

TOWN OF CANTON



INVITATION FOR BID

**Proposed Streetscape Improvements for
Town of Canton, Connecticut
Collinsville Village Center Streetscape Phase II**

**CONTRACT # 051321
State Project 23-128**

BIDS WILL BE RECEIVED in the Office of the Chief Administrative Officer, Canton Town Hall, 2nd Floor, 4 Market Street Collinsville, CT until 10 a.m. local time on May 13th, 2021, at which time all bids will be publicly opened in the second floor Conference Room of the Canton Town Hall.

Legal Notice
Town of Canton, CT
Invitation to Bid
Proposed Streetscape Improvements for
The Town of Canton, Connecticut
Collinsville Village Center Streetscape Phase II
Contract #051321
State Project 23-128

The Town of Canton, through its Chief Administrative Officer ("CAO"), is seeking bids for proposed streetscape improvements for the Collinsville Village Center Streetscape Phase II Project. One (1) original sealed bid for the above-named Invitation must be received in the Office of the Chief Administrative Officer, Canton Town Hall, 2nd Floor, 4 Market Street Collinsville, CT by 10 a.m. local time on May 13th, at which time all bids will be publicly opened in the second floor Conference Room of the Canton Town Hall. The Town of Canton will reject bids received after that date and time.

There will be a non-mandatory Pre-Bid Meeting on Thursday April 29th, 10:00 a.m. at Canton Town Hall, at 4 Market Street, Collinsville.

The Bid package and any applicable addendum may be obtained on the Town's website, www.townofcantonct.org, under "Request for Proposals".

Bidders that find discrepancies and/or errors in or between specifications, quantities, and other matters, must immediately notify the Project Administrator in writing not less than five (5) days before the scheduled bid opening.

No bid shall be withdrawn before sixty (60) calendar days after the date of the bid opening. The Town of Canton, CT reserves the right to reject any and all bids and to waive any informality in the bids received.

Dated at Collinsville, CT, this 8th day of April, 2021.

The contractor who is selected to perform this State project must comply with CONN. GEN. STAT. §§ 4a-60, 4a-60a, 4a-60g, and 46a-68b through 46a-68f, inclusive, as amended by June 2015 Special Session Public Act 15-5.

State law requires a minimum of twenty-five (25%) percent of the state-funded portion of the contract for award to subcontractors holding current certification from the Connecticut Department of Administrative Services ("DAS") under the provisions of CONN. GEN. STAT. § 4a-60g. (25% of the work with DAS certified Small and Minority owned businesses and 25% of that work with DAS certified Minority, Women and/or Disabled owned businesses.) The contractor must demonstrate good faith effort to meet the 25% set-aside goals.

For municipal public works contracts and quasi-public agency projects, the contractor must file a written or electronic non-discrimination certification with the Commission on Human Rights and Opportunities. Forms can be found at: http://www.ct.gov/opm/cwp/view.asp?a=2982&q=390928&opmNav_GID=1806

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PROJECT NARRATIVE

The Collinsville Village Streetscape Phase 2 plan has been developed to realize Collinsville's potential through the construction of historically appropriate safety and aesthetic improvements that promote economic activity. When fully constructed, these improvements will provide safe pedestrian access, organized parking, and most importantly, critical linkages between areas of business and areas of activity. These plans contain many elements that help protect the character of Collinsville and support its economy.

The continuation of streetscape, roadway and intersection improvements will:

- Continue investment in infrastructure in the local and national historic village center of Collinsville;
- Continue to increase economic activity within our village center, evidenced by the 2015 Streetscape Phase 1 construction;
- Facilitate investment in mixed use development and increased residential densities;
- Support local agriculture and a regional farmers market;
- Support revitalization and redevelopment of a historic mill property for mixed use development and diverse housing opportunities;
- Increase connectivity for people who walk and bike within the village center.

INSTRUCTIONS TO BIDDERS

INTRODUCTION

- The Town of Canton (the "Town") is soliciting bids for streetscape improvements for the Town of Canton, Collinsville Village Center Streetscape Phase II Project [contract #051321].
- This invitation is not a contract offer.
- The scope of this project is described more particularly in the invitation for bid that is a part of this bid package.
- The location, general characteristics and principal details of the work are indicated in this invitation for bid and other references noted on this document.
- Interested parties should submit a bid response in accordance with the requirements and directions set forth in this bid package. Bidders may not contact any Town employee or official concerning this invitation other than the Town's project administrator as set forth in the attached documents. A bidder's failure to comply with this requirement may result in disqualification.
- The Town will return unopened any bid received after the date and time of bid opening.
- If there are any conflicts between the provisions of these instructions to bidders and any other document(s) comprising this bid package, these instructions to bidders shall prevail.

KEY DATES

Invitation to Bid Issued: April 8th, 2021.

Pre-Bid Meeting (Not Mandatory): April 29th, 2021 10:00 A.M. At Canton Town Hall

Bid Opening: May 13th, 2021 At 10 A.M. At Canton Town Hall

SCHEDULING THE WORK

Work under this contract shall reach substantial completion within three-hundred & thirty-five (335) calendar days from the day the contractor starts work. Calendar days in this contract shall mean each consecutive day including Saturdays, Sundays and legal holidays. No extensions of time will be allowed for adverse weather conditions unless the number of

days of inclement weather is substantially greater or conditions more severe than the average for the calendar period as recorded by a recognized weather observation agency and the contractor provides documentation at the end of each calendar month identifying these weather delays. Work on this project shall not be performed on Saturdays, Sundays or legal holidays except by written consent and direction of the owner.

Work shall proceed in an orderly fashion to minimize inconvenience to the abutting property owners.

CONTINGENCIES

The Town reserves the right to cancel this bid process and any resulting contract at any time if the Town deems such action to be in its best interests, including but not only if either of the following conditions exists:

- The Town, through changes in its requirements or methods of operation, no longer has a need for the subject matter of this Invitation; or,
- The Town is not satisfied with the work under the Contract, or the successful bidder fails to comply with any of the Contract's terms and conditions.

OBTAINING BID PACKAGE

The bid package — i.e., each of the documents listed on the page preceding these instructions and collectively referred to as the "invitation" — may be obtained at the Town website, www.townofcantonct.org, under "request for proposals."

BID SUBMISSION INSTRUCTIONS

Bids must be in the Town office identified above prior to the date and time the first bid is scheduled to be opened publicly. Postmarks prior to the bid opening date and time do not satisfy this condition. The Town will not accept corrections and/or modifications received after the first bid is opened publicly. Bids may not be withdrawn after bid opening, and bids must remain in effect for sixty (60) calendar days after bid opening, even if the bidder discovers errors in the bid after opening.

One (1) original bid must be submitted on the accompanying bid form and in sealed, opaque envelopes clearly labeled with the bidder's name, the bidder's address, the words "bid documents," and the bid title and bid opening date, to prevent opening prior to the bid opening date. The bidder should also complete the following forms and submit as part of the bid submission:

- Disclosures;
- Legal status;
- Bid security;
- Non-collusion affidavit;
- Bidder qualifications;

The Town will reject, and not accept, bids submitted in unmarked envelopes that the Town opens in its normal course of business. The Town may, but shall not be required to, return such bid and inform the bidder that the bid may be resubmitted in a sealed envelope properly marked as described above.

Bids must be submitted on the prescribed form and all blank spaces for bid prices must be completed and all prices shall be stated in figures. Bid prices shall include all labor, materials, equipment, tools, transportation, and incidentals thereto necessary to perform the work in accordance with the contract plans and specifications and first-class work of the type being bid. The person signing the bid must initial errors, alterations or corrections on both the original bid and all required copies. Ditto marks or words such as "same" shall not be used in the bid form.

Bids may be withdrawn personally or in writing provided that the Town receives the withdrawal prior to the time and date fixed for the bid opening. Bids are considered valid for sixty (60) calendar days after bid opening, to permit the Town the time to review the bids and to investigate the bidders' qualifications prior to awarding the bid. Bidders may not withdraw, cancel or modify their bid for a period of sixty (60) calendar days after the bid opening or the bidder shall forfeit its bid security. An authorized person representing the legal entity of the bidder must sign the bid.

UNIT PRICES AND LUMP SUM PRICES

The unit prices for each of the several items in the bid shall include the prorated share of overhead and profit so that multiplying the quantity shown for each item by the unit price bid represents the total bid for that item. The Town may reject any bid not conforming to this requirement. Bidders should note this provision because, if conditions make it necessary for the Town to revise the quantities, no limit shall be fixed for such increased or decreased quantities, nor extra compensation allowed. Lump sum prices for each of the several items in the bid shall include its prorated share of overhead, profit, and all costs associated with that item. The lump sum price represents the entire compensation that the Town shall pay for all of the work associated with the item.

ALTERNATES

- A. Additive alternates definitions: an additive alternate is defined as a specific scope of work, products, materials, equipment or systems for the work not included in the base bid work and which may, at owner's option and under terms established herein, be selected and recorded in the contract to either supplement or displace basic requirements of contract documents. Alternates may or may not substantially change scope and general character of the work; and must not be confused with "allowances," "unit prices," "change orders," "substitutions," and other similar provisions. The bid price for the additive alternate is not included in the base bid price.
- B. Additive alternate pricing: the bid price for the additive alternate shall include all cost associated with the changes, omissions, additions or other adjustments to the work in this bid package described in the alternate or reasonably inferred therefrom. The additive alternate bid price shall include the cost of all labor, materials, equipment, time extension or deletion, general conditions, general requirements, overhead, profit, insurance, for the work. Claims for extras resulting from the acceptance or rejection of any additive alternate will not be allowed.

- C. Bidders must provide a bid for each additive alternate. If no bid is provided for any of the additive alternates contained in the bid proposal or if any bid for such an alternate is obviously unbalanced either in excess of, or below reasonable fair market values, then the entire bid will be considered nonresponsive, and the bid will be rejected.
- D. Award of contract: the award of contract will be made to lowest responsible bidder for the total bid price for the “base bid” work (Sections 1 through 8 inclusive) – which does not include the bid price for any additive alternate.
- E. The owner shall have the right to accept or omit any additive alternate.
- F. The drawings, specifications and other contract documents shall be considered appropriately modified by either the acceptance or omission of any additive alternates.
- G. Bid Bonds: bid bond amount shall be at least one-third of the sum of the base bid plus all additive alternates.
- H. The awarding of any or all the additive alternates shall not increase and/or change the completion date as specified herein.
- I. Notification: after award of the contract, one or more additive alternates for which funds are available may be added to the contract in the discretion of the owner. The adjustment of the contract price shall be solely based on the bid price for the alternate(s) added. The contractor will be notified as to which alternates will be included in the contract within fourteen (14) calendar days of the award of contract.

QUESTIONS

Questions concerning the bid process and procedures are to be via email only to:
Glenn Cusano, Project Administrator gcusano@townofcantonct.org

Bidders may not contact any other Town employee or official concerning this invitation. A bidder's failure to comply with this requirement may result in disqualification.

If a bidder finds any omission, discrepancy or error in, has questions concerning, or seeks an exception to anything in the documents constituting this invitation; it should notify the Town as soon as possible but not less than five (5) business days before the date of the bid opening. The bidder must direct that inquiry via email only to Glenn Cusano, gcusano@townofcantonct.org. No oral statement of the Town shall be effective or binding to modify any of the provisions of this invitation.

However, the Town will not make any oral interpretations to any bidder as to the meaning of any bid documents or portions thereof, and no bidder shall rely on any alleged oral interpretation. A bidder shall request an interpretation via email only to Glenn Cusano, email address: gcusano@townofcantonct.org.

ADDENDUM/ADDENDA

At least three (3) calendar days prior to the bid opening, the Town will post a copy of any and all addendum or addenda on the Town's website, www.townofcantonct.org, under "request for proposals." said addendum or addenda; which shall be a part of this invitation/bid and the resulting contract; containing all questions received as provided for above and decisions regarding same. Each bidder is responsible for checking the website to determine if the Town has issued an addendum or addenda and, if so, to complete its bid in accordance with the invitation as modified by the addendum/addenda.

COSTS FOR PREPARING BID

This invitation does not commit the Town to pay any costs incurred by bidders in preparing their responsive bids. Each bidder agrees that all costs it incurs in developing its bid are its sole responsibility.

OWNERSHIP OF BIDS

All bids submitted to the Town become property of the Town.

FREEDOM OF INFORMATION ACT

All information submitted in a bid or in response to a request for additional information is subject to disclosure under the Connecticut Freedom of Information Act as amended. A bidder's responses may contain financial or other data that it claims constitute proprietary or confidential information or a trade secret. To protect such data from disclosure, a bidder should identify specifically the pages that contain claimed confidential information by visibly marking all such pages of the bid.

REQUIRED DISCLOSURES AND BIDDER'S QUALIFICATIONS

In its bid each bidder shall:

- State its inability to meet any specified requirement of the Invitation;
- Make a complete disclosure of all resolved and pending mediation, arbitration and litigation matters in which the bidder or its principals (regardless of their place of employment) have been involved for the most recent five (5) years;
- Make a complete disclosure of each instance of its or its principals' (regardless of their place of employment) conviction, guilty plea, nolo contendere plea, finding of civil liability or criminal responsibility in any civil action or for any criminal offense, except motor vehicle infractions; and,
- Make a complete disclosure of each instance of its or its principals' (regardless of their place of employment) finding of a violation of any state or local ethics standards or other offense arising out of the submission of bids or proposals, or performance of work on public works projects or contracts.

A bidder's acceptability based on these disclosures and any investigation the Town deems necessary to determine a bidder's ability to perform the work described in this invitation shall lie solely with the Town.

CONFLICT OF INTEREST

By submitting a bid, a bidder certifies that it has no conflict of interest as defined in the Town's Ordinance # 230 concerning ethics. The Town shall review all bids under this provision and may reject any bid where, in the Town's opinion, the bidder could be in a conflict of interest or could be perceived to be in a possible conflict of interest position if the bidder were to become a party to the contract.

DEBARRED CONTRACTORS

The Town will reject any bid from a bidder that is on a debarred contractor list of the United States and/or the State of Connecticut.

LEGAL STATUS

Each bidder must complete the bidder's legal status disclosure form and must, if required, have a current license or registration to do business in the State of Connecticut that is on file with the Connecticut Secretary of the State's Office. The Town may, in its sole discretion, request acceptable evidence of any bidder's legal status.

BID SECURITY

Bid bond amount shall be at least one-third of the sum of the base bid plus all additive alternates

PRESUMPTION OF BIDDER'S FULL KNOWLEDGE

At the time the first bid is opened, the Town will presume that each bidder has read and understood each document comprising this invitation and any addenda posted on the town's website. A bidder's failure and/or omission to receive or examine any information concerning this invitation shall in no way relieve it from any aspect of its bid or the obligations related to it.

At the time the first bid is opened, the Town will also presume that each bidder is familiar with and will comply with all federal, state and local laws, ordinances and regulations that in any manner relate to this invitation and the performance of the work described in it.

By submitting a bid, each bidder represents that it has thoroughly examined and become familiar with the scope of work outlined in this invitation and it is capable of performing the work to achieve the Town's objectives.

Each bidder shall visit and examine the location of and the routes to be used during the work described in this invitation and thoroughly familiarize itself with all actual conditions of the property before preparing its bid. The submission of a bid shall be construed as an assurance that such examination has been made, and the Town will not recognize or award claims for compensation for additional labor, equipment or materials for difficulties encountered.

TAX EXEMPTIONS

The Town is exempt from the payment of federal excise taxes and Connecticut sales and use taxes. Exemption from state sales tax per Connecticut General Statutes Chapter 219, § 12-412(1). No exemption certificates are required, and none will be issued. The successful bidder will be provided the Town of Cantons federal tax exempt #. Bidders shall avail themselves of these exemptions.

INSURANCE

The successful bidder shall, at its own expense and cost, obtain and keep in force during the entire duration of the work and during the completed operations period that is the subject of this invitation, the insurance coverage set forth in Article 67 of the General Conditions of these contract documents. Insurance limits are to match or exceed those found in the CT form 817 specifications.

AWARD CRITERIA; SELECTION; CONTRACT EXECUTION

The basis of this award is to the lowest responsible bidder for the base bid work (Sections 1 through 8 inclusive), not including any additive alternates. Due consideration will also be given to a bidder's experience, references, service, ability to respond promptly to requests, past performance satisfactory to the Town, and other criteria relevant to the interests of the Town, including the bid documents' compliance with the procedural requirements stated in this invitation.

The Town will not award the bid to any bidder who is in arrears or in default to the Town on any debt, contract, security or any other obligation.

The Town reserves the rights, in its sole discretion to waive any non-material deficiencies or clerical errors in the bidding process or bid; and to award the bid that in its judgment will be in the town's best interests.

All bids will be publicly opened and read aloud as received on the date, at the time, and at the place identified in this invitation. Bidders may be present at the opening.

The Town may correct, after bidder verification, any mistake in a bid that is obviously a clerical error, such as a price extension or decimal point error. If an error exists in an extension of prices, the unit price shall prevail.

The Town will select the bid from the lowest responsible bidder and issue a notice of conditional award of bid to the successful bidder. The conditional award shall be subject to further discussions with the bidder that are deemed necessary by the Town and to the successful bidder's provision of the documents required by this invitation and the execution of a contract in the form contained in this invitation.

The successful bidder's failure to provide each required form or execute the contract within ten (10) business days of the date of the notice of conditional award of bid shall be grounds for the Town to declare the bid non-responsive and to be withdrawn, to call the bid security, and/or to enter into discussions with another bidder.

The Town will post the bid results and award recommendation on the Town's website, www.townofcantonct.org, under "Request for Proposals."

COLLUSION

Each bidder shall complete the non-collusion affidavit that is a part of this invitation.

Any act(s) of misrepresentation or collusion in connection with a bid may be a basis to disqualify a bid submitted by the bidder responsible for said misrepresentation or collusion. In the event that such conduct is discovered after the execution of the contract, the Town may terminate the contract without incurring any liability, penalty, damages, or other loss.

ADVERTISING

The successful bidder may not name the Town in its advertising, news releases, and promotional efforts without the Town's prior written approval.

If it chooses, the successful bidder may list the Town in a statement of references or similar document required as part of a public bid. The Town's permission to the successful bidder to do so is not a statement about the quality of the successful bidder's work or the Town's endorsement of the successful bidder or its work.

W-9 FORM

The successful bidder must provide the Town with a completed W-9 Form before commencing work.

PAYMENTS

Payments will be made within thirty (30) calendar days after the appropriate Town officer receives and approves the invoice, unless otherwise specified in the technical specifications.

TOWN INSPECTION OF WORK

The Town may inspect the successful bidder's work at all reasonable times. This right of inspection is solely for the Town's benefit and does not transfer to the Town the responsibility for discovering patent, latent, or other defects. The successful bidder has the sole and exclusive responsibility for performing in accordance with the contract.

REJECTED WORK OR MATERIALS

The successful bidder, at its sole cost and expense, shall remove from the Town's premises rejected items, commodities and/or work within 48 hours of the Town's notice of rejection. Immediate removal may be required when safety or health issues are present. If the contractor fails to remove rejected work in a timely manner, the Town may arrange to have such rejected work removed and deduct associated costs from payments due to the contractor.

MAINTENANCE AND AVAILABILITY OF RECORDS

The successful bidder shall maintain all records related to the work described in the invitation for a period of three (3) years after final payment under the contract or until all pending town, state and federal audits are completed, whichever is later. Such records shall be available for examination and audit by town, state and federal representatives during that time.

REPRESENTATION OF TOWN

In performing the work described in the invitation, the successful bidder, its agents and employees shall act in an independent capacity and shall not act as officers, employees or agents of the Town.

SUBCONTRACTING

The successful bidder agrees not to enter into any subcontracting agreement for any or all of the work described in the invitation without obtaining the Town's prior written consent. All subcontracting shall be subject to the same terms and conditions as are applicable to the successful bidder. The successful bidder shall be fully and solely responsible for the performance of and payments to any subcontractors. The contractor shall not award more than 49% of the contract value to anyone subcontractor.

COMPLIANCE WITH LAW

The successful bidder shall comply with all applicable laws, regulations, ordinances, codes and orders of the United States, the State of Connecticut and the Town related to its bid and the performance of the work described in the invitation and these specifications. The successful bidder shall commit no trespass on private property in performing any of the work described in the invitation. By submitting a bid, the successful bidder covenants that it has complied, and during the term of the contract will comply, with the obligations under the immigration reform and control act ("112CA") and that all employees it assigns to the contract are authorized for employment in the United States of America. The successful bidder further covenants that it has properly completed, and during the term of the contract will properly complete, I-9s for all employees assigned to the contract. The successful bidder agrees to defend, indemnify and hold the Town harmless in the event that any of the successful bidder's employees provided under the contract is found not to be authorized to work under the law or in the event that there is a determination that the successful bidder has failed to comply with IRCA's obligations, including but not limited to the failure to prepare correctly and maintain I-9s. The successful bidder further agrees to defend, indemnify and hold harmless the Town from and against any and all claims brought against the Town as a result of these obligations, including but not limited to settlement fees, judgments, attorneys' fees and costs. These defense, hold harmless and indemnity obligations shall survive the contract's termination or expiration.

LICENSES AND PERMITS

The successful bidder shall, for the term of the contract, have and provide proof of all permits and licenses required by the town and/or any other state or federal authority. The successful bidder shall immediately and in writing notify the Town of the loss or suspension of any such license or permit.

SECURITY: PERFORMANCE AND PAYMENT

At the time of contract execution, the successful bidder shall file with the Town security in an amount not less than one hundred percent (100%) of the total bid for, which security shall be for the satisfactory performance of the work. The bidder's surety shall be licensed by the State of Connecticut and listed by the US Department of the Treasury in circular no. 570. The Town may accept a certified check in lieu of a surety bond, subject to review and approval of the Town's legal counsel. The bidder's bank shall be licensed and insured by the State of Connecticut and the Federal Deposit Insurance Corporation. The failure of the Town's legal counsel to approve the form of such security shall be grounds for the Town to reject the bid. The successful bidder shall provide the Town with such security prior to the start of each contract in an amount the Town estimates for the work anticipated for that contract. Failure to provide such security shall be grounds to terminate the contract.

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 as specified in the contract documents (as outlined below) for the work to be done hereunder are essential conditions of this contract; and it further mutually understood and agreed that the work embraced in this contract shall be commenced not more than ten (10) calendar days from the date of written notice to begin work or notice to proceed or issuance of a work order.

The contractor agrees that said work shall be pursued regularly, diligently and uninterruptedly at such rate of progress as will insure 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 proper extension thereof granted by the owner, then the contractor does hereby agree, as part 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 that the contractor shall be in default after the time stipulated in the contract for completing the work.

The said amount 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 in such event sustain, the said amount is agreed to be the amount of damages which the owner would sustain and said amount shall be retained from time to time by the owner from current periodical estimates. It is further agreed that time is of the essence of each and every portion of this contract and of the specifications wherein a definite and certain length of time is fixed for the performance of any act whatsoever; and where under the contract an 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 delay in completion of the work is due:

(A) To any preference, priority or allocation order duly issued by the state or federal government;

(B) To unforeseeable cause beyond the control and without the fault or negligence of the contractor, including, but not restricted to, act of god, or the public enemy, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes;

(C) To any delays of subcontractor(s) or supplies occasioned by any of the causes specified in subsections (a) and (b) of this article.

(D) A per-day liquidated damage amount is hereby included to offset the damages to the owner, including inspection and administration costs that would result from the contract time being exceeded. A liquidated damages rate of \$1,200 per day would apply.

NON-DISCRIMINATION AND AFFIRMATIVE ACTION PROVISIONS

- (A)(1) The Contractor agrees and warrants that in the performance of the Contract such Contractor will not discriminate or permit discrimination against any person or group of persons on the grounds of race, color, religious creed, age, marital status, national origin, ancestry, sex, gender identity or expression, sexual orientation, intellectual disability, mental disability or physical disability, including, but not limited to, blindness, unless it is shown by such Contractor that such disability prevents performance of the work involved, in any manner prohibited by the laws of the United States or of the State of Connecticut. The Contractor further agrees to take affirmative action to insure that applicants with job-related qualifications are employed and that employees are treated when employed without regard to of race, color, religious creed, age, marital status, national origin, ancestry, sex, gender identity or expression, intellectual disability, mental disability or physical disability, including, but not limited to, blindness, unless it is shown by such Contractor that such disability prevents performance of the work involved; (2) the Contractor agrees, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, to state that it is an "affirmative action-equal opportunity employer" in accordance with regulations adopted by the commission; (3) the Contractor agrees to provide each labor union or representative of workers with which such Contractor has a collective bargaining agreement or other contract or understanding and each vendor with which such Contractor has a contract or understanding, a notice to be provided by the commission advising the labor union or workers' representative of the Contractor's commitments under this section, and to post copies of the notice in conspicuous places available to employees and applicants for employment; (4) the Contractor agrees to comply with each provision of this section and sections 46a-68e and 46a-68f and with each regulation or relevant order issued by said commission pursuant to sections 46a-56, 46a-68e, 46a-68f and 46a-86; (5) the Contractor agrees to provide the Commission on Human Rights and Opportunities with such information requested by the commission, and permit access to pertinent books, records and accounts, concerning the employment practices and procedures of the Contractor as relate to the provisions of this section and section 46a-56.
- (B) Any Contractor who is a party to a municipal public works contract or quasi-public agency project, where any such contract is valued at less than \$50,000 for each year of the contract, shall provide the Commission on Human Rights and Opportunities with a written or electronic representation that complies with the nondiscrimination agreement and warranty under subsection (A)(1) above, provided if there is any change in such representation, the Contractor shall provide the updated representation to the Commission not later than 30 days after such change. Any Contractor who is a party to a municipal public works contract or a quasi-public agency project, where any such contract is valued at \$50,000 or more for any year of the contract, shall provide the Commission with any one of the following: (1) Documentation in the form of a company or corporate policy adopted by resolution of the board of directors, shareholder, managers, members or other governing body of such Contractor that complies with the nondiscrimination agreement and warranty under subsection (A)(1) of this section; (2) Documentation in the form of a company or corporate policy adopted by a prior resolution of the board of directors, shareholders, managers, members or other governing body of such contractor if (a) the prior resolution is

certified by a duly authorized corporate officer of such contractor to be in effect on the date the documentation is submitted, and the executive director of the Commission on Human Rights and Opportunities or designee certifies that the prior resolution complies with the nondiscrimination agreement and warranty under subdivision (A)(1) of this section; or (3) Documentation in the form of an affidavit signed under penalty of false statement by a chief executive officer, president, chairperson or other corporate officer duly authorized to adopt company or corporate policy that certifies that the company or corporate policy of the contractor complies with the nondiscrimination agreement and warranty under subdivision (A)(1) of this section and is in effect on the date the affidavit is signed.

- (C) If the Contract is a municipal public works contract or a quasi-public agency project, the Contractor agrees and warrants that she/he will make good faith efforts to employ minority business enterprises as subcontractors and suppliers of materials on such public works project. The Contractor shall include the provisions of subdivision (A)(1) of this section in every subcontract or purchase order entered into to fulfill any obligation of a municipal public works contract or contract for a quasi-public agency project, and such provisions shall be binding on a subcontractor, vendor or manufacturer, unless exempted by regulations or orders of the Commission on Human Rights and Opportunities. The Contractor shall take such action with respect to any such subcontract or purchase order as the Commission may direct as a means of enforcing such provisions, including sanctions for noncompliance in accordance with section 46a-56; provided, if such Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the Commission regarding a state contract, the contractor may request the State of Connecticut to enter into any such litigation or negotiation prior thereto to protect the interests of the state and the state may so enter.
- (D) "Minority business enterprise" means any small contractor or supplier of materials fifty-one per cent or more of the capital stock, if any, or assets of which is owned by a person or persons: (1) Who are active in the daily affairs of the enterprise, (2) who have the power to direct the management and policies of the enterprise and (3) who are members of a minority, as such term is defined in subsection (a) of section 32-9n; and "good faith" means that degree of diligence which a reasonable person would exercise in the performance of legal duties and obligations. "Good faith efforts" shall include, but not be limited to, those reasonable initial efforts necessary to comply with statutory or regulatory requirements and additional or substituted efforts when it is determined that such initial efforts will not be sufficient to comply with such requirements. Determination of the Contractor's good faith efforts shall include, but shall not be eliminated to, the following factors: The contractor's employment and subcontracting policies, patterns and practices; affirmative advertising recruitment and training; technical assistance activities and such other reasonable activities or efforts as the Commission on Human Rights and Opportunities may prescribe that are designed to ensure the participation of minority business enterprises in municipal public works contracts or quasi-public agency projects. "Municipal public works project" means that portion of an agreement entered into on or after October 1, 2015, between any individual, firm or corporation and a municipality for the construction, rehabilitation, conversion, extension, demolition or repair of a public building, highway or other changes or improvements in real property, which is financed in whole or in part by the state, including, but not limited to, matching expenditures, grants, loans, insurance or guarantees but excluding any project of an alliance district, as defined in section 10-262u, finance by the state funding in an amount equal

to fifty thousand dollars or less. "Quasi-public agency project" means the construction, rehabilitation, conversion, extension, demolition or repair of a building or other changes or improvements in real property pursuant to a contract entered into on or after October 1, 2015, which is financed in whole or in part by a quasi-public agency using state funds, including, but not limited to, matching expenditures, grants, loans, insurance or guarantees.

CHRO SMALL & MINORITY OWNED BUSINESS REQUIREMENTS:

The contractor who is selected to perform this State project must comply with CONN. GEN. STAT. §§ 4a-60, 4a-60a, 4a-60g, and 46a-68b through 46a-68f, inclusive, as amended by June 2015 Special Session Public Act 15-5.

State law requires a minimum of twenty-five (25%) percent of the state-funded portion of the contract for award to subcontractors holding current certification from the Connecticut Department of Administrative Services ("DAS") under the provisions of CONN. GEN. STAT. § 4a-60g. (25% of the work with DAS certified Small and Minority owned businesses and 25% of that work with DAS certified Minority, Women and/or Disabled owned businesses.) The contractor must demonstrate good faith effort to meet the 25% set-aside goals.

For municipal public works contracts and quasi-public agency projects, the contractor must file a written or electronic non-discrimination certification with the Commission on Human Rights and Opportunities. Forms can be found at:

http://www.ct.gov/opm/cwp/view.asp?a=2982&q=390928&opmNav_GID=1806

Construction Contracts - Required Contract Provisions

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EXHIBIT E - State Wage Rates (Attached at the end)

1. Title VI of the Civil Rights Act of 1964 / Nondiscrimination Requirements

The Contractor shall comply with Title VI of the Civil Rights Act of 1964 as amended (42 U.S.C. 2000 et seq.), all requirements imposed by the regulations of the United States Department of Transportation (49 CFR Part 21) issued in implementation thereof, and the Title VI Contractor Assurances attached hereto at Exhibit A, all of which are hereby made a part of this Contract.

2. Contractor Work Force Utilization / Equal Employment Opportunity

(a) The Contractor shall comply with the Contractor Work Force Utilization / Equal Employment Opportunity requirements attached at Exhibit B and hereby made part of this Contract, whenever a contractor or subcontractor at any tier performs construction work in excess of \$10,000. These goals shall be included in each contract and subcontract. Goal achievement is calculated for each trade using the hours worked under each trade.

(b) Companies with contracts, agreements or purchase orders valued at \$10,000 or more will develop and implement an Affirmative Action Plan utilizing the ConnDOT Affirmative Action Plan Guideline. This Plan shall be designed to further the provision of equal employment opportunity to all persons without regard to their race, color, religion, sex or national origin, and to promote the full realization of equal employment opportunity through a positive continuation program. Plans shall be updated as required by ConnDOT.

3. Contract Wage Rates

The Contractor shall comply with:

The State wage rate requirements indicated in Exhibit E hereof are hereby made part of this Contract.

Prevailing Wages for Work on State Highways; Annual Adjustments. With respect to contracts for work on state highways and bridges on state highways, the Contractor shall comply with the provisions of Section 31-54 and 31-55a of the Connecticut General Statutes, as revised.

As required by section 1.05.12 (Payrolls) of the State of Connecticut, Department of Transportation's Standard Specification for Roads, Bridges and Incidental Construction (FORM 816), as may be revised, every Contractor or subcontractor performing project work on a federal aid project is required to post the relevant prevailing wage rates as determined by the United States Secretary of Labor. The wage rate determinations shall be posted in prominent and easily accessible places at the work site.

4. Americans with Disabilities Act of 1990, as Amended

This provision applies to those Contractors who are or will be responsible for compliance with the terms of the Americans with Disabilities Act of 1990, as amended (42 U.S.C. 12101 et seq.), (Act), during the term of the Contract. The Contractor represents that it is familiar with the terms of this Act and that it is in compliance with the Act. Failure of the Contractor to satisfy this standard as the same applies to performance under this Contract, either now or during the term of the Contract as it may be amended, will render the Contract voidable at the option of the State upon notice to the contractor. The Contractor warrants that it will hold the State harmless and indemnify the State from any liability which may be imposed upon the State as a result of any failure of the Contractor to be in compliance with this Act, as the same applies to performance under this Contract.

5. Connecticut Statutory Labor Requirements

(a) Construction, Alteration or Repair of Public Works Projects; Wage Rates. The Contractor shall comply with Section 31-53 of the Connecticut General Statutes, as revised. The wages paid on an hourly basis to any person performing the work of any mechanic, laborer or worker on the work herein contracted to be done and the amount of payment or contribution paid or payable on behalf of each such person to any employee welfare fund, as defined in subsection (i) of section 31-53 of the Connecticut General Statutes, shall be at a rate equal to the rate customary or prevailing for the same work in the same trade or occupation in the town in which such public works project is being constructed. Any contractor who is not obligated by agreement to make payment or contribution on behalf of such persons to any such employee welfare fund shall pay to each mechanic, laborer or worker as part of such person's wages the amount of payment or contribution for such person's classification on each pay day.

(b) Debarment List. Limitation on Awarding Contracts. The Contractor shall comply with Section 31-53a of the Connecticut General Statutes, as revised.

(c) Construction Safety and Health Course. The Contractor shall comply with section 31-53b of the Connecticut General Statutes, as revised. The contractor shall furnish proof to the Labor Commissioner with the weekly certified payroll form for the first week each employee begins work on such project that any person performing the work of a mechanic, laborer or worker pursuant to the classifications of labor under section 31-53 of the Connecticut General Statutes, as revised, on such public works project, pursuant to such contract, has completed a course of at least ten hours in duration in construction safety and health approved by the federal Occupational Safety and Health Administration or, has completed a new miner training program approved by the Federal Mine Safety and Health Administration in accordance with 30 CFR 48 or, in the case of telecommunications employees, has completed at least ten hours of training in accordance with 29 CFR 1910.268.

Any employee required to complete a construction safety and health course as required that has not completed the course, shall have a maximum of fourteen (14) days to complete the course. If the employee has not been brought into compliance, they shall be removed from the project until such time as they have completed the required training.

Any costs associated with this notice shall be included in the general cost of the contract. In addition, there shall be no time granted to the contractor for compliance with this notice. The contractor's compliance with this notice and any associated regulations shall not be grounds for claims as outlined in Section 1.11 – "Claims".

(d) Awarding of Contracts to Occupational Safety and Health Law Violators Prohibited. The Contract is subject to Section 31-57b of the Connecticut General Statutes, as revised.

(e) Residents Preference in Work on Other Public Facilities. NOT APPLICABLE TO FEDERAL AID CONTRACTS. Pursuant to Section 31-52a of the Connecticut General Statutes, as revised, in the employment of mechanics, laborers or workmen to perform the work specified herein, preference shall be given to residents of the state who are, and continuously for at least six months prior to the date hereof have been, residents of this state, and if no such person is available, then to residents of other states

6. Tax Liability - Contractor's Exempt Purchase Certificate (CERT – 141)

The Contractor shall comply with Chapter 219 of the Connecticut General Statutes pertaining to tangible personal property or services rendered that is/are subject to sales tax. The Contractor is responsible for determining its tax liability. If the Contractor purchases materials or supplies pursuant to the Connecticut Department of Revenue Services' "Contractor's Exempt Purchase Certificate (CERT-141)," as may be revised, the Contractor acknowledges and agrees that title to such materials and supplies installed or placed in the project will vest in the State simultaneously with passage of title from the retailers or vendors thereof, and the Contractor will have no property rights in the materials and supplies purchased.

Forms and instructions are available anytime by:

Internet: Visit the DRS website at www.ct.gov/DRS to download and print Connecticut tax forms; or Telephone: Call 1-800-382-9463 (Connecticut calls outside the Greater Hartford calling area only) and select Option 2 or call 860-297-4753 (from anywhere).

7. Executive Orders

This contract is subject to the provisions of Executive Order No. Three of Governor Thomas J. Meskill, promulgated June 16, 1971, concerning labor employment practices, Executive Order No. Seventeen of Governor Thomas J. Meskill, promulgated February 15, 1973, concerning the listing of employment openings and Executive Order No. Sixteen of Governor John G. Rowland promulgated August 4, 1999, concerning violence in the workplace, all of which are incorporated into and are made a part of the contract as if they had been fully set forth in it. The contract may also be subject to Executive Order No. 14 of Governor M. Jodi Rell, promulgated April 17, 2006, concerning procurement of cleaning products and services and to Executive Order No. 49 of Governor Dannel P. Malloy, promulgated May 22, 2015, mandating disclosure of certain gifts to public employees and contributions to certain candidates for office. If Executive Order No. 14 and/or Executive Order No. 49 are applicable, they are deemed to be incorporated into and are made a part of the contract as if they had been fully set forth in it. At the Contractor's request, the Department shall provide a copy of these orders to the Contractor.

8. Non Discrimination Requirement (pursuant to section 4a-60 and 4a-60a of the Connecticut General Statutes, as revised): References to "minority business enterprises" in this Section are not applicable to Federal-aid projects/contracts. Federal-aid projects/contracts are instead subject to the Federal Disadvantaged Business Enterprise Program.

(a) For purposes of this Section, the following terms are defined as follows:

- (1) "Commission" means the Commission on Human Rights and Opportunities;
- (2) "Contract" and "contract" include any extension or modification of the Contract or contract;
- (3) "Contractor" and "contractor" include any successors or assigns of the Contractor or contractor;
- (4) "Gender identity or expression" means a person's gender-related identity, appearance or behavior, whether or not that gender-related identity, appearance or behavior is different from that traditionally associated with the person's physiology or assigned sex at birth, which gender-related identity can be shown by providing evidence including, but not limited to, medical history, care or treatment of the gender-related identity, consistent and uniform assertion of the gender-related identity or any other evidence that the gender-related identity is sincerely held, part of a person's core identity or not being asserted for an improper purpose.
- (5) "good faith" means that degree of diligence which a reasonable person would exercise in the performance of legal duties and obligations;

- (6) "good faith efforts" shall include, but not be limited to, those reasonable initial efforts necessary to comply with statutory or regulatory requirements and additional or substituted efforts when it is determined that such initial efforts will not be sufficient to comply with such requirements;
- (7) "marital status" means being single, married as recognized by the state of Connecticut, widowed, separated or divorced;
- (8) "mental disability" means one or more mental disorders, as defined in the most recent edition of the American Psychiatric Association's "Diagnostic and Statistical Manual of Mental Disorders", or a record of or regarding a person as having one or more such disorders;
- (9) "minority business enterprise" means any small contractor or supplier of materials fifty-one percent or more of the capital stock, if any, or assets of which is owned by a person or persons: (1) who are active in the daily affairs of the enterprise, (2) who have the power to direct the management and policies of the enterprise, and (3) who are members of a minority, as such term is defined in subsection (a) of Connecticut General Statutes § 32-9n; and
- (1) "public works contract" means any agreement between any individual, firm or corporation and the State or any political subdivision of the State other than a municipality for construction, rehabilitation, conversion, extension, demolition or repair of a public building, highway or other changes or improvements in real property, or which is financed in whole or in part by the State, including, but not limited to, matching expenditures, grants, loans, insurance or guarantees.

For purposes of this Section, the terms "Contract" and "contract" do not include a contract where each contractor is (1) a political subdivision of the State of Connecticut, including, but not limited to municipalities, unless the contract is a municipal public works contract or quasi-public agency project contract, (2) any other state of the United States, including but not limited to, the District of Columbia, Puerto Rico, U.S. territories and possessions, and federally recognized Indian tribal governments, as defined in Connecticut General Statutes § 1-267, (3) the federal government, (4) a foreign government, or (5) an agency of a subdivision, state or government described in subdivision (1), (2), (3), or (4) of this subsection.

- (b) (1) The Contractor agrees and warrants that in the performance of the Contract such Contractor will not discriminate or permit discrimination against any person or group of persons on the grounds of race, color, religious creed, age, marital status, national origin, ancestry, sex, gender identity or expression, status as a veteran, intellectual disability, mental disability or physical disability, including, but not limited to, blindness, unless it is shown by such Contractor that such disability prevents performance of the work involved, in any manner prohibited by the laws of the United States or of the State of Connecticut; and the Contractor further agrees to take affirmative action to insure that applicants with job-related qualifications are employed and that employees are treated when employed without regard to their race, color, religious creed, age, marital status, national origin, ancestry, sex, gender identity or expression, status as a veteran, intellectual disability, mental disability or physical disability, including, but not limited to, blindness, unless it is shown by the Contractor that such disability prevents performance of the work involved; (2) the Contractor agrees, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, to state that it is an "affirmative action-equal opportunity employer" in accordance with regulations adopted by the Commission; (3) the Contractor agrees to provide each labor union or representative of workers with which the Contractor has a collective bargaining agreement or other contract or understanding and each vendor with which the Contractor has a contract or understanding, a notice to be provided by the Commission, advising the labor union or workers' representative of the Contractor's commitments under this section and to post copies of the notice in conspicuous places available to employees and applicants for employment; (4) the Contractor

agrees to comply with each provision of this Section and Connecticut General Statutes §§ 46a-68e and 46a-68f and with each regulation or relevant order issued by said Commission pursuant to Connecticut General Statutes §§ 46a-56, 46a-68e and 46a-68f; and (5) the Contractor agrees to provide the Commission on Human Rights and Opportunities with such information requested by the Commission, and permit access to pertinent books, records and accounts, concerning the employment practices and procedures of the Contractor as relate to the provisions of this Section and Connecticut General Statutes § 46a-56. If the contract is a public works contract, the Contractor agrees and warrants that he will make good faith efforts to employ minority business enterprises as subcontractors and suppliers of materials on such public works projects.

(c) Determination of the Contractor's good faith efforts shall include, but shall not be limited to, the following factors: The Contractor's employment and subcontracting policies, patterns and practices; affirmative advertising, recruitment and training; technical assistance activities and such other reasonable activities or efforts as the Commission may prescribe that are designed to ensure the participation of minority business enterprises in public works projects.

(10) The Contractor shall develop and maintain adequate documentation, in a manner prescribed by the Commission, of its good faith efforts.

(11) The Contractor shall include the provisions of subsection (b) of this Section in every subcontract or purchase order entered into in order to fulfill any obligation of a contract with the State and such provisions shall be binding on a subcontractor, vendor or manufacturer unless exempted by regulations or orders of the Commission. The Contractor shall take such action with respect to any such subcontract or purchase order as the Commission may direct as a means of enforcing such provisions including sanctions for noncompliance in accordance with Connecticut General Statutes §46a-56; provided if such Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the Commission, the Contractor may request the State of Connecticut to enter into any such litigation or negotiation prior thereto to protect the interests of the State and the State may so enter.

(12) The Contractor agrees to comply with the regulations referred to in this Section as they exist on the date of this Contract and as they may be adopted or amended from time to time during the term of this Contract and any amendments thereto.

(13) (1) The Contractor agrees and warrants that in the performance of the Contract such Contractor will not discriminate or permit discrimination against any person or group of persons on the grounds of sexual orientation, in any manner prohibited by the laws of the United States or the State of Connecticut, and that employees are treated when employed without regard to their sexual orientation; (2) the Contractor agrees to provide each labor union or representative of workers with which such Contractor has a collective bargaining agreement or other contract or understanding and each vendor with which such Contractor has a contract or understanding, a notice to be provided by the Commission on Human Rights and Opportunities advising the labor union or workers' representative of the Contractor's commitments under this section, and to post copies of the notice in conspicuous places available to employees and applicants for employment; (3) the Contractor agrees to comply with each provision of this section and with each regulation or relevant order issued by said Commission pursuant to Connecticut General Statutes § 46a-56; and (4) the Contractor agrees to provide the Commission on Human Rights and Opportunities with such information requested by the Commission, and permit access to pertinent books, records and accounts, concerning the employment practices and procedures of the Contractor which relate to the provisions of this Section and Connecticut General Statutes § 46a-56.

(14) The Contractor shall include the provisions of the foregoing paragraph in every subcontract or purchase order entered into in order to fulfill any obligation of a contract with the State and such provisions shall be binding on a subcontractor, vendor or manufacturer unless exempted by regulations or orders of the Commission. The Contractor shall take such action with respect to any such subcontract or purchase order as the Commission may direct as a means of enforcing such

provisions including sanctions for noncompliance in accordance with Connecticut General Statutes § 46a-56; provided, if such Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the Commission, the Contractor may request the State of Connecticut to enter into any such litigation or negotiation prior thereto to protect the interests of the State and the State may so enter.

Please be aware the Nondiscrimination Certifications can be found at the Office of Policy and Management website:

<https://portal.ct.gov/OPM/Fin-PSA/Forms/Nondiscrimination-Certification>

9. Whistleblower Provision

The following clause is applicable if the Contract has a value of Five Million Dollars (\$5,000,000) or more.

Whistleblowing. This Contract may be subject to the provisions of Section 4-61dd of the Connecticut General Statutes. In accordance with this statute, if an officer, employee or appointing authority of the Contractor takes or threatens to take any personnel action against any employee of the Contractor in retaliation for such employee's disclosure of information to any employee of the contracting state or quasi-public agency or the Auditors of Public Accounts or the Attorney General under the provisions of subsection (a) of such statute, the Contractor shall be liable for a civil penalty of not more than five thousand dollars for each offense, up to a maximum of twenty per cent of the value of this Contract. Each violation shall be a separate and distinct offense and in the case of a continuing violation, each calendar day's continuance of the violation shall be deemed to be a separate and distinct offense. The State may request that the Attorney General bring a civil action in the Superior Court for the Judicial District of Hartford to seek imposition and recovery of such civil penalty. In accordance with subsection (f) of such statute, each large state contractor, as defined in the statute, shall post a notice of the provisions of the statute relating to large state contractors in a conspicuous place which is readily available for viewing by the employees of the Contractor.

10. Connecticut Freedom of Information Act

(a) Disclosure of Records. This Contract may be subject to the provisions of section 1-218 of the Connecticut General Statutes. In accordance with this statute, each contract in excess of two million five hundred thousand dollars between a public agency and a person for the performance of a governmental function shall (a) provide that the public agency is entitled to receive a copy of records and files related to the performance of the governmental function, and (b) indicate that such records and files are subject to FOIA and may be disclosed by the public agency pursuant to FOIA. No request to inspect or copy such records or files shall be valid unless the request is made to the public agency in accordance with FOIA. Any complaint by a person who is denied the right to inspect or copy such records or files shall be brought to the Freedom of Information Commission in accordance with the provisions of sections 1-205 and 1-206 of the Connecticut General Statutes.

(b) Confidential Information. The State will afford due regard to the Contractor's request for the protection of proprietary or confidential information which the State receives from the Contractor. However, all materials associated with the Contract are subject to the terms of the FOIA and all corresponding rules, regulations and interpretations. In making such a request, the Contractor may not merely state generally that the materials are proprietary or confidential in nature and not, therefore, subject to release to third parties. Those particular sentences, paragraphs, pages or sections that the Contractor believes are exempt from disclosure under the FOIA must be specifically identified as such. Convincing explanation

and rationale sufficient to justify each exemption consistent with the FOIA must accompany the request. The rationale and explanation must be stated in terms of the prospective harm to the competitive position of the Contractor that would result if the identified material were to be released and the reasons why the materials are legally exempt from release pursuant to the FOIA. To the extent that any other provision or part of the Contract conflicts or is in any way inconsistent with this section, this section controls and shall apply and the conflicting provision or part shall not be given effect. If the Contractor indicates that certain documentation is submitted in confidence, by specifically and clearly marking the documentation as "CONFIDENTIAL," DOT will first review the Contractor's claim for consistency with the FOIA (that is, review that the documentation is actually a trade secret or commercial or financial information and not required by statute), and if determined to be consistent, will endeavor to keep such information confidential to the extent permitted by law. See, *e.g.*, Conn. Gen. Stat. §1-210(b)(5)(A-B). The State, however, has no obligation to initiate, prosecute or defend any legal proceeding or to seek a protective order or other similar relief to prevent disclosure of any information that is sought pursuant to a FOIA request. Should the State withhold such documentation from a Freedom of Information requester and a complaint be brought to the Freedom of Information Commission, the Contractor shall have the burden of cooperating with DOT in defense of that action and in terms of establishing the availability of any FOIA exemption in any proceeding where it is an issue. In no event shall the State have any liability for the disclosure of any documents or information in its possession which the State believes are required to be disclosed pursuant to the FOIA or other law.

11. Service of Process

The Contractor, if not a resident of the State of Connecticut, or, in the case of a partnership, the partners, if not residents, hereby appoints the Secretary of State of the State of Connecticut, and his successors in office, as agent for service of process for any action arising out of or as a result of this Contract; such appointment to be in effect throughout the life of this Contract and six (6) years thereafter.

12. Substitution of Securities for Retainages on State Contracts and Subcontracts

This Contract is subject to the provisions of Section 3-112a of the General Statutes of the State of Connecticut, as revised.

13. Health Insurance Portability and Accountability Act of 1996 (HIPAA)

The Contractor shall comply, if applicable, with the Health Insurance Portability and Accountability Act of 1996 and, pursuant thereto, the provisions attached at Exhibit C, and hereby made part of this Contract.

14. Forum and Choice of Law

Forum and Choice of Law. The parties deem the Contract to have been made in the City of Hartford, State of Connecticut. Both parties agree that it is fair and reasonable for the validity and construction of the Contract to be, and it shall be, governed by the laws and court decisions of the State of Connecticut, without giving effect to its principles of conflicts of laws. To the extent that any immunities provided by Federal law or the laws of the State of Connecticut do not bar an action against the State, and to the extent that these courts are courts of competent jurisdiction, for the purpose of venue, the complaint shall be made returnable to the Judicial District of Hartford only or shall be brought in the United States District Court for the District of Connecticut only, and shall not be transferred to any other court, provided, however, that nothing here constitutes a waiver or compromise of the sovereign immunity of the State of Connecticut. The Contractor waives any objection which it may now have or will have to the laying of venue of any Claims in any forum and further irrevocably submits to such jurisdiction in any suit, action or proceeding.

15. Summary of State Ethics Laws

Pursuant to the requirements of section 1-101qq of the Connecticut General Statutes, the summary of State ethics laws developed by the State Ethics Commission pursuant to section 1-81b of the Connecticut General Statutes is incorporated by reference into and made a part of the Contract as if the summary had been fully set forth in the Contract.

16. Audit and Inspection of Plants, Places of Business and Records

(a) The State and its agents, including, but not limited to, the Connecticut Auditors of Public Accounts, Attorney General and State's Attorney and their respective agents, may, at reasonable hours, inspect and examine all of the parts of the Contractor's and Contractor Parties' plants and places of business which, in any way, are related to, or involved in, the performance of this Contract. For the purposes of this Section, "Contractor Parties" means the Contractor's members, directors, officers, shareholders, partners, managers, principal officers, representatives, agents, servants, consultants, employees or any one of them or any other person or entity with whom the Contractor is in privity of oral or written contract and the Contractor intends for such other person or entity to Perform under the Contract in any capacity.

(b) The Contractor shall maintain, and shall require each of the Contractor Parties to maintain, accurate and complete Records. The Contractor shall make all of its and the Contractor Parties' Records available at all reasonable hours for audit and inspection by the State and its agents.

(c) The State shall make all requests for any audit or inspection in writing and shall provide the Contractor with at least twenty-four (24) hours' notice prior to the requested audit and inspection date. If the State suspects fraud or other abuse, or in the event of an emergency, the State is not obligated to provide any prior notice.

(d) The Contractor shall keep and preserve or cause to be kept and preserved all of its and Contractor Parties' Records until three (3) years after the latter of (i) final payment under this Agreement, or (ii) the expiration or earlier termination of this Agreement, as the same may be modified for any reason. The State may request an audit or inspection at any time during this period. If any Claim or audit is started before the expiration of this period, the Contractor shall retain or cause to be retained all Records until all Claims or audit findings have been resolved.

(e) The Contractor shall cooperate fully with the State and its agents in connection with an audit or inspection. Following any audit or inspection, the State may conduct and the Contractor shall cooperate with an exit conference.

(f) The Contractor shall incorporate this entire Section verbatim into any contract or other agreement that it enters into with any Contractor Party.

17. Campaign Contribution Restriction

For all State contracts, defined in Conn. Gen. Stat. §9-612(f)(1) as having a value in a calendar year of \$50,000 or more, or a combination or series of such agreements or contracts having a value of \$100,000 or more, the authorized signatory to this contract expressly acknowledges receipt of the State Elections Enforcement Commission's notice advising state contractors of state campaign contribution and solicitation prohibitions, and will inform its principals of the contents of the notice, as set forth in "Notice to Executive Branch State Contractors and Prospective State Contractors of Campaign Contribution and Solicitation Limitations," a copy of which is attached hereto and hereby made a part of this contract, attached as Exhibit D.

18. Tangible Personal Property

(a) The Contractor on its behalf and on behalf of its Affiliates, as defined below, shall comply with the provisions of Conn. Gen. Stat. §12-411b, as follows:

- (1) For the term of the Contract, the Contractor and its Affiliates shall collect and remit to the State of Connecticut, Department of Revenue Services, any Connecticut use tax due under the provisions of Chapter 219 of the Connecticut General Statutes for items of tangible personal property sold by the Contractor or by any of its Affiliates in the same manner as if the Contractor and such Affiliates were

- engaged in the business of selling tangible personal property for use in Connecticut and had sufficient nexus under the provisions of Chapter 219 to be required to collect Connecticut use tax;
- (2) A customer's payment of a use tax to the Contractor or its Affiliates relieves the customer of liability for the use tax;
- (3) The Contractor and its Affiliates shall remit all use taxes they collect from customers on or before the due date specified in the Contract, which may not be later than the last day of the month next succeeding the end of a calendar quarter or other tax collection period during which the tax was collected;
- (6) The Contractor and its Affiliates are not liable for use tax billed by them but not paid to them by a customer; and
- (5) Any Contractor or Affiliate who fails to remit use taxes collected on behalf of its customers by the due date specified in the Contract shall be subject to the interest and penalties provided for persons required to collect sales tax under chapter 219 of the general statutes.
- (b) For purposes of this section of the Contract, the word "Affiliate" means any person, as defined in section 12-1 of the general statutes, that controls, is controlled by, or is under common control with another person. A person controls another person if the person owns, directly or indirectly, more than ten per cent of the voting securities of the other person. The word "voting security" means a security that confers upon the holder the right to vote for the election of members of the board of directors or similar governing body of the business, or that is convertible into, or entitles the holder to receive, upon its exercise, a security that confers such a right to vote. "Voting security" includes a general partnership interest.
- (c) The Contractor represents and warrants that each of its Affiliates has vested in the Contractor plenary authority to so bind the Affiliates in any agreement with the State of Connecticut. The Contractor on its own behalf and on behalf of its Affiliates shall also provide, no later than 30 days after receiving a request by the State's contracting authority, such information as the State may require to ensure, in the State's sole determination, compliance with the provisions of Chapter 219 of the Connecticut General Statutes, including, but not limited to, §12-411b.

19. Bid Rigging and/or Fraud – Notice to Contractor

The Connecticut Department of Transportation is cooperating with the U.S. Department of Transportation and the Justice Department in their investigation into highway construction contract bid rigging and/or fraud.

A toll-free "HOT LINE" telephone number 800-424-9071 has been established to receive information from contractors, subcontractors, manufacturers, suppliers or anyone with knowledge of bid rigging and/or fraud, either past or current. The "HOT LINE" telephone number will be available during normal working hours (8:00 am – 5:00 pm EST). Information will be treated confidentially and anonymity respected.

20. Consulting Agreement Affidavit

The Contractor shall comply with Connecticut General Statutes Section 4a-81(a) and 4a-81(b), as revised. Pursuant to Public Act 11-229, after the initial submission of the form, if there is a change in the information contained in the form, a contractor shall submit the updated form, as applicable, either (i) not later than thirty (30) days after the effective date of such change or (ii) prior to execution of any new contract, whichever is earlier.

The Affidavit/Form may be submitted in written format or electronic format through the Department of Administrative Services (DAS) website.

EXHIBIT A

TITLE VI CONTRACTOR ASSURANCES

During the performance of this Contract, the contractor, for itself, its assignees and successors in interest (hereinafter referred to as the "Contractor") agrees as follows:

1. **Compliance with Regulations:** The Contractor shall comply with the regulations relative to nondiscrimination in federally assisted programs of the United States Department of Transportation (hereinafter, "USDOT"), Title 49, Code of Federal Regulations, Part 21, as they may be amended from time to time (hereinafter referred to as the "Regulations"), which are herein incorporated by reference and made a part of this contract.

2. **Nondiscrimination:** The Contractor, with regard to the work performed by it during the Contract, shall not discriminate on the grounds of race, color, national origin, sex, age, or disability in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The Contractor shall not participate either directly or indirectly in the discrimination prohibited by Subsection 5 of the Regulations, including employment practices when the Contract covers a program set forth in Appendix B of the Regulations.

3. **Solicitations for Subcontracts, Including Procurements of Materials and Equipment:** In all solicitations either by competitive bidding or negotiation made by the Contractor for work to be performed under a subcontract, including procurements of materials or leases of equipment, each potential subcontractor or supplier shall be notified by the Contractor of the Contractor's obligations under this contract and the Regulations relative to nondiscrimination on the grounds of race, color, national origin, sex, age, or disability.

4. **Information and Reports:** The Contractor shall provide all information and reports required by the Regulations or directives issued pursuant thereto and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Connecticut Department of Transportation (ConnDOT) or the Funding Agency (FHWA, FTA and FAA) to be pertinent to ascertain compliance with such Regulations, orders, and instructions. Where any information required of a Contractor is in the exclusive possession of another who fails or refuses to furnish this information, the Contractor shall so certify to ConnDOT or the Funding Agency, as appropriate, and shall set forth what efforts it has made to obtain the information.

5. **Sanctions for Noncompliance:** In the event of the Contractor's noncompliance with the nondiscrimination provisions of this Contract, the ConnDOT shall impose such sanctions as it or the Funding Agency may determine to be appropriate, including, but not limited to:

- A. Withholding contract payments until the Contractor is in-compliance; and/or
- B. Cancellation, termination, or suspension of the Contract, in whole or in part.

6. **Incorporation of Provisions:** The Contractor shall include the provisions of paragraphs 1 through 5 in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Regulations or directives issued pursuant thereto. The Contractor shall take such action with respect to any subcontract or procurement as the ConnDOT or the Funding Agency may -direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, however, that in the event a Contractor becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such direction, the Contractor may request the ConnDOT to enter into such litigation to protect the interests of the Funding Agency, and, in addition, the Contractor may request the United States to enter into such litigation to protect the interests of the United States

EXHIBIT B

CONTRACTOR WORKFORCE UTILIZATION / EQUAL EMPLOYMENT OPPORTUNITY

1. Project Workforce Utilization Goals:

These goals are applicable to all the Contractor’s construction work (whether or not it is Federal or Federally assisted or funded) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for the geographical area where the work is actually performed.

Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000 the provisions of these specifications which contain the applicable goals for minority and female participation.

The goals for minority and female utilization are expressed in percentage terms for the contractor’s aggregate work-force in each trade on all construction work in the covered area, are referenced in the Appendix A below.

STATE FUNDED PROJECTS (only)
APPENDIX A
(Labor Market Goals)

LABOR MARKET AREA GOAL **Minority**

Female

Bridgeport	22.7%
1.4%	

Ansonia	Beacon Falls	Bridgeport	Derby
Easton	Fairfield	Milford	Monroe
Oxford	Seymour	Shelton	Stratford
Trumbull			

Danbury	10.7%
3.8%	

Bethel	Bridgewater	Brookfield	Danbury
Kent	New Fairfield	New Milford	Newtown
Redding	Ridgefield	Roxbury	Sherman
Washington			

Danielson	4.3
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Brooklyn	Eastford	Hampton	Killingly
Pomfret	Putnam	Scotland	Sterling
Thompson	Voluntown	Union	Woodstock

Hartford	13.7%
2.1%	

Andover	Ashford	Avon	Barkhamsted
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Berlin	Bloomfield	Bolton	Bristol
Burlington	Canton	Chaplin	Colchester
Columbia	Coventry	Cromwell	Durham
East Granby	East Haddam	East Hampton	East Hartford
East Windsor	Ellington	Enfield	Farmington
Glastonbury	Granby	Haddam	Hartford
Harwinton	Hebron	Lebanon	Manchester
Mansfield	Marlborough	Middlefield	Middletown
Newington	Plainville	Plymouth	Portland
Rocky Hill	Simsbury	Somers	South Windsor
Southington	Stafford	Suffield	Tolland
Vernon	West Hartford	Wethersfield	Willington
Winchester	Windham	Windsor	Windsor Locks

Lower River				4.3
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Chester	Deep River	Essex	Old Lyme
Westbrook			

LABOR MARKET AREA GOAL **Minority**
Female

New Haven				17.9%
3.1%				

Bethany	Branford	Cheshire	Clinton
East Haven	Guilford	Hamden	Killingworth
Madison	Meriden	New Haven	North Branford
North Haven	Orange	Wallingford	West Haven
Woodbridge			

New London				7.4%
3.1%				

Bozrah	Canterbury	East Lyme	Franklin
Griswold	Groton	Ledyard	Lisbon
Montville	New London	North Stonington	Norwich
Old Lyme	Old Saybrook	Plainfield	Preston
Salem	Sprague	Stonington	Waterford
Hopkinton	RI – Westerly Rhode Island		

Stamford				33.2%
2	1	%		

Darien	Greenwich	New Canaan	Norwalk
Stamford	Weston	Westport	Wilton

Torrington				4.3%
1.8%				

Canaan	Colebrook	Cornwall	Goshen
Hartland	Kent	Litchfield	Morris
Norfolk	North Canaan	Salisbury	Sharon

Torrington

Warren

Waterbury
1.6%

12.4%

Bethlehem
Southbury
Wolcott

Middlebury
Thomaston
Woodbury

Naugatuck
Waterbury

Prospect
Watertown

Rev. 4/24/2019

EXHIBIT C

Health Insurance Portability and Accountability Act of 1996 (“HIPAA”).

(a) If the Contactor is a Business Associate under the requirements of the Health Insurance Portability and Accountability Act of 1996 (“HIPAA”), the Contractor must comply with all terms and conditions of this Section of the Contract. If the Contractor is not a Business Associate under HIPAA, this Section of the Contract does not apply to the Contractor for this Contract.

(b) The Contractor is required to safeguard the use, publication and disclosure of information on all applicants for, and all clients who receive, services under the Contract in accordance with all applicable federal and state law regarding confidentiality, which includes but is not limited to HIPAA, more specifically with the Privacy and Security Rules at 45 C.F.R. Part 160 and Part 164, subparts A, C, and E; and

(c) The State of Connecticut Agency named on page 1 of this Contract (hereinafter the “Department”) is a “covered entity” as that term is defined in 45 C.F.R. § 160.103; and

(d) The Contractor, on behalf of the Department, performs functions that involve the use or disclosure of “individually identifiable health information,” as that term is defined in 45 C.F.R. § 160.103; and

(e) The Contractor is a “business associate” of the Department, as that term is defined in 45 C.F.R. § 160.103; and

(f) The Contractor and the Department agree to the following in order to secure compliance with the HIPAA, the requirements of Subtitle D of the Health Information Technology for Economic and Clinical Health Act (hereinafter the HITECH Act), (Pub. L. 111-5, sections 13400 to 13423), and more specifically with the Privacy and Security Rules at 45 C.F.R. Part 160 and Part 164, subparts A, C, and E.

(g) Definitions

(1) “Breach shall have the same meaning as the term is defined in section 13400 of the HITECH Act (42 U.S.C. §17921(1))

(2) “Business Associate” shall mean the Contractor.

(3) “Covered Entity” shall mean the Department of the State of Connecticut named on page 1 of this Contract.

(4) “Designated Record Set” shall have the same meaning as the term “designated record set” in 45 C.F.R. § 164.501.

(5) “Electronic Health Record” shall have the same meaning as the term is defined in section 13400 of the HITECH Act (42 U.S.C. §17921(5))

- (6) “Individual” shall have the same meaning as the term “individual” in 45 C.F.R. § 160.103 and shall include a person who qualifies as a personal representative as defined in 45 C.F.R. § 164.502(g).
- (7) “Privacy Rule” shall mean the Standards for Privacy of Individually Identifiable Health Information at 45 C.F.R. part 160 and parts 164, subparts A and E.
- (8) “Protected Health Information” or “PHI” shall have the same meaning as the term “protected health information” in 45 C.F.R. § 160.103, limited to information created or received by the Business Associate from or on behalf of the Covered Entity.
- (9) “Required by Law” shall have the same meaning as the term “required by law” in 45 C.F.R. § 164.103.
- (10) “Secretary” shall mean the Secretary of the Department of Health and Human Services or his designee.
- (11) “More stringent” shall have the same meaning as the term “more stringent” in 45 C.F.R. § 160.202.
- (12) “This Section of the Contract” refers to the HIPAA Provisions stated herein, in their entirety.
- (13) “Security Incident” shall have the same meaning as the term “security incident” in 45 C.F.R. § 164.304.
- (14) “Security Rule” shall mean the Security Standards for the Protection of Electronic Protected Health Information at 45 C.F.R. part 160 and parts 164, subpart A and C.
- (15) “Unsecured protected health information” shall have the same meaning as the term as defined in section 13402(h)(1)(A) of HITECH. Act. (42 U.S.C. §17932(h)(1)(A)).

(h) Obligations and Activities of Business Associates.

- (1) Business Associate agrees not to use or disclose PHI other than as permitted or required by this Section of the Contract or as Required by Law.
- (2) Business Associate agrees to use appropriate safeguards to prevent use or disclosure of PHI other than as provided for in this Section of the Contract.
- (3) Business Associate agrees to use administrative, physical and technical safeguards that reasonably and appropriately protect the confidentiality, integrity, and availability of electronic protected health information that it creates, receives, maintains, or transmits on behalf of the Covered Entity.
- (4) Business Associate agrees to mitigate, to the extent practicable, any harmful effect that is known to the Business Associate of a use or disclosure of PHI by Business Associate in violation of this Section of the Contract.

- (5) Business Associate agrees to report to Covered Entity any use or disclosure of PHI not provided for by this Section of the Contract or any security incident of which it becomes aware.
- (6) Business Associate agrees to insure that any agent, including a subcontractor, to whom it provides PHI received from, or created or received by Business Associate, on behalf of the Covered Entity, agrees to the same restrictions and conditions that apply through this Section of the Contract to Business Associate with respect to such information.
- (7) Business Associate agrees to provide access, at the request of the Covered Entity, and in the time and manner agreed to by the parties, to PHI in a Designated Record Set, to Covered Entity or, as directed by Covered Entity, to an Individual in order to meet the requirements under 45 C.F.R. § 164.524.
- (8) Business Associate agrees to make any amendments to PHI in a Designated Record Set that the Covered Entity directs or agrees to pursuant to 45 C.F.R. § 164.526 at the request of the Covered Entity, and in the time and manner agreed to by the parties.
- (9) Business Associate agrees to make internal practices, books, and records, including policies and procedures and PHI, relating to the use and disclosure of PHI received from, or created or received by, Business Associate on behalf of Covered Entity, available to Covered Entity or to the Secretary in a time and manner agreed to by the parties or designated by the Secretary, for purposes of the Secretary determining Covered Entity's compliance with the Privacy Rule.
- (10) Business Associate agrees to document such disclosures of PHI and information related to such disclosures as would be required for Covered Entity to respond to a request by an Individual for an accounting of disclosures of PHI in accordance with 45 C.F.R. § 164.528 and section 13405 of the HITECH Act (42 U.S.C. § 17935) and any regulations promulgated thereunder.
- (11) Business Associate agrees to provide to Covered Entity, in a time and manner agreed to by the parties, information collected in accordance with clause h. (10) of this Section of the Contract, to permit Covered Entity to respond to a request by an Individual for an accounting of disclosures of PHI in accordance with 45 C.F.R. § 164.528 and section 13405 of the HITECH Act (42 U.S.C. § 17935) and any regulations promulgated thereunder. Business Associate agrees at the Covered Entity's direction to provide an accounting of disclosures of PHI directly to an individual in accordance with 45 C.F.R. § 164.528 and section 13405 of the HITECH Act (42 U.S.C. § 17935) and any regulations promulgated thereunder.
- (12) Business Associate agrees to comply with any state or federal law that is more stringent than the Privacy Rule.
- (13) Business Associate agrees to comply with the requirements of the HITECH Act relating to privacy and security that are applicable to the Covered Entity and with the requirements of 45 C.F.R. sections 164.504(e), 164.308, 164.310, 164.312, and 164.316.

(14) In the event that an individual requests that the Business Associate (a) restrict disclosures of PHI; (b) provide an accounting of disclosures of the individual's PHI; or (c) provide a copy of the individual's PHI in an electronic health record, the Business Associate agrees to notify the covered entity, in writing, within two business days of the request.

(15) Business Associate agrees that it shall not, directly or indirectly, receive any remuneration in exchange for PHI of an individual without (1) the written approval of the covered entity, unless receipt of remuneration in exchange for PHI is expressly authorized by this Contract and (2) the valid authorization of the individual, except for the purposes provided under section 13405(d)(2) of the HITECH Act,(42 U.S.C. § 17935(d)(2)) and in any accompanying regulations

(16) Obligations in the Event of a Breach

A. The Business Associate agrees that, following the discovery of a breach of unsecured protected health information, it shall notify the Covered Entity of such breach in accordance with the requirements of section 13402 of HITECH (42 U.S.C. 17932(b) and the provisions of this Section of the Contract.

B. Such notification shall be provided by the Business Associate to the Covered Entity without unreasonable delay, and in no case later than 30 days after the breach is discovered by the Business Associate, except as otherwise instructed in writing by a law enforcement official pursuant to section 13402 (g) of HITECH (42 U.S.C. 17932(g)) . A breach is considered discovered as of the first day on which it is, or reasonably should have been, known to the Business Associate. The notification shall include the identification and last known address, phone number and email address of each individual (or the next of kin of the individual if the individual is deceased) whose unsecured protected health information has been, or is reasonably believed by the Business Associate to have been, accessed, acquired, or disclosed during such breach.

C. The Business Associate agrees to include in the notification to the Covered Entity at least the following information:

1. A brief description of what happened, including the date of the breach and the date of the discovery of the breach, if known.

2. A description of the types of unsecured protected health information that were involved in the breach (such as full name, Social Security number, date of birth, home address, account number, or disability code).

3. The steps the Business Associate recommends that individuals take to protect themselves from potential harm resulting from the breach.

4. A detailed description of what the Business Associate is doing to investigate the breach, to mitigate losses, and to protect against any further breaches.

5. Whether a law enforcement official has advised either verbally or in writing the Business Associate that he or she has determined that notification or notice to individuals

or the posting required under section 13402 of the HITECH Act would impede a criminal investigation or cause damage to national security and; if so, include contact information for said official.

D. Business Associate agrees to provide appropriate staffing and have established procedures to ensure that individuals informed by the Covered Entity of a breach by the Business Associate have the opportunity to ask questions and contact the Business Associate for additional information regarding the breach. Such procedures shall include a toll-free telephone number, an e-mail address, a posting on its Web site and a postal address. Business Associate agrees to include in the notification of a breach by the Business Associate to the Covered Entity, a written description of the procedures that have been established to meet these requirements. Costs of such contact procedures will be borne by the Contractor.

E. Business Associate agrees that, in the event of a breach, it has the burden to demonstrate that it has complied with all notifications requirements set forth above, including evidence demonstrating the necessity of a delay in notification to the Covered Entity.

(i) Permitted Uses and Disclosure by Business Associate.

(1) General Use and Disclosure Provisions Except as otherwise limited in this Section of the Contract, Business Associate may use or disclose PHI to perform functions, activities, or services for, or on behalf of, Covered Entity as specified in this Contract, provided that such use or disclosure would not violate the Privacy Rule if done by Covered Entity or the minimum necessary policies and procedures of the Covered Entity.

(2) Specific Use and Disclosure Provisions

(A) Except as otherwise limited in this Section of the Contract, Business Associate may use PHI for the proper management and administration of Business Associate or to carry out the legal responsibilities of Business Associate.

(B) Except as otherwise limited in this Section of the Contract, Business Associate may disclose PHI for the proper management and administration of Business Associate, provided that disclosures are Required by Law, or Business Associate obtains reasonable assurances from the person to whom the information is disclosed that it will remain confidential and used or further disclosed only as Required by Law or for the purpose for which it was disclosed to the person, and the person notifies Business Associate of any instances of which it is aware in which the confidentiality of the information has been breached.

(C) Except as otherwise limited in this Section of the Contract, Business Associate may use PHI to provide Data Aggregation services to Covered Entity as permitted by 45 C.F.R. § 164.504(e)(2)(i)(B).

(j) Obligations of Covered Entity.

(1) Covered Entity shall notify Business Associate of any limitations in its notice of privacy practices of Covered Entity, in accordance with 45 C.F.R. § 164.520, or to the extent that such limitation may affect Business Associate's use or disclosure of PHI.

(2) Covered Entity shall notify Business Associate of any changes in, or revocation of, permission by Individual to use or disclose PHI, to the extent that such changes may affect Business Associate's use or disclosure of PHI.

(3) Covered Entity shall notify Business Associate of any restriction to the use or disclosure of PHI that Covered Entity has agreed to in accordance with 45 C.F.R. § 164.522, to the extent that such restriction may affect Business Associate's use or disclosure of PHI.

(k) Permissible Requests by Covered Entity. Covered Entity shall not request Business Associate to use or disclose PHI in any manner that would not be permissible under the Privacy Rule if done by the Covered Entity, except that Business Associate may use and disclose PHI for data aggregation, and management and administrative activities of Business Associate, as permitted under this Section of the Contract.

(i) Term and Termination.

(1) Term. The Term of this Section of the Contract shall be effective as of the date the Contract is effective and shall terminate when the information collected in accordance with clause h. (10) of this Section of the Contract is provided to the Covered Entity and all of the PHI provided by Covered Entity to Business Associate, or created or received by Business Associate on behalf of Covered Entity, is destroyed or returned to Covered Entity, or, if it is infeasible to return or destroy PHI, protections are extended to such information, in accordance with the termination provisions in this Section.

(2) Termination for Cause Upon Covered Entity's knowledge of a material breach by Business Associate, Covered Entity shall either:

(A) Provide an opportunity for Business Associate to cure the breach or end the violation and terminate the Contract if Business Associate does not cure the breach or end the violation within the time specified by the Covered Entity; or

(B) Immediately terminate the Contract if Business Associate has breached a material term of this Section of the Contract and cure is not possible; or

(C) If neither termination nor cure is feasible, Covered Entity shall report the violation to the Secretary.

(3) Effect of Termination

(A) Except as provided in (1)(2) of this Section of the Contract, upon termination of this Contract, for any reason, Business Associate shall return or destroy all PHI received from Covered Entity, or created or received by Business Associate on behalf of Covered Entity. Business Associate shall also provide the information collected in accordance with clause h. (10) of this Section of the Contract to the Covered Entity

within ten business days of the notice of termination. This provision shall apply to PHI that is in the possession of subcontractors or agents of Business Associate. Business Associate shall retain no copies of the PHI.

(B) In the event that Business Associate determines that returning or destroying the PHI is infeasible, Business Associate shall provide to Covered Entity notification of the conditions that make return or destruction infeasible. Upon documentation by Business Associate that return or destruction of PHI is infeasible, Business Associate shall extend the protections of this Section of the Contract to such PHI and limit further uses and disclosures of PHI to those purposes that make return or destruction infeasible, for as long as Business Associate maintains such PHI. Infeasibility of the return or destruction of PHI includes, but is not limited to, requirements under state or federal law that the Business Associate maintains or preserves the PHI or copies thereof.

(m) Miscellaneous Provisions.

(1) Regulatory References. A reference in this Section of the Contract to a section in the Privacy Rule means the section as in effect or as amended.

(2) Amendment. The Parties agree to take such action as is necessary to amend this Section of the Contract from time to time as is necessary for Covered Entity to comply with requirements of the Privacy Rule and the Health Insurance Portability and Accountability Act of 1996, Pub. L. No. 104-191.

(3) Survival. The respective rights and obligations of Business Associate shall survive the termination of this Contract.

(4) Effect on Contract. Except as specifically required to implement the purposes of this Section of the Contract, all other terms of the Contract shall remain in force and effect.

(5) Construction. This Section of the Contract shall be construed as broadly as necessary to implement and comply with the Privacy Standard. Any ambiguity in this Section of the Contract shall be resolved in favor of a meaning that complies, and is consistent with, the Privacy Standard.

(6) Disclaimer. Covered Entity makes no warranty or representation that compliance with this Section of the Contract will be adequate or satisfactory for Business Associate's own purposes. Covered Entity shall not be liable to Business Associate for any claim, civil or criminal penalty, loss or damage related to or arising from the unauthorized use or disclosure of PHI by Business Associate or any of its officers, directors, employees, contractors or agents, or any third party to whom Business Associate has disclosed PHI contrary to the provisions of this Contract or applicable law. Business Associate is solely responsible for all decisions made, and actions taken, by Business Associate regarding the safeguarding, use and disclosure of PHI within its possession, custody or control.

(7) Indemnification. The Business Associate shall indemnify and hold the Covered Entity harmless from and against any and all claims, liabilities, judgments, fines, assessments, penalties, awards and any statutory damages that may be imposed or assessed pursuant to HIPAA, as amended or the

HITECH

Act, including, without limitation, attorney's fees, expert witness fees, costs of investigation, litigation or dispute resolution, and costs awarded thereunder, relating to or arising out of any violation by the Business Associate and its agents, including subcontractors, of any obligation of Business Associate and its agents, including subcontractors, under this section of the contract, under HIPAA, the HITECH Act, the Privacy Rule and the Security Rule.

Notice to Executive Branch State Contractors and Prospective State Contractors of Campaign Contribution and Solicitation Limitations

This notice is provided under the authority of Connecticut General Statutes §9-612(g)(2), as amended by P.A. 10-1, and is for the purpose of informing state contractors and prospective state contractors of the following law (italicized words are defined on the reverse side of this page).

CAMPAIGN CONTRIBUTION AND SOLICITATION LIMITATIONS

No *state contractor, prospective state contractor, principal of a state contractor or principal of a prospective state contractor*, with regard to a *state contract or state contract solicitation* with or from a state agency in the executive branch or a quasi-public agency or a holder, or principal of a holder of a valid prequalification certificate, shall make a contribution to (i) an exploratory committee or candidate committee established by a candidate for nomination or election to the office of Governor, Lieutenant Governor, Attorney General, State Comptroller, Secretary of the State or State Treasurer, (ii) a political committee authorized to make contributions or expenditures to or for the benefit of such candidates, or (iii) a party committee (which includes town committees).

In addition, no holder or principal of a holder of a valid prequalification certificate, shall make a contribution to (i) an exploratory committee or candidate committee established by a candidate for nomination or election to the office of State senator or State representative, (ii) a political committee authorized to make contributions or expenditures to or for the benefit of such candidates, or (iii) a party committee.

On and after January 1, 2011, no state contractor, prospective state contractor, principal of a state contractor or principal of a prospective state contractor, with regard to a state contract or state contract solicitation with or from a state agency in the executive branch or a quasi-public agency or a holder, or principal of a holder of a valid prequalification certificate, shall **knowingly solicit** contributions from the state contractor's or prospective state contractor's employees or from a *subcontractor or principals of the subcontractor* on behalf of (i) an exploratory committee or candidate committee established by a candidate for nomination or election to the office of Governor, Lieutenant Governor, Attorney General, State Comptroller, Secretary of the State or State Treasurer, (ii) a political committee authorized to make contributions or expenditures to or for the benefit of such candidates, or (iii) a party committee.

DUTY TO INFORM

State contractors and prospective state contractors are required to inform their principals of the above prohibitions, as applicable, and the possible penalties and other consequences of any violation thereof.

PENALTIES FOR VIOLATIONS

Contributions or solicitations of contributions made in violation of the above prohibitions may result in the following civil and criminal penalties:

Civil penalties—Up to \$2,000 or twice the amount of the prohibited contribution, whichever is greater, against a principal or a contractor. Any state contractor or prospective state contractor which fails to make reasonable efforts to comply with the provisions requiring notice to its principals of these prohibitions and the possible consequences of their violations may also be subject to civil penalties of up to \$2,000 or twice the amount of the prohibited contributions made by their principals.

Criminal penalties—Any knowing and willful violation of the prohibition is a Class D felony, which may subject the violator to imprisonment of not more than 5 years, or not more than \$5,000 in fines, or both.

CONTRACT CONSEQUENCES

In the case of a state contractor, contributions made or solicited in violation of the above prohibitions may result in the contract being voided.

In the case of a prospective state contractor, contributions made or solicited in violation of the above prohibitions shall result in the contract described in the state contract solicitation not being awarded to the prospective state contractor, unless the State Elections Enforcement Commission determines that mitigating circumstances exist concerning such violation.

The State shall not award any other state contract to anyone found in violation of the above prohibitions for a period of one year after the election for which such contribution is made or solicited, unless the State Elections Enforcement Commission determines that mitigating circumstances exist concerning such violation.

Additional information may be found on the website of the State Elections Enforcement Commission, www.ct.gov/seec. Click on the link to "Lobbyist/Contractor Limitations."

DEFINITIONS

“State contractor” means a person, business entity or nonprofit organization that enters into a state contract. Such person, business entity or nonprofit organization shall be deemed to be a state contractor until December thirty-first of the year in which such contract terminates. “State contractor” does not include a municipality or any other political subdivision of the state, including any entities or associations duly created by the municipality or political subdivision exclusively amongst themselves to further any purpose authorized by statute or charter, or an employee in the executive or legislative branch of state government or a quasi-public agency, whether in the classified or unclassified service and full or part-time, and only in such person’s capacity as a state or quasi-public agency employee.

“Prospective state contractor” means a person, business entity or nonprofit organization that (i) submits a response to a state contract solicitation by the state, a state agency or a quasi-public agency, or a proposal in response to a request for proposals by the state, a state agency or a quasi-public agency, until the contract has been entered into, or (ii) holds a valid prequalification certificate issued by the Commissioner of Administrative Services under section 4a-100. “Prospective state contractor” does not include a municipality or any other political subdivision of the state, including any entities or associations duly created by the municipality or political subdivision exclusively amongst themselves to further any purpose authorized by statute or charter, or an employee in the executive or legislative branch of state government or a quasi-public agency, whether in the classified or unclassified service and full or part-time, and only in such person’s capacity as a state or quasi-public agency employee.

“Principal of a state contractor or prospective state contractor” means (i) any individual who is a member of the board of directors of, or has an ownership interest of five per cent or more in, a state contractor or prospective state contractor, which is a business entity, except for an individual who is a member of the board of directors of a nonprofit organization, (ii) an individual who is employed by a state contractor or prospective state contractor, which is a business entity, as president, treasurer or executive vice president, (iii) an individual who is the chief executive officer of a state contractor or prospective state contractor, which is not a business entity, or if a state contractor or prospective state contractor has no such officer, then the officer who duly possesses comparable powers and duties, (iv) an officer or an employee of any state contractor or prospective state contractor who has *managerial or discretionary responsibilities with respect to a state contract*, (v) the spouse or a *dependent child* who is eighteen years of age or older of an individual described in this subparagraph, or (vi) a political committee established or controlled by an individual described in this subparagraph or the business entity or nonprofit organization that is the state contractor or prospective state contractor.

“State contract” means an agreement or contract with the state or any state agency or any quasi-public agency, let through a procurement process or otherwise, having a value of fifty thousand dollars or more, or a combination or series of such agreements or contracts having a value of one hundred thousand dollars or more in a calendar year, for (i) the rendition of services, (ii) the furnishing of any goods, material, supplies, equipment or any items of any kind, (iii) the construction, alteration or repair of any public building or public work, (iv) the acquisition, sale or lease of any land or building, (v) a licensing arrangement, or (vi) a grant, loan or loan guarantee. “State contract” does not include any agreement or contract with the state, any state agency or any quasi-public agency that is exclusively federally funded, an education loan, a loan to an individual for other than commercial purposes or any agreement or contract between the state or any state agency and the United States Department of the Navy or the United States Department of Defense.

“State contract solicitation” means a request by a state agency or quasi-public agency, in whatever form issued, including, but not limited to, an invitation to bid, request for proposals, request for information or request for quotes, inviting bids, quotes or other types of submittals, through a competitive procurement process or another process authorized by law waiving competitive procurement.

“Managerial or discretionary responsibilities with respect to a state contract” means having direct, extensive and substantive responsibilities with respect to the negotiation of the state contract and not peripheral, clerical or ministerial responsibilities.

“Dependent child” means a child residing in an individual’s household who may legally be claimed as a dependent on the federal income tax of such individual.

“Solicit” means (A) requesting that a contribution be made, (B) participating in any fund-raising activities for a candidate committee, exploratory committee, political committee or party committee, including, but not limited to, forwarding tickets to potential contributors, receiving contributions for transmission to any such committee or bundling contributions, (C) serving as chairperson, treasurer or deputy treasurer of any such committee, or (D) establishing a political committee for the sole purpose of soliciting or receiving contributions for any committee. Solicit does not include: (i) making a contribution that is otherwise permitted by Chapter 155 of the Connecticut General Statutes; (ii) informing any person of a position taken by a candidate for public office or a public official, (iii) notifying the person of any activities of, or contact information for, any candidate for public office; or (iv) serving as a member in any party committee or as an officer of such committee that is not otherwise prohibited in this section.

“Subcontractor” means any person, business entity or nonprofit organization that contracts to perform part or all of the obligations of a state contractor’s state contract. Such person, business entity or nonprofit organization shall be deemed to be a subcontractor until December thirty first of the year in which the subcontract terminates. “Subcontractor” does not include (i) a municipality or any other political subdivision of the state, including any entities or associations duly created by the municipality or political subdivision exclusively amongst themselves to further any purpose authorized by statute or charter, or (ii) an employee in the executive or legislative branch of state government or a quasi-public agency, whether in the classified or unclassified service and full or part-time, and only in such person’s capacity as a state or quasi-public agency employee.

“Principal of a subcontractor” means (i) any individual who is a member of the board of directors of, or has an ownership interest of five per cent or more in, a subcontractor, which is a business entity, except for an individual who is a member of the board of directors of a nonprofit organization, (ii) an individual who is employed by a subcontractor, which is a business entity, as president, treasurer or executive vice president, (iii) an individual who is the chief executive officer of a subcontractor, which is not a business entity, or if a subcontractor has no such officer, then the officer who duly possesses comparable powers and duties, (iv) an officer or an employee of any subcontractor who has managerial or discretionary responsibilities with respect to a subcontract with a state contractor, (v) the spouse or a dependent child who is eighteen years of age or older of an individual described in this subparagraph, or (vi) a political committee established or controlled by an individual described in this subparagraph or the business entity or nonprofit organization that is the subcontractor.

WAGE AND PAYROLL REQUIREMENTS

Prevailing Wage Laws in Connecticut

Connecticut General Statutes Section 31-53(g) provides monetary thresholds which must be met before the law is applicable. The prevailing wage law does not apply where the **total cost of all work to be performed by all contractors and subcontractors** in connection with new construction of a public works project is less than four hundred thousand (\$400,000) dollars. The prevailing wages law does not apply where the **total cost of all work to be performed by all contractors and subcontractors** in connection with remodeling, refinishing, refurbishing, rehabilitation, alteration or repair of any public works project under one hundred thousand (\$100,000) dollars.

Contractor/Bidders Responsibility Regarding Prevailing Wage Law:

If the Contractor's/Bidder's total contract bid price for all work Included under this contract [Contract #2020-_4_], as listed In the submitted Bid Proposal, is equal to or greater than the limits listed above as applicable under said law; then the Contractor's/Bidder's unit prices and lump sum prices submitted herein and the resulting total contract bid price submitted herein should be based on the applicable Prevailing State Wage Rates; and it will further be the Contractor's/Bidder's responsibility to obtain the current applicable Prevailing Wage Rates from the State of Connecticut - Department of Labor and meet all requirements therein of the Law and the State of Connecticut

EXHIBIT E

Project: Collinsville Streetscape (Phase 2) (Canton)
Minimum Rates and Classifications for Heavy Highway Construction

ID# 20-15398

**Connecticut Department of Labor
Wage and Workplace Standards**

By virtue of the authority vested in the Labor Commissioner under provisions of Section 31-53 of the General Statutes of Connecticut, as amended, the following are declared to be the prevailing rates and welfare payments and will apply only where the contract is advertised for bid within 20 days of the date on which the rates are established. Any contractor or subcontractor not obligated by agreement to pay

Project Number: Canton

Project Town: Canton

State#: Canton

FAP#: Canton

Project: Collinsville Streetscape (Phase 2) (Canton)

CLASSIFICATION	Hourly	Benefits
1) Boilermaker	33.79	34% + 8.96
1a) Bricklayer, Cement Masons, Cement Finishers, Plasterers, Stone Masons	35.72	33.16
2) Carpenters, Piledrivermen	34.53	25.64
2a) Diver Tenders	34.53	25.64
3) Divers	42.99	25.64
03a) Millwrights	34.94	26.19
4) Painters: (Bridge Construction) Brush, Roller, Blasting (Sand, Water, etc.), Spray	52.25	22.55
4a) Painters: Brush and Roller	35.62	22.55
4b) Painters: Spray Only	38.62	22.55
4c) Painters: Steel Only	37.62	22.55

4d) Painters: Blast and Spray	38.62	22.55
4e) Painters: Tanks, Tower and Swing	37.62	22.55

As of: September 8, 2020

Project: Collinsville Streetscape (Phase 2) (Canton)

5) Electrician (Trade License required: E-1,2 L-5,6 C-5,6 T-1,2 L1,2 V-1,2,7,8,9)	40.25	29.17+3% of gross wage
6) Ironworkers: Ornamental, Reinforcing, Structural, and Precast Concrete Erection	36.67	37.62 + a
7) Plumbers (Trade License required: P-1,2,6,7,8,9 J-1,2,3,4 SP-1,2) and Pipefitters (Including HVAC Work) (Trade License required: S-1,2,3,4,5,6,7,8 B-1,2,3,4 D-1,2,3,4 G-1, G-2, G-8, G-9)	44.63	32.95

----LABORERS-----

8) Group 1: Laborer (Unskilled), Common or General, acetylene burner, concrete specialist	31.0	22.15
9) Group 2: Chain saw operators, fence and guard rail erectors, pneumatic tool operators, powdermen	31.25	22.15
10) Group 3: Pipelayers	31.5	22.15
11) Group 4: Jackhammer/Pavement breaker (handheld); mason tenders (cement/concrete), catch basin builders, asphalt rakers, air track operators, block paver, curb setter and forklift operators	31.5	22.15
12) Group 5: Toxic waste removal (non-mechanical systems)	33.0	22.15
13) Group 6: Blasters	32.75	22.15
Group 7: Asbestos/lead removal, non-mechanical systems (does not include leaded joint pipe)	32.0	22.15
Group 8: Traffic control signalmen	18.0	22.15

Group 9: Hydraulic Drills	29.3	18.90
----LABORERS (TUNNEL CONSTRUCTION, FREE AIR). Shield Drive and Liner Plate Tunnels in Free Air.----		
13a) Miners, Motormen, Mucking Machine Operators, Nozzle Men, Grout Men, Shaft & Tunnel Steel & Rodmen, Shield & Erector, Arm Operator, Cable Tenders	33.23	22.15 + a
13b) Brakemen, Trackmen	32.26	22.15 + a

----CLEANING, CONCRETE AND CAULKING TUNNEL----

As of: September 8, 2020

Project: Collinsville Streetscape (Phase 2) (Canton)

14) Concrete Workers, Form Movers, and Strippers	32.26	22.15 + a
15) Form Erectors	32.59	22.15 + a

----ROCK SHAFT LINING, CONCRETE, LINING OF SAME AND TUNNEL
IN FREE AIR:-----

16) Brakemen, Trackmen, Tunnel Laborers, Shaft Laborers	32.26	22.15 + a
17) Laborers Topside, Cage Tenders, Bellman	32.15	22.15 + a
18) Miners	33.23	22.15 + a

----TUNNELS, CAISSON AND CYLINDER WORK IN COMPRESSED AIR: ----

18a) Blaster	39.72	22.15 + a
19) Brakemen, Trackmen, Groutman, Laborers, Outside Lock Tender, Gauge Tenders	39.52	22.15 + a
20) Change House Attendants, Powder Watchmen, Top on Iron Bolts	37.54	22.15 + a
21) Mucking Machine Operator	40.31	22.15 + a

----TRUCK DRIVERS----(*see note below)

Two axle trucks	29.86	25.79 + a
Three axle trucks; two axle ready mix	29.97	25.79 + a
Three axle ready mix	30.03	25.79 + a
Four axle trucks, heavy duty trailer (up to 40 tons)	30.08	25.79 + a

Four axle ready-mix	30.13	25.79 + a
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Heavy duty trailer (40 tons and over)	30.35	25.79 + a
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As of: September 8, 2020

Project: Collinsville Streetscape (Phase 2) (Canton)

Specialized earth moving equipment other than conventional type on-the road trucks and semi-trailer (including Euclids)	30.13	25.79 + a
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----POWER EQUIPMENT OPERATORS----

Group 1: Crane handling or erecting structural steel or stone, hoisting engineer (2 drums or over), front end loader (7 cubic yards or over), Work Boat 26 ft. & Over, Tunnel Boring Machines. (Trade License Required)	42.45	25.30 + a
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Group 2: Cranes (100 ton rate capacity and over); Excavator over 2 cubic yards; Piledriver (\$3.00 premium when operator controls hammer); Bauer Drill/Caisson. (Trade License Required)	42.11	25.30 + a
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Group 3: Excavator/Backhoe under 2 cubic yards; Cranes (under 100 ton rated capacity), Gradall; Master Mechanic; Hoisting Engineer (all types of equipment where a drum and cable are used to hoist or drag material regardless of motive power of operation), Rubber Tire Excavator (Drott-1085 or similar); Grader Operator; Bulldozer Fine Grade (slopes, shaping, laser or GPS, etc.). (Trade License Required)	41.32	25.30 + a
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Group 4: Trenching Machines; Lighter Derrick; Concrete Finishing Machine; CMI Machine or Similar; Koehring Loader (Skooper)	40.91	25.30 + a
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Group 5: Specialty Railroad Equipment; Asphalt Paver; Asphalt Spreader; Asphalt Reclaiming Machine; Line Grinder; Concrete Pumps; Drills with Self Contained Power Units; Boring Machine; Post Hole Digger; Auger; Pounder; Well Digger; Milling Machine (over 24	40.28	25.30 + a
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Group 5 continued: Side Boom; Combination Hoe and Loader; Directional Driller.	40.28	25.30 + a
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Group 6: Front End Loader (3 up to 7 cubic yards); Bulldozer (rough grade dozer).	39.95	25.30 + a
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Group 7: Asphalt Roller; Concrete Saws and Cutters (ride on types); Vermeer Concrete Cutter; Stump Grinder; Scraper; Snooper; Skidder; Milling Machine (24	39.59	25.30 + a
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Group 8: Mechanic, Grease Truck Operator, Hydroblaster, Barrier Mover, Power Stone Spreader; Welder; Work Boat under 26 ft.; Transfer Machine.	39.17	25.30 + a
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Group 9: Front End Loader (under 3 cubic yards), Skid Steer Loader regardless of attachments (Bobcat or Similar); Fork Lift, Power Chipper; Landscape Equipment (including hydroseeder).	38.71	25.30 + a
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Group 10: Vibratory Hammer, Ice Machine, Diesel and Air Hammer, etc.	36.54	25.30 + a
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Group 11: Conveyor, Earth Roller; Power Pavement Breaker (whiphammer), Robot Demolition Equipment.	36.54	25.30 + a
<i>As of:</i> September 8, 2020		
Project: Collinsville Streetscape (Phase 2) (Canton)		
Group 12: Wellpoint Operator.	36.48	25.30 + a
Group 13: Compressor Battery Operator.	35.86	25.30 + a
Group 14: Elevator Operator; Tow Motor Operator (Solid Tire No Rough Terrain).	34.66	25.30 + a
Group 15: Generator Operator; Compressor Operator; Pump Operator; Welding Machine Operator; Heater Operator.	34.23	25.30 + a
Group 16: Maintenance Engineer/Oiler	33.54	25.30 + a
Group 17: Portable asphalt plant operator; portable crusher plant operator; portable concrete plant operator.	38.11	25.30 + a
Group 18: Power Safety Boat; Vacuum Truck; Zim Mixer; Sweeper; (minimum for any job requiring CDL license).	35.53	25.30 + a
**NOTE: SEE BELOW		
----LINE CONSTRUCTION----(Railroad Construction and Maintenance)--		
-		
20) Lineman, Cable Splicer, Technician	48.19	6.5% + 22.00
21) Heavy Equipment Operator	42.26	6.5% + 19.88
22) Equipment Operator, Tractor Trailer Driver, Material Men	40.96	6.5% + 19.21
23) Driver Groundmen	26.5	6.5% + 9.00
23a) Truck Driver	40.96	6.5% + 17.76
----LINE CONSTRUCTION----		
24) Driver Groundmen	30.92	6.5% + 9.70

25) Groundmen	22.67	6.5% + 6.20
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26) Heavy Equipment Operators	37.1	6.5% + 10.70
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27) Linemen, Cable Splicers, Dynamite Men	41.22	6.5% + 12.20
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28) Material Men, Tractor Trailer Drivers. Equipment Operators	35.04	6.5% + 10.45

As of: September 8, 2020

Project: Collinsville Streetscape (Phase 2) (Canton)

Welders: Rate for craft to which welding is incidental.

*Note: Hazardous waste removal work receives additional \$1.25 per hour for truck drivers.

ALL Cranes: When crane operator is operating equipment that requires a fully licensed crane operator to operate he receives an extra \$4.00 premium in addition to the hourly wage rate and benefit contributions:

1) Crane handling or erecting structural steel or stone; hoisting engineer (2 drums or over)

Cranes (100 ton rate capacity and over) Bauer

Drill/Caisson Crane with 150 ft. boom (including jib) -

\$1.50 extra Crane with 200 ft. boom (including jib) -

\$2.50 extra Crane with 250 ft. boom (including jib) -

\$5.00 extra Crane with 300 ft. boom (including jib) -

\$7.00 extra Crane with 400 ft. boom (including jib) -

\$10.00 extra

2)

All classifications that indicate a percentage of the fringe benefits must be calculated at the percentage rate times the "base hourly rate".

Apprentices duly registered under the Commissioner of Labor's regulations on "Work Training Standards for Apprenticeship and Training Programs" Section 31-51-d-1 to 12, are allowed to be paid the appropriate percentage of the prevailing journeymen hourly base and the full fringe benefit rate, providing the work

~~Connecticut General Statute Section 31-55a: Annual Adjustments to wage rates by contractors doing

The Prevailing wage rates applicable to this project are subject to annual adjustments each July 1st for the duration of the project.

Each contractor shall pay the annual adjusted prevailing wage rate that is in effect each July 1st, as posted by the Department of Labor.

It is the contractor's responsibility to obtain the annual adjusted prevailing wage rate increases directly from the Department of Labor's website.

The annual adjustments will be posted on the Department of Labor's Web page: www.ct.gov/dol. For those without internet access, please contact the division listed below.

The Department of Labor will continue to issue the initial prevailing wage rate schedule to the Contracting Agency for the project.

All subsequent annual adjustments will be posted on our Web Site for contractor access.

Contracting Agencies are under no obligation pursuant to State labor law to pay any increase due to the annual adjustment provision.

Effective October 1, 2005 - Public Act 05-50: any person performing the work of any mechanic, laborer, or worker shall be paid prevailing wage

All Person who perform work ON SITE must be paid prevailing wage for the appropriate mechanic, laborer, or worker classification.

All certified payrolls must list the hours worked and wages paid to All Persons who perform work ON SITE regardless of their ownership i.e.: (Owners, Corporate Officers, LLC Members, Independent Contractors, et. al)

Reporting and payment of wages is required regardless of any contractual relationship alleged to exist between the contractor and such person.

As of: September 8, 2020

Project: Collinsville Streetscape (Phase 2) (Canton)

--Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clause (29 CFR 5.5 (a) (1) (ii)).

Please direct any questions which you may have pertaining to classification of work and payment of prevailing wages to the Wage and Workplace Standards Division, telephone (860)263-6790.

Important Information:

For use with Building, Heavy/Highway, and Residential

Welders: Rate for craft to which welding is incidental.

***Note: Hazardous waste removal work receives additional \$1.25 per hour for truck drivers.**

****Note: Hazardous waste premium \$3.00 per hour over classified rate.**

ALL Cranes: When crane operator is operating equipment that requires a fully licensed crane operator to operate he receives an extra \$4.00 premium in addition to the hourly wage rate and benefit contributions:

- 1) Crane handling or erecting structural steel or stone; hoisting engineer (2 drums or over)**
- 2) Cranes (100 ton rate capacity and over) Bauer Drill/Caisson**
- 3) Cranes (under 100 ton rated capacity)**

Crane with boom including jib, 150 feet - \$1.50 extra.

Crane with boom including jib, 200 feet - \$2.50 extra.

Crane with boom including jib, 250 feet - \$5.00 extra.

Crane with boom including jib, 300 feet - \$7.00 extra.

Crane with boom including jib, 400 feet - \$10.00 extra.

All classifications that indicate a percentage of the fringe benefits must be calculated at the percentage rate times the "base hourly rate".

- Apprentices duly registered under the Commissioner of Labor's regulations on "Work Training Standards for Apprenticeship and Training Programs" Section 31-51-d-1 to 12, are allowed to be paid the appropriate percentage of the prevailing journeymen hourly base and the full fringe benefit rate, providing the work site ratio shall not be less than one full-time journeyman instructing and supervising the work of one apprentice in a specific trade.**

Connecticut General Statute Section 31-55a: Annual Adjustments to wage rates by contractors doing state work

- The Prevailing wage rates applicable to this project are subject to annual adjustments each July 1st for the duration of the project.**
- Each contractor shall pay the annual adjusted prevailing wage rate that is in effect each July 1st, as posted by the Department of Labor.**
- It is the contractor's responsibility to obtain the annual adjusted prevailing wage rate increases directly from the Department of Labor's website.**
- The annual adjustments will be posted on the Department of Labor's Web page: www.ctdol.state.ct.us.**
- The Department of Labor will continue to issue the initial prevailing wage rate schedule to the Contracting Agency for the project.**
- All subsequent annual adjustments will be posted on our Web Site for contractor access.**

Effective October 1, 2005 - Public Act 05-50: any person performing the work of any mechanic, laborer, or worker shall be paid prevailing wage.

- All Persons who perform work ON SITE must be paid prevailing wage for the appropriate mechanic, laborer, or worker classification.
- All certified payrolls must list the hours worked and wages paid to All Persons who perform work ON SITE regardless of their ownership i.e.: (Owners, Corporate Officers, LLC Members, Independent Contractors, et. al)
- Reporting and payment of wages is required regardless of any contractual relationship alleged to exist between the contractor and such person.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clause (29 CFR 5.5 (a) (1) (ii)).

Please direct any questions which you may have pertaining to classification of work and payment of prevailing wages to the Wage and Workplace Standards Division, telephone (860)263-6790.

BID PROPOSAL

To: Robert Skinner
Chief Administrative Office
Town of Canton
4 Market Street, P.O. Box 168
Collinsville, CT 06022-0268

Proposal of:

Name of Contractor: _____

Street Address: _____

City, State, Zip Code: _____

The undersigned further declares that he has carefully examined the site of the work, the information for bidders, specifications, drawings and form of contract and will contract to provide all necessary tools, apparatus and implements, freight, cartage and expense, and to do all work and furnish all the materials necessary to construct the proposed work named on the title page in the manner and upon the conditions specified, in accordance with first class work of this type, and upon the terms which follow herein.

But it is understood and agreed that the prices bid for unit quantities of work in the following items shall control in any contract awarded hereon; that the quantities used are approximate only, being estimated solely for use in comparing bids; and that the following products obtained by multiplying the unit prices bid by the estimated quantities, and the total of those prices are inserted only for the purpose of checking this proposal and for the convenience of the bidder. In the case of error or discrepancies, unit prices govern and written word prices take precedence over figures.

No bids may be withdrawn for a period of 60 days after the opening of bids without the approval and written consent of the Chief Administrative Officer. If no award has been made within 60 days after the opening of bids, the bid may be withdrawn upon demand of the bidder at any time thereafter, so long as he has not been notified of the acceptance of his bid.

And the undersigned agrees to execute and deliver, within ten days after the notice of the award, a formal contract with the Town of Canton for the fulfillment of this proposal; and it is agreed, in case of failure or neglect on the part of the undersigned to do so, the Town may determine that the bidder has abandoned the contract and thereupon the proposal and acceptance shall be null and void.

The undersigned further declares that the bidder is:

- a. A CORPORATION organized under the laws of the State of having its principal office at:

The principal officers of said corporation with their respective titles and address are as follows:

- b. A PARTNERSHIP consisting of the following individuals (with their addresses).

- c. An INDIVIDUAL, by the name of _____ and doing
business as _____

The bidder is required to state below what work of a similar character to that included in the proposed contract he has done and give reference that will enable the Town to judge his experience, skill and business standing.

BID PRICES

INSTRUCTIONS: Bidder is to write the total cost price, as applicable, in dollars in the blank spaces provided at the end of each description, AND write the totals in numbers on the cost segment page with totals written in dollars and words at the bottom. In case of discrepancies between amounts shown in words and amount shown in figures, **BIDDER** agrees that amounts shown in words will govern.

The Bidder is advised that the description is only a summary. The unit price or total cost bid shall include all of the items as specified in detail in the contract document. In case of discrepancies between amounts shown in words and amount shown in figures, **BIDDER** agrees that amounts shown in words will govern.

NOTE: The following bid items listed in all sections below will be performed and paid for separately by the Town of Canton. **Do not** submit a bid number for these items:

1. Bituminous Cutting
2. Cold Planing (2" mill)
3. Bituminous Paving (2")

**Cost Section 1- Base Bid Work
Main Street - Front Street to Market Street**

ITEM	UNIT	UNIT PRICE	QTY.	TOTAL COST	NOTE
Site Preparation & Erosion Control					
Storm drain Protection	EA	\$	4	\$	Including 2@ Bridge
			Subtotal	\$	
Site Demolition					
Bituminous Cutting	-		-	-	Work to be Performed by the Town
Cold Planning (2" Mill)	-		-	-	Work to be Performed by the Town
Concrete Cutting	LF	\$	44	\$	
Demo Concrete Curb	LF	\$	20	\$	
Salvage Granite Curb	LF	\$	391	\$	Assess quality for re-use
Demo Concrete Sidewalk	SY	\$	120	\$	4"-6" thick - wire mesh reinforced
Salvage Brick Sidewalk	SY	\$	154	\$	Dry-laid Brick, palletize & return to Town
Salvage Bluestone Paving	SY	\$	127	\$	
Remove Decorative Light Poles & Wiring	EA	\$	5	\$	Return to Town
Salvage Street Signs	EA	\$	4	\$	
Demo Plantings	LS	\$	1	\$	Planting bed north of stage
Remove Utility Pole	-		-	-	By Utility Company, See Alt 1
Remove Utility Light	-		-	-	By Utility Company, See Alt 1
			Subtotal	\$	
Wayfinding Signage					
Pole Mounted Sign	EA	\$	1	\$	Theater sign
Building Mounted Sign	EA	\$	2	\$	Restroom signage
			Subtotal	\$	
Site Utilities					
Relocate Fire Hydrant	EA	\$	1	\$	
Underground Electrical Service Conduit Bank	LF	\$	140	\$	(2) 3" dia encased in concrete, 24" depth
Electrical Service Vault	EA	\$	1	\$	
New Electrical Service	-	\$	-	-	By Utility Company, See Alt 1
Site Lighting Pull Box	EA	\$	2	\$	Quazite in-grade
Site Lighting Conduit	LF	\$	380	\$	1.5" Conduit, trench, wire
Breaker Panel Circuits	LS	\$	1	\$	Modify existing panel
Decorative Lamp Posts	EA	\$	3	\$	Style to match Phase 1, GFCI on pole
			Subtotal	\$	
Site Hardscape					
Bituminous Paving (2")	-		-	-	Work to be Performed by the Town
Re-set Existing Bluestone Slabs	SY	\$	131	\$	Use salvaged bluestone
Bluestone Band	SF	\$	791	\$	Varying Widths
Concrete Sidewalk	SF	\$	2144	\$	4,000 psi,WWM, 5" thick
Concrete Sidewalk - Vehicular	SF	\$	767	\$	4,000 psi,WWM, 8" thick
Reset Granite Curb	LF	\$	391	\$	Straight Salv Granite, Concrete Encased
Granite Curb	LF	\$	40	\$	5" Granite, Concrete Encased
Concrete Step	LF	\$	7	\$	
Concrete Curb	LF	\$	27	\$	
			Subtotal	\$	
Traffic Signage and Striping					
Crosswalk Striping	LF	\$	48	\$	16" Wide White Lines(epoxy)
Stop Bar	LF	\$	9.5	\$	12" Wide White Lines(epoxy)
Parking Space Paint	LF	\$	221	\$	4" Wide Painted Lines (epoxy)
Traffic Signage	EA	\$	1	\$	Variable Size Sign, Breakaway Post
			Subtotal	\$	
Site Planting					
Top Soil & Placement	CY	\$	11	\$	excavate soil and replace with 12" topsoil
Lawn	SF	\$	560	\$	
Shrubs	EA	\$	9	\$	
Mulch	CY	\$	1	\$	
			Subtotal	\$	
			Base Bid Work Section 1 Total	\$	

Section 1					
Alternate 1 - Utility Service Undergrounding					
ITEM	UNIT	UNIT PRICE	QTY.	TOTAL COST	NOTE
Remove Utility Pole	-		-	-	<i>By Utility Company</i>
Remove Utility Light	-		-	-	<i>By Utility Company</i>
Electrical Service Vault	EA	\$	1	\$	
Underground Electrical Service Conduit Bank	LF	\$	140	\$	<i>(2) 3" dia encased in concrete, 24" depth</i>
Eversource - Pole Removal & Primary Service	LS	\$	1	\$	
			Subtotal	\$	
Section 1			Section 1 Alternate 1 Total	\$	
Alternate 2 - Section 1 Upgrades					
ITEM	UNIT	UNIT PRICE	QTY.	TOTAL COST	NOTE
Freestanding Sign Pole	EA	\$	1	\$	<i>Wayfinding sign located at trail</i>
New LED Boards for Phase 1 Lights	EA	\$	14	\$	<i>Relamp existing fixtures w/ 27k boards</i>
			Subtotal	\$	
			Section 1 Alternate 2 Total	\$	
Section 1					
Alternate 3 - Drainage					
ITEM	UNIT	UNIT PRICE	QTY.	TOTAL COST	NOTE
Demo Catch basin	EA	\$	1	\$	
Demo Catch basin Top	EA	\$	1	\$	
Demo Stormwater Pipe	LF	\$	13	\$	
Catch basin & Top	EA	\$	1	\$	<i>Precast basin & top</i>
Precast Catch basin Top	EA	\$	1	\$	<i>Precast top, grade ring</i>
6" Storm Pipe	LF	\$	13	\$	
			Subtotal	\$	
Section 1			Section 1 Alternate 3 Total	\$	
Alternate 4 - Site Furnishings					
ITEM	UNIT	UNIT PRICE	QTY.	TOTAL COST	NOTE
Backed Bench	EA	\$	1	\$	
Backless Bench	EA	\$	1	\$	
Trash/Recycling Can	EA	\$	1	\$	
Bike Rack	EA	\$	2	\$	
Handrail Modification	LS	\$	1	\$	
			Subtotal	\$	
			Section 1 Alternate 4 Total	\$	

Cost Section 2- Base Bid Work					
Main Street - Market Street to The Green					
ITEM	UNIT	UNIT PRICE	QTY.	TOTAL COST	NOTE
Site Preparation & Erosion Control					
Storm drain Protection	EA	\$	5	\$	
			Subtotal	\$	
Site Demolition					
Bituminous Cutting	-		-	-	Work to be Performed by the Town
Cold Planning (2" Mill)	-		-	-	Work to be Performed by the Town
Concrete Cutting	LF	\$	75	\$	
Salvage Granite Curb	LF	\$	221	\$	Assess quality for re-use
Demo Concrete Sidewalk	SY	\$	208	\$	4"-6" thick - wire mesh reinforced
Salvage Street Signs	EA	\$	3	\$	
			Subtotal	\$	
Wayfinding Signage					
Freestanding Sign Pole	EA	\$	1	\$	
			Subtotal	\$	
Site Utilities					
Site Lighting Pull Box	EA	\$	1	\$	Quazite in-grade
Site Lighting Conduit	LF	\$	230	\$	1.5" Conduit, trench, wire
Decorative Lamp Posts	EA	\$	5	\$	Style to match Phase 1, GFCI on pole
			Subtotal	\$	
Site Hardscape					
Bituminous Paving (2")	-		-	-	Work to be Performed by the Town
Bluestone Band	SF	\$	359	\$	Varying Widths
Concrete Sidewalk	SF	\$	1555	\$	4,000 psi, WWM, 5" thick
Concrete Sidewalk - Vehicular	SF	\$	322	\$	4,000 psi, WWM, 8" thick
Reset Granite Curb	LF	\$	153	\$	Straight Salv Granite, Concrete Encased
Granite Curb	LF	\$	75	\$	5" Granite, Concrete Encased
			Subtotal	\$	
Traffic Signage and Striping					
Crosswalk Striping	LF	\$	144	\$	16" Wide White Lines(epoxy)
Stop Bar	LF	\$	11.5	\$	12" Wide White Lines(epoxy)
Parking Space Paint	LF	\$	306	\$	4" Wide Painted Lines (epoxy)
Traffic Signage	EA	\$	1	\$	Variable Size Sign, Breakaway Post
			Subtotal	\$	
Site Planting					
Trees	EA	\$	1	\$	
Top Soil & Placement	CY	\$	1.5	\$	
Mulch	CY	\$	1	\$	
			Subtotal	\$	
			Base Bid Work Section 2 Total	\$	

Section 2					
Alternate 5 - Silva Cell					
ITEM	UNIT	UNIT PRICE	QTY.	TOTAL COST	NOTE
Silva Cell - Suspended Pavement @ Tree Pit	EA	\$	1	\$	<i>As detailed</i>
Sub-Total				\$	
Section 2 Alternate 5 Total				\$	
Section 2					
Alternate 6 - Drainage					
ITEM	UNIT	UNIT PRICE	QTY.	TOTAL COST	NOTE
Demo Catch basin	EA	\$	2	\$	
Demo Catch basin Top	EA	\$	1	\$	
Demo Stormwater Pipe	LF	\$	12	\$	
Catch basin & Top	EA	\$	1	\$	<i>Precast basin & top</i>
Catch basin & Top - Double	EA	\$	1	\$	<i>Double precast basin & top</i>
Manhole Doghouse	EA	\$	1	\$	
Precast Catch basin Top	EA	\$	3	\$	<i>Precast top, grade ring</i>
18" Storm Pipe	LF	\$	10	\$	
Sub-Total				\$	
Section 2 Alternate 6 Total				\$	
Section 2					
Alternate 7 - Site Furnishings					
ITEM	UNIT	UNIT PRICE	QTY.	TOTAL COST	NOTE
Site Furnishings					
Trash/Recycling Can	EA	\$	1	\$	
Bike Rack	EA	\$	3	\$	
Subtotal				\$	
Section 2 Alternate 7 Total				\$	

Cost Section 3- Base Bid Work					
Market Street					
ITEM	UNIT	UNIT PRICE	QTY.	TOTAL COST	NOTE
Site Preparation & Erosion Control					
Storm drain Protection	EA	\$	2		
			Subtotal	\$	
Site Demolition					
Bituminous Cutting	-		-	-	<i>Work to be Performed by the Town</i>
Cold Planning (2" Mill)	-		-	-	<i>Work to be Performed by the Town</i>
Demo Concrete Curb	LF	\$	122	\$	
Demo Concrete Sidewalk	SY	\$	120	\$	<i>4"-6" thick - wire mesh reinforced</i>
Salvage Brick Sidewalk	SY	\$	140	\$	<i>Dry-laid Brick, palletize & return to Town</i>
Demo Stairs	CY	\$	2	\$	
Demo Handrail	LS	\$	1	\$	
Remove Decorative Light Poles & Wiring	EA	\$	2	\$	<i>Return to Town</i>
Salvage Street Signs	EA	\$	1	\$	
Salvage Town Hall Sign	EA	\$	1	\$	
Demo Bench	EA	\$	2	\$	<i>Return to Town</i>
Demo Plantings	LS	\$	1	\$	<i>Planting bed at Town Hall Stairs</i>
			Subtotal	\$	
Site Utilities					
Site Lighting Pull Box	EA	\$	2	\$	<i>Quazite in-grade</i>
Site Lighting Conduit	LF	\$	255	\$	<i>1.5" Conduit, trench, wire</i>
Decorative Lamp Posts	EA	\$	4	\$	<i>Style to match Phase 1, GFCI on pole</i>
			Subtotal	\$	
Site Hardscape					
Bituminous Paving (2")	-		-	-	<i>Work to be Performed by the Town</i>
Bluestone Band	SF	\$	393	\$	<i>Varying Widths</i>
Concrete Sidewalk	SF	\$	1323	\$	<i>4,000 psi, WWM, 5" thick</i>
Granite Curb	LF	\$	208	\$	<i>5" Granite, Concrete Encased</i>
Topping Slab	LF	\$	100	\$	
Wall Parging	SF	\$	80	\$	<i>Includes removal of old material</i>
Concrete Step	LF	\$	8	\$	
			Subtotal	\$	
Traffic Signage and Striping					
Parking Space Paint	LF	\$	124	\$	<i>4" Wide Painted Lines (epoxy</i>
Town Hall Sign	EA	\$	1	\$	<i>Reinstall Sign</i>
			Subtotal	\$	
Site Planting					
Lawn	SF	\$	150	\$	
Top Soil & Placement	CY	\$	2	\$	
			Subtotal	\$	
			Base Bid Work Section 3 Total	\$	

Section 3 Alternate 8 - Drainage					
ITEM	UNIT	UNIT PRICE	QTY.	TOTAL COST	NOTE
Demo Catch Basin Top	EA	\$	1	\$	
Precast Catch basin Top	EA	\$	1	\$	<i>Precast top, grade ring</i>
	Subtotal			\$	
	Section 3 Alternate 8 Total			\$	
Section 3 Alternate 9 - Site Furnishings					
ITEM	UNIT	UNIT PRICE	QTY.	TOTAL COST	NOTE
Backed Bench	EA	\$	3	\$	
Backless Bench	EA	\$	1	\$	
Bike Rack	EA	\$	3	\$	
Bollard	EA	\$	8	\$	
Hand/Guardrail	LF	\$	36	\$	
	Sub-Total			\$	
	Section 3 Alternate 9 Total			\$	

Cost Section 4- Base Bid Work					
The Green					
ITEM	UNIT	UNIT PRICE	QTY.	TOTAL COST	NOTE
Site Preparation & Erosion Control					
Storm Drain Protection	EA	\$	2	\$	
Tree Protection	LF	\$	412	\$	4' Tall Chain-link and Posts
			Subtotal	\$	
Site Demolition					
Bituminous Cutting	-		-	-	Work to be Performed by the Town
Cold Planning (2" Mill)	-		-	-	Work to be Performed by the Town
Concrete Cutting	LF	\$	21	\$	
Salvage Granite Curb	LF	\$	164	\$	Assess quality for re-use
Demo Concrete Sidewalk	SY	\$	546	\$	4"-6" thick - wire mesh reinforced
Salvage Street Signs	EA	\$	4	\$	
Demo Tree	EA	\$	2	\$	Remove Crabapples
			Subtotal	\$	
Site Hardscape					
Bituminous Paving (2")	-		-	-	Work to be Performed by the Town
Concrete Sidewalk	SF	\$	218	\$	4,000 psi,WWM, 5" thick
Concrete Sidewalk - Vehicular	SF	\$	400	\$	4,000 psi,WWM, 8" thick
Reset Granite Curb	LF	\$	99	\$	Straight Salv Granite, Concrete Encased
Granite Curb	LF	\$	743	\$	5" Granite, Concrete Encased
			Subtotal	\$	
Traffic Signage and Striping					
Crosswalk Striping	LF	\$	96	\$	8' Wide Painted Markings
Stop Bar	LF	\$	40	\$	12" Wide Painted Markings
Traffic Signage	EA	\$	4	\$	Variable Size Sign, Breakaway Post
			Subtotal	\$	
Site Planting					
Lawn	SF	\$	2500	\$	
Top Soil & Placement	CY	\$	35	\$	6" deep - planting bed
			Subtotal	\$	
			Base Bid Work Section 4 Total	\$	
Section 4					
Alternate 10 - Drainage					
ITEM	UNIT	UNIT PRICE	QTY.	TOTAL COST	NOTE
Demo Catch basin Top	EA	\$	2	\$	
Precast Catch basin Top	EA	\$	2	\$	Precast top, grade ring
			Sub-Total	\$	
			Section 4 Alternate 10 Total	\$	

Cost Section 5- Base Bid Work					
River Street					
ITEM	UNIT	UNIT PRICE	QTY.	TOTAL COST	NOTE
Site Preparation & Erosion Control					
Storm Drain Protection	EA	\$	8		
			Subtotal	\$	
Site Demolition					
Bituminous Cutting	-		-	-	Work to be Performed by the Town
Cold Planning (2" Mill)	-		-	-	Work to be Performed by the Town
Concrete Cutting	LF	\$	19	\$	
Demo Bituminous Curb	LF	\$	657	\$	
Salvage Granite Curb	LF	\$	300	\$	Assess quality for re-use
Demo Concrete Sidewalk	SY	\$	194	\$	4"-6" thick - wire mesh reinforced
Demo Concrete Stairs and Landing	CY	\$	5	\$	
Demo Brick Wall	CY	\$	20	\$	
Salvage Wall Caps	LF	\$	15	\$	Salvage to replace damaged
Salvage Street Signs	EA	\$	2	\$	
Demo Plantings	LS	\$	1	\$	Planting bed at Bank
Earthwork - Cut	CY	\$	20	\$	Brick wall planters, Hill parking
Remove Utility Pole	-		-	-	By Utility Company, See Alt 13
Remove Utility Light	-		-	-	By Utility Company, See Alt 13
			Subtotal	\$	
Site Utilities					
Site Lighting Pull Box	EA	\$	1	\$	
Site Lighting Conduit	LF	\$	240	\$	
Decorative Lamp Posts	EA	\$	4	\$	
New Utility Pole	-		-	-	By Utility Company, See Alt 13
			Subtotal	\$	
Site Hardscape					
					Estimate
Bituminous Paving (2")	-		-	-	Work to be Performed by the Town
Bluestone Band	SF	\$	342	\$	Varying Widths
Bluestone Paving	SF	\$	92	\$	Bluestone on concrete @ Bank
Concrete Sidewalk	SF	\$	2248	\$	4,000 psi, WWM, 5" thick
Concrete Sidewalk - Vehicular	SF	\$	758	\$	4,000 psi, WWM, 8" thick
Reset Granite Curb	LF	\$	239	\$	Straight Salv Granite, Concrete Encased
Granite Curb	LF	\$	707	\$	5" Granite, Concrete Encased
Brick Wall	LF	\$	100	\$	
Precast Wall Cap	LF	\$	100	\$	
Concrete Step	LF	\$	10	\$	
			Subtotal	\$	
Traffic Signage and Striping					
Crosswalk Striping	LF	\$	216	\$	
Stop Bar	LF	\$	67	\$	
Parking Space Paint	LF	\$	204	\$	
Traffic Signage	EA	\$	5	\$	
			Subtotal	\$	
Site Planting					
Lawn	SF	\$	800	\$	
Top Soil & Placement	CY	\$	20	\$	12" in/behind all walls, 4" lawn areas
Shrubs	EA	\$	21	\$	
Ornamental Grass	EA	\$	45	\$	
Bulbs	EA	\$	20	\$	
Mulch	CY	\$	2	\$	
			Subtotal	\$	
Base Bid Work Section 5 Total				\$	

Section 5					
Alternate 11 - Utility Relocation					
ITEM	UNIT	UNIT PRICE	QTY.	TOTAL COST	NOTE
Frontier - Add & Remove Pole, Transfer Wires	LS	\$	1	\$	
			Sub-Total	\$	
Section 5			Section 5 Alternate 11 Total		\$
Alternate 12 - Drainage					
ITEM	UNIT	UNIT PRICE	QTY.	TOTAL COST	NOTE
Demo Catch basin	EA	\$	2	\$	
Demo Catch basin Top	EA	\$	5	\$	
Demo Stormwater Pipe	LF	\$	50	\$	
Offset Catch basin & Top	EA	\$	2	\$	
Precast Catch basin Top	EA	\$	5	\$	
18" Storm Pipe	LF	\$	50	\$	
			Sub-Total	\$	
Section 5			Section 5 Alternate 12 Total		\$
Alternate 13 - Site Furnishings					
ITEM	UNIT	UNIT PRICE	QTY.	TOTAL COST	NOTE
Bike Rack	EA	\$	3	\$	
Handrail Modification	LS	\$	1	\$	
			Sub-Total	\$	
Section 5			Section 5 Alternate 13 Total		\$

Cost Section 6- Base Bid Work					
North Street					
ITEM	UNIT	UNIT PRICE	QTY.	TOTAL COST	NOTE
Site Preparation & Erosion Control					
Storm drain Protection	EA	\$	2	\$	
Tree Protection	LF	\$	70	\$	4' Tall Chain-link and Posts
			Subtotal	\$	
Site Demolition					
Bituminous Cutting	-		-	-	Work to be Performed by the Town
Cold Planning (2" Mill)	-		-	-	Work to be Performed by the Town
Concrete Cutting	LF	\$	19	\$	
Demo Bituminous Curb	LF	\$	75	\$	
Demo Stone Wall	CY	\$	8	\$	
Salvage Street Signs	EA	\$	4	\$	
Demo Landscape	SY	\$	223	\$	Grub turf & plantings
Earthwork - Cut	CY	\$	65	\$	Brick wall planters, Hill parking
			Subtotal	\$	
Site Hardscape					
Bituminous Paving (2")	-		-	-	Work to be Performed by the Town
Concrete Sidewalk	SF	\$	634	\$	4,000 psi, WWM, 5" thick
Concrete Sidewalk - Vehicular	SF	\$	168	\$	4,000 psi, WWM, 8" thick
Granite Curb	LF	\$	438	\$	5" Granite, Concrete Encased
Retaining Wall	SFF	\$	175	\$	
			Subtotal	\$	
Traffic Signage and Striping					
Stop Bar	LF	\$	24	\$	12" Wide Painted Markings (epoxy)
Parking Space Paint	LF	\$	326	\$	4" Wide Painted Markings (epoxy)
Traffic Signage	EA	\$	3	\$	Variable Size Sign, Breakaway Post
			Subtotal	\$	
Site Planting					
Lawn	SF	\$	600		
Top Soil & Placement	CY	\$	7	\$	
Trees	EA	\$	3	\$	
Mulch	CY	\$	1	\$	
			Subtotal	\$	
			Base Bid Work Section 6 Total	\$	
Section 6					
Alternate 14 - Drainage					
ITEM	UNIT	UNIT PRICE	QTY.	TOTAL COST	NOTE
Demo Catch basin	EA	\$	1	\$	
Demo Catch basin Top	EA	\$	1	\$	
Demo Stormwater Pipe	LF	\$	15	\$	
Offset Catch basin & Top	EA	\$	1	\$	
Precast Catch basin Top	EA	\$	1	\$	
			Subtotal	\$	
			Section 6 Alternate 14 Total	\$	

Cost Segment 7- Base Bid Work					
Post Office					
ITEM	UNIT	UNIT PRICE	QTY.	TOTAL COST	NOTE
Site Preparation & Erosion Control					
Tree Protection	LF	\$	140		4' Tall Chain-link and Posts
Subtotal				\$	
Site Demolition					
Bituminous Cutting	-		-	-	Work to be Performed by the Town
Cold Planning (2" Mill)	-		-	-	Work to be Performed by the Town
Demo Bituminous Curb	LF	\$	55	\$	
Demo Concrete Sidewalk	SY	\$	4	\$	4"-6" thick - wire mesh reinforced
Salvage Street Signs	EA	\$	2	\$	
Demo Bollard	EA	\$	2	\$	
Demo Landscape	SY	\$	190	\$	Grub turf
Earthwork - Cut	CY	\$	56	\$	Topsoil
Subtotal				\$	
Site Hardscape					
Bituminous Paving (2")	-		-	-	Work to be Performed by the Town
Concrete Sidewalk	SF	\$	747	\$	4,000 psi, WWM, 5" thick
Concrete Sidewalk - Vehicular	SF	\$	210	\$	4,000 psi, WWM, 8" thick
Grooved Tooling	SF	\$	210	\$	Tactile grooves @ handicap space
Granite Curb	LF	\$	101	\$	5" Granite, Concrete encased
Granular Fill	CY	\$	30	\$	Free-draining subgrade soils
Parking Blocks	EA	\$	3	\$	
Subtotal				\$	
Traffic Signage and Striping					
Traffic Signage	EA	\$	1	\$	Sign, Breakaway Post
Parking Space Paint	LF	\$	137	\$	4" Wide White Lines
Handicap Symbol	EA	\$	1	\$	Thermoplastic
Subtotal				\$	
Site Planting					
Top Soil & Placement	CY	\$	28	\$	4" Turf
Lawn	SF	\$	2220	\$	
Subtotal				\$	
Base Bid Work Section 7 Total				\$	
Section 7					
Alternate 15 - Drainage					
ITEM	UNIT	UNIT PRICE	QTY.	TOTAL COST	NOTE
Demo Catch basin	EA	\$	0	\$	Carried in Bridge Street est.
Demo Catch basin Top	EA	\$	0	\$	Carried in Bridge Street est.
Demo Stormwater Pipe	LF	\$	0	\$	Carried in Bridge Street est.
Subtotal				\$	
Section 7 Alternate 15 Total				\$	

Cost Segment 8- Base Bid Work					
Bridge Street					
ITEM	UNIT	UNIT PRICE	QTY.	TOTAL COST	NOTE
Site Preparation & Erosion Control					
Storm drain Protection	EA	\$	6	\$	Including 2@ Main Street
Tree Protection	LF	\$	340	\$	4' Tall Chain-link and Posts
			Subtotal	\$	
Site Demolition					
Bituminous Cutting	-		-	-	Work to be Performed by the Town
Cold Planning (2" Mill)	-		-	-	Work to be Performed by the Town
Demo Bituminous Curb	LF	\$	510	\$	
Demo Concrete Sidewalk	SY	\$	21	\$	4"-6" thick - wire mesh reinforced
Salvage Street Signs	EA	\$	7	\$	
Relocate Street Sign	EA	\$	2	\$	DOT Speed Limit, Curve Ahead
Demo Plantings	LS	\$	1	\$	
Demo Fence	LF	\$	21	\$	
Line Striping Removal	LF	\$	872	\$	
Remove Utility Pole	-		-	-	By Utility Company, See Alt 5
			Subtotal	\$	
Wayfinding Signage					
Freestanding Sign Pole	EA	\$	1		
			Subtotal	\$	Precast basin & top
Site Utilities					
Relocate Fire Hydrant	EA	\$	1	\$	
Utility Relocation	LA	\$	1	\$	
New Utility Pole	-		-	-	By Utility Company, See Alt 5
			Subtotal		
Site Hardscape					
Bituminous Paving (2")	-		-	-	Work to be Performed by the Town
Concrete Sidewalk	SF	\$	2400	\$	4,000 psi,WWM, 5" thick
Concrete Sidewalk - Vehicular	SF	\$	1864	\$	4,000 psi,WWM, 8" thick
Granite Curb	LF	\$	687	\$	5" Granite, Concrete Encased
			Subtotal	\$	
Traffic Signage and Striping					
Crosswalk Striping	LF	\$	152	\$	15" Wide White Lines (epoxy)
Stop Bar	LF	\$	12	\$	12" Wide White Lines (epoxy)
Yield Arrows	EA	\$	11	\$	Thermoplastic
Parking Space Paint **	LF	\$	188	\$	4" Wide White Lines (epoxy)
Travel Lane Paint	LF	\$	54	\$	Double 4" Yellow Line (epoxy)
Traffic Signage	EA	\$	10	\$	Variable Size Sign, Breakaway Post
RRFB Crossing Signal	LS	\$	1	\$	Solar RRFB w/ detection & button
			Subtotal		
Site Planting					
Trees	EA	\$	9	\$	
Top Soil & Placement	CY	\$	60	\$	4" Turf
Lawn	SF	\$	3200	\$	
Mulch	CY	\$	2	\$	
			Subtotal	\$	
			Base Bid Work Section 8 Total	\$	

** Post Office parking spot within Town R.O.W.

Cost Segments - 1 thru 8: Cost Totals Summary

COST SECTION - PUBLIC PROPERTY		TOTAL COST
1	Base Bid Work- Main Street -Front Street to Market Street	\$
	Alternate #1	\$
	Alternate #2	\$
	Alternate #3	\$
	Alternate #4	\$
2	Base Bid Work- Main Street - Market Street to The Green	\$
	Alternate #5	\$
	Alternate #6	\$
	Alternate #7	\$
3	Base Bid Work- Market Street	\$
	Alternate #8	\$
	Alternate #9	\$
4	Base Bid Work- The Green	\$
	Alternate #10	\$
5	Base Bid Work- River Street	\$
	Alternate #11	\$
	Alternate #12	\$
	Alternate #13	\$
6	Base Bid Work- North Street	\$
	Alternate #14	\$
7	Base Bid Work- Post Office	\$
	Alternate #15	\$
8	Base Bid Work- Bridge Street	\$
	Alternate #16	\$
	Alternate #17	\$
	M&P of Traffic - Entire Project	\$
	Survey Staking - Entire Project	\$
	Mobilization - Entire Project	\$
Base Bid Total 1-8, Total Cost (in figures):		\$
Including M&P of Traffic, Survey Staking, Mobilization. Do not include alternates		
Base Bid Total 1-8, Total Cost (in writing):		\$
Including M&P of Traffic, Survey Staking, Mobilization. Do not include alternates		

The following addenda for this contract were received:

Addendum Number

Date

Dated at _____, _____.
(Town) (State)

This ____ day of _____, 2021.

By: _____
Print Name: _____
Company: _____
Title: _____
Duly Authorized

NOTE:

Bidder is reminded that in addition to completing and signing the above proposal and bid form, he/she shall also complete and return with the bid:

- Bid Security
- Non-Collusion Affidavit
- Legal Status Form
- Bidder Qualifications

BID BOND

KNOW ALL MEN BY THESE PRESENT, that we, the undersigned

_____ as Principal; and

_____ as Surety, are hereby held and firmly bound

unto the Town of Canton in the penal sum of _____ for the

payment of which, well and truly to be made, we hereby jointly and severally bind

ourselves, our heirs, executors, administrators, successors and assigns.

Signed this _____ day of _____ 2021.

The condition of the above obligation is such that whereas the Principal has submitted to the Town of Canton a certain Bid, attached hereto, and hereby made a part hereof, to enter into a contract in writing, for the

Collinsville Village Streetscape Phase 2
Contract #051321 – State Project 23-128

NOW, THEREFORE,

- (a) If said bid shall be rejected, or, on the other hand,
- (b) If said bid shall be accepted and the Principal shall execute and deliver a contract in the form of Contract attached thereto (properly completed in accordance with said Bid) and shall furnish a bond for his faithful performance of said Contract, and shall in all other respects perform the agreement created by the acceptance of said Bid.

Then, this obligation shall be void; otherwise the same shall remain in force and effect, it being expressly understood and agreed that the liability of the surety of any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of the said Surety and its bond shall be in no way impaired or affected by any extension of the time within which the City may accept such Bid; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the principal and the Surety have hereunto set their hands and seals and such of them are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

Principal

By _____

(Seal)

Signed in Presence of:

Principal

By _____

(Seal)

Signed in Presence of:

BIDDER'S NON COLLUSION AFFIDAVIT

The undersigned bidder, having fully in linked himself/itself regarding the accuracy of the statements made herein, certifies that:

- (1) the bid is genuine; it is not a collusive or sham bid;
- (2) the bidder developed the bid independently and submitted it without collusion with, and without any agreement, understanding, communication or planned common course of action with, any other person or entity designed to limit independent bidding or competition;
- (3) the bidder, its employees and agents have not communicated the contents of the bid to any person not an employee or agent of the bidder and will not communicate the bid to any such person prior to the official opening of the bid; and,
- (4) no elected or appointed official or other officer or employee of the Town of Canton is directly or indirectly interested in the bidder's bid, or in the supplies, materials, equipment, work or labor to which it relates, or in any of the profits thereof.

THE UNDERSIGNED BIDDER FURTHER CERTIFIES THAT THIS STATEMENT IS EXECUTED FOR THE PURPOSE OF INDUCING THE TOWN OF CANTON TO CONSIDER ITS BID AND MAKE AN AWARD IN ACCORDANCE THEREWITH.

By: _____
Print Name: _____
Company: _____
Title: _____
Duly Authorized
Date: _____

Subscribed and sworn to before me this ____ day of _____, 2021.

Commissioner of the Superior Court
Notary Public
My Commission Expires:

(Acknowledgement of a Corporation)

State of Connecticut)
County of _____) ss: _____
(city/ town)

On this the ____ day of _____, 21 before me personally came and appeared _____ to me known, who, being by me duly sworn, did depose and say that he/she is the _____ of _____, the corporation described herein and which executed the foregoing instrument; that he/she knows the seal of the corporation; that one of the impressions affixed to said instrument is an impression of such seal; that it was so affixed by order of the directors of said corporation, and that he/she signed his/her name thereto by like order.

Commissioner of the Superior Court
Notary Public
My Commission Expires:

(Acknowledgement of a Partnership)

State of Connecticut)
County of _____) ss: _____
(city/ town)

On this the ____ day of _____, 2021 before me personally came and appeared _____ to me known, and known to me to be a partner of the partnership described herein and which executed the foregoing instrument and he/she acknowledged to me that he/she executed the same as and for a free act of said partnership.

Commissioner of the Superior Court
Notary Public
My Commission Expires:

(Acknowledgement of a Proprietorship)

State of Connecticut)
County of _____) ss: _____
(city/ town)

On this the ____ day of _____, 2021 before me personally came and appeared _____ to me known, and known to me to be the person described herein and who executed the foregoing instrument and acknowledged that he/she executed the same as his/her free act and deed.

Commissioner of the Superior Court
Notary Public
My Commission Expires:

IF A LIMITED LIABILITY COMPANY:

Bidder's Full Legal Name: _____

Mailing Address: _____

State in which Legally Organized: _____

State Business ID # _____

Current Manager(s)/ Members(s)

Manager

Manager

Member

Member

Member

Does the bidder have a "permanent place of business" in Connecticut, as defined above?

Yes _____ No _____

If yes, please state the full street address (not a post office box) of that "permanent place of business".

(street address)

(city, state, zip code)

State of Connecticut)
County of _____) ss: _____
(city/ town)

On this the ____ day of _____, 2021 before me personally came and appeared _____ to me known, who, being by me duly sworn, did depose and say that he/she is the _____ of _____, the corporation described herein and which executed the foregoing instrument; that he/she knows the seal of the corporation; that one of the impressions affixed to said instrument is an impression of such seal; that it was so affixed by order of the directors of said corporation, and that he/she signed his/her name thereto by like order.

Commissioner of the Superior Court
Notary Public/ My Commission Expires:

STATEMENT OF BIDDER'S QUALIFICATIONS

All questions shall be answered and information given shall be clear and comprehensive. This statement shall be notarized. If additional room is required to answer questions, please attach additional sheet(s) with the supplemental information. The bidder's name shall appear on the top of the supplemental sheets to avoid confusion. The bidder may submit additional information as it deems necessary to enable the town to judge the bidder's ability to perform the proposed contract.

1. Bidder's full legal name: _____

2. Permanent main office address: _____

3. Contact person for this Invitation: _____

Phone and fax numbers and e-mail address of the contact person during normal business hours:

5. Date of organization: _____

6. Date of incorporation, if applicable: _____

7. Number of years bidder has been engaged in business under present firm or trade name:

8. Contracts on hand (dollar value, anticipated completion date):

9. General character or type of work performed by the bidder:

10. Has the bidder ever failed to complete any work awarded to it? If so, please explain in detail the circumstances:

11. Has the bidder ever defaulted on a contract? If so, please explain in detail the circumstances:

12. List contracts of a similar nature (size, type, and complexity) completed successfully by the bidder within the last five (5) years. List the other contracting party, the value of the contract, and the year completed.

13. List the equipment that will be available for the work described in this Invitation.

14. How many years of experience does the bidder have in work of similar size, type and complexity to the Work of this Invitation?

15. Describe the background and experience of each individual person listed in the Bidder's Legal Status Disclosure:

16. Provide the name of the bidder's bank or other financial institution, contact person, phone number, address, and state the bidder's available credit:

17. If necessary for the Town to determine an award of contract, will the bidder provide a detailed financial statement?

Yes _____ No _____

18. List all legal disputes (mediation, arbitration or litigation) that the bidder or any predecessor in interest has been involved with in the last five (5) years, the nature of the dispute, the adverse party and the result.

TOWN OF CANTON, CONNECTICUT GENERAL CONDITIONS

Article 1: Definitions

Wherever used in these General Conditions or in the other Contract Documents, the following terms shall have the meanings which shall be applicable to both the singular and plural thereof:

- (a) Agreement or Contract: The written agreement between the Owner and the Contractor covering the Work to be performed. The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral.
- (b) Bid: The offer or proposal of the Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
- (c) Bidder: Any person, firm or corporation submitting a Bid for the Work.
- (d) Bonds: Bid, performance and payment bonds and other instruments of security, furnished by the Contractor and his surety in accordance with the Contract Documents.
- (e) Change Order: A written order to the Contractor signed by the Owner authorizing an addition, deletion or revision in the Work, or an adjustment in the Contract Price or the Contract Time issued after execution of the Agreement.
- (f) Contract Documents: The Instructions to Bidders, General Conditions, the Agreement, Specifications, Drawings, Addenda (whether issued prior to opening of Bids or execution of the Agreement), Modifications once executed or issued after the execution of the Contract, and such other information as may be included with the Contract Documents.
- (g) Contract Price: The total monies payable to the Contractor under the Contract Documents for the Work.
- (h) Contract Time: The number of calendar days or the milestone dates set forth in the Contract Documents to complete the Work so that the Work is ready for its intended use as determined by the Owner.
- (i) Contractor: The person, firm or corporation with whom the Owner has executed the Agreement.
- (j) Drawings: The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules and diagrams which have been prepared or approved by the Owner.
- (k) Engineer: Wherever in the Contract Documents the word "Engineer" is used, it shall be understood as referring to the Project Administrator acting personally or through his authorized assistants or an independent engineer engaged by the Owner.
- (l) Inspector: The authorized representative of the Owner who is assigned to the Project or any parts thereof.
- (m) Modification: (a) a written amendment of the Contract Document signed by both parties; (b) a Change Order; (c) a written clarification of interpretation issued by the Owner or (d) a

written order for a minor change or alteration in the Work issued by the Owner. A Modification may only be issued after execution of the Agreement and must be in writing.

(n) Owner: Town of Canton acting through its First Selectman or the Chief Administrative Officer or their Agent(s).

(o) Project: The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner and by separate contractors.

(p) Shop Drawings: All drawings, diagrams, illustrations, brochures, schedules and other data which are prepared by the Contractor, a subcontractor, manufacturer, supplier or distributor and which illustrate the equipment, material or some portion of the Work.

(q) Specifications: The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

(r) Subcontractor: An individual, firm or corporation having a direct Contract with the Contractor or with any other Subcontractor for the performance of a part of the Work for the Project.

(s) Project Administrator: Glenn F. Cusano Town of Canton, 4 Market Street, P.O. Box 168, Collinsville, CT 06022.

(t) Work: Any and all obligations, duties and responsibilities necessary to the successful completion of the Project assigned to or undertaken by the Contractor under the Contract Documents, including the furnishing of all labor, materials, equipment and other incidentals.

Article 2: Progress and Submission Schedules; Preconstruction Conference; Time of Starting the Work

- (a) Within ten days after execution of the Agreement, the Contractor shall submit to the Owner for approval, a critical path method schedule indicating the starting and completion dates of the various portions of the Work. Such schedule shall be updated monthly and is a condition to the Owner's obligation to pay the Contractor. The schedule shall identify and indicate the submission of all required shop drawings and product data required by the Contract Documents and indicate the time allowed by the Contract Documents for approval or disapproval of same by Owner. The Contractor acknowledges that the Owner owns any float indicated in the Contractor's schedule.
- (b) Before starting the Work, a conference shall be held to review the above schedules, to establish procedures for handling submissions and for processing Applications for Payment, and to establish a working understanding between the parties as to the Work.
- (c) Within ten (10) calendar days after Notice of Award and prior to executing the Agreement the Contractor shall furnish the Owner acceptable Certificates of Insurance, endorsements or insurance policies as required by the Contract Documents.
- (d) The Contractor shall start the Work on the date on which the Agreement is executed and delivered, or on such other date, as may be specified in the Agreement. However, at the time of the execution and delivery of the Agreement the Owner may give the Contractor a written Work Order to proceed, stating a different date on which it is expected that the Contractor shall start the Work.
- (e) The Contract Time shall commence to run on the date when the Work is to start as provided in the above paragraph.

Article 3: Correlation, Interpretation and Intent of Contract Documents

- (a) It is the intent of the Contract Documents to describe the entire Work to be performed by the Contractor in accordance with the Drawings, Specifications, and other parts of the Contract Documents. The Contract Documents comprise the entire Agreement between the Owner and the Contractor. They may be altered only by a Modification.
- (b) The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.
- (c) Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade. . It shall be the Contractor's responsibility in subcontracting portions of the Work, to arrange or group items of Work under particular trades to conform with then-prevailing customs of the trade, and in accordance with applicable requirements of law. The Owner shall have no liability arising out of jurisdictional issues raised or claims advanced by Subcontractors, trade organizations or other interested parties based on the arrangement or subdivision of Work in the Contract Documents. In the event of any claim arising out of any duplication, conflict, inconsistency or discrepancy within the Contract Documents as to the allocation of the Work among the Subcontractors and Contractor's own forces, the Contractor shall be solely responsible for resolving the claim and

shall be responsible for ensuring that all the Work is completed regardless of where it appears in the Contract Documents.

(d) Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

(e) The terms “knowledge,” “recognize,” “discover,” and “observe,” their respective derivatives, and similar terms in the Contract Documents, as used in reference to the Contractor shall be interpreted to mean that which (1) the Contractor knows, recognizes, discovers and observes, and (2) the Contractor should, in exercising the care, skill, and diligence required by the Contract Documents, know, recognize, discover or observe, as the case may be. Analogously, the expression “reasonably inferable” and similar terms in the Contract Documents shall be interpreted to mean reasonably inferable by a party familiar with the Project and exercising the care, skill, and diligence required by the Contract Documents (including any Work that the party should be able to reasonably anticipate or infer based on Contract Documents then existing).

(f) Execution of the Agreement by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed and correlated personal observations with requirements of the Contract Documents.

(g) Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents. The Contractor shall promptly report to the Owner any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Owner may require. It is recognized that the Contractor’s review is made in the Contractor’s capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

(h) The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Owner any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

(i) The Contractor shall conduct its inspection and review of the Contract Documents as provided herein well in advance of the Work or portion thereof as to afford the Owner sufficient time to correct or otherwise supplement the Contract Documents in the event of an error, omission or inconsistency therein. The Contractor shall also allow sufficient time for the Contractor to assess the impact of such error, omission or inconsistency and for the Owner to evaluate same. If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Owner issues in response to the Contractor’s notices or requests for information, the Contractor shall make Claims as provided in this Agreement. If the Contractor fails to perform the obligations of paragraphs (g) and (h), the Contractor shall pay such costs and damages to the Owner as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner for damages resulting from errors, inconsistencies or omissions in the

Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

(j) After reporting to the Owner any error, inconsistency or omission the Contractor may discover in its review of the Contract Documents, the Contractor shall not proceed with any Work so affected without the Owner's written modification to the Contract Documents unless otherwise directed in writing by the Owner. In the event that the Contractor proceeds with the Work so affected prior to the Owner's written response or written direction from the Owner, then Contractor shall be responsible for the cost of remedial work in the event the Contractor's actions are inconsistent with the Owner's written modification(s) to the Contract Documents or written direction from the Owner.

(k) In the event of a conflict or discrepancy in the Contract Documents, the greater quantity, higher quality, more expensive item, process, procedure or cost of Work shall control as reasonably determined by the Owner.

Article 4: Copies of Documents and Record Documents

(a) The Owner shall furnish the Contractor up to five (5) copies of the Specifications and Drawings as are reasonably necessary for the execution of the Work. Additional copies shall be furnished, upon request, at the cost of reproduction.

(b) The Contractor shall keep three (3) record copies of all Specifications, Drawings, Addenda, Modifications and Shop Drawings in good order and annotated to show all changes made during the Work. These shall be available to the Owner during the course of the Work and shall be delivered to him upon Completion of the Work.

Article 5: Separate Contracts

The Owner may award other contracts in the vicinity of the Work which may proceed simultaneously with the execution of this Contract. The Contractor shall perform his Work so as not to cause interference with other contractors. The Contractor shall cooperate and coordinate its Work with the Owner's separate contractors, if any.

Article 6: Subcontractors

(a) Prior to the execution and delivery of the Agreement, the successful Bidder shall submit to the Owner for acceptance a list of names of Subcontractors and such other persons and organizations (including those who are to furnish materials or equipment fabricated to a special design) proposed for those portions of the Work. Prior to the execution and delivery of the Agreement, the Owner shall notify the successful Bidder in writing, if the Owner, after due investigation, has reasonable objection to any Subcontractor, person or organization on such list. The Owner shall decide, based on the Owner's objection, if the Agreement shall be executed with the existing list. The Contractor has the option to substitute another Subcontractor, person, or organization to satisfy the Owner's objection without additional compensation. Failure to notify the Contractor prior to the execution and delivery of the Agreement shall constitute an acceptance of such Subcontractor, person or organization. Acceptance of any such Subcontractor, person or organization shall not constitute a waiver of any right of the Owner to reject defective Work, material or equipment not in conformance with the requirements of the Contract Documents.

(b) The Contractor shall be fully responsible for all acts and omissions of his Subcontractors and of persons directly or indirectly employed by them and of persons for whose acts any of them may be liable to the same extent that he is responsible for the acts and omissions of

persons directly employed by him. Nothing in the Contract Documents shall create any Contractual relationship between any Subcontractor and the Owner or the Owner to pay or to see to the payment of any monies due any Subcontractor, sub-Subcontractor or supplier, except as may otherwise be required by law.

(c) The Contractor agrees to specifically bind every Subcontractor to all of the applicable terms and conditions of the Contract Documents. Every Subcontractor, by undertaking to perform any of the Work, shall thereby automatically be deemed to be bound by such terms and conditions.

Article 7: Materials, Equipment and Labor; or Equal Clause

(a) The Contractor shall provide and pay for all materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water and sanitary facilities and all other facilities, services, and incidentals necessary for the execution and completion of the Work.

(b) All materials and equipment shall be new, except where specifically noted in the Contract Documents or where reuse is allowed and the conditions of reuse. If required by the Contract Documents or the Owner, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment to be furnished.

(c) Wherever in these Contract Documents a particular brand, make of material, device or equipment is shown or specified, such brand, make of material, device or equipment shall be regarded as a standard of quality, performance and serviceability. Where such items are specified, unless otherwise noted, this shall not be interpreted to preclude the furnishing of items other than those specified where the quality, use and serviceability of the substitute is adjudged by the Owner to be the equal or better than the standard.

(d) All materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with the instructions of the applicable manufacturer, fabricator or processors, except as otherwise specifically provided in the Contract Documents.

Article 8: Patent Fees and Royalties

The Contractor shall pay all license fees and royalties and assume all costs incident to the use of any invention, design, process or device which is the subject of a patent rights or copyrights held by others. The Contractor shall indemnify and hold harmless the Owner and anyone directly or indirectly employed by either of them from and against all claims, damages, losses and expenses (including attorney's fees) arising out of any infringement of such rights during or after completions of the Work, and shall defend all such claims or allegations, even if meritless, in connections with any infringement of such rights.

Article 9: Permits, Laws and Regulations

(a) The Contractor shall secure and pay for all applicable permits and licenses in connection with the Work.

(b) The Contractor shall give all notices and comply with all laws, ordinances, rules and regulations applicable to the Work. If the Contractor observes that the Specifications or

Drawings are at variance therewith, he shall give the Owner prompt written notice thereof, and any necessary changes shall be adjusted by an appropriate Modification. If the Contractor performs any Work knowing it to be contrary to such laws, ordinances, rules and regulations, and without such notice to the Owner, he shall bear all costs arising therefrom, including but not limited to attorneys' fees and costs.

Article 10: Availability of Lands; Physical and Subsurface Conditions

The Owner shall provide, as indicated in the Contract Documents and not later than the date when needed by the Contractor, the lands upon which the Work is to be done, rights-of-way for access thereto, and such other lands which are designated for the use of the Contractor. Easements for permanent structures or permanent changes in existing facilities shall be secured and paid for by the Owner, unless otherwise specified in the Contract Documents. If the Contractor believes that any delay in the Owner's furnishing these lands or providing such easements entitles him to an extension of the Contract Time, he may make a claim therefore as provided hereafter. The Contractor shall provide and pay for all additional land and access thereto that may be required for temporary storage of materials and equipment.

Article 11: Owner's Control

(a) In the performance of the Work, the Contractor shall abide by all orders, directions and requirements of the Owner and shall perform all Work to the satisfaction of the Owner, consistent with the requirements of the Contract Documents. The Owner shall determine the amount, quality, acceptability and fitness of all parts of the Work, shall interpret the Contract Documents and Change Orders and shall decide all other questions in connection with the Work.

(b) The enumeration herein or elsewhere in the Contract Documents of particular instances in which the opinion, judgment, discretion or determination of the Owner shall control or in which Work shall be performed to his satisfaction or subject to his approval or inspection, shall not imply that only matters similar to those enumerated shall be so governed and performed, but without exception all the Work shall be so governed and so performed.

(c) The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract, unless the Contract Documents give other specific instructions concerning these matters. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences or procedures, the Contractor shall evaluate the jobsite safety thereof and, except as stated below, shall be fully and solely responsible for the jobsite safety of such means, methods, techniques, sequences or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely written notice to the Owner and Owner and shall not proceed with that portion of the Work without further written instructions from the Owner. If the Contractor is then instructed to proceed with the required means, methods, techniques, sequences or procedures without acceptance of changes proposed by the Contractor, the Owner shall be solely responsible for any loss or damage arising solely from those Owner-required means, methods, techniques, sequences or procedures.

(d) If the Contract Documents refer to particular construction means, methods, techniques, sequences or procedures, or indicate or imply that such are to be used in the Work, such mention is intended only to indicate that the operations of the Contractor shall be such as to produce at least the quality of Work implied by the operations described, but that the actual determination of whether or not the described operations may be safely and suitably employed

on the Work shall be the responsibility of the Contractor. The Contractor shall notify the Owner for informational purposes only of the actual construction means, methods, techniques, sequences or procedures, which the Contractor intends to employ on the Work, if those differ from those mentioned in the Contract Documents.

Article 12: Authority and Duties of Inspectors

Inspectors employed by the Owner shall be authorized to inspect all Work done and material furnished. Such inspection may extend to all or any part of the Work, and to the preparation or manufacture of the materials to be used. In case of any dispute arising between the Contractor and the Inspector as to materials furnished or the manner of performing the Work, the Inspector shall have authority to reject material or suspend the Work until the question at issue can be referred to and decided by the Owner. The Inspector shall not be authorized to revoke, alter, enlarge, relax or release any requirements of the Contract Documents, nor to approve or to accept any portion of the Work nor issue instructions contrary to the Contract Documents. The Inspector shall in no case act as foreman or perform other duties for the Contractor, or interfere with the management of the Work by the Contractor. Any advice which the Inspector may give the Contractor shall in no circumstance be construed as binding the Owner in any way nor releasing the Contractor from fulfillment of the terms of the Contract.

Article 13: Tests and Inspections

(a) If the Contract Documents, laws, ordinances, rules, regulations or orders of any public authority having jurisdiction require any Work to specifically be inspected, tested, or approved by someone other than the Contractor, the Contractor shall give the Owner timely notice of readiness therefore. The Contractor shall furnish the Owner the required certificates of inspection, testing or approval. All such tests shall be in accordance with the methods prescribed by the American Society for Testing and Materials or such other applicable organization as may be required by law or the Contract Documents. The cost of all such inspections, tests and approvals shall be borne by the Contractor unless otherwise provided.

(b) Any Work which fails to meet the requirements of any such test, inspection or approval and any Work which meets the requirements of any such test or approval, but does not meet the requirements of the Contract Documents shall be considered defective. Such defective Work may be rejected, corrected or accepted as may be determined by the Owner.

(c) Neither observations by the Owner or the Inspector nor inspections, tests or approvals by other persons shall relieve the Contractor from his obligation to perform the Work in accordance with the requirements of the Contract Documents.

Article 14: Contractor's Supervision and Superintendence

(a) The Contractor shall supervise and direct the Work efficiently and with his best skill and attention. He shall be solely responsible for the means, methods, techniques, sequences and procedures. In accordance with Article 3, before undertaking the Work he shall carefully study and compare the Contract Documents and check and verify all figures shown thereon. He shall at once report in writing to the Owner any conflict, error or discrepancy which he may discover, the Contractor shall be responsible to see that the Work complies with the Contract Documents.

(b) The Contractor shall keep on the Work Site, at all times during its progress, a full-time resident superintendent satisfactory to the Owner. The superintendent shall not be replaced without the consent of the Owner except under extraordinary circumstances. The Superintendent shall be the Contractor's representative at the Site and shall have authority to act on behalf of the Contractor. All Communications given to the superintendent shall be as binding as if given to the Contractor.

(c) The Owner shall not be responsible for the acts or omissions of the Contractor, or any Subcontractors, or any of his or their agents or employees, or any other persons performing any of the Work.

Article 15: Safety and Protection; Emergencies

(a) The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work as may be required by applicable law, industry standard, or local practice. The Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

1. All employees on the Work site and other persons who maybe affected thereby.
2. All the Work and all materials or equipment to be incorporated therein, whether in storage on or off the site.
3. Other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities.

(b) No materials or other obstruction shall be placed within fifteen (15) feet of any fire hydrant, which at all times must be readily accessible to the fire department.

(c) The Contractor shall comply with all applicable laws, ordinances, rules, regulations and orders of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss. All damage, injury or loss to any property referred to in the above paragraphs caused, directly or indirectly, in whole or in part by the Contractor, any Subcontractor or anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, shall be remedied by the Contractor.

(d) In emergencies affecting the safety of persons or the Work or property at the site or adjacent thereto, the Contractor, without special instruction or authorization from the Owner or Owner, is obligated to act, at his discretion, to prevent threatened damage, any significant changes in the Work or deviations from the Contract Documents caused thereby, and a Change Order shall thereupon be issued covering the changes involved, provided such action is not the result of the fault or negligence, in whole or in part, of the Contractor, a Subcontractor or anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable.

Article 16: Access to the Work; Uncovering Finished Work

(a) The Owner and his representatives shall, at all times, have access to the Work. The Contractor shall provide proper facilities for such access and observation of the Work and also for any inspection, or testing thereof by others.

(b) If any Work is covered contrary to the instruction of the Owner, it must, if requested by the Owner, be uncovered for his observation and replaced at the Contractor's expense.

(c) If any Work has been covered which the Owner has not specifically requested to observe prior to its being covered, or if the Owner considers it necessary or advisable that covered Work be inspected or tested by others, the Contractor, at the Owner's request, will uncover, expose or otherwise make available for observation, inspection or testing as the Owner may require, that portion of the Work in question, furnishing all necessary labor, material and equipment. If it is found that such Work is defective or does not meet the requirements of

the Contract Documents, the Contractor shall bear all the expenses of such uncovering, exposure, observation, inspection and testing and of satisfactory reconstruction, including compensation for additional professional services, and an appropriate Change Order shall be issued deducting all such costs from the Contract Price. If, however, such Work is found to be non-defective and meets the requirements of the Contract Documents, the Contractor shall be allowed an increase in the Contract Price or extension of the Contract Time directly attributable to such uncovering, exposure, observation, inspection, testing and reconstruction if he makes a claim therefore as provided hereafter.

Article 17: Change in the Work

(a) Without invalidating the Agreement, the Owner may, at any time or from time to time, order additions, deletions or revisions in the Work; these shall be authorized by Change Orders. Upon receipt of a Change Order, the Contractor shall proceed with the Work involved. All such Work shall be executed under the applicable conditions of the Contract Documents. If any Change Order causes an increase or decrease in the Contract Price or an extension or shortening of the Contract Time, an equitable adjustment may be made as provided hereafter.

(b) The Owner may authorize minor changes or alterations in the Work not involving extra cost and not inconsistent with the overall intent of the Contract Documents. These may be accomplished by a field order ("Field Order"). If the Contractor believes that any minor change or alteration authorized by the Owner entitles him to an increase in the Contract Price, he may make a claim therefore as provided hereafter.

(c) Additional Work performed by the Contractor without authorization of a Change Order shall not entitle him to an increase in the Contract Price or an extension of the Contract Time, except in the case of an emergency as provided in herein.

(d) It is the Contractor's responsibility to notify his Surety of any changes affecting the general scope of the Work or change in the Contract Price and the amount of the applicable Bonds shall be adjusted accordingly. The Contractor will furnish proof of such adjustment to the Owner.

(e) A Construction Change Directive is a written order prepared by the Owner and signed by the Owner, directing the Contractor to proceed with certain Work deemed by the Owner to be within the scope of the Contract or a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions. The Contract Sum and Contract Time may be adjusted accordingly.

(f) A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order or as a directive to the Contractor to proceed with work deemed by the Owner to be within the scope of the Contractor's Work, which the Contractor disputes

Article 18: Change Orders

(a) The value of any Work covered by a Change Order shall be determined in one of the following ways:

1. Where the Work involved is covered by unit prices contained in the Contract Documents, by application of unit prices to the quantities of the items involved.

2. By mutual acceptance of a lump sum.

3. By cost and mutually acceptable fixed amount for overhead and profit.

4. If none of the above methods is agreed upon, the value shall be determined by the Owner on the basis of costs and a percentage for overhead and profit. Costs shall only include labor (payroll, payroll taxes, fringe benefits, workmen's compensation, etc.), materials, equipment, and other incidentals directly related to the Work involved. The maximum percentage which shall be allowed for the Contractor's combined overhead and profit shall be as follows:

a. For all such Work done by his own organization, the Contractor may add up to ten percent (10%) of his actual net increase in costs, and

b. For all such Work done by Subcontractors, each Subcontractor may add up to ten percent (10%) of his actual net increase in costs from combined overhead and profit and the Contractor may add up to five percent (5%) of the Subcontractor's total for his combined overhead and profit; provided that no overhead or profit shall be allowed on costs incurred in connection with premiums for public liability insurance or otherwise special insurance directly related to such Work.

In each case, the Contractor will submit in form prescribed by the Owner an itemized cost breakdown together with supporting data.

5. The amount of credit to be allowed by the Contractor to the Owner for any such change which results in a net decrease in cost will be the amount of the actual net decrease as determined by the Owner. When both additions and credits are involved in any one change, the combined overhead and profit shall be figured on the basis of the net increase, if any.

Article 19: Change of the Contract Time

(a) The Contract Time may only be changed by a Change Order. If the Contractor is entitled by the Contract Documents to make a claim for an extension in the Contract Time, his claim shall be in writing delivered to the Owner within ten (10) days of the occurrence of the event giving rise to the claim. Any change in the Contract Time resulting from any such claim shall be incorporated in a Change Order.

(b) The Contract Time may be extended in an amount equal to time lost due to delays beyond the control of the Contractor if he makes a claim therefore as provided in paragraph above. Such delays shall include, but not be restricted to, acts or neglect by any other Contractor employed by the Owner, fires, floods, labor disputes, epidemics, abnormal weather conditions, or acts of God or the public enemy.

(c) All time limits stated in the Contract Documents are of the essence of the Agreement. The provisions of this article shall not exclude recovery for damages (including compensation for additional professional services) for delay by either party.

(d) No Damage for Delay. In all events, the Contractor shall have no separate claim for damages or costs of any kind resulting from a delay in the Work as demonstrated by the Contractor's construction schedule, regardless of whether all or part of such delay may be in any way attributable to the acts, the failure to act, or the omissions of the Owner, the Owner's agents or representatives or independent contractors, the Owner's consultants, if any, the Owner or the Owner's consultants. The Contractor agrees that its sole remedy for such delay shall be an extension of time, which may be granted or denied in accordance with the terms of this Agreement.

(e) Waiver of Impact Claims. In all events, the Contractor waives all forms of impact claims including but not limited to efficiency, loss of productivity, trade stacking, disruption, re-sequencing, and the like regardless of whether all or part of such impact may be in any way attributable to the acts, the failure to act, or the omissions of the Owner, the Owner's agents or representatives or independent contractors, the Owner's consultants, if any, the Owner or the Owner's consultants.

(f) The Contractor shall include similar No Damage for Delay and No Impact Claim provisions in the agreements the Contractor executes with its Subcontractors, suppliers and other persons or entities that the Contractor employs to perform the Work.

(g) The Contractor waives Claims against the Owner for consequential damages arising out of or relating to this Contract. This waiver includes damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit. This waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with the Contract Documents.

Article 20: Warranty and Guarantee; Correction, Removal or Acceptance of Defective Work

(a) The Contractor warrants and guarantees to the Owner that all materials and equipment shall be new unless otherwise specified and that all Work will be of good quality and free from faults or defects and in accordance with the requirements of the Contract Documents and of the inspections, tests or approvals referred to in Article 13: Tests and Inspections. All unsatisfactory Work, all faulty or defective Work and all Work not conforming to the requirements of the Contract Documents or of such inspections, tests or approvals shall be considered defective. Prompt notice of all defects shall be given to the Contractor. All defective Work, whether or not in place, may be rejected.

(b) If required by the Owner prior to the issuance of the certificate of completion, the Contractor shall promptly, without cost to the Owner and as required by the Owner, either correct any defective Work, whether or not fabricated, installed or completed, or, if the Work has been rejected by the Owner, remove it from the site and replace it with non-defective Work or remove and replace such rejected Work within a reasonable time, all as required by written notice from the Owner, the Owner may have deficiency corrected or the rejected Work removed and replaced. All direct or indirect costs of such correction or removal and replacement, including compensation for additional professional services shall be paid by the Contractor, and an appropriate Change Order shall be issued deducting all such costs from the Contract Price. The Contractor shall also bear the expenses of making good all work of others destroyed or damaged by his correction, removal or replacement of his defective Work.

(c) If, after the approval of final payment and prior to the expiration of one (1) year after the date of completion, any Work is found to be defective the Contractor shall, promptly without cost to the Owner and in accordance with the Owner's written instructions, either correct such defective Work, or, if it has been rejected by the Owner, remove it from the site and replace it with non-defective Work. If the Contractor does not promptly comply with the terms of such instructions, the Owner may have the defective Work corrected or the rejected Work removed and replaced, and all direct and indirect costs of such removal and replacement, including Compensation for additional professional services, will be paid by the Contractor and/or deducted from monies owed the Contractor.

Article 21: Applications for Progress Payments

(a) At least ten (10) days before each progress payment falls due (but not more often than once a month), the Contractor shall submit to the Owner for review the Application for Payment filled out and signed by the Contractor covering the Work completed as of the date of the Application and supported by such data as the Owner may reasonably require. There shall be no payment for materials stored on or off the site. The progress payment request shall be subject to a five percent (5%) retainage which shall be held by the Owner until all defective work and all punch list items have been addressed to the full satisfaction of the Owner and the Town. The retainage may be held beyond the application for Final Payment if there is any outstanding defective work that needs to be corrected and/or punch list items that need to be addressed; after which time all outstanding defective work has been corrected and all punch list items have been addressed to the full satisfaction of the Owner and the Town; the retainage can be released. Retainage can be reduced, after the application for Final Payment has been made, to the value of the outstanding defective work that needs to be corrected plus the value of punch list items that need to be addressed.

(b) The Contractor warrants and guarantees that title to all Work, materials and equipment covered by an Application for Payment, whether incorporated in the Project or not, shall have passed to the Owner prior to the making of the Application for Payment, free and clear of all liens, claims, security interests and encumbrances; and that no Work, materials or equipment covered by an Applications for Payment shall have been acquired by the Contractor or by any other person performing the Work at the site or furnishing materials and equipment for the Project, subject to an agreement under which an interest therein or encumbrance thereon is retained by the seller or otherwise imposed by the Contractor or such other person. Each progress payment request shall be accompanied by Lien Waivers in a form satisfactory to the Owner's legal counsel. No progress payment shall be processed by the Owner for payment without fully executed lien and claim waivers from the Contractor, material suppliers and Subcontractors.

(c) The Owner shall, within thirty (30) days after receipt of each Application for Payment, either indicate in writing his approval of payment and present the Application to the Owner, or return the Application to the Contractor indicating in writing his reasons for refusing to approve payment. In the latter case, the Contractor may make the necessary corrections and resubmit the Application.

(d) The Owner shall, within thirty (30) days of presentation of an approved Application for Payment by the Contractor, pay the Contractor the amount approved by the Owner.

(e) The Contractor shall pay its Subcontractor(s) and suppliers in accordance with applicable Connecticut law and shall cause its Subcontractor(s) to pay their Subcontractor(s) in accordance with applicable Connecticut law.

Article 22: Certificates of Completion and Final Payment

(a) Upon written notice from the Contractor that the Project is complete, the Owner shall make a final inspection with the Owner and the Contractor and shall notify the Contractor in writing of any particulars in which this inspection reveals that the Work is defective and/or not completed. The Contractor shall immediately make such corrections and perform such work as are necessary to remedy such defects and/or complete the project.

(b) After the Contractor has completed any such corrections and finished the contract work to the full satisfaction of the Owner and delivered all maintenance and operating instructions, schedules, guarantees, bonds, certificated of inspection, lien and claim waivers from itself,

Subcontractor(s) and material suppliers, and other documents, all as required by the Contract Documents; the Owner shall issue a certificate of completion and the Contractor may make application for final payment following the procedure for progress payments. The final Application for Payment shall be accompanied by such supporting data as the Owner may require, together with complete and legally effective releases or waivers (satisfactory to the Owner) of all liens and claims arising out of the Work, including but not limited to all labor and services performed and the material and equipment furnished thereunder. In lieu thereof and as approved by the Owner, the Contractor may furnish receipts of releases in full; an affidavit of the Contractor that the releases which a lien or claim could be filed, and that all payrolls, material and equipment bills, and other indebtedness connected with the Work for which the Owner or his property might in any way be responsible, have been paid or otherwise satisfied; and consent of the surety, if any, to final payment. If any Subcontractor or supplier fails to furnish a release or receipt in full, the Contractor may furnish a bond satisfactory to the Owner to indemnify and defend it against any lien or claim.

(c) If, on the basis of his observation and review of the Work during construction, his final inspection and his review of the final Application for Payment, all as required by the Contract Documents, the Owner is satisfied that the Work has been completed and the Contractor has fulfilled all of his obligations under the Contract Documents, he will, within thirty (30) days after receipt of the final Application for Payment, indicate in writing his approval of payment and present the Application to the Owner for payment. Otherwise, he will return the Application to the Contractor, indicating in writing his reasons for refusing to approval final payment, in which case the Contractor will make the necessary corrections and resubmit the Application for Payment.

(d) Final payment shall constitute one hundred percent (100%) of the final Contract amount. A Maintenance Bond in the amount of one hundred percent (100%) of the Contract Cost shall be provided prior to final payment. The Owner shall, within thirty (30) days of presentation to him of an approved final Application for Payment, pay the Contractor the amount approved by the Owner.

Article 23: Waivers of Claims and Continuing Obligations

(a) The Contractor's obligation to perform the Work and complete the Project in accordance with the Contract Documents shall be absolute. Neither approval of any progress or final payment by the Owner, nor any payment by the Owner to the Contractor under the Contract Documents, nor any use or occupancy of the Project or any part thereof by the Owner, nor any act of acceptance by the Owner nor any failure to do so, nor any correction of faulty or defective Work by the Owner shall constitute an acceptance of Work not in accordance with the Contract Documents.

(b) Pending final resolution of a claim, except as otherwise mutually agreed in writing, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments, which are not the subject of a good faith dispute, in accordance with the Contract Documents.

(c) The making and acceptance of final payment shall constitute a waiver of all claims by the Contractor against the Owner other than those previously made in writing and still unsettled.

Article 24: Indemnification

(a) To the fullest extent permitted by law the Contractor shall defend, indemnify and hold harmless the Owner, the Owner's consultant(s), if any, and their respective officers, directors, owners, agents, members, employees and independent contractors of any of them from and against all allegations, even if meritless, claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in this Article.

(b) Further, to the fullest extent permitted by law, the Contractor shall defend, indemnify and hold harmless the Owner, and the Owner's consultant(s) and their respective officers, directors, owners, agents, members, employees and independent contractors, from and against all allegations, even if meritless, claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from any breach or failure of the Contractor to comply with the terms and conditions of the Contract Documents but only to the extent caused by the acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in this Article.

(c) In claims against any person or entity indemnified under this Article by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under this Article shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts.

(d) All defense, indemnity and hold harmless provisions set forth in this Contract shall survive termination and/or cancellation and/or full performance of the Contract.

Article 25: Cleaning Up

The Contractor shall keep the premises free from accumulations of waste materials, rubbish and other debris resulting from the Work, and at the completion of each day of the Work shall remove all waste materials, rubbish and debris from and about the premises as well as all tools, construction equipment and machinery, and surplus materials, and shall leave the site clean and passable. The Contractor's failure to keep the site free from waste, rubbish and debris on a daily basis shall entitle the Owner to clean up said waste, rubbish and debris and charge the costs of the same to the Contractor without notice and/or deduct said costs from monies owed to the Contractor.

Article 26: Owner's Right to Stop or Suspend Work

(a) The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work in whole or in part for such period of time as the Owner may determine.

(b) The Contract Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension or interruption. No adjustment shall be made to the extent

1. that performance is, was or would have been so suspended, delayed or interrupted by another cause for which the Contractor is wholly or partially responsible; or
 2. That an equitable adjustment is made or denied under another provision of the Contract.
- (c) The Contractor shall resume the Work on the date so fixed by the Owner.

Article 27: Owner's Right to Terminate

The Owner may terminate or abandon the Project for any one or more of the following reasons:

- (a) If the Contractor is adjudged as a bankrupt or insolvent, or if he makes a general assignment for the benefit of his creditors, or if a trustee or receiver is appointed for the Contractor or for any of his property, or if he files a petition to take advantage of any debtor's act, or to reorganize under the bankruptcy or similar laws, or if he repeatedly fails to supply sufficient skilled workmen or suitable materials or equipment, or if he repeatedly fails to make prompt payments to his Subcontractor(s) or for labor, materials or equipment or if he disregards laws, ordinances, rules, regulations or orders of any public body having jurisdiction, or if he disregards the authority of the Owner, or if he otherwise violates any provision of the Contract Documents, then the Owner may, without prejudice to any other right or remedy and after giving the Contractor and his surety seven (7) days written notice, terminate the services of the Contractor and take possession of the Work and of all machinery thereon owned by the Contractor, and finish the Work by whatever method the Owner may deem expedient. In such case the Contractor shall not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Contract Price exceeds the direct and indirect costs of completing the Work, including compensation for additional professional services, such excess shall be paid to the Contractor. If such costs exceed such unpaid balance, the Contractor shall pay the difference to the Owner on demand including but not limited to attorneys' fees and any other associated costs. Such other associated costs will be determined by the Owner.
- (b) Where the Contractor's services have been so terminated by the Owner, said termination shall not affect any rights of the Owner against the Contractor then existing or which may thereafter accrue.
- (c) Upon seven (7) days written notice to the Contractor and the Owner, the Owner may, without cause and without prejudice to any other right or remedy, elect to abandon the project and terminate the Agreement for the Owner's convenience. In such case, the Contractor shall be paid for all Work actually executed and reasonable expenses sustained by reason of such termination. The Owner shall reasonably determine the amount of monies due the Contractor. Such payment shall not include any overhead or profit on Work not executed. In all events, the Contractor waives any and all claims for damages of any kind or nature including but not limited to claims for overhead and profit on Work not executed.
- (d) In the event the Owner is adjudged to have wrongfully terminated the Agreement, then such termination shall be converted into a termination for convenience and the Contractor shall be compensated as provided in Paragraph (c) above.

Article 28: Contractor's Right to Stop Work or Terminate

- (e) If, through no act or fault, in whole or in part, of the Contractor or anyone for whom it is directly or indirectly liable, the Work is suspended for a period of more than ninety (90) days by the Owner or under an order of court or other public authority, or the Owner fails to act on any Application for Payment within sixty (60) days after it is submitted, or the Owner fails to pay the Contractor any sum approved by the Owner within sixty (60) days of its approval and presentation, then the Contractor may, upon seven (7) days written notice to the Owner,

terminate the Agreement and recover from the Owner payment for all Work executed. The Owner shall reasonably determine the amount of monies due the Contractor. Such payment shall not include any overhead or profit on Work not executed. In all events, the Contractor waives any and all claims for damages of any kind or nature including but not limited to claims for overhead and profit on Work not executed.

Instead of terminating the Agreement, if the Owner has failed to act on an approved [by the Owner] Application for Payment or the Owner has failed to make any approved payment [by the Owner] as aforesaid, the Contractor may upon seven (7) days' notice to the Owner stop the Work until he has been paid all approved amounts then due. Contractor cannot stop work for lack of payment if said payment was not made for reason.

Article 29: Provisions Required by Law Deemed Inserted

Each and every provision of law and clause required by law to be inserted in this Contract shall be deemed to be inserted herein and the Contract shall be read and enforced as though it were included herein, and if through mistake or otherwise any such provision is not inserted or is not correctly inserted, then upon the application of either the Owner or the Contractor, the Contract shall forthwith be physically amended to make such insertion.

Article 30: Contract Security

The Contractor shall furnish surety bonds acceptable to the Owner in an amount at least equal to one hundred percent (100%) of the Contract Price as security for the faithful performance of this Contract and for payment of all persons performing labor under this Contract and furnishing materials in connection with this Contract. The surety on such bond shall be a duly authorized surety company, satisfactory to the Owner and authorized to do business in the State of Connecticut.

Article 31: 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 as specified in the Contract Documents (as outlined in the Instruction to Bidders section of this Contract) for the Work to be done hereunder are ESSENTIAL CONDITIONS of this Contract; and it further mutually understood and agreed that the Work embraced in this Contract shall be commenced not more than ten (10) calendar days from the date of written Notice To Begin Work or Notice to Proceed or issuance of a Work Order.

The Contractor agrees that said Work shall be pursued regularly, diligently and uninterruptedly at such rate of progress as will insure 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 proper extension thereof granted by the Owner, then the Contractor does hereby agree, as part 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 that the Contractor shall be in default after the time stipulated in the Contract for completing the Work.

The said amount 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 in such event sustain, the said amount is agreed to be the amount of

damages which the Owner would sustain and said amount shall be retained from time to time by the Owner from current periodical estimates. It is further agreed that time is of the essence of each and every portion of this Contract and of the specifications wherein a definite and certain length of time is fixed for the performance of any act whatsoever; and where under the Contract an 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 delay in completion of the Work is due:

(a) To any preference, priority or allocation order duly issued by the State or Federal Government;

(b) To unforeseeable cause beyond the control and without the fault or negligence of the Contractor, including, but not restricted to, act of God, or the public enemy,, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes; and

(c) To any delays of Subcontractor(s) or supplies occasioned by any of the causes specified in subsections (a) and (b) of this article.

Article 32: Sanitary Facilities

Contractor shall provide and maintain such sanitary accommodations for use of his employees and those of his Subcontractors as may be necessary to comply with requirements and regulations of local and state departments of health and as directed by Owner.

Article 33: Nondiscrimination Clause

Contractor agrees to comply with all provisions of the Civil Rights Act of 1964, the Equal Opportunity Act of 1972, Executive Orders 11246, 11375, 11478, and if applicable the Connecticut Fair Employment Practice Law and any and all similar state or federal legislation, and any amendments thereof.

Article 34: Wage Scale Provisions

Contractor agrees to comply with all State/Federal Wage Scale Provisions and the Wage and Payroll Section of this Contract in accordance with Conn. Gen. Stat. Section 31-53(g) if applicable based on the Contractor's submitted total bid price for the project work included under this Contract.

Article 35: Work by Others

The Contractor agrees that the Owner may permit other persons, firms, corporations or entities to utilize publicly owned property at the site of the Work and that such permission(s) shall not affect this Agreement.

Article 36: Mediation of Disagreements

In case of any dispute between the Owner and the Contractor or other party making claims in relation to this Contract concerning the respective rights and liabilities of the parties thereunder, which cannot be resolved within thirty (30) days by mutual agreement of the parties may be referred to the American Arbitration Association for Non Binding Mediation by either party. The costs of such Mediation shall be borne equally by each party involved in the Mediation. Only in the event of failure to resolve the dispute by Mediation shall suit be instituted under this Contract; provided however, that any party may institute suit to preserve any claims as may be required by law.

Article 37: Applicable Law

This Contract is to be governed by and construed in accordance with the laws of the State of Connecticut. Any suit brought against a party to this Contract shall be brought exclusively in the Connecticut Superior Court of the Hartford Judicial District.

Article 38: Alteration and Amendments

This Contract may be altered, amended or modified only in writing by the Owner and the Contractor.

Article 39: Notice

Any notice under this Contract shall be in writing and shall be sent by Registered or Certified Mail, with Return Receipt, to the Owner c/o its Chief Administrative Officer or the Contractor, each at the last address as designated by each party in writing.

Article 40: Shop Drawings and Samples

(a) If required by the Owner and/or the contract documents contained herein, after checking and verifying all field measurements, the Contractor shall submit to the Owner for approval, in accordance with the accepted schedule of Shop Drawing submissions, five (5) copies (or at the Owner's option, one reproducible copy) of all Shop Drawings and other submittals as may be required by the Contract Documents and/or as ordered by the Owner, which shall have been checked by and stamped with the approval of the Contractor and identified as the Owner may require. The data on Shop Drawings and other submittals shall be complete with respect to dimensions, design criteria, materials of construction and the like to enable the Owner to review the information as required.

(b) The Contractor shall also submit to the Owner for approval, with such promptness as to cause no delay in the Work, all samples shall have been checked by and stamped with the approval of the Contractor, identified clearly as to material, manufacturer, any pertinent catalog numbers, and the use for which intended.

(c) At the time of each submission, the Contractor shall, in writing, call the Owner's attention to any deviations that the Shop Drawing(s) or sample may have from the requirements of the Contract Documents.

(d) The Owner shall review, with reasonable promptness, Shop Drawing(s) and samples, but his review shall be only for conformance with design concept of the Project and for compliance with the information given in the Contract Documents. The review of separate items as such shall not indicate review of the assembly in which the item functions. The Contractor shall make any corrections required by the Owner and shall return the required number of corrected copies of the Shop Drawings and resubmit new samples until reviewed and accepted. The Contractor shall direct specific attention in writing or on resubmitted Shop Drawings to revisions other than the corrections called for by the Owner on previous submissions.

(e) No Work requiring a Shop Drawing or sample submission shall commence until the submission has been reviewed by the Owner.

(f) The Owner's review of the Shop Drawings or samples shall not relieve the Contractor from his responsibility for any deviations from the requirements of the Contract Documents, unless the Contractor has in writing called the Owner's attention to such deviations at the time of submission and the Owner has given written approval to the specific deviation, nor shall any

approval by the Owner relieve the Contractor from the responsibility for errors or omissions in the Shop Drawings.

Article 41: Maintenance Bond

The Contractor shall be required to furnish the Owner a Maintenance Bond in the amount of one hundred (100%) percent of the final cost of the work prior to Final Payment. This Maintenance Bond shall assure the satisfactory condition of the required Work under the Contract for a period of not less than one (1) year after the acceptance of the Work by the Owner. The Surety for the Bond shall meet the same criteria as for the Performance Bond and the Labor and Materials Payment Bond.

Article 42: Progress Prints and As Built Drawings

At the completion of the Work and if required by the Contract Documents and/or by the Owner, and as an express condition precedent to final payment, the Contractor shall submit to the owner and Owner an as-built of the Work completed under the this Contract.

Article 43: Electrical Energy

The Contractor shall make all necessary applications and arrangements and pay all fees and charges for electrical energy for power and light required for the proper completion of this Contract during its entire progress. The Contractor shall provide, obtain permits for, and pay for all temporary wiring, switches, connections, and meters. There shall be sufficient artificial light, by means of electricity, so that all Work may be done in a workmanlike manner, when there is not sufficient daylight. Sufficient temporary power outlets shall be furnished to enable the various trades to use normal electric power tools.

Article 44: Standard Specifications

All Contract Specifications, Special Provisions, and any specification documents [e.g. State of Connecticut Department of Transportation FORM 817] referenced in these contract documents shall be considered part of this Contract. The specifications for any materials referred to in this contract shall comply with all the pertinent material specifications of the State of Connecticut Department of Transportation FORM 817 for said material [or similar material in Form 817]. All construction procedures for any work referred to in this contract shall comply with all the pertinent construction methods of the State of Connecticut Department of Transportation FORM 817 for said work [or similar work in Form 817]. Note, payment for any materials and work shall be at the respective various unit prices or lump sum prices listed in the Contract Proposal and shall be inclusive of all work and materials related thereto.

Article 45: Call Before You Dig Requirements

Prior to opening an excavation, effort shall be made to determine whether underground installations, i.e., sewer, water, fuel, electric lines, etc. will be encountered and, if so, where such underground installations are located. When the excavation approaches the estimated location of such an installation, the exact location shall be determined by careful probing or hand digging, and when it is uncovered, proper support shall be provided for the existing installation. Utility companies shall be contacted and advised of proposed work prior to the start of actual excavation.

"CALL BEFORE YOU DIG," toll free, statewide, 1-800-922-4455 at least 24 hours in advance of performing any excavation and/or as may be required.

Article 46: Protection of The Work

The Contractor shall protect all work done under this contract, and all work done by the Owner's separate contractors within the limits of this Contract during the progress of the Work and until

completion, from injury by reason of any work under this Contract, or by reason of any negligence on its part, or by reason of weather conditions. The method to be employed for protection shall be at the Contractor's discretion, but shall be subject to the approval of the Owner, who may order the work or any portion of it suspended when he considers conditions to be not favorable for first-class work.

The Contractor shall protect all Work; bituminous pavement, concrete walk, grass areas, etc., from all traffic and use until it is suitable for use or until completion of the Contract.

Article 47: Dust Control and Cleanup

Upon suspension or completion of the Work or of any portion thereof, the Contractor shall remove all materials, equipment and rubbish, and shall leave the premises in a neat and orderly condition. The premises shall, during the progress of the work, be kept clean, presentable and satisfactory to the Owner, and shall be so left at the completion of the Contract. As the work progresses, all streets shall be thoroughly cleaned of all rubbish, excess earth, rock, and other debris. The Contractor shall take necessary precautions to prevent and avoid dust and to keep the streets clean each day, whether a normal work day or not. All cleanup operations shall be accomplished to the satisfaction of the Owner. The cost of any work associated with any required dust control and/or cleanup for the work under this project will be considered included in the base unit prices and/or lump sum prices for each item in the bid proposal and there will be no separate payment for such work performed to complete this project.

Article 48: Construction Materials

Construction materials on the site shall be limited in quantity and place occupying area so as to not hinder and block the use of the roadway nor any facilities.

No advance payment will be made to the Contractor for construction materials purchased in advance and stored by the Contractor. All materials will be paid for each item complete and accepted in place according to the Contract Price or applicable unit prices.

Article 49: Construction Staking, Line, and Grade

Any survey work required for the proper construction of the various components, appurtenances, etc. associated with the project and work included in this Contract; shall be the Contractor's responsibility to coordinate and have performed. The Contractor shall complete all work to within 1/4 inch of line and grade as indicated on the Contract Plans and/or as established by the Owner, except where otherwise specified. The Contractor's surveyor shall be responsible for supplying line and grade at least 48 hours prior to beginning any work that may require line and grade.

Unless the Bid documents include an item for construction surveying and staking; the cost of any work associated with any required construction surveying and staking for the work under this project will be considered included in the base unit prices and/or lump sum prices for each item in the bid proposal and there will be no separate payment for such work performed to complete this project.

Article 50: Work Procedure

When paving, crack filling, pipe work, etc. is part of this Contract, the Contractor shall start and complete all said work on one section of the street or road at a time prior to proceeding with other sections unless otherwise authorized by the Town. The Contractor shall schedule its operations so that vehicular traffic will not be unduly hindered.

The Contractor shall not perform work [paving, crack filling, pipe work, etc.] on more than two (2) streets at a time, unless approved by the Owner in writing. The Contractor shall notify property owners, occupants, tenants, etc.; 48 hours in advance when access to private property (e.g. driveways, sidewalks, etc.) is to be hindered or denied. .

Access to local properties and businesses shall be maintained at all times except when actual Work is being done in front of a driveway or sidewalk to a property and except for the normal cooling period after the bituminous concrete has been laid and/or curing when Portland cement concrete has been placed.

Article 51: Prompt Completion of Work

After an excavation or other work [paving, crack filling, pipe work, etc.] is commenced, the Contractor shall prosecute the Work with diligence and on a continuous uninterrupted basis and shall promptly complete such Work and restore the street to its original condition or as near as may be, so as not to obstruct the street or travel thereon more than is reasonably necessary.

Article 52: Work Interruptions

There may be some occasions where utility companies will be involved in the relocation or adjustment of their existing facilities. In such event, the Contractor shall work in another location until the utility completes its work. No additional compensation will be made for delays or inconvenience sustained by the Contractor due to interference by the utility companies.

Article 53: Temporary Suspension of Work

The Owner shall have the authority to suspend the work wholly or in part, for such period or periods as he considers necessary in the best interest of the Town, or in the interest of public necessity, convenience or safety as provided in this Agreement.

If it should become necessary to stop work for an identified period, the Contractor shall store all materials and equipment in such manner that they will not obstruct or impede the traveling public unnecessarily nor allow the material to become damaged in anyway; and he shall take every precaution to prevent damage to the work already completed, and to erect temporary structures where necessary.

The Contractor shall maintain the roadway and other project areas in safe condition for travel and shall maintain all barricades, signs and lights during the period of project suspension, construction and/or disturbance.

Unless the Bid documents include an item(s) for maintenance and protection of traffic; the cost of any work associated with any required maintenance and protection of traffic including but not limited to barricades, signs, lights, temporary travel lanes, temporary pavement, signals, etc. as required and/or as ordered by the Owner for the same execution of the work under this project will be considered included in the base unit prices and/or lump sum prices for each item in the bid proposal and there will be no separate payment for such work performed to complete this project.

Article 54: Manholes and Utility Cuts

All manhole frames and covers, gate boxes and similar structures in the area of the Work shall be reset to the proper line and grade by the Contractor. Repairs of all cuts in the pavement base will be the responsibility of the Contractor. The Contractor shall cooperate with all utility owners to facilitate this Work.

Article 55: Signs and Traffic and/or Pedestrian Detours

When necessary, the Owner will determine all traffic and/or pedestrian detours. The Contractor shall cooperate in placing the signs where required and/or as ordered by the Owner.

The Contractor shall place and maintain barricades, fencing, as needed and/or as ordered by the Owner to protect areas of the construction site. The Contractor shall place barricades on all side streets at the next intersection away from the street or roadway section where construction [paving, crack filling, pipe work, etc.] is taking place or any other construction work area involved. The Contractor shall place barricades where needed for "Detour", "Local Traffic Only", "Local Pedestrian Traffic Only" and other such signs as may be required to prevent entrance into the designated construction area(s). Any barricades remaining overnight and on weekends must have lights and reflectors when such are placed near active travel ways [pedestrian or vehicular].

The Contractor shall furnish all warning signs as shown on the Contract Documents as well as any and all additional barricades, traffic drums, detour signs and the like, including illumination of same as well as any obstacles in the roadway, using battery powered flashers as directed by the Owner or applicable law or applicable standards. All signs associated with roadway construction [paving, crack filling, pipe work, etc.] and/or pedestrian travel way construction shall be in accordance with the Manual of Uniform Traffic Control Devices for Streets and Highways as published by the U.S. Department of Transportation, Federal Highway Administration, latest issue.

Unless the Bid documents include an item(s) for maintenance and protection of traffic; the cost of any work associated with any required maintenance and protection of traffic including but not limited to barricades, signs, lights, temporary travel lanes, temporary pavement, signals, etc. as required and/or as ordered by the Owner for the same execution of the work under this project will be considered included in the base unit prices and/or lump sum prices for each item in the bid proposal and there will be no separate payment for such work performed to complete this project.

Article 56: Maintenance and Protection of Vehicular and Pedestrian Traffic

The Legal Traffic Authority for the Town of Canton shall prescribe all conditions for maintenance and protection of traffic for the Project. All work zones for construction under this contract shall be in conformance with the latest edition of the Manual of Uniform Traffic Control Devices [MUTCD] and/or as ordered by the Legal Traffic Authority for the Town of Canton. In general, if the excavation procedures expose utility frames for manholes, gate boxes, catch basins, etc. more than 2 inches, then a ramped section of processed stone or a temporary asphalt collar, or traffic control devices such as drums, cones and barricades shall be provided around these structures to prevent damage to vehicular traffic as required and/or as ordered by the Owner. Ramped sections and traffic control devices shall be to such dimensions and at such locations as shown on the Contract Documents or as directed by the Owner or as required by applicable law or applicable standards.

Equipment and material left within the street lines overnight shall be protected by barricades or traffic drums equipped with flashing lights, as directed by the Owner and in conformance with applicable laws and regulations and applicable standards, all at the Contractor's sole expense.

Unless the Bid documents include an item(s) for maintenance and protection of traffic; the cost of any work associated with any required maintenance and protection of traffic including but not limited to barricades, signs, lights, temporary travel lanes, temporary pavement, signals, etc. as required and/or as ordered by the Owner for the same execution of the work under this project

will be considered included in the base unit prices and/or lump sum prices for each item in the bid proposal and there will be no separate payment for such work performed to complete this project.

Article 57: Noise

The Contractor shall conduct and carry out construction work in such a manner as to avoid unnecessary inconvenience and annoyance to the general public and occupants of neighboring property. During the hours of 3:00 p.m. and 7:00 a.m. he/she shall not use, except with the express written permission of the Owner or in case of an emergency as herein otherwise provided, any tool, appliance or equipment producing noise of sufficient volume and or beyond limits established by local codes and ordinances so as to disturb the sleep or repose of occupants of the neighboring property.

Article 58: Operation of Equipment in Roadways

No equipment shall be operated with any metal surfaces, steel pads and cleats on backhoe outriggers and stabilizers and on crawler mounted equipment, etc., in direct contact with the surface of any pavement, curb or walk unless authorized by the Owner. The Contractor shall use suitable wood, plywood or rubber blocks under outriggers and stabilizers or shall use rubber or fiber pads manufactured for the purpose and fastened to the steel pads. Suitable planking shall be used under crawler mounted equipment if required by the Town.

All pavements, curbs, walks, lawns, etc. damaged by the Contractor during its operations and not scheduled for repair or replacement under this Contract shall be repaired to the satisfaction of the Owner at the Contractor's expense and without cost to the Owner.

Article 59: Clearance of Vital Structures

The construction work shall be performed and conducted so as not to interfere with access to fire hydrants, fire stations, fire escapes, water gates, underground vaults, catch basins and all other vital equipment as designated by the Owner.

The Contractor shall maintain all gutters free and unobstructed for the full depth of the adjacent curb and for at least one (1') foot in width from the face of such curb at the gutter line. Catch basins and/or yard drains shall be kept clear and serviceable.

The Contractor shall make provisions to take dispose of all surplus water, muck, silt, or other run-off pumped from excavations and shall be responsible for any damage resulting from its failure to so provide.

Article 60: Relocation and Protection of Utilities

Notice is hereby given that the Contractor must familiarize himself with the provision of Public Act No. 87-71 regarding its duties and responsibilities with respect to excavating, and discharging explosives on demolition in proximity to public utility underground facilities.

In case any said purpose pipe crossing or other encasement should be damaged, and for this purpose pipe crossing or other encasement or devices are to be considered as part of a substructure, they shall be repaired by the agency or person owning them and the expense of such repairs borne by the Contractor. The Contractor shall be responsible for any damage done to any public or private property by reason of the breaking of any water pipes, sewer, gas pipe, electric conduit or other utility. The Contractor shall inform itself as to the existence and location of all underground utilities; and shall arrange to have any such utilities marked out; prior

to the commencement of any excavation and/or material removal, and protect the same against any damage.

Article 61: Protection of Adjoining Property

The Contractor shall at all times and at its own expense preserve and protect from injury any adjoining property by providing proper safeguards and taking other measures suitable for that purpose. The Contractor shall, at his own expense, shore up and protect all buildings, walls, fences or other property likely to be damaged during the progress of the construction work and shall be responsible for all damage to public or private property or highways resulting from its failure to properly protect and carry out said Work. The Contractor shall not disturb, cut or remove (even temporarily) any trees, bushes, shrubs or flowers on municipal or private property. Any of these items which have been disturbed, removed or cut by the Contractor shall be the sole responsibility of the Contractor; including replacement should any of the trees, bushes, shrubs or flowers die as a result of the Contractor's Work or operations.

Article 62: Excavation

Curbs, Walks, Roadway, Driveway Ramps/Aprons, and Trenches: The term excavation as used in this Contract for curbs and walks shall mean the removal to line and grade and the satisfactory disposal of all materials encountered, including the cutting and removal of tree roots, existing walk, driveways, curbs, gutters, pavement, and other obstructions encountered as necessary for the preparation of the subgrade for all proposed improvements. All such material excavated during the course of the work and not reusable shall become the property of the Contractor and it shall be his responsibility to legally dispose of the material.

Excavations of sidewalks, curbs, roadways, driveway ramps/aprons, and trenches shall be completely backfilled at the end of each workday once the new sidewalk, curb, roadway, driveway ramp/apron, trench construction components have obtained their proper strength for backfilling. Excavations for sidewalks, sidewalk ramps, curbs, roadway, driveway ramp/apron, trench construction components shall not remain open for more than 72 hours, at which time the Contractor shall complete the new construction [Portland cement concrete, bituminous concrete, structures, etc.] or prepare the excavated area so it is completely passable by vehicles and/or pedestrians at no extra cost to the Owner. The excavation for roadway, driveway, driveway ramp construction, and trenches must be completely backfilled and open for vehicular traffic at the end of each day. Trenches in paved roads may require a temporary bituminous concrete pavement surface at the end of each day. Trench segments that need to remain open for the next day's continuation of work may use steel plates to protect the trenches if approved by the Owner but may require temporary bituminous concrete edge ramp paving if needed for vehicles and/or pedestrians to pass over.

Article 63: Trenches

The maximum length of open trench permissible at any time shall be as may be specified by the Owner and no greater length shall be open for pavement removal, excavation, construction, backfilling, patching and all other operations without written permission of the Owner. The Contractor shall be required to backfill and protect all trenches before the close of any working day. However, at the discretion of the Owner, the Contractor may utilize steel plates measuring approximately 1" thick by 5' wide by 10' long to cover the open trench. Utilization of steel plates will generally be used only for overnight protection of trenches to allow completion of Work the following work day. Steel plates will not be used to keep trenches open more than one night. Trenches to be left open for more than one night shall be backfilled.

Article 64: Excavated Material

All material excavated from trenches or excavations shall be removed from the site of the Work except in rare cases where material is suitable for part of the backfill, however, permission must be granted by the Owner prior to placement/use of any such material within the construction limits.

Article 65: Disposal of Excavated Material

Road grinding and excavated materials (radius granite curbs, catch basin frames, millings, etc.) that are reusable shall if, requested by the Owner, be delivered to and unloaded at the location designated by the Owner, at no extra cost to the Owner. The delivery will be coordinated by the Owner. All other materials excavated that are not reusable and not wanted by the Owner shall become the property of the Contractor and it shall be his responsibility to legally dispose of the material.

Article 66: Use of Areas Behind Curb Line

The Contractor shall not store any material or park any equipment used on this Contract behind the curb line or in the road, without written permission from the Owner. Should any area back of curb become damaged during construction, the Contractor shall be responsible for restoring the area to its original condition as directed by the Owner.

Article 67: Insurance

The Contractor shall carry and keep in force during the term of this Agreement completed operations period insurance as more specifically described in the Contract Documents by a company or companies authorized to do business in Connecticut. The Company shall provide certificates of insurance and endorsements or insurance policies specifying such coverage and naming the Town and its officers, agents, employees and volunteers as additional insured prior to the start of the Work and on an annual basis. In the event of any conflict between the insurance requirements set forth below and insurance requirements set forth in other Contract Documents, the requirements in this Agreement shall control.

The Contractor shall provide the following coverages and minimum limits of insurance:

1) Worker's Compensation Insurance:

Statutory Coverage

Employer's Liability

\$1,000,000 each accident/\$1,000,000 disease-policy limit/\$1,000,000 disease each employee

2) Commercial General Liability:

Including Premises & Operations, Products and Completed Operations, Personal and Advertising Injury, Contractual Liability and Independent Contractors.

Limits of Liability for Bodily Injury and Property Damage

Each Occurrence \$1,000,000

Aggregate \$2,000,000

3) Automobile Insurance:

Including all owned, hired, borrowed and non-owned vehicles and pollution

Limit of Liability for Bodily Injury and Property Damage:

Per Accident \$1,000,000

4) Umbrella

Each Occurrence \$5,000,000

Aggregate Limit \$5,000,000

The Contractor and the Contractor's subcontractors, if any, shall cause the commercial liability coverage required by the Contract Documents to include (1) the Town and its officers, agents, volunteers and employees, as additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Town and its officers, agents, volunteers and employees as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's completed operations. The Contractor shall, before commencement of its Work, submit to the Town evidence of the aforementioned requirements from itself and its subcontractors, if any, in the form of an additional insured endorsement or insurance policy acceptable to the Town. Failure by the Contractor to provide the endorsements required in this section shall entitle the Town to withhold payment from the Contractor then due or to become due until such time as the endorsements or policies are provided. The insurance (both primary and umbrella coverages) of the Contractor and the Contractor's subcontractor's, if any, shall be primary to any insurance that may be available to the Town and its officers, agents, employees and volunteers and any insurance available to the Town and its officers, agents, employees and volunteers is secondary and non-contributory. The policies of insurance or endorsements as provided herein shall state that the insurance of the Contractor and the Contractor's subcontractor's, if any, (both primary and umbrella coverages) shall be primary to any insurance that may be available to the Town and its officers, agents, employees and volunteers and any insurance available to the Town and its officers, agents, employees and volunteers is secondary and non-contributory. The Contractor and the Contractor's subcontractor's, if any, shall cause their insurers to directly provide the Town with thirty (30) days advance notice of cancellation. The Contractor and the Contractor's subcontractor's, if any, shall cause their insurers to directly provide the Town with ten (10) days advance notice of cancellation for non-payment. The insurance obligations provided herein shall survive the termination and/or cancellation and/or full performance of this Agreement

(a) The Contractor shall purchase from and maintain in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located such insurance as will protect the Contractor from claims set forth below which may arise out of or result from the Contractor's operations and completed operations under the Contract and for which the Contractor may be legally liable, whether such operations be by the Contractor or by a Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

1. Claims under workers' compensation, disability benefit and other similar employee benefit acts that are applicable to the Work to be performed;
2. Claims for damages because of bodily injury, occupational sickness or disease, or death of the Contractor's employees;
3. Claims for damages because of bodily injury, sickness or disease, or death of any person other than the Contractor's employees;
4. Claims for damages insured by usual personal injury liability coverage;
5. Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom;
6. Claims for damages because of bodily injury, death of a person or property damage arising out of ownership, maintenance or use of a motor vehicle;
7. Claims for bodily injury or property damage arising out of completed operations; and
8. Claims involving contractual liability insurance applicable to the Contractor's obligations under Section 3.18 and elsewhere in the Contract Documents.
9. Products Liability and Completed Operations, Premises, Personal and Advertising Injury, and Independent Contractor.
10. Professional Liability to the extent the Contractor provides any professional services as may be required by the Contract Documents or required for the Contractor's means, methods and procedures.

(b) The insurance required by this Article shall be written for not less than limits of liability specified in the Contract Documents or required by law, whichever coverage is greater. Coverage's, whether written on an occurrence or claims-made basis, shall be maintained without interruption from the date of commencement of the Work until the date of final payment and termination of any coverage required to be maintained after final payment, and, with respect to the Contractor's completed operations coverage, until the expiration of the period for correction of Work or for such other period for maintenance of completed operations coverage as specified in the Contract Documents.

(c) Certificates of insurance, policy endorsements and insurance policies acceptable to the Owner shall be filed with the Owner prior to commencement of the Work and thereafter upon renewal or replacement of each required policy of insurance. These certificates and the insurance policies and endorsements required by this Article shall contain a provision that coverages afforded under the policies will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner. An additional certificate evidencing continuation of liability coverage, including coverage for completed operations, shall be submitted with the final Application for Payment and thereafter upon renewal or replacement of such coverage until the expiration of the time required by this Agreement.

(d) The Contractor and the Contractor's Subcontractors shall cause the commercial liability coverage required by the Contract Documents to include (1) the Owner, and the Owner's consultants and the agents and employees of any of them as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Owner, the Owner and the Owner's consultants and the agents and employees of any of them as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's completed operations. The Contractor shall, before commencement of its Work, submit to the Owner evidence of the aforementioned requirements from itself and its Subcontractors in the form of an ISO 20 10 11 85 additional insured endorsement or equivalent as determined by the Owner. Failure by the Contractor to provide the Application for Payment then due or to become

due until such time as the endorsements are provided. The insurance of the Contractor and the Contractor's Subcontractor's (both primary and umbrella coverages) shall be primary to any insurance that may be available to the Owner, and the Owner's consultants and the agents and employees of any of them and any insurance available to the Owner, and the Owner's consultants and the agents and employees of any of them is secondary and non-contributory. The policies of insurance or endorsements as provided herein shall state that the insurance of the Contractor and the Contractor's Subcontractor(s) (both primary and umbrella coverages) shall be primary to any insurance that may be available to the Owner and any insurance available to the Owner is secondary and non-contributory. The Contractor and the Contractor's Subcontractor's shall cause their insurers to directly provide the Owner with thirty (30) days advance notice of cancellation. The insurance obligations provided herein shall survive the termination and/or cancellation and/or full performance of this Agreement.

The technical specification for this project shall reference the Connecticut Department of Transportation's (CTDOT) Standard Specifications for Roads, Bridges and Incidental Construction Form 817 and the CTDOT's Bid Item Master List dated July 2017 or the most current version of each. The specifications covered below provide supplemental information pertinent to this project. Items which are part of this project but did not require additional explanation are not listed below but shall conform to the specifications found within Form 817 or its most current version.

FORM 817 SPECIAL PROVISIONS

General	Notice To Contractor – RRFB
General	Notice To Contractor – Global Positioning System (GPS) Coordinates for Signs
Sec 1.05	Control of Work for Permits Only
Sec 1.06	Control of Materials
Sec 1.07	Legal Relations & Responsibilities
Sec 1.08.03	Prosecution and Progress
Sec 2.86	Drainage Trench Excavation, Rock in Drainage Trench Excavation
Sec 4.06	Bituminous Concrete
Sec 5.86	Catch Basins Manholes and Drop Inlets
Sec 6.86	Drainage Pipes and Drainage Pipe Ends
Sec 10.00	General Clauses for Highway Illumination and Traffic Signal Projects
Sec 12.00	General Clauses for Highway Signing
M16.08	Traffic Control Signals

MASTER BID LIST SPECIAL PROVISIONS

ITEM NO.	DESCRIPTION
0100247A	Decorative Signing
0219011A	Sediment Control System at Catch Basin
0401055 A	Portland Cement Concrete Overlay
0401156A	Diamond Grinding
0403873A	Full-Depth Reclamation – Local Roads
0406270A	Milling of Bituminous Concrete 0-6 Inches
0507119A	Granite Curb Catch Basin Inlet
0608001A	Brick Masonry Walls
0653002A	Clean Drainage System
0811005A	Concrete Wheel Stop
0813001A	5" Granite Stone Curbing
0813011A	5" Granite Curved Stone Curbing
0813451A	Granite Stone Transition Curbing
0814001A	Reset Granite Stone Curbing
0814005A	Reset Granite Curved Stone Curbing
0814008A	Reset Granite Stone Transition Curbing
0901005A	Bollard
0914001A	Metal Handrail
0915000A	Tree Protection
0921001A	Concrete Sidewalk
0921002A	Concrete Sidewalks – 8" Thick
0921005A	Concrete Sidewalk Ramp
0921013A	Concrete Driveway Apron
0921034A	Stone Block Sidewalk

0925006A	Relay Bluestone Walk
0944001A	Furnishing and Placing Topsoil
0947207A	Bicycle Rack
0949003A	Furnishing, Planting, and Mulching Trees, Shrubs, Vines, and Ground Cover Plants
0950019A	Turf Establishment
0951005A	Silva Cell
0992090A	Bench
0992103A	Trash Can
1002110A	Decorative Light Pole Foundation
1003914A	Remove Wood Service Pole and Luminaire
1014910A	Utility Relocation
1018030A	Architectural Lighting
1117111A	Rectangular Rapid Flashing Beacon
1206023A	Removal and Relocation of Existing Signs
1208931A	Sign Face – Sheet Aluminum (Type IX Retroreflective Sheeting)
1208932A	Sign Face – Sheet Aluminum (Type Iv Retroreflective Sheeting)
1303201A	Relocate Hydrant (Complete)
1408802A	Electrical Installation and Equipment

NOTICE TO CONTRACTOR - RRFB

The Contractor is hereby notified that certain conditions pertaining to the installation of new RRFB equipment are required when relevant, as part of this contract.

Qualified/Unqualified Workers

U.S. Department of Labor

Occupational Safety & Health Administration (OSHA) www.osha.gov

Part Number 1910

Part Title Occupational Safety & Health Administration

Subpart S

Subpart Title Electrical

Standard Number 1910.333

Title Selection and use of work practices

Completion of this project will require Contractor employees to be near overhead utility lines. All workers and their activities when near utility lines shall comply with the above OSHA regulations. In general, unqualified workers are not allowed within 10 feet of overhead, energized lines. It is the contractor's responsibility to ensure that workers in this area are qualified in accordance with OSHA regulations.

**NOTICE TO CONTRACTOR – GLOBAL POSITIONING SYSTEM (GPS)
COORDINATES FOR SIGNS**

The Contractor shall obtain and provide to the Engineer sign installation data, including Global Positioning System (GPS) latitude and longitude coordinates, for all new State owned and maintained signs. The Engineer shall forward the sign data to the Division of Traffic Engineering for upload into the Highway Sign Inventory and Maintenance Management Program (SIMS). Sign data submissions or questions relating to SIMS or GPS shall be sent to DOT-SignInventory@ct.gov. Refer to the special provision for Section 12.00 General Clauses For Highway Signing.

SECTION 1.05 - CONTROL OF THE WORK

Article 1.05.02 - Plans, Working Drawings and Shop Drawings are supplemented as follows:

Sub article 1.05.02 - (2) is supplemented by the following:

Traffic Signal Items:

When required by the contract documents or when ordered by the Engineer, The Contractor shall prepare and submit product data sheets, working drawings and/or shop drawings for all traffic signal items, except Steel Span Poles and Mast Arm Assemblies when applicable, to the Division of Traffic Engineering for review before fabrication. The packaged set of product data sheets, working drawings and/or shop drawings shall be submitted in an electronic portable document format (.pdf).

The packaged set submitted in an electronic portable document format (.pdf) shall be in an individual file with appropriate bookmarks for each item. The electronic files for product data sheets shall be created on ANSI A (8 ½" x 11"; 216 mm x 279mm; letter) sheets. Working drawings and shop drawings shall be created on ANSI B (11" x 17"; 279 mm x 432 mm; ledger/tabloid) sheets.

Please send the pdf documents via email to:

DOT.TrafficElectrical@ct.gov

SECTION 1.06 CONTROL OF MATERIALS

Article 1.06.01 - Source of Supply and Quality:

Add the following:

Traffic Signal Items:

For the following traffic signal items the contractor shall submit a complete description of the item, shop drawings, product data sheets and other descriptive literature which completely illustrates such items presented for formal review. Such review shall not change the requirements for a certified test report and materials certificate as may be called for. All documents shall be grouped into one separate file for each group of items as indicated by the Roman numerals below (for example, one pdf file for all of the pedestal items). The documents for all of the traffic signal items shall be submitted at one time, unless otherwise allowed by the engineer.

- I. 1107007A – Pedestrian Pushbutton & Sign - Button, Housings & Sign (Piezo)

- II. 1117111A – Rectangular Rapid Flashing Beacon (RRFB) Type B

SECTION 1.07 - LEGAL RELATIONS AND RESPONSIBILITIES

Article 1.07.13 - Contractor's Responsibility for Adjacent Property, Facilities and Services is supplemented as follows:

The following company and representative shall be contacted by the Contractor to coordinate the protection of their utilities on this project 30 days prior to the start of any work on this project involving their utilities:

Mr. Mark Russo (Acting)
District 4 Electrical Supervisor
Department of Transportation
Southbury, Connecticut 06488
(203) 264-9590

Mr. Jim Bitzas,
Sr. Manager of Western New England
Comcast of Connecticut, Inc
1110 East Mountain Road
Westfield, MA 01085
(413) 562-9923 EXT: 5783252

Ms. Lynne DeLucia,
Manager - Engineering & Construction
Frontier Communications of Connecticut
1441 North Colony Road
Meriden, CT 06450-4101
(203) 238-5000

Mr. Eric Clark,
Manager Fiber Construction
Crown Castle Fiber
1781 Highland Avenue, Suite 102
Cheshire, CT 06410
(203) 649-3904

Mr. Daniel J. Garstka,
Senior Engineer - Transmission Siting
Eversource
56 Prospect Street
Hartford, CT 06103
(860) 728-4533

Mr. Jonathan Gould,
Gas Engineer
Connecticut Natural Gas Corporation
76 Meadow Street, 2nd Floor
East Hartford, CT 06108
(860) 727-3044

Mr. Daniel Lesnieski,
Infrastructure Rehabilitation Manager
The Connecticut Water Company
446 Smith Street
Middletown, CT 06457
(860) 292-2834

SECTION 1.08 - PROSECUTION AND PROGRESS

Article 1.08.03 - Prosecution of Work:

Add the following:

The Contractor shall stake the limits of the concrete sidewalks and ramps in conjunction with staking the locations of foundations to ensure that pedestrian push buttons will be located appropriately and will be accessible from a landing area.

The Contractor shall notify the project engineer on construction projects, or the district permit agent on permit jobs, when all traffic signal work is completed. This will include all RRFB work. The project engineer or district permit agent will notify the Division of Traffic Engineering to coordinate a field inspection of all work. Refer to Section 10.00 – General Clauses For Highway Illumination And Traffic Signal Projects, Article 10.00.10 and corresponding special provision.

SECTION 2.86 - DRAINAGE TRENCH EXCAVATION, ROCK IN DRAINAGE TRENCH EXCAVATION

2.86.01—Description

2.86.03—Construction Methods

2.86.04—Method of Measurement

2.86.05—Basis of Payment

2.86.01—Description: Drainage trench excavation consists of the excavation necessary for the proper installation of drainage structures, pipes, pipe ends and any other incidental drainage items.

It shall include earth and rock excavation, removal of existing pipes, dewatering, backfill, and disposal of materials; to the trench limits described herein, to the dimensions shown on the plans, or as directed by the Owner.

Classifications:

- (1) Drainage Trench Excavation will include only the excavation necessary for the construction of the drainage items and the removals specified above.
- (2) Rock in Drainage Trench Excavation, insofar as it applies to drainage trench excavation, shall be defined as 1/2 cubic yard or more in volume of the following obstructions removed from the limits of the drainage trench:
 - (a) rock in definite ledge formation
 - (b) boulders, or portions of boulders
 - (c) cement masonry structures
 - (d) concrete or reinforced concrete structures
 - (e) reinforced concrete pipe
 - (f) subsurface concrete pavement or concrete base

The removal shall be as indicated or directed from within the limits defined in 2.86.03 for drainage trench excavation.

2.86.03—Construction Methods:

- (1) Drainage Trench Excavation Limits:

Horizontal Limits: Trench widths for pipes, pipe ends, pipe-arches, and drainage structures shall be as follows:

- (a) 2 feet greater than the nominal inside diameter of circular pipe or nominal inside span of elliptical pipe or pipe-arch for such diameters or spans of less than 30 inches
- (b) 3 feet greater than the nominal inside diameter of circular pipe or the nominal inside span of elliptical pipe or pipe-arch for such diameters or spans that are 30 inches or greater
- (c) 4 feet greater than the nominal inside diameter or nominal horizontal inside span for pipe-arches fabricated from structural plates
- (d) 2 feet beyond the neat lines of all exterior or foundation walls of drainage structures

Vertical Limits: Trench depths shall extend vertically as follows:

- (a) From the bottom of the trench to the bottom of the roadway excavation, or in areas away from roadway excavation, to the top of existing ground surface.
- (b) Where drainage pipe is to be laid in a fill area, the embankment shall be placed and compacted to a minimum elevation 12 inches above the top of the proposed pipe, whereupon the drainage trench excavation shall be performed and the pipe installed.

(2) Drainage Trench Excavation: Drainage trench excavation shall be made in conformity with the requirements of the plans, or as directed by the Owner. The Contractor shall furnish and employ such shores, braces, pumps, or ancillary equipment as needed for the proper protection of property, proper completion of the work, as well as safety of the public and employees of both the Contractor and the Department. All bracing and shoring shall be removed when no longer required for the construction or safety of the work. When required, the

Contractor shall provide or have on the Site at all times any OSHA certification for equipment to be used, per 1.07.07. For support of trenches greater than 10 feet in depth, working drawings shall be submitted, in accordance with 1.05.02. The Contractor shall control erosion and sedimentation at trench locations and ensure that pumped water from the drainage excavation is discharged in accordance with the requirements of 1.10.

Where a firm foundation is not encountered at the grades established due to unsuitable material, such as soft, spongy, or unstable soil, the unsuitable material shall be removed and replaced with approved backfill, thoroughly compacted in lifts not to exceed 6 inches, for the full trench width. The Owner shall be notified prior to removal of the unsuitable material in order to determine the depth of removal necessary.

After the excavation is complete, the Contractor shall notify the Owner and no drainage structure or material shall be placed in the excavated area until the Owner has approved the depth of excavation and the character of the foundation material.

(3) Rock in Drainage Trench Excavation:

(a) Rock in Drainage Trench Excavation - Ledge: When rock in definite ledge form is encountered, the Contractor shall excavate a minimum of 12 inches below the bottom of the proposed pipe or drainage structure; and this depth shall be filled with bedding material (as specified in M.08.03-1) below the proposed pipe; or granular fill (as specified in M.02.01) below the proposed drainage structure, which shall be thoroughly compacted in lifts not to exceed 6 inches.

(b) Rock in Drainage Trench Excavation - Boulders: When boulders are encountered, the Contractor shall remove them from the trench and if backfill is required, the void shall be filled with bedding material, surplus excavated material (as specified in 2.02.03-8) or granular fill which shall be thoroughly compacted in lifts not to exceed 6 inches.

(c) Rock in Drainage Trench Excavation –Structures: When cement masonry, concrete or reinforced concrete structures are encountered within the drainage trench limits, the Contractor shall remove the structure in its entirety or as directed by the Owner, and if backfill is required, the void shall be filled with bedding material, surplus excavated material or granular fill which shall be thoroughly compacted in lifts not to exceed 6 inches.

(4) Backfill: Suitable material excavated from the drainage trench shall be used as backfill material prior to consideration of using any other source of backfill. Backfill material used shall be of a quality satisfactory to the Owner and shall be free from large or frozen lumps, wood and other extraneous material. Rock fill or stones larger than 5 inches shall not be placed within 1 foot of the drainage structure or pipe. The grading shall be completed to the lines shown on the plans, or as ordered, by refilling to the required elevation with approved material, placed in layers not to exceed 6 inches in depth after compaction, which shall be thoroughly compacted with equipment approved by the Owner.

All surplus or unsuitable material shall be removed and disposed of as directed. Should additional material be required for backfilling, it may be obtained from the Project surplus excavation in accordance with 2.02.03-8 or from borrow pits, gravel pits, or elsewhere as directed by the Owner.

2.86.04—Method of Measurement:

Drainage Trench Excavation: Drainage trench excavation will not be measured for payment. If granular fill or borrow is required to replace unsuitable material it will be measured for payment as directed by the Owner.

Rock in Drainage Trench Excavation: If any material meeting the definition of Rock in Drainage Trench Excavation is encountered, the Contractor shall strip it of sufficient overlying material to allow for proper measurement and shall then notify the Owner that the rock surface is ready for measurement. If the Contractor fails to give such notice, the Owner will presume that the measurements taken at the time the Owner first saw the material in question will give the true quantity of excavation.

Rock in Drainage Trench Excavation will be measured according to the classification provided in 2.86.01 and within the drainage trench excavation limits provided in 2.86.03.

For the removal of underground obstructions, as classified in 2.86.01-2, the measurement shall be the actual volume of rock removed (1/2 cubic yard or more) as approved by the Owner.

Rock in Drainage Trench Excavation will not be measured for payment in fills.

Bedding Material or other suitable fill, as specified in 2.86.03(3), used to fill voids after rock is excavated will not be measured for payment.

2.86.05—Basis of Payment:

Drainage Trench Excavation: There will be no direct payment for drainage trench excavation required for the installation of drainage pipes, pipe ends, catch basins, drop inlets, manholes, and other drainage structures, or any other incidental drainage work including materials, tools, equipment and labor necessary to complete the drainage trench excavation in conformity with the plans or as directed by the Owner.

There will be no direct payment for backfill or disposal of surplus material necessary for the satisfactory completion of this work.

There will be no direct payment made for shoring, bracing, dewatering, or for material or equipment necessary for the satisfactory completion of the work.

Where called for on the plans to install temporary earth retaining systems for the support of existing facilities, pavement, utilities, or for other constraints, payment will be made in accordance with such items in the Contract.

If granular fill or borrow is used to replace unsuitable material, payment will be made at the respective Contract unit prices, or in the absence of such items in the Contract, as Extra Work in accordance with 1.04.05.

Rock in Drainage Trench Excavation: When rock, conforming to the description in 2.86.01 is encountered within the limits of drainage trench excavation, its removal will be classified and paid for at the Contract unit price per cubic yard for "Rock in Drainage Trench Excavation 0' – 10' Deep," or "Rock in Drainage Trench Excavation 0' – 20' Deep," as the case may be.

Those portions of drainage trench excavation classified and paid for as "Rock in Drainage Trench Excavation" of the various depths will be the actual volumes of rock excavated within the limits for drainage trench excavation, at the applicable bottom depth price.

Where no item or items for "Rock in Drainage Trench Excavation" at the applicable depth appear in the proposal and rock is encountered in drainage trench excavation, its removal will be paid for as Extra Work in accordance with 1.04.05.

When excavation is necessary in fill, no such excavation will be paid for as "Rock in Drainage Trench Excavation."

When excavation is necessary for any purpose other than drainage-related items, no such excavation will be paid under this item.

Bedding material or any other suitable material used to fill voids vacated by excavated rock will not be paid for but shall be included in the unit price per cubic yard for "Rock in Drainage Trench Excavation."

Pay Item	Pay Unit
Rock in Drainage Trench Excavation 0' - 10' Deep	c.y.
Rock in Drainage Trench Excavation 0' - 20' Deep	c.y.

SECTION 4.06 - BITUMINOUS CONCRETE

Section 4.06 is being deleted in its entirety and replaced with the following:

4.06.01—Description

4.06.02—Materials

4.06.03—Construction Methods

- 1. Material Documentation**
- 2. Transportation of Mixture**
- 3. Paving Equipment**
- 4. Test Section**
- 5. Transitions for Roadway Surface**
- 6. Spreading and Finishing of Mixture**
- 7. Longitudinal Joint Construction Methods**
- 8. Contractor Quality Control (QC) Requirements**
- 9. Temperature and Seasonal Requirements**
- 10. Field Density**
- 11. Acceptance Sampling and Testing**
- 12. Density Dispute Resolution Process**
- 13. Corrective Work Procedure**
- 14. Protection of the Work**
- 15. Cut Bituminous Concrete Pavement**

4.06.04—Method of Measurement

4.06.05—Basis of Payment

4.06.01—Description: Work under this Section shall include the production, delivery, placement and compaction of a uniform textured, non-segregated, smooth bituminous concrete pavement to the grade and cross section shown on the plans.

The following terms as used in this specification are defined as:

Bituminous Concrete: A composite material consisting of prescribed amounts of asphalt binder and aggregates. Asphalt binder may also contain additives engineered to modify specific properties and/or behavior of the composite material. References to bituminous concrete apply to all of its forms, such as those identified as hot-mix asphalt (HMA) or polymer-modified asphalt (PMA).

Bituminous Concrete Plant (Plant): A structure where aggregates and asphalt binder are combined in a controlled fashion into a bituminous concrete mixture suitable for forming pavements and other paved surfaces.

Course: A continuous layer (a lift or multiple lifts) of the same bituminous concrete mixture placed as part of the pavement structure.

Density Lot: The total tonnage of all bituminous concrete placed in a single lift which are:

PWL density lots = When the project total estimated quantity per mixture is larger than 3,500 tons

Simple Average density lots = When the project total estimated quantity per mixture is 3,500 tons or less

Disintegration: Erosion or fragmentation of the pavement surface which can be described as polishing, weathering-oxidizing, scaling, spalling, raveling, or formation of potholes.

Dispute Resolution: A procedure used to resolve conflicts between the Owner and the Contractor's results that may affect payment.

Hot Mix Asphalt (HMA): A bituminous concrete mixture typically produced at 325°F.

Job Mix Formula (JMF): A recommended aggregate gradation and asphalt binder content to achieve the required mixture properties.

Lift: An application of a bituminous concrete mixture placed and compacted to a specified thickness in a single paver pass.

Percent Within Limits (PWL): The percentage of the lot falling between the Upper Specification Limit (USL) and the Lower Specification Limit (LSL).

Polymer Modified Asphalt (PMA): A bituminous concrete mixture containing a polymer-modified asphalt binder and using a qualified warm mix technology.

Production Lot: The total tonnage of a bituminous concrete mixture from a single source that may receive an adjustment.

Production Sub Lot: Portion of the production lot typically represented by a single sample.

Quality Assurance (QA): All those planned and systematic actions necessary to provide CTDO the confidence that a Contractor will perform the work as specified in the Contract.

Quality Control (QC): The sum total of activities performed by the vendor (Producer, Manufacturer, and Contractor) to ensure that a product meets contract specification requirements.

Superpave: A bituminous concrete mix design used in mixtures designated as "S*" Where "S" indicates Superpave and * indicates the sieve related to the nominal maximum aggregate size of the mix.

Segregation: A non-uniform distribution of a bituminous concrete mixture in terms of gradation, temperature, or volumetric properties.

Warm Mix Asphalt (WMA) Technology: A qualified additive or technology that may be used to produce a bituminous concrete at reduced temperatures and/or increase workability of the mixture.

4.06.02—Materials: All materials shall meet the requirements of Section M.04.

1. Materials Supply: The bituminous concrete mixture must be from one source of supply and originate from one Plant unless authorized by the Owner.

2. Recycled Materials: Reclaimed Asphalt Pavement (RAP), Crushed Recycled Container Glass (CRCG), Recycled Asphalt Shingles (RAS), or crumb rubber (CR) from recycled tires may be incorporated in bituminous concrete mixtures in accordance with Project Specifications.

4.06.03—Construction Methods

1. Material Documentation: All vendors producing bituminous concrete must have Plants with automated vehicle-weighing scales, storage scales, and material feeds capable of producing a delivery ticket containing the information below.

- a. State of Connecticut printed on ticket.
- b. Name of Producer, identification of Plant, and specific storage silo if used.
- c. Date and time.
- d. Mixture Designation, mix type and level. Curb mixtures for machine-placed curbing must state "curb mix only."
- e. If WMA Technology is used, "-We" must be listed following the mixture designation.
- f. Net weight of mixture loaded into the vehicle. (When RAP and/or RAS is used, the moisture content shall be excluded from mixture net weight.)
- g. Gross weight (equal to the net weight plus the tare weight or the loaded scale weight).
- h. Tare weight of vehicle (daily scale weight of the empty vehicle).
- i. Project number, purchase order number, name of Contractor (if Contractor other than Producer).
- j. Vehicle number - unique means of identification of vehicle.
- k. For Batch Plants: individual aggregate, recycled materials and virgin asphalt max/target/min weights when silos are not used.
- l. For every mixture designation: the running daily and project total delivered and sequential load number.

The net weight of mixture loaded into the vehicle must be equal to the cumulative measured weights of its components.

The Contractor must notify the Owner immediately if, during production, there is a malfunction of the weight recording system in the automated Plant. Manually written tickets containing all required information will be allowed for no more than 1 hour.

The State reserves the right to have an Inspector present to monitor batching and/or weighing operations.

2. Transportation of Mixture: The mixture shall be transported in vehicles that are clean of all foreign material, excessive coating or cleaning agents, and that have no gaps through which material might spill. Any material spilled during the loading or transportation process shall be quantified by re-weighing the vehicle. The Contractor shall load vehicles uniformly so that segregation is minimized. Loaded vehicles shall be tightly covered with waterproof covers acceptable to the Owner. Mesh covers are prohibited. The cover must minimize air infiltration. Vehicles found not to be in conformance shall not be loaded

Vehicles with loads of bituminous concrete being delivered to State projects must not exceed the statutory or permitted load limits referred to as gross vehicle weight (GVW). The Contractor shall furnish a list and allowable weights of all vehicles transporting mixture. The State reserves the right to check the gross and tare weight of any vehicle. If the gross or tare weight varies from that shown on the delivery ticket by more than 0.4%, the Owner will recalculate the net weight. The Contractor shall correct the discrepancy to the satisfaction of the Owner.

If a vehicle delivers mixture to the Project and the delivery ticket indicates that the vehicle is overweight, the load may not be rejected but a "Measured Weight Adjustment" will be taken in accordance with Article 4.06.04.

Vehicle body coating and cleaning agents must not have a deleterious effect on the mixture. The use of solvents or fuel oil, in any concentration, is prohibited for the coating of vehicle bodies.

For each delivery, the Owner shall be provided a clear, legible copy of the delivery ticket.

3. Paving Equipment: The Contractor shall have the necessary paving and compaction equipment at the Project Site to perform the work. All equipment shall be in good working order and any equipment that is worn, defective, or inadequate for performance of the work shall be repaired or replaced by the Contractor to the satisfaction of the Owner. During the paving operation, the use of solvents or fuel oil, in any concentration, is strictly prohibited as a release agent or cleaner on any paving equipment (i.e., rollers, pavers, transfer devices, etc.).

Refueling or cleaning of equipment is prohibited in any location on the Project where fuel or solvents might come in contact with paved areas or areas to be paved. Solvents used in cleaning mechanical equipment or hand tools shall be stored clear of areas paved or to be paved. Before any such equipment and tools are cleaned, they shall be moved off of areas paved or to be paved.

Pavers: Each paver shall have a receiving hopper with sufficient capacity to provide for a uniform spreading operation and a distribution system that places the mix uniformly, without segregation. The paver shall be equipped with and use a vibratory screed system with heaters or burners. The screed system shall be capable of producing a finished surface of the required evenness and texture without tearing, shoving, or gouging the mixture. Pavers with extendible screed units as part of the system shall have auger extensions and tunnel extenders as necessary. Automatic screed controls for grade and slope shall be used at all times unless otherwise authorized by the Owner. The controls shall automatically adjust the screed to compensate for irregularities in the preceding course or existing base. The controls shall maintain the proper transverse slope and be readily adjustable, and shall operate from a fixed or moving reference such as a grade wire or floating beam (minimum length 20 feet).

Rollers: All rollers shall be self-propelled and designed for compaction of bituminous concrete. Roller types shall include steel wheeled, pneumatic, or a combination thereof. Rollers that operate in a dynamic mode shall have drums that use a vibratory or oscillatory system or combination. Vibratory rollers shall be equipped with indicators for amplitude, frequency, and speed settings/readouts to measure the impacts per foot during the compaction process.

Oscillatory rollers shall be equipped with frequency indicators. Rollers can operate in the dynamic mode using the oscillatory system on concrete structures such as bridges and catch basins if at the lowest frequency setting.

Pneumatic tire rollers shall be equipped with wide-tread compaction tires capable of exerting an average contact pressure from 60 to 90 psi uniformly over the surface. The Contractor shall furnish documentation to the Owner regarding tire size, pressure and loading to confirm that the proper contact pressure is being developed and that the loading and contact pressure are uniform for all wheels.

Lighting: For paving operations which will be performed during hours of darkness the paving equipment shall be equipped with lighting fixtures as described below or with an approved equal. Lighting shall minimize glare to passing traffic. The lighting options and minimum number of fixtures are listed in Tables 4.06-1 and 4.06-2.

TABLE 4.06-1: Minimum Paver lighting

Option	Fixture Configuration	Fixture Quantity	Requirement
1	Type A	3	Mount over screed area
	Type B (narrow) or Type C (spot)	2	Aim to auger and guideline
	Type B (wide) or Type C (flood)	2	Aim 25 feet behind paving machine
2	Type D Balloon	2	Mount over screed area

TABLE 4.06-2: Minimum Roller Lighting

Option	Fixture Configuration	Fixture Quantity	Requirement
1	Type B (wide)	2	Aim 50 feet in front of and behind roller
	Type B (narrow)	2	Aim 100 feet in front of and behind roller
2	Type C (flood)	2	Aim 50 feet in front of and behind roller
	Type C (spot)	2	Aim 100 feet in front of and behind roller
3	Type D Balloon	1	Mount above the roller

*All fixtures shall be mounted above the roller.

Type A: Fluorescent fixture shall be heavy duty industrial type. Each fixture shall have a minimum output of 8,000 lumens. The fixtures shall be mounted horizontally and be designed for continuous row installation.

Type B: Each floodlight fixture shall have a minimum output of 18,000 lumens.

Type C: Each fixture shall have a minimum output of 19,000 lumens.

Type D: Balloon light – each balloon light fixture shall have minimum output of 50,000 lumens and emit light equally in all directions.

Material Transfer Vehicle (MTV): A MTV shall be used when placing bituminous concrete surface course (a lift or multiple lifts) as indicated in the Contract except as noted on the plans or as directed by the Owner. In addition, continuous paving lengths of less than 500 feet may not require the use of a MTV as determined by the Owner.

The MTV must be a vehicle specifically designed for the purpose of delivering the bituminous concrete mixture from the delivery vehicle to the paver. The MTV must continuously remix the bituminous concrete mixture throughout the placement process.

The use of a MTV will be subject to the requirements stated in Article 1.07.05 Load Restrictions. The Owner may limit the use of the vehicle if it is determined that the use of the

MTV may damage highway components, utilities, or bridges. The Contractor shall submit to the Owner at time of pre-construction the following information:

1. The make and model of the MTV.
2. The individual axle weights and axle spacing for each piece of paving equipment (haul vehicle, MTV and paver).
3. A working drawing showing the axle spacing in combination with all pieces of equipment that will comprise the paving echelon.

4. Test Section: The Owner may require the Contractor to place a test section whenever the requirements of this specification or Section M.04 are not met.

The Contractor shall submit the quantity of mixture to be placed and the location of the test section for review and approval by the Owner. The same equipment used in the construction of a passing test section shall be used throughout production.

If a test section fails to meet specifications, the Contractor shall stop production, make necessary adjustments to the job mix formula, Plant operations, or procedures for placement and compaction. The Contractor shall construct test sections, as allowed by the Owner, until all the required specifications are met. All test sections shall also be subject to removal as set forth in Article 1.06.04.

5. Transitions for Roadway Surface: Transitions shall be formed at any point on the roadway where the pavement surface deviates, vertically, from the uniform longitudinal profile as specified on the plans. Whether formed by milling or by bituminous concrete mixture, all transition lengths shall meet the criteria below unless otherwise specified.

Permanent Transitions: Defined as any gradual change in pavement elevation that remains as a permanent part of the work.

A transition shall be constructed no closer than 75 feet from either side of a bridge expansion joint or parapet. All permanent transitions, leading and trailing ends shall meet the following length requirements:

Posted Speed Limit	Permanent Transition Length Required
> 35 mph	30 feet per inch of elevation change
35 mph or less	15 feet per inch of elevation change

In areas where it is impractical to use the above-described permanent transition lengths, the use of a shorter permanent transition length may be permitted when approved by the Owner.

Temporary Transitions: Defined as a transition that does not remain a permanent part of the work.

All temporary transitions shall meet the following length requirements:

Posted Speed Limit	Temporary Transition Length Required
> 50 mph	Leading Transition: 15 feet per inch of vertical change (thickness) Trailing Transition: 6 feet per inch of vertical change (thickness)
40, 45 or 50 mph	Leading and Trailing: 4 feet per inch of vertical change (thickness)
35 mph or less	Leading and Trailing: 3 feet per inch of vertical change (thickness)

Note: Any temporary transition to be in place over the winter shutdown period or during extended periods of inactivity (more than 14 calendar days) shall meet the greater than 50 mph requirements shown above.

6. Spreading and Finishing of Mixture: Prior to the placement of the mixture, the underlying base course shall be brought to the plan grade and cross section within the allowable tolerance.

Immediately before placing a bituminous concrete lift, a uniform coating of tack coat shall be applied to all existing underlying pavement surfaces and on the exposed surface of a wedge joint. Such surfaces shall be clean and dry. Sweeping or other means acceptable to the Owner shall be used.

The mixture shall not be placed whenever the surface is wet or frozen.

Tack Coat Application: The tack coat shall be applied by a pressurized spray system that results in uniform overlapping coverage at an application rate of 0.03 to 0.05 gal./s.y. for a non-milled surface and an application rate of 0.05 to 0.07 gal./s.y. for a milled surface. For areas where both milled and un-milled surfaces occur, the tack coat shall be an application rate of 0.03 to 0.05 gal /s.y. The Owner must approve the equipment and the method of measurement prior to use. The material for tack coat shall be heated to 160°F ± 10°F and shall not be further diluted.

Tack coat shall be allowed sufficient time to break prior to any paving equipment or haul vehicles driving on it.

The Contractor may request to omit the tack coat application between bituminous concrete layers that have not been exposed to traffic and are placed during the same work shift. Requests to omit tack coat application on the upper and lower surfaces of a wedge joint will not be considered.

Placement: The mixture shall be placed and compacted to provide a smooth, dense surface with a uniform texture and no segregation at the specified thickness and dimensions indicated in the plans and specifications.

When unforeseen weather conditions prevent further placement of the mixture, the Owner is not obligated to accept or place the bituminous concrete mixture that is in transit from the Plant.

In advance of paving, traffic control requirements shall be set up, maintained throughout placement, and shall not be removed until all associated work including density testing is completed.

The mixture temperature will be verified by means of a probe or infrared type of thermometer. The placement temperature range shall be listed in the quality control plan (QCP) for placement and meet the requirements of Table M.04.03-4. Any HMA material that falls outside the specified temperature range as measured by a probe thermometer may be rejected.

The Contractor shall inspect the newly placed pavement for defects in mixture or placement before rolling is started. Any deviation from standard crown or section shall be immediately remedied by placing additional mixture or removing surplus mixture. Such defects shall be corrected to the satisfaction of the Owner.

Where it is impracticable due to physical limitations to operate the paving equipment, the Owner may permit the use of other methods or equipment. Where hand spreading is permitted, the mixture shall be placed by means of suitable shovels and other tools, and in a uniformly loose layer at a thickness that will result in a completed pavement meeting the designed grade and elevation.

Placement Tolerances: Each lift of bituminous concrete placed at a specified thickness shall meet the following requirements for thickness and area. Any pavement exceeding these limits shall be subject to an adjustment or removal. Lift tolerances will not relieve the Contractor from meeting the final designed grade. Lifts of specified non-uniform thickness, i.e. wedge or shim course, shall not be subject to thickness and area adjustments.

- a) Thickness: Where the average thickness of the lift exceeds that shown on the plans beyond the tolerances shown in Table 4.06-3, the Owner will calculate the thickness adjustment in accordance with Article 4.06.04.

TABLE 4.06-3: Thickness Tolerances

Mixture Designation	Lift Tolerance
S1	+/- 3/8 inch
S0.25, S0.375, S0.5	+/- 1/4 inch

Where the thickness of the lift of mixture is less than that shown on the plans beyond the tolerances shown in Table 4.06-3, the Contractor, with the approval of the Owner, shall take corrective action in accordance with this Section.

- b) Area: Where the width of the lift exceeds that shown on the plans by more than the specified thickness, the Owner will calculate the area adjustment in Article 4.06.04.
- c) Delivered Weight of Mixture: When the delivery ticket shows that the truck exceeds the allowable gross weight for the vehicle type, the Owner will calculate the weight adjustment in accordance with Article 4.06.04.

Transverse Joints: All transverse joints shall be formed by saw-cutting to expose the full thickness of the lift. Tack coat shall be applied to the sawn face immediately prior to additional mixture being placed.

Compaction: The Contractor shall compact the mixture to meet the density requirements as stated in Article 4.06.04 and eliminate all roller marks without displacement, shoving cracking, or aggregate breakage.

When placing a lift with a specified thickness less than 1 1/2 inches, or a wedge course, the Contractor shall provide a minimum rolling pattern as determined by the development of a compaction curve. The procedure to be used shall be documented in the Contractor's QCP for placement and demonstrated on the first day of placement.

The use of the vibratory system on concrete structures is prohibited. When approved by the Owner, the Contractor may operate a roller using an oscillatory system at the lowest frequency setting.

If the Owner determines that the use of compaction equipment in the dynamic mode may damage highway components, utilities or adjacent property, the Contractor shall provide alternate compaction equipment.

Rollers operating in the dynamic mode shall be shut off when changing directions.

These allowances will not relieve the Contractor from meeting pavement compaction requirements.

Surface Requirements:

Each lift of the surface course shall not vary more than 1/4 inch from a Contractor-supplied 10 foot straightedge. For all other lifts of bituminous concrete, the tolerance shall be 3/8 inch. Such tolerance will apply to all paved areas.

Any surface that exceeds these tolerances shall be corrected by the Contractor at its own expense.

7. Longitudinal Joint Construction Methods: The Contractor shall use Method I - Notched Wedge Joint (see Figure 4.06-1) when constructing longitudinal joints where lift thicknesses are 1 1/2 inches to 3 inches. S1.0 mixtures shall be excluded from using Method I. Method II - Butt Joint (see Figure 4.06-2) shall be used for lifts less than 1 1/2 inches or greater than 3 inches. Each longitudinal joint shall maintain a consistent offset from the centerline of the roadway along its entire length. The difference in elevation between the two faces of any completed longitudinal joint shall not exceed 1/4 inch at any location.

Method I - Notched Wedge Joint:

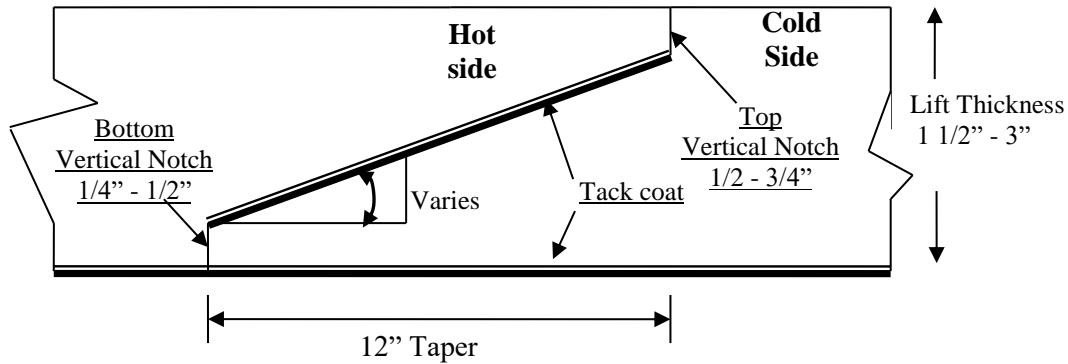
A notched wedge joint shall be constructed as shown in Figure 4.06-1 using a device that is attached to the paver screed and is capable of independently adjusting the top and bottom vertical notches. The device shall have an integrated vibratory system. The top vertical notch must be located at the centerline or lane line in the final lift. The requirement for paving full width "curb to curb" as described in Method II may be waived if addressed in the QC plan and approved by the Owner.

The taper portion of the wedge joint shall be evenly compacted using equipment other than the paver or notch wedge joint device. The compaction device shall be the same width as the taper and not reduce the angle of the wedge or ravel the top notch of the joint during compaction.

When placed on paved surfaces, the area below the sloped section of the joint shall be treated with tack coat. The top surface of the sloped section of the joint shall be treated with tack coat prior to placing the completing pass.

The taper portion of the wedge joint shall not be exposed to traffic for more than 5 calendar days.

Figure 4.06-1: Notched Wedge Joint (Not to Scale)



Any exposed wedge joint must be located to allow for the free draining of water from the road surface.

The Owner reserves the right to define the paving limits when using a wedge joint that will be exposed to traffic.

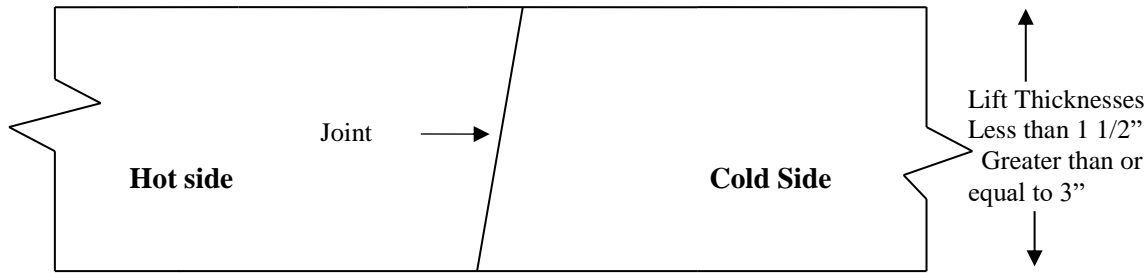
If Method I cannot be used on those lifts which are 1 1/2 inches to 3 inches, Method III may be substituted according to the requirements below for "Method III - Butt Joint with Hot Poured Rubberized Asphalt Treatment."

Method II - Butt Joint:

When adjoining passes are placed, the Contractor shall use the end gate to create a near vertical edge (refer to Figure 4.06-2). The completing pass (hot side) shall have sufficient mixture so that the compacted thickness is not less than the previous pass (cold side). During placement of multiple lifts, the longitudinal joint shall be constructed in such a manner that it is located at least 6 inch from the joint in the lift immediately below. The joint in the final lift shall be at the centerline or at lane lines. The end gate on the paver should be set so there is an overlap onto the cold side of the joint.

The Contractor shall not allow any butt joint to be incomplete at the end of a work shift unless otherwise allowed by the Owner. When using this method, the Contractor is not allowed to leave a vertical edge exposed at the end of a work shift and must complete paving of the roadway full width "curb to curb."

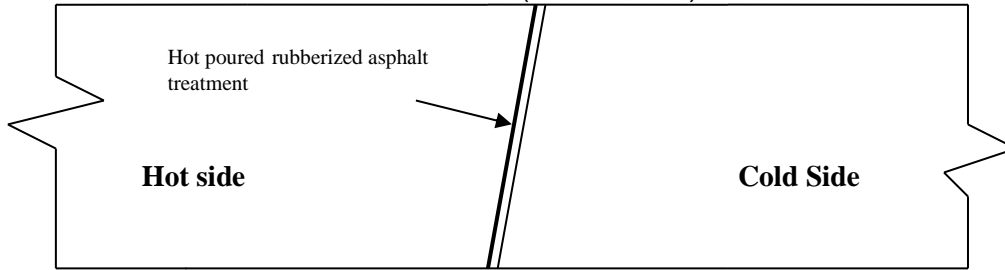
Figure 4.06-2: Butt Joint (Not to Scale)



Method III - Butt Joint with Hot Poured Rubberized Asphalt Treatment:

If Method I cannot be used due to physical constraints in certain limited locations, the Contractor may submit a request in writing for approval by the Owner to use Method III as a substitution in those locations. There shall be no additional measurement or payment made when Method III is substituted for Method I. When required by the Contract or approved by the Owner, Method III (see Figure 4.06-3) shall be used.

Figure 4.06-3: Butt Joint with Hot Poured Rubberized Asphalt Treatment
(Not to Scale)



All of the requirements of Method II must be met with Method III. In addition, the longitudinal vertical edge must be treated with a rubberized joint seal material meeting the requirements of ASTM D6690, Type 2. The joint sealant shall be placed on the face of the “cold side” of the butt joint as shown above prior to placing the “hot side” of the butt joint. The joint seal material shall be applied in accordance with the manufacturer’s recommendation so as to provide a uniform coverage and avoid excess bleeding onto the newly placed pavement.

8. Contractor Quality Control (QC) Requirements: The Contractor shall be responsible for maintaining adequate quality control procedures throughout the production and placement operations. Therefore, the Contractor must ensure that the materials, mixture, and work provided by Subcontractors, Suppliers, and Producers also meet Contract specification requirements.

This effort must be documented in Quality Control Plans (QCP) and must address the actions, inspection, or sampling and testing necessary to keep the production and placement operations in control, to determine when an operation has gone out of control and to respond to correct the situation in a timely fashion.

The Standard QCP for production shall consist of the quality control program specific to the production facility.

There are 3 components to the QCP for placement: a Standard QCP, a Project Summary Sheet that details Project-specific information, and, if applicable, a separate Extended Season Paving Plan as required in 4.06.03-9 “Temperature and Seasonal Requirements.”

The Standard QCP for both production and placement shall be submitted to the Department for approval each calendar year and at a minimum of 30 days prior to production or placement.

Production or placement shall not occur until all QCP components have been approved by the Owner.

Each QCP shall include the name and qualifications of a Quality Control Manager (QCM). The QCM shall be responsible for the administration of the QCP, and any modifications that may become necessary.

The QCM shall have the ability to direct all Contractor personnel on the Project during paving operations.

The QCPs shall also include the name and qualifications of any outside testing laboratory performing any QC functions on behalf of the Contractor. The QC Technician performing in-place density testing shall be NETTCP certified as a paving inspector.

Approval of the QCP does not relieve the Contractor of its responsibility to comply with the Project specifications. The Contractor may modify the QCPs as work progresses and must document the changes in writing prior to resuming operations. These changes include but are not limited to changes in quality control procedures or personnel. The Department reserves the right to deny significant changes to the QCPs.

QCP for Production: Refer to M.04.03-1.

QCP for Placement: The Standard QCP, Project Summary Sheet, and Extended Season Paving Plan shall conform to the format provided by the Owner. The format is available at http://www.ct.gov/dot/lib/dot/documents/dconstruction/pat/gcp_outline_hma_placement.pdf

The Contractor shall perform all quality control sampling and testing, provide inspection, and exercise management control to ensure that bituminous concrete placement conforms to the requirements as outlined in its QCP during all phases of the work. The Contractor shall document these activities for each day of placement.

The Contractor shall submit complete field density testing and inspection records to the Owner within 48 hours in a manner acceptable to the Owner.

The Contractor may obtain 1 mat core and 1 joint core per day for process control, provided this process is detailed in the QCP. The results of these process control cores shall not be used to dispute the Department's determinations from the acceptance cores. The Contractor shall submit the location of each process control core to the Owner for approval prior to taking the core. The core holes shall be filled to the same requirements described in Sub article 4.06.03-10.

9. Temperature and Seasonal Requirements: Paving, including placement of temporary pavements, shall be divided into 2 seasons, "In-Season" and "Extended-Season." In-Season paving occurs from May 1 to October 14, and Extended Season paving occurs from October 15 to April 30. The following requirements shall apply unless otherwise authorized or directed by the Owner:

- Mixtures shall not be placed when the air or subbase temperature is less than 40°F regardless of the season.
- Should paving operations be scheduled during the Extended Season, the Contractor must submit an Extended Season Paving Plan for the Project that addresses minimum delivered mix temperature considering WMA, PMA, or other additives; maximum paver speed; enhanced rolling patterns; and the method to balance mixture delivery and placement operations. Paving during Extended Season shall not commence until the Owner has approved the plan.

10. Field Density The Contractor shall obtain cores for the determination of mat and longitudinal joint density of bituminous concrete pavements. Within five calendar days of placement, mat and joint cores shall be extracted on each lift with a specified thickness of 1 1/2 inches or more. Joint cores shall not be extracted on HMA S1.0 lifts.

The Contractor shall extract cores from random locations determined by the Owner in accordance with ASTM D3665. Four (4) or six (6) inch diameter cores shall be extracted for S0.25, S0.375 and S0.5 mixtures; 6 inch diameter cores shall be required for S1.0 mixtures. The Contractor shall coordinate with the Owner to witness the extraction, labeling of cores, and filling of the core holes.

Each lift will be separated into lots as follows:

- a. Simple Average Density Lots: For total estimated quantities below 2,000 tons, the lift will be evaluated in one lot which will include the total paved tonnage of the lift and all longitudinal joints between the curb lines.
For total estimated quantities between 2,000 and 3,500 tons, the lift will be evaluated in two lots in which each lot will include approximately half of the total tonnage placed for the full paving width of a lift including all longitudinal joints between the curb lines.
- b. PWL Density Lots: Mat density lots will include each 3,500 tons of mixture placed within 30 calendar days. Joint density lots will include 14,000 linear feet of constructed joints. Bridge density lots will always be analyzed using simple average lot methodology.
- c. Partial Density Lot (For PWL only): A mat density lot with less than 3,500 tons or a joint density lot with less than 14,000 linear feet due to:
 - completion of the course; or
 - a lot spanning 30 calendar days.

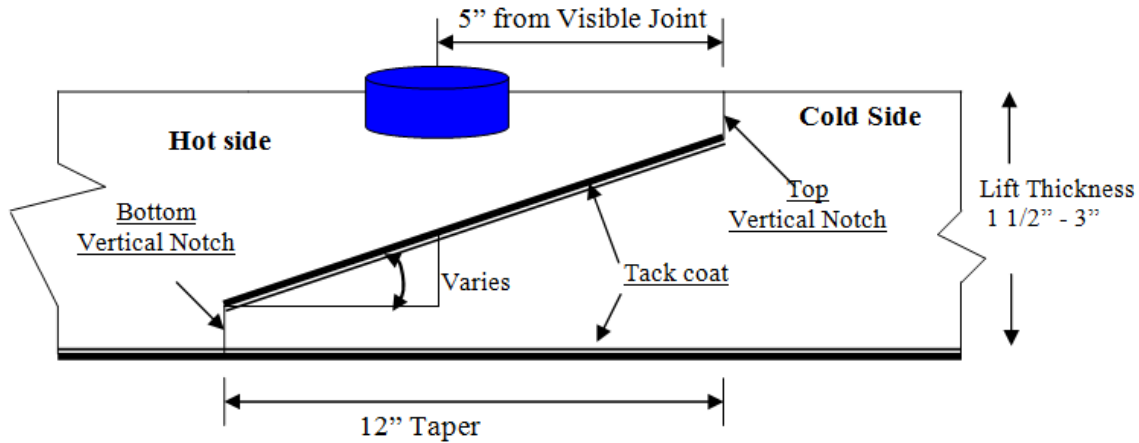
Prior to paving, the type and number of lot(s) will be determined by the Owner. Noncontiguous areas such as highway ramps may be combined to create one lot.

After the lift has been compacted and cooled, the Contractor shall cut cores to a depth equal to or greater than the lift thickness and shall remove them without damaging the lift(s) to be tested. Any core that is damaged or obviously defective while being obtained will be replaced with a new core from a location within 2 feet measured in a longitudinal direction.

A mat core shall not be located any closer than 1 foot from the edge of a paver pass. If a random number locates a core less than 1 foot from any edge, the location will be adjusted by the Owner so that the outer edge of the core is 1 foot from the edge of the paver pass.

Method I, Notched Wedge Joint cores shall be taken so that the center of the core is 5 inches from the visible joint on the hot mat side (Figure 4.06-4).

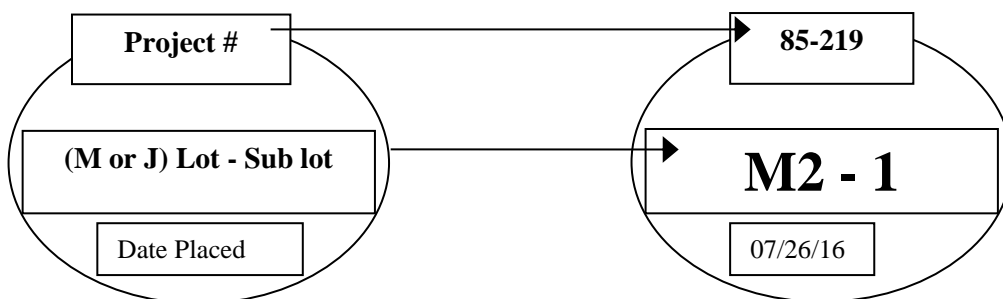
Figure 4.06-4: Notched Wedge Joint Cores (Not to Scale)



When Method II or Method III Butt Joint is used, cores shall be taken from the hot side so the edge of the core is within 1 inch of the longitudinal joint.

The cores shall be labeled by the Contractor with the Project number, date placed, lot number, and sub-lot number. The core's label shall include "M" for a mat core and "J" for a joint core. For example, a mat core from the first lot and the first sub-lot shall be labeled with "M1 - 1." A mat core from the second lot and first sub-lot shall be labeled "M2-1" (see Figure 4.06-5). The Owner shall fill out a MAT-109 to accompany the cores. The Contractor shall deliver the cores and MAT-109 to the Department's Central Lab. The Contractor shall use a container approved by the Owner. The container shall have a lid capable of being locked shut and tamper proof. The Contractor shall use foam, bubble wrap, or another suitable material to prevent the cores from being damaged during handling and transportation. Once the cores and MAT-109 are in the container the Owner will secure the lid using security seals at the removable hinges(s) and at the lid opening(s). The security seals' identification number must be documented on the MAT-109. All sealed containers shall be delivered to the Department's Central Lab within two working days from time of extraction. Central Lab personnel will break the security seal and take possession of the cores.

Figure 4.06-5: Labeling of Cores



Each core hole shall be filled within 4 hours upon core extraction. Prior to being filled, the hole shall be prepared by removing any free water and applying tack coat using a brush or other means to uniformly cover the cut surface. The core hole shall be filled using a bituminous concrete mixture at a minimum temperature of 240°F containing the same or smaller nominal maximum aggregate size and compacted with a hand compactor or other mechanical means to the maximum compaction possible. The bituminous concrete shall be compacted to 1/8 inch above the finished pavement.

Simple Average Density Lots:

A standard simple average density lot is the quantity of material placed within the defined area excluding any bridge decks.

A combo simple average density lot is the quantity of material placed within the defined area including bridge decks less than or equal to 500 feet long.

A bridge simple average density lot is the quantity of material placed on a bridge deck longer than 500 feet.

The number of cores per lot shall be determined in accordance with Table 4.06-4. If a randomly selected mat or joint core location is on a bridge deck, the core is to be obtained on the bridge deck in addition to the core(s) required on the bridge deck.

The number of cores per lot shall be determined in accordance with Table 4.06-5. Multiple bridge decks can be combined into one lot if the paving and underlying conditions are comparable. If multiple bridge decks are combined into a single bridge lot, at least one mat and joint core shall be obtained on each bridge.

The longitudinal locations of mat cores within a standard, combo, or bridge lot containing multiple paving passes will be determined using the combined length of the paving passes within the lot.

TABLE 4.06-4: Number of Cores per Lot (Simple Average)

Lot Type	No. of Mat Cores		No. of Joint Cores	
Standard Lot < 500 Tons	3		3	
Standard Lot ≥ 500 Tons	4		4	
Combo Lot < 500 Tons	2 plus	1 per bridge (≤ 300')	2 plus	1 per bridge (≤ 300')
Combo Lot ≥ 500 Tons ⁽¹⁾	4 plus	2 per bridge (301' – 500')	4 plus	2 per bridge (301' – 500')

TABLE 4.06-5: Number of Core per Bridge Density Lot (Simple Average)

Length of Bridge(s) (Feet)	Minimum No. of Mat Cores	Minimum No. of Joint Cores
< 500	2	2
501 – 1,500	3	3
1,501 – 2,500	4	4
2,501 and greater	5	5

PWL Density Lots:

A PWL mat density lot is 3,500 tons of material placed within the defined area excluding any bridges. One mat core will be obtained per every 500 tons placed.

A PWL joint density lot is 14,000 linear feet of longitudinal joint excluding any joints on bridge decks. One joint core will be obtained per every 2,000 linear feet of joint.

Bridge density lots will always be analyzed as using the simple average lot methodology. The number of cores per lot shall be determined in accordance with Table 4.06-5. Multiple bridge decks can be combined into one lot if the paving and underlying conditions are comparable. If multiple bridge decks are combined into a single bridge lot, at least one mat and joint core shall be obtained on each bridge.

11. Acceptance Sampling and Testing: Sampling shall be performed in accordance with ASTM D3665 or a statistically-based procedure of stratified random sampling approved by the Owner.

Plant Material Acceptance: The Contractor shall provide the required sampling and testing during all phases of the work in accordance with M.04. The Department will verify the Contractor's acceptance test results. Should any test results exceed the specified tolerances in the Department's current QA Program for Materials, the Contractor's test results for a subject lot or sub lot may be replaced with the Department's results for the purpose of calculating adjustments. The verification procedure is included in the Department's current QA Program for Materials.

Density Acceptance: The Owner will perform all acceptance testing in accordance with AASHTO T 331. The density of each core will be determined using the daily production's average maximum theoretical specific gravity (Gmm) established during the testing of the parent material at the Plant. When there was no testing of the parent material or any Gmm exceeds the specified tolerances in the Department's current QA Program for Materials, the Owner will determine the maximum theoretical density value to be used for density calculations.

12. Density Dispute Resolution Process: The Contractor and Owner will work in partnership to avoid potential conflicts and to resolve any differences that may arise during quality control or acceptance testing for density. Both parties will review their sampling and testing procedures and results and share their findings. If the Contractor disputes the Owner's test results, the Contractor must submit in writing a request to initiate the Dispute Resolution Process within five calendar days of the notification of the test results. No request for dispute resolution will be allowed unless the Contractor provides quality control results from samples taken prior to and after finish rolling, and within the timeframe described in 4.06.03-8 supporting its position. No request for dispute resolution will be allowed for a density lot in which any core was not taken within the required 5 calendar days of placement. Should the dispute not be resolved through evaluation of existing testing data or procedures, the Owner may authorize the Contractor to obtain a new core or set of core samples per disputed lot. The core samples must be extracted no later than seven calendar days from the date of the Owner's authorization. All such core samples shall be extracted and the core hole filled using the procedure outlined in 4.06.03-10.

a) Simple Average Lots: The Contractor may only dispute any simple average lot that is adjusted at or below 95 percent payment. The number and location (mat, joint, or structure) of the cores taken for dispute resolution must reflect the number and location of the original cores. The location of each core shall be randomly located within the respective original sub lot. The dispute resolution results shall be combined with the original results and averaged for determining the final in-place density value.

b) PWL Lots: The Contractor may dispute any PWL subplot when the PWL falls below 50% calculated in accordance with section 4.06.04.2.b. An additional random core in the subplot may be taken to validate the accuracy of the core in question. The Department will verify the additional core test result and may average the original test result with the additional core result for purpose of calculating adjustments.

13. Corrective Work Procedure:

If pavement placed by the Contractor does not meet the specifications, and the Owner requires its replacement or correction, the Contractor shall:

- a) Propose a corrective procedure to the Owner for review and approval prior to any corrective work commencing. The proposal shall include:
 - Limits of pavement to be replaced or corrected, indicating stationing or other landmarks that are readily distinguishable.
 - Proposed work schedule.
 - Construction method and sequence of operations.
 - Methods of maintenance and protection of traffic.
 - Material sources.
 - Names and telephone numbers of supervising personnel.
- b) Any corrective courses placed as the final wearing surface shall match the specified lift

thickness after completion.

14. Protection of the Work: The Contractor shall protect all sections of the newly finished pavement from damage that may occur as a result of the Contractor's operations for the duration of the Project.

15. Cut Bituminous Concrete Pavement: Work under this item shall consist of making a straight-line cut in the bituminous concrete pavement to the lines delineated on the plans or as directed by the Owner. The cut shall provide a straight, clean, vertical face with no cracking, tearing or breakage along the cut edge.

4.06.04—Method of Measurement:

1. HMA S* or PMA S*: Bituminous concrete will be measured for payment as the amount of material in tons placed as determined by the net weight on the delivered tickets and adjusted by area, thickness and weight as follows:

Quantity Adjustments: Adjustments may be applied to the placed bituminous concrete quantities that will be measured for payment using the following formulas:

Yield Factor for Adjustment Calculation = 0.0575 tons/SY/inch

Actual Area (SY) = [(Measured Length (ft)) x (Avg. of width measurements (ft))] ÷ 9 s.f. /SY

Actual Thickness (t) = Total tons delivered / [Actual Area (SY) x 0.0575 tons/SY/inch]

- a) Area: If the average width exceeds the allowable tolerance, an adjustment will be made using the following formula. The tolerance for width is equal to the specified thickness (inch) of the lift being placed.

Quantity Adjusted for Area (T_A) = [(L x W_{adj})/9] x (t) x 0.0575 Tons/SY/inch = (-) tons

Where: L = Length (ft)

(t) = Actual thickness (inches)

W_{adj} = (Designed width (ft) + tolerance /12) - Measured Width)

- b) Thickness: If the actual average thickness is less than the allowable tolerance, the Contractor shall submit a repair procedure to the Owner for approval. If the actual thickness exceeds the allowable tolerance, an adjustment will be made using the following formula:

Quantity Adjusted for Thickness (T_T) = A x t_{adj} x 0.0575 = (-) tons

Where: A = Area = {[L x (Design width + tolerance (lift thickness)/12)] / 9}

t_{adj} = Adjusted thickness = [(Dt + tolerance) - Actual thickness]

Dt = Designed thickness (inches)

- c) Weight: If the quantity of bituminous concrete representing the mixture delivered to the Project is in excess of the allowable gross vehicle weight (GVW) for each vehicle, an adjustment will be made using the following formula:

Quantity Adjusted for Weight (T_W) = GVW – DGW = (-) tons

Where: DGW = Delivered gross weight as shown on the delivery ticket or measured on a certified scale

2. Bituminous Concrete Adjustment Cost:

- a) Production Lot Adjustment: An adjustment may be applied to each production lot as follows:

- i. Non-PWL Production Lot (less than 3,500 tons):

The adjustment values in Tables 4.06-6 and 4.06-7 will be calculated for each sub lot based on the Air Void (AV) and Asphalt Binder Content (PB) test results for that sub lot. The total adjustment for each day's production (lot) will be computed as follows:

$$\text{Tons Adjusted for Superpave Design (T}_{SD}) = [(\text{AdjAV}_t + \text{AdjPB}_t) / 100] \times \text{Tons}$$

Where: AdjAV_t: Percent adjustment for air voids

AdjPB_t: Percent adjustment for asphalt binder

Tons: Weight of material (tons) in the lot adjusted by 4.06.4-1

$$\text{Percent Adjustment for Air Voids} = \text{AdjAV}_t = [\text{AdjAV}_1 + \text{AdjAV}_2 + \text{AdjAV}_i + \dots + \text{AdjAV}_n] / n$$

Where: AdjAV_t = Total percent air void adjustment value for the lot

AdjAV_i = Adjustment value from Table 4.06-6 resulting from each sub lot or the average of the adjustment values resulting from multiple tests within a sub lot, as approved by the Owner.

n = number of sub lots based on Table M.04.03-2

TABLE 4.06-6: Adjustment Values for Air Voids

Adjustment Value (AdjAV _i) (%)	S0.25, S0.375, S0.5, S1 Air Voids (AV)
+2.5	3.8 - 4.2
+3.125*(AV-3)	3.0 - 3.7
-3.125*(AV-5)	4.3 - 5.0
20*(AV-3)	2.3 - 2.9
-20*(AV-5)	5.1 - 5.7
-20.0	≤ 2.2 or ≥ 5.8

$$\text{Percent Adjustment for Asphalt Binder} = \text{AdjPB}_t = [(\text{AdjPB}_1 + \text{AdjPB}_2 + \text{AdjPB}_i + \dots + \text{AdjPB}_n)] / n$$

Where: AdjPB_t = Total percent liquid binder adjustment value for the lot

AdjPB_i = Adjustment value from Table 4.06-7 resulting from each sub lot

n = number of binder tests in a production lot

TABLE 4.06-7: Adjustment Values for Binder Content

Adjustment Value (AdjAV _i) (%)	S0.25, S0.375, S0.5, S1 Pb
0.0	JMF Pb ± 0.3
- 10.0	≤ JMF Pb - 0.4 or ≥ JMF Pb + 0.4

ii. PWL Production Lot (3500 tons or more):

For each lot, the adjustment values will be calculated using PWL methodology based on AV, VMA, and PB test results. The results will be considered as being normally distributed and all applicable equations in AASHTO R 9 and AASHTO R 42 Appendix X4 will apply.

Only one test result will be considered for each sub lot. The specification limits are listed in M.04.

For AV, PB, and voids in mineral aggregate (VMA), the individual material quantity characteristic adjustment (Adj) will be calculated as follows:

For PWL between 50 and 90%: $Adj(AV_t \text{ or } PB_t \text{ or } VMA_t) = (55 + 0.5 PWL) - 100$
 For PWL at and above 90%: $Adj(AV_t \text{ or } PB_t \text{ or } VMA_t) = (77.5 + 0.25 PWL) - 100$

Where: $AdjAV_t$ = Total percent AV adjustment value for the lot

$AdjPB_t$ = Total percent PB adjustment value for the lot

$AdjVMA_t$ = Total percent VMA adjustment value for the lot

A lot with PWL less than 50% in any of the 3 individual material quality characteristics will be evaluated under 1.06.04.

The total adjustment for each production lot will be computed using the following formula:

Tons Adjusted for Superpave Design (T_{SD}) = $[(0.5AdjAV_t + 0.25AdjPB_t + 0.25 AdjVMA_t) / 100] \times$ Tons

Where Tons: Weight of material (tons) in the lot adjusted by 4.06.4-1

iii. Partial Lots:

Lots with less than 4 sub lots will be combined with the prior lot. If there is no prior lot with equivalent material or if the last test result of the prior lot is over 30 calendar days old, the adjustment will be calculated as indicated in 4.06.04-2.a)i.

Lots with 4 or more sub lots will be calculated as indicated in 4.06.04-2.a)ii.

Production Lot Adjustment: $T_{SD} \times$ Unit Price = Est. (Pi)

Where: Unit Price = Contract unit price per ton per type of mixture

Est. (Pi) = Pay Unit in dollars representing incentive or disincentive per lot

b) Density Lot Adjustment: An adjustment may be applied to each density lot as follows:

i. Simple Average Density Lot (less than 3500 tons) and Bridge Lots:

The final lot quantity shall be the difference between the total payable tons for the Project and the sum of the previous lots. If either the Mat or Joint adjustment value is "remove and replace," the density lot shall be removed and replaced (curb to curb).

No positive adjustment will be applied to a density lot in which any core was not taken within the required 5 calendar days of placement.

Tons Adjusted for Density (T_D) = $\{[(PA_M \times 0.50) + (PA_J \times 0.50)] / 100\} \times$ Tons

Where: T_D = Total tons adjusted for density for each lot

PA_M = Mat density percent adjustment from Table 4.06-8

PA_J = Joint density percent adjustment from Table 4.06-9

Tons: Weight of material (tons) in the lot adjusted by 4.06.4-1

TABLE 4.06-8: Adjustment Values for Pavement Mat density

Average Core Result Percent Mat Density	Percent Adjustment (Bridge and Non-Bridge) ⁽¹⁾⁽²⁾
97.1 - 100	-1.667*(ACRPD-98.5)
94.5 – 97.0	+2.5
93.5 – 94.4	+2.5*(ACRPD-93.5)
92.0 – 93.4	0
90.0 – 91.9	-5*(92-ACRPD)
88.0 – 89.9	-10*(91-ACRPD)
87.0 – 87.9	-30
86.9 or less	Remove and Replace (curb to curb)

Notes:

⁽¹⁾ ACRPD = Average Core Result Percent Density

⁽²⁾ All Percent Adjustments to be rounded to the second decimal place; for example round 1.667 to 1.67.

TABLE 4.06-9: Adjustment Values for Pavement Joint Density

Average Core Result	Percent Adjustment (Bridge and Non-Bridge) ⁽¹⁾⁽²⁾
Percent Joint Density	
97.1 – 100	-1.667*(ACRPD-98.5)
93.5 – 97.0	+2.5
92.0 – 93.4	+1.667*(ACRPD-92)
91.0 – 91.9	0
89.0 – 90.9	-7.5*(91-ACRPD)
88.0 – 88.9	-15*(90-ACRPD)
87.0 – 87.9	-30
86.9 or less	Remove and Replace (curb to curb)

Notes:

⁽¹⁾ ACRPD = Average Core Result Percent Density

⁽²⁾ All Percent Adjustments to be rounded to the second decimal place; for example round 1.667 to 1.67

Additionally, any subplot with a density result below 87% will be evaluated under 1.06.04.

ii. PWL Density Lot (3,500 tons or more):

For each lot, the adjustment values will be calculated using PWL methodology based on mat and joint density test results. Only one result will be included for each subplot. The results will be considered as being normally distributed and all applicable equations in AASHTO R 9 and AASHTO R 42 Appendix X4 will apply.

The specification limits for the PWL determination are as follows:

Mat Density: 91.5-98%

Joint Density: 90-98%

For mat and joint density, the individual percent adjustment (PA) will be calculated as follows:

For PWL between 50 and 90%: $PA_{(M \text{ or } J)} = 0.25 * PWL - 22.50$

For PWL at and above 90%: $PA_{(M \text{ or } J)} = 0.125 * PWL - 11.25$

Where: PA_M = Total percent mat density adjustment value for the PWL mat density lot

PA_J = Total percent joint density adjustment value for the PWL joint density lot

No positive adjustment will be applied to a density lot in which any core was not taken within the required 5 calendar days of placement.

A lot with PWL less than 50% will be evaluated under 1.06.04.

The total adjustment for each PWL mat density lot will be computed as follows:

Tons Adjusted for Mat Density (T_{MD}) = $(PA_M / 100) \times \text{Tons}$

Where: Tons= Weight of material (tons) in the lot adjusted by 4.06.4-1.

The total adjustment for each PWL joint density lot will be computed as follows:

Tons Adjusted for Joint Density (T_{JD}) = $(PA_J / 100) \times J_Tons$

Tons Adjusted for Joint Density will be calculated at the end of each project or project phase.

Where: $J_Tons = \text{Tons in project or phase adjusted by 4.06.4} - 1 \times \frac{\text{Lot joint length}}{\text{Joint length in project or phase}}$

All bridge density lot adjustments will be evaluated in accordance with 4.06.04-2.b) i.

Additionally, any subplot with a density result below 87% will be evaluated under 1.06.04.

iii. Partial Lots:

Lots with less than 4 sub lots will be combined with the prior lot. If there is no prior lot with equivalent material and placement conditions or if the last test result of the prior lot is over 30 calendar days old, the mat and joint individual adjustments will be calculated in accordance to Tables 4.06-8 and 4.06-9. T_{MD} and T_{JD} will be calculated as indicated in 4.06.04-2.b)i.

Lots with 4 or more sub lots will be calculated as indicated in 4.06.04-2.b) ii.

Density Lot Adjustment (Simple Average Lots): $T_D \times \text{Unit Price} = \text{Est. (Di)}$

Density Lot Adjustment (PWL Lots): $(T_{MD} \text{ or } T_{JD}) \times \text{Unit Price} = \text{Est. (DMi or DJi)}$

Where: Unit Price = Contract unit price per ton per type of mixture

Est. (Di) = Pay Unit in dollars representing incentive or disincentive per simple average density lot

Est. (DMi) = Pay Unit in dollars representing incentive or disincentive per PWL mat lot

Est. (DJi) = Pay Unit in dollars representing incentive or disincentive per PWL joint lot

Additionally, any subplot with a density result below 87% will be evaluated under 1.06.04.

3. Transitions for Roadway Surface: The installation of permanent transitions will be measured under the appropriate item used in the formation of the transition.

The quantity of material used for the installation of temporary transitions will be measured for payment under the appropriate item used in the formation of the transition. The installation and removal of a bond breaker and the removal and disposal of any temporary transition formed by milling or with bituminous concrete pavement is not measured for payment.

4. Cut Bituminous Concrete Pavement: The quantity of bituminous concrete pavement cut will be measured in accordance with 2.02.04.

5. Material for Tack Coat: The quantity of tack coat will be measured for payment by the number of gallons furnished and applied on the Project and approved by the Owner. No tack coat material shall be included that is placed in excess of the tolerance described in 4.06.03.

- a. Container Method – Material furnished in a container will be measured to the nearest 1/2 gallon. The volume will be determined by either measuring the volume in the original container by a method approved by the Owner or using a separate graduated container capable of measuring the volume to the nearest 1/2 gallon. The container in which the material is furnished must include the description of material, including lot number or batch number and manufacturer or product source.

b. Vehicle Method

- i. Measured by Weight: The number of gallons furnished will be determined by weighing the material on calibrated scales furnished by the Contractor. To convert weight to gallons, one of the following formulas will be used:

Tack Coat (gallons at 60°F) = Measured Weight (pounds) / Weight per gallon at 60°F

Tack Coat (gallons at 60°F) = 0.996 x Measured Weight (pounds) / Weight per gallon at 77°F

- ii. Measured by automated metering system on the delivery vehicle:

Tack Coat (gallons at 60°F) = 0.976 x Measured Volume (gallons).

6. Material Transfer Vehicle (MTV): The furnishing and use of a MTV will be measured separately for payment based on the actual number of surface course tons delivered to a paver using the MTV.

4.06.05—Basis of Payment:

1. HMA S* or PMA S*: The furnishing and placing of bituminous concrete will be paid for at the Contract unit price per ton for " HMA S*" or " PMA S*."

All costs associated with providing illumination of the work area are included in the general cost of the work.

All costs associated with cleaning the surface to be paved, including mechanical sweeping, are included in the general cost of the work. All costs associated with constructing longitudinal joints are included in the general cost of the work.

All costs associated with obtaining cores for acceptance testing and dispute resolution are included in the general cost of the work.

2. Bituminous Concrete Adjustment Costs: This adjustment will be calculated using the formulas shown below if all of the measured adjustments in 4.06.04-2 are not equal to zero. A positive or negative adjustment will be applied to monies due the Contractor.

Production Lot: $\Sigma \text{ Est (Pi)} = \text{Est. (P)}$

Density Lot (Simple Average Lots): $\Sigma \text{ Est (Di)} = \text{Est. (D)}$

Density Lot (PWL): $\Sigma \text{ Est (DMi)} + \Sigma \text{ (DJi)} = \text{Est. (D)}$

Bituminous Concrete Adjustment Cost= Est. (P) + Est. (D)

Where: Est. () = Pay Unit in dollars representing incentive or disincentive in each production or density lot calculated in 4.06.04-2

The Bituminous Concrete Adjustment Cost item, if included in the bid proposal or estimate, is not to be altered in any manner by the Bidder. If the Bidder should alter the amount shown, the altered figure will be disregarded and the original estimated cost will be used for the Contract.

3. Transitions for Roadway Surface: The installation of permanent transitions will be paid under the appropriate item used in the formation of the transition. The quantity of material used for the installation of temporary transitions will be paid under the appropriate pay item used in the formation of the transition. The installation and removal of a bond breaker, and the removal and disposal of any temporary transition formed by milling or with bituminous concrete pavement is included in the general cost of the work.

4. The cutting of bituminous concrete pavement will be paid in accordance with 2.02.05.

5. Material for tack coat will be paid for at the Contract unit price per gallon at 60°F for "Material for Tack Coat."

6. The Material Transfer Vehicle (MTV) will be paid at the Contract unit price per ton for "Material Transfer Vehicle."

Pay Item	Pay Unit
HMA S*	ton
PMA S*	ton
Bituminous Concrete Adjustment Cost	est.
Material for Tack Coat	gal.
Material Transfer Vehicle	ton

SECTION 5.86 - CATCH BASINS, MANHOLES AND DROP INLETS

5.86.01—Description

5.86.02—Materials

5.86.03—Construction Methods

5.86.04—Method of Measurement

5.86.05—Basis of Payment

5.86.01—Description: The work under this Section shall consist of furnishing, preparing, and installing catch basins, manholes and drop inlets (and also the removal, abandonment, alteration, reconstruction, or conversion of such existing structures) in conformity with the lines, grades, dimensions and details shown on the plans.

This Section shall also include resetting or replacing catch basin tops as well as manhole frames and covers.

5.86.02—Materials: The materials for this work shall meet the following requirements:

Drainage structures shall meet the requirements of M.08.02 and shall utilize concrete with a 28-day minimum compressive strength of 4000 psi.

Galvanizing shall meet the requirements of M.06.03.

Mortar shall meet the requirements of M.11.04.

Butyl rubber joint seal shall meet the requirements of ASTM C990.

Granular fill, if necessary, shall meet the requirements of M.02.01.

Protective compound material shall be a type appearing on the Department's Qualified Products List and be acceptable to the Owner, as specified in M.03.09.

5.86.03—Construction Methods: Drainage trench excavation, including rock in drainage trench excavation and backfilling, shall be performed in accordance with 2.86.03 and the requirements of the plans.

Where a drainage structure is to be installed below the surface, a drainage trench shall be excavated to the required depth, the bottom of which shall be graded to the elevation of the bottom of the proposed drainage structure or to ensure a uniform foundation for the structure.

Where a firm foundation is not encountered at the grades established due to unsuitable material, such as soft, spongy, or unstable soil, the unsuitable material shall be removed and replaced with approved granular fill, thoroughly compacted in lifts not to exceed 6 inches. The Owner shall be notified prior to removal of the unsuitable material in order to determine the depth of removal necessary.

When rock, as defined in 2.86.01-2, is encountered, work shall be performed in accordance with 2.86.03 and the requirements of the plans.

When a drainage structure outside of proposed drainage trench limits is to be removed, it shall be completely removed and all pipes shall be removed or plugged with cement masonry.

When a drainage structure is to be abandoned, the structure shall be removed to a depth 2 feet below the subgrade or as directed by the Owner. The floor of the structure shall be broken and all pipes shall be plugged with cement masonry.

Drainage structures shall be constructed in accordance with the plans and the requirements contained herein for the character of the work involved. The provisions of 6.02.03 pertaining to bar reinforcement shall apply except that shop drawings need not be submitted for approval unless called for in the plans, Contract or directed by the Owner. Welding shall be performed in accordance with the applicable sections of the AWS Structural Welding Code, D1.1.

When it becomes necessary to increase the horizontal dimensions of manholes, catch basins and drop inlets to sizes greater than those shown on the plans in order to provide for multiple

pipe installations, large pipes or for other reasons, the Contractor shall construct such manholes, catch basins and drop inlets to modified dimensions as directed by the Owner.

The surfaces of the tops of all catch basins, and drop inlets shall be given a coat of protective compound material, at the manufacturer's recommended application rate, immediately upon completion of the concrete curing period.

All masonry units shall be laid in full mortar beds.

Metal fittings for catch basins, manholes or drop inlets shall be set in full mortar beds or otherwise secured as shown on the plans.

All inlet and outlet pipes shall be set flush with the inside face of the wall of the drainage structure as shown on the plans. The pipes shall extend through the walls for a sufficient distance beyond the outside surface to allow for satisfactory connections, and the concrete or masonry shall be constructed around them neatly to prevent leakage along their outer surfaces.

When constructing a new drainage structure within a run of existing pipe, the section of existing pipe disturbed by the construction shall be replaced with new pipe of identical type and size extending from the drainage structure to the nearest joint of the existing pipe in accordance with 6.86.03 or as directed by the Owner.

Backfilling shall be performed in accordance with 2.86.03.

Frames, covers and tops which are to be reset shall be removed from their present beds, the walls or sides shall be rebuilt to conform to the requirements of the new construction and the frames, covers and tops shall be reset as shown on the plans or as directed by the Owner.

5.86.04—Method of Measurement:

Drainage Trench Excavation: In accordance with 2.86.04, excavation for drainage trench will not be measured for payment but shall be included in the Contract unit price for the type of structure being installed.

Rock in Drainage Trench Excavation: Rock in Drainage Trench Excavation will be measured in accordance with the drainage trench excavation limits described in 2.86.03.

Manholes, Catch Basins and Drop Inlets will be measured as separate units.

Resetting of Manholes, Catch Basins and Drop Inlets will be measured as separate units.

Replacement of frames, covers, and tops will be measured as a unit for catch basin top or manhole frame and cover.

Conversion of drainage structures as specified on the plans, or as directed by the Owner, including structure reconstruction will be measured for payment as a unit.

Removal or abandonment of drainage structures outside of drainage trench excavation limits, as defined in 2.86.03, will be measured as separate units.

There will be no measurement or direct payment for the application of the protective compound material, the cost of this work shall be considered as included in the general cost of the work.

Measurement for payment for work and materials involved with installing pipes to connect new drainage structures into a run of existing pipe will be as provided for under the applicable Contract items in accordance with 6.86.04.

There will be no measurement or direct payment for plugging existing pipes with cement masonry, the cost of this work will be considered as included in the general cost of the work.

5.86.05—Basis of Payment:

Drainage Trench Excavation for the installation of proposed structures described herein will be paid for under the respective drainage Contract item(s) for which the excavation is being performed, in accordance with the provisions of 2.86.05.

Rock in Drainage Trench Excavation will be paid for in accordance with the provisions of 2.86.05.

Manholes and Catch Basins will be paid for at the Contract unit price for each "Manhole," or "Catch Basin," of the type specified, at "0' to 10' Deep" or "0' to 20' Deep," complete in place, which price shall include all excavation, backfill, materials, equipment, tools and labor incidental thereto.

Drop Inlets will be paid for at the Contract unit price for each "Drop Inlet," of the type specified, complete in place, which price shall include all excavation, backfill, materials, equipment, tools and labor incidental thereto.

Manholes, Catch Basins and Drop Inlets constructed to modified dimensions as directed by the Owner, will be paid for as follows:

Where the interior floor area has to be increased to accommodate existing field conditions, as measured horizontally at the top of the base of the completed structure, and does not exceed 125% of the interior floor area as shown on the plans for that structure, then the structure shall be paid for at the Contract unit price for each "Manhole," "Catch Basin," or "Drop Inlet" of the type specified. Where the floor area is greater than 125%, the increase in the unit price for the individual structure shall be in direct proportion to the increase of the completed structure interior floor area as compared to the interior floor area as shown on the plans for that structure. Such increased unit price shall include all excavation, materials, equipment, tools, and labor incidental to the completion of the structure.

Reset Units will be paid for at the Contract unit price each for "Reset Manhole," "Reset Catch Basin," or "Reset Drop Inlet," of the type specified, respectively, complete in place, which price shall include excavation, cutting of pavement, removal and replacement of pavement structure, and all materials, equipment, tools and labor incidental thereto, except when the work requires reconstruction greater than 3 feet, measured vertically, then the entire cost of resetting the unit will be paid for as Extra Work in accordance with the provisions of 1.04.05.

Frames, Covers, and Tops when required in connection with reset units, will be paid for at the Contract unit price each for such "Manhole Frame and Cover" or "(Type) Catch Basin Top," complete in place, including all incidental expense; or when no price exists, the furnishing and placing of such material will be paid for as Extra Work in accordance with the provisions of 1.04.05.

When the catch basin top has a stone or granite curb in its design, the curb or inlet shall be included in the cost of the "(Type) Catch Basin Top."

Conversion of drainage structures will be paid for at the Contract unit price each for "Convert Catch Basin to (Type) Catch Basin," "Convert Catch Basin to (Type) Manhole," or "Convert Manhole to (Type) Catch Basin," complete in place, which price shall include excavation, cutting of pavement, removal and replacement of pavement, backfill, all alterations to existing structure, all materials including catch basin frame and grate of the type specified, or manhole frame and cover, all equipment, tools and labor incidental thereto.

The maximum change in elevation of frame under these items shall not exceed 3 feet. Greater depth changes, if required, shall be paid for as Extra Work, in accordance with 1.04.05.

Removal or abandonment of drainage structures outside of drainage trench excavation limits as defined in 2.86.03 will be paid for at the Contract unit price each for "Remove Drainage Structure – 0' to 10' Deep," "Remove Drainage Structure – 0' to 20' Deep," or "Abandon Drainage Structure," which price shall include excavation, cutting of pavement, removal and replacement of pavement, backfill, and all equipment, tools and labor incidental thereto.

Pay Item	Pay Unit
(Type) Catch Basin – 0' to 10' Deep	ea.
(Type) Catch Basin – 0' to 20' Deep	ea.
Manhole (Size) – 0' to 10' Deep	ea.
Manhole (Size) – 0' to 20' Deep	ea.
(Type) Drop Inlet	ea.
Reset Catch Basin	ea.
Reset Manhole	ea.
Reset Drop Inlet	ea.
Convert Catch Basin to (Type) Catch Basin	ea.
Convert Catch Basin to (Type) Manhole	ea.

Convert Manhole to (Type) Catch Basin	ea.
Manhole Frame and Cover	ea.
(Type) Catch Basin Top	ea.
Remove Drainage Structure – 0' to 10' Deep	ea.
Remove Drainage Structure – 0' to 20' Deep	ea.
Abandon Drainage Structure	ea.

SECTION 6.86 - DRAINAGE PIPES, DRAINAGE PIPE ENDS

6.86.01—Description

6.86.02—Materials

6.86.03—Construction Methods

6.86.04—Method of Measurement

6.86.05—Basis of Payment

6.86.01—Description: This work shall consist of furnishing, preparing and installing drainage pipes of the size and type specified, bedding material, joint sealant, rubber gaskets, clamps, collars, grout, grout collars, drainage trench excavation, backfilling or satisfactory disposal of all materials, the removal of which is necessary for the proper completion of the work, connecting proposed drainage systems to existing systems, plugging or abandoning existing pipes and removal of existing pipe within trench limits, as shown on the plans or as directed by the Owner.

This Section shall also include removal of drainage pipes outside of drainage trench excavation limits, as defined in 2.86.03-1.

6.86.02—Materials: The materials for this work shall meet the following requirements: Drainage Pipe, Drainage Pipe Ends, Sealers, Gaskets and connection hardware shall meet the requirements of M.08.01.

Bedding Material shall meet the requirements of M.08.03-1.

Granular Fill, if necessary, shall meet the requirements of M.02.01.

Brick Masonry shall meet the requirements of M.11.03 and Mortar shall meet the requirements of M.11.04.

Concrete used for Concrete Pipe Connections shall be Class “F” Concrete meeting the requirements of M.03.

6.86.03—Construction Methods:

(1) Drainage Trench Excavation: Drainage trench excavation and backfilling shall be performed in accordance with 2.86.03 and the requirements of the plans.

Where drainage pipe is to be laid below the surface, a drainage trench shall be excavated to the required depth, the bottom of which shall be graded to the elevation of the bottom of the bedding material.

Where drainage pipe is to be laid in a fill area, the embankment shall be placed and compacted to a minimum elevation 12 inches above the top of the proposed pipe, whereupon the drainage trench excavation shall be performed and the pipe installed.

(2) Rock in Drainage Trench Excavation: When rock, as defined in 2.86.01-2, is encountered, work shall be performed in accordance with 2.86.03 and the requirements of the plans.

(3) Drainage Pipe Installation: New or re-laid drainage pipes shall be installed on 4 inches of bedding material (12 inches if over rock in ledge formation), the details as shown on the plans, or as directed by the Owner. Prior to placement of the drainage pipe, in accordance with the plans, bedding material shall be pre-shaped to 10% of the total height of the pipe in order to keep the pipe in the center of the trench. Following placement of the drainage pipe, bedding material backfill shall be placed in accordance with the following table:

Internal Pipe Diameter	Required Bedding Material Backfill
------------------------	------------------------------------

< 48 inches*	25% of total height of the pipe
≥ 48 inches*	12 inches above the top of the pipe
*Includes pipe arch of equivalent internal horizontal span See Standard Drawing	

The placement of the drainage pipe shall start at the downstream end and progress upstream or as shown on the plans, or as directed by the Owner. All drainage pipes shall be carefully laid in the center of the drainage trench, true to the lines and grades given. Bell ends shall face upgrade and all joints shall be tight.

Joints in concrete pipe shall be sealed with cold-applied bituminous sealer, preformed plastic gaskets or flexible, watertight, rubber-type gaskets. Portland cement mortar shall not be used for sealing pipe joints except with permission of the Owner.

When cold-applied bituminous sealer is used, the bell and spigot ends shall be wiped clean and dry before applying the bituminous sealer to the pipe ends. Before the drainage pipes are placed in contact with each other, the spigot or tongue end shall be completely covered with bituminous sealer; then the pipe shall be laid to line and grade so the inside surface of all abutting pipes are flush. Additional bituminous sealer shall be applied to the joint after the connection has been made to ensure a water tight connection.

Where the end of an existing drainage pipe is not compatible with the end of a proposed concrete pipe, the Contractor shall align the inner diameters of the pipes being connected, butt the pipe ends together, and construct a cast-in-place concrete pipe connection, as shown in the plans. Incompatible bell/spigot or tongue/groove ends shall be cut off as required to ensure the interior drainage pipe walls are aligned to provide a smooth transition between the pipes.

Metal pipe and pipe arches shall be carefully joined and firmly clamped together by approved connecting bands, which shall be properly bolted in place before any backfill is placed.

Newly installed drainage pipe which is not in true alignment, or which shows any settlement or distortion, shall be reinstalled in accordance with 1.05.03.

When drainage pipe outside of proposed drainage trench limits is to be removed, it shall be removed to the limits shown on the plans and all remaining pipes shall be plugged with cement masonry.

Where shown on the plans or directed by the Owner, the Contractor shall plug abandoned existing pipes with cement masonry.

- (4) Drainage Pipe End Installation:** Reinforced concrete drainage pipe ends shall be placed on a prepared bed of the existing ground and accurately aligned as shown on the plans. The joints shall be sealed as specified in 6.86.03-3 and backfill shall be placed around both sides of the unit simultaneously to the elevation shown on the plans.

Metal drainage pipe ends shall be placed on a prepared bed of the existing ground and accurately aligned as shown on the plans. After the attachment of the drainage pipe end, backfill shall be placed around both sides of the unit up to the elevation shown on the plans, exercising caution to avoid displacement or deformation of the unit.

6.86.04—Method of Measurement: This work will be measured as follows:

Drainage Trench Excavation, in accordance with 2.86.04, will not be measured for payment.

Rock in Drainage Trench Excavation will be measured in accordance with 2.86.04.

Bedding Material will not be measured for payment.

New and Re-laid Pipes and Pipe Arches will be measured for payment by the actual number of linear feet of pipe or pipe arch of the various sizes and types, completed and accepted and

measured in place along the invert. Coupling bands and fittings for pipes and pipe arches will not be measured for payment.

Reinforced Concrete Drainage Pipe Ends and Metal Drainage Pipe Ends will be measured for payment as separate units.

Corrugated Metal Pipe Elbows (of the Size and Type specified) will be measured for payment by the actual number of linear feet of pipe elbows completed and accepted, based on 6 linear feet per elbow, as shown on the plans. Coupling bands for elbows will not be measured for payment.

Concrete Pipe Connection will be measured for payment by the number of each concrete pipe connection constructed at locations where proposed concrete pipes tie into an existing pipe with an incompatible end, completed and accepted by the Owner.

Removal of drainage pipe outside of drainage trench excavation limits, as defined in 2.86.03, will be measured for payment by the actual number of linear feet of drainage pipe removed.

There will be no measurement for plugging existing pipes with cement masonry.

6.86.05—Basis of Payment:

Drainage Trench Excavation for the installation of drainage pipes will not be paid separately but shall be included in the Contract unit price for the respective drainage pipe or pipe end item(s), in accordance with the provisions of 2.86.05.

Rock in Drainage Trench Excavation will be paid for in accordance with the provisions of 2.86.05.

Bedding Material necessary for the installation of drainage items described herein will be included in the Contract unit price for the respective drainage pipe or pipe end item(s). Bedding material required to fill voids when rock in drainage trench is encountered will not be measured for payment but shall be included in the Contract unit price for "Rock in Drainage Trench Excavation," in accordance with 2.86.05.

New Pipes and Pipe Arches will be paid for at the Contract unit price per linear foot for "(Size and Type) Pipe (Thickness) – 0' to 10' Deep," "(Size and Type) Pipe (Thickness) – 0' to 20' Deep," "(Size) Pipe Arch (Thickness) – 0' to 10' Deep" or "(Size) Pipe Arch (Thickness) – 0' to 20' Deep" complete in place, including materials, drainage trench excavation, bedding material, equipment, tools, and labor incidental thereto.

Relaid Pipes and Pipe Arches will be paid for at the Contract unit price per linear foot for "Relaid Pipe (Size and Type) – 0' to 10' Deep," "Re-laid Pipe (Size and Type) – 0' to 20' Deep," "Relaid Pipe Arch (Size and Type) – 0' to 10' Deep," or "Relaid Pipe Arch (Size and Type) – 0' to 20' Deep," complete in place, including all materials, drainage trench excavation, bedding material, equipment, tools, and labor incidental thereto.

Reinforced Concrete Drainage Pipe Ends and Metal Drainage Pipe Ends will be paid for at the Contract unit price for each drainage pipe end of the Size and Type specified, complete in place, including all excavation, materials, attachment systems, equipment, tools and labor incidental thereto.

Corrugated Metal Pipe Elbows will be paid for at the Contract unit price per linear foot for "(Size and Type) Corrugated Metal Pipe Elbow" including all materials, drainage trench excavation, bedding material, equipment, tools, and labor incidental thereto.

Concrete Pipe Connection will be paid for at the Contract unit price each for "Concrete Pipe Connection" complete in place, including all materials, equipment, tools and labor incidental thereto.

Removal of drainage pipes of all types and sizes, outside of drainage trench excavation limits, as defined in 2.86.03-1, will be paid for at the Contract unit price per linear foot for "Remove Existing Pipe – 0' to 10' Deep," or "Remove Existing Pipe – 0' to 20' Deep," which price shall include excavation, temporary trench protection, backfill, and all equipment, tools and labor incidental thereto.

There will be no direct payment for the plugging of existing drainage pipes, but the cost thereof shall be included in the respective drainage Contract item(s).

Pay Item	Pay Unit
(Size and Type) Pipe (Thickness) – 0' to 10' Deep	l.f.
(Size and Type) Pipe (Thickness) – 0' to 20' Deep	l.f.
(Size and Type) Pipe Arch (Thickness) – 0' to 10' Deep	l.f.
(Size and Type) Pipe Arch (Thickness) – 0' to 20' Deep	l.f.
Relaid (Size and Type) Pipe– 0' to 10' Deep	l.f.
Relaid (Size and Type) Pipe– 0' to 20' Deep	l.f.
(Size and Type) Relaid Pipe Arch – 0' to 10' Deep	l.f.
(Size and Type) Relaid Pipe Arch – 0' to 20' Deep	l.f.
(Size) Reinforced Concrete Drainage Pipe End	ea.
(Size) Metal Drainage Pipe End	ea.
(Size and Type) Corrugated Metal Pipe Elbow	l.f.
Concrete Pipe Connection	ea.
Remove Existing Pipe – 0' to 10' Deep	l.f.
Remove Existing Pipe – 0' to 20' Deep	l.f.

SECTION 10.00 - GENERAL CLAUSES FOR HIGHWAY ILLUMINATION AND TRAFFIC SIGNAL PROJECTS

Article 10.00.03 – Plans:

In the first paragraph, replace the 2nd, 3rd, and 4th sentences with the following:

The Contractor shall digitally mark, in red, any changes on the plan(s) using a pdf program.

The Contractor shall submit the digital pdf file(s) to the Owner and to DOT.TrafficElectrical@ct.gov, for Traffic Signals, prior to requesting the Functional Inspection.

Also prior to requesting the Functional Inspection, the Contractor shall deliver to the Owner the following:

In the first paragraph, last sentence, in item no. 1, replace “Four (4)” with “Digital PDF Files and Five (5)” [paper prints of schematics and wiring diagrams...].

Article 10.00.10 Section 3. Functional Inspection, first paragraph after the 2nd sentence: Add the following:

The Contractor shall have a bucket truck with crew on site during the Functional Inspection to make any necessary aerial signal adjustments as directed by the Owner.

Article 10.00.12 - Negotiations with utility company: Add the following:

The Contractor shall give notice to utility companies a minimum of 30 days prior to required work or services to the utility company. Refer to Section 1.07 – Legal Relations and Responsibilities for the list of utility companies and representatives the contractor shall use.

The Contractor is cautioned that there may be energized wires in the vicinity of the specified installations. In addition to ensuring compliance with NESC and OSHA regulations, the Contractor and/or its Sub-Contractors shall coordinate with the appropriate utility company for securing/protecting the site during the installation of RRFB's.

SECTION 12.00 – GENERAL CLAUSES FOR HIGHWAY SIGNING

Description:

Work under this item shall conform to the requirements of Section 12.00 supplemented as follows:

12.00.07 – Global Positioning System (GPS) coordinates for signs:

The Contractor shall obtain and provide to the Owner sign installation data, including Global Positioning System (GPS) latitude and longitude coordinates, for all new permanent State owned and maintained signs (temporary and construction signs are not to be included) installed in the project. The Owner shall forward the sign data to the Division of Traffic Engineering for upload into the Highway Sign Inventory and Maintenance Management Program (SIMS). Sign data submissions or questions relating to SIMS or GPS shall be sent to DOT-SignInventory@ct.gov.

The horizontal datum is to be set to the State Plane Coordinate System, North American Datum of 1983 (NAD83) in feet. The minimum tolerance must be within 10 feet. The format of the GPS information shall be provided in a Microsoft Office compatible spreadsheet (Excel) file with data for each sign. The record for each sign installed is to be compatible with the anticipated CTDOT Sign Inventory and Management System (CTSIMS). The following format shall be used. However, the data fields noted by “#” are not required for the project submission. These entries will be completed as part of the Traffic Engineering CTSIMS data upload.

The cost of this work shall be included in the cost of the respective sign face – sheet aluminum and sign face – extruded aluminum items. The receipt of this electronic database must be received and accepted by the Owner prior to final payment for items involving permanent highway signing. The electronic database information shall detail information regarding the sign actually installed by the project.

Field Number	Type	size	Description
1	text	20	Record Number (starting at 1...)
2	text	20	Sign Catalog Number
# 3	text	10	Size Height
# 4	text	10	Size Width
5	text	25	Legend
# 6	text	10	Background Color
# 7	text	10	Copy Color
8	Link	25	Material (see acceptable categories)
9	text	30	Comments if any
# 10	text	20	MUTCD Type
11	text	15	Town
12	text	5	Route
13	text	5	Route direction
# 14	text	10	Highway Log Mileage
15	text	15	Latitude
16	text	15	Longitude
17	text	25	Mounting Type
18	text	25	Reflective Sheeting Type
19	date	25	Date Installed
20	text	10	Number of Posts
21	text	255	Sheeting Manufacturer name and address
22	text	15	State Project Number (or)
23	text	15	Encroachment Permit number.
24	Graphic	*	Sign Picture Graphic.

* Graphics provided shall be representative of the sign supplied and be in color. Graphic formats shall be either JPG or TIFF and provided with a recommended pixel density of 800 x 600. The graphic shall be inserted in the supplied media in field 24 for each sign.

TRAFFIC CONTROL SIGNALS-M.16.08

Article M16.08 - Pedestrian Push Button:

Delete the entire section and replace with the following:

A. General

- Size and force compliant with ADA, Section 14.2.5, Crossing Controls.
- Tamper-proof, and Vandal-proof, Weatherproof, Freeze-proof, Impact-resistant design and construction.
- Completely insulated to preclude electrical shock under any weather conditions.
- Wire entrance through the rear.
- Stainless steel mounting hardware.

B. Actuation

1. Piezo:

- Either non-movable or minimal movement (< 1/16" (1.6)) pressure activation.
- Audible confirmation beep to correspond with circuit closure.
- Minimum 100,000,000 actuations.

C. Housing

- Die cast aluminum meeting requirements of ASTM B85.
- Designed to attach 9" x 12" (230 x 300) four-hole advisory sign.
- Flat back to facilitate surface mount.
- Available hardware to either pedestal top-mount or pole side-mount on diameter range of 3½" (89) to 15" (380).
- Available extension bracket of a size indicated on the plan – 18" maximum.

D. Finish

- Method: Either
 1. Painted with 3 coats of infrared oven-baked paint before assembly.
 - Primer: Baked iron oxide which meets or exceeds FS TT-P-636.
 - Second coat: Exterior-baking enamel, light gray, which meets or exceeds FS TT-E-527.
 - Third coat: Exterior-baking enamel, which meets or exceeds FS TT-E-489.
 2. Electrostatic powder coated after chemically cleaned.

Article M.16.08 Painting:

Third coat: Replace with the following:

All brackets and hardware shall be painted yellow by the manufacturer. The color shall be No. 13538, Federal Standard No. 595.

MASTER BID LIST- SPECIAL PROVISIONS

ITEM #0100247A – DECORATIVE SIGNAGE

Description:

The work covered under this item includes furnishing all labor, equipment, materials, and installation of free standing wayfinding signage poles, light post mounted signs, and building mounting signs as shown on the plans. The details noted on the plans are to serve as a basis of design which a professional signage design and fabrication company will use to develop shop drawings for the final units. Sign content shall be provided as indicated on the plans.

Materials:

Applicable materials will be selected by the professional signage design and fabrication company for U.V. resistance and durability.

Signage Pole: The signage pole shall use the decorative base which is identical to the Architectural lighting pole specified on the plans and in Item #1018030A, straight shaft poles are available in the diameter indicated on the plans. The design and fabrication company shall contact the pole manufacture to coordinate.

Foundations: Shall comply with Item #1002110A.

Construction Methods:

As determined by the design and fabrication company

Method of Measurement:

This work will be measured for payment by the number of free standing wayfinding signage poles, light post mounted signs and building mounted signs completely installed and accepted in place.

Basis of Payment:

Payment for this work will be made at the Contract unit price per “Free Standing Wayfinding Signage Poles, Light Post Mounted Signs, Building Mounted Signs” complete in place, which price shall include all material, equipment, tools and labor incidental thereto.

Pay Item	Pay Unit
Free Standing Wayfinding Signage Pole	ea.
Light Post Mounted Signs	ea.
Building Mounted Signs	ea.

ITEM #0219011A – SEDIMENT CONTROL SYSTEM AT CATCHBASIN

Section 2.19 is supplemented as follows:

2.19.02—Materials is supplemented with the following:

- 1) Sediment control systems for catch basins shall be Silt Sack by ACF Environmental
2831 Cardwell Road, Richmond, VA 23234 or approved equal.
- 2) Geotextiles for this work shall conform to 7.55 and M.08.01-19

Add 2.19.03—Construction Methods:

Sediment control systems at catch basins shall be installed by the contractor in all catch basins within the work area and in the first catch basin(s) downhill from the project site to trap any sediment tracked outward from the project site or as directed by the owner's representative.

ITEM #0401055A – PORTLAND CEMENT CONCRETE OVERLAY
ITEM #0401156A – DIAMOND GRIINDING

Description:

The work covered under this item includes furnishing all labor, equipment, materials, and installation of a bonded topping slab over an existing concrete wall cap as shown on the plans. All work shall comply with ACI302.1; methods to increase topping slab performance shall be discussed with the owner's representative prior to the start of work for this item.

Materials:

Concrete - Article M.03 and supplemented as follows:

- 1) Class F concrete shall be used for the topping slab.

Reinforcing - Article M.06.0 and supplemented as follows:

- 1) Bar and welded wire fabric shall be epoxy coated.

Construction Methods:

Incompliance with ACI302.1 and supplemented as follows:

- 1) Existing handrails shall be cut flush with the existing concrete
- 2) The new topping slab shall be bonded to the existing concrete slab, a diamond grinder or similar method shall be used to scarify the surface of the existing concrete to provide a rough surface for proper bonding.
- 3) A bonding agent shall be used to increase bond strength

Method of Measurement:

The work will be paid for at the lump sum Contract unit price for diamond grinding and Portland cement concrete overlay completely installed and accepted in place.

Basis of Payment:

Payment for this work will be made at the Contract unit price per "Diamond Grinding and Portland Cement Concrete Overlay" complete in place, which price shall include all material, equipment, tools and labor incidental thereto.

Pay Item	Pay Unit
Portland Cement Concrete Overlay	LS
Diamond Grinding	LS

ITEM #0403873A – FULL-DEPTH RECLAMATION – LOCAL ROADS

Work To Be Done By Town Forces

Description:

Full Depth Reclamation (FDR) shall consist of pulverizing (reclaiming) the existing flexible pavement and underlying materials (base and/or subgrade materials) to the length, depth and width as specified or as shown on the plans, blending with a bituminous stabilizing agent (either foamed asphalt, also known as expanded asphalt, or emulsified asphalt), or a cementitious stabilizing agent (either cement, Portland or blended hydraulic, or class C fly ash), water, other additives or corrective aggregate as required by the mix design or directed by the Owners Representative, to produce a flexible, bituminous stabilized base. This material shall then be shaped, compacted, cured and protected in accordance with the plans and specifications.

All work shall comply with current ARRA guidelines:

- FDR101 – Recommended Construction Guidelines for Full Depth Reclamation (FDR) Using Bituminous Stabilization
- FDR102 – Recommended Construction Guidelines for Full Depth Reclamation (FDR) Using Cementitious Stabilization
- FDR103 – Recommended Construction Guidelines for Full Depth Reclamation (FDR) Using Lime Stabilization
- FDR202 – Recommended Mix Design Guidelines for Full Depth Reclamation (FDR) Using Cement or Cement Kiln Dust (CKD) Stabilizing Agent
- FDR301 – Recommended Quality Control Sampling and Testing Guidelines for Full Depth Reclamation (FDR) Using Bituminous Stabilizing Agents
- FDR302 – Recommended Quality Control Sampling and Testing Guidelines for Full Depth Reclamation (FDR) Using Cementitious Stabilizing Agents

Treatment Thickness and Stabilization Method:

The party responsible for developing the Job Mix Formula based on on-site sampling shall review the existing pavement condition, profile and traffic volume information to determine the structural capacity requirements of the new roadway and determine the appropriate reclamation depths and stabilization methods. The existing flexible pavement, base and/or subgrade material shall be pulverized to the determined depth. The pulverized section shall then be re-graded, with excess material reused as needed and excessive material hauled away so as to allow for the net placement of 3 inches of new asphalt or as shown on the plans or as directed by the Owners Representative. Table 15-1 shall be used to determine the appropriate stabilizing agent based on on-site sampling results.

Table 15-1: Stabilizing Agent¹ Selection Guide for FDR Mixtures Including RAP

Material Type – Including RAP	Well Graded Gravel	Poorly Graded Gravel	Silty Gravel	Clayey Gravel	Well Graded Sand	Poorly Graded Sand	Silty Sand	Clayey Sand	Silt, Silt with Sand	Lean Clay	Organic Silt/Organic Lean Clay	Elastic Silt	Fat Clay, Fat Clay with Sand
USCS ²	GW	GP	GM	GC	SW	SP	SM	SC	ML	CL	OL	MH	CH
AASHTO ³	A-1-a	A-1-a	A-1-b	A-1-b A-2-6	A-1-b	A-3 or A-1-b	A-2-4 or A-2-5	A-2-6 or A-2-7	A-4 or A-5	A-6	A-4	A-5 or A-7-5	A-7-6
Emulsified Asphalt SE > 30 or PI < 6 and P ₂₀₀ < 20%	X	X	X	X	X	X	X						
Foamed Asphalt PI < 10 and P ₂₀₀ 5 to 20%	X		X	X	X		X						
Cement, CKD or Self-Cementing Class C Fly Ash PI < 20 SO ₄ < 3000 ppm	X	X	X	X	X	X	X	X	X	X			
Lime/LKD PI > 20 and P ₂₀₀ > 25% SO ₄ < 3000 ppm								X		X		X	X

P₂₀₀ = Percent passing No. 200 (0.075 mm) sieve; SE = Sand equivalent (AASHTO T 176 or ASTM D2419); PI = Plasticity Index (AASHTO T 90 or ASTM D4318)

¹Additives may also be used in combination with a stabilizing agent to optimize performance of the FDR section

²USCS: Unified Soil Classification System, ASTM D2487

³AASHTO: American Association State Highway Transportation Officials, AASHTO M 145

Materials:

Refer to the applicable ARRA guidelines for the selected stabilizing agent.

Construction Methods:

Refer to the applicable ARRA guidelines for the selected stabilizing agent.

Method of Measurement:

This work will be measured for payment by the number of square yards of FDR stabilized base completed and work accepted to the depths specified or shown on the plans. Stabilizing agent and additive weights shall be based upon certified delivery weight tickets, less any unused portion. Water used in this operation shall not be paid for directly and shall be considered a subsidiary to the item.

Basis of Payment:

Payment for this work will be made at the Contract unit price per square yard for “Full Depth Reclamation”, which price shall be full compensation for all labor, materials, tools, equipment, and incidentals; for doing all the work involved in full depth reclaiming, complete in-place; for pulverizing, mixing, blending, placing, compacting and curing of the FDR stabilized base; for protection and maintenance of the FDR stabilized base; for performing all QA testing including mix design, if required to be provided by the Contractor and for PPT training and instructor, if provided by Contractor, for obtaining measurements and recording results of all tests as shown on the plans and specifications.

Pay Item	Pay Unit
Full Depth Reclamation	s.y.
Bituminous Stabilizing Agents	ton
Additives	ton

ITEM #0406270A – MILLING OF BITUMINOUS CONCRETE (0" TO 6")

Work To Be Done By Town Forces

Description:

This work shall consist of the milling, removal, and disposal of existing bituminous concrete pavement. It shall be performed in accordance with these specifications.

Materials:

Milling Equipment: The equipment for milling the pavement surface shall be designed and built for milling flexible pavements and shall have a minimum 6 foot cutting width. It shall be self-propelled with sufficient power, traction and stability to maintain depth and slope and shall be capable of removing the existing bituminous concrete to the line, grade, and typical cross section shown on the plans.

The milling machine shall be equipped with a built in automatic grade control system that can control the longitudinal profile and the traverse cross slope to produce the specified results. The longitudinal controls shall be capable of operating from any longitudinal grade reference.

The machine shall be able to provide a 0 to 4 inch deep cut in one pass. The rotary drum shall utilize carbide tip tools spaced not more than 5/16" apart. The machine shall be capable of operating at a minimum speed of 10 feet per minute and shall be limited to no more than 45 feet per minute. The tools on the revolving cutting drum must be continually maintained and shall be replaced as warranted to provide uniform pavement texture.

The machine shall be equipped with an integral pickup and conveying device to immediately remove material being milled from the surface of the roadway and discharge the millings into a truck, all in one operation. The machine shall also be equipped with a means of effectively limiting the amount of dust escaping from the milling and removal operation in accordance with local, State, and Federal air pollution control laws and regulations.

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

Construction Methods:

The milled surface shall provide a riding surface with a uniform textured appearance. The milled surface shall be free from gouges, longitudinal grooves and ridges, oil film, and other imperfections that are a result of defective equipment, improper use of equipment, or poor workmanship. The Contractor, under the direction of the owners representative or his designee, shall perform random spot-checks with a Contractor supplied ten-foot straightedge to verify surface tolerances at a minimum of five locations per day. The variation of the top of two ridges from the testing edge of the straightedge, between any two ridge contact points, shall not exceed 1/4 inch. The variation of the top of any ridge to the bottom of the groove adjacent to that ridge shall not exceed 1/4 inch. Any unsatisfactory surfaces produced are the responsibility of the Contractor and shall be corrected at the Contractor's expense and to the satisfaction of the owner's representative.

The depth of removal will be verified by taking a measurement every 100 feet per each pass of the milling machine, or as directed by the Owner. These depth measurements shall be used to monitor the average depth of removal.

Where a surface delimitation between asphalt layers or a surface delimitation of asphalt on Portland cement concrete causes a non-uniform texture to occur, the depth of milling shall be adjusted +/- 1/2 inch or until delimitation is eliminated.

When removing an asphalt pavement entirely from an underlying Portland cement concrete pavement, all of the asphalt pavement shall be removed leaving a uniform surface of Portland cement concrete, unless otherwise directed by the owner's representative or his designee.

Protection shall be provided around existing catch basin inlets, manholes, utility valve boxes, and any similar structures. Any damage to such structures as a result of the milling operation is the Contractors responsibility and shall be repaired at the Contractors expense.

To prevent the infiltration of milled material into the storm sewer system, the Contractor shall take special precautions to prevent the milled material from falling into the inlet openings or inlet grates. Any milled material that has fallen into inlet openings or inlet grates shall be removed at the Contractor's expense.

No vertical faces, transverse or longitudinal, shall be left exposed to traffic. If any vertical face is formed in an area exposed to traffic a temporary paved transition will be established as directed by the owner's representative or his designee. If the milling machine is used to form a temporary transition, the length of the temporary transition shall be as directed by the owner's representative or his designee. At all permanent limits of removal, a clean vertical face shall be established by saw cutting prior to paving.

Prior to opening an area which has been milled to traffic, the pavement shall be thoroughly swept with a sweeper. The sweeper shall be equipped with a water tank and be capable of removing the millings and loose debris from the surface. Other sweeping equipment may be provided in lieu of the sweeper where accepted by the owners representative.

Method of Measurement:

This work will be measured for payment by the number of square yards of material removed and work accepted.

Basis of Payment:

Payment for this work will be made at the Contract unit price per square yard for "Milling of Bituminous Concrete (0"-6")", which price shall include all material, equipment, tools and labor incidental thereto.

Pay Item	Pay Unit
Milling of Bituminous Concrete (0"-6")	s.y.

ITEM #0507119A – GRANITE CURB CATCH BASIN INLET

Description:

This item shall consist of granite curb catch basin inlets furnished in accordance with the dimensions and details of the plans and installed to the lines and grades shown on the plan.

Materials:

Materials shall comply with ITEM# 813001A, 0813011A, 0813451A and Section 8.13

Granite curb catch basin inlets that are fabricated from 7" thick granite curb stock shall have the back arris line cut to match the specified granite curb thickness.

Construction Methods:

Construction Methods shall comply with ITEM# 813001A, 0813011A, 0813451A and Section 8.13 and as follows:

Where the granite curb catch basin inlet bridges over the catch basin, the stone shall be set in a mortar bed that is water tight in order to direct Stormwater into the catch basin and prevent Stormwater from flowing behind the granite curb. Non-organic, hard, durable shims may be used to set the granite curb catch basin inlet so the top is flush with the adjacent granite curbing.

Method of Measurement:

This work will be measured for payment by the number of granite curb catch basin inlets completely installed and accepted in place.

Basis of Payment:

Payment for this work will be made at the Contract unit price per "Granite Curb Catch Basin Inlet" complete in place, which price shall include all material, equipment, tools and labor incidental thereto.

Pay Item	Pay Unit
Granite Curb Catch Basin Inlet	ea.

ITEM #0608071A - BRICK MASONRY WALLS

Description:

This item will consist of constructing brick columns at the location, grades, and to the dimensions and details shown on the plans, and in accordance with these specifications.

Required Submittals:

Shop Drawings showing the dimensions, details and finishes of components, accessories, detailed construction methods, and mix designs for all elements including concrete foundations, concrete stems walls, and precast concrete wall caps.

Provide samples for the following:

- 1) Colored mortar samples showing the full range of colors available.
- 2) Precast concrete capstone color and surface texture samples in small-scale form showing the full range of colors and textures available.
- 3) Precast concrete capstone joint sealant color samples in small-scale form showing the full range of colors available.

Provide material certificates: For each material listed

Source Limitations for Materials: Obtain materials from one manufacturer for each material listed.

Materials:

Masonry Sealer: Enviro-shield 40 by Chargar Corporation, 299 Welton Street, Hamden, CT 06517 1-800-922-4626

Face Brick: ASTM C216 or AASHTO M114, Grade SW, Type FBS per Article M.11.03 and supplemented with the following:

- 1) Manufacturer: To be determined based on approved brick sample
- 2) Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 3000 psi.
- 3) Initial Rate of Absorption: Less than 20 g/30 sq. in. per minute when tested per ASTM C 67.
- 4) Efflorescence: Provide brick that has been tested according to ASTM C 67 and is rated "not effloresced.
- 5) Surface Coloring: Brick with surface coloring, other than flashed or sand-finished brick, shall withstand 50 cycles of freezing and thawing per ASTM C 67 with no observable difference in the applied finish when viewed from 10 feet.
- 6) Size: Match existing brick walls
- 7) Application: Use where brick is exposed, unless otherwise indicated.
- 8) Color and Texture: Match existing, provide samples for approval

Mortar: As specified in Article M.11.04 and supplemented with the following:

- 1) Color: Mortar for joints between capstones shall be colored, provide a full range of colors for selection by the Owners Representative

Reinforcing Steel: As specified in Article M.06.01 and supplemented with the following:

- 1) Rebar and ties shall be epoxy coated

Masonry Joint Reinforcing: As specified in Article M.06.01 and supplemented with the following:

- 1) Masonry Wall Ties: Vee Byna-Tie, Hot Dipped Galvanized ASTM A153, 3/16" dia or approved equal.

Concrete:

- 1) Concrete for the footings shall be Class "F" in conformance with section 6.01 of Form 817, State of Connecticut Department of Transportation Standard Specifications for Roads, Bridges and Incidental Construction.

Precast Concrete Wall Caps:

- 1) Compliance: ASTM C1364
- 2) Casting Method: Wet Cast
- 3) Texture: Contractor to submit surface texture samples for approval
- 4) Color: Match existing, Contractor to submit color samples for approval
- 5) Size: As indicated on the plans:
- 6) Profile: As indicated on the plans
- 7) Test Results:
 - a. Compressive Strength, ASTM C 1194: Minimum 6,500 psi at 28 days.
 - b. Absorption, ASTM C 1195: Maximum 6 percent, by the cold water method, at 28 days.
 - c. Linear Shrinkage, ASTM C 426: Less than .065 percent.
 - d. Density, ASTM C 140: Greater than 120 pounds per cubic foot.
 - e. Freeze-Thaw, ASTM C 666: Less than 5 percent cumulative mass loss after 300 cycles.
 - f. Air Content: ASTM C 173 or C 231 for wet cast product shall be 4-8% for units exposed to freeze-thaw environments; air entrainment is not required for VDT products.
- 8) Curing: Cure in enclosed chamber at 100 percent relative humidity and minimum 90 degrees F for up to 16 hours and yard cure for a minimum of 3 days.
- 9) Materials:
 - a. Portland Cement: ASTM C 150, Type I or III. White and/or gray as required to match specified color.
 - b. Coarse Aggregates: ASTM C 33, except for gradation. Granite, quartz, or limestone.
 - c. Fine Aggregates: ASTM C 33, except for gradation. Manufactured or natural sands.
 - d. Pigments: ASTM C 979, except do not use carbon black pigments. Inorganic iron oxide pigments.
 - e. Admixtures:
 - i. Water Reducing, Retarding, and Accelerating Admixtures: ASTM C 494.

- ii. ASTM C 260 for air-entraining admixtures
- f. Other admixtures: integral water repellents and other chemicals, for which no ASTM Standard exists, shall be previously established as suitable for use in concrete by proven field performance or through laboratory testing.
 - i. ASTM C 618 for mineral admixtures
 - ii. ASTM C 989 for ground granulated blast-furnace slag
- g. Water: Potable.
- h. Reinforcing Bars: ASTM A 615 deformed steel bars. Epoxy coated or galvanized when covered with less than 1-1/2 inches of material.
- i. Galvanized Coating: ASTM A 767.

10) Texture and color:

- a. Match texture and color of full-size sample on file with Architect.

11) Finish:

- a. Minor chipping resulting from shipping and delivery shall not be grounds for rejection of units.
- b. Minor chips shall not be obvious under direct daylight at 20 feet, as determined by Architect.
- c. The occurrence of crazing or efflorescence shall not constitute a cause for rejection.

12) Color Variation:

- a. Viewing Conditions: Compare in direct daylight at 10 feet, between units of similar age, subjected to similar weathering conditions.
- b. Total Color Difference: ASTM C 1364, 6 units
- c. Hue Difference: ASTM C 1364, 2 units

Delivery, Storage, And Handling:

- 1) Store brick and wall caps on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry.
- 2) Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.
- 3) Store aggregates where grading and other required characteristics can be maintained and contamination avoided.
- 4) Deliver pre-blended, dry mortar mix in moisture-resistant containers designed for lifting and emptying into dispensing silo. Store pre-blended, dry mortar mix in delivery containers on elevated platforms, under cover, and in a dry location or in a metal dispensing silo with weatherproof cover.
- 5) Store masonry accessories, including metal items, to prevent corrosion and

accumulation of dirt and oil.

Project Conditions:

- 1) Protection of Masonry: During construction, cover tops of walls and projections, with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.
 - a. Extend cover a minimum of 24 inches down both sides and hold cover securely in place.
- 2) Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry. Protect base of walls from rain-splashed mud and from mortar splatter by coverings spread on ground and over wall surface.
 - a. Protect ledges and projections from mortar droppings.
- 3) Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.
- 4) Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F and above and will remain so until masonry has dried, but not less than 7 days after completing cleaning.
- 5) Hot-Weather Requirements: Protect unit masonry work when temperature and humidity conditions produce excessive evaporation of water from mortar and grout. Provide artificial shade and wind breaks and use cooled materials as required.
 - a. When ambient temperature exceeds 100 deg F, or 90 deg F with a wind velocity greater than 8 mph, do not spread mortar beds more than 48 inches ahead of masonry. Set masonry units within one minute of spreading mortar.

Construction Methods - Conforming to Articles 2.03, 6.01, and 6.05 and supplemented as follows:

- 1) Excavation and subgrade prep shall conform to the requirements of Article 2.03
- 2) Concrete foundations and stem wall shall conform to the requirements of Article 6.01 and as supplemented with the following:
 - a. The concrete forms shall be stripped when the concrete is of adequate strength and self-supporting. All ties rod holes shall be dished below the finished surface and filled with grout, projections shall be removed to within 1/4" of the concrete wall surface.
- 3) Brick masonry shall conform to the requirements of Article 6.05 and as supplemented with the following:
 - a. Joints widths and tooling shall match the existing walls.
 - b. To avoid damaging the brick veneer, fill shall be placed and compacted carefully after the mortar joints have sufficiently cured. Any materials, which become damaged or disturbed during backfill placement shall be either removed and replaced at the Contractor's expense or corrected as directed by the Owners Representative.
 - c. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.
 - d. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:

- i. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
 - ii. Protect adjacent stone and non-masonry surfaces from contact with cleaner by covering them with liquid strippable masking agent, polyethylene film, or waterproof masking tape.
 - iii. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing the surfaces thoroughly with clear water.
 - iv. Clean brick based on the brick category described in Brick Institute of America Technical Notes No. 20, using a cleaning agent that is safe for the masonry materials being cleaned.
- 4) Apply sealant over the entire Brick Masonry Wall when work is complete per the manufactures written instruction using a low pressure pump sprayer.

Method of Measurement:

This item shall be measured for payment by the square foot of face for Brick Masonry Walls installed as measured from the bottom of the footing where indicated on the plans to the top of the wall cap or as directed by the Owner.

Basis of Payment:

Payment for this item shall be at the contract unit price bid per square face foot of "Brick Masonry Wall" complete in place, which price shall include excavation, drainage, backfill, material, equipment, tools, and labor incidental thereto.

Pay Item	Pay Unit
Brick Masonry Walls	sff

ITEM #0653002A – CLEAN DRAINAGE SYSTEM

Description:

The work covered under this item includes all labor, equipment and materials, to clean the Stormwater drainage system including catch basins and drainage pipes when construction is complete.

Method of Measurement:

The work will be paid for at the lump sum Contract unit price to clean the drainage system with in the project area.

Basis of Payment:

Payment for this work will be made at a lump sum Contract unit price for “Clean Drainage System”, which price shall include all material, equipment, tools and labor incidental thereto.

Pay Item	Pay Unit
Clean Drainage System	LS.

ITEM #0811005A – CONCRETE WHEEL STOP

Description:

The work covered under this item includes furnishing all labor, equipment, materials, and installation of concrete wheel stops as shown on the plans.

Materials:

Concrete Wheel Stops: 6' long, Wet cast concrete with a compressive strength of 4,000 psi @28 days, Manufactured to CTDOT Standards, 1/2" Diameter pins by United Precast, 173 Church Street, Yalesville, CT 06492 1-800-234-3119 or approved equal

Construction Methods:

Concrete wheel stops shall be placed on asphalt in the locations indicated on the plans; 1/2" diameter pins shall be driven through the provided holes into the asphalt paving below, pins shall be driven below the surface of the concrete wheel stop while taking care not to chip the concrete.

Method of Measurement:

This work will be measured for payment by the number of concrete wheel stops completely installed and accepted in place.

Basis of Payment:

Payment for this work will be made at the Contract unit price per "Concrete Wheel Stop" complete in place, which price shall include all material, equipment, tools and labor incidental thereto.

Pay Item	Pay Unit
Concrete Wheel Stop	e.a.

ITEM #0813021A – 5” GRANITE STONE CURBING
ITEM #0813451A – GRANITE STONE TRANSITION CURBING
ITEM #0814002A – 5” GRANITE CURVED STONE CURBING

Section 8.13 is supplemented as follows:

Article 8.13.01—Description is supplemented with the following:

Curbing shall consist of approved stone, furnished in accordance with the dimensions and details shown on the plans and consisting of 5" granite stone curbing, 5" granite curved stone curbing, granite stone transition curbing for ramp transition curbing.

Article M.12.06—Stone Curbing the following shall replace the paragraph beginning with “the finish and surface dimensions” shall be replaced with the following:

The finish and surface dimension for the curb shall conform to the following requirements:

- 1) Granite shall be "New England" granite conforming to ASTM C 615, Class I Engineering Grade, suitable for curbstone use.
- 2) Curb shall be light gray, free from seams which impair structural integrity, and with percentage wear less than 32 percent as determined by ASTM C 131 testing.
- 3) Granite curb shall be of 3 dimensions and shall be located as shown on the site plans. 5" x 17" granite stone curbing, curved stone curbing, ramp transition curbing and flush curbing shall have the following dimensions: width at top = 5 inches, depth = 17 inches to 19 inches. Ramp transition curbing will vary in depth but must have 12 inches minimum below finish grade. For straight curbing, 80% of the stones shall be furnished in lengths of not less than 6 ft, and the remaining 20% in lengths of not less than 4 ft. interspaced at random to allow for closures.
- 4) Granite curb corners shall have a face radius as indicated on the plans with a 5 inch width at the matching joint.
- 5) Top surface of all granite curbing shall be sawn to a near true plane, having no projections or depressions greater than 1/8" and shall be thermal finished to create a non-slip surface.
- 6) Where the top surface meets the front face, the sharp edge should be honed to a 3/8" chamfer and thermal finished to create a non-slip surface. Where the top surface meets the back face, the sharp edge shall be thermal finished.
- 7) Front and back faces for granite curbing, curb corners, ramp transition and flush stones shall be at right angles to the planes of the top and ends and shall be smooth quarry split, free from drill holes and with no projection more than 1/2 inch and no depressions of more than 1/2 inches, measured from the vertical plane of the face through the arris line for a distance of 8 inches from the top surface. For the remaining distance there shall be no projection or depression greater than 1 inch.
- 8) The ends of curb segments shall be squared with the planes of the top and faces so that when the stones are placed end to end as closely as possible, no space shall show in the joint at the top and faces of more than 1/4 inches for the full width of the top and for 8 inches down the faces, after which the ends may break back not over 1 inch from the plane of the joint. No face of adjoining stones shall be more than 1/8 inch out of plane.
- 9) Curbstones to be set on a radius of 100ft or less shall be cut to the curve required, and their ends shall be cut on radial lines. Requirements for length of individual stones in curved curbing vary with radii of curb.

Submittals:

- 1) Submit sample granite for granite curb to owner's representative for approval. Sample size shall be representative of curb size, 12 inches long.
- 2) Submit complete shop drawings of granite curbing for owners representative approval:
 - a. Shop drawings shall include size, dimension and finish of each curb type.
 - b. Submit a complete schedule for quantity, lengths and size for all project curbing.
- 3) Submit concrete encasement mix design to owner's representative for approval.

Article 8.13.02—Materials is supplemented with the following:

Concrete encasement: Encasement for all granite curb types shall be Class "F" Concrete as specified in Article M.03.01 poured to a depth indicated on the site plans.

Article 8.13.03—Construction Methods is supplemented with the following:

- .2 Vertical faces of all curb shall be vertically plumb with top parallel to adjacent surfaces. Curb shall be accurately set to the grades indicated within the site plans. Curb alignment shall be consistent, with smooth transitions between adjacent curb stones. Radius curb segments shall meet with a common tangent.
- .3 Backfill material on each side of the curb shall be as specified for the adjacent surface and shall be thoroughly compacted. Use extreme caution not to destroy curb alignment. Any curb sections that are disturbed shall be reset.

ITEM #0814001A – RESET GRANITE STONE CURBING
ITEM #0814005A – RESET GRANITE CURVED STONE CURBING
ITEM #0814008A – RESET GRANITE STONE TRANSITION CURBING

Section 8.14 is supplemented as follows:

Article 8.14.03—Construction Methods is supplemented with the following:

Defects of salvaged curbing may be cut off from otherwise sound lengths of curbing. Ends which are not square to the face of the curb or will not create a consistent and parallel joint when abutting new or reused curb shall be saw cut as required. Provide cutbacks if lacking on salvaged curbing.

ITEM #0901005A – BOLLARD

Description:

The work covered under this item includes furnishing all labor, equipment, materials, and installation of a galvanized steel pipe and a cast iron bollard covers as shown on the plans.

Materials:

Steel Pipe: 4-1/2 inch maximum outer diameter, schedule 40, galvanized in compliance with M.06.03, length as per site plans.

Bollard Cover: R-7589 Fluted ductile iron bollard, concrete and anchor castings mount, black powder coat by Reliance Foundry, Unit 2017, 6480 148th Street, Surrey British Columbia, CA 1-888-735-5680.

Concrete: Shall comply with Item #0921001A.

Construction Methods:

The diameter of the concrete footing shall be equal or slightly larger than the diameter of the bollard cover base and no greater than 1/2 inch on any side. The exposed edges of the footing shall have 1/4" radius with a hand rubbed surface resulting in a smooth, blemish free finish. No aggregate shall be exposed. When pouring the footing, the center galvanized steel pipe perfectly within the footing so once the bollard cover is installed there is a consistent footing reveal around the perimeter of the bollard. The center pipe must be vertically plumb and perpendicular to the finished surface of the footing so the bollard cover sits flush with the concrete surface. Set the elevation of the pipe above the footing surface as per the manufacturer's specifications.

Once the galvanized pipe has been set, embed the bollard mount as per the manufacturers specifications within the pipe taking care to center and set the mount vertically plumb within the pipe.

Once the top has been installed, attach a white highly reflective strip to each top covering over the set screw hole. Ensure the bollard surface is clean, dry and free from oil or residue to ensure a solid bond between the reflective tape and the surface.

Method of Measurement:

This work will be measured for payment by the number of Bollards completely installed and accepted in place.

Basis of Payment:

Payment for this work will be made at the Contract unit price per "Bollard" complete in place, which price shall include all material, equipment, tools and labor incidental thereto.

Pay Item	Pay Unit
Bollard	e.a.

ITEM #0914001A – METAL HANDRAIL

Section 9.14 is supplemented as follows:

Article 9.14.01—Description shall be replaced with the following:

This item shall consist of modifying existing steel hand-rails and furnishing and installing new welded and seamless steel hand-railing and pedestrian barriers on the proposed concrete steps, as shown on the plans, or as directed by the Owners Representative. All hand rails and pedestrian barriers shall meet all Federal, State and local codes including the Americans with Disabilities Act Standards.

Article 9.14.02—Materials shall be supplemented with the following:

Pipe for handrail modifications and new handrails shall be of the dimensions as noted on the plans, welded and seamless steel pipe meeting the requirements of ASTM A53, Type E or S, Grade A, Schedule 40.

Steel tube for pedestrian barrier posts and horizontal members connecting the posts shall be of the dimensions noted on the plans, welded and seamless steel tube meeting the requirements of ASTM A513, 0.1875" (3/16") Wall Thickness.

Steel tube for pedestrian infill shall be of the dimensions noted on the plans, welded and seamless steel tube meeting the requirements of ASTM A513, 0.065" Wall Thickness.

Primer Pain System:

1. Maropoxy 646, Color: Grey, Sheen: Semi-Gloss, by Sherwin Williams, 101 West Prospect Ave, Cleveland, OH 44115 1-800-474-3794

Top-Coat Paint System:

2. Acrolon Ultra Acrylic Polyurethane, Color: Black, Sheen: Semi-Gloss, by Sherwin Williams, 101 West Prospect Ave, Cleveland, OH 44115 1-800-474-3794

Article 9.14.03—Construction Methods shall be supplemented with the following:

Handrails shall be cleaned per the paint manufacturer's recommended surface preparations. Macropoxy 646 shall be applied to the handrails in a single application to a 7 mil dry thickness. Top Coats shall be applied in two applications each with a 2.0-3.0 mil dry thickness. Final top coat applications shall have a smooth semi-gloss finish free of applicator marks.

ITEM #091500A - TREE PROTECTION

Description: The work covered under this item includes furnishing all labor, equipment, materials, installation and removal of temporary tree protection fencing as shown on the plans or as directed by the owner’s representative.

Materials:

- 1) 7' long, 2" diameter galvanized steel posts with galvanization conforming to M10.05-2
- 2) 4' tall 2" galvanized fabric, 9 gauge conforming to M10.05-1
- 3) 7 gauge tie wire conforming to M10.05-4-b
- 4) Custom tree protection zone sign constructed from weather proof materials. Content for the signs shall be obtained from the drawings
- 5) 120lb black zip ties

Construction Methods:

- 1) Fence posts shall be hand driven into the ground at a 8' maximum on center spacing at a distance from the trunk equal to the outer most branches of the tree (drip line). Drive posts 3 feet into the ground. Care should be taken to ensure posts are not driven into major tree roots. If the post does not freely drive into the ground, move the post away from the trunk of the tree and try again. In no case shall a fence post be moved closer to the tree trunk within the drip line of the tree.
- 2) Affix fabric to the posts with tie wire spaced 12" on center. Mesh shall be stretched between posts without sagging.
- 3) Affix tree protection signage to fabric with 120lb zip ties at each corner spaced 20' on center.
- 4) Vegetation within the tree protection fence shall be mowed as required to maintain a neat appearance for the duration of the project.
- 5) The tree protection fence shall be inspected and maintained by the contractor at the end of every day for the duration of the project. The fence shall be repaired as required.
- 6) Written approval from the owner’s representative is required prior to removing any tree protection fencing. Upon approval, all tree protection fencing materials must be removed from the work area and disposed of off-site.

Method of Measurement:

This work will be measured for payment by the number of linear feet of fencing installed and work accepted.

Basis of Payment:

Payment for this work will be made at the Contract unit price per linear foot for “Tree Protection”, which price shall include all material, equipment, tools and labor incidental thereto.

Pay Item	Pay Unit
Tree Protection	I.f.

ITEM #0921001 – CONCRETE SIDEWALKS
ITEM #0921002 – CONCRETE SIDEWALKS - 8" THICK
ITEM #0921005 – CONCRETE SIDEWALK RAMP

Section 9.21 is supplemented as follows:

9.21.01—Description: This item shall consist of curb ramps with detectable warning tiles, concrete sidewalks, and concrete sidewalks 8" thick for vehicle loading constructed on a crushed stone base course in the locations and to the dimensions shown on the site plans, details or as per the specifications.

9.21.02—Materials: Add the following:

Concrete: For all concrete on this project, concrete shall conform to the requirements of Article M.03.01 for Class "F" Concrete.

Subbase: All crushed stone for concrete subbases shall be ASTM #6 in accordance with Article M.02.06-2 and ASTM D 448

Geotextile Fabric: Mirafi 140N by Tencate 365 South Holland Drive, Pendergrass, GA 30567. Grab Strength: 120lbs; Grab Elongation: 50%; Tear Strength: 50lbs; Puncture Strength: 310lbs; Flow Rate: 135gal/min/ft²

Dowels: Dowels at expansion joints shall be a round smooth dowel with a plastic sleeve system specifically designed for dowelled expansion joints. Dowels must conform to the following requirements:

- 1) Diameter: .75 inch for concrete less than 8" thick, 1.0 inch for concrete greater than 8" thick
- 2) Length: 18inches
- 3) Sleeve Length: 9 inches

Welded wire mesh: Shall be cold-drawn steel and conform to the requirements in M. 06.01.3 and as shown on the site plans.

Expansion Joint Filler: Ceramar Foam Filler, 1/2" thick by W.R. Meadows, Inc. 300 Industrial Drive Hampshire, IL 60140 1-800-342-5976 or approved equal. Foam shall be closed cell polymer foam meeting requirements of ASTM D 1752, sections 5.1-5.4, minimum compression 10psi and 25psi maximum, Recovery rate following 50 percent compression shall meet or exceed 99 percent recovery per ASTM D 545.

Joint Sealant: Sikaflex by Sika Group 201 Polito Avenue, Lyndhurst, NJ 07071 1-800-933 or approved equal. Single Component, Self-Leveling, Urethane, Elastomeric Joint Sealant: ASTM C 920, Type S, Grade P, Class 25, for use T, M, A, G, I. A full line of manufacturers colors shall be submitted to the owners representative for selection.

Joint Sealant Primer: As recommended by the selected joint sealant manufacturer.

Detectable Warning Panel: Armor Tile, cast in place, size as required to meet ADA requirements, dark grey by Engineered Plastics Inc. 300 International Drive, Suite 100, Williamsville, NY 14221 7-800-682-2525 or approved equal.

Submittals: Submit a methods and sequence of concrete placement.

Submit manufacturer's product data for the following:

- 1) Form release agent
- 2) Preformed joint filler - include 12 inch product sample
- 3) Joint sealant - include full range of color samples
- 4) Joint sealant primer
- 5) Sub-Base
- 6) Geotextile Fabric - include 6 inch square sample
- 7) Detectable warning panel - include 12 inch square sample
- 8) Welded wire mesh
- 9) Dowel system
- 10) Curing compound

Mock-up: Construct a 5 foot wide by 8 foot long sample panel of finished concrete sidewalk for approval by the owners representative 20 days prior to the anticipated start of pouring concrete. The sample panel shall demonstrate the typical installation of concrete including score lines, safety scoring, expansion joint and sealant, surface texture, edge treatment, color and curing. The accepted sample shall be maintained and used as the minimum quality standard for all other concrete work on the project. If the sample is not approved, the Contractor shall provide additional sample panel at no additional cost until an approved sample is obtained. Unacceptable sample panels shall be immediately removed from the site.

9.21.03—Construction Methods: Add the following:

Sub-grade: Prior to placing stone sub-base, soils must be compacted to 95 percent proctor density.

Geotextile Fabric: Place geotextile fabric on all sides of the sub-base which contact soil, either native and or backfill material and along the back side of the granite curb. Edges must be wrapped and secured to ensure fabric does not shift while placing sub-base.

Welded Wire Mesh: Welded wire mesh shall be placed in all concrete sidewalks and driveway ramps. Before being placed in position, all foreign debris, rust, etc. which will reduce the bond between the reinforcing and concrete shall be removed. Mesh reinforcement shall be secured to prevent movement while concrete is being poured. The final elevation of the mesh shall be midway within the depth for sidewalks, set to 1/3 of the slab thickness from the top of the concrete for 8" thick slabs and parallel to the finished surface of the concrete.

Expansion Joints: Expansion joints shall be 1/2" wide and shall be located as per the site plans. Joint filler shall be placed to within 1/2" of the finished surface and extend to the full depth of the concrete.

Follow the manufacturer's recommendations for concrete prep and priming of expansion joints to maximize the adhesion of the joint sealant. Joint alignment shall be perpendicular to the curb line unless shown otherwise on the site plan.

Tooling: All concrete sidewalk and ramp edges shall have a 1/8" radius. In the areas indicated on the site plans, use a safety ramp groove tool to create 1/4 inch square notches spaced 1-1/2 inches apart for the width indicated. Grooves shall be smooth and straight and shall deviate less than 1/8 inch in any direction.

Finishing: All walking surfaces shall receive a light broom finish running perpendicular to the direction of travel. The surface shall be consistently textured with no smooth, overly rough, or porous spots. Walkways which round corners shall have the broom finish follow the direction of the control joints. All window frames caused by edge joints shall be removed with the broom finish.

Detectable Warning Tiles: Set directly in fresh concrete as per the manufacturer's instructions in the locations indicated on the site plans. Warning pavers which are set on a curve shall be scribed so the radii so the tile sits tight against the back of the granite curb. The opposite edge of the tile may be straight.

Acceptance Standards: The contractor must inform the owner's representative 24 hours prior to inspection. Any work not conforming to these standards will be unacceptable and must be removed at the direction of the owner's representative. Rejected segments must be saw cut at the nearest adjacent tooled joint, remove concrete and dispose of offsite and replace to the standards set forth within this specification.

- 1) Pours not conforming to the site plans
- 2) Pours without expansion joints
- 3) Joints which do not conform to the site plans and must be straight, true, uniform in width and free from twists, bends, kinks and or misalignments.
- 4) Tooled edges must be clean, true, crisp, complete and consistent.
- 5) Broom finishes must not be too coarse as per the opinion of the owner's representative.
- 6) Broom finishes shall be constant and complete between joints without bare spots, lifts or disconnections in the brush stroke/pattern.
- 7) Sidewalk shall have no graffiti or show corrective measures to conceal graffiti including rubbed surfaces.
- 8) Concrete surface shall be free from all stains, caused by natural events, construction practices, or vandalism.
- 9) Steel mesh reinforcing shall not penetrate any surface of the concrete.
- 10) Sidewalk surfaces should not pond water, shall be free of visible high spots and low spots, and shall be free of all cracking

ITEM #0921013A – CONCRETE DRIVEWAY APRON

Section 9.24.01 is supplemented as follows

9.24.01—Description is replaced with the following:

This item shall consist of driveway ramps constructed on a crushed stone base course in the locations and to the dimensions shown on the site plans, details or as per the specifications.

9.24.02—Materials is supplemented with the following

Subbase: All crushed stone for concrete subbases shall be ASTM #6 in accordance with Article M.02.06-2 and ASTM D 448

Geotextile Fabric: Mirafi 140N by Tencate 365 South Holland Drive, Pendergrass, GA 30567.
Grab Strength: 120lbs; Grab Elongation: 50%; Tear Strength: 50lbs; Puncture Strength: 310lbs;
Flow Rate: 135gal/min/ft²

Dowels: Dowels at expansion joints shall be a round smooth dowel with a plastic sleeve system specifically designed for dowelled expansion joints. Dowels must conform to the following requirements:

- 4) Diameter: .75 inch for concrete less than 8" thick, 1.0 inch for concrete greater than 8" thick
- 5) Length: 18inches
- 6) Sleeve Length: 9 inches

Welded wire mesh: Shall be cold-drawn steel and conform to the requirements in M. 06.01.3 and as shown on the site plans.

Expansion Joint Filler: Ceramar Foam Filler, 1/2" thick by W.R. Meadows, Inc. 300 Industrial Drive Hampshire, IL 60140 1-800-342-5976 or approved equal. Foam shall be closed cell polymer foam meeting requirements of ASTM D 1752, sections 5.1-5.4, minimum compression 10psi and 25psi maximum, Recovery rate following 50 percent compression shall meet or exceed 99 percent recovery per ASTM D 545.

Joint Sealant: Sikaflex by Sika Group 201 Polito Avenue, Lyndhurst, NJ 07071 1-800-933 or approved equal. Single Component, Self-Leveling, Urethane, Elastomeric Joint Sealant: ASTM C 920, Type S, Grade P, Class 25, for use T, M, A, G, I. A full line of manufacturers colors shall be submitted to the owners representative for selection.

Joint Sealant Primer: As recommended by the selected joint sealant manufacturer.

Detectable Warning Panel: Armor Tile, cast in place, size as required to meet ADA requirements, dark grey by Engineered Plastics Inc. 300 International Drive, Suite 100, Williamsville, NY 14221 7-800-682-2525 or approved equal.

Submittals: Submit a methods and sequence of concrete placement.

Submit manufacturer's product data for the following:

- 11) Form release agent
- 12) Prefomed joint filler - include 12 inch product sample

- 13) Joint sealant - include full range of color samples
- 14) Joint sealant primer
- 15) Sub-Base
- 16) Geotextile Fabric - include 6 inch square sample
- 17) Detectable warning panel - include 12 inch square sample
- 18) Welded wire mesh
- 19) Dowel system
- 20) Curing compound

Mock-up: Construct a 5 foot wide by 8 foot long sample panel of finished concrete sidewalk for approval by the owners representative 20 days prior to the anticipated start of pouring concrete. The sample panel shall demonstrate the typical installation of concrete including score lines, safety scoring, expansion joint and sealant, surface texture, edge treatment, color and curing. The accepted sample shall be maintained and used as the minimum quality standard for all other concrete work on the project. If the sample is not approved, the Contractor shall provide additional sample panel at no additional cost until an approved sample is obtained. Unacceptable sample panels shall be immediately removed from the site.

9.24.03—Construction Methods: Add the following:

Sub-grade: Prior to placing stone sub-base, soils must be compacted to 95 percent proctor density.

Geotextile Fabric: Place geotextile fabric on all sides of the sub-base which contact soil, either native and or backfill material and along the back side of the granite curb. Edges must be wrapped and secured to ensure fabric does not shift while placing sub-base.

Welded Wire Mesh: Welded wire mesh shall be placed in all concrete pours. Before being placed in position, all foreign debris, rust, etc. which will reduce the bond between the reinforcing and concrete shall be removed. Mesh reinforcement shall be secured to prevent movement while concrete is being poured. The final elevation of the mesh shall be set to 1/3 of the slab thickness from the top and parallel to the finished surface of the concrete.

Expansion Joints: Expansion joints shall be 1/2" wide and shall be located as per the site plans. Joint filler shall be placed to within 1/2" of the finished surface and extend to the full depth of the concrete.

Follow the manufacturer's recommendations for concrete prep and priming of expansion joints to maximize the adhesion of the joint sealant. Joint alignment shall be perpendicular to the curb line unless shown otherwise on the site plan.

Tooling: All concrete sidewalk and driveway ramp edges shall have a 1/8" radius.

Finishing: All walking surfaces shall receive a light broom finish running perpendicular to the direction of travel. The surface shall be consistently textured with no smooth, overly rough, or porous spots. Walkways which round corners shall have the broom finish follow the direction of the control joints. All window frames caused by edge joints shall be removed with the broom finish.

Detectable Warning Tiles: Set directly in fresh concrete as per the manufacturer's instructions in the locations indicated on the site plans. Warning pavers which are set on a curve shall be scribed so the radii so the tile sits tight against the back of the granite curb. The opposite edge of the tile may be straight.

Acceptance Standards: The contractor must inform the owner's representative 24 hours prior to inspection. Any work not conforming to these standards will be unacceptable and must be removed at the direction of the owner's representative. Rejected segments must be saw cut at the nearest adjacent tooled joint, remove concrete and dispose of offsite and replace to the standards set forth within this specification.

- 11) Pours not conforming to the site plans
- 12) Pours without expansion joints
- 13) Joints which do not conform to the site plans and must be straight, true, uniform in width and free from twists, bends, kinks and or misalignments.
- 14) Tooled edges must be clean, true, crisp, complete and consistent.
- 15) Broom finishes must not be too coarse as per the opinion of the owner's representative.
- 16) Broom finishes shall be constant and complete between joints without bare spots, lifts or disconnections in the brush stroke/pattern.
- 17) Sidewalk shall have no graffiti or show corrective measures to conceal graffiti including rubbed surfaces.
- 18) Concrete surface shall be free from all stains, caused by natural events, construction practices, or vandalism.
- 19) Steel mesh reinforcing shall not penetrate any surface of the concrete.
- 20) Sidewalk surfaces should not pond water, shall be free of visible high spots and low spots, and shall be free of all cracking

ITEM #0921034A – STONE BLOCK SIDEWALK

Description:

This item shall consist of the furnishing and installation of cut bluestone pavers on a mortar setting bed over a concrete base as shown on the site plans.

Materials:

Bluestone pavers with shop cut edges to a 1/8" tolerance, square corners. 3 inch thick with a 1/8 inch thickness tolerance. Thermal face with a surface variation not to exceed 1/8 inch in each square foot of exposed edge. See plans for surface dimensions. Color shall be a uniform blue gray. Hobart Stone Dealers 761 Conklin Avenue, Bringhamton, New York 13903 607-723-0834 or approved equal.

Mortar: 3701 Fortified Mortar Bed by Laticrete, 1 Laticrete Park North, Bethany, CT 06524 1-800-243-4788 or approved equal.

Bond Coat: Shall be a mix of the following

- 1) 4237 Latex Additive by Laticrete, 1 Laticrete Park North, Bethany, CT 06524 1-800-243-4788 or approved equal.
- 2) 211 Powder by Laticrete, 1 Laticrete Park North, Bethany, CT 06524 1-800-243-4788 or approved equal.

Grout: Permacolor Grout by Laticrete, 1 Laticrete Park North, Bethany, CT 06524 1-800-243-4788 or approved equal. Color shall match bluestone.

Concrete Base: Shall comply with Item #0921001A

Masonry Cleaner: Shall be acid free and specifically designed to remove excess mortar, grout, dirt and all stains during final cleaning of the bluestone installation leaving the stone surface clean.

Submittals: The contractor shall submit the following information submittals

- 1) Mortar
- 2) Grout - including samples of the manufacturers full range of colors
- 3) Bond coat
- 4) Bluestone - including a 12 inch x 12 inch bluestone sample showing the specified finish.

Construction Methods:

All stonework shall be done by competent masons with a minimum of 5 years' experience. All work shall be completed under adequate supervision. No work shall be done in inclement weather or during freezing conditions.

Surface Preparation: All surfaces should be between 40F and 90F and structurally sound, clean, and free from all dirt, oil, grease or loose concrete particles. Dampen the surface immediately before placing the mortar setting bed but in no case shall there be free standing water.

Bond Coat: A slurry bond coat consisting of a mixture of laticrete 4237 latex additive and 211 powder shall be spread on the concrete base to a thickness of 1/16 inch while pressing bond

coat firmly into the concrete base. Do not allow bond coat to dry out before applying mortar bed.

Mortar Bed: While the bond coat is still wet, apply a layer of laticrete 3701 mortar to a consistent depth as per the site plans with a minimum depth of 1/2 inch. Screed mortar bed to create a smooth surface on which to set the pavers. Let mortar bed harden sufficiently to walk upon prior to applying the final bond coat. A second application of bond coat mixture shall be applied to the mortar setting bed to a thickness of 1/16 inch. Apply a second coat using a notched trowel of a sufficient depth since back buttering may not be feasible.

Setting Pavers: Exposed faces of pavers shall be protected from mortar at all times. If any mortar shall touch an exposed face, clean immediately with a wet sponge taking care to remove all residual haze. Cut pavers as required to fit around obstacles maintaining the specified joint width. Prior to setting paver on the prepared surface, dampen the back with water. Each stone shall be set on a wet sticky bond coat layer and tapped home to a full and solid bearing while leveling the faces of each paver. Pavers shall be set true to the required lines and grades in the details as part of the site plan. Pavers shall have neat, straight, equally spaced joints. If any paver creeps during setting, the paver shall be reset as required to bring the paver to the required line and grade.

Joints: Unless otherwise indicated, joints between pavers shall be 3/8 inch wide.

Grout: Grout placement shall occur after bond coat has substantially set. Joints shall be dry and free of standing water and free of dust and debris. If joints have collected dust, blow free with compressed air prior to grouting. Mix and apply grout per the manufacturer's instructions. With a rigid squeegee or trowel, spread joint filler back and forth across the paver faces until the joints are filled and firmly packed with no voids. When joint filler has firmly set, clean with a sponge so finished joints are slightly concave. Cure joints for a minimum of 1 week using a curing blanket. After one week, clean with approved acid-free masonry cleaner.

Acceptance Standards: The contractor must inform the owner's representative 24 hours prior to inspection. Any work not conforming to these standards will be unacceptable and must be removed at the direction of the owner's representative. Reasons for rejection include but are not limited to:

- 1) Pavers not in compliance with the pattern set forth in the construction documents
- 2) Paver sections with varying joint spacing
- 3) Pavers with gouges, cracked, or chipped corners
- 4) Pavers sections that have visible dips or humps and or are unlevel with surrounding pavers or concrete sidewalks
- 5) Cracked mortar joints
- 6) Pavers that wobble or sound hollow below
- 7) Pavers with drastic differences in color

Rejected pavers must be removed and replace to the standards set forth within this specification.

Method of Measurement:

This work will be measured for payment by the number of square feet of stone block sidewalk completed and work accepted in place.

Basis of Payment:

Payment for this work will be made at the Contract unit price per square foot for "Stone Block Sidewalk", which price shall include all material, equipment, tools and labor incidental thereto.

Pay Item
Stone Block Sidewalk

Pay Unit
s.f.

ITEM #0925006A – RELAY BLUESTONE WALK

Description:

This item shall consist of the salvaging of existing bluestone paving stones, installation of salvages paving stones and furnishing and installation new cut bluestone paving stones (replacements for cracked or broken paving stones) on a sand setting bed over a processed stone base as shown on the site plans.

Materials:

New or off-site salvaged bluestone pavers with weathered edges to match existing. Field cut stones as required to fit spaces left from placement of existing stones. Field cuts shall be honed to match the weathered nature of the existing stones. Stone thickness to match existing stones. Walking surface and wear to match existing stones. Color shall be random and match the variations of the existing pavement.

Polymeric Joint Sand: A blend of ASTM C144 graded sand and polymers,

- 3) HP NextGel Jointing Sand by Techniseal, 300 Liberte Avenue, Candaic, Quebec, Canada, J5R 6X1, 1-800-465-7325 or approved equal.
- 4) Gator Maxx G2 by Alliance Designer Products, Inc, 225 Boulevard Bellerose West, Laval, Quebec, Canada, H7L 6A1, 1-866-212-1611 or approved equal.
- 5) X-Tream Wide Joint PolySweep, by Sek SureBond, 3925 Stern Ave, St. Charles, IL 60174, 1-800-932-3343

Owners Rep to choose from the manufacture's full range of colors- see submittal requirements

Setting Bed: All setting bed material for stone paving subbases shall be screenings in accordance with Article M.01.01.

Subbase: All processed stone for stone paving subbases shall be 1-1/4" processed stone in accordance with Article M.02.03 "Rolled Granular Base" gradation "C", containing zero asphalt cement or bituminous materials.

Edge Restraint:

- 1) SnapEdge by Sek SureBond, 3925 Stern Ave, St. Charles, IL 60174, 1-800-932-3343

Submittals: The contractor shall submit the following information submittals

- 5) Edge Restraint – 24" length with spike
- 6) Joint Sand – including the manufacturers full range of colors
- 7) Bluestone - including a new 12 inch x 12 inch bluestone sample showing the specified finish and honed edge to match the existing stones

Construction Methods:

All stonework shall be done by competent masons with a minimum of 5 years' experience. All work shall be completed under adequate supervision. No work shall be done in inclement weather or during freezing conditions.

Subgrade Preparation: Subgrades shall be excavated to the depths required to achieve finish grades as noted on the plans and compacted to a minimum 95% proctor density. If unsuitable soils are encountered or compaction densities are unable to be obtained, soils shall be removed and replaced with free draining materials in accordance with Article M.02.07 and recompacted.

Subbase Preparation: Subbase material shall be placed on prepared subgrade and compacted in two equal lifts to the depths indicated on the plans achieving a minimum 95% proctor density. The compacted surface of the subbase material shall extend 6" minimum past the lines indicated on the plan where hard edges (Building foundation, curb, etc.) are not present to prevent destabilization of the edges and to provide a stable base for the edge restraint to be affixed.

Edge Restraints: Where hard edges (Building foundation, curb, etc.) are not present, edge restraints shall be placed to the lines indicated on the plans and affixed to the prepared subbase utilizing 10" galvanized spikes as required to prevent movement of the edge restraint when force is applied in any direction.

Setting Bed: Screenings shall be placed to the depths indicated on the plans to allow for a uniform paving stone surface.

Setting Pavers: Pavers shall be set true to the required lines and grades in the details as part of the site plan. Pavers shall have neat, straight, equally spaced joints. If any paver creeps during setting, the paver shall be reset as required to bring the paver to the required line and grade.

Pavers shall be placed on the setting bed and settled into the setting bed material by vibrating the stone through the use of rubber mallets.

Joints: Unless otherwise indicated, joints between pavers shall be 1/2" wide

Polymeric Joint Sand: Apply polymeric joint sand per the manufacturer's recommendations.

Acceptance Standards: The contractor must inform the owner's representative 24 hours prior to inspection. Any work not conforming to these standards will be unacceptable and must be removed at the direction of the owner's representative. Reasons for rejection include but are not limited to:

- 8) Pavers with running joints longer than 6 feet
- 9) Paver sections with varying joint spacing
- 10) Pavers sections that have visible dips or humps and or are unlevel with surrounding pavers or concrete sidewalks
- 11) Pavers that wobble or sound hollow below
- 12) Pavers with drastic differences in color

Rejected pavers must be removed and replace to the standards set forth within this specification.

Method of Measurement:

This work will be measured for payment by the number of square feet of relay bluestone walk completed and work accepted in place.

Basis of Payment:

Payment for this work will be made at the Contract unit price per square foot for "Relay Bluestone Walk", which price shall include all material, equipment, tools and labor incidental thereto.

Pay Item	Pay Unit
Relay Bluestone Walk	s.f.

ITEM #0944001A – FURNISHING AND PLACING TOPSOIL

Section 9.44 is supplemented as follows:

9.44.01—Description: Amend as follows: The topsoil shall be placed to a depth of 6 inches unless stated otherwise in the contract.

9.44.01—Materials: Amend as follows:

All proposed and existing topsoil's shall be sent to a qualified soil testing laboratory for analysis. Provide soil sample results to the owner's representative for approval. Soil must meet the following requirements:

- 1) Percentage of Organic Matter: Minimum 3 percent max 6 percent by volume.
- 2) Soil Reaction: pH of 5.5 to 7
- 3) CEC of Total Soil: Minimum 10 meq/100 mL at pH of 6.5
- 4) Soluble-Salt Content: 0.4 to 0.8 mmho/cm
- 5) Bulk Density: 1.0 g/cu. cm to 1.4 g/cu. cm at 85% compaction.
- 6) Total Porosity: Minimum 35 percent at 85% compaction.
- 7) In "Fertility" Subparagraph below, insert single nutrient or a list of nutrients and amounts to suit Project according to testing laboratory's recommendations.
- 8) Fertility: Optimal levels for Phosphorus, Potassium, Magnesium and Calcium shall be tested for and amendments added per the recommendations of the testing laboratory for the intended soil use.
- 9) Microbiological Content: Optimal levels for Zinc, Copper, Boron, Iron and Manganese shall be tested for by the testing laboratory for the intended soil use.
- 10) Sources: Top soil shall come from unamended soils from locations that are naturally well drained where top soil occurs at least 4 inches deep, not from agricultural land, bogs, or marshes; and that do not contain undesirable organisms; disease-causing plant pathogens; or obnoxious weeds and invasive plants including, but not limited to, quackgrass, Johnsongrass, poison ivy, nutsedge, nimblewill, Canada thistle, bindweed, bentgrass, wild garlic, ground ivy, perennial sorrel, and brome grass.
- 11) Soils shall be completely free of the following: Concrete slurry, concrete layers or chunks, cement, plaster, building debris, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, acid, and other extraneous materials that are harmful to plant growth. Stones, clods, roots, clay lumps, and pockets of coarse sand exceeding 1 inch in any dimension.

Amendments: Soil amendments shall be applied based on recommendations from soil testing laboratory to achieve and optimal planting media.

Compost: Well-composted, stable, and weed-free organic matter produced by composting feedstock, and bearing USCC's "Seal of Testing Assurance," and as follows:

USCC permits compost to be produced from several feedstocks or raw materials, specifically including, but not limited to, agricultural, food, or industrial residuals; bio solids; yard trimmings; or source-separated municipal solid waste.

- 1) Feedstock: Limited to leaves
- 2) Reaction: pH of 5.0 to 8.5.
- 3) Soluble-Salt Concentration: Less than 2.0 mmho/cm
- 4) Moisture Content: 35 to 55 percent by weight
- 5) Organic-Matter Content: 30 to 40 percent of dry weight
- 6) Particle Size: Minimum of 98 percent passing through a 1/2 inch sieve

Sphagnum Peat: Partially decomposed sphagnum peat moss, finely divided or of granular texture, a pH of 3.4 to 4.8, and a soluble-salt content measured by electrical conductivity of maximum 5.0 mmho/cm

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, debris, and material harmful to plant growth.

The following textural classes shall be acceptable:

Sandy loam

Loam

ITEM #0947207A – BICYCLE RACK

Description:

The work covered under this item includes furnishing all labor, equipment, materials, installation of bicycle racks.

Materials:

Bike Rack: BRQS-101, Embedded mount, Black powdercoat by Victor Stanley, Inc. Dunkirk, MD 20754, 1-800-368-2573, no substitutions allowed.

Concrete: Shall comply with Item #0921001A.

Construction Method:

Bicycle Racks shall be installed prior to the installation of the indicated finished surface treatment as shown on the plans.

Concrete foundations shall be formed to a minimum dimension of 40 inches long, 8 inches deep and 12 inches wide. Bicycle racks shall then be placed on welded wire mesh chairs of an appropriate height to achieve the indicated exposed height of the bicycle rack above the finished grade of the surface treatment, bicycle racks shall then be set vertically plumb in two directions, braced and concrete poured to the top of the form. Bracing shall remain in place for 24 hours until concrete has firmly set.

The finished surface treatment shall be placed tight to the bicycle rack posts.

Method of Measurement:

This work will be measured for payment by the number of Bicycle Racks completely installed and accepted in place.

Basis of Payment:

Payment for this work will be made at the Contract unit price for each "Bicycle Rack installed, which price shall include all material, equipment, tools and labor incidental thereto.

Pay Item	Pay Unit
Bicycle Rack	ea.

ITEM #0949003 – FURNISHING, PLANTING, AND MULCHING TREES, SHRUBS, VINES AND GROUND COVER PLANTS

Plant material shall be furnished and installed in accordance with 9.49 and supplemented as follows:

SUMMARY

- A. Section Includes:
 - 1. Plants.
 - 2. Tree-watering devices.
 - 3. Edging.

1.2 DEFINITIONS

- A. Backfill: The earth used to replace or the act of replacing earth in an excavation.
- B. Pesticide: A substance or mixture intended for preventing, destroying, repelling, or mitigating a pest. Pesticides include insecticides, miticides, herbicides, fungicides, rodenticides, and molluscicides. They also include substances or mixtures intended for use as a plant regulator, defoliant, or desiccant. Some sources classify herbicides separately from pesticides.
- C. Planting Soil: Existing, on-site soil; imported soil; or manufactured soil that has been modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth. See item #0944001A furnishing and placing topsoil.
- D. Root Flare: Also called "trunk flare." The area at the base of the plant's stem or trunk where the stem or trunk broadens to form roots; the area of transition between the root system and the stem or trunk.

1.3 PREINSTALLATION MEETINGS

- A. Pre-installation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples of each type of mulch.

1.5 INFORMATIONAL SUBMITTALS

- A. Product certificates.

- B. Certificate of warranty.

1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: Recommended procedures to be established by Owner for maintenance of plants during a calendar year.
- B. Warranty Certificate

1.7 QUALITY ASSURANCE

- A. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when work is in progress.
 - 1. Pesticide Applicator: State licensed, commercial.
- B. Provide quality, size, genus, species, and variety of plants indicated, complying with applicable requirements in ANSI Z60.1.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Do not prune trees and shrubs before delivery. Protect bark, branches, and root systems from sun scald, drying, wind burn, sweating, whipping, and other handling and tying damage. Do not bend or bind-tie trees or shrubs in such a manner as to destroy their natural shape. Provide protective covering of plants during shipping and delivery. Do not drop plants during delivery and handling.
- B. Handle planting stock by root ball.
- C. Store bulbs, corms, and tubers in a dry place at 60 to 65 deg F until planting.
- D. Deliver plants after preparations for planting have been completed, and install immediately. If planting is delayed more than six hours after delivery, set plants and trees in their appropriate aspect (sun, filtered sun, or shade), protect from weather and mechanical damage, and keep roots moist.

1.9 WARRANTY

- A. Special Warranty: Installer agrees to repair or replace plantings and accessories that fail in materials, workmanship, or growth within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Death and unsatisfactory growth, except for defects resulting from abuse, lack of adequate maintenance.
 - b. Structural failures including plantings falling or blowing over.
 - 2. Installer is not liable for the following:

- a. Vandalism or theft
- B. Warranty Periods: From date of Substantial Completion.
 - 1. Substantial completion is considered to be the date when all plant material has been installed per the construction drawings. When the contractor feels the planting is substantially complete, the Landscape Architect shall be notified to conduct a punch list to ensure all material has been installed correctly and quantities of plant materials are accurate per the planting schedule found within the construction drawings and or substitutions submitted by the contractor and approved by the Landscape Architect due to plant availability. The contractor is responsible to replace missing and or deceased plants, and complete any corrective measures indicated by the Landscape Architect. A second check will be made by the Landscape Architect to confirm all items have been corrected and shall issue a written approval of the planting confirming Substantial Completion. The date of this letter shall be the start of the warranty period. Plants shall be warranted for the following length of time:
 - a. Trees, Shrubs, Vines, and Ornamental Grasses: 18 months.
 - b. Ground Covers, Biennials, Perennials, and Other Plants: 18 months.
 - c. Annuals: Three months.
- C. Final Acceptance: At the end of each warranty period, the Landscape Architect shall conduct a punch list to ensure all plant material previously approved at the time of substantial completion are acceptably healthy and well established. The contractor is responsible to replace plants throughout the warranty period as defined within the 3.9 PLANT MAINTENANCE article and any plants which are not acceptably healthy as indicated on the punch list shall be replaced by the contractor. A second check will be made by the Landscape Architect to confirm all items have been corrected and shall issue a written approval of the planting confirming Final Acceptance of the planting.

PART 2 - PRODUCTS

2.1 PLANT MATERIAL

- A. General: Furnish nursery-grown plants true to genus, species, variety, cultivar, stem form, shearing, and other features indicated in Plant List, Plant Schedule, or Plant Legend indicated on Drawings and complying with ANSI Z60.1; and with healthy root systems developed by transplanting or root pruning. Provide well-shaped, fully branched, healthy, vigorous stock, densely foliated when in leaf and free of disease, pests, 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 begins at root flare according to ANSI Z60.1. Root flare shall be visible before planting.
- C. Annuals: Provide healthy, disease-free plants of species and variety shown or listed, with well-established root systems reaching to sides of the container to maintain a firm ball, but not with excessive root growth encircling the container. Provide only plants

that are acclimated to outdoor conditions before delivery and that are in bud but not yet in bloom.

2.2 FERTILIZERS

- A. Planting Tablets: Tightly compressed chip-type, long-lasting, slow-release, commercial-grade planting fertilizer in tablet form. Tablets shall break down with soil bacteria, converting nutrients into a form that can be absorbed by plant roots.
 - 1. Size: 5-gram tablet for ground covers, perennials and annuals; 10-gram tablet for Shrubs, 21-gram tablet for deciduous and evergreen trees.
 - 2. Nutrient Composition: 20 percent nitrogen, 10 percent phosphorous, and 5 percent potassium, by weight plus micronutrients.
 - 3. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 - a. Agritab Corporation

2.3 MULCHES

- A. Organic Mulch: Shredded hemlock.
- B. Mineral Mulch: Stone Screenings, to be installed under fence as maintenance strip, see construction details for width and depth of mulch.
 - 1. Size Range: **1/4 inch minus.**
 - 2. Color: Readily available natural gravel color range, Grey tones.

2.4 PESTICIDES AND HERBICIDES

- A. General: Pesticide registered and approved by the EPA, acceptable to authorities having jurisdiction, and of type recommended by manufacturer for each specific problem and as required for Project conditions and application. Do not use restricted pesticides unless authorized in writing by authorities having jurisdiction.
- B. Pre-Emergent Herbicides: Selective pre-emergence herbicide for the control of certain broadleaf weeds and annual grasses may be applied in ornamental beds. Apply at a rate recommended by the manufacturer to planting beds at the time of mulching.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 - a. Dow Agro Science LLC.
- C. Slow-Release Watering Device: Standard product manufactured for drip irrigation of plants and emptying its water contents over an extended time period; manufactured from UV-light-stabilized nylon-reinforced polyethylene sheet, PVC, or HDPE plastic.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 - a. Spectrum Products, Inc.

PART 3 - EXECUTION

3.1 PLANTING AREA ESTABLISHMENT

- A. General: Prepare planting area for soil placement and mix planting soil according to item #0944001A furnishing and placing topsoil.
- B. Placing Planting Soil: Place and mix planting soil in-place over exposed subgrade.
- C. Before planting, obtain Architect's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.

3.2 EXCAVATION FOR TREES AND SHRUBS

- A. Planting Pits and Trenches: Excavate circular planting pits.
 1. Excavate planting pits with sides sloping inward at a 45-degree angle. Excavations with vertical sides are unacceptable. Trim perimeter of bottom leaving center area of bottom raised slightly to support root ball and assist in drainage away from center. Do not further disturb base. Ensure that root ball will sit on undisturbed base soil to prevent settling. Scarify sides of planting pit smeared or smoothed during excavation.
 2. Excavate approximately three times as wide as ball diameter where planting occurs in undisturbed soil.
 3. Excavate approximately one and one half times as wide as ball diameter where planting occurs in project fill.
 4. Do not excavate deeper than depth of the root ball, measured from the root flare to the bottom of the root ball.
- B. Backfill Soil: Subsoil removed from excavations may not be used as backfill soil unless otherwise indicated.

3.3 TREE, SHRUB, AND VINE PLANTING

- A. Inspection: At time of planting, verify that root flare is visible at top of root ball according to ANSI Z60.1. If root flare is not visible, remove soil in a level manner from the root ball to where the top-most root emerges from the trunk. After soil removal to expose the root flare, verify that root ball still meets size requirements.
- B. Roots: Remove stem girdling roots and kinked roots. Remove injured roots by cutting cleanly; do not break.

- C. Set each plant plumb and in center of planting pit or trench with root flare **1 inch** above adjacent finish grades.
 - 1. Backfill: Planting soil.
 - 2. Balled and Burlapped Stock: After placing some backfill around root ball to stabilize plant, carefully cut and remove burlap, rope, and wire baskets from tops of root balls and from sides, but do not remove from under root balls. Remove pallets, if any, before setting. Do not use planting stock if root ball is cracked or broken before or during planting operation.
 - 3. Container-Grown Stock: Carefully remove root ball from container without damaging root ball or plant. Scarify/loosen pot bound roots.
 - 4. Backfill around root ball in layers, tamping to settle soil and eliminate voids and air pockets. When planting pit is approximately one-half filled, water thoroughly before placing remainder of backfill. Repeat watering until no more water is absorbed.
 - 5. Place planting tablets equally distributed around each planting pit when pit is approximately one-half filled. Place tablets beside the root ball about **4 inch** from root tips; do not place tablets in bottom of the hole.
 - 6. Continue backfilling process. Water again after placing and tamping final layer of soil.

- D. Slopes: When planting on slopes, set the plant so the root flare on the uphill side is flush with the surrounding soil on the slope; the edge of the root ball on the downhill side will be above the surrounding soil. Apply enough soil to cover the downhill side of the root ball.

3.4 TREE, SHRUB, AND VINE PRUNING

- A. Remove only dead, dying, or broken branches. Do not prune for shape.
- B. Prune, thin, and shape trees, shrubs, and vines as directed by Landscape Architect.
- C. Prune, thin, and shape trees, shrubs, and vines according to standard professional horticultural and arboricultural practices. Unless otherwise indicated by Landscape Architect, do not cut tree leaders; remove only injured, dying, or dead branches from trees and shrubs; and prune to retain natural character.
- D. Do not apply pruning paint to wounds.

3.5 GROUND COVER AND PLANT PLANTING

- A. Set out and space ground cover and plants other than trees, shrubs, and vines as indicated on Drawings in even rows with triangular spacing.
- B. Use planting soil for backfill.
- C. Dig holes large enough to allow spreading of roots.
- D. Work soil around roots to eliminate air pockets and leave a slight saucer indentation around plants to hold water.

- E. Water thoroughly after planting, taking care not to cover plant crowns with wet soil.
- F. Protect plants from hot sun and wind; remove protection if plants show evidence of recovery from transplanting shock.

3.6 PLANTING AREA MULCHING

- A. Mulch backfilled surfaces of planting areas and other areas indicated.
 - 1. Trees in Turf Areas: Apply organic mulch ring of **3-inch** average thickness, with **24-inch** radius around trunks or stems. Do not place mulch within **3 inches** of trunks or stems.
 - 2. Organic Mulch in Planting Areas: Apply **3-inch** average thickness of organic mulch over whole surface of planting area, and finish level with adjacent finish grades. Do not place mulch within **3 inches** of trunks or stems.

3.7 EDGING INSTALLATION

- A. Shovel-Cut Edging: Separate mulched areas from turf areas with a 45-degree, **4- to 6-inch** deep, shovel-cut edge as indicated on Drawings.

3.8 INSTALLING SLOW-RELEASE WATERING DEVICE

- A. Provide one device for each tree.

3.9 PLANT MAINTENANCE

- A. Maintain plantings by pruning, cultivating, watering, weeding, fertilizing, mulching, restoring planting saucers, resetting to proper grades or vertical position, and performing other operations as required to establish healthy, viable plantings.
- B. Fill in, as necessary, soil subsidence that may occur because of settling or other processes. Replace mulch materials damaged or lost in areas of subsidence.
- C. Apply treatments as required to keep plant materials, planted areas, and soils free of pests and pathogens or disease. Use integrated pest management practices when possible to minimize use of pesticides and reduce hazards. Treatments include physical controls such as hosing off foliage, mechanical controls such as traps, and biological control agents.
- D. Apply pesticides and other chemical products and biological control agents according to authorities having jurisdiction and manufacturer's written recommendations. Coordinate applications with Owner's operations and others in proximity to the Work. Notify Owner before each application is performed.
- E. Protect plants from damage due to landscape operations and operations of other contractors and trades. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged plantings.

- F. At time of Substantial Completion, verify that tree-watering devices are in good working order and leave them in place. Replace improperly functioning devices.

3.10 MAINTENANCE SERVICE

- A. Maintenance Service: Provide maintenance by skilled employees of landscape Installer. Maintain as required in "Plant Maintenance" Article. Begin maintenance immediately after plants are installed and continue until plantings are acceptably healthy and well established, but for not less than warranty period listed under "1.9 WARRANTY" Article.

ITEM #0950019A – TURF ESTABLISHMENT

Article 9.50 is supplemented as follows:

Article M.13.04 —Seed Mixtures shall be replaced with the following:

- (a.) The grass seed mixture shall conform to the following:
University of Rhode Island Improved #2 Mix or approved equal
- 40 percent Creeping Red Fescue - 85 percent germination rate
 - 20 percent Improved Perennial Rye - 90 percent germination rate
 - 20 percent Improved Kentucky Bluegrass - 85 percent germination rate
 - 20 percent Kentucky Bluegrass - 85 percent germination rate

All seed shall be 95% pure and free of all weed seeds.
Seeding rates for lawn seed mix shall be 6 pounds per 1,000 square feet.

ITEM #0951010A - SILVA CELL SYSTEM

Description:

This item will consist of installing silva cell systems around tree pits and under the concrete sidewalks to the grades, and to the dimensions and detail shown on the plans, and in accordance with these specifications.

Definitions:

1. **Aggregate Base Course:** Stone material between the paving and the top of the Silva Cell deck below, designed to distribute loads across the top of the deck.
2. **Aggregate Subbase:** Stone material between the bottom of the Silva Cell base and the compacted subgrade below, designed to distribute loads from the Silva Cell bases to the subgrade.
3. **Backfill:** The earth used to replace or the act of replacing earth in an excavation beside the Silva Cell system to the excavation extents.
4. **Finish Grade:** Elevation of finished surface of planting soil or paving.
5. **Planting Soil:** Soil as defined in ITEM #0944000A - FURNISHING AND PLACING TOPSOIL, intended to fill the Silva Cell system and other planting spaces.

Silva Cell System:

1. **Silva Cell:** One assembled unit made up of 1 base, 6 post assemblies, and 1 Silva Cell deck.
2. **Silva Cell System:** Two or more Silva Cells used in combination with each other and with required accessories.
3. **Subgrade:** Surface or elevation of subsoil remaining after completing excavation, or top surface of a fill or backfill.
4. **Walk-Through:** A process for light compaction of soils by walking through the soil following placement.

Reference Standards:

1. American Association of State Highway and Transportation Officials (AASHTO):
 - a. AASHTO H-20
2. ASTM International (ASTM):
 - a. ASTM D448-12, Standard Classification for Sizes of Aggregate for Road and Bridge Construction
 - b. ASTM D698-12e1, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12 400 ft-lbf/ft³ [600 kN-m/m³])
 - c. ASTM D1241-07, Standard Specification for Materials for Soil-Aggregate Subbase, Base, and Surface Courses
 - d. ASTM D3786/D3786M-13, Standard Test Method for Bursting Strength of Textile Fabrics-Diaphragm Bursting Strength Tester Method
 - e. ASTM D4491-99a(2014)e1, Standard Test Methods for Water Permeability of Geotextiles by Permittivity
 - f. ASTM D4533-D4533M-15, Standard Test Method for Trapezoid Tearing Strength of Geotextiles
 - g. ASTM D4632-D4632M-15, Standard Test Method for Grab Breaking Load and Elongation of Geotextiles
 - h. ASTM D4751-12, Standard Test Method for Determining Apparent Opening Size of a Geotextile
 - i. ASTM D4833/D4833M-07(2013)e1, Standard Test Method for Index Puncture Resistance of Geomembranes and Related Products

- j. ASTM D5262-07(2012), Standard Test Method for Evaluating the Unconfined Tension Creep and Creep Rupture Behavior of Geosynthetics
- k. ASTM D6241-14, Standard Test Method for Static Puncture Strength of Geotextile and Geotextile-Related Products Using a 50mm Probe
- l. ASTM D6637-11, Standard Test Method for Determining Tensile Properties of Geogrids by the Single or Multi-Rib Tensile Method

Requirements:

1. Preinstallation Conference: Prior to installation of the Silva Cell system and associated Work, meet at Project site with the Contractor, Silva Cell system installer and their field supervisor, manufacturer's technical representative, the Landscape Architect, the Owner at the Owner's discretion, and other entities concerned with the Silva Cell system performance.
 - a. Provide at least 72 hours advance notice to participants prior to convening preinstallation conference
 - b. Introduce and provide a roster of individuals in attendance with contact information.
 - c. The preinstallation conference agenda will include, but is not limited to the review of:
 - i. Required submittals both completed and yet to be completed.
 - ii. The sequence of installation and the construction schedule.
 - iii. Coordination with other trades.
 - iv. Details, materials and methods of installation.
 1. Review requirements for substrate conditions, special details, if any, installation procedures.
 2. Installation layout, procedures, means and methods.
 - v. Mockup requirements

Methods:

1. Comply with applicable requirements of the laws, codes, ordinances and regulations of Federal, State and Municipal authorities having jurisdiction. Obtain necessary permits/approvals from these authorities.

Manufacturer Qualifications:

1. A manufacturer whose product is manufactured in an ISO/TS 16949 compliant and ISO 9001 - 2008 registered factory
2. A manufacturer with not less than 100 Silva Cell systems in-place, each system in use for not less than 3 years, confirming durability and longevity of the system
3. A manufacturer with documented written approval of their product for use as a Stormwater treatment device by a minimum of 3 governmental jurisdictions
4. A manufacturer with an established and demonstrated utility service and repair process, including written procedure and photographs demonstrating work.

Installer Qualifications:

A qualified installer with not less than 5 years of successful experience installing Silva Cell systems or related products and materials, and whose work has resulted in successful installation of underground piping, chambers and vault structures, planting soils, and planter drainage systems of a similar scope and scale in dense urban areas.

Installer's Field Supervisor:

A full-time supervisor employed by the installer with not less than 5 years of successful experience similar to that of the installer and present at the Project site when Work is in progress. Utilize the same field supervisor throughout the Project, unless a substitution is submitted to and approved in writing by the Landscape Architect.

Mock-Up:

1. Prior to the installation of the Silva Cell system, construct a mock-up of the complete installation at the Project site in the presence of the Landscape Architect.
2. Size and Extent: Minimum of 100 sq. ft. (9.29 sq. m.) in area and including the complete Silva Cell system installation with subbase, aggregate subbase, drainage installation, Silva Cell decks, posts, and bases, base course aggregate, geotextile, geogrid, backfill, planting soil, and necessary accessories.
3. The mock-up area may remain as part of the installed Work at the end of the Project provided that it remains undamaged and meets the requirements of the Drawings and Specifications.

Delivery, Storage, And Handling

Silva Cell System:

1. Protect Silva Cell system components from damage during delivery, storage and handling.
2. Store components on smooth surfaces, free from dirt, mud and debris. Store under tarp to protect from sunlight when time from delivery to installation exceeds one week.
3. Perform handling with equipment appropriate to the size (height) of Silva Cells and site conditions; equipment may include, hand, handcart, forklifts, extension lifts, or small cranes, with care given to minimize damage to Silva Cell bases, posts, decks and adjacent assembled Silva Cells.

Packaged Materials:

1. Deliver packaged materials in original, unopened containers indicating weight, certified analysis, name and address of manufacturer, and indication of conformance with State and Federal laws, if applicable. Protect materials from deterioration during delivery and while on the Project site.

Bulk Materials:

1. Do not deliver or place backfill, soils, or soil amendments in frozen, wet, or muddy conditions.
2. Provide protection including tarps, plastic and/or matting between bulk materials and finished surfaces sufficient to protect the finish material.
3. Bring planting soil to the site using equipment and methods that do not overly mix and further damage soil peds within the soil mix.
4. Provide erosion-control measures to prevent erosion or displacement of bulk materials and discharge of soil-bearing water runoff or airborne dust to adjacent properties, water conveyance systems, and walkways. Provide additional sediment control to retain excavated material, backfill, soil amendments and planting mix within the Project limits as needed.

Field Conditions

Existing Conditions:

1. Do not proceed with Work when subgrades, soils and planting soils are in a wet, muddy or frozen condition.

Warranty

1. The Contractor shall warrant the Silva Cell system to be free of faults and defects in accordance with the General Conditions, except that the warranty shall be extended by

manufacturer's written warranty against defects in materials and workmanship as follows:

2. DeepRoot® warrants to the original purchaser of its Silva Cell™ product that such product will be free from defects in materials and workmanship, and perform to DeepRoot's written specifications for the warranted product, when installed and used as specifically provided in the product's installation guidelines for a period of 20 years from the date of purchase. This warranty does not cover wear from normal use, or damage caused by abuse, mishandling, alterations, improper installation and/or assembly, accident, misuse, or lack of reasonable care of the product. This warranty does not apply to events and conditions beyond DeepRoot's control, such as ground subsidence or settlement, earthquakes and other natural events, acts of third parties, and/or Acts of God. If this warranty is breached, DeepRoot® will provide a replacement product. Incurred costs, such as labor for removal of the original product, installation of replacement product, and the cost of incidental or other materials or expenses are not covered under this warranty.
3. Deeproot® makes no other warranties, express or implied, and specifically disclaims the warranty of merchantability or fitness for a particular purpose. Deeproot® shall not be liable either in tort or in contract for any direct, incidental or consequential damages, lost profits, lost revenues, loss of use, or any breach of any express or implied warranty.

Materials:

Required submittals:

1. Submit these to the Owners Representative for review and acceptance not less than 45 days prior to start of installation of materials and products specified in this Section.
 - a. Product Data: For each type of product, submit manufacturer's product literature with technical data sufficient to demonstrate that the product meets these specifications.
2. Test and Evaluation Reports:
 - a. Submit results of compaction testing required by the Specifications for approval.
 - b. Include analysis of bulk materials including soils and aggregates, by a recognized laboratory that demonstrates that the materials meet the Specification requirements.
3. Samples:
 - a. One full size sample of an assembled Silva Cell.
 - b. One 6-inch (150-mm) square piece of geogrid.
 - c. One 6-inch (150-mm) square piece of geotextile.
4. Manufacturer's Report: Submit Silva Cell system manufacturer's letter of review and approval of the Project, including Drawings and Specifications, Addenda, Clarifications and Modifications, and for compliance with product installation requirements.
5. Qualification Statements:
6. Manufacturer:
7. Submit list of completed projects demonstrating durability and longevity of in-place systems.
 - a. Include project name, location, and date of completion.
 - b. Installer:
 - i. Submit documentation of the qualifications of the Silva Cell system installer and their field supervisor, sufficient to demonstrate that both meet the requirements specified in Article QUALITY ASSURANCE.
 - ii. Submit list of completed projects of similar scope and scale demonstrating capabilities and experience.

8. Closeout Submittals: Submit these to the Landscape Architect at completion of installation.
9. Warranty: Submit manufacturer's warranty, fully executed.

Acceptable Manufacturers:

DeepRoot Green Infrastructure, LLC
101 Montgomery Street, Suite 2850
San Francisco, CA, 94104
800.458.7668

System Description:

1. The term Silva Cell shall be used to refer to a single Silva Cell or a stack of Silva Cells.
 - a. Silva Cells shall be designed for the purpose of growing healthy trees and providing Stormwater management.
2. Silva Cells shall be modular, structural systems.
3. Each Silva Cell shall be structurally-independent from all adjacent Silva Cells for incorporating utilities and other site features as well as for future repairs
4. Silva Cells shall be capable of supporting loads up to and including AASHTO H-20 (United States) or CSA-S6 87.5 kN (Canada) when used in conjunction with approved pavement profiles.
5. Silva Cells shall be open on all vertical faces and horizontal planes and shall have no interior walls or diaphragms.
6. Silva Cells shall be capable of providing a large, contiguous, continuous volume of planting soil that does not inhibit or prevent the following:
 - a. Placement of planting soil
 - b. Compaction testing of planting soil, once in place
 - c. Movement and growth of roots
 - d. Movement of water within the provided soil volume, including lateral capillary movement
 - e. Installation and maintenance of utilities placed within, adjacent to, or below the Silva Cell.
7. Silva Cells shall be able capable of being filled with a variety of soil types and soils that include peds 2 inches (50 mm) or larger in diameter as is appropriate for the application, location of the installation, and tree species.

Silva Cell Materials and Accessories

1. Silva Cell System Components: Each "Silva Cell 2" soil cell module (hereafter Silva Cell or "cell") is composed of one base, 6 post assemblies, and one deck.
2. 3x Silva Cell 2 System:
 - a. Components: One base, six 3x posts (a combination of six 1x posts and six 2x posts), and one deck.
 - b. Assembled Dimensions (Each Cell): 47.2 inches long by 23.6 inches wide by 43 inches high (1200 mm long by 600 mm wide by 1092.2 mm high).]
3. Silva Cell Materials and Fabrication:
 - a. Bases and Posts: Homopolymer polypropylene.
 - b. Decks: Fiberglass reinforced, chemically-coupled, impact modified polypropylene.
4. Manufacturer's Related Silva Cell Installation Accessories:
 - a. Strongbacks: An accessory designed to stabilize the Silva Cell posts temporarily, during soil placement, and removed for reuse prior to placing decks.

- b. Anchoring Pins: Threaded pins and crossbar for securing assembled Silva Cells to subbase.

Related Products

1. Root Barrier: Recyclable, black, injection molded panels manufactured with a minimum 50 percent post-consumer recycled polypropylene plastic with UV inhibitors, and integrated zipper joining system which allows instant assembly by sliding one panel into another; for redirecting tree roots down and away from hardscapes.
 - a. Panel Sizes:
 - i. No. UB12-2: 24 inches long by 12 inches deep by 0.080 inches thick (61 cm long by 30 cm deep by 2.03 mm thick); for use with 1x systems and for pavement profiles less than 12 inches (30 cm) deep.
 - b. Products meeting this specification:
 - i. DeepRoot Tree Root Barrier (DeepRoot Green Infrastructure, LLC)
2. Geogrid: Net-shaped woven polyester fabric with PVC coating, uniaxial or biaxial geogrid, inert to biological degradation, resistant to naturally occurring chemicals, alkalis, and acids; used to provide a stabilizing force within soil structure as the fill interlocks with the grid .
 - a. Tensile strength at ultimate (ASTM D6637): 1850 lbs/ft (27.0 kN/m) minimum
 - b. Creep reduced strength (ASTM D5262): 1000 lbs/ft (14.6 kN/m) minimum
 - c. Long term allowable design load (GRI GG-4): 950 lbs/ft (13.9 kN/m) minimum
 - d. Grid aperture size (MD): 0.8 inch (20 mm) minimum
 - e. Grid aperture size (CD): 1.28 inch (32 mm) maximum
 - f. Roll size: 6-foot (1.8-m) width is preferred, up to 18-foot (5.4-m).
 - g. Products meeting this specification:
 - i. Stratagrid SG 150, (Strata Systems, Inc.); Cumming, GA; <http://www.geogrid.com>
 - ii. Miragrid 2XT (TenCate Nicolon); Norcross, GA; <http://www.tencate.com>
 - iii. Fortrac 35 Geogrid (Huesker, Inc.); Charlotte, NC; <http://www.hueskerinc.com>
 - iv. SF 20 Biaxial Geogrid (Synteen); Lancaster, SC; <http://www.synteen.com>
3. Geotextile: Nonwoven polypropylene fibers, inert to biological degradation and resistant of naturally occurring chemicals, alkalis and acids; applied to either the soil surface or between materials, providing filtration, separation, or stabilization properties.
 - a. Grab tensile strength (ASTM D4632): 200 lbs (900 N) minimum
 - b. Elongation (ASTM D4632): 50 percent minimum
 - c. Trapezoid tear strength (ASTM D4533): 80 lbs (350 N) minimum
 - d. Mullen burst strength (ASTM D3786): 350 psi (2400 kPa)
 - e. Puncture strength (ASTM D4833): 110 lbs (490 N) minimum
 - f. CBR puncture strength (ASTM D6241): 500 lbs (2225 N) minimum
 - g. Apparent opening size (ASTM D4751): 80 sieve (0.18 mm) maximum
 - h. Flow rate (ASTM D4491): 90 gal/min/ft² (3870 l/min/m²) minimum
 - i. UV Resistance (at 500 hours): 70 percent strength retained

- j. Products meeting this specification:
 - i. ADS Geosynthetics 0801T (ADS Geosynthetics); <http://www.ads-pipe.com>
 - ii. Mirafi 180 N (TenCate Nicolon); Norcross, GA; <http://www.tencate.com>
 - iii. Geotex 801 (Propex Geosynthetics); Chattanooga, TN: <http://www.geotextile.com>
- 4. Plastic Cable Ties: A tensioning device or tool used to tie similar or different materials together with a specific degree of tension.

Other Related Materials:

- 1. Wood Blocking: Nominal dimensioned untreated lumber used for spacing assembled Silva Cells.
- 2. Aggregate Subbase (Below Silva Cell Base):
 - a. Aggregate meeting one of the following specifications:
 - i. Complying ASTM D1241, Type I, Gradation B; Type I mixtures shall consist of stone, gravel, or slag with natural or crushed sand and fine mineral particles passing a No. 200 sieve.

Sieve	Percent Passing
1-1/2 inches (37.5 mm)	100
1 inch (25 mm)	75 to 95
3/8 inch (9.5 mm)	40 to 75
No 4 (4.75 mm)	30 to 60
No 10 (2 mm)	20 to 45
No 40 (425 µm)	15 to 30
No 200 (75 µm)	5 to 15

- 3. Aggregate Base Course (Above Silva Cell Deck):
 - a. Same as aggregate subbase specified above.
- 4. Backfill Material (Adjacent to Silva Cells): Clean, compactable, coarse grained fill soil free of organic material, trash and other debris, and free of toxic material injurious to plant growth.
- 5. Planting Soil: Imported top soil in full compliance with ITEM #0944000A

Construction Method:

Examination

- 1. Examine the conditions under which the Silva Cells are to be installed.
 - a. Carefully check and verify dimensions, quantities, and grade elevations.
 - b. Carefully examine the Drawings to become familiar with the existing underground conditions before digging. Verify the location of aboveground and underground utility lines, infrastructure, other improvements, and existing trees, shrubs, and plants to remain including their root system.
- 2. Notify the Contractor and the Landscape Architect in writing in the event of conflict between existing and new improvements, of discrepancies, and other conditions detrimental to proper and timely completion of the installation.
- 3. Obtain written approval of changes to the Work prior to proceeding. Proceed with installation only after changes have been made and unsatisfactory conditions have been corrected.

Preparation

1. Take proper precautions as necessary to avoid damage to existing improvements and plantings.
2. Prior to the start of Work, layout and stake the limits of excavation and horizontal and vertical control points sufficient to install the complete Silva Cell system.
3. Coordinate installation with other trades that may impact the completion of the Work.

Temporary Protection

1. Protect open excavations and Silva Cell system from access and damage both when Work is in progress and following completion, with highly visible construction tape, fencing, or other means until related construction is complete.
2. Do not drive vehicles or operate equipment over the Silva Cell system until the final surface material has been installed.

Excavation

1. General: Excavate to the depths and shapes indicated on the Drawings. Provide smooth and level excavation base free of lumps and debris.
2. Confirm that the depth of the excavation is accurate and includes the full section of materials required to place the subbase aggregate, Silva Cell, and pavement profile as indicated on the Drawings.
3. Over-excavate beyond the perimeter of the Silva Cell to allow for:
 - a. The extension of aggregate subbase beyond the Silva Cell layout as shown on the Drawings.
 - b. Adequate space for proper compaction of backfill around the Silva Cell system.
4. If unsuitable subgrade soils are encountered, consult the Owner's geotechnical consultants for directions on how to proceed.
5. If conflicts arise during excavation, notify the Landscape Architect in writing and make recommendations for action. Proceed with Work only when action is approved in writing.

Subgrade Compaction

1. Compact subgrade to a minimum of 95 percent of maximum dry density at optimum moisture content in accordance with ASTM D698, Standard Proctor Method, or as approved by the Owner's geotechnical representative.
2. Do not exceed 7 percent slope for subgrade profile in any one direction. If the 7 percent slope is exceeded, contact manufacturer's representative for directions on how to proceed.

Installation of Geotextile over Subgrade

1. Install geotextile over compacted subgrade.
 - a. Lay geotextile flat with no folds or creases.
 - b. Install the geotextile with a minimum joint overlap of 18 inches (450 mm).

Installation of Aggregate Subbase below Silva Cell Bases

1. Install aggregate subbase to the depths indicated on the Drawings.
2. Extend subbase aggregate a minimum of 6 inches (150 mm) beyond the base of the Silva Cell layout.
3. Compact aggregate subbase to a minimum of 95 percent of maximum dry density at optimum moisture content in accordance with ASTM D698, Standard Proctor Method.

4. Do not exceed 7 percent slope on the surface of the subbase. Where proposed grades are greater than 7 percent, step the Silva Cells to maintain proper relation to the finished grade.

Installation of Silva Cell Base

1. Install the Silva Cell system in strict accordance with manufacturer's instructions and as specified herein; where requirements conflict or are contradictory, follow the more stringent requirements.
2. Layout and Elevation Control:
 - a. Provide layout and elevation control during installation of the Silva Cell system to ensure that layout and elevations are in accordance with the Drawings.
3. Establish the location of the tree openings in accordance with the Drawings. Once the trees are located, mark the inside dimensions of the tree openings on the prepared subbase.
4. Locate and mark other Project features located within the Silva Cell layout (e.g. light pole bases, utility pipes). Apply marking to identify the extent of the Silva Cell layout around these features. Follow the layout as shown on the Drawings to ensure proper spacing of the Silva Cell bases. Refer to the Drawings for offsets between these features and the Silva Cells.
5. Check each Silva Cell component for damage prior to placement. Reject cracked or chipped units.
6. Place the Silva Cell bases on the compacted aggregate subbase. Start at the tree opening and place Silva Cell bases around the tree openings as shown on the Drawings.
7. Working from tree opening to tree opening, place Silva Cell bases to fill in the area between tree openings.
 - a. Maintain spacing no less than 1 inch (25 mm) and no more than 4 inches (100 mm) apart.
8. Follow the Silva Cell layout plan as shown on the Drawings.
9. Install Silva Cell bases around, over, or under existing or proposed utility lines, as indicated on the Drawings.
10. Level each Silva Cell base as needed to provide full contact with subbase. Adjust subbase material, including larger pieces of aggregate, so each base sits solidly on the surface of the subbase. Silva Cell bases that rock or bend over any stone or other obstruction protruding above the surface of the subbase material are not allowed. Silva Cell bases which bend into dips in the subbase material are not allowed. The maximum tolerance for deviations in the plane of the subbase material under the bottom of the horizontal beams of each Silva Cell base is 1/4 inch in 4 feet (6 mm in 1200 mm).
11. Anchor Silva Cell base with 2 crossbar/pin assemblies per base.
 - a. For applications where Silva Cells are installed over waterproofed structures, use wood blocking or similar spacing system consistent with requirements of the waterproofing system to maintain required spacing.

Installation of Silva Cell Posts

1. 3x Silva Cell 2 System:
 - a. Attach 2x posts to the installed Silva Cell base. Each base will receive six 2x posts. Place the end of the post with tabs into the base. Rotate post clockwise to snap in place.
 - b. Following the placement of backfill and planting soil within the 2x posts, add a 1x post extension as described herein. A 2x post, used in combination with a 1x post is considered a 3x post assembly.

Installation of Strongbacks, Geogrid, Backfill And Planting Soil

1. Install strongbacks on top of the Silva Cell posts by snapping into place over installed posts prior to installing planting soil and backfill.
 - a. Strongbacks are required only during the placement and compaction of the planting soil and backfill.
 - b. Move strongbacks as the Work progresses across the installation.
 - c. Remove strongbacks prior to the installation of the Silva Cell decks.
2. Install geogrid around the perimeter of the Silva Cell system where the compacted backfill and planting soil interface.
 - a. Do not place geogrid between the edge of the Silva Cells and adjacent planting areas.
 - b. Cut the geogrid to allow for a 6-inch (150-mm) overlap at the Silva Cell base and a 12-inch (300-mm) overlap at the Silva Cell deck.
 - c. Provide a minimum 12-inch (300-mm) overlap between adjacent sheets of geogrid.
 - d. Secure geogrid with cable ties below the top of the posts, along the post ridges.
3. Place the first lift of backfill material loosely around the perimeter of the Silva Cell system, between the geogrid and the sides of the excavation. Place backfill to approximately the midpoint of the Silva Cell post. Do not compact.
4. Place the first lift of planting soil in the Silva Cell system to approximately the midpoint of the Silva Cell post
 - a. Level the planting soil throughout the system.
 - b. Walk-through the placed planting soil to remove air pockets and settle the soil. Do not compact greater than 80 percent of maximum dry density in accordance with ASTM D698, Standard Proctor Method
 - c. Check placed soil for compaction with a penetrometer or densitometer or similar.
5. Compact the first lift of backfill material, previously spread, to 95 percent of maximum dry density in accordance with ASTM D698, Standard Proctor Method or in accordance with Project Specifications for hardscape areas, whichever is greater.
6. Add and compact additional backfill material so that the final finished elevation is at approximately the same level of the placed planting soil within the Silva Cells.
 - a. Maintain the geogrid between the Silva Cell system and the backfill material at all times.
7. Place the second lift of backfill material loosely around the perimeter of the Silva Cell system, between the geogrid and the sides of the excavation so that the material is 2 to 3 inches below the top of the posts. Do not compact.
8. Place the second lift of planting soil inside of the Silva Cell to the bottom of the strongbacks. Walk through.
9. Remove strongbacks, place one 1x posts into each of the previously-installed 2x posts. Rotate clockwise to snap in place, forming a 3x post assembly.
10. Immediately reinstall strongbacks on top of the post assembly.
11. Repeat process of alternately placing backfill and planting soil so that elevation of the compacted backfill and the walked-through planting soil are just below the level of the strongbacks.

Installation of Silva Cell Deck

1. Obtain final approval by the Landscape Architect of planting soil installation prior to installation of the Silva Cell decks.
2. Remove strongbacks, level out the planting soil, and immediately install decks over the posts below. Place deck over the top of the posts. Push decks down until the deck clips lock into the posts, snapping the deck into place.
3. Fold the 12 inches (300 mm) of geogrid onto the top of the decks.

Final Backfill Placement and Compaction

1. Place and compact final lift of backfill material to 95 percent of maximum dry density in accordance with ASTM D698, Standard Proctor Method, such that the backfill is flush with the top of the installed deck. Do not allow compacting equipment to come in contact with the decks.

Installation Of Geotextile And Aggregate Base Course Over The Deck

1. Place geotextile over the top of the deck and extend to the edge of the excavation. Overlap joints a minimum of 18 inches (450 mm). Leave enough slack in the geotextile for the aggregate base course to push the geotextile down in the gaps in between the decks.
2. Install the aggregate base course (including aggregate setting bed if installing unit pavers) over the geotextile immediately after completing the installation of the fabrics. Work the aggregate from one side of the layout to the other so that the fabric and aggregate conform to the Silva Cell deck contours.
3. Maintain equipment used to place aggregate base course completely outside the limits of the Silva Cell excavation area to prevent damage to the installed system.
4. For large or confined areas, where aggregate cannot easily be placed from the edges of the excavated area, obtain approval for the installation procedure and types of equipment to be used in the installation from the Silva Cell manufacturer.
5. Compact aggregate base course(s) to 95 percent of maximum dry density in accordance with ASTM D698, Standard Proctor Method. Utilize a vibration or plate compactor with a maximum weight of 800 lbs (362.87 kg).
6. Do not drive vehicles or operate equipment over the completed aggregate base course.

Installation of Concrete Curbs At Tree Openings, Aggregate Subbase And Pavement Above The Silva Cell System

1. When staking concrete forms (e.g. curbs around the tree openings), prevent stakes from penetrating the Silva Cell decks.
2. Turn down edge of concrete paving to the Silva Cell deck along the edges of tree openings or planting areas to retain the aggregate base course material.
3. Place paving material over Silva Cell system in accordance with the Drawings.
 - a. The Silva Cell system does not fully meet loading strength until the final paving is installed. Do not operate construction equipment on top of the Silva Cell system until paving installation has been completed
4. Use care when placing paving or other backfill on top of Silva Cell system to prevent damage to the Silva Cell system or its components.

Installation of Root Barriers

1. Install root barrier in accordance with manufacturer's installation instructions.

Installation of Planting Soil within the Tree Planting Area

1. Remove rubble, debris, dust and silt from the top of the planting soil within the tree opening that may have accumulated after the initial installation of the planting soil within the Silva Cells.
2. Install additional planting soil within the tree openings, to the depths indicated on the Drawings.
 - a. Use the same soil used within the Silva Cells for planting soil within the tree openings.

3. Compact planting soil under the tree root ball to between 85 and 90 percent of maximum dry density in accordance with ASTM D698, Standard Proctor Method, to prevent settlement of the root ball.
4. Place trees in accordance with the Drawings.

Protection

1. Keep construction traffic away from the limits of the Silva Cells until the final pavement profile is in place. The Silva Cell system does not fully meet loading strength until the final paving is installed.
 - a. Do not operate equipment directly on top of the Silva Cell system until paving installation has been completed.
 - b. Provide fencing and other barriers to prevent vehicles from entering into the Silva Cell area.
2. When the Silva Cell installation is completed and the permanent pavement is in place, limit traffic and construction related activities to only loads less than the design loads.

Clean Up

1. Perform clean up during installation and upon completion of the Work. Maintain the site free of soil, sediment, trash and debris. Remove excess soil materials, debris, and equipment from the site following completion of the Work of this Section.
2. Repair damage to adjacent materials and surfaces resulting from installation of this Work using mechanics skilled in remedial work of the construction type and trades affected.

Method of Measurement:

This work will be measured for payment by the number of each Silva Cell System completely installed and accepted in place.

Basis of Payment:

Payment for this item shall be at the Contract unit price for each "Silva Cell System" complete in place, which price shall include material, equipment, tools, and labor incidental thereto.

Pay Item	Pay Unit
Sylva Cell System	ea.

ITEM #0992090A – BENCH

Description:

The work covered under this item includes furnishing all labor, equipment, materials, and installation of each bench type as shown on the plans.

Materials:

6' Bench: CR-196, Surface mount, Black powdercoat by Victor Stanley, Inc. Dunkirk, MD 20754, 1-800-368-2573, no substitutions allowed.

6' Backless Bench: CR-296, Embedded mount, Black powdercoat by Victor Stanley, Inc. Dunkirk, MD 20754, 1-800-368-2573, no substitutions allowed.

Anchors: 3/8" dia. Stainless steel wedge anchors, length determined by required 3" minimum embedment, see plans.

Concrete: Shall comply with Item #0921001A.

Construction Method:

Benches shall be surface mounted to the concrete sidewalk; sidewalk thickness under the benches shall be thickened to 8" to allow for adequate anchor embedment.

Method of Measurement:

This work will be measured for payment by the number of each bench type completely installed and accepted in place.

Basis of Payment:

Payment for this work will be made at the Contract unit price for each "Bench", which price shall include all material, equipment, tools and labor incidental thereto.

Pay Item	Pay Unit
Bench	ea.
Backless Bench	ea.

ITEM #0992103A – TRASH CAN

Description:

The work covered under this item includes furnishing all labor, equipment, materials, and installation of each trash can as shown on the plans.

Materials:

Trach/Recycling Can: SD-242, Surface mount, Black powdercoat, (2) 32 Gal. cans, standard latch, (2) rain bonnets, Band Decals: Trash & Recycle, Lid Decals: Trash & Recycle, by Victor Stanley, Inc. Dunkirk, MD 20754, 1-800-368-2573, no substitutions allowed.

Concrete: Shall comply with Item #0921001A.

Construction Method:

Trach Cans shall be placed in the locations indicated on the site plans.

Method of Measurement:

This work will be measured for payment by the number of each trash can provided.

Basis of Payment:

Payment for this work will be made at the Contract unit price for each “Trash Can”, which price shall include all material, equipment, tools and labor incidental thereto.

Pay Item	Pay Unit
Trash Can	ea.

ITEM #1002110A – DECORATIVE LIGHT POLE FOUNDATION

Concrete light and sign foundations shall be constructed in accordance with 10.02, supplement as follows:

10.02.01—Description: Modify the first sentence as follows:

This item shall consist of furnishing and installing a light standard, decorative light standard, wayfinding standard or traffic control foundation of the type called for at the location and to the dimensions and details shown on the plans or as directed by the Owner

10.02.02—Materials: Shall conform to 10.02.02 and as supplemented below:

Decorative Light Pole Foundation: Concrete light pole foundations shall extend 60 inches minimum below grade, 18 inches in diameter (match pole base diameter), Class "F" concrete conforming to Article M.03.01 with 1/4" radius edges, complete with anchor bolts and pvc conduit sweeps (power and grounding) as shown on the plans or as directed by the Owner, 6- #5 vertical reinforcing, and #5 horizontal reinforcing at 12 inches on center.

Wayfinding Pole Foundation: Wayfinding standard foundations shall extend 60 inches minimum below grade, 18 inches in diameter (match pole base diameter), Class "F" concrete conforming to Article M.03.01 with 1/4" radius edges, complete with anchor bolts and pvc conduit sweeps (grounding only) as shown on the plans or as directed by the Owner, 6- #5 vertical reinforcing, and #5 horizontal reinforcing at 12 inches on center.

Anchor bolts: Galvanize "J" bolt, sized in accordance to pole manufacturer's recommendations.

10.02.03—Construction Methods: Shall conform to 10.02.03 and as supplemented below:

Contractor must submit one shop drawings for each type of foundations.

ITEM #1003914A - REMOVE WOOD SERVICE POLE AND LUMINARE
ITEM #1014910A – UTILITY RELOCATION

Description:

The work covered under this item is to be performed by the utility company who has ownership of the pole, communication lines, power lines, and transformers, guy wires, attached to said pole. The Project Landscape Architect has begun the coordination process for relocation and removal of the utilities indicated on the plans; contacts for each utility are as follows:

Eversource:

John Gazso 860-496-5297 john.gazso@eversource.com

Comcast:

Dan Lancaster office 860-505-3509 cell 860-883-5841 Dan_Lancaster@comcast.com

Frontier:

Bob Lungarini 860 725-1223 robert.w.lungarini@ftr.com

No contact has been made with the Frontier Real Estate point of contact as of the date of this document.

Prices for removal and relocation of utilities will be provided by the utility companies listed above. Payment shall be made by the Contractor to the responsible party. Under no circumstance shall additional fees be requested from the owner for payment.

Method of Measurement:

The work will be paid for at the lump sum Contract unit price for removal of wood service poles and luminaries and for utility relocation.

Basis of Payment:

Payment for this work will be made at a lump sum Contract unit price for "Removal of Wood Service Poles and Luminaries and for Utility Relocation", which price shall include all material, equipment, tools and labor incidental thereto.

Pay Item	Pay Unit
Removal of Wood Service Poles and Luminaries	LS
Utility Relocation	LS

ITEM #1018030A – ARCHITECTURAL LIGHTING

Section 10.03 is supplemented as follows:

10.03.01—Description- The first sentence shall be revised as follows:

This item shall consist of furnishing and installing light and decorative light standards of the type specified with removable transformer bases, brackets, poles, arms, dampers, grounding wire and connections, complete in place, at the locations and to the dimensions and details shown on the plans or as directed by the Owner.

10.03.02—Materials is supplemented as follows:

Luminare: 6590SRLED Victorian Gaslight I by Sternberg Lighting 555 Lawrence Ave, Rosell, IL 60172 1-800-621-3376. See Electrical plans for full specification numbers. No substitutions will be allowed.

Pole: 6200 Oxford, 14' by Sternberg Lighting 555 Lawrence Ave, Rosell, IL 60172 1-800-621-3376. See Electrical plans for full specification numbers. No substitutions will be allowed.

10.03.03—Construction Methods is supplemented as follows:

Assemble fixtures as per the manufacturer's specifications.

Strip tags are not required unless otherwise directed by the owner's representative.

ITEM # 1117111A –RECTANGULAR RAPID FLASHING BEACON (RRFB) TYPE B

Description:

Furnish and install a pedestrian actuated rectangular rapid flashing beacon (RRFB) at the location indicated on the plan or where directed by the Owner.

General Requirements:

Each RRFB will be a complete assembly, consisting of indications, controller cabinet (circuit breaker, timer or solid-state circuit boards etc.) or any electrical component hardware.

Type B: Two sided RRFB will contain six rectangular indications, two on each side facing traffic, and one indication on each end, visible to pedestrians in the cross walk.

Functional Requirement:

Each RRFB when activated shall flash the two indications in an alternating “wig-wag” sequence (left light on, then right light on).

Each of the two yellow indications of an RRFB shall have 70 to 80 periods of flashing per minute and shall have alternating, but approximately equal, periods of flashing light emissions and dark operation. During each of its 70 to 80 flashing periods per minute, the yellow indications on the left side of the RRFB shall emit two slow pulses of light after which the yellow indications on the right side of the RRFB shall emit four rapid pulses of light followed by a long pulse.

The rapid flash rate of each indication, as applied over the full on-off sequence of a flashing period of the indication, shall not be between 5 and 30 flashes per second, to avoid frequencies that might cause seizures.

The light intensity shall meet the minimum specifications of Society of Automotive Owners (SAE) standard J595 (Directional Flashing Optical Warning Devices for Authorized Emergency, Maintenance, and Service Vehicles) dated January 2005.

Each RRFB indication will be activated by an ADA compliant (piezo) pedestrian Pushbutton and operation will cease after a predetermined time limit (based on MUTCD procedures).

All RRFBs associated with a given crosswalk (including those with an advance crossing sign, if used) shall, when activated, simultaneously commence operation of their alternating rapid flashing indications and shall cease operation simultaneously.

Mechanical and Electrical Requirements:

- a) Dimensions:
 Type B: - Two sided/6 LEDs.....3.25”H x 20”W x 8”D
- b) Power: - 120VAC
- c) Temperature: - All components will be capable of continuous operation over a temperature range of -30 DEG. F to 165 DEG. F
- d) Indications: - Daylight distance visibility.....> 1000 feet
 - Night distance visibility.....> 1 mile
 - Flash Pattern.....Wig-Wag
 - Optics.....Polycarbonate Lenses
 - Color.....Yellow
 - Body.....Powder Coated Federal Yellow
 - Size..... 5” wide x 2” high
- e) Housing: - Powder Coated Federal Yellow

Construction Method:

Each RRFB indication will be mounted horizontally to a 6200 Oxford Series 14' pole P6 – smooth shaft as manufactured by Sternberg Lighting and in accordance with dimensions and details shown on the plan.

The two RRFB indications shall be aligned horizontally, with the longer dimension horizontal and with a minimum space between the two indications of approximately seven inches (7 in), measured from inside edge of one indication to inside edge of the other indication.

The outside edges of the RRFB indications, including any housings, shall not project beyond the outside edges of the sign.

Method of Measurements:

This work will be measured as the number of RRFBs furnished, installed and accepted in place.

Basis of Payment:

This work will be paid for at the contract unit price of each “Rectangular Rapid Flashing Beacon (RRFB)” of the type specified which will include the cost of conduit fittings, hardware, controller cabinet complete with all necessary equipment, ground rod, armored ground cable, paint and all materials, equipment, tools and labor included thereto.

Pay Item	Pay Unit
Rectangular Rapid Flashing Beacon (RRFB) Type B	ea. (ea.)

ITEM NO. 1206023A - REMOVAL AND RELOCATION OF EXISTING SIGNS

Section 12.06 is supplemented as follows:

Article 12.06.01 – Description is supplemented with the following:

Work under this item shall consist of the removal and/or relocation of designated side-mounted extruded aluminum and sheet aluminum signs, sign posts, sign supports, and foundations where indicated on the plans or as directed by the Owner. Work under this item shall also include furnishing and installing new sign posts and associated hardware for signs designated for relocation.

Article 12.06.03 – Construction Methods is supplemented with the following:

The Contractor shall take care during the removal and relocation of existing signs, sign posts, and sign supports that are to be relocated so that they are not damaged. Any material that is damaged shall be replaced by the Contractor at no cost to the State.

Foundations and other materials designated for removal shall be removed and disposed of by the Contractor as directed by the Owner and in accordance with existing standards for Removal of Existing Signing.

Sheet aluminum signs designated for relocation are to be re-installed on new sign posts.

Article 12.06.04 – Method of Measurement is supplemented with the following:

Payment under Removal and Relocation of Existing Signs shall be at the contract lump sum price which shall include all extruded aluminum and sheet aluminum signs, sign posts, and sign supports designated for relocation, all new sign posts and associated hardware for signs designated for relocation, all extruded aluminum signs, sheet aluminum signs, sign posts and sign supports designated for scrap, and foundations and other materials designated for removal and disposal, and all work and equipment required.

Article 12.06.05 – Basis of Payment is supplemented with the following:

This work will be paid for at the contract lump sum price for “Removal and Relocation of Existing Signs” which price shall include relocating designated extruded aluminum and sheet aluminum signs, sign posts, and sign supports, providing new posts and associated hardware for relocated signs, removing and disposing of foundations and other materials, and all equipment, material, tools and labor incidental thereto. This price shall also include removing, loading, transporting, and unloading of extruded aluminum signs, sheet aluminum signs, sign posts, and sign supports designated for scrap and all equipment, material, tools and labor incidental thereto.

<u>Pay Item</u>	<u>Pay Unit</u>
Removal and Relocation of Existing Signs	L.S.

ITEM #1208931A – SIGN FACE - SHEET ALUMINUM (TYPE IX RETROREFLECTIVE SHEETING)

ITEM #1208932A – SIGN FACE - SHEET ALUMINUM (TYPE IV RETROREFLECTIVE SHEETING)

Section 12.08 is supplemented and amended as follows:

12.08.01—Description:

Add the following:

This item shall also include field testing of metal sign base posts as directed by the Owner.

12.08.03—Construction Methods:

Delete the last sentence and add the following:

Metal sign base posts shall be whole and uncut. Sign base post embedment and reveal lengths shall be as shown on the plans. The Contractor shall drive the metal sign base posts by hand tools, by mechanical means or by auguring holes. If an obstruction is encountered while driving or placing the metal sign base post, the Contractor shall notify the Owner who will determine whether the obstruction shall be removed, the sign base post or posts relocated, or the base post installation in ledge detail shall apply. Backfill shall be thoroughly tamped after the posts have been set level and plumb.

Field Testing of Metal Sign Posts: When the sign installations are complete, the Contractor shall notify the Owner the Project is ready for field testing. Based on the number of posts in the Project, the Owner will select random sign base posts which shall be removed by the Contractor for inspection and measurement by the Owner. After such inspection is completed at each base post location, the Contractor shall restore or replace such portions of the work to the condition required by the Contract. Refer to the table in 12.08.05 for the number of posts to be field tested.

12.08.04—Method of Measurement:

Add the following:

The work required to expose and measure sign base post length and embedment depth using field testing methods, and restoration of such work, will not be measured for payment and shall be included in the general cost of the work.

12.08.05—Basis of Payment:

Replace the entire Article with the following:

This work will be paid for at the Contract unit price per square foot for “Sign Face - Sheet Aluminum” of the type specified complete in place, adjusted by multiplying by the applicable Pay Factor listed in the table below. The price for this work shall include the completed sign, metal sign post(s), span-mounted sign brackets and mast arm-mounted brackets, mounting hardware, including reinforcing plates, field testing, restoration and replacement of defective base post(s), and all materials, equipment, and work incidental thereto.

Pay Factor Scale: Work shall be considered defective whenever the base post length or base post embedment depth is less than the specified length by more than 2 inches. If the number of defects results in rejection, the Contractor shall remove and replace all metal sign base posts on the Project, at no cost to the Department.

Number of Posts to be Tested and Pay Factors (Based on Number of Defects)

Number of Posts in Project =>	51-100	101-250	251-1000	>1000
Sample Size=>	5 Posts	10 Posts	40 Posts	60 Posts
0 Defects	1.0	1.0	1.025	1.025
1 Defect	0.9	0.95	0.975	0.983
2 Defects	Rejection	0.9	0.95	0.967
3 Defects	Rejection	Rejection	0.925	0.95
4 Defects	Rejection	Rejection	0.9	0.933
5 Defects	Rejection	Rejection	Rejection	0.917
6 Defects	Rejection	Rejection	Rejection	0.9
7 or more Defects	Rejection	Rejection	Rejection	Rejection

Note: Projects with 50 or fewer posts will not include field testing

ITEM #1303201A – RELOCATE HYDRANT (COMPLETE)

Description:

This item shall consist of salvaging existing fire hydrants, providing new valves, water pipes, fittings, thrust blocks, and appurtenances to render the relocated hydrants fully functional, at the locations and to the dimensions and details shown on the plans or as directed by the Owner.

Method of Measurement:

This work will be measured for payment by the number of each Relocated Hydrant completely installed and accepted in place.

Basis of Payment:

Payment for this work will be made at the Contract unit price for each “Relocated Hydrant (Complete)”, which price shall include all material, equipment, tools and labor incidental thereto.

Pay Item	Pay Unit
Relocated Hydrant (Complete)	ea.

ITEM #1408802A - ELECTRICAL INSTALLATION AND EQUIPMENT

Appropriate articles in Sections 10 & 11 are supplemented as follows:

Description:

The work covered under this item includes furnishing all labor, equipment, materials, and incidentals necessary install service conduits, electrical service cabinet with meter socket, main service disconnect breaker, photocells, breaker panel for site electric, breakers, conduit runs to luminaires, wire runs to luminaires, grounding rods, and any related hardware as per the electrical drawings and site plans. The contractor is responsible for contacting the proper utility company to make the service connection to the transformer indicated on the electrical drawings and site plans.

Materials:

As indicated on the plans

Construction Methods:

Regulations, Permits, and Fees: All work shall be done in strict accordance with the latest edition of the NEC, rules and regulations of state and local authorities having jurisdiction over such work, and regulations of the utility companies in force where the work is being installed. All permits shall be obtained and paid for by the Contractor.

Field Quality Control: Fixtures shall be protected and maintained in good condition during construction. At the completion of work, all fixtures shall be cleaned, inspected, and repaired or replaced if damaged. The electrical contractor must ensure the electrical system and photocells are operating properly before closing out the electrical work. Any manuals, documentation and warranties must be turned over to the owner's representative.

Method of Measurement:

The work will be paid for at the lump sum Contract unit price for Electrical Installation and Equipment.

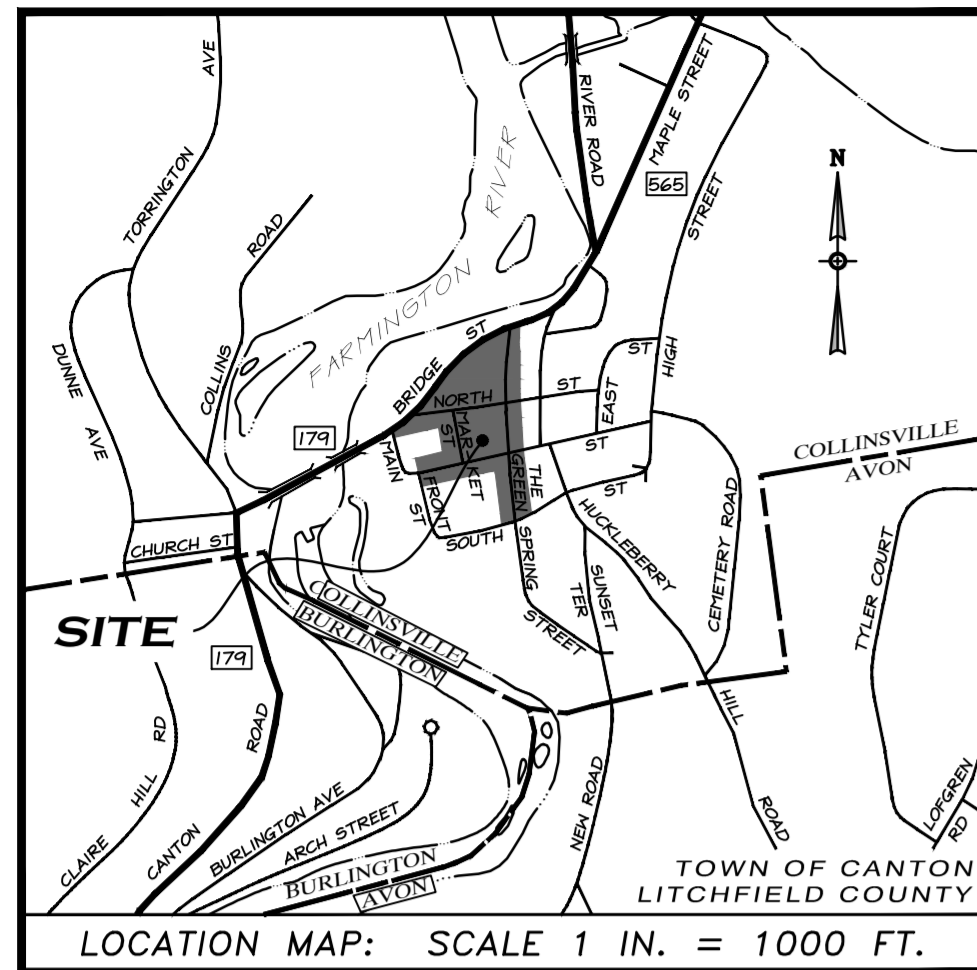
Basis of Payment:

Payment for this work will be made at a lump sum Contract unit price for "Electrical Installation and Equipment", which price shall include all material, equipment, tools and labor incidental thereto.

Pay Item	Pay Unit
Electrical Installation and Equipment	LS

PROJECT DRAWINGS

See Supplement A - Collinsville Streetscape Phase 2 Project Drawings



PROPOSED STREETSCAPE IMPROVEMENTS FOR THE TOWN OF CANTON COLLINSVILLE VILLAGE CENTER STREETSCAPE PHASE II

STATE PROJECT NO. 23-128

**ISSUED FOR BIDDING
MARCH 15, 2021**

List of Drawings

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Site Materials Plan

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PREPARED FOR:



THE TOWN OF CANTON

4 MARKET STREET
COLLINSVILLE, CT 06022

PREPARED BY:



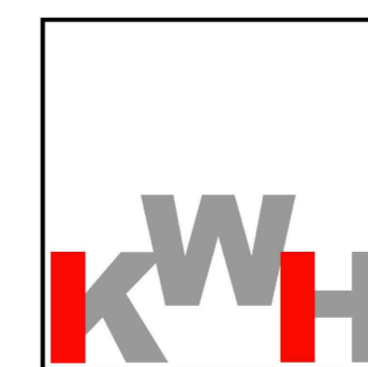
Site Design / Project Lead



Site Survey & Easement Mapping



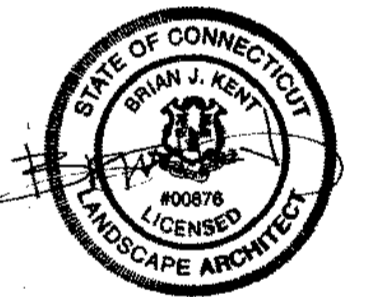
Electrical Engineering



Traffic Engineering

**Collinsville
Village Center
Streetscape Phase 2**
Collinsville, CT

State Project No. 23-128



ISSUED FOR BID

Revisions _____ Date _____

PROJECT NOTES

Scale _____
Date _____ March 15, 2021
K+F Project No. 2017014
Drawing No. _____

N

GENERAL NOTES:

- ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE CONNECTICUT DEPARTMENT OF TRANSPORTATION SPECIFICATION FORM 817 OR THE MOST CURRENT EDITION AND ANY SPECIAL PROVISIONS.
- THE CONTRACTOR IS RESPONSIBLE FOR ALL RIGHT OF WAY (ROW) STAKE OUT INCLUDING THE COST OF ESTABLISHING SURVEY CONTROL BY THE DESIGN SURVEYOR, STADIA ENGINEERING.
- ALL FINISHES AND QUALITY OF WORKMANSHIP SHALL MATCH THE WORK IN PHASE 1.
- MINIMIZE TO THE GREATEST EXTENT POSSIBLE TRACKING OF CONSTRUCTION VEHICLES (ESPECIALLY ASPHALT MILLING AND PAVING EQUIPMENT AND TRUCKING ACROSS THE PREVIOUSLY COMPLETED PHASE 1 SECTION OF MAIN STREET. ANY DAMAGE SHALL BE REPAIRED OR REPLACED IN KIND AS DIRECTED BY THE OWNERS REP. AT THE CONTRACTORS EXPENSE.
- CONTRACTOR SHALL VERIFY EXISTING CONDITIONS IN THE FIELD AND REPORT ANY DISCREPANCIES TO THE OWNERS REP.
- ALL UNDERGROUND UTILITIES SHALL BE LOCATED & MARKED BY "CALL BEFORE YOU DIG" PRIOR TO COMMENCEMENT OF ANY SITE WORK. MARKINGS SHALL BE PROTECTED THROUGHOUT CONSTRUCTION. IF ANY MARKING IS ELIMINATED DUE TO CONSTRUCTION ACTIVITIES IT IS THE CONTRACTORS RESPONSIBILITY TO HAVE CT "CALL BEFORE YOU DIG" RE-ESTABLISH THE UTILITY MARKING.
- CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES IN ACCORDANCE WITH "CALL BEFORE YOU DIG" NOTIFICATION PROCEDURES AT 1-800-922-4455 PRIOR TO COMMENCING ANY EXCAVATION WORK.
- CONTRACTOR IS RESPONSIBLE FOR ENGAGING THE PROPER UTILITY COMPANIES FOR RELOCATION AND/OR REMOVAL OF EQUIPMENT, NOT LIMITED TO UTILITY POLES, GUY WIRES, AND OVERHEAD WIRES.
- CONTRACTOR SHALL USE CAREFUL CONSTRUCTION PRACTICES TO MINIMIZE DISTURBANCE. CONTRACTOR SHALL COMPLY WITH ALL GOVERNING CODES.
- CONTRACTOR IS RESPONSIBLE FOR MAINTAINING CLOSE COORDINATION WITH THE TOWN, BUSINESS OWNERS, RELATED SUBCONTRACTORS, UTILITY COMPANIES AND THE OWNERS REP. ON ALL SITE WORK RELATED ITEMS.
- MEASUREMENTS ARE FROM FACE OF WALL OR CURB UNLESS OTHERWISE NOTED. DIMENSIONS RELATING TO BUILDING ARE FROM FACE OF FOUNDATION WALL.
- MATERIAL SAMPLES AND SOURCES SHALL BE PROVIDED TO OWNERS REP. AND APPROVED PRIOR TO PURCHASE.
- NOTIFY OWNERS REP. AT LEAST 48 HOURS PRIOR TO ANY ACTIVITY REQUIRING FIELD OBSERVATION.
- EROSION AND SEDIMENTATION CONTROLS ARE REQUIRED AS PART OF THIS PROJECT. SEE DEMOLITION PLAN FOR E&S CONTROL MEASURES.
- EROSION AND SEDIMENTATION CONTROLS MUST REMAIN IN PLACE FOR THE ENTIRE DURATION OF THE PROJECT UNTIL EXPOSED SOILS HAVE BEEN STABILIZED AND APPROVED BY THE OWNER'S REP.

- BRIDGE STREET STORM DRAINAGE AND WATERLINE INFORMATION INCLUDING, PIPE SIZE, SLOPE, AND INVERTS NOTED WITH AN * BASED ON A DRAWING TITLED "TOPOGRAPHICAL SURVEY FOR TRAFFIC SIGNAL INSTALLATION BRIDGE STREET (RTE 179) AND MAIN STREET" SCALE 1"=20' BY CLOSE, JENSEN & MILLER P.C. DATED 03/01/12.
- THE CONTRACTOR IS RESPONSIBLE FOR AND SHALL CARRY THE COST FOR ALL WORK, LABOR AND MATERIALS REQUIRED TO INSPECT THE EXISTING CMP AND TILE DRAINAGE PIPING AT THE TIE IN LOCATIONS AND OR AREAS TO BE MODIFIED AS PART OF THIS PROJECT WITHIN THE STATE RIGHT OF WAY ON RT 179 (BRIDGE STREET) BETWEEN MAIN AND NORTH STREETS. THE CONTRACTOR SHALL CARRY THE COST IN THE BID FOR ALL WORK, LABOR AND MATERIALS FOR THE FULL REPLACEMENT OF 80 FEET OF 15 INCH CORRUGATED METAL PIPE AND 80 FEET OF 12 INCH PVC PIPE (FOR AREAS OF CLAY TILE PIPE) INCLUDING CT DOT'S REQUIREMENTS FOR PERMANENT AND TEMPORARY ASPHALT PATCHING AND TRAFFIC CONTROL DURING THE WORK.

CONSTRUCTION WITHIN TREE PROTECTION AREAS

- TREES NOT INDICATED FOR REMOVAL AND WITHIN 25' OF CONSTRUCTION ACTIVITIES SHALL BE PROTECTED AS PART OF THIS PROJECT. SOME THESE TREES WILL BE IMPACTED WITH THE INSTALLATION OF NEW WALKWAYS, WALLS, AND/OR DRAINAGE UTILITIES. ALL CONSTRUCTION ACTIVITIES WITHIN THESE AREAS SHALL BE DONE UNDER THE DIRECT SUPERVISION OF AN ON-SITE CERTIFIED ARBORIST.
- EXISTING ROOTS PROXIMATE TO PROPOSED AND EXISTING PAVING SHALL BE EXPOSED USING AN AIRSPADE. IN AREAS WHERE ROOTS HAVE TO BE REMOVED FOR CONSTRUCTION OF DRAIN INLETS, WALLS OR WALKWAYS, ROOTS SHALL BE SAW CUT PRIOR TO EXCAVATION TO ELIMINATE UNNECESSARY TEARING OF ROOTS BY EQUIPMENT.
- TREE ROOTS SHALL NOT BE PRUNED OR CUT UNLESS THEIR REMOVAL IS UNAVOIDABLE OR ABSOLUTELY NECESSARY. THE CONSULTING ARBORIST SHALL BE NOTIFIED PRIOR TO ANY OPERATION KNOWN OR SUSPECTED TO INVOLVE CUTTING OF MORE THAN:
 - TWO ROOTS, THREE (3) INCHES OR MORE IN DIAMETER; AND/OR
 - FOUR ROOTS BETWEEN TWO (2) AND THREE (3) INCHES IN DIAMETER. THE ARBORIST SHALL BE NOTIFIED IMMEDIATELY IN THE EVENT THAT ROOTS IN EXCESS OF THAT DESCRIBED ABOVE ARE CUT, TORN, RIPPED, OR OTHERWISE INJURED.

- WHEN EXCAVATING FOR THE CONSTRUCTION OF INLETS, WALLS OR WALKWAYS, EXCAVATED SOIL SHALL BE DEPOSITED IN TRUCKS AND HAULED OFF OR DEPOSITED TEMPORARILY ON 3/4-INCH THICK PLYWOOD OUTSIDE THE CRITICAL ROOT ZONE, AS DEFINED BY THE TREE'S DRILINE. EXCAVATED AND FILL SOIL SHALL NOT BE DEPOSITED, EVEN TEMPORARILY, ON UNPROTECTED NATURAL GRADE.
- ALL TRENCHING OR OTHER WORK UNDER THE DRILINE OF ANY TREE SHALL BE REVIEWED BY THE OWNERS REP. NO LESS THAN 48 HOURS IN ADVANCE.
- LIMIT GRADING TO A MAXIMUM OF TWO (2) INCHES OF FILL OVER NATURAL GRADE WITHIN THE TREE DRIP LINE. FILL SHOULD CONSIST OF SANDY LOAM TOPSOIL. CLAY SOILS SHALL NOT BE USED AS FILL. WHEN USING FILL SOIL, THE EXISTING SURFACE TO RECEIVE FILL SHOULD BE SCARIFIED PRIOR TO FILLING. ANY FILLING OPERATION SHOULD NOT OCCUR DURING WATER SATURATED SOIL CONDITIONS.

DEMOLITION

- CONTRACTOR SHALL USE CAREFUL CONSTRUCTION PRACTICES TO MINIMIZE DISTURBANCE OF ALL SITE FEATURES TO REMAIN.
- SITE CLEANUP AND DISPOSAL OF ALL DEBRIS AND UNSUITABLES (INCLUDING EXCAVATED TRENCH ROCK, CHIPPED LEDGE ROCK AND SOIL) GENERATED BY DEMOLITION ACTIVITIES ARE THE RESPONSIBILITY OF THE CONTRACTOR. ALL DEMOLITION DEBRIS SHALL BE DISPOSED OF OFF-SITE PER LOCAL AND STATE REGULATIONS.
- STOCKPILE ALL REMOVED SIGNAGE PER PUBLIC WORKS DIRECTION.
- CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGE TO SURROUNDING PROPERTY AS A RESULT OF CONSTRUCTION ACTIVITIES.
- EXISTING CATCH BASIN TOPS ARE TO BE DEMOLISHED AS NOTED ON DEMOLITION PLAN. NEW CATCH BASIN TOPS SHALL BE PLACED FLUSH WITH PROPOSED GRADES.
- REMOVE ALL TRACES OF PAINT LINES FROM EXISTING BITUMINOUS PAVING AS NOTED ON THE DEMOLITION PLANS WHEN PEDESTRIAN AND VEHICULAR TRAFFIC PATTERNS HAVE BEEN ALTERED.
- EVERY EFFORT MUST BE TAKEN TO REUSE SUITABLE EXISTING STONE CURBING.
- EXISTING STONE CURBING TO BE SALVAGED FOR REUSE SHALL BE CLEANED AND STOCKPILED.
 - SALVAGED CURB SHALL BE STRUCTURALLY SOUND, HAVE FACES WHICH ARE SQUARE ON EXPOSED SIDES AND LACK MAJOR GOUGES OR CHIPS.
 - DEFECTS MAY BE CUT OFF FROM SOUND LENGTHS OF CURBING.
 - ENDS WHICH ARE NOT SQUARE TO THE FACE OF CURB OR WILL NOT CREATE A CONSISTENT AND PARALLEL JOINT WHEN ABUTTING NEW OR REUSED CURB SHALL BE SAW CUT AS REQUIRED.
 - PROVIDE CUTBACKS IF LACKING ON SALVAGED STONE.
 - SALVAGED LENGTHS SHALL BE A MINIMUM 3'-0" LONG FOR STRAIGHT CURBING RUNS.
 - SALVAGED CURBING SHALL BE REINSTALLED IN CONTINUOUS RUNS, DO NOT INTERMIX NEW AND SALVAGED CURBING.
 - UTILIZE NEW STONE CURBING ALONG THE DOT R.O.W.
 - UTILIZE NEW STONE CURBING AT STREET CORNERS TO ACHIEVE NOTED RADII.
 - NEW AND EXISTING STONE CURBING SHALL BE SIMILAR IN COLOR.

LAYOUT

- CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS AND LAYOUT DIMENSIONS IN THE FIELD. REPORT ANY DISCREPANCIES OF THE DESIGN TO THE OWNERS REP. PRIOR TO COMMENCING CONSTRUCTION.
- STAKE OR OTHERWISE FLAG ALL DESIGN ELEMENTS AND FEATURES IN THE FIELD. OBTAIN OWNERS REP. APPROVAL PRIOR TO COMMENCING CONSTRUCTION.
- ALL DIMENSIONS ARE FROM THE FACE OF WALL OR CURB UNLESS OTHERWISE NOTED. DIMENSIONS RELATING TO BUILDING ARE FROM FACE OF FOUNDATION WALL.
- ALL ANGLES ARE ASSUMED TO BE 90 DEGREES UNLESS OTHERWISE STATED.
- ANY CHANGES TO PROPOSED DIMENSIONS SHOWN ON THIS DRAWING SHALL BE APPROVED BY THE OWNERS REP. PRIOR TO COMMENCING CONSTRUCTION.
- JUNCTIONS BETWEEN EXISTING AND PROPOSED WALKS MUST HAVE FLUSH TRANSITIONS AND MUST BE DOWELED (IF APPLICABLE) TO PREVENT SETTLING.

GRADING NOTES:

- CONTRACTOR SHALL VERIFY ALL EXISTING GRADES IN THE FIELD AND REPORT ANY DISCREPANCIES IMMEDIATELY TO OWNER'S REP. PRIOR TO COMMENCING WORK. THE STARTING OF WORK INDICATES THE CONTRACTOR HAS REVIEWED AND ACCEPTED EXISTING CONDITIONS.
- CONTRACTOR SHALL NOTIFY OWNERS REP. OF ANY CONFLICTS BETWEEN UTILITY, LAYOUT, GRADING AND LANDSCAPE PLANS.
- CONTRACTOR SHALL BLEND NEW FINISH GRADES SMOOTHLY INTO EXISTING GRADES, PROVIDING VERTICAL CURVES OR ROUNDED TRANSITIONS AT THE TOP AND BOTTOM OF SLOPES.
- PITCH EVENLY BETWEEN SPOT GRADES. ALL PAVED AREAS MUST PITCH TO DRAIN AT A MINIMUM SLOPE OF ONE-EIGHTH INCH (1/8") PER FOOT (1%). ANY SITE CONDITIONS OR CONFLICTS PREVENTING THIS OCCURRENCE SHALL BE REPORTED TO OWNER'S REP. PRIOR TO CONTINUING THE WORK. NEW PAVEMENT AREAS MUST HAVE POSITIVE DRAINAGE TOWARDS THE STREET CURB OR TOWARDS

- DRAINAGE STRUCTURES.
- FINAL GRADES ADJACENT TO BUILDINGS SHALL HAVE 1/4" / FT MIN. SLOPE AWAY FROM BUILDING.
 - FINAL GRADING OF ALL EARTHWORK SHALL BE AS DIRECTED AND APPROVED IN THE FIELD BY OWNERS REP.
 - CONTRACTOR SHALL PROVIDE DUST CONTROL FOR EARTHWORK OPERATIONS AS APPROVED BY OWNER'S REP.
 - RIM ELEVATIONS OF ALL DRAINAGE STRUCTURES AND OTHER UTILITY STRUCTURES SHALL BE SET FLUSH WITH FINAL SURROUNDING GRADES SO AS NOT TO CAUSE A TRIP HAZARD.
 - THE CONTRACTOR SHALL MAINTAIN OR ADJUST TO NEW FINISHED GRADES AS NECESSARY ALL UTILITY AND SITE STRUCTURES SUCH AS LIGHT POLES, SIGN POLES, MANHOLES, DRAINAGE STRUCTURES, HAND HOLES, WATER AND GAS GATES, HYDRANTS, ETC., FROM MAINTAINED UTILITY AND SITE SYSTEMS UNLESS OTHERWISE NOTED ON THE UTILITY DRAWINGS OR AS DIRECTED BY THE OWNER'S REP.
 - CURBING SHALL HAVE A 6" REVEAL UNLESS NOTED OTHERWISE.

PLANTING

- PLANTING BEDS AND SEEDED LAWN AREAS SHALL RECEIVE TEMPORARY IRRIGATION UNTIL ACCEPTED BY OWNERS REP.
- NOTIFY OWNERS REP. AT LEAST 48 HOURS PRIOR TO ANY ACTIVITY REQUIRING FIELD OBSERVATION.
- PLANT LOCATIONS ARE TO BE STAKED BY CONTRACTOR AND APPROVED BY THE OWNERS REP. INDIVIDUAL STAKES SHALL BE PLACED FOR TREES AND SHRUBS. EDGE OF PLANTING BEDS SHALL BE PAINTED. NOTIFY OWNERS REP. 48 HOURS PRIOR TO DESIRED APPROVAL.
- PLANTS SHALL COMPLY WITH SIZING AND GRADING STANDARDS OF THE LATEST EDITION OF "AMERICAN STANDARDS FOR NURSERY STOCK". PROVIDE STOCK TRUE TO BOTANICAL NAME AND LEGIBLY TAGGED. PLANTS SHALL BE FREE OF DEFECTS, DISEASES AND ALL FORMS OF INSECT INFESTATIONS.
- ALL PLANTS SHALL BE PLANTED TO SAME DEPTH AS AT PLACE OF GROWTH, EXCEPT WHERE NOTED OTHERWISE.
- ALL PLANTING BEDS SHALL RECEIVE 7" OF SPECIFIED SOIL MIXTURE: 6" SCREENED LOAM, 1" OF COMPOST. BLEND COMPOST INTO TOP 4" OF SOIL. PLANTING SOIL MIXTURE SHALL BE FREE OF SUBSOIL, LUMPS, STONES, PLANTS, ROOTS, AND OTHER FOREIGN MATTER.
- ALL LAWN AREAS SHALL RECEIVE A MIN. OF 4" OF SCREENED LOAM EXCEPT WITHIN EXISTING TREE DRIP ZONE - 2" MAX.
- ALL PLANTING BEDS SHALL BE MULCHED WITH FINELY SHREDDED, DARK HEMLOCK BARK MULCH. TREES AND SHRUBS SHALL RECEIVE 2 INCHES, PERENNIAL AND GROUND COVER BEDS SHALL RECEIVE 2 INCHES. PROVIDE OWNERS REP. WITH SAMPLE FOR APPROVAL.
- NO SUBSTITUTIONS OF PLANT SPECIES OR CULTIVARS WILL BE ALLOWED BY THE CONTRACTOR UNLESS AUTHORIZED BY OWNERS REP. CONTRACTOR SHALL NOTIFY THE OWNER'S REP. OF AVAILABILITY ISSUES PRIOR TO FINALIZATION OF PLANT ORDER(S).
- BURLAP, TWINE, AND WIRE SHALL BE COMPLETELY REMOVED OR CUT AWAY FROM TOP 1/3 OF ROOT BALL AT TIME OF INSTALLATION (SEE SPECIFICATION).
- SEE SPECIFICATIONS FOR PLANT WARRANTY.
- IF NO IRRIGATION SYSTEM IS PLANNED, CONTRACTOR SHALL INFORM THE TOWN OF WATERING REQUIREMENTS.
- ALL DISTURBED AREAS NOT DESIGNATED FOR OTHER IMPROVEMENTS SHALL BE HYDROSEED AS LAWN. HYDROSEED GRASS MIX SHALL BE DETERMINED BASED ON SEASON OF INSTALLATION.
- ALL GRASS, OTHER VEGETATION AND DEBRIS SHALL BE REMOVED FROM ALL PLANTING BEDS PRIOR TO PLANTING OR BACKFILLING. CONTRACTOR SHALL REMOVE ALL DEBRIS FROM SITE AS WORK PROGRESSES.
- CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE AWAY FROM ALL STRUCTURES. SEE GRADING.
- LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING CLOSE COORDINATION WITH THE TOWN, BUSINESS OWNERS, RELATED SUBCONTRACTORS, UTILITY COMPANIES AND THE OWNERS REP. ON ALL SITE WORK RELATED ITEMS.
- ALL TOP SOIL STRIPPED FOR REUSE SHALL BE SENT TO AND TESTED BY AN ACCREDITED SOIL TESTING LABORATORY AND AMENDED PER THEIR REQUIREMENTS. IF SOILS ARE UNSUITABLE THEY MUST BE REMOVED FROM SITE AND DISPOSED OF OFF PROPERTY PER LOCAL, STATE, AND FEDERAL LAW. PROVIDE TESTING RESULTS TO OWNERS REP. FOR APPROVAL PRIOR TO REUSE.

Legend:

-----	LIMIT OF WORK LINE		GAS VALVE
---320---	EXISTING CONTOUR MAJOR		DRAINAGE MANHOLE
---321---	EXISTING CONTOUR MINOR		CATCHBASIN
-----318-----	PROPOSED CONTOUR		TELEPHONE MANHOLE
EX 317.87 +	SPOT ELEVATION EXISTING		PEDESTRIAN LIGHT POLE
317.87 +	SPOT ELEVATION PROPOSED		UTILITY COMPANY LIGHT
	EXISTING RETAINING WALL		UTILITY POLE
	PROPOSED RETAINING WALL		EXISTING STREET SIGN
	OVERHEAD WIRES		PROPOSED STREET SIGN
—E—	UNDERGROUND ELECTRIC		ROCK
—S—	SANITARY LINE		EXISTING VEGETATION
—W—	WATER LINE		EXISTING TREE
—T—	TELEPHONE LINE		PROPOSED TREE
—G—	GAS LINE		FLUSH TRANSITION
	CHAIN LINK FENCE		BENCH
	WATER MANHOLE		TRASH & RECYCLING CAN
	WATER SHUT OFF		BIKE RACK
	WATER VALVE		
	WATER METER		
	FIRE HYDRANT		
	GAS METER		

	RECLAIM BITUMINOUS ROADWAY
	MILL BITUMINOUS ROADWAY
	FULL DEPTH BITUMINOUS ROADWAY
	BITUMINOUS WEARING COURSE
	BITUMINOUS PAVING
	DEMO CONCRETE
	CONCRETE SIDEWALK
	VEHICULAR CONCRETE
	SALVAGE BRICK
	SALVAGE BLUESTONE PAVERS
	RESET BLUESTONE PAVERS
	BLUESTONE BAND
	DEMO LANDSCAPE
	STONE CURBING
	ASPHALT CURB TO STONE CURB TRANSITION

ABBREVIATIONS:

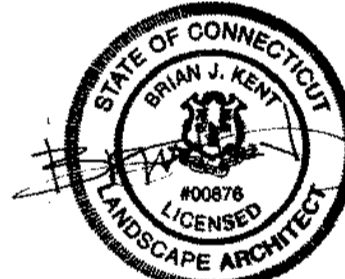
HP	HIGH POINT	O/S	OFF SET
LP	LOW POINT	€	CENTER LINE
TW	TOP OF WALL	±	PLUS/MINUS
BW	BOTTOM OF WALL	PC	POINT OF CURVE
TC	TOP OF CURB	PRC	POINT OF REVERSE CURVE
BC	BOTTOM OF CURB	PT	POINT OF TANGENT
TS	TOP OF STEP	LT	LEFT
BS	BOTTOM OF STEP	RT	RIGHT
CB	CATCH BASIN	L	LENGTH
TF	TOP OF FRAME	R	RADIUS
INV	INVERT	D	DEGREES
MH	MAN HOLE	C	CHORD LENGTH
RCP	REINFORCED CONCRETE PIPE	CNR	CORNER
VIF	VERIFY IN FIELD	BLDG	BUILDING
FFE	FINISH FLOOR ELEVATION	MAX	MAXIMUM
VIF	VERIFY IN FIELD	HDPE	HIGH DENSITY POLYETHYLENE
EX	EXISTING		
EQ	EQUAL		

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LANDSCAPE

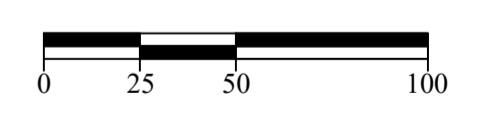
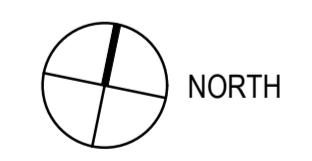
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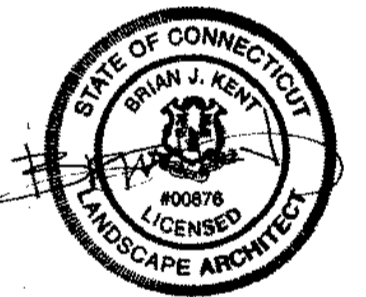
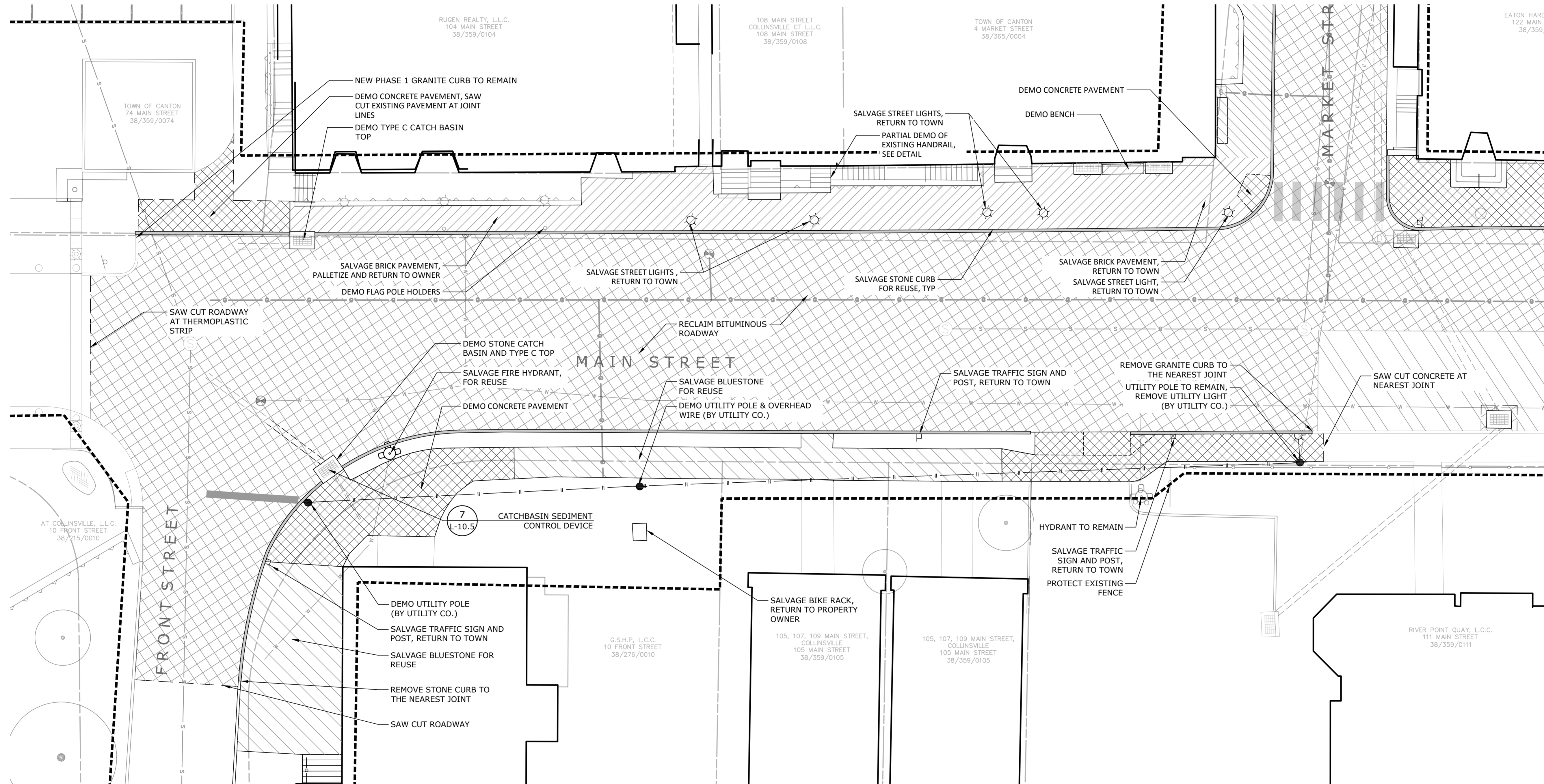
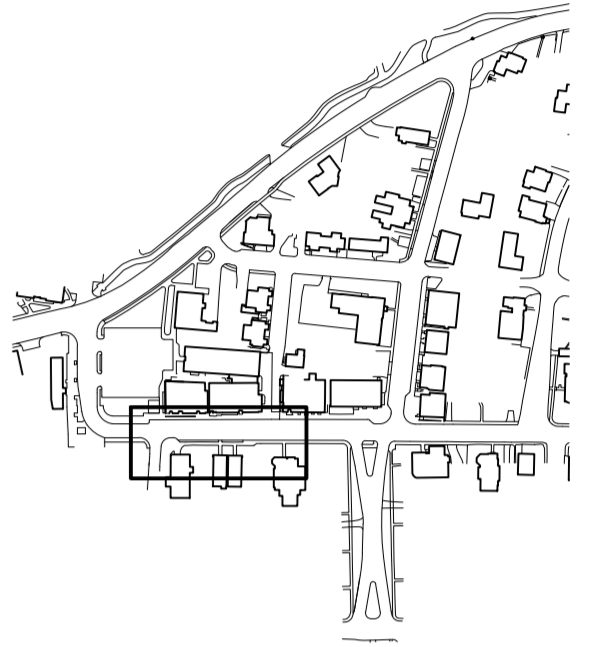
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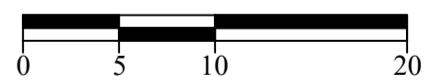
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**DEMOLITION PLAN
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FRONT ST. TO MARKET ST.**

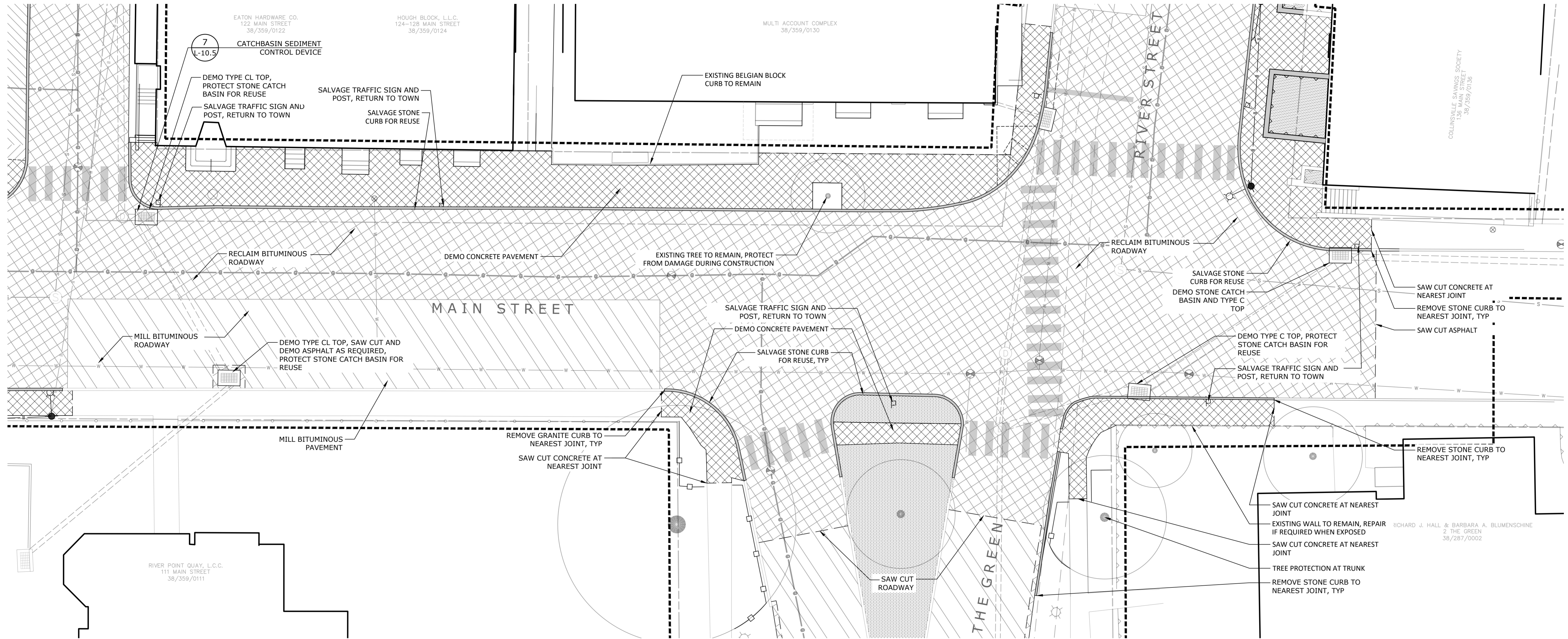
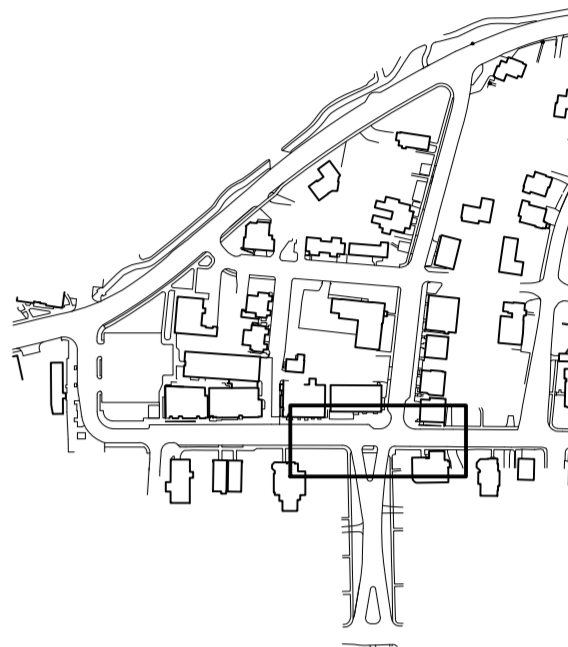
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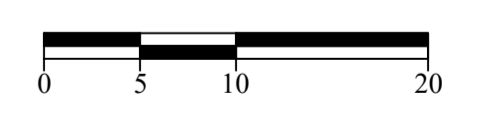
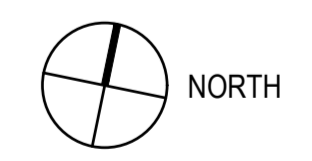
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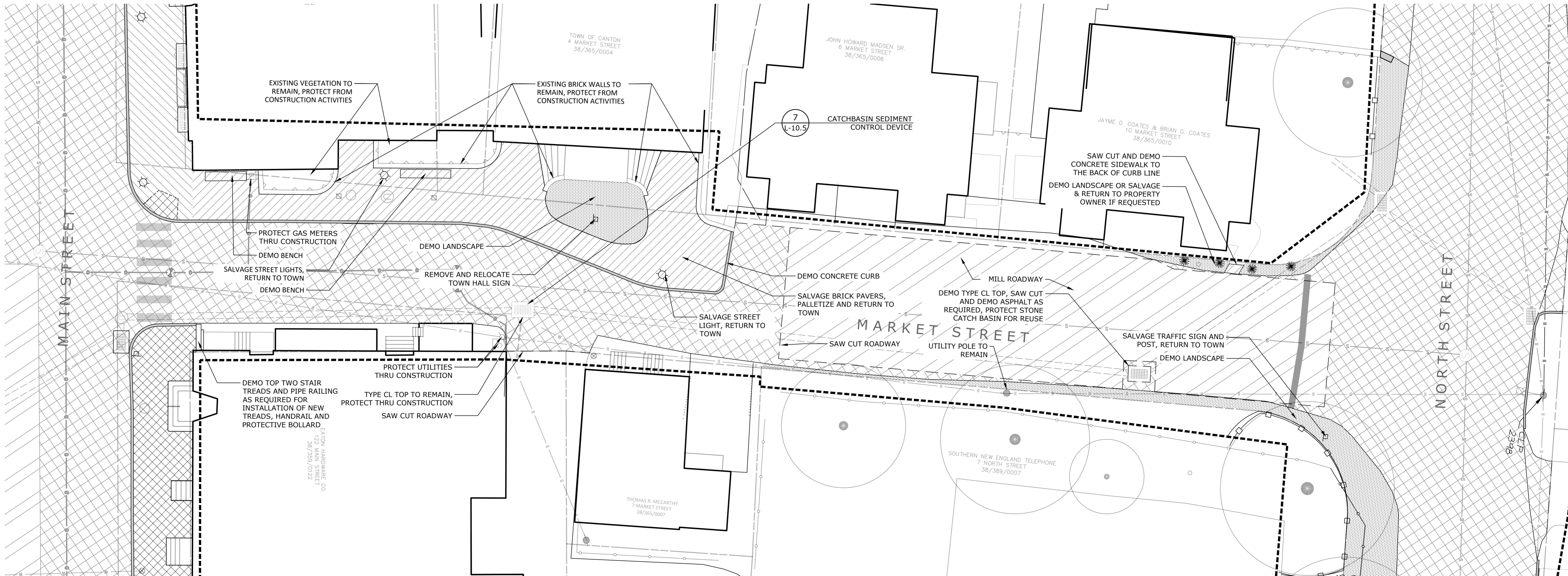
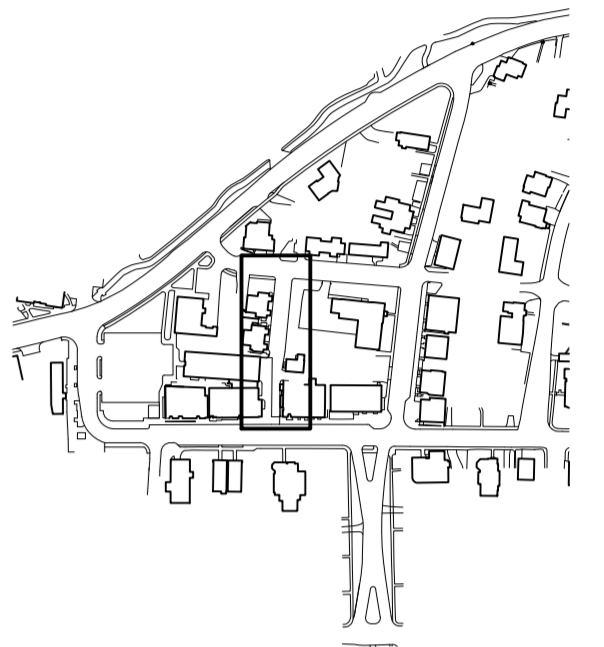
**DEMOLITION PLAN
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MARKET ST. TO THE GREEN**

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Date March 15, 2021
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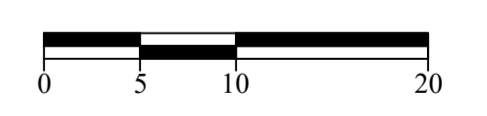
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**DEMOLITION PLAN
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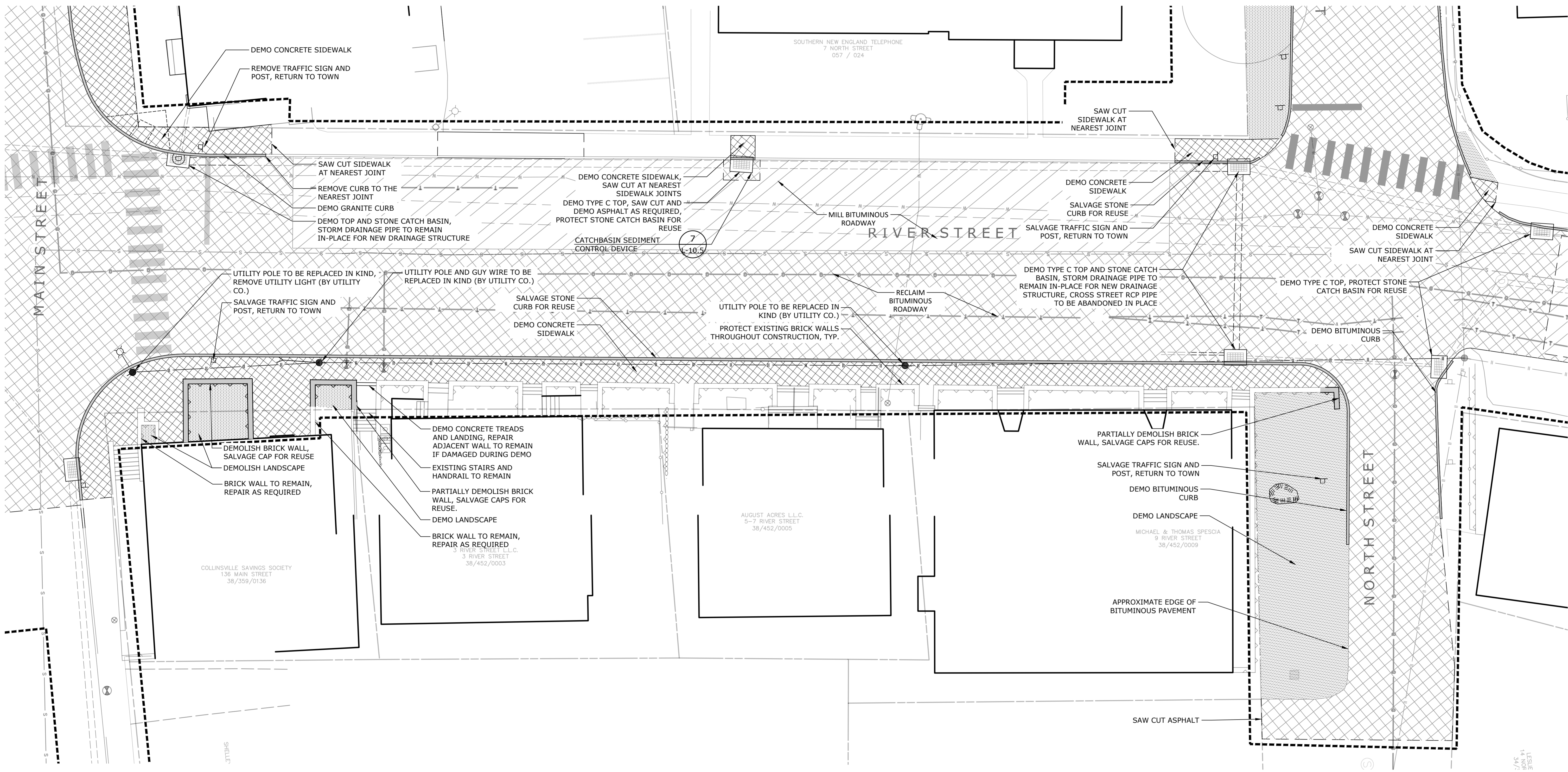
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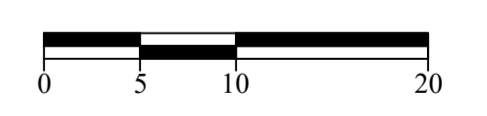
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**DEMOLITION PLAN
RIVER STREET
MAIN ST. TO NORTH ST.**

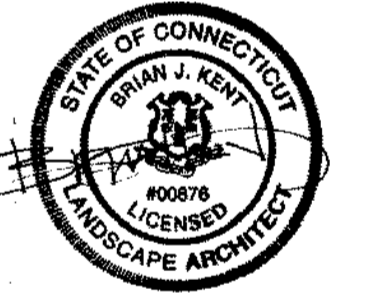
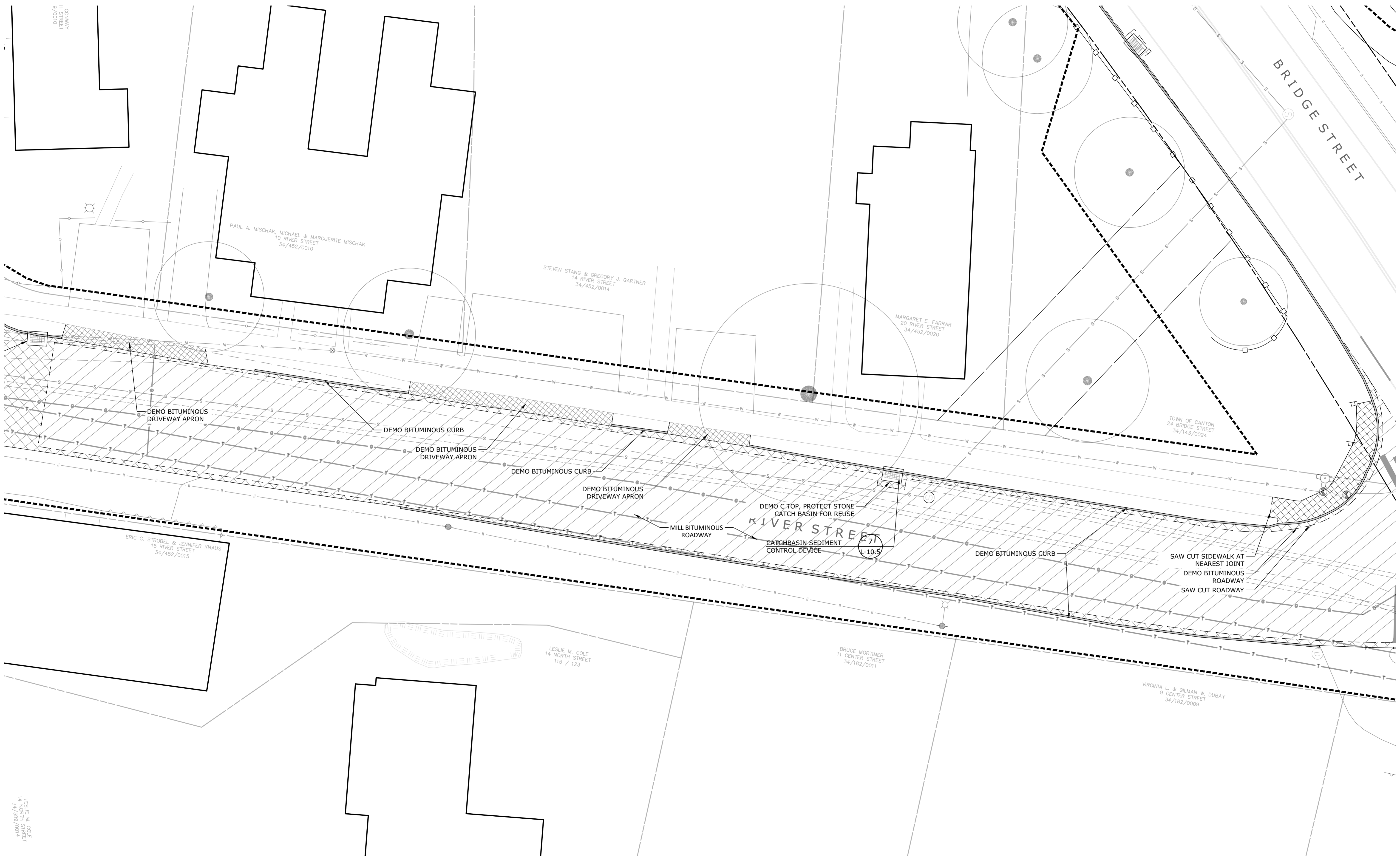
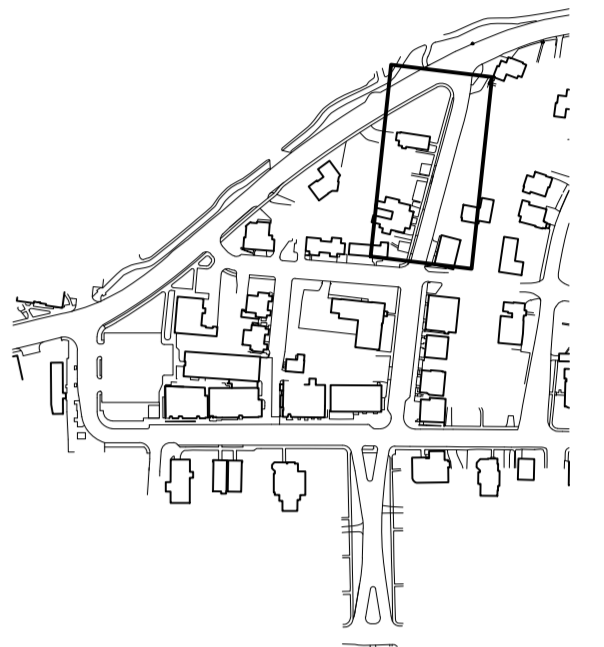
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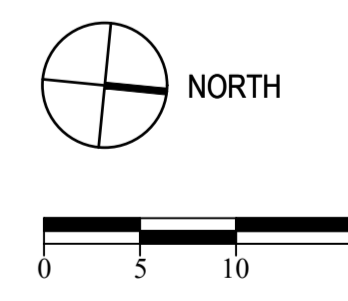
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**DEMOLITION PLAN
RIVER STREET
NORTH ST. TO BRIDGE ST.**

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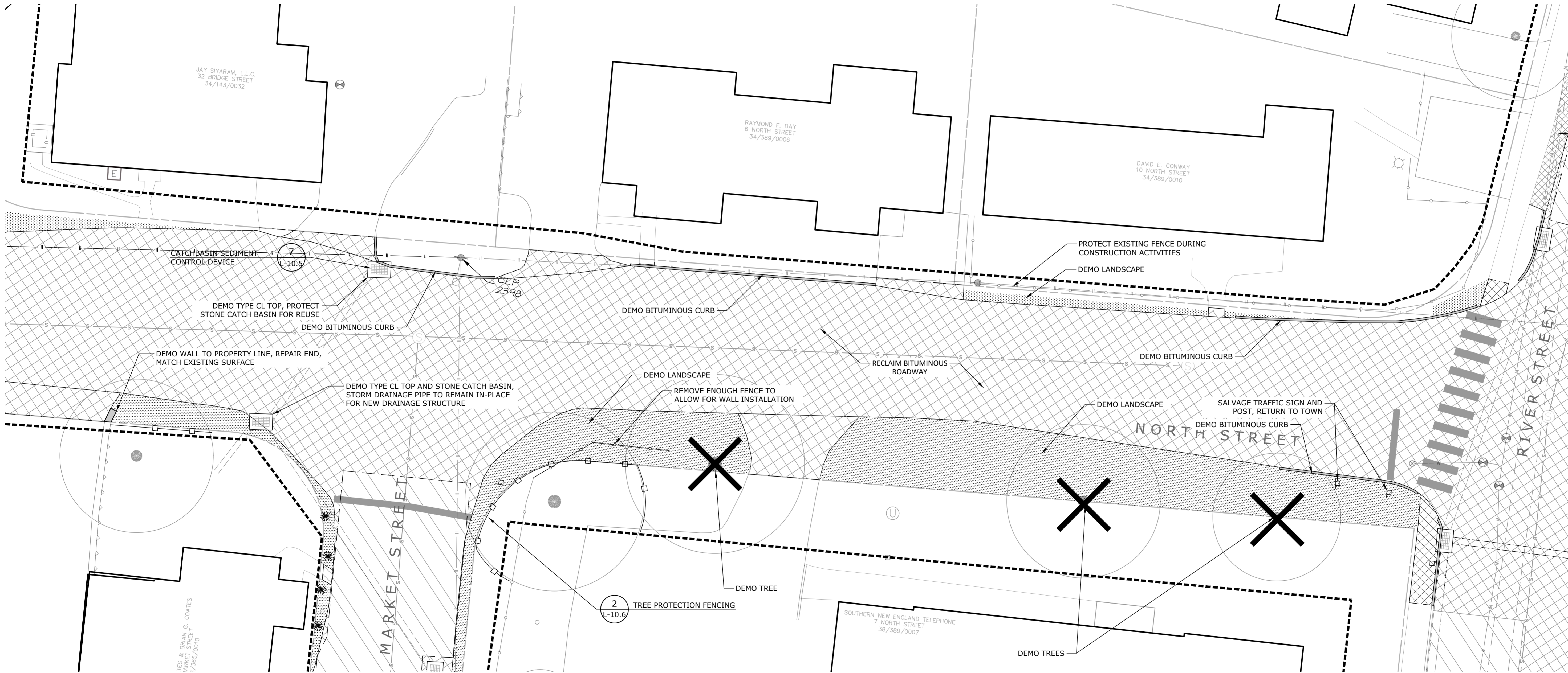
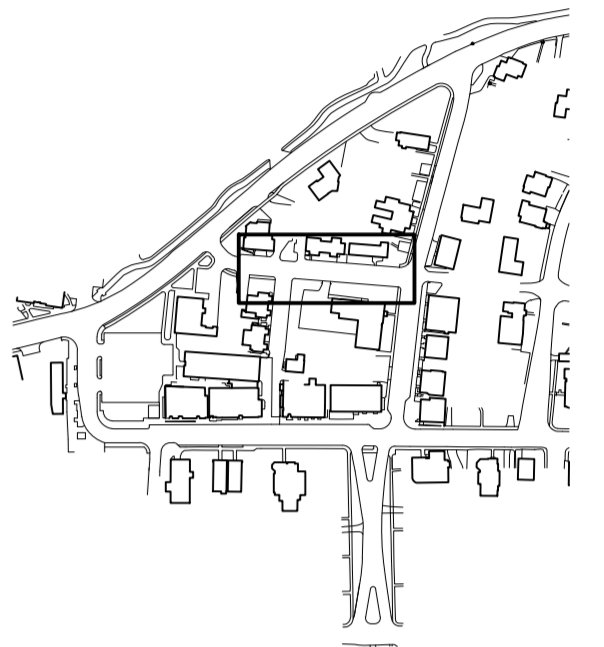
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LESLIE M. COLE
14 NORTH STREET
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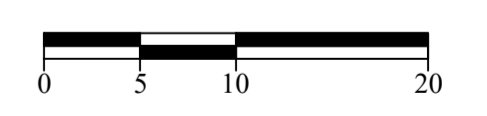
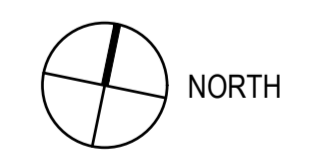
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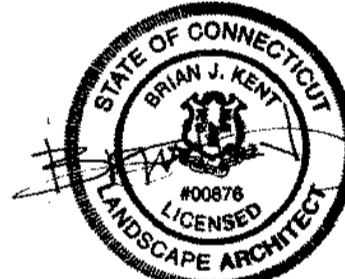
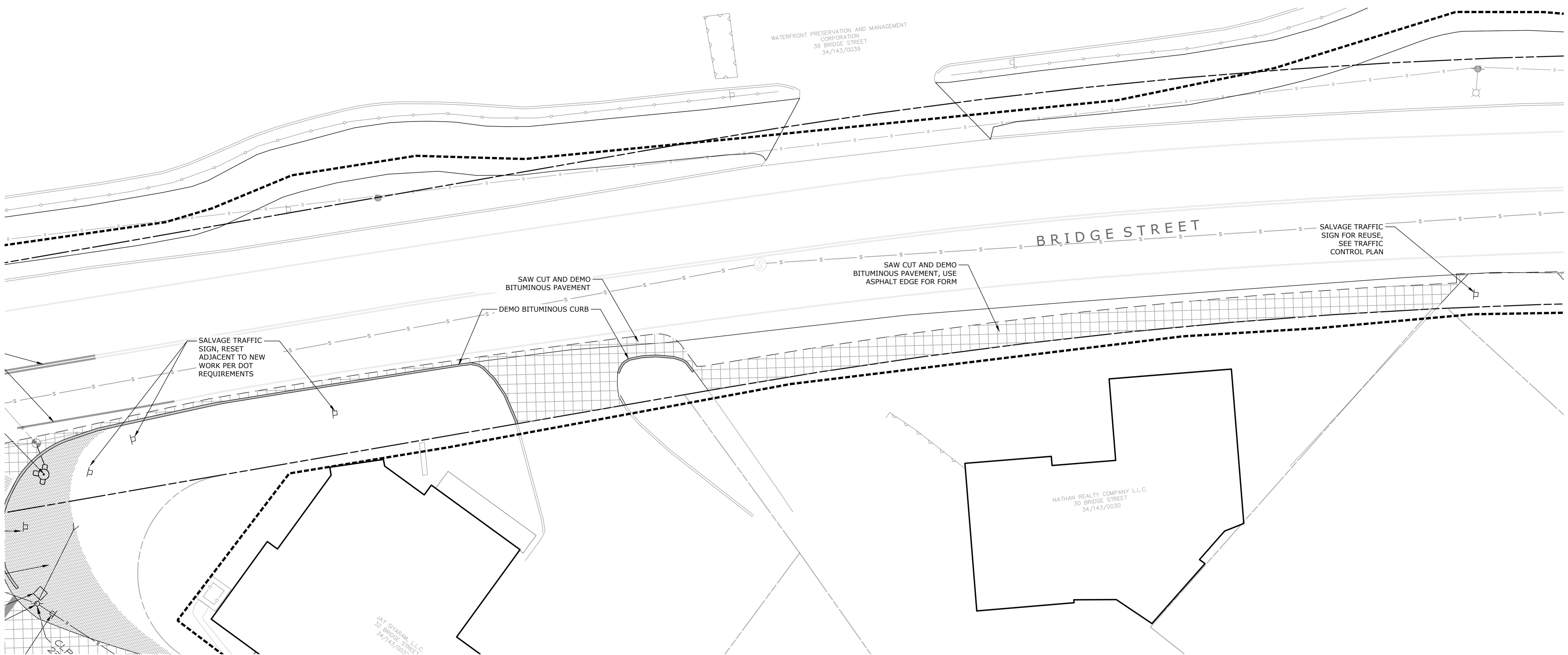
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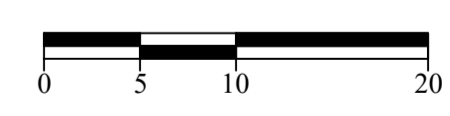
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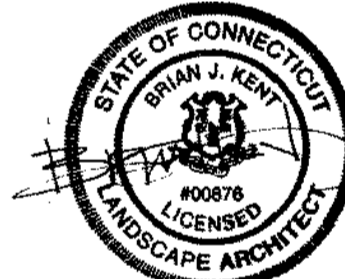
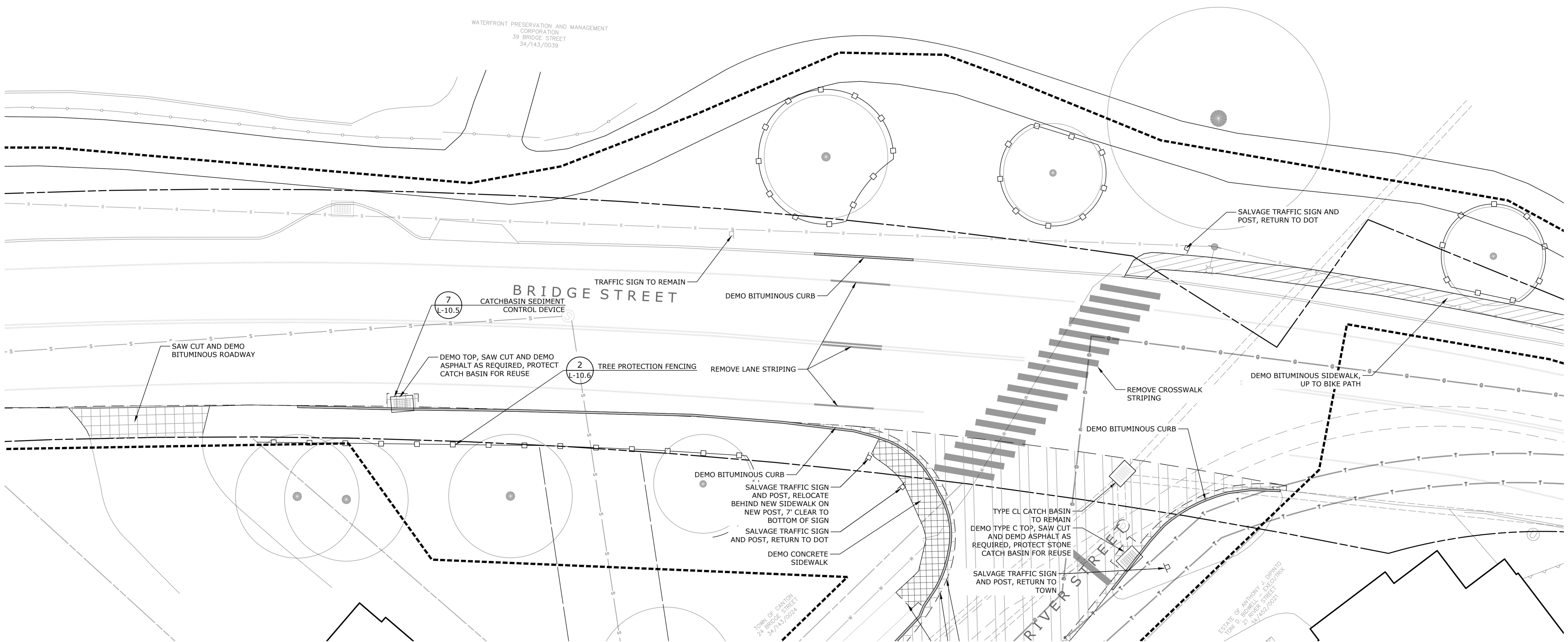
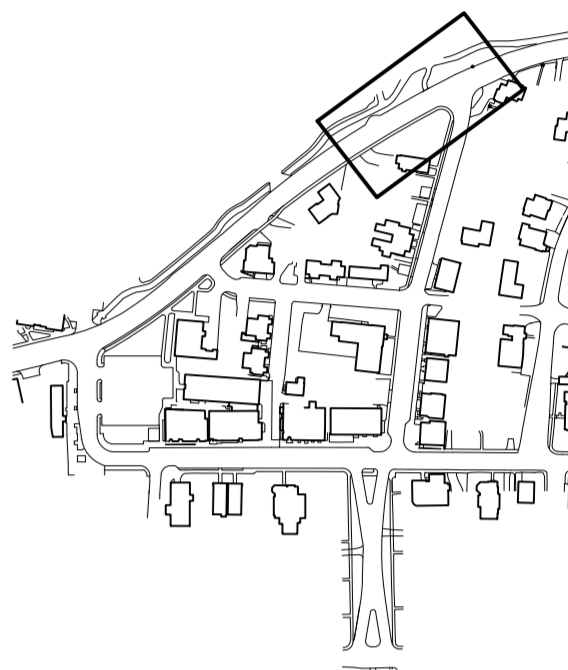
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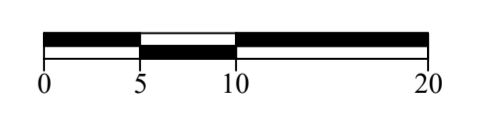
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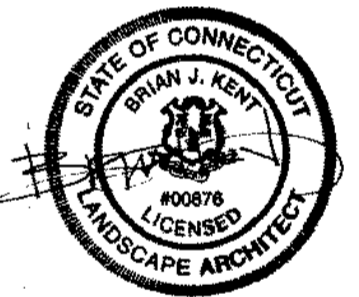
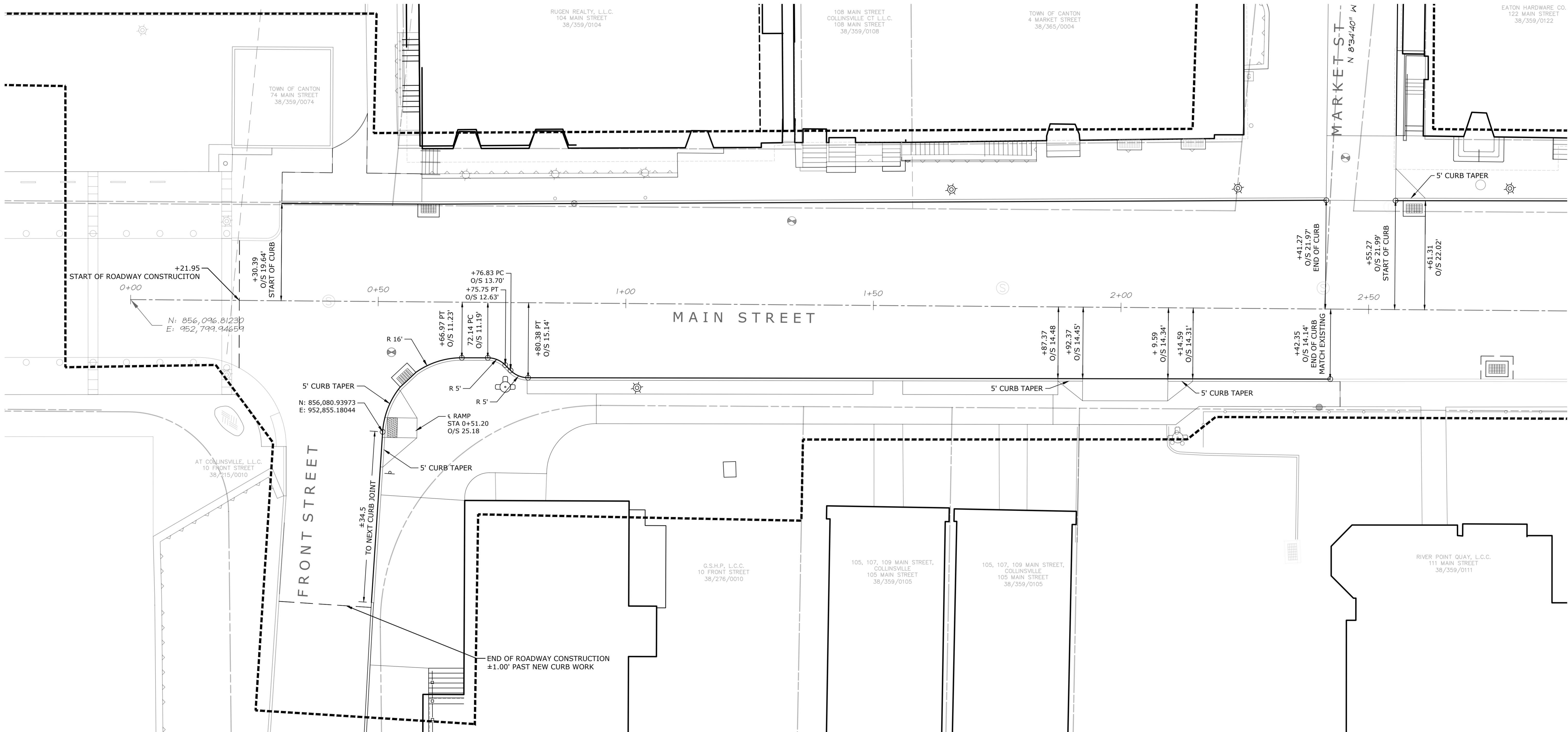
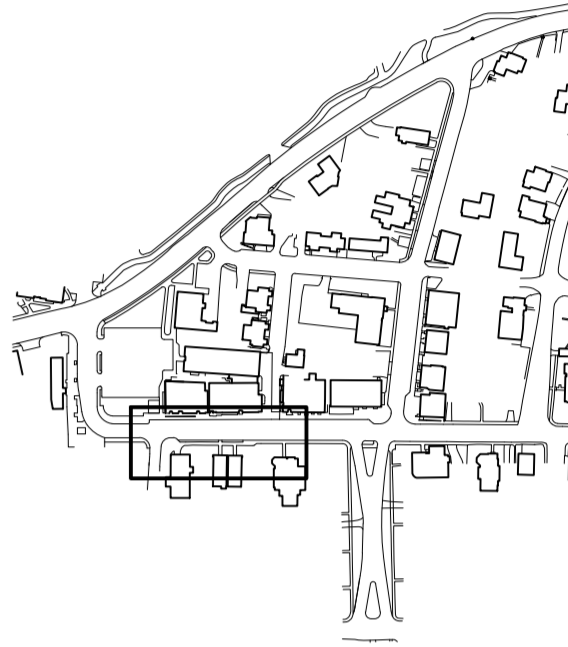
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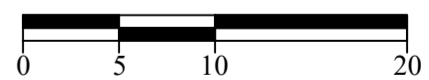
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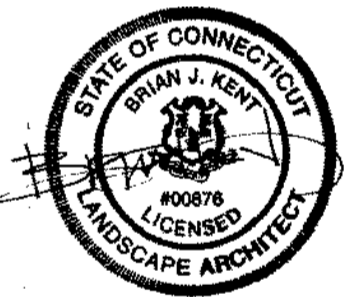
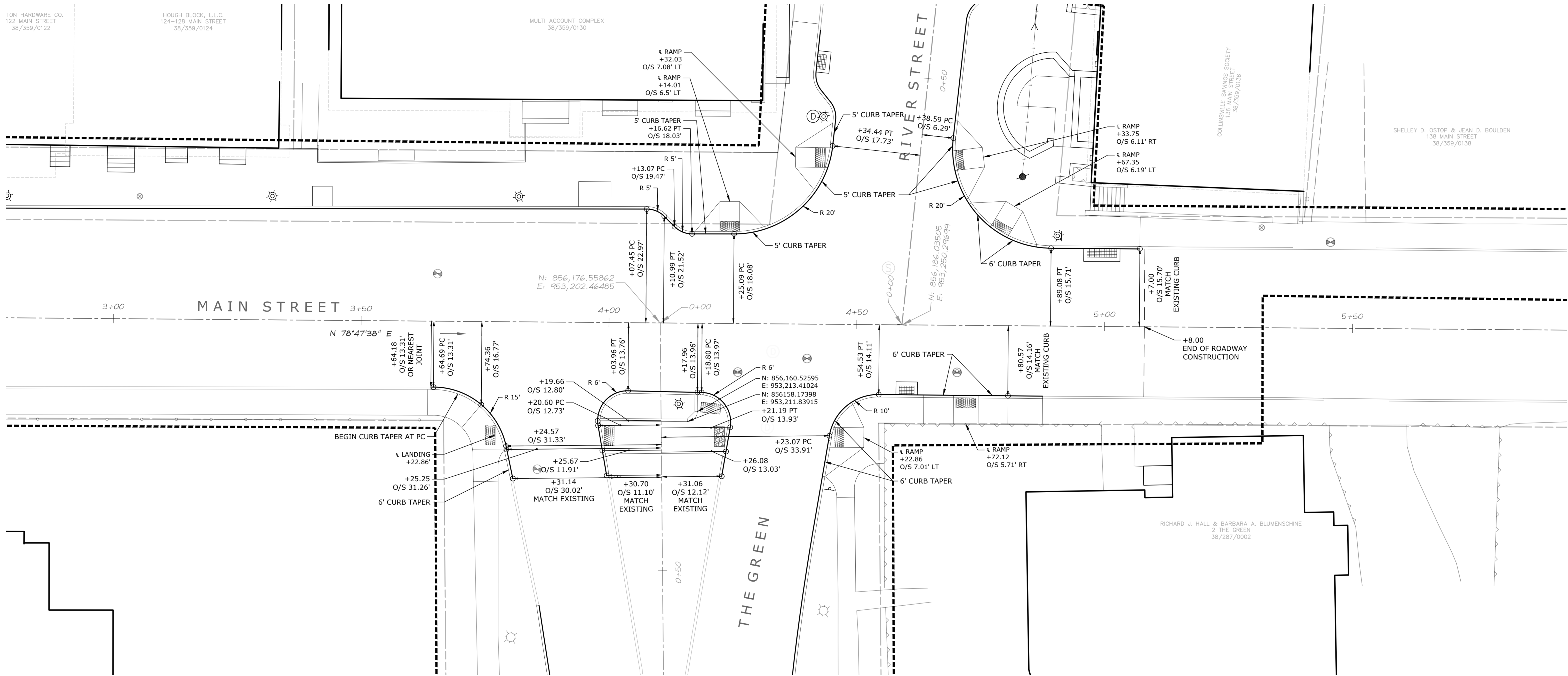
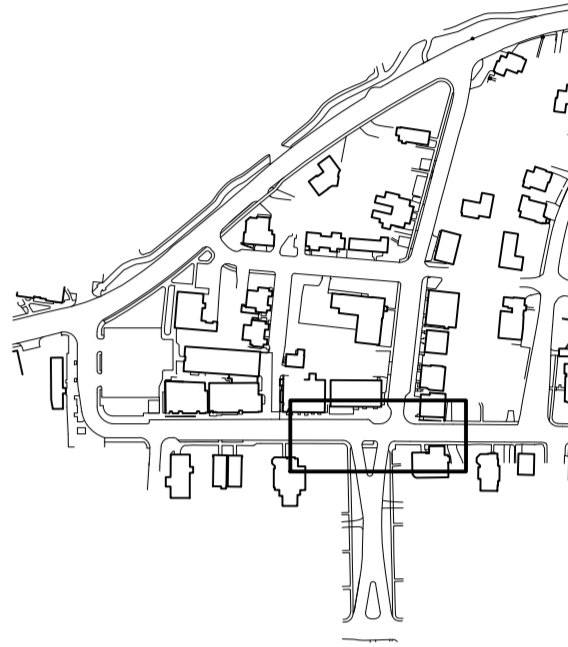
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**ROADWAY LAYOUT PLAN
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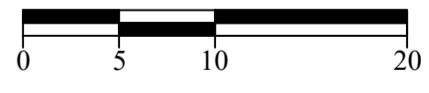
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MARKET ST. TO THE GREEN

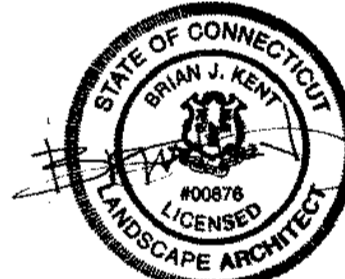
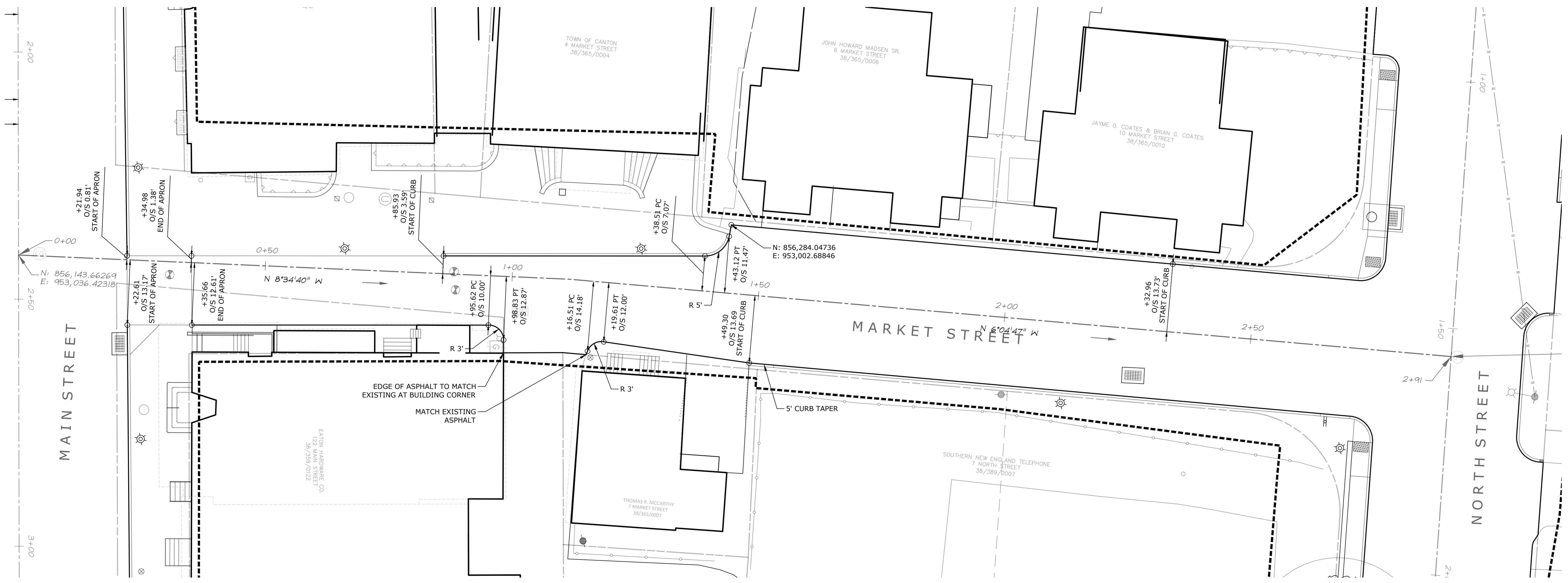
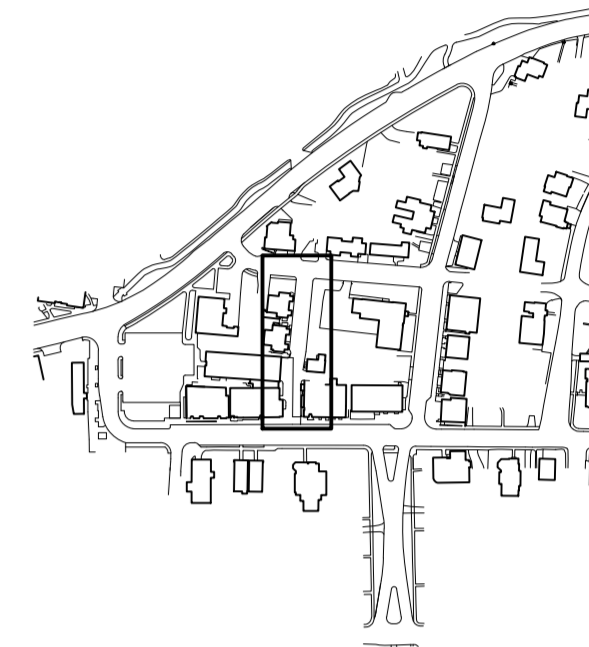
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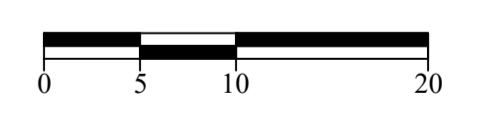
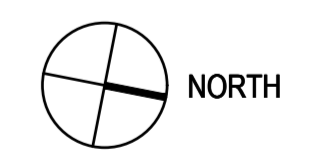
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**ROADWAY LAYOUT PLAN
MARKET STREET**

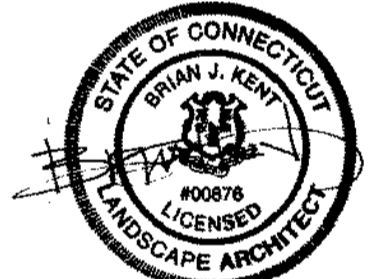
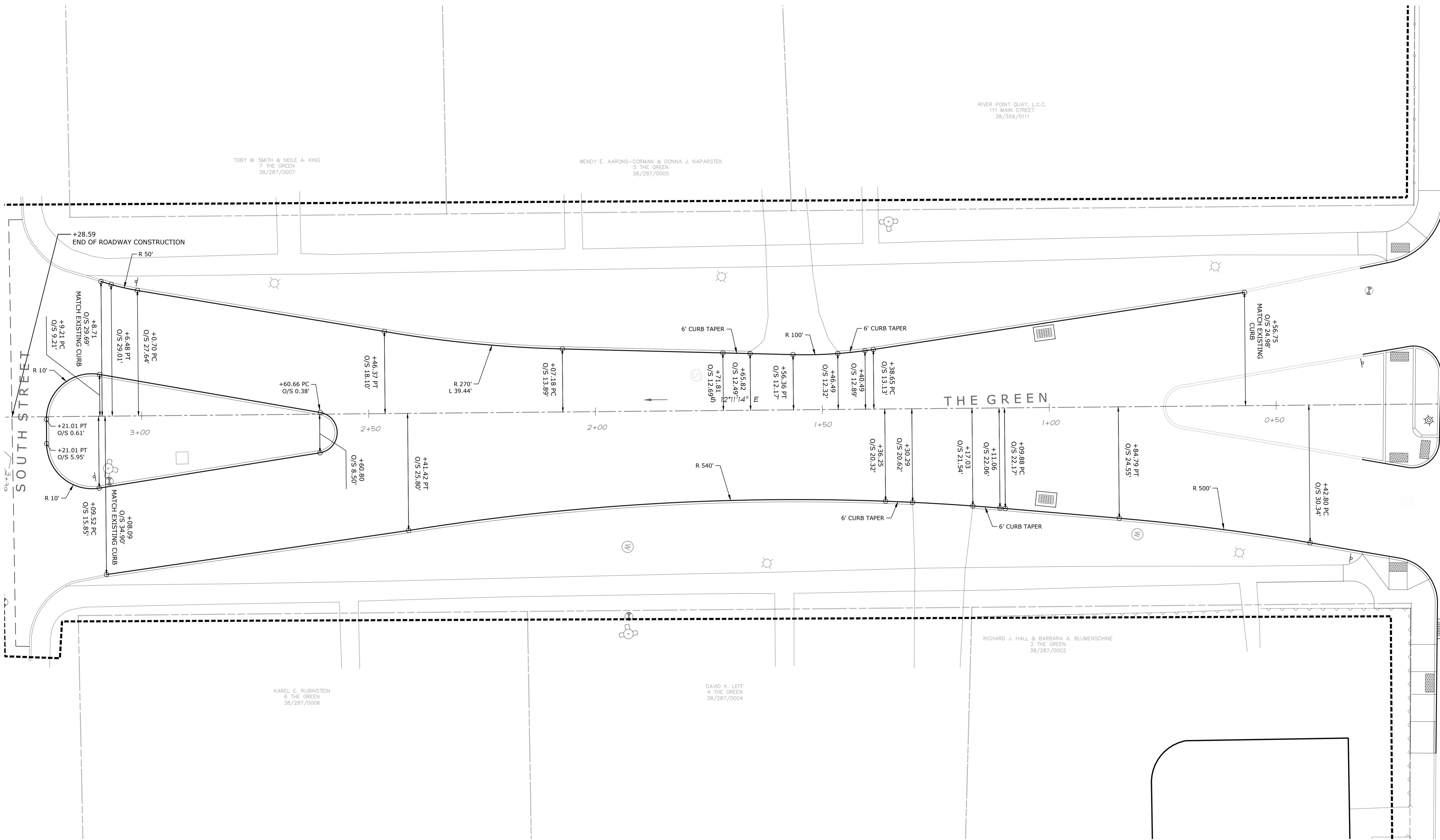
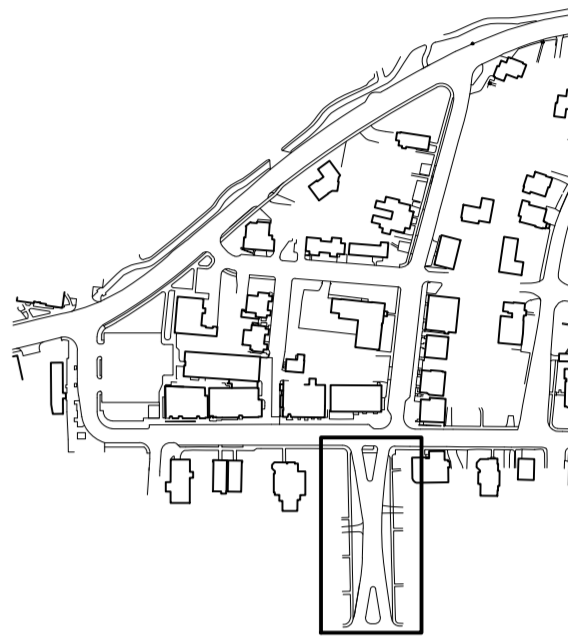
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Date: March 15, 2021
K+F Project No.: 2017014
Drawing No.:

L-2.2

**Collinsville
Village Center
Streetscape Phase 2**
Collinsville, CT

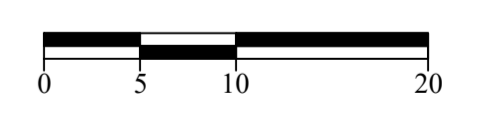
State Project No. 23-128

**LANDSCAPE
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FROST
ARCHITECTURE**
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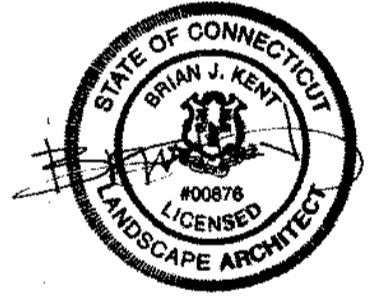
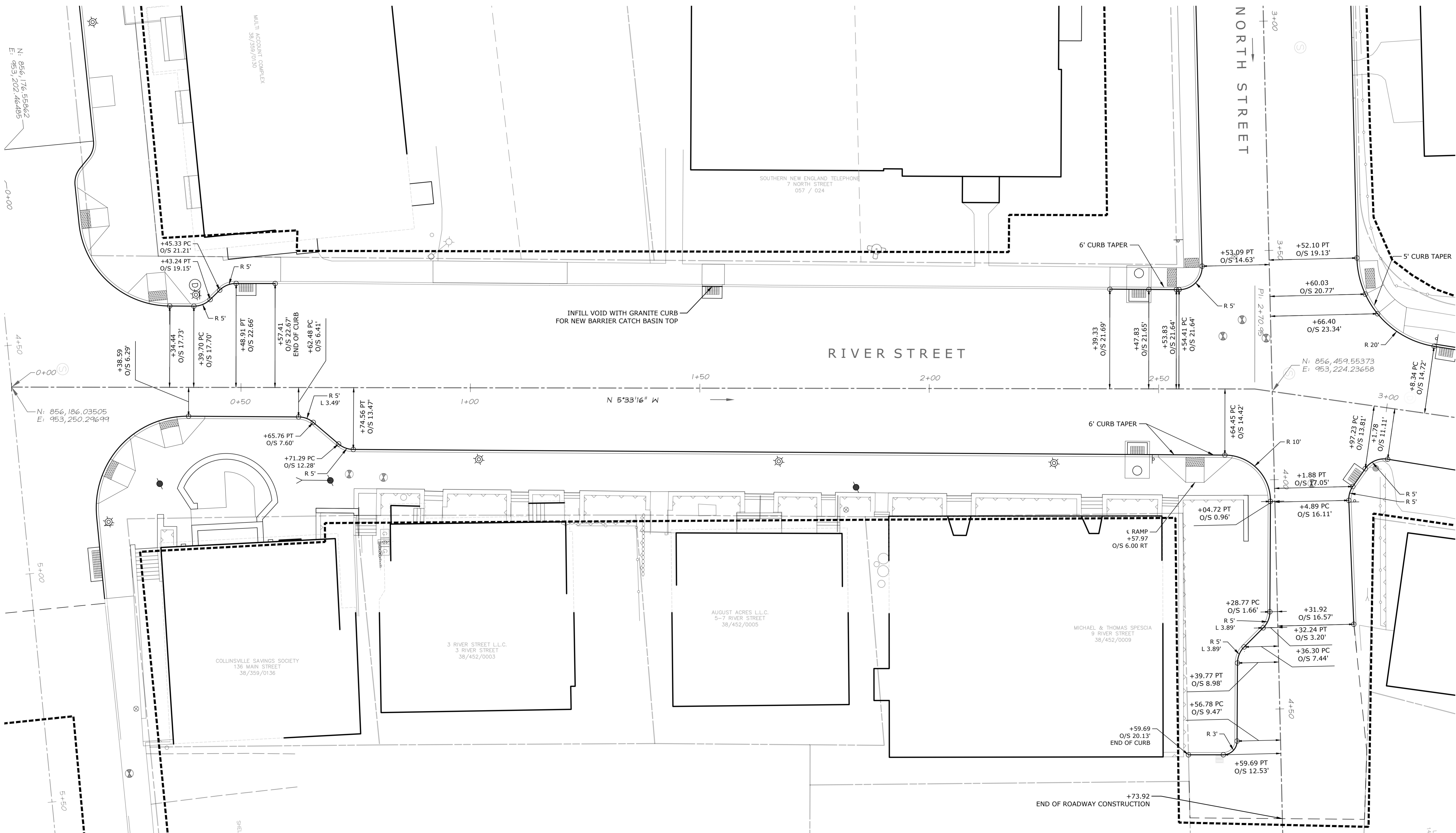
Revisions	Date



**ROADWAY LAYOUT PLAN
THE GREEN**

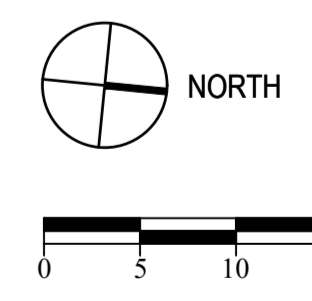
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Date: March 15, 2021
K+F Project No.: 2017014
Drawing No.:

L-2.3



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Revisions	Date



ROADWAY LAYOUT PLAN
RIVER STREET
MAIN ST. TO NORTH ST.

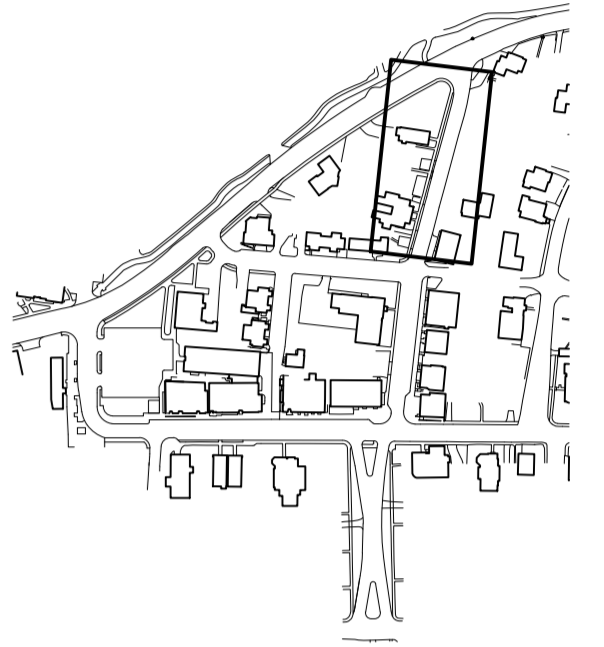
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K+F Project No.	2017014
Drawing No.	

L-2.4

**Collinsville
Village Center
Streetscape Phase 2**
Collinsville, CT

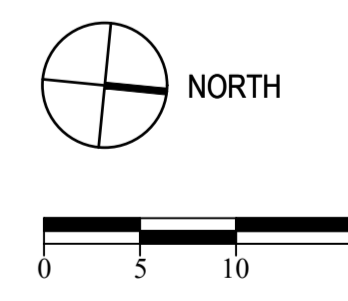
State Project No. 23-128

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**ROADWAY LAYOUT PLAN
RIVER STREET
NORTH ST. TO BRIDGE ST.**

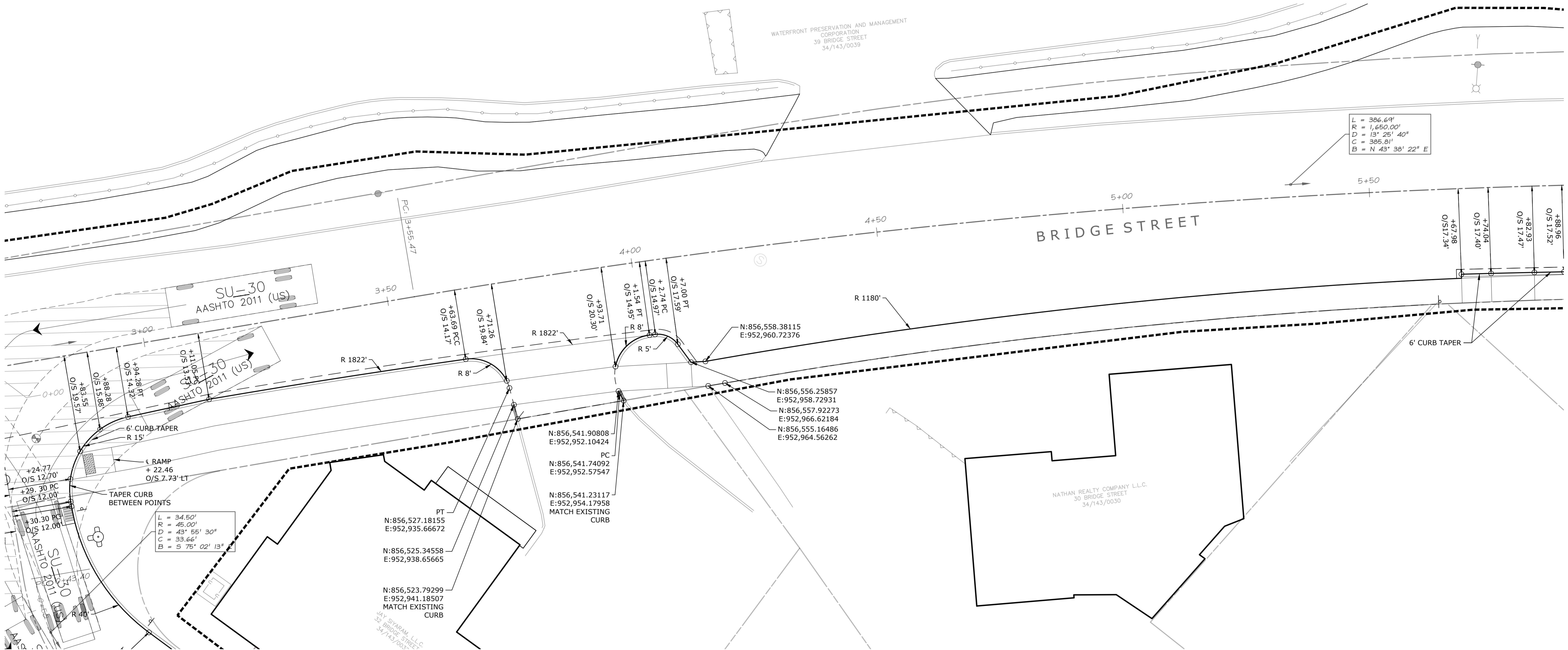
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K-F Project No. 2017014
Drawing No.

L-2.5

**Collinsville
Village Center
Streetscape Phase 2**
Collinsville, CT

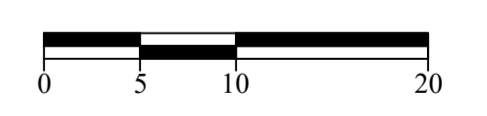
State Project No. 23-128

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**ROADWAY LAYOUT PLAN
BRIDGE STREET**

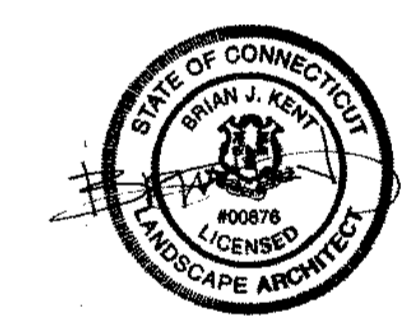
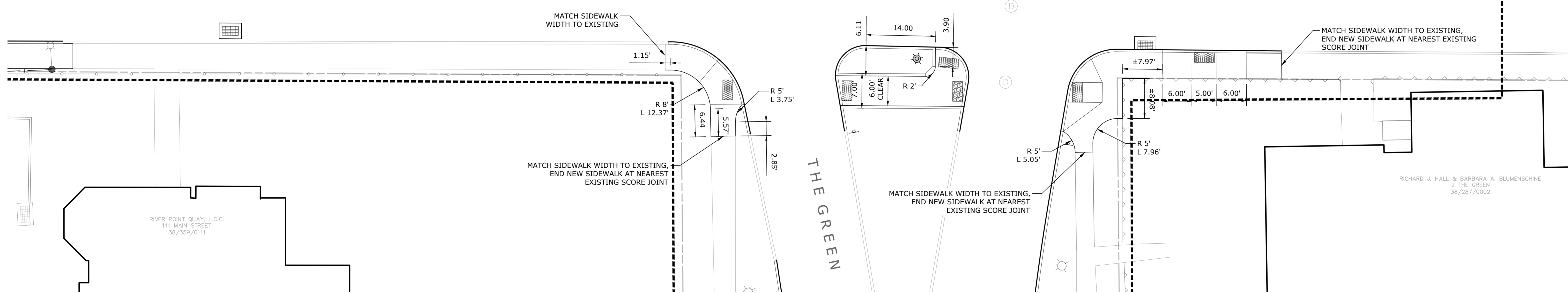
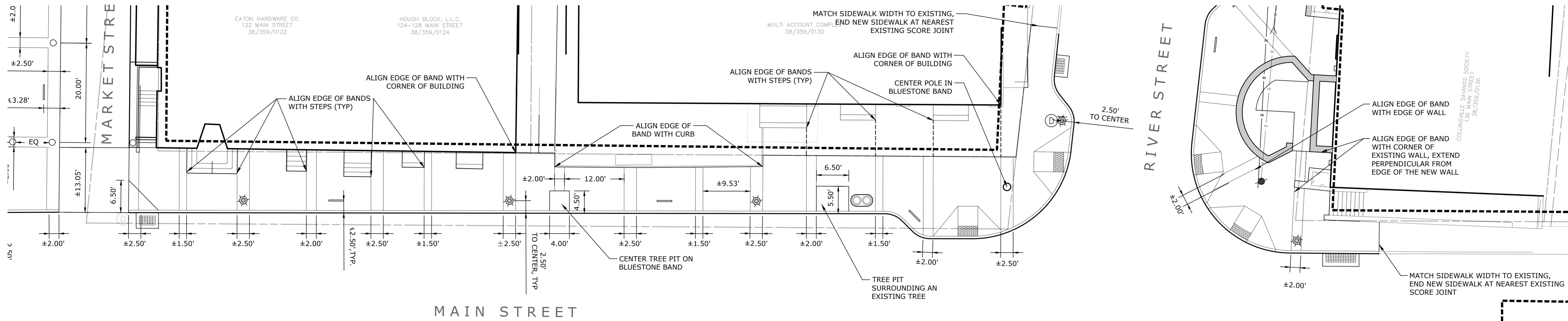
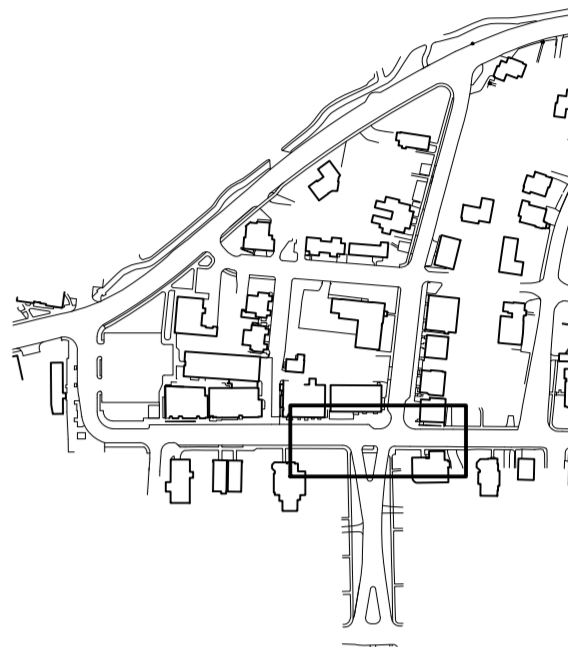
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K+F Project No.: 2017014
Drawing No.:

L-2.8

**Collinsville
Village Center
Streetscape Phase 2**
Collinsville, CT

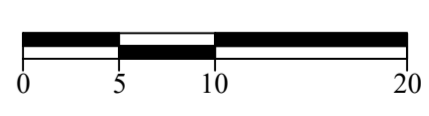
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**HARDSCAPE LAYOUT PLAN
MAIN STREET
MARKET ST. TO THE GREEN**

Scale: 1" = 10'
Date: March 15, 2021
K+F Project No.: 2017014
Drawing No.:

L-3.1

**Collinsville
Village Center
Streetscape Phase 2**
Collinsville, CT

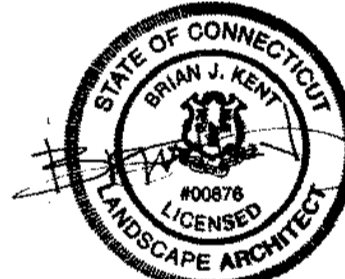
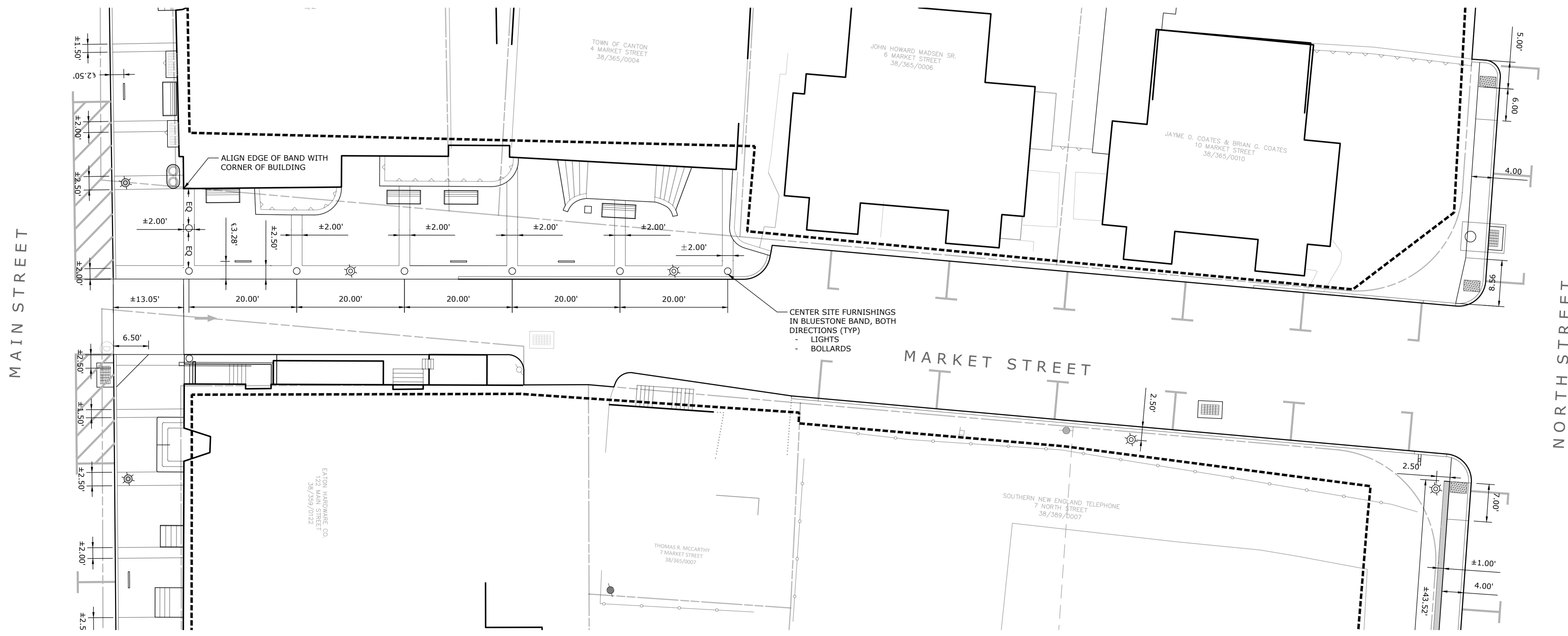
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LANDSCAPE

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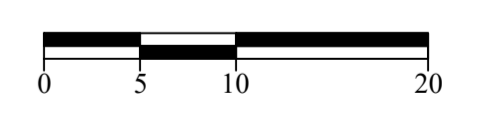
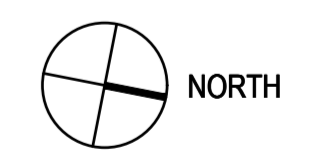
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**HARDSCAPE LAYOUT PLAN
MARKET STREET**

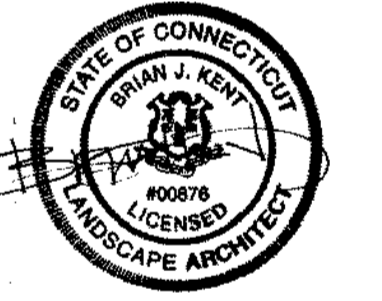
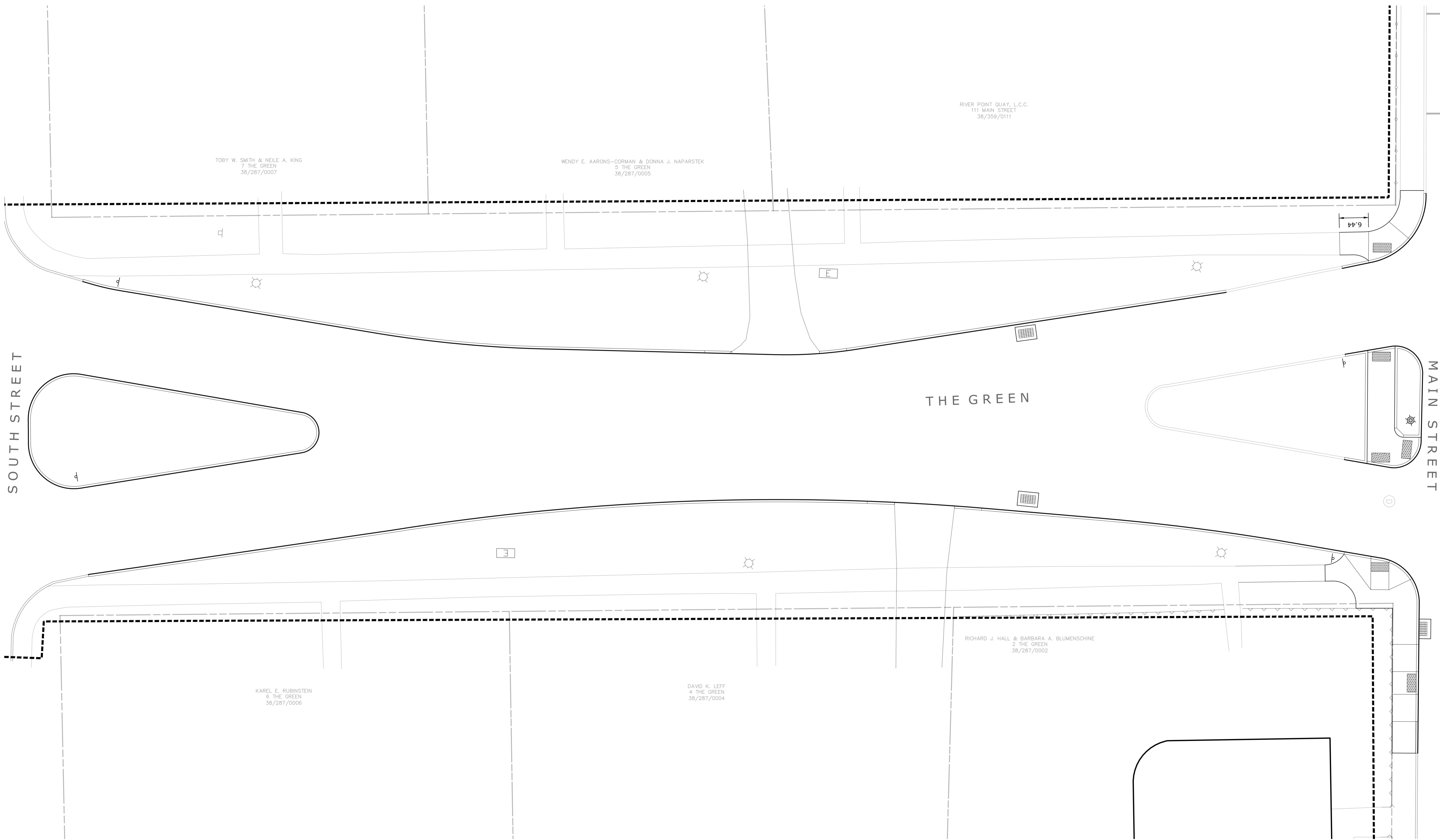
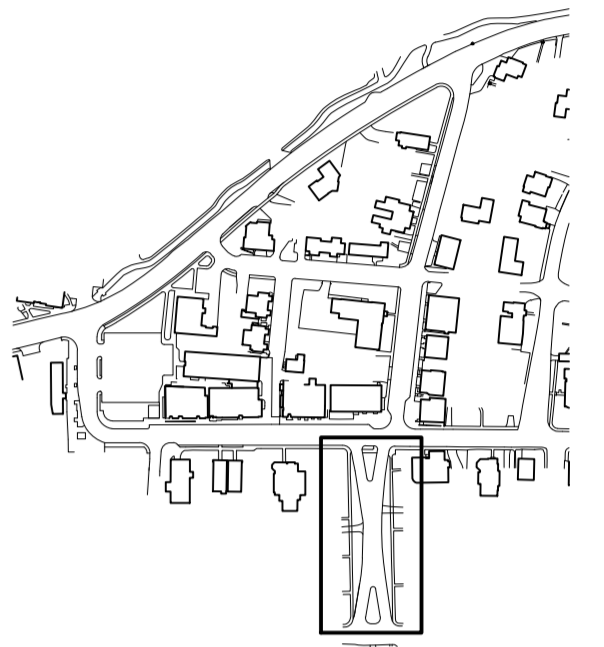
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Date: March 15, 2021
K+F Project No.: 2017014
Drawing No.:

L-3.2

**Collinsville
Village Center
Streetscape Phase 2**
Collinsville, CT

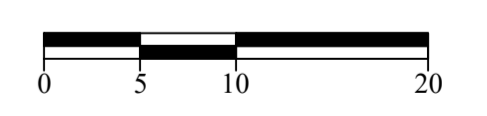
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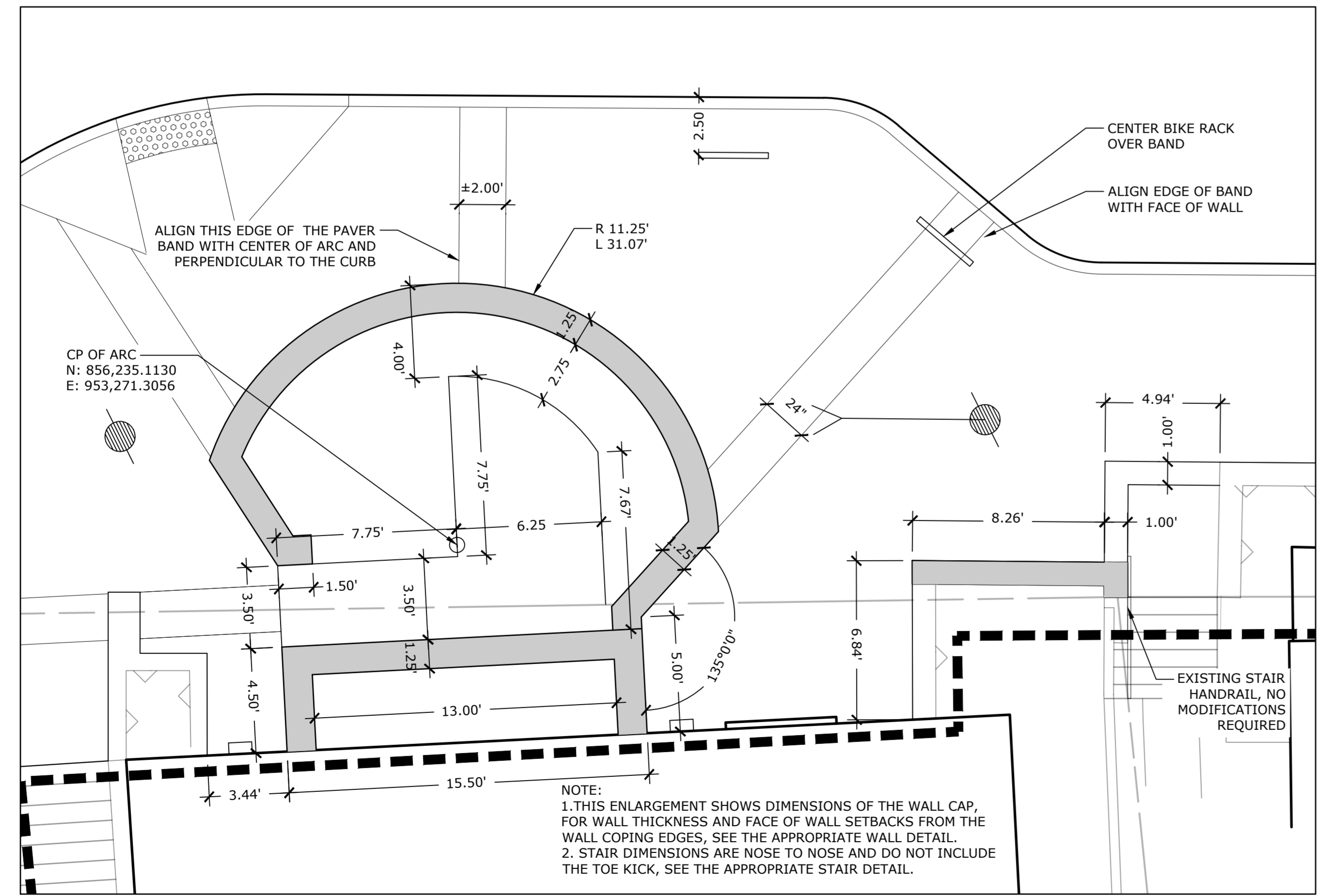
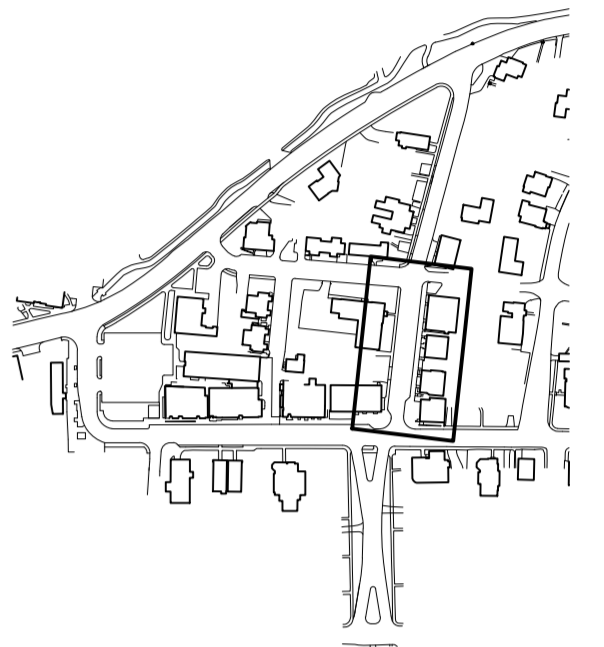
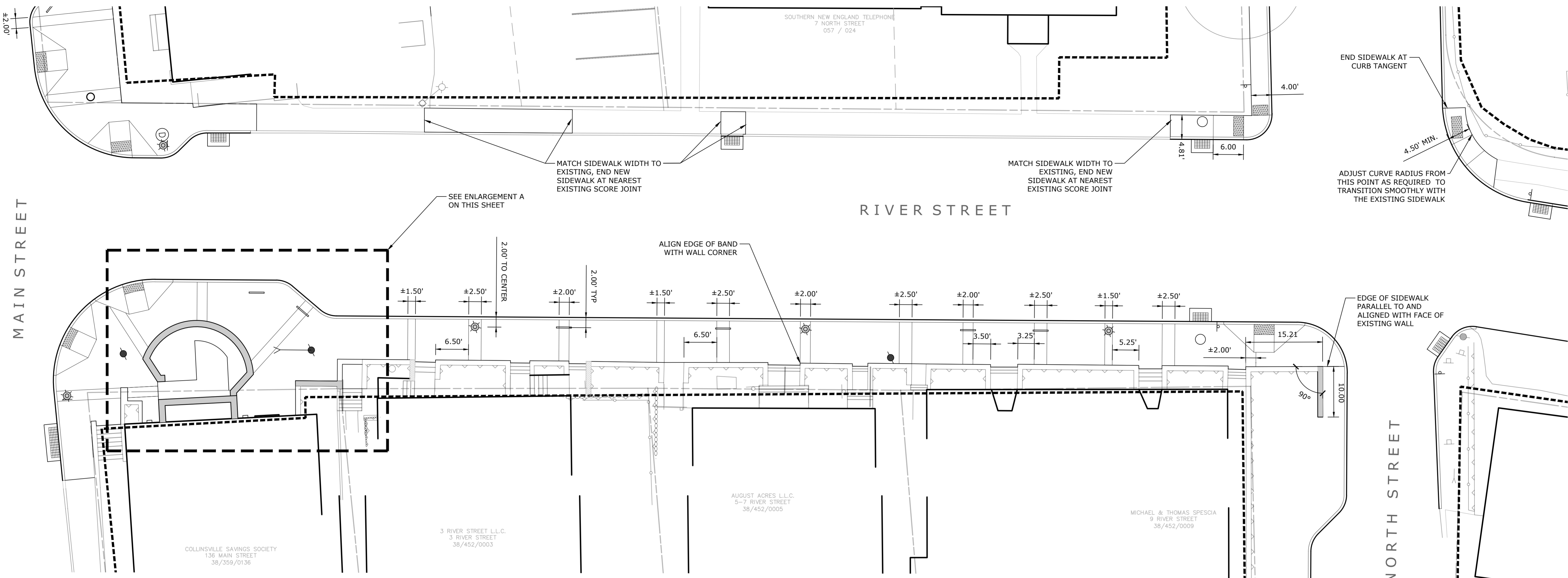
Revisions	Date



**HARDSCAPE LAYOUT PLAN
THE GREEN**

Scale 1" = 10'
Date March 15, 2021
K+F Project No. 2017014
Drawing No.

L-3.3

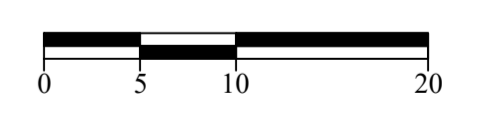


ENLARGEMENT A SCALE: 1" = 4'



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Revisions	Date



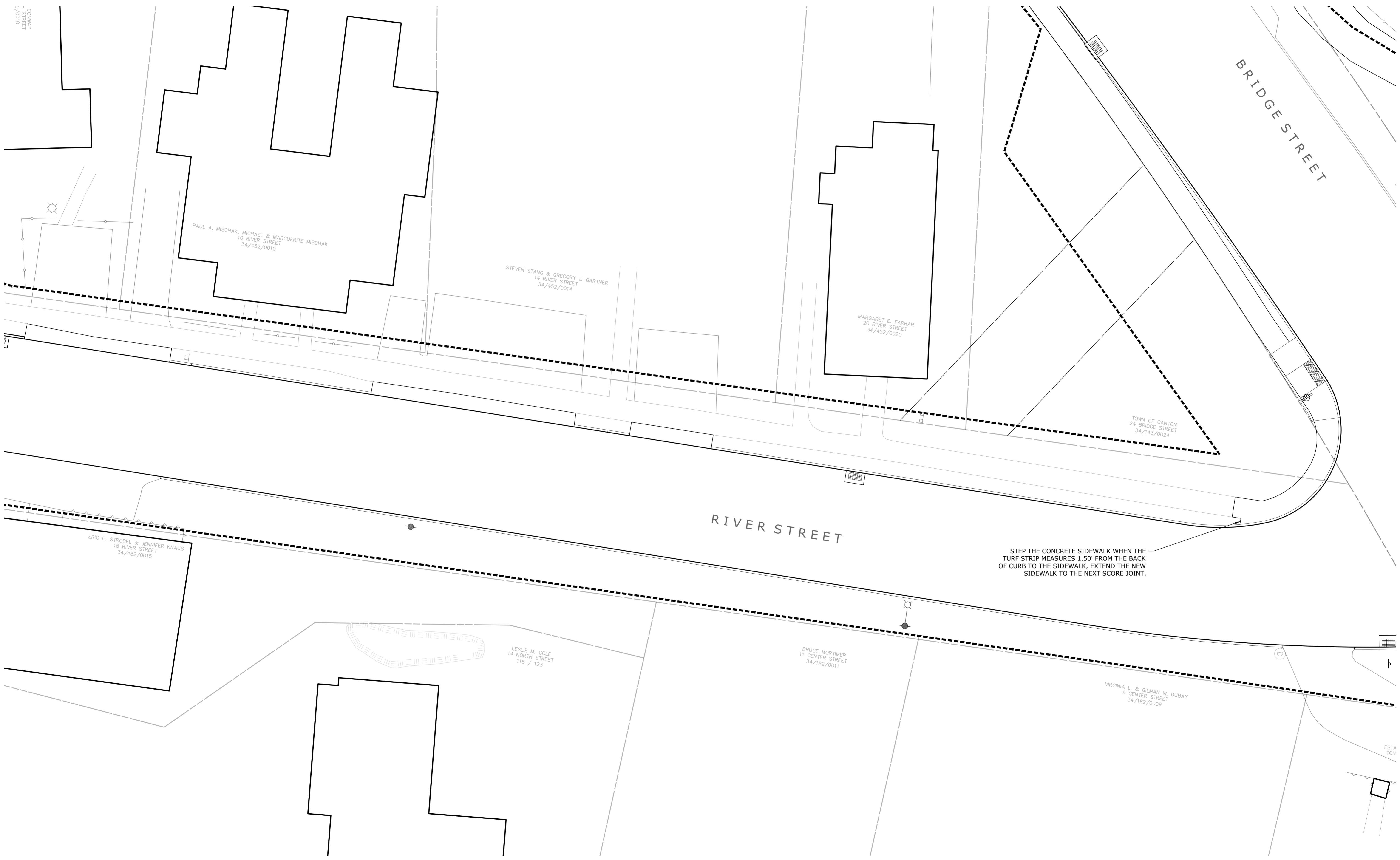
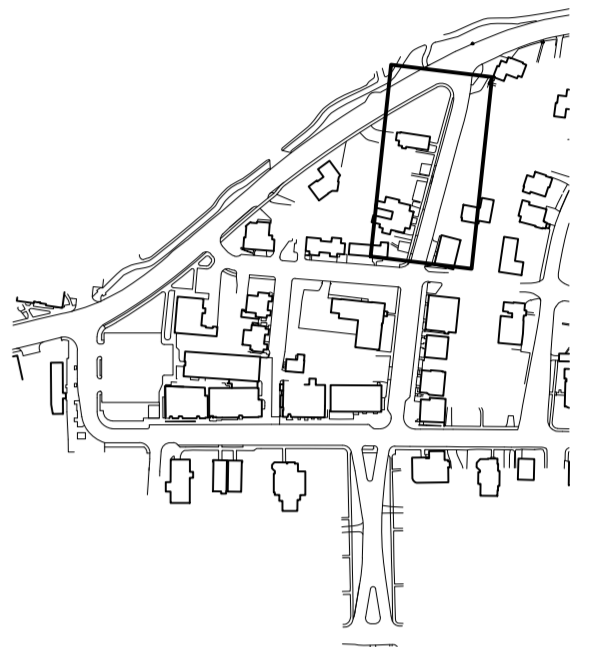
**HARDSCAPE LAYOUT PLAN
RIVER STREET
MAIN ST. TO NORTH ST.**

Scale	1" = 10'
Date	March 15, 2021
K-F Project No.	2017014
Drawing No.	

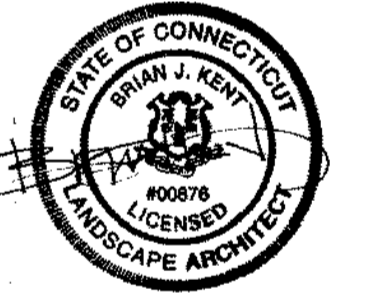
**Collinsville
Village Center
Streetscape Phase 2**
Collinsville, CT

State Project No. 23-128

**LANDSCAPE
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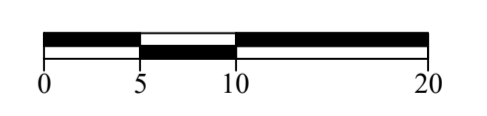


STEP THE CONCRETE SIDEWALK WHEN THE TURF STRIP MEASURES 1.50' FROM THE BACK OF CURB TO THE SIDEWALK, EXTEND THE NEW SIDEWALK TO THE NEXT SCORE JOINT.



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**HARDSCAPE LAYOUT PLAN
RIVER STREET
NORTH ST. TO BRIDGE ST.**

Scale: 1" = 10'
Date: March 15, 2021
K+F Project No.: 2017014
Drawing No.:

L-3.5

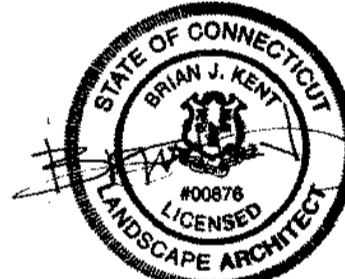
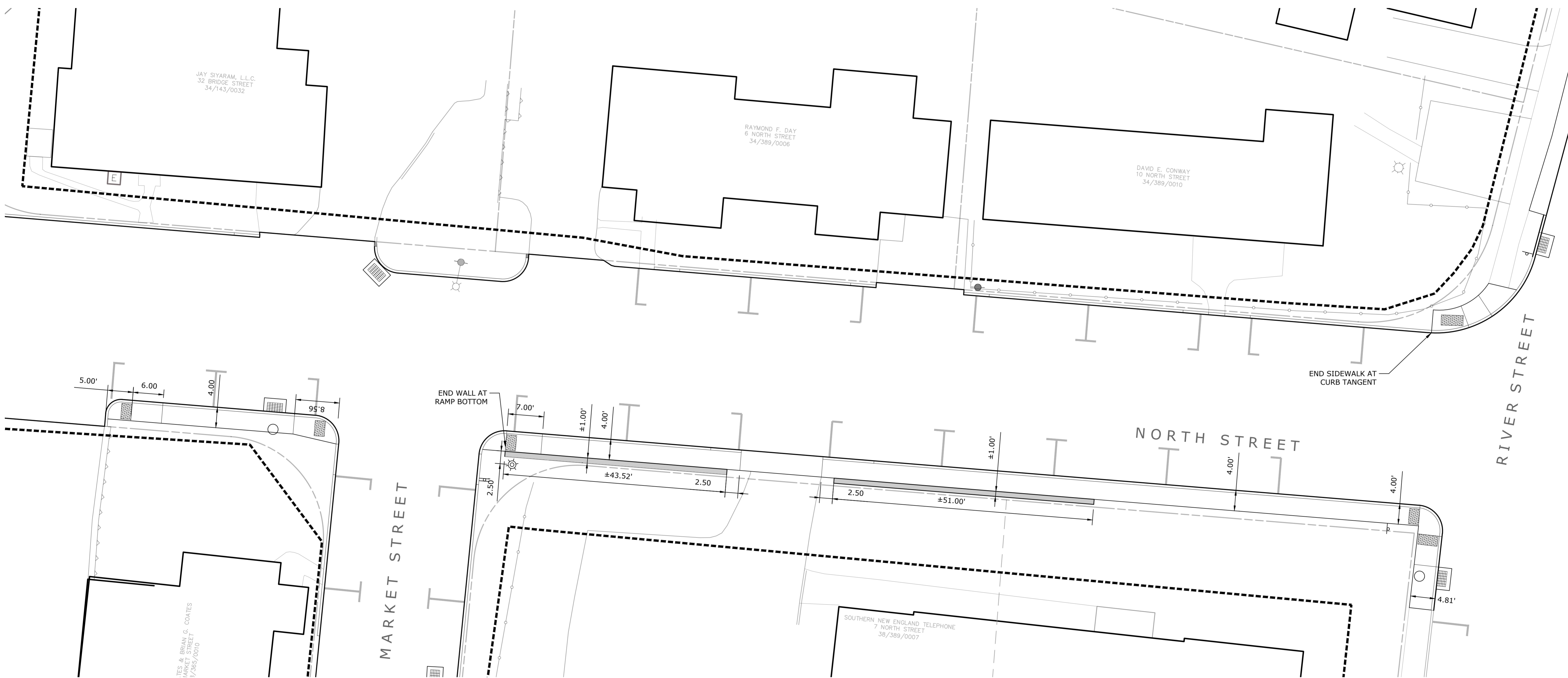
**Collinsville
Village Center
Streetscape Phase 2**
Collinsville, CT

State Project No. 23-128

LANDSCAPE

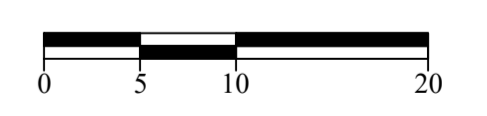
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**HARDSCAPE LAYOUT PLAN
NORTH STREET**

Scale: 1" = 10'
 Date: March 15, 2021
 K+F Project No.: 2017014
 Drawing No.:

L-3.6

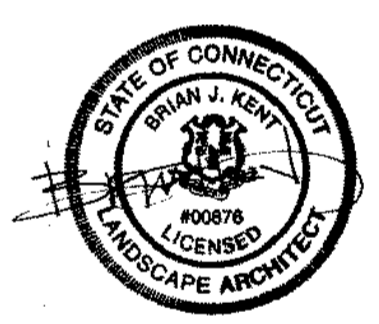
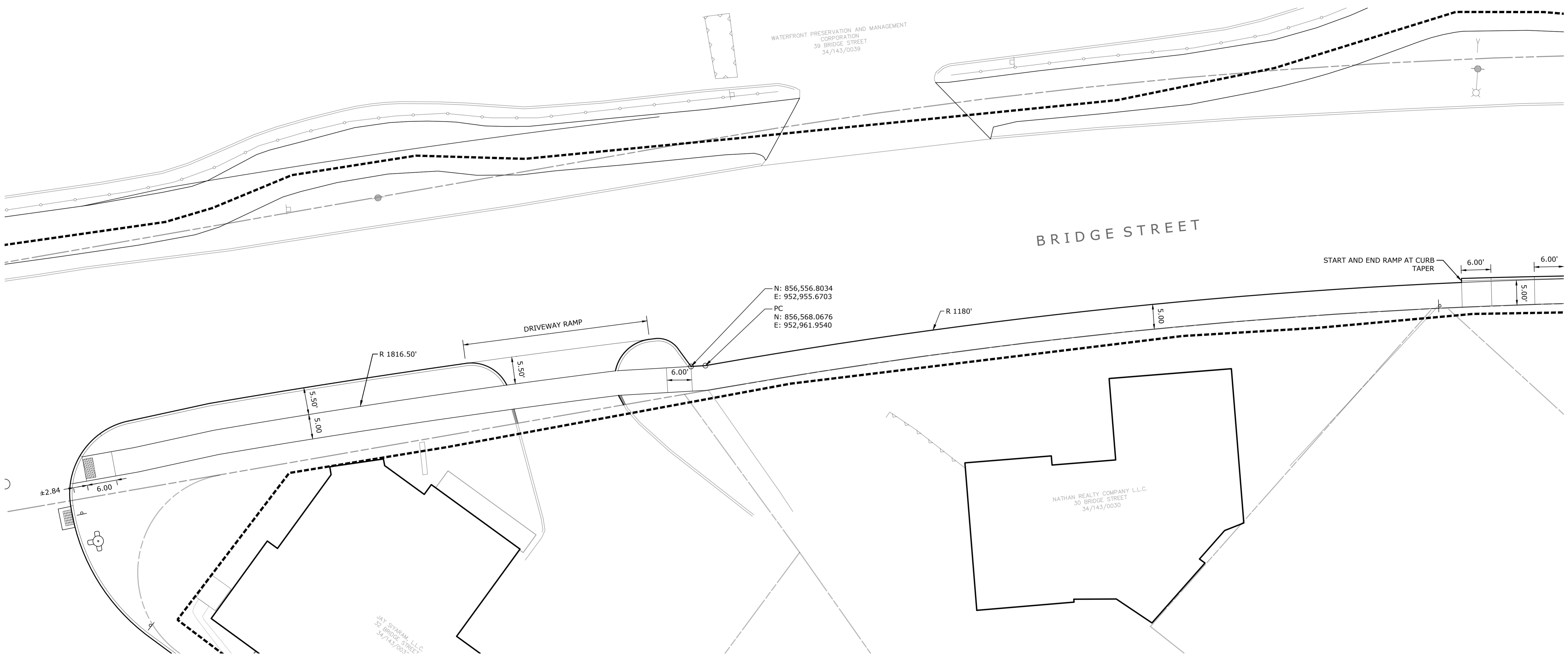
**Collinsville
Village Center
Streetscape Phase 2**
Collinsville, CT

State Project No. 23-128

LANDSCAPE

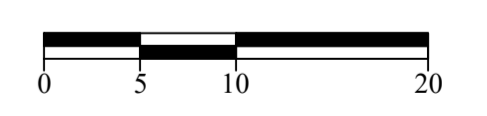
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**HARDSCAPE LAYOUT PLAN
BRIDGE STREET**

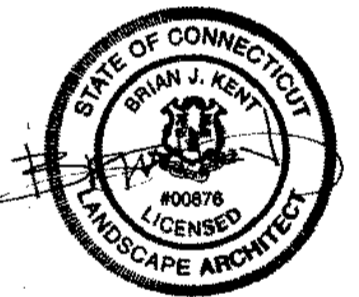
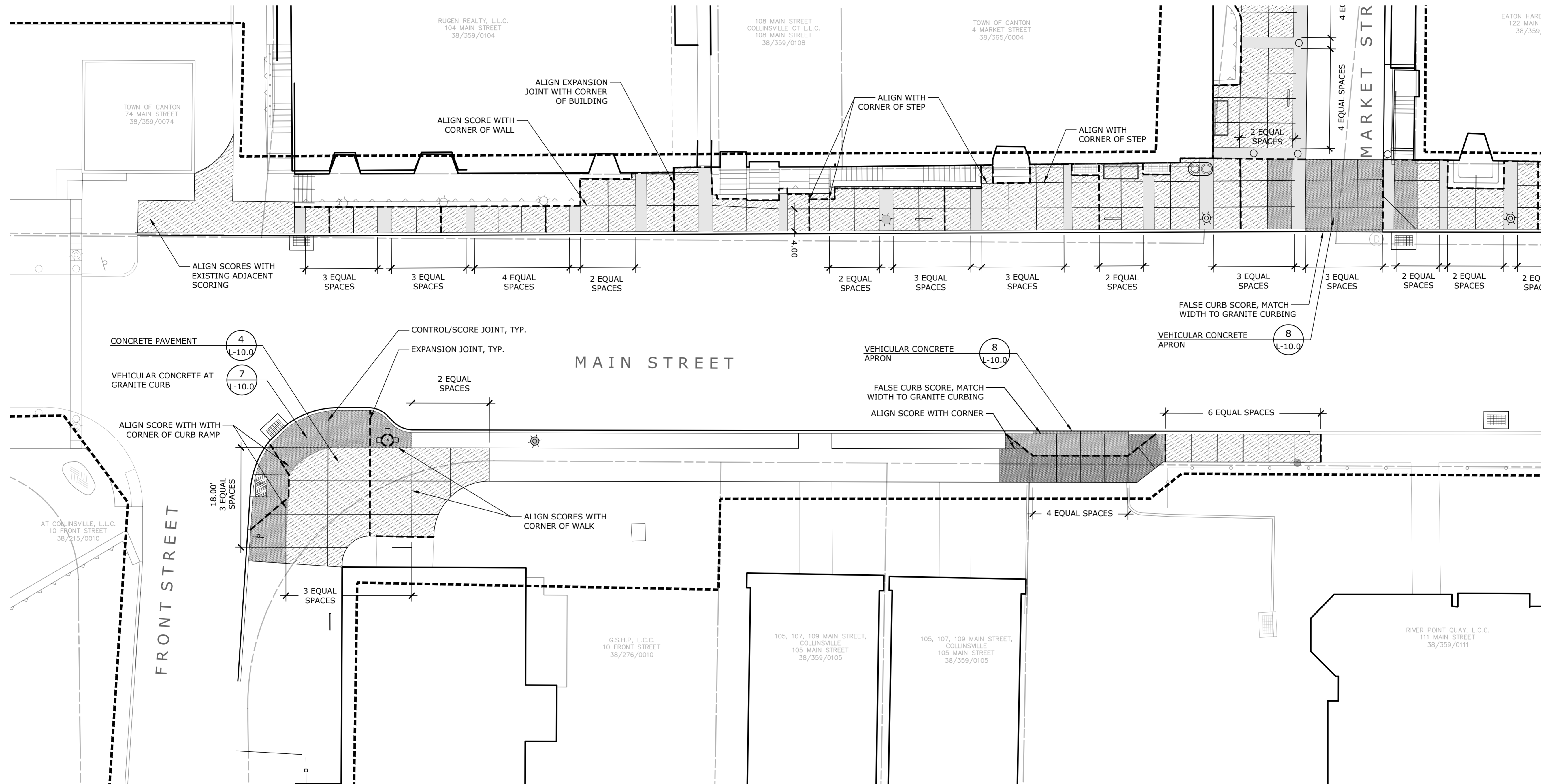
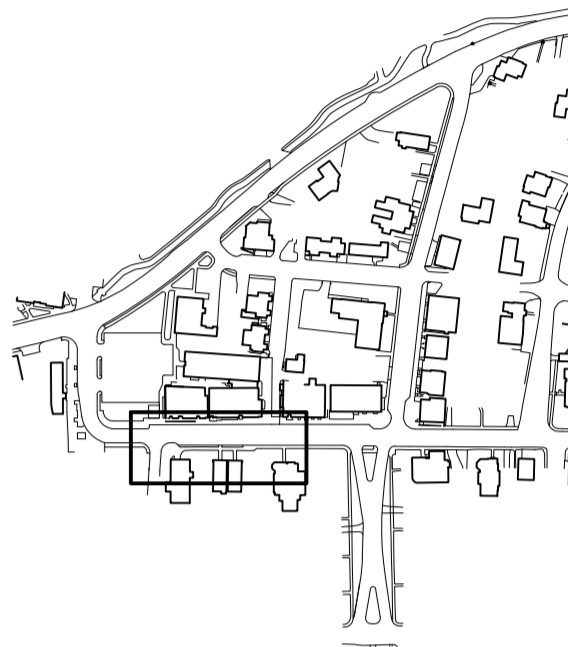
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Date March 15, 2021
K-F Project No. 2017014
Drawing No.

L-3.8

**Collinsville
Village Center
Streetscape Phase 2**
Collinsville, CT

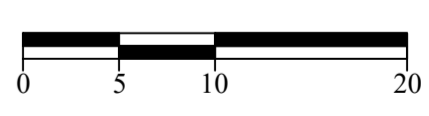
State Project No. 23-128

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**EXPANSION AND CONTROL
JOINT PLAN
MAIN STREET**

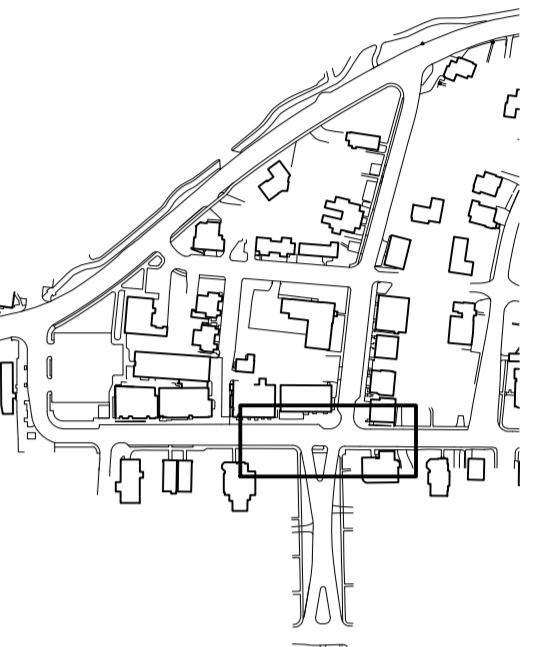
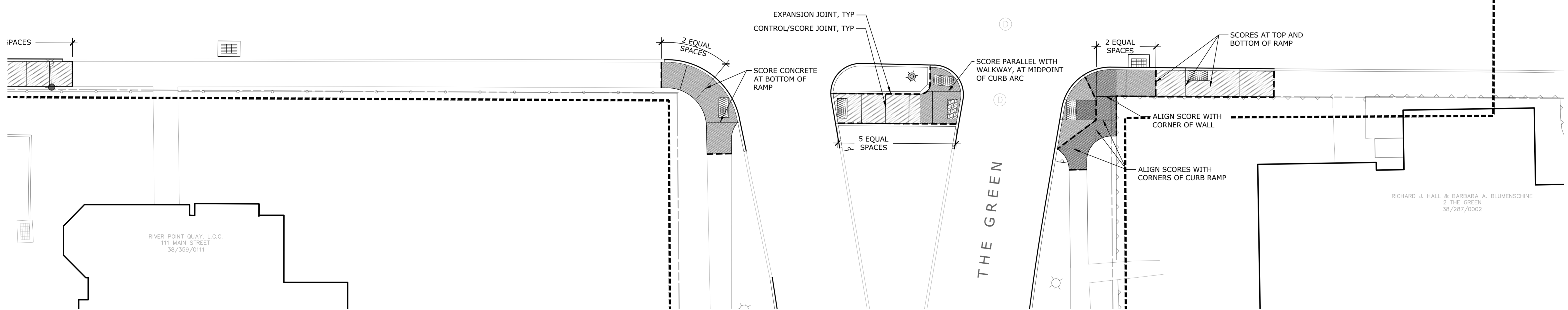
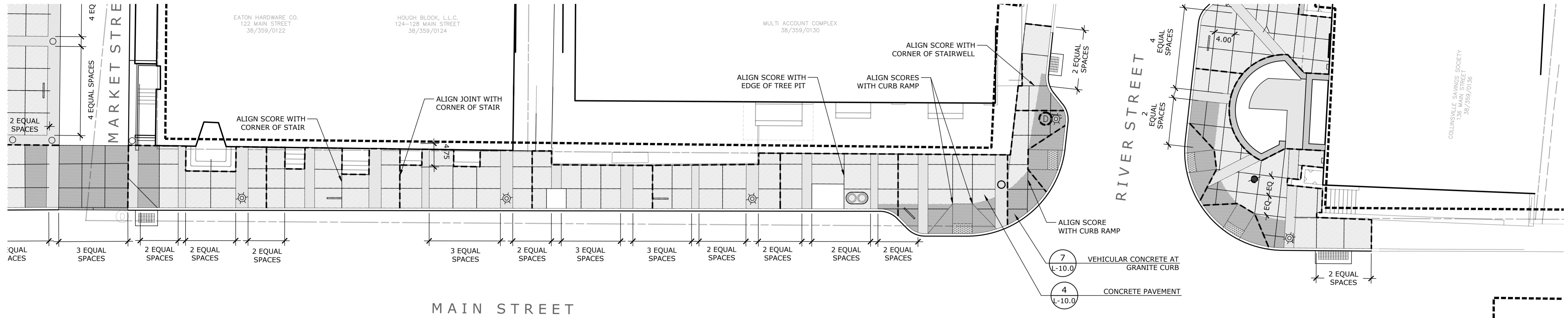
FRONT ST. TO MARKET ST.
 Scale 1" = 10'
 Date March 15, 2021
 K+F Project No. 2017014
 Drawing No.

L-4.0

LANDSCAPE

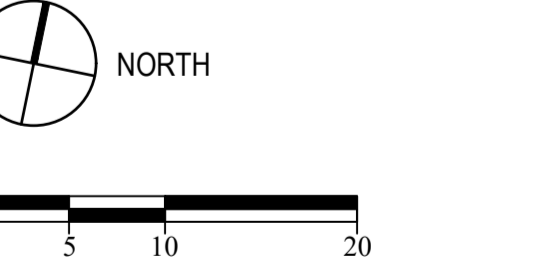
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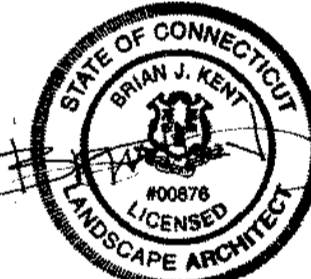
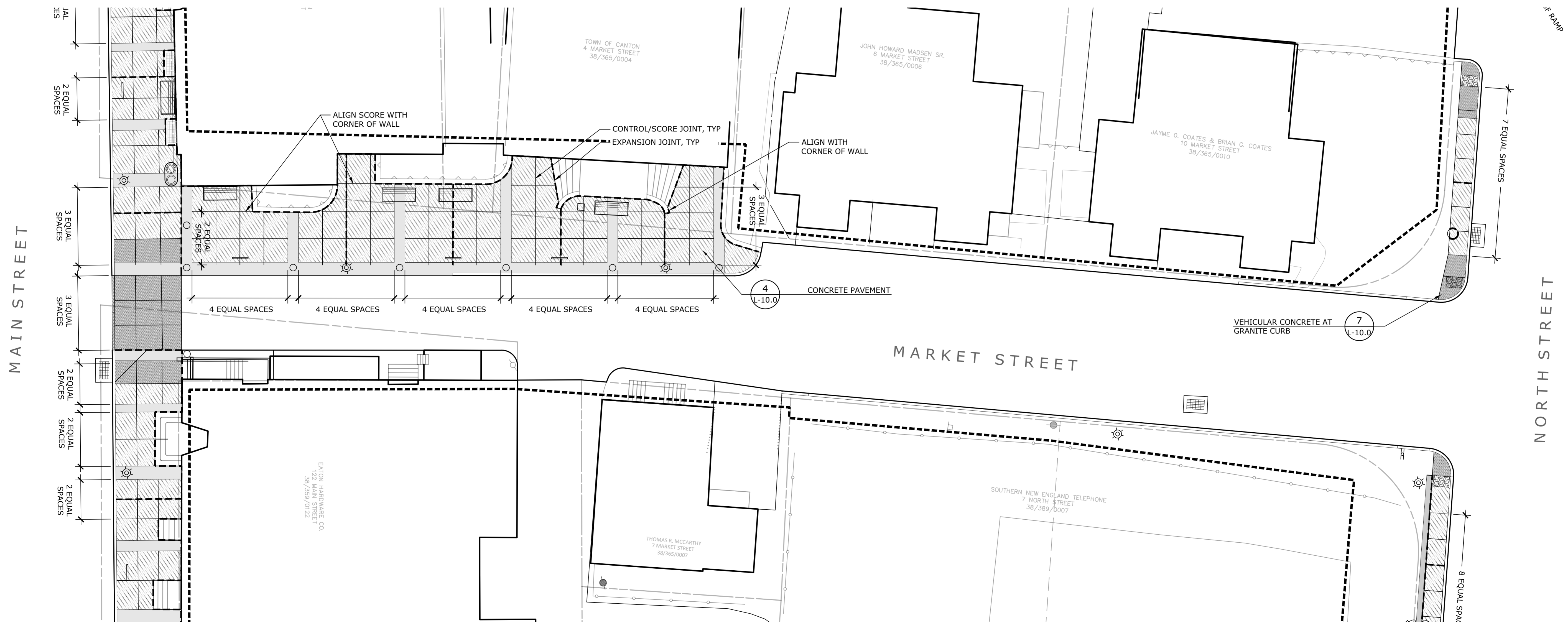
Revisions	Date



EXPANSION AND CONTROL
JOINT PLAN
MAIN STREET
MARKET ST. TO THE GREEN
Scale 1" = 10'
Date March 15, 2021
K+F Project No. 2017014
Drawing No.

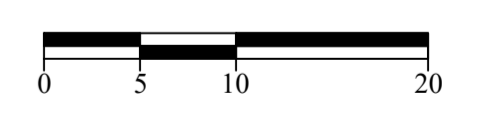
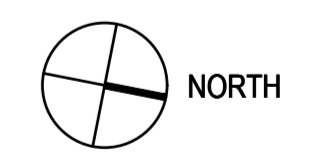
Collinsville
 Village Center
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 Collinsville, CT
 State Project No. 23-128

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EXPANSION AND CONTROL
 JOINT PLAN
 MARKET STREET

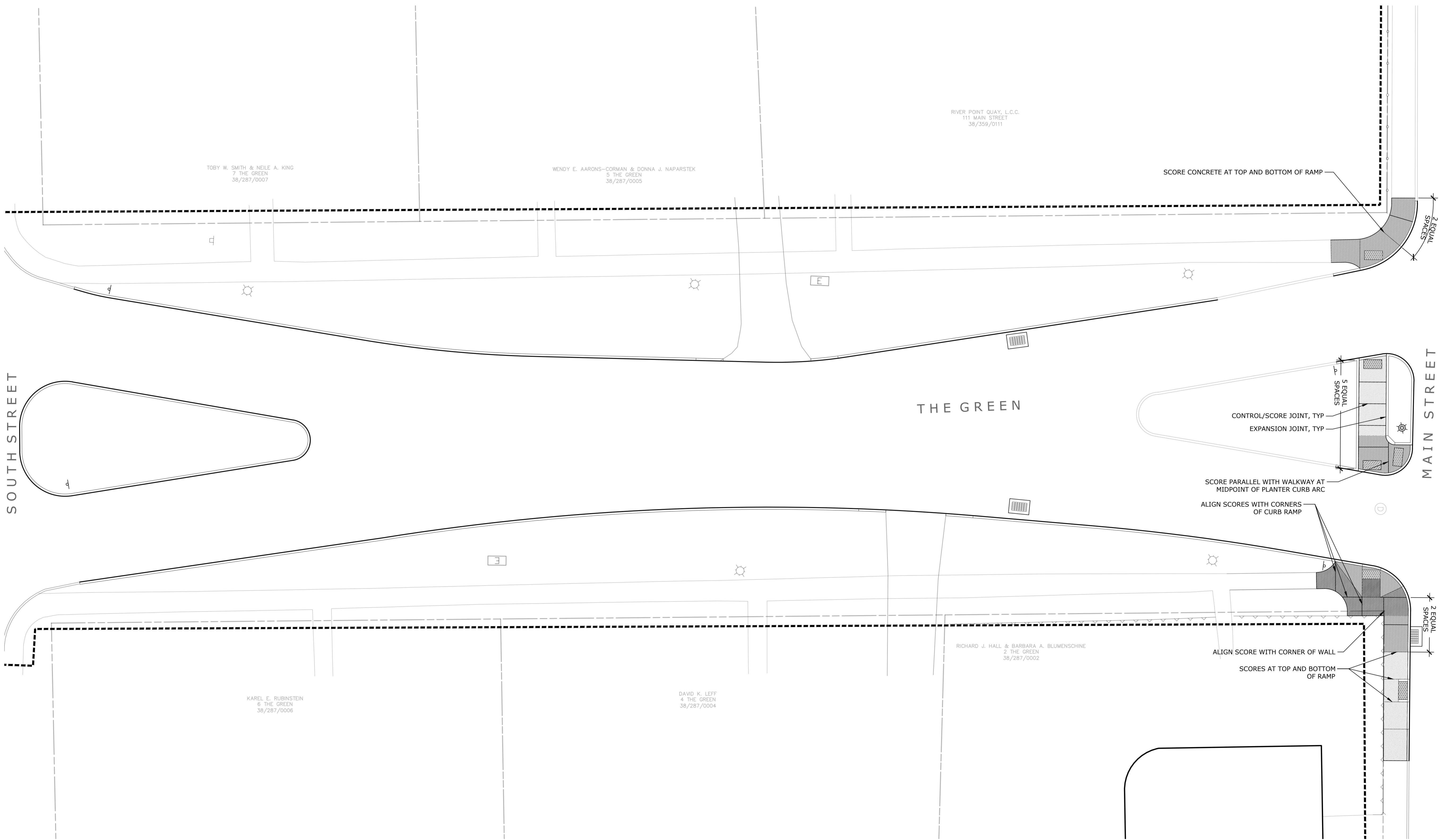
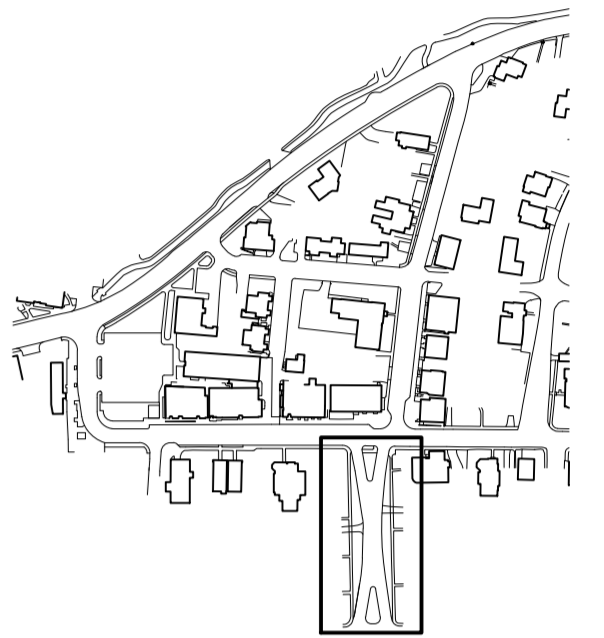
Scale 1" = 10'
 Date March 15, 2021
 K+F Project No. 2017014
 Drawing No.

L-4.2

**Collinsville
Village Center
Streetscape Phase 2**
Collinsville, CT

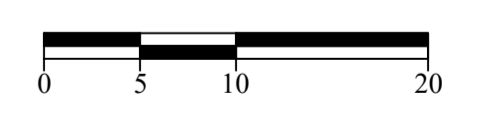
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**EXPANSION AND CONTROL
JOINT PLAN
THE GREEN**

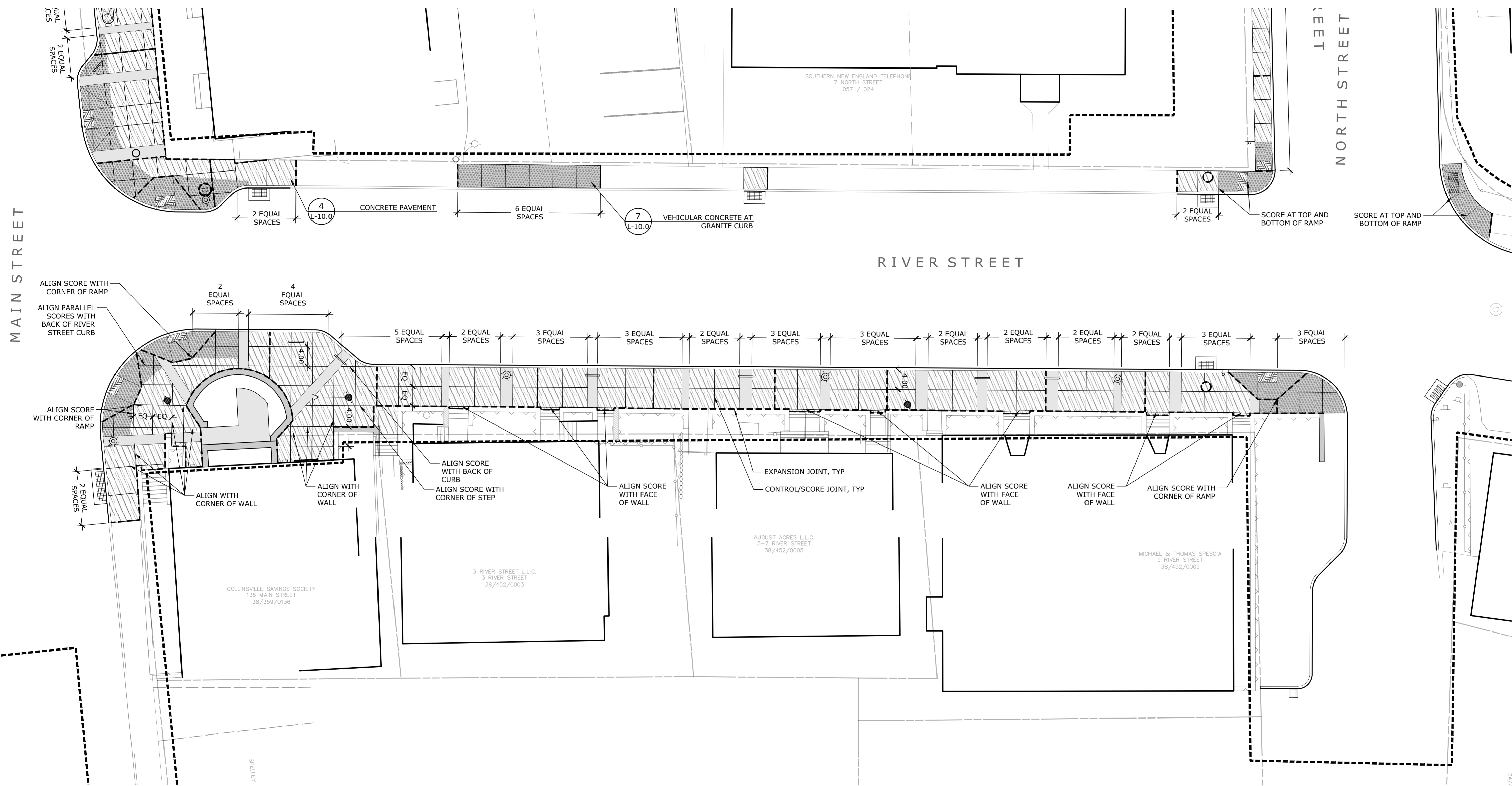
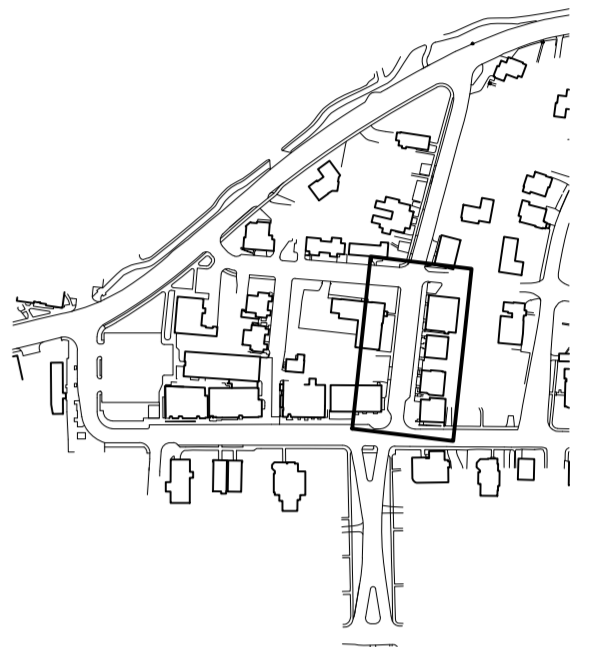
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K+F Project No. 2017014
Drawing No.

L-4.3

**Collinsville
Village Center
Streetscape Phase 2**
Collinsville, CT

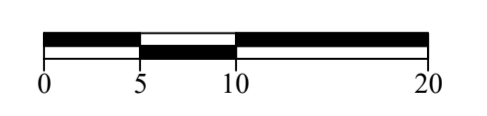
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**EXPANSION AND CONTROL
JOINT PLAN
RIVER STREET
MAIN ST. TO NORTH ST.**

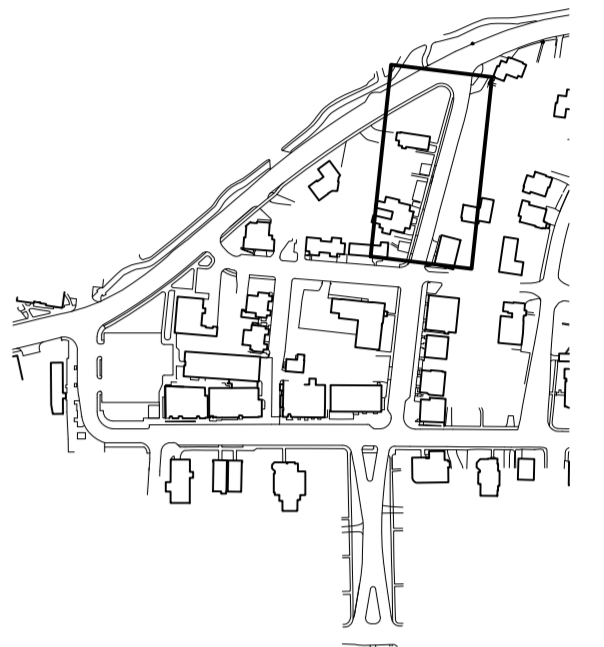
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K-F Project No.	2017014
Drawing No.	

L-4.4

**Collinsville
Village Center
Streetscape Phase 2**
Collinsville, CT

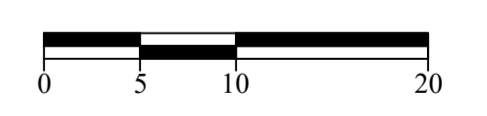
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**EXPANSION AND CONTROL
JOINT PLAN**
RIVER STREET
NORTH ST. TO BRIDGE ST.

Scale: 1" = 10'
Date: March 15, 2021
K-F Project No.: 2017014
Drawing No.:

L-4.5

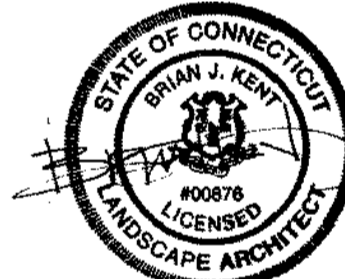
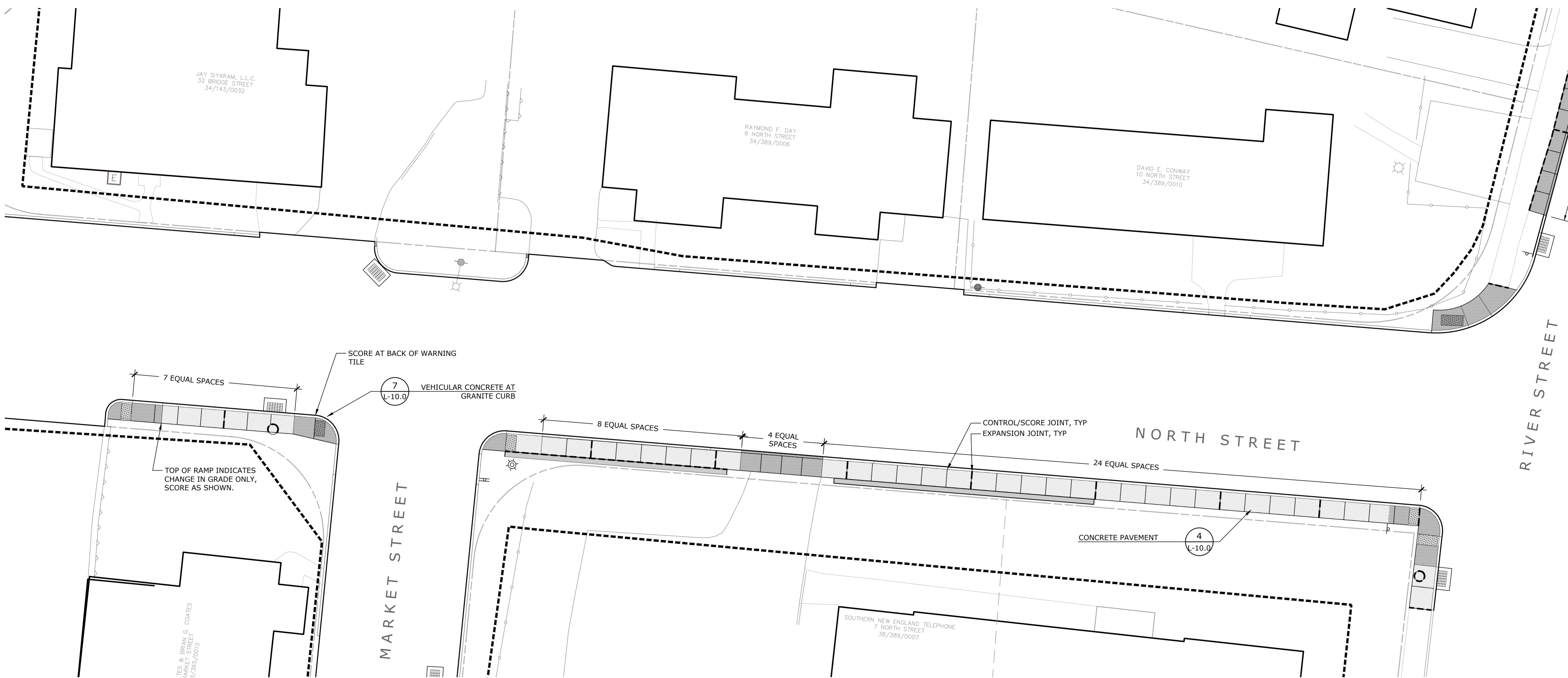
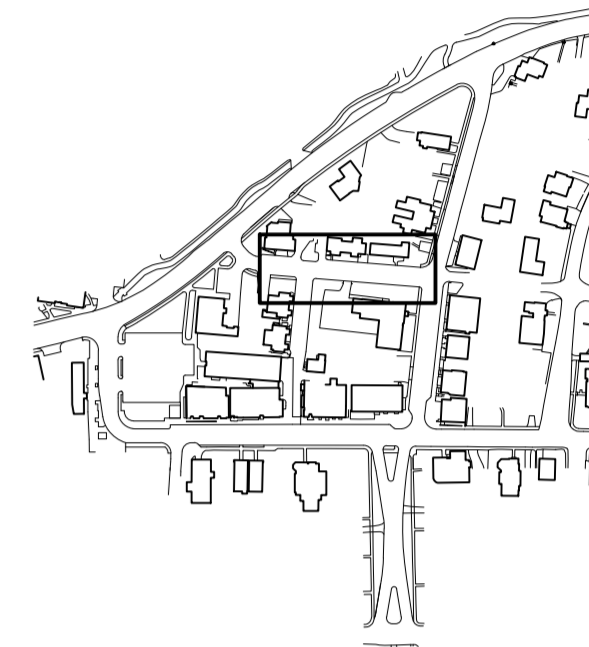
**Collinsville
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Streetscape Phase 2**
Collinsville, CT

State Project No. 23-128

LANDSCAPE

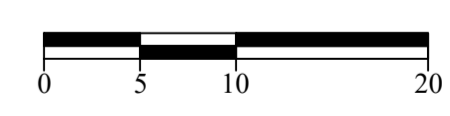
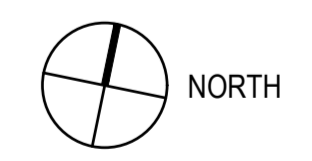
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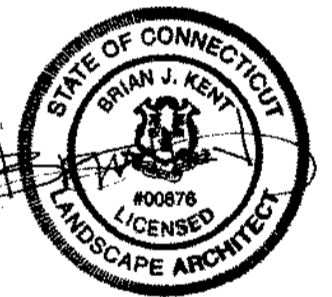
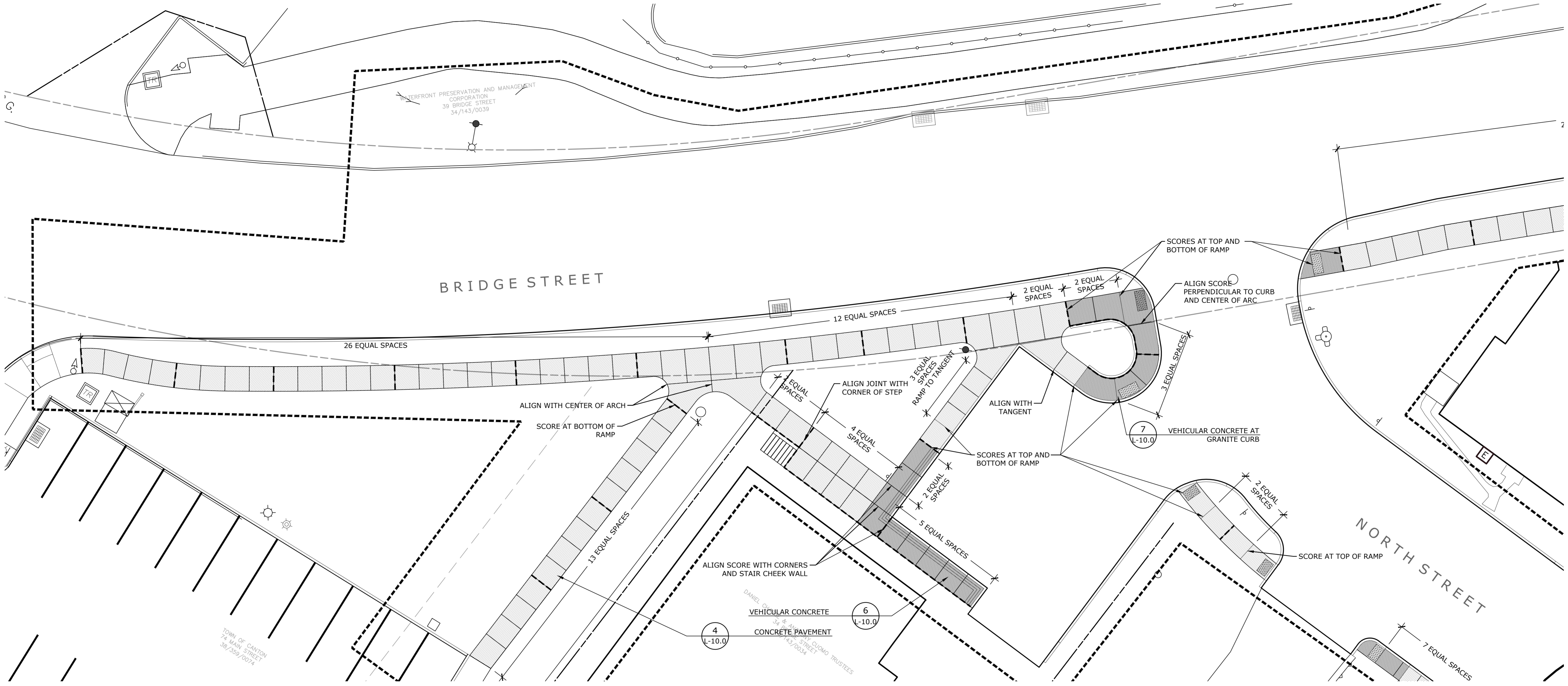
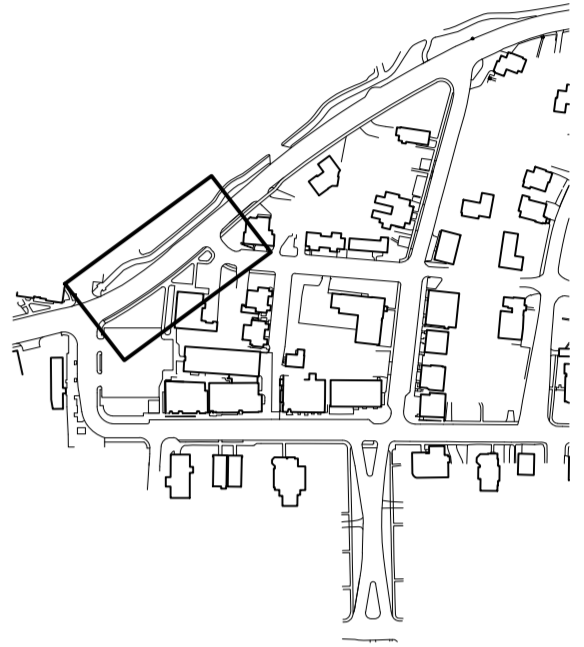
**EXPANSION AND CONTROL
JOINT PLAN
NORTH STREET**

Scale: 1" = 10'
Date: March 15, 2021
K+F Project No.: 2017014
Drawing No.:

L-4.6

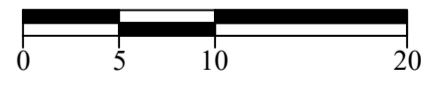
**Collinsville
Village Center
Streetscape Phase 2**
Collinsville, CT
State Project No. 23-128

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**EXPANSION AND CONTROL
JOINT PLAN
BRIDGE STREET**

Scale: 1" = 10'
Date: March 15, 2021
K+F Project No.: 2017014
Drawing No.:

L-4.7

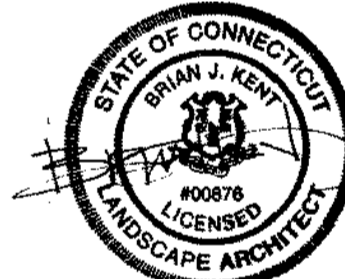
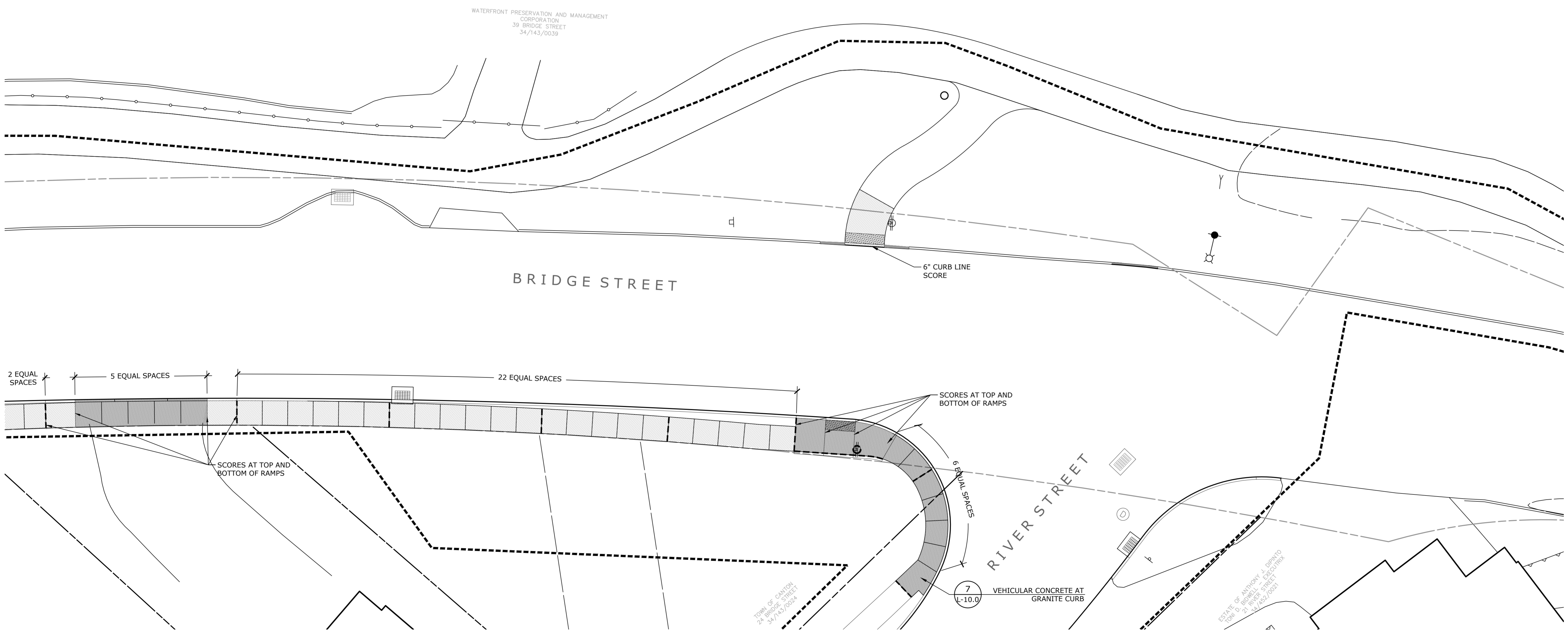
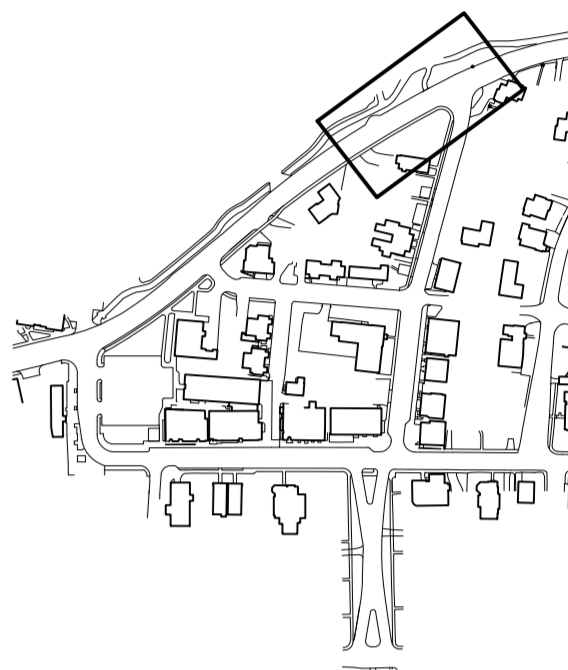
**Collinsville
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Streetscape Phase 2**
Collinsville, CT

State Project No. 23-128

LANDSCAPE

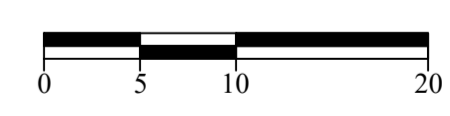
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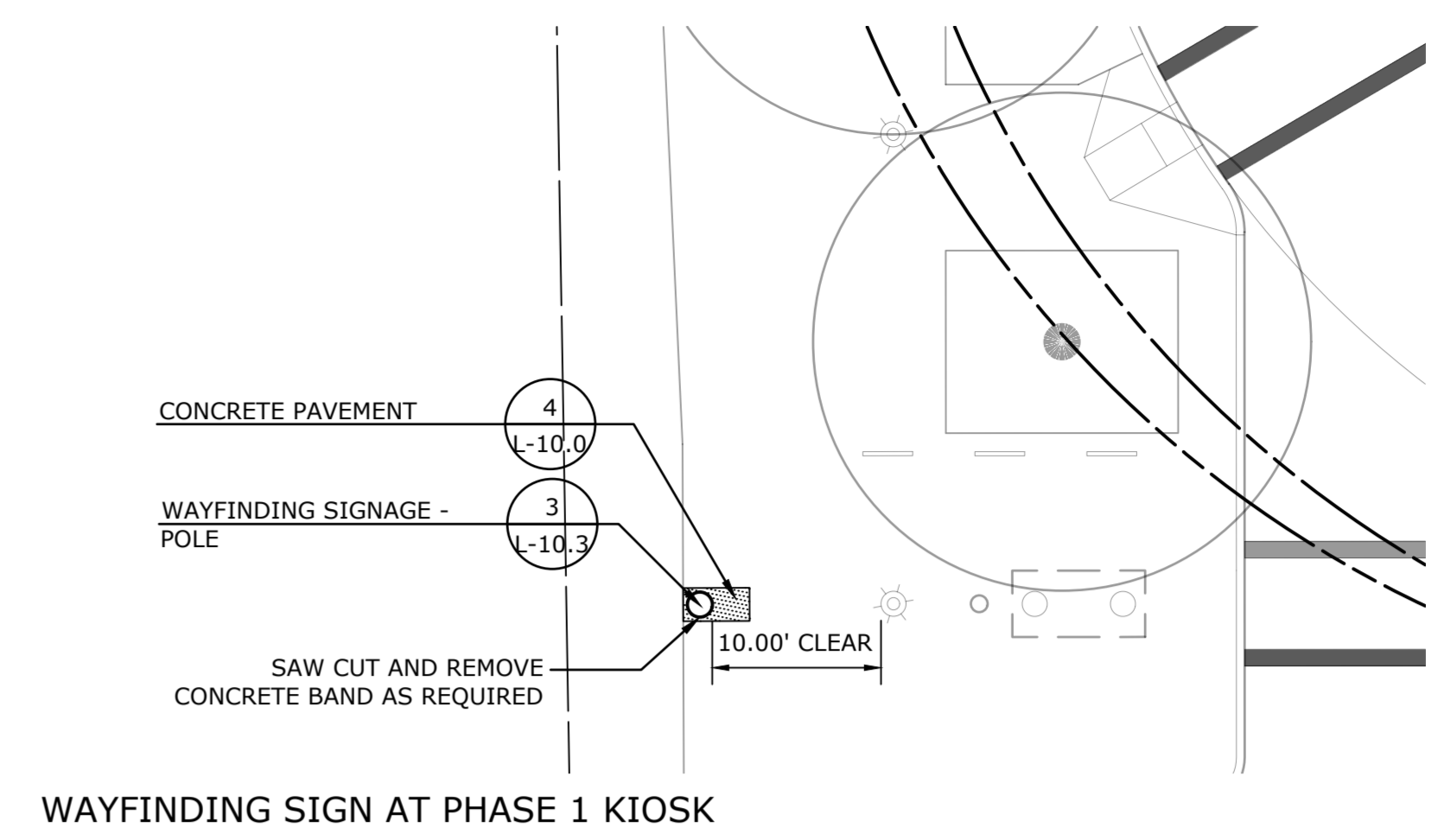
Revisions	Date



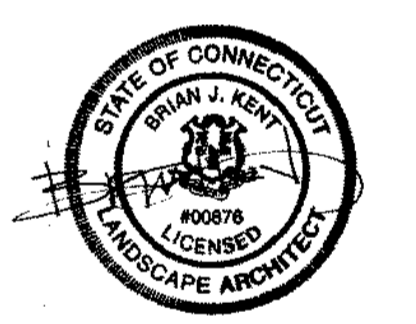
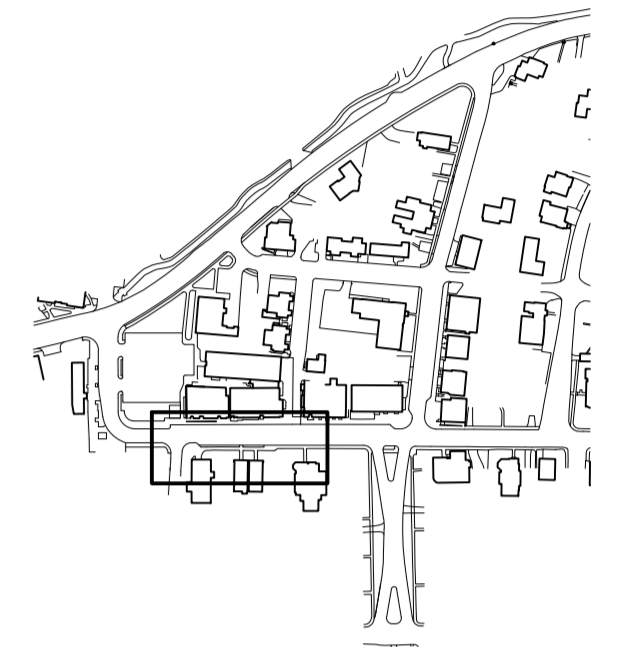
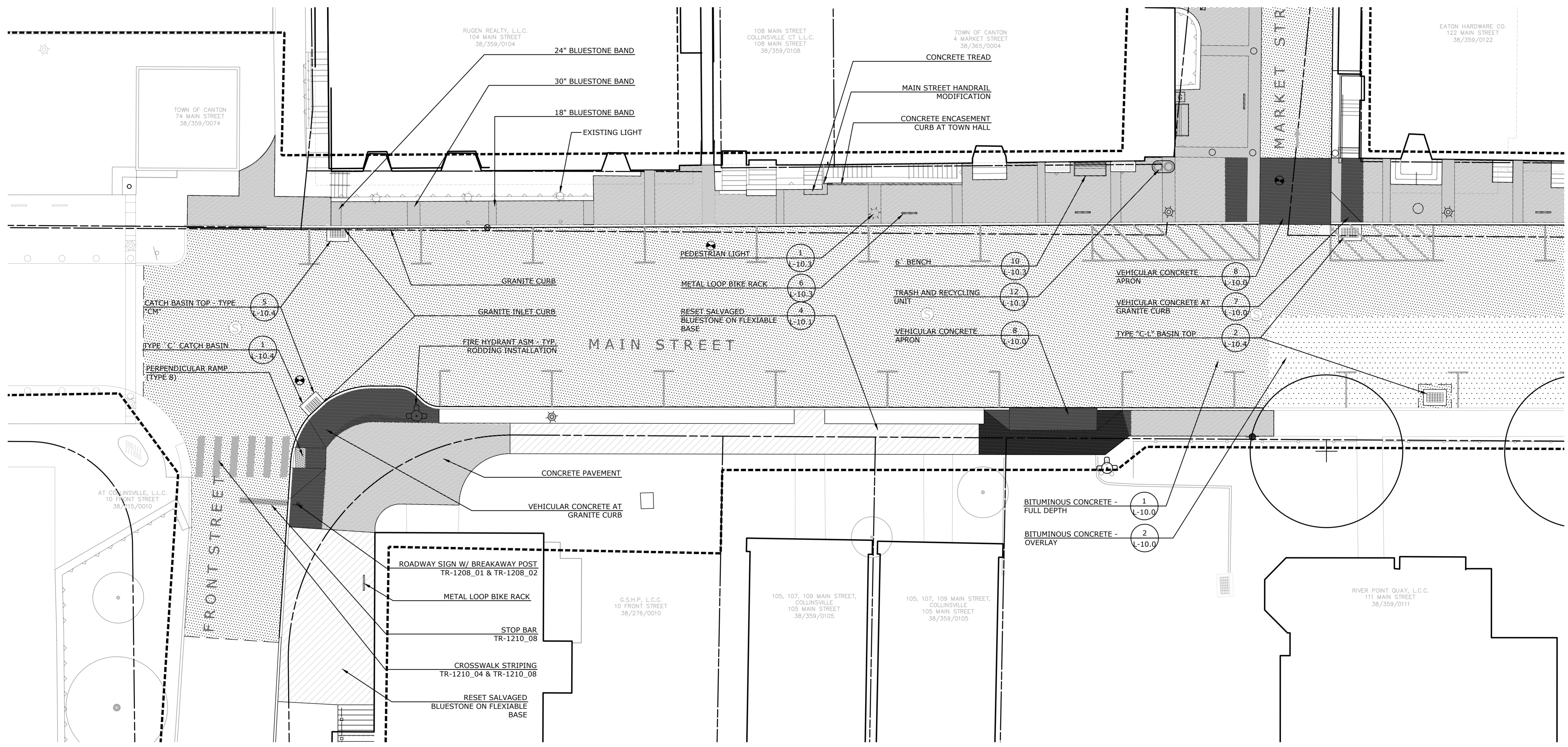
EXPANSION AND CONTROL
JOINT PLAN
BRIDGE STREET

Scale	1" = 10'
Date	March 15, 2021
K+F Project No.	2017014
Drawing No.	

L-4.9

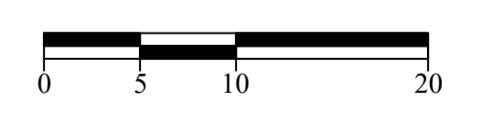


WAYFINDING SIGN AT PHASE 1 KIOSK



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**SITE MATERIALS PLAN
MAIN STREET
FRONT ST. TO MARKET ST.**

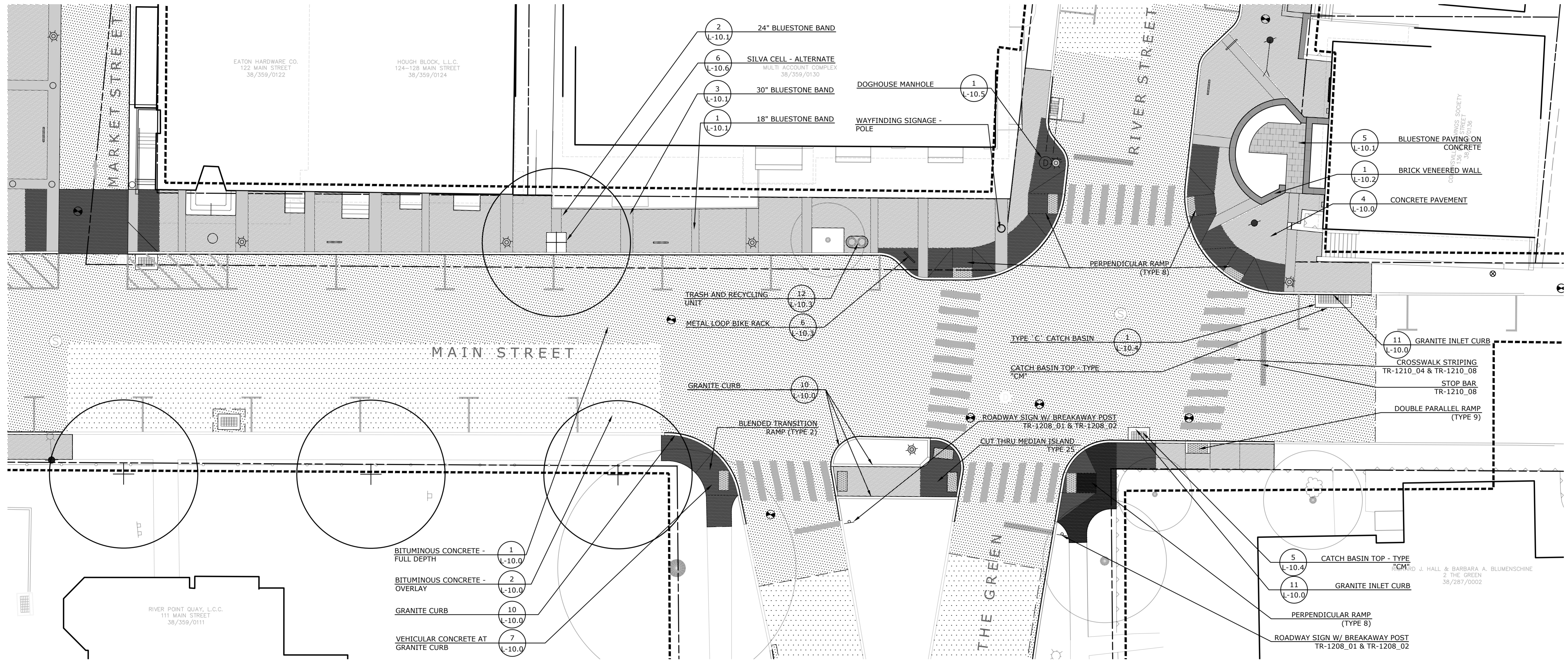
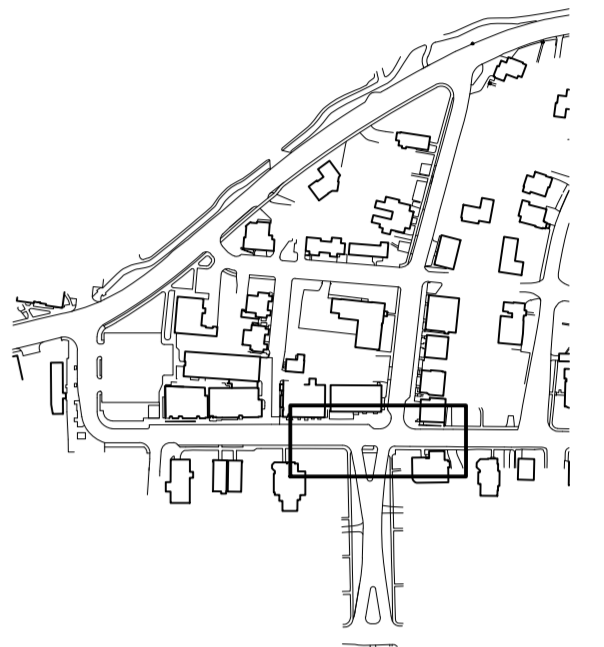
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Date: March 15, 2021
K-F Project No.: 2017014
Drawing No.:

L-5.0

**Collinsville
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Collinsville, CT

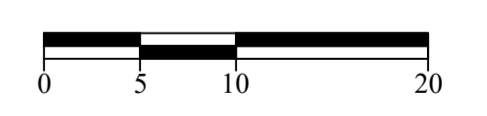
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**SITE MATERIALS PLAN
MAIN STREET
MARKET ST. TO THE GREEN**

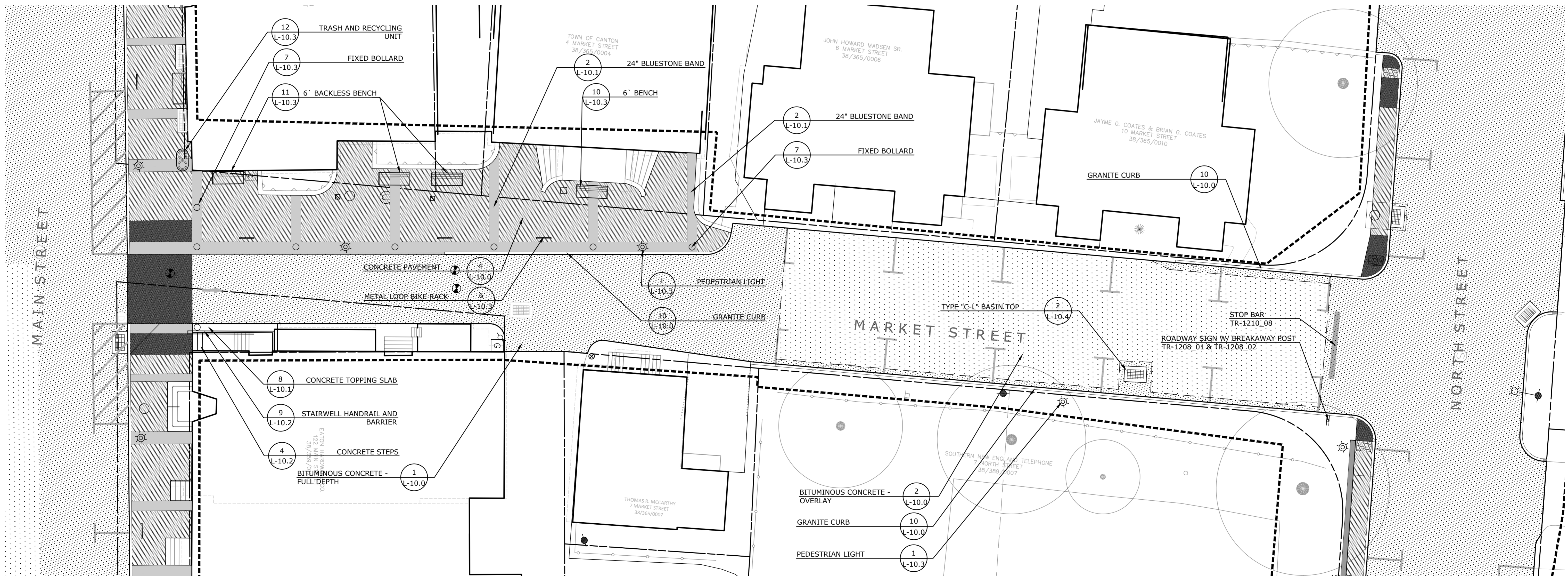
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K-F Project No.: 2017014
Drawing No.:

L-5.1

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Streetscape Phase 2**
Collinsville, CT

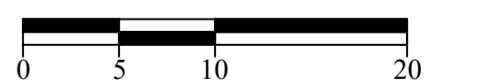
State Project No. 23-128

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**SITE MATERIALS PLAN
MARKET STREET**

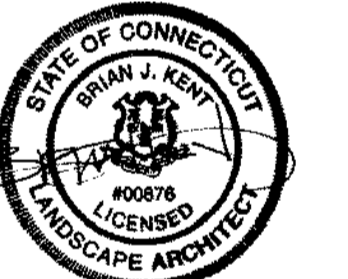
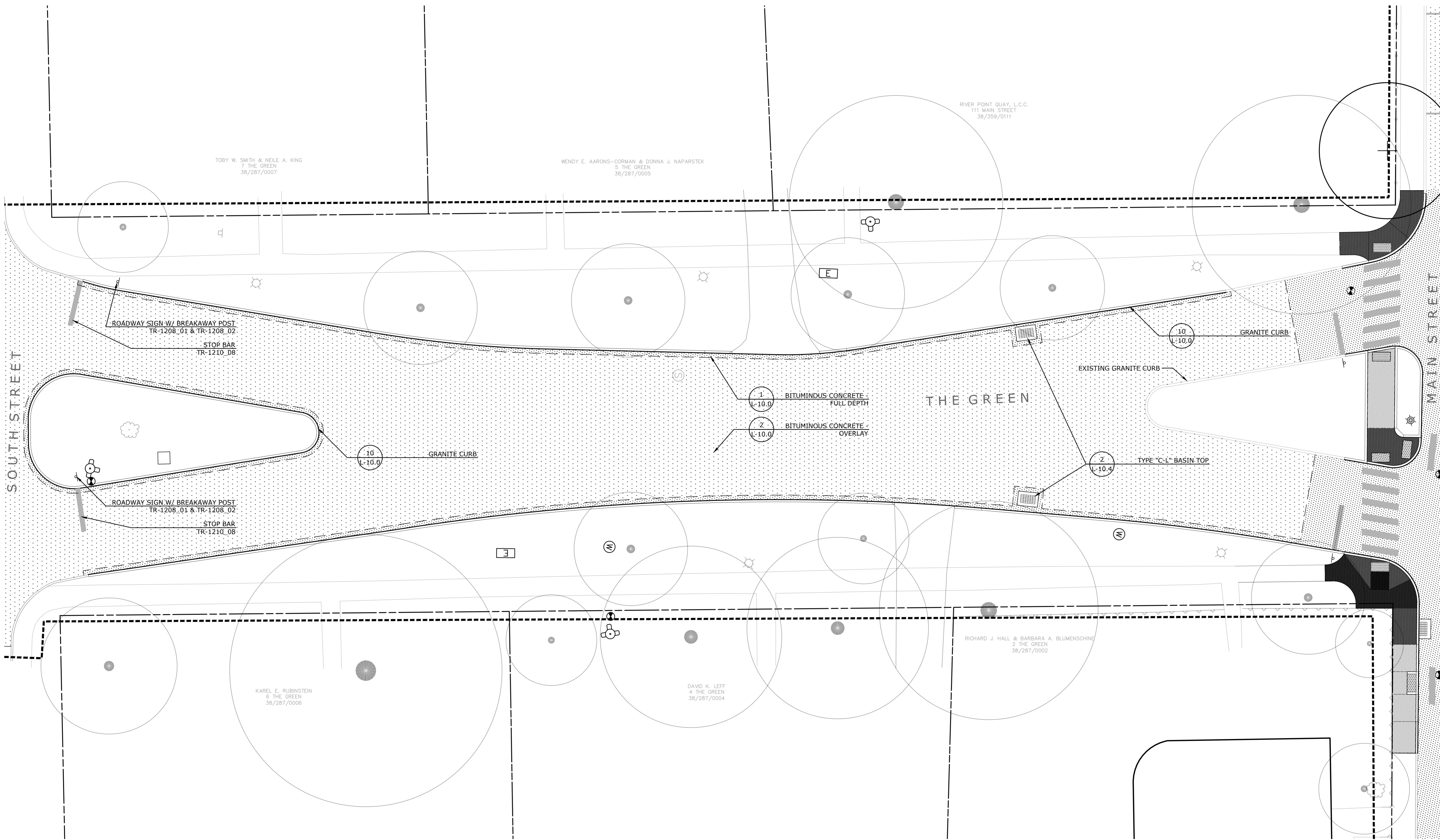
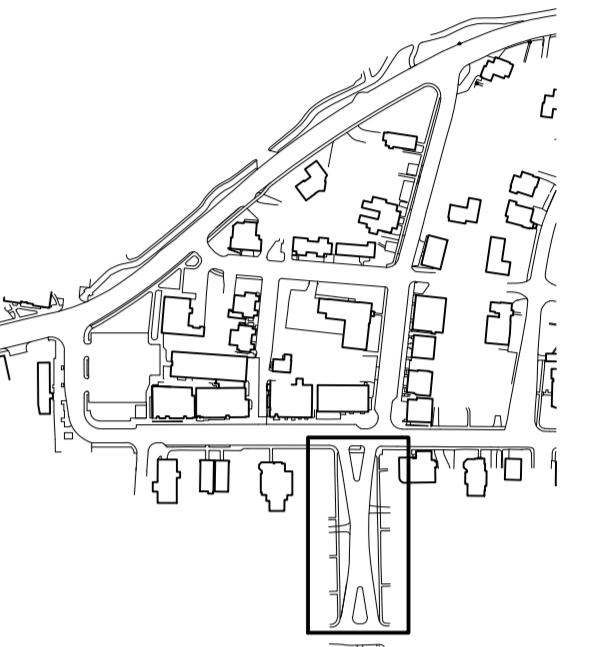
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K-F Project No. 2017014
Drawing No.

L-5.2

**Collinsville
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Collinsville, CT

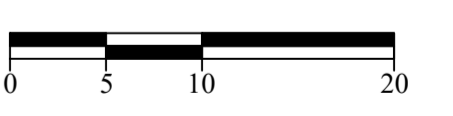
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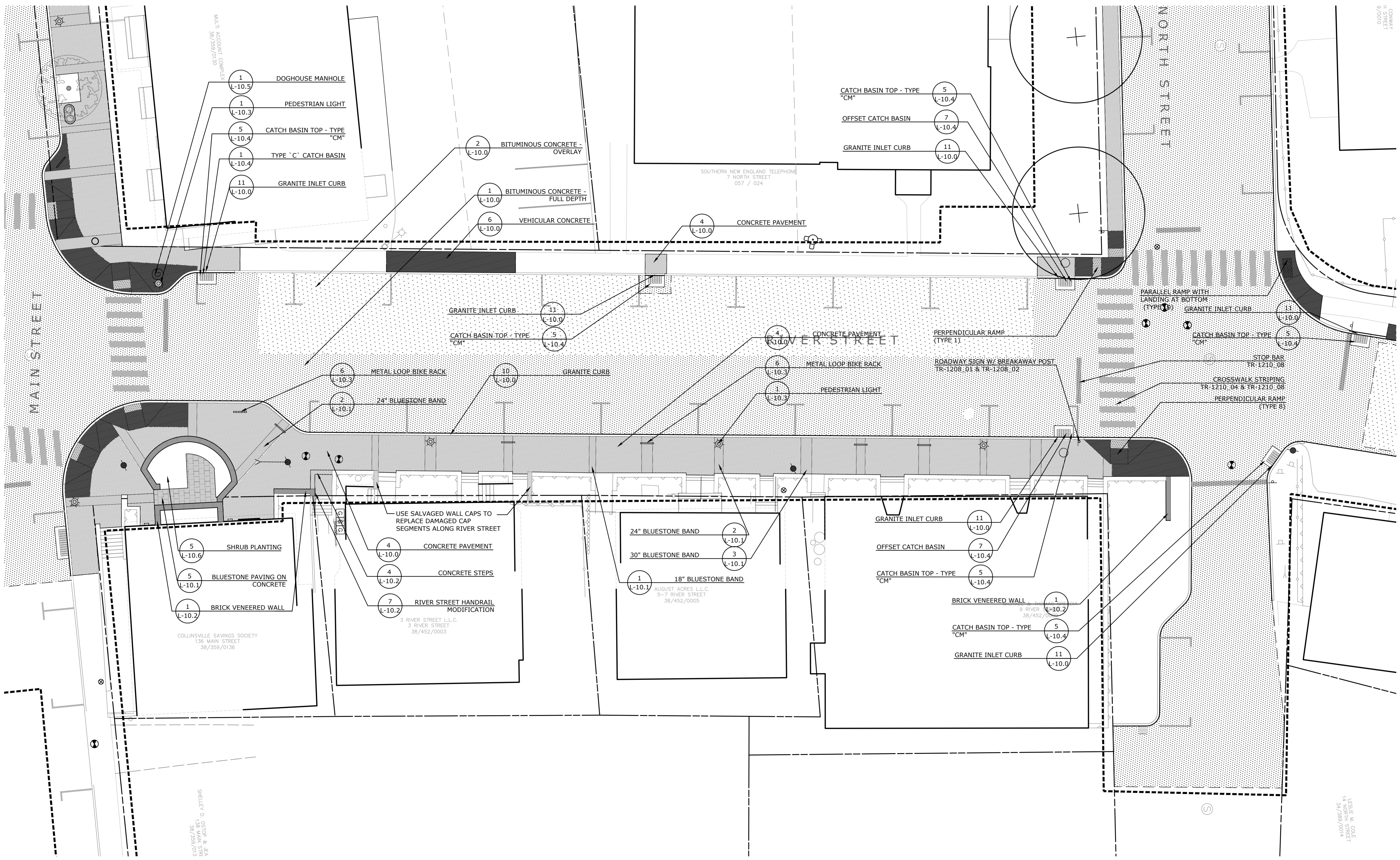
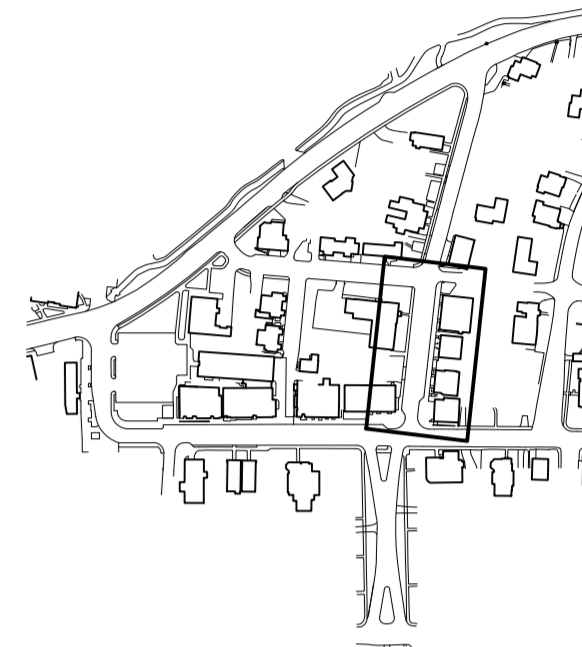
Revisions	Date



**SITE MATERIALS PLAN
THE GREEN**

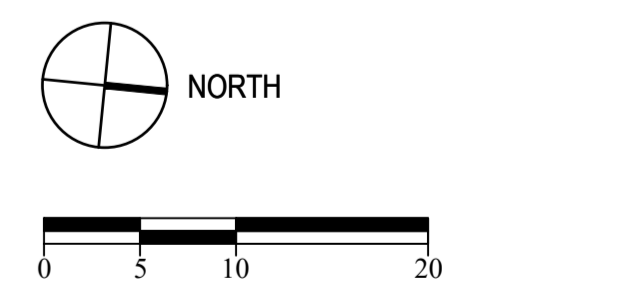
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Date: March 15, 2021
K+F Project No.: 2017014
Drawing No.:

L-5.3



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SITE MATERIALS PLAN
RIVER STREET
MAIN ST. TO NORTH ST.

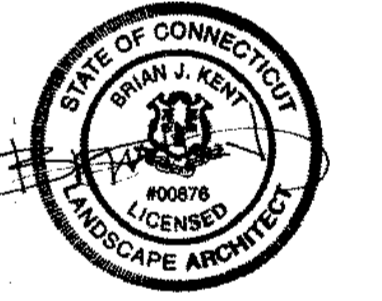
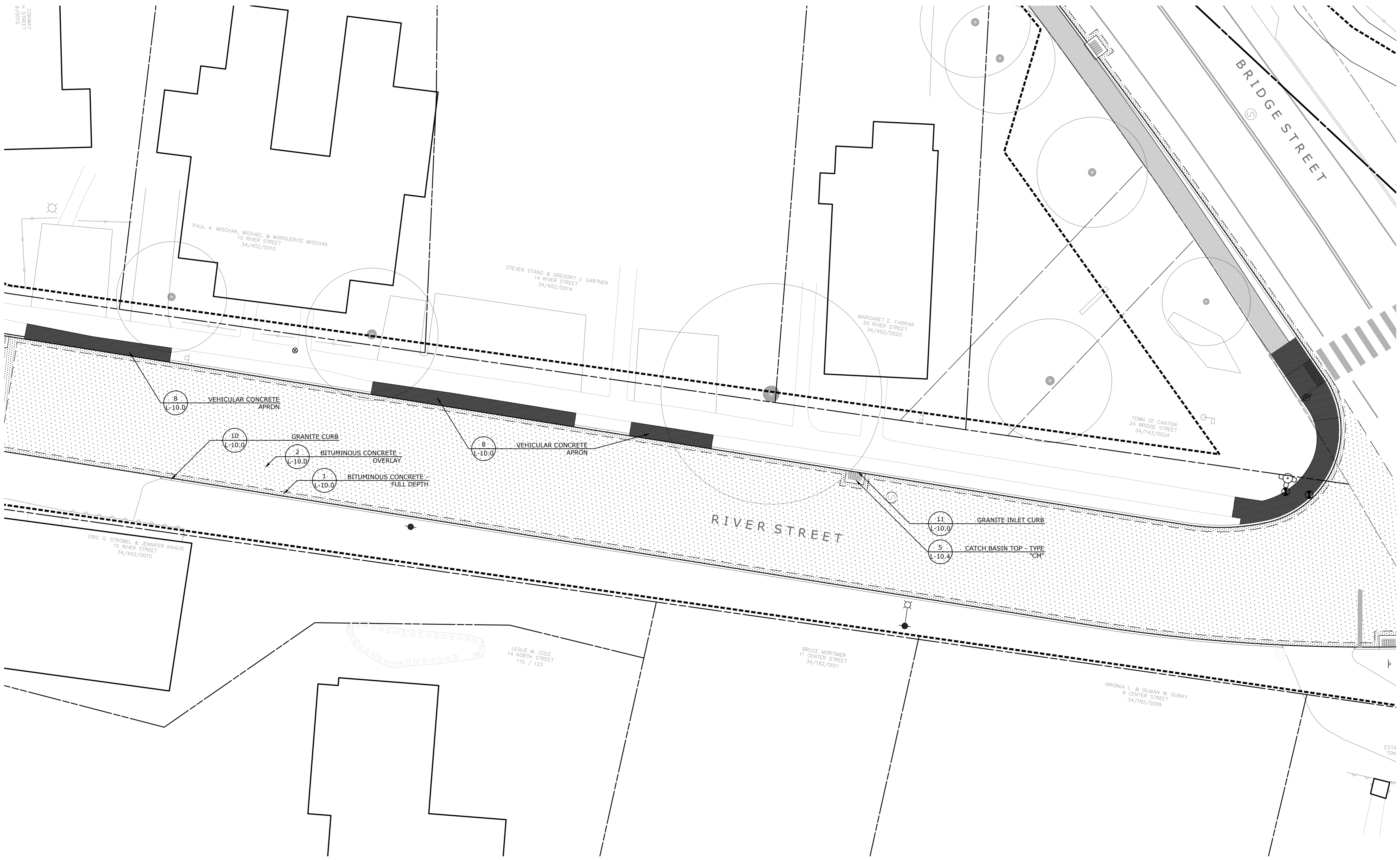
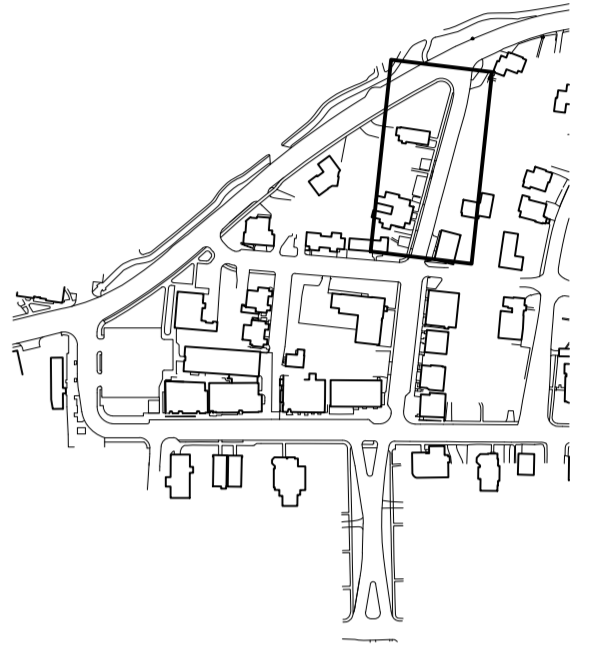
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K-F Project No.: 2017014
Drawing No.:

L-5.4

**Collinsville
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Streetscape Phase 2**
Collinsville, CT

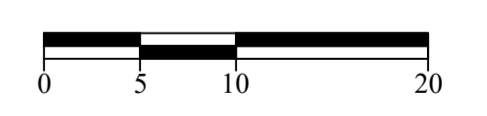
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**SITE MATERIALS PLAN
RIVER STREET
NORTH ST. TO BRIDGE ST.**

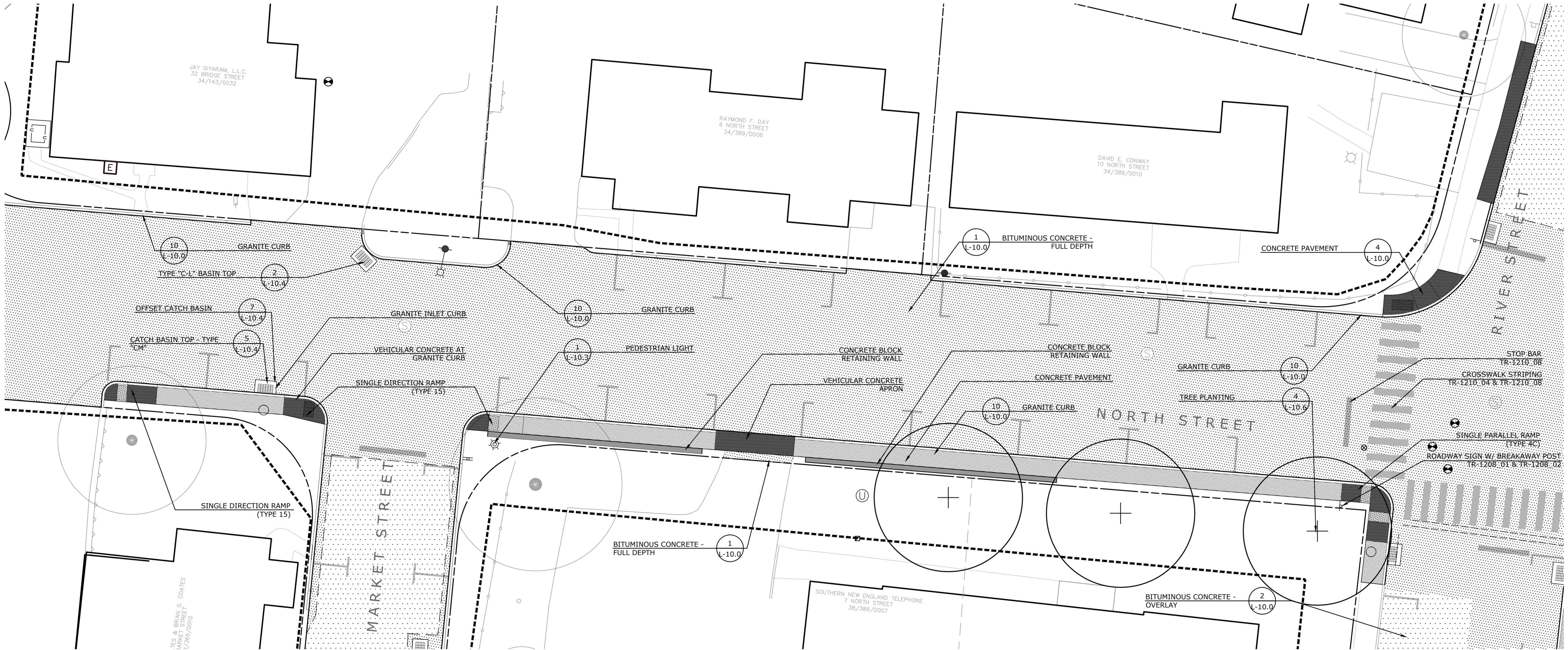
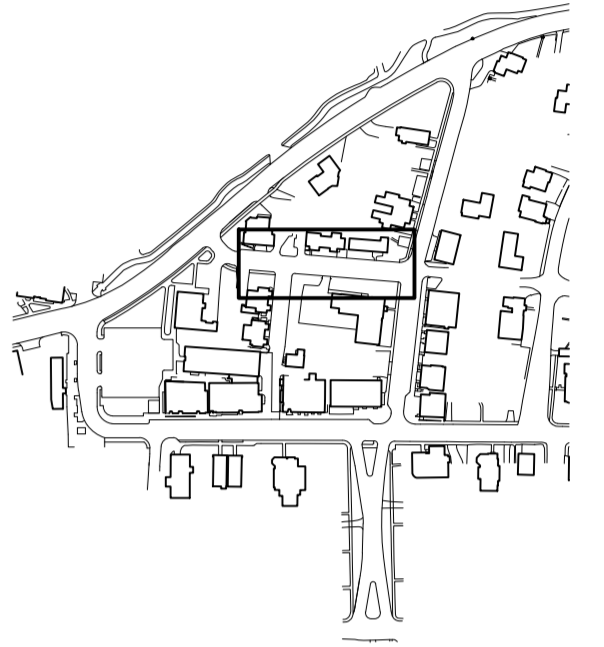
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Date March 15, 2021
K-F Project No. 2017014
Drawing No.

L-5.5

**Collinsville
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Collinsville, CT

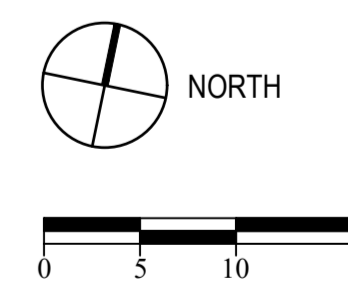
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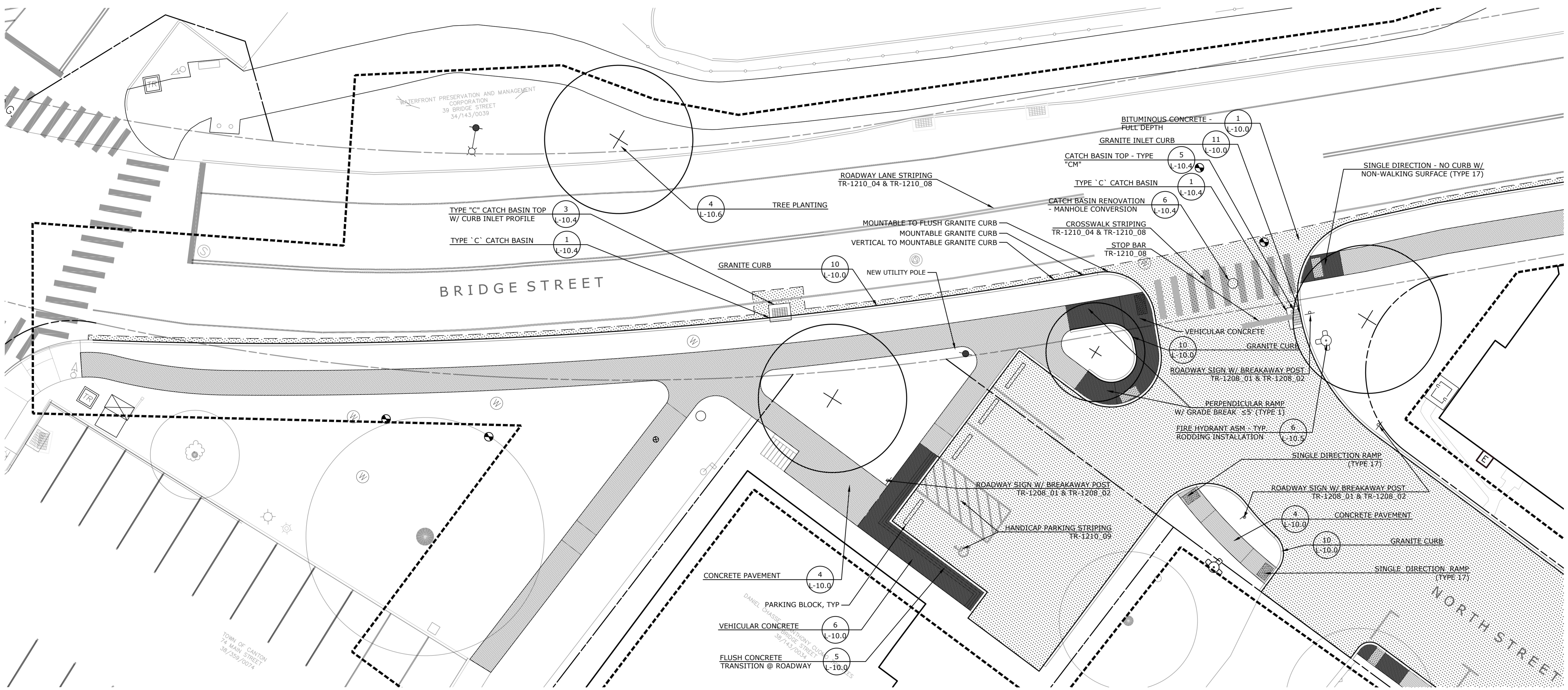
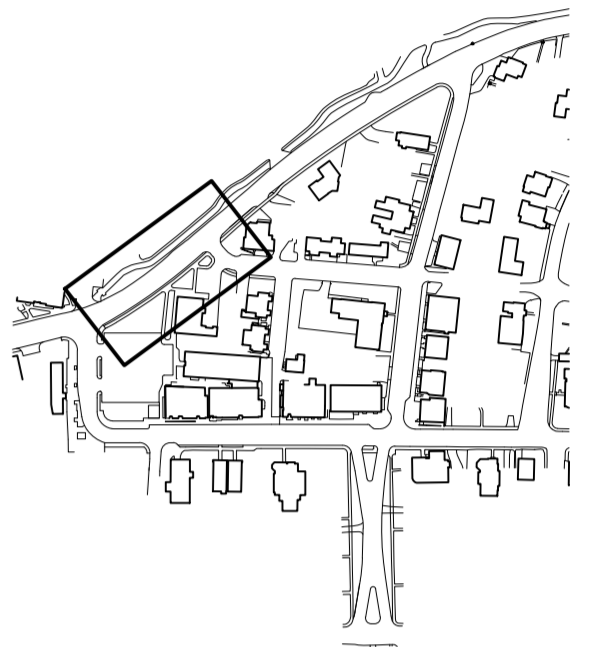
**SITE MATERIALS PLAN
NORTH STREET**

Scale: 1" = 10'
 Date: March 15, 2021
 K-F Project No.: 2017014
 Drawing No.:

L-5.6

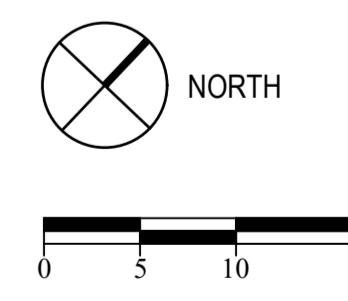
**Collinsville
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**SITE MATERIALS PLAN
BRIDGE STREET**

Scale: 1" = 10'
Date: March 15, 2021
K-F Project No.: 2017014
Drawing No.:

L-5.7

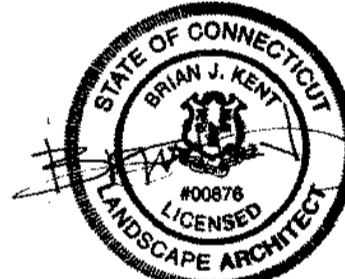
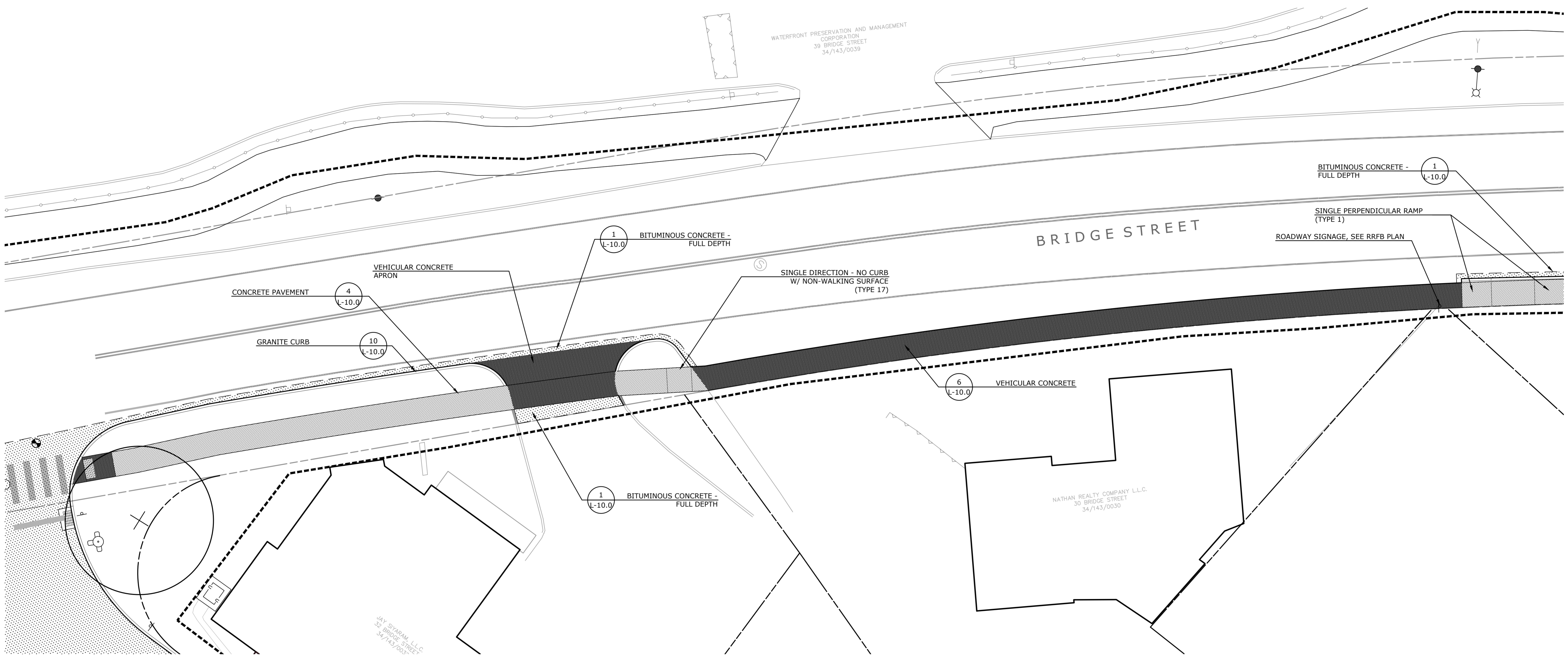
**Collinsville
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Streetscape Phase 2**
Collinsville, CT

State Project No. 23-128

LANDSCAPE

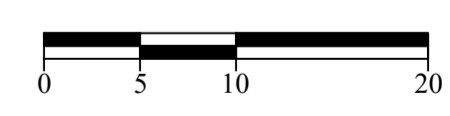
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**SITE MATERIALS PLAN
BRIDGE STREET**

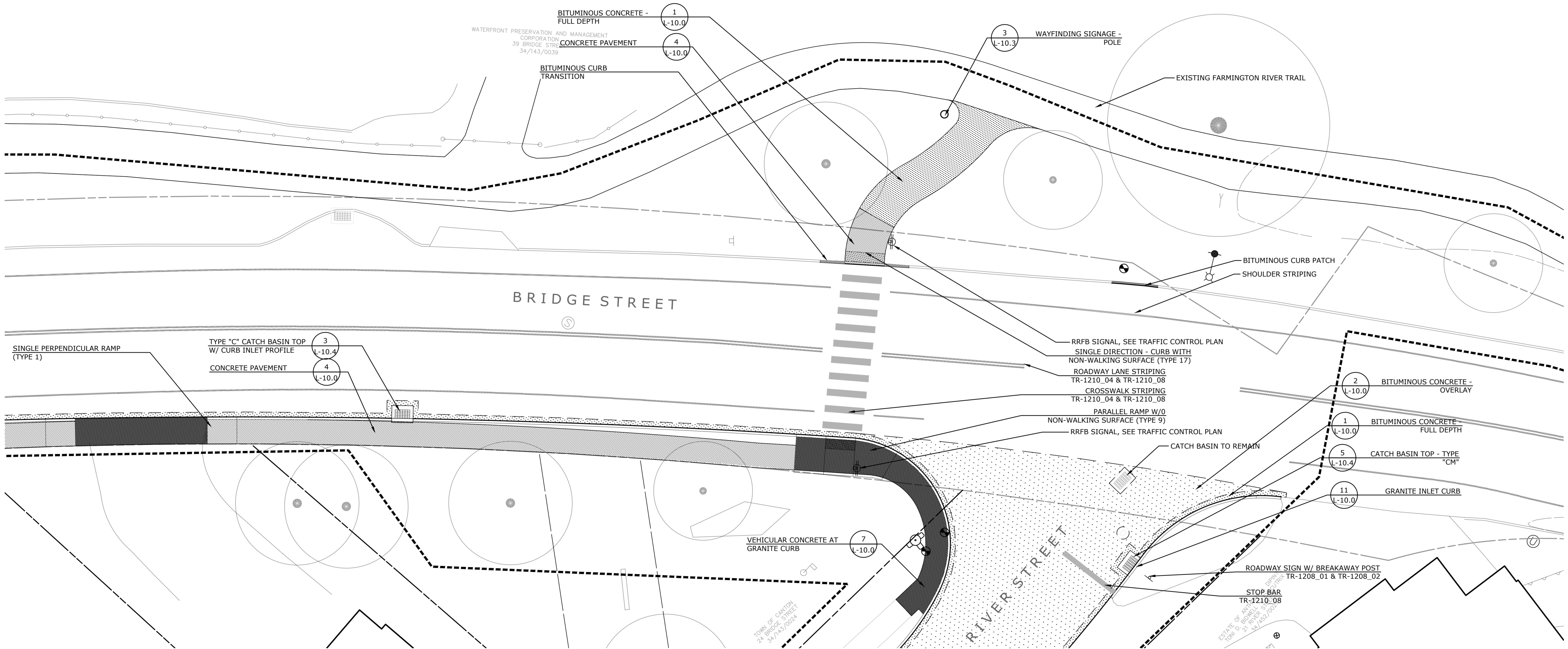
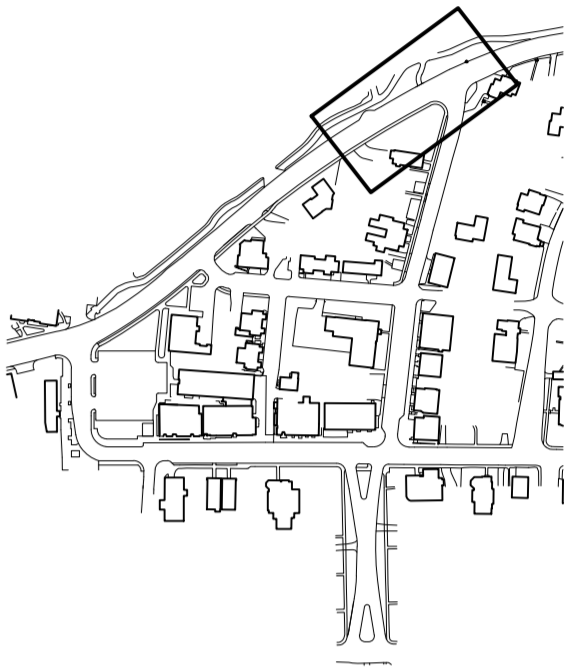
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K-F Project No.: 2017014
Drawing No.:

L-5.8

**Collinsville
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Streetscape Phase 2**
Collinsville, CT

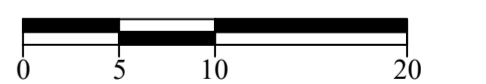
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**SITE MATERIALS PLAN
BRIDGE STREET**

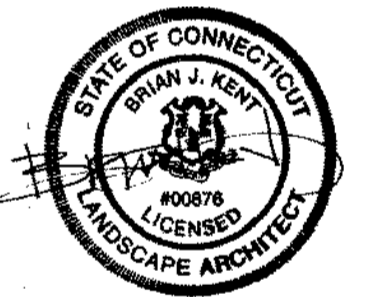
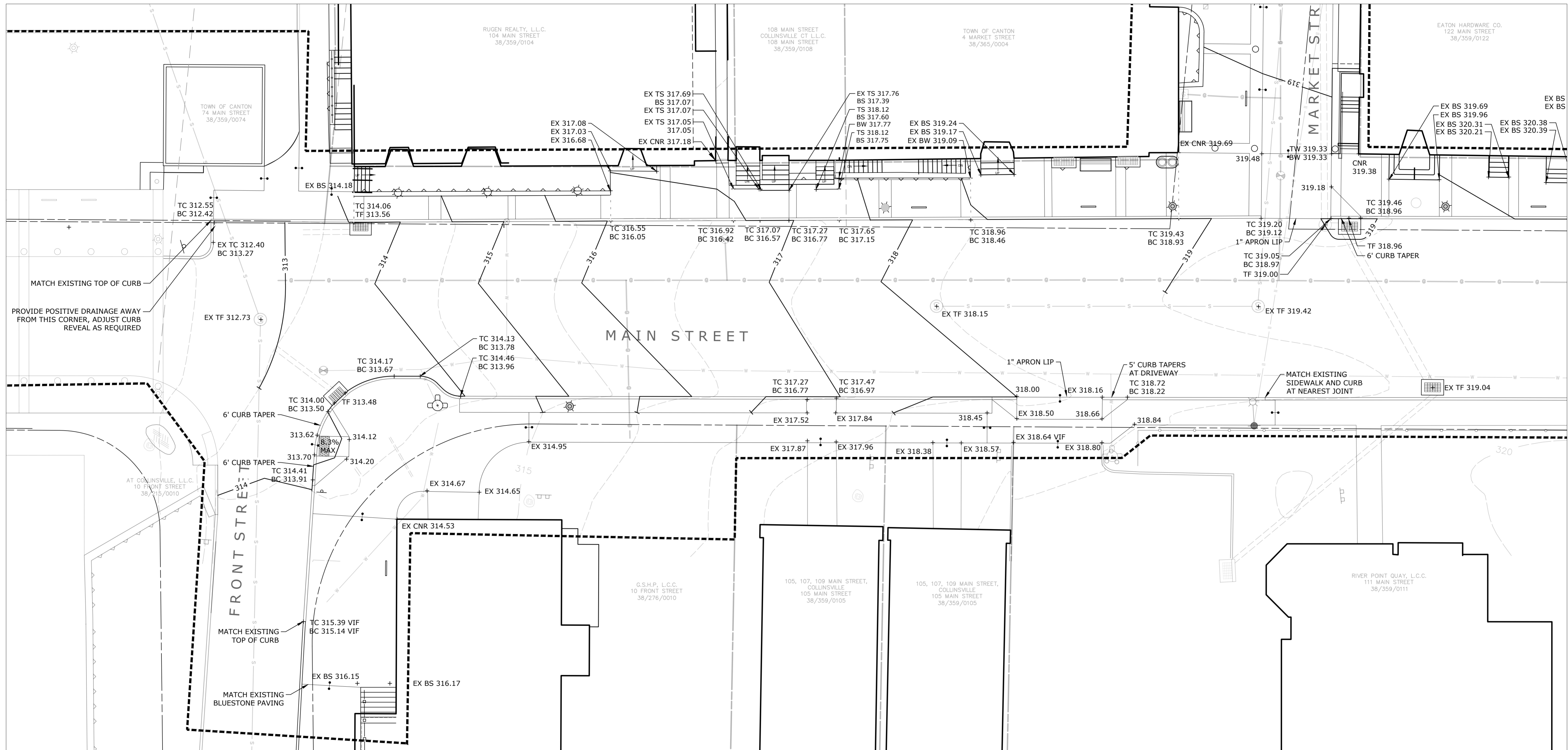
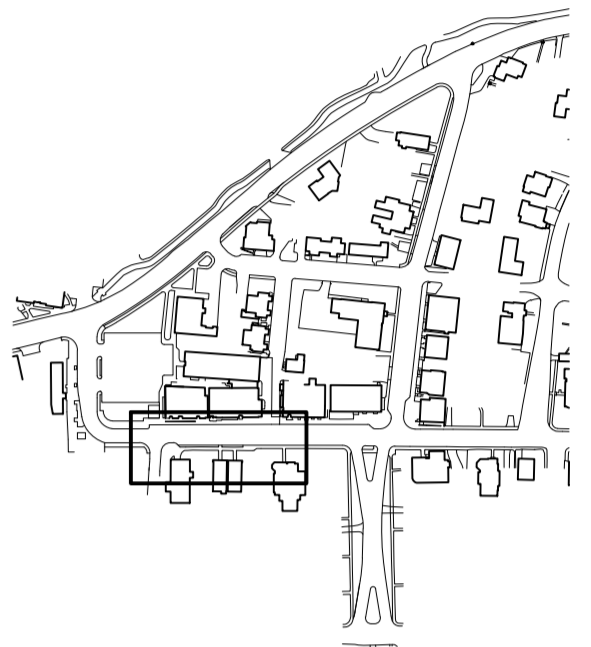
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K+F Project No.: 2017014
Drawing No.:

L-5.9

**Collinsville
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Streetscape Phase 2**
Collinsville, CT

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**SITE GRADING PLAN
MAIN STREET
FRONT ST. TO MARKET ST.**

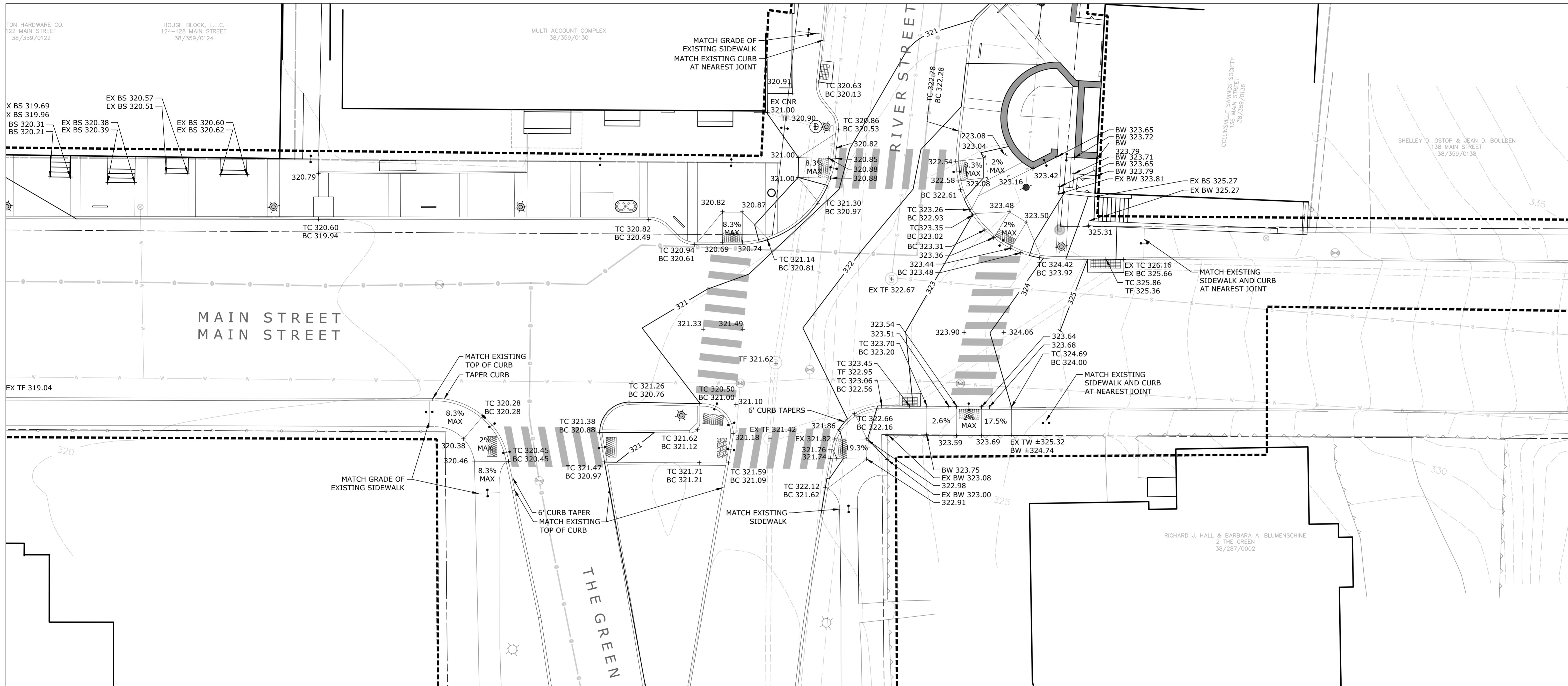
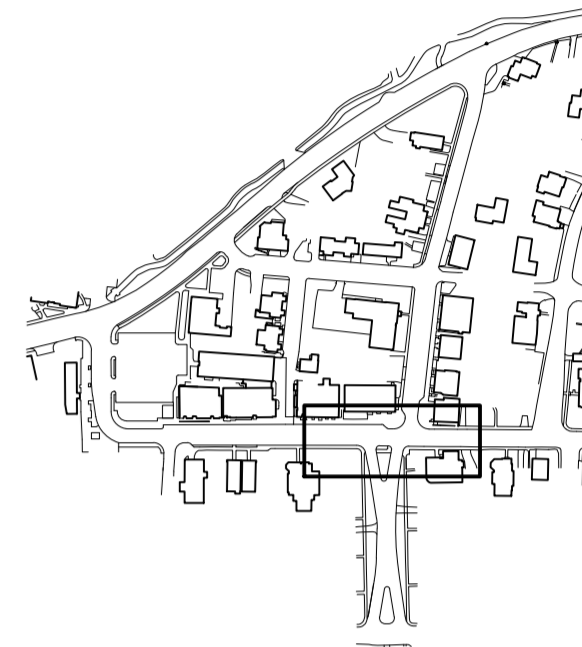
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Date _____ March 15, 2021
K-F Project No. _____ 2017014
Drawing No. _____

L-6.0

**Collinsville
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Streetscape Phase 2**
Collinsville, CT

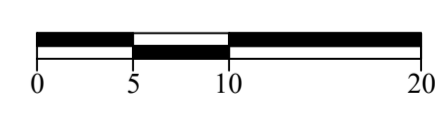
State Project No. 23-128

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**SITE GRADING PLAN
MAIN STREET
MARKET ST. TO THE GREEN**

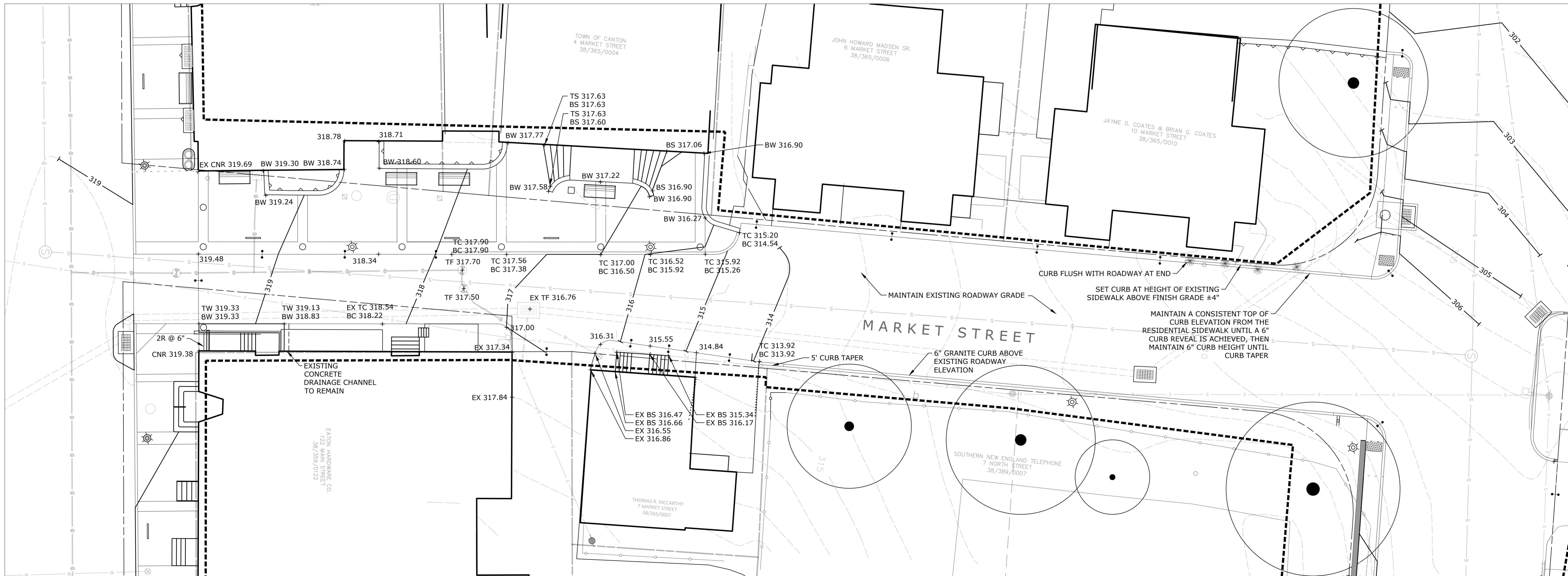
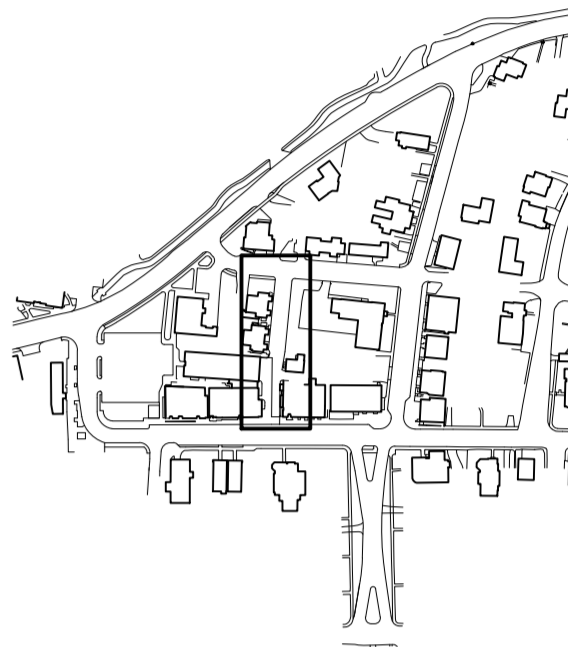
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K+F Project No.: 2017014
Drawing No.:

L-6.1

**Collinsville
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Streetscape Phase 2**
Collinsville, CT

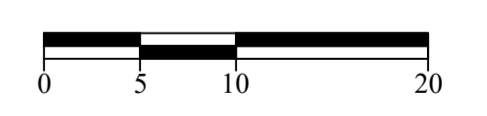
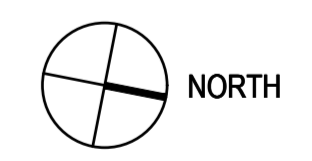
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**SITE GRADING PLAN
MARKET STREET**

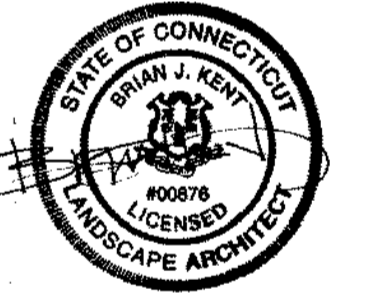
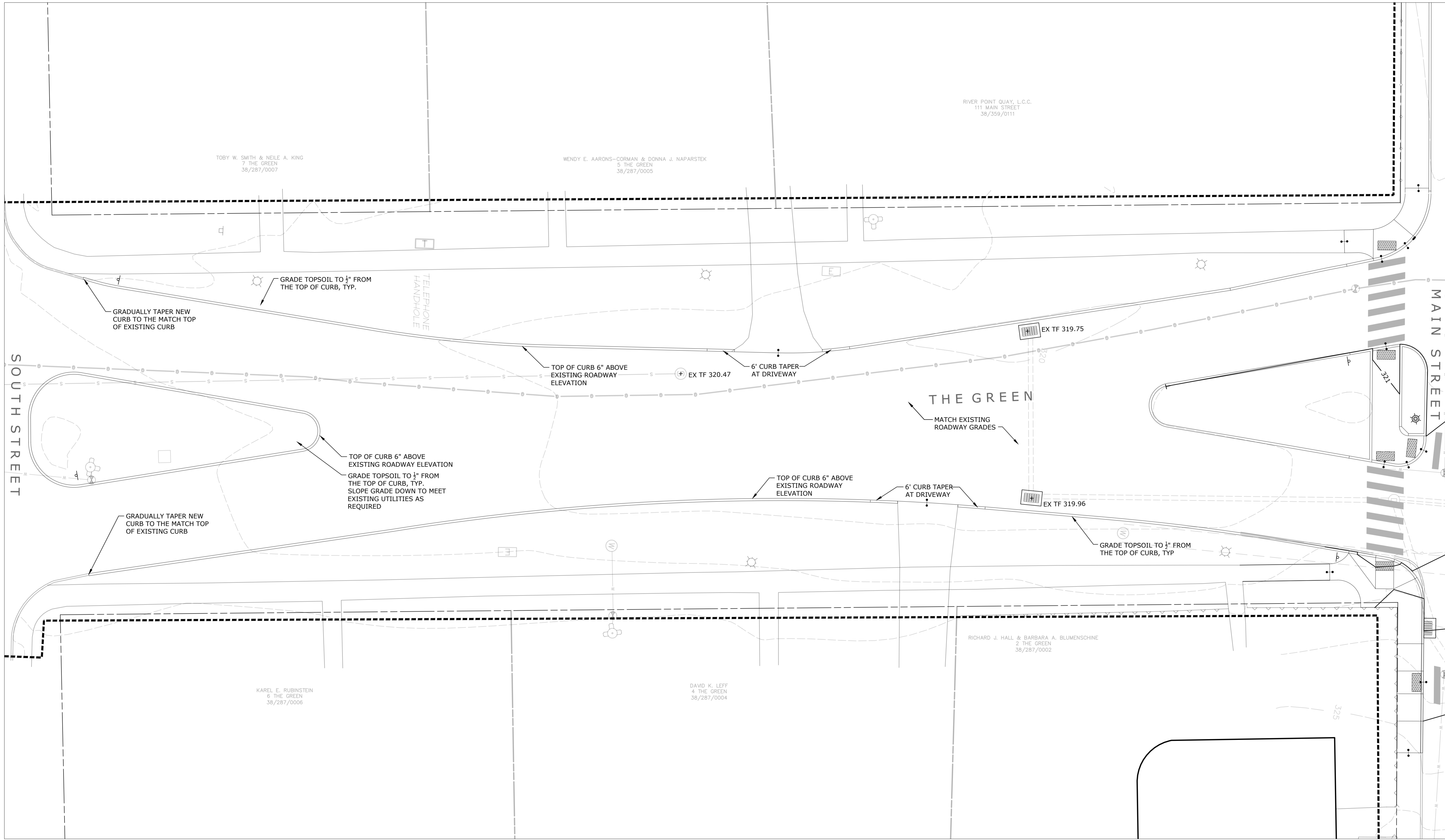
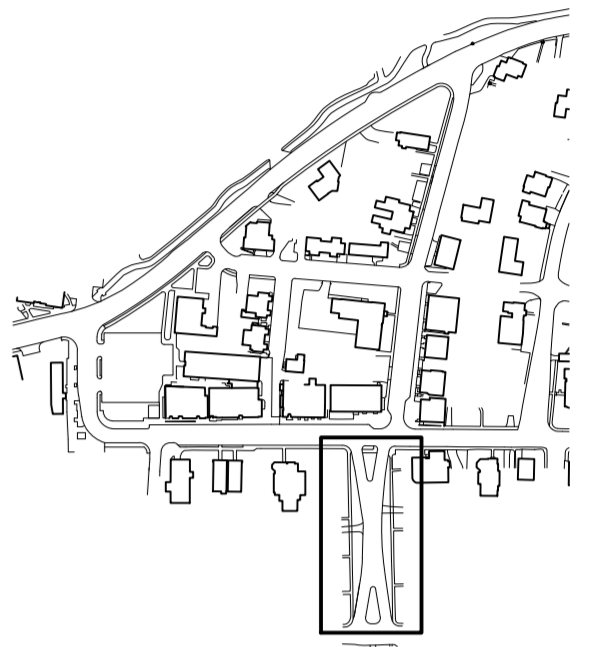
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K-F Project No.: 2017014
Drawing No.:

L-6.2

**Collinsville
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Streetscape Phase 2**
Collinsville, CT

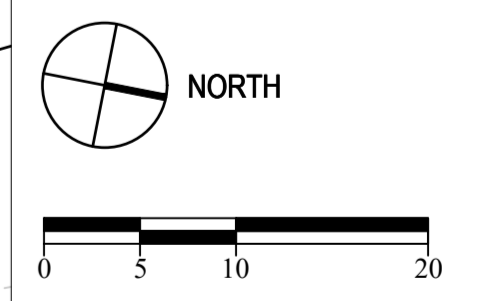
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**SITE GRADING PLAN
THE GREEN**

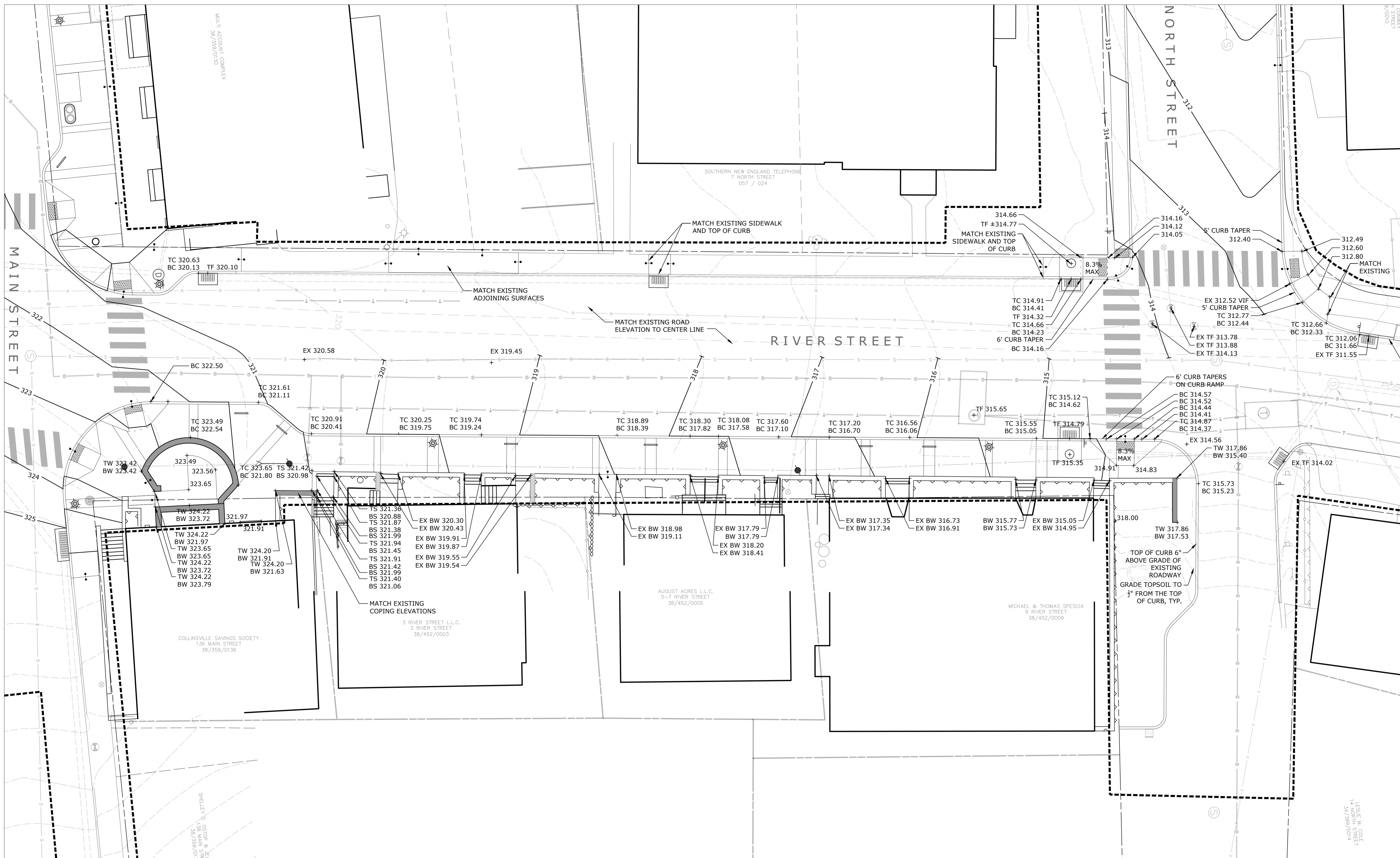
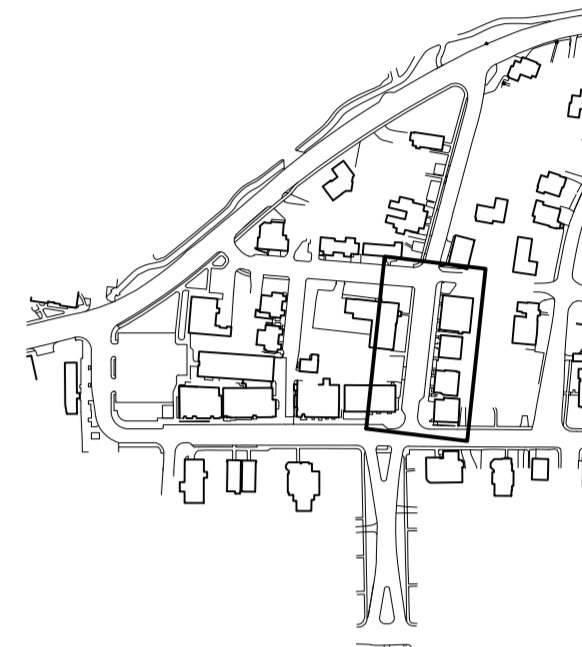
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K+F Project No.: 2017014
Drawing No.:

L-6.3

**Collinsville
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Streetscape Phase 2**
Collinsville, CT

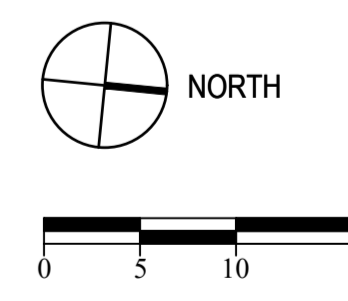
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**SITE GRADING PLAN
RIVER STREET
MAIN ST. TO NORTH ST.**

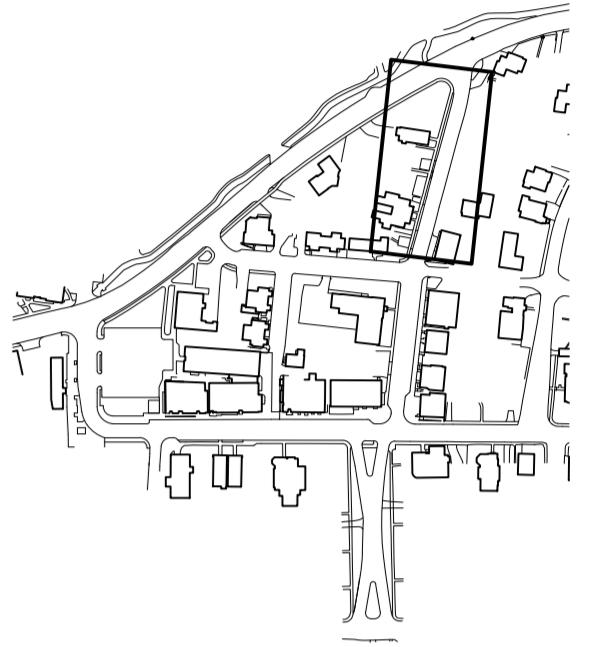
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Date	March 15, 2021
K-F Project No.	2017014
Drawing No.	L-6.4

L-6.4

**Collinsville
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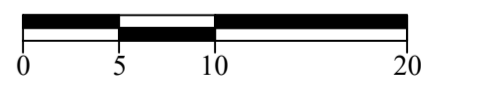
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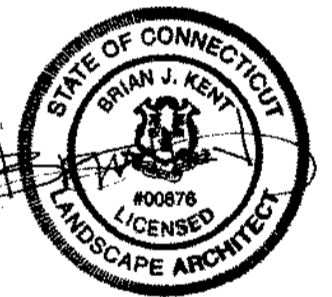
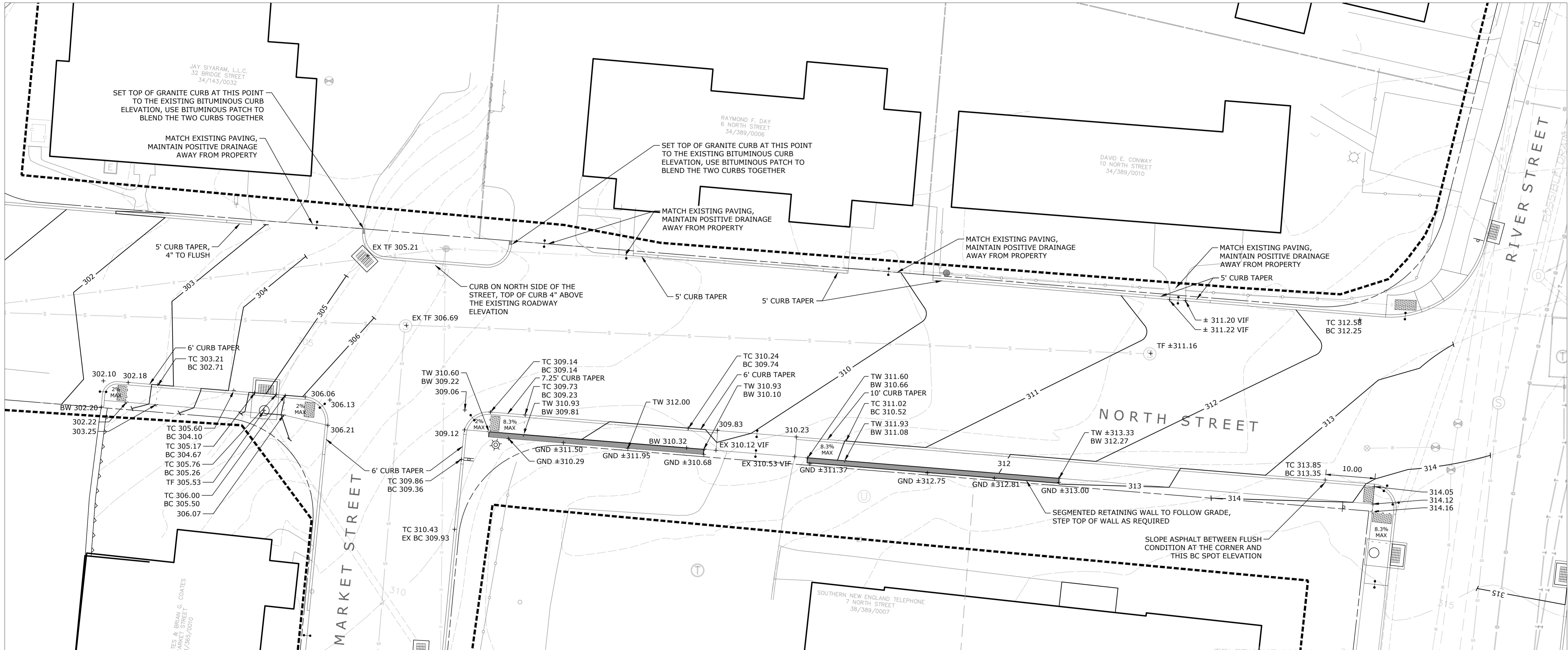
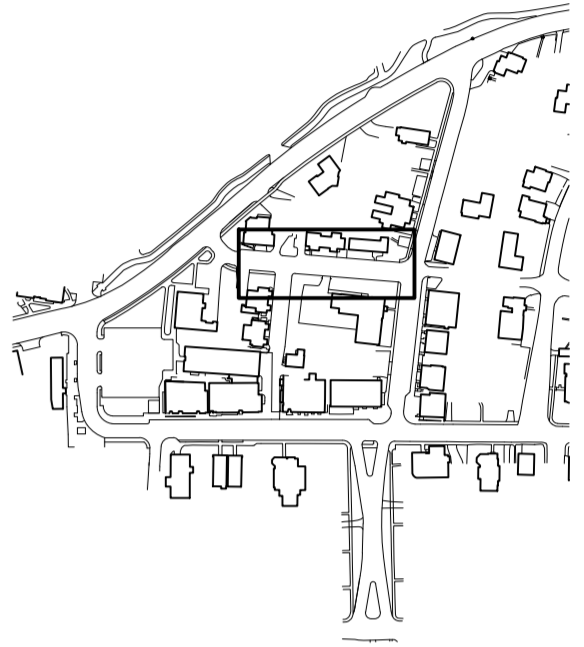


**SITE GRADING PLAN
RIVER STREET
NORTH ST. TO BRIDGE ST.**

Scale _____ 1" = 10'
Date _____ March 15, 2021
K+F Project No. _____ 2017014
Drawing No. _____

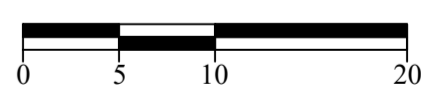
L-6.5





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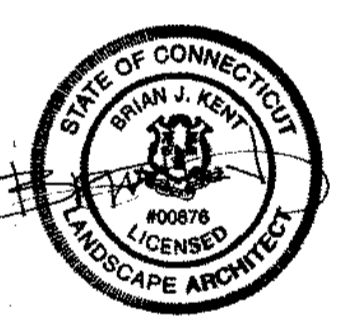
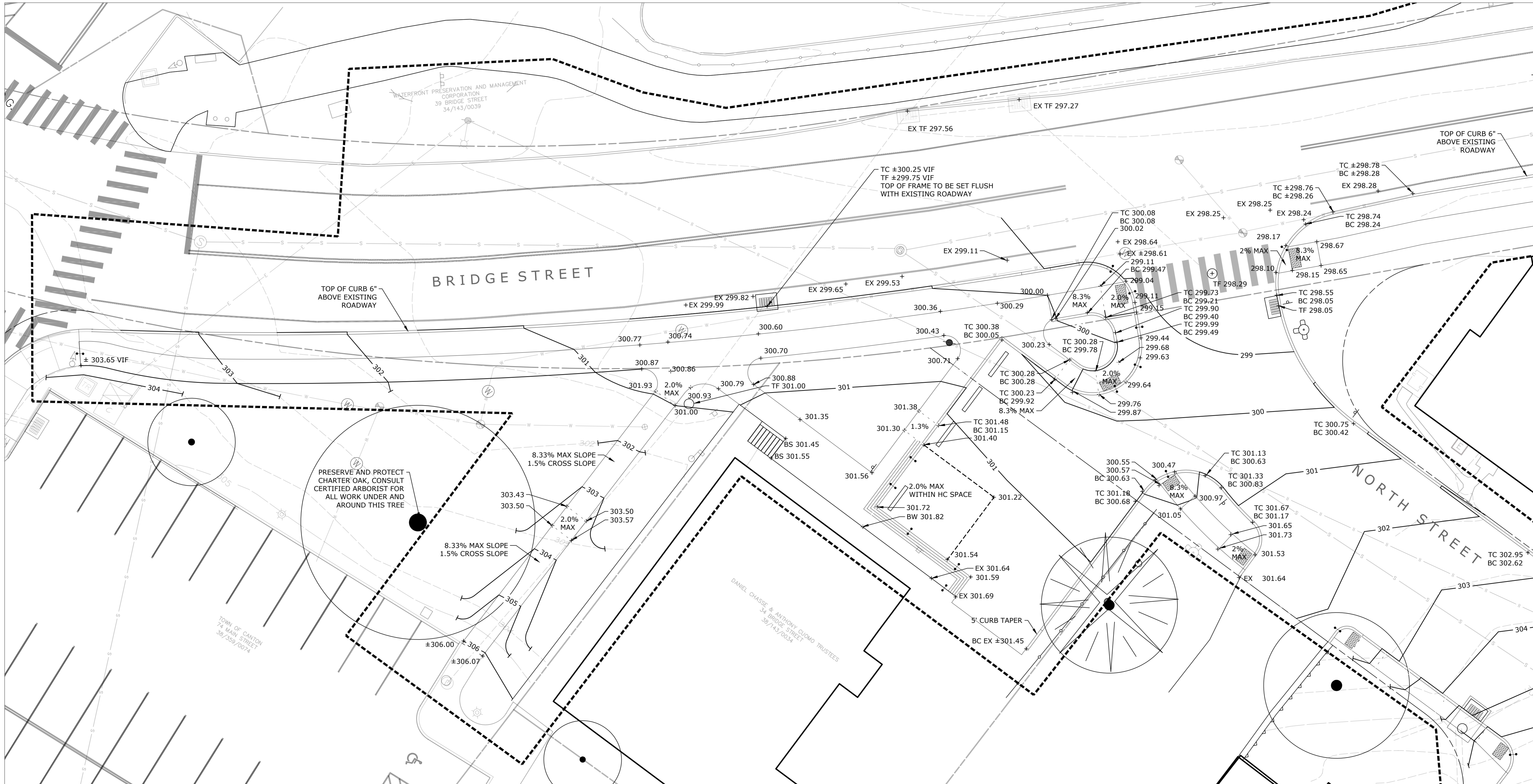
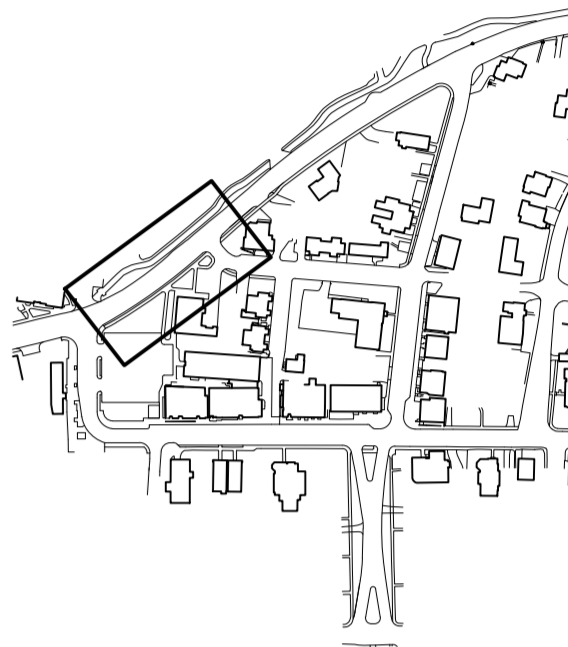
Revisions	Date



SITE GRADING PLAN
NORTH STREET

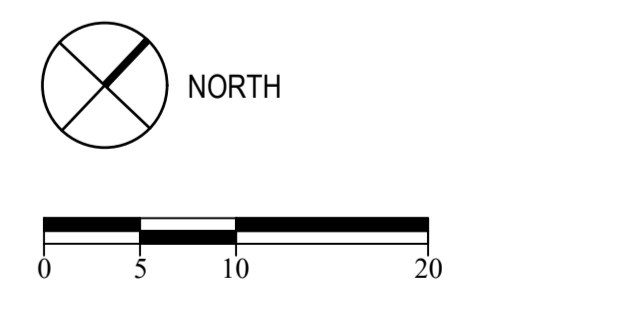
Scale 1" = 10'
Date March 15, 2021
K+F Project No. 2017014
Drawing No.

L-6.6



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Revisions	Date



**SITE GRADING PLAN
 BRIDGE STREET**

Scale: 1" = 10'
 Date: March 15, 2021
 K+F Project No.: 2017014
 Drawing No.:

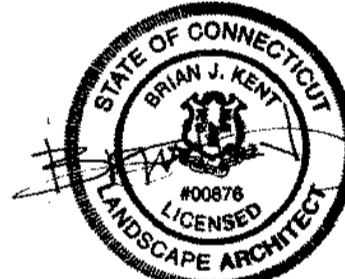
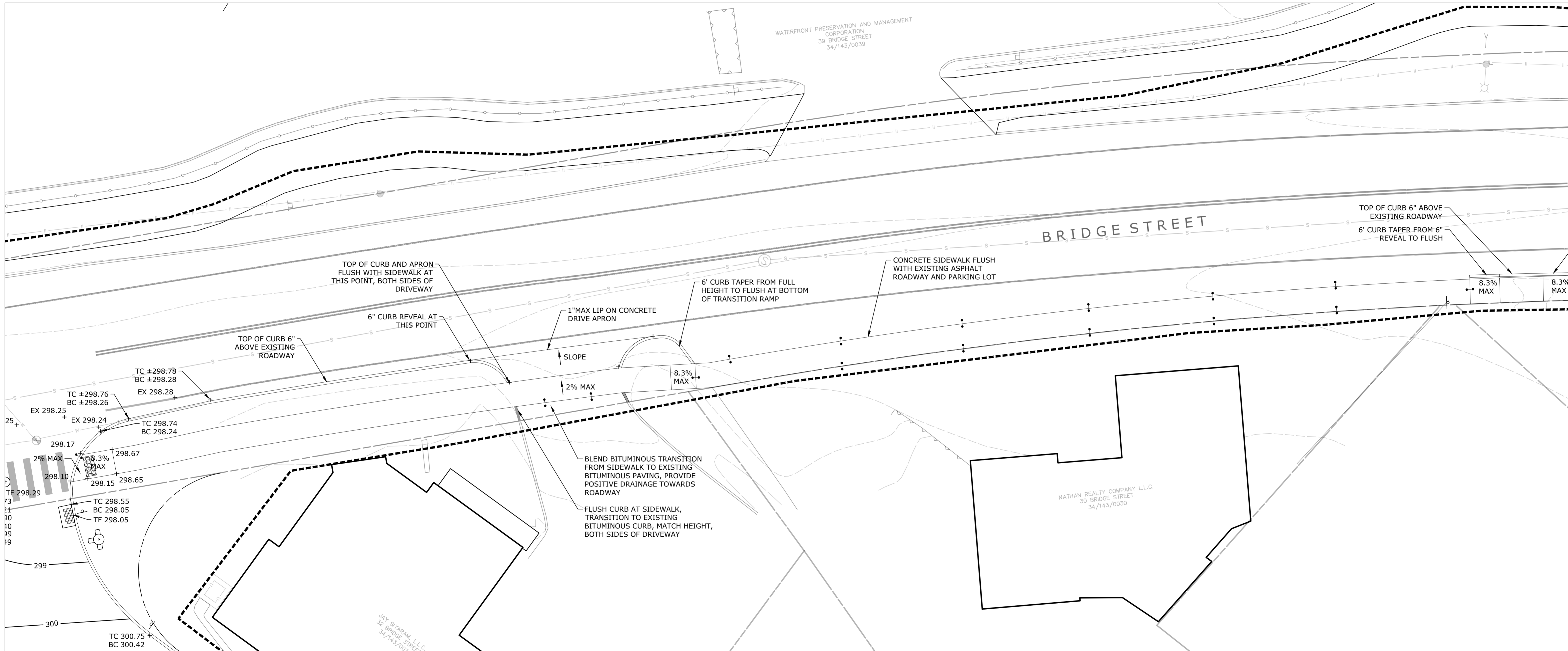
**Collinsville
Village Center
Streetscape Phase 2**
Collinsville, CT

State Project No. 23-128

LANDSCAPE

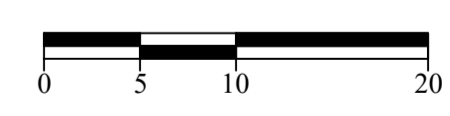
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FROST**

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**SITE GRADING PLAN
BRIDGE STREET**

Scale: 1" = 10'
Date: March 15, 2021
K+F Project No.: 2017014
Drawing No.:

L-6.8

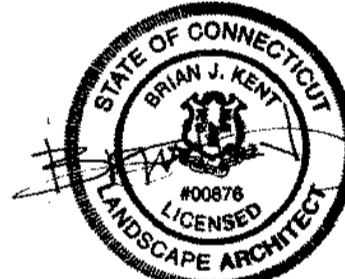
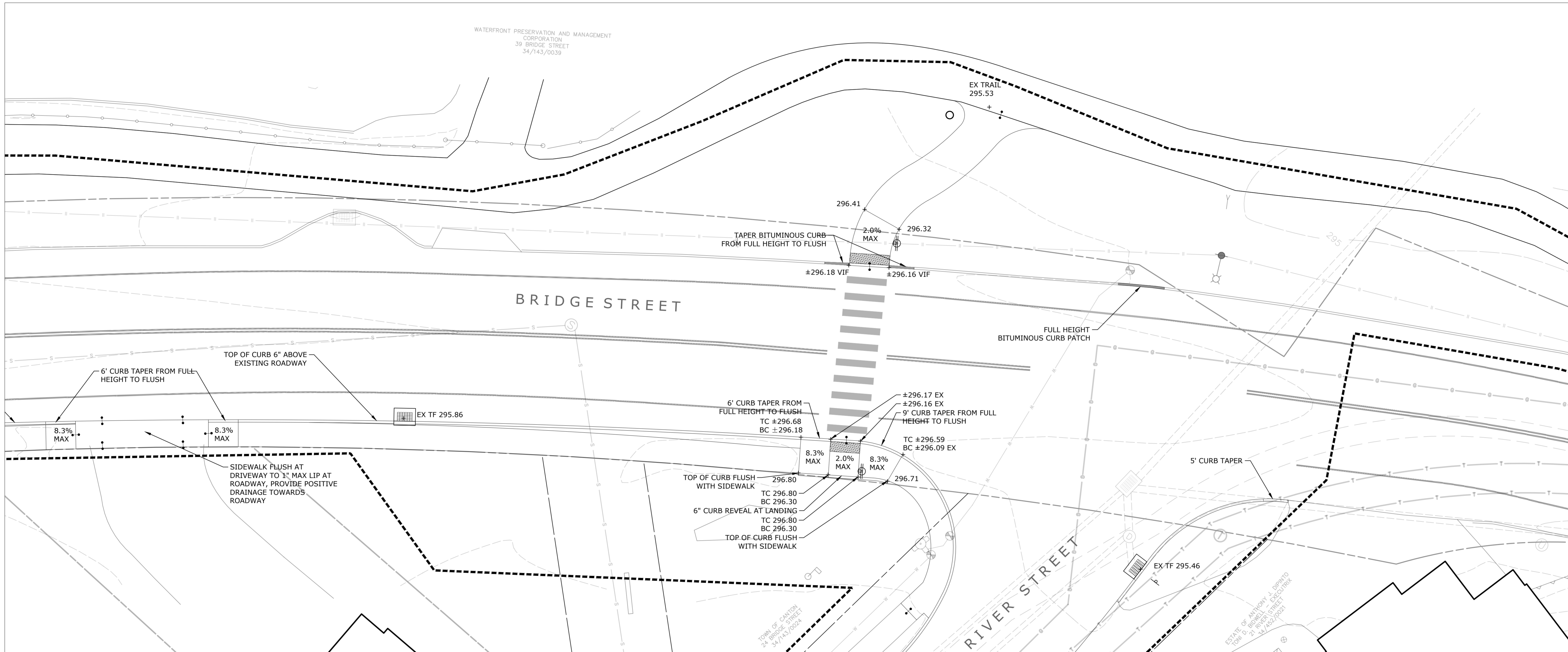
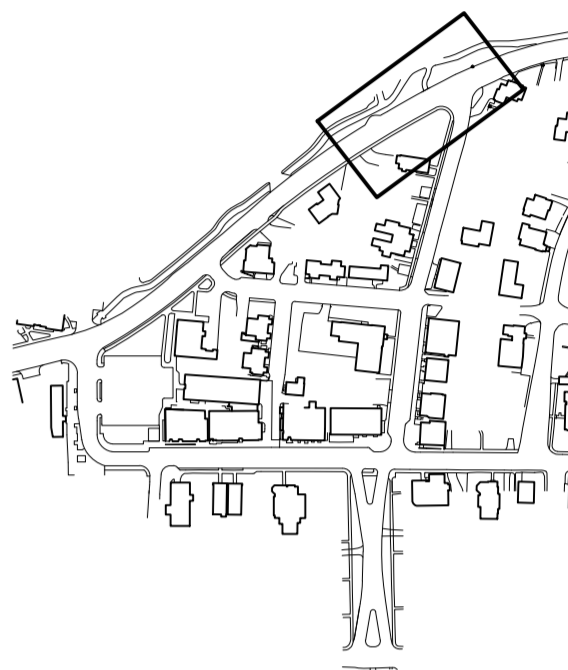
**Collinsville
Village Center
Streetscape Phase 2**
Collinsville, CT

State Project No. 23-128

LANDSCAPE

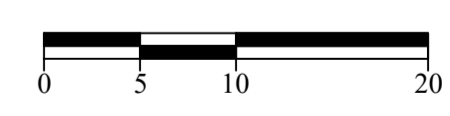
**KENT+
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**SITE GRADING PLAN
BRIDGE STREET**

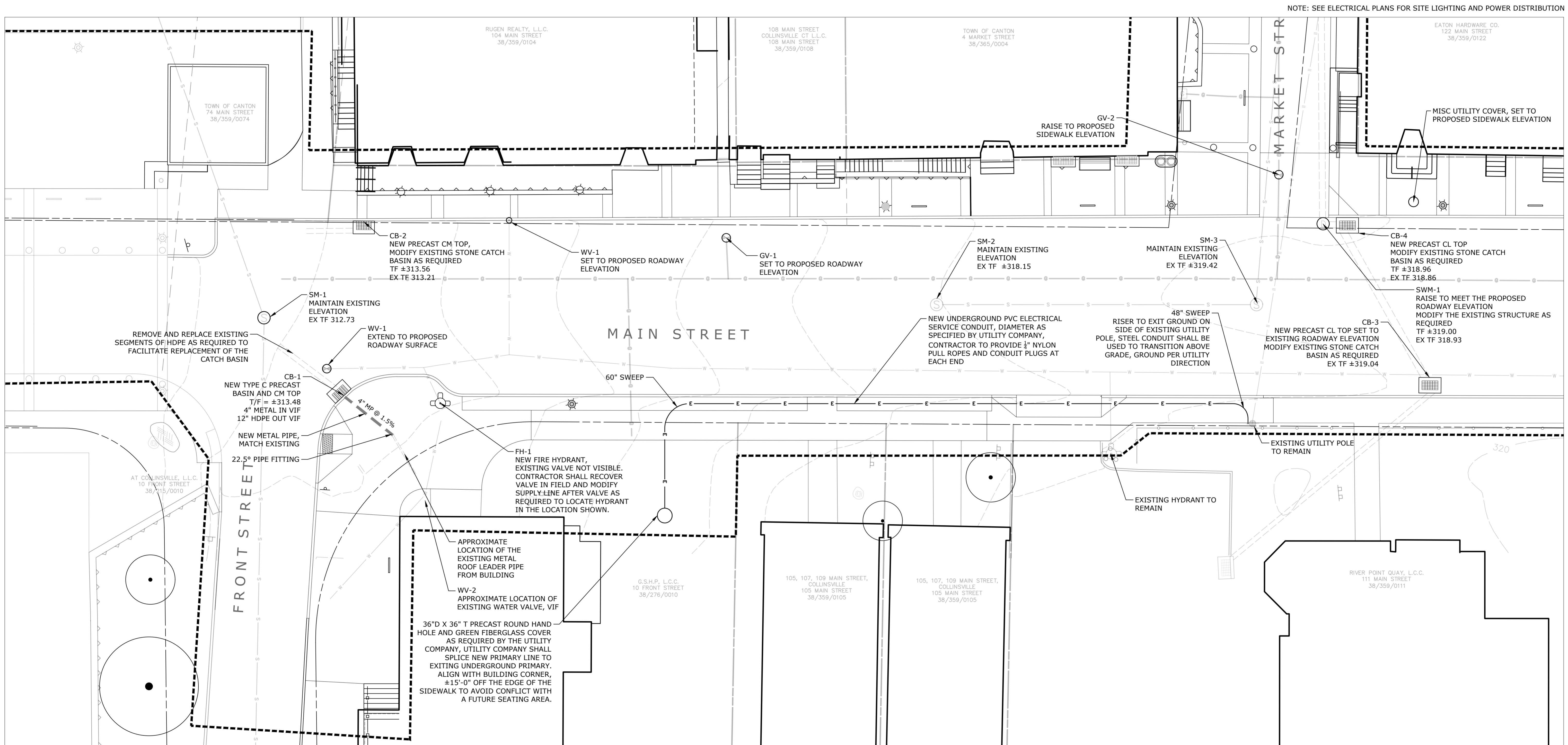
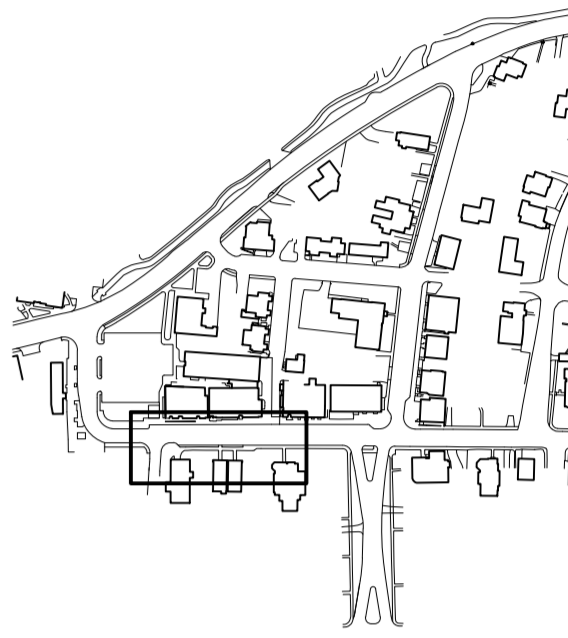
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K+F Project No.: 2017014
Drawing No.:

L-6.9

**Collinsville
Village Center
Streetscape Phase 2**
Collinsville, CT

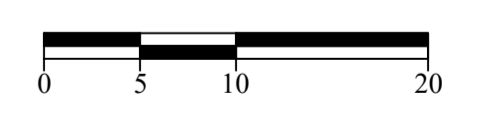
State Project No. 23-128

**LANDSCAPE
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Revisions	Date



**SITE UTILITY PLAN
MAIN STREET
FRONT ST. TO MARKET ST.**

Scale 1" = 10'
 Date March 15, 2021
 K-F Project No. 2017014
 Drawing No.

L-7.0

**Collinsville
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Collinsville, CT

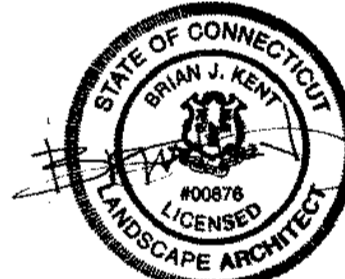
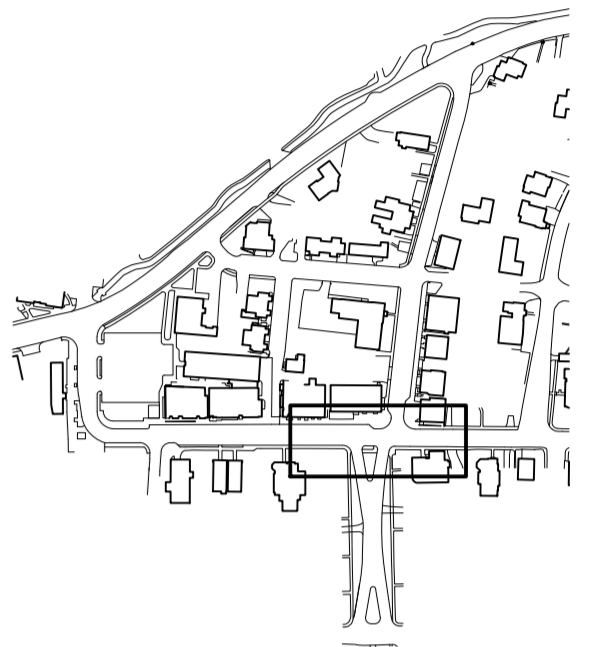
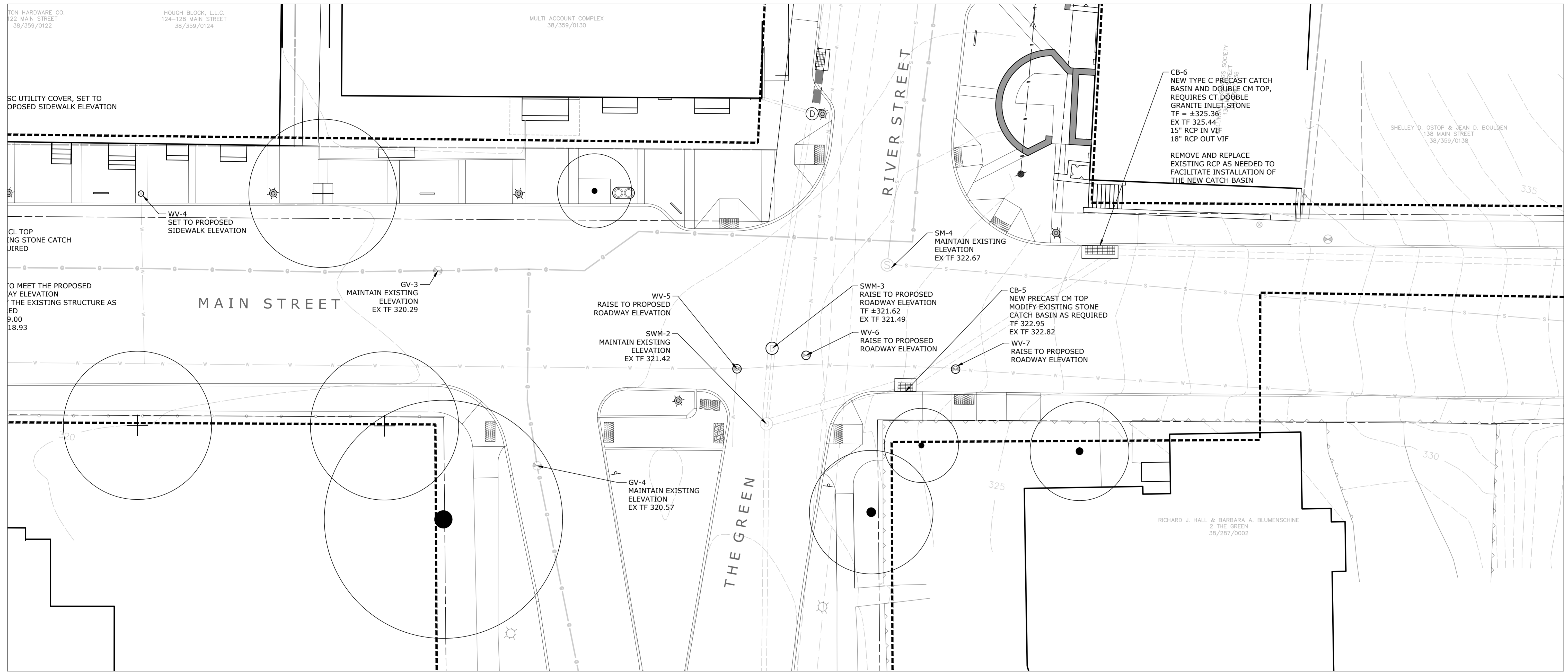
State Project No. 23-128

LANDSCAPE

**KENT+
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ARCHITECTURE

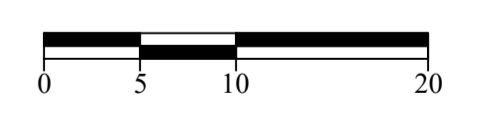
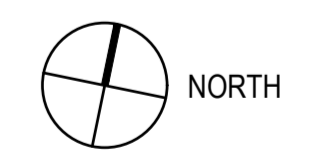
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NOTE: SEE ELECTRICAL PLANS FOR SITE LIGHTING AND POWER DISTRIBUTION



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SITE UTILITY PLAN
MAIN STREET
MARKET ST. TO THE GREEN

Scale 1" = 10'
Date March 15, 2021
K+F Project No. 2017014
Drawing No.

L-7.1

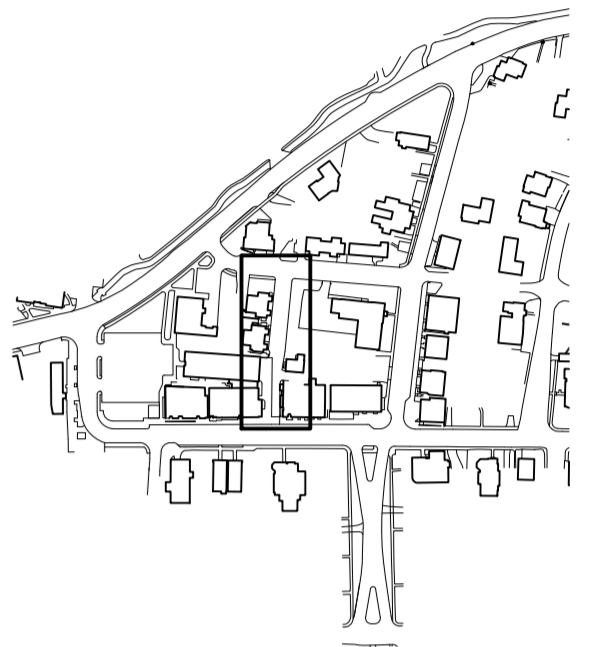
**Collinsville
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State Project No. 23-128

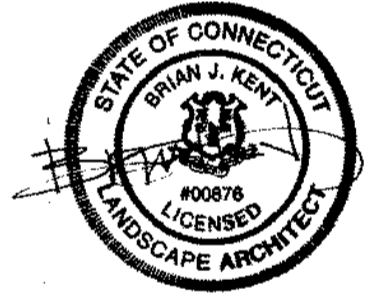
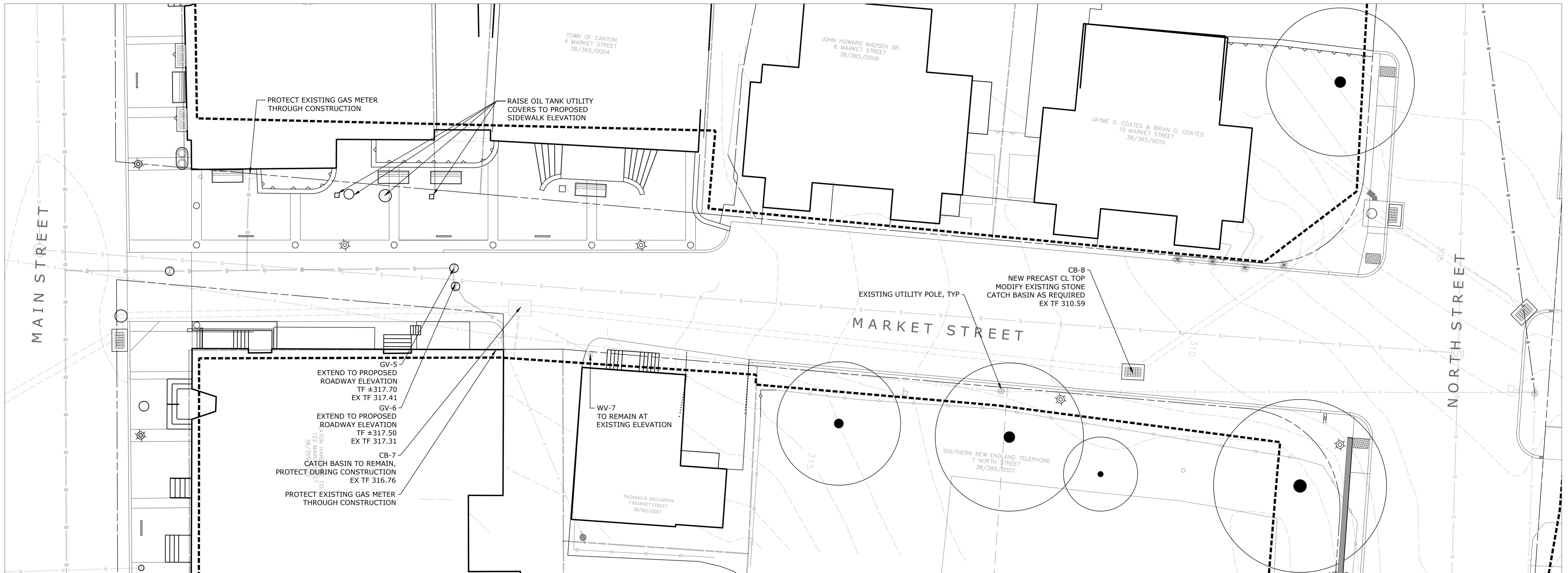
LANDSCAPE

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kentfrost.com

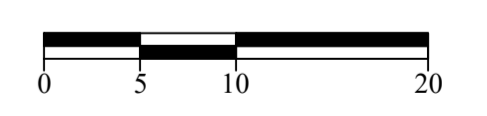


NOTE: SEE ELECTRICAL PLANS FOR SITE LIGHTING AND POWER DISTRIBUTION



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Revisions	Date



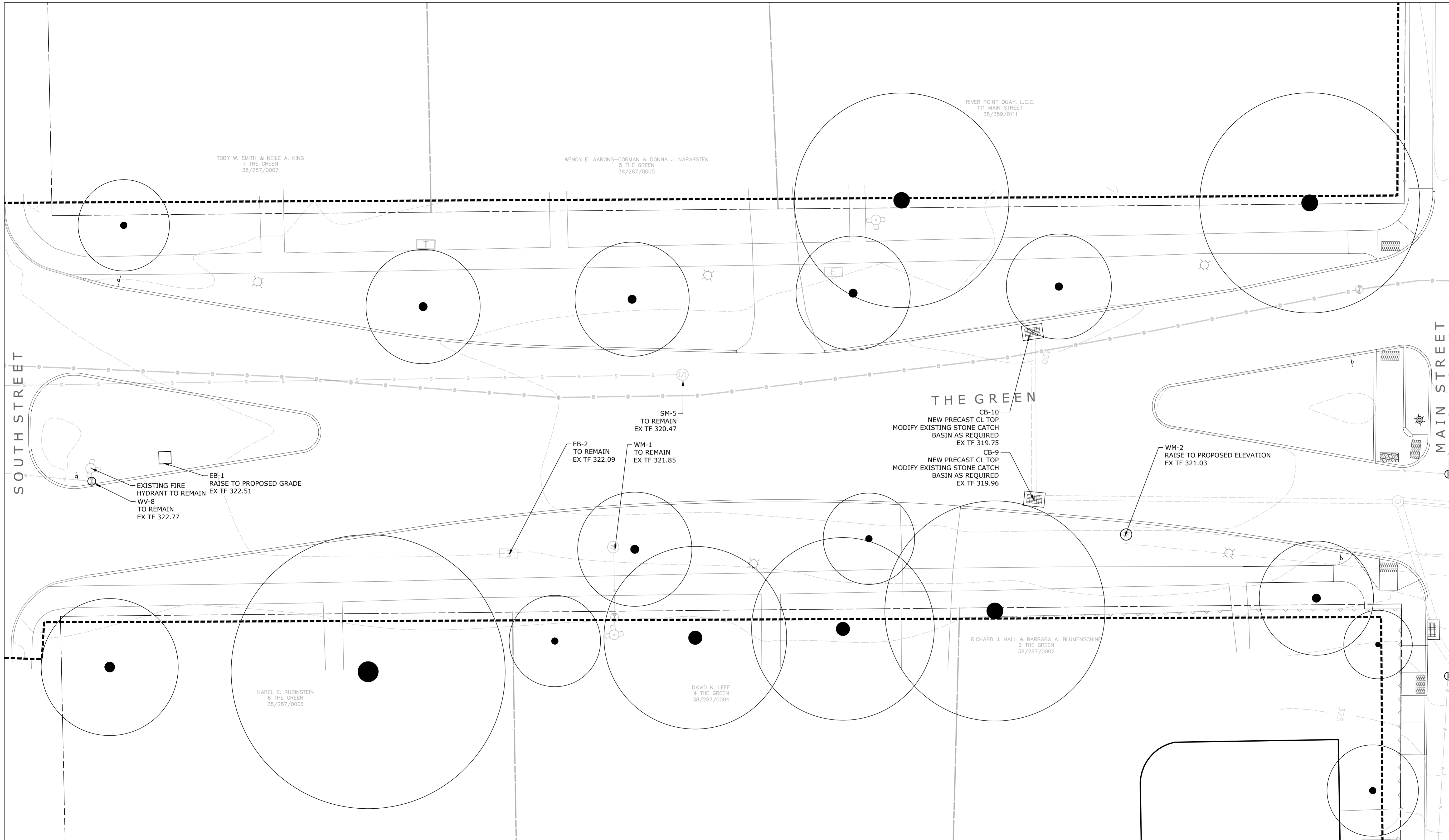
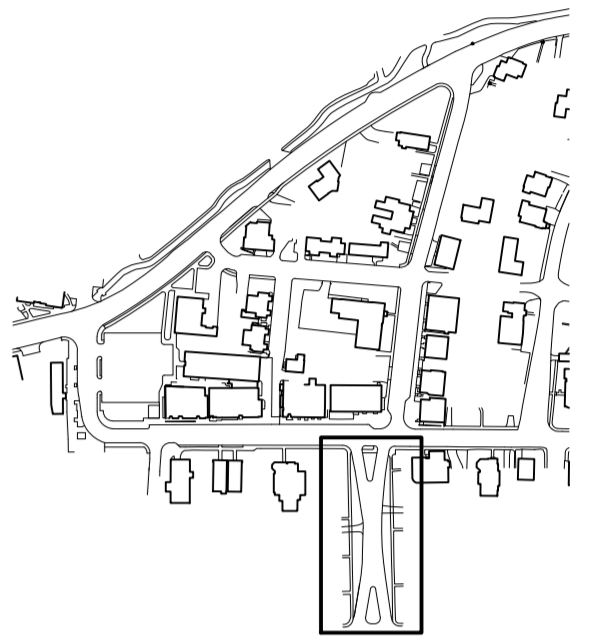
**SITE UTILITY PLAN
MARKET STREET**

Scale: 1" = 10'
Date: March 15, 2021
K+F Project No.: 2017014
Drawing No.:

L-7.2

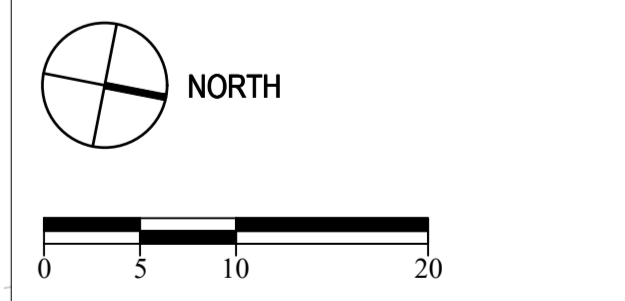
NOTE: SEE ELECTRICAL PLANS FOR SITE LIGHTING AND POWER DISTRIBUTION

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**SITE UTILITY PLAN
THE GREEN**

Scale 1" = 10'
Date March 15, 2021
K+F Project No. 2017014
Drawing No.

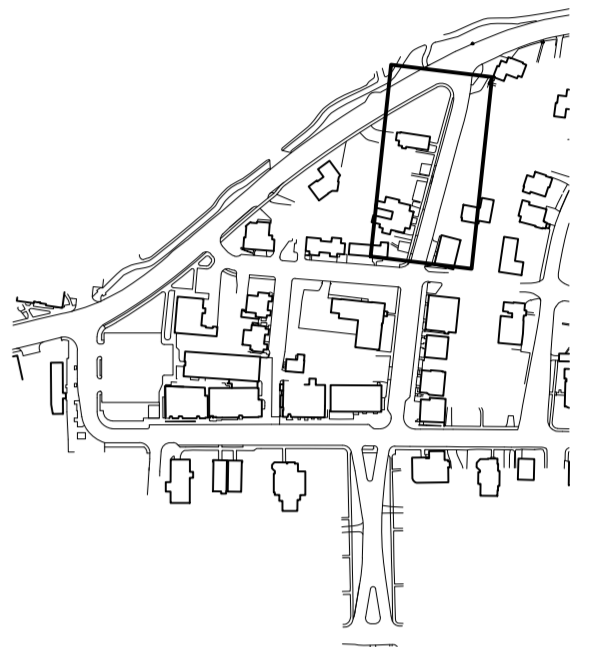
L-7.3

**Collinsville
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Streetscape Phase 2**
Collinsville, CT

State Project No. 23-128

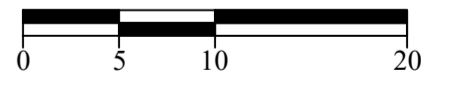
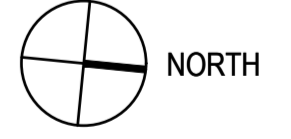
**LANDSCAPE
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NOTE: SEE ELECTRICAL PLANS FOR SITE LIGHTING AND POWER DISTRIBUTION



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**SITE UTILITY PLAN
RIVER STREET
NORTH ST. TO BRIDGE ST.**

Scale: 1" = 10'
Date: March 15, 2021
K-F Project No.: 2017014
Drawing No.:

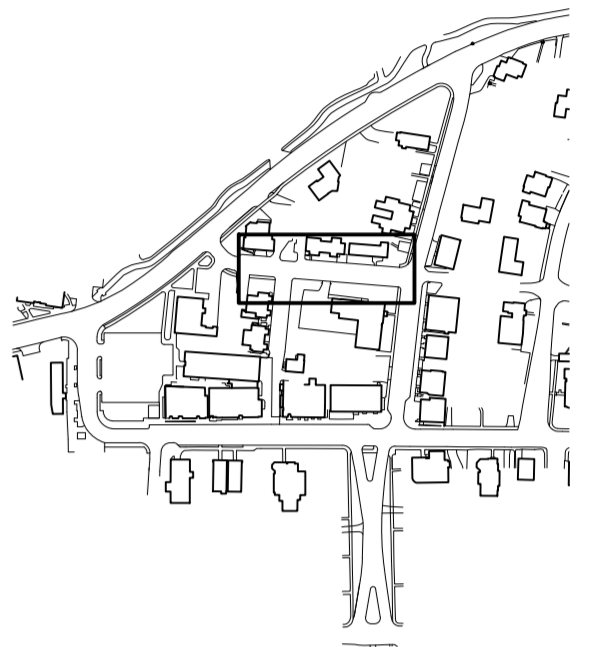
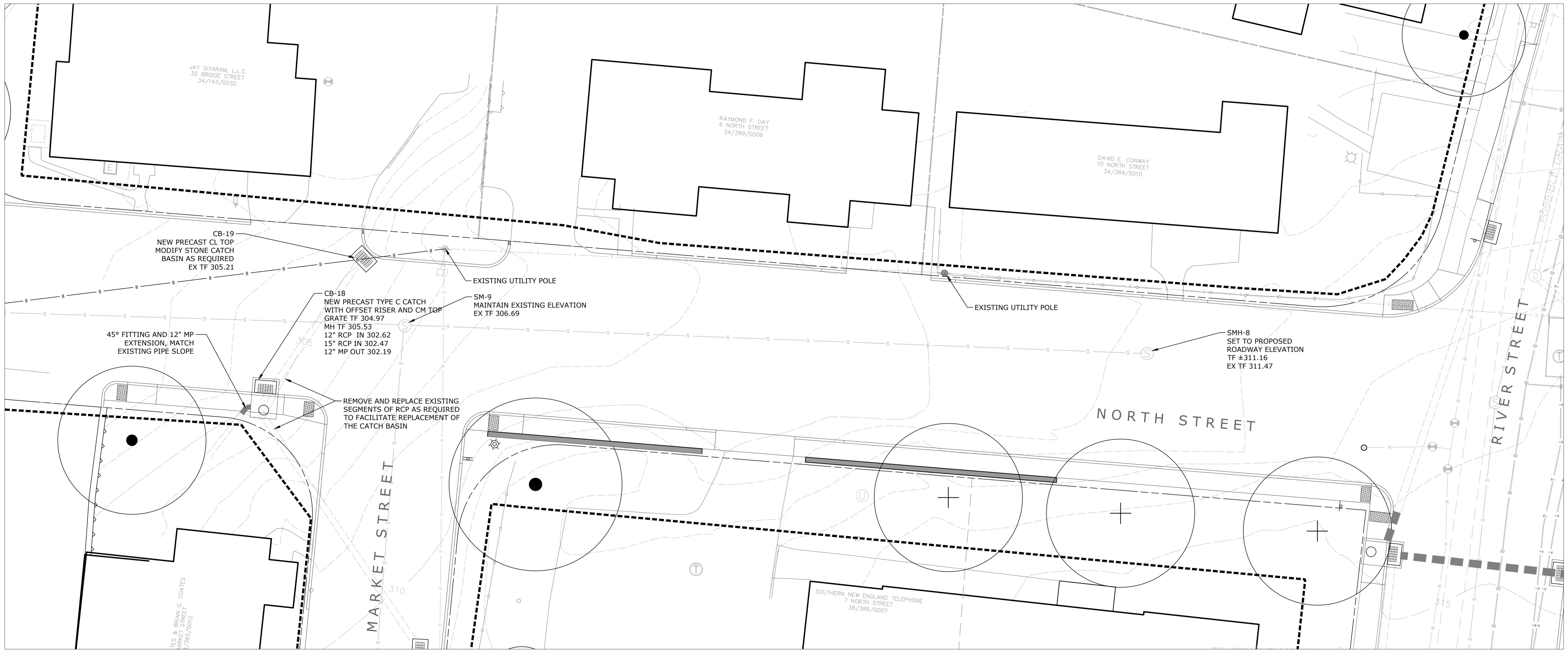
L-7.5

**Collinsville
Village Center
Streetscape Phase 2**
Collinsville, CT

State Project No. 23-128

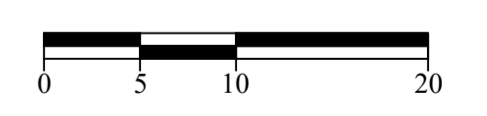


NOTE: SEE ELECTRICAL PLANS FOR SITE LIGHTING AND POWER DISTRIBUTION



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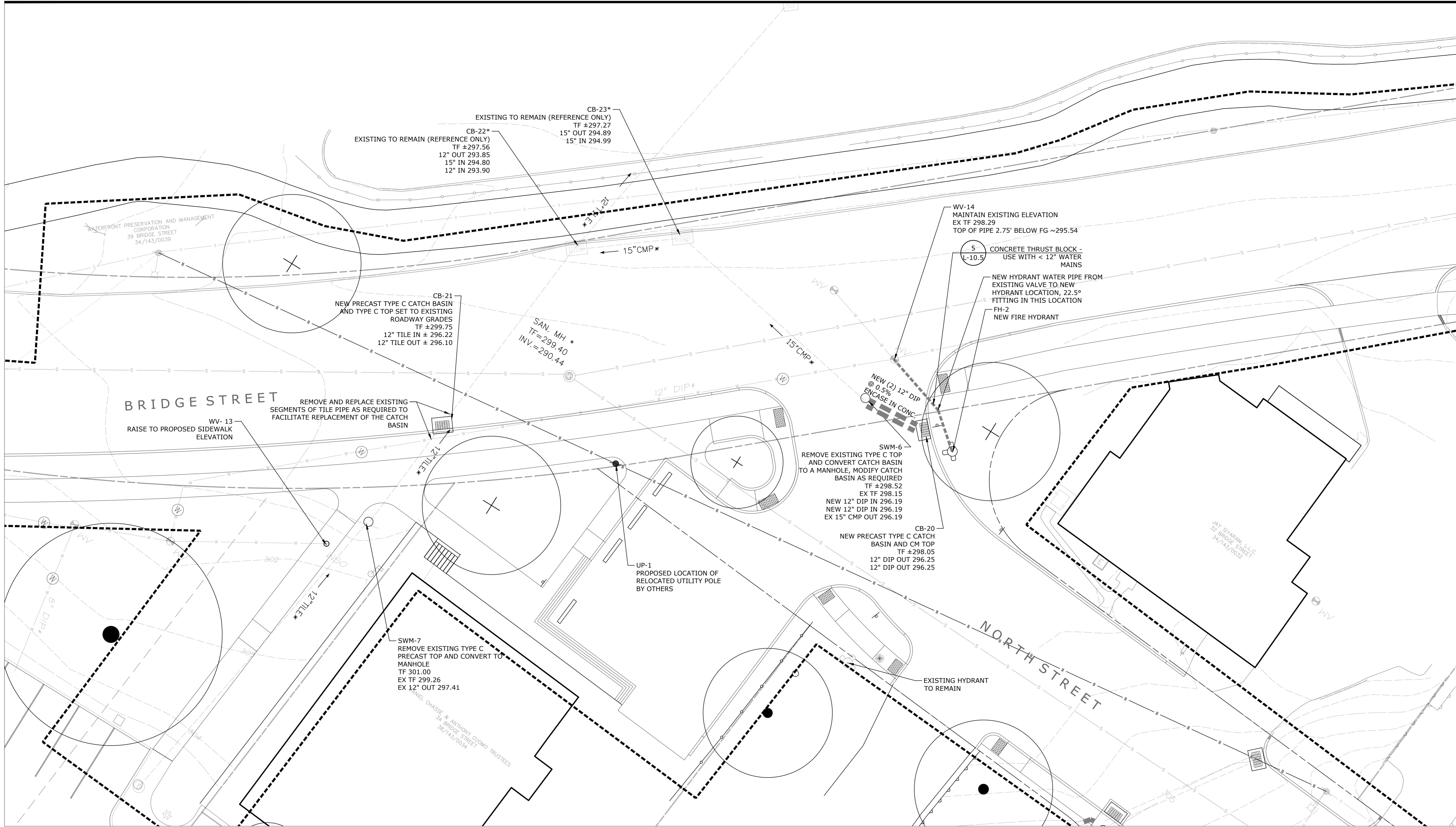
Revisions	Date



**SITE UTILITY PLAN
NORTH STREET**

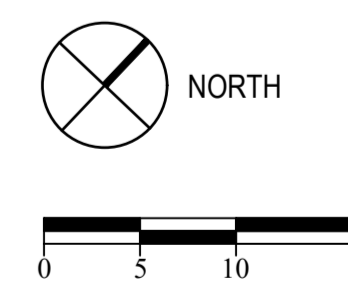
Scale: 1" = 10'
Date: March 15, 2021
K-F Project No.: 2017014
Drawing No.:

L-7.6



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Revisions	Date



- NOTE:**
- SEE ELECTRICAL PLANS FOR SITE LIGHTING AND POWER DISTRIBUTION
 - THE CONTRACTOR IS RESPONSIBLE FOR AND SHALL CARRY THE COST FOR ALL WORK, LABOR AND MATERIALS REQUIRED TO INSPECT THE EXISTING CMP AND TILE DRAINAGE PIPING AT THE TIE IN LOCATIONS AND OR AREAS TO BE MODIFIED AS PART OF THIS PROJECT WITHIN THE STATE RIGHT OF WAY ON RT 179 (BRIDGE STREET) BETWEEN MAIN AND NORTH STREETS. THE CONTRACTOR SHALL CARRY THE COST IN THE BID FOR ALL WORK, LABOR AND MATERIALS FOR THE FULL REPLACEMENT OF 80 FEET OF 15 INCH CORRUGATED METAL PIPE AND 80 FEET OF 12 INCH PVC PIPE (FOR AREAS OF CLAY TILE PIPE) INCLUDING CT DOT'S REQUIREMENTS FOR PERMANENT AND TEMPORARY ASPHALT PATCHING AND TRAFFIC CONTROL DURING THE WORK.

**SITE UTILITY PLAN
BRIDGE STREET**

Scale 1" = 10'
Date March 15, 2021
K-F Project No. 2017014
Drawing No.

L-7.7

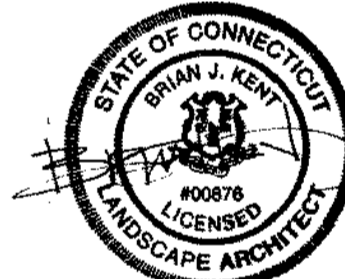
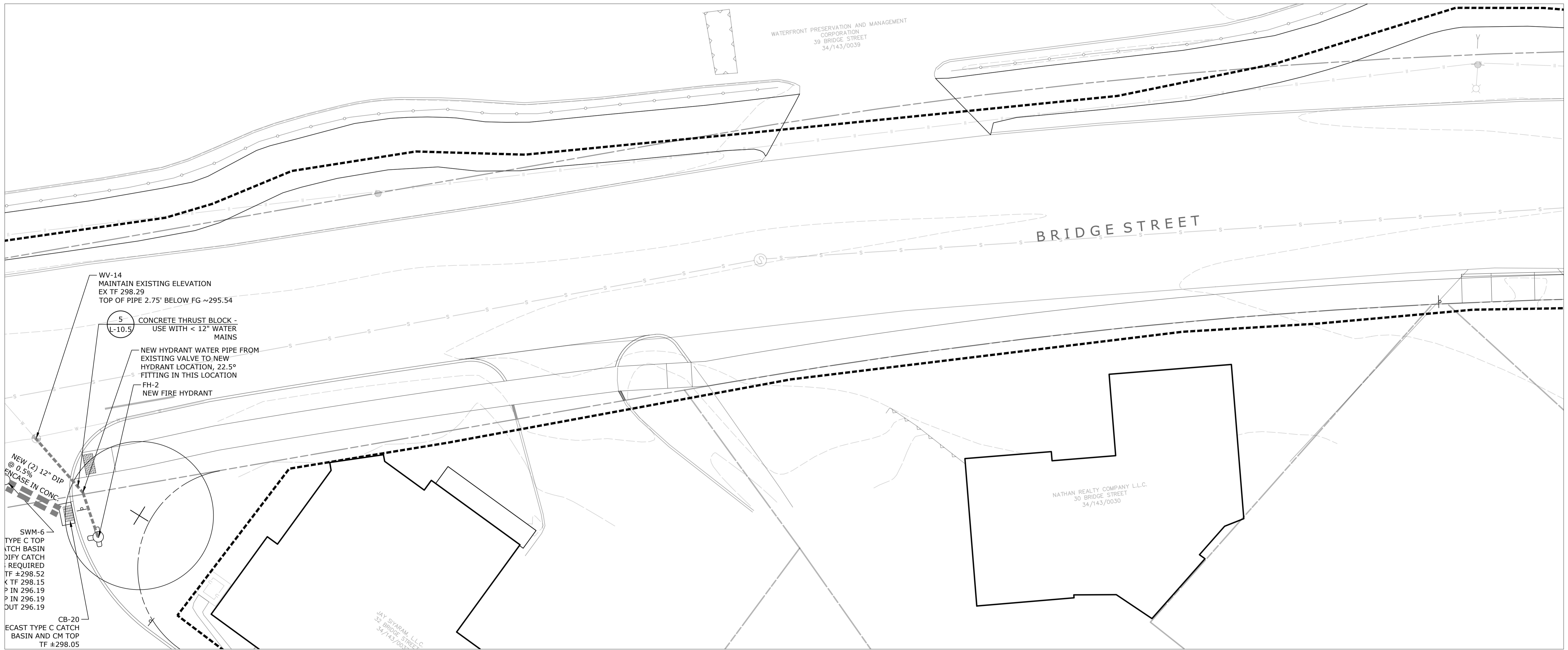
**Collinsville
Village Center
Streetscape Phase 2**
Collinsville, CT

State Project No. 23-128

LANDSCAPE
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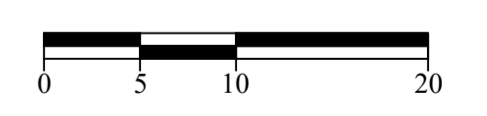


NOTE: SEE ELECTRICAL PLANS FOR SITE LIGHTING AND POWER DISTRIBUTION



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Revisions	Date



**SITE UTILITY PLAN
BRIDGE STREET**

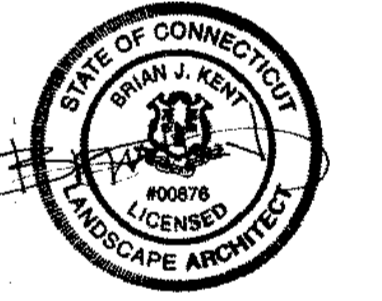
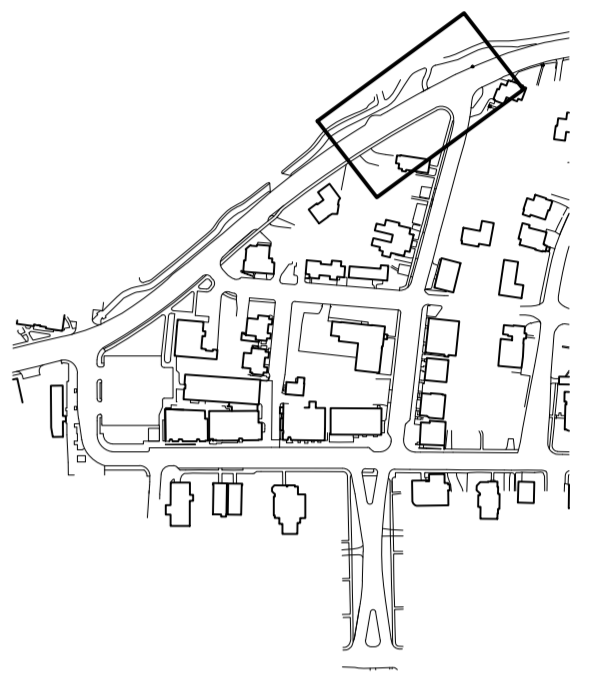
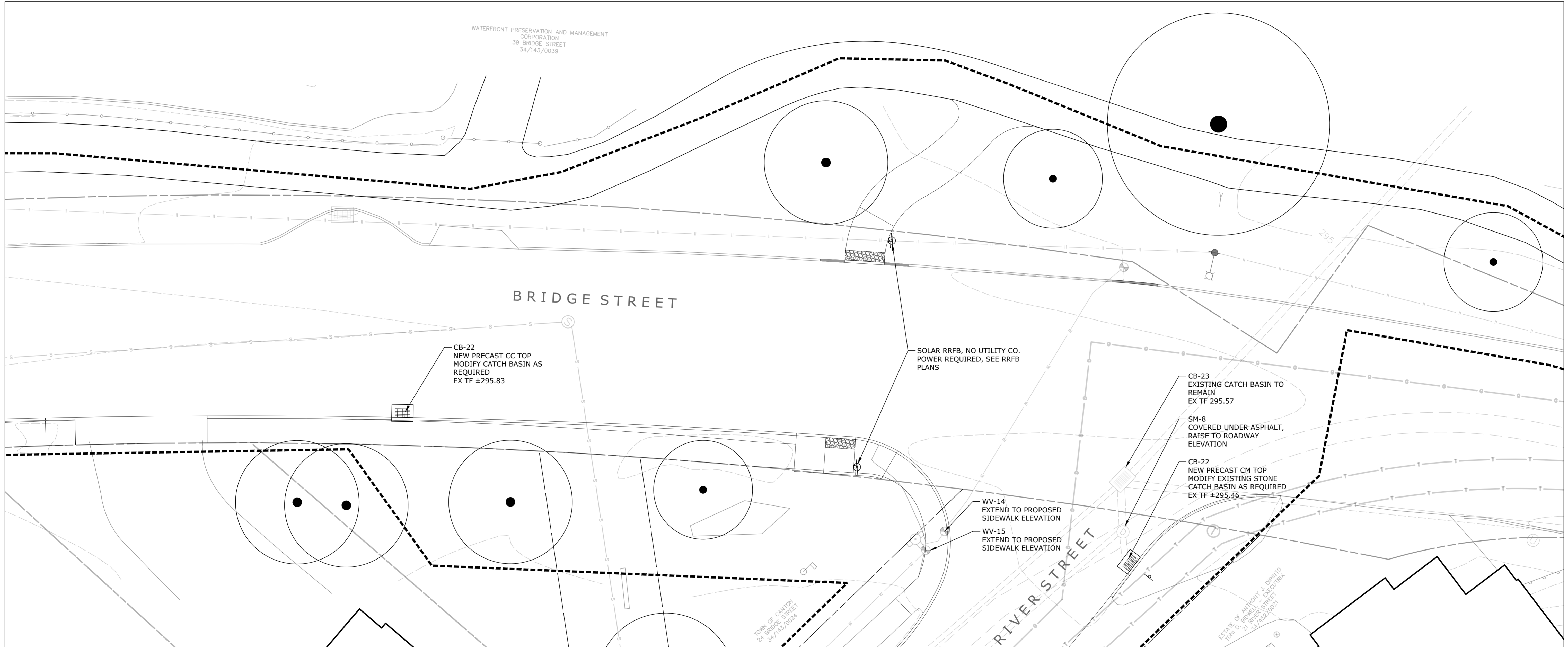
Scale: 1" = 10'
Date: March 15, 2021
K+F Project No.: 2017014
Drawing No.:

L-7.8

**Collinsville
Village Center
Streetscape Phase 2**
Collinsville, CT
State Project No. 23-128

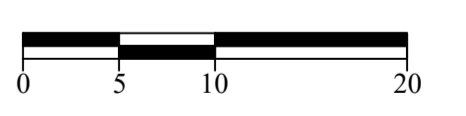


NOTE: SEE ELECTRICAL PLANS FOR SITE LIGHTING AND POWER DISTRIBUTION



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Revisions	Date



**SITE UTILITY PLAN
BRIDGE STREET**

Scale	1" = 10'
Date	March 15, 2021
K+F Project No.	2017014
Drawing No.	

L-7.9

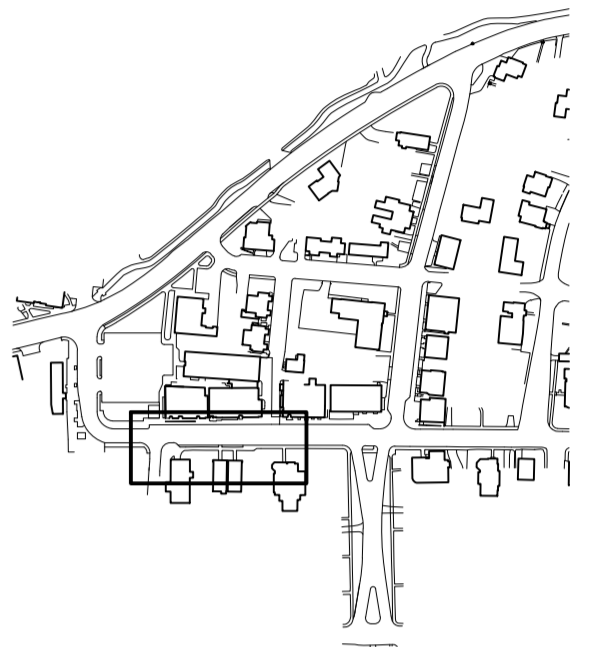
**Collinsville
Village Center
Streetscape Phase 2**
Collinsville, CT

State Project No. 23-128

LANDSCAPE

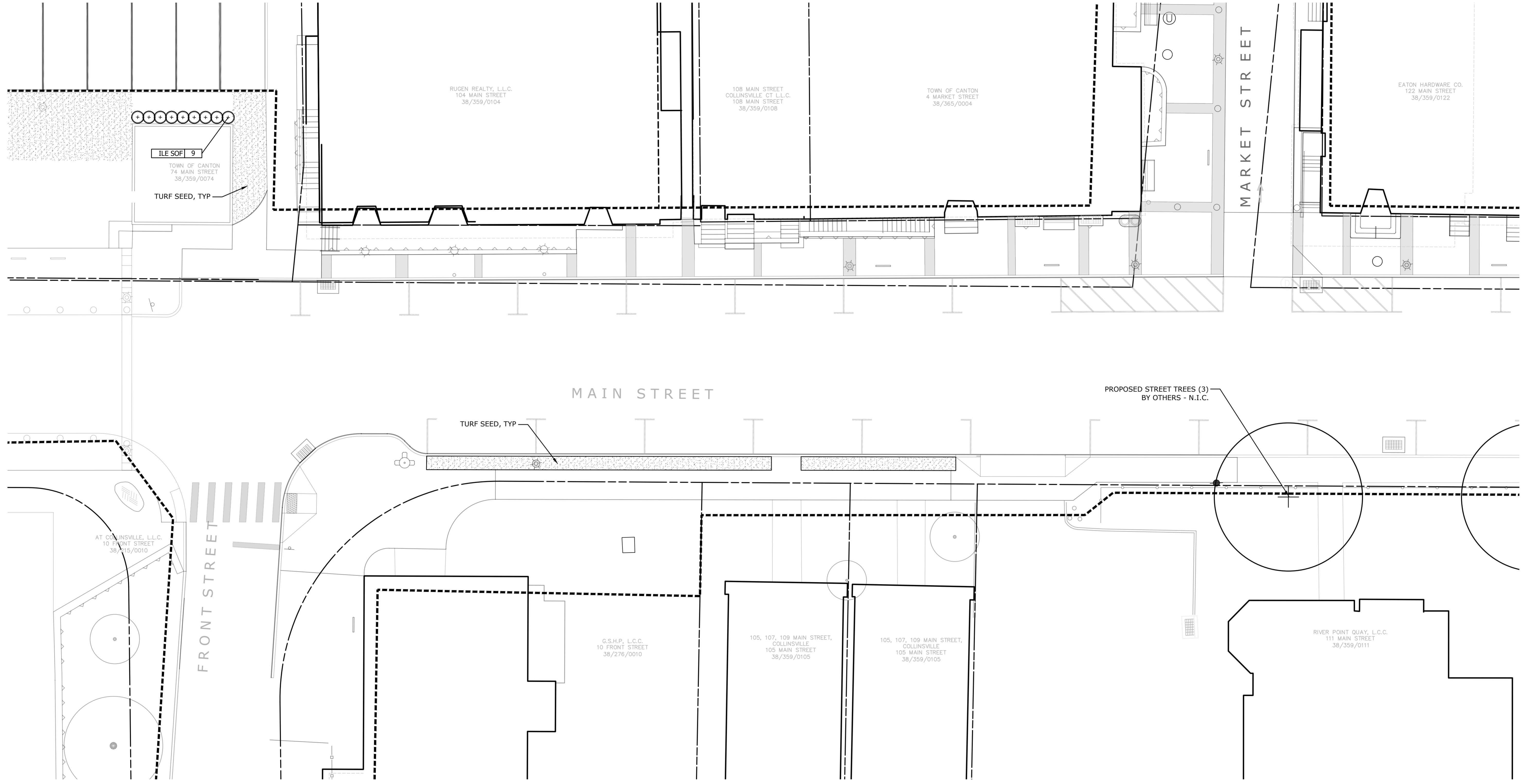
**KENT+
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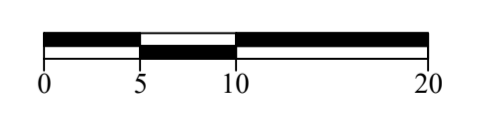
PLANT SCHEDULE MUNICIPAL PARKING LOT

SHRUBS	QTY	BOTANICAL NAME / COMMON NAME	CONT	REMARKS
ILE SOF	9	Ilex crenata 'Soft Touch' / Soft Touch Japanese Holly	5 gal	24" O.C.



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Revisions	Date



SITE MATERIALS PLAN
MAIN STREET
FRONT ST. TO MARKET ST.

Scale: 1" = 10'
Date: March 15, 2021
K-F Project No.: 2017014
Drawing No.:

L-8.0

**Collinsville
Village Center
Streetscape Phase 2**
Collinsville, CT
State Project No. 23-128

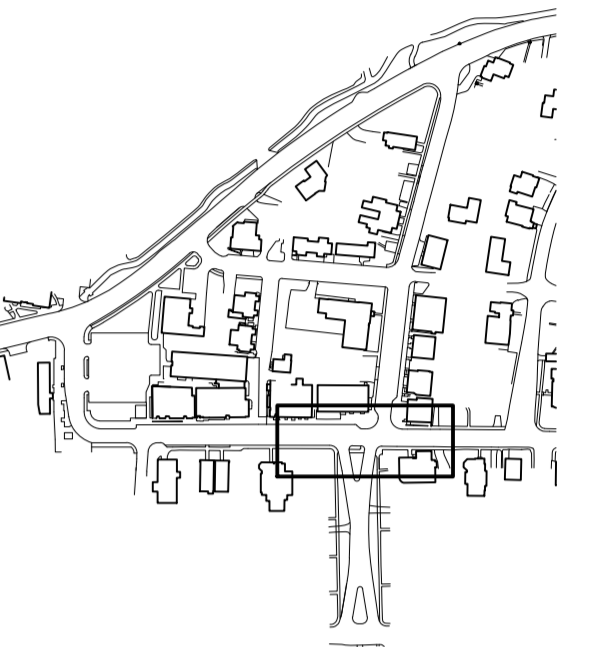
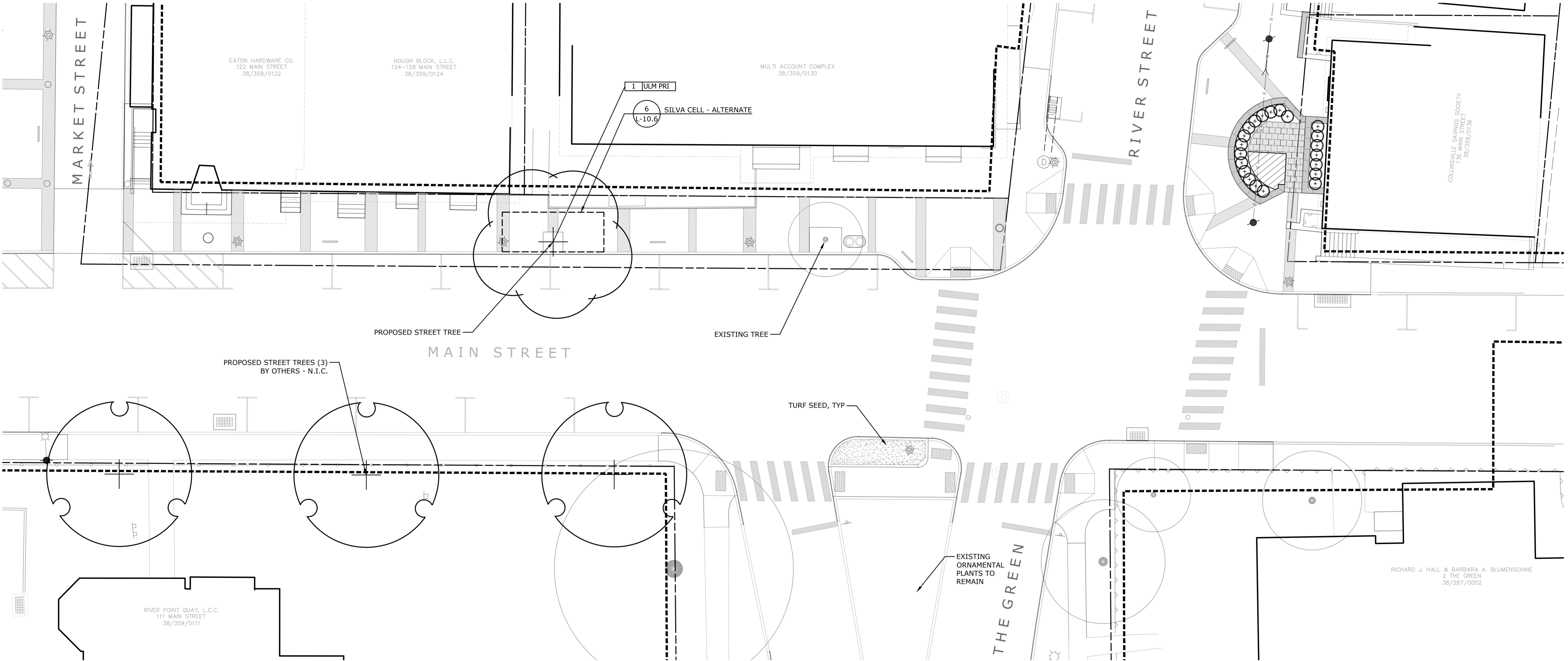
LANDSCAPE

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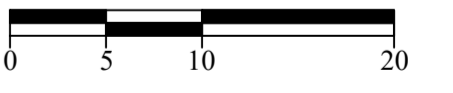
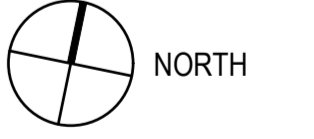
PLANT SCHEDULE MAIN

TREES	QTY	BOTANICAL NAME / COMMON NAME	CONT	CAL	REMARKS
ULM PRI	1	Ulmus americana 'Princeton' / American Elm	B & B	2 - 2.5"	Limbed up to 7' - 0"



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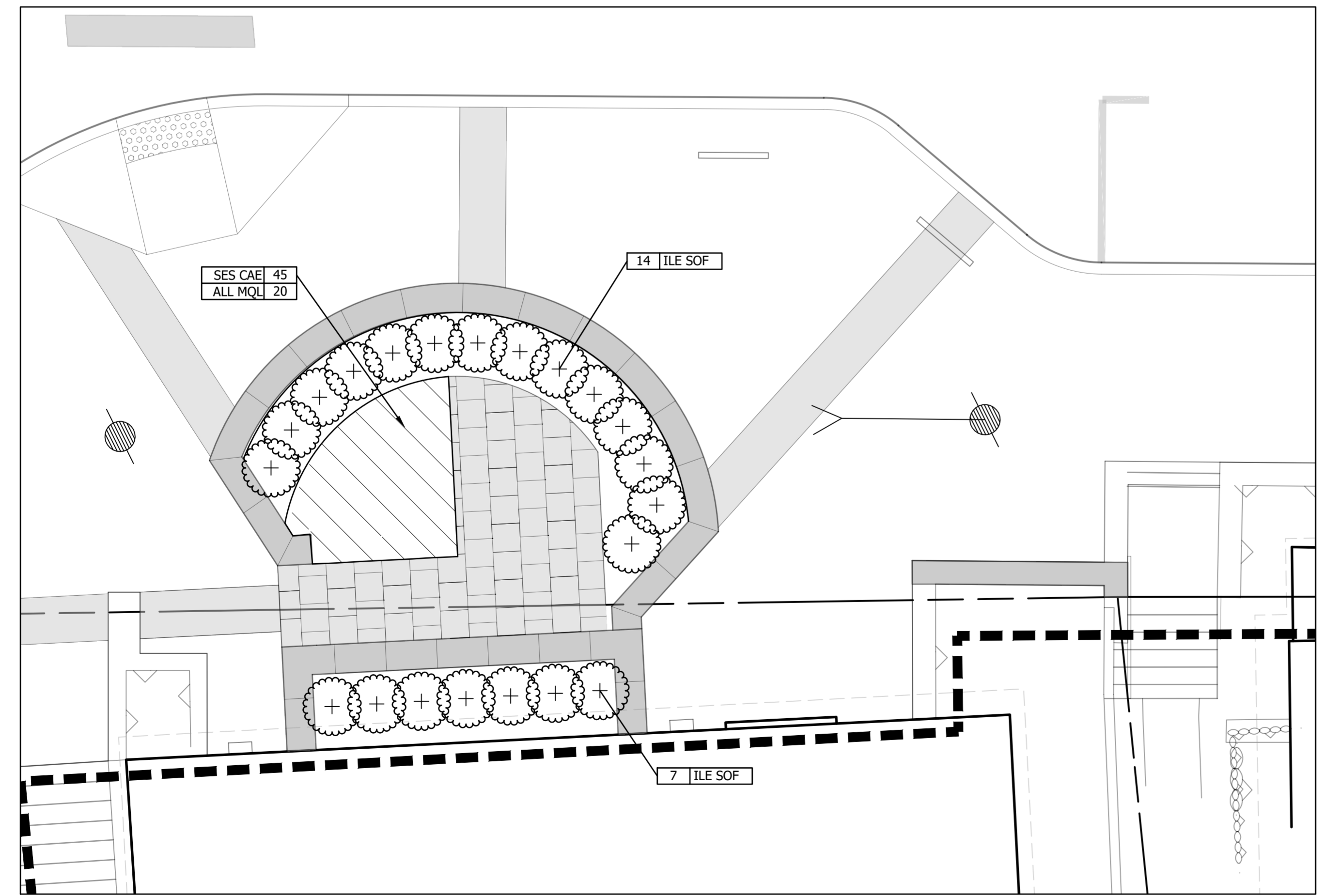
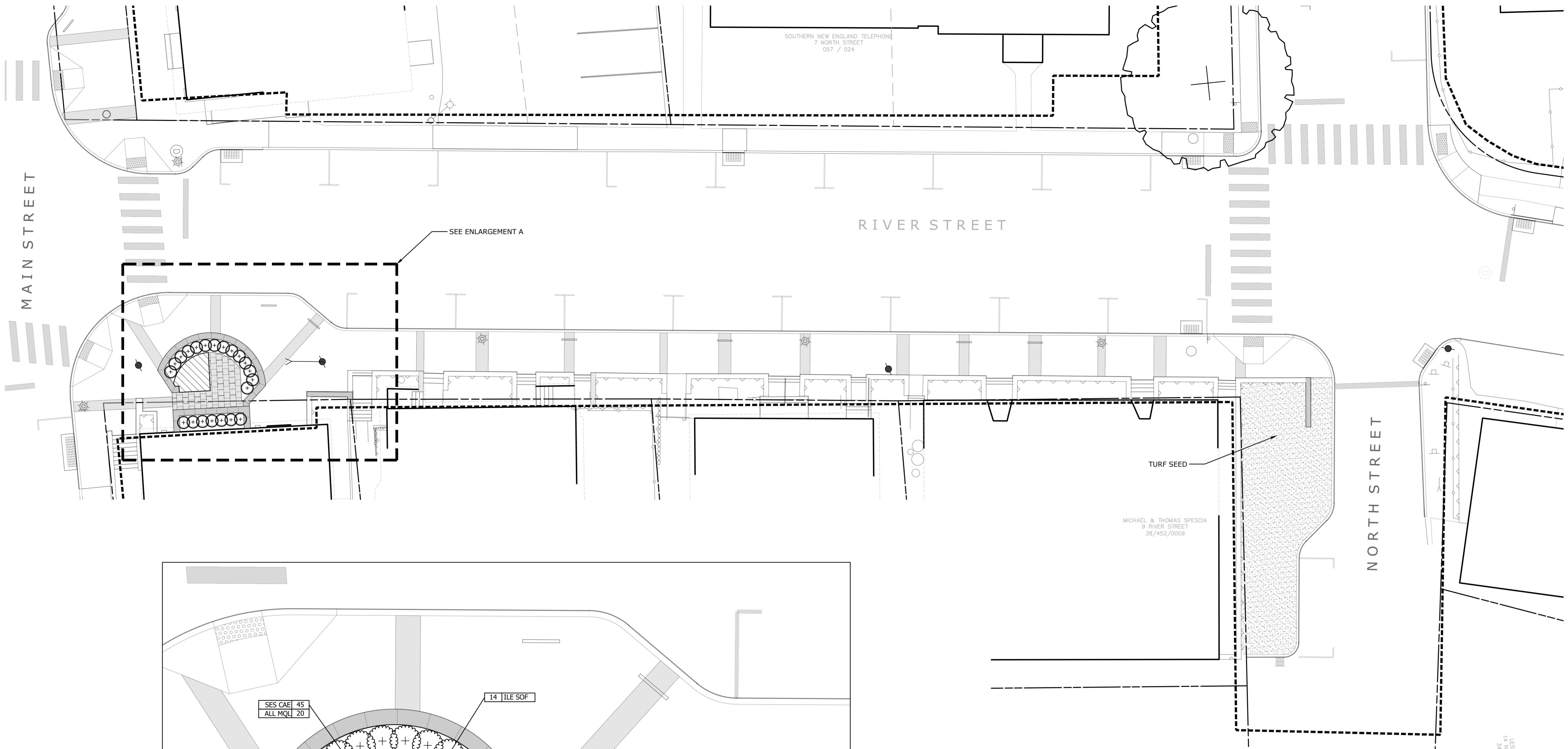
Revisions	Date



SITE PLANTING PLAN
MAIN STREET
MARKET ST. TO THE GREEN

Scale 1" = 10'
Date March 15, 2021
K-F Project No. 2017014
Drawing No.

L-8.1

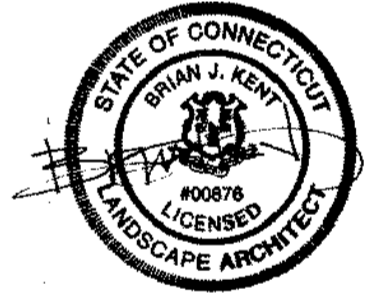


ENLARGEMENT A

SCALE: 1" = 4'

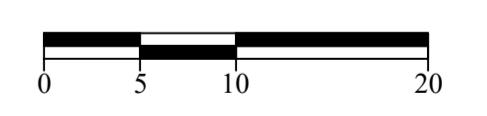
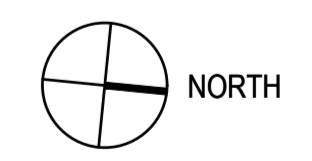
PLANT SCHEDULE RIVER

SHRUBS	QTY	BOTANICAL NAME / COMMON NAME	CONT	SIZE	REMARKS	
ILE SOF	21	Ilex crenata 'Soft Touch' / Soft Touch Japanese Holly	5 gal	24" O.C.		
PERENNIAL AREA	QTY	BOTANICAL NAME / COMMON NAME	CONT	SIZE	SPACING	REMARKS
ALL MQL	20	Allium karataviense 'Ivory Queen' / Ivory Queen Allium	Bulb	18" o.c.		
SES CAE	45	Sesleria caerulea / Blue Moor Grass	1 gal	12" o.c.		



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Revisions	Date



**SITE PLANTING PLAN
RIVER STREET
MAIN ST. TO NORTH ST.**

Scale 1" = 10'
Date March 15, 2021
K-F Project No. 2017014
Drawing No.

**Collinsville
Village Center
Streetscape Phase 2**
Collinsville, CT
State Project No. 23-128

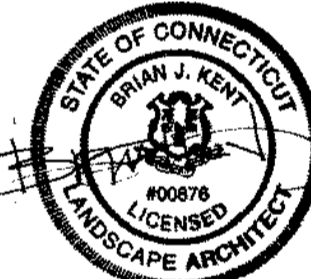
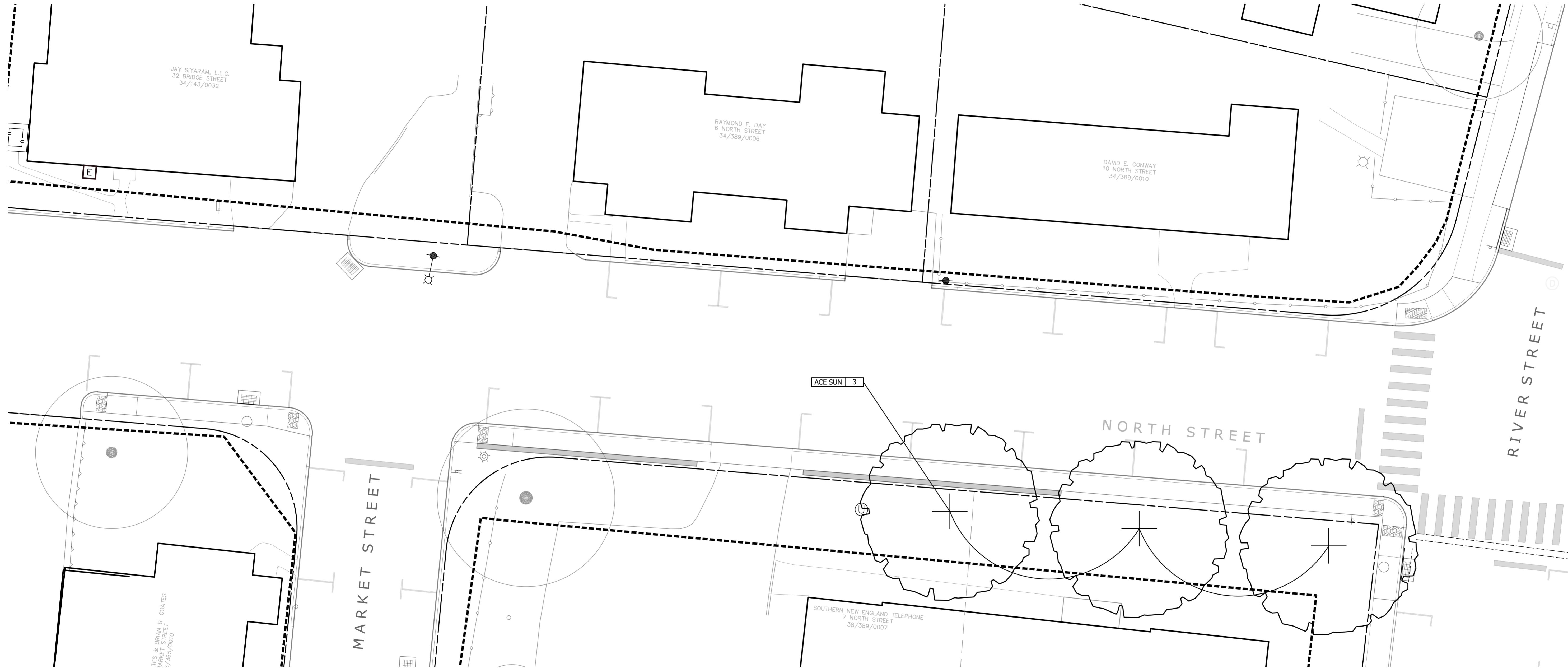
LANDSCAPE

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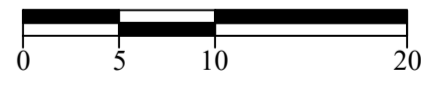
PLANT SCHEDULE NORTH

TREES	QTY	BOTANICAL NAME / COMMON NAME	CONT	CAL	REMARKS
ACE SUN	3	Acer rubrum "Red Sunset" / Red Sunset Maple	B & B	2.5"-3"	



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Revisions	Date



SITE PLANTING PLAN
NORTH STREET

Scale	1" = 10'
Date	March 15, 2021
K+F Project No.	2017014
Drawing No.	

L-8.6

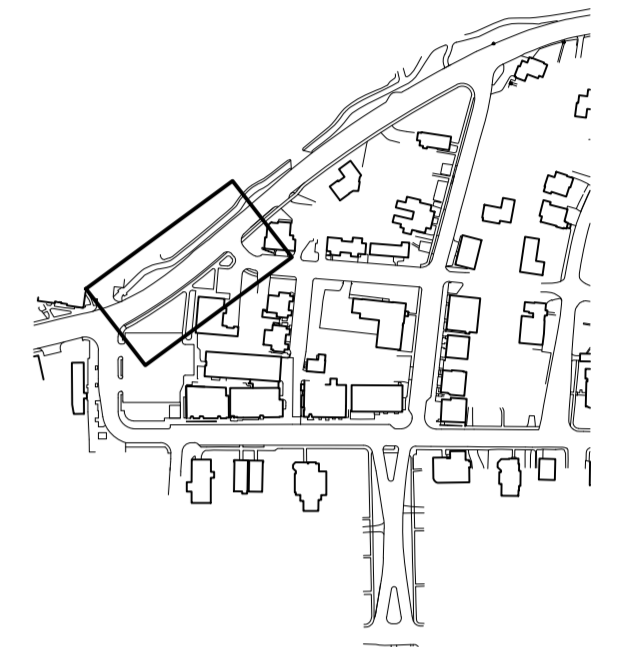
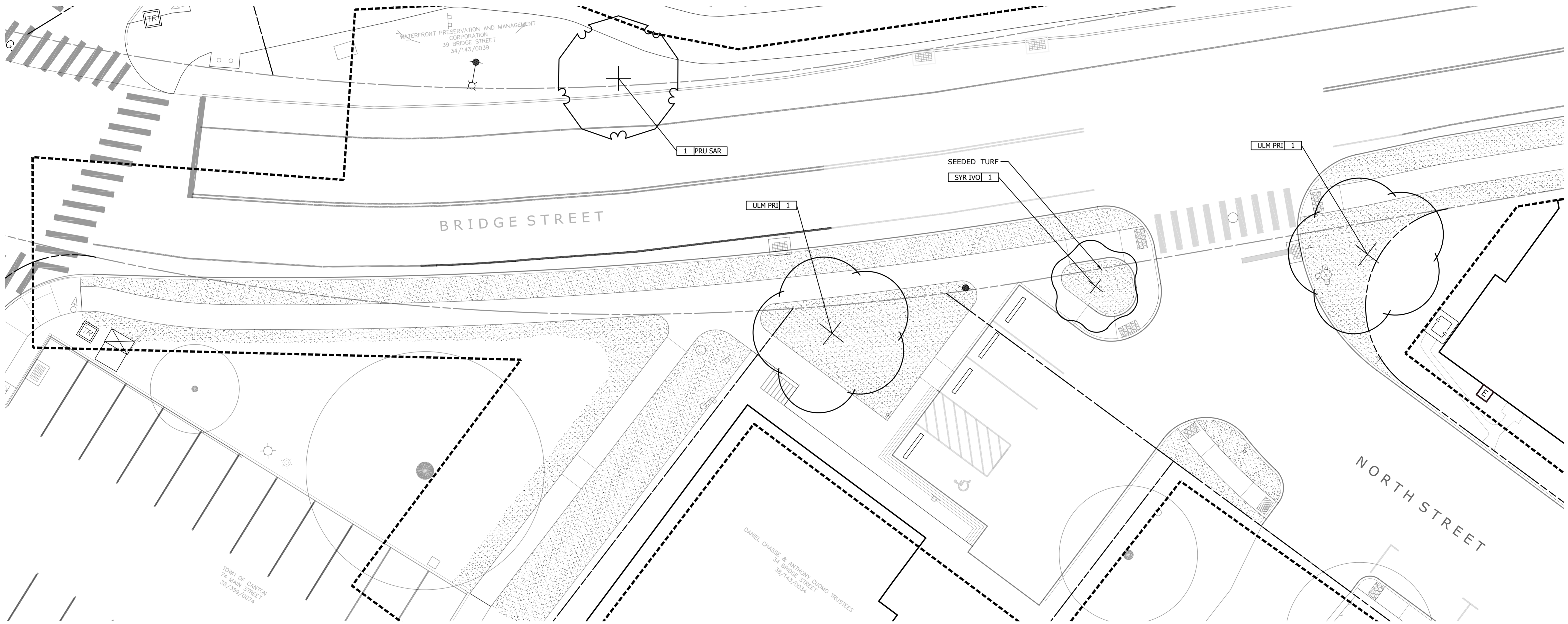
**Collinsville
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Streetscape Phase 2**
Collinsville, CT

State Project No. 23-128



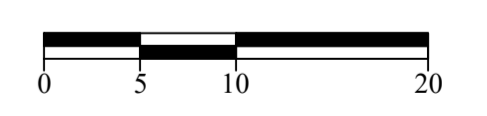
PLANT SCHEDULE BRIDGE 1

TREES	QTY	BOTANICAL NAME / COMMON NAME	CONT	CAL	REMARKS
PRU SAR	1	Prunus sargentii / Sargent Cherry	B & B	2 - 2.5"	Limbed up to 7'-0"
SYR IVO	1	Syringa reticulata 'Ivory Silk' / Ivory Silk Japanese Tree Lilac	B & B	2 - 2.5"	Limbed up to 7'-0"
ULM PRI	2	Ulmus americana 'Princeton' / American Elm	B & B	2 - 2.5"	Limbed up to 7'-0"



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**SITE PLANTING PLAN
BRIDGE STREET**

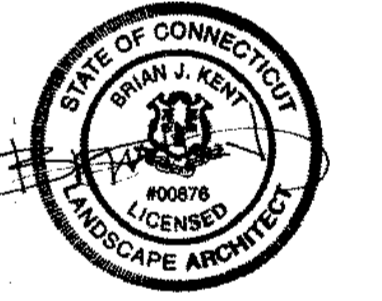
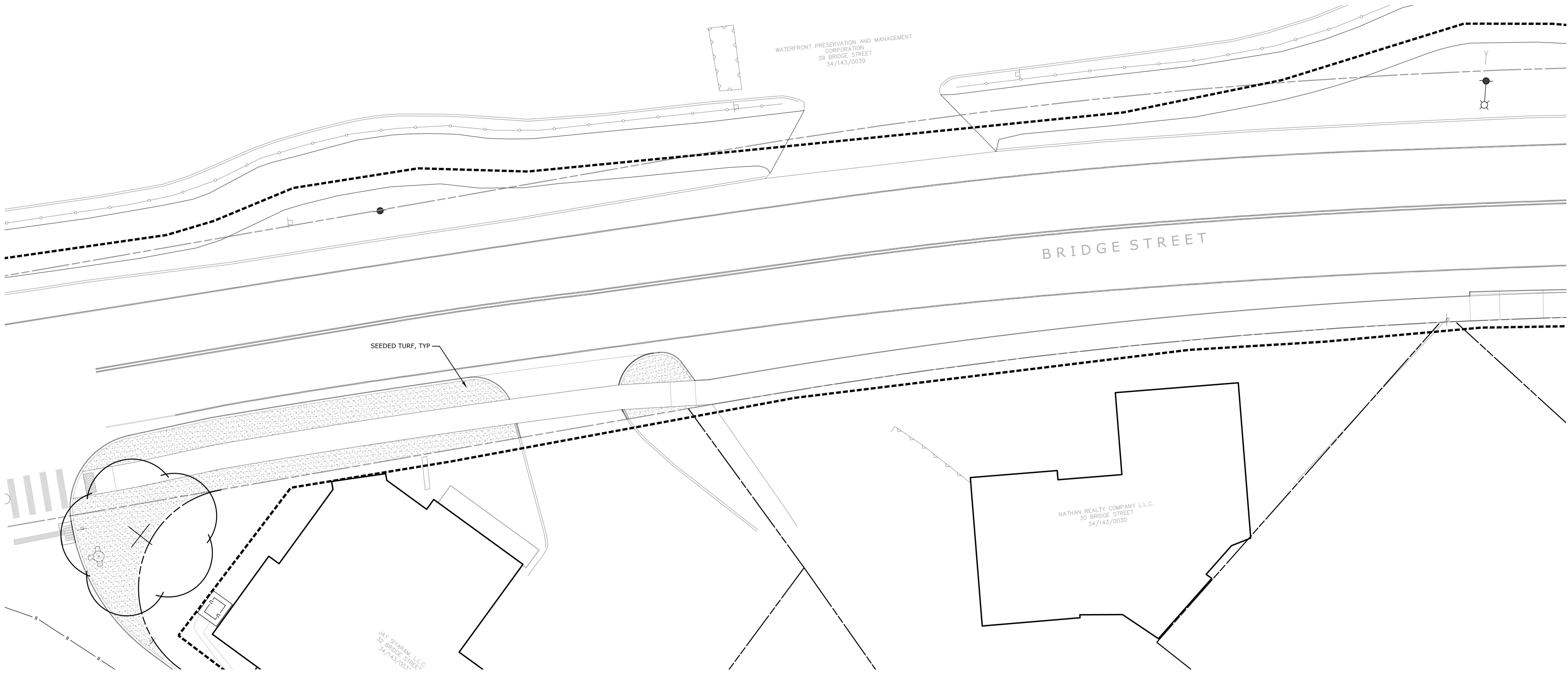
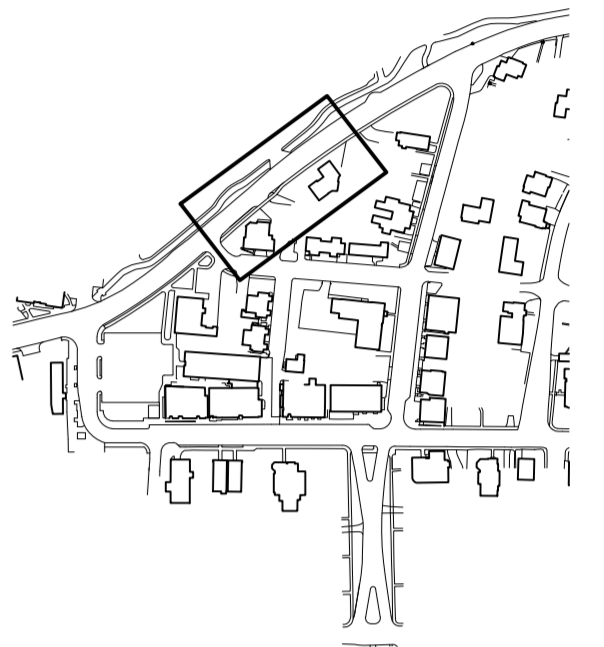
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K-F Project No.: 2017014
Drawing No.:

L-8.7

**Collinsville
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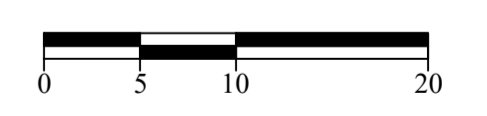
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LANDSCAPE
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**SITE PLANTING PLAN
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Scale: 1" = 10'
Date: March 15, 2021
K+F Project No.: 2017014
Drawing No.:

L-8.8

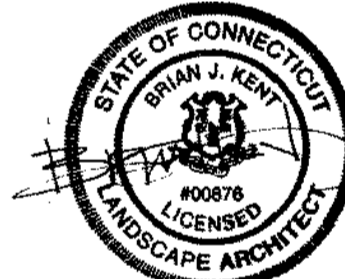
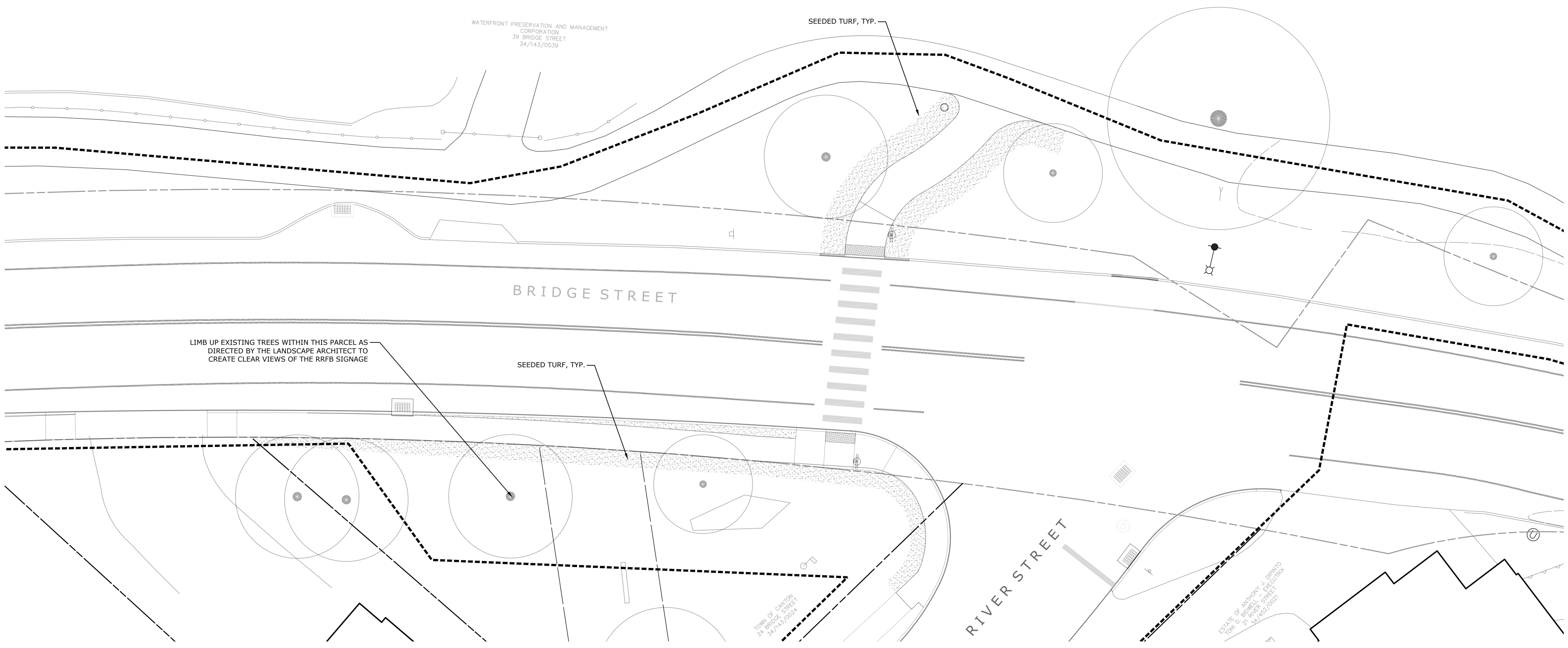
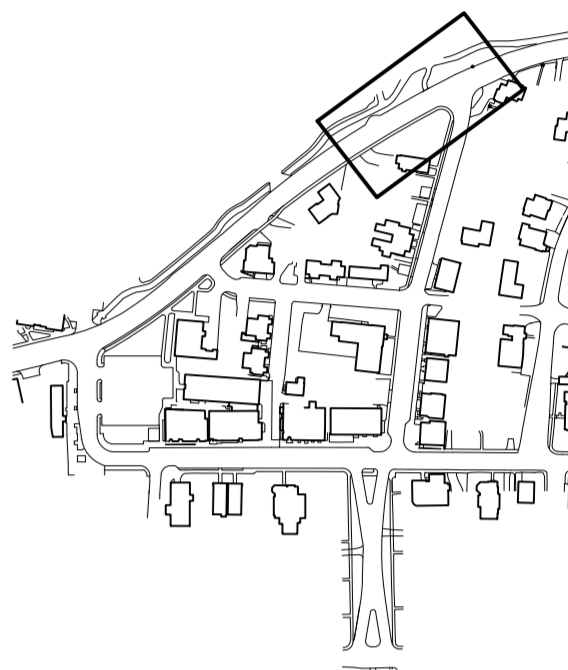
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State Project No. 23-128

LANDSCAPE

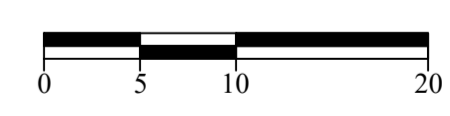
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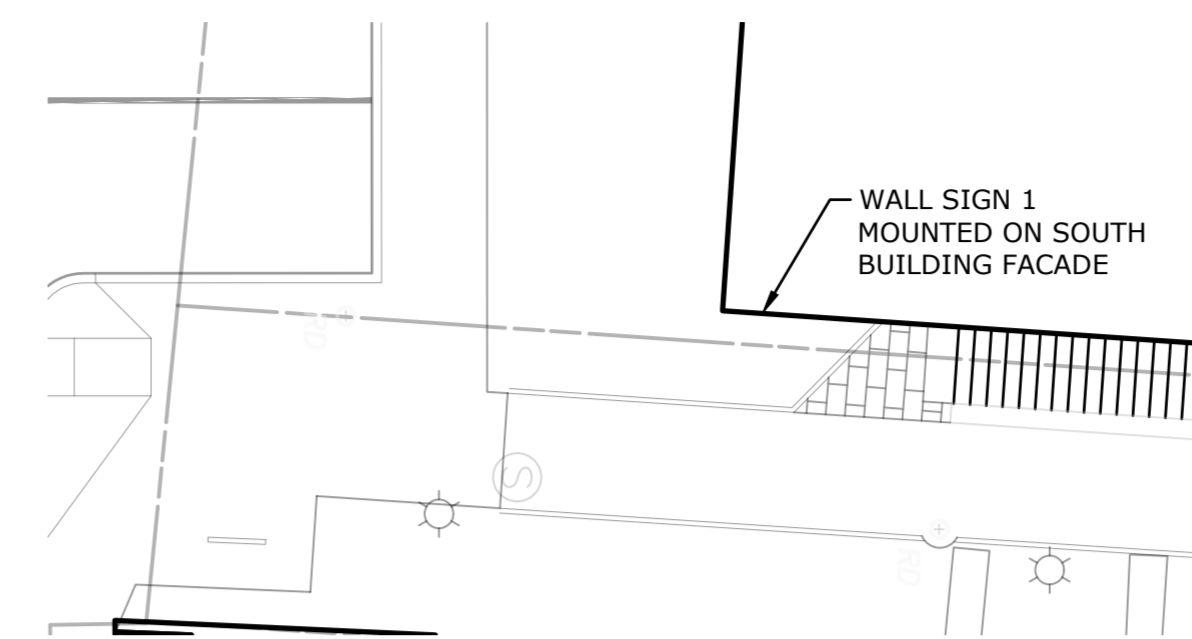
Revisions	Date



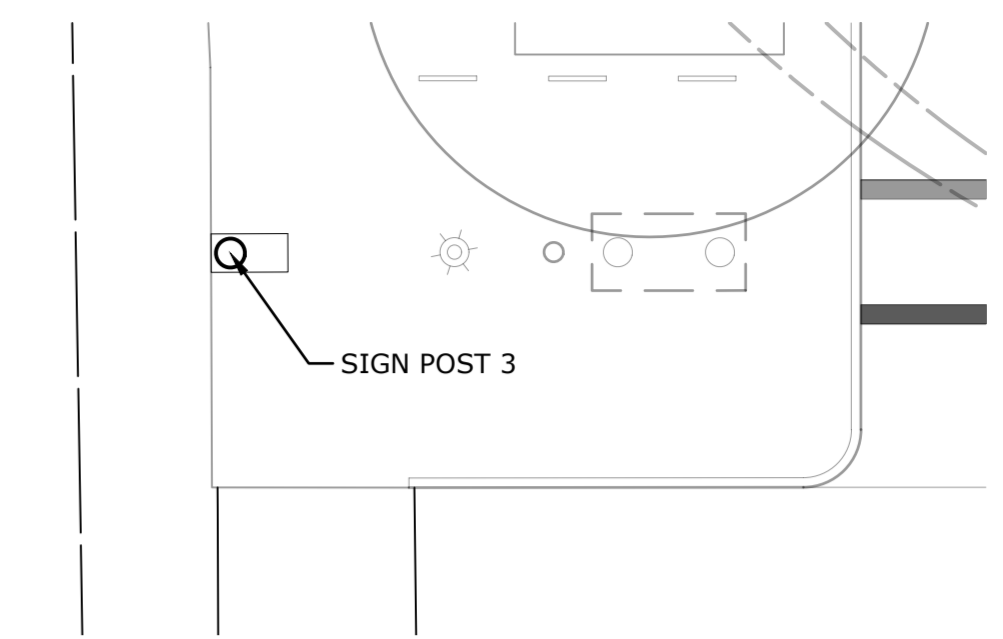
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BRIDGE STREET

Scale 1" = 10'
Date March 15, 2021
K+F Project No. 2017014
Drawing No.

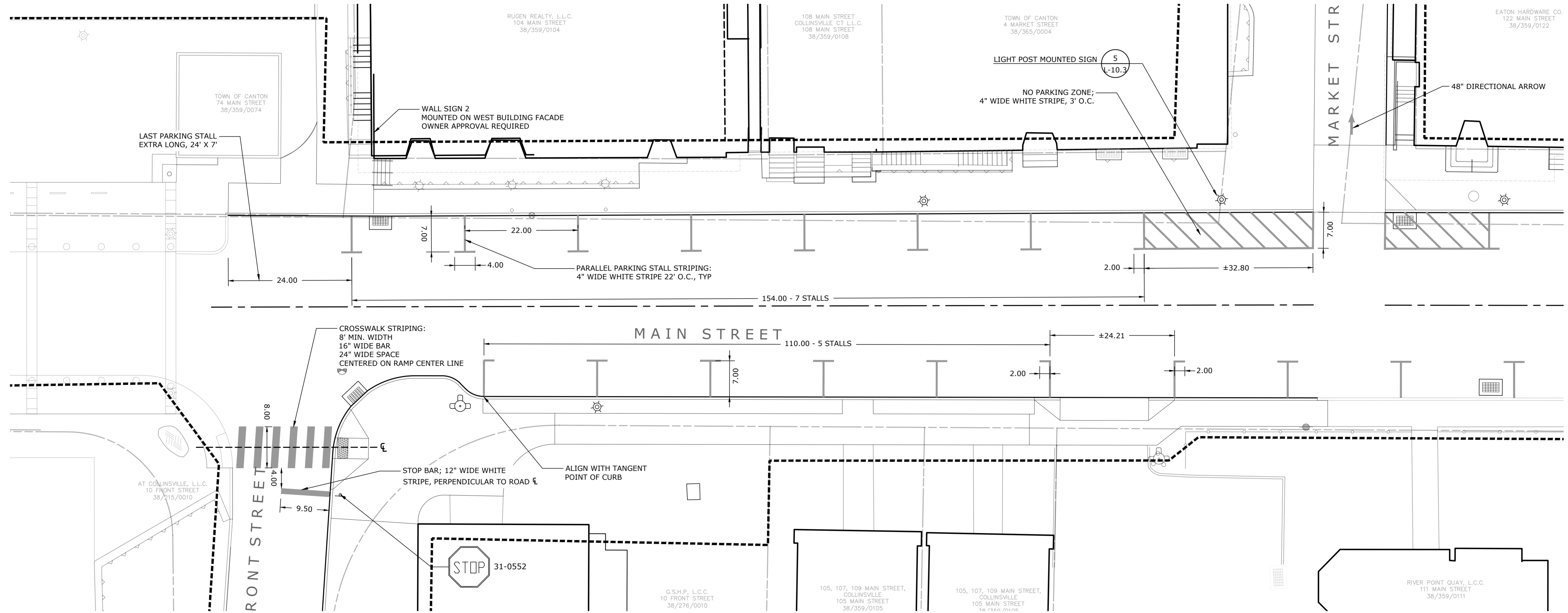
L-8.9



WAYFINDING SIGN AT TOWN HALL ALLEY



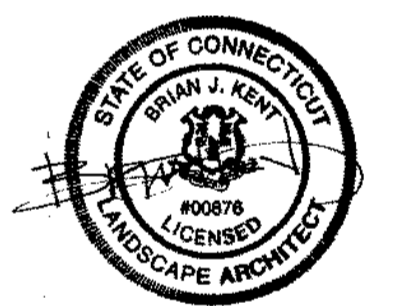
WAYFINDING SIGN AT PHASE 1 KIOSK



WAYFINDING SIGN CONTENT/DIRECTIONAL LAYOUT

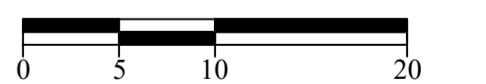
WALL SIGN 1	WALL SIGN 2	SIGN POST 1	SIGN POST 2	SIGN POST 3	POST MOUNT 1
RESTROOM → ← E W	N ← RESTROOM S	← MUSEUM ← SHOPS & RESTAURANTS ← TOWN HALL RIVER TRAIL → SHOPS & RESTAURANTS → N ← RIVER TRAIL ← RESTROOM S	← SHOPS & RESTAURANTS ← AVON ← MUSEUM N ← SHOPS & RESTAURANTS ← TOWN HALL ← RESTROOM ← BANK/ATM S SIMSBURY → CANTON CENTER →	← AVON N ← SHOPS & RESTAURANTS → ← TOWN HALL → ← RESTROOM → ← BANK/ATM → S SIMSBURY → CANTON CENTER →	← THEATER → N S

ALL POST MOUNTED SIGNS SHALL HAVE THE SAME CONTENT ON BOTH SIDES



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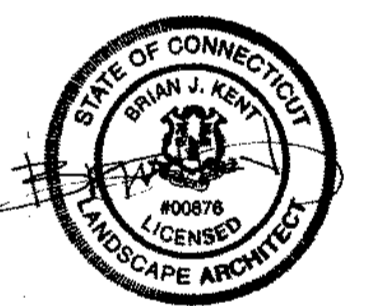
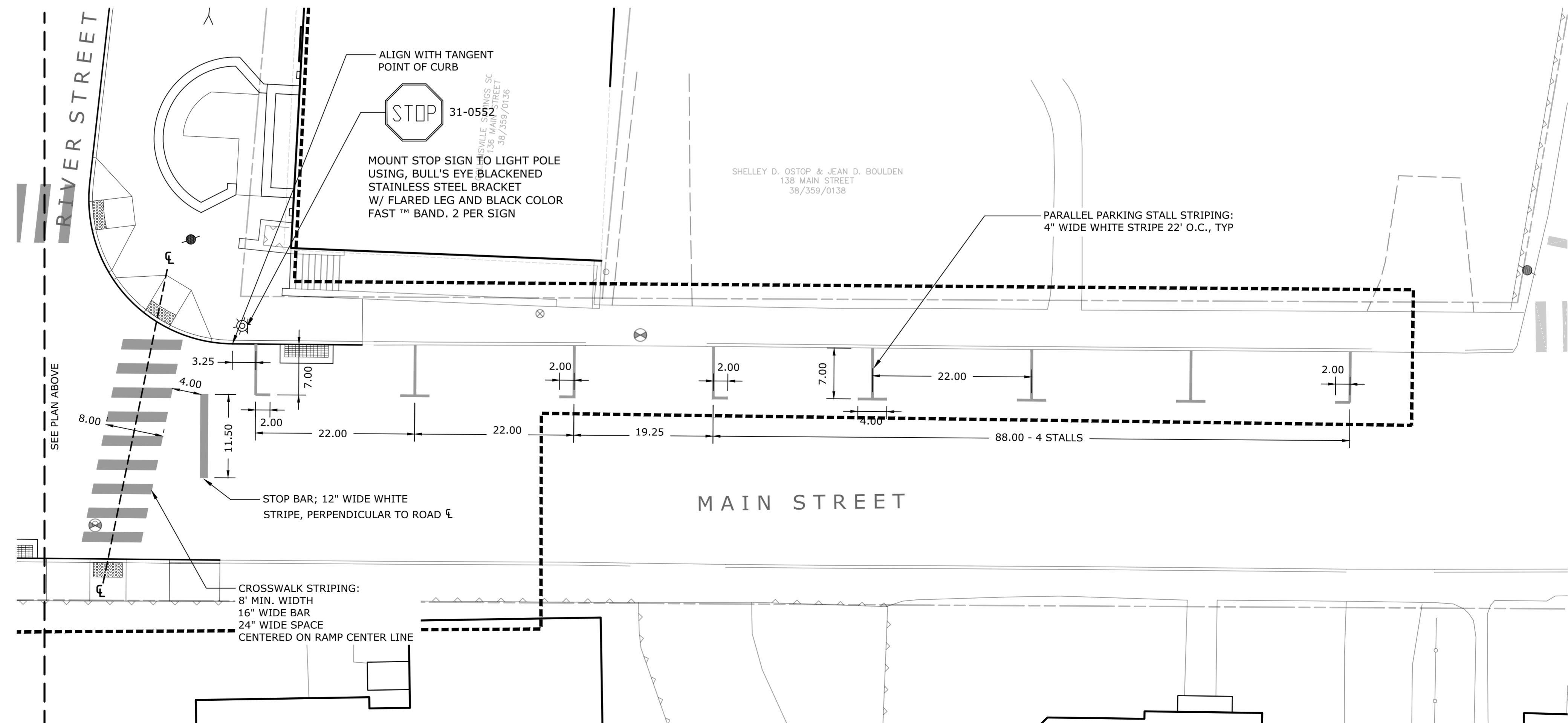
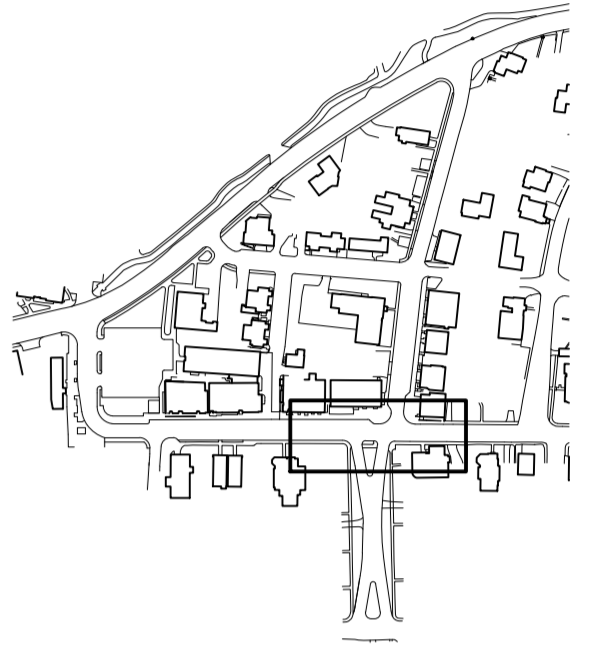
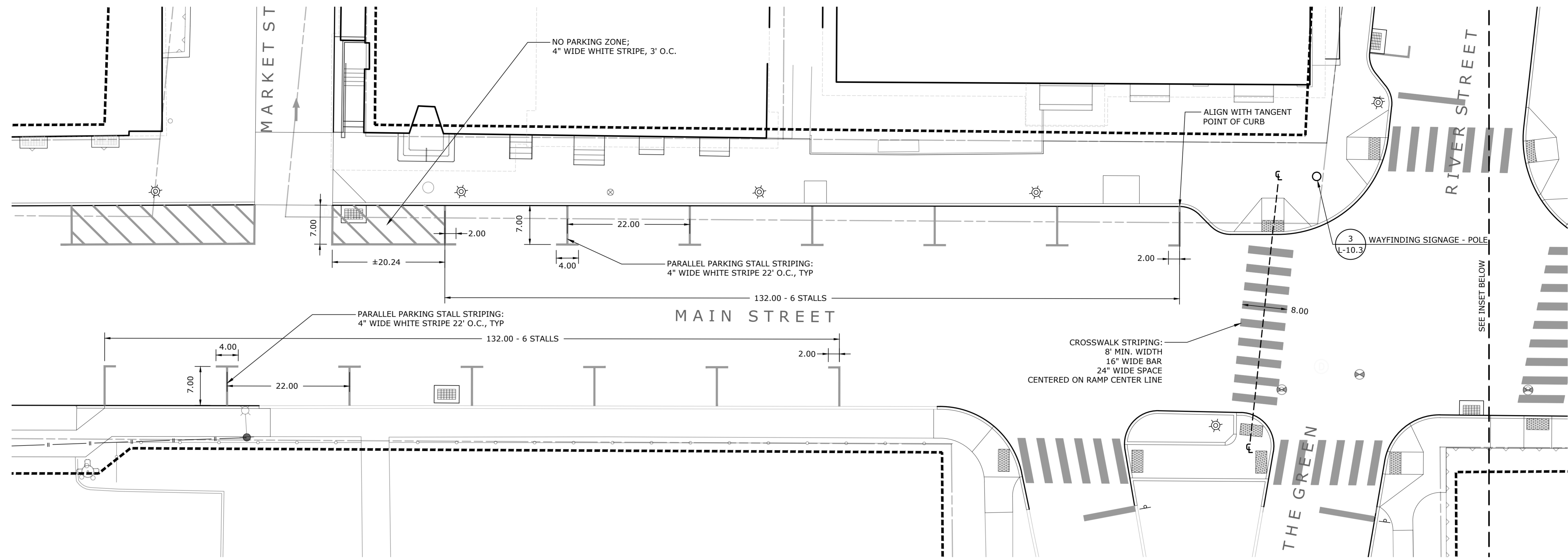
Revisions _____ Date _____



SIGNAGE & STRIPING PLAN
MAIN STREET
FRONT ST. TO MARKET ST.

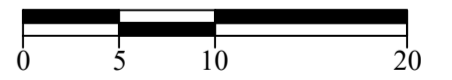
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K+F Project No. 2017014
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L-9.0



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**SIGNAGE & STRIPING PLAN
MAIN STREET
MARKET ST. TO THE GREEN**

Scale: 1" = 10'
Date: March 15, 2021
K-F Project No.: 2017014
Drawing No.:

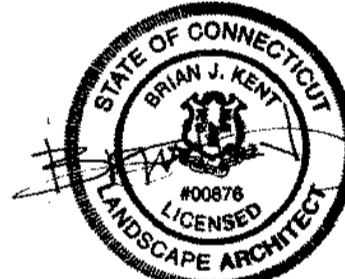
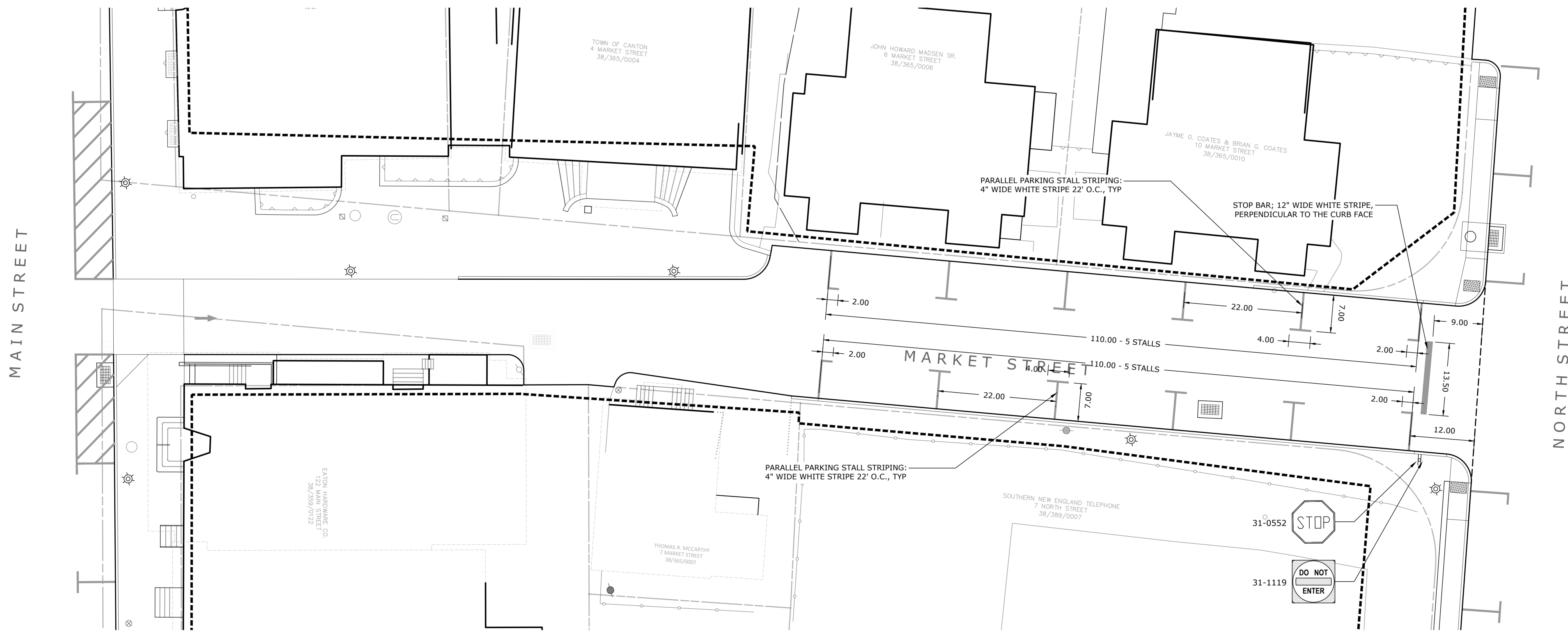
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Collinsville, CT

State Project No. 23-128

LANDSCAPE

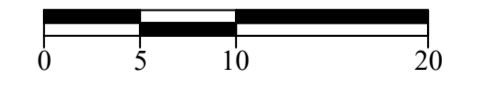
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**SIGNAGE & STRIPING PLAN
MARKET STREET**

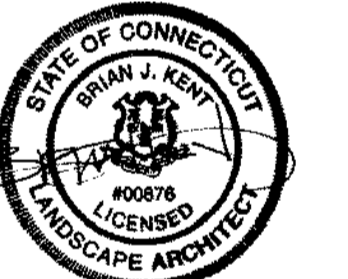
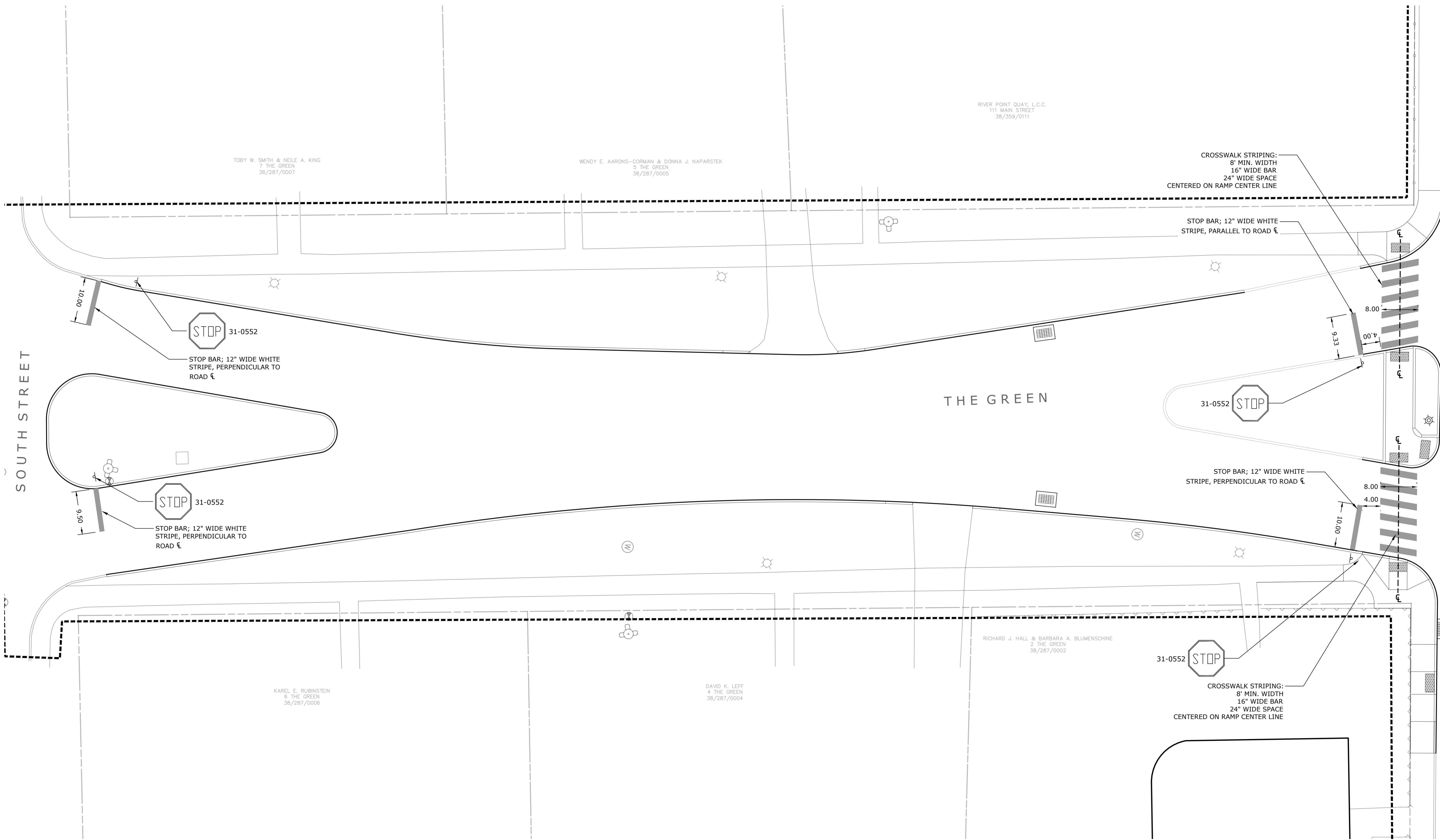
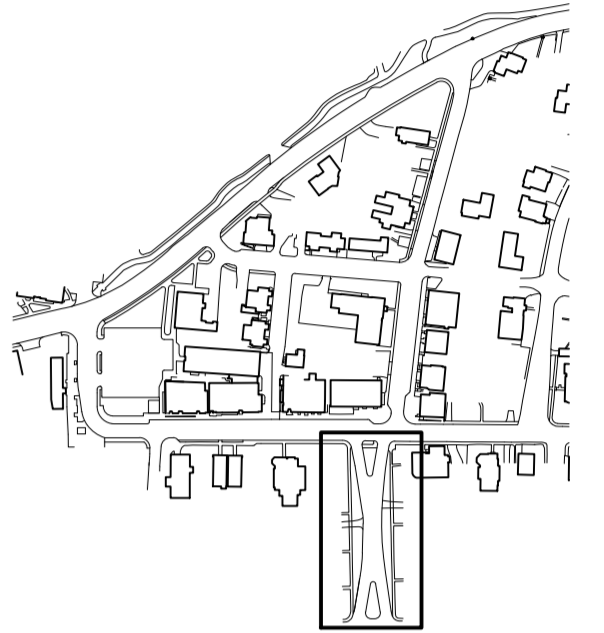
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K+F Project No.: 2017014
Drawing No.:

L-9.2

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Collinsville, CT

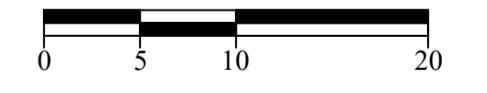
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**SIGNAGE & STRIPING PLAN
THE GREEN**

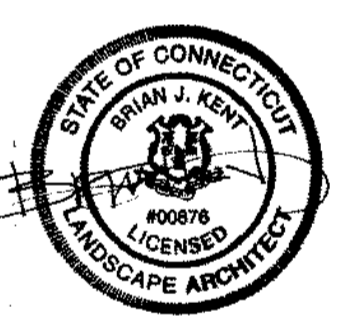
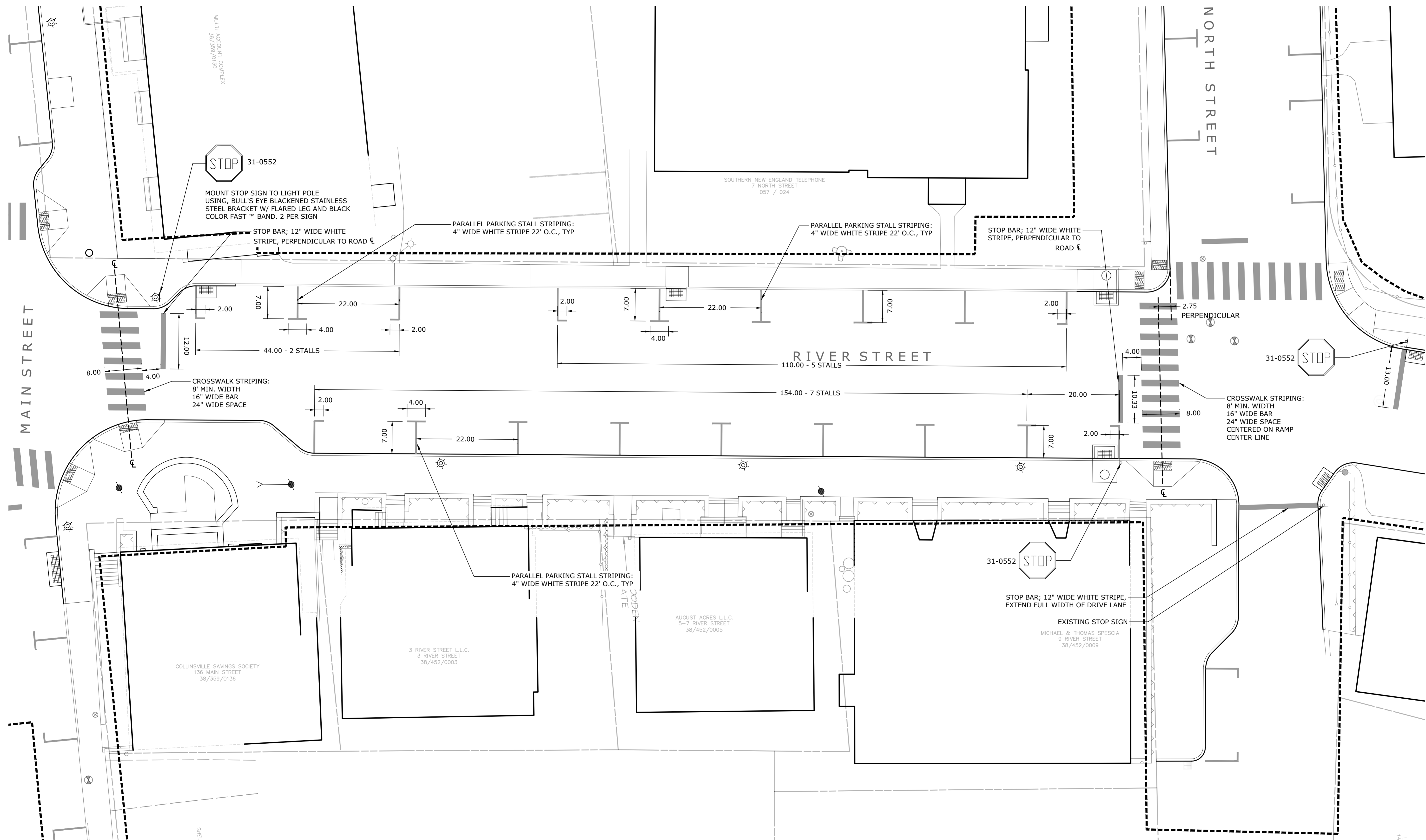
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K+F Project No.: 2017014
Drawing No.:

L-9.3

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Collinsville, CT

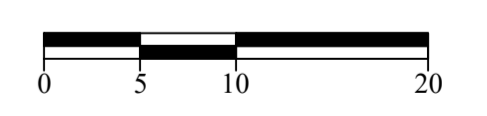
State Project No. 23-128

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SIGNAGE & STRIPING PLAN
RIVER STREET
MAIN ST. TO NORTH ST.

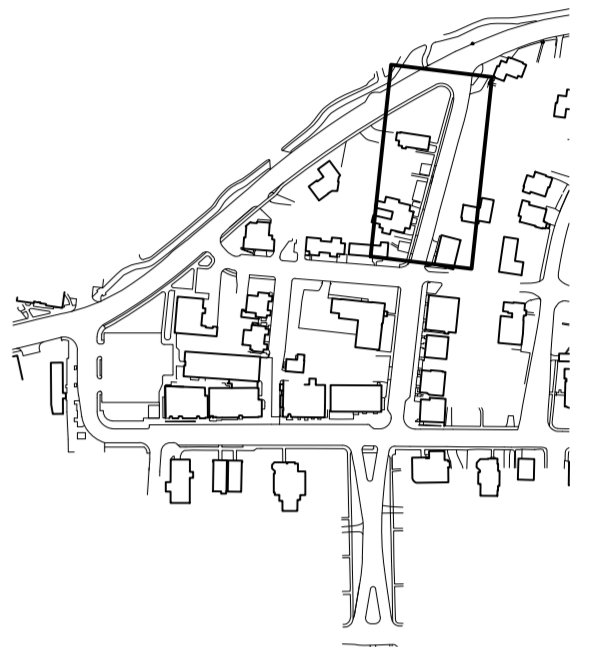
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K-F Project No.: 2017014
Drawing No.:

L-9.4

**Collinsville
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Collinsville, CT

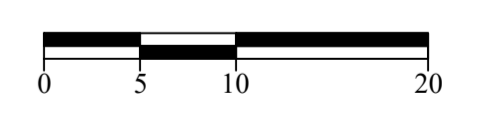
State Project No. 23-128

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SIGNAGE & STRIPING PLAN
RIVER STREET
NORTH ST. TO BRIDGE ST.

Scale: 1" = 10'
Date: March 15, 2021
K-F Project No.: 2017014
Drawing No.:

L-9.5

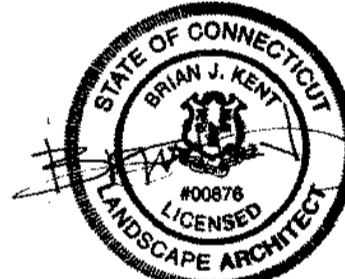
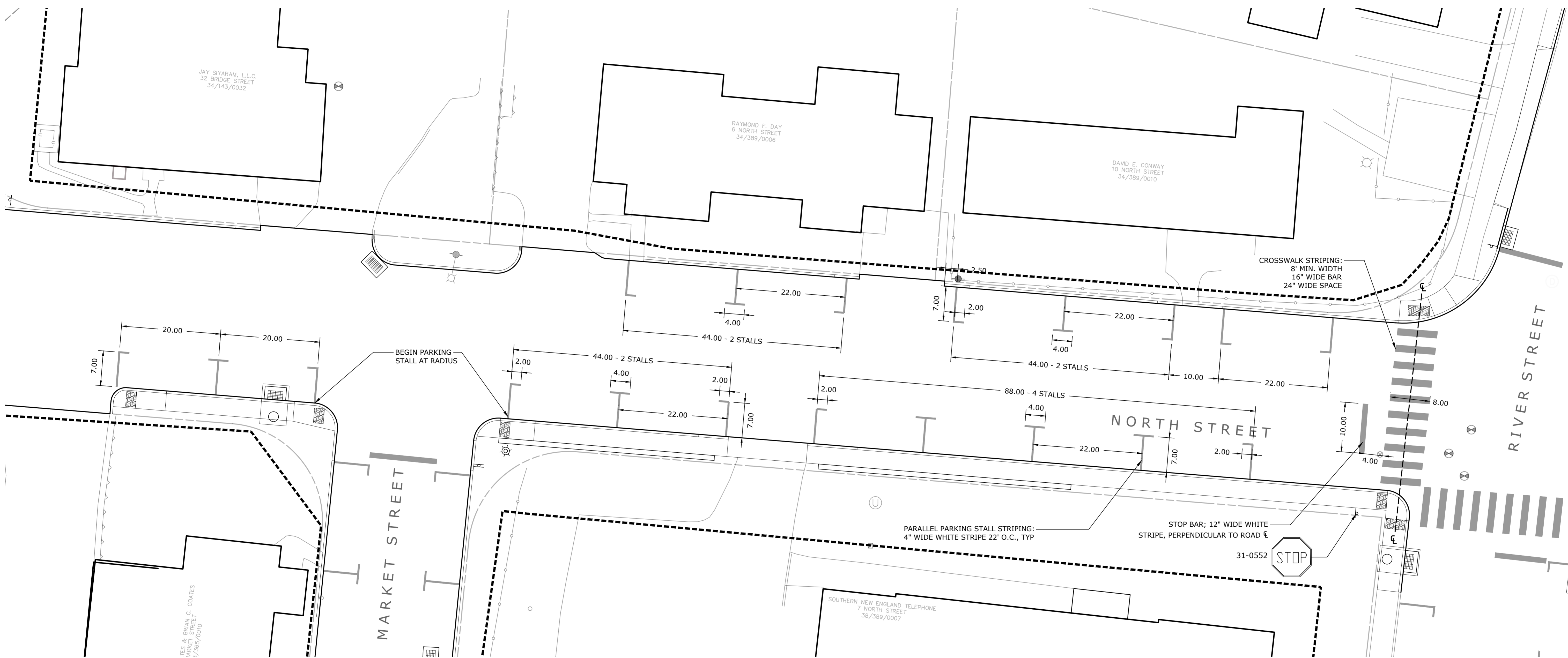
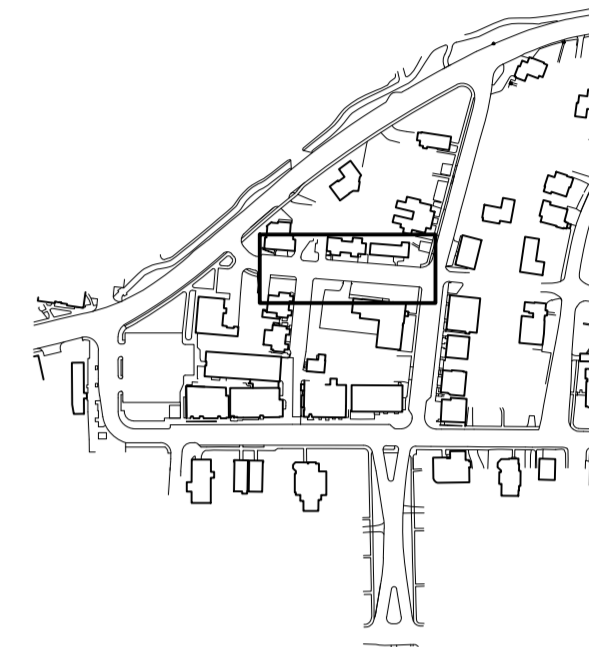
**Collinsville
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Streetscape Phase 2**
Collinsville, CT

State Project No. 23-128

LANDSCAPE

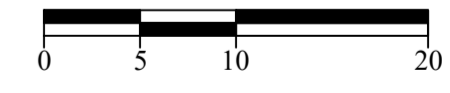
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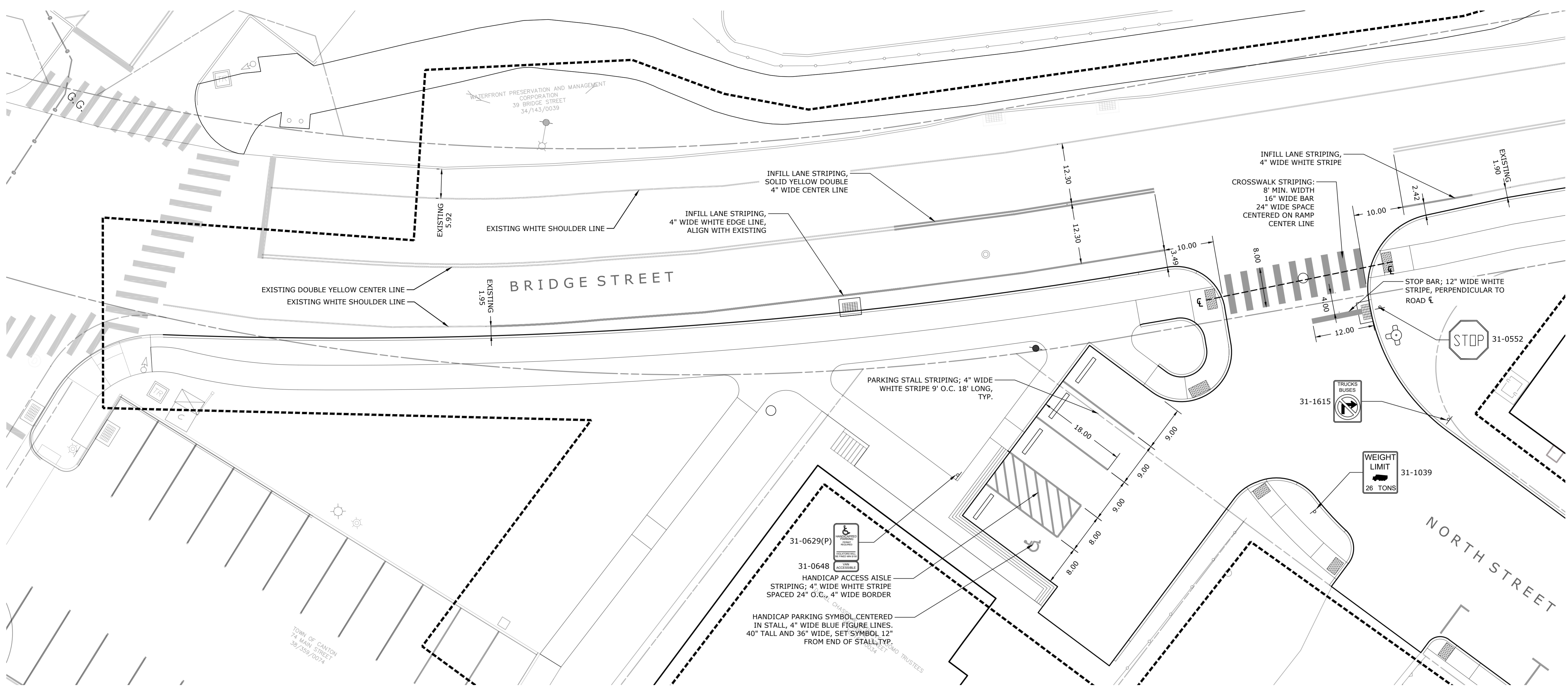
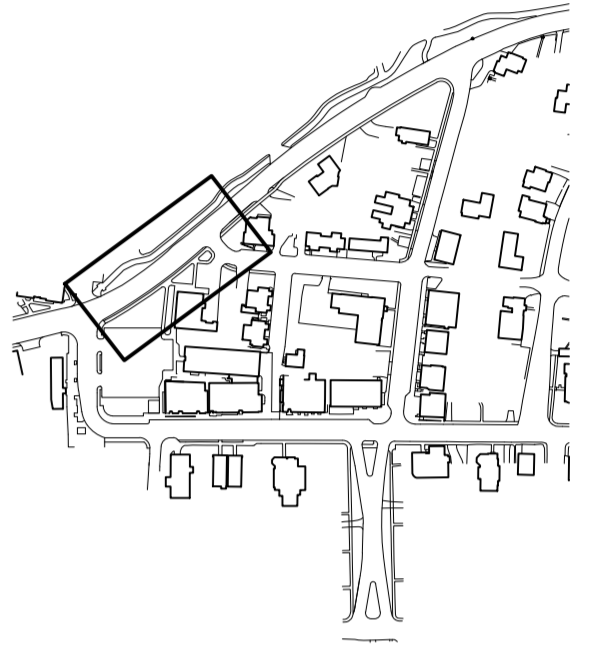
Revisions	Date



**SIGNAGE & STRIPING PLAN
NORTH STREET**

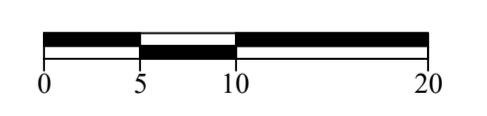
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Date: March 15, 2021
K+F Project No.: 2017014
Drawing No.:

L-9.6



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**SIGNAGE & STRIPING PLAN
BRIDGE STREET**

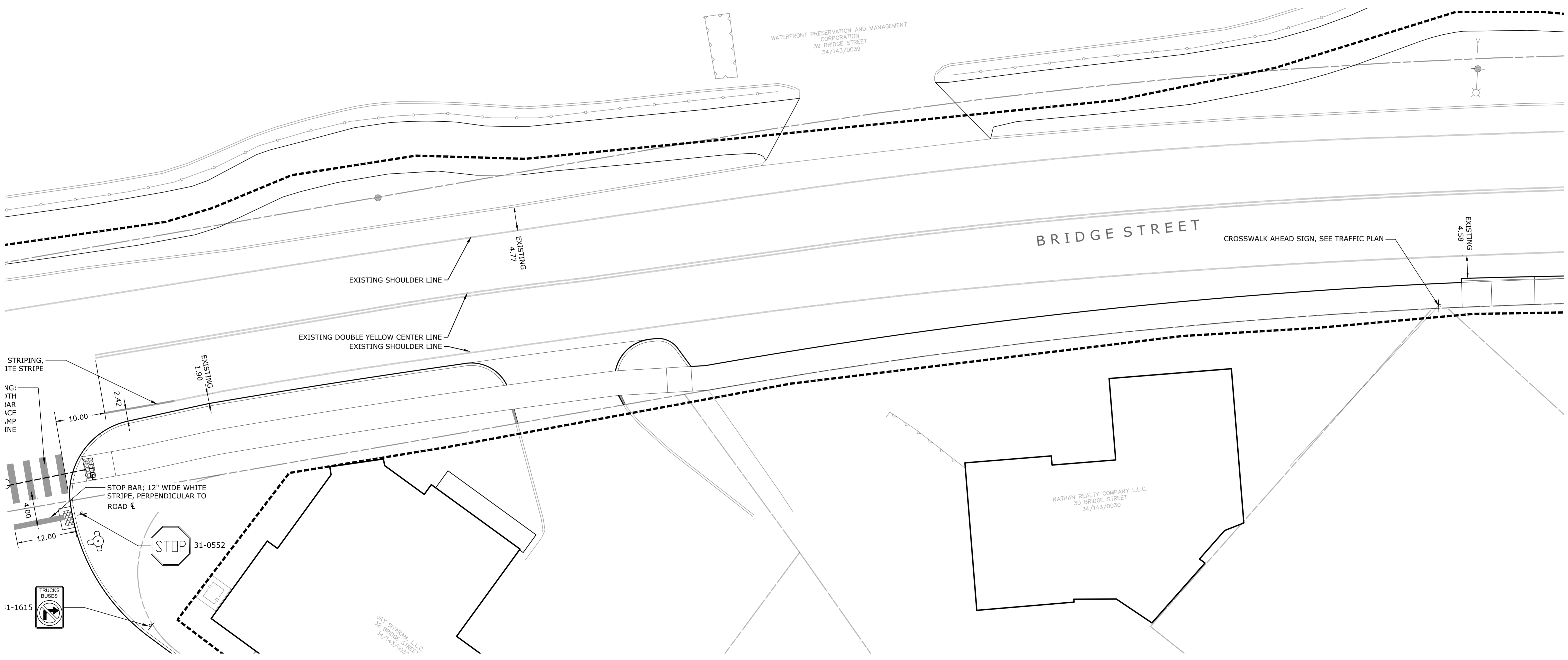
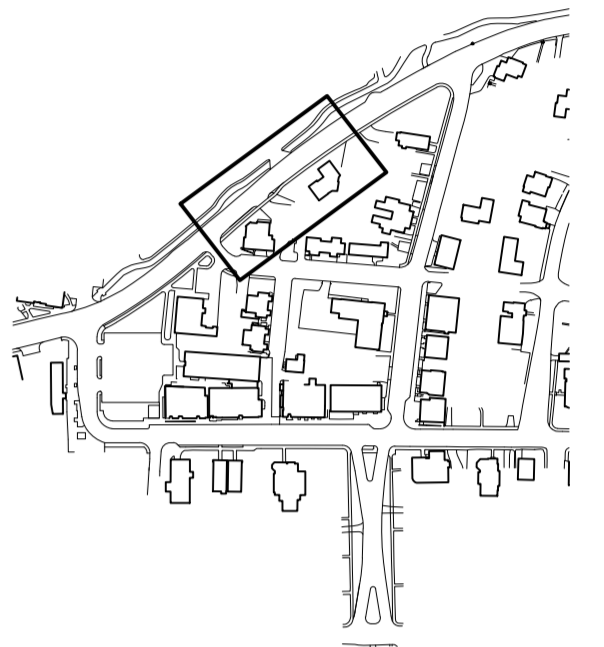
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K+F Project No.: 2017014
Drawing No.:

L-9.7

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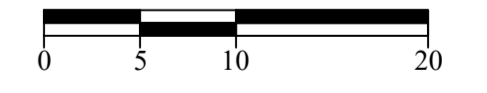
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**SIGNAGE & STRIPING PLAN
BRIDGE STREET**

Scale: 1" = 10'
Date: March 15, 2021
K+F Project No.: 2017014
Drawing No.:

L-9.8

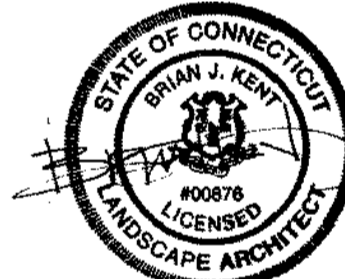
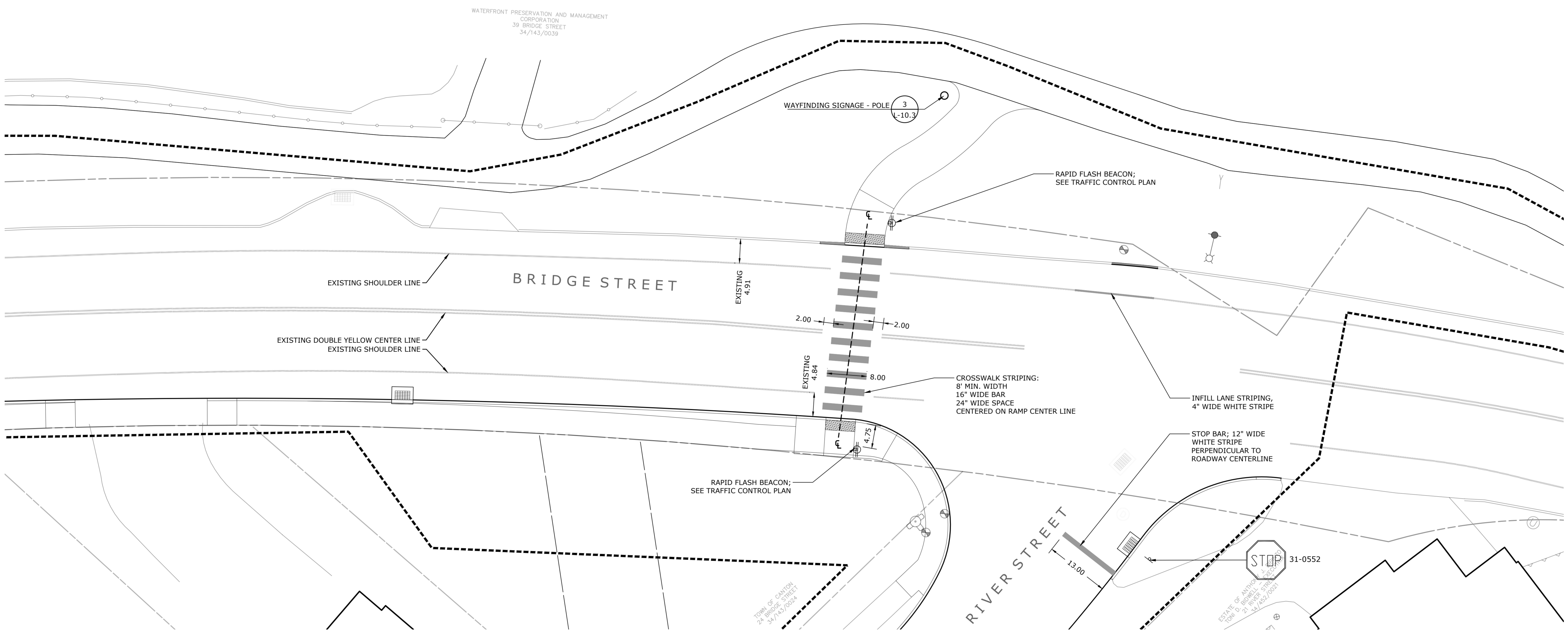
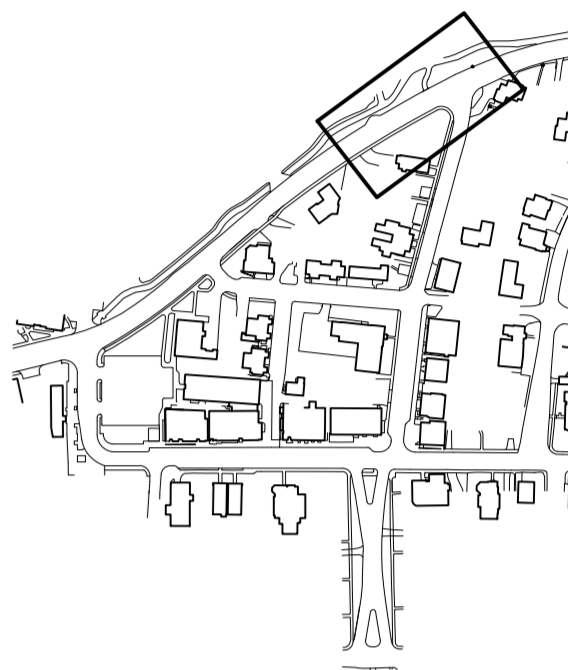
**Collinsville
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State Project No. 23-128

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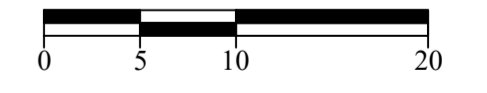
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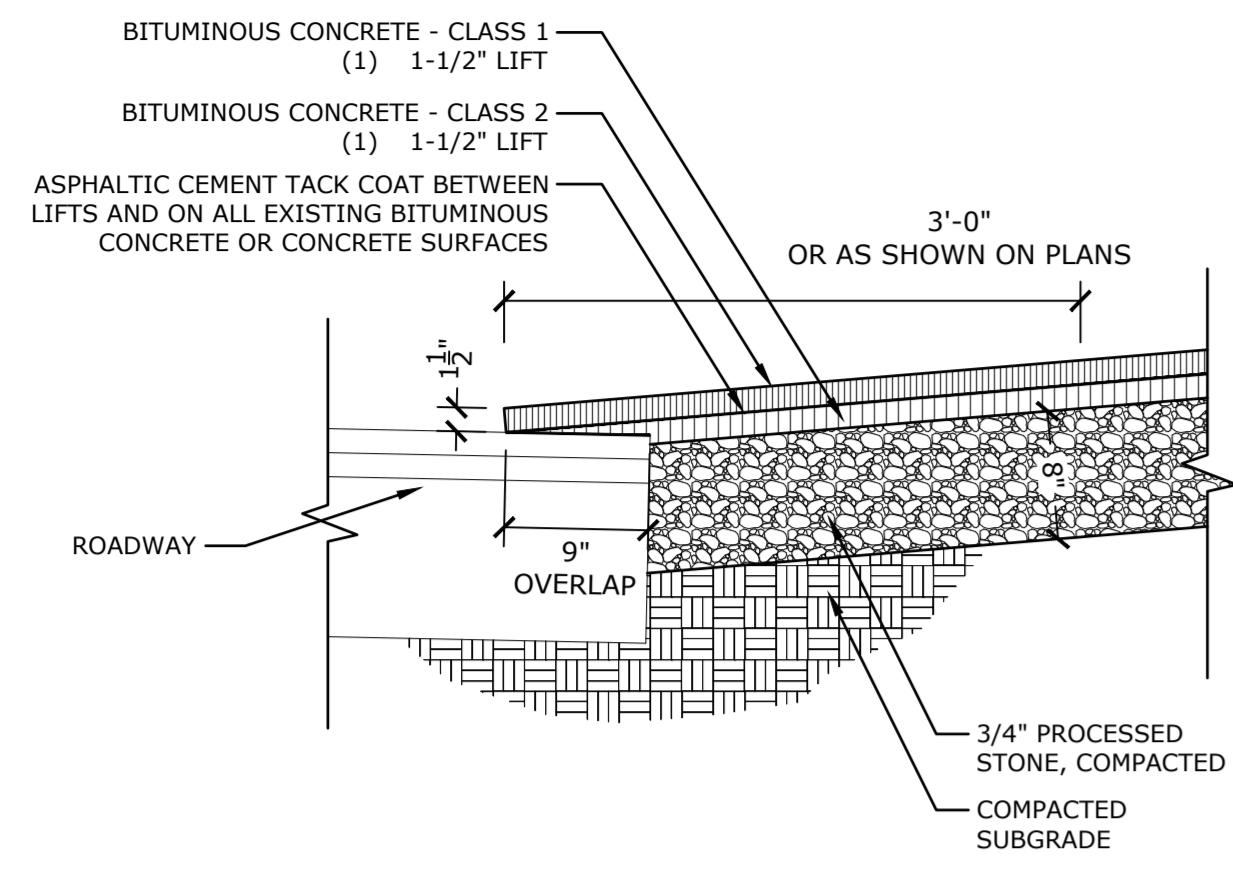
Revisions	Date



**SIGNAGE & STRIPING PLAN
BRIDGE STREET**

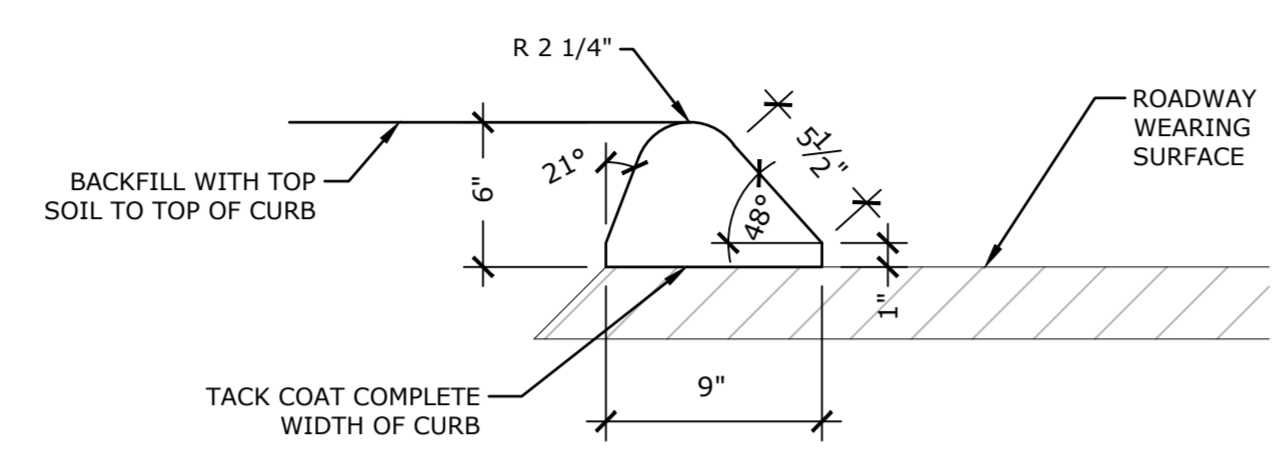
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Date March 15, 2021
K+F Project No. 2017014
Drawing No.

L-9.9

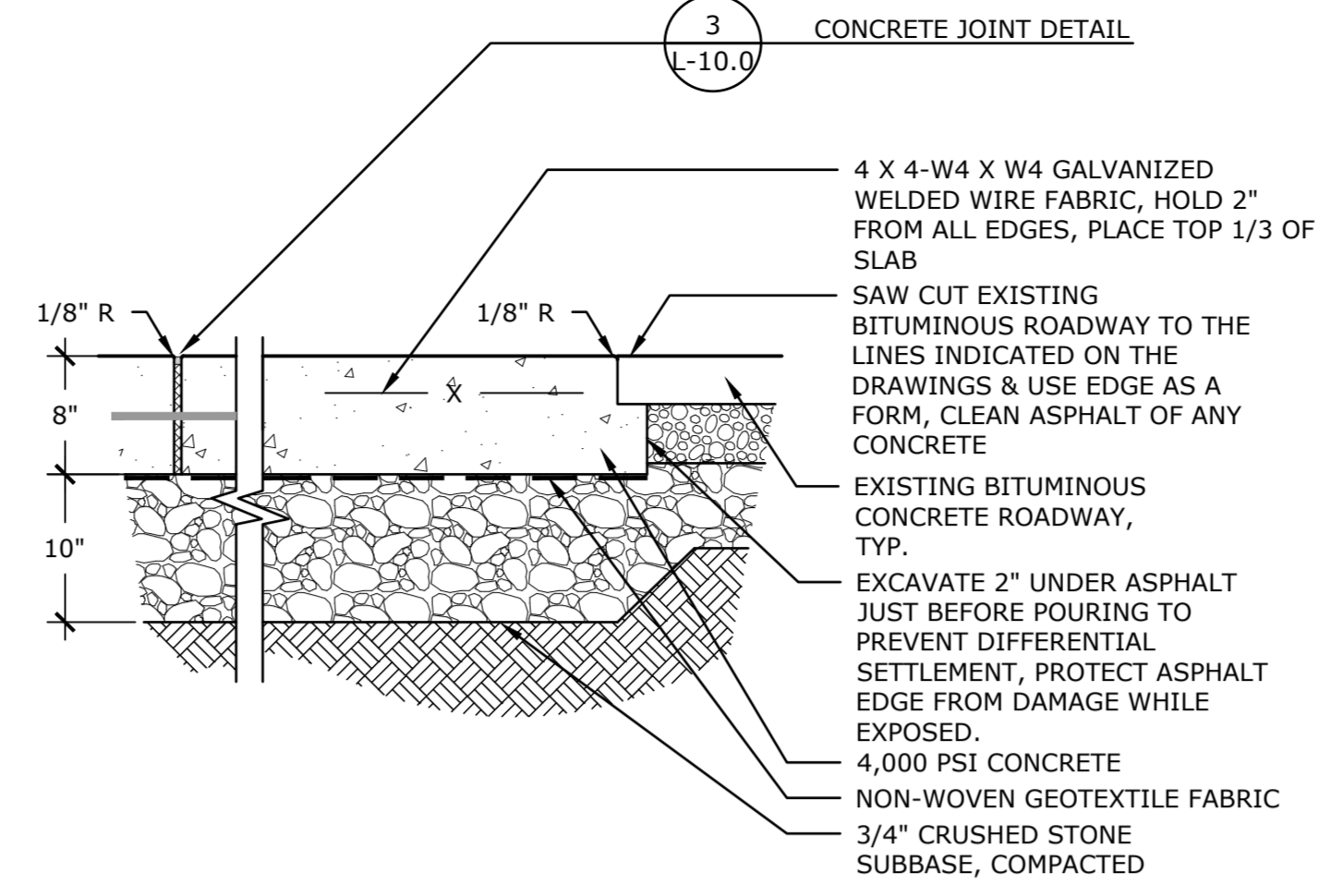


- NOTE:
1. SEE GRADING PLAN FOR DRIVEWAY APRON SLOPES.
2. APPLY ASPHALTIC CEMENT TACK COAT TO ALL SURFACES AND BETWEEN ASPHALT LIFTS. USE CAUTION WHEN APPLYING TACK COAT, DO NOT APPLY TO SURFACES ABOVE FINISH GRADE.
3. COMPACT STONE IN 6" MAX LIFTS TO A MINIMUM 95% PROCTOR DENSITY
4. UNSUITABLE SOIL MATERIALS SHALL BE REMOVED IF COMPACTION CANNOT BE ACHIEVED.

12 BITUMINOUS DRIVEWAY APRON
NTS P-2017-018-COLL-85

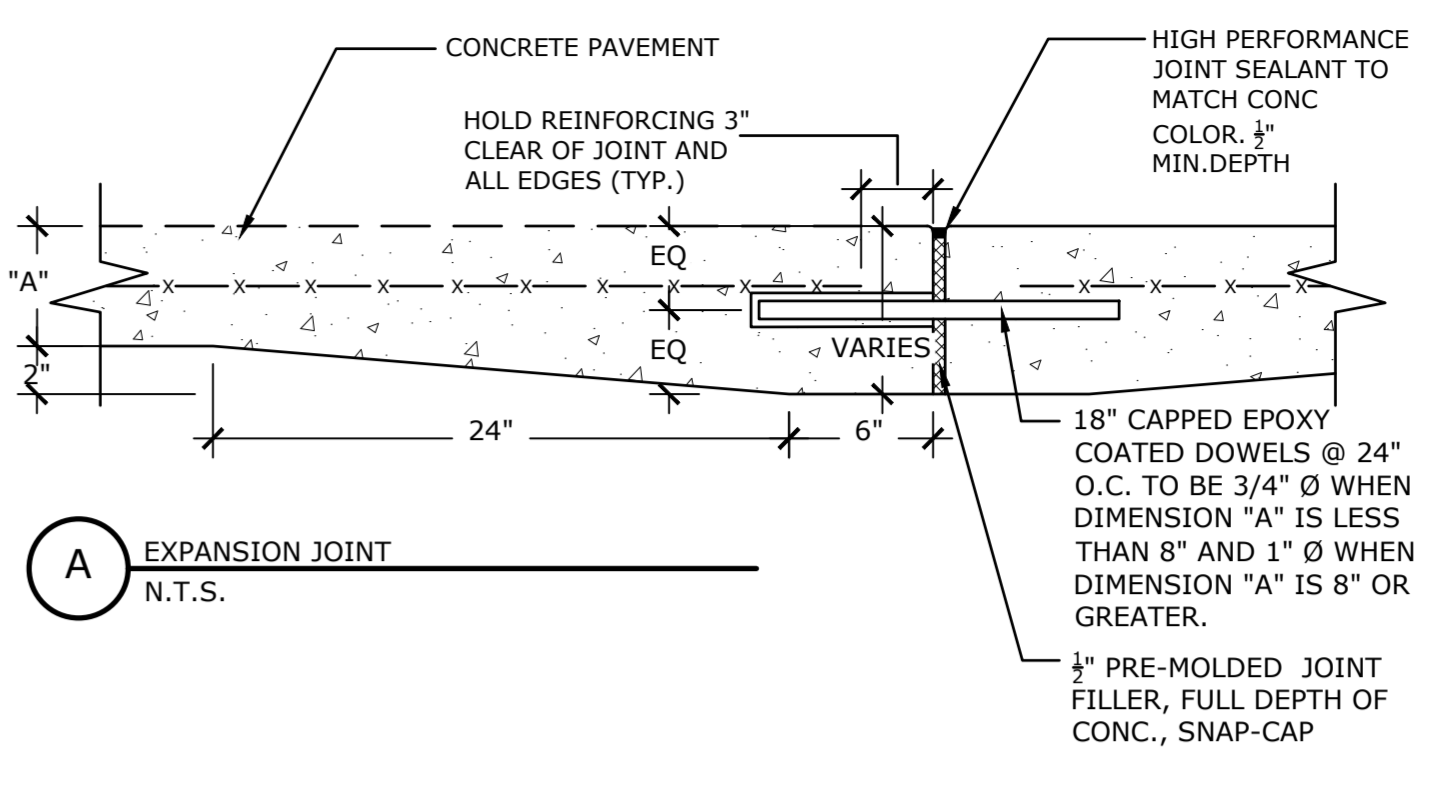


9 6" BITUMINOUS CURBING
NTS P-2017-018-COLL-76

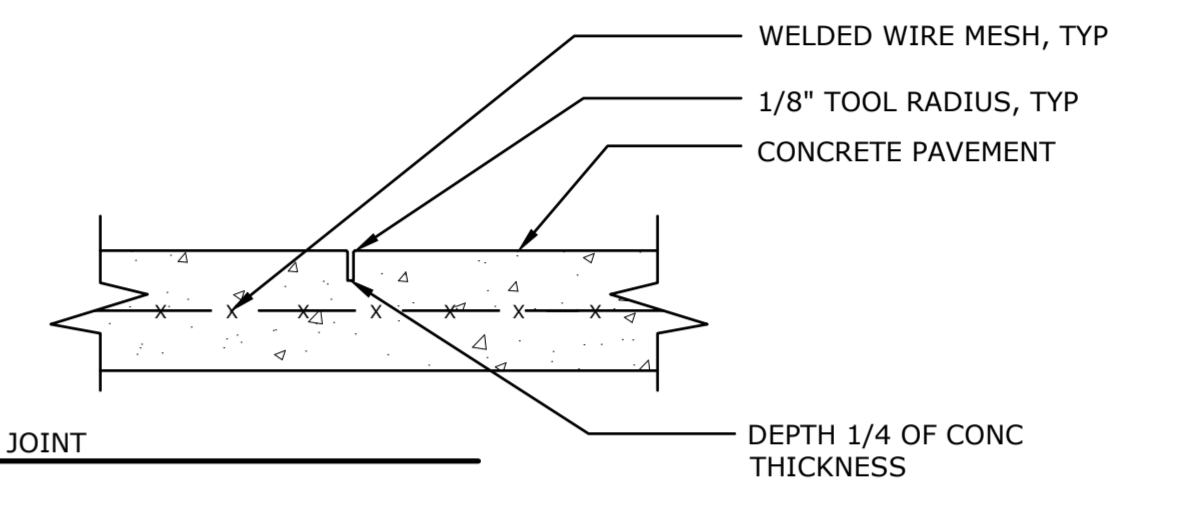


- NOTE:
1. SEE EXPANSION AND CONTROL JOINT PLAN FOR JOINT LOCATIONS.

6 VEHICULAR CONCRETE
NTS P-2017-018-COLL-50



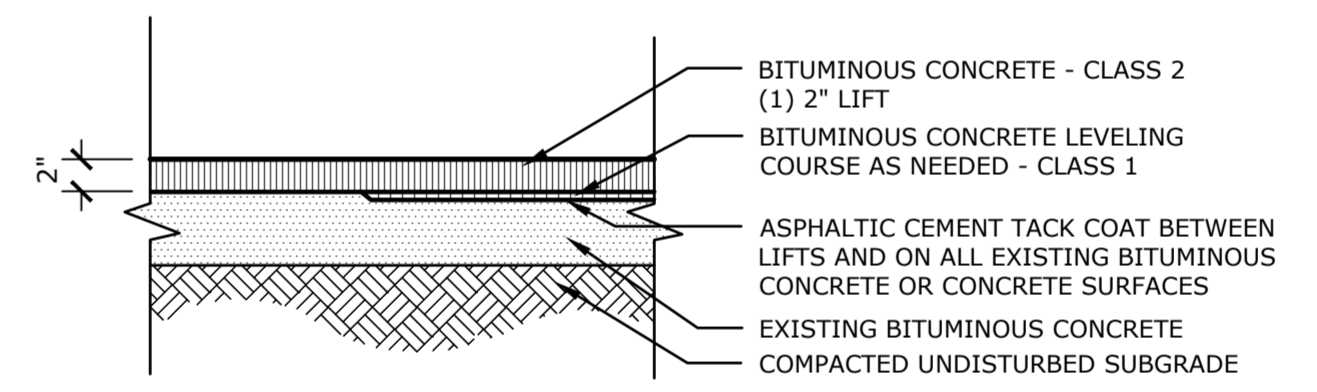
A EXPANSION JOINT
N.T.S.



B CONTROL JOINT
N.T.S.

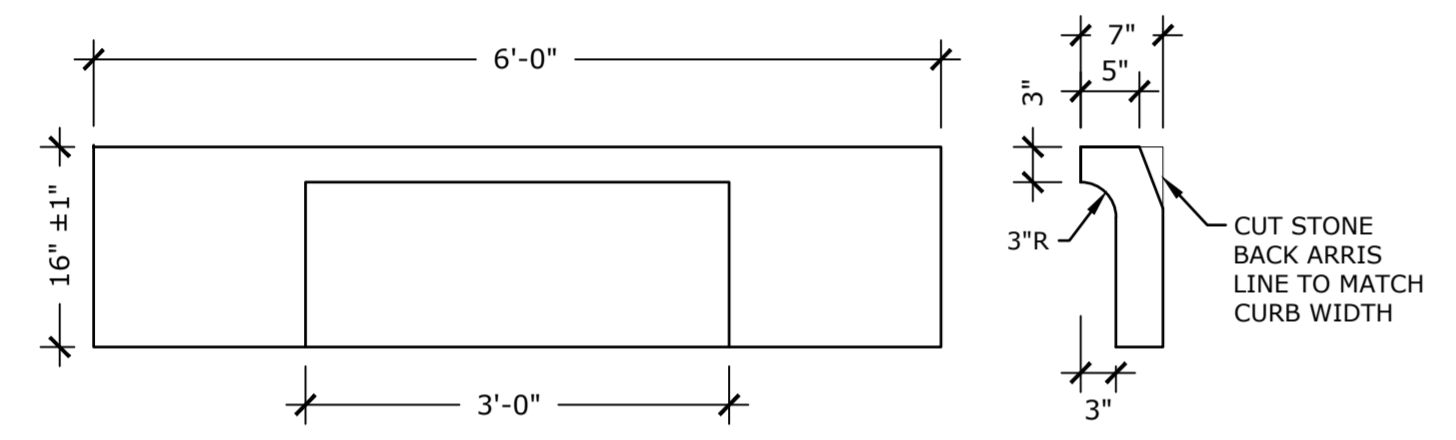
- NOTES:
1. SEE EXPANSION AND CONTROL JOINT PLAN FOR LAYOUT OF JOINTS
2. INSTALL EXPANSIONS JOINTS AT 25' O.C. UP TO A MAXIMUM 30' O.C.
3. INSTALL FULL DEPTH 1/2" PREMOLDED JOINT FILLER WITH SNAP-CAP AND SEALANT WHEREVER PAVEMENT ABUTS FIXED OBJECTS (TYP.). FOAM WITH A RIP OFF TOP STRIP MAY BE USED AROUND ROUND POLES. ALLOW CONCRETE TO CURE 28 DAYS PRIOR TO APPLYING SEALANT.
4. LIGHT BRUSH FINISH PERPENDICULAR TO WALKING DIRECTION.
5. REMOVE WINDOW FRAME FROM SCORING TOOL.
6. DOWEL NEW WALKWAYS TO FOUNDATIONS AND EXISTING CONCRETE WALKWAYS, IF ABUTTING EXISTING ASPHALT, UNDERCUT ASPHALT SLIGHTLY ALLOWING THE CONCRETE TO EXTEND UNDER TO PREVENT SETTLING.

3 CONCRETE JOINT DETAIL
NTS P-2017-018-COLL-19

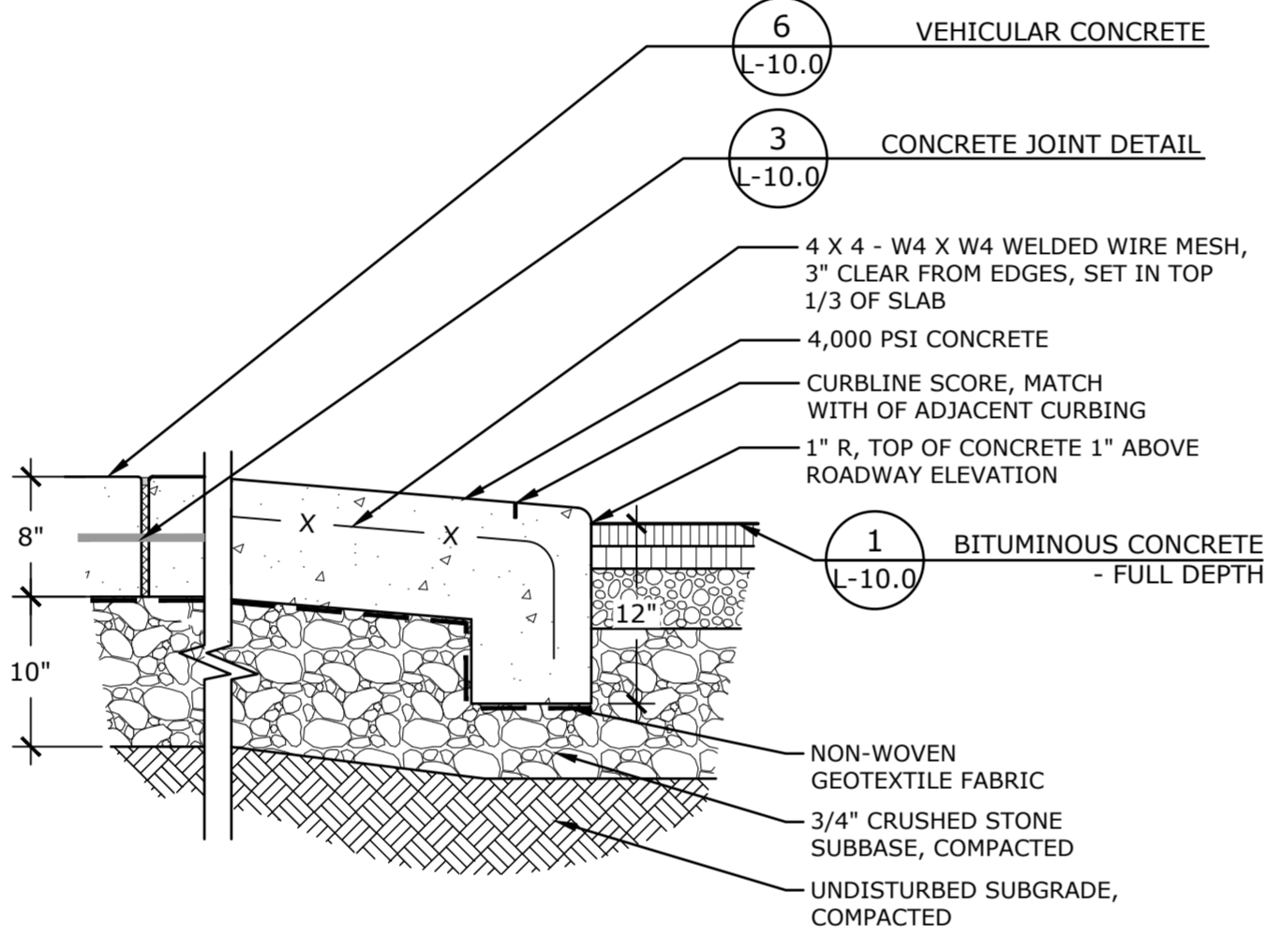


- NOTE:
1. EXISTING ASPHALT SHALL BE MILLED TO A 2" DEPTH. REMOVE ANY ADDITIONAL UNSOUND BITUMINOUS CONCRETE BELOW THIS DEPTH AND REPLACE WITH A FULLY COMPACTED CLASS 1 BITUMINOUS CONCRETE LEVELING COURSE SET TO THE MILLED SURFACE ELEVATION.
2. APPLY ASPHALTIC CEMENT TACK COAT TO ALL SURFACES AND BETWEEN ASPHALT LIFTS. USE CAUTION WHEN APPLYING TACK COAT, DO NOT APPLY TO SURFACES ABOVE FINISH GRADE.

2 BITUMINOUS CONCRETE - OVERLAY
NTS P-2017-018-COLL-47

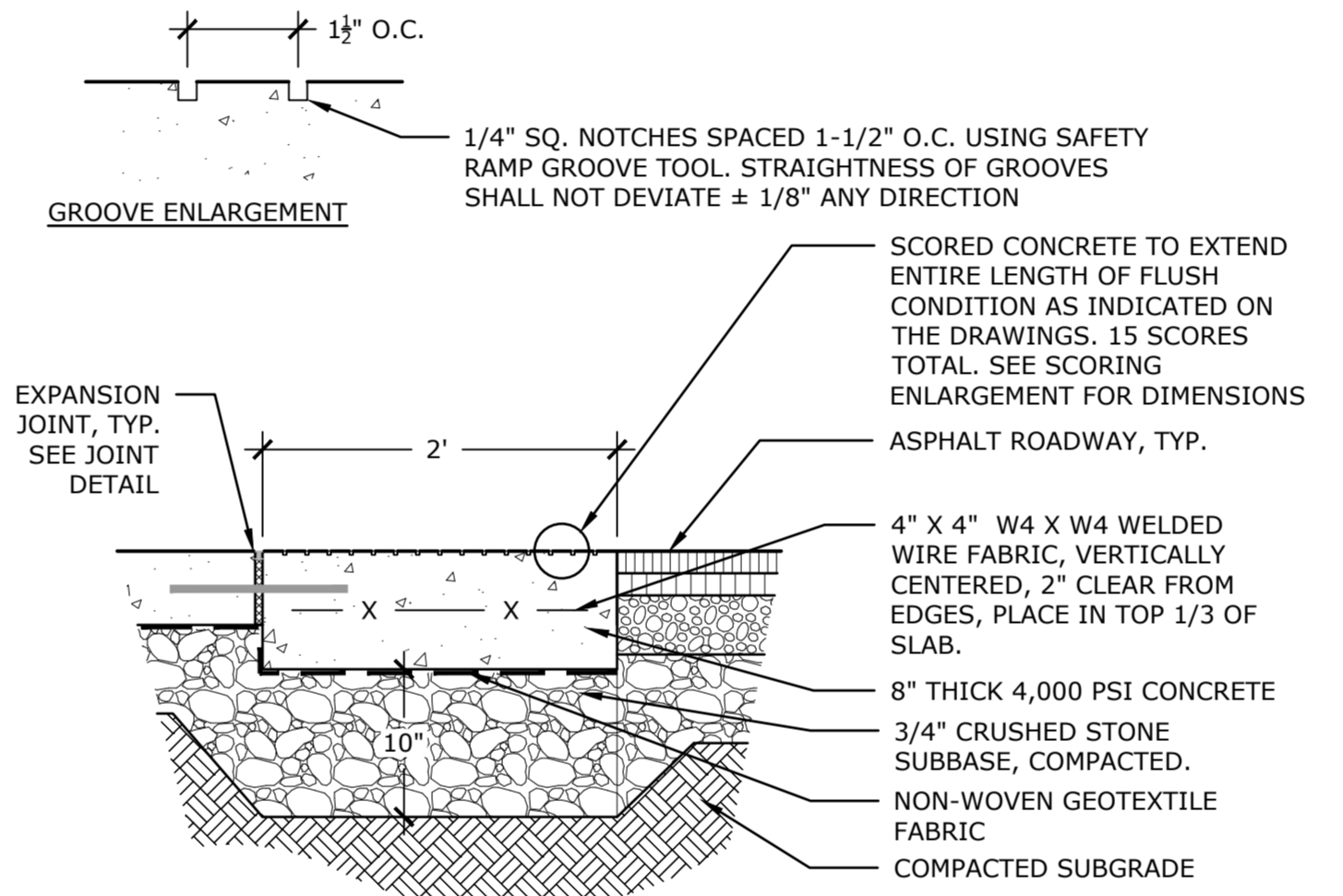


11 GRANITE INLET CURB
NTS P-2017-018-COLL-102



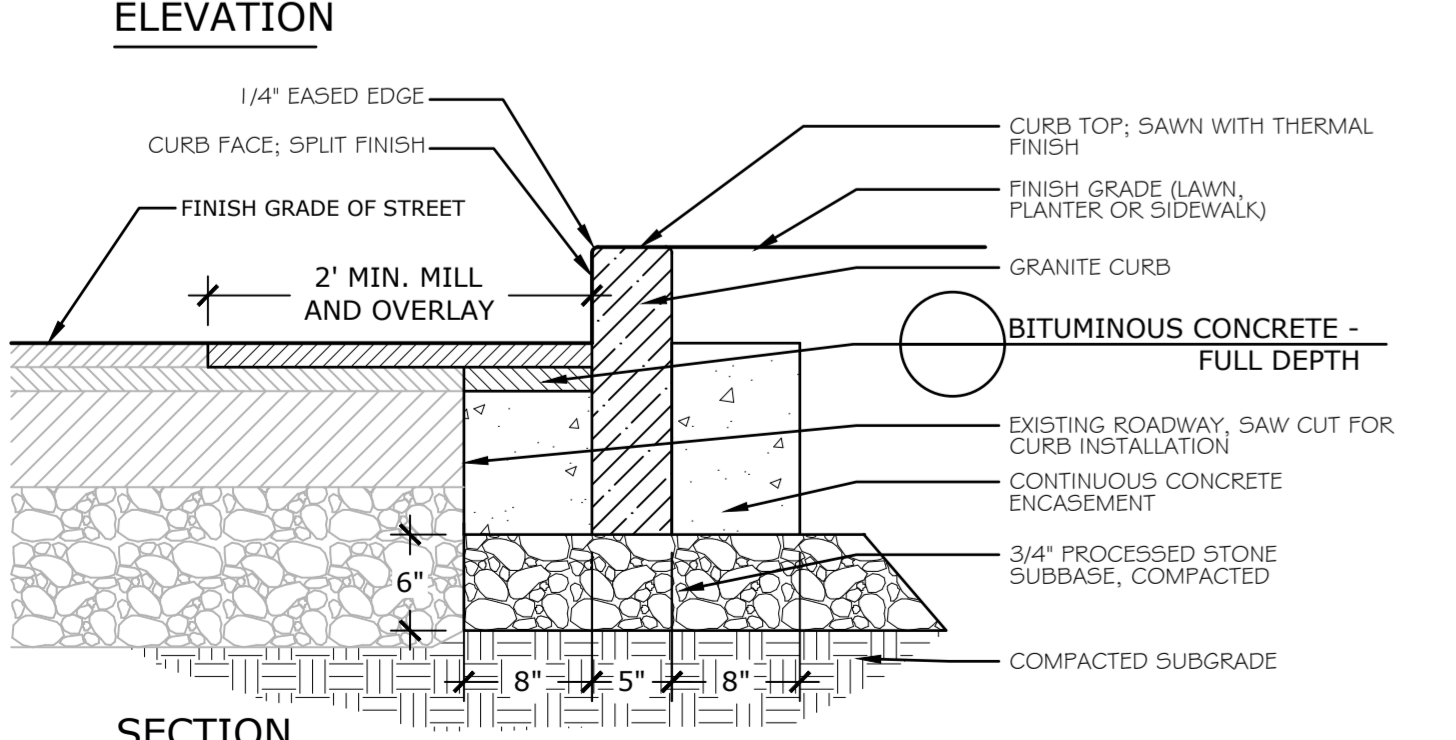
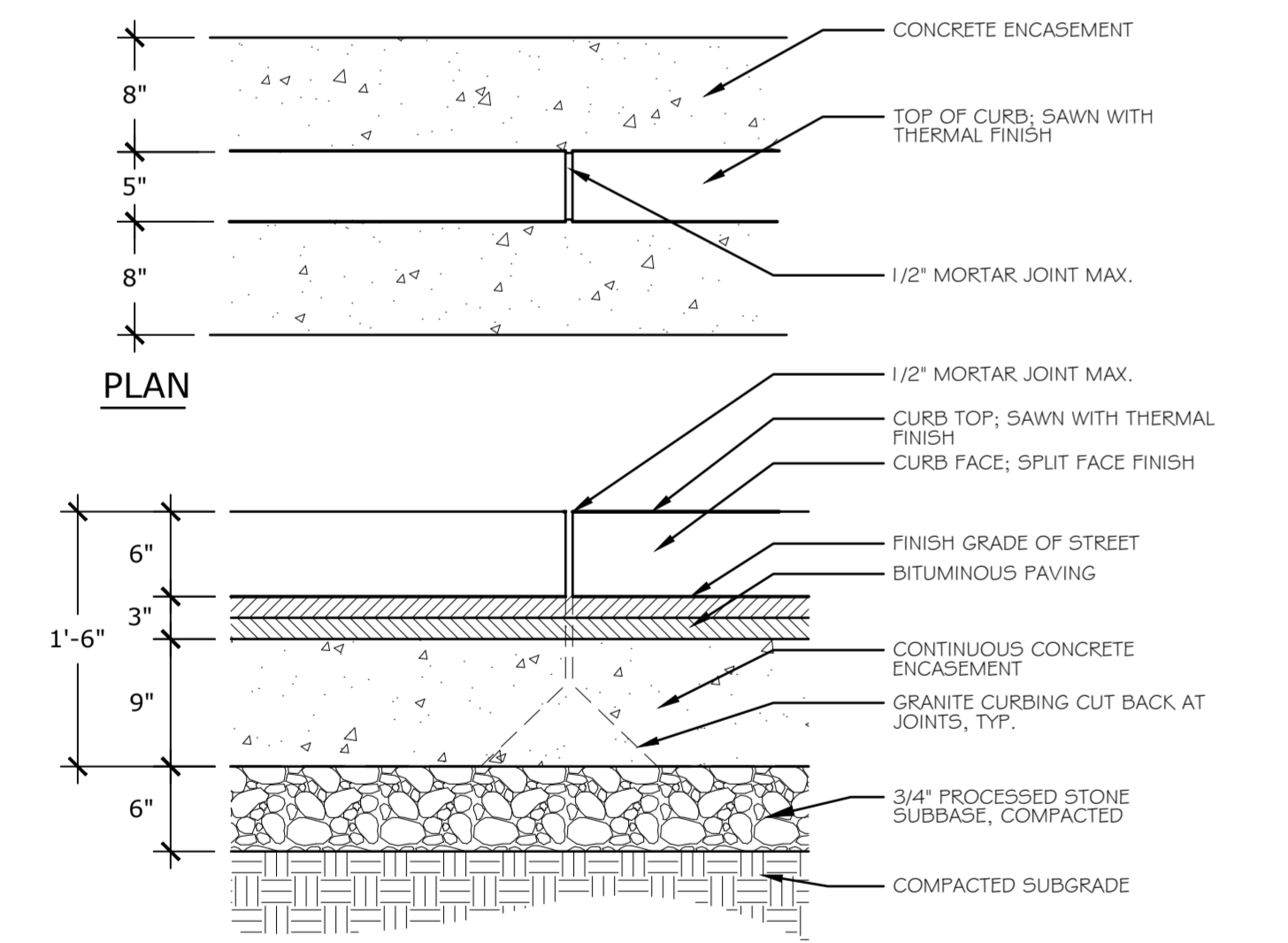
- NOTE:
1. SEE GRADING PLAN FOR DRIVEWAY APRON SLOPES.
2. PROTECT CONCRETE WHILE LAYING AND FINISHING ASPHALT. CHIPPED EDGES OF CONCRETE WILL BE REJECTED AND MUST BE REPLACED.
3. SEE EXPANSION AND CONTROL JOINT PLAN FOR JOINT LOCATIONS.

8 VEHICULAR CONCRETE APRON
NTS P-2017-018-COLL-86

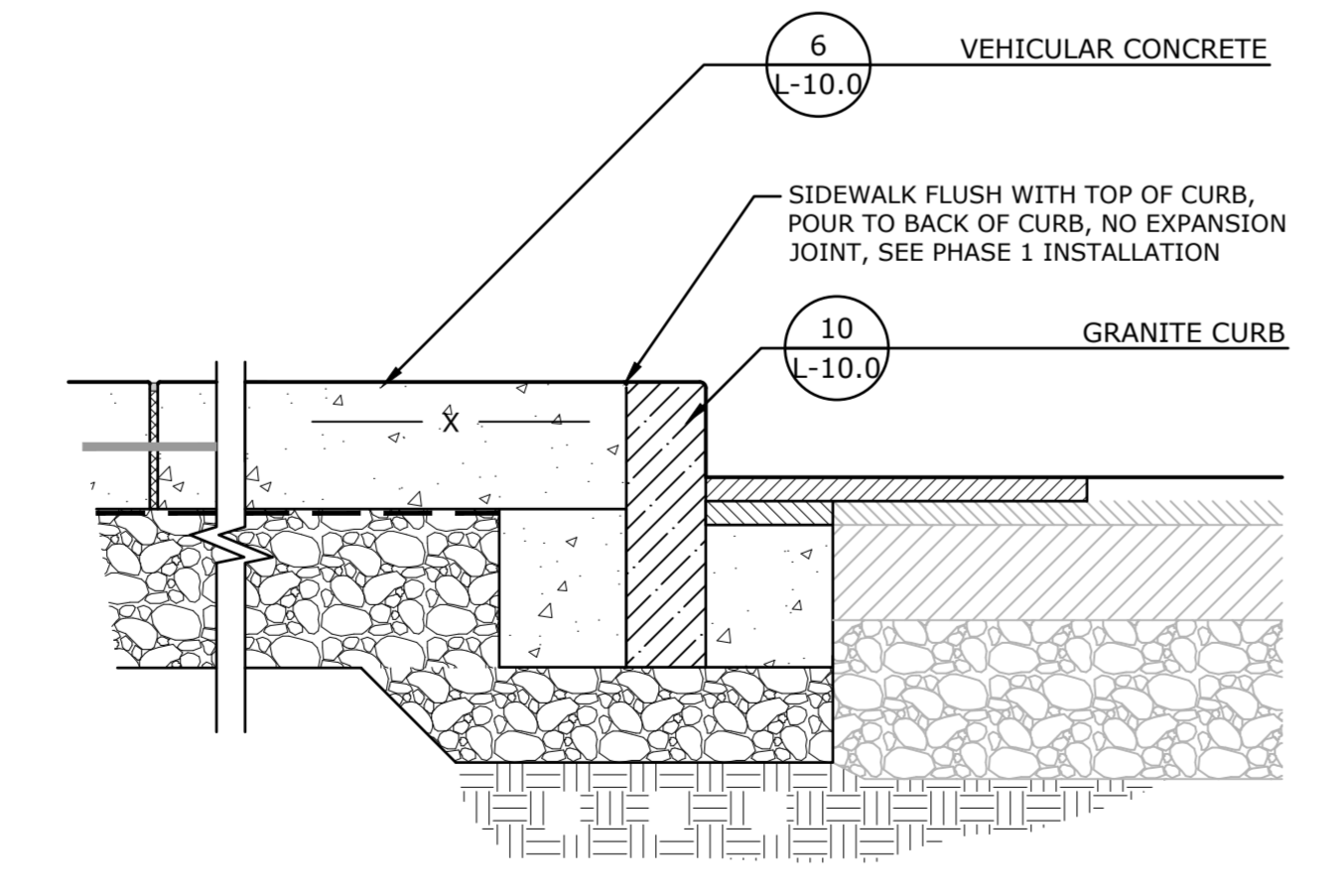


- NOTE:
1. PROTECT CONCRETE WHILE LAYING AND FINISHING ASPHALT. CHIPPED EDGES OF CONCRETE WILL BE REJECTED AND MUST BE REPLACED.
2. SEE EXPANSION AND CONTROL JOINT PLAN FOR JOINT LOCATIONS.

5 FLUSH CONCRETE TRANSITION @ ROADWAY
NTS P-2017-018-COLL-46

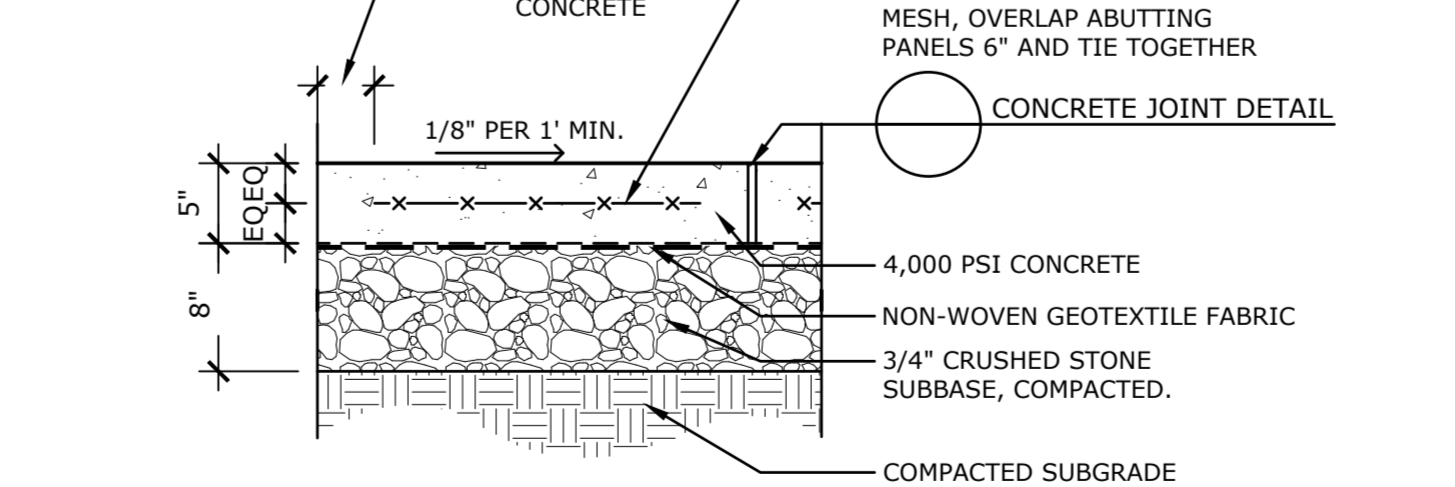


10 GRANITE CURB
NTS P-2017-018-COLL-77



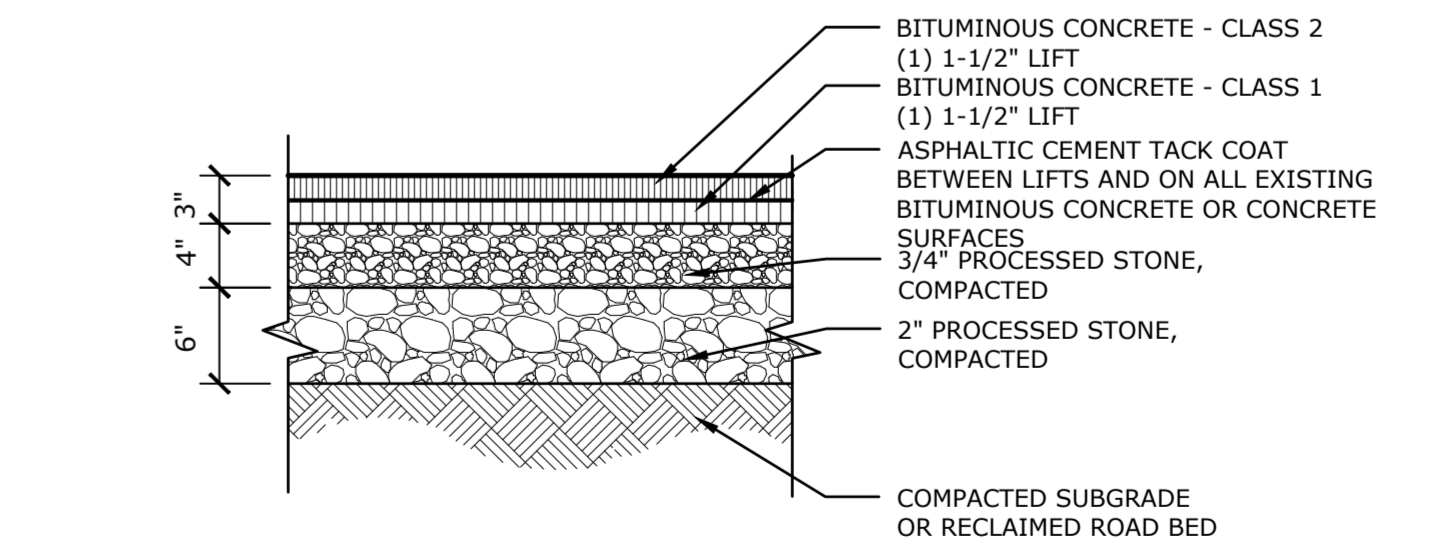
- NOTE:
1. SEE EXPANSION AND CONTROL JOINT PLAN FOR JOINT LOCATIONS.

7 VEHICULAR CONCRETE AT GRANITE CURB
NTS P-2017-018-COLL-75



- NOTES:
1. SEE EXPANSION AND CONTROL JOINT PLAN FOR JOINT LOCATIONS
2. WALKS SHALL HAVE A 2% MAX CROSS SLOPE

4 CONCRETE PAVEMENT
NTS P-2017-018-COLL-26



- NOTE:
1. WHERE REGRADING OF THE ROADWAY IS PROPOSED, ASPHALT AND ROADBED SHALL BE FULLY RECLAIMED, SOLIDLY COMPACTED TO A MINIMUM 95% PROCTOR DENSITY. IF ADDITIONAL SUBBASE MATERIAL IS NEEDED TO ACHIEVE SUBBASE GRADES, UTILIZE 3/4" PROCESSED STONE TO A MAX 6" DEPTH OR A COMBINATION OF 2" AND 3/4" PROCESSED STONE AS SHOWN ABOVE. THERE IS NO LIMIT TO THE DEPTH OF 2" PROCESSED STONE.
2. APPLY ASPHALTIC CEMENT TACK COAT TO ALL SURFACES AND BETWEEN ASPHALT LIFTS. USE CAUTION WHEN APPLYING TACK COAT, DO NOT APPLY TO SURFACES ABOVE FINISH GRADE.
3. COMPACT STONE IN 6" MAX LIFTS TO A MINIMUM 95% PROCTOR DENSITY
4. UNSUITABLE SOIL MATERIALS SHALL BE REMOVED IF COMPACTION CANNOT BE ACHIEVED.

1 BITUMINOUS CONCRETE - FULL DEPTH
NTS P-2017-018-COLL-37



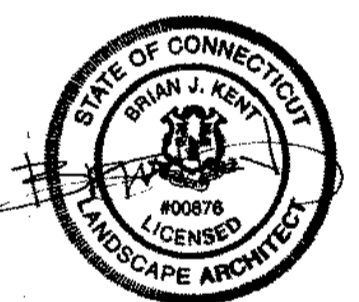
ISSUED FOR BID

Revisions _____ Date _____

SITE DETAILS

Scale _____ AS NOTED
Date _____ March 15, 2021
K-F Project No. _____ 2017014
Drawing No. _____

L-10.0



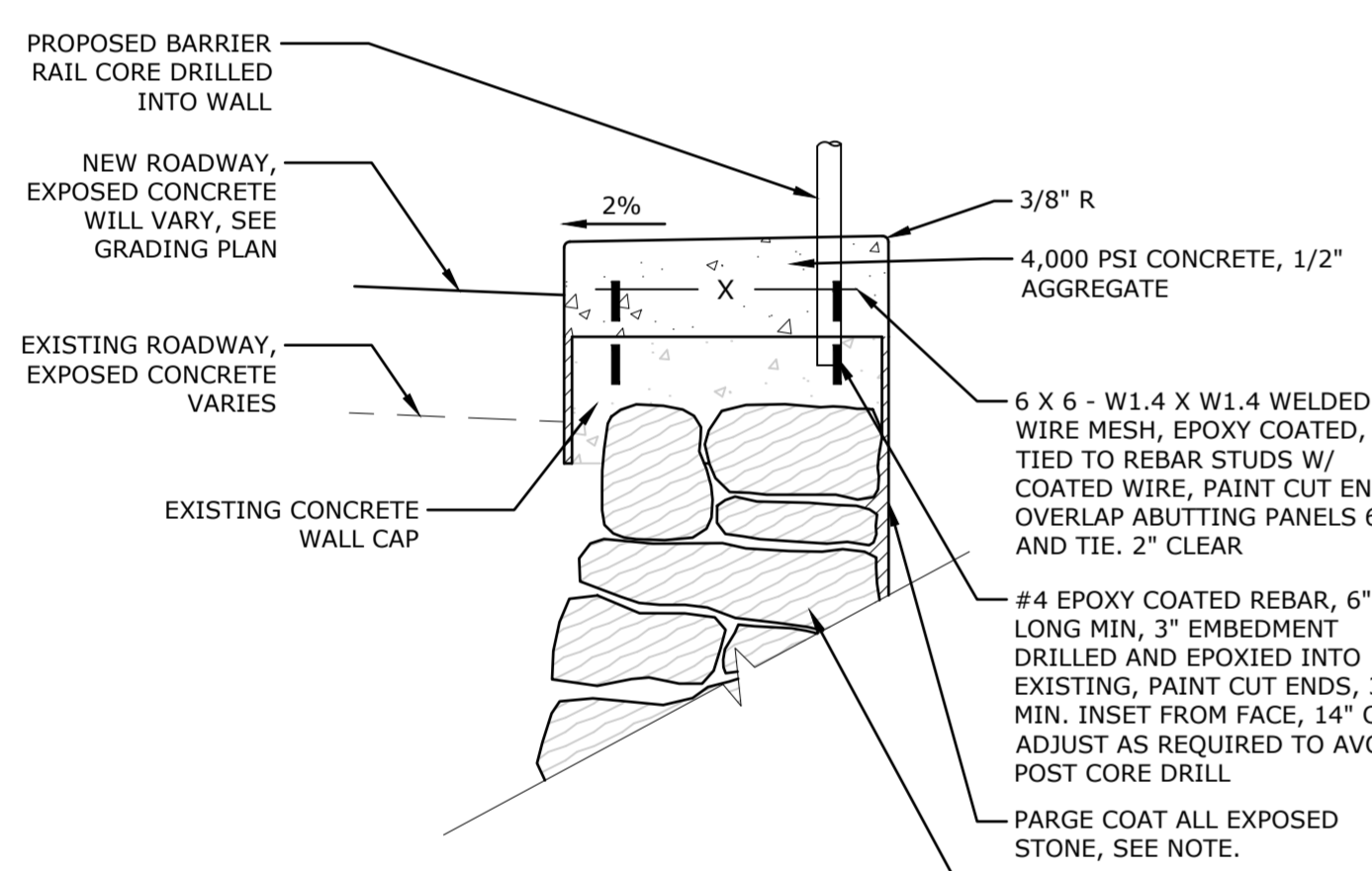
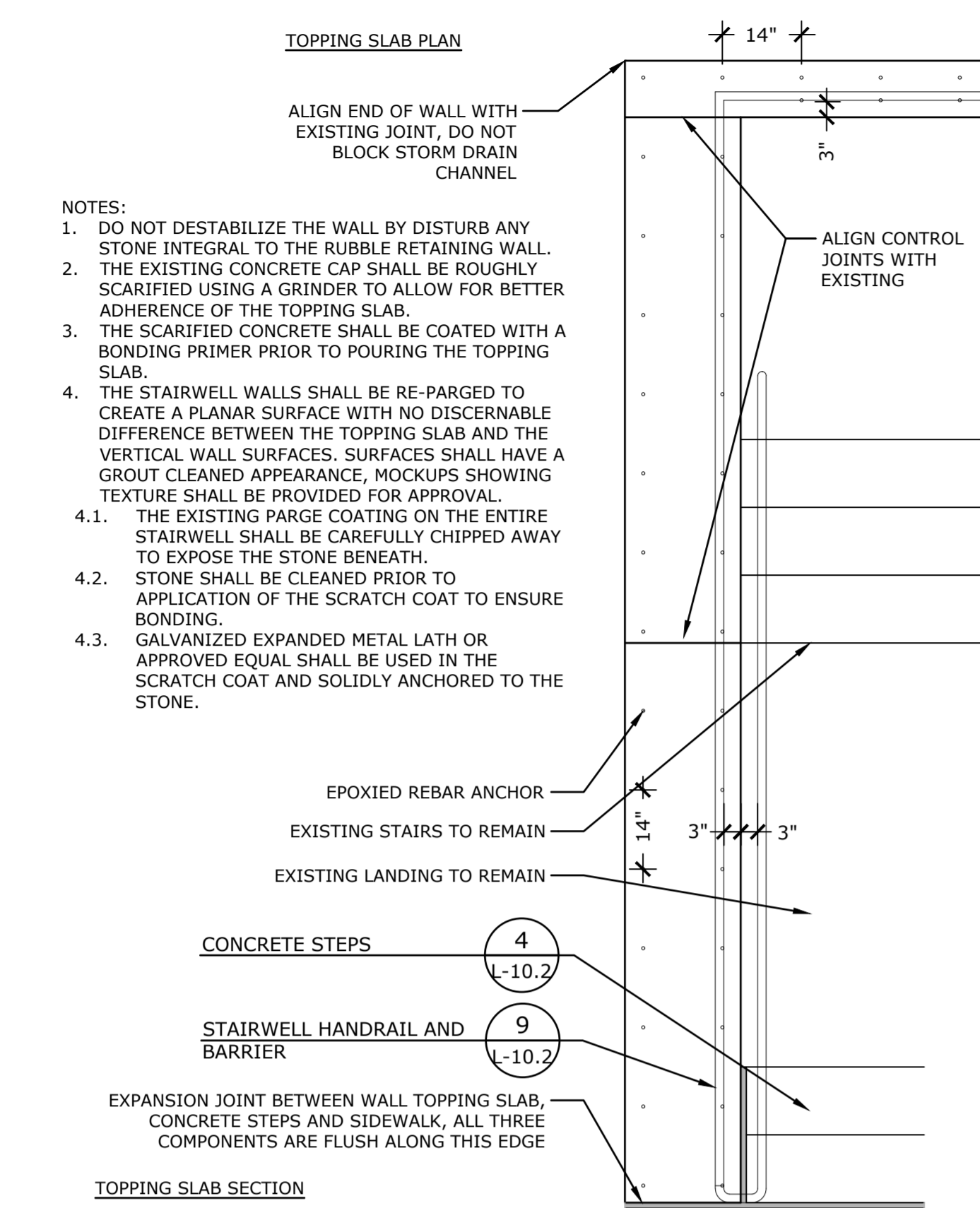
ISSUED FOR BID

Revisions _____ Date _____

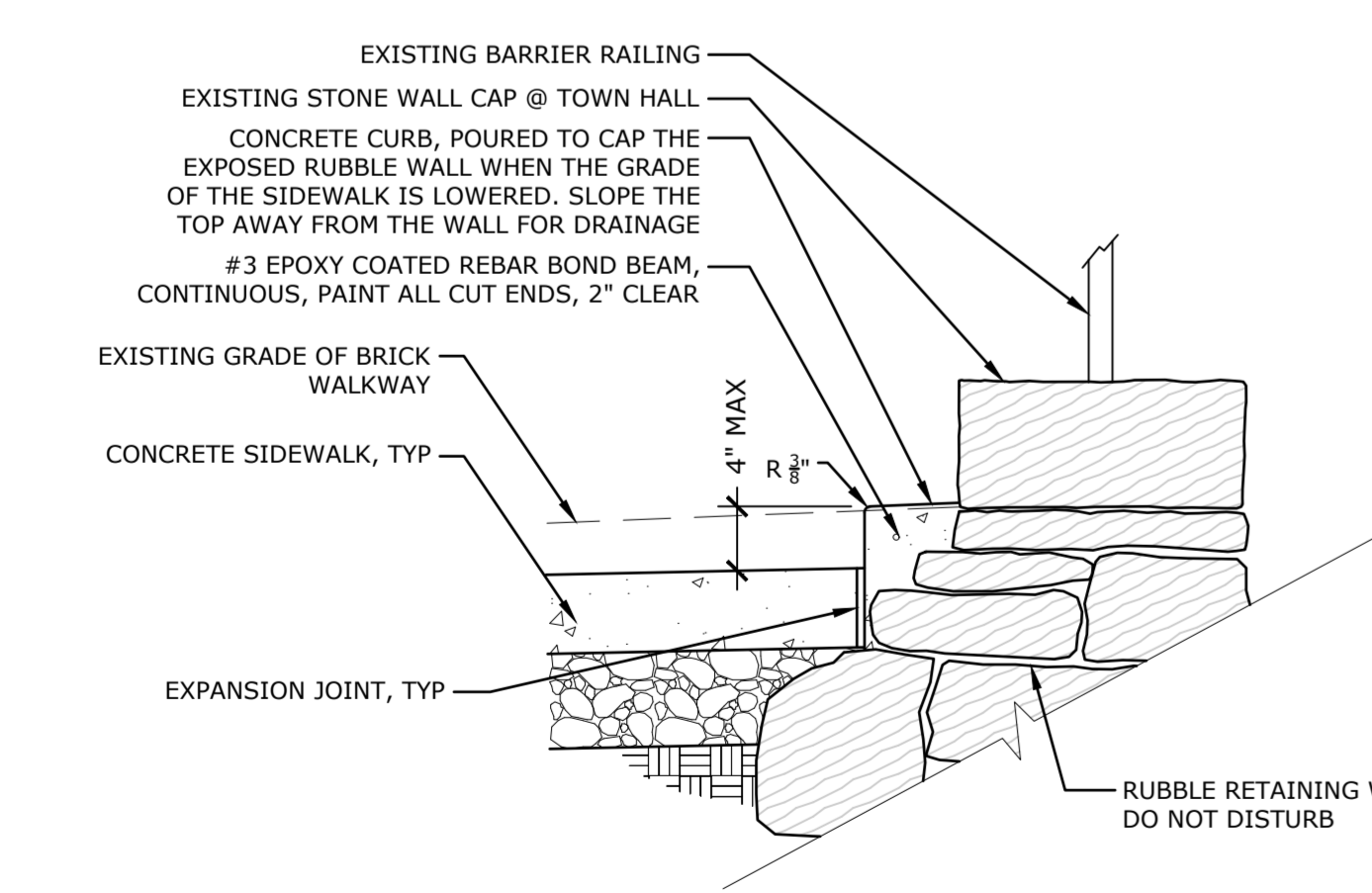
SITE DETAILS

Scale _____ AS NOTED
Date _____ March 15, 2021
K+F Project No. _____ 2017014
Drawing No. _____

L-10.1

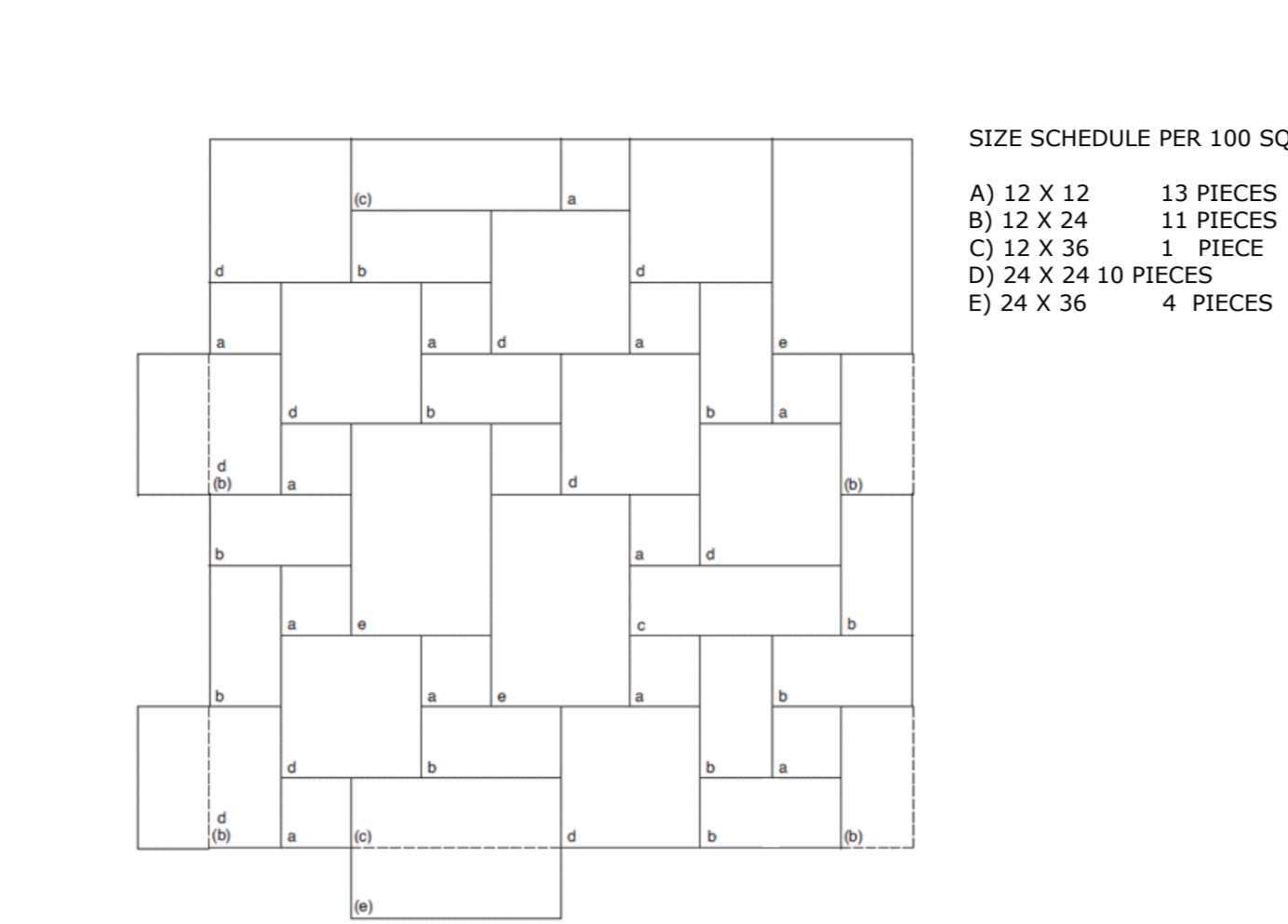


8 CONCRETE TOPPING SLAB
NTS P-2017-018-COLL-88

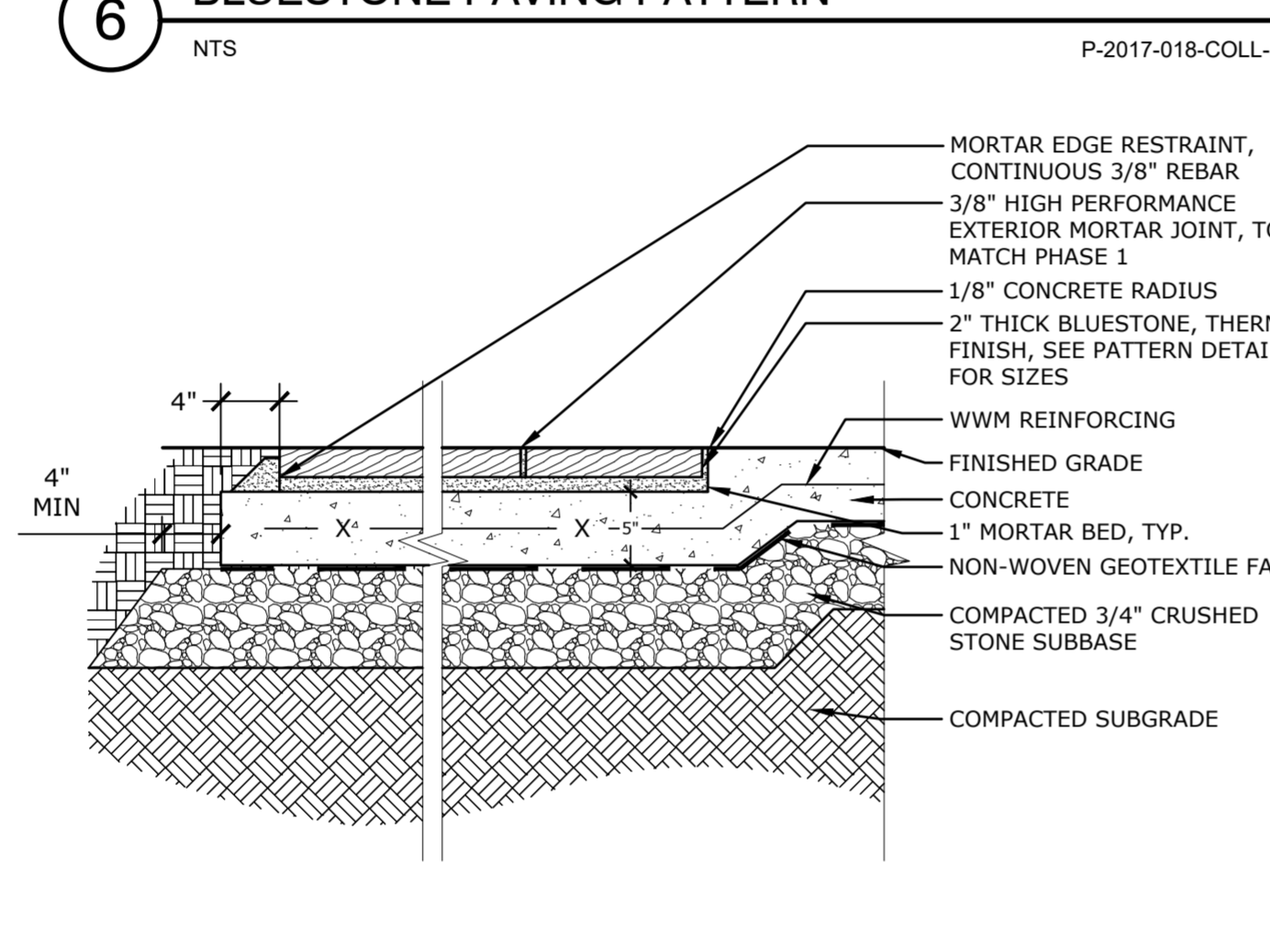


NOTES:
1. THE INTENT OF THE CONCRETE CURB IS TO STABILIZE AND HIDE ANY EXPOSED STONE AS A RESULT OF GRADING THE SIDEWALK. THE HEIGHT OF THE CURB SHALL BE MINIMIZED WHEN POSSIBLE AND SHALL END AS SOON AS POSSIBLE BASED ON FIELD CONDITIONS.
2. DO NOT DESTABILIZE THE WALL BY DISTURB ANY STONE INTEGRAL TO THE RUBBLE RETAINING WALL.
3. STONES SHALL BE CLEANED OF DIRT AND OIL TO ALLOW BETTER ADHERENCE OF THE CONCRETE.
4. LARGE VOIDS SHALL BE FILLED WITH CONCRETE AND A CONCRETE SLURRY COAT SHALL BE APPLIED TO INCREASE ADHERENCE WHEN THE CONCRETE CURB IS POURED.
5. FINISHED CONCRETE SHALL HAVE A SMOOTH UNIFORM GROUT CLEANED FINISH.

7 CONCRETE ENCASUREMENT CURB AT TOWN HALL
NTS P-2017-018-COLL-87

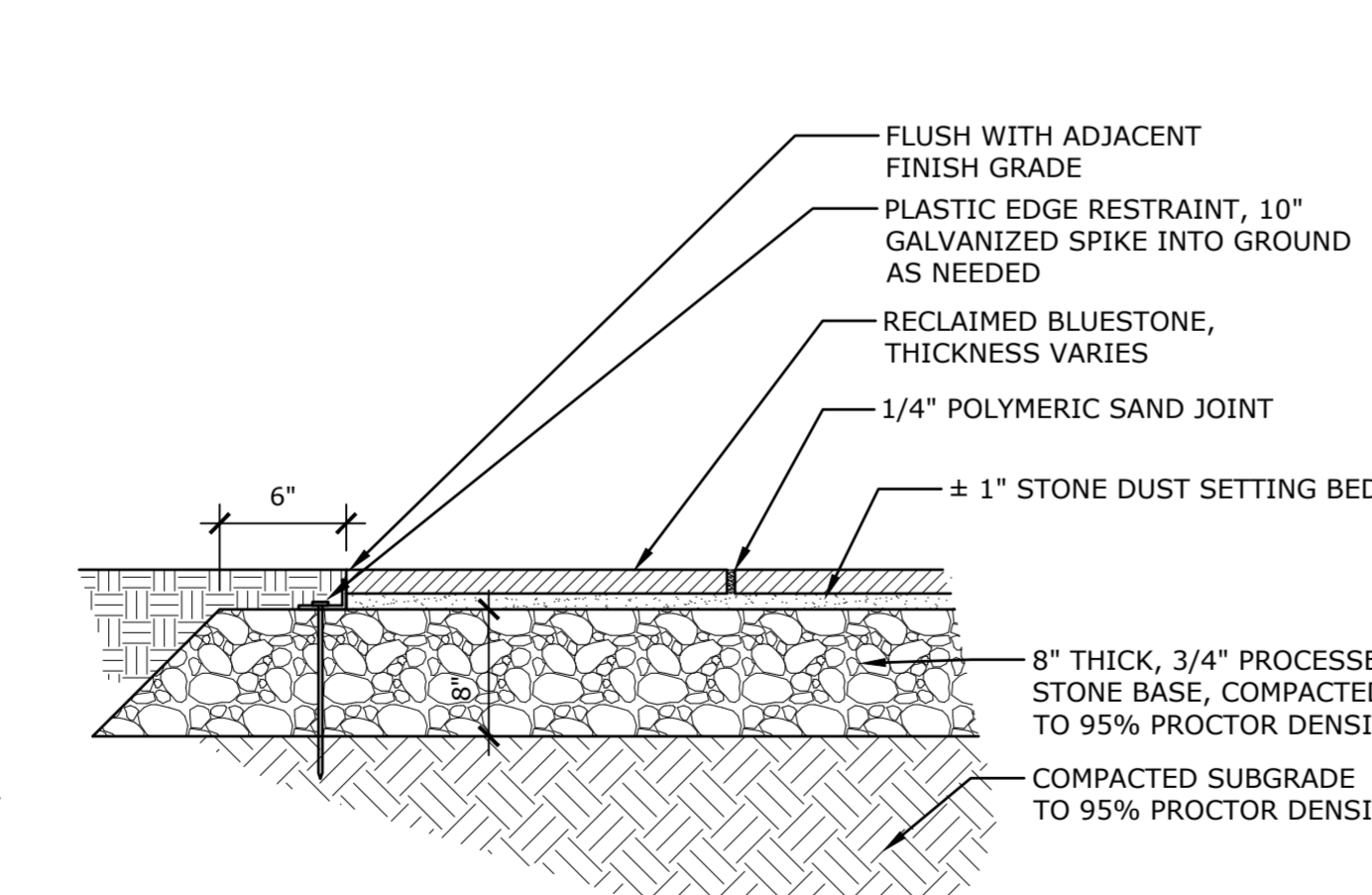


6 BLUESTONE PAVING PATTERN
NTS P-2017-018-COLL-51



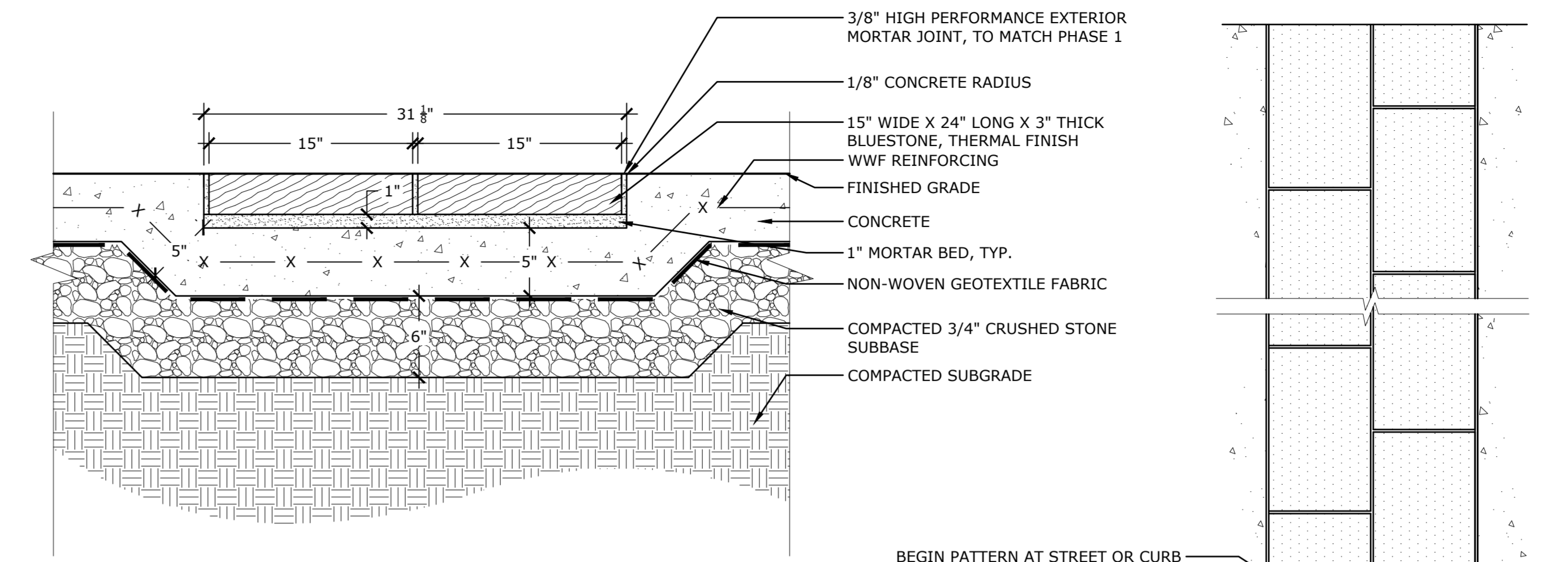
NOTES:
1. USE LARGER PIECES AT EDGES
2. ADJACENT PIECES SHALL NOT BE THE SAME SIZE
3. JOINTS ALIGNED IN CROSS CONFIGURATION WILL NOT BE ACCEPTED
4. NO JOINT SHALL BE COMPRISED OF MORE THAN 3 STONES. NO CONTINUOUS JOINT TO EXTEND FURTHER THAN 6"
5. ALL BLUESTONE SHALL HAVE A THERMAL FINISH WITH CUT SIDES AND BACK
6. BLUESTONE COLOR TO BE MIX OF BLUES, GREENS, AND GRAYS NO BROWNS OR YELLOWS WILL BE ACCEPTED.

5 BLUESTONE PAVING ON CONCRETE
NTS P-2017-018-COLL-38

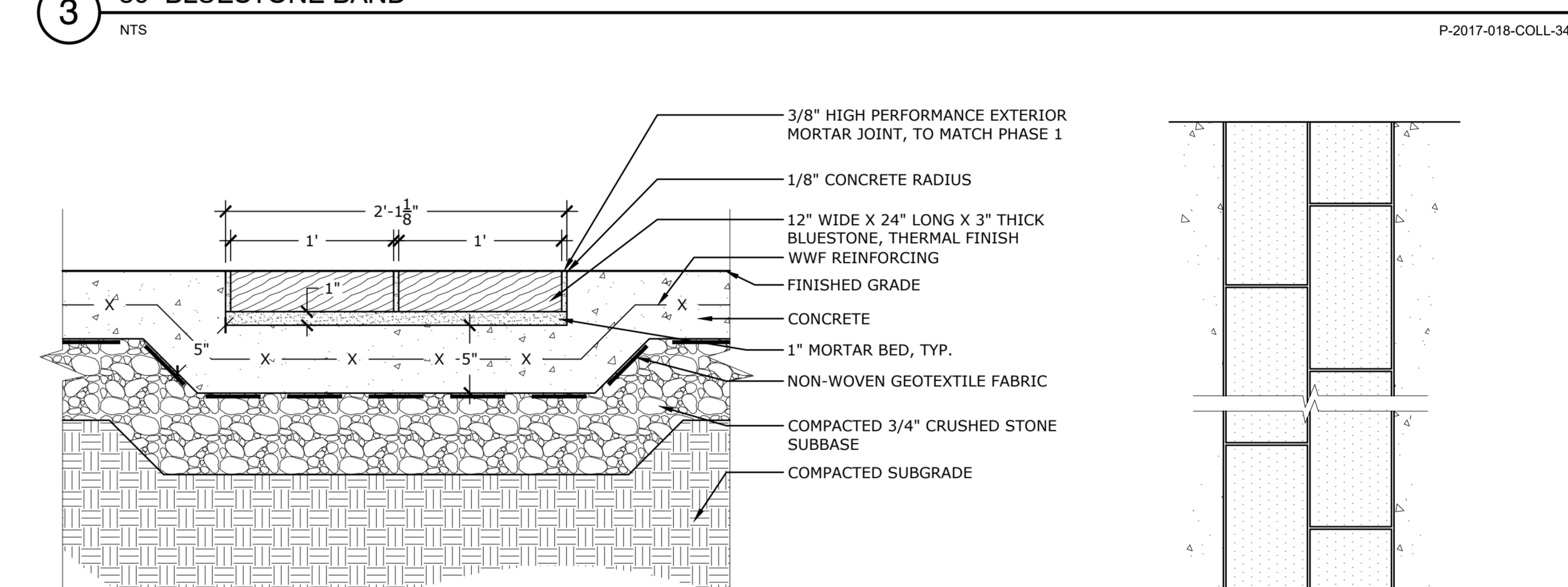


NOTES:
1. USE LARGER PIECES AT EDGES
2. ADJACENT PIECES SHALL NOT BE THE SAME SIZE
3. JOINTS ALIGNED IN CROSS CONFIGURATION WILL NOT BE ACCEPTED
4. NO JOINT SHALL BE COMPRISED OF MORE THAN 3 STONES. NO CONTINUOUS JOINT TO EXTEND FURTHER THAN 6"
5. NEW BLUESTONE TO REPLACE BROKEN SEGMENTS DURING SALVAGING PROCESS SHALL BE OF A SIMILAR COLOR RANGE AND SHALL HAVE A THERMAL FINISH
6. ALL EDGES TO BE SNAPPED AND CORRECTED

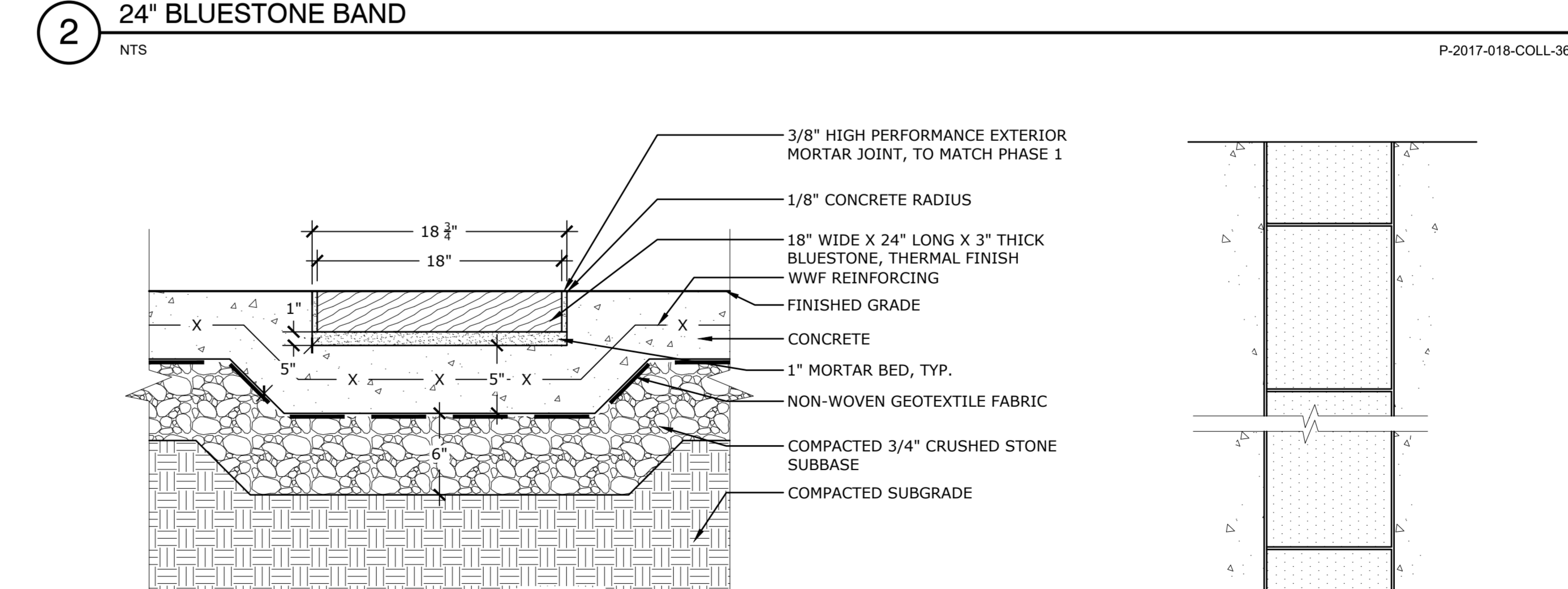
4 RESET SALVAGED BLUESTONE ON FLEXIBLE BASE
NTS P-2017-018-COLL-41



3 30' BLUESTONE BAND
NTS P-2017-018-COLL-34



2 24' BLUESTONE BAND
NTS P-2017-018-COLL-36



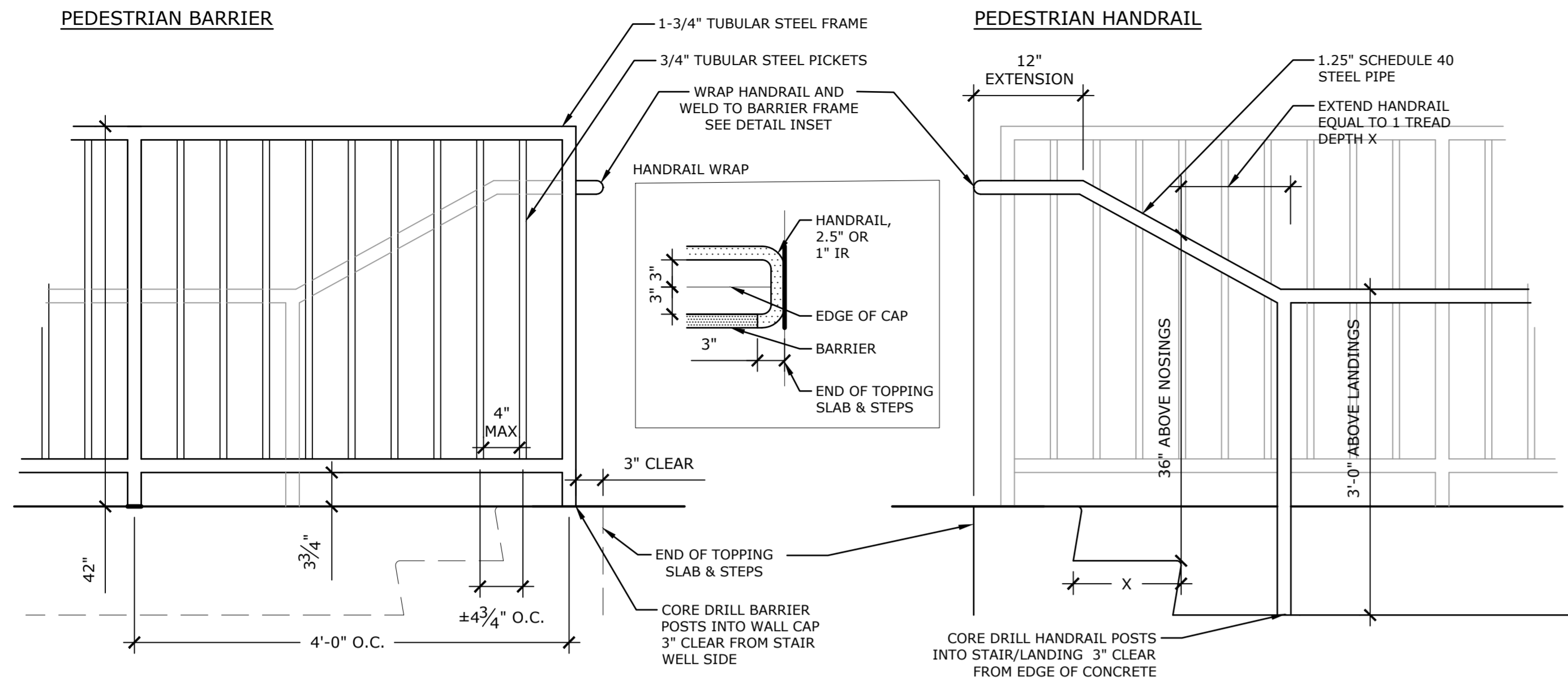
1 18' BLUESTONE BAND
NTS P-2017-018-COLL-32

1 18" BLUESTONE BAND
NTS P-2017-018-COLL-32

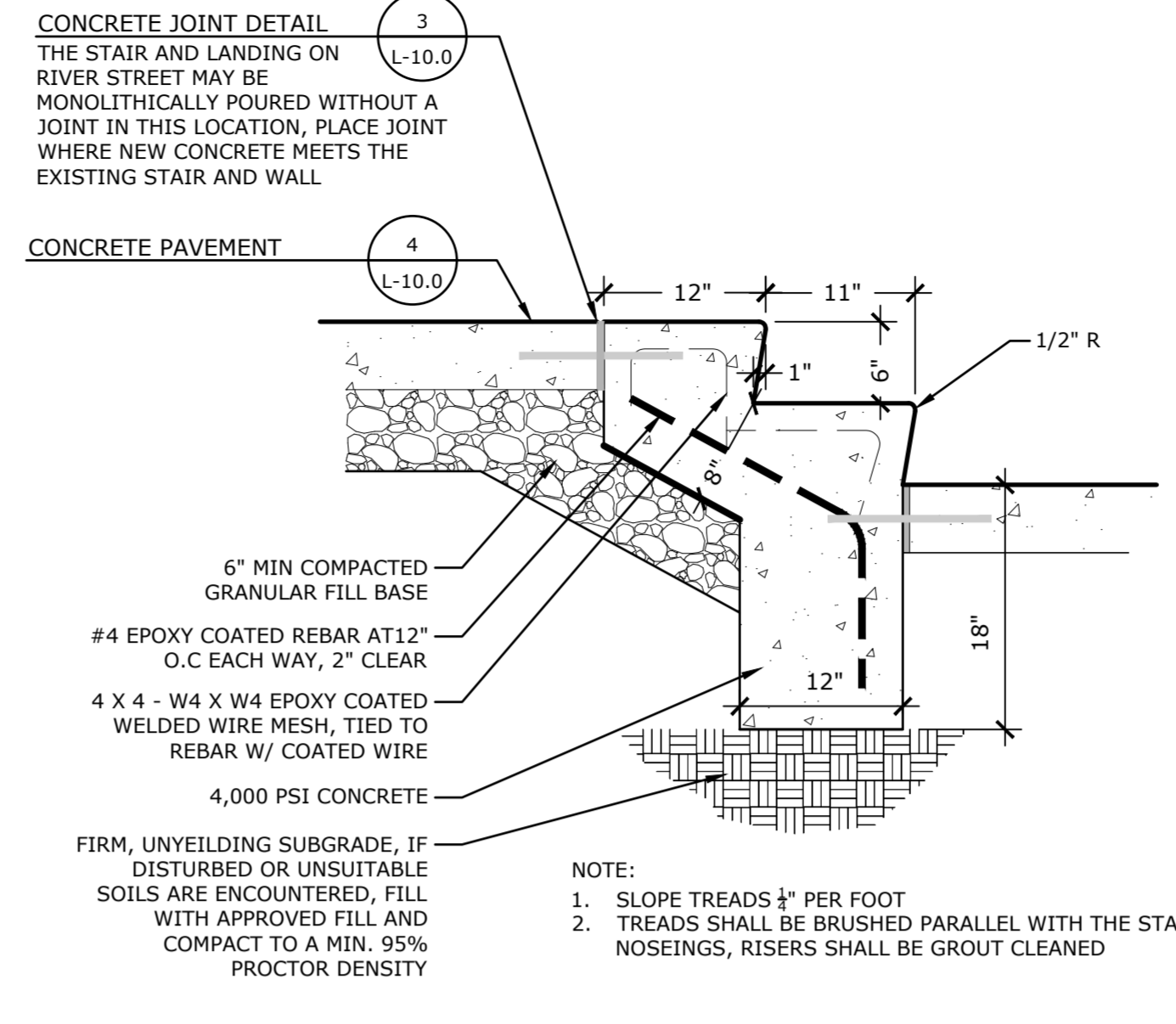
BLUESTONE PATTERN

BLUESTONE PATTERN

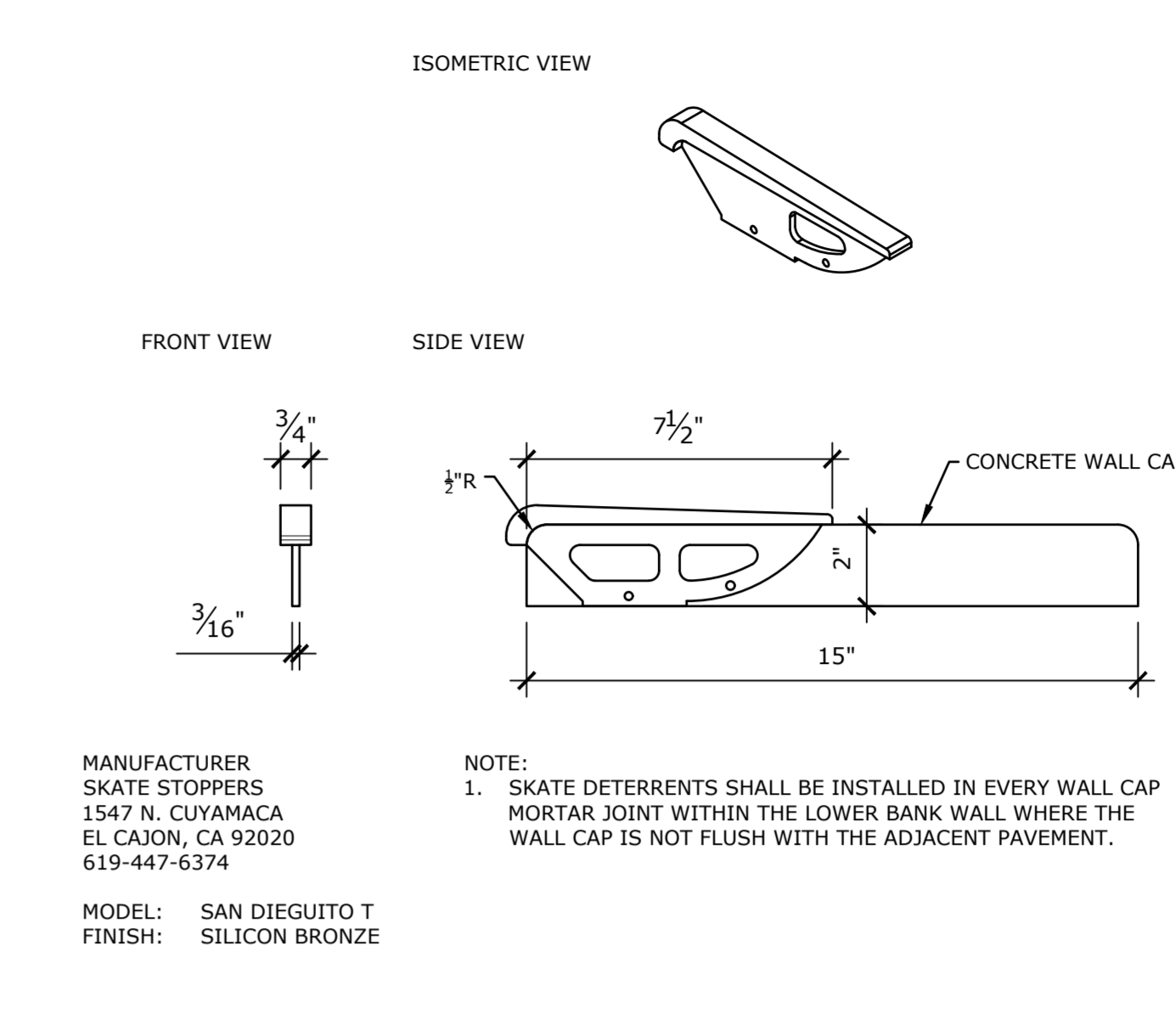
BLUESTONE PATTERN



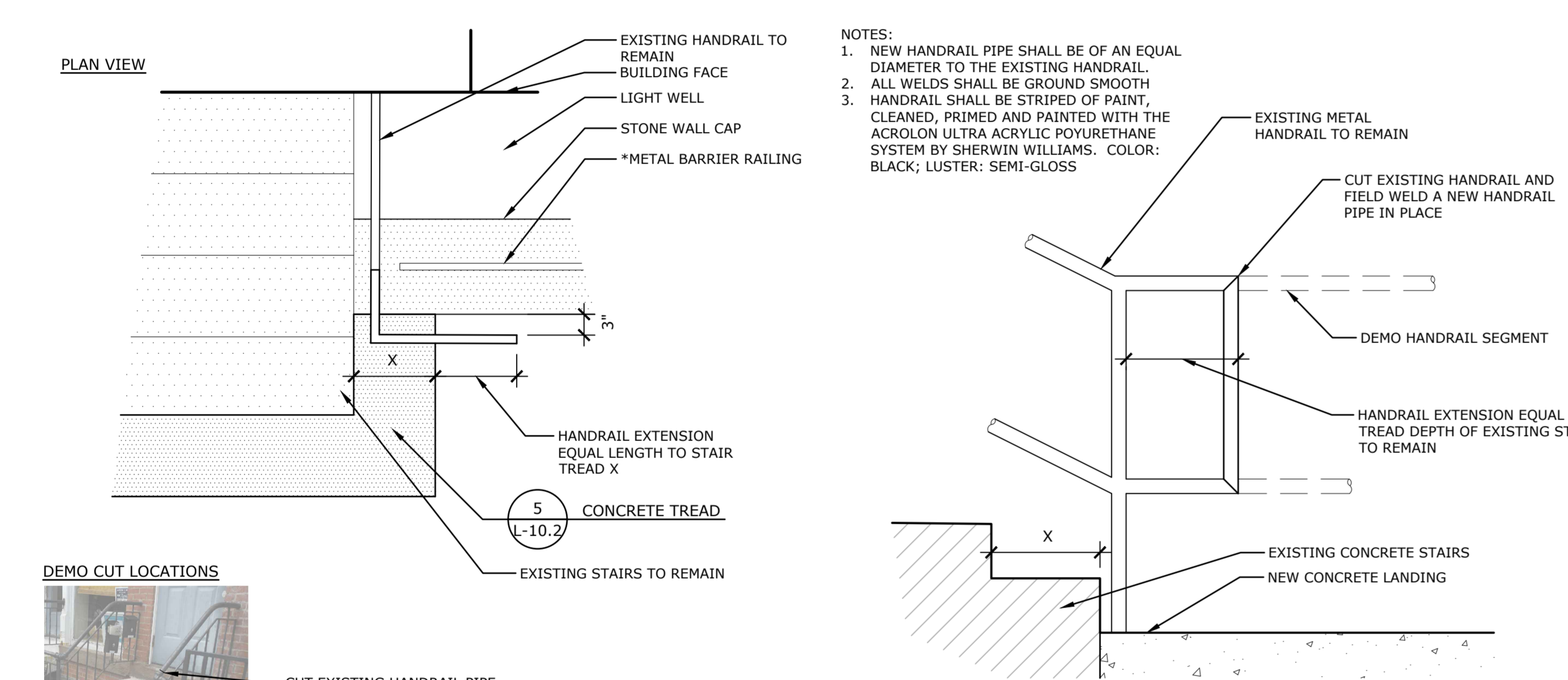
9 STAIRWELL HANDRAIL AND BARRIER
NTS P-2017-018-COLL-97



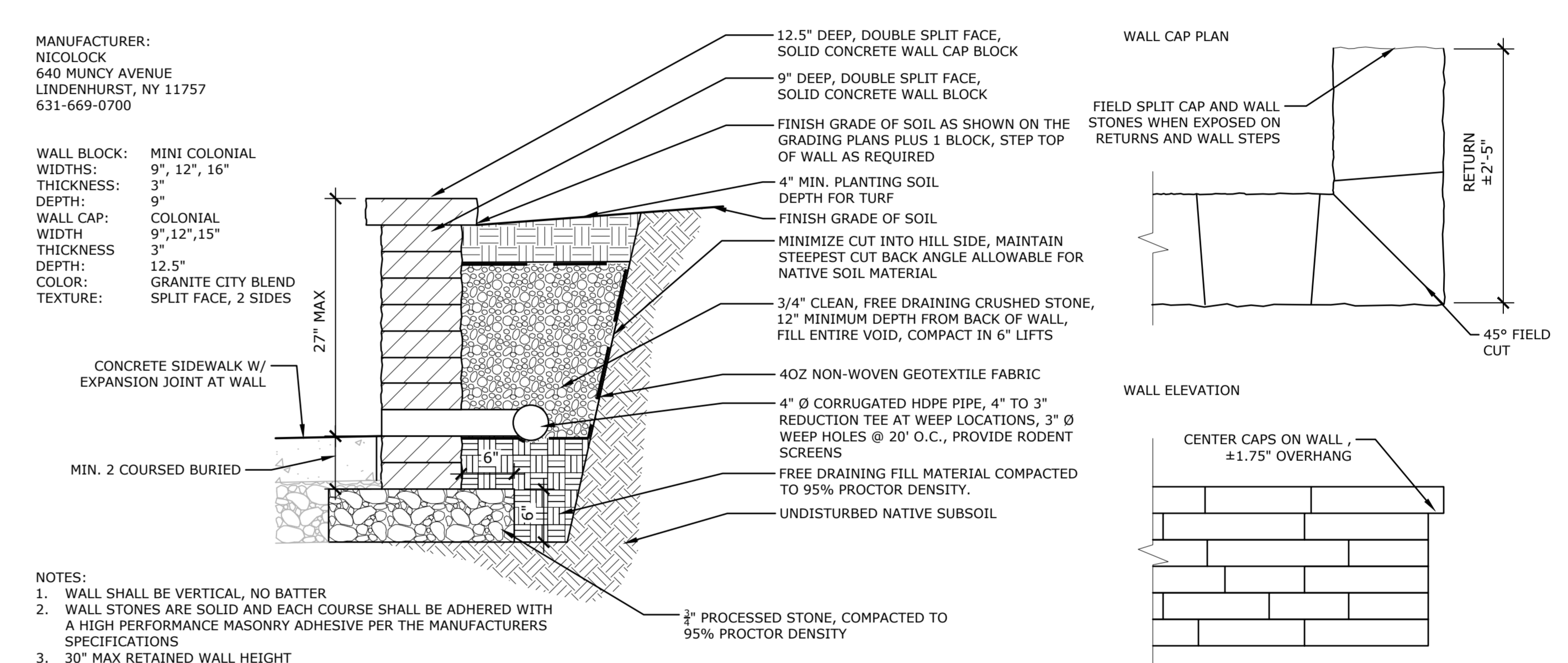
4 CONCRETE STEPS
NTS P-2017-018-COLL-91



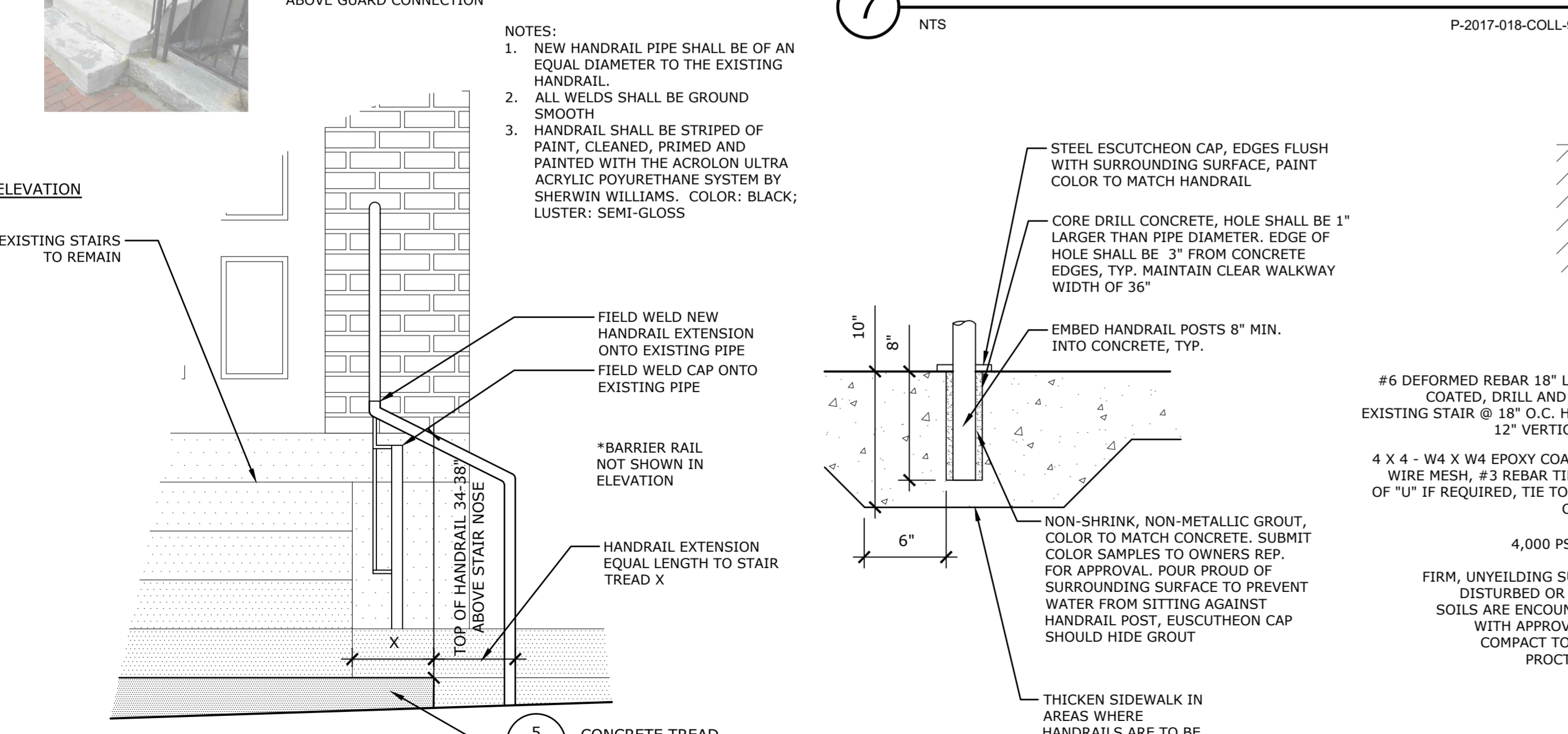
3 SKATE STOPPER
NTS P-2017-018-COLL-90



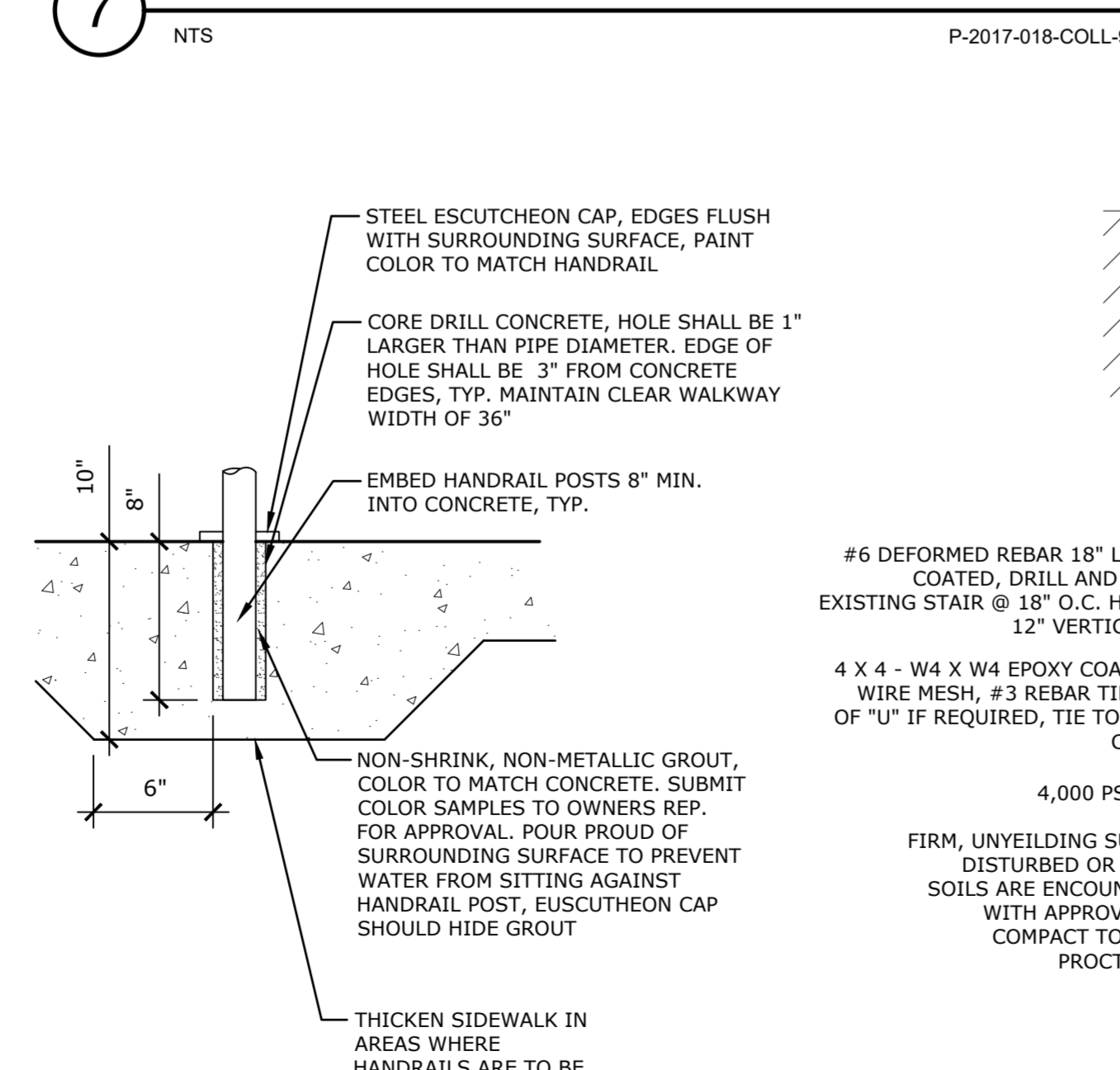
7 RIVER STREET HANDRAIL MODIFICATION
NTS P-2017-018-COLL-94



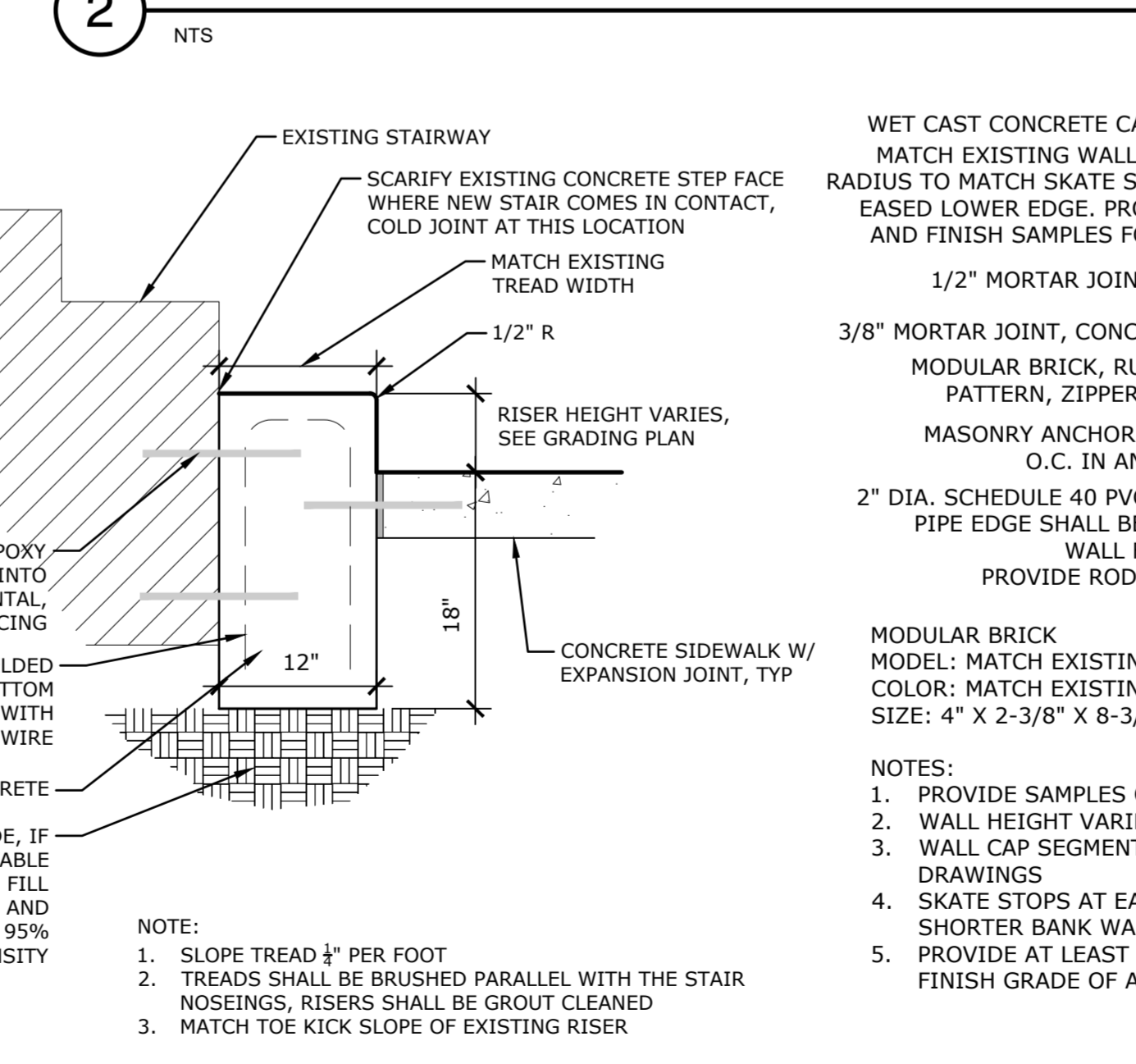
2 CONCRETE BLOCK RETAINING WALL
NTS P-2017-018-COLL-89



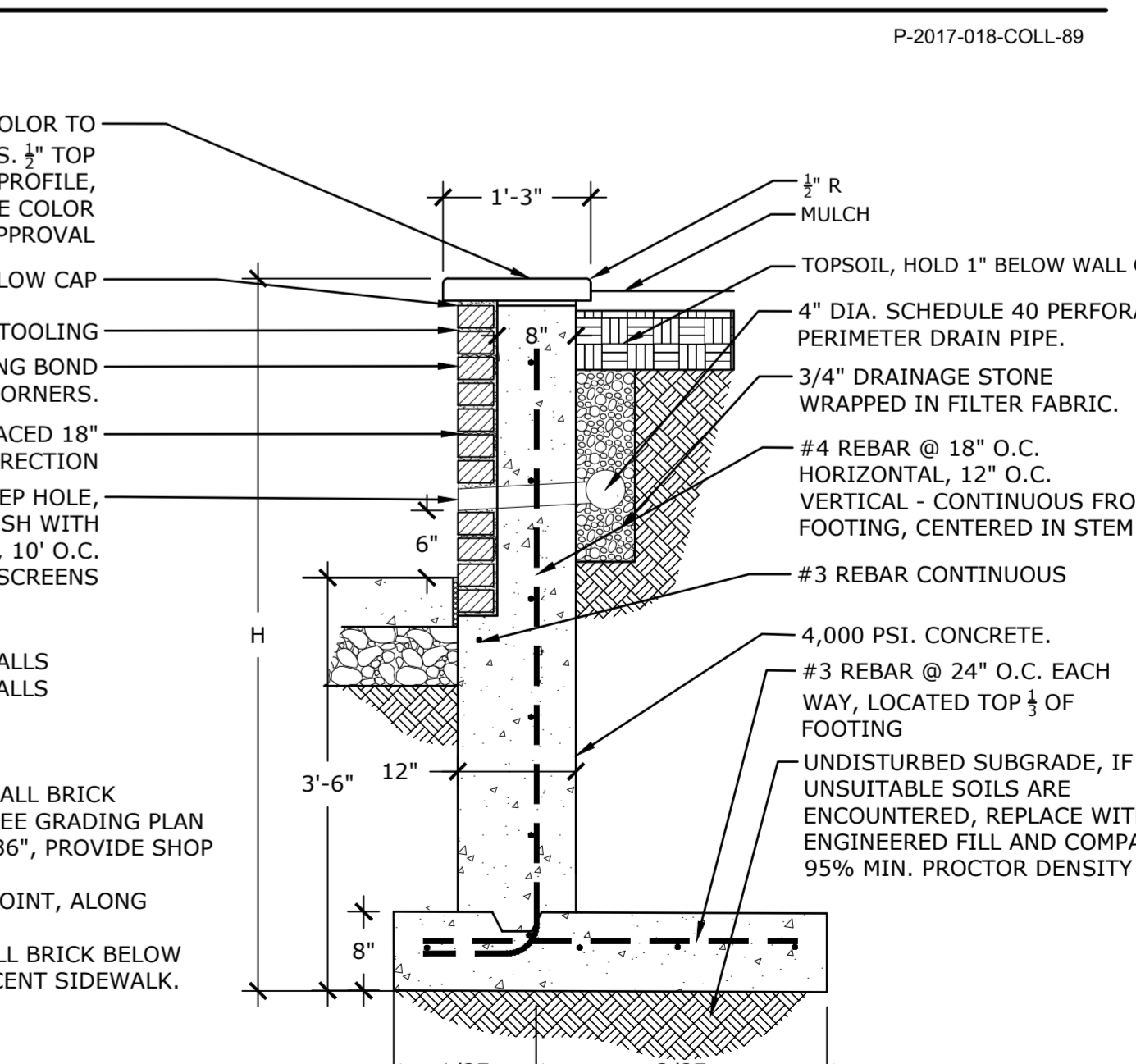
8 MAIN STREET HANDRAIL MODIFICATION
NTS P-2017-018-COLL-95



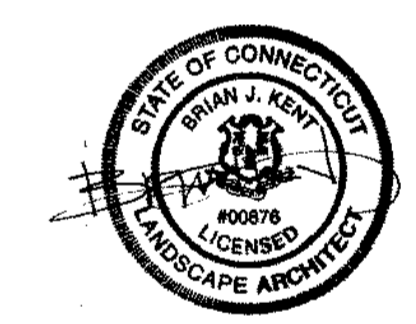
6 HANDRAIL EMBEDMENT
NTS P-2017-018-COLL-96



5 CONCRETE TREAD
NTS P-2017-018-COLL-92



1 BRICK VENEERED WALL
NTS P-2017-018-COLL-43



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Revisions	Date

SITE DETAILS

Scale: AS NOTED
Date: March 15, 2021
K-F Project No.: 2017014
Drawing No.:

L-10.2

MANUFACTURE: VICTOR STANLEY
PO DRAWER 330
DUNKIRK, MD 20754 USA
MODEL: SD-242
SIZE: 2 - 32 GAL CANS
COLOR: BLACK POWDER COAT
SECURITY: STANDARD LATCH
LID: (2) RAIN BONNET
BAND DECALS: TRASH & RECYCLE
LID DECALS: TRASH & RECYCLE



12 TRASH AND RECYCLING UNIT

NTS P-2017-018-COLL-99

MANUFACTURE: VICTOR STANLEY
PO DRAWER 330
DUNKIRK, MD 20754 USA
MODEL: CR-296
COLOR: BLACK POWDER COAT
LENGTH: 6'-0"



11 6' BACKLESS BENCH

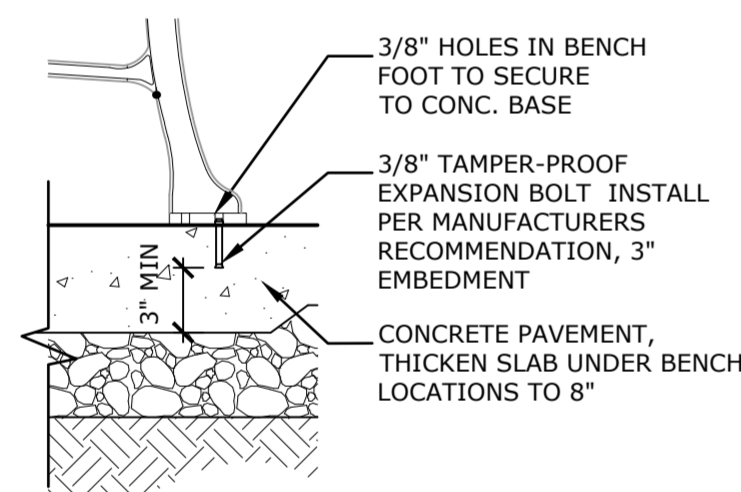
NTS P-2017-018-COLL-100

MANUFACTURE: VICTOR STANLEY
PO DRAWER 330
DUNKIRK, MD 20754 USA
MODEL: CR-196
COLOR: BLACK POWDER COAT
LENGTH: 6'-0"



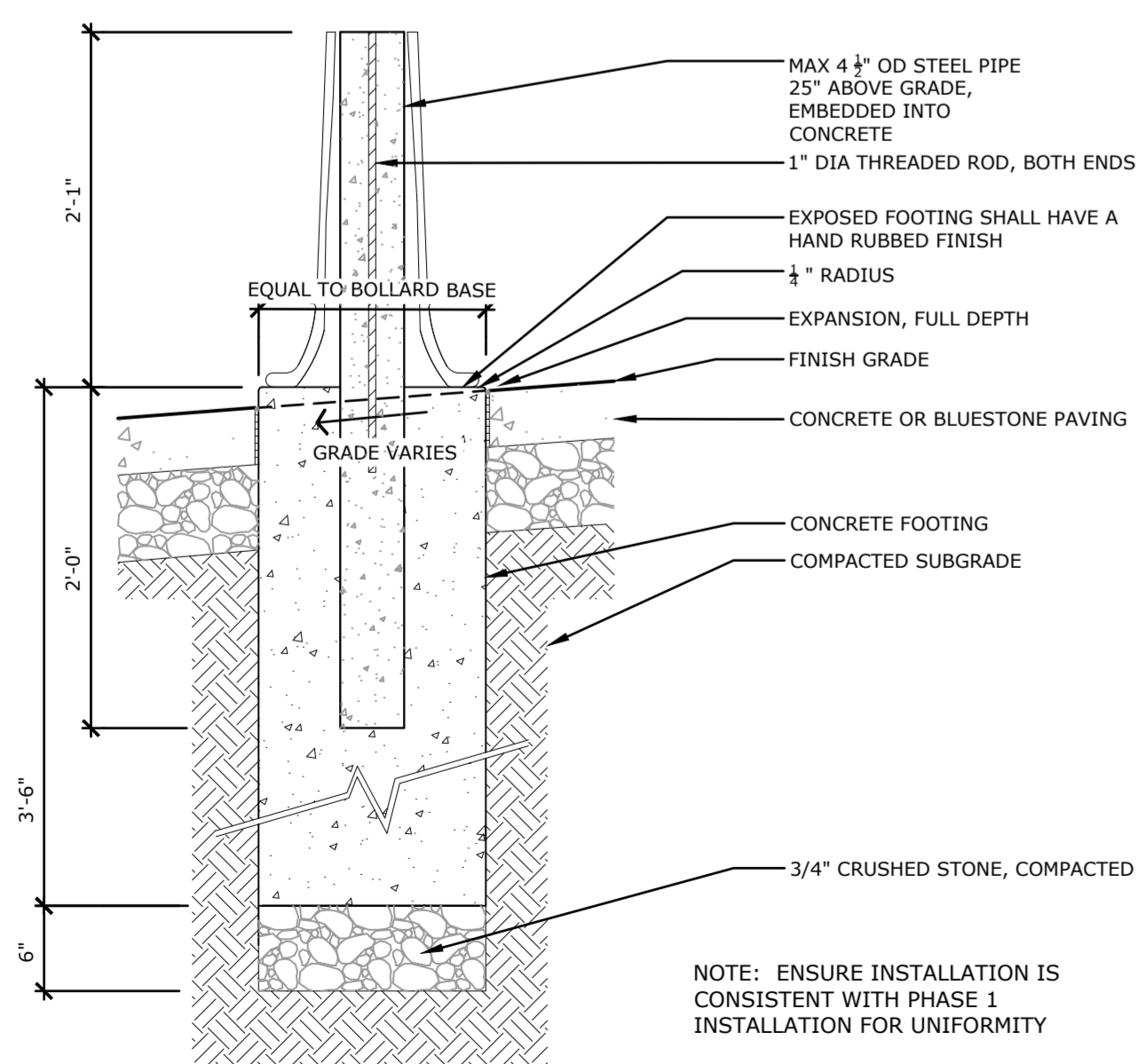
10 6' BENCH

NTS P-2017-018-COLL-101



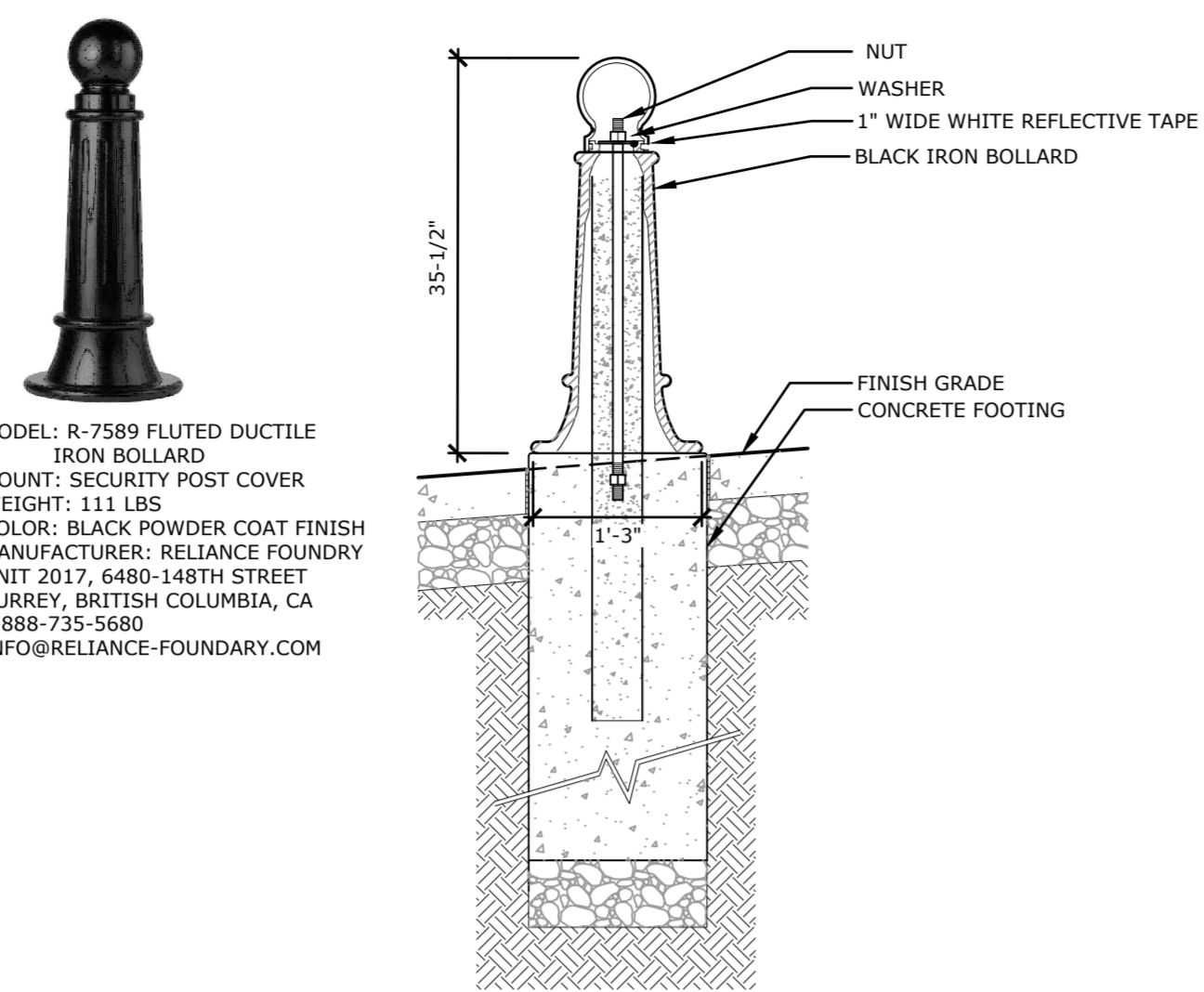
9 BENCH MOUNTING

NTS P-2017-018-COLL-53



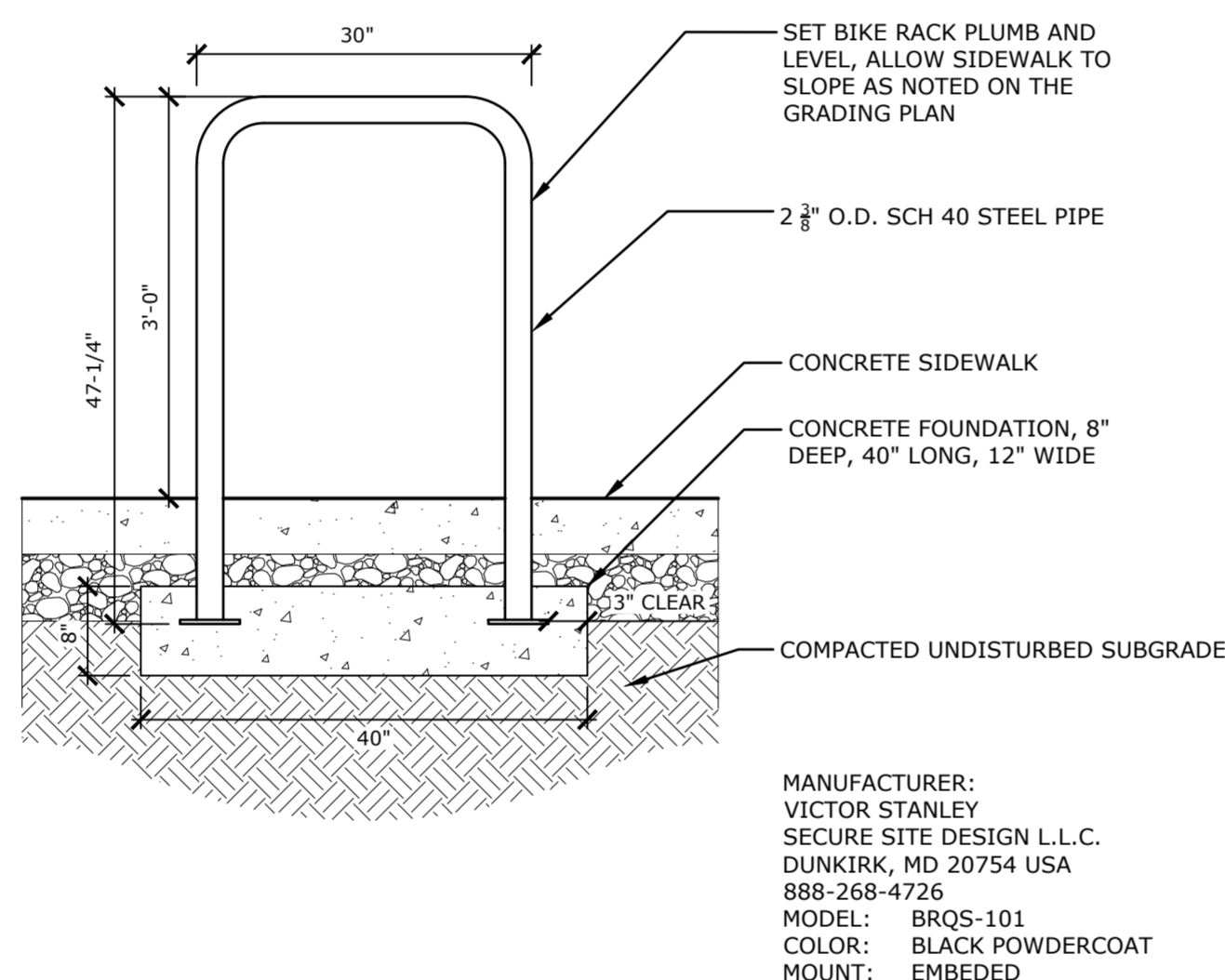
8 CONCRETE BOLLARD BASE

NTS P-2017-018-COLL-54



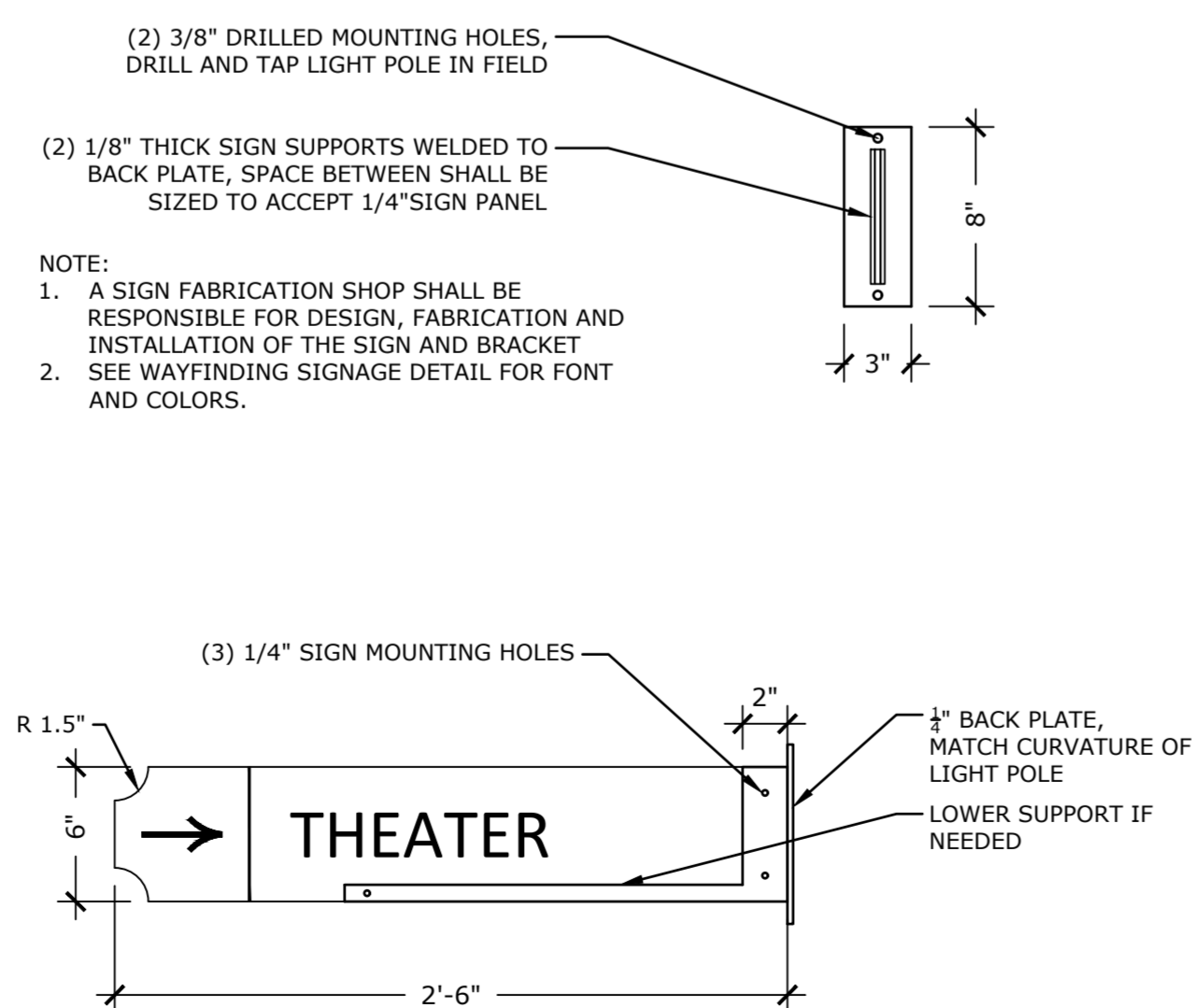
7 FIXED BOLLARD

NTS P-2017-018-COLL-57



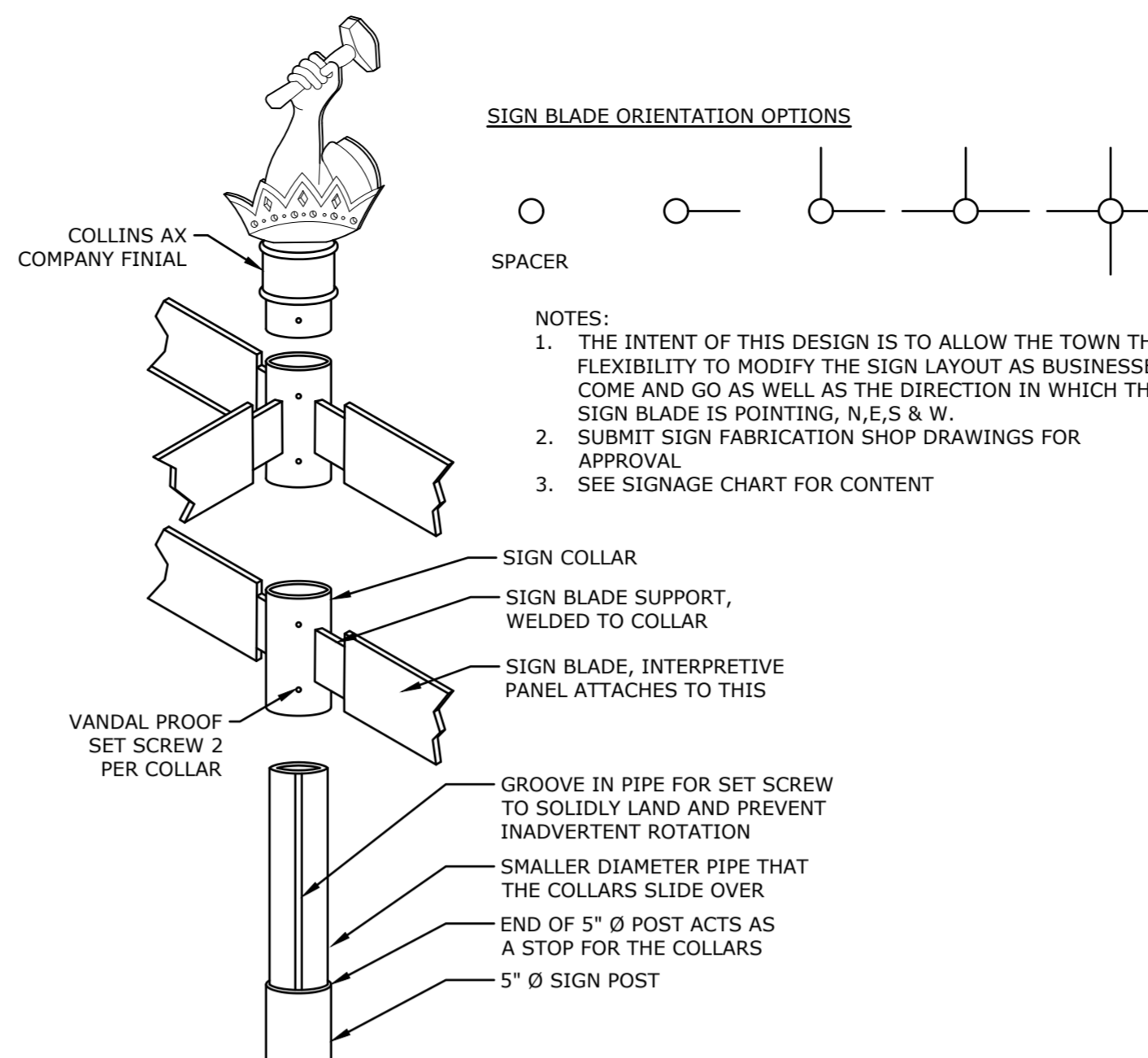
6 METAL LOOP BIKE RACK

NTS P-2017-018-COLL-55



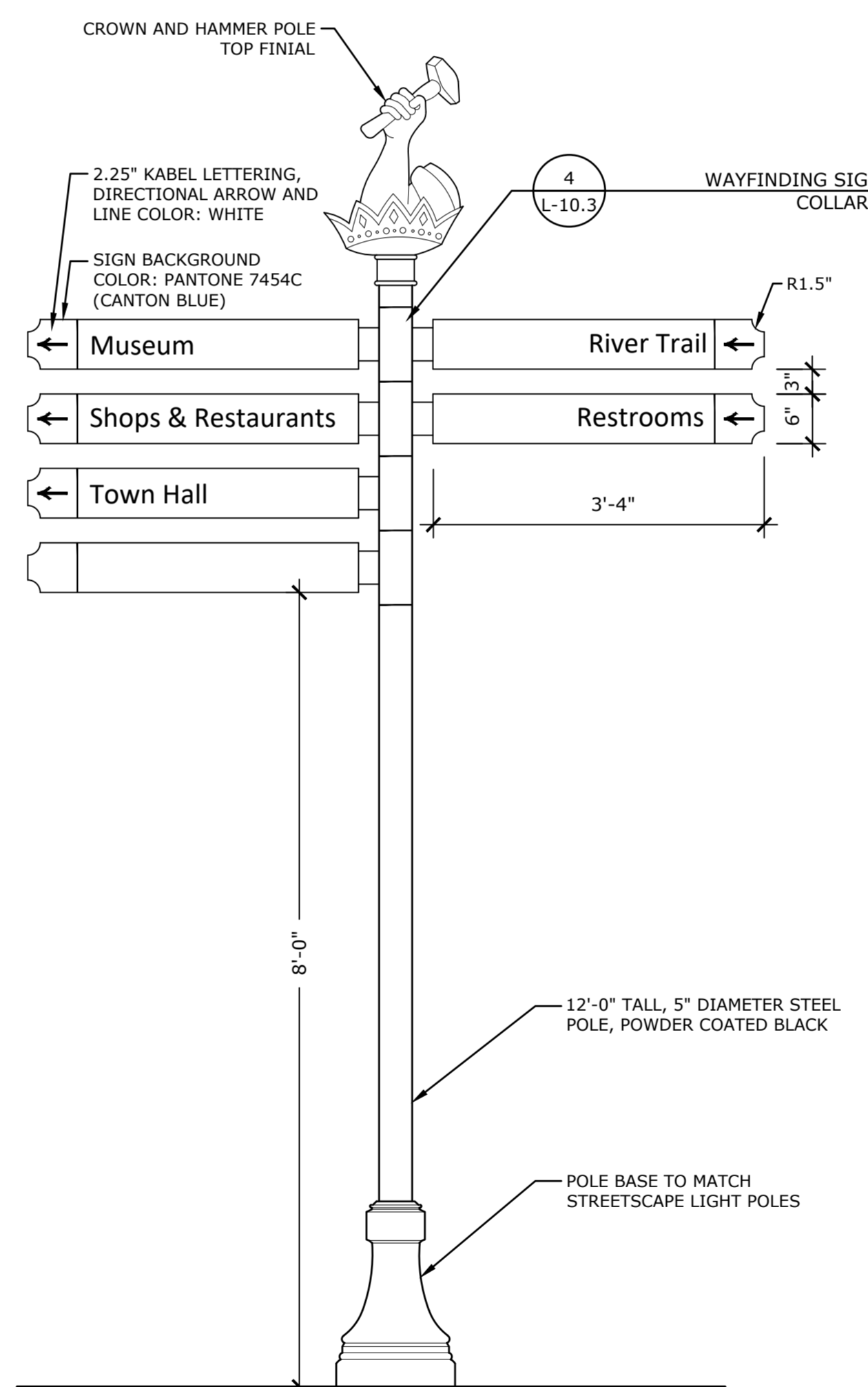
5 LIGHT POST MOUNTED SIGN

NTS P-2017-018-COLL-98



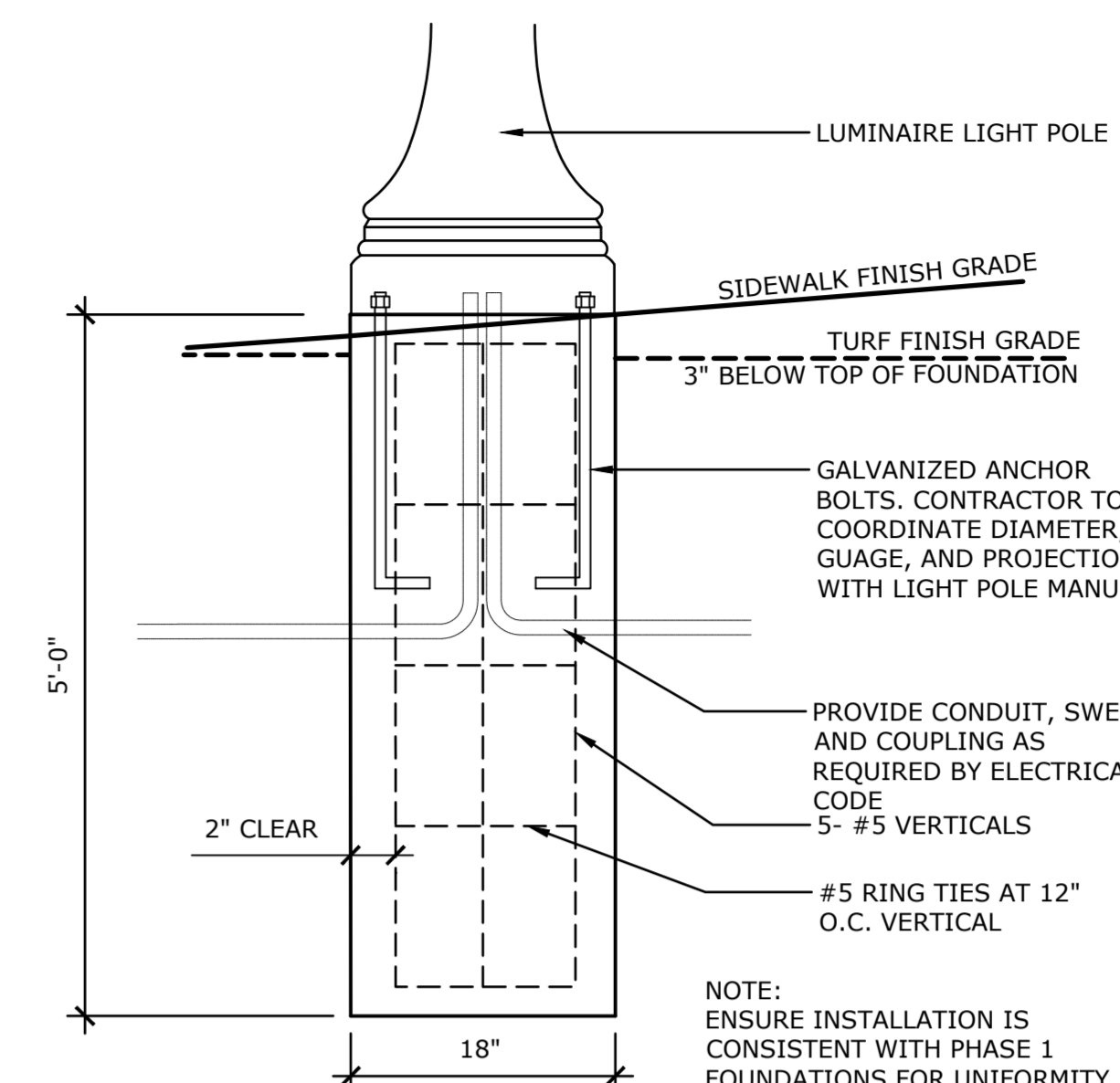
4 WAYFINDING SIGN COLLARS

NTS P-2017-018-COLL-93



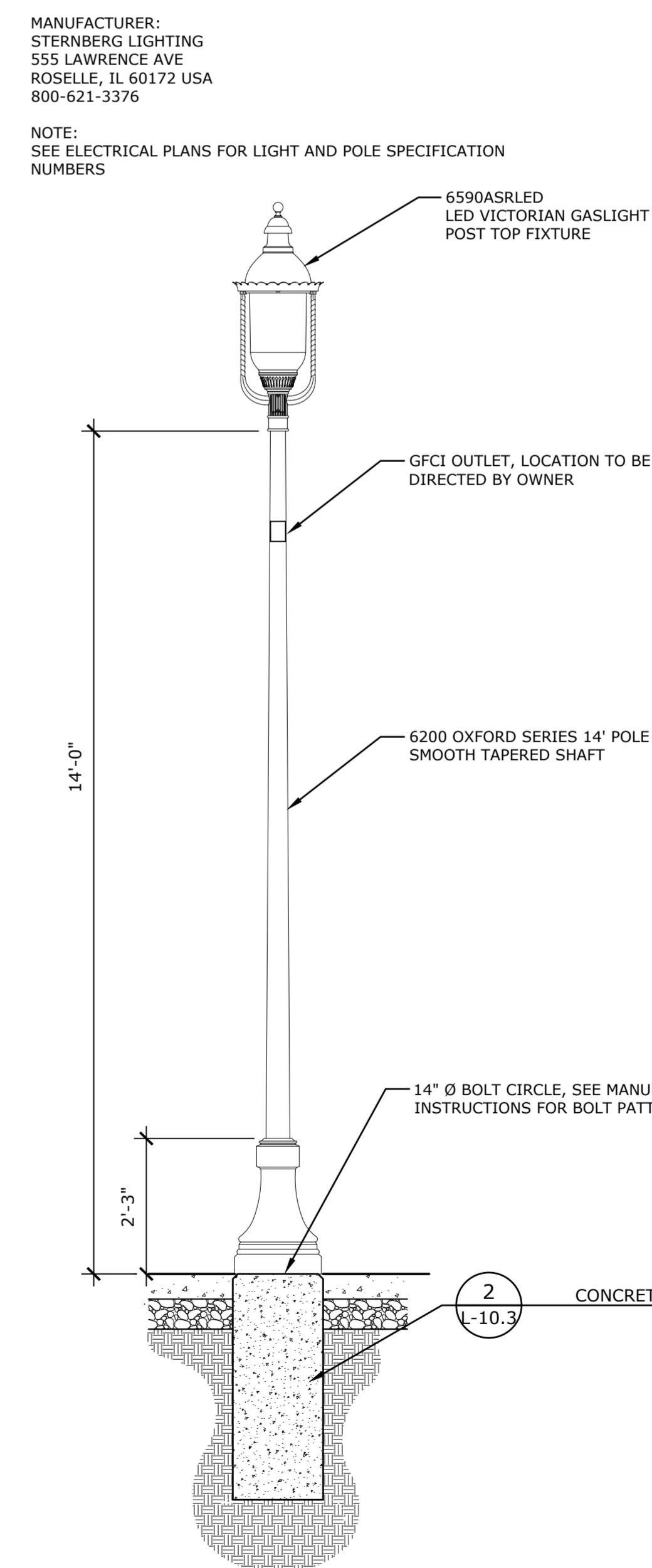
3 WAYFINDING SIGNAGE - POLE

NTS P-2017-018-COLL-66



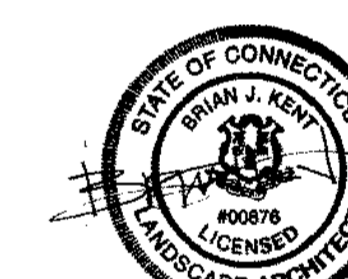
2 CONCRETE LIGHT POLE BASE

NTS P-2017-018-COLL-25



1 PEDESTRIAN LIGHT

NTS P-2017-018-COLL-56



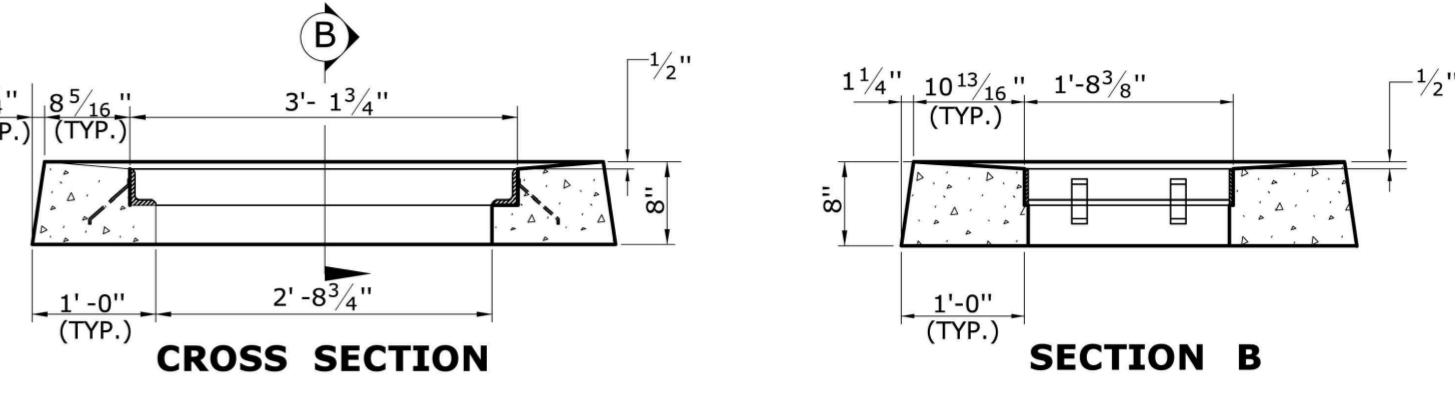
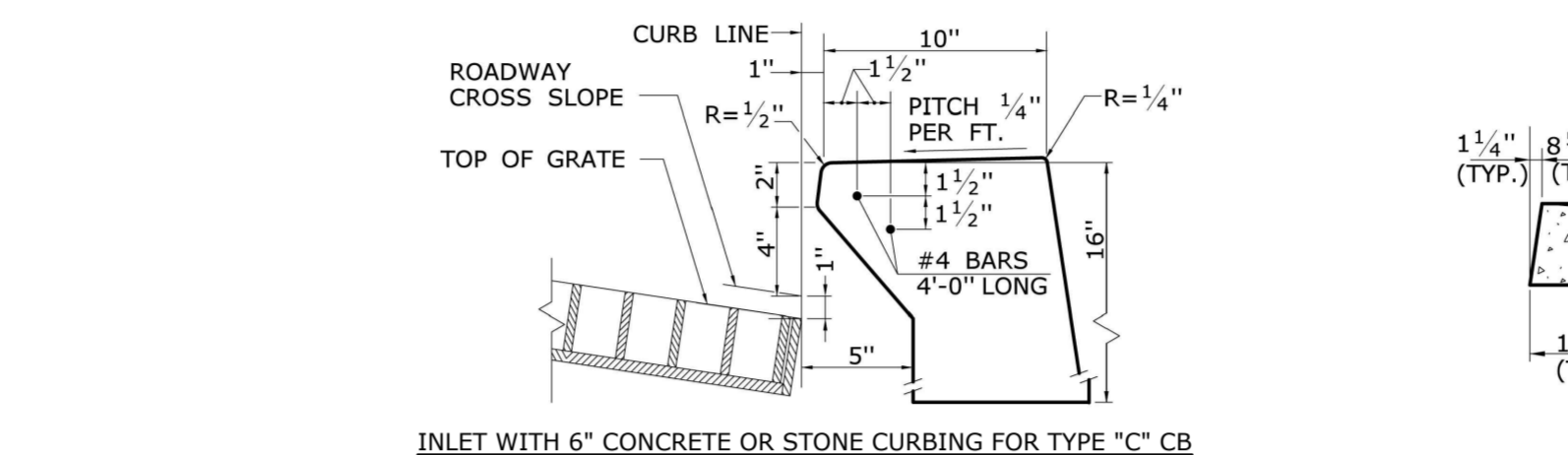
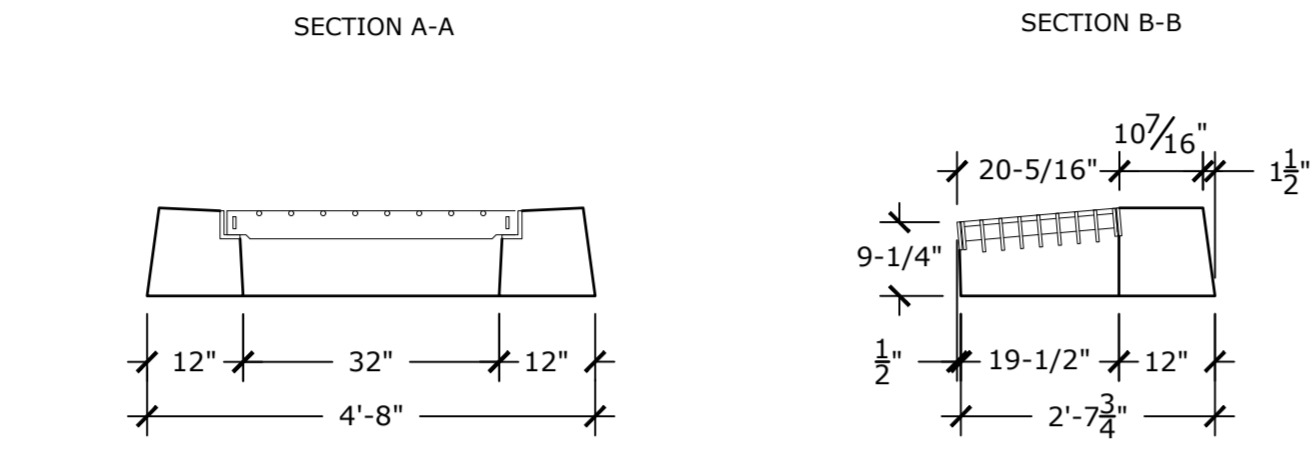
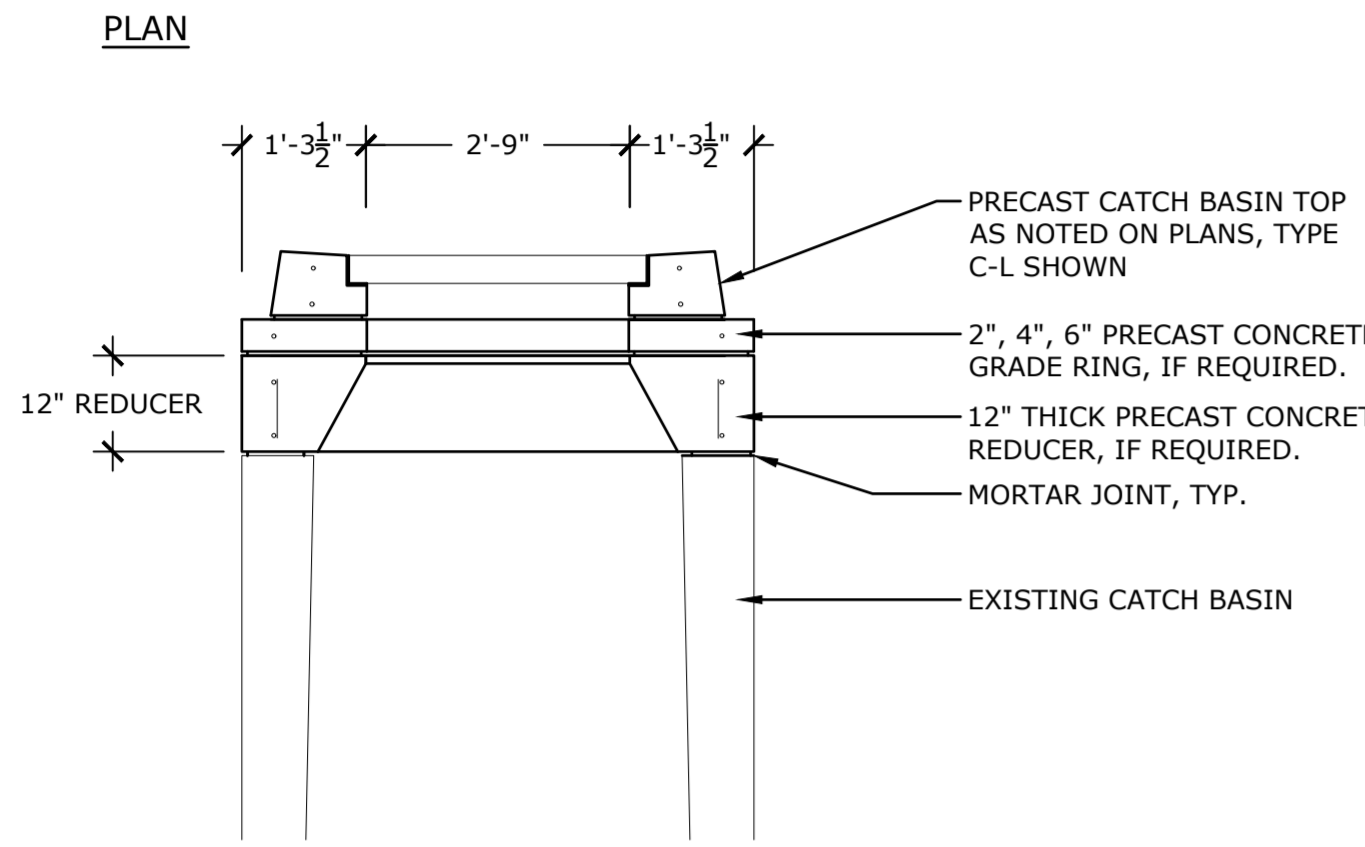
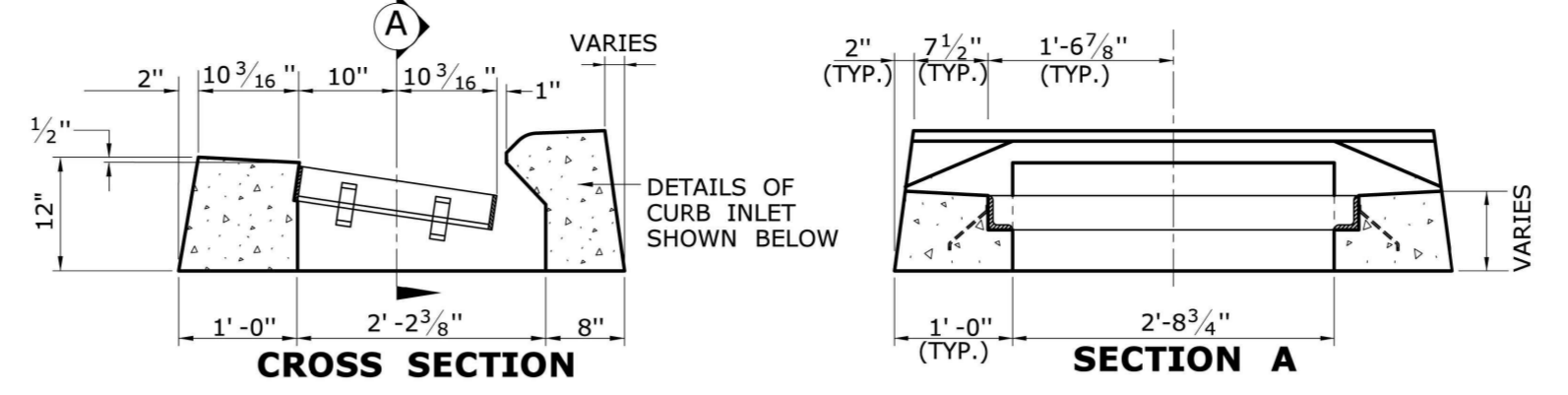
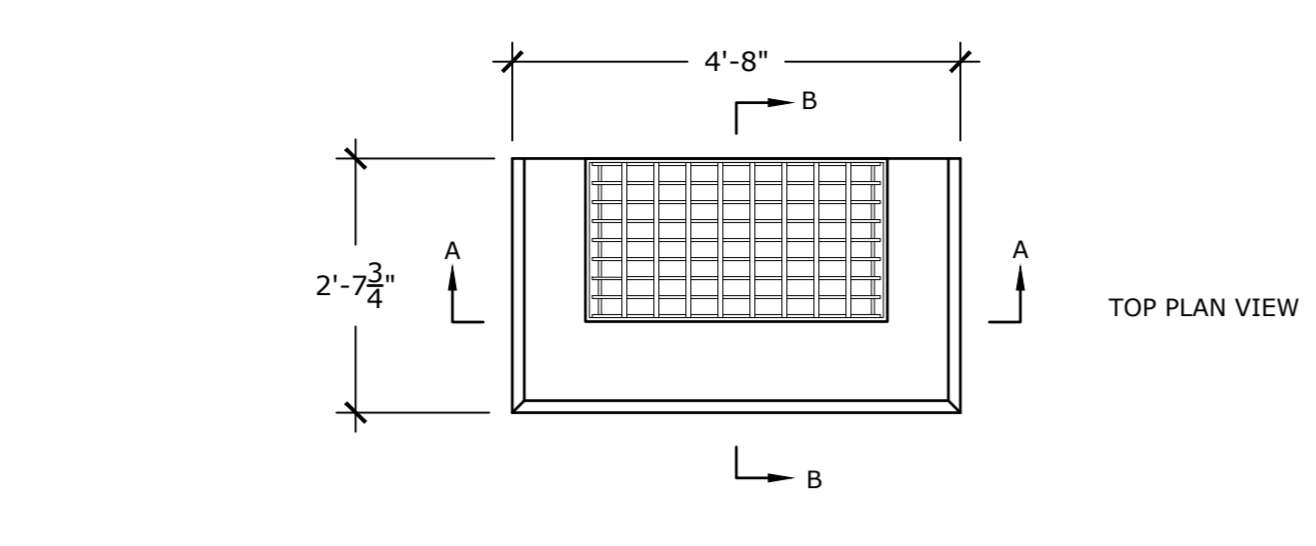
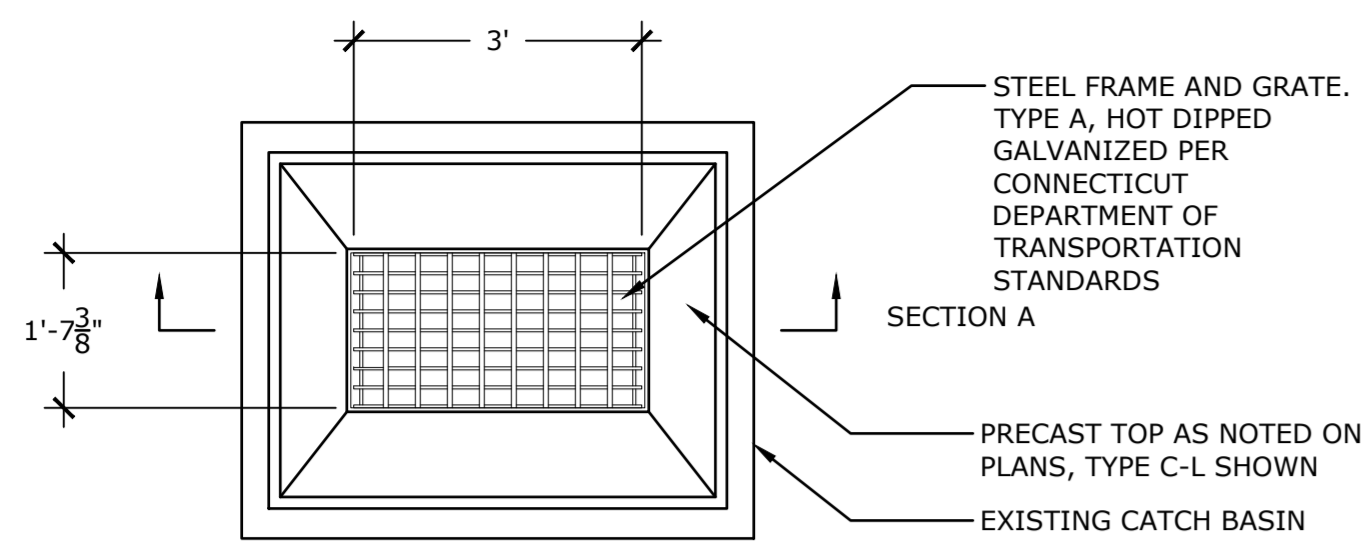
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Revisions	Date

SITE DETAILS

Scale	AS NOTED
Date	March 15, 2021
K+F Project No.	2017014
Drawing No.	

L-10.3



- NOTES:
1. REINFORCING STEEL DEFORMED BARS CONFORM TO LATEST ASTM SPECIFICATION A615, GRADE 60
2. CONCRETE COMPRESSIVE STRENGTH 4,000 PSI AT 28 DAYS, SELF CONSOLIDATING MIX
3. WET CAST, MONOLITHIC SECTION
4. CT DOT STANDARD FRAME AND GRATE, TYPE A
5. GALVANIZE FRAME AND GRATE AFTER FABRICATION

- NOTES:
1. REINFORCING STEEL DEFORMED BARS CONFORM TO LATEST ASTM SPECIFICATION A615, GRADE 60, 2\"/>

- NOTES:
1. REINFORCING STEEL DEFORMED BARS CONFORM TO LATEST ASTM SPECIFICATION A615, GRADE 60, 2\"/>

5 CATCH BASIN TOP - TYPE "CM"
NTS P-2017-018-COLL-72

3 TYPE "C" CATCH BASIN TOP W/ CURB INLET PROFILE
NTS P-2017-018-COLL-71

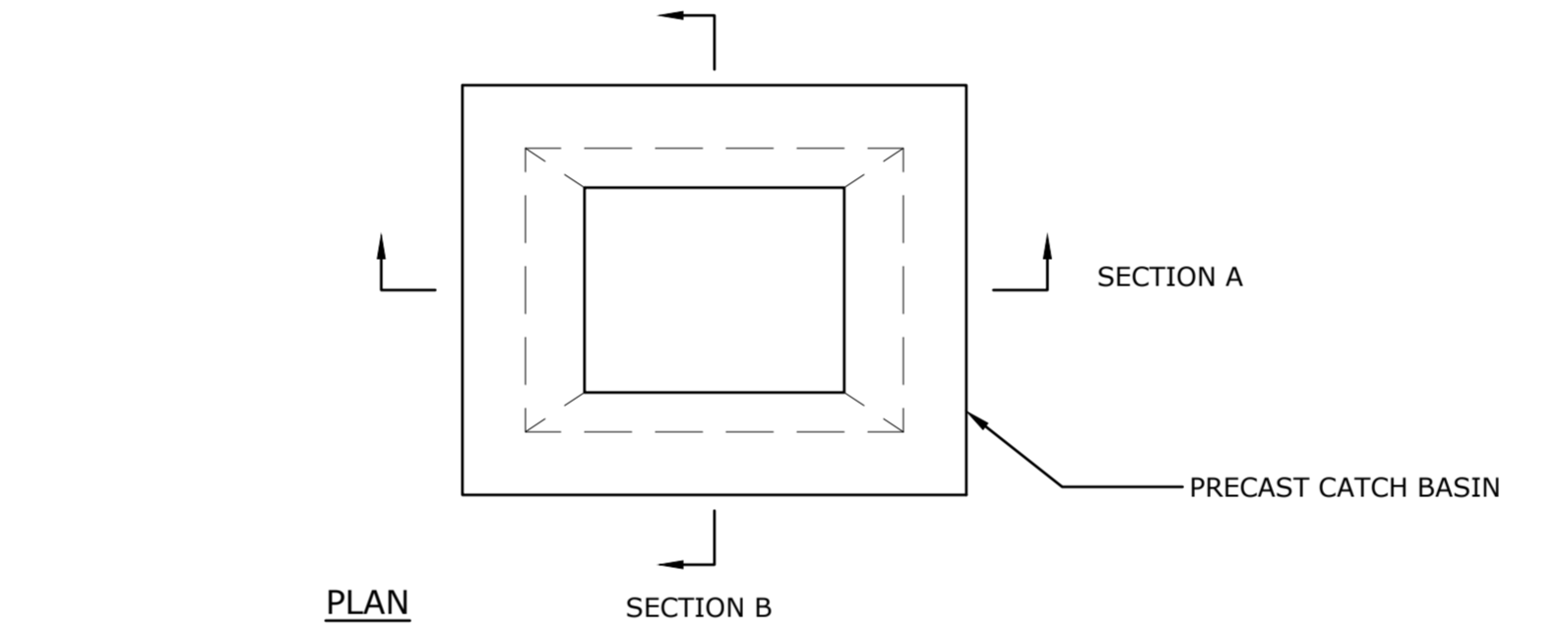
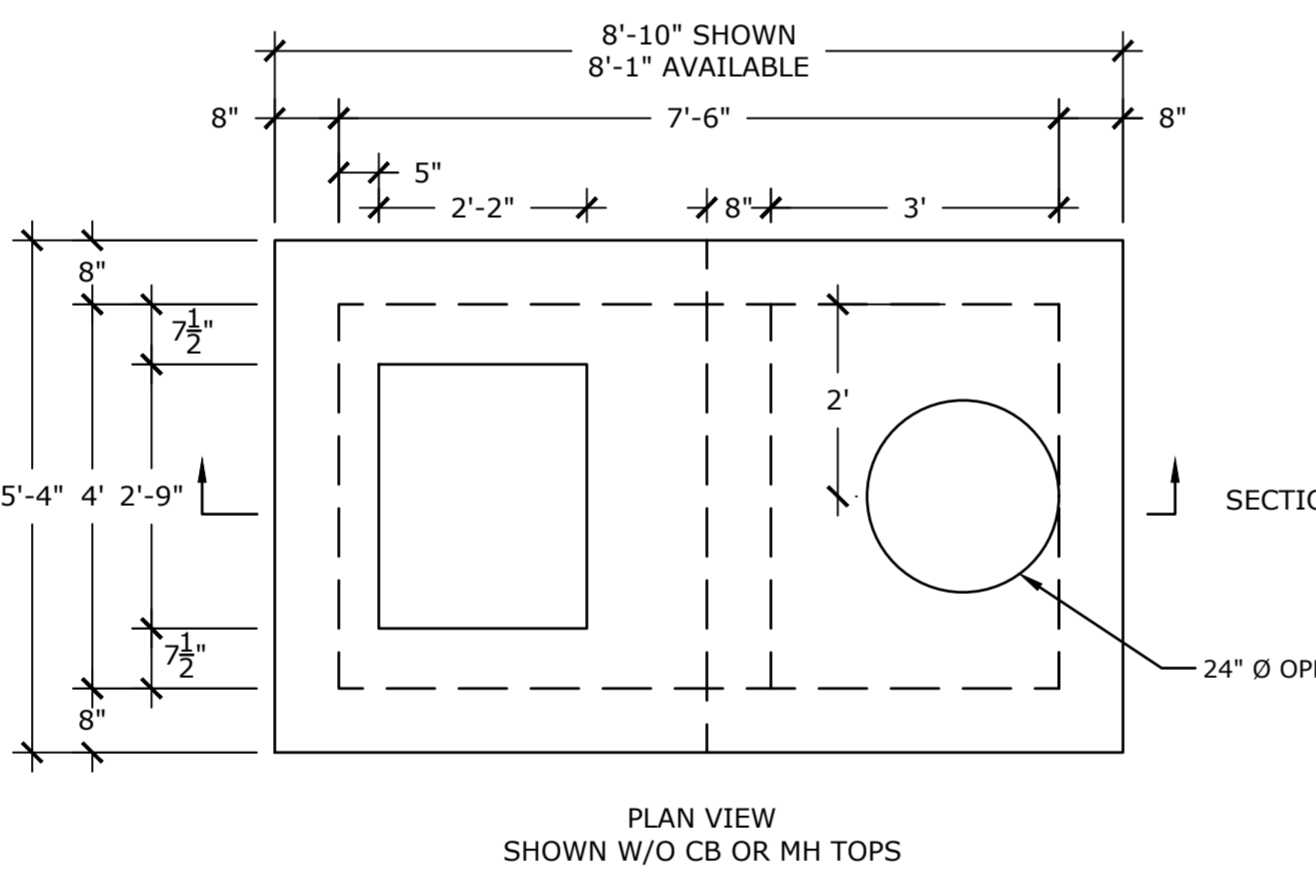
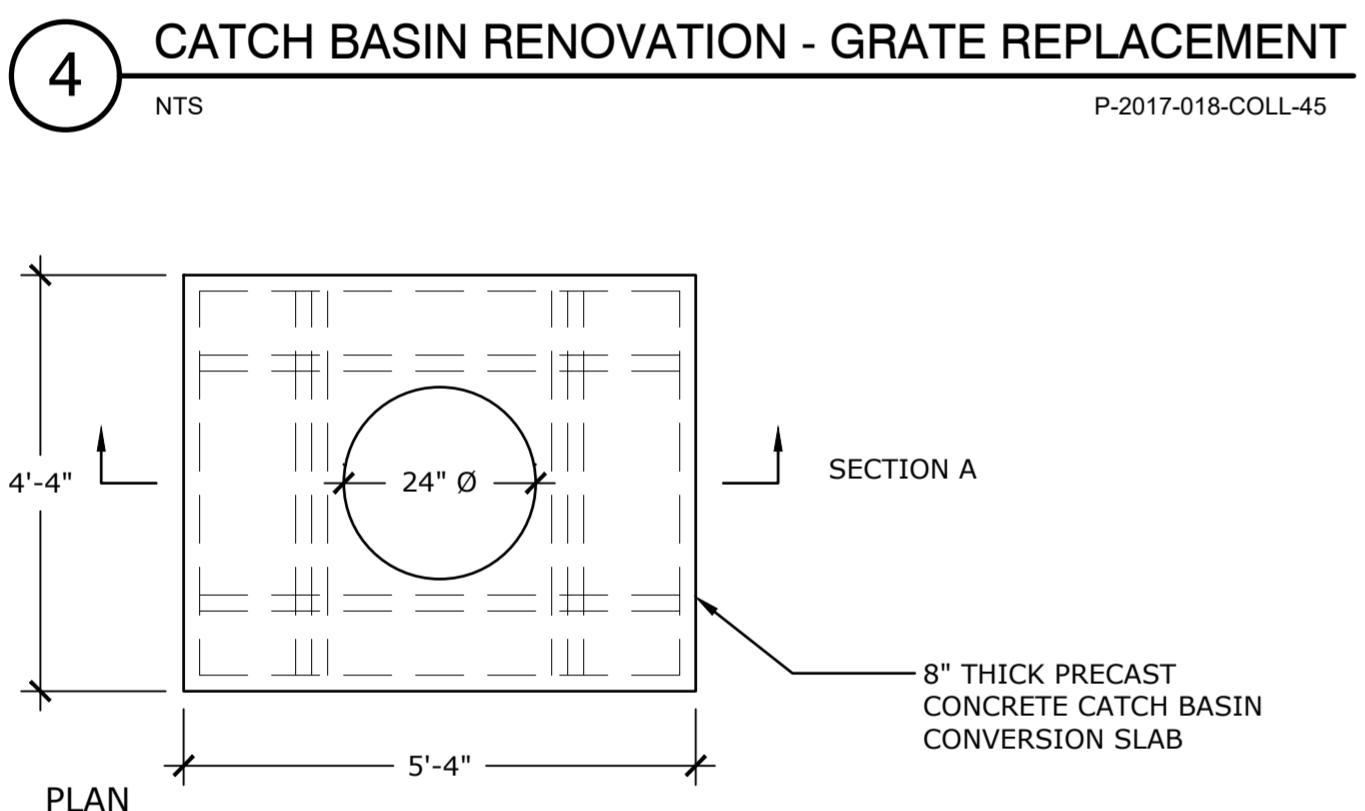
2 TYPE "C-L" BASIN TOP
NTS P-2017-018-COLL-70

- CATCH BASIN NOTES:
1. MINIMUM CONCRETE COMPRESSIVE STRENGTH = 4,000 P.S.I SHALL BE OBTAINED PRIOR TO SHIPPING.
2. STEEL REINFORCEMENT SHALL CONFORM TO ASTM A615, GRADE 60 WITH A MINIMUM CLEAR COVER OF 2\"/>

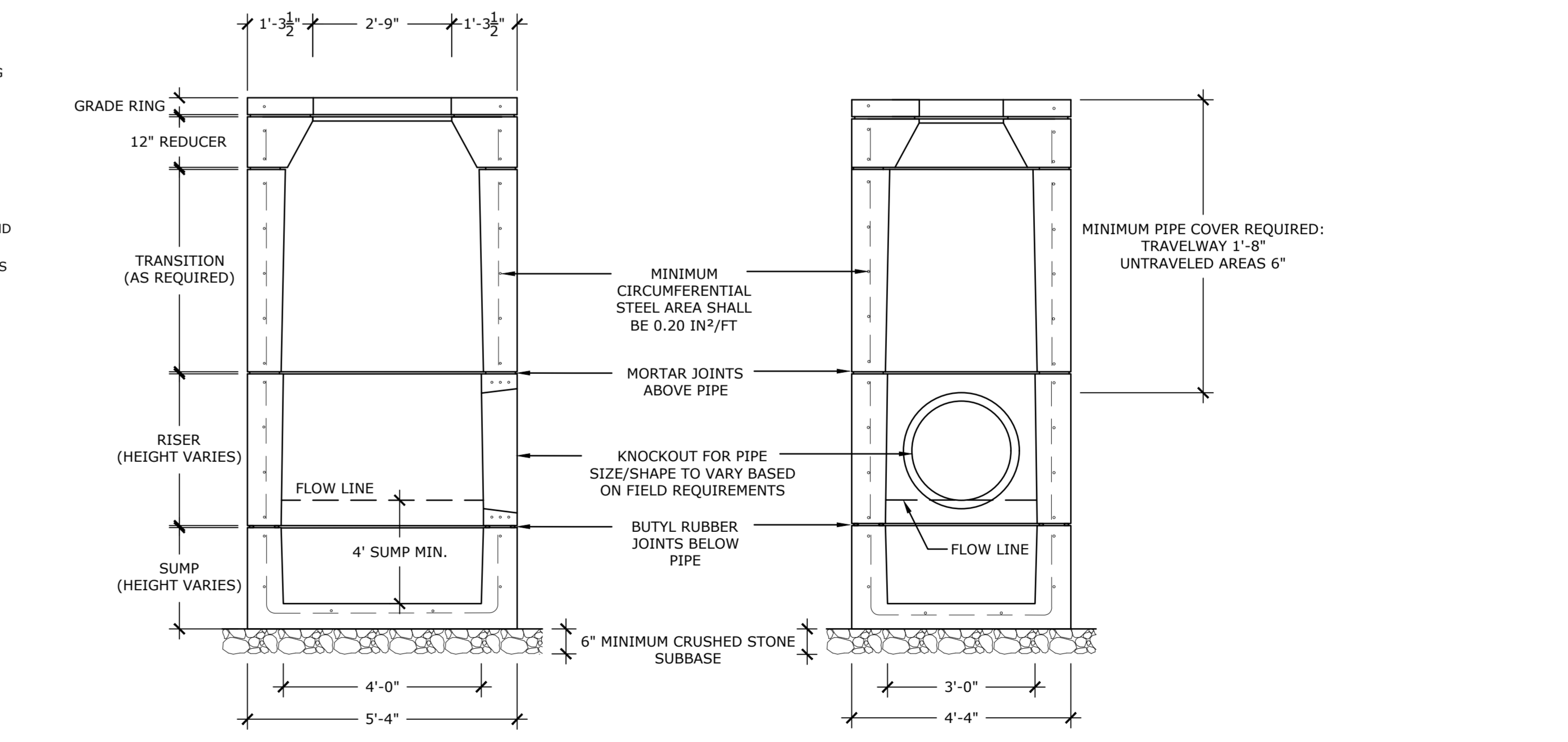
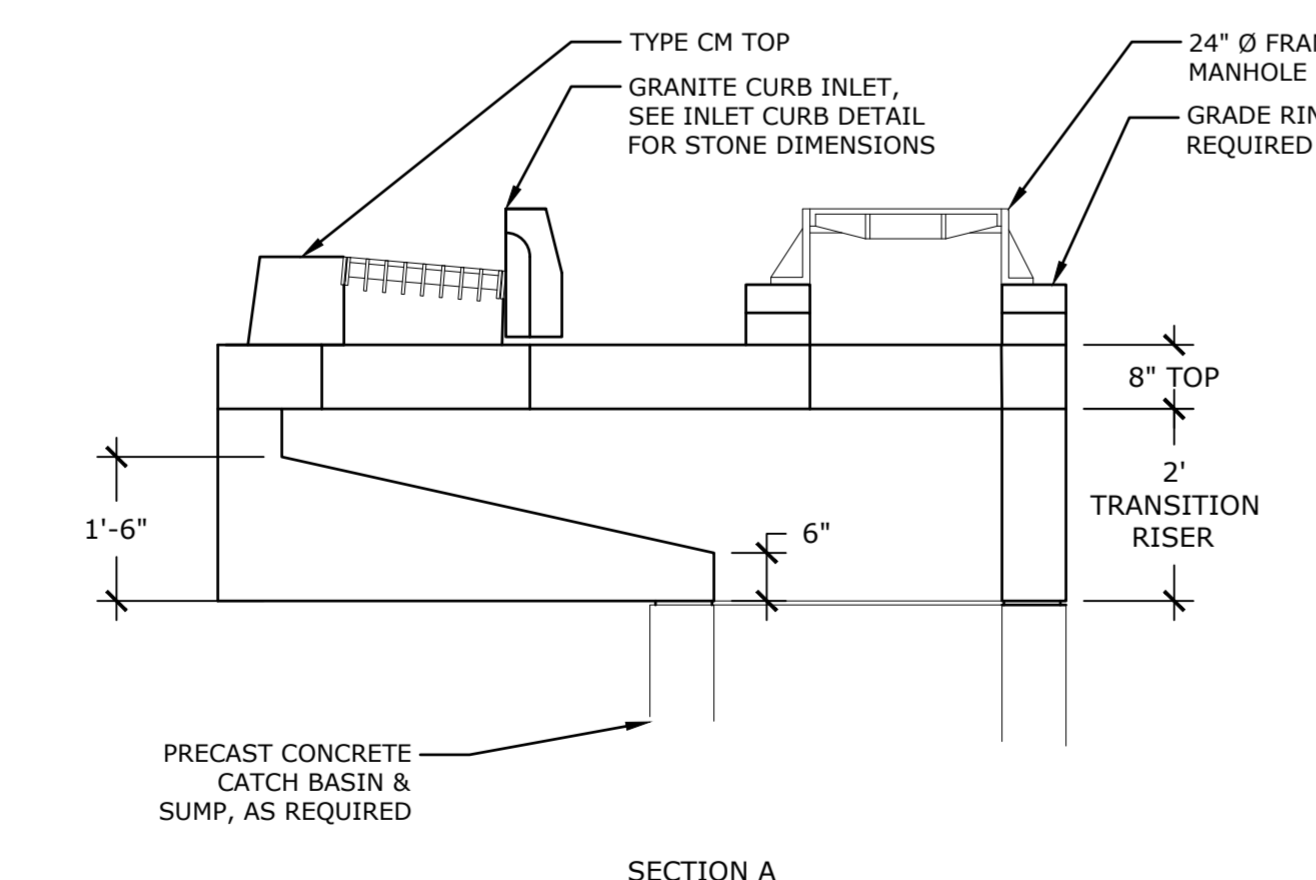
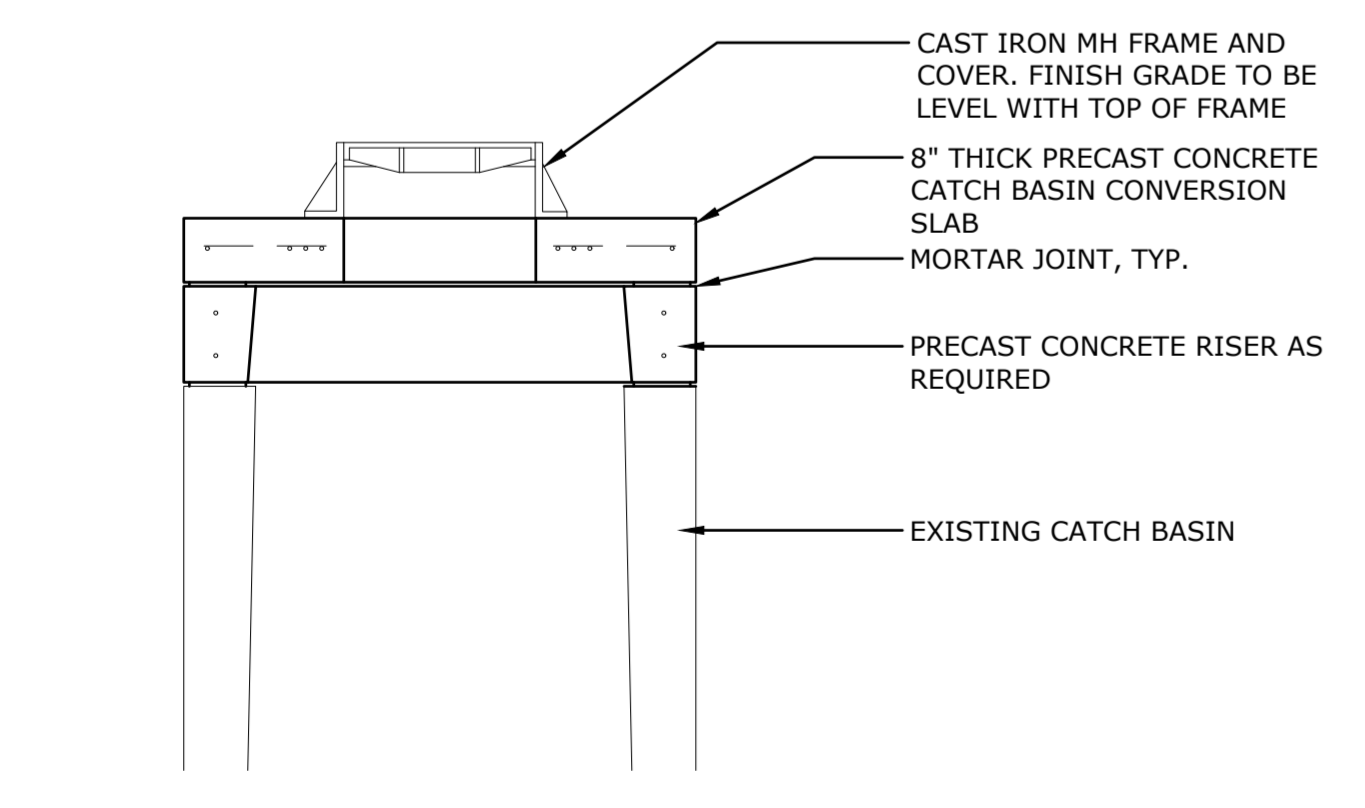
5 CATCH BASIN TOP - TYPE "CM"
NTS P-2017-018-COLL-72

3 TYPE "C" CATCH BASIN TOP W/ CURB INLET PROFILE
NTS P-2017-018-COLL-71

2 TYPE "C-L" BASIN TOP
NTS P-2017-018-COLL-70



- CATCH BASIN NOTES:
1. MINIMUM CONCRETE COMPRESSIVE STRENGTH = 4,000 P.S.I SHALL BE OBTAINED PRIOR TO SHIPPING.
2. STEEL REINFORCEMENT SHALL CONFORM TO ASTM A615, GRADE 60 WITH A MINIMUM CLEAR COVER OF 2\"/>



- CATCH BASIN NOTES:
1. MINIMUM CONCRETE COMPRESSIVE STRENGTH = 4,000 P.S.I SHALL BE OBTAINED PRIOR TO SHIPPING.
2. STEEL REINFORCEMENT SHALL CONFORM TO ASTM A615, GRADE 60 WITH A MINIMUM CLEAR COVER OF 2\"/>

- CATCH BASIN NOTES:
1. MINIMUM CONCRETE COMPRESSIVE STRENGTH = 4,000 P.S.I SHALL BE OBTAINED PRIOR TO SHIPPING.
2. STEEL REINFORCEMENT SHALL CONFORM TO ASTM A615, GRADE 60 WITH A MINIMUM CLEAR COVER OF 2\"/>

- MINIMUM PIPE COVER REQUIRED: TRAVELWAY 1'-8\"/>

- CATCH BASIN NOTES:
1. MINIMUM CONCRETE COMPRESSIVE STRENGTH = 4,000 P.S.I SHALL BE OBTAINED PRIOR TO SHIPPING.
2. STEEL REINFORCEMENT SHALL CONFORM TO ASTM A615, GRADE 60 WITH A MINIMUM CLEAR COVER OF 2\"/>

6 CATCH BASIN RENOVATION - MANHOLE CONVERSION
1/2\"/>

7 OFFSET CATCH BASIN
NTS P-2017-018-COLL-74

1 TYPE 'C' CATCH BASIN
NTS P-2017-018-COLL-33



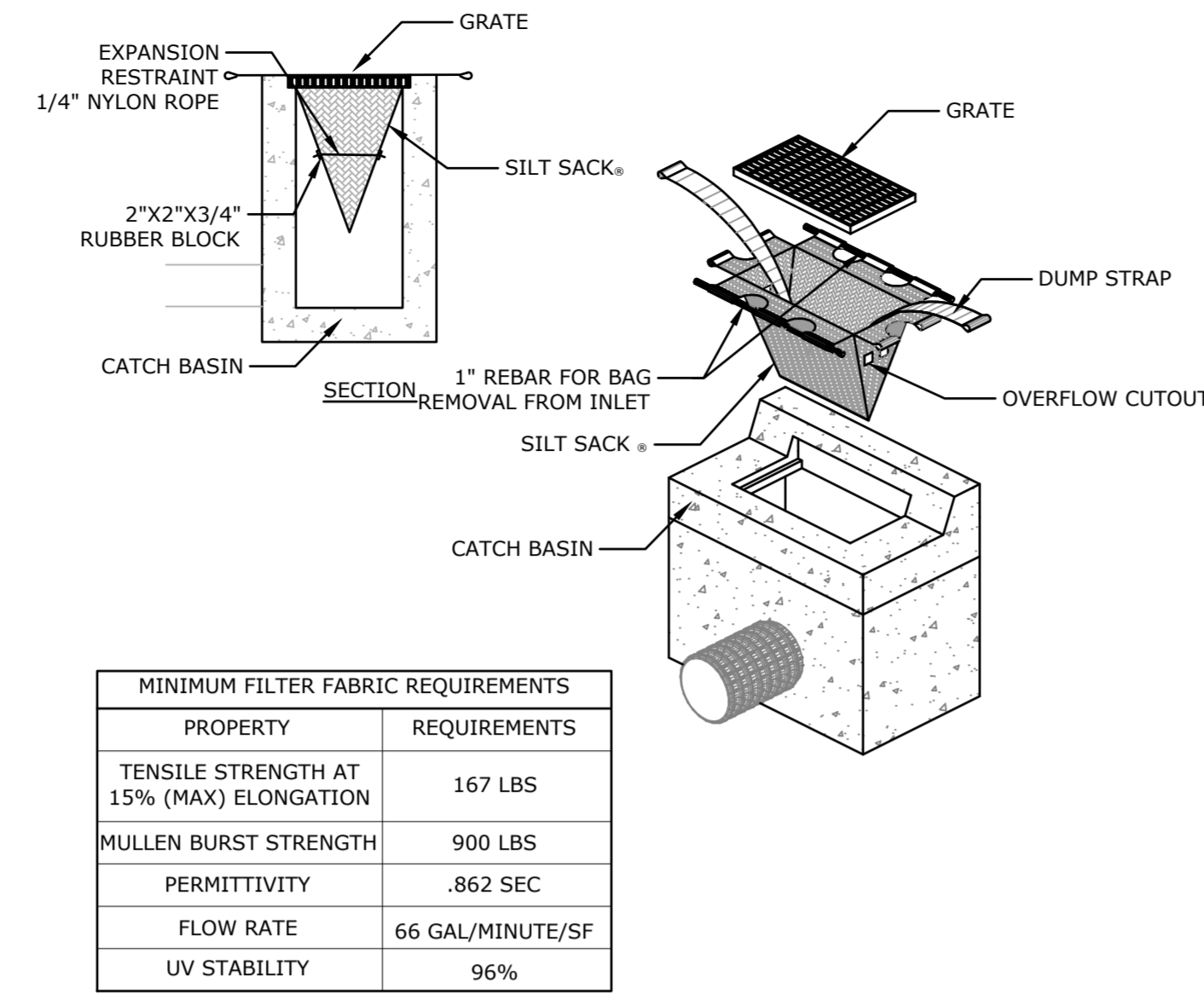
ISSUED FOR BID

Revisions	Date
1 DOT COMMENT-3/1/19	3/22/19

SITE DETAILS

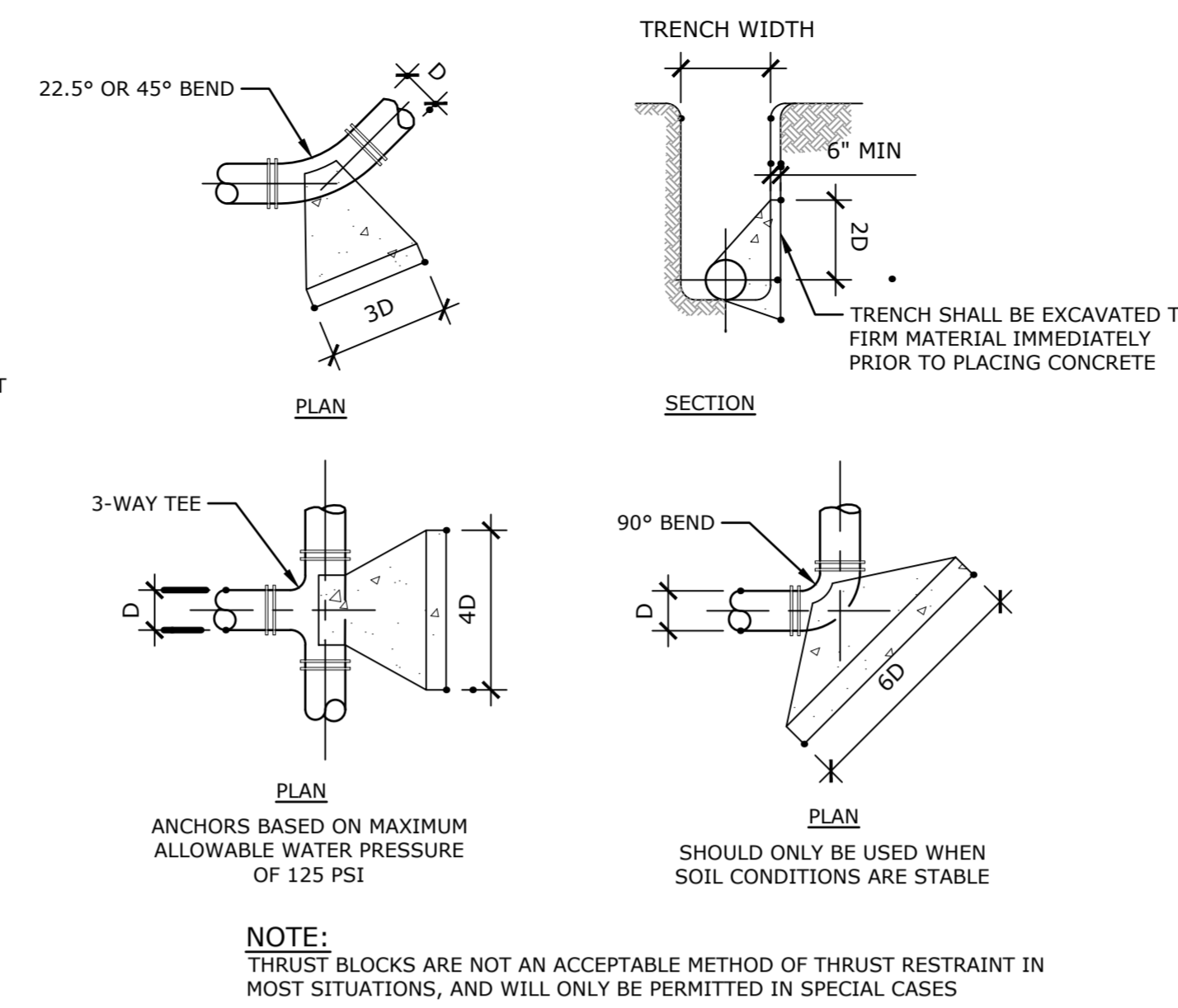
Scale	AS NOTED
Date	March 15, 2021
K-F Project No.	2017014
Drawing No.	

L-10.4

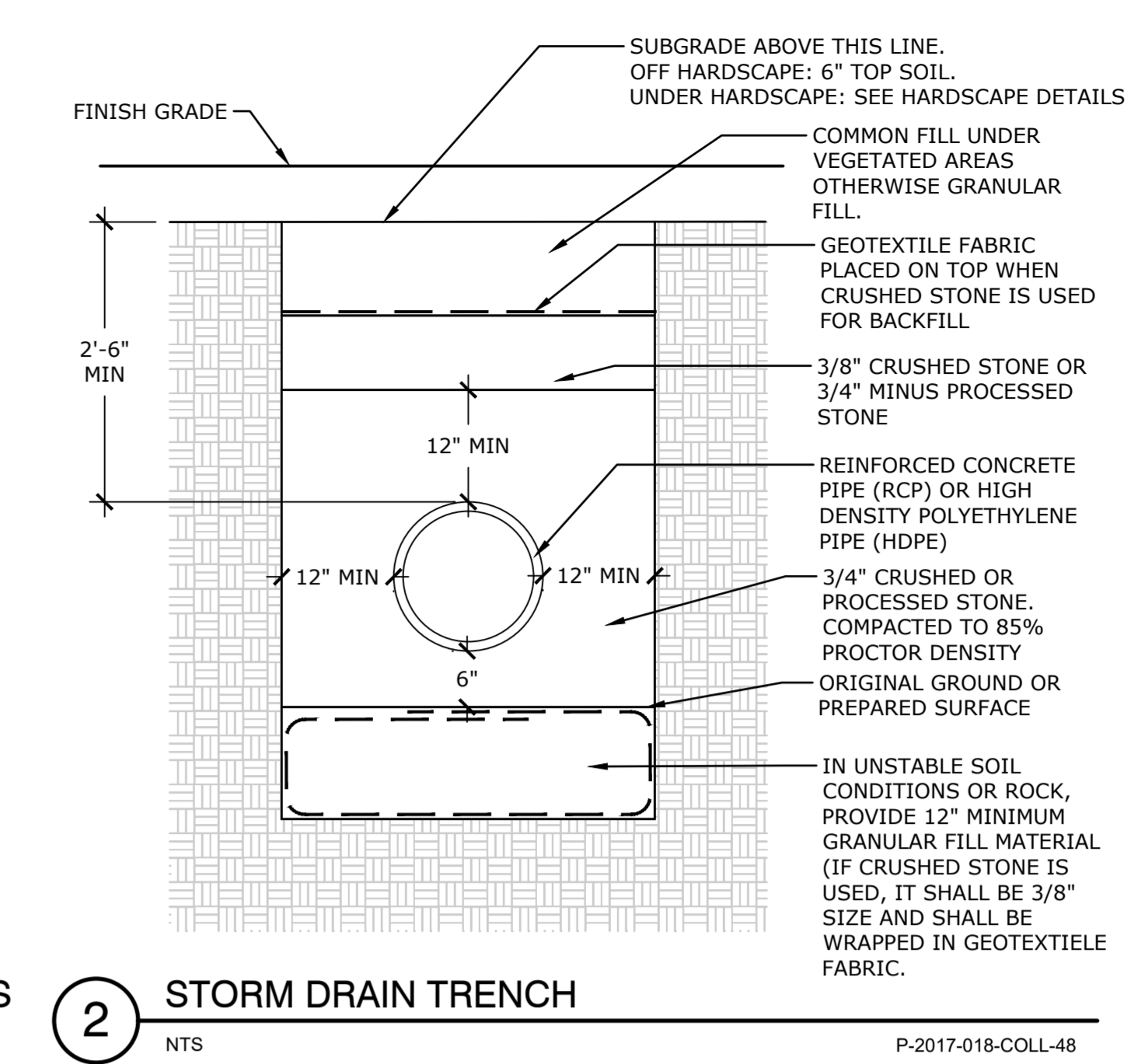


MINIMUM FILTER FABRIC REQUIREMENTS	
PROPERTY	REQUIREMENTS
TENSILE STRENGTH AT 15% (MAX) ELONGATION	167 LBS
MULLEN BURST STRENGTH	900 LBS
PERMITTIVITY	.862 SEC
FLOW RATE	66 GAL/MINUTE/SF
UV STABILITY	96%

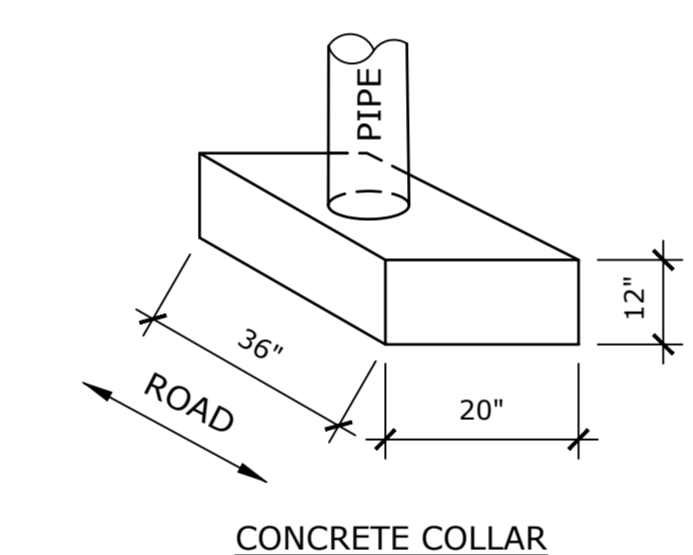
7 CATCHBASIN SEDIMENT CONTROL DEVICE
NTS P-2017-018-COLL-21



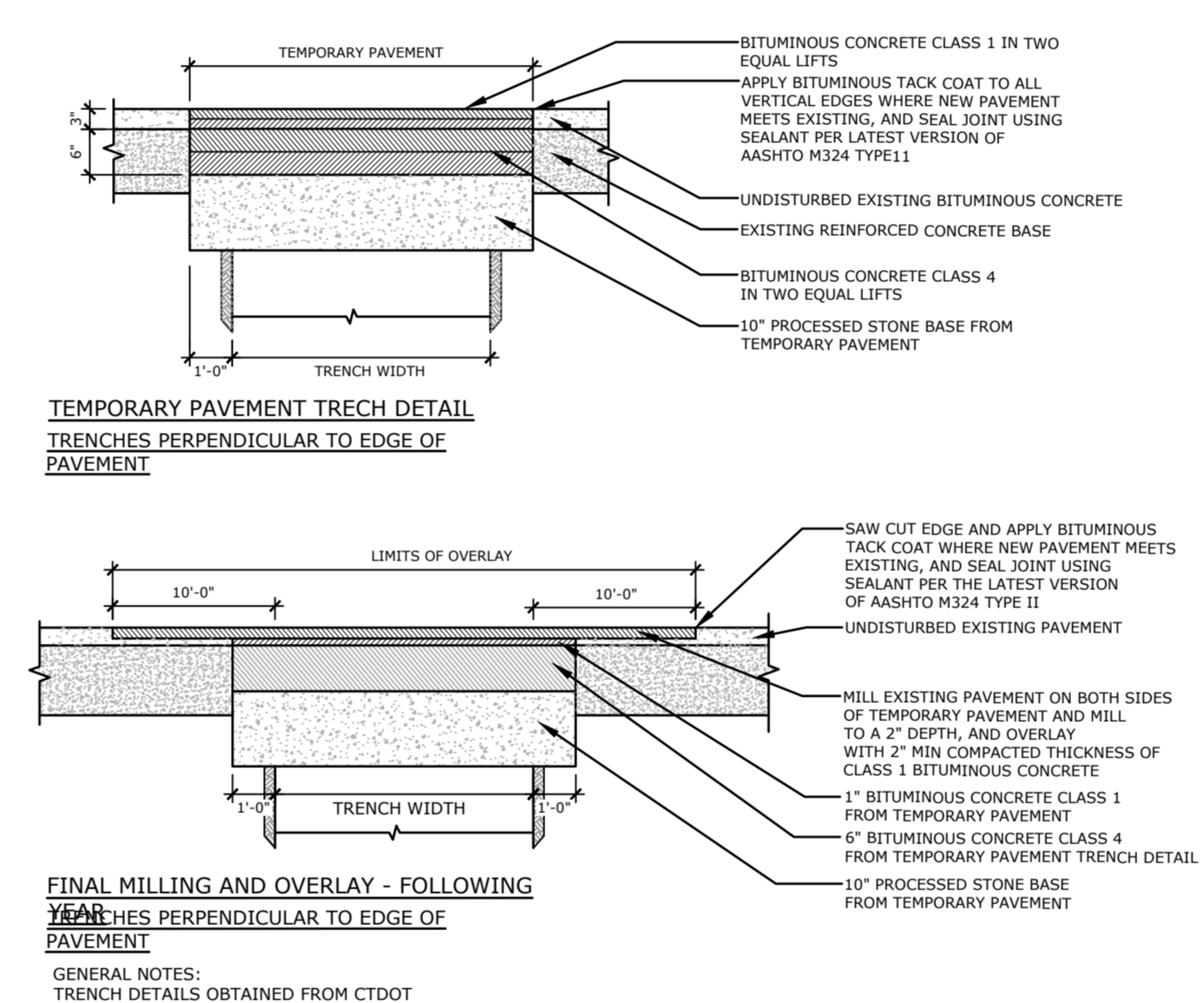
5 CONCRETE THRUST BLOCK - USE WITH < 12" WATER MAINS
NTD P-2017-018-COLL-68



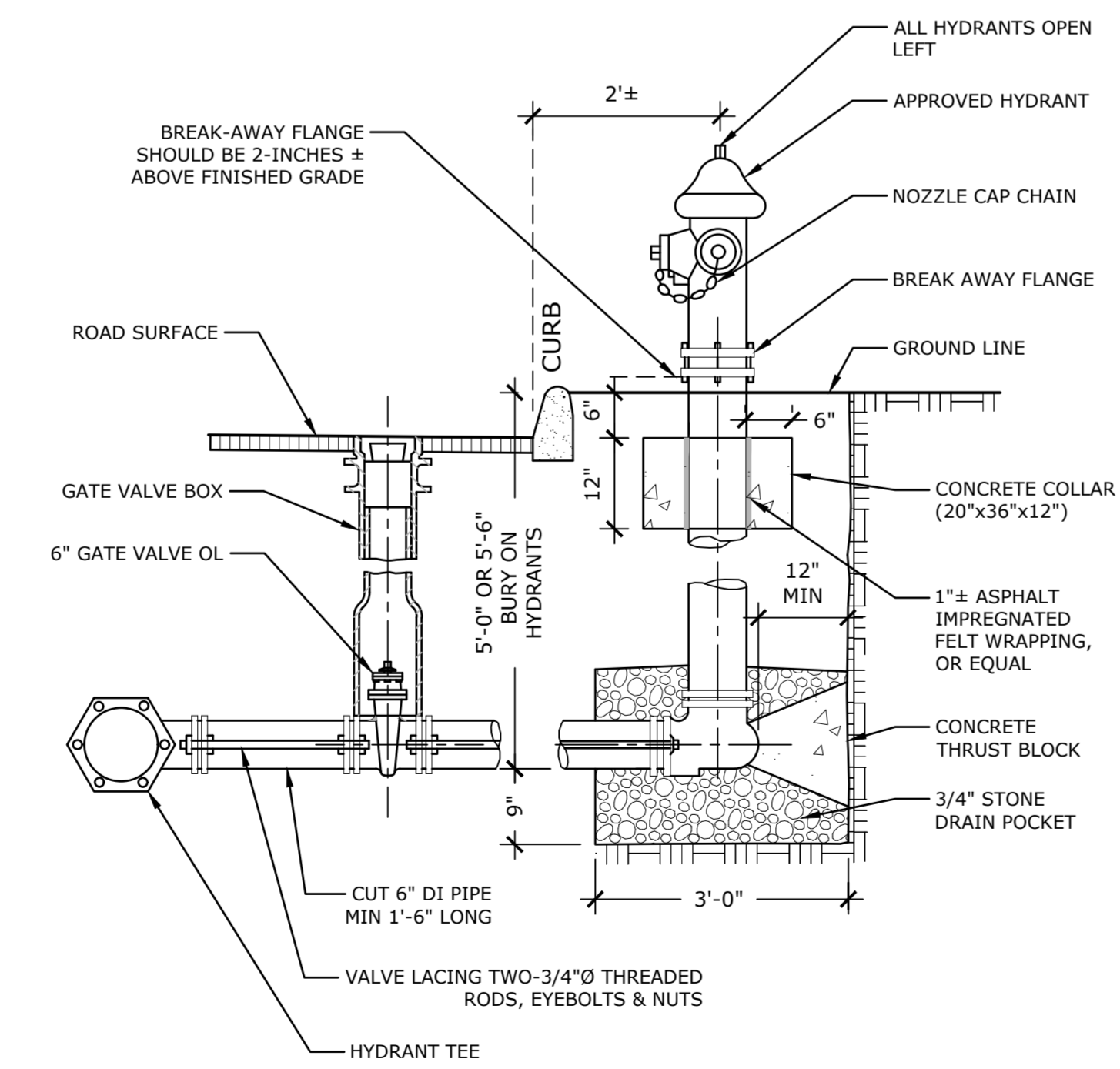
2 STORM DRAIN TRENCH
NTS P-2017-018-COLL-48



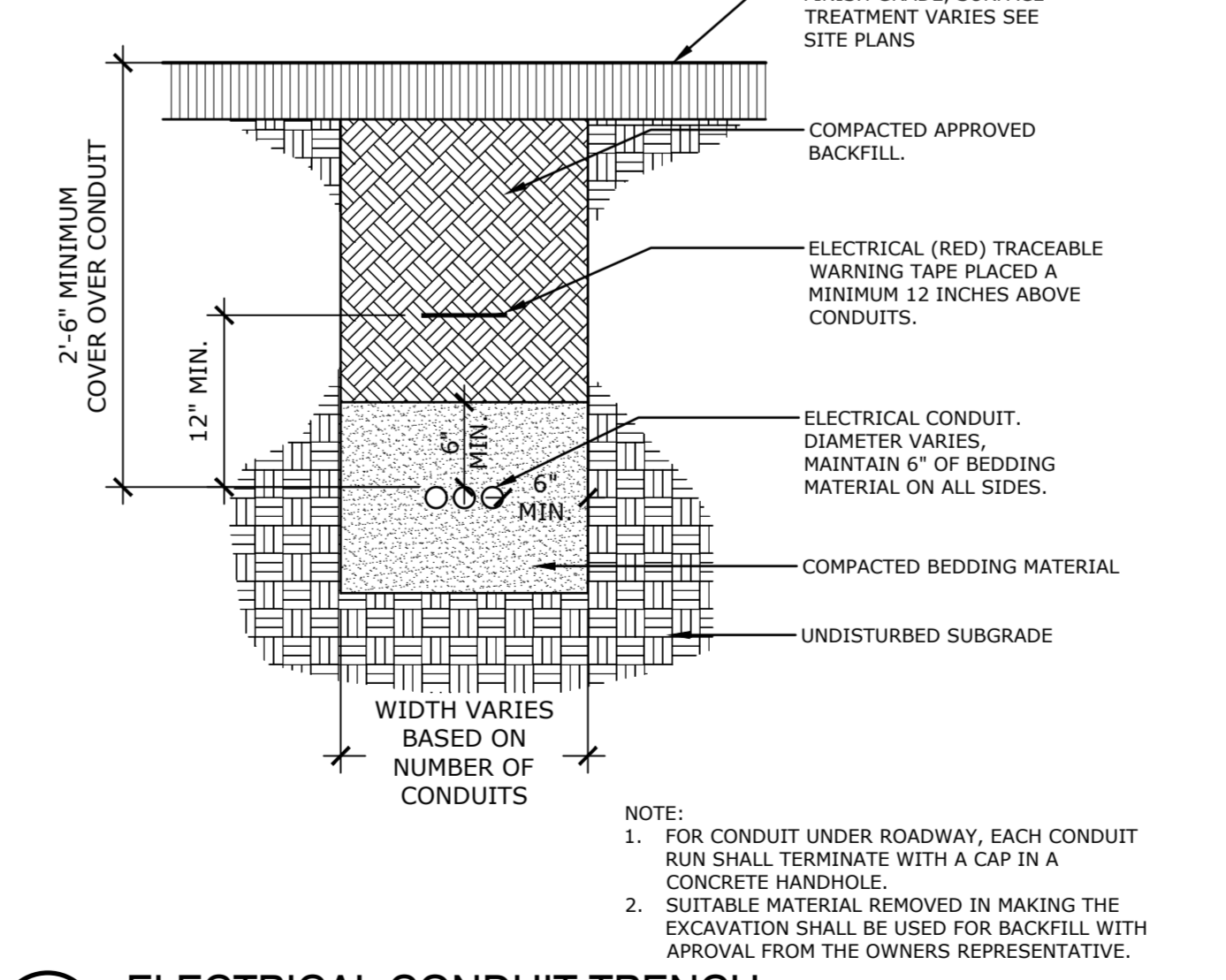
CONCRETE COLLAR



4 TRENCH PAVING DETAILS
NTS P-2017-018-COLL-52

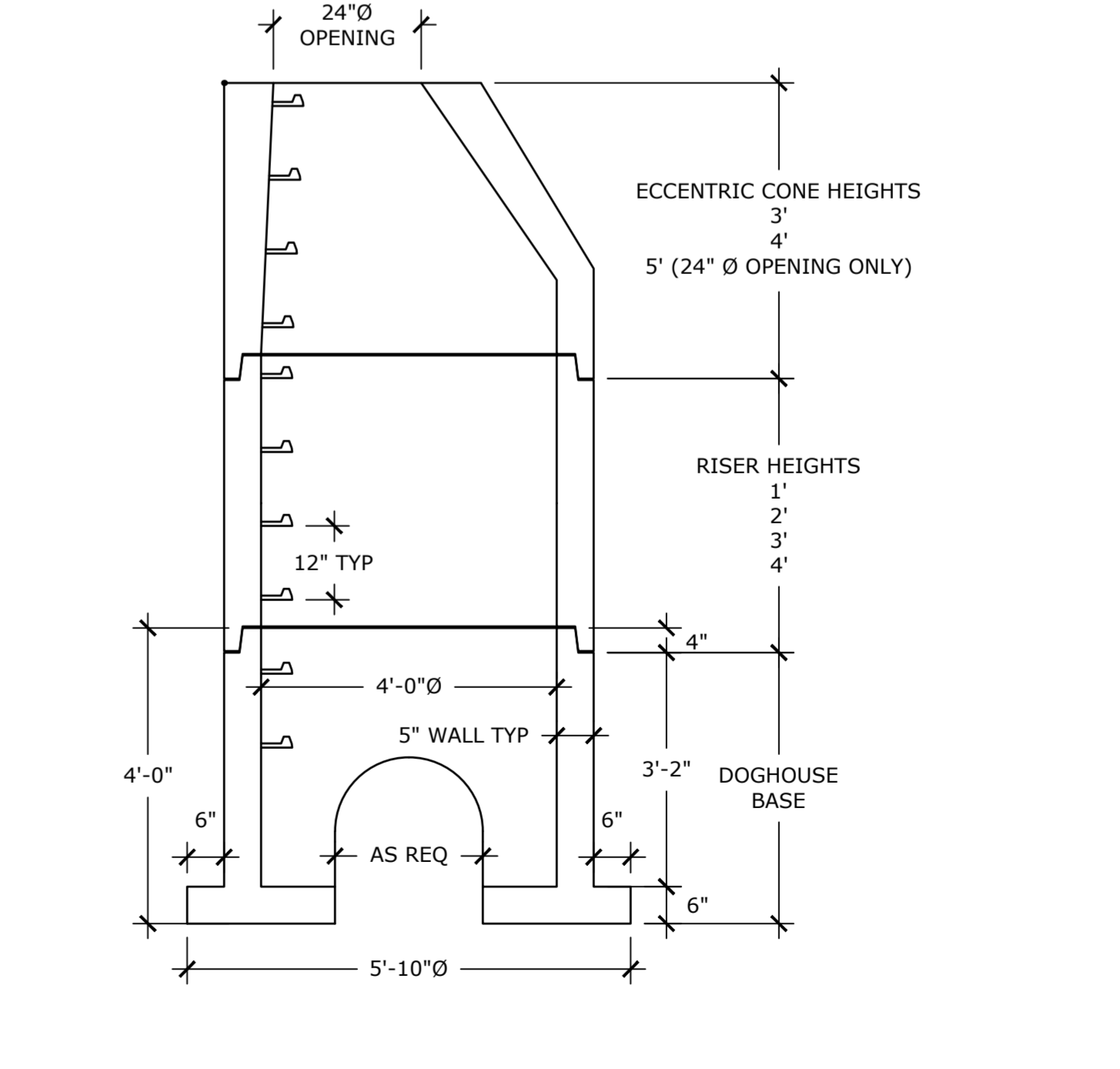


6 FIRE HYDRANT ASM - TYP. RODDING INSTALLATION
NTS P-2017-018-COLL-69

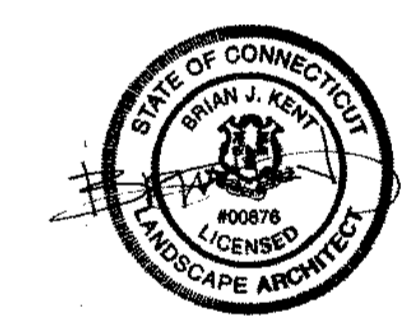


3 ELECTRICAL CONDUIT TRENCH
NTS P-2017-018-COLL-49

- CATCH BASIN NOTES:
1. MINIMUM CONCRETE COMPRESSIVE STRENGTH = 4,000 P.S.I SHALL BE OBTAINED PRIOR TO SHIPPING. METHOD OF MANUFACTURE: WET CAST.
 2. STEEL REINFORCEMENT SHALL CONFORM TO ASTM A615, GRADE 60 WITH A MINIMUM CLEAR COVER OF 2".
 3. REINFORCING STEEL WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185.
 4. JOINTS BELOW PIPE SHALL BE BUTYL RUBBER CONFORMING TO ASTM C990 AN OR AASHTO M198.
 5. JOINTS ABOVE PIPE SHALL BE MORTAR.
 6. MANHOLE STEPS SHALL MEET THE LATEST OSHA REGULATION 29 CFR 1910.27. AND SECTION 16 OF ASTM SPECIFICATION C497.
 7. ALL PIPE OPENINGS TO BE CLOSED BY THE CONTRACTOR USING MATERIALS CONFORMING TO CTDOT STANDARD SPECIFICATIONS M.08.02.



1 DOGHOUSE MANHOLE
NTS P-2017-018-COLL-103

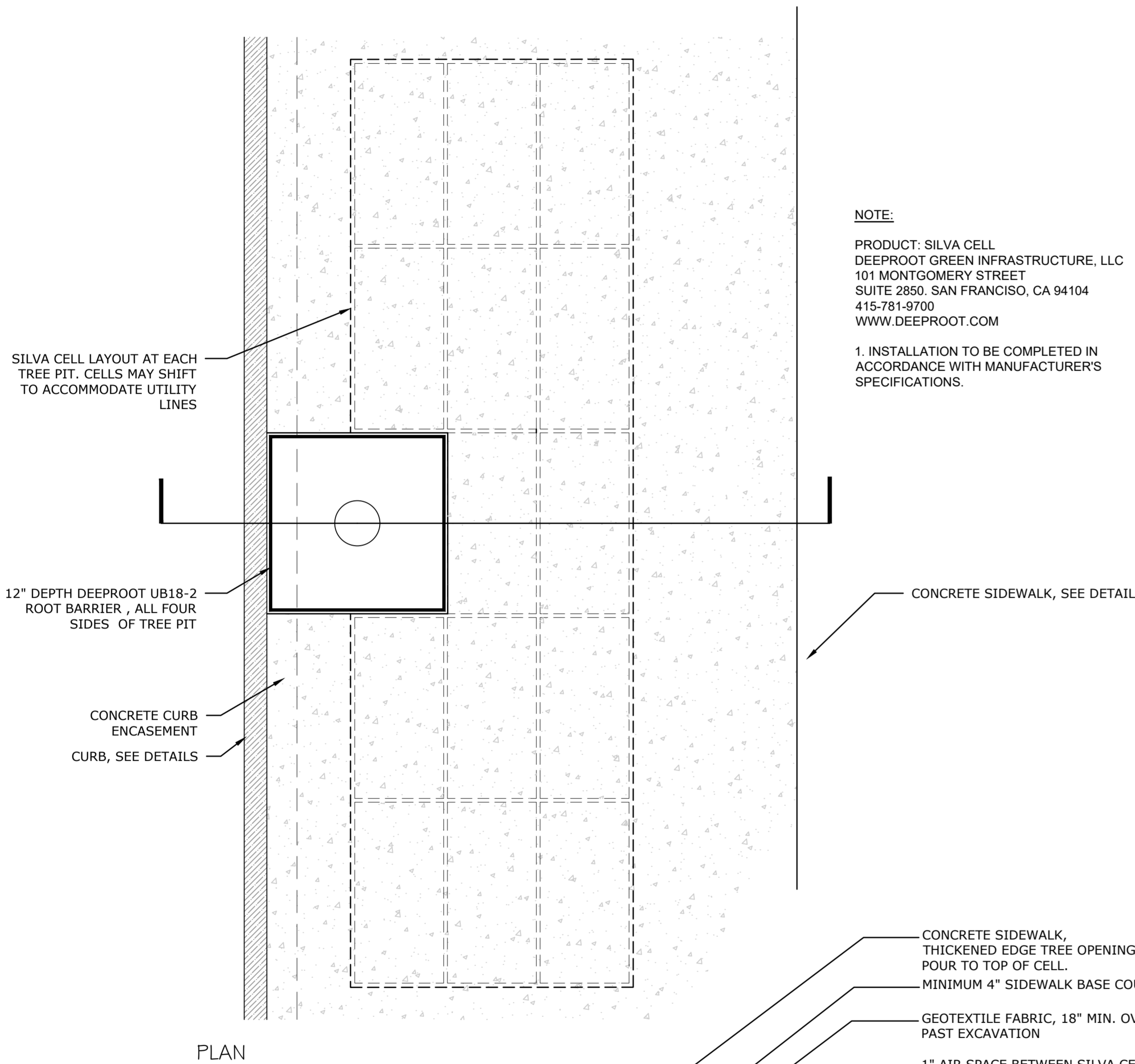
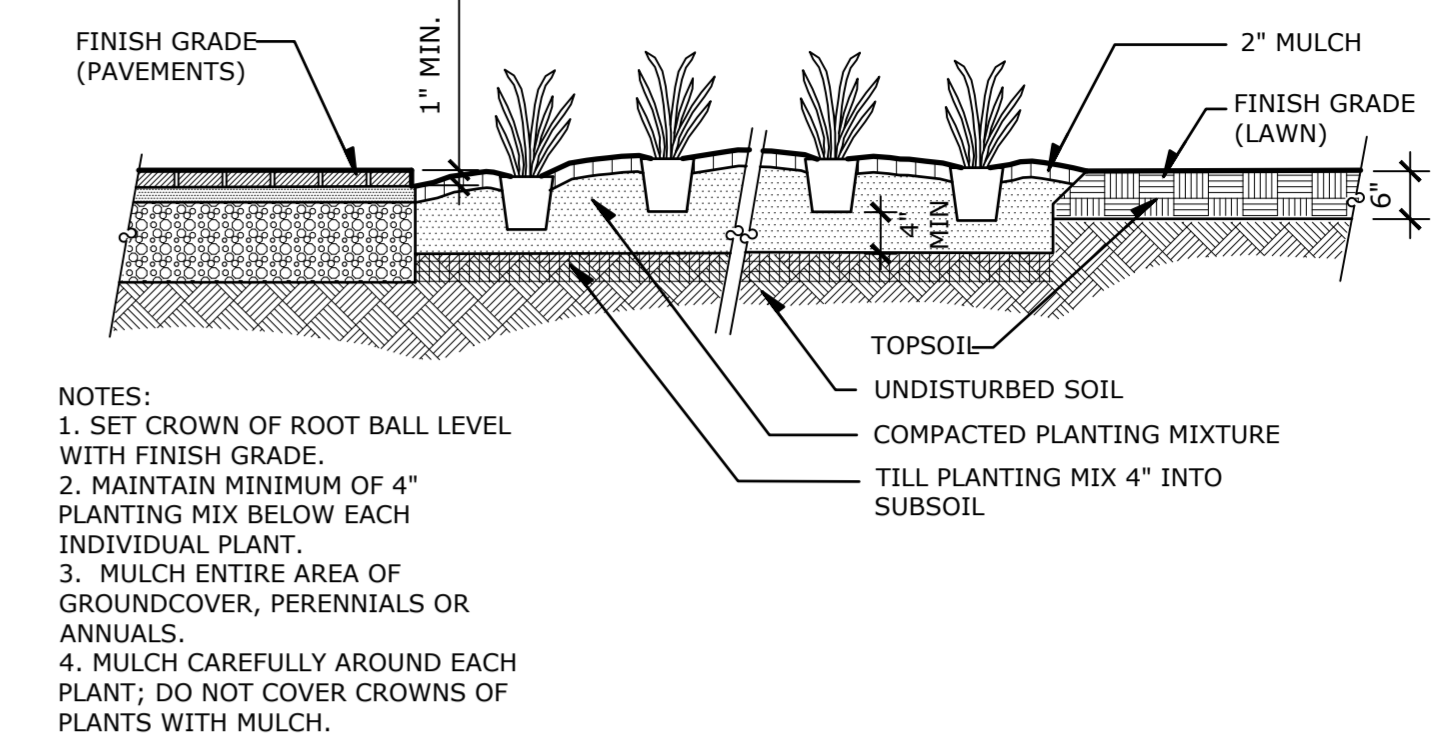
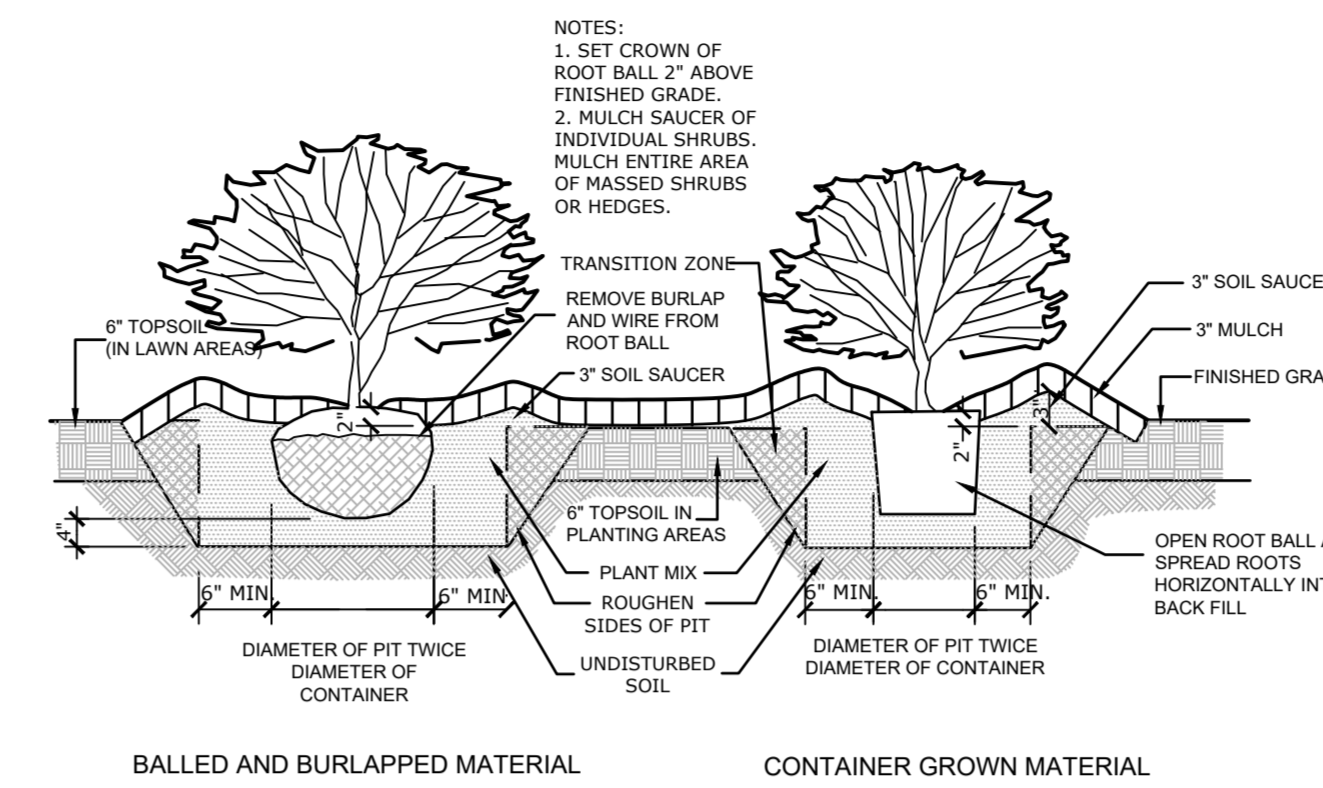
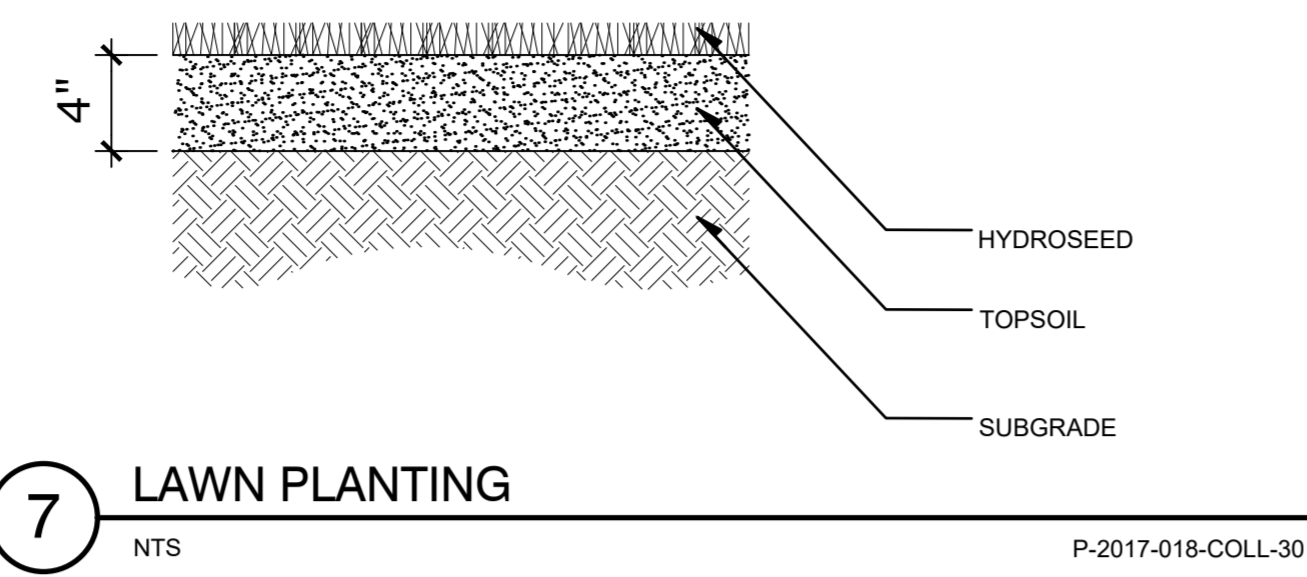


ISSUED FOR BID

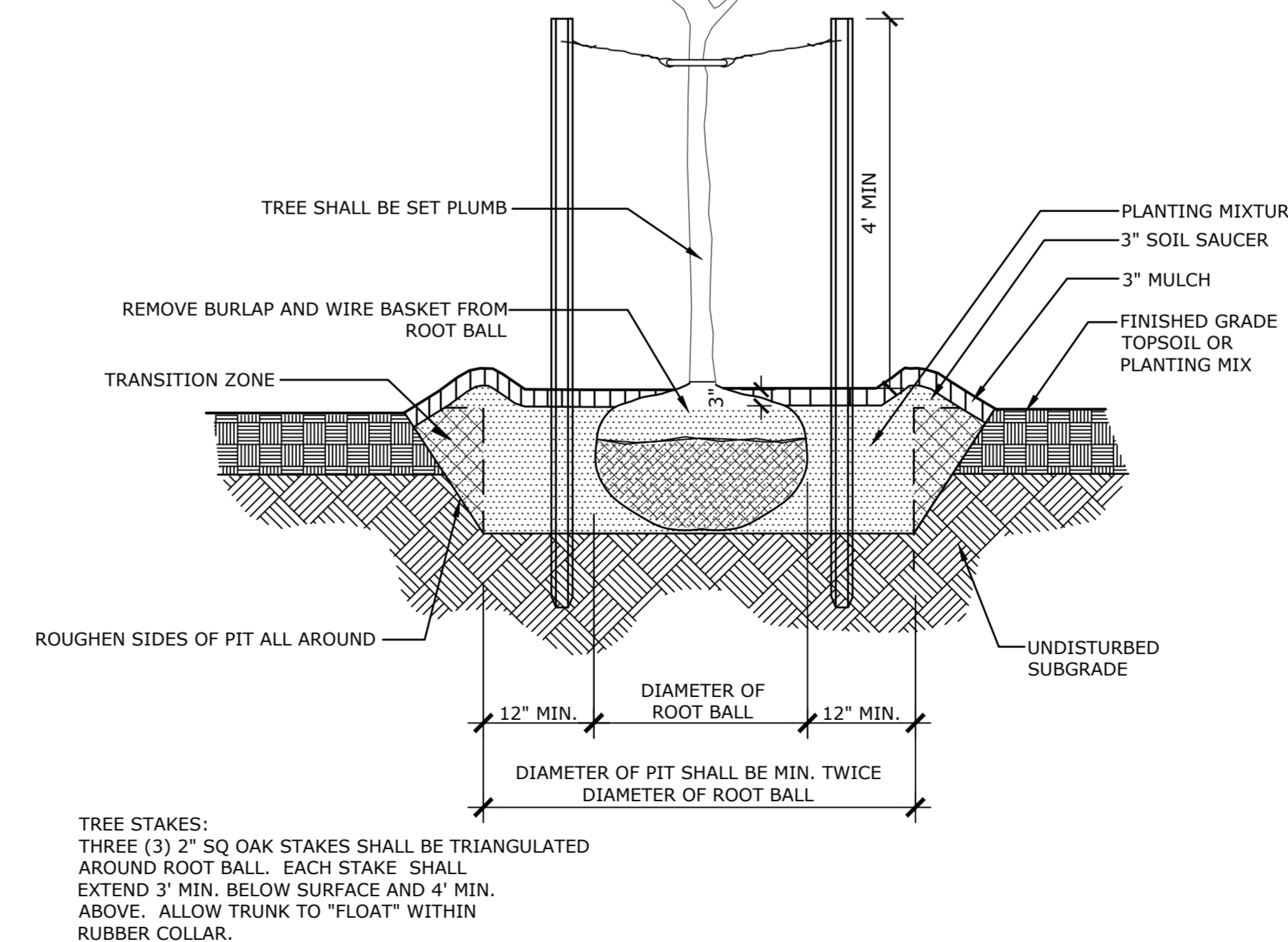
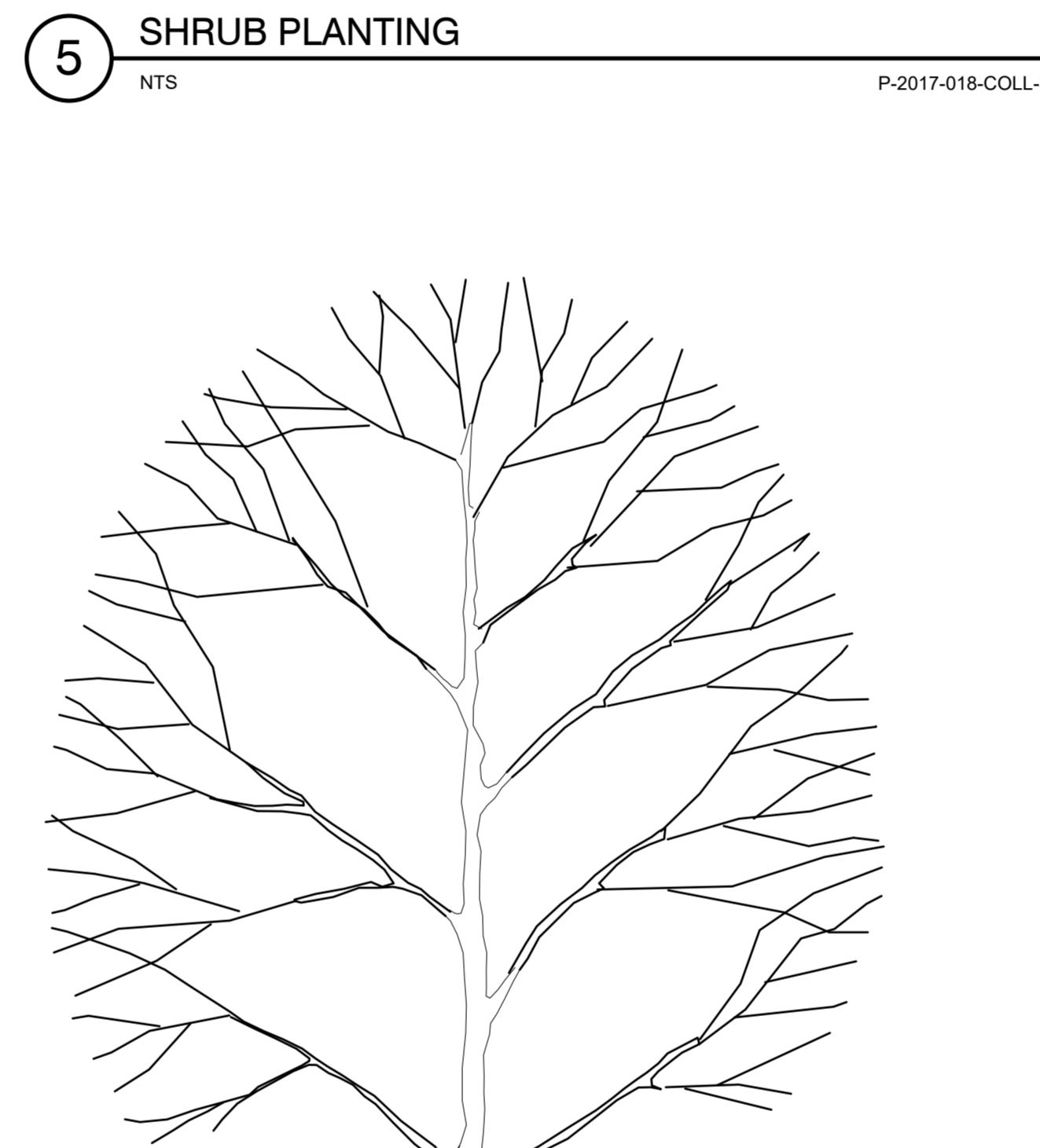
Revisions	Date

SITE DETAILS

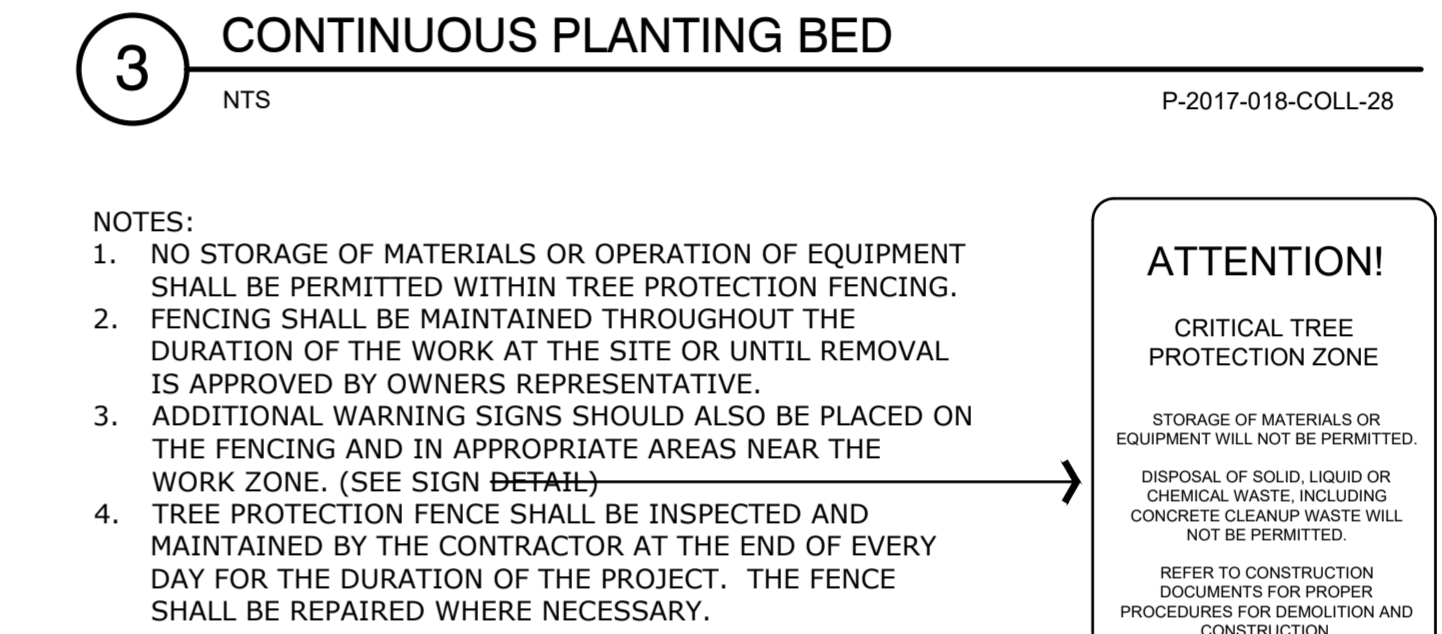
Scale AS NOTED
Date March 15, 2021
K+F Project No. 2017014
Drawing No.



NOTE:
PRODUCT: SILVA CELL
DEEPROOT GREEN INFRASTRUCTURE, LLC
101 MONTGOMERY STREET
SUITE 2850, SAN FRANCISCO, CA 94104
415-781-9700
WWW.DEEPROOT.COM
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.

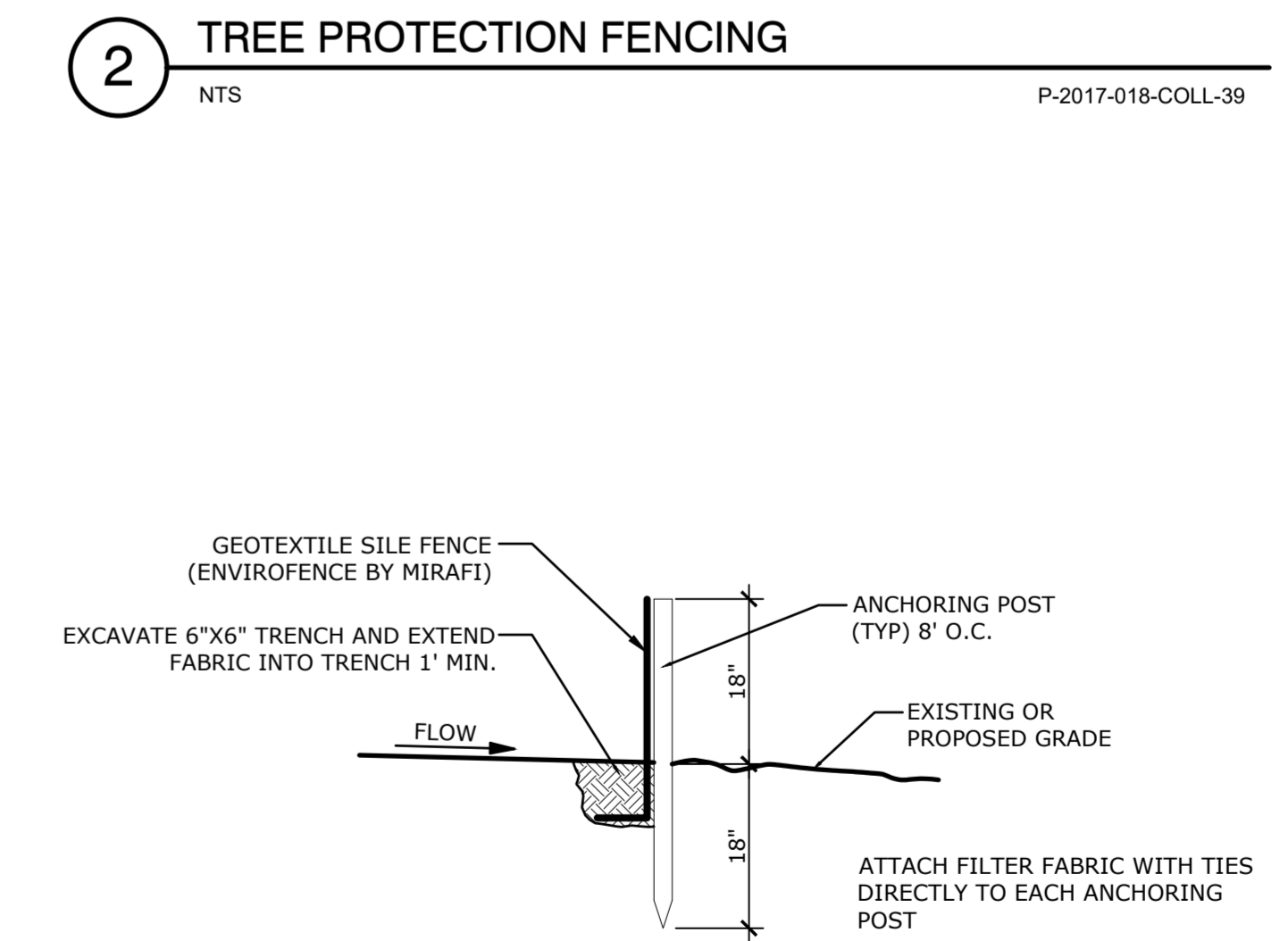
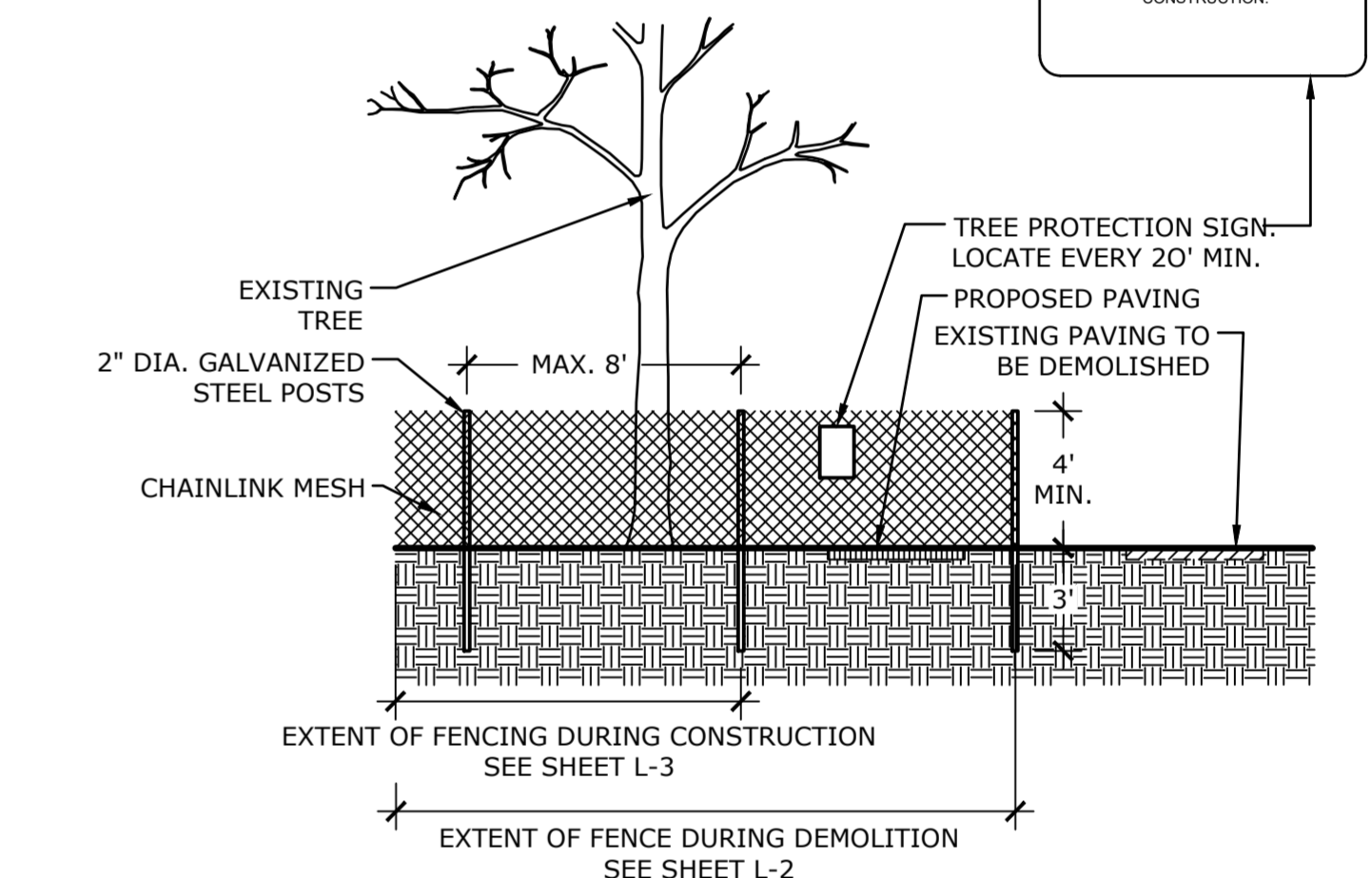


TREE STAKES:
THREE (3) 2" SQ OAK STAKES SHALL BE TRIANGULATED AROUND ROOT BALL. EACH STAKE SHALL EXTEND 3" MIN. BELOW SURFACE AND 4" MIN. ABOVE. ALLOW TRUNK TO "FLOAT" WITHIN RUBBER COLLAR.



NOTES:
1. NO STORAGE OF MATERIALS OR OPERATION OF EQUIPMENT SHALL BE PERMITTED WITHIN TREE PROTECTION FENCING.
2. FENCING SHALL BE MAINTAINED THROUGHOUT THE DURATION OF THE WORK AT THE SITE OR UNTIL REMOVAL IS APPROVED BY OWNERS REPRESENTATIVE.
3. ADDITIONAL WARNING SIGNS SHOULD ALSO BE PLACED ON THE FENCING AND IN APPROPRIATE AREAS NEAR THE WORK ZONE. (SEE SIGN DETAIL)
4. TREE PROTECTION FENCE SHALL BE INSPECTED AND MAINTAINED BY THE CONTRACTOR AT THE END OF EVERY DAY FOR THE DURATION OF THE PROJECT. THE FENCE SHALL BE REPAIRED WHERE NECESSARY.

ATTENTION!
CRITICAL TREE PROTECTION ZONE
STORAGE OF MATERIALS OR EQUIPMENT WILL NOT BE PERMITTED.
DISPOSAL OF SOLID, LIQUID OR CHEMICAL WASTE INCLUDING CONCRETE CLEANUP WASTE WILL NOT BE PERMITTED.
REFER TO CONSTRUCTION DOCUMENTS FOR PROPER PROCEDURES FOR DEMOLITION AND CONSTRUCTION.



MINIMUM FILTER FABRIC REQUIREMENTS
TENSILE STRENGTH: 124 LBS ALL DIRECTIONS
TENSILE ELONGATION: 15%
BURST STRENGTH: 300PSI
FLOW RATE: 10GPM/FT



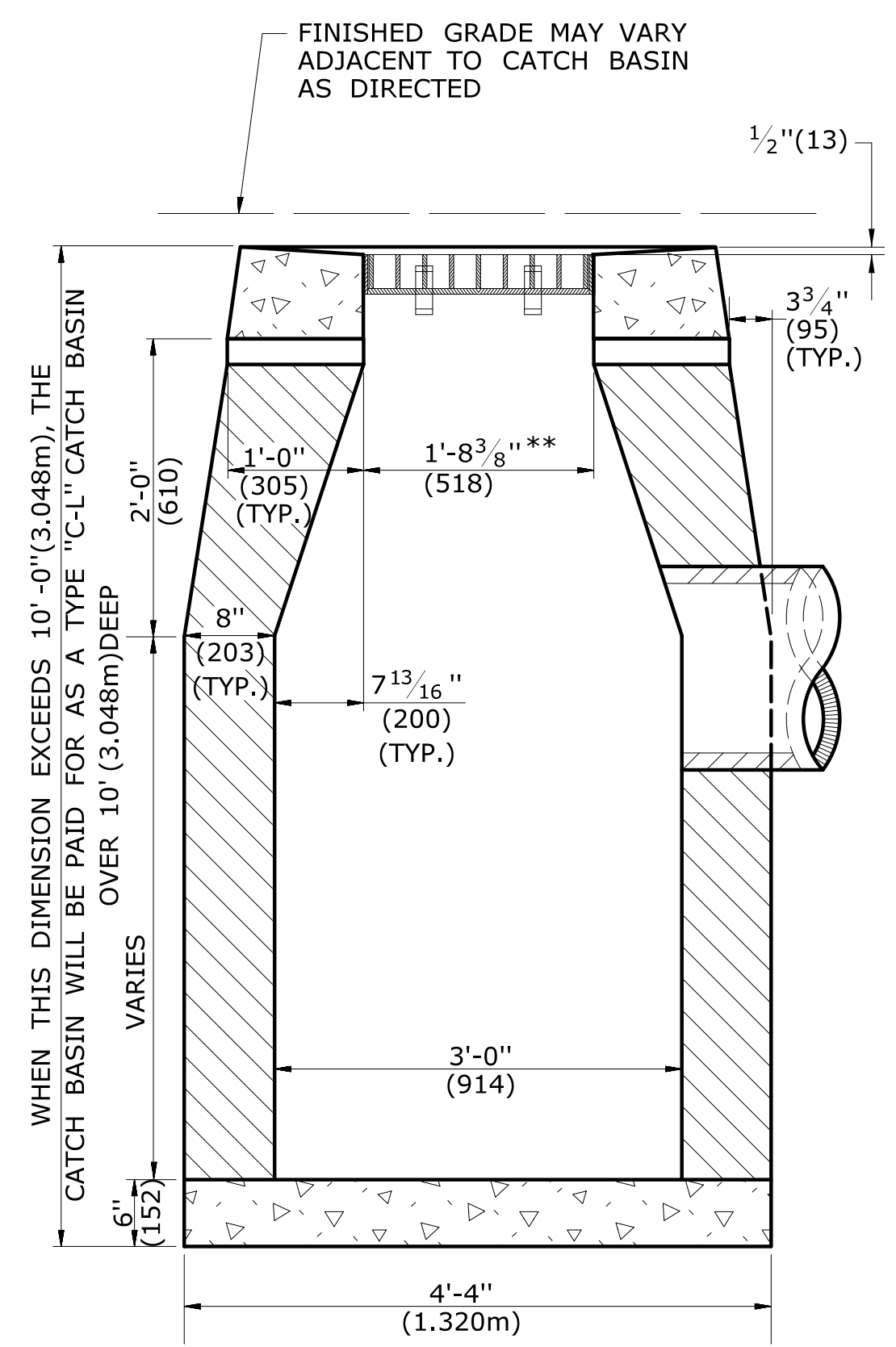
ISSUED FOR BID

Revisions _____ Date _____

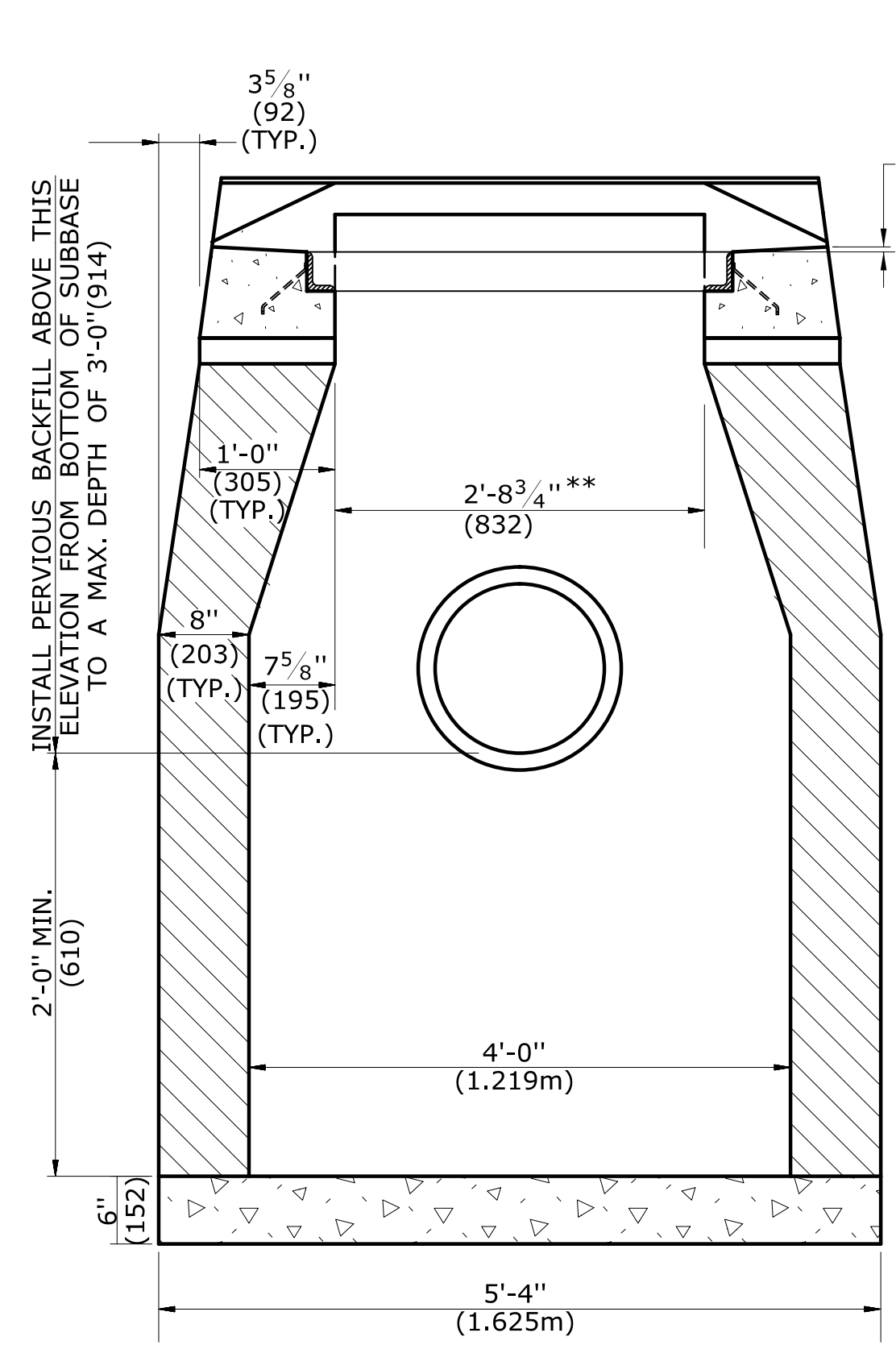
SITE DETAILS

Scale _____ AS NOTED
Date _____ March 15, 2021
K-F Project No. _____ 2017014
Drawing No. _____

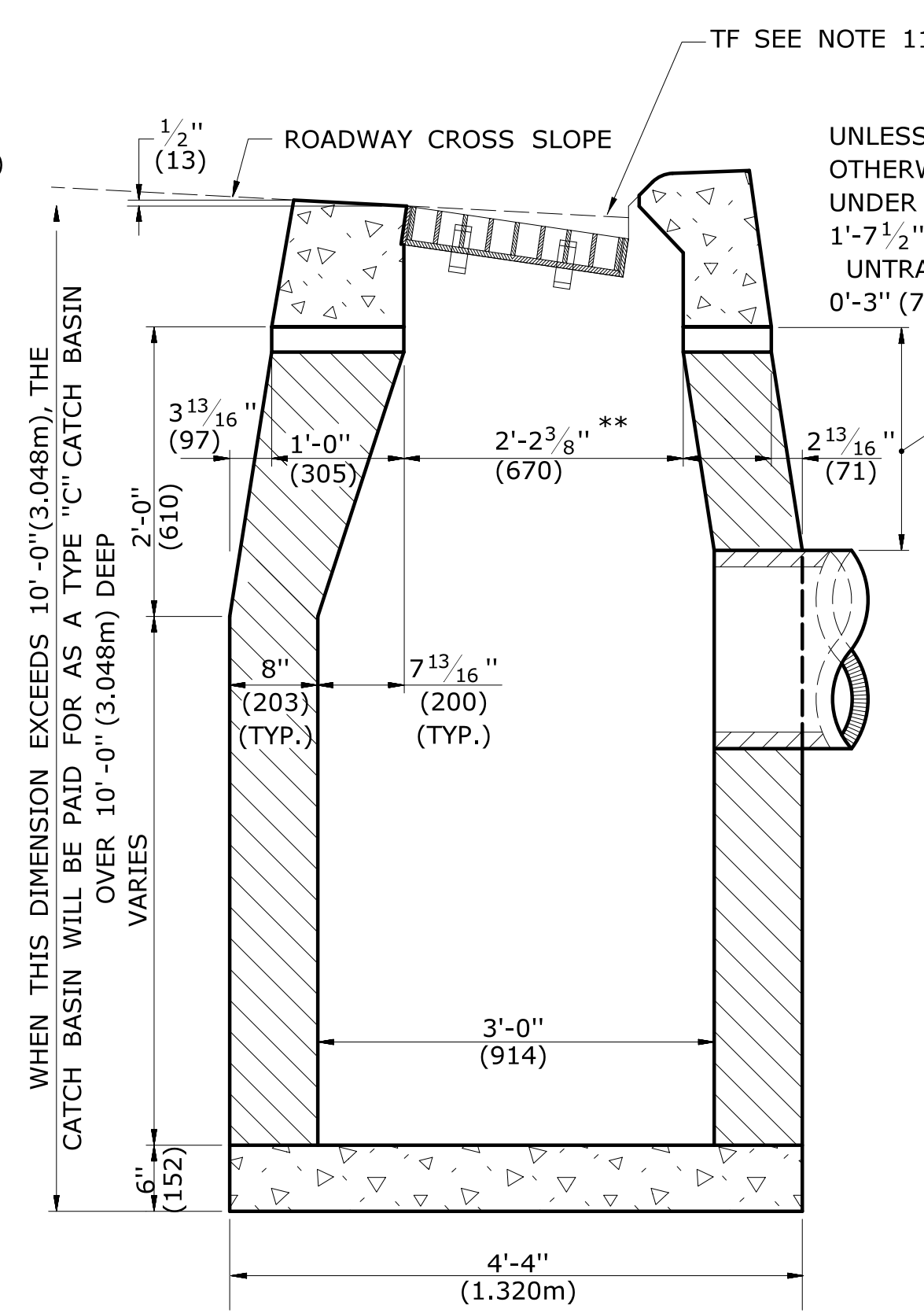
L-10.6



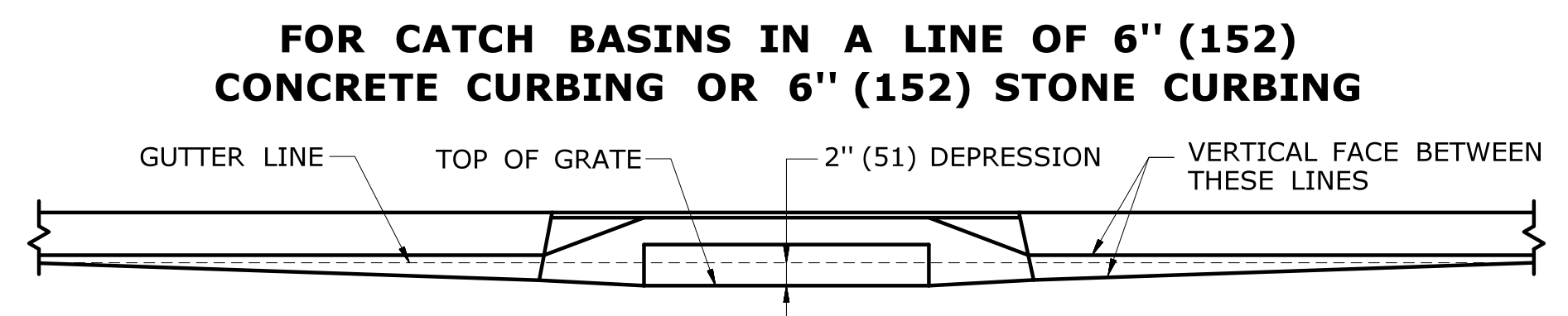
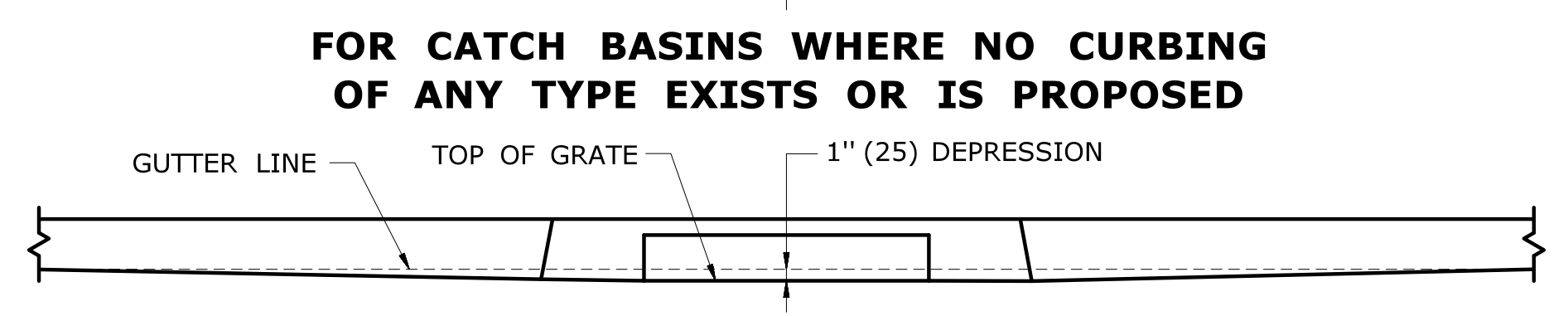
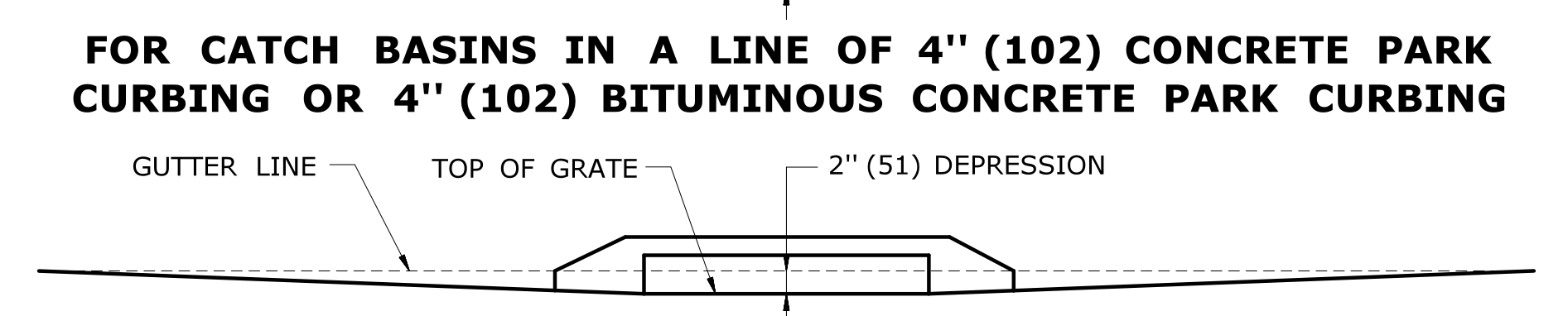
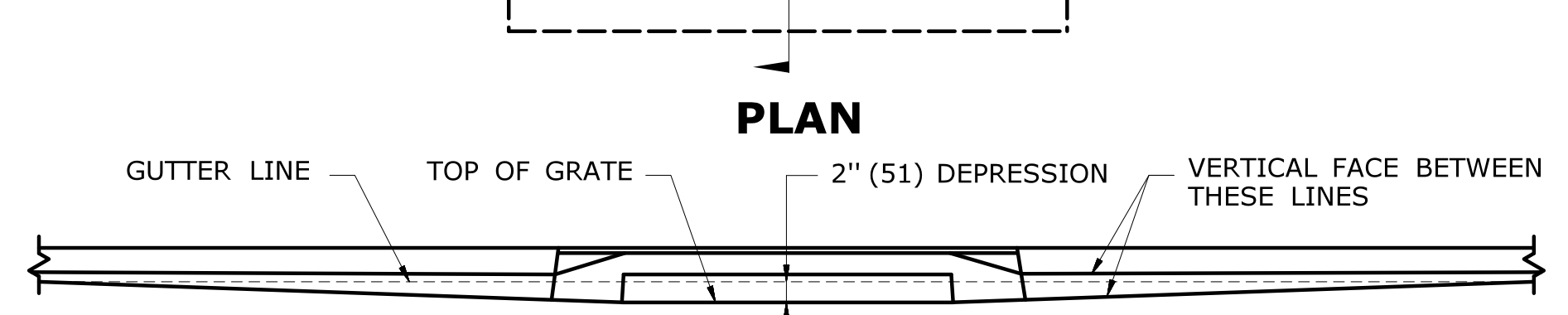
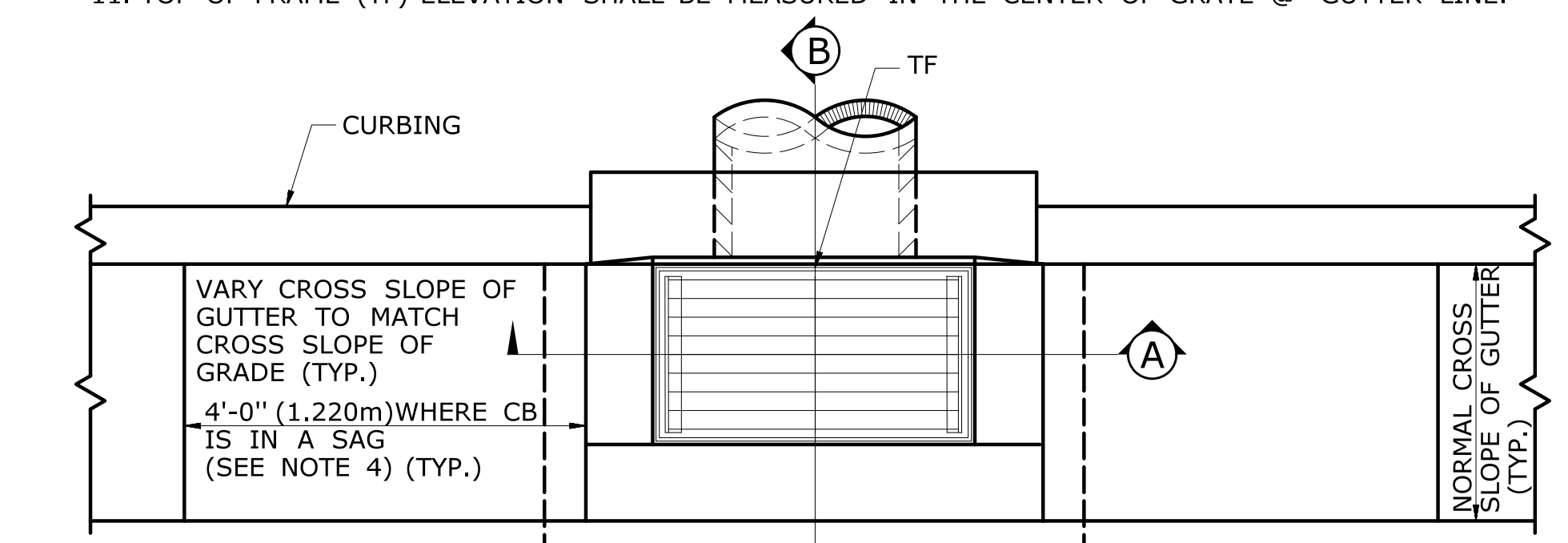
SECTION B
TYPE "C-L" CATCH BASIN



SECTION A
TYPE "C" & "C-L" CATCH BASIN (TYPE "C" TOP SHOWN)

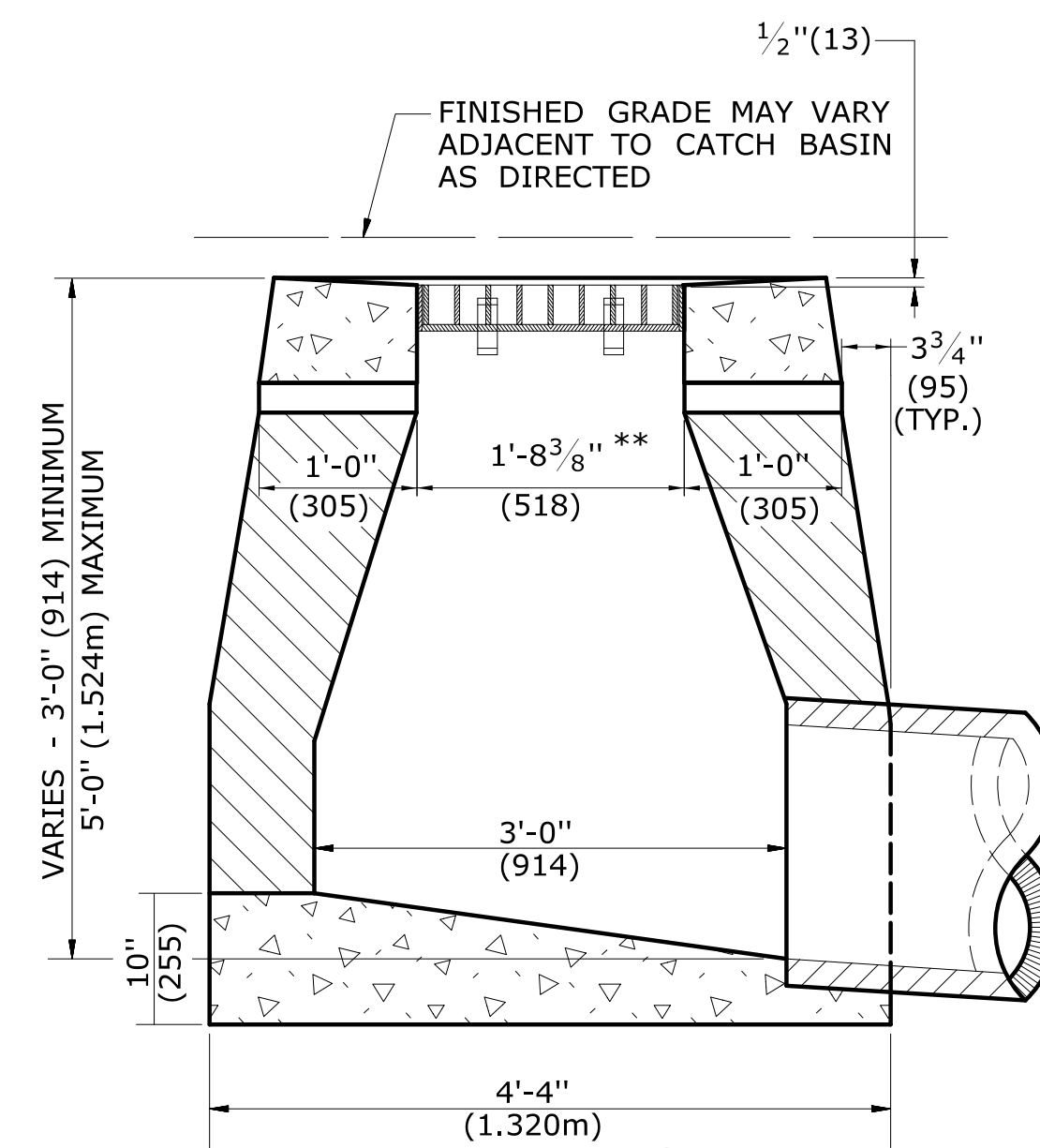


SECTION B
TYPE "C" CATCH BASIN

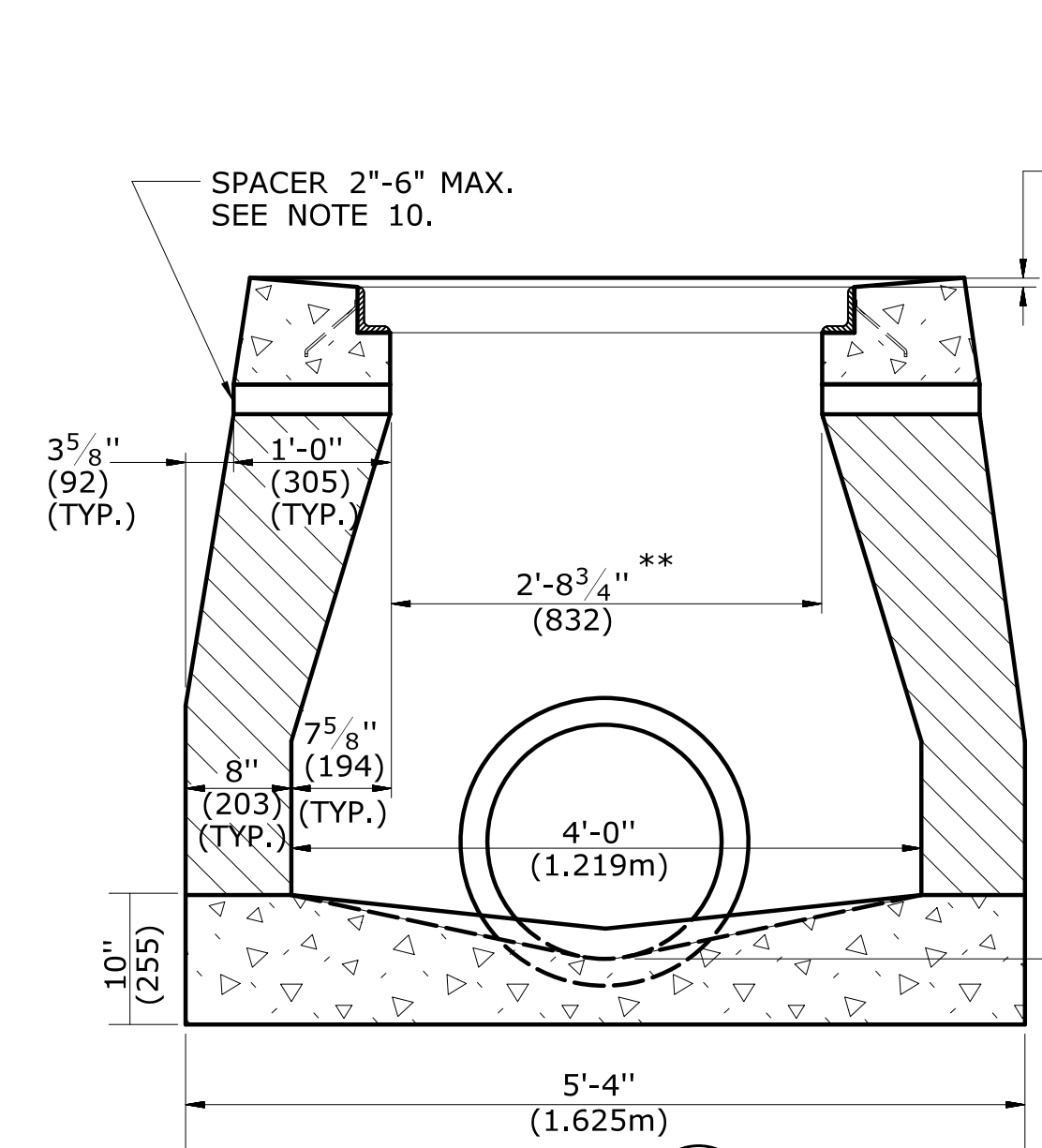


FOR CATCH BASINS IN A LINE OF 4" (102) CONCRETE PARK CURBING OR 4" (102) BITUMINOUS CONCRETE PARK CURBING
FOR CATCH BASINS WHERE NO CURBING OF ANY TYPE EXISTS OR IS PROPOSED
FOR CATCH BASINS IN A LINE OF 6" (152) CONCRETE CURBING OR 6" (152) STONE CURBING
FOR CATCH BASINS IN A LINE OF 6" (152) BITUMINOUS CONCRETE LIP CURBING (MACHINE FORMED)
DETAILS OF DEPRESSED GUTTER STRIP FOR TYPE "C" CATCH BASIN

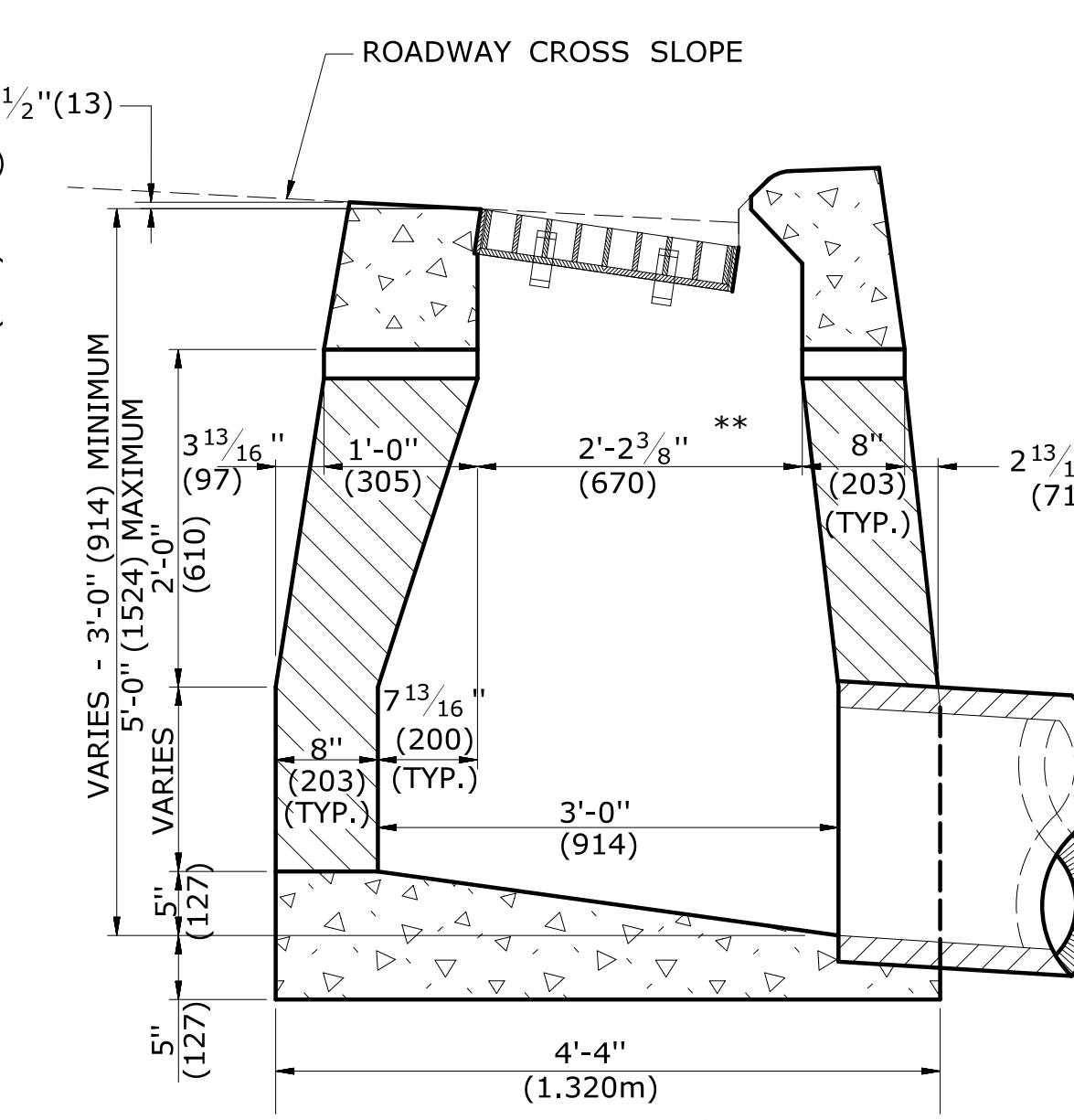
ALL METRIC DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED.



SECTION B
TYPE "C-L" DROP INLET



SECTION A
TYPE "C" & "C-L" DROP INLET (TYPE "C-L" TOP SHOWN)

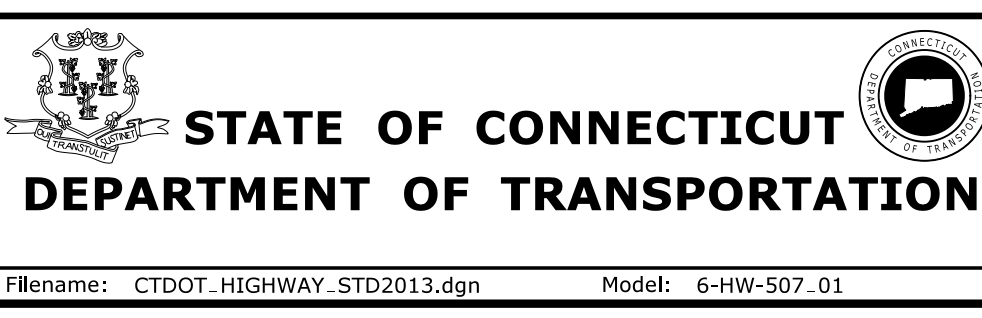


SECTION B
TYPE "C" DROP INLET

REV.	DATE	REVISION DESCRIPTION
4	7/13	ADD NOTE 11
3	9/30/11	ADD SPACERS AND NOTE 10.
2	9/15/11	MODIFIED DETAILS TO BE CONSISTANT WITH PRECAST
1	7/28/11	REMOVE MIN. DROP NOTE
-	-	-
-	-	-

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NOT TO SCALE

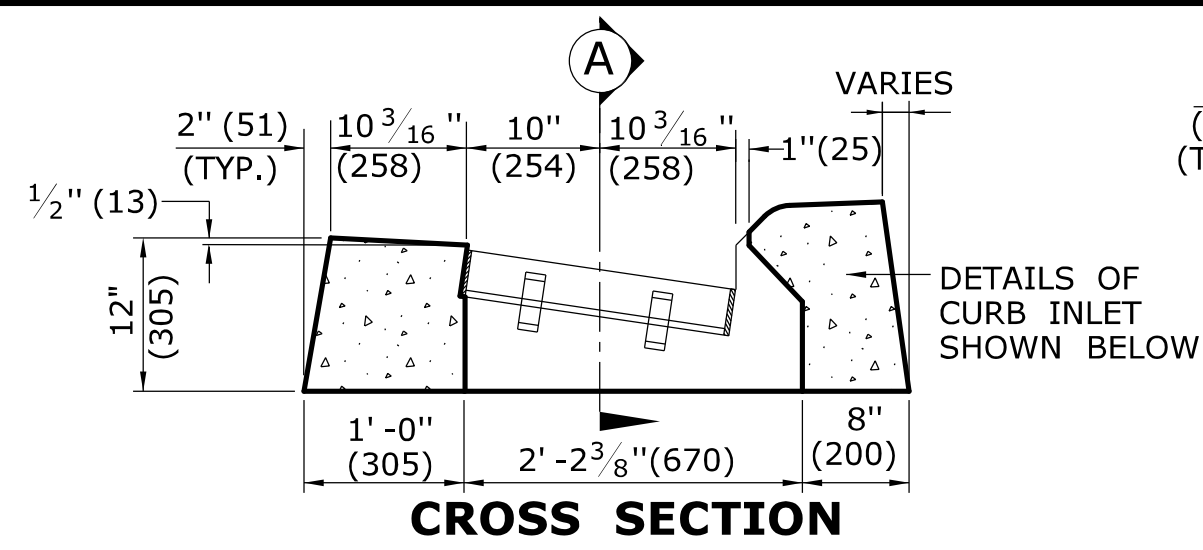


SUBMITTED BY:	NAME/DATE/TIME:
APPROVED BY:	NAME/DATE/TIME:

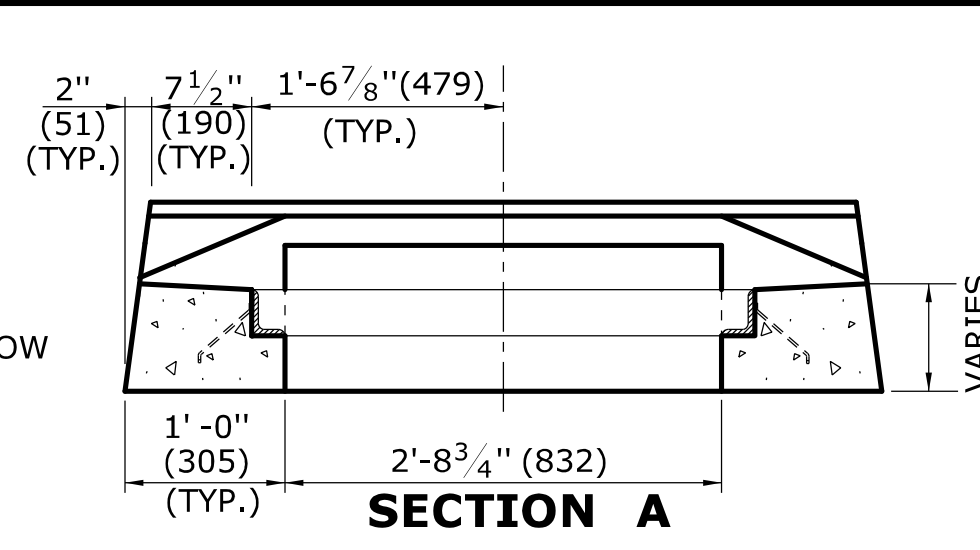
CTDOT STANDARD SHEET
OFFICE OF ENGINEERING

STANDARD SHEET TITLE:
TYPE "C", "C-L" & DROP INLET CATCH BASIN

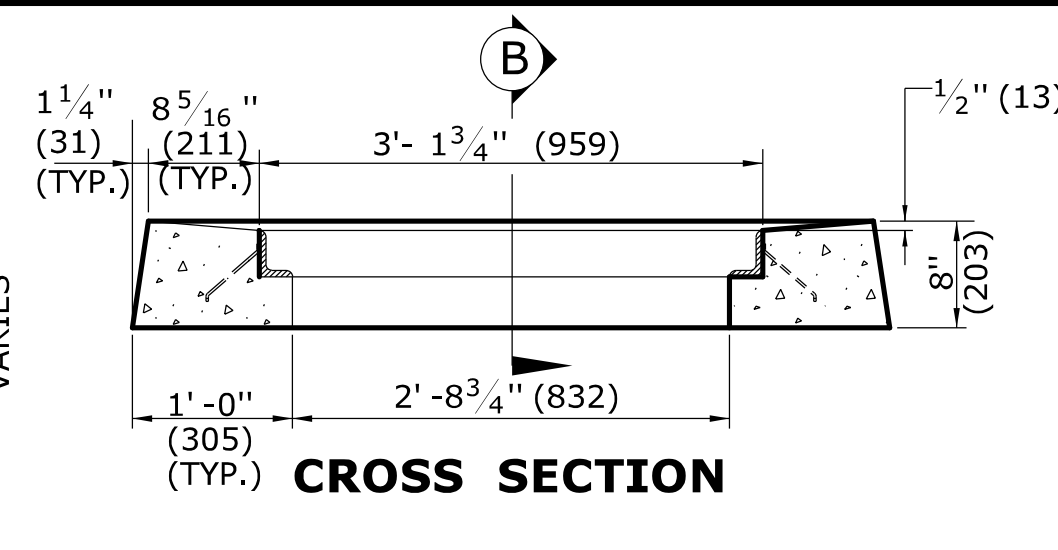
STANDARD SHEET NO.:
HW-507_01



CROSS SECTION
TYPE "C" CATCH BASIN TOP

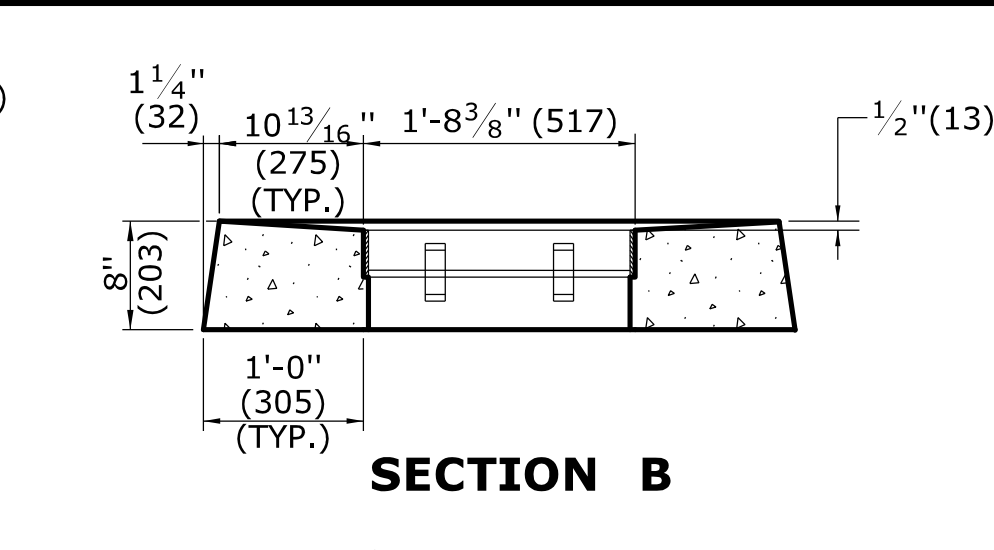


SECTION A



CROSS SECTION

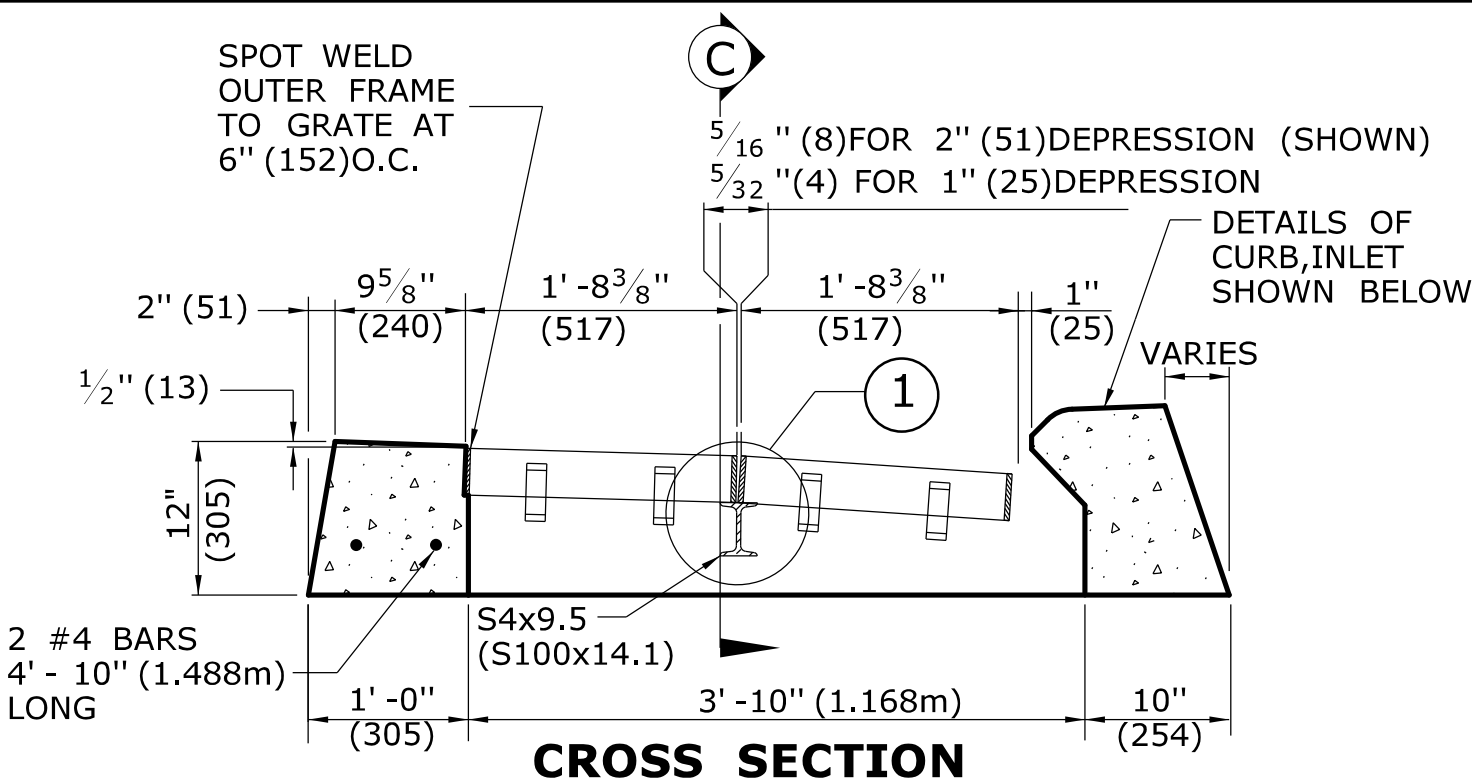
TYPE "C-L" CATCH BASIN TOP



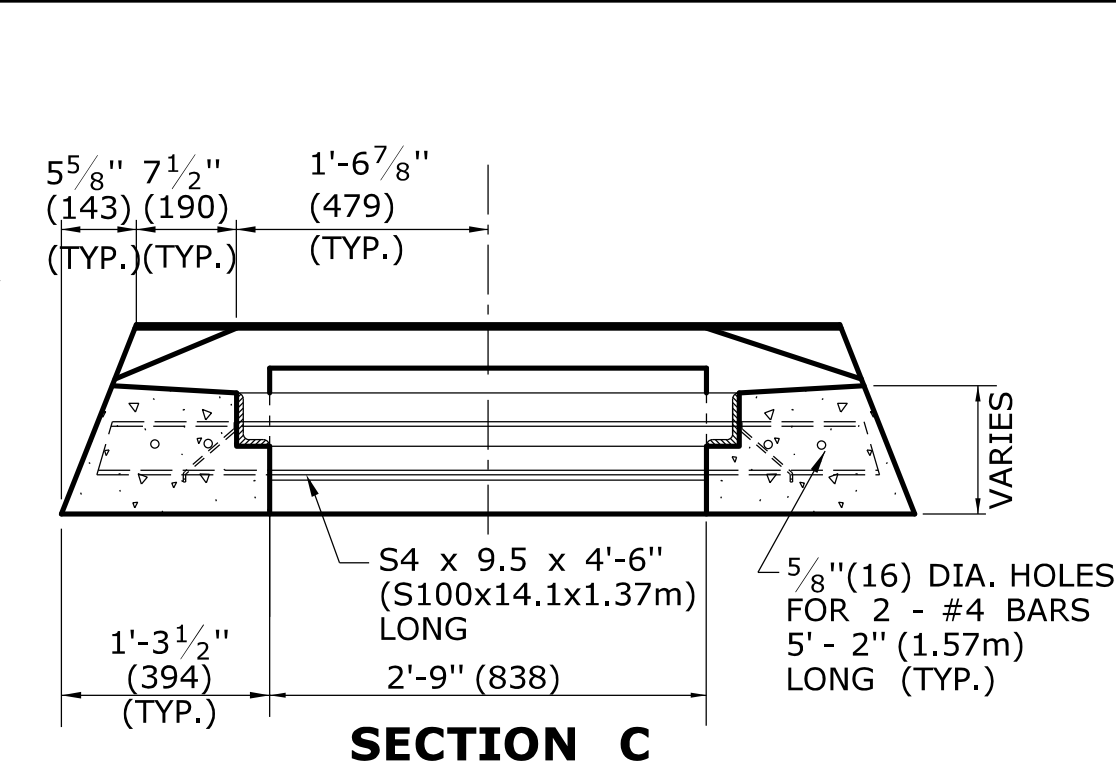
SECTION B

GENERAL NOTES:

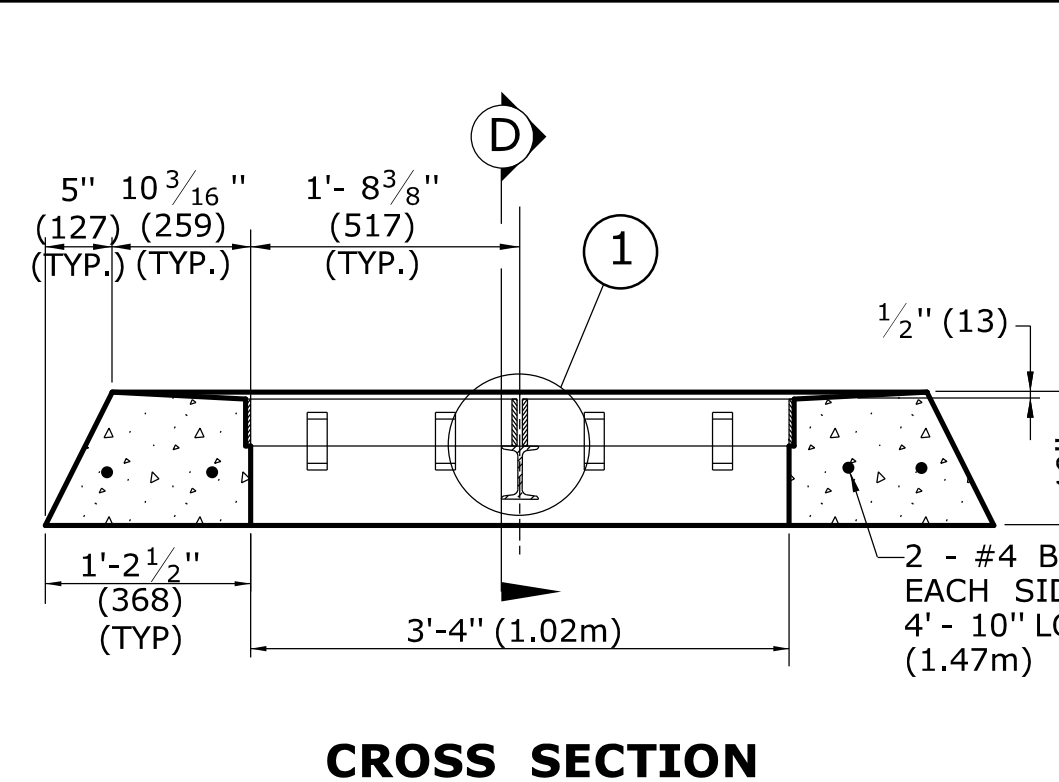
1. FOR DETAILS OF FRAME AND GRATE SEE STANDARD SHEET HW-507-08.
2. ALL STEEL, EXCEPT REINFORCING BARS, SHALL BE GALVANIZED IN CONFORMANCE WITH SECTION M06.03 OF CONNECTICUT'S STANDARD SPECIFICATIONS.
3. ALL BARS SHALL HAVE A MINIMUM 2" (51) COVER.



CROSS SECTION
TYPE "C" CATCH BASIN DOUBLE GRATE - TYPE I TOP

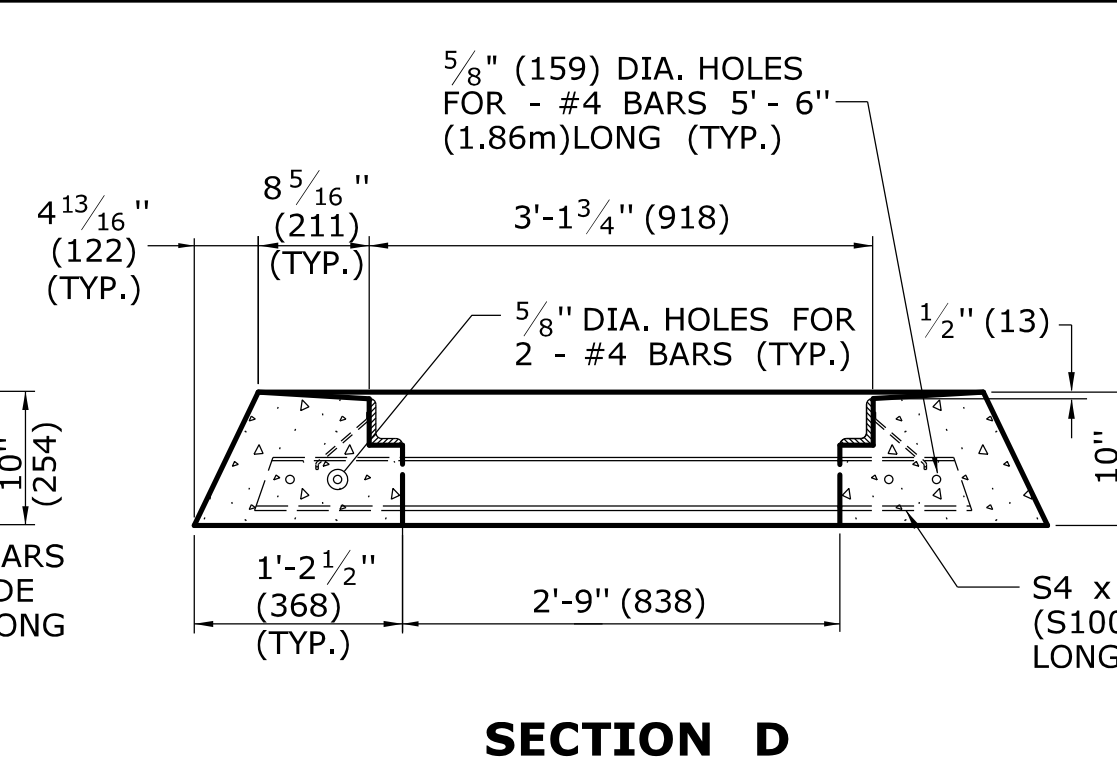


SECTION C

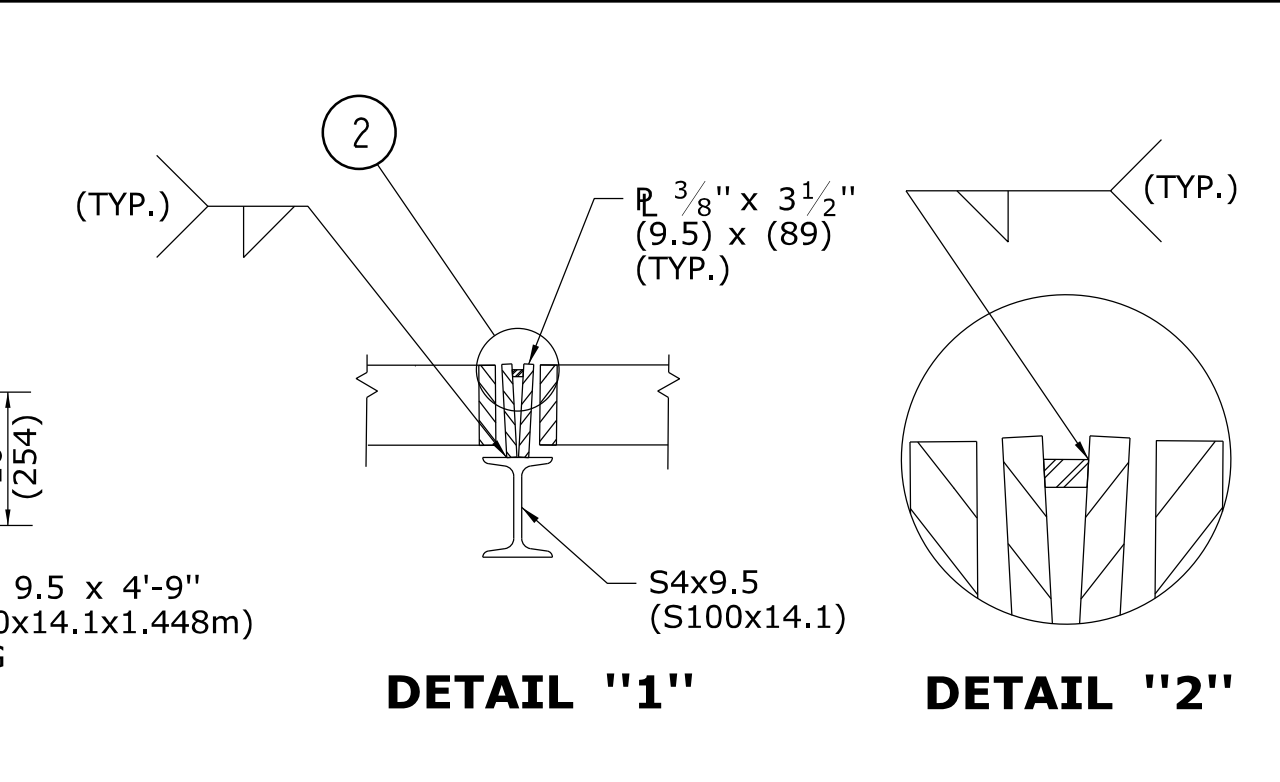


CROSS SECTION

TYPE "C-L" CATCH BASIN DOUBLE GRATE - TYPE I TOP

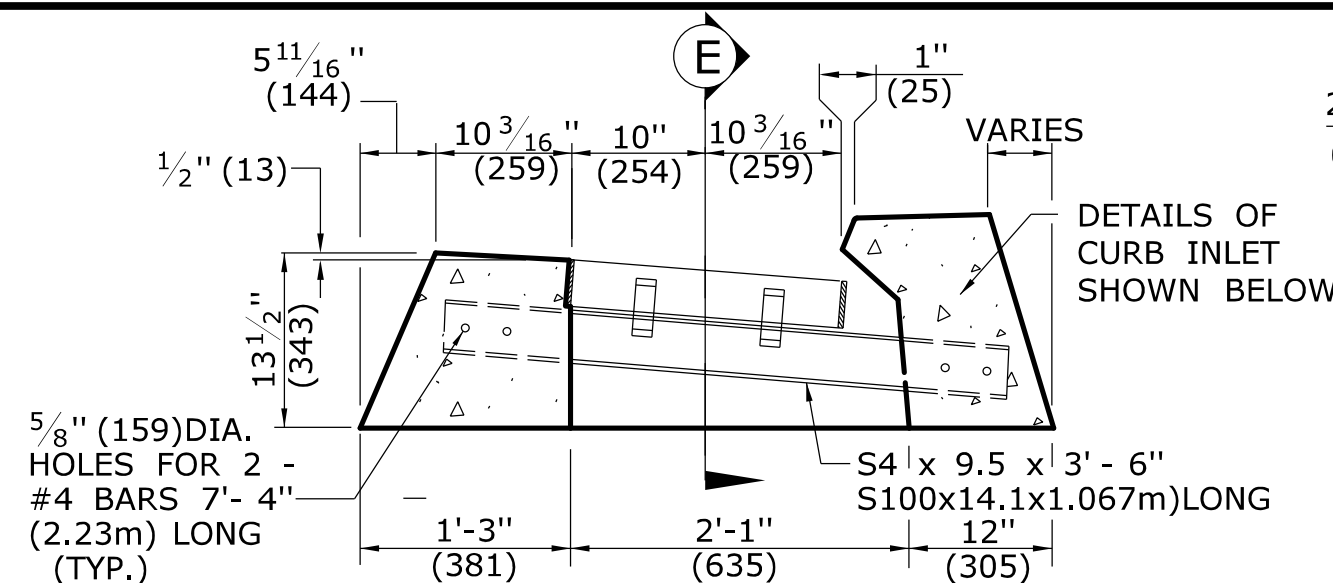


SECTION D

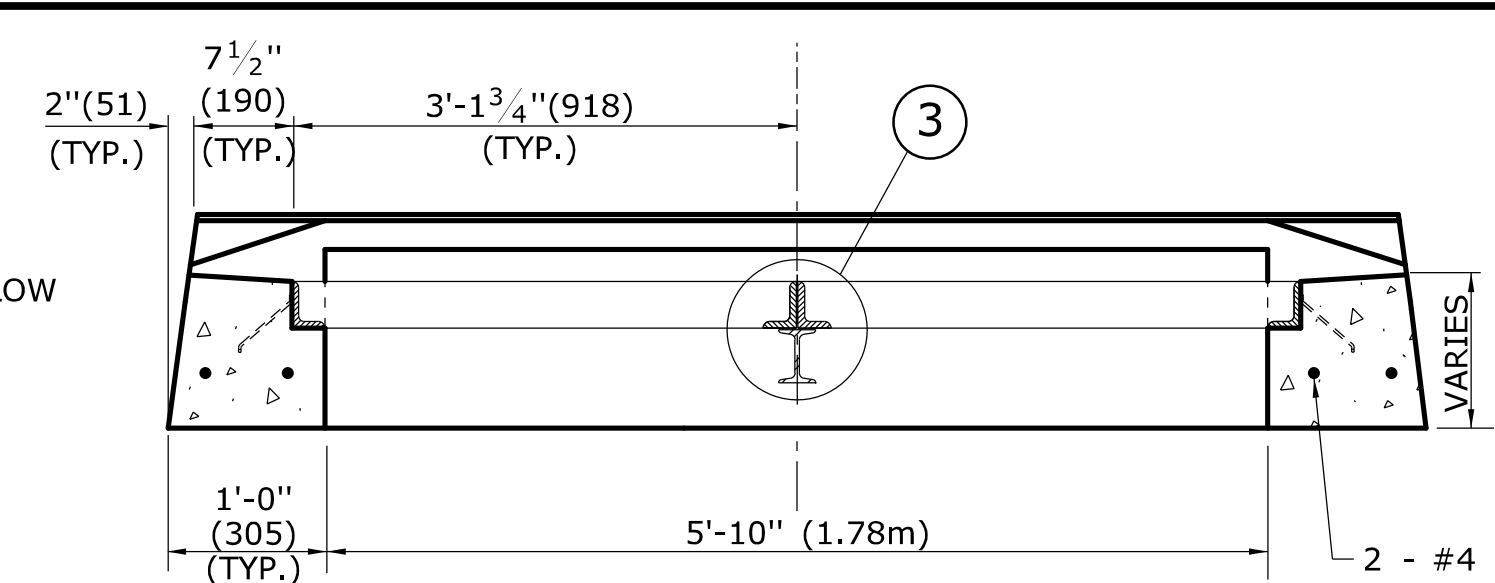


DETAIL "1"

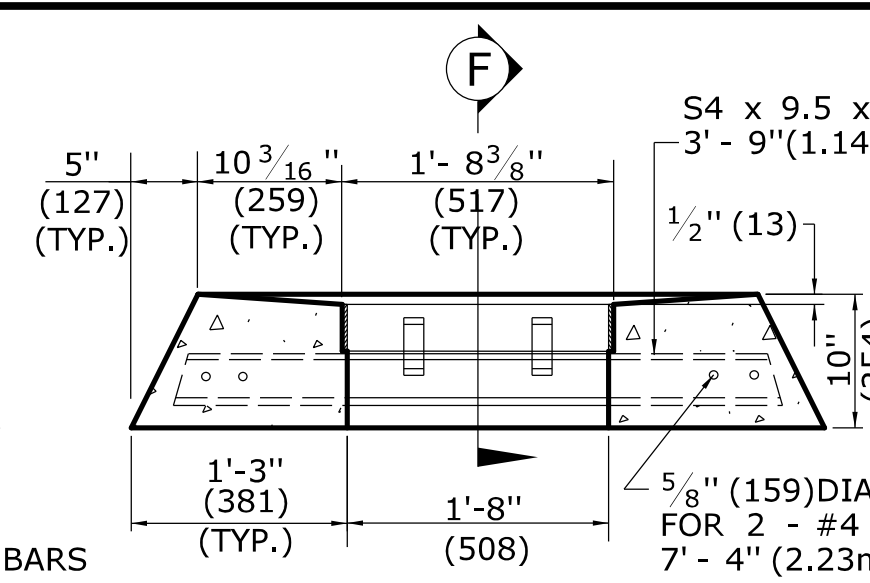
DETAIL "2"



CROSS SECTION
TYPE "C" CATCH BASIN DOUBLE GRATE - TYPE II TOP

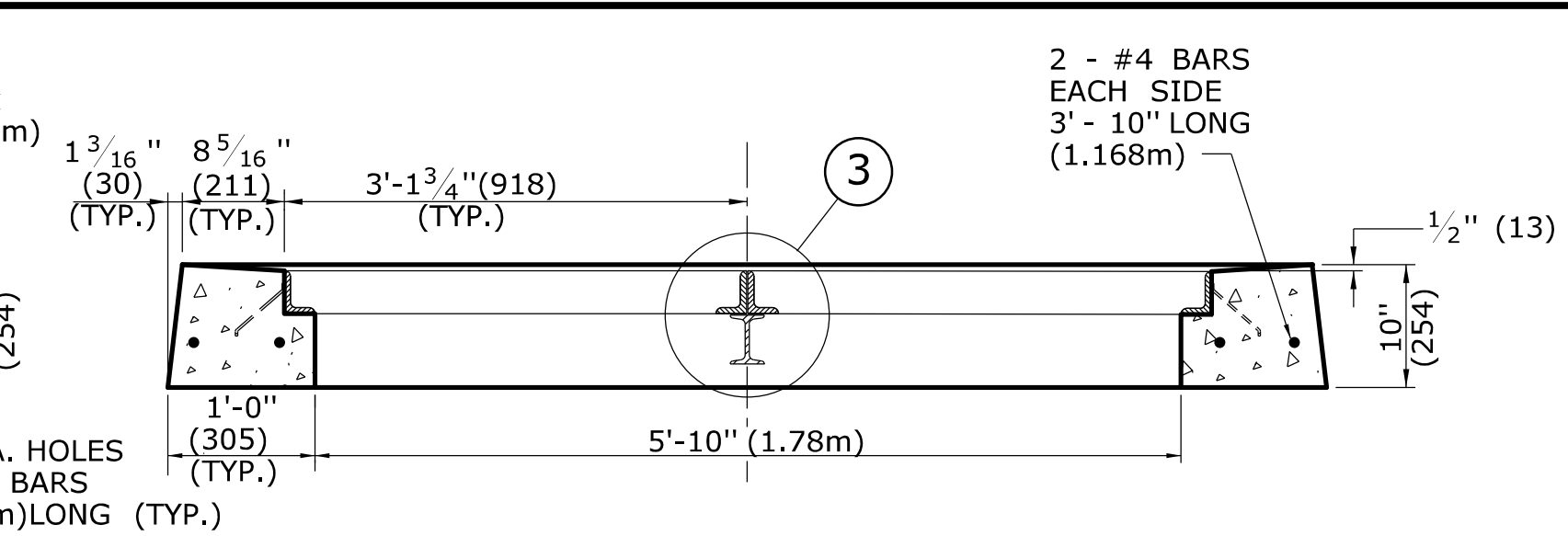


SECTION E

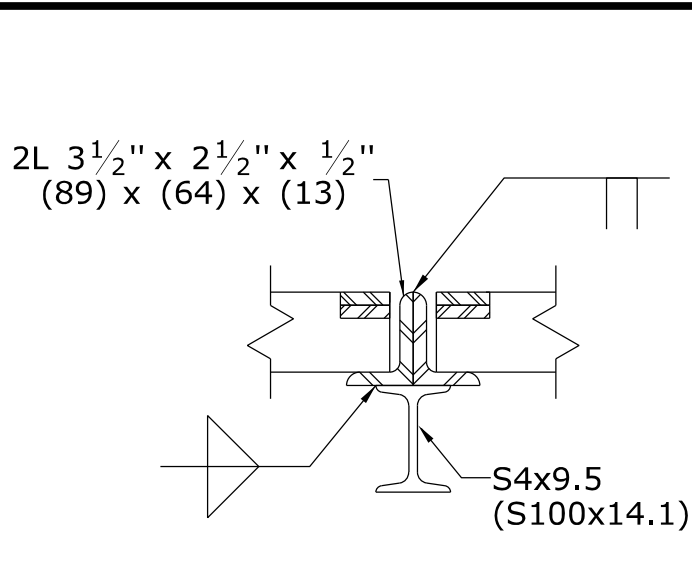


CROSS SECTION

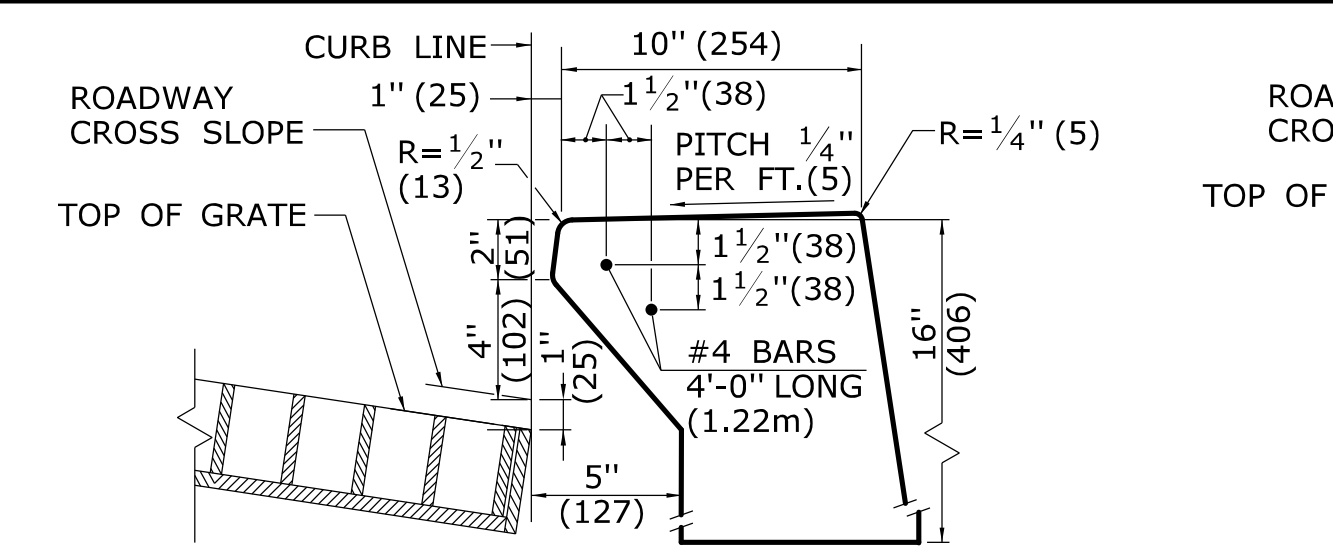
TYPE "C-L" CATCH BASIN DOUBLE GRATE - TYPE II TOP



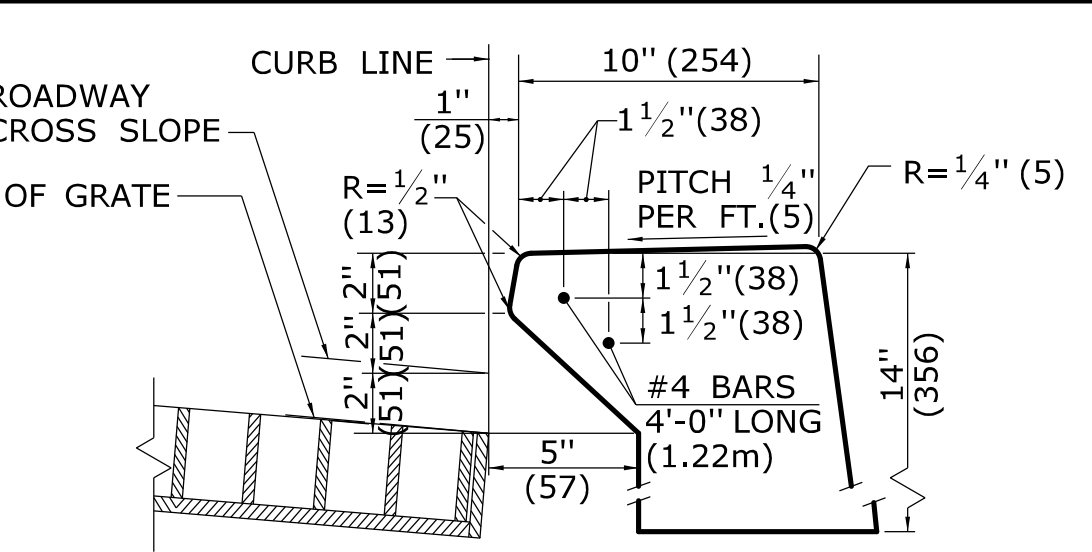
SECTION F



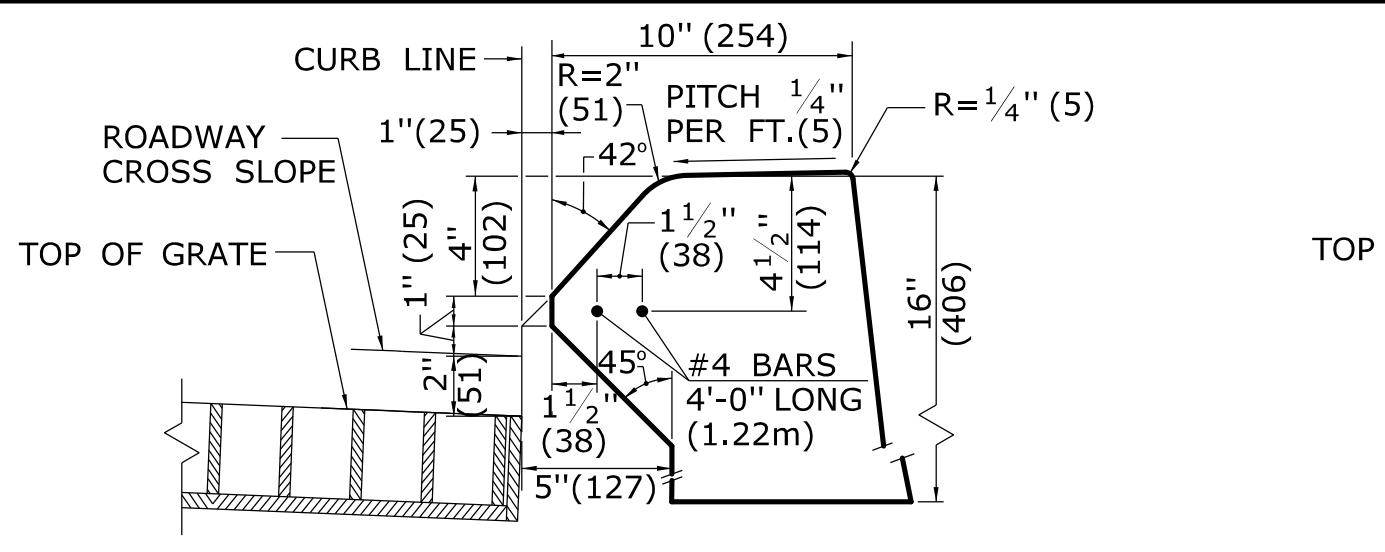
DETAIL "3"



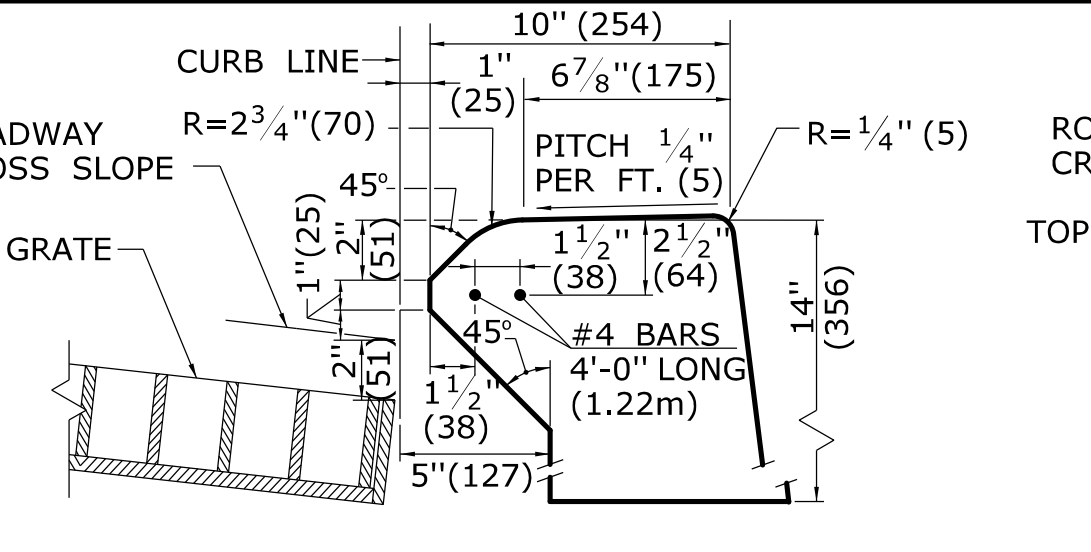
INLET WITH 6" (152) CONCRETE OR STONE CURBING FOR TYPE "C" CB



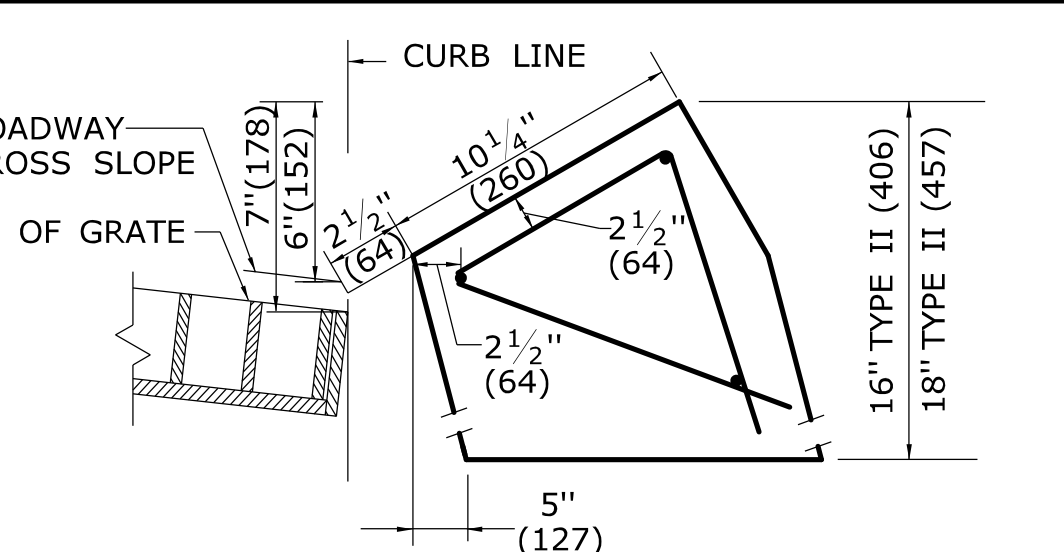
INLET WITH NO CURBING (PLAIN TYPE) FOR TYPE "C" CB



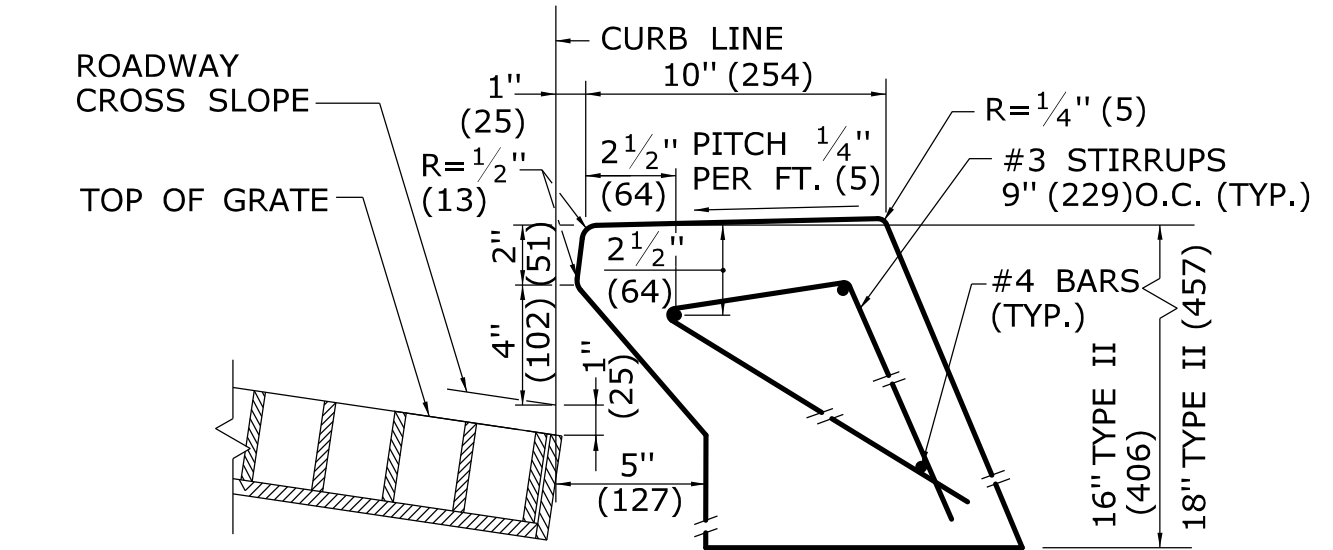
INLET WITH 6" (152) BITUMINIOUS CONCRETE LIP CURBING FOR TYPE "C" CB



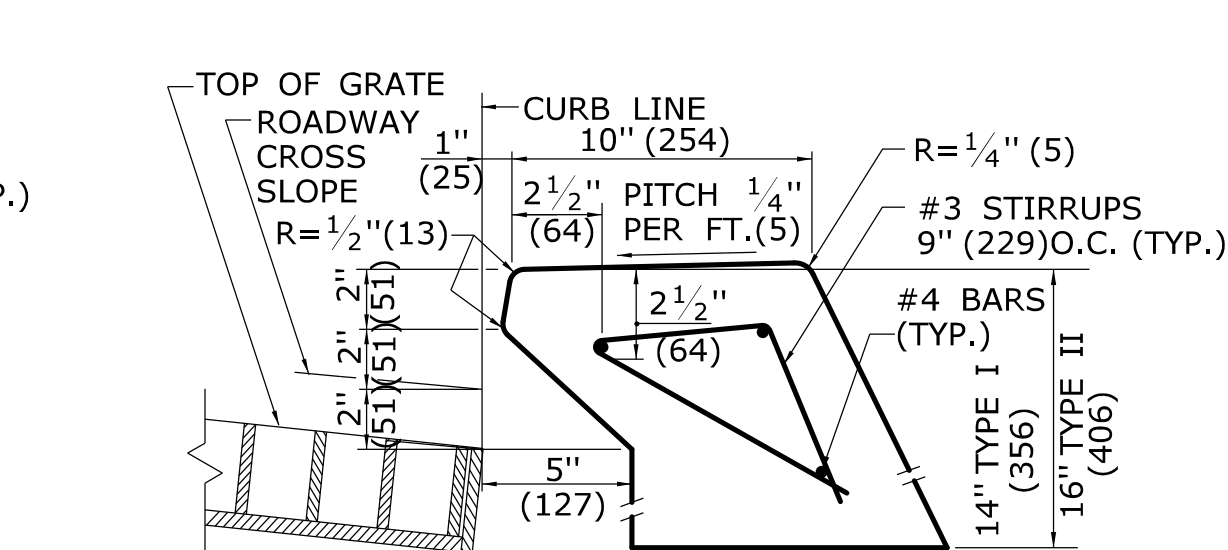
INLET WITH 4" (102) CONCRETE PARK CURBING FOR TYPE "C" CB



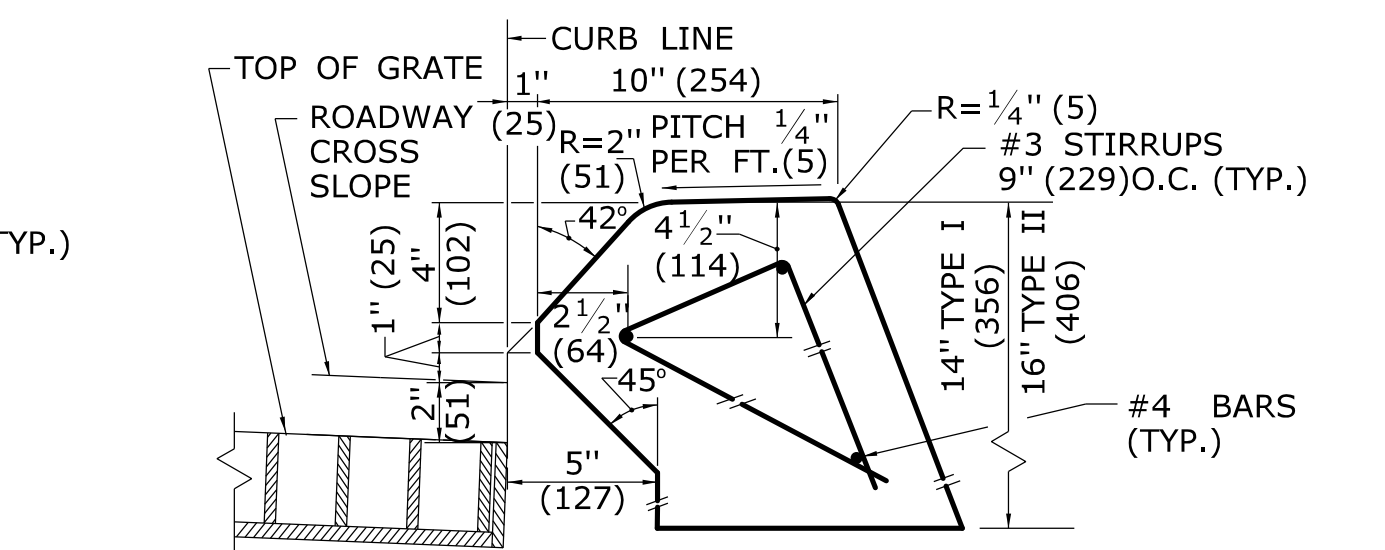
INLET WITH GRANITE SLOPE CURB FOR TYPE "C" CB



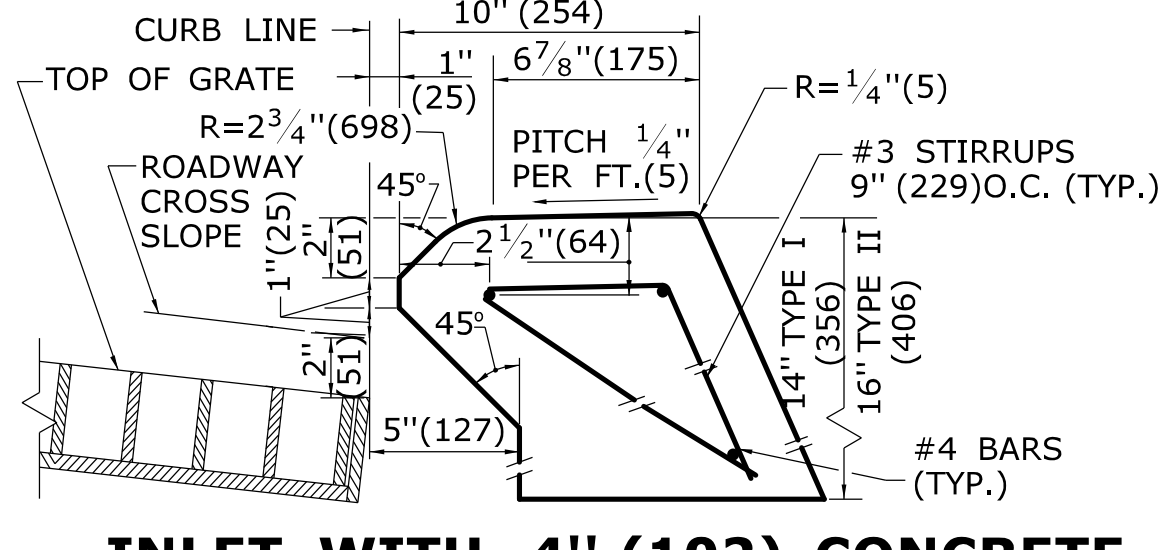
INLET WITH 6" (152) CONCRETE OR STONE CURBING FOR TYPE "C" CB DOUBLE GRATE TYPE I & II



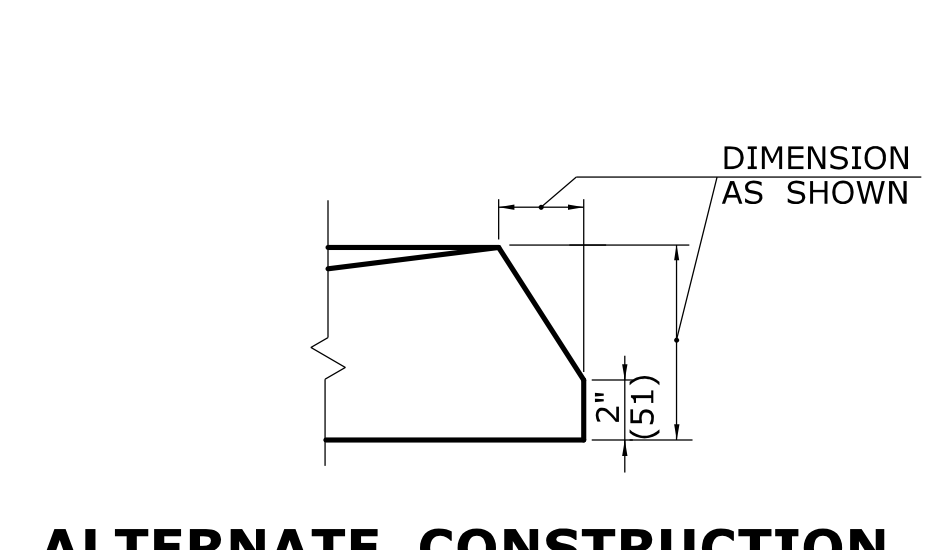
INLET WITH NO CURBING (PLAIN TYPE) FOR TYPE "C" CB DOUBLE GRATE TYPE I & II



INLET WITH 6" (152) BITUMINIOUS CONCRETE LIP CURBING FOR TYPE "C" CB DOUBLE GRATE TYPE I & II



INLET WITH 4" (102) CONCRETE PARK CURBING FOR TYPE "C" CB DOUBLE GRATE TYPE I & II



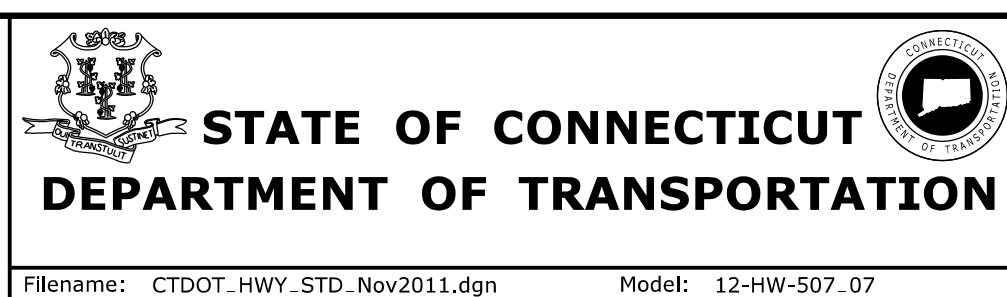
ALTERNATE CONSTRUCTION OF TYPE II TOP

ALL METRIC DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED

REV.	DATE	REVISION DESCRIPTION
2	7/28/11	REMOVE MIN. DROP NOTE
1	6/01/10	REVISE CALL-OUT

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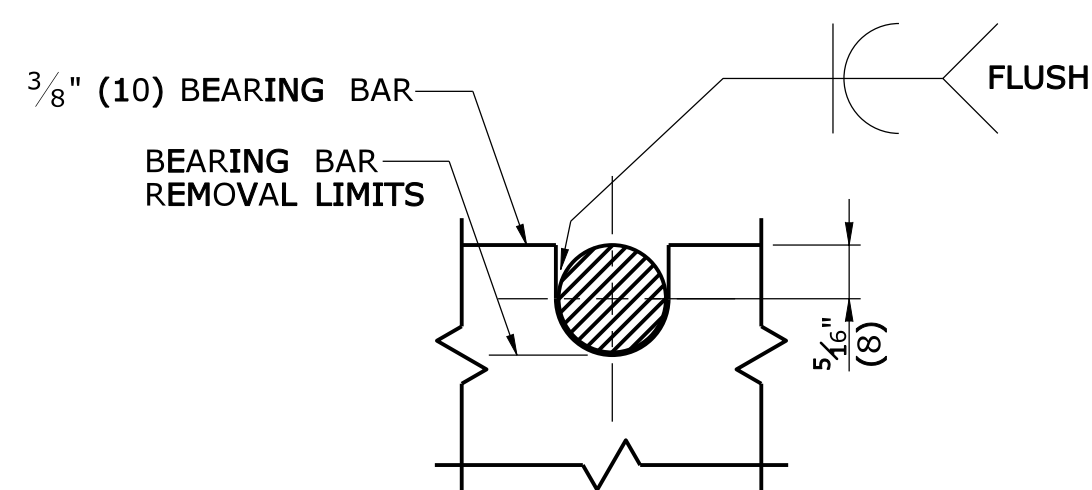
NOT TO SCALE



SUBMITTED BY:	NAME/DATE/TIME:
APPROVED BY:	NAME/DATE/TIME:

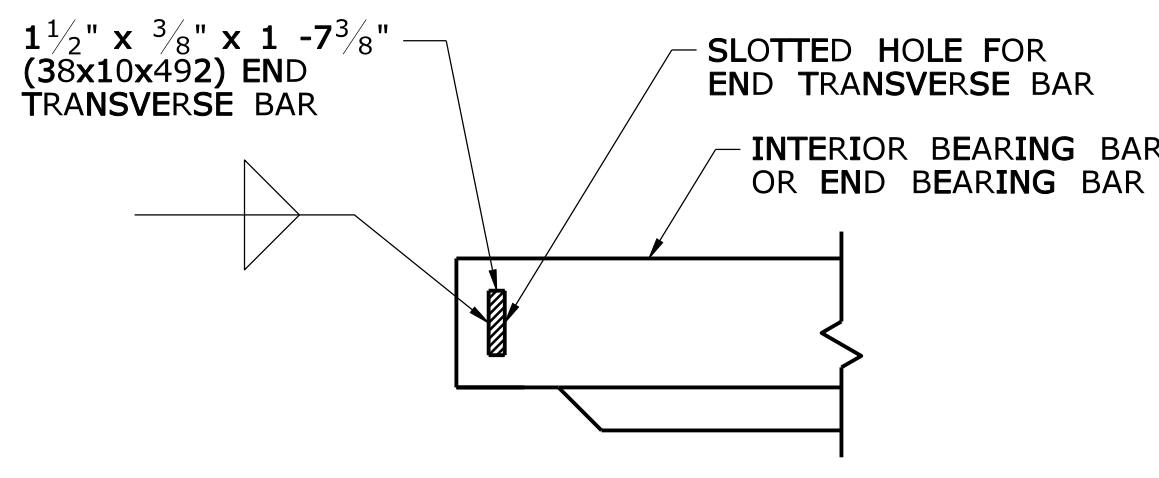
CTDOT
STANDARD SHEET
OFFICE OF ENGINEERING

STANDARD SHEET TITLE:	STANDARD SHEET NO.:
TYPE "C" & "C-L" CATCH BASIN TOPS AND CURBS	HW-507_07

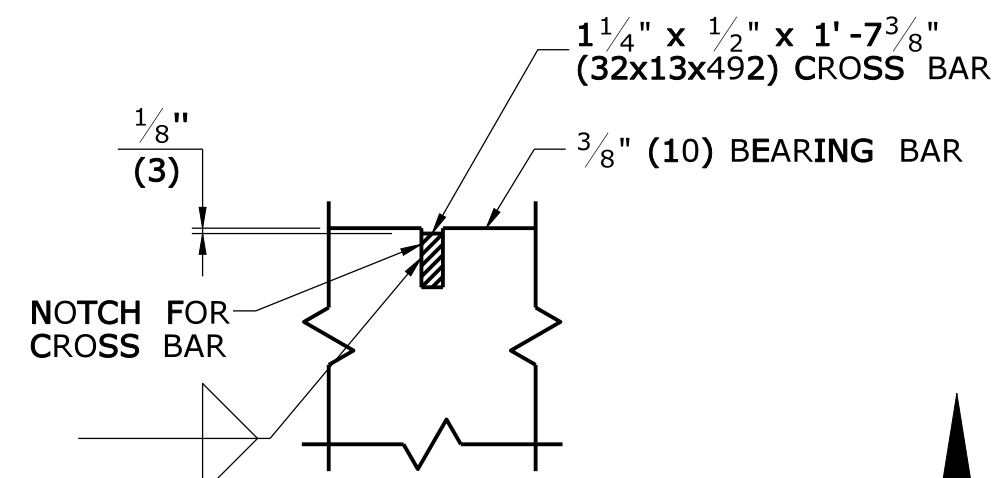


NOTE:
 $\frac{5}{8}$ " (16) DIA. ROUND BAR SHALL CONTACT BEARING BAR AT BOTTOM AND BE FLUSH AT TOP.

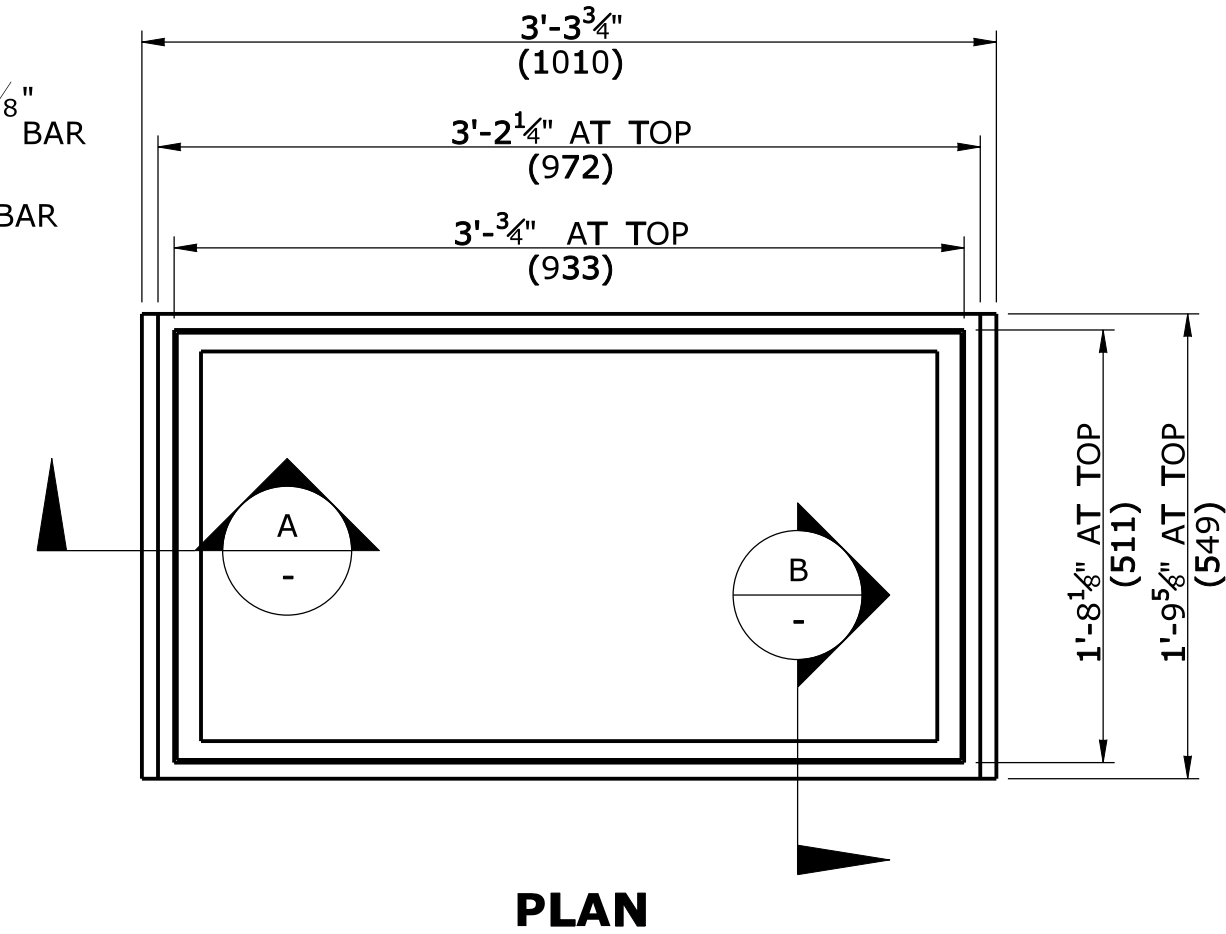
**ROUND BAR ATTACHMENT
 CATCH BASIN GRATE TYPE A**



**END TRANSVERSE BAR ATTACHMENT
 CATCH BASIN GRATE TYPE A & B**



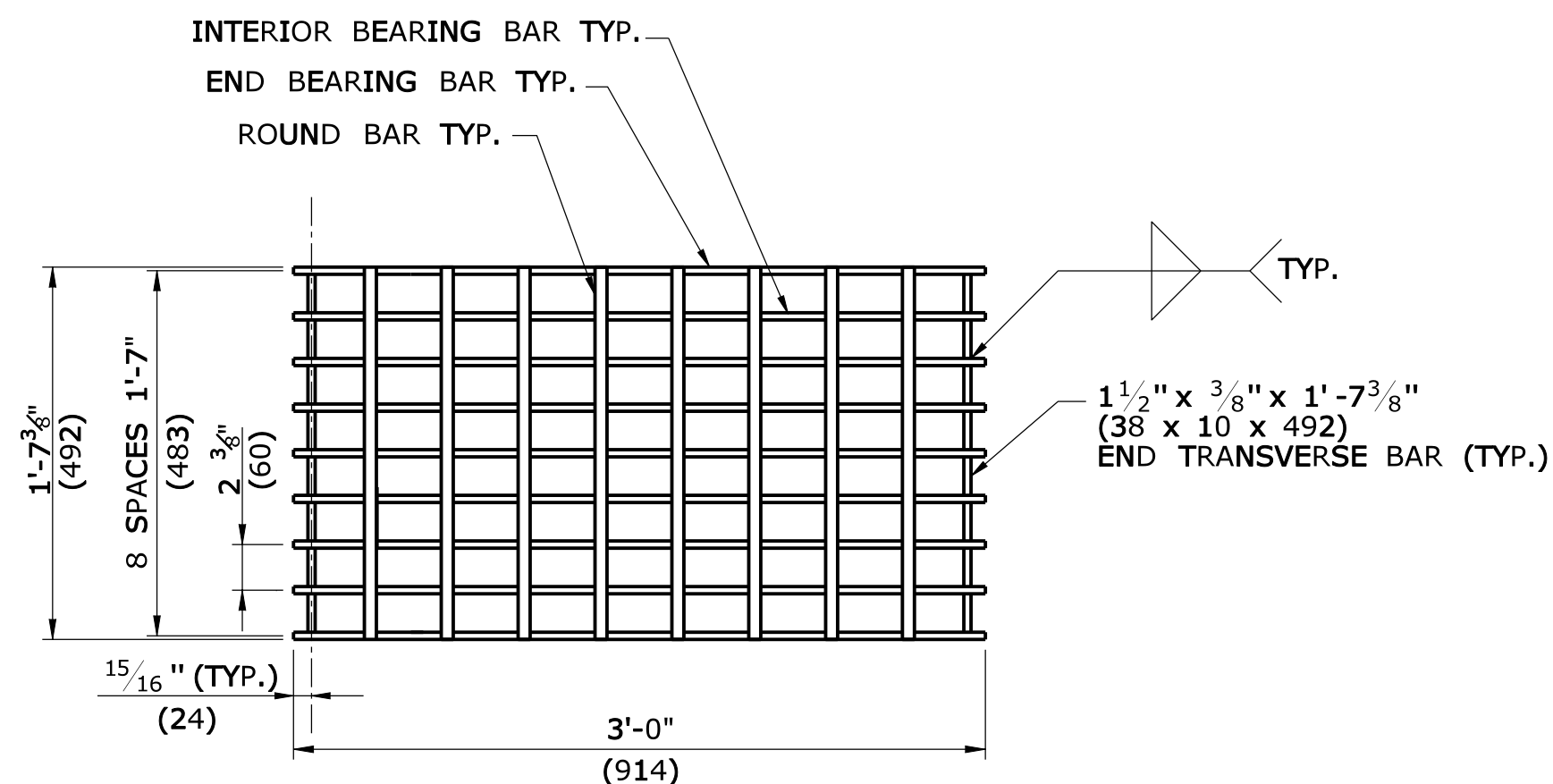
**CROSS BAR ATTACHMENT
 CATCH BASIN GRATE TYPE B**



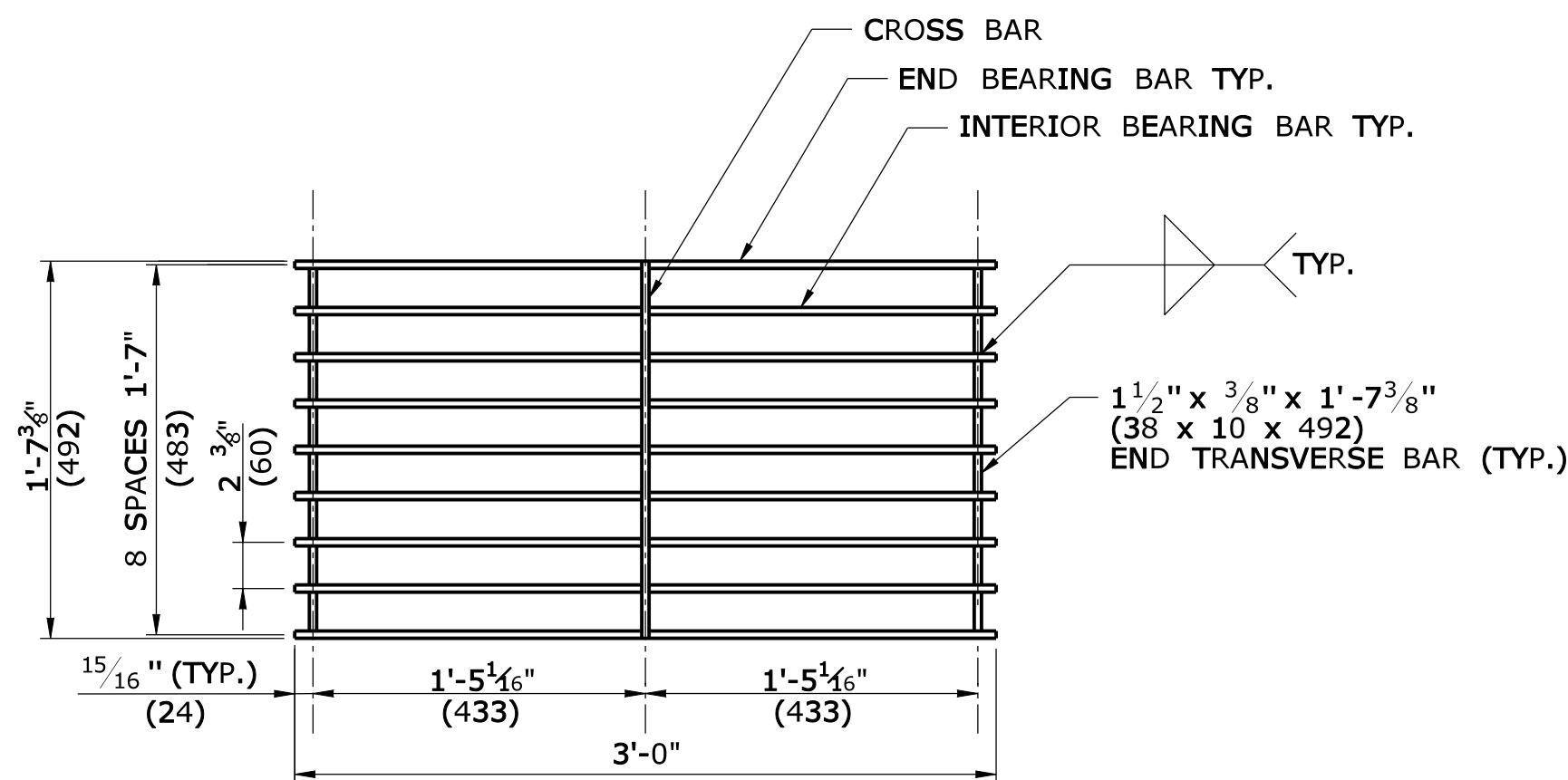
PLAN

GENERAL NOTES:

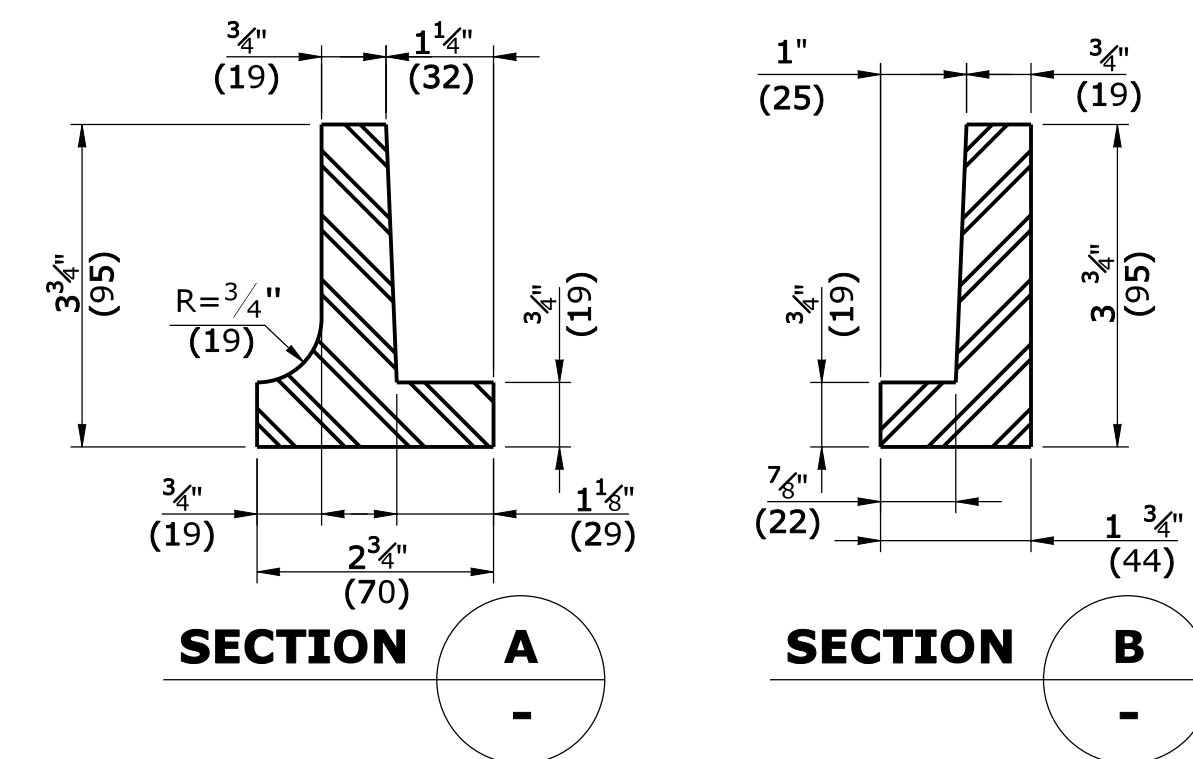
1. STEEL OR CAST IRON SHALL BE USED FOR FRAMES. STEEL SHALL BE USED FOR TYPE "A" & "B" GRATES.
2. TYPE "A" GRATES SHALL BE USED ON ALL ROADWAYS WHERE BICYCLE TRAFFIC IS ALLOWED OR AS DIRECTED BY THE ENGINEER.
3. TYPE "B" GRATES SHALL BE USED ON ALL LIMITED ACCESS HIGHWAYS, RAMPS AND WHERE BICYCLE TRAFFIC IS NOT ALLOWED OR AS DIRECTED BY THE ENGINEER.
4. STEEL FRAMES AND GRATES SHALL BE GALVANIZED IN ACCORDANCE WITH ARTICLE M.06.03.
5. DO NOT GALVANIZE CAST IRON FRAMES.
6. DIMENSIONAL TOLERANCES SHALL BE $\pm \frac{1}{16}$ ".(1.6)
7. ALL STEEL BARS SHALL BE WELDED AT ALL INTERSECTIONS.
8. ALL WELDING SHALL CONFORM TO THE REQUIREMENTS OF AWS STRUCTURAL WELDING CODE, D1.1.



PLAN



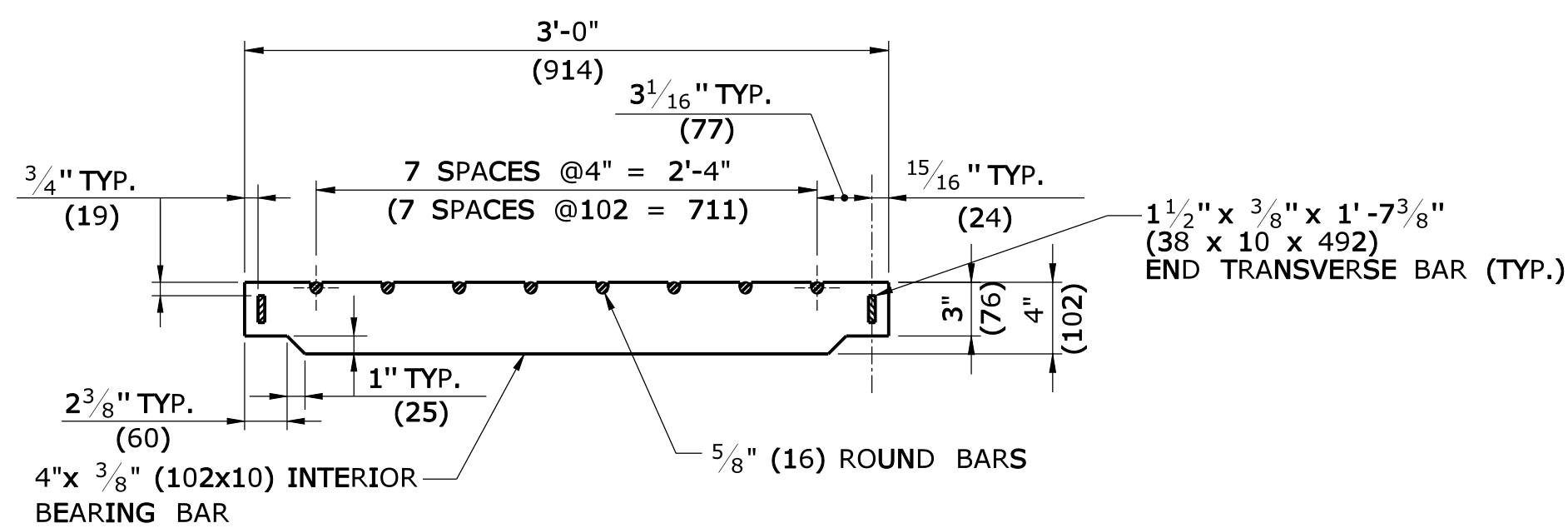
PLAN



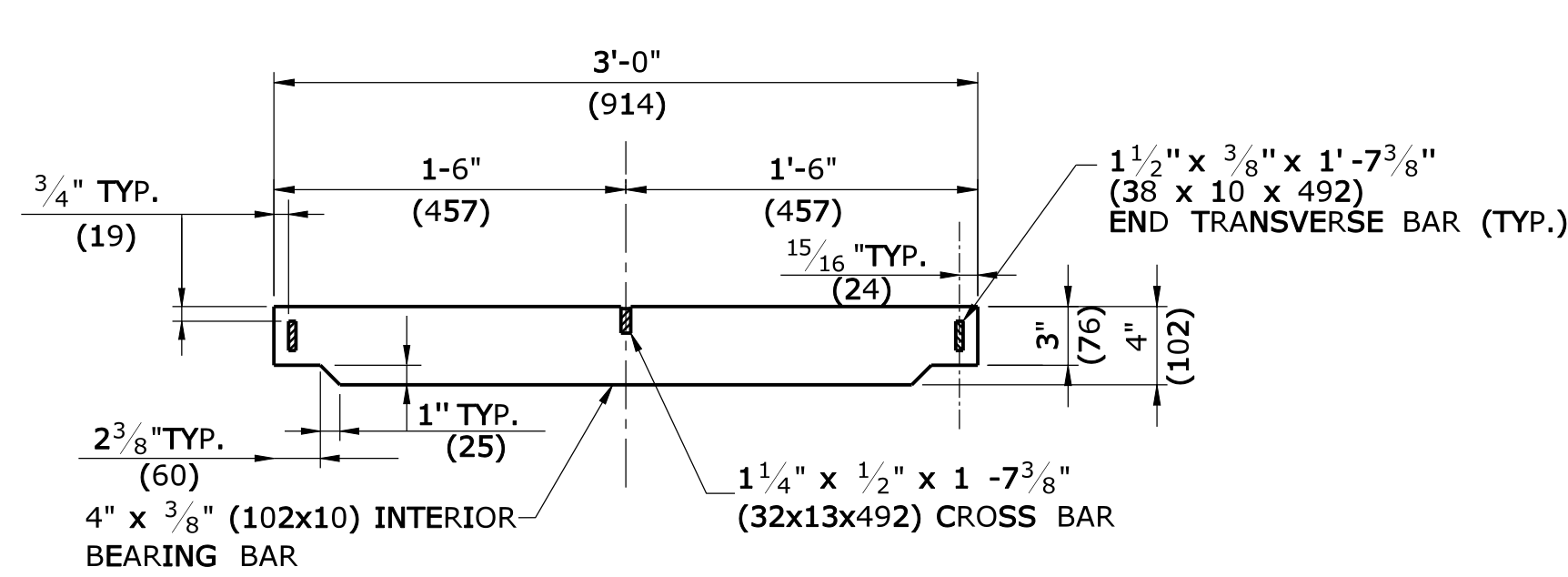
SECTION A

SECTION B

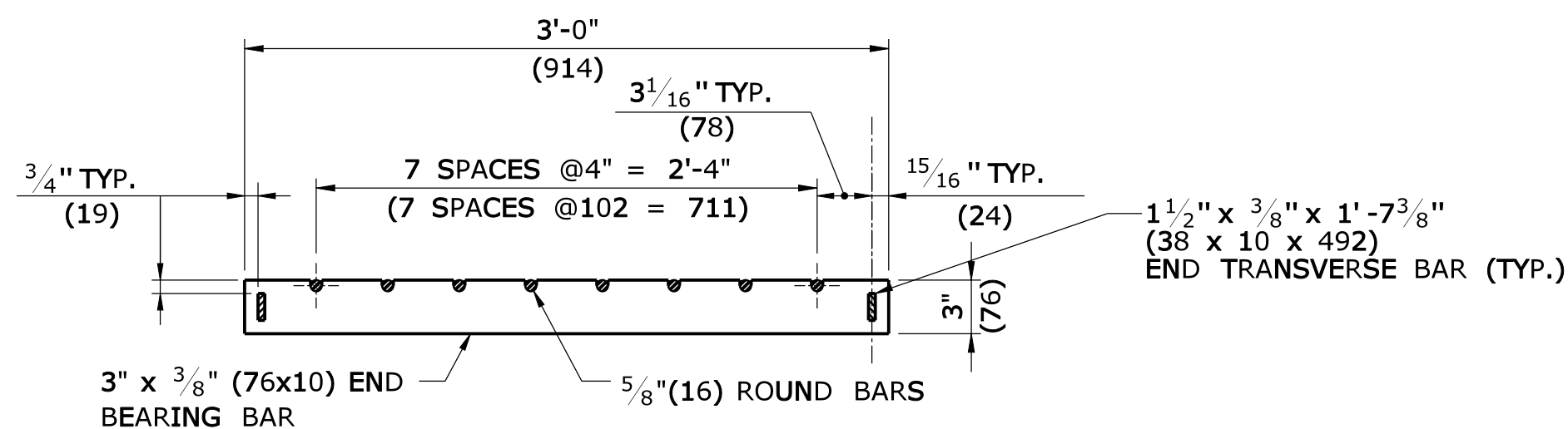
CAST IRON FRAME ALTERNATE



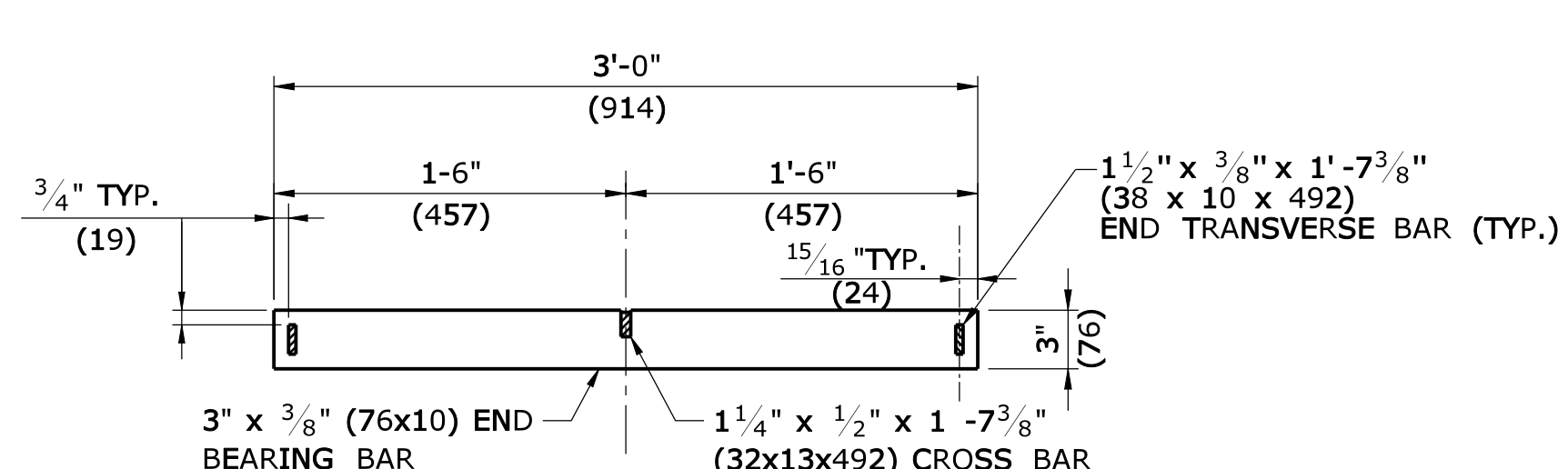
**ELEVATION- INTERIOR BEARING BAR
 CATCH BASIN GRATE TYPE A**



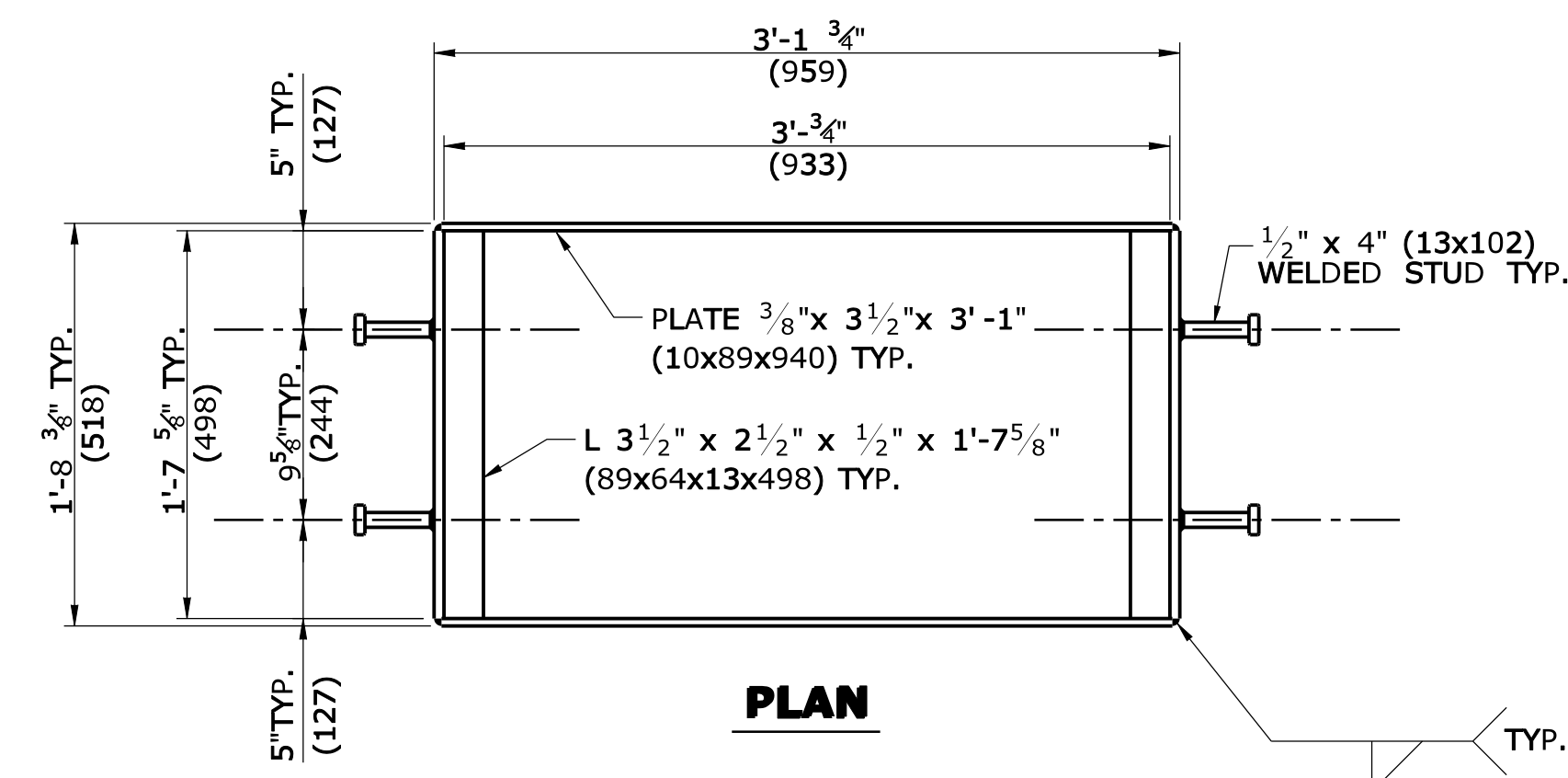
**ELEVATION- INTERIOR BEARING BAR
 CATCH BASIN GRATE TYPE B**



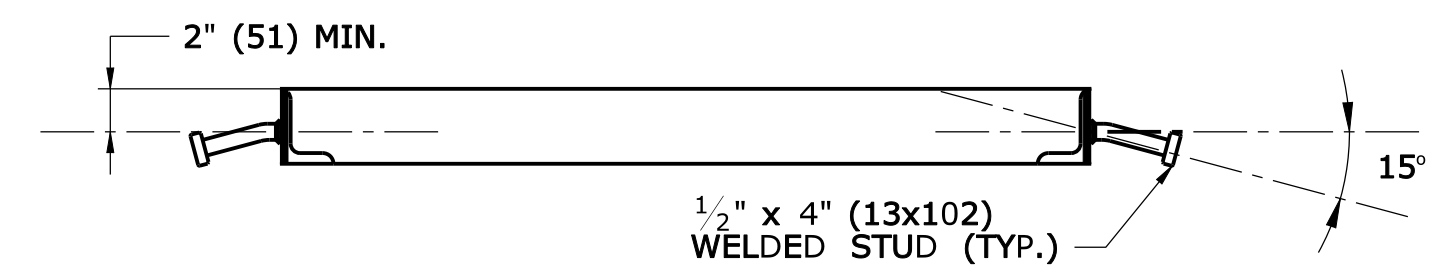
**ELEVATION- END BEARING BAR
 CATCH BASIN GRATE TYPE A**



**ELEVATION- END BEARING BAR
 CATCH BASIN GRATE TYPE B**



PLAN



**WELDED STUD ANCHOR DETAILS
 STEEL FRAME**

ALL METRIC DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED

REV.	DATE	REVISION DESCRIPTION

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NOT TO SCALE

Plotted Date: 9/11/2009

STATE OF CONNECTICUT
 DEPARTMENT OF TRANSPORTATION

File name: CTDOT_HIGHWAY_STD.dgn Model: HW-507_08

SUBMITTED BY:	NAME/DATE/TIME:
APPROVED BY:	NAME/DATE/TIME:

CTDOT
 STANDARD SHEET
 OFFICE OF ENGINEERING

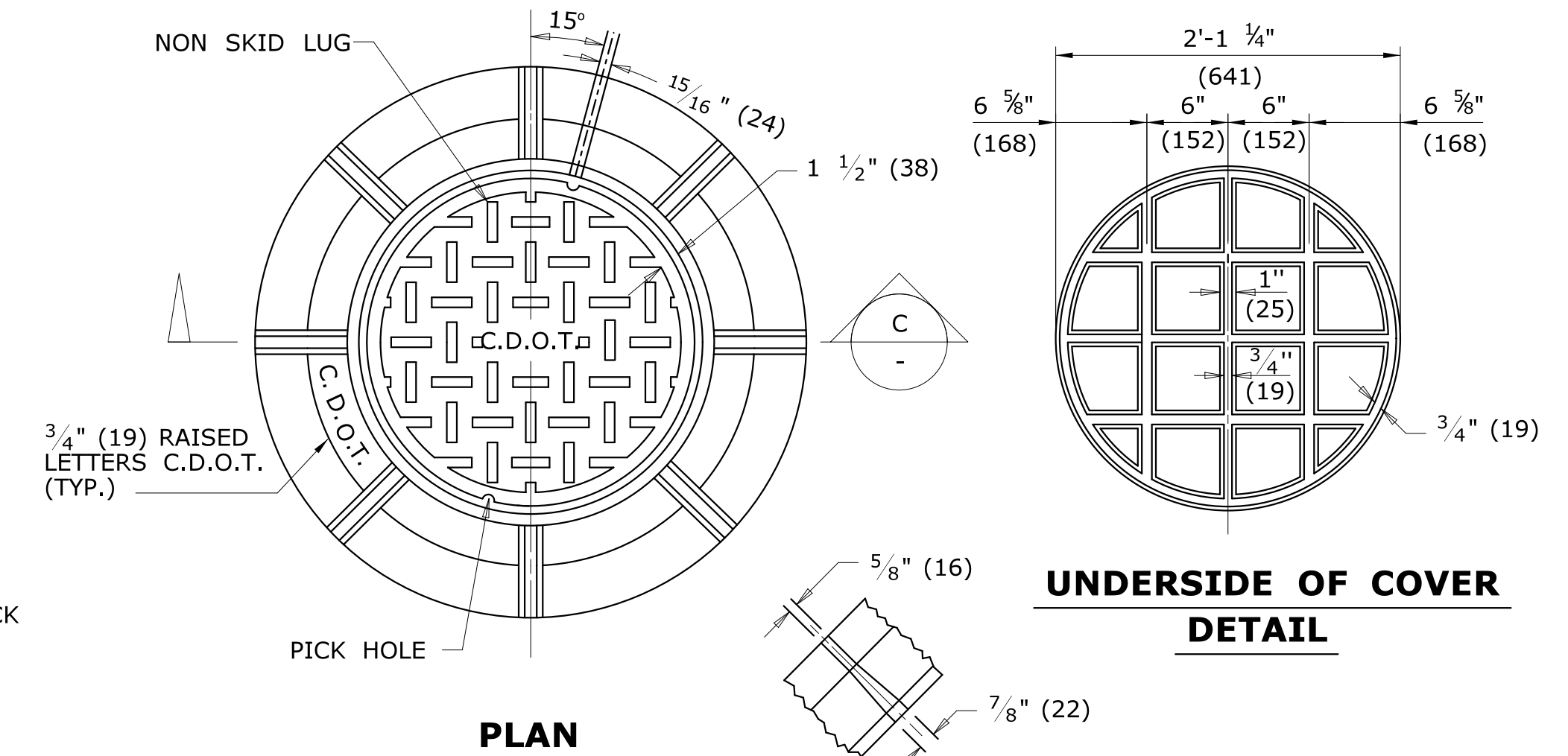
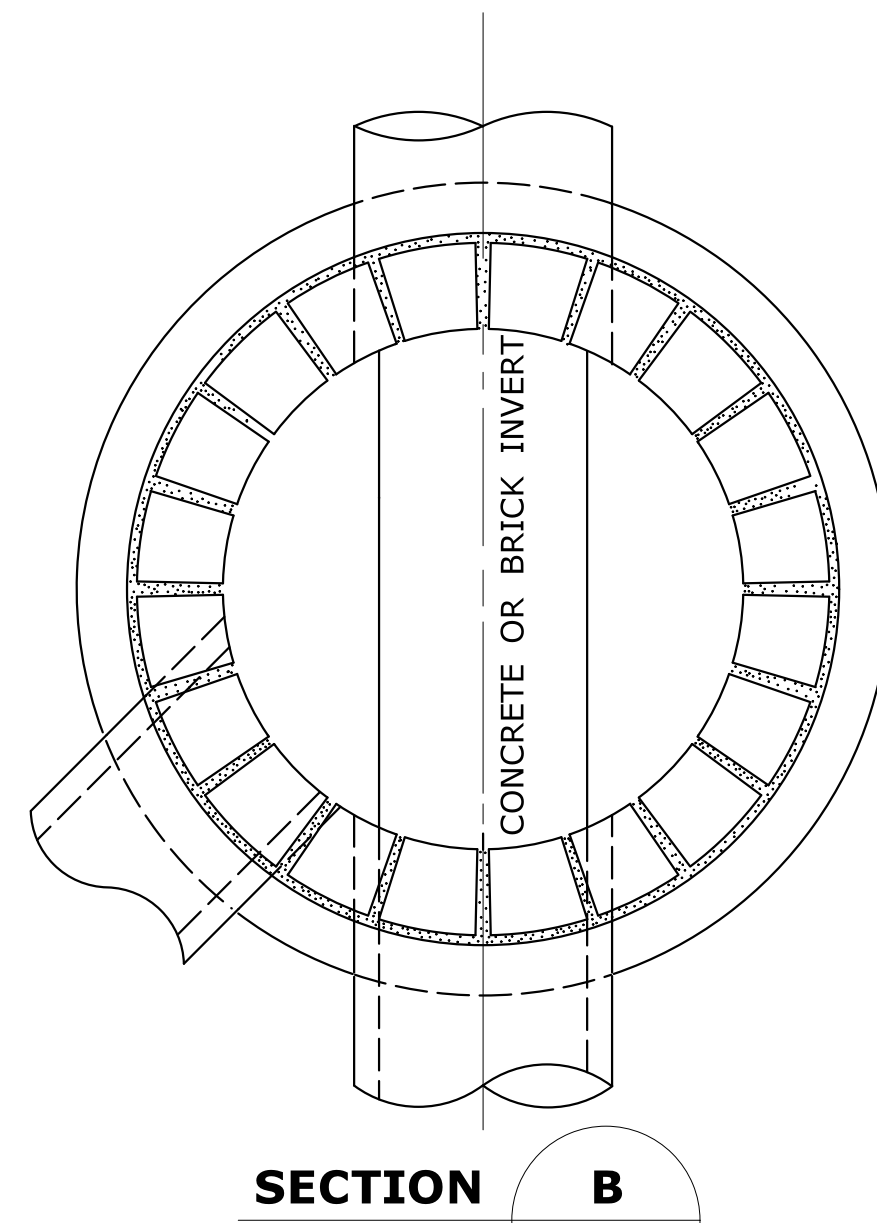
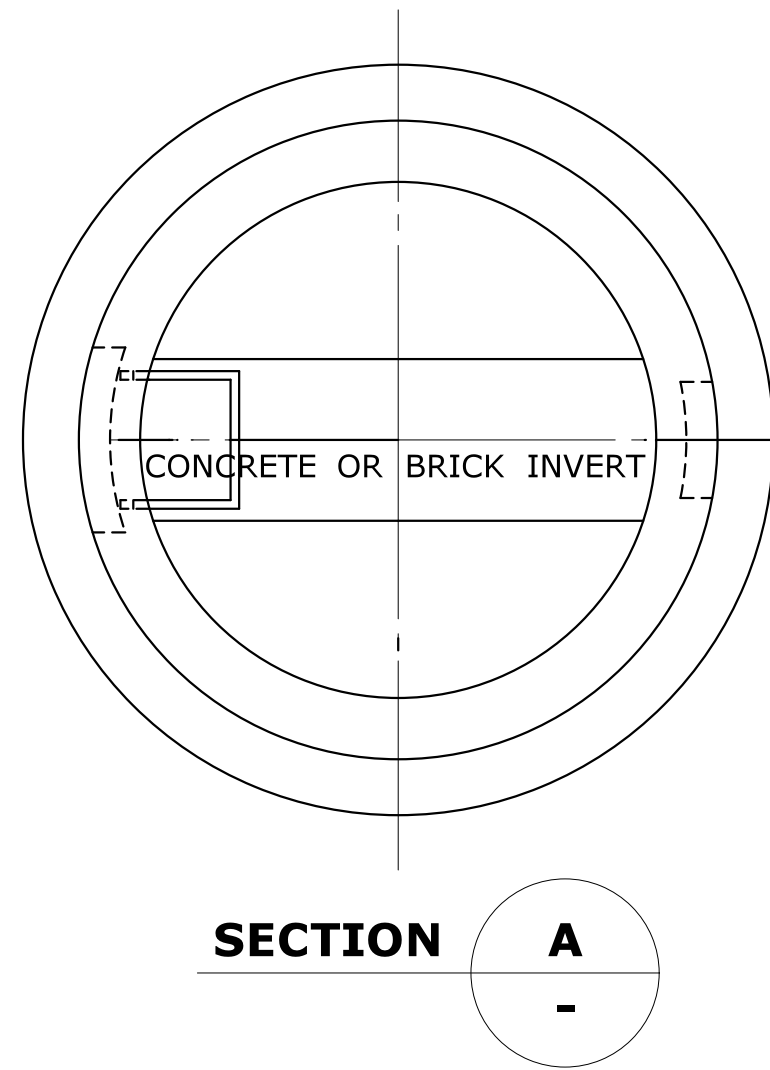
STANDARD SHEET TITLE:
CATCH BASIN FRAMES AND GRATES

STANDARD SHEET NO.:
HW-507_08

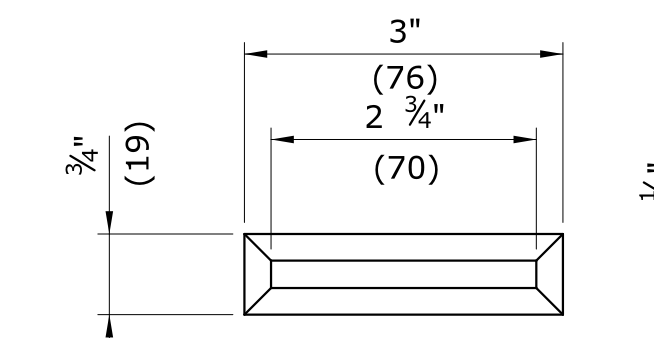
GENERAL NOTES:

- CHANNELS MAY BE SHAPED IN CONCRETE BASE OF MANHOLE OR FORMED USING BRICK OR MASONRY.
- A FRAME DIAMETER OF 3'-3" (991) WITH 4" (102) FLANGE MUST BE USED WHEN THE TOP DIAMETER OF THE PRECAST CONE IS LESS THAN 3'-6" (1067). ALL OTHER FRAME DIMENSIONS SHALL REMAIN THE SAME.
- COVER:

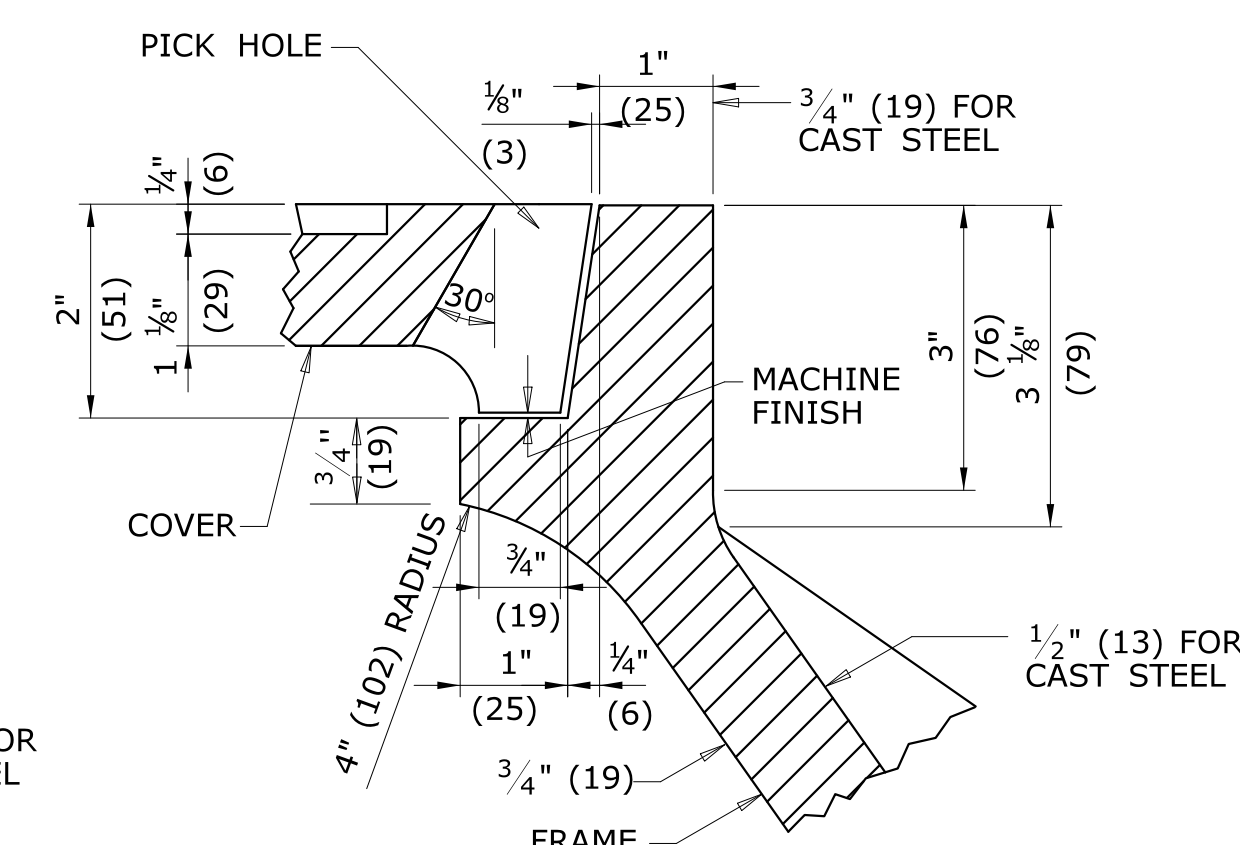
	CAST IRON	STEEL
MIN. COVER WEIGHT	134LB.(61kg)	134LB.(61kg)
- ALL DIMENSIONS SUBJECT TO MANUFACTURING TOLERANCES.



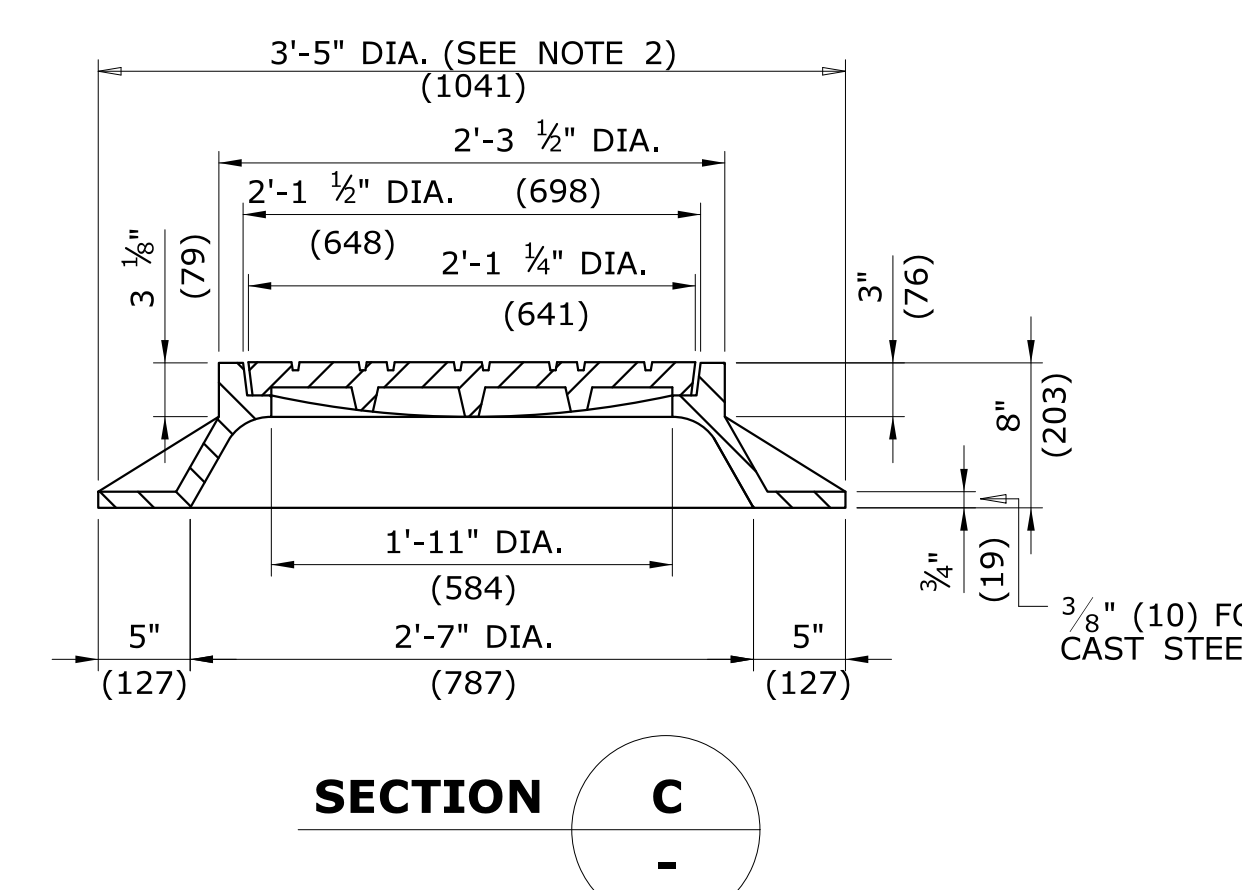
UNDERSIDE OF COVER DETAIL



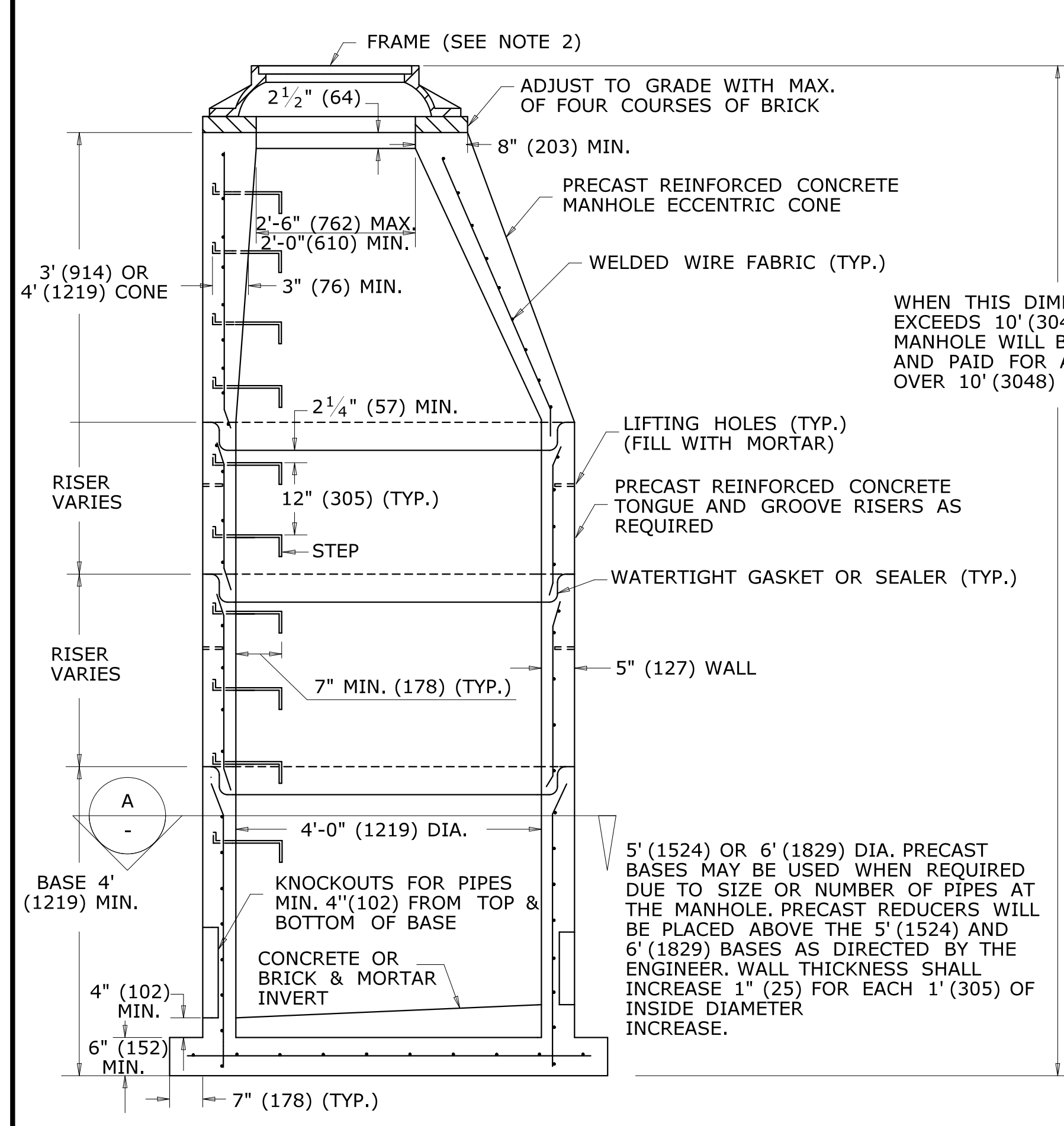
NON SKID LUG DETAIL



DETAIL OF SEAT

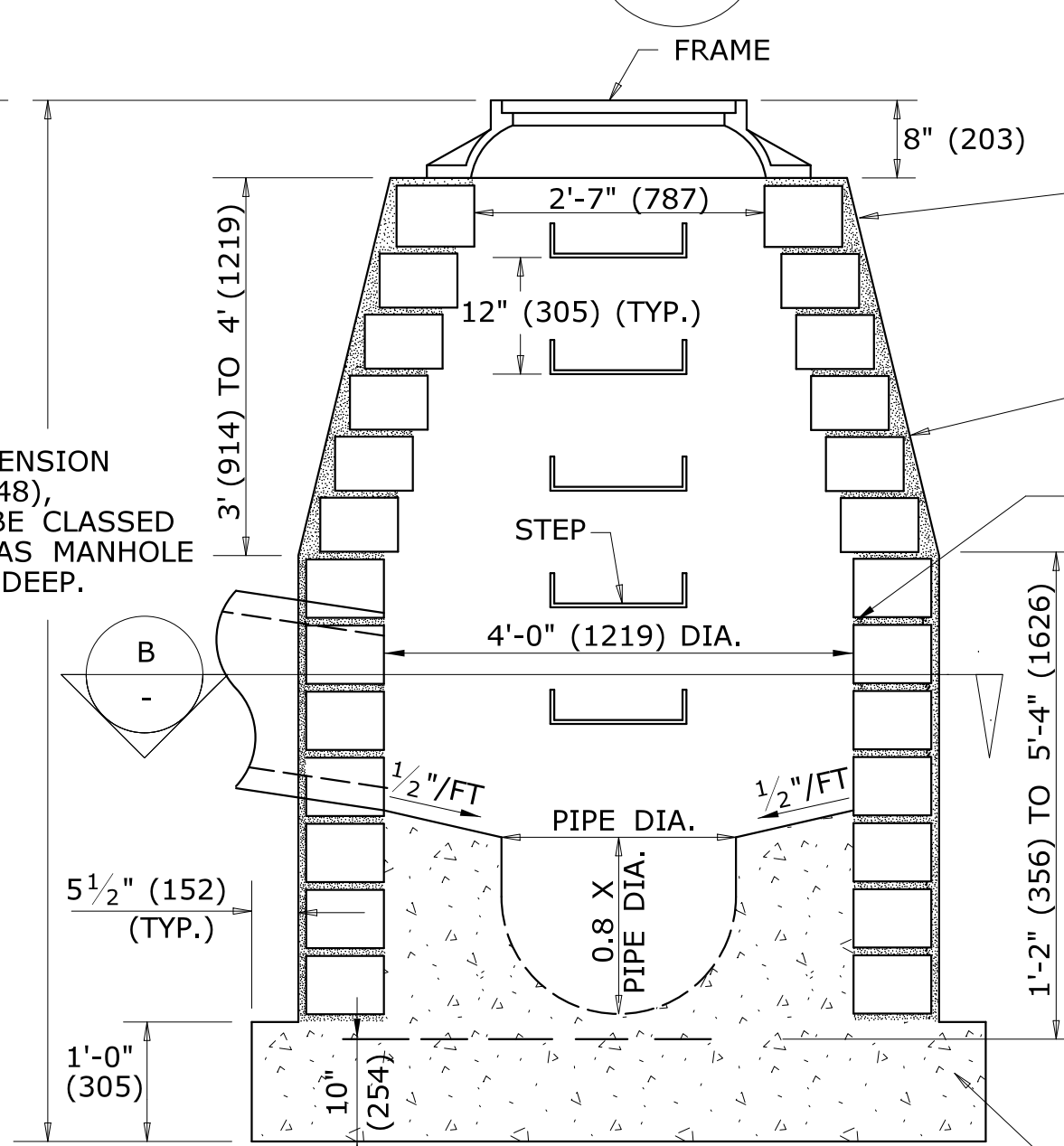


FRAME AND COVER DETAILS



ELEVATION MANHOLE

REINFORCED PRECAST CONCRETE UNIT



ELEVATION MANHOLE

MASONRY CONCRETE UNIT OR CLASS "A" CONCRETE

WALL SHALL BE A MIN. OF 6"(152) WITH MASONRY CONCRETE UNITS, CLASS "A" CONCRETE WALL SHALL BE 12"(300) THICK WHEN DEPTH OF MANHOLE IS GREATER THAN 10'(3048) DEEP.

MASONRY WALLS SHALL BE PLASTERED OUTSIDE WITH 2:1 CEMENT MORTAR 1/2"(13) THICK. MASONRY MUST BE WET WHEN MORTAR IS APPLIED.

ALL JOINTS SHALL BE POINTED FLUSH AND FULL

WALLS SHALL BE BUILT OF MASONRY CONCRETE UNITS OR CLASS "A" CONCRETE AT THE OPTION OF THE CONTRACTOR.

MASONRY CONCRETE UNITS SHALL BE LAID IN CEMENT SAND MORTAR 1:2 MIX, JOINTS SHALL NOT BE OVER 1/2"(13) ON INSIDE FACE

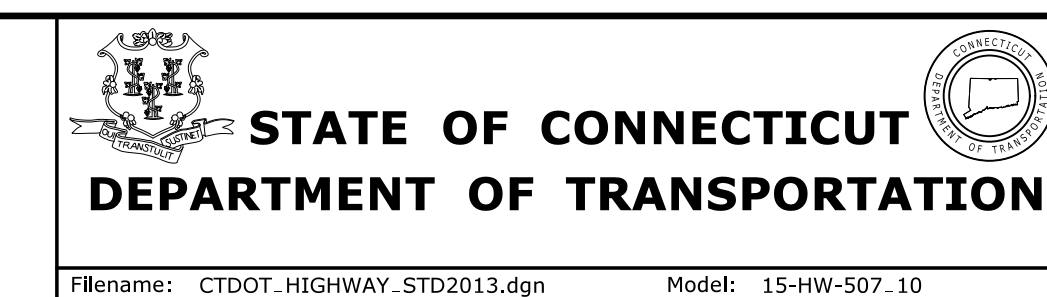
WHEN THIS DIMENSION EXCEEDS 10' (3048), MANHOLE WILL BE CLASSED AND PAID FOR AS MANHOLE OVER 10' (3048) DEEP.

5' (1524) OR 6' (1829) DIA. PRECAST BASES MAY BE USED WHEN REQUIRED DUE TO SIZE OR NUMBER OF PIPES AT THE MANHOLE. PRECAST REDUCERS WILL BE PLACED ABOVE THE 5' (1524) AND 6' (1829) BASES AS DIRECTED BY THE ENGINEER. WALL THICKNESS SHALL INCREASE 1" (25) FOR EACH 1' (305) OF INSIDE DIAMETER INCREASE.

ALL METRIC DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED

1	6/11	REVISE STEP WIDTH PER OSHA
2	7/13	REVISE COVER FRAME WEIGHT
-	-	-
-	-	-
-	-	-
-	-	-
REV.	DATE	REVISION DESCRIPTION

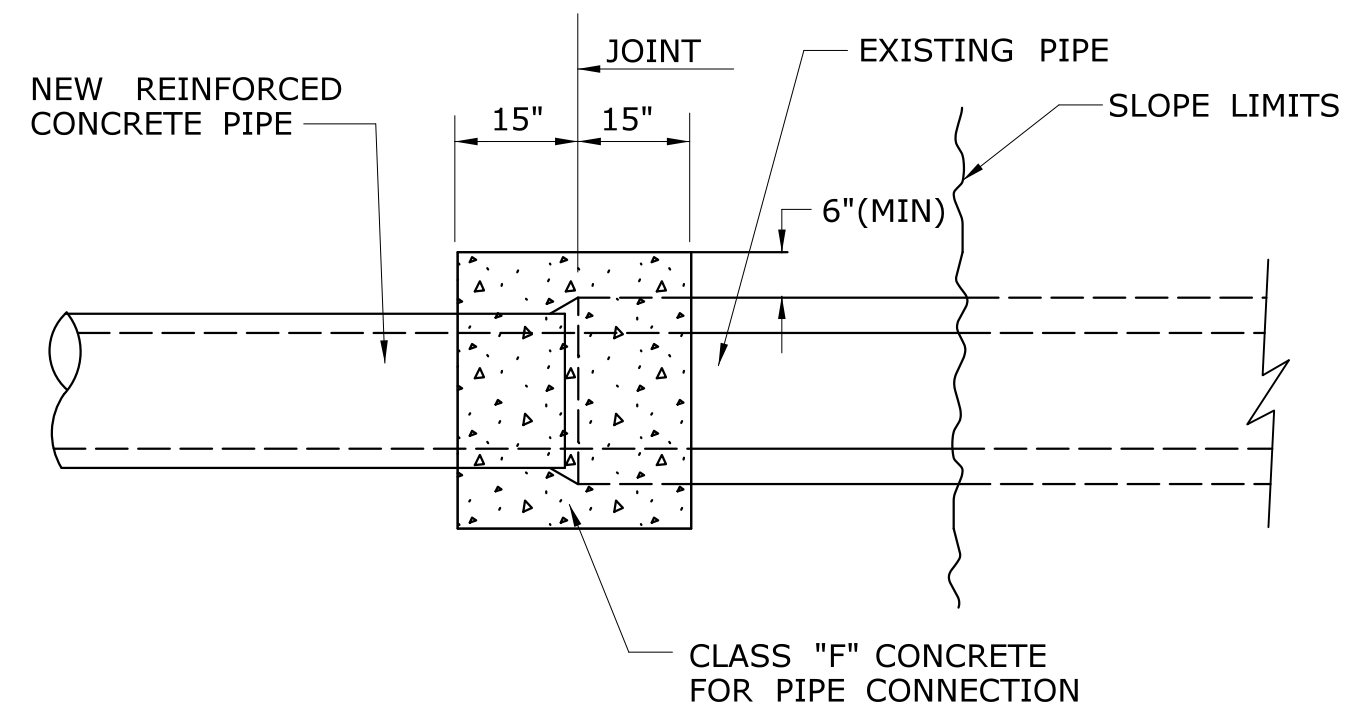
NOT TO SCALE



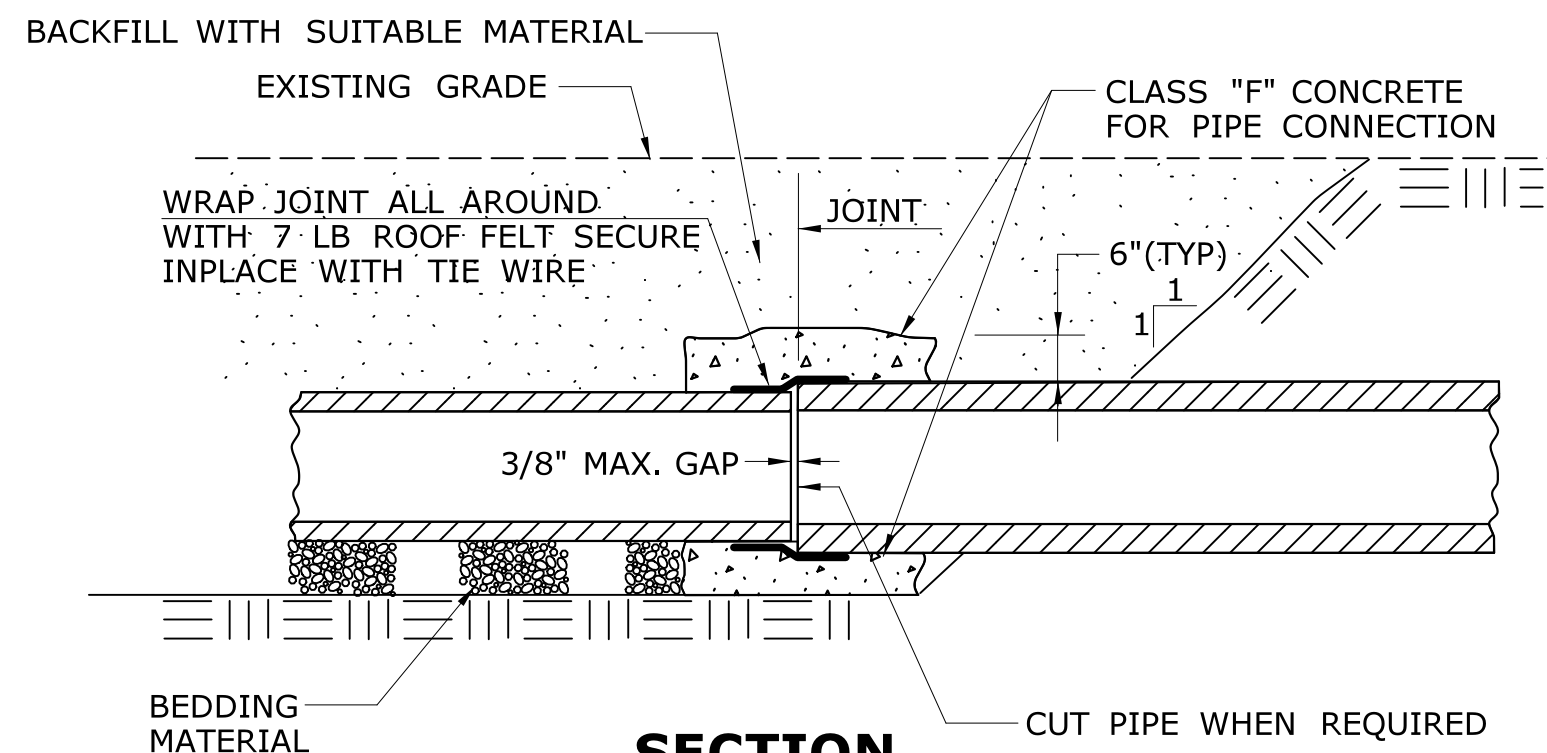
SUBMITTED BY:	NAME/DATE/TIME:
APPROVED BY:	NAME/DATE/TIME:

CTDOT
STANDARD SHEET
OFFICE OF ENGINEERING

STANDARD SHEET TITLE:	STANDARD SHEET NO.:
MANHOLE - FRAME & COVER	HW-507_10



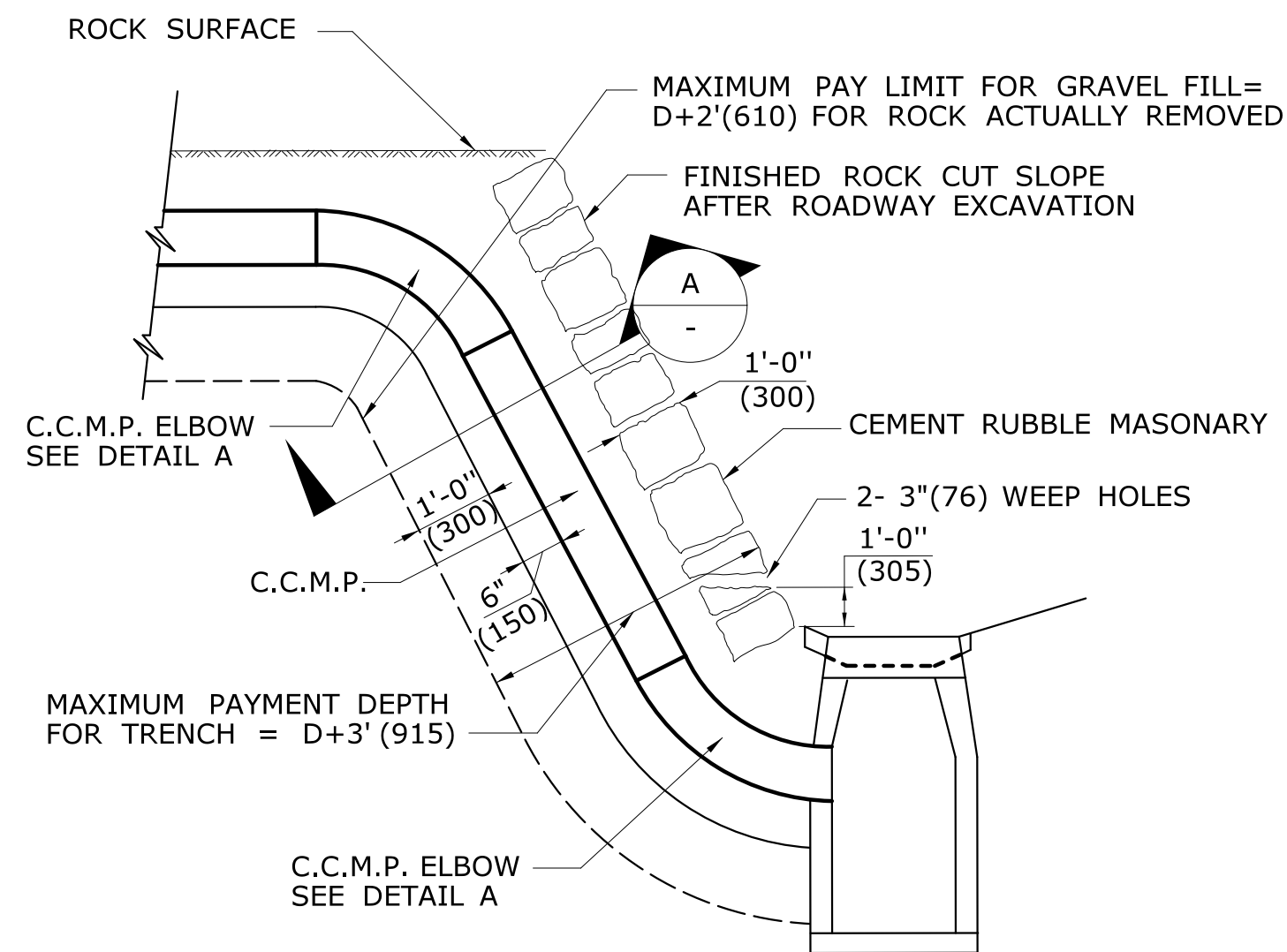
PLAN



**SECTION
CONCRETE PIPE CONNECTION**

NOTES:

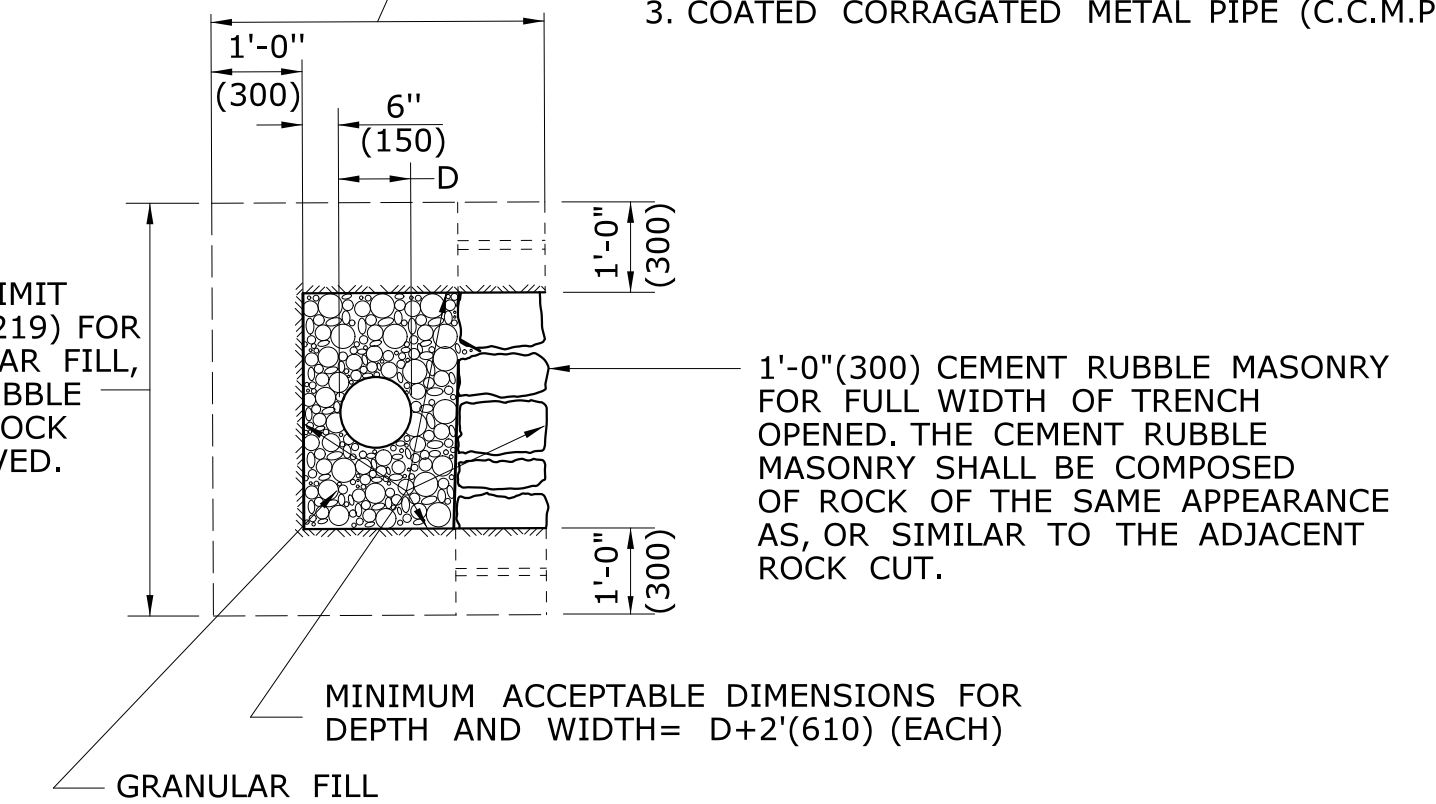
1. "CONCRETE PIPE CONNECTION" IS INTENDED FOR USE WHERE A REINFORCED CONCRETE PIPE REPAIR OR MODIFICATION IS NEEDED SOMEWHERE WITHIN A PIPE RUN WHERE A BELL/SPIGOT JOINT CANNOT BE ACHIEVED.
2. MAINTAIN INTERIOR ALIGNMENT OF PIPE AT JOINTS UNTIL CONCRETE IS PROPERLY CURED.
3. BACKFILL OF PIPE REPAIR WITH SUITABLE MATERIAL MAY NOT TAKE PLACE UNTIL CONCRETE IS PROPERLY CURED.
4. CONTRACTOR SHALL MAINTAIN LINE AND GRADE OF PIPE REPAIR OR MODIFICATION BY METHODS APPROVED BY THE ENGINEER.
5. HOLES OR GAPS AT JOINT LARGER THAN 3/8" SHALL BE FILLED OR WRAPPED TO PREVENT CONCRETE FROM ENTERING PIPE.
6. TRENCH EXCAVATION SHALL BE TO THE MAXIMUM EXTENT NEEDED TO PERFORM WORK.



TYPICAL INSTALLATION OF C.C.M.P. IN ROCK SLOPE

MAXIMUM PAY LIMIT DEPTH FOR TRENCH = $D+3'(915)$. MAXIMUM PAY LIMIT FOR GRAVEL FILL = $D+2'(610)$ FOR ROCK ACTUALLY REMOVED.

MAXIMUM PAY LIMIT WIDTH = $D+4'(1219)$ FOR TRENCH, GRANULAR FILL, AND CEMENT RUBBLE MASONRY FOR ROCK ACTUALLY REMOVED.



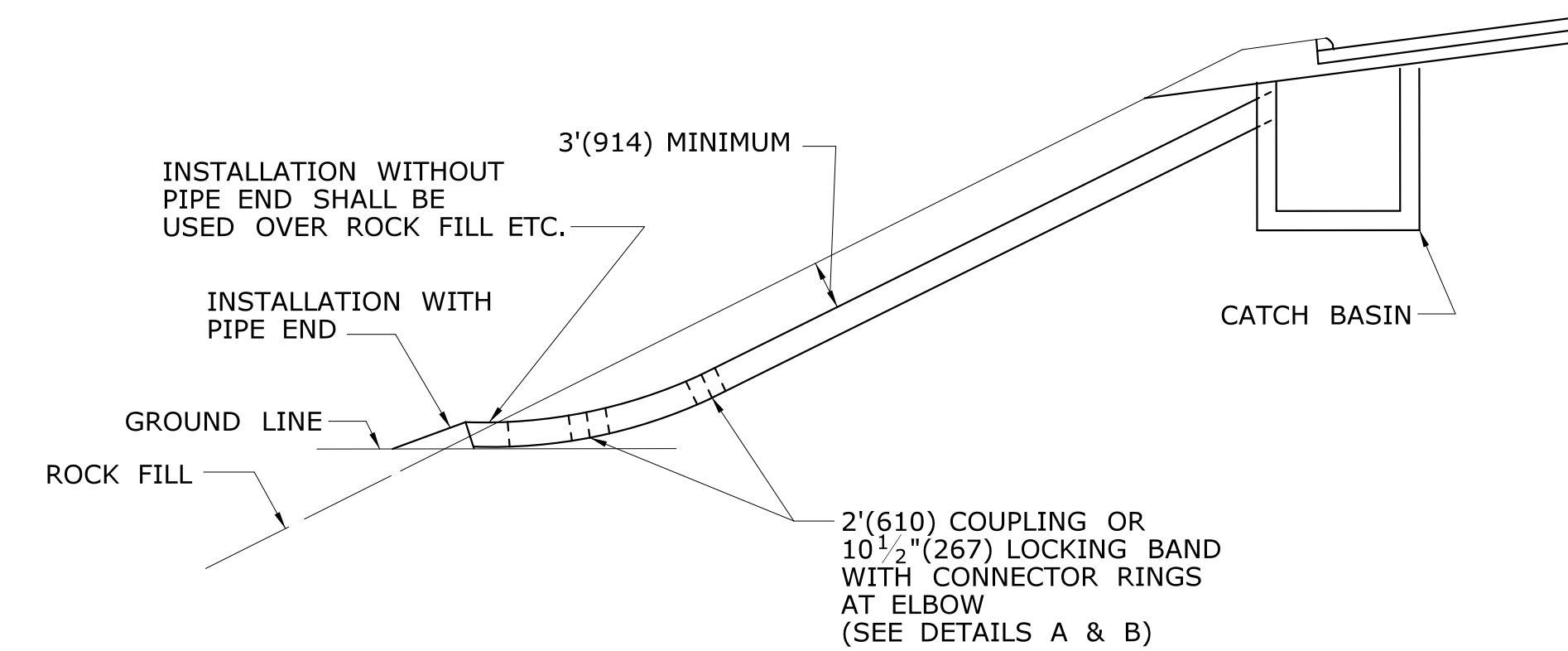
SECTION A

GENERAL NOTES:

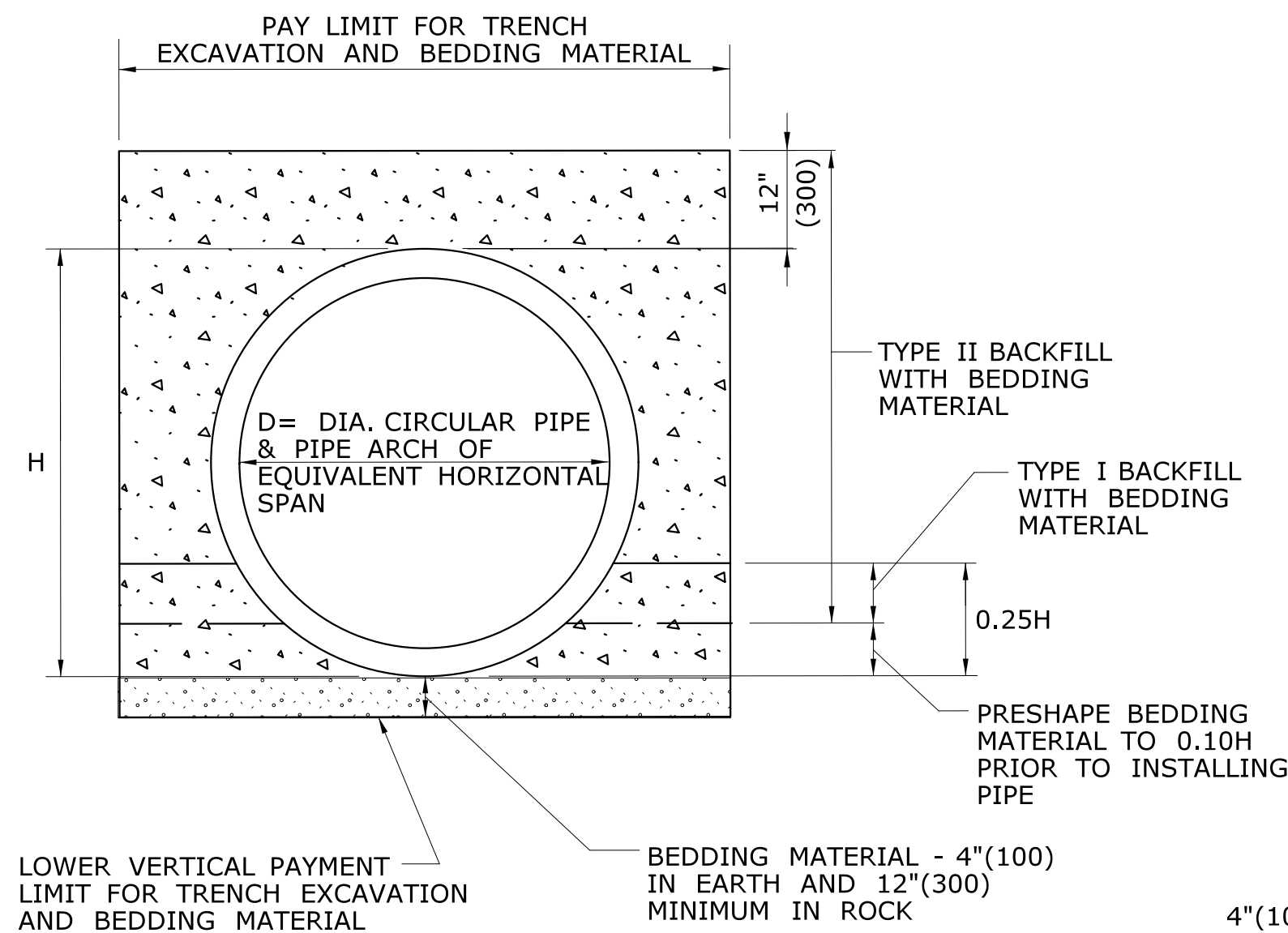
1. ROCK REMOVED BEYOND THE MAXIMUM PAY LIMIT SHOWN SHALL BE REPLACED WITH CEMENT RUBBLE MASONRY AND GRANULAR FILL.
2. FILL, AS REQUIRED TO CLOSE THE OPENING AS SHOWN ON THE PLANS, WILL BE AT THE CONTRACTORS EXPENSE. HOWEVER, THE PAY LIMIT LINES MAY BE MODIFIED TO COINCIDE WITH NATURAL FAULTS OR FISSURES OF ROCK AS THE ENGINEER MAY DETERMINE.
3. COATED CORRUGATED METAL PIPE (C.C.M.P.)

**TABLE C
CONNECTOR RINGS**

PIPE DIAMETER	LENGTH OF RING
12" (300)	52" (1321)
15" (381)	61" (1549)
18" (457)	71" (1803)
21" (533)	80" (2032)
24" (610)	90" (2286)
30" (762)	108" (2743)
36" (915)	128" (3251)
42" (1066)	147" (3734)
48" (1219)	166" (4216)

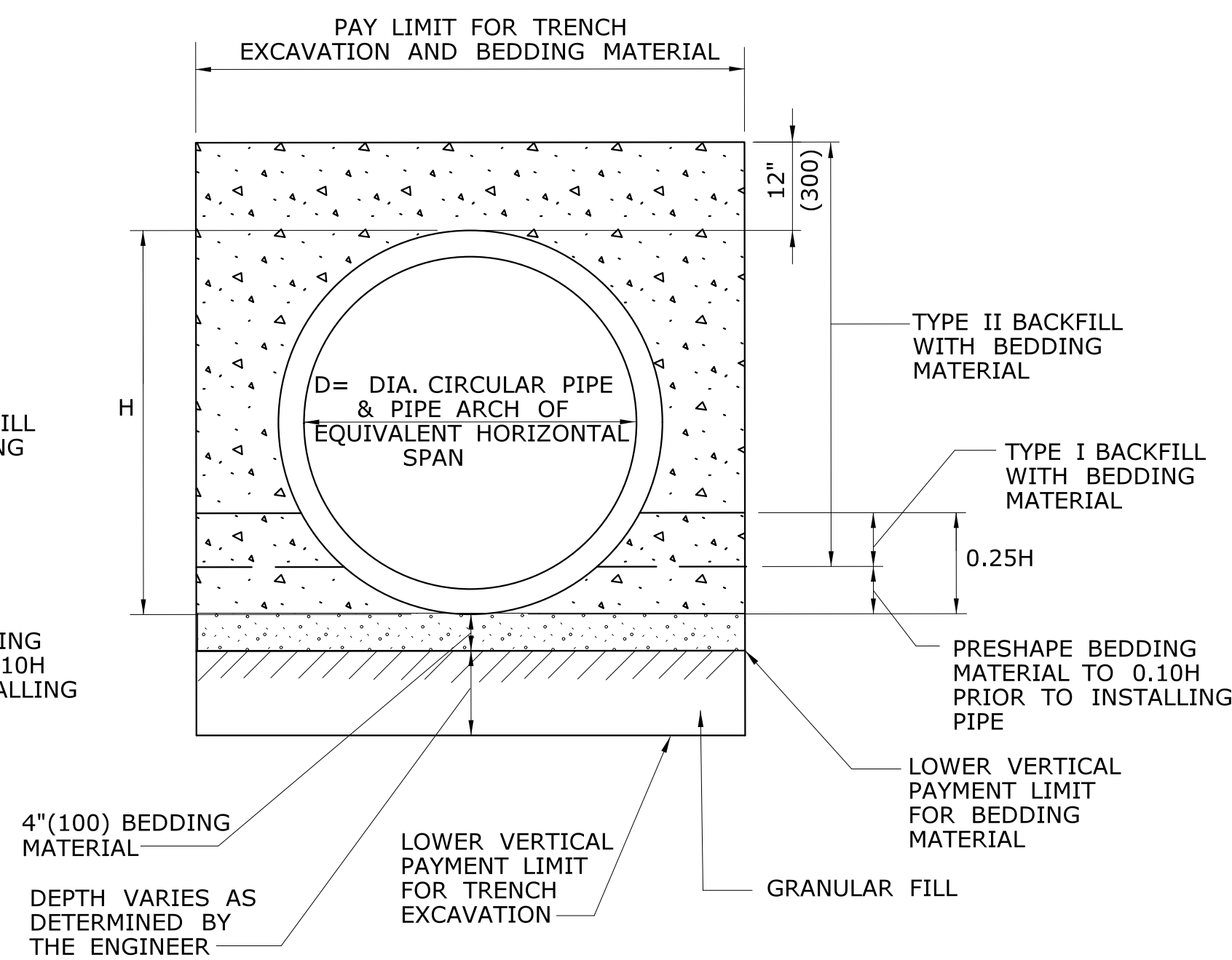


TYPICAL INSTALLATION OF C.C.M.P. ELBOW IN FILL SLOPE

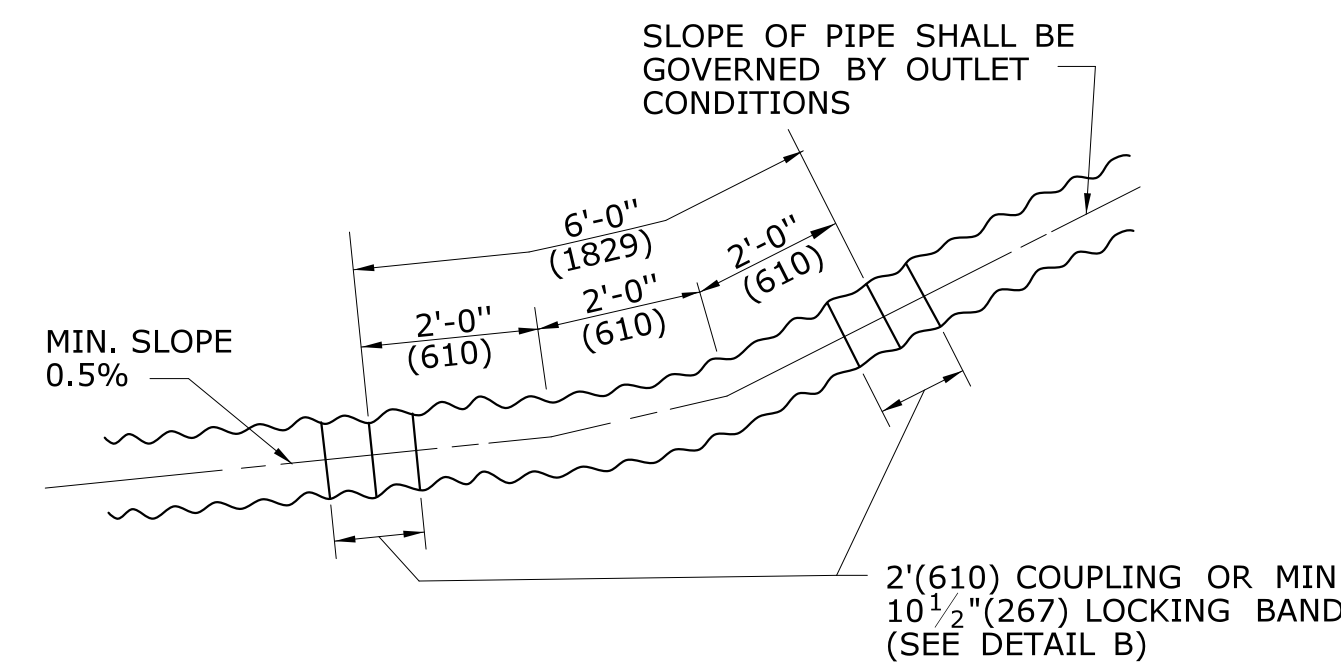


PIPE TRENCH DETAIL

WHERE GRANULAR FILL IS NOT USED

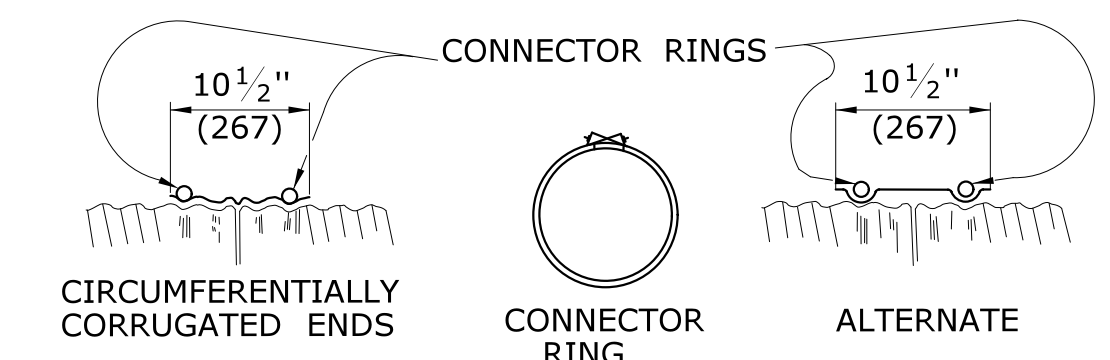


**PIPE TRENCH DETAIL
WHERE GRANULAR FILL
IS USED AS BEDDING**



DETAIL A

C.C.M.P. ELBOW AND COUPLING



DETAIL B

ELBOW DIMENSIONS

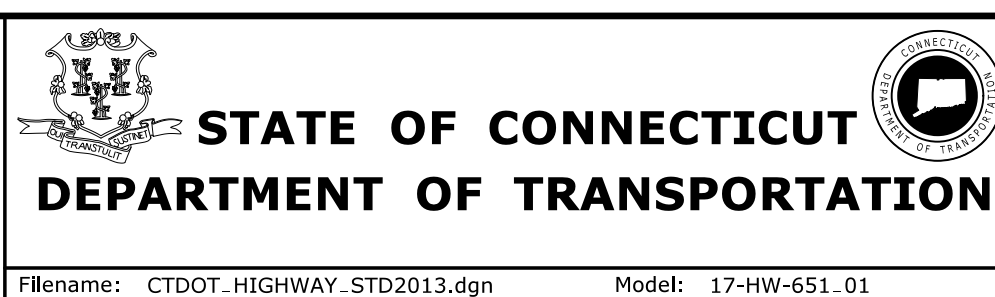
ALL METRIC DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED

REV.	DATE	REVISION DESCRIPTION
3	7/13	ADD CONCRETE PIPE CONNECTION DETAIL
2	6/01/10	REVISE TITLE TO SAY TRENCH DETAIL
1	6/01/10	REMOVE GRAVEL, REPLACE W/ GRANULAR

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 6/13/2013

NOT TO SCALE

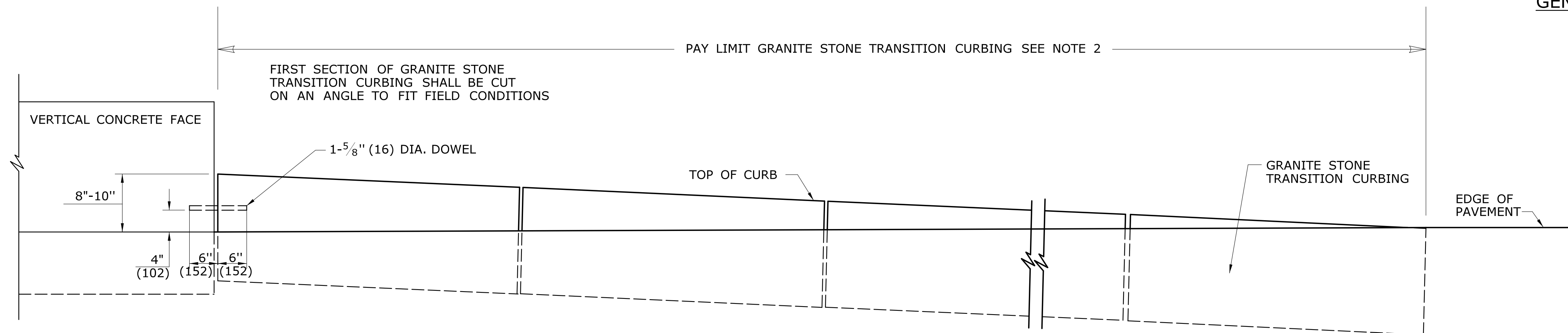


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APPROVED BY: NAME/DATE/TIME:

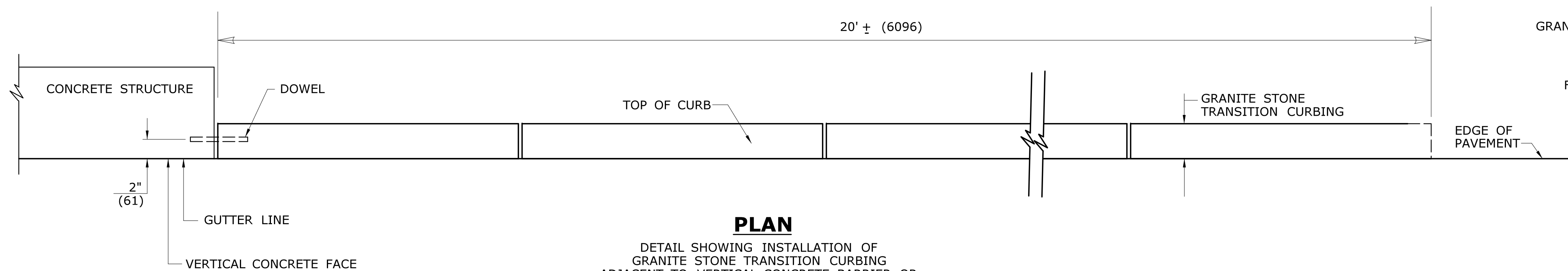
**CTDOT
STANDARD SHEET
OFFICE OF ENGINEERING**

STANDARD SHEET TITLE:
C.C.M.P. PIPE INSTALLATIONS IN FILL & ROCK SLOPES & PIPE TRENCH DETAIL

STANDARD SHEET NO.:
HW-651_01



ELEVATION

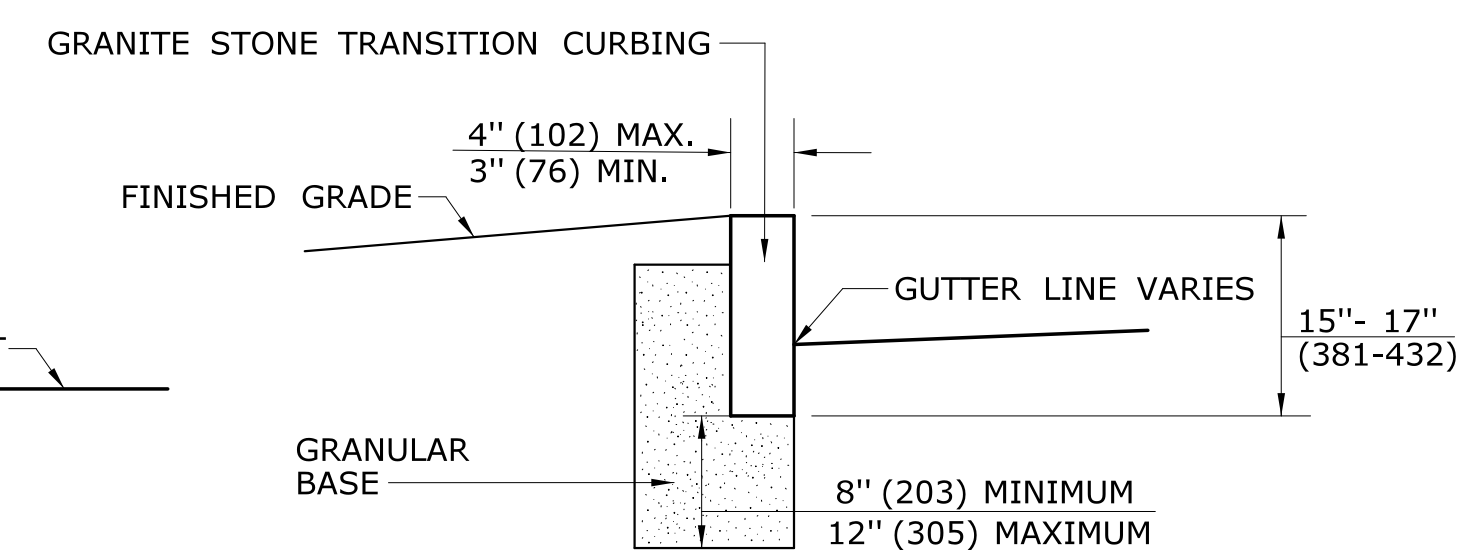


PLAN

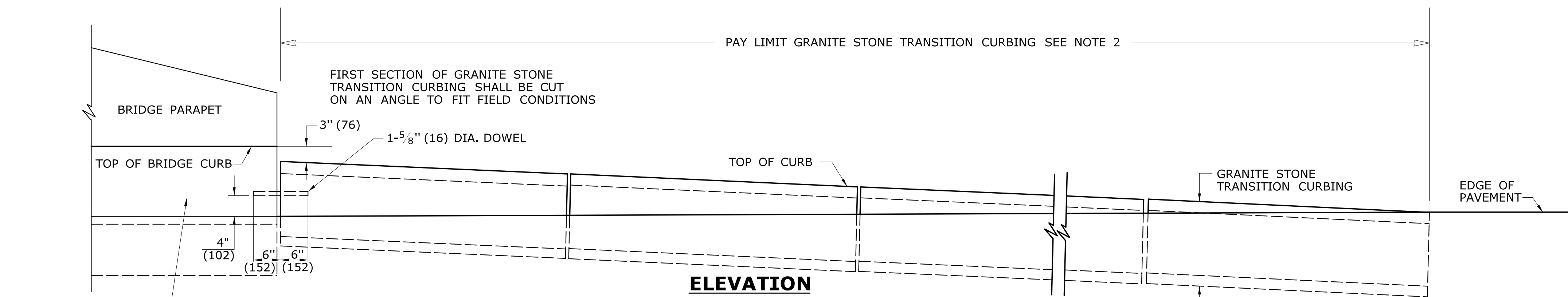
DETAIL SHOWING INSTALLATION OF GRANITE STONE TRANSITION CURBING ADJACENT TO VERTICAL CONCRETE BARRIER OR VERTICAL FACE CONCRET BRIDGE BUILD-OUT WITH NO ADJACENT ROADWAY CURBING

GENERAL NOTES:

1. GRANITE STONE TRANSITION CURBING WILL BE INSTALLED AS NOTED ON THE PLANS AND IN ACCORDANCE WITH FORM 816 SECTION 8.13 "STONE CURBING".
2. GRANITE STONE TRANSITION CURBING (INCLUDING DOWEL) WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR "GRANITE STONE TRANSITION CURBING".
3. FOR NEW R-B 350 GUIDERAIL TRANSITIONS, ADJUSTMENT OF EXISTING CURBING HEIGHT TO A 4" (102) REVEAL AT THE BRIDGE PARAPET WILL BE REQUIRED. IT MAY BE PAID FOR, WHEN NOTED ON THE PLANS, UNDER THE ITEM "RESET CURBING".
4. NEW INSTALLATIONS OF THIS CURBING SHALL ONLY BE ALLOWED ON THE MERRITT PARKWAY.
5. GRANITE STONE TRANSITION CURBING SHALL BE INSTALLED TO MATCH THE SLOPE OF SLOPED GRANITE STONE CURBING ON THE BRIDGE. ALL SECTIONS OF THE TRANSITION CURBING SHALL BE 2'-0" (610) LONG.

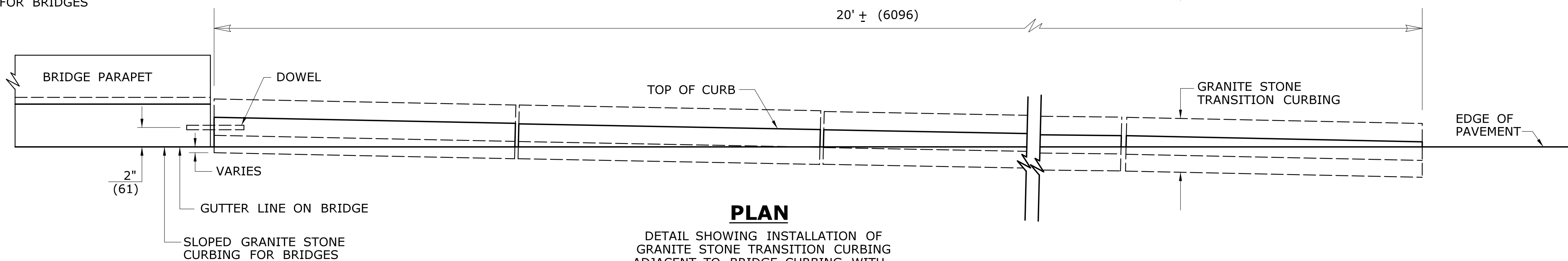


TYPICAL SECTION SHOWING INSTALLATION OF GRANITE STONE TRANSITION CURBING AT VERTICAL FACE



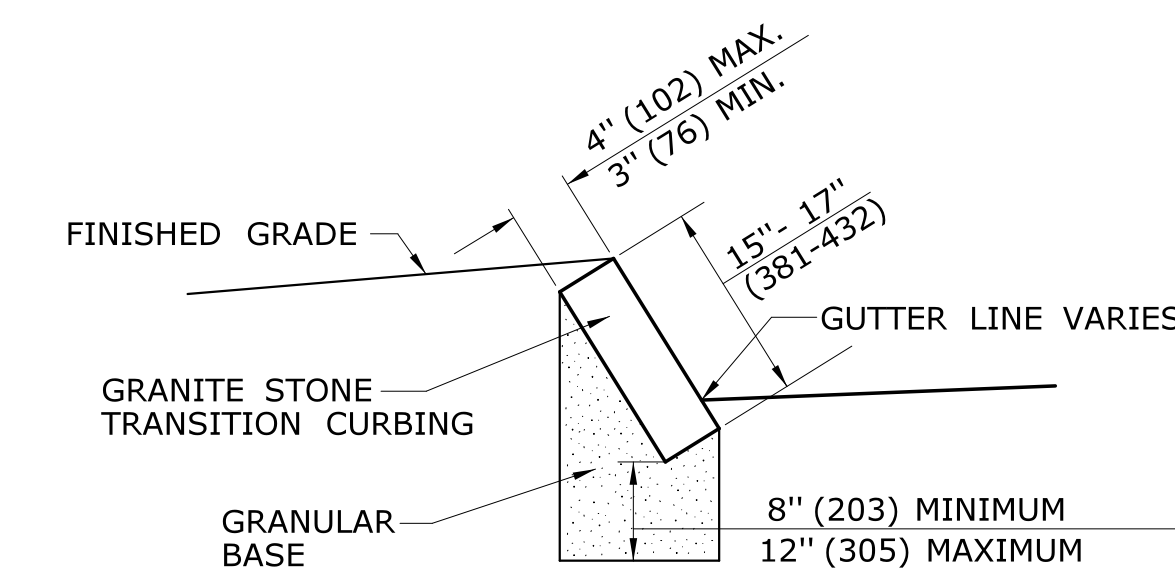
ELEVATION

SLOPED GRANITE STONE CURBING FOR BRIDGES



PLAN

DETAIL SHOWING INSTALLATION OF GRANITE STONE TRANSITION CURBING ADJACENT TO BRIDGE CURBING WITH NO ADJACENT ROADWAY CURBING




TYPICAL SECTION SHOWING INSTALLATION OF GRANITE STONE TRANSITION CURBING AT SLOPED GRANITE BRIDGE CURBING

ALL METRIC DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

1	7/13	ADD VERTICAL FACE CURBING DETAIL	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
REV.	DATE	REVISION DESCRIPTION	

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

NOT TO SCALE


STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

SUBMITTED BY: _____ NAME/DATE/TIME: _____

APPROVED BY: _____ NAME/DATE/TIME: _____

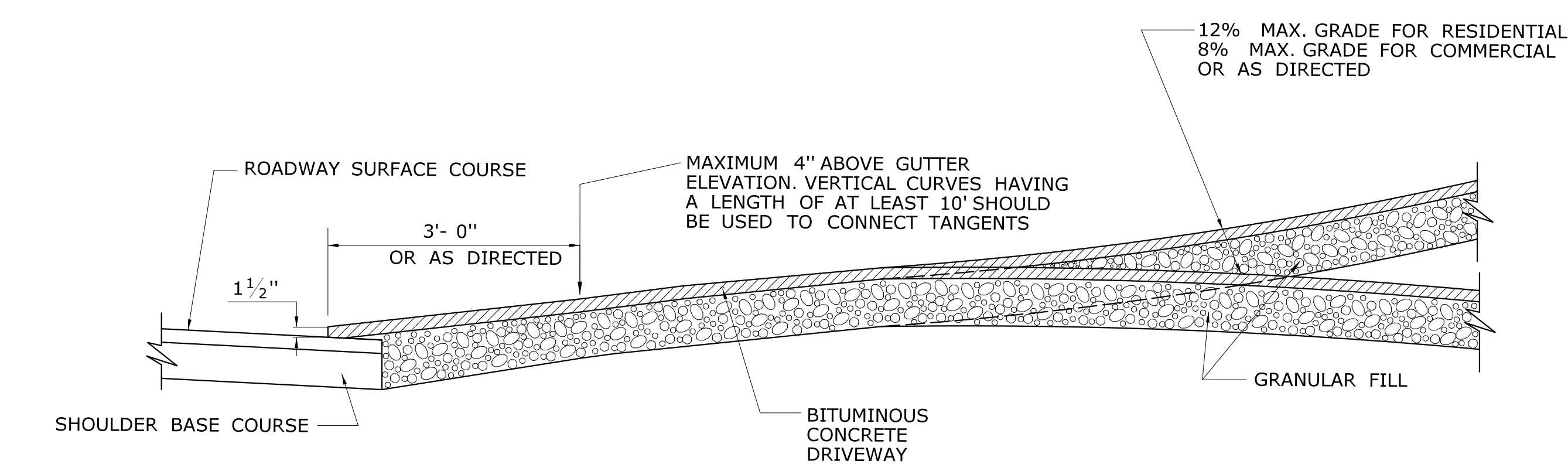
CTDOT
STANDARD SHEET

OFFICE OF ENGINEERING

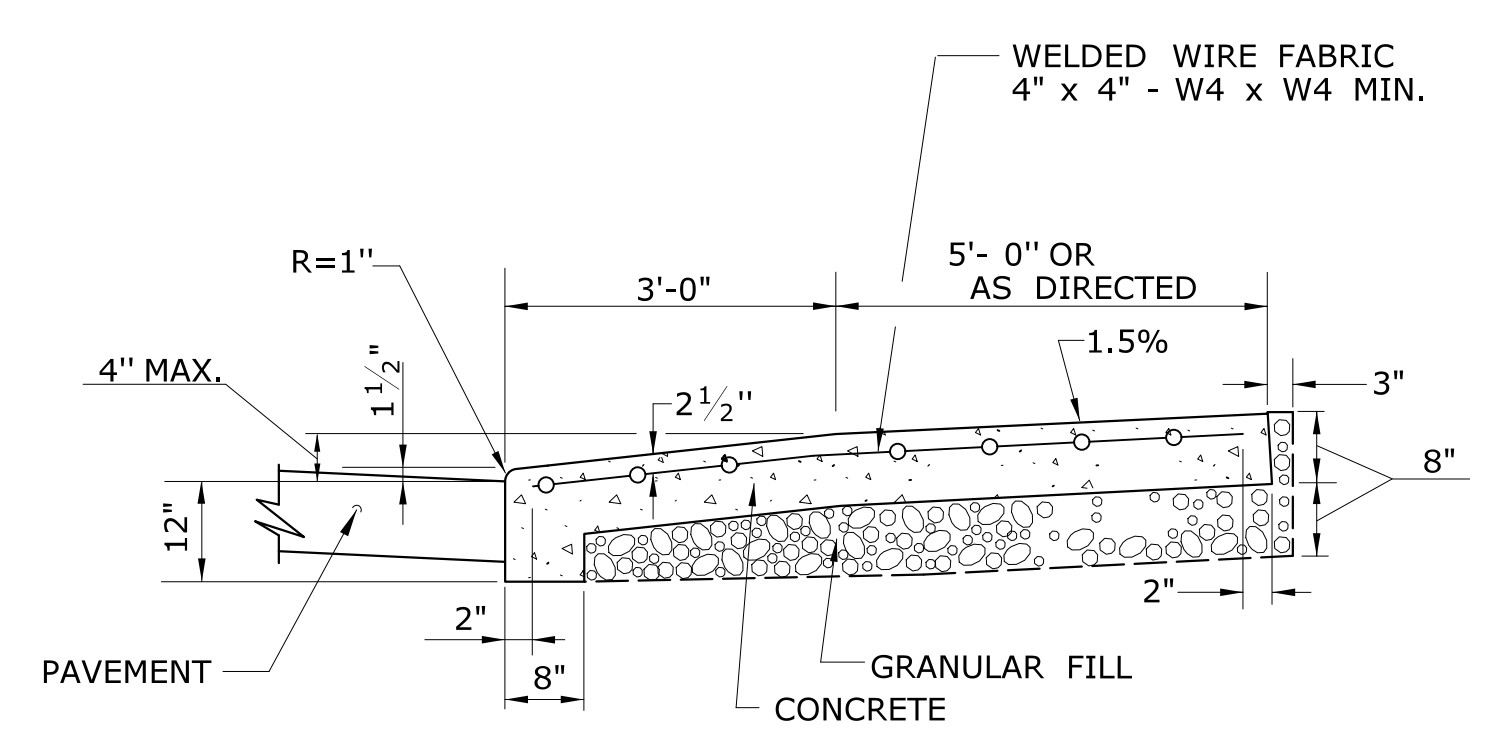
STANDARD SHEET TITLE: **GRANITE STONE TRANSITION CURBING**

STANDARD SHEET NO.: **HW-813_01**

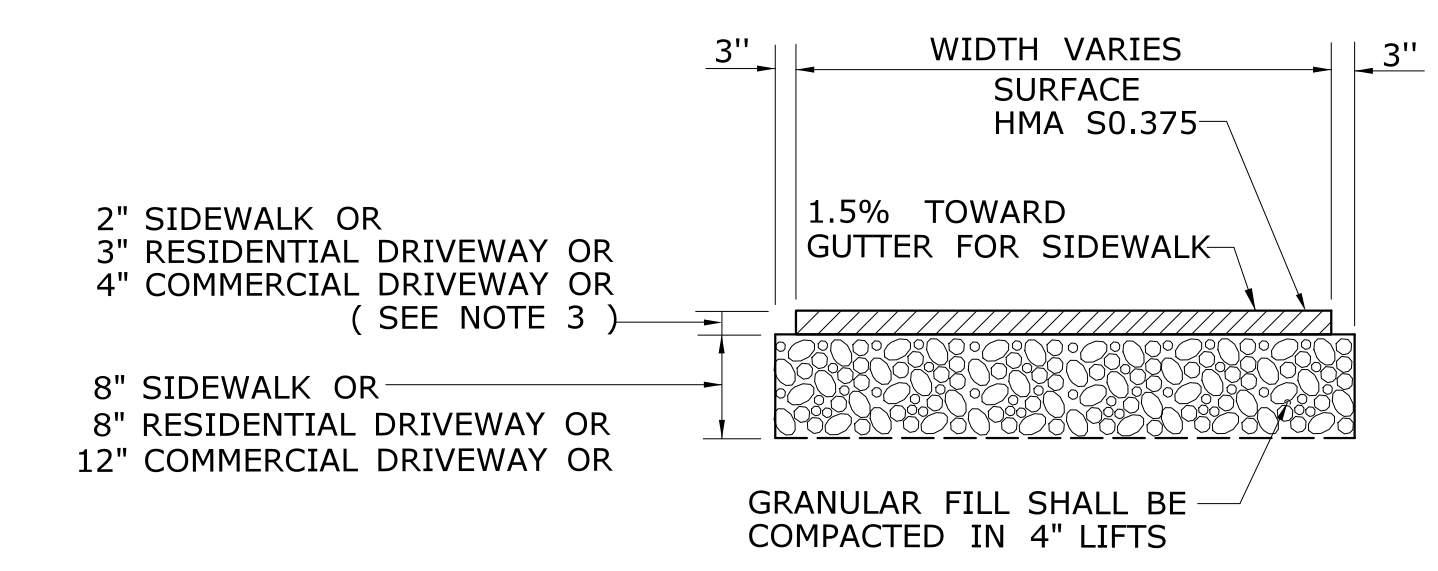
- GENERAL NOTES:**
1. DRIVEWAY ENTRANCE SHALL BE A MINIMUM OF 12' WIDE, EXCLUDING CURBING WHEN PRESENT.
 2. WELDED WIRE FABRIC MATS WITH REINFORCING AT CLOSER SPACING MAY BE USED.
 3. SURFACE HMA S0.375 TO BE PLACED IN TWO EQUAL LIFTS FOR BOTH RESIDENTIAL AND COMMERCIAL DRIVEWAYS.



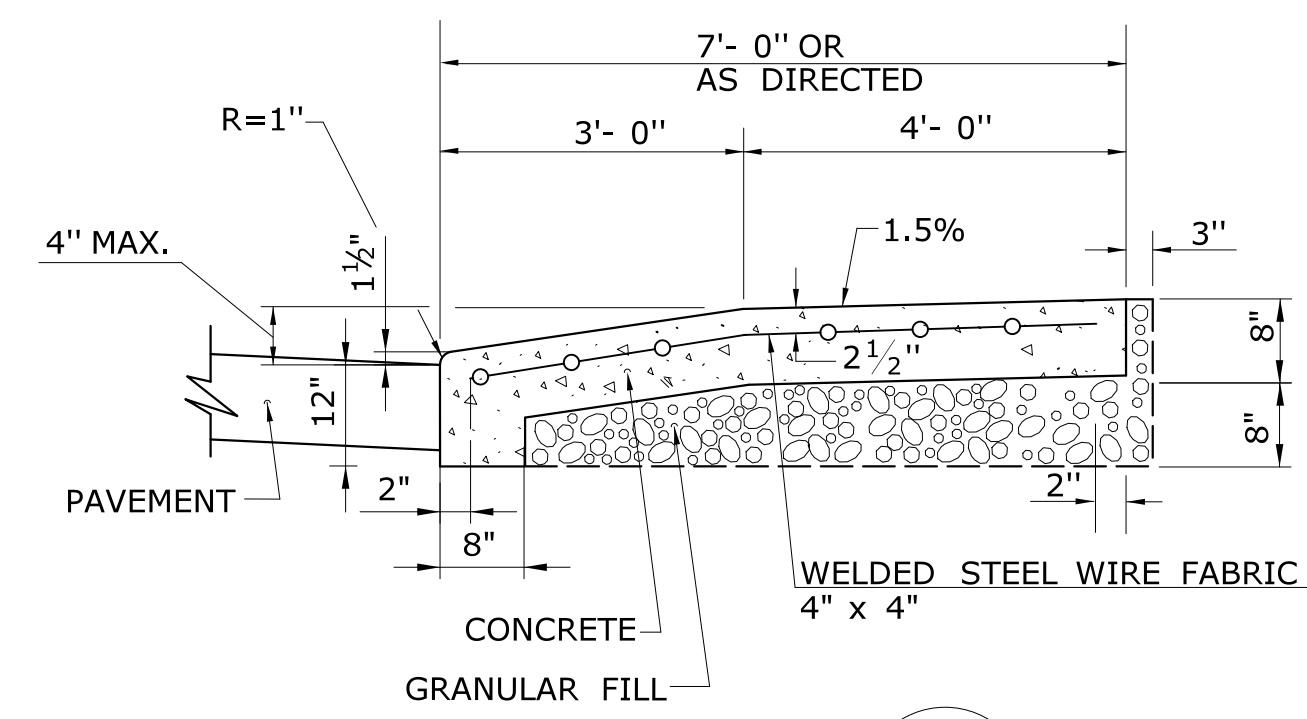
SECTION A



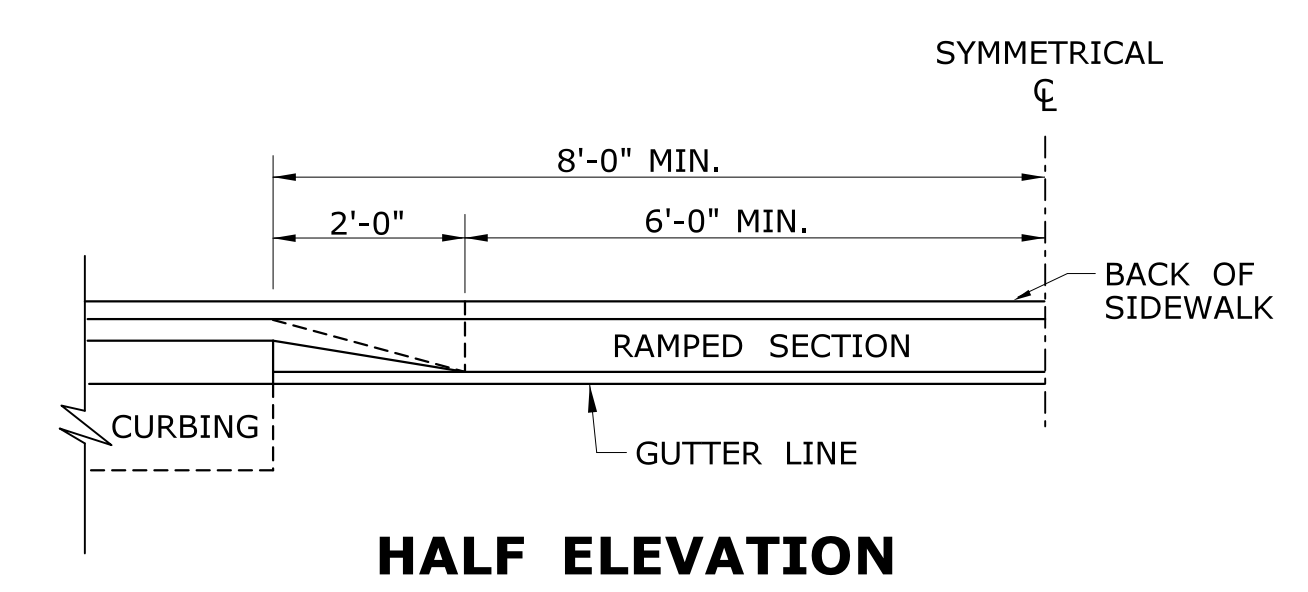
SECTION C



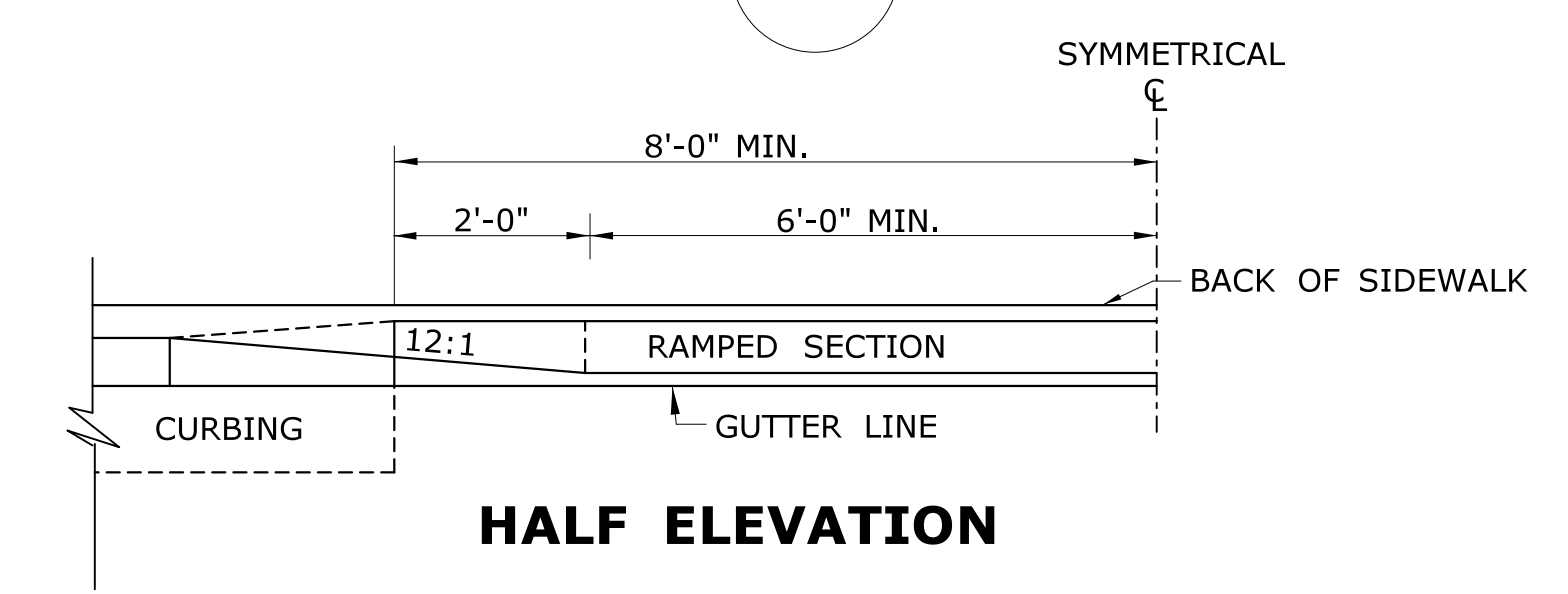
**TYPICAL SECTION
BITUMINOUS CONCRETE
SIDEWALK AND DRIVEWAY**



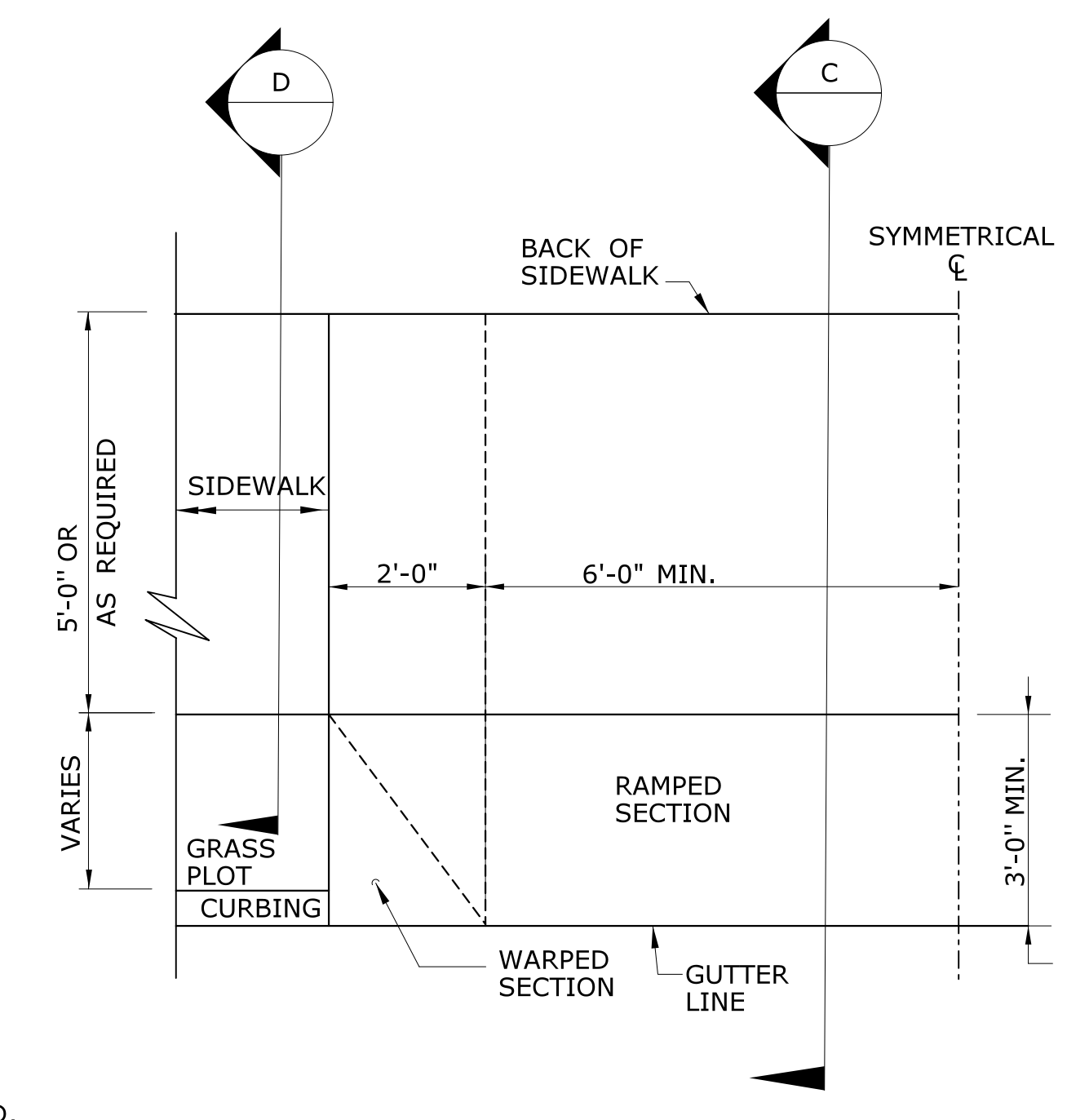
SECTION B



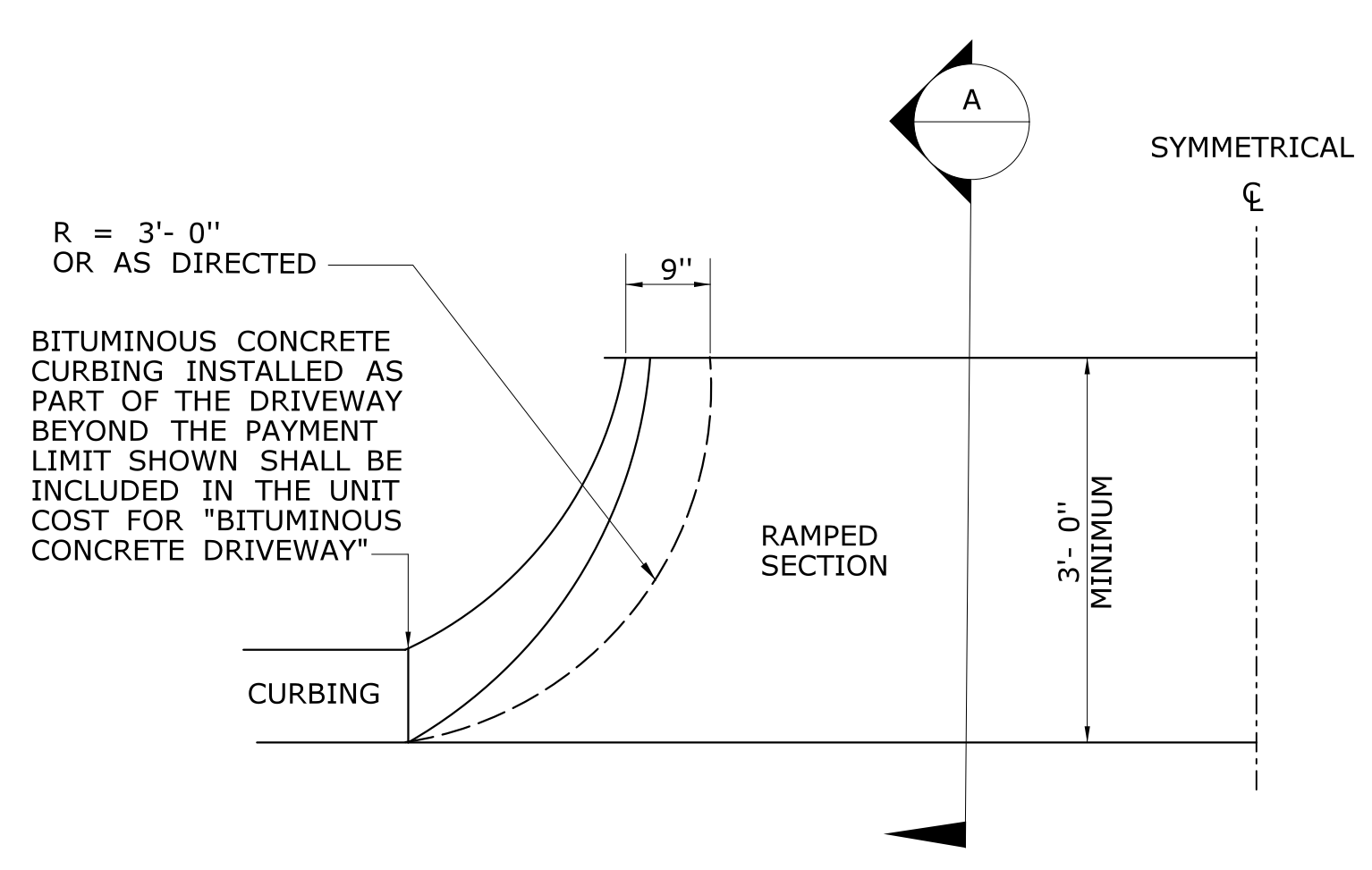
SECTION D



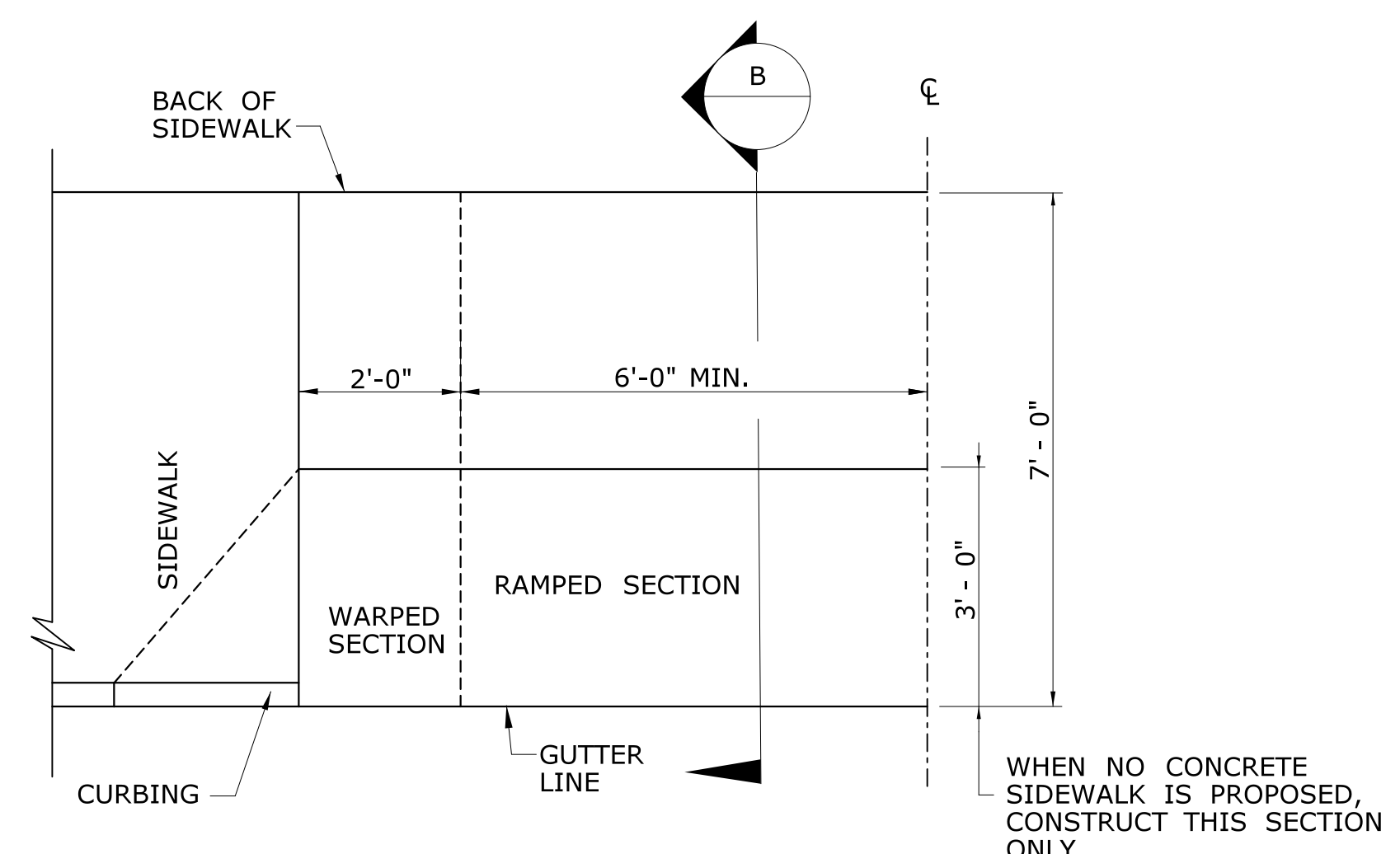
HALF ELEVATION



**HALF PLAN OF
CONCRETE DRIVEWAY RAMP WHERE
CURB IS SEPARATED FROM
SIDEWALK BY GRASS PLOT**



**HALF BITUMINOUS CONCRETE
DRIVEWAY PLAN**



**HALF PLAN OF
CONCRETE DRIVEWAY RAMP WHERE
SIDEWALK ADJOINS CURBING**

1	6/01/10	REVISED BORDER TITLE	
2	6/01/10	REVISED HALF ELEVATION DETAILS	
3	1/12	REVISE 2% MAX. SLOPE NOTE	
4	6/17	REVISED SLOPES & MATERIAL COMPOSITIONS	
-	-	INCREASED WALKING WIDTH OF CONCRETE DRIVEWAY RAMP	
REV.	DATE	REVISION DESCRIPTION	Plotted Date: 6/6/2017

NOT TO SCALE

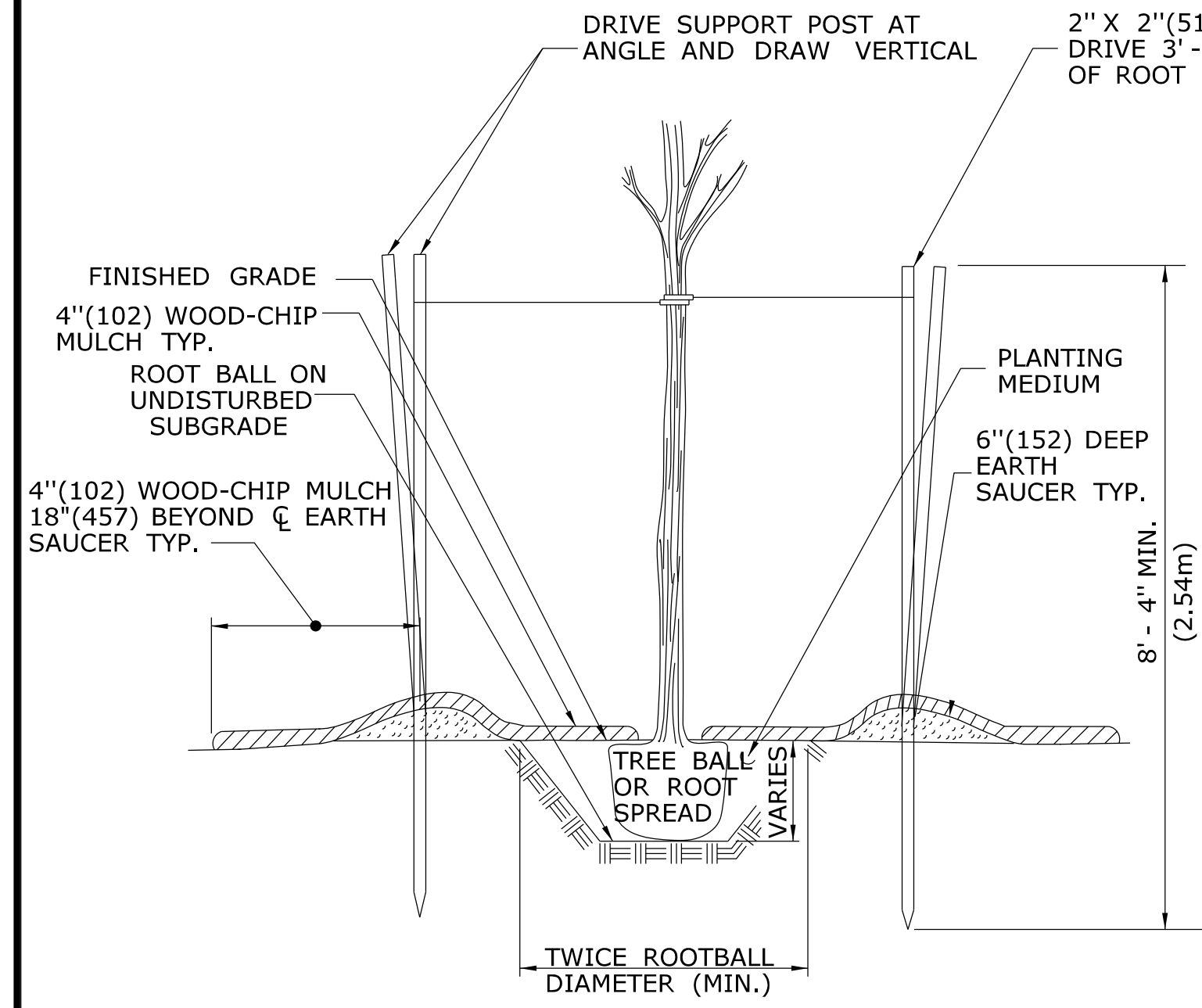
STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: HW-921_01.dgn Model: CT-Civil-2D_Sheet

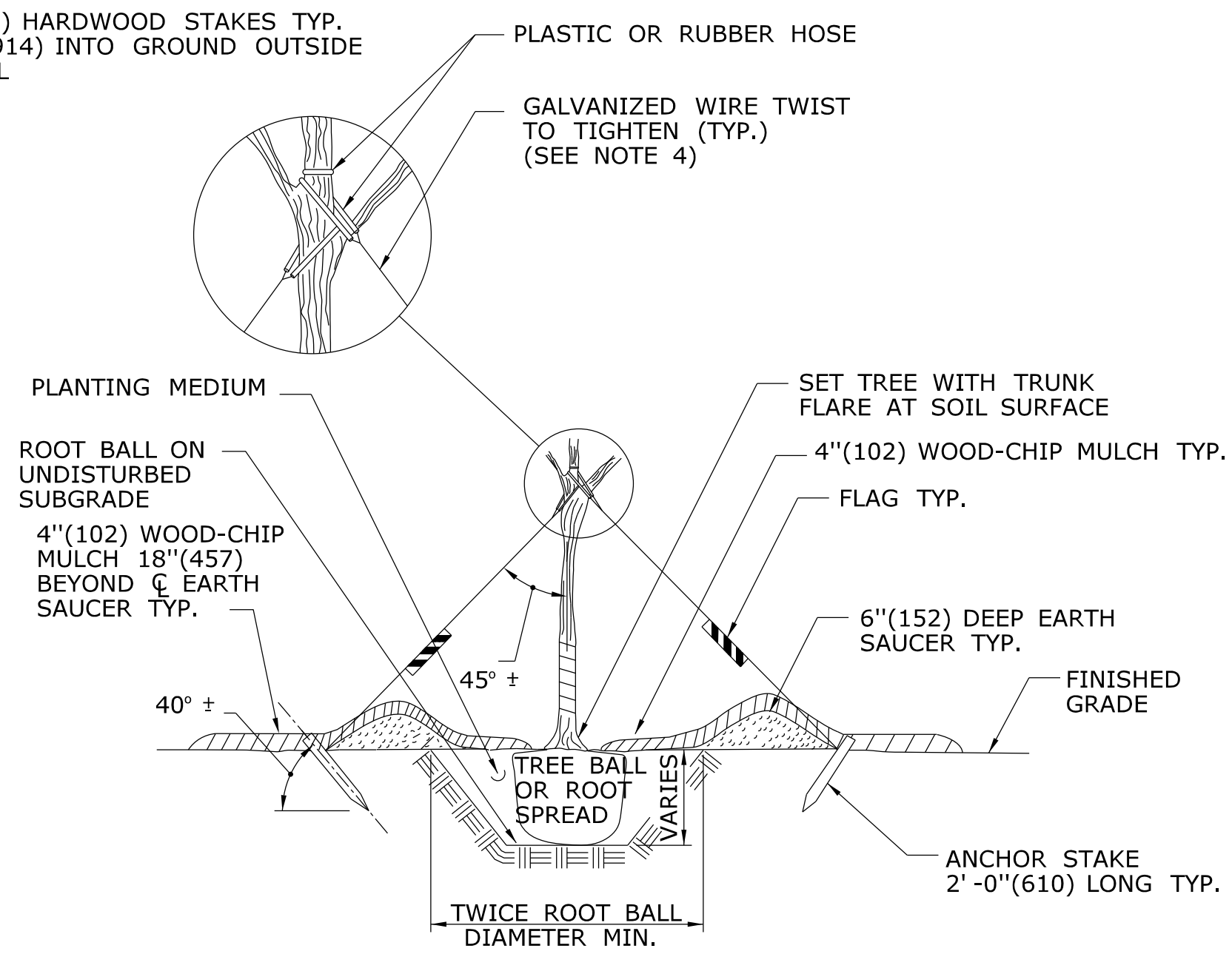
SUBMITTED BY:	NAME/DATE/TIME:
APPROVED BY:	NAME/DATE/TIME:

**CTDOT
STANDARD SHEET
OFFICE OF ENGINEERING**

STANDARD SHEET TITLE:	STANDARD SHEET NO.:
DRIVEWAY RAMPS AND SIDEWALKS	HW-921_01



SECTION A



SECTION B

EXAMPLES OF MINIMUM SIZE OF ROOT BALL FOR NURSERY GROWN PLANTS.

CALIPER* INCHES(mm)	BALL DIAMETER INCHES(mm)	PLANTING PIT SIZE INCHES(mm)
-	8(203)	16(406)
-	10(254)	20(508)
1/2(12.5)	12(304)	24(610)
3/4(19)	14(356)	28(711)
1(25)	16(406)	32(813)
1 1/2(38)	20(508)	40(1016)
2(50)	24(610)	48(1219)
2 1/2(65)	28(711)	56(1422)
3(75)	32(813)	64(1626)
3 1/2(90)	38(965)	76(1930)
4(100)	42(1166)	84(2134)
5(125)	54(1372)	108(2743)
6(150)**	-	-

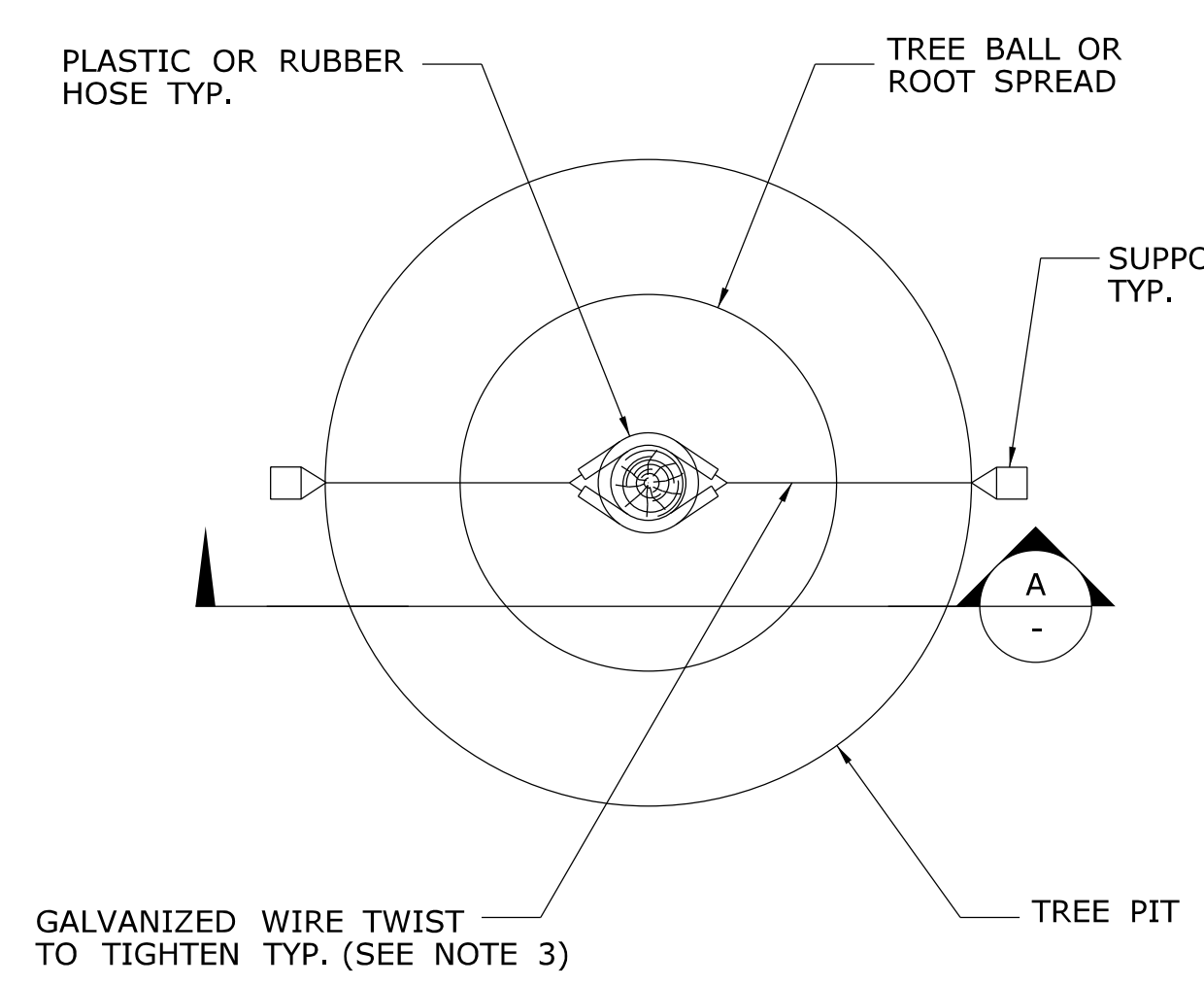
* THE CALIPER OF THE TRUNK IS MEASURED 6"(152) ABOVE THE GROUND UP TO AND INCLUDING 4"(102) SIZES AND 12"(305) ABOVE THE GROUND FOR LARGER SIZES OR AS SPECIFIED IN THE MOST RECENT EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK, PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.

** TREES GREATER THAN OR EQUAL TO 6"(152) CALIPER SHALL HAVE A ROOT BALL DIAMETER EQUAL TO 10"(254) PER INCH(25mm) OF TRUNK CALIPER (A 7"(178) CALIPER TREE SHOULD HAVE A ROOT BALL DIAMETER EQUAL TO 70"(1778)).

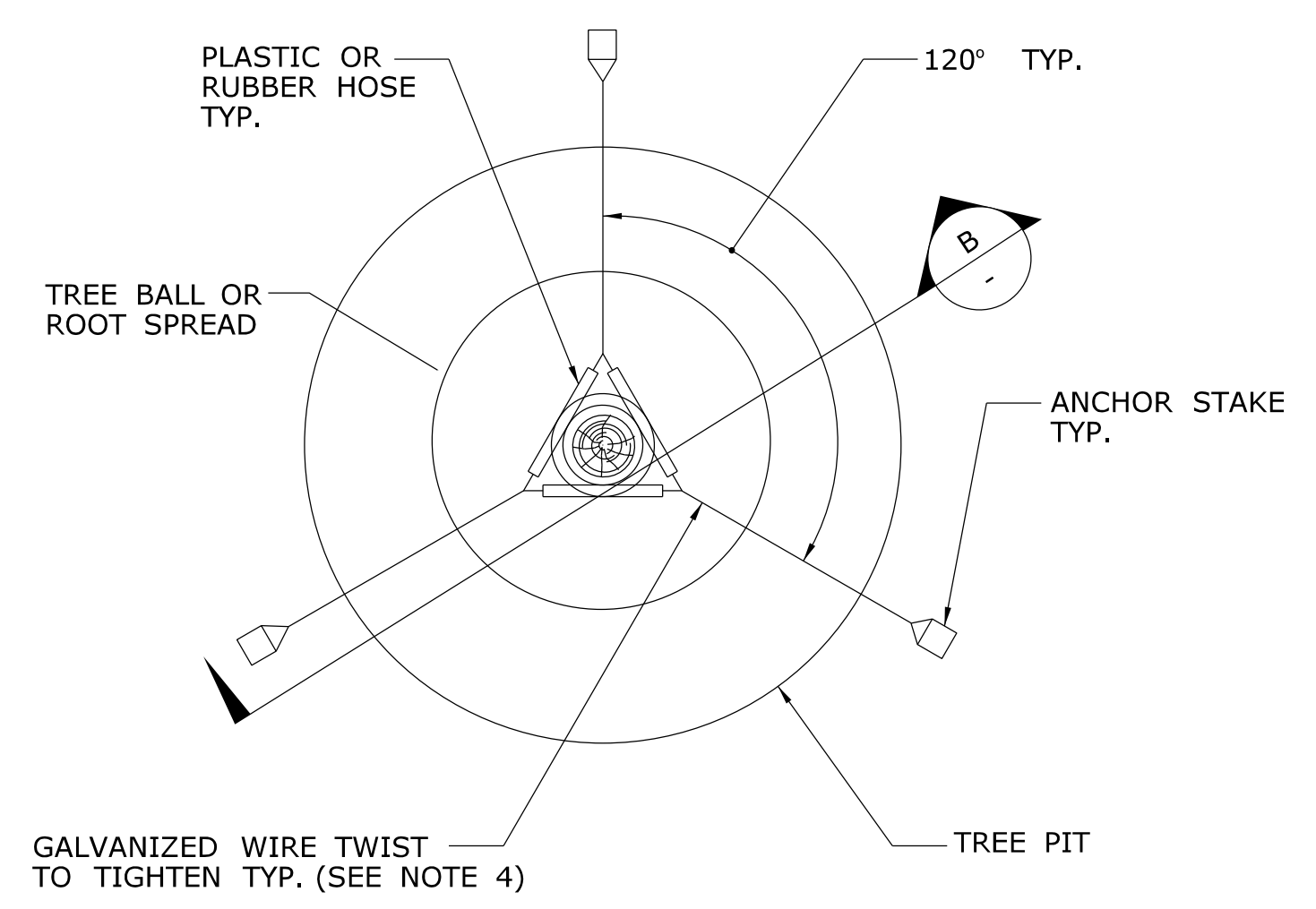
- GENERAL NOTES:**
1. THE PLANTING PIT SIZE SHALL BE TWICE THE DIAMETER OF THE ROOT BALL IN WIDTH AND 2"(51) LESS THAN THE HEIGHT OF THE ROOT BALL.
 2. ALL EXTERIOR PACKAGING MATERIAL APPLIED TO PLANTS SHALL BE REMOVED AFTER THE PLANT IS LOCATED IN THE PLANTING PIT. CUT AND REMOVE TWINE, BURLAP OR WIRE BASKETS FROM THE TOP 2/3RDS OF THE ROOT BALL.
 3. USE DOUBLE STRAND NO. 12 WIRE FOR DECIDUOUS TREES GREATER THAN OR EQUAL TO 3"(76) CALIPER AND USE DOUBLE STRAND NO. 10 WIRE FOR EVERGREEN TREES GREATER THAN OR EQUAL TO 8"(203) CALIPER.
 4. TREE TRUNK WRAPPING MATERIAL SHALL BE USED AS DIRECTED BY THE ENGINEER.
 5. PLANTING PITS FOR INDIVIDUAL SHRUBS ON SLOPES SHALL BE THREE TIMES THE DIAMETER OF THE ROOT BALL IN WIDTH.

NOTE:
USE 3 POSTS FOR STAKING DECIDUOUS TREES 3"(76) CALIPER OR GREATER AND EVERGREEN TREES 8'(2.4m) HIGH OR GREATER. USE 2 POSTS FOR STAKING DECIDUOUS TREES LESS THAN 3"(76) CALIPER AND EVERGREEN TREES LESS THAN 8'(2.4m) HIGH.

GUYING PLAN

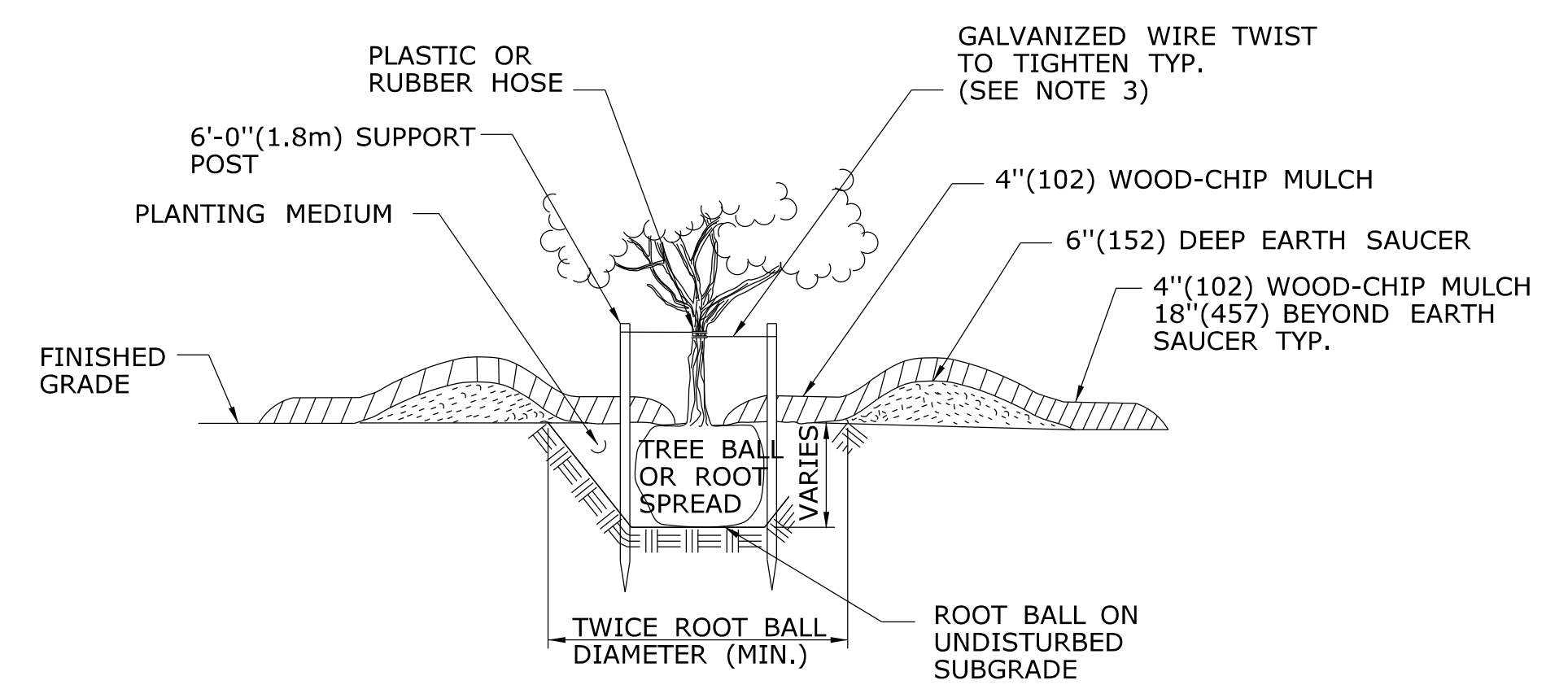


PLAN A

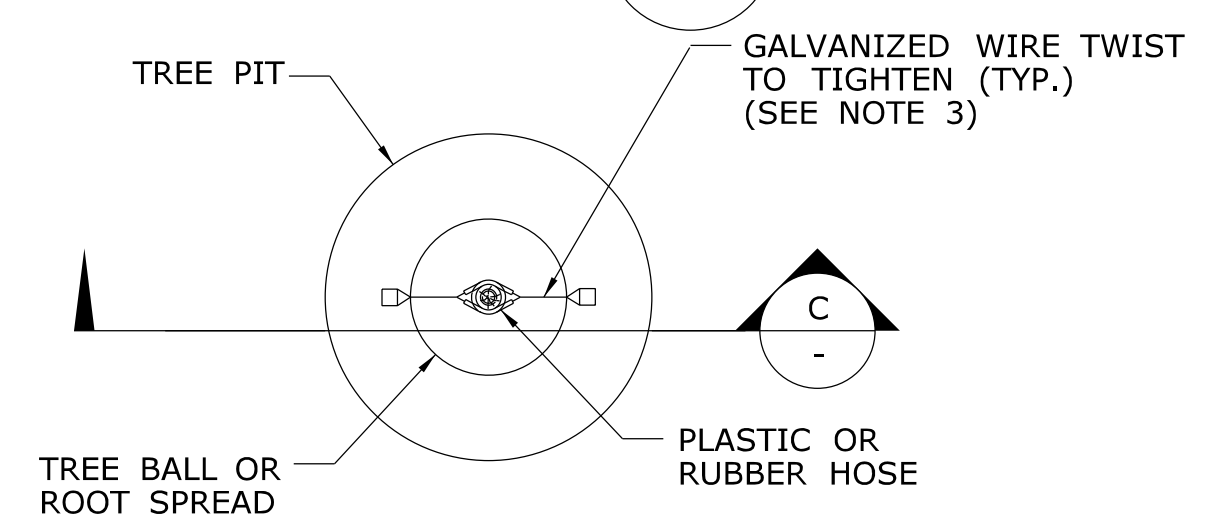


PLAN B

STAKING PLAN

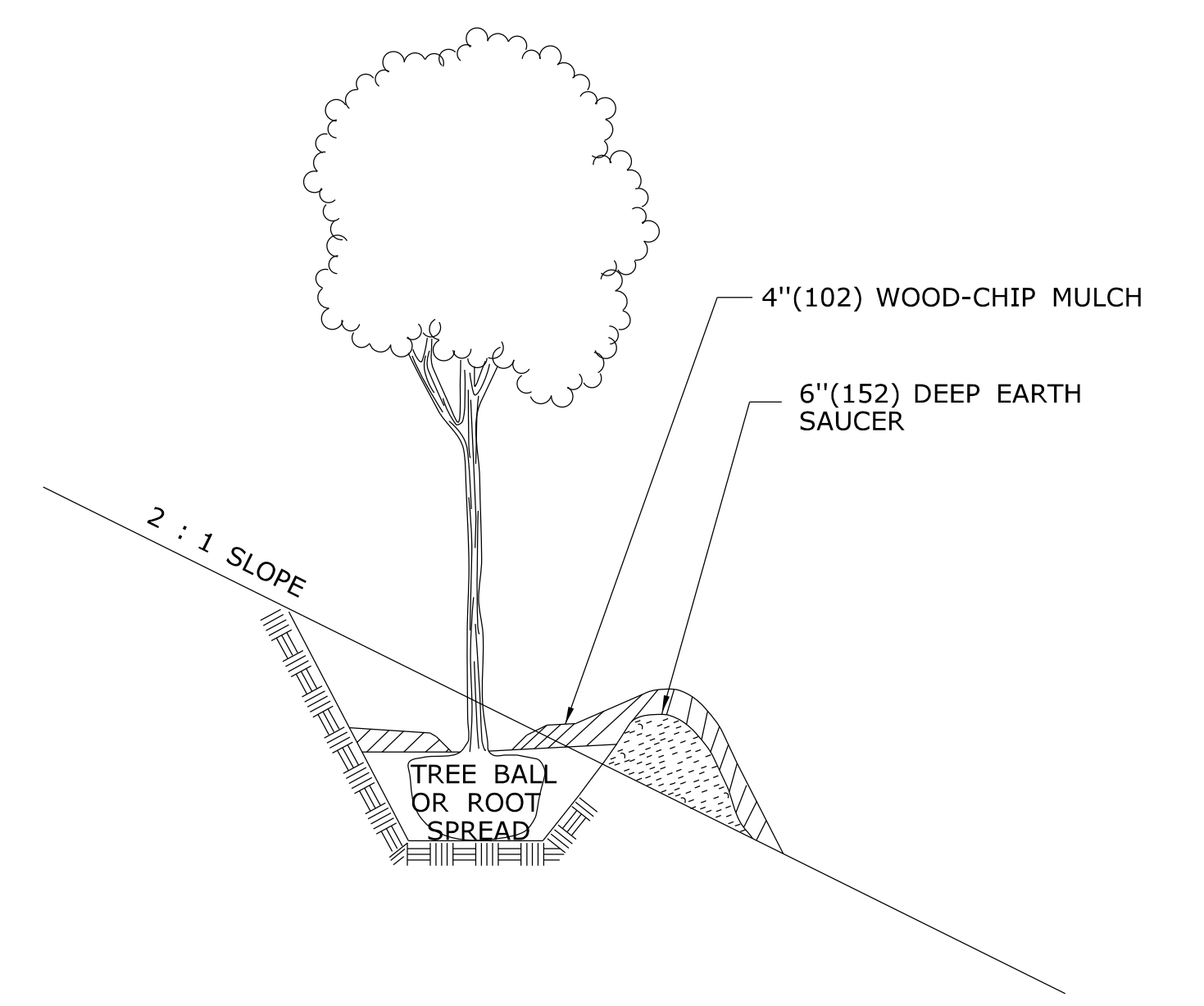


SECTION C



PLAN C

STAKING PLAN FOR LOW BRANCHING DECIDUOUS AND EVERGREEN TREES FROM 5'(1.5m) TO 8'(2.4m) HIGH.



GRADING PLAN FOR TREES ON SLOPES

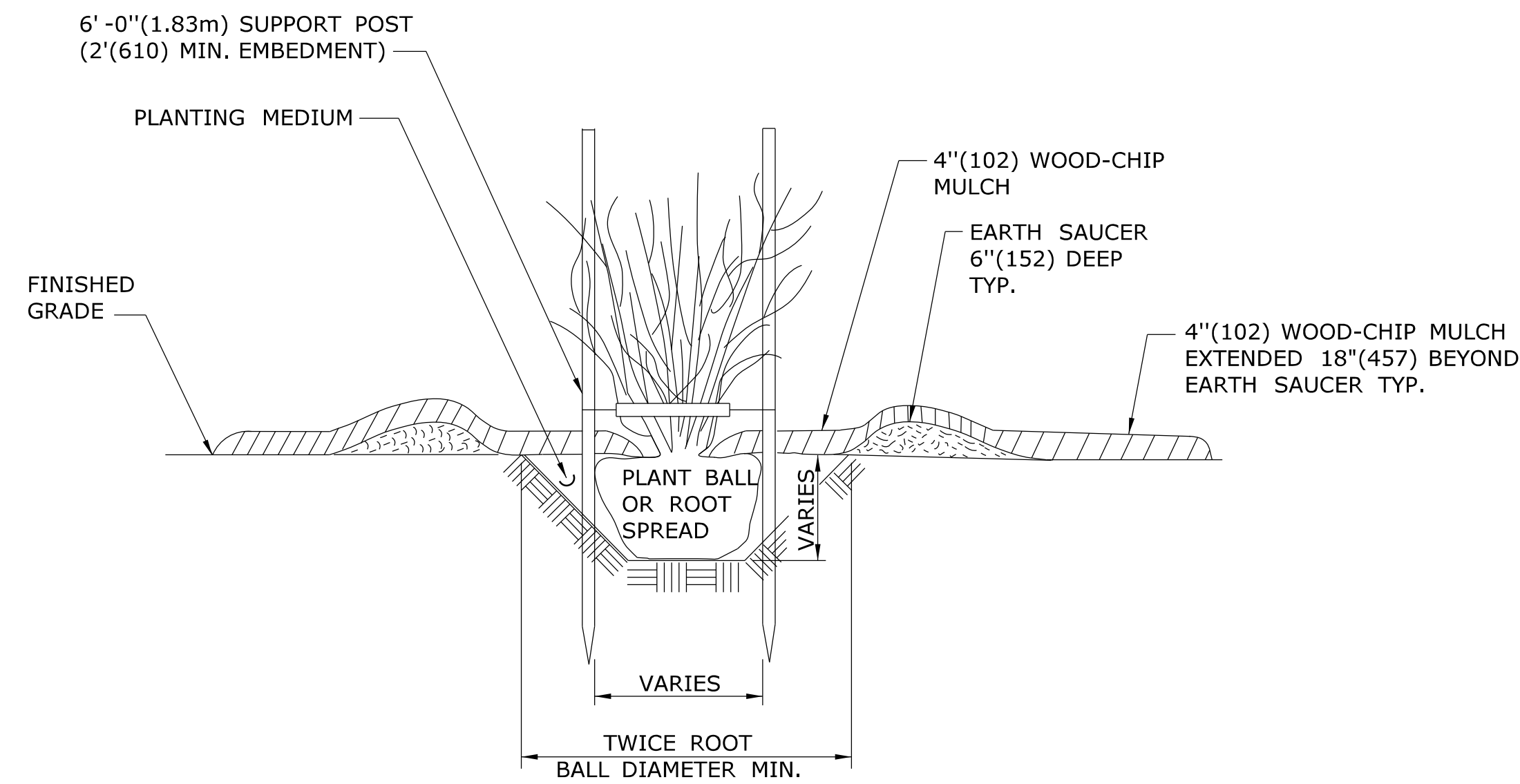
EXAMPLES OF MINIMUM CONTAINER SIZES FOR NURSERY GROWN PLANTS

CALIPER* INCHES(mm)	HEIGHT** FEET(mm)	CONTAINER SIZE GALLONS(LITERS)
-	1(305)	0.7-1.1(2.6-4.2)
-	2(610)	0.7-1.1(2.6-4.2)
-	3(914)	0.7-1.1(2.6-4.2)
-	4(1219)	1.4-2.0(5.3-7.6)
-	5(1524)	3.4-4.2(12.9-15.9)
-	6(1829)	4.7-5.4(17.8-20.4)
1(25)	7(2134)	5.8-7.8(21.9-29.5)
-	8(2438)	9.0-11.5*34.1-43.5)
1½(38)	-	12.0-16.0(45.4-60.6)
2(51)	-	25.0-29.7(94.6-112.4)
2½(64)	-	25.0-29.7(94.6-112.4)

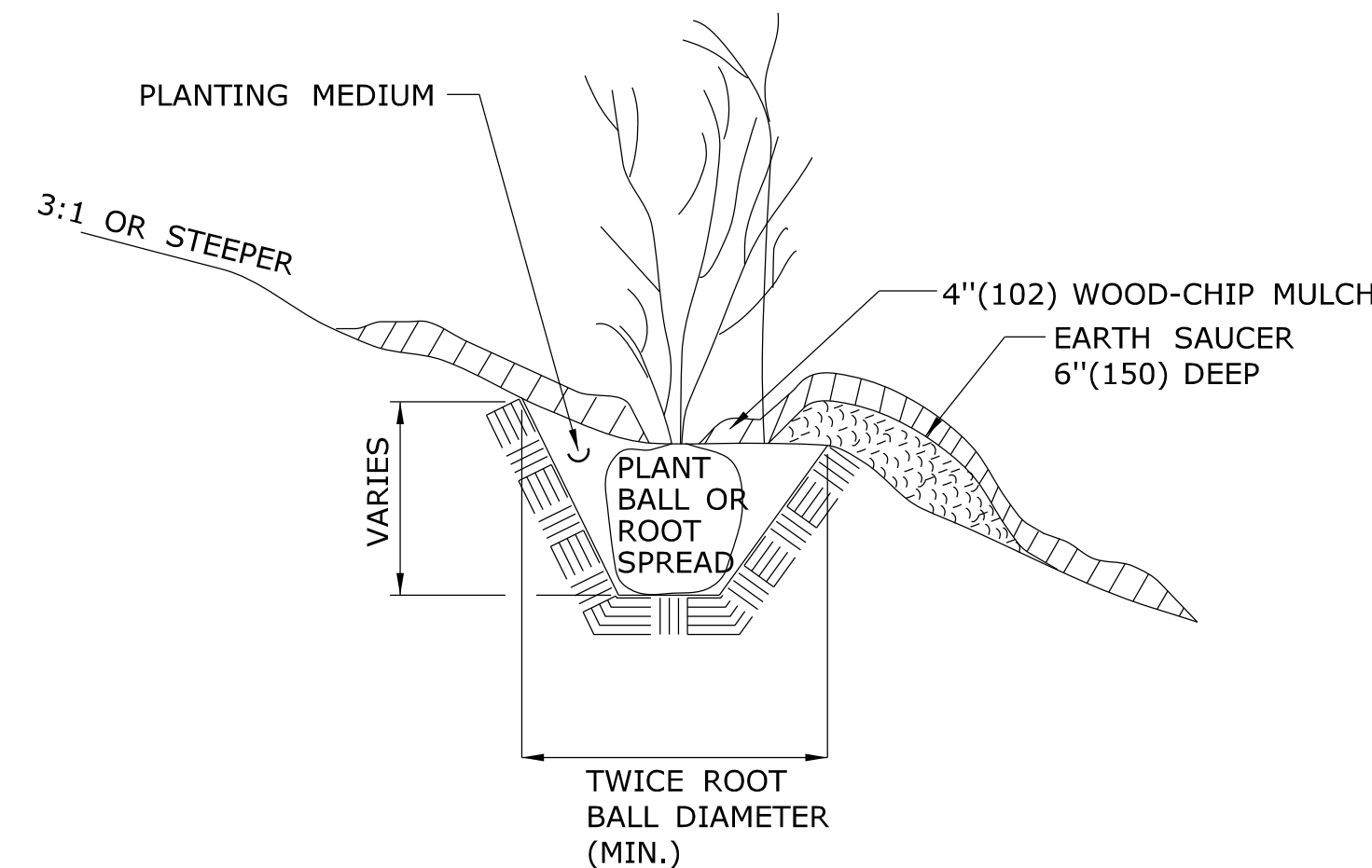
* THE CALIPER IS MEASURED 4"(102) ABOVE GROUND LEVEL.

** ONLY DECIDUOUS SHRUBS ARE INCLUDED IN THIS TABLE. EVERGREEN SHRUBS ARE MEASURED BY HEIGHT BUT, CONTAINER SIZE DEPENDS ON BOTH SIZE AND SHAPE AND ARE GENERALLY 1 TO 2 SIZES LARGER THAN DECIDUOUS PLANTS.

TABLE FOR SHRUBS

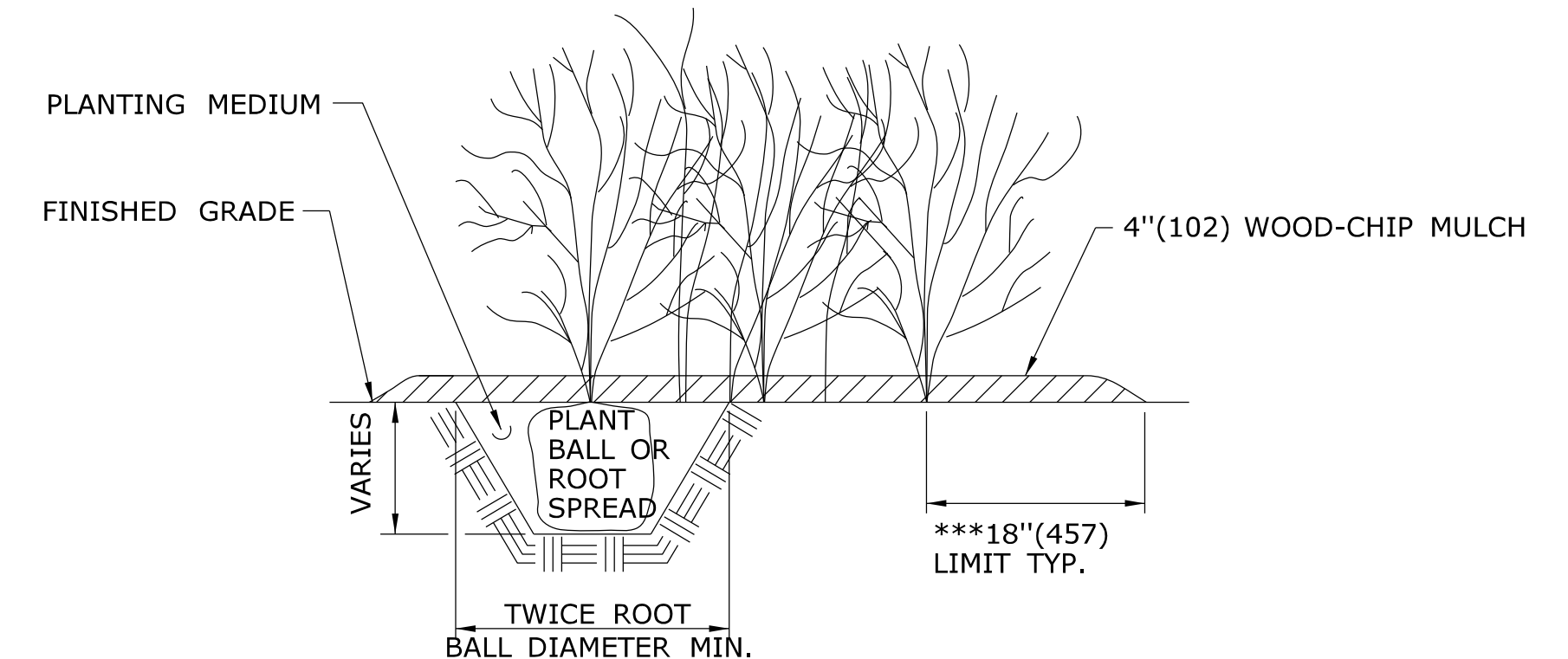


SECTION A



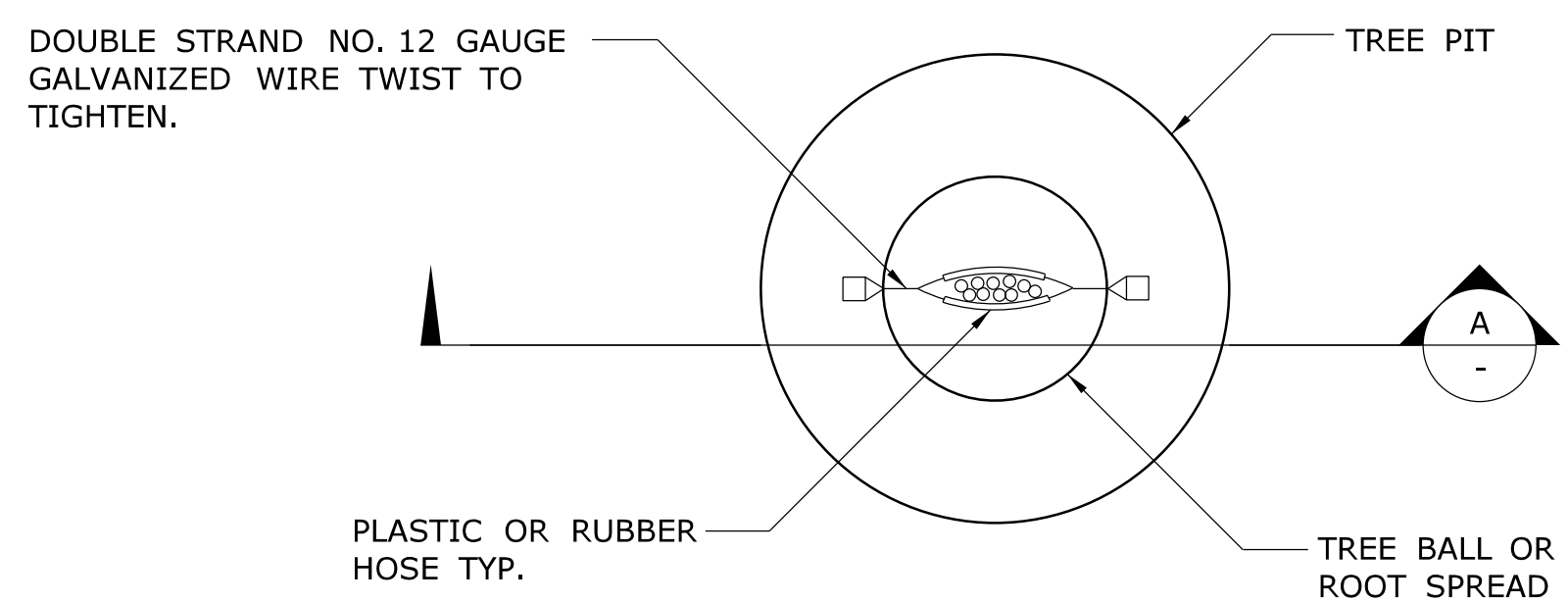
SECTION

PLANTING FOR SHRUBS IN INDIVIDUAL PITS ON SLOPES



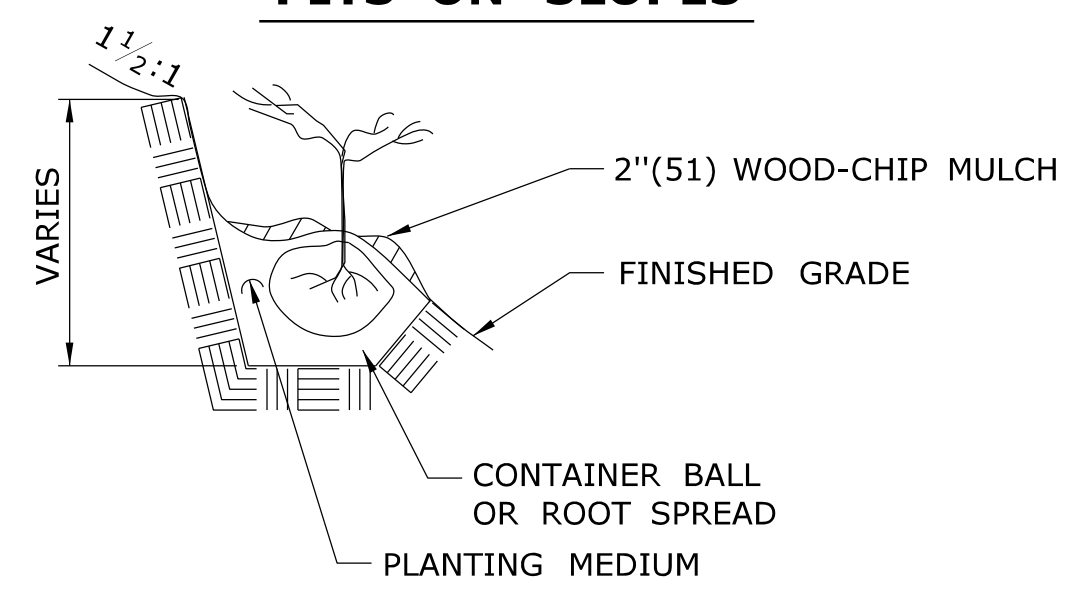
*** UNLESS OTHERWISE DIRECTED, WOOD-CHIP MULCH SHALL BE PLACED TO A LIMIT OF 18"(457) BEYOND THE CENTER OF THE OUTERMOST SHRUBS IN SHRUB BED.

PLANTING FOR SHRUBS IN BEDS



PLAN

STAKING FOR MULTI-STEMMED DECIDUOUS TREES FROM 5'(1.5m) TO 10'(3.0m) HIGH



NOTE: PLACE PLANTS AT THE SAME DEPTH THAT THE SEEDLING WAS GROWN IN THE NURSERY.

PLANTING FOR SEEDLINGS, VINES AND GROUND COVER PLANTS IN PITS ON SLOPES

ALL METRIC DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED

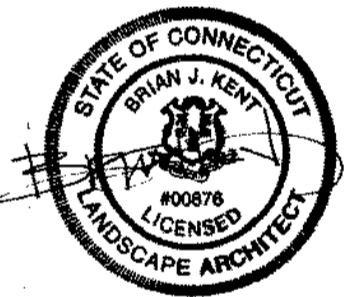
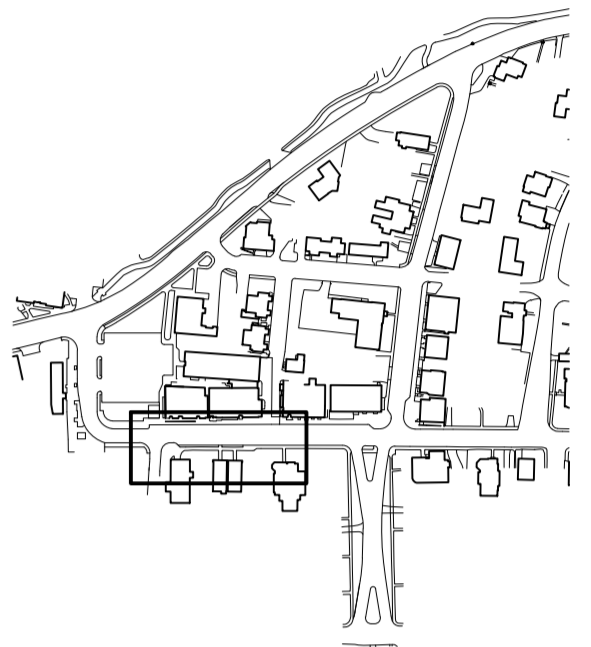
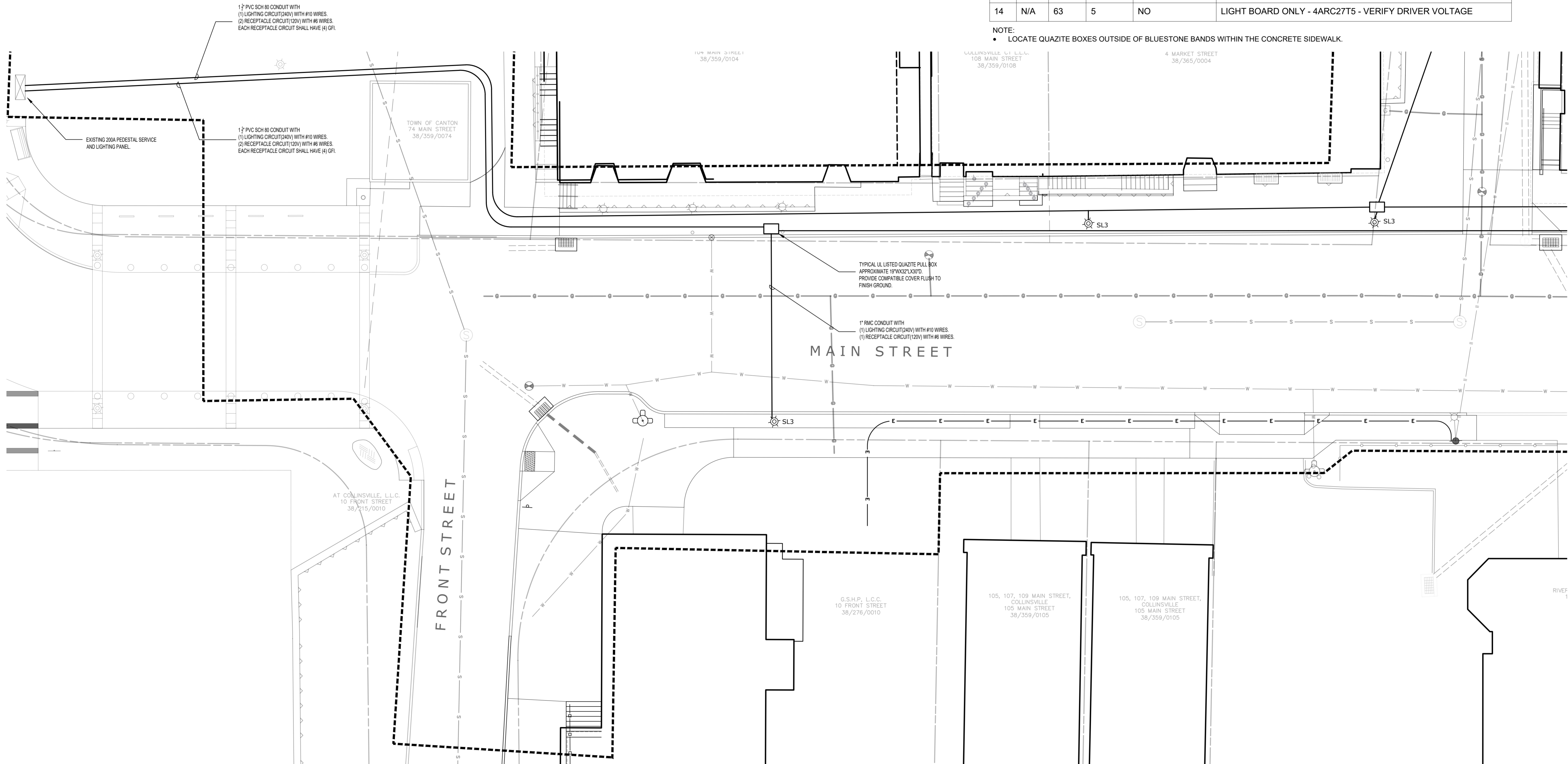
**Collinsville
Village Center
Streetscape Phase 2**
Collinsville, CT
State Project No. 23-128



Luminaire Schedule					
Qty	Label	Watts	Dist Type	House Side Shield	Description
3	SL1	32	2	NO	Sternberg PT-6590SRLED-1RND27T2-MDL03-A-6214T5/GFI/BKT
2	SL2	32	2	Yes	Sternberg PT-6590SRLED-1RND27T2-MDL03-A-HSS/6214T5/GFI/BKT
11	SL3	32	4	Yes	Sternberg PT-6590SRLED-1RND27T4-MDL03-A-HSS/6214T5/GFI/BKT

Luminaire Replacement Light Boards - Phase 1 Streetscape Lights					
Qty	Label	Watts	Dist Type	House Side Shield	Description
14	N/A	63	5	NO	LIGHT BOARD ONLY - 4ARC27T5 - VERIFY DRIVER VOLTAGE

NOTE:
• LOCATE QUAZITE BOXES OUTSIDE OF BLUESTONE BANDS WITHIN THE CONCRETE SIDEWALK.



ISSUED FOR BID

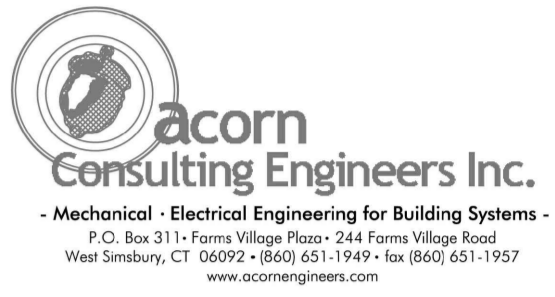
Revisions	Date

**ELECTRICAL PLAN
MAIN STREET
FRONT ST. TO MARKET ST.**

Scale AS NOTED
Date March 15, 2021
K-F Project No. 2017014
Drawing No.

E-1.0

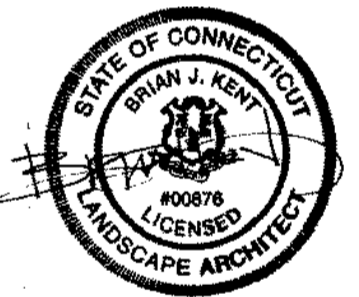
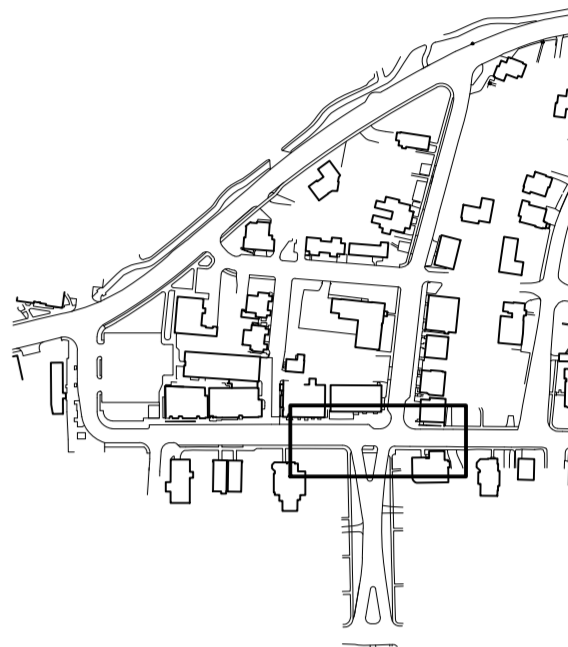
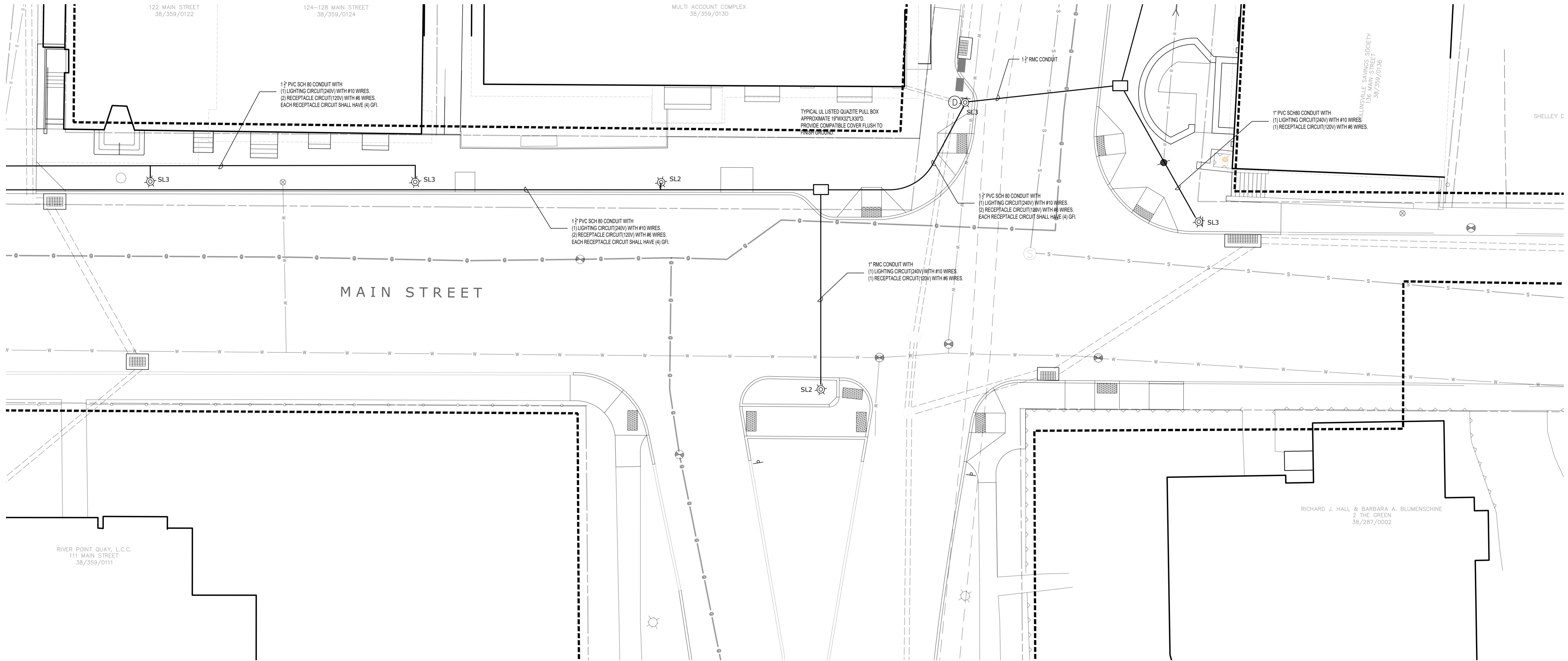
**Collinsville
Village Center
Streetscape Phase 2**
Collinsville, CT
State Project No. 23-128



Luminaire Schedule					
Qty	Label	Watts	Dist Type	House Side Shield	Description
3	SL1	32	2	NO	Sternberg PT-6590SRLED-1RND27T2-MDL03-A-6214T5/GFI/BKT
2	SL2	32	2	Yes	Sternberg PT-6590SRLED-1RND27T2-MDL03-A-HSS/6214T5/GFI/BKT
11	SL3	32	4	Yes	Sternberg PT-6590SRLED-1RND27T4-MDL03-A-HSS/6214T5/GFI/BKT

Luminaire Replacement Light Boards - Phase 1 Streetscape Lights					
Qty	Label	Watts	Dist Type	House Side Shield	Description
14	N/A	63	5	NO	LIGHT BOARD ONLY - 4ARC27T5 - VERIFY DRIVER VOLTAGE

NOTE:
• LOCATE QUAZITE BOXES OUTSIDE OF BLUESTONE BANDS WITHIN THE CONCRETE SIDEWALK.



ISSUED FOR BID

Revisions	Date

**ELECTRICAL PLAN
MAIN STREET
MARKET ST. TO THE GREEN**

Scale: AS NOTED
Date: March 15, 2021
K-F Project No.: 2017014
Drawing No.:

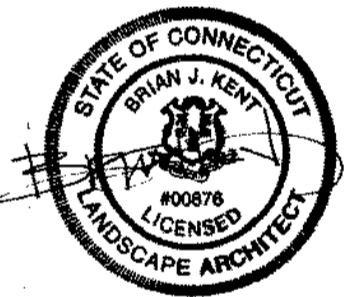
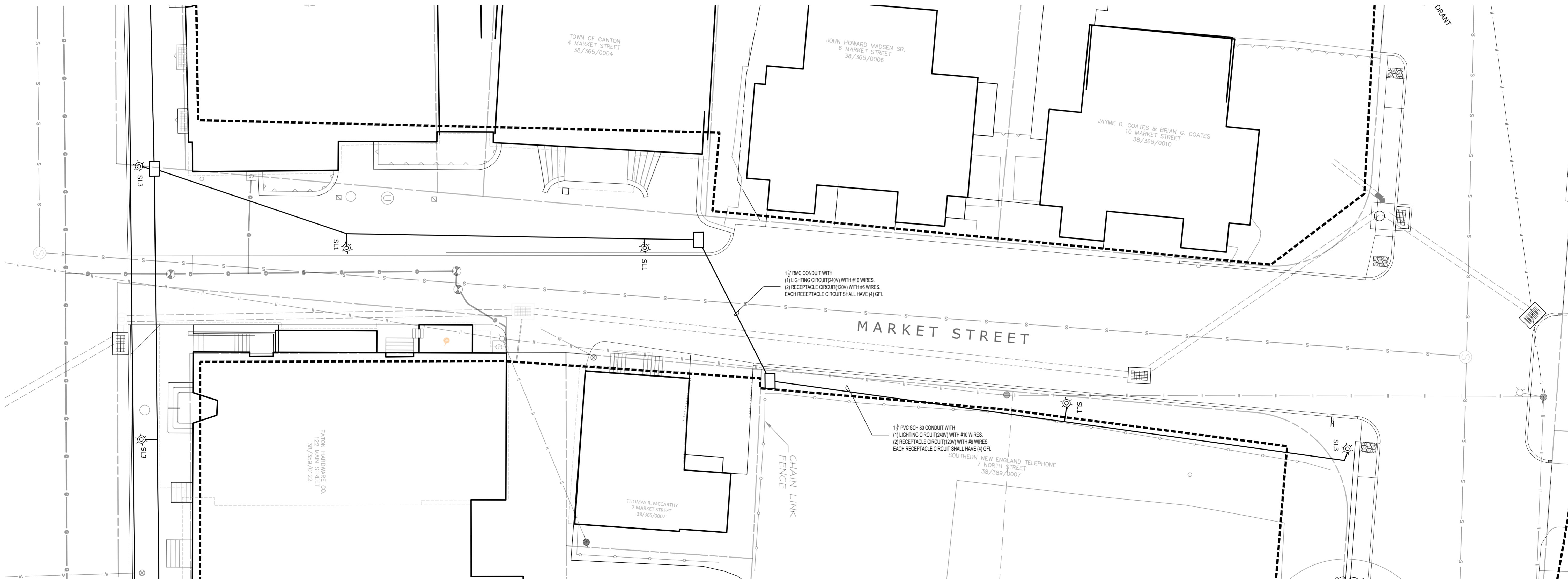
**Collinsville
Village Center
Streetscape Phase 2**
Collinsville, CT
State Project No. 23-128



Luminaire Schedule					
Qty	Label	Watts	Dist Type	House Side Shield	Description
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2	SL2	32	2	Yes	Sternberg PT-6590SRLED-1RND27T2-MDL03-A-HSS/6214T5/GFI/BKT
11	SL3	32	4	Yes	Sternberg PT-6590SRLED-1RND27T4-MDL03-A-HSS/6214T5/GFI/BKT

Luminaire Replacement Light Boards - Phase 1 Streetscape Lights					
Qty	Label	Watts	Dist Type	House Side Shield	Description
14	N/A	63	5	NO	LIGHT BOARD ONLY - 4ARC27T5 - VERIFY DRIVER VOLTAGE

NOTE:
 • LOCATE QUARTZITE BOXES OUTSIDE OF BLUESTONE BANDS WITHIN THE CONCRETE SIDEWALK.



ISSUED FOR BID

Revisions	Date

**ELECTRICAL PLAN
MARKET STREET**

Scale _____
 Date March 15, 2021
 K+F Project No. 2017014
 Drawing No. _____

E-1.2

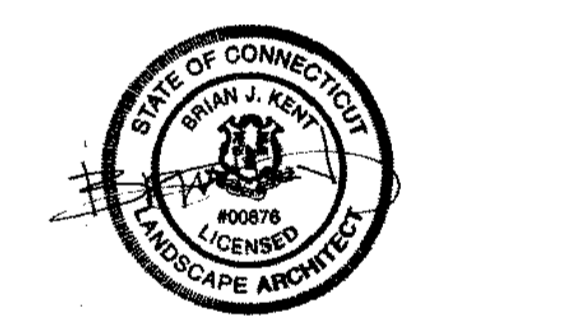
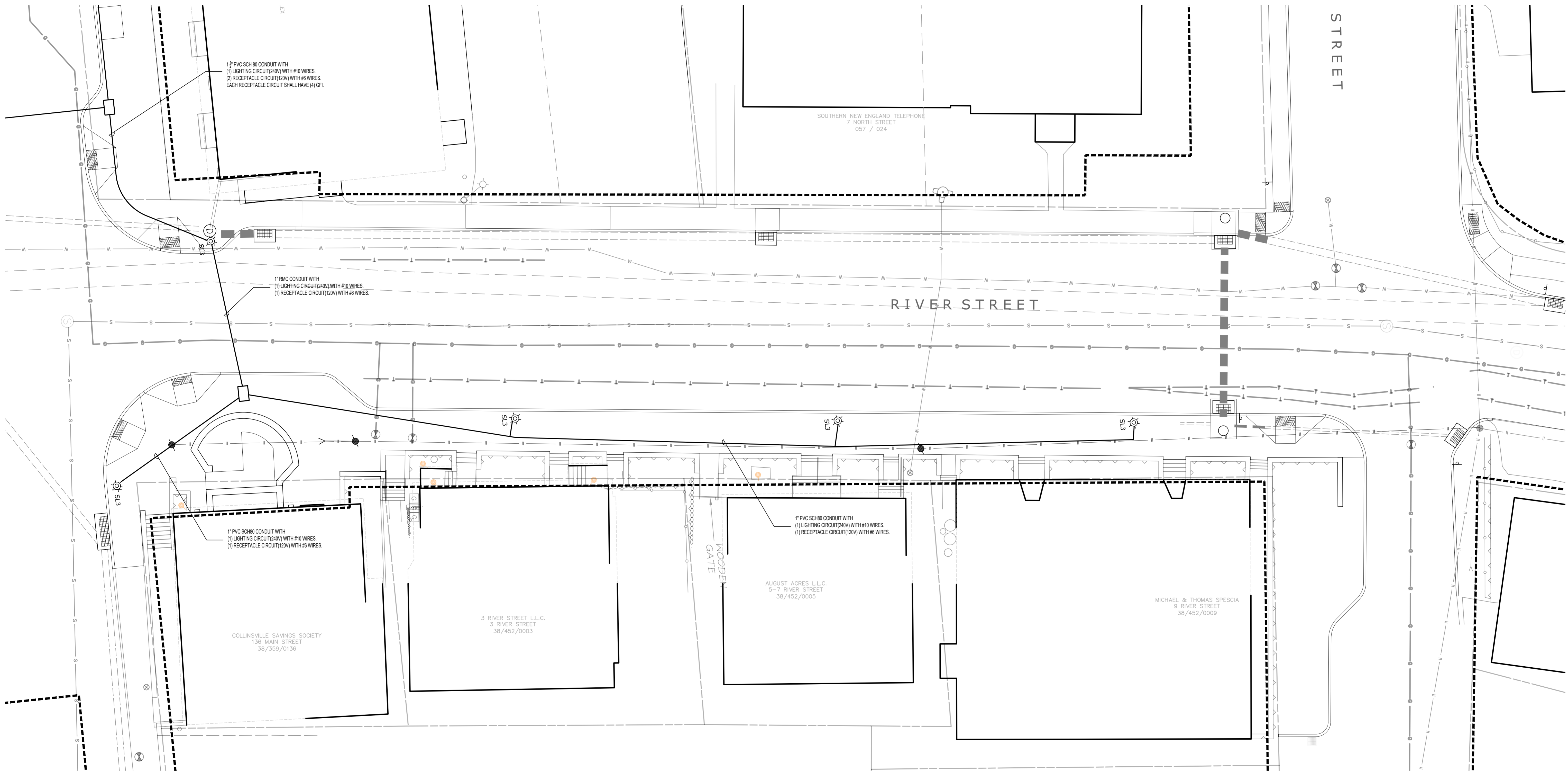
**Collinsville
Village Center
Streetscape Phase 2**
Collinsville, CT
State Project No. 23-128



Luminaire Schedule					
Qty	Label	Watts	Dist Type	House Side Shield	Description
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2	SL2	32	2	Yes	Sternberg PT-6590SRLED-1RND27T2-MDL03-A-HSS/6214T5/GFI/BKT
11	SL3	32	4	Yes	Sternberg PT-6590SRLED-1RND27T4-MDL03-A-HSS/6214T5/GFI/BKT

Luminaire Replacement Light Boards - Phase 1 Streetscape Lights					
Qty	Label	Watts	Dist Type	House Side Shield	Description
14	N/A	63	5	NO	LIGHT BOARD ONLY - 4ARC27T5 - VERIFY DRIVER VOLTAGE

NOTE:
• LOCATE QUARTZITE BOXES OUTSIDE OF BLUESTONE BANDS WITHIN THE CONCRETE SIDEWALK.



ISSUED FOR BID

Revisions	Date



**ELECTRICAL PLAN
RIVER STREET
MAIN ST. TO NORTH ST.**

Scale	AS NOTED
Date	March 15, 2021
K-F Project No.	2017014
Drawing No.	

E-1.4

PROJECT NO:	18108	PANEL:	PP1	DATE:	15-Oct
LOCATION:	SEE PLAN	MOUNTING:	SURFACE	FEED:	BOTTOM
VOLTAGE:	120/ 240	SOURCE:	METER	BUS AMP:	200A
WIRE:	#3/0 CU	COND:	3" RMC	BRKR:	200A
PHASE:	1	WIRE:	3	EQ. GROUND:	#6

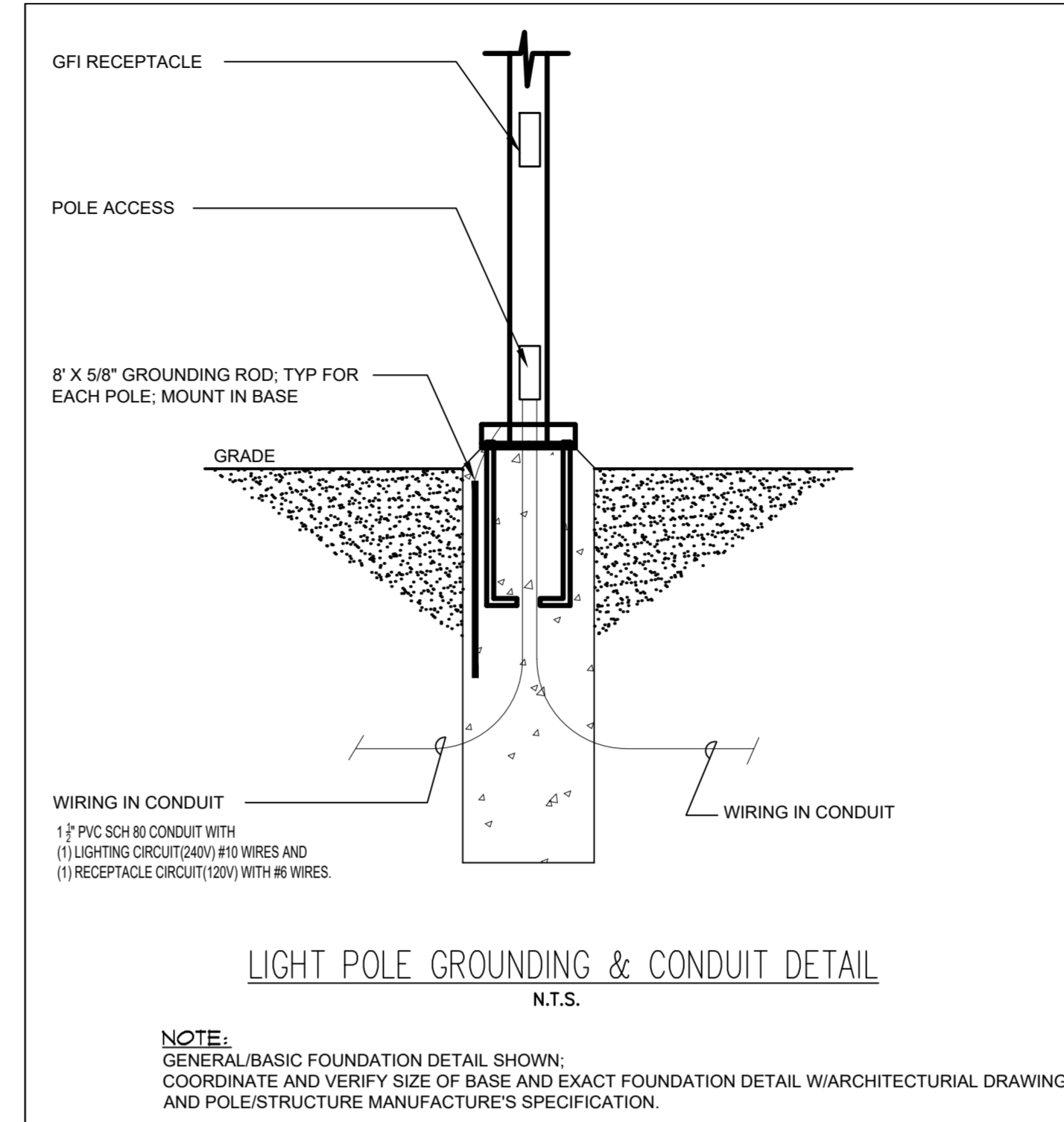
CKT	LOAD DESCRIPTION	WATTS	CB AMP	CB	CB AMP	WATTS	LOAD DESCRIPTION	CKT
1	SITE LIGHTING	250	20A/2P	A	20A/2P	180	SITE LIGHTING	2
3				B				4
5	SITE LIGHTING	164	20A/2P	A	20A/2P	180	SITE LIGHTING	6
7				B				8
9	SITE LIGHTING PH-2	160	20A/2P	A				10
11	!!	160		B	20A	1500	RECEPTACLE	12
13	SITE LIGHTING PH-2	160	20A/2P	A	20A	1500	RECEPTACLE	14
15	!!	160		B	20A	1500	RECEPTACLE	16
17				A	20A	1500	RECEPTACLE	18
19				B				20
21				A				22
23				B				24
25				A				26
27				B				28
29				A				30

TOTAL WATTS/PH: A= 4094 B= 4094 TOTAL WATTS: 8188
TOTAL AMPS: 34.1

NOTES:
1. VERIFY BREAKERS WITH NAMEPLATE RATINGS OF EQUIPMENT IN FIELD.
2. PROVIDE SIX (6) 20A-1P SPARE BREAKERS.
3. PROVIDE FULL COPPER BUSSING.

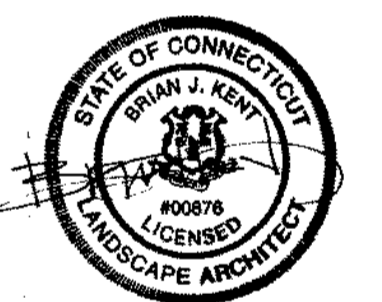
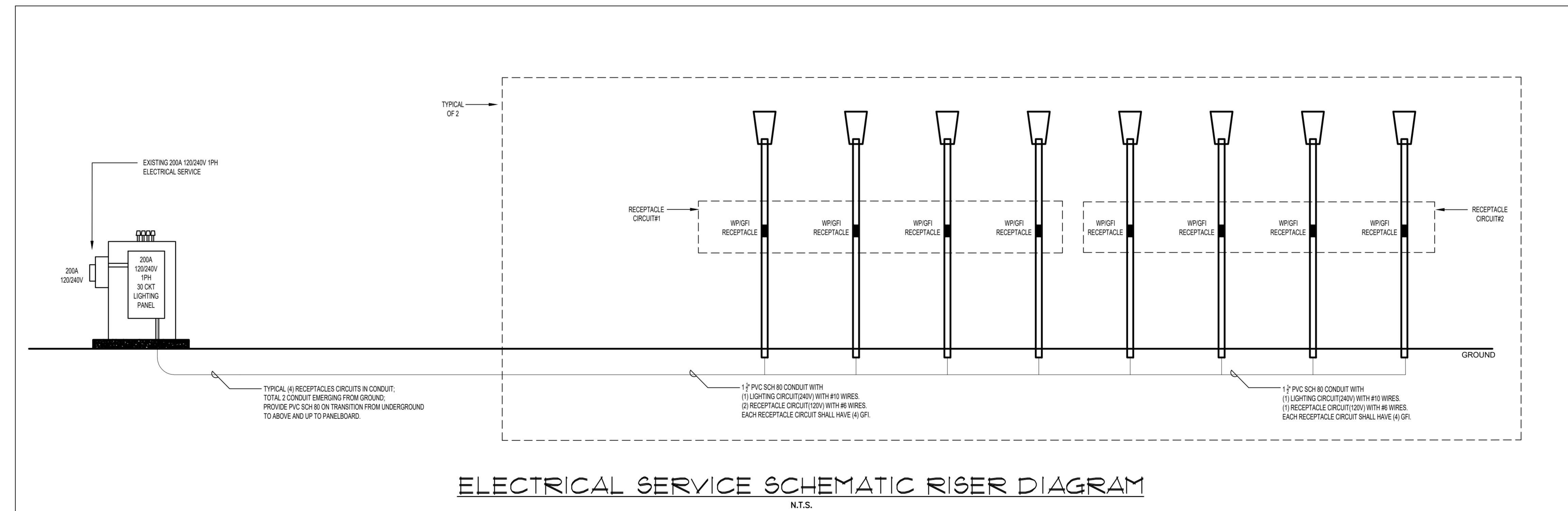
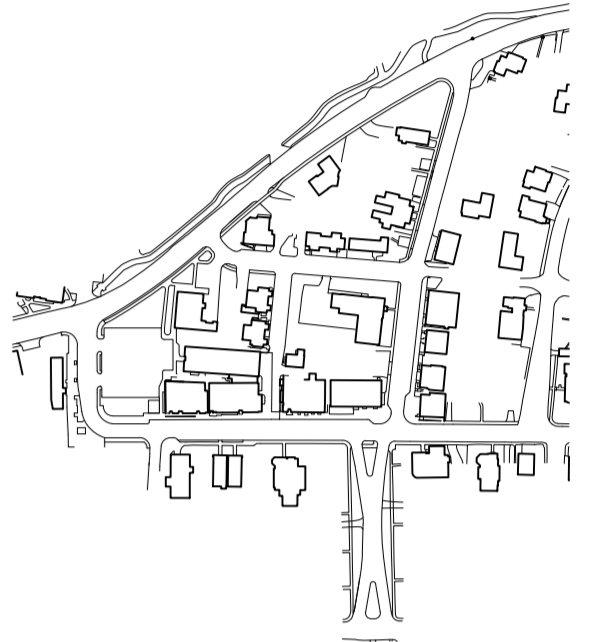
MINIMUM WIRE & CONDUIT SIZES FOR CIRCUIT BREAKERS AND FUSES				
AMP	CONDUCTOR		GROUND	
	CU	AL	CU	AL
15	#12	#10	#12	#12
20	#12	#10	#12	#12
25	#10	#10	#10	#10
30	#10	#10	#10	#10
35	#10	#10	#10	#10
40	#10	#10	#10	#10
45	#10	#10	#10	#10
50	#10	#10	#10	#10
60	#8	#4	#10	#10
70	#4	#3	#8	#6
80	#4	#2	#8	#6
90	#3	#2	#8	#6
100	#3	#1	#8	#6

PROVIDE THE FOLLOWING QUANTITIES:
1 POLE CIRCUIT - 1 HOT, 1 NEUTRAL, 1 GROUND
2 POLE CIRCUIT - 2 HOT, 1 GROUND
3 POLE CIRCUIT - 3 HOT, 1 GROUND
1 POLE 1/2 CIRCUIT - 1 HOT, 1 NEUTRAL, 1 GROUND
1 GROUND, 1 ISOLATED GROUND
CONDUIT SIZED FOR CU; ADJUST ACCORDINGLY FOR AL



ELECTRICAL GENERAL NOTES:

- ALL WORK SHALL BE DONE IN COMPLIANCE WITH THE 2017 EDITION OF THE NATIONAL ELECTRICAL CODE, THE STATE OF CONNECTICUT CODES.
- E.C. SHALL OBTAIN AND PAY FOR BOTH ROUGH AND FINAL INSPECTION AND OBTAIN A CERTIFICATE OF "ELECTRICAL INSPECTION". THIS CERTIFICATE SHALL BE PRESENTED WITH REQUEST FOR FINAL PAYMENT.
- ALL QUESTIONS CONCERNING RESPONSIBILITIES OF THE E.C. SHALL BE SETTLED PRIOR TO ANY BID SUBMISSIONS AND CONTRACT SIGNING. NO EXTRA CHARGES WILL BE ALLOWED
- THE E.C. SHALL COORDINATE ALL PHASING OF WORK WITH THE ARCHITECT, GENERAL CONTRACTOR AND/OR OWNER OF THE PROJECT.
- REFER TO THE ARCHITECTURAL DRAWINGS FOR SPECIFIC DETAILS, ARRANGEMENTS, MOUNTING HEIGHTS, CEILING CONSTRUCTION, ETC. ALL COLORS AND FINISHES TO BE SELECTED BY THE ARCHITECT.
- ALL ELECTRICAL EQUIPMENT SHALL BE SEISMICALLY SUPPORTED AS REQUIRED BY THE CONNECTICUT BUILDING CODE.
- ALL NECESSARY MOUNTING HARDWARE, HANGERS, BRACKETS, RAILS, YOKES, STEMS, CHAINS, ETC. SHALL BE FURNISHED AND INSTALLED BY E.C.
- ALL HOMERUNS TO PANELBOARDS DESIGNATED SHALL CONSIST OF WIRE AND CONDUITS SIZES SPECIFIED IN THE "ELECTRICAL SERVICE SCHEMATIC RISER DIAGRAM" DETAIL ON THIS PAGE.
- ALL WIRING INSTALLED UNDER THIS CONTRACT SHALL BE TESTED FOR PROPER CONNECTIONS AND SHORT CIRCUITS PRIOR TO THE TURNING OVER OF WORK AS A COMPLETE UNIT.
- E.C. SHALL GUARANTEE ALL MATERIAL AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM THE DATE OF APPROVAL AND FINAL ACCEPTANCE.
- ALL WIRING SHALL BE TYPE THWN OR THW UNLESS OTHERWISE NOTED. FOR CONDUCTORS LARGER THAN #6 AWG, TYPE XHHW WILL BE ACCEPTED.
- CONDUCTORS SIZED #10 AWG AND SMALLER SHALL BE SOLID WIRE CONDUCTORS. CONDUCTORS SIZED LARGER THAN #10 AWG SHALL BE STRANDED TYPE.
-



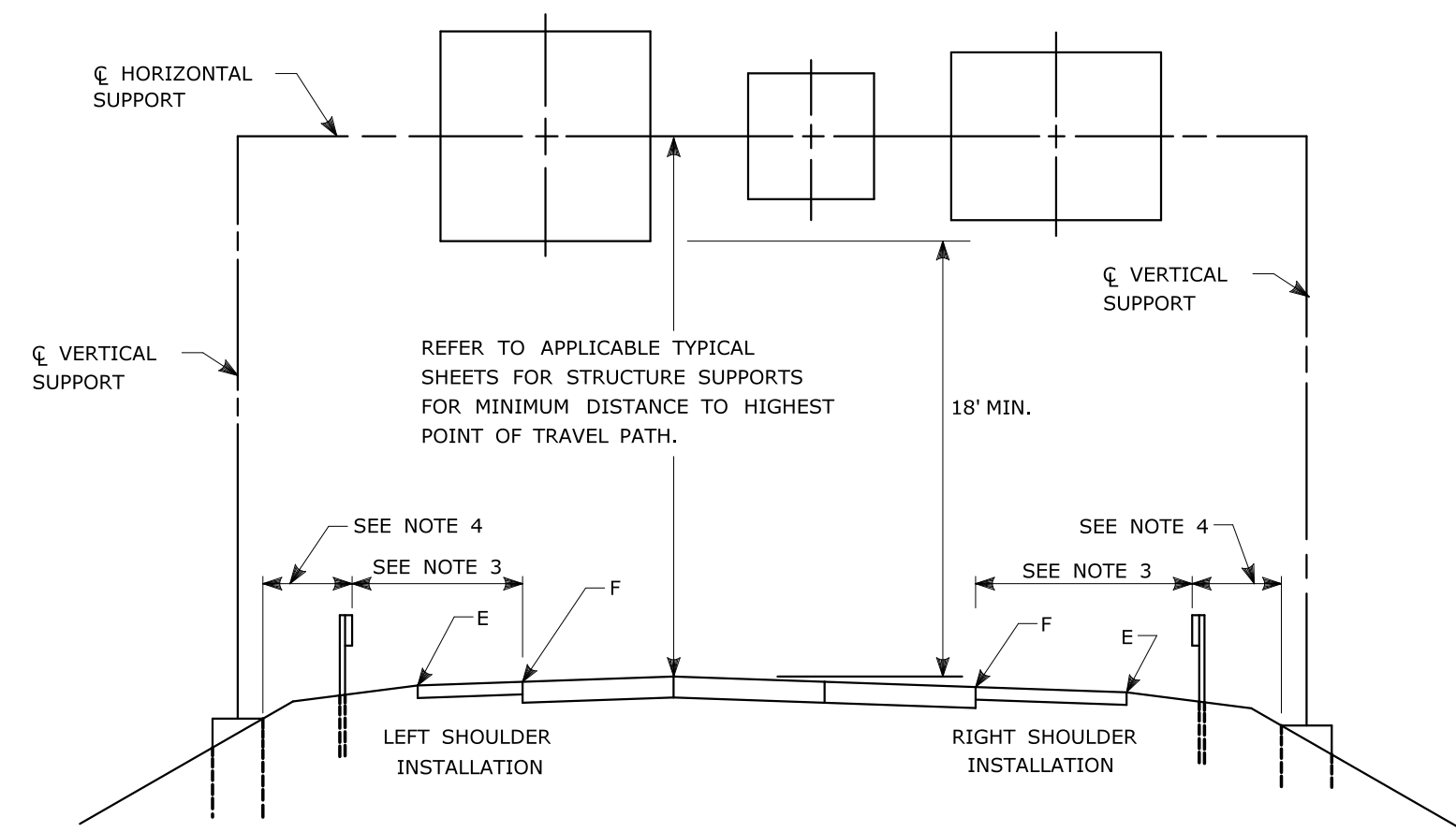
ISSUED FOR BID

Revisions _____ Date _____

ELECTRICAL DETAILS

Scale _____ AS NOTED
Date _____ March 15, 2021
K-F Project No. _____ 2017014
Drawing No. _____

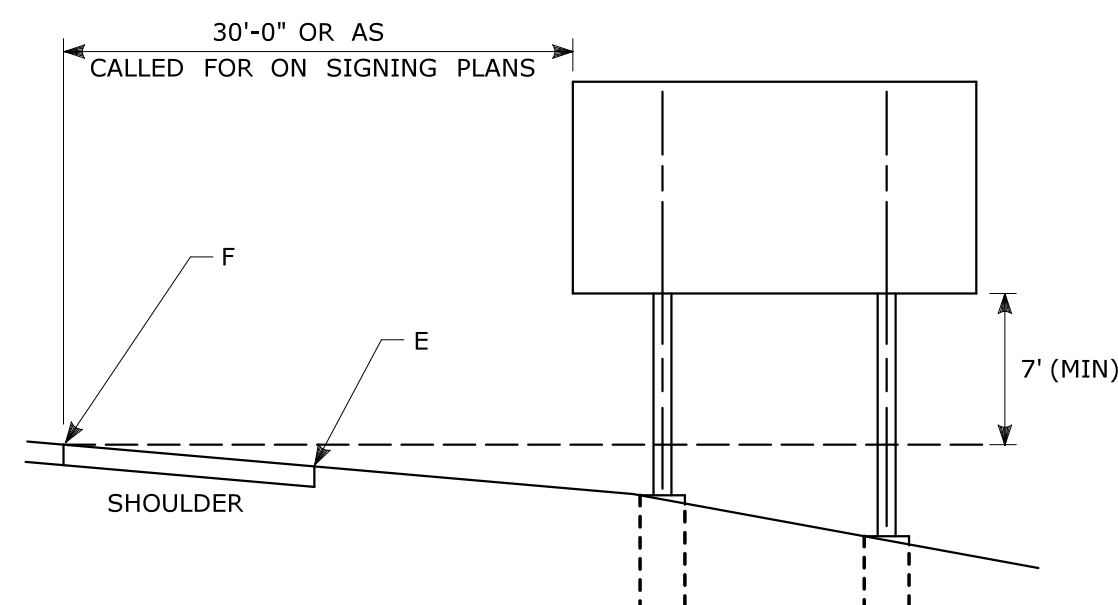
E-1.10



TYPICAL PLACEMENT OF OVERHEAD SIGNS ON SIGN SUPPORTS

NOTES:

- 1) FOR PLACEMENT OF CANTILEVER SIGN SUPPORT USE APPLICABLE PORTION OF ABOVE DETAIL.
- 2) BARRIER SYSTEMS MAY BE REQUIRED FOR BOTH SIDES OF SUPPORTS IN MEDIANS.
- 3) IMPACT PROTECTION SHALL BE PROVIDED FOR THE SIGN SUPPORTS LOCATED WITHIN CLEAR ZONE.
- 4) SIGN SUPPORT FOUNDATIONS SHALL BE LOCATED OUTSIDE OF BARRIER SYSTEMS DEFLECTION AREA.
- 5) ALL SIGNS ARE TO BE LEVEL, REGARDLESS OF CAMBER IN SUPPORT.



TYPICAL PLACEMENT OF SIDE MOUNTED SIGNS ON STRUCTURAL STEEL BREAKAWAY SIGN SUPPORTS

NOTES:

- 1) MIN. VERTICAL CLEARANCE ABOVE SIDEWALKS SHALL BE 7'.
- 2) WHERE GUIDE RAIL IS USED, THE OFFSET TO THE NEAR EDGE OF SIGN FACE SHALL BE AS SHOWN ELSEWHERE IN THE CONTRACT PLANS.
- 3) ON INTERSECTING ROADS AT RAMP TERMINI, THE OFFSET TO THE NEAR EDGE OF OF SIGN FACE SHALL BE 6' MIN. FROM POINT "E".
- 4) IF 30'-0" MIN. CANNOT BE MET, PLEASE CONTACT THE ENGINEER.

FOR MAXIMUM EFFECTIVENESS, POSITION SIDE MOUNTED SIGNS ON STRUCTURAL STEEL BREAKAWAY SIGN SUPPORTS AS FOLLOWS:

ON A TANGENT SECTION, POSITION THE SIGN SO THE VERTICAL AXIS IS PLUMB AND THE HORIZONTAL AXIS IS AT AN ANGLE OF 90° WITH THE TRAFFIC LANE WHICH THE SIGN SERVES. SIGNS LOCATED 30 FT OR MORE FROM THE EDGE OF THE ROAD SHALL BE TURNED APPROXIMATELY 3° TOWARD THE ROAD.

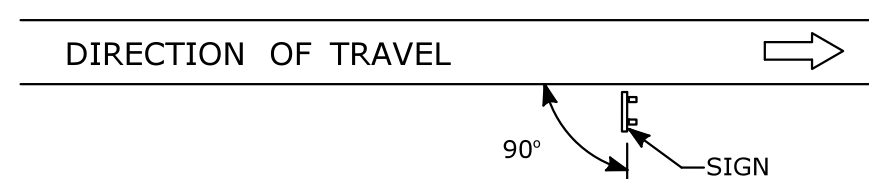


DIAGRAM "A"

ON A HORIZONTAL CURVE SECTION, POSITION THE SIGN SO THE VERTICAL AXIS IS PLUMB AND THE HORIZONTAL AXIS IS AT AN ANGLE OF 90° WITH A STRAIGHT LINE BETWEEN THE SIGN AND THE POINT AT WHICH THE SIGN SHALL BE READ.

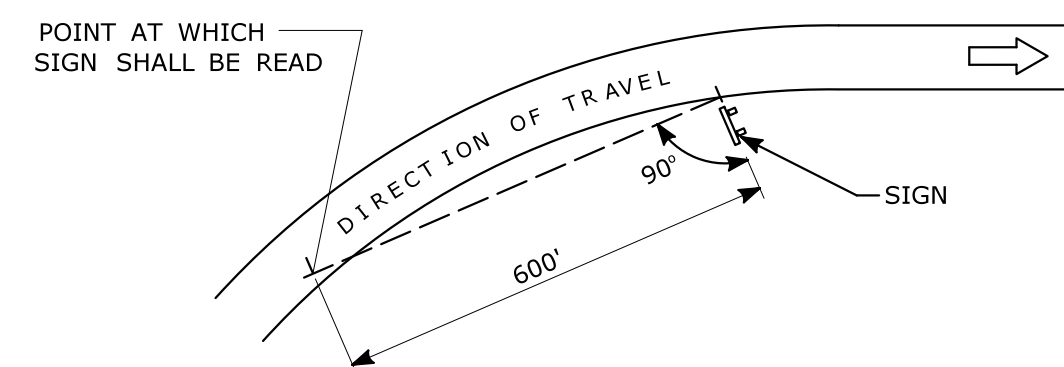
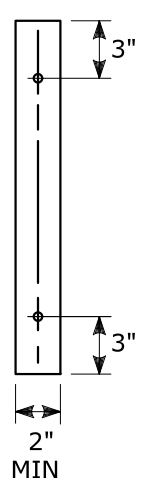


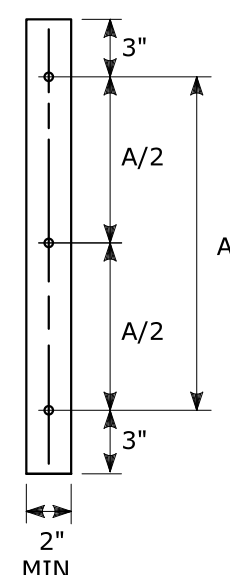
DIAGRAM "B"

SIGN ORIENTATION DETAILS FOR SIDE MOUNTED SIGNS ON STRUCTURAL STEEL BREAKAWAY SIGN SUPPORTS

RETROREFLECTIVE STRIPS 48" LONG OR LESS:



RETROREFLECTIVE STRIPS OVER 48" LONG:

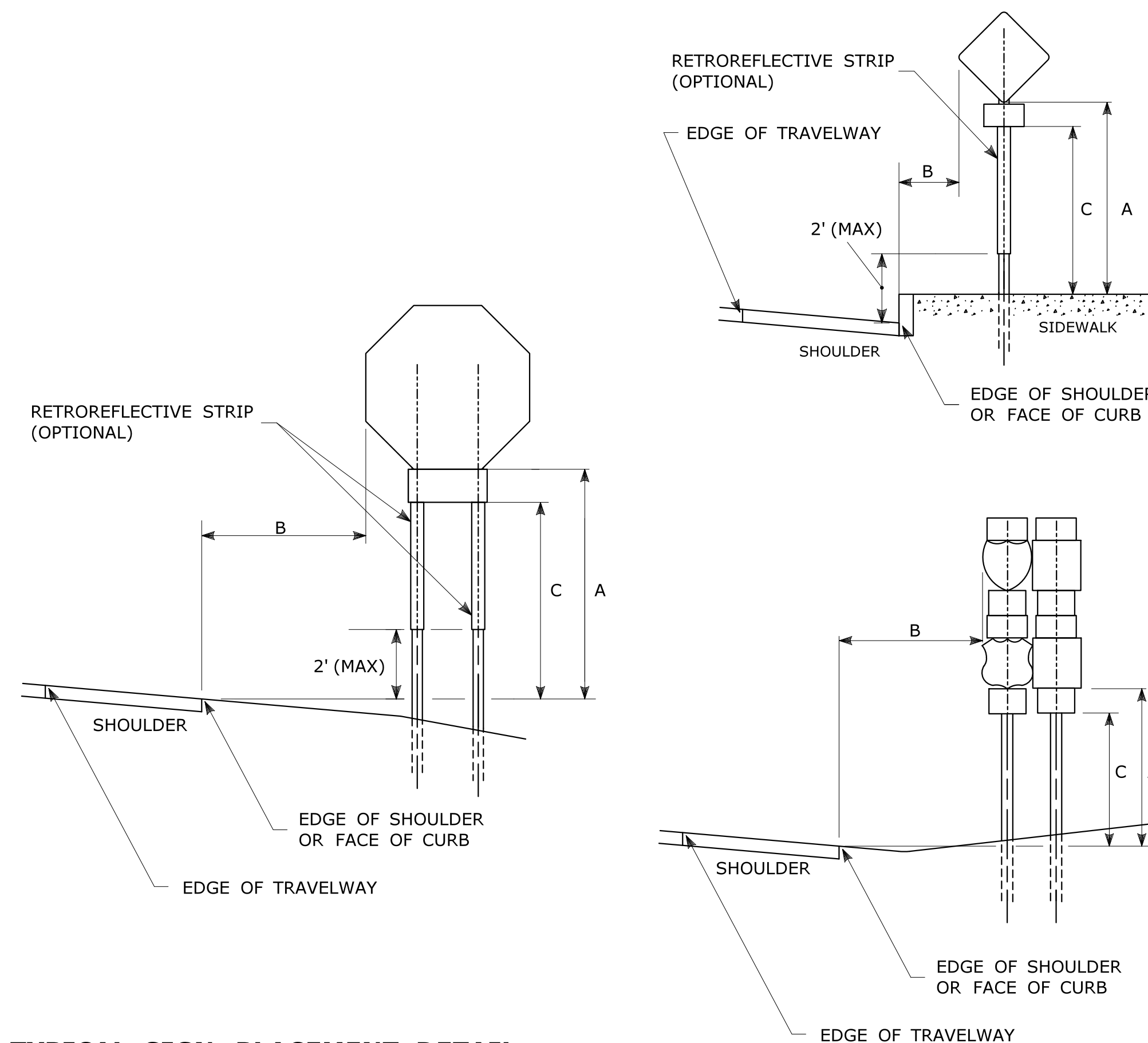


RETROREFLECTIVE STRIP DETAIL

NOTES:

RETROREFLECTIVE STRIPS WHICH ARE 48 IN LONG OR LESS SHALL BE ATTACHED USING 2 BOLTS AND RETROREFLECTIVE STRIPS OVER 48 IN LONG SHALL BE ATTACHED USING 3 BOLTS AS SHOWN ON THE DETAILS ABOVE. REFER TO STANDARD SHEET No. TR-1208.02 "METAL SIGN POSTS AND SIGN MOUNTING DETAILS" FOR MOUNTING DETAILS.

RETROREFLECTIVE STRIP COLOR SHALL MATCH THE BACKGROUND COLOR OF THE SIGN, EXCEPT THAT THE COLOR OF THE STRIP FOR "YIELD" AND "DO NOT ENTER" SIGNS SHALL BE RED.



TYPICAL SIGN PLACEMENT DETAIL

NOTES:

ALL SIGNS AND SHIELDS ON DIRECTIONAL ASSEMBLIES SHALL ABUT VERTICALLY. REFER TO STANDARD SHEET No. TR-1208.02 "METAL SIGN POSTS AND SIGN MOUNTING DETAILS" FOR SIGN POSTS AND SIGN MOUNTING. IF A RETROREFLECTIVE STRIP IS USED ON SIGN SUPPORT, IT SHALL BE PLACED FOR THE FULL LENGTH OF THE SUPPORT FROM THE BOTTOM OF THE SIGN TO WITHIN 2 FT ABOVE THE EDGE OF THE ROADWAY. PARKING SIGNS TYPICALLY USE 45° MOUNTING BRACKET.

DIM."A" MIN SIGN HEIGHT	DIM."B" MIN LATERAL OFFSET (1)	DIM."C" MIN PLAQUE HEIGHT (1)	ASSEMBLY LOCATION
7' (2)	6' 12' (3)	5'	SIGNS ON FREEWAYS AND EXPRESSWAYS EXCEPT CHEVRON ALIGNMENT SIGNS, ONE-DIRECTION LARGE ARROW SIGNS, DO NOT ENTER SIGNS, AND WRONG WAY SIGNS
5'	2'	4'	<ul style="list-style-type: none"> • SIGNS IN RURAL AREAS • DO NOT ENTER AND WRONG WAY SIGNS ALONG EXIT RAMP • DO NOT ENTER AND WRONG WAY SIGNS ON LIMITED ACCESS HIGHWAYS
5'	2'	N/A	<ul style="list-style-type: none"> • CHEVRON ALIGNMENT SIGNS LOCATED ON FREEWAYS, EXPRESSWAYS, RAMP, AND IN RURAL AREAS • ONE-DIRECTION LARGE ARROW SIGNS LOCATED ON FREEWAYS, EXPRESSWAYS, RAMP, AND IN RURAL AREAS
4'	6' 12' (3)	N/A	INCIDENT MANAGEMENT SIGNS AND MILE POST MARKER ASSEMBLIES LOCATED ON FREEWAYS AND EXPRESSWAYS
4'	2'	4'	CENTRAL ISLANDS OF ROUNDABOUTS
7'	2' (4)	6'	BUSINESS & RESIDENTIAL AREAS WHERE PARKING OR OTHER OBSTRUCTIONS LIMIT VISIBILITY
7'	2' (4)	7'	SIDEWALKS (5)

(1) OR AS DIRECTED BY THE ENGINEER

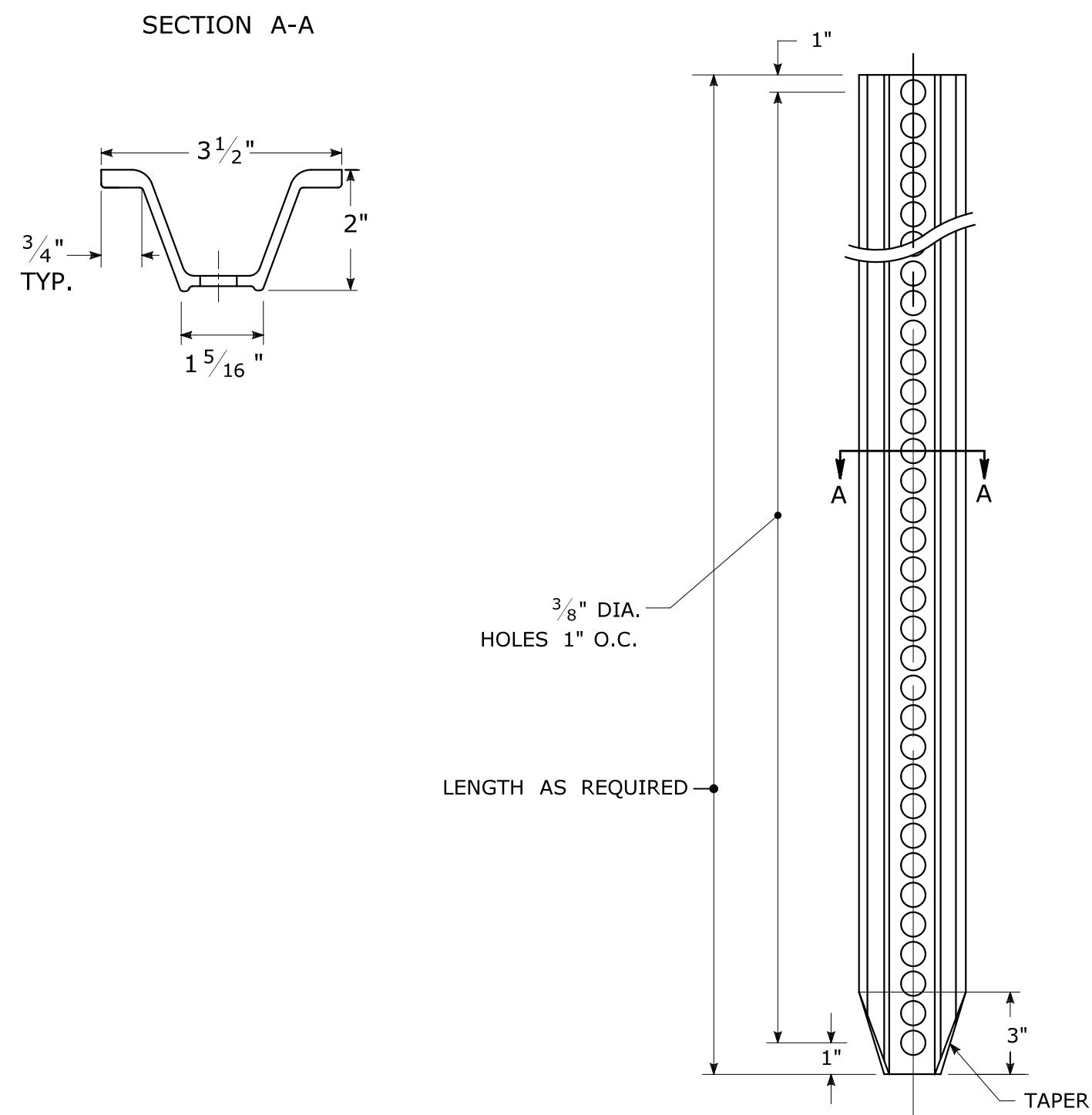
(2) 8 FT MINIMUM HEIGHT REQUIRED IF A SUPPLEMENTAL PLAQUE IS SUBMOUNTED BELOW THE MAJOR SIGN.

(3) 6 FT FROM EDGE OF SHOULDER, WHEN SHOULDER IS OVER 6 FT WIDE 12 FT FROM EDGE OF TRAVELWAY, WHEN SHOULDER IS LESS THAN 6 FT WIDE.

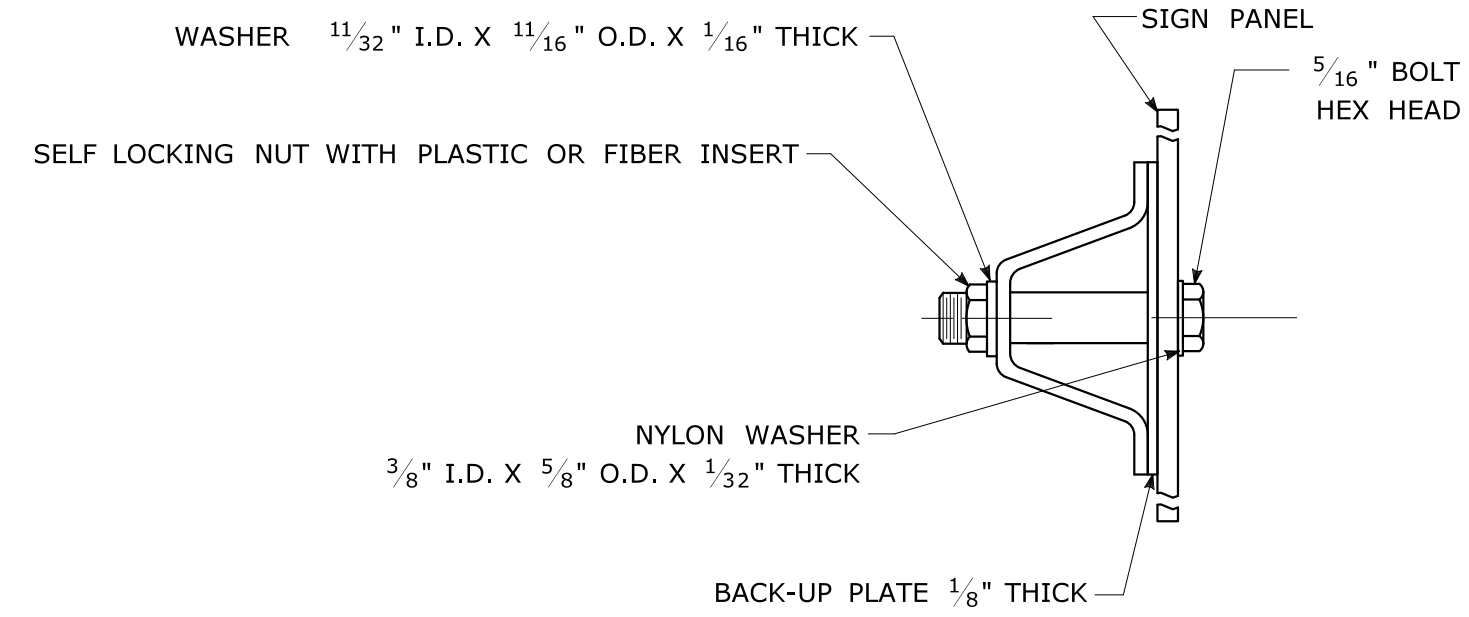
(4) A LATERAL OFFSET OF AT LEAST 1 FT FROM THE FACE OF THE CURB MAY BE USED WHERE SIDEWALK WIDTH IS LIMITED OR WHERE EXISTING UTILITY POLES ARE CLOSE TO THE CURB.

(5) A CLEAR PATH OF NOT LESS THAN 4 FT SHALL BE PROVIDED IN SIDEWALK AREAS.

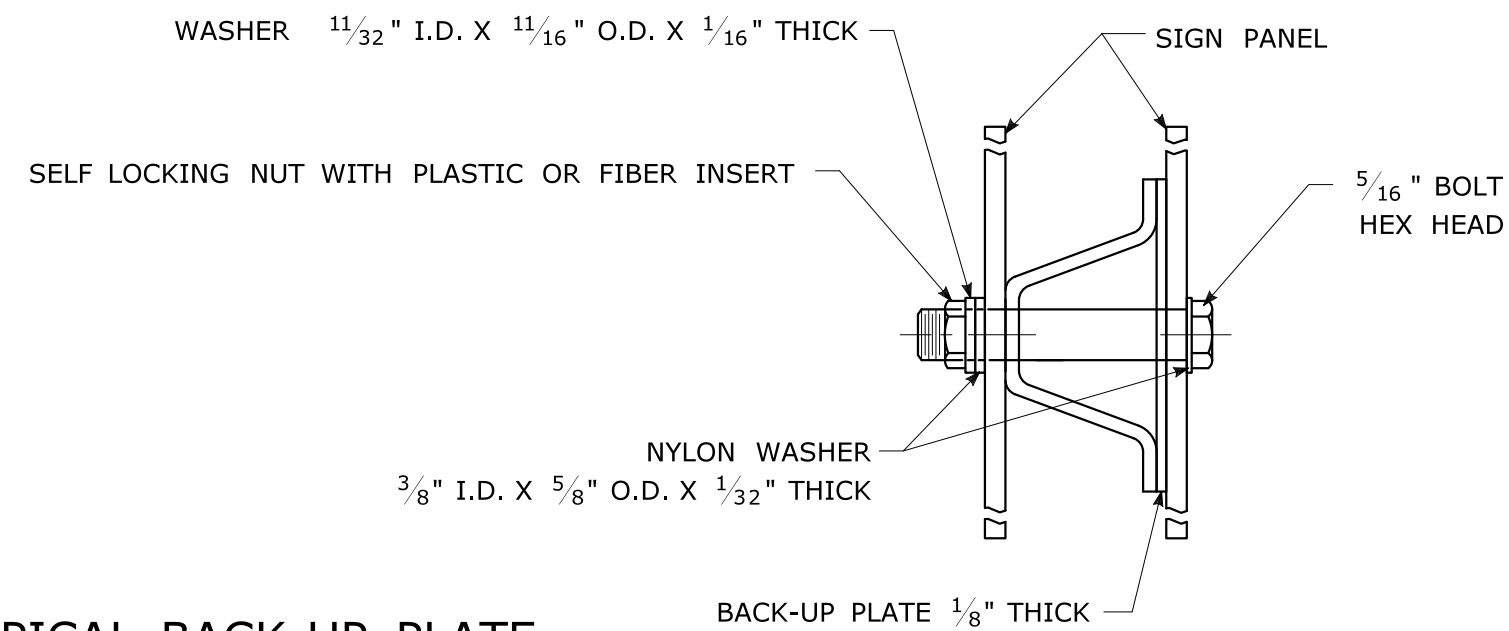
TYPICAL METAL SIGN POSTS



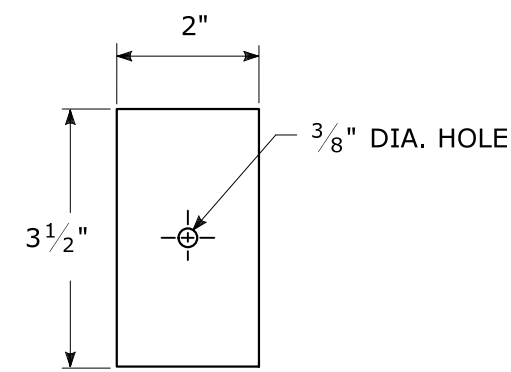
TYPICAL SIGN PANEL ATTACHMENT



TYPICAL BACK TO BACK SIGN PANEL ATTACHMENT



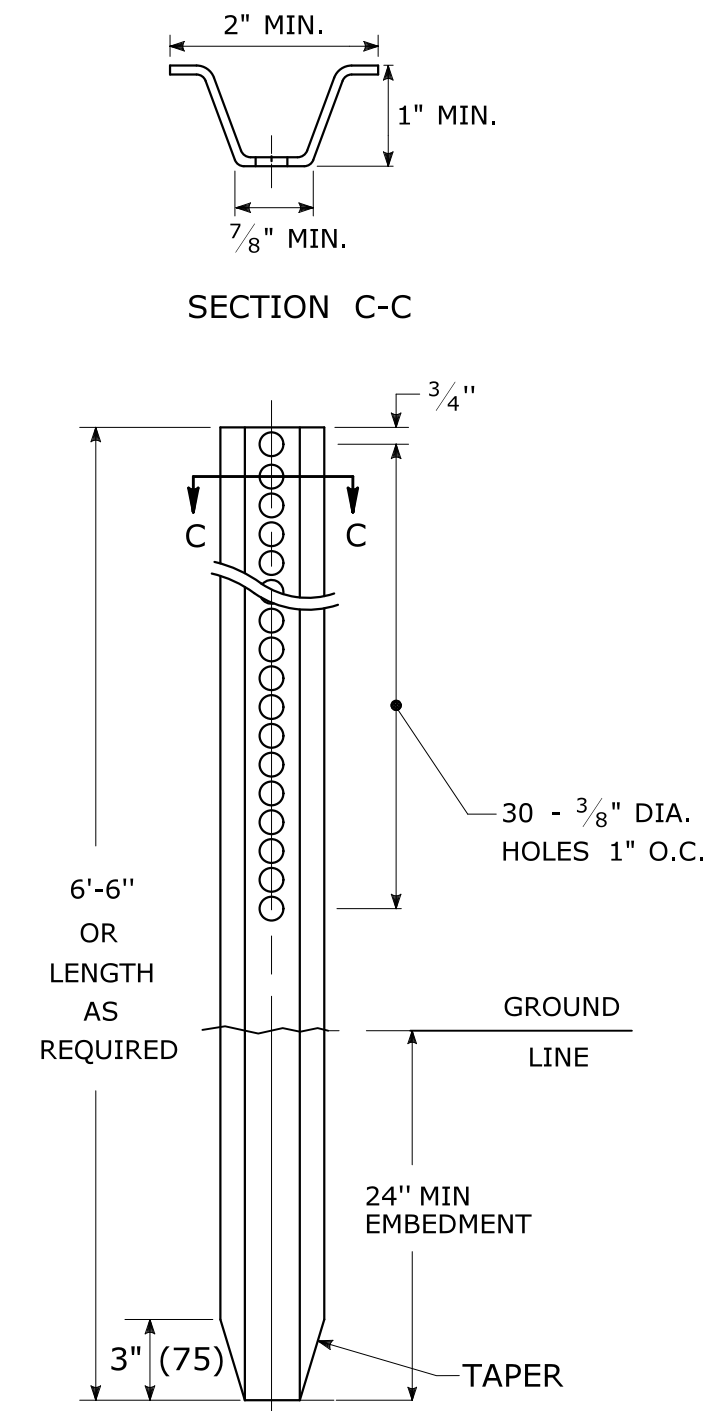
TYPICAL BACK-UP PLATE



BOLTS - STAINLESS STEEL CONFORMING TO ASTM F593, ALLOY GROUP 1 OR 2 (ALLOY TYPES 304 OR 316).
 SELF LOCKING NUTS - STAINLESS STEEL CONFORMING TO ASTM F594, ALLOY GROUP 1 OR 2 (ALLOY TYPES 304 OR 316).
 WASHERS - STAINLESS STEEL CONFORMING TO ASTM A240, (ALLOY TYPES 304 OR 316).

METAL DELINEATOR POST

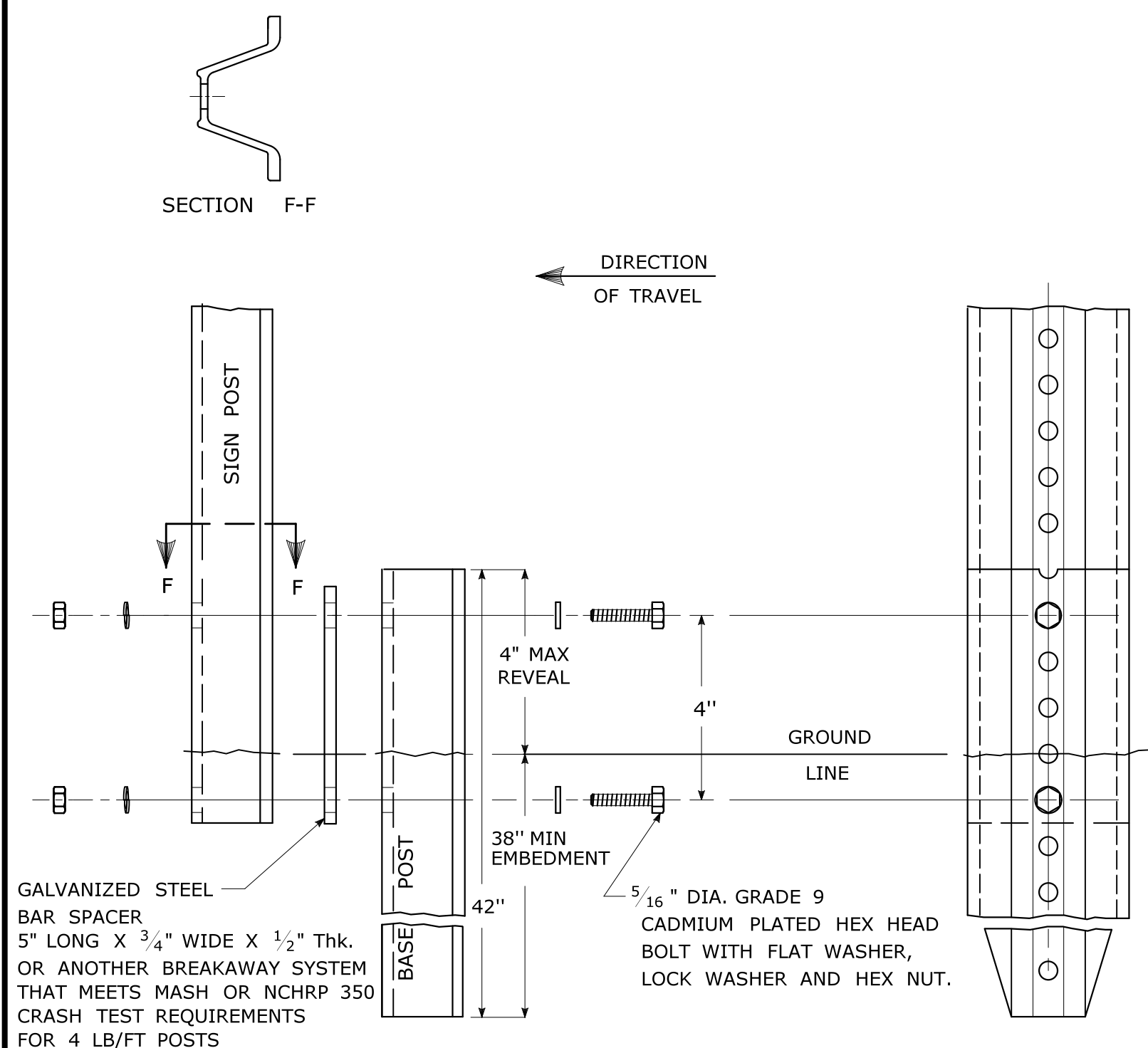
WT./FT. = 1.12 LBS./FT. MIN.



GENERAL NOTES:

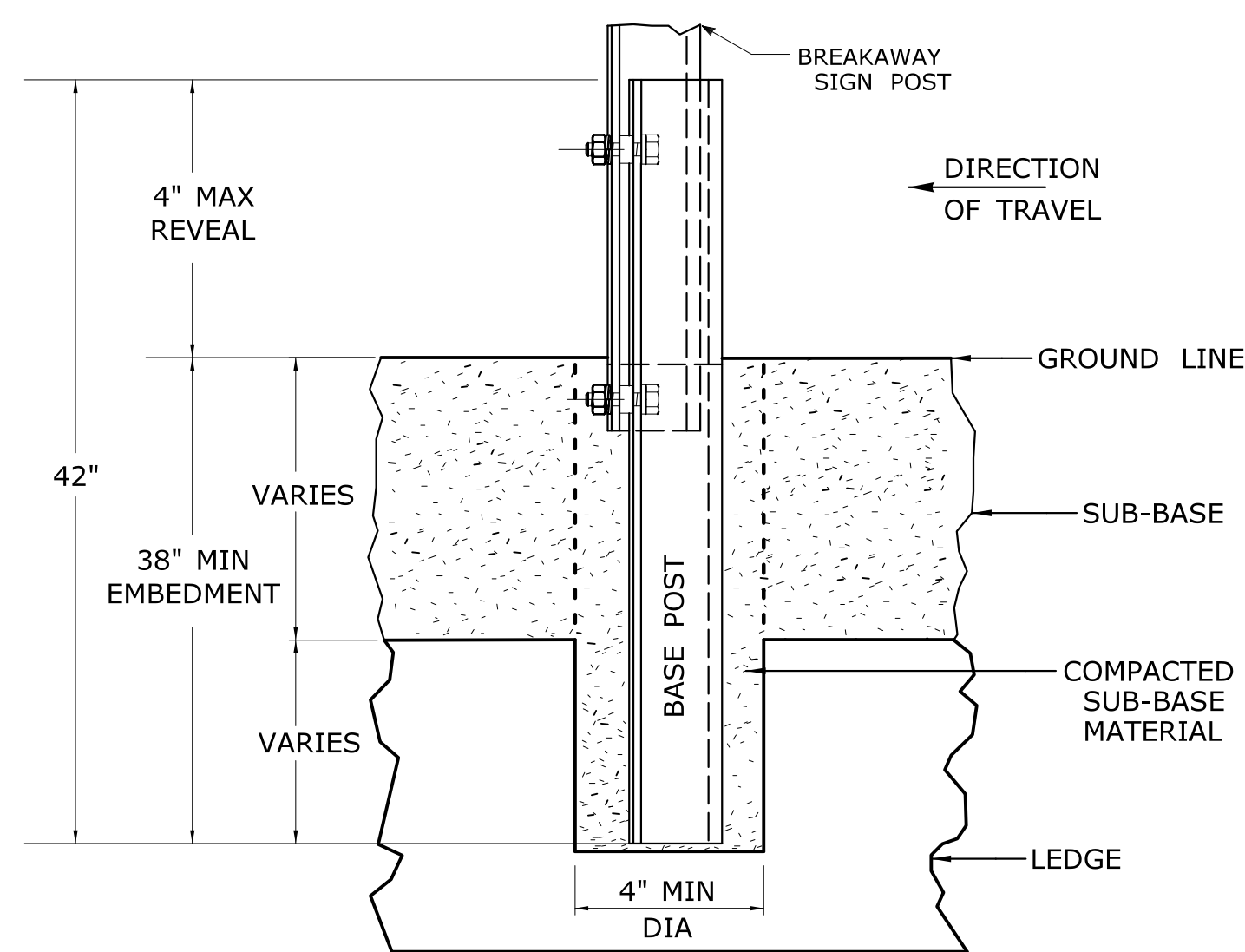
- STEEL FOR DELINEATOR POSTS SHALL BE ASTM A36 STEEL. STEEL FOR ALL OTHER POSTS SHALL CONFORM TO THE MECHANICAL REQUIREMENTS OF ASTM A 499 GRADE 80 AND TO THE CHEMICAL REQUIREMENTS OF ASTM A1 CARBON STEEL TEE RAIL HAVING NOMINAL WEIGHT (MASS) OF 91 LBS. OR GREATER PER LINEAR YARD.
- AFTER FABRICATION, ALL STEEL POSTS, STRAPS AND PLATES SHALL BE GALVANIZED TO MEET THE REQUIREMENTS OF ASTM A123.
- WASHERS FOR BREAKAWAY INSTALLATIONS SHALL MEET ASTM F436, TYPE 1.
- SPACER BAR FOR BREAKAWAY INSTALLATION SHALL CONFORM TO THE MECHANICAL REQUIREMENTS OF ASTM A36.
- ALL BOLTS, NUTS, AND WASHERS FOR BREAKAWAY INSTALLATIONS SHALL BE GALVANIZED TO MEET THE REQUIREMENTS OF ASTM A153.
- ALL SIGN POSTS SHALL HAVE BREAKAWAY FEATURES THAT MEET AASHTO REQUIREMENTS CONTAINED IN THE CURRENT "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS." THE BREAKAWAY FEATURES SHALL BE STRUCTURALLY ADEQUATE TO CARRY THE SIGNS SHOWN IN THE PLANS AT 60 MPH WIND LOADINGS. INSTALLATIONS SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
- SIGN POSTS SHALL BE 4 LBS./FT.

BREAKAWAY INSTALLATION FOR 4 LBS./FT. POSTS

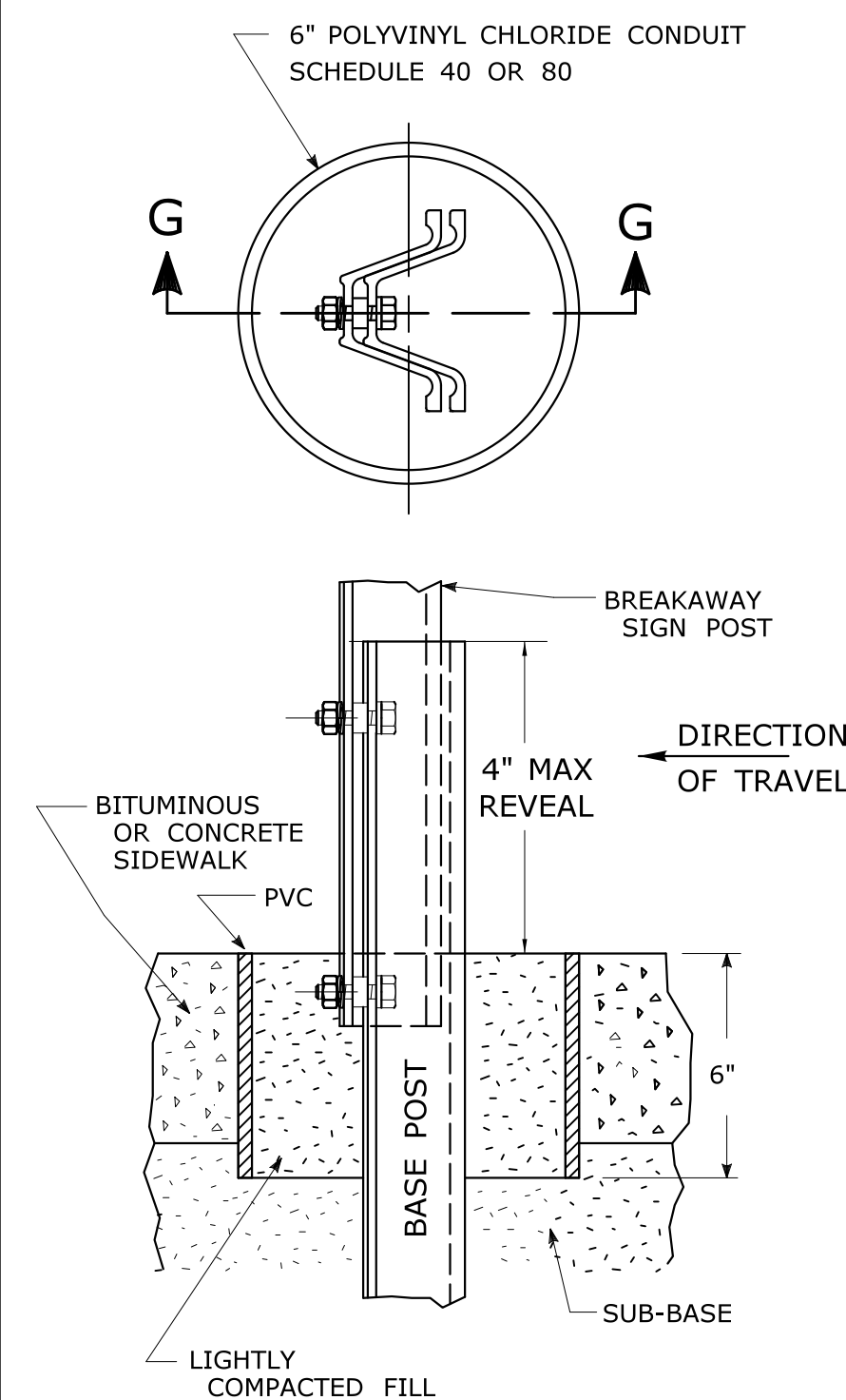


TYPICAL SIGN POST INSTALLATION IN LEDGE

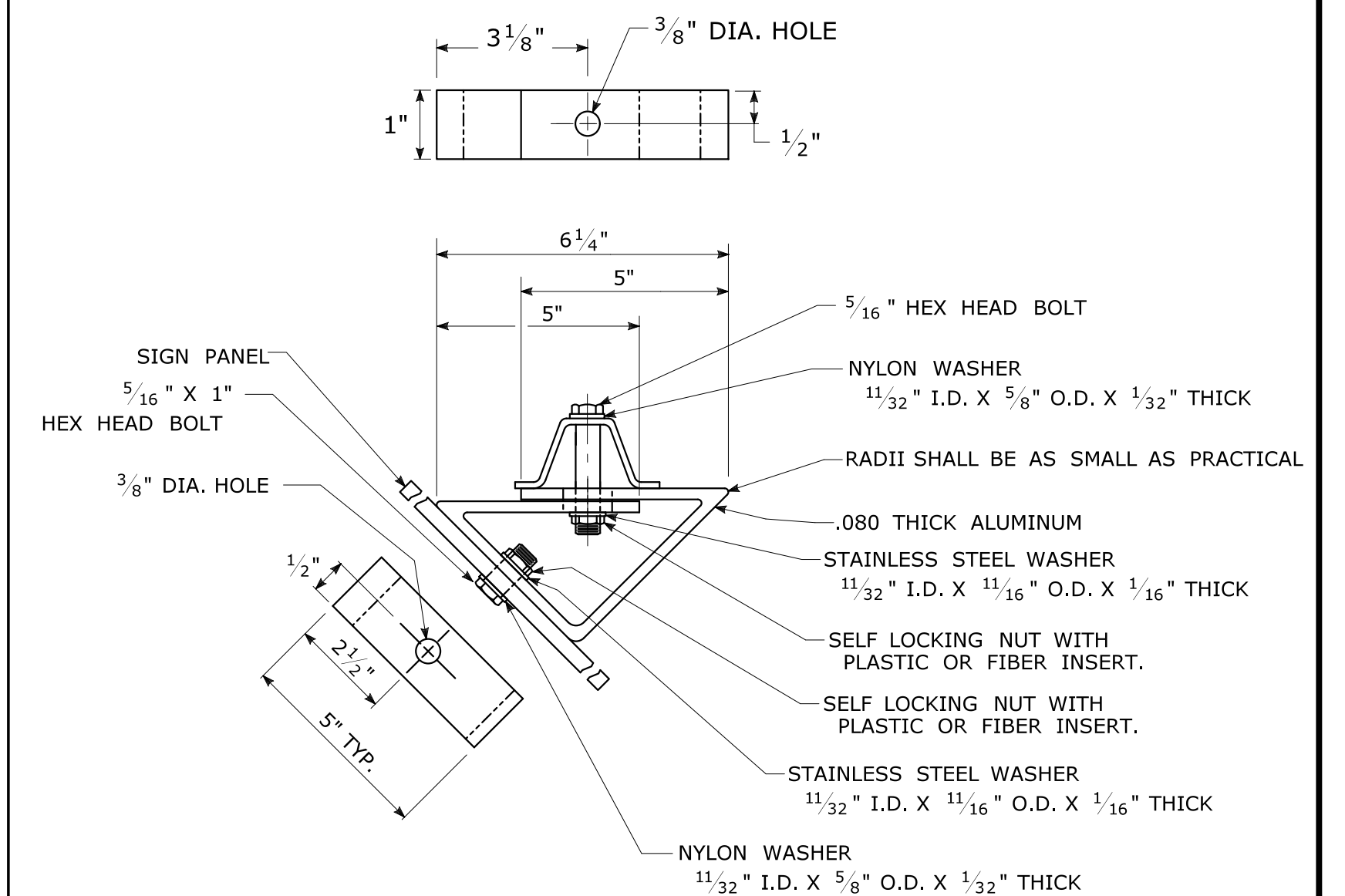
LEDGE SHALL BE REMOVED TO DRIVE THE BASE POST TO A DEPTH OF 38".
 HOLE SHALL BE FILLED WITH SUB-BASE MATERIAL AND COMPACTED WITH A TAMPING BAR, OR TECHNIQUE APPROVED BY THE ENGINEER, PRIOR TO BASE POST INSTALLATION.



TYPICAL SLEEVE FOR PAVED AREAS



45° MOUNTING BRACKET FOR INSTALLATION OF PARKING SIGNS



REV.	DATE	REVISION DESCRIPTION
2	6-2017	SIGN POST REVISIONS.
1	2-2011	MINOR REVISIONS.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 6/6/2017

NOT TO SCALE



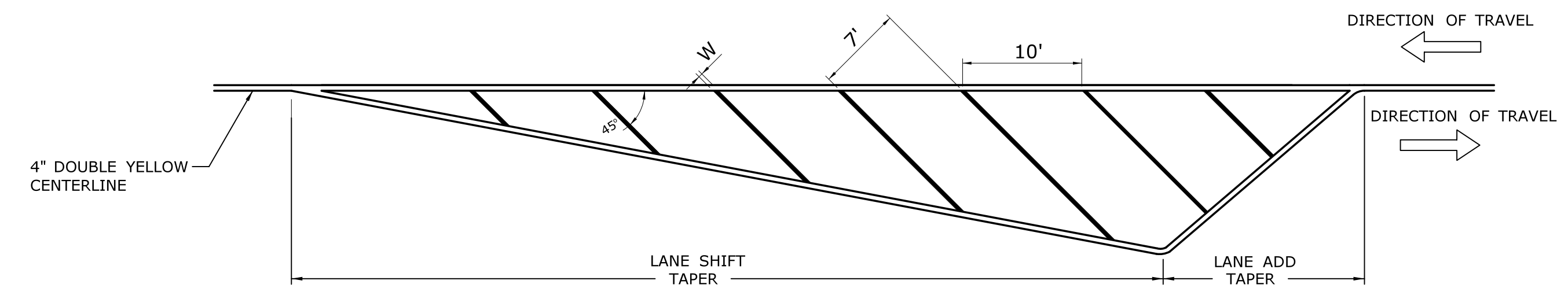
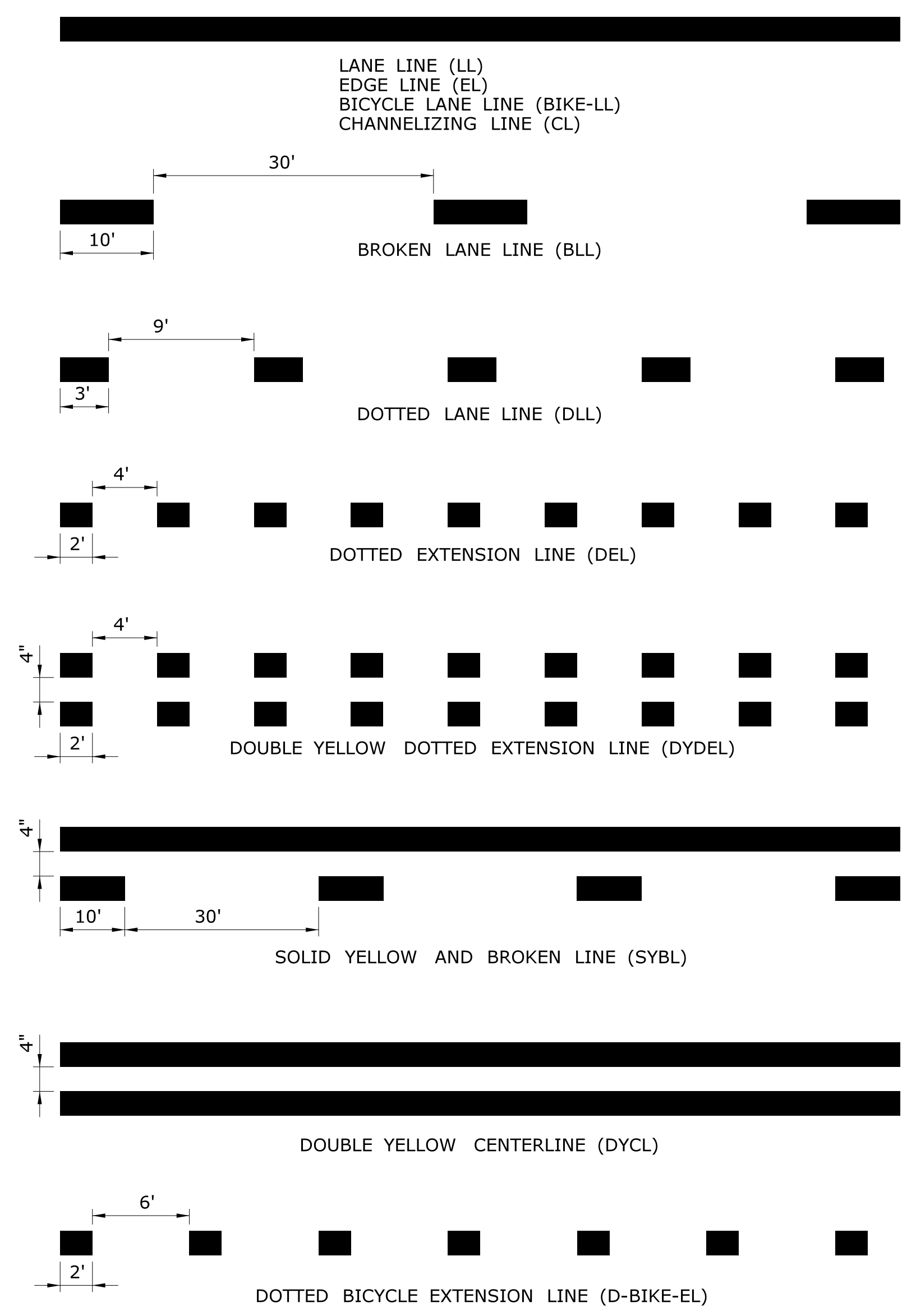
Filename: TR-1208_02_May_2017_Revision.dgn Model: TR-1208_02

SUBMITTED BY:	NAME/DATE/TIME:
APPROVED BY:	NAME/DATE/TIME:

CTDOT
STANDARD SHEET
OFFICE OF ENGINEERING

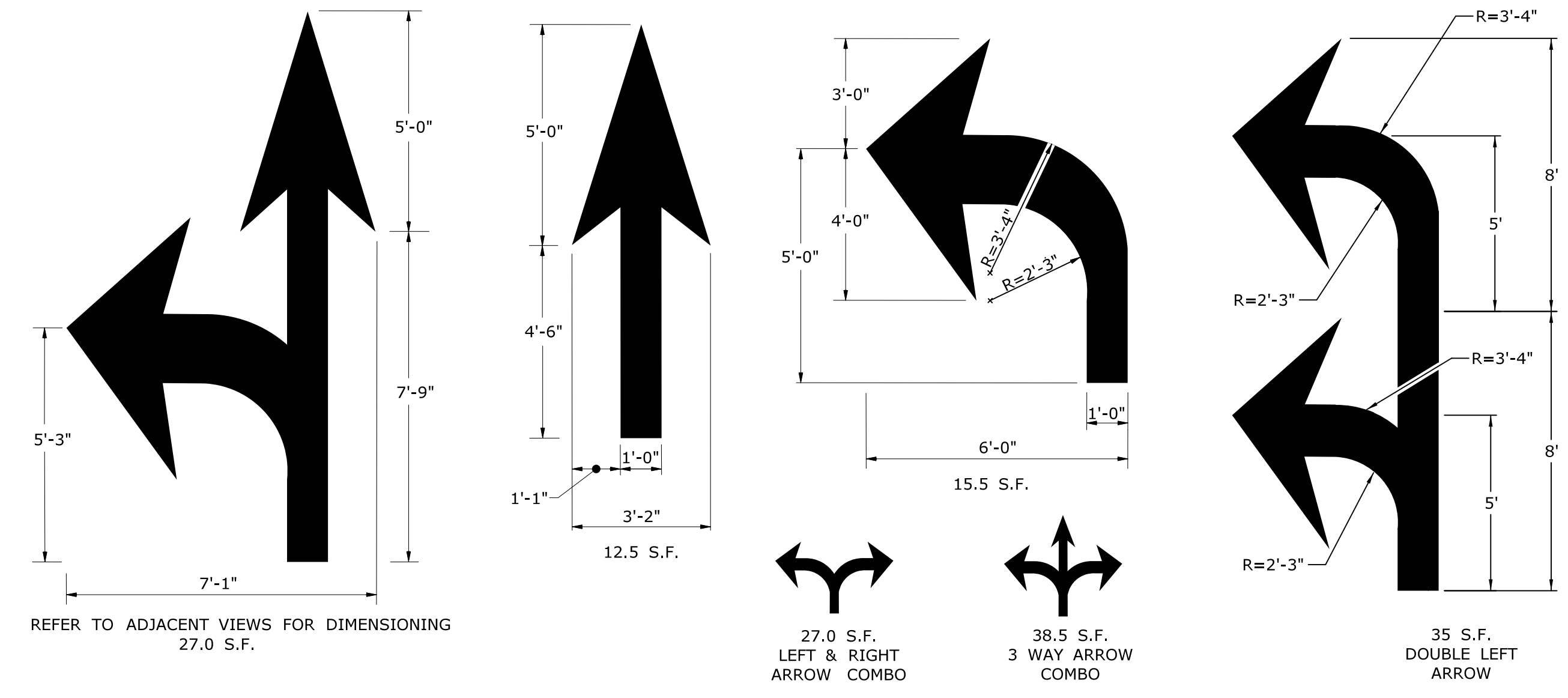
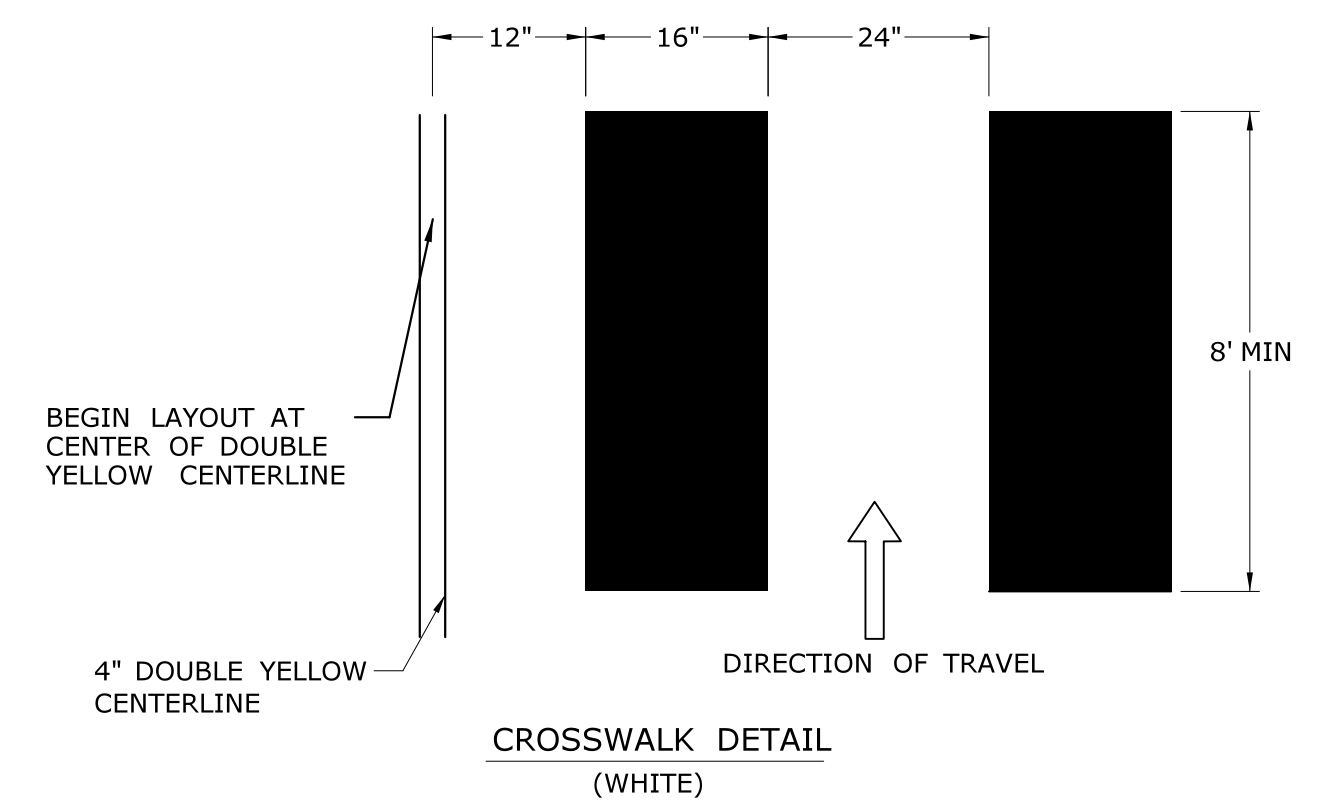
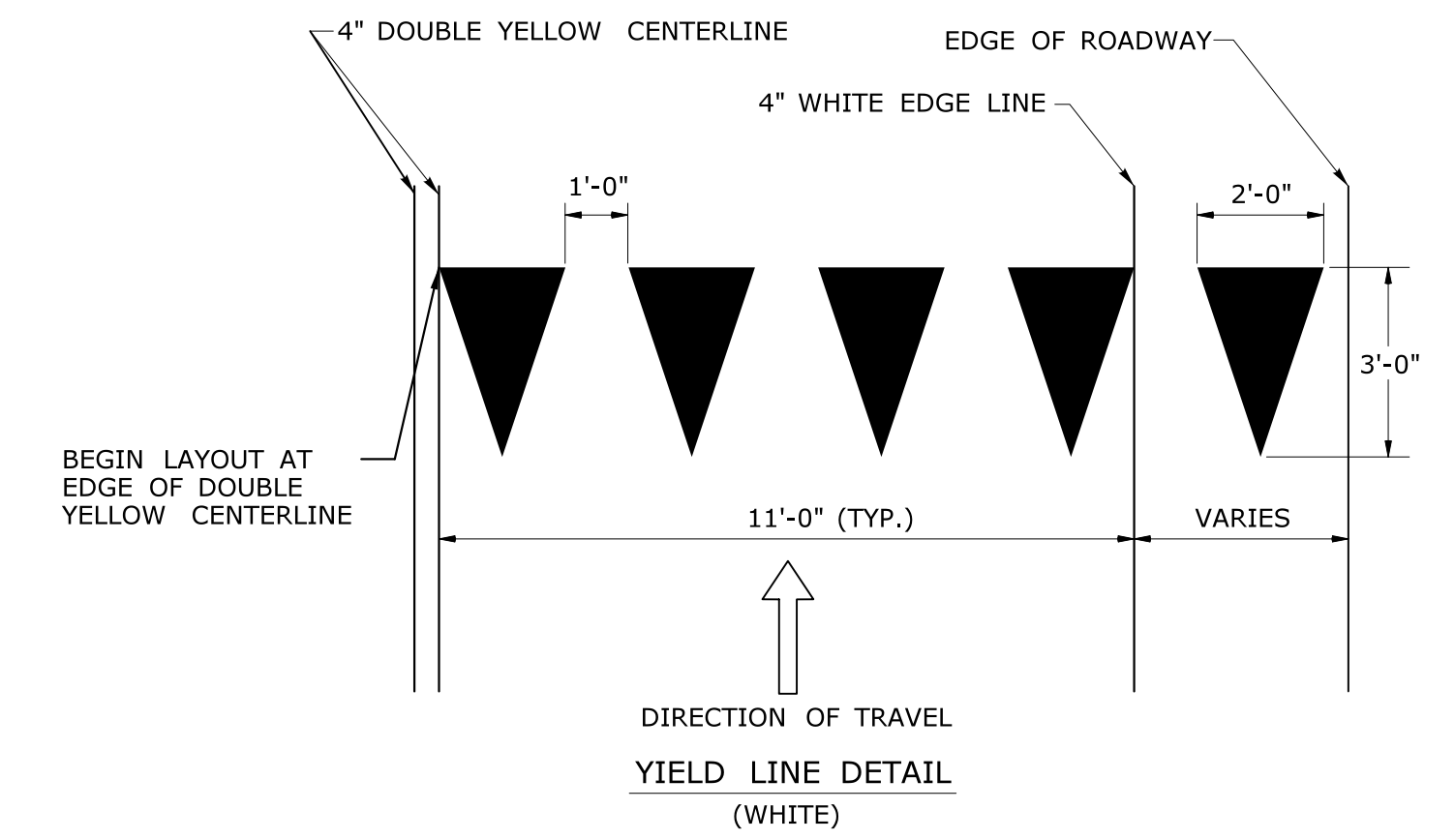
STANDARD SHEET TITLE:
METAL SIGN POSTS AND SIGN MOUNTING DETAILS

GUIDE SHEET NO.:
TR-1208_02



CROSS HATCHED ISLAND DETAIL
(YELLOW)

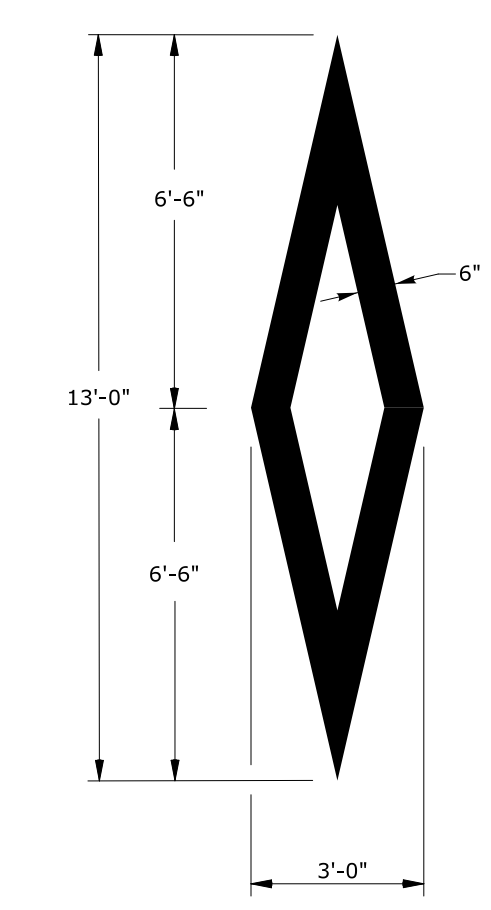
W IS TO BE 6" WHEN POSTED SPEED ≤ 45 MPH
W IS TO BE 12" WHEN POSTED SPEED > 45 MPH
CROSS HATCHED ISLANDS ARE TO BE INSTALLED WHERE CALLED FOR ON THE PLANS



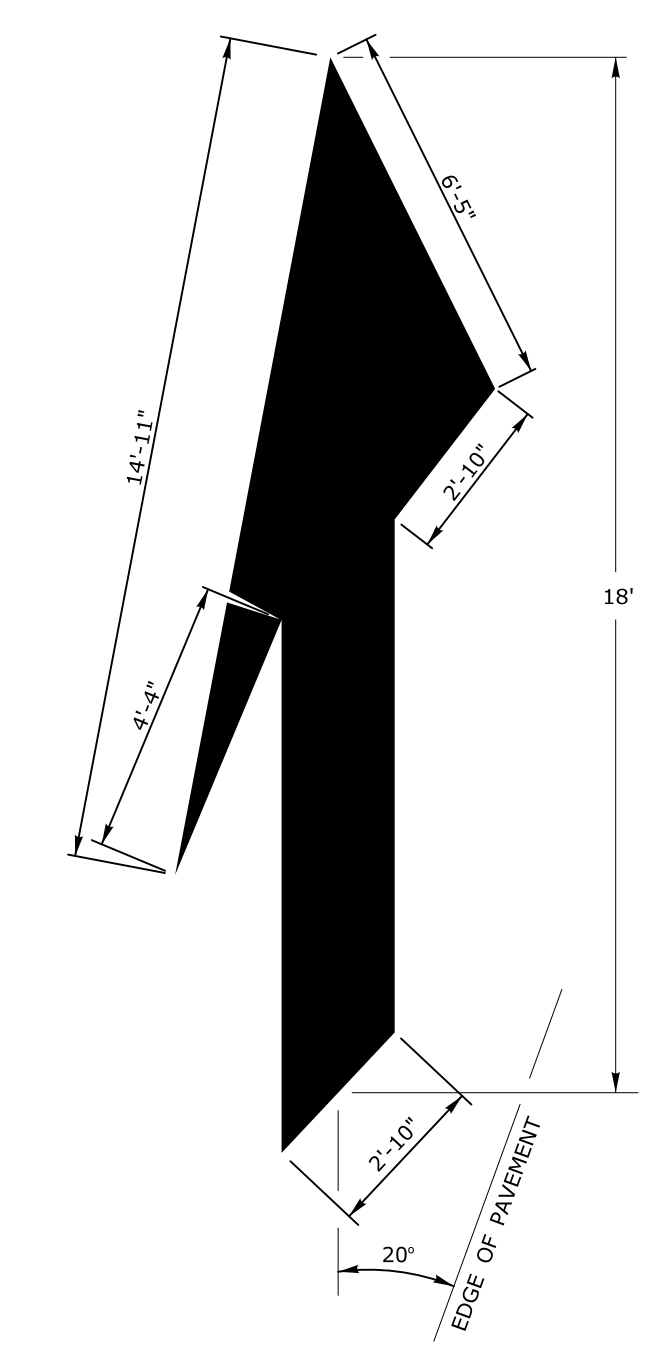
PAVEMENT ARROW DETAILS
(WHITE)

ARROWS SHALL BE CENTERED IN TRAVEL LANE

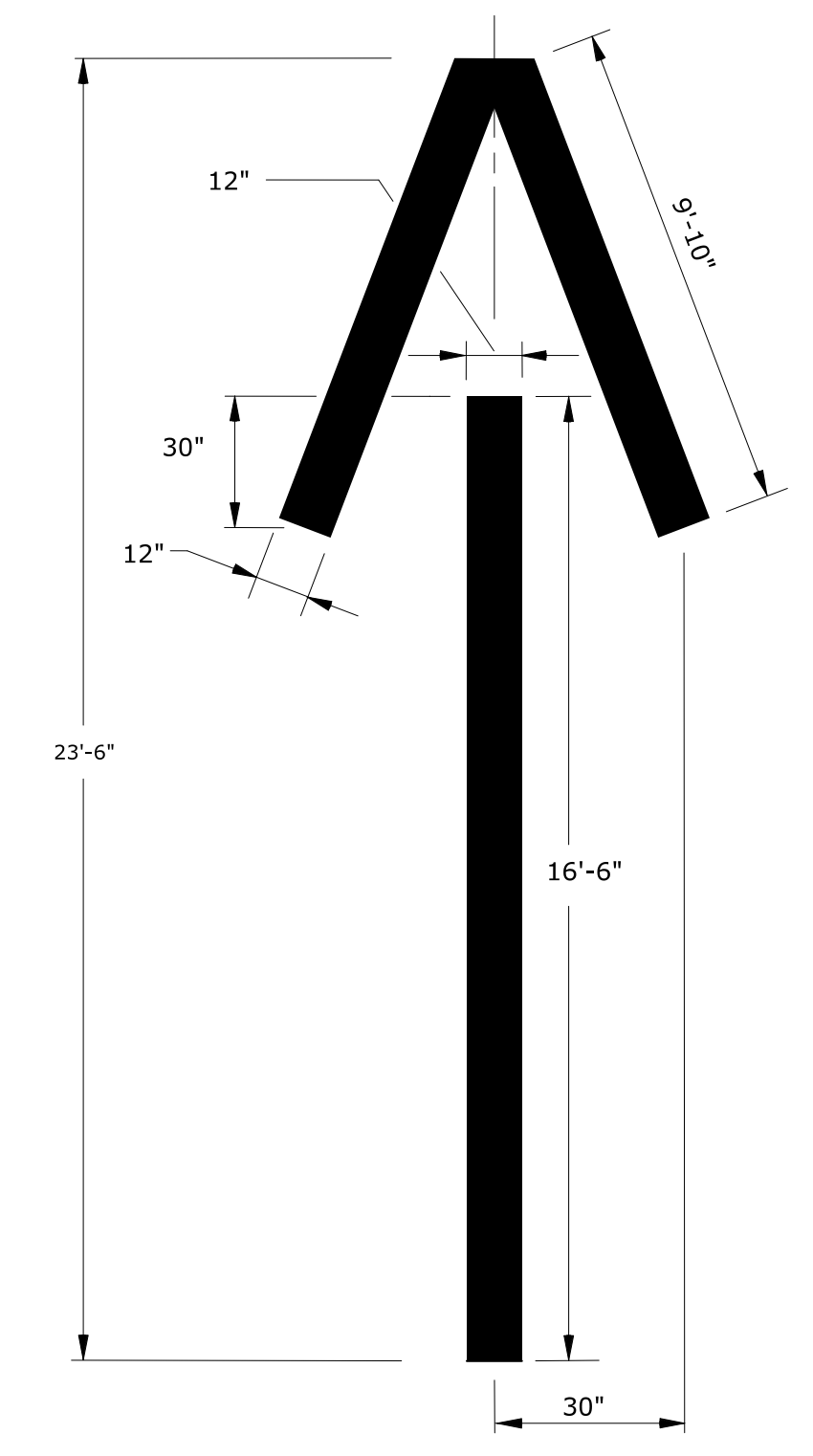
- NOTES :
1. AREA OF PAVEMENT MARKINGS AS INDICATED IS APPROXIMATE.
 2. RIGHT TURN PAVEMENT MARKING ARROWS ARE MIRROR IMAGE OF LEFT TURN PAVEMENT MARKING ARROWS.



WHITE PREFERENTIAL LANE SYMBOL
13.0 S.F.



WHITE LANE REDUCTION ARROW
41.8 S.F.



WHITE WRONG WAY PAVEMENT ARROW
36.2 S.F.

REV.	DATE	REVISION DESCRIPTION
1	8-2018	REMOVED ROUNDABOUT MARKINGS.

Plotted Date: 8/10/2018

NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

File name: TR-1210_04.dgn Model: CT_Civil_2D_Sheet

SUBMITTED BY: NAME/DATE/TIME:

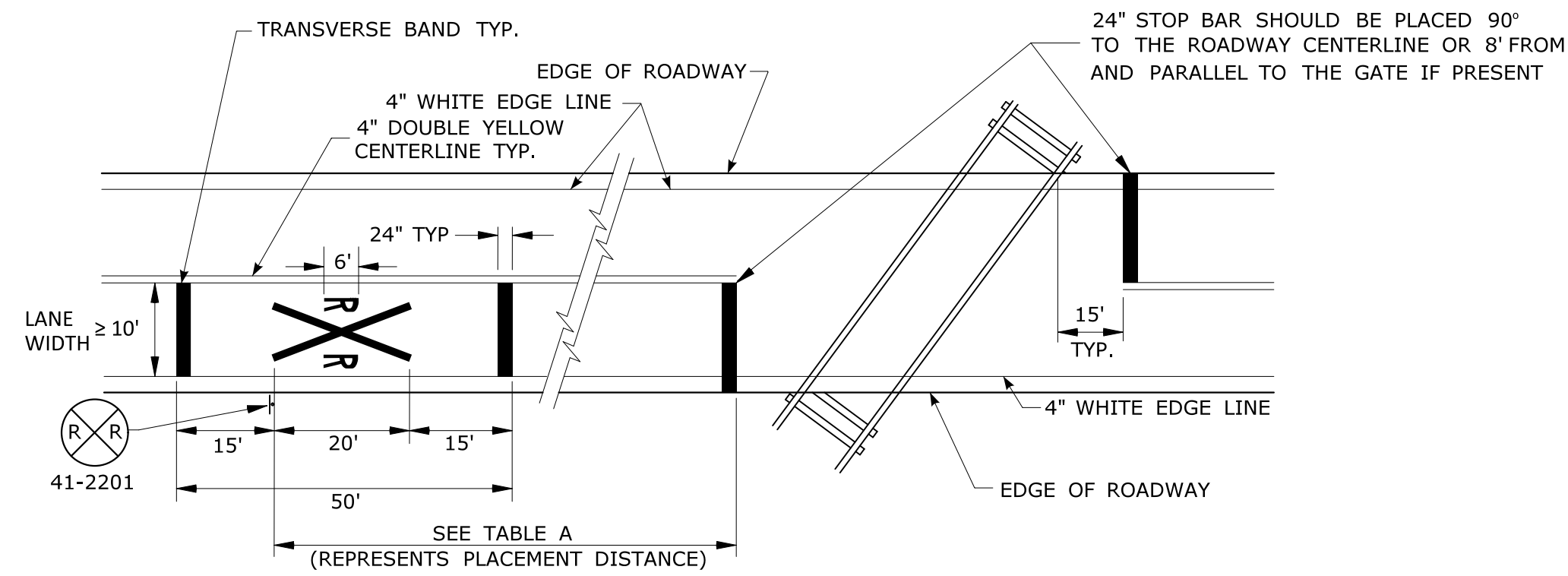
APPROVED BY: NAME/DATE/TIME:

CTDOT
STANDARD SHEET
OFFICE OF ENGINEERING

STANDARD SHEET TITLE:
PAVEMENT MARKING LINES AND SYMBOLS

STANDARD SHEET NO.:
TR-1210_04

TYPICAL RAILROAD GRADE CROSSING DETAIL (LANE WIDTH ≥ 10')



TYPICAL RAILROAD GRADE CROSSING DETAIL (LANE WIDTH < 10')

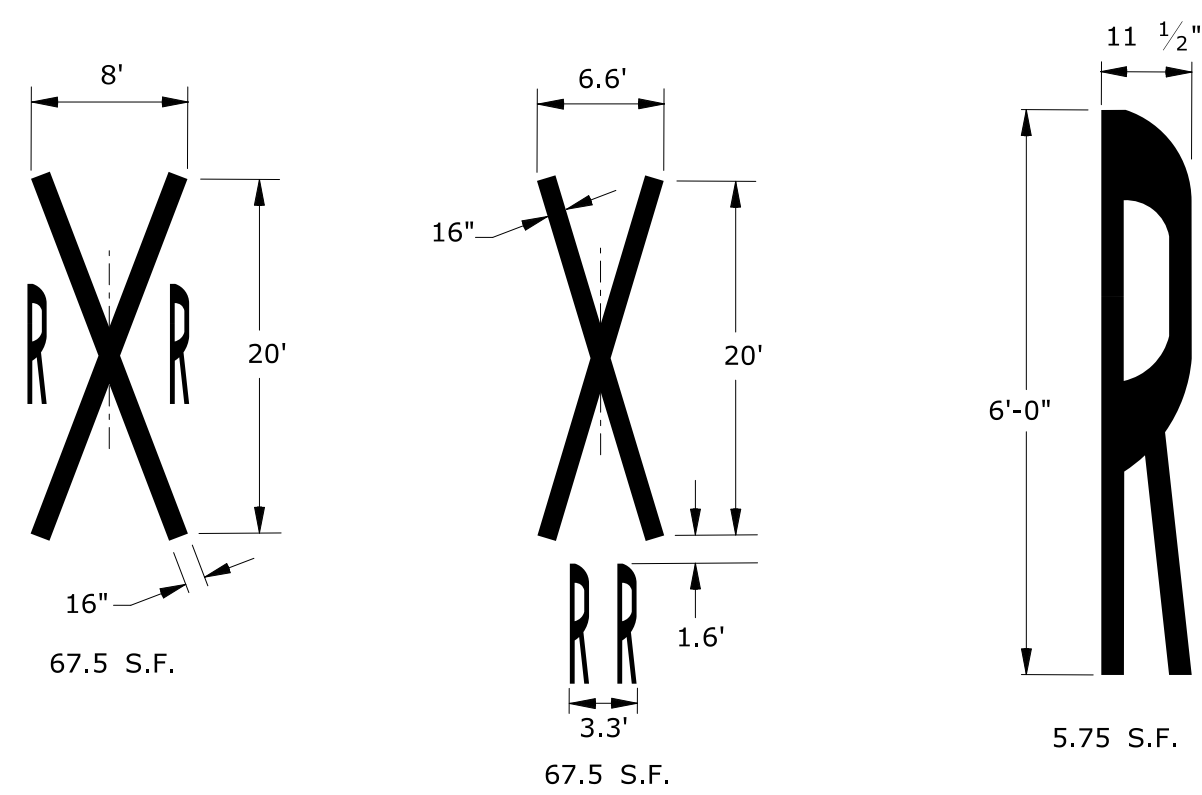
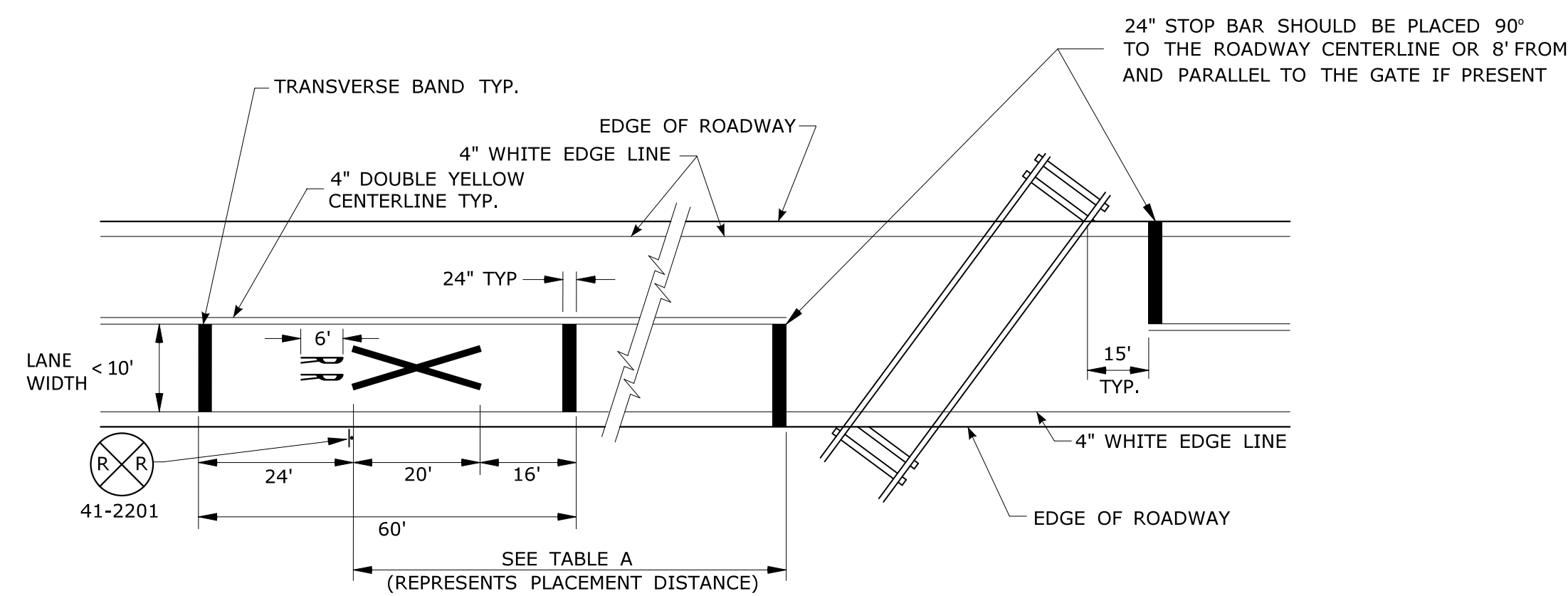


TABLE A	
POSTED OR 85 PERCENTILE SPEED M.P.H.	MINIMUM DISTANCE FT.
20	100
25	100
30	100
35	100
40	125
45	175
50	250
55	325
60	400
65	475

NOTES:

GENERAL:

- AREA OF PAVEMENT MARKING SYMBOLS AS INDICATED IS APPROXIMATE.
- REFER TO STANDARD SHEET TR-1210_04 FOR PAVEMENT MARKING LINE DETAILS.

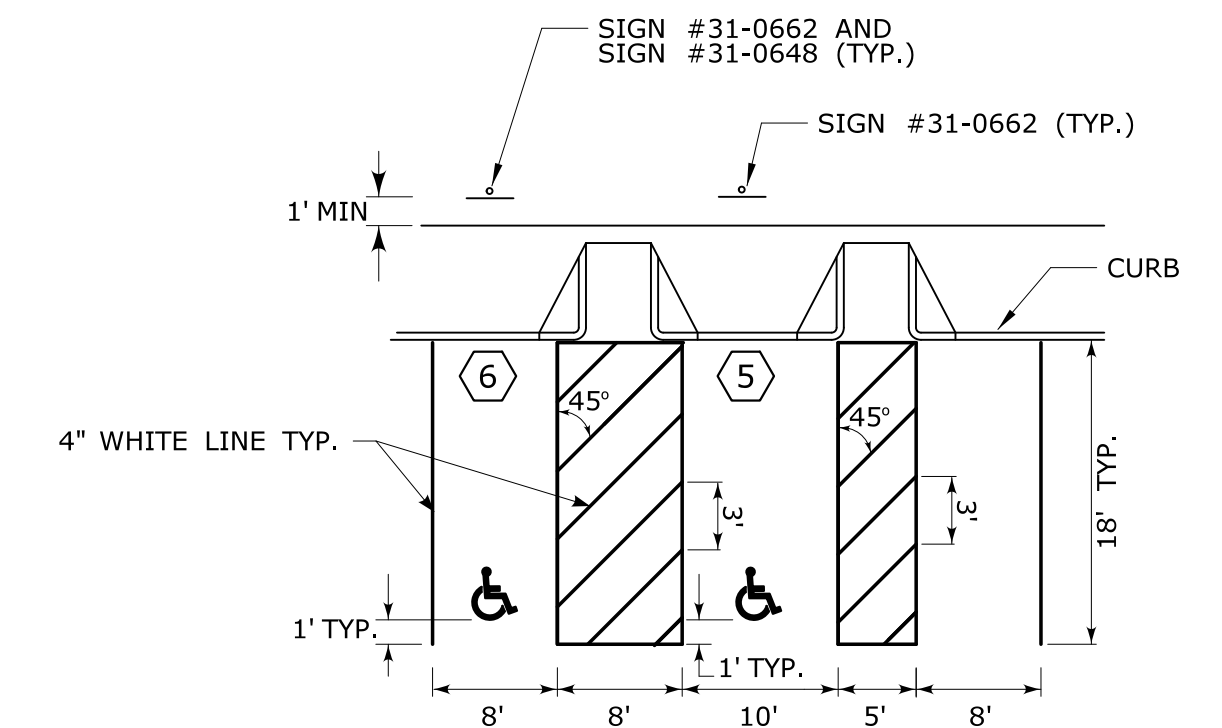
RAILROAD GRADE CROSSINGS:

- RAILROAD MARKINGS SHALL BE WHITE.
- ON MULTI-LANE ROADS THE TRANSVERSE BANDS SHOULD EXTEND ACROSS THE APPROACH LANES AND INDIVIDUAL R X R SYMBOLS SHOULD BE USED IN EACH APPROACH LANE.

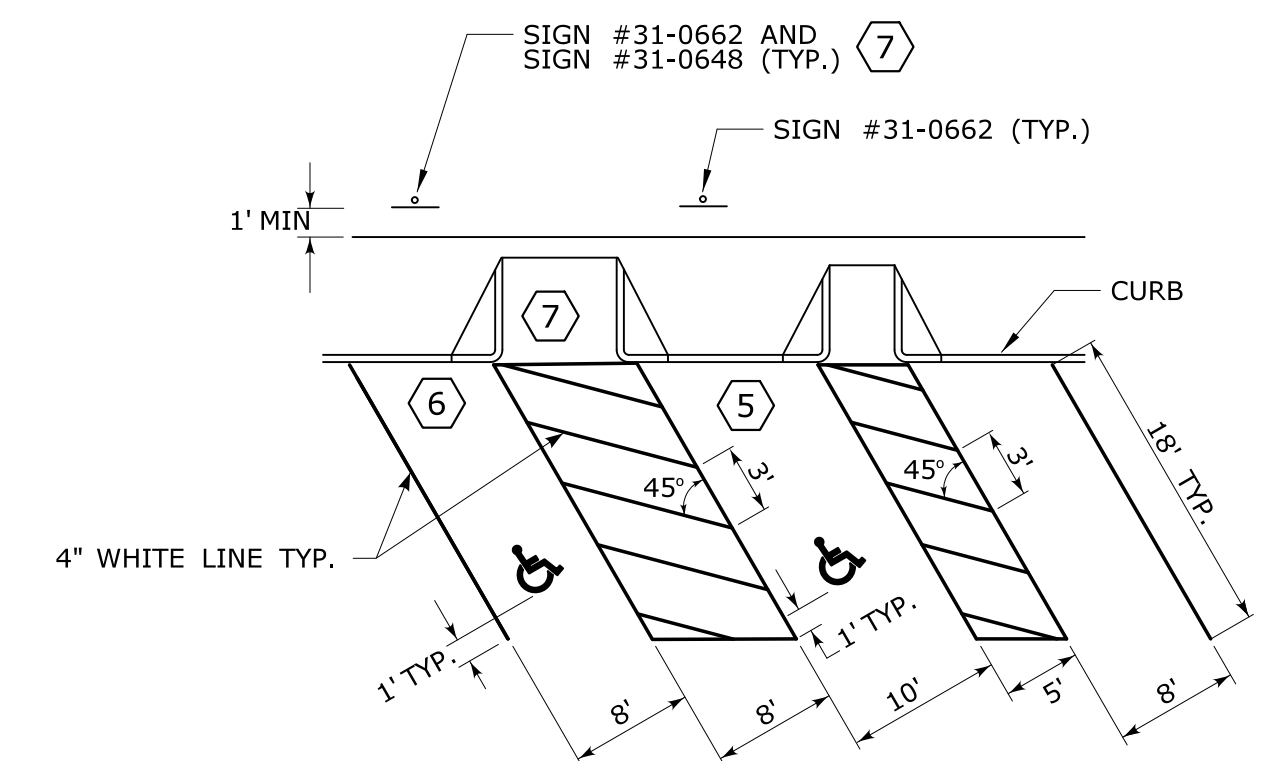
PARKING STALLS:

- AUTOMOBILE ACCESSIBLE PARKING SPACES SHALL BE 15' WIDE INCLUDING 5' OF CROSSHATCH.
- VAN ACCESSIBLE PARKING SPACES SHALL BE 16' WIDE INCLUDING 8' OF CROSSHATCH.
- ACCESS AISLES FOR ANGLED VAN PARKING SPACES SHALL BE LOCATED ON THE PASSENGER SIDE OF THE PARKING SPACE.
- CROSS HATCHED ACCESS AISLES SHALL NOT BE SHARED BETWEEN PARKING SPACES.

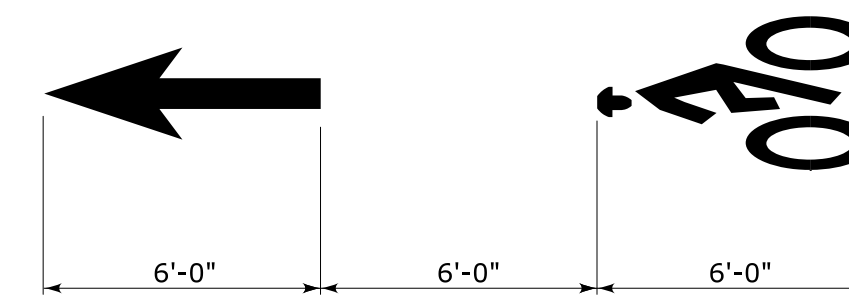
TYPICAL PERPENDICULAR PARKING STALLS DETAIL



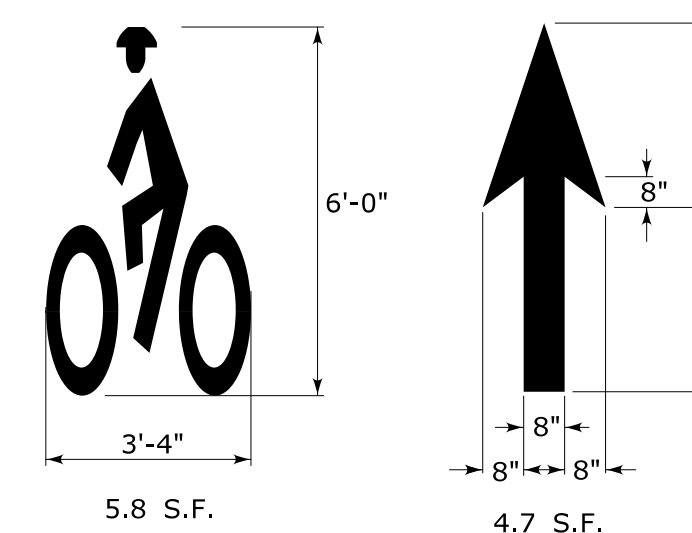
TYPICAL ANGLE PARKING STALLS DETAIL



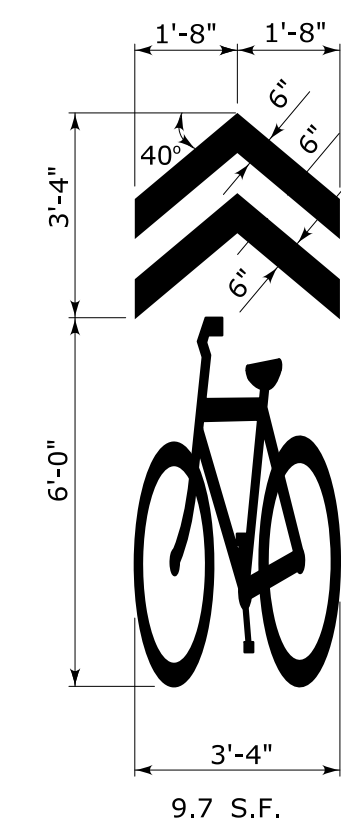
TYPICAL LONGITUDINAL SPACING



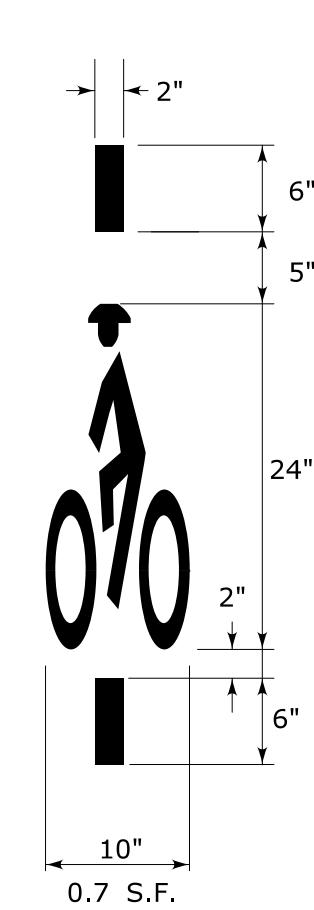
BICYCLE LANE SYMBOL MARKINGS



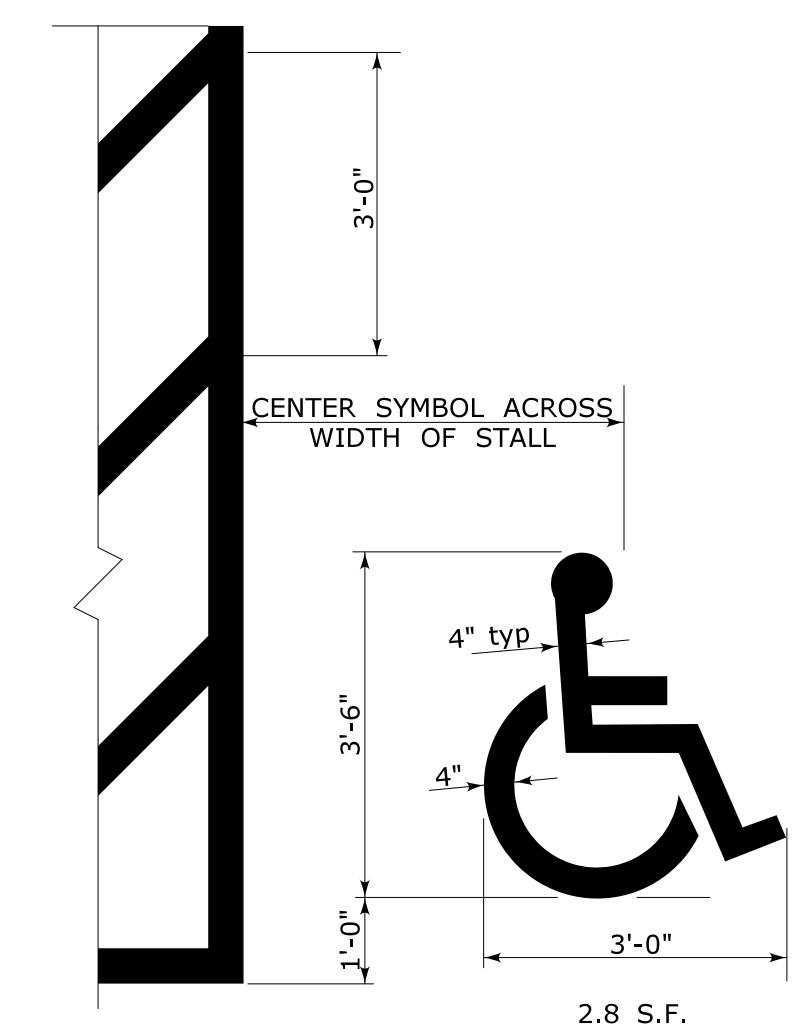
SHARED LANE SYMBOL MARKING



BICYCLE DETECTOR SYMBOL MARKING

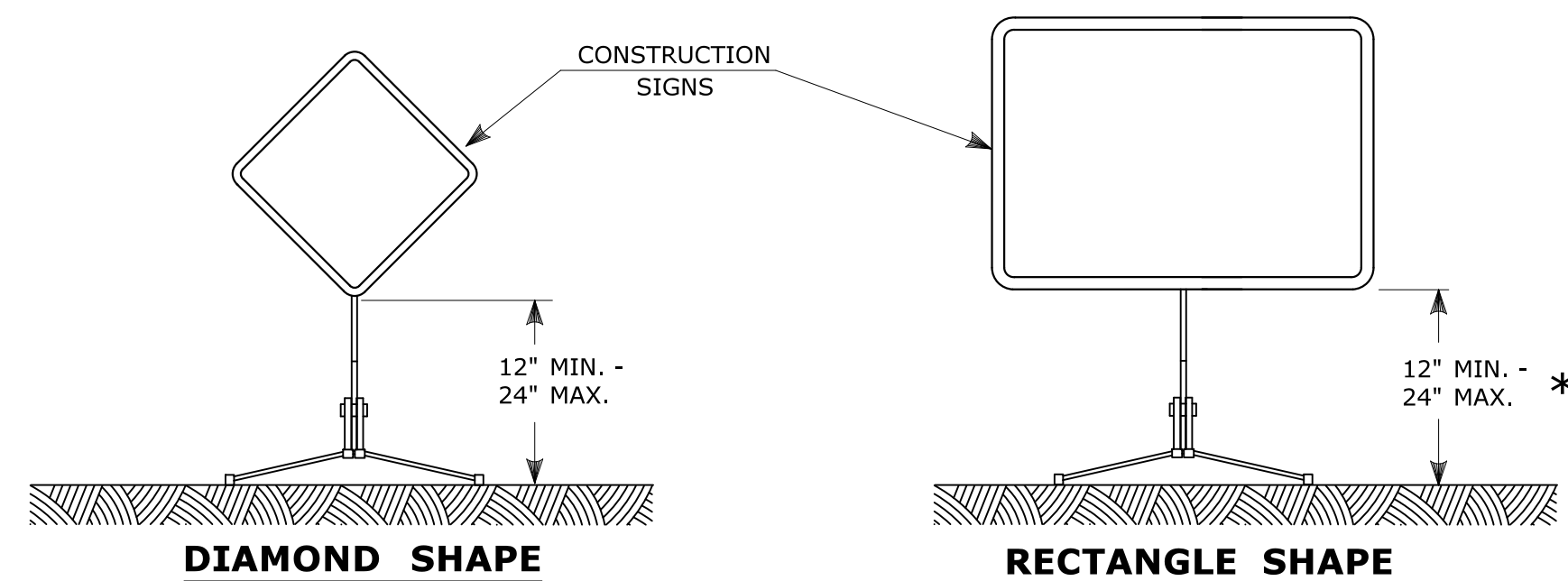


ACCESSIBLE PARKING SPACE SYMBOL



E5 - SERIES				G20 - SERIES				M4 - SERIES				R1 - SERIES				R9 & R11 - SERIES				W1 - SERIES				W3 - SERIES																																																																																																																																						
<p>COPY & BORDER - WHITE BACKGROUND - GREEN</p> <table border="1"> <thead> <tr> <th>AREA (SQ. FT)</th> <th>SIZE (INCHES)</th> <th>CONN. D.O.T. #</th> <th>POSTS</th> </tr> </thead> <tbody> <tr> <td>16.0</td> <td>48</td> <td>51-6147</td> <td>2</td> </tr> </tbody> </table>				AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	16.0	48	51-6147	2	<p>END ROAD WORK</p> <table border="1"> <thead> <tr> <th>AREA (SQ. FT)</th> <th>SIZE (INCHES)</th> <th>CONN. D.O.T. #</th> <th>POSTS</th> </tr> </thead> <tbody> <tr> <td>8.0</td> <td>48X24</td> <td>80-9612</td> <td>2</td> </tr> </tbody> </table>				AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	8.0	48X24	80-9612	2	<p>DETOUR</p> <table border="1"> <thead> <tr> <th>AREA (SQ. FT)</th> <th>SIZE (INCHES)</th> <th>CONN. D.O.T. #</th> <th>POSTS</th> </tr> </thead> <tbody> <tr> <td>2.0</td> <td>24X12</td> <td>80-9707</td> <td>1</td> </tr> </tbody> </table>				AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	2.0	24X12	80-9707	1	<p>STOP</p> <table border="1"> <thead> <tr> <th>AREA (SQ. FT)</th> <th>SIZE (INCHES)</th> <th>CONN. D.O.T. #</th> <th>POSTS</th> </tr> </thead> <tbody> <tr> <td>5.19</td> <td>30</td> <td>31-0552</td> <td>1</td> </tr> <tr> <td>13.30</td> <td>48</td> <td>31-0557</td> <td>2</td> </tr> </tbody> </table>				AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	5.19	30	31-0552	1	13.30	48	31-0557	2	<p>SIDEWALK CLOSED</p> <table border="1"> <thead> <tr> <th>AREA (SQ. FT)</th> <th>SIZE (INCHES)</th> <th>CONN. D.O.T. #</th> <th>POSTS</th> </tr> </thead> <tbody> <tr> <td>3.75</td> <td>30X18</td> <td>80-9076</td> <td>1</td> </tr> </tbody> </table>				AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	3.75	30X18	80-9076	1	<p>ROAD CLOSED 00 MILES AHEAD LOCAL TRAFFIC ONLY</p> <table border="1"> <thead> <tr> <th>AREA (SQ. FT)</th> <th>SIZE (INCHES)</th> <th>CONN. D.O.T. #</th> <th>POSTS</th> </tr> </thead> <tbody> <tr> <td>12.5</td> <td>60X30</td> <td>80-9077</td> <td>2</td> </tr> </tbody> </table>				AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	12.5	60X30	80-9077	2	<p>W1-4</p> <table border="1"> <thead> <tr> <th>AREA (SQ. FT)</th> <th>SIZE (INCHES)</th> <th>CONN. D.O.T. #</th> <th>POSTS</th> </tr> </thead> <tbody> <tr> <td>9.0</td> <td>36</td> <td>80-9432L</td> <td>1</td> </tr> <tr> <td>9.0</td> <td>36</td> <td>80-9431R</td> <td>1</td> </tr> <tr> <td>16.0</td> <td>48</td> <td>80-9452L</td> <td>2</td> </tr> <tr> <td>16.0</td> <td>48</td> <td>80-9451R</td> <td>2</td> </tr> </tbody> </table>				AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	9.0	36	80-9432L	1	9.0	36	80-9431R	1	16.0	48	80-9452L	2	16.0	48	80-9451R	2	<p>W3-1</p> <table border="1"> <thead> <tr> <th>AREA (SQ. FT)</th> <th>SIZE (INCHES)</th> <th>CONN. D.O.T. #</th> <th>POSTS</th> </tr> </thead> <tbody> <tr> <td>9.0</td> <td>36</td> <td>80-9050</td> <td>1</td> </tr> <tr> <td>16.0</td> <td>48</td> <td>80-9051</td> <td>2</td> </tr> </tbody> </table>				AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	9.0	36	80-9050	1	16.0	48	80-9051	2																																											
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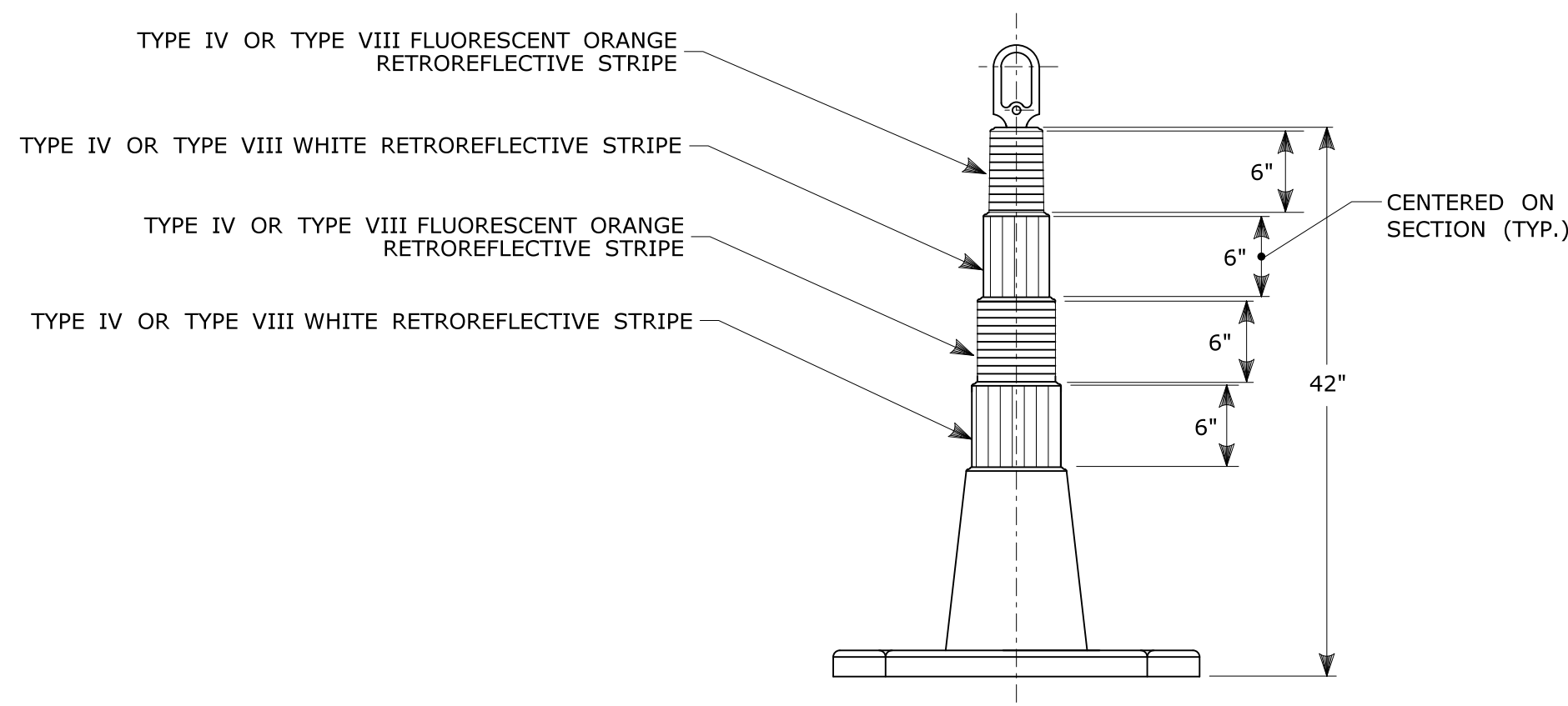


PORTABLE CONSTRUCTION SIGNS

NOTES FOR PORTABLE SIGN SUPPORTS:

- SIGNS AND THEIR PORTABLE SUPPORTS SHALL CONFORM TO THE REQUIREMENTS OF NCHRP REPORT 350 (TL-3) OR THE AASHTO MASH FOR CATEGORY 2 DEVICES AND THE LATEST EDITION OF THE MUTCD.
- MOUNTING HEIGHT OF SIGNS SHALL BE A MINIMUM OF 12" AND A MAXIMUM OF 24". SIGNS SHALL BE MOUNTED HIGHER AS NEEDED TO MEET FIELD CONDITIONS OR AS DIRECTED BY THE ENGINEER.
- THE ENGINEER RESERVES THE RIGHT TO REJECT ANY SUPPORT DEEMED UNSUITABLE FOR THE PURPOSE INTENDED.
- PORTABLE SIGN SUPPORTS SHALL BE STABILIZED IN A MANNER THAT WILL NOT AFFECT THEIR COMPLIANCE WITH NCHRP REPORT 350 (TL-3) OR THE AASHTO MASH FOR CATEGORY 2 DEVICES.
- PORTABLE CONSTRUCTION SIGN SUPPORTS SHOULD NOT BE USED FOR DURATION OF MORE THAN 3 DAYS EXCEPT FOR R9-8 THROUGH R9-11a SERIES, R11 SERIES, W1-6 THROUGH W1-8 SERIES, M4-10, AND E5-1. SEE STANDARD SHEET TR-1220.01 - "SIGNS FOR CONSTRUCTION AND PERMIT OPERATIONS" FOR SIGN DETAILS.

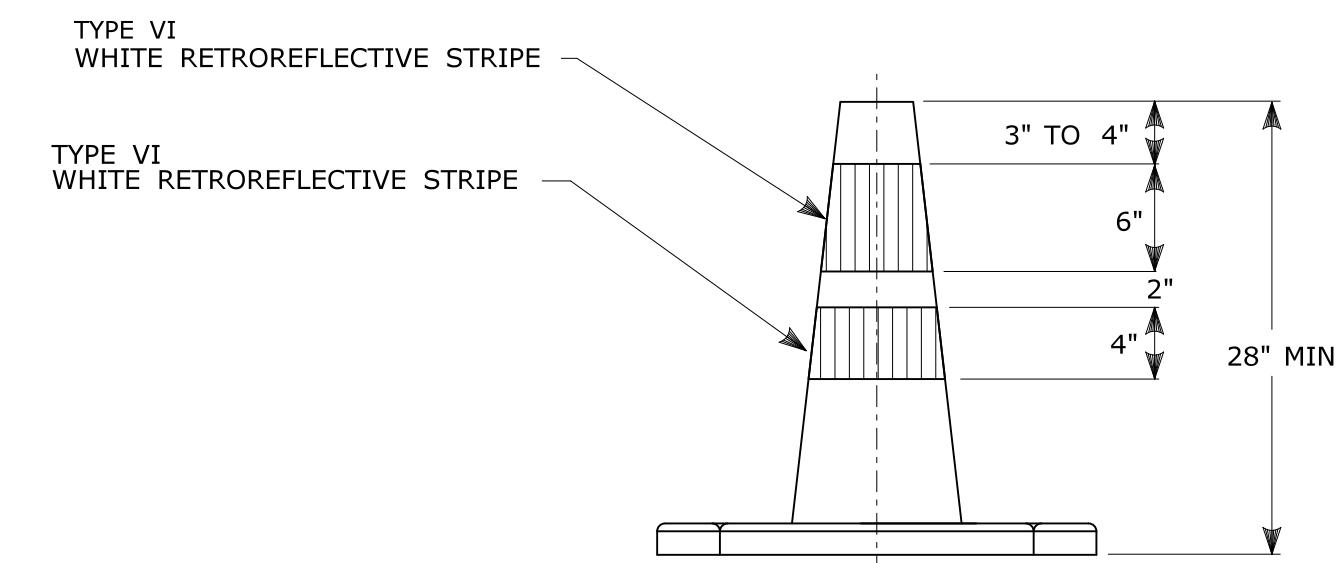
* FOR E5-1 (EXIT SIGNS) USE MIN 48".



42" TRAFFIC CONE

NOTES:

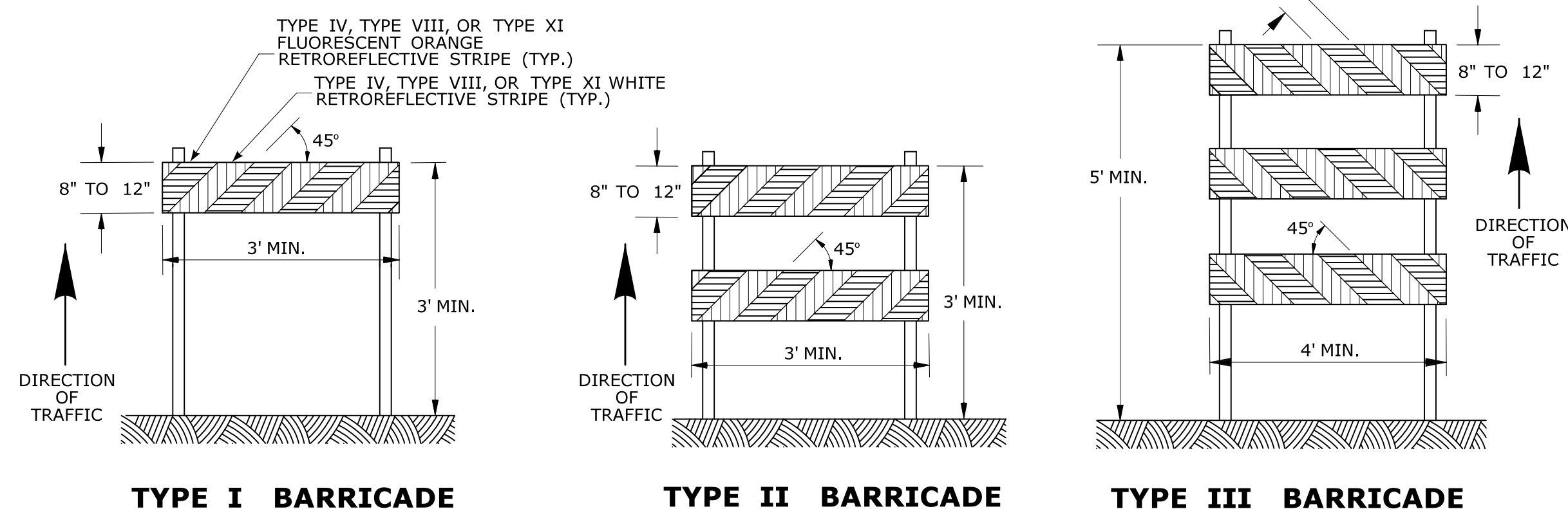
- TRAFFIC CONES SHALL CONFORM TO THE REQUIREMENTS OF NCHRP REPORT 350 (TL-3) OR THE AASHTO MASH FOR CATEGORY 1 DEVICES AND THE LATEST EDITION OF THE MUTCD.
- IF RUBBER CONES ARE USED, THEY SHALL HAVE INTERIOR RIBS FOR RIGIDITY.
- IF PLASTIC CONES ARE USED, THEY SHALL BE COLOR IMPREGNATED.
- THE ENGINEER RESERVES THE RIGHT TO REJECT ANY CONE DEEMED UNSUITABLE FOR THE PURPOSE INTENDED.
- THE ENTIRE AREA OF FLUORESCENT ORANGE AND WHITE STRIPES SHALL BE RETROREFLECTIVE SHEETING AS REQUIRED IN THE SPECIFICATIONS.
- THE SECTIONS OF CONES NOT COVERED WITH RETROREFLECTIVE STRIPES SHALL BE ORANGE.



TRAFFIC CONE

NOTES:

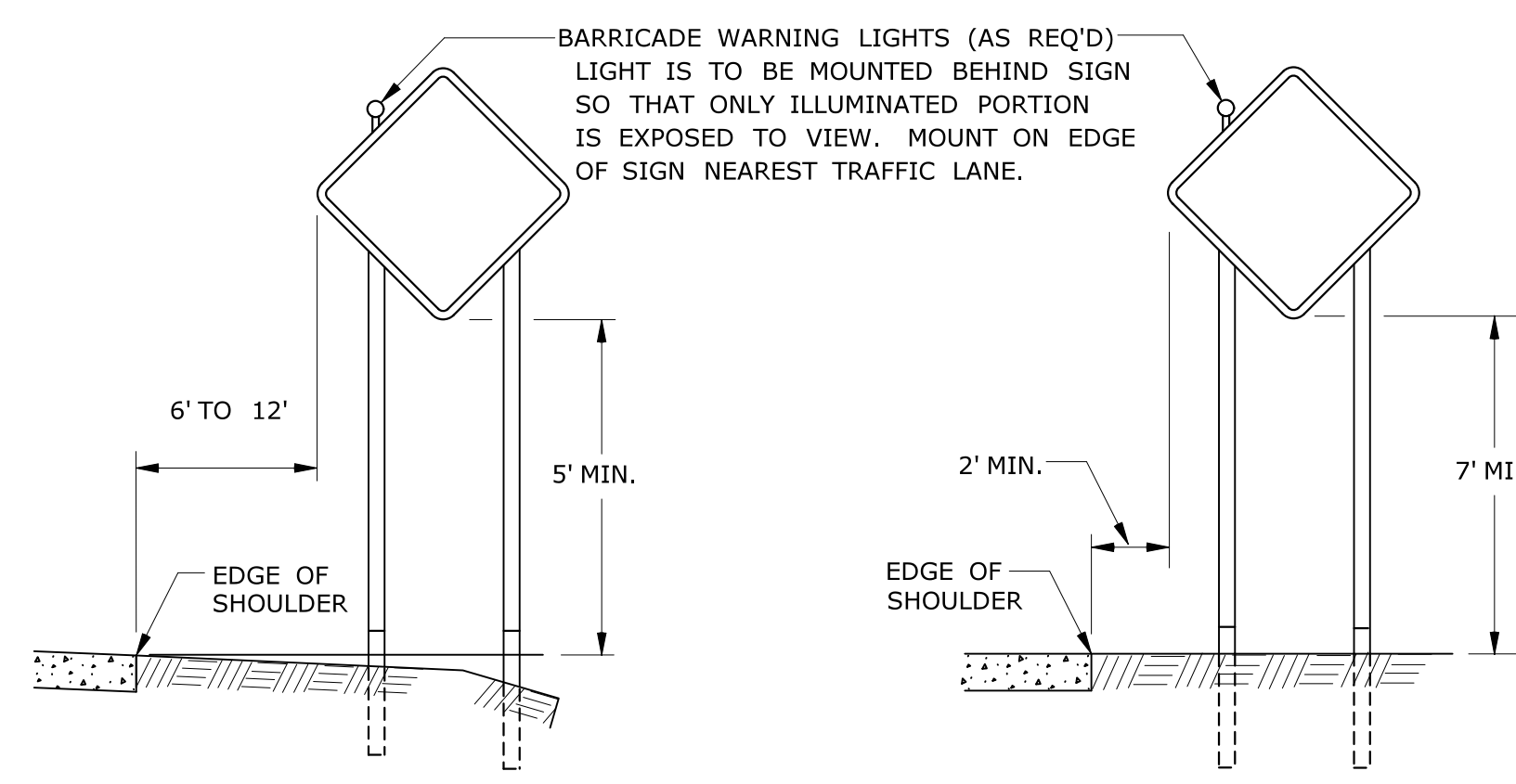
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- IF PLASTIC CONES ARE USED, THEY SHALL BE COLOR IMPREGNATED.
- THE ENGINEER RESERVES THE RIGHT TO REJECT ANY CONE DEEMED UNSUITABLE FOR THE PURPOSE INTENDED.
- THE ENTIRE AREA OF WHITE STRIPES SHALL BE RETROREFLECTIVE SHEETING AS REQUIRED IN THE SPECIFICATIONS.
- TRAFFIC CONES NOT USED AT NIGHT MAY UTILIZE TYPE III SHEETING.
- THE SECTIONS OF CONES NOT COVERED WITH RETROREFLECTIVE STRIPES SHALL BE ORANGE.



CONSTRUCTION BARRICADES

NOTES:

- CONSTRUCTION BARRICADES SHALL CONFORM TO THE REQUIREMENTS OF NCHRP REPORT 350 (TL-3) OR THE AASHTO MASH AND THE LATEST EDITION OF THE MUTCD.
- MARKINGS FOR BARRICADE RAILS SHALL BE ALTERNATE FLUORESCENT ORANGE AND WHITE STRIPES SLOPING DOWNWARD IN THE DIRECTION TRAFFIC IS TO PASS. 6" WIDE STRIPES SHALL BE USED.
- THE ENTIRE AREA OF FLUORESCENT ORANGE AND WHITE STRIPES SHALL BE RETROREFLECTIVE SHEETING AS REQUIRED IN THE SPECIFICATIONS. THE SIDES OF BARRICADES FACING TRAFFIC SHALL HAVE RETROREFLECTIVE RAIL FACES.
- THE ENGINEER RESERVES THE RIGHT TO REJECT ANY BARRICADE DEEMED UNSUITABLE FOR THE PURPOSE INTENDED.
- CORNERS OF BARRICADE RAILS SHALL BE ROUNDED.
- SIGNS MAY ONLY BE INSTALLED ON TYPE III BARRICADES AND SHALL BE PLACED SO AS TO COVER NO MORE THAN ONE BARRICADE RAIL.



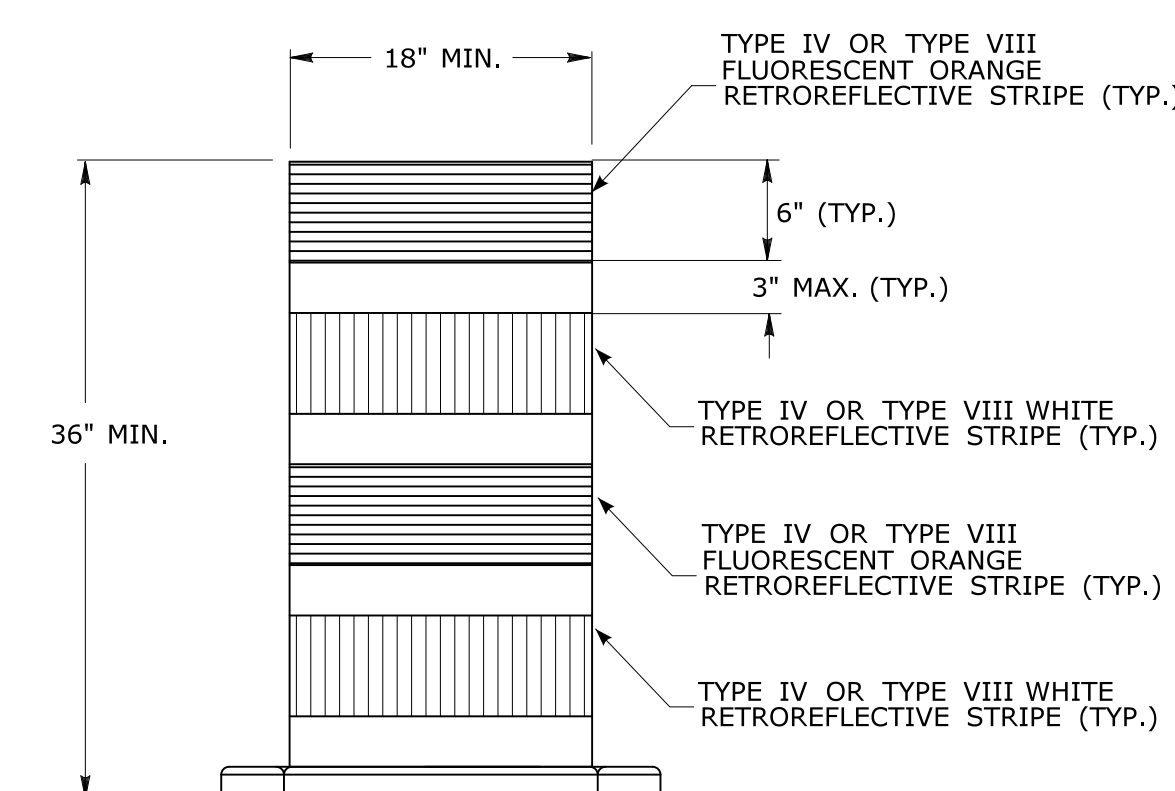
RURAL AREA

URBAN AREA

**PLACEMENT OF CONSTRUCTION SIGNS
TYPICAL LONG TERM INSTALLATION**

NOTES:

- SUPPORTS SHALL BE METAL SIGN POSTS AND HAVE BREAK-AWAY FEATURES.
- REFER TO STANDARD SHEETS:
 TR-1208.01 - "SIGN PLACEMENT AND RETROREFLECTIVE STRIP DETAILS."
 TR-1208.02 - "METAL SIGN POSTS AND SIGN MOUNTING DETAILS."


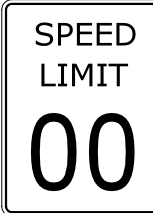





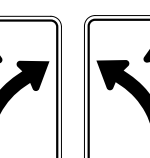

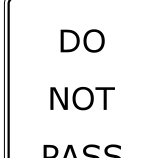
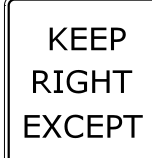
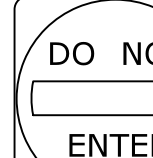

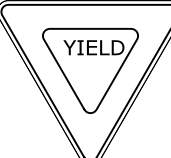
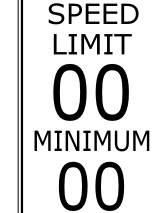



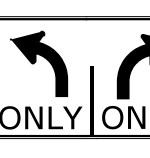


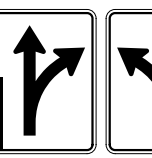

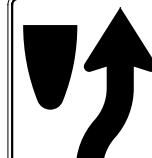
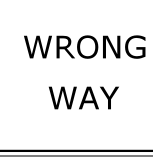
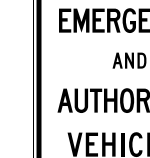






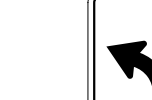













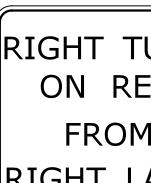


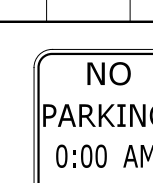


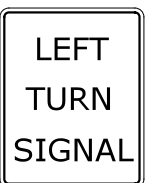
**TRAFFIC DRUM
FRONT VIEW**

NOTES:

- TRAFFIC DRUM SHALL CONFORM TO THE REQUIREMENTS OF NCHRP REPORT 350 (TL-3) OR THE AASHTO MASH FOR CATEGORY 1 DEVICES AND THE LATEST EDITION OF THE MUTCD.
- THE ENGINEER RESERVES THE RIGHT TO REJECT ANY DRUM DEEMED UNSUITABLE FOR THE PURPOSE INTENDED.
- THE ENTIRE AREA OF FLUORESCENT ORANGE AND WHITE STRIPES SHALL BE RETROREFLECTIVE SHEETING AS REQUIRED IN THE SPECIFICATIONS.
- THE SECTIONS OF DRUMS NOT COVERED WITH RETROREFLECTIVE STRIPES SHALL BE ORANGE.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.		<p>STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION</p>	SUBMITTED BY: _____ NAME/DATE/TIME: _____	<p>CTDOT STANDARD SHEET</p> <p>OFFICE OF ENGINEERING</p>	STANDARD SHEET TITLE:	STANDARD SHEET NO.:
3 8-2018 UPDATED SHEETING TYPE AND COLOR.	2 8-2015 UPDATED PER MUTCD AND FORM 816 JAN 2015 REVISION.		APPROVED BY: _____ NAME/DATE/TIME: _____		<p>CONSTRUCTION SIGN SUPPORTS AND CHANNELIZING DEVICES</p>	<p>TR-1220_02</p>
1 2-2011 MINOR REVISIONS.	REV. DATE REVISION DESCRIPTION	NOT TO SCALE	Plotted Date: 8/10/2018	Filename: TR-1220.02_3_2018.dgn	Model: TR-1220_02	

R1 - SERIES					R2 - SERIES					R3 - SERIES										R4 - SERIES					R5 - SERIES																																																																												
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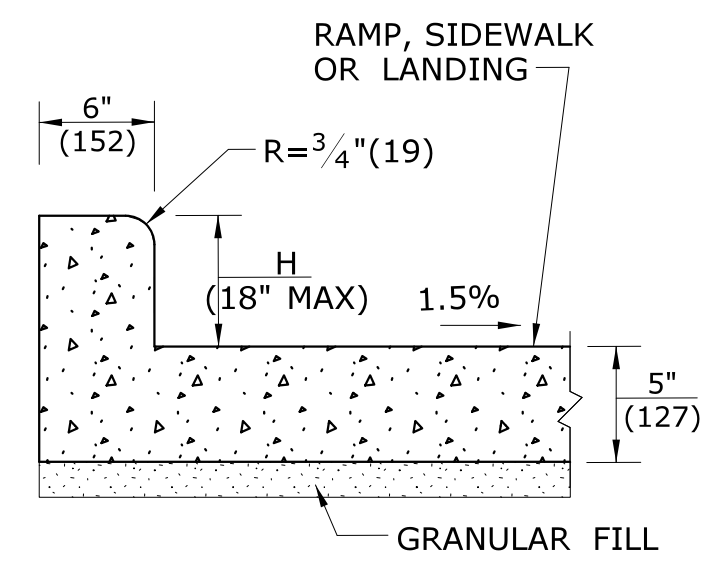
- NOTES:**
1. THE LEGEND "O.S.T.A." SHALL APPEAR ON ALL R- SERIES SIGNS EXCEPT WHEN SUFFIXED WITH THE LETTER "Z".
 2. FOR SPECIFIC SIGN DESIGN CONTACT CONN. D.O.T., DIVISION OF TRAFFIC ENGINEERING. FOR BOLT HOLE PATTERN REFER TO FHWA PUBLICATION "STANDARD HIGHWAY SIGNS". SIGNS OF DIFFERENT DIMENSIONS TO BE ERCTED ON THE SAME POSTS, OR SPAN/MAST ARM MOUNTED, MAY REQUIRE SPECIAL BOLT HOLE PATTERNS.
 3. POSTS - SEE STANDARD SHEET TR-1208-02 - "METAL SIGN POSTS AND SIGN MOUNTING DETAILS."
 4. POSTS SHALL BE 4 LBS./FT.
 5. SIGNS SHALL BE FABRICATED OF ONE CONTINUOUS PIECE OF SHEET ALUMINUM. SPLICING OF SHEET ALUMINUM WILL NOT BE ACCEPTED.
 6. FOR OVERHEAD MOUNTED SIGNS, SEE STANDARD SHEET TR-1114-01 - "BONDING AND UTILITY POLE ATTACHMENT DETAILS, SIGN HANGER, "Y" CLAMP DETAIL."
- COLORS:**
- BACKGROUND - WHITE - EXCEPT AS NOTED.
 LEGEND - BLACK - EXCEPT AS NOTED.
 ALL SIGNS TO USE TYPE IX RETROREFLECTIVE SHEETING.

D1 - SERIES	D3 - SERIES	D4 - SERIES	D5 - SERIES	D7 - SERIES	D9 - SERIES	D10 - SERIES	RECREATIONAL RS- SERIES	E5 - SERIES	I - SERIES	INCIDENT MANAGEMENT																																																																																																																																																																																				
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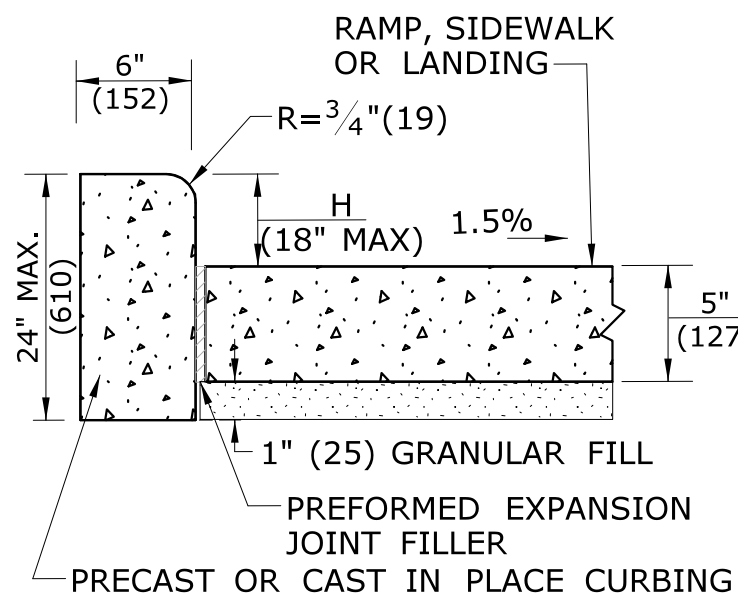
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<p>M1-4</p> <p>51-6615 INTERSTATE CONNECTICUT 00</p> <p>51-6635 INTERSTATE CONNECTICUT 000</p> <p>51-6644 VARIABLE: 1 or 2 DIGITS</p> <p>51-6645 VARIABLE: 3 DIGITS</p> <p>LEGEND - BLACK BACKGROUND - WHITE</p> <table border="1"> <thead> <tr> <th>AREA (SQ. FT.)</th> <th>SIZE (INCHES)</th> <th>CONN. D.O.T. #</th> <th>POSTS</th> <th>ALUM. THK.</th> </tr> </thead> <tbody> <tr> <td>4.00</td> <td>24X24</td> <td>51-6615</td> <td>1</td> <td>.080</td> </tr> <tr> <td>5.00</td> <td>30X24</td> <td>51-6644</td> <td>1</td> <td>.080</td> </tr> <tr> <td>9.00</td> <td>36X36</td> <td>51-6635</td> <td>2</td> <td>.080</td> </tr> <tr> <td>11.25</td> <td>45X36</td> <td>51-6645</td> <td>2</td> <td>.100</td> </tr> </tbody> </table>	AREA (SQ. FT.)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.	4.00	24X24	51-6615	1	.080	5.00	30X24	51-6644	1	.080	9.00	36X36	51-6635	2	.080	11.25	45X36	51-6645	2	.100	<p>M2-1</p> <p>JCT</p> <table border="1"> <thead> <tr> <th>AREA (SQ. FT.)</th> <th>SIZE (INCHES)</th> <th>CONN. D.O.T. #</th> <th>COLOR</th> <th>ALUM. THK.</th> </tr> </thead> <tbody> <tr> <td>2.19</td> <td>21X15</td> <td>51-6640</td> <td>(1)</td> <td>.080</td> </tr> <tr> <td>2.19</td> <td>21X15</td> <td>51-6610</td> <td>(2)</td> <td>.080</td> </tr> </tbody> </table>	AREA (SQ. FT.)	SIZE (INCHES)	CONN. D.O.T. #	COLOR	ALUM. THK.	2.19	21X15	51-6640	(1)	.080	2.19	21X15	51-6610	(2)	.080	<p>M3-2</p> <p>EAST</p> <table border="1"> <thead> <tr> <th>AREA (SQ. FT.)</th> <th>SIZE (INCHES)</th> <th>CONN. D.O.T. #</th> <th>COLOR</th> <th>ALUM. THK.</th> </tr> </thead> <tbody> <tr> <td>2.00</td> <td>24X12</td> <td>51-6652</td> <td>(1)</td> <td>.080</td> </tr> <tr> <td>2.00</td> <td>24X12</td> <td>51-6612</td> <td>(2)</td> <td>.080</td> </tr> <tr> <td>4.50</td> <td>36X18</td> <td>51-6656</td> <td>(1)</td> <td>.080</td> </tr> <tr> <td>4.50</td> <td>36X18</td> <td>51-6626</td> <td>(2)</td> <td>.080</td> </tr> </tbody> </table>	AREA (SQ. FT.)	SIZE (INCHES)	CONN. D.O.T. #	COLOR	ALUM. THK.	2.00	24X12	51-6652	(1)	.080	2.00	24X12	51-6612	(2)	.080	4.50	36X18	51-6656	(1)	.080	4.50	36X18	51-6626	(2)	.080	<p>M3-3</p> <p>SOUTH</p> <table border="1"> <thead> <tr> <th>AREA (SQ. FT.)</th> <th>SIZE (INCHES)</th> <th>CONN. D.O.T. #</th> <th>COLOR</th> <th>ALUM. THK.</th> </tr> </thead> <tbody> <tr> <td>2.00</td> <td>24X12</td> <td>51-6653</td> <td>(1)</td> <td>.080</td> </tr> <tr> <td>2.00</td> <td>24X12</td> <td>51-6613</td> <td>(2)</td> <td>.080</td> </tr> <tr> <td>4.50</td> <td>36X18</td> <td>51-6657</td> <td>(1)</td> <td>.080</td> </tr> <tr> <td>4.50</td> <td>36X18</td> <td>51-6627</td> <td>(2)</td> <td>.080</td> </tr> </tbody> </table>	AREA (SQ. FT.)	SIZE (INCHES)	CONN. D.O.T. #	COLOR	ALUM. THK.	2.00	24X12	51-6653	(1)	.080	2.00	24X12	51-6613	(2)	.080	4.50	36X18	51-6657	(1)	.080	4.50	36X18	51-6627	(2)	.080	<p>M5-2</p> <p>51-2692 51-2632</p> <p>51-2693 51-2633</p> <table border="1"> <thead> <tr> <th>AREA (SQ. FT.)</th> <th>SIZE (INCHES)</th> <th>CONN. D.O.T. #</th> <th>COLOR</th> <th>ALUM. THK.</th> </tr> </thead> <tbody> <tr> <td>2.19</td> <td>21X15</td> <td>51-2692</td> <td>(1)</td> <td>.080</td> </tr> <tr> <td>2.19</td> <td>21X15</td> <td>51-2693</td> <td>(1)</td> <td>.080</td> </tr> <tr> <td>2.19</td> <td>21X15</td> <td>51-2632</td> <td>(2)</td> <td>.080</td> </tr> <tr> <td>2.19</td> <td>21X15</td> <td>51-2633</td> <td>(2)</td> <td>.080</td> </tr> </tbody> </table>	AREA (SQ. FT.)	SIZE (INCHES)	CONN. D.O.T. #	COLOR	ALUM. THK.	2.19	21X15	51-2692	(1)	.080	2.19	21X15	51-2693	(1)	.080	2.19	21X15	51-2632	(2)	.080	2.19	21X15	51-2633	(2)	.080	<p>M6-2</p> <p>51-2688 51-2628</p> <p>51-2689 51-2629</p> <p>51-2690 51-2630</p> <table border="1"> <thead> <tr> <th>AREA (SQ. FT.)</th> <th>SIZE (INCHES)</th> <th>CONN. D.O.T. #</th> <th>COLOR</th> <th>ALUM. THK.</th> </tr> </thead> <tbody> <tr> <td>2.19</td> <td>21X15</td> <td>51-2688</td> <td>(1)</td> <td>.080</td> </tr> <tr> <td>2.19</td> <td>21X15</td> <td>51-2689</td> <td>(1)</td> <td>.080</td> </tr> <tr> <td>2.19</td> <td>21X15</td> <td>51-2628</td> <td>(2)</td> <td>.080</td> </tr> <tr> <td>2.19</td> <td>21X15</td> <td>51-2629</td> <td>(2)</td> <td>.080</td> </tr> <tr> <td>4.89</td> <td>32X22</td> <td>51-2609</td> <td>(2)</td> <td>.080</td> </tr> </tbody> </table>	AREA (SQ. FT.)	SIZE (INCHES)	CONN. D.O.T. #	COLOR	ALUM. THK.	2.19	21X15	51-2688	(1)	.080	2.19	21X15	51-2689	(1)	.080	2.19	21X15	51-2628	(2)	.080	2.19	21X15	51-2629	(2)	.080	4.89	32X22	51-2609	(2)	.080	<p>M6-3</p> <table border="1"> <thead> <tr> <th>AREA (SQ. FT.)</th> <th>SIZE (INCHES)</th> <th>CONN. D.O.T. #</th> <th>COLOR</th> <th>ALUM. THK.</th> </tr> </thead> <tbody> <tr> <td>2.19</td> <td>21X15</td> <td>51-2685</td> <td>(1)</td> <td>.080</td> </tr> <tr> <td>2.19</td> <td>21X15</td> <td>51-2625</td> <td>(2)</td> <td>.080</td> </tr> </tbody> </table>	AREA (SQ. FT.)	SIZE (INCHES)	CONN. D.O.T. #	COLOR	ALUM. THK.	2.19	21X15	51-2685	(1)	.080	2.19	21X15	51-2625	(2)	.080	
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NOTES:

- FOR SPECIFIC SIGN DESIGN CONTACT CONN. D.O.T., DIV

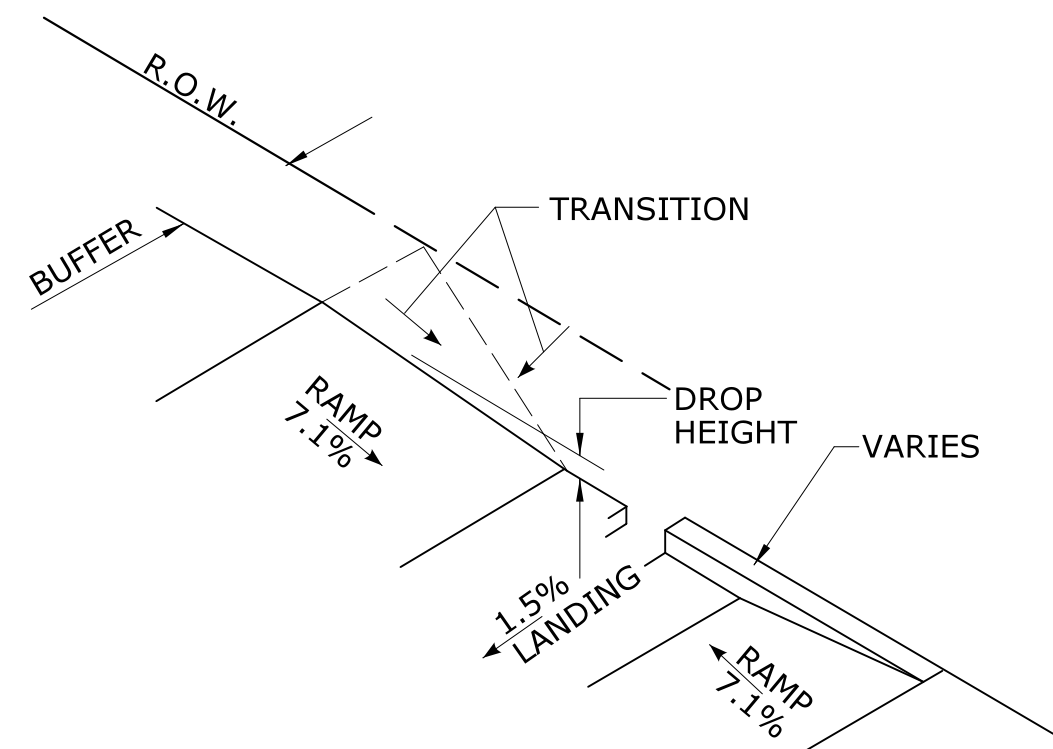


MONOLITHIC CAST CURB

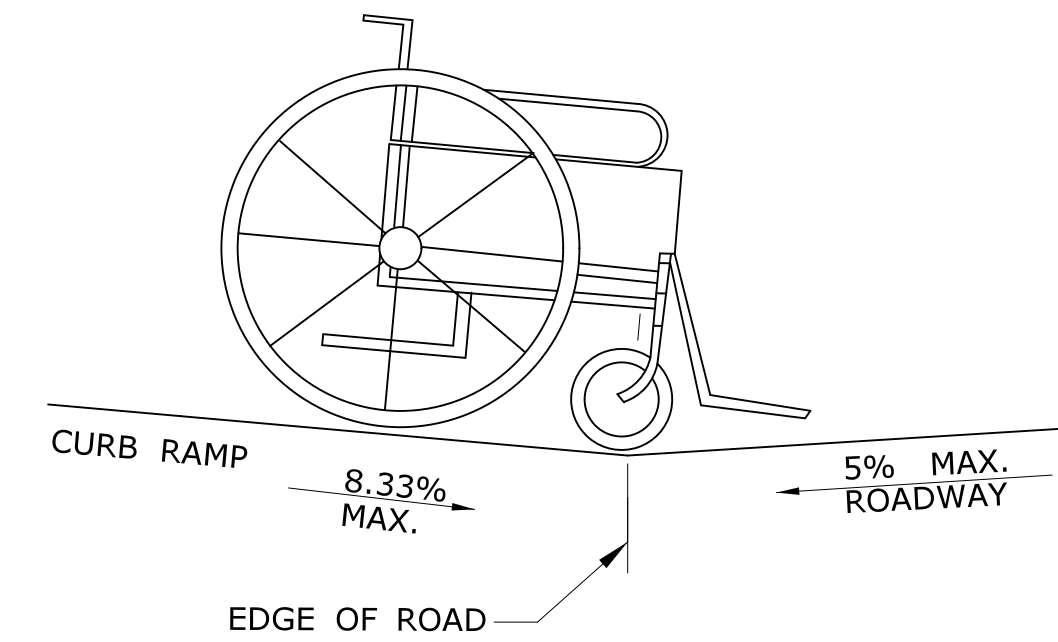


SEPARATELY CAST CURB

SIDEWALK CURB OPTIONS AT BACK OF SIDEWALK



BACK OF SIDEWALK CURB OR BUFFER TRANSITION

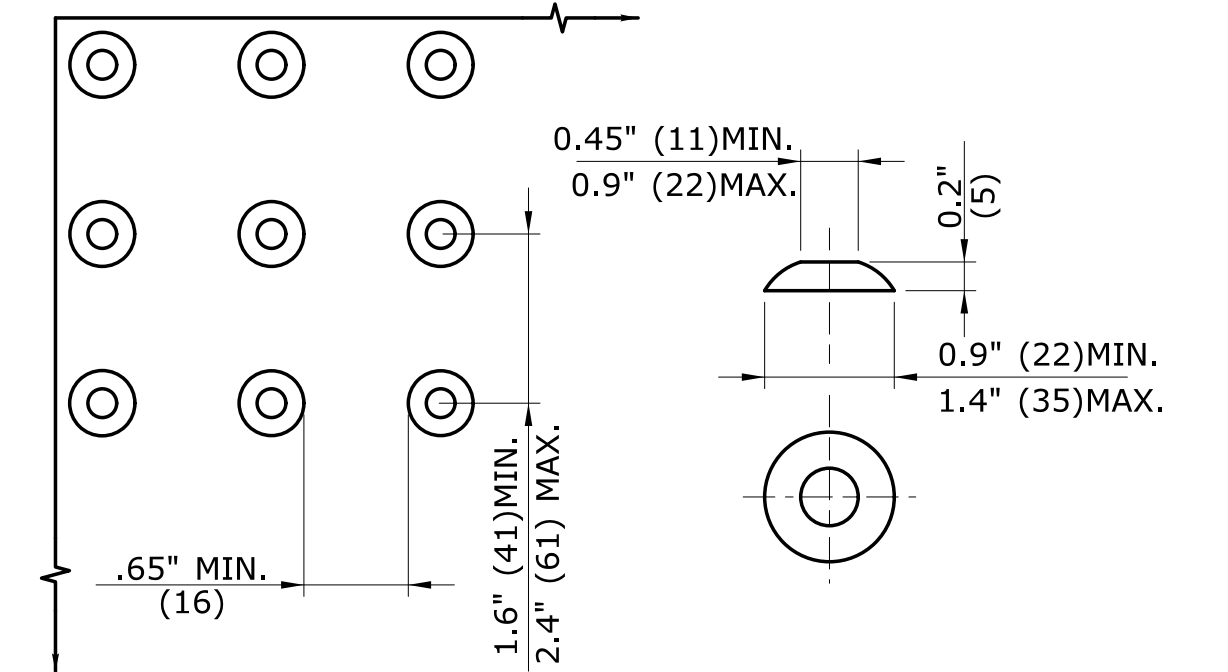


**DETAIL 1
SEE GRADE CHANGE AT ROADWAY INTERFACE**

SEE NOTE 1 SHEET HW-921 02a

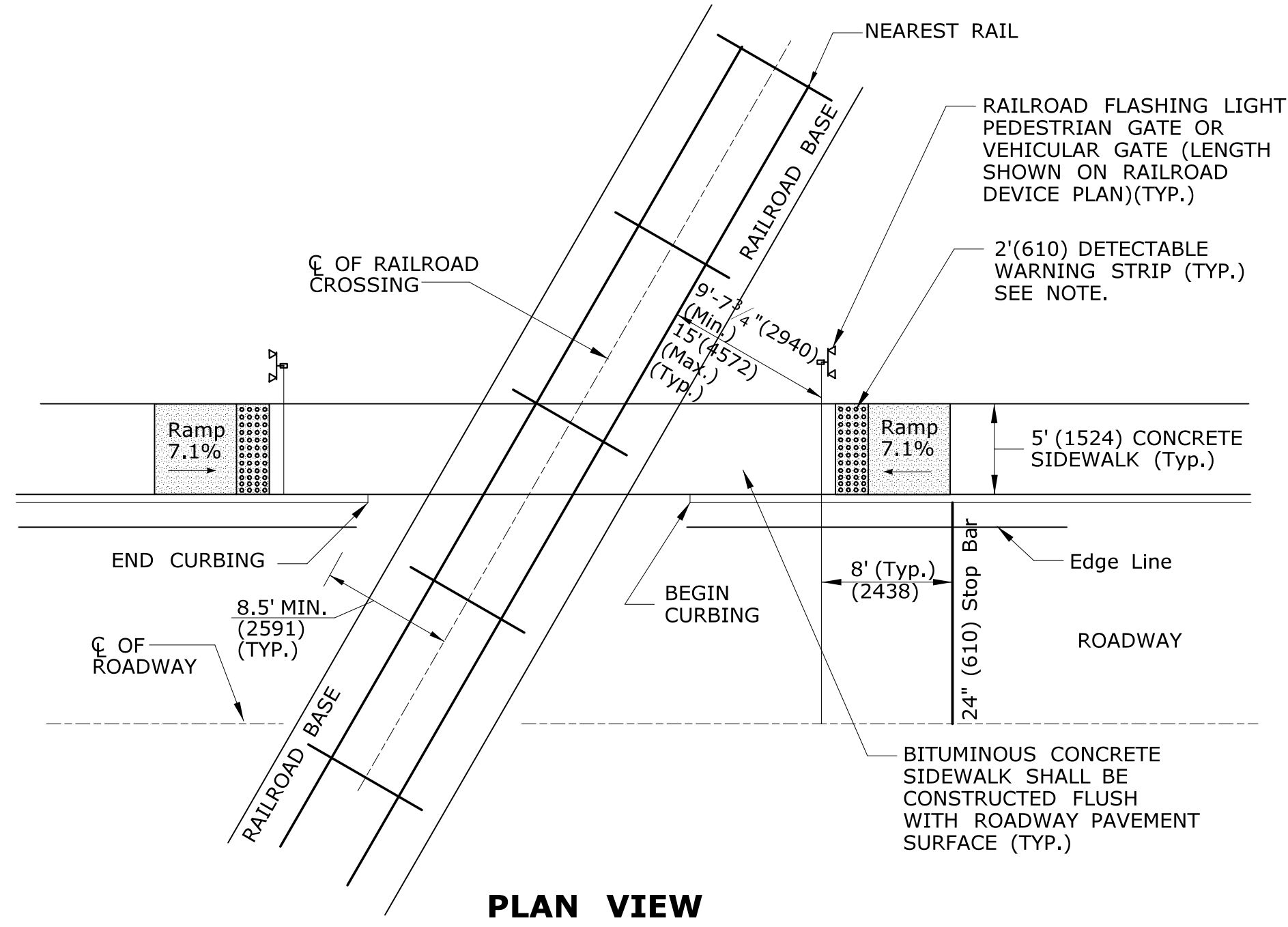
GENERAL NOTES:

1. RAMPED MEDIANS SHALL HAVE A CURB RAMP AT EITHER END AND LEVEL LANDING A MINIMUM OF 5' x 5' (1.5m x 1.5m) IN BETWEEN. CUT-THROUGH MEDIANS SHALL BE A MINIMUM OF 6' (1.8m) LONG AND 5' (1.5m) WIDE. FOR ALL MEDIANS, CUT-THROUGH OR RAMPED, A 2' (610) STRIP OF DETECTABLE WARNINGS SHALL BE INSTALLED AT THE ENTRANCE AND EXIT.
2. SEE GENERAL NOTES ON SHEET 1.

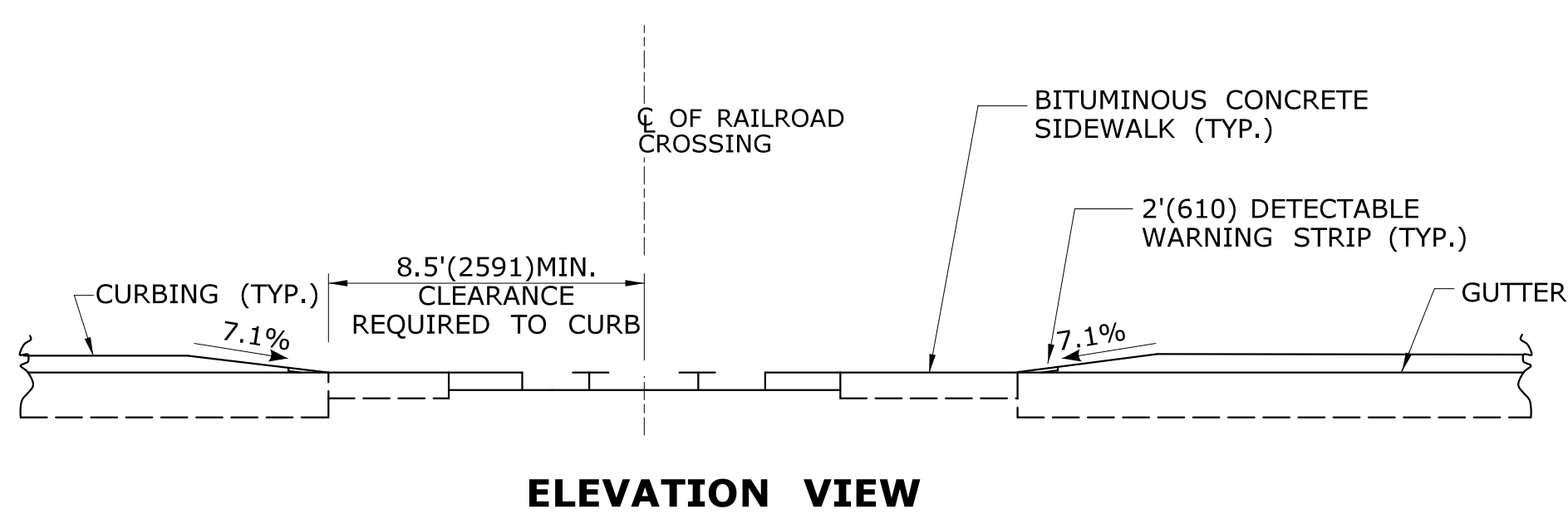


DOME SPACING DOME SECTION

STANDARD DOME ON DETECTABLE WARNING TILES



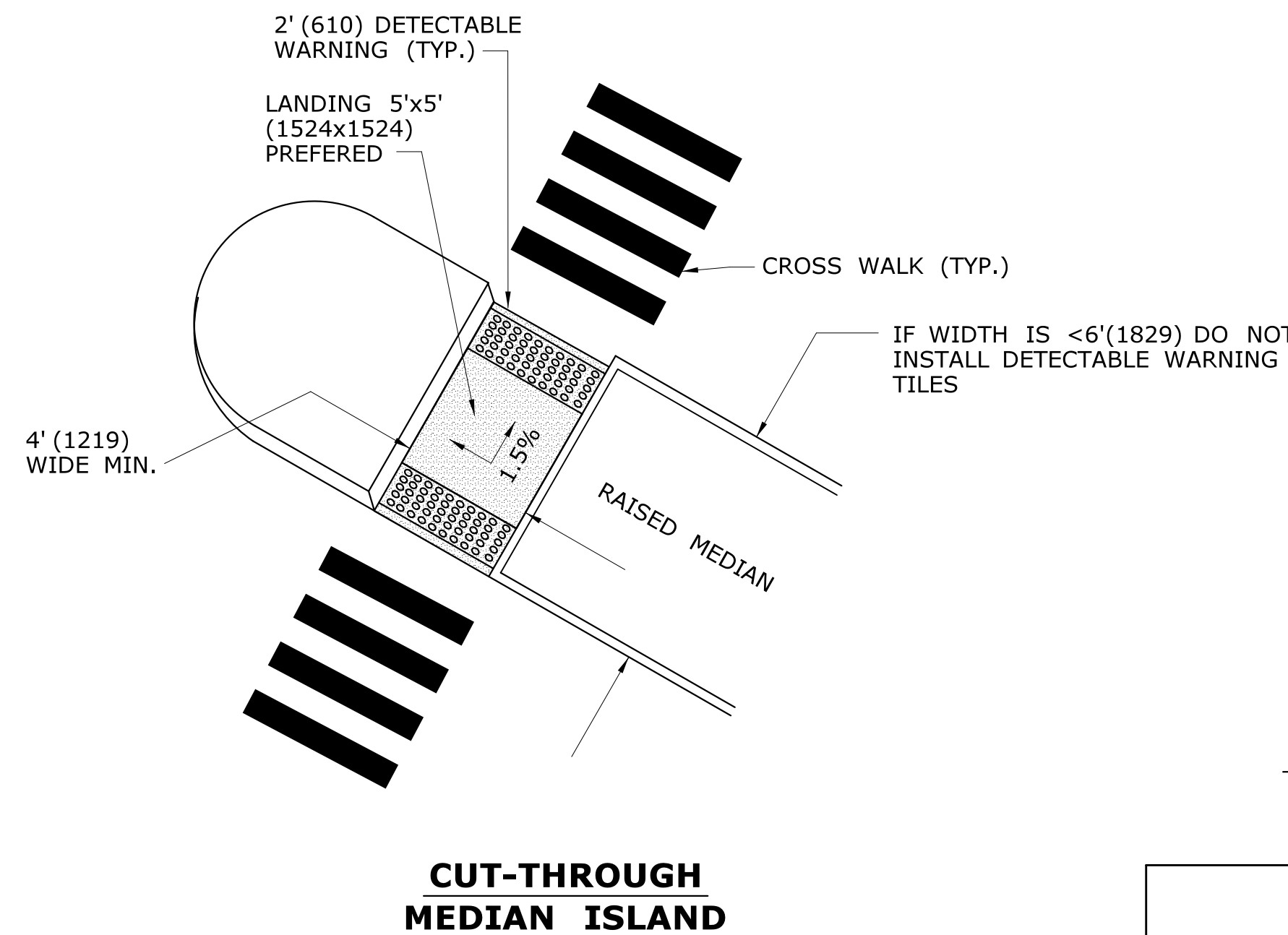
PLAN VIEW



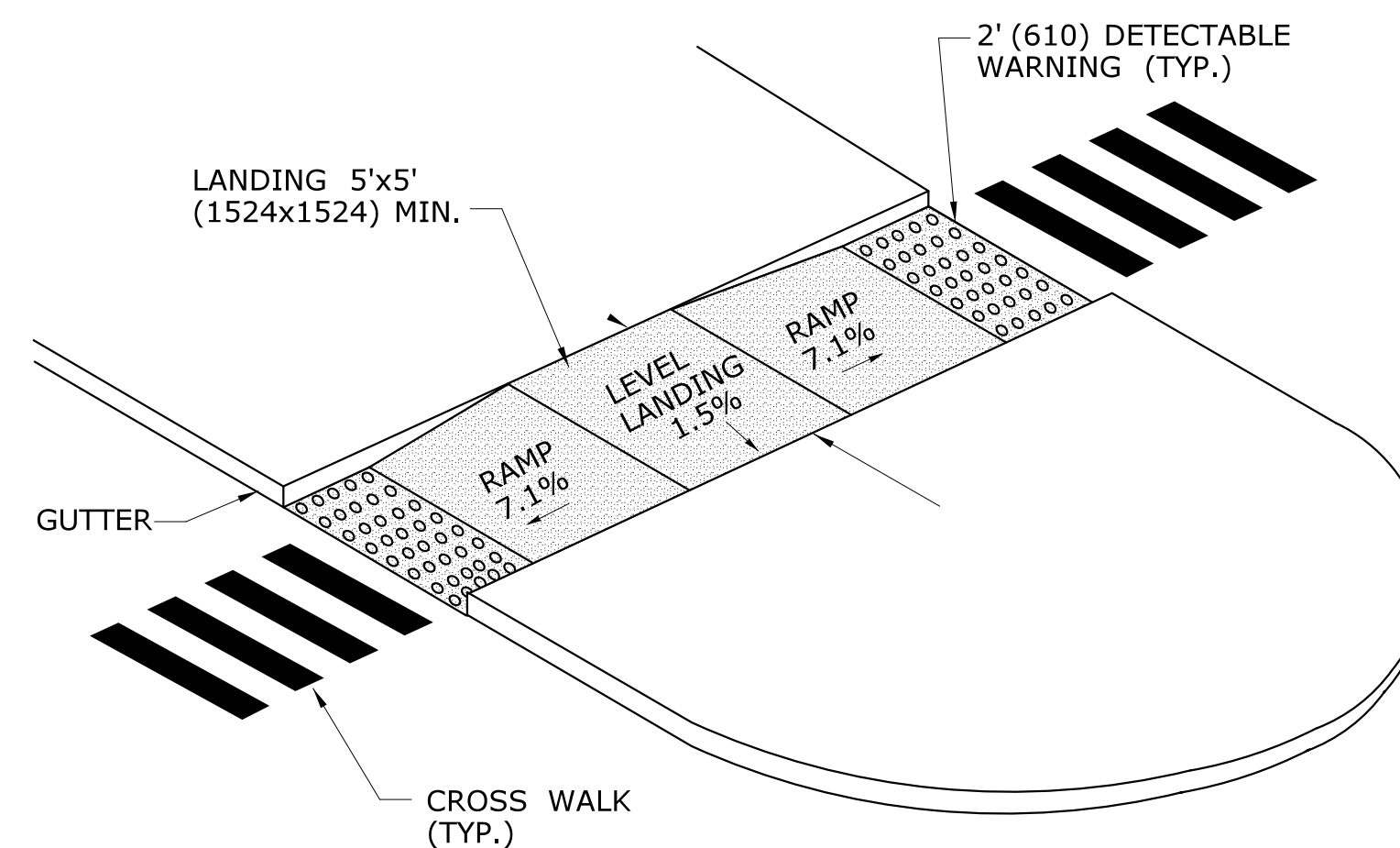
ELEVATION VIEW

DETECTABLE WARNINGS AT RAILROAD CROSSING

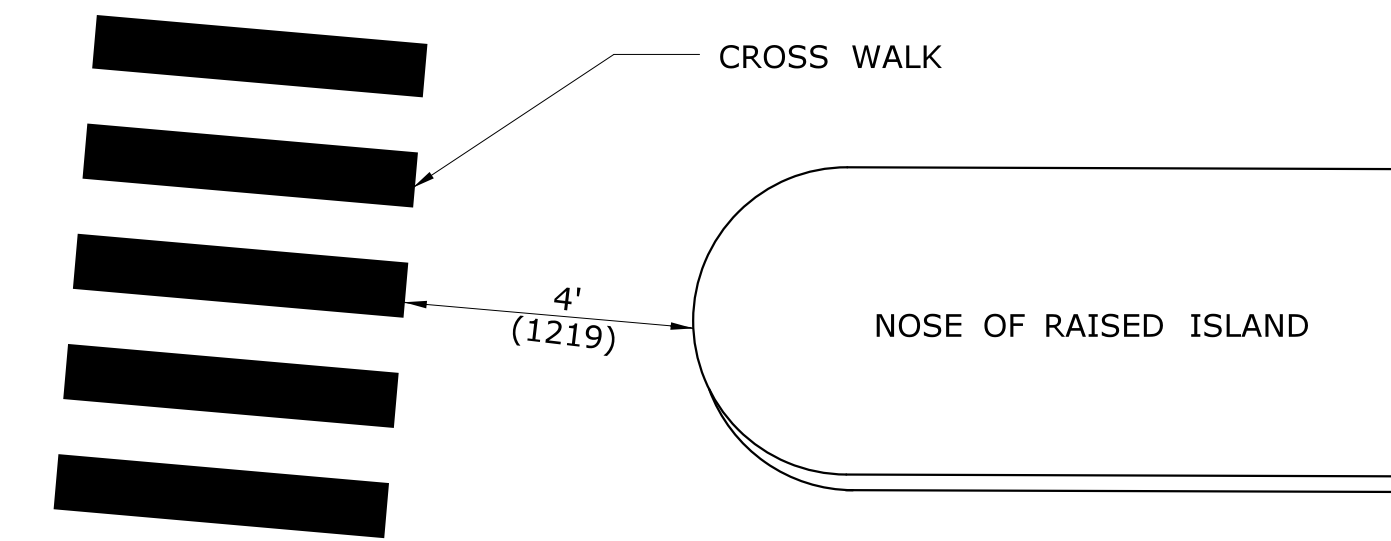
NOTE: WHEN NO GATE IS PRESENT, INSTALL DETECTABLE WARNING SURFACE 12' (3.6m) FROM THE NEAREST RAIL. IF GATE IS PRESENT, INSTALL DETECTABLE WARNING 2' (610) PRIOR TO GATE. THE ROWS OF TRUNCATED DOMES IN A DETECTABLE WARNING SURFACE SHALL BE INSTALLED PARALLEL WITH THE DIRECTION OF PEDESTRIAN TRAVEL.



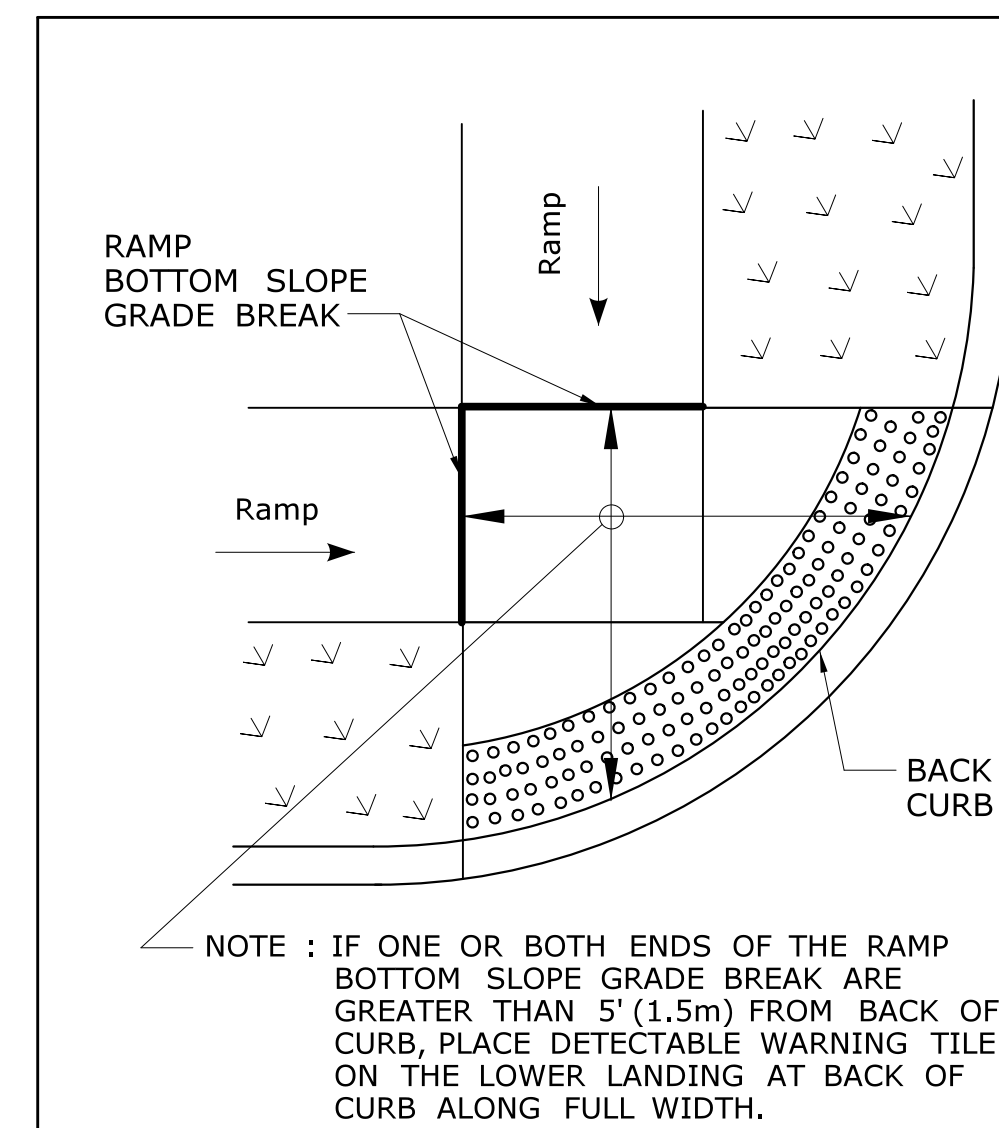
CUT-THROUGH MEDIAN ISLAND



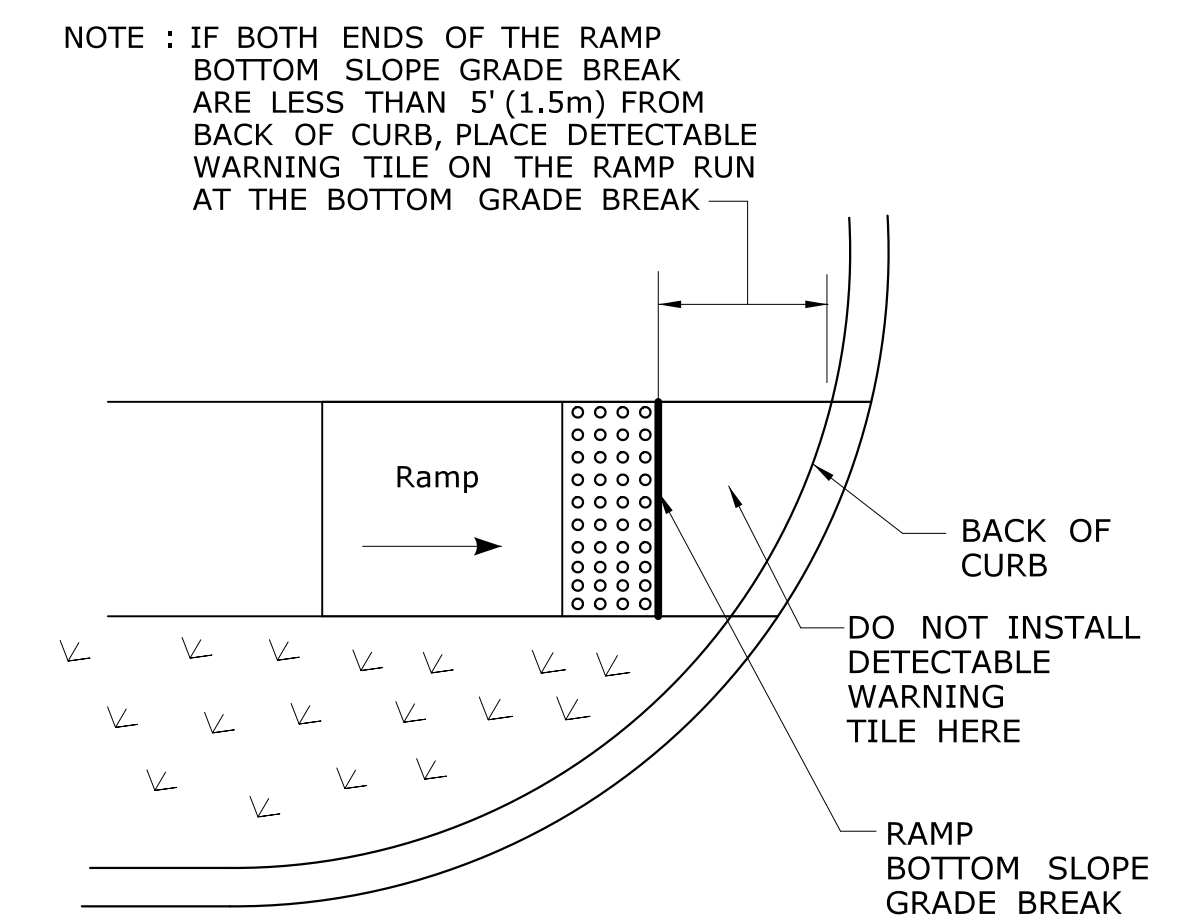
RAISED MEDIAN ISLAND WITH LANDING AND RAMPS



ALTERNATE CROSSWALK WITH MEDIAN ISLAND PULLED BACK



DETECTABLE WARNING PLACEMENT DETAIL 1



DETECTABLE WARNING PLACEMENT DETAIL 2

ALL METRIC DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED

REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 5/27/2014

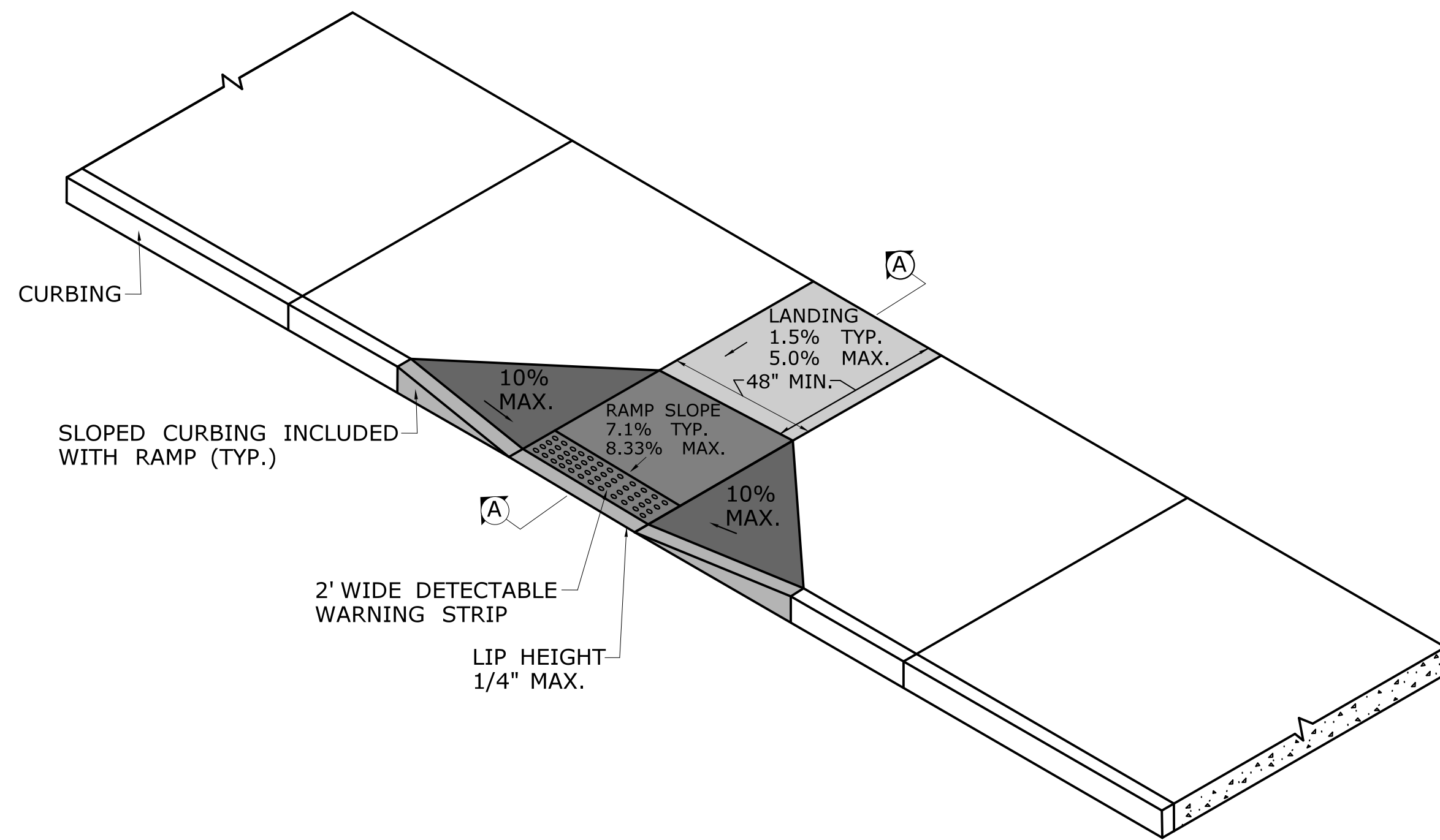
DESIGNER/DRAFTER:
MGB/EMK
CHECKED BY:
LLF

**STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION**

SIGNATURE/
BLOCK:
OFFICE OF ENGINEERING
APPROVED BY:

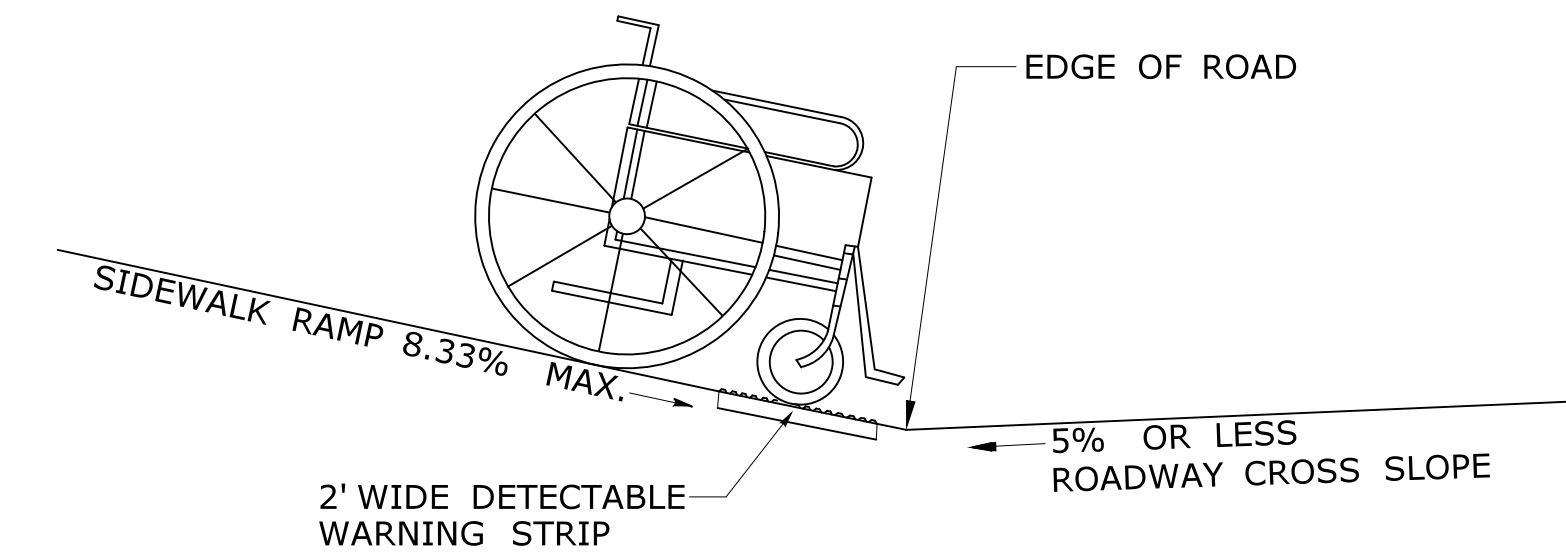
PROJECT TITLE:
SIDEWALK RAMP SHEET 4

TOWN:
PROJECT NO.
DRAWING NO.
SHEET NO.

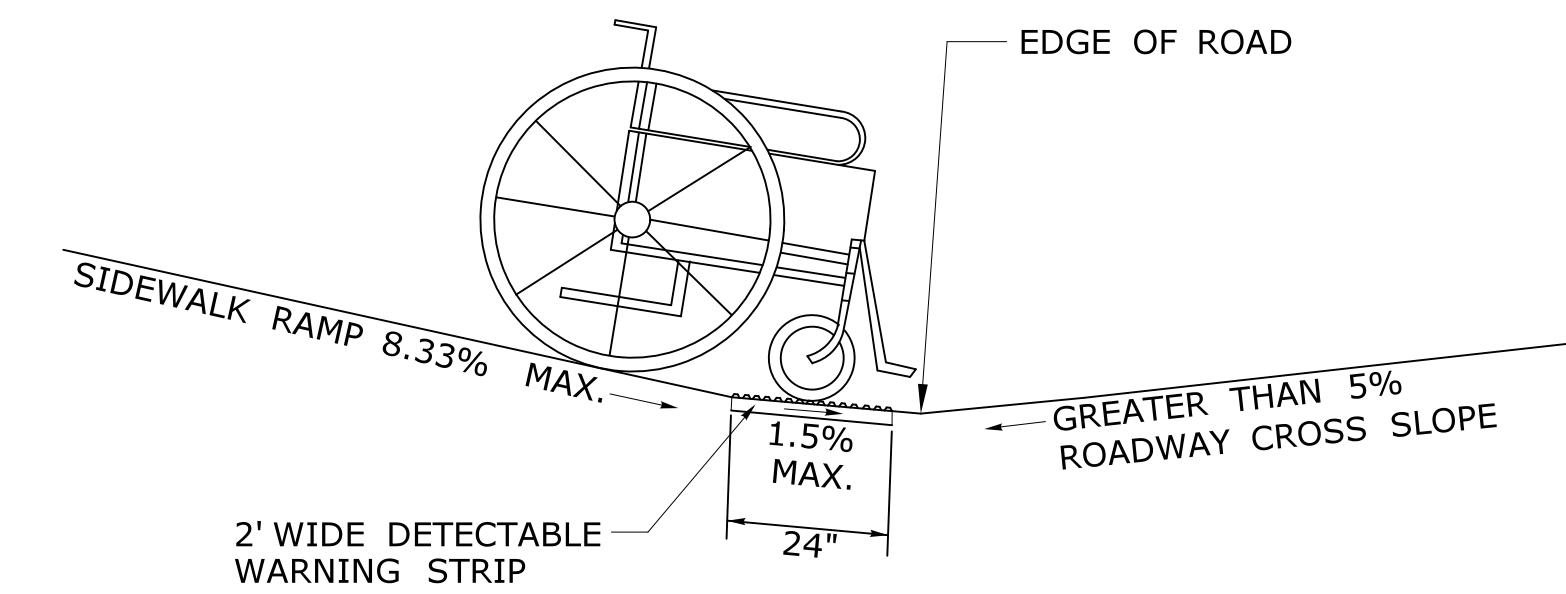


**PERPENDICULAR
SIDEWALK RAMP**

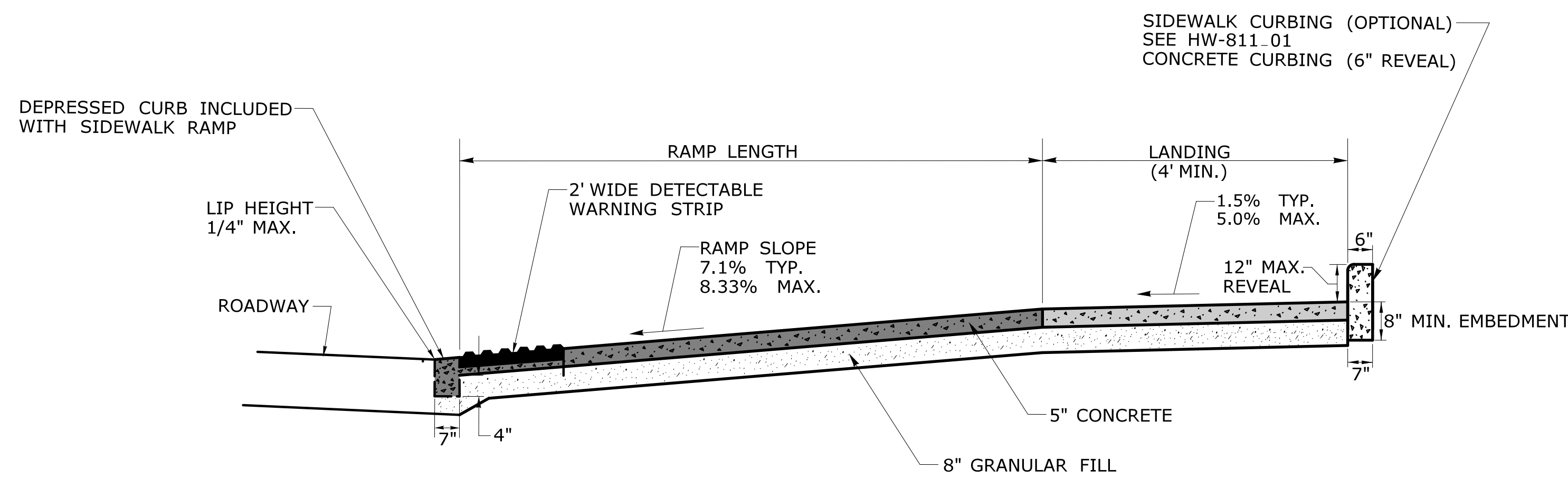
- GENERAL NOTES:**
1. SIDEWALK RAMPS SHALL HAVE A COARSE BROOM FINISH TRAVERSE TO THE SLOPE OF THE RAMP.
 2. VERTICAL SURFACE DISCONTINUITIES AT JOINTS SHALL NOT EXCEED 1/4 INCH.
 3. REMOVAL OF EXISTING SIDEWALK FOR NEW RAMP INSTALLATIONS SHALL BE TO THE NEAREST EXPANSION OR CONTRACTION JOINT.
 4. THE RUNNING SLOPE OF THE CURB RAMP SHALL BE 8.3 PERCENT MAXIMUM BUT SHALL NOT REQUIRE THE RAMP LENGTH TO EXCEED 15 FEET.



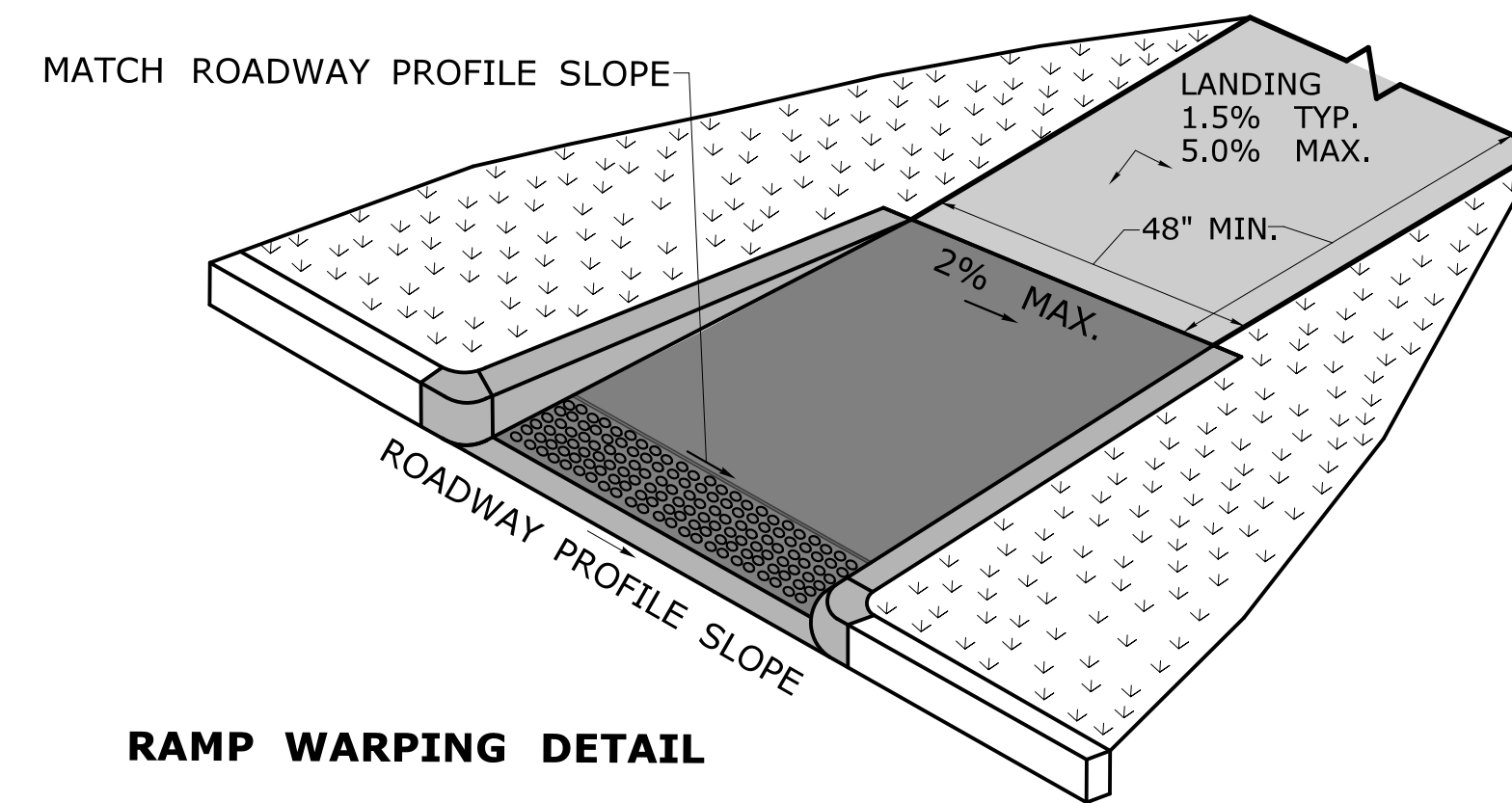
**SIDEWALK RAMP GRADE AT
ROADWAY CROSS SLOPE OF 5% OR LESS**



**SIDEWALK RAMP GRADE AT
ROADWAY CROSS SLOPE OF GREATER THAN 5%**



SECTION AA

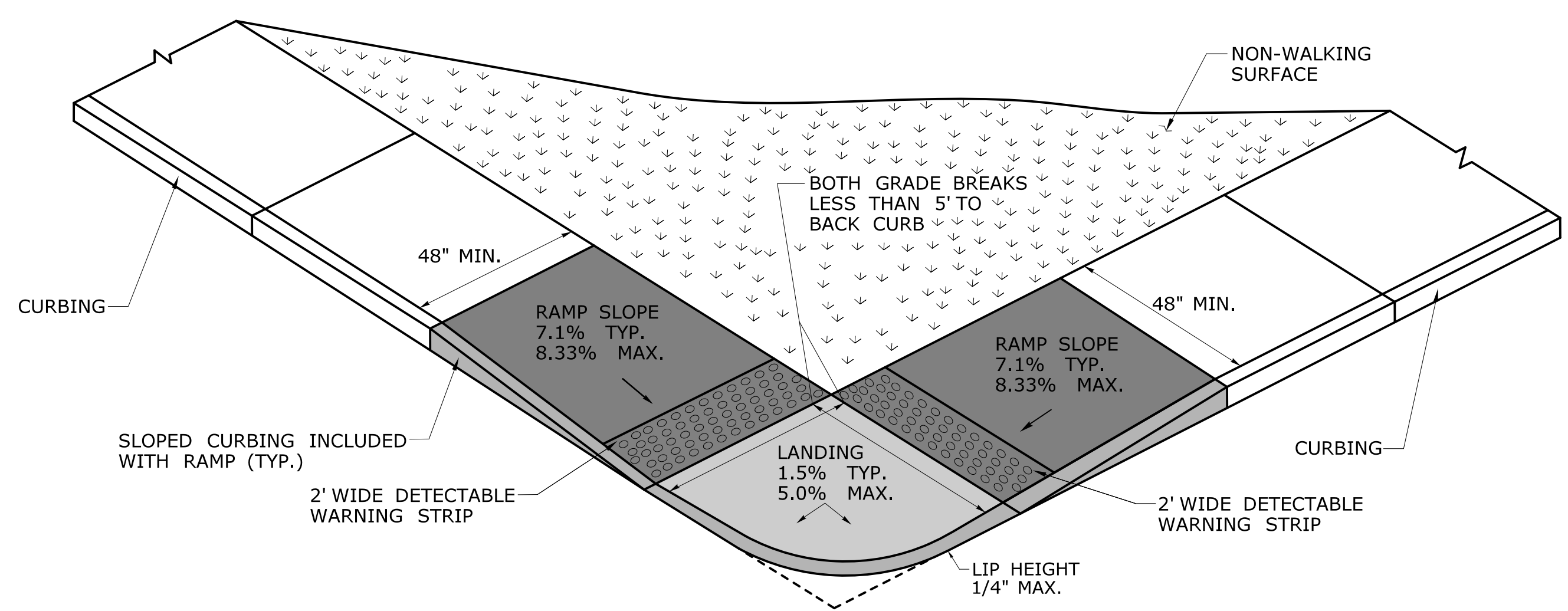


RAMP WARPING DETAIL

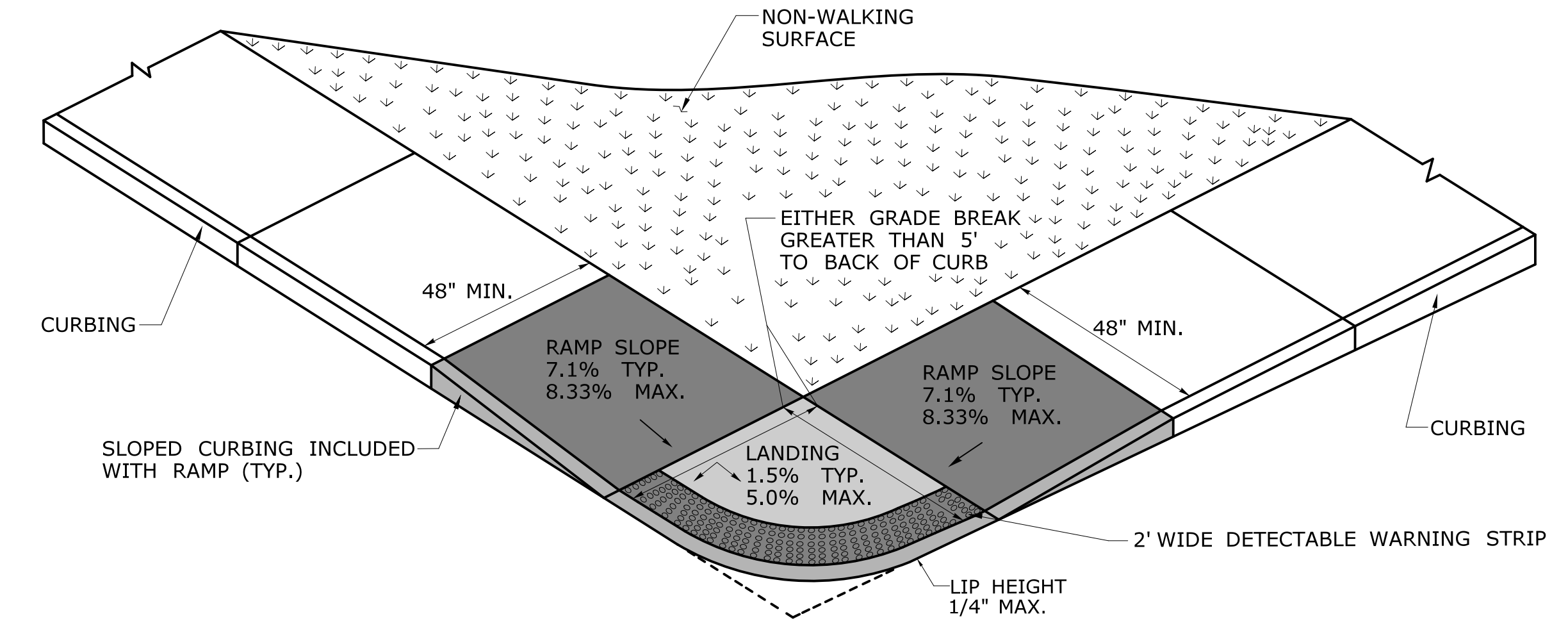
1. TRANSITION SIDEWALK RAMP TO MATCH ROADWAY PROFILE AS GRADUALLY AS POSSIBLE. DO NOT EXCEED 3 % PER FOOT CROSS SLOPE RATE OF CHANGE WHEN TRANSITIONING TO ROADWAY PROFILE.
2. COMPLETE TRANSITION TO ROADWAY PROFILE BEHIND DETECTABLE WARNING SURFACE.

DESIGN INITIATED CHANGE ORDER NO. Y - mm/dd/yy

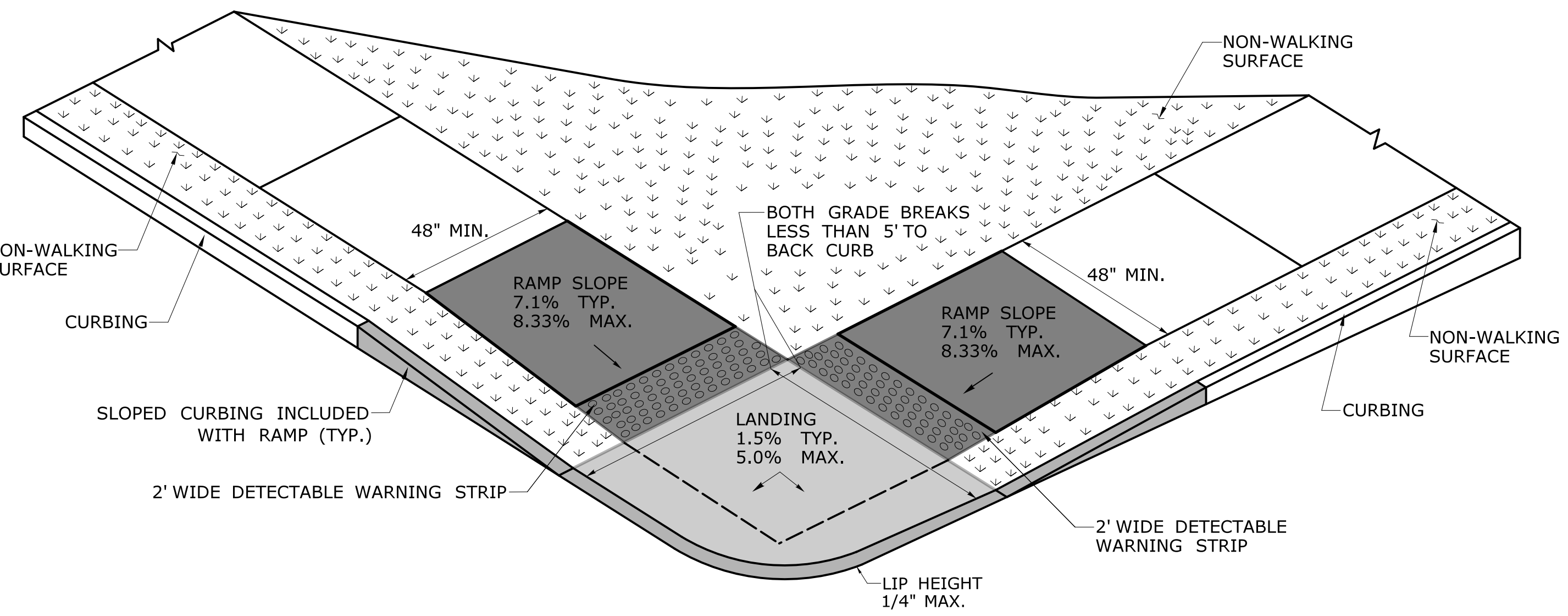
<p>THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.</p>				<p>DESIGNER/DRAFTER: - CHECKED BY: -</p>		<p>STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION</p>		<p>SIGNATURE/BLOCK: OFFICE OF ENGINEERING</p>		<p>PROJECT TITLE: -</p>		<p>TOWN: -</p>		<p>PROJECT NO. -</p>		
<p>Plotted Date: 1/30/2019</p>				<p>Filename: ...CTDOT_HIGHWAY_GD_[1-28-19].dgn</p>		<p>APPROVED BY: -</p>		<p>APPROVED BY: -</p>		<p>DRAWING TITLE: SIDEWALK RAMPS SHEET 1</p>		<p>DRAWING NO. -</p>		<p>SHEET NO. -</p>		
REV.	DATE	REVISION DESCRIPTION	SHEET NO.													



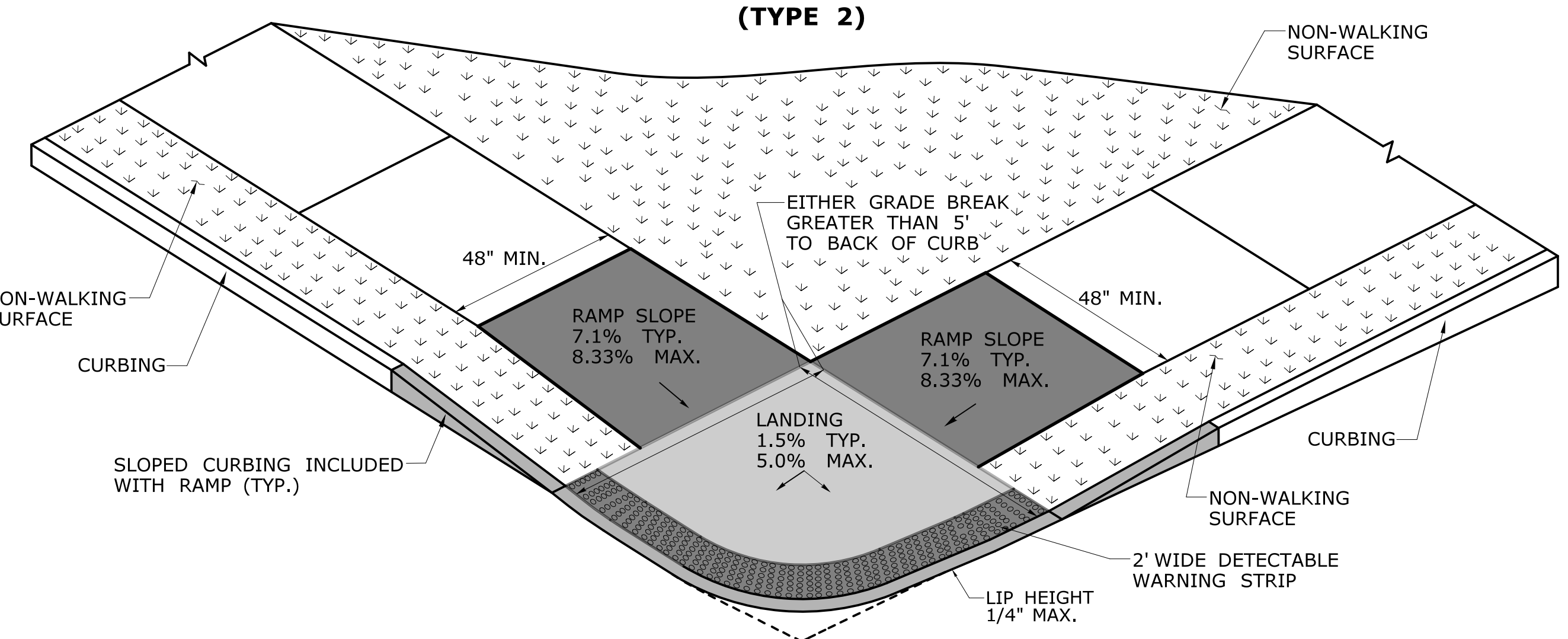
PERPENDICULAR RAMP WITH A GRADE BREAK OF 5' OR LESS (TYPE 1)



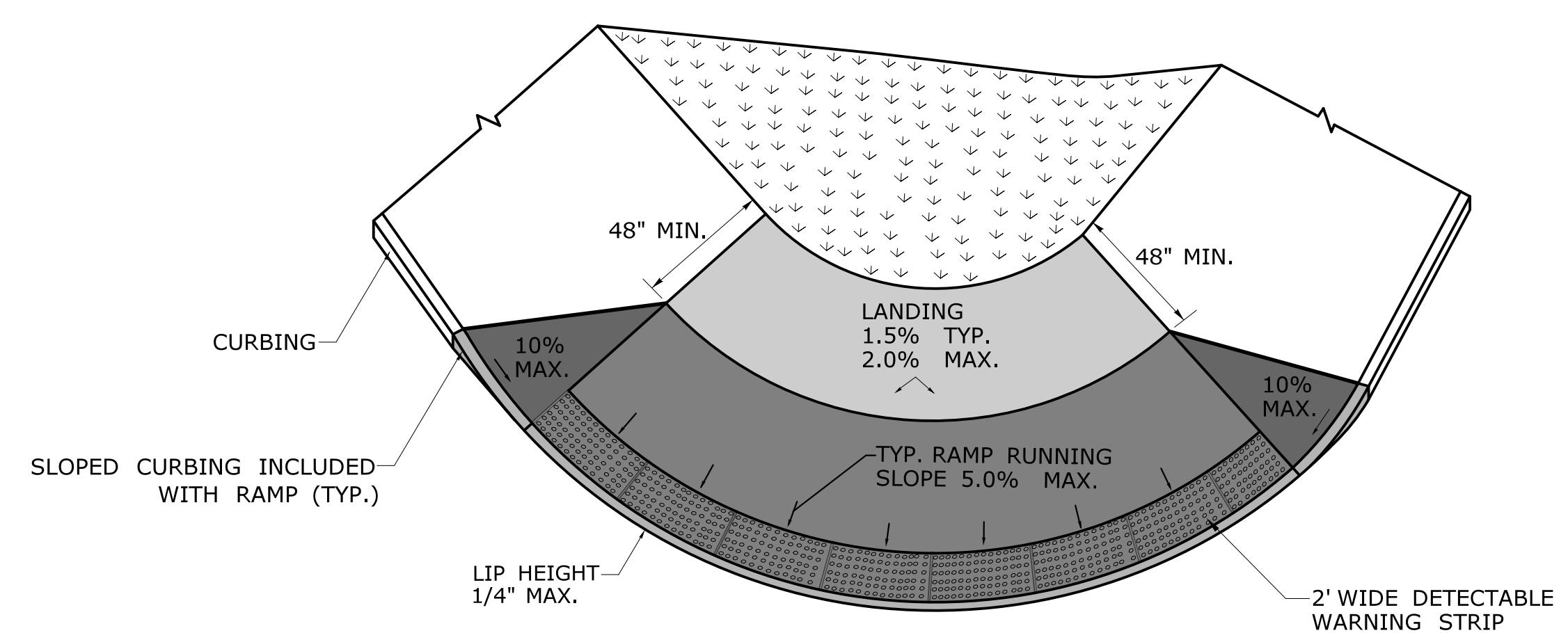
BLENDED TRANSITION WITH GRADE BREAK GREATER THAN 5' (TYPE 2)



PERPENDICULAR RAMP WITH A GRADE BREAK TO BACK OF CURB OF 5' OR LESS (TYPE 3)



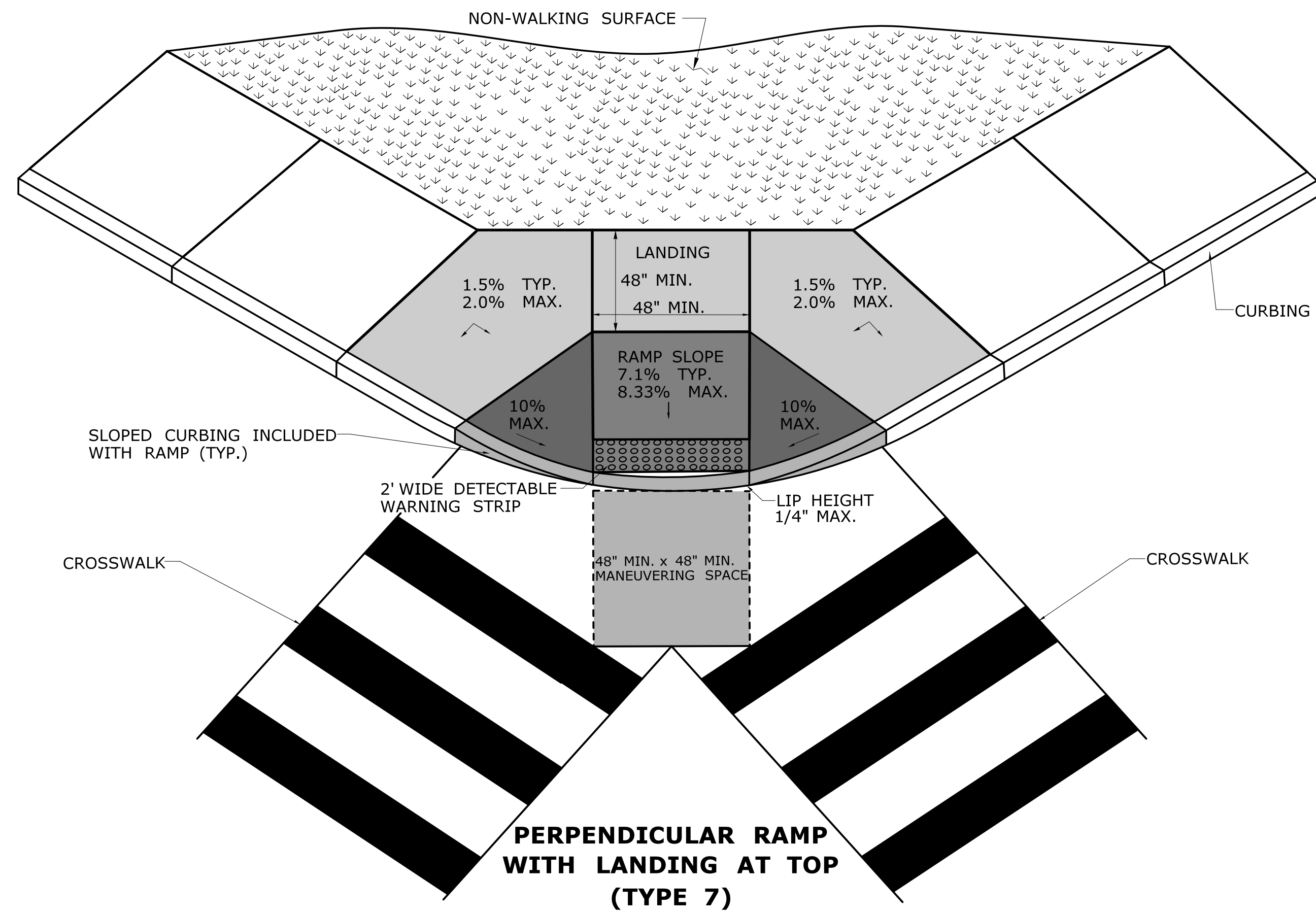
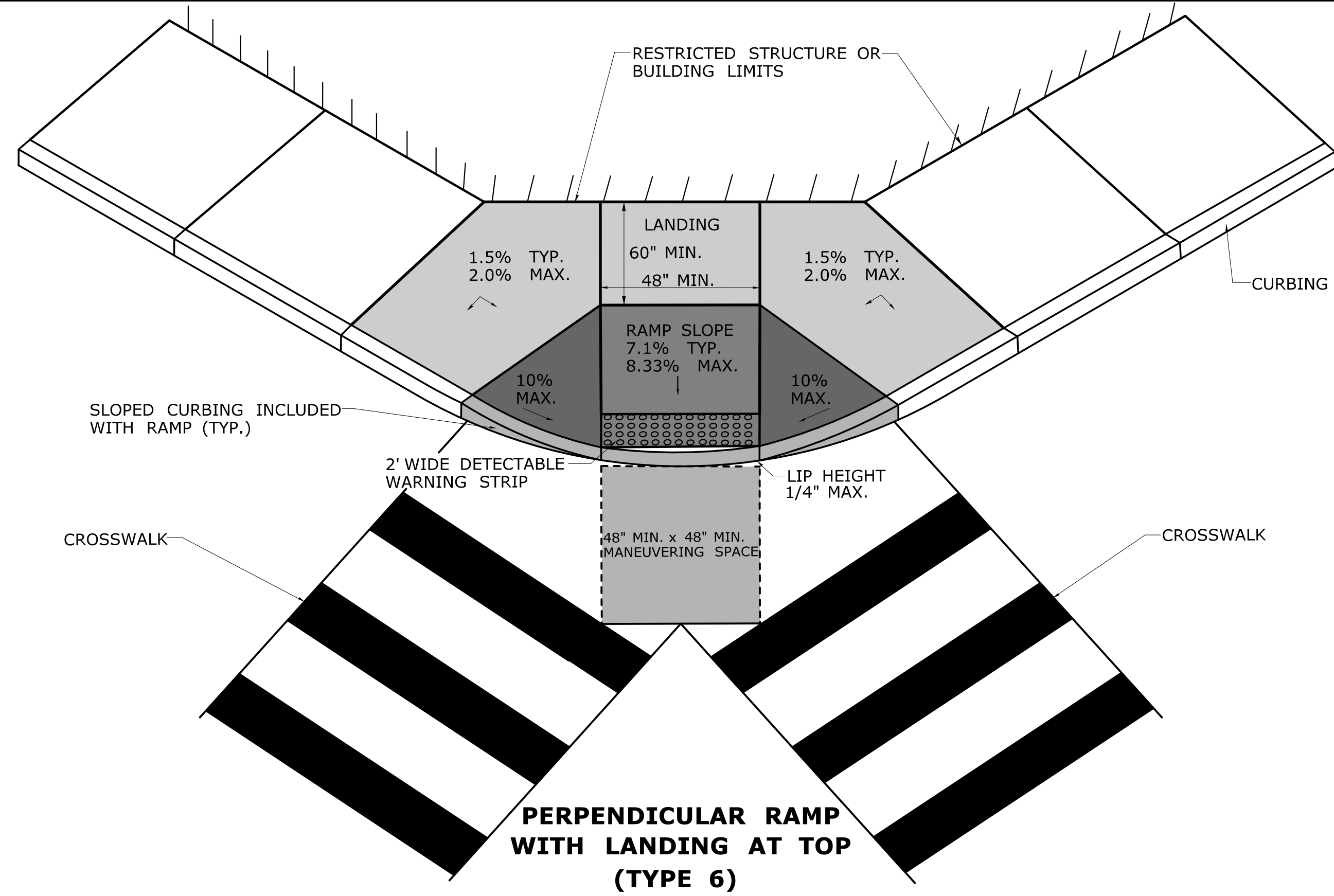
BLENDED TRANSITION TO BACK OF CURB GREATER THAN 5' (TYPE 4)



BLENDED TRANSITION WITH LANDING AT TOP (TYPE 5)

DESIGN INITIATED CHANGE ORDER NO. Y - mm/dd/yy


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REV. DATE REVISION DESCRIPTION SHEET NO. Plotted Date: 1/30/2019	FILENAME: ...CTDOT_HIGHWAY_GD_[1-28-19].dgn	APPROVED BY:		DRAWING TITLE: CONCRETE SIDEWALK RAMPS - SHEET 2	SHEET NO.		



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STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

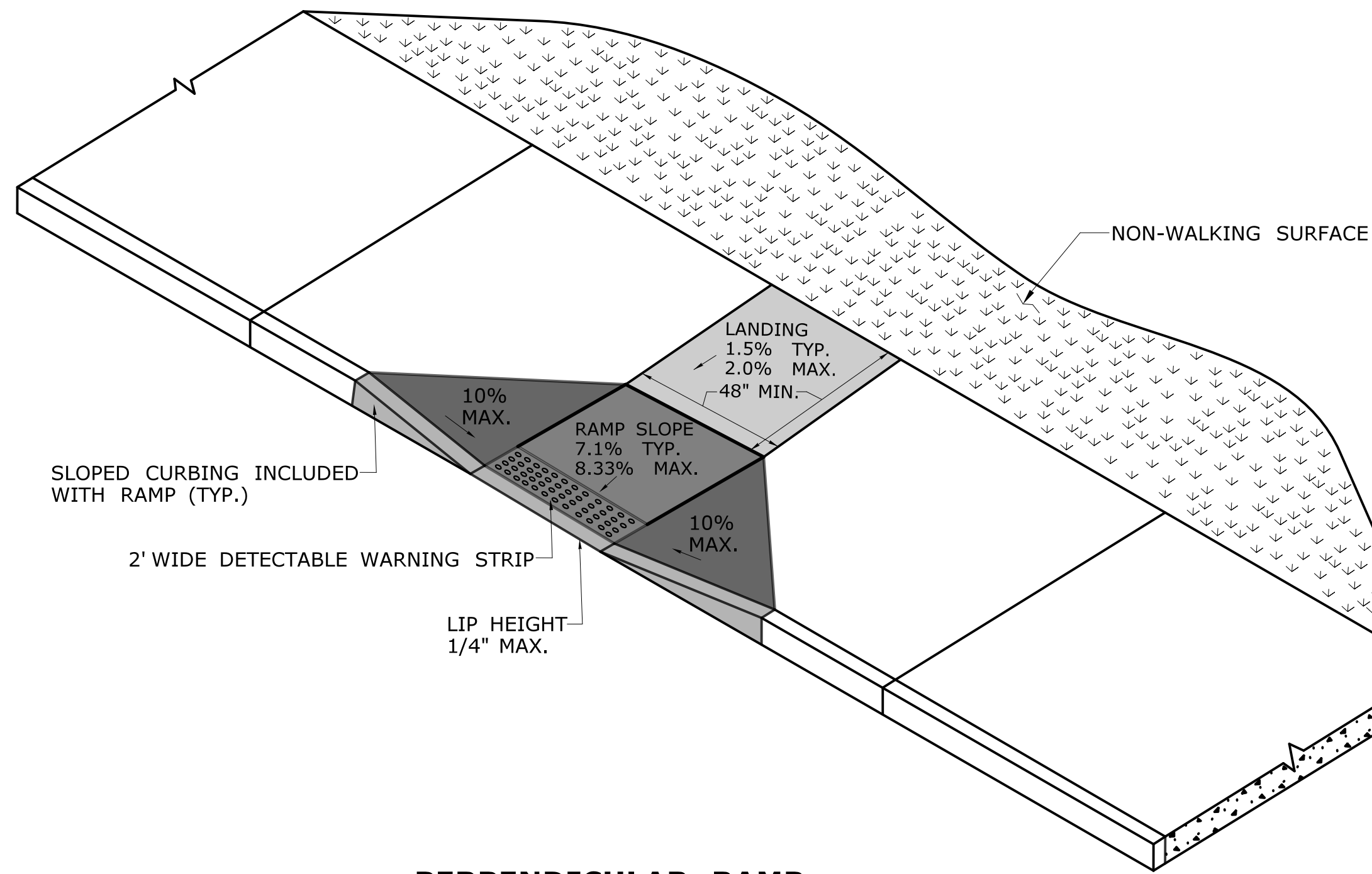
Filename: ...CTDOT_HIGHWAY_GD_[1-28-19].dgn

SIGNATURE/BLOCK:
OFFICE OF ENGINEERING
APPROVED BY:

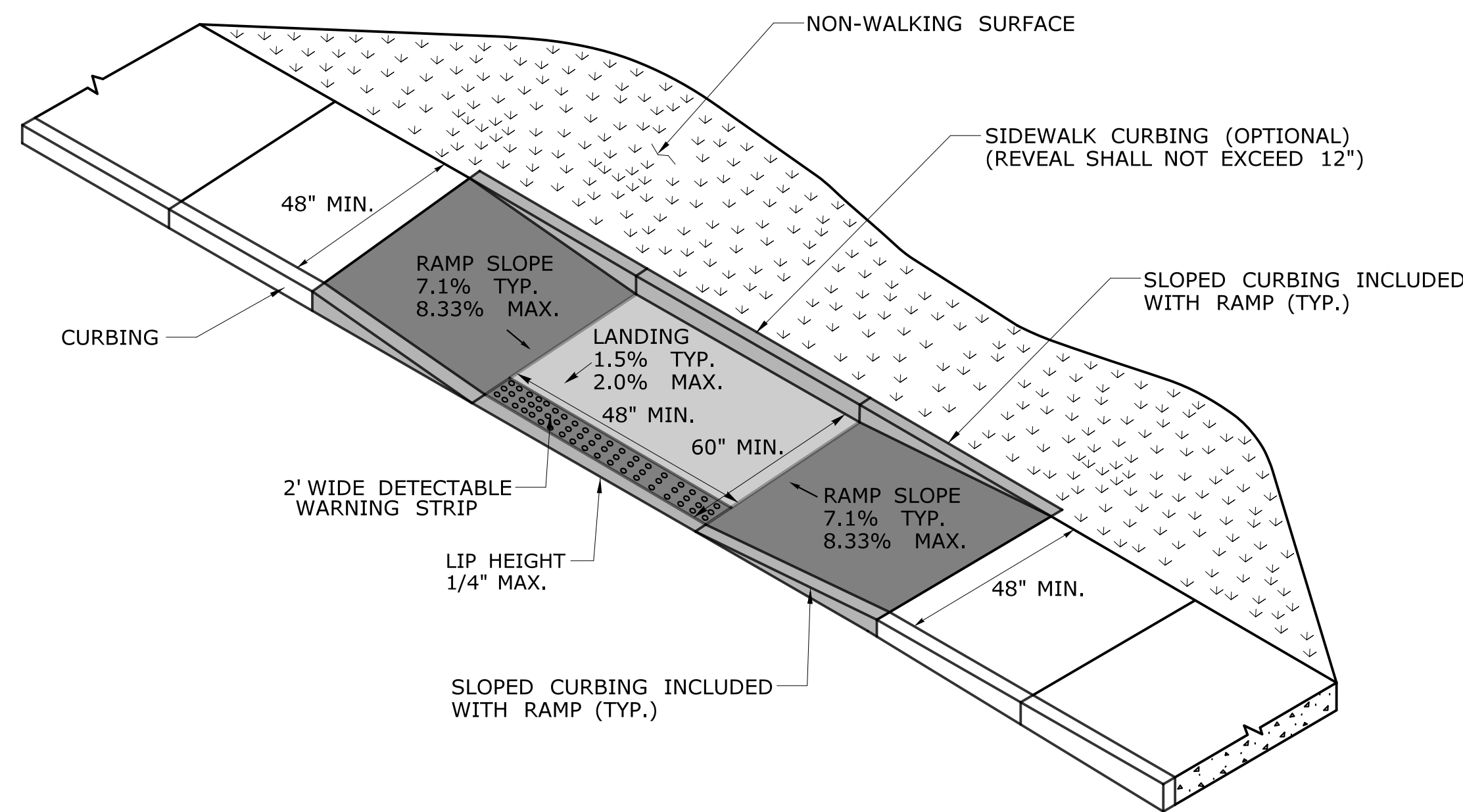
PROJECT TITLE:
-

TOWN: -
DRAWING TITLE:
CONCRETE SIDEWALK RAMP SHEET 3

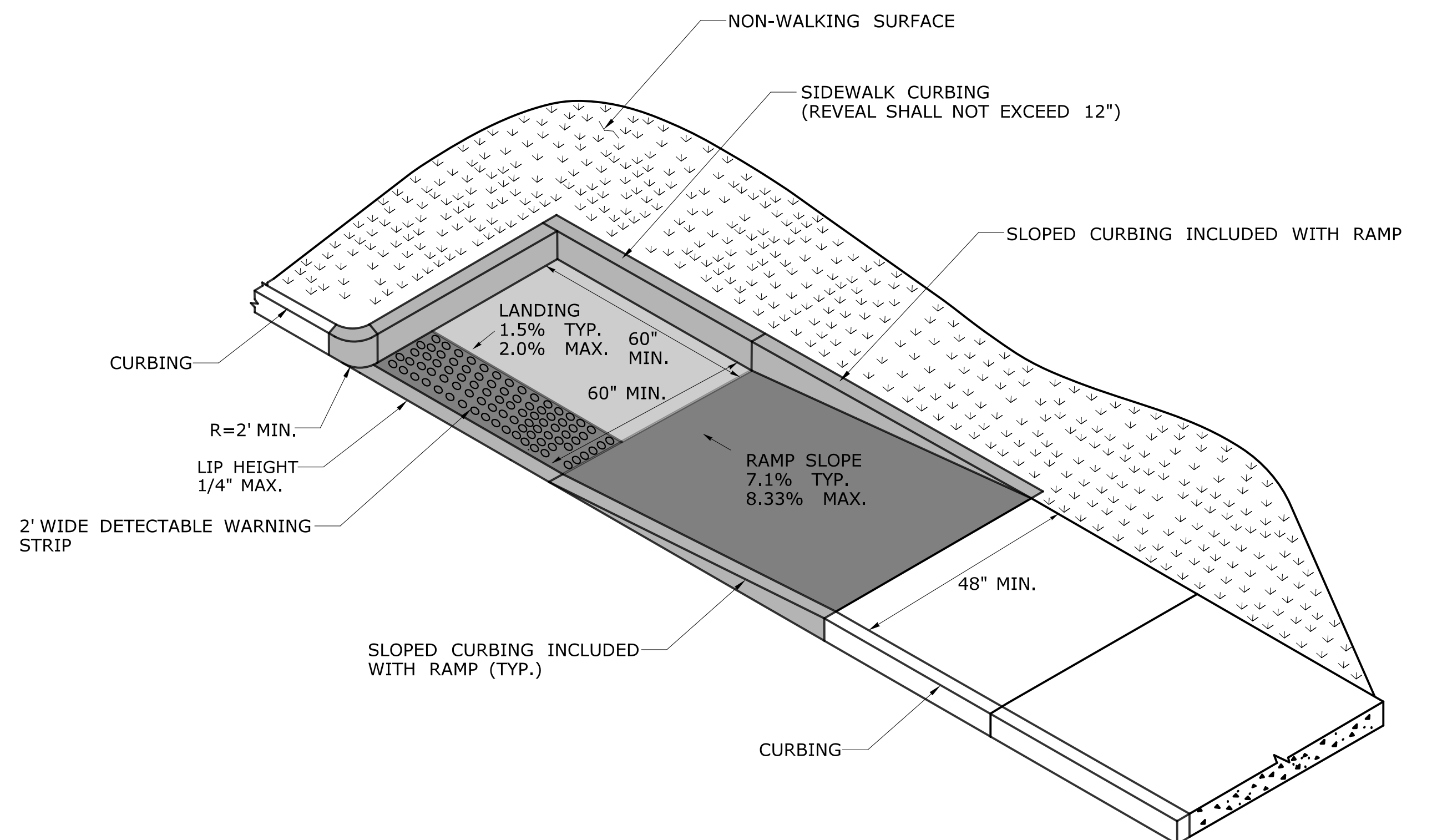
PROJECT NO. -
DRAWING NO. -
SHEET NO. -



PERPENDICULAR RAMP WITH 48" BY-PASS (TYPE 8)



PARALLEL RAMP WITHOUT NON-WALKING SURFACE (TYPE 9)

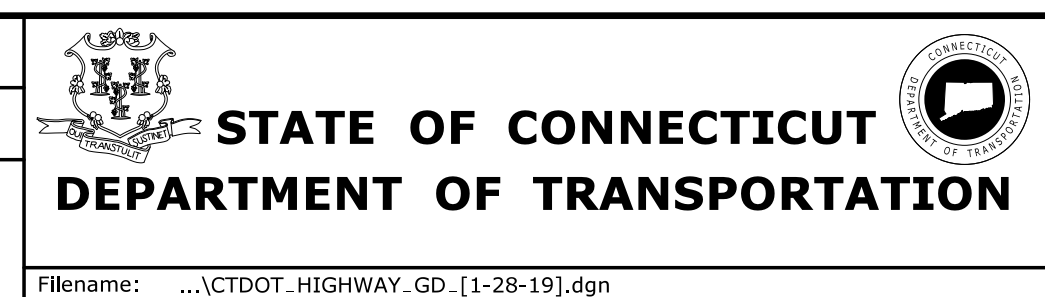


PARALLEL RAMP WITH LANDING AT BOTTOM ON CORNER (TYPE 10)

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PROJECT TITLE:
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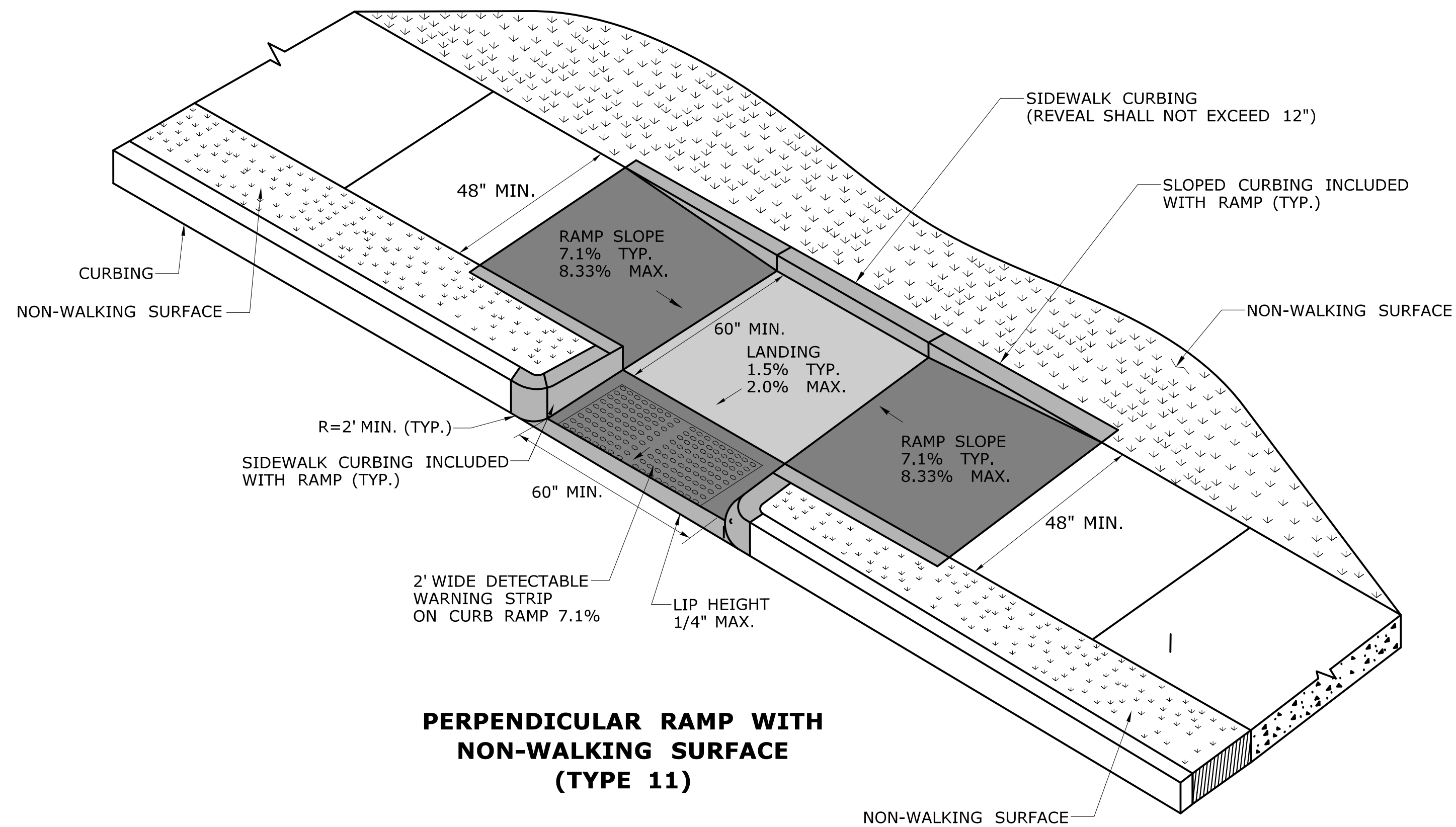
TOWN:
-

DRAWING TITLE:
CONCRETE SIDEWALK RAMPS SHEET 4

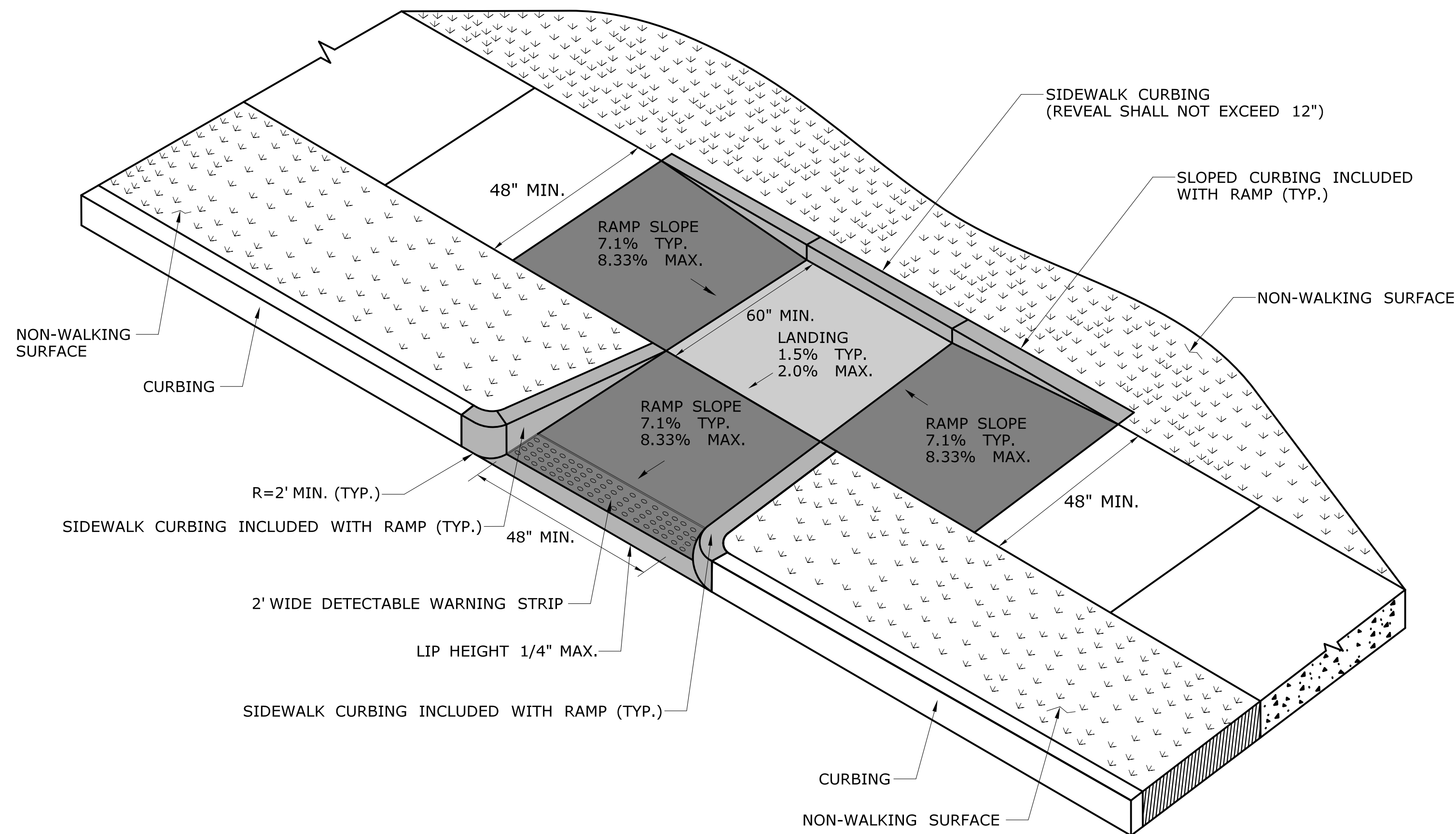
PROJECT NO.
-

DRAWING NO.

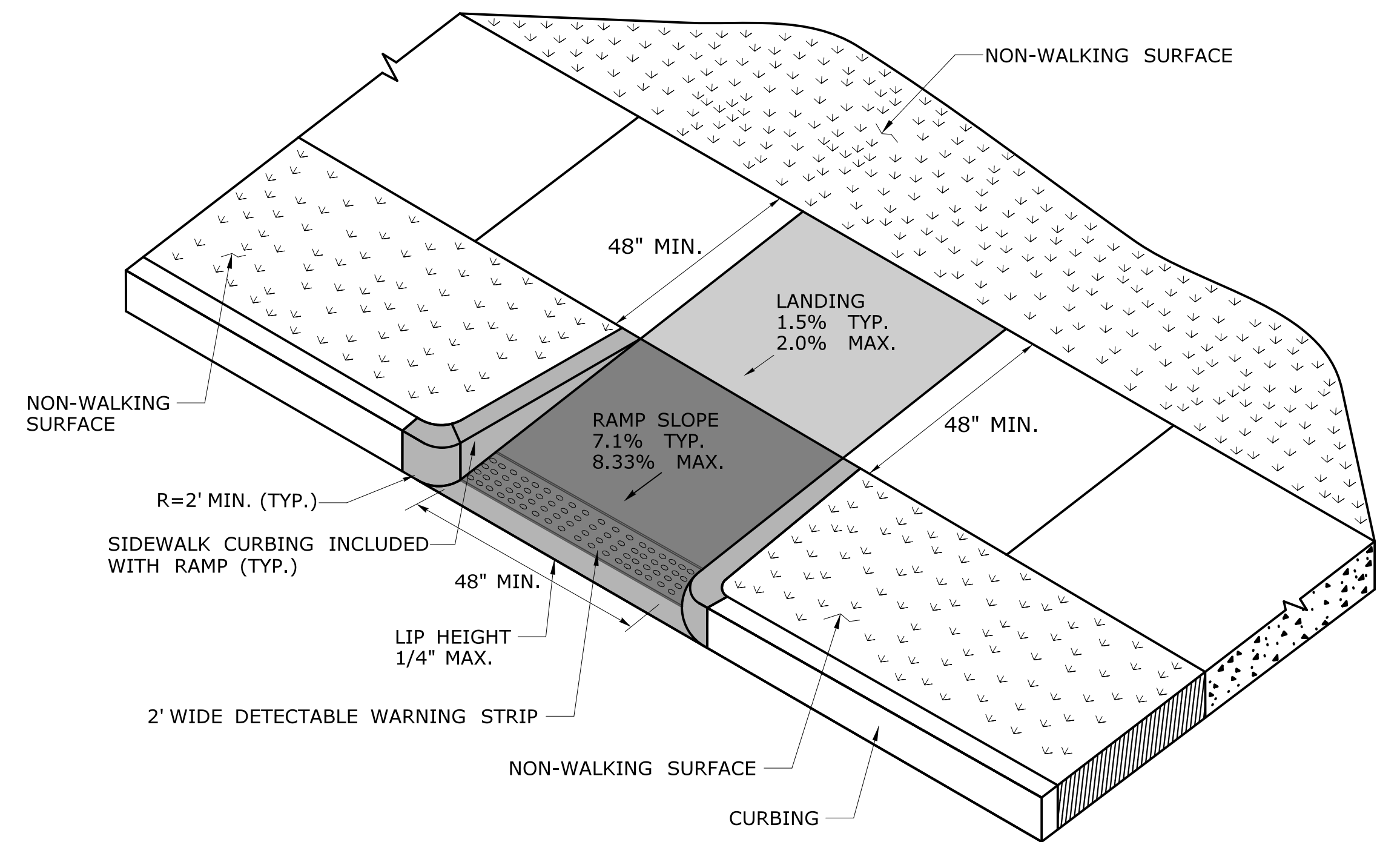
SHEET NO.



**PERPENDICULAR RAMP WITH
NON-WALKING SURFACE
(TYPE 11)**



**PERPENDICULAR RAMP WITH SIDEWALK CURB
AND NON-WALKING SURFACE
(TYPE 12)**

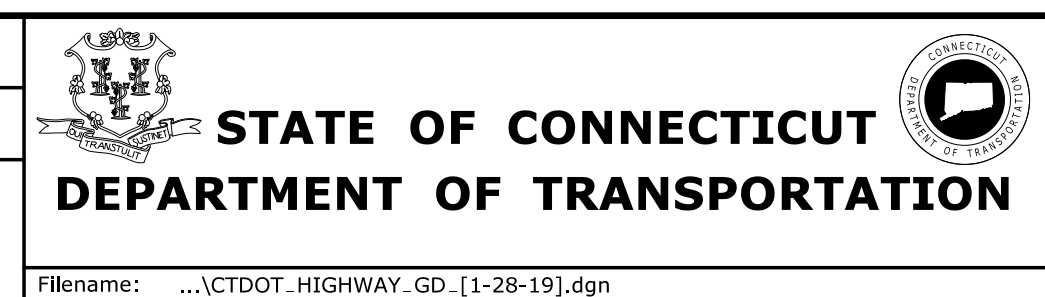


**PERPENDICULAR RAMP
WITH NON-WALKING SURFACE
(TYPE 13)**

DESIGN INITIATED CHANGE ORDER NO. Y - mm/dd/yy

REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 1/30/2019

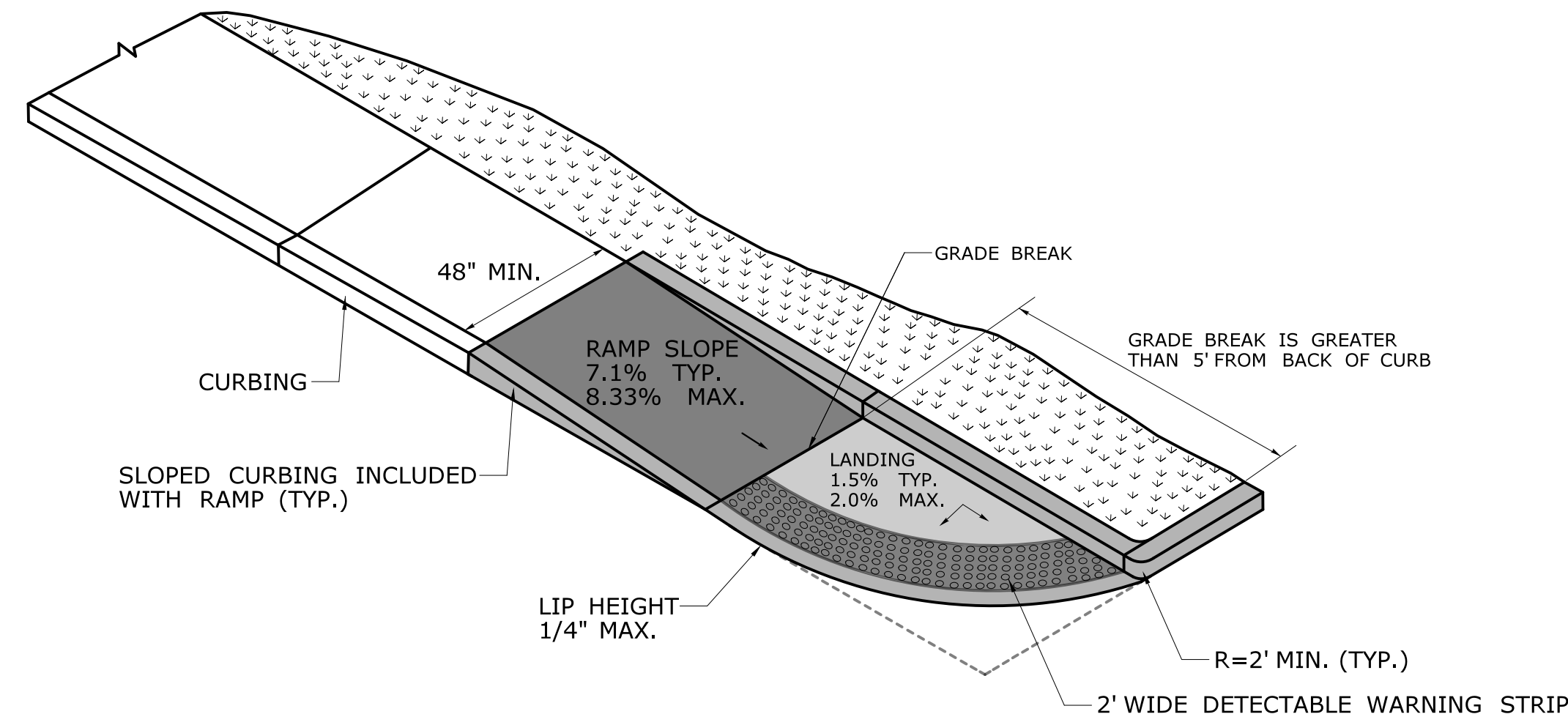
DESIGNER/DRAFTER:
CHECKED BY:



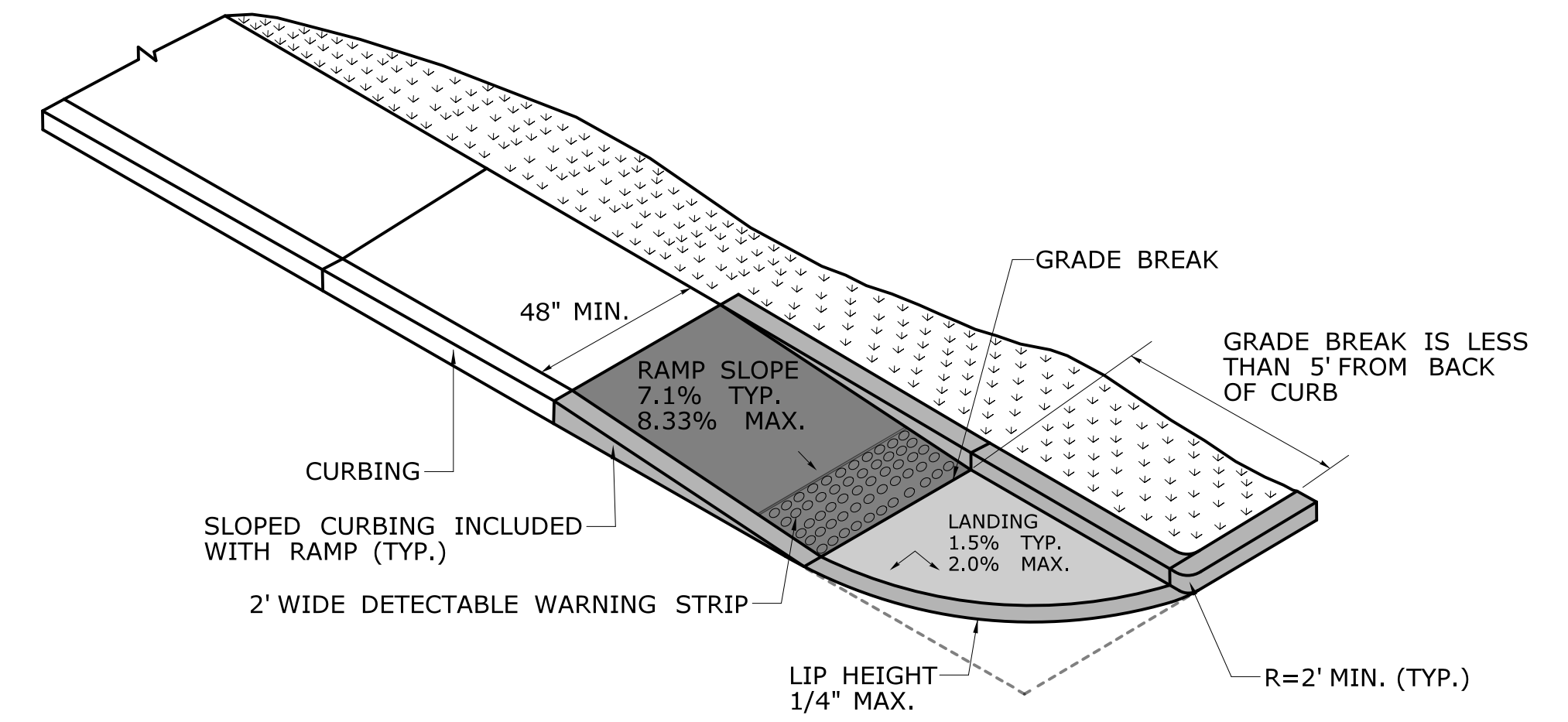
SIGNATURE/
BLOCK:
OFFICE OF ENGINEERING
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PROJECT TITLE:
TOWN:
DRAWING TITLE:
**CONCRETE SIDEWALK
RAMPS SHEET 5**

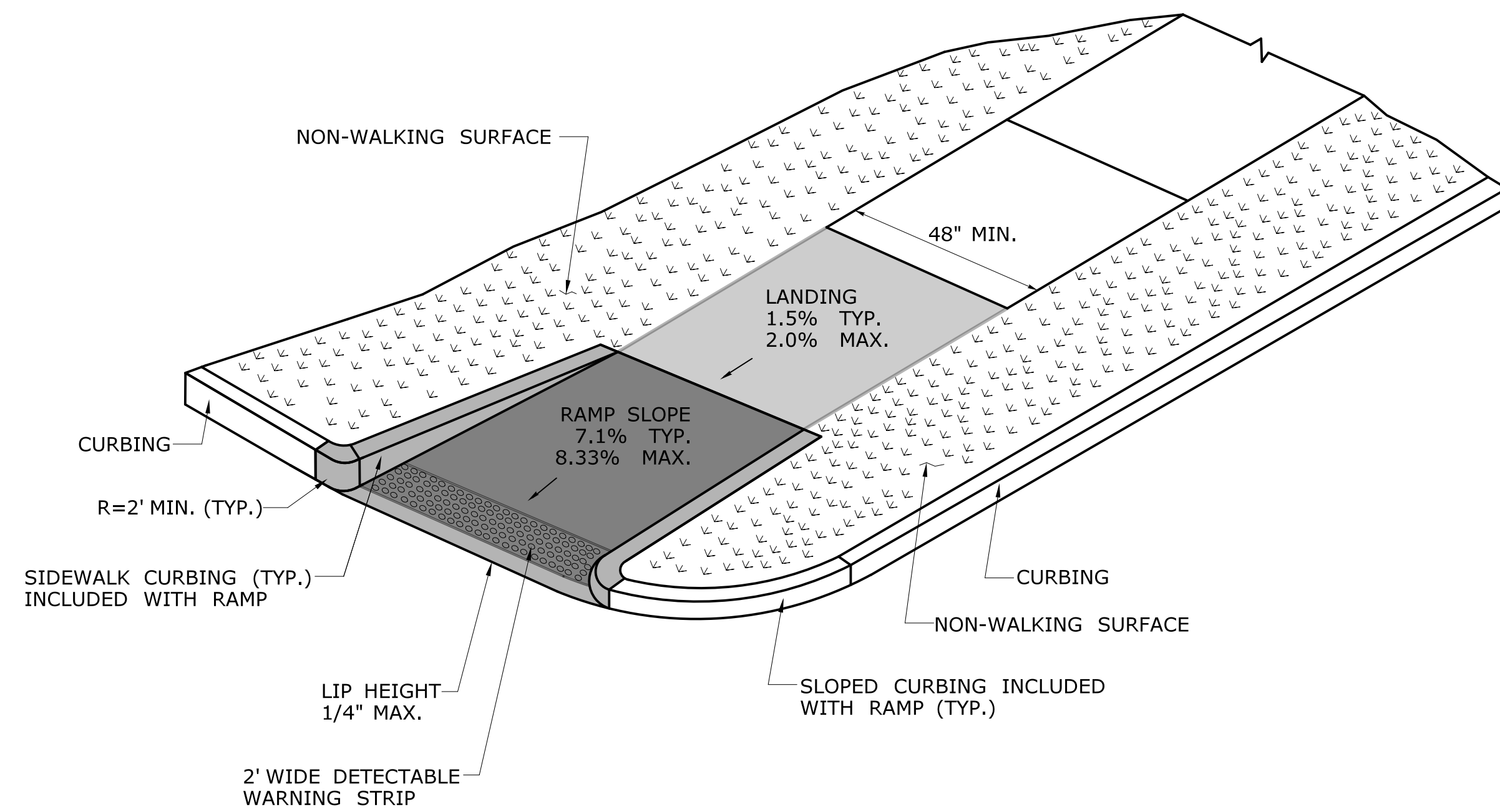
PROJECT NO.
DRAWING NO.
SHEET NO.



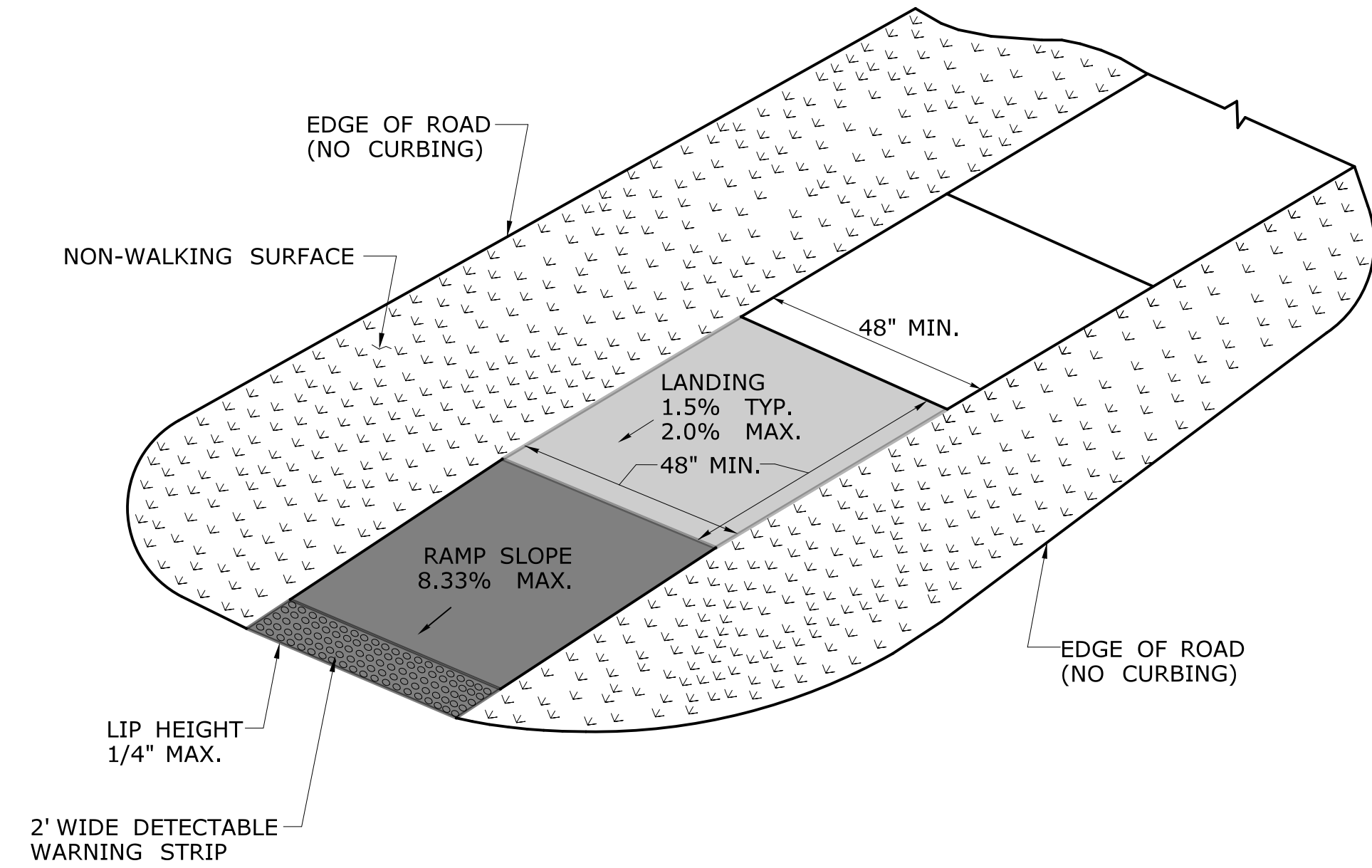
**SINGLE DIRECTION RAMP
WITHOUT NON-WALKING SURFACE
GRADE BREAK GREATER THAN 5'
(TYPE 14)**



**SINGLE DIRECTION RAMP
WITHOUT NON-WALKING SURFACE
GRADE BREAK LESS THAN 5'
(TYPE 15)**



**SINGLE DIRECTION - RETURN CURB
WITH NON-WALKING SURFACE
(TYPE 16)**

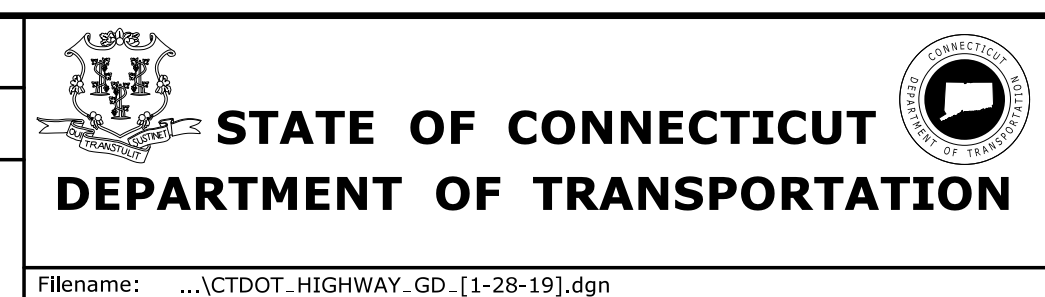


**SINGLE DIRECTION - NO CURB
WITH NON-WALKING SURFACE
(TYPE 17)**

DESIGN INITIATED CHANGE ORDER NO. Y - mm/dd/yy

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PROJECT TITLE:
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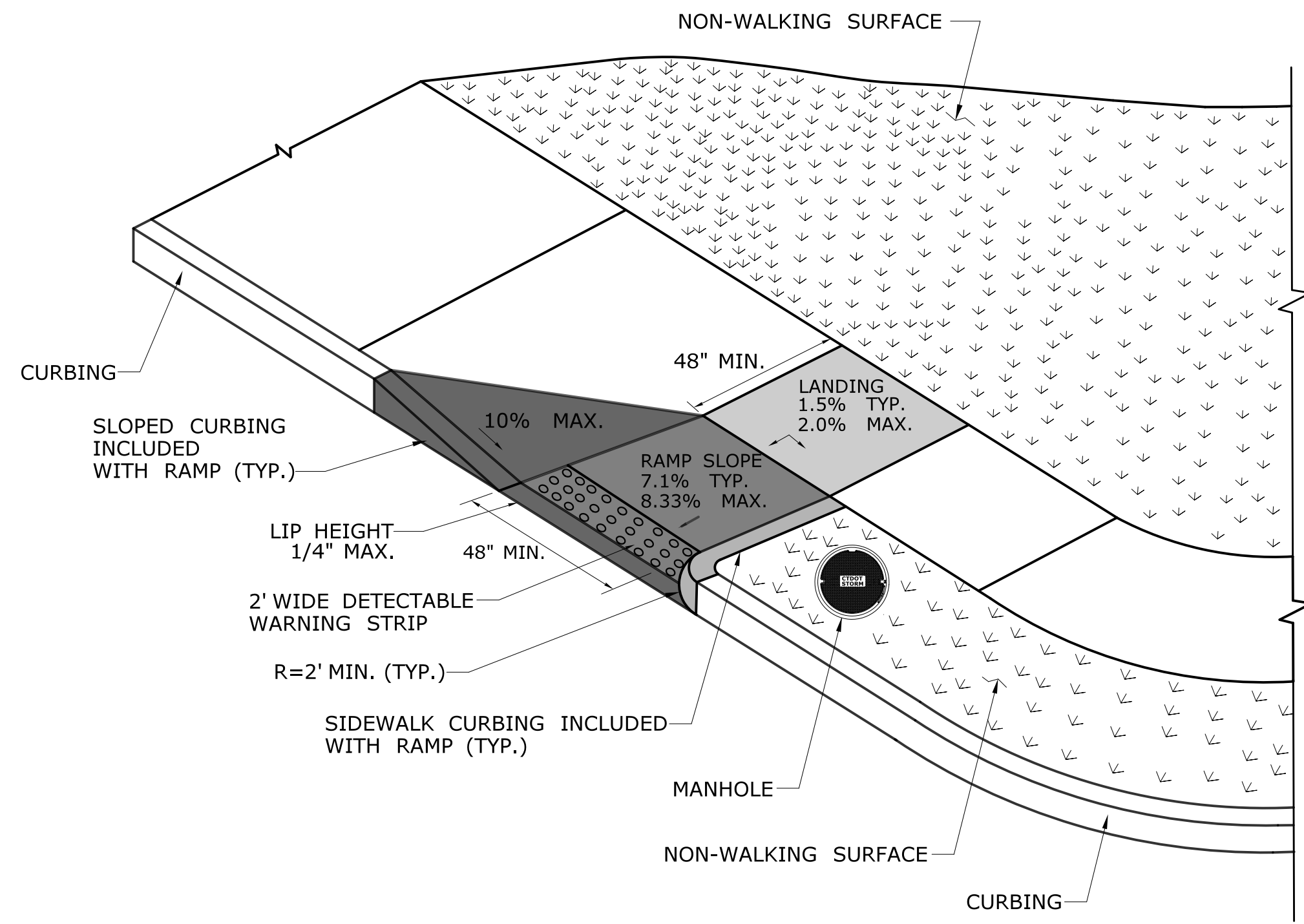
TOWN:
-

DRAWING TITLE:
**CONCRETE SIDEWALK
RAMPS SHEET 6**

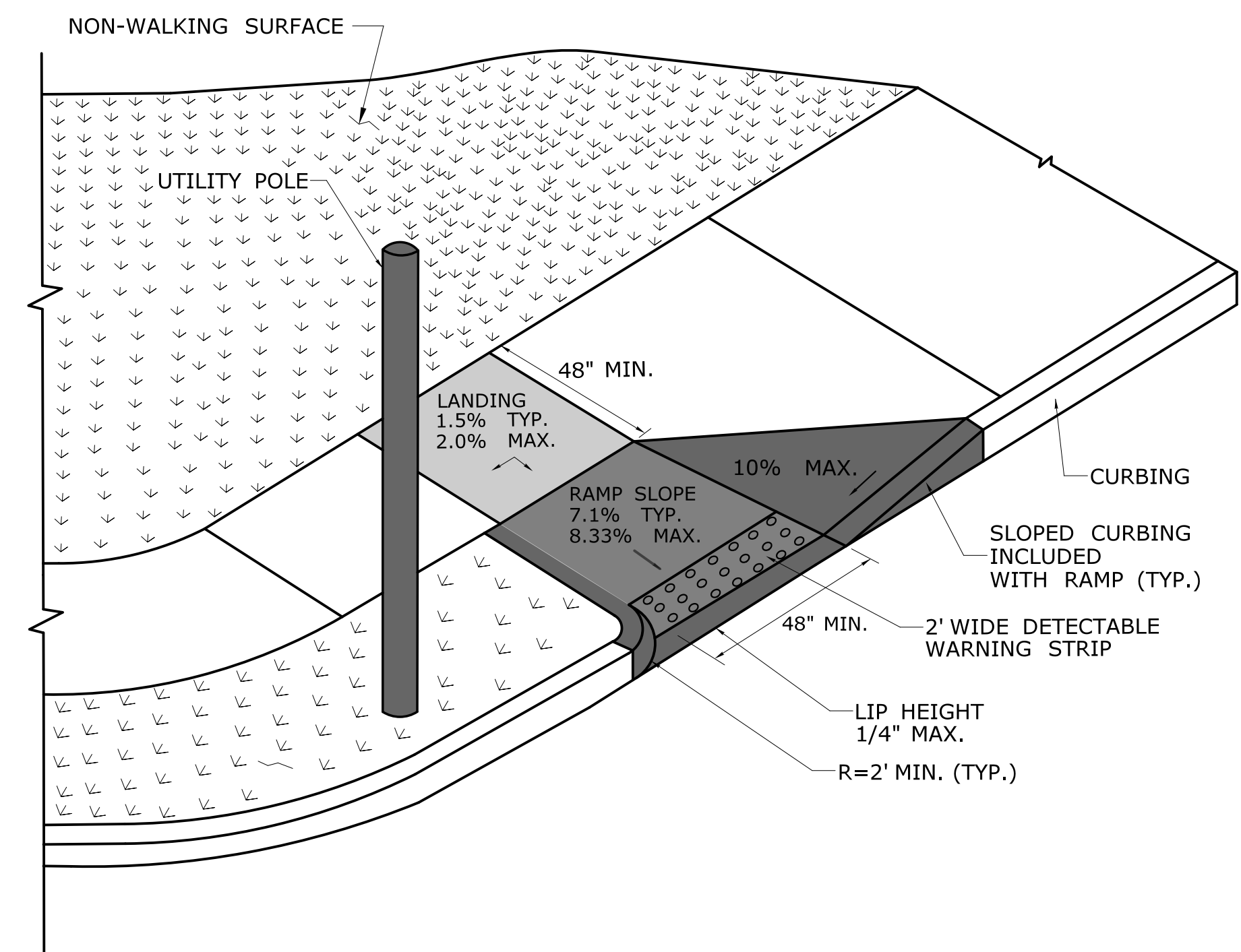
PROJECT NO.
-

DRAWING NO.

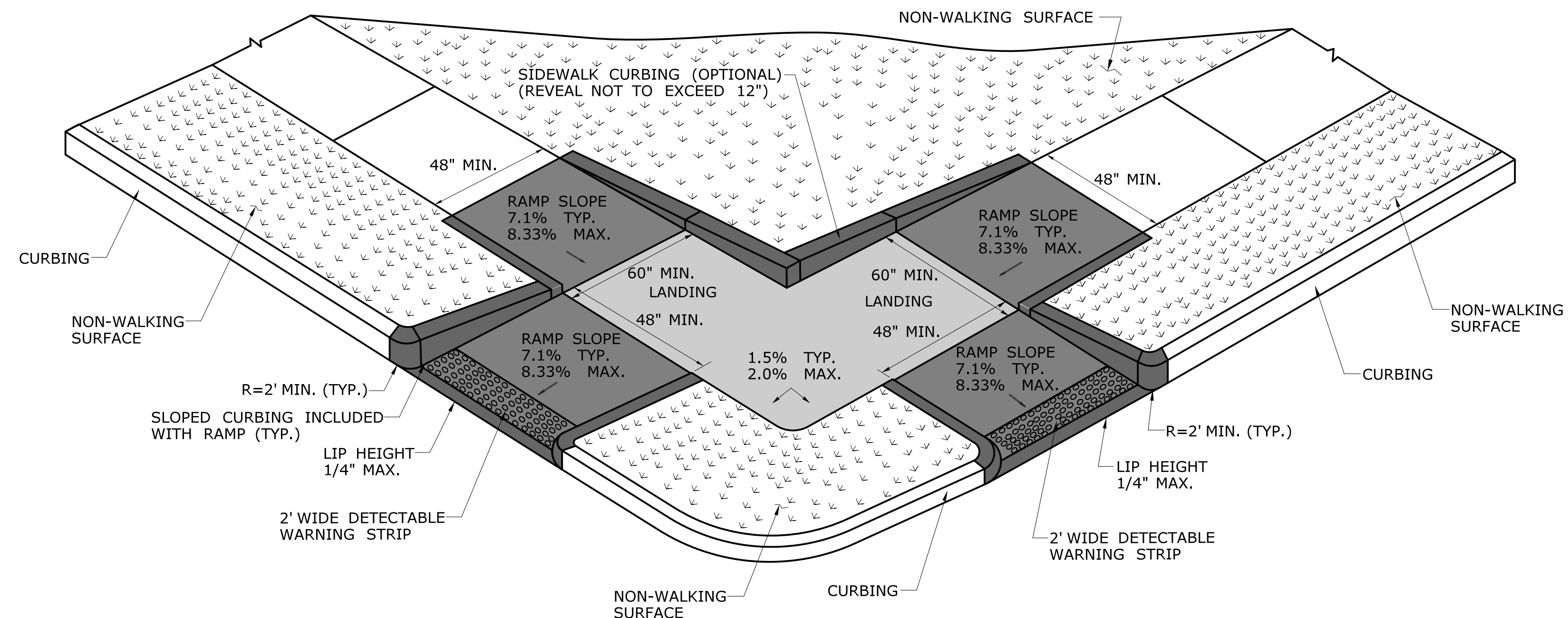
SHEET NO.



**PERPENDICULAR RAMP
WITH NON-WALKING SURFACE
(TYPE 18 LEFT)**



**PERPENDICULAR RAMP
WITH NON-WALKING SURFACE
(TYPE 18 RIGHT)**

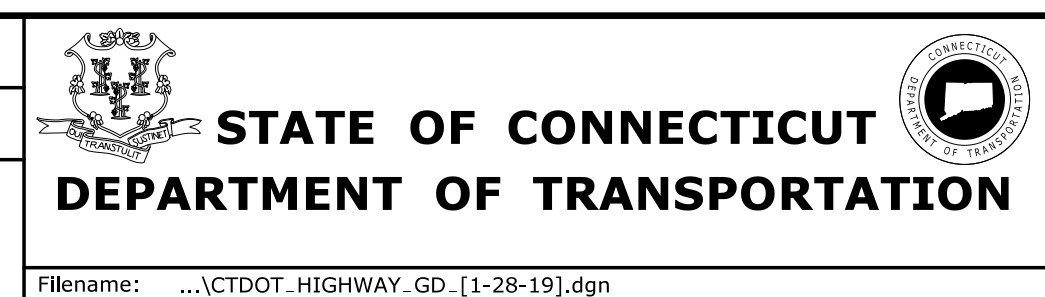


**PERPENDICULAR RAMP
WITH NON-WALKING SURFACE
(TYPE 19)**

DESIGN INITIATED CHANGE ORDER NO. Y - mm/dd/yy

REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 1/30/2019

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CHECKED BY:

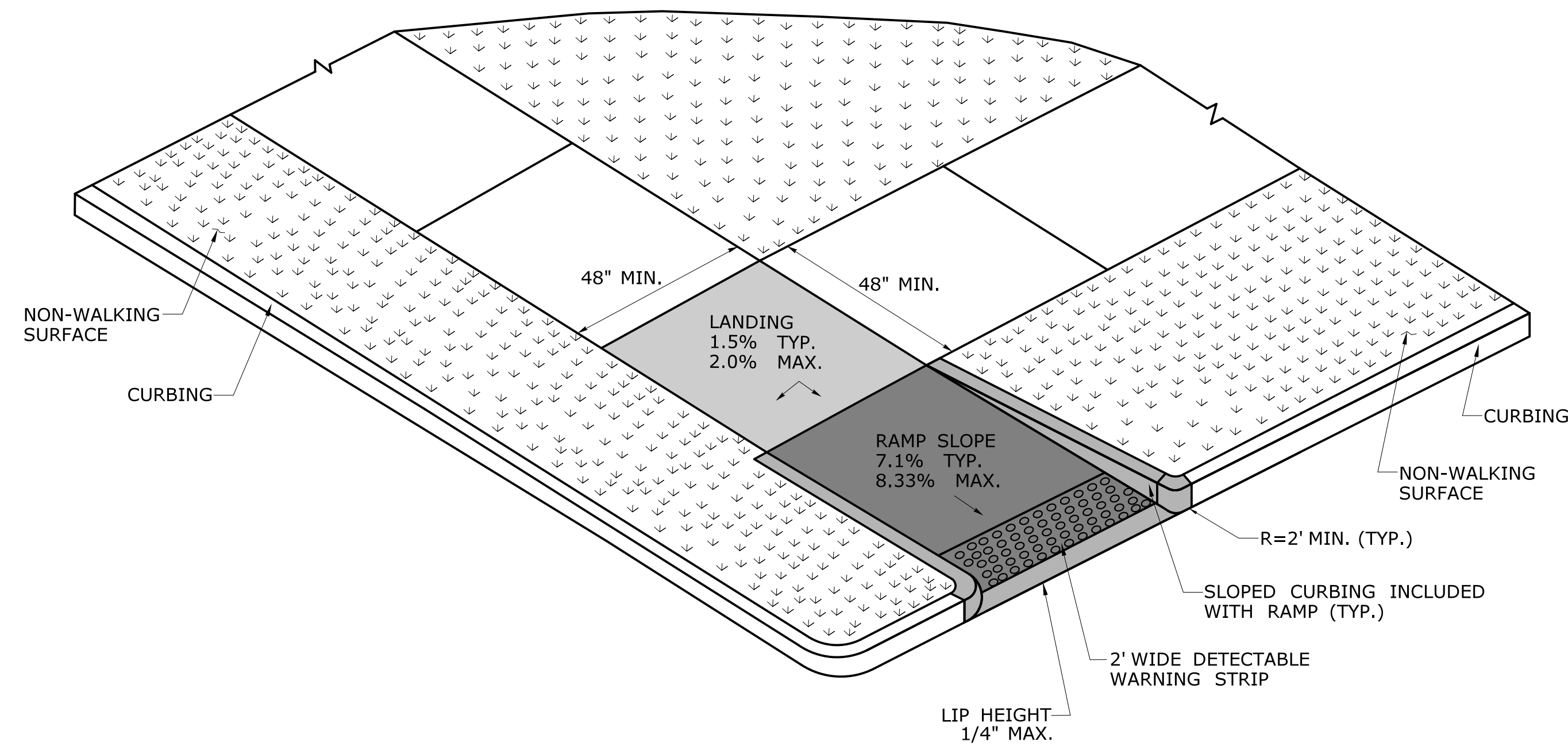


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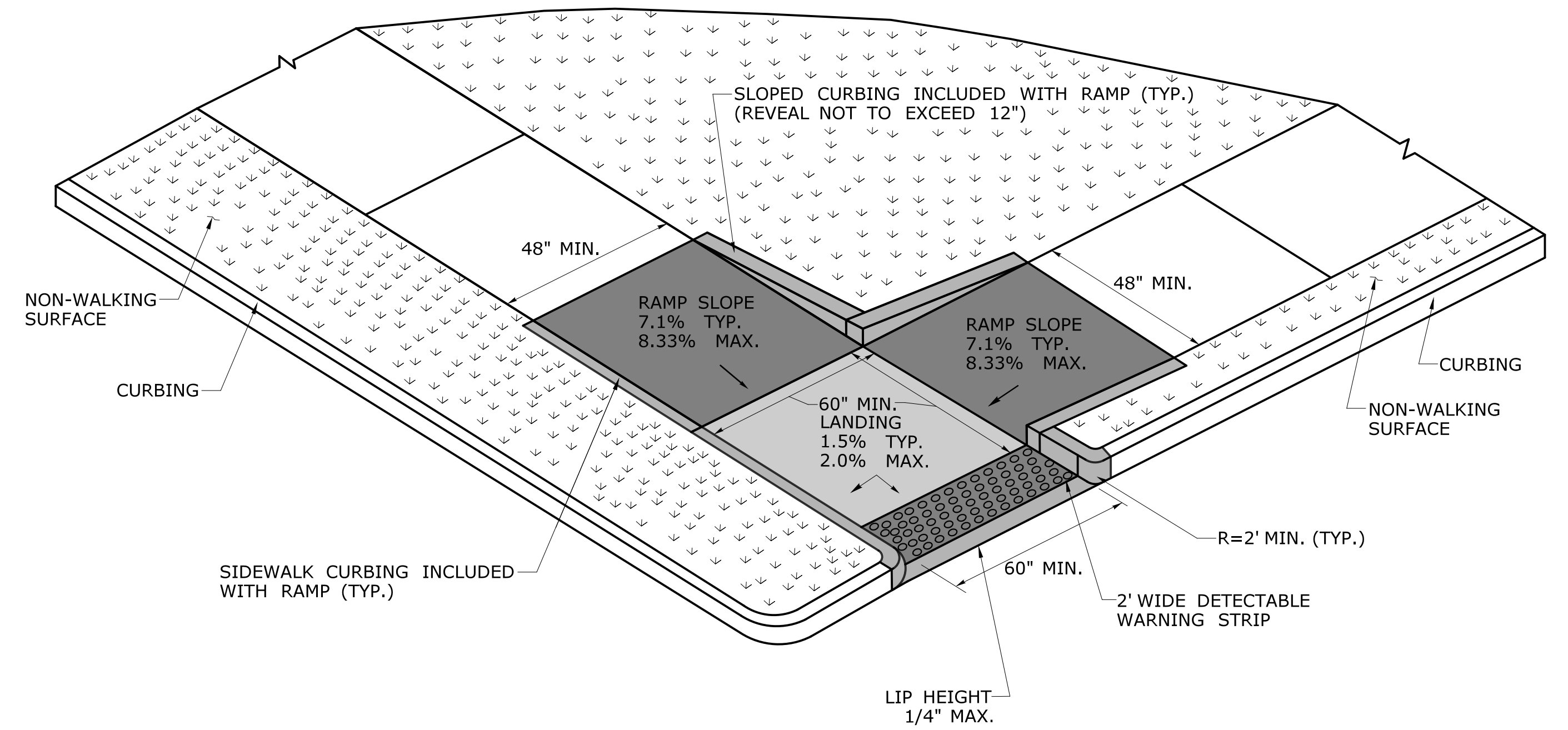
PROJECT TITLE:
TOWN:
DRAWING TITLE:
**CONCRETE SIDEWALK
RAMPS SHEET 7**

PROJECT NO.
DRAWING NO.
SHEET NO.

Filename: ... \CTDOT_HIGHWAY_GD_[1-28-19].dgn



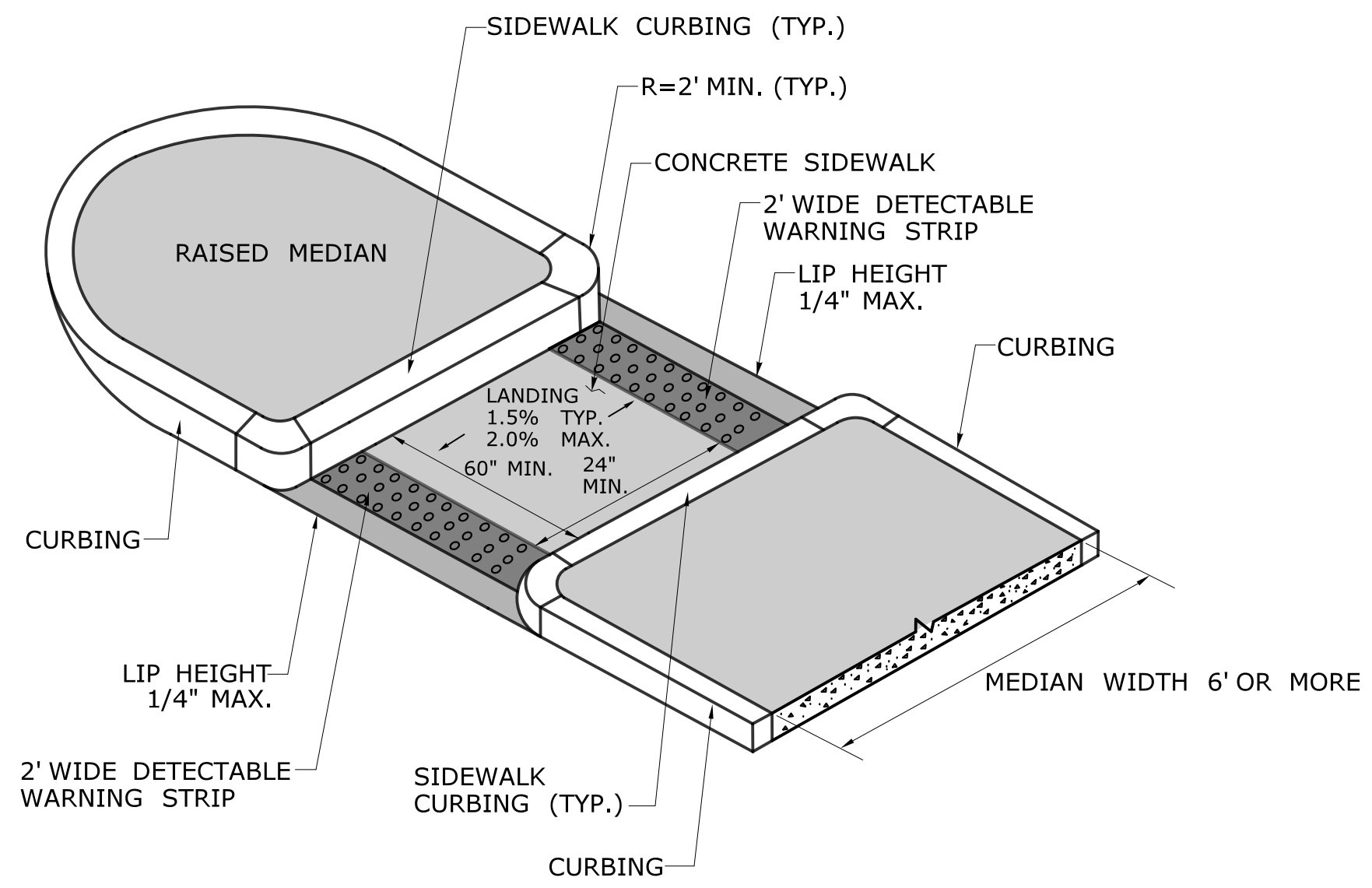
**RESTRICTED PEDESTRIAN CROSSING SIDEWALK RAMP
WITH NON-WALKING SURFACE
(TYPE 20)**



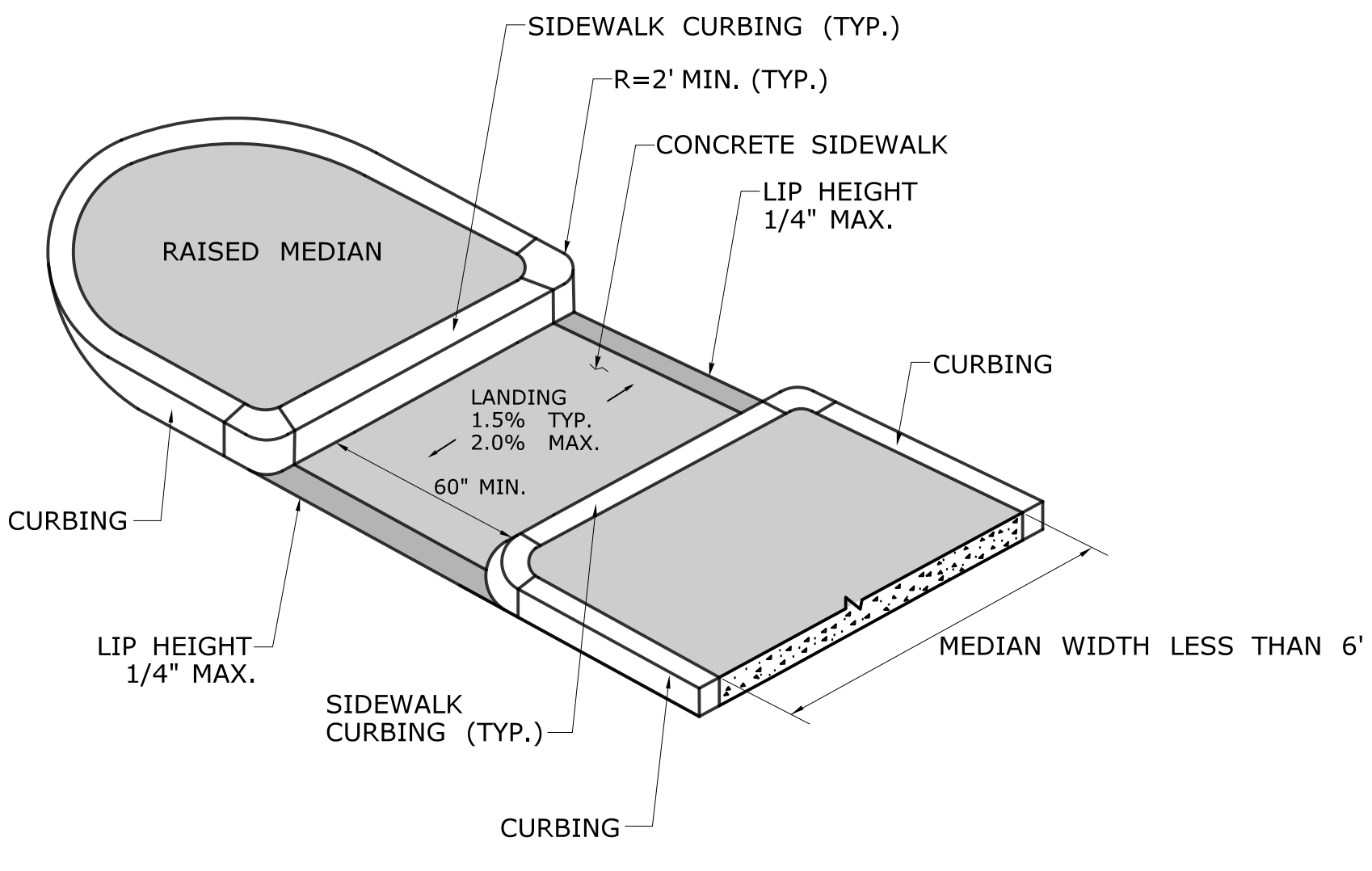
**RESTRICTED PEDESTRIAN CROSSING
WITH LANDING AT BOTTOM AND NON-WALKING SURFACE
(TYPE 21)**

DESIGN INITIATED CHANGE ORDER NO. Y - mm/dd/yy

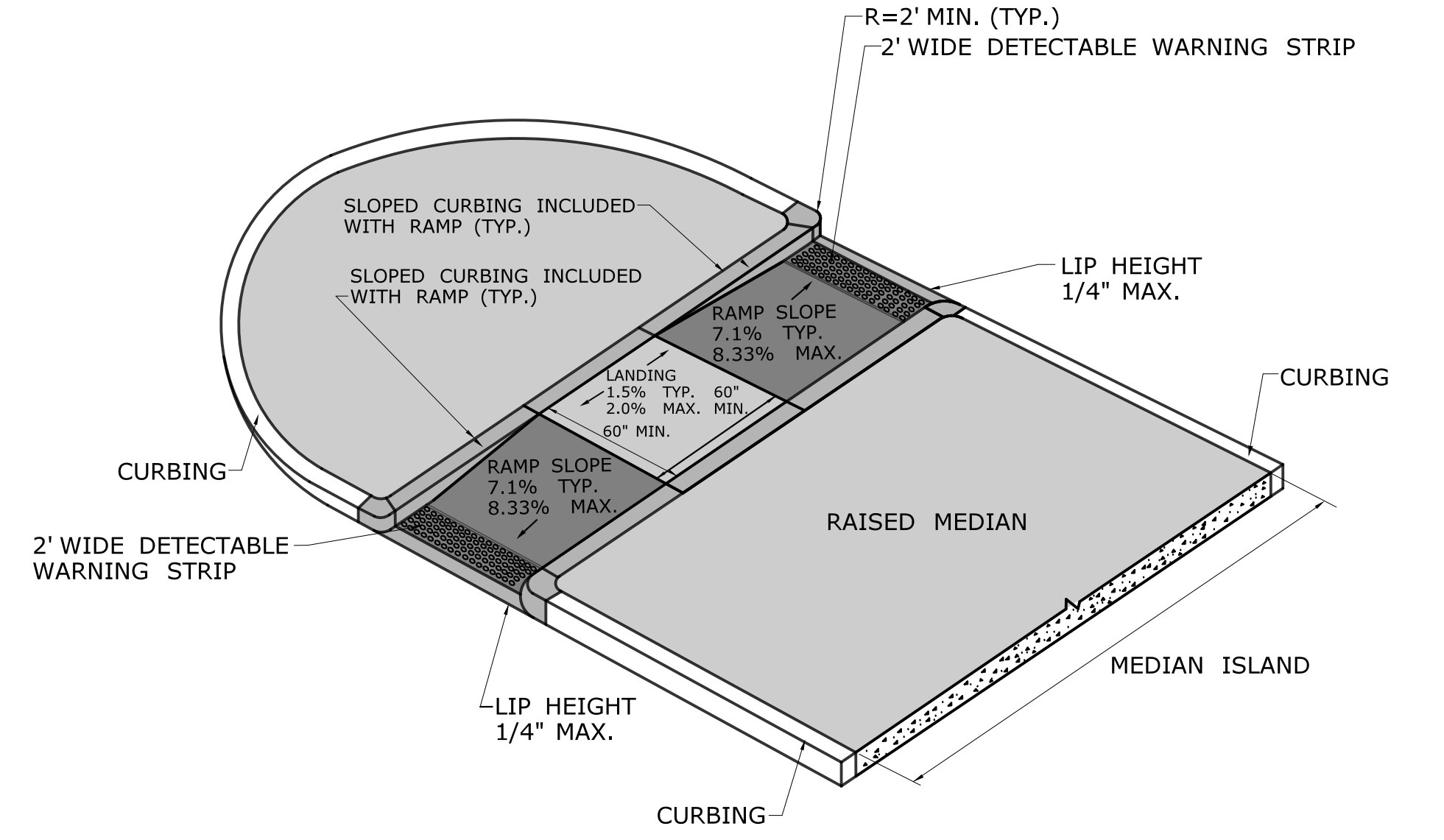
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REV.	DATE	REVISION DESCRIPTION		SHEET NO.	Plotted Date: 1/30/2019	CONCRETE SIDEWALK RAMPS SHEET 8	



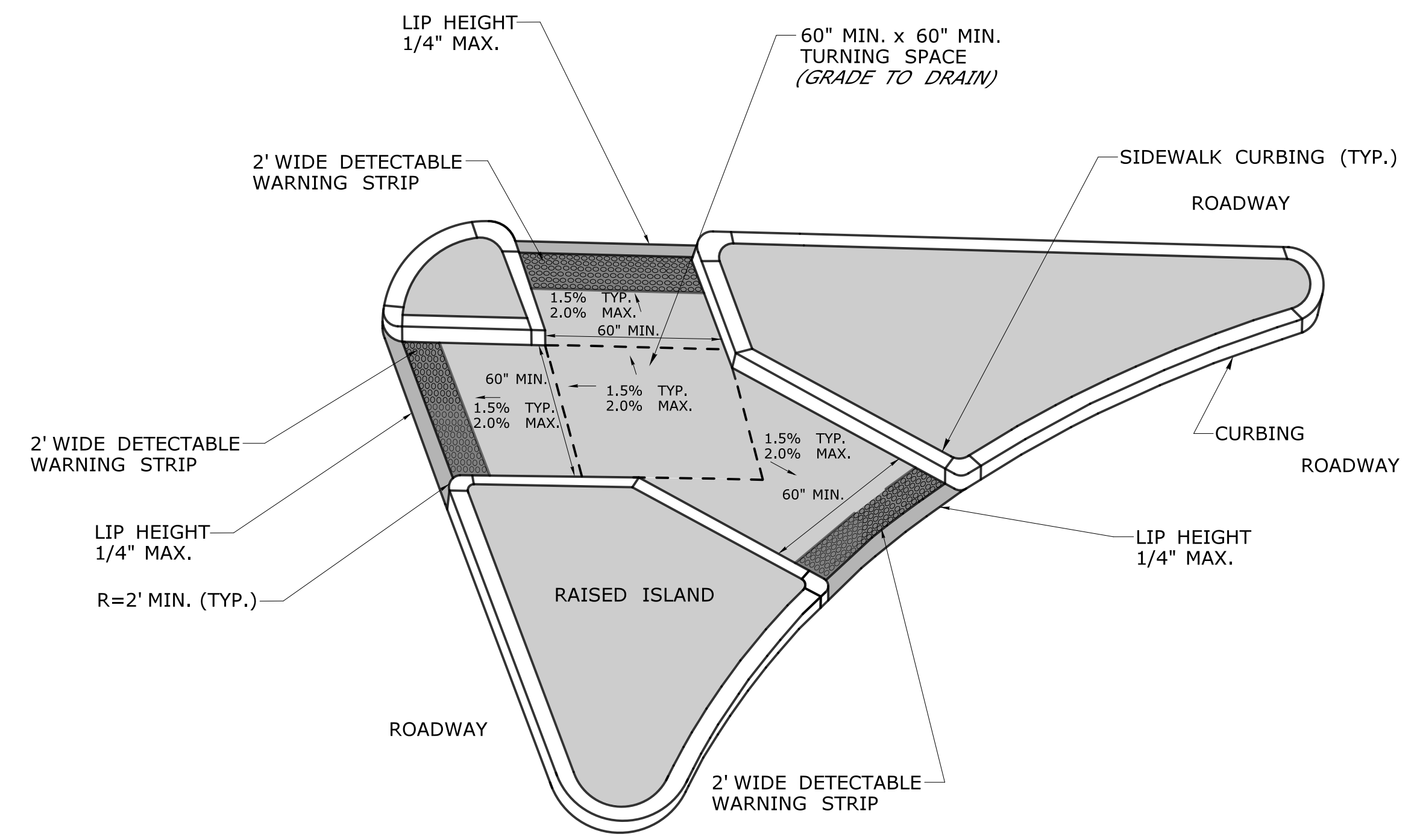
**CUT-THROUGH PEDESTRIAN REFUGE ISLAND
MEDIAN WIDTH 6' OR MORE
(TYPE 22)**



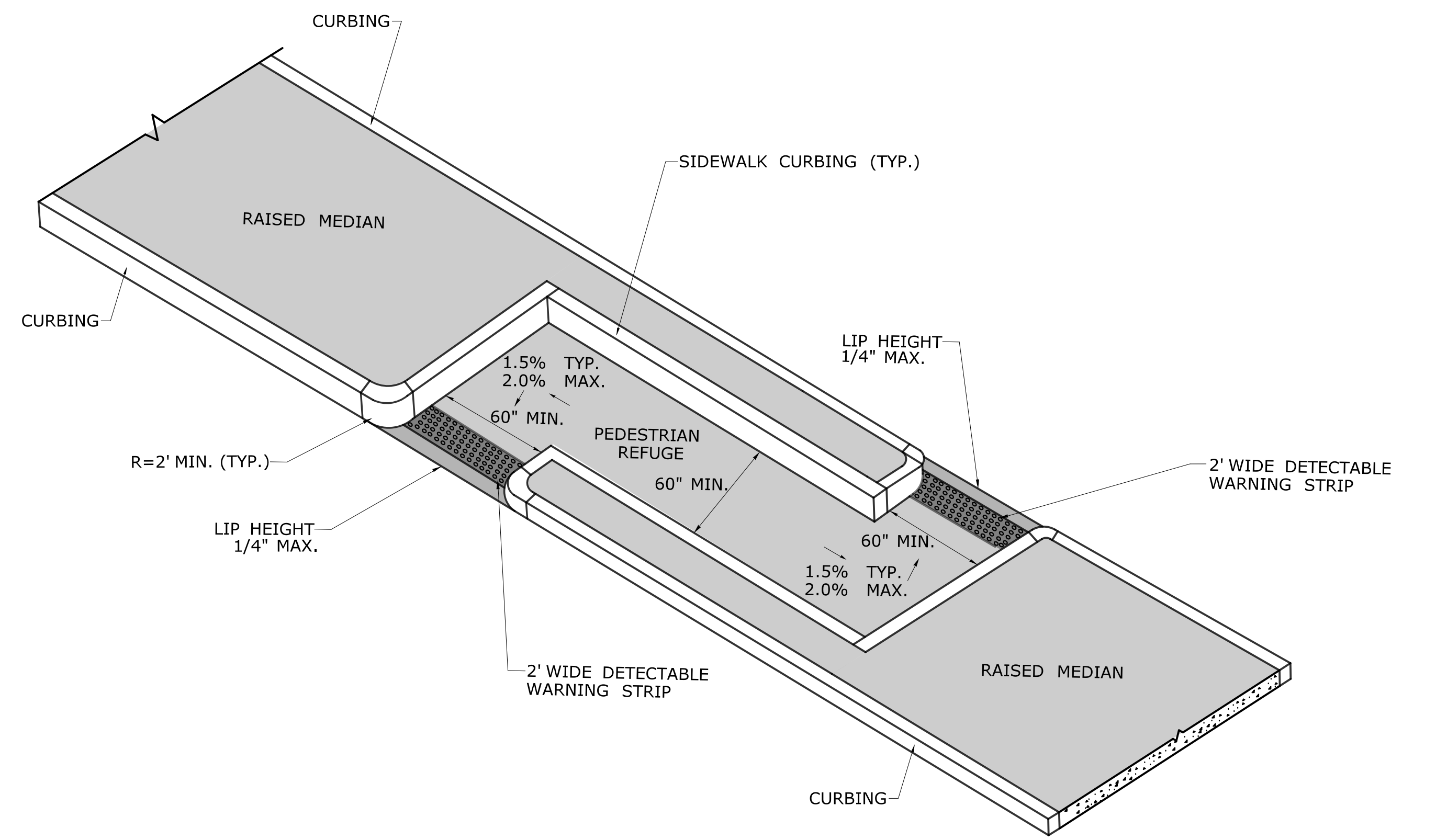
**CUT-THROUGH PEDESTRIAN REFUGE ISLAND
MEDIAN WIDTH LESS THAN 6'
(TYPE 23)**



**PEDESTRIAN REFUGE ISLAND WITH LANDING AND RAMPS
(TYPE 24)**



**CUT-THROUGH PEDESTRIAN REFUGE ISLAND
(TYPE 25)**

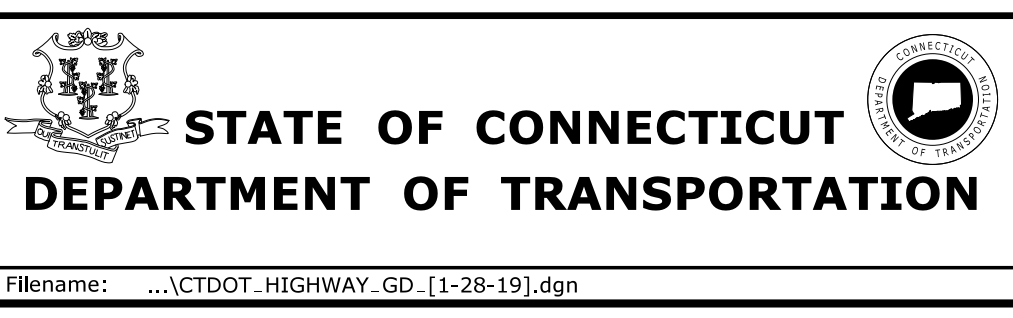


**CUT-THROUGH PEDESTRIAN REFUGE ISLAND
OFFSET CONFIGURATION
(TYPE 26)**

DESIGN INITIATED CHANGE ORDER NO. Y - mm/dd/yy

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

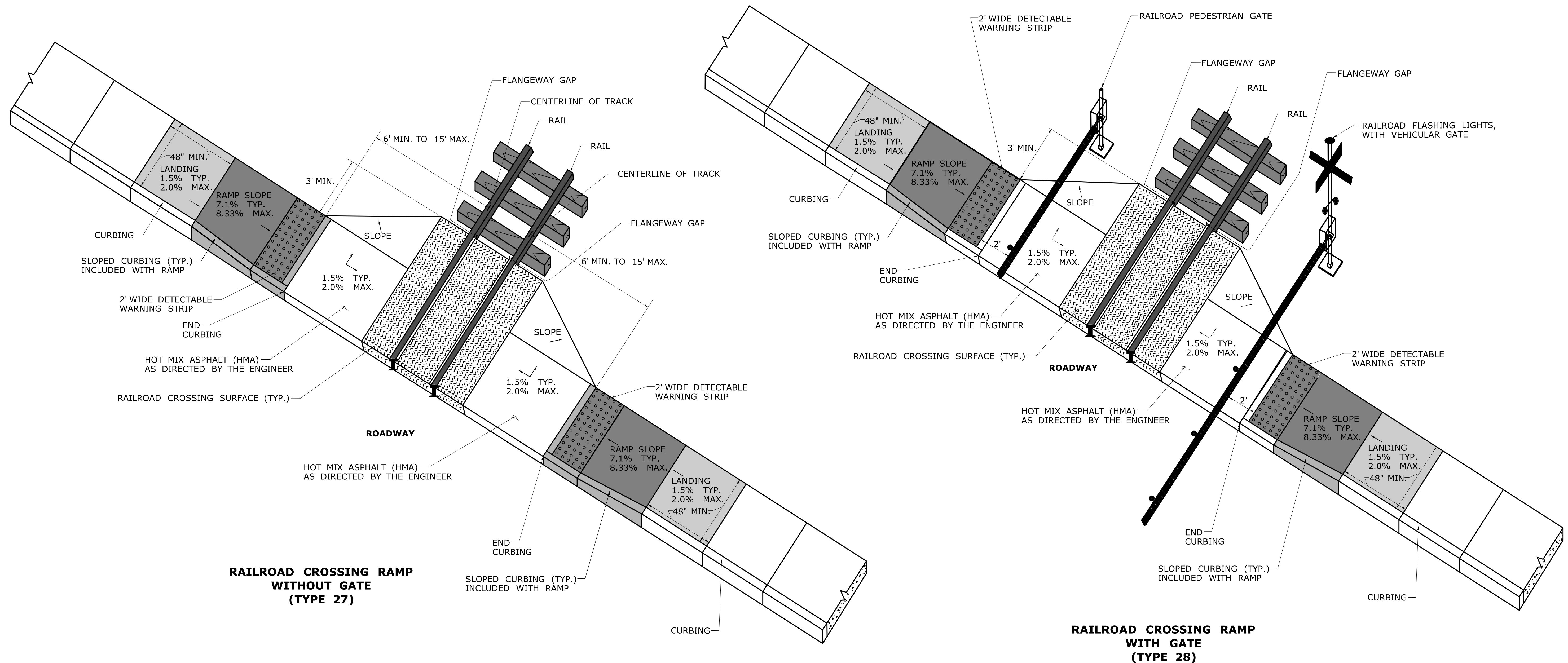
DESIGNER/DRAFTER:
CHECKED BY:
Plotted Date: 1/30/2019



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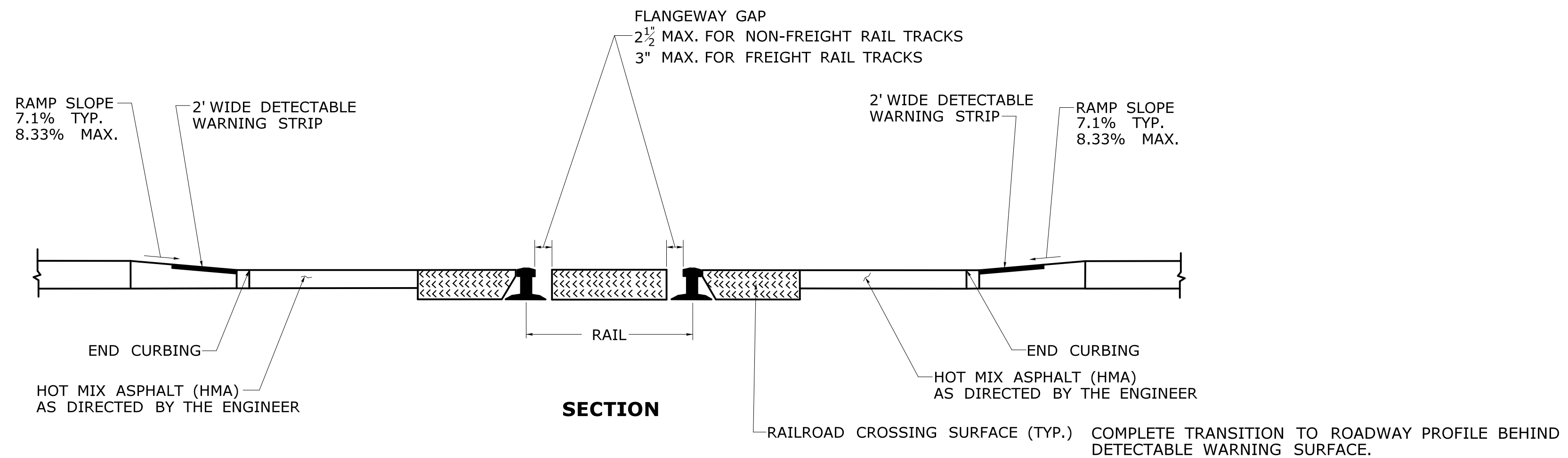
PROJECT TITLE:
TOWN:
DRAWING TITLE:
**CONCRETE SIDEWALK
RAMPS SHEET 9**

PROJECT NO.
DRAWING NO.
SHEET NO.



RAILROAD CROSSING RAMP WITHOUT GATE (TYPE 27)

RAILROAD CROSSING RAMP WITH GATE (TYPE 28)

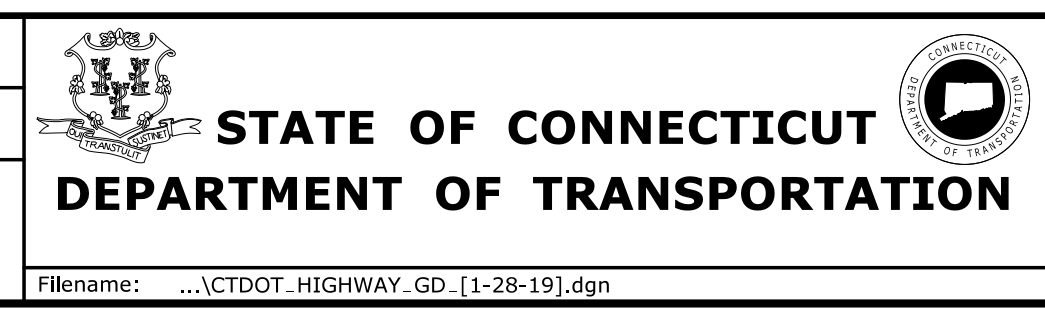


SECTION

DESIGN INITIATED CHANGE ORDER NO. Y - mm/dd/yy

REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 1/30/2019

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DRAWING TITLE:
**CONCRETE SIDEWALK
RAMPS SHEET 10**

PROJECT NO. -
DRAWING NO. -
SHEET NO. -