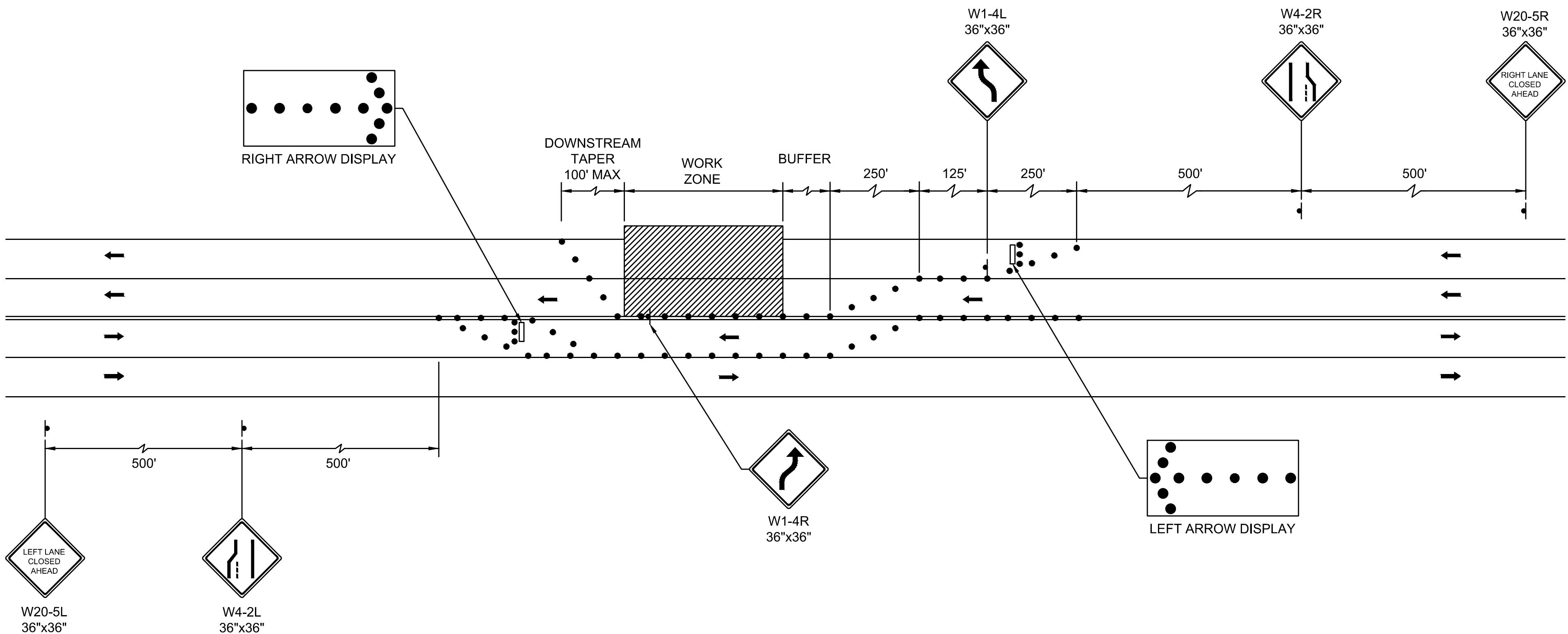
- ALL TRAFFIC CONTROL DEVICES AND WORK ZONE SET-UPS ARE TO BE IN ACCORDANCE WITH MUTCD AND MASSDOT STANDARDS.
- MAXIMUM SPACING OF TRAFFIC CONTROL DEVICES (DRUMS AND CONES) SHALL BE 35 FEET.
- ALL SIGNS SHOWN SHALL BE MOUNTED ON SUITABLE TEMPORARY SUPPORTS SUCH THAT SIGNS ARE CLEARLY VISIBLE TO APPROACHING TRAFFIC.
- MAINTAIN ACCESS TO ALL DRIVEWAYS AND PEDESTRIAN SIDEWALKS AT ALL TIMES, UNLESS OTHERWISE NOTED.
- THE FIRST FIVE PLASTIC DRUMS OF A TAPER MAY BE MOUNTED WITH TYPE A LIGHTS.
- DISTANCES ARE A GUIDE AND MAY BE ADJUSTED IN THE FIELD BY THE ENGINEER.
- MINIMUM LANE WIDTH IS 10 FEET, MEASURED FROM THE EDGE OF DRUMS OR MEDIAN BARRIER.
- TEMPORARY PEDESTRIAN ACCESS ROUTE SHALL BE PROVIDED IN ACCORDANCE WITH MUTCD AND MASSDOT STANDARDS WHERE WORK IMPACTS THE EXISTING PEDESTRIAN ACCESS ROUTE.
- ALL CONSTRUCTION OF FULL DEPTH PAVEMENT AND MICROMILLING AND PAVEMENT OVERLAY SHALL BE CONDUCTED DURING NIGHTTIME TO MINIMIZE IMPACT TO TRAFFIC OPERATIONS ALONG WASHINGTON STREET.
- SIDEWALK RECONSTRUCTION SHALL BE CONDUCTED IN A SEQUENCE THAT MINIMIZES IMPACT TO BUSINESS OPERATIONS AND MAINTAIN PEDESTRIAN ACCESS DURING ALL TIMES THAT BUSINESSES ARE OPERATIONAL. ALL PEDESTRIAN ACCESS ROUTES SHALL BE ADA COMPLIANT.



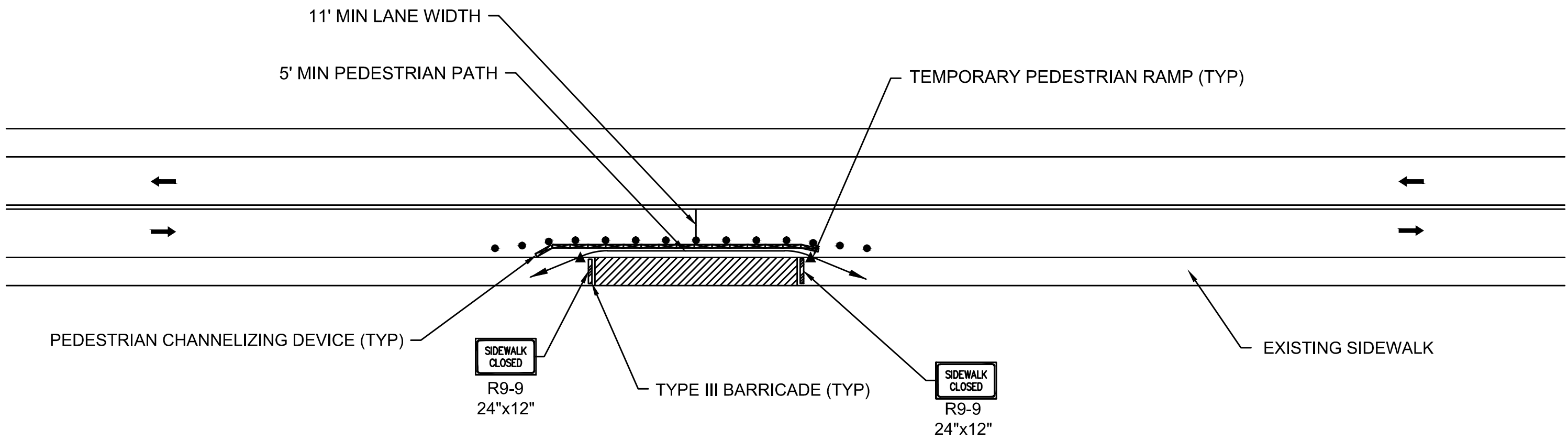
DOUBLE LANE APPROACH FAR SIDE RIGHT LANE CLOSURE
NOT TO SCALE

SHEET NO.	TOTAL SHEETS
22	22

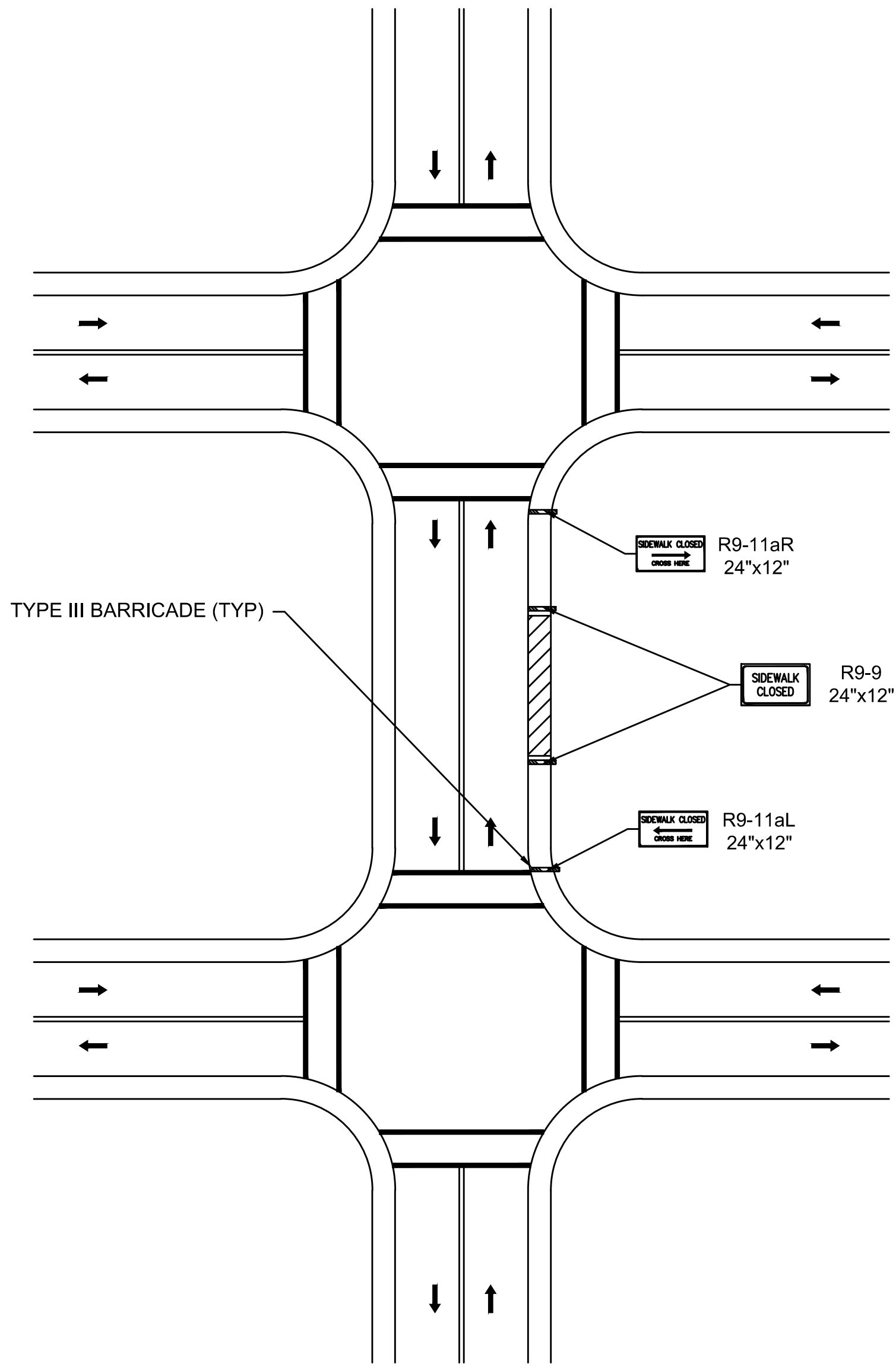
TEMPORARY TRAFFIC CONTROL PLAN
SHEET 2 OF 2



MULTIPLE LANE ROAD - 1/2 ROAD CLOSURE
NOT TO SCALE



PEDESTRIAN DETOUR - TYPE I
NOT TO SCALE



PEDESTRIAN DETOUR - TYPE II
NOT TO SCALE

LEGEND:

- WORK AREA
- SIGN
- CHANNELIZING DEVICE
- FLASHING ARROW BOARD
- TYPE III BARRICADE
- POLICE
- ARROW PANEL SUPPORT TRAILER
- FLOW DIRECTION
- TEMPORARY PEDESTRIAN RAMP

NOTES:

- ALL TRAFFIC CONTROL DEVICES AND WORK ZONE SET-UPS ARE TO BE IN ACCORDANCE WITH MUTCD AND MASSDOT STANDARDS.
- MAXIMUM SPACING OF TRAFFIC CONTROL DEVICES (DRUMS AND CONES) SHALL BE 35 FEET.
- ALL SIGNS SHOWN SHALL BE MOUNTED ON SUITABLE TEMPORARY SUPPORTS SUCH THAT SIGNS ARE CLEARLY VISIBLE TO APPROACHING TRAFFIC.
- MAINTAIN ACCESS TO ALL DRIVEWAYS AND PEDESTRIAN SIDEWALKS AT ALL TIMES, UNLESS OTHERWISE NOTED.
- THE FIRST FIVE PLASTIC DRUMS OF A TAPER MAY BE MOUNTED WITH TYPE A LIGHTS.
- DISTANCES ARE A GUIDE AND MAY BE ADJUSTED IN THE FIELD BY THE ENGINEER.
- MINIMUM LANE WIDTH IS 10 FEET, MEASURED FROM THE EDGE OF DRUMS OR MEDIAN BARRIER.
- TEMPORARY PEDESTRIAN ACCESS ROUTE SHALL BE PROVIDED IN ACCORDANCE WITH MUTCD AND MASSDOT STANDARDS WHERE WORK IMPACTS THE EXISTING PEDESTRIAN ACCESS ROUTE.
- ALL CONSTRUCTION OF FULL DEPTH PAVEMENT AND MICROMILLING AND PAVEMENT OVERLAY SHALL BE CONDUCTED DURING NIGHTTIME TO MINIMIZE IMPACT TO TRAFFIC OPERATIONS ALONG WASHINGTON STREET.
- SIDEWALK RECONSTRUCTION SHALL BE CONDUCTED IN A SEQUENCE THAT MINIMIZES IMPACT TO BUSINESS OPERATIONS AND MAINTAIN PEDESTRIAN ACCESS DURING ALL TIMES THAT BUSINESSES ARE OPERATIONAL. ALL PEDESTRIAN ACCESS ROUTES SHALL BE ADA COMPLIANT.

APPENDIX C
BORING LOGS

(603) 437-1610		New England Boring Contractors P.O. Box 165 Derry, NH 03038			Fax: (603) 437-0034	
Boring # B-1		Project: McMahon Associates Test Drilling			Project # 144401	
Project Address: Washington Street		City: Holliston			State: MA Zip:	
Date Start: 05/2/2017		Date End: 05/2/2017			Location: See Plan	
Casing: HW Size: 4" Hammer: 300 lb. Fall: 24"		Sampler: S/S		140lbs Fall: 30"		Sampler: 1-3/8 in. I.D. 30 in.
G R O U N D W A T E R O B S E R V A T I O N						
Date: 05/02/17	Depth:		Casing:			Stabilization Period
DP	S./#	DEPTH	PEN	REC	BLOWS/6"	S/C
						SAMPLE DESCRIPTION
						6"
						ASPHALT
5'0"	S-1	1' – 3'	24"	8"	12-10-19-9	
	S-2	4' – 6'	24"	6"	1-2-2-8	
						Medium dense, brown FINE TO COARSE SAND, some inorganic silt, trace medium gravel.
						Loose, brown FINE TO COARSE SAND, trace inorganic silt.
10'0"	S-3	9' – 11'	24"	7"	5-8-10-11	
						Loose, brown FINE TO COARSE SAND, trace inorganic silt, trace coarse gravel. .
15'0"	S-4	14' – 16'	24"	9"	10-12-18-23	
						Medium dense, brown FINE TO COARSE SAND, trace inorganic silt.
20'0"	S-5	19' – 21'	24"	17"	5-8-9-16	
						Medium dense, brown FINE SAND, some inorganic silt.
						21'
						Bottom of Exploration = 21'
25'0"						
30'0"						
Drillers: Kenneth Smith			Helper: Nick Raiche			Inspector: None
Remarks: Boring log is not to scale.						
S/#: Sample			PEN: Penetration		REC: Recovery	S/C: Strata Change

(603) 437-1610		New England Boring Contractors P.O. Box 165 Derry, NH 03038			Fax: (603) 437-0034		
Boring # B-2		Project: McMahon Associates Test Drilling			Project # 144401		
Project Address: Washington Street		City: Holliston			State: MA Zip:		
Date Start: 05/2/2017		Date End: 05/2/2017			Location: See Plan		
Casing: HW Size: 4" Hammer: 300 lb. Fall: 24"		Sampler: S/S		140lbs Fall: 30"		Sampler: 1-3/8 in. I.D. 30 in.	
G R O U N D W A T E R O B S E R V A T I O N							
Date: 05/02/17		Depth:		Casing:		Stabilization Period	
DP	S./#	DEPTH	PEN	REC	BLOWS/6"	S/C	SAMPLE DESCRIPTION
5'0"	S-1	1' – 3'	24"	11"	10-29-36-19	6"	ASPHALT
	S-2	4' – 6'	24"	10"	34-33-36-33		Very dense, brown FINE TO COARSE SAND, trace medium gravel, trace inorganic silt. Very dense, brown FINE TO COARSE SAND, trace medium gravel, trace inorganic silt.
10'0"	S-3	9' – 11'	24"	9"	5-7-7-11		Medium dense, brown FINE TO COARSE SAND, trace inorganic silt.
15'0"	S-4	14' – 16'	24"	14"	12-20-8-14		Medium dense, gray-brown FINE SAND, trace inorganic silt.
20'0"	S-5	19' – 21'	24"	22"	8-14-12-17	21'	Medium dense, gray FINE SAND, some inorganic silt.
25'0"							Bottom of Exploration = 21'
30'0"							
Drillers. Kenneth Smith			Helper: Nick Raiche			Inspector: None	
Remarks: Boring log is not to scale.							
S/#: Sample			PEN: Penetration		REC: Recovery		S/C: Strata Change

(603) 437-1610		New England Boring Contractors			Fax: (603) 437-0034	
P.O. Box 165 Derry, NH 03038						
Boring # B-3		Project: McMahon Associates Test Drilling			Project # 144401	
Project Address: Washington Street			City: Holliston		State: MA Zip:	
Date Start: 05/3/2017		Date End: 05/3/2017			Location: See Plan	
Casing: HW Size: 4" Hammer: 300 lb. Fall: 24"		Sampler: S/S		140lbs Fall:30"		Sampler: 1-3/8 in. I.D. 30 in.
G R O U N D W A T E R O B S E R V A T I O N						
Date: 05/03/17	Depth:		Casing:			Stabilization Period
DP	S./#	DEPTH	PEN	REC	BLOWS/6"	S/C
	S-1	0' – 2'	24"	18"	7-7-14-14	
5'0"	S-2	4' – 6'	24"	12"	10-15-12-15	
10'0"	S-3	9' – 11'	24"	9"	5-6-9-8	
15'0"	S-4	14' – 16'	24"	16"	5-5-6-9	
20'0"	S-5	19' – 21'	24"	24"	5-9-9-8	21'
25'0"						
30'0"						
Drillers. Kenneth Smith			Helper: Nick Raiche			Inspector: None
Remarks: Boring log is not to scale.						
S/#: Sample			PEN: Penetration		REC: Recovery	S/C: Strata Change

(603) 437-1610		New England Boring Contractors P.O. Box 165 Derry, NH 03038			Fax: (603) 437-0034		
Boring # B-4		Project: McMahon Associates Test Drilling			Project # 144401		
Project Address: Washington Street		City: Holliston			State: MA Zip:		
Date Start: 05/2/2017		Date End: 05/2/2017			Location: See Plan		
Casing: HW Size: 4" Hammer: 300 lb. Fall: 24"		Sampler: S/S			140lbs Fall: 30"		Sampler: 1-3/8 in. I.D. 30 in.
G R O U N D W A T E R O B S E R V A T I O N							
Date: 05/02/17	Depth:		Casing:			Stabilization Period	
DP	S./#	DEPTH	PEN	REC	BLOWS/6"	S/C	SAMPLE DESCRIPTION
	S-1	0' – 2'	16"	4"	10-33-100	6"	CONCRETE
	S-2	4' – 6'	24"	10"	10-8-8-9		Dry, very dense, brown FINE TO COARSE SAND, trace fine gavel, trace inorganic silt. Dry, medium dense, brown FINE SAND, trace inorganic silt.
5'0"							
10'0"	S-3	9' – 11'	24"	12"	4-7-10-14	10'	Dry, medium dense, brown FINE SAND, trace inorganic silt.
15'0"	S-4	14' – 16'	24"	20"	8-8-9-10		Dry, medium dense, gray FINE SAND, trace inorganic silt.
20'0"	S-5	19' – 21'	24"	17"	8-10-12-9	21'	Dry, medium dense, gray FINE SAND, trace inorganic silt.
25'0"							Bottom of Exploration = 21'
30'0"							
Drillers: Kenneth Smith			Helper: Nick Raiche and Brett Raiche			Inspector: None	
Remarks: Boring log is not to scale.							
S/#: Sample			PEN: Penetration		REC: Recovery		S/C: Strata Change

(603) 437-1610		New England Boring Contractors P.O. Box 165 Derry, NH 03038			Fax: (603) 437-0034		
Boring # B-5		Project: McMahon Associates Test Drilling			Project # 144401		
Project Address: Washington Street		City: Holliston			State: MA Zip:		
Date Start: 05/1/2017		Date End: 05/1/2017			Location: See Plan		
Casing: HW Size: 4" Hammer: 300 lb. Fall: 24"		Sampler: S/S		140lbs Fall: 30"		Sampler: 1-3/8 in. I.D. 30 in.	
G R O U N D W A T E R O B S E R V A T I O N							
Date: 05/01/17	Depth: 11'		Casing:			Stabilization Period	
DP	S./#	DEPTH	PEN	REC	BLOWS/6"	S/C	SAMPLE DESCRIPTION
5'0"	S-1	1' – 3'	24"	19"	9-13-8-7	10"	ASPHALT
	S-2	5' – 7'	24"	17"	2-3-3-4		Dry, medium dense, brown FINE SAND, trace coarse sand, trace inorganic silt.
	S-3	10' – 12'	24"	16"	1-2-2-4		Dry, loose, brown FINE TO COARSE SNAD, trace inorganic silt.
	S-4	15' – 17'	24"	18"	2-3-3-3		Wet, loose, brown FINE SAND, some inorganic silt.
	S-5	20' – 22'	24"	24"	2-4-8-7	21'6"	Wet, loose, brown FINE SAND, some inorganic silt.
						22'	Wet, medium dense, gray FINE TO COARSE SAND, trace inorganic silt.
							Bottom of Exploration = 22'
Drillers. Kenneth Smith			Helper: Donald Palmer			Inspector: None	
Remarks: Boring log is not to scale.							
S/#: Sample			PEN: Penetration		REC: Recovery		S/C: Strata Change

(603) 437-1610		New England Boring Contractors P.O. Box 165 Derry, NH 03038			Fax: (603) 437-0034		
Boring # B-6		Project: McMahon Associates Test Drilling			Project # 144401		
Project Address: Washington Street		City: Holliston			State: MA Zip:		
Date Start: 05/3/2017		Date End: 05/3/2017			Location: See Plan		
Casing: HW Size: 4" Hammer: 300 lb. Fall: 24"		Sampler: S/S		140lbs Fall: 30"		Sampler: 1-3/8 in. I.D. 30 in.	
G R O U N D W A T E R O B S E R V A T I O N							
Date: 05/03/17		Depth:		Casing:		Stabilization Period	
DP	S./#	DEPTH	PEN	REC	BLOWS/6"	S/C	SAMPLE DESCRIPTION
5'0"	S-1	1' – 3'	24"	6"	32-26-19-15	6"	ASPHALT
	S-2	4' – 6'	24"	10"	30-15-18-16		Dry, very dense, gray FINE TO COARSE SAND, trace fine gravel, trace inorganic silt. Dry, dense, brown FINE SAND, trace inorganic silt.
	S-3	9' – 11'	24"	12"	18-17-15-19		Dry, dense, brown FINE TO COARSE SAND, trace inorganic silt.
	S-4	14' – 16'	24"	12"	60-27-34-28		Dry, very dense, brown FINE TO COARSE SAND, some inorganic silt, some medium to coarse gravel.
10'0"						18'	Roller bit refusal at 18'
15'0"							Bottom of Exploration = 18'
Drillers. Kenneth Smith			Helper: Nick Raiche and Jeff Roy			Inspector: None	
Remarks: Boring log is not to scale.							
S/#: Sample			PEN: Penetration		REC: Recovery		S/C: Strata Change

(603) 437-1610			New England Boring Contractors			Fax: (603) 437-0034		
			P.O. Box 165					
			Derry, NH 03038					
Boring # B-7		Project: McMahon Associates		Project # 144401				
		Test Drilling						
Project Address: Washington Street				City: Holliston		State: MA		Zip:
Date Start: 05/3/2017				Date End: 05/3/2017		Location: See Plan		
Casing: HW		Sampler:		140lbs		Sampler:		
Size: 4"		S/S		Fall:30"		1-3/8 in. I.D.		
Hammer: 300 lb.		Fall: 24"				30 in.		
G R O U N D W A T E R O B S E R V A T I O N								
Date: 05/03/17	Depth:			Casing:			Stabilization Period	
DP	S./#	DEPTH	PEN	REC	BLOWS/6"	S/C	SAMPLE DESCRIPTION	
5'0"	S-1	0' – 2'	24"	12"	8-40-45-7	21'	Dry, very dense, brown FINE TO COARSE SAND, some coarse gravel, trace concrete.	
	S-2	4' – 6'	24"	1"	3-4-6-5		Dry. loose, brown FINE TO COARSE SAND, trace inorganic silt.	
	S-3	9' – 11'	24"	6"	12-14-21-26		Dry, dense, brown FINE SAND, some inorganic silt, trace fine to coarse sand.	
	S-4	14' – 16'	24"	9"	25-83-40-39		Dry, very dense, brown FINE TO COARSE SAND, some inorganic silt, trace medium to coarse gravel.	
20'0"	S-5	19' – 21'	24"	9"	31-40-30-45		Dry, very dense, brown FINE TO COARSE SAND, some inorganic silt, trace medium to coarse gravel.	
							Bottom of Exploration = 21'	
Drillers. Kenneth Smith			Helper: Nick Raiche and Jeff Roy			Inspector: None		
Remarks: Boring log is not to scale.								
S/#: Sample			PEN: Penetration			REC: Recovery		S/C: Strata Change

(603) 437-1610		New England Boring Contractors P.O. Box 165 Derry, NH 03038			Fax: (603) 437-0034	
Boring # B-8		Project: McMahon Associates Test Drilling			Project # 144401	
Project Address: Washington Street		City: Holliston		State: MA Zip:		
Date Start: 05/1/2017		Date End: 05/1/2017		Location: See Plan		
Casing: HW Size: 4" Hammer: 300 lb. Fall: 24"		Sampler: S/S		140lbs Fall: 30"		
				Sampler: 1-3/8 in. I.D. 30 in.		
G R O U N D W A T E R O B S E R V A T I O N						
Date: 05/01/17	Depth: 11'		Casing:			Stabilization Period
DP	S./#	DEPTH	PEN	REC	BLOWS/6"	S/C
						SAMPLE DESCRIPTION
						8"
	S-1	1' – 3'	24"	20"	6-8-10-12	ASPHALT
5'0"	S-2	5' – 7'	24"	24"	3-5-5-5	Dry, medium dense, brown FINE SAND, trace coarse sand and inorganic silt.
10'0"	S-3	10' – 11'5"	17"	16"	4-13-100/5"	Dry, loose, brown FINE SAND, trace inorganic silt.
15'0"	S-4	15' – 17'	24"	14"	17-30-35-13	Wet, very dense, brown FINE SAND AND COARSE GRAVEL, some inorganic silt, some coarse sand.
						~15'
20'0"	S-5	20' – 22'	24"	20"	8-15-18-13	Wet, very dense, brown FINE SAND AND COARSE GRAVEL, some inorganic silt, some coarse sand, bottom 4" weathered bedrock.
						22'
						Bottom of Exploration = 22'
Drillers: Kenneth Smith			Helper: Cody Richards			Inspector: None
Remarks: Boring log is not to scale.						
S/#: Sample			PEN: Penetration		REC: Recovery	S/C: Strata Change