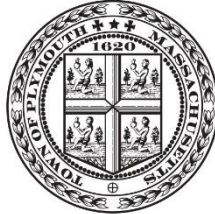


**TOWN OF PLYMOUTH
PROCUREMENT DIVISION
26 COURT STREET
PLYMOUTH, MA 02360**



**INVITATION FOR BIDS 22335
ROADWAY REALIGNMENT OF BARTLETT ROAD
AND BRIDGE REPLACEMENT**

Issued:	Tuesday, September 26, 2023
Pre-Bid Conference:	Tuesday, October 3, 2023, at 1:00 p.m.
Bid Opening:	Thursday, October 19, 2023, at 10:00 a.m.

TABLE OF CONTENTS

	<u>PAGE</u>
A. INVITATION	3
Contract Period	3
Liquidated Damages	3
Rule for Award	3
Bid Surety	4
Pre-Bid Conference	4
MassDOT Prequalification	4
DCAMM Certification	4
Prevailing Wage Rates	4
Labor and Materials Bond	4
Performance Bond	4
B. GENERAL CONDITIONS	4
C. CONTRACT AWARD	6
D. INSURANCE REQUIREMENTS	7
E. SAFETY & HEALTH REGULATIONS	8
F. WITHDRAWAL OF BIDS	9
G. BID STATUS INFORMATION	9
H. BID QUESTIONS	9
SPECIAL CONDITIONS	10
SAMPLE AGREEMENT & ASSOCIATED DOCUMENTS	16
ATTACHMENT 1 – Technical Specifications (Special Provisions)	30
ATTACHMENT 2 – Plans	96
ATTACHMENT 3 – Massachusetts Prevailing Wage Rates	126
BID FORMS	

TOWN OF PLYMOUTH
26 Court Street
Plymouth, MA 02360

September 26, 2023

INVITATION FOR BIDS 22335

A. INVITATION

Sealed bids are sought by the Town of Plymouth for the roadway realignment and bridge replacement on Bartlett Road.

Specifications and bid forms are available at www.plymouth-ma.gov/bids.aspx.

Bids are to be submitted by **10:00 a.m. on Thursday, October 19, 2023**, at which time they will be publicly opened and read. Postmarks will not be considered. All bids must be sealed and made upon forms furnished by the Procurement Division. Bids submitted on any other form will not be accepted as valid bids. Envelopes should be clearly marked **BID 22335 BARTLETT ROAD REALIGNMENT & BRIDGE**.

A Pre-Bid Conference will be held on **Tuesday, October 3, 2023, at 1:00 p.m.** at the site. Any person interested in submitting a bid is encouraged to attend.

All bids are subject to the provisions of M.G.L. c.30 §39M, and these Bid and Contract Documents.

Contract Period:

This agreement shall be for the period as specified in the Notice to Proceed, and is to be completed by December 31, 2024.

Liquidated Damages:

Liquidated Damages of \$500.00 will be charged for each day the work has not been completed after the agreed upon completion date.

Rule for Award:

The Contract will be awarded to the responsive, responsible, and eligible bidder offering the lowest bid price.

Bid Surety:

A Bid Deposit is required in the amount of five percent (5%) of the approximate total value of the bid based upon the bid price, and if applicable, the estimated quantities as shown on the Bid Form price schedule. Such Bid Deposit shall be in the form of a Cashier's, Certified or Bank Treasurer's check payable to the Town of Plymouth, or a bid bond from a licensed surety company authorized to do business in the Commonwealth of Massachusetts. The Bid Deposit of the successful bidder will be returned upon execution of the Contract. All others will be returned upon Contract award.

Pre-Bid Conference:

Any person interested in submitting a bid is encouraged to attend a Pre-Bid Conference on **Tuesday, October 3, 2023, at 1:00 p.m.** The conference will be held at the Bartlett Road Bridge.

MassDOT Prequalification: N/A

DCAMM Certification: N/A

Prevailing Wage Rates:

This bid is subject to §39 of c.30, and §26 to 27G and §29 of c.149 of the Massachusetts General Laws as amended, including Prevailing Wage Rates as determined by the Commissioner of Labor and Industries that must be paid on this Contract. A copy of said rates is contained herein. Each Contractor and/or Subcontractor shall preserve its payroll records for a period of three (3) years from the date of completion of this Contract. In addition, each Contractor/Subcontractor must submit a copy of their weekly payroll records to the Procurement Division on a weekly basis.

Labor and Materials Bond:

This bid is subject to §39 of c.30, and §26 to 27G and §29 of c.149 of the Massachusetts General Laws as amended, including the requirement for a Payment Bond. The successful bidder must furnish a bond in an amount one hundred percent (100%) of the total Contract Price for payment by the Contractor and/or Subcontractors for labor performed or furnished and material used or employed therein, payable to the Town of Plymouth, issued by a responsible surety company authorized to do business in the Commonwealth of Massachusetts, the premiums of which are to be paid by the Contractor and included in the bid price.

Performance Bond:

The successful bidder must furnish a one hundred percent (100%) Performance Bond, payable to the Town of Plymouth, issued by a responsible surety company doing business in the Commonwealth of Massachusetts.

B. GENERAL CONDITIONS

1. All bids shall be based on the quantities set forth in the Invitation for Bids. These quantities shall be used as a basis for comparison of bid proposals. The quantities are based on the Town's estimates of the work to be performed during the term of this Contract; the Town does not

expressly or by implication agree that the actual amount of work will correspond herewith, and the Town reserves the right to increase or decrease the amount of any class or portion of the work as it may deem necessary, without change of price per unit.

2. The Town of Plymouth reserves the right to reject all bids, to waive technicalities, to advertise for new bids and to split awards as may be deemed to be in the best interest of the Town. The contract(s) will be awarded by the Town within thirty (30) business days after opening bids. The Town reserves the right to require samples of materials for inspection and testing.
3. All words, signatures and figures submitted on the bid shall be in ink. Bids which are conditional, obscure or which contain additions not called for, erasures, alterations or irregularities, or any prices which contain abnormally high or low prices for any item, may be rejected as informal. More than one (1) proposal from the same bidder will not be considered.
4. The successful bidder shall comply with all applicable Federal, State and local laws and regulations.
5. The Town's policy on awarding Contract(s) to bidders with identical prices states: "When bids for goods and services are requested and received by the Town, the award is made to the lowest responsive and responsible bidder. If two (2) or more bid prices are identical and all tied bidders are responsive and responsible, and award will be made according to the first of these three (3) conditions to apply:
 - a. Past service to the Town; if one of the tied bidders has provided this or similar services in a satisfactory manner in the past, it will be awarded to that bidder;
 - b. A bidder based in Plymouth;
 - c. Random selection – flip of a coin or drawing if more than two (2) are tied."
6. Purchases made by the Town are exempt from taxes and bid prices must exclude any taxes. Tax exemption certificates will be furnished upon request.
7. Verbal orders are not binding on the Town and deliveries made or work done without formal Purchase Order or Contract are at the risk of the Contractor and may result in an unenforceable claim.
8. An item equal to that named or described in the Specification of the Contract may be furnished by the Contractor and the naming of any commercial name, trademark, item or manufacturer not mentioned by name or as limiting competition, but shall establish a standard of equality only. An item shall be considered equal to the item so named or described if (1) it is at least equal in quality, durability, appearance, strength and design, (2) it will perform at least equally the function imposed by the general design for the work being contracted for or the material being purchased, and (3) it conforms substantially, even with deviations, to the detailed requirements for the item in the Specifications. The name and identification of all materials other than the one specifically named shall be submitted to the Town for approval, prior to purchase, use or fabrication of such items. Subject to the provisions of §39J of c.30 of the Massachusetts General Laws, approval shall be at the sole discretion of the Town, shall be in writing to be effective, and the decision of the Town shall be final. The Town may require tests of all materials so submitted to establish quality standards at the Contractor's expense. All directions, specifications and recommendations by manufacturers for the installation, handling, storing, adjustment and operation of their equipment shall be complied with; responsibility for proper performance shall continue to rest with the Contractor.

For the use of material other than the one specified, the Contractor shall assume the cost of and responsibility for satisfactorily accomplishing all changes in the work as shown. If no manufacturer is named, the Contractor shall submit the product for intended use for approval of the Town.

Except as otherwise provided for by the provisions of §39J of c.30 of the Massachusetts General Laws, the Contractor shall not have any right of appeal from the decision of the Town condemning any materials furnished if the Contractor fails to obtain the approval for substitution under this clause. If any substitution is more costly, the Contractor shall pay for such costs.

9. The Contractor shall replace, repair or make good, without costs to the Town, defects or faults arising within one (1) year after date of acceptance or articles furnished hereunder (acceptance not to be unreasonably delayed) resulting from imperfect or defective work done or materials furnished by the Contractor.
10. The Contractor shall not discriminate against any person on the grounds of race, color, marital status, physical disability, age, sex, sexual orientation, religion, ancestry, or national origin in any manner prohibited by the laws of the United States, the Commonwealth, or the Town of Plymouth.

C. CONTRACT AWARD

Award of this bid will be made to the bidder who offers the lowest price(s) and who is deemed responsive, responsible and eligible. Determination of responsiveness, responsibility and eligibility shall be based solely on the following criteria:

1. Bidders will be deemed responsive if they complete all required forms as included in the attached Bid Forms package to the satisfaction of the Town.
2. Bidders will be deemed responsible and eligible if:
 - a. Its bid is the lowest of those bidders possessing the skill, ability and integrity necessary for the faithful performance of the work;
 - b. It shall certify that they are able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the work;
 - c. It shall also certify that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least ten (10) hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee;
 - d. Where the provisions of §8B of c.81 apply, the bidder shall have been determined to be qualified thereunder:
 - e. If the bidder provides at least five (5) references as evidence that it has a minimum of ten (10) years' experience performing work of a similar scope and scale in the

Commonwealth of Massachusetts. Evidence shall include the Owner's name, Owner's contact information, name of project, description of project, year project completed, and the project engineer(s)'s contact information.

D. INSURANCE REQUIREMENTS

1. The Contractor shall carry and continuously maintain until completion of the Contract, insurance as specified below and in such form as shall protect them performing work covered by this Contract, or the Town of Plymouth and its employees, agents and officials, from all claims and liability for damages of bodily injury, including accidental death, and for property damage which may arise from operations under this Contract. The Contractor covenants and agrees to hold the Town and its employees, agents and officials harmless from loss or damage due to claims for personal injury and/or property damage arising from, or in connection with, operations under this Contract.
2. Except as otherwise stated, the amounts of such insurance shall be for each policy, not less than:
 - a. **General Liability** of at least one million dollars (\$1,000,000.00) Bodily Injury and Property Damage Liability, Combined Single Limit with a Three Million Dollars (\$3,000,000.00) Annual Aggregate Limit. **The Town of Plymouth shall be named as "Additional Insured"**.
 - b. **Automobile Liability** of at least one million dollars (\$1,000,000.00) Bodily Injury and Property Damage per accident. **The Town of Plymouth shall be named as "Additional Insured"**.
 - c. **Worker's Compensation Insurance** as required by law. Include Employee Liability Part B.
 - d. **Property Coverage** for materials and supplies being transported by the Contractor as the Town's Property Contract provides coverage for personal property within 1,000 feet of the premises.
 - e. **Umbrella Liability** of at least Five Million Dollars (\$5,000,000.00) per occurrence, Five Million Dollars (\$5,000,000.00) aggregate. **The Town of Plymouth shall be named as "Additional Insured"**.
3. All policies shall be so written that the Town will be notified of cancellation or restrictive amendment at least thirty (30) days prior to the effective date of such cancellation or amendment. A certificate from the Contractor's insurance carrier showing at least the coverage and limits of liability specified above and expiration date shall be filed with the Town before operations are begun.
4. Such certificates shall not merely name the type of policy provided, but shall specifically refer to this Contract and shall state that such insurance is required by the Contract. The Contractor shall make no claims against the Town of Plymouth or its officers for any injury to any of their officers or employees or for damage to their trucks or equipment arising out of work contemplated by this Contract.
5. The Contractor shall, to the maximum extent permitted by law, indemnify and save harmless the Town of Plymouth, its officers, agents and employees from and against any and all damages,

liabilities, actions, suits, proceedings, claims demands, losses, costs and expenses (including reasonable attorney's fees) that may arise out of or in connection with the work being performed or to be performed by the Contractor, its employees, agents, subcontractors or materialmen. The existence of insurance shall in no way limit the scope of this indemnification. The Contractor further agrees to reimburse the Town of Plymouth for damage to its property caused by the Contractor, its employees, agents, subcontractors or materialmen, including damages caused by use of faulty, defective or unsuitable material or equipment, unless the damage is caused by the Town of Plymouth's gross negligence or willful misconduct.

E. SAFETY & HEALTH REGULATIONS

The successful bidder shall comply with the Department of Labor Safety and Health Regulations for construction promulgated under the Occupational Safety and Health Act of 1970 (PS-91-596) and under §107 of the Contract Work Hours and Safety Standards Act (PL-91-54).

The successful bidder shall have a competent person or persons, as required under the Occupational Safety and Health Act, on the site to inspect the work and to supervise the conformance of the work within the regulations of the Act.

This project is subject to the Safety and Health Regulations of the United States Department of Labor and Industries, Division of Industrial Safety "Rules and Regulations for the Prevention of Accidents in Construction Operations (Industrial Bulletin No. 12)." Contractors shall know the requirements of these regulations.

The Contractor shall provide the following safety documents upon Contract award:

1. The Safety Acknowledgement Agreement Form (which will be issued with the Contract), and
2. The Company's Health and Safety Manual.

For projects over one million dollars (\$1,000,000.00) the awarded Contractor shall submit a job specific Health and Safety Plan (HASP) to the Town's Safety Compliance Officer for review, before commencing any portion of the work on site. The plan shall include the analysis of the significant hazards to life, limb, and property inherent in the performance of work, and plan for controlling these hazards.

The Contractor shall inform the permitting authority within **twenty-four (24) hours** if any accidents/incidents resulting in death, traumatic injury, occupational disease, or damage to property, materials, supplies or equipment that arises in connection with the work.

In any emergency affecting the safety of persons or property, the Contractor shall immediately act in the exercise of reasonable judgement to prevent threatened damage, injury or loss. The Contractor shall immediately notify the Town of such emergency.

Without limiting the Contractor's responsibilities described in the Bid Documents, the Contractor shall take all reasonable precautions for the safety of, and the prevention of, injury or damage to all agents, employees and contractors on the project, and all other persons who may be affected thereby including the general public.

F. WITHDRAWAL OF BIDS

Except as hereinafter expressed provided, once a bid is submitted and received by the Town, the bidder agrees that they may not and will not withdraw it within thirty (30) calendar days after the actual date of the opening of bids.

Upon proper written request and identification, bids may be withdrawn as follows:

1. At any time prior to the designated time for opening bids;
2. Provided the bid has not been accepted by the Town, at any time subsequent to thirty (30) days following the actual date of bid opening.

Unless a bid is withdrawn as provided above, the bidder agrees that it shall be deemed open for acceptance until a Contract has been executed by both sides or until the Town notifies the bidder in writing that their bid was rejected or that the Town does not intend to accept it or returns its Bid Surety. Notice of acceptance of a bid shall not constitute rejection of any other bid.

G. BID STATUS INFORMATION

If you received Bid Documents directly from the Town and provided the Town with an email address for delivery of **addenda**, the Town intends to deliver a copy of each addendum to you at such email address, but the Town shall not be responsible for any failure of a bidder to receive any addenda. Notwithstanding the foregoing, bidders are solely responsible to check for and confirm their receipt of any addenda in advance of the bid deadline.

Bid Results will be available on the Town's website at www.plymouth-ma.gov/bids.aspx. Bid results will not be provided over the phone.

Notification of award of Contract will be mailed to all bidders.

H. BID QUESTIONS

Please contact Sandra Strassel, Procurement Officer, at (508) 747-1620, ext. 10107, if you have any questions on the bid process. Questions regarding the project or specifications must be submitted in writing and emailed to sstrassel@plymouth-ma.gov at least five (5) days prior to the bid opening date. At the discretion of the Town, questions will be answered by written addenda. Bidders may not rely upon oral responses to questions, and may rely solely upon written addenda, if any.

SPECIAL CONDITIONS

EQUIPMENT: The Contractor shall furnish equipment which will be effective, appropriate and large enough to secure a satisfactory quality of work and a rate of progress which will ensure the completion of the work within the time stipulated in the Bid Documents. If at any time such equipment appears to the Town to be inefficient, inappropriate or insufficient for securing the quality of work required or for producing the rate of progress aforesaid, the Town may order the Contractor to increase the efficiency, change the character or increase the equipment, and the Contractor shall conform to such order. Failure of the Town to give such order shall in no way relieve the Contractor of their obligations to secure the quality of the work and rate of progress required.

WORK HOURS: Normal work hours will mean up to five (5) 8-hour days, Monday through Friday. In order to work hours not within this span for the Contractor's benefit, they shall request a written authorization to be approved by the Town. For work outside the normal day, work on Saturdays, Sundays or legal holidays, if any be performed, the Contractor will receive no extra payment, but compensation shall be considered as having been included in the prices as stipulated for the appropriate items of work as listed in the bid.

APPROVAL OF MATERIALS: Only new materials and equipment shall be incorporated in the work. All materials and equipment furnished by the Contractor shall be subject to the inspection and approval of the Town. No materials shall be delivered to the worksite without prior approval of the Town.

The Contractor shall submit data and samples sufficiently early to permit consideration and approval before materials are necessary for incorporation in the work. Any delay of approval resulting from the Contractor's failure to submit samples or data promptly shall not be used as a basis of a claim against the Town.

SUBSTITUTES OF APPROVED "OR EQUAL" ITEMS: Whenever materials or equipment are specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular supplier, the naming of the item is intended to establish the type, function and quality required. Unless the name is followed by words indicating that no substitution is permitted, materials or equipment of other suppliers may be accepted by the Town if sufficient information is submitted by the Contractor to allow the Town to determine that the material or equipment proposed is equivalent or equal to that named. Requests for review of substitute items of material and equipment will not be accepted by the Town from anyone other than the Contractor. If the Contractor wishes to furnish or use a substitute item of material or requirement, the Contractor shall make a written application to the Town for acceptance thereof certifying that the proposed substitute will perform adequately similar and of equal substance to that specified and be suited to the same use as that specified. The application will state that the evaluation and acceptance of the proposed substitute will not prejudice the Contractor's achievement of substantial completion on time, whether or not acceptance of the substitute for use in the work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with the Town for work on the project) to adapt the design to the proposed substitute and whether or not incorporation of use of the substitute in connection with the work is subject to payment of any license fee or royalty.

All variations of the proposed substitute from that specified will be identified in the application and available maintenance, repair and replacement service will be indicated. The application will also result directly or indirectly from acceptance of such substitute, including costs of redesign and claims of other contractors affected by the resulting change, all of which shall be considered by the Town in evaluating

the proposed substitute. The Town may require the Contractor to furnish, at the Contractor's expense, additional data about the proposed substitute.

If a specific means, method, technique, sequence or procedure of construction is indicated in or required by the Contract Documents, the Contractor may furnish or utilize a substitute means, method, sequence, technique or procedure of construction acceptable to the Town if the Contractor submits sufficient information to allow the Town to determine that the substitute proposed is equivalent to that indicated or required by the Contract Documents. The procedure for review by the Town will be similar to that stated previously.

The town will be allowed a reasonable time within which to evaluate each proposed substitute. The Town will be the sole judge of acceptability, and no substitute will be ordered, installed or utilized without the Town's prior written acceptance which will be evidenced by either a change order or an approved Shop Drawing. The Town may require the Contractor to furnish, at the Contractor's expense, a special performance guarantee or other surety with respect to any substitute. The Town will record time required by the Town and the Town's consultants in evaluating substitutions proposed by the Contractor, and in making changes in the Contract Documents occasioned thereby. Whether or not the Town accepts a proposed substitute, the Contractor shall reimburse the Town for the charges of the Town's consultants for evaluating each proposed substitute.

TEMPORARY UTILITIES: The Contractor shall make all arrangements for and furnish at their expense all water, electricity, telephone or other utilities required by them for construction purposes.

LOCATION OF ALL UTILITIES: The location of the existing utilities must be established and verified by the Contractor. The Contractor shall make arrangements with the appropriate utility companies to have all existing utilities marked along the course of this work by such means as necessary. The Contractor shall preserve such marked locations until the work has progressed to the point where the encountered utility is fully exposed or protected as required. It shall be the Contractor's responsibility to notify the proper authorities or utility before interfering therewith.

SAFETY CONTROL: The Contractor shall provide and maintain all required safety equipment such as barricades, detour barriers and signs, lights, walkways, fences, and fire prevention equipment. If at any time before the commencement or during the progress of work, or any part of it, such methods and procedures as used appear to the Town as unsafe, insufficient or improper, the Town may order the Contractor to increase their safety of efficiency or to improve their character, and the Contractor shall conform to such orders. Failure of the Town to give such an order to increase such safety, efficiency, adequacy or any improvements shall not release the Contractor from their obligation to secure the safe conduct and quality of work specified. Notwithstanding the foregoing, nothing herein obligates the Town to perform any review or inspection of any of the Contractor's methods or procedures.

OCCUPATIONAL SAFETY AND HEALTH ACT: The Contractor's particular attention is called to the rules and regulations included in Public Law 91-596, known as the "Occupational Safety and Health Act of 1970" (OSHA).

MAINTENANCE OF TRAFFIC: The Contractor shall be responsible for the maintenance of traffic with the maximum of safety and practicable convenience to such traffic during the life of the contract whether or not work thereon has been suspended temporarily. The work shall be carried on in such a manner as to provide safe passage at all times for public travel and with least obstruction to traffic.

The convenience of the general public and of the residents along and adjacent to the work shall be provided for in an adequate and satisfactory manner.

Portable barrier fences with appropriate signs shall be used for safety control in establishing traffic patterns (detours, etc.). These portable barrier fences shall meet the approval of the Director of Public Works or their designee, provided that any such approval or lack thereof shall not relieve the Contractor of their obligation to use appropriate barrier fences.

Roadways, driveways and foot paths closed to traffic shall be protected by suitable barricades and warning signs, and the Contractor shall provide and maintain adequate lights and illumination. Therefore, they shall be held responsible for all damage to the work due to any failure of signs and barricades to protect the work properly from traffic, pedestrians, animals or other causes.

POLICE DETAIL: The Contractor shall coordinate with the Plymouth Police Department the number of traffic police required in either the appropriate traffic management plan (TMP) template (see MassDOT's website at www.mass.gov/lists/construction-details) or deemed necessary for the direction and control of traffic within the site.

The Contractor shall submit the requested and signed police detail schedule as called in and arranged directly with the Police Department on a weekly basis. Police details will be paid directly by the Contractor. The Contractor shall be responsible for scheduling and canceling police details if not needed. It is the Contractor's responsibility to cancel a detail(s) at a minimum of four (4) hours in advance of the start of the shift if conditions so warrant. Police details not cancelled in time shall be paid for by the Contractor.

RESTORATION (WORK IN IMPROVED PROPERTY AREAS): The Contractor, at their own expense, shall care for, replace and restore to good condition, satisfactory to the Town, and public or private property (i.e. shrubs, hedges, trees, public or private ways, sewer drains, water or other pipes, catch basins, wires, buildings, fences, posts, poles, mailboxes, stone walls or other structures) negligently damaged by their work, equipment, or employees, to a condition at least equal to that existing immediately prior to the beginning of operations.

The Contractor shall also restore to original condition, or better, any lawn or other planted area interfered with, including fertilizing, loaming, and seeding as required, once again at the Contractor's expense.

Suitable materials, equipment and methods shall be used for such restoration.

BOUNDS AND PROPERTY MARKERS: All bounds and property markers disturbed in the course of the work shall be replaced by the Contractor at their expense.

The Contractor shall employ a registered land surveyor to reset all bounds and property markers.

TELEPHONE NUMBERS: The telephone numbers of the following Town of Plymouth Departments are:

POLICE	(508) 830-4220 (business)
FIRE	(508) 830-4213 (business)
HIGHWAY	(508) 830-4162, ext. 12101
WATER	(508) 830-4162, ext. 12136

ENGINEERING (508) 747-1620, ext. 10120

SEWER (508) 830-4159

PUBLIC WORKS (508) 830-4162, ext. 12105

Town Office Building Hours:	Monday, Wednesday, Thursday	7:30 a.m. to 4:00 p.m.
	Tuesday	7:30 a.m. to 6:30 p.m.
	Friday	7:30 a.m. to 12:00 p.m.

LEGAL REQUIREMENTS: The Contractor shall keep themselves fully informed of, and comply with, all laws, ordinances and regulations of the Federal, State and municipal governments which may be in force during the life of the contract, and in any manner affecting their employees or the conduct of work of materials used on said work.

PERSONAL SUPERVISION BY CONTRACTOR: The Contractor or their duly authorized and approved representative shall give personal attention to the fulfillment of the contract. The Contractor shall have on the worksite, at all times, a competent representative authorized to receive and execute any order of direction of the Town.

The representative should also accept any notices given to the Contractor under the provisions of the contract.

CLEANUP: During the course of the work, the Contractor shall keep the site of their operations in as clean and neat a condition as possible. They shall dispose of all residue resulting from the construction work on a daily basis and, at the conclusion of work, they shall remove and haul away structures and other refuse remaining from the construction operations, and shall leave the entire site of the work in a neat and orderly condition.

PRICE ADJUSTMENT DETERMINATION, CALCULATION AND PAYMENT: The Contract Price of the HMA mixture will be paid under the respective item in the Contract. Price Adjustments, as herein provided, either upwards or downwards, will be made after the work has been performed using the monthly period price for the month during which the work was performed.

Price Adjustments will be paid only if the variance from the Base Price is 5% or more for a monthly period. The complete adjustment will be paid in all cases with no deduction of the 5% from either upward or downward adjustments.

The Price Adjustment applies only to the actual virgin liquid asphalt content in the mixture placed on the job in accordance with the Standard Specifications for Highways and Bridges, Division III, Section M3.11.03.

Price Adjustments will be separate payment items. The pay item numbers are 999.401 for a positive price adjustment (a payment) and 999.402 for a negative price adjustment (a deduction). Price Adjustments will be calculated using the following equation:

Price Adjustment = Tons of HMA Placed X Liquid Asphalt Content % X RAP Factor X (Period Price - Base Price)

No Price Adjustment will be allowed beyond the Completion Date of this Contract, unless there is a Department approved extension of time.

MONTHLY PRICE ADJUSTMENT FOR DIESEL FUEL AND GASOLINE

This monthly fuel price adjustment is inserted in this contract because the national and worldwide energy situation has made the future cost of fuel unpredictable. This adjustment will provide for either additional compensation to the Contractor or repayment to the Commonwealth, depending on an increase or decrease in the average price of diesel fuel or gasoline.

This adjustment will be based on fuel usage factors for various items of work developed by the Highway Research Board in Circular 158, dated July 1974. These factors will be multiplied by the quantities of work done in each item during each monthly period and further multiplied by the variance in price from the Base Price to the Period Price.

The Base Price of Diesel Fuel and Gasoline will be the price as indicated in the Department’s website <https://www.mass.gov/service-details/massdot-special-provisions> for the month in which the contract was bid, which includes State Tax.

The Period Price will be the average of prices charged to the State, including State Tax for the bulk purchases made during each month.

This adjustment will be affected only if the variance from the Base Price is 5% or more for a monthly period. The complete adjustment will be paid in all cases with no deduction of the 5% from either upward or downward adjustments.

No adjustment will be paid for work done beyond the extended completion date of any contract.

Any adjustment (increase or decrease) to estimated quantities made to each item at the time of final payment will have the fuel price adjustment figured at the average period price for the entire term of the project for the difference of quantity.

The fuel price adjustment will apply only to the following items of work at the fuel factors shown:

ITEMS COVERED	FUEL FACTORS	
	DIESEL	GASOLINE
Excavation: and Borrow Work: Items 120, 120.1, 121, 123, 124, 125, 127, 129.3, 140, 140.1, 141, 142, 143, 144., 150, 150.1, 151 and 151.1 (Both Factors used)	0.29 Gallons / CY.	0.15 Gallons / CY
Surfacing Work: All Items containing Hot Mix Asphalt	2.90 Gallons / Ton	Does Not Apply

MONTHLY PRICE ADJUSTMENT FOR PORTLAND CEMENT CONCRETE MIXTURE

This provision applies to all projects using greater than 100 Cubic Yards (76 Cubic Meters) of Portland cement concrete containing Portland cement as stipulated in the Notice to Contractors section of the Bid Documents. This Price Adjustment will occur on a monthly basis.

The Price Adjustment will be based on the variance in price for the Portland cement component only from the Base Price to the Period Price. It shall not include transportation or other charges.

The Base Price of Portland cement on a project is a fixed price determined at the time of bid by the Department by using the same method as for the determination of the Period Price (see below) and found in the Notice to Contractors.

The Period Price of Portland cement will be determined by using the latest published price, in dollars per ton (U.S.), for Portland cement (Type I) quoted for Boston, U.S.A. in the Construction Economics section of *ENR Engineering News-Record* magazine or at the ENR website <http://www.enr.com> under Construction Economics. The Period Price will be posted on the Mass Highway website the Wednesday immediately following the publishing of the monthly price in ENR, which is normally the first week of the month.

The Contract Price of the Portland cement concrete mix will be paid under the respective item in the Contract. The price adjustment, as herein provided, upwards or downwards, will be made after the work has been performed, using the monthly period price for the month during which the work was performed.

The price adjustment applies only to the actual Portland cement content in the mix placed on the job in accordance with the Standard Specifications for Highways and Bridges, Division III, Section M4.02.01. No adjustments will be made for any cement replacement materials such as fly ash or ground granulated blast furnace slag.

The Price Adjustment will be a separate payment item. It will be determined by multiplying the number of cubic yards of Portland cement concrete placed during each monthly period times the Portland cement content percentage times the variance in price between the Base Price and Period Price of Portland cement.

This Price Adjustment will be paid only if the variance from the Base Price is 5% or more for a monthly period. The complete adjustment will be paid in all cases with no deduction of the 5% from either upward or downward adjustments.

No Price Adjustment will be allowed beyond the Completion Date of this Contract, unless there is a Department-approved extension of time.

SAMPLE AGREEMENT & ASSOCIATED DOCUMENTS

THIS AGREEMENT, made this ____ day of _____, 2021, by and between the TOWN OF PLYMOUTH, with an office at 26 Court Street, Plymouth, Plymouth County, Massachusetts, 02360, hereinafter called the “Owner”, and _____, with an office at _____, hereinafter called the “Contractor”.

WITNESSETH, that the Owner and the Contractor, for the consideration hereafter named, agree as follows:

Article 1. SCOPE OF WORK: The Contractor shall perform all the work required by the Contract Documents for the Roadway Realignment of Bartlett Road and Bridge Replacement, as described in attached Bid Documents 22335.

Article 2. TIME OF COMPLETION: The Contractor shall commence work under this Contract on the date specified in the written “Notice to Proceed” from the Owner and shall bring the work to full completion on or before December 31, 2024.

Article 3. CONTRACT SUM: The Owner shall pay the Contractor in current funds for the performance of the work, subject to additions and deductions by Change Order, the Contract Sum of _____ (\$ _____).

Article 4. CONTRACT DOCUMENTS: The following, together with this Agreement, form the Contract and all are as fully a part of the Contract as if attached to this Agreement or repeated herein; the advertisements, Bid Documents, Contract Forms, Specifications, Drawings, Addenda and Change Orders issued after execution of the Contract.

Notwithstanding anything to the contrary in the Contract Documents, in the event of any conflict or inconsistency in and among the provisions of the Contract Documents, the provisions resulting in the greater quantity and better quality of goods and services and greater liability protection for the Town, as reasonably determined by the Town, shall control.

“NOTICE TO PROCEED” AND PRE-CONSTRUCTION CONFERENCE:

A written “Notice to Proceed” shall be issued to the Contractor after receipt of all required documents. No work shall be performed by the Contractor until they have received the “Notice to Proceed” from the Town.

Prior to start of the work, the Contractor, all subcontractors, the project manager, and the Owner shall attend a Pre-Construction Conference. The Conference will serve to acquaint the participants with the general plan of Contract administration; and requirements under which the construction operation is to proceed. The date, time and place of the Conference will be furnished to the Contractor by the project manager.

GENERAL CONDITIONS

1. Funding Source: This project is funded through a Town of Plymouth appropriation.
2. Contract Plans and Specifications: All plans, Specification and Addenda, hereinafter enumerated or referenced in this Contract, shall form part of this Contract and the provisions thereof shall be as binding upon the parties hereto as if they were herein set fully forth. The Table of Contents, titles, headings, running headlines and marginal notes contained herein and in said documents are solely to facilitate reference to various provisions of the Contract Documents and in no way affect, limit or cast light on the interpretation of the provisions of which they refer.
3. Additional Instructions and Detail Drawings: The Contractor will be furnished additional instructions and detail drawings as necessary to carry out the work included in the Contract. The additional drawings and instructions thus supplied to the Contractor will coordinate with the Contract Documents and will be so prepared that they can be reasonably interpreted as part thereof. The Contractor and the Director of Public Works will prepare jointly: (a) a schedule, fixing the dates at which special detail drawings will be required, such drawings, if any, to be furnished by the Director of Public Works in accordance with said schedule, and (b) a schedule fixing the respective dates for the submission of Shop Drawings, the beginning of manufacture, testing and installation of materials, supplies and equipment, and the completion of the various parts of the work; each such schedule to be subject to change from time to time in accordance with the progress of the work.
4. Shop or Setting Drawings: The Contractor shall submit promptly to the Director of Public Works two (2) copies of each Shop or Setting Drawing prepared in accordance with the schedule predetermined as aforesaid. After examination of such drawings by the Director of Public Works or their designee and the return thereof, the Contractor shall make such corrections to the drawings as have been indicated and shall furnish the Director of Public Works or their designee with two (2) corrected copies. If requested by the Director of Public Works or their designee, the Contractor must furnish additional copies. Regardless of corrections made in or approval given to such drawings by the Director of Public Works, the Contractor will nevertheless be responsible for the accuracy of such drawings and for their conformity to the plans and specifications, unless he notifies the Director of Public Works in writing of any deviations at the time he furnishes such drawings.
5. Materials, Services and Facilities:
 - a. It is understood that except as otherwise specifically stated in the Contract Documents, the Contractor shall provide and pay for all materials, labor, tools, equipment, water, light, power, transportation, superintendence, temporary construction of every nature and all other services and facilities of every nature whatsoever necessary to execute, complete and deliver the work within the specified time.
 - b. Any work necessary to be performed after regular working hours, on Sunday or legal holidays, shall be performed without additional expense to the Owner.
6. Contractor's Title to Materials: No materials or supplies for the work shall be purchased by the Contractor or by any subcontractor subject to any chattel mortgage or under a conditional sale contract or other agreement by which an interest is retained by the seller. The Contractor warrants that they have good title to all materials and supplies used by them in the work, free from all liens, claims or encumbrances.
7. Title to Work: The title to all work completed and in the course of construction and of all material on account of which any payment has been made shall be in the Owner's name.

8. Inspection and Testing of Materials:
 - a. All materials and equipment used in the construction of the project shall be subject to adequate inspection and testing in accordance with accepted standards. The Owner will pay for all laboratory or inspection services direct, and not as part of the Contract.
 - b. Materials of construction, particularly those upon which the strength and durability of the structure may depend, shall be subject to inspection and testing to establish conformance with Specifications and suitability for uses intended.
9. Express Warranty: The Contractor guarantees to the Owner that all materials incorporated into the work will be new unless otherwise specified or agreed. The Contractor also guarantees that all work will be done in a workmanlike manner, free of defects, and in conformance with any Specifications mentioned in this Contract.
10. Maintenance and Guarantee: The Contractor hereby guarantees that the entire work constructed by them under the Contract will meet fully all requirements thereof as to quality of workmanship and of materials furnished by them. The Contractor hereby agrees to make, at their own expense, any repairs or replacements made necessary by defects in materials or workmanship supplied to them that become evident within one (1) year after the date of the final payment, and to restore to full compliance with the requirements set forth herein for any part of the work constructed hereunder, which during said one (1) year period is found to be deficient with the respect to any provisions of the Specifications. The Contractor also agrees to hold the Owner harmless from claims of any kind arising from damage due to said defects. The Contractor shall make all repairs and replacements promptly upon receipt of written orders for the same from the Owner. If the Contractor fails to make the repairs and replacements promptly, the Owner may do the work and the Contractor shall be liable to the Owner for the cost thereof.
11. “Or Equal” Clause: Whenever a material, article or piece of equipment is identified on the Plans or in the Specifications by reference to manufacturer’s or vendor’s trade names, catalogue numbers, etc., it is intended merely to establish a standard; and any materials, articles or equipment of other manufacturers and vendors will perform adequately the duties imposed by the general design will be considered equally acceptable provided the material, article or equipment so proposed is, in the opinion of the Director of Public Works, of equal substance and function. It shall not be purchased or installed by the Contractor without the Director’s written approval.
12. Surveys, Permits and Regulations: The Town will provide a baseline survey. The Contractor shall be responsible for all additional surveys/layouts necessary for the execution of the work.

The Contractor shall procure and pay for all permits, licenses and approvals necessary for the execution of the Contract.

The Contractor shall comply with all laws, ordinances, rules, orders and regulations relating to performance of the work, the protection of adjacent property and the maintenance of passageways, guard fences or other protective facilities.

13. Contractor’s Obligations: The Contractor shall and will, in good workmanlike manner, do and perform all work and furnish all supplies and materials, machinery, equipment, facilities and means, except as herein otherwise expressly specified, necessary or proper to perform and complete all the work required by this Contract, within the time herein specified, in accordance with the provisions of this Contract and said Specifications, and in accordance with the Plans and Drawings covered by this Contract, and any and all supplemental Plans and Drawings, and in accordance with the direction of

the Director of Public Works as given from time to time during the progress of the work. The Contractor shall furnish, erect, maintain and remove such construction plant and such temporary works as may be required.

The Contractor shall observe, comply with, and be subject to all terms, conditions, requirements and limitations of the Contract and Specifications, and shall do, carry on and complete the entire work to the satisfaction of the Director of Public Works and the Owner.

14. Weather Conditions: In the event of temporary suspension of work, or during inclement weather, or whenever the Director of Public Works shall direct, the Contractor will, and will cause their subcontractors to, carefully protect their work and materials against damage or injury from the weather. If, in the opinion of the Director of Public Works or their designee, any work or materials shall have been damaged or injured by reason of failure on the part of the Contractor or any of their subcontractors to protect their work, such materials shall be removed and replaced at the expense of the Contractor.

15. Protection of Work and Property – Emergency: The Contractor shall at all times safely guard the Owner's property from injury or loss in connection with the Contract. They shall at all times safely guard and protect their own work, and that of adjacent property from damage. The Contractor shall replace or make good any such damage, loss or injury unless such be caused directly by errors contained in the Contract or by the Owner, or their duly authorized representatives.

In case of an emergency which threatens loss or injury of property, and/or safety of life, the Contractor will be allowed to act, without previous instructions from the Director of Public Works, in a diligent manner. The Contractor shall notify the Director of Public Works immediately thereafter. Any claim for compensation by the Contractor due to such extra work shall be promptly submitted to the Director of Public Works.

16. Inspection: The authorized representatives and agents of the Owner shall be permitted to inspect all work, materials, payrolls, records of personnel, invoices of materials and other relevant data and records.

17. Reports, Records and Data: The Contractor shall submit to the Owner such schedule of quantities and costs, progress schedules, payroll reports, estimates, records and other data as the Owner may request concerning work performed or to be performed under the Contract.

18. Superintendence by the Contractor: At the site of the work, the Contractor shall employ a construction superintendent or foreman who shall have full authority to act for the Contractor. It is understood that such representative shall be acceptable to the Director of Public Works, or designee, and shall be one who can be continued in that capacity for the particular job involved unless he ceases to be on the Contractor's payroll.

19. Changes in Work: No changes in the work covered by the approved Contract Documents shall be made without having prior written approval of the Owner. Charges or credits for the work covered by the approved change shall be determined by one (1) or a combination of the following methods:

- a. Unit bid prices previously approved
- b. An agreed lump sum
- c. The actual cost of:
 - i. Labor, including foremen
 - ii. Materials entering permanently into the work

- iii. The ownership of rental cost of construction plant and equipment during the time of use on extra work
- iv. Power and consumable supplies for the operation of power equipment
- v. Insurance
- vi. Wages to be paid.

To the cost under (c.) there shall be added a fixed fee to be agreed upon, but not to exceed fifteen percent (15%) of the actual cost of work. The fee shall be compensation to cover the cost of supervision, overhead, bond, profit and any other general expenses.

20. Time for Completion and Liquidated Damages: It is hereby understood and mutually agreed, by and between the Contractor and the Owner, that the date of beginning and the time for completion of the work to be done hereunder are ESSENTIAL CONDITIONS of the Contract; and it is further mutually understood and agreed that the work embraced in this Contract shall be commenced on a date to be specified in the "Notice to Proceed".

The Contractor agrees that said work shall be prosecuted regularly, diligently and uninterruptedly at such rate of progress as will ensure full completion thereof within the time specified. It is expressly understood and agreed, by and between the Contractor and the Owner, that the time for the completion of the work described herein is a reasonable time for the completion of the same, taking into consideration the average climatic range and usual industrial conditions prevailing in this locality.

If the said Contractor shall neglect, fail or refuse to complete the work within the time herein specified, or any extension thereof granted by the Owner, then the Contractor does hereby agree, as a partial consideration for the awarding of this Contract, to pay the Owner the amount specified in the Contract, not as a penalty but as liquidated damages for such Breach of Contract as hereinafter set forth, for each and every calendar day the Contractor shall be in default after the time stipulated in the Contract for completing the work.

The said amount of liquidated damages is fixed and agreed upon by and between the Contractor and the Owner because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the Owner would sustain in such event and said amount shall be retained from time to time by the Owner from current periodic estimates.

It is further agreed that time is of the essence of each and every portion of this Contract and of any specifications wherein a definite and certain length of time is fixed for the performance of any act whatsoever; and where under the Contract as additional time is allowed for the completion of any work, the new time limit fixed by such extension shall be of the essence of this Contract. Provided, that the Contractor shall not be charged with liquidated damages or any excess cost when the Owner determines that the Contractor is without fault and the Contractor's reasons for the time extensions are acceptable to the Owner; provided further, that the Contractor shall not be charged with liquidated damages or an excess cost when the delay in completion of the work is due to:

- a. *Any preference, priority or allocation order duly issued by the government*
- b. *Unforeseeable cause beyond the control and without fault of negligence of the Contractor, including, but not restricted to, acts of God or the public enemy, acts of the Owner, acts of another Contractor in the performance of a contract with the Owner, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes and severe weather*
- c. *Any delays of subcontractors or suppliers occasioned by any of the causes specified in subsections (a.) and (b.) of this article.*

Provided further, that the Contractor shall within ten (10) days from the beginning of such delay, unless the Owner shall grant a further period of time prior to the date of final settlement of the Contract, notify the Owner, in writing, of the causes of the delay, who shall ascertain the facts and extent of the delay and notify the Contractor within a reasonable time of its decision in the matter. The amount of liquidated damages for this project shall be Five Hundred Dollars (\$500.00) per consecutive calendar day.

21. Correction of Work: All work, all materials, whether incorporated in the work or not, all processes of manufacture, and all methods of construction shall be at all times and places subject to the inspection of the Director of Public Works or their designee, who shall be the final judge of the quality and suitability of the work, materials, processes of manufacture and methods of construction for the purposes for which they are used. Should they fail to meet the Director's approval, they shall be forthwith reconstructed, made good, replaced and/or corrected, as the case may be, by the Contractor at their own expense. Rejected materials shall immediately be removed from the site. If, in the opinion of the Director of Public Works, it is undesirable to replace any defective or damaged materials or to reconstruct or correct any portion of the work injured or not performed in accordance with the Contract Documents, the compensation to be paid to the Contractor hereunder shall be reduced by such amount as in the judgement of the Director shall be equitable.
22. Subsurface Conditions Found Different: Should the Contractor encounter subsurface and/or latent conditions in the site materially differing from those shown on the Plan or indicated in the Specifications, they shall immediately give notice to the Director of Public Works of such conditions before they are disturbed. The Director of Public Works will thereupon promptly investigate the conditions, and if they find that they materially differ from those shown on the Plans or indicated in the Specifications, will at once make such changes in the Plans and/or Specification as they may find necessary, any increase or decrease of cost resulting from such changes to be adjusted in the manner provided in Paragraph 19 of the General Conditions.
23. Right of the Owner to Terminate Contract: The Owner may terminate this Contract by providing the Contractor and the Surety with ten (10) days written notice specifying the reasons for termination as outlined below:
 - a. Violation of any of the provisions of this Contract by the Contractor or any of their subcontractors
 - b. A determination by the Owner that the Contractor has engaged in fraud, waste, mismanagement, misuse of funds, or criminal activity with any funds provided by this Contract.
 - c. Failure of the Contractor, for any reason, to fulfill in a timely and proper manner their obligations under this Contract, including compliance with applicable Federal, State and/or local law or regulations, and such procedures or guidelines as may be established.

In the event if any such termination, the Surety shall have the right to take over and perform the Contract; provided, however, that if the Surety does not commence performance within ten (10) days from the date of the mailing to such Surety of notice of termination, the Owner may take over the work and prosecute the same to completion at the expense of the Contractor, and the Contractor and their Surety shall be liable to the Owner for any excess cost occasioned by the Owner thereby, and in such event the Owner may take possession of and utilize in completing the work, such materials, appliances and plants as may be on the site of the work and necessary therefore.

If the Owner determines that a continuation of work on the project would endanger the life, health or safety of those working or living at or near the project site, or that immediate action is necessary to protect public funds and/or property, the Owner may suspend work or terminate this agreement by

providing notice to the Contractor in the form of a telegram, mailgram, hand-carried letter, or other appropriate written means.

In addition, notwithstanding anything to the contrary in the Contract, the Owner may also terminate this Contract for its conveniences, including due to the lack of sufficient funds to complete the work. In such event, the Owner shall provide written notice of termination to the Contractor, and the Contractor shall thereupon cease all work other than work that is required to make the work and surrounding property safe, and the Owner shall pay the Contractor for all work performed in accordance with the terms of the Contract up to the date of the Contract, provided the Contractor shall not be entitled to any termination (or similar) damages or other costs and expenses that may be associated with a termination for convenience.

24. Payments to the Contractor:

- a. Not later than the tenth (10th) day of each calendar month, the Owner shall make a progress payment to the Contractor on the basis of a duly certified and approved estimate of the work performed during the preceding calendar month under this Contract, but to insure the proper performance of the Contract, the Owner shall retain five percent (5%) of the amount of each estimate until final completion and acceptance of all work covered by this Contract; provided that the Contractor shall submit their estimate not later than the first (1st) day of the month; provided further that on completion and acceptance of each separate building, public work or other division of the Contract, on which the price is stated separately in the Contract, payment may be made in full, including retained percentages thereon, less authorized deductions.
- b. In preparing estimates, the material delivered on the site and preparatory work done may be taken into consideration.

25. Indemnification: The Contractor shall comply with the requirements of all applicable laws, rules and regulations in connection with the services of the Contractor, and shall exonerate, indemnify and hold harmless the Owner's officers, agents, and all employees from and against them, and local taxes or contributions imposed or required under the Social Security, Worker's Compensation, and Income Tax laws. Further, the Contractor shall exonerate, indemnify and hold harmless the Owner with respect to any damages, expenses or claims arising from or in connection with any of the work performed or to be performed under this Contract. This shall not be construed as a limitation of the Contractor's liability under the Contract or as otherwise provided by law.

26. Acceptance of Final Payment Constitutes Release: The acceptance by the Contractor of final payment shall be and shall operate as a release to the Owner of all claims and liability to the Contractor. No payment, however, final or otherwise, shall operate to release the Contractor or their Sureties from any obligations under the Contract or the performance and payment bond.

27. Insurance: The Contractor shall not commence work under this Contract until they have obtained all the insurance required in the Invitation to Bid and such insurance has been approved by the Owner, nor shall the Contractor allow any subcontractor to commence work on a subcontract until the insurance required of the subcontractor has been so obtained and approved.

28. Flood Disaster Protection: The Owner of land subject to acquisition or improvement under this Contract, and their successors or assigns, are hereby obligated to obtain and maintain, during ownership of the land which is the subject of this Contract, such flood insurance as required with respect to financial assistance of acquisition or construction purposes under §102 (a) of the Flood Disaster Protection Act of 1973. This obligation is binding notwithstanding the fact that construction on the land, which is the subject of this Contract, is not itself funded out of assistance provided under the Housing and Community Development Act of 1974.

29. Contract Security: The Contractor shall furnish a payment bond and a performance bond in amounts not less than one hundred percent (100%) of the Contract Price or in a penal sum not less than that prescribed by State or local law, as security for the payment of all persons performing labor on the project under this Contract and furnishing materials in connection with the Contract.
30. Assignments: The Contractor shall not assign or subcontract the whole or any part of this Contract or any monies due or to become due hereunder without written consent of the Owner. In case the Contractor assigns all or part of any monies due or to become due under this Contract, the instrument of assignment shall contain a clause substantially to the effect that it is agreed that the right of the assignee in and to any monies due or to become due to the Contractor shall be subject to prior claims of all persons, firms and corporations of services rendered or materials supplied for the performance of the work called for in this Contract.
31. Authority of the Director of Public Works: The Director of Public Works or their designee shall give all orders and directions contemplated under this Contract and Specifications relative to the execution of the work. The Director or their designee shall determine the amount, quality, acceptability and fitness of the several kinds of work and materials which are to be paid for under the Contract and shall decide all questions which may arise in relation to said work and the construction thereof. The Director's estimates and decisions shall be final and conclusive, except as herein otherwise expressly provided. In case any question shall arise between the parties hereto relative to said Contract and Specifications, the determination or decision of the Director shall be a condition precedent to the right of the Contractor to receive any money or payment for work under this Contract affected in any manner or to any extent by such question.

The Director or their designee shall decide the meaning and intent of any portion of the Specifications and of any Plans or Drawings where the same may be found obscure or be in dispute.
32. Notice and Service Thereof: Any notice to any Contractor from the Owner relative to any part of this Contract shall be in writing and considered delivered and the service thereof completed when said notice is posted, by certified or registered mail, to the said Contractor at their last given address, or delivered in person to the said Contractor or their authorized representative on the work.
33. Subcontract: The Contractor will insert in any subcontracts the Federal Labor Standards Provisions and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts which they may enter into, together with a clause requiring this insertion in any further subcontracts that may in turn be made.
34. Interest of Member of or Delegate to Congress: No member of or delegate to Congress, or Resident Commissioner, shall be admitted to any share or part of this Contract or to any benefit what may arise therefrom, but this provision shall not be construed to extend to this Contract if made with a corporation for its general benefit.
35. Other Prohibited Interest: No official of the Town of Plymouth who is authorized in such capacity and on behalf of the Town to negotiate, make, accept or approve, or to take part in negotiating, making, accepting or approving any architectural, engineering, inspection, construction or material supply contract or any subcontract in connection with the construction of this project shall become directly or indirectly interested personally in this Contract or in any part thereof. No officer, employee, architect, attorney, engineer or inspector of or for the Town who is authorized in such capacity and on behalf of the Town to exercise any legislative, executive, supervisory or other similar functions in connection with the construction of the project, shall become directly or indirectly

interested personally in this Contract or in any part thereof, any material supply contract, subcontract, insurance contract or any other contract pertaining to the project.

36. Suspension of Work: Notwithstanding anything to the contrary in the Contract and related documents:

Should the work be delayed in any manner, for any reason, and by whomever caused, including but not limited to, due to the lack or delay of funding, and/or should the Owner be prevented or enjoined from proceeding with work either before or after the start of construction by any reason, including the absence of sufficient funds to complete the work, or as a result of any litigation or any other reason whether within or beyond the control of the Owner, the Contract shall not be entitled to any additional compensation or any other damages on account of any such delays, and shall not make or assert claim for such compensation or damages, whether such claims are titled, claims for delay damages, out of sequence work, acceleration of the work, hindrance, or otherwise; but time for completion of the work will be extended to such reasonable time as the Town may determine will compensate for time lost by such delay with such determination to be set forth in writing, and this shall be the Contractor's sole remedy on account of any delay.

37. Access to Records: The Contractor shall maintain accounts and records, including personnel, property and financial records, adequate to identify and account for all costs pertaining to the Contract and such other records as may be deemed necessary by the Town to assure proper accounting for all project funds, both CDBG and non-CDBG shares. These records will be made available for audit purposes to the Owner or any authorized representative, and will be retained for three (3) years after final MSCP audit.
38. Age Discrimination Act of 1975: No person in the United States shall, on the basis of age, be excluded from participation in, be denied the benefits of, or be subjected to discrimination from receiving Federal Financial Assistance.

The Contractor shall comply with the provisions of the Age Discrimination Act of 1975 (42 USC 6101 et seq.).

The Age Discrimination in Employment Act prohibits arbitrary age discrimination in employment.

39. Non-Discrimination: The Contractor shall adhere to the requirements set forth in Title VI of the Civil Rights Act of 1964 (Public Law 88-352), and the regulation issued pursuant thereto by HUD (24 CFR Part 1); Title VIII of the Civil Rights Act of 1968 (Public Law 90-284), as amended; §109 of the Housing and Community Development Act of 1974, and the HUD regulations issued pursuant thereto (24 CFR 570.601); Federal Executive Order 11063, as amended by Executive Order 12259 and the HUD regulations issued pursuant thereto (24 CFR 107); Executive Order 11246 and the rules, regulations and relevant orders of the U.S. Secretary of Labor, if applicable; the Age Discrimination Act of 1975 (42 USC 6101 et seq.); §402 of the Veterans of the Vietnam Era Act; §504 of the Rehabilitation Act of 1973 (29 USC 794); Massachusetts General Laws c.151B §1 et seq.; State Executive Order 74 as amended and revised by Executive Orders 116, 143 and 227, and EOCD regulation, procedures or guidelines; Title II of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1979; and EOCD guidelines, procedures, or regulations.

The Contractor shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, age, handicap, or national origin. The Contractor shall take affirmative action to ensure that applicants for employment are employed, and the employees are treated during employment, without regard to their race, color, religion, sex, sexual orientation, age,

handicap, or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rate of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor shall post in conspicuous places, available to employees and applicants for employment, notices setting forth the provision of this non-discrimination clause. The Contractor shall state in all solicitations or advertisements for employees placed by or on behalf of the Contractor, that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, age, handicap, or national origin. The Contractor shall incorporate the foregoing requirements of this paragraph in all contracts for work to be performed in this paragraph in all contracts for work to be performed in accordance with this Contract and will require all of its subcontractors to incorporate such requirements in all subcontracts for program work.

Contracts are subject to Federal Executive Order 11246, as amended, and shall be subject to HUD Equal Employment Opportunity regulation at 24 CFR Part 130 applicable to HUD assisted construction contracts.

The Contractor shall send to each labor union or representative or workers with which they have a collective bargaining agreement or other contract or understanding, a notice advertising the said labor union or worker's representatives of the Contractor's commitment under this subsection and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

In the event of noncompliance by the Contractor with the non-discrimination clauses of this Contract or with any such rules, regulations, or orders of the Secretary of Labor, the Contract may be cancelled, terminated or suspended in whole or in part, and the Contractor may be declared ineligible for further Government contract or Federally assisted construction contract procedures authorized in Executive Order 11246, or by rules, regulations or orders of the Secretary of Labor, as otherwise provided by law.

The Contractor shall include the provisions set forth herein in every subcontract or purchase order unless exempted by rules, regulations or orders of the Secretary of Labor issued pursuant to §204 of Executive Order 11245, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such actions with respect to any subcontract or purchase order as HUD or EOCD may direct as a means of enforcing such provisions, including sanctions for noncompliance; provided, however, that in the event the Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction, the Contractor may request the United States to enter into such litigation to protect the interest of the United States.

40. Non-Federal Labor-Standards Provisions: The following Non-Federal Labor-Standards Provisions, including the provisions concerning maximum hours of work, minimum rates of pay, and overtime compensation, with respect to the categories and classifications of employees hereinafter mentioned are included in this Contract pursuant to the requirements of applicable State or local laws, but the inclusion of such provisions shall not be construed to relieve the Contractor or subcontractor from the pertinent requirements of any corresponding Federal Labor-Standard Provisions of this Contract. In case the minimum rates of pay set forth below shall be higher than the minimum rates of pay required by or set forth in the Federal Labor Standards Provisions of this Contract for corresponding classifications, the minimum rates of pay for such classifications. The limitations, if any, in these Non-Federal Labor-Standards Provisions upon the hours per day, per week or per month which employees engaged on the work covered by this Contract may be required or permitted to work thereon shall not be exceeded.

41. Schedule of Salaries and Wages: The minimum wage rates and health and welfare contributions applicable to this Contract as determined by the Commonwealth of Massachusetts Executive Office of Labor and Workforce Development Department of Labor Standards under the provisions of M.G.L. c.149 §26-27H, inclusive as amended are attached hereto and incorporated herein. The greater of Federal or State prevailing wages, when both are applicable, shall be paid under this Contract and reported as required.
42. Massachusetts Labor Provisions:
- a. In the employment of mechanics and apprentices, teamsters, chauffeurs and laborers by the Contractor and subcontractors, preference shall first be given to citizens of the Commonwealth who have been residents of the Commonwealth for at least six (6) months at the commencement of their employment, who are male veterans as defined in M.G.L. c.4 §7 43rd Clause, and who are qualified to perform the work to which the employment relates; and secondly to citizens of the Commonwealth generally who have been residents of the Commonwealth for at least six (6) months at the commencement of their employment, and if they cannot be obtained in sufficient numbers, then to citizens of the United States, in accordance with M.G.L. c.149 §26.
 - b. The minimum rates of wages to be paid mechanics and apprentices, chauffeurs, teamsters and laborers shall be set for in the schedule of rates of wages determined by the Massachusetts Department of Labor Standards.
 - c. In accordance with M.G.L. c.149 §34A, the Contractor shall, before commencing performance of the Contract, provide insurance for the payment of compensation and the furnishing of other benefits under c.152 to all persons to be employed under the Contract, and the Contractor shall continue such insurance in full force and effect during the terms of the Contract. Sufficient proof of compliance with this section must be furnished at the time of execution of this Contract. Failure to provide and continue in force such insurance as aforesaid shall be deemed a material breach of the Contract and shall operate as an immediate termination thereof. The attention of the Contractor is directed to that portion of M.G.L. c.149 §34A which provides that whoever violates any of its provisions shall be punished by a fine of not more than One Hundred Dollars (\$100.00) or by imprisonment for six (6) months, or both; and, in addition, any Contractor who violates any provision of this section shall be prohibited from contracting, directly or indirectly, with the Commonwealth or any political subdivision thereof for the construction, alteration, demolition, maintenance or repair of, or addition to, any public works or public building for a period of two (2) years from the date of conviction of said violation.
 - d. The Contractor shall pay to any reserve police officer employed by them the prevailing rate of wage paid to regular police officers, as required by M.G.L. c.149 §34B.
43. Interest of Contractor and Employees: The Contractor covenants that he presently has no interest and shall not acquire interest, direct or indirect, in the study area or any parcels therein or any other interest which would conflict in any manner or degrees with the performance of their services hereunder. The Contractor further covenants that in the performance of the Contract, no person having any such interest shall be employed. Further, the Contractor shall adhere to the provisions of the Hatch Act (5 USC 1501 et seq.), which limits political activities by employees whose principal employment is in connection with an activity which is financed in whole or in part by Federal funds.
44. Severability: If any provision of this Contract is held invalid, the remainder of the Contract shall not be affected thereby, and all other parts of this Contract shall nevertheless be in full force and effect.

45. Confidentiality: The Contractor will protect the privacy of, and respect the confidentiality of, information provided by program participants, consistent with applicable Federal and State regulations, including M.G.L. c.66 §10, regarding access to public records.

THE SIGNATURE PAGE HAS BEEN INTENTIONALLY LEFT BLANK

CONTRACTUAL LIABILITY

To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify, and hold harmless OWNER and its consultants, agents and employees from and against all claims, damages, losses and expenses, direct, indirect or consequential (including but not limited to fees and charges of designers, architects, attorneys and other professionals and court and arbitration costs) arising out of or resulting from performance of the work, provided that any such claim, damage, loss or expense(s) is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the work itself) including the loss of use resulting therefrom and (b) is caused in whole or in part by any negligent act or omission of CONTRACTOR, any subcontractor, any person or organization directly or indirectly employed by any of them to perform or furnish any of the work or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by a party indemnified hereunder or arises by or is imposed by Law and Regulations regardless of the negligence of any such party.

In any and all claims against OWNER or any of its consultants, agents or employees by any employee of CONTRACTOR, and subcontractor, any person or organization directly or indirectly employed by any of them to perform or furnish any of the work or anyone for whose acts any of them may be liable, the indemnification obligation under the above paragraph shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for CONTRACTOR or any such subcontractor or other person or organization under workers' or workmen's compensation acts, disability benefit acts or other employee benefits acts.

Policies for General Liability, Automobile Liability, Workers' Compensation Insurance, and Umbrella Liability shall remain in effect during the one-year correction period.

Such insurance as is herein certified applies to all operations of the insured in connection with, and necessary and incidental to, the work herein described at the locations stated.

It is hereby understood and agreed that the above policies will not be restrictively amended, materially changed nor canceled without 30 days advance notice by registered mail to OWNER.

SAMPLE – DO NOT SIGN

SAMPLE – DO NOT FILL IN

Authorized Representative Signature
(Include Evidence of Authorization)

Address

**TOWN OF PLYMOUTH
CONTRACTOR SAFETY ACKNOWLEDGEMENT FORM**

Contractor Company Name: SAMPLE – DO NOT FILL IN

Bid Number / Assigned Work:

Location(s):

Please initial each item:

_____ 1. Contractor, subcontractor, and any/all laborer(s) have been trained in the general safe work practices applicable to their trade.

_____ 2. Any Contractor personal or property accidents or cases of job-related injuries/illnesses must be immediately reported to the Safety Compliance Officer.

_____ 3. Contractors shall know the location of the nearest fire extinguisher, pull station alarm and first aid equipment.

_____ 4. Contractor work will be periodically monitored by management to ensure adherence to Town of Plymouth work requirements.

_____ 5. Depending on the nature of the Contractor's activities, the following permits must be issued prior to beginning work: Confined Space Entry Permit, Hot Work Permit, Roof-Top/Ceiling Permit and/or Excavation/Trenching.

All Contractors are required to sign, in agreement that they have received the Contractor Safety Acknowledgement and Agreement Form and have read and fully understand its contents. This form must be returned to Procurement, to be forwarded to the Safety Compliance Officer, and will be kept on file.

The undersigned Contractor represents and warrant that they shall comply with all applicable Federal, State and local laws, regulations and rules while engaged to perform services for the Town of Plymouth, Massachusetts. Any Contractors who violate these rules may be precluded from conducting work for the Town. The Contractor is also responsible for ensuring that all employees and subcontractors comply with the Town of Plymouth's safe work practices.

Contractor/Subcontractor

SAMPLE
Print Name

SAMPLE
Signature

Date

Safety Compliance Officer or Designee

SAMPLE
Print Name

SAMPLE
Signature

Date

All injuries/incidents must be reported to the Safety Compliance Officer, Michelle Newell, at (508) 747-1620, ext. 10123.

ATTACHMENT 1

TECHNICAL SPECIFICATIONS
(SPECIAL PROVISIONS)

ROADWAY REALIGNMENT OF BARTLETT ROAD AND BRIDGE REPLACEMENT
PLYMOUTH, MASSACHUSETTS

SPECIAL PROVISIONS

SLR No. 141.11982.00016
September 21, 2023

SPECIAL PROVISIONS TO:

THE COMMONWEALTH OF MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES 2022

PREPARED FOR:

TOWN OF PLYMOUTH, MASSACHUSETTS
26 COURT STREET
PLYMOUTH, MA 02360

PREPARED BY:

SLR INTERNATIONAL CORPORATION
99 REALTY DRIVE
CHESHIRE, CT 06410

SPECIAL PROVISIONS TABLE OF CONTENTS

<u>Description</u>	<u>Page</u>
Introduction to the Special Provisions	SP-1
Notice(s) to Contractor	SP-1
Work Schedule	SP-1
Provisions for Travel and Prosecution of Work	SP-1
Haul Routes and Posted Limits	SP-1
Traffic Control	SP-2
Engineering Directives	SP-2
Environmental Conditions	SP-2
Personal Protective Safety Equipment for Contract Personnel	SP-2
Section 1.00 – Control of Work	SP-3
Disposal of Excess Material	SP-4
Item 1. Site Preparation	SP-5
Item 2. Traffic Management	SP-9
Item 3. Demolition and Removals	SP-12
Item 4. Site Improvements and Restoration	SP-14
Item 5. Channel and Bank Slope Treatments	SP-25
Item 6. Channel Bed Material	SP-28
<i>Subsection 112 Demolition of Buildings, Structures and Bridges</i>	
Item 115.1 Demolition of Structure P-13-041	SP-30
<i>Subsection 120 Excavation</i>	
Item 120. Earth Excavation	SP-30
<i>Subsection 140 Excavation for Structures</i>	
Item 140. Bridge Excavation	SP-31
Item 141.1 Test Pit for Exploration	SP-31
<i>Subsection 150 Embankment</i>	
Item 151. Gravel Borrow	SP-31
Item 151.01 Gravel Borrow – Type C	SP-32
Item 151.2 Gravel Borrow for Backfilling Structures and Pipes	SP-32
Item 156.1 Crushed Stone for Bridge Foundations	SP-32
<i>Subsection 170 Grading</i>	
Item 170 Fine Grading and Compacting	SP-32

Subsection 201 Basins, Manholes, and Inlets

Item 201.5	Catch Basin – Municipal Standard W/ 4’ Sump	SP-32
Item 202.01	Manhole – Municipal Standard 4’ Diameter W/ 2’ Sump	SP-32
Item 205.018	Water Quality BMP (2000 Gallon Capacity)	SP-32
Item 222.3	Frame and Grate (Or Cover) Municipal Standard	SP-34
Item 241.12	12-Inch Reinforced Concrete Pipe	SP-34
Item 241.15	15-Inch Reinforced Concrete Pipe	SP-34
Item 241.18	18-inch Reinforced Concrete Pipe	SP-34
Item 242.12	12-Inch Reinforced Concrete Pipe Flared End	SP-34

Subsection 258 Stone for Pipe Ends

Item 258.	Stone for Pipe Ends	SP-35
-----------	---------------------	-------

Subsection 402 Dense Graded Crushed Stone for Sub-Base

Item 402.	Dense Graded Crushed Stone for Sub-Base	SP-35
Item 415.1	Pavement Standard Milling	SP-35

Subsection 440 Roadway Dust Control

Item 443.	Water for Dust Control	SP-35
-----------	------------------------	-------

Subsection 450 Hot Mix Asphalt Pavement

Item 452.	Asphalt Emulsion for Tack Coat	SP-35
-----------	--------------------------------	-------

Subsection 460 Hot Mix Asphalt Pavement for Local Street

Item 460.23	Superpave Surface Course – 12.5 (SSC – 12.5)	SP-35
Item 460.42	Superpave Base Course – 37.5 (SBC – 37.5)	SP-36

Subsection 482 Sawcutting

Item 482.3	Sawcutting Asphalt Pavement	SP-36
------------	-----------------------------	-------

Subsection 501 Curb, Curb Inlets, Curb Corners and Edging

Item 570.1	Hot Mix Asphalt Curb – Type 1	SP-36
------------	-------------------------------	-------

Subsection 701 Cement Concrete Sidewalks, Pedestrian Curb Ramps and Driveways

Item 701	Cement Concrete Sidewalk	SP-36
Item 701.1	Cement Concrete Sidewalk at Driveways	SP-36

Subsection 702 Hot Mix Asphalt Sidewalks and Driveways

Item 702	Hot Mix Asphalt Sidewalk or Driveway	SP-36
----------	--------------------------------------	-------

Subsection 748 Mobilization

Item 748 Mobilization SP-37

Subsection 860 Reflectorized Pavement Marking

Item 861.106 6 Inch Reflectorized Yellow Line (Painted) SP-37

Subsection 983 Revetment

Item 983.2 Riprap SP-37

Subsection 990 Water Control

Item 991.1 Control of Water SP-38

Subsection 995 Bridge Structure

Item 995.011 Culvert Superstructure, Culvert No. P-13-041 (CHU) SP-44

Subsection 1000 Utility Relocations

Item 1000.1 Permanent Water Main Relocation SP-50

Item 1000.2 Temporary Water Main Relocation SP-60

INTRODUCTION TO THE SPECIAL PROVISIONS

The work to be performed hereunder shall conform with the latest version of the Special Provisions to the Commonwealth of Massachusetts, Department of Public Works, "Standard Specifications for Highways and Bridges," dated 2022 and the By-Laws of the Town of Plymouth, Massachusetts (Town), all as amended or supplemented herein.

References in the following Special Provisions, unless otherwise stated, are to the aforesaid "Standard Specifications." In case of conflict between these Special Provisions and the aforesaid Standard Specifications, these Special Provisions shall take precedence and shall govern. The enforcement of the requirements of any of these Special Provisions shall not be construed as waiving any of the rights of the Party of the First Part contained in any of the other provision of this Contract.

All work done under this Contract shall be in conformance with the following:

- Massachusetts Highway Department Standard Specifications for Highways and Bridges dated 2022
- Construction Standard Details dated October 2017
- 2009 Manual on Uniform Traffic Control Devices with Massachusetts Amendments dated May 2012
- Notes on Walks and Wheelchair Ramps for Designers and Construction Engineers dated March 2012
- Latest edition of American Standard for Nursery Stock; the Plans and these Special Provisions

The Standard Specifications are hereby amended by the following modifications, additions, and deletions.

NOTICE(S) TO CONTRACTOR

Note: It is the intent of these Special Provisions to modify the Method of Measurement and Basis of Payment for the Standard MassDOT work items identified. Nothing in this specification shall relieve the Contractor of his duty to perform his work in accordance with the MassDOT Standard Specifications.

Note: The contractor shall be aware of the time-of-year (TOY) restrictions that exist for this Project as described in the attached permits. The Contractor is advised that per General Condition 16 of the MA GP, E&S Controls, including cofferdams within the waters of the US, should not be in place between March 1 and June 30. The Contractor is responsible for scheduling all work to abide by these restrictions. There shall be no extra compensation for the removal and reinstallation of any water control measures due to work stoppages associated with the TOY restrictions.

PROVISIONS FOR TRAVEL AND PROSECUTION OF WORK

The Contractor shall prosecute his work so that traffic will be maintained over and through the work site with a maximum of safety and convenience in accordance with the provisions of Section 7.09, Public Safety and Convenience.

HAUL ROUTES AND POSTED LIMITS

It is the Contractor's responsibility to ascertain whether haul routes are over accepted public ways or private ways prior to using same for hauling purposes, and it is further the Contractor's responsibility to

ascertain whether there are any weight limitations or other restrictions and to abide by them. If the Contractor or his subcontractor utilizes any bridges with posted limits, he shall submit to the Engineer a list of all vehicles, including equipment used during construction, and shall verify that weight restrictions are not exceeded. No additional compensation shall be granted due to any inconvenience imposed on the Contractor due to any haul routes.

TRAFFIC CONTROL

Traffic control shall comply with the applicable sections of Part VI of the latest edition of the *Manual on Uniform Traffic Control Devices*. Sign placement shall conform to the applicable sketches herein and/or as shown in said Part VI.

The Contractor shall provide and use the necessary (as directed) warning devices, barricades, drums, signs, special lighting units, special apparel, etc. in accordance with the provisions of Section 850, Traffic Controls for Construction and Maintenance Operations in the performance of the work.

Work areas on this Project shall not be left overnight without adequate protection. A sufficient amount of traffic cones, drums, barricades, and hazard warning lighting devices will be placed and maintained as necessary and approved or where and when directed by the Engineer.

Where the Town authorizes general traffic from a traveled way to be detoured over Town streets, the Contractor shall be responsible for maintenance of such detours and placing them in the equivalent condition they were in prior to general traffic being detoured. No extra payment will be made for such work.

ENGINEERING DIRECTIVES

Contractors can access MassDOT, Highway Division Engineering Directives at:
<http://www.massdot.state.ma.us/highway/publications.aspx>

ENVIRONMENTAL CONDITIONS

The Contractor must become familiar with all provided information and must comply with all provisions of the specifications in order to properly plan the work and provide the means and methods to ensure the work is sufficiently protective of human health and the environment.

PERSONAL PROTECTIVE SAFETY EQUIPMENT FOR CONTRACTOR PERSONNEL

The Contractor is responsible to ensure that all personnel, including all subcontractors, working on the Project are issued and are wearing all necessary personal protective safety equipment while working within the Project limits. This equipment shall include, as a minimum, a hardhat and a safety vest regardless of the type of work being performed. Other safety equipment shall be added as required to perform the work in which the Contractor and its subcontractors are engaged and in accordance with all local, state, and federal requirements in effect. Safety equipment shall be provided at no additional cost to the Town.

SECTION 1.00 – CONTROL OF WORK

Section 1.00 – Control of Work is amended as follows:

- 1.01 Plans and Detail Drawings – All shop drawings and working drawings shall be submitted directly to:

SLR International Corporation
99 Realty Drive
Cheshire, CT 06410
Attn: Mr. Kishor Patel, PE

- 1.02 Conformity with Plans and Specifications – The Contractor shall make his own determination of dimensions and details in the field and have no claim for difference between the plan and the actual field measurements.

- 1.03 Construction (Stakes) Stakings

- A. Construction baselines and benchmarks are shown on the plans. The survey control points (CP) provided herein are based on information derived from the original survey and HAVE NOT been verified by SLR International Corporation (SLR) since. These points are being furnished for informational purposes only, and the user of this information is cautioned to verify the existence of and field check the accuracy of these points prior to use. Any other information contained herein is copied from previous maps or plans and may not reflect current conditions. The user is cautioned not to rely on its accuracy. SLR DISCLAIMS ANY LIABILITY whatsoever to users of this document due to lost, damaged, and/or disturbed CPs. There are no warranties or representations, expressed or implied, and SLR cannot be held responsible for any discrepancies that may arise.
- B. The Contractor is responsible to perform his own construction stakeout of the Project as defined within the specifications.
- C. The Contractor shall provide at his own expense all materials and labor as may be required to establish and maintain all Project horizontal and vertical control grade lines, additional reference marks, and line and grade stakes. The Contractor's plan for Project control shall be submitted to the Engineer for approval prior to starting any work.
- D. The Contractor is responsible to perform his own construction stakeout of the Project as defined within the specifications.
- E. If the Contractor, through willfulness or carelessness, removes or permits to be removed such reference marks before the prosecution of the work requires it, they shall be replaced at his own expense. All work shall conform, during its progress and its completion, truly to the lines and grades shown on the plans and shall be done in a thoroughly substantial and workmanlike manner, in accordance with the plans and directions given by the Engineer from time to time as shall be deemed necessary by him during its execution.

- F. The Contractor shall exercise due care when working around property bounds at all locations.
 - G. The Contractor shall promptly report to the Engineer any survey discrepancies, changed conditions, or design issues of which the Contractor or subcontractors become aware so that the Engineer may take measures to resolve or minimize the consequences of any changes deemed necessary by the Engineer. The Contractor shall impose a similar notification requirement in all subcontracts.
 - H. The Contractor shall notify Massachusetts Dig Safe at 811 or 1-888-DIG-SAFE (888-344-7233) at least 72 business hours prior to digging. Once notified, Dig safe will contact member utilities to come to the site and mark underground utility wires, cables, and pipelines.
 - I. Should any damage to a bound result from the actions of the Contractor, it shall be replaced and/or realigned by the Contractor as directed by the Engineer. No further compensation will be due the Contractor for the materials and labor required to reestablish this bound in its proper orientation as shown on the plans.
 - J. The Contractor will be provided with digital PDFs of the Contract Drawings upon which he will detail the "As-Built" line, grade, and measurements. Completed As-Built drawings shall be submitted to the Engineer before final approval of the work and before final acceptance.
- 1.04 Landscape Preservation – The Contractor shall exercise care to preserve the natural landscape and shall conduct his construction operations so as to prevent any unnecessary destruction, scarring, or defacing of the natural surroundings in the vicinity of the work. Except where clearing is required for permanent works and for excavation operations, all trees, native shrubbery, and vegetation shall be preserved and protected from damage that may be caused directly or indirectly by the Contractor's operations. Movement of personnel and equipment shall be done in a manner that will prevent damage to property.

All work areas shall be groomed and regraded in a manner to conform to the natural appearance of the landscape. Where destruction, scarring, damage, or defacing may occur as a result of the Contractor's operations, the same shall be repaired, replanted, reseeded, replaced, or otherwise corrected at the Contractor's expense.

The location and grade of temporary access roads shall be subject to the approval of the Engineer. When no longer required by the Contractor, temporary access roads shall be regraded to conform to the natural contours and shall be left in a condition that will promote revegetation.

DISPOSAL OF EXCESS MATERIAL

Surplus materials obtained from any type of excavation and all existing and other materials not required to be removed and stacked or needed for use on the Project, as determined by the Engineer, shall become the property of the Contractor and disposed of subject to the regulations and requirements of local authorities governing the disposal of such materials at no additional compensation.

ITEM 1.

SITE PREPARATION

LUMP SUM

General

The work performed under this item shall conform to the relevant provisions of the Standard Specifications for Highways and Bridges for:

- Subsection 101 – Clearing and Grubbing
- Subsection 170 – Grading
- Subsection 670 – Sedimentation Fence
- Subsection 748 – Mobilization
- Subsection 767 – Mulching and Erosion Control

For the following standard work Items:

- Item 101. Clearing and Grubbing
- Item 102. Selective Clearing and Thinning
- Item 102.51 Individual Tree Protection
- Item 103 Tree Removed – Diameter Under 24 Inches
- Item 104 Tree Removal – Diameter 24 Inches and Over
- Item 105 Stump Removed
- Item 141.1. Test Pit for Exploration
- Item 657. Temporary Fence
- Item 697. Sedimentation Fence
- Item 698.1 Geotextile Fabric for Stabilization
- Item 756. NPDES Stormwater Pollution Prevention Plan
- Item 767.8 Bales of Hay for Erosion Control

And the following:

Item 141.1. Test Pit for Exploration

The Contract price shall include provisions for up to five (5) test pits within the Project area around the Bartlett Road Culvert, as determined by the Engineer.

Item 657. Temporary Fence

Work included under this item shall include the installation, maintenance, and removal of temporary orange construction safety fence as required at the locations shown on the plans. Temporary fence shall be highly visible orange construction fence Beacon Plus by TENAX, or approved equal.

Item 698.1 Geotextile Fabric for Stabilization

Temporary erosion control blanket (ECB) shall be a biodegradable straw and coconut fiber erosion control blanket designed to provide all-natural erosion protection and assist with vegetation establishment on slopes of 2:1 or greater for 18 months. After the blankets degrade, soil erosion is controlled by the root, stem, and leaf structures of the mature vegetation. ECB shall be North American Green SC150BN, or approved equal.

U-shaped wire staples, metal geotextile stake pins, or triangular wooden stakes can be used to anchor ECBs and turf reinforcement mats (TRMs) to the ground surface. Wire staples should be a minimum of 11 gauge. Metal stake pins should be 3/16-inch-diameter steel with a 1.5-inch steel washer at the head of the pin. Wire staples and metal stakes should be driven flush to the soil surface.

All anchors should be 6 to 8 inches long and have sufficient ground penetration to resist pullout. Longer anchors might be required for loose soils. Use biodegradable composite or wooden stakes where dislodged metal staples or stakes might cause extreme hazards such as near airport runways or areas where future mowing might cause risk.

Installation on Slopes – Begin at the top of the slope and anchor the blanket in a 6-inch-deep by 6-inch-wide trench. Backfill trench and tamp earth firmly. Unroll blanket downslope in the direction of the water flow. The edges of adjacent parallel rolls must be overlapped at least 3 inches and be stapled through the overlapped area at least every 2 feet. When blankets must be spliced, place uphill blanket end over downhill blanket (shingle style) with 6-inch overlap. Staple through overlapped area, approximately 12 inches apart. Lay blankets and mats loosely and maintain direct contact with the soil – do not stretch. Ensure good, consistent, direct soil contact.

ECBs must be stapled sufficiently to anchor the blanket and maintain contact with the soil. Staples must be placed down the center and staggered with the staples placed along the edges. Steep slopes (1H:1V to 2H:1V) require at least two staples per square yard. Moderate slopes (2H:1V to 3H:1H) require one to two staples per square yard (one staple every 3 feet on center). Gentle slopes require one staple per square yard.

Inspection and Maintenance – Temporary erosion control blanket shall be placed over any disturbed areas to prevent erosion during predicted large storms and at the direction of the Owner/Engineer to prevent sediment erosion. All blankets should be inspected periodically following installation. Inspect installation after significant rainstorms to check for erosion and undermining. Any failure should be repaired immediately. If washout or breakage occurs, reinstall the material after repairing the damage to the slope.

Item 756. NPDES Storm Water Pollution Prevention Plan

This item addresses the preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP) required by the National Pollutant Discharge Elimination System (NPDES) and applicable Construction General Permit.

Pursuant to the Federal Clean Water Act, construction activities that disturb 1 acre or more are required to apply to the U.S. Environmental Protection Agency (EPA) for coverage under the NPDES General Permit for Storm Water Discharges from Construction Activities. On February 16, 2017 (82 FR 6534), EPA issued the final NPDES Construction General Permit (CGP) for construction activity. The 2017 CGP replaces the 2012 CGP (which expired on February 15, 2012) and will provide coverage for eligible new and existing construction projects for a period of 5 years.

The NPDES CGP requires the submission of a Notice of Intent (NOI) to the U.S. EPA prior to the start of construction (defined as any activity that disturbs land, including clearing and grubbing). There is a fourteen (14) day review period commencing from the date on which EPA enters the Notice into their

database. The Contractor is advised that, based on the review of the NOI, EPA may require additional information including but not limited to the submission of the SWPPP for review. Work may not commence on the Project until final authorization has been granted by EPA. Any additional time required by EPA for review of submittals will not constitute a basis for claim of delay.

In addition, if the Project discharges to an Outstanding Resource Water, vernal pool, or is within a coastal areas of critical environmental concern (ACEC) as identified by the Massachusetts Department of Environmental Protection (DEP), a separate notification to DEP is required. DEP may also require submission of the SWPPP for review and approval. Filing fees associated with the notification to DEP and, if required, the SWPPP filing to DEP shall be paid by the Contractor.

The General Permit also requires the preparation and implementation of a SWPPP in accordance with the aforementioned statutes and regulations. The Plan will include the General Permit conditions and detailed descriptions of controls of erosion and sedimentation to be implemented during construction. It is the responsibility of the Contractor to prepare the SWPPP to meet the requirements of the most recently issued CGP. It is the responsibility of the Contractor to be familiar with the General Permit conditions and the conditions of any state Wetlands Protection Act Order, Water Quality Certification, U.S. Army Corps of Engineers Section 404 Permit, and other environmental permits applicable to this Project and to include in the SWPPP the methods and means necessary to comply with applicable conditions of said permits (reference to Part 9.1.1 of the 2012 CGP).

It is the responsibility of the Contractor to complete the SWPPP in accordance with the EPA Construction General Permit, provide all information required, and obtain any and all certifications as required by the Construction General Permit. Any amendments to the SWPPP required by site conditions, schedule changes, revised work, construction methodologies, and the like are the responsibility of the Contractor. Amendments will require the approval of the Engineer prior to implementation.

Included in the General Permit conditions is the requirement for inspection of all erosion controls and site conditions on a weekly basis as well as after each incidence of rainfall exceeding 0.25 inches in 24 hours. For multi-day storms, EPA requires that an inspection must be performed during or after the first day of the event and after the end of the event. The Contractor shall choose a qualified individual who will be on site during construction to perform these inspections. The Engineer must approve the Contractor's inspector. In addition, if the Engineer determines at any time that the inspector's performance is inadequate, the Contractor shall provide an alternate inspector. Written weekly inspection forms, storm event inspection forms, and Monthly Summary Reports must be completed and provided to the Engineer. Monthly Summary Reports must include a summary of construction activities undertaken during the reporting period, general site conditions, erosion control maintenance and corrective actions taken, the anticipated schedule of construction activities for the next reporting period, any SWPPP amendments, and representative photographs.

The Contractor is responsible for preparation of the Plan, all SWPPP certifications, inspections, reports, and any and all corrective actions necessary to comply with the provisions of the General Permit. The Standard Specifications require adequate erosion control for the duration of the Contract. This item addresses acceptable completion of the SWPPP, any revisions/amendments required during construction, and preparation of monthly reports. In addition, any erosion controls beyond those specified in bid items elsewhere in this Contract that are selected by the Contractor to facilitate and/or address the Contractor's

schedule, methods, and prosecution of the work shall be considered incidental to this item.

The CGP requires the submission of a Notice of Termination (NOT) from all operators when final stabilization has been achieved as well as removal and proper disposal of all construction materials, waste, and waste handling devices; removal of all equipment and construction vehicles; removal of all temporary stormwater controls; etc. Approval of final stabilization by the Engineer and confirmation of submission of the NOT will be required prior to issuance of Notice of Contract Completion. The permittee is required to use EPA's electronic NOI system or "eNOI system" to prepare and submit NOT. The electronic NOT form can be found at www.epa.gov/npdes/stormwater/cgpenoi. If you are given approval by the EPA Regional Office to use a paper NOT, you must complete the form in Appendix K of the 2012 CGP.

Coordination with Utility Companies and Protection of Utilities

Utility poles currently shown within the Project footprint will be relocated by others prior to construction.

The Contractor is responsible for protection of all utilities at the Project site during construction according to MassDOT standards. Coordination may be required with various utility companies for the completion of the work shown on the Contract Documents.

Temporary Utility Bypass

Work under this item shall include installation and maintenance of any temporary utilities to route service around the work area not specified elsewhere within the Contract. This will include necessary fittings, bends, connections, insulation, blocking to support pipes, excavation, and burial as well as the connections to the line utilities.

Method of Measurement and Basis of Payment

There shall be no measurement under this item. This work shall be paid for at the Contract Lump Sum (L.S.) price and shall include all work, materials, tools, equipment, and labor necessary to complete the items listed above, under Item 1 "Site Preparation," including all clearing and grubbing activities, selective clearing and thinning, removal of existing vegetation as shown on the plans, installation and maintenance of all sedimentation and erosion control measures for the duration of construction, installation and maintenance of temporary fencing, and any coordination with utility companies.

ITEM 2.

TRAFFIC MANAGEMENT

LUMP SUM

The work performed under this item shall conform to the relevant provisions of the Standard Specifications for Highway and Bridges, Section 850 and the following:

The Contractor shall at his own expense furnish and maintain such traffic warning devices, safety cones, amber flashing lights, portable breakaway barriers Type III, Temporary Precast Concrete Median Barrier, Reflectorized Drum with flashers, and temporary 72" chain link fence around the work area as specified in Sections 850 and 644 of the Standard Specification in order to protect the work and afford adequate protection to the traveling public.

The Contractor will be allowed to detour traffic over Town streets.

The work conducted under this item consists of the work required under Item 851.1 Traffic Cones for Traffic Management and Item 852. Safety Signing for Traffic Management. The term 'Traffic Management' shall refer to the operation in which the Contractor is required to install traffic safety control devices to protect his work zone from the motoring public, including the furnishing, transporting, and installation of safety signs and traffic cones.

Work under this Section consists of furnishing, installing, and maintaining in proper operating condition various traffic control devices (including signage, cones, arrow boards, and other items identified on the plans) for the protection of the traveling public and working personnel during construction and maintenance operations. The design, application, and installation of all devices shall conform to MassDOT's "Standard Details and Drawings for the Development of Temporary Traffic Control Plans" and the "Manual on Uniform Traffic Control Devices" latest edition, Part VI, hereinafter referred to as MUTCD, and/or as directed.

The Contractor shall be responsible for the installation of adequate safety precautions for the protection of the traveling public and all Project personnel. All construction vehicles not protected by any form of traffic control device on a Project that is open to traffic shall have an amber flashing light mounted on the cab roof or on the highest practical point of the machinery. The light shall be in operation whenever the equipment is working on the highway or travelway. Amber flashers must be a minimum of 40 candelas and have a flashing frequency of 50 to 60 times per minute. Either rotating beacons or strobe lights meeting these requirements are acceptable.

All materials provided by the Contractor under the items of this section shall remain the property of the Contractor upon completion of the Project unless otherwise specified below.

All work under this Section shall conform to the approved Temporary Traffic Control Plan.

Traffic Cones for Traffic Management consists of furnishing, positioning, repositioning, maintaining, and removing, as needed and/or as directed, traffic cones and necessary ballast for the purpose of closing a lane, shifting traffic, channelizing, or otherwise redirecting traffic.

Traffic cones shall be in good condition and sufficiently ballasted as determined by the Engineer. Any cones damaged by traffic shall be immediately replaced. The Contractor shall keep an adequate supply of spare cones on hand to replace any damaged cones.

The Contractor shall take steps to prevent cones from being blown over or displaced by wind or moving vehicular traffic. Cones shall not be left in position or on the highway when the construction operations have ceased. If it becomes necessary for the Owner to remove any cones from the Project due to negligence by the Contractor, all costs for this work will be charged to the Contractor.

Positioning, adjusting, and repositioning of all devices such as traffic cones, high-level warning devices, etc. not otherwise classified and paid for under other items in this Contract are considered incidental, and no separate payment will be made.

Signs shall be fabricated from plywood, aluminum, or approved alternate substrate material. Plywood sign material shall be 5/8-inch Exterior MDO – General (one sided). Aluminum sign material shall be Type A, 0.080 inch thick, as specified in Subsection 828.42. The entire sign face shall be retro-reflectorized. Reflective sheeting shall conform to M9.30.0. Background sheeting for all construction warning signs shall be of a fluorescent orange color. The minimum spectral radiance factor, in accordance with Section 5.1 of ASTM E991, for the fluorescence shall be as follows:

New 110% minimum
Weathered 60% minimum

Furnishing, installation, and maintenance of traffic signs shall be included in the payment for this item. Signs that are damaged or are missing from their locations shall be replaced by the Contractor without additional compensation.

All signs shall be maintained in a satisfactory manner, including the removal of dirt or road film that causes a reduction in sign reflective efficiency. All signs shall be mounted in compliance with the requirements of the MUTCD.

All signs not consistent with the use of the roadway shall be removed, completely covered, or turned away from traffic each day. In no case shall signs or their portable supports be left in the traveled way when the traffic management setup has been removed. Roll-up signs shall only be used for single work shift setups.

Method of Measurement and Basis of Payment

There shall be no measurement under this item. This work will be paid for at the Contract Lump Sum (L.S.) price for "Traffic Management," which price shall include all materials, equipment, tools, labor, and all work incidental thereto for the completion of the work, including furnishing and maintaining such traffic warning devices, safety cones, amber flashing lights, and portable barricades as necessary for compliance with MUTCD requirements in order to protect the work and afford adequate protection to the traveling public.

No separate payment will be made for traffic signs, construction signs, barricades, barrels, flashers, warning lights, traffic person (police or flaggers), etc., and all costs in connection therewith shall be included in the Contract Lump Sum item "Traffic Management."

The Contract Lump Sum price for "Traffic Management" shall also include temporarily relocating existing signs and sign supports as many times as deemed necessary and furnishing, installing, and removing

temporary signs, supports and foundations, traffic drums, traffic cones, Type III – construction barricades, Type III – construction signs, temporary barriers, temporary impact attenuators, etc., if necessary during construction of the Project. Payment shall be based on the overall percent complete of the work in accordance with the Project schedule.

ITEM 3.

DEMOLITION AND REMOVALS

LUMP SUM

The work performed under this item shall conform to the relevant provisions of the Standard Specifications for Highways and Bridges for:

Subsection 112 – Demolition of Buildings, Structures and Bridges

General

- A. Work included under Item 3. Demolition and Removals shall consist of furnishing all labor, materials, and equipment and performing all operations for demolition, loosening, removal, and disposing of embedded metals and frames, structural steel, reinforcing steel, culvert, granite curb, guard rail, fencing, bituminous pavement, roadway signage, manholes, catch basins, 8" and 10" water main, vegetation, earth, and rubble fill as herein specified as directed by the Field Engineer and as evidently required to properly complete the work.
- B. Work shall include but not limited to the following:
1. The complete excavation, removal, and offsite recycling of any and all reinforced concrete, stone masonry, rock, wood, iron, steel, sheet piles, flashboards, and miscellaneous material used to construct or support the existing culvert and its appurtenances to the limits and extents indicated in the Drawings.
 2. The Contractor will be required to submit plan for the reuse and recycling of debris associated with the bridge demolition and debris sorting/removal process. The Engineer will review and approve the plan prior to the commencement of the river channel work.
 3. Before removing any part of the existing structures, the Contractor shall implement the approved water handling plan as outlined in Section 990 Water Control.
 4. The Contractor shall make a complete investigation of the existing structures and of any special requirements that may be necessary to perform this work. No extra compensation will be made because of special requirements.
 5. All materials not meeting the specifications for reuse in onsite restoration features shall be disposed of off site as noted herein and in accordance with all local, state, and federal regulations at the Contractor's expense. Stone salvaged from the site meeting the requirements of Item 5 – Channel and Bank Slope Treatments, as determined/approved by the Engineer, shall be stored for later use.

Removal Methods

- A. Existing material to be removed by the Contractor shall be removed by such mechanical methods as he may propose, subject to the approval of the Engineer.
- B. The Engineer reserves the right to require the Contractor to change his demolition methods,

sequence, and/or equipment if and when in the opinion of the Engineer, the safety of the public or the integrity of existing structures and/or new construction is jeopardized.

- C. The Contractor shall take all precautions and do such work as may be necessary to prevent damage to the completed portions of any new construction and existing structures to remain due to his removal operations. Any damage to any existing structures to remain shall be repaired prior to final payment at the Contractor's expense.
- D. Reinforcing steel, embedded steel items, and timber may be encountered in portions of the structure to be removed. These items shall be removed and disposed of as part of the work or may be salvaged by the Contractor as noted below.
- E. Pneumatic hammers or any other method approved by the Engineer may be used to remove the concrete and/or stone masonry. Maximum 30-pound hammers shall be used for general removal while a maximum 15-pound hammer shall be used near utilities and the existing building structures to remain. Pneumatic hammers shall not be placed in direct contact with the existing fish ladder wall. The Contractor shall take all precautions and do such work as necessary to prevent damage to the structures to remain.

Method of Measurement and Basis of Payment

There shall be no measurement under this item. The work will be paid for at the Contract Lump Sum (L.S.) price for "Demolition and Removals," which price shall include all materials, equipment, tools, and labor and all work incidental thereto for the completion of the work, including demolition, loosening, removal, and disposing of the embedded metals and frames, structural steel, reinforcing steel, culvert, granite curb, guard rail, fencing, bituminous pavement, roadway signage, manholes, catch basins, 8" and 10" water main, vegetation, earth, and rubble fill as herein specified.

ITEM 4.

SITE IMPROVEMENTS AND RESTORATION

LUMP SUM

General

Work under this item shall consist of furnishing, grading, and treatment of topsoil to finish grade elevations, including mulching, seeding, fertilization, planting, and maintenance of vegetation as shown on the Contract Drawings and as specified in the locations as shown in the Contract Documents and/or as directed by the Engineer. Work under this item also includes grading of stormwater basins as shown in the accompanying details as shown on the Contract Drawings and as specified in the locations as shown in the Contract Documents and/or as directed by the Engineer. This item shall also include furnishing and importing to the site sufficient topsoil to provide 6 inches of depth over all disturbed areas and 4 inches of shredded mulch over all disturbed areas as shown on the Contract Drawings. Work shall include all materials, operations, and establishment necessary to complete the work as specified to the satisfaction of the Engineer.

The work performed under this item shall conform to the relevant provisions of the Standard Specifications for Highway and Bridges, Subsection 765 Seeding, Subsection 771 and the following:

Materials

Seed Mix

- (a) Wetland Seed Mix: Shall conform to New England Wetmix (Wetland Seed Mix) Species
- (b) Upland Seed Mix: Shall conform to New England Native Warm Season Grass Mix

Seeding Rate - 35 lb/acre

The seed mixture is to have no noxious weeds. Other cultivars may be substituted for the above-listed cultivars with the approval of the Owner. However, the same number of species and cultivars with their percentage by weight in the mixtures must remain the same as specified above.

The Contractor is required to submit seed mixes to the Engineer for approval prior to ordering.

Special Product Warranty: The Contractor shall supply the Engineer with all warranties or certificates, or both, furnished with the seed mixture prior to use of the material, if so requested.

Provide submittal to the Engineer for approval.

Products

- (a) Topsoil: ASTM D 5268, pH range of 5.5 to 7, a minimum of 6 percent organic material content; free of stones 1 inch or larger in any dimension, and other extraneous materials harmful to plant growth.

- (b) Topsoil Source: Reuse surface soil stockpiled on site. Verify suitability of stockpiled surface soil to produce topsoil. Clean surface soil of roots, plants, sod, stones, clay lumps, and other extraneous materials harmful to plant growth.
 - 1. Supplement with imported or manufactured topsoil from offsite sources when quantities are insufficient.
 - 2. Additional loam, if required, shall be fertile, friable, agricultural soil, typical for locality, pH value compatible, capable of sustaining vigorous plant growth, taken from drained site; free of subsoil, clay lumps, stones, and other objects over 2 inches in diameter, and free from other impurities, plants, weeds, and roots.

Provide submittal to the Engineer for approval.

Inorganic Soil Amendments

- (a) Lime: ASTM C 602, agricultural limestone containing a minimum of 80 percent calcium carbonate equivalent and as follows:
 - 1. Class: T, with a minimum of 99 percent passing through No. 8 (2.36-mm) sieve and a minimum of 75 percent passing through No. 60 (0.25-mm) sieve.
 - 2. Class: O, with a minimum of 95 percent passing through No. 8 sieve and a minimum of 55 percent passing through No. 60 sieve.
- (b) Sulfur: Granular, biodegradable, containing a minimum of 90 percent sulfur, with a minimum of 99 percent passing through No. 6 (3.35-mm) sieve and a maximum of 10 percent passing through No. 40 (0.425-mm) sieve.
- (c) Iron Sulfate: Granulated ferrous sulfate containing a minimum of 20 percent iron and 10 percent sulfur.
- (d) Aluminum Sulfate: Commercial grade, unadulterated.
- (e) Perlite: Horticultural perlite, soil amendment grade.
- (f) Agricultural Gypsum: Finely ground, containing a minimum of 90 percent calcium sulfate.
- (g) Sand: Clean, washed, natural or manufactured, free of toxic materials.

Organic Soil Amendments

- (a) Compost: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through 1-inch sieve; soluble salt content of 5 to 10 decisiemens/m.

- (b) Peat: Sphagnum peat moss, partially decomposed, finely divided or granular texture, with a pH range of 3.4 to 4.8.
- (c) Peat: Finely divided or granular texture, with a pH range of 6 to 7.5, containing partially decomposed moss peat, native peat, or reed-sedge peat and having a water-absorbing capacity of 1,100 to 2,000 percent.
- (d) Wood Derivatives: Decomposed, nitrogen-treated sawdust, ground bark, or wood waste; of uniform texture, free of chips, stones, sticks, soil, or toxic materials.
- (e) Manure: Well-rotted, unleached, stable or cattle manure containing not more than 25 percent by volume of straw, sawdust, or other bedding materials; free of toxic substances, stones, sticks, soil, weed seed, and material harmful to plant growth.
- (f) Water: Clean, fresh and free of substances or matter that could inhibit vigorous growth of vegetation.

Fertilizer

- (a) A 10-10-10 mixture is recommended for grasses with 50 percent of the element derived from organic sources; of proportion necessary to eliminate any deficiencies of topsoil, as indicated in analysis.
- (b) Bonemeal: Commercial, raw or steamed, finely ground; a minimum of 1 percent nitrogen and 10 percent phosphoric acid.
- (c) Superphosphate: Commercial, phosphate mixture, soluble; a minimum of 20 percent available phosphoric acid.
- (d) Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:
 - 1. Composition: 1 lb/1,000 sq. ft. (0.45 kg/92.9 sq. m) of actual nitrogen, 4 percent phosphorous, and 2 percent potassium by weight.
- (e) Slow-Release Fertilizer: Granular or pelleted fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium in the following composition:
 - 1. Composition: 20 percent nitrogen, 10 percent phosphorous, and 10 percent potassium by weight.

Mulches

- (a) Straw Mulch: Provide air-dry, clean, mildew- and seed-free, salt hay or threshed straw of wheat, rye, oats, or barley, free from weeds, foreign matter detrimental to plant life, and dry. Hay or

chopped cornstalks are not acceptable.

- (b) Organic Mulch: Ground or shredded bark.
- (c) Compost Mulch: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through 1-inch (25-mm) sieve; soluble salt content of 2 to 5 decisiemens/m.
- (d) Mineral Mulch: Rounded riverbed gravel or smooth-faced stone.
 - 1. Size Range: 3/4 inch (19 mm) maximum, 1/4 inch (6.4 mm) minimum.
 - 2. Color: Uniform tan-beige color range acceptable to the Engineer.

Shrub Material

- (a) General: Furnish shrubs complying with ANSI Z60.1, with healthy root systems developed by transplanting or root pruning. Provide well-shaped, fully branched, healthy, vigorous stock free of disease, insects, eggs, larvae, and defects such as knots, sun scald, injuries, abrasions, and disfigurement.
- (b) Root-Ball Depth: Furnish trees and shrubs with root balls measured from top of root ball, which shall begin at root flare according to ANSI Z60.1. Root flare shall be visible before planting.
- (c) Shrub sizes indicated on Drawings are sizes after pruning.

Herbaceous Plugs

- (a) Refer to Contract Drawings for herbaceous plug species, quantities, sizes and spacing.

Stormwater Basin

This item shall cover the work associated with stormwater basins. Stormwater basins shall be constructed as shown on the drawings. This item includes all materials, equipment, and labor to install the stormwater basins, complete and in place.

The work shall consist of construction of a stormwater basin as shown on the plans and conforming to the requirements of the Massachusetts Department of Environmental Protection Massachusetts Stormwater Handbook.

- (a) Geotextile Fabric: Shall be nonwoven geotextile filter fabric, Tencate Mirafi 140NL or equivalent, to be installed in accordance with manufacturer's recommendations.
- (b) Riprap Spillway Crest: Shall be 12" of modified rockfill meeting MassDOT Material M2.02.4.
- (c) Stone Separation Berm: Shall be 12" of 1 1/2" crushed stone meeting MassDOT Material M2.01.1.

Quality Assurance

- (a) The Owner reserves the right to test and reject for cause any material not meeting material specifications by tests in accordance with methods adopted by the Association of Official Agricultural Chemists. Costs for these tests shall be borne by the Contractor [subcontractor].
- (b) Analysis and Standards: Package standard products with manufacturer's certified analysis. For other materials, provide analysis by recognized laboratory made in accordance with methods established by the Association of Official Agricultural Chemists, wherever applicable.
- (c) Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on the Project site when planting is in progress.
- (d) Topsoil Analysis: Furnish soil analysis by a qualified soil-testing laboratory.
 - 1. Report suitability of topsoil for lawn growth. State-recommended quantities of nitrogen, phosphorus, and potash nutrients and soil amendments to be added to produce satisfactory topsoil.
- (e) Provide quality, size, genus, species, and variety of exterior plants indicated, complying with applicable requirements in ANSI Z60.1, "American Standard for Nursery Stock."
- (f) Preinstallation Conference: Conduct conference with Owner/Engineer/Contractor/Local Authorities at the Project site.

Special Product Warranty

Installer's standard form in which Installer agrees to repair or replace plantings that fail in materials, workmanship, or growth within specified warranty period.

- (a) Failures include but are not limited to the following:
 - 1. Death and unsatisfactory growth resulting from lack of adequate maintenance, neglect or abuse, or incidents.
 - 2. Structural failures, including plantings falling or blowing over.
- (b) Warranty Periods from Date of Substantial Completion:
 - 1. Shrubs: 1 year
 - 2. Ground Cover and Plants: 6 months

Construction Methods

Stormwater Basin

The following construction sequence is to be used as a general guideline. The Contractor shall coordinate with the Owner and Engineers and submit a proposed construction sequence for review and approval prior to construction.

- (a) The Contractor shall stake out the stormwater basin boundary in the field. The location of the staked-out area shall first be approved by the Engineer prior to excavation of the site.
- (b) Install and maintain erosion and sediment control measures as shown on the plans and provide temporary stormwater diversion from inlets to the outlet.
- (c) Remove trees within the boundaries of the approved staked-out excavation area. Excavate existing topsoil and stockpile for reuse.
- (d) Excavate and construct the stormwater basin to the design elevation per the plans. The bottom of the excavation shall be level and not compacted or smeared.
- (e) The excavation shall first be inspected and approved by the Engineer prior to placement of the filter fabric and topsoil. Scarify the stormwater basin bottom as directed by the Engineer.
- (f) Place topsoil material in layers with a maximum thickness of 12 inches minimizing compaction of soil. Assume 10 percent settlement and rake to the final depth.
- (g) Place 2" of hardwood mulch on bottom of stormwater basin, mixing 1" into topsoil. Top 1" layer is to be placed after seeding and installation of plants.
- (h) Seed areas with seed mix per the Drawings and application rate per the seed manufacturer.
- (i) Install sedimentation and erosion controls upgradient of the basin to prevent erosion control seed mix from entering the stormwater basin.
- (j) Install plants at the location and number per the plan. Spread remaining top 1" mulch layer.
- (k) The Contractor shall water seeded bottom and sides of stormwater basin for a period of 60 days after application of seed mix. The Contractor will restabilize any areas where grass cover is disturbed within the 60-day period. The Contractor shall conduct regular inspections of the stabilizing stormwater basin at a rate of twice per month (minimum of four inspections) over the 60-day period following seed mix application.
- (l) Compaction:
It is very important to minimize compaction of the base of the stormwater basin and the required soil backfill. When possible, excavator backhoes should be used to remove original soil. Other wide track, marsh track, or light equipment with turf-type tires is acceptable. Equipment

traffic or parking on the stormwater basin should be limited at all times during and after construction of the area. Excessive compaction will result in reduced infiltration rates and potential design failure.

Tilling with a chisel plow, ripper, or subsoiler may be necessary if excessive compaction occurs. Substitute methods must be approved by the Engineer. Rototillers typically do not till deep enough to reduce the effects of compaction from heavy equipment.

When backfilling the stormwater basin, place soil in lifts less than 12". Except on the side slope, do not use heavy equipment to backfill within the stormwater basin. Grade materials with light equipment such as a compact loader or a dozer/loader with marsh tracks.

Weather Limitations

Proceed with installation only when existing and forecasted weather conditions permit. Do not plant during inclement weather including but not limited to heavy rain, extended drought, high winds, frost, and similar conditions.

Delivery, Storage, and Handling

- (a) Deliver fertilizer in sealed waterproof bags showing weight, chemical analysis, and name of manufacturer.
- (b) Do not prune shrubs before delivery. Protect bark, branches, and root systems from sun scald, drying, sweating, whipping, and other handling and tying damage. Do not bend or bind-tie shrubs in such a manner as to destroy their natural shape. Provide protective covering of exterior plants during delivery. Do not drop exterior plants during delivery and handling.
- (c) Handle planting stock by the root ball.
- (d) Deliver exterior plants after preparations for planting have been completed and install immediately. If planting is delayed more than 6 hours after delivery, set exterior plants in shade, protect from weather and mechanical damage, and keep roots moist.

Sequencing and Scheduling

Coordinate the work of this Section with the respective trades responsible for installing interfacing work to ensure that the work performed thereunder is scheduled to minimize damage to lawn areas.

Maintenance Service

Provide full maintenance by skilled employees of landscape installer. Maintain as required below. Begin maintenance immediately after each area is planted and continue until acceptable seeded vegetation is established and until plantings are acceptable healthy and well established but for not less than 12 months from date of substantial completion.

Examination

- (a) Verify prepared soil base is properly rough graded and ready to receive the work of this Section.
- (b) Verify backfilling has been inspected.
- (c) Verify substrate base has been contoured and compacted.
- (d) Beginning of landscaping work means acceptance of existing soil base and site conditions.

Preparation

- (a) Prepare subsoil to eliminate uneven areas and low spots. Maintain lines, levels, profiles, and contours. Make changes in grade gradual. Blend slopes in level areas.
- (b) Remove foreign materials, debris, weeds, undesirable plants, roots, branches, and stones in excess of 1/2 inch in size. Remove subsoil contaminated with petroleum products or other materials that would inhibit healthy plant growth.
- (c) Scarify subgrade to depth of 4 inches where topsoil is scheduled. Scarify in areas where equipment is used for hauling and spreading topsoil and has compacted subsoil. The Contractor should plan to use track machines to minimize the use of rubber tire machines to reduce overcompaction of the subsoil.
- (d) Saturate soil with water to test drainage.

Placing and Treating Topsoil

- (a) Place both stockpiled topsoil and additional loam during dry weather; unless otherwise specified, place to a minimum compacted depth of 6 inches on dry unfrozen subgrade. Treat additional loam with ground limestone.
- (b) Fine grade topsoil, making changes in grade gradual, eliminating rough or low areas. Blend slopes into level areas. Manually spread topsoil close to trees and plants to prevent damage. Roll and fill depressions to ensure positive drainage.
- (c) Remove roots, weeds, rocks, and foreign material while spreading.
- (d) Remove surplus subsoil and topsoil from site. Leave stockpile areas and site clean and raked ready to receive grass.
- (e) Apply fertilizer in accordance with manufacturer's instructions or testing agency recommendations (if tests are made) within 10 days of seeding after smooth raking of topsoil and prior to roller compaction.
- (f) Do not apply fertilizer at same time or with same machine as will be used to apply seed.

- (g) Mix thoroughly into upper 6 inches of topsoil.
- (h) Lightly water to aid the dissipation of fertilizer.
- (i) After incorporation of fertilizer and limestone into the soil, fine grade the seed bed to remove all ridges and depressions and the surface cleared of all stones 1 inch or more in diameter and all other debris.
- (j) Smooth rake again and clear surface of all stones 1 inch or more in diameter and all other debris.

Shrubs

- (a) Excavation of Pits and Trenches: Excavate circular pits with sides sloped inward. Trim base, leaving center area raised slightly to support root ball and assist in drainage. Do not further disturb base. Scarify sides of plant pit smeared or smoothed during excavation.
 - 1. Excavate approximately three times as wide as container diameter.
 - 2. Excavate at least 12 inches wider than root spread and deep enough to accommodate vertical roots for bare-root stock.
- (b) Before planting, verify that root flare is visible at top of root ball according to ANSI Z60.1.
- (c) Stock with Root Balls: Set shrubs plumb and in center of pit or trench with top of root ball flush with adjacent finish grades.
 - 1. Balled and Potted and Container Grown: Carefully remove root ball from container without damaging root ball or plant.
 - 2. Place planting soil mix around root ball in layers, tamping to settle mix and eliminate voids and air pockets. When pit is approximately one-half backfilled, water thoroughly before placing remainder of backfill. Repeat watering until no more water is absorbed. Water again after placing and tamping final layer of planting soil mix.
- (d) Bare-Root Stock: Set and support bare-root shrubs in center of pit or trench with trunk flare flush with adjacent finish grade. Spread roots without tangling or turning toward surface; carefully work backfill around roots by hand. Puddle with water until backfill layers are completely saturated. Plumb before backfilling and maintain plumb while working backfill around roots and placing layers above roots. Tamp final layer of backfill. Remove injured roots by cutting cleanly; do not break.
- (e) Organic Mulching: Apply 3-inch average thickness of organic mulch extending 12 inches beyond edge of planting pit or trench. Do not place mulch within 3 inches of trunks or stems.

Shrub Pruning

- (a) Remove only dead, dying, or broken branches. Do not prune for shape.
- (b) Prune, thin, and shape shrubs according to standard horticultural practice. Prune shrubs to retain natural character.

Herbaceous Planting

- (a) At the direction of the Wetland Scientist, the plugs are to be planted in species clusters (leaving some open water areas present) and shall not be planted in a uniform grid pattern.
- (b) In areas with deeper water depths, the Contractor will be responsible for securing plugs to substrate with sod staples to prevent floatation.
- (c) No wood mulching and/or fertilization of herbaceous plugs is required.
- (d) Following planting, the Contractor shall be responsible for revisiting the planting area and verifying that plugs are securely attached to substrate. This task shall be completed no more than 1 week after planting.
- (e) The Contractor shall guarantee all herbaceous planting material for a period of 1 year following acceptance by the Wetland Scientist.

Planting Dates

Installation of plantings and seed mixes shall occur during the following planting periods or as directed by the Engineer.

Spring planting: April 15 to June 30
Fall planting: September 15 to October 15

Plant Maintenance

- (a) Shrub Maintenance: Maintain plantings by pruning, cultivating, watering, weeding, fertilizing, restoring planting saucers, and resetting to proper grades or vertical position as required to establish healthy, viable plantings. Spray or treat as required to keep shrubs free of insects and disease.
- (b) Protect exterior plants from damage due to landscape operations, operations by other contractors and trades, and others. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged plantings.

Site Cleaning and Repair

- (a) Absolutely no debris may be left on the site. Excavated material shall be removed as directed. Repair any damage to the site or structures to restore them to their original condition.

Cleanup and Protection

- (a) During restoration work, keep pavements clean and work area in an orderly condition.
- (b) Protect restoration work and materials from damage due to operations by other contractors, trades, and trespassers. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged restoration work as directed.
- (c) Compaction: The Contractor shall keep all equipment and vehicular and pedestrian traffic off areas that have been seeded to prevent excessive compaction and damage to young plants. Where such compaction has occurred, the Contractor shall rework the soil to make a suitable seedbed, then reseed and mulch such areas with the full amount of the specified materials at no extra charge to the Owner.
- (d) This work will not be considered complete until all cleanup operations are complete. This shall include the removal of all debris resulting from the seeding operation. The Contractor shall be required to shape, grade, and establish vegetative cover in accordance with the specifications on all areas disturbed outside the normal limits of the construction.

Inspection and Acceptance

- (a) When restoration work is completed, including maintenance, the Owner will, upon request, make an inspection to determine acceptability.
- (b) When inspected restoration work does not comply with requirements, replace rejected work and continue specified maintenance until reinspected by the Owner and found to be acceptable.

Method of Measurement and Basis of Payment

There shall be no measurement under this item but shall be paid for on a Lump Sum (L.S.) basis and shall include all work, materials, tools, equipment, and labor necessary to complete the items listed above under Item 4. "Site Improvements and Restoration."

Payment for Item 4. "Site Improvements and Restoration" shall be determined on a monthly basis as a percentage of the total Contract Lump Sum price.

ITEM 5.

CHANNEL AND BANK SLOPE TREATMENTS

LUMP SUM

General

Work under this item shall consist of furnishing and placing channel and bank slope treatments, including riffle grade control structures and coir logs as shown in the accompanying details, on the Contract Drawings, and as specified in the locations as shown in the Contract Documents and/or as directed by the Engineer. Work shall include all materials, operations, and establishment necessary to complete the work as specified to the satisfaction of the Engineer.

Materials

Channel and bank slope treatment materials shall be as specified on the plan and detail sheets. Materials shall include but are not limited to boulders, cobbles, coir logs, and wooden stakes as shown on the plan and detail sheets. In no instance will concrete or other "debris" be allowed.

The Contractor shall provide to the Engineer, for approval prior to installation, the source of all materials. The Engineer must approve the material before structure construction.

Channel and bank slope treatment materials shall be as specified on the plan and detail sheets. Stone to be used in the riffle grade control feature shall consist of sound, tough, durable rounded natural stone to the dimensions given on the Contract Drawings. Blasted rock, concrete, or riprap is not approved for use under this specification. The size of the stone shall be its least dimension. Rock larger than 3 inches in diameter excavated from the site is approved for use under this specification, upon approval by the Engineer. Concrete excavated from site is not approved for use under this specification. In no instance will concrete or other "debris" be allowed.

Riffle Grade Control Feature

- a. Riffle Grade Control shall be constructed with rounded quarry or alluvial stone of the dimensions given in the Contract Drawings. All riffle grade control structures shall be covered with native channel material to fill voids in the structure. All stone materials of a given dimension shall be measured by the least dimension.

Core Boulders 12" to 24" diameter*

Footer Stones 12" to 24" diameter*

- b. Filler Stones shall consist of cobble material used to fill the void spaces in the riffle. Cobble and gravel shall be rounded quarry or alluvial stone. All stone materials of a given dimension shall be measured by the least dimension:

Filler Boulders 3" to 6" diameter*

- c. Random Boulders shall consist of rounded quarry or alluvial stone of the dimensions given in the Contract Drawing. All stone materials of a given dimension shall be measured by the least dimension:

Random Boulders 12" to 24" diameter*

Coir Log

- a. Coir Log: A coir log is a man-made, biodegradable, durable coconut fiber "log." The coir log shall be 18 inches in diameter. Coir Logs shall be "BioD-Roll," as manufactured by RoLanka, telephone: 1-888-703-9889, or equal as approved by the Engineer.
- b. Outer Net: The outer net around the coir log shall be made of bristle coir twine net woven square with openings 2 inches by 2 inches. Twine shall have 90 pounds of tensile strength. Interior coir mattress fiber shall be compacted to 9 lb/cf density.
- c. Wood Stakes: Wood stakes used to secure the coir logs shall be a minimum of 2 inches by 2 inches by 3 feet long.
- d. The Contractor shall submit coir log samples and catalog cuts for approval.

Submittals

The Contractor shall provide submittals for all boulders and stones to be used as part of this work. Submittals shall include the name of the quarry, dimensions of the rock, and photographs documenting the rock meets the requirements of the Drawings.

Construction Methods

Riffle Grade Control: The Contractor shall construct the rock riffle in the presence of the Engineer. Excavation of the rock riffle base below final grades should be made in conformity with the specified design plans. This work includes the excavation and preparation of the trench for the footer stones and core boulders. The trench shall be a minimum of 4 feet in depth below the streambed (as bedrock elevations allows) and keyed into the banks on either side of the watercourse a minimum of 6 feet or to the culvert sides or as shown on the Construction Drawings. The subgrade cut should be inspected for bearing strength and if necessary, machine compacted to a density approximating that of the surrounding undisturbed material.

Place footer stones and core boulders to fill the trench and to bring the riffle top to the required elevation. Filler rocks should be spread on top of and between the placed stone. Filler stones shall be placed to a minimum depth of 2 feet. Sand and gravel filler material shall be distributed over the surface of the placed filler stones and washed down into the voids of the stone. Place random boulders over the face of the riffle to create additional channel roughness. A total of four to six random boulders should be placed per riffle so that they do not block more than 1/5 of the total cross-sectional width.

Riffle grade control material should be systematically placed from the center of the channel to the outer edges. Larger rocks, as specified by the design gradation, should be placed at the riffle surface as best as

possible. Core boulders should extend above the nominal crest elevation of the riffle, provided that they are buried by half their depth at a minimum.

The rock should be placed with suitable equipment to produce a reasonably graded mass of stones. Rock should not be dropped from a height that causes damages to the footer rocks or causes impact segregation and sorting of rock sizes. Rock should be reasonably tamped in placed with suitable equipment. Fill voids by hand tamping with metal tamping rods, by shaking stone with the teeth of an excavator bucket, and/or by spraying water to settle fines between large stones. Plate compactors shall not be used.

The riffle feature should be keyed into the bank, and bank areas on either side of the riffle feature should be reconstructed to the design heights and form. Any excavation voids existing along the edges of the completed riffle should be backfilled and compacted to ensure all transitions are smooth. Bank areas on either side of the rock run feature should be reconstructed to the design heights and form.

Once all material has been placed in the culvert and approved by the Resident Engineer, the Contractor shall restore flow in such a way to slowly wet the stream to minimize the initial sediment pulse. Every attempt shall be made to minimize the downstream movement of sediment.

Coir Log: Place coir logs along the toe of the bank where indicated on the drawings. Submerge the coir log at a constant depth of one half of the coir log's height and to achieve the grades and lines indicated on the drawings. Tie the ends of adjacent coir logs together with a strong twine. Make a number of passes with the twine in the end netting of the adjacent coir logs; this effectively laces the logs together. Drive the stakes in at the recommended spacing of 1 foot on center continuously on the stream side of the log and 10 feet on center on the land side of the log. Pound the stakes down so that the top 3 inches of each stake is exposed above the coir log.

Method of Measurement and Basis of Payment

There shall be no measurement under this item but shall be paid for on a Lump Sum (L.S.) basis and shall include all work, materials, tools, equipment, and labor necessary to complete the items listed above under Item 5. "Channel and Bank Slope Treatments."

Payment for Item 5. "Channel and Bank Slope Treatments" shall be determined on a monthly basis as a percentage of the total Contract Lump Sum price.

ITEM 6.

CHANNEL BED MATERIAL

TON

General

Work under this item shall consist of furnishing and placing channel bed material as shown in the accompanying details, on the Contract Drawings, and as specified in the locations as shown in the Contract Documents and/or as directed by the Engineer. Work shall include all materials, operations, labor, and equipment necessary to complete the work as specified to the satisfaction of the Engineer.

Materials

Materials for the channel bed shall be as specified on the plan and detail sheets. Materials shall include but are not limited to boulders as shown on the plan and detail sheets. In no instance will concrete, rubble, or other "debris" be allowed for use in the Project.

The Contractor shall provide to the Engineer, for approval prior to installation, the source of all materials. The Engineer must approve the material before structure construction.

Stone to be used in the channel bed material shall consist of sound, tough, durable rounded natural stone to the dimensions given on the Contract Drawings. Blasted rock, concrete, or riprap is not approved for use under this specification. The size of the stone shall be its least dimension. Rock larger than 3 inches in diameter excavated from the site is approved for use under this specification, upon approval by the Engineer. Concrete excavated from the site is not approved for use under this specification. In no instance will concrete or other "debris" be allowed.

Channel Bed Material

- a. Channel Bed Material shall consist of rounded river cobble material used to line the proposed channel. Cobble and gravel shall be rounded quarry or alluvial stone. All stone materials of a given dimension shall be measured by the least dimension.
- b. Channel bed material shall be 3" - to 6" -diameter river cobbles, supplemented with sand and gravel, and shall have the following gradation:

SIEVE SIZE	% PASSING
6"	100
4"	95-80
2"	85-70
1/4"	60-45
#4	45-20
#10	0-15

- c. Channel armoring material (top layer of river channel) shall be 6" to 12" rounded river cobbles.
- d. The Contractor shall use material on site to construct the proposed channel per the Drawings. If inadequate material exists on site to form the bed of the new channel, material shall be imported to form the new channel as described above.

Submittals

The Contactor shall provide submittals for all boulders, cobbles, and stone to be used as part of this work. Submittals shall include the name of the quarry, dimensions or gradation of the rock, and photographs documenting the rock meets the requirements of the Drawings.

Construction Methods

Channel Bed Material: Finished elevation and location of channel bed material will be determined in the field by the Design Engineer. The channel bed material will be used in locations where existing bedrock or native gravel cobble material is not found suitable as a proposed channel bottom. Channel bed material will be spread to the bankfull width of the channel and to a depth specified in the field by the Engineer. Locations with competent bedrock or suitable native gravel cobble will not require channel bed material.

Do not reuse fine-grained silts, clays, or organic material within the bankfull channel. To establish new channel in fill situation, fill with natural sand and gravel/cobble/boulder reused from onsite excavation or imported if necessary. Wash in fine-grained material of channel bed to fill in voids.

The material shall be installed during dewatered conditions in accordance with the environmental permits. Boulders that are part of the natural streambed material shall project above the bed to maintain a natural level of hydraulic roughness and to reestablish fish habitat.

The final streambed in the culvert and approaches shall look like a natural river bed, shall match nearby river reaches, and there shall be minimal subsurface flow upon final inspection by the Project Engineer.

Method of Measurement and Basis of Payment

Payment for Item 6 "Channel Bed Material" shall be measured and paid for per ton and shall include all labor, materials, and installation cost associated with installing the bed material in the channel to the limits determined in the field and any additional excavation not included in Item 120. Earth Excavation. The quantity to be paid for shall be the number of tons of the size cobbles and boulders delivered to the site. The quantity will be verified by the number of truckloads of material purchased at the quarry. The Contractor will be required to submit quarry delivery slips to the Engineer as the material arrives on site shall be counted and approved by the Engineer.

SUBSECTION 112 DEMOLITION OF BUILDINGS, STRUCTURES AND BRIDGES

ITEM 115.1 DEMOLITION OF BRIDGE NO. P-13-041 LUMP SUM

The work performed under this item shall conform to the relevant provisions of the Standard Specifications Highway and Bridges, Subsection 112.61.

SUBSECTION 120 EXCAVATION

ITEM 120. EARTH EXCAVATION LUMP SUM

The work performed under this item shall conform to the relevant provisions of the Standard Specifications for Highway and Bridges, Subsection 120 Excavation and the following:

- Subsection 120 – Excavation
- Subsection 140 – Excavation for Structures
- Subsection 150 – Embankment
- Subsection 170 – Grading

For the following standard work Items:

- Item 120. Earth Excavation
- Item 120.1 Unclassified Excavation
- Item 123. Muck Excavation
- Item 143. Channel Excavation

And the following:

General

Work included under Item 120. shall consist of furnishing all labor, materials, and equipment and performing all earthwork operations to remove sediments from within the impoundment and riverbanks between approximate river station 1+20 and approximately 2+15 to construct the new river channel. Work under this item shall also include all excavation required to install bank stabilization treatment (coir logs) and install channel features (riffle grade control features) as shown on the Contract Drawings.

This item includes the stockpiling of all river cobble material excavated from the channel limits to be reused within the Project limits to achieve proposed grade as indicated on the Contract Drawings.

This item includes all work associated with grading of the channel bed, channel banks, floodplain, embankment slopes, drainage basins, and any other proposed grading not specified elsewhere.

This item includes the excavation of the channel and stockpiling, dewatering, placement, and compaction of the excavated material in those areas where fill is proposed to meet the finished grades

shown on the design plans and to blend with the surrounding topography. Sediment excavated from the channel containing unsuitable material such as fine-grained silts, clays, organic material, or “muck” shall not be reused and shall be disposed of off site. Mechanically removed soil containing invasive species shall be disposed of off site and will not be approved for reuse.

No sediment or soil testing was performed as part of this Project. The Contractor is responsible to remove any excess and unsuitable material from the site and dispose of off site in accordance with federal, state, and local regulations.

Work under this item shall also consist of furnishing all labor, materials, and equipment and performing all earthwork operations to install the proposed culvert substructure, footings, drainage, sidewalks, and site features as shown on the Contract Drawings.

This item includes all excavation for structures and features not specified elsewhere within these specifications. No extra payment for excavation will be made.

Method of Measurement and Basis of Payment

No measurement will be made for Item 120. No separate payment shall be made for excavation, onsite reuse of excess material, stockpiling of material for reuse, or offsite export of unsuitable material. Item 120. shall be measured Lump Sum for all work complete and in place, as described above and in accordance with MassDOT Standard Specifications.

SUBSECTION 140 EXCAVATION FOR STRUCTURES

<u>ITEM 140.</u>	<u>BRIDGE EXCAVATION</u>	<u>CUBIC YARD</u>
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The work performed under this item shall conform to the relevant provisions of the Standard Specifications Highway and Bridges, Subsection 140.

<u>ITEM 141.1</u>	<u>TEST PIT FOR EXPLORATION</u>	<u>CUBIC YARD</u>
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The work performed under this item shall conform to the relevant provisions of the Standard Specifications Highway and Bridges, Subsection 140

SUBSECTION 150 EMBANKMENT

<u>ITEM 151.</u>	<u>GRAVEL BORROW</u>	<u>CUBIC YARD</u>
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The work performed under this item shall conform to the relevant provisions of the Standard Specifications Highway and Bridges, Subsection 150.

ITEM 151.01 GRAVEL BORROW – TYPE C CUBIC YARD

The work performed under this item shall conform to the relevant provisions of the Standard Specifications Highway and Bridges, Subsection 150.

ITEM 151.2. GRAVEL BORROW FOR BACKFILLING STRUCTURES AND PIPES CUBIC YARD

The work performed under this item shall conform to the relevant provisions of the Standard Specifications Highway and Bridges, Subsection 150.

ITEM 156.1 CRUSHED STONE FOR BRIDGE FOUNDATION TON

The work performed under this item shall conform to the relevant provisions of the Standard Specifications Highway and Bridges, Subsection 150.

SUBSECTION 170 GRADING

ITEM 170. FINE GRADING AND COMPACTING SQUARE YARD

The work performed under this item shall conform to the relevant provisions of the Standard Specifications Highway and Bridges, Subsection 170.

SUBSECTION 201 BASINS, MANHOLES, AND INLETS

ITEM 201.5 CATCH BASIN – MUNICIPAL STANDARD W/ 4' SUMP EACH

The work performed under this item shall conform to the relevant provisions of the Standard Specifications Highway and Bridges, Subsection 201.

ITEM 202.01 MANHOLE – MUNICIPAL STANDARD 4' DIAMETER W/ 2' SUMP EACH

The work performed under this item shall conform to the relevant provisions of the Standard Specifications Highway and Bridges, Subsection 201.

ITEM 205.018 WATER QUALITY BMP (2000 GALLON CAPACITY) EACH

The work to be done under this item shall conform to the relevant provisions of Section 201 and the following:

The Contractor shall furnish and provide BMP pretreatment water quality oil/sediment separator structures at the locations and of the types detailed on the Plans and as specified herein.

Materials

Prior to ordering of any materials included under this item, the Contractor shall submit to the Engineer shop drawings/catalog cuts for approval. The water quality BMP separator structures shall have the following capacities:

ITEM 205.018 – (2000 GALLON CAPACITY)

All oil/sediment separator pretreatment units shall be manufactured by:

(1)	(2)	(3)
Rinker Stormceptor 69 Neck Road Westfield, MA 01085 (800) 909-7763 (413) 246-7144	KriStar Enterprises, Inc. 4020 Riverclub Drive Cumming, Georgia 30041 (700) 889-4338	Environment 21 8713 Read Road, P.O. Box 55 East Pembroke, NY 14056-0055 (800) 809-2801 (585) 815-4700

Or an approved equal.

The Contractor is advised that the proposed locations of the separator units under this item are shown on the drawings in their approximate locations. The Contractor is responsible to coordinate the exact locations and exact elevations of the separator units in the field, and as required by the Engineer, to ensure the proper functional operation of all elements of the proposed stormwater drainage system(s) constructed as part of this project. All separator units under these items and their components shall be installed in accordance with the manufacturer requirements and as required by the Engineer.

The separators shall be capable of trapping silt and clay sized particles, in addition to large particles, and shall be installed underground as part of the stormwater drainage system(s). The separators shall be structurally designed for HS-20 (minimum) traffic loading at the surface, with the storage in the separator vertically oriented. The separator should be maintained from the surface via one access point.

The separator should be equipped with an internal high flow bypass that regulates the flow rate into the treatment chamber and conveys high flows directly to the outlet so the scour and/or resuspension of material previously collected in the separator does not occur. External bypasses are not acceptable. The bypass area must be physically separated from the separation area to prevent mixing with the separator circular and constructed from either fiberglass or precast concrete risers. The concrete separator shall be designed and manufactured in accordance with ASTM C-478.

The concrete joints shall be oil resistant, water tight and meet the design criteria according to ASTM C-443. A minimum of 12 inches of oil storage should be lined with fiberglass to provide secondary containment of any hydrocarbon materials.

The difference between the separator inlet pipe elevation and the separator outlet pipe elevation must be 1 inch. For configurations consisting of multiple inlet pipes, a 3 inch difference between horizontal inlet pipe inverts and the outlet pipe invert shall occur. The separators shall be capable of being used as a bend structure in the stormwater drainage system(s).

SUBSECTION 258 STONE FOR PIPE ENDS

ITEM 258. STONE FOR PIPE ENDS SQUARE YARD

The work performed under this item shall conform to the relevant provisions of the Standard Specifications Highway and Bridges, Subsection 258.

SUBSECTION 402 DENSE GRADED CRUSHED STONE FOR SUB-BASE

ITEM 402. DENSE GRADED CRUSHED STONE FOR SUB-BASE CUBIC YARD

The work performed under this item shall conform to the relevant provisions of the Standard Specifications Highway and Bridges, Subsection 402.

ITEM 415.1 PAVEMENT STANDARD MILLING SQUARE YARD

The work performed under this item shall conform to the relevant provisions of the Standard Specifications Highway and Bridges, Subsection 415.

SUBSECTION 440 ROADWAY DUST CONTROL

ITEM 443. WATER FOR DUST CONTROL LUMP SUM

The work performed under this item shall conform to the relevant provisions of the Standard Specifications Highway and Bridges, Subsection 440.

SUBSECTION 450 HOT MIX ASPHALT PAVEMENT

ITEM 452. ASPHALT EMULSION FOR TACK COAT GALLON

The work performed under this item shall conform to the relevant provisions of the Standard Specifications Highway and Bridges, subsection 450.

SUBSECTION 460 HOT MIX ASPHALT PAVEMENT FOR LOCAL STREET

ITEM 460.23 SUPERPAVE SURFACE COURSE – 12.5 (SSC – 12.5) TON

The work performed under this item shall conform to the relevant provisions of the Standard Specifications Highway and Bridges, Subsection 460.

ITEM 460.42 SUPERPAVE BASE COURSE – 37.5 (SBC – 37.5) TON

The work performed under this item shall conform to the relevant provisions of the Standard Specifications Highway and Bridges, Subsection 460.

SUBSECTION 482 SAWCUTTING

ITEM 482.3 SAWCUTTING ASPHALT PAVEMENT LINEAR FOOT

The work performed under this item shall conform to the relevant provisions of the Standard Specifications Highway and Bridges, subsection 482.

SUBSECTION 501 CURB, CURB INLETS, CURB CORNERS AND EDGING

ITEM 570.1 HOT MIX ASPHALT CURB – TYPE 1 LINEAR FOOT

The work performed under this item shall conform to the relevant provisions of the Standard Specifications Highway and Bridges, subsection 501.

SUBSECTION 701 CEMENT CONCRETE SIDEWALKS, PEDESTRIAN CURB RAMPS AND DRIVEWAYS

ITEM 701. CEMENT CONCRETE SIDEWALK SQUARE YARD

The work performed under this item shall conform to the relevant provisions of the Standard Specifications Highway and Bridges, subsection 701.

ITEM 701.1 CEMENT CONCRETE SIDEWALK AT DRIVEWAYS SQUARE YARD

The work performed under this item shall conform to the relevant provisions of the Standard Specifications Highway and Bridges, subsection 701.

SUBSECTION 702 HOT MIX ASPHALT SIDEWALKS AND DRIVEWAYS

ITEM 702. HOT MIX ASPHALT SIDEWALK OR DRIVEWAY TON

The work performed under this item shall conform to the relevant provisions of the Standard Specifications Highway and Bridges, subsection 702.

SUBSECTION 748 MOBILIZATION

ITEM 748. MOBILIZATION LUMP SUM

The work performed under this item shall conform to the relevant provisions of the Standard Specifications Highway and Bridges, subsection 748.

SUBSECTION 860 REFLECTORIZED PAVEMENT MARKING

ITEM 861.106 6 INCH REFLECTORIZED YELLOW LINE (PAINTED) LINEAR FOOT

The work performed under this item shall conform to the relevant provisions of the Standard Specifications Highway and Bridges, subsection 860.

SUBSECTION 983 REVETMENT

ITEM 983.2 RIPRAP CUBIC YARD

The work performed under this item shall conform to the relevant provisions of the Standard Specifications Highway and Bridges, subsection 983.

SUBSECTION 990 WATER CONTROL

ITEM 991.1

CONTROL OF WATER

LUMP SUM

The work performed under this item shall conform to the relevant provisions of the Standard Specifications for Highway and Bridges and the following:

General

Work under this item shall include construction of all temporary water diversion measures as herein specified, as directed by the Engineer, and as evidently required to properly complete the work. The Contractor shall obtain and comply with all necessary permits from state and local agencies required for operation of the dewatering system, monitoring groundwater, and disposal of dewatering effluent, including paying for all permits and approvals related to running of pumps, discharging water, and other work incidental to the dewatering operations. The Contractor shall provide standby equipment and power supply for maintaining uninterrupted construction dewatering.

Bypass of the channel flow shall be through a temporary bypass pipe as shown on the plans. Bypass pipe shall operate by gravity and provide a means for migrating fish to bypass the Project site during the construction. Pumping is not permitted as the primary means for water bypass during construction.

Water diversion measures include construction, maintenance, and removal of cofferdam, diversion of water through a temporary bypass pipe, and all other measures required for construction activities to proceed in-the-dry. As such, care shall be taken to minimize disturbance of the streambed and bank. All areas shall be protected from sedimentation during and after construction to the maximum extent practicable. Upon completion of the work, all temporary water control measures shall be cut off or removed to the limits and elevations shown on the plans.

The work under this item shall consist of control of water, flow diversions, and construction dewatering associated with Bartlett Road culvert construction, bank grading, the construction of channel features and bank stabilization features, acquiring and paying for all permits and approvals related to running of pumps, discharging water, and other work incidental to the dewatering operations; furnishing, installing, operating, and maintaining dewatering equipment and systems as specified, shown on the Contract Drawings and approved water control plan, or required during the construction of the Project; providing standby equipment and power supply for maintaining uninterrupted construction dewatering; and obtaining and complying with all necessary permits from state and local agencies required for operation of the dewatering system, monitoring groundwater, and disposal of dewatering effluent. The Contractor shall maintain all dewatering measures in good operating form until such time that the measures are no longer needed. Upon completion of the work and approval of the Contracting Officer, the Contractor shall remove pumps and hoses from the site as well as cofferdams from the channel.

Proposed revisions to the Water Control Plan for any reason must be submitted in writing and approved by the Engineer.

The Project site is subject to flooding. During all construction in the existing or proposed stream channel,

the Contractor shall divert the entire stream flow around the work area. Diversions must be maintained 24 hours per day, 7 days a week during the construction period. The Contractor shall monitor weather reports and be prepared to stop work and stabilize the site if more than one inch (1") of rainfall is predicted by the National Weather Service (70 percent chance or higher) within any 24-hour period. Work shall be halted until precipitation stops and chances of further rainfall fall below 50 percent. Work should be performed during low water as possible. Equipment and materials must be available to allow a rapid response to stabilize open construction areas and evacuate workers, equipment, and any stockpile materials from potentially impacted areas, if needed, due to elevated water flows in the unnamed brook. All temporary cofferdams, channel, and hydraulic facilities intended to divert the flow of the unnamed brook shall be constructed to an adequate height to prevent overtopping during construction. If the water level within the channel rises to a potentially unsafe level, the Contractor shall remove all equipment, construction materials (i.e., fuels, solvents, hydraulic fluids, etc.), and stockpiles from the floodplain and alert the Owner of potential emergency.

The Contractor's Water Control Plan shall be submitted a minimum of 2 weeks prior to construction and shall show arrangement, location, and details of temporary bypass pipes, wells, and well points; pumps, discharge lines, and means of discharge; control of sediment; cofferdams; and disposal of water. The Water Control Plan must address a contingency strategy for addressing increased flows due to storm events that occur during construction. The Contractor may use sandbags, inflatable dams, cofferdams, or other types of protective facilities as approved by the Engineer. The furnishing of such plans and methods shall not relieve the Contractor of any of his responsibility for the safety of the work and for the successful completion of the Project.

1. Dewatering Performance: Design, furnish, install, test, operate, monitor, and maintain dewatering system of sufficient scope, size, and capacity.
2. To control, remove, and dispose of groundwater and permit excavation and construction to proceed on dry, stable subgrades.
3. All dewatering facilities shall be designed, operated, and maintained to control existing flow of water in order to complete the channel excavation and all proposed work in a reasonably dry condition and to prevent the transport of sediment and/or turbidity downstream throughout the duration of construction.
4. Work includes removing dewatering system when no longer needed or relocating dewatering during different phases of work to accommodate the proposed construction.
5. No separate payment will be made for dewatering measures that are damaged or overwhelmed by significant and sudden increases in the water flow. Contractors must plan for such events. In some instances, water flows may exceed those reasonably expected to be dewatered, and the Contractor may be required to suspend work until such time that the water flows return to a manageable level. In the event the work is suspended due to high water, the Contractor will not be compensated for repairs to dewatering measures, but additional days will be added to the schedule at no additional cost to offset the days lost to high water.
6. All dewatering facilities shall be designed, operated, and maintained such that discharge waters are kept clear of turbidity or sediment throughout the duration of construction.

The Project site is located within the 1 percent annual chance floodplain zone and is subject to flooding. If 2" of rainfall or greater is predicted or occurs in Plymouth County, the Contractor shall immediately cease construction activities and relocate all construction equipment/materials upland and outside of the 1

percent annual chance flood zone. No equipment or material shall be moved back to the site until the channel water levels recede and are contained within its banks.

The Contractor's Emergency Operations and Flood Contingency Plan shall be submitted within seven (7) days of the Contract signing and before any work commences. The Contractor shall certify that personnel are familiar with all provisions of his plan and are able to execute same.

1. The Contractor shall monitor the weather forecasts and plan construction accordingly.
2. If the weather forecasts should indicate the possibility of a major storm system within 24 to 48 hours, the Contractor shall plan for the possibility of high water levels at the site and the removal of temporary cofferdams and obstructions. Also, the Contractor shall notify the Engineer and Owner.
3. If a significant rainfall in excess of 2 inches within a 24-hour period occurs or is predicted to occur by the National Weather Service, the Contractor shall maintain surveillance of the site and be prepared to provide emergency corrective stabilization measures, if necessary, until water levels recede and the construction site is stabilized.
4. If the water level within the channel rises to an unsafe level, the Contractor shall remove all equipment, construction materials (i.e., fuels, solvents, hydraulic fluids, etc.), and stockpiles from the floodplain and alert the Owner of a potential emergency.
5. The Contractor shall maintain sufficient equipment and manpower at the site in order to react to a flooding emergency.
6. Compensation: No additional compensation shall be made to the Contractor for damages resulting from high water or from time lost due to inclement conditions or river flows such that work within the Project site is not feasible.
7. The Contractor shall submit a detailed Emergency Operations and Flood Contingency Plan before any work commences. Said plan shall include a detailed narrative describing the various types of emergencies and corresponding actions to be taken in response. Identified on the plans shall be the location where all construction equipment, oils, fuels, lubricants, and other supplies will be stored. The Contractor shall certify that personnel are familiar with all provisions of his plan and are able to execute same. The Contractor may use the above plan or prepare a plan of his own. In either case, the Contractor shall submit to the Engineer an Emergency Operation Plan for approval within seven (7) days of the Contract signing.

Flow diversion shall be sized to handle the 2-year storm event (as specified on the plans). The discharge from the flow diversion shall be clear of turbidity or debris. Any turbidity shall be addressed through the use of a settling basin as required. When in-stream construction requires deep excavation for the placement of footer rocks, culvert footings, or excavation below the stream channel, the Contractor shall keep the excavation reasonably clear of water to allow observation of the footer placement. Excavation can be accomplished with a small-diameter pump (2" or larger) with water pumped to the channel or to a filter area if excessive turbidity is produced in the channel. Regardless of the flows the Contractor chooses to convey, the Contractor will be responsible to maintain, restore, or correct any damage to the water control system caused during flow events or storms in excess of the water control design flow. There shall be no additional compensation for lost time or inability to work during stream flows greater than the capacity of the water control system. The following tables summarize the predicted daily flows by month and the predicted peak flows (1-year to 500-year storm events) for the unnamed tributary at the Project site:

Mean Monthly Flow Rates in Unnamed Brook												
	January	February	March	April	May	June	July	August	September	October	November	December
Cubic Feet Per Second (cfs)	1.5	1.7	2.3	2.1	1.5	1.1	0.7	0.6	0.7	0.8	1.2	1.4
Gallons Per Minute (GPM)	673	763	1032	943	673	494	314	269	314	359	539	628

Peak Flows	
Storm	Discharge (cfs)
1-year	13
2-year	15
5-year	19
10-year	24
25-year	32
50-year	38
100-year	47
500-year	73

Method of Construction

Note: Any earthwork related to cofferdams or temporary diversions shall be paid for under this item and will not be measured for payment under any other item.

The Contractor shall investigate and verify existing stream conditions and evaluate the need for and the type of protection and facilities required. The Contractor is responsible for water control during the Project and for submitting a proposed Water Control Plan, Temporary Cofferdam Plan, and Emergency Operations and Flood Contingency Plan to the Project Engineer for approval prior to the start of construction. Before commencing construction, the Contractor shall furnish the Engineer with details of the plan and methods proposed for use of handling water and accomplishing the work. The Contractor may use sandbags, inflatable dams, cofferdams, or other types of protective facilities as approved by the Engineer. The furnishing of such plans and methods shall not relieve the Contractor of any of his responsibility for the safety of the work and for the successful completion of the Project.

Unless otherwise specified, the height of any flow diversions and/or barriers shall be elected by the Contractor to provide reasonable protection from flooding. Temporary cofferdams or barriers shall be constructed at the locations shown on the plans unless a revised water control plan is submitted and approved by the Engineer. All such temporary structures or facilities shall be safely designed, extended to sufficient depth, and be of such dimensions and water-tightness so as to assure construction of the permanent work to the limits shown on the plans. Movements or failures of the temporary protection facilities, or any portions thereof, that prevent proper completion of the permanent work shall be corrected at the sole expense of the Contractor. Additionally, any cleanup associated with such movements or failures shall be completed at the sole expense of the Contractor.

Bypass of the channel flow from within the areas of construction shall be done in such a manner as to prevent the possibility of movement of sediment from within these areas. Any pumped water must be discharged to a temporary sediment basin and/or in accordance with the requirements of the Standard Specifications.

Unless otherwise provided or directed, all such temporary protective work shall be removed and disposed

of in an approved manner when no longer required.

The Contractor shall be responsible for the scheduling of work described herein so as not to interfere with any sequence of operations developed for this Project. Delays as a result of work required under this specification shall not constitute a claim for an extension of Contract time.

The Contractor shall be aware of the time-of-year (TOY) restrictions that exist for this Project as described in the attached permits. The Contractor is advised that per General Condition 16 of the MA GP, E&S Controls, including cofferdams within the waters of the US, should not be in place between March 1 and June 30. The Contractor is responsible for scheduling all work to abide by these restrictions. There shall be no extra compensation for the removal and reinstallation of any water control measures due to work stoppages associated with the TOY restrictions.

Installation of Water Control Measures:

1. Conform to Contract Drawings.
2. Provide temporary grading to facilitate dewatering and control of surface water.
3. Monitor dewatering systems continuously.
4. Protect and maintain temporary erosion and sedimentation controls during dewatering operations.
5. Before excavating below groundwater level, place system into operation to lower water to specified levels. Operate system continuously until channel excavation is complete or until dewatering is no longer required.
6. Provide an adequate system to lower and control water to permit excavation, construction of structures, and placement of fill materials on dry subgrades.

Cofferdams and Diversions:

1. Cofferdams will be constructed of clean, inert materials that will have a minimal impact on the stream system. Cofferdams constructed of soil or material from the stream will not be used unless specifically directed by the Owner or Engineer.
2. Acceptable materials shall include water structures, precast concrete blocks or barriers, plastic barriers, sandbags, and other comparable items.
3. The Contractor is responsible to install all cofferdams/diversion structures in a safe and correct manner. Cofferdams must be installed so as to withstand the pressures exerted by the stream flow or ponded water against the cofferdam.
4. Commercial products used as cofferdams (i.e., water structures, temporary dams) shall be installed in accordance with the manufacturer's instructions.
5. The Contractor is permitted to make minor disturbances to the streambed or banks as may be required to properly install the cofferdam. All disturbances will be limited to only that disturbance necessary to install the cofferdam. Cofferdam installation must be done in the presence of the Owner or Engineer.
6. If the Contract conditions call for the use of sandbags or if the Contractor shall use sandbags to assist with dewatering, the Contractor shall fill the sandbags with clean, washed sand. Soils with fine particles are prohibited. When placed in the flowing water, the sandbags shall not produce visible turbidity.

Dewatering Pumping:

1. The horizontal location of any dewatering pipe, pumps, and pump power packs to be used shall be staked in the field prior to starting construction for approval by the Owner and Engineer. Its location may be adjusted in order to minimize disturbance to existing trees.
2. The piping shall be maintained/inspected throughout the duration of construction and repaired as necessary if any leaks or breaks in the lines are discovered.
3. When necessary, low-noise bypass pumps and power packs may be required and/or noise reducing methods may be required to reduce impacts to adjacent properties.
4. At the conclusion of construction, the pipe, pumps, and pump power packs shall be removed and the site brought to the desired proposed grade as indicated on the plans.

Method of Measurement and Basis of Payment

"Control of Water," Item 991.1, will be paid for at the Contract Lump Sum price, which price shall include control of water, flow diversions, and construction dewatering associated with Bartlett Road Bridge construction, bank grading, the construction of channel features and bank stabilization features, installation, maintenance, and removal of stone check dams; acquiring and paying for all permits and approvals related to running of pumps, discharging water, and other work incidental to the dewatering operations; furnishing, installing, operating, and maintaining dewatering equipment and systems as specified, shown on the Contract Drawings and approved water control plan, or required during the construction of the Project; and providing standby equipment and power supply for maintaining uninterrupted construction dewatering. There shall be no claims for extra compensation due to delays or damage associated with high water levels from natural events such as heavy rainfall, floods, snowmelt, etc.

No separate payment will be made for dewatering measures that are damaged or overwhelmed by significant and sudden increases in the water flow. Contractors must plan for such events. In some instances, water flows may exceed those reasonably expected to be dewatered, and the Contractor may be required to suspend work until such time that the water flows return to a manageable level. In the event the work is suspended due to high water, the Contractor will not be compensated for repairs to dewatering measures, but additional days will be added to the schedule at no additional cost to offset the days lost to high water.

SUBSECTION 995 BRIDGE STRUCTURE

ITEM 995.011

CULVERT STRUCTURE, CULVERT NO. P-13-041 (CHU)

LUMP SUM

General

Work included under Item 995.011 Culvert Structure – Culvert No. P-13-041 (CHU) shall consist of furnishing and installing precast concrete culvert structure according to the design, size, and length shown on the plans, including the headwalls supported, reinforcing, lifting inserts or devices, joint seal, non-shrink grout, shims, backer rod, and all other necessary materials and equipment to complete the work.

Work under this item shall include all materials, equipment, and labor needed to construct all elements of the bridge, including but not limited to the following:

- Controlled Density Fill – Non Excavatable
- Steel-Backed Timber Guiderail
- Steel-Backed Timber Guiderail – Bridge Attachment
- Steel-Backed Timber Guiderail – End Terminal
- Structural Steel – Epoxy Coated
- Three-Sided Precast Concrete Culvert
- Membrane Waterproofing for Bridge Decks
- Dampproof
- Metal Bridge Railing (3 Rail), Steel (Type S3-TL4)

The work under this section does not include the various classes of excavation, hot mix asphalt pavement, backfill, revetments, temporary structure, removal of present superstructure, cofferdams, control of water, or other items noted in the contract.

Materials

Item 995.011 Culvert Structure –Precast Concrete Culvert shall conform to the following requirements:

1. Concrete: The concrete for the precast concrete culvert and headwalls shall conform to the requirements of Section M4 and as follows:

Concrete shall be air-entrained composed of Portland Cement, fine and coarse aggregates, admixtures, and water. The air-entraining feature may be obtained by the use of either air-entraining Portland Cement or an approved air-entrained admixture. The entrained-air content shall be not less than four (4) percent or more than six (6) percent. The air-entraining admixture shall conform to AASHTO M154.

The Contractor shall design and submit to the Engineer a concrete mix that shall attain a minimum 28-day strength (fc') of 5,000 psi. The Contractor shall further provide a certificate stating that the mix submitted shall meet this strength.

- (a) Coarse aggregates shall consist of broken stones having a maximum size of one (1) inch.
 - (b) Portland Cement shall conform to the requirements of ASTM Specification C150-Type I, Type II or Type III cement.
 - (c) Water-Reducing Admixture: The Contractor may submit for approval of the Engineer water-reducing admixture for the purpose of increasing workability and reducing the water requirements for the concrete.
 - (d) Calcium Chloride: The addition to the mix of calcium chloride or admixtures containing calcium chloride will not be permitted.
2. Reinforcing Steel: All steel reinforcement (bars or welded wire fabric) shall be epoxy coated (M8.01.7: Epoxy Coated Reinforcing Bars) or galvanized steel (M8.01.8: Galvanized Reinforcing Bars) conforming to the respective materials specifications.
 3. Lifting Hooks and Threaded Inserts: Devices and attachments shall be of a design satisfactory for the purpose intended. They shall be galvanized in accordance with ASTM A153. Any hardware on the inside surface of the culvert shall be recessed into the wall and grouted over after assembly in order to maintain a smooth, unbroken inside wall surface. Each culvert section shall contain a suitable number of reinforced lifting fixtures to ensure safe and level handling and to prevent structural damage during installation.
 4. Joint: The joint made by two adjoining culverts shall be covered with a minimum of a nine (9) inch wide joint wrap. The external wrap shall be per ASTM C-877-77 Specification for External Sealing Bands or approved equal.
 5. Grout: Grout shall conform to the requirements of Article M4.

Construction Methods

Construction Methods for Structure – Precast Concrete Culvert shall conform to the following requirements:

1. Shop Drawings: Before fabrication, the Contractor shall submit shop drawings and complete design calculations to the Engineer for approval. These drawings shall include complete details of the methods, materials, and equipment he proposes to use. Drawings and calculations shall be stamped by a qualified professional engineer registered in the Commonwealth of Massachusetts. No fabrication is to commence on the precast structure until the shop drawings and design calculations are approved by the Engineer.
2. Forms: The forms in manufacture shall be sufficiently rigid and accurate to maintain the culvert section dimensions within the permissible variations given below under "Quality Control." All casting surfaces shall be of smooth nonporous materials.
3. Mixing and Placing Concrete: The concrete mix as designed and submitted by the Contractor shall

be proportioned and mixed in a batch mixer to produce a homogeneous concrete conforming to the requirements.

The transporting, placement, and compaction of concrete shall be by methods that will prevent the segregation of the concrete materials and the displacement of the reinforcement steel from its proper position in the form. There shall be no interruption in the pouring of any unit. Truck-mixed or transit-mixed concrete will not be allowed.

4. Curing: Precast units shall be cured by a method or combination of methods approved by the Engineer, which will give satisfactory results. Curing shall be for a sufficient length of time so that the concrete will develop the specified compressive strength at 28 days or less.
5. Patching: No patching of the complete units will be allowed unless permitted by the Engineer. The Contractor's proposal for methods and materials to be used in the patching operation shall be submitted to the Engineer for his approval.
6. Test Cylinders: During the casting of the units, the Contractor shall make test cylinders under the supervision of a representative of the Engineer. A minimum of four cylinders shall be taken during each production run or as ordered by the Engineer. The dimensions and type of cylinder mold shall be as specified by the Engineer. Cylinders shall be cured under laboratory control conforming to the requirements of ASTM C192 and shall be used to determine the 28-day compressive strength requirements (f_c'). Failure of any of the 28-day test cylinders to meet 90 percent of the minimum compressive strength requirements may be cause for rejection. The Engineer also reserves the right to request that test core specimens be taken from the units to determine their adequacy.
7. Quality Control: The dimension tolerance of the units shall conform to the following:
 - (a) Internal Dimension and Finish: The internal dimension shall vary not more than 1 percent from the design dimensions or more than $1\frac{1}{2}$ inches, whichever is less. The haunch dimensions shall vary not more than $\frac{3}{4}$ inch from the design dimension. The interior shall be smooth and free of irregularities.
 - (b) Slab and Wall Thickness: The slab and wall thickness shall not be less than that shown in the design by more than $\frac{1}{4}$ inch. A thickness more than that required in the design will not be a cause for rejection.
 - (c) Length of Opposite Surfaces: Variations in laying lengths of two opposite surfaces of the culvert shall not be more than $\frac{1}{8}$ inch/foot of span, with a maximum of $\frac{5}{8}$ inch in any culvert.
 - (d) Length of Section: The underrun in length of a section shall not be more than $\frac{1}{8}$ inch/foot of length, with a maximum of $\frac{1}{2}$ inch in any culvert.
 - (e) Position of Reinforcement: The maximum variation in the spacing of reinforcement shall be $\pm\frac{1}{2}$ inch. Cover shall be minimum $1\frac{1}{2}$ inches.

- (f) **Area of Reinforcement:** The areas of steel reinforcement shall be the design steel areas as shown in the manufacturer's shop drawings. Steel areas provided greater than those required shall not be cause for rejection. The permissible variation in diameter of any reinforcement shall conform to the tolerances prescribed in the ASTM Specifications for that type of reinforcement.
8. **Marking:** The following information shall be clearly marked on each section by indentation, waterproof paint, or other approved means.
- (a) Precast culvert
 - (b) Date of Manufacture
 - (c) Name or trademark of manufacturer
 - (d) An identification number or letter on the top of each section (to ensure proper placement)
9. **Handling and Storage:** Handling devices shall be provided in each arch frame unit section for the purpose of handling and placing. Care shall be taken during storage, transporting, hoisting, and handling for all units to prevent cracking or damage. Units damaged by improper storage, transporting, or handling shall be replaced by the Contractor at his expense.

CONTROLLED DENSITY FILL – NON-EXCAVATABLE

Work under this item shall be done in accordance with the relevant provisions of Section 150 of the Standard Specifications and the following:

Controlled Density Fill (CDF) material to be used on this Project for the area beneath and around the precast concrete highway guardrail transitions shall be Type 1 Very Flowable/Non-Excavatable (M4.08.0). CDF Producer must be an approved producer listed on MassDOT's Qualified Construction Materials List.

STEEL-BACKED TIMBER GUIDERAIL
STEEL-BACKED TIMBER GUIDERAIL – BRIDGE ATTACHMENT
STEEL-BACKED TIMBER GUIDERAIL – END TERMINAL

Work under this heading shall include furnishing and installing Steel-Backed Timber Guiderail per contract plans. See details in Construction Documents.

4,000 PSI, 1 1/2 INCH, 565 CEMENT CONCRETE

Work under this heading shall include furnishing and placing 4,000 PSI, 1-1/2 IN., 565HP Cement Concrete for constructing the safety curb and highway guardrail transition.

The work performed under this item shall conform to the relevant provisions of the Standard Specifications Highway and Bridges, Subsection 901.

5,000 PSI, 3/4 INCH, 685HP CEMENT CONCRETE

Work under this heading shall include furnishing and placing 5,000 PSI, 3/4 IN., 685HP Cement Concrete for constructing the reinforced concrete deck.

The work performed under this item shall conform to the relevant provisions of the Standard Specifications Highway and Bridges, Subsection 901.

STEEL REINFORCEMENT FOR STRUCTURES – EPOXY COATED

Work under this heading shall include furnishing and placing Steel Reinforcement for Structures – Epoxy Coated for constructing the reinforced concrete deck and safety curb.

The work performed under this item shall conform to the relevant provisions of the Standard Specifications Highway and Bridges, Subsections 901 and 995.

THREE-SIDED PRECAST CONCRETE CULVERT

Work under this heading shall include furnishing and installing three-sided precast concrete culvert.

The work performed under this item shall conform to the relevant provisions of the Standard Specifications Highway and Bridges, Subsections 901 and 995.

MEMBRANE WATERPROOFING FOR BRIDGE DECKS

The work performed under this section shall conform to all relevant specification sections and provisions of the Standard Specifications for Highway and Bridges, Subsection 965.

Shall be used to spray apply to concrete bridge deck.

DAMPPROOFING

The work performed under this section shall conform to all relevant specification sections and provisions of the Standard Specifications for Highway and Bridges, Subsection 970.

Shall be used to dampproof sides and back of prestressed concrete beam and highway guardrail transition as shown on plans.

METAL BRIDGE RAILING (3 RAIL), STEEL (TYPE S3-TL4)

The work performed under this section shall conform to the construction plans and all relevant specification sections and provisions of the Standard Specifications for Highway and Bridges, Subsection 975.

Method of Measurement and Basis of Payment

This item consists of the Lump Sum (L.S.) bid price for all equipment, labor, materials, and tools to complete

culvert installation, steel-backed timber guiderail, safety curb, headwall, metal bridge railing, and all other items listed in the below as shown in the Contract Drawings and described in the Technical Specifications.

Subitem #	Description	Qty	Unit	Unit Price	Amount
153.1	Controlled Density Fill – Non-Excavatable	3	CY	\$	\$
620.01	Steel-Backed Timber Guiderail	230	LF	\$	\$
620.02	Steel-Backed Timber Guiderail – Bridge Attachment	4	EA	\$	\$
620.03	Steel-Backed Timber Guiderail – Terminal Section	4	EA	\$	\$
901	4,000 PSI, 1-1/2 Inch, 565 Cement Concrete	100	CY	\$	\$
904.3	5,000 PSI, 3/4 Inch, 685HP Cement Concrete	10	CY	\$	\$
910.1	Steel Reinforcement for Structures – Epoxy Coated	12,000	LBS	\$	\$
916.	Three-Sided Precast Concrete Culvert	33	FT	\$	\$
965.	Membrane Waterproofing for Bridge Decks	775	SF	\$	\$
970	Dampproofing	275	SF	\$	\$
975.1	Metal Bridge Railing (3 Rail), Steel (Type S3-TL4)	40	FT	\$	\$
TOTAL LUMP SUM CONTRACT BID PRICE OF ITEM 995.011 =					\$

SECTION 1000 UTILITY RELOCATIONS

ITEM 1000.1

PERMANENT WATER MAIN RELOCATION

LUMP SUM

The work under these items shall conform to the relevant provisions of Section 300 of the Standard Specifications and the following:

The work shall include the furnishing and installation of all materials required to relocate/replace the existing water pipes where shown on the plans, add/replace/reset existing hydrants and gate valves, and relocate existing pipe at any locations where the existing pipes are found to conflict with proposed drainage construction.

Approval of Materials

All materials must be manufactured and supplied in accordance with applicable ANSI/AWWA standards latest revisions and must be American made.

All products that may have contact with drinking water must be certified to be in compliance with NSF/ANSI Standard 61(NSF 61) Annex G and must meet the weighted average lead content requirement and meet the new low lead requirements of the U.S. Safe Drinking Water Act, which went into effect in January 2022. Note: NSF/ANSI Standard 61, Annex G (NSF 61-G) references NSF 372. Proof of certification must be furnished upon request.

All line stops shall be rated at minimum working pressure of 150 psi and hydrostatic test pressure of 300 psi. Lined waterways with fusion-bonded epoxy, EPA or NSF approved for potable water, minimum thickness of 12 mils, following AWWA C213. Exterior coating: Fusion bonded epoxy minimum thickness 12 mils, following AWWA C-213.

The Contractor shall submit the names of the material suppliers to the Engineer for approval prior to ordering any materials.

PIPE

Pipes shall be ANSI A21.4/AWWA C151 class 52 ductile iron cement lined minimum of 1/8-inch thick, ANSI A21.4/AWWA C104 and bituminous coated inside and outside per ANSI A21.4/AWWA C104. Joints shall be push-on unless otherwise approved in accordance with ANSI A21.51/AWWA C151 and gaskets conform to ANSI A21.11/AWWA C111. Maximum pipe length shall be 20 feet. Each pipe length and fitting shall be clearly identified by marking with manufacturer's name and trademark, nominal pipe size, and material designation.

FITTINGS

Fittings shall be ductile iron Class 53 conforming to applicable ANSI, NEWWA, and AWWA specifications with mechanical joint having ductile iron retainer gland per ANSI A21.51/AWWA C151. Retainer glands shall be designed to impart multiple wedging action against the pipe, increasing its resistance as the pressure increases. Glands shall be manufactured of ductile iron conforming to ASTM A536-80. Restraining devices

shall be of ductile iron heat treated to a minimum hardness of 370BHN. Twist-off nuts shall be used to ensure proper actuating of the retainer gland. Dimensions of the gland shall be such that it can be used with the standard mechanical joint bell and tee-headed bolts conforming to ANSI/AWWA A21.1 and ANSI/AWWA 153/A21.5. The retainer gland shall have a working pressure of 250 psi with a minimum safety factor of 2:1 and shall be certified by the manufacturer to be compatible with the pipe class and pipe manufacturer for all sizes provided on the job. Fittings shall have minimum pressure rating of 250 psi for cast iron fittings and 350 psi for ductile iron fittings and cement lined with minimum 1/8-inch thickness per ANSI A21.4/AWWA C104 with bituminous coating inside and outside in accordance with ANSI A21.4/AWWA C 104. Gaskets shall meet ANSI A21.11/AWWA C111. All flanged joints shall be 125-lb standard with neoprene rubber gaskets, minimum 1/8-inch thick.

COUPLINGS AND TRANSITION COUPLINGS

Couplings shall only be allowed when connecting standard outside diameter pipe to oversize or pit cast pipe. The coupling shall be of a type equal to Smith Blair, Style 441; Dresser, Style 153; 360 or Romac Style 501, or an approved equal. Couplings shall be provided with plain, Grade 27, rubber gaskets and with black, steel, track-head bolts with nuts. Couplings and transitional couplings for pipe less than or equal to 12 inches in diameter shall consist of a long body cast iron sleeve and shall have gaskets suitable for the pipe being joined. Transition couplings for pipe less than or equal to 12 inches in diameter shall be Dresser Style 162, Rockwell Type 441, Smith Blair Omni Style 442, or equal.

GATE VALVES

Gate valves are resilient seated and must meet or exceed the requirements of AWWA C509, sized from 6-inch through 12-inch ductile iron mechanical joint with retainer glands, non-rising stem, minimum 200 psi working pressure, wrench nut operational open left (counterclockwise), bonnet bolting shall be stainless steel, and double "O" ring seal.

Tapping valves shall have flange on sleeve end and mechanical joint on outlet end.

GATE BOXES

Valve boxes shall be cast iron, heavy pattern, sliding adjustable type with cast iron cover. The upper section shall have a flange to prevent settling. Valve boxes shall have barrels not less than 5-inch inside diameter and lengths adapted to valve depth. The barrels shall lap at least 6 inches when in the most extended position. The word "WATER" shall be cast into the cover. The bottom of the lower section shall enclose the valve bonnet and operating nut.

RESTRAINED END CAPS

Restrained end caps shall be ductile iron casting ASTM A536 Grade 65-45-12 and manufactured in the United States of America.

CONCRETE THRUST BLOCKS

Concrete shall have a 28-day compressive strength of 3,000 psi.

LINESTOPS

The Tapping Saddle Assembly shall be of full encirclement, consisting of, at minimum, upper saddle plate with anchor neck, lower saddle plate, tapping flange, and nozzle with gland or gasket for pressure tight seal suitable for potable water ranging in temperature from 32 degrees F to 100 degrees F. All components properly shaped and adequate strength to ensure proper mounting and pressure tight seal around existing pipe. The saddle plates shall be manufactured from ASTM A283 Grade C, ATSM A36 or equal steel, clean and sound without defects that impact their service. No plugging or welding of such defects will be allowed. The outlet flange manufactured of same material as tapping saddle assemblies: flat face and drill following ANSI B16.5, Class 150 flange. Provide suitable independently operating locking device in periphery of flange to secure completion plug. All waterways shall be dye-penetrant inspected for watertightness.

The Completion Plug shall be manufactured from ASTM A283 Grade C, ASTM A36 or equal steel. It shall be equipped with two grooves – one to receive the locking device from flange and second to contain compressible "O" ring to seal pressure tight against interior diameter of nozzle.

The Blind Flange is to seal tapping saddle assembly upon removal of tapping and linestop equipment. It shall be manufactured from AWWA C207, Class D steel and drilled to match bolt circle of nozzle of tapping saddle assembly.

The Tapping Equipment Fabricator/Installer shall furnish folding plug head linestop capable of pressure tight seal against inside diameter of existing pipe. The linestop shall advance into and retract from pipeline by means of hydraulic or mechanical actuator. When retracted, the folding plug head to be housed in pressure tight chamber between the actuator and tapping valve.

The folding plug shall be capable of displacing accumulated grit deposits in the interior of the pipe while advancing to its linestopping position and have molded polyurethane sealing element around its perimeter and supply workable seal with interior diameter when fully advanced.

HYDRANTS

Hydrants shall be traffic model American Darling — B84B, Kennedy K8 1A Guardian, or US Pipe Metropolitan 250 Model 94 or equal, and shall conform to the "Standard" Specifications for Fire Hydrants for Ordinary Water Works Service," AWWA C502 and the following:

Hydrants shall be according to manufacturer's standard pattern of standard size and shall have one 4-1/2-inch pumper nozzle and two 2-1/2-inch hose nozzles.

Hydrant inlet connections shall have mechanical joints for 6-inch ductile iron pipes.

Hydrant valve opening shall have an area at least equal to the area of a 5-1/4-inch-diameter circle and be obstructed only by the valve rod. Each hydrant shall be able to deliver 500 gallons per minute through its two 2-1/2-inch hose nozzles when opened together with a loss of not more than 2 psi in the hydrant.

Each hydrant shall be designed for installation in a trench that will provide 5 feet of cover. Hydrant extension shall be as manufactured by the company furnishing the hydrants and of a style appropriate for the hydrants as furnished.

Hydrants shall be hydrostatically tested as specified in AWWA C502.

All nozzle threads shall be American National Standard. Each nozzle cap shall be provided with a Buna N rubber washer.

Hydrant operating nut shall be AWWA Standard pentagonal type measuring 2-1/2 inches point to flat.

Hydrants shall be equipped with "O" ring packing.

Hydrants shall be so arranged that the direction of outlets may be turned 90 degrees without interference with the drip mechanism and without the mechanism obstructing the discharge from any outlet.

A bronze or rustproof steel nut and check nut shall be provided to hold the main hydrant valve on its stem.

Hydrants shall open by turning an operating nut to left (counterclockwise) and must be marked with an arrow and word "OPEN" to indicate the direction to turn stem to open hydrant.

All iron work to be set below ground shall be thoroughly cleaned and painted with two coats of asphalt varnish specified in AWWA C502, and iron work to be exposed above ground shall be shop painted with two coats of paint of quality and color conforming to the present town standard.

Each hydrant shall be designed such that the hydrant valve closes with line pressure preventing loss of water and consequent flooding in the event of traffic damage.

Each hydrant shall be furnished with a steel chair holder, double steel hose cap chain, steel pumper cap chair, and any other hooks or appurtenances required for proper use. Hydrant tees shall be anchor type.

SERVICE CONNECTIONS

The minimum service line for new water service installations shall be 1". The Water Department may require larger line sizes to meet the minimum flow requirements of the user.

Corporation stops shall be in accordance with the Plymouth Water Department standards.

Curb stops shall be in accordance with the Plymouth Water Department standards.

Curb boxes shall be Buffalo type and adjustable in length consistent with pipe depths.

Copper tubing shall be Type K, soft temper conforming to ASTM B88. The name or trademark of the manufacturer and type shall be stamped at intervals along the pipe.

Adapter couplings may be required for fitting new services to existing service lines. Such fittings shall be compression connections and provide electrical continuity.

PIPE INSTALLATION

The Contractor shall make all necessary arrangements with the Town of Plymouth Water and Fire Departments for the necessary shutdowns of service.

The Town of Plymouth Water Department may establish the time of shutdown to be within the normal daily low demand period.

Care shall be taken in loading, transporting, and unloading to prevent injury to the pipes or coatings. Pipe and fittings shall not be dropped. All pipe or fittings shall be examined before laying, and no piece shall be installed that is found to be defective. Any damage to the pipe coatings shall be repaired as directed by the Engineer. Any pipe found to be defective, before or after laying, shall be satisfactorily removed and replaced with sound pipe at no additional cost. All pipe and fittings shall be thoroughly cleaned before laying and shall be kept clean until installed.

All pipe and fittings shall be installed in conformance with AWWA Standard Specifications C600 except as otherwise provided herein. All pipe and fittings shall be sound and shall be laid in a dry trench on a shaped bedding providing uniform, firm support over the entire length of each section barrel. **BLOCKING WILL NOT BE PERMITTED.** The select bedding material shall be placed and tamped along the sides of the pipe to complete the bedding.

Pipe shall be laid with good alignment and at a uniform 5-foot depth to top of pipe below proposed grade except where extra depth is required to clear other utilities and to connect to existing pipes, valves, or fittings. Joint deflection shall not exceed that recommended by the manufacturer. Additional fittings shall be furnished and installed as required to cross existing utilities. Solid sleeves shall be used only where approved by the Engineer.

When pipe laying is stopped for any length of time, including short periods, the open ends of the pipe and fittings shall be closed with a watertight plug or cap. At no time shall water in the trench be permitted to flow into the pipe.

Necessary pipe cutting shall be accomplished by power saw and shall leave a smooth cut at right angles to the axis of the pipe. Cut ends of pipe to be used with a push-on bell shall be beveled to conform to the manufactured spigot end. Cement lining shall be undamaged.

Push-on joints shall be made in strict accordance with the manufacturer's instructions. The rubber gasket shall be inserted in the groove of the bell end of the pipe and the joint surfaces cleaned and lubricated. The plain end of the pipe to be entered shall then be inserted in alignment with the bell of the pipe to which it is to be joined and pushed home with a jack or by other means.

After jointing the pipe, a metal feeler shall be used to make certain that the rubber gasket is correctly located.

Mechanical joints shall be installed in accordance with the "Notes of Method of Installation" of ANSI A21.11 and the instructions of the manufacturer. The Contractor shall thoroughly clean the joint surfaces and rubber gasket with soapy water before tightening the bolts. Bolts shall be tight to the specified torques. Under no condition shall extension wrenches or pipe over handle or ordinary ratchet wrench be used to secure greater leverage.

HYDRANTS

Hydrants shall be set at the locations shown on the drawings, or as directed by the Engineer, and bedded on a firm foundation. A drainage pit 2 feet 6 inches in diameter shall be filled with crushed stone and satisfactorily compacted. Additional stone shall be brought up and around 6 inches over the drain ports. Each hydrant shall be set in true vertical alignment and properly braced. A concrete thrust block shall be placed between the back of the hydrant inlet and undisturbed soil at the end of the trench. Felt roofing paper shall be placed around hydrant elbow before placing concrete. Care shall be taken to ensure that concrete does not plug the drain ports. Hydrant paint shall be touched up as required after installation.

TAPPING SLEEVES AND VALVES

The Contractor shall install the tapping sleeves on the existing mains for the relocation of existing pipes under the supervision of the Town of Plymouth Water Department. Tapping sleeves shall be installed at least 3 feet from an existing pipe joint and shall be squarely centered on the existing pipe.

Adequate support shall be provided under the sleeve and valve during the tapping operation. After completing the tap, the valve shall be flushed to ensure that the valve seat is clean.

Tapping operations shall be conducted by workmen thoroughly experienced in the installation procedures.

Valves shall be set vertically with valve boxes adequately supported, centered on the valve and vertical.

Concrete thrust blocks shall be installed behind each tapping sleeve.

CONCRETE THRUST BLOCKS

Concrete thrust blocks shall be installed at all tees, bends, plugs, caps, tapping sleeves, and other locations as directed by the Engineer in accordance with the dimensions and details shown on the plans.

The back of thrust blocks shall be placed against undisturbed earth and the sides shall be formed. Felt roofing paper shall be placed to protect pipe joints. Concrete shall not be placed over bolts or nuts or in a manner that prevents the removal of joints.

Precast thrust block may be used instead of cast-in-place concrete. Bearing areas for precast thrust blocks shall be equal or greater than required for cast-in-place thrust blocks unless determined otherwise by the Engineer.

Concrete shall be 3,000 psi, 1-1/2 in., 470 lb. or better. Precast thrust blocks shall be 5,000 psi and supplied from an approved fabricator.

LINE STOPS

Before ordering linestop tapping saddle assembly, clean existing pipe, make circumferential measurement of pipe, and check for roundness to verify sleeve will fit.

Repair any damage to existing pipe coating with suitable coating material to original line of coating as directed by pipe manufacturer's technical representative at no additional expense before backfilling.

Excavate around existing pipe so as not to disturb thrust blocking. Clean existing pipe. Check pipe outside diameter and roundness to verify assembly will fit. Provide all materials and equipment to perform installation of linestop. Provide blocking/support following Drawings.

Approved Tapping Equipment Fabricator/Installer to install tapping saddle assembly to pipe and to insert linestop into pipe for line isolation.

After linestop is no longer required, approved Tapping Equipment Fabricator/Installer to remove linestop and install completion plug and blind flange.

WATER SERVICE

Corporation stops shall be installed in ductile iron pipe with a direct tap except for Class 50 or Class 51 pipe where a service saddle shall be installed.

Corporation stops shall be installed in AC pipe using a service clamp or saddle in accordance with the recommendations of the AC pipe manufacturer.

Install corporation stops in the new water main either at the time of installation or later when service connections are constructed. Service connections shall be constructed after the new pipe has been tested and disinfected.

Corporation stops shall be installed in the pipe at the 10 o'clock or 1 o'clock position. The length of travel of the tap should be so established that when the corporation stop is inserted and tightened with a 14-inch wrench, a minimum of one thread and a maximum of three threads will be exposed on the outside. When a wet tapping machine is used, the corporation stop shall be inserted with the machine while it is still in place. Stops shall be tightened only sufficiently to be watertight.

All work on service connections shall be properly coordinated with the Water Department. The Contractor shall notify users 24 hours in advance of when he proposes to discontinue service.

Install copper tubing from the corporation stop to the curb stop for a new service changeover.

Install to a depth of 5.5 feet minimum. A "goose neck" shall be installed in the new service pipe.

Care shall be exercised in the placing and laying of copper tubing to be sure that the pipe does not have any kinks and is not installed near sharp stones or ledge, which would cause damage to the pipe. Place at least

12 inches of gravel borrow with no stone greater than 2 inches in maximum dimension adjacent to and above the tubing.

Install curb stop and curb box (new service installation) at the approximate property line or as otherwise directed by the Water Department and connect with new copper tubing. Install curb box vertically, centered over the operating key, with the elevation of the top adjusted to conform to the finished grade. Adequately support the box during backfilling to maintain vertical alignment. Care must be taken to ensure that the curb box does not rest on the curb stop.

TESTING

A. General: The Contractor shall test all installed pipe in accordance with the requirements of AWWA C600 except as amended or added below:

1. The Contractor shall furnish all labor, materials, and equipment necessary for any and all required pipe taps for testing and as necessary for testing as specified.
2. A pressure test and leakage test are required for all pipe.
3. Water to be furnished by the Department.

B. Testing requirements:

1. Test duration: 2 hours
2. Test pressure: 150 percent of maximum operating pressure as determined by the Engineer
3. Allowable pressure loss: Pressure shall not vary more than ± 5 psi for the duration of the pressure test.
4. Allowable leakage: Allowable leakage shall be determined by the following formula:

$$\frac{L = SD\sqrt{P}}{133200}$$

L = allowable leakage, in gallons per hour
S = length of pipe tested, in feet
D = nominal pipe diameter, in inches
P = average test pressure, in psi (gauge)

5. Allowable leakage in gallon per hour per 1,000 feet of pipeline can be determined from the following chart.

Avg. Test Pressure psi	Nominal Pipe Diameter-in.										
	3	4	6	8	10	12	14	16	18	20	24
450	0.48	0.64	0.95	1.27	1.59	1.91	2.23	2.55	2.87	3.18	3.82
400	0.45	0.60	0.90	1.20	1.50	1.80	2.10	2.40	2.70	3.00	3.60
350	0.42	0.56	0.84	1.12	1.40	1.69	1.97	2.25	2.53	2.81	3.37
300	0.39	0.52	0.78	1.04	1.30	1.56	1.82	2.08	2.34	2.60	3.12
275	0.37	0.50	0.75	1.00	1.24	1.49	1.74	1.99	2.24	2.49	2.99
250	0.36	0.47	0.71	0.95	1.19	1.42	1.66	1.90	2.14	2.37	2.85
225	0.34	0.45	0.68	0.90	1.13	1.35	1.58	1.80	2.03	2.25	2.70
200	0.32	0.43	0.64	0.85	1.06	1.28	1.48	1.70	1.91	2.12	2.55
175	0.30	0.40	0.59	0.80	0.99	1.19	1.39	1.59	1.79	1.98	2.38
150	0.28	0.37	0.55	0.74	0.92	1.10	1.29	1.47	1.66	1.84	2.21
125	0.25	0.34	0.50	0.67	0.84	1.01	1.18	1.34	1.51	1.68	2.01
100	0.23	0.30	0.45	0.60	0.75	0.90	1.05	1.20	1.35	1.50	1.80

A REPORT CONTAINING CALCULATIONS AND DOCUMENTATION PERTAINING TO THE PRESSURE AND LEAKAGE TESTING SHALL BE SUBMITTED TO THE PLYMOUTH WATER DEPARTMENT.

If in the judgment of the Superintendent it is impractical to follow the foregoing procedure exactly, for any reason, modification in the procedures may be made as required or approved, but in any event, the Contractor shall be responsible for the ultimate tightness of the line within the above leakage requirements.

DISINFECTION

A. The Contractor shall disinfect all installed water mains in accordance with the requirements of AWWA C651 except as amended or added below:

1. Discuss the procedure with the Water Department and obtain approval before doing the work.
2. All newly installed water mains shall be flushed at a minimum velocity of 2.5 feet per second before and after disinfection.
3. Form of chlorine: Calcium hypochlorite granules or sodium hypochlorite solution.
4. Method of chlorine application: Continuous feed method or slug method.

B. Test results for chlorine residuals for times as specified in the method of disinfection must be submitted to the Plymouth Water Department. All valves and hydrants should be operated during treatment to ensure their thorough contact with the disinfecting solution.

The pipe line should then be flushed free of all the heavily treated water. Twenty-four hours after flushing, the water should be tested chemically for residual chlorine and bacteriologically for coliform group bacteria. Testing must be done by a Massachusetts state-certified laboratory, and results of all tests must be submitted to the Plymouth Water Department. The Contractor shall be solely responsible for all costs associated with the aforesaid test.

The quality of the water should remain acceptable for at least 2 days after the flushing.

A report containing amounts of water flushed, amounts of chlorine used, and chlorine residuals after the test period must be submitted to the Plymouth Water Department.

If the initial treatment fails to produce the desired result, the chlorination procedure must be repeated.

This work shall be done under the direction and supervision of a representative of the Plymouth Water Department. For this work, the Contractor shall furnish all equipment, material, and labor required.

PIPELINE ABANDONMENT

The deactivation of the water mains shall be done upon completion of the following:

1. Installation and successful testing of the new pipeline, including all hydrants and appurtenances.
2. Removal and reconnection of all buildings from the existing pipelines to the new pipelines.
3. Approval for the deactivation of the water mains by the Engineer or Owner.

Excavate and remove sections of the existing water main as shown on the Drawings or as needed to complete proposed drainage work for the Contractor's convenience. If the open end of the water main to be abandoned is subject to line pressure, the end of the pipe shall be sealed with a mechanical joint cap or plug. If the open end of the water main to be abandoned is not subject to line pressure, the end of the pipe shall be sealed with a concrete plug with a length no less than 2 times the pipe diameter. For example, an 8-inch-diameter pipe will require that a minimum 16-inch-long plug be installed inside the barrel of the abandoned pipe.

After the pipe to be abandoned has been plugged, the top sections of all gate boxes shall be removed and stacked and the holes filled in with suitable backfill material and patched with bituminous concrete in the area of the gate box.

Basis of Payment

Hydrant removed and stacked, gate box adjusted, gate box removed and stacked, water main removed and stacked, hydrant adjusted, tapping sleeve, valve and box, and yard hydrants will be measured as part of the Lump Sum, complete in place. No separate payment.

Hydrant removed and stacked, gate box adjusted, gate box removed and stacked, water main removed and stacked, hydrant adjusted, tapping sleeve, valve and box, and yard hydrants will be paid for as part of the Lump Sum, which prices shall include all labor, material, equipment, and incidental costs required to complete the work. No separate payment.

Water service will be measured for payment as part of the Lump Sum and complete in place, which includes corporation cock, copper tubing-type k, curb stop, service box, and service coupling. No separate payment will be made for excavation, gravel borrow, and backfill.

Linestops will be measured and paid for as part of the Lump Sum, installed, complete in place, and shall include all labor, materials, equipment, and incidental costs required to complete the work. No separate payment.

No separate payment will be made for excavation, concrete, gravel borrow and crushed stone bedding and backfill, testing and disinfection, including installation of pipe taps necessary for chlorination or taking samples, and including paying for all bacteriological testing by an approved independent laboratory. All costs in connection therewith shall also be included in the Lump Sum.

No separate payment will be made for the removal, transporting, and stacking of existing salvaged materials. All costs in connection therewith shall also be included in the Lump Sum.

Water main abandonment method of measurement and basis of payment for all work under this item will be by the Lump Sum price, which price shall be full compensation of excavation, backfilling, controlled density fill, dismantling, restrained end caps, corporation cock for required air removal, required thrust blocks, concrete for pipes not subject to pressure, small labor, and equipment and materials required for or incidental to the work.

<u>ITEM 1000.2</u>	<u>TEMPORARY WATER MAIN RELOCATION</u>	<u>LUMP SUM</u>
--------------------	--	-----------------

General

The work under these items shall consist of furnishing, installing, and maintaining the temporary water main in Bartlett Road for the duration of construction or until no longer necessary. Also included shall be the removal of the temporary water main after installation of permanent water main, removal of excess materials off site, if required, and legal disposal of unsuitable materials off site in accordance with all applicable laws, regulations, and permits, if required. The Contractor will be required to coordinate with the respective utility company or the town prior to any disruption in service, which shall be kept to a minimum.

The Contractor shall be responsible for installing and maintaining temporary water main through the entire duration of the construction until no longer needed and shall take care to provide proper insulation to the temporary water main through the winter.

Method of Measurement and Basis of Payment

There shall be no measurement under these items but shall be paid for on a Lump Sum (L.S.) basis for all equipment, labor, materials, and tools necessary to furnish, maintain, and complete the temporary utility relocations.

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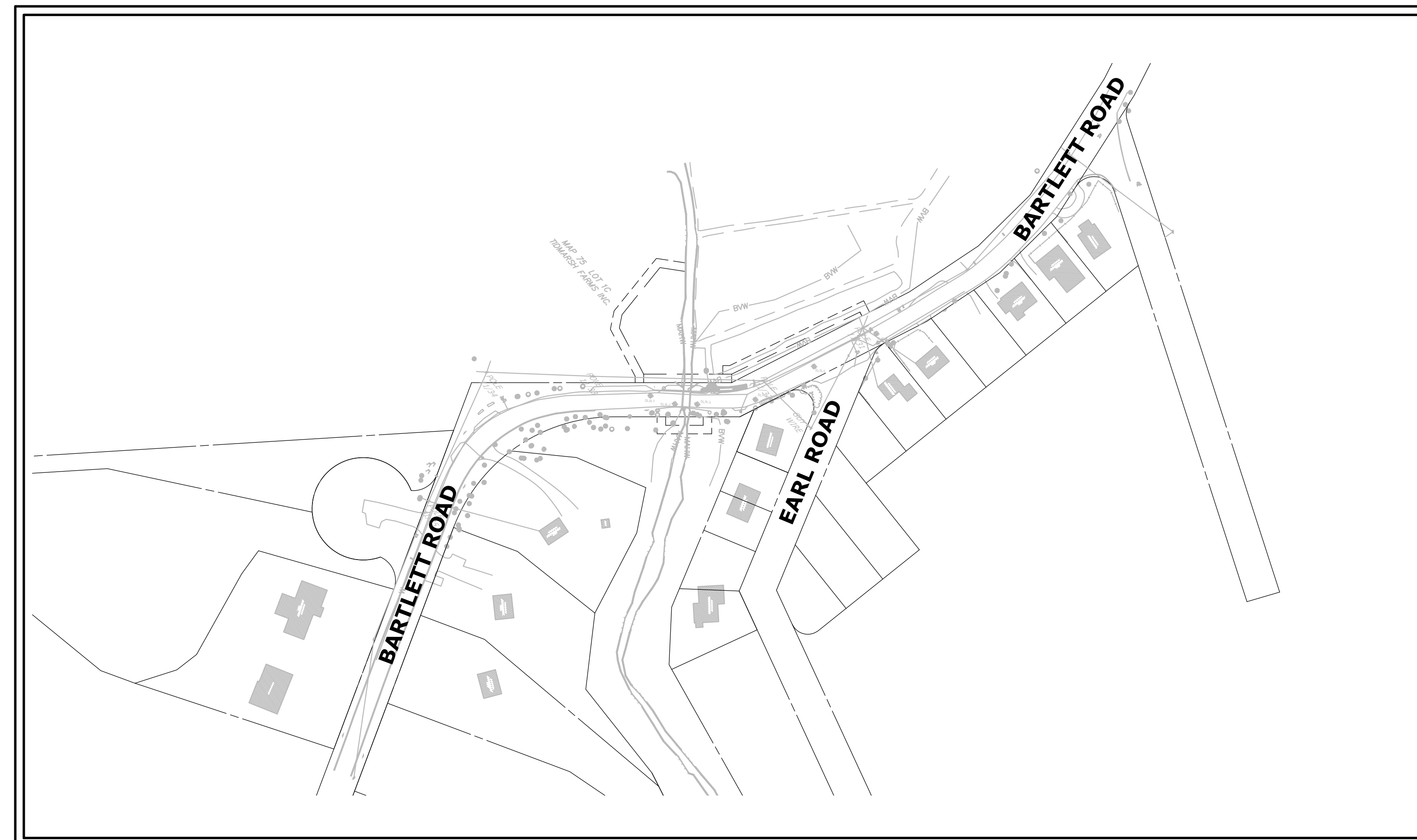
ATTACHMENT 2

PLANS

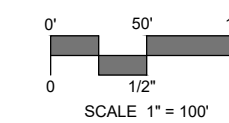
BARTLETT ROAD OVER UNNAMED BROOK

BARTLETT ROAD
PLYMOUTH, MASSACHUSETTS

CONSTRUCTION DOCUMENTS
SEPTEMBER 21, 2023



PROJECT SITE VICINITY MAP:



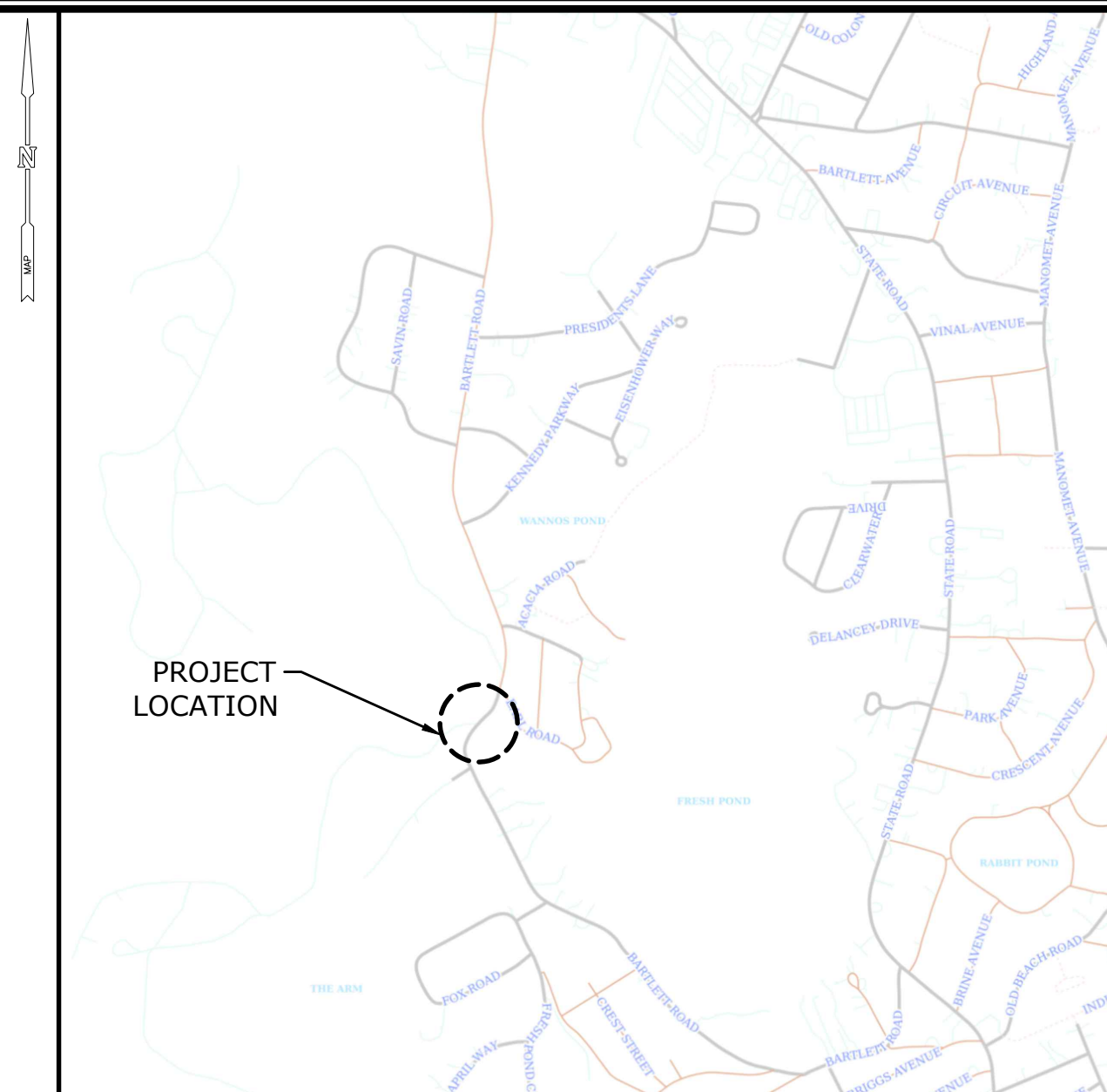
PREPARED FOR:

TOWN OF PLYMOUTH
26 COURT STREET
PLYMOUTH, MA 02360

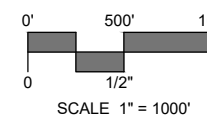
PREPARED BY:



99 REALTY DRIVE
CHESHIRE, CT 06410
203.271.1773
SLRCONSULTING.COM



LOCATION MAP:



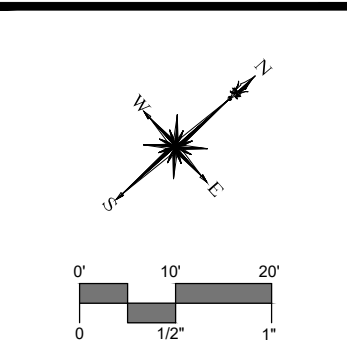
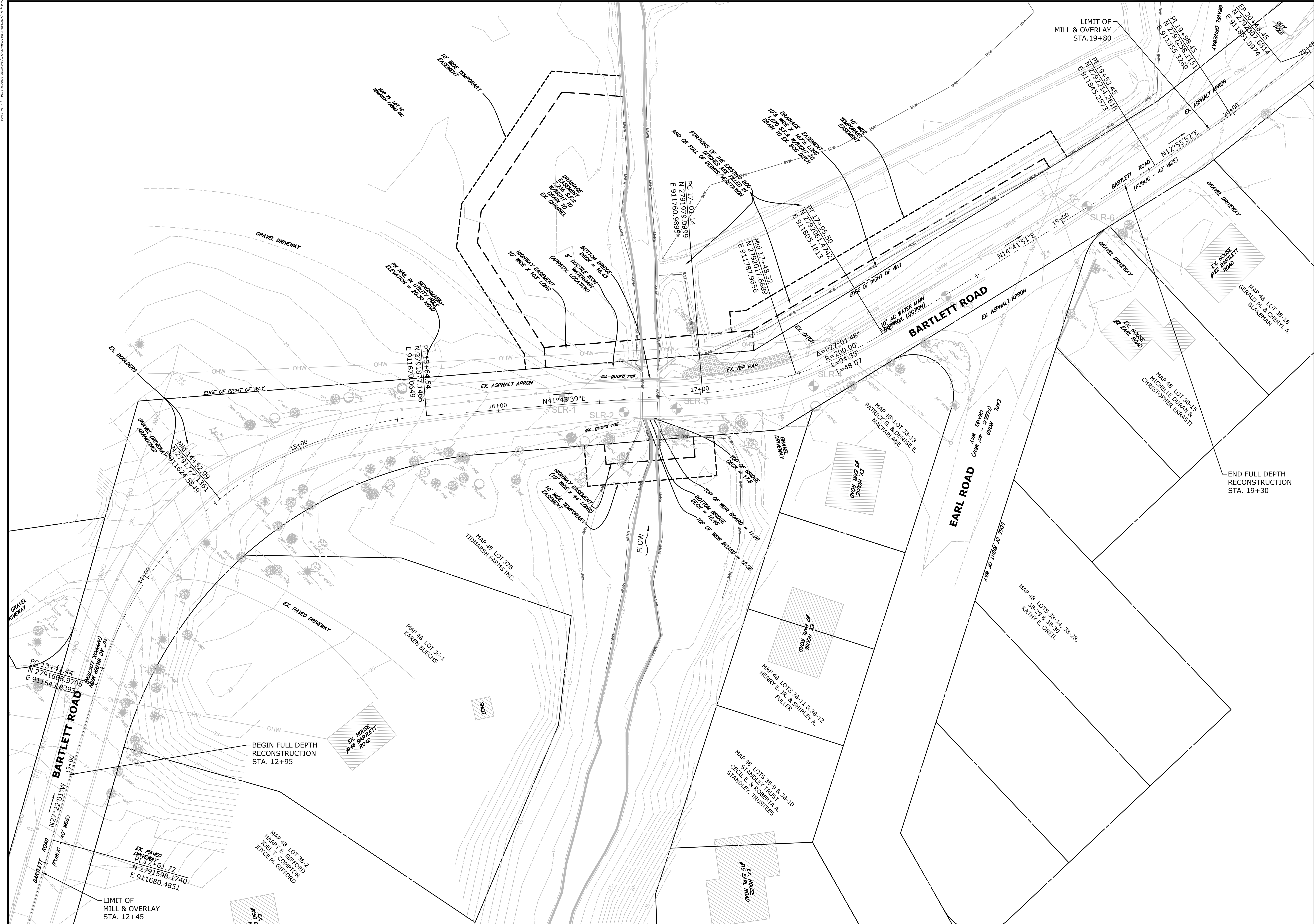
LIST OF DRAWINGS

NO.	TITLE	DESCRIPTION
01	TITLE	TITLE SHEET
02	EX-01	EXISTING CONDITIONS & BASELINE LAYOUT
03	PL-01	ROADWAY PLAN
04	PRO-01	ROADWAY & DRIVEWAY PROFILE
05	UTIL-01	UTILITY PLAN
06	PR-01	CHANNEL PLAN & PROFILE
07	CS-01	CHANNEL CROSS SECTIONS
08	RS-01	RESTORATION AND PLANTING PLAN
09	SE-01	SEDIMENT & EROSION CONTROLS
10	MPT-01	DETOUR PLAN
11	STR-01	STRUCTURAL PLAN
12	STR-02	STAGED CONSTRUCTION
13	STR-03	STAGED CONSTRUCTION
14	STR-04	BORING LOGS
15	STR-05	BORING LOGS
16	STR-06	FOOTING PLAN & STRUCTURAL ELEVATIONS
17	STR-07	FRAMING PLAN & CULVERT DETAILS
18	STR-08	STRUCTURAL DETAILS
19	STR-09	SITE DETAILS
20	STR-10	BRIDGE RAILING DETAILS
21	STR-11	BRIDGE RAILING DETAILS
22	XSC-01	ROADWAY CROSS SECTIONS
23	XSC-02	ROADWAY CROSS SECTIONS
24	XSC-03	ROADWAY CROSS SECTIONS
25	XSC-04	ROADWAY CROSS SECTIONS
26	SD-01	STEEL-BACKED TIMBER GUIDERAIL DETAILS
27	SD-02	STEEL-BACKED TIMBER GUIDERAIL DETAILS
28	SD-03	STEEL-BACKED TIMBER GUIDERAIL DETAILS
29	SD-04	STEEL-BACKED TIMBER GUIDERAIL DETAILS



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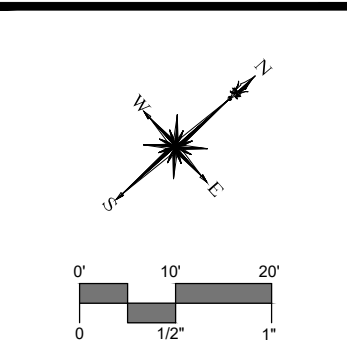
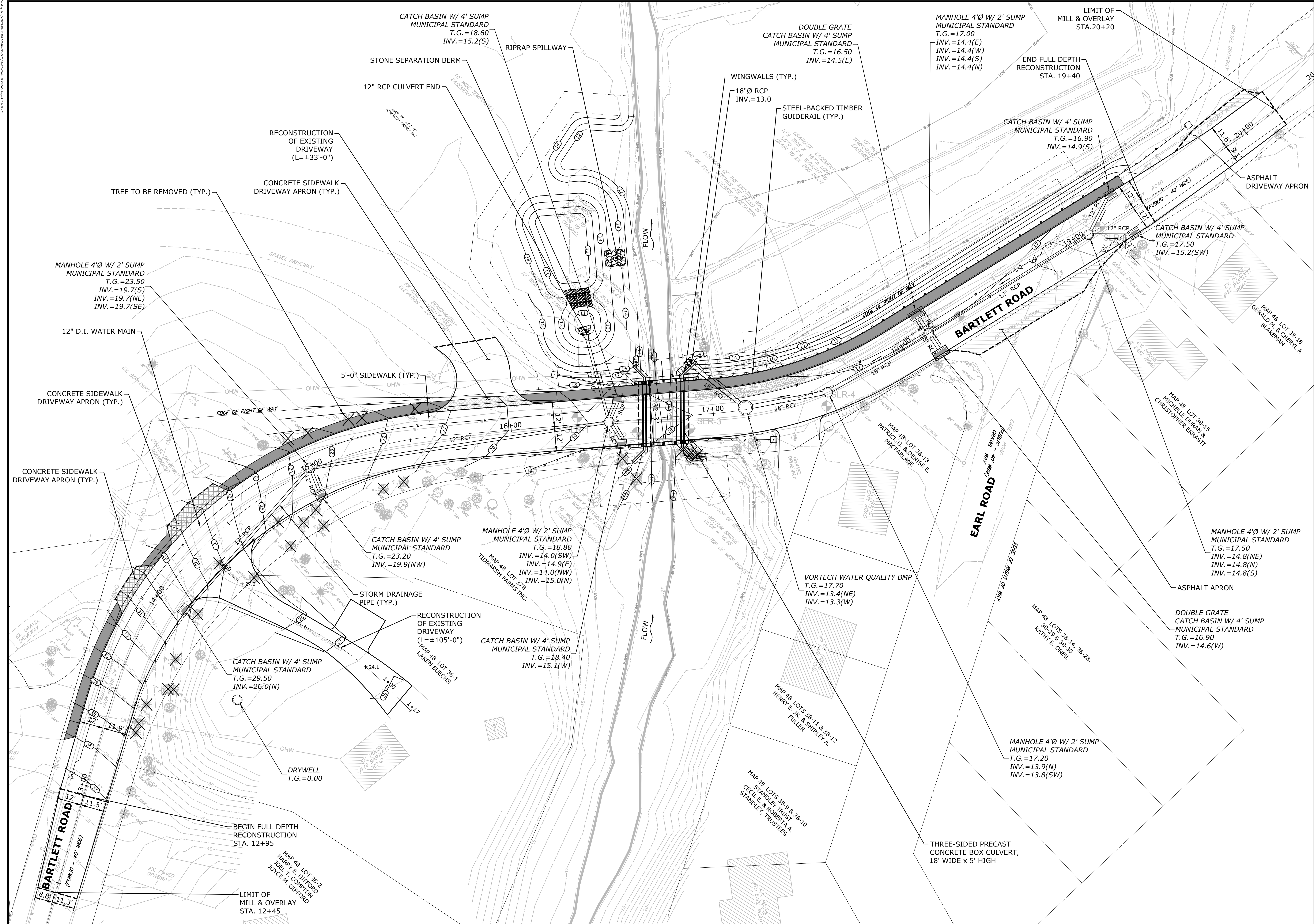
DESCRIPTION	DATE	BY

EXISTING CONDITIONS & BASELINE LAYOUT
 REPLACEMENT OF BARTLETT ROAD CULVERT
 OVER UNNAMED BROOK
 BARTLETT ROAD
 PLYMOUTH, MASSACHUSETTS

NP	NP	KP
DESIGNED	DRAWN	CHECKED
SCALE		
1"=20'		
DATE		
SEPTEMBER 21, 2023		
PROJECT NO.		
11982.00016		
SHEET NO.		
02 OF 29		

EX-01

NOT FOR CONSTRUCTION



SLR
 99 BEALY DRIVE
 203.271.7773
 SLRCONSULTING.COM

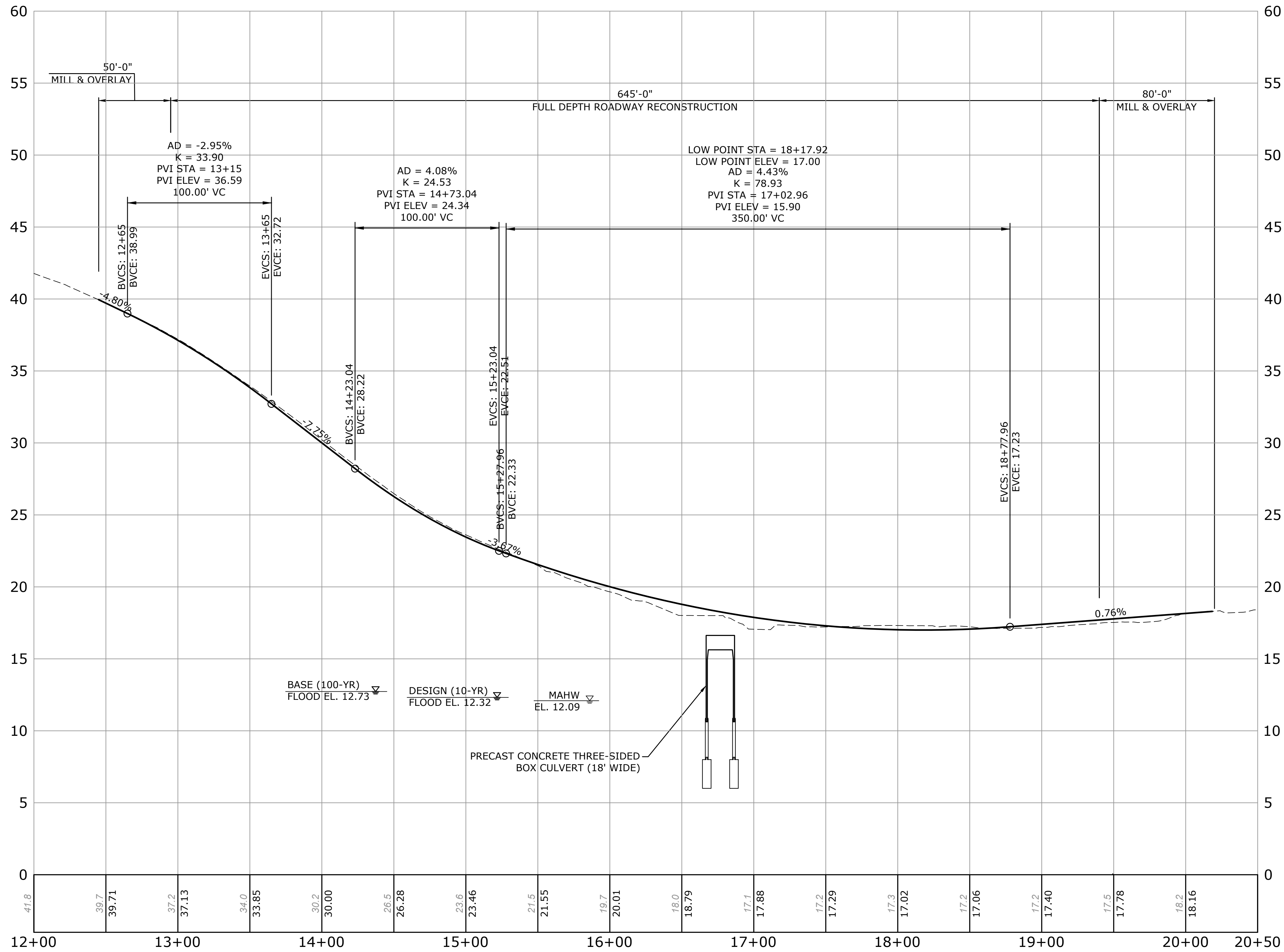
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NOT FOR CONSTRUCTION

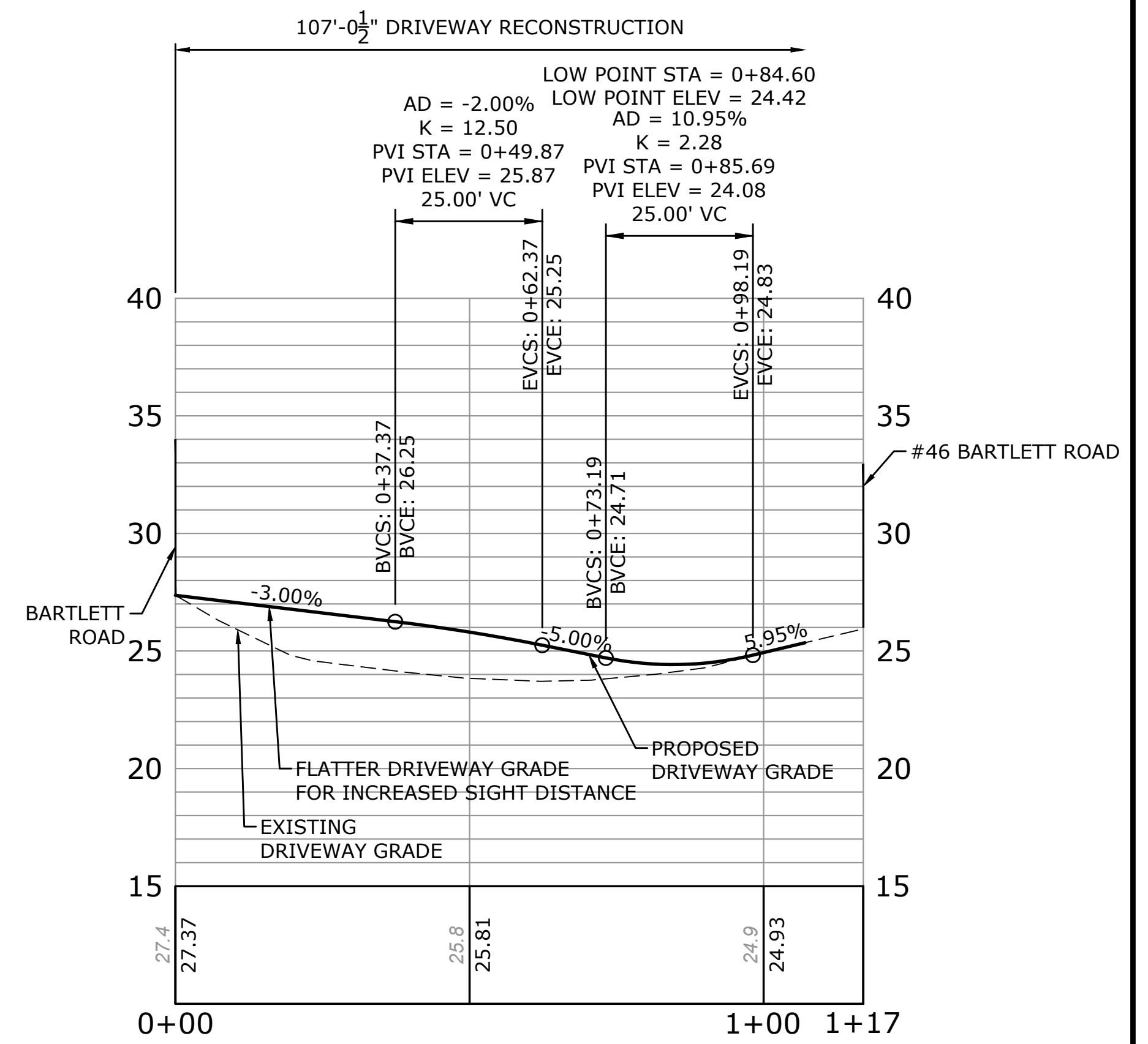
ROADWAY PLAN
REPLACEMENT OF BARTLETT ROAD CULVERT
OVER UNNAMED BROOK
 BARTLETT ROAD
 PLYMOUTH, MASSACHUSETTS

NP	NP	KP
DESIGNED	DRAWN	CHECKED
SCALE: 1"=20'		
DATE: SEPTEMBER 21, 2023		
PROJECT NO: 11982.00016		
SHEET NO: 03 OF 29		
PL-01		

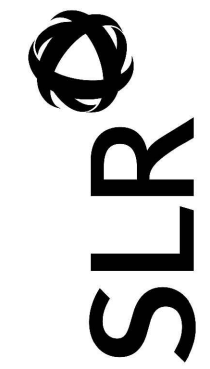
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 PLOT BY: JLD
 PLOT SCALE: 1"=40'-0" HORIZ.
 PLOT SCALE: 1"=4'-0" VERT.



ROADWAY PROFILE
 SCALE: 1"=40'-0" HORIZ.
 1"=4'-0" VERT.



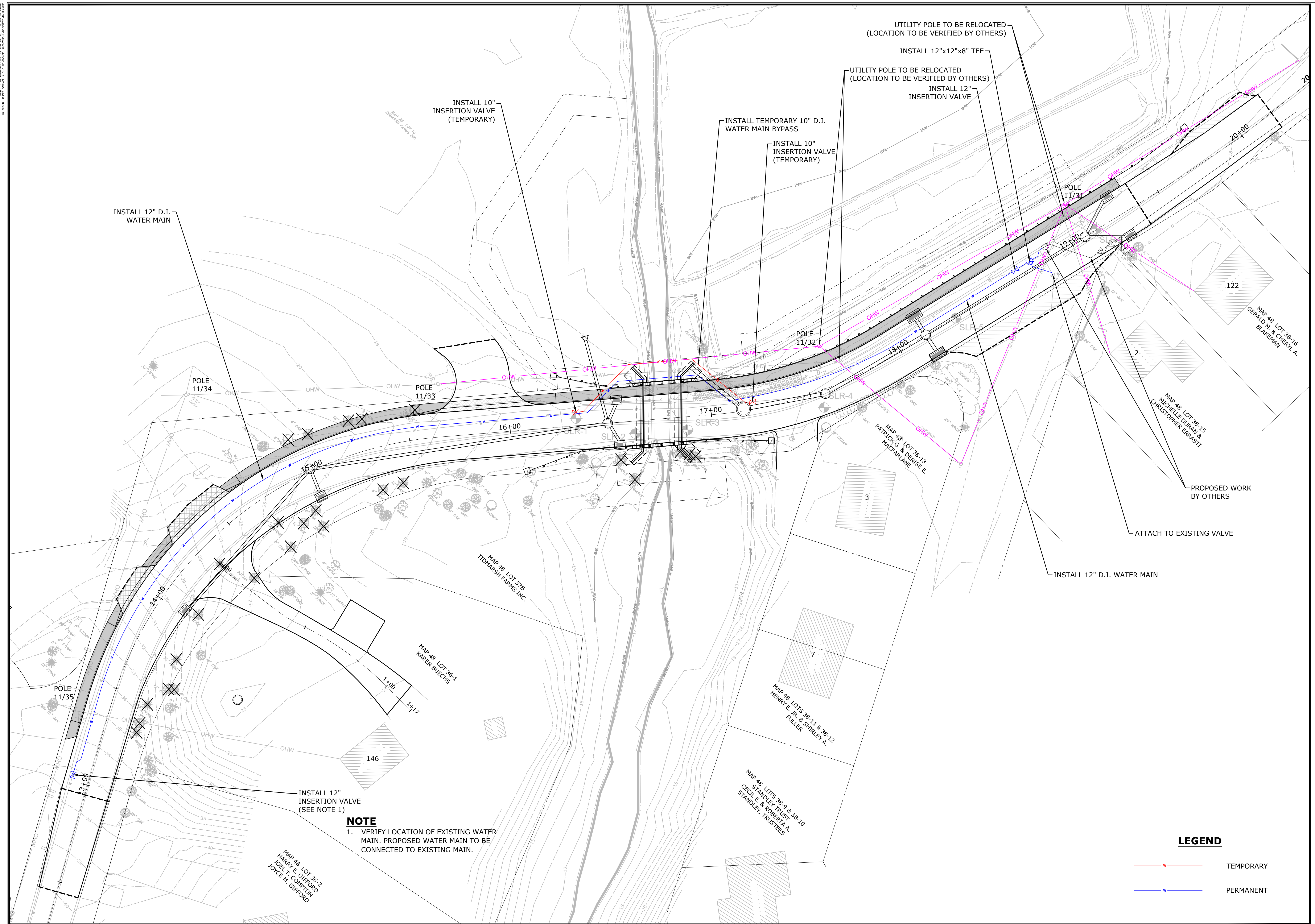
PROPOSED DRIVEWAY PROFILE
 SCALE: 1"=20'-0" HORIZ.
 1"=5'-0" VERT.


 99 BEALEY DRIVE
 203.271.1773
 SLRCONSULTING.COM

DESCRIPTION	DATE	BY

ROADWAY & DRIVEWAY PROFILE
REPLACEMENT OF BARTLETT ROAD CULVERT
OVER UNNAMED BROOK
 BARTLETT ROAD
 PLYMOUTH, MASSACHUSETTS
 NOT FOR CONSTRUCTION

NP	NP	KP
DESIGNED	DRAWN	CHECKED
AS NOTED		
SEPTEMBER 21, 2023		
DATE		
11982.00016		
PROJECT NO.		
04 OF 29		
SHEET NO.		
PRO-01		
SHEET NAME		



DESCRIPTION	DATE	BY

NOT FOR CONSTRUCTION

UTILITY PLAN
REPLACEMENT OF BARTLETT ROAD CULVERT
OVER UNNAMED BROOK
 BARTLETT ROAD
 PLYMOUTH, MASSACHUSETTS

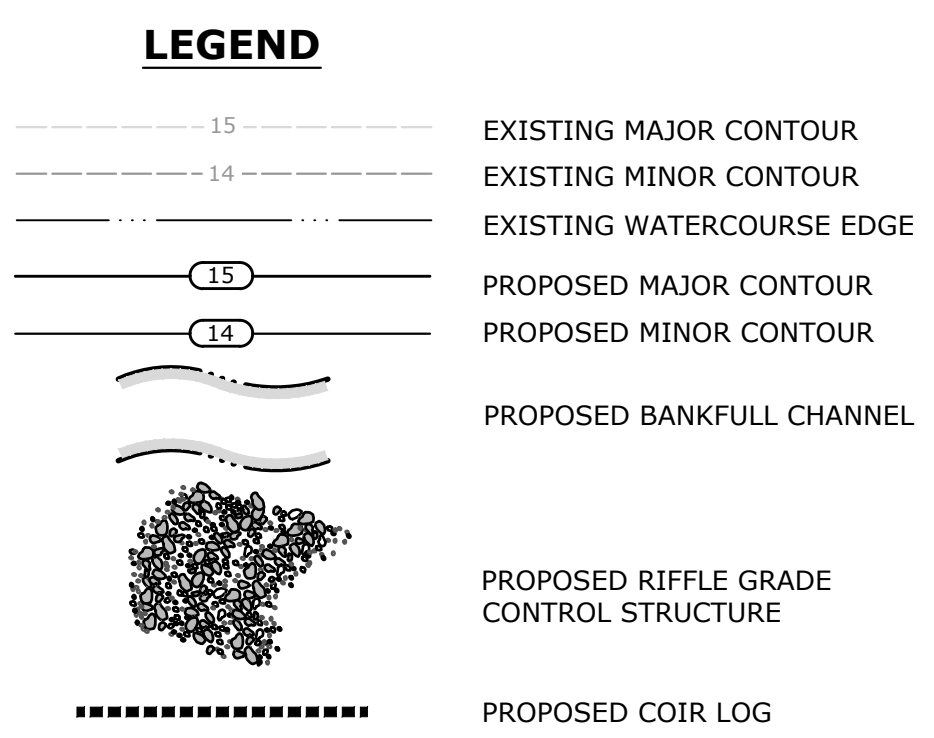
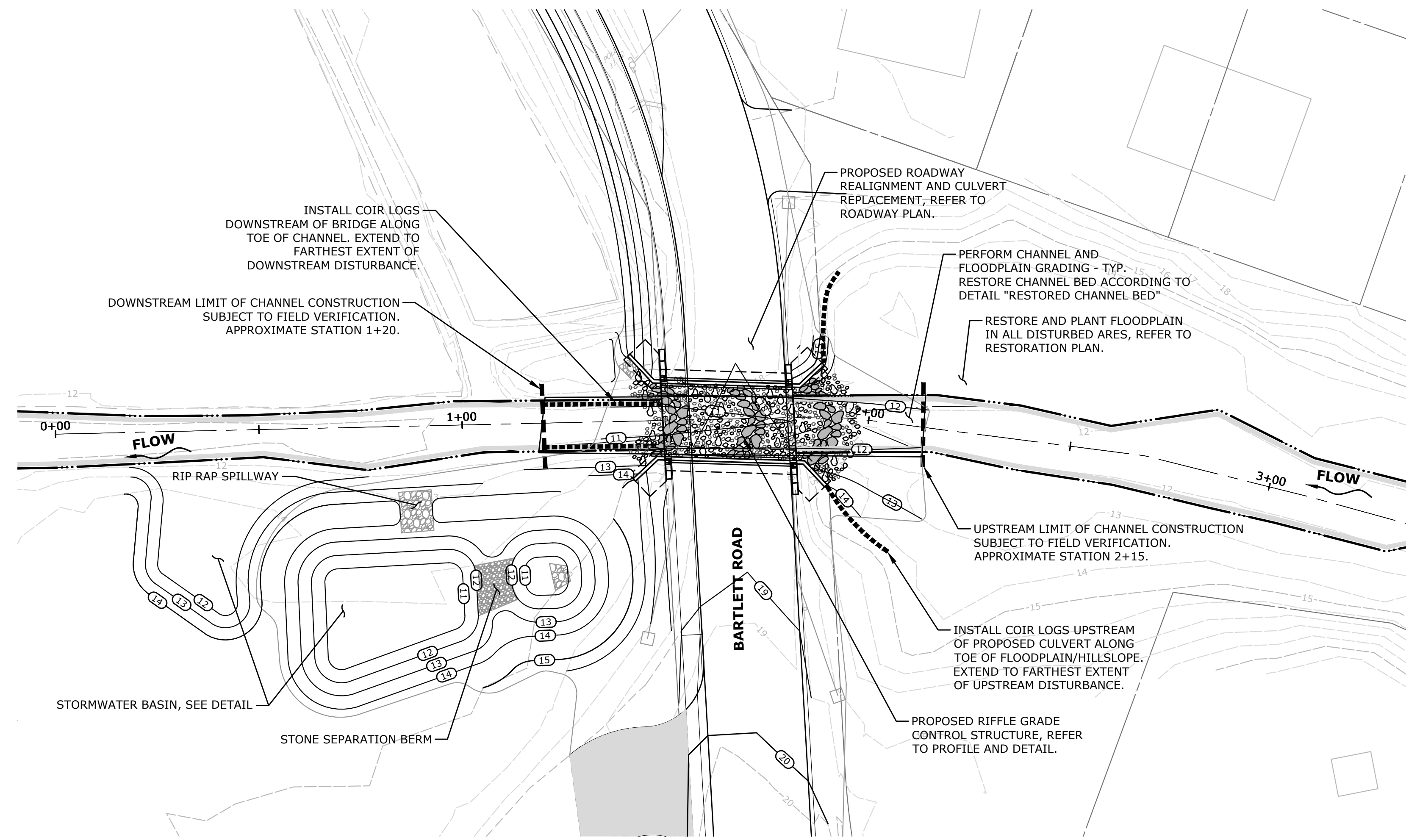
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DESIGNED	DRAWN	CHECKED
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DATE: SEPTEMBER 21, 2023		
PROJECT NO: 11982.00016		
SHEET NO: 05 OF 29		

UTIL-01

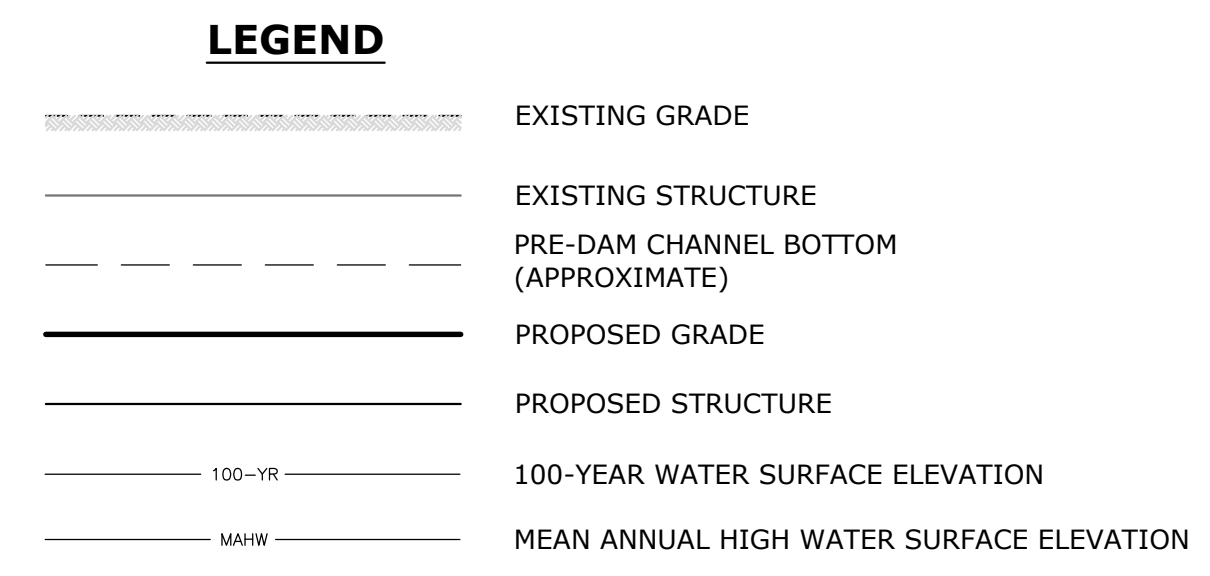
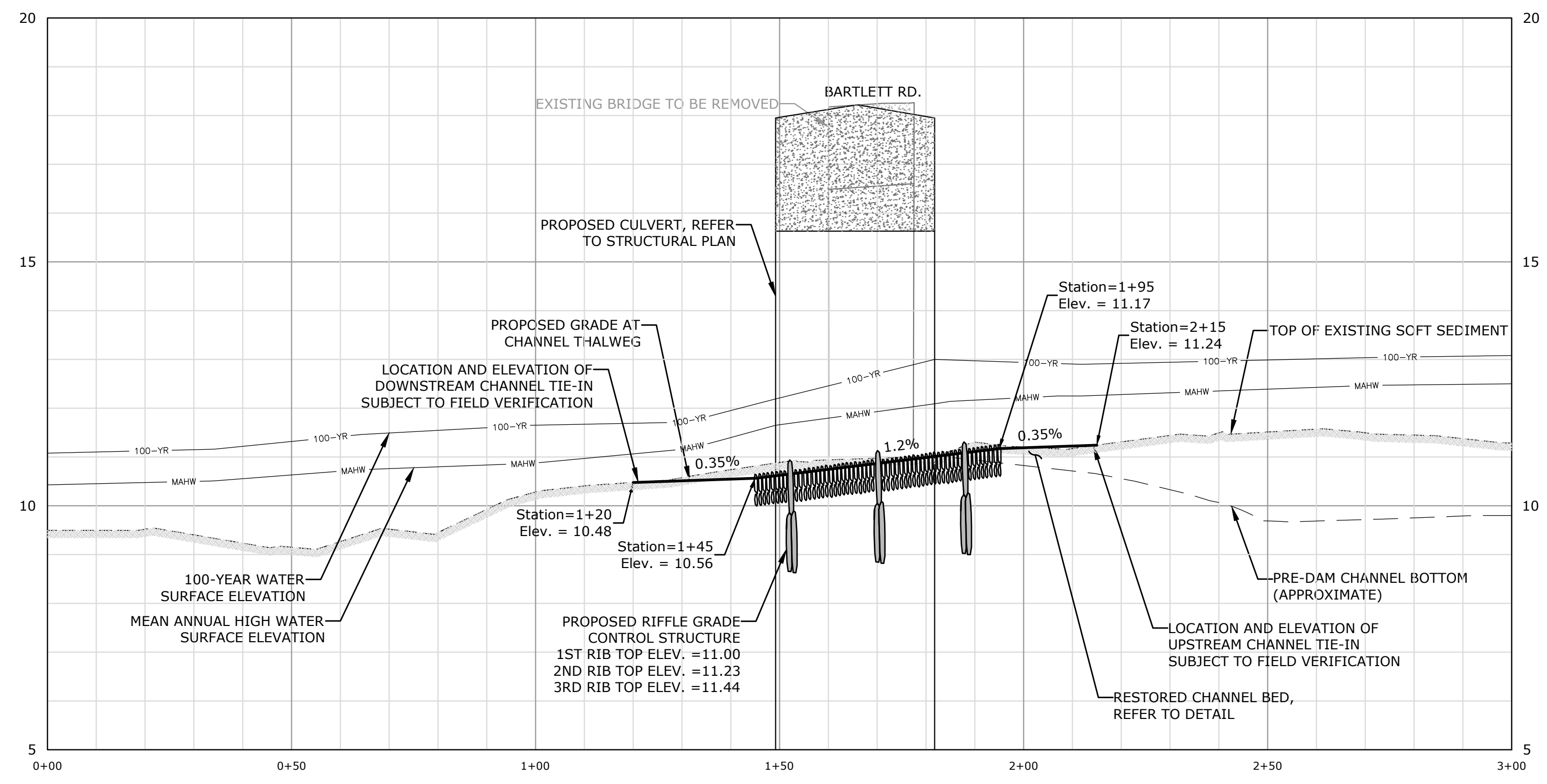
NOTE
 1. VERIFY LOCATION OF EXISTING WATER MAIN. PROPOSED WATER MAIN TO BE CONNECTED TO EXISTING MAIN.

LEGEND
 — W — TEMPORARY
 — W — PERMANENT

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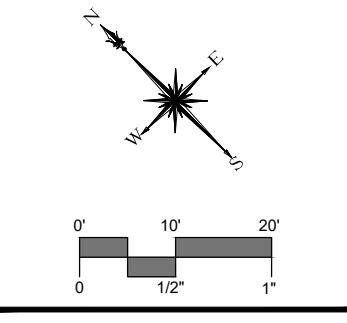
PROPOSED CHANNEL - PLAN
SCALE: 1"=20'



PROPOSED CHANNEL - PROFILE
SCALE: 1"=20' H; 1"=2' V

NOTES:

- FINAL CHANNEL TIE-IN ELEVATIONS TO BE DETERMINED IN THE FIELD.
- PLAN DOES NOT DEPICT FLOODPLAIN RESTORATION AND PLANTING. REFER TO RESTORATION PLAN.

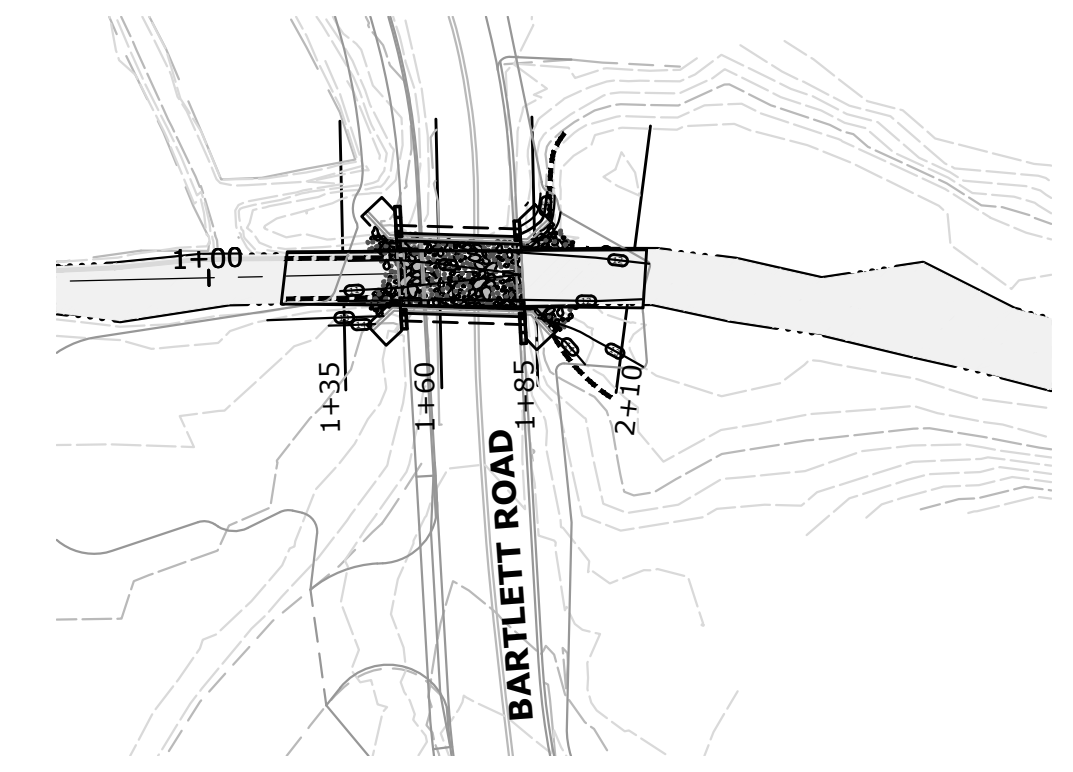


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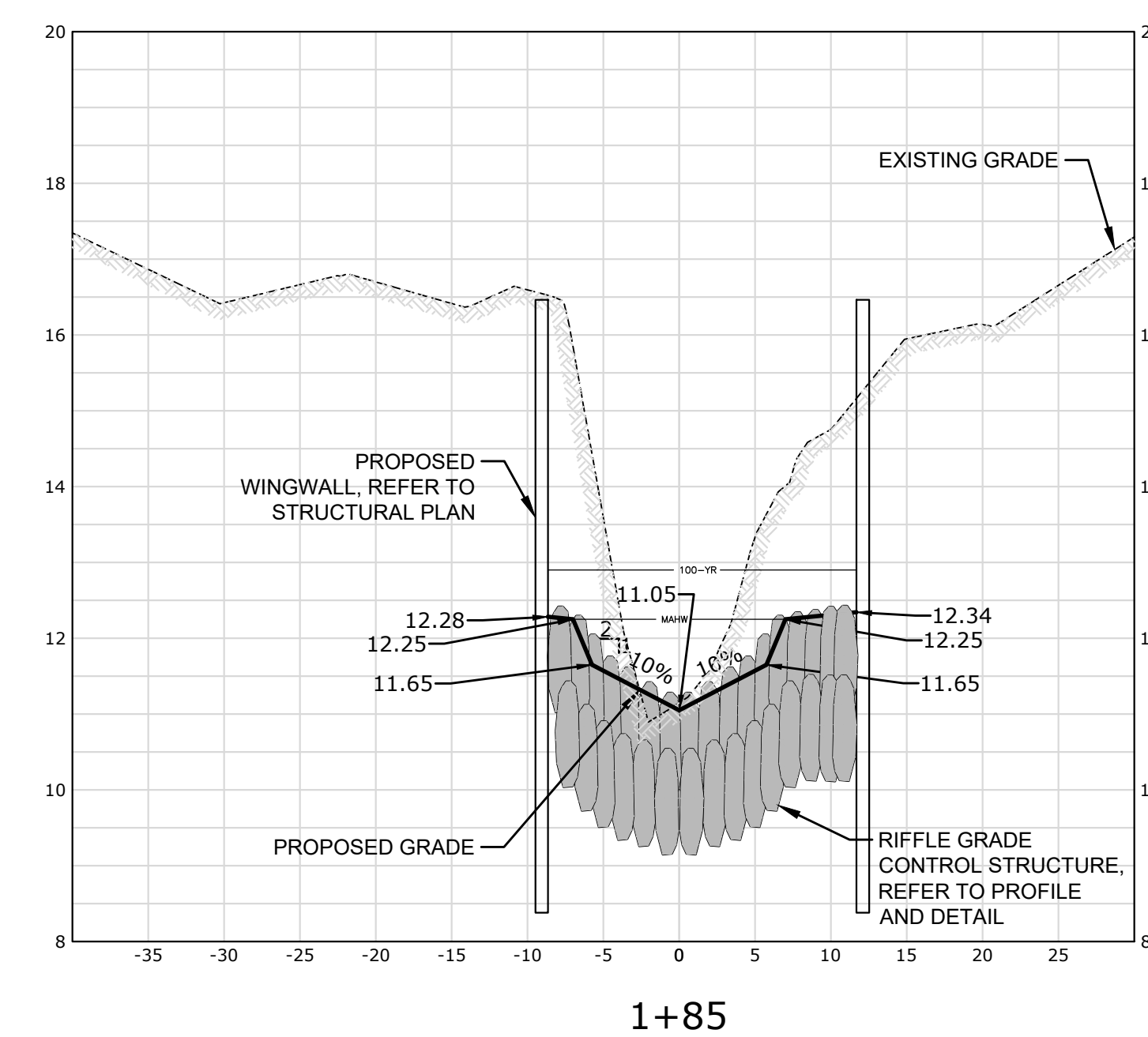
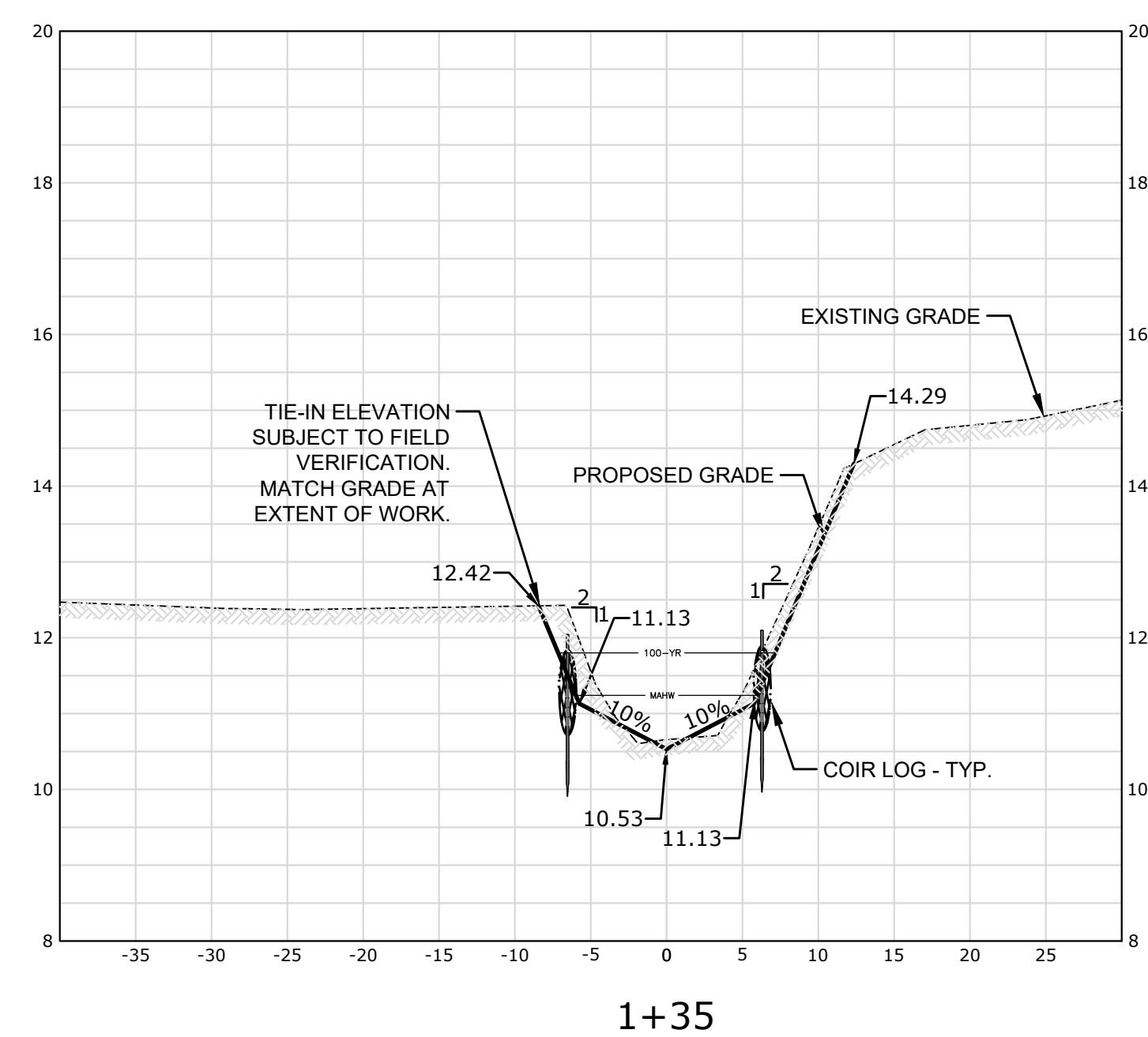
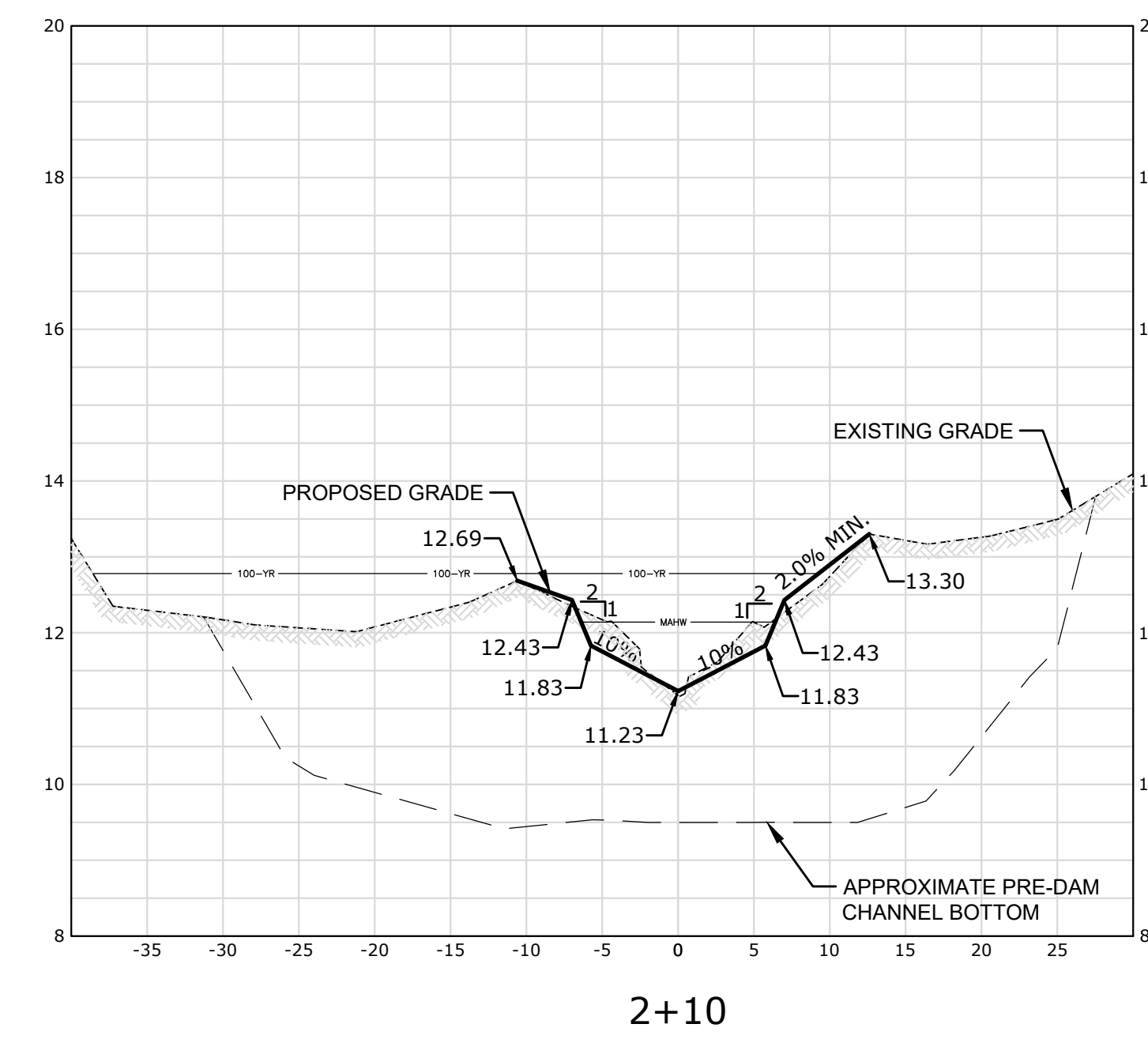
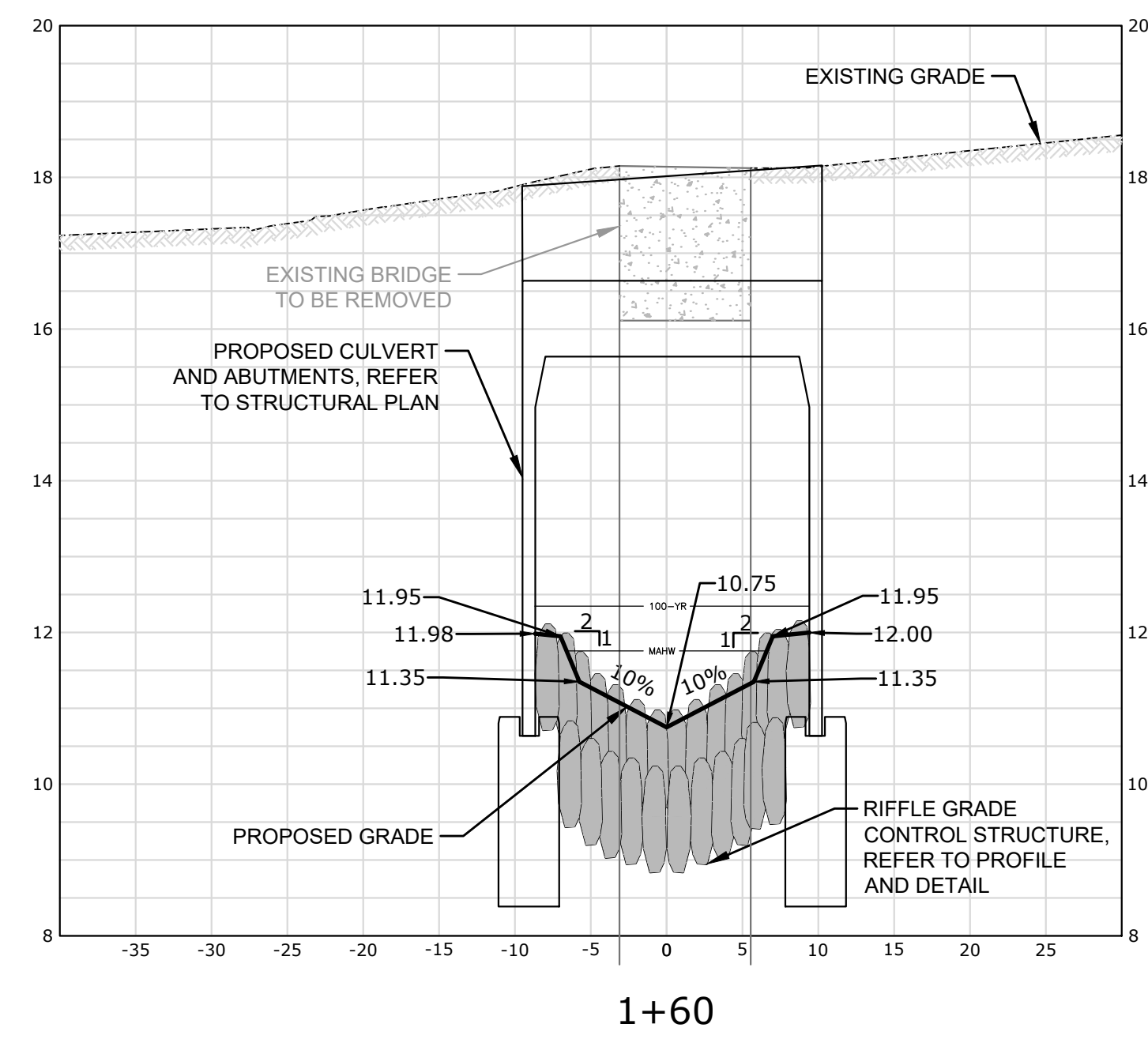
CHANNEL PLAN & PROFILE
 REPLACEMENT OF BARTLETT ROAD CULVERT OVER UNNAMED BROOK
 BARTLETT ROAD
 PLYMOUTH, MASSACHUSETTS
 NOT FOR CONSTRUCTION

TMD DESIGNED	TMD DRAWN	JCM CHECKED
1" = 20'		
SEPTEMBER 21, 2023		
DATE		
11982.00016		
PROJECT NO.		
06 OF 29		
SHEET NO.		
PR-01		
SHEET NAME		

PROJECT: BARTLETT ROAD CULVERT REPLACEMENT OVER UNNAMED BROOK
 LOCATION: BARTLETT ROAD, PLYMOUTH, MASSACHUSETTS
 DATE: 09/21/2023
 DRAWN BY: JCM
 CHECKED BY: JCM
 PROJECT NO.: 11982.00016
 SHEET NO.: 07 OF 29



KEY MAP
SCALE: 1"=50'



LEGEND

	EXISTING GRADE
	PRE-DAM CHANNEL BOTTOM (APPROXIMATE)
	PROPOSED GRADE
	100-YEAR WATER SURFACE ELEVATION
	MEAN ANNUAL HIGH WATER SURFACE ELEVATION

- NOTES:**
- FINAL FLOODPLAIN TIE-IN ELEVATIONS TO BE DETERMINED IN THE FIELD. PROVIDE MINIMUM 2% SLOPE TOWARDS CHANNEL.
 - CROSS SECTIONS DO NOT DEPICT FLOODPLAIN RESTORATION AND PLANTING. REFER TO RESTORATION PLAN.

PROPOSED CHANNEL - CROSS SECTIONS
SCALE: 1"=10' H; 1"=2' V

DESCRIPTION	DATE	BY

NOT FOR CONSTRUCTION


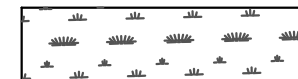


CHANNEL CROSS SECTIONS
REPLACEMENT OF BARTLETT ROAD CULVERT OVER UNNAMED BROOK
BARTLETT ROAD
PLYMOUTH, MASSACHUSETTS

TMD DESIGNED	TMD DRAWN	JCM CHECKED
VARIES		
SCALE		
SEPTEMBER 21, 2023		
DATE		
11982.00016		
PROJECT NO.		
07 OF 29		
SHEET NO.		

CS-01

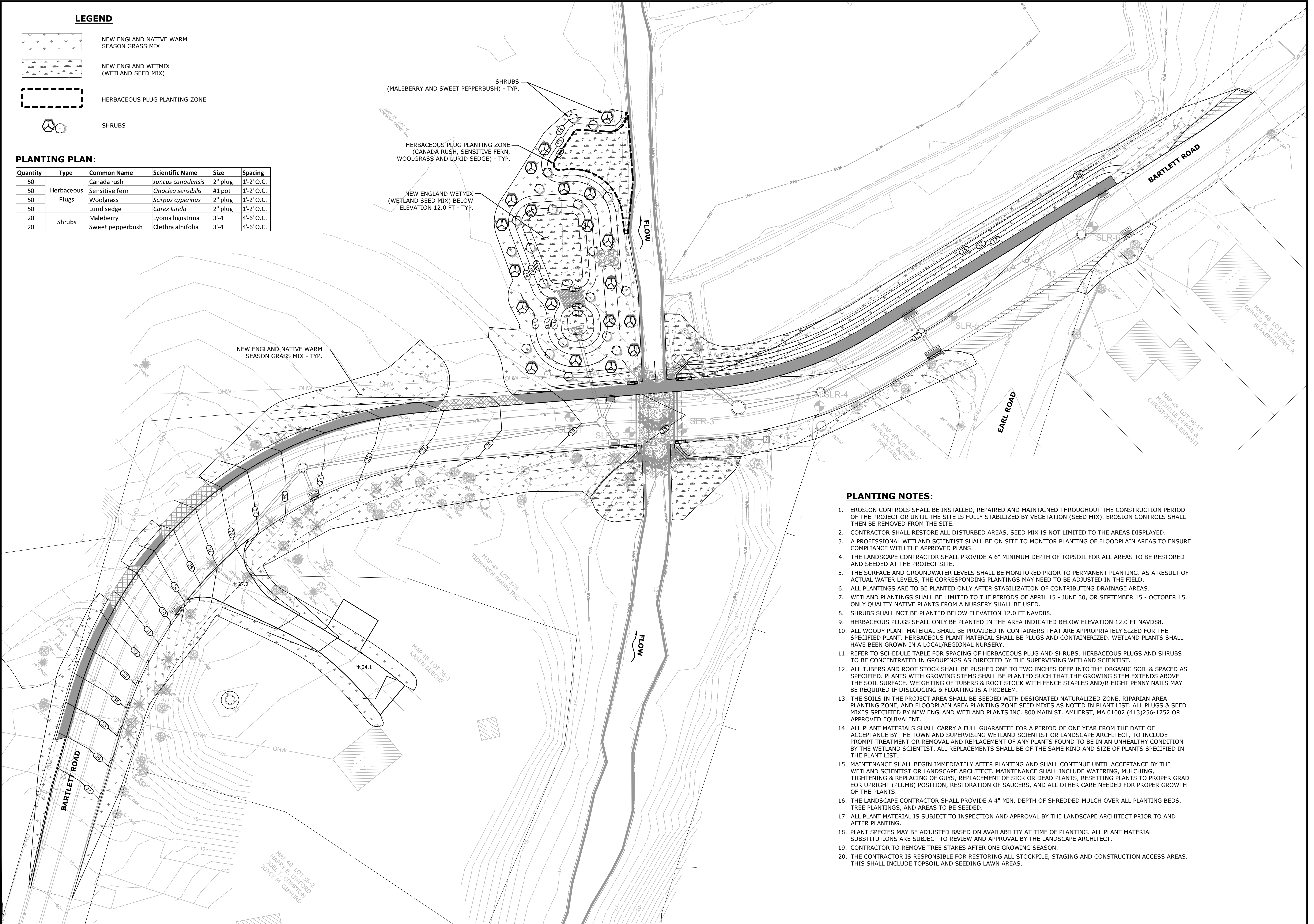
DATE PLOTTED: 08/21/2023 10:00 AM

LEGEND

-  NEW ENGLAND NATIVE WARM SEASON GRASS MIX
-  NEW ENGLAND WETMIX (WETLAND SEED MIX)
-  HERBACEOUS PLUG PLANTING ZONE
-  SHRUBS

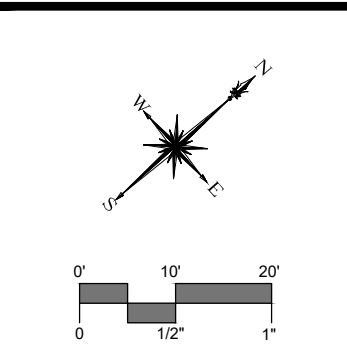
PLANTING PLAN:

Quantity	Type	Common Name	Scientific Name	Size	Spacing
50	Herbaceous	Canada rush	<i>Juncus canadensis</i>	2" plug	1'-2" O.C.
50		Sensitive fern	<i>Onoclea sensibilis</i>	#1 pot	1'-2" O.C.
50		Woolgrass	<i>Scirpus cyperinus</i>	2" plug	1'-2" O.C.
50	Plugs	Lurid sedge	<i>Carex lurida</i>	2" plug	1'-2" O.C.
20		Maleberry	<i>Lyonia ligustrina</i>	3'-4'	4'-6' O.C.
20	Shrubs	Sweet pepperbush	<i>Clethra alnifolia</i>	3'-4'	4'-6' O.C.



PLANTING NOTES:

1. EROSION CONTROLS SHALL BE INSTALLED, REPAIRED AND MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD OF THE PROJECT OR UNTIL THE SITE IS FULLY STABILIZED BY VEGETATION (SEED MIX). EROSION CONTROLS SHALL THEN BE REMOVED FROM THE SITE.
2. CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS, SEED MIX IS NOT LIMITED TO THE AREAS DISPLAYED.
3. A PROFESSIONAL WETLAND SCIENTIST SHALL BE ON SITE TO MONITOR PLANTING OF FLOODPLAIN AREAS TO ENSURE COMPLIANCE WITH THE APPROVED PLANS.
4. THE LANDSCAPE CONTRACTOR SHALL PROVIDE A 6" MINIMUM DEPTH OF TOPSOIL FOR ALL AREAS TO BE RESTORED AND SEEDED AT THE PROJECT SITE.
5. THE SURFACE AND GROUNDWATER LEVELS SHALL BE MONITORED PRIOR TO PERMANENT PLANTING. AS A RESULT OF ACTUAL WATER LEVELS, THE CORRESPONDING PLANTINGS MAY NEED TO BE ADJUSTED IN THE FIELD.
6. ALL PLANTINGS ARE TO BE PLANTED ONLY AFTER STABILIZATION OF CONTRIBUTING DRAINAGE AREAS.
7. WETLAND PLANTINGS SHALL BE LIMITED TO THE PERIODS OF APRIL 15 - JUNE 30, OR SEPTEMBER 15 - OCTOBER 15. ONLY QUALITY NATIVE PLANTS FROM A NURSERY SHALL BE USED.
8. SHRUBS SHALL NOT BE PLANTED BELOW ELEVATION 12.0 FT NAVD88.
9. HERBACEOUS PLUGS SHALL ONLY BE PLANTED IN THE AREA INDICATED BELOW ELEVATION 12.0 FT NAVD88.
10. ALL WOODY PLANT MATERIAL SHALL BE PROVIDED IN CONTAINERS THAT ARE APPROPRIATELY SIZED FOR THE SPECIFIED PLANT. HERBACEOUS PLANT MATERIAL SHALL BE PLUGS AND CONTAINERIZED. WETLAND PLANTS SHALL HAVE BEEN GROWN IN A LOCAL/REGIONAL NURSERY.
11. REFER TO SCHEDULE TABLE FOR SPACING OF HERBACEOUS PLUG AND SHRUBS. HERBACEOUS PLUGS AND SHRUBS TO BE CONCENTRATED IN GROUPINGS AS DIRECTED BY THE SUPERVISING WETLAND SCIENTIST.
12. ALL TUBERS AND ROOT STOCK SHALL BE PUSHED ONE TO TWO INCHES DEEP INTO THE ORGANIC SOIL & SPACED AS SPECIFIED. PLANTS WITH GROWING STEMS SHALL BE PLANTED SUCH THAT THE GROWING STEM EXTENDS ABOVE THE SOIL SURFACE. WEIGHTING OF TUBERS & ROOT STOCK WITH FENCE STAPLES AND/R EIGHT PENNY NAILS MAY BE REQUIRED IF DISLODGING & FLOATING IS A PROBLEM.
13. THE SOILS IN THE PROJECT AREA SHALL BE SEEDED WITH DESIGNATED NATURALIZED ZONE, RIPARIAN AREA PLANTING ZONE, AND FLOODPLAIN AREA PLANTING ZONE SEED MIXES AS NOTED IN PLANT LIST. ALL PLUGS & SEED MIXES SPECIFIED BY NEW ENGLAND WETLAND PLANTS INC. 800 MAIN ST. AMHERST, MA 01002 (413)256-1752 OR APPROVED EQUIVALENT.
14. ALL PLANT MATERIALS SHALL CARRY A FULL GUARANTEE FOR A PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE BY THE TOWN AND SUPERVISING WETLAND SCIENTIST OR LANDSCAPE ARCHITECT, TO INCLUDE PROMPT TREATMENT OR REMOVAL AND REPLACEMENT OF ANY PLANTS FOUND TO BE IN AN UNHEALTHY CONDITION BY THE WETLAND SCIENTIST. ALL REPLACEMENTS SHALL BE OF THE SAME KIND AND SIZE OF PLANTS SPECIFIED IN THE PLANT LIST.
15. MAINTENANCE SHALL BEGIN IMMEDIATELY AFTER PLANTING AND SHALL CONTINUE UNTIL ACCEPTANCE BY THE WETLAND SCIENTIST OR LANDSCAPE ARCHITECT. MAINTENANCE SHALL INCLUDE WATERING, MULCHING, TIGHTENING & REPLACING OF GUYS, REPLACEMENT OF SICK OR DEAD PLANTS, RESETTLING PLANTS TO PROPER GRAD EOR UPRIGHT (PLUMB) POSITION, RESTORATION OF SAUCERS, AND ALL OTHER CARE NEEDED FOR PROPER GROWTH OF THE PLANTS.
16. THE LANDSCAPE CONTRACTOR SHALL PROVIDE A 4" MIN. DEPTH OF SHREDDED MULCH OVER ALL PLANTING BEDS, TREE PLANTINGS, AND AREAS TO BE SEEDED.
17. ALL PLANT MATERIAL IS SUBJECT TO INSPECTION AND APPROVAL BY THE LANDSCAPE ARCHITECT PRIOR TO AND AFTER PLANTING.
18. PLANT SPECIES MAY BE ADJUSTED BASED ON AVAILABILITY AT TIME OF PLANTING. ALL PLANT MATERIAL SUBSTITUTIONS ARE SUBJECT TO REVIEW AND APPROVAL BY THE LANDSCAPE ARCHITECT.
19. CONTRACTOR TO REMOVE TREE STAKES AFTER ONE GROWING SEASON.
20. THE CONTRACTOR IS RESPONSIBLE FOR RESTORING ALL STOCKPILE, STAGING AND CONSTRUCTION ACCESS AREAS. THIS SHALL INCLUDE TOPSOIL AND SEEDING LAWN AREAS.



DESCRIPTION	DATE	BY

NOT FOR CONSTRUCTION

RESTORATION AND PLANTING PLAN
REPLACEMENT OF BARTLETT ROAD CULVERT
OVER UNNAMED BROOK
BARTLETT ROAD
PLYMOUTH, MASSACHUSETTS

MF	TD	MS
DESIGNED	DRAWN	CHECKED
1"=20'		
SEPTEMBER 21, 2023		
DATE		
11982.00016		
PROJECT NO.		
08 OF 29		
SHEET NO.		
RS-01		
SHEET NAME		

SEDIMENT & EROSION CONTROL SPECIFICATIONS

GENERAL:

THESE GUIDELINES SHALL APPLY TO ALL WORK CONSISTING OF ANY AND ALL TEMPORARY AND/OR PERMANENT MEASURES TO CONTROL WATER POLLUTION AND SOIL EROSION, AS MAY BE REQUIRED, DURING THE CONSTRUCTION OF THE PROJECT.

IN GENERAL, ALL CONSTRUCTION ACTIVITIES SHALL PROCEED IN SUCH A MANNER SO AS NOT TO POLLUTE ANY WETLANDS, WATERCOURSE, WATER BODY, AND CONDUIT CARRYING WATER, ETC. THE CONTRACTOR SHALL LIMIT, INsofar AS POSSIBLE, THE SURFACE AREA OF EARTH MATERIALS EXPOSED BY CONSTRUCTION METHODS AND IMMEDIATELY PROVIDE PERMANENT AND TEMPORARY POLLUTION CONTROL MEASURES TO PREVENT CONTAMINATION OF ADJACENT WETLANDS, WATERCOURSES, AND WATER BODIES, AND TO PREVENT, INsofar AS POSSIBLE, EROSION ON THE SITE.

LAND GRADING:

THE RESHAPING OF THE GROUND SURFACE BY EXCAVATION AND FILLING OR A COMBINATION OF BOTH, TO OBTAIN PLANNED GRADES, SHALL PROCEED IN ACCORDANCE WITH THE FOLLOWING CRITERIA:

- a. THE CUT FACE OF EARTH EXCAVATION SHALL NOT BE STEEPER THAN TWO HORIZONTAL TO ONE VERTICAL (2:1).
- b. THE PERMANENT EXPOSED FACES OF FILLS SHALL NOT BE STEEPER THAN TWO HORIZONTAL TO ONE VERTICAL (2:1).
- c. THE CUT FACE OF ROCK EXCAVATION SHALL NOT BE STEEPER THAN ONE HORIZONTAL TO TWO VERTICAL (1:2).
- d. PROVISION SHOULD BE MADE TO CONDUCT SURFACE WATER SAFELY TO STORM DRAINS TO PREVENT SURFACE RUNOFF FROM DAMAGING CUT FACES AND FILL SLOPES.
- e. NO FILL SHOULD BE PLACED WHERE IT WILL SLIDE OR WASH UPON THE INTO ADJACENT WETLANDS, WATERCOURSES, OR WATER BODIES.
- f. PRIOR TO ANY RE-GRADING, A STABILIZED CONSTRUCTION ENTRANCE SHALL BE PLACED AT THE ENTRANCE TO THE WORK AREA IN ORDER TO REDUCE MUD AND OTHER SEDIMENTS FROM LEAVING THE SITE.

TOPSOILING:

TOPSOIL SHALL BE SPREAD OVER ALL EXPOSED AREAS IN ORDER TO PROVIDE A SOIL MEDIUM HAVING FAVORABLE CHARACTERISTICS FOR THE ESTABLISHMENT, GROWTH, AND MAINTENANCE OF VEGETATION.

UPON ATTAINING FINAL SUBGRADES, SCARIFY SURFACE TO PROVIDE A GOOD BOND WITH TOPSOIL.

REMOVE ALL LARGE STONES, TREE LIMBS, ROOTS AND CONSTRUCTION DEBRIS.

APPLY LIME ACCORDING TO SOIL TEST OR AT THE RATE OF TWO (2) TONS PER ACRE.

MATERIAL:

1. TOPSOIL SHOULD HAVE PHYSICAL, CHEMICAL, AND BIOLOGICAL CHARACTERISTICS FAVORABLE TO THE GROWTH OF PLANTS.
2. TOPSOIL SHOULD HAVE A SANDY OR LOAMY TEXTURE.
3. TOPSOIL SHOULD BE RELATIVELY FREE OF SUBSOIL MATERIAL AND MUST BE FREE OF STONES (OVER 1" IN DIAMETER), LUMPS OF SOIL, ROOTS, TREE LIMBS, TRASH, OR CONSTRUCTION DEBRIS. IT SHOULD BE FREE OF ROOTS OR RHIZOMES SUCH AS THISTLE, NUTGRASS, AND QUACKGRASS.
4. AN ORGANIC MATTER CONTENT OF SIX PERCENT (6%) IS REQUIRED. AVOID LIGHT COLORED SUBSOIL MATERIAL.
5. SOLUBLE SALT CONTENT OF OVER 500 PARTS PER MILLION (PPM) IS LESS SUITABLE. AVOID TIDAL MARSH SOILS BECAUSE OF HIGH SALT CONTENT AND SULFUR ACIDITY.
6. THE pH SHOULD BE MORE THAN 6.0. IF LESS, ADD LIME TO INCREASE pH TO AN ACCEPTABLE LEVEL.

APPLICATION:

1. AVOID SPREADING WHEN TOPSOIL IS WET OR FROZEN.
2. SPREAD TOPSOIL UNIFORMLY TO A DEPTH OF AT LEAST SIX INCHES (6"), OR TO THE DEPTH SHOWN ON THE LANDSCAPING PLANS.

TEMPORARY VEGETATIVE COVER:

TEMPORARY VEGETATIVE COVER SHALL BE ESTABLISHED ON ALL UNPROTECTED AREAS THAT PRODUCE SEDIMENT, AREAS WHERE FINAL GRADING HAS BEEN COMPLETED, AND AREAS WHERE THE ESTIMATED PERIOD OF BARE SOIL EXPOSURE IS LESS THAN 12 MONTHS. TEMPORARY VEGETATIVE COVER SHALL BE APPLIED IF AREAS WILL NOT BE PERMANENTLY SEEDDED BY SEPTEMBER 1.

SITE PREPARATION:

1. INSTALL REQUIRED SURFACE WATER CONTROL MEASURES.
2. REMOVE LOOSE ROCK, STONE, AND CONSTRUCTION DEBRIS FROM AREA.
3. APPLY LIME ACCORDING TO SOIL TEST OR AT A RATE OF ONE (1) TON OF GROUND DOLOMITIC LIMESTONE PER ACRE (5 LBS. PER 100 SQ. FT.).
4. APPLY FERTILIZER ACCORDING TO SOIL TEST OR AT THE RATE OF 30 LBS. OF 10-10-10 PER ACRE (7 LBS. PER 1,000 SQ. FT.) AND SECOND APPLICATION OF 200 LBS. OF 10-10-10 (5 LBS. PER 1,000 SQ. FT.) WHEN GRASS IS FOUR INCHES (4") TO SIX INCHES (6") HIGH. APPLY ONLY WHEN GRASS IS DRY.
5. UNLESS HYDROSEEDDED, WORK IN LIME AND FERTILIZER TO A DEPTH OF FOUR (4") INCHES USING A DISK OR ANY SUITABLE EQUIPMENT.
6. TILLAGE SHOULD ACHIEVE A REASONABLY UNIFORM LOOSE SEEDBED. WORK ON CONTOUR IF SITE IS SLOPING.

ESTABLISHMENT:

7. SELECT APPROPRIATE SPECIES FOR THE SITUATION. NOTE RATES AND SEEDING DATES (SEE VEGETATIVE COVER SELECTION & MULCHING SPECIFICATION BELOW).
8. APPLY SEED UNIFORMLY ACCORDING TO THE RATE INDICATED BY BROADCASTING, DRILLING, OR HYDRAULIC APPLICATION.
9. UNLESS HYDROSEEDDED, COVER RYEGRASS SEEDS WITH NOT MORE THAN 1/4" INCH OF SOIL USING SUITABLE EQUIPMENT.
10. MULCH IMMEDIATELY AFTER SEEDING IF REQUIRED. (SEE VEGETATIVE COVER SELECTION & MULCHING SPECIFICATION BELOW). APPLY STRAW MULCH AND ANCHOR TO SLOPES GREATER THAN 3% OR WHERE CONCENTRATED FLOW WILL OCCUR.

EROSION CHECKS

GENERAL:

TEMPORARY PERVIOUS BARRIERS USING COMPOST FILTER TUBE HELD IN PLACE WITH STAKES AND EROSION CONTROL MATTING SHALL BE INSTALLED AND MAINTAINED AS REQUIRED TO CHECK EROSION AND REDUCE SEDIMENTATION.

CONSTRUCTION:

COMPOST FILTER TUBES SHOULD BE PLACED WITH A MINIMUM OVERLAP OF THREE FEET (3') OR SLEEVED TO JOIN IN A CONTINUOUS BARRIER. COMPOST TUBES SHALL BE TAMPED IN PLACE TO ENSURE GOOD CONTACT WITH SOIL SURFACE.

COMPOST FILTER TUBES SHALL BE STAKED OR LEANED AGAINST SUPPORTS ON SLOPES 2:1 OR GREATER. STAKES SHALL BE LOCATED AS REQUIRED TO SECURE TUBES IN PLACE UP TO FIVE FEET (5') APART. COMPOST FILTER TUBES SHALL BE PLACED AS CLOSE TO THE LIMITS OF SOIL DISTURBANCE AS POSSIBLE.

INSTALLATION AND MAINTENANCE:

1. COMPOST FILTER TUBE AND EROSION CONTROL MATTING SHALL BE INSTALLED AT THE LOCATION INDICATED ON THE PLAN AND IN ADDITIONAL AREAS AS MAY BE DEEMED APPROPRIATE DURING CONSTRUCTION.
2. ALL EROSION CHECKS SHALL BE MAINTAINED UNTIL ADJACENT AREAS ARE STABILIZED.
3. INSPECTION SHALL BE FREQUENT (AT MINIMUM EVERY SEVEN CALENDAR DAYS AND AFTER EVERY RAINFALL EVENT GREATER THAN ONE HALF INCH) AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
4. EROSION CHECKS SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULNESS SO AS NOT TO BLOCK OR IMPEDE STORM WATER FLOW OR DRAINAGE.

VEGETATIVE COVER SELECTION & MULCHING

TEMPORARY VEGETATIVE COVER:

PERENNIAL RYEGRASS 3 LBS./1,000 SQ.FT. (TOLLUJUM PERENNE)

PERMANENT VEGETATIVE COVER:

1. SEE SEDIMENTATION AND EROSION CONTROL PLAN FOR SEED MIX
2. TEMPORARY MULCHING: STRAW AT 70-90 LBS./1,000 SQ.FT. (TEMPORARY VEGETATIVE AREAS) WOOD FIBER IN HYDROMULCH SLURRY 25-50 LBS./1,000 SQ. FT.

ESTABLISHMENT:

1. SMOOTH AND FIRM SEEDBED WITH CULTIPACKER OR OTHER SIMILAR EQUIPMENT PRIOR TO SEEDING (EXCEPT WHEN HYDROSEEDING).
2. SELECT ADAPTED SEED MIXTURE FOR THE SPECIFIC SITUATION. NOTE RATES AND THE SEEDING DATES (SEE VEGETATIVE COVER SELECTION & MULCHING SPEC. BELOW).
3. APPLY SEED UNIFORMLY ACCORDING TO RATE INDICATED, BY BROADCASTING, DRILLING, OR HYDRAULIC APPLICATION.
4. COVER GRASS AND LEGUME SEED WITH NOT MORE THAN 1/4 INCH OF SOIL WITH SUITABLE EQUIPMENT (EXCEPT WHEN HYDROSEEDING).
5. MULCH IMMEDIATELY AFTER SEEDING, IF REQUIRED, ACCORDING TO TEMPORARY MULCHING SPECIFICATIONS. (SEE VEGETATIVE COVER SELECTION & MULCHING SPECIFICATION BELOW).
6. USE PROPER INOCULANT ON ALL LEGUME SEEDINGS, USE FOUR (4) TIMES NORMAL RATES WHEN HYDROSEEDING.
7. USE SOE WHERE THERE IS A HEAVY CONCENTRATION OF WATER AND IN CRITICAL AREAS WHERE IT IS IMPORTANT TO GET A QUICK VEGETATIVE COVER TO PREVENT EROSION.

MAINTENANCE:

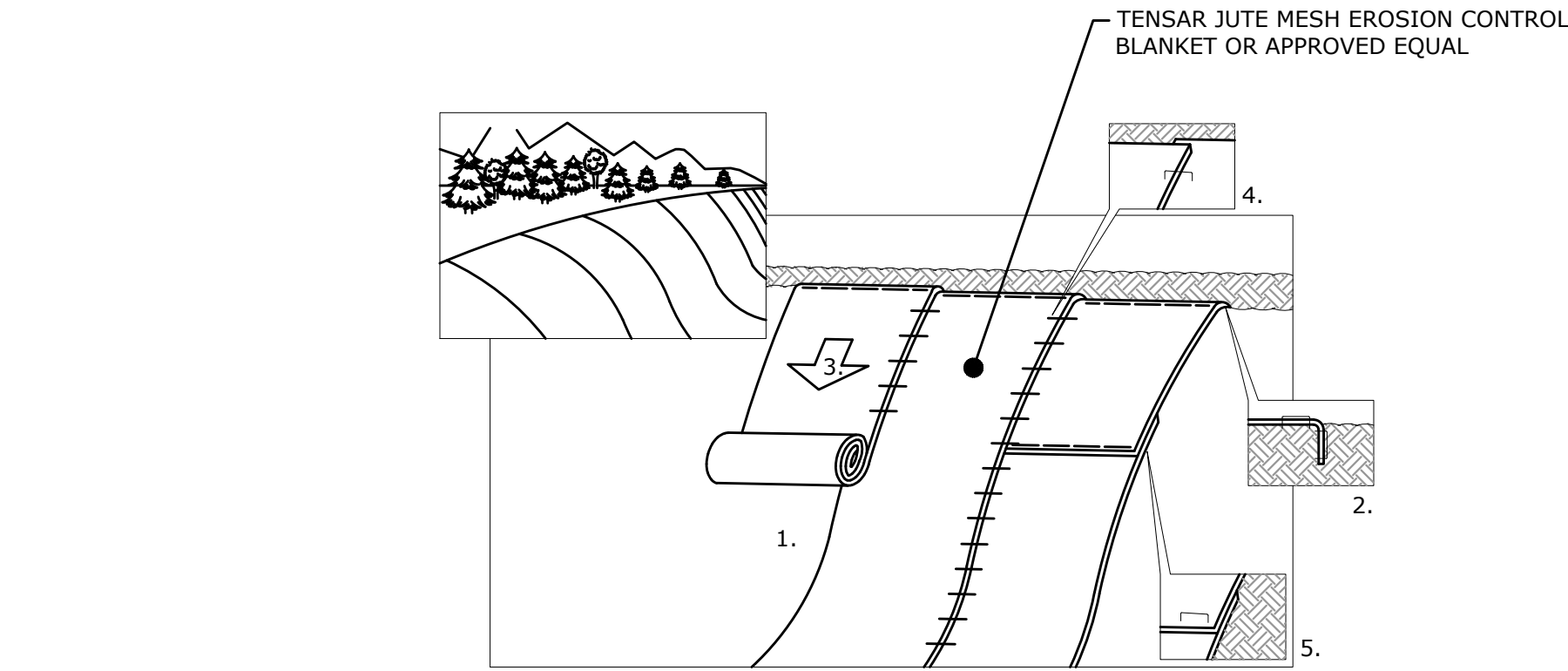
1. TEST FOR SOIL ACIDITY EVERY THREE (3) YEARS AND LIME AS REQUIRED.
2. ON SITES WHERE GRASSES PREDOMINATE, BROADCAST ANNUALLY 500 POUNDS OF 10-10-10 FERTILIZER PER ACRE (12 LBS. PER 1,000 SQ. FT.) OR AS NEEDED ACCORDING TO ANNUAL SOIL TESTS.
3. ON SITES WHERE LEGUMES PREDOMINATE, BROADCAST EVERY THREE (3) YEARS OR AS INDICATED BY SOIL TEST 300 POUNDS OF 0-20-20 OR EQUIVALENT PER ACRE (8 LBS PER 1,000 SQ. FT.).

PERMANENT VEGETATIVE COVER

PERMANENT VEGETATIVE COVER SHALL BE ESTABLISHED AS VARIOUS SECTIONS OF THE PROJECT ARE COMPLETED IN ORDER TO STABILIZE THE SOIL, REDUCE DOWNSTREAM DAMAGE FROM SEDIMENT AND RUNOFF, AND TO ENHANCE THE AESTHETIC NATURE OF THE SITE. IT WILL BE APPLIED TO ALL CONSTRUCTION AREAS SUBJECT TO EROSION WHERE FINAL GRADING HAS BEEN COMPLETED AND A PERMANENT COVER IS NEEDED.

SITE PREPARATION:

1. INSTALL REQUIRED SURFACE WATER CONTROL MEASURES.
2. REMOVE LOOSE ROCK, STONE, AND CONSTRUCTION DEBRIS FROM AREA.
3. PERFORM ALL PLANTING OPERATIONS PARALLEL TO THE CONTOURS OF THE SLOPE.
4. APPLY TOPSOIL AS INDICATED ELSEWHERE HEREIN.
5. APPLY FERTILIZER ACCORDING TO SOIL TEST OR:
 - SPRING SEEDING: WORK DEEPLY IN SOIL, BEFORE SEEDING, 300 LBS. OF 10-10-10 FERTILIZER PER ACRE (7 LBS. PER 1,000 SQ. FT.); THEN SIX (6) TO EIGHT (8) WEEKS LATER, APPLY ON THE SURFACE AN ADDITIONAL 300LBS. OF 10-10-10 FERTILIZER PER ACRE. AFTER SEPTEMBER 1, TEMPORARY VEGETATIVE COVER SHALL BE APPLIED.
 - FALL SEEDING: WORK DEEPLY IN SOIL, BEFORE SEEDING, 600 LBS. OF 10-10-10 FERTILIZER PER ACRE (14 LBS. PER 1,000 SQ. FT.).

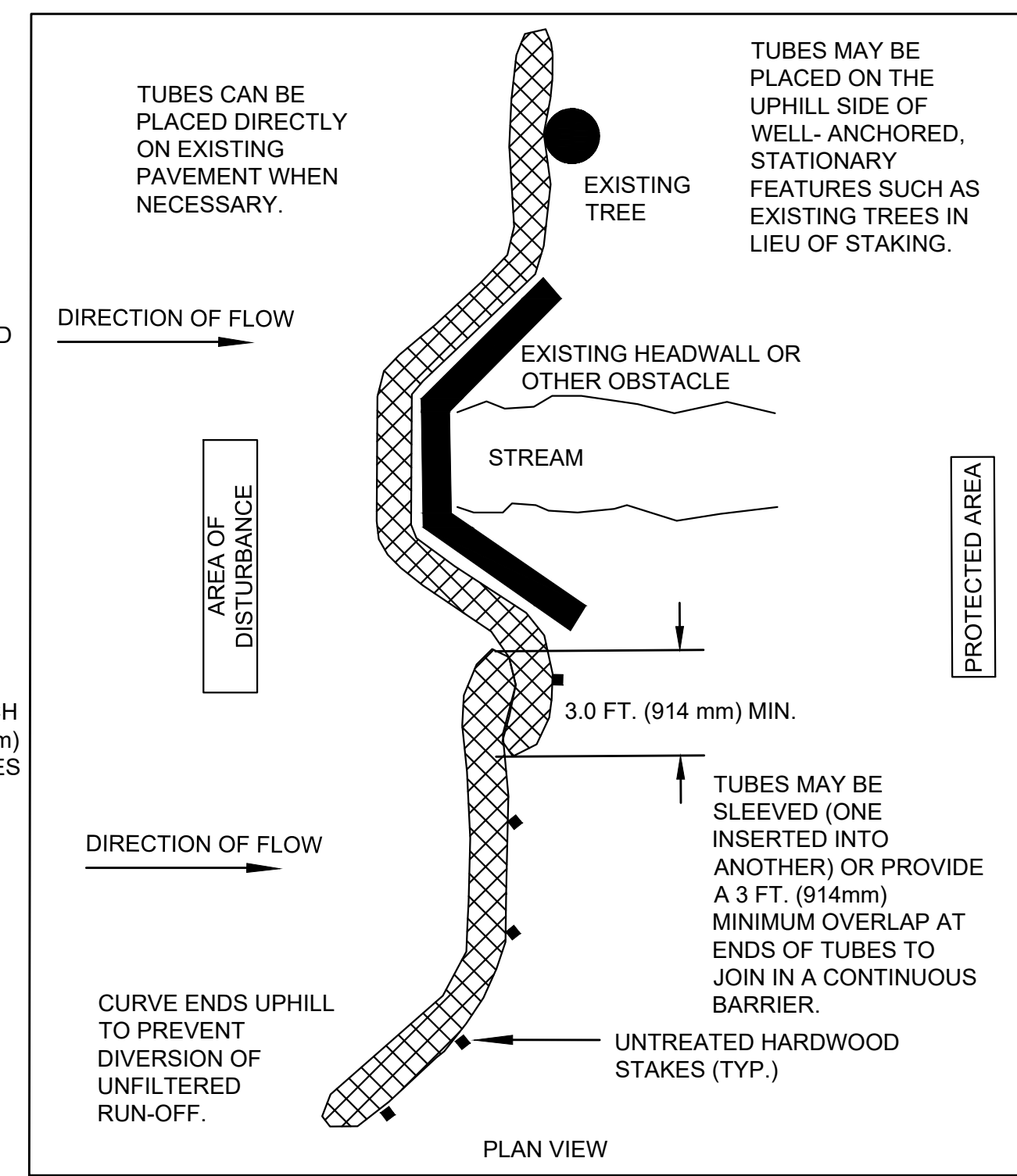
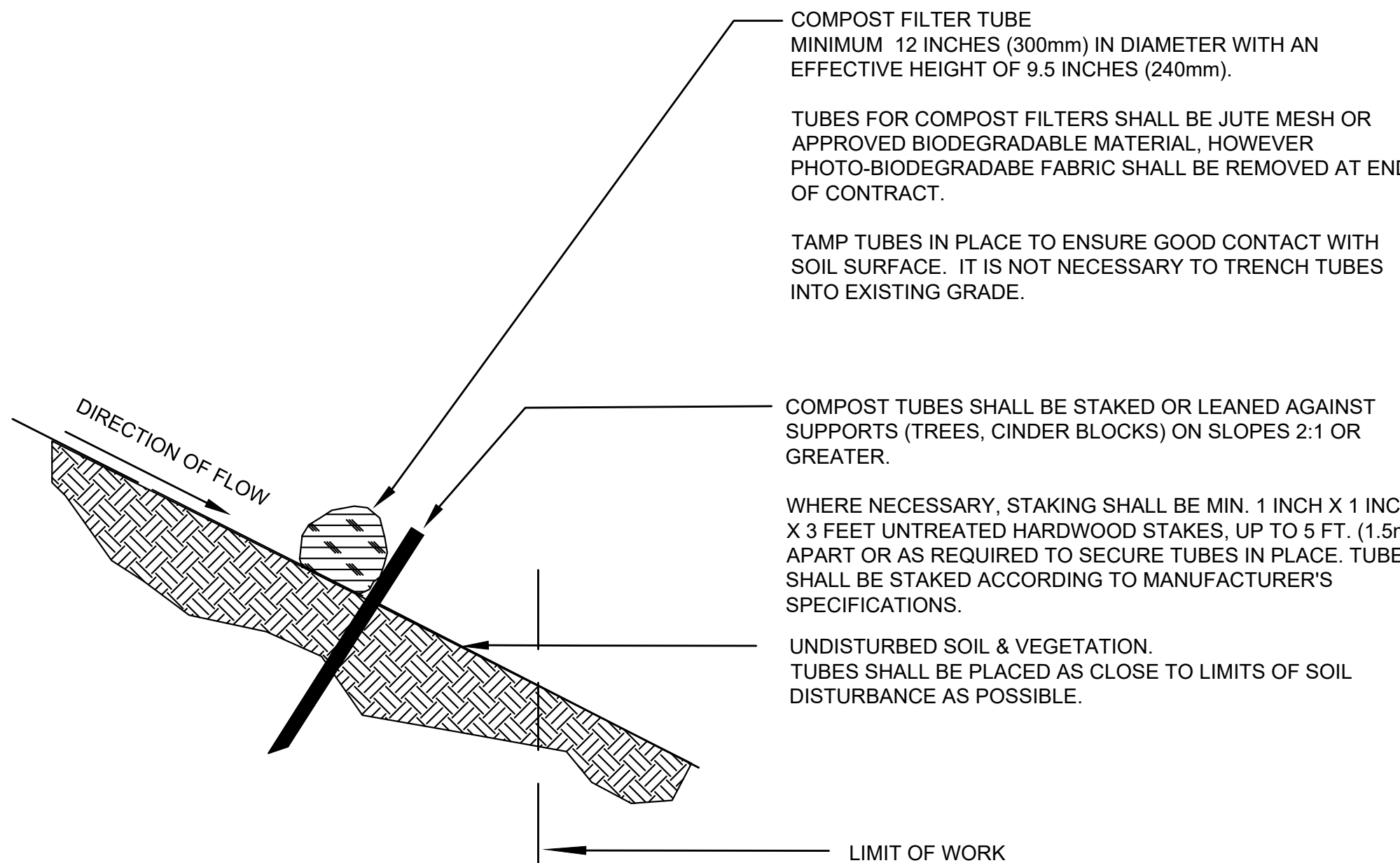


1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN TENSAR NORTH AMERICAN GREEN SC150BN, DO NOT SEED PREPARED AREA. TENSAR NORTH AMERICAN GREEN SC150BN MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" DEEP BY 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
3. ROLL THE BLANKETS DOWN THE SLOPE IN THE DIRECTION OF THE WATER FLOW.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2" OVERLAP.
5. WHEN BLANKETS MUST BE SPLICED DOWN THE SLOPE, PLACE BLANKETS END OVER END (SHINGLE STYLE) WITH APPROXIMATELY 6" OVERLAP. STAPLE THROUGH OVERLAP AREA, APPROXIMATELY 12" APART.

REFER TO GENERAL STAPLE PATTERN GUIDE IN NORTH AMERICAN GREEN CATALOG FOR CORRECT STAPLE PATTERN RECOMMENDATIONS FOR SLOPE INSTALLATIONS.

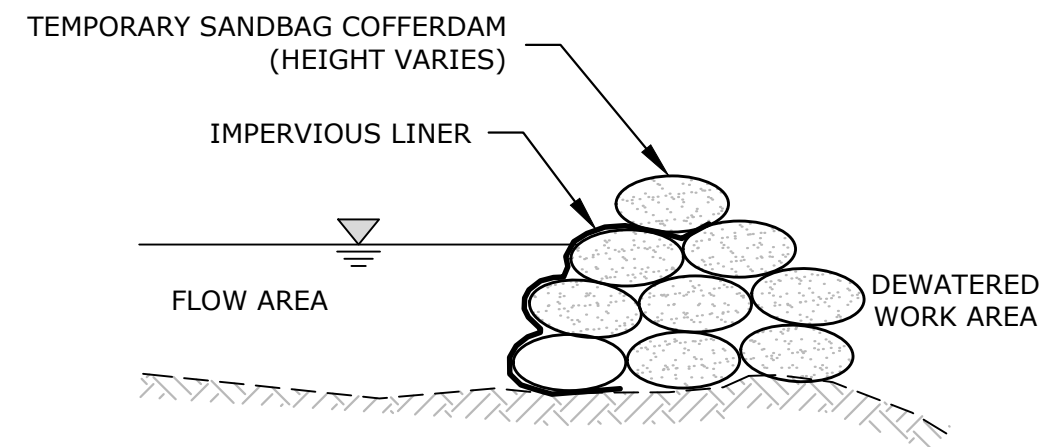
EROSION CONTROL MATTING

NOT TO SCALE



COMPOST FILTER TUBE DETAIL

NOT TO SCALE



NOTES

1. COFFERDAM AND GRAVITY BYPASS SYSTEM TO BE SIZED TO CONVEY UP TO THE 2-YEAR FLOOD DISCHARGE (15 CFS).
2. CONTRACTOR IS NOT PERMITTED TO USE A PUMP-AROUND METHOD FOR WATER DIVERSION. TEMPORARY DIVERSION OF CHANNEL SHALL BE BY GRAVITY (TEMPORARY CHANNEL OR PIPE) TO ALLOW FOR THE PASSAGE OF AQUATIC LIFE DURING CONSTRUCTION.
3. CONTRACTOR MAY SUBMIT ALTERNATE COFFERDAM DESIGN, TO BE APPROVED BY THE ENGINEER.

TEMPORARY SANDBAG COFFERDAM DETAIL

NOT TO SCALE

DESCRIPTION	DATE	BY

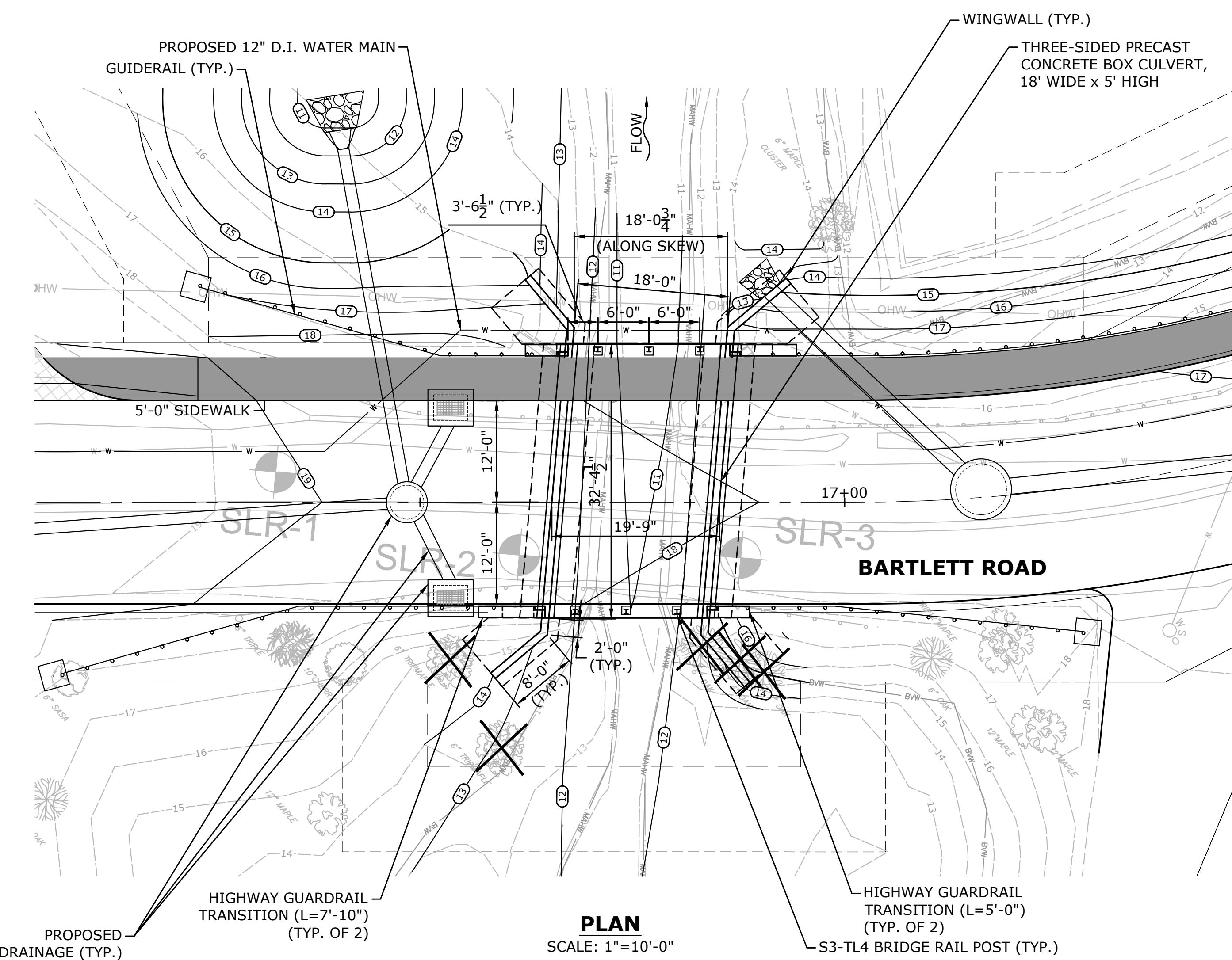
NOT FOR CONSTRUCTION

SEDIMENT & EROSION CONTROLS
 REPLACEMENT OF BARTLETT ROAD CULVERT
 OVER UNNAMED BROOK
 BARTLETT ROAD
 PLYMOUTH, MASSACHUSETTS

DESIGNED	NP	KP
DRAWN		CHECKED
AS NOTED		
SEPTEMBER 21, 2023		
DATE		
11982.00016		
PROJECT NO.		
09 OF 29		
SHEET NO.		

SE-01

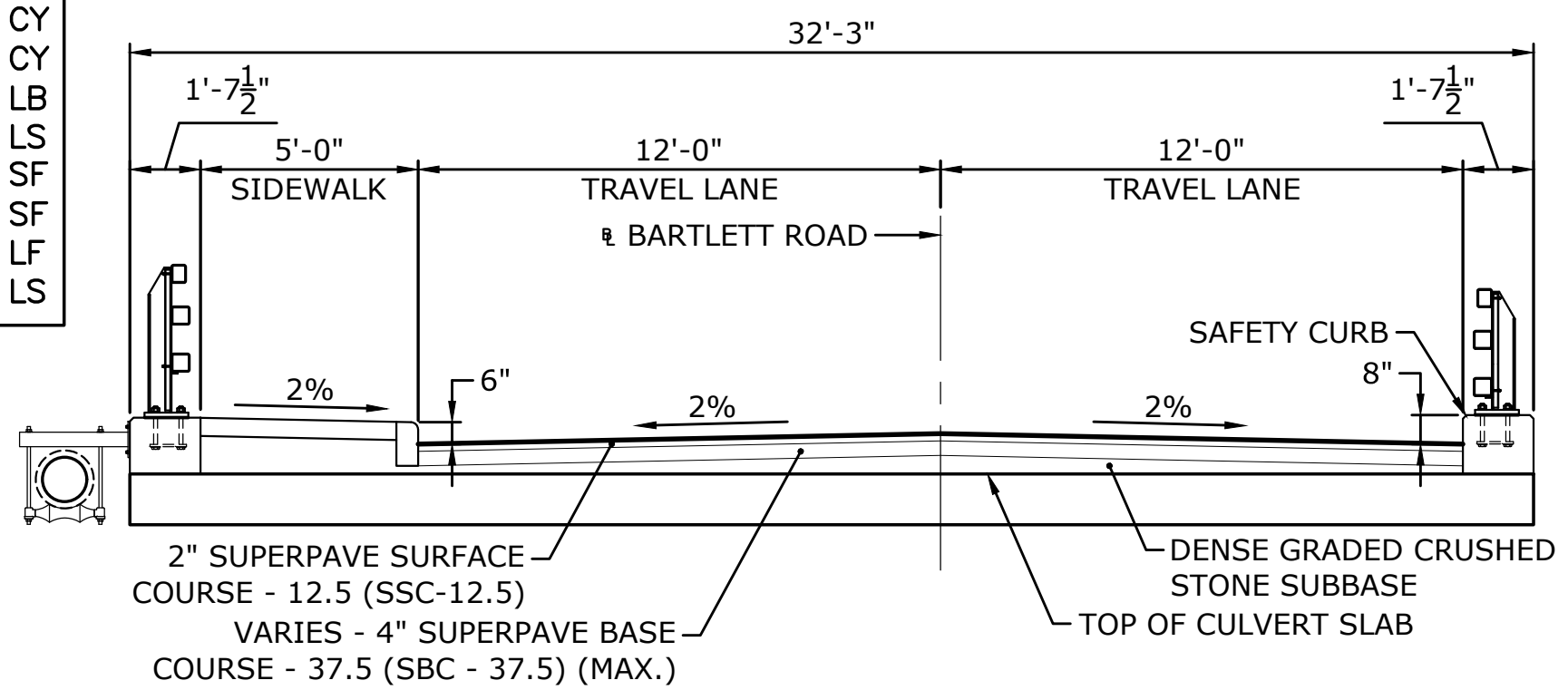
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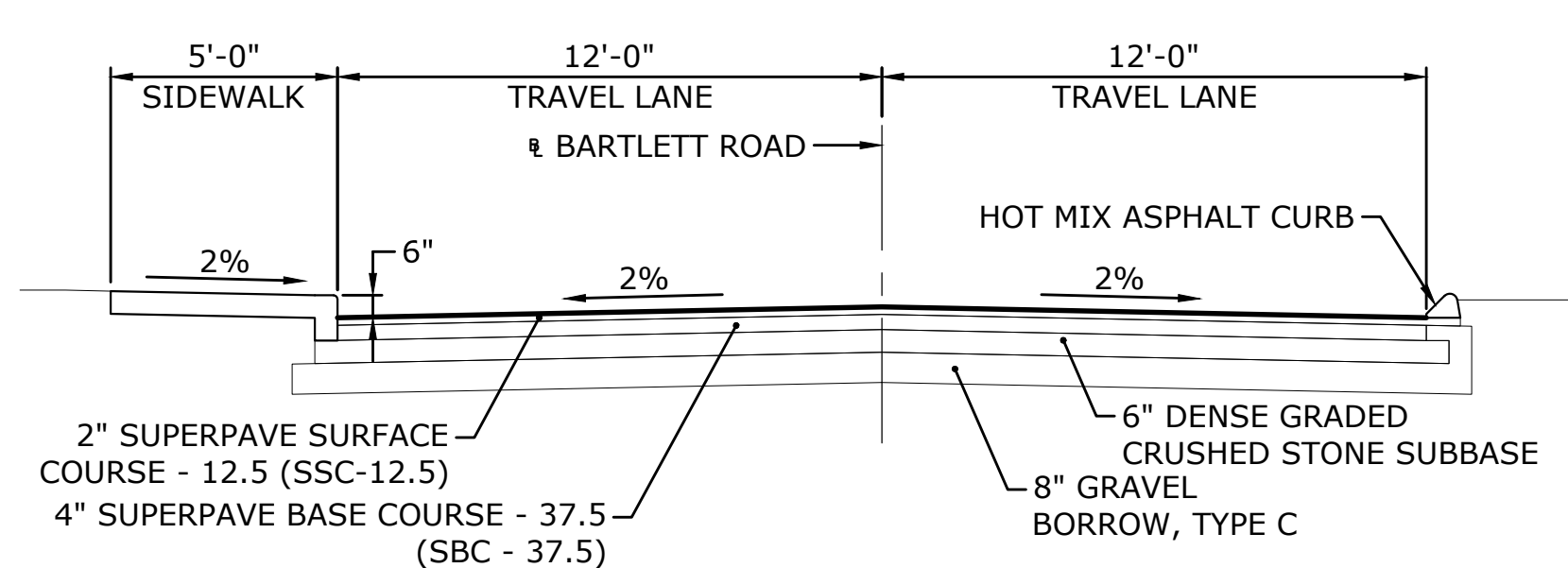
PLAN
SCALE: 1"=10'-0"

ESTIMATED QUANTITIES (NOT GUARANTEED)	
DEMOLITION OF BRIDGE No. P-13-XXX	1 LS
BRIDGE EXCAVATION	500 CY
GRAVEL BORROW FOR BACKFILLING STRUCTURES & PIPES	75 CY
GRAVEL BORROW - TYPE C	450 CY
CRUSHED STONE FOR BRIDGE FOUNDATIONS	1100 TONS
4000 PSI, 1.5 IN., 565 CEMENT CONCRETE	100 CY
5000 PSI, 3/4 IN., 685 HP CEMENT CONCRETE	10 CY
STEEL REINFORCEMENT FOR STRUCTURES - EPOXY COATED	12000 LB
THREE-SIDED PRECAST CONCRETE CULVERT	1 LS
MEMBRANE WATERPROOFING FOR BRIDGE DECKS	775 SF
BITUMINOUS DAMP-PROOFING	275 SF
METAL BRIDGE RAILING (3 RAIL), STEEL (TYPE S3-TL4)	40 LF
CONTROL OF WATER	1 LS

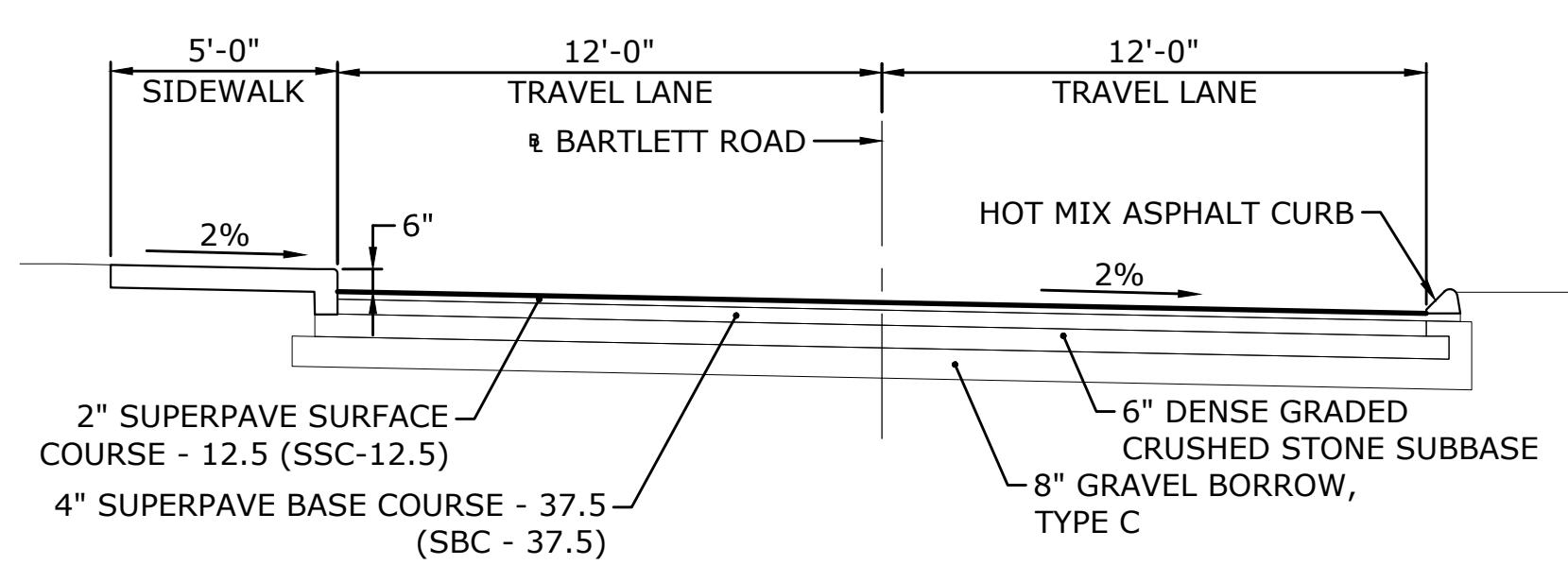
HYDRAULIC DESIGN DATA	
DRAINAGE AREA:	0.59 SQ. MI.
DESIGN FLOOD DISCHARGE:	24 CFS
DESIGN FLOOD FREQUENCY:	10% (10 YEAR)
DESIGN FLOOD VELOCITY:	1.98 FPS
DESIGN FLOOD ELEVATION:	12.32 FT NAVD88
BASE (100-YEAR) FLOOD DATA	
BASE FLOOD DISCHARGE:	47 CFS
BASE FLOOD ELEVATION:	12.73 FT NAVD88
DESIGN AND CHECK SCOUR DATA	
DESIGN SCOUR FLOOD EVENT RETURN FREQUENCY:	4% (25-YEAR)
DESIGN FLOOD ABUTMENT SCOUR DEPTH:	1.3 FT
CHECK SCOUR FLOOD EVENT RETURN FREQUENCY:	2% (50-YEAR)
CHECK FLOOD ABUTMENT SCOUR DEPTH:	1.5 FT
FLOOD OF RECORD	
DISCHARGE:	UNKNOWN
FREQUENCY:	UNKNOWN
MAXIMUM ELEVATION:	UNKNOWN
DATE:	UNKNOWN
HISTORY OF ICE FLOES:	NONE
EVIDENCE OF SCOUR AND EROSION:	NONE



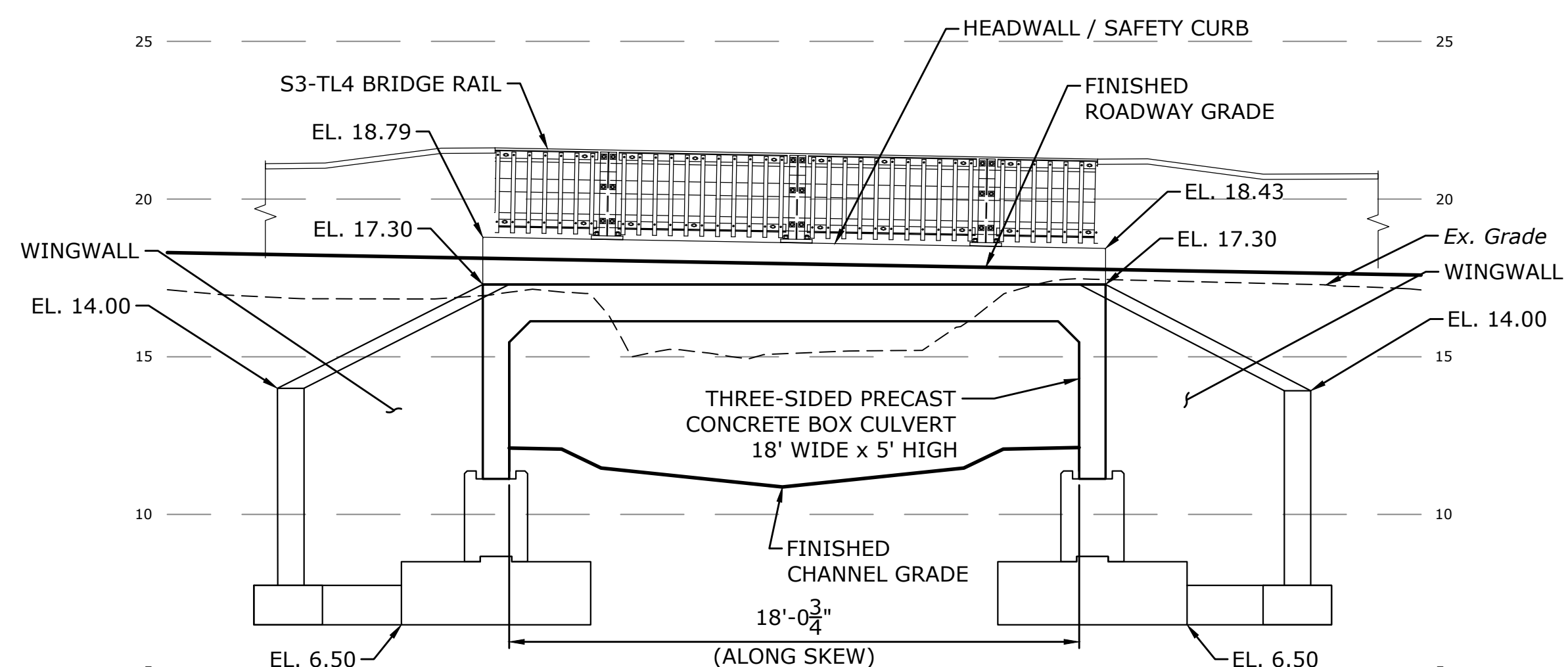
TYPICAL ROADWAY SECTION AT BRIDGE
SCALE: 1/4"=1'-0"
(STA. 16+65 TO STA. 16+85)



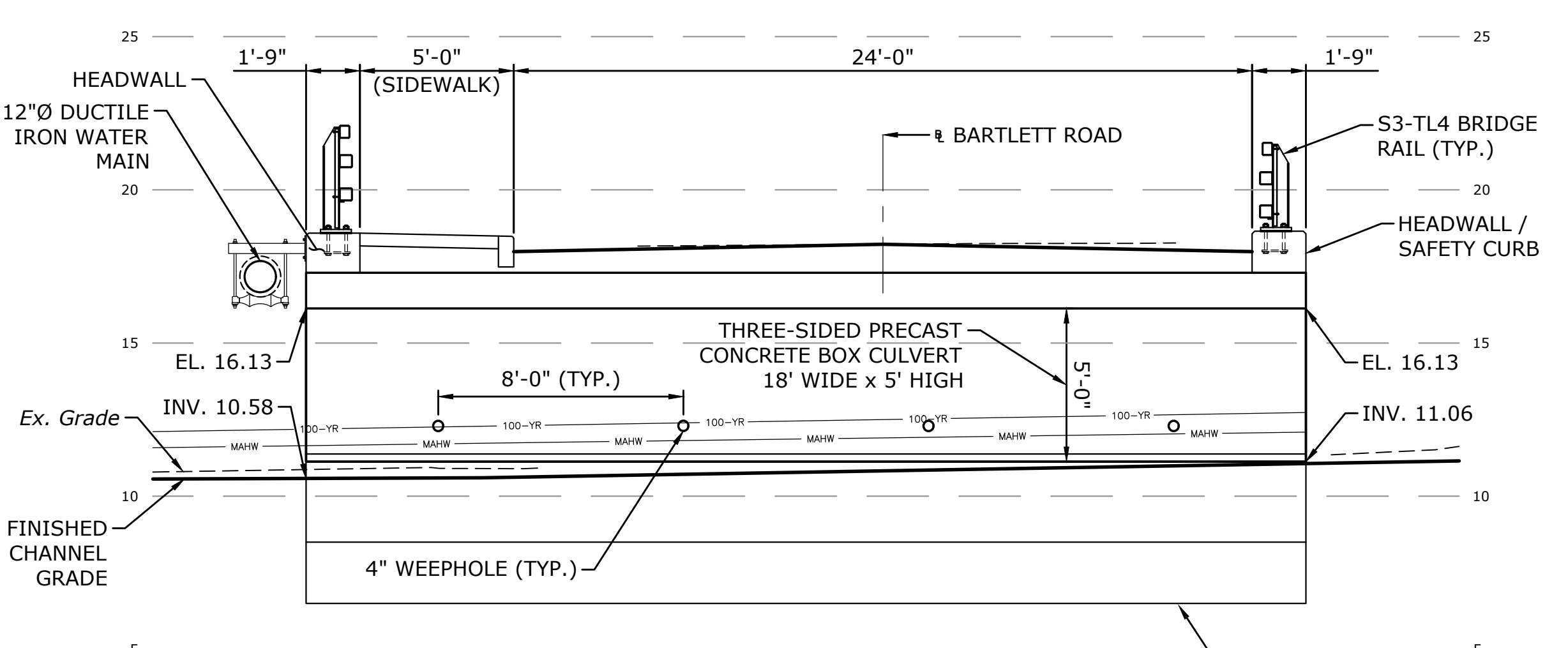
TYPICAL ROADWAY SECTION
SCALE: 1/4"=1'-0"
(STA. 12+90 TO STA. 13+75)
(STA. 16+85 TO STA. 19+40)



TYPICAL ROADWAY SECTION (SUPERELEVATED)
SCALE: 1/4"=1'-0"
(STA. 13+75 TO STA. 16+65)



UPSTREAM ELEVATION
SCALE: 1/4"=1'-0"



CULVERT PROFILE @ CHANNEL CENTERLINE
SCALE: 1/4"=1'-0"



DESCRIPTION	DATE	BY

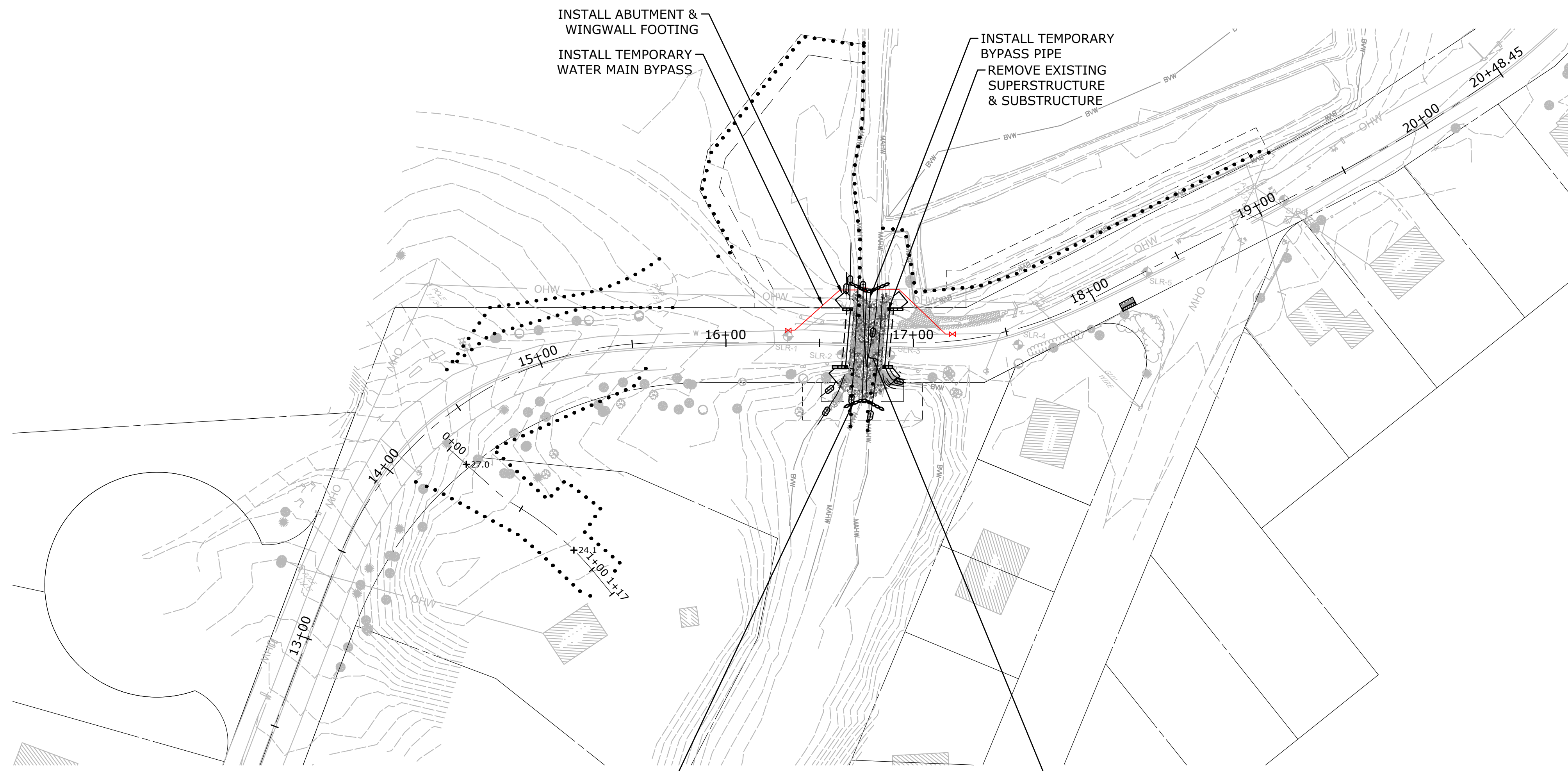
NOT FOR CONSTRUCTION

STRUCTURAL PLAN
REPLACEMENT OF BARTLETT ROAD CULVERT
OVER UNNAMED BROOK
BARTLETT ROAD
PLYMOUTH, MASSACHUSETTS

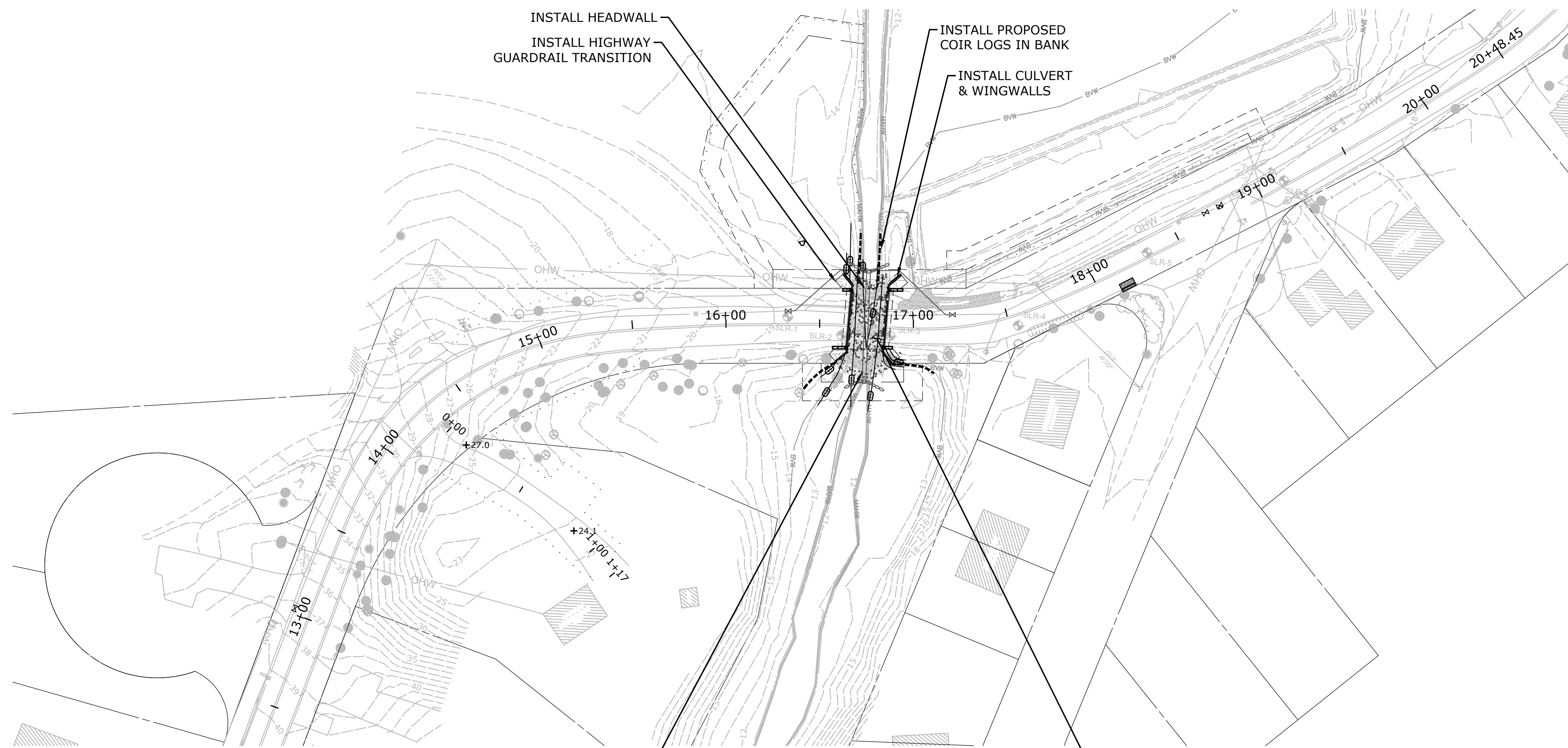
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SEPTEMBER 21, 2023		
DATE		
11982.00016		
PROJECT NO.		
11 OF 29		
SHEET NO.		

STR-01

11/22/23 10:05 AM REVISED 2023 FOR MA GP, E&S CONTROLS INCLUDING COFFERDAMS WITHIN THE WATERS OF THE US SHOULD BE NOT IN PLACE BETWEEN MARCH 1 AND JUNE 30. CONTRACTOR IS RESPONSIBLE FOR SCHEDULING ALL WORK TO ABIDE BY THESE RESTRICTIONS.



STAGE I



STAGE II

LEGEND

- SILT FENCE
- ===== COFFERDAM
- ===== GRAVITY BYPASS PIPE

CONSTRUCTION SEQUENCE

STAGE I

1. INSTALL DETOUR AND CLOSE ROAD.
2. INSTALL SEDIMENT & EROSION CONTROLS.
3. INSTALL WATER MAIN BYPASS.
4. REMOVE EXISTING BRIDGE SUPERSTRUCTURE & SUBSTRUCTURE.
5. REMOVE EXISTING WATER MAIN
6. INSTALL TEMPORARY BYPASS PIPE.
7. INSTALL PROPOSED CULVERT AND WINGWALL FOOTINGS.
8. INSTALL PROPOSED CHANNEL FEATURES AND PERFORM PROPOSED CHANNEL GRADING.

ESTIMATED MONTHLY FLOW RATES IN CHANNEL

Mean Monthly Flow Rates in Unnamed Brook												
	January	February	March	April	May	June	July	August	September	October	November	December
Cubic Feet Per Second (cfs)	1.5	1.7	2.3	2.1	1.5	1.1	0.7	0.6	0.7	0.8	1.2	1.4
Gallons Per Minute (GPM)	673	763	1032	943	673	494	314	269	314	359	539	628

ESTIMATED PEAK FLOW RATES IN CHANNEL

Peak Flows	
Storm	Discharge (cfs)
1-year	13
2-year	15
5-year	19
10-year	24
25-year	32
50-year	38
100-year	47
500-year	73

CONSTRUCTION SEQUENCE

STAGE II

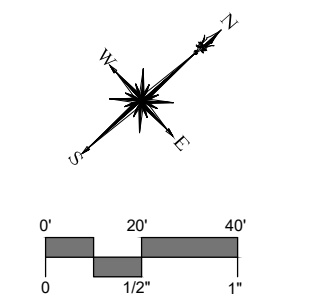
1. INSTALL PROPOSED CULVERT & INSTALL REMAINING CHANNEL FEATURES AT CULVERT.
2. INSTALL WINGWALLS.
3. INSTALL PROPOSED COIR LOGS UPSTREAM AND DOWNSTREAM OF CULVERT.
4. REMOVE TEMPORARY BYPASS PIPE.
5. INSTALL HEADWALL & HIGHWAY GUARDRAIL TRANSITION.

WATER CONTROL NOTES:

1. BYPASS OF THE CHANNEL FLOW SHALL BE THROUGH A TEMPORARY BYPASS PIPE AS SHOWN. BYPASS PIPE SHALL OPERATE BY GRAVITY AND PROVIDE A MEANS FOR MIGRATING FISH TO BYPASS THE PROJECT SITE DURING CONSTRUCTION. PUMPING IS NOT PERMITTED AS THE PRIMARY MEANS FOR WATER BYPASS DURING CONSTRUCTION. REFER TO THE ESTIMATED MONTHLY FLOW RATES, THIS SHEET, FOR REFERENCE.
2. ALL WORK IN THE CHANNEL, INCLUDING INSTALLATION OF CHANNEL FEATURES, CULVERT SUBSTRUCTURE, FOOTINGS, AND WINGWALLS SHALL OCCUR IN THE DRY ONCE THE CHANNEL IS FULLY DEWATERED.
3. TEMPORARY DEWATERING SUMP, PUMP, AND BASIN LOCATIONS MAY BE REQUIRED DEPENDING ON SITE CONDITIONS DURING CONSTRUCTION TO KEEP THE WORK AREA DRY. ADDITIONAL TURBID WATER BASIN LOCATIONS WILL BE DETERMINED AS NEEDED IN THE FIELD.
4. CONTRACTOR SHALL PREPARE AND SUBMIT A WATER CONTROL PLAN FOR APPROVAL PRIOR TO THE START OF CONSTRUCTION. REFER TO THE SPECIFICATIONS.
5. PROJECT SITE IS SUBJECT TO FLOODING. CONTRACTOR SHALL MONITOR WEATHER REPORTS, AND BE PREPARED TO STOP WORK AND STABILIZE SITE IF MORE THAN ONE INCH (1") OF RAINFALL IS PREDICTED BY THE NATIONAL WEATHER SERVICE (70% CHANCE OR HIGHER). WORK SHALL BE HALTED UNTIL PRECIPITATION STOPS, AND CHANCES OF FURTHER RAINFALL FALL BELOW 50%. CONTRACTOR TO SUBMIT A FLOOD CONTINGENCY PLAN. REFER TO THE SPECIFICATIONS.
6. THE WATER CONTROL MEASURES AS REPRESENTED ON THIS PLAN ARE PRESENTED AS INFORMATIONAL ONLY, AND SUBJECT TO CHANGE BASED ON SEASONAL, WEATHER, AND FIELD CONDITIONS.

TIME OF YEAR (TOY) RESTRICTIONS:

THE CONTRACTOR IS ADVISED PER GENERAL CONDITION 16 OF THE MA GP, E&S CONTROLS INCLUDING COFFERDAMS WITHIN THE WATERS OF THE US SHOULD BE NOT IN PLACE BETWEEN MARCH 1 AND JUNE 30. CONTRACTOR IS RESPONSIBLE FOR SCHEDULING ALL WORK TO ABIDE BY THESE RESTRICTIONS.



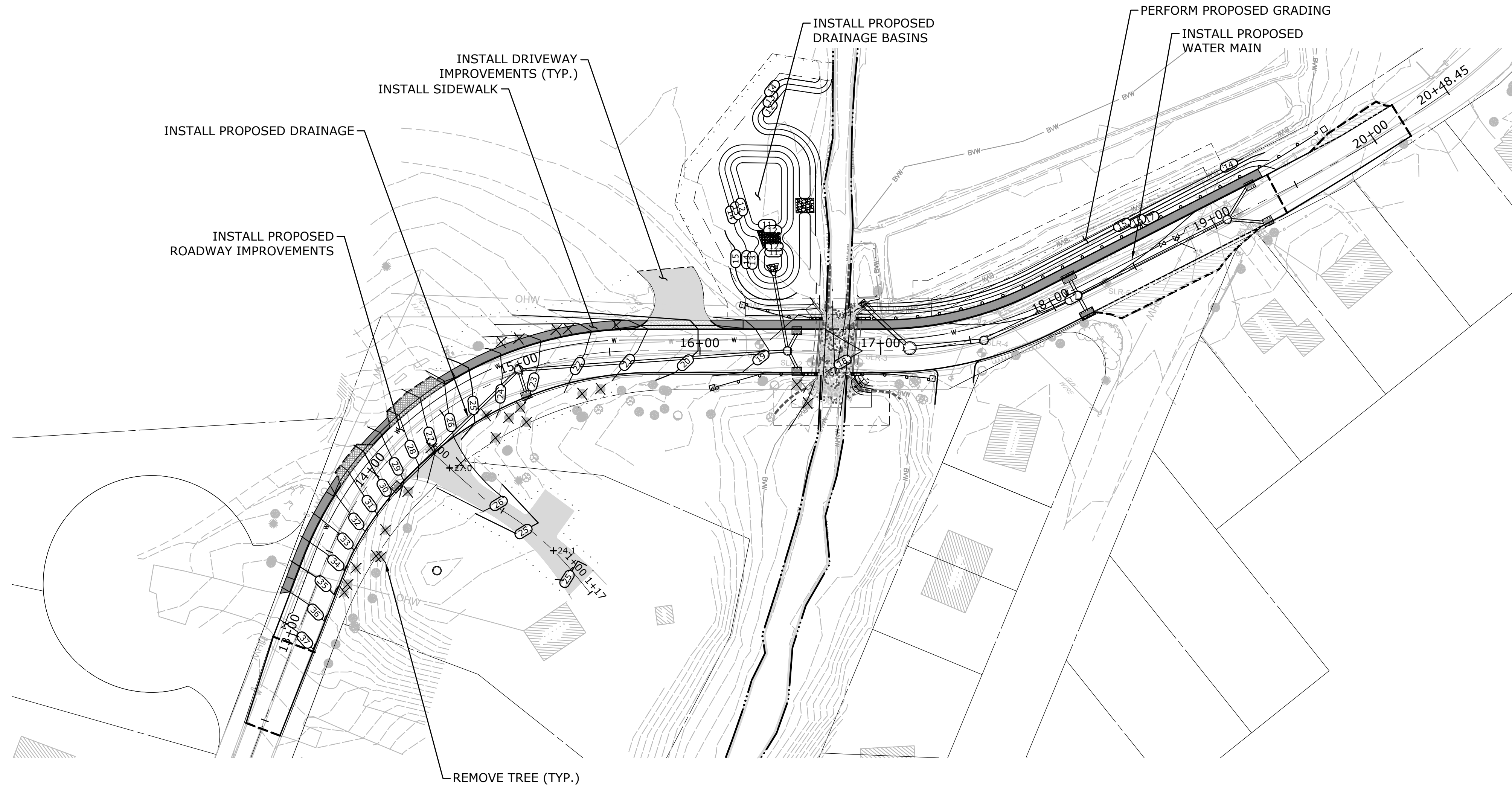
DESCRIPTION	DATE	BY

NOT FOR CONSTRUCTION

STAGED CONSTRUCTION
 REPLACEMENT OF BARTLETT ROAD CULVERT
 OVER UNNAMED BROOK
 BARTLETT ROAD
 PLYMOUTH, MASSACHUSETTS

NP	NP	KP
DESIGNED	DRAWN	CHECKED
1"=40'		
SEPTEMBER 21, 2023		
DATE		
11982.00016		
PROJECT NO.		
12 OF 29		
SHEET NO.		
STR-02		
SHEET NAME		

11/22/23 10:55 AM (11/22/23 10:55 AM) 10/22/23 10:55 AM (11/22/23 10:55 AM) 10/22/23 10:55 AM (11/22/23 10:55 AM)



STAGE III

CONSTRUCTION SEQUENCE

STAGE III

1. INSTALL TEMPORARY DRAINAGE.
2. INSTALL PERMANENT WATER MAIN.
3. REMOVE TREES (SEE PLANS).
4. INSTALL SIDEWALK, PROPOSED ROADWAY & DRIVEWAY IMPROVEMENTS.
5. INSTALL GUIDERAIL.
6. REMOVE DETOUR.
7. PERFORM PROPOSED GRADING, INCLUDING DRAINAGE BASIN.
8. REMOVE SEDIMENT & EROSION CONTROLS.
9. INSTALL PROPOSED TOPSOIL, MULCH, PLANTINGS AND SEED MIXES AND RESTORE SITE TO ACCEPTANCE OF OWNER.



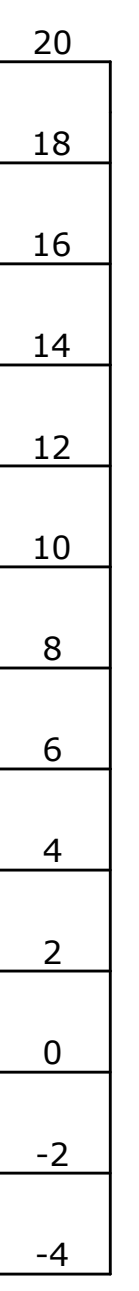
DESCRIPTION	DATE	BY

STAGED CONSTRUCTION
REPLACEMENT OF BARTLETT ROAD CULVERT
OVER UNNAMED BROOK
 BARTLETT ROAD
 PLYMOUTH, MASSACHUSETTS

NP DESIGNED	NP DRAWN	KP CHECKED
1"=40'		
SEPTEMBER 21, 2023		
DATE		
11982.00016		
PROJECT NO.		
13 OF 29		
SHEET NO.		

STR-03

BORING LOG											
SLR		PROJECT: BARTLETT RD. REALIGNMENT AND BRIDGE REPLACEMENT				BORING NO.: SLR-3		SHEET: 1 of 2			
SLR International Corporation		LOCATION: BARTLETT ROAD, PLYMOUTH, MASSACHUSETTS				CONTRACTOR: SEABOARD DRILLING, INC.					
99 Realty Drive, Cheshire, CT 06040		PROJ. NO.: 141.11982.00016				FOREMAN: J. NITSCH					
802.231.1222 www.slrcorp.com		CLIENT: TOWN OF PLYMOUTH				INSPECTOR: R. GOWINSOCK		GROUND SURFACE ELEVATION: ±18.0'			
		DATE: MAY 17, 2022				GROUND SURFACE ELEVATION: ±18.0'					
EQUIPMENT:		HAUGER	CASING	SAMPLER	COREBLL.	GROUNDWATER DEPTH (FT.)		TYPE OF RIG:			
TYPE		HSA	-	SS	-	DATE	TIME	TRUCK W/ AUTOMATIC HAMMER			
SIZE ID (IN.)		2 1/4	-	1 3/8	-	2022-05-17	12:30 PM	WATER DEPTH		RIG MODEL:	
HMRL WT (LB.)		-	-	140	-			±5.5'		MOBILE B-53	
HMRL FALL (IN.)		-	-	30	-						
SOIL AND ROCK CLASSIFICATION-DESCRIPTION											
BURMISTER SYSTEM (SOL) U.S. CORPS OF ENGINEERS SYSTEM (ROCK)											
DEPTH (FT.)	SAMPLE NUMBER	RECOVERY (IN)	BLOWS PER 6"	SOIL AND ROCK CLASSIFICATION-DESCRIPTION		DEPTH (FT.)	STRATUM DESCRIPTION	ELEV. (FT.)	Remarks		
1				Top 11": ASPHALT		0.0'	ASPHALT	17.1	1		
2	S-1	17	7	Bottom 11": Brown, fine to coarse SAND, little fine to coarse Gravel, little SILT.							
3			5	S-1: Medium dense, brown, fine to coarse SAND, little fine to coarse Gravel, little SILT.							
4	S-2	10	3	S-2: Loose, brown, fine to coarse SAND, trace fine Gravel, trace SILT.			FILL				
5			4								
6	S-3	12	2	S-3: Very loose, Top 6": Light brown, fine to coarse SAND, little fine Gravel, trace SILT.		5.5'	G.W.T.	12.5			
7			3	Bottom 6": Dark brown, fine to medium SAND, some SILT, trace Organics.							
8	S-4	13	1	S-4: Very loose, Top 9": Gray-brown, fine to coarse SAND, trace SILT.			SAND & SILT WITH ORGANICS				
9			3	Bottom 4": Black, fine to medium SAND and SILT, little Organics.							
10			4								
11	S-5	15	4	S-5: Loose, light brown, fine to coarse SAND, little fine Gravel, trace SILT.							
12			4								
13			4								
14			4								
15			3	S-6: Loose, Top 5": Light brown, fine to coarse SAND, trace SILT.							
16	S-6	12	2	Bottom 7": Gray, fine to coarse SAND, trace SILT.							
17			2								
18											
19											
20											
21	S-7	20	1	S-7: Very loose, gray, fine to coarse SAND, trace SILT.							
22			3								
Remarks:		NON-PLASTIC (DPT-RI)		PLASTIC (DPT-RI)		SAMPLE TYPE		PROPORTIONS			
		D-4 - VERY LOOSE		D-2 - VERY SOFT		C - ROCK CORE		Moist = <10%			
		4-10 - LOOSE		2-4 - SOFT		S - SPLIT SPOON		Moist = 10% - 20%			
		10-30 - MEDIUM DENSE		4-8 - MEDIUM		UP - UNDISTURBED PISTON		Moist = 20% - 30%			
		30-60 - DENSE		8-15 - STIFF		UT - UNDISTURBED THINWALL		Moist = 30% - 50%			
		60+ - VERY DENSE		15-30 - VERY STIFF		30+ - HARD		Moist = 50% - 60%			

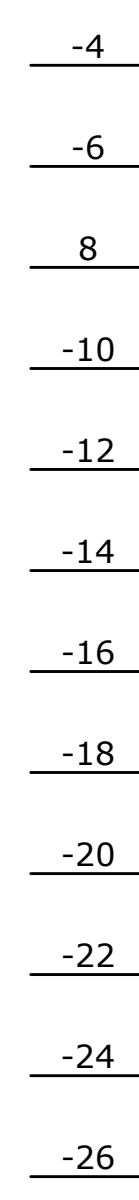


PROP. BOTTOM OF CULVERT FOOTING EL. 6.50

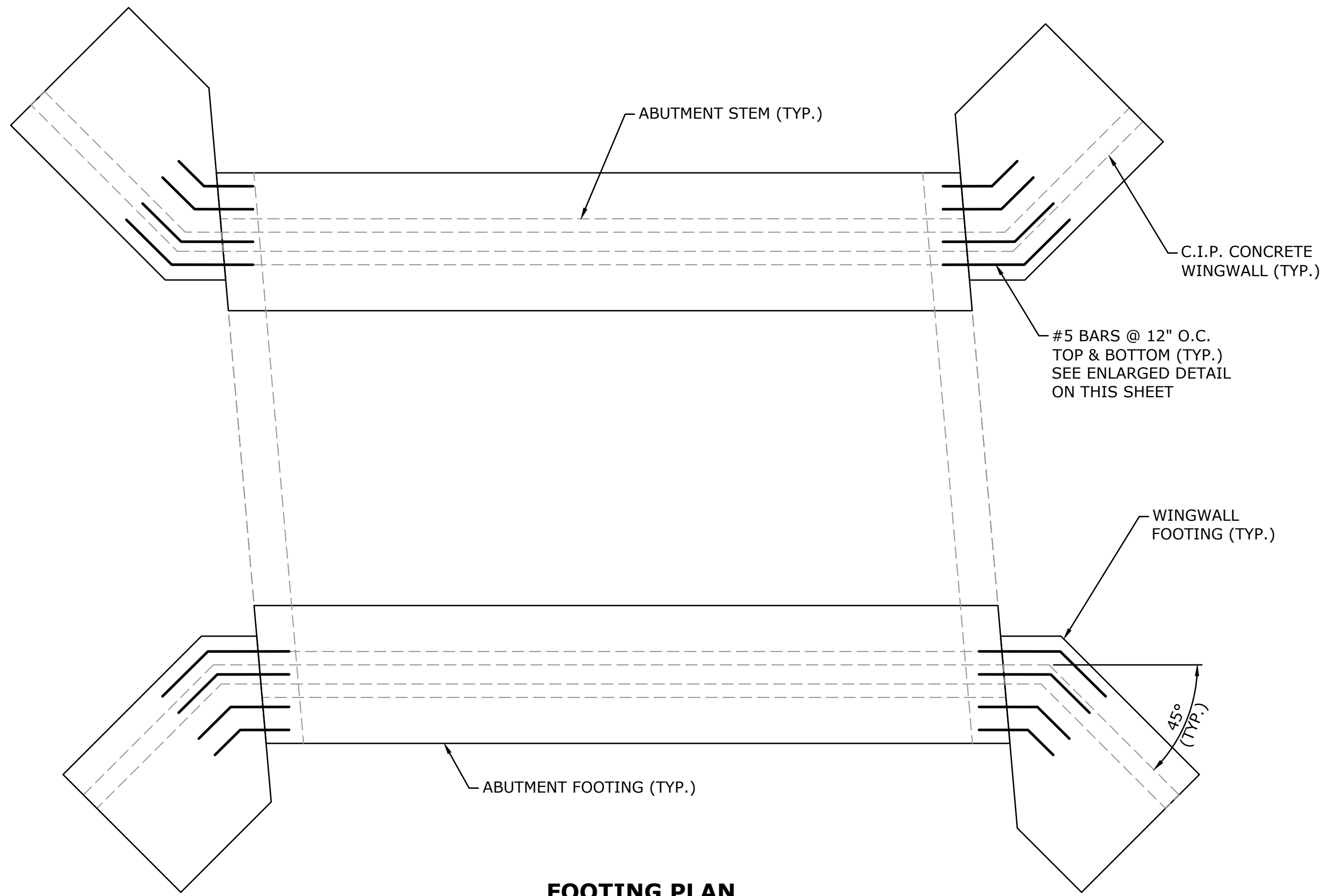
BORING LOG											
SLR		PROJECT: BARTLETT RD. REALIGNMENT AND BRIDGE REPLACEMENT				BORING NO.: SLR-4		SHEET: 1 of 1			
SLR International Corporation		LOCATION: BARTLETT ROAD, PLYMOUTH, MASSACHUSETTS				CONTRACTOR: SEABOARD DRILLING, INC.					
99 Realty Drive, Cheshire, CT 06040		PROJ. NO.: 141.11982.00016				FOREMAN: J. NITSCH					
802.231.1222 www.slrcorp.com		CLIENT: TOWN OF PLYMOUTH				INSPECTOR: R. GOWINSOCK		GROUND SURFACE ELEVATION: ±17.5'			
		DATE: MAY 18, 2022				GROUND SURFACE ELEVATION: ±17.5'					
EQUIPMENT:		HAUGER	CASING	SAMPLER	COREBLL.	GROUNDWATER DEPTH (FT.)		TYPE OF RIG:			
TYPE		HSA	-	SS	-	DATE	TIME	TRUCK W/ AUTOMATIC HAMMER			
SIZE ID (IN.)		2 1/4	-	1 3/8	-	2022-05-18	8:15 AM	WATER DEPTH		RIG MODEL:	
HMRL WT (LB.)		-	-	140	-			±5.0'		MOBILE B-53	
HMRL FALL (IN.)		-	-	30	-						
SOIL AND ROCK CLASSIFICATION-DESCRIPTION											
BURMISTER SYSTEM (SOL) U.S. CORPS OF ENGINEERS SYSTEM (ROCK)											
DEPTH (FT.)	SAMPLE NUMBER	RECOVERY (IN)	BLOWS PER 6"	SOIL AND ROCK CLASSIFICATION-DESCRIPTION		DEPTH (FT.)	STRATUM DESCRIPTION	ELEV. (FT.)	Remarks		
1				Top 7": ASPHALT		0.0'	ASPHALT	16.5	1		
2	S-1	22	5	Bottom 5": Light brown, fine to coarse SAND, little fine to coarse Gravel, trace SILT.							
3			5	S-1: Medium dense, Top 10": Light brown, fine to coarse SAND, little fine to coarse Gravel, trace SILT.							
4	S-2	19	6	Bottom 6": Dark brown, fine to coarse SAND, little SILT, trace fine Gravel.			FILL				
5			8	S-2: Medium dense, brown, fine to coarse SAND, trace SILT.							
6	S-3	16	2	S-3: Loose, light brown, fine to coarse SAND, trace SILT.		5.0'	G.W.T.	12.5			
7			3								
8			2								
9			3								
10			2	S-4: Loose, gray-light brown, fine to coarse SAND, trace SILT.							
11	S-4	19	2								
12			2								
13	S-5	20	1	S-5: Loose, gray, fine to coarse SAND, trace SILT.							
14			3								
Remarks:		NON-PLASTIC (DPT-RI)		PLASTIC (DPT-RI)		SAMPLE TYPE		PROPORTIONS			
		D-4 - VERY LOOSE		D-2 - VERY SOFT		C - ROCK CORE		Moist = <10%			
		4-10 - LOOSE		2-4 - SOFT		S - SPLIT SPOON		Moist = 10% - 20%			
		10-30 - MEDIUM DENSE		4-8 - MEDIUM		UP - UNDISTURBED PISTON		Moist = 20% - 30%			
		30-60 - DENSE		8-15 - STIFF		UT - UNDISTURBED THINWALL		Moist = 30% - 50%			
		60+ - VERY DENSE		15-30 - VERY STIFF		30+ - HARD		Moist = 50% - 60%			

BORING LOG											
SLR		PROJECT: BARTLETT RD. REALIGNMENT AND BRIDGE REPLACEMENT				BORING NO.: SLR-5		SHEET: 1 of 1			
SLR International Corporation		LOCATION: BARTLETT ROAD, PLYMOUTH, MASSACHUSETTS				CONTRACTOR: SEABOARD DRILLING, INC.					
99 Realty Drive, Cheshire, CT 06040		PROJ. NO.: 141.11982.00016				FOREMAN: J. NITSCH					
802.231.1222 www.slrcorp.com		CLIENT: TOWN OF PLYMOUTH				INSPECTOR: R. GOWINSOCK		GROUND SURFACE ELEVATION: ±17.0'			
		DATE: MAY 18, 2022				GROUND SURFACE ELEVATION: ±17.0'					
EQUIPMENT:		HAUGER	CASING	SAMPLER	COREBLL.	GROUNDWATER DEPTH (FT.)		TYPE OF RIG:			
TYPE		HSA	-	SS	-	DATE	TIME	TRUCK W/ AUTOMATIC HAMMER			
SIZE ID (IN.)		2 1/4	-	1 3/8	-	2022-05-18	9:30 AM	WATER DEPTH		RIG MODEL:	
HMRL WT (LB.)		-	-	140	-			±5.5'		MOBILE B-53	
HMRL FALL (IN.)		-	-	30	-						
SOIL AND ROCK CLASSIFICATION-DESCRIPTION											
BURMISTER SYSTEM (SOL) U.S. CORPS OF ENGINEERS SYSTEM (ROCK)											
DEPTH (FT.)	SAMPLE NUMBER	RECOVERY (IN)	BLOWS PER 6"	SOIL AND ROCK CLASSIFICATION-DESCRIPTION		DEPTH (FT.)	STRATUM DESCRIPTION	ELEV. (FT.)	Remarks		
1				Top 6.5": ASPHALT		0.0'	ASPHALT	17.0	1		
2	S-1	22	16	Bottom 5.5": Brown-black, fine to coarse SAND, little fine to coarse Gravel, trace SILT.							
3			14	S-1: Medium dense, Top 7": Brown-black, fine to coarse SAND, little fine to coarse Gravel, trace SILT.							
4	S-2	22	6	Middle 11": Gray, fine to coarse SAND, trace SILT.			FILL				
5			6	Bottom 4": Dark brown, fine to coarse SAND, trace SILT.							
6	S-3	16	6	S-2: Medium dense, Top 10": Dark brown, fine to coarse SAND, little SILT, trace fine Gravel.		4.0'	TOPSOIL	13.5			
7			5	Bottom 12": Brown, fine to coarse SAND, trace SILT.							
8			4								
9			5	S-3: Loose, gray-light brown, fine to coarse SAND, trace SILT.		5.5'	G.W.T.	12.0			
10			2								
11	S-4	15	1	S-4: Very loose, gray, fine to coarse SAND, trace SILT.							
12			2								
13	S-5	17	2	S-5: Loose, brown-gray, fine to coarse SAND, trace SILT.							
14			3								
Remarks:		NON-PLASTIC (DPT-RI)		PLASTIC (DPT-RI)		SAMPLE TYPE		PROPORTIONS			
		D-4 - VERY LOOSE		D-2 - VERY SOFT		C - ROCK CORE		Moist = <10%			
		4-10 - LOOSE		2-4 - SOFT		S - SPLIT SPOON		Moist = 10% - 20%			
		10-30 - MEDIUM DENSE		4-8 - MEDIUM		UP - UNDISTURBED PISTON		Moist = 20% - 30%			
		30-60 - DENSE		8-15 - STIFF		UT - UNDISTURBED THINWALL		Moist = 30% - 50%			
		60+ - VERY DENSE		15-30 - VERY STIFF		30+ - HARD		Moist = 50% - 60%			

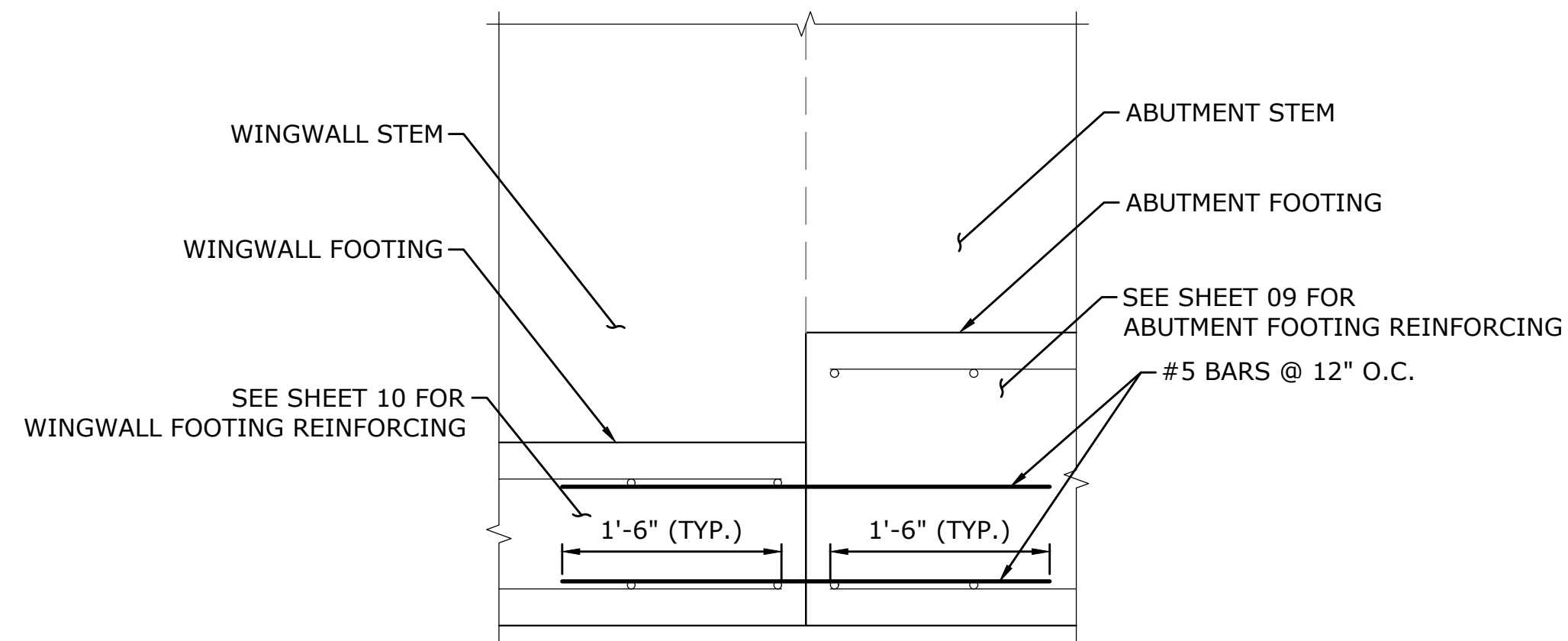
BORING LOG											
SLR		PROJECT: BARTLETT RD. REALIGNMENT AND BRIDGE REPLACEMENT				BORING NO.: SLR-3		SHEET: 2 of 2			
SLR International Corporation		LOCATION: BARTLETT ROAD, PLYMOUTH, MASSACHUSETTS				CONTRACTOR: SEABOARD DRILLING, INC.					
99 Realty Drive, Cheshire, CT 06040		PROJ. NO.: 141.11982.00016				FOREMAN: J. NITSCH					
802.231.1222 www.slrcorp.com		CLIENT: TOWN OF PLYMOUTH				INSPECTOR: R. GOWINSOCK		GROUND SURFACE ELEVATION: ±18.0'			
		DATE: MAY 17, 2022				GROUND SURFACE ELEVATION: ±18.0'					
EQUIPMENT:		HAUGER	CASING	SAMPLER	COREBLL.	GROUNDWATER DEPTH (FT.)		TYPE OF RIG:			
TYPE		HSA	-	SS	-	DATE	TIME	TRUCK W/ AUTOMATIC HAMMER			
SIZE ID (IN.)		2 1/4	-	1 3/8	-	2022-05-17	12:30 PM	WATER DEPTH		RIG MODEL:	
HMRL WT (LB.)		-	-	140	-			±5.5'		MOBILE B-53	
HMRL FALL (IN.)		-	-	30	-						
SOIL AND ROCK CLASSIFICATION-DESCRIPTION											
BURMISTER SYSTEM (SOL) U.S. CORPS OF ENGINEERS SYSTEM (ROCK)											
DEPTH (FT.)	SAMPLE NUMBER	RECOVERY (IN)	BLOWS PER 6"	SOIL AND ROCK CLASSIFICATION-DESCRIPTION		DEPTH (FT.)	STRATUM DESCRIPTION	ELEV. (FT.)	Remarks		
24											
25			3	S-8: Loose, gray, fine SAND, little SILT.							
26	S-8	12	2								
27			5								
28			3								
29			3								
30			2	S-9: Loose, gray, fine to coarse SAND, trace SILT.							
31	S-9	14	3								
32			3								
33	S-10	15	2	S-10: Loose, gray, fine to coarse SAND, trace SILT.							
34			4								
35			4								
Remarks:		NON-PLASTIC (DPT-RI)		PLASTIC (DPT-RI)		SAMPLE TYPE		PROPORTIONS			
		D-4 - VERY LOOSE		D-2 - VERY SOFT		C - ROCK CORE		Moist = <10%			
		4-10 - LOOSE		2-4 - SOFT		S - SPLIT SPOON		Moist = 10% - 20%			
		10-30 - MEDIUM DENSE		4-8 - MEDIUM		UP - UNDISTURBED PISTON		Moist = 20% - 30%			
		30-60 - DENSE		8-15 - STIFF		UT - UNDISTURBED THINWALL		Moist = 30% - 50%			
		60+ - VERY DENSE		15-30 - VERY STIFF		30+ - HARD		Moist = 50% - 60%			



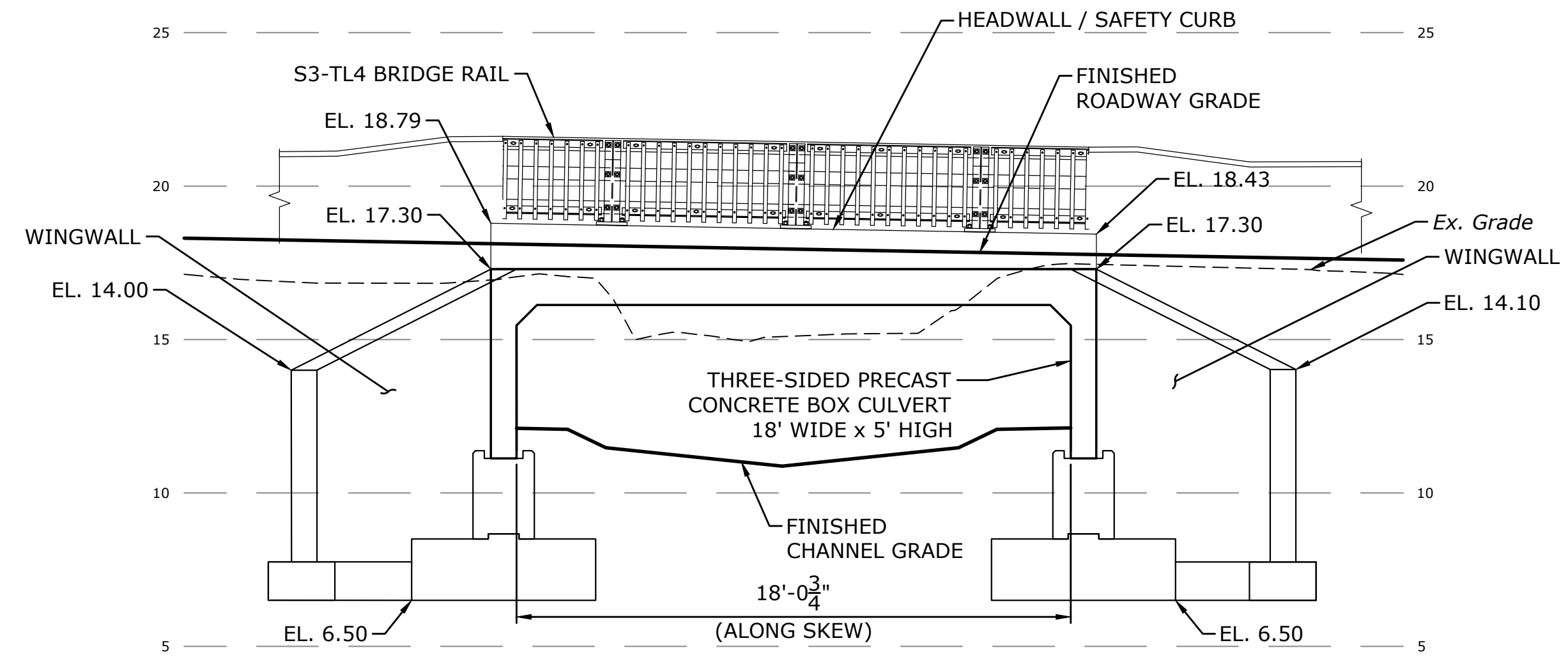
BORING LOG											
SLR		PROJECT: BARTLETT RD. REALIGNMENT AND BRIDGE REPLACEMENT				BORING NO.: SLR-6		SHEET: 1 of 1			
SLR International Corporation		LOCATION: BARTLETT ROAD, PLYMOUTH, MASSACHUSETTS				CONTRACTOR: SEABOARD DRILLING, INC.					
99 Realty Drive, Cheshire, CT 06040		PROJ. NO.: 141.11982.00016				FOREMAN: J. NITSCH					
802.231.1222 www.slrcorp.com		CLIENT: TOWN OF PLYMOUTH				INSPECTOR: R. GOWINSOCK		GROUND SURFACE ELEVATION: ±17.0'			
		DATE: MAY 18, 2022				GROUND SURFACE ELEVATION: ±17.0'					
EQUIPMENT:		HAUGER	CASING	SAMPLER	COREBLL.	GROUNDWATER DEPTH (FT.)		TYPE OF RIG:			
TYPE		HSA	-	SS	-	DATE	TIME	TRUCK W/ AUTOMATIC HAMMER			
SIZE ID (IN.)		2 1/4	-	1 3/8	-	2022-05-18	11:00 AM	WATER DEPTH		RIG MODEL:	
HMRL WT (LB.)		-	-	140	-			±5.5'		MOBILE B-53	
HMRL FALL (IN.)		-	-	30	-						
SOIL AND ROCK CLASSIFICATION-DESCRIPTION											
BURMISTER SYSTEM (SOL) U.S. CORPS OF ENGINEERS SYSTEM (ROCK)											
DEPTH (FT.)	SAMPLE NUMBER	RECOVERY (IN)	BLOWS PER 6"	SOIL AND ROCK CLASSIFICATION-DESCRIPTION		DEPTH (FT.)	STRATUM DESCRIPTION	ELEV. (FT.)	Remarks		
1				Top 7": ASPHALT		0.0'	ASPHALT	16.4	1		
2	S-1	20	10	Bottom 5": Gray, fine to coarse SAND, trace SILT.							
3	</										



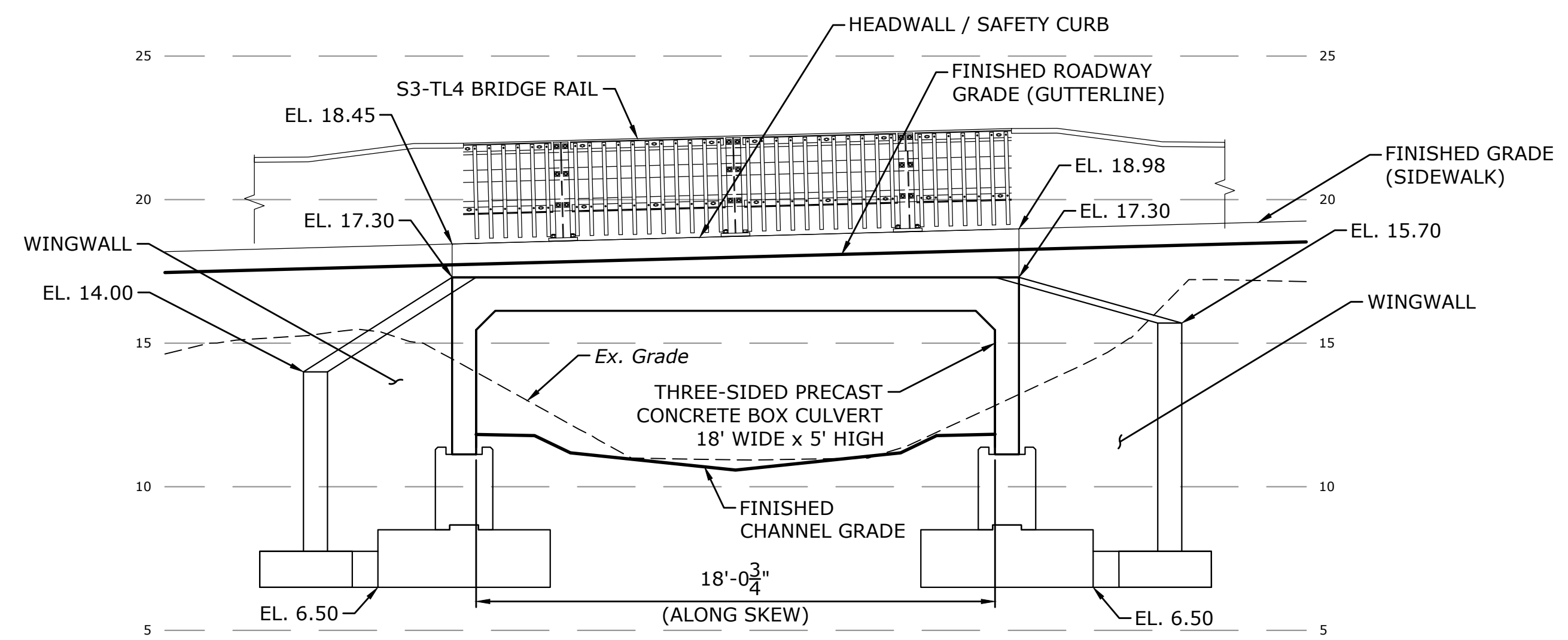
FOOTING PLAN
SCALE: 1/4"=1'-0"



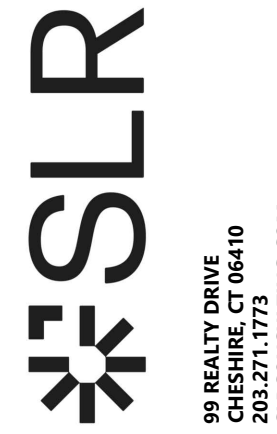
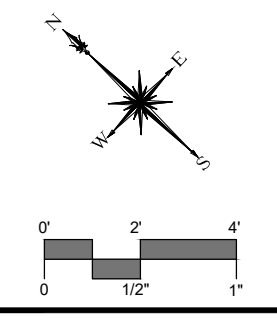
ENLARGED DETAIL
SCALE: 1"=1'-0"



UPSTREAM ELEVATION
SCALE: 1/4"=1'-0"



DOWNSTREAM ELEVATION
SCALE: 1/4"=1'-0"



DESCRIPTION	DATE	BY

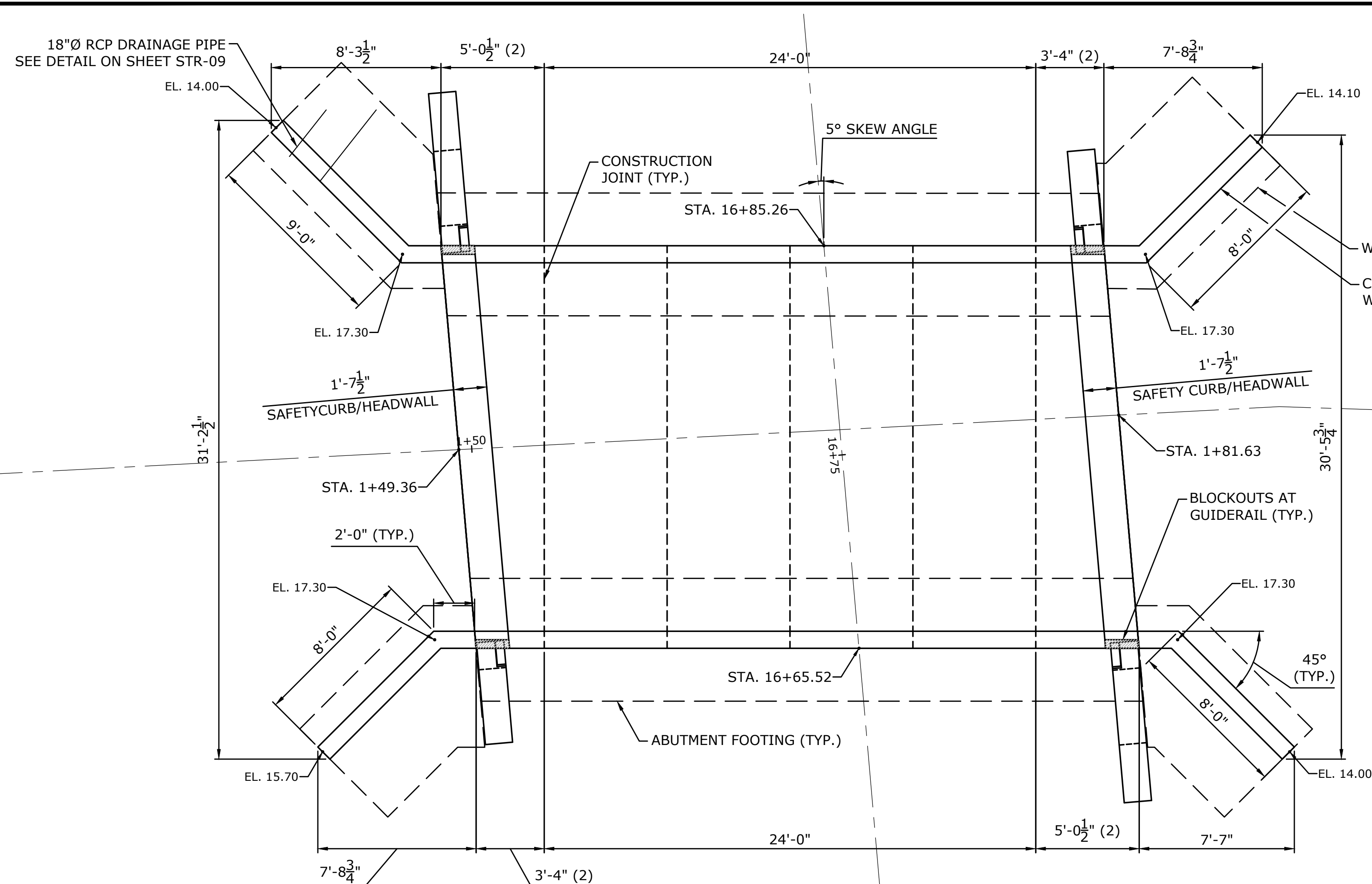
NOT FOR CONSTRUCTION

FOOTING PLAN & STRUCTURAL ELEVATIONS
REPLACEMENT OF BARTLETT ROAD CULVERT
OVER UNNAMED BROOK
BARTLETT ROAD
PLYMOUTH, MASSACHUSETTS

NP	NP	KP
DESIGNED	DRAWN	CHECKED
SCALE: AS NOTED		
DATE: SEPTEMBER 21, 2023		
PROJECT NO: 11982.00016		
SHEET NO: 16 OF 29		

STR-06

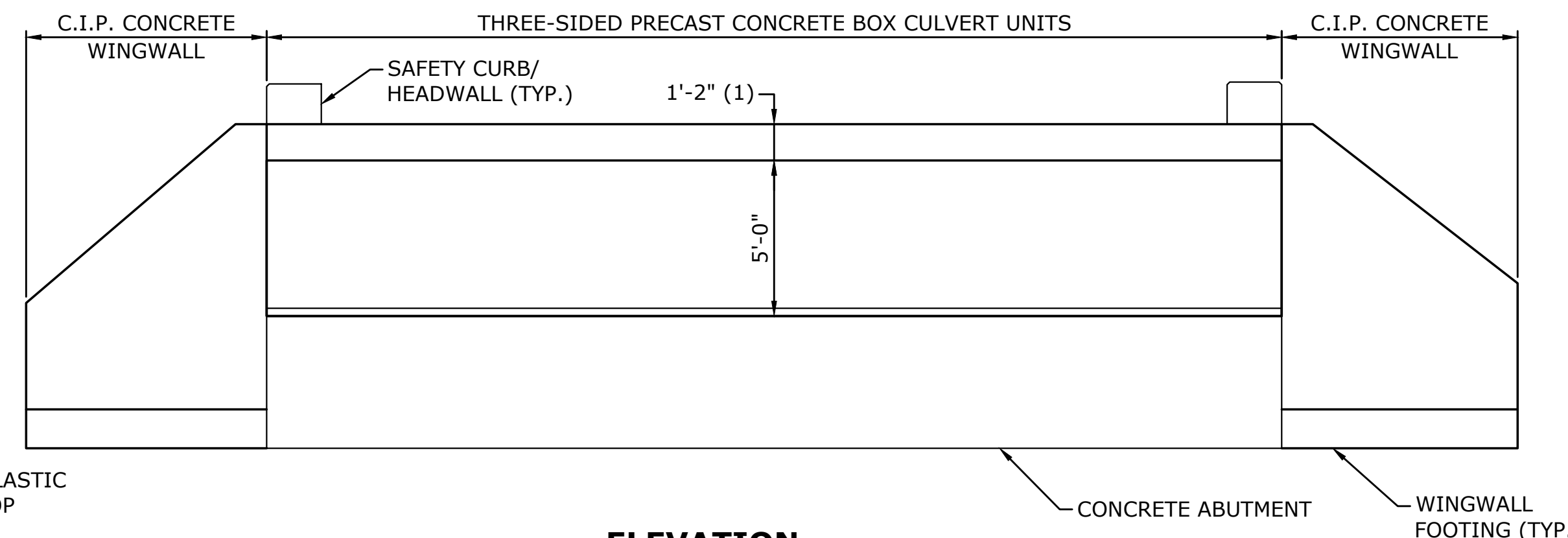
SHEET NAME



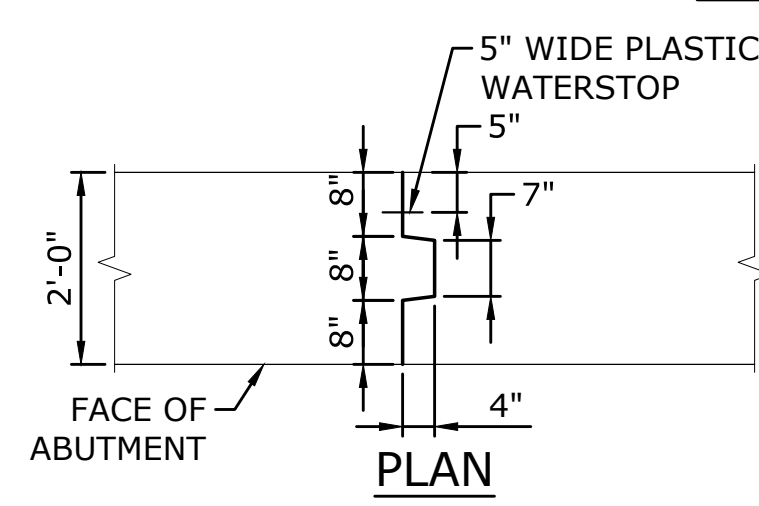
NOTE

- (1) - DIMENSION TO BE DETERMINED BY PRECAST MANUFACTURER
- (2) - SKEWED SECTION

FRAMING PLAN
SCALE: 1/4" = 1'-0"



ELEVATION
SCALE: 1/4" = 1'-0"

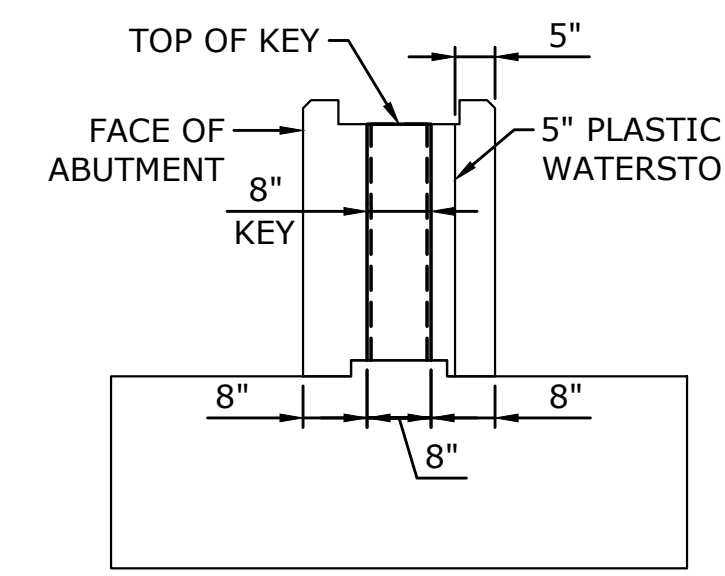


ELEVATION

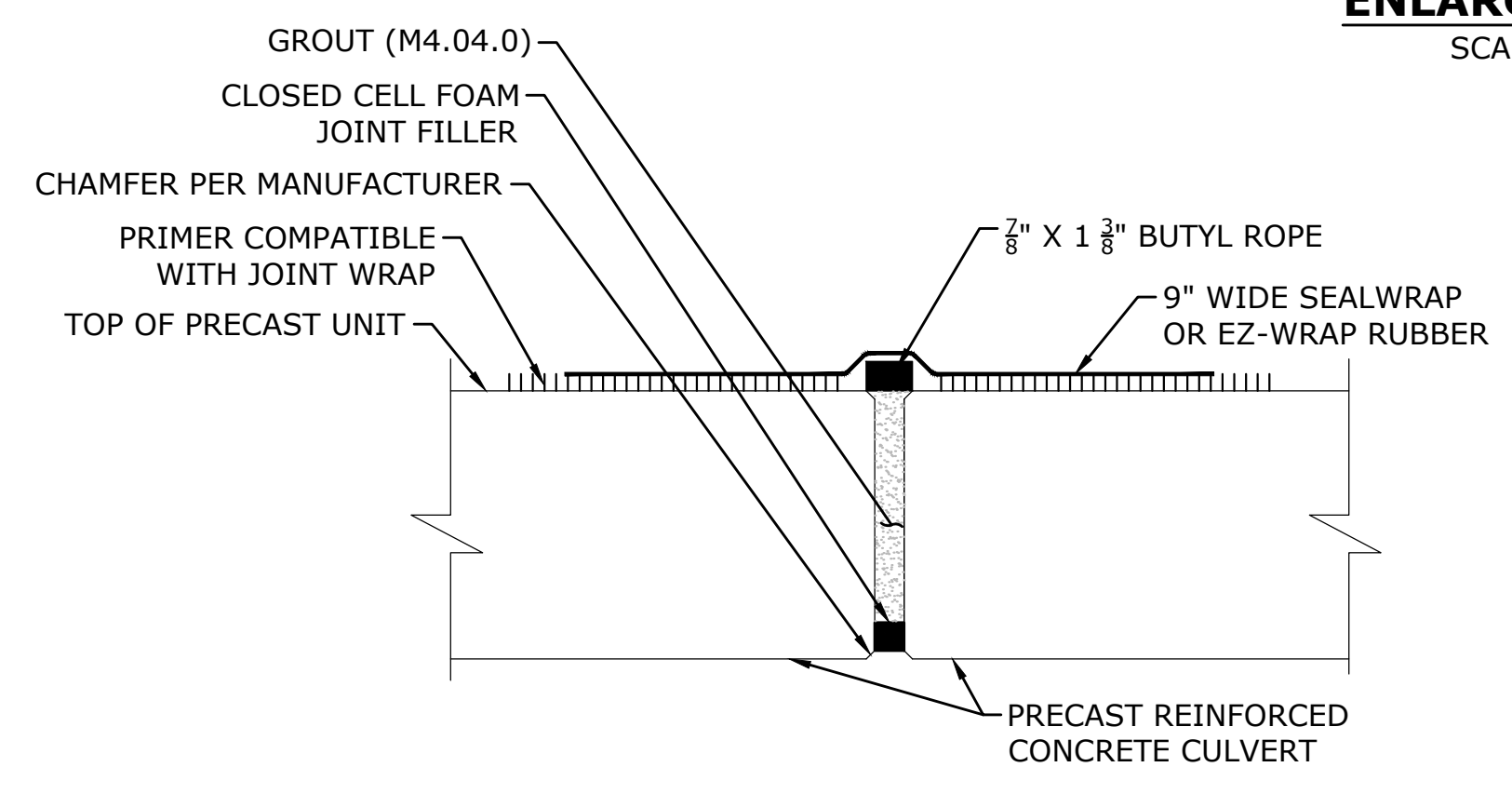
CONSTRUCTION JOINT @ ABUTMENT DETAIL
SCALE: 1/2" = 1'-0"

NOTE

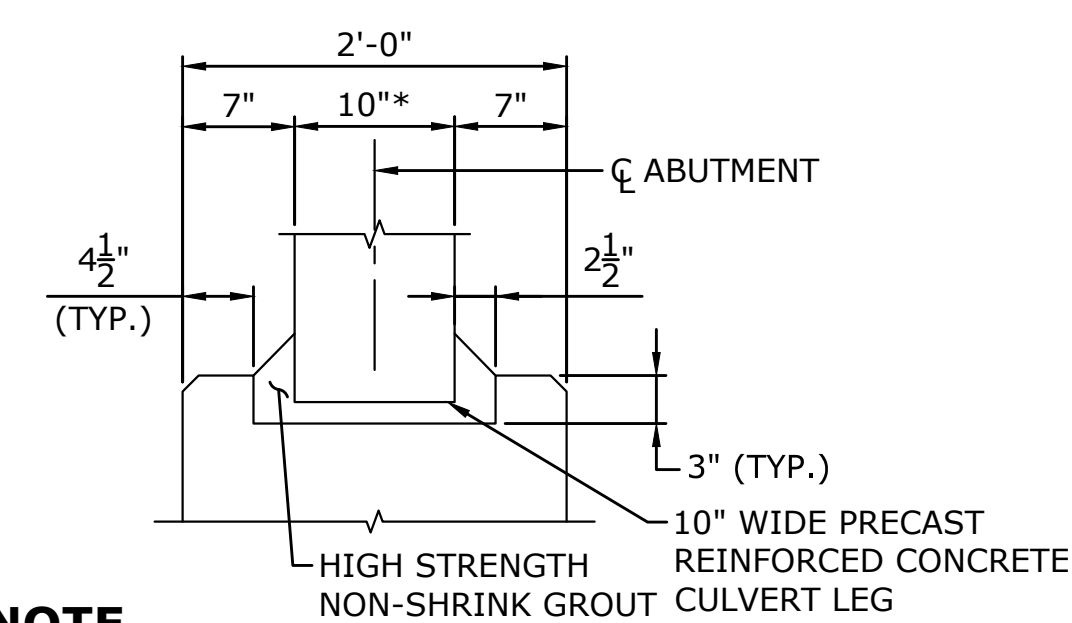
REINFORCEMENT SHALL BE CONTINUOUS THROUGH CONSTRUCTION JOINTS.



SECTION

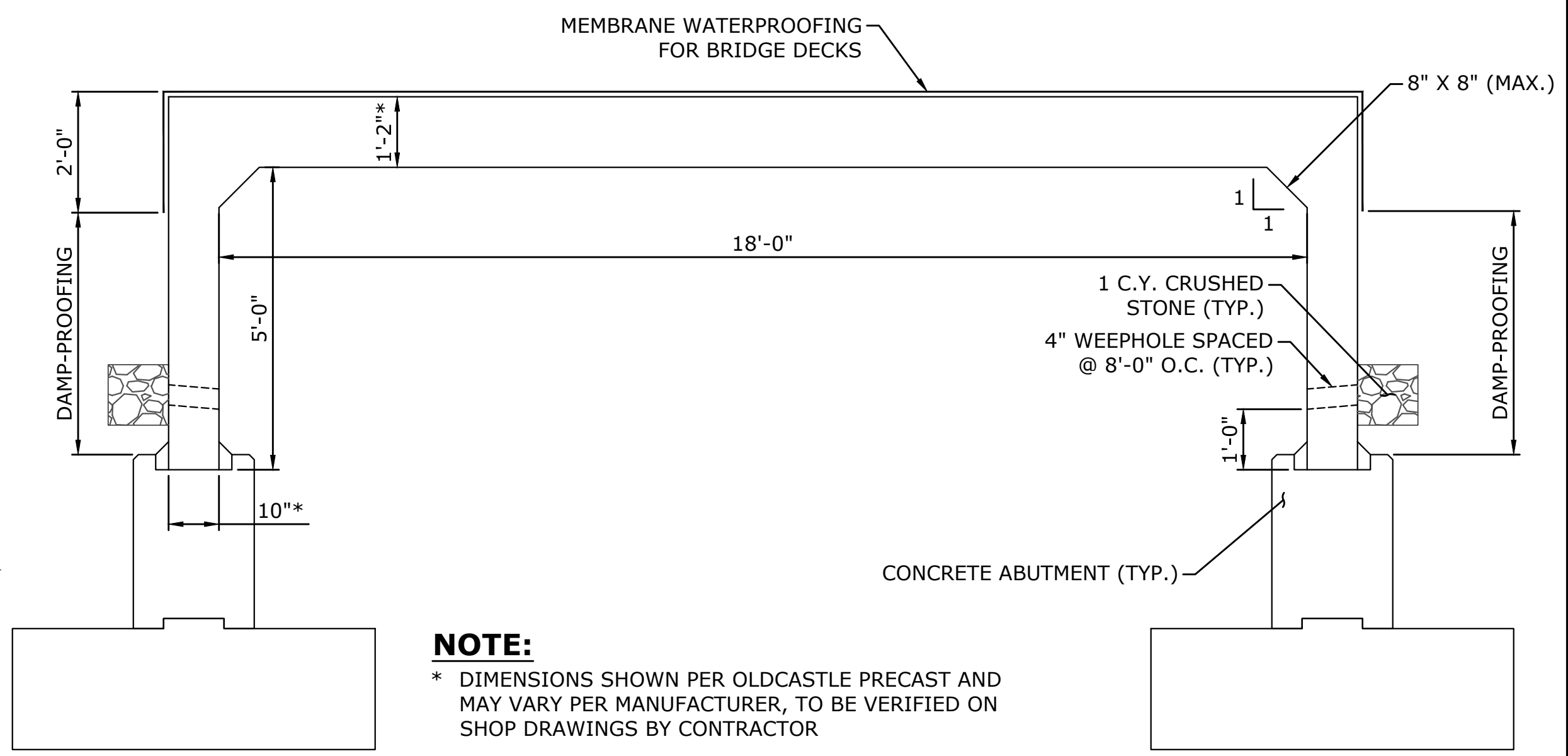


CULVERT JOINT DETAIL
SCALE: 1 1/2" = 1'-0"



NOTE
*DIMENSIONS SHOWN PER OLDCASTLE PRECAST AND MAY VARY PER MANUFACTURER

ENLARGED DETAIL
SCALE: 1" = 1'-0"



NOTE:

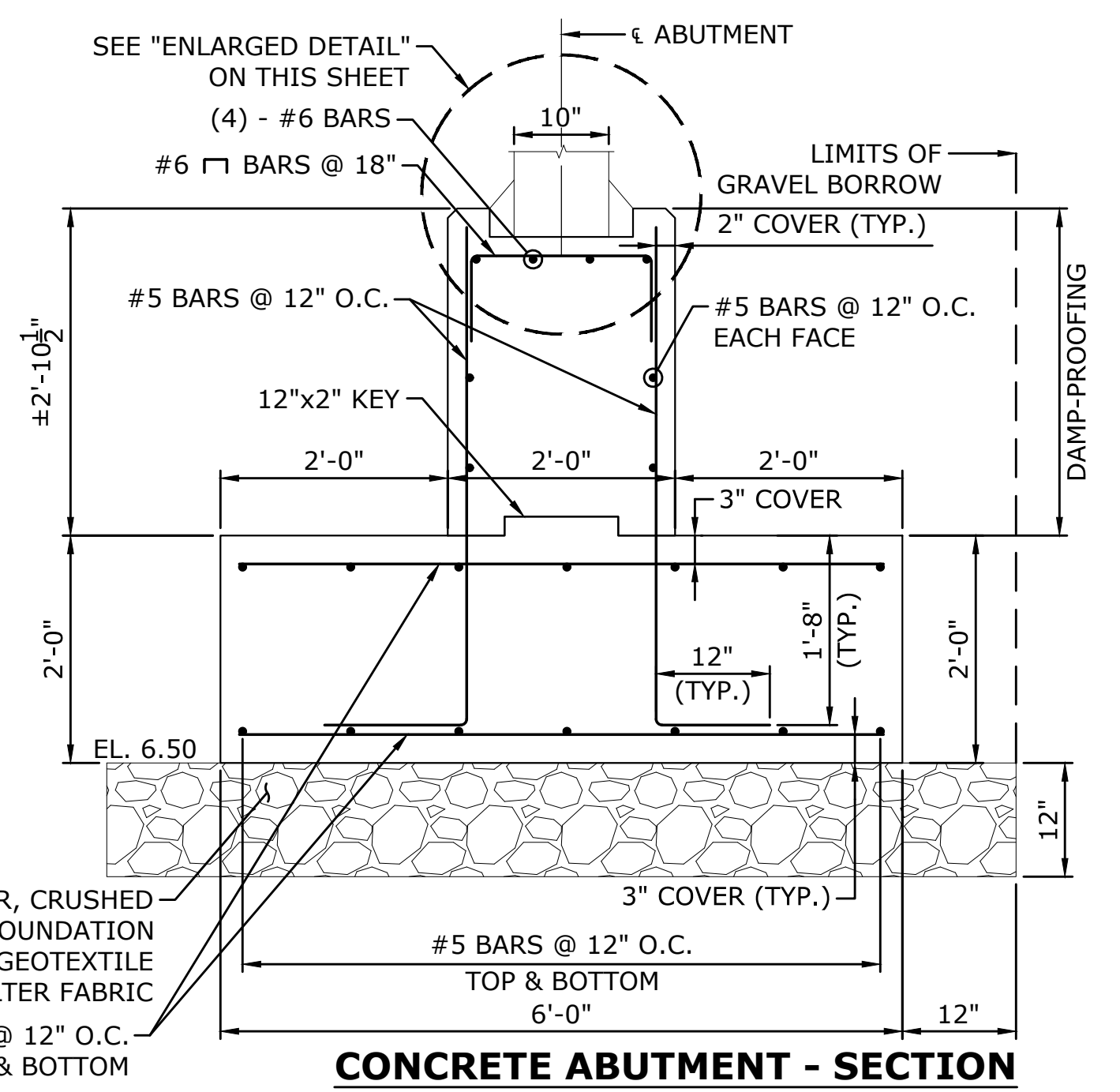
* DIMENSIONS SHOWN PER OLDCASTLE PRECAST AND MAY VARY PER MANUFACTURER, TO BE VERIFIED ON SHOP DRAWINGS BY CONTRACTOR

CULVERT SECTION
SCALE: 1/2" = 1'-0"

CULVERT TRANSPORT DIMENSIONS AND WEIGHT*				
3-SIDED PRECAST CONCRETE CULVERT SECTIONS	MAX. SHIPPING LENGTH	SHIPPING HEIGHT	SHIPPING WIDTH	SHIPPING WEIGHT (TONS)
	6'-0"	6'-2"	19'-8"	13.8

PRECAST CONCRETE FRAME NOTES

1. THE CONTRACTOR SHALL SUBMIT DESIGN CALCULATIONS PREPARED IN ACCORDANCE WITH THE 2020 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION, FOR HL-93 LOADING, FOR APPROVAL BY THE ENGINEER. THE DESIGN COMPUTATIONS SHALL CONSIDER ALL LOADINGS AS ARE APPROPRIATE DURING FABRICATION, SHIPMENT, ERECTION, CONSTRUCTION, AND UPON COMPLETION OF CONSTRUCTION BASED UPON THESE CONSTRUCTION DRAWINGS.
2. THE FRAME DIMENSIONS PROVIDED ARE SHOWN TO ESTABLISH THE SIZE OF PROPOSED OPENING. THE WIDTHS AND THICKNESSES OF THE FRAME UNITS SHALL BE DESIGNED BY THE CONTRACTOR. THE OPENING SIZE GIVEN SHALL BE MAINTAINED AND ALL LONGITUDINAL JOINT SHALL BE PER FRAMING PLAN AS SHOWN ON THIS SHEET.
3. THE DESIGN OF THE FOOTING DETAILED HERE IS BASED UPON THE ASSUMED GEOMETRY OF THE FRAME SHOWN. THE CONTRACTOR SHALL PREPARE AND SUBMIT FOR APPROVAL A COMPLETE REDESIGN OF THE FOOTING SHOULD THE GEOMETRY OF THE FRAME UNITS VARY FROM THAT SPECIFIED ON THE PLANS. THE DESIGN SHALL CONFORM TO THE STANDARDS STATED IN NOTE 1.

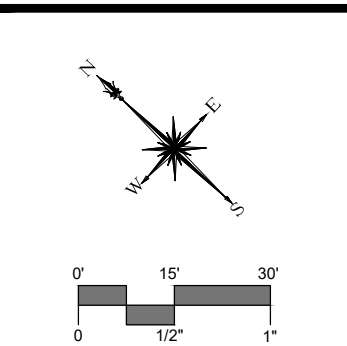


CONCRETE ABUTMENT - SECTION
SCALE: 3/4" = 1'-0"

FACTORED BEARING PRESSURE: 5.85 KSF (STRENGTH I LOAD COMBINATION)
FACTORED BEARING RESISTANCE: 8.80 KSF
FACTORED BEARING RESISTANCE IS THE PRODUCT OF THE NOMINAL BEARING RESISTANCE AND A RESISTANCE FACTOR OF 0.45

NOTE

CONCRETE FOR ABUTMENTS TO BE: 4,000 PSI, 1 1/2 IN., 565 CEMENT CONCRETE FOR ABUTMENT STEM & FOOTING



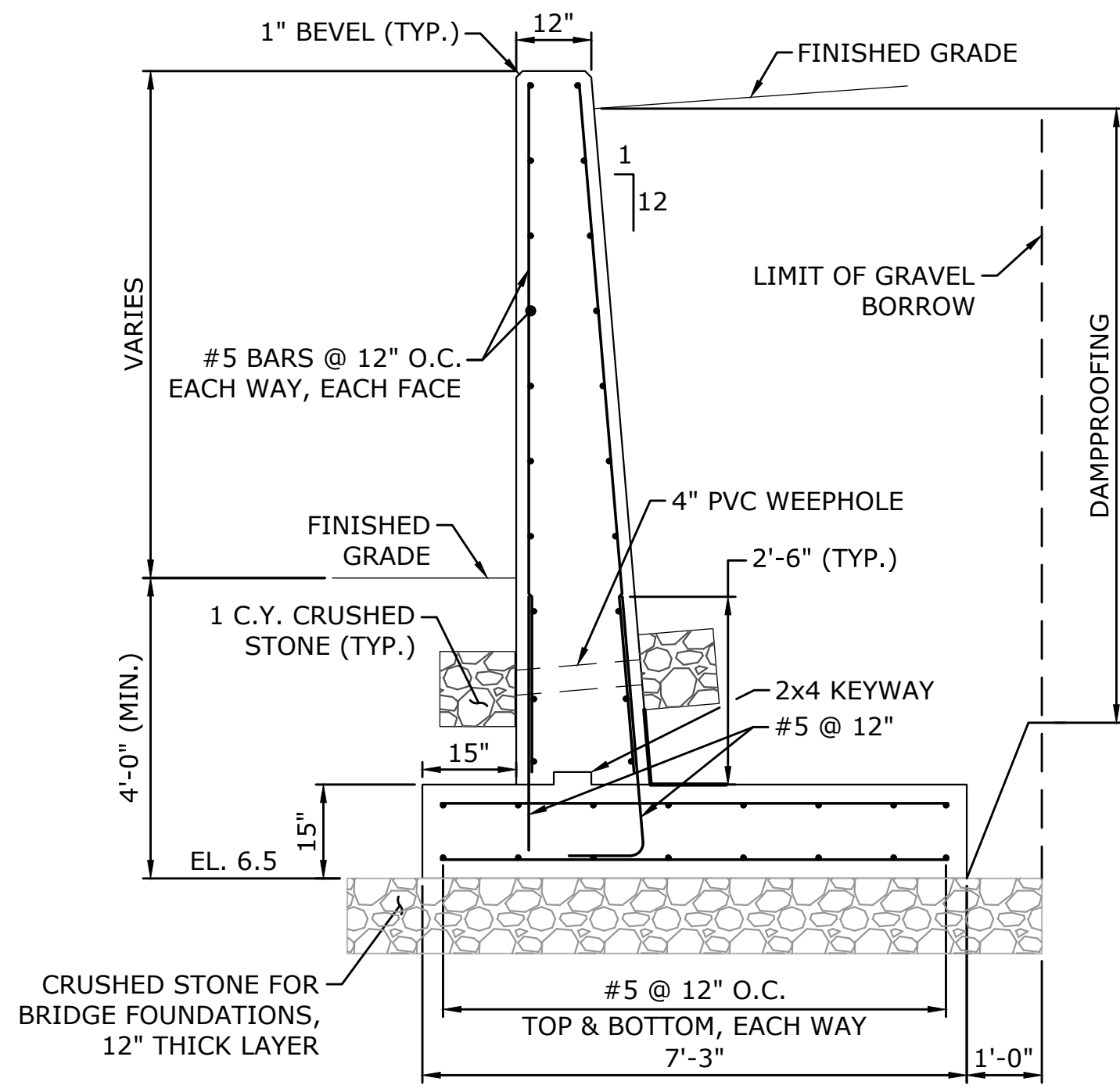
DESCRIPTION	DATE	BY

NOT FOR CONSTRUCTION

STRUCTURAL DETAILS
REPLACEMENT OF BARTLETT ROAD CULVERT OVER UNNAMED BROOK
BARTLETT ROAD
PLYMOUTH, MASSACHUSETTS

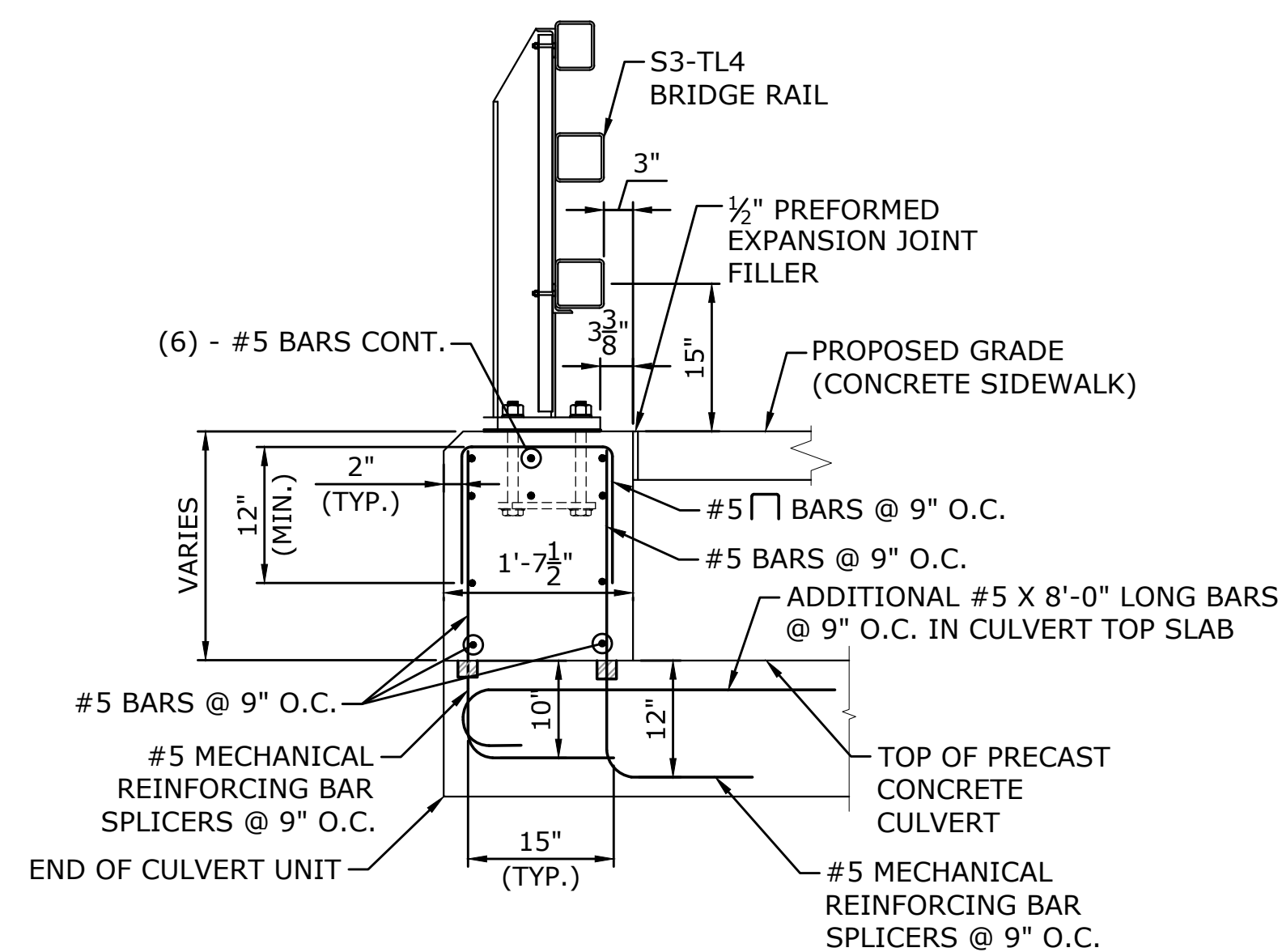
NP	KP	KP
DESIGNED	DRAWN	CHECKED
SCALE: AS NOTED		
DATE: SEPTEMBER 21, 2023		
PROJECT NO: 11982.00016		
SHEET NO: 17 OF 29		

STR-07



TYPICAL C.I.P. WINGWALL SECTION
SCALE: 1/2" = 1'-0"

FACTORED BEARING PRESSURE = 2.57 KSF (STRENGTH I)
FACTORED BEARING RESISTANCE = 8.80 KSF.
FACTORED BEARING RESISTANCE IS THE PRODUCT OF THE NOMINAL BEARING RESISTANCE AND A RESISTANCE FACTOR OF 0.45.

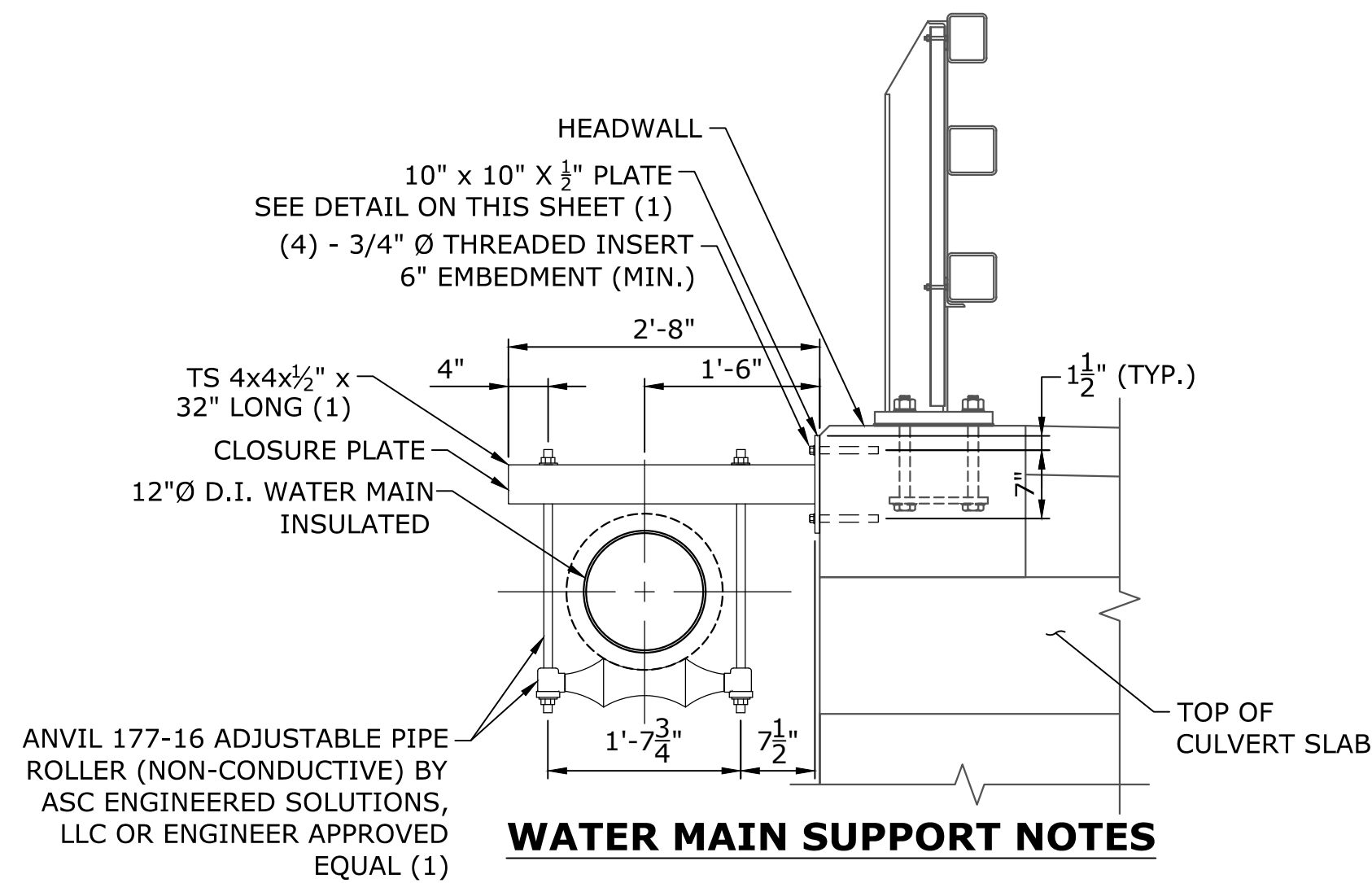


HEADWALL SECTION
SCALE: 3/4" = 1'-0"

- NOTE**
- CONCRETE FOR HEADWALL TO BE 5000 PSI, 3/4 IN., 685 HP CEMENT CONCRETE.
 - HEADWALL TO BE PRECAST OR CAST-IN-PLACE.
 - IF THE CONTRACTOR OPTS TO USE PRECAST HEADWALL, THE CONTRACTOR SHALL SUBMIT DESIGN AND CALCULATIONS PREPARED IN ACCORDANCE WITH THE 2020 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION, FOR HL-93 LOADING, FOR APPROVAL BY THE ENGINEER. THE DESIGN COMPUTATIONS SHALL CONSIDER ALL LOADINGS AS ARE APPROPRIATE DURING FABRICATION, SHIPMENT, ERECTION, CONSTRUCTION, AND UPON COMPLETION OF CONSTRUCTION BASED UPON THESE CONSTRUCTION DRAWINGS.

NOTES

- 4" Ø WEEP HOLES 8'-0" O.C. (JUST ABOVE PROTECTIVE COURSE). PROVIDE 1 CUBIC YARD OF CRUSHED STONE AT EACH END OF WEEP HOLE.
- ALL CONCRETE SHALL BE 4000 PSI, 1 1/2 IN 565 CEMENT CONCRETE.
- EXTEND EVERY 4th BAR FULL LENGTH AS SHOWN. THE FACTORED BEARING PRESSURE = 2.57 KSF AS PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS STRENGTH I LOAD COMBINATION.

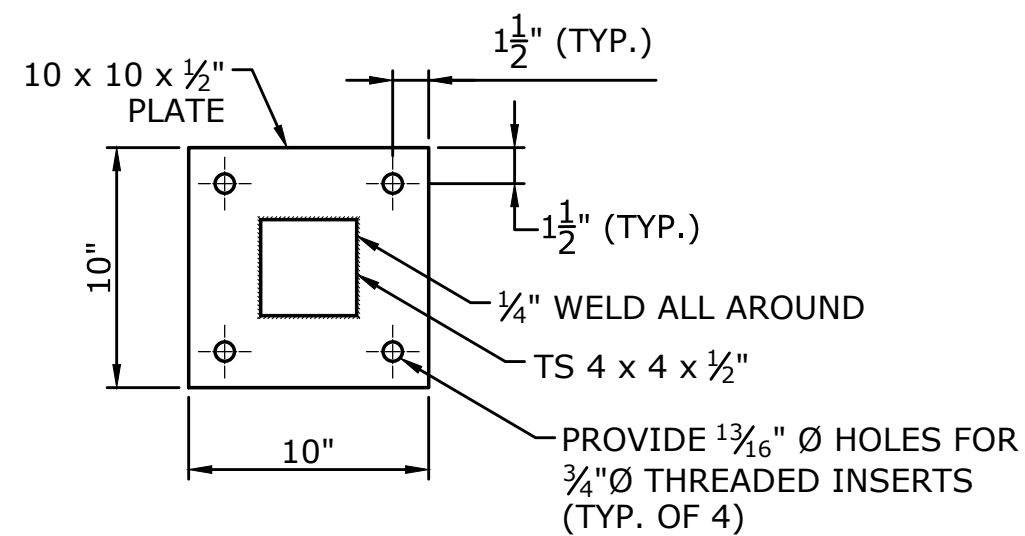


WATER MAIN SUPPORT NOTES

- STEEL SHALL CONFORM TO AASHTO M270 T2 GRADE 50 (GALVANIZED).
- ALL MATERIALS TO BE HOT DIPPED GALVANIZED.

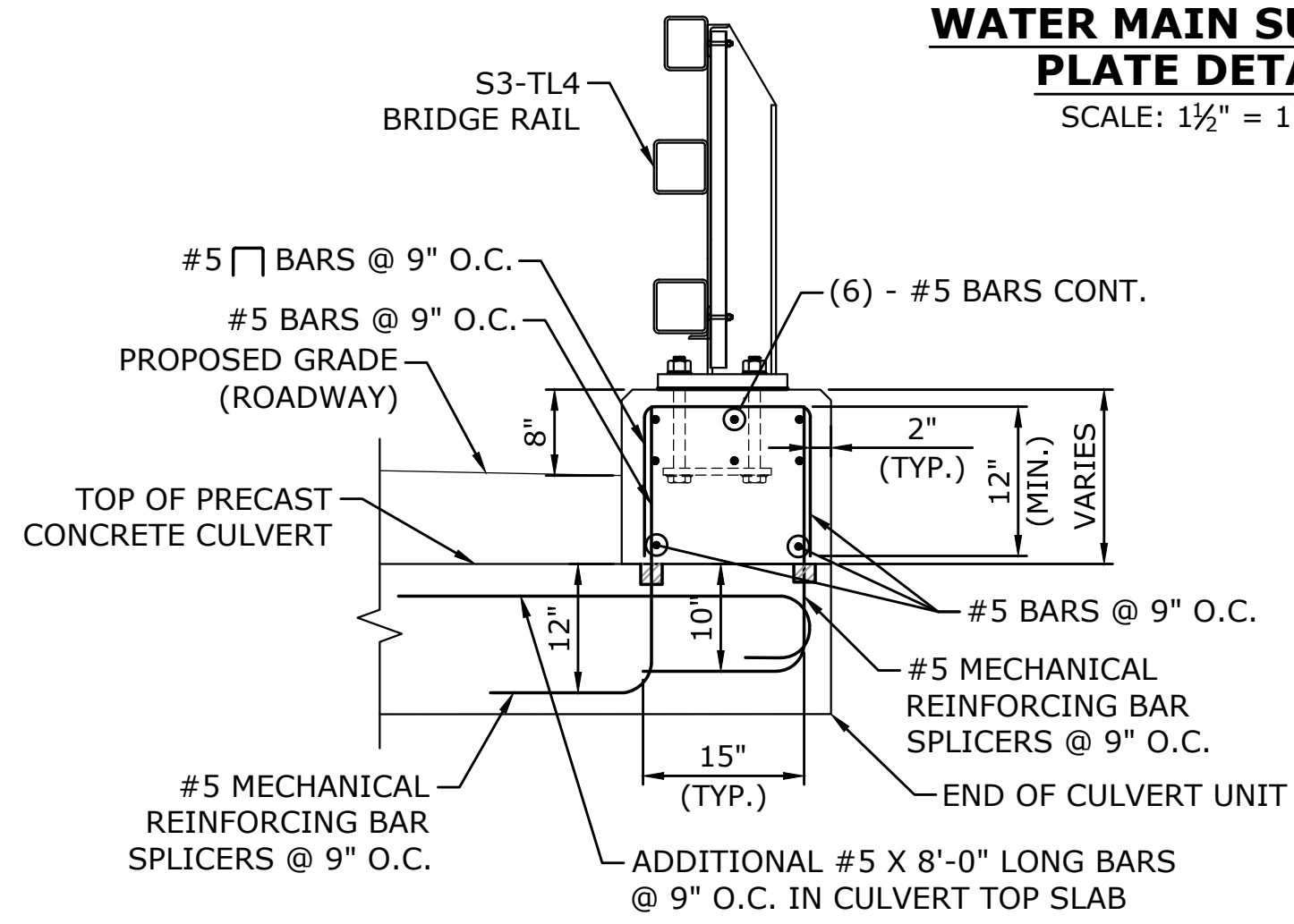
WATER MAIN SUPPORT DETAIL

SCALE: 3/4" = 1'-0"



WATER MAIN SUPPORT PLATE DETAIL

SCALE: 1 1/2" = 1'-0"

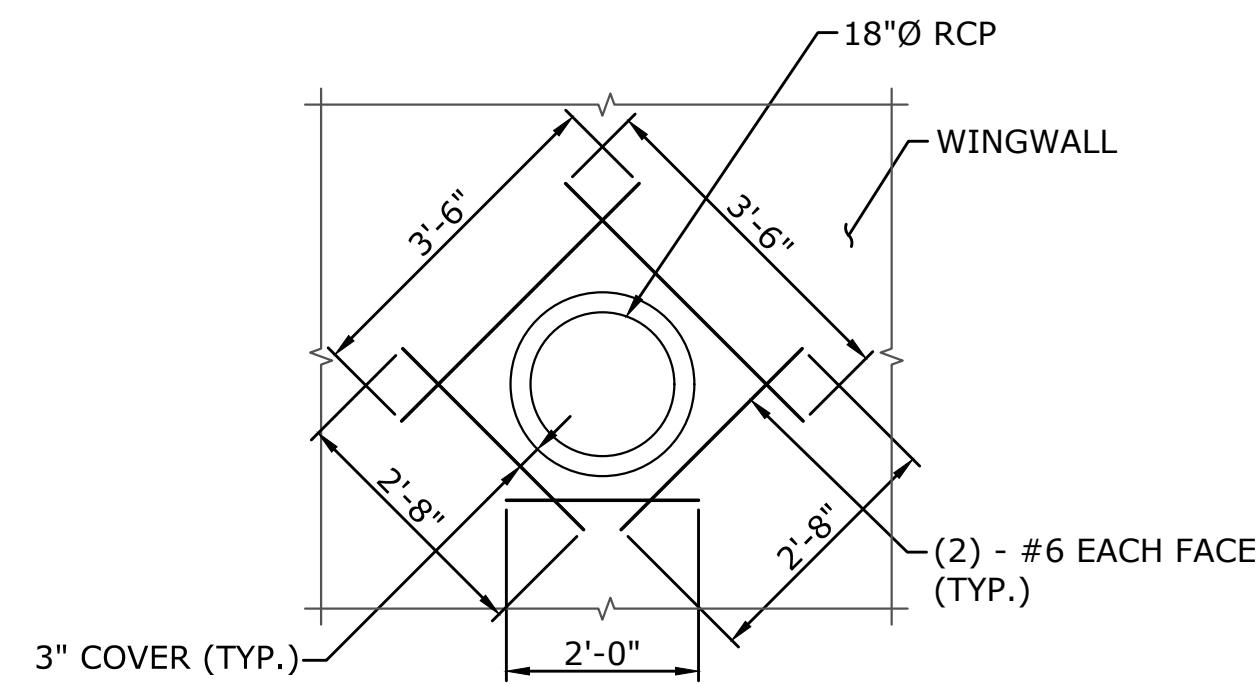


SAFETY CURB SECTION AT ROADWAY

SCALE: 3/4" = 1'-0"

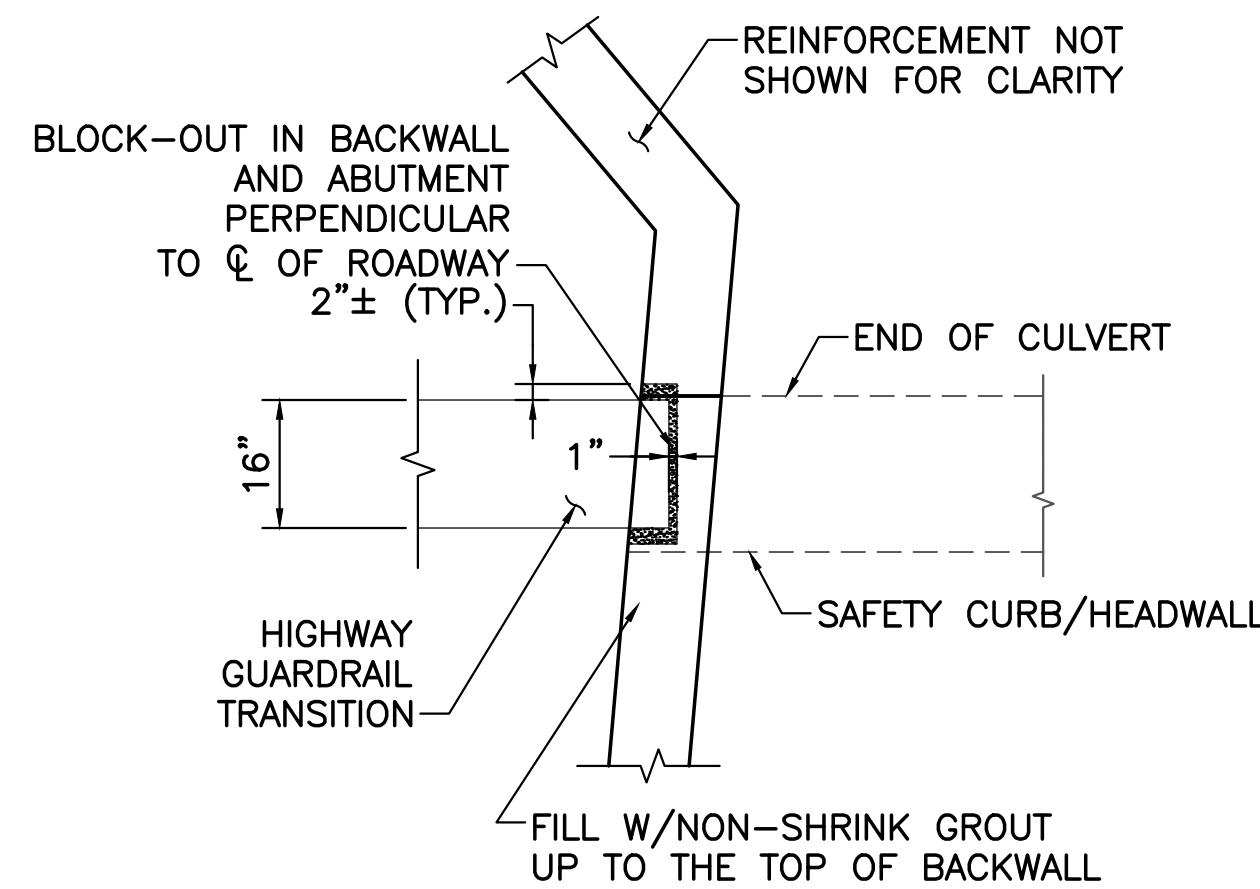
PRECAST GUARDRAIL TRANSITION NOTES

- PRECAST GUARDRAIL TRANSITION SHALL BE 5000 PSI, 3/4 IN, 685 HP CEMENT CONCRETE.
- GRAVEL BORROW SHALL BE PLACED AND THOROUGHLY COMPACTED TO THE GRADE OF 3" (MIN.) BELOW THE INTENDED BOTTOM OF THE PRECAST GUARDRAIL TRANSITION BASE AND TO A HEIGHT OF 2'-0" (MIN.) ON ALL SIDES OF THE TRANSITION BASE TO FORM A TRENCH IN WHICH TO SET THE TRANSITION. WHERE NO GRAVEL BORROW IS REQUIRED BELOW THE BASE, IT SHALL BE PLACED ON UNDISTURBED SOIL.
- CONTRACTOR SHALL SET THE PRECAST GUARDRAIL TRANSITION TO THE REQUIRED ELEVATION AND ALIGNMENT, AND BACKFILL PRECAST GUARDRAIL TRANSITION WITH CONTROLLED DENSITY FILL (NON-EXCAVATABLE) TO THE ELEVATION SHOWN.
- AFTER CONTROLLED DENSITY FILL (NON-EXCAVATABLE) HAS SET FILL THE GAPS BETWEEN GUARDRAIL TRANSITION AND BLOCK-OUT IN BACKWALL AND ABUTMENT WITH NON-SHRINK GROUT UP TO THE TOP OF BACKWALL.
- THE REST OF REINFORCEMENT IS NOT SHOWN FOR CLARITY.



PIPE OUTLET REINFORCING DETAIL

SCALE: 1/2" = 1'-0"



HORIZONTAL SECTION AT SPLAYED WINGWALL

SCALE: 1/2" = 1'-0"

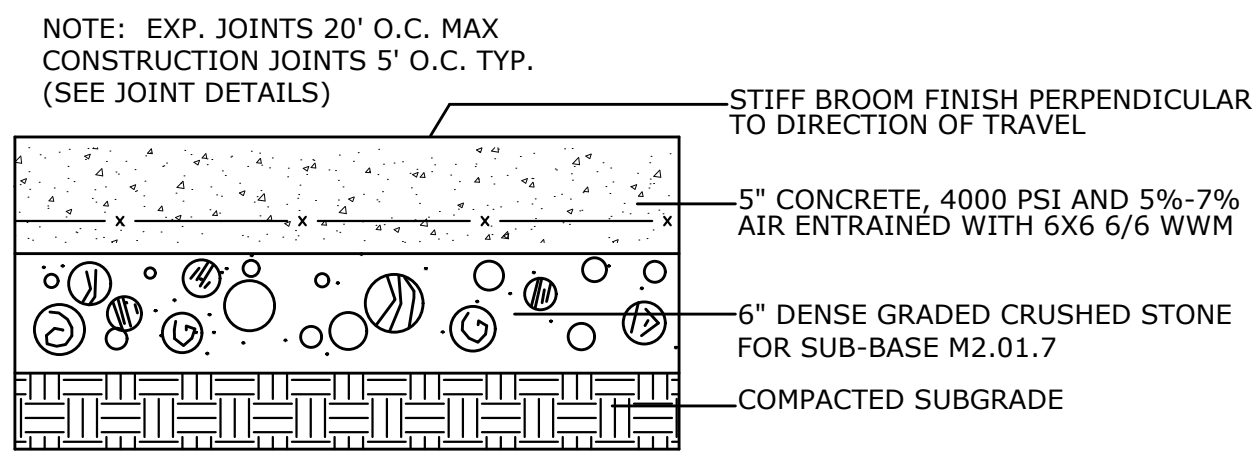


DESCRIPTION	DATE	BY

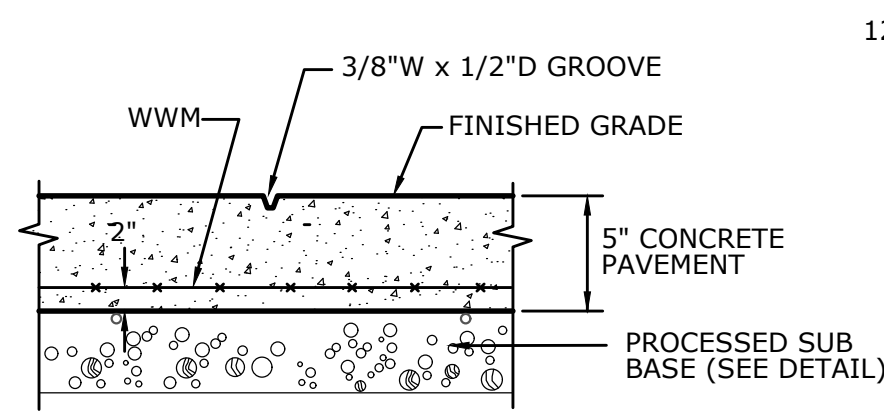
NOT FOR CONSTRUCTION

STRUCTURAL DETAILS
REPLACEMENT OF BARTLETT ROAD CULVERT
OVER UNNAMED BROOK
BARTLETT ROAD
PLYMOUTH, MASSACHUSETTS

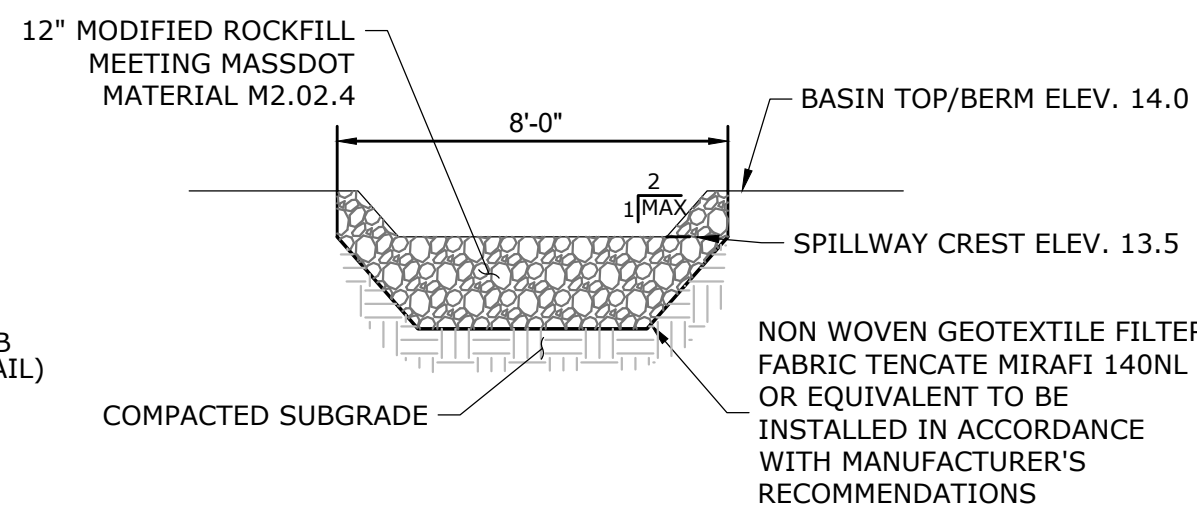
NP	NP	KP
DESIGNED	DRAWN	CHECKED
AS NOTED		
SEPTEMBER 21, 2023		
DATE		
PROJECT NO. 11982.00016		
SHEET NO. 18 OF 29		
STR-08		
SHEET NAME		



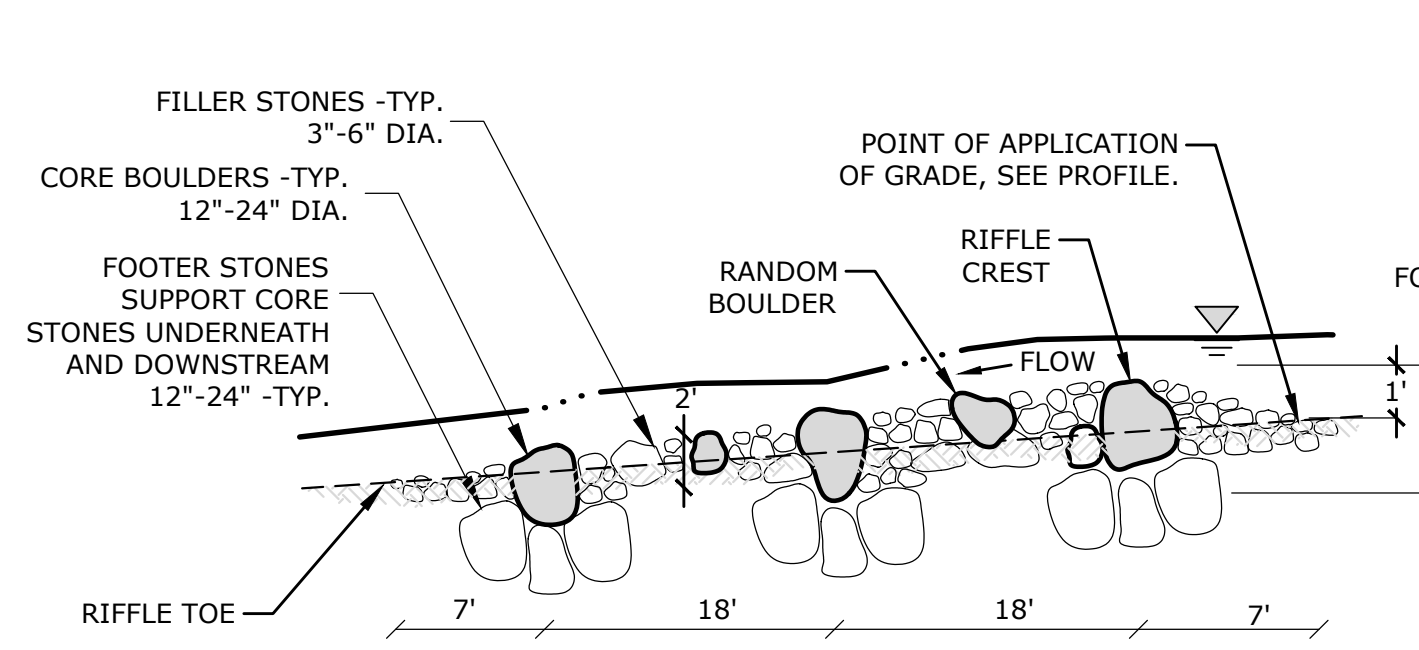
CONCRETE SIDEWALK
NOT TO SCALE



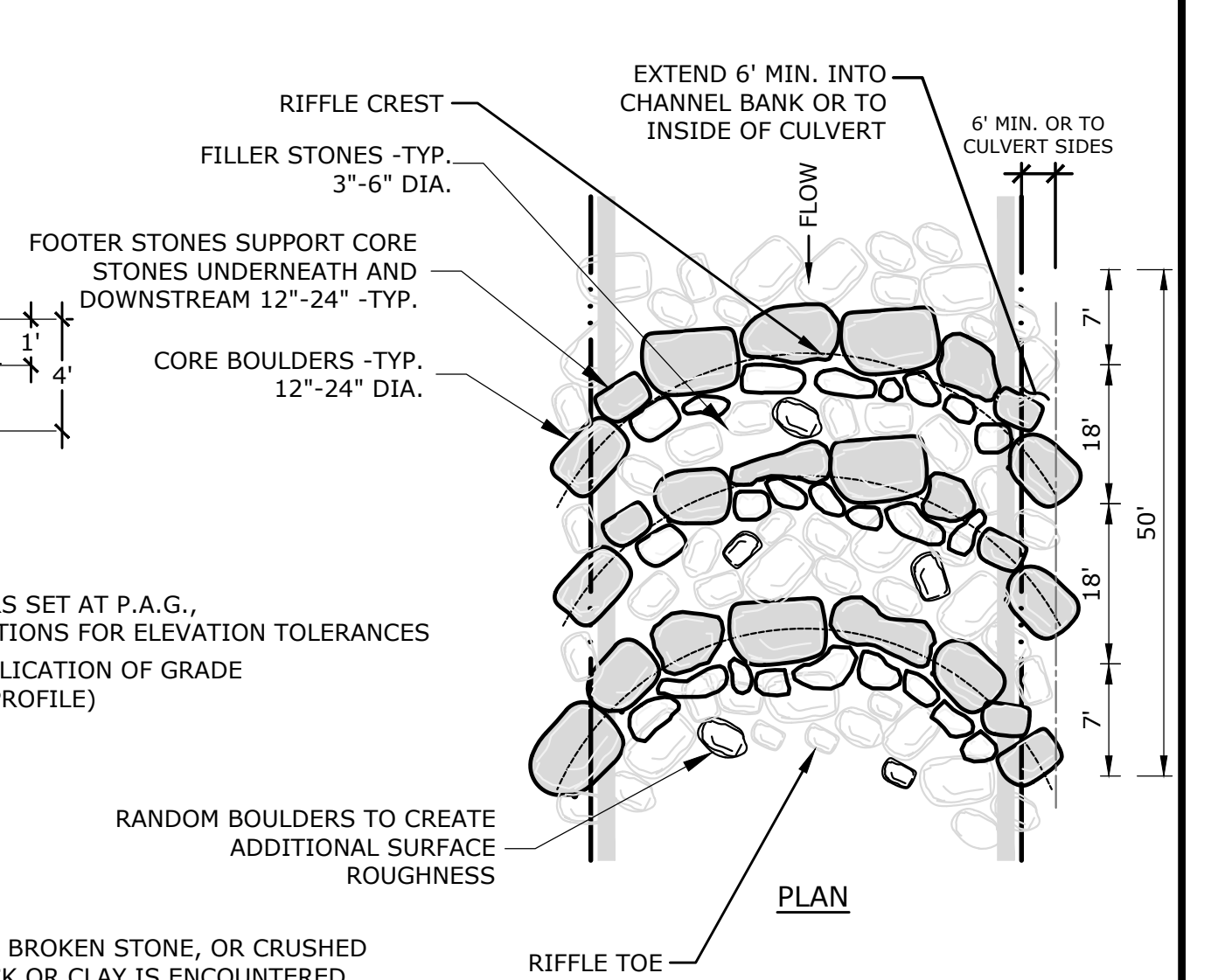
CONSTRUCTION JOINT
NOT TO SCALE



RIPRAP SPILLWAY SECTION



PROFILE



PLAN

NOTES:

1. SELECTED CORE BOULDERS SHOULD EXTEND ABOVE PROPOSED GRADE. CORE BOULDERS TO BE BURIED BY MINIMUM 1/2 TOTAL ROCK HEIGHT.
2. PLACE RANDOM BOULDERS OVER FACE OF RIFFLE TO CREATE CHANNEL ROUGHNESS. DO NOT BLOCK MORE THAN 1/3 OF TOTAL CROSS SECTION WITH RANDOM BOULDERS.
3. USE 4-6 SINGLE RANDOM BOULDERS PER RIFFLE.
4. SINGLE RANDOM BOULDERS TO BE 12"-24" ROUNDED STONE.
5. IF CLAY OR MUCK IS ENCOUNTERED DURING THE EXCAVATION OF THE FOOTING OF THE STRUCTURE, THE UNSUITABLE MATERIAL SHALL BE OVER-EXCAVATED AND DISPOSED OF OFF-SITE, AND A LAYER OF 3" CRUSHED GRAVEL BEDDING SHALL BE INSTALLED TO A DEPTH OF 12" PRIOR TO THE NORMAL CONSTRUCTION OF THE STRUCTURE.

RIFFLE GRADE CONTROL STRUCTURE

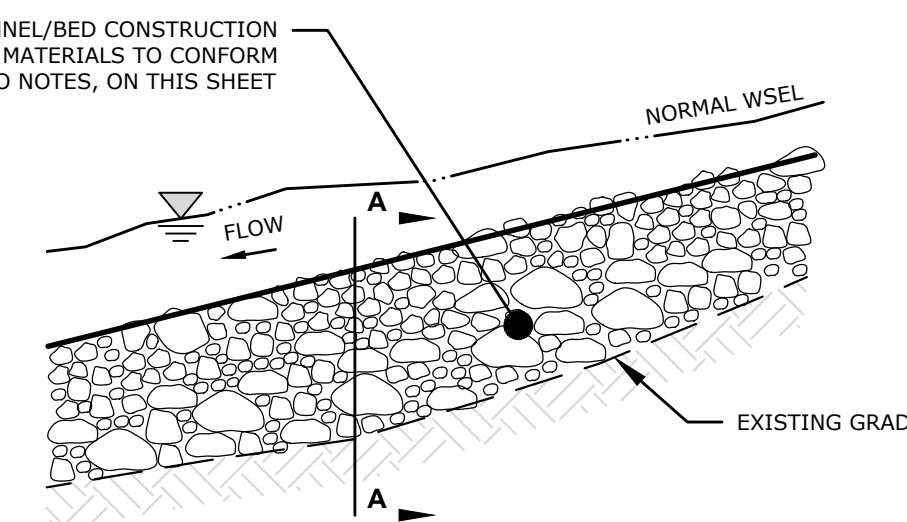
NOT TO SCALE

CHANNEL BED GRADING AND RESTORATION NOTES:

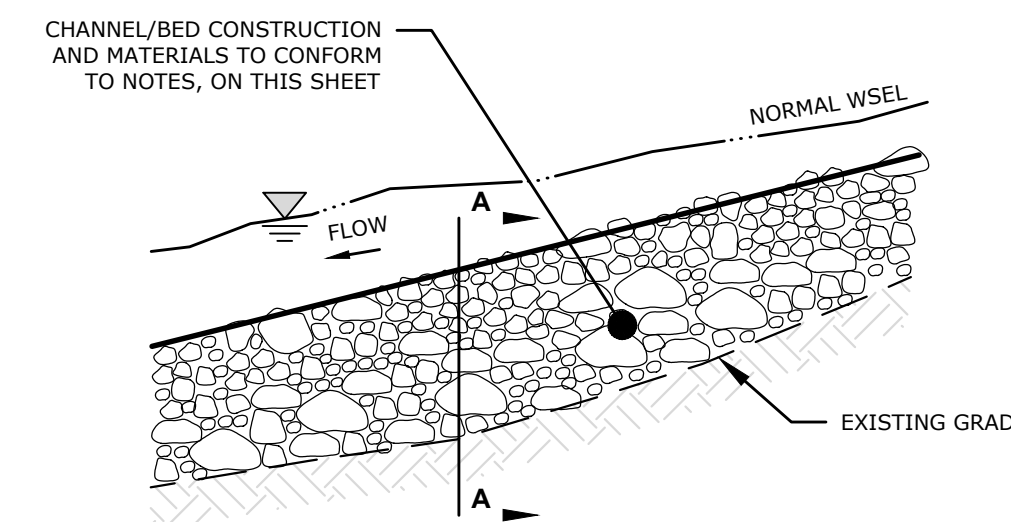
1. **REMOVAL OF EXISTING BED ARMORING:**
 - 1.1. REMOVE AND STOCKPILE ALL EXISTING SAND, GRAVEL, COBBLE, AND BOULDER TO MINIMUM 12" DEPTH WITHIN EXISTING BANKFULL CHANNEL. REUSE MATERIAL ON TOP 12" OF FINAL CHANNEL BED. ALL BOULDERS OVER 3" IN SIZE LOCATED PARTIALLY OR FULLY WITHIN THE 12" SHALL BE REMOVED FOR REUSE FOR FINAL BED ARMORING.
2. **CHANNEL FORMATION:**
 - 2.1. PERFORM ROUGH GRADING OF CHANNEL. DO NOT REUSE FINE-GRAINED SILTS, CLAYS, OR ORGANIC MATERIAL WITHIN THE BANKFULL CHANNEL.
 - 2.2. TO ESTABLISH NEW CHANNEL IN FILL SITUATION: FILL TO WITHIN 12" OF FINAL GRADE WITH NATURAL SAND & GRAVEL/COBBLE/BOULDER RE-USED FROM ON-SITE EXCAVATION. DO NOT USE SILTS, CLAYS, OR ORGANICS. DO NOT USE STOCKPILED BED ARMORING AS GENERAL FILL TO RAISE BED. PLACE FINAL 12" OF MATERIAL FROM STOCKPILED MATERIAL, AND SUPPLEMENT WITH BED ARMORING AS DESCRIBED BELOW.
 - 2.3. TO ESTABLISH NEW CHANNEL IN CUT SITUATION, IN SUITABLE SOIL: PLACE FINAL 12" OF MATERIAL FROM STOCKPILED MATERIAL, AND SUPPLEMENT WITH BED ARMORING AS DESCRIBED BELOW.
 - 2.4. TO ESTABLISH NEW CHANNEL IN CUT SITUATION, IN UNSUITABLE SOIL: REMOVE MATERIAL TO 24" BELOW FINAL GRADE. PLACE 12" OF SUITABLE SAND/GRAVEL FILL. PLACE FINAL 12" OF MATERIAL FROM STOCKPILED MATERIAL, AND SUPPLEMENT WITH BED ARMORING AS DESCRIBED BELOW.
3. **CHANNEL:**
 - 3.1. SHALL BE A V-SHAPED CHANNEL WITH 10% SLOPE FROM DEEPEST POINT TO BANKS (REFER TO CS-1 FOR CHANNEL DIMENSIONS).
4. **BANK:**
 - 4.1. BANK SLOPE VARIES, REFER TO CS-1 FOR SLOPE OF BANKS.
5. **BED MATERIAL GRADATION:**
 - 5.1. IF INADEQUATE MATERIAL EXISTS ON SITE TO FORM THE BED OF THE CHANNEL, MATERIAL SHALL BE IMPORTED TO FORM THE NEW CHANNEL. IMPORTED MATERIAL SHALL BE WEATHERED AND ROUNDED AND SHALL CONFORM TO THE FOLLOWING GRADATION:

SIEVE SIZE	% PASSING
6"	100
4"	95-80
2"	85-70
1/4"	60-45
#4	45-20
#10	0-15

- 5.2. FINE GRAINED SILTS, CLAYS, ORGANIC MATERIAL, OR "MUCK" SHALL NOT BE USED TO CONSTRUCT THE PROPOSED CHANNEL. UNSUITABLE MATERIAL EXCAVATED FOR CHANNEL FEATURES SHALL BE DISPOSED OF OFF-SITE.



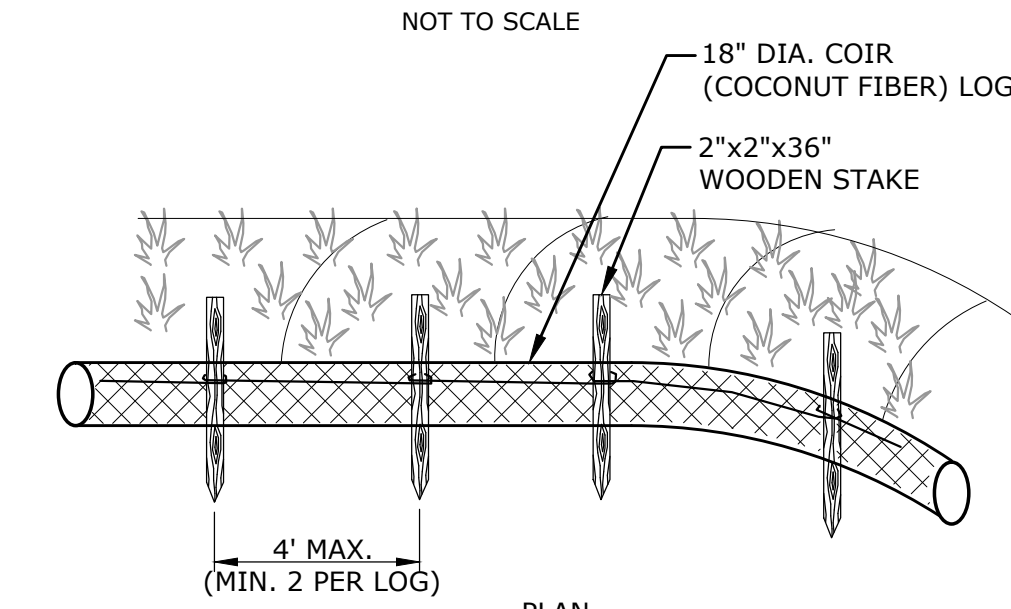
TYPICAL CROSS SECTION



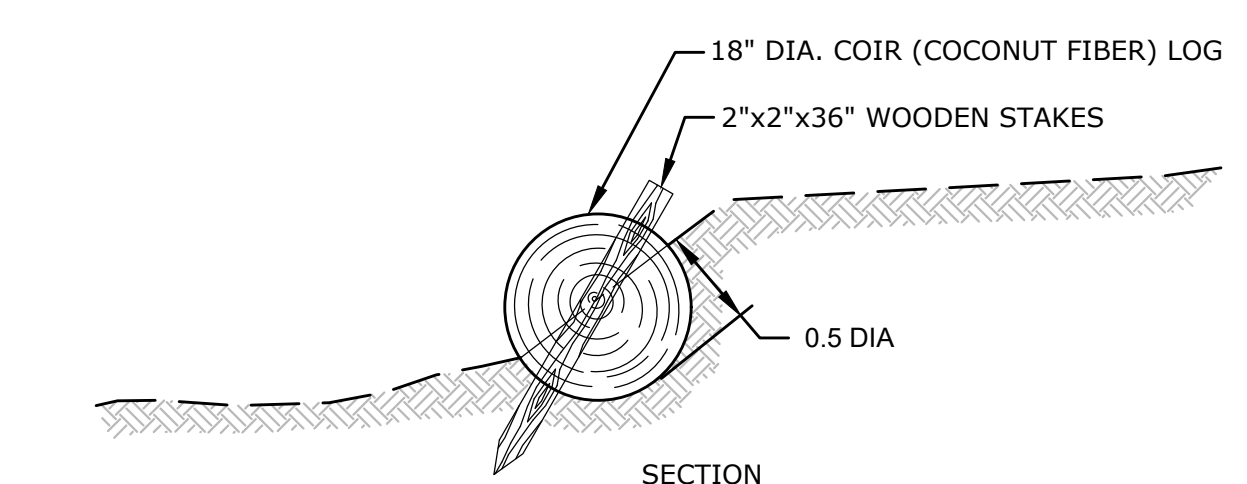
TYPICAL PROFILE VIEW

RESTORED CHANNEL BED

NOT TO SCALE



PLAN



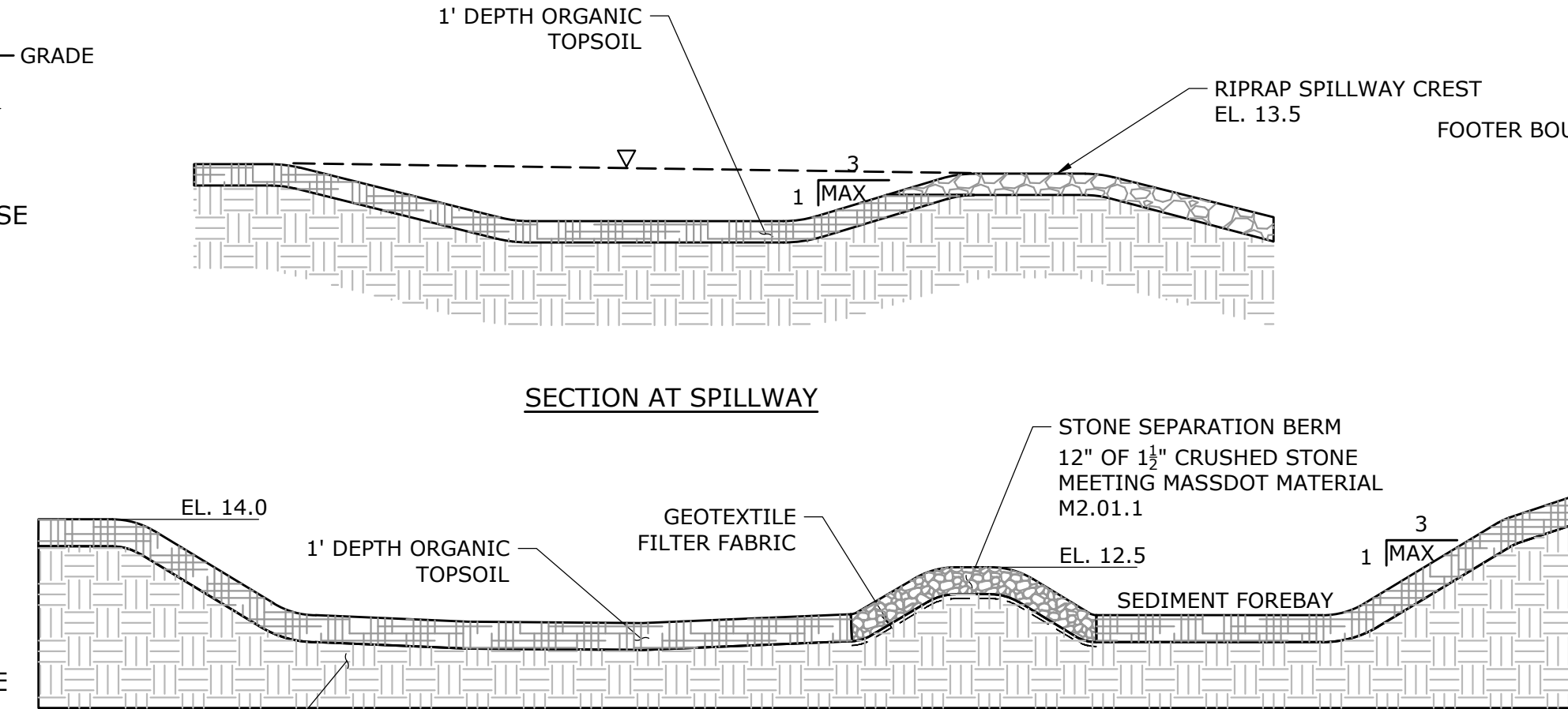
SECTION

INSTALLATION NOTES:

1. EXCAVATE A TRENCH TO A DEPTH AND WIDTH OF 1/2 OF THE DIAMETER OF THE COIR LOG ALONG THE BANK/TOE OF SLOPE.
2. PLACE LOG IN THE TRENCH SO THAT THE BOTTOM AND BACK ARE INTACT WITH THE BANK.
3. DRIVE STAKES DOWN ALONG THE CENTER OF THE LOG AT 20-30 DEGREE ANGLE FACING UPHILL.
4. LEAVE 3" OF EACH STAKE EXPOSED ABOVE LOG.
5. WEAVE COIR OR NYLON TWINE BETWEEN AND AROUND THE STAKES.
6. COIR LOGS TO CONSIST OF BRISTLE COIR TWINE OUTER NET AND MATTRESS COIR INNER CORE.
7. COIR LOGS SHALL BE "BID-ROLL", AS MANUFACTURED BY ROLANKA, TELEPHONE: 1-888-703-9889, OR APPROVED EQUAL AS APPROVED BY THE ENGINEER.

COIR LOG

N.T.S.

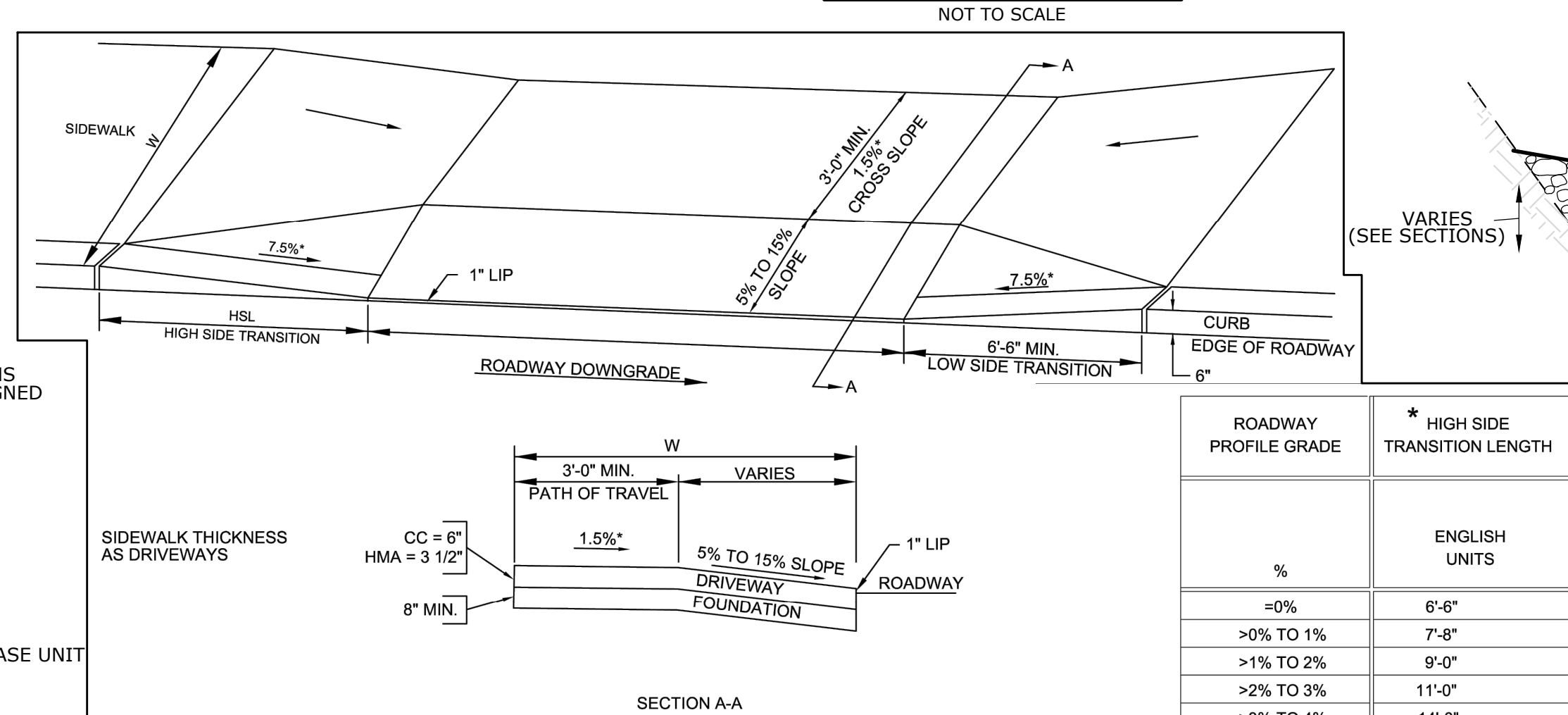


ELEVATION

- NOTES:**
1. SEE GRADING FOR ELEVATIONS
 2. INITIALLY SHAPE BASIN FOR CONSTRUCTION WITH NO TOPSOIL ON THE BOTTOM.
 3. ONCE ALL UPLAND AREAS HAVE STABILIZED, REMOVE ACCUMULATED SEDIMENT, EXCAVATE AND PLACE TOPSOIL AND SEED TO THE GRADES AS SHOWN ON THE PLANS.
 4. REFER TO RESTORATION AND PLANTING PLAN AND SPECIFICATION FOR SEED MIX SPECIES AND APPLICATION RATES. NEW ENGLAND WETMIX TO BE PLANTED BELOW ELEV. 12.0 FT NAVD.

STORMWATER BASIN

NOT TO SCALE



SECTION A-A

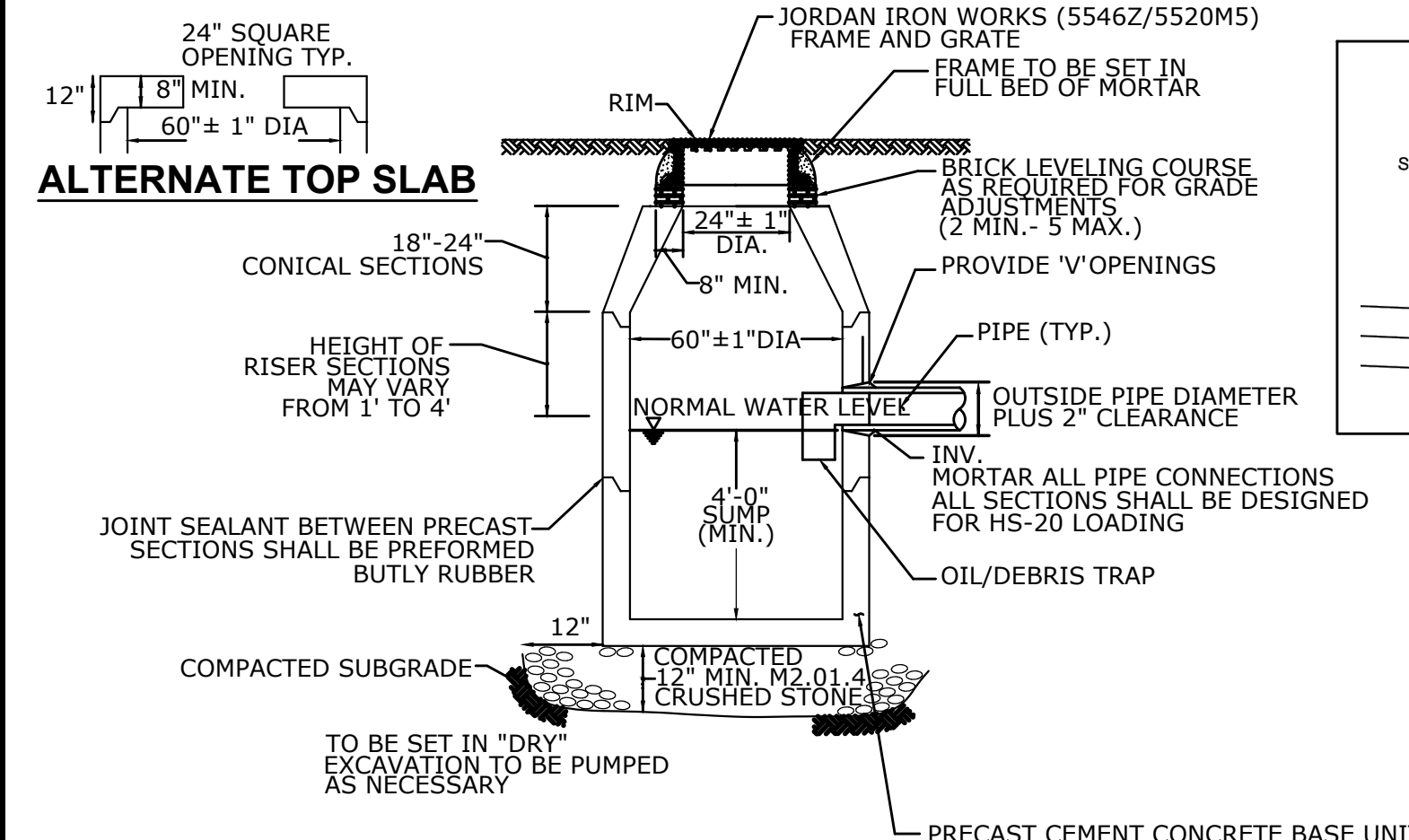
LEGEND

- HSL = HIGH SIDE TRANSITION LENGTH.
W = SIDEWALK WIDTH
* = TOLERANCE FOR CONSTRUCTION ±0.5%
CC = CEMENT CONCRETE
HMA = HOT MIX ASPHALT

ROADWAY PROFILE GRADE	* HIGH SIDE TRANSITION LENGTH
%	ENGLISH UNITS
=0%	6'-6"
>0% TO 1%	7'-8"
>1% TO 2%	9'-0"
>2% TO 3%	11'-0"
>3% TO 4%	14'-0"
>4% TO 5%	15'-0" Max

NOTE: * BASED ON A DESIGN SLOPE OF 7.5% AND A REVEAL OF 6".

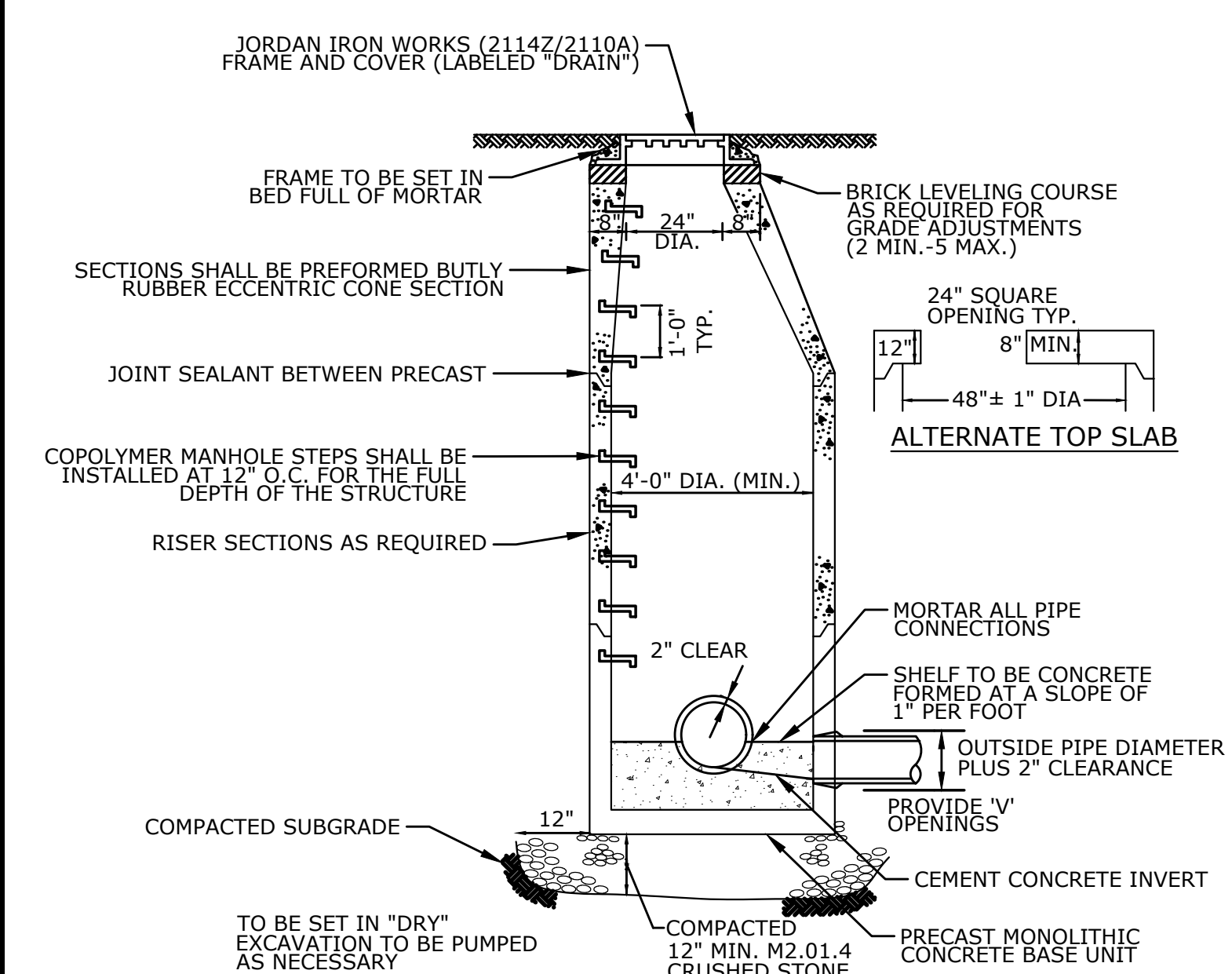
ALTERNATE ECCENTRIC CONE SECTION



ALTERNATE TOP SLAB

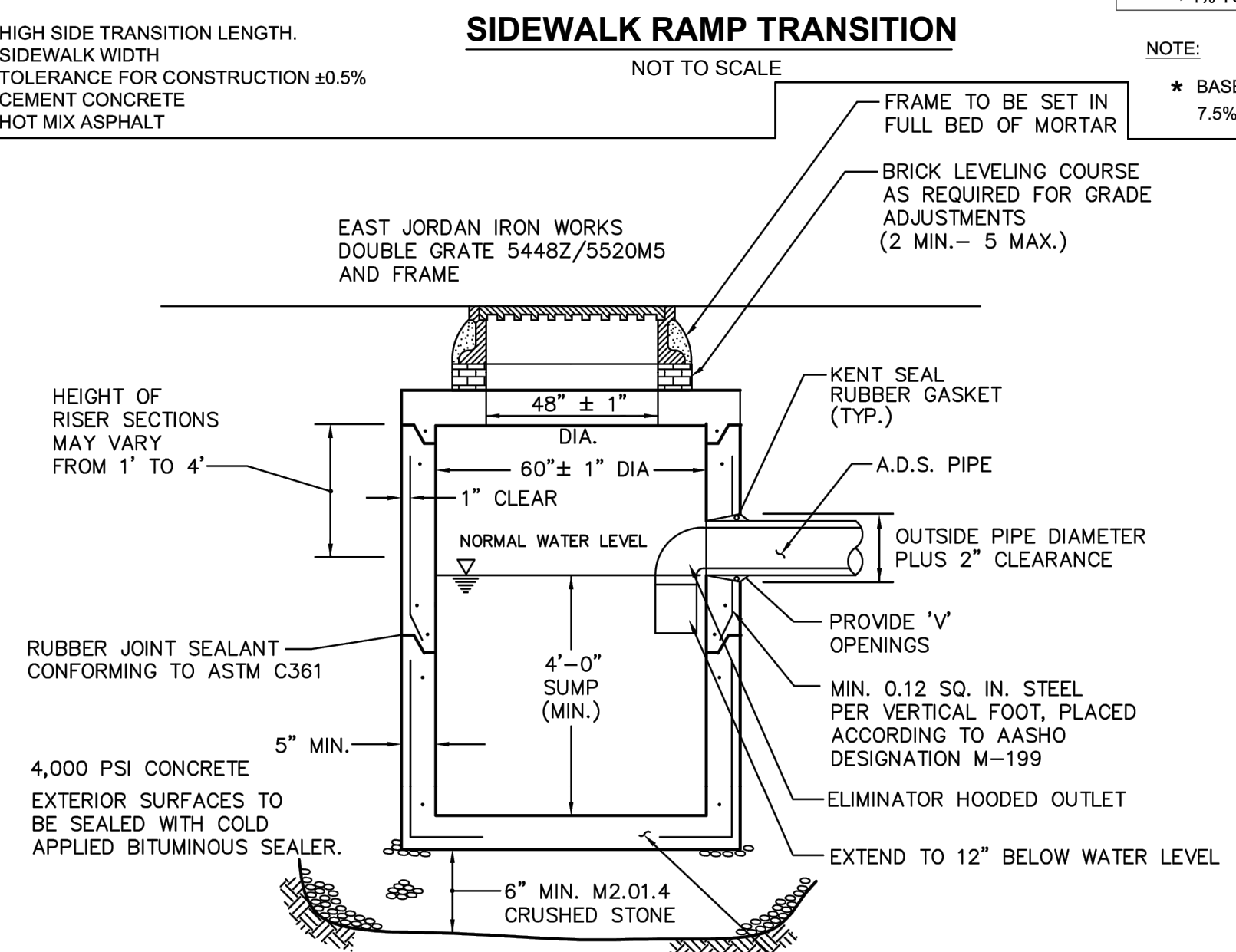
PRECAST CONCRETE CATCH BASIN WITH 4' SUMP

NOT TO SCALE



PRECAST CONCRETE DRAIN MANHOLE

NOT TO SCALE



DOUBLE GRATE PRE-CAST CONCRETE CATCH BASIN

NOT TO SCALE



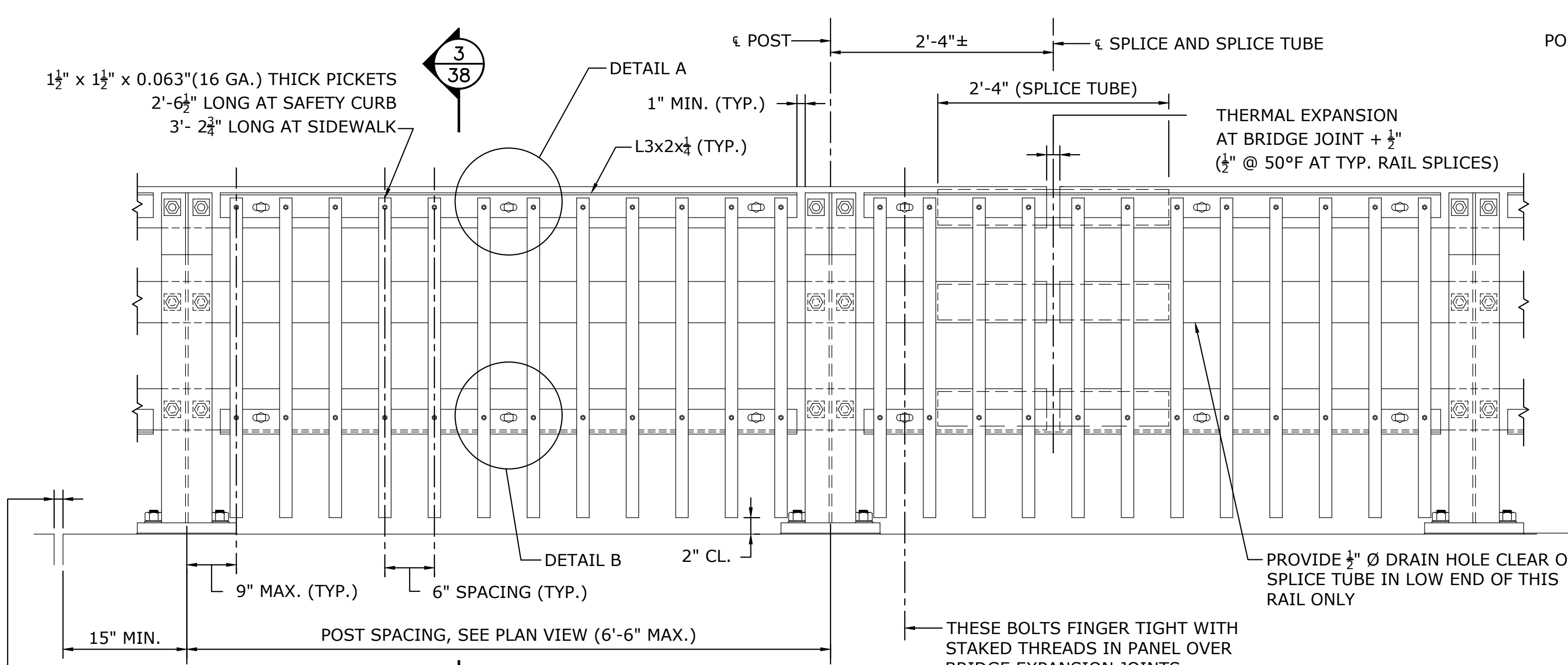
DESCRIPTION	DATE	BY

NOT FOR CONSTRUCTION

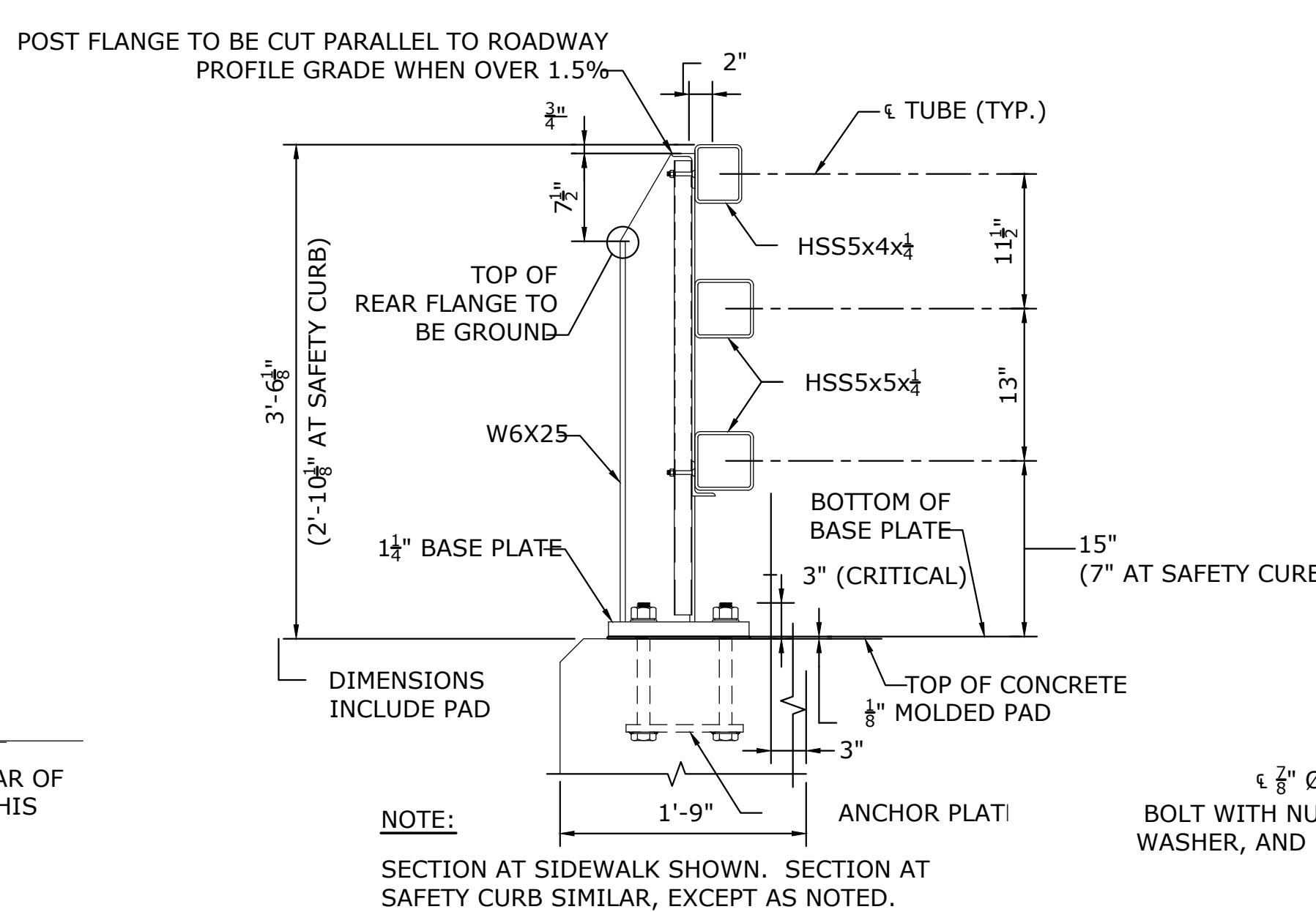
SITE DETAILS
REPLACEMENT OF BARTLETT ROAD CULVERT
OVER UNNAMED BROOK
BARTLETT ROAD
PLYMOUTH, MASSACHUSETTS

NP	NP	KP
DESIGNED	DRAWN	CHECKED
SCALE: AS NOTED		
DATE: SEPTEMBER 21, 2023		
PROJECT NO: 11982.00016		
SHEET NO: 19 OF 29		
STR-09		

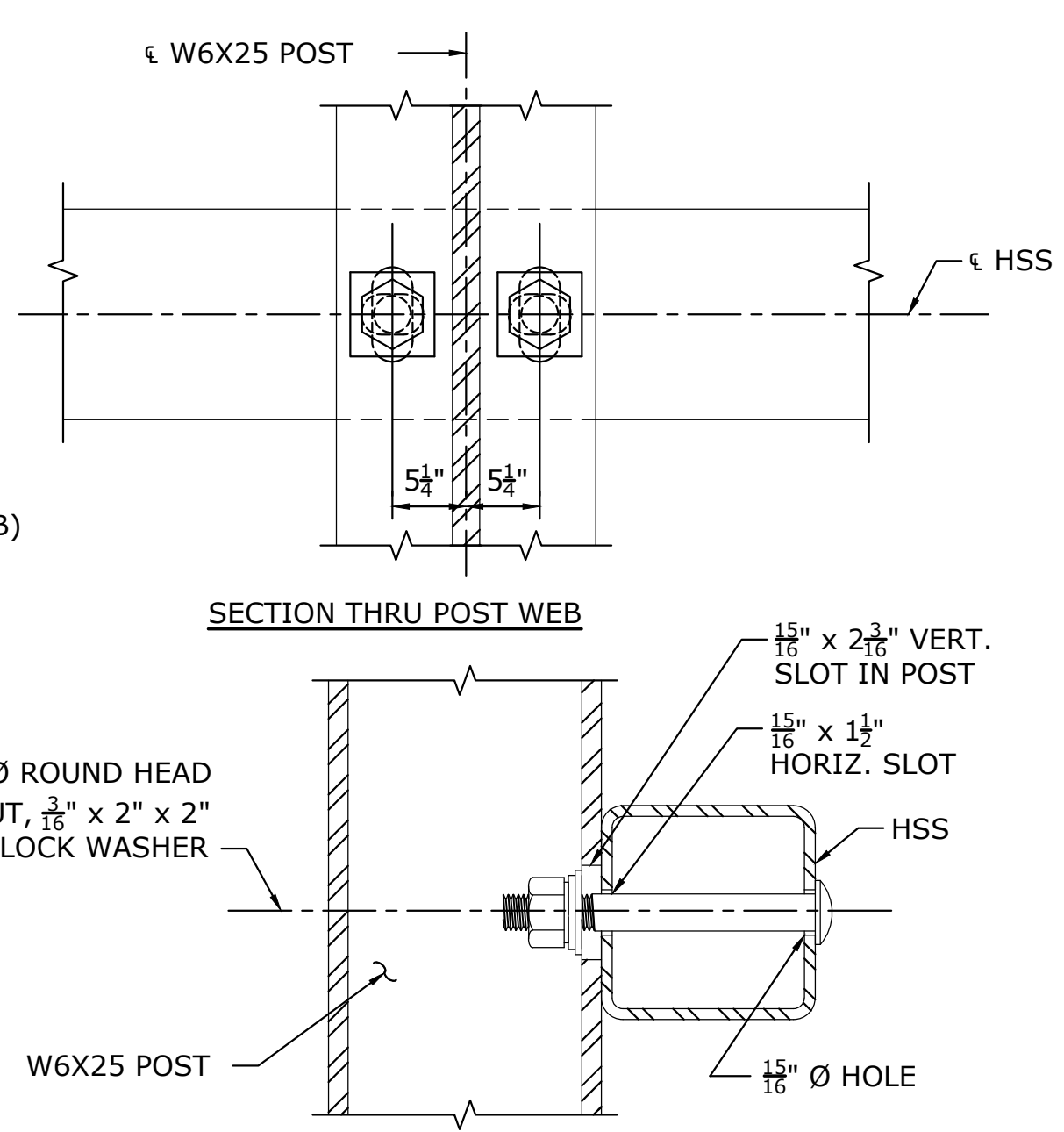
11/2022 - 10/2023: REVISED TO ADD 1/2" TYP. PICKETS AT BRIDGE JOINTS
 08/2022: REVISED TO ADD 1/2" TYP. PICKETS AT BRIDGE JOINTS
 08/2022: REVISED TO ADD 1/2" TYP. PICKETS AT BRIDGE JOINTS



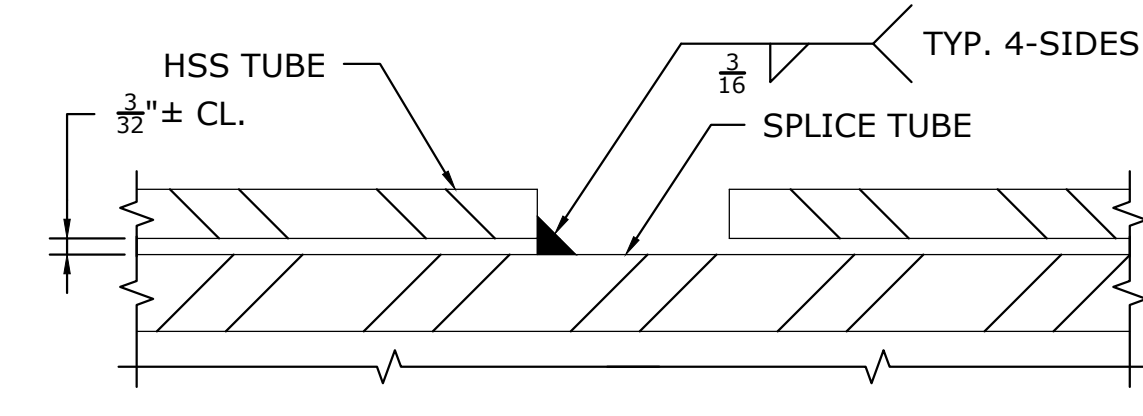
BRIDGE RAILING ELEVATION
SCALE: 1" = 1'-0"



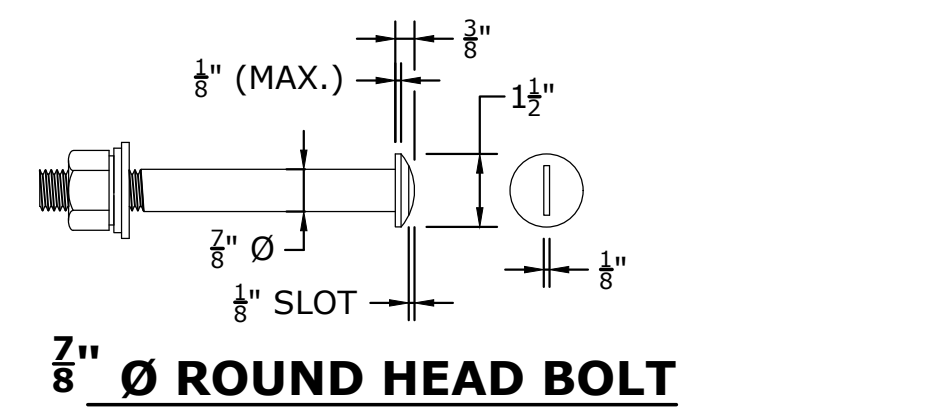
SECTION 3
SCALE: 1" = 1'-0"



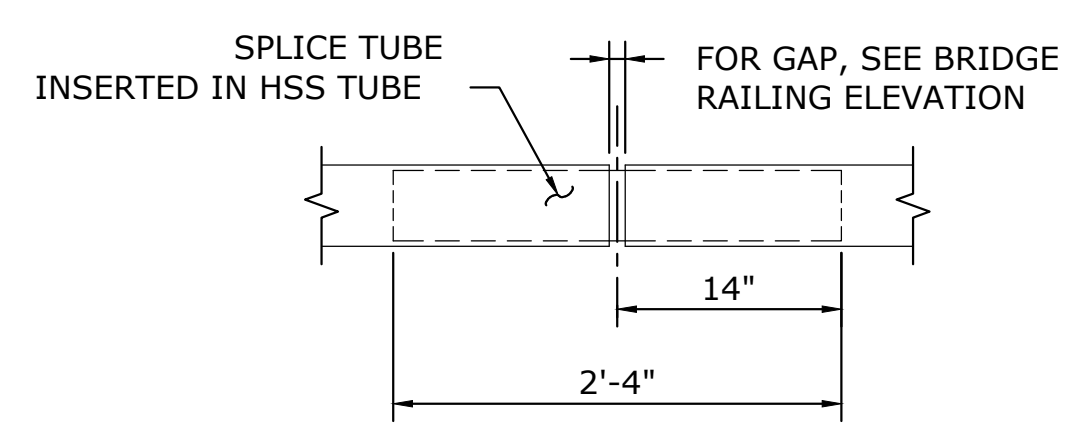
TYPICAL RAIL TO POST CONNECTIONS
SCALE: 1" = 1'-0"



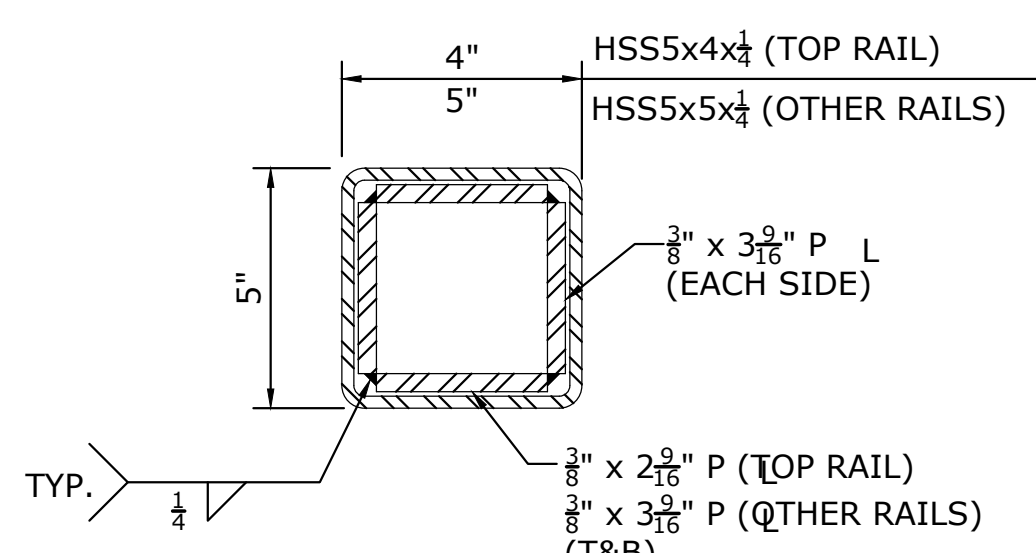
SPlice DETAIL FULL SIZE



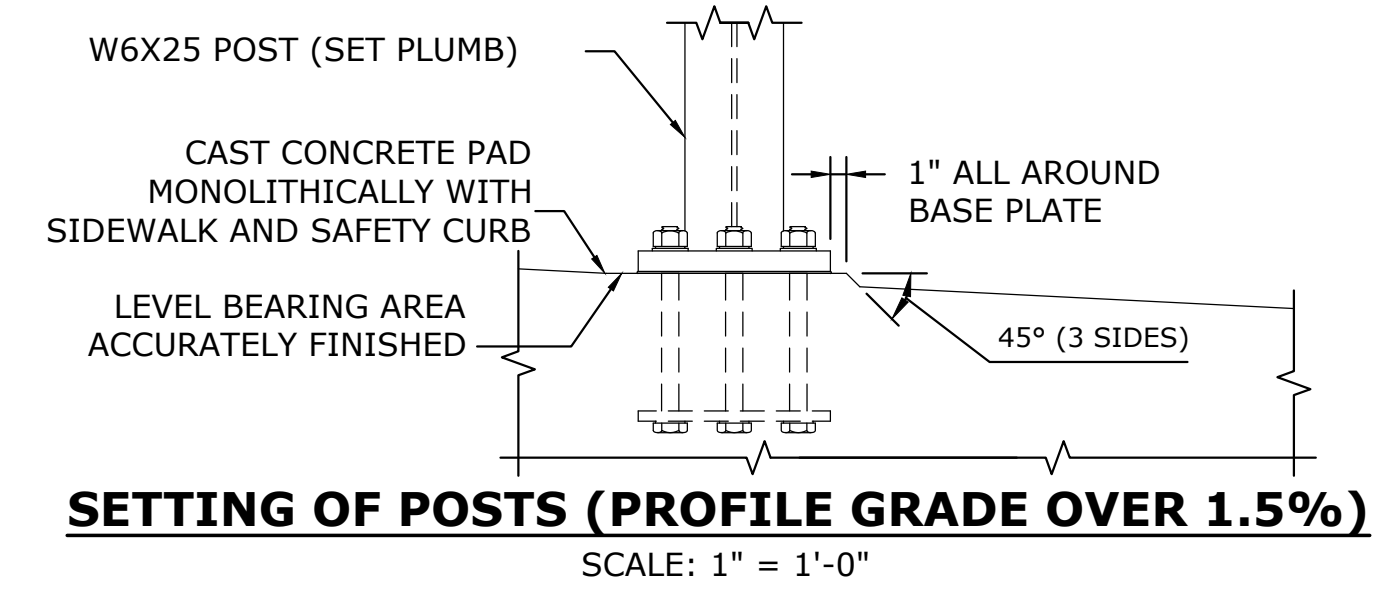
7/8\"/>



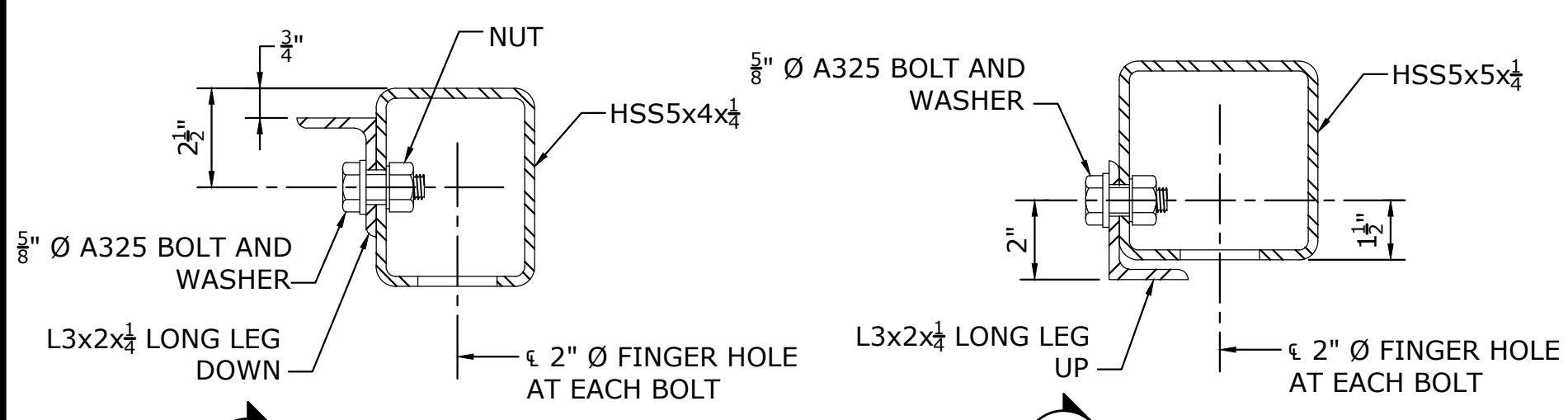
TYPICAL SPlice
SCALE: 1" = 1'-0"



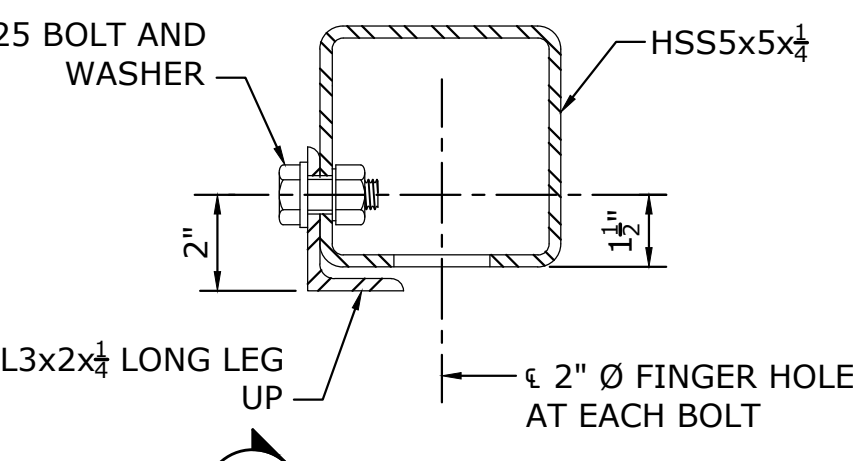
SPlice TUBE DETAILS
SCALE: 3" = 1'-0"



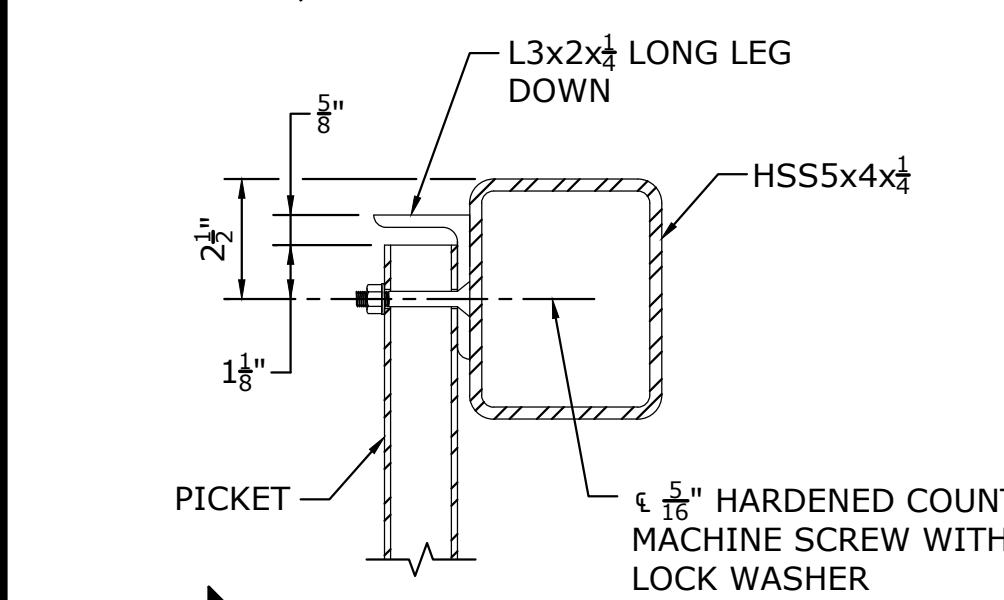
SETTING OF POSTS (PROFILE GRADE OVER 1.5%)
SCALE: 1" = 1'-0"



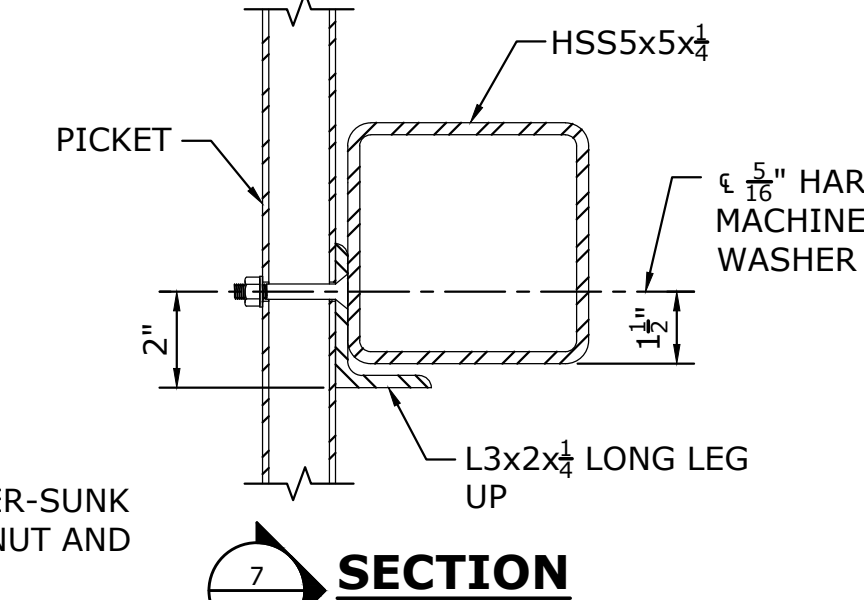
SECTION 4



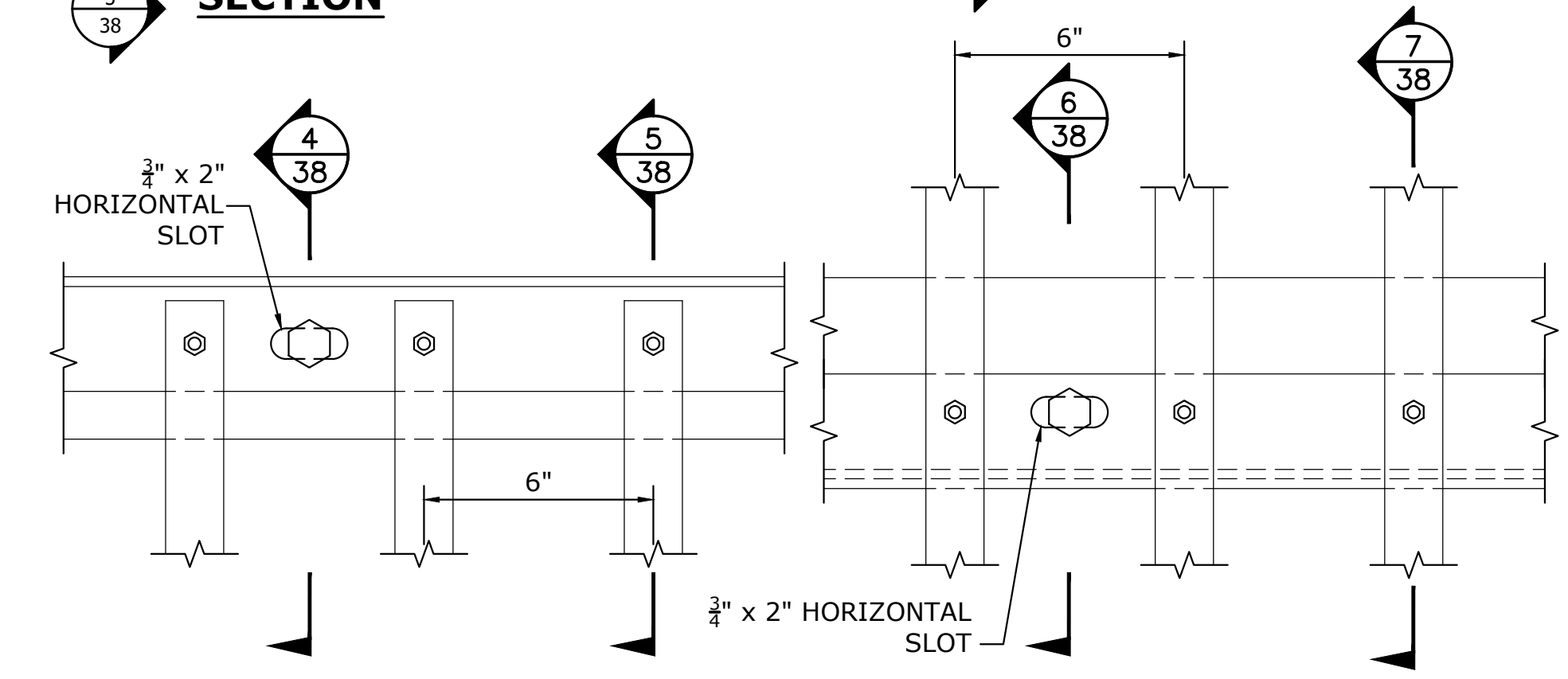
SECTION 6



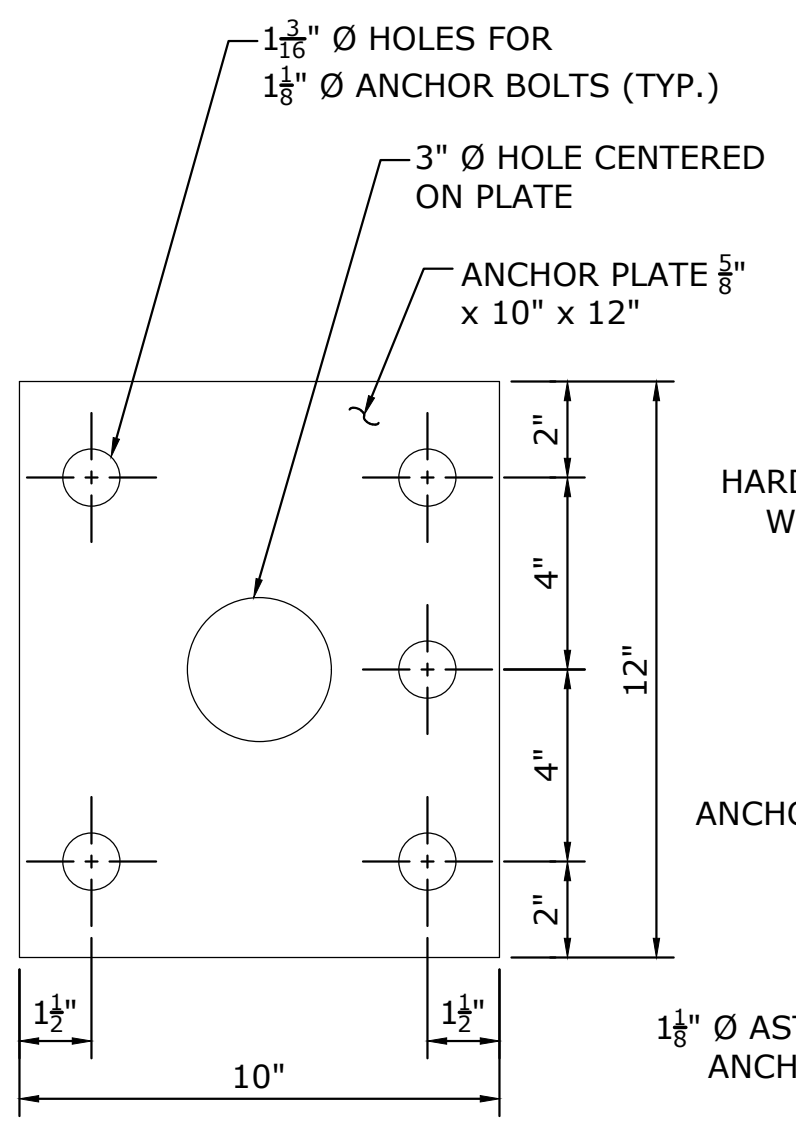
SECTION 5



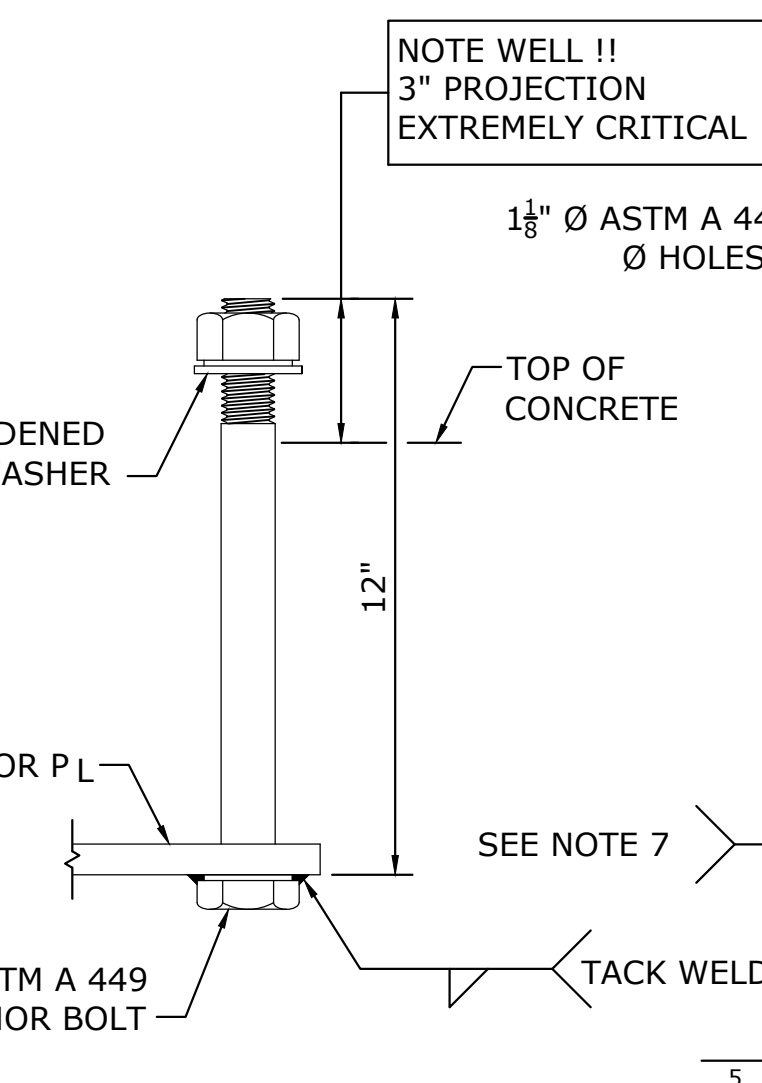
SECTION 7



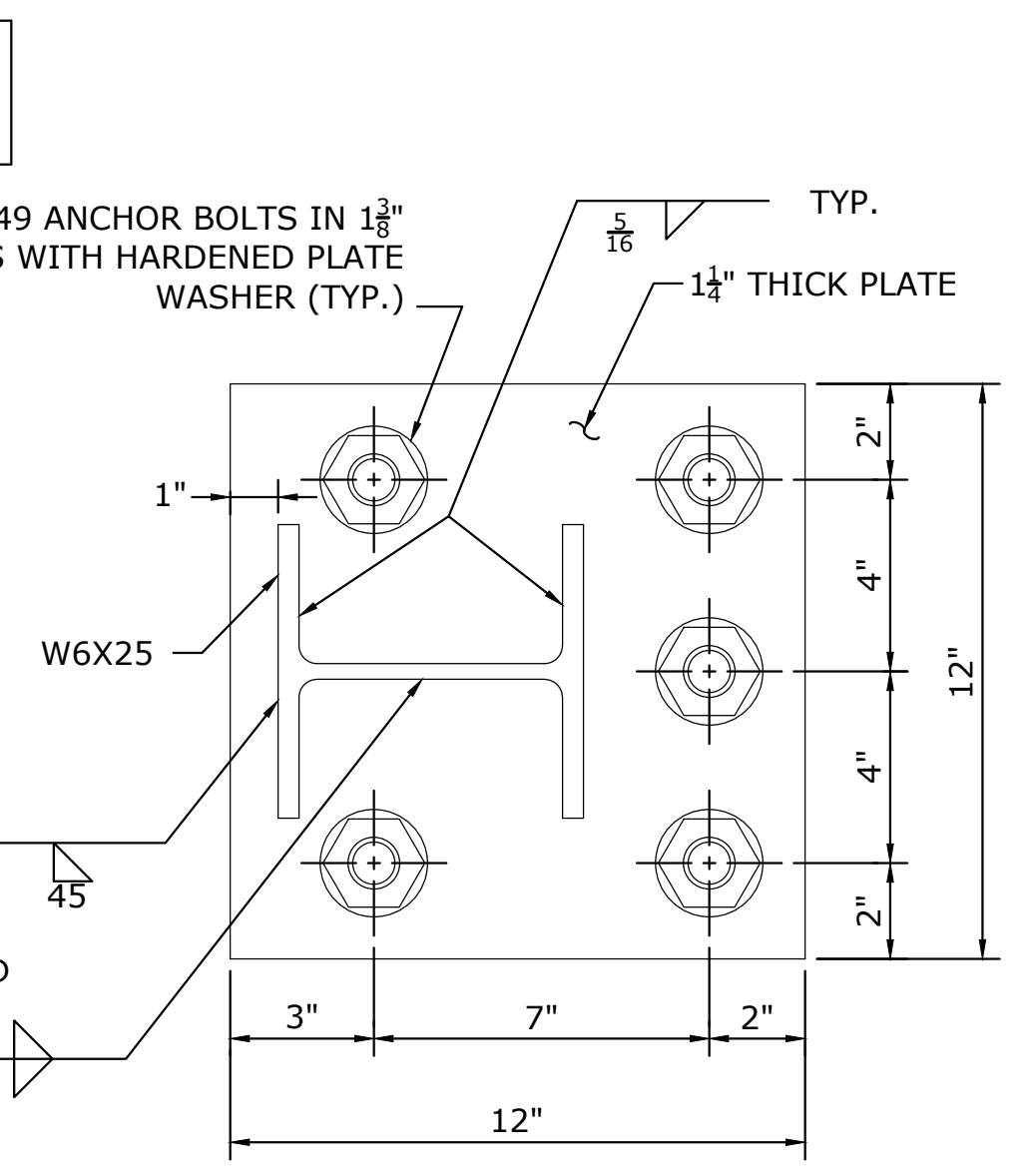
TYPICAL PICKET TO RAIL DETAILS
SCALE: 3" = 1'-0"



ANCHOR PLATE
SCALE: 3" = 1'-0"



ANCHOR BOLT
SCALE: 3" = 1'-0"



BASE PLATE
SCALE: 3" = 1'-0"

- RAILING NOTES:**
- RAIL POST AND BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 270 GRADE 50. HOLLOW RAILING STRUCTURAL TUBING (HSS) SHALL CONFORM TO THE REQUIREMENTS OF ASTM A 500 WITH A CERTIFIED Fy = 50 KSI MINIMUM. THE MINIMUM HORIZONTAL BENDING RADIUS OF THE HSS TUBING SHALL BE 8 FEET. PICKET CARRIER ANGLES, ANCHOR PLATES, AND SPlice TUBE PLATES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 270 GRADE 36. PICKET TUBING SHALL CONFORM TO ASTM A 513 WITH Fy = 36 KSI MIN. OR A 500 GRADE B.
 - ALL STEEL (EXCEPT THE 3/8" ANCHOR PLATE AND FASTENERS) SHALL BE GALVANIZED AND PAINTED BLACK. ANCHOR PLATE SHALL BE GALVANIZED ONLY. HEADS OF 7/8" Ø ROUND HEAD BOLTS SHALL BE PAINTED TO MATCH RAIL.
 - ANCHOR BOLTS SHALL BE SET WITH TEMPLATES. THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL 1/8 TURN AFTER STEEL IS IN PLACE.
 - RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF FOUR (4) POSTS WITHOUT SPlices WHERE POSSIBLE. RAILS SHALL BE SPliced IN THE PANELS OVER EXPANSION JOINT.
 - ENDS OF TUBE SECTIONS SHALL BE SAWED. GRIND SMOOTH EXPOSED EDGES. ALL CUT ENDS SHALL BE TRUE AND SMOOTH.
 - ALL POSTS TO BE PLUMB WHEN PROFILE GRADE EXCEEDS 1.5%. FOR PROFILE GRADES LESS THAN 1.5%, POSTS SHALL BE SET PERPENDICULAR TO GRADE.
 - POST FLANGE WELD DOES NOT REQUIRE MAGNETIC PARTICLE TESTING. WELD SHALL BE BACK-GOUGED ON BACK SIDE EXCEPT AT WEB. WELD IS THE SAME ON BOTH FLANGES.
 - 7/8" Ø ROUND HEAD BOLTS SHALL CONFORM TO THE CHEMICAL AND PHYSICAL REQUIREMENTS OF AASHTO M 164.
 - MOLDED PADS SHALL BE MANUFACTURED FROM NEW UNVULCANIZED ELASTOMER AND UNUSED SYNTHETIC FIBERS, WITH A WEIGHT PROPORTION OF FIBER CONTENT EQUAL TO APPROXIMATELY ONE-HALF OF THE TOTAL WEIGHT OF THE PAD.

S3-TL4 BRIDGE RAILING



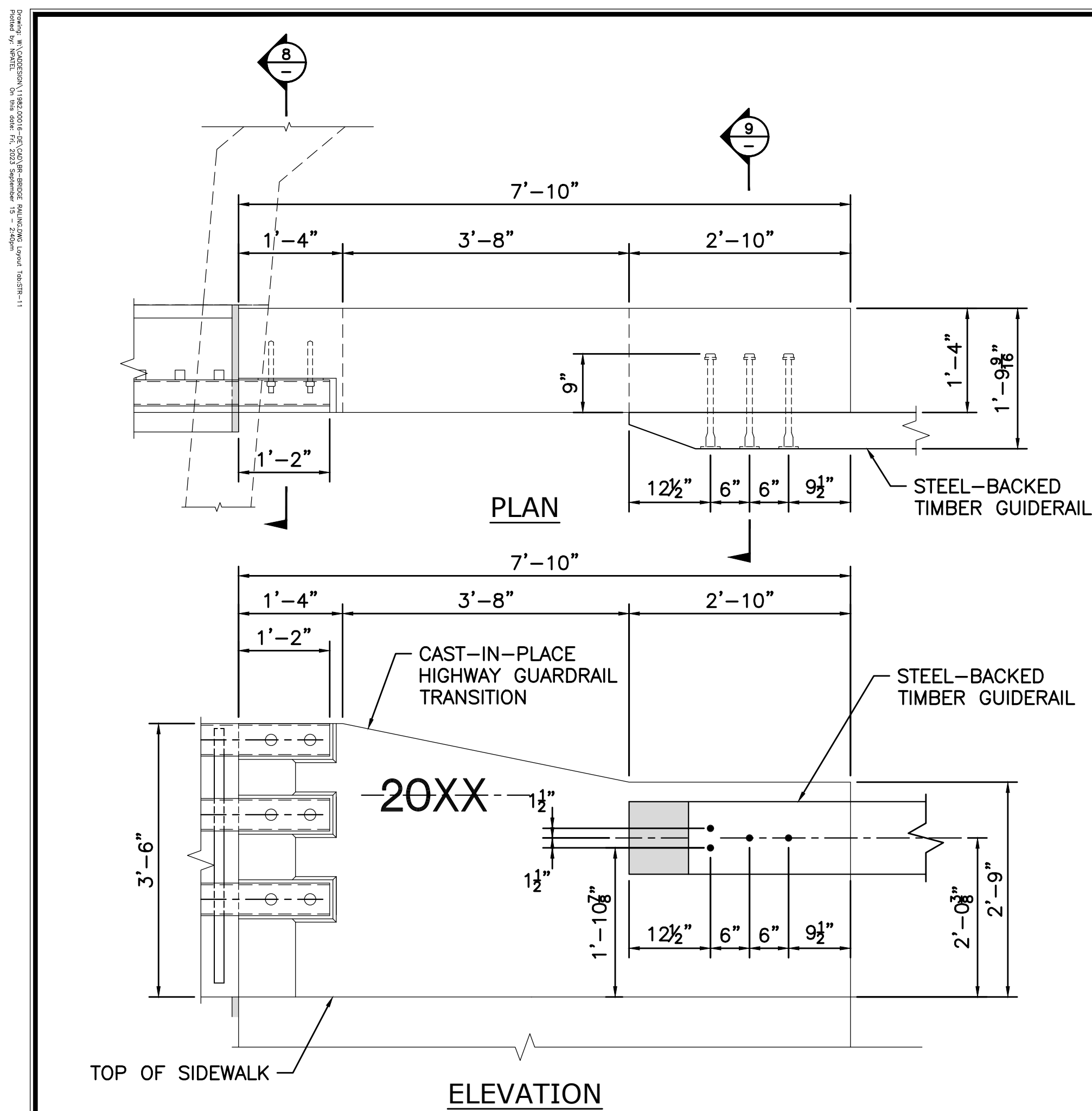
DATE	BY	DESCRIPTION

NOT FOR CONSTRUCTION

BRIDGE RAILING DETAILS
 REPLACEMENT OF BARTLETT ROAD CULVERT
 OVER UNNAMED BROOK
 BARTLETT ROAD
 PLYMOUTH, MASSACHUSETTS

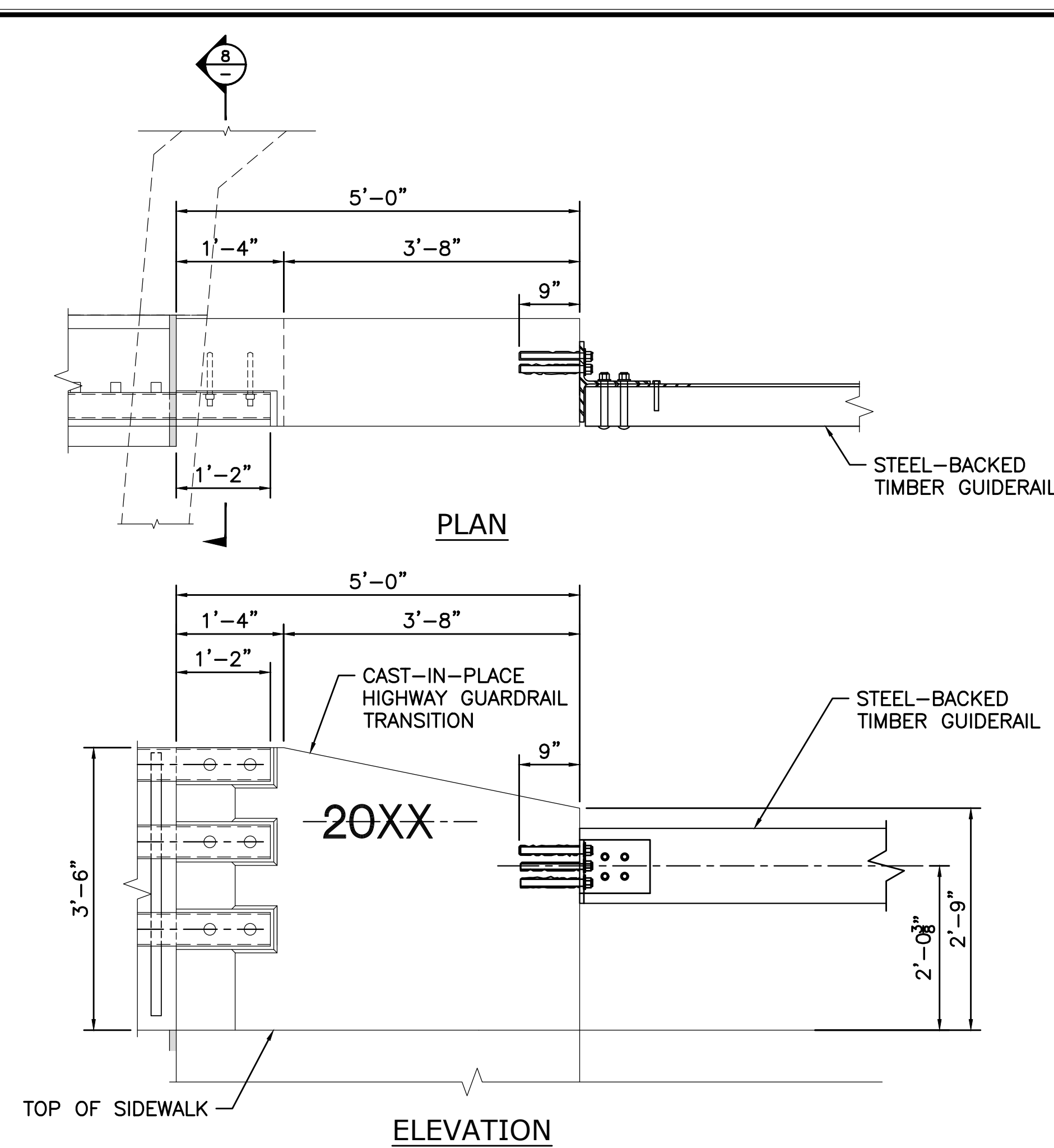
DESIGNED	NP	KP
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AS NOTED		
SEPTEMBER 21, 2023		
DATE		
11982.00016		
PROJECT NO.		
20 OF 29		
SHEET NO.		

STR-10



STEEL BACKED TIMBER GUIDE RAIL ATTACHMENT (LEADING END)

SCALE: 3/8" = 1'-0"

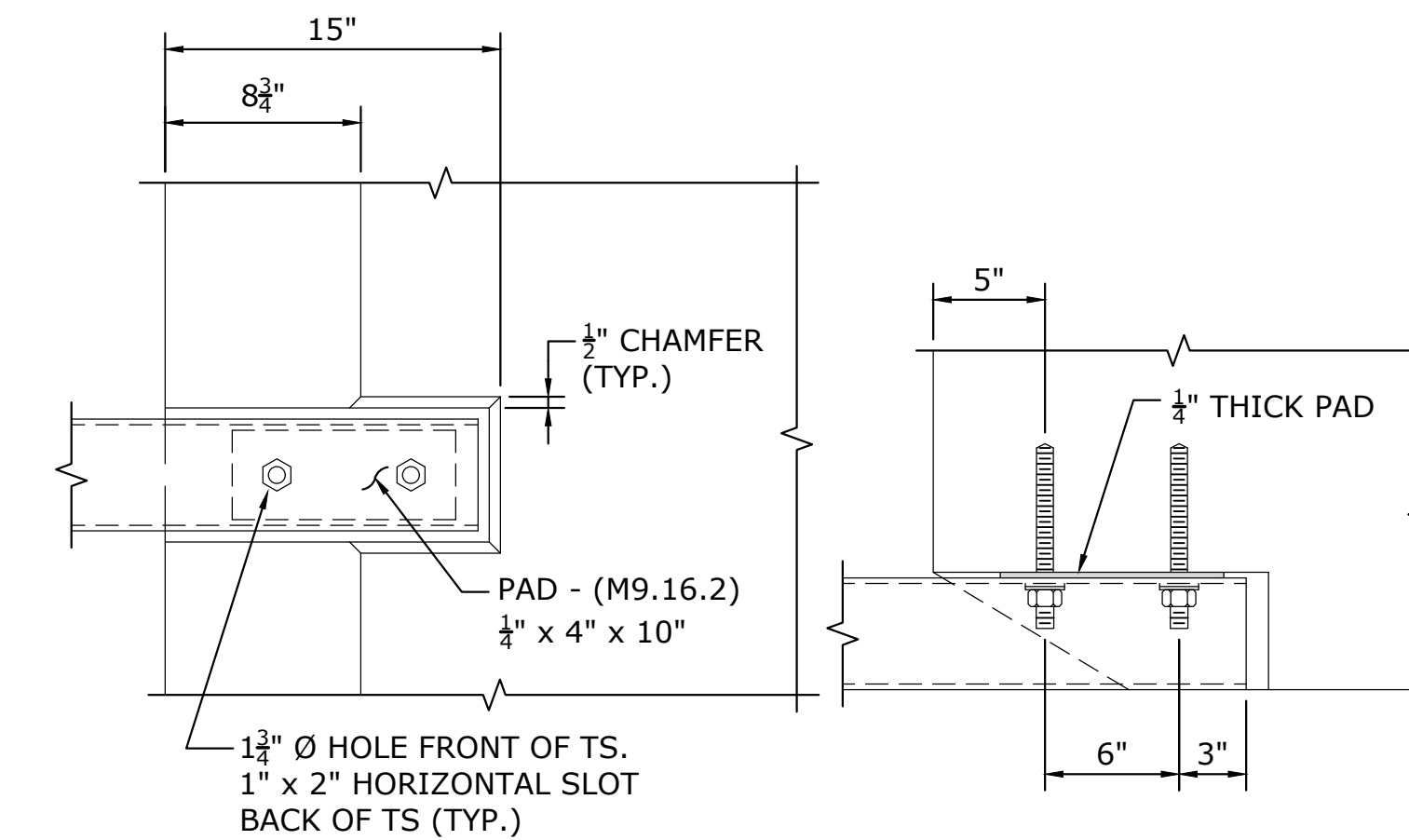


STEEL BACKED TIMBER GUIDE RAIL ATTACHMENT (TRAILING END)

SCALE: 3/4" = 1'-0"

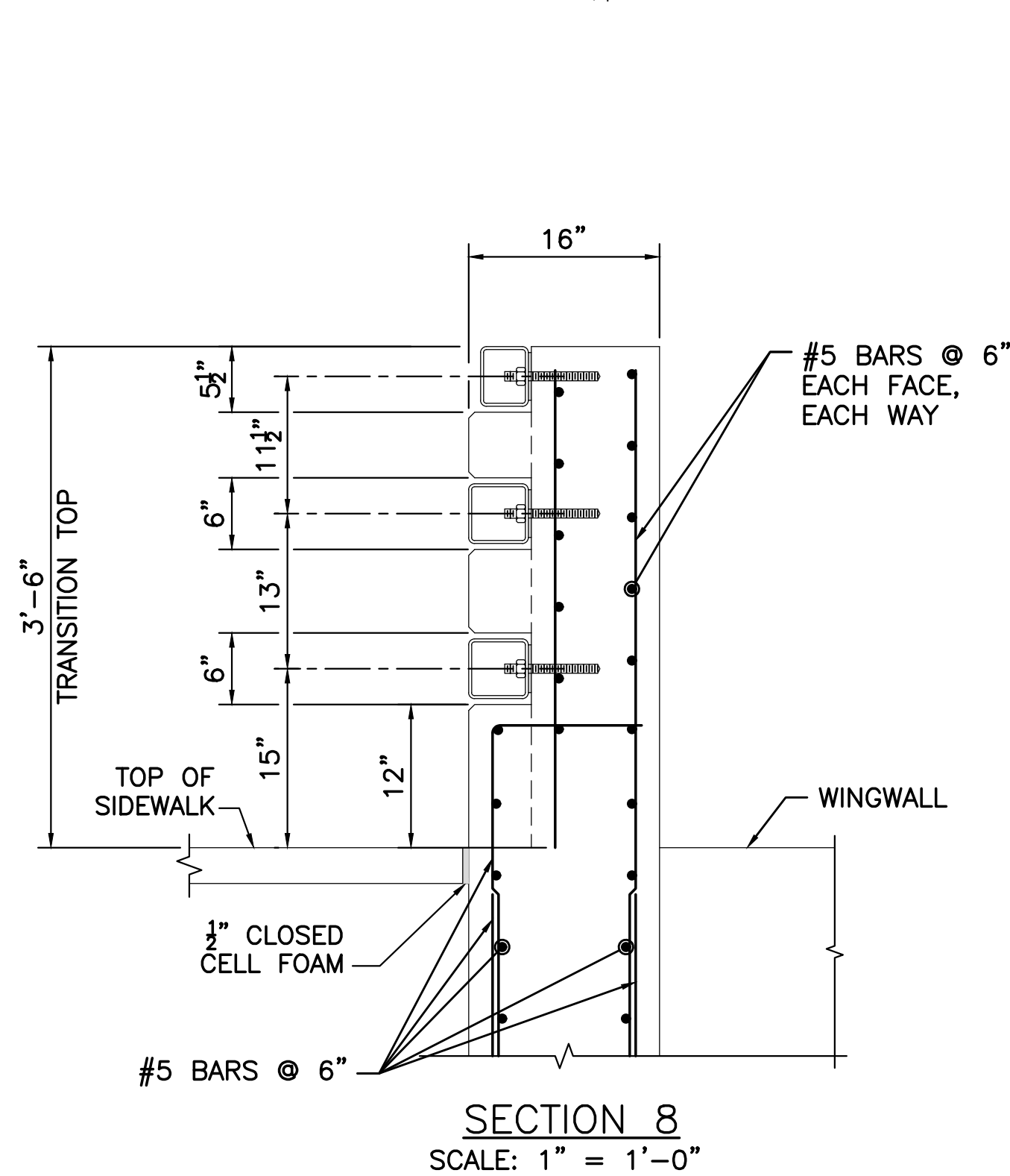
NOTES:

1. THREADED INSERTS SHALL BE PREQUALIFIED BY THE MANUFACTURER AS BEING CAPABLE OF DEVELOPING A NOMINAL SHEAR RESISTANCE OF 20 KIPS PER 3/8" Ø S.S. BOLT. S.S. BOLTS SHALL BE 3/8" Ø x 1 1/2" LONG FULLY THREADED AISI TYPE 304N STAINLESS STEEL. INSERTS FOR 3/8" S.S. BOLTS SHALL BE GALVANIZED AND CAST INTO THE TRANSITION.
2. FOR AN APPROACH GRADE UP TO 3%, THE TRANSITION MAY BE CAST SQUARE AND SET PLUMB WITH THE MINIMUM EMBEDMENT DEPTH SHOWN. THE TERMINAL CONNECTOR INSERT GROUP SHALL BE SQUARE TO THE POST.
3. USE LATEST CONTRACT COMPLETION YEAR IN EFFECT WHEN THE FIRST GUARDRAIL TRANSITION IS CAST. USE THIS YEAR FOR ALL GUARDRAIL TRANSITIONS.
4. ALL CONCRETE FOR THE CAST-IN-PLACE HIGHWAY GUARDRAIL TRANSITION SHALL BE 5000 PSI, 3/4", 685 HP CEMENT CONCRETE.

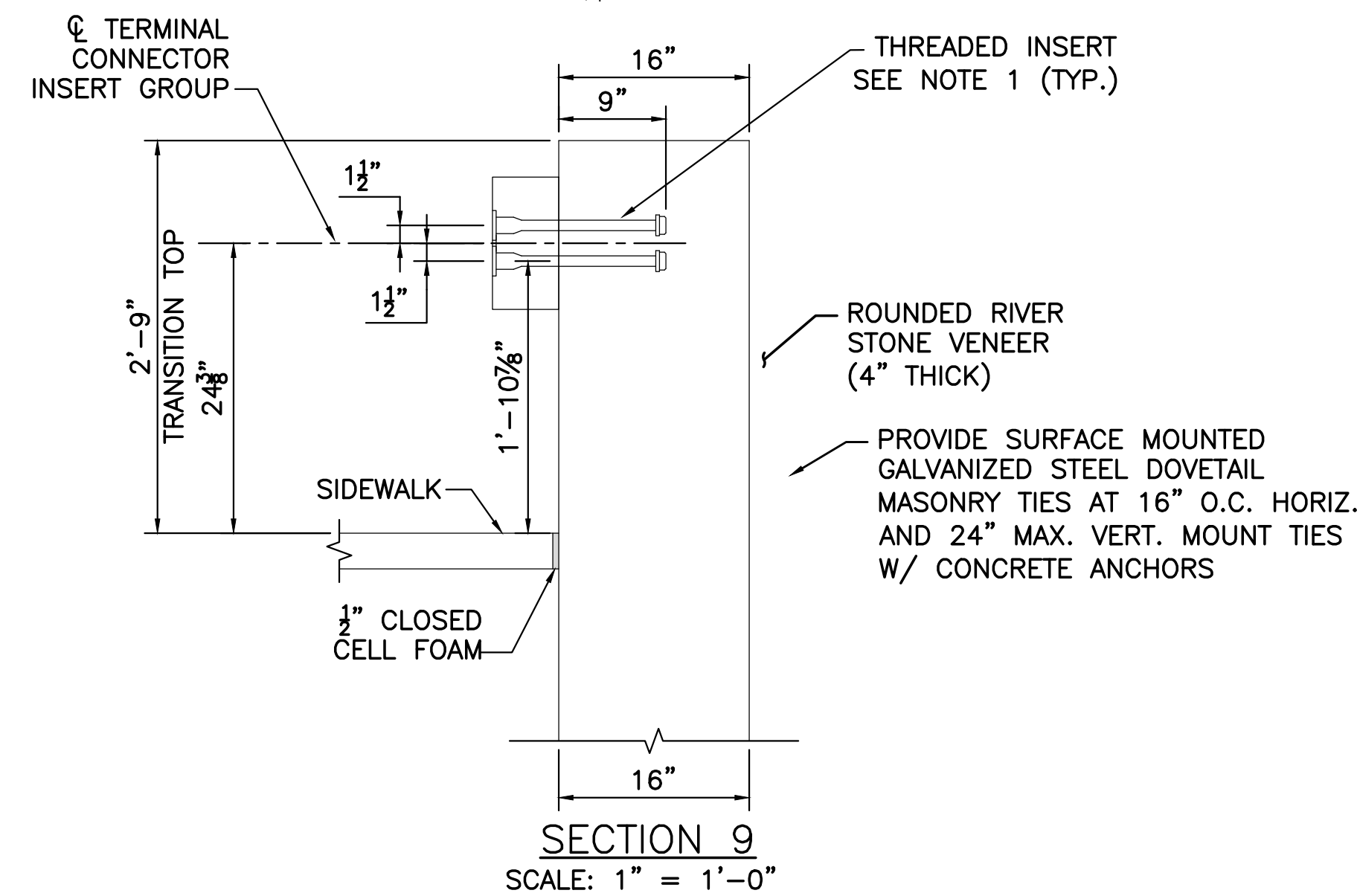


RAIL ATTACHMENT

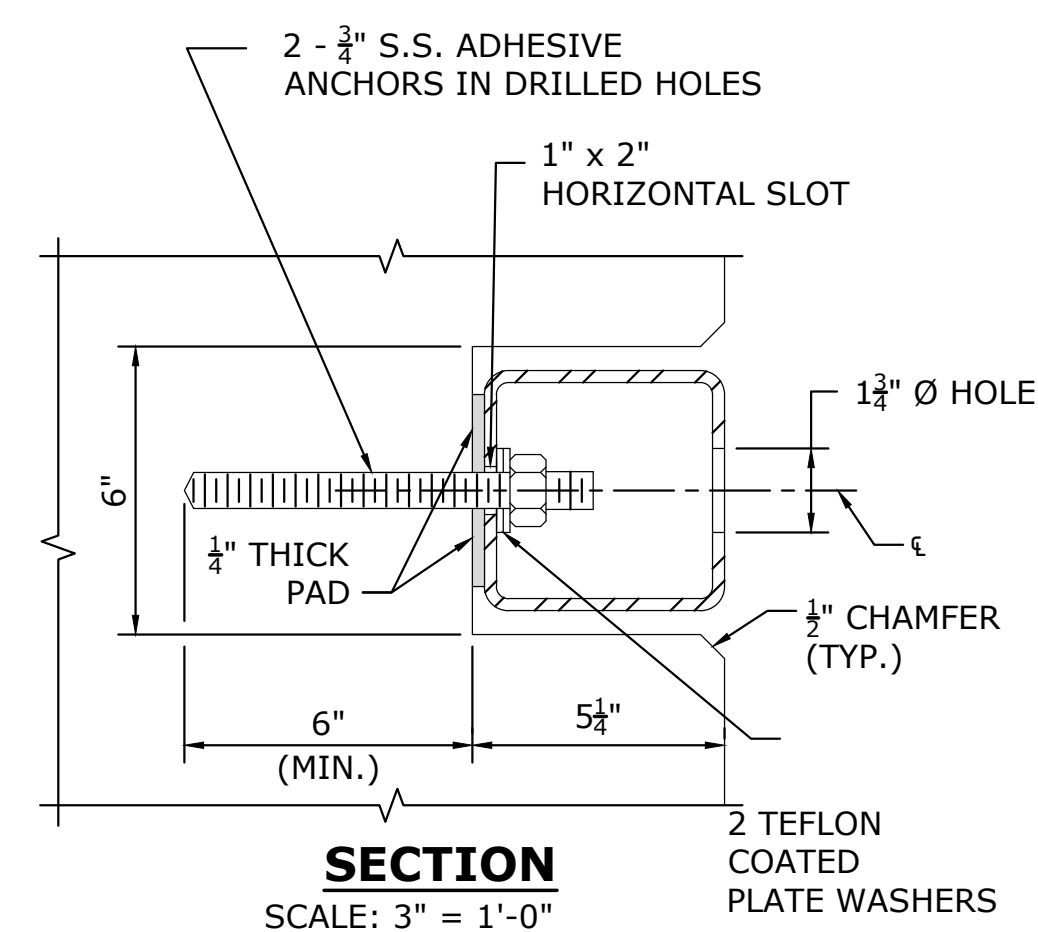
SCALE: 1 1/2" = 1'-0"



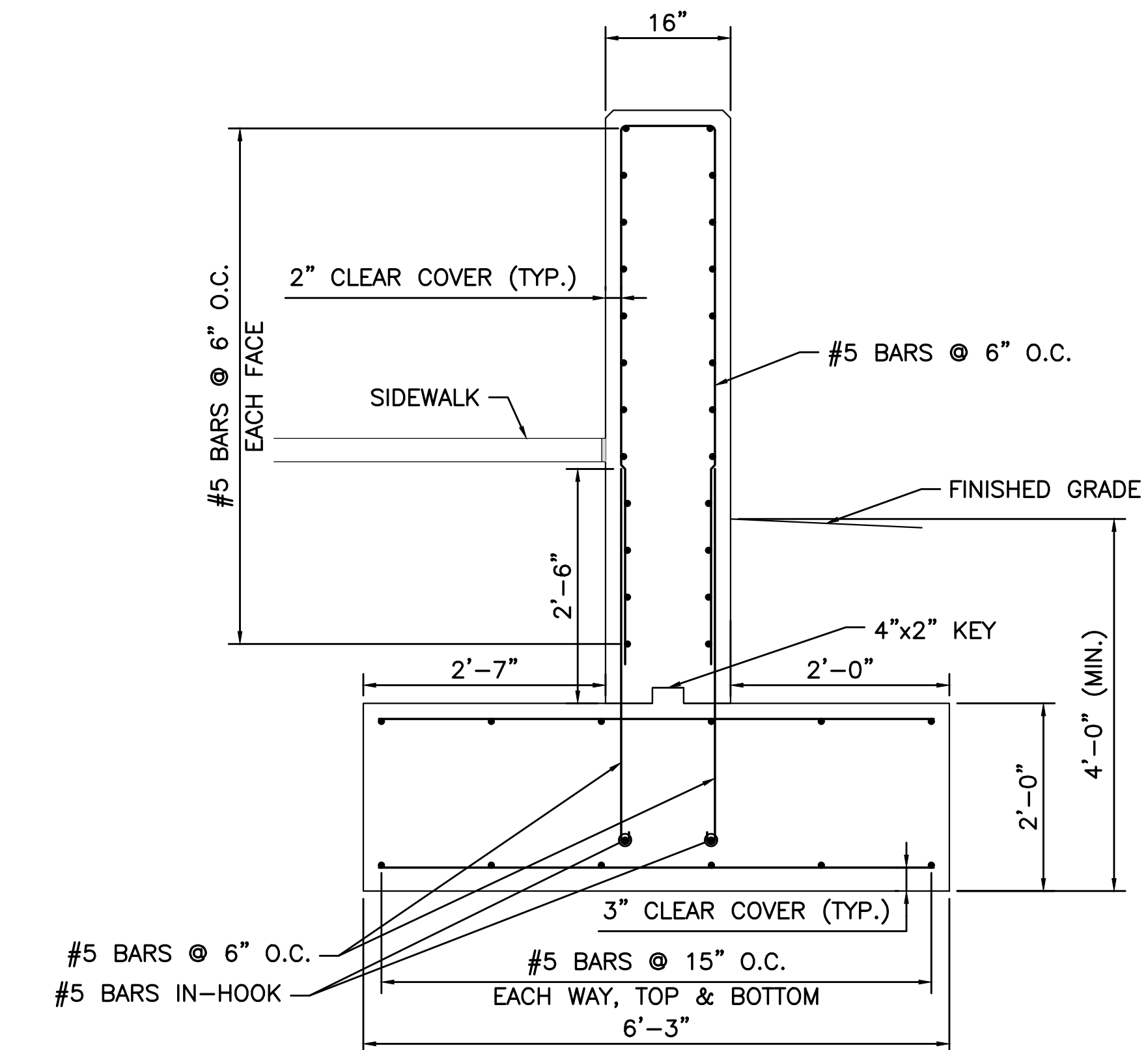
SECTION 8
SCALE: 1" = 1'-0"



SECTION 9
SCALE: 1" = 1'-0"



SECTION
SCALE: 3" = 1'-0"



TYPICAL CAST-IN-PLACE HIGHWAY GUARDRAIL TRANSITION SECTION

SCALE: 3/4" = 1'-0"

NOTE

CONCRETE FOR GUARDRAIL TRANSITION TO BE: 4,000 PSI, 1 1/2 IN., 565 CEMENT CONCRETE FOR GUARDRAIL TRANSITION STEM AND FOOTING



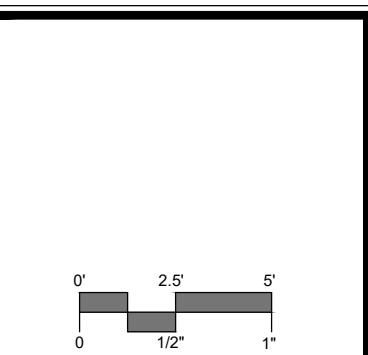
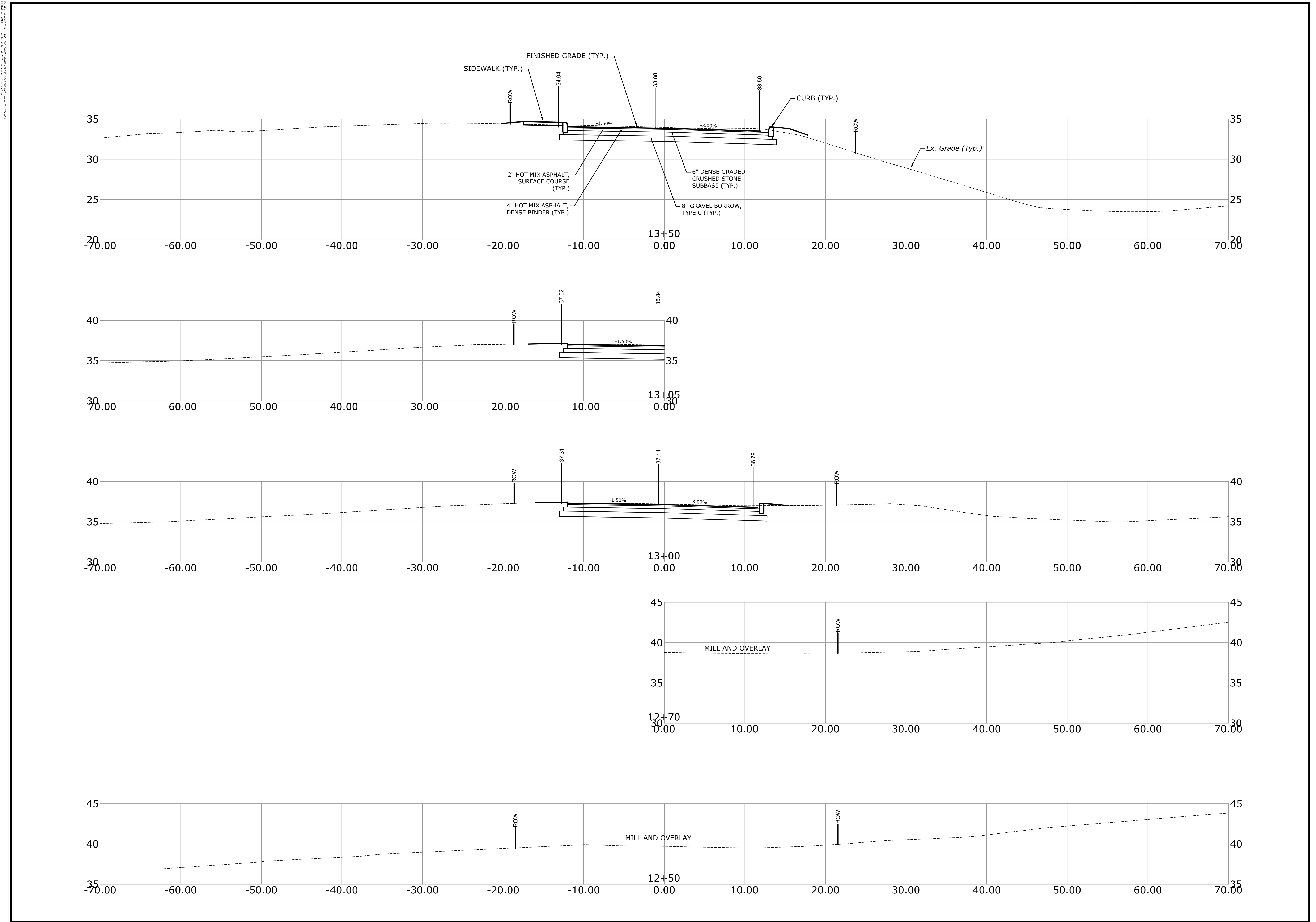
DESCRIPTION	DATE	BY

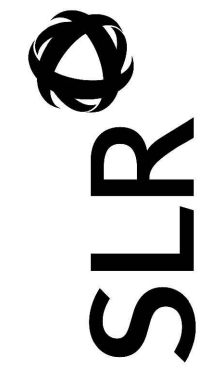
NOT FOR CONSTRUCTION

BRIDGE RAILING DETAILS
REPLACEMENT OF BARTLETT ROAD CULVERT
OVER UNNAMED BROOK
BARTLETT ROAD
PLYMOUTH, MASSACHUSETTS

DESIGNED	NP	KP
DRAWN	CHECKED	CHECKED
SCALE: AS SHOWN		
DATE: SEPTEMBER 21, 2023		
PROJECT NO: 11982.00016		
SHEET NO: 21 OF 29		

STR-11



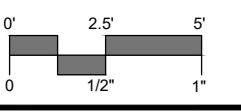
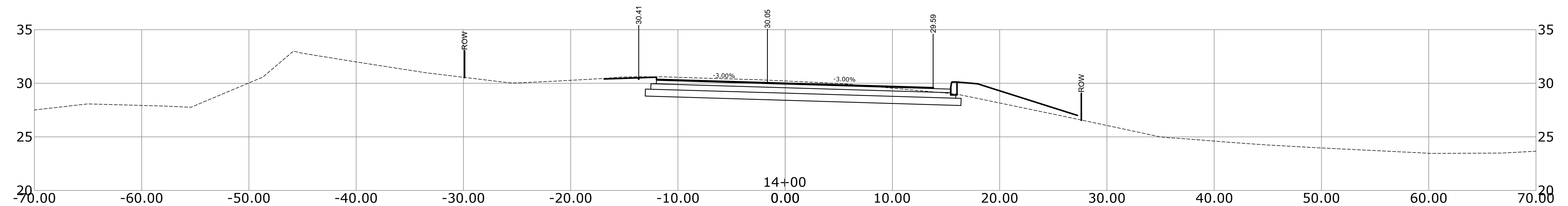
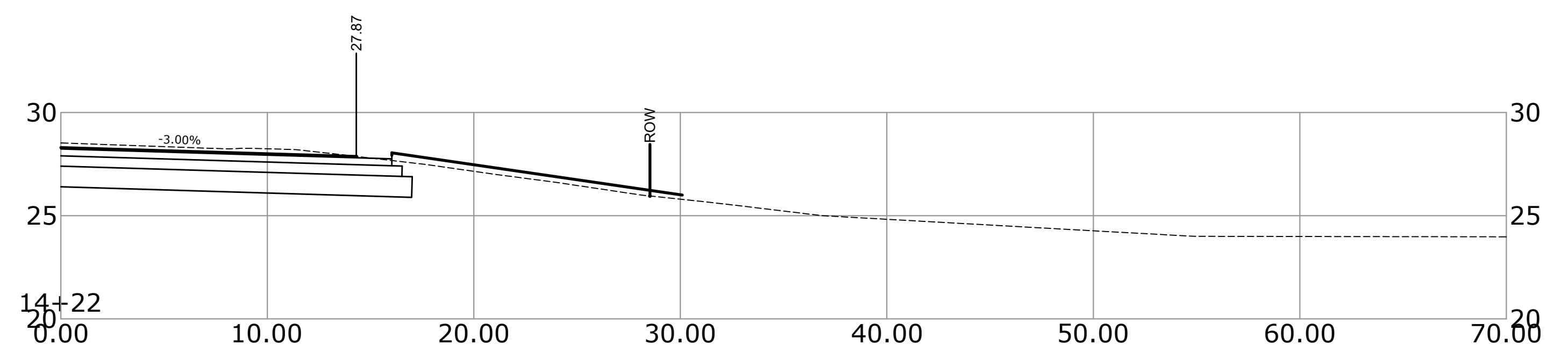
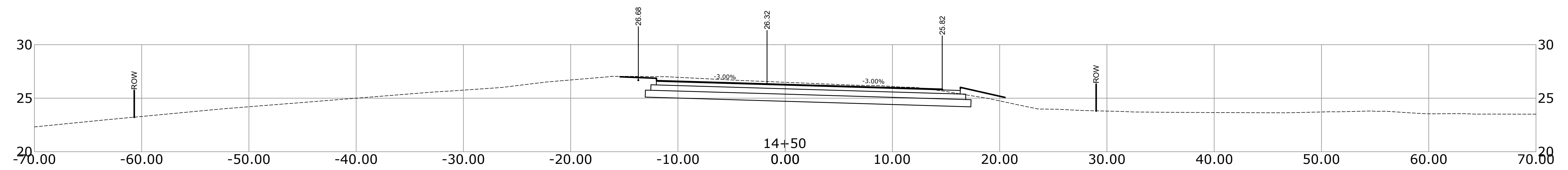
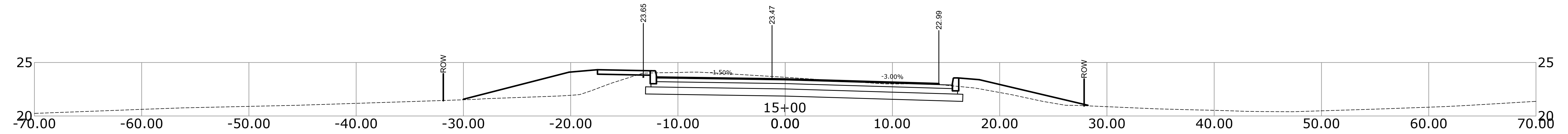
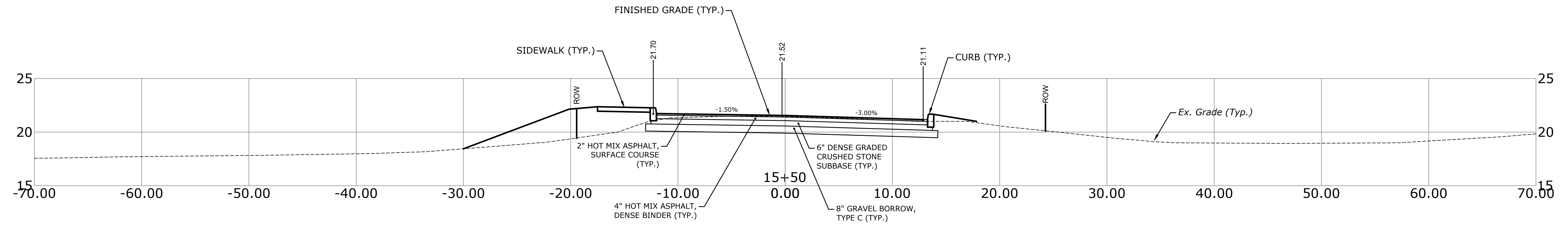

SLR
 99 BEALY DRIVE
 BOSTON, MASSACHUSETTS 02116
 617.262.1773
 SLRCONSULTING.COM

DESCRIPTION	DATE	BY

ROADWAY CROSS SECTIONS
REPLACEMENT OF BARTLETT ROAD CULVERT
OVER UNNAMED BROOK
 BARTLETT ROAD
 PLYMOUTH, MASSACHUSETTS
 NOT FOR CONSTRUCTION

TS DESIGNED	TS DRAWN	— CHECKED
SCALE: 1"=5'		
DATE: SEPTEMBER 21, 2023		
PROJECT NO.: 11982.00016		
DRAWING NO.: 22 OF 29		
XSC-01		

DATE PLOTTED: 10/10/2023 10:52 AM USER: JLD



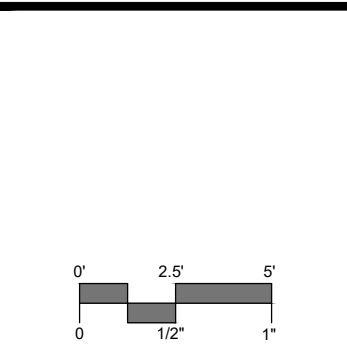
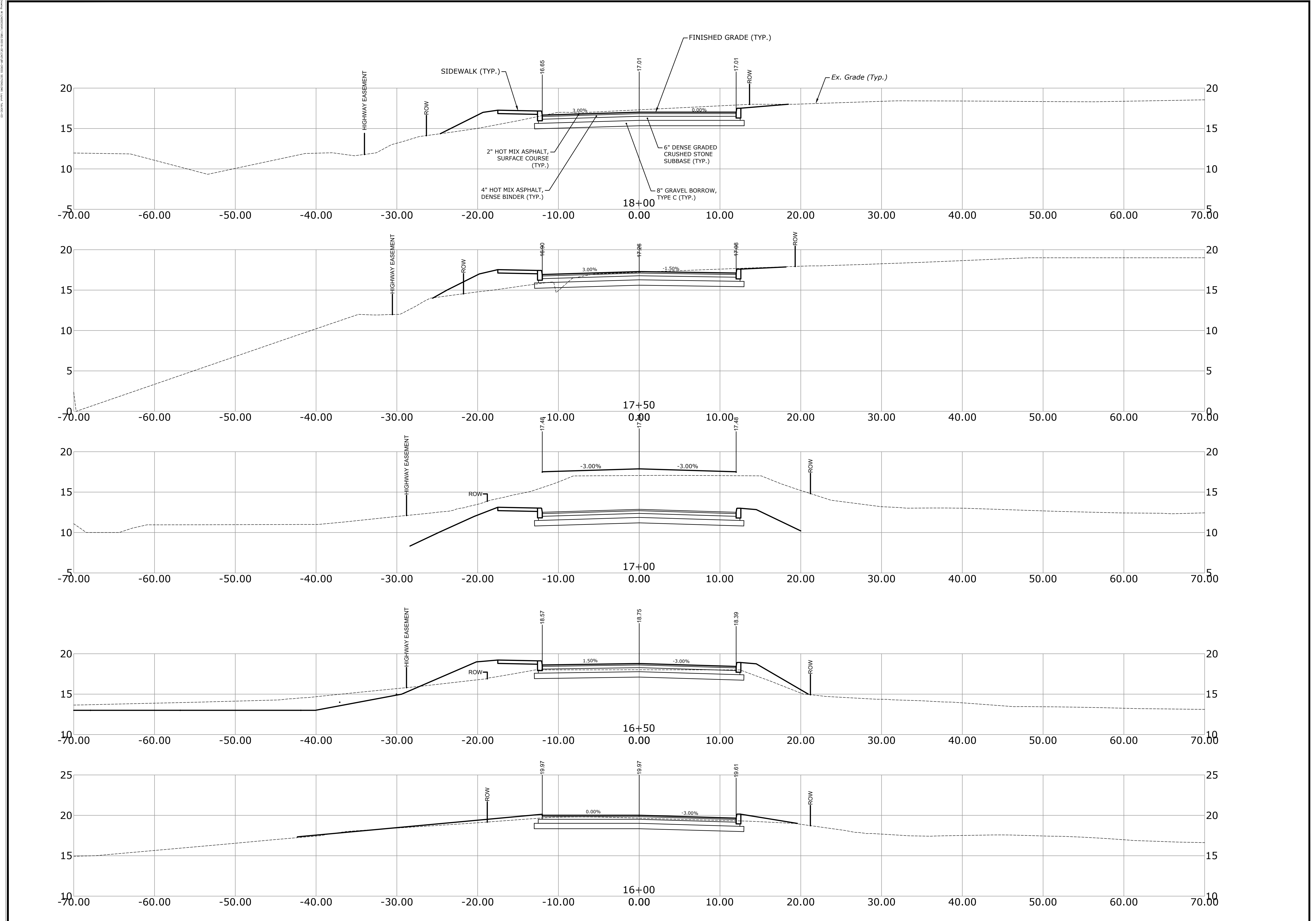
DESCRIPTION	DATE	BY

NOT FOR CONSTRUCTION

ROADWAY CROSS SECTIONS
REPLACEMENT OF BARTLETT ROAD CULVERT
OVER UNNAMED BROOK
 BARTLETT ROAD
 PLYMOUTH, MASSACHUSETTS

TS DESIGNED	TS DRAWN	TS CHECKED
SCALE: 1"=5'		
DATE: SEPTEMBER 21, 2023		
PROJECT NO: 11982.00016		
DRAWING NO: 23 OF 29		

XSC-02



DESCRIPTION	DATE	BY

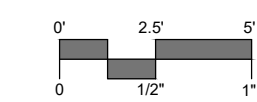
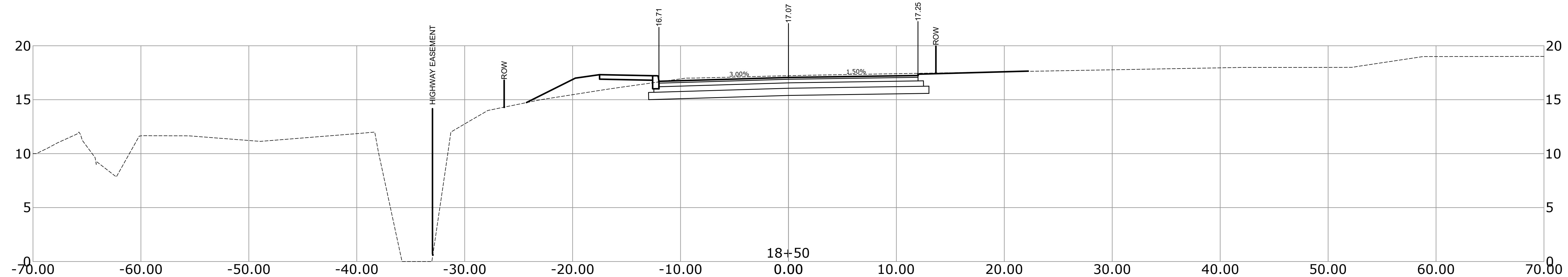
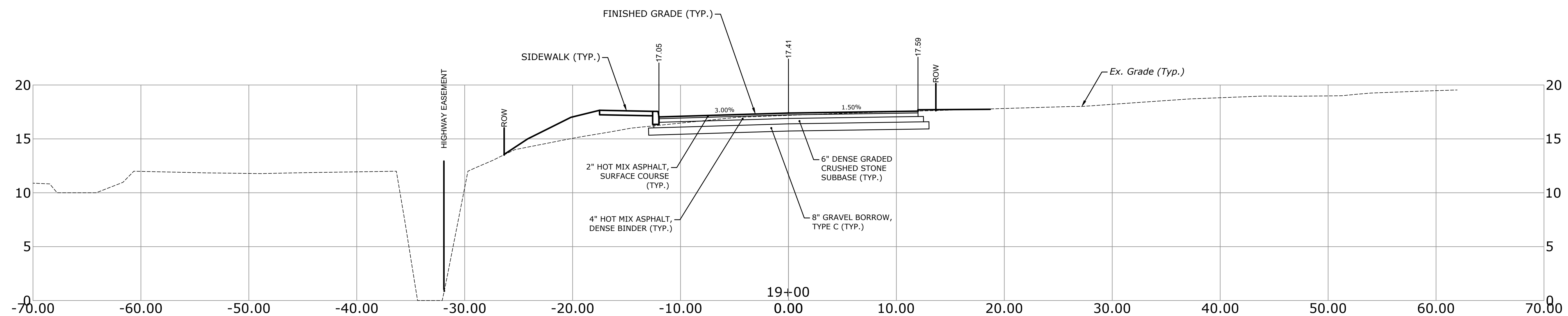
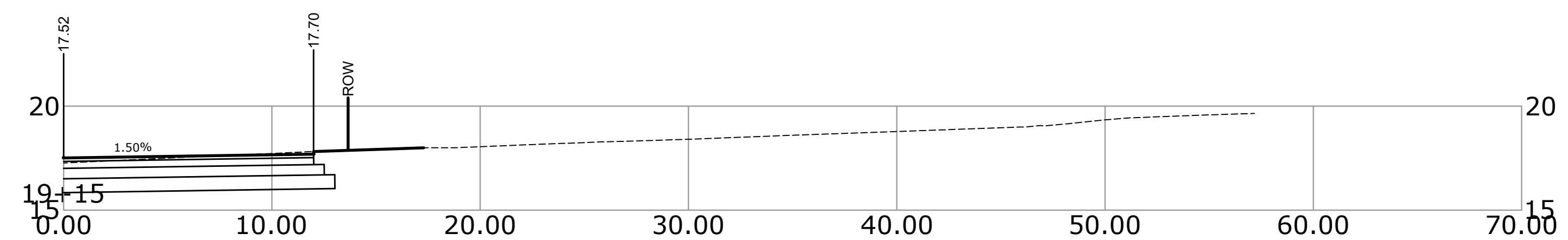
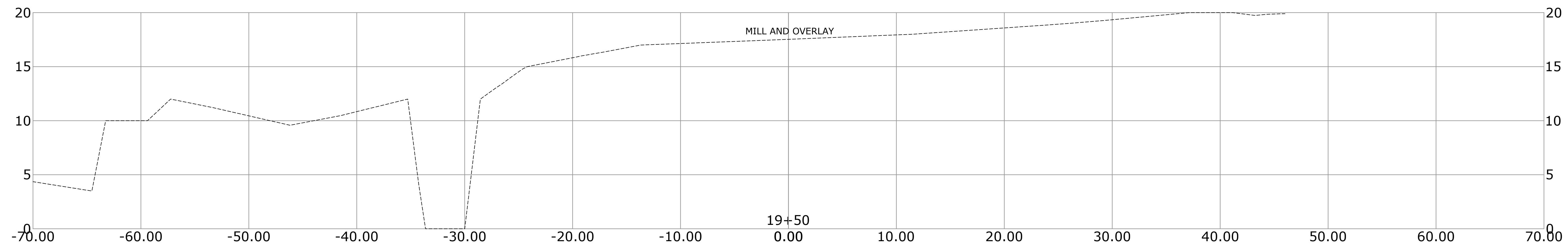
ROADWAY CROSS SECTIONS
REPLACEMENT OF BARTLETT ROAD CULVERT
OVER UNNAMED BROOK
 BARTLETT ROAD
 PLYMOUTH, MASSACHUSETTS

NOT FOR CONSTRUCTION

TS DESIGNED	TS DRAWN	1 CHECKED
SCALE 1"=5'		
DATE SEPTEMBER 21, 2023		
PROJECT NO. 11982.00016		
DRAWING NO. 24 OF 29		

XSC-03

PROJECT NO. 11982.00016
DRAWING NO. XSC-04
DATE: SEPTEMBER 21, 2023
SCALE: 1"=5'



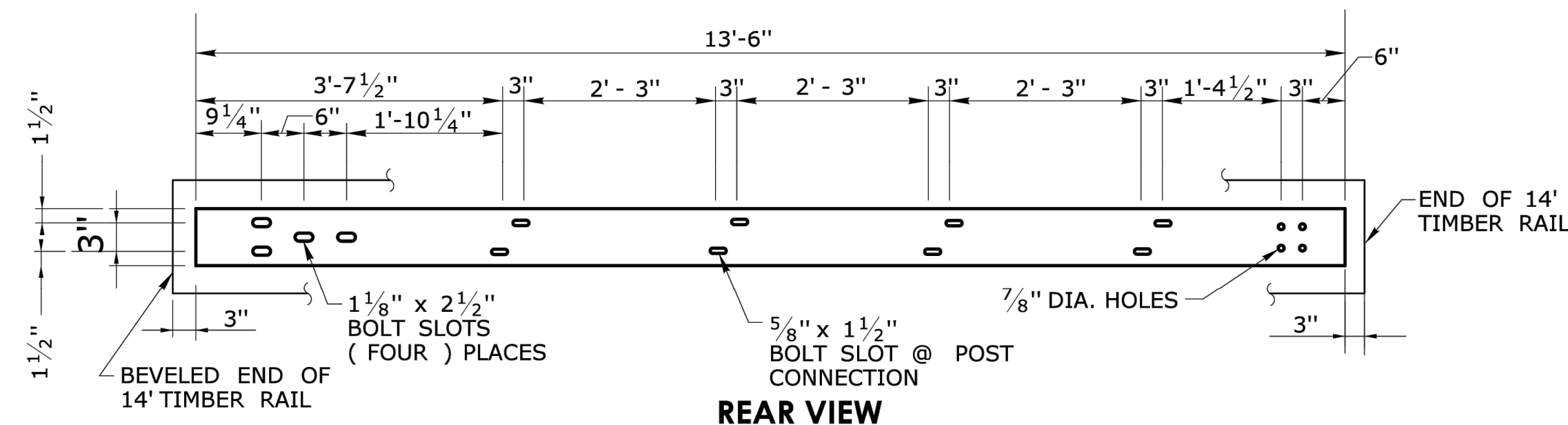
DESCRIPTION	DATE	BY

ROADWAY CROSS SECTIONS
REPLACEMENT OF BARTLETT ROAD CULVERT
OVER UNNAMED BROOK
BARTLETT ROAD
PLYMOUTH, MASSACHUSETTS

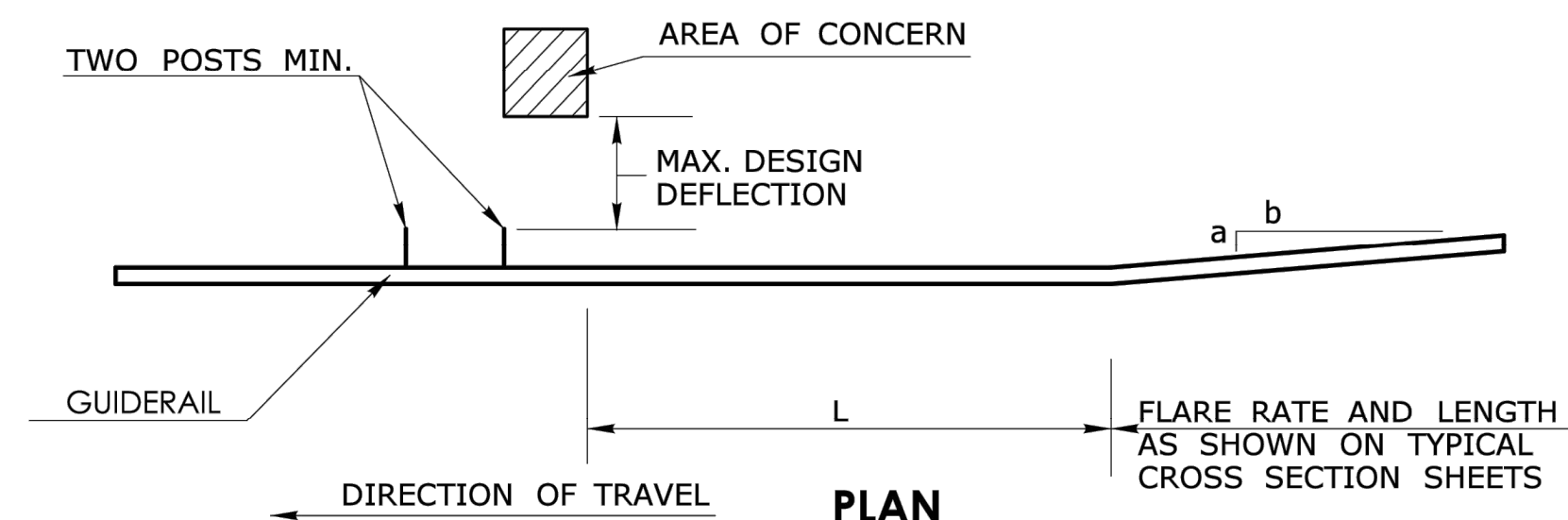
NOT FOR CONSTRUCTION

DESIGNED	TS	
DRAWN	TS	
CHECKED		
SCALE	1"=5'	
DATE	SEPTEMBER 21, 2023	
PROJECT NO.	11982.00016	
DRAWING NO.	25 OF 29	

XSC-04



STEEL TRANSITION RAIL
6" x 3/8" x 13'-6"
FOR LEADING END ATTACHMENT

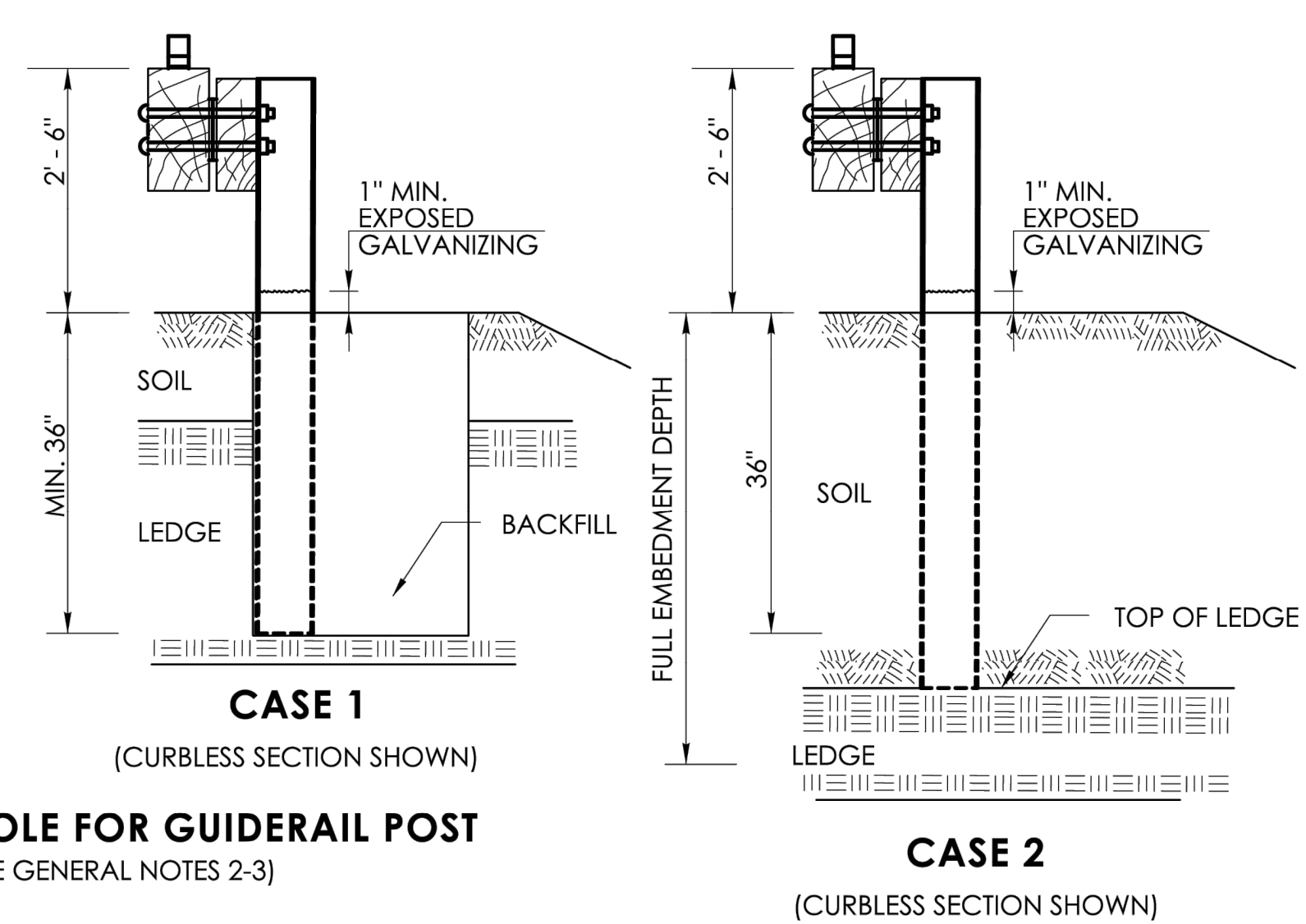
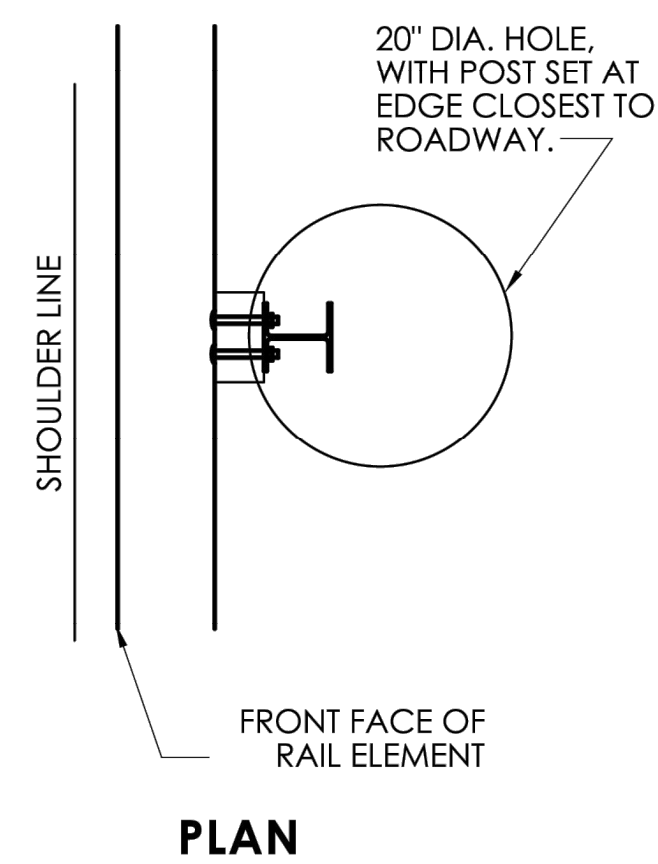
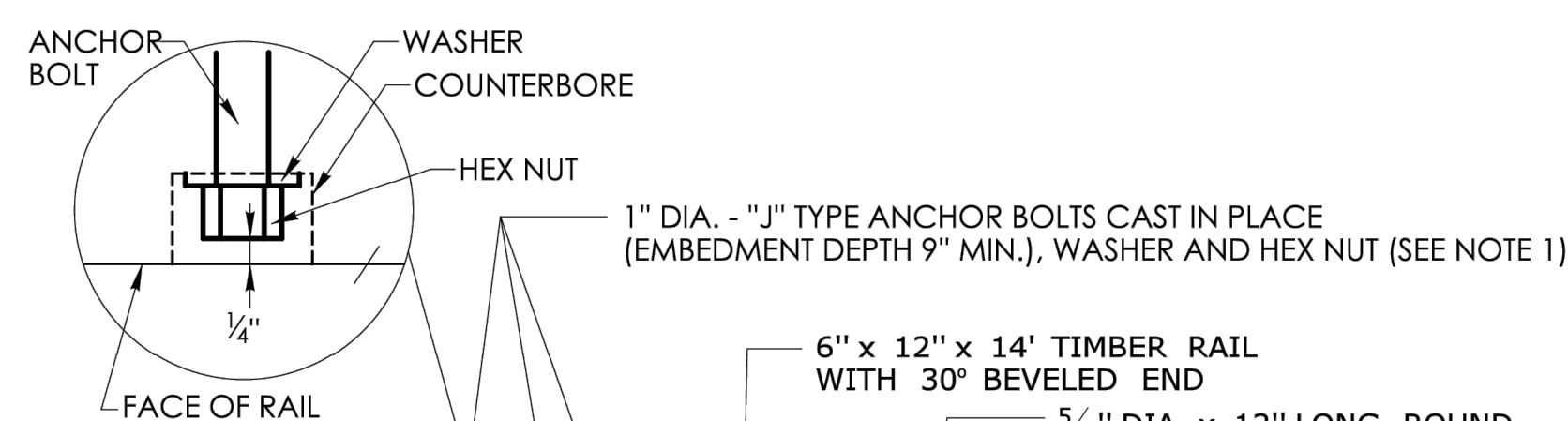


GENERAL NOTES:

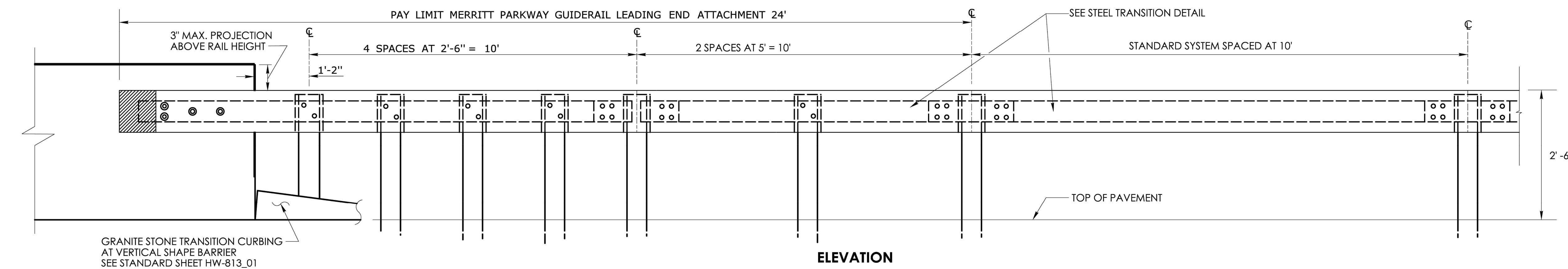
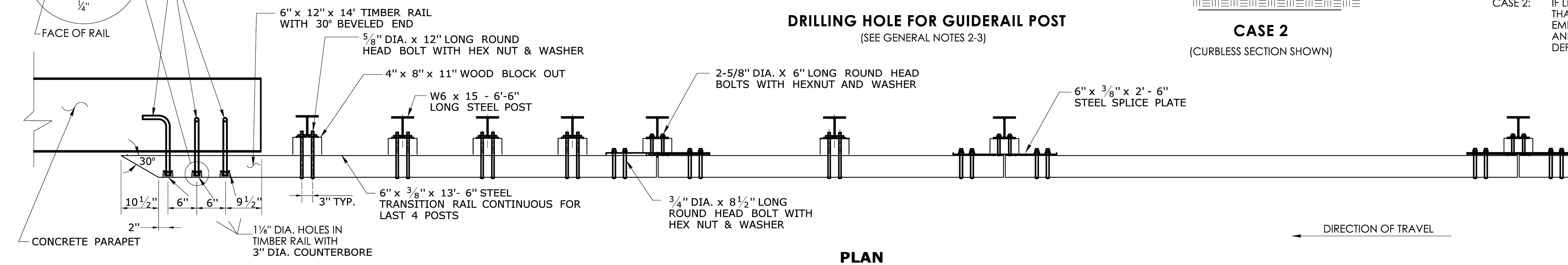
1. THIS DRAWING SHOWS LEADING END ATTACHMENT TO PROPOSED BARRIER/PARAPET. AT EXISTING PARAPETS ATTACH GUIDERAIL USING D.O.T. APPROVED CHEMICAL ANCHORS.
2. PRIOR TO GUIDERAIL POST INSTALLATION THE CONTRACTOR SHALL INVESTIGATE POST LOCATIONS FOR THE PRESENCE AND DEPTH OF LEDGE.
3. 20" DIA. EXCAVATED HOLE SHALL BE BACKFILLED WITH SUITABLE MATERIAL, OR GRANULAR FILL COMPACTED IN 4" LIFTS BEFORE DRIVING POST OR POSTS MAY BE SET IN EXCAVATED HOLE AND BACKFILLED WITH CONTROLLED LOW STRENGTH MATERIAL (CLSM).

Maximum Design Deflection (ft)	Area Of Concern Plus 2 Posts (see sketch)	SYSTEM 3	SYSTEM 2	Standard System	L
		W6 x 15 Posts Spaced at 2'- 6"	W6 x 15 Posts Spaced at 5'	W6 x 15 Posts Spaced at 10'	
1'	System 3	10'	10'	50'	70'
2' - 6"	System 2	-	10'	60'	70'
4'	Standard System	-	-	70'	70'

MERRITT PARKWAY GUIDERAIL DESIGN DEFLECTION CHART



- CASE 1: IF LEDGE IS LOCATED WITHIN 36" OF THE FINISHED GRADE AT THE POST LOCATION A 20" DIAMETER HOLE SHALL BE DRILLED IN THE LEDGE TO THE MINIMUM EMBEDMENT DEPTH OF 36" AND THE POST SHALL BE CUT AND DRIVEN TO ACHIEVE THIS DEPTH.
- CASE 2: IF LEDGE IS LOCATED AT A DEPTH GREATER THAN 36" BUT LESS THAN THE FULL EMBEDMENT DEPTH THE POST SHALL BE CUT AND DRIVEN TO ACHIEVE EMBEDMENT TO THE DEPTH OF THE TOP OF LEDGE.



ATTACHMENT AT LEADING END (VERTICAL SHAPE BARRIER SHOWN)
(FRONT VIEW)
 (SEE GENERAL NOTES 1)

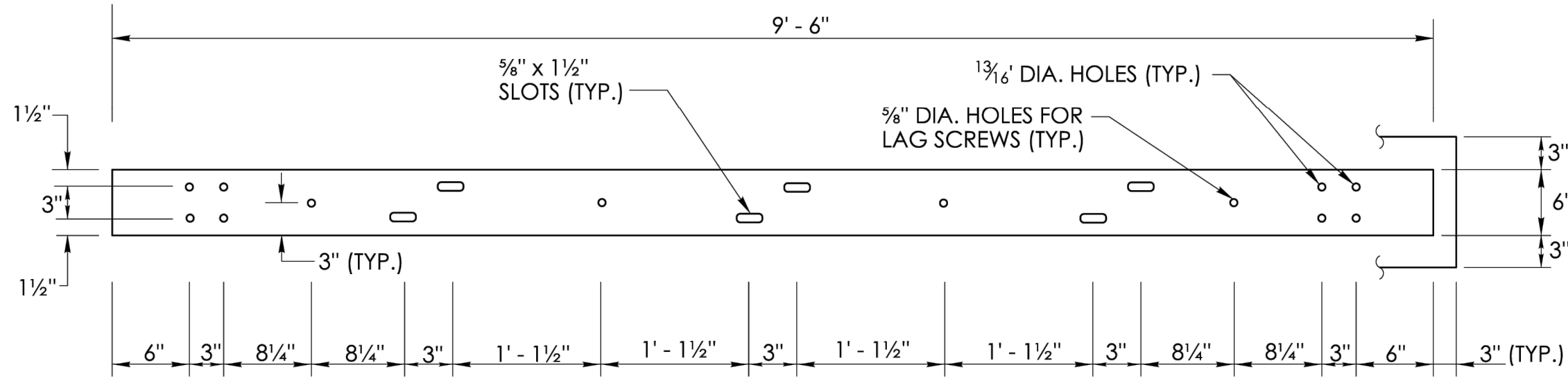


DESCRIPTION	DATE	BY

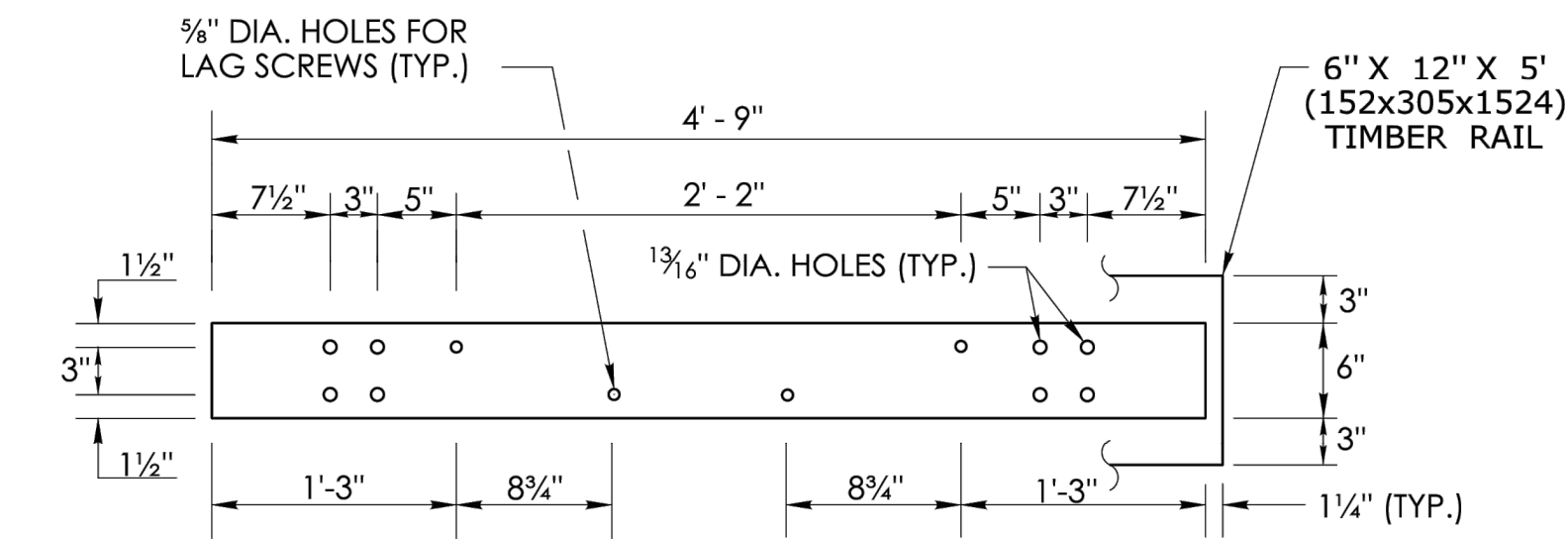
STEEL-BACKED TIMBER GUIDERAIL DETAILS
REPLACEMENT OF BARTLETT ROAD CULVERT
OVER UNNAMED BROOK
 BARTLETT ROAD
 PLYMOUTH, MASSACHUSETTS

DESIGNED	DRAWN	KP
SCALE: N.T.S.		
DATE: SEPTEMBER 21, 2023		
PROJECT NO.: 11982.00016		
SHEET NO.: 26 OF 29		

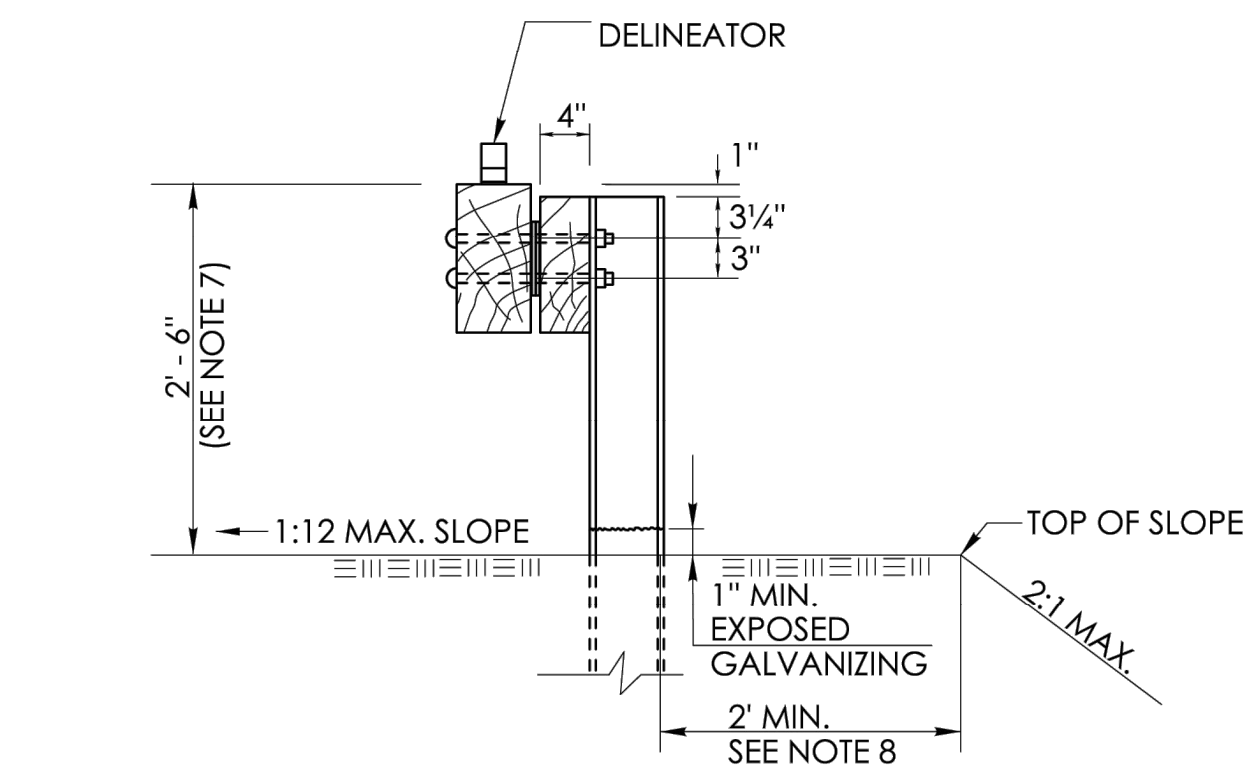
SD-01



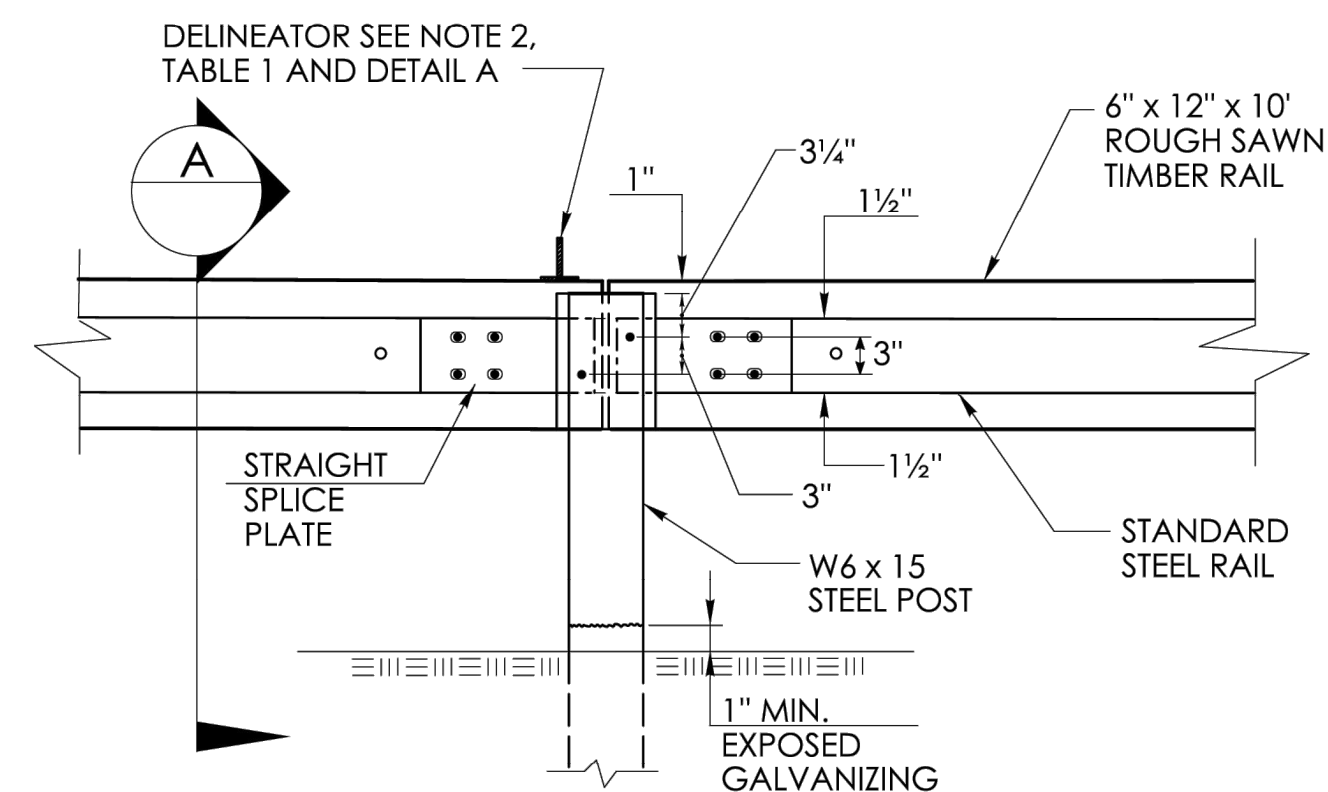
**(REAR VIEW)
STANDARD STEEL RAIL DETAIL
6" x 3/8" x 9'-6"**



**STEEL RAIL DETAIL
6" x 3/8" x 4'-9"
FOR CURVES WITH R ≤ 70"**



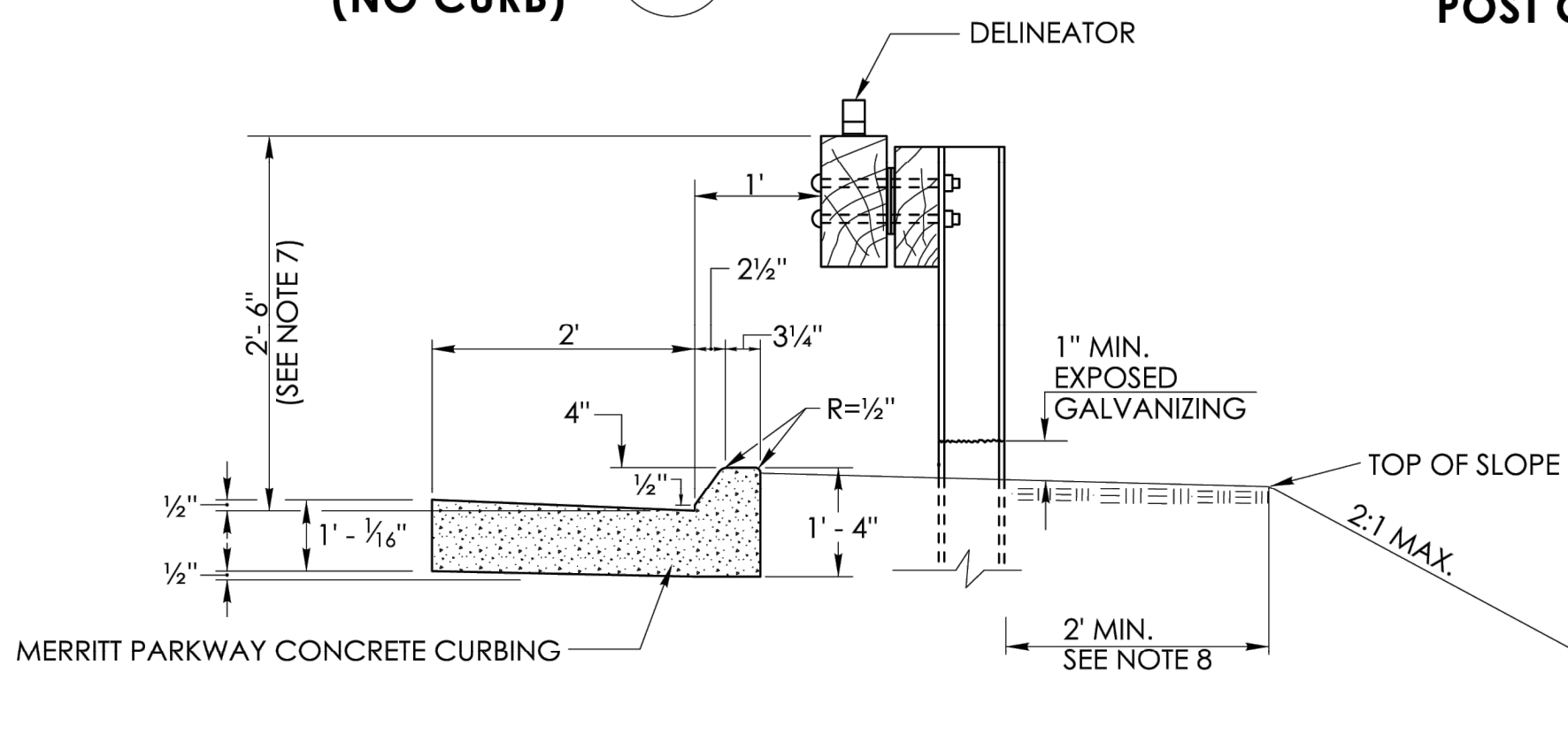
**SECTION A
(NO CURB)**



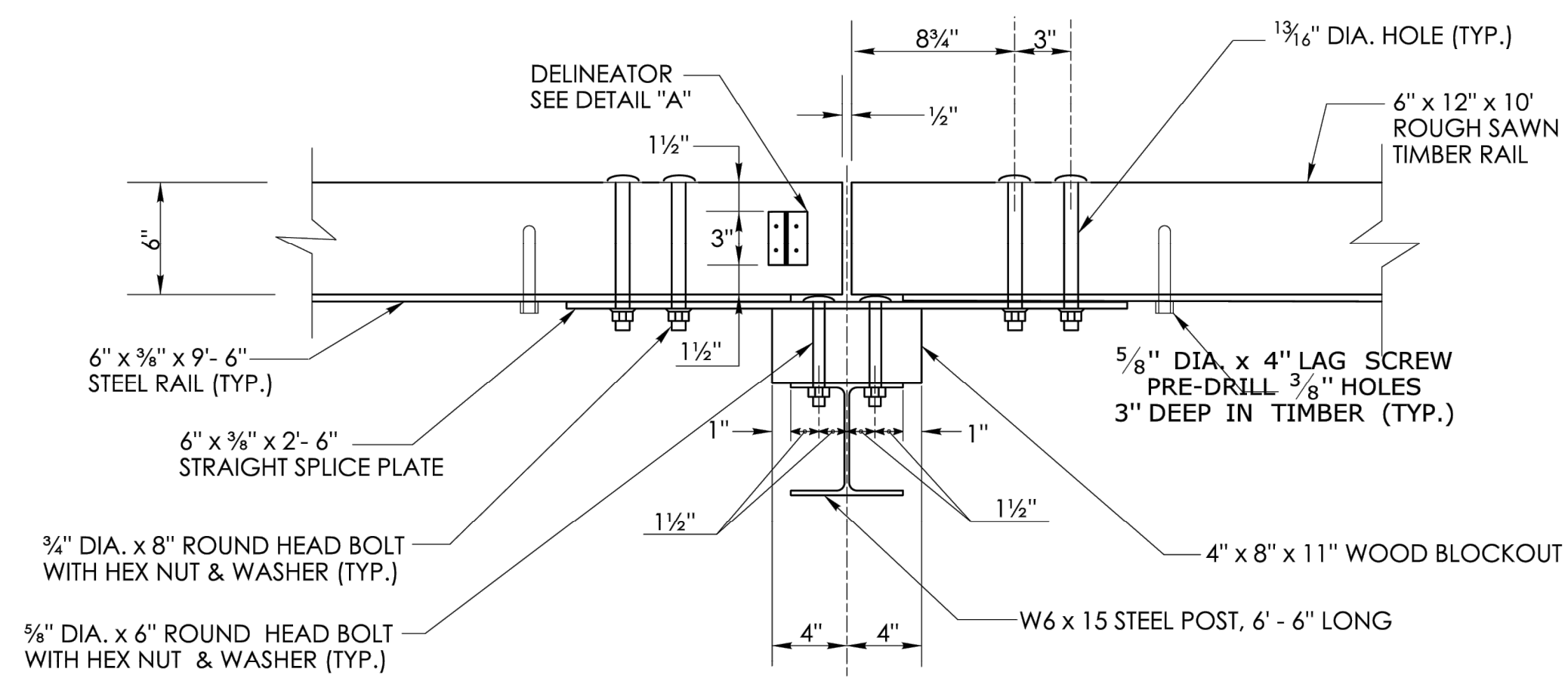
**REAR VIEW ELEVATION
POST CONNECTION**

TABLE 1

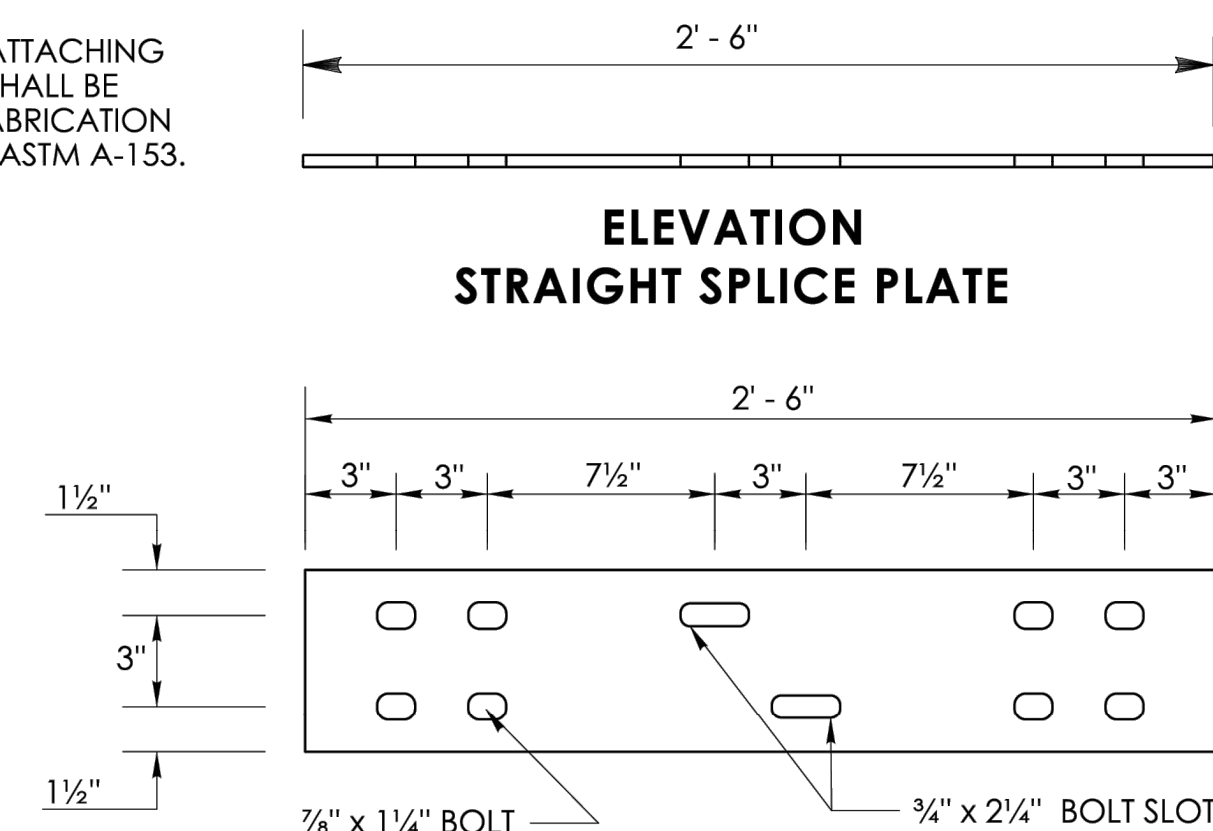
DELINEATOR SPACING	
CURVE RADIUS	SPACE
< 300'	20'
≥ 300'	50'



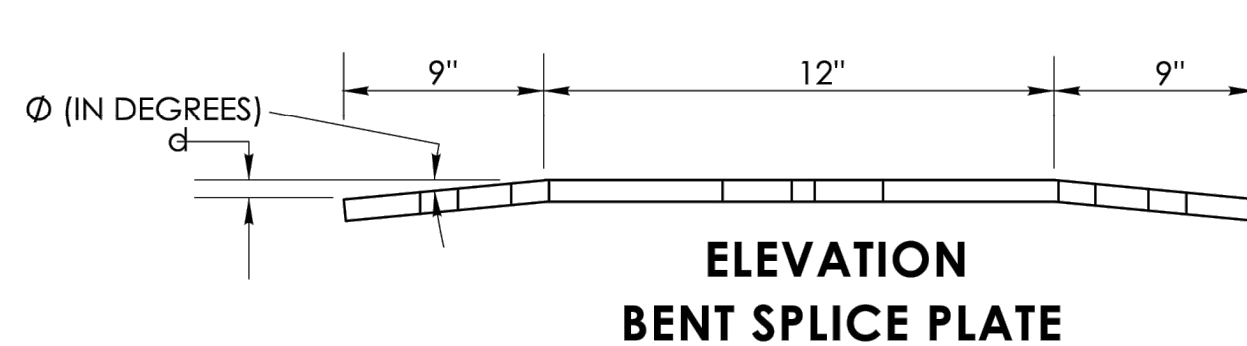
MERRITT PARKWAY CONCRETE CURBING WITH MERRITT PARKWAY GUIDERAIL



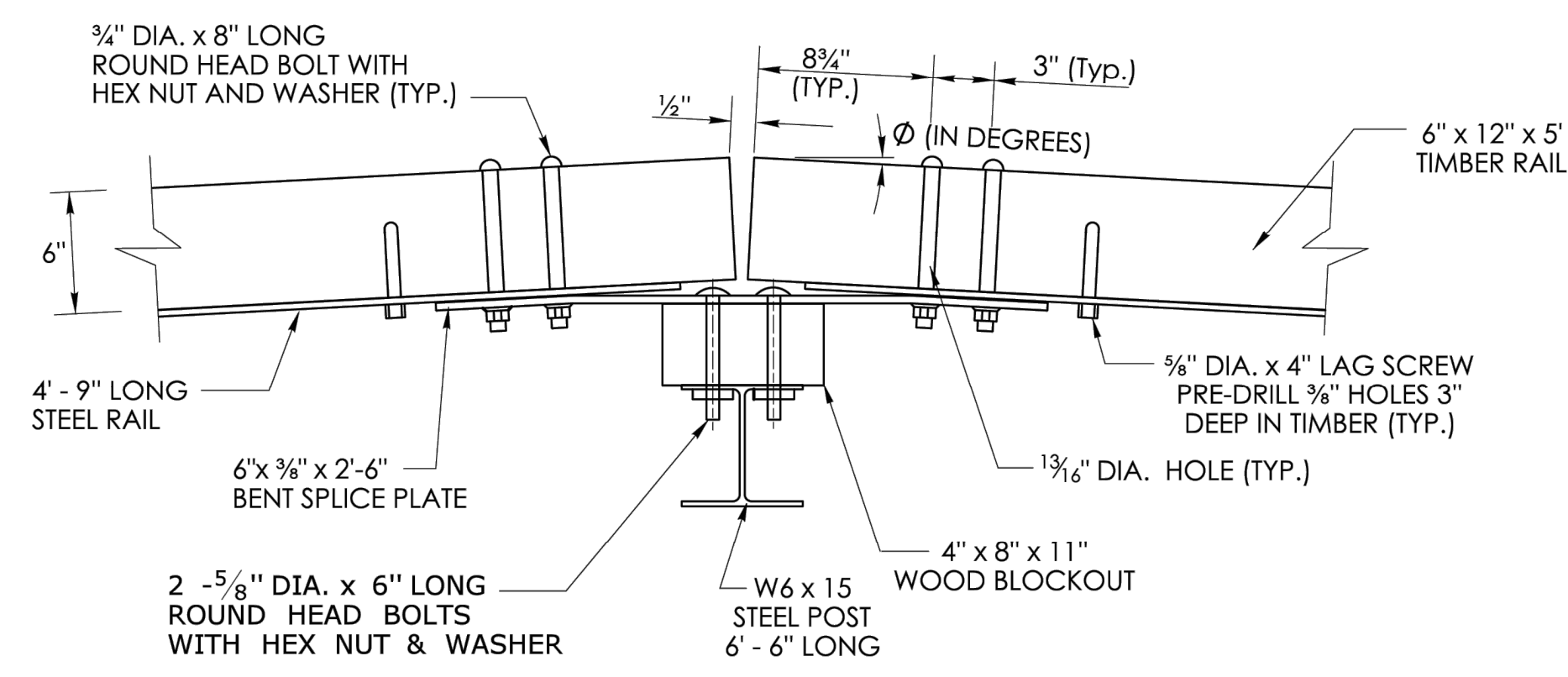
**POST CONNECTION FOR
STRAIGHT SECTIONS**



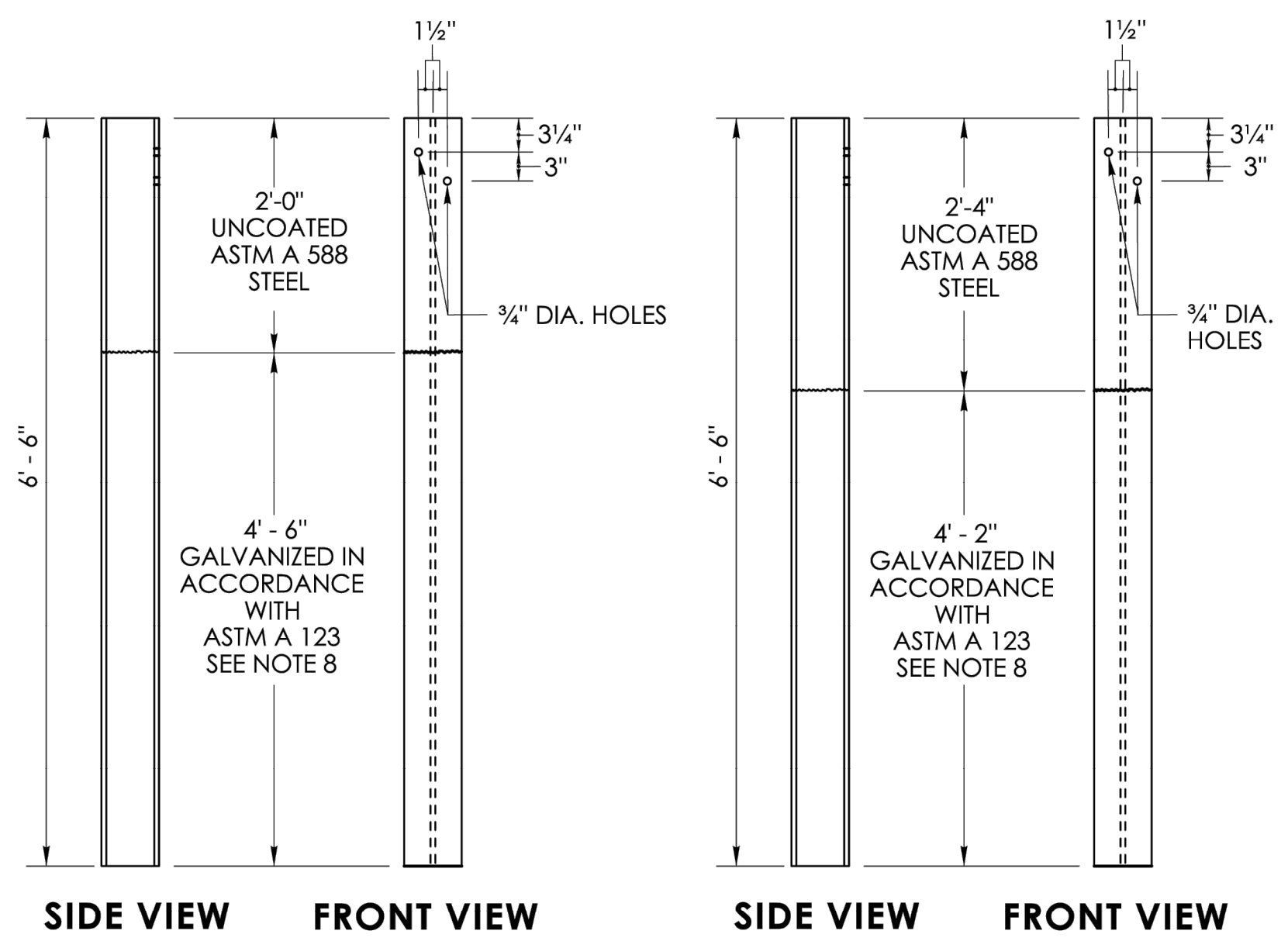
**(FRONT VIEW)
STEEL SPLICE PLATE DETAIL
6" x 3/8" x 2'-6"**



**ELEVATION
BENT SPLICE PLATE**



**POST CONNECTION
FOR CURVES WITH R < 70'**



**POST DETAIL
W6 X 15
WITH CURBING**

**POST DETAIL
W6 X 15
NO CURBING**

TABLE 2

Radius R (ft.)	Ø (Degrees)	d (in.)
35 Min.	4.10	3/8
40	3.58	3/16
45	3.18	1/2
50	2.86	7/16
55	2.60	7/16
60	2.40	3/8
65	2.20	3/8
70	2.05	3/16
Over 70	Flat	0

GENERAL NOTES:

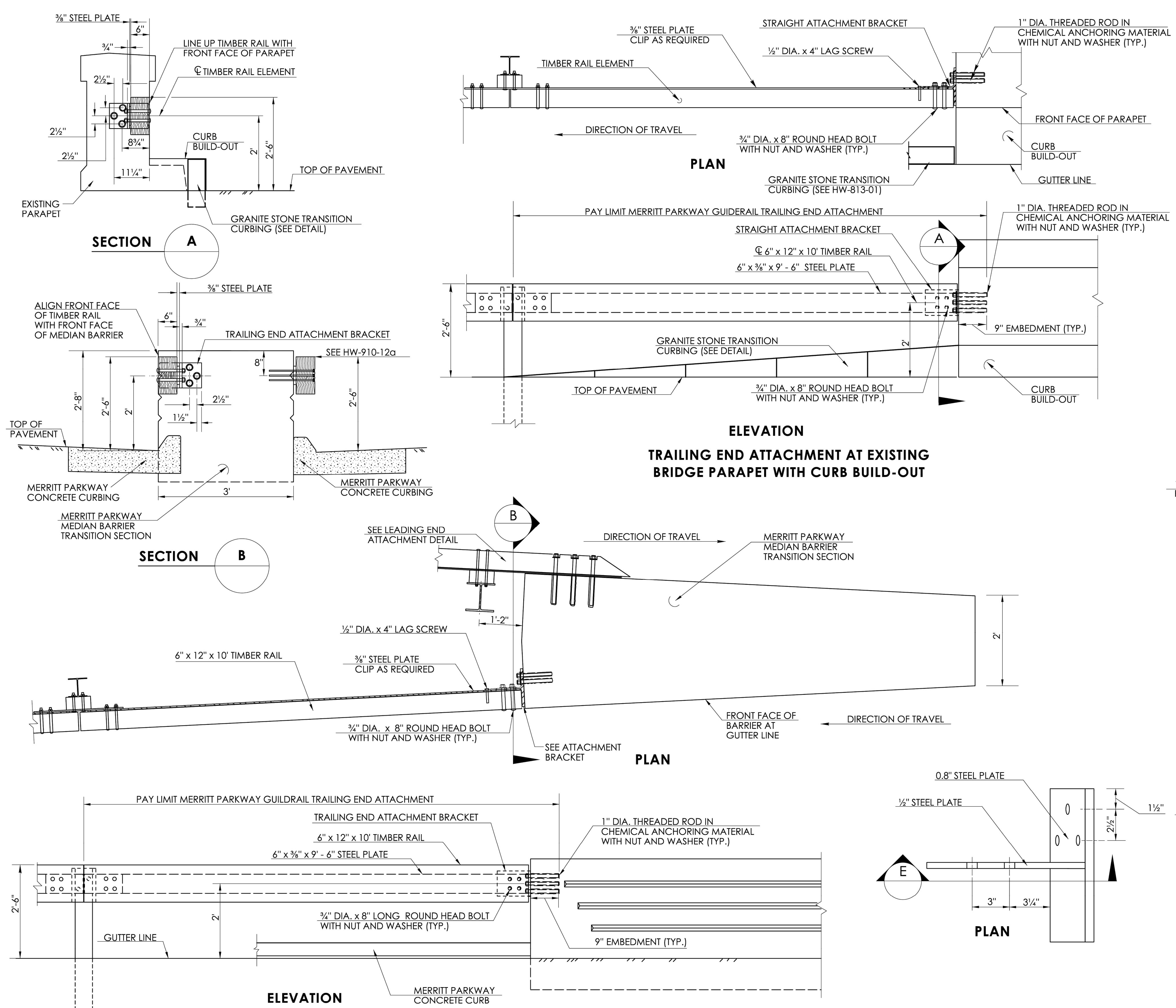
- MATERIALS AND CONSTRUCTION OF THE MERRITT PARKWAY GUIDERAIL SHALL CONFORM TO SPECIAL PROVISION PROVIDED WITH THE PROJECT.
- DELINEATORS SHALL BE PLASTIC INVERTED T-SECTIONS IN ACCORDANCE WITH DETAIL "A". REFLECTORS SHALL BE SPACED IN ACCORDANCE WITH TABLE 1, AND POSITIONED PERPENDICULAR TO THE ADJACENT EDGE OF LANE. DO NOT ATTACH REFLECTORS ON FLARE OR TERMINAL SECTIONS. REFLECTIVE SHEETING SHALL BE SILVER-WHITE ON ALL RAIL SECTIONS ADJACENT TO THE RIGHT SHOULDER, AND YELLOW ON RAIL SECTIONS ADJACENT TO THE LEFT SHOULDER OF TRAVEL LANES. DELINEATORS SHALL BE INCLUDED IN THE COST FOR "MERRITT PARKWAY GUIDERAIL."
- TWO ADDITIONAL 3/8" DIA. X 4" LONG LAG SCREWS AND WASHERS SHALL BE INSTALLED AT ALL MID-SPAN POINTS FOR STANDARD SYSTEMS.
- ALL CONNECTION HARDWARE SHALL BE SUFFICIENTLY TIGHTENED TO ACCOMMODATE FOR SHRINKAGE OF THE WOOD ELEMENTS.
- WHEN FURNISHING THE SHOP BENT SPLICE PLATES, USE THE MINIMUM BEND ANGLE AS SHOWN IN TABLE 2.
- FOR RAILING SET ON A CURVE WITH RADII < 70' SPACE POSTS AT 5'.
- GUIDERAIL HEIGHT MAY VARY UP TO 2" PLUS OR MINUS THE HEIGHT SHOWN IN THE DETAILS TO ACHIEVE A SMOOTH AND CONTINUOUS GUIDERAIL PROFILE.
- 7'-6" LONG POSTS MAY BE USED IN LOCATIONS WHERE 2' MIN SHELF IS NOT ATTAINABLE. GALVANIZED COATING LIMITS SHALL BE INCREASED BY 1". PAYMENT FOR EXTRA LONG POSTS SHALL BE INCLUDED WITH THE ITEM FOR MERRITT PARKWAY GUIDERAIL.



DATE	BY

STEEL-BACKED TIMBER GUIDERAIL DETAILS
REPLACEMENT OF BARTLETT ROAD CULVERT
OVER UNNAMED BROOK
BARTLETT ROAD
PLYMOUTH, MASSACHUSETTS

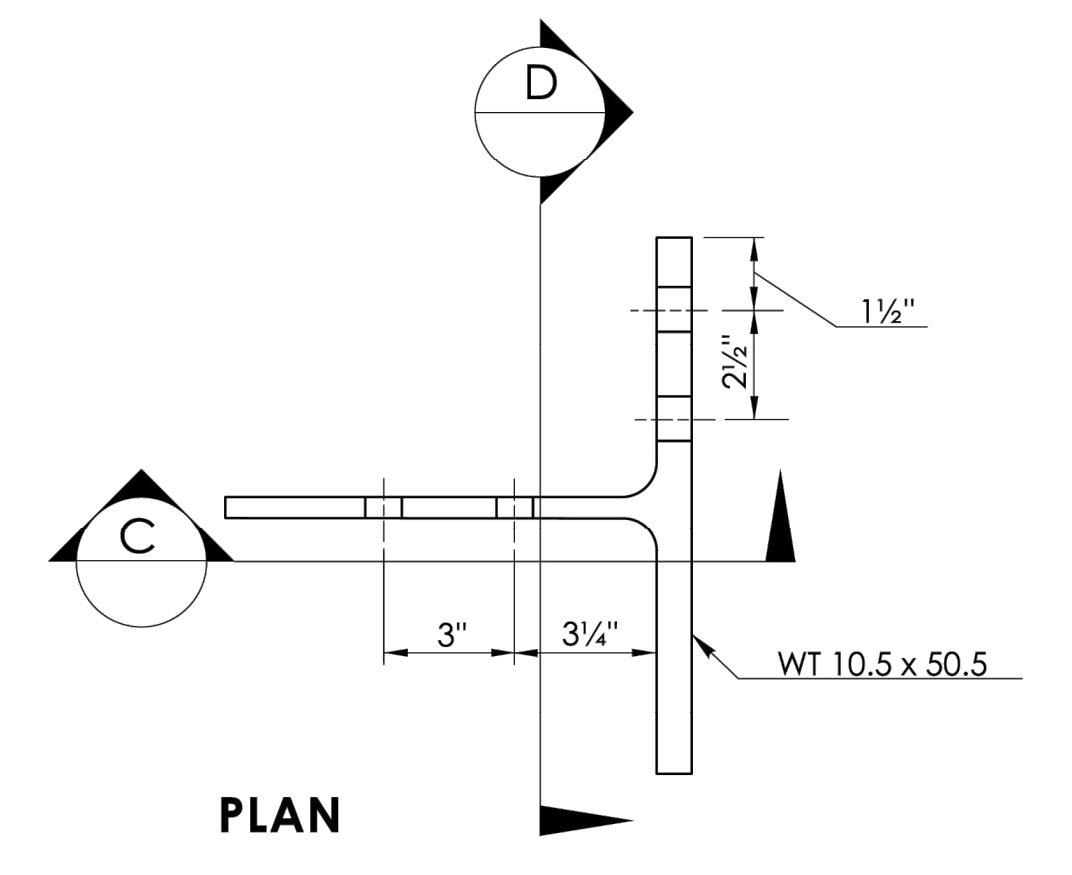
DESIGNED	DRAWN	KP
N.T.S.		
SEPTEMBER 21, 2023		
DATE		
11982.00016		
PROJECT NO.		
27 OF 29		
SHEET NO.		
SD-02		
SHEET NAME		



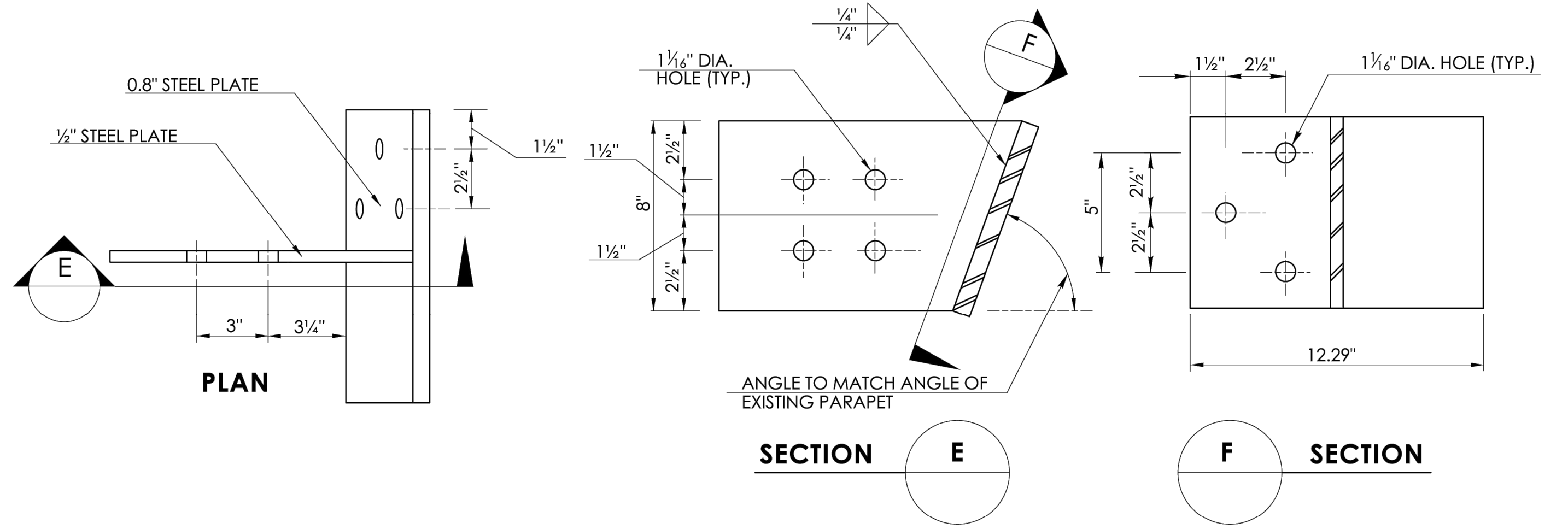
MPGR ATTACHMENTS AT MERRITT PARKWAY MEDIAN BARRIER CONCRETE TRANSITION SECTION

GENERAL NOTES:

1. THREADED RODS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A325, WITH NUTS CONFORMING TO ASTM A563, GRADE C. CIRCULAR HARDENED WASHERS SHALL CONFORM TO ASTM F436. THREADED NUTS AND WASHERS IN CONTACT WITH CONCRETE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153. ROUND HEAD BOLTS SHALL CONFORM TO THE SPECIAL PROVISIONS PROVIDED WITH THE PROJECT.
2. CHEMICAL ANCHORING MATERIAL SHALL CONFORM TO SECTION M.03, SUBARTICLE M.03.01-15
3. ATTACHMENT BRACKETS SHALL CONFORM TO ASTM A36 AND BE GALVANIZED IN ACCORDANCE WITH ASTM A123.
4. THE PAY LIMIT FOR TRAILING END ATTACHMENT INCLUDES ALL HARDWARE AND RAIL ELEMENTS TO AND INCLUDING THE FIRST POST.
5. ALL RUNS OF MERRITT PARKWAY MEDIAN BARRIER SHALL INCLUDE MERRITT PARKWAY MEDIAN BARRIER TRANSITIONS SECTIONS AT BOTH ENDS.
6. THE END OF TIMBER RAIL ATTACHED TO THE ANGLED ATTACHMENT BRACKET FOR THE RIPAWAM RIVER SHALL BE MITERED TO MATCH THE ANGLE OF THE BRACKET AND PARAPET.



STRAIGHT ATTACHMENT BRACKET



ANGLED ATTACHMENT BRACKET FOR TRAILING END ATTACHMENT



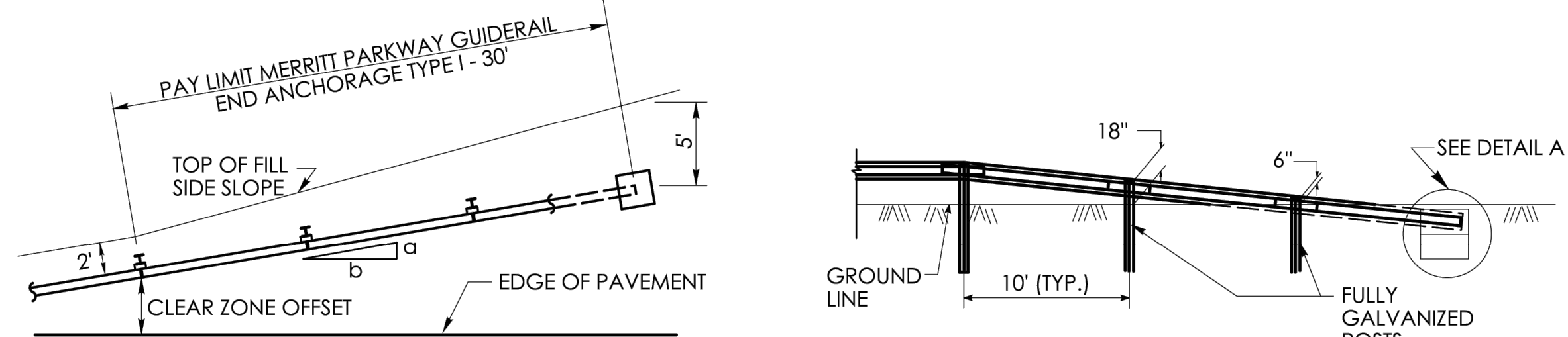
DESCRIPTION	DATE	BY

STEEL-BACKED TIMBER GUIDERAIL DETAILS
 REPLACEMENT OF BARTLETT ROAD CULVERT
 OVER UNNAMED BROOK
 BARTLETT ROAD
 PLYMOUTH, MASSACHUSETTS

DESIGNED	DRAWN	KP
SCALE: N.T.S.		
DATE: SEPTEMBER 21, 2023		
PROJECT NO.: 11982.00016		
SHEET NO.: 28 OF 29		

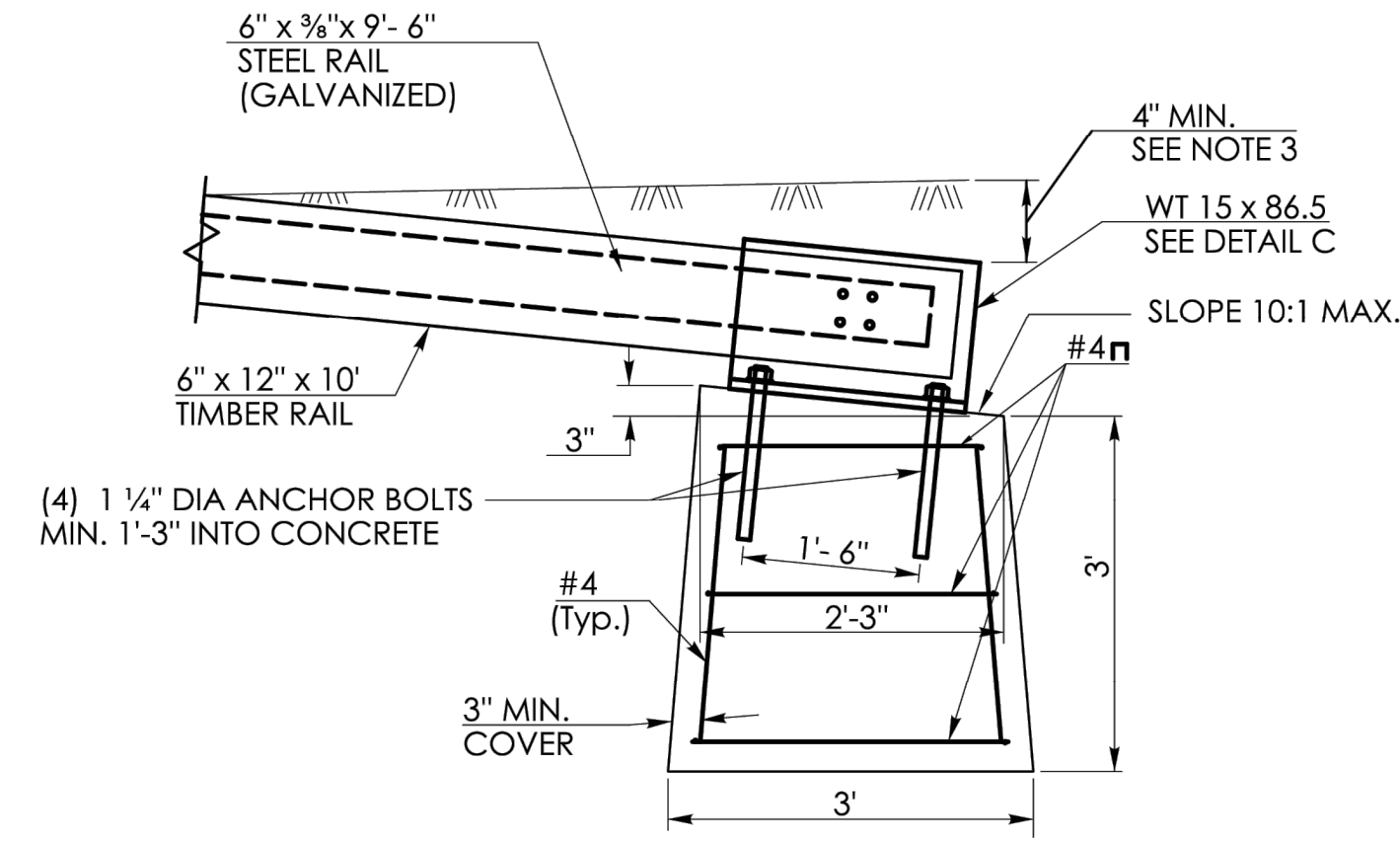
SD-03

DATE PLOTTED: 08/22/2023 10:03:10 AM
 PLOTTER: HP DesignJet 2400
 PLOTTING METHOD: HP DesignJet 2400
 PLOTTING DEVICE: HP DesignJet 2400



PLAN
MERRITT PARKWAY GUIDERAIL END ANCHORAGE TYPE I
(BURIED ANCHOR)

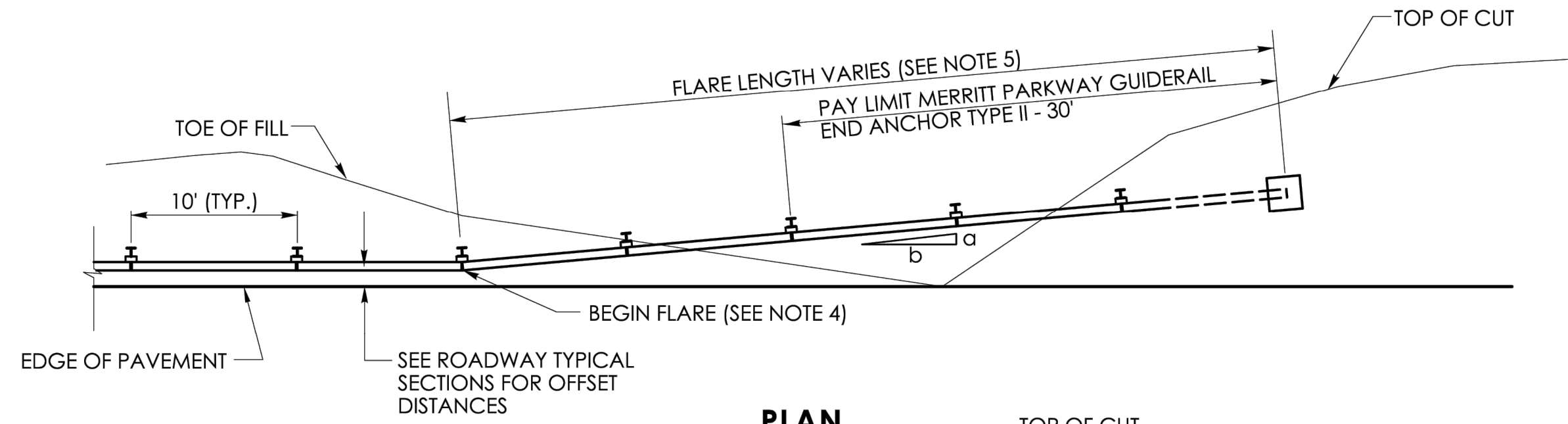
NOTE: SEE PLAN SHEETS FOR FLARE RATE α : β .



ELEVATION
DETAIL A

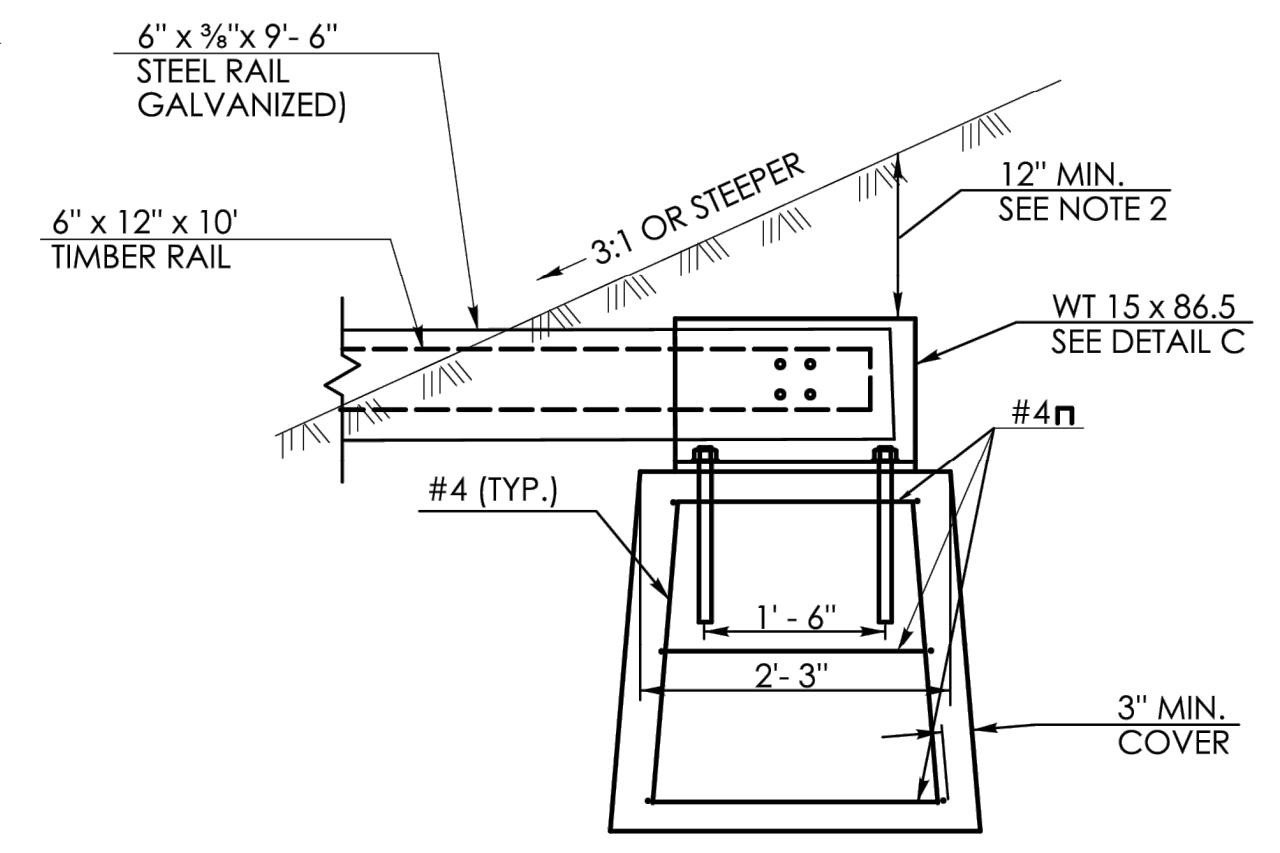
GENERAL NOTES:

1. MATERIALS AND CONSTRUCTION OF THE MERRITT PARKWAY GUIDERAIL END ANCHORS SHALL CONFORM TO THE SPECIAL PROVISIONS PROVIDED WITH THE PROJECT. ALL HARDWARE IN CONTACT WITH THE GROUND SHALL BE GALVANIZED IN ACCORDANCE WITH THE SPECIAL PROVISION.
2. FOR THE END ANCHOR TYPE II, EXTEND THE FLARE INTO THE CUT SLOPE UNTIL A MINIMUM 12" OF COVER IS OBTAINED OVER THE GUIDERAIL ELEMENT.
3. FOR THE END ANCHOR TYPE I, EXTEND THE FLARE OUTSIDE THE CLEAR ZONE AND BURY THE GUIDERAIL ANCHOR AND ELEMENT TO OBTAIN A MINIMUM COVER OF 4". SEE DETAIL A.
4. BEGIN THE FLARE AT THE NEAREST POST TO A TRANSITION POINT BETWEEN FILL AND CUT AS DIRECTED BY THE ENGINEER.
5. THE GUIDERAIL FLARE SHOWN ON THE PLAN SHEETS IS THE MINIMUM LENGTH AND RATE REQUIRED AS DIRECTED BY THE ENGINEER. FLARE THE GUIDERAIL SO THAT THE TERMINAL SECTION IS OUTSIDE THE CLEAR ZONE.

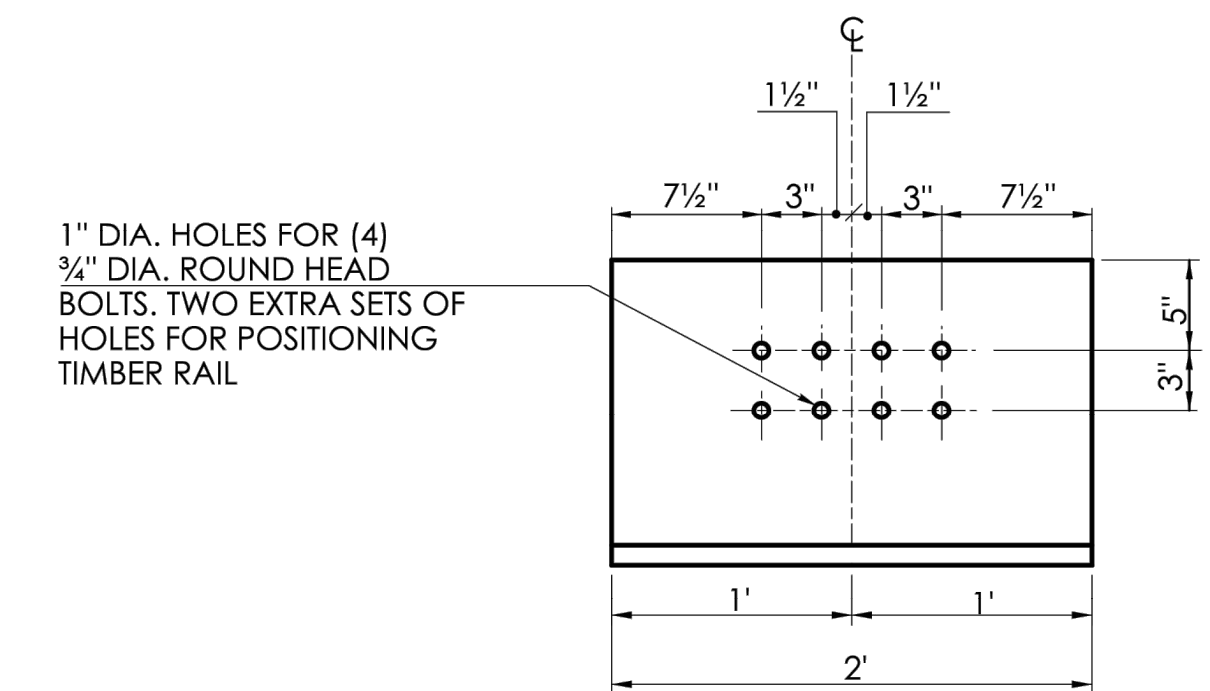


PLAN
MERRITT PARKWAY GUIDERAIL END ANCHORAGE TYPE II
(EARTH CUT SLOPE ANCHOR)

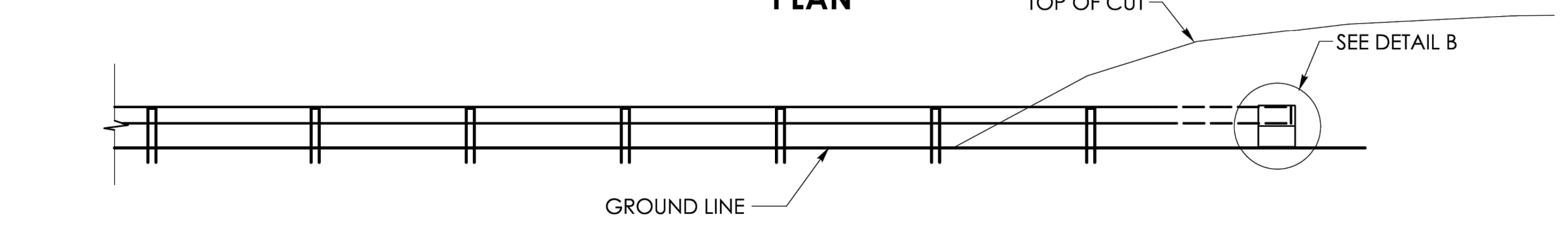
NOTE: SEE PLAN SHEETS FOR FLARE RATE α : β .



ELEVATION
DETAIL B

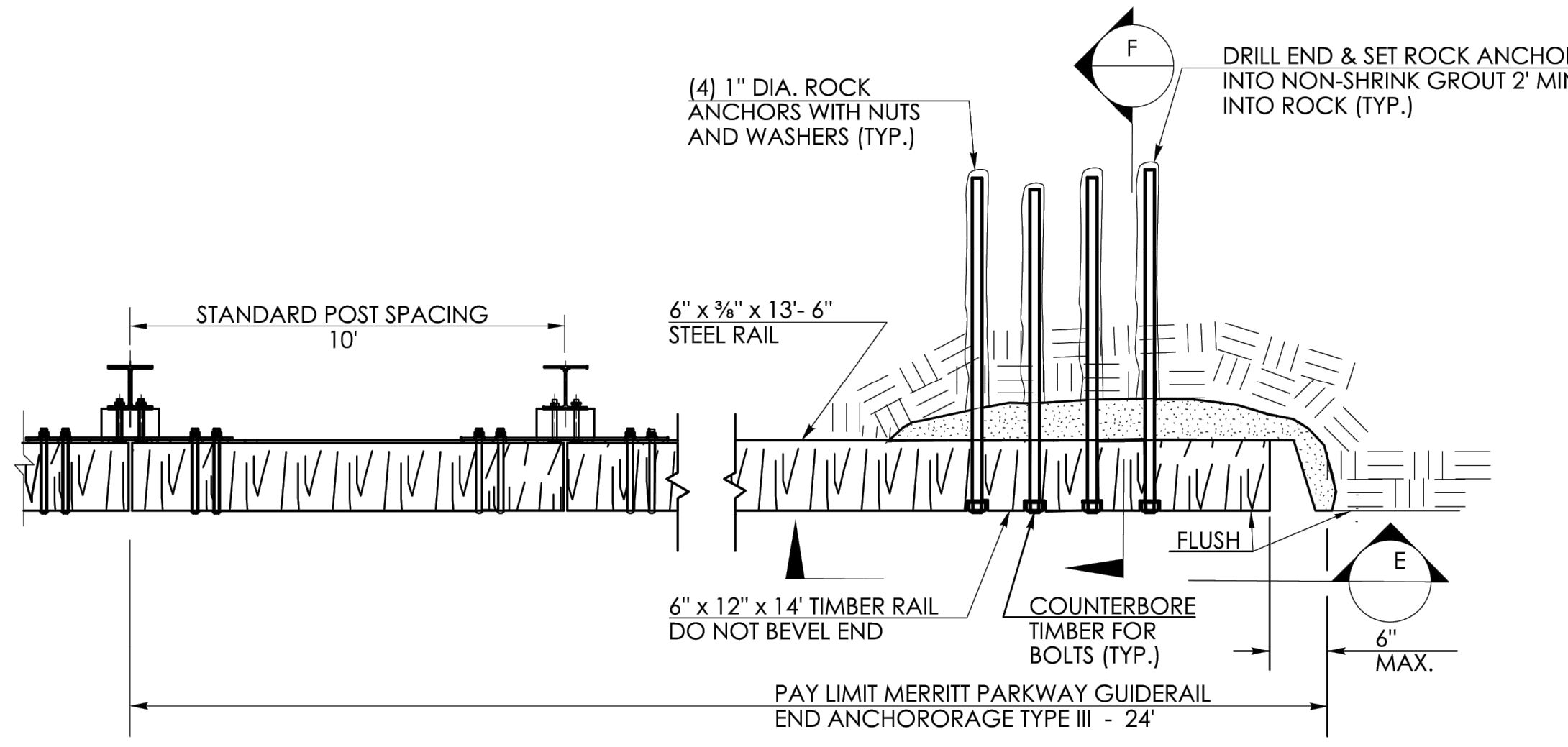


ELEVATION
DETAIL C
WT 15 x 86.5 (GALVANIZED)

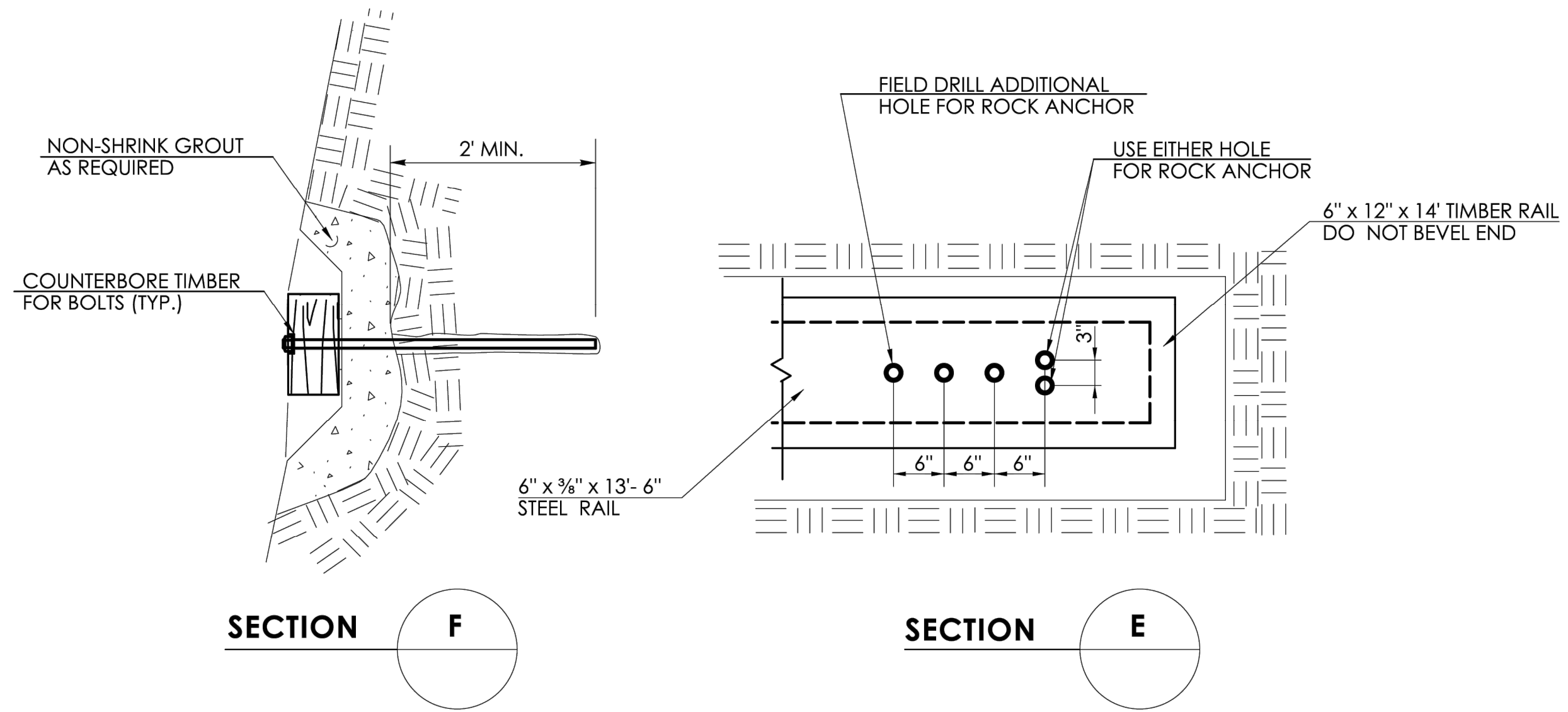


ELEVATION

MERRITT PARKWAY GUIDERAIL END ANCHORAGE TYPE II
(EARTH CUT SLOPE ANCHOR)

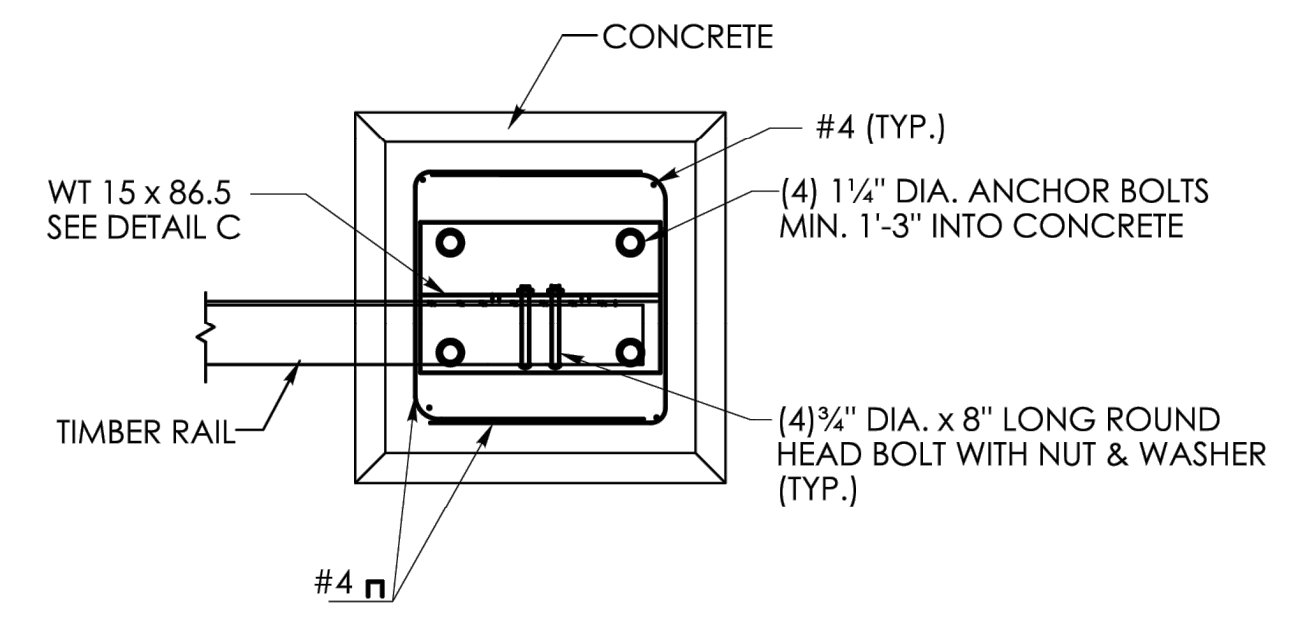


PLAN
MERRITT PARKWAY GUIDERAIL END ANCHORAGE TYPE III
(ROCK CUT ANCHOR)

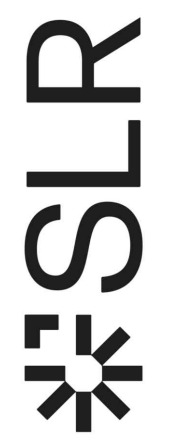


SECTION
F

SECTION
E



PLAN
DETAIL D
PLAN VIEW FOR
TYPE I & II ANCHOR



99 REGENCY DRIVE
 SUITE 100
 BOSTON, MA 02111

DATE	BY	DESCRIPTION

STEEL-BACKED TIMBER GUIDERAIL DETAILS

REPLACEMENT OF BARTLETT ROAD CULVERT
OVER UNNAMED BROOK

BARTLETT ROAD
 PLYMOUTH, MASSACHUSETTS

DESIGNED	DRAWN	KP
SCALE: N.T.S.		
DATE: SEPTEMBER 21, 2023		
PROJECT NO.: 11982.00016		
SHEET NO.: 29 OF 29		
SD-04		

ATTACHMENT 3

MASSACHUSETTS PREVAILING WAGE RATES



MAURA HEALEY
Governor

KIM DRISCOLL
Lt. Governor

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DEPARTMENT OF LABOR STANDARDS

Prevailing Wage Rates

As determined by the Director under the provisions of the
Massachusetts General Laws, Chapter 149, Sections 26 to 27H

LAUREN JONES
Secretary

MICHAEL FLANAGAN
Director

Awarding Authority: Town of Plymouth
Contract Number: 22335 **City/Town:** PLYMOUTH
Description of Work: Roadway realignment and bridge replacement over a brook
Job Location: Bartlett Road, Plymouth

Information about Prevailing Wage Schedules for Awarding Authorities and Contractors

- The wage rates will remain in effect for the duration of the project, except in the case of multi-year public construction projects. For construction projects lasting longer than one year, awarding authorities must request an updated wage schedule no later than two weeks before the anniversary of the date the contract was executed by the awarding authority and the general contractor. For multi-year CM AT RISK projects, the awarding authority must request an annual update no later than two weeks before the anniversary date, determined as the earlier of: (a) the execution date of the GMP Amendment, or (b) the execution date of the first amendment to permit procurement of construction services. The annual update requirement is not applicable to 27F "rental of equipment" contracts. **The updated wage schedule must be provided to all contractors, including general and sub-contractors, working on the construction project.**
- This wage schedule applies only to the specific project referenced at the top of this page and uniquely identified by the "Wage Request Number" on all pages of this schedule.
- An Awarding Authority must request an updated wage schedule if it has not opened bids or selected a contractor within 90 days of the date of issuance of the wage schedule. For CM AT RISK projects (bid pursuant to G.L. c.149A), the earlier of: (a) the execution date of the GMP Amendment, or (b) the bid for the first construction scope of work must be within 90-days of the wage schedule issuance date.
- The wage schedule shall be incorporated in any advertisement or call for bids for the project as required by M.G.L. c. 149, § 27. The wage schedule shall be made a part of the contract awarded for the project. The wage schedule must be posted in a conspicuous place at the work site for the life of the project in accordance with M.G.L. c. 149 § 27. The wages listed on the wage schedule must be paid to employees performing construction work on the project whether they are employed by the prime contractor, a filed sub-bidder, or a sub-contractor.
- Apprentices working on the project are required to be registered with the Massachusetts Division of Apprentice Standards (DAS). Apprentices must keep their apprentice identification card on their persons during all work hours on the project. An apprentice registered with DAS may be paid the lower apprentice wage rate at the applicable step as provided on the prevailing wage schedule. **Any apprentice not registered with DAS regardless of whether they are registered with another federal, state, local, or private agency must be paid the journeyworker's rate.**
- Every contractor or subcontractor working on the construction project must submit weekly payroll reports and a Statement of Compliance directly to the awarding authority by mail or email and keep them on file for three years. Each weekly payroll report must contain: the employee's name, address, occupational classification, hours worked, and wages paid. Do not submit weekly payroll reports to DLS. For a sample payroll reporting form go to <http://www.mass.gov/dols/pw>.
- Contractors with questions about the wage rates or classifications included on the wage schedule have an affirmative obligation to inquire with DLS at (617) 626-6953.
- Contractors must obtain the wage schedules from awarding authorities. Failure of a contractor or subcontractor to pay the prevailing wage rates listed on the wage schedule to all employees who perform construction work on the project is a violation of the law and subjects the contractor or subcontractor to civil and criminal penalties.
- Employees not receiving the prevailing wage rate set forth on the wage schedule may file a complaint with the Fair Labor Division of the office of the Attorney General at (617) 727-3465.

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Construction						
(2 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	06/01/2023	\$38.95	\$14.57	\$17.29	\$0.00	\$70.81
	12/01/2023	\$38.95	\$14.57	\$18.67	\$0.00	\$72.19
	01/01/2024	\$38.95	\$15.07	\$18.67	\$0.00	\$72.69
	06/01/2024	\$39.95	\$15.07	\$18.67	\$0.00	\$73.69
	12/01/2024	\$39.95	\$15.07	\$20.17	\$0.00	\$75.19
	01/01/2025	\$39.95	\$15.57	\$20.17	\$0.00	\$75.69
	06/01/2025	\$40.95	\$15.57	\$20.17	\$0.00	\$76.69
	12/01/2025	\$40.95	\$15.57	\$21.78	\$0.00	\$78.30
	01/01/2026	\$40.95	\$16.17	\$21.78	\$0.00	\$78.90
	06/01/2026	\$41.95	\$16.17	\$21.78	\$0.00	\$79.90
	12/01/2026	\$41.95	\$16.17	\$23.52	\$0.00	\$81.64
	01/01/2027	\$41.95	\$16.77	\$23.52	\$0.00	\$82.24
(3 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	06/01/2023	\$39.02	\$14.57	\$17.29	\$0.00	\$70.88
	12/01/2023	\$39.02	\$14.57	\$18.67	\$0.00	\$72.26
	01/01/2024	\$39.02	\$15.07	\$18.67	\$0.00	\$72.76
	06/01/2024	\$40.02	\$15.07	\$18.67	\$0.00	\$73.76
	12/01/2024	\$40.02	\$15.07	\$20.17	\$0.00	\$75.26
	01/01/2025	\$40.02	\$15.57	\$20.17	\$0.00	\$75.76
	06/01/2025	\$41.02	\$15.57	\$20.17	\$0.00	\$76.76
	12/01/2025	\$41.02	\$15.57	\$21.78	\$0.00	\$78.37
	01/01/2026	\$41.02	\$16.17	\$21.78	\$0.00	\$78.97
	06/01/2026	\$42.02	\$16.17	\$21.78	\$0.00	\$79.97
	12/01/2026	\$42.02	\$16.17	\$23.52	\$0.00	\$81.71
	01/01/2027	\$42.02	\$16.77	\$23.52	\$0.00	\$82.31
(4 & 5 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	06/01/2023	\$39.14	\$14.57	\$17.29	\$0.00	\$71.00
	12/01/2023	\$39.14	\$14.57	\$18.67	\$0.00	\$72.38
	01/01/2024	\$39.14	\$15.07	\$18.67	\$0.00	\$72.88
	06/01/2024	\$40.14	\$15.07	\$18.67	\$0.00	\$73.88
	12/01/2024	\$40.14	\$15.07	\$20.17	\$0.00	\$75.38
	01/01/2025	\$40.14	\$15.57	\$20.17	\$0.00	\$75.88
	06/01/2025	\$41.14	\$15.57	\$20.17	\$0.00	\$76.88
	12/01/2025	\$41.14	\$15.57	\$21.78	\$0.00	\$78.49
	01/01/2026	\$41.14	\$16.17	\$21.78	\$0.00	\$79.09
	06/01/2026	\$42.14	\$16.17	\$21.78	\$0.00	\$80.09
	12/01/2026	\$42.14	\$16.17	\$23.52	\$0.00	\$81.83
	01/01/2027	\$42.14	\$16.77	\$23.52	\$0.00	\$82.43
ADS/SUBMERSIBLE PILOT <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2020	\$103.05	\$9.40	\$23.12	\$0.00	\$135.57
For apprentice rates see "Apprentice- PILE DRIVER"						
AIR TRACK OPERATOR <i>LABORERS - ZONE 2</i>	06/01/2023	\$38.21	\$9.40	\$16.89	\$0.00	\$64.50
	12/01/2023	\$39.11	\$9.40	\$16.89	\$0.00	\$65.40
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
AIR TRACK OPERATOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	06/01/2023	\$38.21	\$9.40	\$16.89	\$0.00	\$64.50
	12/01/2023	\$39.11	\$9.40	\$16.89	\$0.00	\$65.40
	06/01/2024	\$40.44	\$9.40	\$16.89	\$0.00	\$66.73
	12/01/2024	\$41.77	\$9.40	\$16.89	\$0.00	\$68.06
	06/01/2025	\$43.16	\$9.40	\$16.89	\$0.00	\$69.45
	12/01/2025	\$44.54	\$9.40	\$16.89	\$0.00	\$70.83
	06/01/2026	\$45.98	\$9.40	\$16.89	\$0.00	\$72.27
	12/01/2026	\$47.42	\$9.40	\$16.89	\$0.00	\$73.71
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)						
ASBESTOS REMOVER - PIPE / MECH. EQUIPT. <i>HEAT & FROST INSULATORS LOCAL 6 (BOSTON)</i>	06/01/2023	\$39.80	\$14.50	\$11.05	\$0.00	\$65.35
	12/01/2023	\$40.80	\$14.50	\$11.05	\$0.00	\$66.35
	06/01/2024	\$41.80	\$14.50	\$11.05	\$0.00	\$67.35
	12/01/2024	\$42.80	\$14.50	\$11.05	\$0.00	\$68.35
	06/01/2025	\$43.80	\$14.50	\$11.05	\$0.00	\$69.35
	12/01/2025	\$44.80	\$14.50	\$11.05	\$0.00	\$70.35
ASPHALT RAKER <i>LABORERS - ZONE 2</i>	06/01/2023	\$37.71	\$9.40	\$16.89	\$0.00	\$64.00
	12/01/2023	\$38.61	\$9.40	\$16.89	\$0.00	\$64.90
For apprentice rates see "Apprentice- LABORER"						
ASPHALT RAKER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	06/01/2023	\$37.71	\$9.40	\$16.89	\$0.00	\$64.00
	12/01/2023	\$38.61	\$9.40	\$16.89	\$0.00	\$64.90
	06/01/2024	\$39.94	\$9.40	\$16.89	\$0.00	\$66.23
	12/01/2024	\$41.27	\$9.40	\$16.89	\$0.00	\$67.56
	06/01/2025	\$42.66	\$9.40	\$16.89	\$0.00	\$68.95
	12/01/2025	\$44.04	\$9.40	\$16.89	\$0.00	\$70.33
	06/01/2026	\$45.48	\$9.40	\$16.89	\$0.00	\$71.77
	12/01/2026	\$46.92	\$9.40	\$16.89	\$0.00	\$73.21
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)						
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2023	\$54.28	\$14.75	\$16.15	\$0.00	\$85.18
	12/01/2023	\$55.53	\$14.75	\$16.15	\$0.00	\$86.43
	06/01/2024	\$56.83	\$14.75	\$16.15	\$0.00	\$87.73
	12/01/2024	\$58.28	\$14.75	\$16.15	\$0.00	\$89.18
	06/01/2025	\$59.58	\$14.75	\$16.15	\$0.00	\$90.48
	12/01/2025	\$61.03	\$14.75	\$16.15	\$0.00	\$91.93
	06/01/2026	\$62.33	\$14.75	\$16.15	\$0.00	\$93.23
	12/01/2026	\$63.78	\$14.75	\$16.15	\$0.00	\$94.68
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BACKHOE/FRONT-END LOADER <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2023	\$54.28	\$14.75	\$16.15	\$0.00	\$85.18
	12/01/2023	\$55.53	\$14.75	\$16.15	\$0.00	\$86.43
	06/01/2024	\$56.83	\$14.75	\$16.15	\$0.00	\$87.73
	12/01/2024	\$58.28	\$14.75	\$16.15	\$0.00	\$89.18
	06/01/2025	\$59.58	\$14.75	\$16.15	\$0.00	\$90.48
	12/01/2025	\$61.03	\$14.75	\$16.15	\$0.00	\$91.93
	06/01/2026	\$62.33	\$14.75	\$16.15	\$0.00	\$93.23
	12/01/2026	\$63.78	\$14.75	\$16.15	\$0.00	\$94.68
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
BARCO-TYPE JUMPING TAMPER <i>LABORERS - ZONE 2</i>	06/01/2023	\$37.71	\$9.40	\$16.89	\$0.00	\$64.00
	12/01/2023	\$38.61	\$9.40	\$16.89	\$0.00	\$64.90
For apprentice rates see "Apprentice- LABORER"						
BLOCK PAVER, RAMMER / CURB SETTER <i>LABORERS - ZONE 2</i>	06/01/2023	\$38.21	\$9.40	\$16.89	\$0.00	\$64.50
	12/01/2023	\$39.11	\$9.40	\$16.89	\$0.00	\$65.40
For apprentice rates see "Apprentice- LABORER"						
BLOCK PAVER, RAMMER / CURB SETTER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	06/01/2023	\$38.21	\$9.40	\$16.89	\$0.00	\$64.50
	12/01/2023	\$39.11	\$9.40	\$16.89	\$0.00	\$65.40
	06/01/2024	\$40.44	\$9.40	\$16.89	\$0.00	\$66.73
	12/01/2024	\$41.77	\$9.40	\$16.89	\$0.00	\$68.06
	06/01/2025	\$43.16	\$9.40	\$16.89	\$0.00	\$69.45
	12/01/2025	\$44.54	\$9.40	\$16.89	\$0.00	\$70.83
	06/01/2026	\$45.98	\$9.40	\$16.89	\$0.00	\$72.27
	12/01/2026	\$47.42	\$9.40	\$16.89	\$0.00	\$73.71
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)						
BOILER MAKER <i>BOILERMAKERS LOCAL 29</i>	01/01/2023	\$47.37	\$7.07	\$20.31	\$0.00	\$74.75
	01/01/2024	\$48.12	\$7.07	\$20.60	\$0.00	\$75.79

Apprentice - BOILERMAKER - Local 29

Effective Date - 01/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	65	\$30.79	\$7.07	\$13.22	\$0.00	\$51.08
2	65	\$30.79	\$7.07	\$13.22	\$0.00	\$51.08
3	70	\$33.16	\$7.07	\$14.23	\$0.00	\$54.46
4	75	\$35.53	\$7.07	\$15.24	\$0.00	\$57.84
5	80	\$37.90	\$7.07	\$16.25	\$0.00	\$61.22
6	85	\$40.26	\$7.07	\$17.28	\$0.00	\$64.61
7	90	\$42.63	\$7.07	\$18.28	\$0.00	\$67.98
8	95	\$45.00	\$7.07	\$19.32	\$0.00	\$71.39

Effective Date - 01/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	65	\$31.28	\$7.07	\$13.22	\$0.00	\$51.57
2	65	\$31.28	\$7.07	\$13.22	\$0.00	\$51.57
3	70	\$33.68	\$7.07	\$14.23	\$0.00	\$54.98
4	75	\$36.09	\$7.07	\$15.24	\$0.00	\$58.40
5	80	\$38.50	\$7.07	\$16.25	\$0.00	\$61.82
6	85	\$40.90	\$7.07	\$17.28	\$0.00	\$65.25
7	90	\$43.31	\$7.07	\$18.28	\$0.00	\$68.66
8	95	\$45.71	\$7.07	\$19.32	\$0.00	\$72.10

Notes:

Apprentice to Journeyworker Ratio:1:4

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING) <i>BRICKLAYERS LOCAL 3 (QUINCY)</i>	08/01/2023	\$62.40	\$11.49	\$22.34	\$0.00	\$96.23
	02/01/2024	\$63.65	\$11.49	\$22.34	\$0.00	\$97.48
	08/01/2024	\$65.75	\$11.49	\$22.34	\$0.00	\$99.58
	02/01/2025	\$67.05	\$11.49	\$22.34	\$0.00	\$100.88
	08/01/2025	\$69.20	\$11.49	\$22.34	\$0.00	\$103.03
	02/01/2026	\$70.55	\$11.49	\$22.34	\$0.00	\$104.38
	08/01/2026	\$72.75	\$11.49	\$22.34	\$0.00	\$106.58
	02/01/2027	\$74.15	\$11.49	\$22.34	\$0.00	\$107.98

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

Effective Date - 08/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$31.20	\$11.49	\$22.34	\$0.00	\$65.03
2	60	\$37.44	\$11.49	\$22.34	\$0.00	\$71.27
3	70	\$43.68	\$11.49	\$22.34	\$0.00	\$77.51
4	80	\$49.92	\$11.49	\$22.34	\$0.00	\$83.75
5	90	\$56.16	\$11.49	\$22.34	\$0.00	\$89.99

Effective Date - 02/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$31.83	\$11.49	\$22.34	\$0.00	\$65.66
2	60	\$38.19	\$11.49	\$22.34	\$0.00	\$72.02
3	70	\$44.56	\$11.49	\$22.34	\$0.00	\$78.39
4	80	\$50.92	\$11.49	\$22.34	\$0.00	\$84.75
5	90	\$57.29	\$11.49	\$22.34	\$0.00	\$91.12

Notes:

Apprentice to Journeyworker Ratio:1:5

BULLDOZER/GRADER/SCRAPER <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2023	\$53.69	\$14.75	\$16.15	\$0.00	\$84.59
	12/01/2023	\$54.93	\$14.75	\$16.15	\$0.00	\$85.83
	06/01/2024	\$56.21	\$14.75	\$16.15	\$0.00	\$87.11
	12/01/2024	\$57.65	\$14.75	\$16.15	\$0.00	\$88.55
	06/01/2025	\$58.93	\$14.75	\$16.15	\$0.00	\$89.83
	12/01/2025	\$60.37	\$14.75	\$16.15	\$0.00	\$91.27
	06/01/2026	\$61.65	\$14.75	\$16.15	\$0.00	\$92.55
	12/01/2026	\$63.09	\$14.75	\$16.15	\$0.00	\$93.99

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
CAISSON & UNDERPINNING BOTTOM MAN <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2023	\$44.73	\$9.40	\$17.97	\$0.00	\$72.10
	12/01/2023	\$45.98	\$9.40	\$17.97	\$0.00	\$73.35
	06/01/2024	\$47.46	\$9.40	\$17.97	\$0.00	\$74.83
	12/01/2024	\$48.93	\$9.40	\$17.97	\$0.00	\$76.30
	06/01/2025	\$50.43	\$9.40	\$17.97	\$0.00	\$77.80
	12/01/2025	\$51.93	\$9.40	\$17.97	\$0.00	\$79.30
	06/01/2026	\$53.48	\$9.40	\$17.97	\$0.00	\$80.85
	12/01/2026	\$54.98	\$9.40	\$17.97	\$0.00	\$82.35
For apprentice rates see "Apprentice- LABORER"						
CAISSON & UNDERPINNING LABORER <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2023	\$43.58	\$9.40	\$17.97	\$0.00	\$70.95
	12/01/2023	\$44.83	\$9.40	\$17.97	\$0.00	\$72.20
	06/01/2024	\$46.31	\$9.40	\$17.97	\$0.00	\$73.68
	12/01/2024	\$47.78	\$9.40	\$17.97	\$0.00	\$75.15
	06/01/2025	\$49.28	\$9.40	\$17.97	\$0.00	\$76.65
	12/01/2025	\$50.78	\$9.40	\$17.97	\$0.00	\$78.15
	06/01/2026	\$52.33	\$9.40	\$17.97	\$0.00	\$79.70
	12/01/2026	\$53.83	\$9.40	\$17.97	\$0.00	\$81.20
For apprentice rates see "Apprentice- LABORER"						
CAISSON & UNDERPINNING TOP MAN <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2023	\$43.58	\$9.40	\$17.97	\$0.00	\$70.95
	12/01/2023	\$44.83	\$9.40	\$17.97	\$0.00	\$72.20
	06/01/2024	\$46.31	\$9.40	\$17.97	\$0.00	\$73.68
	12/01/2024	\$47.78	\$9.40	\$17.97	\$0.00	\$75.15
	06/01/2025	\$49.28	\$9.40	\$17.97	\$0.00	\$76.65
	12/01/2025	\$50.78	\$9.40	\$17.97	\$0.00	\$78.15
	06/01/2026	\$52.33	\$9.40	\$17.97	\$0.00	\$79.70
	12/01/2026	\$53.83	\$9.40	\$17.97	\$0.00	\$81.20
For apprentice rates see "Apprentice- LABORER"						
CARBIDE CORE DRILL OPERATOR <i>LABORERS - ZONE 2</i>	06/01/2023	\$37.71	\$9.40	\$16.89	\$0.00	\$64.00
	12/01/2023	\$38.61	\$9.40	\$16.89	\$0.00	\$64.90
For apprentice rates see "Apprentice- LABORER"						
CARPENTER <i>CARPENTERS -ZONE 2 (Eastern Massachusetts)</i>	03/01/2023	\$45.12	\$9.33	\$19.97	\$0.00	\$74.42

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - CARPENTER - Zone 2 Eastern MA

Effective Date - 03/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.56	\$9.33	\$1.73	\$0.00	\$33.62
2	60	\$27.07	\$9.33	\$1.73	\$0.00	\$38.13
3	70	\$31.58	\$9.33	\$14.78	\$0.00	\$55.69
4	75	\$33.84	\$9.33	\$14.78	\$0.00	\$57.95
5	80	\$36.10	\$9.33	\$16.51	\$0.00	\$61.94
6	80	\$36.10	\$9.33	\$16.51	\$0.00	\$61.94
7	90	\$40.61	\$9.33	\$18.24	\$0.00	\$68.18
8	90	\$40.61	\$9.33	\$18.24	\$0.00	\$68.18

Notes:

% Indentured After 10/1/17; 45/45/55/55/70/70/80/80
 Step 1&2 \$30.71/ 3&4 \$36.93/ 5&6 \$56.82/ 7&8 \$63.06

Apprentice to Journeyworker Ratio:1:5

CARPENTER WOOD FRAME CARPENTERS-ZONE 3 (Wood Frame)	04/01/2023	\$24.16	\$7.21	\$4.80	\$0.00	\$36.17
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All Aspects of New Wood Frame Work

Apprentice - CARPENTER (Wood Frame) - Zone 3

Effective Date - 04/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$14.50	\$7.21	\$0.00	\$0.00	\$21.71
2	60	\$14.50	\$7.21	\$0.00	\$0.00	\$21.71
3	65	\$15.70	\$7.21	\$0.00	\$0.00	\$22.91
4	70	\$16.91	\$7.21	\$0.00	\$0.00	\$24.12
5	75	\$18.12	\$7.21	\$3.80	\$0.00	\$29.13
6	80	\$19.33	\$7.21	\$3.80	\$0.00	\$30.34
7	85	\$20.54	\$7.21	\$3.80	\$0.00	\$31.55
8	90	\$21.74	\$7.21	\$3.80	\$0.00	\$32.75

Notes:

% Indentured After 10/1/17; 45/45/55/55/70/70/80/80
 Step 1&2 \$17.86/ 3&4 \$20.22/ 5&6 \$27.57/ 7&8 \$29.94

Apprentice to Journeyworker Ratio:1:5

CEMENT MASONRY/PLASTERING BRICKLAYERS LOCAL 3 (QUINCY)	07/01/2023	\$48.19	\$13.00	\$23.57	\$1.30	\$86.06
	01/01/2024	\$49.33	\$13.00	\$23.57	\$1.30	\$87.20

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - CEMENT MASONRY/PLASTERING - Eastern Mass (Quincy)

Effective Date - 07/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.10	\$13.00	\$15.93	\$0.00	\$53.03
2	60	\$28.91	\$13.00	\$18.57	\$1.30	\$61.78
3	65	\$31.32	\$13.00	\$19.57	\$1.30	\$65.19
4	70	\$33.73	\$13.00	\$20.57	\$1.30	\$68.60
5	75	\$36.14	\$13.00	\$21.57	\$1.30	\$72.01
6	80	\$38.55	\$13.00	\$22.57	\$1.30	\$75.42
7	90	\$43.37	\$13.00	\$23.57	\$1.30	\$81.24

Effective Date - 01/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.67	\$13.00	\$15.93	\$0.00	\$53.60
2	60	\$29.60	\$13.00	\$18.57	\$1.30	\$62.47
3	65	\$32.06	\$13.00	\$19.57	\$1.30	\$65.93
4	70	\$34.53	\$13.00	\$20.57	\$1.30	\$69.40
5	75	\$37.00	\$13.00	\$21.57	\$1.30	\$72.87
6	80	\$39.46	\$13.00	\$22.57	\$1.30	\$76.33
7	90	\$44.40	\$13.00	\$23.57	\$1.30	\$82.27

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

Apprentice to Journeyworker Ratio:1:3

CHAIN SAW OPERATOR LABORERS - ZONE 2	06/01/2023	\$37.71	\$9.40	\$16.89	\$0.00	\$64.00
	12/01/2023	\$38.61	\$9.40	\$16.89	\$0.00	\$64.90
For apprentice rates see "Apprentice- LABORER"						
CLAM SHELLS/SLURRY BUCKETS/HEADING MACHINES OPERATING ENGINEERS LOCAL 4	06/01/2023	\$55.35	\$14.75	\$16.15	\$0.00	\$86.25
	12/01/2023	\$56.63	\$14.75	\$16.15	\$0.00	\$87.53
	06/01/2024	\$57.95	\$14.75	\$16.15	\$0.00	\$88.85
	12/01/2024	\$59.43	\$14.75	\$16.15	\$0.00	\$90.33
	06/01/2025	\$60.76	\$14.75	\$16.15	\$0.00	\$91.66
	12/01/2025	\$62.23	\$14.75	\$16.15	\$0.00	\$93.13
	06/01/2026	\$63.56	\$14.75	\$16.15	\$0.00	\$94.46
	12/01/2026	\$65.04	\$14.75	\$16.15	\$0.00	\$95.94
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
COMPRESSOR OPERATOR OPERATING ENGINEERS LOCAL 4	06/01/2023	\$35.30	\$14.75	\$16.15	\$0.00	\$66.20
	12/01/2023	\$36.12	\$14.75	\$16.15	\$0.00	\$67.02
	06/01/2024	\$36.97	\$14.75	\$16.15	\$0.00	\$67.87
	12/01/2024	\$37.92	\$14.75	\$16.15	\$0.00	\$68.82
	06/01/2025	\$38.77	\$14.75	\$16.15	\$0.00	\$69.67
	12/01/2025	\$39.72	\$14.75	\$16.15	\$0.00	\$70.62
	06/01/2026	\$40.58	\$14.75	\$16.15	\$0.00	\$71.48
	12/01/2026	\$41.53	\$14.75	\$16.15	\$0.00	\$72.43

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DELEADER (BRIDGE) PAINTERS LOCAL 35 - ZONE 2	07/01/2023	\$55.51	\$9.65	\$23.70	\$0.00	\$88.86
	01/01/2024	\$56.06	\$9.95	\$23.95	\$0.00	\$89.96
	07/01/2024	\$57.26	\$9.95	\$23.95	\$0.00	\$91.16
	01/01/2025	\$58.46	\$9.95	\$23.95	\$0.00	\$92.36

Apprentice - PAINTER Local 35 - BRIDGES/TANKS

Effective Date - 07/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$27.76	\$9.65	\$0.00	\$0.00	\$37.41
2	55	\$30.53	\$9.65	\$6.55	\$0.00	\$46.73
3	60	\$33.31	\$9.65	\$7.14	\$0.00	\$50.10
4	65	\$36.08	\$9.65	\$7.74	\$0.00	\$53.47
5	70	\$38.86	\$9.65	\$20.13	\$0.00	\$68.64
6	75	\$41.63	\$9.65	\$20.73	\$0.00	\$72.01
7	80	\$44.41	\$9.65	\$21.32	\$0.00	\$75.38
8	90	\$49.96	\$9.65	\$22.51	\$0.00	\$82.12

Effective Date - 01/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$28.03	\$9.95	\$0.00	\$0.00	\$37.98
2	55	\$30.83	\$9.95	\$6.66	\$0.00	\$47.44
3	60	\$33.64	\$9.95	\$7.26	\$0.00	\$50.85
4	65	\$36.44	\$9.95	\$7.87	\$0.00	\$54.26
5	70	\$39.24	\$9.95	\$20.32	\$0.00	\$69.51
6	75	\$42.05	\$9.95	\$20.93	\$0.00	\$72.93
7	80	\$44.85	\$9.95	\$21.53	\$0.00	\$76.33
8	90	\$50.45	\$9.95	\$22.74	\$0.00	\$83.14

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

DEMO: ADZEMAN LABORERS - ZONE 2	06/01/2023	\$43.73	\$9.40	\$17.82	\$0.00	\$70.95
	12/01/2023	\$44.98	\$9.40	\$17.82	\$0.00	\$72.20
For apprentice rates see "Apprentice- LABORER"						
DEMO: BACKHOE/LOADER/HAMMER OPERATOR LABORERS - ZONE 2	06/01/2023	\$44.73	\$9.40	\$17.82	\$0.00	\$71.95
	12/01/2023	\$45.98	\$9.40	\$17.82	\$0.00	\$73.20
For apprentice rates see "Apprentice- LABORER"						
DEMO: BURNERS LABORERS - ZONE 2	06/01/2023	\$44.48	\$9.40	\$17.82	\$0.00	\$71.70
	12/01/2023	\$45.73	\$9.40	\$17.82	\$0.00	\$72.95
For apprentice rates see "Apprentice- LABORER"						
DEMO: CONCRETE CUTTER/SAWYER LABORERS - ZONE 2	06/01/2023	\$44.73	\$9.40	\$17.82	\$0.00	\$71.95
	12/01/2023	\$45.98	\$9.40	\$17.82	\$0.00	\$73.20
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
DEMO: JACKHAMMER OPERATOR <i>LABORERS - ZONE 2</i>	06/01/2023	\$44.48	\$9.40	\$17.82	\$0.00	\$71.70
	12/01/2023	\$45.73	\$9.40	\$17.82	\$0.00	\$72.95
For apprentice rates see "Apprentice- LABORER"						
DEMO: WRECKING LABORER <i>LABORERS - ZONE 2</i>	06/01/2023	\$43.73	\$9.40	\$17.82	\$0.00	\$70.95
	12/01/2023	\$44.98	\$9.40	\$17.82	\$0.00	\$72.20
For apprentice rates see "Apprentice- LABORER"						
DIRECTIONAL DRILL MACHINE OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2023	\$53.69	\$14.75	\$16.15	\$0.00	\$84.59
	12/01/2023	\$54.93	\$14.75	\$16.15	\$0.00	\$85.83
	06/01/2024	\$56.21	\$14.75	\$16.15	\$0.00	\$87.11
	12/01/2024	\$57.65	\$14.75	\$16.15	\$0.00	\$88.55
	06/01/2025	\$58.93	\$14.75	\$16.15	\$0.00	\$89.83
	12/01/2025	\$60.37	\$14.75	\$16.15	\$0.00	\$91.27
	06/01/2026	\$61.65	\$14.75	\$16.15	\$0.00	\$92.55
	12/01/2026	\$63.09	\$14.75	\$16.15	\$0.00	\$93.99
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DIVER <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2020	\$68.70	\$9.40	\$23.12	\$0.00	\$101.22
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2020	\$49.07	\$9.40	\$23.12	\$0.00	\$81.59
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2020	\$73.60	\$9.40	\$23.12	\$0.00	\$106.12
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER/SLURRY (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2020	\$103.05	\$9.40	\$23.12	\$0.00	\$135.57
For apprentice rates see "Apprentice- PILE DRIVER"						
DRAWBRIDGE OPERATOR (Construction) <i>DRAWBRIDGE - SEIU LOCAL 888</i>	07/01/2020	\$26.77	\$6.67	\$3.93	\$0.16	\$37.53
ELECTRICIAN <i>ELECTRICIANS LOCAL 223</i>	09/01/2023	\$47.87	\$11.75	\$16.86	\$0.00	\$76.48

Apprentice - ELECTRICIAN - Local 223

Effective Date - 09/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$19.15	\$11.75	\$0.57	\$0.00	\$31.47
2	45	\$21.54	\$11.75	\$0.65	\$0.00	\$33.94
3	50	\$23.94	\$11.75	\$0.72	\$0.00	\$36.41
4	55	\$26.33	\$11.75	\$7.79	\$0.00	\$45.87
5	60	\$28.72	\$11.75	\$8.31	\$0.00	\$48.78
6	65	\$31.12	\$11.75	\$8.65	\$0.00	\$51.52
7	70	\$33.51	\$11.75	\$9.38	\$0.00	\$54.64
8	75	\$35.90	\$11.75	\$9.90	\$0.00	\$57.55

Notes:

Apprentice to Journeyworker Ratio:2:3***

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
ELEVATOR CONSTRUCTOR <i>ELEVATOR CONSTRUCTORS LOCAL 4</i>	01/01/2022	\$65.62	\$16.03	\$20.21	\$0.00	\$101.86

Apprentice - ELEVATOR CONSTRUCTOR - Local 4

Effective Date - 01/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$32.81	\$16.03	\$0.00	\$0.00	\$48.84
2	55	\$36.09	\$16.03	\$20.21	\$0.00	\$72.33
3	65	\$42.65	\$16.03	\$20.21	\$0.00	\$78.89
4	70	\$45.93	\$16.03	\$20.21	\$0.00	\$82.17
5	80	\$52.50	\$16.03	\$20.21	\$0.00	\$88.74

Notes:

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

Apprentice to Journeyworker Ratio:1:1

ELEVATOR CONSTRUCTOR HELPER <i>ELEVATOR CONSTRUCTORS LOCAL 4</i>	01/01/2022	\$45.93	\$16.03	\$20.21	\$0.00	\$82.17
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For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"

FENCE & GUARD RAIL ERECTOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	06/01/2023	\$37.71	\$9.40	\$16.89	\$0.00	\$64.00
	12/01/2023	\$38.61	\$9.40	\$16.89	\$0.00	\$64.90
	06/01/2024	\$39.94	\$9.40	\$16.89	\$0.00	\$66.23
	12/01/2024	\$41.27	\$9.40	\$16.89	\$0.00	\$67.56
	06/01/2025	\$42.66	\$9.40	\$16.89	\$0.00	\$68.95
	12/01/2025	\$44.04	\$9.40	\$16.89	\$0.00	\$70.33
	06/01/2026	\$45.48	\$9.40	\$16.89	\$0.00	\$71.77
	12/01/2026	\$46.92	\$9.40	\$16.89	\$0.00	\$73.21

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

FIELD ENG.INST.PERSON-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	05/01/2023	\$49.06	\$14.50	\$16.15	\$0.00	\$79.71
	11/01/2023	\$50.30	\$14.50	\$16.15	\$0.00	\$80.95
	05/01/2024	\$51.54	\$14.50	\$16.15	\$0.00	\$82.19
	11/01/2024	\$52.83	\$14.50	\$16.15	\$0.00	\$83.48
	05/01/2025	\$54.27	\$14.50	\$16.15	\$0.00	\$84.92
	11/01/2025	\$55.56	\$14.50	\$16.15	\$0.00	\$86.21
	05/01/2026	\$57.00	\$14.50	\$16.15	\$0.00	\$87.65
	11/01/2026	\$58.29	\$14.50	\$16.15	\$0.00	\$88.94
	05/01/2027	\$59.72	\$14.50	\$16.15	\$0.00	\$90.37

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FIELD ENG.PARTY CHIEF-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	05/01/2023	\$50.62	\$14.50	\$16.15	\$0.00	\$81.27
	11/01/2023	\$51.87	\$14.50	\$16.15	\$0.00	\$82.52
	05/01/2024	\$53.12	\$14.50	\$16.15	\$0.00	\$83.77
	11/01/2024	\$54.42	\$14.50	\$16.15	\$0.00	\$85.07
	05/01/2025	\$55.87	\$14.50	\$16.15	\$0.00	\$86.52
	11/01/2025	\$57.17	\$14.50	\$16.15	\$0.00	\$87.82
	05/01/2026	\$58.62	\$14.50	\$16.15	\$0.00	\$89.27
	11/01/2026	\$59.92	\$14.50	\$16.15	\$0.00	\$90.57
	05/01/2027	\$61.37	\$14.50	\$16.15	\$0.00	\$92.02
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIELD ENG.ROD PERSON-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	05/01/2023	\$24.20	\$14.50	\$16.15	\$0.00	\$54.85
	11/01/2023	\$24.93	\$14.50	\$16.15	\$0.00	\$55.58
	05/01/2024	\$25.66	\$14.50	\$16.15	\$0.00	\$56.31
	11/01/2024	\$26.42	\$14.50	\$16.15	\$0.00	\$57.07
	05/01/2025	\$27.27	\$14.50	\$16.15	\$0.00	\$57.92
	11/01/2025	\$28.03	\$14.50	\$16.15	\$0.00	\$58.68
	05/01/2026	\$28.88	\$14.50	\$16.15	\$0.00	\$59.53
	11/01/2026	\$29.64	\$14.50	\$16.15	\$0.00	\$60.29
	05/01/2027	\$30.49	\$14.50	\$16.15	\$0.00	\$61.14
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIRE ALARM INSTALLER <i>ELECTRICIANS LOCAL 223</i>	09/01/2020	\$43.66	\$10.90	\$14.66	\$0.00	\$69.22
For apprentice rates see "Apprentice- ELECTRICIAN"						
FIRE ALARM REPAIR / MAINTENANCE / COMMISSIONING <i>ELECTRICIANS LOCAL 223</i>	09/01/2020	\$36.86	\$10.90	\$12.45	\$0.00	\$60.21
For apprentice rates see "Apprentice- TELECOMMUNICATIONS TECHNICIAN"						
FIREMAN (ASST. ENGINEER) <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2023	\$43.96	\$14.75	\$16.15	\$0.00	\$74.86
	12/01/2023	\$44.97	\$14.75	\$16.15	\$0.00	\$75.87
	06/01/2024	\$46.03	\$14.75	\$16.15	\$0.00	\$76.93
	12/01/2024	\$47.21	\$14.75	\$16.15	\$0.00	\$78.11
	06/01/2025	\$48.27	\$14.75	\$16.15	\$0.00	\$79.17
	12/01/2025	\$49.44	\$14.75	\$16.15	\$0.00	\$80.34
	06/01/2026	\$50.50	\$14.75	\$16.15	\$0.00	\$81.40
	12/01/2026	\$51.68	\$14.75	\$16.15	\$0.00	\$82.58
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FLAGGER & SIGNALER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	06/01/2023	\$25.98	\$9.40	\$16.89	\$0.00	\$52.27
	12/01/2023	\$25.98	\$9.40	\$16.89	\$0.00	\$52.27
	06/01/2024	\$27.01	\$9.40	\$16.89	\$0.00	\$53.30
	12/01/2024	\$27.01	\$9.40	\$16.89	\$0.00	\$53.30
	06/01/2025	\$28.09	\$9.40	\$16.89	\$0.00	\$54.38
	12/01/2025	\$28.09	\$9.40	\$16.89	\$0.00	\$54.38
	06/01/2026	\$29.21	\$9.40	\$16.89	\$0.00	\$55.50
	12/01/2026	\$29.21	\$9.40	\$16.89	\$0.00	\$55.50
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
FLOORCOVERER <i>FLOORCOVERERS LOCAL 2168 ZONE 1</i>	03/01/2022	\$51.77	\$9.33	\$20.27	\$0.00	\$81.37

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - FLOORCOVERER - Local 2168 Zone I

Effective Date - 03/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.89	\$9.33	\$1.79	\$0.00	\$37.01
2	55	\$28.47	\$9.33	\$1.79	\$0.00	\$39.59
3	60	\$31.06	\$9.33	\$14.90	\$0.00	\$55.29
4	65	\$33.65	\$9.33	\$14.90	\$0.00	\$57.88
5	70	\$36.24	\$9.33	\$16.69	\$0.00	\$62.26
6	75	\$38.83	\$9.33	\$16.69	\$0.00	\$64.85
7	80	\$41.42	\$9.33	\$18.48	\$0.00	\$69.23
8	85	\$44.00	\$9.33	\$18.48	\$0.00	\$71.81

Notes: Steps are 750 hrs.
 % After 10/1/17; 45/45/55/55/70/70/80/80 (1500hr Steps)
 Step 1&2 \$32.94/ 3&4 \$39.66/ 5&6 \$60.32/ 7&8 \$67.10

Apprentice to Journeyworker Ratio:1:1

FORK LIFT/CHERRY PICKER <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2023	\$54.28	\$14.75	\$16.15	\$0.00	\$85.18
	12/01/2023	\$55.53	\$14.75	\$16.15	\$0.00	\$86.43
	06/01/2024	\$56.83	\$14.75	\$16.15	\$0.00	\$87.73
	12/01/2024	\$58.28	\$14.75	\$16.15	\$0.00	\$89.18
	06/01/2025	\$59.58	\$14.75	\$16.15	\$0.00	\$90.48
	12/01/2025	\$61.03	\$14.75	\$16.15	\$0.00	\$91.93
	06/01/2026	\$62.33	\$14.75	\$16.15	\$0.00	\$93.23
	12/01/2026	\$63.78	\$14.75	\$16.15	\$0.00	\$94.68

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

GENERATOR/LIGHTING PLANT/HEATERS <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2023	\$35.30	\$14.75	\$16.15	\$0.00	\$66.20
	12/01/2023	\$36.12	\$14.75	\$16.15	\$0.00	\$67.02
	06/01/2024	\$36.97	\$14.75	\$16.15	\$0.00	\$67.87
	12/01/2024	\$37.92	\$14.75	\$16.15	\$0.00	\$68.82
	06/01/2025	\$38.77	\$14.75	\$16.15	\$0.00	\$69.67
	12/01/2025	\$39.72	\$14.75	\$16.15	\$0.00	\$70.62
	06/01/2026	\$40.58	\$14.75	\$16.15	\$0.00	\$71.48
	12/01/2026	\$41.53	\$14.75	\$16.15	\$0.00	\$72.43

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS) <i>GLAZIERS LOCAL 35 (ZONE 2)</i>	07/01/2023	\$45.01	\$9.65	\$23.70	\$0.00	\$78.36
	01/01/2024	\$45.56	\$9.95	\$23.95	\$0.00	\$79.46
	07/01/2024	\$46.76	\$9.95	\$23.95	\$0.00	\$80.66
	01/01/2025	\$47.96	\$9.95	\$23.95	\$0.00	\$81.86

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - GLAZIER - Local 35 Zone 2

Effective Date - 07/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.51	\$9.65	\$0.00	\$0.00	\$32.16
2	55	\$24.76	\$9.65	\$6.55	\$0.00	\$40.96
3	60	\$27.01	\$9.65	\$7.14	\$0.00	\$43.80
4	65	\$29.26	\$9.65	\$7.74	\$0.00	\$46.65
5	70	\$31.51	\$9.65	\$20.13	\$0.00	\$61.29
6	75	\$33.76	\$9.65	\$20.73	\$0.00	\$64.14
7	80	\$36.01	\$9.65	\$21.32	\$0.00	\$66.98
8	90	\$40.51	\$9.65	\$22.51	\$0.00	\$72.67

Effective Date - 01/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.78	\$9.95	\$0.00	\$0.00	\$32.73
2	55	\$25.06	\$9.95	\$6.66	\$0.00	\$41.67
3	60	\$27.34	\$9.95	\$7.26	\$0.00	\$44.55
4	65	\$29.61	\$9.95	\$7.87	\$0.00	\$47.43
5	70	\$31.89	\$9.95	\$20.32	\$0.00	\$62.16
6	75	\$34.17	\$9.95	\$20.93	\$0.00	\$65.05
7	80	\$36.45	\$9.95	\$21.53	\$0.00	\$67.93
8	90	\$41.00	\$9.95	\$22.74	\$0.00	\$73.69

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

HOISTING ENGINEER/CRANES/GRADALLS	06/01/2023	\$54.28	\$14.75	\$16.15	\$0.00	\$85.18
OPERATING ENGINEERS LOCAL 4	12/01/2023	\$55.53	\$14.75	\$16.15	\$0.00	\$86.43
	06/01/2024	\$56.83	\$14.75	\$16.15	\$0.00	\$87.73
	12/01/2024	\$58.28	\$14.75	\$16.15	\$0.00	\$89.18
	06/01/2025	\$59.58	\$14.75	\$16.15	\$0.00	\$90.48
	12/01/2025	\$61.03	\$14.75	\$16.15	\$0.00	\$91.93
	06/01/2026	\$62.33	\$14.75	\$16.15	\$0.00	\$93.23
	12/01/2026	\$63.78	\$14.75	\$16.15	\$0.00	\$94.68

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - OPERATING ENGINEERS - Local 4

Effective Date - 06/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$29.85	\$14.75	\$0.00	\$0.00	\$44.60
2	60	\$32.57	\$14.75	\$16.15	\$0.00	\$63.47
3	65	\$35.28	\$14.75	\$16.15	\$0.00	\$66.18
4	70	\$38.00	\$14.75	\$16.15	\$0.00	\$68.90
5	75	\$40.71	\$14.75	\$16.15	\$0.00	\$71.61
6	80	\$43.42	\$14.75	\$16.15	\$0.00	\$74.32
7	85	\$46.14	\$14.75	\$16.15	\$0.00	\$77.04
8	90	\$48.85	\$14.75	\$16.15	\$0.00	\$79.75

Effective Date - 12/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$30.54	\$14.75	\$0.00	\$0.00	\$45.29
2	60	\$33.32	\$14.75	\$16.15	\$0.00	\$64.22
3	65	\$36.09	\$14.75	\$16.15	\$0.00	\$66.99
4	70	\$38.87	\$14.75	\$16.15	\$0.00	\$69.77
5	75	\$41.65	\$14.75	\$16.15	\$0.00	\$72.55
6	80	\$44.42	\$14.75	\$16.15	\$0.00	\$75.32
7	85	\$47.20	\$14.75	\$16.15	\$0.00	\$78.10
8	90	\$49.98	\$14.75	\$16.15	\$0.00	\$80.88

Notes:

Apprentice to Journeyworker Ratio:1:6

HVAC (DUCTWORK) SHEETMETAL WORKERS LOCAL 17 - A	08/01/2023	\$57.01	\$14.11	\$26.64	\$2.83	\$100.59
	02/01/2024	\$58.71	\$14.11	\$26.64	\$2.83	\$102.29
	08/01/2024	\$60.46	\$14.11	\$26.64	\$2.83	\$104.04
	02/01/2025	\$62.21	\$14.11	\$26.64	\$2.83	\$105.79
	08/01/2025	\$64.06	\$14.11	\$26.64	\$2.83	\$107.64
	02/01/2026	\$66.01	\$14.11	\$26.64	\$2.83	\$109.59

For apprentice rates see "Apprentice- SHEET METAL WORKER"

HVAC (ELECTRICAL CONTROLS) ELECTRICIANS LOCAL 223	09/01/2020	\$43.66	\$10.90	\$14.66	\$0.00	\$69.22
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For apprentice rates see "Apprentice- ELECTRICIAN"

HVAC (TESTING AND BALANCING - AIR) SHEETMETAL WORKERS LOCAL 17 - A	08/01/2023	\$57.01	\$14.11	\$26.64	\$2.83	\$100.59
	02/01/2024	\$58.71	\$14.11	\$26.64	\$2.83	\$102.29
	08/01/2024	\$60.46	\$14.11	\$26.64	\$2.83	\$104.04
	02/01/2025	\$62.21	\$14.11	\$26.64	\$2.83	\$105.79
	08/01/2025	\$64.06	\$14.11	\$26.64	\$2.83	\$107.64
	02/01/2026	\$66.01	\$14.11	\$26.64	\$2.83	\$109.59

For apprentice rates see "Apprentice- SHEET METAL WORKER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
HVAC (TESTING AND BALANCING -WATER) <i>PLUMBERS & PIPEFITTERS LOCAL 51</i>	08/28/2023	\$51.99	\$10.15	\$19.95	\$0.00	\$82.09
	08/26/2024	\$54.74	\$10.15	\$19.95	\$0.00	\$84.84
	08/25/2025	\$57.49	\$10.15	\$19.95	\$0.00	\$87.59
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HVAC MECHANIC <i>PLUMBERS & PIPEFITTERS LOCAL 51</i>	08/28/2023	\$51.99	\$10.15	\$19.95	\$0.00	\$82.09
	08/26/2024	\$54.74	\$10.15	\$19.95	\$0.00	\$84.84
	08/25/2025	\$57.49	\$10.15	\$19.95	\$0.00	\$87.59
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HYDRAULIC DRILLS <i>LABORERS - ZONE 2</i>	06/01/2023	\$38.21	\$9.40	\$16.89	\$0.00	\$64.50
	12/01/2023	\$39.11	\$9.40	\$16.89	\$0.00	\$65.40
For apprentice rates see "Apprentice- LABORER"						
HYDRAULIC DRILLS (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	06/01/2023	\$38.21	\$9.40	\$16.89	\$0.00	\$64.50
	12/01/2023	\$39.11	\$9.40	\$16.89	\$0.00	\$65.40
	06/01/2024	\$40.44	\$9.40	\$16.89	\$0.00	\$66.73
	12/01/2024	\$41.77	\$9.40	\$16.89	\$0.00	\$68.06
	06/01/2025	\$43.16	\$9.40	\$16.89	\$0.00	\$69.45
	12/01/2025	\$44.54	\$9.40	\$16.89	\$0.00	\$70.83
	06/01/2026	\$45.98	\$9.40	\$16.89	\$0.00	\$72.27
12/01/2026	\$47.42	\$9.40	\$16.89	\$0.00	\$73.71	
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
INSULATOR (PIPES & TANKS) <i>HEAT & FROST INSULATORS LOCAL 6 (BOSTON)</i>	09/01/2023	\$53.50	\$14.75	\$19.61	\$0.00	\$87.86
	09/01/2024	\$56.92	\$14.75	\$19.61	\$0.00	\$91.28
	09/01/2025	\$60.34	\$14.75	\$19.61	\$0.00	\$94.70
	09/01/2026	\$63.76	\$14.75	\$19.61	\$0.00	\$98.12

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

Effective Date - 09/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$26.75	\$14.75	\$14.32	\$0.00	\$55.82
2	60	\$32.10	\$14.75	\$15.37	\$0.00	\$62.22
3	70	\$37.45	\$14.75	\$16.43	\$0.00	\$68.63
4	80	\$42.80	\$14.75	\$17.49	\$0.00	\$75.04

Effective Date - 09/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$28.46	\$14.75	\$14.32	\$0.00	\$57.53
2	60	\$34.15	\$14.75	\$15.37	\$0.00	\$64.27
3	70	\$39.84	\$14.75	\$16.43	\$0.00	\$71.02
4	80	\$45.54	\$14.75	\$17.49	\$0.00	\$77.78

Notes:

Steps are 1 year

Apprentice to Journeyworker Ratio:1:4

IRONWORKER/WELDER <i>IRONWORKERS LOCAL 7 (BOSTON AREA)</i>	03/16/2023	\$52.72	\$8.35	\$26.70	\$0.00	\$87.77
	03/16/2024	\$53.97	\$8.35	\$26.70	\$0.00	\$89.02

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - IRONWORKER - Local 7 Boston

Effective Date - 03/16/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$31.63	\$8.35	\$26.70	\$0.00	\$66.68
2	70	\$36.90	\$8.35	\$26.70	\$0.00	\$71.95
3	75	\$39.54	\$8.35	\$26.70	\$0.00	\$74.59
4	80	\$42.18	\$8.35	\$26.70	\$0.00	\$77.23
5	85	\$44.81	\$8.35	\$26.70	\$0.00	\$79.86
6	90	\$47.45	\$8.35	\$26.70	\$0.00	\$82.50

Effective Date - 03/16/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$32.38	\$8.35	\$26.70	\$0.00	\$67.43
2	70	\$37.78	\$8.35	\$26.70	\$0.00	\$72.83
3	75	\$40.48	\$8.35	\$26.70	\$0.00	\$75.53
4	80	\$43.18	\$8.35	\$26.70	\$0.00	\$78.23
5	85	\$45.87	\$8.35	\$26.70	\$0.00	\$80.92
6	90	\$48.57	\$8.35	\$26.70	\$0.00	\$83.62

Notes:

Apprentice to Journeyworker Ratio:1:4

JACKHAMMER & PAVING BREAKER OPERATOR LABORERS - ZONE 2	06/01/2023	\$37.71	\$9.40	\$16.89	\$0.00	\$64.00
	12/01/2023	\$38.61	\$9.40	\$16.89	\$0.00	\$64.90
For apprentice rates see "Apprentice- LABORER"						
LABORER LABORERS - ZONE 2	06/01/2023	\$37.46	\$9.40	\$16.89	\$0.00	\$63.75
	12/01/2023	\$38.36	\$9.40	\$16.89	\$0.00	\$64.65

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - LABORER - Zone 2

Effective Date - 06/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$22.48	\$9.40	\$16.89	\$0.00	\$48.77
2	70	\$26.22	\$9.40	\$16.89	\$0.00	\$52.51
3	80	\$29.97	\$9.40	\$16.89	\$0.00	\$56.26
4	90	\$33.71	\$9.40	\$16.89	\$0.00	\$60.00

Effective Date - 12/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$23.02	\$9.40	\$16.89	\$0.00	\$49.31
2	70	\$26.85	\$9.40	\$16.89	\$0.00	\$53.14
3	80	\$30.69	\$9.40	\$16.89	\$0.00	\$56.98
4	90	\$34.52	\$9.40	\$16.89	\$0.00	\$60.81

Notes:

Apprentice to Journeyworker Ratio:1:5

LABORER (HEAVY & HIGHWAY)	06/01/2023	\$37.46	\$9.40	\$16.89	\$0.00	\$63.75
LABORERS - ZONE 2 (HEAVY & HIGHWAY)	12/01/2023	\$38.36	\$9.40	\$16.89	\$0.00	\$64.65
	06/01/2024	\$39.69	\$9.40	\$16.89	\$0.00	\$65.98
	12/01/2024	\$41.02	\$9.40	\$16.89	\$0.00	\$67.31
	06/01/2025	\$42.41	\$9.40	\$16.89	\$0.00	\$68.70
	12/01/2025	\$43.79	\$9.40	\$16.89	\$0.00	\$70.08
	06/01/2026	\$45.23	\$9.40	\$16.89	\$0.00	\$71.52
	12/01/2026	\$46.67	\$9.40	\$16.89	\$0.00	\$72.96

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - LABORER (Heavy & Highway) - Zone 2

Effective Date - 06/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$22.48	\$9.40	\$16.89	\$0.00	\$48.77
2	70	\$26.22	\$9.40	\$16.89	\$0.00	\$52.51
3	80	\$29.97	\$9.40	\$16.89	\$0.00	\$56.26
4	90	\$33.71	\$9.40	\$16.89	\$0.00	\$60.00

Effective Date - 12/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$23.02	\$9.40	\$16.89	\$0.00	\$49.31
2	70	\$26.85	\$9.40	\$16.89	\$0.00	\$53.14
3	80	\$30.69	\$9.40	\$16.89	\$0.00	\$56.98
4	90	\$34.52	\$9.40	\$16.89	\$0.00	\$60.81

Notes:

Apprentice to Journeyworker Ratio:1:5

LABORER: CARPENTER TENDER LABORERS - ZONE 2	06/01/2023	\$37.46	\$9.40	\$16.89	\$0.00	\$63.75
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For apprentice rates see "Apprentice- LABORER"

	12/01/2023	\$38.36	\$9.40	\$16.89	\$0.00	\$64.65
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LABORER: CEMENT FINISHER TENDER LABORERS - ZONE 2	06/01/2023	\$37.46	\$9.40	\$16.89	\$0.00	\$63.75
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For apprentice rates see "Apprentice- LABORER"

	12/01/2023	\$38.36	\$9.40	\$16.89	\$0.00	\$64.65
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LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER LABORERS - ZONE 2	06/01/2023	\$37.55	\$9.40	\$16.95	\$0.00	\$63.90
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For apprentice rates see "Apprentice- LABORER"

	12/01/2023	\$38.45	\$9.40	\$16.95	\$0.00	\$64.80
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LABORER: MASON TENDER LABORERS - ZONE 2	06/01/2023	\$37.71	\$9.40	\$16.89	\$0.00	\$64.00
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For apprentice rates see "Apprentice- LABORER"

	12/01/2023	\$38.61	\$9.40	\$16.89	\$0.00	\$64.90
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LABORER: MASON TENDER (HEAVY & HIGHWAY) LABORERS - ZONE 2 (HEAVY & HIGHWAY)	06/01/2023	\$37.71	\$9.40	\$16.89	\$0.00	\$64.00
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	12/01/2023	\$38.61	\$9.40	\$16.89	\$0.00	\$64.90
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	06/01/2024	\$39.94	\$9.40	\$16.89	\$0.00	\$66.23
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	12/01/2024	\$41.27	\$9.40	\$16.89	\$0.00	\$67.56
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	06/01/2025	\$42.66	\$9.40	\$16.89	\$0.00	\$68.95
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	12/01/2025	\$44.04	\$9.40	\$16.89	\$0.00	\$70.33
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	06/01/2026	\$45.48	\$9.40	\$16.89	\$0.00	\$71.77
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	12/01/2026	\$46.92	\$9.40	\$16.89	\$0.00	\$73.21
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For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"

LABORER: MULTI-TRADE TENDER LABORERS - ZONE 2	06/01/2023	\$37.46	\$9.40	\$16.89	\$0.00	\$63.75
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For apprentice rates see "Apprentice- LABORER"

	12/01/2023	\$38.36	\$9.40	\$16.89	\$0.00	\$64.65
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LABORER: TREE REMOVER LABORERS - ZONE 2	06/01/2023	\$37.46	\$9.40	\$16.89	\$0.00	\$63.75
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	12/01/2023	\$38.36	\$9.40	\$16.89	\$0.00	\$64.65
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This classification applies to the removal of standing trees, and the trimming and removal of branches and limbs when related to public works construction or site clearance incidental to construction . For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
LASER BEAM OPERATOR <i>LABORERS - ZONE 2</i>	06/01/2023	\$37.71	\$9.40	\$16.89	\$0.00	\$64.00
	12/01/2023	\$38.61	\$9.40	\$16.89	\$0.00	\$64.90
For apprentice rates see "Apprentice- LABORER"						
LASER BEAM OPERATOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	06/01/2023	\$37.71	\$9.40	\$16.89	\$0.00	\$64.00
	12/01/2023	\$38.61	\$9.40	\$16.89	\$0.00	\$64.90
	06/01/2024	\$39.94	\$9.40	\$16.89	\$0.00	\$66.23
	12/01/2024	\$41.27	\$9.40	\$16.89	\$0.00	\$67.56
	06/01/2025	\$42.66	\$9.40	\$16.89	\$0.00	\$68.95
	12/01/2025	\$44.04	\$9.40	\$16.89	\$0.00	\$70.33
	06/01/2026	\$45.48	\$9.40	\$16.89	\$0.00	\$71.77
	12/01/2026	\$46.92	\$9.40	\$16.89	\$0.00	\$73.21
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						

MARBLE & TILE FINISHERS <i>BRICKLAYERS LOCAL 3 - MARBLE & TILE</i>	08/01/2023	\$47.89	\$11.49	\$20.37	\$0.00	\$79.75
	02/01/2024	\$48.89	\$11.49	\$20.37	\$0.00	\$80.75
	08/01/2024	\$50.57	\$11.49	\$20.37	\$0.00	\$82.43
	02/01/2025	\$51.61	\$11.49	\$20.37	\$0.00	\$83.47
	08/01/2025	\$53.33	\$11.49	\$20.37	\$0.00	\$85.19
	02/01/2026	\$54.41	\$11.49	\$20.37	\$0.00	\$86.27
	08/01/2026	\$56.17	\$11.49	\$20.37	\$0.00	\$88.03
	02/01/2027	\$57.29	\$11.49	\$20.37	\$0.00	\$89.15

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

Effective Date - 08/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.95	\$11.49	\$20.37	\$0.00	\$55.81
2	60	\$28.73	\$11.49	\$20.37	\$0.00	\$60.59
3	70	\$33.52	\$11.49	\$20.37	\$0.00	\$65.38
4	80	\$38.31	\$11.49	\$20.37	\$0.00	\$70.17
5	90	\$43.10	\$11.49	\$20.37	\$0.00	\$74.96

Effective Date - 02/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.45	\$11.49	\$20.37	\$0.00	\$56.31
2	60	\$29.33	\$11.49	\$20.37	\$0.00	\$61.19
3	70	\$34.22	\$11.49	\$20.37	\$0.00	\$66.08
4	80	\$39.11	\$11.49	\$20.37	\$0.00	\$70.97
5	90	\$44.00	\$11.49	\$20.37	\$0.00	\$75.86

Notes:

Apprentice to Journeyworker Ratio:1:3

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
MARBLE MASONS, TILELAYERS & TERRAZZO MECH <i>BRICKLAYERS LOCAL 3 - MARBLE & TILE</i>	08/01/2023	\$62.42	\$11.49	\$22.31	\$0.00	\$96.22
	02/01/2024	\$63.67	\$11.49	\$22.31	\$0.00	\$97.47
	08/01/2024	\$65.77	\$11.49	\$22.31	\$0.00	\$99.57
	02/01/2025	\$67.07	\$11.49	\$22.31	\$0.00	\$100.87
	08/01/2025	\$69.22	\$11.49	\$22.31	\$0.00	\$103.02
	02/01/2026	\$70.57	\$11.49	\$22.31	\$0.00	\$104.37
	08/01/2026	\$72.77	\$11.49	\$22.31	\$0.00	\$106.57
	02/01/2027	\$74.17	\$11.49	\$22.31	\$0.00	\$107.97

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

Effective Date - 08/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$31.21	\$11.49	\$22.31	\$0.00	\$65.01
2	60	\$37.45	\$11.49	\$22.31	\$0.00	\$71.25
3	70	\$43.69	\$11.49	\$22.31	\$0.00	\$77.49
4	80	\$49.94	\$11.49	\$22.31	\$0.00	\$83.74
5	90	\$56.18	\$11.49	\$22.31	\$0.00	\$89.98

Effective Date - 02/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$31.84	\$11.49	\$22.31	\$0.00	\$65.64
2	60	\$38.20	\$11.49	\$22.31	\$0.00	\$72.00
3	70	\$44.57	\$11.49	\$22.31	\$0.00	\$78.37
4	80	\$50.94	\$11.49	\$22.31	\$0.00	\$84.74
5	90	\$57.30	\$11.49	\$22.31	\$0.00	\$91.10

Notes:

Apprentice to Journeyworker Ratio:1:5

MECH. SWEEPER OPERATOR (ON CONST. SITES) <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2023	\$53.69	\$14.75	\$16.15	\$0.00	\$84.59
	12/01/2023	\$54.93	\$14.75	\$16.15	\$0.00	\$85.83
	06/01/2024	\$56.21	\$14.75	\$16.15	\$0.00	\$87.11
	12/01/2024	\$57.65	\$14.75	\$16.15	\$0.00	\$88.55
	06/01/2025	\$58.93	\$14.75	\$16.15	\$0.00	\$89.83
	12/01/2025	\$60.37	\$14.75	\$16.15	\$0.00	\$91.27
	06/01/2026	\$61.65	\$14.75	\$16.15	\$0.00	\$92.55
	12/01/2026	\$63.09	\$14.75	\$16.15	\$0.00	\$93.99

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
MECHANICS MAINTENANCE <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2023	\$53.69	\$14.75	\$16.15	\$0.00	\$84.59
	12/01/2023	\$54.93	\$14.75	\$16.15	\$0.00	\$85.83
	06/01/2024	\$56.21	\$14.75	\$16.15	\$0.00	\$87.11
	12/01/2024	\$57.65	\$14.75	\$16.15	\$0.00	\$88.55
	06/01/2025	\$58.93	\$14.75	\$16.15	\$0.00	\$89.83
	12/01/2025	\$60.37	\$14.75	\$16.15	\$0.00	\$91.27
	06/01/2026	\$61.65	\$14.75	\$16.15	\$0.00	\$92.55
	12/01/2026	\$63.09	\$14.75	\$16.15	\$0.00	\$93.99

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

MILLWRIGHT (Zone 2) <i>MILLWRIGHTS LOCAL 1121 - Zone 2</i>	01/02/2023	\$41.92	\$8.58	\$21.57	\$0.00	\$72.07
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Apprentice - MILLWRIGHT - Local 1121 Zone 2

Effective Date - 01/02/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$23.06	\$8.58	\$5.72	\$0.00	\$37.36
2	65	\$27.25	\$8.58	\$17.93	\$0.00	\$53.76
3	75	\$31.44	\$8.58	\$18.98	\$0.00	\$59.00
4	85	\$35.63	\$8.58	\$20.01	\$0.00	\$64.22

Notes: Step 1&2 Appr. indentured after 1/6/2020 receive no pension, but do receive annuity. (Step 1 \$5.72, Step 2 \$6.66)
Steps are 2,000 hours

Apprentice to Journeyworker Ratio:1:4

MORTAR MIXER <i>LABORERS - ZONE 2</i>	06/01/2023	\$37.71	\$9.40	\$16.89	\$0.00	\$64.00
	12/01/2023	\$38.61	\$9.40	\$16.89	\$0.00	\$64.90

For apprentice rates see "Apprentice- LABORER"

OILER (OTHER THAN TRUCK CRANES,GRADALLS) <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2023	\$24.34	\$14.75	\$16.15	\$0.00	\$55.24
	12/01/2023	\$24.91	\$14.75	\$16.15	\$0.00	\$55.81
	06/01/2024	\$25.51	\$14.75	\$16.15	\$0.00	\$56.41
	12/01/2024	\$26.17	\$14.75	\$16.15	\$0.00	\$57.07
	06/01/2025	\$26.77	\$14.75	\$16.15	\$0.00	\$57.67
	12/01/2025	\$27.43	\$14.75	\$16.15	\$0.00	\$58.33
	06/01/2026	\$28.02	\$14.75	\$16.15	\$0.00	\$58.92
	12/01/2026	\$28.69	\$14.75	\$16.15	\$0.00	\$59.59

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

OILER (TRUCK CRANES, GRADALLS) <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2023	\$29.67	\$14.75	\$16.15	\$0.00	\$60.57
	12/01/2023	\$30.36	\$14.75	\$16.15	\$0.00	\$61.26
	06/01/2024	\$31.08	\$14.75	\$16.15	\$0.00	\$61.98
	12/01/2024	\$31.88	\$14.75	\$16.15	\$0.00	\$62.78
	06/01/2025	\$32.60	\$14.75	\$16.15	\$0.00	\$63.50
	12/01/2025	\$33.40	\$14.75	\$16.15	\$0.00	\$64.30
	06/01/2026	\$34.12	\$14.75	\$16.15	\$0.00	\$65.02
	12/01/2026	\$34.92	\$14.75	\$16.15	\$0.00	\$65.82

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
OTHER POWER DRIVEN EQUIPMENT - CLASS II <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2023	\$53.69	\$14.75	\$16.15	\$0.00	\$84.59
	12/01/2023	\$54.93	\$14.75	\$16.15	\$0.00	\$85.83
	06/01/2024	\$56.21	\$14.75	\$16.15	\$0.00	\$87.11
	12/01/2024	\$57.65	\$14.75	\$16.15	\$0.00	\$88.55
	06/01/2025	\$58.93	\$14.75	\$16.15	\$0.00	\$89.83
	12/01/2025	\$60.37	\$14.75	\$16.15	\$0.00	\$91.27
	06/01/2026	\$61.65	\$14.75	\$16.15	\$0.00	\$92.55
	12/01/2026	\$63.09	\$14.75	\$16.15	\$0.00	\$93.99

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

PAINTER (BRIDGES/TANKS) <i>PAINTERS LOCAL 35 - ZONE 2</i>	07/01/2023	\$55.51	\$9.65	\$23.70	\$0.00	\$88.86
	01/01/2024	\$56.06	\$9.95	\$23.95	\$0.00	\$89.96
	07/01/2024	\$57.26	\$9.95	\$23.95	\$0.00	\$91.16
	01/01/2025	\$58.46	\$9.95	\$23.95	\$0.00	\$92.36

Apprentice - PAINTER Local 35 - BRIDGES/TANKS

Effective Date - 07/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$27.76	\$9.65	\$0.00	\$0.00	\$37.41
2	55	\$30.53	\$9.65	\$6.55	\$0.00	\$46.73
3	60	\$33.31	\$9.65	\$7.14	\$0.00	\$50.10
4	65	\$36.08	\$9.65	\$7.74	\$0.00	\$53.47
5	70	\$38.86	\$9.65	\$20.13	\$0.00	\$68.64
6	75	\$41.63	\$9.65	\$20.73	\$0.00	\$72.01
7	80	\$44.41	\$9.65	\$21.32	\$0.00	\$75.38
8	90	\$49.96	\$9.65	\$22.51	\$0.00	\$82.12

Effective Date - 01/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$28.03	\$9.95	\$0.00	\$0.00	\$37.98
2	55	\$30.83	\$9.95	\$6.66	\$0.00	\$47.44
3	60	\$33.64	\$9.95	\$7.26	\$0.00	\$50.85
4	65	\$36.44	\$9.95	\$7.87	\$0.00	\$54.26
5	70	\$39.24	\$9.95	\$20.32	\$0.00	\$69.51
6	75	\$42.05	\$9.95	\$20.93	\$0.00	\$72.93
7	80	\$44.85	\$9.95	\$21.53	\$0.00	\$76.33
8	90	\$50.45	\$9.95	\$22.74	\$0.00	\$83.14

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SPRAY OR SANDBLAST, NEW) * * If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used. <i>PAINTERS LOCAL 35 - ZONE 2</i>	07/01/2023	\$46.41	\$9.65	\$23.70	\$0.00	\$79.76
	01/01/2024	\$46.96	\$9.95	\$23.95	\$0.00	\$80.86
	07/01/2024	\$48.16	\$9.95	\$23.95	\$0.00	\$82.06
	01/01/2025	\$49.36	\$9.95	\$23.95	\$0.00	\$83.26

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

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

Effective Date - 07/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.21	\$9.65	\$0.00	\$0.00	\$32.86
2	55	\$25.53	\$9.65	\$6.55	\$0.00	\$41.73
3	60	\$27.85	\$9.65	\$7.14	\$0.00	\$44.64
4	65	\$30.17	\$9.65	\$7.74	\$0.00	\$47.56
5	70	\$32.49	\$9.65	\$20.13	\$0.00	\$62.27
6	75	\$34.81	\$9.65	\$20.73	\$0.00	\$65.19
7	80	\$37.13	\$9.65	\$21.32	\$0.00	\$68.10
8	90	\$41.77	\$8.65	\$22.51	\$0.00	\$72.93

Effective Date - 01/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.48	\$9.95	\$0.00	\$0.00	\$33.43
2	55	\$25.83	\$9.95	\$6.66	\$0.00	\$42.44
3	60	\$28.18	\$9.95	\$7.26	\$0.00	\$45.39
4	65	\$30.52	\$9.95	\$7.87	\$0.00	\$48.34
5	70	\$32.87	\$9.95	\$20.32	\$0.00	\$63.14
6	75	\$35.22	\$9.95	\$20.93	\$0.00	\$66.10
7	80	\$37.57	\$9.95	\$21.53	\$0.00	\$69.05
8	90	\$42.26	\$9.95	\$22.74	\$0.00	\$74.95

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SPRAY OR SANDBLAST, REPAINT)	07/01/2023	\$44.47	\$9.65	\$23.70	\$0.00	\$77.82
PAINTERS LOCAL 35 - ZONE 2	01/01/2024	\$45.02	\$9.95	\$23.95	\$0.00	\$78.92
	07/01/2024	\$46.22	\$9.95	\$23.95	\$0.00	\$80.12
	01/01/2025	\$47.42	\$9.95	\$23.95	\$0.00	\$81.32

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

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

Effective Date - 07/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.24	\$9.65	\$0.00	\$0.00	\$31.89
2	55	\$24.46	\$9.65	\$6.55	\$0.00	\$40.66
3	60	\$26.68	\$9.65	\$7.14	\$0.00	\$43.47
4	65	\$28.91	\$9.65	\$7.74	\$0.00	\$46.30
5	70	\$31.13	\$9.65	\$20.13	\$0.00	\$60.91
6	75	\$33.35	\$9.65	\$20.73	\$0.00	\$63.73
7	80	\$35.58	\$9.65	\$21.32	\$0.00	\$66.55
8	90	\$40.02	\$9.65	\$22.51	\$0.00	\$72.18

Effective Date - 01/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.51	\$9.95	\$0.00	\$0.00	\$32.46
2	55	\$24.76	\$9.95	\$6.66	\$0.00	\$41.37
3	60	\$27.01	\$9.95	\$7.26	\$0.00	\$44.22
4	65	\$29.26	\$9.95	\$7.87	\$0.00	\$47.08
5	70	\$31.51	\$9.95	\$20.32	\$0.00	\$61.78
6	75	\$33.77	\$9.95	\$20.93	\$0.00	\$64.65
7	80	\$36.02	\$9.95	\$21.53	\$0.00	\$67.50
8	90	\$40.52	\$9.95	\$22.74	\$0.00	\$73.21

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER / TAPER (BRUSH, NEW) *	07/01/2023	\$45.01	\$9.65	\$23.70	\$0.00	\$78.36
* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used. <i>PAINTERS LOCAL 35 - ZONE 2</i>	01/01/2024	\$45.56	\$9.95	\$23.95	\$0.00	\$79.46
	07/01/2024	\$46.76	\$9.95	\$23.95	\$0.00	\$80.66
	01/01/2025	\$47.96	\$9.95	\$23.95	\$0.00	\$81.86

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PAINTER - Local 35 Zone 2 - BRUSH NEW

Effective Date - 07/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.51	\$9.65	\$0.00	\$0.00	\$32.16
2	55	\$24.76	\$9.65	\$6.55	\$0.00	\$40.96
3	60	\$27.01	\$9.65	\$7.14	\$0.00	\$43.80
4	65	\$29.26	\$9.65	\$7.74	\$0.00	\$46.65
5	70	\$31.51	\$9.65	\$20.13	\$0.00	\$61.29
6	75	\$33.76	\$9.65	\$20.73	\$0.00	\$64.14
7	80	\$36.01	\$9.65	\$21.32	\$0.00	\$66.98
8	90	\$40.51	\$9.65	\$22.51	\$0.00	\$72.67

Effective Date - 01/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.78	\$9.95	\$0.00	\$0.00	\$32.73
2	55	\$25.06	\$9.95	\$6.66	\$0.00	\$41.67
3	60	\$27.34	\$9.95	\$7.26	\$0.00	\$44.55
4	65	\$29.61	\$9.95	\$7.87	\$0.00	\$47.43
5	70	\$31.89	\$9.95	\$20.32	\$0.00	\$62.16
6	75	\$34.17	\$9.95	\$20.93	\$0.00	\$65.05
7	80	\$36.45	\$9.95	\$21.53	\$0.00	\$67.93
8	90	\$41.00	\$9.95	\$22.74	\$0.00	\$73.69

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER / TAPER (BRUSH, REPAINT)	07/01/2023	\$43.07	\$9.65	\$23.70	\$0.00	\$76.42
PAINTERS LOCAL 35 - ZONE 2	01/01/2024	\$43.62	\$9.95	\$23.95	\$0.00	\$77.52
	07/01/2024	\$44.82	\$9.95	\$23.95	\$0.00	\$78.72
	01/01/2025	\$46.02	\$9.95	\$23.95	\$0.00	\$79.92

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PAINTER Local 35 Zone 2 - BRUSH REPAINT

Effective Date - 07/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.54	\$9.65	\$0.00	\$0.00	\$31.19
2	55	\$23.69	\$9.65	\$6.27	\$0.00	\$39.61
3	60	\$25.84	\$9.65	\$6.84	\$0.00	\$42.33
4	65	\$28.00	\$9.65	\$7.41	\$0.00	\$45.06
5	70	\$30.15	\$9.65	\$19.78	\$0.00	\$59.58
6	75	\$32.30	\$9.65	\$20.35	\$0.00	\$62.30
7	80	\$34.46	\$9.65	\$20.92	\$0.00	\$65.03
8	90	\$38.76	\$9.65	\$22.06	\$0.00	\$70.47

Effective Date - 01/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.81	\$9.95	\$0.00	\$0.00	\$31.76
2	55	\$23.99	\$9.95	\$6.66	\$0.00	\$40.60
3	60	\$26.17	\$9.95	\$7.26	\$0.00	\$43.38
4	65	\$28.35	\$9.95	\$7.87	\$0.00	\$46.17
5	70	\$30.53	\$9.95	\$20.32	\$0.00	\$60.80
6	75	\$32.72	\$9.95	\$20.93	\$0.00	\$63.60
7	80	\$34.90	\$9.95	\$21.53	\$0.00	\$66.38
8	90	\$39.26	\$9.95	\$22.74	\$0.00	\$71.95

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER TRAFFIC MARKINGS (HEAVY/HIGHWAY)	06/01/2023	\$37.46	\$9.40	\$16.89	\$0.00	\$63.75
LABORERS - ZONE 2 (HEAVY & HIGHWAY)	12/01/2023	\$38.36	\$9.40	\$16.89	\$0.00	\$64.65
	06/01/2024	\$39.69	\$9.40	\$16.89	\$0.00	\$65.98
	12/01/2024	\$41.02	\$9.40	\$16.89	\$0.00	\$67.31
	06/01/2025	\$42.41	\$9.40	\$16.89	\$0.00	\$68.70
	12/01/2025	\$43.79	\$9.40	\$16.89	\$0.00	\$70.08
	06/01/2026	\$45.23	\$9.40	\$16.89	\$0.00	\$71.52
	12/01/2026	\$46.67	\$9.40	\$16.89	\$0.00	\$72.96

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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PANEL & PICKUP TRUCKS DRIVER <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	06/01/2023	\$38.78	\$14.57	\$17.29	\$0.00	\$70.64
	12/01/2023	\$38.78	\$14.57	\$18.67	\$0.00	\$72.02
	01/01/2024	\$38.78	\$15.07	\$18.67	\$0.00	\$72.52
	06/01/2024	\$39.78	\$15.07	\$18.67	\$0.00	\$73.52
	12/01/2024	\$39.78	\$15.07	\$20.17	\$0.00	\$75.02
	01/01/2025	\$39.78	\$15.57	\$20.17	\$0.00	\$75.52
	06/01/2025	\$40.78	\$15.57	\$20.17	\$0.00	\$76.52
	12/01/2025	\$40.78	\$15.57	\$21.78	\$0.00	\$78.13
	01/01/2026	\$40.78	\$16.17	\$21.78	\$0.00	\$78.73
	06/01/2026	\$41.78	\$16.17	\$21.78	\$0.00	\$79.73
PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK) <i>PILE DRIVER LOCAL 56 (ZONE 1)</i> For apprentice rates see "Apprentice- PILE DRIVER"	08/01/2020	\$49.07	\$9.40	\$23.12	\$0.00	\$81.59
	08/01/2020	\$49.07	\$9.40	\$23.12	\$0.00	\$81.59

Apprentice - PILE DRIVER - Local 56 Zone 1

Effective Date - 08/01/2020

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

Notes:

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

Apprentice to Journeyworker Ratio:1:5

PIPELAYER <i>LABORERS - ZONE 2</i> For apprentice rates see "Apprentice- LABORER"	06/01/2023	\$37.71	\$9.40	\$16.89	\$0.00	\$64.00
	12/01/2023	\$38.61	\$9.40	\$16.89	\$0.00	\$64.90
PIPELAYER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i> For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"	06/01/2023	\$37.71	\$9.40	\$16.89	\$0.00	\$64.00
	12/01/2023	\$38.61	\$9.40	\$16.89	\$0.00	\$64.90
	06/01/2024	\$39.94	\$9.40	\$16.89	\$0.00	\$66.23
	12/01/2024	\$41.27	\$9.40	\$16.89	\$0.00	\$67.56
	06/01/2025	\$42.66	\$9.40	\$16.89	\$0.00	\$68.95
	12/01/2025	\$44.04	\$9.40	\$16.89	\$0.00	\$70.33
	06/01/2026	\$45.48	\$9.40	\$16.89	\$0.00	\$71.77
	12/01/2026	\$46.92	\$9.40	\$16.89	\$0.00	\$73.21

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PLUMBER & PIPEFITTER <i>PLUMBERS & PIPEFITTERS LOCAL 51</i>	08/28/2023	\$51.99	\$10.15	\$19.95	\$0.00	\$82.09
	08/26/2024	\$54.74	\$10.15	\$19.95	\$0.00	\$84.84
	08/25/2025	\$57.49	\$10.15	\$19.95	\$0.00	\$87.59

Apprentice - PLUMBER/PIPEFITTER - Local 51

Effective Date - 08/28/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$20.80	\$10.15	\$2.50	\$0.00	\$33.45
2	50	\$26.00	\$10.15	\$2.50	\$0.00	\$38.65
3	60	\$31.19	\$10.15	\$8.80	\$0.00	\$50.14
4	70	\$36.39	\$10.15	\$14.08	\$0.00	\$60.62
5	80	\$41.59	\$10.15	\$17.60	\$0.00	\$69.34

Effective Date - 08/26/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$21.90	\$10.15	\$2.50	\$0.00	\$34.55
2	50	\$27.37	\$10.15	\$2.50	\$0.00	\$40.02
3	60	\$32.84	\$10.15	\$8.80	\$0.00	\$51.79
4	70	\$38.32	\$10.15	\$14.08	\$0.00	\$62.55
5	80	\$43.79	\$10.15	\$17.60	\$0.00	\$71.54

Notes:

Steps 2000hrs. Prior 9/1/05; 40/40/45/50/55/60/65/75/80/85

Apprentice to Journeyworker Ratio:1:3

PNEUMATIC CONTROLS (TEMP.) <i>PLUMBERS & PIPEFITTERS LOCAL 51</i>	08/28/2023	\$51.99	\$10.15	\$19.95	\$0.00	\$82.09
	08/26/2024	\$54.74	\$10.15	\$19.95	\$0.00	\$84.84
	08/25/2025	\$57.49	\$10.15	\$19.95	\$0.00	\$87.59

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

PNEUMATIC DRILL/TOOL OPERATOR <i>LABORERS - ZONE 2</i>	06/01/2023	\$37.71	\$9.40	\$16.89	\$0.00	\$64.00
	12/01/2023	\$38.61	\$9.40	\$16.89	\$0.00	\$64.90

For apprentice rates see "Apprentice- LABORER"

PNEUMATIC DRILL/TOOL OPERATOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	06/01/2023	\$37.71	\$9.40	\$16.89	\$0.00	\$64.00
	12/01/2023	\$38.61	\$9.40	\$16.89	\$0.00	\$64.90
	06/01/2024	\$39.94	\$9.40	\$16.89	\$0.00	\$66.23
	12/01/2024	\$41.27	\$9.40	\$16.89	\$0.00	\$67.56
	06/01/2025	\$42.66	\$9.40	\$16.89	\$0.00	\$68.95
	12/01/2025	\$44.04	\$9.40	\$16.89	\$0.00	\$70.33
	06/01/2026	\$45.48	\$9.40	\$16.89	\$0.00	\$71.77
12/01/2026	\$46.92	\$9.40	\$16.89	\$0.00	\$73.21	

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

POWDERMAN & BLASTER <i>LABORERS - ZONE 2</i>	06/01/2023	\$38.46	\$9.40	\$16.89	\$0.00	\$64.75
	12/01/2023	\$39.36	\$9.40	\$16.89	\$0.00	\$65.65

For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
POWDERMAN & BLASTER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	06/01/2023	\$38.46	\$9.40	\$16.89	\$0.00	\$64.75
	12/01/2023	\$39.36	\$9.40	\$16.89	\$0.00	\$65.65
	06/01/2024	\$40.69	\$9.40	\$16.89	\$0.00	\$66.98
	12/01/2024	\$42.02	\$9.40	\$16.89	\$0.00	\$68.31
	06/01/2025	\$43.41	\$9.40	\$16.89	\$0.00	\$69.70
	12/01/2025	\$44.79	\$9.40	\$16.89	\$0.00	\$71.08
	06/01/2026	\$46.23	\$9.40	\$16.89	\$0.00	\$72.52
	12/01/2026	\$47.67	\$9.40	\$16.89	\$0.00	\$73.96
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)						
POWER SHOVEL/DERRICK/TRENCHING MACHINE <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2023	\$54.28	\$14.75	\$16.15	\$0.00	\$85.18
	12/01/2023	\$55.53	\$14.75	\$16.15	\$0.00	\$86.43
	06/01/2024	\$56.83	\$14.75	\$16.15	\$0.00	\$87.73
	12/01/2024	\$58.28	\$14.75	\$16.15	\$0.00	\$89.18
	06/01/2025	\$59.58	\$14.75	\$16.15	\$0.00	\$90.48
	12/01/2025	\$61.03	\$14.75	\$16.15	\$0.00	\$91.93
	06/01/2026	\$62.33	\$14.75	\$16.15	\$0.00	\$93.23
	12/01/2026	\$63.78	\$14.75	\$16.15	\$0.00	\$94.68
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (CONCRETE) <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2023	\$54.28	\$14.75	\$16.15	\$0.00	\$85.18
	12/01/2023	\$55.53	\$14.75	\$16.15	\$0.00	\$86.43
	06/01/2024	\$56.83	\$14.75	\$16.15	\$0.00	\$87.73
	12/01/2024	\$58.28	\$14.75	\$16.15	\$0.00	\$89.18
	06/01/2025	\$59.58	\$14.75	\$16.15	\$0.00	\$90.48
	12/01/2025	\$61.03	\$14.75	\$16.15	\$0.00	\$91.93
	06/01/2026	\$62.33	\$14.75	\$16.15	\$0.00	\$93.23
	12/01/2026	\$63.78	\$14.75	\$16.15	\$0.00	\$94.68
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (DEWATERING, OTHER) <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2023	\$35.30	\$14.75	\$16.15	\$0.00	\$66.20
	12/01/2023	\$36.12	\$14.75	\$16.15	\$0.00	\$67.02
	06/01/2024	\$36.97	\$14.75	\$16.15	\$0.00	\$67.87
	12/01/2024	\$37.92	\$14.75	\$16.15	\$0.00	\$68.82
	06/01/2025	\$38.77	\$14.75	\$16.15	\$0.00	\$69.67
	12/01/2025	\$39.72	\$14.75	\$16.15	\$0.00	\$70.62
	06/01/2026	\$40.58	\$14.75	\$16.15	\$0.00	\$71.48
	12/01/2026	\$41.53	\$14.75	\$16.15	\$0.00	\$72.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
READY-MIX CONCRETE DRIVER <i>TEAMSTERS 653 - Southeastern Concrete (Weymouth)</i>	08/01/2023	\$25.00	\$13.91	\$6.90	\$0.00	\$45.81
RECLAIMERS <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2023	\$53.69	\$14.75	\$16.15	\$0.00	\$84.59
	12/01/2023	\$54.93	\$14.75	\$16.15	\$0.00	\$85.83
	06/01/2024	\$56.21	\$14.75	\$16.15	\$0.00	\$87.11
	12/01/2024	\$57.65	\$14.75	\$16.15	\$0.00	\$88.55
	06/01/2025	\$58.93	\$14.75	\$16.15	\$0.00	\$89.83
	12/01/2025	\$60.37	\$14.75	\$16.15	\$0.00	\$91.27
	06/01/2026	\$61.65	\$14.75	\$16.15	\$0.00	\$92.55
	12/01/2026	\$63.09	\$14.75	\$16.15	\$0.00	\$93.99
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
RIDE-ON MOTORIZED BUGGY OPERATOR <i>LABORERS - ZONE 2</i>	06/01/2023	\$37.71	\$9.40	\$16.89	\$0.00	\$64.00
	12/01/2023	\$38.61	\$9.40	\$16.89	\$0.00	\$64.90
For apprentice rates see "Apprentice- LABORER"						
ROLLER/SPREADER/MULCHING MACHINE <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2023	\$53.69	\$14.75	\$16.15	\$0.00	\$84.59
	12/01/2023	\$54.93	\$14.75	\$16.15	\$0.00	\$85.83
	06/01/2024	\$56.21	\$14.75	\$16.15	\$0.00	\$87.11
	12/01/2024	\$57.65	\$14.75	\$16.15	\$0.00	\$88.55
	06/01/2025	\$58.93	\$14.75	\$16.15	\$0.00	\$89.83
	12/01/2025	\$60.37	\$14.75	\$16.15	\$0.00	\$91.27
	06/01/2026	\$61.65	\$14.75	\$16.15	\$0.00	\$92.55
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
ROOFER (Inc.Roofing Waterproofing &Roofing Damproofg) <i>ROOFERS LOCAL 33</i>	08/01/2023	\$50.03	\$12.78	\$20.20	\$0.00	\$83.01
	02/01/2024	\$51.28	\$12.78	\$20.20	\$0.00	\$84.26
	08/01/2024	\$52.78	\$12.78	\$20.20	\$0.00	\$85.76
	02/01/2025	\$54.03	\$12.78	\$20.20	\$0.00	\$87.01
	08/01/2025	\$55.53	\$12.78	\$20.20	\$0.00	\$88.51
	02/01/2026	\$56.78	\$12.78	\$20.20	\$0.00	\$89.76

Apprentice - ROOFER - Local 33

Effective Date - 08/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.02	\$12.78	\$5.59	\$0.00	\$43.39
2	60	\$30.02	\$12.78	\$20.20	\$0.00	\$63.00
3	65	\$32.52	\$12.78	\$20.20	\$0.00	\$65.50
4	75	\$37.52	\$12.78	\$20.20	\$0.00	\$70.50
5	85	\$42.53	\$12.78	\$20.20	\$0.00	\$75.51

Effective Date - 02/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.64	\$12.78	\$5.59	\$0.00	\$44.01
2	60	\$30.77	\$12.78	\$20.20	\$0.00	\$63.75
3	65	\$33.33	\$12.78	\$20.20	\$0.00	\$66.31
4	75	\$38.46	\$12.78	\$20.20	\$0.00	\$71.44
5	85	\$43.59	\$12.78	\$20.20	\$0.00	\$76.57

Notes: ** 1:5, 2:6-10, the 1:10; Reroofing: 1:4, then 1:1
 Step 1 is 2000 hrs.; Steps 2-5 are 1000 hrs.
 (Hot Pitch Mechanics' receive \$1.00 hr. above ROOFER)

Apprentice to Journeyworker Ratio:**

ROOFER SLATE / TILE / PRECAST CONCRETE <i>ROOFERS LOCAL 33</i>	08/01/2023	\$50.28	\$12.78	\$20.20	\$0.00	\$83.26
	02/01/2024	\$51.53	\$12.78	\$20.20	\$0.00	\$84.51
	08/01/2024	\$53.03	\$12.78	\$20.20	\$0.00	\$86.01
	02/01/2025	\$54.28	\$12.78	\$20.20	\$0.00	\$87.26
	08/01/2025	\$55.78	\$12.78	\$20.20	\$0.00	\$88.76
	02/01/2026	\$57.03	\$12.78	\$20.20	\$0.00	\$90.01

Classification

For apprentice rates see "Apprentice- ROOFER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
SHEETMETAL WORKER	08/01/2023	\$57.01	\$14.11	\$26.64	\$2.83	\$100.59
SHEETMETAL WORKERS LOCAL 17 - A	02/01/2024	\$58.71	\$14.11	\$26.64	\$2.83	\$102.29
	08/01/2024	\$60.46	\$14.11	\$26.64	\$2.83	\$104.04
	02/01/2025	\$62.21	\$14.11	\$26.64	\$2.83	\$105.79
	08/01/2025	\$64.06	\$14.11	\$26.64	\$2.83	\$107.64
	02/01/2026	\$66.01	\$14.11	\$26.64	\$2.83	\$109.59

Apprentice - SHEET METAL WORKER - Local 17-A

Effective Date - 08/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	42	\$23.94	\$14.11	\$6.13	\$0.00	\$44.18
2	42	\$23.94	\$14.11	\$6.13	\$0.00	\$44.18
3	47	\$26.79	\$14.11	\$11.90	\$1.58	\$54.38
4	47	\$26.79	\$14.11	\$11.90	\$1.58	\$54.38
5	52	\$29.65	\$14.11	\$12.88	\$1.70	\$58.34
6	52	\$29.65	\$14.11	\$13.13	\$1.70	\$58.59
7	60	\$34.21	\$14.11	\$14.54	\$1.89	\$64.75
8	65	\$37.06	\$14.11	\$15.52	\$2.00	\$68.69
9	75	\$42.76	\$14.11	\$17.48	\$2.23	\$76.58
10	85	\$48.46	\$14.11	\$18.94	\$2.45	\$83.96

Effective Date - 02/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	42	\$24.66	\$14.11	\$6.13	\$0.00	\$44.90
2	42	\$24.66	\$14.11	\$6.13	\$0.00	\$44.90
3	47	\$27.59	\$14.11	\$11.90	\$1.61	\$55.21
4	47	\$27.59	\$14.11	\$11.90	\$1.61	\$55.21
5	52	\$30.53	\$14.11	\$12.88	\$1.73	\$59.25
6	52	\$30.53	\$14.11	\$13.13	\$1.73	\$59.50
7	60	\$35.23	\$14.11	\$14.54	\$1.92	\$65.80
8	65	\$38.16	\$14.11	\$15.52	\$2.03	\$69.82
9	75	\$44.03	\$14.11	\$17.48	\$2.27	\$77.89
10	85	\$49.90	\$14.11	\$18.94	\$2.49	\$85.44

Notes:

Steps are 6 mos.

Apprentice to Journeyworker Ratio:1:4

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
SPECIALIZED EARTH MOVING EQUIP < 35 TONS <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	06/01/2023	\$39.24	\$14.57	\$17.29	\$0.00	\$71.10
	12/01/2023	\$39.24	\$14.57	\$18.67	\$0.00	\$72.48
	01/01/2024	\$39.24	\$15.07	\$18.67	\$0.00	\$72.98
	06/01/2024	\$40.24	\$15.07	\$18.67	\$0.00	\$73.98
	12/01/2024	\$40.24	\$15.07	\$20.17	\$0.00	\$75.48
	01/01/2025	\$40.24	\$15.57	\$20.17	\$0.00	\$75.98
	06/01/2025	\$41.24	\$15.57	\$20.17	\$0.00	\$76.98
	12/01/2025	\$41.24	\$15.57	\$21.78	\$0.00	\$78.59
	01/01/2026	\$41.24	\$16.17	\$21.78	\$0.00	\$79.19
	06/01/2026	\$42.24	\$16.17	\$21.78	\$0.00	\$80.19
	12/01/2026	\$42.24	\$16.17	\$23.52	\$0.00	\$81.93
01/01/2027	\$42.24	\$16.77	\$23.52	\$0.00	\$82.53	
SPECIALIZED EARTH MOVING EQUIP > 35 TONS <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	06/01/2023	\$39.53	\$14.57	\$17.29	\$0.00	\$71.39
	12/01/2023	\$39.53	\$14.57	\$18.67	\$0.00	\$72.77
	01/01/2024	\$39.53	\$15.07	\$18.67	\$0.00	\$73.27
	06/01/2024	\$40.53	\$15.07	\$18.67	\$0.00	\$74.27
	12/01/2024	\$40.53	\$15.07	\$20.17	\$0.00	\$75.77
	01/01/2025	\$40.53	\$15.57	\$20.17	\$0.00	\$76.27
	06/01/2025	\$41.53	\$15.57	\$20.17	\$0.00	\$77.27
	12/01/2025	\$41.53	\$15.57	\$21.78	\$0.00	\$78.88
	01/01/2026	\$41.53	\$16.17	\$21.78	\$0.00	\$79.48
	06/01/2026	\$42.53	\$16.17	\$21.78	\$0.00	\$80.48
	12/01/2026	\$42.53	\$16.17	\$23.52	\$0.00	\$82.22
01/01/2027	\$42.53	\$16.77	\$23.52	\$0.00	\$82.82	
SPRINKLER FITTER <i>SPRINKLER FITTERS LOCAL 550 - (Section A) Zone 1</i>	03/01/2023	\$66.20	\$10.90	\$23.20	\$0.00	\$100.30
	10/01/2023	\$67.95	\$10.90	\$23.20	\$0.00	\$102.05
	03/01/2024	\$69.75	\$10.90	\$23.20	\$0.00	\$103.85
	10/01/2024	\$71.55	\$10.90	\$23.20	\$0.00	\$105.65
	03/01/2025	\$73.35	\$10.90	\$23.20	\$0.00	\$107.45

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

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

Effective Date - 03/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$23.17	\$10.90	\$12.80	\$0.00	\$46.87
2	40	\$26.48	\$10.90	\$13.60	\$0.00	\$50.98
3	45	\$29.79	\$10.90	\$14.40	\$0.00	\$55.09
4	50	\$33.10	\$10.90	\$15.20	\$0.00	\$59.20
5	55	\$36.41	\$10.90	\$16.00	\$0.00	\$63.31
6	60	\$39.72	\$10.90	\$16.80	\$0.00	\$67.42
7	65	\$43.03	\$10.90	\$17.60	\$0.00	\$71.53
8	70	\$46.34	\$10.90	\$18.40	\$0.00	\$75.64
9	75	\$49.65	\$10.90	\$19.20	\$0.00	\$79.75
10	80	\$52.96	\$10.90	\$20.00	\$0.00	\$83.86

Effective Date - 10/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$23.78	\$10.90	\$12.80	\$0.00	\$47.48
2	40	\$27.18	\$10.90	\$13.60	\$0.00	\$51.68
3	45	\$30.58	\$10.90	\$14.40	\$0.00	\$55.88
4	50	\$33.98	\$10.90	\$15.20	\$0.00	\$60.08
5	55	\$37.37	\$10.90	\$16.00	\$0.00	\$64.27
6	60	\$40.77	\$10.90	\$16.80	\$0.00	\$68.47
7	65	\$44.17	\$10.90	\$17.60	\$0.00	\$72.67
8	70	\$47.57	\$10.90	\$18.40	\$0.00	\$76.87
9	75	\$50.96	\$10.90	\$19.20	\$0.00	\$81.06
10	80	\$54.36	\$10.90	\$20.00	\$0.00	\$85.26

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

Apprentice to Journeyworker Ratio:1:3

STEAM BOILER OPERATOR	06/01/2023	\$53.69	\$14.75	\$16.15	\$0.00	\$84.59
OPERATING ENGINEERS LOCAL 4	12/01/2023	\$54.93	\$14.75	\$16.15	\$0.00	\$85.83
	06/01/2024	\$56.21	\$14.75	\$16.15	\$0.00	\$87.11
	12/01/2024	\$57.65	\$14.75	\$16.15	\$0.00	\$88.55
	06/01/2025	\$58.93	\$14.75	\$16.15	\$0.00	\$89.83
	12/01/2025	\$60.37	\$14.75	\$16.15	\$0.00	\$91.27
	06/01/2026	\$61.65	\$14.75	\$16.15	\$0.00	\$92.55
	12/01/2026	\$63.09	\$14.75	\$16.15	\$0.00	\$93.99

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TAMPERS, SELF-PROPELLED OR TRACTOR DRAWN <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2023	\$53.69	\$14.75	\$16.15	\$0.00	\$84.59
	12/01/2023	\$54.93	\$14.75	\$16.15	\$0.00	\$85.83
	06/01/2024	\$56.21	\$14.75	\$16.15	\$0.00	\$87.11
	12/01/2024	\$57.65	\$14.75	\$16.15	\$0.00	\$88.55
	06/01/2025	\$58.93	\$14.75	\$16.15	\$0.00	\$89.83
	12/01/2025	\$60.37	\$14.75	\$16.15	\$0.00	\$91.27
	06/01/2026	\$61.65	\$14.75	\$16.15	\$0.00	\$92.55
	12/01/2026	\$63.09	\$14.75	\$16.15	\$0.00	\$93.99
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TELECOMMUNICATION TECHNICIAN <i>ELECTRICIANS LOCAL 223</i>	09/01/2023	\$39.40	\$11.50	\$13.91	\$0.00	\$64.81
	09/01/2024	\$40.69	\$11.75	\$14.53	\$0.00	\$66.97

Apprentice - TELECOMMUNICATION TECHNICIAN - Local 223

Effective Date - 09/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	0	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

Notes: See Electrician Apprentice Wages

Telecom Apprentice Wages shall be the same as the Electrician Apprentice Wages

Apprentice to Journeyworker Ratio:2:3***

TERRAZZO FINISHERS <i>BRICKLAYERS LOCAL 3 - MARBLE & TILE</i>	08/01/2023	\$61.34	\$11.49	\$22.34	\$0.00	\$95.17
	02/01/2024	\$62.59	\$11.49	\$22.34	\$0.00	\$96.42
	08/01/2024	\$64.69	\$11.49	\$22.34	\$0.00	\$98.52
	02/01/2025	\$65.99	\$11.49	\$22.34	\$0.00	\$99.82
	08/01/2025	\$68.14	\$11.49	\$22.34	\$0.00	\$101.97
	02/01/2026	\$69.49	\$11.49	\$22.34	\$0.00	\$103.32
	08/01/2026	\$71.69	\$11.49	\$22.34	\$0.00	\$105.52
	02/01/2027	\$73.09	\$11.49	\$22.34	\$0.00	\$106.92

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - TERRAZZO FINISHER - Local 3 Marble & Tile

Effective Date - 08/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$30.67	\$11.49	\$22.34	\$0.00	\$64.50
2	60	\$36.80	\$11.49	\$22.34	\$0.00	\$70.63
3	70	\$42.94	\$11.49	\$22.34	\$0.00	\$76.77
4	80	\$49.07	\$11.49	\$22.34	\$0.00	\$82.90
5	90	\$55.21	\$11.49	\$22.34	\$0.00	\$89.04

Effective Date - 02/01/2024

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$31.30	\$11.49	\$22.34	\$0.00	\$65.13
2	60	\$37.55	\$11.49	\$22.34	\$0.00	\$71.38
3	70	\$43.81	\$11.49	\$22.34	\$0.00	\$77.64
4	80	\$50.07	\$11.49	\$22.34	\$0.00	\$83.90
5	90	\$56.33	\$11.49	\$22.34	\$0.00	\$90.16

Notes:

Apprentice to Journeyworker Ratio:1:3

TEST BORING DRILLER <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2023	\$47.58	\$9.40	\$17.97	\$0.00	\$74.95
	12/01/2023	\$48.83	\$9.40	\$17.97	\$0.00	\$76.20
	06/01/2024	\$50.31	\$9.40	\$17.97	\$0.00	\$77.68
	12/01/2024	\$51.78	\$9.40	\$17.97	\$0.00	\$79.15
	06/01/2025	\$53.28	\$9.40	\$17.97	\$0.00	\$80.65
	12/01/2025	\$54.78	\$9.40	\$17.97	\$0.00	\$82.15
	06/01/2026	\$56.33	\$9.40	\$17.97	\$0.00	\$83.70
	12/01/2026	\$57.83	\$9.40	\$17.97	\$0.00	\$85.20

For apprentice rates see "Apprentice- LABORER"

TEST BORING DRILLER HELPER <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2023	\$43.70	\$9.40	\$17.97	\$0.00	\$71.07
	12/01/2023	\$44.95	\$9.40	\$17.97	\$0.00	\$72.32
	06/01/2024	\$46.43	\$9.40	\$17.97	\$0.00	\$73.80
	12/01/2024	\$47.90	\$9.40	\$17.97	\$0.00	\$75.27
	06/01/2025	\$49.40	\$9.40	\$17.97	\$0.00	\$76.77
	12/01/2025	\$50.90	\$9.40	\$17.97	\$0.00	\$78.27
	06/01/2026	\$52.45	\$9.40	\$17.97	\$0.00	\$79.82
	12/01/2026	\$53.95	\$9.40	\$17.97	\$0.00	\$81.32

For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TEST BORING LABORER <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2023	\$43.58	\$9.40	\$17.97	\$0.00	\$70.95
	12/01/2023	\$44.83	\$9.40	\$17.97	\$0.00	\$72.20
	06/01/2024	\$46.31	\$9.40	\$17.97	\$0.00	\$73.68
	12/01/2024	\$47.78	\$9.40	\$17.97	\$0.00	\$75.15
	06/01/2025	\$49.28	\$9.40	\$17.97	\$0.00	\$76.65
	12/01/2025	\$50.78	\$9.40	\$17.97	\$0.00	\$78.15
	06/01/2026	\$52.33	\$9.40	\$17.97	\$0.00	\$79.70
	12/01/2026	\$53.83	\$9.40	\$17.97	\$0.00	\$81.20
For apprentice rates see "Apprentice- LABORER"						
TRACTORS/PORTABLE STEAM GENERATORS <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2023	\$53.69	\$14.75	\$16.15	\$0.00	\$84.59
	12/01/2023	\$54.93	\$14.75	\$16.15	\$0.00	\$85.83
	06/01/2024	\$56.21	\$14.75	\$16.15	\$0.00	\$87.11
	12/01/2024	\$57.65	\$14.75	\$16.15	\$0.00	\$88.55
	06/01/2025	\$58.93	\$14.75	\$16.15	\$0.00	\$89.83
	12/01/2025	\$60.37	\$14.75	\$16.15	\$0.00	\$91.27
	06/01/2026	\$61.65	\$14.75	\$16.15	\$0.00	\$92.55
	12/01/2026	\$63.09	\$14.75	\$16.15	\$0.00	\$93.99
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TRAILERS FOR EARTH MOVING EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	06/01/2023	\$39.82	\$14.57	\$17.29	\$0.00	\$71.68
	12/01/2023	\$39.82	\$14.57	\$18.67	\$0.00	\$73.06
	01/01/2024	\$39.82	\$15.07	\$18.67	\$0.00	\$73.56
	06/01/2024	\$40.82	\$15.07	\$18.67	\$0.00	\$74.56
	12/01/2024	\$40.82	\$15.07	\$20.17	\$0.00	\$76.06
	01/01/2025	\$40.82	\$15.57	\$20.17	\$0.00	\$76.56
	06/01/2025	\$41.82	\$15.57	\$20.17	\$0.00	\$77.56
	12/01/2025	\$41.82	\$15.57	\$21.78	\$0.00	\$79.17
	01/01/2026	\$41.82	\$16.17	\$21.78	\$0.00	\$79.77
	06/01/2026	\$42.82	\$16.17	\$21.78	\$0.00	\$80.77
	12/01/2026	\$42.82	\$16.17	\$23.52	\$0.00	\$82.51
	01/01/2027	\$42.82	\$16.77	\$23.52	\$0.00	\$83.11
TUNNEL WORK - COMPRESSED AIR <i>LABORERS (COMPRESSED AIR)</i>	06/01/2023	\$55.81	\$9.40	\$18.42	\$0.00	\$83.63
	12/01/2023	\$57.06	\$9.40	\$18.42	\$0.00	\$84.88
	06/01/2024	\$58.54	\$9.40	\$18.42	\$0.00	\$86.36
	12/01/2024	\$60.01	\$9.40	\$18.42	\$0.00	\$87.83
	06/01/2025	\$61.51	\$9.40	\$18.42	\$0.00	\$89.33
	12/01/2025	\$63.01	\$9.40	\$18.42	\$0.00	\$90.83
	06/01/2026	\$64.56	\$9.40	\$18.42	\$0.00	\$92.38
	12/01/2026	\$66.06	\$9.40	\$18.42	\$0.00	\$93.88
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE) <i>LABORERS (COMPRESSED AIR)</i>	06/01/2023	\$57.81	\$9.40	\$18.42	\$0.00	\$85.63
	12/01/2023	\$59.06	\$9.40	\$18.42	\$0.00	\$86.88
	06/01/2024	\$60.54	\$9.40	\$18.42	\$0.00	\$88.36
	12/01/2024	\$62.01	\$9.40	\$18.42	\$0.00	\$89.83
	06/01/2025	\$63.51	\$9.40	\$18.42	\$0.00	\$91.33
	12/01/2025	\$65.01	\$9.40	\$18.42	\$0.00	\$92.83
	06/01/2026	\$66.56	\$9.40	\$18.42	\$0.00	\$94.38
	12/01/2026	\$68.06	\$9.40	\$18.42	\$0.00	\$95.88
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR <i>LABORERS (FREE AIR TUNNEL)</i>	06/01/2023	\$47.88	\$9.40	\$18.42	\$0.00	\$75.70
	12/01/2023	\$49.13	\$9.40	\$18.42	\$0.00	\$76.95
	06/01/2024	\$50.61	\$9.40	\$18.42	\$0.00	\$78.43
	12/01/2024	\$52.08	\$9.40	\$18.42	\$0.00	\$79.90
	06/01/2025	\$53.58	\$9.40	\$18.42	\$0.00	\$81.40
	12/01/2025	\$55.08	\$9.40	\$18.42	\$0.00	\$82.90
	06/01/2026	\$56.63	\$9.40	\$18.42	\$0.00	\$84.45
	12/01/2026	\$58.13	\$9.40	\$18.42	\$0.00	\$85.95
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR (HAZ. WASTE) <i>LABORERS (FREE AIR TUNNEL)</i>	06/01/2023	\$49.88	\$9.40	\$18.42	\$0.00	\$77.70
	12/01/2023	\$51.13	\$9.40	\$18.42	\$0.00	\$78.95
	06/01/2024	\$52.61	\$9.40	\$18.42	\$0.00	\$80.43
	12/01/2024	\$54.08	\$9.40	\$18.42	\$0.00	\$81.90
	06/01/2025	\$55.58	\$9.40	\$18.42	\$0.00	\$83.40
	12/01/2025	\$57.08	\$9.40	\$18.42	\$0.00	\$84.90
	06/01/2026	\$58.63	\$9.40	\$18.42	\$0.00	\$86.45
	12/01/2026	\$60.13	\$9.40	\$18.42	\$0.00	\$87.95
For apprentice rates see "Apprentice- LABORER"						
VAC-HAUL <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	06/01/2023	\$39.24	\$14.57	\$17.29	\$0.00	\$71.10
	12/01/2023	\$39.24	\$14.57	\$18.67	\$0.00	\$72.48
	01/01/2024	\$39.24	\$15.07	\$18.67	\$0.00	\$72.98
	06/01/2024	\$40.24	\$15.07	\$18.67	\$0.00	\$73.98
	12/01/2024	\$40.24	\$15.07	\$20.17	\$0.00	\$75.48
	01/01/2025	\$40.24	\$15.57	\$20.17	\$0.00	\$75.98
	06/01/2025	\$41.24	\$15.57	\$20.17	\$0.00	\$76.98
	12/01/2025	\$41.24	\$15.57	\$21.78	\$0.00	\$78.59
	01/01/2026	\$41.24	\$16.17	\$21.78	\$0.00	\$79.19
	06/01/2026	\$42.24	\$16.17	\$21.78	\$0.00	\$80.19
	12/01/2026	\$42.24	\$16.17	\$23.52	\$0.00	\$81.93
01/01/2027	\$42.24	\$16.77	\$23.52	\$0.00	\$82.53	
WAGON DRILL OPERATOR <i>LABORERS - ZONE 2</i>	06/01/2023	\$37.71	\$9.40	\$16.89	\$0.00	\$64.00
	12/01/2023	\$38.61	\$9.40	\$16.89	\$0.00	\$64.90
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
WAGON DRILL OPERATOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY & HIGHWAY)</i>	06/01/2023	\$37.71	\$9.40	\$16.89	\$0.00	\$64.00
	12/01/2023	\$38.61	\$9.40	\$16.89	\$0.00	\$64.90
	06/01/2024	\$39.94	\$9.40	\$16.89	\$0.00	\$66.23
	12/01/2024	\$41.27	\$9.40	\$16.89	\$0.00	\$67.56
	06/01/2025	\$42.66	\$9.40	\$16.89	\$0.00	\$68.95
	12/01/2025	\$44.04	\$9.40	\$16.89	\$0.00	\$70.33
	06/01/2026	\$45.48	\$9.40	\$16.89	\$0.00	\$71.77
	12/01/2026	\$46.92	\$9.40	\$16.89	\$0.00	\$73.21
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)						
WASTE WATER PUMP OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2023	\$54.28	\$14.75	\$16.15	\$0.00	\$85.18
	12/01/2023	\$55.53	\$14.75	\$16.15	\$0.00	\$86.43
	06/01/2024	\$56.83	\$14.75	\$16.15	\$0.00	\$87.73
	12/01/2024	\$58.28	\$14.75	\$16.15	\$0.00	\$89.18
	06/01/2025	\$59.58	\$14.75	\$16.15	\$0.00	\$90.48
	12/01/2025	\$61.03	\$14.75	\$16.15	\$0.00	\$91.93
	06/01/2026	\$62.33	\$14.75	\$16.15	\$0.00	\$93.23
	12/01/2026	\$63.78	\$14.75	\$16.15	\$0.00	\$94.68
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
WATER METER INSTALLER <i>PLUMBERS & PIPEFITTERS LOCAL 51</i>	08/28/2023	\$51.99	\$10.15	\$19.95	\$0.00	\$82.09
	08/26/2024	\$54.74	\$10.15	\$19.95	\$0.00	\$84.84
	08/25/2025	\$57.49	\$10.15	\$19.95	\$0.00	\$87.59
For apprentice rates see "Apprentice- PLUMBER/PIPEFITTER" or "PLUMBER/GASFITTER"						

Additional Apprentices Information:

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

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

All steps are six months (1000 hours.)

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

** Multiple ratios are listed in the comment field.

*** APP to JM; 1:1, 2:2, 2:3, 3:4, 4:4, 4:5, 4:6, 5:7, 6:7, 6:8, 6:9, 7:10, 8:10, 8:11, 8:12, 9:13, 10:13, 10:14, etc.

**** APP to JM; 1:1, 1:2, 2:3, 2:4, 3:5, 4:6, 4:7, 5:8, 6:9, 6:10, 7:11, 8:12, 8:13, 9:14, 10:15, 10:16, etc.

BID FORMS

NAME OF BIDDER

Bids must be submitted on this form and the following table. Bids submitted on any other form will not be considered valid. Please return this form and associated documents to:

Town of Plymouth
ATTN: Procurement
26 Court Street
Plymouth, MA 02360

Bids must be received in the Procurement Office by 10:00 a.m., Thursday, October 19, 2023. Postmarks will not be considered. All bids will be publicly opened and read at the above address, date and time. Prices are to include delivery charges unless otherwise specified. All offers are subject to the Invitation for Bids 22335. Please note the Bid Number and your name on the outside of your submission.

In compliance with the above, the undersigned offers and agrees, if this offer is accepted within thirty (30) business days from date of receipt of offers specified above, to perform herein described work for the prices offered opposite each item, and that said prices will be good for the period of one (1) year.

The undersigned bidder hereby certifies:

No person in the employ of the Town of Plymouth has any pecuniary interest in this proposal or in the Contract for work, which is proposed.

Bidder has carefully read and examined all the documents herein referred to, and knows and understands the terms and provisions therein. Bidder has satisfied themselves by personal examination of the site, and by such other means as they may wish, as to the actual conditions there existing, the character and requirements of the work, and the difficulties attendant upon its execution.

Bidder agrees that if this bid is accepted, they will contract with the Owner, as provided for in the Bid Documents, and that they will perform all the work, furnish all the material and equipment, and provide all labor, services, plant, machinery, apparatus, appliances, tools, supplies, and all other things required by the documents in the manner and within the time therein prescribed and according to the requirements of the Owner as therein set forth, and that they will take in full payment therefore, the lump sum applicable to the project as offered below.

Bidder understands that information relative to subsurface and other conditions, natural phenomena, existing pipes and other structures (surface and/or subsurface) has been

furnished only for their information and convenience without any warranty or guarantee, expressed or implied, that the subsurface and/or other conditions, natural phenomena, existing pipes and other structures (surface and/or subsurface) actually encountered will be the same as those shown on the drawings or in any of the other Contract Documents, and agrees that the Bidder shall not use or be entitled to any such information made available to them through the Contract Documents or otherwise, or obtained by them in their own examination of the site, as a basis of or ground for any claim against the Owner or Engineer arising from or by reason of any variance which may exist between the aforesaid information made available to or acquired by them and the subsurface and/or other conditions, natural phenomena, existing pipes and other structures (surface and/or subsurface) actually encountered during the construction work, and has made due allowance therefor in this bid.

The foregoing bid is based upon the payment to laborers to be employed on the project of wages in an amount not less than the applicable prevailing wage rates established for the project by the Massachusetts Department of Labor Standards. The undersigned bidder agrees to indemnify the Owner for, from and against any loss, expense, damages, action or claims, including any expense incurred in connection with any delay or stoppage of the project work, arising out of or as a result of (1) the failure of the said bid to be based upon the payment of the said applicable prevailing wage rates or (2) the failure of the bidder, if selected as the Contractor, to pay laborers employed on the project the said applicable prevailing wage rates.

Bidder is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work; that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least ten (10) hours in duration at the time the employee begins work, and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee; and that they will comply fully with all laws and regulation applicable to awards made subject to M.G.L. c.149 §44A.

Bidder agrees that they 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.

Bidder will comply with the specific affirmative action steps contained in the EEO/AA provisions of this Contract, including compliance with the Disadvantaged Business Enterprise provisions required under these Contract provisions. The Contractor receiving the award of the Contract shall incorporate the EEO/AA provisions of this Contract into all subcontracts and purchase orders so that such provisions will be binding upon each subcontractor or vendor.

THE UNDERSIGNED BIDDER HEREBY CERTIFIES UNDER THE PAINS AND PENTALTIES OF PERJURY THE FOLLOWING:

This bid in all respects is bona fide, fair, and made without collusion or fraud with any other person. As used in this paragraph, the word PERSON shall mean any natural person, joint venture, partnership, corporation, or other business or legal entity.

Bidder has complied with all laws of the Commonwealth of Massachusetts relating to taxes, reporting of employees and contractors, and withholding and remitting child support in accordance with M.G.L. c.62C §49A.

Bidder is not presently debarred from doing public construction work in the Commonwealth of Massachusetts under the provisions of M.G.L. c.29 §29F, or any other applicable debarment provisions of any other chapter of the General Laws or any rule or regulation promulgated there under.

22335, ROADWAY REALIGNMENT OF BARTLETT ROAD AND BRIDGE REPLACEMENT, AS SPECIFIED. PRICES SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS, SERVICES, PLANT, MACHINERY, APPARATUS, APPLIANCES, TOOLS, SUPPLIES AND ALL OTHER REQUIREMENTS NECESSARY TO COMPLETE ALL WORK AS SPECIFIED AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.

ITEM #	BRIEF DESCRIPTION OF ITEM	EST. QTY.	UNIT	UNIT RATE	TOTAL AMOUNT
1	Site Preparation	1	LS	\$	\$
2	Traffic Management	1	LS	\$	\$
3	Demolition and Removals	1	LS	\$	\$
4	Site Improvements and Restoration	1	LS	\$	\$
5	Channel and Bank Slope Treatments	1	LS	\$	\$
6	Channel Bed Material	100	TON	\$	\$
115.1	Demolition of Bridge No. P-13-XXX	1	LS	\$	\$
120	Earth Excavation	1	LS	\$	\$

ITEM #	BRIEF DESCRIPTION OF ITEM	EST. QTY.	UNIT	UNIT RATE	TOTAL AMOUNT
140	Bridge Excavation	450	CY	\$	\$
141.1	Test Pit for Exploration	10	CY	\$	\$
151	Gravel Borrow	375	CY	\$	\$
151.01	Gravel Borrow – Type C	400	CY	\$	\$
151.2	Gravel Borrow for Backfilling Structures and Pipes	85	CY	\$	\$
156.1	Crushed Stone for Bridge Foundations	60	TON	\$	\$
170	Fine Grading & Compacting	1725	SY	\$	\$
201.5	Catch Basin – Municipal Standard w/4' Sump	8	EA	\$	\$
202.01	Manhole – Municipal Standard 4' Diameter w/2' Sump	5	EA	\$	\$
205.018	Water Quality BMP (2000 Gallon Capacity)	1	EA	\$	\$
222.3	Frame and Grate (or cover) Municipal Standard	6	EA	\$	\$
241.12	12-inch Reinforced Concrete Pipe	340	LF	\$	\$
241.15	15-inch Reinforced Concrete Pipe	25	LF	\$	\$
241.18	18-inch Reinforced Concrete Pipe	135	LF	\$	\$
242.12	12-inch Reinforced Concrete Pipe Flared End	1	EA	\$	\$
258	Stone for Pipe Ends	5	SY	\$	\$
402	Dense Graded Crushed Stone for Sub-Base	310	CY	\$	\$

ITEM #	BRIEF DESCRIPTION OF ITEM	EST. QTY.	UNIT	UNIT RATE	TOTAL AMOUNT
415.1	Pavement Standard Milling	320	SY	\$	\$
443	Water for Dust Control	1	LS	\$	\$
452	Asphalt Emulsion for Tack Coat	200	GAL	\$	\$
450.23	Superpave Surface Course – 12.5 (SSC-12.5)	210	TON	\$	\$
450.42	Superpave Base Course – 37.5 (SBC-37.5)	410	TON	\$	\$
482.30	Sawcutting Asphalt Pavement	255	LF	\$	\$
570.1	Hot Mix Asphalt Curb – Type 1	475	LF	\$	\$
701	Cement Concrete Sidewalk	300	SY	\$	\$
701.1	Cement Concrete Sidewalk at Driveways	75	SY	\$	\$
702	Hot Mix Asphalt Sidewalk or Driveway	80	TON	\$	\$
748	Mobilization	1	LS	\$	\$
861.106	6-inch ReflectORIZED Yellow Line (Painted)	775	LF	\$	\$
983.2	Riprap	10	CY	\$	\$
991.1	Control of Water	1	LS	\$	\$
995.011	Culvert Structure, Culver No. P-13-041 (CHU)	1	LS	\$	\$
1000.1	Permanent Water Main Relocation	1	LS	\$	\$

ITEM #	BRIEF DESCRIPTION OF ITEM	EST. QTY.	UNIT	UNIT RATE	TOTAL AMOUNT
1000.2	Temporary Water Main Relocation	1	LS	\$	\$
BID TOTAL				\$	

TOTAL BID PRICE (All work described in the Invitation for Bids)

\$ _____
(Amount in Figures)

(Amount in Words)

NOTE:

- The estimated quantities for unit price pay items are approximate only and are included solely for the purpose of comparison of bids. The quantities are based on estimates of the work to be performed during the term on the Contract; however, the Owner does not expressly or by implication agree or warrant that the actual amount of work will correspond with such estimates and the Owner reserves the right to increase or decrease the amount of any class or portion of the work as it may deem necessary, without change of price per unit, which unit prices shall be used for increase and decreases (credits) for adjustments in the quantity of work required.
- All prices, except item totals, shall be stated both in words and figures. Discrepancies between unit prices and their respective total amounts will be resolved in favor of the unit price. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.
- All structural works should be priced for being installed with appropriate finishing works. Shop Drawings may be required for any additional design work.
- The successful bidder shall submit for review by the Owner documentation to establish a “direct labor mark-up” for change orders which may be executed.
- The Owner reserves the right to withhold the fair market value for work not completed, in addition to the retainage on work completed as described in the Bid Documents.

- Unbalanced bid items will specifically be subject to review and to this potential withholding from periodic payment applications.

THE FOLLOWING ITEMS ARE TO BE SUBMITTED WITH THE BID:

- This completed and signed Bid Form
- Bid Security (5%)
- Delegation of Authority Form
- Certificate of Non-Collusion
- Certificate of OSHA Training
- Certificate of Tax Compliance
- Five (5) references for similar projects within the past ten (10) years in the Commonwealth of Massachusetts

THE UNDERSIGNED ACKNOWLEDGES RECEIPT OF ADDENDA # _____.

*To be filled in by bidder if addenda are issued.

PLEASE NOT ANY EXCEPTIONS OF SEPARATE CONTRACTOR LETTERHEAD.

BIDDER _____

COUNTY _____

STATE OF INCORPORATION _____

PHONE _____

EMAIL _____

TAX I.D. NUMBER _____

AUTHORIZED SIGNATURE _____

Printed Name and Title _____

Date Offered _____

DELEGATION OF AUTHORITY

To be completed if this business is a Corporation.

At a meeting of the Board of Directors of _____ duly called and
(Name of Corporation)

held on _____ at which a quorum was present, and acting throughout, the
(Date)

Following vote was duly adopted: VOTED: That _____ the
(Name of Individual)

_____ of the Corporation, hereby is authorized to affix the Corporate
(Title)

Seal, sign and deliver in the name and on behalf of the Corporation, bids, proposals, contracts, bills of sale, conditional sale agreements, chattel mortgages, leases, bonds, applications, affidavits, certificates, and any other similar documents required in connection with sale of the Corporation's products to any purchaser, including assignments and satisfactions of any such documents.

Any and all applications, affidavits, statements, certificates, and similar documents required by law in connection with the licensing of the Corporation or its representatives for the sale, distribution, and servicing of its commercial products.

The authority is hereby delegated and shall be exercised by the aforesaid person in connection

with the duties as _____ of _____
(Title) (Name of Corporation)

and not otherwise.

ATTEST: _____

DATE: _____

CERTIFICATE OF NON-COLLUSION

The undersigned certifies under the 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.

(Signature of person signing bid or proposal)

(Name of business)

CERTIFICATE OF OSHA TRAINING

In accordance with M.G. L. C.30, S.39S: The undersigned hereby certifies that all employees of

_____ (*Name of Company*) to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration at the time the employees begins work and who shall furnish documentation of successful completion of said course with the first payroll report for each employee and that all employees to be employed in the work subject to this bid have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration.

(Authorized Signature)

(Title)

(Date)

CERTIFICATE OF TAX COMPLIANCE

Pursuant to Chapter 62C of the Massachusetts General Laws, Section 49A(b), I,

_____, authorized signatory for _____,
do hereby certify under the pains and penalties of perjury that said contractor has complied with
all laws of the Commonwealth of Massachusetts relating to taxes.

CONTRACTOR

By: _____
(Signature of Authorized Representative)

Title _____

Date _____

REFERENCES OF BIDDER

By signing this page, the bidder certifies that they meet the minimum qualifications specified in the Bid Documents.

Signed:

Signature of Authorized Representative

Title

Date

Please provide the requested reference information on the following pages:

Project Name: _____
Project Location: _____
Contract Amount: \$_____ Completion Date: _____
Owner: _____
Contact Name: _____ Telephone: _____
Architect/Engineer: _____
Contact Name: _____ Telephone: _____

Project Name: _____

Project Location: _____

Contract Amount: \$_____ Completion Date: _____

Owner: _____

Contact Name: _____ Telephone: _____

Architect/Engineer: _____

Contact Name: _____ Telephone: _____

Project Name: _____

Project Location: _____

Contract Amount: \$_____ Completion Date: _____

Owner: _____

Contact Name: _____ Telephone: _____

Architect/Engineer: _____

Contact Name: _____ Telephone: _____

Project Name: _____

Project Location: _____

Contract Amount: \$_____ Completion Date: _____

Owner: _____

Contact Name: _____ Telephone: _____

Architect/Engineer: _____

Contact Name: _____ Telephone: _____

Project Name: _____

Project Location: _____

Contract Amount: \$_____ Completion Date: _____

Owner: _____

Contact Name: _____ Telephone: _____

Architect/Engineer: _____

Contact Name: _____ Telephone: _____