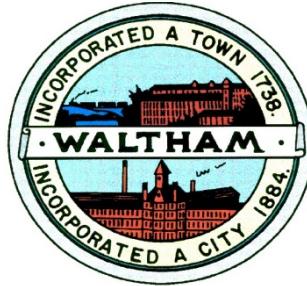


The City of Waltham



**Invites
Interested Parties
To propose the best offer and or bid
For the service or product herewith described:**

**Parking Lot Construction, Council on Aging and Senior Center
488 Main Street, Waltham, MA 02452**

The General bid opening will be held: 10:00AM Thursday Septemeber 28, 2017

Filed Sub Bid Opening (Electric): 10:00 AM Wednesday September 20, 2017

Last Day for Written Questions: 12 Noon September 15, 2017

(Via E-Mail Only to jpedulla@city.waltham.ma.us)

Pre-bid Meeting and Site Visit: 10:00 AM Thursday September 14, 2017

(Meet at 488 Main Street, Waltham MA 02452)

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100% BID DOCUMENTS
SENIOR CENTER PARKING
WALTHAM, MASSACHUSETTS
Marshall/Gary Project No. 1701

July 2017

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DIVISION 00

SECTION 00 00 02

INVITATION TO BID

The City of Waltham, the Awarding Authority, invites sealed bids for rhw Senior Center Parking , Waltham, Massachusetts, in accordance with Drawings and Specifications prepared by Marshall/Gary LLC, 17 Naumkeag Row, Danvers, MA 01923, (Tel. 617-699-6644). Bidding procedures shall be in accordance with applicable portions of Massachusetts General Laws Chapter 149 and Chapter 193 of the Acts of 2004, as amended to date.

The Work of this Contract for construction of the Site Improvements is scheduled to be substantially completed within **ninety (90) days** after award of Contract.

Sealed Bids for the General Contract will be received by Joseph Pedulla, CPO, Purchasing Department, City Hall, and 610 Main Street, Waltham, MA 02452 until the date an time indicated in the cover page. At that time all bids will be publicly opened and read aloud.

Bids are available only in the City web site at www.city.waltham.ma/open bids

Bids must be submitted on the Bid Form included herein. The Bids shall be completely filled in, signed, enclosed in an envelope, sealed and plainly marked with the project name. The Bids shall be filed with the Owner at the location designated above accompanied by a bid deposit in the form of a bid bond or cash or a certified check on, or a treasurer's or cashier's check issued by, a responsible bank or trust company payable to the City of Waltham in the amount of 5% of the bid.

A 5% bid bond shall be:

- (a) In a form satisfactory to the Owner;
- (b) With a surety company qualified to do business in the Commonwealth of Massachusetts and satisfactory to the Owner;
- (c) Conditioned upon the faithful performance by the principal of the agreements contained in the General Bid.

A performance Bond and also a Labor and Materials Payment Bond, each of a surety company qualified to do business under the laws of the Commonwealth and satisfactory to the Owner and each in the sum of 100% of the Contract Price will be required of the successful general bidder.

The rate per hour of the wages to be paid to mechanics, teamsters, chauffeurs and laborers in the Work to be performed shall not be less than the rate of wages determined for this Work by the Commissioner of Labor and Industries of the Commonwealth of Massachusetts under the provisions of General Laws, Chapter 149, Section 28, as amended, a schedule of which appears in the Specifications.

The successful bidder will be required to provide insurance for the payment of compensation and the

100% BID DOCUMENTS
SENIOR CENTER PARKING
WALTHAM, MASSACHUSETTS
Marshall/Gary Project No. 1701

June 2017

furnishing of other benefits under the Workmen's Compensation Law, General Laws, Chapter 152, to all persons to be employed under the Contract, and sufficient proof of compliance with the forgoing stipulation will be required before commencing performance of this Contract.

All bids shall remain in effect for ninety (90) days, Saturdays, Sundays and legal holidays excluded, after the opening of the Bids.

Non Mandatory Pre-Bid Conference: All bidders are alerted to the fact that a pre-bid site inspection will be conducted at the Project Site, 488 Main Street, Waltham, MA on the date reported in the cover page

The Owner reserves the right to waive any informality and to reject any or all bids if it be in the public interest to do so.

END OF INVITATION TO BID

SECTION 00520

AGREEMENT

This Agreement is made this _____ day of _____ in the year two thousand seventeen between the City of Waltham, hereinafter called City of Waltham and _____ hereinafter called Contractor.

City of Waltham and Contractor hereby agree as follows:

ARTICLE 1 WORK

1.1 Contractor shall complete all Work as specified or indicated in the Contract Documents.

ARTICLE 2 ENGINEER

2.1 Engineer will act as the City of Waltham's representative, assuming all duties and responsibilities, rights and authority assigned to Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE 3 CONTRACT TIMES

3.1 Dates for Final Payment

A. The Work will be completed and ready for final payment **within 90 days from the date of the Notice to Proceed.**

3.2 Liquidated Damages

A. Contractor and the City of Waltham recognize that time is of the essence and that the City of Waltham will suffer financial loss if the Work is not completed within the times specified in Paragraph 3.1 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. The parties also recognize the delays, expense, and difficulties involved in proving in a legal litigation proceeding the actual loss suffered by the City of Waltham if the Work is not completed on time. Accordingly, instead of requiring any such proof, the City of Waltham and Contractor agree that as liquidated damages for delay (but not as a penalty), Contractor shall pay the City of Waltham **\$1,000 for each day** that expires after the time specified in Paragraph 3.1 for completion and readiness for final payment until the Work is completed and ready for final payment.

ARTICLE 4 CONTRACT PRICE

- 4.1 The City of Waltham shall pay Contractor for completion of the Work in accordance with the Contract Documents an amount in current funds equal to the prices stated in Contractor's Bid, attached hereto as an exhibit.
- 4.2 The total amount will be adjusted by measurement of actual installed quantities in strict conformity with the provisions contained herein.
- 4.3 The total amount will be adjusted on a monthly basis when the monthly cost change for each of the following exceeds plus or minus five percent: fuel (both diesel and gasoline), asphalt, and Portland cement contained in concrete. Section 01270 contains monthly price adjustment provisions for each of the above materials.

ARTICLE 5 PAYMENT PROCEDURES

- 5.1 Applications for Payment shall be processed in accordance with Article 14 of the General Conditions and in accordance with Massachusetts General Law.
- 5.2 The City of Waltham shall make progress payments on account of the Contract Price on the basis of processed Applications for Payment monthly during construction. All progress payments will be measured by the schedule of values established in Paragraph 2.07.A of the General Conditions, or in the event there is no schedule of values, as provided in the General Requirements.
- 5.3 The City of Waltham shall retain from progress payments 5 percent of the value of Work completed.
- 5.4 A retainage of 5% for materials and 5% for labor shall be applied to all payment requests.

ARTICLE 6 CONTRACTOR'S REPRESENTATIONS

- 6.1 Contractor makes the following representations:
 - A. Contractor has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.
 - B. Contractor has visited the site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 - C. Contractor is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work.
 - D. Contractor has carefully studied all:
 1. reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site (except

Underground Facilities), if any, that have been identified in Paragraph SC-4.02 of the Supplementary Conditions as containing reliable “technical data,” and

- E. Contractor has considered the information known to Contractor; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; and the Site-related reports and drawings identified in the Contract Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, including any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Contract Documents; and (3) Contractor’s safety precautions and programs.
- F. Based on the information and observations referenced in Paragraph 6.1 above, Contractor does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract Documents.
- G. Contractor is aware of the general nature of Work to be performed by City of Waltham and others at the Site that relates to the Work as indicated in the Contract Documents.
- H. Contractor has given the City of Waltham written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
- I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

ARTICLE 7 CONTRACT DOCUMENTS

7.1 Contents

- A. The Contract Documents consist of the following:
 - 1. This Agreement;
 - 2. Performance Bond;
 - 3. Payment Bond;
 - 4. General Conditions (title pages, table of contents, and pages 00700-1 to 00700-62, inclusive);

6. General Requirements;
7. Specifications ;
8. LEFT BLANK INTENTIONALLY;
9. Drawings

10. Addenda (numbers _____ to _____, inclusive);
11. Compliance Documents
12. Exhibits to this Agreement (enumerated as follows):
 - a. Contractor's Sub Bid - Electric;
 - b. Documentation submitted by Contractor prior to Notice of Award, if any;
13. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:
 - a. Notice to Proceed;
 - b. Written Amendments;
 - c. Work Change Directives;
 - d. Change Order(s).

- C. There are no Contract Documents other than those listed above in this Article

- D. The Contract Documents may only be amended, modified, or supplemented
In writing.

ARTICLE 8 MISCELLANEOUS

8.1 Terms

- A. Terms used in this Agreement will have the meanings indicated in the General Conditions

8.2 Assignment of Contract

- A. No assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction

may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

8.3 Successors and Assigns

- A. The City of Waltham and Contractor each binds itself, its partners, successors, assigns, and legal representatives to the other party hereto, its partners, successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

8.4 Severability

- A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon the City of Waltham and Contractor, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

8.5 Contractor Certifications

- A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 8.5:
 - 1. “corrupt practice” means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process or in the Contract execution;
 - 2. “fraudulent practice” means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of the City of Waltham, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive the City of Waltham of the benefits of free and open competition;
 - 3. “collusive practice” means a scheme or arrangement between two or more Bidders, with or without the knowledge of the City of Waltham, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
 - 4. “coercive practice” means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

8.6 LEFT BLANK INTENTIONALLY

- 8.7 The Contractor shall not discriminate against or exclude any person from participation herein on grounds of race, religion, color, sex, age, or national origin; and that it shall take affirmative actions to insure that applicants are employed, and that employees are treated during their employment, without regard to race, religion, color, sex, age, handicapped status, or national origin.
- 8.8 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 1986, as amended, or engage in conduct declared to be unlawful by Section 2 of Chapter 151E of the Massachusetts General Laws.
- 8.9 The Contractor agrees that it will fully comply with Subpart C of 2 CFR Part 180 and 2 CFR Part 1532, entitled Responsibilities of Participants Regarding Transactions (Doing Business with Other Persons). The Contractor shall not award any subcontracts or purchase any materials from suppliers that appear on the Excluded Parties List System. The Contractor shall include this requirement in each subcontract and require it to be included in all subcontracts regardless of tier. The Contractor shall maintain reasonable records to demonstrate compliance with these requirements.

IN WITNESS WHEREOF, the City of Waltham and Contractor have signed this Agreement. Counterparts have been delivered to the City of Waltham and Contractor. All portions of the Contract Documents have been signed or identified by the OwnerCity of Waltham and Contractor or on their behalf.

This Agreement will be effective on _____, _____ (which is the Effective Date of the Agreement).

CITY OF WALTHAM:

CONTRACTOR:

By: Jeannette A. McCarthy
Title: Mayor _____
|

By: _____
Title: _____
[CORPORATE SEAL]
Attest _____

Stephen Casazza, City Engineer
Date: _____

Address for giving notices:

Joseph Pedulla, Purchasing Agent
Date: _____

License No. _____
(Where applicable)

(If Contractor is a corporation or a partnership, attach evidence of authority to sign.)

Luke Stanton Asst. City Solicitor
Date: _____

As to form only

Paul Centofanti, Auditor
Date: _____

Attests as to the availability of funds

As required by M.G.L. Chapter 44
Section 31c, this is to certify that the
City of Waltham has an appropriation
which is adequate to cover the cost of
this Contract.

W-2046/12/16/14

00520-7

Agreement

END OF SECTION

SECTION 00 00 04

INSTRUCTIONS TO BIDDERS

- A. **FOREWORD:** The attention of all bidders is called to the provisions of Sections 26 - 29, inclusive, of Chapter 149 of the General Laws, as amended.
- B. **GENERAL:** The City of Waltham, Massachusetts, the Awarding Authority invites proposals for the Work described in the Contract Documents attached hereto. Before submitting his/her proposal each bidder shall visit the site, examine its conditions, thoroughly acquaint himself/herself with its obstacles and advantages for performing the Work, and compare the Contract Documents with the conditions found. All proposals submitted shall be subject to all applicable provisions of law, including, without limiting the generality of the foregoing, Chapter 149 of the General Laws, as amended.
- C. **QUESTIONS:** All questions as to the interpretation of the Contract Documents shall be submitted in writing to jpedulla@city.waltham.ma.us. No questions will be answered unless received at least seven days, Saturdays, Sundays and legal holidays excluded prior to the expiration of the time set for filing Bids.
- D. **BID FORM:** The Bid Form to be used is included in the Project Manual.
- E. **CONTRACT DOCUMENTS:** The Awarding Authority will, upon deposit of the amount per set as designated in the Invitation to Bid for the return of same in good condition, furnish one (1) complete set of Contract Documents to each Bidder requesting same. No partial sets of Contract Documents will be issued.
- F. **REJECTION OF CERTAIN GENERAL BIDS AND CERTAIN SUB-BIDS REQUIRED BY LAW:** The law requires that every bid, which are not accompanied by the prescribed bid deposit or which is not on a form furnished by the Landscape Architect or Awarding Authority or otherwise does not conform with Sections 26 to 29 inclusive, of Chapter 149 of the General Laws, as amended, or which is on a form not completely filled in or which is incomplete, conditional, or obscure, or which contains any addition not called for, shall be rejected by the Awarding Authority.
- G. **FURTHER RIGHT TO REJECT BIDS:** The Awarding Authority further reserves the right to reject any or all bids if it is in the public interest.
- H. **BIDS:** Bids must be submitted on the FORM FOR GENERAL BID, a sample of which is bound into the Contract Documents as Section 00 41 13 and may be removed and used for additional copies. The Bid shall be completely filled in, signed, enclosed in an envelope, sealed and plainly marked with the Project Name. The bid accompanied by a bid deposit in the amount of five percent (5%) of the bid price shall be filed with the Awarding Authority at the place designated in the Invitation to Bid. The bid shall be filed before the time designated in the Invitation to Bid for the opening of Bids.

100% BID DOCUMENTS
ADA PARKING LOT RECONSTRUCTION
WALTHAM, MASSACHUSETTS
Marshall/Gary Project No. 1402

July 2017

- I. Bids shall be for the complete Work as specified and the Contractor shall be selected on the basis of such Bids.
4. If the bid is mailed, the Bidders shall enclose their sealed bid in an outer envelope and address as follows:

FROM: General Bidder's Name and Business Address

TO: Joseph Pedulla, CPO
Purchasing Department
City Hall, 610 Main Street
Waltham, MA 02452

- I. **REQUIREMENTS FOR FOREIGN CORPORATIONS:** The attention of all bidders is called to the provisions of General Laws Chapter 30, Section 39L, which provides that the Awarding Authority may not enter into a contract for construction Work furnishing labor and materials for a part of any such Work a foreign corporation which has not complied with the requirements of Sections 3 and 5 of Chapter 181 of the General Laws. The term "foreign corporation" means a corporation not incorporated under the laws of the Commonwealth of Massachusetts.
- J. **SALES TAX:** Purchases of building materials and supplies to be used on this project are entitled to exemption from the Sales and Use Tax if the conditions imposed by Paragraph 6 (f) of Section I of Chapter I4 of the Acts of 1966 are otherwise satisfied. Bidders are instructed to submit proposals on the basis that no Massachusetts Sales and Use Tax will be imposed on purchases of building materials and supplies used in connection with this Project.
- K. **CONSTRUCTION TIME:** The Agreement will include a stipulation that the Work be completed in a period of **ninety (90) days** following receipt of the Owner's Notice to Proceed. If the Contractor fails to meet the construction deadline, the Contractor is responsible for all Owner and Landscape Architect costs associated with the deadline not being met. The Landscape Architect is to perform two on-site punch lists. If additional punch lists are needed, the Contractor shall be responsible for all Owner and Landscape Architect costs associated with the additional punch list visits.
- L. **LIQUIDATED DAMAGES:** The Contractor shall pay to the City of Waltham as liquidated damages the sum of five hundred dollars (\$500) per day for each calendar each day beyond the completion date for the project under the Contract.
- L. **BID CHECK LIST:** Bids submitted should include the following documents: **Bid Form, Bid Deposit or Bond, Qualifications Data and Compliance section** A bidder may withdraw his bid, either personally or by written request, at any time prior to the scheduled time for opening bids. No bidder may withdraw his bid for a period of thirty calendar days after the date set for the opening thereof, and bids shall be subject to acceptance by the Owner during this period

100% BID DOCUMENTS
ADA PARKING LOT RECONSTRUCTION
WALTHAM, MASSACHUSETTS

July 2017

Marshall/Gary Project No. 1402

- M. **WITHDRAWAL OF BIDS:** A bidder may withdraw his bid, either personally or by written request, at any time prior to the scheduled time for opening bids. No bidder may withdraw his bid for a period of thirty calendar days after the date set for the opening thereof, and bids shall be subject to acceptance by the Owner during this period.

N. **EXECUTION OF CONTRACT**

The form of Contract which the successful bidder will be required to execute is included in the Project Manual.

The bidder to whom the Contract is awarded shall, within fifteen calendar days after notice of award and receipt of Agreement forms from the Owner, sign and deliver required copies to the Owner.

At or prior to delivery of the signed Agreement, the bidder to whom the Contract is awarded shall deliver to the Owner those Certificates of Insurance required by the Contract Documents and such Labor and Materials Payment Bonds and Performance Bond as are required by the Owner.

Bonds and Certificates of Insurance shall be approved by the Owner before the successful bidder may proceed with the Work. Failure or refusal to provide Bonds or Certificates of Insurance in a form satisfactory to the Owner shall subject the successful bidder to loss of time from the allowable construction period equal to the time of delay in furnishing the required material.

- O. **METHOD OF AWARD:** The contract will be awarded to the lowest responsible and eligible general bidder on the basis of the proposed contract price if such exists, and if the Awarding Authority, in its sole discretion, decides to award on the basis of such alternate. Special attention is called to the provisions of the General Laws, Chapter 149, Sections 44A to 44H defining the term "lowest responsible and eligible bidder" and giving the Awarding Authority the right to require essential information in regard to qualifications.

END OF INSTRUCTIONS TO BIDDERS

SECTION 00 00 05

GENERAL CONDITIONS

1. **INFORMATION**

All information shall come from the Office of the City Purchasing Agent. The Contractor shall inquire at this office for any information needed. Wherever the words “or equal as approved” are used, it is to be understood that the opinion of the City Purchasing Agent shall govern.

2. **SUITS**

The Contractor shall assume defense of and shall indemnify and hold the City and its agents harmless from all suits and claims against the City and its sub-contractors arising from the use of any invention, patent right labor or employment, or from any act of omission or neglect of the City, its agents, employees or any subcontractor in performing the work, under this contract.

3. **LAWS AND REGULATIONS**

The Contractor shall conform to all the applicable rules, regulations, laws and ordinances of the City of Waltham, the Commonwealth of Massachusetts, the United States of America and all agencies having jurisdiction over this contract.

4. **PROTECTION OF PROPERTY**

The Contractor shall take all proper precautions to protect the City’s property from damage and unnecessary inconvenience. Any City property damaged by the Contractor in carrying out the provisions of this contract shall be restored to its original condition, by and at the expense of the Contractor.

5. **PROTECTION OF PERSONS**

The Contractor shall take all proper precautions to protect persons from injury, unnecessary inconvenience, and shall be responsible for his failure to do so. The Contractor agrees to hold the City harmless from any and all liabilities of every nature and description, which may be suffered through bodily injury, including death, to any person, by reason of negligence of the Contractor, his agents or employees, or any subcontractor.

6. **CONTRACT DURATION.**

This contract is for the period required to complete the project

7. INSURANCE

A. WORKMAN’S COMPENSATION: The Contractor shall provide by insurance for the payment of compensation and furnishing of other benefits under Chapter 152 of the General Laws of the Commonwealth of Massachusetts to all persons to be employed under this contract, the premiums for which shall be paid by the Contractor.

B. COMPREHENSIVE GENERAL LIABILITY

Bodily Injury:	\$1,000,000 Each Occurrence
	\$2,000,000 Aggregate
Property Damage:	\$1,000,000 Each Occurrence
	\$2,000,000 Aggregate

C. AUTOMOBILE (VEHICLE) LIABILITY

Bodily Injury	\$2,000,000 Each Occurrence
Property Damage	\$1,000,000 Aggregate

D. UMBRELLA POLICY

General liability	\$2,000,000
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Your bid response must include a Certificate of Insurance with the above limits as a minimum.

In addition, the Certificate of Insurance must have the following text contained in the bottom

left box of the Certificate: “The City of Waltham is a named Additional Insured for all

Insurance”. The Certificate of Insurance must be mailed directly to:

Office of the Purchasing Agent
Purchasing Department
City of Waltham
610 Main Street
Waltham, MA 02452

8. LABOR AND MATERIALS BOND

The Contractor agrees to execute and deliver to the City, a Performance Bond and Materials or Payment Bond EACH equal to 100% of the contract value. This contract shall not be in force until said bond has been delivered and accepted by the City. Bond to be issued by a company licensed by the Commonwealth of Massachusetts.

A LETTER FROM A SURETY COMPANY CERTIFYING THAT THE CONTRACTOR IS QUALIFIED AND CAPABLE OF OBTAINING THE ABOVE BONDS MUST BE INCLUDED WITH HIS/HERS BID.

9. PERSONNEL:

The Contractor shall employ a competent supervisor and all properly licensed personnel necessary to perform the services required in this contract. The City Purchasing Agent shall have the right to require the Contractor to remove and/or replace any of the personnel for nonperformance or for unprofessional behavior. The City Purchasing Agent may require the Contractor to submit a weekly performance record of the areas and of the work performed, on forms approved by the City Purchasing Agent. The Contractor or his supervisor shall be available to inspect such work as required by the City Purchasing Agent.

10. PREVAILING WAGES

The prevailing Wage Schedule is available in the city web site at www.city.waltham.ma.us/open/bids . The Prevailing Wage Schedule is too large to attach here. The Contractor is required to pay the prevailing wages as determined under the provisions of Chapter 149, Sections 26 and 27D of the Massachusetts General Laws, including the submission of weekly payrolls to the awarding authority. No payments will be made until all certified payrolls are submitted for the period of the payment request.

11. MATERIALS

The City or its Agent reserves the right to approve or reject any supplies, material or equipment used by the Contractor. The Contractor agrees to replace any supplies, material or equipment used by the Contractor. The Contractor agrees to replace any rejected supplies, materials or equipment, to the satisfaction of the City or its Agents.

12. TERMINATION OF CONTRACT

This contract may be terminated by the City upon deliverance to the Contractor of a five-day written notice of said termination.

13. CONTRACT OBLIGATIONS

Contract obligations on behalf of the City are subject to an annual appropriation to cover the contract obligation.

14. BIDDER EXPERIENCE EVALUATION

Each bidder shall submit with his bid, all the information relative to their experience and qualifications in performing the work required under this contract and shall have been in business for a minimum of five (5) years, in order for their bid to be considered.

15. NOT-TO-EXCEED AMOUNT

The bid amount proposed in your company's response is a "not-to- Exceed" amount unless the City makes changes, in writing, to the scope of work to be performed. The Change Order must be signed and approved by the City's Purchasing Agent, City Auditor, Law Department and the Mayor prior to the commencement of the change order work. No work is to begin until the proper approvals have been obtained. A change order will be priced at the unit price. Failure to comply with this procedure will result in the cancellation of the contract and the non-payment of services provided

16. FINANCIAL STATEMENTS.

The City may require, within five (5) days after the bid opening, a complete and detailed Financial Statement prepared by a Certified Public Account, to determine a bidder's financial stability.

17 BREACH OF CONTRACT/ NON PERFORMANCE

If the Contractor shall provide services in a manner, which is not to the satisfaction of the City, the City may request that the Contractor refurnish services at no additional cost to the City until approved by the City. If the Contractor shall fail to provide services, which are satisfactory to the City, the City in the alternative may make any reasonable purchase or Contract to purchase services in substitution for those due from the Contractor. The City may deduct the cost of any substitute Contract for nonperformance of services together with incidental and consequential damages from the Contract price and shall withhold such damages from sums due or to become due to the Contractor. If the damages sustained by the City exceed sums due or to become due, the Contractor shall pay the difference to the City upon demand. The Contractor shall not be liable for any damages sustained by the City due to the Contractor's failure to furnish services under the terms of this Contract if such failure is in fact caused by the occurrence of a contingency the nonoccurrence of which was a basic assumption under which this Contract was made, including a

state of war, embargoes, expropriation of labor strike or any unanticipated federal, state or municipal governmental regulation of order, provided that the Contractor has notified the City in writing of such cause within seven (7) days after its occurrence.

18 RIGHT TO AUDIT

The City of Waltham has the right to review and audit documents related to this contract. This right extends to any subcontractor, supplier or other entity used by the prime contractor to fulfill the obligations under this contract.

19. CITY ORDINANCE. APPROVAL OF CONTRACTS BY MAYOR, SEC. 3-12 OF THE CITY ORDINANCES.

All contract made by any department, board or commission where the amount involved is two thousand dollars (\$2,000) or more shall be in writing, and no such contract shall be deemed to have been made or executed until the approval of the Mayor is affixed thereto. Any construction contract shall, and all other contracts may, where the contract exceed five thousand dollars (\$5,000) be required to be accompanied by a bond with sureties satisfactory to the Mayor.

20. BID OPENING INCLEMENT WEATHER

If, at the time of the originally scheduled bid opening, City Hall is closed to inclement weather or another unforeseeable event, the bid opening will be extended until 2:00 PM on the next normal business day. Bids will be accepted until that date and time.

21. SIGNATURES

No electronic signatures will be accepted in the Vote authorization form. The Notary Public signature must be an original Signature.

22. NOTARY PUBLIC

The notary public signature certification must be from a notary certified in any of the 50 United States

Section 00 00 06

COMPLIANCE FORMS

(PLEASE COMPLETE AND SUBMIT THESE FORMS WITH YOUR RESPONSE)

NON-COLLUSION FORM AND TAX COMPLIANCE FORM

CERTIFICATE OF NON-COLLUSION

The undersigned certifies under penalties of perjury that this bid or proposal has been made and submitted in good faith and without collusion or fraud with any other person. As used in this certification, the word "person" shall mean any natural person, business, partnership, corporation, union, committee, club, or other organization, entity or group of individuals. The undersigned certifies that no representations made by any City officials, employees, entity, or group of individuals other than the Purchasing Agent of the City of Waltham was relied upon in the making of this bid

_____/_____
(Signature of person signing bid or proposal) Date

(Name of business)

TAX COMPLIANCE CERTIFICATION

Pursuant to M.G.L. c. 62C, & 49A, I certify under the penalties of perjury that, to the best of my knowledge and belief, I am in compliance with all laws of the Commonwealth relating to taxes, reporting of employees and contractors, and withholding and remitting child support.

_____/_____
Signature of person submitting bid or proposal Date

Name of business

NOTE

Failure to submit any of the required documents, in this or in other sections, with your bid response package may cause the disqualification of your proposal.

CERTIFICATE OF VOTE OF AUTHORIZATION

Date:

I _____, Clerk of _____ hereby certify that at a meeting of the Board of Directors of said Corporation duly held on the _____ day of _____ at which time a quorum was present and voting throughout, the following vote was duly passed and is now in full force and effect:

VOTED: That _____ (*name*) is hereby authorized, directed and empowered for the name and on behalf of this Corporation to sign, seal with the corporate seal, execute, acknowledge and deliver all contracts and other obligations of this Corporation; the execution of any such contract to be valid and binding upon this Corporation for all purposes, and that this vote shall remain in full force and effect unless and until the same has been altered, amended or revoked by a subsequent vote of such directors and a certificate of such later vote attested by the Clerk of this Corporation.

I further certify that _____ is duly elected/appointed _____ of said corporation

SIGNED:

(Corporate Seal)

Clerk of the Corporation:

Print Name: _____

COMMONWEALTH OF MASSACHUSETTS

County of _____

Date:

Then personally appeared the above named and acknowledged the foregoing instrument to be their free act and deed before me, _____

Notary Public;

My Commission expires: _____

CORPORATION IDENTIFICATION

The bidder for the information of the Awarding Authority furnishes the following information.

If a Corporation:

Incorporated in what state _____

President _____

Treasurer _____

Secretary _____

Federal ID Number _____

If a foreign (out of State) Corporation – Are you registered to do business in Massachusetts?

Yes _____, No _____

If you are selected for this work you are required under M.G.L.ch. 30S, 39L to obtain from the Secretary of State, Foreign Corp. Section, State House, Boston, a certificate stating that you Corporation is registered, and furnish said certificate to the Awarding Authority prior to the award.

If a Partnership: (Name all partners)

Name of partner _____

Residence _____

Name of partner _____

Residence _____

If an Individual:

Name _____

Residence _____

If an Individual doing business under a firm's name:

Name of Firm _____

Name of Individual _____

Business Address _____

Residence _____

Date _____

Name of Bidder _____

By _____

Signature _____

Title _____

Business Address _____ (POST OFFICE BOX NUMBER NOT ACCEPTABLE)

City _____ State _____ Telephone Number _____ Today's Date _____

WEEKLY PAYROLL RECORDS REPORT & STATEMENT OF COMPLIANCE

In accordance with Massachusetts General Law c. 149, §27B, a true and accurate record must be kept of all persons employed on the public works project for which the enclosed rates have been provided, A Payroll Form has been printed on the reverse of this page and includes all the information required to be kept by law. Every contractor or subcontractor is required to keep these records and preserve them for a period of three years from the date of completion of the contract. In addition, every contractor and subcontractor is required to submit, on a weekly basis, a copy of his or her weekly payroll records to the awarding authority. For every week in which an apprentice is employed, a photocopy of the apprentice's identification card must be attached to the payroll report. Once collected, the awarding authority is also required to preserve those reports for three years. In addition, each such contractor, subcontractor, or public body shall furnish to the awarding authority directly, within fifteen days after completion of its portion of the work, a statement, executed by the contractor, subcontractor or public body who supervises the payment of wages, in the following form:

STATEMENT OF COMPLIANCE

_____, 201__

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

I do hereby state that I pay or supervise the payment of the persons employed by

_____ On the _____
(Contractor, subcontractor or public body) (Building or project)

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

Signature _____, Title _____

Print _____, Date _____

RIGHT TO KNOW LAW

Any vendor who receives an order or orders resulting from this invitation agrees to submit a Material Safety Data Sheet (MSDS) for each toxic or hazardous substance or mixture containing such substance, pursuant to M.G.L. c. 111F, §§8,9 and 10 and the regulations contained in 441 CMR 21.06 when deliveries are made. The vendor agrees to deliver all containers properly labeled pursuant to M.G.L. c. 111F §7 and regulations contained in 441 CMR 21.05. Failure to furnish MSDS and/or labels on each container may result in civil or criminal penalties, including bid debarment and action to prevent the vendor from selling said substances, or mixtures containing said substances within the Commonwealth. All vendors furnishing substances or mixtures subject to Chapter 111F or M.G.L. are cautioned to obtain and read the laws, rules and regulations referenced above. Copies may be obtained from the State House Bookstore, Secretary of State, State House, Room 117, Boston, MA (617) 727-2834.

Authorized Signature Indicating Compliance with the Right-to-know laws:

Signature

Date

Print Name

NOTE

Failure to submit any of the required documents, in this or in other sections, with your bid response package may cause the disqualification of your proposal.

DEBARMENT CERTIFICATION

In connection with this bid and all procurement transactions, by signature thereon, the respondent certifies that neither the company nor its principals are suspended, debarred, proposed for debarment, declared ineligible, or voluntarily excluded from the award of contracts, procurement or non procurement programs from the Commonwealth of Massachusetts, the US Federal Government and /or the City of Waltham. "Principals" means officers, directors, owners, partners and persons having primary interest, management or supervisory responsibilities with the business entity. Vendors shall provide immediate written notification to the Purchasing Agent of the City of Waltham at any time during the period of the contract of prior to the contract award if the vendor learns of any changed condition with regards to the debarment of the company or its officers. This certification is a material representation of fact upon which reliance will be placed when making the business award. If at any time it is determined that the vendor knowingly misrepresented this certification, in addition to other legal remedies available to the City of Waltham, the contract will be cancelled and the award revoked.

Company Name _____

Address _____

City _____, State _____, Zip Code _____

Phone Number (____) _____

E-Mail Address _____

Signed by Authorized Company Representative: _____

Print name. _____, Date _____

10 HOURS OSHA TRAINING CONFIRMATION

Chapter 306 of the Acts of 2004

CONSTRUCTION PROJECTS

AN ACT RELATIVE TO THE HEALTH AND SAFETY ON PUBLIC

The undersigned hereby certifies that all employees to be employed at a worksite for construction, reconstruction, alteration, remodeling, repair, installation, demolition, maintenance or repair of any public work or any public building estimated to cost more than \$10,000.00 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 payroll report for each employee and will comply with all laws and regulations applicable to awards of subcontracts subject to section 44F.

Company Name: _____

Address: _____

Signature: _____

Title: _____

Print Name _____

Date _____

See following Chapter 306 of the Acts of 2004

NOTE

Failure to submit any of the required documents, in this or in other sections, with your bid response package will be cause for the disqualification of your company.

PROOF OF CONTRACTOR'S RESPONSIBILITY

Before a contract will be awarded to any bidder, he/she will be required to furnish evidence satisfactory to the City that he/she has all of the following qualifications:

- A. Ability, equipment, organization, and financial resources sufficient or enable him/her to construct and complete the work successfully within the time required.
- B. Experience during the past three (3) years in the successful completion of turf restoration projects, the magnitude of which shall be not less than one-half (1/2) the work herein specified. In this connection, the attention of the bidder is directed to the "Bidder's Experience" attached hereto, which shall be used in determining the responsibility of the bidder. The City may require additional information as necessary to determine the responsibility of the bidder.
- C. An experienced bidder shall be construed to mean that the bidder has an individual within his/her organization with the experience to supervise a job of this nature.

In the event the bidder fails, refuses, or neglects to submit any required information within the reasonable time stated in any request or fails to qualify as a responsible bidder, his/her bid guaranty shall be forfeited to the use of the owner, not as a penalty, but as liquidated damages.

The determination of whether a bidder is responsible shall rest solely with the City.

BIDDER'S EXPERIENCE

The following is a list of the projects similar in character and scope to the work specified under this contract, which have been successfully completed by this bidder during the past three years.

This information must be furnished by each bidder. A completed project is one that has been accepted and the final payment received from the City or authorized representative.

Bidder's Signature

Date

COMPLETE ONLY IF YOUR COMPANY IS AN LLC

**CERTIFICATE OF AUTHORITY
LIMITED LIABILITY COMPANY**

The undersigned, being (a/the) duly elected, qualified and active (member / manager) of _____, a Massachusetts limited Liability Company (hereinafter “the Company”)

Does Hereby Certify that

1. The Articles of Organization of the Company were duly filed with the Office of the Secretary of State of the State of Massachusetts on _____, and the Articles of Organization have not been (further) amended.
2. The Company has complied with the publication requirements contained in Section 67 of the Limited Liability Company Law.
3. There exists an Operating Agreement of the Company and that the said Operating Agreement has not been amended or repealed and that the said Operating Agreement remains in full force and effect as of this date.
4. Neither the Articles of Organization nor the Operating Agreement (as amended) require any further act to be taken or a meeting to be held by its members other than as follows:
5. All said requirements, whether as contained in the Articles of Organization or in the Operating Agreement or by operation of law as to the transaction of _____, 20____ have been met.
6. The following person or persons has/have been duly authorized by the Company to execute all documents in connection with said transaction and that the signature appearing to the right of their name(s) is his/her genuine signature.

NAME	OFFICE HELD	SIGNATURE
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

IN Witness Whereof, the undersigned has executed this Certificate of Authority this _____ day of _____, 20____.

(Signature)

STATE OF MASSACHUSETTS, COUNTY OF _____

On the ____ day of _____, 20____, before me, the undersigned personally appeared _____, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/ they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

Notary Public: _____

My Commission Expires: _____

Notary Stamp:

SECTION 00 09 00

**LABOR STANDARDS
OF THE COMMONWEALTH**

ARTICLE 1 - EMPLOYMENT, HOURS AND WAGES

- 1.1 The Contractor and any Subcontractor shall conform to any Labor Laws of the Commonwealth of Massachusetts, and, without limiting the generality of the foregoing, shall conform to all applicable portions of Massachusetts General Laws, Chapter 30, Section 39A to 39O inclusive, and 39R, Chapter 149, Sections 26 to 29 inclusive, and Chapter 193 of the Acts of 2004, as amended to date, which are incorporated herein by reference and made a part hereof.
- 1.2 Every employee in the Work to be performed under this Contract shall lodge, board and trade where and with whom he elects, and the Contractor and any Subcontractor shall not directly or indirectly require, as a condition of employment in said Work that an employee shall lodge, board or trade at a particular place or with a particular person.
- 1.3 The Contractor and any Subcontractor shall give preference in the employment of mechanics, teamsters, chauffeurs and laborers first to citizens of the Commonwealth who have been residents of the Commonwealth for at least six months at the commencement of their employment who are veterans as defined in clause Forty-three 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 months at the commencement of their employment, and if they cannot be obtained in sufficient numbers, then to citizens of the United States.
- 1.4 No laborer, Workman, mechanic, foreman, or inspector Working in the employment of the Contractor, Subcontractor or other person doing or contracting to do the whole or a part of the Work contemplated by this Contract, shall be required or permitted to Work any more than eight hours in any one day, or more than forty-eight hours in any one week, except in cases of emergency.
- 1.5 The rate per hour of the wages to be paid to mechanics, teamsters, chauffeurs, and laborers in the Work to be performed under this Contract shall not be less than the rate of wages in the schedule annexed hereto and made a part hereof as determined by the Commissioner of Labor and Industries of the Commonwealth. This schedule shall continue to be the minimum rate of wages for said employees during the life of this Contract. The Prevailing Wage Schedule, as referenced here, shall be found at www.city.waltham.ma.us/open-bids
- 1.6 The Contractor shall pay the City of Waltham police officers hired by the Contractor to provide traffic control or other public protection services during the Work of this Contract, the prevailing rate of wages paid to regular police officers in the City of Waltham, as required by General Laws, Chapter 149, Section 24B, as amended. Notwithstanding the above requirement, payment of this item shall be made at the actual rate charged by the City of Waltham Police Department for such services, plus 10% to cover Police Department administrative costs.

- 1.7 Claims and disputes pertaining to the classification of labor or wage determinations made by the Commission of Labor and Industries must be presented by appeal filed with the Department of Labor and Industries within three days from the date of the first advertisement of call for bids; in one manner provided by General Laws, Chapter 14, Section 27A.

ARTICLE 2 - MINIMUM WAGE RATES

- 2.1 The Contractor shall keep posted on the site of the Work a legible copy of the schedule of "Minimum Wage Rates and Health and Welfare Fund Contributions" attached thereto.
- 2.2 The rates listed are straight hourly rates. Apprentices employed pursuant to this determination of wage rates must be registered and approved by the State Apprenticeship Council. Wherever rates for journeymen or apprentices are not listed, and if any other labor is not included in this list, the Contractor shall insert the rates of all those employed on the Work.
- 2.3 The Contractor must keep on file the wage rates and qualifications of all labor employed on this Project in order that they may be available for inspection by the Awarding Authority or the Landscape Architect.

(MINIMUM WAGE RATES AND HEALTH AND WELFARE AND PENSION CONTRIBUTIONS FOLLOW)

END OF SECTION

Section 00 031 10

100% PERFORMANCE BOND

CONTRACTOR *(name and address):*

SURETY *(name and address of principal place of business):*

OWNER *(name and address):*

CONSTRUCTION CONTRACT

Effective Date of the Agreement:

Amount:

Description *(name and location):*

BOND

Bond Number:

Date *(not earlier than the Effective Date of the Agreement of the Construction Contract):*

Amount:

Modifications to this Bond Form: None See Paragraph 16

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

SURETY

Contractor's Name and Corporate Seal *(seal)*

Surety's Name and Corporate Seal *(seal)*

By: _____
Signature

By: _____
Signature *(attach power of attorney)*

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
Signature

Title

Title

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.

3. If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after:

3.1 The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;

3.2 The Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and

3.3 The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

5. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

5.1 Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

5.2 Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;

5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owners concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

5.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:

5.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or

5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:

7.1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

7.2 additional legal, design professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 5; and

7.3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.

9. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.

10. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.

11. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum periods of limitations

available to sureties as a defense in the jurisdiction of the suit shall be applicable.

12. Notice to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.

13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

14. Definitions

14.1 Balance of the Contract Price: The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made including allowance for the Contractor for any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

14.2 Construction Contract: The agreement between the Owner and Contractor identified on the cover page, including all

Contract Documents and changes made to the agreement and the Contract Documents.

14.3 Contractor Default: Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

14.4 Owner Default: Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

14.5 Contract Documents: All the documents that comprise the agreement between the Owner and Contractor.

15. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

16. Modifications to this Bond are as follows:

Section 00 31 11

100% PAYMENT BOND

CONTRACTOR *(name and address):*

SURETY *(name and address of principal place of business):*

OWNER *(name and address):*

CONSTRUCTION CONTRACT

Effective Date of the Agreement:

Amount:

Description *(name and location):*

BOND

Bond Number:

Date *(not earlier than the Effective Date of the Agreement of the Construction Contract):*

Amount:

Modifications to this Bond Form: None See Paragraph 18

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

SURETY

Contractor's Name and Corporate Seal *(seal)*

Surety's Name and Corporate Seal *(seal)*

By: _____
Signature

By: _____
Signature *(attach power of attorney)*

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
Signature

Title

Title

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner to pay for labor, materials, and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.
2. If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Owner from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.
4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.
5. The Surety's obligations to a Claimant under this Bond shall arise after the following:
 - 5.1 Claimants who do not have a direct contract with the Contractor,
 - 5.1.1 have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
 - 5.1.2 have sent a Claim to the Surety (at the address described in Paragraph 13).
 - 5.2 Claimants who are employed by or have a direct contract with the Contractor have sent a Claim to the Surety (at the address described in Paragraph 13).
6. If a notice of non-payment required by Paragraph 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Paragraph 5.1.1.
7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall

promptly and at the Surety's expense take the following actions:

- 7.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and
- 7.2 Pay or arrange for payment of any undisputed amounts.
- 7.3 The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.
8. The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.
9. Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.
10. The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.
11. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.
12. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph

are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

13. Notice and Claims to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.
14. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.
15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

16. Definitions

16.1 **Claim:** A written statement by the Claimant including at a minimum:

1. The name of the Claimant;
2. The name of the person for whom the labor was done, or materials or equipment furnished;
3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;
4. A brief description of the labor, materials, or equipment furnished;
5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;
7. The total amount of previous payments received by the Claimant; and
8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.

16.2 **Claimant:** An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms of "labor, materials, or equipment" that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction Contract, architectural and engineering services required for performance of

the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.

16.3 **Construction Contract:** The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

16.4 **Owner Default:** Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

16.5 **Contract Documents:** All the documents that comprise the agreement between the Owner and Contractor.

17. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

18. Modifications to this Bond are as follows:

SECTION 00 41 12

QUALIFICATION DATA

1) CONTRACT QUALIFICATION DATA

- a) List the exact name of your firm. _____
- b) How many years has your firm been in business under its present business name and business organization structure? _____ Years
- c) How many years has your firm been regularly and actively engaged, performing the type of work described in the specification. _____ Years
- d) Does your firm have a twenty-four (24) hour emergency number that is staffed by a person and not an answering machine? Yes No
 If yes, please list number: () _____

Indicate below three (3) references that will serve to illustrate the ability of your firm to act as the primary contractor for the contract:

Number	Client Name and Address	Contact Person and Telephone
1.		
2.		
3.		

SIGNATURE OF AUTHORIZED INDIVIDUAL _____

SECTION 00 41 13

BID FORM

TO: City of Waltham
Joseph Pedulla, CPO
Purchasing Department
City Hall, 610 Main Street
Waltham, MA 02452

FROM:

- A. The undersigned proposes to furnish all labor and materials required for the construction of:

SENIOR CENTER PARKING, Waltham, Massachusetts

in accordance with the accompanying Contract Documents (plans and specifications) prepared by the Landscape Architect, MARSHALL/GARY, INC, 17 Naumkeag Row, Danvers, Massachusetts for the Bid specified below, subject to additions and deductions according to the terms of the Contract Documents.

- B. This bid includes addenda numbered _____ .

- C. The proposed Total Not To Exceed Bid price for the Senior Center Parking Lot Inclusive of **\$5,000 for police details and an Unforeseen Condition Allowance of \$15,000.00** as specified in Section 002100 is:

_____ Dollars (\$ _____)

- D. The subdivision of the Proposed Base Bid Price is as follows:

Item 1: The Work of the General Contractor, being all Work other than covered by Item 2.

_____ Dollars (\$ _____).

Item2: Filed Sub-bid as follows:

SUB-TRADE NAME _____

SUB-BIDDER AMOUNT \$ _____ BOND REQUIRED

Section 26 00 01 Electrical

- D. TIME OF COMPLETION AND LIQUIDATED DAMAGES: The undersigned agrees to commence work within five business days after the receipt of Notice to Proceed, and to complete the Work within the time stipulated in the General Conditions, subject to adjustment of the Contract Time in accordance with the Contract Documents. In case the Work is not completed within the specified time, it is understood and agreed that the Contractor shall pay the Awarding Authority, not as a penalty but as liquidated damages, the amount set forth in the Contract Documents for each calendar day beyond the date on which completion was required that the work is not so completed, up to and including the day of Substantial Completion or Final Completion.
- E. The undersigned agrees that, if he is selected as General Contractor, he will within five days, Saturdays, Sundays and legal holidays EXCLUDED, after presentation thereof by the Awarding Authority, execute a Contract in accordance with the terms of this bid and furnish a performance bond and also a labor and materials or payment bond, each of a surety company qualified to do business under the laws of the Commonwealth and satisfactory to the Awarding Authority and each in the sum of the contract price, the premiums for which are to be paid by the General Contractor and are included in the contract price.
- F.. 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 Section forty-four A.
- G. The undersigned hereby certifies under the penalties of perjury that this bid is in all respects bona fide, fair and made without collusion or fraud with any other person. As used in this subsection the word "person" shall mean any natural person, joint venture, partnership, corporation or other business or legal entity.
- H.. The undersigned further certifies under penalty of perjury that the said undersigned is not presently debarred from doing public construction work in the Commonwealth under the provisions of section twenty-nine F of chapter twenty-nine, or any other applicable debarment provisions of any other chapter of the General Laws or any rule or regulation promulgated thereunder.

- I. The Bidder hereby certifies he shall comply with the minority manpower ratio and specific action steps contained in the Contract Documents, including compliance with the minority contractor compliance specified. The Contractor receiving the award of the contract shall be required to obtain from each of its subcontractors and submit to the contracting or administering agency prior to the performance of any work under said contract a certification by said subcontractor, regardless of tier, that it will comply with the minority manpower ratio and specific affirmative action steps contained in these Contract Documents.

(Name of Bidder)

By: _____

(Authorized Signature and Title)

(Business Street Address)

(City, State and Zip Code)

(Telephone)

(Fax)

Email Address

(Date)

END OF SECTION

SECTION 00 41 15

FORM FOR SUB-BID

TO:

City of Waltham
Office of Purchasing Agent
Purchasing Department
City Hall, 610 Main Street
Waltham, MA 02452

And
ALL GENERAL BIDDERS EXCEPT THOSE EXCLUDED.

FROM:

- A. The undersigned proposes to furnish all labor and materials required for completing, in accordance with the hereinafter described Contract Documents, including Plans, Specifications and Addenda, all work specified in Section No. 26 00 01, Electrical of the Specifications and in Plans specified in such Section, prepared by Marshall Gary, 17 Naumkeag Row, Danvers, MA 01923 for the Senior Center Parking for the Contract Sum of:

_____ Dollars (\$ _____)

- B. This Bid includes addenda numbered ____, ____, ____, ____, ____

- C. This sub-bid:

____ May be used by all General Bidders except: _____

____ May be used only by the following General Bidders _____

(To exclude General Bidders, insert "X" on one line only and fill in the blank following that line. Do not answer "C" if no General Bidders are excluded.)

D. The undersigned offers the following information as evidence of his qualifications to perform the Work as bid upon according to all the requirement of the Plans and Specifications:

1. Have been in business under present business name ____years.
2. Ever failed to complete any Work awarded? ____ (If yes briefly explain.)
3. List one or more recent projects with name of General Contractor on which you served as Sub-contractor for Work of similar character required for this project.

<u>PROJECT</u>	<u>GENERAL CONTRACTOR</u>	<u>CONTRACT AMOUNT</u>
----------------	---------------------------	------------------------

- | | | |
|----|-------|-------|
| a. | _____ | _____ |
| b. | _____ | _____ |
| c. | _____ | _____ |

4. Bank reference _____

DATE: _____

Name of Sub-Bidder

Federal Employees
Identification Number: _____

Signature Title

Telephone _____

Business Address

City, State and Zip Code

DIVISION 1

SECTION 00 21 00

ALLOWANCES

PART 1- GENERAL

1.1 ALLOWANCE FOR POLICE DETAIL

- A. The Contractor shall include as a line item in his/her bid, an allowance in the amount of **Five thousand dollars (\$5,000) for the cost of police detail**. This sum shall be included in the total bid price proposed by the Contractor, and shall be shown as a line item on the Bid Form.
- B. This allowance will cover the cost to the Contractor for police detail, if required to complete the work of this Contract.
 - 1. The cost for police detail will be reimbursed to the Contractor.
- C. If the cost for Police Detail is more or less than the allowance, the Contract Sum shall be adjusted accordingly by Change Order.
- D. The allowance and reimbursement for police detail does not include any provisions for Contractor overhead and profit or other expenses related to police detail, other than the direct costs billed to the Contractor by the City of Waltham Police Department.

1.2 ALLOWANCE FOR UNFORSEEN CONDITIONS

- A. The intent of this Allowance is for changes in the work related to unsuitable soils, electrical overview and utilities which are necessary to complete the work of the project. **The Sum to be included for this Allowance shall be fifteen Thousand dollars (\$15,000)**. This sum shall be included in the total bid price proposed by the Contractor, and shall be shown as a line item on the Bid Form.
- B. The work relating to this Allowance will be completed only when and as directed by the Owner. The Contractor may not proceed with any work under this Allowance without the written notice of the Owner, at a mutually agreed upon fair and equitable price for the change in the work.
- C. If at the completion of the project, the cost for this work is more or less than the Allowance, the Contract Sum shall be adjusted accordingly by Change Order.

END OF SECTION

Allowances
00 21 00 -1

SECTION 00 33 00

SUBMITTALS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. All of the Contract Documents, including Drawings, General Conditions, and all Sections of Division 1 - General Requirements, apply to the Work of this Section.

1.02 DESCRIPTION OF WORK

- A. The Work of this Section includes, but is not limited to, the following:
 - 1. Administrative and procedural requirements for submittal of Shop Drawings, Product Data, Samples, and other required submittals as called for in the Contract Documents.

1.03 RELATED WORK SPECIFIED ELSEWHERE

- A. Carefully examine all of the Contract Documents for requirements which effect the Work of this Section.
- B. Other Specification Sections which directly relate to the Work of this Section include, but are not limited to, the following:
 - 1. Section 01 91 15 - General Testing Requirements
 - 2. Section 01 60 00 - Product Requirements

1.04 GENERAL REQUIREMENTS

- A. Prior to submittal of any shop drawings, product data or samples the Contractor shall submit to the Landscape Architect for approval, within 15 business days after being awarded the Contract, a complete submittal log and a schedule of submissions of shop drawings and miscellaneous. The Landscape Architects review period, including those of his consultants, will not exceed 15 days from the established date of each submission of shop drawings, product data, and samples, plus the additional time, if any, for distribution by the Contractor and receipt of submissions by the Landscape Architect. The Contractor shall be required to strictly adhere to the dates established in the schedule.
- B. Following approval of submittal log and schedule, submit to the Landscape Architect shop drawings, product data and samples required by each specification Section.
- C. When the phrase "By Others" (or similar expression) appears on a submittal and refers to any of the Contract Work, it shall be interpreted to mean "by the General Contractor or another

Subcontractor". The Landscape Architect's review of any submittal containing such phrase shall not be considered permission to delete any Work from the Contract.

- D. Review and approval of shop drawings by the Landscape Architect does not indicate approval of changes in the Contract, Time or Cost

1.05 SHOP DRAWINGS

- A. Original drawings, prepared by The Contractor, Subcontractor, Supplier or distributor which illustrate some portion of the Work; showing fabrication, layout, setting or erection details.
 - 1. Prepare drawings in a clear and thorough manner.
 - 2. Identify details by reference to sheet and detail numbers shown on Contract Drawings
- B. Provide layout verification plans for site utilities, walks, walls and fencing

1.06 PRODUCT DATA

- A. Manufacturer's standard schematic drawings:
 - 1. Modify drawings to delete information which is not applicable to project.
 - 2. Supplement standard information to provide additional information applicable to project.
- B. Manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations and other standard descriptive data.
 - 1. Clearly mark each copy to identify pertinent materials, products or models.
 - 2. Show dimensions and clearances required.
 - 3. Show performance characteristics and capacities.

1.07 SAMPLES

- A. Physical examples to illustrate materials, products, units of Work, equipment or Workmanship, and to establish standards by which completed Work is to be judged. Provide samples of sufficient size and quality to clearly illustrate functional characteristics of product or material, with integrally related parts and attachment devices.

1.08 CONTRACTOR RESPONSIBILITIES

- A. Review Shop Drawings, Project Data and Samples prior to submission.
- B. Verify:
 - 1. Field measurements
 - 2. Field construction criteria

3. Catalog numbers and similar data
 - C. Coordinate each submittal with requirements of Work and of Contract Documents.
 - D. Contractor's responsibility for errors and omissions in submittals is not relieved by Landscape Architect's review of submittals.
 - E. Contractor's responsibility for deviation in submittals is not relieved by Landscape Architect review of submittals, unless the Landscape Architect gives written acceptance of specific deviations.
 - F. Notify Landscape Architect, in writing at time of submission, of deviations in submittals from requirements of Contract Documents.
 - G. Furnish miscellaneous submittals (non-administrative) including, but not limited to warranties, maintenance agreements, Workmanship bonds, project photographs, survey data and reports, physical Work records, quality testing and certifying reports, copies of industry standards, record Documents, field measurement data, operating and maintenance materials, overrun stock, and similar information, devices and materials applicable to the Work.
- 1.09 SUBMISSION REQUIREMENTS
- A. Schedule submissions to permit time for review and resubmission.
 - B. Submit one reproducible transparency and opaque print of Shop Drawings, and number of copies of Product Datum which Contractor requires for distribution plus 4 copies which will be retained by Landscape Architect.
 - C. Submit number of Samples specified in each of specification Sections.
 - D. Accompany submittals with transmittal letter, in duplicate, containing:
 1. Date
 2. Project title and number
 3. Contractor's name and address
 4. Specification Section number, paragraph and item number
 5. The number of each Shop Drawing, Product Datum and Sample submitted
 6. Notification of deviations from Contract Documents
 7. Manufacturer's name or source of supply
 8. Trade name
 9. Catalog number
 10. Contractor's certification that he has checked all samples for compliance with Contract requirements and availability of material
 11. Name and address of Landscape Architect, Subcontractor, and supplier
 12. Other pertinent data

- E. Submittals shall include:
1. Date and revision dates
 2. Project title and number
 3. The names of:
 - a. Landscape Architect
 - b. Contractor
 - c. Subcontractor
 - d. Supplier
 - e. Manufacturer
 - f. Separate detailer when permitted
 4. Identification of product or material.
 5. Relation to adjacent structure or materials.
 6. Field Dimensions clearly identified as such.
 7. Specification Section number, paragraph and item number.
 8. Applicable standards, such as ASTM number or Federal Specification.
 9. A blank space, 3" x 3", for Landscape Architect/Engineer's stamp.
 10. Identification of deviations from Contract Documents.
 11. Contractor's stamp, initialed or signed, certifying to review of submittal, verification of field measurements and compliance with Contract Documents.
- G. The Landscape Architect will complete the review and return the record sepias and product data to the Contractor.
- H. The Contractor shall be fully responsible for delay in the delivery of materials or progress of Work caused by late review of shop drawings due to failure of the Contractor to submit, revise, or resubmit shop drawings in adequate time to allow the Landscape Architect reasonable time (up to 15 calendar days) for normal checking and processing of each submission or resubmission.
- I. The Contractor shall assume full liability for delay attributed to insufficient time for delivery and/or installation of material or performance of the Work when approval of pertinent shop drawings and product data is withheld due to failure of the Contractor to submit, revise, or resubmit items in adequate time to allow the Landscape Architect reasonable time, not to exceed fifteen (15) calendar days, for normal checking and processing of each submission or resubmission.
- 1.10 NOT USED
- 1.11 LANDSCAPE ARCHITECTS REVIEW ACTIONS
- A. Submittals Marked "Reviewed as Required by Construction Contract Documents And Approved":
1. Submittals which require no corrections by the Landscape Architect will be marked "Reviewed as Required by Contract Documents and Approved". Reviewed as required by

Contract Documents and approved, but only for conformance to the design concept of the Work, and subject to further limitations and requirements contained in the Construction Documents.

B. Submittals Marked "Furnish as Corrected":

1. Submittals which require only a minor amount of correcting will be marked "Furnish as Corrected". This mark means that checking is complete and all corrections are obvious without ambiguity. Fabrication will be allowed on Work "Furnish as Corrected", provided such action will expedite construction and noted corrections are adhered to. If fabrication is not made strictly in accordance with corrections noted, the item shall be rejected in the field and the Contractor will be required to replace such Work and that of other Contractor's, in accordance with corrected submittals, at his own expense.

C. Submittals Marked "Revise and Resubmit":

1. When submittals are marked "Revise and Resubmit" details of items noted by Landscape Architect shall be further clarified before full approval can be given and noted items must not be fabricated until corrected and approved.

D. Submittals Marked "Rejected":

1. When submittals are contrary to Contract requirements or too many corrections are required, they shall be marked "Rejected". No Work shall be fabricated under this mark. The Landscape Architect shall list his reasons for non approval on the submittal or in a transmittal letter accompanying their return. The submittals must be corrected and resubmitted for approval.

E. Submittals Marked "Review":

1. Submittals sent for information only will be marked "Reviewed". No approval or disapproval is given unless requested by Contractor.

F. Return of Submittals To Contractor Unchecked:

1. The Landscape Architect may return submittals to the Contractor unchecked for any of the following reasons, in which case the submission will not be considered official:
 - a. Submittal in violation of specified procedure or product
 - b. Inadequately checked by Contractor
 - c. Inaccurate and in substantial error

1.12 RESUBMISSION REQUIREMENTS

A. Shop Drawings:

1. Revise initial drawings as required and resubmit as specified for initial submittal.

2. Indicate on drawings any changes which have been made other than those requested by Landscape Architect/Engineer.

- B. Product Data and Samples: Submit new data and samples as required for initial submittal.

1.13 DISTRIBUTION OF SUBMITTALS AFTER REVIEW

- A. Distribute copies of Shop Drawings and Product Data which carry Landscape Architect/Engineer's stamp, to:

1. Contractor's Job site file
2. Record Documents file
3. Subcontractors and/or suppliers
4. Owner
5. Testing Agency (where applicable)

- B. Distribute samples as directed.

1.14 LANDSCAPE ARCHITECT/ENGINEER'S DUTIES

- A. Review submittals with reasonable promptness.

- B. Review for:

1. Design concept of project
2. Information given in Contract Documents

- C. Review of separate item does not constitute review of an assembly in which item functions.

- D. Affix stamp and initials or signature certifying to review of submittal.

- E. Return submittals to Contractor for distribution.

1.15 EMERGENCY ADDRESSES

- A. Within 15 days of Notice to Proceed, submit to the Owner and the Landscape Architect, in writing, the name, addresses and telephone numbers of key members of their organization including Superintendent and personnel at the site, to be contacted in the event of emergencies at the building site, which may occur during non-Working hours.

PART 2 - PRODUCTS

2.01 SUBSTITUTIONS

- A. Contractor's request for changes in products, materials and methods of construction required by Contract Documents are considered requests for "substitutions" and are subject to requirements specified under Section 01 60 00 – Product Requirements.

END OF SECTION

Section 008600

CONSTRUCTION PERMIT APPLICATIONS AND FEES

1.1 GENERAL

1. The City of Waltham has waived all fees for this Project; Contractor is required to file an Application and obtain all pertinent Permits before construction.
2. Contractor shall be responsible for all costs associated with fire watches and other ancillary fees (other than those waived) required to perform the Contract work.
3. Obtain forms from Building Department.

END OF DOCUMENT

SECTION 01 60 00

PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. All of the Contract Documents, including Drawings, General Conditions, and all Sections of Division 1 - General Requirements, apply to the Work of this Section.

1.02 DESCRIPTION OF WORK

- A. Products, which include materials, equipment, and systems of assemblies of materials and equipment, shall conform to the requirements listed in each of Section of the Specifications
 - 1. Where available, provide standard products of types which have been produced and used previously and successfully on other projects and in similar applications.
 - 2. Where additional amounts of a product, by nature of its application, are likely to be needed by Owner at a later date for maintenance and repair or replacement Work, provide a standard, domestically produced product which is likely to be available to Owner at such later date.
- B. Products are specified by:
 - 1. The descriptive method: Listing qualities that they must possess
 - 2. The reference standard method: Listing published product standards
- C. Where a reference standard is specified, the edition of the standard in the current governing building code shall be followed. Where the standard is not listed in the building code, follow the edition current with the issue date of these Specifications.

1.03 PRECEDENCE: QUALITY, REFERENCE STANDARD, AND SOURCE

- A. Qualities:
 - 1. For the products specified by stated qualities or by the description, as well as by the reference standard or by the source, the specified qualities or description shall take precedence.

2. For a product specified only by stated qualities or by the description, provide materials, equipment or fabrications conforming to those qualities and description, suitable for the uses shown on the Drawings.

B. Reference Standards:

1. For product specified by reference to a published standard, as well as buy the source, the reference standard shall take precedence over the source.
2. For a product described only by reference standard, provide material, equipment or fabrications conforming to that reference standard, suitable for the use shown on the Drawings.

C. Procedures for Selecting Products: Contractor's options for selecting products are limited to Contract document requirements and governing regulations and are not controlled by industry traditions or procedures experienced by Contractor on previous construction projects. Required procedures include, but are not limited to, the following for various methods of specifying:

1. For a product described by manufacturer, manufacturer's brand name, or origin, with or without catalog number or model number, provide a product that conforms to the specified qualities and reference standards.
2. For a product specified by one or more source names and "or approved substitute", provide one of the specified products, or, submit a request for substitution for a product not named which the Contractor can demonstrate to be of equal or higher quality.
3. Performance Requirements: Provide products which comply with specific performances indicated, and which are recommended by manufacturer for overall application indicated. Overall performance of a product is implied where product is specified with only certain specific performance requirements.
4. Prescriptive Requirements: Provide products which have been produced in accordance with prescriptive requirements, using specified ingredients and components, and complying with specified requirements for mixing, fabricating, curing, finishing, testing and similar operations in manufacturing process.

1.04 CONTRACTOR'S OPTION

- A. Where an option (or choice) is specified, provide one or the other of the options. The choice of an option is the Contractor's. Where submittals are required, he shall state which option has been chosen by him.
- B. For economy of drawing, only one option is usually shown on the Drawings. If another option is elected by the Contractor, he shall adjust details, dimensions and physical settings to conform. The Contractor will review adjustments and details with the Landscape Architect before implementation.

1.05 SPECIAL WARRANTIES AND SERVICE

- A. In addition to the warranty and correction Work provisions of the General Conditions, provide the following as specified:
 - 1. Special Warranties: A warranty or guarantee provide by the manufacturer, fabricator, supplier or installer and the Contractor providing specific representation of quality and fitness for a specific period of time. When also specified, a special warranty lists the actions the Contractor, his installer, supplier or manufacturer shall take to correct defective Work.
 - 2. Service: Specific programs of service that a manufacturer, fabricator, supplier or installer and the Contractor will provide for a specific period of time. Service programs shall, as specified, provide such Work as inspections, reports, parts, materials, and other products or Work needed to render the services.
- B. The Landscape Architect and Owner reserve the right to not accept unrequested warranties and guarantees offered by the Contractor, his installers or suppliers.
- C. Special warranties will not be required to cover failure from:
 - 1. Hurricane, floods or acts of God;
 - 2. Misuse or improper maintenance by the Owner;
 - 3. Vandalism or misuse by the public after time of Substantial Completion.
- D. When defective Work is corrected under the special warranty provisions, the warranty period shall be extended by the period of time between Substantial Completion and the correction of the Work.

1.06 CERTIFICATION BY MANUFACTURERS OR INSTALLERS

- A. Provide where specified, as a submittal, certification by the manufacturer or installer that the product and its method of installation are suitable for:
 - 1. The type of construction and use of this product
 - 2. For the New England climate
 - 3. For the design intent expressed in the Contract Documents

1.07 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver handle and store products in accordance with manufacturer's recommendations and by methods which prevent damage, deterioration and loss, including theft.
- B. Control delivery schedule to minimize long term storage of products at site and overcrowding of construction spaces. Provide delivery/installation coordination to ensure minimum holding or

storage times for products that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft and other sources of loss.

1.08 SUBSTITUTION REQUEST PROCEDURE

A. For a period of 60 days after the start of Contract Time, the Landscape Architect will review written requests from the Contractor for changes in products, materials and methods of construction required by Contract Documents. These changes are considered request for "substitutions", and are subject to requirements hereof. Substitutions received after the 60 day commencement of Work may be considered rejected at the discretion of the Landscape Architect.

1. Work not defined as Substitutions: The requirements for substitutions do not apply to the following:

- a. Specified Contractor options on products and construction methods.
- b. Revisions to Contract Documents requested by Owner or Landscape Architect are "changes" not "substitutions".
- c. Requested substitutions during bidding period, which have been accepted prior to Contract Date and included in Contract Documents.
- d. Contractor's determination of and compliance with governing regulations and orders issued by governing authorities do not constitute "substitutions" and do not constitute a basis for change orders, except as provided for in Contract Documents.

B. Requests for Substitutions: Submit 3 copies of substitution request form provided herein fully identified for product or method being replaced by substitution, including related specification Section and drawing number(s), and fully documented to show compliance with requirements for substitutions. Include product data/drawings, description of methods, samples where applicable, Contractor's detailed comparison of significant qualities between specified item and proposed substitution, statement of effect on construction time and coordination with other affected Work, cost information or, proposal, fabrication and installation procedures and Contractor's statement to the overall Work as a substitute to or -better-than Work originally indicated.

Conditions: Contractor's request for substitution will be received and considered when extensive revisions to Contract Documents are not required and changes are in keeping with the general intent of Contract Documents; when timely, fully documented and properly submitted

SUBSTITUTION REQUEST

Project: Senior Center Parking Project No. 1701

To: Marshall/Gary LLC
Landscape Architects.
17 Naumkeag Row
Danvers, MA 01923
Attention: Ben Gary

From: Contractor

CONTRACTOR'S REQUEST, WITH SUPPORTING DATA

1. Section of Specifications to which this request applies: _____
5 digit Section number

 - ___ Product data for proposed substitution is attached (description of product, reference standards, performance and test data).

 - ___ Sample is attached ___ Sample will be sent if requested by Landscape Architect
2. Itemized comparison of proposed substitution with product specified.

ORIGINAL PRODUCT	SUBSTITUTION
Name, brand	
Catalog No.	
Manufacturer	
Significant Variation	

3. Unit cost of original product and proposed substitution. State whether cost is for _____ material only, or _____ material installed.
- Original Product: \$ _____ per _____ Substitution: \$ _____ per _____

4. Proposed change in Contract Sum:

Credit to Owner: _____ Additional cost to Owner:

5. Proposed change in Contract Time:

Reduce/Increase Contract time by _____ days.

6. Effect of the proposed substitute on other parts of the Work, or on other Contracts:

7. Reason for requesting substitution:

CONTRACTOR'S STATEMENT OF CONFORMANCE OF PROPOSED SUBSTITUTION TO CONTRACT REQUIREMENTS:

I/we have investigated the proposed substitution. I/we

1. believe that it is equal or superior in all respects to the originally specified product, except as stated in 2. above;
2. will provide the same warranty as required in the General Conditions 4.1.5;
3. will provide the same special warranty or guaranty as specified;
4. have included all cost data and cost implications of the proposed substitution;
5. will pay redesign and special inspection costs caused by the use of this product;
6. will pay additional costs to other Contractors caused by substitution;
7. will coordinate the incorporation of the proposed substitution in the Work;
8. will modify other parts of the Work as needed, to make all parts of the Work complete and functioning.
9. waive further claims for added cost to Contractor caused by the proposed substitution.

Contractor _____ Date _____

LANDSCAPE ARCHITECT REVIEW AND ACTION

- A. Provide more information in the following categories. Resubmit.
- B. Sign Contractor's Statement of Conformance. Resubmit.
- C. The proposed substitution is approved, with the following condition.
- D. The following changes will be made by change order:
 - 1. Addition/Deduction from the Contract Sum:
 - 2. Addition/Deduction from Contract Time:

Marshall/Gary, Landscape Architects _____

Date: _____

END OF SECTION

SECTION 01 77 00

CONTRACT CLOSEOUT

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. All of the Contract Documents, including Drawings, General Conditions, and all Sections of Division 1 - General Requirements, apply to the Work of this Section.

1.02 DESCRIPTION OF WORK

- A. The Work of this Section includes, but is not limited to, the following:
 - 1. Supplementary instructions regarding preparation for Contract closeout, including Punch-List, prerequisites to Substantial Completion and Final Inspection, Substantial Completion, Affidavit in regard to liens, submittals of guarantees and other Documents and instruction to Owner's personnel.
 - 2. Specific requirements for individual units of Work are specified in Sections of Division 2 through 3. Time of closeout is directly related to "Substantial Completion" and therefore may be either a single time period for the entire Work or a series of time periods for individual parts of the Work which have been certified as substantially complete at different dates.

1.03 RELATED WORK SPECIFIED ELSEWHERE

- A. Carefully examine all of the Contract Documents for requirements which effect the Work of this Section.
- B. Other Specifications Sections which directly relate to the Work of this Section include, but are not limited to, the following:
 - 1. Section 00 00 03 - Summary of Work
 - 2. Section 00 33 00 - Submittals
 - 3. Section 01 60 00 - Product Requirements

1.04 PUNCH-LIST AND FINAL INSPECTION

- A. In accordance with requirements of the General Conditions, when the Contractor considers the Work to be substantially complete, (for either entire Work or portions thereof), he shall notify the Owner and the Landscape Architect in writing that the Work will be ready for final

inspection on a definite date which shall be stated in the notice. Such notice shall be given at least 10 days prior to the date stated for final inspection.

1. Written notice shall also be given to Owner and Landscape Architect by the Contractor upon completion of any Work which was determined, in the above-mentioned final inspection, to be incomplete, incorrect or unsatisfactory.
2. On receipt of such notice from the Contractor, additional inspection(s) will be made until completion of all Contract requirements is effected.

- B. The Landscape Architect will review the Contractor's "punch-list" and verify "Substantial Completion". The final inspection is intended to be a last review to determine that the Work included in the Contract has indeed been executed in accordance with the Contract Documents. Requests to render "Final Inspection" of an incomplete installation or to prepare the Contractor's "punch-list", will not be honored.

1.05 SUBSTANTIAL COMPLETION

- A. Upon determination of Substantial Completion by the Landscape Architect, the Certification of Substantial Completion will be prepared by the Landscape Architect, in accordance with the General Conditions. The date thus established for Substantial Completion shall be the date of commencement for all equipment warranties and all guarantees, unless specifically provided otherwise in the Certificate of Substantial Completion.

1. When the date of Substantial Completion is claimed by the Contractor, the Contractor shall show 100% completion for the portion of the Work claimed as substantially complete. Include supporting documentation for completion as indicated in these construction Documents and a statement showing an accounting of changes to the Contract Sum.
 - a. If 100% completion cannot be shown, include a list of incomplete items, the value of incomplete construction, and reasons the Work is not complete.

1.06 SUBMITTAL OF DOCUMENTS AND PROCEDURAL REQUIREMENTS

- A. At the "Substantial Completion Stage" of the Contract, the Contractor shall submit the following items to the Landscape Architect for transmission to the Owner:
1. Application for reduction in retainage, and consent of surety.
 2. List of incomplete Work, which is to be attached to the Landscape Architects Certificate of Substantial Completion as a clarification.
 3. Complete project Operational and Maintenance Manuals, assembled in three ring binders.
 4. One copy of each special warranty required by the Contract Documents, endorsed by the Contractor, and in a form reasonably acceptable to the Landscape Architect. If the

Landscape Architect accepts unbound warranties at this time, those warranties will be returned to the Contractor for binding into the Warranty Binders specified below.

- a. Warranties required by the Contract Documents for Work cited as not complete on the punch list shall commence when such Work is accepted as complete by the Landscape Architect, unless otherwise provided in the Certificate of Substantial Completion.
- B. Remove construction facilities and temporary controls, except those that are required to complete punch-list Work.
- C. At "Final Completion" the Contractor shall prepare closeout submittals and submit to the Landscape Architect prior to "Final Completion", allowing at least 15 Working days time for review.
1. Project record Documents marked with changes made during construction.
 2. Copy of approved shop drawings or installed drawings for all phases of the Work.
 3. Project warranties (guarantees) and maintenance agreements, assembled in 3 ring binders.
 4. Spare parts neatly wrapped or packaged in standard sizes and clearly labeled.
 5. Final construction photographs.
 7. Certificate of insurance for products and completed operations.
 8. Consent of Surety to Final Payment.
 9. An affidavit that all bills and indebtedness connected with the Work has been paid.
 10. Typed list of Subcontractors and major Material Suppliers. (Shall include address, telephone number and name of individual to Contract regarding this project.)
 11. Waivers of lien from all Subcontractors and suppliers, or bond satisfactory to the Owner indemnifying Owner against all liens or other claims.
 12. Proof that all taxes, fees and similar obligations have been paid.
 15. Deliver tools, spare parts, extra stock, and similar items.
 16. Complete final clean-up requirements, including touch-up painting. Touch-up and otherwise repair and restore marred and exposed finishes.
- D. Complete punch list items or, if acceptable to the Owner, furnish proposed schedule for completion and assurances that Work not completed and accepted will be completed without undue delay. The Landscape Architect will re-inspect the Work to determine whether it is complete.
- E. The Contractor shall complete all of the items stated in the Closeout Procedures within 45 days of date of the Certificate of Substantial Completion. Failure to complete the closeout requirements within the allowed time frame shall require the Owner to charge back all costs of the Landscape Architect and other Consultants which the Owner requires for the completion of the project closeout. The Landscape Architect will process this by preparing a Final Change Order, reflecting adjustments to the Contract Sum not previously made by other Change Orders.

1.07 AFFIDAVIT IN REGARD TO LIENS

- A. A valid "Contractor's Affidavit in regard to Liens", which certifies the following, must be submitted with "Request for Final Payment".
1. The undersigned hereby certifies that all Work required under the above Contract has been performed in accordance with the terms thereof, that all material, men, Subcontractors, mechanics and laborers have been paid and satisfied in full and that there are no outstanding claims of any character arising out of the performance of the Contract which have been paid and satisfied in full.
 2. The undersigned further certifies that to the best of his knowledge or belief, there are no unsatisfied claims for damages resulting from injury or death to any employees, Subcontractors or the public at large arising out of the performance of the Contract, or any suits or claims for any other damage of any kind, nature or description which might constitute a lien upon the property of the Owner.
 3. Contractor shall provide a written guarantee in a form acceptable to the Owner and Landscape Architect at Substantial Completion.

1.08 OPERATIONAL AND MAINTENANCE MANUALS

- A. Prior to date of substantial completion, submit to the Landscape Architect maintenance and operational manuals. Generally, include operations and maintenance information for all items of equipment, and maintenance information for all products which may require special care, such as carpet and special finishes, whether or not a submittal is specifically required by technical Sections of these specifications.
2. Include instructions for installation, start-up, operation, inspection, maintenance, parts lists and data sheets.
 3. On manufacturer's printed literature, where the literature covers more than one model, indicate by check mark or circle in ink the correct model number and data base for the model number.
- B. Arrange manuals, instruction books diagrams, etc., in order and manner prescribed by the Owner. In the absence of other instructions from the Owner, organize the operation and maintenance manuals as described in this article.

1.09 FINAL INSPECTION

- A. Preliminary Procedures: Before requesting final inspection for certification of final acceptance and final payment, complete the following: List exceptions in the request.

1. Submit the final payment request with releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and complete operations where required.
2. Submit an updated final statement, accounting for final additional changes to the Contract Sum.
3. Submit a certified copy of the Landscape Architects final inspection list of items to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance and the list has been endorsed and dated by the Landscape Architect.
5. Submit consent of surety to final payment.
6. Submit final liquidated damages settlement statement.
7. Submit evidence of final, continuing insurance coverage complying with insurance requirements.

END OF SECTION

SECTION 01 78 39

PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. All of the Contract Documents, including Drawings, General Conditions, and all Sections of Division 1 - General Requirements, apply to the Work of this Section.

1.02 DESCRIPTION OF WORK

- A. The Work of this Section shall include, but not be limited to, maintaining at the site for the Building Superintendent one record copy of the following:

- 1. Drawings
- 2. Specifications
- 3. Addenda
- 4. Change Orders and other Modifications to the Contract
- 5. Landscape Architect's Field Orders or written instructions
- 6. Approved Shop Drawings, Product Data and Samples
- 7. Field Test Records
- 8. As-build CD.

1.03 RELATED WORK SPECIFIED ELSEWHERE

- A. Carefully examine all the Contract Documents for requirements which effect the Work of this Section.
- B. Other Specification Sections which directly relate to the Work of this Section include, but are not limited to, the following:
 - 1. Section 00 33 00 - Submittals
 - 2. Section 01 60 00 - Product Requirements

1.04 GENERAL REQUIREMENTS

- A. Record Documents shall not be used for construction purposes.
- B. Make Documents and samples available at all times for inspection by Landscape Architect.

1.05 RECORDING

- A. Label each document "PROJECT RECORD" in neat large printed letters located in the bottom right hand corner.
- B. Record information concurrently with construction progress.
 - 1. Do not conceal any Work until required information is recorded.
- C. Drawings shall be legibly marked daily to record actual construction, as follows:
 - 1. Horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - 2. Field changes of dimensions and detail.
 - 3. Changes made by Field Order or by Change Order.
 - 4. Details not on original Contract drawings.
 - 5. Record Drawings shall be updated each Working day. Monthly pay requisitions shall not be processed if record drawings are not up to date.
- D. Individual Specification Sections and Contract Document Addenda shall be legibly marked to record the following:
 - 1. Manufacturer, trade name, catalogue number, and supplier of each product and item of equipment actually installed.
 - 2. Changes made by Field Order or by Change Order.

1.06 SUBMITTALS

- A. Prior to Substantial Completion, deliver Record Documents to the Landscape Architect for review and approval.
- B. Upon receipt of approval, the General Contractor and the Subcontractors shall transfer the as-built information shown on the Record Drawings onto compact disc, in a format compatible with equipment and programs provided under the Work of Section 01500 – Temporary Facilities and Controls.
- C. Submission of accurate record drawings and their approval shall be a condition precedent to final payment.
- D. Submittals of Record Documents shall be accompanied with transmittal letter in duplicate, containing the following information:
 - 1. Date
 - 2. Title and number of each Record Document
 - 3. Signature of Contractor or his authorized representative

1.07 OPERATIONS AND MAINTENANCE MANUALS

- A. Prior to date of Substantial Completion, submit Operation and Maintenance (O&M) manuals to the Landscape Architect for review. Generally, included operation and maintenance information for all items of the equipment, and maintenance information for all products which may require special care, such as track surface and special finishes, whether or not a submittal is specifically required by the technical Sections of these specifications.
 - 1. Include instructions for installation, start-up. Operation, inspections, maintenance, parts lists and data sheets.
 - 2. On manufacturer's printed literature, where the literature covers more than one model, indicate by check mark or circle in ink the correct model number and data for the model number.
- B. Arrange manuals, instruction books, diagrams, etc. in the order and manner prescribed by the Owner. In the absence of other instructions from the Owner, organize the operation and maintenance manuals as described in this Article.
- C. Bind instruction books in hard durable covers supplied by the manufacturer, or in 3-ring binders with vinyl covers.
 - 1. Identify each volume on front and spine with typed or printed title "OPERATING AND MAINTENANCE INSTRUCTIONS," title of Projects, identity of subject matter covered in each particular volume.
 - 2. Inside cover and Title Page shall repeat information on the cover and identify the General Contractor, name of responsible principal, address and telephone number.
 - 3. Provide Table of Contents for each volume, arranged in systematic order, neatly type written. Organize information by systems, following the sequence of the table of contents of the Project Manual.
 - 4. Separate products and systems within the binder by tabbed and labeled dividers.
 - 5. For each item or system, Include the name, address and phone number of the subcontractor who furnished and/or installed the equipment, the name(s) and telephone numbers of the Subcontractor's representative to be contacted in the event of an emergency, and the name, address and phone number of the nearest service facility authorized by the manufacturer.
- D. Require each manufacturer to prepare/provide information on its own products. In those instances where equipment or controls are job-assembled by a Subcontractor, then require that the Subcontractor prepare maintenance instructions.
- E. Information for complex systems, such as elevators and handicap lifts, may be separately bound. Include a tabbed divider for the system and insert a page directing the reader to the separate volume, or include a clear cross reference in the table of contents.

F. Submittal:

1. Submit one review copy of the fully compiled data in final form. The Landscape Architect will review the copy and return it with comments.
2. Upon review and acceptance by the Landscape Architect, resubmit three corrected bound copies.

1.08 WARRANTIES AND GUARANTEES

- A. Assemble 2 executed copies of each warranty, bond, and service and maintenance Contract required for the project. Warranties are specified in the respective trade Sections of the specifications.
- B. Bind these in 3-ring loose leaf binders with vinyl covers
 1. Identify each volume on front and spine with typed or printed title "WARRANTIES," title of Projects, identity of subject matter covered in each particular volume.
 2. Inside cover and Title Page shall repeat information on the cover and identify the General Contractor, name of responsible principal, address and telephone number.
 3. Table of contents: For each volume, arrange in systematic order, neatly type written.
- C. For items of Work delayed beyond Substantial Completion, provide updated submittal within 10 days after acceptance, listing date of acceptance as start of warranty period.

1.09 SPARE PARTS AND MAINTENANCE MATERIALS

- A. Provide products, spare parts, maintenance and extra materials in quantities specified in individual specification Sections.
- B. Deliver to Project site and place in location directed. Obtain receipt prior to final payment.

1.10 AS BUILT DOCUMENTATION

- A. The Contractor shall prepare and submit to the Owner a compact disk (CD) showing the project construction as built. Information shown on the drawings shall include layout, grades, utilities (surface and subsurface) and materials.
- B. CD shall be submitted to the Landscape Architect for review.

END OF SECTION

SECTION 01 91 15

GENERAL TESTING REQUIREMENTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. All of the Contract Documents, including Drawings, General Conditions, and all Sections of Division 1 - General Requirements, apply to the Work of this Section.

1.02 DESCRIPTION OF WORK

- A. The Work of this Section includes, but is not limited to, the following:
 - 1. General testing requirements and procedures.
 - 2. Responsibilities of the Contractor.
 - 3. Responsibilities of the Owner.

1.03 RELATED WORK SPECIFIED ELSEWHERE

- A. Carefully examine all of the Contract Documents for requirements which effect the Work of this Section.

1.04 REQUIRED TESTING

- A. The Contractor will employ independent testing agencies to perform field and lab tests unless otherwise specified or indicated in other Sections of these Specifications. This testing will be paid for by the Contractor, unless otherwise specified or indicated. Employment of Testing Laboratory shall in no way relieve Contractor of his obligation to perform Work in accordance with the Contract.
- B. More detailed testing requirements are given in individual specification Sections. The Owner shall retain the right to make any additional tests the Landscape Architect deems necessary or appropriate. The scope of tests required shall include, but not be limited to, the following:
 - 1. Earthwork: Lab tests to determine suitability of all fill materials.
 - 2. Earthwork: Proctor tests for compaction. (Ten tests are required)
 - 3. General Concrete Work: Concrete mix design testing.
 - 4. Bituminous concrete paving.

1.05 TESTING PROCEDURES

- A. The Contractor shall fully cooperate with testing agencies and permit free access to all areas at all times. The Contractor shall permit taking samples at any time during construction, either before or after installation. The Contractor shall furnish casual labor and facilities to provide access to Work being tested, to obtain and handle samples at the site to facilitate inspections and tests and provide for Laboratory's exclusive use storage and curing for test samples

- B. The Contractor shall distribute test results as follows:
 - 1. Contractor (2 copies)
 - 2. Landscape Architect (2 copies)
- C. The final Testing Log, including final acceptable tests, shall be turned over to the Owner, with four copies delivered to the Landscape Architect.
- D. The Contractor and the Owner will note the test record on the Testing Log to acknowledge test procedures and results. If follow-up or corrective action is needed, the Contractor shall submit to the Owner two written copies of proposed follow-up or corrective plans and obtain the Owner's written approval before proceeding. Costs for additional inspections, sampling and testing required when initial tests indicate Work does not comply with Contract Documents will be deducted from Contractor's monthly payments.

END OF SECTION

SECTION 00 91 16

TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. All of the Contract Documents, including Drawings, General Conditions, and all Sections of Division 1 - General Requirements, apply to the Work of this Section.

1.02 DESCRIPTION OF WORK

- A. The Contractor shall provide, maintain, remove and pay for temporary facilities as specified and as required for the progress and completion of the Work under Contract. All required temporary facilities and controls are to be provided by the Contractor, at his cost.
- B. Contractor shall be responsible for coordinating and scheduling among all trades and subcontractors the furnishing and use of all temporary facilities for the Work.
- C. Contractor shall comply with all governing rules, regulations and the like.

1.03 RELATED WORK SPECIFIED ELSEWHERE

- A. Carefully examine all of the Contract Documents for requirements which affect the Work of this Section.
- B. Other Specification Sections which directly relate to the Work of this Section include, but are not limited to, the following:
 - 1. Section 00 00 03 - Summary of Work
- C. Nothing in this Section is intended to limit types and amounts of temporary Work required, and no omission from this Section will be recognized as an indication by the Landscape Architect that such temporary activity is not required for successful completion of the Work or compliance with requirements of the Contract Documents.

1.04 REQUIREMENTS OF REGULATORY AGENCIES

- A. Provide and maintain all temporary facilities in compliance with governing rules, regulations, codes, ordinances and laws of agencies and utility companies having jurisdiction over Work involved in the project.

- B. Be responsible for all temporary Work provided, and obtain any necessary permits and inspections for such Work.
- C. Do not interfere with normal use of streets in vicinity of project site except as indicated on drawings and/or as absolutely necessary to execute required Work, and then only after proper arrangement has been made with applicable authorities, including traffic control.

1.05 JOB CONDITIONS

- A. Establish and initiate use of each temporary facility at time first reasonably required for proper performance of the Work. Terminate use and remove facilities at earliest reasonable time, when no longer needed or when permanent facilities have, with authorized use, replaced the need.
- B. Install, operate, maintain, and protect temporary facilities in a manner and at locations which will be safe, non-hazardous, sanitary and protective of persons and property, and free of deleterious effects.
- C. Notify the Owner, Landscape Architect, and other affected parties no less than 10 days in advance of shutting down, starting up, interrupting utilities or service of facilities which may affect the neighboring homes or businesses. Allow sufficient time for protective measures to be taken.
- D. The Contractor shall provide such storage sheds, temporary buildings, or trailers as required for the performance of the Contract. Protect all construction materials from damage due to moisture, wind, cold, vandalism, or any other source. Any damage to construction materials will be at the expense of the Contractor.
- E. All temporary structures shall be removed at Substantial Completion.
- F. Materials shall be handled, stored, and protected in accordance with the best practice in the industry, and except where otherwise specified in the Contract Documents, in accordance with manufacturer's specifications and directions.

1.06 WEATHER PROTECTION

- A. "Weather Protection" shall mean the temporary protection of the Work adversely affected by moisture, wind, and cold by covering, enclosing, and/or heating
- B.. The entire responsibility for weather protection during construction, until Substantial Completion, shall be assumed by the Contractor, who shall be liable for any damage to any Work caused by failure to supply weather protection and proper ventilation.
- C. It is to be specifically understood that the Contractor shall do no Work under any conditions deemed unsuitable by the Contractor to the perfect execution of the Work. This provision shall

not constitute any waiver, release, or lessening of the Contractor's obligation to bring the Work to Substantial Completion within the period of time set forth in the Contract Documents.

1.07 TEMPORARY SERVICES

Provide temporary water service, including required piping and hoses of sizes and pressure adequate for construction. Municipal water service exists near the site, and all connections for temporary water service shall be in accordance with Town of Stow Water Department requirements. The Contractor shall meter and pay for all charges and fees related to provision of temporary water service.

A. Provide temporary sanitary facilities, including temporary toilets, and drinking water facilities. Comply with regulations and health codes for type, number, location, operation and maintenance of fixtures and facilities. The toilets and wash facilities shall be installed in a location approved by the Owner. Include toilet tissue, paper towels, and similar disposable materials for each facility. Provide covered waste containers for used material.

1. Provide self contained chemical type toilet units, including periodic maintenance. Shield toilets as required to ensure privacy, and do not lift while occupied.
2. Provide facilities supplied with potable water for personnel involved in handling materials that require wash-up. Dispose of drainage properly.

C. Removal:

1. Completely remove temporary materials and equipment when their use is no longer required.
2. Clean and repair damage caused by temporary installations or used for temporary facilities.

1.08 VEHICLE AND CONTRACTOR ACCESS AND TRAFFIC CONTROL

A. The Contractor shall be responsible for all traffic control, including municipal police services, at streets adjacent to the Project site, as required to provide safe access and egress for Owner and construction related vehicles. Provide and maintain a suitable means of access to the Contract Work areas as necessary for vehicles and equipment of all trades requiring such access.

B. The Contractor shall be responsible for all measures necessary to maintain public access at all times to existing Building.

1.09 TEMPORARY PARKING

A. Parking for vehicles belonging to the Contractor or other personnel providing services included under the Work of this Contract shall be limited to within the Limit of Work line of this Project or on public ways with the approval of the City.

1.10 TEMPORARY BARRICADES AND ENCLOSURES

- A. Provide temporary enclosure where indicated and where reasonably required to ensure adequate Workmanship and protection from weather and unsatisfactory ambient conditions for the Work.
 - 1. Provide protection at all times, against rain, snow, wind, storms, and at the end of each day's Work cover all new Work subject to damage. Work damaged by failure to provide such protection shall be removed and replaced at no additional cost to the Owner.
 - 2. Provide barricades as required for traffic control at streets adjacent to the Project site, as required to provide safe access and egress for Owner and construction related vehicles.
 - 3. Provide protection as required to prevent existing site and/or building flooding.

1.11 SECURITY/PROTECTION PROVISIONS

- A. The types of temporary security and protection provisions required include, but are not limited to, guard rails, fire protection, barricades, warning signs/lights, enclosed fence, sidewalk bridges, building enclosure/lockup, personnel security program (theft protection), environmental protection, and similar provisions intended to minimize property losses, personal injuries and claims for damages at project site. Provide security/protection services and systems in coordination with activities and in such a manner to achieve 24 hour, 7-day-per week effectiveness.

1.12 HAZARDOUS MATERIALS

- A. The Contractor is solely responsible for all matters relating to hazardous or toxic materials and lawful removal of same from the site. If hazardous or toxic materials are indicated or discovered, properly inform governing authorities and abide by their requirements.

1.13 DUST AND NOISE CONTROL

- A. Provide and maintain throughout the conduct of the Work of this Project, the following measures necessary to control and reduce emission of airborne dust, and prevent contamination of exterior surfaces at the site and adjacent public and private properties, or otherwise creating a nuisance to the Owner or adjacent properties:
 - 1. Periodic dosing with water or other approved dust control materials of site access roads during periods of extended heat or dry weather, as determined by the Landscape Architect
 - a. Sufficiently wet construction materials with a fine spray or sprinkling of water during removal, cutting or other handling to reduce the emission of airborne dust. On Workdays this is to be done a minimum of four (4) times per day. On Sundays and Saturdays, it is to be one (1) time per day, 24 hours maximum after last Workday watering and 24 hours between each weekend watering.
 - 2. Covering with heavy duty tarps, or other approved protection, of all on-site stockpiles of loam and fill

3. Installation of crushed rock dust traps at all transition points from dirt to asphalt
4. Street sweeping of adjacent streets to the project as required to maintain all areas clean and free of dirt, mud, and debris at all times.
5. The Contractor shall include the cost to comply with the above requirements in a separate line item included in the Schedule of Values provided in accordance with the Contract Documents.

B. The Contractor shall use every effort and every means possible to minimize noise caused by his operations, which the Landscape Architect, the Owner's Representative, Owner, or governing authorities may consider objectionable. The noise levels on the construction site will be controlled so that at no time will the noise level measured at the Limit of Work line shall exceed 70dB. The Contractor shall provide Working machinery and equipment equipped with suitable mufflers and sound-deadening panels in accordance with the latest edition of the OSHA regulations. Compressors shall be equipped with silencers or mufflers on intake and exhaust lines. Wherever practical electricity shall be used for power to reduce noise. Dumping bins, hoppers and trucks used for disposal shall be lined with wood or other sound deadening material if required. Where required agencies have jurisdiction, certain noise-producing Work may have to be performed during specified periods only, further; the Contractor and Subcontractors are required to comply with all applicable regulations.

1. Prior to the start of construction, the Contractor shall submit to the Owner, the Owner's Representative and the Landscape Architect, a Noise Control Program for review where Work with high level of noise is anticipated to Work out plans to mitigate the noise impact, especially for Work anticipated to be done during normal school hours.

1.14 RUBBISH REMOVAL

- A. All waste and debris caused by the Work of this Contract shall be removed and legally disposed of off site, daily, or as otherwise required to avoid large accumulations
- B. Burning or on site disposal of waste and debris caused by the Work of this Contract shall not be allowed.

1.15 PROJECT SIGNAGE

- A. Provide project identification sign located adjacent to main Project site entry gate. Sign shall be fabricated from 1 inch thick medium density overlay exterior plywood laminated with waterproof glue. All edges of the sign shall be banded with 1 inch by 1/2 inch pine banding. Sign shall be 20 square feet in area, and supported by two 4 inch by 4 inch post supports set in 12 inch diameter concrete footings to a depth of four feet, so that the bottom edge of the sign is raised a minimum of four feet above grade. All nails, nuts, bolts and other connecting hardware shall be galvanized. Project sign shall include name of Project, Owner, Landscape Architect and Contractor

1.16 SAFETY AND COOPERATION

- A. This project is subject to compliance with Public Law 91-596, "Occupied Safety and Health Act of 1970" (OSHA) and all amendments thereto, with respect to all rules and regulations pertinent to construction.
1. The Work of this Contract shall be performed between the hours of 7:00 AM and 5:00 PM, Monday through Friday, and 9:00 AM and 4:00 PM on Saturday. Performance of the Work of this Contract shall not be allowed on Sunday or Holidays. Exceptions to the specified hours of Work will be allowed in the event of an emergency, in coordination with the Owner.
- B. The following rules and regulations will be required of Contractor, Subcontractor, or other personnel providing services included under the Work of this Contract. No deviation or exception will be permitted without the express written approval of the Owner. The Contractor shall take responsibility for ensuring all construction personnel adhere to and cooperate with the Owner in enforcing these responsibilities.
1. All Workers must be properly, permanently and visually identified. The identification systems will be set up by the Owner and administered by the Contractor. Maintain an updated list of authorized Workers with Owner and notify the Owner of any change.
 2. All Workers shall maintain their actions in a professional and workmanlike manner while at the Project site. Failure to comply with the following restrictions shall be grounds for permanent removal from the list of authorized workers, as described above. Worker restrictions include, but are not limited to, the following:
 - a. No abusive language
 - b. No littering
 - c. No lewd behavior in public
 - d. No conduct otherwise deemed unacceptable by the Owner of Landscape Architect
 - e. Consumption of alcoholic beverages on the job, or coming to Work in an intoxicated condition
 - f. Possessing or consuming illegal drugs or any other illegal substance while working on the Project
 - g. Using or removing Owner's or Subcontractors' possessions from the property without prior written authorization
 - h. Violating any state, federal or town statues, rules, regulations, and the like while working on the Project
 - i. Possessing firearms or explosives while Working on the Project
 - j. Using Project facilities for jobs other than specific assignments directly related to the Work of this Project
 - k. Physically abusing or harming an individual who Works at or visits the Project
 - l. Duplication of any keys used in the existing or new building without prior written authorization
 - m. Providing building access at any time to anyone not directly working for the Contractor
 - n. Abusing, defacing, or destroying existing or new property of the Owner

- o. Preventing access to any and all areas of the Project by the Owner, Landscape Architect and the Owner's Consultants.

END OF SECTION

DIVISION 2

SECTION 31 10 00

SITE CLEARING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. All of the Contract Documents, including Drawings, General and Supplementary Conditions and Division 1 - General Requirements, apply to the Work of this Section.

1.02 SPECIAL INSTRUCTIONS

- A. The Contractor shall become familiar with other Sections of the Specifications to determine the type and extent of work there under which affects the work of this section whether or not such work is specifically mentioned.

1.03 DESCRIPTION OF WORK

- A. The Work of this Section includes, but is not limited to, furnishing and installation of the following:
 - 1. All materials, equipment, labor and services required for all Site Preparation Work, including all items incidental thereto, as specified herein and as shown on the Drawings.
 - 2. Clearing within the limits of work by cutting, grubbing and removing, together with proper disposal of, all trees, shrubs, stumps, roots and other objectionable materials except as otherwise provided herein.
 - 3. Demolition and removal from site or removal and stockpiling for reuse of items shown on the Drawings to be removed and reused including but not limited to, paving, curbs, fencing, signage etc., as required.
 - 3. Removal and disposal of pavement, above grade concrete/stone foundations, below grade footings, foundation walls, and other structures. Break up and completely remove from the site all other existing pavements, site improvements and structures so designated and remove other such existing items above and below not designated on the Drawings, but required for removal in order to perform all Work.
 - 4. Remove from the site other unsuitable materials as required which shall include the following:
 - a. Peat, organic silt and other organic materials subject to decomposition, consolidation or decay.
 - b. Miscellaneous fill including sand, gravel, cinders, ash, glass, wood, metal and municipal fill.
 - c. Ledge or boulders.

1.04 RELATED WORK SPECIFIED ELSEWHERE

SITE CLEARING
31 10 00-1

- A. Carefully examine all the Contract Documents for requirements that affect the Work of this Section.
- B. Other Specification Sections which directly relate to the Work of this section include, but are not limited to, the following:
 - 1. Section 31 20 00 - Earth Moving
 - 2. Section 31 25 00 - Sedimentation and Erosion Control
 - 3. Section 32 12 16 - Paving and Surfacing
 - 4. Section 32 12 10 - Site Improvements

1.05 REFERENCE SPECIFICATIONS

- A. A.S.T.M. - American Society for Testing and Materials.
- B. A.A.S.H.T.O. - American Association of State Highway and Transportation Officials.

1.06 SUBMITTALS

- A. Provide submittals in accordance with requirements of Section 01 33 00 – Submittal Procedures in accordance with requirements of the Contract Documents.
- B. Prior to commencement of any demolition or site preparation operations submit to the Landscape Architect, for review, a schedule for the phased demolition and the proposed methods to insure against possible damage to existing areas adjacent to where demolition operations will occur.
- C. Include a full description and plan for securing the site, safety devices maintenance of traffic and measures to be taken and time table for implementation.

1.07 SURFACE/SUBSURFACE INFORMATION

- A. The Owner assumes no responsibility for the Contractor's failure to make his own site investigation. Failure by the Contractor to be aware of existing site conditions shall not be cause for additional cost to the Owner.

1.08 PROTECTION

- A. All rules and regulations governing the respective utilities shall be observed in executing all work under this Section. All work shall be executed in such a manner as to prevent any damage to existing buildings, streets, curbs, paving, service utility lines, structures and adjoining property. Monuments and benchmarks shall be carefully maintained and, if disturbed or destroyed, replaced as directed.
- B. The Contractor shall assume full responsibility for damages caused by his or his Subcontractor's equipment and personnel to existing buildings and grounds as well as adjoining private property.
- C. The work of this Section shall be performed in such a manner as to cause no interference with

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access by the Subcontractors or other Contractors to all portions of the site as is necessary for the normal conduct of their work.

1.09 CLEAN UP

- A. Any soil, demolition debris or similar material which has been brought onto paved areas by hauling operations or otherwise shall be removed promptly, keeping these areas clean at all times.

PART 2 – MATERIALS

No materials are specified.

PART 3 – EXECUTION

3.01 PREPARATION

- A. Notify all corporations, companies, individuals or local authorities owning, or having jurisdiction over, utilities running to, through or across areas disturbed by demolition operations.

3.02 DEMOLITION

- A. General
 - 1. All existing features above and below grade within the contract limit lines shall be demolished as noted to prepare the site for all other work as specified in these Specifications, as shown on the Drawings and as ordered by the Landscape Architect.
 - 2. All site features shown or ordered to be removed shall be completely removed or removed to the limits as shown or specified
 - 3. All excavations resulting from the specified work shall be promptly backfilled and compacted. Any excavation within street lines shall be backfilled, compacted and paved all in accordance with the rules and regulations of the governing agency.
 - 4. The burning of material or debris on the premises will not be permitted.
 - 5. Remove and dispose of all unsuitable material off site as approved by the Landscape Architect. The City shall have right of first refusal for all materials. Any stockpiled material deemed surplus by the Landscape Architect shall also be removed.

3.03 CLEARING AND GRUBBING

- A. Clearing shall consist of the cutting and removal of all trees, logs, stumps, brush, roots and other objectionable material as shown on the plans or as directed by the Landscape Architect.
- B. Protect all areas to remain undeveloped outside the Limit of Work Line. Should these areas be damaged, the Contractor shall restore them to the satisfaction of the Landscape Architect at no additional cost. This includes the repairing and replacement of all damaged conditions such as plant materials and similar items.
- C. Grubbing shall include the removal and disposal off site of all stumps and roots.
- D. Fill all holes from removal of stumps and roots with specified fill compacted to subgrade.

3.04 DISPOSAL AND CLEAN UP

A. Demolished material

1. All demolished material declared unsuitable by the Landscape Architect shall become the property of the contractor and be legally disposed of, off the premises, until otherwise indicated or specified.
2. Keep all public ways clear of all spillage from trucks hauling material to and from the project site.

B. Premises

1. The premises shall be left in a safe, clean and relatively orderly condition upon completion of work under this Section.

C. Dust Control

1. Thoroughly wet down all work being demolished and all trucking ways as necessary to prevent spreading dust. Provide all water, hoses and connections required for dust control.

D. Waste Removal

1. All waste and debris caused by the Work of this Section shall be removed and legally disposed of daily

END OF SECTION

SECTION 31 20 00

EARTH MOVING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. All of the Contract Documents, including Drawings, General and Supplementary Conditions and Division 1 - General Requirements, apply to the Work of this Section.

1.02 SPECIAL INSTRUCTIONS

- A. The Contractor shall become familiar with other Sections of the Specifications to determine the type and extent of work there under which affects the work of this section whether or not such work is specifically mentioned.

1.03 DESCRIPTION OF WORK

- A. The Work of this Section includes, but is not limited to, furnishing and installation of the following:

1. All materials, equipment, labor and services required for all Earth Moving work, including all items incidental thereto, as specified herein and as shown on the Drawings.
2. Spoiled material not suitable for fill shall be removed from the site and disposed of. No burning on the site shall be permitted.
3. All topsoil shall be stripped to its entire depth wherever possible, screened and stockpiled for reuse as directed by the Landscape Architect.
4. Excavating, filling, trenching, backfilling, compaction of all description, required for the construction of walls, drainage structures, piping, pavements, lawn areas and site improvements. Provide all additional fill materials as required and specified herein
5. Pumping and/or bailing necessary to maintain excavated spaces free from water from any source whatsoever.
6. Provide graded materials, as specified, for fills, base courses and backfills as required.
7. Protect all existing buildings, utilities, roads, pavements, lawns, planting and other improvements from damage due to construction.
9. Install fencing and safety devices or controls as specified and as necessary.
10. Dust control and clean up.

1.04 RELATED WORK SPECIFIED ELSEWHERE

- A. Carefully examine all the Contract Documents for requirements that effect the Work of this Section.
- B. Other Specification Sections which directly relate to the Work of this section include, but are not limited to, the

following:

1. Section 31 25 00 - Sedimentation and Erosion Control

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2. Section 32 12 10 - Site Improvements
3. Section 32 12 16 - Paving and Surfacing
4. Section 33 41 00 - Storm Drainage

1.05 REFERENCE SPECIFICATIONS

- A. A.S.T.M. - American Society for Testing and Materials.
- B. A.A.S.H.T.O. - American Association of State Highway and Transportation Officials.
- C. S.S.H.B. - Standard Specifications for Highways and Bridges, the Commonwealth of Massachusetts, Department of Public Works, latest edition.

1.06 BENCH MARKS AND ENGINEERING

- A. Lines and grade work in accordance with Drawings and Specifications shall be laid out by a registered Civil Engineer or Surveyor employed by the Contractor. The Contractor shall establish permanent bench marks, to which access can easily be had during the progress of the work. The Contractor shall maintain all established bounds and bench marks and replace, as directed, any which may be disturbed or destroyed. The selection of the registered Civil Engineer or Surveyor shall be subject to the Landscape Architect's approval. The General Contractor shall pay all costs of the services of the Civil Engineer or Surveyor.
- B. The Contractor shall verify dimensions and elevations on the ground and report any discrepancies immediately to the Landscape Architect. Any discrepancies not reported prior to construction shall not be the basis for claims for extra compensation.

1.07 FINISHED GRADES

- A. The words "finished grades" as used herein mean the required final grade elevations indicated on the Drawings. Where not otherwise indicated, areas outside of buildings shall be given uniform slopes between points, for which finished grades are shown, or between such points and existing grade except that vertical curves or roundings shall be provided at abrupt changes in slope.

1.08 GRADES AND ELEVATIONS

- A. The Drawings indicate, in general, the alignment and finished grade elevations and sewer, drain, water and underground electric invert grades. The Landscape Architect, however, may make such adjustments in grades and alignment as are found necessary in order to avoid interference between utilities and to adapt the piping to other special conditions encountered.

1.09 PROTECTION

- A. All rules and regulations governing the respective utilities shall be observed in executing all work under this Section. All work shall be executed in such a manner as to prevent any damage to existing buildings, streets, curbs, paving, service utility lines, structures and adjoining property. Monuments and bench marks shall be carefully maintained and, if disturbed or destroyed, replaced as directed.
- B. The Contractor shall furnish all facilities and materials necessary to prevent the earth at the bottom of excavation from becoming frozen or unsuitable to receive footing or other load bearing units.

- C. The Contractor, under this Section, shall provide at his own expense adequate pumping and drainage facilities to keep the excavation sufficiently dry as not to affect adversely the quality or time of placement of concrete or other materials to be installed in the excavated areas.
- D. The Contractor shall assume full responsibility for damages caused by him or his Subcontractor's equipment and personnel to the existing buildings and grounds as well as adjoining private property.
- E. The work of this Section shall be performed in such a manner as to cause no interference with access by the abutters, Subcontractors or other Contractors to all portions of the site as is necessary for the normal conduct of their work.

1.10 SUBMITTALS

- A. Provide submittals in accordance with requirements of Section 01 33 00 – Submittal Procedures in accordance with requirements of the Contract Documents.

PART 2 - PRODUCTS

2.01 FILL MATERIAL

- A. Graded gravel for support of foundations and base course for concrete sidewalks, brick and cobblestone paving and bituminous paving shall be widely graded sand and gravel, free of clay, organic material, snow, ice, frozen soil or other deleterious materials, and conforming to the following gradation requirements. Soil finer than the No. 200 sieve shall be nonplastic.

U.S. Bureau of Standards Sieve Size and Number	Percent Passing	
	Minimum	Maximum
3- inches	100 %	
1 ½ inch	80%	100%
1/2 inch	50 %	100 %
No.4	30%	85%
No.10	20%	75%
No.60	5%	35%
No.200	0 %	*10 %

* 5% under sidewalks

- 1. Material falling within the above Specifications, encountered during the excavation, shall be stored in segregated stockpiles for reuse as Compacted Structural Fill. All material shall be subject to approval by the Landscape Architect.
- B. Ordinary Fill - Well-graded, natural inorganic soil approved by the Landscape Architect and meeting the following requirements to be used for general filling to subgrades in lawn areas and to the bottom of the subbase beneath pavements, sidewalks and other than specified above, and conforming to the following gradation requirements. Soil finer than the No. 200 sieve shall be nonplastic.

U.S. Bureau of Standards Sieve Size and Number	Percent Passing	
	Minimum	Maximum
6-inches	100 %	----
1 inch	50%	100%
No.4	20%	100%
No. 20	10%	70%
No.60	5%	45%
No.200	0 %	20 %

1. It shall be free of organic or other weak or compressible materials, of frozen materials, trash or other deleterious materials and of stones larger than six (6) inches maximum dimension.
 2. It shall be of such nature and character that it can be compacted to the specified densities in a reasonable length of time.
 3. It shall be free of highly plastic clays, of all materials subject to decay, decomposition or dissolution and of cinders or other materials which will corrode piping or other metal.
 4. It shall have a maximum dry density of not less than one hundred (100) pounds per cubic foot.
 5. Material from excavation on the site may be used as ordinary fill if it meets the above requirements.
- C. Structural fill - Ordinary fill and Structural Fill for base course shall be tested for gradation using wash sieves using the appropriate ASTM Standards. The gradation curves shall fit entirely within the envelopes defined by the limits.

PART 3 - EXECUTION

3.01 STRIPPING LOAM

- A. Stripping shall consist of the removal of all loam to the full depth encountered below the original ground surface, as herein specified or directed by the Landscape Architect. Every effort shall be made to strip and stockpile all available loam on the site.
- B. All loam so removed shall be stockpiled on the site where directed by the Landscape Architect. Loam shall be free of subsoil, stiff clay or hardpan and foreign material such as cinders, ashes, asphalt and wood. The suitability of stripped materials for use as loam shall be determined by the Landscape Architect, and his decision shall be final.
- C. Stockpiled loam shall be kept separate from other excavated materials and shall be screened, free of roots, stones larger than three-quarter (3/4) inch and other undesirable material that would interfere with planting.
- D. Excess loam shall become the property of the contractor and shall be removed from the site at no additional cost to the owner.

3.02 EXCAVATION

A. General

1. Excavate all materials to the elevations, dimensions and form as shown on the Drawings and as specified for the construction of, utility structures, utilities, site improvements and other structures necessary for the completion of the walls, utilities and site work. All unsuitable materials within the indicated and specified limits shall be excavated and removed. Any quantities involving an extra or other adjustment of the Contract Price shall be subject to measurement verification and approval by the Landscape Architect prior to the excavation and removal of such materials. Measurement of quantities for payment purposes shall be by means of survey of the subgrade. Unsuitable materials shall include the following:
 - a. Utility structures, building foundations and other man-made structures.
 - b. Peat, organic silt and other organic materials subject to decomposition, consolidation or decay.
 - c. Miscellaneous fill including cinders, ash, glass, wood and metal
 - d. Ledge or boulders except as specified for fills herein.
2. The Contractor shall obtain from the proper authorities locations of all utilities within the scope of this work so that there will be no damage done to such utilities. Neither the Owner nor the Landscape Architect will be responsible for any such damage, and the Contractor shall restore any structure or utility so damaged without additional compensation. Written notifications to the appropriate utility agencies shall be made at least ten (10) days prior to the commencement of any work.
3. Excess Material - Suitable excavated material which is required for fill and backfill shall be separately stockpiled as directed by the Landscape Architect. All surplus fill other than that required to complete the intent of the Contract shall become the property of the Contractor and shall be disposed of off the property by the General Contractor. All excavated materials which, in the opinion of the Landscape Architect, are not suitable for fill or backfill shall be removed and disposed of off the property.
4. Cobbles and boulders shall be removed from at least one foot below the finished subgrade.
5. Any unsanitary conditions encountered, such as broken sewer mains or uncovered garbage shall be corrected or removed entirely as directed by the Landscape Architect.

B. Excavation for Site Improvements

1. Excavate to the lines and grades shown on the Drawings and as specified to obtain the subgrades for the following items of work:
 - a. Concrete paving on grade
 - b. Bituminous concrete road and parking pavement
 - c. Segmental and Concrete retaining walls
 - d. Granite curb
 - e. Brick and Cobblestone paving

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- f. Seeded areas
- g. Shrub bed areas
- h. Unspecified improvements - to bottom elevation of item plus ample working space on all sides

2. In fill areas under proposed parking and driveways remove the pavement and soils to subgrade and compact to 95% dry density.

D. Excavation for Drainage Structures and Piping

1. The Work of this Section shall include all excavation, trenching, backfilling, and compaction as required for installation of the drainage system
2. Construct surface subgrades including filling prior to excavation for drainage piping and structures. Excavate to the lines and grades shown on the Drawings and as specified herein to obtain the subgrade for the following items of work:
 - a. Drainage structures - to grades shown on the Drawings. Remove by excavating all unsuitable materials; including peat and organic silt, from under drainage structures and backfill with specified fills compacted in place to subgrades.
 - b. Excavation for structures and other accessories shall have twelve (12) inch minimum and twenty-four (24) inch maximum clearance on all sides.
 - c. All utility lines - to twelve (12) inches below bottom of utility lines or structures.
 - d. Unless otherwise shown, provide separate trenches for each utility. Lay all piping in open trenches except where tunneling is required. Excavation for structures and other accessories shall have twelve (12) inch minimum and twenty-four (24) inch maximum clearance on all sides.
 - e. Grade the bottom of trenches evenly to have a constant pitch in the direction of flow and to insure a uniform compacted thickness of selected material as called for.
2. Existing services and utilities encountered shall be immediately repaired, protected and maintained in use until relocation of same has been completed or be cut and capped where directed or be prepared for connections when so required.

3.03 PROTECTION, SHORING AND DEWATERING

- A. Protect open excavations with steel plates, fencing, warning lights and other suitable safeguards.
- B. Shore and brace excavations as required so as to maintain them secure and provide sheet piling as necessary to prevent cave-ins. Remove shoring and piling before backfilling is completed and as specified herein.
- E. Provide all pumps and pumping facilities, including a well point system as necessary with attendants, to keep all excavations free from water from whatever source at all times, when work is in progress or when necessary for protection and integrity of the work in place. Trenches shall be kept water-free during jointing and for sufficient time thereafter to allow the jointing material to become fully set and completely resistant to water penetration.

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- F. Maintain ground water in the bearing soil strata at a safe level at all times by methods which prevent loss of fines or other disturbances to these strata. If the methods employed have not been adequate and the bearing value of the soil has been reduced, remove disturbed soil as directed and replace with compacted graded gravel or concrete at no expense to the Owner.
- G. Any ditching required to keep the site free from water during construction is the responsibility of the Contractor and will be repaired, topsoiled and seeded before completion of work.

3.04 FILLS, BACKFILLS AND COMPACTION

A. Samples and Testing

- 1. All fill material and its placement shall be subject to quality control testing. A qualified laboratory will be selected by the Owner to perform tests on materials. All costs of testing will be paid for by the Owner. Test results and laboratory recommendations shall be available to the Landscape Architect.
- 2. Provide samples of each fill material from the proposed source of supply including on-site sources. Allow sufficient time for testing and evaluation of results before material is needed. Submit samples from alternate source if required.
- 3. Landscape Architect will be sole and final judge of suitability of all material.
- 4. The laboratory will determine maximum dry density and optimum water content in accordance with A.S.T.M. D-1557, Method D and the in-place density in accordance with A.S.T.M. D-1556.
- 5. Tests of material as delivered may be made from time to time. Materials in question may not be used, pending test results. Tests of compacted materials will be made regularly. Remove rejected materials and replace with new, whether in stockpiles or in place.
- 6. Cooperate with laboratory in obtaining field samples of in-place materials after compaction. Furnish incidental field labor in connection with these tests.

B. Placing Fills and Compacting

- 1. Fill material shall be placed in horizontal layers not exceeding the maximum loose lift thickness with the minimum number of passes of compaction equipment as summarized on the table below. Each layer shall be compacted to the percentage of maximum dry density specified for the particular type of fill and at a water content equal to optimum water content plus or minus two (2) percent. The maximum dry density and optimum water content shall be as specified herein.

<i>Compaction Method</i>	<i>Max. Stone Size</i>	<i>Max. Loose Lift Thickness</i>		<i>Min. Number of Passes</i>	
		<i>Below Structures & Pavement</i>	<i>Critical Areas</i>	<i>Less Structures & Pavement</i>	<i>Less Critical Areas</i>
Hand-operated vibratory plate or light roller in	4"	4"	8"	8"	6
4 confined areas					
Hand-operated vibratory drum rollers weighing at	6"	6"	8"	10"	6

4	least 1,000# in confined areas				
	Light vibratory drum				
	Roller, minimum weight	6"	10"	12"	6
4	At drum 5,000#, minimum Dynamic force 10,000#				
	Medium to heavy				
	Vibratory drum roller,	8"	12"	15"	6
4	Minimum weight at drum 10,000#, minimum dynamic force 20,000#				

2. Areas to be filled or backfilled shall be free of construction debris, refuse, compressible or decayable materials and standing water. Do not place fill when fill materials or layers below it are frozen.
3. Notify the Landscape Architect when excavation is ready for inspection. Filling and backfilling shall not be started until conditions have been approved by the Landscape Architect.
4. Before backfilling against walls, the permanent structures must be completed and sufficiently aged to attain strength required to resist backfill pressures without damage. Temporary bracing will not be permitted except by written permission from the Landscape Architect. When filling on both sides of a wall or pier, place fill simultaneously on each side. Correct any damage to the structure caused by backfilling operations at no cost to the Owner. Place no stones closer than eighteen (18) inches to wall surfaces.
5. In confined areas adjacent to footings and foundation walls and in utility trenches beneath floor slab, the fill shall be compacted with hand operated vibration tampers. The maximum lift thickness shall be four (4) inches. The degree of compaction attained shall be equivalent to that attained in the adjacent open areas where heavy rolling equipment is used.
6. After the subgrade under concrete slabs and paved areas has been shaped to line, grade and cross-sections, it shall be rolled with an approved power roller weighing not less than six (6) tons until thoroughly compacted. This operation shall include any reshaping, refilling or wetting required to obtain proper compaction. Any areas that subsequently settle shall be refilled to true subgrade and properly compacted.

C. Placing Structural Fills

1. Structural fill shall be placed under the footings and slabs and pavements in layers as described in the above table and compacted to at least ninety-five (95) percent of maximum dry density as determined by A.S.T.M. Test D1557. with moisture contents within +/- 2 percentage points of optimal moisture content. Incidental compaction due to traffic by construction equipment will not be credited toward the required minimum coverages.

D. Deficiency of Fill Materials

1. Provide required additional fill materials as specified if a sufficient quantity of suitable materials is not available from the required excavation on the project site at no additional cost to the Owner.

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2. Where water content of the fill must be adjusted to meet this Specification, the fill shall be thoroughly disked to insure uniform distribution of any water added.

E. Fill and Backfill for Drainage

1. Backfill trenches only after pipe has been inspected, tested and locations of pipes and appurtenances have been recorded.
2. Each pipe section shall be laid on a twelve (12) inch minimum bed of crushed stone as specified herein above. In addition, the water line shall be set in a six (6) inch bed of sand. Bed shall be shaped by means of hand shovels to give full and continuous support to the lower one-third (1/3) of each pipe. Backfill by hand around pipe, and for a depth of twelve (12) inches above pipe, use sand or crushed stone and tamp firmly in layers not exceeding six (6) inches in thickness. Take care not to disturb the pipe. Compact the remainder of the backfill thoroughly with a rammer of suitable weight or with an approved mechanical tamper to achieve compaction of ninety-five (95) percent as specified.
3. Trenches and utility structures shall be backfilled with greatest care; only the suitable materials taken from the excavation shall be used. Any additional fill materials required for backfilling to subgrades shall be graded fill or ordinary fill as specified. Backfill shall be compacted to ninety-five (95) percent as specified. No mud, frozen earth or stone more than six (6) inches in greatest diameter or other objectionable material shall be used for refilling. Any selected material required for filling, in addition to earth from trench excavation, shall be furnished and placed by the Contractor.

3.05 SUBGRADE PREPARATION

- A. Bring all areas to required subgrade levels as specified and as determined from the Drawings.
- B. Maintain all subgrades for site improvements in satisfactory condition, protected against traffic and properly drained, until the surface improvement is placed. In areas to receive pavement or other surface materials, at top and bottom of embankments, along swales and elsewhere, place sufficient grade stakes to facilitate checking the subgrade levels. Correct all irregularities, compacting thoroughly any fill materials.
- C. Check all manhole covers, grates, valve boxes and similar structures for correct elevation and position and make, or have made any necessary adjustments in such structures.
- D. All subgrades must be inspected and approved by the Landscape Architect before paving, loaming or other site improvements are made.

3.06 DUST CONTROL

- A. The Contractor shall employ all possible methods and/or materials to prevent the spread of dust. Chemical materials may not be used on subgrades of areas to be seeded or planted.

3.07 CLEANING

100% BID DOCUMENTS
SENIOR CENTER PARKING
WALTHAM, MASSACHUSETTS
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All waste and debris caused by the Work of this Section shall be removed and legally disposed of daily, in accordance with requirements of Section 01 50 00 - Temporary Facilities and Controls

- A. All waste and debris caused by the Work of this Section shall be removed and legally disposed of daily, in accordance with requirements of Section 01 50 00 - Temporary Facilities and Controls, and Section 01 74 19 - Construction Waste Management and Disposal, and Section 01 81 15 - Sustainable Material Requirements.

END OF SECTION

SECTION 31 23 21

SEDIMENTATION AND EROSION CONTROL

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. All of the Contract Documents, including Drawings, General and Supplementary Conditions and Division 1 - General Requirements, apply to the Work of this Section.

1.02 DESCRIPTION OF WORK

- A. The Work of this Section includes, but is not limited to, furnishing, installation, maintenance and the removal of the following:
 - 1. All labor, materials, equipment and other incidentals required to complete all sedimentation and erosion control work as shown or specified
 - 2. Installation and maintenance of erosion control devices including silt socks.
 - 3. Stabilization of temporary crushed stone entry pad
 - 4. Seeding, mulching sodding and or installation of erosion control fabrics in critical areas to provide temporary protection for the duration of the construction process
 - 5. Dust control.
 - 6. Sediment removal and disposal
 - 7. Maintenance of erosion control devices.
 - 8. Removal of erosion control devices
 - 9. Final clean up
- C. The Contractor shall adhere to plans and specifications showing methods to be used for erosion control during construction period along with schedule of construction operations.
- D. It is not the intent herein to describe all the items and work to be required under this Section. The Contractor shall assure himself that all work to be completed, not otherwise specified herein but shown on the drawings or implied, shall be accomplished under this Section at no additional cost to the Owner.

1.03 RELATED WORK SPECIFIED ELSEWHERE

- A. Carefully examine all the Contract Documents for requirements that effect the Work of this Section.
- B. Other Specification Sections which directly relate to the Work of this section include, but are not limited to, the

following:

1. Section 31 20 00 - Earth Moving
2. Section 32 12 16 - Paving and Surfacing
3. Section 32 12 10 - Site Improvements
4. Section 33 41 00 - Storm Drainage

1.04 REFERENCE SPECIFICATIONS

- A. A.S.T.M. - American Society for Testing and Materials.
- B. A.A.S.H.T.O. - American Association of State Highway and Transportation Officials.
- C. S.S.H.B. - Standard Specifications for Highways and Bridges, the Commonwealth of Massachusetts, Department of Public Works, latest edition.
- D. Massachusetts Erosion and Sedimentation Control Guidelines for Urban and Suburban areas, latest edition.

1.05 PERFORMANCE REQUIREMENTS

- A. The Contractor shall be responsible for the timely installation and maintenance of all sedimentation control and dewatering devices necessary to prevent the movement of sediment from the construction site to offsite areas. Measures in addition to those shown on the Drawings necessary to prevent the movement of sediment off site including siltation fencing and straw bales shall be installed, maintained, removed and cleaned up for the duration of the construction at the expense of the Contractor. No additional charges to the owner shall be considered.

1.06 PROJECT CONDITIONS

- A. Install soil erosion and sediment control materials prior to any major soil disturbance, or in proper sequence, and maintain until permanent vegetation is established.
- B. Comply with applicable local and state regulations relating to the prevention and abatement of pollution.

1.07 SUBMITTALS

- A. The Contractor shall provide the following samples and/or submittals for approval. Do not order materials until approved of samples, certifications or test results have been obtained. Delivered materials shall close match the approved samples.
 1. Silt socks.

PART 2 - MATERIALS

2.01 OIL AND SEDIMENT GUARD

- A. Oil and Sediment guard for catch basins shall be a non woven polypropylene geotextile fabric such as Ultra-tech as manufactured by AIRGAS or approved equivalent.

2.02 LATEX TACKIFIER

- A. Latex acrylic copolymer, such as Soil Sealant with coalescing agent as manufactured by Soil Stabilization Co., Merced, California or approved equivalent shall be used as straw mulch tackifier.

2.03 SOIL STABILIZER / DUST CONTROL

- A. Soil stabilization agent shall be a copolymer emulsion, environmentally safe, biodegradable, durable, and resistant to water, sun alkaline and daily use
- B. Agent shall be Soiltac as manufactured by Soilworks LLC, Gilbert, Arizona (800) 545-5420 or approved equivalent.

2.04 STRAW WADDLES

- A. Wattles shall be made from 100% synthetic fibers 12" wide X 25' long with pre made stakes as manufactured by The BPM Store or approved equivalent

2.05 CRUSHED STONE ENTRANCE PAD

- A. Crushed stone for entrance pad shall be one and one-half (1'1/2") inch crushed as specified in Section 02200 – Earthwork.
- B. Soil separator shall be Mirafi 600X or approved equivalent.

PART 3 – EXECUTION

3.01 GENERAL REQUIREMENTS

- A. The Contractor shall provide suitable and adequate means of sedimentation and erosion control during construction
- B. Periodic maintenance of all sediment control installations shall be provided to ensure intended purposes are accomplished. Sediment control measures shall be in working condition at the end of each day.
- C. After significant rainfall, sediment control devices shall be inspected for integrity. Any damaged

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device shall be corrected immediately.

- D. The “Massachusetts Erosion and Sedimentation Control Guidelines for Urban and Suburban Areas” should be consulted as a guide for the selection and installation of Best Management Practices to suit the conditions encountered.

3.02 OIL AND SEDIMENT GUARD

- A. Furnish, install and oil and sediment guards on existing and proposed catch basins within the limit of work.

3.03 CRUSHED STONE ENTRANCE PAD

- A. Crushed stone entrance pad shall be installed at all access points
- B. Strip loam and subsoil twelve inches deep for area below pad and compact subgrade.
- C. Place soil separator on prepared subgrade and backfill with crushed stone twelve inches deep.
- D. Remove and replace stone once it has become contaminated with silt.

3.04 SOIL STABILIZER

- A. Soil stabilizer shall be applied to prevent dust and loss of soil due to erosion. Apply agent as per manufacturer’s instructions and as directed by the Landscape Architect.
- B. Application rates: Per manufacturer’s recommendations.
- C. Traffic areas shall be compacted to 95% prior to application of agent.

3.05 MAINTENANCE AND INSPECTIONS

- A. Contractor shall make a visual inspection of all sedimentation control devices once per week and promptly after every rainstorm. If such inspection reveals that additional measures are needed to prevent movement of sediment to offsite areas Contractor shall promptly install additional devices as needed. Sediment controls in need of maintenance shall be repaired promptly.
- B. Maintenance
 - 1. Silt socks
 - a. Remove accumulated sediment once it builds up
- C. Contractor shall immediately correct any erosion control problem.

3.06 REMOVAL AND FINAL CLEANUP

- A. Once the site has been fully stabilized against erosion remove sediment control devices and all accumulated silt. Re-grade all areas disturbed during this process and stabilize against erosion with surfacing materials and erosion control devices as directed by the Landscape

END OF SECTION

SECTION 32 12 10

SITE IMPROVEMENTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. All of the Contract Documents, including Drawings, General and Supplementary Conditions and Division 1 - General Requirements, apply to the Work of this Section.

1.02 DESCRIPTION OF WORK

- A. The Work of this Section includes, but is not limited to, furnishing and installation of the following:
 - 1. All materials, equipment, labor and services required for all Site Improvement work, including all items incidental thereto, as specified herein and as shown on the Drawings.
 - 2. Gravel bases and site concrete as required to complete Work provided under this Section
 - 3. Construction fence and gates
 - 4. Ornamental iron fence
 - 5. Black vinyl Chainlink fence
 - 6. Traffic signs
 - 7. Stone wall with lettering
 - 8. Park bench
 - 9. Concrete filled steel bollards
 - 10. Privacy Fence

1.03 RELATED WORK SPECIFIED ELSEWHERE

Carefully examine all the Contract Documents for requirements which affect the Work of this Section.

- A. Other Specification Sections which directly relate to the Work of this section include, but are not limited to, the following:
 - 1. Section 03 30 00 - Cast-In-Place Concrete
 - 2. Section 32 10 00 - Site Clearing
 - 3. Section 31 20 00 - Earth Moving
 - 4. Section 31 23 21 – Sedimentation and Erosion Control
 - 5. Section 32 12 16 - Paving and Surfacing

1.04 REFERENCE SPECIFICATIONS

- A. Definitions and Reference Standards:
 - 1. ASTM: Specifications of the American Society for Testing and Materials.
 - 2. ACI: American Concrete Institute.

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3. Building Code: Commonwealth of Massachusetts State Building Code.
4. SSHB: Standard Specifications for Highways and Bridges, the Commonwealth of Massachusetts, Mass. Highway Department, latest edition

1.05 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

1.06 SUBMITTALS

- A. Provide submittals in accordance with requirements of Section 00 33 00 – Submittal Procedures in accordance with requirements of the Contract Documents.
- B. Submit shop drawings for the ornamental iron fence and gate, trash enclosure and stamped engineering drawings for the segmental unit retaining wall and concrete retaining wall.

1.07 OTHER REQUIREMENTS

- A. Upon completion of work under this Section, all excess materials and debris resulting from work under this Section which have not previously been cleaned up shall be cleaned up and removed from the project site

PART 2 - PRODUCTS

2.01 GRAVEL BASES

- A. Gravel base material shall be graded gravel fill for all site improvements as called for on the Drawings under and/or around pavements, slabs and foundations and backfill around pipes as specified and shall consist of a well-graded sand and gravel, free from deleterious matter, loam and clay.

2.02 SITE CONCRETE

- A. Concrete for above grade site improvements shall be air-entrained having a minimum strength of four thousand (4,000) p.s.i. in twenty-eight (28) days.
- B. Concrete for all bases shall be air-entrained having a minimum strength of three thousand (3,000) p.s.i. in twenty-eight (28) days.
- C. Reinforcing steel bars shall be newly rolled stock conforming to ASTM A615 Grade Forty (40) sixty thousand (60,000) p.s.i. ultimate strength with deformations in accordance with ASTM 1305, free of loose rust, scale or other coatings.
- D.

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2.03 TEMPORARY CONSTRUCTION FENCE & GATE

- A. Manufacturer of all chain link fence material for the fence and gate shall be subject to the Landscape Architect’s approval.
- B. Fabric shall be steel wire, hot-dipped galvanized, two (2) inch mesh. The zinc coating shall weight two (2) ounces per square foot of surface. Fabric gauge: No. nine (9); height: seventy-two (72”) inches.
- C. Posts and gate frames shall be A.S.A. Schedule Forty (40) galvanized steel conforming to A.S.T.M. 120. The pipe shall be galvanized to withstand twelve (12) one (1) minute immersions in the Preece Test and shall be the following size and weight:

	Outside Diameter (In inches)	Weight in Pounds (Per Linear Foot)
Corner Braces	1.660	2.27
Line posts	1.9	2.72
Corner & Terminal Posts	2.375	3.65
Gate posts	3.0	5.79
Internal gate bracing	1.660	2.27

- D. Truss rods shall be three-eighths (3/8) inch diameter galvanized steel.
- E. Fittings and other appurtenances shall be pressed steel, malleable or cast steel, galvanized to withstand six (6) one (1) minute immersions in the Preece Test.
- F. Tension bars shall be three-sixteenths (3/16) inch by five-eighths (5/8) inch steel, galvanized to withstand six (6) one (1) minute immersions in the Preece Test.
- G. Tie wires shall be No. Nine (9) gauge wires, galvanized to withstand six (6) one (1) minute immersions in the Preece Test.
- H. Post caps shall be heavy malleable iron or pressed steel and galvanized to withstand six (6) one (1) minute immersions in the Preece Test.
- I. Gates shall have all latches, stops, keepers and hinges necessary for proper functioning.
- J. Submit complete shop drawings of gate, hinges, drop bar locking devices, etc., for the Landscape Architect’s review prior to fabrication.

2.04 PERMANENT CHAIN LINK FENCE AND GATES

- A. Manufacturer of all chain link fence material for the fence gates and backstop shall be subject to the Landscape Architect’s approval.
- B. Chain link fabric shall be vinyl coated, No. Nine (9) core thickness with a uniform square mesh measuring approximately two (2) inches between its parallel sides, woven out of a wire which shall consist of a good commercial quality steel, rails and posts shall be sized as shown in paragraph
- C. All chain link fence fabric shall have a seven (7) mil coating of polyvinyl chloride bonded by the fusion method. The vinyl in the coating shall have a maximum specific gravity of 1.33, be evenly applied and free of blisters - with the bond between the vinyl coating and the steel wire equal or greater than the coating strength of the vinyl. The color of the coating shall be black. Fabric shall be vinyl coated and shall be furnished with selvages knuckled on both ends, height shall be seventy-two (72”) inches and forty-eight inches (48”).
- C. Rails and posts shall be vinyl coated ASA Schedule Forty (40) galvanized steel conforming to ASTM 120. The pipe shall be hot dipped galvanized to withstand twelve (12) one (1) minute immersions in the Preece Test and shall be the following size and weight.

Component Size Key

<u>Component</u>	<u>Outside Diameter In Inches</u>	<u>Weight in Pounds per Linear Foot</u>
B	2.875”	5.79#
C	2.375”	3.65#
D	1.900”	2.72#
E	1.660”	2.27#
Components	48”	
Terminal Posts	C	
Gate Posts	B	
Line Posts	D	
Top Rail	E	
Bottom Rail	E	
Corner Braces	E	
Gate Frames	E	
Bracing	E	

- E. Truss rods shall be three-eighths (3/8) inch diameter galvanized steel.

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- F. Fittings and other appurtenances shall be pressed steel, malleable or cast steel, galvanized to withstand six (6) one (1) minute immersions in the Preece Test.
- G. Tension bars shall be three-sixteenths inch (3/16") by five-eighths (5/8) inch steel, galvanized to withstand six (6) one (1) minute immersions in the Preece Test.
- H. Tie wires shall be No. Nine (9) gauge wires, permafused. Color black.
- I. Post caps shall be heavy malleable iron or pressed steel and galvanized to withstand six (6) one (1) minute immersions in the Preece Test.
- J. Gates shall have all latches, stops, keepers and hinges necessary for proper functioning.
- K. Submit complete shop drawings of fencing, gates, hinges, rollers, drop bar locking devices, etc., for the Landscape Architect's approval prior to fabrication.
- L. All Components shall be vinyl coated fusion bond, color black.

2.05 TRAFFIC SIGNS

- A. Sign face shall be 0.080 inch thick aluminum meeting the requirements of A.S.T.M. B209 Alloy 6061-T6. Clamp for attaching signs to light post to be one-half (1/2) inch wide, heavy duty adjustable stainless steel pipe clamp. All bolts and hardware to be galvanized steel conforming to A.S.T.M. A307.
- B. Color of standard highway signs shall be in accordance with M.U.T.C.D. Standards.
- C. Color of non-standard highway signs shall match that of existing sign being replaced.
- D. Paint to be exterior enamel in a semi-gloss finish conforming to the general requirements Section M7 of S.S.H.B.
- E. Handicapped parking signs shall be heavy gauge aluminum, color blue on white, one (1) foot by one (1) foot six (6) inches, available from Massachusetts Department of Corrections, Industries Division, 100 Cambridge Street, Boston, Massachusetts 02202, or approved equivalent.
- F. Sign posts for signs shall be of the breakaway design conforming to A.S.T.M. A366, 1-3/4"x 1-3/4" steel tubing. Face of sign posts to have 2" wide reflective panels. Sheeting grade to be High intensity, white.

2.06 PARK BENCH

- A. Bench shall be steel fabricated, ribbed style with back and cast iron supports with armrest on each end. Finish to be powder coated (black) over zinc primer. Bench support to have flange for bolting to

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paved surface as manufactured by Dumor Inc. in Mifflintown, PA, Belson Outdoors in North Aurora, IL, Keystone Ridge in Butler, PA or Architect approved equivalent.

2.07 STONE WALL AND LETTERING

- A. Stone for wall shall be natural Bluestone with a thickness from 3" – 6" and a length from 12" – 24".
- B. Lettering shall be cast bronze, polished, Times New Roman style with beveled edge, 12" high, suitable for mounting on a stone wall. Letters shall be guaranteed for 25 years.
- C. Top of wall spikes to be cast bronze, 3" high, rounded suitable of installation in stone wall.

2.08 CONCRETE FILLED STEEL BOLLARDS

- A. Pipe shall be welded and seamless galvanized steel pipe with plain ends and welded cap, conforming to A.S.A. Pipe Schedule Forty (40), A.S.T.M. A-120. Size shall be 5.563 inches outside diameter with .258 inch nominal wall thickness, 14.62 pounds per linear foot.

Concrete for filling bollards shall be three thousand (3,000) p.s.i. in 28 days. Paint shall be exterior, semi-gloss enamel. Color to be selected by the Landscape Architect. Reflective tape to be polyester, heavy duty, premium, 3" wide.

2.09 PRIVACY FENCE

- A. The privacy fence shall be six feet high fabricated from pressure treated Yellow Pine. Fence to have top, middle and bottom supports. Posts shall be 4"x4". Vertical boards on both sides of fence to be 1" x 6". All posts to have "New England type" caps. Fence to be as manufactured by Walpole Woodworkers, Walpole, Massachusetts or approved equivalent by the Landscape Architect.
- B. Submit shop drawings of fence.

PART 3 - EXECUTION

3.01 SUBGRADE FOR SITE IMPROVEMENTS

- A. Grading - Do any necessary grading to bring subgrades, after final compaction, to the required grades and sections for site improvements.
- B. Preparation of Subgrade - Loosen exceptionally hard spots and recompact. Remove spongy and otherwise unsuitable materials and replace with stable material. Fill and tamp traces of utility trenches.
- C. Compaction of Subgrade - Maintain all subgrades in satisfactory condition, protected against traffic and properly drained, until the surface improvement is placed. Place grade stakes spaced sufficiently to afford facility for checking the subgrade levels. Correct irregularities, compact thoroughly any fill materials.

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- D. Utility Structures - Check for correct elevation and position all manhole covers, grates, valve boxes and similar structures located within areas to be paved or surfaced and make, or have made, any necessary adjustments in such structures.

3.02 GRAVEL BASES

- A. Base courses shall consist of the specified graded gravel material, compacted in equal thickness layers of six (6) inches maximum compacted thickness, upon the prepared and approved subgrade to the finished compacted thickness shown on the Drawings and as specified herein.
- B. The gravel shall be placed and spread in uniform layers from self-spreading vehicles or with power graders of approved types or by hand. Care shall be taken while spreading to rake forward and distribute the largest stones so that they will be at the bottom of the gravel course and be evenly distributed.
- C. The gravel so placed shall be thoroughly watered and rolled true to the lines and grades which a roller weighing eight (8) to ten (10) tons. Any depressions that appear during or after the rolling shall be filled with gravel and rerolled until the surface is true and even. Any portion which is not accessible to a roller shall be compacted by mechanical or hand tamper.
- D. The surface of any layer shall be maintained in its finished condition until succeeding layer is placed. The base shall be properly drained at all times.
- E. The finished grade of the base course shall be true to the lines and grades as shown on the Drawings, less thickness of pavement including cross-sections. Grade evenly and smoothly between points called for, especially transition zones, and rounding vertical curves. The construction methods shall conform to the requirements of Section 405 of S.S.H.B., latest edition.

3.03 SITE CONCRETE

- A. Construct poured-in-place concrete bases for bollards, fences, etc., as indicated on the Drawings and as specified herein.
- B. Construct reinforced concrete retaining wall, complete as shown on the Drawings, in accordance with requirements of Section 03 30 00 Cast-in-Place Concrete, and as directed by the Landscape Architect.

3.04 TEMPORARY CONSTRUCTION CHAIN LINK FENCE AND GATES

- A. Set all posts to depth of three (3) feet, 10 feet on center. Set and plumb posts, fill holes for gate posts, corner and terminal posts with three thousand (3,000) psi concrete as specified. Crown top surface of concrete to shed water. Brace all terminal posts horizontally with sections used for top rail.

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- B. Brace all terminal posts horizontally with sections used for top and bottom rail. The top and bottom rails shall extend through all line posts to form a continuous brace from end to end of each stretch of fence fabric, be securely fastened at the end of each run, and have joints made with expansion sleeve couplings not less than six (6) inches long.

3.05 PERMANENT CHAIN LINK FENCE

A. General

- 1. Furnish and install chain link fence and gates as shown on the Drawings and as specified. Provide fabric, posts, rails, tie wires, fittings and other appurtenances as required.
- 2. Four foot high fences to have top and bottom rails
- 3. Foundation Bases - Line, corner, terminal and gate posts shall be set in concrete bases, three thousand (3,000) p.s.i. in twenty-eight (28) days. Pipe posts shall be set flush with or protruding through bottom of concrete base.
- 4. Posts shall be set true to line and grade of fence. Fabric shall be stretched uniformly and as tightly as practicable.
- 5. Install nine (9) gauge fabric on all fencing as shown on the drawings.
- 6. All work shall be performed by competent workmen regularly engaged in chain link fence installation.
- 7. Submit complete shop drawings for Landscape Architect's review prior to fabrication and installation.

B. General Fence and Gates

- 1. Furnish all materials and install fencing and gates as specified and as shown on the Drawings.
- 2. Concrete bases for posts shall be the following minimum sizes:

	Base Diameter	Base Depth
Corner and terminal posts	18 inches	4 feet
Line posts	12 inches	4 feet

- 3. Line posts shall be spaced in the line of fence not further apart than ten (10) feet.
- 4. All corners and terminal posts shall be braced with one and five-eighths (1-5/8) inch O.D. brace rail, ten (10) feet long with a diagonal three-eighths (3/8) inch truss rod and attached to the first ensuing line post.

- C. Brace all terminal posts horizontally with sections used for top and bottom rail. The top and bottom rails shall extend through all line posts to form a continuous brace from end to end

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of each stretch of fence, be securely fastened at the end of each run, and have joints made with expansion sleeve couplings not less than six (6) inches long.

3.09 TRAFFIC SIGNS

- A. Furnish and install traffic signs as shown on the Drawings, as specified and in accordance with manufacturer's recommendations,
- B. Posts to be "break away type" with reflective panels.

3.10 STONE SEAT WALL

- A. Submit samples of bluestone, mortar color and cast bronze letters and spikes to the Landscape Architect for approval.
- B. Furnish and construct bluestone wall 24" wide and 48" high on concrete footing with mortar joints as specified and as shown on the drawings. Stones shall be laid at a 90 degree to the ground with the face to be flush with a maximum of 1" difference. Top to be level and even with a slope of 1" front to back edge to drain surface water.
- C. Furnish and install bronze letters: WELCOME TO WALTHAM on face of wall by drilling holes in stone face and filling with 100% pure silicone.
- D. Furnish and install cast bronze spikes on top of wall in the center, 18" apart by drilling holes in the wall and filling with 100% pure silicone.

3.11 CONCRETE FILLED STEEL BOLLARDS

- A. Furnish and install the specified concrete filled steel bollards in concrete bases as shown on the Drawings. Paint bollards with two coats of enamel and apply reflective tape as specified.

3.12 PRIVACY FENCE

- A. Furnish and install privacy fence as specified. Posts shall be installed in galvanized steel "shoes" set in 12" diameter, 4' deep concrete. Fence to be level.

3.13 CLEANING

- A. All waste and debris caused by the Work of this Section shall be removed and legally disposed of daily, in accordance with the requirements of Section 01 50 00 - Temporary Facilities and Controls

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END OF SECTION

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SECTION 32 12 16

PAVING AND SURFACING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. All of the Contract Documents, including Drawings, General and Supplementary Conditions and Division 1 - General Requirements, apply to the Work of this Section.

1.02 DESCRIPTION OF WORK

- A. The Work of this Section includes, but is not limited to, furnishing and installation of the following:
 - 1. All materials, equipment, labor and services required for all Paving and surfacing work, including all items incidental thereto, as specified herein and as shown on the Drawings.
- B. Work of this Section includes, but is not limited to, the following:
 - 1. Gravel bases
 - 2. Bituminous concrete roadway.
 - 3. Bituminous concrete road repair
 - 4. Concrete walks and handicap curb cuts
 - 5. Reinforced concrete pad for electric cabinet
 - 6. Vertical granite curbing and curb corners
 - 7. ADA detectable warning pads
 - 8. Traffic marking paint
 - 9. Concrete mower strip

1.03 RELATED WORK SPECIFIED ELSEWHERE

- A. Carefully examine all of the Contract Documents for requirements which affect the work of this section.
- B. Other Specification Sections which directly relate to the work of this section include, but are not limited to, the following:
 - 1. Section 03 30 00 - Cast-In-Place Concrete
 - 2. Section 31 20 00 - Earth Moving
 - 3. Section 31 25 00 – Sedimentation and Erosion Control
 - 4. Section 32 12 10 - Site Improvements
 - 5. Section 33 41 00 – Storm Drainage

1.04 REFERENCE SPECIFICATIONS

- A. ASTM - American Society for Testing and Materials.
- B. AASHTO - American Association of State Highway and Transportation Officials.
- C. SSHB - Standard Specifications for Highways and Bridges, the Commonwealth of Massachusetts, Massachusetts Highway Department, latest edition.

1.05 SUBMITTALS

- A. Provide submittals in accordance with requirements of Section 00 33 00 – Submittal Procedures in accordance with requirements of the Contract Documents.

PART 2 - PRODUCTS

2.01 GRAVEL BASES

- A. Provide gravel base material for all paving and surfacing in accordance with gradation requirements specified in Section 31 20 00 - Earth Moving.

2.02 BITUMINOUS CONCRETE

- A. Bituminous concrete shall be Class I, Type I-1 conforming to description of Massachusetts Standard Specifications for Highways and Bridges (S.S.H.B.), Section 460 for Binder Course and Top Course in accordance with Division III, Section M, and Materials.

2.03 VERTICAL GRANITE CURB, CURB CORNERS, AND CURB INLETS

- A. Granite Curb, curb corners, and curb inlets shall be in conformance with applicable sections of the S.S.H.B. as to the size and dimensions. Type VA 4 is for drive and parking.

2.04 CONCRETE PAVEMENT, HANDICAP CURB CUTS AND MOWER STRIP

- A. Concrete pavement shall be air-entrained having a minimum strength of four thousand (4,000) p.s.i. in twenty-eight (28) days.
- B. Reinforcing for concrete pavement and pads shall be six (6) by six (6) inches, No. Ten (10) welded wire mesh. For sections of the concrete pavement in the existing driveway the concrete shall be 6" thick with number 4 steel reinforcing bars 12" on center in both directions.
- C. Concrete to conform to all requirements as specified in Section 03 30 00 - CAST-IN-PLACE CONCRETE.

- D. Welded Wire Mesh: ASTM A185, welded plain cold-drawn steel wire fabric.
 - 1. Furnish in flat sheets, not rolls, unless otherwise acceptable to Landscape Architect.
- E. Joint Dowel Bars: ASTM A615, Grade 60, plain steel bars. Cut bars true to length with ends square and free of burrs.
- F. Expansion joint materials - three-eighths (3/8) inch self-expanding cork subject to specific written approval by the Landscape Architect and shall conform to the requirements of A.S.T.M. D-1752, Type III.
- G. Joint sealers for sealing the top portion of expansion joints shall be one-component, elastomeric-type compound conforming to Federal Specification TT-S-00230C, Class A, Type I.

2.05 ADA DETECTABLE WARNING TILES

- A. Detectable warning tiles shall be 24" x 36" red, cast in place tiles as manufactured by ADA Solutions, North Billerica, MA (888)501-9699 or approved equivalent.

2.06 TRAFFIC MARKING PAINT

- A. Paint for parking stripes for parking areas, handicap symbol and crosswalks markings shall be white and blue traffic markings with glass beads conforming to S.S.H.B., Division III, Sections M7.01.03 and M7.01.07.

2.07 BITUMINOUS CONCRETE OVERLAY

- A. Bituminous concrete overlay shall consist of a top course over a tack coat. Bituminous material for the tack coat on existing pavement shall be emulsified asphalt, grade RS-1 conforming to M3.03.0 for the SSHB latest edition.
- B. Crack filler to be hot asphalt-fiber poured joint and crack sealer M3.05.1.
- C. Tack coat shall comply with SSHB specifications.

PART 3 - EXECUTION

3.01 SUBGRADE FOR PAVEMENTS

- A. Grading - Do any necessary grading in addition to that performed in accordance with Section 31 20 00, EARTHMOVING, to bring subgrades, after final compaction, to the required grades and sections for pavements.

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- B. Preparation of Subgrade - Loosen exceptionally hard spots and recompact. Remove spongy and otherwise unsuitable materials and replace with stable material. Fill and tamp traces of utility trenches.
- C. Compaction of Subgrade - Compact the subgrade of all surface areas with appropriate equipment or other means to such a degree as will insure against settlement of the superimposed work.
- D. Checking Subgrade - Maintain all subgrades in satisfactory condition, protected against traffic and properly drained, until the surface improvement is placed. Place grade stakes spaced sufficiently to afford facility for checking the subgrade levels. Correct irregularities, compacting thoroughly any fill materials.

3.02 GRAVEL BASE COURSE

- A. Utility Structures - Check for correct elevations and position all utility structure covers, grates, valve boxes and similar structures located within areas to be paved or surfaced and make, or have made, any necessary adjustments in such structures.
- B. Gravel base courses shall consist of approved gravel placed on the prepared sub base or subgrade from self-spreading vehicles or with power graders of approved types or by hand methods. Gravel shall be spread in layers of no more than four (4) inches compacted thickness. The gravel shall be placed and compacted to the tolerances stipulated in Section 31 20 00 – Earth Moving.
- C. The gravel shall be placed and spread in uniform layers from self-spreading vehicles or with power graders of approved types or by hand. Care shall be taken while spreading to rake forward and distribute the largest stones so that they will be at the bottom of the gravel course and be evenly distributed.
- D. The finished grade of the base course shall be true to the lines and grades as shown on the Drawing, less thickness of pavement, including cross-sections. Grade evenly and smoothly between points called for, especially transition zones, and rounding vertical curves. The construction methods shall conform to the requirements of Section 405 of S.S.H.B., latest edition.

3.03 BITUMINOUS CONCRETE ROADWAY

- A. General - This work shall consist of constructing two (2) courses of bituminous concrete two and one-half (2-1/2") inch binder course and a one and one half (1-1/2") inch top course on 12" inch dense graded crushed stone base to the required lines and grades as shown on the Drawings and as specified.
- B. The equipment for spreading and finishing shall be mechanical, self powered pavers, capable of spreading and finishing the mixture true to line and grade, width and crown by means of fully automated controls for both longitudinal and transverse slopes.

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- C. The finished grade of the pavement shall be true to the lines and grades as shown on the Drawing, Grade evenly and smoothly between points called for, especially transition zones, and rounding vertical curves.
- D. Place base course on the approved dense graded crushed stone base. Place top course.
- E. The construction methods shall conform to the requirements of Section 460 of S.S.H.B., latest edition.

3.04 GRANITE CURBING

Furnish and install new vertical granite curb and transition sections as shown on the Drawings and as specified. Install curb on a six- (6) inch graded gravel base. After curb has been set to line and grade place concrete in front and back of curb units. joints between curb units (both front and back) shall be carefully filled with cement mortar and neatly pointed on top and front exposed face. After pointing, clean off excess mortar.

3.05 CONCRETE WALKS, HANDICAP CURB CUTS AND MOWER STRIP

A General

Furnish all materials and labor to construct concrete site improvements including sidewalks, footings for bollards, signs and fencing as specified and as shown on the drawings.

B. Surface Preparation

- 1. Remove loose material from compacted subbase surface immediately before placing concrete.
- 2. Proof roll prepared subbase surface to check for unstable areas and areas requiring additional compaction.
- 3. Notify Contractor of unsatisfactory conditions. Do not begin paving work until deficient subbase areas have been corrected and are ready to receive paving.

C. Form Construction

- 1. Set forms to required grades and lines, braced and secured. Install forms to allow continuous progress of work and so that forms can remain in place at least 24 hours after concrete placement.
- 2. Check completed form work for grade and alignment to following tolerances:
 - a. Top of forms not more than 1/8" in 10'-0".
 - b. Vertical face on longitudinal axis, not more than 1/4" in 10'-0".
- 3. Clean forms after each use and coat with form release agent as required to ensure separation from concrete without damage.
- 4. Locate, place, and support reinforcement as specified in Section 03 33 00, unless otherwise indicated.

D. Concrete Placement

1. Contractor shall prepare and submit to the Landscape Architect for approval the scoring pattern and expansion joints for all sidewalks, pads, mowing strips and terraces including stamped concrete prior to construction of concrete work.
2. General: Comply with requirements of Section 03 30 00 for mixing and placing concrete, and as herein specified.
3. Do not place concrete until subbase and forms have been checked for line and grade. Moisten subbase if required to provide a uniform dampened condition at time concrete is placed. Do not place concrete around manholes or other structures until they are at required finish elevation and alignment.
4. Place concrete by methods that prevent segregation of mix. Consolidate concrete along face of forms and adjacent to transverse joints with internal vibrator. Keep vibrator away from joint assemblies, reinforcement, or side forms. Use only square-faced shovels for hand spreading and consolidation. Consolidate with care to prevent dislocation of reinforcement, dowels, and joint devices.
5. Use bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
6. Deposit and spread concrete in a continuous operation between transverse joints as far as possible. If interrupted for more than 1/2 hour, place a construction joint.
7. Fabricated bar Mats and steel reinforcing: Keep mats and bars clean and free from excessive rust, and handle units to keep them flat and free of distortions. Straighten bends, kinks, and other irregularities or replace units as required before placement. Set mats for a minimum 2" overlap to adjacent mats.
8. Place concrete in two operations; strike off initial pour for entire width of placement and to the required depth below finish surface. Lay fabricated bar mats immediately in final position. Place top layer of concrete.
9. Scores for concrete sidewalk to be five feet on center and expansion joints thirty feet on center with expansion joints between curbing and wall.

3.06 DETECTABLE WARNING PADS

- A. Install warning pads at the locations as shown on the Drawings, in accordance with manufacturer's recommendations and as directed by the Landscape Architect.

3.07 BITUMINOUS CONCRETE OVERLAY

- A. At the Senior Center mill the existing parking and drive pavement to be overlaid adjacent to pavements to remain to provide a smooth transition. Adjust elevations of manhole and catchbasin structures to meet overlay grades. Fill cracks as specified.
- B. The surface of the existing pavement to receive the overlay shall be broom-cleaned of all debris and soil.
- C. The tack coat shall be applied by mechanical means to the surface at the rate of 1/20 gals/s.y. immediately prior to installing the pavement.

3.08 TRAFFIC PAINT

- A. Traffic markings shall be applied to the completed surface of the roadway and parking area designating, parking stalls, pedestrian crosswalks and handicap parking in strict compliance with manufacturer's recommendations and as directed by the Landscape Architect.

3.09 CLEANING

- A. All waste and debris caused by the Work of this Section shall be removed and legally disposed of daily, in accordance with requirements of Section 01 50 00.

END OF SECTION

SECTION 32 92 00

LAWNS AND PLANTING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. All of the Contract Documents, including Drawings, General and Supplementary Conditions and Division 1 - General Requirements, apply to the Work of this Section.

1.02 DESCRIPTION OF WORK

- A. The Work of this Section includes, but is not limited to, furnishing and installation of the following:
 - 1. All materials, equipment, labor and services required for all lawn and planting work, including all items incidental thereto, as specified herein and as shown on the Drawings.

1.03 RELATED WORK SPECIFIED ELSEWHERE

- A. Carefully examine all the Contract Documents for requirements that effect the Work of this Section.
- B. Other Specification Sections which directly relate to the Work of this section include, but are not limited to the following:
 - 1. Section 31 20 00 - Earth Moving
 - 2. Section 31 25 00 - Sedimentation and Erosion Control
 - 3. Section 32 12 10 - Site Improvements
 - 4. Section 32 12 16 - Paving and Surfacing

1.04 REFERENCE SPECIFICATIONS

- A. A.S.T.M. - American Society for Testing and Materials.
- B. A.A.S.H.T.O. - American Association of State Highway and Transportation Officials.
- C. S.S.H.B. - Standard Specifications for Highways and Bridges, the Commonwealth of Massachusetts, Department of Public Works, latest edition.
- D. Department of Food and Agriculture, Children's and Families' Protection Act

1.05 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

1.06 SUBMITTALS

- A. Provide in accordance with requirements of the Contract Documents.
- B. Submit the following test reports:
 - 1. Loam analysis
 - 2. Seed analyses
 - 3. Fertilizer, lime and superphosphate analysis
- C. Submit the following samples:
 - 1. Loam
 - 2. Shredded bark mulch
 - 3. Organic Compost
 - 4. Sphagnum Peat Moss
 - 5. Humus
 - 6. Manure
 - 7. Shredded bark mulch

1.07 PREPARATION AND INSPECTION OF AREAS TO BE SEEDED AND PLANTED

- A. All areas to be seeded and planted shall be inspected by the Lawns and Planting Contractor before starting work. Any defects, such as incorrect grading, etc., shall be reported to the Landscape Architect prior to beginning this work. The commencement of Work of this Section shall indicate acceptance of the areas to be seeded and planted by the Contractor, who shall assume full responsibility for the Work of this Section.

1.08 SAMPLES, TESTS AND INSPECTIONS

- A. Samples of all loam to be used shall be submitted to the Landscape Architect for approval and to determine whether or not it meets the requirements specified. At the time of submission, the Contractor will take representative soil samples of the loam, and tests shall be made by a State or commercial soil testing laboratory using methods approved by the Association of Official Agricultural Chemists (AOAC) or the State Agricultural Experiment Station. The Contractor shall select the testing laboratory with the approval of the Owner and bear all costs for soil testing. Loam shall be tested for soluble salts (1:2 soil water ratio), Nitrogen (including nitrate and ammonium Nitrogen), Phosphorous, Potassium, Sulfate, Calcium, Magnesium, Aluminum and Ferric Iron concentrations. Loam shall also be tested for heavy metals concentrations, including Boron, Cadmium, Zinc, Chromium, Copper, Lead, Manganese, and Nickel. Test results shall be forwarded to the Landscape Architect at least one (1) month prior to expected loam installation and shall state whether the

material is acceptable as a planting medium, whether it needs to be amended, or if it fails to meet accepted requirements. Test results shall also include soil amendment and fertilizing requirements. No loam may be installed until specific approval of samples has been given by the Landscape Architect.

- B. Seed Analyses - Prior to the time of sowing the seed mixtures, certifications shall be submitted to the Landscape Architect for approval from the supplier certifying that the seed was obtained for this Contract and stating the formula of the mixtures.

1.09 GUARANTEE AND CERTIFICATION OF ACCEPTABILITY

- A. Guarantee - Planting shall be guaranteed for one (1) full year after Certification of Acceptability by the Landscape Architect and shall be alive and in satisfactory growth at the end of the guarantee period except for damage resulting from causes beyond the responsibility of the Contractor.
- B. Certification of Acceptability
 - 1. Inspection of the work of Lawns and Planting to determine completion of the work under this Section will be made at the conclusion of the maintenance period upon written notice requesting such inspection submitted by the Contractor at least five (5) days prior to the anticipated date. The condition of landscaping will be noted and determination made by the Landscape Architect whether maintenance shall continue in any part.
 - 2. After inspection by the Landscape Architect, the Contractor will be notified in writing by the Landscape Architect of acceptability of all work of this Section, or if there are any deficiencies of the requirements for completion of the work. Lawn maintenance or other work remaining to be done shall be subject to re-inspection before being certified acceptable.

1.10 CLEAN UP

- A. Any soil or similar material which has been brought onto paved areas by hauling operations or otherwise shall be removed promptly, keeping these areas clean at all times.
- B. Upon completion of work under this Section, all excess stones, debris and soil resulting from work under this Section which have not previously been cleaned up shall be cleaned up and removed from the project site.

PART 2 - PRODUCTS

2.01 LOAM AND ADMIXTURES

- A. Loam.
 - 1. The Contractor shall screen and place loam in accordance with the Drawings and

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Specifications and as directed by the Landscape Architect.

2. Material shall consist of fertile, friable natural topsoil; typical of productive soils in the site vicinity, obtained from naturally well drained areas. Loam shall be of uniform quality, free from subsoil hard clods, stiff clay, hardpan, sods, partially disintegrated stone, lime, cement, ashes, slag, concrete, chips, sticks, noxious weeds, or any other undesirable material.
3. Loam shall be amended to contain between 5.5 and 7.5 per cent organic matter determined by loss on ignition of moisture-free sample dried in accordance with the current method of the Association of Official Agricultural Chemists (AOAC). The acidity range shall be amended to pH 5.0 to pH 7.0 inclusive, adjusted for plants which require low soil pH. Loam shall not contain any phytotoxic materials or unacceptable concentration levels of any substance harmful to plant growth, as determined by the soils testing laboratory. Maximum soluble salt index shall be 100. The Electrical conductivity (EC2) of a 1:2 soil-water suspension shall be less than or equal to 1.0 millimhos/cm. Aluminum concentration levels shall be less than 200ppm. The mechanical analysis of the soil shall be as follows after screening:

Passing	Retained On	Percentage
1" screen	--	100%
3/4" screen	sieve (sand)	49% - 60%
#100 U.S.S. mesh sieve	(very fine sand, silt and clay)	40% - 60%

3. The Contractor shall furnish to the Landscape Architect for approval representative samples of all the loam he proposes to use.
4. The Contract Price shall include inspection and laboratory charges. No loam shall be spread until approval of samples by the Landscape Architect, but such approval shall not constitute the final acceptance. The Landscape Architect reserves the right to reject any material that does not, in his opinion, meet these Specifications.
5. The Landscape Architect reserves the right to reject loam in which more than sixty (60) per cent of the material passing No. One Hundred (100) U.S.S. mesh sieve consists of clay as determined by the Bouyoucus Hydrometer or by the Decantation Method. All percentages are to be based on dry weight of sample. If the Landscape Architect directs, loam that varies only slightly from the Specifications may be made acceptable by such corrections, as the Landscape Architect deems necessary.

B. Existing loam

1. The Contractor shall provide the Landscape Architect with representative samples from the stockpiles on the site to be tested.
2. The Contractor shall be required to add to these stockpiles such admixtures as may be necessary to bring it into conformance with paragraph 2.01. Admixtures must be in conformance with these Specifications.
3. Lime shall be ground limestone, uniform in composition, dry and free flowing, containing not less than eighty-five (85) per cent of total carbonates. Lime shall be ground to such fineness that fifty (50) per cent will pass through a one hundred (100) mesh sieve and ninety (90) per

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- cent will pass through a twenty (20) mesh sieve. Coarser material shall be acceptable provided specific rates of application are increased proportionately on the basis of quantities passing the one hundred- (100) mesh sieve.
4. Superphosphate shall be composed of finely ground phosphate rock, as commonly used for agricultural purposes, and shall contain not less than twenty (20) percent available phosphoric acid.
 5. Commercial fertilizer shall be a complete, standard commercial fertilizer, homogenous and uniform in composition, dry and free-flowing, and shall be delivered to the site in the manufacturer's original sealed containers, each bearing the manufacturer's guaranteed analysis and marketed in compliance with State and Federal laws. Any fertilizer that becomes caked or otherwise damaged, making it unsuitable for use, will not be accepted. Fertilizer analysis for lawn areas shall have a ratio of Nitrogen (N) – Phosphorous (P) – Potassium (K) of approximately 4 – 1 – 2 and shall be applied to deliver one (1) pound of Nitrogen per One thousand (1000) square feet, or as directed by the Landscape Architect. At least fifty (50) per cent by weight of the nitrogenous elements of the fertilizer shall be Urea-form or derived from organic materials and contain not less than three (3) percent water soluble Nitrogen. Fertilizer for tree, shrub and groundcover plantings (exclusive of lawn areas) shall contain all major plant nutrients and minor trace elements essential to sustain plant growth and shall have the analysis 10 – 10 – 10. (As approved by the Landscape Architect, a slow release root contact fertilizer, installed at the time of planting, may be used in place of the above.)
 6. Water used in this work shall be furnished by the Contractor and will be suitable for irrigation and free from ingredients harmful to plant life. Hose and other watering equipment required for the work shall be furnished by the Contractor.
 7. Organic Compost shall be a standard commercial product comprised of fully decomposed, one hundred (100) percent plant derived, natural organic matter and shall have an acidity range of 4.5 to 7.0 pH. Its composition shall furnish ample water holding capacity and cation exchange capacity for the retention of plant nutrients. Compost shall be free of sticks, stones, weed seeds, roots, minerals, or other foreign matter and shall be delivered air dry. It shall be free from excessive soluble salts, heavy metals, phytotoxic compounds, or substances harmful to plant growth.
 8. Sphagnum Peat Moss shall be a standard commercial product and shall have an acidity range of 3.5 to 5.5 pH. Its composition shall furnish ample water holding capacity and cation exchange capacity for the retention of plant nutrients. Sphagnum Peat Moss shall be free of sticks, stones, weed seeds, roots, minerals, or other foreign matter and shall be delivered air dry in standard bales. It shall be free from excessive soluble salts, heavy metals, phytotoxic compounds, or substances harmful to plant growth. Samples and certification shall be submitted to the Landscape Architect for approval prior to installation.
 9. Humus shall be one hundred (100) percent organic, natural reed or sedge peat, ground or shredded and shall have been stockpiled for at least one (1) year prior to its use. The acidity range for humus shall be 5.5 to 7.5 pH and delivered air dry. Its composition shall furnish ample water holding capacity and cation exchange capacity for the retention of plant nutrients. Humus shall be low in wood content, free of hard lumps, sticks, stones, weed seeds, roots, minerals, or other foreign matter. It shall be free from excessive amounts of zinc, soluble salts, heavy metals, phytotoxic compounds, or substances harmful to plant growth. Samples and certification shall be submitted to the Landscape Architect for approval prior to installation.

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- 10. Manure shall be well-rotted, unleached cow manure not less than eight (8) months old and not more than two (2) years old. It shall be free from sawdust, shavings or refuse of any kind and shall not contain more than twenty-five (25) percent straw. It shall contain no substance harmful to plant growth. Furnish information to the Landscape Architect as to the kind of disinfectant or chemicals, if any, that may have been used in storage of (or otherwise in connection with) the manure. A composition of peat humus or peat moss to which has been incorporated dehydrated manure, such as Bovung or Spurz on in the proportion of one hundred (100) pounds of dehydrated manure per cubic yard or peat, may be substituted for manure as specified above. Samples and certification shall be submitted to the Landscape Architect for approval prior to installation. No manure may be used until found satisfactory after sampling and testing.

2.02 MULCH

- A. Mulch shall be native fibrous, pliable shredded mulch, not exceeding ½-inch in width. It shall be one hundred (100) percent organic, with a pH range between 3.5 and 4.5 and have a moisture content not to exceed forty (40) percent. It shall be free from any diseases, insects, or ingredients harmful to plant growth. Mulch shall be aged no longer than 2 years. Samples and certification shall be submitted to the Landscape Architect for approval prior to installation.

2.03 SEED

- A. Seed mixture shall be an approved variety mixture, high in germinating value, composed of fresh, clean, new crop seed. Weed Seed content shall be less than 0.5 percent and include no noxious weeds. Seed shall be obtained from a reliable seed company and shall be accompanied by certificates of compliance relative to mixture purity and germinating value. Seed shall be furnished and delivered in new, clean, sealed and properly labeled containers, and shall comply with all State and Federal laws. It may be mixed by an approved method on the site or may be mixed by the dealer. Seed that has become wet, moldy or otherwise damaged shall not be accepted.
- B. Grass seed shall be composed of the following varieties that shall be mixed in the proportions and shall test to minimum percentages and germination specified:

Lawn Seed Mix

Botanical Name	Common Name	By Weight	Proportion	
			%P	%G
Festuca rubra commutata	Chewings Fescue	30%	98	70
Festuca arundinacea ‘	Kentucky 31 Tall Fescue	30%	98	90
Poa pratensis	Kentucky Bluegrass	20%	85	80
Lolium perenne	Perennial Ryegrass	20%	98	90

Application rate for grass seed for lawns shall be six pounds (6#) per 1,000 square foot. Seed shall be planted between April 1st and May 31st or August 16 and October 15th.

2.04 HYDROSEED MULCH, TACKIFIERS AND WATER RETENTION AGENTS

- A. Wood fiber mulch for Hydroseed application shall be a manufactured product of natural wood cellulose fibers with a non-toxic green marking dye incorporated to ensure uniform distribution. Mulch shall be packed in sealed original containers, clearly labeled with brand name and manufacturer. It shall have delivered moisture content less than twelve (12) percent.
- B. Hydroseed tackifier shall be a powdered starch-based product approved by the Landscape Architect. Tackifier shall be applied in conjunction with the hydroseed slurry in accordance with the manufacturer's recommendations.
- C. Moisture retention agent shall be a powdered starch-based product, approved by the Landscape Architect and shall be capable of retaining up to 400 times its weight in water. Moisture retention agents shall be added to the hydroseed slurry in accordance with the manufacturer's recommendations. Moisture retention agent shall be 'Hydro-Gel', as manufactured by Finn Corporation, Fairfield, OH, or approved equal.

2.05 TREES and SHRUBS

- A. Nomenclature - Attention is called to the fact that the botanical and common names used for the plants required under this Contract are generally in conformity with the approved names given in the STANDARDIZED PLANT NAMES published by the American Joint Committee on Horticultural Nomenclature. The names of varieties not included therein are generally accepted in conformity with the names accepted in nursery trade.
- B. Plants shall be true to species and variety and shall conform to the varieties specified in the Plant List. No substitutions will be permitted. Plants shall be true to the botanical names and standards, as adopted by the American Association of Nurserymen, Inc., in the American Standard for Nursery Stock, ANSI Z60.1, latest edition. All plants shall be legibly tagged with their proper botanical name. Unless specifically noted otherwise, all plants shall be typical of their species or variety, well-branched or densely foliated when in leaf, of selected specimen quality, exceptionally heavy, symmetrical tightly knit, so trained or favored in its development and appearance as to be unquestionably and outstandingly superior in form, number of branches, compactness and symmetry.
- C. Plants shall conform to the measurements specified in the Plant List. Larger sized plant materials may be used if approved by the Landscape Architect. Use of such plants shall not increase the Contract Price. If larger plants are approved, the ball or each shall be increased in proportion to the size of the plant.
- D. The Contractor shall supply all plants in quantities sufficient to complete the work shown on the Drawings. Any discrepancies between quantities shown on the Plant List and those required by the Drawings shall not entitle the Contractor to additional remuneration.

- E. Plants shall be certified to have passed all required State and Federal inspection laws and shall be free from plant diseases and insect infestations. The Contractor shall obtain clearance from applicable governing agencies, as required by law, before planting any plants delivered from outside the State in which they are to be planted. Certificates of inspection of plant materials shall be furnished as may be required by State, Federal or other authorities to accompany shipments.
- D. All plant materials shall have healthy, well-developed root systems. All parts shall be moist and show active green cambium when cut. Plants shall not be pruned prior to delivery.
- E. All plants shall be nursery grown. All plants shall have been grown for at least two (2) years in climatic conditions similar to those in the locality of the project. All plants shall originate from nurseries that are no more than one (1) Hardiness Zone higher (as established by the Arnold Arboretum, Jamaica Plain, MA) than where the plant is to be installed.
- F. All plants shall be balled and burlapped or container grown prior to moving as hereinafter specified.
- G. Balled and burlapped plants shall be freshly dug and shall have solid unbroken ball of earth of sufficient size to encompass all fibrous feeding roots necessary to ensure successful recovery and development of the plants. No heeled-in plants or plant materials from cold storage will be accepted. Balls shall be firmly wrapped in untreated biodegradable burlap and tied securely with wire cages and/or jute twine. Rootballs of plants shall be adequately protected at all times from sun or drying winds. No plant shall be accepted when the ball of earth surrounding its roots has been badly cracked or broken preparatory to or during planting, or after burlap, staves, wire cage, rope, or platform in connection with transplanting have been removed. Soil characteristics (i.e., composition, texture, pH, etc.) of all field grown plants shall closely match those of on-site soils.
- H. Container grown plants shall have been grown in their container long enough for the root system to have developed sufficiently to hold its soil together, firm or whole, after removal from the container. No plant shall be loose in their container. Container grown plants shall have no girdling roots and shall not be in a root-bound condition. Plants shall remain in their container until planted.
- I. Trees - The height of the trees, measured from the crown of the roots to the tip of the top branch, shall be not less than the minimum size designated in the Plant List. Caliper measurements for tree trunks shall be taken at 6 inches above ground for tree up and including 4-inch caliper size and at 12 inches above ground for larger sizes. The branching height for all deciduous trees installed adjacent to or within pedestrian walkways shall be seven (7) feet minimum, having been pruned at least one (1) year prior to transplanting. Except when a clump is designated, the trunk of all trees shall be a single trunk growing from a single un-mutilated crown of roots. No part of the trunk shall be conspicuously crooked as compared with normal trees of the same variety. The trunk shall be free from sunscald, frost cracks or wounds resulting from abrasions, fire, or other cause. No pruning wounds shall be present having a diameter exceeding one (1) inch, and such wounds must show vigorous bark on all edges. Evergreen trees shall be branched to within one (1) foot of the ground. No tree that has had its leader cut shall be accepted.
- J. Shrubs shall meet the requirements for spread or height stated in the Plant List. The measurements for height are to be taken from the crown or root flare to the average height of the top of the shrub

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(not the longest branch). The fullness of each shrub shall correspond to the trade classification "No. 1". Single stemmed or thin plants will not be accepted. The side branches must be generous, well twigged, and the plant as a whole must be well bushed to the ground. Shrubs must be in a moist, vigorous condition, free from dead wood, bruises or other root or branch injuries.

- K. Plants shall be delivered only after preparations for planting have been completed. Plants shall be handled and packed in a horticulturally approved manner and all necessary precautions shall be used to ensure that plants arrive on-site in a healthy vigorous condition. Trucks used to transport plants shall be equipped with covers to protect plants from windburn, desiccation and overheating during transport. Plants that have not been thoroughly watered prior to shipment shall not be accepted at the planting site. Any plants delivered to the site in a dry or wilted condition shall be immediately rejected and replaced at no expense. All plants shall be protected, watered and otherwise maintained prior to, during and after delivery to the site.
- L. Plants shall be subject to inspection and approval by the Landscape Architect or his representative at the place of growth, upon delivery, or both, for conformity to specification requirements regarding quality, size, variety, and condition. Inspection and selection of plants prior to digging shall be at the option of the Landscape Architect. The Contractor, or his representative, shall be present, if requested by the Landscape Architect, for inspection of plants at the nursery. The Contractor shall pay all hourly fee rates, travel and related expenses incurred by the Landscape Architect for plant inspection. The rate for travel by private automobile shall be at current IRS-approved rate for mileage reimbursement. Other travel means shall be at cost. The Landscape Architect's right of inspection and/or rejection of any plant materials shall not be impaired upon any prior approval of plant materials.
- M. The Landscape Architect reserves the right to reject any plant material that, in his opinion, does not comply with these Specifications. Rejected plants shall be removed immediately from the site.

2.06 STAKING, GUYING AND WRAPPING

- A. Wood stakes for supporting trees shall be of sound untreated wood of uniform size not less than two and one-half (2-1/2) inches by two and one-half (2-1/2) inches actual dimension. No paint or stain shall be used in conjunction with tree stakes. Tying material shall be flexible nylon webbing, 3/4-inch wide and have a tensile strength of 900 pounds. Webbing shall be 'ArborTie', or approved equal.
- B. Guying drive anchors and guy wire assemblies shall be suitable for protecting tree and shall be sized in accordance with the manufacturer's recommendations. Turnbuckles shall be zinc-coated and shall have four and one-half (4-1/2) inch lengthwise openings and in each end five-sixteenths (5/16) inch diameter threaded openings fitted with screw eyes. Wire guys for turnbuckles shall be No. Twelve- (12) gauge (0.1055 inches) pliable, galvanized steel wire. Flags for tree guying wires shall be one-half (1/2) by three (3) by twelve (12) inches hard wood painted white. No materials shall be used for guying that will girdle, chafe, or otherwise injure trees.
- C. Wrapping material for tree trunks shall be duplex Kraft paper crinkles to 33-1/3 percent stretch, 4 to 6-inch wide strips. Tying materials shall be jute twine, 2-ply for shrubs (as required) and trees less

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than 3-inch caliper; 3-ply for larger plants.

2.07 ANTI-TRANSPIRANT/ANTI-DESSICANT

- A. Anti-transpirant (anti-desiccant) shall be 'Wilt-Pruf' as manufactured by Nursery Specialty Products, Inc., Groton Falls, NY, or approved equal. It shall be delivered in original manufacturer's containers and used in accordance with the manufacturer's instructions.

PART 3 - EXECUTION

3.01 WORKMANSHIP

- A. Personnel - Seeding and planting shall be performed by personnel familiar with these operations and under the supervision of a qualified experienced foreman.

3.02 LOAM INSTALLATION

- A. The Landscape Contractor shall be notified in writing by the General Contractor when other sections of the work have progressed sufficiently to commence work including placing of loam to the finished grade.

- B. Preparation of Subgrade - The subsoil shall be graded and uniformly compacted so that it will be a true, smooth slope parallel and six (6) inches below the finished grade in lawn areas and free of all large stones and debris.

- 1. Prior to spreading of loam, the subgrade shall be loosened and mixed to a depth of four (4) inches. All stones over two (2) inches in size, all sticks and rubbish shall be removed. No heavy objects except lawn rollers shall be moved over the lawn areas after the subgrade soil has been prepared unless the subgrade soil is again graded as specified above, before topsoil is spread.
- 2. There must be sufficient grade stakes, as determined by the Landscape Architect, to insure correct line and grade.

- C. Finish Grading - After the subgrade soil has been prepared, loam shall be spread evenly and spread to the required depths and lightly compacted. After the loam has been spread, scarifying or harrowing and hand raking shall carefully prepare it. All large stiff clods, lumps, brush, roots, stumps, litter, other foreign material and stones over one (1) inch in diameter shall be removed from the aforesaid loam and disposed of by the Contractor. The areas shall also be free of smaller stones in excessive quantities as determined by the Landscape Architect. The whole surface shall then be rolled with a hand roller weighing not more than one hundred (100) pounds per foot of width. During the rolling all depressions caused by settlement of rolling shall be filled with additional loam, and the surface shall be regraded and rolled until presenting a smooth and even finish and is up to the required grade, giving a total depth of six (6) inches of compacted loam.

- 1. The Contractor shall supply at his own expense as much loam as may be needed to give the specified depths over and above the quantities available from existing stockpiles.

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2. Allowance for settlement shall be made.
- D. Lime – Furnish and spread lime uniformly in accordance with the soils testing laboratory recommendations, or as directed by the Landscape Architect, at a maximum rate of 100 pounds per 1000 square feet per application, in necessary quantities to achieve the pH range requirements of 5.5 – 7.5%.
- E. Superphosphate – Apply Superphosphate at the rate of forty (40) pounds per one thousand (1,000) square feet to the finished surface of the topsoil, in accordance with the recommendations of the soils testing laboratory or as directed by the Landscape Architect. It shall be thoroughly worked into the surface.
- F. Fertilizer – Apply fertilizer in two (2) uniform applications in accordance with the soils testing laboratory recommendations or as directed by the Landscape Architect. The first application shall be applied within one (1) week prior to seeding and then harrowed into the top two- (2) inches of the loam. The second application shall be applied after the first cutting of the grass, at the rate of fifteen (15) pounds per one thousand (1,000) square feet, and shall be thoroughly watered in immediately. Fertilizer shall not be applied between June 15 and August 31.

3.03 SEEDING

- A. Seeding of Lawns. Time of Seeding –After placing of loam to the finished grade, seeding operations shall be conducted when soil and weather conditions permit during the seasons that are normal for such work as determined by accepted practice in the locality of the project. At the option, and on the full responsibility, of this Contractor, seeding operations may be conducted under unseasonable conditions without additional compensation.
- B. Seeding shall consist of soil preparation, seeding, raking, rolling, weeding, watering, soil stabilization and otherwise providing all labor and materials necessary to secure the establishment of acceptable turf. Immediately before any seed is to be sown, the topsoil shall be scarified as necessary and shall be raked until the surface is smooth, friable and of uniformly fine texture. Seedbed preparation, including lime but excluding the Superphosphate and fertilizer, shall conform to the requirements of the lawn areas.
- C. Moistening the Soil - During periods of higher than optimal temperature for species being specified and after all unevenness in the soil surface has been corrected, the soil shall be lightly moistened immediately prior to seeding.
- D. Broadcast Seeding for Lawn and Athletic Fields – Broadcast seeding, shall not begin less than 4 days after the application of lime and fertilizer. Lawn areas shall be seeded evenly with a mechanical spreader at the rate of six (6) pounds per one thousand (1,000) square feet of area, lighting raked, rolled with a two hundred (200) pound roller and watered with a fine spray. Take necessary precautions to keep the area undisturbed until the grass germinates.
- E. Hydroseeding for Slopes – (2:1. Horizontal/Vertical or Steeper) The application of lime, fertilizer, grass seed and mulch may be accomplished in a single operation with the use of approved hydroseeding equipment. Hydroseeding materials shall be mixed with water and kept in an agitated state so that materials remain uniformly suspended in the water. The resulting slurry shall be of such consistency that it can be sprayed from a hydroseed gun or through at least 200 feet of 1-1/2 inch diameter hose. The spraying equipment shall be so designed that when the solution is sprayed

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over the area, the resulting deposit of lime, fertilizer, grass seed and mulch shall be equal to the specified quantities.

1. Prior to commencing hydroseed operations, the Contractor shall furnish the Landscape Architect in writing the weights of limestone, fertilizer, grass seed, mulch, tackifier (as required) and moisture retention agent (as required) per 100 gallons of water to be used. This statement shall also specify the area that the seeding solution will cover in square yards.
2. Seed shall be incorporated with the mulching material to obtain minimum hydroseeded sown coverage of 261 pounds of the specified seed mix per acre, as recommended by the seed suppliers, or as directed by the Landscape Architect.
3. Wood fiber mulch shall be uniformly spread over selected seeded areas at the minimum rate of 1400 pounds per acre unless otherwise directed.
4. The Contractor shall immediately clean up all hydroseed oversprays from plant materials, pavements, furnishings, etc., to the satisfaction of the Landscape Architect.

3.04 PLANTING OF TREES AND SHRUBS

- A. One (1) or more loam stockpiles of approved quality loam for shrub beds and tree pits shall be maintained at all times during the planting operations.
- B. The locations for all plants and outlines for planting beds shall be staked on the ground by the Contractor and shall be approved by the Landscape Architect before any excavation is made. Adjustments in locations and outlines shall be made as directed by the Landscape Architect. In the event that pits or areas to plant are prepared and backfilled with loam to grade prior to commencement of lawn operations, they shall be so marked that when the work of planting proceeds, they can readily be located. In case underground obstructions, such as ledge, are encountered locations shall be changed under the direction of the Landscape Architect without extra charge. Where locations cannot be changed, the obstruction shall be removed, subject to the Landscape Architect's approval, to a depth not less than 3 feet below finished grade and not less than 6-inches below the bottom of the rootball when the plant is set at proper grade.
- C. Planting Season
 1. Planting season for evergreen trees and shrubs shall extend from the time the soils becomes workable in the spring, until new growth appears, and from September 15 until November 30 in the fall.
 2. Deciduous trees and shrubs may be planted only when dormant, either prior to bud break and/or before leaves appear in the spring, or subsequent to their leaf drop in the fall.
 3. Groundcovers and herbaceous materials shall be planted only after the last frost in the spring through mid-May.
 4. Planting seasons may be extended if weather and soil conditions permit only with the written approval of the Landscape Architect. Extended or out-of season planting requirements shall include application of anti-transparent and extra water as needed.
- D. Planting
 1. All plant roots and earth balls must be kept damp and thoroughly protected from sun or drying winds at all times from the beginning of the digging operations, during transportation and on the ground until the final operation of planting.

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2. All planting holes shall be excavated with sloped walls, wider at the top than at the bottom, and scarified to eliminate glazing. Holes for trees shall be at least two (2) feet greater in diameter than the spread of the root system. Holes for shrubs shall be at least one (1) foot greater than the diameter of the rootball. Planting holes shall not be dug deeper than the height of the rootball.
 3. When excavation occurs in areas of heavily compacted earth, stones, concrete chunks or other foreign matter, planting holes shall be dug at least three (3) times the diameter of the rootball. Excavated material from planting holes shall be disposed of as directed by the Landscape Architect.
 4. Container plants shall be removed from their growing container before planting. If roots are densely matted, the outer root mass shall be scored, sliced vertically, with a sharp knife to separate roots. All herbaceous plants and groundcovers shall be evenly spaced to produce a uniform effect and staggered in rows at intervals designated in the Drawings.
 5. Shrubs and trees shall be placed in the center of planting holes, set plumb and straight and at such a level that after settlement the crown of the roots will be 1" above the surrounding finished grade. Rootball masses shall not be loosened broken or damaged. When balled and burlapped plants are set, planting mixture shall be compacted around the bases of rootballs to fill all voids. All tying materials, twine and rope shall be cut and removed. Biodegradable burlap shall be laid back or cut away from the top half of the rootball. If a wire basket is present, the upper 2/3 of the basket shall be cut away and removed. Do not remove the entire basket. Roots of bare root plants shall be properly spread out and planting mixture carefully worked in among them. Broken or frayed roots shall be cleanly cut.
 6. Backfill planting holes with planting mixture in layers of not more than 9 inches and firmly tamp each layer and water to sufficiently settle the backfill soil before the next layer is put in place. When the planting hole is 2/3 backfilled, the hole shall be flooded and watered thoroughly so that the water level reaches the top of the planting hole. Allow water to soak in, then complete the backfilling operation. Immediately after the planting hole is backfilled, a shallow basin 6 inches deep and slightly larger than the hole shall be formed with a ridge of soil for water retention. Form a common basin for plant materials throughout mass planting beds. After planting, lightly till the soil in the planting beds between the plant holes and rake smooth to eliminate compaction of soils.
 7. All planting hole basins shall be flooded with water twice within the first twenty-four (24) hours planting and watered not less than twice per week thereafter until the final acceptance of the work.
- E. Wrapping – The trunks of all thin barked deciduous trees shall be wrapped after they are planted and before they are staked. Wrap all trees spirally with tree wrap from bottom to top to the height of the second branch (or to the height directed) and secure at the top and bottom at 2-foot intervals with jute twine. Remove and dispose of all tree trunk wrapping at the end of one (1) growing season.
- F. Staking and Guying –All trees shall be staked immediately after planting in accordance with the Drawings. All staking apparatus shall be adequate to hold the tree in a vertical condition under severe weather conditions. Remove and dispose of all staking apparatus at the end of one (1)-growing season.

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- G. Mulching – Provide a three (3) inch minimum layer of shredded bark mulch over the entire area of each shrub and/or tree bed. Do not cover the root flare/crown of trees and/or shrubs.
- H. Pruning – The pruning of trees and shrubs shall be only be permitted to remove dead or dying branch limbs, sucker growth, water sprouts, crossing or rubbing branches, broken or damaged branches, diseased or insect infested limbs, and/or to preserve the natural character of the plant. Plant materials shall be pruned in accordance with American Nursery and Landscape Association Standards and as directed by the Landscape Architect. Questionable weak limbs and branch removals that may disfigure the plant shall be left to the Landscape Architect’s discretion. Pruning shall be done with clean sharp tools. All pruning cuts that are ½-inch diameter or larger shall be made along the branch bark ridge. Pruning cuts shall not breach or otherwise interfere with the branch collar. All pruning cuts less than ½-inch diameter shall be made with hand pruners as close to the main stem as possible without damaging the cambium or bud. Tree paint shall not be used.

3.05 MAINTENANCE AND REPLACEMENT

- A. Maintenance shall begin immediately after each portion of lawn area and each plant is planted and shall continue in accordance with the following requirements:
- B. Lawns – The Contractor shall be held responsible for maintenance of lawns, including watering, weeding, and cutting for at least sixty (60) days after seeding and as much longer as is necessary to establish a uniform stand of the specified grasses and until Certification of Acceptability. No bare spots will be allowed. After the grass has been seeded, all areas and parts of areas which fail to show a uniform stand of grass, for any reason whatsoever, shall be re-seeded repeatedly until all areas are covered with a satisfactory growth of grass. At the time of cutting, keep mower blades not less than two and one-half (2-1/2) inches high. Mowing intervals shall be spaced so that not more than one (1) inch of leaf blade is removed at any one time. The maintenance period shall continue after seeding and until the lawns are certified acceptable by the Landscape Architect, which certification shall not be earlier than the date of substantial completion of the entire work of this Contract or as otherwise indicated on the Drawings and as specified herein.
- C. New plantings shall be protected and maintained until the end of the lawn maintenance period, or if installed after the lawn maintenance period, until installation of plantings are certified acceptable by the Landscape Architect. Maintenance shall include watering, mulching, replacement of diseased, dead or dying plants, resetting plants to proper grades or upright position, and restoration of the planting saucer and all other care needed for proper growth of the plants. If planting is done after lawn preparation, proper protection to lawn areas shall be provided and any damage resulting from planting operations repaired promptly.
- D. Pesticides – No fungicides, insecticides, or herbicides shall be used on-site without the Contractor notifying the Landscape Architect in writing and obtaining his prior approval. If approved by the Landscape Architect, pesticide use shall be governed by EPA regulations. All pesticides shall be EPA registered and approved for use in public open spaces and shall be handled by State licensed applicators only, delivered in their original sealed manufacturer’s containers and used in accordance with the manufacturer’s instructions. The law requires that parents and staff be notified in writing of all outdoor pesticide applications.
- E. Protection - Planting areas and plants shall be protected against trespassing and damage of any kind. If any plants become damaged or injuries occur, they shall be treated or replaced as directed. No work shall be done within or over the planting areas or adjacent to plants without proper safeguards

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and protection.

- F. Damage resulting from erosion, gullies, washouts or other causes shall be repaired by filling with topsoil, tamping, re-fertilizing and seeding by this Subcontractor at his expense if such damage occurs prior to Certification of Acceptability of lawns and planting by the Landscape Architect.
- G. The Contractor's responsibility for maintenance shall cease at the time of Certification of Acceptability by the Landscape Architect. During the guarantee period the Contractor shall be held responsible for making replacements, but no maintenance will be required other than spraying and dusting.
- H. At the end of the guarantee period, inspection will be made by the Landscape Architect after receiving written notice by the Contractor requesting such inspection at least ten (10) days before the anticipated date. Any plant required under this Contract that is dead or not in satisfactory growth, as determined by the Landscape Architect, shall be removed from the site. These and any plants missing due to the Contractor's negligence shall be replaced as soon as conditions permit during the normal planting season. In case of any question regarding the condition and satisfactory establishment of a rejected plant, the Landscape Architect may elect to allow such a plant to remain through another complete growing season at which time the rejected plant, if found to be dead, in an unhealthy or badly impaired condition, shall be replaced. All replacements shall be plants of the same kind and size as specified in the Plant List. They shall be furnished and planted as specified under LAWNS AND PLANTING. The cost shall be borne by the Contractor.

3.06 DISPOSAL AND CLEAN UP

- A. All waste and debris caused by the Work of this Section shall be removed and legally disposed of daily

END OF SECTION

SECTION 33 31 00

STORM DRAINAGE SYSTEM

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Bidding requirements, Contract Forms, General and Supplementary Conditions and Division I, General Requirements are hereby made a part of this Section.

1.02 DESCRIPTION OF WORK

- A. The scope of work consists of all materials, equipment, labor and services required for all site utility work, including all items incidental thereto, as specified herein and as shown on the Drawings.
- B. Without limiting the generality thereof, the work includes the following:
 - 1. Storm drainage system including, pipe, connections ,catch basin, leaching chambers and drain manhole and all related work to existing system.
 - 2. Excavation and backfill for drainage system shall conform to Section 31 20 00 – Earth Moving.
 - 3. Pumping and/or bailing necessary to maintain excavated spaces free from water from any source whatsoever.
 - 4. Provide graded materials, as specified, for fills, base courses and backfills as required.
 - 5. Protect all existing buildings, utilities, roads, pavements, lawns, planting and other improvements from damage due to construction.
 - 6. Dust control and clean up.

1.03 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 31 10 00 - Site Clearing
- B. Section 31 20 00 – Earth Moving
- C. Section 32 12 10 - Site Improvements

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1.04 REFERENCE SPECIFICATIONS

- A. A.S.T.M. - American Society for Testing and Materials.
- B. A.A.S.H.T.O. - American Association of State Highway and Transportation Officials.
- C. S.S.H.B. - Standard Specifications for Highways and Bridges, the Commonwealth of Massachusetts, Department of Public Works, latest edition.

1.05 BENCH MARKS AND ENGINEERING

- A. Lines and grade work in accordance with Drawings and Specifications shall be laid out by a registered Civil Engineer or Surveyor employed by the Contractor. The Contractor shall establish permanent bench marks, to which access can easily be had during the progress of the work. The Contractor shall maintain all established bounds and bench marks and replace, as directed, any which may be disturbed or destroyed. The selection of the registered Civil Engineer or Surveyor shall be subject to the Landscape Architect's approval. The Contractor shall pay all costs of the services of the Civil Engineer or Surveyor.
- B. The Contractor shall verify dimensions and elevations on the ground and report any discrepancies immediately to the Landscape Architect. Any discrepancies not reported prior to construction shall not be the basis for claims for extra compensation.

1.06 PERMITS, FEES AND BACKCHARGES

- A. The Contractor shall give all notices, file all plans, secure and pay for all required permits, inspections, licenses and back charges necessary for, and incidental to, the accomplishment of all utility work when completed as defined in other paragraphs of the Specifications.

1.07 INSPECTION

- A. The Contractor shall obtain all necessary approvals from authorities or companies having jurisdiction, deliver all certificates of inspection and test approvals to the Landscape Architect.
- B. No work shall be covered before inspection and approval by the Landscape Architect and all inspectors and authorities having jurisdiction.
- C. Replace all imperfect or condemned work with work conforming to the requirements of the Contract Documents and to the satisfaction of the Landscape Architect without additional cost to the Owner.
- D. All fees will be paid for by the Contractor.

1.08 PROTECTION

- A. The Contractor shall remove by pumping, draining, bailing or otherwise any water which may accumulate or be found in the trenches and other excavations made under this Contract and shall form all pump wells, sumps, dams, flumes or other work necessary to keep the trenches and other excavations entirely clear of water while the drains and other utilities are being built. Newly constructed masonry shall be protected from injury resulting from dewatering work by such methods as may be approved by the Landscape Architect. The Contractor shall at all times have upon the work sufficient pumping machinery satisfactory to the Landscape Architect. Pump wells and underdrains shall be provided where needed to properly handle the ground water.
- B. The Contractor, under this Section, shall provide at his own expense adequate pumping and drainage facilities to keep the excavation sufficiently dry as not to affect adversely the quality or time of placement of concrete or other materials to be installed in the excavated areas.
- C. The Contractor shall furnish, install and maintain all drainage systems and pumping equipment necessary to keep the ground water level at an elevation low enough so that no structures to be built under this Contract shall move or float on account of uplift pressure until the final acceptance of the work. Water from the trenches and excavations shall be disposed of in such a manner as will not cause injury to the public health nor to public or private property nor to the work completed or in progress nor to the surface of highways nor cause any interference with the use of the same by the public.
- D. The work of this Section shall be performed in such a manner as to cause no interference with access by the Subcontractors or other Contractors to all portions of the site as is necessary for the normal conduct of their work.

1.09 TEMPORARY POWER

- A. Provide adequate capacity for all temporary power from the utility company lines. Make all arrangements with the utility companies for temporary service and pay all expenses related thereto.
- B. The Contractor will pay for the cost of energy consumed by all trades.
- C. All temporary electrical work shall be furnished and installed in conformity with Section 01500 of these Specifications, the National Electrical Code, Commonwealth of Massachusetts Electrical Code and in accordance with the requirements of local ordinances and shall be maintained in a workmanlike manner throughout the entire construction period, and shall be properly removed when no longer needed.

1.10 UTILITY COMPANIES AND LOCAL UTILITY DEPARTMENTS

- A. The Contractor shall meet with the local utility department and utility company representatives with

jurisdiction over this project to obtain and coordinate the details of the utility services and the installation of all work under this Contract with respect to all existing and proposed work by the local utility departments and utility companies so as to avoid interference and delays.

1.11 EXAMINATION OF SITE

- A. The Contractor shall examine the entire site for proposed work and determine all conditions that may affect work embraced in the bid.
- B. No consideration or allowance will be granted for failure to visit the site, or for any alleged misunderstandings of materials to be furnished, or work to be done; it being understood that tender of proposal carries with it, agreement to items and conditions referred to herein or indicated on the Contract Drawings.

1.12 SUBMITTALS

- A. Shop Drawings and Samples
 - 1. Provide complete shop drawings and/or samples for all items called for in the Specifications or on the Drawings in accordance with the applicable requirements of Division 1.
- B. Shop drawings for the items listed below shall be submitted for approval. The Landscape Architect, however, reserves the right to require submission of shop drawings on any other equipment not specifically listed herein. List of shop drawings or catalog cuts required:
 - 1. Pipe of all kinds.
 - 3. Drainage structures.

1.13 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in manufacturer's original unopened and undamaged packages with labels and intact.
- B. Store materials in unopened packages in a manner to prevent damage from the environment and construction operations.
- C. Handle in accordance with manufacturer's instructions.

1.14 GUARANTEE

- A. All work under this Section of the Specifications shall be guaranteed free from defects in workmanship or materials for a period of one year from the date of final acceptance of the work and

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any such defective work developing during this period, shall be replaced by the Contractor promptly with no cost to the Owner.

1.15 GRADES AND ELEVATIONS

- A. The Drawings indicate, in general, the alignment and finished grade elevations and invert grades. The Landscape Architect, however, may make such adjustments in grades and alignment as are found necessary in order to avoid interference and to adapt the piping to other special conditions encountered.

1.16 CODES AND ORDINANCES

- A. All work, materials and methods shall be performed in strict accordance with the Local Municipality Standards and Specifications, Electrical and Plumbing Codes and State codes and regulations. The City shall be notified and permission obtained prior to the performance of any work at the connection point to existing manholes or lines.

PART 2 - PRODUCTS

2.01 STORM DRAINAGE PIPE, UTILITY STRUCTURES AND APPURTENANCES

A. General

1. All pipes shall be of the sizes and type as indicated on the Drawings.
2. Storm drainage pipes under pavement shall have a minimum crushing strength of two thousand (2,000) D where D is the inside of the pipe in feet. The three (3) edge bearing method shall be used for determination of crushing strength.
3. All pipes and other material shall be subject to inspection at the point of delivery at the site. The purpose of the field inspection shall be to cull and reject pipe and other material which, independent of the physical tests prescribed, fail to meet the Specifications.
4. The manufacturer shall supply, with each shipment of pipe, affidavits showing compliance with these Specifications. All shipments not accompanied by such affidavits may be rejected and returned to the manufacturer.

B. Storm Drainage Pipe

1. Storm drainage pipe shall be of sizes indicated on the Drawings and unless otherwise indicated shall be corrugated, high density polyethylene conforming to the following specifications:

AASHTO M 294S: Specification for corrugated polyethylene pipe 12 to 36 inch diameter.

A.S.T.M. D 3350: Standard specifications for polyethylene plastic pipe and fitting material.

2. Pipe and fittings shall be HI-Q, high capacity smooth interior pipe as manufactured by Hancor Inc. or approved equivalent.

2.02 UTILITY STRUCTURES

- A. Catch basins and manholes shall be either precast concrete having strength of four thousand (4,000) p.s.i. with steel reinforcement conforming to A.S.T.M. Specifications 0.12 square inch per linear foot or concrete block or concrete brick as shown on the Drawings.
- B. Submit complete shop drawings for Landscape Architect's approval prior to fabrication if precast structures are to be installed.
- C. Utility structure frames, grates, covers and steps shall conform to Massachusetts Department of Public Works Standards.
- D. Heavy-duty, H-20, cast iron utility structure frames, grates and covers shall be furnished and installed under this Section as shown on the Drawings and as manufactured by E.L. LeBaron Foundry Co., or approved equivalent. Submit shop drawings for Landscape Architect's approval.

2.03 LEACHING CHAMBERS

- A. Leaching chambers shall be STORMTECH SC-740 or Approved equivalent and shall meet ASTM F2922. (See attached specifications.)
- B. Chambers shall be manufactured from virgin polypropylene and have the structural capacity to support H2O loading.
- C. Only chambers that are approved by the Landscape Architect will be allowed. The chamber manufacturer shall submit for approval before delivery of the chambers a structural evaluation by a Registered Professional Engineer that the safety factors are greater than or equal to 1.95 for dead load and 1.75 for live load along with structural cross-section details on which the evaluation is based.

PART 3 - EXECUTION

3.01 GRADES AND ELEVATIONS

- A. The Drawings indicate, in general, the alignment and finished grade elevations drain and underground electric invert grades. The Landscape Architect, however, may make such adjustments in grades and alignments as are found necessary in order to avoid interference and to adapt the piping to other special conditions encountered. Grading between indicated final grades shall be smooth, even surfaces except as otherwise required.

- B. Excavate all trenches as called for in Section 31 2.
- C. Bedding and backfill for pipes shall be as called for in Section 31 20 00 and as shown on the Drawings.
- D. Pipe laying and installation of structures shall be in conformance with the manufacturer's instructions and as directed.

3.02 STORM DRAINAGE

- A. General - this work shall include the furnishing and installation of a complete storm drainage system as shown on the Drawings and specified herein.
 - 1. Laying Pipe: Installation shall be in accordance with A.S.T.M. D2321 and in accordance with manufacturer's recommendations. Care should be taken during installation to keep open ends of pipes clean and free from debris and silt. Plug open ends or dam with crushed stone. Backfill material shall be placed in 6" lifts and compacted to 95 % minimum dry density per AASHTO T-99.
 - 2. Furnish and install all drainage structures including catch basin and drain manhole as specified and as shown on the drawings.
 - 3. All pavements torn up on public right-of-way shall be replaced with base, binder and top courses of same type and depth of original pavement. Paving to be installed as specified in Section 32 12 16.
 - 4. The Contractor shall keep all excavations free from water at all times. All labor and apparatus required to perform their work, including a well point system, shall be provided and operated by the Contractor at no additional cost.
 - 5. Unless otherwise shown or directed, set castings for catch basins, manholes and drain inlets at exact finished grade and slope.
- B. Flushing and Cleaning - Flush storm drainage system with water in sufficient volume to obtain free flow through each line. Remove all silt and trash from drainage structures and pipelines just prior to final acceptance of the work.

3.03 INTERFERENCE

- A. The Contractor shall be responsible for maintaining proper clearance between adjacent pipes and between pipes and equipment as installed under this Contract. If, for practical purposes of maintaining clearance for providing a more practical method of support, the Contractor proposes to

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route some of the more important piping in a manner other than indicated on the Landscape Architect's Drawings, a sketch of the proposed new routing shall be submitted to the Landscape Architect for approval.

3.04 CLEANING

- A. At the conclusion of the work thoroughly clean all of the new pipelines by flushing with water or other means to remove all dirt, stones, pieces of wood or other material which may have entered during the construction period. If, after this cleaning, obstructions remain, they shall be removed.

3.05 REPAIRS

- A. Repair all roads, walks, curbs, lawns or other existing improvements removed or disturbed during this work. All repairs shall conform to these Specifications or the construction of the original material whichever is the greater quality.

3.06 DUST CONTROL

- A. The Contractor shall employ all possible methods and/or materials to prevent the spread of dust. Chemical materials may not be used on subgrades of areas to be seeded or planted.

3.07 CLEAN UP

- A. The Contractor shall remove all debris, construction equipment and scrap material from all areas within the limit of work prior to inspection for acceptance.

END OF SECTION

DIVISION 3

SECTION 03 30 00

CAST-IN-PLACE CONCRETE

PART I - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and General Provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to work specified in this Section.

1.02 DESCRIPTION OF WORK

- A. Provide all labor, equipment, implements and materials to furnish, install, construct and perform all concrete work complete, as ordered by the Landscape Architect, as shown on the Drawings or specified herein.

1.03 REFERENCES

- A. Examine all other Sections of the Specifications and all Drawings for the relationship of the work under this Section and the work of other trades

- B. The following related items are included under the Sections listed below:

Section 31 20 00 - Earthwork

Section 32 12 16 - Paving and Surfacing

Section 32 12 10 - Site Improvements

- C. The following initials referred to herein shall mean:

1. A.S.T.M. - American Society of Testing and Materials.
2. A.S.A. - American Standards Association.
3. S.S.H.B. - Standard Specifications for Highways and Bridges, the Commonwealth of Massachusetts, Department of Public Works, latest edition.

CAST-IN-PLACE CONCRETE
03 30 00 -1

1.04 SHOP DRAWINGS

- A. No work shall commence until shop drawings have been stamped with approval of the Landscape Architect.
- B. Shop drawings shall indicate all material, type, layout, sizes, anchors, clips, etc. and methods of attachments and relation to other work.
- C. Shop drawings shall be submitted on all items manufactured, fabricated or otherwise installed.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Cement shall be domestic Portland cement conforming to A.S.T.M. Designation C 150, Type 1 or 11.
- B. Fine aggregate shall be clean, sharp, natural sand conforming to A.S.T.M. Designation C 33.
- C. Coarse aggregate in poured in place concrete shall be well graded crushed stone conforming to A.S.T.M. Designation C 33, Size No. 67 unless otherwise directed.
- D. Water shall be potable, clean, and free from deleterious amounts of acids, alkalis, oils, or organic matter.
- E. No admixtures shall be used unless approved by the Landscape Architect in writing.
- F. Reinforcing steel shall be deformed, intermediate grade, steel bars conforming to A.S.T.M. Designation A 615 Grade 40 free of rust, loose scale or coatings which would reduce bonding. Rail-Steel bars will not be permitted in the work. Mesh shall be 6 x 6 No. 10 welded wire mesh.
- G. Concrete aggregate which have been shown by test or actual service to product concrete of the required strength, durability, water tightness and wearing qualities may be used where authorized by the Landscape Architect.
- H. Miscellaneous steel shall conform to ASTM A/36 for all miscellaneous steel not otherwise noted on the drawings or specified. Steel shall be mild stock.

CAST-IN-PLACE CONCRETE
03 30 00 -2

2.02 CONCRETE QUALITY

- A. Unless otherwise specified or directed, concrete shall be designed for a minimum allowable compressive 3,000 psi at 28 days for below grade footings and foundations and 4,000 psi at 28 days for surface concrete. Slump shall preferably be between 2 and 4 inches, and shall not exceed 5 inches. Water shall be kept to a minimum to obtain concrete which is as dense and watertight as possible the maximum water content shall be 6 gallons per 94 pound sack and the minimum cement factor shall be 5.7 (94 pound) sacks per cubic yard. The above ratios shall be revised for sacks of cement weighing different from 94 pounds per sack. All concrete to be air entrained.

2.03 MIXING CONCRETE

- A. Ready-mix concrete shall conform to A.S.T.M. Specification C94 and the requirements herein, or as otherwise approved by the Landscape Architect. If ready-mix concrete is to be used, the manufacturer shall furnish a statement to the Landscape Architect for his approval giving the dry proportions to be used, with evidence that these will produce concrete of the quality specified.
- B. Concrete shall be mixed until there is a uniform distribution of the materials, and shall be discharged completely before the mixer is recharged. The mixer shall be rotated at a speed recommended by the mixer manufacturer, and mixing shall be continued for least one and one-half minutes after all the materials are in the mixer. Concrete shall be placed within one and one-half hours of the time at which water first added, otherwise it shall be rejected. Concrete which has been remixed or retempered, or to which an excess amount of water has been added, shall also be rejected.

2.04 FORMS

- A. Forms shall be free from roughness and imperfections, substantially watertight and adequately braced and tied to prevent motion when concrete is placed. No wooden spreaders will be allowed in the concrete.
- B. No form shall be removed without the knowledge and consent of the Landscape Architect and an average temperature of 50 degrees F or higher, inside forms shall be retained for at least 24 hours. With lower average temperature, forms shall be retained one day longer.

CAST-IN-PLACE CONCRETE
03 30 00 -3

2.05 EXPANSION JOINTS

A. Joint Filler

1. Joint filler used in conjunction with caulking or sealants shall be non-extruding preformed strips conforming to A.S.T.M. D1752, Type III and A.S.S.H.T.O. N153, Type II as manufactured by, W.R. Grace and Company, W.R. Meadows, or approved equal.
2. Joint sealers for sealing the top portion of expansion joints shall be one-component, elastomeric compound conforming to Federal Specification TT-S-00230C, Class A, Type I. Color of sealant shall match adjacent paver, brick, granite, concrete surface or masonry mortar.
3. Joint filler requiring no sealant or caulking shall be 'Flexcell' non-extruding bituminous preformed strips conforming to A.S.T.M. D1751, as manufactured by Knight – Celotex Corporation, or approved equal.

- B. Sleeved dowels shall be stainless steel with one (1) side capped with wax, as shown on the Drawings.**

PART 3 - EXECUTION

3.01 PLACING CONCRETE

- A.** Reinforcement, where required, shall be accurately placed in exact positions shown, shall be secured against displacement with annealed iron wire ties or suitable clips at intersections, and shall have a clear space of two (2) inches between the steel and face of forms unless otherwise indicated. Wire ties passing through the forms for the purpose of holding the steel in proper position will not be allowed. Concrete blocks with wire ties cast therein may be used where approved by the Landscape Architect for the purpose maintaining the clearance between reinforcement and forms. Reinforcing bars shall be free from rust, scale, dirt, grease and injurious contaminants.
- B.** No concrete shall be placed until forms and method of placement have been approved by the Landscape Architect. Before depositing concrete, all debris, foreign matter, dirt and water shall be removed from the forms. The surface of concrete previously placed, such as horizontal construction joint, shall be cleaned and brushed with cement paste. Concrete shall not be placed in water or submerged within 24 hours after placing, no shall running water be permitted to flow over the surface of fresh concrete within four days after its placing.

CAST-IN-PLACE CONCRETE
03 30 00 -4

- C. No concrete shall be mixed or placed during freezing weather without explicit permission. When placing concrete when air temperature is below 40 degrees F, the water, sand and gravel shall be heated so that the temperature of the concrete will be at least 50 degrees F. This temperature shall be maintained for 72 hours after placing. No concrete shall be placed on frozen ground.

3.01 SCORING AND JOINTS

- A. Scored lines shall be a maximum of five (5) feet on center. Expansion joints shall be installed thirty (30) feet on center and expansion joints shall be constructed between the concrete sidewalk and adjacent curb and wall.

END OF SECTION

CAST-IN-PLACE CONCRETE
03 30 00 -5

DIVISION 26
Electrical (File Sub-Bid)

ELECTRICAL
SECTION 26 00 01
(FILED SUB-BID REQUIRED)

PART 1 - GENERAL

1.01 SCOPE

- A. The Work in this Section is stipulated as a filed Sub-bid.
- B. Sub –bid shall be submitted in accordance with the requirements of Section 44F of Chapter 149 of the General Laws and amended.
- C. Sub-bids shall be filed with the Awarding Authority as stipulated,
- D. Labor, supervision, materials, tools, scaffolding, equipment, supplies, transportation and services for a complete and operational electrical system as specified shall be provided.
- E. The Owner reserves the right to request references from all subcontractors and the right of final selection of Subcontractors.
- F. Materials and equipment shall be installed in accordance with standards of the National Electrical Code, local codes, safety codes and ordinances.
- G. The Work of the Filed Sub-bid for Section 26 00 01 shall include, but not limited to:
 - 1. New parking lot lighting system inclusive of all related control cabinets
 - 2. Remote controlled vehicle gates
 - 3. Installation of underground conduit and wire from the power source to the new electrical equipment.
 - 4. New electrical service equipment dedicated to the lighting system.
 - 5. Grounding system.
 - 6. PVC conduit and EMT conduit in the Senior Center.
 - 7. Power Wiring.
 - 8. Foundation coring and foundation penetrations.
 - 9. Excavation, backfill, resurfacing as required to complete the entire project. Work to be coordinated by the General Contractor
 - 10. Any other system herein after called for or shown on the drawings.

1.02 EXAMINATION OF SITE

**100% BID DOCUMENTS
SENIOR CENTER PARKING
WALTHAM, MASSACHUSETTS**

July 2017

Marshall/Gary Project No. 1701

- A. Before submitting a Bid, this Contractor must visit the job site to determine the conditions under which the work is to be done.

1.03 DRAWINGS AND SPECIFICATIONS

- A. Drawings and specifications are complementary to each other. Any labor and material which is called for by either, whether or not by both, or which is necessary for the successful operation of all systems, shall be furnished and installed. Discrepancies should be brought immediately to the attention of the Landscape Architect.
- B. Plans and specifications for this project should be examined to determine the scope and character of the work, the building design and function, and the required coordination with the Electrical Contractor and other Trades before and during construction.
- C. Shop drawings and submissions of materials shall be made within ten (10) days after the signing of the Contract; they are to be bound by section and submitted as a complete section. Seven (5) copies for approval shall be provided: one (1) copy for the General Contractor, one (1) copy for the Landscape Architect; one (1) copy for the City of Waltham and two (2) copies to be held by the Electrical Contractor until job completion, at which time they are to be bound in two (2) binders and transferred to the Owner.
- D. This Contractor shall prepare an electrical set of coordination drawings. Drawings shall be prepared on translucent drawings to properly coordinate all of the other equipment to be installed. Prior to any installations, the Electrical Contractor must receive approval of drawings from the Landscape Architect.

1.04 INSURANCE

- A. Insurance is to conform to the provisions and requirements as set forth in Information for Bidders Section.

1.05 CHANGES AND REVISIONS

- A. Costs for changes and/or revisions shall be submitted to the Landscape Architect with material and labor breakdown of charges and credits clearly itemized.
- B. Work shall not be executed until approval has been received in writing from the Landscape Architect.

1.06 WORKMANSHIP

- A. Materials shall be new and shall conform to the standards of UL, Inc., in every case where such a standard has been established for the particular type of material in question. Work shall be executed in a workmanlike manner and a competent Foreman shall be

- B. After wires are pulled in and fixtures and equipment are installed, this Contractor shall make tests for performance, grounds, etc., and shall immediately remedy any defects. This Contractor shall provide equipment to be used for tests.
- C. Work under this Contract must be so performed that the progress of the entire project shall not cause delays or interference.
- D. It will be the responsibility of the Electrical Foreman to instruct the Owner in the function, operation and maintenance of electrical systems and equipment. This is to be done upon completion of the installation, before leaving the job site and to the satisfaction of the Owner and Landscape Architect.

1.07 MANUFACTURERS' NAMES AND TRADE NAMES

- A. Throughout the specification types of materials may be specified by manufacturer's name and catalogue number in order to establish standards of performance and quality, and not to limit competition.

1.08 MATERIAL STORAGE AND OFFICE SPACE

- A. This Contractor shall maintain at his own expense, where directed on the premises, neat covered storage for material and equipment, and office space where drawings and specifications shall be kept for records.
- B. Equipment or material damaged during the construction period shall be replaced at this Contractor's expense.

1.09 GUARANTEE

- A. Materials and labor incorporated in the work are to be guaranteed against defects for a period of one (1) year from date of substantial completion. This Contractor shall correct such defects that occur within the guarantee period and to the satisfaction of the Landscape Architect without cost to the Owner, within a twenty-four (24) hour period.
- B. This Contractor shall not be responsible for failures through normal usage, nor for those caused by neglect or abuse on the part of the Owner or his employees.

1.10 RELATED WORK

- A. Following related work is not included in this Section and will be performed under the supervision of the electrical contractor by the general contractor.
- B. Excavation, backfill and resurfacing required for underground electrical systems.

1. Major cutting and patching.

1.11 OPERATING INSTRUCTIONS

A. This Contractor shall furnish three (3) Operating and Maintenance Manuals outlining in detail the operational features of the following systems:

- B. Parking lot lighting and remote gates:
2. Electrical distribution equipment.
 3. Remote control gates
 4. PVC conduit
 5. Control Cabinet

1.12 PERMITS

A. This Contractor shall obtain and pay for permits for the electrical systems on this project.

1.13 RECORD DRAWINGS

A. A set of record drawings shall be maintained at the job site for reference by the Landscape Architect. Weekly, the Electrical Foreman will note changes and review drawings periodically with the Landscape Architect. Changes, including feeders, lighting, power, panel schedules, duct-bank changes, etc., shall be recorded on the drawings. At the conclusion of the construction this Contractor shall furnish a CD of the electrical drawing showing all changes made during construction and submit to the Landscape Architect. Final payment for electrical work is contingent upon receipt of CD. Cost of record CD will be borne by this Contractor.

1.14 DEFINITIONS

A. The terms "Electrical Contractor", "This Contractor", "Electrical Contractor", "Electrical Subcontractor", all refer to the work of this Section 26 00 01.

1.15 PERMITS

A. Before proceeding with the electrical work the Contractor shall obtain a Permit from the Waltham Inspector of Wires. (See attached copy of permit application.)

PART 2 - PRODUCTS

BASIC MATERIALS AND METHODS

2.01 RACEWAYS AND FITTINGS

- A. Rigid conduit where used shall be heavy wall hot dipped, galvanized: Midland-Ross, Wheatland or Republic.
- B. Size of conduit used shall be as indicated on the contract drawings.
- C. Electrical Metallic Tubing (EMT) shall be mild steel, electrically welded, and galvanized, Midland-Ross, Wheatland or Republic.
- D. Plastic conduit shall be Type PVC80 Carlon Co. as noted on the drawings.
- E. Conduit installed underground shall be rigid galvanized or Type PVC80 plastic conduit. Raceways and underground sweeps rising up into the control cabinets shall be rigid galvanized conduit.
- F. During construction, ends of conduit shall be kept tightly plugged to exclude dirt, dust, moisture and debris.
- G. Ends of conduit entering boxes shall be equipped with galvanized locknuts or bushings. Cut ends of conduit shall be reamed free of burrs and sharp edges.

2.02 WIRE

- A. Unless otherwise specified, conductors installed in conduit shall be Type THW, 600V, 90 degree C. - Anaconda Densheath 900. Conductors shall be copper.
- B. Covering of wires and cables designed to meet the above specifications shall have distinctive markings as required by the latest standards of UL, Inc., making them readily identifiable in the field.

2.03 GROUNDING

- A. The entire system shall be grounded in accordance with the National Board of Fire Underwriters', State and local requirements.
- B. Framework of the lighting poles, panels, control cabinet equipment, etc., shall be grounded to a ground loop or buss to receive a ground conductor.
- C. This Contractor shall furnish and install an equipment ground wire in feeder runs to meet requirements of the National Electrical Code.

2.04 OUTLET BOXES

- A. Outlet boxes shall be weatherproof, Steel City, Appleton, or Raco, galvanized of a type best adaptable to their respective use and in general four (4) square or octagon

Marshall/Gary Project No. 1701

- B. Outlet boxes shall be provided with only the holes necessary to accommodate conduit connected. Boxes shall be furnished with lugs, ears, covers and/or outlet devices for attachment.
- C. Plastic boxes are NOT acceptable.

2.05 PULL AND JUNCTION BOXES

- A. Pull and junction boxes shall conform to requirements of the National Electrical Code. They shall be galvanized code gauge steel construction with removable cover plate secured by 1/4" brass machine screws. Junction boxes shall be supported to the building structure.

2.06 SLEEVES

- A. It shall be the responsibility of this Contractor to furnish and install sleeves through the walls, rated assemblies, etc., where necessary.
- B. Sleeves shall be sealed with UL, Inc., approved fire rated material after wires have been installed.

2.07 SYSTEM OF LIGHT AND POWER

- A. The secondary distribution system's is 120/208 volt, single phase, 4 wires, 60HZ AC.

2.08 LIGHTS

- A. Luminaires shall be Washington LED. 120 watts as manufactured by Spring City with photo electric cells.
- B. Poles to be coated steel, fluted 11' high with base. (To match poles on Main Street, Waltham.)

2.09 REMOTELY OPERATED GATES

- A. Vehicular barrier gate operator enclosure shall be weatherproof, heavy gauge, galvanized steel, (NEMA rated 4x), painted black with top and side access covers with key locks. The one horsepower motor shall be 115 VAC, single phase with battery powered backup. Arms shall be "wishbone type", 3" round aluminum with red and white warning tape. Lengths to be 24 and 27 feet. Arm kits to include mounting hubs, hardware and counter-balance weights.
- B. Operator reduction shall be 60:1 worm gear reduction system running in a continuous oil bath. Rotation of the arm shall be 5.5 seconds. Thermostatically controlled kit to be included.
- C. Motors to be remote controlled. The operators to be equipped with an OPTICOM system that can be controlled by the Waltham Fire and Police Departments.

PART 3 EXECUTION

3.01 INSPECTION AND COORDINATION

- A. This Contractor shall inspect surfaces and areas that will receive his material and the job conditions as they exist, and report any conditions that may adversely affect his work. Notify Landscape Architect or Electrical Contractor of unsuitable conditions.
- B. Coordinate work with construction schedule and job progress.
- C. This Contractor shall confer with the Electrical Contractor and other Trades to coordinate his work and to properly locate systems to avoid conflict and interference.

3.02 INSTALLATION

- A. Installation shall be by skilled workmen using proper equipment. Commencement of work shall be deemed as acceptance of existing conditions by installer.
- B. Entire application shall be in strict accordance with manufacturer's recommendations and the standards of the National Electrical Code, local codes and ordinances, OSHA safety codes and regulations.
- C. After wires are pulled in and all fixtures are installed, this Contractor shall make tests for performance, grounds, etc., and shall immediately remedy defects. Equipment for tests shall be borne by this Contractor.
- D. Work under this Contract must be so performed that the progress of the entire project, including work of all Trades shall not cause delays or interference. Material and apparatus shall be installed as fast as condition of the building will permit.

3.03 RACEWAYS AND FITTINGS

- A. Refer to drawings for conduit sizes.
- B. Conduit installed underground or under concrete slabs shall be painted with Rustoleum protective compound before installation, touched up and sealed to exclude water entering conduit after installation.
- C. During construction ends of conduit shall be tightly plugged to exclude dirt, dust and moisture.
- D. Ends of conduit entering boxes shall be equipped with galvanized locknuts and

bushings. Cut ends of conduit shall be reamed free of burrs and sharp edges.

E. Electrical metallic tubing couplings and terminations in outlet boxes, junction boxes, panelboard cabinets, etc., shall be secured thereto for grounding by means of rain tight and concrete-tight fittings of the interlocking compression ring or stainless steel, multiple joint locking type. Set screws or indentations will not be acceptable as a method of attachment of fittings to conduit or EMT.

3.04 WIRING

A. Joints in wiring shall be made with approved type solderless connectors.

3.05 WIRE

A. Wire #8 and larger shall be stranded and no wire less than #12 shall be used, unless otherwise noted.

3.06 GROUNDING SYSTEM

A. Framework of the panels shall be grounded by a ground loop or buss to receive a building ground connection.

B. No ground wire shall be spliced, except as approved; where necessary to tap or splice a ground wire cable or loop, Cad weld copper weld splice or tap shall be used. Cable ground connection shall be solderless, non-corrosive, cast lug type. Ground clamps shall be non-corrosive cast brass or bronze.

C. Exposed non-current carrying conductive material enclosing electrical equipment or forming a part of such equipment shall be bonded together in a positive continuous raceway and equipment ground. A bonding jumper shall be provided where continuity of ground may be doubtful because of oversize locknuts or loose jointed connections or in any instance where in the opinion of the Engineer the continuity of ground is doubtful.

E. Seal-tite for power connections shall be equipped with ground connections and internal ground wire.

F. This Contractor shall install a fifth wire to be the ground conductor in feeder runs to meet requirements of the National Electrical Code.

G. Ground fault protection shall be installed for temporary and permanent power to meet OSHA requirements and those of the National Electrical Code.

3.07 UNDERGROUND RACEWAYS

A. Underground raceways shall be supported with plastic spacers every five (5') feet.

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SENIOR CENTER PARKING
WALTHAM, MASSACHUSETTS
Marshall/Gary Project No. 1701

July 2017

3.08 LIGHTS

- A. Furnish and install poles and luminaires in the parking and drive way as specified and as shown on the drawings.
- B. Poles to be set on concrete footing in accordance with the manufacturer's recommendations.
- C. Install conduit and wiring between lights. Connect wiring to power on Newton Street using metal conduit.

3.09 REMOTELY OPERATED GATES

- A. Furnish and install three gates (one with 24 foot arm and two with 27 foot arms). Operators and gatesto be installed as specified and as shown on the drawings on concrete footings.
- B. Supply two remote control devices to separately control each of the three gates.
- C. Furnish and install conduit and wiring to the three gates. Wiring to the gate on Heard Street to be connected to electric panel in the Senior Center.
- D. Submit shop drawing for the gate equipment including layout.

3.10 INSTRUCTIONS TO OWNER

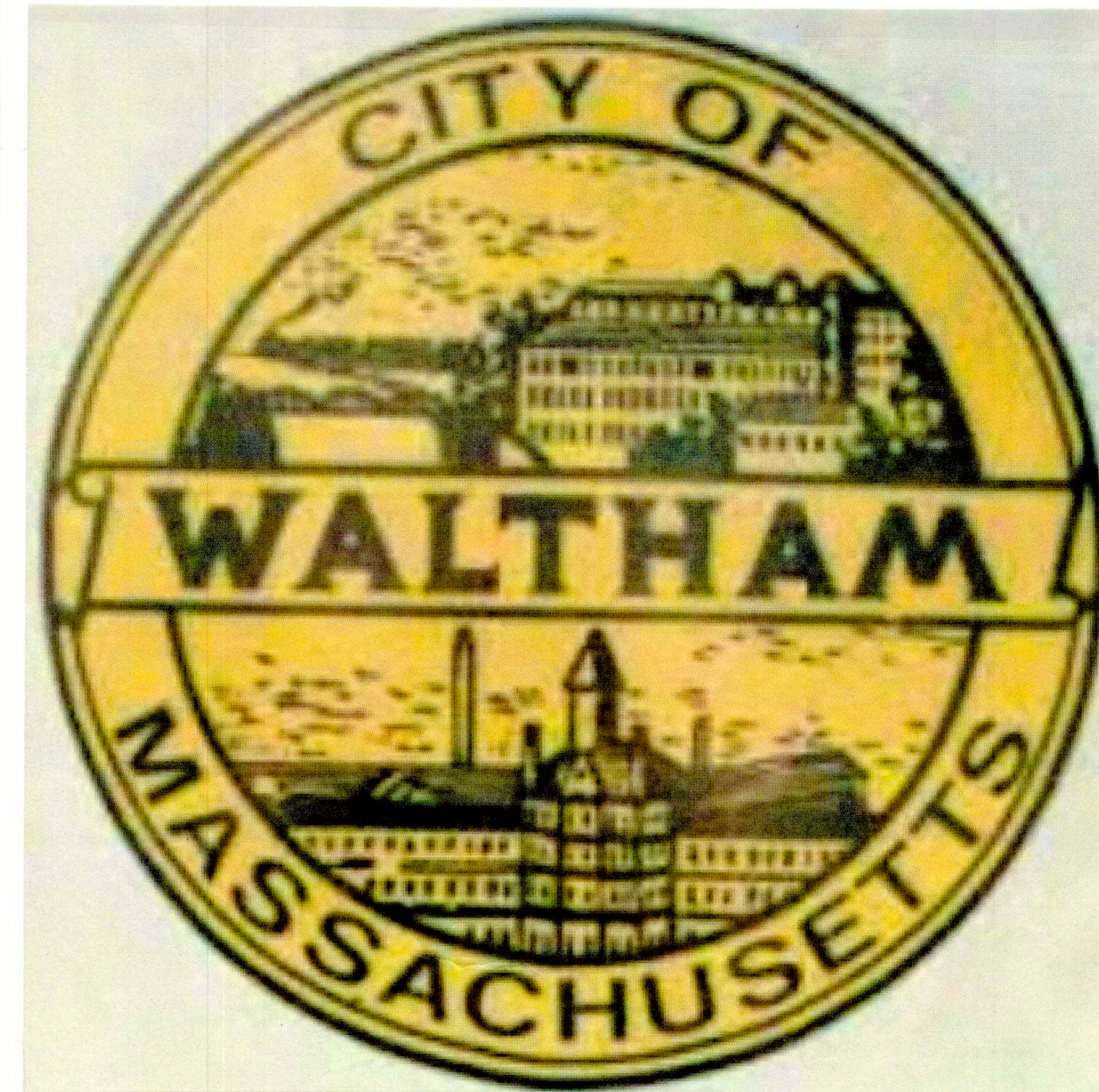
- A. It shall be the responsibility of the Contractor to instruct the Owner in the function, operation and maintenance of electrical systems and equipment.

3.11 CLEANUP

- A. Panels and like shall be cleaned and left in a neat manner and where required shall be painted if any finish material has been removed.

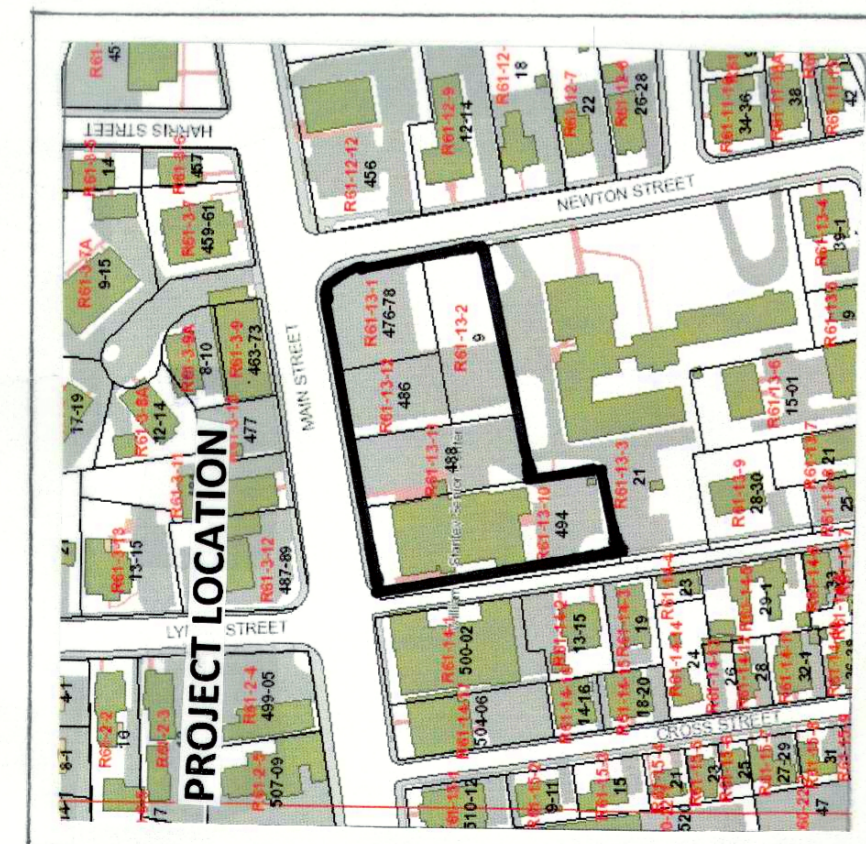
DRAWINGS

**WILLIAM F. STANLEY SENIOR CENTER PARKING
488 MAIN STREET, WALTHAM, MASSACHUSETTS**



Mayor Jeanette A. McCarthy

PROJECT LOCUS MAP



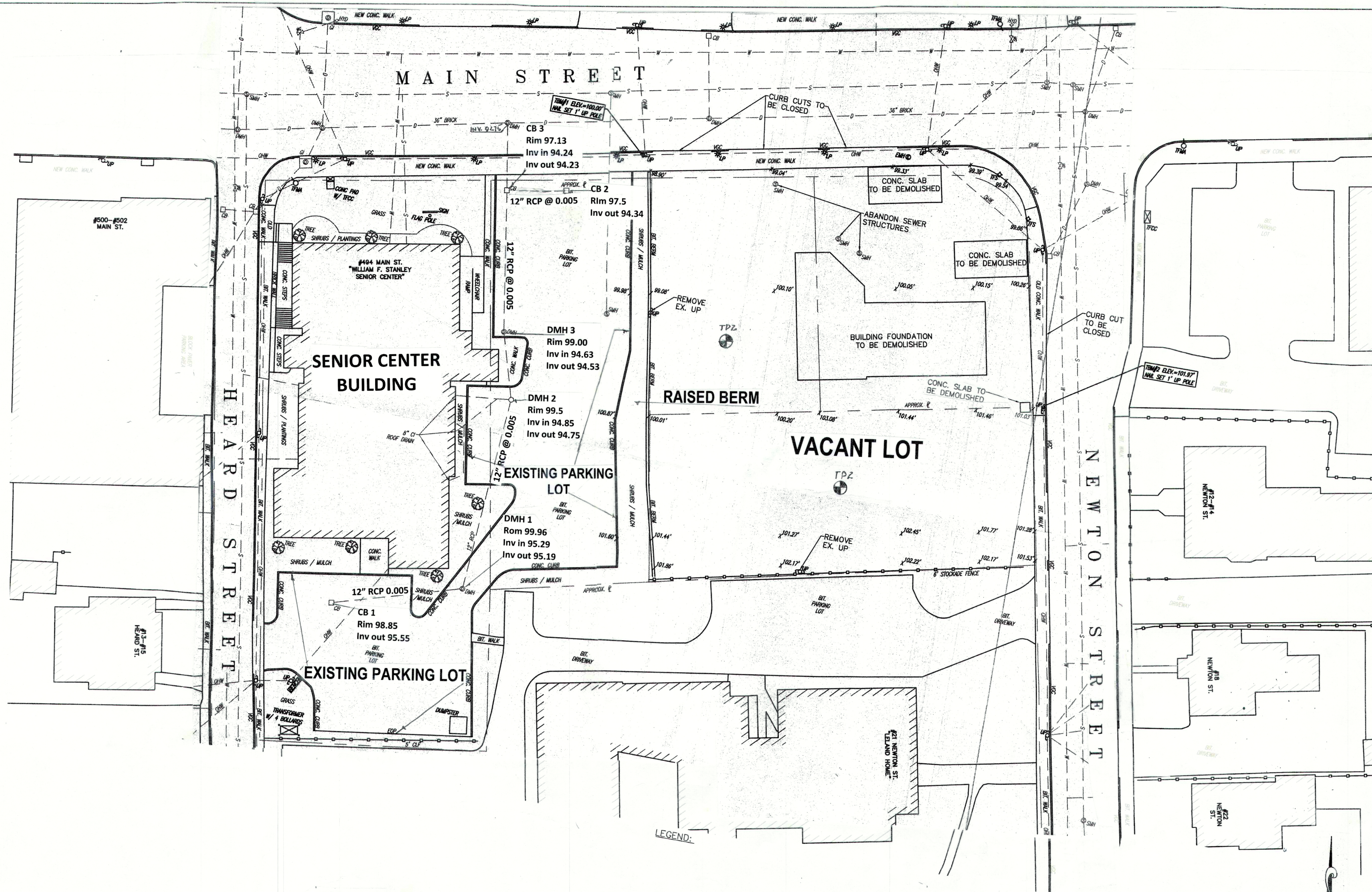
For Construction June 6, 2017

LANDSCAPE ARCHITECTS

Marshall Gary, LLC
17 Naumkeag Row
Danvers, MA 01923
Tel: 617-699-6644
Email: BGARY@MGARY.COM

LIST OF DRAWINGS

- Cover
- L-1 Existing Conditions Plan
- L-2 Site Preparation Plan
- L-3 Layout & Materials Plan
- L-4 Grading & Drainage Plan
- L-5 Electrical Plan
- L-6 Planting Plan
- L-7 Site Details
- L-8 Site Details
- L-9 Site Details
- L-10 Traffic Plan & Details

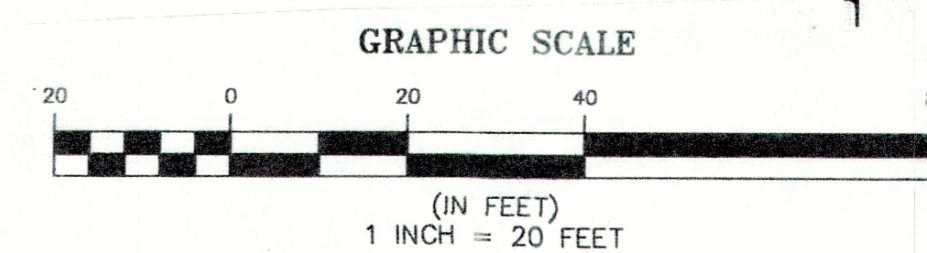


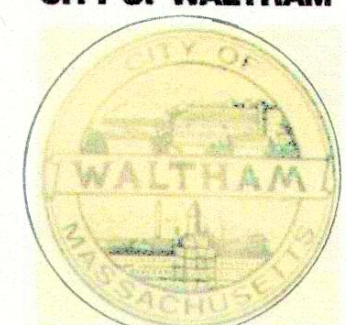
GENERAL NOTES:

1. PLAN INFORMATION IS BASED UPON INFORMATION OBTAINED FROM THE CITY OF WALTHAM'S GIS DATA, EXISTING RECORD PLANS, AND FIELD OBSERVATIONS. NO ON-THE-GROUND INSTRUMENT SURVEY WAS PERFORMED AND LOCATIONS OF DEPICTED FEATURES SHOULD BE CONSIDERED APPROXIMATE ONLY.
2. ELEVATIONS, IN FEET, ARE ON AN ASSUMED VERTICAL DATUM, AND ARE RELATIVE TO THE BENCHMARK, TBM-1 ELEV.=100.00'. ASSUMED VERTICAL DATUM AND SPOT GRADES WERE SET BY A LEVEL RUN PERFORMED BY CITY OF WALTHAM ENGINEERING DEPARTMENT IN APRIL 2017.
3. SUBSURFACE UTILITY LINES, AS SHOWN HEREON, WERE COMPILED ACCORDING TO AVAILABLE RECORD INFORMATION. THE LOCATIONS ARE APPROXIMATE ONLY. ACTUAL LOCATIONS MUST BE DETERMINED IN THE FIELD. THE CITY OF WALTHAM ASSUMES NO RESPONSIBILITY FOR DAMAGES INCURRED AS A RESULT OF UTILITIES OMITTED OR INACCURATELY SHOWN. THE CONTRACTOR SHALL EXCAVATE TEST PITS TO VERIFY UTILITY LINE LOCATIONS AS NECESSARY.
4. DISTANCES SHALL NOT BE SCALED OFF THIS PLAN.

ABBREVIATIONS:

APPROX	APPROXIMATE	OHW	OVERHEAD WIRE	TEMP	TEMPORARY BENCHMARK	EX. UTILITY POLE	EX. UTILITY POLE
BIT	BITUMINOUS CONCRETE	PB	PULL BOX	EX. CATCH BASIN	EX. CATCH BASIN	EX. PULL BOX	EX. PULL BOX
CB	CATCH BASIN	PROP	PROPOSED OR PROPERTY	EX. DRAIN MANHOLE	EX. DRAIN MANHOLE	EX. LAMP POST	EX. LAMP POST
CI	CAST IRON	RCP	REINFORCED CONCRETE PIPE	EX. SEWER MANHOLE	EX. SEWER MANHOLE	EX. TRAFFIC SIGNAL	EX. TRAFFIC SIGNAL
CLF	CHAIN LINK FENCE	RND	ROUND	EX. ELECTRIC MANHOLE	EX. ELECTRIC MANHOLE	EX. TRAFFIC SIGNAL MAST ARM	EX. TRAFFIC SIGNAL MAST ARM
CONC	CONCRETE	SMH	SEWER MANHOLE	EX. TELEPHONE MANHOLE	EX. TELEPHONE MANHOLE	EX. TREE W/ TRUNK DIA.	EX. TREE W/ TRUNK DIA.
DMH	DRAIN MANHOLE	SN	SIGN	EX. HYDRANT	EX. HYDRANT	EX. TRAFFIC SIGN	EX. TRAFFIC SIGN
ELEV	ELEVATION	TBM	TEMPORARY BENCHMARK	EX. WATER GATE	EX. WATER GATE	EX. BUILDING	EX. BUILDING
EMH	ELECTRIC MANHOLE	TFC	TRAFFIC CONTROL CABINET	EX. TEST PIT	EX. TEST PIT	APPROX. PROP LINE	APPROX. PROP LINE
EOP	EDGE OF PAVEMENT	TFSA	TRAFFIC SIGNAL MAST ARM	EX. MONITORING WELL	EX. MONITORING WELL	EX. FENCE	EX. FENCE
EX	EXISTING	TES	TRAFFIC SIGNAL				
FNC	FENCE	TMH	TELEPHONE MANHOLE				
GG	GAS GATE	TP	TEST PIT				
GI	GUTTER INLET	TYP	TYPICAL				
HY	HYDRANT	UP	UTILITY POLE				
LP	LIGHT POLE	VGC	VERTICAL GRANITE CURB				
MW	MONITORING WELL	W/	WITH				
N/F	NOT FOUND	WG	WATER GATE				

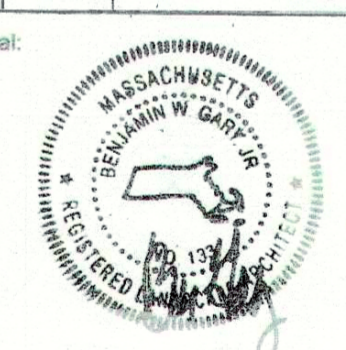


Project:
CITY OF WALTHAM

SENIOR CENTER PARKING

MG
 Marshall | Gary LLC
 17 Naumkeag Row
 Danvers, MA 01923
 p. 781.245.7699 c. 617.699.6644
 www.mgarly.com

Consultants:
 Revisions:

Rev	Date	Description

Seal:

FOR CONSTRUCTION

Date: 6-6-17
 Scale: AS SHOWN
 Drawn By: JE
 Reviewed By: BG
 Checked By: BG
 Approved By: BG

Drawing Title:
EXISTING CONDITIONS PLAN
 Sheet Number:
L-1

PHASE 2 RESURFACING OF EXISTING PARKING LOT

COMPLETE CONSTRUCTION OF PARKING RESURFACING INCLUDING TEMPORARY CONSTRUCTION FENCING, EROSION CONTROL, TREE PROTECTION, INSTALLATION OF SIGNS (SIDEWALK CLOSED, CONSTRUCTION UNDERWAY, PROJECT SIGN), DEMOLITION, GRANITE CURBING, BITUMINOUS CONCRETE OVERLAY WITH MILLING OF EXISTING BITUMINOUS PAVEMENT, ADJUSTING SURFACE STRUCTURES INCLUDING STORM AND SANITARY MANHOLE COVERS, PAVEMENT MARKINGS, REMOTELY OPERATED VEHICULAR GATES, PLANTING OF TREES AND SHRUBS, RECREATION TERRACE, PRIVACY SCREEN, BENCH, DIRECTIONAL SIGNS, REMOVAL OF EXISTING BITUMINOUS CONCRETE SIDEWALK AND CONSTRUCTION OF CEMENT CONCRETE SIDEWALK ON HEARD STREET AND REMOVAL OF TEMPORARY FENCING AND EROSION CONTROLS.

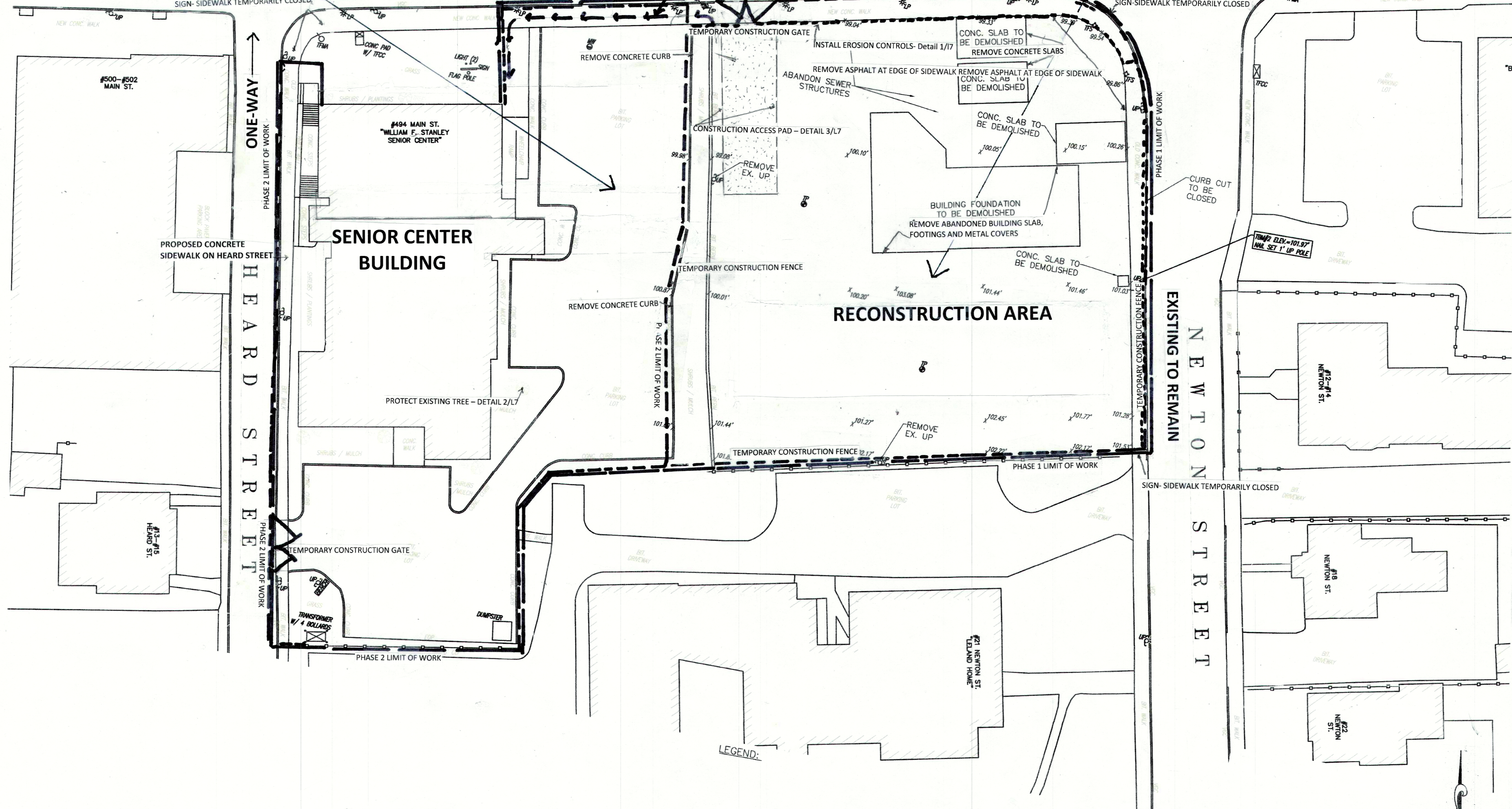
PHASE 1 PARKING LOT

COMPLETE CONSTRUCTION OF PARKING LOT INCLUDING TEMPORARY CONSTRUCTION FENCING, EROSION CONTROL, INSTALLATION OF SIGNS (SIDEWALK CLOSED, CONSTRUCTION UNDERWAY, PROJECT SIGN) DEMOLITION, GRADING, STORM DRAINAGE, GRANITE CURBING, BITUMINOUS CONCRETE PAVING, PAVEMENT MARKINGS, CONCRETE WALKS, LIGHTING, WROUGHT IRON FENCE, REMOTELY OPERATED VEHICULAR GATE, DIRECTIONAL SIGNS, BLUESTONE WALL WITH BRONZE LETTERING, TREES AND LAWNS AND REMOVAL OF TEMPORARY FENCING AND EROSION CONTROLS.

MAIN STREET
EXISTING TO REMAIN

NEWTON STREET
EXISTING TO REMAIN

HEARD STREET
ONE-WAY



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Consultants:

Revisions:

Rev	Date	Description

Seal:

FOR CONSTRUCTION

Date: 6-6-17
Scale: AS SHOWN
Drawn By: JE
Reviewed By:
Checked By: BG
Approved By: BG

Drawing Title:
SITE PREPARATION PLAN

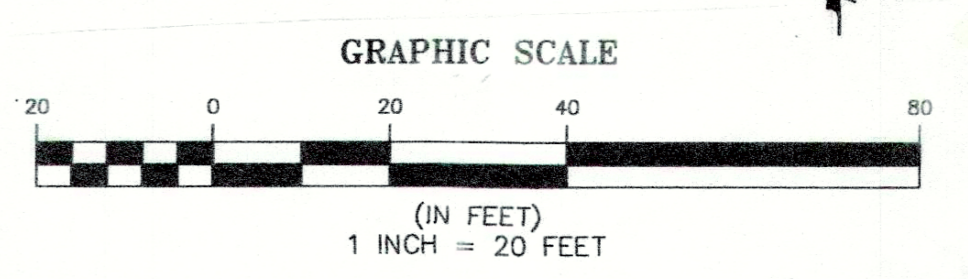
Sheet Number:
L-2

GENERAL NOTES:

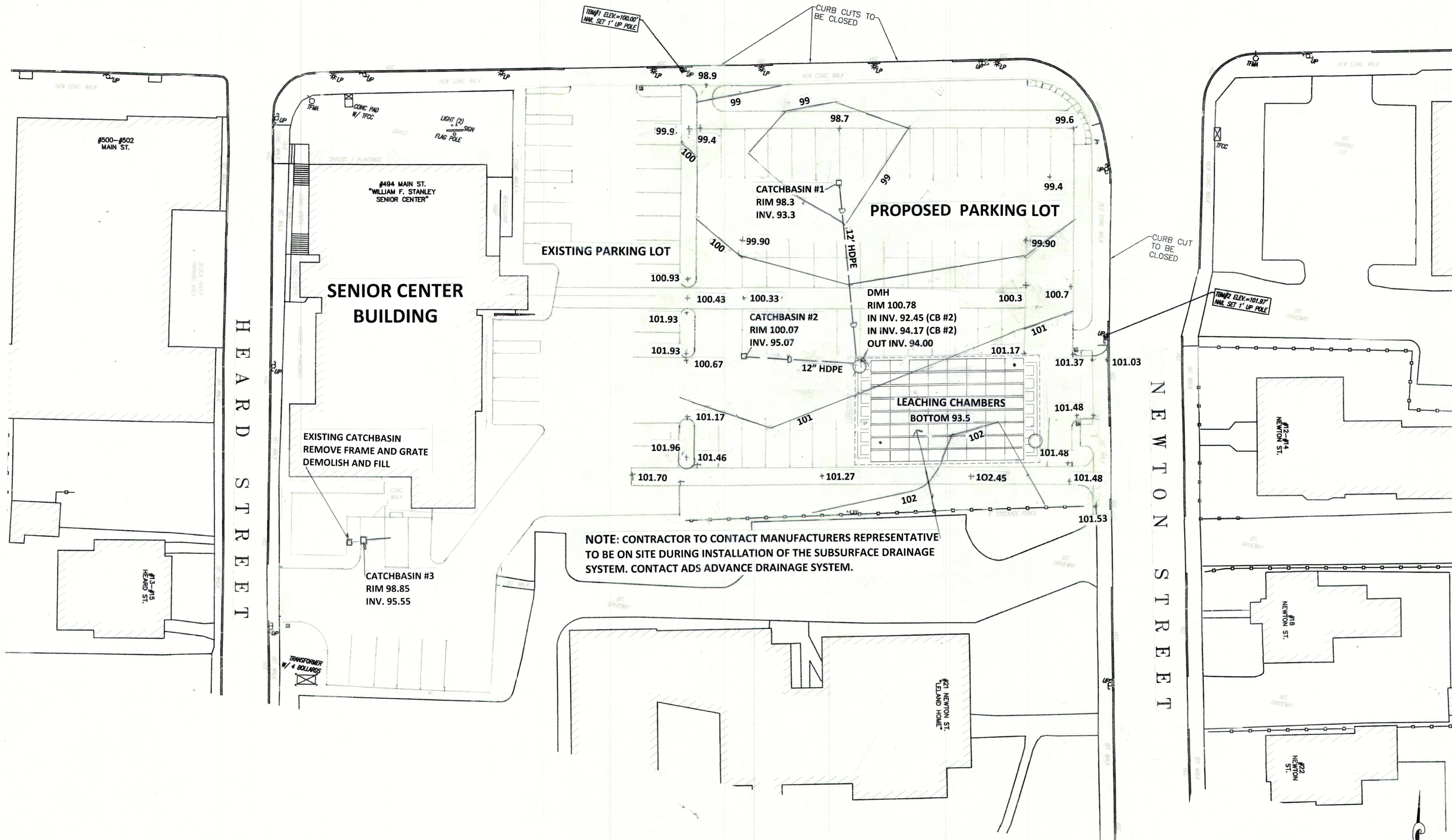
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ABBREVIATIONS:

APPROX	APPROXIMATE	CHW	OVERHEAD WIRE	⊕	TEMPORARY BENCHMARK	⊕	EX. UTILITY POLE
BIT	BITUMINOUS CONCRETE	PB	PULL BOX	⊕	EX. CATCH BASIN	⊕	EX. PULL BOX
CB	CATCH BASIN	PROP	PROPOSED OR PROPERTY	⊕	EX. DRAIN MANHOLE	⊕	EX. LAMP POST
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CLF	CHAIN LINK FENCE	RND	ROUND	⊕	EX. ELECTRIC MANHOLE	⊕	EX. TRAFFIC SIGNAL MAST ARM
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EMH	ELECTRIC MANHOLE	TFCC	TRAFFIC CONTROL CABINET	⊕	EX. TEST PIT	⊕	EX. FENCE
EOP	EDGE OF PAVEMENT	TFMA	TRAFFIC SIGNAL MAST ARM	⊕	EX. MONITORING WELL	⊕	
EX	EXISTING	TFS	TRAFFIC SIGNAL				
FNC	FENCE	TMH	TELEPHONE MANHOLE				
GG	GAS GATE	TP	TEST PIT				
GI	GUTTER INLET	TYP	TYPICAL				
HYD	HYDRANT	UP	UTILITY POLE				
LP	LIGHT POLE	VCC	VERTICAL GRANITE CURB				
MW	MONITORING WELL	W/	WITH				
N/F	NOT FOUND	WG	WATER GATE				

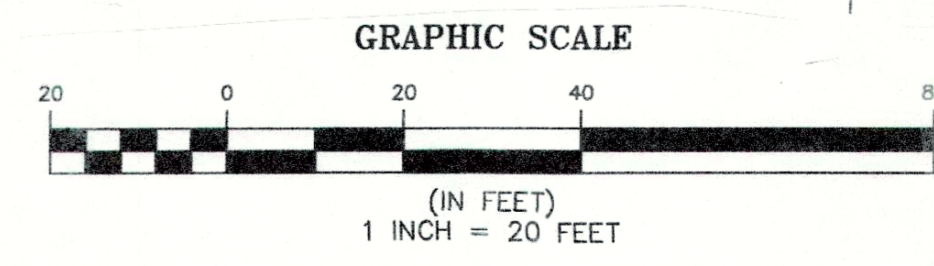


MAIN STREET



NOTE: CONTRACTOR TO CONTACT MANUFACTURERS REPRESENTATIVE TO BE ON SITE DURING INSTALLATION OF THE SUBSURFACE DRAINAGE SYSTEM. CONTACT ADS ADVANCE DRAINAGE SYSTEM.

LEGEND - PROPOSED
 DMH ○ DRAIN MANHOLE (DETAIL 5/L7)
 102.0 CONTOUR ELEVATION
 100.32 SPOT ELEVATION



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Consultants:

DRAINAGE DESIGN

Revisions:

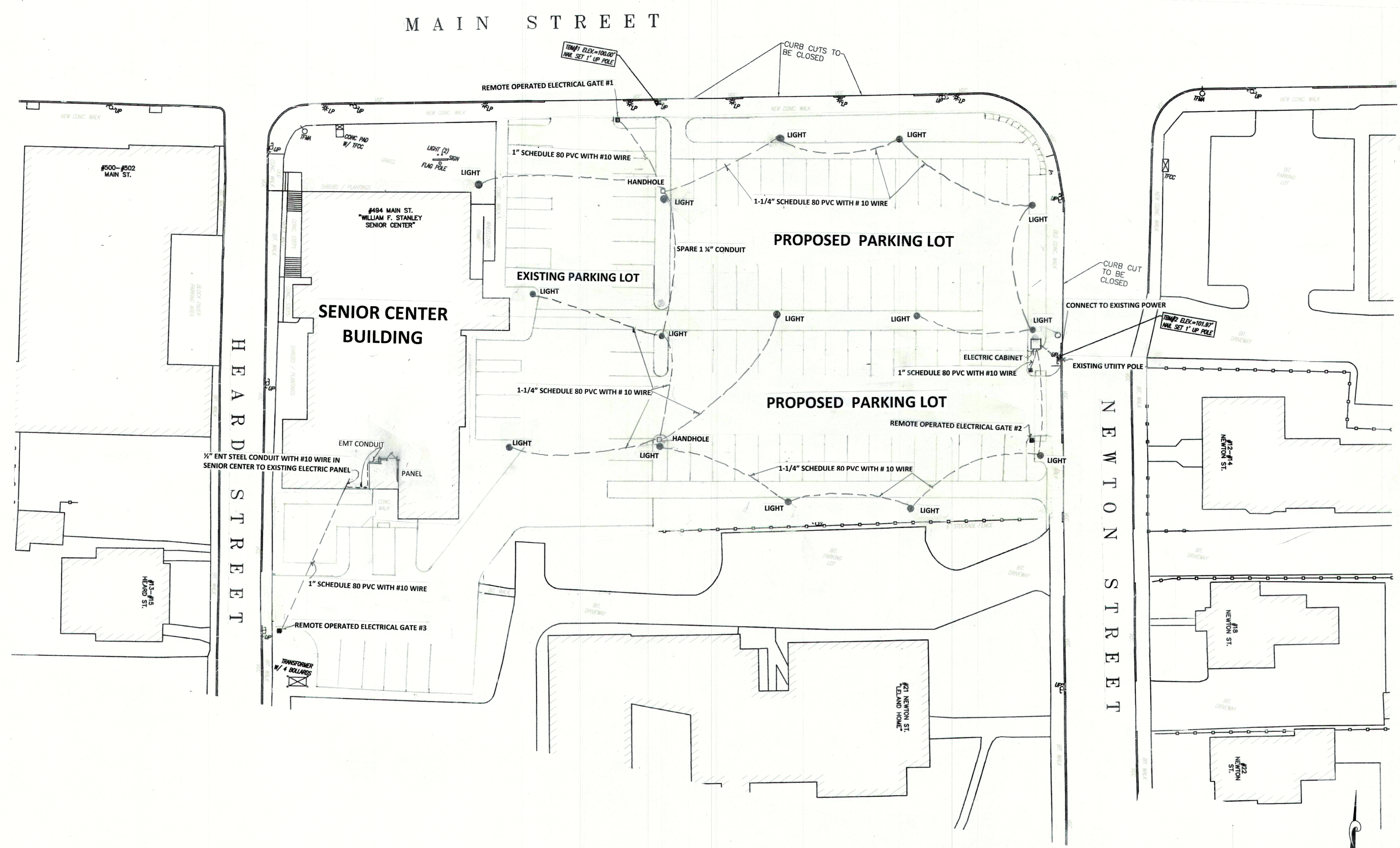
Rev	Date	Description

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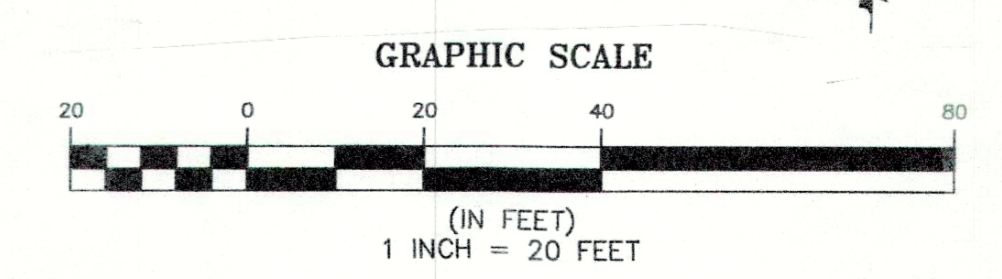
FOR CONSTRUCTION

Date: 6-6-17
 Scale: AS SHOWN
 Drawn By: JE
 Reviewed By:
 Checked By: BG
 Approved By: BG

Drawing Title:
GRADING & DRAINAGE PLAN
 Sheet Number:
L-4



LEGEND - PROPOSED
 ● LIGHT STREET LIGHT
 - - - 1" OR 1-1/2" SCHEDULE 80 PVC CONDUIT



Project:
CITY OF WALTHAM

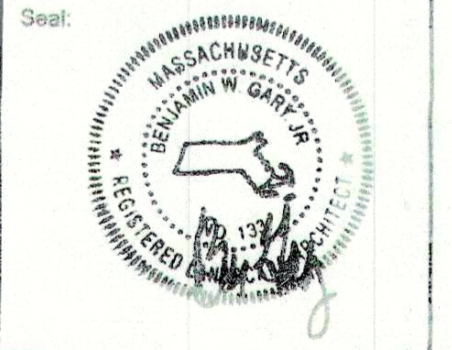
SENIOR CENTER PARKING

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 Marshall | Gary LLC
 17 Naumkeag Row
 Danvers, MA 01923
 p. 781.243.7699 c. 617.699.6644
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Consultants:

 Revisions:

Rev	Date	Description

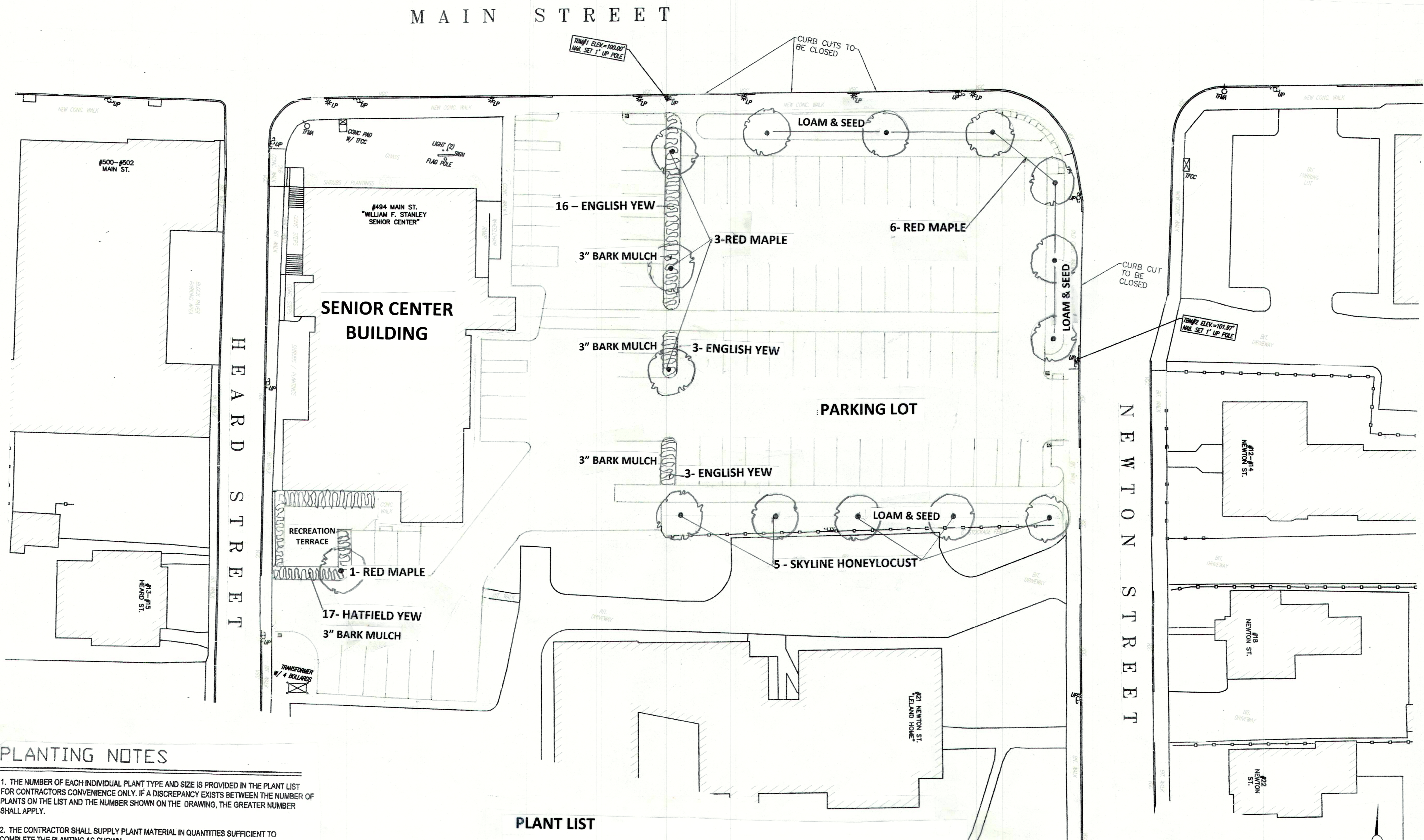


FOR CONSTRUCTION

Date: 6-6-17
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 Reviewed By:
 Checked By: BG
 Approved By: BG

Drawing Title:
ELECTRICAL PLAN

Sheet Number:
L-5



PLANTING NOTES

1. THE NUMBER OF EACH INDIVIDUAL PLANT TYPE AND SIZE IS PROVIDED IN THE PLANT LIST FOR CONTRACTORS CONVENIENCE ONLY. IF A DISCREPANCY EXISTS BETWEEN THE NUMBER OF PLANTS ON THE LIST AND THE NUMBER SHOWN ON THE DRAWING, THE GREATER NUMBER SHALL APPLY.
2. THE CONTRACTOR SHALL SUPPLY PLANT MATERIAL IN QUANTITIES SUFFICIENT TO COMPLETE THE PLANTING AS SHOWN.
3. ALL PLANT MATERIAL SHALL BE APPROVED BY THE OWNER OR THE OWNER'S REPRESENTATIVE PRIOR TO ARRIVAL ON SITE.
4. PLANT MATERIAL SHALL BEAR THE SAME RELATIONSHIP TO FINISHED GRADE AS TO THE ORIGINAL PLANTING GRADE.
5. THE CONTRACTOR SHALL LOCATE AND MARK ALL UTILITIES PRIOR TO PLANTING. ANY CONFLICT BETWEEN PLANTING AND UTILITIES SHALL BE IMMEDIATELY REPORTED TO THE OWNER SO THAT ALTERNATE PLANTING LOCATIONS CAN BE DETERMINED.
6. NO SUBSTITUTION OF PLANT MATERIALS WILL BE ALLOWED WITHOUT THE PRIOR WRITTEN APPROVAL OF THE OWNER.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL PLANTS AGAINST DAMAGE FROM ON-GOING CONSTRUCTION. PROTECTION SHALL BEGIN AT THE TIME THE PLANT IS INSTALLED AND CONTINUE UNTIL FORMAL ACCEPTANCE OF ALL PLANTING.
8. ALL AREAS NOT OTHERWISE DEVELOPED SHALL BE LOAMED AND SEEDED.

PLANT LIST

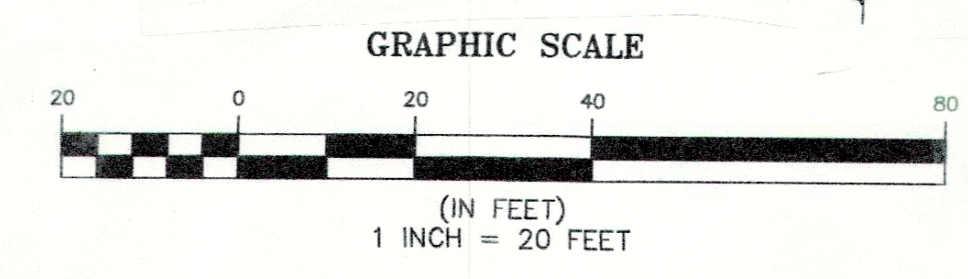
QUANTITY	BOTANICAL NAME	COMMON NAME	SIZE
17	ACER RUBRUM	RED MAPLE	2 1/2" - 3" C
5	GLEDITSIA TRIACANTHOS SKYLINE	SKYLINE HONEYLOCUST	2 1/2" - 3" C
22	TAXUS BACCATA REPANDENS	SPREADING ENGLISH YEWE	2' - 2 1/2' S
17	TAXUS X MEDIA HATFIELDII	HATFIELD UPRIGHT YEWE	2 1/2' - 3' H

LEGEND

- C CALIPER
- H HEIGHT
- S SPREAD

LEGEND - PROPOSED

- TREE (DETAIL 6/L7)
- SHRUBS



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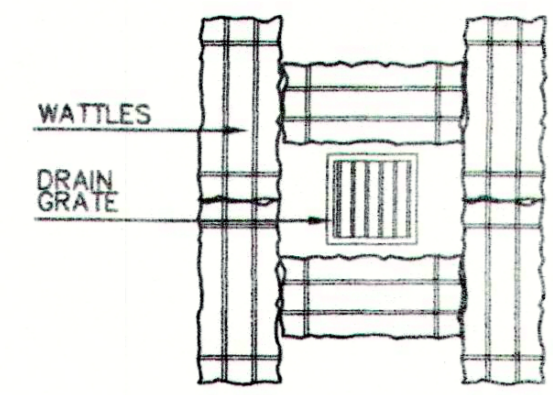


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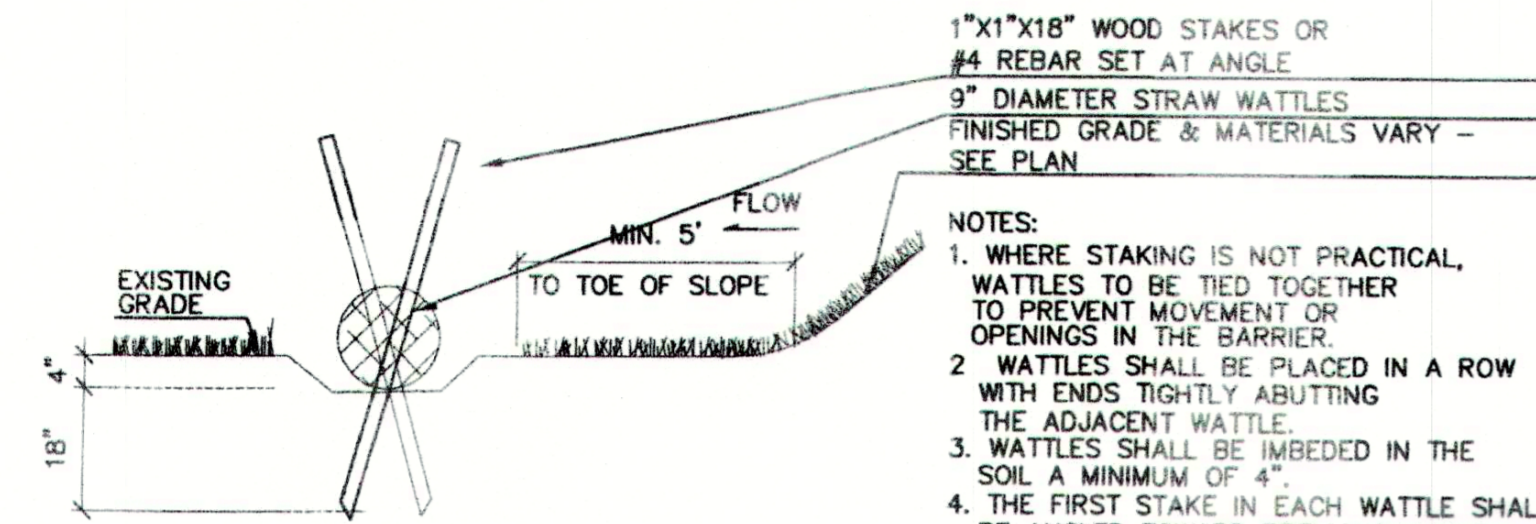
Drawing Title:
PLANTING PLAN

Sheet Number:
L-6



PLAN AT DRAINAGE INLETS

- NOTES:
1. THE PERIMETER LENGTH OF THE BARRIER SHALL BE 4 TIMES THE PERIMETER LENGTH OF THE DRAINAGE INLET. THE TOP OF THE BARRIER SHALL BE LEVEL AND UNIFORM FOR THIS LENGTH.
 2. THE BARRIER SHALL ENCLOSE THE INLET.

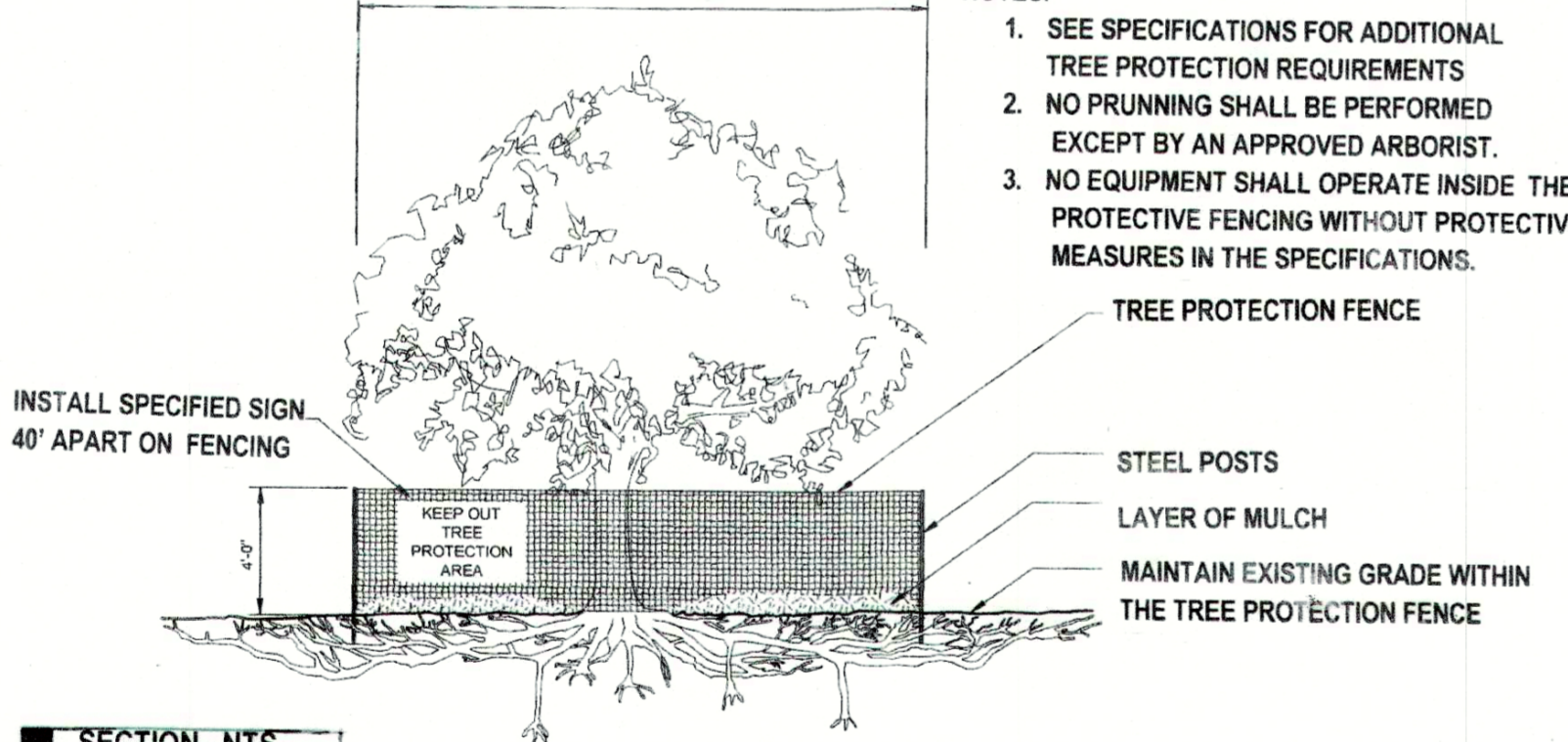


PERIMETER CONTROL SECTION

1 EROSION CONTROL
L7 SCALE: N.T.S.

- 1"x1"x18" WOOD STAKES OR #4 REBAR SET AT ANGLE
9" DIAMETER STRAW WATTLES
FINISHED GRADE & MATERIALS VARY - SEE PLAN
- NOTES:
1. WHERE STAKING IS NOT PRACTICAL, WATTLES TO BE TIED TOGETHER TO PREVENT MOVEMENT OR OPENINGS IN THE BARRIER.
 2. WATTLES SHALL BE PLACED IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT WATTLE.
 3. WATTLES SHALL BE IMBEDDED IN THE SOIL A MINIMUM OF 4".
 4. THE FIRST STAKE IN EACH WATTLE SHALL BE ANGLED TOWARD PREVIOUSLY LAID WATTLE TO FORCE WATTLES TOGETHER.
 5. INSPECTION SHALL BE MADE FREQUENTLY AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
 6. REMOVE ALL SEDIMENT PRIOR TO REMOVING WATTLES.

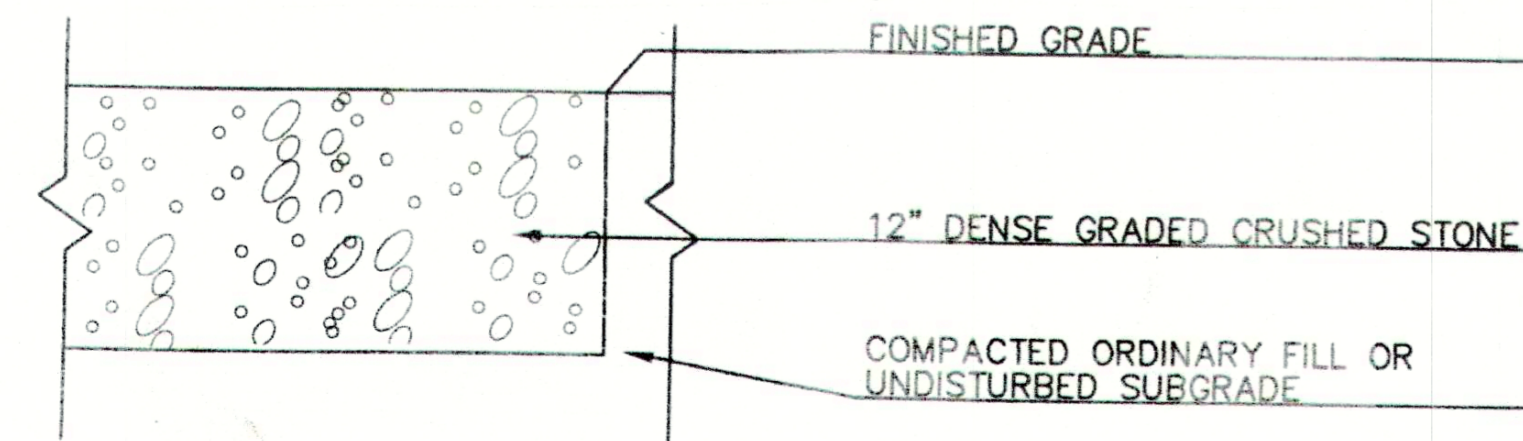
CROWN DRIP LINE OR OTHER LIMIT OF TREE PROTECTION.
SEE TREE PREPARATION PLANS FOR ALIGNMENT.



SECTION N.T.S.

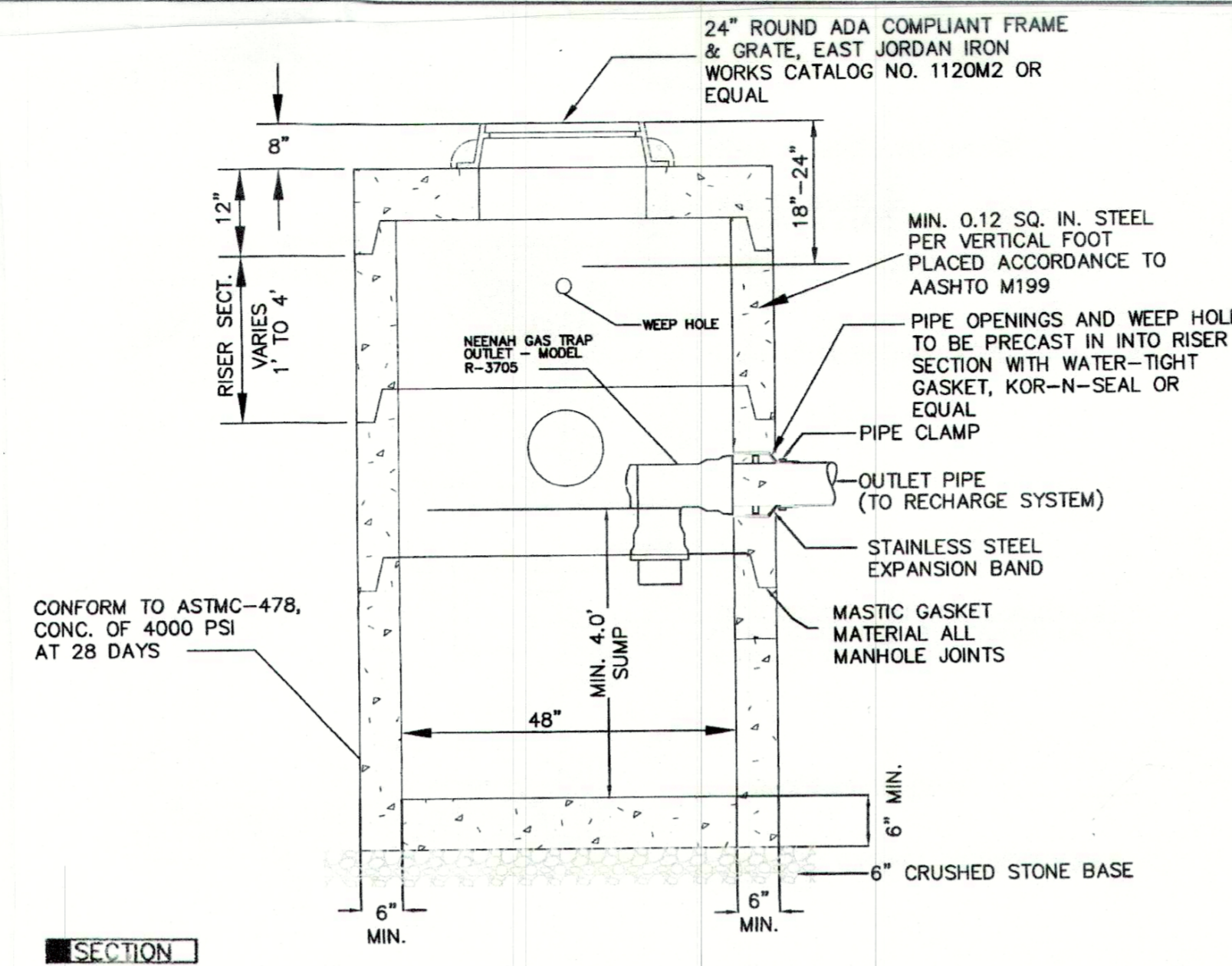
2 TREE PROTECTION
L7

- NOTES:
1. SEE SPECIFICATIONS FOR ADDITIONAL TREE PROTECTION REQUIREMENTS
 2. NO PRUNING SHALL BE PERFORMED EXCEPT BY AN APPROVED ARBORIST.
 3. NO EQUIPMENT SHALL OPERATE INSIDE THE PROTECTIVE FENCING WITHOUT PROTECTIVE MEASURES IN THE SPECIFICATIONS.



SECTION

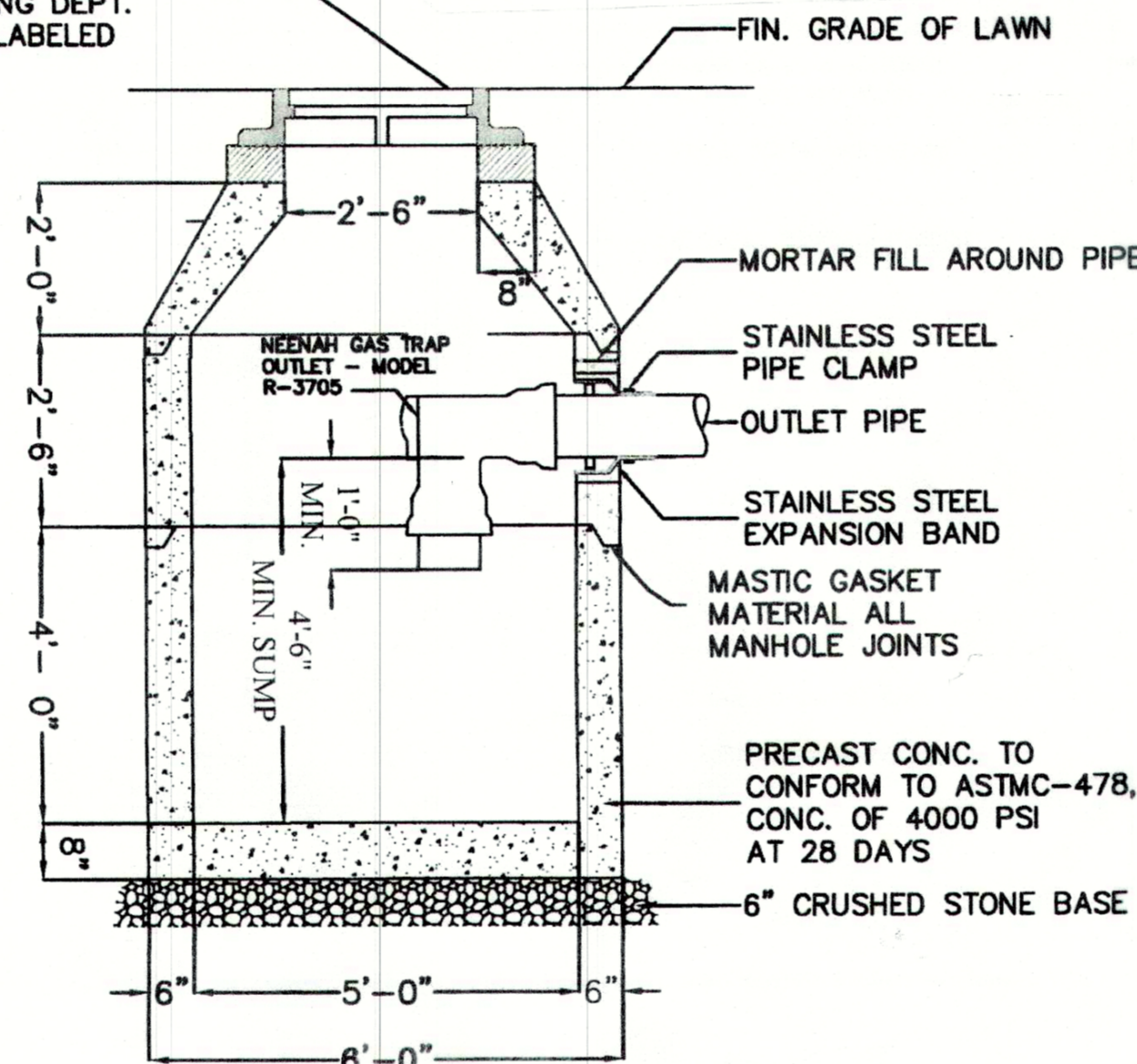
3 CONSTRUCTION ACCESS DRIVE
L7 SCALE: N.T.S.



SECTION

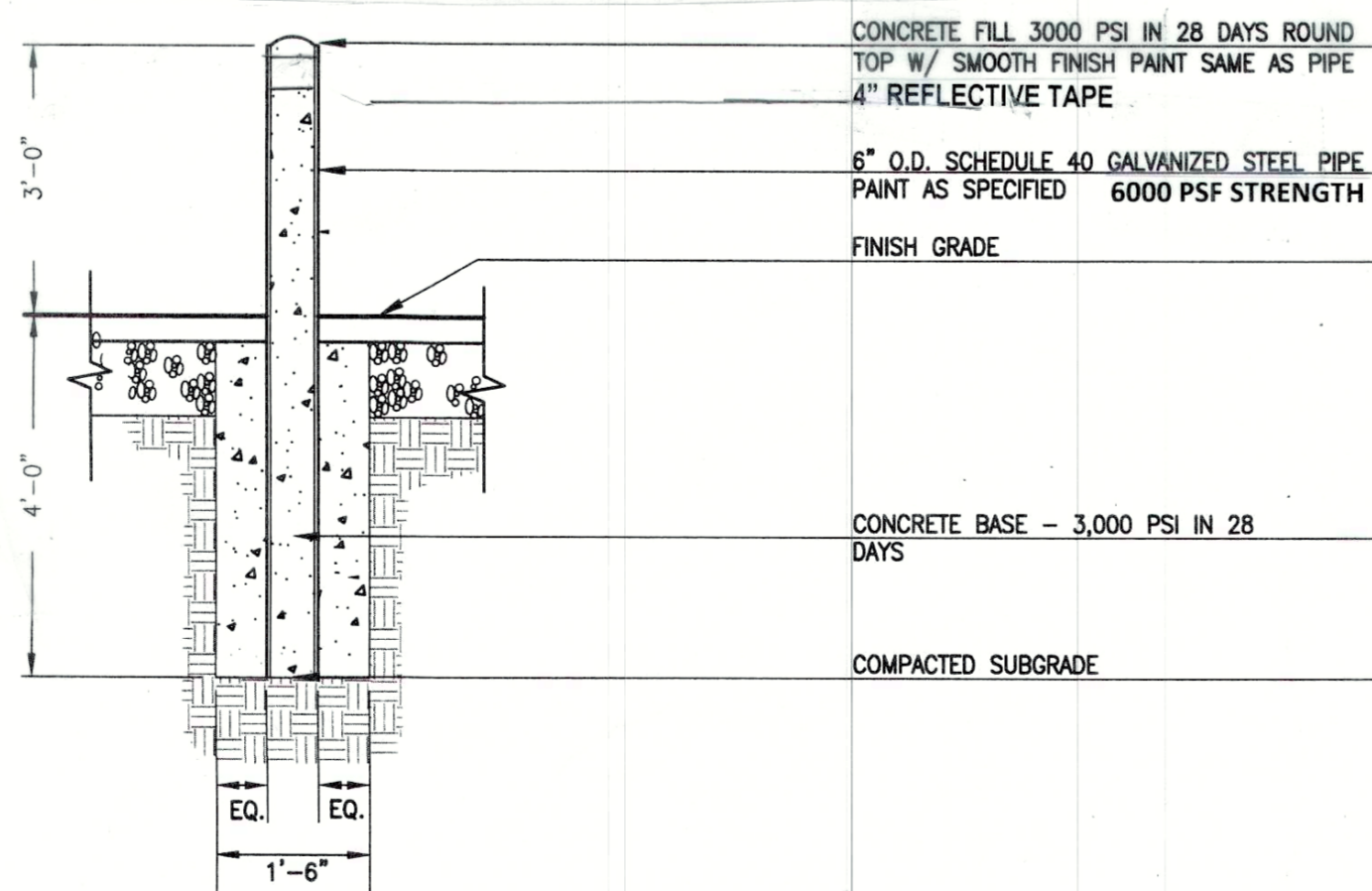
4 CATCH BASIN
L7 SCALE: N.T.S.

FRAME AND COVER TO CONFORM TO CITY OF WALTHAM ENGINEERING DEPT. STANDARDS AND SHALL BE LABELED "DRAIN".



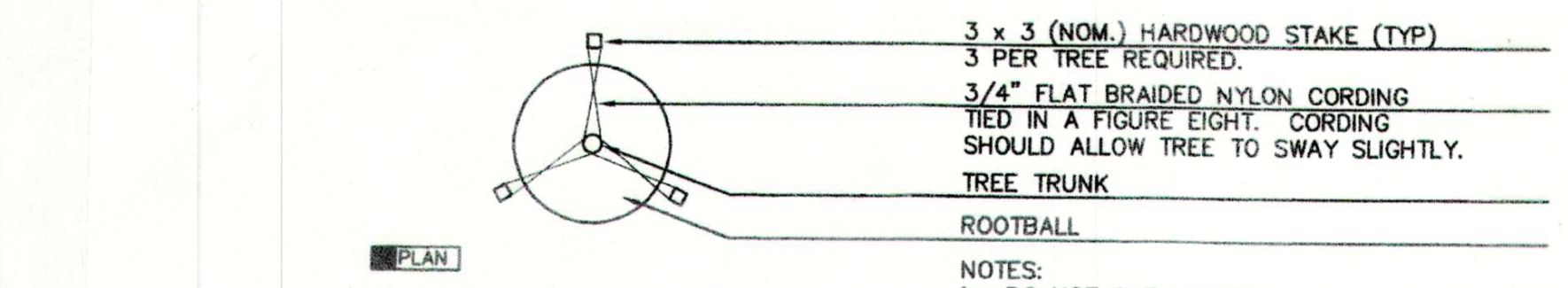
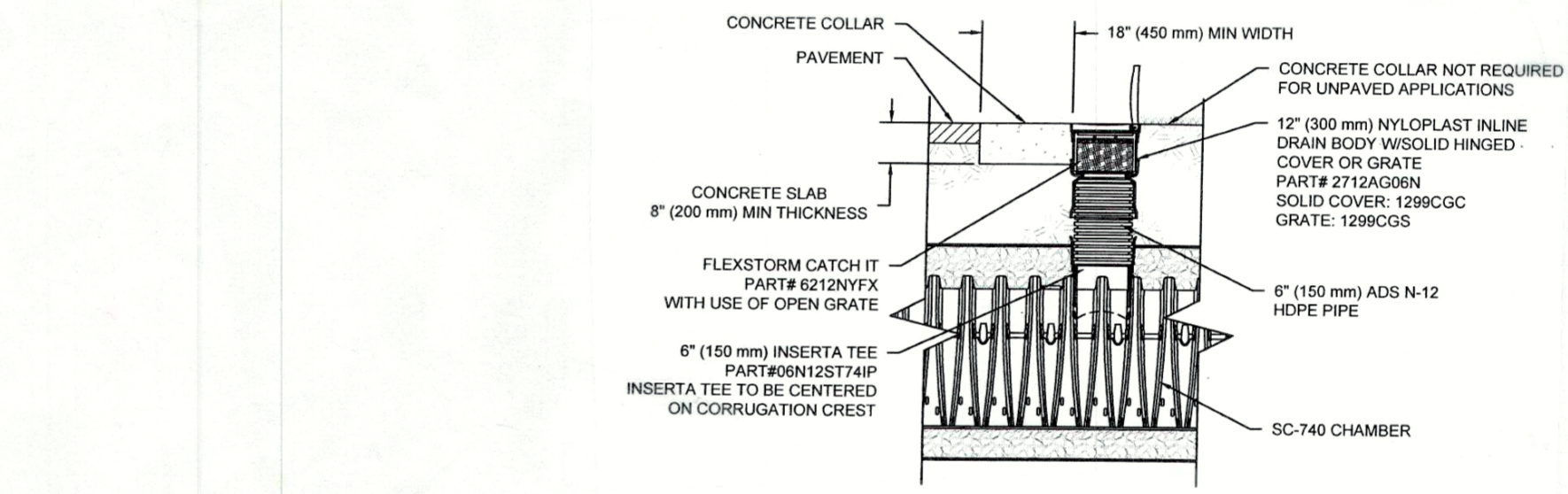
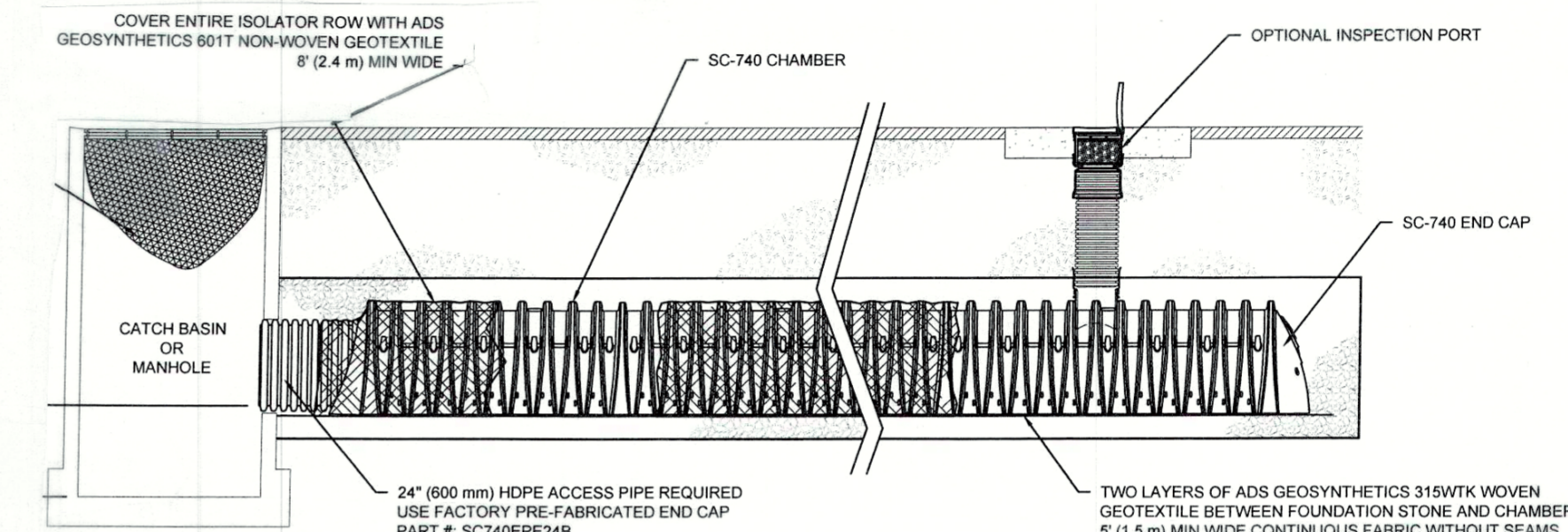
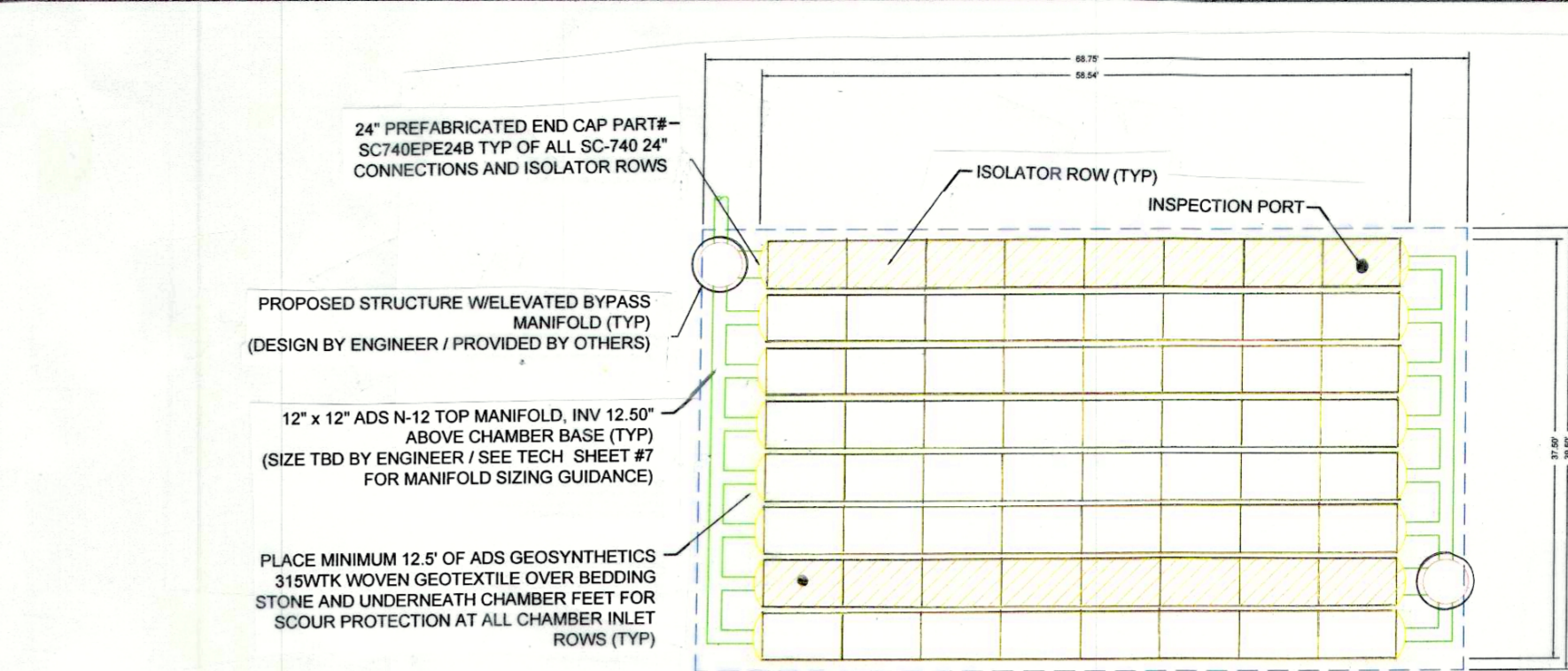
SECTION

5 DRAIN MANHOLE
L7 SCALE: N.T.S.

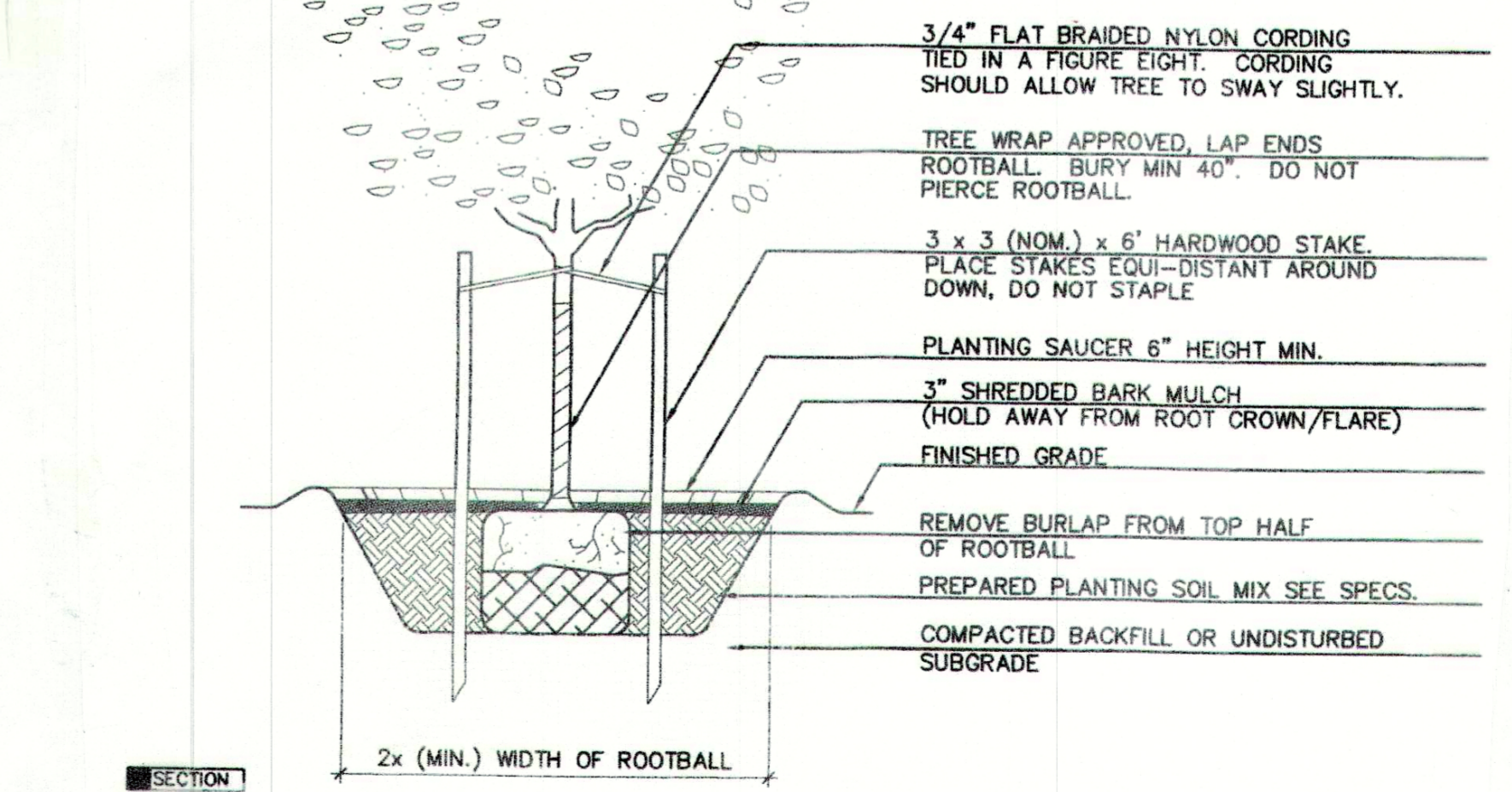


SECTION

7 CONCRETE FILLED STEEL BOLLARD
L7 SCALE: 1/2" = 1'-0"



PLAN



SECTION

6 DECIDUOUS TREE PLANTING AND STAKING
L7 SCALE: N.T.S.

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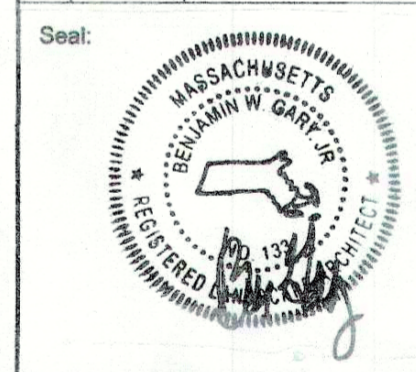
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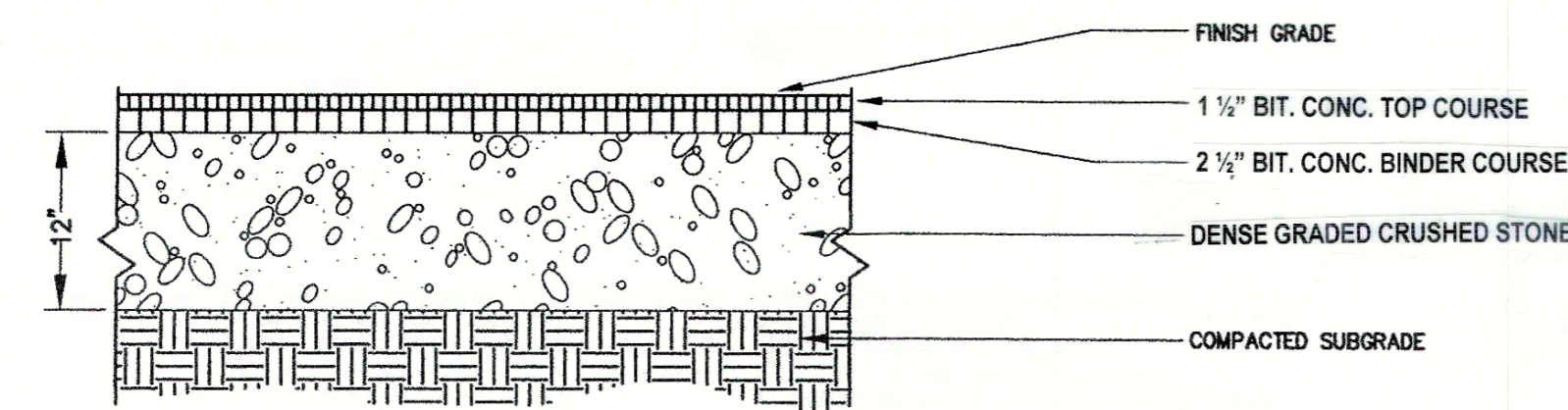


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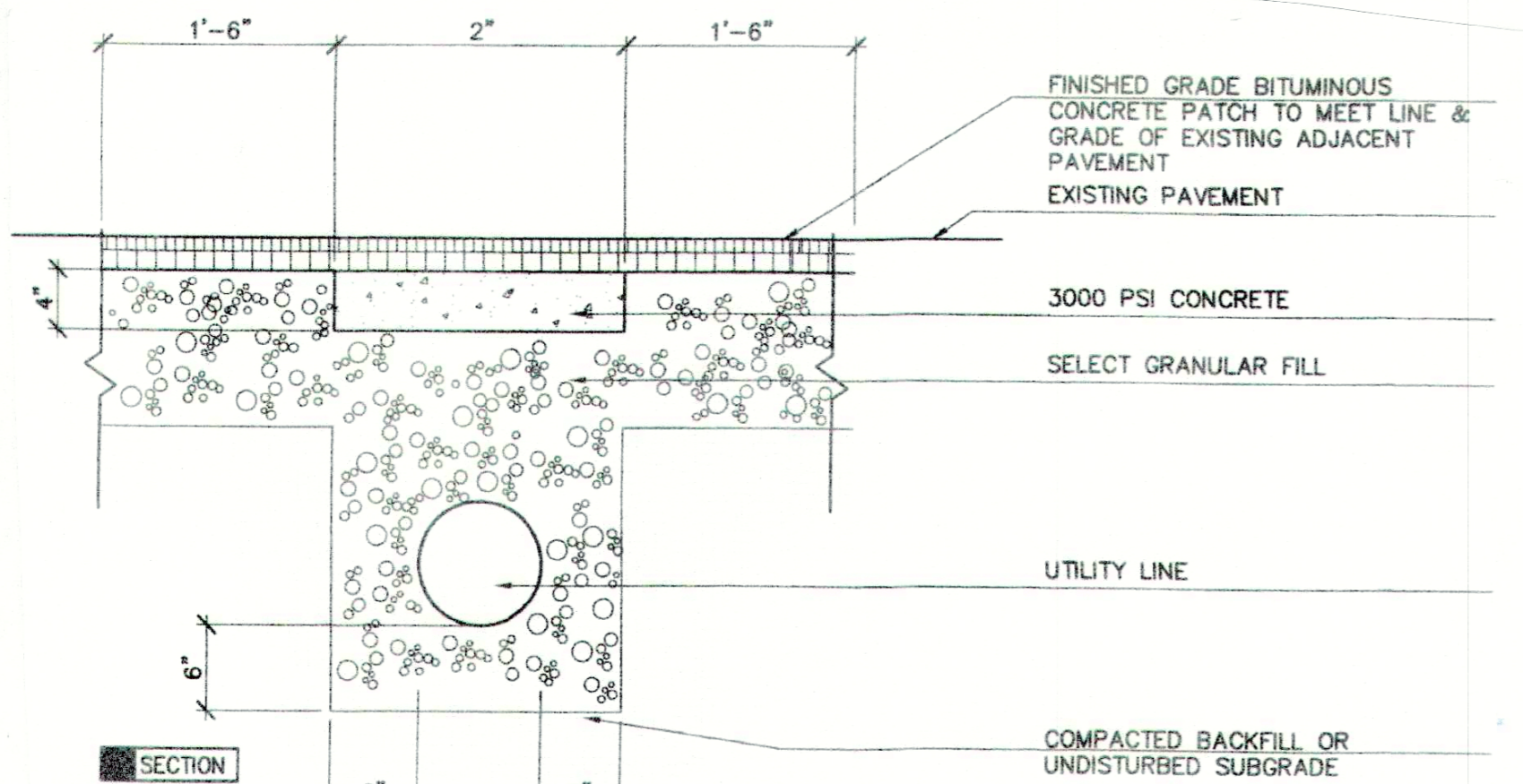
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Reviewed By:
Checked By: BG
Approved By: BG

Drawing Title:
SITE DETAILS

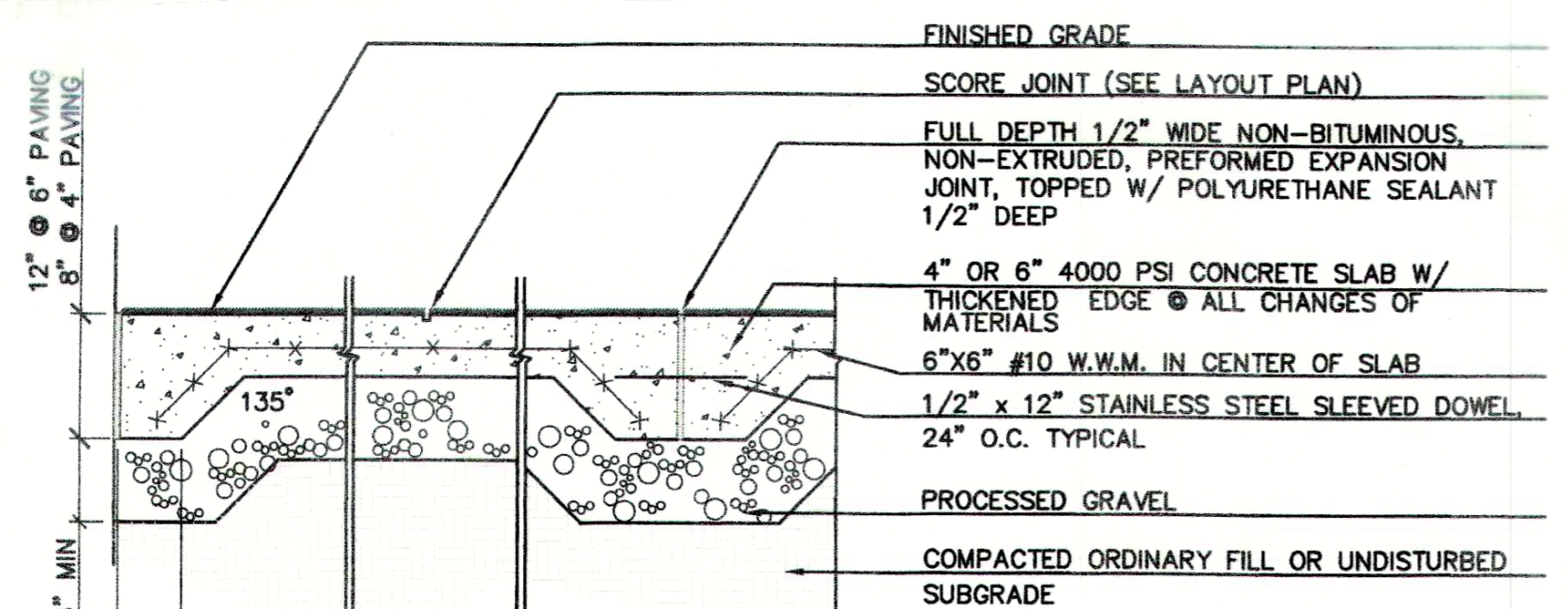
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L-7



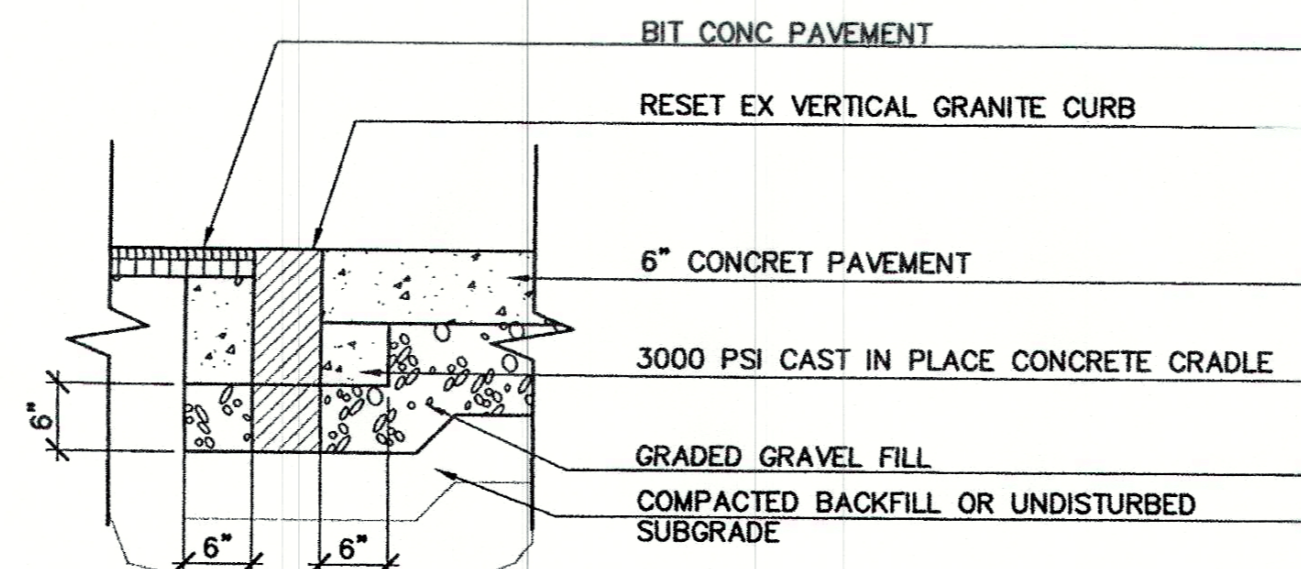
1 BIT. CONC. ROADWAY & PARKING
L8 N.T.S.



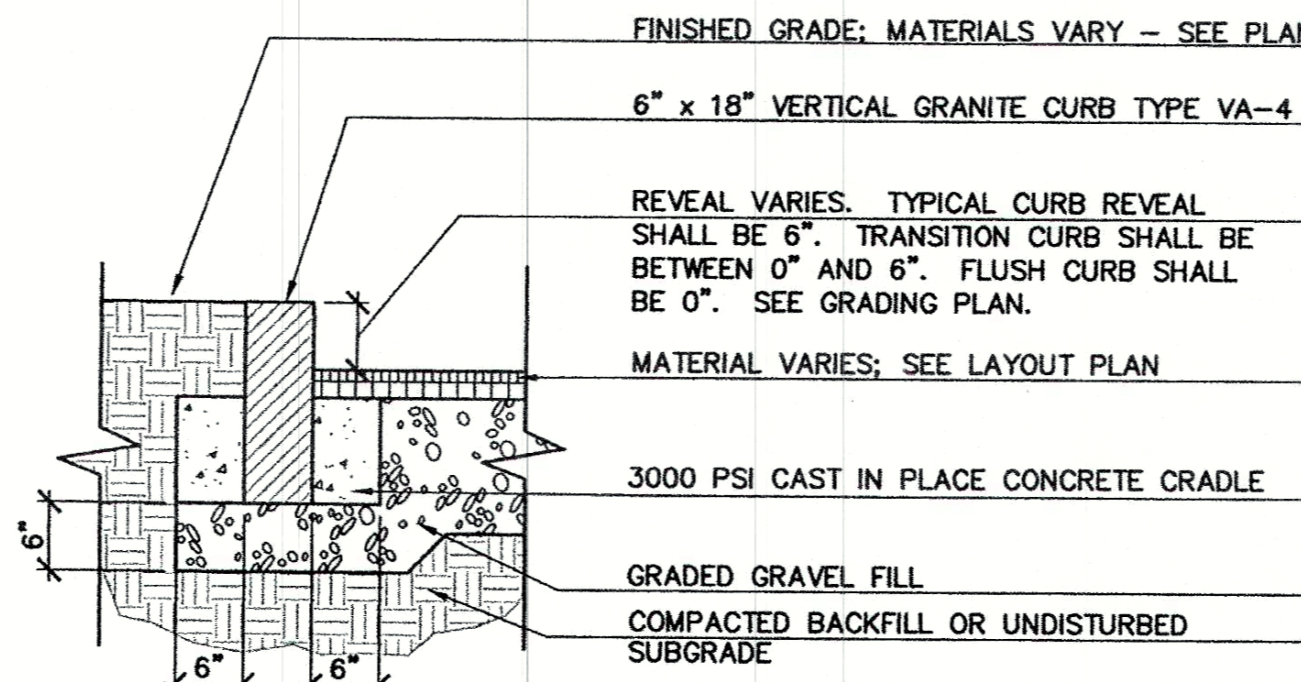
2 BITUMINOUS CONCRETE ROADWAY REPAIR
L8 SCALE: 1"=1'-0"



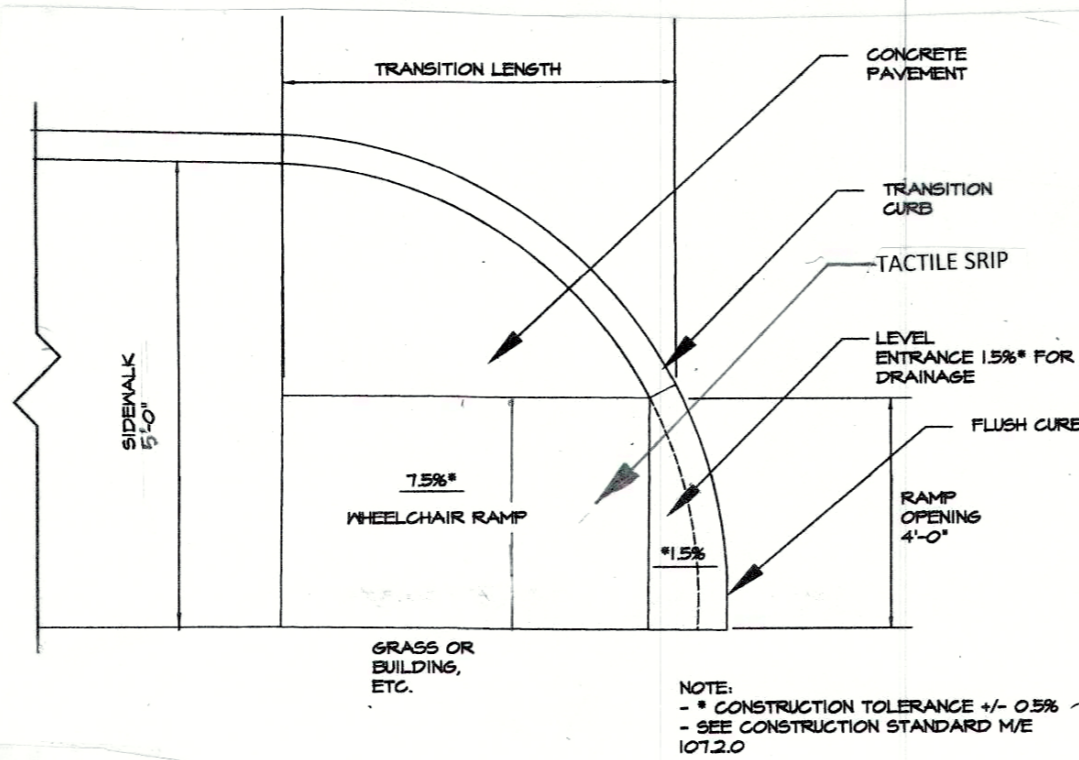
3 CONCRETE PAVING/JOINT TREATMENT
L8 SCALE: 3/4" = 1'-0"



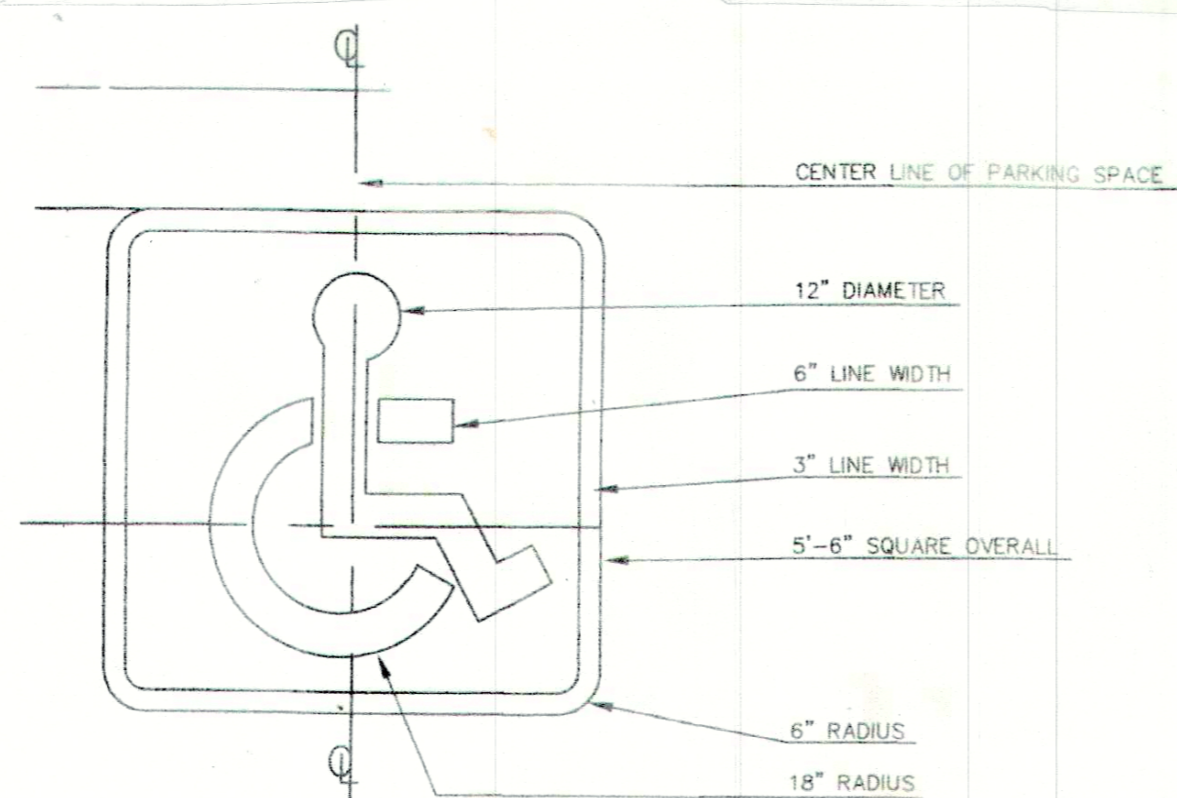
4 FLUSH GRANITE CURB
L8 SCALE: 3/4"=1'-0"



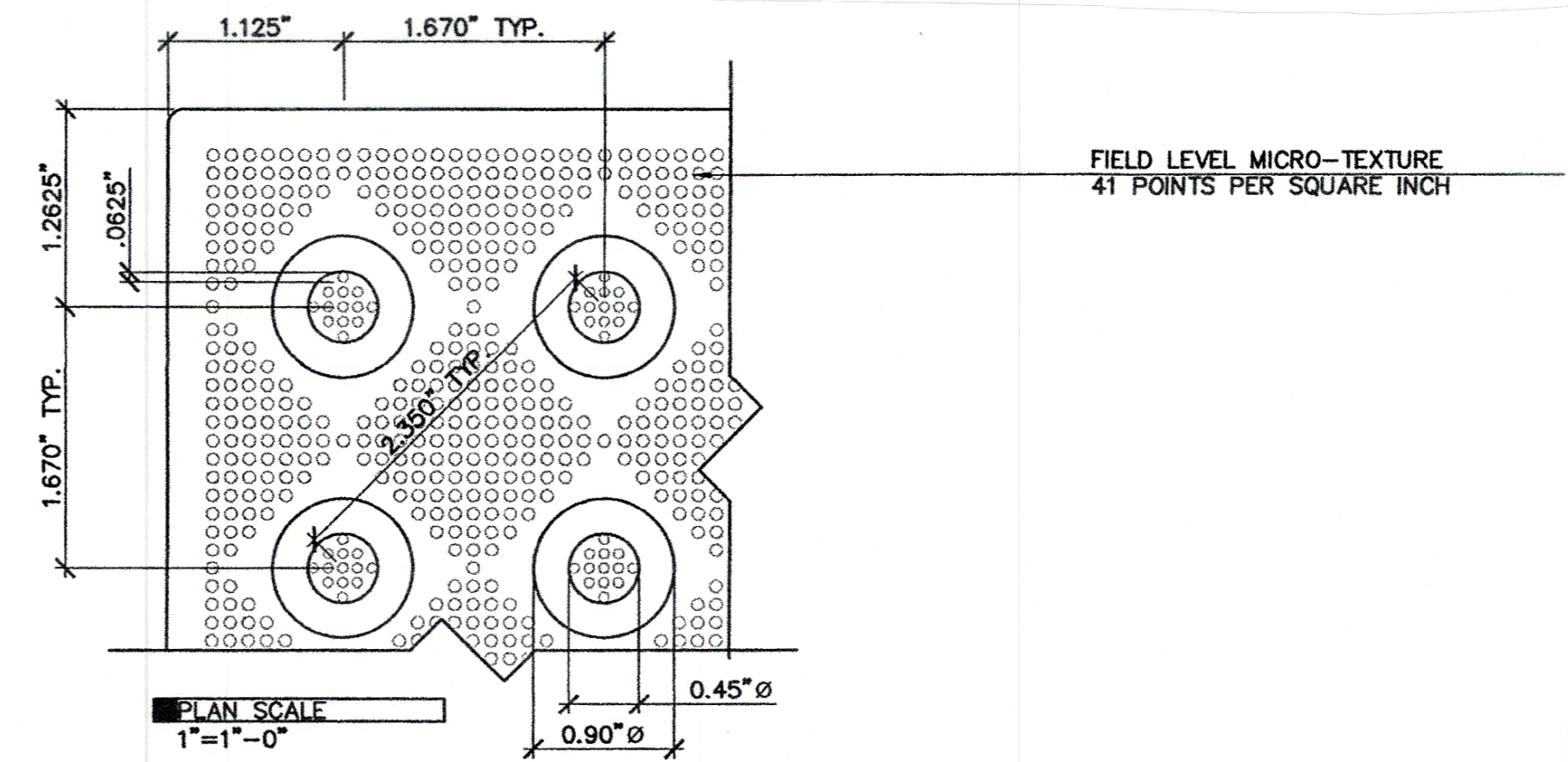
5 VERTICAL GRANITE CURB
L8 SCALE: 3/4"=1'-0"



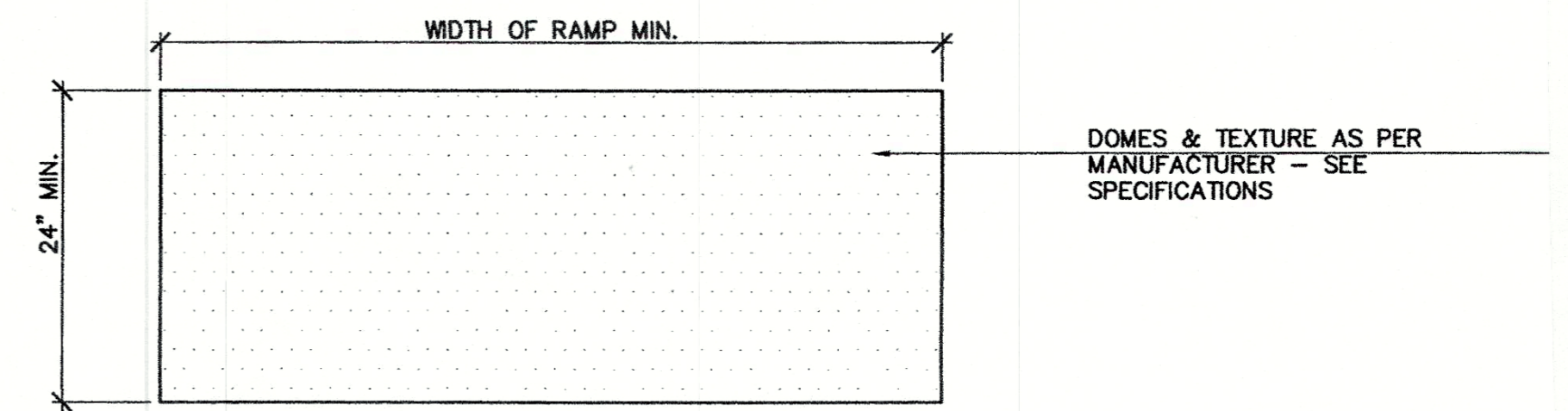
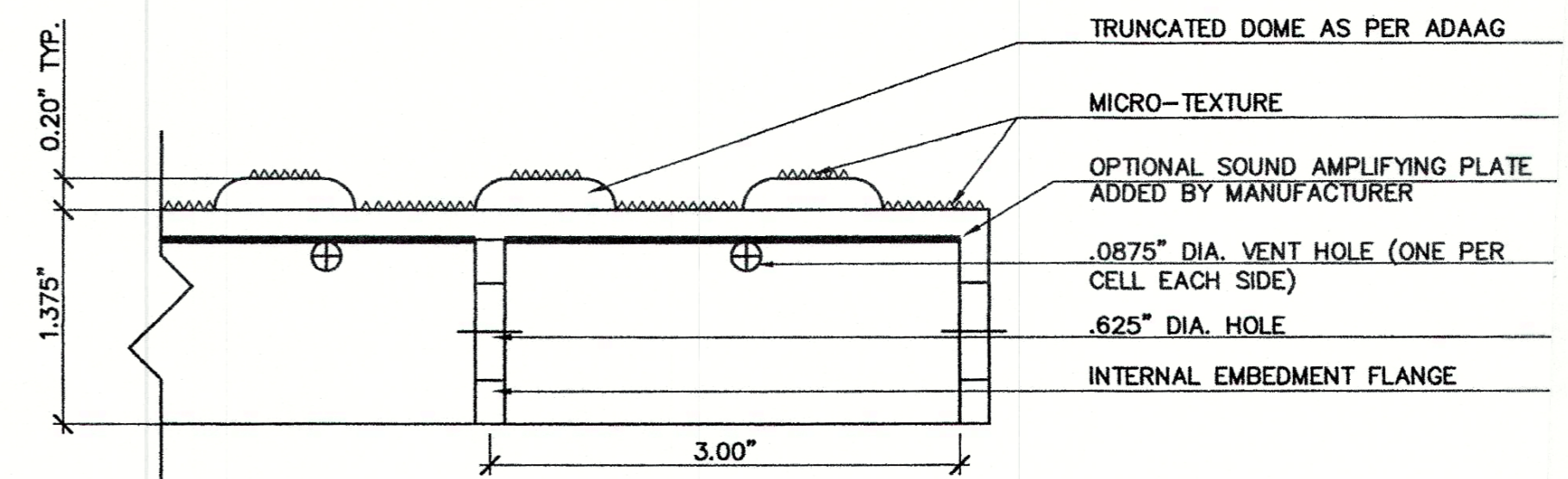
6 WHEELCHAIR RAMP - SINGLE DIRECTION
L8 SCALE: N.T.S.



7 HANDICAP PAVEMENT SYMBOL
L8 SCALE: 1/2"=1'-0"



8 TACTILE STRIP
L8 SCALE: AS NOTED



9 HANDICAP PARKING SPACES
L8 SCALE: 1/2"=1'-0"

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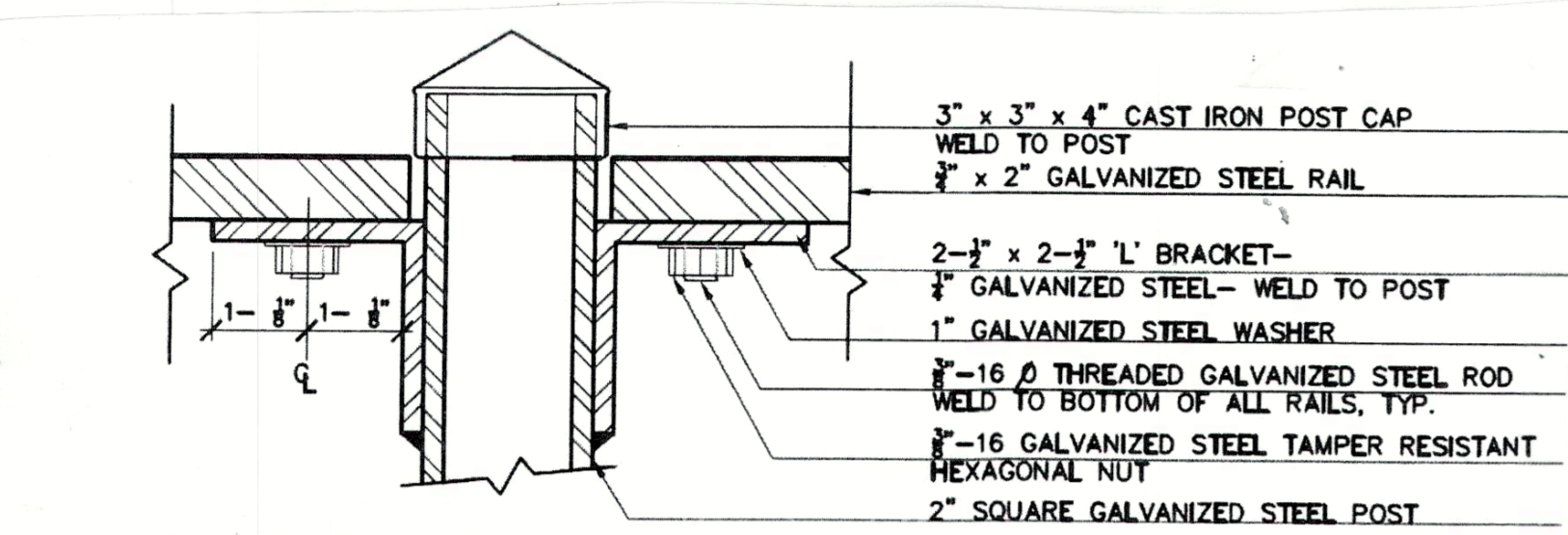


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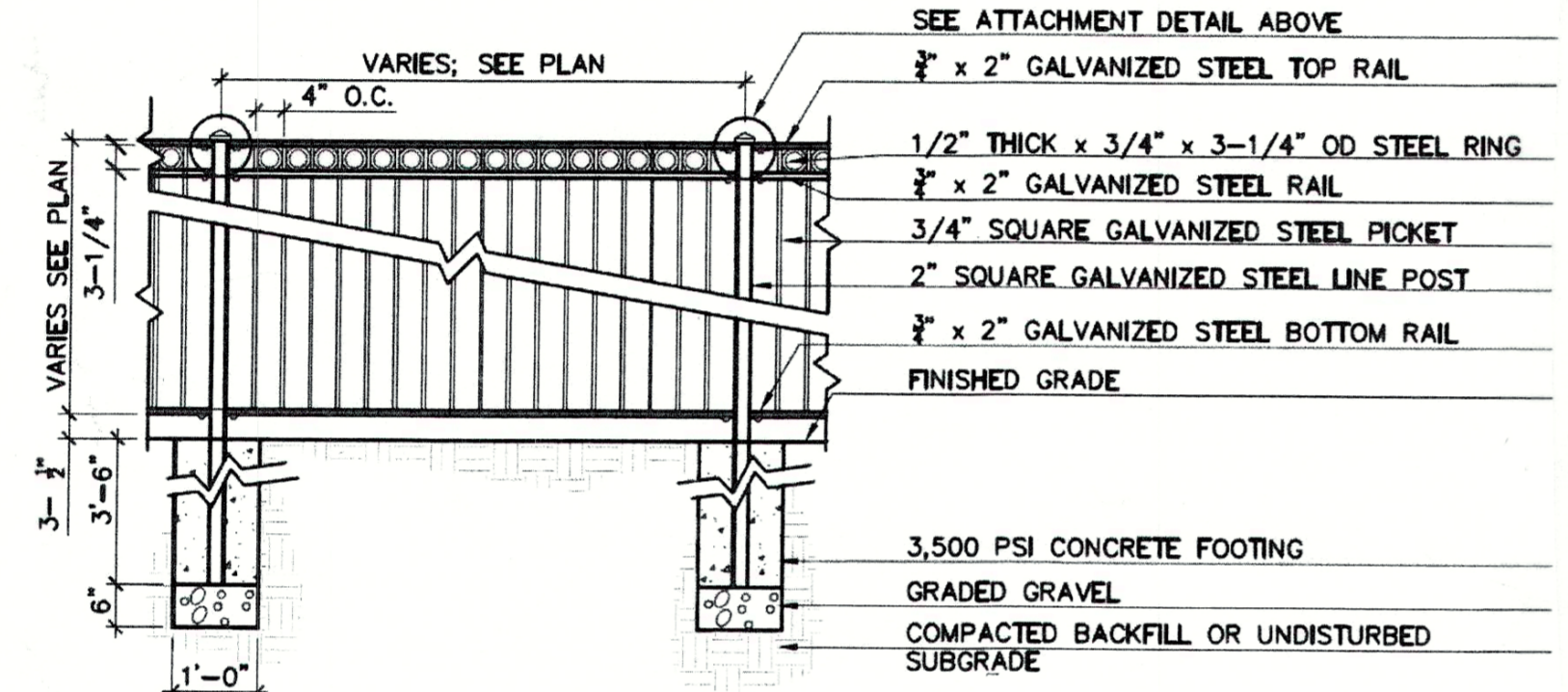
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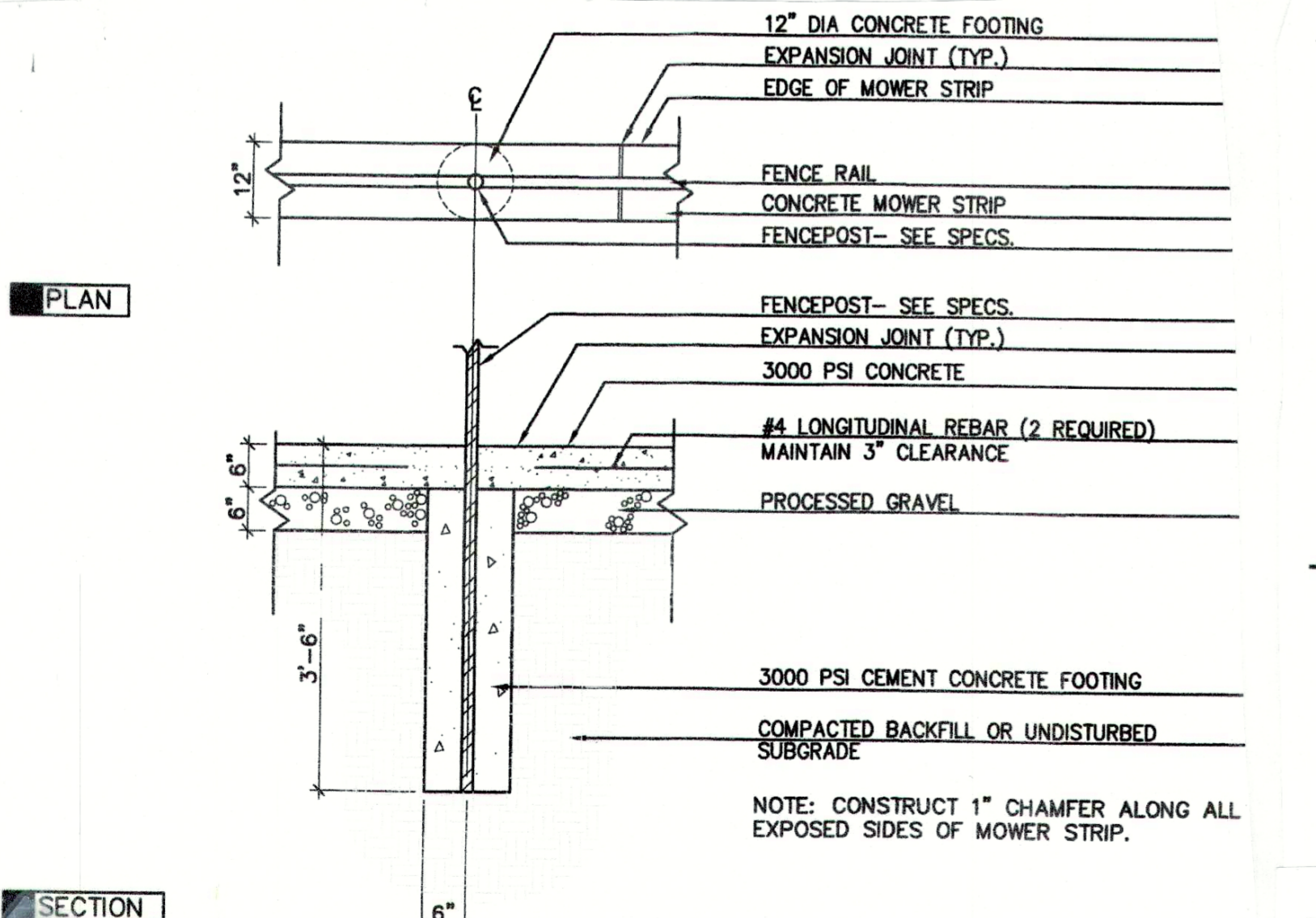
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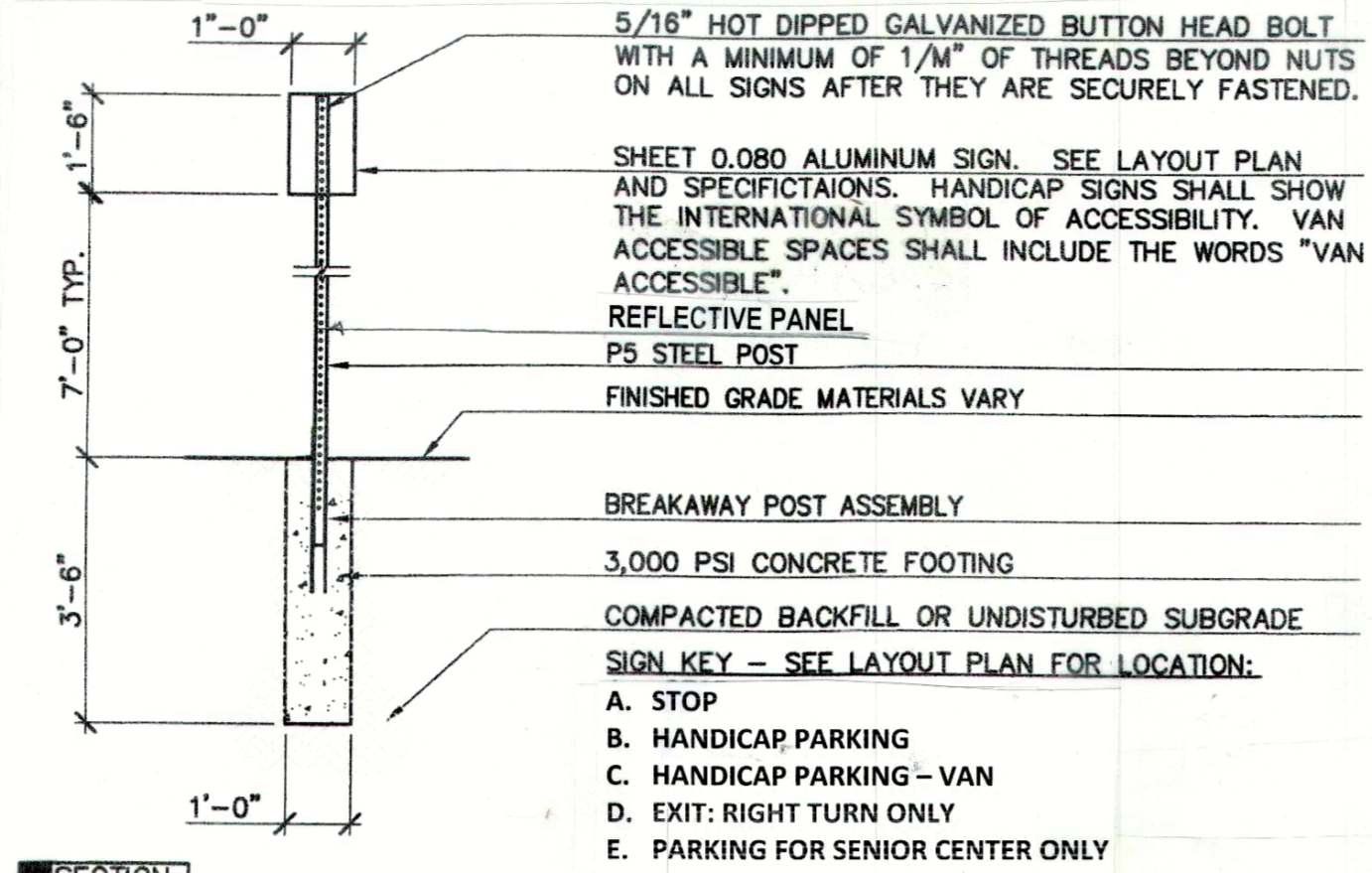
ATTACHMENT DETAIL - SCALE: 1/2" = 1'



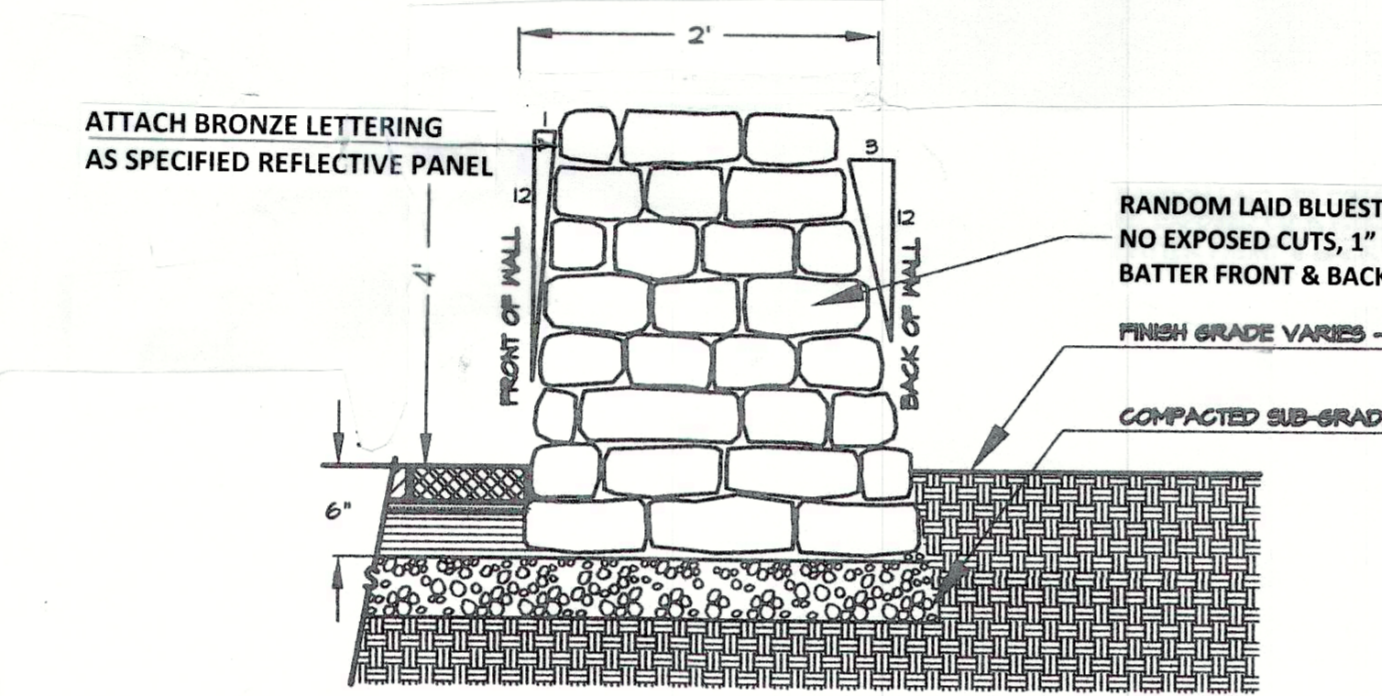
1 ORNAMENTAL IRON FENCE
L9 SCALE: AS NOTED



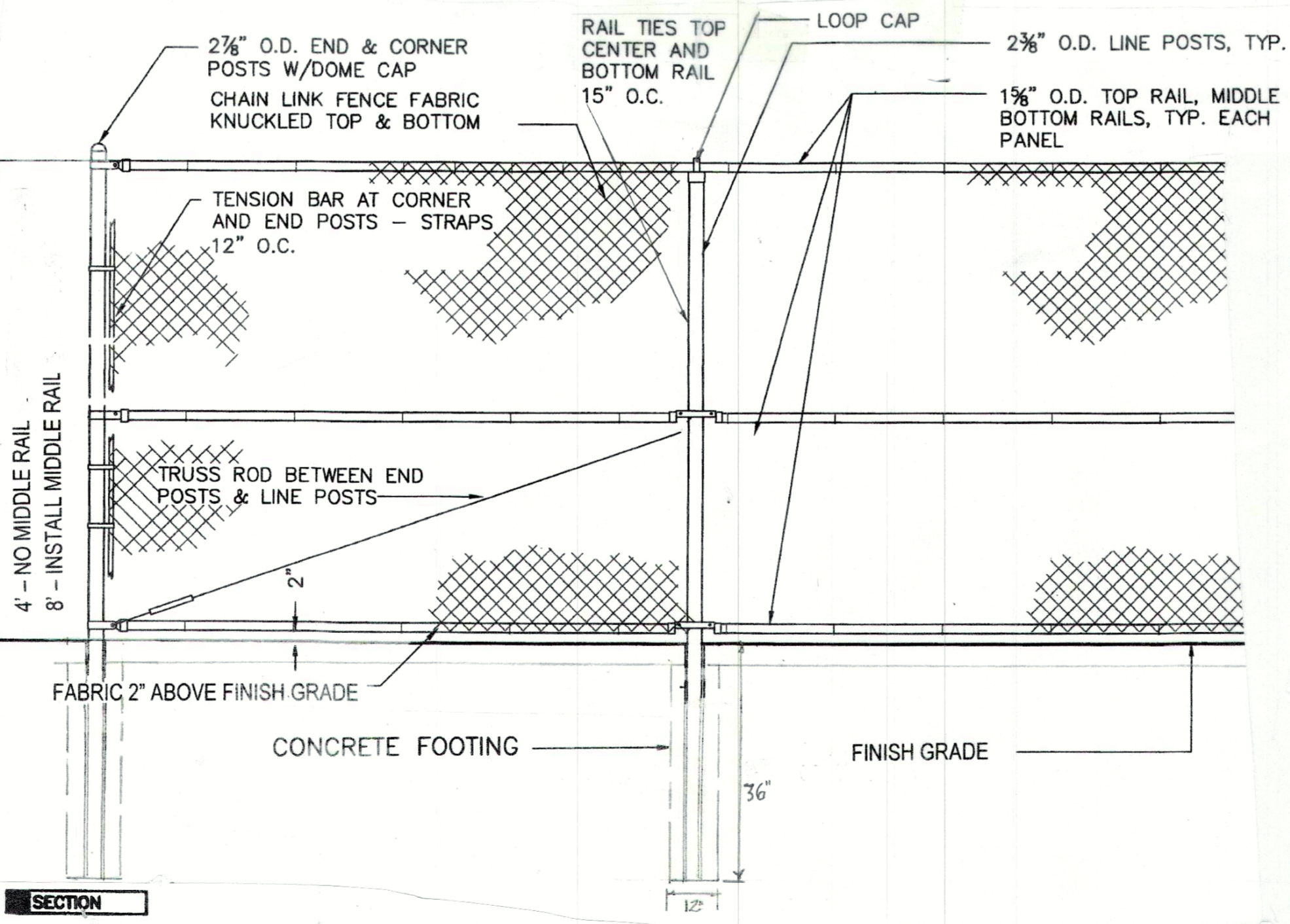
2 FENCEPOST FOOTING IN CONCRETE MOWER STRIP
L9 SCALE: NOT TO SCALE



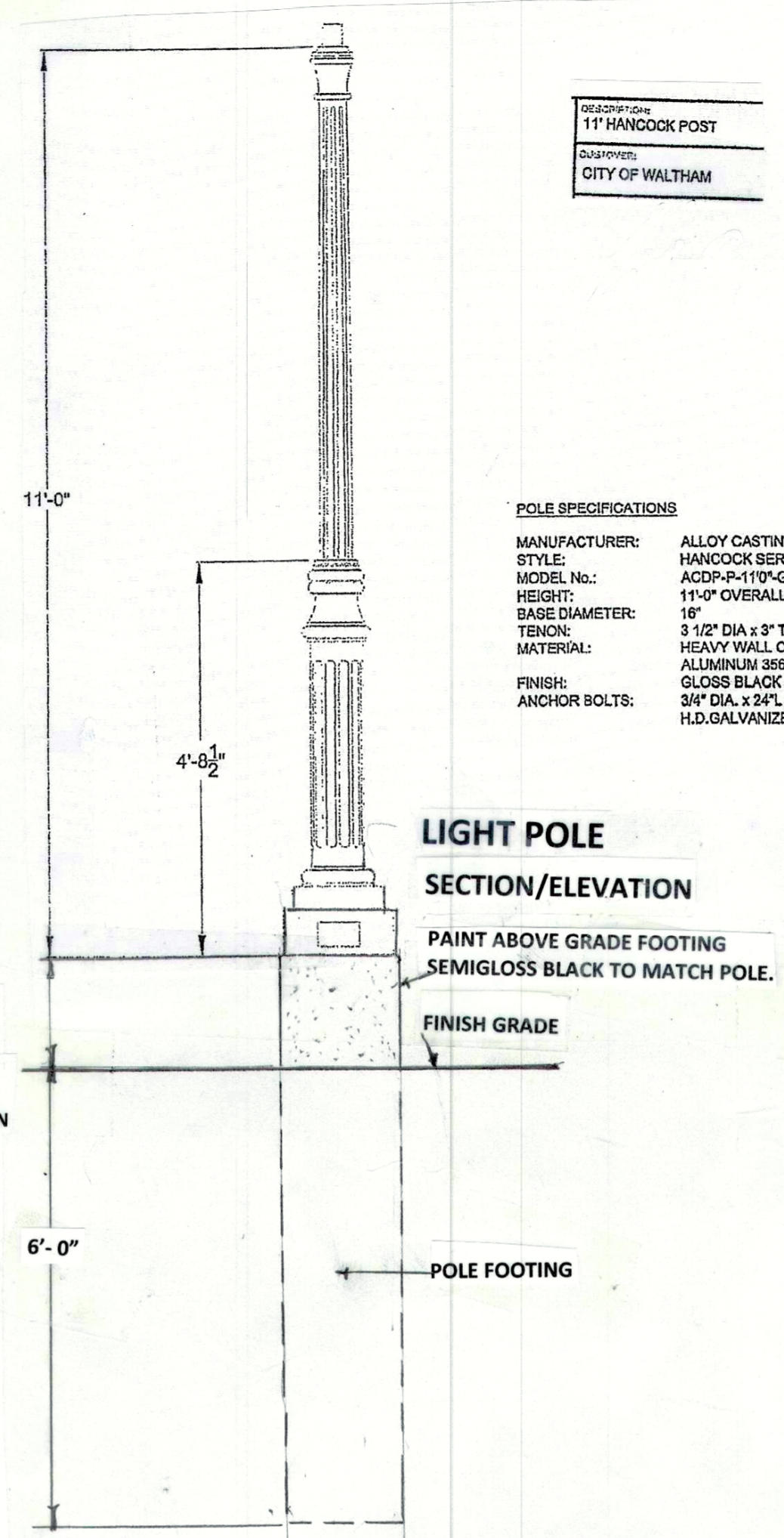
3 TRAFFIC SIGN
L9 SCALE: 3/8" = 1'-0"



4 BLUESTONE WALL
L9 SCALE: N.T.S.

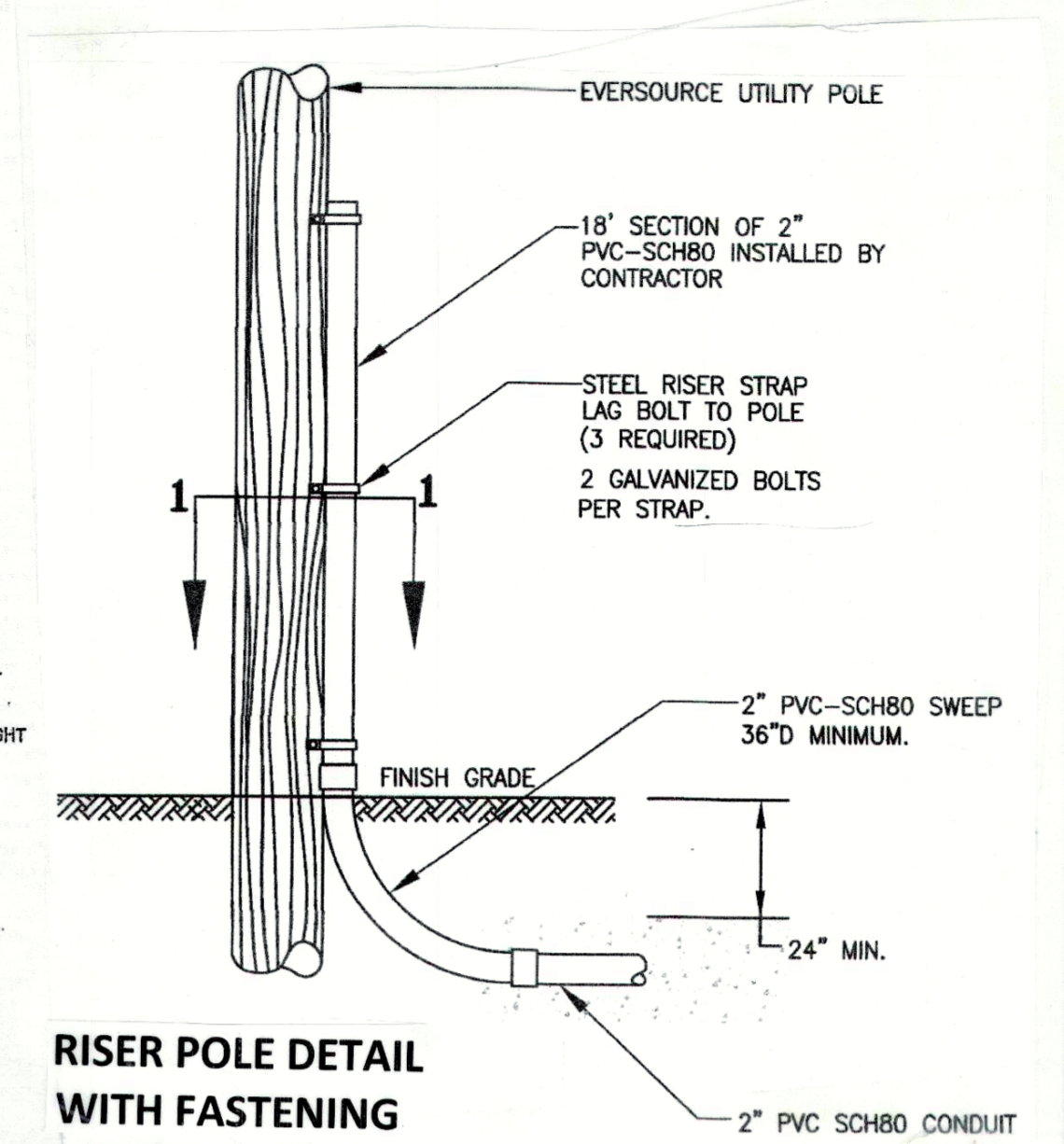


5 CHAIN LINK FENCING
L9 1/2" = 1'-0"

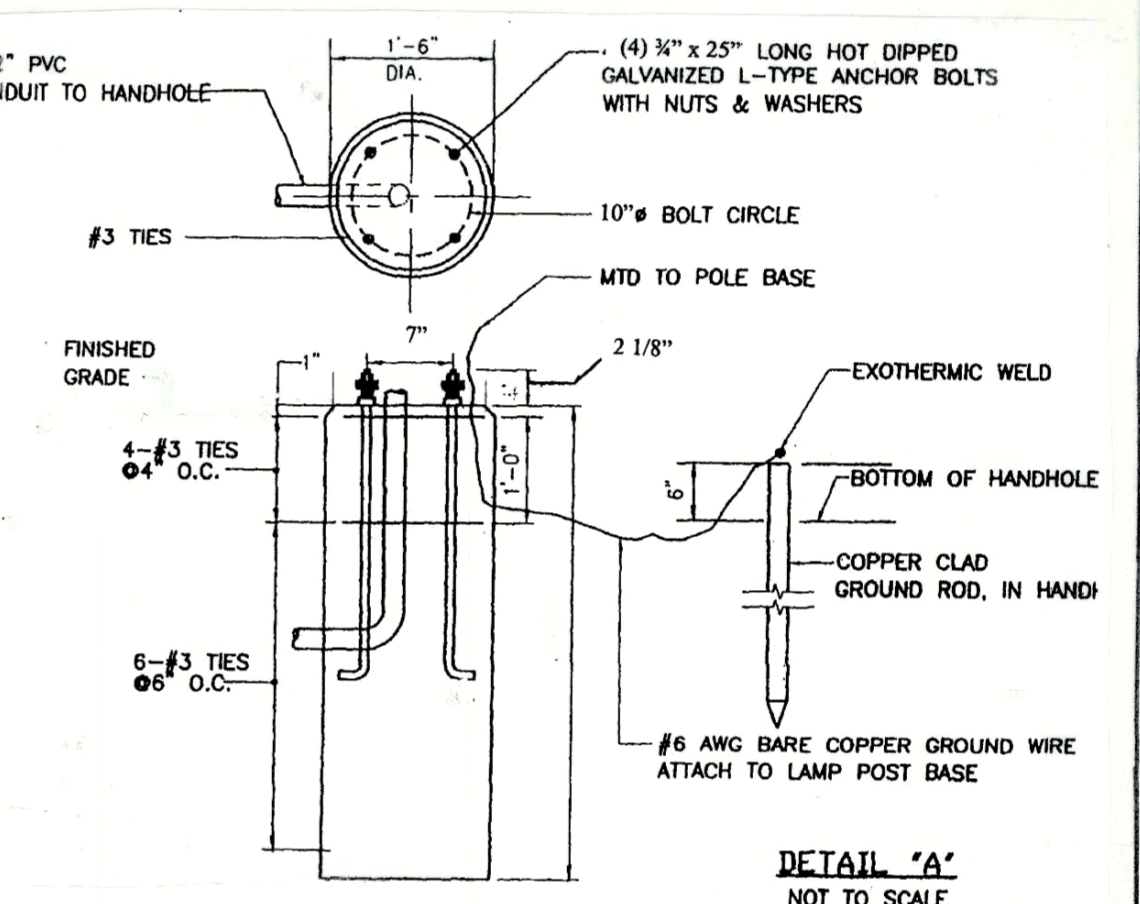


SECTION
LIGHT POLE
SECTION/ELEVATION
PAINT ABOVE GRADE FOOTING SEMIGLOSS BLACK TO MATCH POLE.
FINISH GRADE
POLE FOOTING

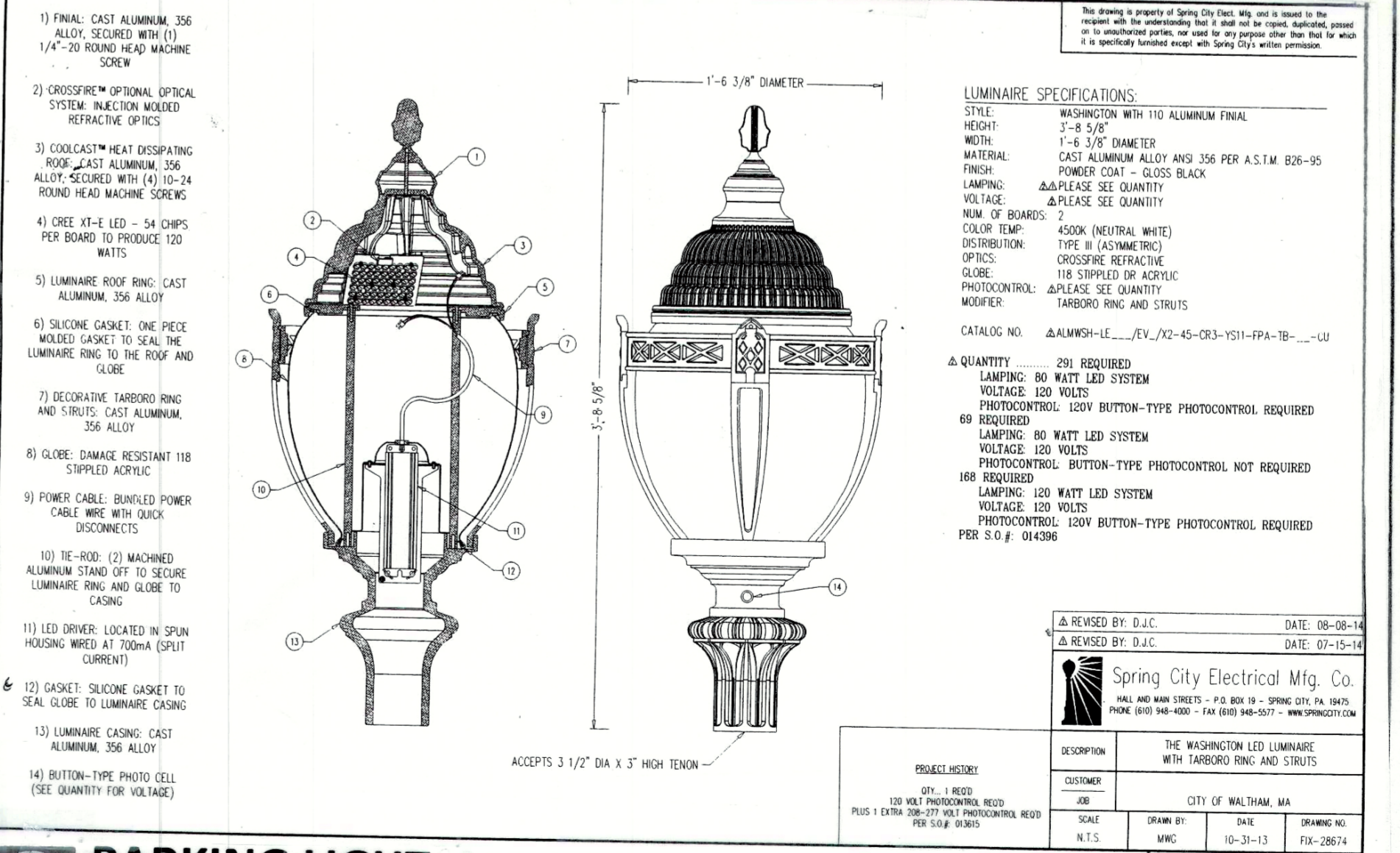
POLE SPECIFICATIONS
MANUFACTURER: ALLOY CASTINGS CO., INC.
STYLE: HANCOCK SERIES
MODEL No.: ACDP-P-110'-GF08U-BK
HEIGHT: 11'-0" OVERALL POST HEIGHT
BASE DIAMETER: 10"
TENSION: 3 1/2" DIA x 3" TALL
MATERIAL: HEAVY WALL CAST ALUMINUM 356 ALLOY
FINISH: GLOSS BLACK ENAMEL
ANCHOR BOLTS: 3/4" DIA. x 2 1/4" x 3" HOOK H.B. GALVANIZED



RISER POLE DETAIL WITH FASTENING



DETAIL 'A'
NOT TO SCALE
NOTES:
1. CONCRETE COMPRESSIVE STRENGTH AT 28 DAYS, F'c=3000 psi (Min.)
2. THE CONTRACTOR SHALL COORDINATE AND VERIFY WITH THE POLE MANUFACTURER THAT THE FOUNDATION BOLT POSITIONS ARE ACCURATE, AND THE FOUNDATION DIAMETER IS ACCEPTABLE TO THE ENGINEER.
3. PROVIDE A MULTI-TAP VOLTAGE BALLAST.
4. ALL FOUNDATIONS ARE TO BE PROVIDED AND COORDINATED BY THE ELECTRICAL CONTRACTOR.



6 PARKING LIGHT
L9 SCALE: N.T.S.

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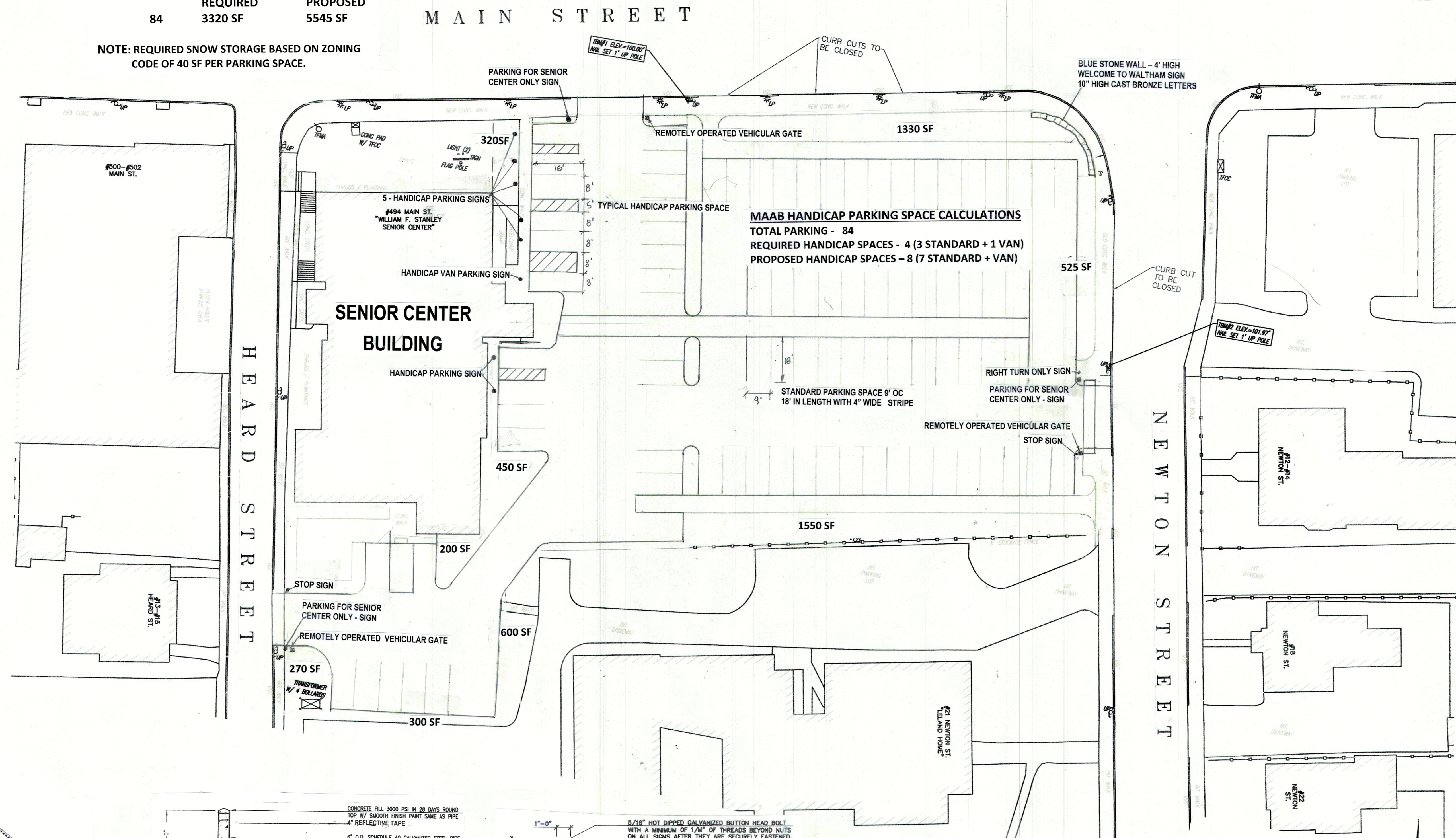
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Checked By: BG
Approved By: BG

Drawing Title:
SITE DETAILS
Sheet Number:
L-9

SNOW STORAGE CHART

PARKING SPACES	REQUIRED SNOW STORAGE - SQUARE FEET	PROPOSED
84	3320 SF	5545 SF

NOTE: REQUIRED SNOW STORAGE BASED ON ZONING CODE OF 40 SF PER PARKING SPACE.

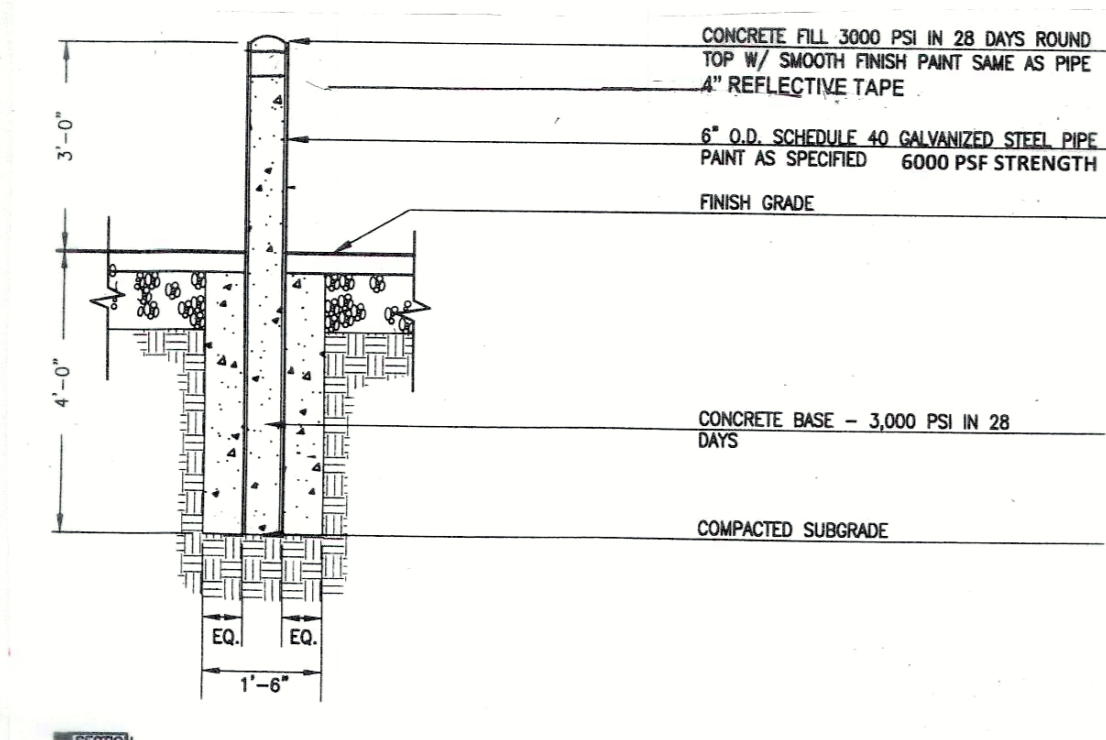


MAAB HANDICAP PARKING SPACE CALCULATIONS
 TOTAL PARKING - 84
 REQUIRED HANDICAP SPACES - 4 (3 STANDARD + 1 VAN)
 PROPOSED HANDICAP SPACES - 8 (7 STANDARD + VAN)

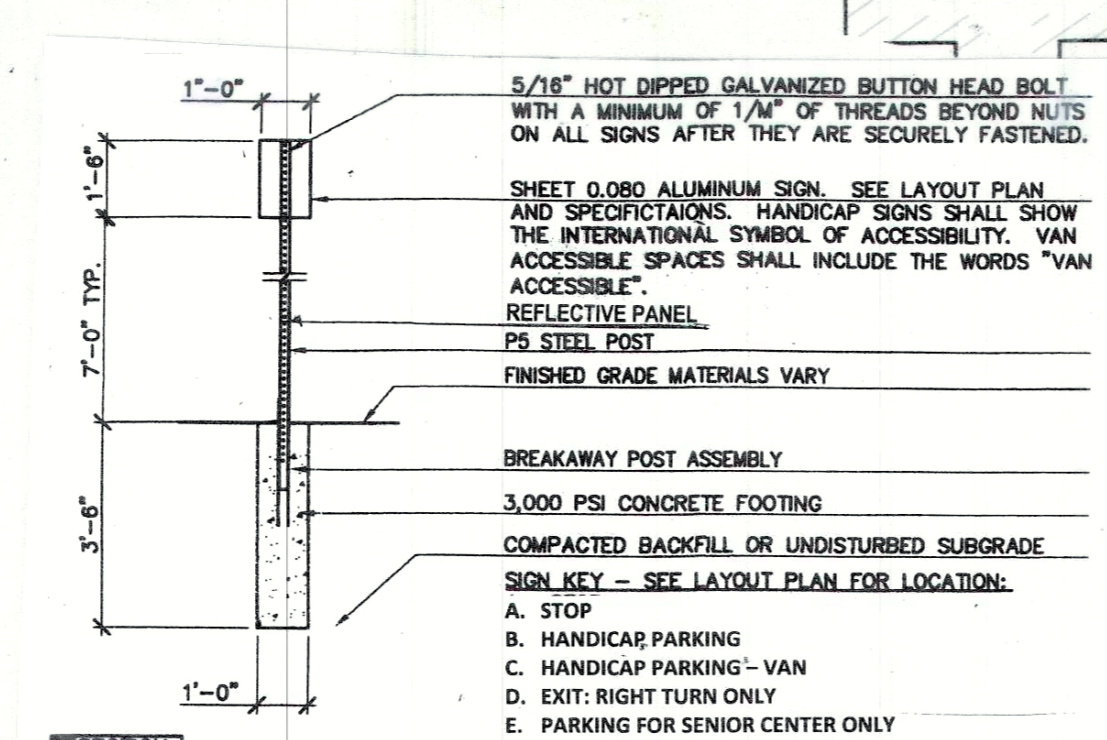
STANDARD PARKING SPACE 9' OC
 18' IN LENGTH WITH 4" WIDE STRIPE



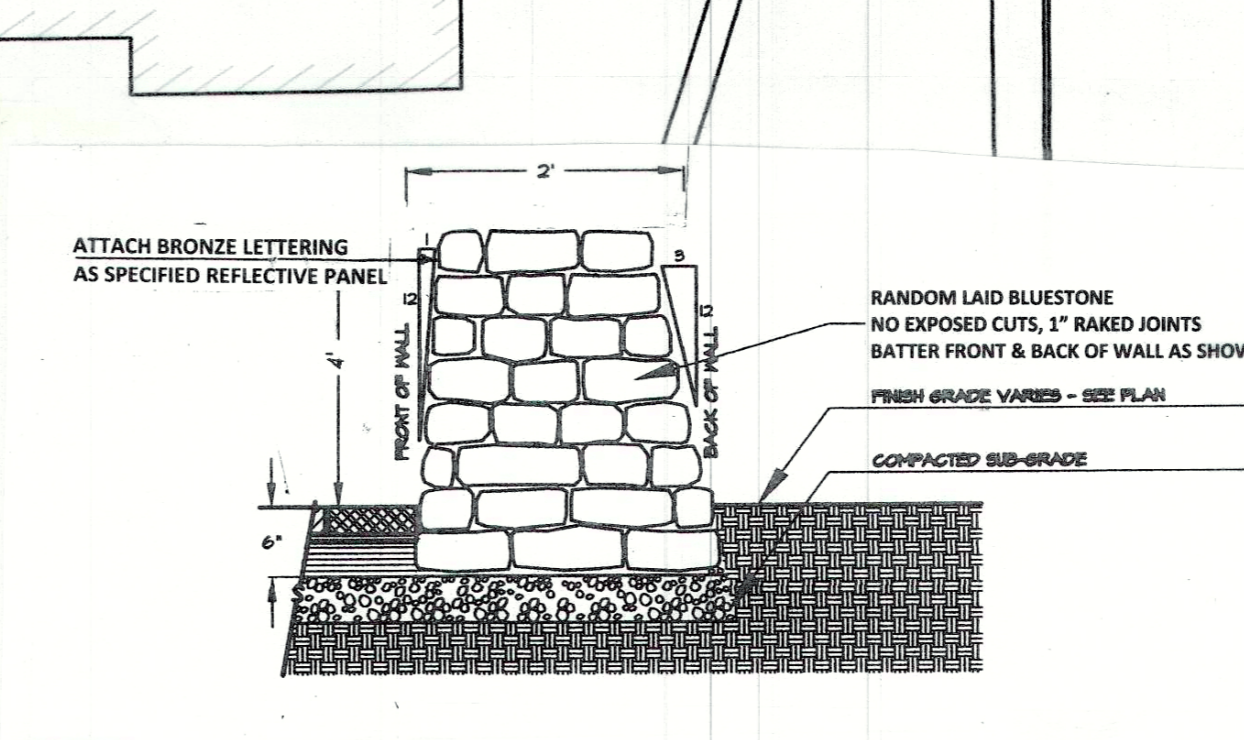
REMOTE CONTROLLED VEHICULAR GATE - DOORING



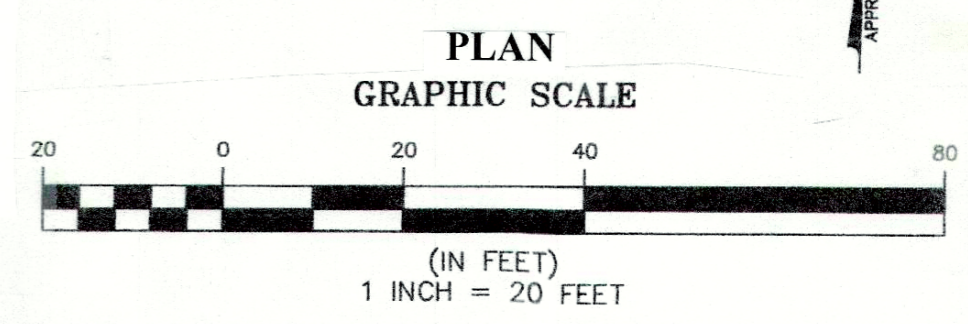
CONCRETE FILLED STEEL BOLLARD



TRAFFIC SIGN



BLUESTONE WALL



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 Approved By: BG

Drawing Title:
TRAFFIC PLAN & DETAILS
 Sheet Number:
L-10

EXHIBIT A & B, PROPERTY LINES

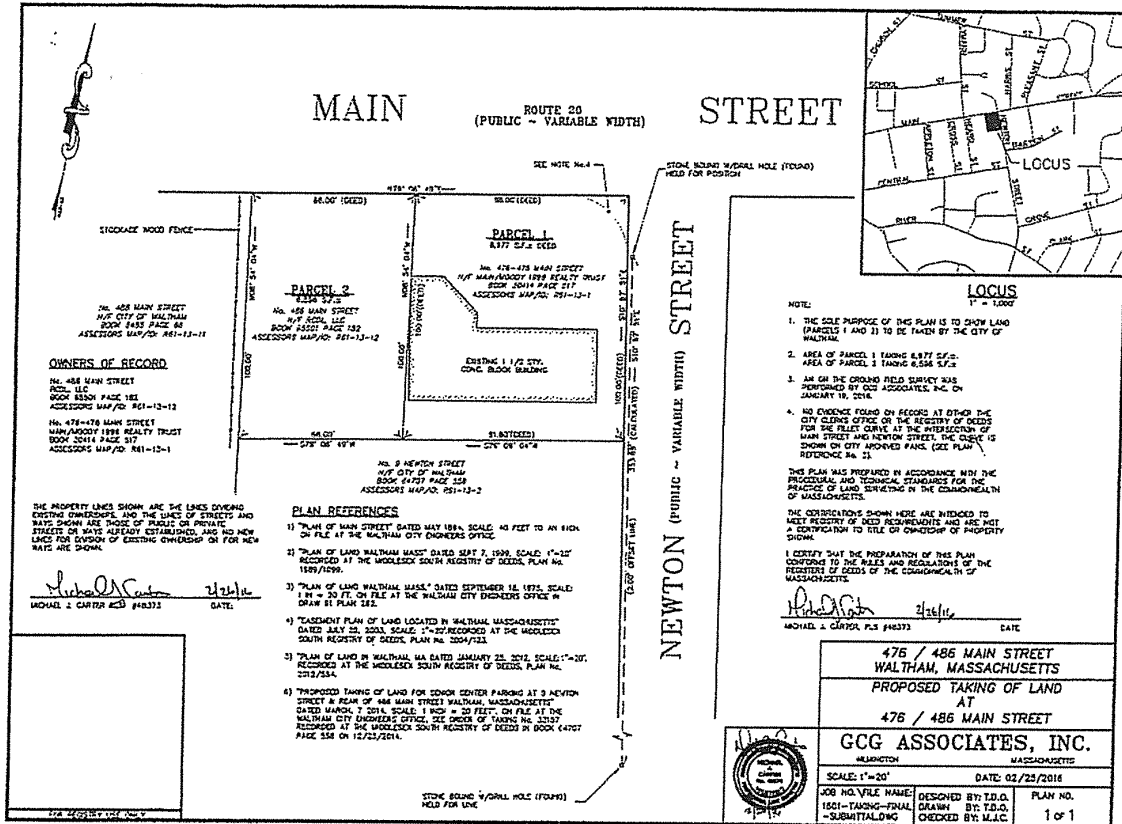
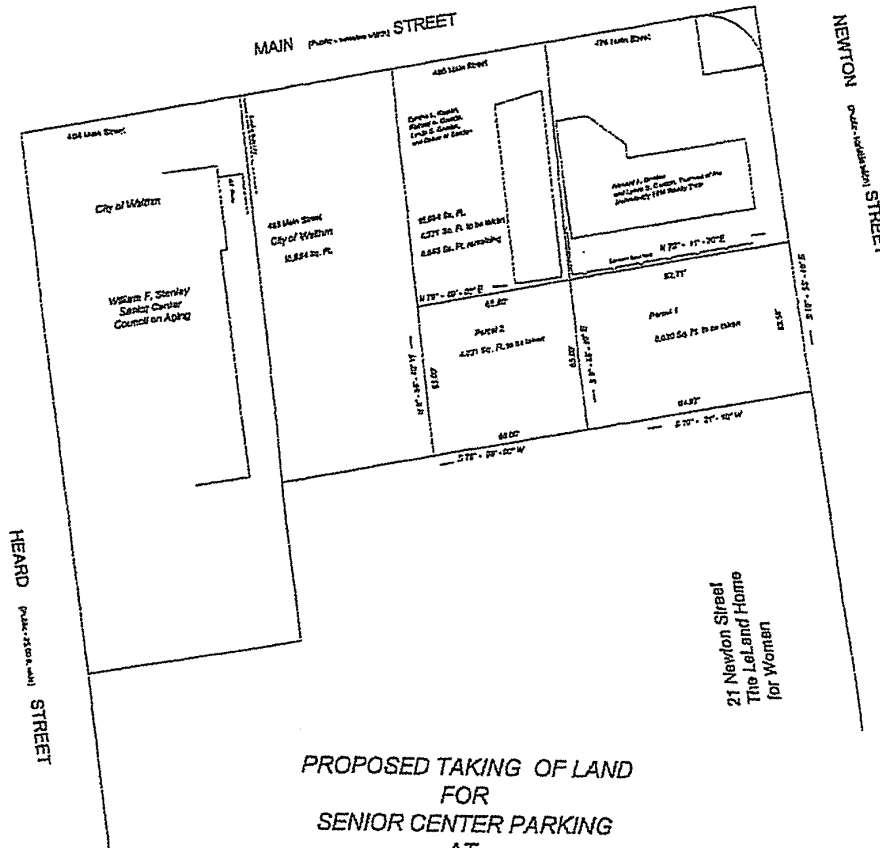


EXHIBIT A

Exhibit A



PROPOSED TAKING OF LAND
 FOR
 SENIOR CENTER PARKING
 AT
 9 Newton Street & rear of 486 Main Street
 WALTHAM, MASSACHUSETTS

SCALE: 1 INCH = 20 FEET
 Stephen A. Casazza, P.E.

October 17, 2012
 City Engineer

Stephen A. Casazza
 Oct. 17, 2012