THE CITY OF WALTHAM
MASSACHUSETTS

PURCHASING DEPARTMENT

Demolition and Construction of the Wayside Trail, City of Waltham Portion

A D D E N D U M N O. 2 January 12, 2022

CHANGES, CORRECTIONS AND CLARIFICATIONS

The attention of bidders submitting proposals for the above subject project is called to the following addendum to the specifications. The items set forth herein, whether of omission, addition, substitution or clarification are all to be included in and form a part of the proposal submitted.
THE NUMBER OF THIS ADDENDUM (NO. 2) MUST BE ACKNOWLEDGED IN SECTION 00310-2 OF THE BID FORM.

ITEM 1: Answers to Posed Questions:

Q1. Within the specifications for the lump sum Landscaping Items (#751.001), Sub Item # 102.4 – Root Barrier specifies that the limits of root barrier at all new and existing trees within 10' of the trail shall extend 20' parallel to the trail from the center point of the tree. Please clarify, is the 20' distance the total length at each tree (i.e. 10' in either direction), or is it 20' in each direction (i.e. 40' total per tree)?

A1. The 20' is the total length per tree location, extending 10' in each direction from the tree's center.

Q2. Please inform where the Flush Paving Band – Resin Imprint, Item # 751.001 - Sub Item # 865.2, is to be installed.

A2. This is for all flush islands at intersection approaches as shown on the plans. Granite setts shall not be used.

Q3. Within the "Mast Arms and Foundations" section of the specifications for the Item 815. Traffic Signal items there is reference to boring logs. Boring logs for the proposed mast arm locations cannot be found within the bid documents, please provide this information.

A3. See attached boring logs.

Q4. On sheet # 21 of the drawings there are references to "REM BARRIER" and "REM WALL"

within the City's Public Works yard. Please confirm that the City will be responsible for removing the barrier and walls.

A4. The City will perform this work; bidders should not include this effort in their bid.

Q5. It appears that certain abutters may have property (stairs, fences, etc.) that encroach upon the proposed limits of work for this project. Please confirm that the City will address these issues with the abutters prior to the Contractor beginning work.

A5. The City has authority to construct the trail within a permitted, limited corridor within the greater State of Massachusetts ROW. Encroachments beyond the defined limit of work are not being addressed through this contract.

Q6. Portions of this project are directly adjacent to an active rail line, namely the Beaver Street Entrance. Please confirm that this project does not require Railroad Protective Liability Insurance or the use of Railroad Flagman.

A6. All construction activity within 50 ft. of the active railroad requires Railroad Protective Lability Insurance. Keolis training will also be required for performing activities near rail line. A suggested first order would be to install a fence so that the construction of the path can happen on the outside of the fence. In this way, a flagman would be required during the fence installation but can likely be avoided for most of the remaining path construction activities. The amount of time needed will be determined by your work plan. This cost shall be included in the Police Detail Allowance.

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Q7. The specifications require cast iron detectable warning panels that are called out to be inserted into fresh concrete, however, there are several locations where detectable warning panels are proposed to be installed on existing sidewalks. Please confirm that an adhesive "peel & stick" type detectable warning panel will be acceptable at these locations.

A7. The contractor is not permitted to use adhesive peel and stick detectable warning panels. Sidewalk shall be reconstructed at the raised crosswalks. Item 701. Cement Concrete Sidewalk is added to accommodate the placement of detectable warning panels per the specifications.

Q8. Refer to Electrical Notes 1 and 2 on drawing # 03, PVC electrical conduit and handholes are called out to be installed for the length of the trail for potential future lighting; this conduit is also shown within the typical section on drawing # 06. There are no unit price bid items for the conduit or the handholes. Please inform where this work is to be carried in the bid and also please provide more detailed electrical drawings that show conduit layout, handhole locations, and also provide details for how the conduit is to be installed on the proposed bridge structures.

A8. Based on final coordination with DCR, elements for lighting have been removed from the contract. Revised Notes and Typical are attached. There are no changes to the bid form.

Q9. Please confirm the quantity for Item # 504 – Granite Curb Type VA4, as the bid quantity appears to be overstated.

A9. The bid form has been updated to reflect the final quantity for granite curb as shown on the plans.

Q10. Refer to Grading and Utility Note 16 on drawing # 03, which informs that the Contractor is responsible for cleaning out existing catch basins and piping prior to commencing with work. Being that the extent of the existing accumulated sediment is unknown, please provide appropriate unit price bid items to compensate for this work.

A10. The City will perform this work; bidders should not include this effort in their bid.

Q11. Refer to sheets #36 & #96 in the drawings. Sheet #36 shows the limit of loaming and seeding to the right of baseline extending much farther than what is shown on the cross sections on sheet #96. Please clarify.

A11. The cross section reflects the limited extent of regrading needed to tie into existing surface; however, the extent of work shown on the landscape plan is included in the design to buffer the path from the adjacent parcel.

Q12. Refer to Pavement Marking Note 1 on drawing # 48, please provide a detail showing the size of the thermoplastic mile markers. Also, please confirm that the start of the project at Beaver Street shall be mile marker 0.0

A12. The mile markers for the Mass Central Rail Trail (MCRT) are still being coordinated with DCR. The contractor will not be responsible for marking these.

Q13. Cement concrete sidewalks are proposed at a few of the road crossing locations, please consider adding unit price item # 701. – Cement Concrete Sidewalks to compensate for sidewalks that do not qualify as wheelchair ramps.

A13. Item 701. Cement Concrete Sidewalk is added to accommodate the placement of detectable warning panels per the specifications. See updated bid form.

Q14. Will the proposed cement concrete sidewalks and wheelchair ramps at the street crossings require welded wire mesh, per detail 3 – Concrete Paving on drawing # 53? Or is that detail only applicable to the concrete slabs underneath the various site furnishings (benches, bike racks, etc.)?

A14. This detail does not apply to standard sidewalk and wheelchair ramps. Refer to MassDOT standard details and specifications for these items.

Q15. Under what bid item are the raised crosswalks to be paid under? Please consider adding a separate unit price bid item for this work.

A15. Item 415.3 has been added for Micro Milling in these locations to a depth of 1.5”. Superpave Surface Course (SSC-9.5) to a depth of 1.5” over Superpave Intermediate Course (SIC-19.0) comprising the remainder of the raised section shall be used.

Q16. Are the proposed raised crosswalks to be paved directly upon the existing asphalt at the various locations? Please confirm that no pre-treatment (milling, sawcutting) to the existing roadway at the crossing will be required.

A16. See previous.

Q17. At the various roadway crossings it was noted that some of the locations contain existing pavement markings which may conflict with the proposed pavement markings and there are no provisions in the bid to remove the existing pavement markings. Please advise.

A17. Grinding is the City's preferred method for pavement marking removal. This should be included as incidental to the proposed pavement markings.

Q18. Refer to drawing # 35, the following plantings and quantities are shown but are not listed in the plant schedule on drawing # 55; QuBi with a quantity of 1 Each and AmGr with a quantity of 3 Each. Please clarify.

A18. Bidders shall bid in accordance with the plantings shown on the plan layout, rather than the schedule.

Q19. The total quantity of plantings shown within drawing #'s 34 thru 43 do not match the quantities within the Plant List on drawing # 55. Being that the plantings are part of a lump sum pay item, please confirm the quantities of plantings shown within the Plant List.

A19. Bidders shall bid in accordance with the plantings shown on the plan layout, rather than the schedule.

Q20. The plans show two emergency call boxes at separate locations on the trail, however, no provisions were found in the drawings that show how the electrical and communication services will get to the emergency call boxes. Please provide this information and also provide appropriate unit price bid items for the anticipated conduit/ handhole work that will be required.

A20. The call boxes are removed from the contract along with the lighting. See revised note sheet, which eliminates the Electrical section.

Q21. The bid contains a unit price soil testing item for hazardous materials, but there are no provisions for the management or disposal of any hazardous materials that may encountered on the project. Please confirm that all management and disposal of hazardous materials, if encountered, would be considered as extra work.

A21. As part of initial permitting efforts for the MCRT, soil samples were performed by DCR and reviewed. There is no indication that hazardous materials should be anticipated along the corridor. As noted in the specification, this is a contingency item.

Q22. Being that the project corridor is very long and narrow with limited space, does the City have any parcels of land abutting/ near the project that may be utilized by the Contractor for storing

material and equipment?

A22. The contractor will be responsible for securing a storage and laydown area for the project.

Q23. Will the excavation for the three Bioretention Basins be paid under Item # 120.1 – Unclassified Excavation?

A23. Yes, the quantity for unclassified excavation includes that associated with the bioretention areas.

Q24. Refer to drawing # 49, there is a detail to the left of the "Outlet Hood Detail" that did not plot. Please provide this missing detail.

A24. See attached for revised sheet 49 which shows the detail for Precast Concrete Catch Basin (with Hood).

Q25. Please confirm the bid quantity for Item # 851.1 – Traffic Cones for Traffic Management. The bid quantity exceeds the duration of the Contract.

A25. The unit price for Traffic Cones shall be per cone per day, abbreviated as C-D on the bid form.

Q26. Bituminous curbing is called out on the plans, however, there is no pay item for this work. Please advise.

A26. Item 570.2 has been added for the Bit Curb.

Q27. Various locations within the plans and specifications have a note "NOT FOR CONSTRUCTION", please clarify the intent of this note.

A27. Bidders should prepare their price proposal based on the plans and specs as presented.

Q28. Please confirm that Bid Item #'s 945.102, 945.202 & 945.302 are the pay items associated with the excavation of the drilled shafts for the two retaining walls at Prospect Hill Road (Item # 996.01) and Hammond Street (Item # 996.02).

A28. Correct.

Q29. Assuming that Item #'s 945.102, 945.202 & 945.302 are linked to the two retaining wall items (#996.01 & # 996.02) then please confirm the bid quantity for the Item # 945., excavation items, as these appear to be overstated with a total of 830 LF of excavation items versus only approximately 360 feet of drilled shaft foundations required for the retaining walls.

A29. The quantities for 945.102 and 945.202 are based on excavation from existing grade to the bottom of each proposed drilled shaft. In addition, the quantities for these items have been adjusted to account for possible variations in bedrock elevation along the lengths of the walls. The quantity for 945.302 is included to account for unknown obstructions that may be encountered.

Q30. Catch Basin, CB-1, is shown on drawing #13. Is it intended that this drainage structure is to be

a dog-house style structure that ties directly in to the 24" drain line below?

A30. Yes, this will be a dog-house style structure atop the existing pipe.

Q31. Catch Basin, CB-2, is shown on drawing #15. Is it intended that this drainage structure is to be a dog-house style structure that ties directly in to the 30" drain line below?

A31. Yes, this will be a dog-house style structure atop the existing pipe.

Q32. Could you please advise as to where the 3" PVC Electrical Conduit for future lighting is paid? Refer to the typical "Trail" section detail shown on drawing # 6 of 114.

A32. Based on final coordination with DCR, elements for lighting have been removed from the contract. Revised Notes and Typical are attached. There are no changes to the bid form.

Q33. Is it possible that the City releases the Auto Cad file/files to help facilitate/expedite the contractors takeoff process?

A33. The CAD files will be released to the awarded bidder.

ITEM 2: DELETE AND REPLACE

- **DELETE** and **REPLACE** Article 5 BID FORM with **Attachment A**
- **DELETE** and **REPLACE** from the Plans Sheet #3, 6, 49 with **Attachment B**

ITEM 3: ADD

- **ADD** the Borings location plans and Logs File in **Attachment C**

ATTACHMENT A

ARTICLE 5 - BASIS OF BID
BID FORM

Item #	Description	Estimated Quantity	Unit Price	Total

NOTE: THE UNIT PRICE OF EACH ITEM MUST BE WRITTEN IN WORDS AND FIGURES. IN CASE OF DISCREPANCY, THE AMOUNT SHOWN IN WORDS WILL GOVERN.

Item #	Description	Estimated Quantity	Unit Price	Total
101.	Clearing and Grubbing	3 AC	$_____	$_____
Unit Price in Words: _____				
Total Price in Words: _____				
102.1	Tree Trimming	2,171 FT	$_____	$_____
Unit Price in Words: _____				
Total Price in Words: _____				
102.3	Control of Invasive Species on Site	28 HR	$_____	$_____
Unit Price in Words: _____				
Total Price in Words: _____				
102.511.	Tree Protection	27 EA	$_____	$_____
Unit Price in Words: _____				
Total Price in Words: _____				
120.1	Unclassified Excavation	10,460 CY	$_____	$_____
Unit Price in Words: _____				
Total Price in Words: _____				
144.	Class B Rock Excavation	80 CY	$_____	$_____
Unit Price in Words: _____				
Total Price in Words: _____				
150.	Ordinary Borrow	5,400 CY	$_____	$_____
Unit Price in Words: _____				
Total Price in Words: _____				
151.	Gravel Borrow	9,170 CY	$_____	$_____
Unit Price in Words: _____				
Total Price in Words: _____				
170.	Fine Grading and Compacting	19,515 SY	$_____	$_____
Unit Price in Words: _____				
Total Price in Words: _____				

Item #	Description	Estimated Quantity	Unit Price	Total
180.6	Miscellaneous Soil Testing	10 EA	$_____	$_____
Unit Price in Words: _____				
Total Price in Words: _____				
200.991	Bioretention Area A	1 LS	$_____	$_____
Unit Price in Words: _____				
Total Price in Words: _____				
200.992	Bioretention Area B	1 LS	$_____	$_____
Unit Price in Words: _____				
Total Price in Words: _____				
200.993	Bioretention Area C	1 LS	$_____	$_____
Unit Price in Words: _____				
Total Price in Words: _____				
234.99	Mitered Drain	9 EA	$_____	$_____
Unit Price in Words: _____				
Total Price in Words: _____				
415.3	Pavement Micro Milling	580 SY	$_____	$_____
Unit Price in Words: _____				
Total Price in Words: _____				
450.22	Superpave Surface Course – 9.5 (SSC-9.5)	1,700 TON	$_____	$_____
Unit Price in Words: _____				
Total Price in Words: _____				
450.32	Superpave Intermediate Course – 19.0 (SIC-19.0)	2,840 TON	$_____	$_____
Unit Price in Words: _____				
Total Price in Words: _____				
452.	Asphalt Emulsion for Tack Coat	960 GAL	$_____	$_____
Unit Price in Words: _____				
Total Price in Words: _____				
472.	Hot Mix Asphalt for Miscellaneous Work	50 TON	$_____	$_____
Unit Price in Words: _____				
Total Price in Words: _____				

Item #	Description	Estimated Quantity	Unit Price	Total
482.3	Sawcutting Asphalt Pavement	610 FT	$_____	$_____
Unit Price in Words: _____				
Total Price in Words: _____				
504.	Granite Curb Type VA4	610 FT	$_____	$_____
Unit Price in Words: _____				
Total Price in Words: _____				
509.	Granite Transition Curb for Wheelchair Ramps	80 FT	$_____	$_____
Unit Price in Words: _____				
Total Price in Words: _____				
570.2	Hot Mix Asphalt Curb Type 2	50 FT	$_____	$_____
Unit Price in Words: _____				
Total Price in Words: _____				
593.	Edging Removed and Stacked	150 FT	$_____	$_____
Unit Price in Words: _____				
Total Price in Words: _____				
620.13	Guardrail, TL-3 (Single Faced)	106 FT	$_____	$_____
Unit Price in Words: _____				
Total Price in Words: _____				
644.072	72 inch Chain Link Fence (Spring Tension Wire)	1,515 FT	$_____	$_____
Unit Price in Words: _____				
Total Price in Words: _____				
655.	Cedar Rail Fence	8,920 FT	$_____	$_____
Unit Price in Words: _____				
Total Price in Words: _____				
701.	Cement Concrete Sidewalk	290 SY	$_____	$_____
Unit Price in Words: _____				
Total Price in Words: _____				
701.2	Cement Concrete Wheelchair Ramp	80 SY	$_____	$_____
Unit Price in Words: _____				
Total Price in Words: _____				

Item #	Description	Estimated Quantity	Unit Price	Total
748.	Mobilization	1 LS	$_____	$_____
Unit Price in Words: _____				
Total Price in Words: _____				
751.001	Landscaping Items	1 LS	$_____	$_____
Unit Price in Words: _____				
Total Price in Words: _____				
751.	Loam Borrow	1,550 CY	$_____	$_____
Unit Price in Words: _____				
Total Price in Words: _____				
767.12	Compost Filter Tubes	27,700 FT	$_____	$_____
Unit Price in Words: _____				
Total Price in Words: _____				
815.1	Traffic Control Signal – Prospect Hill Road RRFB Signal – **City to Purchase/Install**	1 LS	$ **N/A**	$ **N/A**
Unit Price in Words: _____				
Total Price in Words: _____				
815.2	Traffic Control Signal – Bacon Street RRFB Signal	1 LS	$_____	$_____
Unit Price in Words: _____				
Total Price in Words: _____				
815.3	Traffic Control Signal – Lexington Street Full Signal	1 LS	$_____	$_____
Unit Price in Words: _____				
Total Price in Words: _____				
815.4	Traffic Control Signal – Lyman Street HAWK Signal	1 LS	$_____	$_____
Unit Price in Words: _____				
Total Price in Words: _____				
832.	Warning-Regulatory and Route Marker Alum. Panel (Type A)	420 SF	$_____	$_____
Unit Price in Words: _____				
Total Price in Words: _____				

Item #	Description	Estimated Quantity	Unit Price	Total
847.1	Sign Sup (N/Guide) + Rte Mkr W/1 Brkway Post Assembly - Steel	60 EA	$_____	$_____
Unit Price in Words: _____				
Total Price in Words: _____				
850.41	**POLICE DETAILS ALLOWANCE**	700 HR	$ **N/A**	$ **$65,000**
Unit Price in Words: _____				
Total Price in Words: _____				
851.1	Traffic Cones for Traffic Management	2,400 C-D	$_____	$_____
Unit Price in Words: _____				
Total Price in Words: _____				
852.	Safety Signing for Traffic Management	550 SF	$_____	$_____
Unit Price in Words: _____				
Total Price in Words: _____				
853.1	Portable Breakaway Barricade Type III	20 EA	$_____	$_____
Unit Price in Words: _____				
Total Price in Words: _____				
864.04	Pavement Arrows and Legends Refl. White (Thermoplastic)	1,900 SF	$_____	$_____
Unit Price in Words: _____				
Total Price in Words: _____				
866.112	12 inch Reflectorized White Line (Thermoplastic)	1,128 LF	$_____	$_____
Unit Price in Words: _____				
Total Price in Words: _____				
867.106	6 inch Reflectorized Yellow Line (Thermoplastic)	5,810 LF	$_____	$_____
Unit Price in Words: _____				
Total Price in Words: _____				
945.102	Drilled Shaft Excavation 3.5 Foot Diam.	580 LF	$_____	$_____
Unit Price in Words: _____				
Total Price in Words: _____				

Item #	Description	Estimated Quantity	Unit Price	Total
945.202	Rock Socket Excavation 3.5 Foot Diam.	210 LF	$_____	$_____
Unit Price in Words: _____				
Total Price in Words: _____				
945.302	Obstruction Excavation 3.5 Foot Diam.	40 LF	$_____	$_____
Unit Price in Words: _____				
Total Price in Words: _____				
992.13	Alteration to Bridge Structure No. 8.92 (Concrete Culvert - Sta. 278+77)	1 LS	$_____	$_____
Unit Price in Words: _____				
Total Price in Words: _____				
992.14	Alteration to Bridge Structure No. 8.80 (Concrete Culvert - Sta. 285+19)	1 LS	$_____	$_____
Unit Price in Words: _____				
Total Price in Words: _____				
992.15	Alteration to Bridge Structure No. 8.75 (Timber Culvert - Sta. 287+59)	1 LS	$_____	$_____
Unit Price in Words: _____				
Total Price in Words: _____				
996.01	Prospect Hill Retaining Wall	1 LS	$_____	$_____
Unit Price in Words: _____				
Total Price in Words: _____				
996.02	Hammond Street Retaining Wall	1 LS	$_____	$_____
Unit Price in Words: _____				
Total Price in Words: _____				
999.01	Eco-counter Installation	2 EA	$_____	$_____
Unit Price in Words: _____				
Total Price in Words: _____				

TOTAL BASE BID PRICE $_____

(Price in Numbers)

TOTAL BASE BID PRICE $_____

(Price in Words)

Item #	Description	Estimated Quantity	Unit Price	Total

ADD ALTERNATE A

141.99 Utility Locating 1 LS $_____ $_____
Unit Price in Words: _____
Total Price in Words: _____

955.01 Timber Access Ramp – Linden Street 1 LS $_____ $_____
Unit Price in Words: _____
Total Price in Words: _____

992.11 Alteration to Bridge Structure No. 114 (Timber Bridge) 1 LS $_____ $_____
Unit Price in Words: _____
Total Price in Words: _____

996.03 GRS Retaining Wall-Linden Street Access Ramp 1 LS $_____ $_____
Unit Price in Words: _____
Total Price in Words: _____

TOTAL BID PRICE – ADD ALT A $_____
(Price in Numbers)

TOTAL BID PRICE – ADD ALT A $_____
(Price in Words)

Item #	Description	Estimated Quantity	Unit Price	Total
ADD ALTERNATE B				
850.41	**POLICE DETAIL ALLOWANCE**	280 HR	$ **N/A**	$ **$18,000**
	Unit Price in Words: _____			
	Total Price in Words: _____			
851.1	Traffic Cones for Traffic Management	1,200 C-D	$_____	$_____
	Unit Price in Words: _____			
	Total Price in Words: _____			
992.12	Alteration to Bridge Structure No. 113 (Linden Street Bridge)	1 LS	$_____	$_____
	Unit Price in Words: _____			
	Total Price in Words: _____			

TOTAL BID PRICE – ADD ALT B $_____
(Price in Numbers)

TOTAL BID PRICE – ADD ALT B $_____
(Price in Words)

ARTICLE 6- TIME OF COMPLETION-

Completion must be on or before June 30, 2023

ATTACHMENT B

REFERENCE

1. PROJECT LOCATION: MASSACHUSETTS CENTRAL RAILROAD RIGHT-OF-WAY, CITY OF WALTHAM.
2. PROJECT SURVEY COMPLETED BY WHITMAN & BINGHAM ASSOCIATES, LLC, DATED MARCH 2018. UTILITY LOCATIONS BASED ON AVAILABLE PLANS.
3. WETLANDS AND RESOURCE AREAS WERE DELINEATED BY PARE CORPORATION IN OCTOBER 2017. WETLAND FLAGS WERE LOCATED BY WHITMAN & BINGHAM.
4. VERTICAL DATUM IS NAVD 88. HORIZONTAL DATUM IS MASSACHUSETTS STATE PLANE.
5. EXISTING UTILITIES, SIZES, AND ELEVATIONS WERE COMPILED FROM THE CITY OF WALTHAM'S GIS MAPS ONLINE, MOST RECENTLY ACCESSED ON AUGUST 21, 2018.

GENERAL NOTES

1. THE CONTRACTOR SHALL MAKE ALL NECESSARY CONSTRUCTION NOTIFICATIONS, AND APPLY FOR AND OBTAIN ALL NECESSARY CONSTRUCTION PERMITS, AND COORDINATE WITH THE ENGINEER AND OWNER'S REPRESENTATIVE AS REQUIRED.
2. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR JOB SITE SAFETY. THE CONTRACTOR SHALL PROVIDE TEMPORARY FENCING AND/OR BARRIERS AROUND ALL OPEN EXCAVATED AREAS IN ACCORDANCE WITH OSHA STANDARDS.
3. IF ANY DEVIATION OR ALTERATION OF THE WORK PROPOSED ON THESE DRAWINGS IS REQUIRED, THE CONTRACTOR IS TO IMMEDIATELY CONTACT AND COORDINATE WITH THE ENGINEER AND OWNER'S REPRESENTATIVE.
4. ANY AREA OUTSIDE OF THE LIMIT OF WORK THAT IS DISTURBED SHALL BE RESTORED TO ITS ORIGINAL CONDITION AT NO COST TO THE OWNER.
5. ALL SITE WORK SHALL MEET OR EXCEED THE SITE WORK SPECIFICATIONS PREPARED FOR THIS PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THAT THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS DO NOT CONFLICT WITH ANY KNOWN EXISTING OR OTHER PROPOSED IMPROVEMENTS. IF ANY CONFLICTS ARE DISCOVERED, THE CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE AND THE ENGINEER PRIOR TO INSTALLATION OF ANY PORTION OF THE SITE WORK WHICH WOULD BE AFFECTED.
6. ALL UTILITIES (LOCATION & ELEVATION) SHOWN SHALL BE CONSIDERED APPROXIMATE ONLY. BEFORE COMMENCING SITE WORK IN ANY AREA, CONTACT "DIG SAFE" AT 1-888-344-7233 AND CITY OF WALTHAM TO ACCURATELY LOCATE UNDERGROUND UTILITIES. ANY DAMAGE TO EXISTING UTILITIES OR STRUCTURES, AND THE COST TO REPAIR THE DAMAGES TO INITIAL CONDITIONS AS SHOWN ON THE PLANS, SHALL BE THE CONTRACTOR'S RESPONSIBILITY. NO EXCAVATION SHALL BE DONE UNTIL UTILITY COMPANIES ARE PROPERLY NOTIFIED.
7. ANY DAMAGE TO EXISTING PAVEMENT, BRIDGES, CONDUIT, SIDEWALK, FENCES, ETC., CAUSED BY THE CONTRACTOR SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
8. THE CONTRACTOR SHALL PLACE ALL EQUIPMENT AND MATERIAL AS FAR AWAY AS POSSIBLE FROM THE EDGE OF THE ROADWAY TRAVEL LANES SO AS NOT TO CAUSE A SAFETY HAZARD.
9. PRIOR TO COMMENCING WORK, THE CONTRACTOR SHALL EMPLOY A PROFESSIONAL LAND SURVEYOR REGISTERED IN THE STATE OF MASSACHUSETTS TO ESTABLISH CONTROL ON THE SITE AND PERFORM FIELD MEASUREMENTS AS REQUIRED TO LAYOUT THE PROPOSED SITE IMPROVEMENTS.
10. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE EXISTING CONDITIONS ARE NOT OBLITERATED BEFORE CONTROL POINTS ARE LOCATED AND CONSTRUCTION LAYOUT IS ESTABLISHED. THE CONSTRUCTION LAYOUT SHALL BE PROVIDED IN SUFFICIENT DETAIL, THEREBY ENABLING THE CONTRACTOR TO CONSTRUCT THE PROJECT IN CONFORMITY WITH THE PLANS AND SPECIFICATIONS. SURVEY WILL BE PROVIDED BY THE CONTRACTOR. THE OWNER OR OWNER'S REPRESENTATIVE SHALL NOT AUTHORIZE CONSTRUCTION ACTIVITIES TO BEGIN UNTIL THEY ARE SATISFIED THAT ALL GROUND CONTROL HAS BEEN ESTABLISHED, TIED DOWN, AND DULY RECORDED IN STANDARD FIELD BOOKS.
11. ALL SIDEWALK AND DRIVEWAYS DESIGNATED FOR REPLACEMENT SHALL BE CUT AND MATCHED AT LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
12. THE LIMITS OF CLEARING AND SURFACE DISTURBANCE MUST BE STRICTLY ADHERED TO IN ALL AREAS. IN ADDITION TO THOSE AREAS SPECIFICALLY DESIGNATED ON THE PLANS, THE CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING AND PLACING, AT HIS OWN EXPENSE, PLANTABLE SOIL AND SEED IN AREAS WHICH ARE OUTSIDE OF THE PROJECT'S AREAS OF DISTURBANCE AND WHICH ARE IMPACTED BY CONSTRUCTION OPERATIONS INCLUDING THOSE AREAS WHERE VEHICLES, EQUIPMENT AND MATERIALS ARE STORED.
13. UNDER NO CIRCUMSTANCE WILL THE CONTRACTOR BE ALLOWED TO STOCKPILE REMOVED PAVEMENT MATERIALS WITHIN THE PROJECT LIMITS.
14. CLEANING AND SWEEPING OF PAVEMENT WILL INCLUDE REMOVAL OF ALL PAVEMENT DEBRIS PRIOR TO THE PLACEMENT OF EACH BITUMINOUS PAVEMENT LIFT. ALL CLEANING AND SWEEPING SHALL BE DONE TO THE SATISFACTION OF THE OWNER OR OWNER'S REPRESENTATIVE.
15. PRIOR TO INSTALLATION, ALL SIGNS, MOUNTINGS AND LOCATIONS SHALL BE APPROVED OR MODIFIED BY OWNER OR OWNER'S REPRESENTATIVE.
16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL ROADWAYS FREE OF DEBRIS RESULTING FROM CONSTRUCTION OPERATIONS. ALL DEBRIS SHALL BE REMOVED TO THE SATISFACTION OF THE OWNER OR OWNER'S REPRESENTATIVE AT NO ADDITIONAL COST TO THE OWNER.
17. NO FUEL STORAGE, VEHICLE REFUELING, OR EQUIPMENT STORAGE SHALL TAKE PLACE IN DESIGNATED WETLANDS, WETLANDS BUFFER ZONES, NOR WITHIN 100' OF ANY WATER BODY. THIS REQUIREMENT SHALL NOT SUPERSEDE ANY FEDERAL, STATE OR LOCAL LAW, ORDINANCE, RULE OR REGULATION THAT APPLIES TO THE SAME, UNLESS THIS REQUIREMENT IS MORE STRINGENT THAN SAID LAW, ORDINANCE, RULE OR REGULATION.
18. ALL EMBANKMENTS SHALL BE PLACED IN HORIZONTAL LAYERS NOT EXCEEDING 12" (AFTER COMPACTION) AND SHALL BE COMPACTED AS SPECIFIED BEFORE THE NEXT LAYER IS PLACED.
19. THE CONTRACTOR SHALL COMPACT ALL MATERIALS USED FOR SUBBASE BACKFILL IN MAXIMUM SIX-INCH LAYERS.
20. FOLLOWING CONSTRUCTION OF QPA'S, CONSTRUCTION VEHICLES OR EQUIPMENT SHALL NOT BE PLACED OR DRIVEN OVER QPA'S. COMPACTION OF THESE AREAS IS PROHIBITED. ANY QPA'S DISTURBED BY VEHICLES OR EQUIPMENT SHALL BE RECONSTRUCTED AT NO ADDITIONAL EXPENSE TO THE OWNER. REFER TO QPA DETAILS FOR SUBGRADE PREPARATION.

LAYOUT NOTES

1. ALL LINES ARE PERPENDICULAR OR PARALLEL TO THE LINES FROM WHICH THEY ARE MEASURED, UNLESS OTHERWISE INDICATED.
2. ACCESSIBLE RAMPS SHALL BE CONSTRUCTED PER THE AMERICANS WITH DISABILITIES ACT (ADA) ACCESSIBILITY GUIDELINES, LATEST REVISION.
3. CONTRACTOR TO PERFORM BENCHMARK FIELD LEVEL VERIFICATION AND COORDINATE LAYOUT CHECK PRIOR TO CONSTRUCTION. CONTRACTOR SHALL CONTACT PARE CORPORATION IF ANY DISCREPANCIES ARE FOUND.

DEMOLITION NOTES

1. ALL NOTED ITEMS TO BE REMOVED AND DISPOSED, RELOCATED, OR STACKED REPRESENT ALL KNOWN SITE CONDITIONS TO BE DEMOLISHED. CONTRACTOR TO COORDINATE ANY UNFORESEEN CONDITIONS WITH THE PROJECT ENGINEER, OWNER, AND/OR RESPECTIVE UTILITY COMPANIES PRIOR TO PROCEEDING WITH THE WORK.
2. WATER, SEWER, DRAINAGE, GAS, AND OTHER SITE UTILITIES SERVICING THE EXISTING FACILITIES ARE TO REMAIN ACTIVE THROUGHOUT CONSTRUCTION.
3. THERE SHALL BE NO INTERRUPTION OF UTILITY SERVICE THROUGHOUT THE DURATION OF CONSTRUCTION WITHOUT WRITTEN APPROVAL FROM THE OWNER.
4. ALL EXISTING CATCH BASINS TO REMAIN SHALL BE CLEANED PRIOR TO COMMENCING WORK.

EROSION AND SEDIMENTATION CONTROL NOTES

1. THE CONTRACTOR AND RELEVANT SUBCONTRACTORS SHALL READ AND UNDERSTAND THE RIDEM FRESHWATER WETLANDS PERMIT, THE NPDES GENERAL PERMIT FOR STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY (GENERAL PERMIT) AND THE SITE SPECIFIC SOIL EROSION AND SEDIMENT CONTROL PLAN (SESC) PREPARED FOR THE PROJECT. ALL EROSION CONTROLS SHALL BE IN ACCORDANCE WITH THE MASSACHUSETTS EROSION AND SEDIMENT CONTROL HANDBOOK.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING OR INSTALLING ALL TEMPORARY SEDIMENT AND EROSION CONTROLS AS SHOWN ON THESE PLANS AND SHALL MAINTAIN ALL EROSION CONTROL MEASURES AS NECESSARY DURING THE ENTIRE CONSTRUCTION PERIOD.
3. ANTI-TRACKING PADS SHALL BE PROVIDED AT ALL POINTS OF EGRESS OR INGRESS, PRIOR TO ANY ROADWAY ACCEPTING CONSTRUCTION TRAFFIC, AND SHALL BE MAINTAINED TO LIMIT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC ROADS.
4. EROSION CONTROL BARRIERS SHALL BE INSTALLED AS SHOWN ON THE PLANS PRIOR TO COMMENCEMENT OF CONSTRUCTION OPERATIONS.
5. SOIL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSPECTED AND MAINTAINED ON A WEEKLY BASIS AND AFTER EACH STORM EVENT OF 0.25 INCH OR GREATER DURING CONSTRUCTION TO ENSURE THAT CHANNELS, DITCHES AND PIPES ARE CLEAR OF DEBRIS AND THAT THE EROSION CONTROL BARRIERS ARE INTACT. THE CONTRACTOR SHALL CORRECT IDENTIFIED DEFICIENCIES IMMEDIATELY.
6. DUST SHALL BE CONTROLLED BY WATERING OR OTHER APPROVED METHODS AS NECESSARY, OR AS DIRECTED BY THE OWNER OR OWNER'S REPRESENTATIVE.
7. THE CONTRACTOR SHALL CLEAN AND MAINTAIN EROSION CONTROL BARRIER WHEN SEDIMENT ACCUMULATES TO ONE HALF THE HEIGHT OF THE BARRIER. MATERIAL COLLECTED FROM THE SEDIMENTATION BARRIERS SHALL BE REMOVED AS NECESSARY AND DISPOSED IN AN UPLAND AREA.
8. THE CONTRACTOR SHALL SCHEDULE THE CONSTRUCTION SEQUENCE TO ALLOW THE FINISHED SUBGRADE ELEVATIONS TO DRAIN PROPERLY WITHOUT PONDING. SPECIFICALLY, ALLOW WATER TO ESCAPE WHERE PROPOSED CURB MAY RETAIN RUNOFF PRIOR TO APPLICATION OF SURFACE PAVING. PROVIDE TEMPORARY POSITIVE DRAINAGE, AS REQUIRED, TO STABILIZED DISCHARGE POINTS.
9. INSTALLATION OF THE EROSION CONTROL BARRIERS AS ILLUSTRATED IS INTENDED TO REPRESENT THE MINIMUM SEDIMENTATION CONTROL FACILITIES NECESSARY TO MEET ANTICIPATED SITE CONDITIONS. ADDITIONAL EROSION CONTROL MEASURES SHALL BE IMPLEMENTED AS CONDITIONS WARRANT OR AS DIRECTED BY THE OWNER OR OWNER'S REPRESENTATIVE AT NO ADDITIONAL COST TO THE OWNER.
10. REQUIRED SEDIMENTATION CONTROL FACILITIES MUST BE PROPERLY ESTABLISHED, CLEARLY VISIBLE AND IN OPERATION PRIOR TO INITIATING ANY LAND CLEARING ACTIVITY AND/OR OTHER CONSTRUCTION RELATED WORK. SUCH FACILITIES SHALL REPRESENT THE LIMIT OF WORK. WORKERS SHALL BE INFORMED THAT NO CONSTRUCTION ACTIVITY IS TO OCCUR BEYOND THE LIMIT OF WORK AT ANY TIME THROUGHOUT THE CONSTRUCTION PERIOD.
11. THE CONTRACTOR SHALL MAINTAIN A SUFFICIENT RESERVE OF VARIOUS EROSION CONTROL MATERIALS ONSITE AT ALL TIMES FOR EMERGENCY PURPOSES OR ROUTINE MAINTENANCE.
12. THE CONTRACTOR SHALL REPLACE DAMAGED EROSION CONTROL AT THE OWNER, OWNER'S REPRESENTATIVE, OR ENGINEER'S REQUEST AT NO ADDITIONAL EXPENSE TO THE OWNER.
13. DEWATERING WASTE WATERS PUMPED FROM EXCAVATIONS WILL BE CONVEYED BY HOSE TO AN UPLAND AREA AND DISCHARGED INTO A DEWATERING BAG. THE CONTRACTOR IS RESPONSIBLE FOR ALL ENGINEERING, EQUIPMENT, MATERIAL, AND LABOR REQUIRED FOR SITE WATER REMOVAL DURING CONSTRUCTION.
14. THE CONTRACTOR SHALL NOT REMOVE ANY HAYBALES, COMPOST FILTER SOCKS, OR OTHER EROSION CONTROLS UNTIL THE CONTRIBUTING DRAINAGE AREA HAS BEEN PERMANENTLY STABILIZED.
15. CONSTRUCTION SITE WASTE MATERIALS WILL BE PROPERLY CONTAINED ONSITE AND DISPOSED OFF SITE AT A LOCATION IN ACCORDANCE WITH THE LOCAL AND STATE REGULATIONS.
16. RIP-RAP OR OTHER ENERGY DISSIPATERS WILL BE USED WHERE NECESSARY TO PREVENT SCOUR.
17. THE CONTRACTOR SHALL NOT LEAVE DISTURBED AREAS UNSTABILIZED FOR PERIODS MORE THAN 14 DAYS. PROVIDE TEMPORARY SEED OR MULCH ON DISTURBED AREAS THAT WILL REMAIN EXPOSED FOR GREATER THAN 14 DAYS.
18. ALL DRAINAGE STRUCTURES SHALL BE CLEARED OF ACCUMULATED SEDIMENT PRIOR TO FINAL ACCEPTANCE OF THE PROJECT.
19. NEWLY VEGETATED AREAS SHALL BE MAINTAINED REGULARLY TO ENSURE STABLE VEGETATED SURFACES.
20. EROSION AND SEDIMENTATION CONTROLS WILL BE UTILIZED AS SHOWN ON THE PLANS. POTENTIAL EROSION AND SEDIMENTATION PROBLEMS ASSOCIATED WITH THE CONSTRUCTION OF THE PROJECT WILL BE AVOIDED THROUGH THE PROJECT SCHEDULING AND THE USE OF APPROPRIATE STANDARD CONTROLS (MASSACHUSETTS EROSION AND SEDIMENT CONTROL HANDBOOK) AS ILLUSTRATED ON THE PROJECT PLANS.
21. WHERE EROSION CONTROLS ARE NEEDED ON IMPERVIOUS SURFACES, THE CONTRACTOR SHALL PROVIDE SAND BAG EROSION CONTROL BARRIER.
22. TEMPORARY DIVERSION MAY CONSIST OF A DITCH OR SWALE, OR MAY BE ACHIEVED USING WOOD CHIPS, COIR LOGS, OR SIMILAR MATERIALS.
23. THE CONTRACTOR SHALL FURNISH, INSTALL, AND MAINTAIN SILT SACKS IN ALL EXISTING AND NEWLY INSTALLED CATCH BASINS UNTIL THE UPSTREAM AREA IS STABILIZED.

CONSTRUCTION METHODS

1. CONSTRUCTION OF THE TRAIL SHALL BE EXECUTED WITH MINIMALLY INVASIVE METHODS.
2. LIMITS OF DISTURBANCE SHALL BE ADHERED TO TO THE EXTENT POSSIBLE TO MAINTAIN EXISTING TREE STANDS BETWEEN THE TRAIL AND ABUTTING PROPERTIES.
3. CONSTRUCTION VEHICLES SHALL BE LIMITED TO A LOADING EQUIVALENT TO A H-10 TRUCK ON BRIDGE NO. 114 (TIMBER BRIDGE), BRIDGE NO. 113 (LINDEN BRIDGE), & BRIDGE NO. 8.76 (TIMBER CULVERT - STA. 287+59). THE TIMBER ACCESS RAMP AT LINDEN STREET HAS BEEN DESIGNED BASED ON PEDESTRIAN LIVE LOAD (90 PSF) ONLY.

GRADING AND UTILITY NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THAT THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS DO NOT CONFLICT WITH ANY KNOWN EXISTING OR OTHER PROPOSED IMPROVEMENTS. IF CONFLICTS ARE DISCOVERED, THE CONTRACTOR SHALL NOTIFY THE OWNER AND THE ENGINEER PRIOR TO INSTALLATION OF ANY PORTION OF THE SITE WORK WHICH WOULD BE AFFECTED. NO FIELD ADJUSTMENTS IN THE LOCATION OF SITE ELEMENTS SHALL BE MADE WITHOUT THE ENGINEER'S APPROVAL.
2. ALL WORK PERFORMED AND ALL MATERIALS FURNISHED SHALL CONFORM WITH THE LINES AND GRADES ON THE PLANS AND THE SITE WORK SPECIFICATIONS.
3. AT ALL LOCATIONS WHERE EXISTING CURBING OR PAVEMENT ABUTS NEW CONSTRUCTION, THE EDGE OF THE EXISTING CURB OR PAVEMENT SHALL BE SAWCUT TO A CLEAN, SMOOTH EDGE. BLEND NEW PAVEMENT AND CURBS SMOOTHLY INTO EXISTING BY MATCHING LINES, GRADES, AND JOINTS.
4. ALL UTILITY COVERS, GRATES, ETC. SHALL BE ADJUSTED TO BE FLUSH WITH THE SURROUNDING SURFACE OR PAVEMENT FINISH GRADE. RIM ELEVATIONS OF STRUCTURES AND MANHOLES ARE APPROXIMATE. FINAL ELEVATIONS ARE TO BE SET FLUSH AND CONSISTENT WITH THE GRADING PLANS.
5. THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION OF PRIVATE UTILITIES BY THE UTILITY COMPANIES, AS REQUIRED.
6. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION, AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR AND THE INFORMATION FURNISHED TO THE ENGINEER FOR RESOLUTION.
7. THE CONTRACTOR SHALL PROTECT ALL UNDERGROUND UTILITIES FROM EXCESSIVE VEHICULAR LOADS DURING CONSTRUCTION. ANY DAMAGE TO THESE UTILITIES RESULTING FROM CONSTRUCTION LOADS WILL BE RESTORED TO ORIGINAL CONDITION BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER.
8. DURING CONSTRUCTION OPERATIONS, THE CONTRACTOR SHALL PROTECT EXISTING UTILITIES BY PROVIDING TEMPORARY SUPPORTS OR SHEETING AS REQUIRED AT NO ADDITIONAL COST TO THE OWNER.
9. EXCAVATION REQUIRED WITHIN THE PROXIMITY OF EXISTING UTILITY LINES SHALL BE DONE BY HAND. CONTRACTOR SHALL REPAIR ANY DAMAGE TO EXISTING UTILITY LINES OR STRUCTURES INCURRED DURING CONSTRUCTION OPERATIONS AT NO COST TO THE OWNER.
10. PITCH EVENLY BETWEEN SPOT GRADES. ALL PAVED AREAS MUST PITCH TO DRAIN AT A MIN. OF 1/8" PER FOOT UNLESS OTHERWISE SPECIFIED.
15. THE CONTRACTOR IS RESPONSIBLE FOR REMOVAL AND DISPOSAL OF ALL ROCK AND BOULDERS UNCOVERED DURING UTILITY INSTALLATION.
16. THE CONTRACTOR IS RESPONSIBLE FOR ALL EQUIPMENT, MATERIALS, AND LABOR REQUIRED TO CLEAN OUT EXISTING CATCH BASINS AND PIPING PRIOR TO COMMENCING WORK.

STORMWATER MANAGEMENT SYSTEM INSPECTION AND MAINTENANCE NOTES

DURING CONSTRUCTION

1. THE CONTRACTOR SHALL REMOVE SEDIMENT AND DEBRIS FROM ALL CATCH BASINS, MANHOLES, AND THE DRAINAGE SYSTEM ON A ROUTINE BASIS, IMMEDIATELY FOLLOWING SITE STABILIZATION, AND PRIOR TO PROJECT COMPLETION AND ACCEPTANCE.
2. THE CLOSED DRAINAGE SYSTEM AND ASSOCIATED STRUCTURES SHALL BE CLEANED AND FLUSHED BY THE CONTRACTOR AT THE COMPLETION OF CONSTRUCTION, AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSPECTION AND MAINTENANCE OF THE DRAINAGE SYSTEM UNTIL ACCEPTANCE OF THE SYSTEM BY THE ENGINEER AND THE OWNER. FOLLOWING ACCEPTANCE OF THE PROPOSED DRAINAGE SYSTEM FOR THIS SITE, THE OWNER OF THE SITE SHALL BE RESPONSIBLE FOR THE LONG-TERM INSPECTION AND MAINTENANCE OF THE DRAINAGE SYSTEM.
3. ANY ACCUMULATION OF PONDING WATER IN AREAS WITHIN THE LIMITS OF DISTURBANCE, OTHER THAN DESIGNATED AREAS, SHALL BE REMOVED ACCORDINGLY AND PREVENTED IN THE FUTURE.

FOLLOWING CONSTRUCTION, THE COMPLETION OF THE INSPECTION AND MAINTENANCE REQUIREMTNS BELOW SHALL BE THE RESPONSIBILITY OF THE OWNER.

1. TRASH, LITTER, SEDIMENT AND OTHER DEBRIS SHALL BE REMOVED FROM ANY STORMWATER FACILITY (INCLUDING CATCH BASINS, MANHOLES, AND THE STORMWATER BMP'S) AT LEAST TWICE A YEAR, PREFERABLY SPRING AND FALL.
2. THE SHARED USE PATH SHALL BE SWEPT EVERY SPRING AND FALL TO REMOVE SEDIMENTS.

BIORETENTION AREA INSPECTION, MAINTENANCE, AND REPAIR NOTES

1. ON A MONTHLY BASIS THE SOIL SHALL BE INSPECTED FOR VOID AREAS, TRASH, DEAD VEGETATION, AND OTHER PROBLEMS WITH THE BIORETENTION AREA.
2. ON A MONTHLY BASIS THE SOIL SHALL BE INSPECTED, ERODED AREAS SHALL BE REPAIRED, VOID AREAS SHALL BE REPLACED WITH STONE, AND TRASH AND LITTER SHALL BE REMOVED.
3. THE OWNER SHALL MOW THE GRASS WITHIN THE BIORETENTION AREA AND SEDIMENT FOREBAY MONTHLY.
4. DEAD VEGETATION SHALL BE REMOVED AND REPLACED SEMI-ANNUALLY.
5. OWNER SHALL PRUNE AND RE-MULCH THE BIORETENTION AREA IN SPRING EVERY YEAR.
6. UPON FAILURE, EXCAVATE BIORETENTION AREA, SCARIFY BOTTOM AND SIDES, REPLACE SOIL, REPLANT, AND MULCH.

QUALIFYING PERVIOUS AREA INSPECTION, MAINTENANCE, AND REPAIR NOTES

1. THE QUALIFYING PERVIOUS AREA (QPA) MUST BE INSPECTED TWICE YEARLY, AT A MINIMUM, FOR SEDIMENT , PONDING, EROSION, AND VEGETATION.
2. REMOVE ACCUMULATED SEDIMENT FROM THE QPA IF SEDIMENT EXCEEDS 1".
3. OWNER SHALL REPAIR ANY SLOPES THAT HAVE BEEN DAMAGED DUE TO EROSION OR OTHER MEANS. OWNER SHALL REPLACE ANY VEGETATION THAT HAS DIED OR BEEN DAMAGED.
4. OWNER SHALL MOW GRASS WITHIN THE QPA A MINIMUM OF TWICE ANNUALLY TO MAINTAIN A MINIMUM GRASS HEIGHT OF 6".
5. TRASH AND DEBRIS SHALL BE REMOVED FROM THE QPA AS NECESSARY.
6. THE QPA SHALL NOT BE USED FOR SNOW STORAGE.

DEEP SUMP CATCH BASIN INSPECTION, MAINTENANCE, AND REPAIR NOTES

1. INSPECT OR CLEAN DEEP SUMP BASINS AT LEAST FOUR TIMES PER YEAR. SEDIMENT SHALL BE REMOVED ANNUALLY OR WHEN IT HAS REACHED 24" BELOW THE INVERT.
2. SEDIMENT SHALL BE REMOVED ANNUALLY OR WHEN IT HAS REACHED 24" BELOW THE INVERT.

SEDIMENT FOREBAY INSPECTION, MAINTENANCE, AND REPAIR NOTES

1. THE SEDIMENT FOREBAY SHALL BE INSPECTED MONTHLY.
2. THE SEDIMENT FOREBAYS SHOULD BE CLEANED OF SEDIMENT FOUR TIMES PER YEAR AND WHEN SEDIMENT DEPTH IS GREATER THAN 6".

WALTHAM
WAYSIDE TRAIL

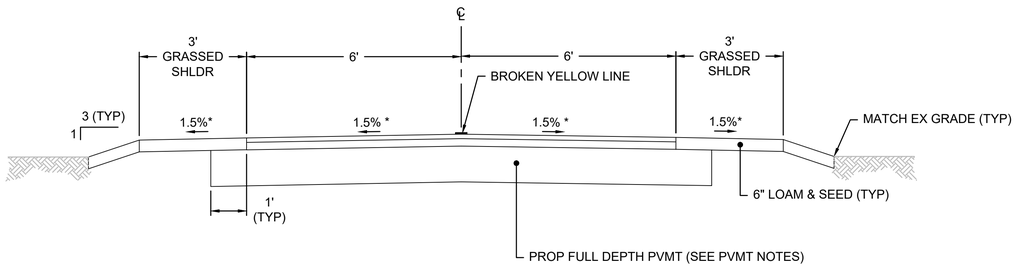
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	03	114
PROJECT FILE NO.	XXXXXX		

NOTES

WALTHAM
WAYSIDE TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	06	114
PROJECT FILE NO.	XXXXXX		

TYPICAL SECTION



* CONSTRUCTION TOLERANCE = ± 0.5%,
SEE SUPERELEVATION (SHEET 09)

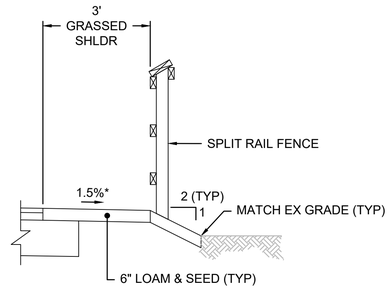
TYPICAL SECTION TRAIL

NOT TO SCALE

PAVEMENT NOTES

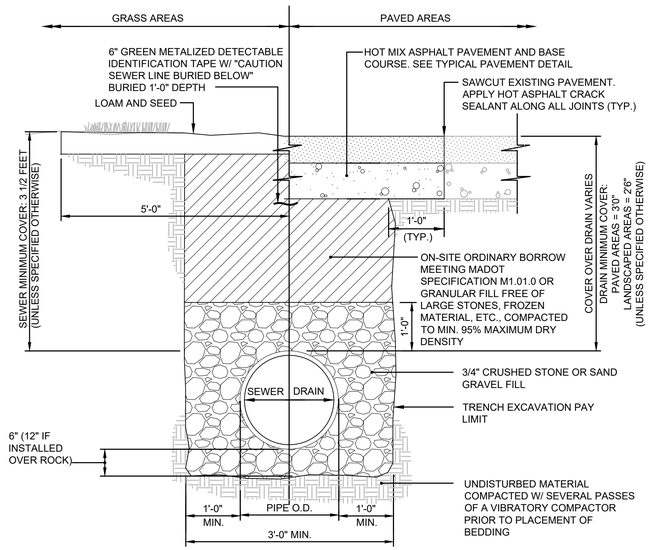
FULL DEPTH CONSTRUCTION

TOP COURSE:	1.5" SUPERPAVE SURFACE COURSE - 9.5
INTERMEDIATE COURSE:	2.5" SUPERPAVE INTERMEDIATE COURSE - 19.0
SUBBASE:	12" GRAVEL BORROW
SUBGRADE	SPECIAL BORROW AS REQUIRED BASED ON EXISTING SUBGRADE MATERIALS



TYPICAL SECTION WITH SPLIT RAIL FENCE

NOT TO SCALE

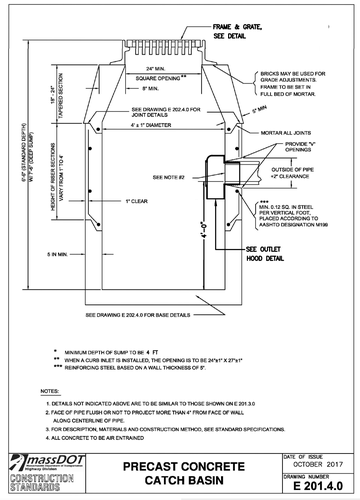


NOTES:

1. WHERE THE DISTANCE BETWEEN THE SAWCUT AND EDGE OF PAVEMENT IS 3' OR LESS, THE CONTRACTOR SHALL REPLACE THE PAVEMENT FROM THE TRENCH EDGE TO THE EXISTING EDGE OF PAVEMENT.
2. 3/4" DIA. CRUSHED STONE SHALL BE USED AS BEDDING WHERE TRENCH IS BELOW THE GROUND WATER TABLE.

GRAVITY SEWER/DRAIN TRENCH DETAIL

NOT TO SCALE

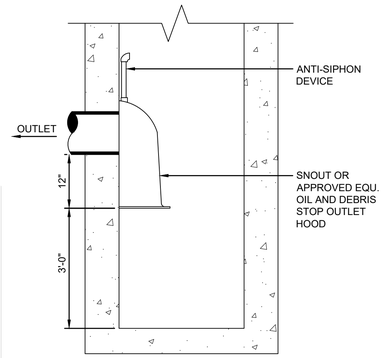


* MINIMUM DEPTH OF SUMP TO BE 4 FT.
** WHEN A CURB INLET IS INSTALLED, THE OPENING IS TO BE 24"x1" X 23"x1"
*** REINFORCING STEEL BASED ON A WALL THICKNESS OF 5"

NOTES:

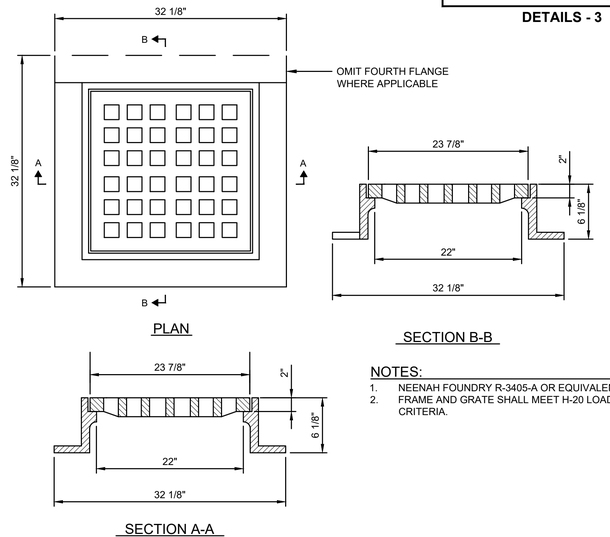
1. DETAILS NOT INDICATED ABOVE ARE TO BE SIMILAR TO THOSE SHOWN ON E 201.3.0
2. FACE OF PIPE FLUSH OR NOT TO PROJECT MORE THAN 4" FROM FACE OF WALL, ALONG CENTERLINE OF PIPE.
3. FOR DESCRIPTION, MATERIALS AND CONSTRUCTION METHOD, SEE STANDARD SPECIFICATIONS.
4. ALL CONCRETE TO BE AIR ENTRAINED

massDOT Highway Division CONSTRUCTION STANDARDS	PRECAST CONCRETE CATCH BASIN	DATE OF ISSUE OCTOBER 2017
		DRAWING NUMBER E 201.4.0



OUTLET HOOD DETAIL

NOT TO SCALE

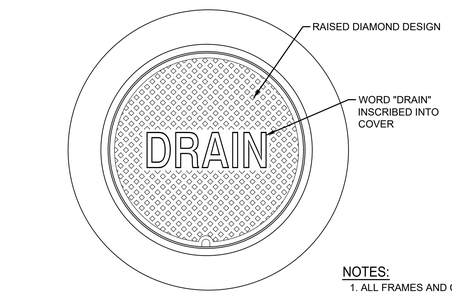


NOTES:

1. NEENAH FOUNDRY R-3405-A OR EQUIVALENT.
2. FRAME AND GRATE SHALL MEET H-20 LOADING CRITERIA.

SQUARE CATCH BASIN FRAME & GRATE

NOT TO SCALE

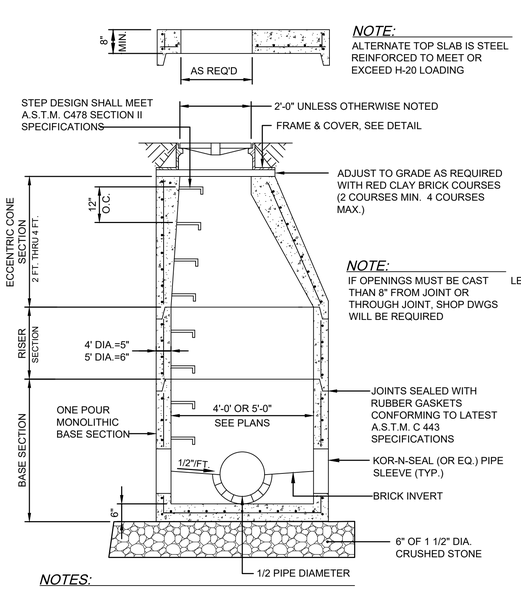


NOTES:

1. ALL FRAMES AND COVERS SHALL MEET H-20 LOADING CRITERIA.
2. PROVIDE:
   A: 24" DIA. DRAIN MANHOLE FRAME AND COVER SHALL BE NEENAH FOUNDRY, INC. MODEL #R-1556 OR APPROVED EQUIVALENT.
   B: 30" DIA. DRAIN MANHOLE FRAME AND COVER SHALL BE NEENAH FOUNDRY, INC. MODEL #R-1557 OR APPROVED EQUIVALENT.
3. ALL DRAIN MANHOLES SHALL HAVE 24" DIA. DRAIN MANHOLE COVER UNLESS NOTED OTHERWISE.

DRAIN MANHOLE FRAME & COVER

NOT TO SCALE

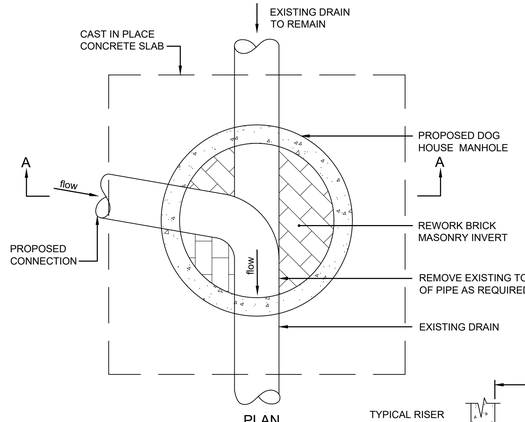


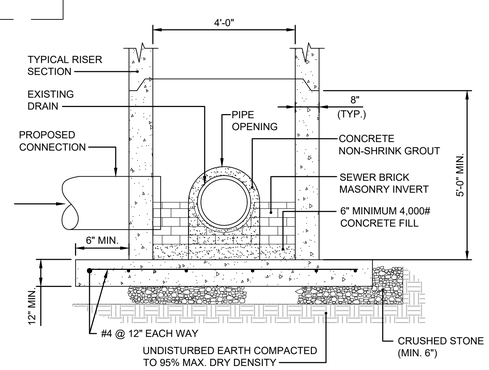
NOTES:

1. STEEL REINFORCEMENT FOR BASE SECTION SHALL BE 0.12 SQ. IN./LF.
2. CIRCUMFERENTIAL STEEL REINFORCEMENT SHALL BE 0.15 SQ. IN./LF MINIMUM.
3. STRUCTURE SHALL CONFORM TO MASS HIGHWAY SPECIFICATIONS.

TYPICAL DRAIN MANHOLE DETAIL

NOT TO SCALE





DOG-HOUSE MANHOLE BASE

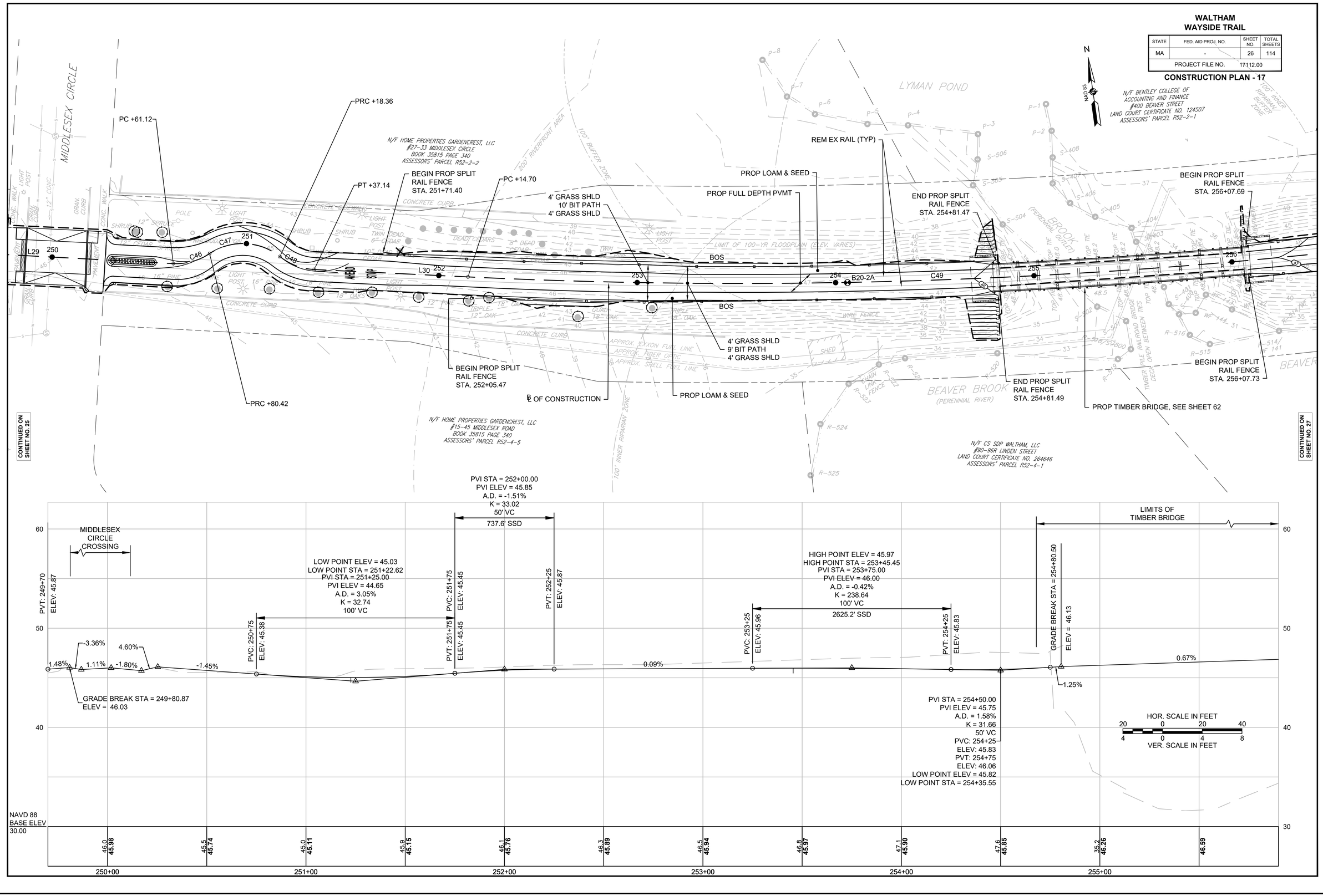
NOT TO SCALE

ATTACHMENT C

WALTHAM
WAYSIDE TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	26	114
PROJECT FILE NO.	17112.00		

CONSTRUCTION PLAN - 17



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WALTHAM
WAYSIDE TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	27	114
PROJECT FILE NO.	17112.00		

CONSTRUCTION PLAN - 18

CONTINUED ON SHEET NO. 26

CONTINUED ON SHEET NO. 28

NOTE:
LAND WITHIN THE LIMIT OF DISTURBANCE LIES WITHIN THE 200' RIVERFRONT AREA UNLESS OTHERWISE NOTED

B20-3C
REM EX RAIL (TYP)
N/F BENTLEY COLLEGE OF ACCOUNTING AND FINANCE #400 BEAVER STREET LAND COURT CERTIFICATE NO. 124507 ASSESSORS' PARCEL R52-2-1
BENCH MARK TOP, SW COR. CONC. BASE ELEV. 48.84
100' INNER RIPARIAN BUFFER ZONE
100' INNER RIPARIAN ZONE/BUFFER ZONE
4' GRASS SHLD
9' BIT PATH
4' GRASS SHLD
PROP LOAM & SEED
PROP FULL DEPTH PVMT
BOS
BOS
℄ OF CONSTRUCTION
PROP LOAM & SEED
4' GRASS SHLD
10' BIT PATH
4' GRASS SHLD
4' GRASS SHLD
10' BIT PATH
4' GRASS SHLD
2' GRASS SHLD
10' BIT PATH
2' GRASS SHLD
END PROP SPLIT RAIL FENCE STA. 260+28.46
PROP ACCESS RAMP, SEE SHEET 72
BEGIN PROP SPLIT RAIL FENCE STA. 261+52.76
PT +37.22
END PROP SPLIT RAIL FENCE STA. 260+28.42
BEGIN PROP SPLIT RAIL FENCE STA. 261+52.76
PROP LINDEN STREET BRIDGE, SEE SHEET 67
PC +70.90
LINDEN STREET
BEAVER BROOK
BEAVER BROOK (PERENNIAL RIVER)
LIMIT OF 100-YR FLOODPLAIN (ELEV. VARIES)
BORDERING VEGETATED WETLANDS
EDGE OF WETLANDS
PAVED SIDEWALK
GRANITE CURB
GRANITE BLOCK PAVEMENT
STEEL GIRDER TRUSS RAILROAD BRIDGE DECK OPEN BETWEEN TIES SEE DETAIL
CHAIN LINK FENCE
BENCH MARK SPIKE IN 14" OAK ELEV. 50.75
200' RIVERFRONT AREA
N/F V. #1 LAND COUR ASSESS
NAD 83
N

PVI STA = 256+40.00
PVI ELEV = 47.00
A.D. = 2.11%
K = 23.70
50' VC

HIGH POINT ELEV = 47.99
HIGH POINT STA = 257+05.07
PVI STA = 256+90.00
PVI ELEV = 48.10
A.D. = -2.75%
K = 18.21
50' VC
418.1' SSD

LOW POINT ELEV = 47.61
LOW POINT STA = 257+90.78
PVI STA = 258+00.00
PVI ELEV = 47.50
A.D. = 1.57%
K = 38.10
60' VC

PVI STA = 259+70.00
PVI ELEV = 49.25
A.D. = 2.37%
K = 21.09
50' VC

LIMITS OF LINDEN STREET BRIDGE

PVI STA = 262+30.00
PVI ELEV = 48.97
A.D. = 3.65%
K = 13.71
50' VC

GRADE BREAK STA = 256+06.78
ELEV = 46.97
PVC: 256+15
ELEV: 46.98
PVT: 256+65
ELEV: 47.55
PVC: 256+65
ELEV: 47.55
PVT: 257+15
ELEV: 47.96
PVC: 257+70
ELEV: 47.66
PVT: 258+30
ELEV: 47.81
PVC: 259+45
ELEV: 48.99
PVT: 259+95
ELEV: 50.10
GRADE BREAK STA = 260+51.69
ELEV = 51.26
GRADE BREAK STA = 261+52.76
ELEV = 51.65
PVC: 262+05
ELEV: 50.24

0.09%
-0.55%
1.03%
0.97%
0.39%
-0.55%

PVI STA = 260+20.00
PVI ELEV = 50.95
A.D. = -2.43%
K = 20.56
50' VC
PVC: 259+95
ELEV: 50.10
PVT: 260+45
ELEV: 51.19
468.7' SSD
HIGH POINT ELEV = 51.19
HIGH POINT STA = 260+45

PVI STA = 261+80.00
PVI ELEV = 51.50
A.D. = -4.51%
K = 11.08
50' VC
PVC: 261+55
ELEV: 51.64
PVT: 262+05
ELEV: 50.24
264.2' SSD
HIGH POINT ELEV = 51.64
HIGH POINT STA = 261+55

HOR. SCALE IN FEET
20 0 20 40
VER. SCALE IN FEET
4 0 4 8

NAVD 88
BASE ELEV
30.00

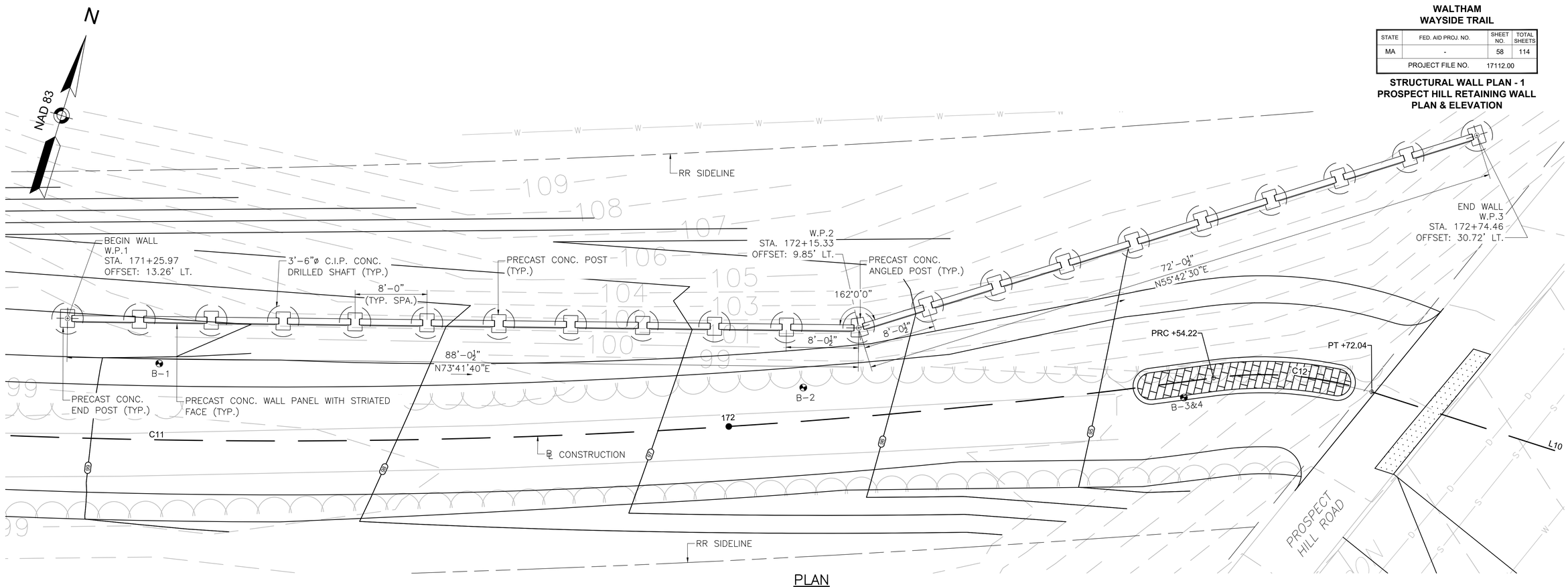
37.3	48.8	48.6	49.8	49.0	49.3	49.8	50.3	50.5	34.8	34.5	51.64	50.1
46.92	47.27	47.98	47.77	47.62	48.01	48.53	49.05	50.26	51.24	51.44		50.48

256+00 257+00 258+00 259+00 260+00 261+00 262+00

WALTHAM
WAYSIDE TRAIL

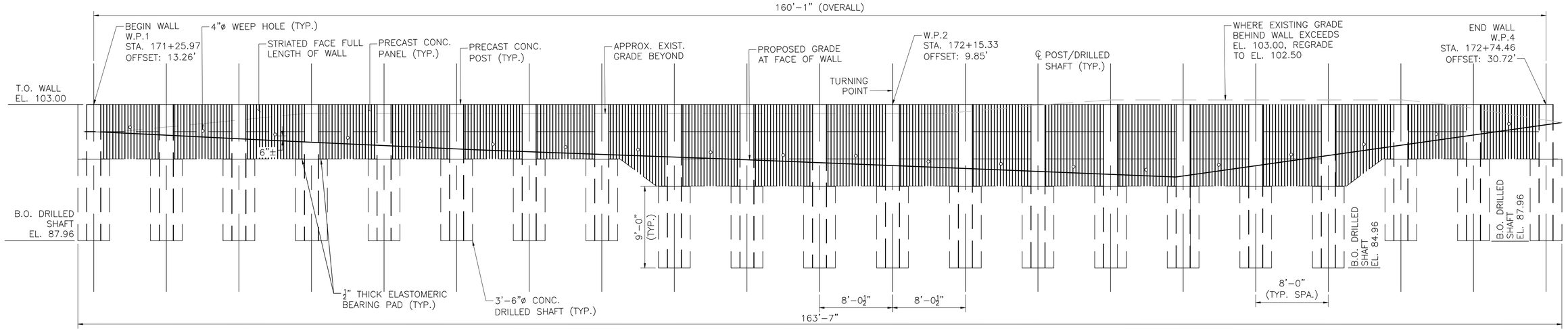
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	58	114
PROJECT FILE NO.	17112.00		

STRUCTURAL WALL PLAN - 1
PROSPECT HILL RETAINING WALL
PLAN & ELEVATION



PLAN
RETAINING WALL AT PROSPECT HILL ROAD

SCALE: 3/16"=1'-0"



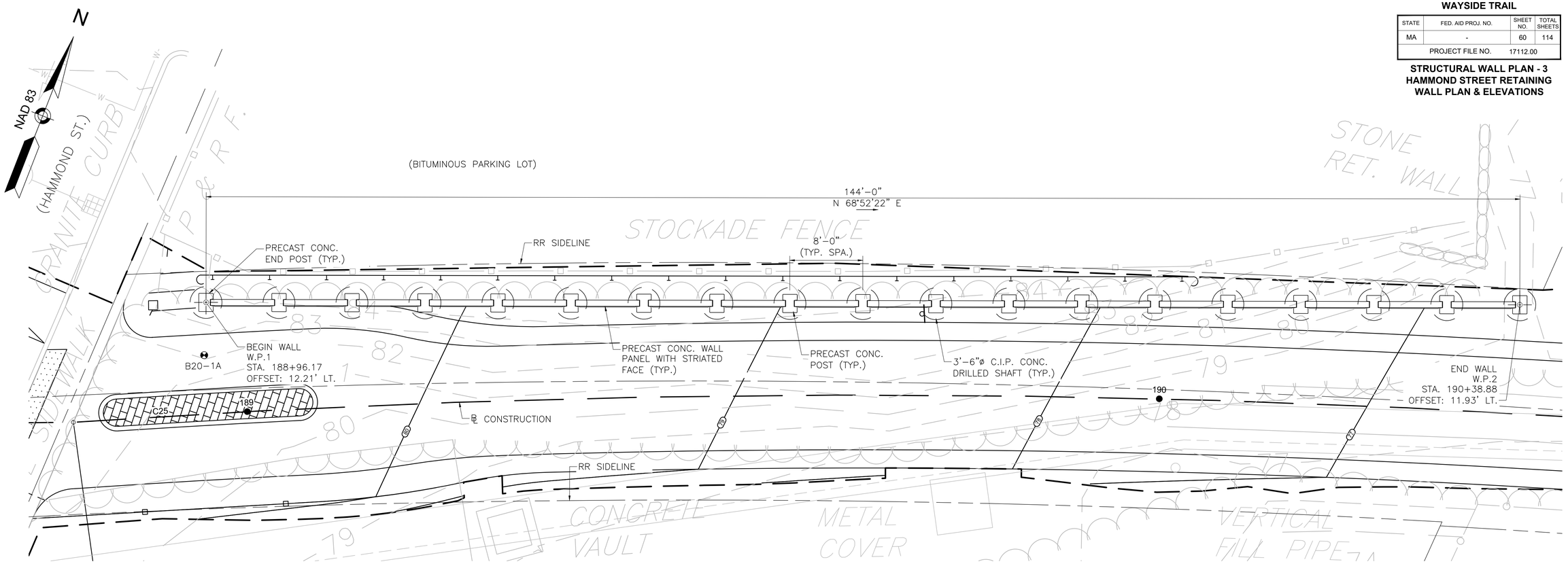
ELEVATION
RETAINING WALL AT PROSPECT HILL ROAD

SCALE: 3/16"=1'-0"

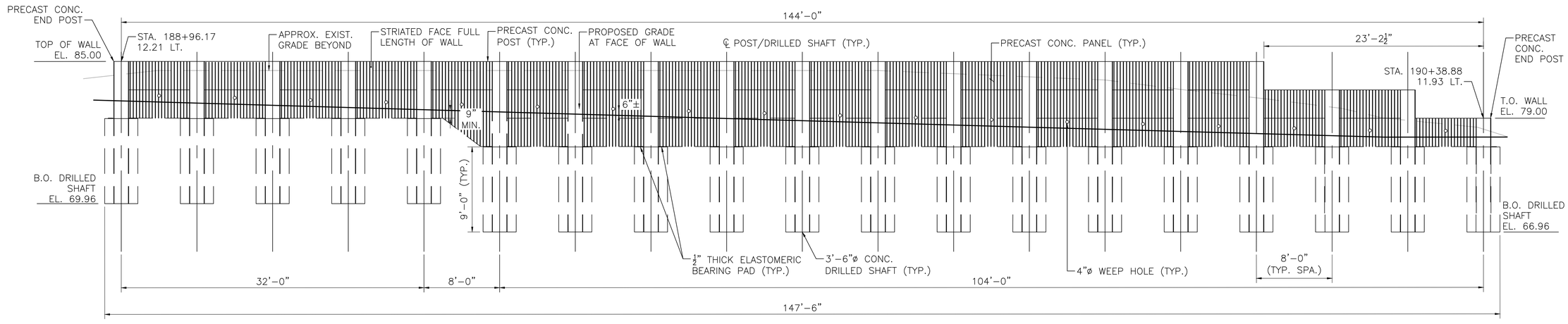
WALTHAM
WAYSIDE TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	60	114
PROJECT FILE NO.	17112.00		

STRUCTURAL WALL PLAN - 3
HAMMOND STREET RETAINING
WALL PLAN & ELEVATIONS



PLAN
RETAINING WALL AT HAMMOND STREET
SCALE: 3/16"=1'-0"



ELEVATION
RETAINING WALL AT HAMMOND STREET
SCALE: 3/16"=1'-0"

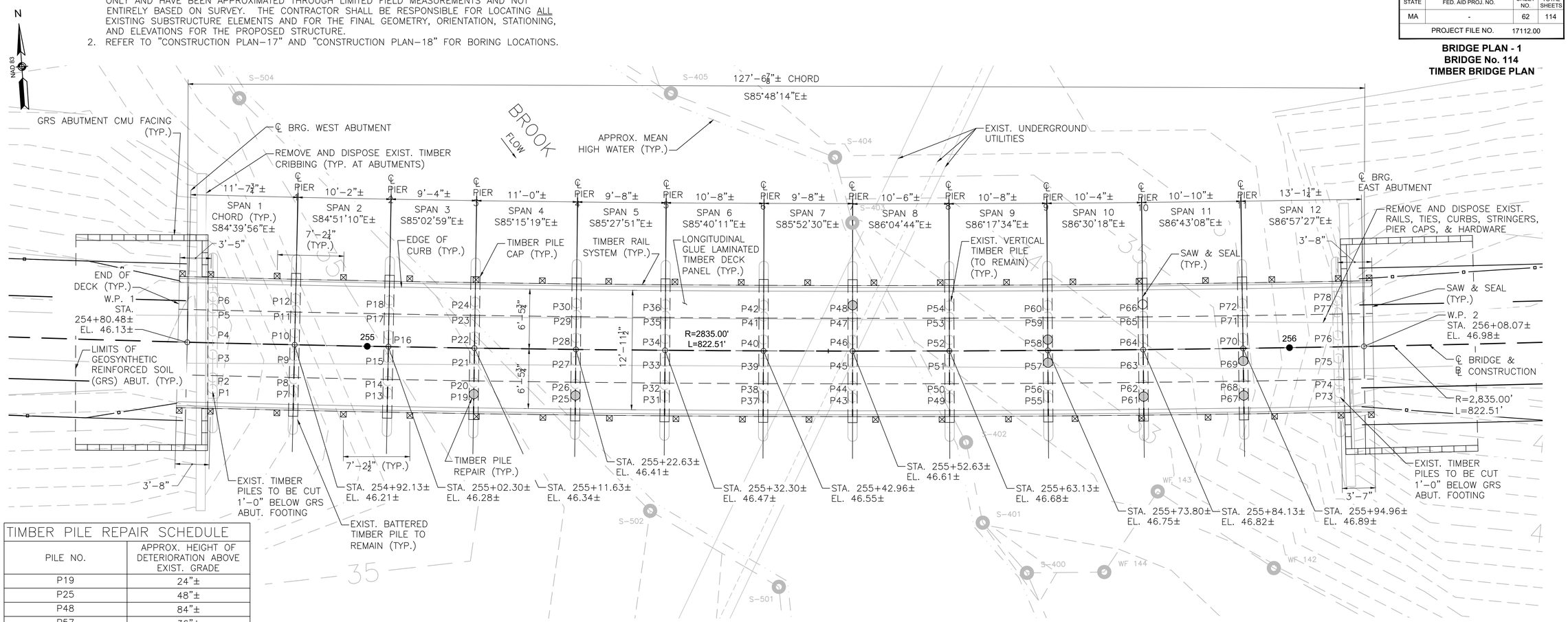
WAYSIDE TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	62	114
PROJECT FILE NO.	17112.00		

BRIDGE PLAN - 1
BRIDGE No. 114
TIMBER BRIDGE PLAN

NOTES:

1. BRIDGE ORIENTATION, STATIONING, AND ELEVATIONS ARE SHOWN FOR ESTIMATING PURPOSES ONLY AND HAVE BEEN APPROXIMATED THROUGH LIMITED FIELD MEASUREMENTS AND NOT ENTIRELY BASED ON SURVEY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL EXISTING SUBSTRUCTURE ELEMENTS AND FOR THE FINAL GEOMETRY, ORIENTATION, STATIONING, AND ELEVATIONS FOR THE PROPOSED STRUCTURE.
2. REFER TO "CONSTRUCTION PLAN–17" AND "CONSTRUCTION PLAN–18" FOR BORING LOCATIONS.

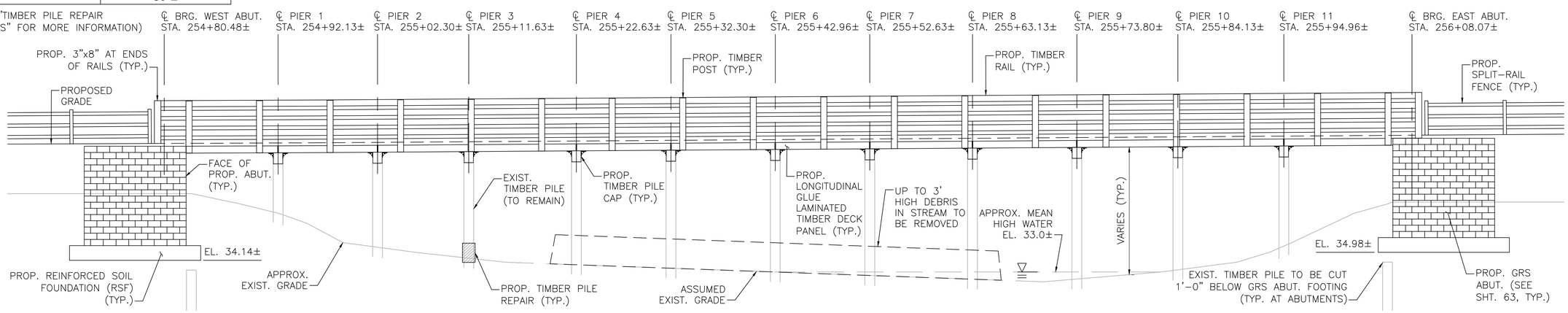


TIMBER PILE REPAIR SCHEDULE	
PILE NO.	APPROX. HEIGHT OF DETERIORATION ABOVE EXIST. GRADE
P19	24"±
P25	48"±
P48	84"±
P57	36"±
P58	36"±
P61	12"±
P66	36"±
P67	6"±
P69	36"±

(SEE "TIMBER PILE REPAIR DETAILS" FOR MORE INFORMATION)

PLAN VIEW

SCALE: 3/16" = 1"=0'



ELEVATION

SCALE: 3/16" = 1"=0'

HIGHWAY GUARD DETAILS	TRAFFIC SIGNAL CONDUIT	WATER SUPPLY ALTERATIONS	DRAINAGE DETAILS
NONE	SEE BELOW	SEE BELOW	SEE BELOW

WALTHAM WAYSIDE TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	16	76
PROJECT FILE NO.	17112.00		

BORING PLAN - 3

Plotted on 3-Aug-2018 9:22 AM
BORING PLAN - 3 (CONST PLAN - 9).DWG


PLAN FOR BORING LOCATION ONLY
N
NAD 83
PROP STORMWATER MANAGEMENT AREA
SEE SHEETS 39 AND 59 FOR TYP CROSSING DETAIL
N/F KAPLAN PROPERTIES, LLC
#19 ATHLETIC FIELD ROAD
BOOK 46875 PAGE 475 (PARCEL NO. 8)
ASSESSORS' PARCEL R50-28-1
PC +13.29
PT +59.06
PC +19.09
PT +65.51
PC +32.91
REM EX RAIL (TYP)
PROP LOAM & SEED
PROP FULL DEPTH PVMT
BACON STREET
B8
BOS
L21
L22
L23
C26
C27
C28
C29
C30
200
201
202
203
204
205
206
PROP STORMWATER MANAGEMENT AREA
BENCH MARK SPIKE IN POLE #14X ELEV. 67.05
PRC +34.53
PRC +40.58
PT +46.24
℄ OF CONSTRUCTION
PROP LOAM & SEED
CHAIN LINK FENCE
CONCRETE BLOCK RETAINING WALL (ON RAILROAD TRACK)
ABANDONED TRACK
GRAVEL DRIVE
APPROX. EXXON FUEL LINE
APPROX. FIBER OPTIC
APPROX. SHELL FUEL LINE
EXISTING BUILDING
N/F OHNEMUS FAMILY LIMITED PARTNERSHIP
#115 BACON STREET
BOOK 30136 PAGE 73
ASSESSORS' PARCEL R50-29-1
CONTINUED ON SHEET NO. 39
CONTINUED ON SHEET NO. 41
BACON STREET CROSSING
GRADE BREAK STA = 200+67.19
ELEV = 66.32
PVC: 201+30.64
ELEV: 66.05
PVI STA = 201+80.64
PVI ELEV = 64.42
A.D. = 2.05%
K = 48.78
100' VC
PVT: 202+30.64
ELEV: 63.82
-1.77%
-0.43%
5.81%
-3.25%
-1.20%
HOR. SCALE IN FEET
VER. SCALE IN FEET
NAVD 88 BASE ELEV 50.00
80
70
60
50
66.5 66.47
66.1 66.08
65.4 65.45
64.3 64.28
63.6 63.59
63.2 62.99
62.8 62.39
62.5 61.79
61.7 61.19
61.2 60.59
60.7 59.99
59.5 59.39
201+00
202+00
203+00
204+00
205+00
206+00

HIGHWAY GUARD DETAILS	TRAFFIC SIGNAL CONDUIT	WATER SUPPLY ALTERATIONS	DRAINAGE DETAILS
NONE	SEE BELOW	SEE BELOW	SEE BELOW

PLAN FOR BORING LOCATION ONLY

WALTHAM
WAYSIDE TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	18	76
PROJECT FILE NO.	17112.00		

BORING PLAN - 4

N
NAD 83
PRC +68.55
PT +87.47
PROP FULL DEPTH PVMT
N/F NICHOLAS DELEGAS AND GEORGE DELEGAS #146 LEXINGTON STREET BOOK 26498 PAGE 320 ASSESSORS' PARCEL R51-6-7
PROP LOAM & SEED
REM EX RAIL (TYP)
PRC +45.40
PC +50.04
SEE SHEETS 39 AND 59 FOR TYP CROSSING DETAIL
N/F CITY OF WALTHAM #155-175 LEXINGTON STREET BOOK 10064 PAGE 235 ASSESSORS' PARCEL R51-2-18
N/F 26-42 EMERSON ROAD REALTY TRUST #42 EMERSON ROAD BOOK 41507 PAGE 254 ASSESSORS' PARCEL R51-6-8
BENCH MARK SPIKE IN 8" OAK ELEV. 50.66
EXISTING BUILDING
EDGE OF PAVEMENT
BERM
PROP GRANITE CURB
PAVED PARKING
BUILDING
BOULDER
L24
213
C32
C33
214
215
L25
216
C34
C35
L26
217
218
C36
B10
B9
TOS
ABANDONED TRACK
CONCRETE BLOCK RETAINING WALL
CHAIN LINK FENCE
APPROX. EXXON FUEL LINE
APPROX. FIBER OPTIC
APPROX. SHELL FUEL LINE
PROP SPLIT RAIL FENCE (TYP)
℄ OF CONSTRUCTION
PROP LOAM & SEED
N/F WALTHAM CROSSING NOMINEE TRUST #130 LEXINGTON STREET BOOK 47358 PAGE 556 ASSESSORS' PARCEL R51-7-1
LEXINGTON STREET
PC +29.73
PT +61.18
PC +50.26
N/F 131 LEXINGTON STREET CONDOMINIUM #131 LEXINGTON STREET MASTER DEED BOOK 47314 PAGE 223 ASSESSORS' PARCEL R51-8-26
PVI STA = 216+30.64
PVI ELEV = 48.02
A.D. = -4.85%
K = 10.32
50' VC
247.7' SSD
LEXINGTON STREET CROSSING
HOR. SCALE IN FEET
20 0 20 40
4 0 4 8
VER. SCALE IN FEET
PVC: 216+05.64 ELEV: 48.06
PVT: 216+55.64 ELEV: 46.77
GRADE BREAK STA = 216+64.77 ELEV = 46.32
PVC: 217+20.64 ELEV: 46.38
PVT: 218+40.64 ELEV: 48.94
HIGH POINT ELEV = 49.00
HIGH POINT STA = 218+25.41
PVI STA = 217+80.64
PVI ELEV = 49.38
A.D. = -5.72%
K = 20.98
120' VC
248.7' SSD
PVI STA = 213+05.64
PVI ELEV = 48.52
A.D. = 1.75%
K = 114.49
200' VC
PVT: 214+05.64 ELEV: 48.37
-0.15%
-5.00%
-1.28%
-0.13%
8.54%
4.99%
70
60
50
40
NAVD 88 BASE ELEV 40.00
49.8 49.02
49.2 48.59
48.8 48.38
48.9 48.30
48.5 48.22
48.1 48.15
48.3 48.07
48.1 47.04
45.5 45.50
49.4 47.64
49.5 48.84
48.9 48.87
213+00
214+00
215+00
216+00
217+00
218+00

CONTINUED ON SHEET NO. 41

CONTINUED ON SHEET NO. 43

Plotted on 3-Aug-2018 9:33 AM
BORING PLAN - 4 (CONST PLAN - 11).DWG

(603) 437-1610 **New England Boring Contractors** **Fax: (603) 437-0034**
P.O. Box 165
Derry, NH 03038

Boring # B-1 **Project**: Pare Corp. Rail Trail Drilling **NEBC Project #** 155431

Project Address: Prospect Hill Road **City:** Waltham **State:** MA **Zip:**

Date Start: 09-06-18 **Date End:** 08-07-18 **Location:**

Augers: HSA	**Sampler:**	140lbs	**Sampler:**
Size: 4.25”	S/S	Fall:30”	1-3/8 in. I.D.
Hammer: Fall:			30 in.

G R O U N D W A T E R O B S E R V A T I O N

Date: 8/07/18	**Depth:** None Recorded	**Casing:**	**Stabilization Period**

DP	S./#	DEPTH	PEN	REC	BLOWS/6”	S/C	SAMPLE DESCRIPTION
-						1.5”	TOPSOIL
-	S-1	0’ – 2’	24”	8”	4-9-15-25		Dry, medium dense, brown FINE TO COARSE SAND, little fine to medium gravel, trace silt.
-	S-2	2’ – 2’2”	2”	2”	100/2”		Dry, very dense, brown FINE TO COARSE SAND, little fine to medium gravel, trace silt.
2’6”							
-	S-3	4’ – 6’	24”	8”	14-18-30-43		Moist, dense, dark gray FINE TO COARSE SAND and fine to coarse gravel, little silt.
5’0”							
-	S-4	6’ – 6’3”	3”	3”	100/3”		Moist, very dense, dark gray FINE TO COARSE SAND and fine to coarse gravel, little silt.
-	S-5	8’ – 9’11”	23”	16”	20-32-87-100/5”		Moist, dense, dark gray to brown FINE TO COARSE SAND and fine to medium gravel.
10’0”					Coring Times	11’4”	Top of possible BEDROCK at 11’4”
-					Min per ft.		Advanced roller bit to 13’ and began coring
-	C-1	13’ – 18’	60”	53”	4		Core bit dropped at 17’8”, sent spoon down the hole and recovered soil from boring. Could not wash out hole, could not advance 3’ casing.
-					4		
-					4		
15’0”					4		
-					4		
-	S-6	18’ – 18’5”	5”	2”	100/5”		Wet, very dense, gray FINE TO COARSE SAND and fine to medium gravel, some silt.
-							
-							Bottom of Exploration = 18’5”
-							
-							
-							
-							
-							
-							

Drillers. Benjamin Cross **Helper:** Nick Raiche

Remarks: boring log not to scale.

#: Sample **PEN:** Penetration **REC:** Recovery **S/C:** Strata Change

(603) 437-1610 **New England Boring Contractors** **Fax: (603) 437-0034**
P.O. Box 165
Derry, NH 03038

Boring # B-2 **Project**: Pare Corp. Rail Trail Drilling **NEBC Project #** 155431

Project Address: Prospect Hill Road **City:** Waltham **State:** MA **Zip:**

Date Start: 09-10-18 **Date End:** 09-10-18 **Location:**

Casing: HW 4" **Sampler:** S/S 140lbs Fall:30" **Sampler:** 1-3/8 in. I.D. 30 in.

Hammer: 300 lb. Fall: 24"

G R O U N D W A T E R O B S E R V A T I O N

Date: 8/10/18	**Depth:** 2'6"	**Casing:**	**Stabilization Period**

DP	S./#	DEPTH	PEN	REC	BLOWS/6"	S/C	SAMPLE DESCRIPTION
-						2"	TOPSOIL, trace roots.
-	S-1	0' – 2'	24"	13"	1-6-19-30		Dry, medium dense, brown FINE TO COARSE SAND, some fine to medium gravel, trace silt.
-	S-2	2' – 3'10"	22'	18"	75-62-73		Dry, very dense, gray FINE TO COARSE SAND and fine to
2'6"					100/4"	3'10"	medium gravel, trace silt.
-							Hit BEDROCK, roller bit and casing refusal at 3'10"
-					Coring Times		Advanced to 4' and began coring.7
-					Min per ft.		
-	C-1	4' – 9'	60"	60"	3		BEDROCK
5'0"					4		Percent Recovery = 100%
-					3		
-					3		
-					4		
-	C-1	4' – 9'	60"	60"	3		BEDROCK
10'0"					4		Percent Recovery = 100%
-					3		
-					3		
-					4	14'	
-							Bottom of Exploration = 14'
-							
-							
-							
-							
-							
-							
-							
-							
-							
-							
-							

Drillers. Benjamin Cross **Helper:** Nick Raiche

Remarks: boring log not to scale.

#: Sample **PEN:** Penetration **REC:** Recovery **S/C:** Strata Change

(603) 437-1610 **New England Boring Contractors** **Fax: (603) 437-0034**
P.O. Box 165
Derry, NH 03038

Boring # B-3&4 **Project**: Pare Corp. Rail Trail Drilling **NEBC Project #** 155431

Project Address: Prospect Hill Road **City:** Waltham **State:** MA **Zip:**

Date Start: 09-10-18 **Date End:** 09-11-18 **Location:**

Casing: HW 4" **Sampler:** S/S 140lbs Fall:30" **Sampler:** 1-3/8 in. I.D. 30 in.

Hammer: 300 lb. Fall: 24"

G R O U N D W A T E R O B S E R V A T I O N

Date: 8/11/18	**Depth:** None Recorded	**Casing:**	**Stabilization Period**

DP	S./#	DEPTH	PEN	REC	BLOWS/6"	S/C	SAMPLE DESCRIPTION
-						2"	TOPSOIL, trace roots and leaves.
-	S-1	0' – 2'	24"	18"	1-3-18-26		Dry, medium dense, brown FINE TO COARSE SAND, trace fine to medium gravel, trace silt.
-	S-2	2' – 2'11"	11"	9"	50-100/5"		Dry, very dense, gray-white, FINE TO COARSE SAND,
2'6"						2'11"	some fine to medium gravel, trace silt.
-							Encountered very fractured BEDROCK from 2'11" to 7'6", chased the casing to get a seal on the rock. Sealed the 4" casing at 7'6", advanced roller bit to 8' and began coring.
-							
-							
-							
5'0"							
-					Coring Times		
-					Min per Ft.		
-	C-1	8' – 13'	60"	60"	3		BEDROCK
-					3		Percent Recovery = 100%
10'0"					4		
-					3		
-					4		
-	C-2	13' – 18'	60"	48"	6		BEDROCK
-					4		Percent Recovery = 80%
15'0"					5		
-					6		
-					6	18'	
-							Bottom of Exploration = 18'
-							
-							
-							
-							
-							
-							
-							
-							

Drillers. Benjamin Cross **Helper:** Nick Raiche

Remarks: boring log not to scale.

#: Sample **PEN:** Penetration **REC:** Recovery **S/C:** Strata Change

(603) 437-1610 **New England Boring Contractors** **Fax: (603) 437-0034**
P.O. Box 165

Derry, NH 03038

Boring # B-8 **Project**: Pare Corp. Rail Trail Drilling **NEBC Project #** 155431

Project Address: Bacon Street **City:** Waltham **State:** MA **Zip:**

Date Start: 09-11-18 **Date End:** 09-11-18 **Location:**

Casing: HW 4" **Sampler:** S/S 140lbs Fall:30" **Sampler:** 1-3/8 in. I.D. 30 in.

Hammer: 300 lb. Fall: 24"

G R O U N D W A T E R O B S E R V A T I O N

Date: 9/11/18	**Depth:** 6.5'	**Casing:**	**Stabilization Period**

DP	S./#	DEPTH	PEN	REC	BLOWS/6"	S/C	SAMPLE DESCRIPTION
-						1.5"	TOPSOIL, trace roots and leaves.
-	S-1	0' – 2'	24"	18"	1-3-18-26		Dry, medium dense, brown FINE TO COARSE SAND, trace fine to medium gravel, trace silt.
-	S-2	2' – 4'	24"	8"	8-7-13-28		Dry, medium dense, light brown FINE TO COARSE SAND, little fine gravel, trace silt.
2'6"							
-	S-3	4' - 4'3"	3"	2"	100/3"		Moist, very dense, gray FINE TO COARSE SAND, little fine to coarse medium gravel, some silt.
5'0"							
-	S-4	6' – 6'9"	9"	3"	36-100/3"		Moist, very dense, gray FINE TO COARSE SAND, little fine to medium gravel, trace silt, (Till.)
7'6"							
-	S-5	8' – 10'	24"	6"	32-28-25-33		Wet, very dense, gray, FINE TO COARSE SAND, some fine to medium gravel, trace some silt.
-	S-6	14' – 16'	24"	2"	11-13-12-12		Wet, medium dense, light brown FINE TO COARSE SAND,
15'0"						16'	some fine to coarse gravel, little silt.
-							Bottom of Exploration = 16'

Drillers. Benjamin Cross **Helper:** Nick Raiche

Remarks: boring log not to scale.

#: Sample **PEN:** Penetration **REC:** Recovery **S/C:** Strata Change

(603) 437-1610 **New England Boring Contractors** **Fax: (603) 437-0034**
P.O. Box 165

Derry, NH 03038

Boring # B-9 **Project**: Pare Corp. Rail Trail Drilling **NEBC Project #** 155431

Project Address: 130 Lexington Avenue **City:** Waltham **State:** MA **Zip:**

Date Start: 09-05-18 **Date End:** 09-06-18 **Location:**

Casing: HW 4" **Sampler:** S/S 140lbs Fall:30" **Sampler:** 1-3/8 in. I.D. 30 in.

Hammer: 300 lb. Fall: 24"

G R O U N D W A T E R O B S E R V A T I O N

Date: 9/06/18	**Depth:** 4'	**Casing:**	**Stabilization Period**

DP	S./#	DEPTH	PEN	REC	BLOWS/6"	S/C	SAMPLE DESCRIPTION
-						1.5"	TOPSOIL, grass roots.
-	S-1	0' – 2'	24"	8"	6-12-11-8		Dry, medium dense, brown FINE TO COARSE SAND, trace fine gravel, trace silt.
-	S-2	2' – 4'	24"	15"	19-17-16-13		Dry, dense, brown, FINE TO COARSE SAND, some fine to medium gravel, trace silt, (Fill.)
2'6"							
-	S-3	4' – 6'	24"	13"	4-9-3-2		Wet, medium dense, brown FINE TO COARSE SAND, some fine to medium gravel, trace silt.
5'0"							
-	S-4	6' – 8'	24"	9"	5-7-10-9		Wet, medium dense, brown FINE TO COARSE SAND, some fine to medium gravel, trace silt.
7'6"							
-	S-5	8' – 10'	24"	8"	10-18-28-30		Wet, dense, light brown FINE TO COARSE SAND, some fine to medium gravel, trace silt.
-	S-6	14' – 16'	24"	16"	22-25-27-31		Wet, very dense, gray FINE TO COARSE SAND and fine to medium gravel, little silt.
15'0"						16'	
							Bottom of Exploration = 16'

Drillers. Benjamin Cross **Helper:** Nick Raiche

Remarks: boring log not to scale.

#: Sample **PEN:** Penetration **REC:** Recovery **S/C:** Strata Change

(603) 437-1610 **New England Boring Contractors** **Fax: (603) 437-0034**
P.O. Box 165
Derry, NH 03038

Boring # B-10 **Project**: Pare Corp. Rail Trail Drilling **NEBC Project #** 155431

Project Address: 130 Lexington Avenue **City:** Waltham **State:** MA **Zip:**

Date Start: 09-05-18 **Date End:** 09-06-18 **Location:**

Casing: HW 4" **Sampler:** S/S 140lbs Fall:30" **Sampler:** 1-3/8 in. I.D. 30 in.

Hammer: 300 lb. Fall: 24"

G R O U N D W A T E R O B S E R V A T I O N

Date: 9/06/18	**Depth:** 5'8"	**Casing:**	**Stabilization Period**

DP	S./#	DEPTH	PEN	REC	BLOWS/6"	S/C	SAMPLE DESCRIPTION
-						2.5"	TOPSOIL
-	S-1	0' – 2'	24"	8"	6-8-5-6		Dry, medium dense, brown FINE TO COARSE SAND, little fine to coarse gravel, trace silt, trace roots.
-	S-2	2' – 4'	24"	4"	4-8-7-6		Dry, medium dense, FINE TO COARSE SAND, trace fine gravel, trace silt, trace roots.
2'6"							
-	S-3	4' – 6'	24"	8"	4-5-4-4		Moist, loose, light brown FINE TO COARSE SAND, trace fine gravel, trace silt.
5'0"							
-	S-4	6' – 8'	24"	15"	6-6-6-6		Moist, medium dense, light brown to gray, FINE TO COARSE SAND, little fine to medium gravel, trace silt.
7'6"							
-	S-5	8' – 10'	24"	2"	5-5-6-7		Wet, medium dense, light brown FINE TO COARSE SAND, little fine to medium gravel, trace silt.
-	S-6	14' – 16'	24"	8"	5-4-6-8		Wet, medium dense, light brown FINE TO COARSE SAND, trace fine gravel, trace silt.
15'0"						16'	
-							Bottom of Exploration = 16'

Drillers. Benjamin Cross **Helper:** Nick Raiche

Remarks: boring log not to scale.

#: Sample **PEN:** Penetration **REC:** Recovery **S/C:** Strata Change

(603) 437-1610 **New England Boring Contractors** **Fax: (603) 437-0034**
P.O. Box 165
Derry, NH 03038

Boring # B-12 **Project**: Pare Corp. Rail Trail Drilling **NEBC Project #** 155431

Project Address: 131 Linden Street **City:** Waltham **State:** MA **Zip:**

Date Start: 09-04-18 **Date End:** 09-05-18 **Location:**

Casing: HW 4" **Sampler:** S/S 140lbs Fall:30" **Sampler:** 1-3/8 in. I.D. 30 in.

Hammer: 300 lb. Fall: 24"

G R O U N D W A T E R O B S E R V A T I O N

Date: 9/05/18	**Depth:** 5'8"	**Casing:**	**Stabilization Period**

DP	S./#	DEPTH	PEN	REC	BLOWS/6"	S/C	SAMPLE DESCRIPTION
-						2.5"	TOPSOIL
-	S-1	0' – 2'	24"	15"	7-10-18-17		Dry, medium dense, brown FINE TO COARE SAND, trace fine gravel, trace silt, trace ash.
-	S-2	2' – 4'	24"	15"	9-18-18-20		Dry, dense, light brown FINE TO COARSE SAND, trace silt, trace ash.
2'6"							
-	S-3	4' – 6'	24"	9"	4-4-1-1		Moist, loose, FINE TO COARSE SAND, trace silt.
5'0"							
-	S-4	6' – 8'	24"	13"	1-1-2-2		Wet, very loose, FINE TO COARSE SAND, some organic matter, trace roots dark brown, trace fine gravel, trace silt.
7'6"							
-	S-5	8' – 10'	24"	15"	3-9-7-7		Wet, medium dense, gray FINE TO COARSE SAND, trace silt, little organic matter, trace roots dark brown, trace silt.
-	S-6	14' – 16'	24"	6"	5-6-8-8		Wet, medium dense, light gray FINE TO COARSE SAND, trace silt
15'0"							
-	S-7	19' – 21'	24"	14"	6-7-7-8		Wet, medium dense, light brown FINE TO COARSe SAND, little silt.
-						24'	
-	S-8	24' – 26'	24"	16"	6-8-7-7		Wet, medium dense, gray FINE SAND, little silt.
-	S-8	29' – 31'	24"	9"	9-22-13-19		Wet, dense, gray, FINE TO COARSE SAND, little fine to.
-						31'	medium gravel, little silt
-							Bottom of Exploration = 31'

Drillers. Benjamin Cross **Helper:** Nick Raiche

Remarks: boring log not to scale.

#: Sample **PEN:** Penetration **REC:** Recovery **S/C:** Strata Change

(603) 437-1610 **New England Boring Contractors** **Fax: (603) 437-0034**
P.O. Box 165

Derry, NH 03038

Boring # B-13 **Project**: Pare Corp. Rail Trail Drilling **NEBC Project #** 155431

Project Address: 131 Linden Street **City:** Waltham **State:** MA **Zip:**

Date Start: 09-04-18 **Date End:** 09-04-18 **Location:**

Casing: HW 4" **Sampler:** S/S 140lbs Fall:30" **Sampler:** 1-3/8 in. I.D. 30 in.

Hammer: 300 lb. Fall: 24"

G R O U N D W A T E R O B S E R V A T I O N

Date: 9/05/18	**Depth:** 5'4"	**Casing:**	**Stabilization Period**

DP	S./#	DEPTH	PEN	REC	BLOWS/6"	S/C	SAMPLE DESCRIPTION
-						2.5"	TOPSOIL, roots and leaves.
-	S-1	0' – 2'	24"	8"	13-18-30-18		Dry, dense, FINE TO COARSE SAND, trace fine gravel, trace dark brown silt.
-	S-2	2' – 4'	24"	16"	21-15-12-16		Dry, medium dense FINE TO COARSE SAND, trace fine gravel, trace silt, trace dark brown to light brown sand.
2'6"							
-							
-						4'	
-	S-3	4' – 6'	24"	0"	5-2-1-1		No recovery (possibly organic matter), very loose.
-							
5'0"							
-							
-	S-4	6' – 8'	24"	1"	1-1-1-12		Wet, very loose, dark brown FINE TO COARSE SAND, trace gravel, trace silt, small recovery came out of organics at 7.5', rock stuck in tip of spoon.
-							
7'6"							
-	S-5	8' – 10'	24"	16"	5-6-8-10		Wet, medium dense, gray FINE TO COARSE SAND, trace sand.
-							
-							
-	S-6	14' – 16'	24"	8"	7-7-7-9		Wet, medium dense, gray FINE TO COARSE SAND, trace sand.
15'0"							
-							
-						19'	
-	S-7	19' – 21'	24"	13"	5-5-4-5		Wet, loose, gray FINE SAND, little silt.
-							
-							
-	S-8	24' – 26'	24"	12"	9-12-11-14		Wet, medium dense gray, VERY FINE SAND, some silt.
-							
-							
-						27'8"	Roller bit refusal at 27'8", spoon refusal 100/.25"
-							Bottom of Exploration = 27'8"
-							
-							

Drillers. Benjamin Cross **Helper:** Nick Raiche

Remarks: boring log not to scale.

#: Sample **PEN:** Penetration **REC:** Recovery **S/C:** Strata Change

Pare Corporation
10 Lincoln Road, Suite 210
Foxboro, MA 02035
T: 508-543-1755
F: 508-543-1881

BORING NUMBER B20-1A

CLIENT City of Waltham
PROJECT NAME Waltham Wayside Trail
PROJECT NUMBER 17112.00
PROJECT LOCATION Waltham, MA
DATE STARTED 3/3/20 **COMPLETED** 3/3/20
GROUND ELEVATION 82 ft **HOLE SIZE** 4 in.
DRILLING CONTRACTOR Northern Drilling Service, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Wash & Drive/NX Coring
AT TIME OF DRILLING ---
LOGGED BY JPN **CHECKED BY** RKM
AT END OF DRILLING 14.70 ft / Elev 67.30 ft
BORING LOCATION Hammond Street

DEPTH (ft)	CASING (bl/ft)	SAMPLE TYPE NUMBER	RECOVERY/PEN. (in)	DEPTH (FT)	BLOW COUNTS/6"	MIN/FT	GRAPHIC LOG	SAMPLE DESCRIPTION	STRATUM DESCRIPTION
0		S-1	8 / 24	0 - 2	2-2-6-6 (8)			Topsoil	TOPSOIL
								Moist, loose, black to brown, fine to coarse SAND, some fine to coarse gravel, trace silt, little brick, trace organics.	FILL
		S-2	24 / 24	2 - 4	7-14-42-109 (56)			Moist, very dense, gray to brown, fine to coarse GRAVEL, some fine to coarse sand, trace silt.	
5		C-1	/	4 - 7		2 2 2		Boulder	BOULDER
		S-3	13 / 24	7 - 9	21-29-25-25 (54)			Wet, very dense, brown, fine to coarse SAND, some fine to coarse gravel, trace silt.	MORAINE
10		S-4	18 / 24	9 - 11	12-24-40-42 (64)			Wet, very dense, brown, fine to coarse SAND, some fine to coarse gravel, trace silt.	
15									WEATHERED BEDROCK (CAMBRIDGE SLATE)
		S-5	0 / 0	15 - 15	50/0"			No Recovery.	
		C-2	/	16 - 20		4 5.5 6		Strong, gray, Cambridge SLATE, fresh. REC = 86.7% RQD = 80%	BEDROCK (CAMBRIDGE SLATE)
20		C-3	/	20 - 22.2		5.5 3.5		Strong, gray, Cambridge SLATE, fresh. REC = 100% RQD = 100%	
25								Bottom of borehole at 22.2 feet.	
30									
35									

GRANULAR SOILS

BLOWS/FT	DENSITY
0 - 4	V. LOOSE
4 -10	LOOSE
10 - 30	M. DENSE
30 - 50	DENSE
>50	V. DENSE

COHESIVE SOILS

BLOWS/FT	CONSIST.
<2	V. SOFT
2 - 4	SOFT
4 - 8	M. STIFF
8 - 15	STIFF
15 - 30	V. STIFF
>30	HARD

REMARKS:
1.S-2: Possible cobble at bottom of sample.
2.C-1: Rollerbit 4' through boulder core. Wash changed to brown sand after roller bit punched through.
3.Driller rollerbit through weathered bedrock from 11'-15'.

BURMISTER CLASSIFICATION

TRACE	0 -10%
LITTLE	10 - 20%
SOME	20 - 35%
AND	35 - 50%

PERCENT BY WEIGHT

NOTES: 1) THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.
2) WATER LEVEL READINGS HAVE BEEN MADE IN THE DRILL HOLES AT TIMES AND UNDER CONDITIONS STATED ON THE BORING LOGS. FLUCTUATIONS IN THE LEVEL OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE.

Pare Corporation
10 Lincoln Road, Suite 210
Foxboro, MA 02035
T: 508-543-1755
F: 508-543-1881

BORING NUMBER B20-2A

CLIENT City of Waltham **PROJECT NAME** Waltham Wayside Trail
PROJECT NUMBER 17112.00 **PROJECT LOCATION** Waltham, MA
DATE STARTED 3/2/20 **COMPLETED** 3/2/20 **GROUND ELEVATION** 48 ft **HOLE SIZE** 4 in.
DRILLING CONTRACTOR Northern Drilling Service, Inc. **GROUND WATER LEVELS:**
DRILLING METHOD Wash & Drive/NX Coring **AT TIME OF DRILLING** ---
LOGGED BY JPN **CHECKED BY** RKM **AT END OF DRILLING** ---
BORING LOCATION Top of Timber Bridge Abutment

DEPTH (ft)	CASING (bl/ft)	SAMPLE TYPE NUMBER	RECOVERY/PEN. (in)	DEPTH (FT)	BLOW COUNTS/6"	MIN/FT	GRAPHIC LOG	SAMPLE DESCRIPTION	STRATUM DESCRIPTION
0		S-1	14 / 24	0 - 2	3-8-7-6 (15)			Moist, medium dense, black, fine to medium SAND, some fine to coarse gravel, trace silt, trace coarse sand.	
		S-2	1 / 24	2 - 4	8-5-9-8 (14)			Dry, medium dense, brown, fine to medium SAND, trace silt. (FILL)	
5		S-3	8 / 24	4 - 6	4-4-3-4 (7)			Wet, loose, brown, fine to coarse SAND, trace silt, trace fine gavel. (FILL)	
		S-4	11 / 24	6 - 8	7-5-4-4 (9)			Wet, loose, brown, fine to coarse SAND, little fine to coarse gravel, little silt. (FILL)	FILL
		S-5	9 / 24	8 - 10	4-2-4-3 (6)			Wet, loose, brown, fine to coarse SAND, little fine to coarse gravel, trace silt. (FILL)	
10		S-6	11 / 24	10 - 12	5-4-4-3 (8)			Wet, loose, brown, fine to coarse SAND, little fine to coarse gravel, trace silt. (FILL)	
								Wet, medium dense, brown, fine to coarse SAND, little silt, trace fine gravel.	
15		S-7	0 / 24	14 - 16	8-6-6-5 (12)				
20		S-8	0 / 24	19 - 21	5-2-2-3 (4)			8A: Very loose, No Recovery. 8B: Wet, very loose, black to brown, fine to coarse GRAVEL and fine to coarse SAND, little silt.	
25		S-9	9 / 24	24 - 26	5-8-9-9 (17)			Wet, medium dense, gray, fine SAND, little silt, trace gravel, trace medium to coarse sand.	OUTWASH
30		S-10	11 / 24	29 - 31	6-6-6-6 (12)			Wet, medium dense, gray, fine SAND, little silt, trace fine to coarse gravel.	
								Bottom of borehole at 31.0 feet.	
35									

GRANULAR SOILS

BLOWS/FT	DENSITY
0 - 4	V. LOOSE
4 -10	LOOSE
10 - 30	M. DENSE
30 - 50	DENSE
>50	V. DENSE

COHESIVE SOILS

BLOWS/FT	CONSIST.
<2	V. SOFT
2 - 4	SOFT
4 - 8	M. STIFF
8 - 15	STIFF
15 - 30	V. STIFF
>30	HARD

REMARKS:
1.S-2: <1" recovery.
2.S-4: Layering observed.
3.S-7: Orange layer 4" from top.

BURMISTER CLASSIFICATION

TRACE	0 -10%
LITTLE	10 - 20%
SOME	20 - 35%
AND	35 - 50%

PERCENT BY WEIGHT

NOTES: 1) THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.
2) WATER LEVEL READINGS HAVE BEEN MADE IN THE DRILL HOLES AT TIMES AND UNDER CONDITIONS STATED ON THE BORING LOGS. FLUCTUATIONS IN THE LEVEL OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE.

Pare Corporation
10 Lincoln Road, Suite 210
Foxboro, MA 02035
T: 508-543-1755
F: 508-543-1881

BORING NUMBER B20-3C

CLIENT City of Waltham
PROJECT NAME Waltham Wayside Trail
PROJECT NUMBER 17112.00
PROJECT LOCATION Waltham, MA
DATE STARTED 3/2/20 **COMPLETED** 3/2/20
GROUND ELEVATION 36 ft **HOLE SIZE** 4 in.
DRILLING CONTRACTOR Northern Drilling Service, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Wash & Drive/NX Coring
AT TIME OF DRILLING ---
LOGGED BY JPN **CHECKED BY** RKM
AT END OF DRILLING 7.00 ft / Elev 29.00 ft
BORING LOCATION Bottom of Timber Bridge Abutment

DEPTH (ft)	CASING (bl/ft)	SAMPLE TYPE NUMBER	RECOVERY/PEN. (in)	DEPTH (FT)	BLOW COUNTS/6"	MIN/FT	GRAPHIC LOG	SAMPLE DESCRIPTION	STRATUM DESCRIPTION
0		S-1	10 / 24	0 - 2	2-5-4-6 (9)			6" Topsoil. Moist, loose, dark to light brown, fine to medium SAND, trace little silt, trace organic, little fine to coarse gravel.	OUTWASH
		S-2	22 / 24	2 - 4	5-5-8-6 (13)			Moist, medium dense, light gray to brown, fine to medium SAND, trace silt, trace coarse sand.	
5		S-3	12 / 24	4 - 6	3-3-4-4 (7)			Wet, loose, brown, fine to medium SAND, trace silt, trace fine to coarse gravel, trace coarse sand.	
		S-4	15 / 24	6 - 8	4-4-5-5 (9)			Wet, loose, brown, fine to medium SAND, trace silt, trace fine to coarse gravel, trace coarse sand.	
		S-5	16 / 24	8 - 10	2-2-4-2 (6)			Wet, loose, brown, fine to medium SAND, trace silt, trace fine to coarse gravel, trace coarse sand.	
10		S-6	15 / 24	10 - 12	2-4-2-3 (6)			Wet, loose, brown, fine to medium SAND, trace silt, trace fine to coarse gravel, trace coarse sand.	
15		S-7	16 / 24	14 - 16	8-8-13-12 (21)			Wet, medium dense, light brown to gray, fine to medium SAND, little fine gravel, little silt.	
20		S-8	16 / 24	19 - 21	10-8-10-13 (18)			Wet, very stiff, gray SILT (CLAY), little fine sand, trace fine gravel.	GLACIAL DEPOSITS
25		S-9	19 / 24	24 - 26	11-17-18-18 (35)			Wet, hard, gray SILT (CLAY), little fine sand, trace fine gravel.	
30		S-10	21 / 24	29 - 31	17-12-17-19 (29)			Wet, very stiff, gray CLAY, little fine sand, trace fine gravel.	
								Bottom of borehole at 31.0 feet.	
35									

GRANULAR SOILS

BLOWS/FT	DENSITY
0 - 4	V. LOOSE
4 -10	LOOSE
10 - 30	M. DENSE
30 - 50	DENSE
>50	V. DENSE

COHESIVE SOILS

BLOWS/FT	CONSIST.
<2	V. SOFT
2 - 4	SOFT
4 - 8	M. STIFF
8 - 15	STIFF
15 - 30	V. STIFF
>30	HARD

REMARKS:
1.S-7: Gravel band 6" from bottom 8" were gray/silty.

BURMISTER CLASSIFICATION

TRACE	0 -10%
LITTLE	10 - 20%
SOME	20 - 35%
AND	35 - 50%

PERCENT BY WEIGHT

NOTES: 1) THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.
2) WATER LEVEL READINGS HAVE BEEN MADE IN THE DRILL HOLES AT TIMES AND UNDER CONDITIONS STATED ON THE BORING LOGS. FLUCTUATIONS IN THE LEVEL OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE.